UNIVERSITY OF GEORGIA

147 Paul D. Coverdell Center for Biomedical and Health Sciences
500 D.W. Brooks Drive
Athens, Georgia 30602
TEL 706-542-5969 | FAX 706-542-5978
research.uga.edu

Office of Research

June 12, 2023

Dr. Jack Hu
Senior Vice President for Academic Affairs and Provost
203 Administration Building
220 S. Jackson St., Athens, GA 30602

Dear Provost Hu,

Consistent with the University of Georgia 4.13 Policy on Centers, I formally recommend the formation of the Center for Neurological Disease Research as proposed by Dr. Anumantha Kanthasamy. I have reviewed the proposal and find it meets the requirements outlined in the Policy on Centers. Additionally, this interdisciplinary Center would help establish the University of Georgia in the field of neurodegenerative disease research that aims to develop innovative therapeutics and early diagnostic tools for conditions such as Parkinson's and Alzheimer's disease-related dementia.

Sincerely,

Karen JL Burg

Karen J.L. Burg, Ph.D., FNAI, FBSE, FAIMBE
Vice President for Research

Attachments:

- Center for Neurological Disease Research Proposal
- Appendix 1: Letters of Support
- Appendix 2: Biographical Summaries of Core CNDR and Affiliated Faculty

cc: Lisa Nolan, Dean of the College of Veterinary Medicine

Anumantha Kanthasamy, Isakson Chair for Parkinson's Research and Georgia Research Alliance Eminent Scholar, Department of Physiology and Pharmacology

Gaylen Edwards, UGA Athletic Association Professor of Veterinary Medicine and Department Head of Physiology and Pharmacology

Center for Neurological Disease Research (CNDR)
The University of Georgia

Table of Contents

Center for Neurological Disease Research
CNDR

1 Narrative Statement

1.1 Introduction

Neurodegenerative diseases are characterized by the slow progressive loss of selectively vulnerable populations of neurons and the presence of intracellular protein aggregates, which often leads to devastating neurological deficits. Parkinson's disease (PD) and Alzheimer's disease (AD) are the most common neurodegenerative diseases worldwide, presenting a broad range of symptoms from motor dysfunctions to psychobehavioral manifestations, including dementia, primarily seen in the elderly. In the U.S., nearly one million and more than 6 million people of all ages are living with PD and AD, respectively, and approximately 60,000 and 500,000 new cases of PD and AD are diagnosed each year. Behind these aggregate figures are the terrible physical, mental and financial tolls that PD, AD, and similar diseases exact on sufferers as well as their families and society. The combined direct and indirect annual costs of PD and AD, including treatment, social security payments and lost income, are estimated to be $52 and $148 billion, respectively. As our population ages, these diseases become more prevalent and place an increased burden on medical systems and caregivers. To date, limited progress has been made in understanding, diagnosing, and treating these neurodegenerative diseases, and cures are nowhere in sight. Current treatments available for PD, AD and other related neurodegenerative diseases are at best symptomatic and fail to slow or prevent the progression of the neurodegenerative process, largely due to a poor mechanistic understanding of the increased susceptibility of selected populations of neurons to the degenerative process.

We propose to establish the Center for Neurological Disease Research **(CNDR)** at UGA. This initiative will address long-standing aspirations for the university to build a world-class interdisciplinary neurodegenerative disease center that aims to develop innovative therapeutics and early diagnostic tools. The CNDR will facilitate both basic and translational research to advance the discovery of disease mechanisms, early diagnostic biomarkers, and the development of treatment and prevention strategies for these devasting neurodegenerative diseases. Developing novel strategies for biomarker discovery and the treatment of neurodegenerative diseases requires the collaborative efforts of experts in diverse disciplines ranging from molecular cell biology, genetic engineering, brain imaging, AI-based big data analytics and stem cell applications to translational drug discovery. The establishment of a Center for Neurological Diseases will bring together teams of researchers who specialize in diverse disciplines and provides a platform to decipher underlying mechanisms and develop early diagnostic biomarkers and novel therapeutic strategies for the treatment of neurodegenerative diseases. The coordination and unification of researchers from diverse fields and the focused mission of the CNDR will also facilitate the procurement of research grants from federal and state agencies as well as public and private organizations.

With comprehensive strengths in biomedical, behavioral/social and animal sciences, as well as rapidly growing programs in computational sciences, precision medicine, and public health, UGA

is uniquely qualified to accommodate a new center for neurodegenerative disease research. Led by the John H. "Johnny" Isakson Chair for Parkinson's Research, Anumantha Kanthasamy, the CNDR has recently recruited a cluster of four outstanding tenure-track faculty researchers to join this expanded focus on neurodegenerative disease research at UGA. Dr. Arthi Kanthasamy has also been recruited to the center along with Dr. Anumantha Kanthasamy. Dr. Arthi Kanthasamy has a very active NIH-funded research program on neuroinflammation related to PD. Under the umbrella of the CNDR and Dr. Kanthasamy's leadership, these newly recruited faculty members will be sharing a large, state-of-the-art core lab equipped with cutting-edge tools and highly automated instrumentation for studying advanced mechanisms in cell, tissue, and animal models to accelerate the development of novel therapies and clinical trials. The CNDR core faculty will be integrated with a large cadre of current UGA faculty from across many disciplines including neuroscience, pharmacology, physiology, toxicology, biochemistry, and bioinformatics, as well as other centers including CMM, CCRC, CREM, CARE, CVI and CTSA. The assembled team of CNDR collaborators will employ multidisciplinary approaches from diverse fields including neurobiology, cell and molecular biology, genomics and epigenomics, personalized pharmacogenomic medicine, metabolic bioengineering, translational discovery, and computational neuroscience and neuro-translational informatics that can ultimately lead to novel mechanism-based therapeutic strategies and early diagnostic biomarker modalities. The CNDR will also actively partner with researchers at both national and international institutions to explore and expand the capabilities of CNDR's research program.

1.2 Mission and Functions

The mission of the proposed CNDR at UGA will be to assemble a highly collaborative interdisciplinary team of researchers with access to state-of-the-art resources that together can accelerate the drive for discovery and innovation in major neurodegenerative conditions including Parkinson's and Alzheimer's disease-related dementia. To be recognized as a world-class center for basic and translational research, the CNDR will (1) integrate the neurodegenerative-related faculty already present at UGA; (2) recruit new faculty with expertise in basic and translational neurodegenerative disease research; (3) build long-lasting regional, national, and international partnerships among major academic and corporate stakeholders; and (4) educate and train new scientists including graduate students, post-doctoral fellow and undergraduate research students specializing in basic and translational neuroscience and neurological diseases.

The CNDR will be housed within the College of Veterinary Medicine (CVM), and its home department will be the Department of Physiology and Pharmacology (PhysPharm) in CVM. The Center for Molecular Medicine (CMM) has been home to two research labs for CNDR core faculty since the beginning. They were just recently assigned adequate research space at the Coverdell research facility starting August 2024. The labs of the remaining four new CNDR faculty will be housed within the CVM on the UGA campus until 2025, at which time, they will relocate to the Coverdell facility, establishing Coverdell as the primary site of the Center.

To ensure that CNDR researchers have access to the cutting-edge tools needed to leverage CNDR's multidisciplinary team-science venture, the CNDR recognizes four main research thrust areas, namely, i) Disease Mechanisms, ii) Gene-Environment Interaction, iii) Translational Discovery, and iv) Partnerships and Outreach (Scheme-1). A multidisciplinary, integrative approach to these thrust areas will be accomplished by establishing several functional core labs, including a Mechanistic Core, a Biomarker Core, and a Translational Medicine Core with a precision medicine focus.

Besides conducting extramurally funded research, CNDR faculty will assume roles in teaching and mentoring undergraduate students including honors research students, graduate students, post-doctoral fellows, and junior faculty researchers. The CNDR will pursue training grants to competitively recruit and retain the most talented graduate students and postdoctoral fellows.

1.3 Center Development Plan

The CNDR will implement a three-phase plan to bring together the infrastructure, faculty, staff and students required to pursue its mission. Dr. Anumantha G Kanthasamy was recently recruited as Professor, inaugural John H. "Johnny" Isakson Chair for Parkinson's Research and Georgia Research Alliance Eminent Scholar. Dr. Kanthasamy was also recruited to be the founding director and first primary core faculty research member of a new center focused on neurodegenerative disease research. As a faculty member, Dr. Kanthasamy will report to the Chair of the Department of Physiology and Pharmacology, a post currently held by Dr. Gaylen Edwards, as CNDR Director, Dr. Kanthasamy will report to the Dean of the CVM, a post currently held by Dr. Lisa Nolan.

Phase 1: Infrastructure: Hire core faculty and develop the CNDR's core research thrust capabilities to initiate and coordinate its neurodegenerative disease research program at UGA. Provide adequate laboratory space and access to state-of-the-art equipment required by the center faculty.

Phase 2: Support: Extend support to ongoing neurodegenerative disease research at UGA.

Phase 3: Expansion and training: Coordinate the development and implementation of multi-institutional projects and training programs to further support researchers, postdoctoral fellows, and graduate and undergraduate students in neurodegenerative disease research.

Phase 1. Infrastructure (1-5 years, 1-2 years for faculty hires)

The following points highlight key steps in Phase 1 of the development plan.

Primary faculty. Primary faculty members will focus their research efforts on neurological disease mechanisms and developing early biomarkers and novel therapeutics. Dr. Arthi Kanthasamy has also been recruited to the center and she runs an NIH-funded independent research program targeting neuroinflammatory processes of neurodegenerative diseases. Dr. Vellareddy Anantharam has been employed as a research track professor in the center, and he coordinates the translational research program. In addition to Anumantha Kanthasamy, Arthi Kanthasamy and Vellareddy Anantharam, four primary faculty have already been recruited this year. Their labs will be initially housed in the CVM but will relocate to the Coverdell research facility in 2025, joining the initial hires that will move from CMM to Coverdell in 2024.

Facility. The CNDR is currently housed in CMM, but in 2024, it will relocate to the Coverdell research facility. The New faculty hires, Drs. Shaolin Liu, Greg Phillips, Jason Richardson, and Hui Zhang will be housed in CVM till 2025 (see above). All core faculty will ultimately be housed in Coverdell, giving the Center 'one address' and in a prominent location that is convenient to several relevant research cores. Currently, core faculty housed in CMM supervise 1 admin staff, 2 scientific staff, 2 research technicians, 1 post-doc, 16 graduate students, and 7 undergraduate students. The four new core faculty are expected to hire 20-24 graduate students, 6-8 scientific staff/post-docs, and 18-20 undergraduate research students. In total, the Center will have over 50 research personnel.

Seminar program. The seminar program will invite leading central nervous system (CNS) experts from other academic institutions as well as pharma R&D scientists to present their work and engage with the UGA community. To achieve broader appeal, some CNDR-hosted seminars will be jointly held with the PhysPharm and Neuroscience and CMM seminar series. Core faculty and their students housed in CMM have been participating in the CMM Journal club/seminar series since Fall 2021. In addition, CNDR will also hold an integrated seminar series with the McCamish Foundation, Georgia Tech and Emory University.

Grant-writing support. In addition to providing access to intellectual, administrative and scientific resources, the CNDR will assist participating faculty with their grant applications by providing access to data and analytical tools as well as feedback on proposal writing, including study design and descriptions of the research capabilities of CNDR co-investigators, facilities and equipment. The CNDR will continue to submit proposals to the NIH, DOD, Michael J Fox, and Parkinson's Foundations and Alzheimer's Association.

Promotion of CNDR research. The CNDR will promote UGA's international reputation in the areas of neurological disease mechanisms and early biomarker and novel drug discovery. To accomplish this, the CNDR will offer travel support for CNDR scientists

and faculty to visit researchers or represent UGA at national and international scientific gatherings. Such travel funding will be budgeted into CNDR research and training grants.

Phase 2. Support (2-3 years)

The following initiatives will be pursued to support and promote current neurodegenerative-related research within the UGA community. Funding will be provided by CNDR research and training grants.

Research and instrumentation support. The CNDR will provide technical, methodological and instrumentation support through the expertise of its faculty. Dr. Kanthasamy recently was awarded a $5 million HRSA grant for purchasing state-of-the-art instrumentation that will complement and enhance our existing equipment and staff resources currently available on campus for students, research scientists, and faculty working in neurological disease mechanisms and early biomarker and drug discovery. Most of this funding has recently been allocated to the startup costs of four new faculty hires within the center.

Professional development. The CNDR will establish a professional development program for researchers, particularly postdocs, staff scientists and graduate students. This program will promote best practices for scientific research and career opportunities related to neurodegenerative diseases. Also, the center faculty will assist graduate students and postdocs in securing F31, F32 and other fellowships. The CNDR will coordinate with other UGA offices, e.g., human resources, sponsored projects administration, and the graduate college, to promote and advertise training opportunities for improving skills in public speaking and interviewing as well as the writing of manuscripts, grants, and curriculum vitae.

Technical support. The CNDR will support the training of current and future technical personnel at UGA. The Center will also begin hiring additional technical staff during Phases I and II, as needed.

External Advisory Board. An external advisory board (EAB) will be instituted to provide advice and guidance to successfully establish the goals of the center. The EAB will comprise well-established neuroscientists, neurotoxicologists, neurologists with experience in clinical research, a Parkinson's Disease Foundation Board of Directors and Philanthropist, and a biopharma representative with experience in drug discovery. Allan Levey, MD, PhD, (Executive Associate Dean for Research, Director of Goizueta Alzheimer's Research Center and Brain Health Personalized Medicine Institute, Emory University School of Medicine); Gary Miller, PhD, (Vice Dean for Research Strategy and Innovation, Mailman School of Public Health, Columbia University, NY); Xuemei Huang, MD, PhD, (Director, Translational Brain Research Center, Penn State University-Milton S. Hershey Medical Center, PA); Michael Aschner, PhD, (Professor of Molecular Pharmacology, Albert Einstein College of Medicine, NY), Mr. James Gordon Beckham, Jr, (Chair of Board of Directors, Parkinson's Foundation, President of McCamish Foundation, Atlanta, GA) and Michael Conner, DVM, (Translational Research Expert,

Global Blood Therapeutics, UGA Distinguished Alumni Awardee, CA) have agreed to serve on EAB. The board will meet annually to provide scientific and programmatic input to CNDR.

Annual research retreat. This initiative will bring CNDR faculty, scientists, and students together in a relaxed and informal setting for discussing their own studies and the latest findings on current neurological disease mechanisms and early biomarker and drug discovery. A keynote speaker and symposium and poster sessions will be planned. By strengthening professional networks and nurturing ongoing and new collaborative efforts, the retreat will enhance the free flow of scientific and administrative information among the CNDR faculty and staff.

Phase 3. Expansion and Training (3-7 years)

During Phase 3 of the development plan, the CNDR will pursue competitive research and training grants including large program project grants and training grants to train graduate students and postdoctoral researchers.

Program Projects and other collaborative grants. After establishing the key research areas including Disease Mechanisms, Gene-Environment Interaction, and Translational Discovery, the center faculty thrusts will identify core strengths and prepare one or two program projects. The center will also explore applying for program projects, center grants and large U01-type translational program grants.

Graduate student recruitment and fellowships. By uniting a broad range of expertise under one center that proactively supports training grants, the CNDR will be in a strong position to attract and recruit highly talented graduate students. To accelerate methodological advancements in CNS and biomarker and drug discovery research, the CNDR will award fellowships that serve as "dissertation innovation grants". This additional supplemental funding will encourage doctoral students to pursue more innovative projects focused on biomarkers and translational strategies.

Undergraduate research experience. The CNDR will aim to annually support 20–30 undergraduate researchers tasked to conduct independent projects and CURO research studies.

Postdoctoral fellowships. This will be a competitive recruitment program designed to capitalize on the productive, yet short (1-3 years) postdoctoral stage in which newly minted Ph.D. graduates take their skills to other labs as they begin to transition to independent investigators. Being well-positioned to attract the most talented and productive postdocs will prove critical to advancing the CNDR's mission.

Community Outreach: The CNDR will partner with the UGA-Augusta medical partnership, CTSA at Emory and other regional centers with clinical neurology expertise for help in translating research findings into practice and leveraging existing collaborations with patient support groups as well as the news media. Dr. AG Kanthasamy has already established relationships with local

PD patient support chapters supported by the PD Foundation and the MJ Fox Foundation. The CNDR will also organize an annual PD symposium for PD patients to provide cutting-edge research information to PD patients and the news media. Lab tours will be organized for alumni and potential donors interested in neurodegenerative diseases.

1.4 Success Metrics and Center Review Process

The center will undergo its initial review three years after its establishment and then every five years thereafter. The review team will comprise the Associate Dean of Research, Associate VPR, and the Chairs of center core faculty members. The review report will be submitted to the CVM Dean and VPR.

The success metrics for the initial three-year review: The success metrics for the initial three-year review will focus on establishing the structural and operational components of the center and organizing a cohesive, highly productive, interdisciplinary collaborative research environment that addresses key research focus areas of the center.

Structural and operational component metrics: Under the guidance and support of the Dean and the VPR, the center director is expected to establish a cohesive research infrastructure that includes adequate research lab space and instruments for all six core CNDR faculty in the Coverdell research facility. Adequate support staff including an administrative assistant, a business manager and a dedicated pre-award coordinator will be established. Establishing strong structural and operational components is integral to the success of the CNDR. An external advisory board will be formed to provide annual feedback.

Metrics for establishing a productive interdisciplinary research collaboration: The center director will provide scientific and administrative leadership to establish unique thrust areas that will allow UGA CNDR to become a pre-eminent leader in neurodegenerative diseases. The center will prioritize three thrust areas: disease mechanisms, gene-environmental interactions, and microbiome-based translational research. Appropriate thrust leaders will be assigned to lead each thrust area: Drs. Arthi Kanthasamy and Shaolin Liu will lead the disease mechanisms with a specific focus on neuroinflammation and non-motor dysfunctions including olfactory dysfunction and dementia. Dr. Jason Richardson will lead gene-environmental interactions with a major focus on neurotoxicity, epigenetics, epitranscriptomics and metabolomics. Dr. Greg Phillips will lead the microbiome translational thrust with a specific interest in genetic engineering, systems biology and bioinformatics. Additional new CVM faculty hires Drs. Jayshree Samantha, Jonathan Mochel and Karin Allenspach-Jorn and affiliate faculty will be integrated into the three-core center to foster a highly productive, collaborative interdisciplinary environment. The center will have a structured seminar, journal club and joint lab meetings.
Specific quantitative metrics for the three-year review: $20-25 million research expenditure, ~25 graduate students and postdoctoral researchers, and over 30 peer-reviewed publications.

Five review metrics: After establishing the center, productive collaborations with Emory and the Medical College of Georgia, and other medical schools will be established to position the center to compete for NIH center grant opportunities. Program projects, multi-PI, and training grants will also be explored.

Specific metrics for five-year review: $35-40 million research expenditure, 35-40 graduate students and postdoctoral researchers, ~10 additional research personnel, over 50 peer-reviewed papers, and 2-3 patents. Other metrics included trainee job placement success in both the private sector and academia diversity metrics, and citation metrics.

Details of activities related to milestones of the center outlined below:

Within one year

- Establish leadership: The CNDR director has been chosen. Dr. Anumantha G Kanthasamy became a faculty member of UGA on October 1, 2021, in CVM's PhysPharm and has been leading the development of the CNDR. Dr. Kanthasamy has established national and international collaborations for collaborative research on disease mechanisms as well as alpha-synuclein aggregation biomarker discovery in different biomatrices of PD.
- Expand equipment inventory: Use the $5 million NIH HRSA Instrumentation grant to supplement faculty startups and to purchase state-of-the-art research equipment that can be used by multiple investigators.
- Establish a stable financial environment: A tentative budget for CNDR has been established based upon the indirect return dollars from a full complement of 6 core CNDR faculty. Actively pursue private donation opportunities with help from the UGA Foundation.
- Assist new faculty: Assist new faculty in setting up their lab at UGA, including two of the four new faculty who will be housed in CVM.
- Plan for monthly Center faculty meetings: Arrange monthly center faculty meetings and workshops.

Within two years

- Transfer two current UGA faculty from their present location to the new CNDR location in Coverdell Hall.
- Begin seminars and workshops: Leaders in CNS research from academia and pharma will be invited to UGA to instill competence in our early career scientists.

- Establish collaborative agreements with companies, academic centers and government agencies interested in neurological disease mechanisms and early biomarker and drug discovery. Dr. Kanthasamy has already been exploring collaborative partnerships with Dr. Kannan Natarajan at the Bioinformatics Institute; Dr. Steven Stice at the Regenerative Biosciences Center, UGA; Michael Tiemeyer, at CCRC; Dr. Lisa Renzi at the CARE Center; and Eileen Kennedy at Pharmacy School. He has also established collaborations with Drs. Allen Levey, Nick Seyfried, Stella Papa, and others at Emory University and with Dr. Garrett Stanley, Director of McCamish Neuroscience Research Program, Georgia Tech.

Within three years

- Submit additional new major grant applications from CNDR faculty. Submit multiple manuscripts for publication in peer-reviewed, high-impact journals related to neurodegeneration, neuroinflammation, and biomarker and drug discovery and development. Initiate a three-year review as outlined above and get feedback from the committee.

Within four years

- Submit two large collaborative grant applications. One grant with primarily CNDR research faculty and a second multi-institutional grant involving CNDR scientists at UGA collaborating with investigators at other institutions.

Within five years

- Rank the CNDR at UGA as a top choice for graduate students and post-doctoral fellows pursuing research careers in the study of neurological disease mechanisms and early biomarker and drug discovery. Achievement of this objective will be evaluated based on statistical indicators such as tracking the number of program inquiries and applications, job placement success in both the private sector and academia including post-doc positions, diversity metrics, publication and citation metrics, collaboration metrics, and self-reporting by post-docs and graduate students.

1.5 Benefits to UGA and Georgia Communities

A state-of-the-art facility for CNS research specializing in neurological disease mechanisms and early biomarker and drug discovery.

The development of long-lasting partnerships for scientific collaborations, funding and CNS biomarker and therapeutic development with pharmaceutical companies and government agencies.

Promoting innovation through the development of novel technologies, biomedical discoveries, and new biotechnology patents.

Start-up companies emerging from the biomarkers and therapeutics developed by CNDR.

Broad interdisciplinary support for university-based instruction and training of future scientists and business leaders.

The new CNDR will create and support many affiliated technical and non-technical jobs.

Training grants for the recruitment and retention of top trainees specializing in the rapidly growing disciplines of basic and translational brain sciences.

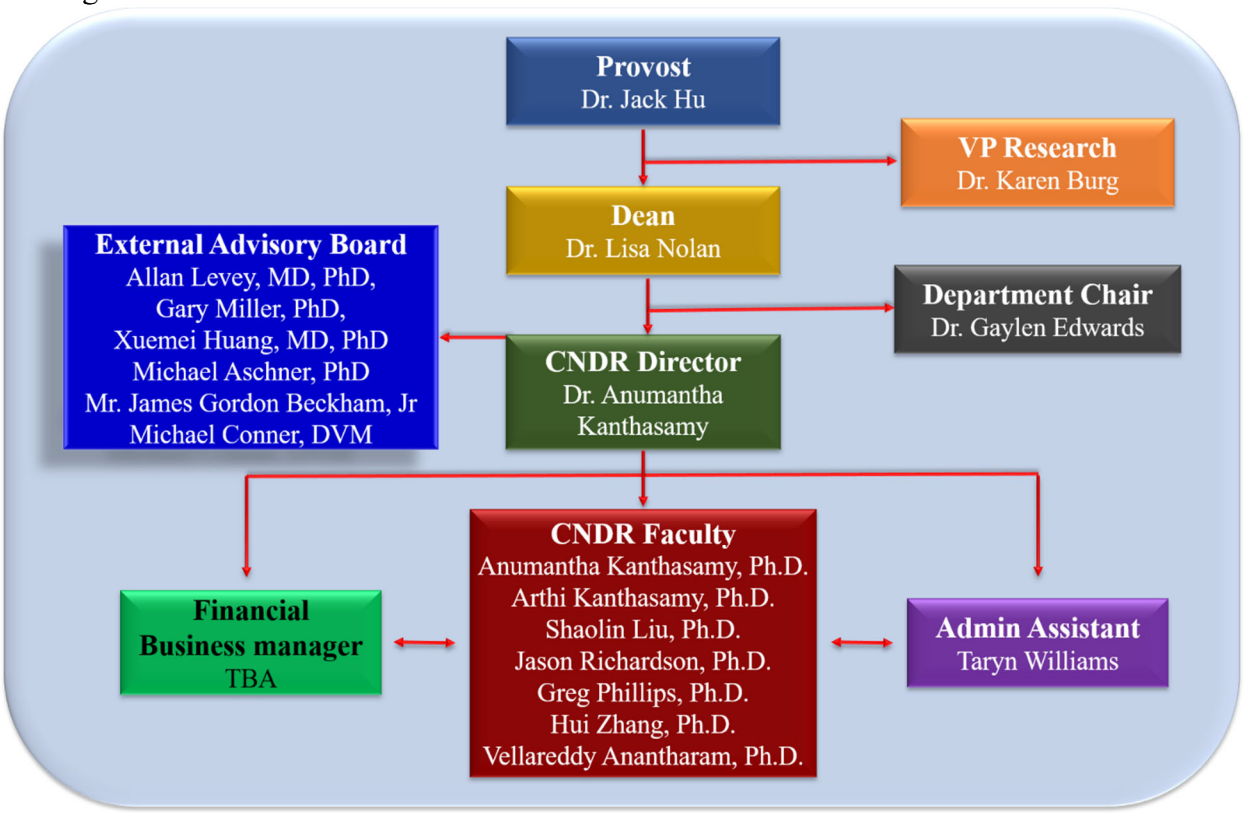
Improved prevention, detection, and therapeutic options for neurodegenerative diseases affecting Georgia residents, e.g., new biomarker diagnostic kits and novel therapeutics for patients with PD, AD and dementia. Volunteer patients from minority and rural communities will be recruited for biomarker discovery research.

UGA Foundation development opportunities will arise by engaging donors and alumni that are interested in supporting neurodegenerative diseases.

2 Operating Procedures and Policies

2.1 Organization and Administration

The CNDR will be physically located and organized within the CVM as its administrative unit. The organizational structure is outlined in the chart below:



The CNDR will comprise a director (appointed by the CVM dean and the Office of the Vice President of Research) and associated faculty members of PhysPharm, including postdoctoral fellows, graduate and undergraduate students, and staff. All interested faculty (including adjunct appointments), staff, and grad students associated with UGA will be eligible for membership. As an interdisciplinary center, any faculty member, regardless of their neuroscience background but willing to contribute to the center's goals, is eligible for membership. Joining CNDR will provide an opportunity to access the intellectual and physical resources of the center resulting in improved research productivity in terms of collaborative grants and papers. An internal advisory committee comprised of four elected members of the CNDR faculty will evaluate center operations including membership activity. Membership in the center will be determined by a majority vote of this committee plus the director and will be contingent on regular participation at CNDR faculty meetings. An annual retreat of all CNDR scientists will provide one essential setting for receiving critical feedback from participants on CNDR event planning as well as other CNDR business matters and opportunities. The CNDR will undergo its first comprehensive review after three years and then every five years thereafter, beginning in Spring 2024, by a committee appointed by the CVM dean.

2.2 Amounts and Sources of Anticipated Income

The CNDR will adopt a two-pronged business model. First, the CNDR's annual operating budget for core functions will be supported by indirect cost returns from CNDR faculty, with anticipated amounts indicated in the table below. The CVM administration has committed support for one financial assistant and administrative assistant for the first five years. After the initial five years, CNDR is expected to cover the staff salaries through IDC recovery. In the second prong, all research-related activities, including research staff, graduate students and postdocs, will be supported by project-specific funds awarded through applications to granting agencies and institutions (*e.g.,* NIH, DOD). The total grant amount generated by CNDR is listed below in this section. These two sources will maintain the financial stability of a fully functioning CNDR. The tables below outline a proforma budget for the operating expenditures and revenues for the first three years of the CNDR.

CNDR Anticipated Operating Costs

Expense Category	FY23	FY24	FY25
Administrative Assistant with benefits	$58,000	$58,000	$58,000
Financial Assistant plus benefits	$89,700	$89,700	$89,700
Seminar series	$15,000	$15,000	$15,000
Travel funds	$10,000	$10,000	$10,000
Annual Retreat	$5,000	$5,000	$5,000
Total Expenditures	$177,700	$177,700	$177,700

CNDR Anticipated Revenue IDCs and Foundation Funds Donors

Revenue Source	FY23	FY24	FY25
Indirect Cost Returns	$278,000	$278,000	$278,000
HRSA Community Instrumentation Grants	$2,000,000	1,500,000	$1,500,000
CVM staff salaries	$105,000	$105,000	$105,000
VPR office	$15,000	$15,000	$15,000
Total Revenue	$2,398,000	$1,898,000	$1,898,000

CNDR faculty grant funding details are provided below.

Administering Institute/Center	Projects	Total Funding
Anumantha Kanthasamy		
NIH	12	$20,448,848
MJFF	3	$519,519
DOD	2	$2,525,984
Arthi Kanthasamy		
NIH	2	$1,928,828

MJFF	1	$499,999
Jason Richardson		
NIH	5	$7,973,215
Hui Zhang		
NINDS	1	$2,000,000
Shaolin Liu		
NIH	1	$4,992,979
Greg Phillips		
DOD	2	$975,157
NIH	1	$386,879
USDA	2	$380,000
BFFCRA	1	$180,000
Total	**33**	**$42,811,408**

Salaries and start-up for new faculty from the Provost, VPR, Dean of CVM and GRA commitments.

Instrumentation for equipping core faculty research facilities and instrumentation startup accounts will be funded through a $5 million NIH HRSA instrumentation grant awarded to Dr. Anumantha G Kanthasamy in July 2022.

3 Responsibilities of Participating Units

The CNDR will receive oversight, review, and administrative and development support from CVM and PhysPharm. The CNDR director will report to the CVM dean.
All CNDR member faculty will retain their appointments in their participating home units. Promotion, tenure, and salary decisions will be made in the home unit according to unit criteria in consultation with the CNDR director. Salaries for all non-tenure track CNDR personnel will come from their respective research budgets.

4 Physical Resources

Research staff associated with the CNDR will be housed in the research groups of their faculty mentors. Core scientific laboratories, other core facilities, lecture, computer lab, and meeting spaces will be provided in the CMM and PhysPharm.

5 Faculty and Staff Resources During the First Five Years

Initiation of CNDR programs and maintenance of core center activities will be the responsibility of UGA faculty, research staff and students (see Section 6 for a list of participating faculties). As mentioned above, support for the two center staffers will initially be provided by CVM.

6 List of Participating Faculty

6.1 Primary Recruited Faculty

Once their onboarding process has been completed, the 7 newly recruited primary core CNDR faculty and their teams will work closely with CNDR-affiliated faculty in pursuit of the CNDR's mission. The first three core CNDR faculty are established at UGA (see section 6.2), including the proposed CNDR director, Dr. Anumantha G Kanthasamy. The recruitment of the remaining four positions has recently been completed. These newly recruited faculty will fill or expand the key expertise and requisite skill sets to firmly establish the capabilities of the CNDR. The critical areas of expertise include:

- Neuroinflammatory and neurodegenerative mechanisms.
- Gene-environment interaction in neurodegenerative diseases.
- dementia and other non-motor functions including olfactory dysfunction.
- Biomarkers and diagnostics.
- Translational and precision medicine.

6.2 Primary Existing Faculty

Core faculty who are already established at UGA and will join the CNDR and be housed within the CNDR include:

Anumantha G Kanthasamy, Ph.D.
Arthi Kanthasamy, Ph.D.
Vellareddy Anantharam, Ph.D.
Shaolin Liu, Ph.D.
Jason Richardson, Ph.D.
Greg Phillips, Ph.D.
Hui Zhang, Ph.D.

Their salaries are supported by the Provost, GRA, the John H. "Johnny" Isakson Chair for Parkinson's Research, CVM and other sources:

Expense Category	FY23	FY24	FY25
Shaolin Liu	$150,000	$150,000	$150,000
Jason Richardson	$250,000	$250,000	$250,000
Greg Phillips	$185,000	$185,000	$185,000
Hui Zhang	$110,000	$110,000	$110,000
Anumantha Kanthasamy	$300,000	$300,000	$300,000
Arthi Kanthasamy	$200,000	$200,000	$200,000

6.3 Secondary Existing Faculty

CNDR core faculty housed in their home departments who are already established at UGA and will join the CNDR include:

Gaylen Edwards, Ph.D.	Chair and Professor, Dept. of Physiology and Pharmacology
Jae-Kyung (Jamise) Lee, Ph.D.	Associate Professor, Dept. of Physiology and Pharmacology
Jarrod Call, Ph.D.	Associate Professor, Dept. of Physiology and Pharmacology
Jesse Shank, Ph.D.	Associate Professor, Dept. of Physiology and Pharmacology
John Wagner, Ph.D.	Professor, Dept. of Physiology and Pharmacology
Nikolay Filipov, Ph.D.	Professor, Dept. of Physiology and Pharmacology
Rabindranath LaFleunte, Ph.D.	Professor, Dept. of Physiology and Pharmacology

6.4 Affiliated Faculty

CNDR faculty will interact with a large community of UGA faculty researchers who have overlapping and complementary interests.

Karin Allenspach, DVM, Ph.D.	Professor, Pathology; Clinical Medicine, gastroenterology and Immunology
Deborah Barany, Ph.D.	Assistant Professor, Neuroscience
Michael Bartlett, Ph.D.	Professor, Pharmaceutical & Biomedical Sciences; Neuroscience
Haini Cai, Ph.D.	Associate Professor, Cellular Biology; Neuroscience
Brett A Clementz, Ph.D.	Professor, Departments of Psychology and Neuroscience, Director, BioImaging Research Center
Julie Coffield, Ph.D.	Associate Professor, Physiology and Pharmacology; Toxicology; Neuroscience
David Crich, Ph.D.	Department of Pharmaceutical and Biomedical Sciences, Affiliate Member, Center for Molecular Medicine.
Claire De La Serre, Ph.D.	Associate Professor, Nutritional Sciences
Art Edison, Ph.D.	GRA Eminent Scholar, CCRC, Professor of BMB/Genetics/IOB

Jonathan Eggenschwiler, Ph.D.	Associate Professor, Genetics; Neuroscience
Travis Glenn, Ph.D.	Professor, Bioinformatics; Toxicology
Tai L. Guo, Ph.D.	Professor, Toxicology; Neuroscience
Robert Haltiwanger, Ph.D.	Professor, Biochemistry & Molecular Biology; Neuroscience GRA Eminent Scholar in Biomedical Glycosciences
Billy Hammond, Ph.D.	Professor, Neuroscience
Gerald Hart, Ph.D.	Professor and GRA Eminent Scholar, Dept. of Biochemistry & Molecular Biology, Member, Complex Carbohydrate Research Center

Shelley Hooks, Ph.D.	Professor, Dept. of Pharmaceutical and Biomedical Sciences, College of Pharmacy, Interim Associate Department Head for Research and Faculty Development, Associate Vice President, Office of the VPR
Jesse Hostetter, Ph.D.	Professor and Chair of Pathology
Phil V Holmes, Ph.D.	Professor, Behavioral and Brain Sciences Program, Dept of Psychology, Medical Partnership Faculty
Natalia Ivanova, Ph.D.	Professor, Dept. of Genetics, Associate Member, Center for Molecular Medicine.
Daichi Kamiyama, Ph.D.	Assistant Professor, Cellular Biology; Neuroscience
Natarajan Kannan, Ph.D.	Professor of Biochemistry & Molecular Biology and Professor of the Institute of Bioinformatics
Lohitash Karumbaiah, Ph.D.	Professor, Department of Animal and Diary Science, member Regenerative Bioscience Center.
Eileen Kennedy, Ph.D.	Dr. Samuel C. Benedict Professor, Interim Associate Department Head, Dept. of Pharmaceutical and Biomedical Sciences
James Lauderdale, Ph.D.	Associate Professor, Cellular Biology; Neuroscience Program Chair
Dexi Liu, Ph.D.	Professor, Pharmaceutical and Biomedical Sciences; Neuroscience
Tianming Liu, Ph.D.	Professor, Bioinformatics; Neuroscience
Jennifer McDowell, Ph.D.	Professor, Neuroscience
L. Stephen Miller, Ph.D.	Director of Bio-imaging Research Center, Professor; Neuroscience
Jon Mochel, DVM, Ph.D.	Professor, Pathology; Pharmacology and Neuroscience
Puliyur MohanKumar, Ph.D.	Meigs Professor, Dept. of Biomedical Sciences
Sheba MohanKumar, Ph.D.	Professor, Dept. of Biomedical Sciences
Emily Noble, Ph.D.	Assistant Professor, Nutritional Sciences
Karen Norris, Ph.D.	Professor, Center for Vaccines and Immunology, Department of Infectious Diseases, GRA Eminent Scholar in Immunology/Translational Biomedicine
Assaf Oshri, Ph.D.	Associate Professor, Neuroscience
Lisa M. Renzi-Hammond, Ph.D.	Associate Professor, Department of Psychology, Co-director of Cognitive Aging Research and Education (CARE) Center
Arthur Roberts, Ph.D.	Professor, Pharmaceutical and Biomedical Sciences; Toxicology
Jayshree Samanta, Ph.D.	Assistant Professor, Biomedical Sciences, Myelin disorders
Fabio Santori, Ph.D.	Associate Research Scientist, Center for Molecular Medicine.
Walter K. Schmidt Jr., Ph.D.	Professor, Georgia Cancer Coalition Distinguished Scholar Biochemistry & Molecular Biology; Neuroscience
Ping Shen, Ph.D.	Associate Professor, Cellular Biology; Neuroscience

Steven Stice, Ph.D.	Professor, GRA Eminent Scholar, Dept. of Animal and Dairy Science, Director of the Regenerative Bioscience Center
Anne Summers, Ph.D.	Professor, Microbiology; Toxicology
Michael Tiemeyer, Ph.D.	Distinguished Research Professor, Co-director, Complex Carbohydrate Research Center, Interim Director, Center of Molecular Medicine
Lance Wells, Ph.D.	Distinguished Research Professor and GRA Distinguished Investigator, Dept. of Biochemistry & Molecular Biology, Director of Integrated Life Sciences, Member of Complex Carbohydrate Research Center
Franklin West, Ph.D.	Professor, Animal and Diary Science, Co-Chair, Regenerative Bioscience Center,
Catherine White, Ph.D.	Associate Professor, Pharmaceutical & Biomedical Sciences; Toxicology
Yao Yao, Ph.D.	Assistant Professor, Animal and Dairy Science, Member of the Regenerative Bioscience Center
Nada Zeltner, Ph.D.	Professor, Department of Cellular Biology and Department of Biochemistry and Molecular Biology, Associate Member, Center for Molecular Medicine.

7 Recommendations for the Creation of Courses or Degrees

This proposal makes no recommendations for the creation of courses or degrees.

8 Degree Programs

The UGA CNDR will not offer a degree program. However, CNDR faculty will actively participate in teaching undergraduate, graduate and DVM degree programs.

9 Appendix 1: Letters of Support

Dr. Gaylen Edwards, Chair, Department of Physiology and Pharmacology.

Dr. Lisa Nolan, Dean, College of Veterinary Medicine.

Dr. Anisa Zvonkovic, Dean, College of Family and Consumer Sciences

Dr. Nick Place, Dean, College of Agricultural and Environmental Sciences

Dr. Alan Dorsey, Dean, Franklin College of Arts and Sciences

10 Appendix 2: Biographical Summaries of Core CNDR and Affiliated Faculty

Center for Neurological Disease Research (CNDR)

The University of Georgia

Appendix 1: Letters of Support

UNIVERSITY OF GEORGIA

College Of Veterinary Medicine
Dean's Office
501 DW Brooks Drive
Athens, Georgia 30602
TEL 706-542-3461 | FAX 706-542-8254
www.vet.uga.edu

March 28, 2023

Board of Regents
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

To Whom It May Concern,

I write to you today to lend my strongest support to the proposal for the establishment of the Isakson Center for Neurological Disease Research (CNDR) on the University of Georgia campus. This effort is led by the holder of the Isakson Endowed Chair and Georgia Research Alliance Eminent Scholar, Dr. Anumantha Kanthasamy, a visionary scientist with an h-index of 73, whose research is known and respected around the world. His research accomplishments have garnered many awards and accolades, including his election as a Fellow of both the American Association for the Advancement of Science and the Academy of Toxicological Sciences. He has received the John Doull Accomplished Toxicologist Award and has recently been recognized as a Distinguished Toxicology Scholar. He has served as Past President of the Neurotoxicology Specialty Section of the Society of Toxicology and has been a permanent or chartered member of the NIH Brain Disorders and Clinical Neurosciences study section and the NIH Neurotoxicology study section. He has chaired or co-chaired multiple national or international meetings in his field, and his work has spun off businesses and patents and shown remarkable promise in treating Parkinson's Disease, a devastating neurodegenerative disease affecting millions around the world.

In addition to Dr. Kanthasamy's storied career as a scientist, he is an experienced and highly successful administrator and leader, who has fostered the careers of many young faculty, post-doctoral fellows, graduate and undergraduate students. In fact, before coming to the University of Georgia, he was an extremely successful Department Head at Iowa State University, who hired highly productive faculty and mentored them to success; developed new entrepreneurial educational programs; and led the Iowa Center for Advanced Neurotoxicology. Thus, he comes to the role as founding director of the Isakson CNDR with a great depth of relevant experience he can draw on in the years ahead. We are quite fortunate to have a scientist of his caliber, reputation, and experience with the leadership skills and vision to establish CNDR in Georgia.

Already, in the short time he has been on campus at UGA, he has established his laboratory, relocated his spin-off companies, and brought in many new, large extramural

grants to Georgia including the $5 million federal grant to aid in the development of CNDR. He has also hired a remarkable cadre of neuroscience faculty, stars in their fields, who will form the beating heart of CNDR along with other scientists on the UGA campus and in the state. All these newly hired scientists come to Georgia with major NIH funding that will be used to hire Georgians to work and learn in CDNR's laboratories. Besides the benefits of CDNR's work to the health of millions worldwide, CDNR will benefit Georgia's economy and further the education of hundreds of students over time.

Thus, the proposal to establish the Isakson CNDR has my unqualified and enthusiastic support. If you have any questions or need additional information, please let me know.

Sincerely,

Lisa K. Nolan, DVM, PhD
Georgia Athletics Association Distinguished Professor and Dean

UNIVERSITY OF GEORGIA

College of Veterinary Medicine
Department of Physiology & Pharmacology
Athens, Georgia 30602
TEL 706-542-3014 | FAX 706-542-3015
www.uga.edu

March 31, 2023

Board of Regents
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Board of Regents:

I am writing to provide my strongest support for the establishment of the Johnny Isakson Center for Neurological Disease Research (CNDR) at the University of Georgia. Neurodegenerative diseases such as Parkinson's Disease and Alzheimer's Disease are terrible diseases that place a significant physical, mental, and financial burden on sufferers of these diseases, as well as their families. Given the paucity of therapies and the poor prognosis, it is very important to study these diseases to develop a better understanding of disease mechanisms. Understanding the mechanisms will lead to potential treatments. Establishment of the CNDR will provide a home for a group of scientists focused on understanding and treating these debilitating neurodegenerative diseases.

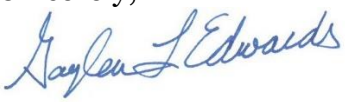
The Director for the CNDR is the Johnny Isakson Endowed Chair, Dr. Anumantha Kanthasamy. Dr. Kanthasamy is a very creative scientist whose work is respected around the world. Dr. Kanthasamy has received numerous awards and accolades. These include election as Fellow in the American Association for the Advancement of Science and the Academy of Toxicological Sciences. His awards include the Toxicology Career Award from the American Society for Pharmacology and Experimental Therapeutics and the Distinguished Toxicology Scholar Award from the Society for Toxicology in the past year. He has also served on numerous international and professional society committees. His is the Past President of the Neurotoxicology Specialty Section for the Society for Neurotoxicology. He has served as a Charter member of the NIH Brain Disorders and Clinical Neurosciences study section and a permanent member of the NIH Neurotoxicology and Alcohol Panel. These honors are testament to respect Dr. Kanthasamy has earned around the world.

Most importantly, Dr. Kanthasamy has a wealth of administrative experience. In addition to the experience with professional organizations, Dr. Kanthasamy served as the Director of the Iowa Center for Advanced Neurotoxicology and as the Department Chair for the Department of Biomedical Sciences in the College of Veterinary Medicine at Iowa State University. Since arriving at the University of Georgia, Dr. Kanthasamy has led a successful effort to recruit highly qualified faculty to support the CNDR. These faculty are very well funded by the National Institutes of Health and utilize cutting edge technologies in their research. More importantly, the new faculty are mid-career faculty who will contribute to the research effort at the University of Georgia for many years.

In summary, the CNDR is a much-needed research resource that studies devastating diseases of the nervous system. The Director of the Center will be Dr. Anumantha Kanthasamy. Dr. Kanthasamy is well respected internationally for his work on Parkinson's Disease and has a wealth of experience as a successful administrator. The CNDR will benefit the health of people all over the globe. Moreover, the CNDR will contribute to Georgia's economy through education of many students who will become medical professionals in the state.

The proposal to establish the Johnny Isakson Center for Neurological Disease Research has my whole-hearted, enthusiastic support. I look forward to working with the scientists at the CNDR.

Sincerely,



Gaylen L. Edwards, DVM, PhD
UGA Athletic Association Professor of Veterinary Medicine &
Department Head

UNIVERSITY OF GEORGIA

College of Family and Consumer Sciences

Dean's Office
224 Dawson Hall
305 Sanford Drive
Athens, Georgia 30602
TEL 706-542-4860
anisaz@uga.edu
www.fcs.uga.edu

May 25, 2023

Board of Regents
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

To Whom It May Concern:

I write in support of the proposal for the establishment of the Isakson Center for Neurological Disease Research (CNDR) on the University of Georgia campus. This effort is led by the holder of the Isakson Endowed Chair and Georgia Research Alliance Eminent Scholar, Dr. Anumantha Kanthasamy, a visionary scientist whose research is known and respected around the world. His research accomplishments have garnered many awards and accolades, including his election as a Fellow of both the American Association for the Advancement of Science and the Academy of Toxicological Sciences. His hire and role as founding director of the Isakson CNDR reflects so well on the University of Georgia and the University System of Georgia. In particular, he demonstrates the leadership skills and vision to establish CNDR in Georgia.

The CNDR is off to a great start with newly hired and existing researchers with major NIH funding that will be used to hire Georgians to work and learn in CDNR's laboratories. In my college, we have several faculty members focused on biobehavioral health across all stages of human development, who collaborate with the CNDR. This entity and the stature of the faculty involved in it help us to recruit even more top scholars whose work benefits the health of millions worldwide, and more proximally, benefit Georgia's economy and further the education of hundreds of students over time.

I am in full support of the Isakson Center. Its work will benefit faculty and students in diverse disciplines who are interested in basic and applied science and translational work. It will have broader impact beyond the identification and treatment of disease.

Sincerely,

Anisa M. Zvonkovic
Dean &
Georgia Athletic Association Professor in Family and Consumer Sciences

UNIVERSITY OF GEORGIA

College of Agricultural and Environmental Sciences

Office of the Dean and Director

May 23, 2023

Board of Regents
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Board of Regents,

I am writing to express my strong support for the establishment of the Isakson Center for Neurological Disease Research (CNDR) at the University of Georgia (UGA). With nearly 60,000 new cases of Parkinson's disease and 500,000 new cases of Alzheimer's disease each year, the impact that these, and other, neurological diseases have on our society is great, from personal impacts within families to larger societal impacts. As such, it is critical that we do everything within our power to support research that seeks to develop cures and treatments for these diseases, including the establishment of a permanent home for world-class researchers here at UGA.

UGA has continually increased our capacity for this work, with strengths in biomedical, behavioral/social and animal sciences, computational sciences, precision medicine and public health – these strengths will enable our research teams to better understand disease mechanisms, their early diagnostic markers, and treatment options that may prove effective for neurodegenerative diseases. The Isakson Chair, Anumantha Kanthasamy, is a prolific researcher who is respected throughout the scientific community and his leadership has already proven effective in recruiting and organizing the first faculty members for the CNDR. Dr. Kanthasamy's personal professional accomplishments, including his high rate of success in obtaining external funding for his research related to Parkinson's disease, provide an excellent environment for faculty members to thrive in their collaborations to study cell, tissue and animal models in the development of novel therapies.

By bringing together faculty members from across UGA's campus, the formal establishment of the CNDR will accelerate the work already being done to address this critically important issue, along with providing a strong platform for additional external funding and increased collaboration among disciplines.

I have full confidence that this effort will produce results that can propel us forward in better understanding neurological diseases, which will enable us to better care for those who suffer daily with the realities of Parkinson's and Alzheimer's diseases. I look forward to the opportunity for the College of Agricultural and Environmental Sciences to work with the CNDR upon its establishment.

Sincerely,

Nick T. Place, PhD
Dean and Director

101 Conner Hall | 147 Cedar Street | Athens, Georgia 30602 | Telephone 706-542-3924 | Fax 706-542-0803 | caesdean@uga.edu

UNIVERSITY OF GEORGIA

Old College
Athens, Georgia 30602
TEL 706-542-3400
www.franklin.uga.edu

Franklin College of Arts and Sciences
Office of the Dean

May 22, 2023

Board of Regents
University System of Georgia
270 Washington Street, SW
Atlanta, GA 30334

Dear Board of Regents:

I am writing to provide support for the establishment of the Johnny Isakson Center for Neurological Disease Research (CNDR) at the University of Georgia. The establishment of the CNDR will provide a consolidated center for a group of scientists focused on researching and treating debilitating neurodegenerative diseases.

The proposal to establish the Johnny Isakson Center for Neurological Disease Research has the support of Franklin College of Arts and sciences.

Sincerely,

Alan T. Dorsey
Dean

Center for Neurological Disease Research (CNDR)

The University of Georgia

Appendix 2: Biographical Summaries of Core CNDR and Affiliated Faculty.

ANUMANTHA G. KANTHASAMY, Ph.D.

CURRENT ADDRESS

Professor and John H. "Johnny" Isakson Endowed Chair in Parkinson's Disease
Georgia Research Alliance Eminent Scholar
Director, Center for Neurological Disease Research
Department of Physiology and Pharmacology
College of Veterinary Medicine
325 Riverbend Road
University of Georgia
Athens, Georgia 30602
Tel: 706-542-2380
e-mail: *Anumantha.Kanthasamy@uga.edu*

EDUCATION AND TRAINING

Postdoctoral training: Medicinal Chemistry & Molecular Pharmacology
(formerly Pharmacology & Toxicology), Purdue University, West Lafayette, Indiana, 1994
Ph.D., Biochemistry, 1989, University of Madras, India.
M.Phil., Biochemistry, 1986, University of Madras, India.
M.S., Biochemistry, 1984, University of Madras, India.
B.S., Chemistry, May 1981, University of Madras, India.

SIGNIFICANT EMPLOYMENT AND PROFESSIONAL EXPERIENCE

Sept 2021-	John H. "Johnny" Isakson Chair and Georgia Research Alliance Eminent Scholar, Department of Physiology and Pharmacology, College of Veterinary Medicine, University of Georgia, Athens
Sept 2021-	Director, Center for Neurological Disease Research, University of Georgia, Athens
2011- Aug 2021	Distinguished Professor, Eugene and Linda Lloyd Chair and Eminent Scholar in Neurotoxicology, Dept. of Biomedical Sciences, College of Veterinary Medicine, Iowa State University. In 2017, The Lloyd Endowment has been elevated to Lloyd Chair and Eminent Scholar.
July 2011-2019	Department Chair, Dept. of Biomedical Sciences, College of Veterinary Medicine, Iowa State University.
March 2010-2011	Associate Chair, Dept. of Biomedical Sciences, College of Veterinary Medicine, Iowa State University.
2008 – 2011	Distinguished Professor and Eugene and Linda Lloyd Chair in Neurotoxicology, Iowa State University.
2007 - 2008	Professor and Eugene and Linda Lloyd Endowed Chair in Neurotoxicology
2005 - 2007	Professor and Eugene & Linda Lloyd Endowed Professor in Neurotoxicology
2004 - 2008	Professor, Department of Biomedical Sciences, Iowa State University,
2006 - Present	Founder and Director, Iowa Center for Advanced Neurotoxicology
2002 - 2004	Associate Professor tenured, Department of Biomedical Sciences, Iowa State University, Ames, IA.

1999 - 2002	Associate Professor tenure-track, Parkinson's Disorder Research Program, Department of Biomedical Sciences, Iowa State University, Ames, IA.
2000 - 2009	Graduate Program Supervisory Committee Member, Interdepartmental Neuroscience Program, Iowa State University, Ames, IA.
2006 – Present	Faculty Member, Interdepartmental Molecular, Cellular and Developmental Biology Graduate Program, ISU.
2006 - Present	Faculty Member, Interdepartmental Immunobiology Graduate Program, ISU.
2002 - Present	Faculty Member, Interdepartmental Genetics Graduate Program, ISU
2002 - Present	Faculty Member, Gerontology Program, Iowa State University.
2002 - Present	Faculty Member, Center for Designing Foods to Improve Nutrition (CDFIN), Iowa State University.
1996 - 1999	Assistant Professor (Adjunct), Departments of Neurology, and Community and Environmental Medicine, University of California, Irvine, CA
1997 - 1999	Associate Director of Research, Long Beach Memorial Medical Center, Long Beach, CA
1994 - 1996	Researcher – IX, Dept. of Neurology, University of California Irvine, CA
1989 - 1994	Postdoctoral Research Associate, Dept. of Pharmacology & Toxicology, Purdue University, West Lafayette, IN
1985 - 1986	Research Fellow, Department of Biochemistry, Univ. of Madras, India
1982 - 1987	Scientist, Intrac Pharmaceuticals Ltd, Madras, India.

SCIENTIFIC CONTRIBUTION OF DR. ANUMANTHA KANTHASAMY

Dr. Anumantha Kanthasamy's research program has been at the forefront in unraveling novel cell and molecular signaling mechanisms underlying the neurotoxic effects of metal and pesticide exposures as they relate to the etiopathogenesis of chronic neurodegenerative disorders including Parkinson's and Alzheimer's diseases. His program has been continuously supported by multiple NIH grants from NIEHS and NINDS for over 20 years, and is currently funded by NIEHS, NINDS, and DoD grants. He has trained over 40 PhD students and his current research program employs over 25 researchers, largely comprising graduate students, to drive research projects in four major areas: 1) novel apoptotic and compensatory signaling activated during neurotoxic insult in the dopaminergic neurodegenerative process, 2) protein misfolding and neuroinflammatory mechanisms in neurotoxicity, 3) epigenetic reprogramming in neurotoxic stress, and 4) translational biomarker and engineered microbiome based drug discovery for Parkinson's and Alzheimer's diseases.

SIGNIFICANT ADMINISTRATIVE EXPERIENCE and INSTITUTIONAL SERVICE

Sept 2021- Present, Inaugural Director, Center for Neurological Disease Research, University of Georgia, Athens

Dr. Kanthasamy has recently been recruited to the University of Georgia to establish an interdisciplinary center on neurodegenerative diseases. The center will promote both basic and translational neuroscience research among neuroscientists, pharmacologists, computational sciences, and clinical researchers. The center will focus on high priority research areas including novel therapeutics, personalized medicine, and biomarker discovery. The director will recruit multiple new faculty members, provide strategic direction, setting and set up research priorities.

July 2011- October 2019. Department Chair, Department of Biomedical Sciences (BMS), College of Veterinary Medicine, Iowa State University,

Responsible for all academic activities, budget planning, strategic direction, faculty and staff recruitment and management, and daily operation. Completed a 9-year administrative service as the Department Executive officer. Expanded and elevated the department by recruiting seven new tenure track faculty including four new faculty members in the last two years. Also hired four TERM non-tenured faculty including Research Assistant and Associate Professors and Teaching Assistant and Associate Professors. Formalized team-based mentoring plan for junior faculty and successfully completed departmental external review. Established a unique one-year non-thesis MS Biomedical Sciences graduate program which graduated over 130 students in the last five years. This program generated over $2.0 Million new revenue for the department. Also, established a state-of-the-art human cadaver lab for the one-year non-thesis program. A new Pharmacology and Toxicology minor and a new undergraduate anatomy course were created. BMS department ranks one of top departments in NIH research extramural funding in the University. BMS faculty consistently receive several teaching awards in the college. Nominated for the best Department Chair Award.

2006 – 2021: Founder and Director, **Iowa Center for Advanced Neurotoxicology (ICAN),**

The ICAN center is established to promote both basic and translational neurotoxicological research among neuroscientists, pharmacologists, toxicologists in Iowa State University. Strategic direction, setting research priorities, seed funding review and administration, project productivity review, graduate student travel awards, supervision of a support staff and daily operations. The ICAN is one of highest NIH funded interdisciplinary center at ISU. Directed the Presidential Initiative Research program on Big Data Brain Initiative on Parkinson's and Alzheimer's disease as well as Chronic Traumatic Encephalopathy (CTE).

2003- 2011, Chair, Interdepartmental Toxicology Graduate Program, Iowa State University.
Responsibility: Overall management of the program, recruitment of graduate students, curriculum review and improvement, facilitation of rotations, monitoring progress, advising students, conflict resolution, meeting with Dean of graduate school, annual budget planning, preparation for external review documents.

2011- 2019: College of Veterinary Medicine Dean's Cabinet, Iowa State Univ.
Contributing overall administrative decisions in the College of Veterinary Medicine.

2010-2016: Member, Distinguished Professor Selection Committee, Office of the Provost, Iowa State Univ. Assisted in selecting several Distinguished Professors at ISU, Served two years as the Chair of the committee.

2010 – 2011 Member, Iowa State University President Selection Committee. Assisted in successful recruitment of President Steve Leath to Iowa State.

2017 Member, Associate Vice President for Search Committee. Assisted in successful recruitment of Jim Reecy and Surya Mallapragada.

2011 ISURF/OIPTT Director (Office of Technology Transfer) second Search, Iowa State University and Iowa State Research Foundation. Chair for References Search Subcommittee Lisa Lorenzen appointed.

2010-Present:	Confocal and Electron Microscopy facility faculty member representative.
2011	Veterinary Toxicologist Faculty Search Committee, VDPAM department, CVM, Iowa State University
2010	Dean Search Committee, College of Veterinary Medicine, Chair for References Search Subcommittee. Lisa Nolan appointed.
2010	ISURF/OIPTT Director (Office of Technology Transfer) search, Iowa State University and Iowa State Research Foundation.
2009	Faculty Search Committee, VDPAM department, CVM, ISU.
2009	Faculty Search Committee-Neurologist, Dep. of Veterinary Clinical Services
2008	Vice President for Research and Economic Development (VPRED) Search Committee, Iowa State University
2008	Associate Dean for Research, College of Veterinary Medicine, ISU.
2008	Department Chair Search Committee, Veterinary Clinical Sciences CVM, ISU
2009	Department Chair Search Committee, Veterinary Microbiology and Preventive Medicine, CVM, ISU
2006-2008	Biotechnology Council Member. The council members provide advisory support to the Director of Biotechnology council and Vice President for Research and Economic Development.
2000-2011	Member of Graduate Education and Research Committee, Department of Biomedical Sciences, ISU.
2000-2011	Member of Supervisory Committee for Interdepartmental Neuroscience Graduate Program, Iowa State University.
2002, 2004, 2006, 2007	Faculty Search Committees in Biomedical Sciences Department, Four search committees.
Fall 2007	Faculty search committee, Molecular Bacteriologist, Veterinary Diagnostics and Production Animal Medicine.
Spring 2007	Invited and hosted Nobel Laureate Stanley Prusiner to Iowa State University.
Fall 2007	Faculty search committee, Department of Animal Sciences, ISU.
Spring 2007	Faculty Search Committee, Veterinary Diagnostics and Production Animal Medicine.
2007	Bailey Research Award review committee, Office of Vice President for Research and Economic Development.
2007	Advisory panel on Research to Vice President for Research and Economic Development.
2006- Present:	Assisted ISU Foundation in many projects –movies, pictures and interviews related to fund rising activities, e.g. Research was highlighted Iowa State foundation Newsletters and at "The Order of Knoll" gathering and several other foundation activities.

2006	Bailey Research Award review committee, Office of Vice President for Research and Economic Development. Summer
2006	Budget task force for ISU-Nebraska co-operative agreement in Veterinary Education.
2006-2007	Presenter and Chair of the discussion group, NIH grant workshop organized by VPR office
April 2006	Building Manager Search Committee, College of Veterinary Medicine, ISU.
2001	Member USDA Formula Fund Grant Review Committee, College of Veterinary Medicine, Iowa State University.
2001	Member Carver Grant Review Committee – Biological Sciences, Iowa State University.
2001	Chair, Grant Review Panel, Healthy Livestock Initiative Competitive Grants Program, College of Veterinary Medicine, Iowa State University.
March 2000	Member, 2000-2005 Strategic Planning Committee, Department of Biomedical Sciences, Iowa State University.
2000-2003	Member, Research Advisor Committee, College of Veterinary Medicine, ISU.
2000	Member, Iowa Livestock Health Advisory Council Grant Review Committee, College of Veterinary Medicine, Iowa State University.

PROFESSIONAL HONORS/ AWARDS

Distinguished Toxicology Scholar Award, Society of Toxicology, 2022.

Elected Fellow of the National Academy of Inventors, 2022.

Metals Toxicology Career Achievement Award, Society of Toxicology, 2022.

Toxicology Career Award, American Society for Pharmacology & Exp. Therapeutics, 2022.

Inaugural Jonny Isakson Chair in Parkinson's Research, 2021.

Georgia Research Alliance Eminent Scholar, 2021.

Elected Fellow of the American Association of the Advancement of Science, 2015

Elected Fellow of the Academy of Toxicological Sciences Permanent Member, 2015

President, Neurotoxicology Specialty Section, Society of Toxicology. 2013 - 14

Vice President, Neurotoxicology Specialty Section, Society of Toxicology. 2012 - 13

Member, NIH-NINDS Translational Research NSD-B Study Section, 2016 – 2020. The panel reviews IGNITE, UO1 and other translational neurodegenerative grants.

Member, NIH-NIEHS, R35 RIVER Established Investigator Award Review panel, 2019-2020

Member, NIH-NINDS, NSD-C Program Project Study Section, 2012-2016

Chair, NIH study sections – two member conflict special emphasis panels, 2007-2009

Charted Member, CSR-NIH Study Section, Brain Disorders and Clinical Neurosciences, BDCN-1, 2000-2003

Permanent Member, NIH Study section, Neurotoxicology and Alcohol Panel. 2004 – 2008

Served as Adhoc Reviewers for over 20 NIH Study Review panels, Clinical Neuroscience and Disease (CND), Clinical Neuroimmunology and Brain Tumors (CNBT), Cell Death and Injury in Neurodegeneration (CDIN; formerly BDCN-3), Neural Oxidative Stress and Diseases (NOMD), BDCN-R BDCN-A, NSD-C, and other special emphasis panels. 2016-present.

John Doull Accomplished Toxicologist Award, Central State Society of Toxicology, 2011.

Co-Chair, Symposium on 'New Aspects of Manganese Toxicity in Animal Models and Cellular Functions' 28th International Neurotoxicology Conference, Manganese 16, Mount Sinai Medical School, New York, September 25-28, 2016.

Chair, Graduate Student Poster competition, 28th International Neurotoxicology Conference, Manganese 16, Mount Sinai Medical School, New York, September 25-28, 2016.

Chair, Graduate Student and Postdoctoral Fellow Poster competition, Society of Toxicology – Neurotoxicology Specialty Section, March 15, 2015. San Diego.

Co-Chair, Symposium on 'Protein Aggregation as the Common Mechanisms of Neurodegeneration' 50th Anniversary Society of Toxicology Annual Meeting, Washington DC, March 2011.

Chair, Postdoc Awards Committee, International Neurotoxicology Meeting, Portland, OR, June 2011.

Co-Chair, Workshop on 'Environmental Factors in Neurodegenerative Diseases, 52th Anniversary Society of Toxicology Annual Meeting, San Antonio, March 2013

Chair, Graduate Student and Postdoc Awards Committee, Association of Scientists of Indian Origin, Society of Toxicology, Mar 2011.

Chair, International Symposium on Advances in Neuroscience, Symposium on 'Molecular Cell Signaling and Transcriptional Regulatory Mechanisms in Neurodegeneration' Varanasi, India, 2007.

Co-chair, International Symposium on Health effects of manganese exposure, 23rd International Neurotoxicology Conference, Little Rock, AK. Sept 2006.

Chair, International Symposium on Environmental links to Neurodegenerative Disorders, 24th International Neurotoxicology meeting, San Antonio, TX, Nov 2007.

Pfizer Award for Research Excellence, College of Veterinary Medicine, 2004.

Chair, Symposium on 'Parkinson's Disease, Environment and Gene, 21st International Neurotoxicology meeting, Hawaii. July 2003.

Co-Chair, Continuing Education Course 'Current Trends in Metal Neurotoxicology, Society of Toxicology, 2003.

Chair, 3rd International Conference on Free Radicals in Health and Disease at Vancouver B.C., Canada, 1999-2000.

Chair, 2nd International Conference on Free Radicals in Health and Disease, Annual meetings at Vancouver B.C., Canada, 1998-1999.

Young Scientist Award, Association of Scientists of Indian Origin in America, Neuroscience Division. 2000.

Best Research Paper Award, European Society for Clinical Neuropharmacology Annual Meeting, Rome, Italy. 1996.

Young Investigator Travel Award, American Society of Pharmacology and Experimental Therapeutics, 1992.

GRANTS/CONTRACTS: Received over $60 Million Research Funding over the years:
ACTIVE

1. NIH-NIEHS R01 ES026892, Role: PI, '*Protein Aggregation and Inflammasome Signaling in Manganese Neurotoxicity',* 06/01/2016- 05/31/2022. The objective of this project is to determine the role of manganese in alpha-synuclein protein aggregation, cell to cell transmission of the protein aggregates through exosomal pathway and activation of proinflammatory inflammasome signaling.
2. NIH-NIEHS 1R01 ES027245, Role: PI, '*Novel Mechanisms of Pesticide-Induced Neurotoxicity',* 04/01/2017 – 03/31/2022. The goal of this project is to characterize the role of histone hyperacetylation in mitochondria inhibiting pesticide-induced nigrostriatal dopaminergic neuronal degeneration.
3. NIH-NINDS 1R01 NS100090, Role: PI, '*Neuroinflammation and microglial Kv1.3 in Parkinson's disease.'* 08/01/2017- 07/31/2022. The overall goal of our proposal is to characterize the role of Kv1.3 potassium channels in microglia activation and neuroinflammatory processes and their relevance to Parkinson's disease (PD) progression.
4. NIH/NINDS R01 NS121692, Kanthasamy Ar/Kanthasamy AG mPI. Compensatory Mitochondrial Protective Mechanisms Against Oxidative Stress in PD. 07/1/2022-6/302027. The overarching goal of this multi-PI proposal is to characterize a novel subcellular signaling

network underlying a compensatory cell survival pathway mediated by protein kinase D1 (PKD1) in cell and animal models of PD.

5. NIH/NINDS 1R61/R33NS112441, Kanthasamy, AG, Role: PI, NIH/NINDS. Novel Reengineered L-DOPA Probiotic Therapy for Parkinson's Disease. 07/01/20 – 6/30/24. The overall goal of this study is to evaluate the colonization, pharmacokinetics (PK), and pharmacodynamics of this novel reengineered probiotic EcNrhaL-DOPA in the MitoPark mouse model of Parkinson's disease and to explore its ability to alleviate symptoms and prevent LID in rodent models of PD.
6. NIH/NIA U01 AG074960, Role: PI Kanthasamy AG, Novel Reengineered Microbiome-Based Biologic Therapy to Treat Cognitive and Behavioral Symptoms of Alzheimer's Disease and Related Dementias. 07/1/2022-06/30/2027. The overall goal of our Alzheimer's Disease Drug Development Program proposal is to generate and optimize genetically engineered bacteria that can elevate brain norepinephrine and dopamine and to test its preclinical efficacy in alleviating cognitive and behavioral deficits, such as apathy, of early AD.
7. NIH/NIEHS RO1 ES034196, Role: Kanthasamy, AG/ Kanthasamy A, mPIs Role of Prokineticin 2 in Metal Neurotoxicity. 1/25/2023 – 10/31/2027. The overarching goal is to elucidate a novel compensatory neuroprotective mechanism of prokineticin 2 (PK2) signaling in environmental metal exposure models and to apply these findings toward translational strategies for ameliorating environmentally linked neurodegenerative diseases.
8. NIH/NINDS R01 NS124226, Kanthasamy, A/ Kanthasamy AG, mPIs. The Role of KCa3.1 in Microglial Function and in Parkinson's Disease Pathogenesis. 07/1/2021-06/30/2026. The proposal addresses the novel neuro-immune signaling events underlying the KCa3.1-mediated reactive microglial activation response, which in turn leads to the progression of the neurodegenerative process in Parkinson's disease (PD).
9. NIH/NINDS 1U01 NS112008-01, MPIs: Xuemei Huang and Kanthasamy, AG, Prospective Discovery of Multi-Domain Biomarkers for Parkinsonian Syndromes, 6/1/2019-5/31/2024. The goal of this proposal is to identify serum exosomal biomarkers that would be of importance in the clinical and differential diagnosis of PS, and in assessing potential disease-modifying therapies.
10. NIH/NIBIB, R01 EB026533, Ellington PI/Kanthasamy AG consort. PI. Synthetic Biology for Controlled Release. The goal of this proposal is to devise synthetic biology approaches for production of microbial metabolites in a controlled fashion. 5/1/2019-04/30/2023. The goal of this proposal is to devise synthetic biology approaches for production of microbial metabolites in a controlled fashion.
11. NIH/NINDS R01 NS118669, Beach/Adler/Kanthasamy, AG mPI, Blinded Comparison of Different Alpha-Synuclein Seeding Assays as Cutaneous Biomarkers of LBD. 07/01/2021-06/30/25. The goal of this study is to determine the pathological αSyn in skin biopsies of using RT-QuIC assay Parkinson's disease (PD) and dementia with Lewy bodies (DLB) patients.
12. NIH/NIA R01 AG067607, Kraus A/Kanthasamy AG consort. PI, Skin Biomarkers for Diagnosing and Characterizing AD and ADRD. 09/01/2021-08/30/2026.
13. NIH/NIEHS 1R01 ES 031124, Fleming S, PI; Role: subcontract collaborator, ATP13A2 and Susceptibility to Neurodegeneration. The goal of the proposed research is to determine the role of ATP13A2 in manganese-induced neurotoxicity and alpha-synuclein aggregation using wild-type and ATP13A2 knockout mice. 07/01/20 – 06/30/25.

14. DOD/CDMRP/PRP/IIRA, W81XWH1810106, Role: PI, '*Novel exosome based biomarker discovery for metal mixture exposure. Relevance to Parkinson's disease. Relevance to Parkinson's Disease', 07/01/2018-06/30/2021*. The goal is to evaluate the exosome-based metabolome biomarkers in Mn-V exposed animal models and validate them in samples from workers occupationally exposed to metals.
15. DOD/PRP/IIRA, W81XWH2010781, Role: PI, Characterization of RBC exosomes for Biomarker Discovery in Parkinson's Disease. 07/01/2020-05/31/2023. The goal is to evaluate the RBC exosomes for biomarker discovery in Parkinson's disease.
16. DOD/CDMRP/NETP/W81XWH-22-1-0608 Role: PI Kanthasamy AG. Novel Therapeutic Targeting of Neurotoxic Gut Microbiota-Derived Metabolites in Parkinson's Disease. 09/1/2022 - 06/30/2026. The goal of this proposal is to determine how the neurotoxic metabolic precursor TMA and its metabolites TMAO and FA generated during chronic gut microbial dysbiosis in PD patients trigger and augment PD neuropathology in animal models of gut dysbiosis and PD as well as clinical PD cohorts.
17. MJFF Multiple Biomarker grants for testing misfolded alpha-Synuclein in autopsied and biopsied Skin, SMG and CSF samples from Human PD and Healthy subjects 7/1/19 to 6/30/2023.
18. U.S. Department of Health and Human Services (HHS). Community Project Funding/Congressionally Directed Spending (CDS) funding by Health Resources and Services Administration (HRSA) to support facilities and equipment for the newly established Johnny Isakson Center for Neurological Disease Research (CNDR) at the University of Georgia (UGA). 07/1/2022- 6/30/2024

PAST

1. NIH-NINDS, R01 NS 074443, Role: PI, '*Oxidative Stress Induced Compensatory Protective Mechanisms in Parkinson's Disease*,' 06/01/2011- 03/31/2017. The overall goal of this project is to determine a protective cell signaling pathways associated with early stages of oxidative stress in cell culture, animal models and human PD tissues.
2. NIH-NIEHS, R01ES10586-13, Role: PI, *'Mechanisms of Manganese Neurotoxicity,'* 08/05/2000- 04/30/2017. The objective of this project is to compare the apoptotic cell death mechanisms in striato-pallidal neurons and nigral dopaminergic neurons following chronic exposure to manganese in cell culture and animal models.
3. NIH/NINDS 1R21 NS106495-A1 PI: Thippeswamy, T; Role: Co-I: Kanthasamy, AG, *Fyn Mediated Neuroinflammatory Signaling in Epileptogenesis,* 03/01/2019 – 02/28/2021. The goal of this proposal is to investigate the role of Fyn kinase in neuroinflammation, neurodegeneration and onset of spontaneous seizures in the rat kainate model of epilepsy.
4. Presidential Initiative grant, Big Data Brain Research, for 3 Years, 7/1/17-6/30/19. The goal of this proposal is to identify novel biomarkers for Parkinson's and Alzheimer's diseases using big data science analysis of brain imaging and body fluid data sets.
5. DESI -Mass Spectrometer, Role: PI: Anumantha Kanthasamy, Roy Carver Trust award, 9/1/17-3/30/19.
6. NIH-NIGMS, R01GM034883-27, Role: Co-I, PI: Narayan Avadhani, *'Role of Mitochondria-Targeted CYP2D6 in Chemical Toxicity*, 02/15/2015- 12/31/2018. Sub award $133,192. The

goal of this project is to determine the role of drug metabolizing enzyme CYP2D6 in experimental models of Parkinson's disease.

7. NIH-NINDS, R01; PI: Arthi Kanthasamy, Role: Co-I, *'Prokineticin2 and Neuroinflammatory Mechanisms in PD,*' 05/15/2012-04/30/2017, The main objective of this project is to determine role of PK2 signaling in experimental models of Parkinson's disease.
8. NIH-NIEHS, R01 Grant: R01 ES019267, Role: PI, *'Role of Prion Protein in Manganese Neurotoxicity,'* 07/09/2010-06/30/2016. The overall goal of this project is to determine the effect of manganese on prion protein upregulation and stabilization in cell culture and animal models and to examine the prion like neurodegenerative mechanisms in metal neurotoxicity.
9. NIH-NINDS, R01 Grant: R01NS039958-12, Role: PI, Multi-PI grant with Dr. Kalayanaraman, Medical University of Wisconsin, '*Neuroprotection by Mitochondria-Targeted Antioxidants*,' 04/01/2000-01/31/2015. The objective of the project to test the neuroprotective efficacy of novel mitochondria-targeted antioxidants in preclinical models of Parkinson's disease.
10. NIH-NIEHS ViCTER grant, Role: PI, '*Role of Prion Protein in Manganese Neurotoxicity*,' November 2011- October 14, 3 years. The overall goal of this project is to determine alpha-synuclein and prion protein interaction during divalent metal exposure in cell culture and animal models.
11. DoD, W81XWH1110700, Role: PI: Surya Mallapragada, *INNS: Integrated Neuroprotective and Neurodegenerative Strategies, 08/29/2011-06/28/2016.* The overall goal of the sub-project is to test novel neuroprotective agents in cell culture and animal models of traumatic brain injury.
12. NIH-NINDS, R01 Grant: R01NS065167-04; Role: PI: Arthi Kanthasamy, Role: Co-I: *'Neuroinflammatory Mechanisms in the Progression of Parkinson's Disease,*' 02/15/2009-01/30/2013. The main objective of this project is to determine role of novel kinase signaling mechanisms underlying inflammatory events in Parkinson's disease
13. DoD/MHRP- Vanderbilt University, Role: PI, *'Role of Manganese in Prion Disease Pathogenesis,'* Mar.07-Feb.11. The main objective of this project is to determine the role of manganese in prion diseases using cell culture models of prion diseases.
14. NIH-NINDS, R01, Role: PI, *'Neuroprotective Strategies in Oxidative Damage,'* April 1999-March 2010, The main objective of this project is to determine the role of non-receptor tyrosine kinases in oxidative stress-induced cell death mechanisms in nigral dopaminergic neurons and to develop neuroprotective strategies for Parkinson's disease
15. Boehringer Ingelheim Pharma GmbH&Co KG., Role: PI, *'Evaluation of Antimyoclonic Efficacy of Pramipexole in an Animal Model of Posthypoxic Myoclonus,'* Nov.06-May-08., The main objective of this project is to determine the efficacy of a pharmacological agent pramipexole against posthypoxic myoclonus using cardiac arrest induced global ischemic model.
16. Grow Iowa Value Fund, Iowa State University, Rosmarinic analogs as Novel Neuroprotective Agents. Aug-Dec 2012.
17. Invitrogen, Life Technologies, Carlsbad, CA. Evaluation of Novel ROS and Lipid Peroxidation sensors for determining oxidative damage in animal models of Parkinson's disease (PD). Jul-Dec 2012.

18. Biotherapeutix, Inc., Role: PI, *'Characterization of Neuroprotective Efficacy of BTX44 and its Analogs in the MPTP-induced Mouse Model of Parkinson's Disease,*' *June, 0*5-May-08. The main objective of this project is to test novel BTX agents in animal models of Parkinson's disease.

19. NIH-NINDS, R03, Role: Co-Investigator (PI: Arthi Kanthasamy), Role: Co-I, *'Oxidative Stress, PKC Activation and Striatal Ischemic Cell Death,*' Aug.06-July,08, The main objective of this project is to determine the role of PKC signaling during ischemia and dopamine induced oxidation in the striatal neurons.

20. Hematech Corporation, *'Evaluation of the Resistance of PrP-knockout Cattle to Prion Disease'*, Role: PI. The main objective of this project to examine the behavioural and neuropathological changes in prion knockout cattle.

21. NCRR: Role: PI: Dr. Mark Ackermann, CO-Investigator: Anumantha Kanthasamy, NIH Instrumentation grant, Confocal microscope, Oct. 2008, This NIH award is to purchase a multiphoton confocal microscope for Iowa State University

22. NIH-NINDS, R01, Role: PI, *'Caspases, Mitochondrial Function and Parkinson's Disease,'* Sept. 2003 – August 2007 (no-cost extension), The main objective of this project is to determine the effect of dieldrin (an environmental pesticide) on mitochondrial function, caspase cascade and alpha-synuclein aggregation.

23. Grow Iowa Value Fund Grant Program, Role: PI, *'Development of a Novel Gene Therapy Approach for Parkinson's Disease by Targeting a Cleavage Site of a Proapoptotic Kinase',* Nov-06-May-08, The main objective of this project is to develop a novel gene therapy approach for Parkinson's Disease by targeting a cleavage site of a PKCδ.

24. USDA-CDFIN *'The Effects of Phytic Acid in Animal Models of Parkinson's Disease'* (Role: Co-PI; PI: Manju Reddy, Dept. of Food Science and Human Nutrition), The main objective of this project is to determine the efficacy of phytic acid in MPTP-induced Parkinson's disease model.

25. NIH-NINDS, R01, Role: PI, *'Neuroprotective Strategies in Parkinson's Disease'* April 1999-March 2006. Successfully renewed competitive renewal application in 2006.

26. NIH-NIEHS, R01, Role: PI, *'MMT, Dopaminergic Degeneration, and Aging'*, August 2000-July 2005, Successfully renewed competitive renewal application in 2006.

27. Merck KGaA Pharmaceutical Company- Germany, Role: PI, *'Evaluation of Antimyoclonic Efficacy of EMD-281014 in an Animal Model of Posthypoxic Myoclonus',* October, 2002-January, 2005.

28. USDA-CDFIN, Co-Investigator (PI M. Reddy, FSHN), *Neuroprotective Effect of Soy Phytate in Cell Culture Models of Parkinson's Disease,* July 2005 –June 2006.

29. University Research Grant, Vice Provost for Research, ISU. *'Assessment of GM2 Ganglioside in the Pathogenesis of Murine MPS IIIB'.* 2005-2006. Role: Co-PI (PI, Matthew Ellwood, Dept. of Animal Science)

30. Iowa Livestock Health Advisory Council (ILHAC) grant, Role: PI, '*Molecular and Cellular Mechanisms Underlying Prion-PrP^{sc} –induced Neurodegeneration*', July 2003 – June 2006.

31. Merck KGaA Pharmaceutical Company- Germany, Role: PI, *'Evaluation of Antimyoclonic Efficacy of EMD-AK in an Animal Model of Posthypoxic Myoclonus',* May, 2001-January, 2002.

32. USDA, Collaborator, (PI Manju Reddy, FSHN), '*The effects of soy protein on antioxidant status of postmenopausal women*'.

33. USDA-CDFIN, Co-Investigator (PI M. Reddy, FSHN), *Neuroprotective Effect of Soy Phytate in an Animal Model of Parkinson's Disease,* July2004 –June 2005.

34. NIH-NIA, R13, Role: PI, *'3rd International Conference on Free Radicals in Health and Disease'*, Conference grant support, 2000-2001.

35. Merck KGaA Pharmaceutical Company- Germany, Role: PI, '*Evaluation of Antimyoclonic Efficacy of EMD-128130 in an Animal Model of Posthypoxic Myoclonus'*, May-2000-Nov. 2000

36. NIH-NIMH & NCI, R13, Role: PI, *'2nd International Conference on Free Radicals in Health and Disease'*, Conference grant support, June1999-Sept. 1999.

37. Myoclonus Research Foundation, Role: Co-PI, *'Characterization of Neurochemical Pathways in Posthypoxic Myoclonus'*, June 1999-May 2000.

38. Myoclonus Research Foundation, *'Glutamate and Serotonin Neurotransmitter Interactions in Posthypoxic Myoclonus'*, Role: Co-PI, June 1998-May 1999.

39. Memorial Health Sciences Foundation, *'Evaluation of Neuroprotective Properties of a Novel NMDA/glycine site Antagonist in an Animal Model of Cardiac Arrest-induced Neurological Deficits'*, Role: Co-PI, July 1998-June 1999.

40. Myoclonus Research Foundation, *'Serotonergic Neurotransmission in Posthypoxic Myoclonus'*, Myoclonus Research Foundation, June 1996-May 1997.

41. Myoclonus Research Foundation, *'Anatomical and Behavioral Correlates of Cardiac-arrest Induced Movement Disorder'*, CO-PI, Myoclonus Research Foundation, June 1997-May 1998.

42. American Parkinson's Disease Association, Role: PI, '*Excitotoxic Mechanisms of Neurodegeneration in Parkinson's Disease*', June 1996-May 1997.

COLLABORATORS/CONSULTANTS

NIH R01, "Role of brain iron accumulation and glymphatic function in Parkinson's disease dementia (PDD)." (PI: Xuemei Huang, Penn State Hersey Medical Center), Role: Collaborator, 2020-2025.

NIH R01, "Manipulation of type 2 immune responses by parasite extracellular vesicles." *neurotoxicity*' (PI: Michael Kimber, Iowa State University), Role: Collaborator. 2020-2026.

NIH R01, '*Role of endocannabinoids in organophosphate neurotoxicity*' (PI: Carey Pope Ph.D., Oklahoma State University), Role: Collaborator, Funded for Feb 2009- Jan 2014.

NIH NCRR, Grant for lab animal renovation, Role: Investigator, Over $3.0 million funded, 2011.

NIH R01, '*Role of MLK3 in neuronal apoptosis pathways*', (PI: Ajay Rana Ph.D., Loyola University Medical Center), Role: Collaborator, Funded for 2006-2011.

NIH K01, '*Effect of Systemic Inflammation on Novel Animal Models of Parkinson's Disease*', (PI: Dianne McFarlane, DVM, PhD, Oklahoma State University, OK), Role: External Mentor, Funded for 2007-2012.

NIH, Instrumentation grant, Confocal microscope, Role: Co-Investigator (PI: Dr. Mark Ackermann), 2009.

FELLOWSHIPS

1. '*Evaluation of Antimyoclonic Effect of Levetiracetam in An Animal Model of Posthypoxic Myoclonus'*, Research Supervisor, Summer Research Fellowship from the Myoclonus Research Foundation, 1999.
2. *'Role of 5HT-transporter in Posthypoxic Myoclonus'*, Research Supervisor, Summer Research Fellowship from the Myoclonus Research Foundation, 1999.
3. *'Effect of PCPA on an Animal Model of Posthypoxic Myoclonus'*, Research Supervisor, Summer Research Fellowship from the Myoclonus Research Foundation, 1998.
4. *'Effect of Lamotrigine on an Animal Model of Posthypoxic Myoclonus'*, $1,500, Research supervisor, Summer Research Fellowship from the Center for Advancement in Student Training (CAST) program, 1997.
5. *'Mechanisms of Neuroprotective Effect of Strychnine-insensitive Glycine Site Antagonists in an Experimental Parkinson's Model: Effects of Cellular Bioenergetic and MPP+ Biodisposition'*, Research Supervisor, Summer Research Fellowship from the Parkinson's Disease Foundation, 1997.
6. *'Antimyoclonic Effect of Riluzole on Experimental Model of Posthypoxic Myoclonus'*, Research Supervisor, Summer Research Fellowship from the Myoclonus Research Foundation, 1997.
7. *'Biochemical, Histological and Behavioral Characterization of Novel Strychnine-Insensitive Antagonists in Experimental Parkinson's Disease'*, Research Supervisor, Summer Research Fellowship from the Parkinson's Disease Foundation, 1996.
8. *'Effect of p, p'-DDT on Neurotransmitter Release and Uptake: Possible Implications for Myoclonus'*, Research Supervisor, Summer Research Fellowship from the Myoclonus Research Foundation, 1996.

INSTRUMENTS

Accrued a High through-put Analyzer (Axiom-HTS) from Axiom Biotechnology, San Diego, CA, Fall 2002.

Confocal Microscope NIH instrument support for Iowa State University, Spring 2005.

DESI -Mass Spectrometer, Role: PI: Anumantha Kanthasamy, Roy Carver Trust award, 9/1/17-3/30/19.

ECONOMIC DEVELOPMENT ACTIVITY/TRANSLATIONAL RESEARCH

- Started two biopharmaceutical companies named 'PK Biosciences' and 'Probiome Therapeutics' to develop therapeutic and diagnostic strategies for neurodegenerative diseases.
- Secured competitive funding from the Grow Iowa Value Fund Grant Program.
- Received a Phase-I Small Business Initiative Research (SBIR) to NIH. This is a collaborative partnership with Dr. George Kraus, Chemistry department, ISU. Submitted a Phase-II Small Business Initiative Research (SBIR) grant to NIH.
- Submitted a Translational R21 grant with Business Initiative Research (SBIR) grant to NIH and Dr. Rob Kerns of University of Iowa.
- Secured competitive funding from the Iowa State Regents Innovation Fund.
- Working with VPRED office to further enhance the translational and commercialization potentials of research discoveries.
- Secured SBIR P1 funding in Fall 2018, 2019, 2021.

PATENTS

1. Anumantha Kanthasamy et al, US patent application 62/635,983, titled "L-DOPA Microbiome Therapy", 1/15/19
2. Thippeswamy T and Kanthasamy, A., US patent application 11,000,524B2, titled "Tyrosine kinase inhibition as a treatment for epilepsy", May 11, 2021.
3. Anumantha Kanthasamy, Full patent issued: US 7,632,819 B1, 'Methods and Compositions for inhibiting PKC delta cleavage for treatment and prevention of neurodegeneration and apoptosis'. 12/15/ 2009.
4. Anumantha Kanthasamy and Arthi Kanthasamy, Full patent issued: US 2011/0059174 A1, 'PKCdelta regulates neuroinflammatory events,' 3/10/11
5. Anumantha G. Kanthasamy, Vellareddy Anantharam, and George Kraus, ISURF #03728 - Full patent issued: US8586768 B2. Design, Synthesis and Functional Characterization of Rottlerin Analogs. Patent Issue Nov 2013.
6. Anumantha Kanthasamy, Joy Joseph, Kalyanaraman Balaraman, Joint patent: ISU foundation and Medical College of Wisconsin, PCT/US2010/31296 "Neuroprotective Compounds & Their Use," publication no. WO 2010/126719, 11/4/2010.
7. Anumantha Kanthasamy, Richard Gordon and Arthi Kanthasamy, Patent Disclosure: ISURF #03927 - - Novel Methods and Compositions to Increase Astrocyte Glial Derived Neurotrophic Factor (GDNF) Production and Dopaminergic Neuron Survival-pending.
8. Anumantha Kanthasamy, Vellareddy Anantharam, Arthi Kanthasamy and George Kraus, Patent Disclosure ISURF #03891 - Kanthasamy, Anumantha - Design, Synthesis and Functional Characterization of a Novel Non-Receptor Tyrosine kinase inhibitor for Neuroprotection-pending
9. Anumantha Kanthasamy, Arunkumar Asaithambi, and Arthi Kanthasamy, ISURF #03920 - Kanthasamy, Anumantha G. - Design, Development and Functional Characterization of AKP-4 Peptide Modulators to Improve Mitochondrial Function and Block Neurodegeneration. Patent pending.

10. Anumantha Kanthasamy and Balaraman Kalyanaraman, ISURF 04417- Neuroprotection by mitochondria-targeted metformin. Full patent pending 2016.
11. Anumantha Kanthasamy and Arthi Kanthasamy, ISURF # 04431 - Kanthasamy - Anti-inflammatory effect of orally active Fyn kinase inhibitor Saracatinib (AZD0530) against Parkinson's disease and other related neurodegenerative diseases. Full patent pending, 2016.

PEER REVIWED PUBLICATIONS over 200 (h-index 72, i10-index: 183)

1. Huang M, Bargues-Carot A, Riaz Z, Wickham H, Zenitsky G, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG** (2022). Impact of Environmental Risk Factors on Mitochondrial Dysfunction, Neuroinflammation, Protein Misfolding, and Oxidative Stress in the Etiopathogenesis of Parkinson's Disease. Int J Mol Sci. 2022 Sep 16;23(18):10808. PMCID: PMC9505762.
2. Palanisamy BN, Sarkar S, Malovic E, Samidurai M, Charli A, Zenitsky G, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG**, 2021. Environmental neurotoxic pesticide exposure induces gut inflammation and enteric neuronal degeneration by impairing enteric glial mitochondrial function in pesticide models of Parkinson's disease: Potential relevance to gut-brain axis inflammation in Parkinson's disease pathogenesis. Int J Biochem Cell Biol. Jun; 147:106225. PMID: 35550926.
3. Schlichtmann, BW, Hepker H, Palanisamy BN, John M, Anantharam V, **Kanthasamy AG**, Narasimhan B, Mallapragada SK, 2021. Nanotechnology-Mediated Therapeutic Strategies Against Synucleinopathies In Neurodegenerative Disease. Curr Opin Chem Eng. Mar; 31:100673. PMID: 35419254.
4. Vinithakumari AA, Padhi P, Hernandez B, Je-Han Lin S, Dunkerson-Kurzhumov A, Showman L, Breitzman M, Stokes C, Sulaiman Y, Tangudu C, Kuttappan DA, Muyyarikkandy MS, Willette AA, Phillips GJ, Anantharam, V, Perera A, Sponseller BA, **Kanthasamy AG**, Mooyottu S, 2022. Clostridioides difficile Infection Dysregulates Brain Dopamine Metabolism. Microbiol Spectr. Apr 27; 10(2):e0007322. PMID: 35323033.
5. Padhi P, Worth C, Zenitsky G, Jin H, Sambamurti K, Anantharam V, Kanthasamy A, **Kanthasamy AG,** 2022. Mechanistic Insights Into Gut Microbiome Dysbiosis-Mediated Neuroimmune Dysregulation and Protein Misfolding and Clearance in the Pathogenesis of Chronic Neurodegenerative Disorders. Review Front Neurosci. Feb 25;16:836605. PMID: 35281490.
6. Scott GD, Arnold MR, Beach TG, Gibbons CH, **Kanthasamy AG** et al., 2022. Fluid and Tissue Biomarkers of Lewy Body Dementia: Report of an LBDA Symposium. Review Front Neurol. Jan 31; 12:805135. PMID: 35173668.
7. Ghaisas S, Harischandra DS, Palanisamy B, Proctor A, Jin H, Dutta S, Sarkar S, Langley M, Zenitsky G, Anantharam V, Kanthasamy A, Phillips GJ, **Kanthasamy A.** 2021 Chronic manganese exposure and the enteric nervous system: An in vitro and mouse in vivo study. Environ Health Perspective. 2021 Aug;129(8):87005. doi: 10.1289/EHP7877. PMID: 34410835.
8. Huang M, Lou D, Charli A, Kong D, Jin H, Zenitsky G, Anantharam V, Kanthasamy A, Wang Z, **Kanthasamy AG.** 2021, Mitochondrial dysfunction-induced H3K27 hyperacetylation perturbs enhancers in Parkinson's disease. Journal Clinical Investigation Insight. 2021 Sep 8;6(17):138088. doi: 10.1172/jci.insight.138088. PMID: 34494552.
9. Langley MR, Ghaisas S, Palanisamy BN, Ay M, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG**. 2021. Characterization of Nonmotor Behavioral Impairments and their Neurochemical Mechanisms in the MitoPark Model of Progressive Neurodegeneration in Parkinson's Disease. Experimental Neurology, Jul;341:113716. PMID: 33839143.
10. Klionsky DJ, **Kanthasamy AG** (1 of many authors), 2021. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition). Autophagy, 17(1):1-382. PMCID: PMC7996087.

11. Saminathan H, Ghosh A, Zhang D, Song C, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG,** 2021. PKCδ Y311 Phosphorylation Induces Dopaminergic Degeneration in Cell Culture and Animal Models: Implications for the Identification of a New Pharmacological Target for Parkinson's Disease, Front Pharmacol. 2021 Apr 28;12:631375. doi: 10.3389/fphar.2021.631375. PMID: 3399503.

12. Bhat SM, Shrestha D, Massey N, Karriker LA, **Kanthasamy AG**, Charavaryamath C, 2021. Organic dust exposure induces stress response and mitochondrial dysfunction in monocytic cells. Histochem Cell Biol, 155(6):699-718. PMCID: PMC8195852.

13. Malovic E, Ealy A, Kanthasamy A, **Kanthasamy AG**, 2021 Emerging Roles of N6-Methyladenosine (m6A) Epitranscriptomics in Toxicology. Toxicol Sci., 181(1):13-22. PMID: 33616673.

14. Massey N, Shrestha D, Bhat SM, Kondru K, Charli A, Karriker LA, **Kanthasamy AG**, Charavaryamath C, 2021. Organic dust-induced mitochondrial dysfunction could be targeted via cGAS-STING or cytoplasmic NOX-2 inhibition using microglial cells and brain slice culture models. Cell Tissue Res. 384(2):465-486. PMCID: PMC8154696.

15. Manne S, Kondru N, Jin H, Serrano GE, Anantharam V, Kanthasamy A, Adler CH, Beach TG and **Kanthasamy AG**, 2020. Blinded RT-QuIC analysis of α-synuclein biomarker in skin tissue from Parkinson's Disease patients. Movement Disorders, 35(12):2230-2239. PMCID: PMC7749035.

16. Sarkar S, Nguyen HM, Malovic E, Luo J, Langley M, Palanisamy BN, Singh N, Manne S, Neal M, Gabrielle M, Abdalla A, Anantharam P, Rokad D, Panicker N, Singh V, Ay M, Charli A, Harischandra D, Jin LW, Jin H, Rangaraju S, Anantharam V, Wulff H, **Kanthasamy AG**. 2020. Kv1.3 modulates neuroinflammation and neurodegeneration in Parkinson's disease. J Clin Invest. 130(8):4195-4212. PMCID: PMC7410064.

17. Samidurai M, Tarale P, Janarthanam C, Estrada CG, Gordon R, Zenitsky G, Jin H, Anantharam V, **Kanthasamy AG**, Kanthasamy A. 2020. Tumor Necrosis Factor-Like Weak Inducer of Apoptosis (TWEAK) Enhances Activation of STAT3/NLRC4 Inflammasome Signaling Axis through PKCδ in Astrocytes: Implications for Parkinson's Disease. Cells. 9(8):E1831. PMCID: PMC Journal - PMC7464730.

18. Saminathan H, Charli A, Luo J, Panicker N, Gordon R, Hostetter JM, Jin H, Anantharam V, **Kanthasamy AG**, Kanthasamy A. 2020. Fyn kinase mediates pro-inflammatory response in a mouse model of endotoxemia: Relevance to translational research. Eur J Pharmacol. 881:173259. NIHMSID:NIHMS1607489.

19. Kondru N, Manne S, Kokemuller R, Greenlee J, Greenlee MHW, Nichols T, Kong Q, Anantharam V, Kanthasamy A, Halbur P, **Kanthasamy AG**. 2020. An Ex Vivo Brain Slice Culture Model of Chronic Wasting Disease: Implications for Disease Pathogenesis and Therapeutic Development. Sci Rep. 10(1):7640. PMCID: PMC7203233.

20. Wrede AH, McNamara MC, Baldwin R, Luo J, Montazami R, **Kanthasamy A**, Hashemi NN. 2020. Characterization of Astrocytic Response after Experiencing Cavitation in Vitro. Glob Chall. 4(7):1900014. PMCID: PMC7330500.

21. Harper MM, Rudd D, Meyer KJ, **Kanthasamy AG**, Anantharam V, Pieper AA, Vázquez-Rosa E, Shin MK, Chaubey K, Koh Y, Evans LP, Bassuk AG, Anderson MG, Dutca L, Kudva IT, John M. 2020. Identification of chronic brain protein changes and protein targets

of serum auto-antibodies after blast-mediated traumatic brain injury. 6(2):e03374. PMCID: PMC7029173.

22. Sarkar S, Dammer EB, Malovic E, Olsen AL, Raza SA, Gao T, Xiao H, Oliver DL, Duong D, Joers V, Seyfried N, Huang M, Kukar T, Tansey MG, **Kanthasamy AG**, Rangaraju S. 2020. Molecular Signatures of Neuroinflammation Induced by αSynuclein Aggregates in Microglial Cells. Front Immunol. 11:33. PMCID: PMC7006296.

23. Manne S, Kondru N, Jin H, Anantharam V, Huang X, Kanthasamy A, **Kanthasamy AG**. 2020. α-Synuclein real-time quaking-induced conversion in the submandibular glands of Parkinson's disease patients. Mov. Disord. 35(2):268-278. PMCID: PMC7102508.

24. Ghaisas S, Langley MR, Palanisamy BN, Dutta S, Narayanaswamy K, Plummer PJ, Sarkar S, Ay M, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG**. 2019. MitoPark transgenic mouse model recapitulates the gastrointestinal dysfunction and gut-microbiome changes of Parkinson's disease. Neurotoxicology. 75:186-199. PMCID: PCM7048412.

25. Panicker N, Kanthasamy A, **Kanthasamy AG**. 2019. Fyn amplifies NLRP3 inflammasome signaling in Parkinson's disease. Aging. (Albany NY). 11(16):5871-5873. PMCID: PMC6738402.

26. Harischandra DS, Rokad D, Ghaisas S, Verma S, Robertson A, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy AG**. 2020. Enhanced differentiation of human dopaminergic neuronal cell model for preclinical translational research in Parkinson's disease. Biochim Biophys Acta Mol Basis Dis. 1866(4):165533. PMCID: PMC7010568.

27. Harischandra DS, Rokad D, Neal ML, Ghaisas S, Manne S, Sarkar S, Panicker N, Zenitsky G, Jin H, Lewis M, Huang X, Anantharam V, Kanthasamy A, Kanthasamy AG. 2019. Manganese promotes the aggregation and prion-like cell-to-cell exosomal transmission of α-synuclein. Science Signaling. 12(572). PMCID: PMC6435331.

28. Sarkar S, Rokad D, Malovic E, Luo J, Harischandra DS, Jin H, Anantharam V, Huang X, Lewis M, Kanthasamy A, Kanthasamy AG. 2019. Manganese activates NLRP3 inflammasome signaling and propagates exosomal release of ASC in microglial cells. Science Signaling 12(563). PMCID: PMC6420319.

29. Panicker N, Sarkar S, Harischandra DS, Neal M, Kam TI, Jin H, Saminathan H, Langley M, Charli A, Samidurai M, Rokad D, Ghaisas S, Pletnikova O, Dawson VL, Dawson TM, Anantharam V, Kanthasamy AG, Kanthasamy A. 2019. Fyn kinase regulates misfolded α-synuclein uptake and NLRP3 inflammasome activation in microglia. J Exp Med. 216(6):1411-1430. PMC6547864.

30. Manne S, Kondru N, Jin H, Anantharam V, Huang X, Kanthasamy A, Kanthasamy AG. 2019. α-Synuclein real-time quaking-induced conversion in the submandibular glands of Parkinson's disease patients. Mov Disord. 35(2): 268-278. PMCID: PMC7102508.

31. Song C, Charli A, Luo J, Riaz Z, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2019. Mechanistic Interplay between Autophagy and Apoptotic Signaling in Endosulfan-induced Dopaminergic Neurotoxicity: Relevance to the Adverse Outcome Pathway in Pesticide Neurotoxicity. Toxicol Sci. Feb 22. PMID: 30796443.

32. Kanthasamy A, Jin H, Charli A, Vellareddy A, Kanthasamy A. 2019. Environmental neurotoxicant-induced dopaminergic neurodegeneration: a potential link to impaired neuroinflammatory mechanisms. Pharmacol Ther. 2019 Jan 22. PMID: 30677475.

33. Plagman A, Hoscheidt S, McLimans KE, Klinedinst B, Pappas C, Anantharam V, Kanthasamy A, Willette AA. 2019. Alzheimer's Disease Neuroimaging Initiative. Cholecystokinin and Alzheimer's disease: a biomarker of metabolic function, neural integrity, and cognitive performance. Neurobiol Aging. Jan 9; 76:201-207. PMID: 30739077.

34. Manne S, Kondru N, Hepker M, Jin H, Anantharam V, Lewis M, Huang X, Kanthasamy A, Kanthasamy AG. 2019. Ultrasensitive Detection of Aggregated α-Synuclein in Glial Cells, Human Cerebrospinal Fluid, and Brain Tissue Using the RT-QuIC Assay: New High-Throughput Neuroimmune Biomarker Assay for Parkinsonian Disorders. J Neuroimmune Pharmacol. Jan 31.PMID: 30706414.

35. Kanthasamy A, Jin H, Charli A, Vellareddy A, Kanthasamy A.G. 2019. Environmental neurotoxicant-induced dopaminergic neurodegeneration, a potential link to impaired neuroinflammatory mechanisms. Pharmacol Ther. Jan 22. S0163-7258(19)30007-5. PMID: 30677475.

36. Frederick NM, Shah PV, Didonna A, Langley MR, Kanthasamy AG, Opal P. 2019. Loss of the dystonia gene Thap1 leads to transcriptional deficits that converge on common pathogenic pathways in dystonic syndromes. Hum Mol Genet. Dec 26. PMID: 30590536.

37. Massey N, Puttachary S, Mahadev-Bhat S, Kanthasamy AG, Charavaryamath C. 2019. HMGB1-RAGE Signaling Plays a Role in Organic Dust-Induced Microglial Activation and Neuroinflammation. Tox. Sci. Mar 11. PMID: 30859215.

38. Neal M, Luo J, Harischandra DS, Gordon R, Sarkar S, Jin H, Anantharam V, Désaubry L, Kanthasamy A, Kanthasamy A. 2018. Prokineticin-2 promotes chemotaxis and alternative A2 reactivity of astrocytes. Glia. 66(10):2137-2157. PMCID: PMC6240381

39. Sarkar S, Malovic E, Sarda D, Lawana V, Rokad D, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2018. Characterization and comparative analysis of a new mouse microglial cell model for studying neuroinflammatory mechanisms during neurotoxic insults. Neurotoxicology. 67:129-140. PMCID: PMC6091676.

40. Gordon R, Albornoz EA, Christie DC, Langley MR, Kumar V, Mantovani S, Robertson AAB, Butler MS, Rowe DB, O'Neill LA, Kanthasamy AG, Schroder K, Cooper MA, Woodruff TM. 2018. Inflammasome inhibition prevents α-synuclein pathology and dopaminergic neurodegeneration in mice. Sci Transl Med. 10(465). 30381407.

41. Singh N, Lawana V, Luo J, Phong P, Abdalla A, Palanisamy B, Rokad D, Sarkar S, Jin H, Anantharam V, Kanthasamy AG, Kanthasamy A. 2018. Organophosphate pesticide chlorpyrifos impairs STAT1 signaling to induce dopaminergic neurotoxicity: Implications for mitochondria mediated oxidative stress signaling events. Neurobiol Dis. 117:82-113. PMCID: PMC6108448.

42. Brenza TM, Schlichtmann BW, Bhargavan B, Vela Ramirez JE, Nelson RD, Panthani MG, McMillan JM, Kalyanaraman B, Gendelman HE, Anantharam V, Kanthasamy AG, Mallapragada SK, Narasimhan B, Kanmogne GD 2018. Biodegradable polyanhydride-based nanomedicines for blood to brain drug delivery. J Biomed Mater Res A. 106(11):2881-2890. PMID: 30369055.

43. Sharma S, Puttachary S, Thippeswamy A, Kanthasamy AG, Thippeswamy T. 2018. Status Epilepticus: Behavioral and Electroencephalography Seizure Correlates in Kainate Experimental Models. Front Neurol. 23; 9:7. PMID: 29410648.

44. Crowe TP, Greenlee MHW, Kanthasamy AG, Hsu WH. 2018. Mechanism of intranasal drug delivery directly to the brain. Life Sci. pii: S0024-3205. PMID: 29277310.

45. Sharma S, Carlson S, Puttachary S, Sarkar S, Showman L, Putra M, Kanthasamy AG, Thippeswamy T. 2018. Role of the Fyn-PKCδ signaling in SE-induced neuroinflammation and epileptogenesis in experimental models of temporal lobe epilepsy.Neurobiol Dis. 2018 Feb. Epub 2017 Nov 29. PMCID: PMC5753797.

46. Anantharam P, Whitley EM, Mahama B, Kim DS, Sarkar S, Santana C, Chan A, Kanthasamy AG, Kanthasamy A, Boss GR, Rumbeiha WK. 2017. Cobinamide is effective for treatment of hydrogen sulfide-induced neurological sequelae in a mouse model. Ann N Y Acad Sci. 2017 Nov. PMCID: PMC5734662

47. Sarkar S, Malovic E, Harishchandra DS, Ghaisas S, Panicker N, Charli A, Palanisamy BN, Rokad D, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2017. Mitochondrial impairment in microglia amplifies NLRP3 inflammasome proinflammatory signaling in cell culture and animal models of Parkinson's disease. NPJ Parkinson's Dis. Oct 17; 3:30. PMCID: PMC5645400

48. Manne S, Kondru N, Nichols T, Lehmkuhl A, Thomsen B, Main R, Halbur P, Dutta S, Kanthasamy AG. 2017. Ante-mortem detection of chronic wasting disease in recto-anal mucosa-associated lymphoid tissues from elk (Cervus elaphus nelsoni) using real-time quaking-induced conversion (RT-QuIC) assay: A blinded collaborative study. Prion. Nov 3:1-16. PMCID: PMC5786361

49. McLimans KE, Webb JL, Anantharam V, Kanthasamy A, Willette AA. 2017. Alzheimer's Disease Neuroimaging Initiative. Peripheral versus Central Index of Metabolic Dysfunction and Associations with Clinical and Pathological Outcomes in Alzheimer's Disease. J Alzheimers Dis. 60(4):1313-1324. PMID: 28968233

50. Ngwa HA, Ay M, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2017. Neurotoxicity of Vanadium. Adv Neurobiol. 18:287-301. PMID: 28889273

51. Mammadova N, Ghaisas S, Zenitsky G, Sakaguchi DS, Kanthasamy AG, Greenlee JJ, West Greenlee MH. 2017. Lasting Retinal Injury in a Mouse Model of Blast-Induced Trauma. Am J Pathol. 187(7):1459-72. PMID: 28606756

52. Xu Q, Langley M, Kanthasamy AG, Reddy MB. 2017. Epigallocatechin Gallate Has a Neurorescue Effect in a Mouse Model of Parkinson Disease. J Nutr. 2017 Oct;147(10):1926-1931. PMCID: PMC5610551

53. Moore SJ, West Greenlee MH, Kondru N, Manne S, Smith JD, Kunkle RA, Kanthasamy A, Greenlee JJ. 2017. Experimental Transmission of the Chronic Wasting Disease Agent to Swine after Oral or Intracranial Inoculation. J Virol. 12;91(19). PMCID: PMC5599732

54. Langley MR, Ghaisas S, Ay M, Luo J, Palanisamy BN, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2017. Manganese exposure exacerbates progressive motor deficits and neurodegeneration in the MitoPark mouse model of Parkinson's disease: Relevance to gene and environment interactions in metal neurotoxicity. Neurotoxicology. Jun 19. PMCID: PMC5736468.

55. Sarkar S, Malovic E, Harischandra DS, Ngwa HA, Ghosh A, Hogan C, Rokad D, Zenitsky G, Jin H, Anantharam V, Kanthasamy AG, Kanthasamy A. 2017. Manganese exposure induces

neuroinflammation by impairing mitochondrial dynamics in astrocytes. Neurotoxicology. May 29. PMCID: PMC5698176.

56. Harischandra DS, Ghaisas S, Rokad D, Kanthasamy AG 2017. Exosomes in Toxicology: Relevance to Chemical Exposure and Pathogenesis of Environmentally Linked Diseases. Toxicol Sci. 158(1):3-13.

57. Lawana V, Singh N, Sarkar S, Charli A, Jin H, Anantharam V, Kanthasamy AG, Kanthasamy A. 2017. Involvement of c-Abl Kinase in Microglial Activation of NLRP3 Inflammasome and Impairment in Autolysosomal System. J Neuroimmune Pharmacol. May 2.

58. Harischandra DS, Ghaisas S, Rokad D, Zamanian M, Jin H, Anantharam V, Kimber M, Kanthasamy A, Kanthasamy AG. 2017. Environmental neurotoxicant manganese regulates exosome-mediated extracellular miRNAs in cell culture model of Parkinson's disease: Relevance to α-synuclein misfolding in metal neurotoxicity. Neurotoxicology. Apr 24.

59. Sarker, S., Malovic, E., Plate, B., Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2017. Rapid and refined CD11b magnetic isolation of primary microglia with enhanced purity and versatility, J Vis Exp. 2017 Apr 13;(122). doi: 10.3791/55364

60. Liu M, Shi G, Yang KC, Gu L, Kanthasamy AG, Anantharam V, Dudley SC Jr. 2017. Role of protein kinase C in metabolic regulation of the cardiac Na+ channel. Heart Rhythm. 2017 Mar;14(3):440-447.

61. Ay M, Luo, Langley, M., Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2017. Molecular mechanisms underlying protective effects of quercetin against mitochondrial dysfunction and progressive dopaminergic neurodegeneration in cell culture and MitoPark transgenic mouse models of Parkinson's Disease, J Neurochem. 2017 Apr 4.

62. Kondru, N, Manne S, West Greenlee, H, Anantharam, A., Halbur, P. Kanthasamy A, Kanthasamy A,G. 2017. Integrated Organotypic Slice Cultures and RT-QuIC Assay (OSCAR): Implications for Translational Discovery in Prion Misfolding Diseases 2017. Scientific Reports, Feb 24: 7; 43144.

63. Langley, MR, Ghosh, A., Charlie., A., Sarker, S., Ay, M., Zielonks, J., Brenza, T., Bennet, B., Jin, H, Anantharam, V, Kanthasamy, A , Narasimhan B., Kalyanaraman, B., Kanthasamy, AG, 2017. Mitoapocynin prevents mitochondrial dysfucntion, microglial activation, oxidative damage and progressive neurodegeneration in MitoPark transgneic mice, Antioxidant Redox Signaling, doi. 10: 1098/ars. 206.6905.

64. Gordon R, Neal, ML, Luo J, Langley, MR, Jin, H, Anantharam, V, Woodruff, T. Zhou Q, Kanthasamy, AG, Kanthasamy, A (2016). Prokineticin-2 upregulation during neurotox injury mediates a compensatory protective response against dopaminergic neuronal degeneration, Nature Communications,7:12932.

65. Rokad D, Ghaisas S, Harischandra DS, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. 2016), Role of neurotoxicants and traumatic brain injury in alpha-synuclein misfolding and aggregation, Brain Res Bull. 2016 Dec 16. pii: S0361-9230(16)30467-1.

66. Brenza TM, Ghaisas, S., Ramirez, JE, Harischandra, D., Anantharam, V., Kalyanaraman, B., Kanthasamy Narasimhan B. (2016), Neuronal protection against oxidative insult by polyanhdride nanoparticle-based mitochondira-targeted antioxidant therapy, Nanomedicine, 2016: 1549

67. Xu Q, Kanthasamy AG, Jin H, Reddy MB. (2016) Hepcidin Plays a Key Role in 6-OHDA Induced Iron Overload and Apoptotic Cell Death in a Cell Culture Model of Parkinson's Disease. Parkinsons Dis. 2016:8684130.

68. West Greenlee MH, Lind M, Kokemuller R, Mammadova N, Kondru N, Manne S, Smith J, Kanthasamy A, Greenlee J. (2016). Temporal Resolution of Misfolded Prion Protein Transport, Accumulation, Glial Activation, and Neuronal Death in the Retinas of Mice Inoculated with Scrapie. Am J Pathol. 2016 Sep;186(9):2302-9.

69. Zhou QY, Burton KJ, Neal ML, Qiao Y, Kanthasamy AG, Sun Y, Xu X, Ma Y, Li X. (2016) Differential arousal regulation by prokineticin 2 signaling in the nocturnal mouse and the diurnal monkey. Mol Brain. 2016 Aug 18;9(1):78.

70. Yen C, Harischandra DS, Kanthasamy AG and Sivasankar S (2016) Copper-induced structural conversion templates prion protein oligomerization and neurotoxicity. Science Advances, 01 July, Vol. 2, No. 7.

71. Kim DS, Jin H, Anantharam V, Gordon, R., Kanthasamy A, Kanthasamy AG. (2016) p73 gene in dopaminergic neurons is highly susceptible to manganese neurotoxicity, Neurotoxicology, April 20.

72. Gordon R, Singh N, Lawana V, Ghosh A, Harischandra DS, Jin H, Hogan C, Sarkar S, Rokad D, Panicker N, Anantharam V, Kanthasamy AG, Kanthasamy A (2016) Protein kinase Cδ upregulation in microglia drives neuroinflammatory responses and dopaminergic neurodegeneration in experimental models of Parkinson's disease. Neurobiol Dis. 93:96-114. PMID: 27151770.

73. Ghosh A, Langley MR, Harischandra DS, Neal ML, Jin H, Anantharam V, Joseph J, Brenza T, Narasimhan B, Kanthasamy A, Kalyanaraman B, Kanthasamy AG. (2016) Mitoapocynin treatment protects against neuroinflammation and dopaminergic neurodegeneration in a preclinical animal model of Parkinson's Disease. J Neuroimmune Pharmacol. 11: 259-278.

74. Charli A, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. (2016) Alterations in mitochondrial dynamics induced by tebufenpyrad and pyridaben in a dopaminergic neuronal cell culture model. Neurotoxicology, 53:302-313.

75. Klionsky DJ, Kanthasamy AG (1 of many authors) (2016) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). Autophagy. 12(1):1-222.

76. Chen D, Kanthasamy AG, Reddy MB. (2015) EGCG Protects against 6-OHDA-Induced Neurotoxicity in a Cell Culture Model. Parkinsons Dis. 2015:843906

77. Ay M, Jin H, Harischandra DS, Asaithambi A, Kanthasamy A, Anantharam, Kanthasamy AG. (2015) Molecular cloning, epigenetic regulation, and functional characterization of Prkd1 gene promoter in dopaminergic cell culture models of Parkinson's disease. J Neurochem. 135(2):402-15.

78. Ross KA, Brenza TM, Binnebose AM, Phanse Y, Kanthasamy AG, Gendelman HE, Salem AK, Bartholomay LC, Bellaire BH, Narasimhan B. (2015) Nano-enabled delivery of diverse payloads across complex biological barriers. J Control Release. 10;219:548-59

79. Ghaisas S, Maher J, Kanthasamy A. (2016) Gut microbiome in health and disease: Linking the microbiome-gut-brain axis and environmental factors in the pathogenesis of systemic and neurodegenerative diseases. Pharmacol Ther. 2016 Feb;158:52-62.

80. Panicker N, Saminathan H, Jin H, Neal M, Harischandra DS, Gordon R, Kanthasamy K, Lawana V, Sarkar S, Luo J, Anantharam V, Kanthasamy AG and Kanthasamy A. (2015) Fyn Kinase Regulates Microglial Neuroinflammatory Responses in Cell Culture and Animal Models of Parkinson's Disease. J Neurosci. 35:10058-10077.

81. Gendelman HE, Anantharam V, Bronich T, Ghaisas S, Jin H, Kanthasamy AG, Liu X, McMillan J, Mosley RL, Narasimhan B, Mallapragada SK. (2015) Nanoneuromedicines for degenerative, inflammatory, and infectious nervous system diseases. Nanomedicine. 11(3):751-67.

82. Harischandra DS, Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. α-Synuclein Protects Against Manganese Neurotoxic Insult During the Early Stages of Exposure in a Dopaminergic Cell Model of Parkinson's Disease (2015). Toxicol Sci. 143(2):454-68

83. Jin H, Kanthasamy A, Harischandra DS, Anantharam V, Rana A, Kanthasamy AG. (2015), Targeted toxicants to dopaminergic neuronal cell death. Methods Mol Biol. 1254:239-52.

84. Jin H, Kanthasamy A, Harischandra DS, Kondru N, Ghosh A, Panicker N, Anantharam V, Rana A, Kanthasamy AG. (2014), Histone hyperacetylation upregulates PKCδ in dopaminergic neurons to induce cell death: relevance to epigenetic mechanisms of neurodegeneration in Parkinson's disease. J. Biol. Chem., 289: 34743-34767.

85. Faburay B, Tark D, Kanthasamy AG, Richt JA. (2014) In vitro amplification of scrapie and chronic wasting disease PrP(res) using baculovirus-expressed recombinant PrP as substrate. Prion. 2014; 8(6):393-403.

86. Dranka BP, Gifford A, McAllister D, Zielonka J, Joseph J, O'Hara CL, Stucky CL, Kanthasamy AG, Kalyanaraman B. (2014), A novel mitochondrially-targeted apocynin derivative prevents hyposmia and loss of motor function in the leucine-rich repeat kinase 2 (LRRK2(R1441G)) transgenic mouse model of Parkinson's disease. Neurosci Lett. 583:159-64.

87. Jin H, Kanthasamy A, Ghosh A, Anantharam V, Kalyanaraman B, Kanthasamy AG. (2014), Mitochondria-targeted antioxidants for treatment of Parkinson's disease: Preclinical and clinical outcomes. *Biochim Biophys Acta*. 1842(8):1282-94.

88. Ngwa HA, Kanthasamy A, Jin H, Anantharam V, Kanthasamy AG. (2014), Vanadium exposure induces olfactory dysfunction in an animal model of metal neurotoxicity. *Neurotoxicology*. 43:73-81.

89. Harischandra DS, Kondru N, Martin D, Kanthasamy A, Jin H, Anantharam V, Kanthasamy A. (2014), Role of proteolytic activation of protein kinase Cδ in the pathogenesis of prion disease. *Prion*, Jan 1; 8(1).

90. Asaithambi A, Ay M, Jin H, Gosh A, Anantharam V, Kanthasamy A, Kanthasamy AG. (2014). Protein kinase D1 (PKD1) phosphorylation promotes dopaminergic neuronal survival during 6-OHDA-induced oxidative stress. *PLoS One.* 9(5):e96947.

91. Rana, A, Rana, B, Mishra, R, Sondarva, G, Rangasamy, R, Das, S, Viswakarma, N & Kanthasamy, A. (2013). Mixed Lineage Kinase–c-Jun N-Terminal Kinase Axis: A Potential Therapeutic Target in *Cancer. Genes & Cancer*. (9-10):334-341.

92. Dranka BP, Gifford A, Ghosh A, Zielonka J, Joseph J, Kanthasamy AG, Kalyanaraman B. (2013) Diapocynin prevents early Parkinson's disease symptoms in the leucine-rich repeat kinase 2 (LRRK2R1441G) transgenic mouse. *Neurosci Lett.* 549:57-62.

93. Ghosh A, Swaminathan H, Kanthasamy A, Jin H, Sondarva G., Rana A, and Kanthasamy AG. (2013), Pin1 upregulation and proapoptotic function in dopaminergic neurons: Relevance to pathogenesis of Parkinson's disease, *J. Biol. Chem.,* 288(30):21955-71

94. Ghosh A, Kanthasamy A, Joseph J, Anantharam V, Srivastava P, Dranka BP, Kalyanaraman B, Kanthasamy AG. Anti-inflammatory and neuroprotective effects of an orally active apocynin derivative in pre-clinical models of Parkinson's disease. *J Neuroinflammation.* 2012 Oct 23; 9.

95. Kanthasamy A, Jin H, Anantharam V, Sondarva G, Rangasamy V, Rana A, Kanthasamy A. (2012) Emerging neurotoxic mechanisms in environmental factors-induced neurodegeneration. *Neurotoxicology.* 33(4):833-7.

96. Wong DM, Ghosh A, Fales-Williams AJ, Haynes JS, Kanthasamy AG. 2012, Evidence of oxidative injury of the spinal cord in 2 horses with Equine Degenerative Myeloencephalopathy. *Vet Pathol*. 49: 1049-1053.

97. Lin M, Chandramani-Shivalingappa P, Jin H, Ghosh A, Anantharam V, Ali S, Kanthasamy AG, Kanthasamy A. (2012) Methamphetamine-induced neurotoxicity linked to ubiquitin-proteasome system dysfunction and autophagy-related changes that can be modulated by protein kinase C delta in dopaminergic neuronal cells. *Neuroscience.* 210:308-32.

98. Shin EJ, Duong CX, Nguyen XK, Li Z, Bing G, Bach JH, Park DH, Nakayama K, Ali SF, Kanthasamy AG, Cadet JL, Nabeshima T, Kim HC. (2012) Role of oxidative stress in methamphetamine-induced dopaminergic toxicity mediated by protein kinase Cδ. *Behav Brain Res*. 232(1):98-113.

99. Rangasamy V, Mishra R, Sondarva G, Das S, Lee TH, Bakowska JC, Tzivion G, Malter JS, Rana B, Lu KP, Kanthasamy A, Rana A. (2012) Mixed-lineage kinase 3 phosphorylates prolyl-isomerase Pin1 to regulate its nuclear translocation and cellular function**.** *Proc Natl Acad Sci U S A.* 109(21):8149-54.

100. Klionsky DJ, Kanthasamy AG (1 of many authors) (2012) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). Autophagy. 4:445-544.

101. Dranka BP, Zielonka J, Kanthasamy AG, Kalyanaraman B. (2012) Alterations in bioenergetic function induced by Parkinson's disease mimetic compounds: lack of correlation with superoxide generation. *J Neurochem.* 122(5):941-51.

102. Kanthasamy AG, Choi C, Jin H, Harischandra DS, Anantharam V, Kanthasamy A. Effect of divalent metals on the neuronal proteasomal system, prion protein ubiquitination and aggregation. *Toxicol Lett.* 2012; 214(3):288-295.

103. Chandramani Shivalingappa P, Jin H, Anantharam V, Kanthasamy A, Kanthasamy A. N-Acetyl Cysteine Protects against Methamphetamine-Induced Dopaminergic Neurodegeneration via Modulation of Redox Status and Autophagy in Dopaminergic Cells. *Parkinsons Dis.* 2012; 424285.

104. Gordon R, Anantharam V, Kanthasamy AG, Kanthasamy A. (2012) Proteolytic activation of proapoptotic kinase protein kinase Cδ by tumor necrosis factor α death receptor signaling in dopaminergic neurons during neuroinflammation. *J Neuroinflammation.* 9:82.

105. Shin EJ, Duong CX, Nguyen TX, Bing G, Bach JH, Park DH, Nakayama K, Ali SF, Kanthasamy AG, Cadet JL, Nabeshima T, Kim HC. (2011) PKCδ inhibition enhances

tyrosine hydroxylase phosphorylation in mice after methamphetamine treatment. *Neurochem Int.* 59(1):39-50.

106. Sun F, Kanthasamy AG, Kanthasamy A. (2011) Measurement of proteasomal dysfunction in cell models of dopaminergic degeneration. *Methods Mol Biol.* 758:293-305. PMID: 21815074.

107. Latchoumycandane C, Anantharam V, Jin H, Kanthasamy A, Kanthasamy A. (2011) Dopaminergic neurotoxicant 6-OHDA induces oxidative damage through proteolytic activation of PKCδ in cell culture and animal models of Parkinson's disease. *Toxicol Appl Pharmacol.* 256(3):314-23.

108. Kanthasamy K, Gordon R, Jin H, Anantharam V, Ali S, Kanthasamy AG, Kanthasamy A. (2011) Neuroprotective effect of resveratrol against methamphetamine-induced dopaminergic apoptotic cell death in a cell culture model of neurotoxicity. *Curr Neuropharmacol.* 9(1):49-53.

109. Afeseh Ngwa, H., Kanthasamy, A., Anantharam, V., and Kanthasamy, A. G. (2011). Manganese Nanoparticle Activates Mitochondrial Dependent Apoptotic Signaling and Autophagy in Dopaminergic Neuronal Cells, *Toxicol Appl Pharmacol*., 256:227-240.

110. Jin H, Kanthasamy A, Anantharam V, Rana A, Kanthasamy AG., (2011) Transcriptional Regulation of Pro-apoptotic Protein Kinase C{delta}: Implications For Oxidative Stress-Induced Neuronal Cell Death. *J Biol Chem.* 286(22):19840-59.

111. Kanthasamy, K., Gordon, R., Jin, H Anantharam, V., and Kanthasamy, A. G. (2011). Neuroprotective Effect of Resveratrol Against Methamphetamine-induced Dopaminergic Apoptotic Cell Death in Cell Culture Model of Neurotoxicity, *Current Neuropharamcology*, 9: 49-53.

112. Martin, DP, Anantharam, V, Witte, T, Houk, R, Kanthasamy, A, Kanthasamy, AG. (2011). Infectious Prion Protein Alters Manganese Transport and Neurotoxicity in a Cell Culture Model of Prion Disease, *Neurotoxicology*. 32: 554-562.

113. Xu Q, Kanthasamy AG, Reddy MB. (2011). Phytic acid protects 6-OHDA-induced dopaminergic neuron apoptosis in normal and iron excess conditions in a cell culture model. *Parkinsons Disease*, 2011; 431068.

114. Saminathan, H, Asaithambi, A., Anantharam, V., Kanthasamy, AG., and Kanthasamy A. (2011) Environmental neurotoxic pesticide dieldrin activates non receptor tyrosine kinase to promote PKC-delta mediated apoptosis in a dopaminergic neuronal cell model, *Neurotoxicology*, 32: 567-577.

115. Asaithambi, A, Kanthasamy, A, Saminathan, H, Anantharam, V, and Kanthasamy, AG. (2011) Protein Kinase D1 (PKD1) Activation Mediates a Compensatory Protective Response During Early Stages of Oxidative Stress- Induced Neuronal Degeneration, *Molecular Neurodegeneration*, 6:43-54.

116. Song C, Kanthasamy, A. Jin, H, Anantharam, V, Kanthasamy, AG. (2011). Paraquat Induces Epigenetic Changes by Promoting Histone Acetylation in Cell Culture Models of Dopaminergic Degeneration, *Neurotoxicology*, 32: 586-595.

117. D. Zhang, A. Kanthasamy, V. Anantharam, A.G. Kanthasamy (2011), Effects of manganese on tyrosine hydroxylase (TH) activity and TH-phosphorylation in a dopaminergic neural cell line. *Toxicol Appl Pharmacol.* 254: 65-71.

118. Gordon R, Hogan C, Neal M, Anantharam V, Kanthasamy AG Kanthasamy A, (2011) A Simple Magnetic Separation Method for High-Yield Isolation of Pure Primary Microglia. *J Neurosci Methods*. 2011 Jan 15;194(2):287-96.

119. H. Jin, A. Kanthasamy, A. Ghosh, Y. Yang, V. Anantharam, and A.G. Kanthasamy. (2011). Alpha-synuclein negatively regulates PKCδ expression to suppress apoptosis in dopaminergic neurons by reducing p300 HAT activity. *Journal of Neuroscience*, 31(6):2035-51.

120. Ghosh, A, Chandran, K, Kalivendi, SV, Joseph, J, Antholine, WE, Hillard, CJ, Kanthasamy, AG, Kanthasamy, A, Kalyanaraman, B. (2010), Neuroprotection by a mitochondria-targeted drug in a Parkinson's disease model, *Free Radical Biology Medicine*, 49: 1674-1684.

121. Kanthasamy, AG, Jin, H, Mehrotra, S, Mishra, R, Kanthasamy, A, Rana, A. (2010). Novel cell death signaling pathways in neurotoxicity models of dopaminergic degeneration: Relevance to oxidative stress and neuroinflammation in Parkinson's disease. *Neurotoxicology*. 31(5):555-61.

122. Choi C.J., Anantharam, V., Martin, DP, Nicholson, EM., Richt, JA, Kanthasamy, A. and Kanthasamy, AG (2010), Manganese Upregulates Cellular Prion Protein and Contributes to Altered Stabilization and Proteolysis: Relevance to Role of Metals in Pathogenesis of Prion Disease. *Toxicol. Sci.,* 115(2):535-46.

123. Song, C, Kanthasamy A, Anantharam V, Kanthasamy AG, (2010). Environmental Neurotoxic Pesticide Increases Histone Acetylation to Promote Apoptosis in Dopaminergic Neuronal Cells: Relevance to Epigenetic Mechanisms of Neurodegeneration. *Mol Pharmacol.* 2010 Apr; 77(4):621-32.

124. Ortiz-Ortiz, M. A., Moran, J. M., Bravosanpedro, J. M., Gonzalez-Polo, R. A., Niso-Santano, M., Anantharam, V., Kanthasamy, A. G., Soler, G. and Fuentes, J. M., (2009). Curcumin enhances paraquat-induced apoptosis of N27 mesencephalic cells via the generation of reactive oxygen species. *Neurotoxicology.* 30(6):1008-18. Epub 2009 Aug 4.

125. Afeseh Ngwa, H., Kanthasamy, A., Anantharam, V., Song, C., Witte, T., Houk, R. and Kanthasamy, A. G.(2009). Vanadium induces dopaminergic neurotoxicity via protein kinase Cdelta dependent oxidative signaling mechanisms: relevance to etiopathogenesis of Parkinson's disease. *Toxicol Appl Pharmacol*. 240, 273-285.

126. Sun, F., Kanthasamy, A., Anantharam, V. and Kanthasamy, A. G., (2009). Mitochondrial accumulation of polyubiquitinated proteins and differential regulation of apoptosis by polyubiquitination sites Lys-48 and -63. J Cell Mol Med. 1582-4934 (Electronic)

127. Sun, F, Kanthasamy A, Song C, Yang Y, Anantharam V, Kanthasamy AG. (2008). Proteasome inhibitor-induced apoptosis is mediated by positive feed-back amplification of PKCdelta proteolytic activation and mitochondrial translocation. *J Cell Mol Med*. 12, 2467-2481.

128. Xu Q, Kanthasamy AG, Reddy MB. (2008). Neuroprotective effect of the natural iron chelator, phytic acid in a cell culture model of Parkinson's disease. *Toxicology.* 245(1-2):101-8.

129. Kanthasamy, A, Kitazawa, M, Yang, Y., Anantharam V. and Kanthasamy, AG. (2008) Environmental neurotoxic chemical induces apoptosis in mesencephalic dopaminergic

neuronal cells via caspase-3-dependent proteolytic activation of protein kinase Cdelta: Implications for molecular mechanisms of dopaminergic degeneration in Parkinson's disease. *BMC Molecular Brain*. 1(1):12.

130. Carvour, V Song, C, Kaul, S., Anantharam, V, Kanthasamy, AG, Kanthasamy. A (2008) Chronic low dose oxidative stress induces caspase-3 dependent PKCdelta proteolytic activation and apoptosis in a cell culture model of dopaminergic neurodegeneration. *Annals of the New York Academy of Sciences. 1139:197-205*

131. Anantharam V, Kanthasamy A, Choi CJ, Martin DP, Latchoumycandane C, Richt JA, Kanthasamy AG. (2008) Opposing roles of prion protein in oxidative stress- and ER stress-induced apoptotic signaling. Free Radical Biol. Med. 45(11):1530-41.

132. Zhang, A. Kanthasamy, Y. Yang, V. Anantharam and AG. Kanthasamy. (2007), Neuroprotective effect of PKCdelta inhibitor rottlerin in cell culture and animal models of Parkinson's Disease, *J. Pharmacol. Expt. Therapeutics,* 322:913-922. .

133. Zhang, A. Kanthasamy, Y. Yang, V. Anantharam and AG. Kanthasamy. (2007). Protein kinase Cδ negatively regulates tyrosine hydroxylase activity and dopamine synthesis by enhancing protein phosphatase-2A activity in dopaminergic neurons. *J. Neurosci.,* 27: 5349-5362.

134. Anantharam V, Kaul S, Song C, Kanthasamy A, Kanthasamy AG. (2007), Pharmacological inhibition of neuronal NADPH oxidase protects against 1-methyl-4-phenylpyridinium (MPP(+))-induced oxidative stress and apoptosis in mesencephalic dopaminergic neuronal cells. *Neurotoxicology,* 28:988-97.

135. Sun, F., Kanthasamy, V. Anantharam and AG. Kanthasamy. (2007), Environmental neurotoxic chemicals-Induced ubiquitin proteasome dysfunction in the pathogenesis and progression of Parkinson's Disease. *Pharmacol and Ther.,* 114: 327-344.

136. Choi, C.J., Anantharam, V., Saetveit, N.J., Houk, R.S., Kanthasamy, A., Kanthasamy AG. (2007), Normal cellular prion protein protects against manganese-induced oxidative stress and apoptotic cell death. *Toxicol. Sci*., 98: 495-509.

137. V. Anantharam, E. Lehrmann, A. Kanthasamy, Y. Yang, P. Banerjee, KG. Becker, WJ Freed, AG. Kanthasamy (2007). Microarray Analysis of Oxidative Stress Regulated Genes in Mesencephalic Dopaminergic Neuronal Cells: Relevance to Oxidative Damage in Parkinson 's disease. *Neurochem. Intl*., 834-47.

138. Choi CJ, Kanthasamy A, Anantharam V, Kanthasamy AG. (2006), Interaction of metals with prion protein: Possible role of divalent cations in the pathogenesis of prion diseases. *Neurotoxicology*, 27: 777-87.

139. Kanthasamy A, Anantharam V, Ali SF, Kanthasamy AG. (2006), Methamphetamine induces autophagy and apoptosis in a mesencephalic dopaminergic neuronal culture model: role of cathepsin-D in methamphetamine-induced apoptotic cell death. *Ann N Y Acad Sci*. 1074:234-44.

140. Sun F, Anantharam V, Zhang D, Latchoumycandane C, Kanthasamy A, Kanthasamy AG. (2006), Proteasome inhibitor MG-132 induces dopaminergic degeneration in cell culture and animal models. *Neurotoxicology*. 27:807-15.

141. Kanthasamy, A.G., Anantharam, V., Zhang, D., Latchoumycandane, C., Jin, H, Kaul, S and Kanthasamy, A. (2006), A Novel Peptide Inhibitor Targeted to Caspase-3 Cleavage Site of

a Proapoptotic Kinase PKCdelta (PKCδ) Protects against Dopaminergic Neuronal Degeneration in Parkinson's disease Models. *Free Radical Biology and Medicine,* 41:1578-89.

142. Takemura K., Wang, P. Vorberg, I., Surewicz, Priola, SA., Kanthasamy, A., Pottathil., R., Chen., S.G., Sreevatsan, S., (2006) DNA aptamers that bind to PrP(C) and not PrP(Sc) show sequence and structure specificity. *Exp Biol Med*. 231:204-14

143. Kaul, S, Anantharam, V, Yang, Y, Choi, C, Kanthasamy, A, and Kanthasamy, AG (2005) Tyrosine phosphorylation regulates the proteolytic activation of PKCδ in dopaminergic neuronal cells. *J. Biol. Chem.* 280:28721-28730.

144. Sun, F., Anantharam, V., Latchoumycandane, C., Kitazawa, M., Yang, Y., Kanthasamy, A. and Kanthasamy, AG. (2005) Dieldrin Induces Ubiquitin-Proteasome Dysfunction in α-Synuclein Overexpressing Dopaminergic Neuronal Cells and Enhances Susceptibility to Apoptotic Cell Death. *J. Pharmacol. Expt. Therapeutics* 315:69-79.

145. Engelman HM, Alekel DL, Hanson LN, Kanthasamy AG, Reddy MB. (2005) Blood lipid and oxidative stress responses to soy protein with isoflavones and phytic acid in postmenopausal women. *Am J Clin Nutr.* 2005 81:590-6.

146. Kaul, S, Anantharam, V, Kanthasamy, A and Kanthasamy, AG (2005) Wild-type α-synuclein interacts with pro-apoptotic proteins PKCδ and BAD to protect dopaminergic neuronal cells against MPP^+-induced apoptotic cell death. *Molecular Brain Research*. 139,137-152.

147. Kanthasamy, AG., Kitazawa, M., Kanthasamy, A and Anantharam, V. (2005). Dieldrin-Induced Neurotoxicity: Relevance to Parkinson's Disease Pathogenesis. *Neurotoxicology*, 26:701-719.

148. Latchoumycandane, C., Anantharam, V., Kitazawa, M., Yang, Y., Kanthasamy, A. and Kanthasamy, AG. (2005) Protein Kinase C Delta (PKCδ) is a Key Downstream Mediator of Manganese-induced apoptosis in dopaminergic clonal cells. *J. Pharmacol. Expt. Therapeutics.* 313:46-45.

149. Kitazawa, M., Anantharam, V, Yang, Y., Hirata, Y., Kanthasamy, A. and Kanthasamy, A.G. (2005), Activation of Protein Kinase C delta by proteolytic cleavage contributes to manganese-induced apoptosis in dopaminergic cells: protective role of Bcl-2, *Biochem. Pharamcol.,* 69: 133-146.

150. Anantharam, V., Kitazawa, M., Latchoumycandane, C., Kanthasamy, A. and Kanthasamy, AG. (2004) Blockade of PKCδ Proteolytic Activation by Loss of Function Mutants Rescue Mesencephalic Dopaminergic Neurons from Methylcyclopentadienyl Manganese Tricarbonyl (MMT)-induced Apoptotic Cell Death. *Ann. N.Y. Acad. Sci*., 1035: 271-289.

151. Yang, Y., Kaul, S. Anantharam, V. and Kanthasamy, A.G. (2004), Suppression of caspase-3 dependent proteolytic activation of protein kinase Cδ by small interfering RNA (siRNA) attenuates MPP^+-induced dopaminergic degeneration, *Molecular Cellular Neuroscience*, 25: 406-421.

152. Kitazawa, M., Anantharam, V. Kanthasamy, A. and Kanthasamy, A.G. (2004), Dieldrin promotes proteolytic cleavage of poly(ADP-ribose)polymerase and apoptosis in dopaminergic cells: protective effect of mitochondrial anti-apoptotic protein Bcl-2. *Neurotoxicology,* 25: 589-598.

153. Kaul, S. Kitazawa, M., Anantharam, V. and Kanthasamy, A.G. (2003), Caspase-3-dependent proteolytic activation of Protein Kinase Cδ mediates and regulates MPP^+ induced apoptosis in dopaminergic cells: Relevance to oxidative stress and Parkinson's disease. *Eur. J. Neurosci.*, 18: 1387-1407.

154. Kanthasamy, A.G., Kitazawa, M., Kaul., S., Yang, Y., Lahiri, D.K., Anantharam, A., Kanthasamy, A. (2003), Proteolytic activation of proapoptotic kinase PKCδ is regulated by overexpression of Bcl-2: Implications for oxidative stress and environmental factors in Parkinson's disease, *Ann. N.Y. Acad. Sci.,* 1010: 683-686.

155. Kitazawa, M., Anantharam, V. and Kanthasamy, A.G. (2003), Dieldrin induces apoptosis by promoting caspase-3-dependent proteolytic activation of Protein Kinase Cδ in dopaminergic cells: Relevance to oxidative stress and dopaminergic degeneration. *Neuroscience,* 119: 945-964.

156. Kanthasamy, A.G., Kitazawa, M., Kanthasamy, A. Anantharam, V., (2003), Role of proteolytic activation of protein kinase C delta (PKCδ) in oxidative stress-induced apoptosis, *Antioxidants and Redox Signaling*, 5: 609-619.

157. Lahiri, D.K., Chen, D. Ge, Y.-W., Farlow, M., Kotwal, G., Kanthasamy, A., Ingram D., and Greig, N.H. (2003), Does nitric oxide synthase (NOS) contribute to the pathogenesis of Alzheimer disease (AD)? Effects of beta-amyloid deposition on NOS in transgenic mouse brain with AD pathology, *Ann. N.Y. Acad. Sci.,* 1010: 639-642.

158. Madhavan, L., Freed, W.F., Anantharam, V. and Kanthasamy, A.G. (2003), 5-Hydroxytryptamine 1A receptor activation protects against N-methyl-d-aspartate-induced apoptotic cell death in striatal and mesencephalic cultures, *J. Pharmacol. Expt. Therapeutics*, 304: 913-923.

159. Kitazawa, M., Wagner, J.W., Kirby, M., Anantharam, V., and Kanthasamy, A.G., (2002), Oxidative stress and mitochondrial-mediated apoptosis in dopaminergic cells exposed to Methylcyclopentadienyl Manganese Tricarbonyl, *J. Pharmacol. Expt. Therapeutics*, 302:26-35.

160. Truong, D.D., Kirby, M., Kanthasamy, A.G. and Matsumoto, R.R., (2002), Posthypoxic myoclonus animal models, *Adv. Neurology*, 89: 295-306.

161. Kanthasamy, A.G., Sharma, N., Kirby, M.L. and Schwarzschild, M.A. (2001), Neuroprotective strategies in Parkinson's disease, *In: Neuroprotection: Basic & Clinical Aspects*, [Ed] Lo,E.., pp: 604-640.

162. Anantharam, V., Kitazawa, M., Wagner, J.W. Kaul, S and Kanthasamy, A.G. (2002), Caspase-3-dependent proteolytic cleavage of Protein Kinase Cδ is essential for oxidative stress-mediated dopaminergic cell death following exposure to Methylcyclopentadienyl Manganese Tricarbonyl (MMT)., *Journal of Neuroscience*., 22: 1738-1751.

163. Kitazawa, M and Kanthasamy, A.G. (2001), Dieldrin-induced oxidative stress and neurochemical changes contribute to apoptotic cell death in dopaminergic cells. *Free Radical. Biol. Med*., 31: 1473-1485.

164. Kanthasamy, A.G. and Wagner, J.W. (2001), Environmental factors-induced oxidative stress in dopaminergic degeneration: Relevance to the etiopathogenesis of Parkinson's disease, *In: Antioxidants and Free Radicals in Health and Disease*, [Ed] Marwah, J. and Kanthasamy, A.G., Prominent Press, pp: 70-87.

165. Truong, D.D., Nguyen, B. and Kanthasamy, A.G. (2000), Animal Models of Myoclonus: an overview, Movement Disorders, *Movement Disorder* vol. 15 (suppl.), 31-38.

166. Kanthasamy, A.G., Nguyen, B., and Truong, D. D., (2000), Animal model of posthypoxic myoclonus: II. Neurochemical, pharmacological and pathological characterization, *Movement Disorder*, 15(suppl.), 31-38.

167. Truong, D.D., Matsumoto, R.R., and Kanthasamy, A.G. (2000), Animal model of posthypoxic myoclonus: I. Development and Validation, *Movement Disorder*, 15 (suppl.), 25-30.

168. Kanthasamy, A.G. (1999), Neurochemical dynamics in neurotoxin exposures: Implications for neurodegenerative disorders, *In: Chemicals and Neurodegenerative Diseases*, [Ed] S.C. Bondy, Prominent press, pp: 1-26.

169. Kanthasamy, A.G., Tith, T., Nguyen, B. and Truong, D. D. (1999), Antimyoclonic and neuroprotective effects of lamotrigine in an animal of cardiac arrest-induced movement disorder, *Restor. Neurol. Neurosci.*, 15: 45-56.

170. Kanthasamy, A.G., Yun, R.J., Nguyen B. and Truong, D.D. (1999), Effect of riluzole on neurological and neuropathological changes in an animal model of cardiac arrest-induced movement disorder, *J. Pharmacol. Exp. Ther.*, 288: 1340-1348.

171. Kanthasamy, A.G., Nguyen, B.Q.H. and Truong, D.D. (1998), Role of serotonergic neurotransmission in the pathophysiology of posthypoxic Myoclonus, *Neurology*, 4: A135-A136.

172. Matsumoto, R.R., Brackett R.L. and Kanthasamy, A.G. (1997), Novel NMDA/glycine antagonists attenuate cocaine-induced behavioral toxicity, *Eur. J. Pharmacol.*, 338:233-242.

173. Kanthasamy, A.G., Ardelt, B.A., Malave, A., Mills, E.M., Powley, T.L., Borowitz., J.L. and Isom, G.E. (1997), Reactive oxygen species generated by cyanide mediate toxicity in rat pheochromocytoma cells, *Toxicol. Lett*, 93: 47-53.

174. Zambon, A.C., De Costa, B.R., Kanthasamy, A.G., Nguyen, B.Q.H. and Matsumoto, R.R. (1997), Subchronic administration of N-[2-(3,4-dichlorophenyl)ethyl]-N-methyl-2-(dimethylamino)ethylamine (BD1047) alters sigma-1 receptor binding, *Eur. J. Pharmacol.*, 324: 39-47.

175. Kanthasamy, A.G., Kanthasamy, A., Matsumoto, R.R., Vu, T.Q. and Truong, D.D. (1997), Neuroprotective effect of strychnine-insensitive glycine site antagonist (R)-HA-966 in an experimental model of Parkinson's disease, *Brain Res.*, 759: 1-8.

176. Kanthasamy, A.G., Matsumoto, R. R. and Truong, D.D. (1996), Animal models of myoclonus, *Clinical Neuroscience*, (Ed.) H. Shibasaki, Wiley Publishers, New York, vol. 3, pp: 236-245.

177. Gunasekar, P.G., Sun, P.W., Kanthasamy, A.G., Borowitz, J.L. and Isom, G.E. (1996), Cyanide-induced neurotoxicity involves nitric oxide and reactive oxygen species generation following NMDA receptor activation, *J. Pharmacol. Exp. Ther.*, 277: 150-155.

178. Kanthasamy, A.G. Vu, T.Q. Yun, R.J. and Truong, D.D. (1996), Neurochemical dynamics in experimental animal models of myoclonus, *J. Neural Transm.*, 103: 26-27.

179. Kanthasamy, A.G., Vu, T.Q., Yun, R.J. and Truong, D.D. (1996), Antimyoclonic effect of gabapentin in a posthpoxic animal model of myoclonus, *Eur. J. Pharmacol.*, 297: 219-224.

180. Isom, G.E., Kanthasamy, A.G. and Borowitz, J.L. (1995), Mechanistic neurotoxicity studies using PC12 cells, *Advances in Animal Alternatives for Safety and Efficacy Testing,* Taylor and Francis, pp: 184-191.

181. Kanthasamy, A.G., Matsumoto, R.R., Gunasekar, P.G., and Truong, D.D. (1995), Excitoprotective effect of felbamate in cultured cortical neurons, *Brain Res.,* 705: 95-104.

182. Kanthasamy, A.G., Borowitz, J.L. and Isom, G.E. (1995), Role of intracellular cadmium in neurotransmitter release and lethality in PC12 cells, *Toxicol. Lett,* 81: 151-157.

183. Sun, P., Borowitz, J.L., Kanthasamy, A.G., Kane, M., Gunasekar, P.G. and Isom, G.E. (1995), Antagonism of cyanide toxicity by isosorbide dinitrite: Possible role of nitric oxide, *Toxicology,* 104: 105-111.

184. Gunasekar, P.G., Kanthasamy, A.G., Borowitz, J.L. and Isom, G.E. (1995), NMDA receptor activation produces concurrent generation of nitric oxide and reactive oxygen species: Implication for cell death, *J. Neurochem.,* 65: 2016-2021.

185. Gunasekar, P.G., Kanthasamy, A.G., Borowitz, J.L. and Isom, G.E. (1995), Monitoring intracellular nitric oxide formation by dichlorofluorescein in neuronal cells, *J. Neurosci. Methods,* 61: 15-21.

186. Pavlakovic, G., Kane, M.D., Eyer, C.L., Kanthasamy, A.G., and Isom, G.E. (1995), Activation of protein kinase C by trimethyltin: Relevance to neurotoxicity, *J. Neurochem.,* 65: 2338-2343.

187. Sun, P., Kanthasamy, A.G., Yim, G.K.W. and Isom, G.E. (1995), Modulation of basal and stimulated dopamine release by nitric oxide, *Neuropharmacology,* 34: 205-210.

188. Bitner,R.S, Kanthasamy, A., Isom, G.E. and Yim, G.K.W. (1995), Seizures and selective CA1 hippocampal damage induced by excitotoxic cyanide metabolite, 2-imidothiazolidine-4-carboxylic acid (2-ICA), *Neurotoxicology,* 16: 115-122.

189. Kanthasamy, A.G., Rathinavelu, A., Borowitz, J.L. and Isom, G.E. (1994), Interaction of cyanide with dopamine metabolite: Identification of a novel cyanohydrin adduct: implications to cyanide-induced neurotoxicity, *Neurotoxicology,* 15: 887-896.

190. Borowitz, J.L., Rathinavelu, A., Kanthasamy, A.G., Wilsbacher, J. and Isom, G.E. (1994), Accumulation of labeled cyanide in neuronal tissue, *Toxicol. Appl. Pharmacol*., 129: 80-85.

191. Latha, M.V., Borowitz, J.L., Kanthasamy, A., Yim, G.K.W. and Isom, G.E. (1994), Plasma membrane hyperpolarization by cyanide in chromaffin cells: Role of potassium channels, *J. Appl. Toxicol.,* 68: 370-374.

192. Kanthasamy, A.G., Borowitz, J.L. Pavlakovic, G. and Isom, G.E. (1994), Dopaminergic toxicity of cyanide: Neurochemical, histological and behavioral characterization, *Toxicol. Appl. Pharmacol.,* 126: 156-163.

193. Borowitz, J.L., Kanthasamy, A.G. and Isom, G.E. (1993), Development of an *in vitro* screen for biochemical cyanide antidotes, *Proceedings 1993 Medical Defense Bioscience Review,* pp: 269-272.

194. Borowitz, J.L., Kanthasamy, A.G. and Isom, G.E. (1992), Toxicodynamics of cyanide. *In: Chemical Warfare Agents,* (Ed.) S. Somani, Academic Press, New York, pp: 209-236.

195. Borowitz, J.L., Kanthasamy, A.G., Mitchell, P. and Isom, G.E. (1992), Use of PC12 cells as a neurotoxicological screen: Characterization of anticyanide compounds, *Fund. Appl.Toxicol.*, 20: 133-140.

196. Kanthasamy, A.G., Borowitz, J.L. and Isom, G.E. (1991), Cyanide-induced increases in plasma catecholamines: relationship to acute toxicity, *Neurotoxicology*, 12: 777- 784.

197. Kanthasamy, A.G., Maduh, E.U., Peoples, R.W., Borowitz, J.L. and Isom, G.E. (1991), Calcium-mediation of cyanide-induced catecholamine release: Implications for neurotoxicity, *Toxicol. Appl. Pharmacol.*, 110: 275-282.

198. Sekar, N., Kanthasamy, A., William, S., Balasubramanian, N. and Govindasamy, S. (1990), Antioxidant effect of vanadate on experimental diabetic rats, *Acta Diabetologia Latina*, 27: 149-155.

199. Sekar, N., Kanthasamy, A., William, S., Subramanian, S, and Govindasamy, S. (1990), Insulinic actions of vanadate on experimental diabetic rats. *Pharmacol. Res.*, 22: 207-217.

200. Subramanian, S., Kanthasamy, A., Seker, N, Balasubramanian, N. and Govindasamy, S. (1989), Effect of Ochratoxin- A on carbohydrate metabolism in rats, *Bull. Environ. Toxicol.*, 43: 180-184.

201. Kanthasamy, A., Subramanian, S. and Govindasamy, S. (1989), Bactericidal and fungicidal effects of *Prosopis juliflora* alkaloidal fractions, *Indian Drugs*, 26: 390-394.

202. Kanthasamy, A., William. S. and Govindasamy, S. (1989), Hemolytic effect of *Prosopis juliflora* alkaloids, *Current Science*, 58: 142-144.

203. Kanthasamy, A., Sekar,N. and Govindasamy, S. (1988), Vanadate substitutes insulin action in chronic diabetes, *Indian J. Expt. Biol*., 26: 778-780.

204. William, S., Kanthasamy, A., Subramanian,S. and Govindasamy,S. (1988), Studies on *in vitro* hemolytic effect of morphine sulfate, *J. Forensic Medicine.(ATD)*, 4: 149-155.

205. Kanthasamy, A., Gopalarathinam,K. and Govindasamy, S. (1988), Effect of *Prosopis juliflora* alkaloids on brain and cardiovascular system, *J. Forensic Medicine (ATD)*, 4: 141-148.

206. Kanthymathy, M., Subramanian, S., Kanthasamy, A., and Govindasamy, S. (1987), Effect of Ochratoxin-B on glycolytic enzymes, *J. Madras Univ.*, 4: 121-123.

207. Subramanian, S., Kanthasamy, A., William, S. and Govindasamy, S. (1986), Studies on the toxic nature of Ochratoxin- A in chicks, *Indian. J. Poultry Science*, 21: 354-356.

208. Kanthasamy, A., Rathinavelu, A. and Govindasamy,S. (1986), Hypoglycemic and hypolipidemic effects of vanadate on chronic experimental diabetes, *Contemporary Themes in Biochemistry*, 6: 318-320.

209. Kanthasamy, A., Govindasamy, S. and Damodaran, C (1986), Novel inhibition of LDH isoenzymes by *Clesitanthus collinus* toxins, *Current Science*, 55: 854-857

BOOKS and/or BOOK CHAPTERS

1. 'PKC-delta: a Major Molecular Target for Diverse Dopaminergic Toxicants: Implications for Mechanistic and Translational Neurotoxicology' Riaz Z, Charli A, Wickham H, Jin H, Zenitsky G, Anantharam V, Kanthasamy A, and Kanthasamy AG. In: Molecular and

Integrated Toxicology, from the "Molecular and Integrative Toxicology" series (Springer), Edited by Nikolay Filipov. In press.

2. 'Disruption of intracellular signaling' Kanthasamy AG, Luo J, Rokad D, and Charli A, In:

   An Introduction to Interdisciplinary Toxicology: From Molecules to Man, Edited by Pope C and Liu J. pp: 81-96, 2020.

3. "Neurotoxicity of Vanadium", Hilary Afeseh Ngwa, Muhammet Ay, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy and Anumantha G. Kanthasamy. Adv. Neurobiol. 2017; 18:287-301.

4. 'Chronic Traumatic Encephalopathy' Anumantha G Kanthasamy, Vellareddy Anantharam, Huajun Jin, Shivani Ghaisas, Gary Zenitsky and Arthi Kanthasamy. Neuroimmune Pharmacology, Tsuneya Ikezu and Howard E. Gendelman (Eds). Chapter 10. 2016.

5. 'Quercetin' Jin H, Kanthasamy A, Anantharam V, and Kanthasamy AG, In: Nutraceuticals: Efficacy, Safety and Toxicity, Edited by Ramesh C Gupta. pp: 447-452, 2016

6. 'Manganese and Prion Disease' Jin H, Harischandra DS, Choi C, Martin D, Anantharam V, Kanthasamy A, and Kanthasamy AG, (2014) In: Manganese in Health and Disease, Edited by Lucio Costa and Michael Aschner. 574-590.

7. 'Biomarkers of Parkinson's disease' Jin H, Kanthasamy A, Anantharam V, and Kanthasamy AG, In: Biomarkers in Toxicology, Edited by Ramesh C Gupta. pp: 817-832, 2014

8. 'Cell Signaling Mechanisms in Developmental Neurotoxicity,' Song, C., Kanthasamy, A., Kanthasamy, A.G. Kanthasamy, In: Reproductive and Developmental Toxicology, Edited by: Ramesh Gupta, pp: 835-846, 2011

9. 'Environmental Factors and Parkinson's Disease,' H. Jin, A. Kanthasamy, M. Kitazawa, F. Sun, V. Anantharam, and A. G. Kanthasamy, In: Environmental Toxicology, Ed. Riyah Basha, 2011

10. 'Autacoids' Kanthasamy, A.G. and Hsu, W. In: 'Handbook of Veterinary Pharmacology, [Ed]. Walter Hsu, Blackwell Publishers, 2009

11. 'Role of α-Synuclein in Neuroprotection and Neurotoxicity of Dopaminergic Neurons'**,** Sun et al., In: Parkinson's Disease Pathogenic and Therapeutic Insights from Toxin and Genetic Models**,** [Eds.] Richard Nass, and Serge Przedborski, to be published by Academic Press, 2007

12. 'Animal Models of Parkinson's disease', Kanthasamy, AG. and Kaul, S. In: 'Handbook of Experimental Neurology – Methods and Techniques in Animal Research, (Eds.) Tatlisumak, T and Fisher, M., Cambridge University Press, 2006, pp: 411-437

13. 'Antioxidants and Free Radicals in Health and Disease' [Ed.] A. G. Kanthasamy and J. Marwah, Prominent Press, 2001.

SELECT ABSTRACTS AND CONFERENCES: 2015 - TILL DATE

1. N Panicker; M Neal; D Harischandra; S Sarkar; A Kanthasamy; H Jin; H Saminathan; V Anantharam; A Kanthasamy. Aggregated human alpha-synuclein activates the NLRP3 inflammasome in microglia through a Fyn-dependent signaling pathway.

"Neuroinflammation in Diseases of the Central Nervous System" Keystone Conference, 25-30 January 2015, Taos, NM.

2. Dilshan S. Harischandra, Matthew Neal, Nikhil Panicker, Hope Privitera, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy and Anumantha Kanthasamy. Role of the Divalent Metal Manganese in α-Synuclein Protein Misfolding and Cell-to-Cell Transmission of Protein Aggregates via Exosomes in Cell Culture and Animal Models of Parkinson's Disease. 54th Annual meeting of the Society of Toxicology Meeting, March 22-26, 2015, San Diego, CA.
3. Luo, Jie; Kanthasamy, Arthi ; Neal, Matthew; Anantharam, Vellareddy ; Jin, Huajun; Kanthasamy, Anumantha. Transcriptional Regulation of the Compensatory Signaling Molecule Prokineticin-2 during Neurotoxic Stress in Dopaminergic Neuronal Cells. 54th Annual meeting of the Society of Toxicology Meeting, March 22-26, 2015, San Diego, CA.
4. Muhammet Ay, Adhithiya Charli, Arthi Kanthasamy, Vellareddy Anantharam, Huajun Jin, Balaraman Kalyanaraman and Anumantha G Kanthasamy. Novel Mitochondria-Targeted Drug Induces PKD1 Activation and its Downstream Pro-survival Signaling to Promote Mitochondrial Biogenesis Against Dopaminergic Neurotoxicity. 54th Annual meeting of the Society of Toxicology Meeting, March 22-26, 2015, San Diego, CA.
5. Adhithiya Charli; Huajun Jin; Arthi Kanthasamy; Vellareddy Anantharam; Balaraman Kalyanaraman; Anumantha G. Kanthasamy, Mitochondrial dysfunction and damage in rat dopaminergic neurons induced by environmental pesticides: Cell culture models of Parkinson's disease. 54th Annual meeting of the Society of Toxicology Meeting, March 22-26, 2015, San Diego, CA.
6. Monica Langley, Anamitra Ghosh, Muhammet Ay, Brain Dranka, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Balaraman Kalyanaraman, Anumantha Kanthasamy. Mitochondria targeted antioxidant, Mito-apocynin, protects against oxidative stress and neurodegeneration in MitoPark Model of Parkinson's disease. 54th Annual meeting of the Society of Toxicology Meeting, March 22-26, 2015, San Diego, CA.
7. S. Kanuri, H. Jin, A. Vellareddy, A. Kanthasamy, *A. Kanthasamy; Fipronil-induces apoptosis via modulation of mitochondrial function and alteration in protein degradation machinery in SH-SY5Y cells. 45th Annual meeting of Society for Neuroscience, Oct 17-21, 2015, Chicago, IL.
8. C. A. Berg, S. Ghaisas, N. Kondru, H. Jin, V. Anantharam, A. Kanthasamy, *A. G. Kanthasamy; Development and validation of an organotypic brain slice model for studying chronic traumatic encephalopathy. 45th Annual meeting of Society for Neuroscience, Oct 17-21, 2015, Chicago, IL
9. N. Panicker, S. Sarkar, M. Neal, D. Harischandra, H. Jin, H. Saminathan, V. Anantharam, A. Kanthasamy, A. Kanthasamy; Fyn kinase mediates aggregated α-synuclein import and priming of the NLRP3 inflammasome in microglia45th Annual meeting of Society for Neuroscience, Oct 17-21, 2015, Chicago, IL.
10. S. Sarkar1, N. Panicker1, M. Neal1, H. Jin1, A. Charli1, *V. Anantharam2, A. Kanthasamy1, A. Kanthasamy1; Pesticide-Induced Mitochondrial Dysfunction Activates nlrp3 inflammasome signaling pathway in primary murine microglia. 45th Annual meeting of Society for Neuroscience, Oct 17-21, 2015, Chicago, IL.
11. Shivani Ghaisas, Dilshan S. Harischandra, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha Kanthasamy, Chronic Exposure To Manganese Causes Selective Changes In The Enteric Nervous System And Gut Physiology Leading To Altered Nutrient

Metabolism And Intestinal Motility. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA.

12. Shivani Ghaisas, Dilshan S. Harischandra, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha Kanthasamy, Chronic Exposure To Manganese Causes Selective Changes In The Enteric Nervous System And Gut Physiology Leading To Altered Nutrient Metabolism And Intestinal Motility. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA.
13. Dilshan Harischandra, Mostafa Zamanian, Dharmin Rhokad, Huajun Jin, Vellareddy Anantharam, Michael Kimber, Arthi Kanthasam, Anumantha Kanthasamy. Environmental Neurotoxicant Manganese Alters Exosomal miRNAs and Autophagic Regulation in Cell Culture Model of Parkinson's Disease. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA.
14. Monica R. Langley, Matthew Neal, Jie Luo, Naveen Kondru, Carrie Berg, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha Kanthasamy. Prokineticin 2 Plays a Role in Altered Neurogenesis and Non-Motor Deficits in PD Models. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA.
15. Dharmin Rokad, Dilshan S. Harischandra, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy,Anumantha G. Kanthasamy. Molecular Mechanisms of Manganese induced Exosome Release and its Relevance To Synucleopathies. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, in New Orleans LA.
16. Adhithiya Charli, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha G. Kanthasamy. Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by histone H3 and H4 Hyperacetylation in Dopaminergic Neuronal Model of Parkinson's disease. 55th Annual meeting of the Society of Toxicology Meeting, March 13–17, 2016, New Orleans LA.
17. Souvarish Sarkar, Nikhil Panicker, Matthew Layne Neal, Dilshan Harischandra, Huajun Jin, Vellareddy Anantharam, Balaraman Kalyanaraman, Arthi Kanthasamy and Anumantha Kanthasamy. Mito-Apocynin, A Novel Mitochondria-Targeted Derivative Of Apocynin, Inhibits Nlrp3 Inflammasome Activation In Primary Murine Microglia In Dopaminergic Neurotoxic Models. Experimental Biology, April 2-6 2016, San Diego, CA.
18. Manne S, Kondru N, Jin H, Anantharam V, Kanthasamy A, and Kanthasamy A. Manganese Accelerates Template-Driven Prion Protein Seeding Activity: Relevant to the Prionoid Mechanism of Neurodegenerative Processes. Central States Meeting, Society of Toxicology, November 17-18, 2016, Iowa City, IA.
19. Rokad D, Harischandra DS, Lawana V, Luo D, Jin H, Anantharam V, Kanthasamy A, and Kanthasamy AG. Manganese Exposure Impairs Endosomal and Exosomal Recycling Machinery to Enhance the Release of Misfolded α-Synuclein. Central States Meeting, Society of Toxicology, November 17-18, 2016, Iowa City, IA.
20. Souvarish Sarkar, Dilshan Harischandra, Matthew Neal, Dharmin Rokad, Sireesha Manne, Shivani Ghaisas, Xuemei Huang, Anumantha Kanthasamy. Manganese Promotes α-Synuclein Protein Misfolding, Exosome-Mediated Release of Protein Aggregates and Neuroinflammation: Relevance to Translational Research in Environmental Metal Neurotoxicology. NIEHS Grantees Fest, December 6-8, 2016, Durham, NC.
21. Sarkar S, Rokad D, Harischandra D, Ghaisas S, Kumar JR, Malovic E, Lawana V, Jin H, Anantharam V, Huang X, Lewis M, Kanthasamy A, and Kanthasamy AG. Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of

ASC in Microglial Cells in Cell Culture and Animal Models. Central States Meeting, Society of Toxicology, November 17-18, 2016, Iowa City, IA.

22. Adhithiya Charli; Jie Luo; Monica Langley; Muhammet Ay; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha G. Kanthasamy, Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by Histone Hyperacetylation in Dopaminergic Neurons",. At Toxicoepigenetics: The Interface of Epigenetics and Risk Assessment (Conducted by the Society of Toxicology). November 2-4, 2016, Tysons, Virginia.
23. Adhithiya Charli; Jie Luo; Monica Langley; Muhammet Ay; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha G. Kanthasamy. Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by Histone Hyperacetylation in Dopaminergic Neurons, American College of Toxicology meeting, November 6-9, 2016, Baltimore, Maryland.
24. Adhithiya Charli; Jie Luo; Monica Langley; Muhammet Ay; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha G. Kanthasamy, Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by Histone Hyperacetylation in Dopaminergic Neurons, NIEHS Environmental Health Science FEST, December 5-8, 2016, Durham, North Carolina.
25. Adhithiya Charli; Jie Luo; Monica Langley; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha G. Kanthasamy. Mitochondria-impairing Pesticide Promotes PKCδ activation that Functions as a LaminB1 kinase to Induce Nuclear Membrane Damage in Dopaminergic Neuronal Model of Parkinson's disease. Central States Meeting, Society of Toxicology, November 17-18, 2016, Iowa City, IA.
26. M. Ay, A. Asaithambi, D. Harischandra, A. Kanthasamy, H. Jin, V. Anantharam, A. G. Kanthasamy , PKD1 activation positively regulates PGC-1α transcriptional activity and protects against dopaminergic neurodegeneration. 46th Annual Meeting of the Society for Neuroscience, Nov 12-16, San Diego, CA.
27. N. Kondru, S. Manne, J. Greenlee, M. Greenlee, P. Halbur, A. Kanthasamy, A. Kanthasamy. Organotypic slice culture assay coupled to RT-QuIC (OSCAR) assay: towards rapid translational modeling of prion diseases. 46th Annual Meeting of the Society for Neuroscience, Nov 12-16, 2017 San Diego, CA
28. Souvarish Sarkar, Monica Langley, Dilshan Harischandra, Matthew Neal, Dan Luo, Adhithiya Charli, Hai Minh Nguyen, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Heike Wulff, Anumantha Kanthasamy. Microglial Kv1.3, a voltage-gated potassium channel, mediates neuroinflammation and neurodegeneration in cell culture and animal models of Parkinson's disease. Experimental Biology, April 22-26 2017, Chicago, IL.
29. S. Sarkar, D. Rokad, D. Harischandra, S. Ghaisas, J. R. Kumar, E. Malovic, V. Lawana, H. Jin, V. Anantharam, X. Huang, M. Lewis , A. Kanthasamy, and A. G. Kanthasamy. Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of ASC in Microglial Cells in Cell Culture and Animal Models. Meeting: SOT, March 12-16, 2017, Baltimore, MA.
30. Emir Malovic, Souvarish Sarkar, Dilshan S. Harischandra, Hillary A. Ngwa, Huajun Jin, Anantharam Vellareddy, Arthi Kanthasamy, and Anumantha G. Kanthasamy. Manganese exposure induces neuroinflammation by impairing mitochondrial dynamics in astrocytes. Experimental Biology Meeting, April 22-26, 2017, Chicago , IL.
31. Souvarish Sarkar, M. Langley, D. Harischandra, M. Neal, J. Luo, A. Charli, H. Nguyen, H. Jin, V, Anantharam, A. Kanthasamy, H. Wulff, A. Kanthasamy. Microglial Kv1.3, a voltage-gated potassium channel, mediates neuroinflammation and neurodegeneration in cell culture

and animal models of Parkinson's disease. Experimental Biology Meeting, April 22-26, 2017, Chicago , IL.

32. Souvarish Sarkar, M. Langley, D. Harischandra, M. Neal, J. Luo, A. Charli, H. Jin, V, Anantharam, A. Kanthasamy, A. Kanthasamy. Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of ASC in Microglial Cells in Cell Culture and Animal Models. Gordon Research Conference, Cellular & Molecular Mechanisms of Toxicity, August 2017, Andover, NH.
33. Adhithiya Charli, Jacob Glyten, Jie Luo, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha Kanthasamy Protein Kinase Cδ (PKCδ) Controls Basal Mitochondrial Bioenergetics in Dopaminergic Neuronal Cells: Relevance to Mitochondrial Dysfunction in Neurodegenerative Diseases. American Physiological Society (APS), Aug 28-30, 2017, San Diego, CA.
34. Anumantha Kanthasamy, Souvarish Sarkar, Dilshan Harischandra, Nikhil Panicker, Adhithiya Charli, Shivani Ghaisas, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy. Mitochondrial Impairment Amplifies Nlrp3 Inflammasome Proinflammatory Signaling in Microglia in Cell Culture & Animal Models of PD. International/American Society of Neurochemistry (ISN/ASN), Aug 20-24, 2017 Paris, France.
35. Vellareddy Anantharam; Muhammet Ay; Adhithiya Charli; Arthi Kanthasamy; Huajun Jin; Balaraman Kalyanaraman; Anumantha G Kanthasamy. Novel Mitochondria-Targeted Drug Induces Pro-Survival Signaling And Increases Respiration To Promote Mitochondrial Biogenesis Against Dopaminergic Neurotoxicity. Grand Challenges in Parkinson's Disease: The Role Of Energy Metabolism, Sep 27-28, 2017 Grand Rapids, MI.
36. Adhithiya Charli; Jie Luo; Monica Langley; Muhammet Ay; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha G. Kanthasamy. Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by histone H3 and H4 Hyperacetylation in Dopaminergic Neuronal Model of Parkinson's disease. Grand Challenges in Parkinson's Disease: The Role Of Energy Metabolism, Sep 27-28, 2017, Grand Rapids, MI.
37. A. Abdalla; A. Charli; D. Harischandra; S. Ghaisas; S. Manne; E. Malovic; D. Rokad; H. Jin; V. Anantharam; A. Kanthasamy; A. Kanthasamy, Mitochondria-Targeting Pesticides Modulate Elongator Protein 3 (ELP3) Function to Enhance Dopaminergic Neurotoxicity in Cell Culture and Animal Models of Parkinson's Disease. 57th SOT annual meeting and ToxExpo March 11 to 15-2018, San Antonio, TX.
38. A. Abdalla; A. Charli; D. Harischandra; S. Ghaisas; S. Manne; E. Malovic; D. Rokad; H. Jin; V. Anantharam; A. Kanthasamy; A. Kanthasamy, Mitochondria-Targeting Pesticides Modulate Elongator Protein 3 (ELP3) Function to Enhance Dopaminergic Neurotoxicity in Cell Culture and Animal Models of Parkinson's Disease. 11th Annual GMAP Research Symposium scheduled for Saturday, November 3rd in the Scheman Building.
39. A. Abdalla; A. Charli; D. Harischandra; S. Ghaisas; S. Manne; E. Malovic; D. Rokad; H. Jin; V. Anantharam; A. Kanthasamy; A. Kanthasamy, Mitochondria-Targeting Pesticides Modulate Elongator Protein 3 (ELP3) Function to Enhance Dopaminergic Neurotoxicity in Cell Culture and Animal Models of Parkinson's Disease. CVM Research Day Friday, August 10, 2018.
40. Hepker, M., Kondru, N., Manne, S., Kanthasamy, A., Kanthasamy, A.. Divalent metal exposure amplifies aggregated alpha-synuclein induced TNF-receptor signaling in microglial cells. CVM research day, August 10, 2018
41. M. Huang, Mitochondrial impairment induces epigenetic histone modifications in microglia: relevance to neuroinflammation in Parkinson's disease. Society for Neuroscience. November 3-7, 2018, San Diego, CA.

42. N. Kondru, S. Manne, E. Malovic, H. Jin, V. Anantharam, A. Kanthasamy, and A. G. Kanthasamy, α-synuclein and manganese elicit distinct transcriptomic alterations that disrupt microglial homeostasis. 2018 Central States Society of Toxicology, October 18-19, 2018, Manhattan, Kansas.
43. N. Kondru, S. Manne, E. Malovic, H. Jin, V. Anantharam, A. Kanthasamy, and A. G. Kanthasamy, α-synuclein and manganese elicit distinct transcriptomic alterations that disrupt microglial homeostasis. College of Veterinary Medicine Research Day, central States Society of Toxicology, October 18-19, 2018, Ames, Iowa.
44. J. Luo, H. Jin, M. Huang, V. Anantharam, A. G. Kanthasamy, A. Kanthasamy. Transcriptional Regulation of the Compensatory Signaling Neuropeptide Prokineticin-2 by HIF1α and EGR1 during Neurotoxic Stress in Dopaminergic Neuronal Cells. 58th Annual Meeting of the Society of Toxicology, Mar 11-15, 2018, San Antonio, TX.
45. J. Luo, H. Jin, M. Huang, V. Anantharam, A. G. Kanthasamy, A. Kanthasamy. Transcriptional Regulation of the Compensatory Signaling Neuropeptide Prokineticin-2 by HIF1α and EGR1 during Neurotoxic Stress in Dopaminergic Neuronal Cells. CVM Research Day, August 10, 2018, Ames, IA.
46. J. Luo, H. Jin, M. Huang, V. Anantharam, A. G. Kanthasamy, A. Kanthasamy. Transcriptional Regulation of the Compensatory Signaling Neuropeptide Prokineticin-2 by HIF1α and EGR1 during Neurotoxic Stress in Dopaminergic Neuronal Cells. Central States Society of Toxicology Meeting, October 18-19, 2018, Manhattan, KS.
47. E. Malovic, S. Sarkar, D. Rokad, J. Luo, D. Harischandra, H. Jin, V. Anantharam, X. Huang, M. Lewis, A. Kanthasamy, A. G. Kanthasamy, Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of ASC in Microglial Cells. Experimental Biology 2018, April 21-25, San Diego, CA.
48. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum: Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. American College of Toxicology, 39th Annual Meeting, West Palm Beach, FL.
49. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum: Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. Society of Toxicology 57thAnnual Conference, San Antonio, TX.
50. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum: Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. Society of Toxicology 57th Annual Conference, San Antonio, TX.
51. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum: Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. GPSS research conference, ISU, Ames, 2018.
52. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum:

Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. CVM research day, ISU, Ames, 2018.

53. S. Manne, N. Kondru, D. Rokad, A. Abdalla, H. Jin, E. Y. Lee, M. Lewis, V. Anantharam, X. Huang, A. Kanthasamy, A.G. Kanthasamy. High-Throughput and Sensitive Quantification of α-Synuclein Protein Aggregation in Welder's Serum: Relevance to Development of Circulating Biomarkers for Manganese Neurotoxicity. CS SOT, Manhattan, KS, 2018.
54. B.N. Palanisamy, S. Sarkar, E. Malovic, H. Jin, V. Anantharam, A. Kanthasamy, and A. G. Kanthasamy, "Pesticide Exposure Leads to Mitochondrial Dysfunction and Inflammation in Enteric Glial Cells". 2018 (57th) SOT Annual Meeting and ToxExpo, March 11–15, in San Antonio, Texas.
55. D. Rokad, D. Harischandra, V. Lawana, S. Sarkar, D. Luo, H. Jin, V. Anantharam, A. Kanthasamy, A. G. Kanthasamy, Manganese Exposure Enhances the Release of Misfolded α-Synuclein via Exosomes by Impairing Endosomal Trafficking Machinery, 57th Annual Meeting of the Society of Toxicology, March 11–15, 2018, San Antonio, Texas.
56. D. Rokad, D. Harischandra, V. Lawana, S. Sarkar, D. Luo, H. Jin, V. Anantharam, A. Kanthasamy, A. G. Kanthasamy, Manganese Exposure Enhances the Release of Misfolded α-Synuclein via Exosomes by Impairing Endosomal Trafficking Machinery, CVM Summer Scholar Research Program, August 11, 2018, Ames, Iowa.
57. D. Rokad, D. Harischandra, V. Lawana, S. Sarkar, D. Luo, H. Jin, V. Anantharam, A. Kanthasamy, A. G. Kanthasamy, Manganese Exposure Enhances the Release of Misfolded α-Synuclein via Exosomes by Impairing Endosomal Trafficking Machinery, Central States Chapter of the Society of Toxicology, October 18-19, 2018, Manhattan, Kansas.
58. D. Rokad, D. Harischandra, V. Lawana, S. Sarkar, D. Luo, H. Jin, V. Anantharam, A. Kanthasamy, A. G. Kanthasamy, Manganese Exposure Enhances the Release of Misfolded α-Synuclein via Exosomes by Impairing Endosomal Trafficking Machinery, Graduate and Professional Student Research Conference, April 11, 2018, Ames, Iowa.
59. Ahmed Abdalla; Adhithiya Charli; Dilshan Harischandra; Shivani Ghaisas; Sireesha Manne; Emir Malovic; Dharmin Rokad; Huajun Jin; Vellareddy Anantharam; Arthi Kanthasamy; Anumantha Kanthasamy, Mitochondrial Stress Modulates Elongator Protein 3 (ELP3) Function to Enhance Dopaminergic Neurotoxicity in Cell Culture and Animal Models of Parkinson's Disease. Experimental Biology 2019, April 6-9, 2019, Orlando, Fl.
60. Alejandra Bargues-Carot, Emir Malovic, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha G. Kanthasamy, Mitochondrial Impairment Upregulates MICOS Expression in Human Microglial Cell Models, Experimental Biology, April 6-9, 2019, Orlando, Fl.
61. Alejandra Bargues-Carot, Naveen Kondru, Maddlyn Haller, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha G. Kanthasamy, Neurotoxic Effect of Manganese and Vanadium Co-Exposure in Animal Models of Parkinson's Disease. 58th Annual Meeting Society of Toxicology, March 10-14, 2019, Baltimore, MD.
62. Alyssa Nease, Emir Malovic, Naveen Kondru, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha G. Kanthasamy, The Role of ZBP1 in the Neuroinflammatory Response in Glia Cell Models of Parkinson's Disease. Experimental Biology, April 6-9, 2019, Orlando, Fl.
63. Bharathi N. Palanisamy, Shivani Ghaisas, Monica R. Langley, Huajun Jin, Somak Dutta, Paul J. Plummer, Kirthi Narayanaswamy, Vellareddy Anantharam, Arthi Kanthasamy, and Anumantha Kanthasamy, Gastrointestinal Dysfunction in the Mitopark Mouse Model

Recapitulates the Chronology of Gut Dysfunction in Parkinson's Disease. Neuroscience, October 19-23, Chicago, IL.

64. Dharmin Rokad, Dilshan S. Harischandra, Dan Luo, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Anumantha G. Kanthasamy, Managnese Exposure Induces the Release of Exosomes Containing Misfoleded Alpha-Synuclein by Impairing Endosomal Trafficking and Protein Degradation Machinery. 58th Annual Meeting Society of Toxicology, March 10-14, 2019, Baltimore, MD.
65. Emir Malovic, Souvarish Sarkar, Hai Nguyen, Monica Langley, Jie Luo, Neeraj Singh, Huajun Jin, Vellareddy Anantharam, Arthi Kanthasamy, Heike Wulff, Anumantha G. Kanthasamy, Voltage-Gated Kv1.3 Activation and Expression are Increased in Neurotoxic Models of Parkinson's Disease. 58th Annual Meeting Society of Toxicology, March 10-14, 2019, Baltimore, MD.
66. J. Luo, S. Sarkar, M. Neal, M. Huang, L. Burns, D. Borts, H. Jin, V. Anantharam, A. Kanthasamy, A. G. Kanthasamy, Pharmacological Activation of Prokineticin-2 Signaling Protects Against Dopaminergic Neurodenegeration in MPTP and MitoPark Rodent Models of Parkinson's Disease. 58th Annual Meeting Society of Toxicology, March 10-14, 2019, Baltimore, MD.
67. Sireesha Manne , Naveen Kondru , Huajun Jin , Vellareddy Anantharam , Mechelle Lewis, Xuemei Huang, Thomas Beach, Arthi Kanthasamy and Anumantha G. Kanthasamy, Ultra-sensitive detection of pathological alpha-synuclein in human tissues and biofluids using the RT-QuIC Assay: Relevance to development of circulating and peripheral biomarker for diagnosing alpha-synucleinopathies and other protein misfolding diseases, Experimental Biology 2019, April 6-9, 2019, Orlando, Fl.
68. Zainab Riaz, Adhithiya Charli, Huajun Jin, Vellareddy Anantharam, Maura McGrail, Jeffrey J Essner, Arthi Kanthasamy, Anumantha G. Kanthasamy. Zebrafish Transgenic Model for Studying the Dynamics of Mitochondrial Dysfunction Induced Epigenetic Hyperacetylation: Relevance to Environmentally Linked Parkinson's Disease. 58th Annual Meeting Society of Toxicology, March 10-14, 2019, Baltimore, MD.
69. Nicolas Backes, Ahmed Abdalla, Vellareddy Anantharam, Anumantha Kanthasamy and Gregory J Phillips. Engineering Escherichia coli Nissle as an Effective L-DOPA Delivery System. CBDS&T Conference, Nov 18-21, 2019. Cincinnati, OH.
70. Anumantha Kanthasamy, Exosomes as Mediators of Manganese-Induced Neuroinflammation and Neurotoxicity: Translational Implications for Biomarker Discovery in Parkinsonism. 14th ISTERH Congress, June 5-10, 2022, Aachen, Germany.
71. Alyssa Ealy[1], Emir Malovic[2], Huajun Jin[1], Vellareddy Anantharam[1], Arthi Kanthasamy[1], Anumantha Kanthasamy[1]. N6-methyladenosine RNA Modification Alters the Expression of Pro-inflammatory Cytokines in a Manganese-Induced Neuroinflammatory Model of Parkinson's Disease, Annual Meeting of the Society for Neuroscience, November 12-16, 2022, San Diego, CA.
72. Chelva Janarthanam[1], Huajun Jin[1], Vellareddy Anantharam[1], Arthi Kanthasamy[1], Anumantha G. Kanthasamy[1]. Alpha-synuclein Aggregates in Red Blood Cell (RBC)-derived Extracellular Vesicles (EVs) as Potential Prodromal Biomarker of Environmentally Linked Parkinsonism. Annual Meeting of the Society for Neuroscience, November 12-16, 2022, San Diego, CA.
73. Zainab Riaz[1], Adhithiya Charli[2], Huajun Jin[1], Vellareddy Anantharam[1], Arthi Kanthasamy[1], Anumantha Kanthasamy[1]. Mitochondrial Neurotoxic Stress Impairs the Nuclear Pore Complex: Implications for Parkinson's Disease Pathogenesis. Annual Meeting of the Society for Neuroscience, November 12-16, 2022, San Diego, CA.

74. Zainab Riaz[1], Adhithiya Charli[2], Huajun Jin[1], Vellareddy Anantharam[1], Arthi Kanthasamy[1], Anumantha Kanthasamy[1]. Mitochondrial Neurotoxic Stress Impairs the Nuclear Pore Complex: Implications for Pathogenesis of Environmentally Linked Parkinson's Disease.62nd Annual Meeting Society of Toxicology, March 19-23, 2023, Nashville, TN.
75. P. Padhi[1], A. Abdalla[2], B. Scheider[2], N. Backes[2], H. Jin[1], V. Anantharam[1], A. Kanthasamy[1], K. Allenspach[2], J. Mochel[2], G. J. Phillips[2], and A. G. Kanthasamy[1]. Engineered Live-Biotherapeutic for Sustained Levodopa Delivery in Parkinson's Disease. Annual Meeting Society of Toxicology, March 19-23, 2023, Nashville, TN.
76. Bargues Carot[1], M. Samidurai[2], A. Charli[3], C. Janarthanam[1], H. Jin[1], V. Anantharam[1], X. Huang[4], A. Kanthasamy[1], and A. G. Kanthasamy[1]. Exosomal Histone Drives Inflammasome Activation and α-Synuclein Aggregation. Annual Meeting Society of Toxicology, March 19-23, 2023, Nashville, TN.
77. A. G. Kanthasamy. Novel Mechanism-Derived Translational Discovery in Environmentally Linked Neurodegenerative Diseases. Distinguished Toxicology Scholar Award Lecture, Annual Meeting Society of Toxicology, March 19-23, 2023, Nashville, TN.
78. G. R. Clabaugh[1], B. N. Palanisamy[2], H. Jin[1], G. Zenitsky[1], V. Anantharam[1], and A. G. Kanthasamy[1]. Role of Prokineticin 2 and EGR1 Signaling Axis in Neurotoxic Metal-Induced Olfactory Dysfunction. Annual Meeting Society of Toxicology, March 19-23, 2023, Nashville, TN.

TEACHING/TRAINING EXPERIENCE

- **Iowa State University**

2005-present	Instructor, BMS 354/554, Pharmacology, Spring Semester, 120 DVM students. Five lectures, Iowa State University.
2001-2004	Instructor-in-charge, BMS 354/554, Pharmacology, Spring Semester, 105 DVM students, eight lectures plus course administration, Iowa State University.
2006-2011	Instructor-in-charge Tox-502, Toxicology Methods, Interdepartmental Toxicology Program, Iowa State University, Spring semester. One lecture. Four lab sessions, three hours each.
2005-present	BMS-575, Cell Biology, two lectures, Iowa State University.
2006-2008	GDCB 640, Signal transduction, one lecture, Iowa State University.
2000-2008	Instructor, BMS 549 Advanced Vertebrate Physiology-I, Fall Semester. Four credits, 11 lectures. Iowa State University.
2000-present	Instructor, Tox-501 General Principles in Toxicology, Spring semester. Three lectures, Iowa State University.
2001-present	Instructor, BMS 552 Advanced Vertebrate Physiology-II, Spring Semester, (three credits), three lectures, Iowa State University.
2001-2009	Instructor, Neuro 557, Methods in Neuroscience- Lab course, (four credits), one lab, Spring Semester, Iowa State University.
2001-2005	Instructor, Tox-502, Toxicology Methods, Two laboratories (six hrs), Iowa State University

2000-2008	Instructor-in-charge, BMS 698-Biomedical Seminar Series, Spring and Fall Semester, Iowa State University.
2000-present	Instructor-in-charge, BMS 590A-C, Special Topics in Anatomy, Physiology and Pharmacology, Iowa State University.
2002-present	Instructor, HON 290H, Freshman Honors Program, Iowa State University.
2003 Spring	Instructor-in-charge, Tox-504, Toxicology Seminar Series, Iowa State University.
2002 Spring	Instructor, GENET 591 –Genetics of Behavior Workshop, Iowa State University

- **University of California Irvine**

1997-1999	University of California Irvine, Tox-206 Target Organ Toxicology, Neuroscience/Neurotoxicology section, Graduate level course. Five credit hours, five lectures. University of California Irvine.
1995-1999	Instructor, Bio-199 Undergraduate Research in Neuropharmacology and Neuroscience. Supervised eight students since 1995. Many students secured summer fellowships from external mural fellowships (Parkinson's Disease Foundation, Myoclonus Research Foundation. (See below.) Students trained were either in graduate or medical school.

CONTRIBUTIONS TO GRADUATE STUDENTS TRAINING

- **Trained over 30 PhDs and 40 Masters Students**

Current graduate students – serving as Major Professor

Name	Degree Sought	Major
1. Ahmed Abdalla	Ph.D.	Toxicology
2. Alejandra Bargues-Carot	Ph.D.	Biomedical Science
3. Alyssa Nease	Ph.D.	Biomedical Science
4. Bharathi Palanisamy	Ph.D.	Biomedical Science
5. Emir Malovic	Ph.D.	Neuroscience
6. Minhong Huang	Ph.D.	Toxicology
7. Piyush Padhi	Ph.D.	Biomedical Science
8. Ahyoung Zhang	Ph.D.	Neuroscience
9. Zainab Riaz	Ph.D.	Genetics
10. Chelva Janarthanam	Ph.D.	Biomedical Science
11. Joseph Wurtz	Ph.D.	Biochemistry and Molecular Bilogy
12. Monica Hepker	Ph.D.	Biomedical Science
13. Griffin Clabaugh	Ph.D.	Biochemistry and Molecular Biology
14. Alyssa Otto	Ph.D.	Toxicology

- **Past Graduate students and their current employment -- served as Major Professor**

1. Dharmin Rokad, Ph.D. Major Toxicology, Spring 2020. His work involved studying role of neurotoxicant-induced exosomal alpha-synuclein release mechanisms in etiopathogenesis of Parkinson's Disease. He is a currently a Toxicology Study Director at Covance Labs, New Jersey.

2. Naveen Kondru, Ph.D. Major Biomedical Sciences, Spring 2018. His thesis involved Ex-vivo modeling of misfolded protein neurotoxicity in brain slices: Implications for mechanistic and translational discovery in chronic neurodegenerative diseases. He is a currently a Post-doctoral Fellow at Mayo Clinic, Jacksonville, FL.

3. Sireesha Mane, Ph.D. Major Biomedical Sciences, Spring 2019. She studied the effect of environmental neurotoxic chemical exposures on protein misfolding processes as related to Parkinsonism. She also developed peripheral biomarkers for Parkinson's disease using alpha-synuclein RT-QuIC seeding assay. She is a currently a Post-doctoral Fellow at Mayo Clinic, Jacksonville, FL.

4. Jie Luo, Ph.D. Major Toxicology, Spring 2018. Prokineticin 2 Signaling: Genetic Regulation and Preclinical Assessment in Rodent Models of Parkinsonism. He is a currently a Post-doctoral Fellow at Duke University, NC.

5. Adhithiya Charli Manohar Charle, Ph.D. Major Toxicology, Spring 2018. His work involved Interplay between mitochondrial dysfunction and epigenetic alterations in environmental linked Parkinson's Disease. He is a currently a Toxicology Study Director at Charles River, PA.

6. Sireesha Manne, Major Toxicology, Spring 2018. Development of Protein Biomarker Assays for Misfolded Proteinapathies, She is currently a Post-doctoral Fellow at Mayo Clinic, Jacksonville, FL.

7. Monica Langley, Ph.D. Major: Toxicology, Spring, 2017. Her Ph.D. work involved Characterization of the MitoPark mouse model of Parkinson's disease for neurotoxicity and neuroprotection studies. She is currently a Post-doctoral Fellow at Mayo Clinic, Rochester, MN.

8. Shivani Ghaisas, PhD. Major: Molecular, Cellular & Dev. Biology, Spring 2017. Her PhD work involved Intestinal inflammation and enteric nervous system deregulation in the pathogenesis of Parkinson's disease. Post-doctoral Fellow, University of Pennsylvania, Philadelphia. 2017.

9. Matthew Neal, Ph.D. Major: Genetics and Neuroscience, Fall 2016. His Ph.D. work involved examining Prokineticin-2: a novel anti-apoptotic and anti-inflammatory signaling protein in Parkinson's disease. He is currently a Toxicologist at Battle Labs at Columbus, OH.

10. Muhammet Ay, Ph.D. Major: Genetics, Spring 2016. His Ph.D. research was on Translational drug discovery approaches targeting the PKD1 signaling in Parkinson's disease. He is currently Assistant Professor at University of Istanbul, Turkey.

11. Nikhil Panicker, Ph.D. Major: Molecular, Cellular and Dev. Biology, Spring 2016. His Ph.D work involved in elucidating the role of Fyn kinase in mediating microglial pro-inflammatory responses in Parkinson's disease. He is currently a Post-doctoral Fellow at Johns Hopkins Medical School, Baltimore.

12. Dongsuk Kim, Ph.D. Major: Genetics and Toxicology, Spring 2016. The Ph.D. research involved examining Characterization of p73 and STAT5b genes susceptible to manganese exposure in dopaminergic neurons. He is currently a Post-doctoral Fellow at UC Davis, CA. .

13. Dilshan Harischandra, Ph.D. Major: Toxicology, Spring 2016. The Ph.D. work involved in examining the effects of exposure to the environmental neurotoxicant manganese on α-synuclein and its cell-to-cell transmission via exosomes. He is currently a Study Director, Covance Labs, Indianapolis, IN.

14. Dustin Martin Ph.D. Major: Molecular, Cellular & Dev Biol: Minor: Neuroscience: Spring 2013. The Ph.D. work involved the role of manganese and protein kinase signaling in cell culture and animal models of prion disease. He is currently the Adjunct professor of Biology at St. Mary's University, Winona, MN

15. Anamitra Ghosh Ph.D. Major: Interdepartmental Neuroscience, Iowa State University, Spring 2012. The Ph.D work involved role of Pin1in dopaminergic neuronal degeneration and novel neuroprotective compounds against the disease progression of Parkinson's disease. He is currently a Postdoctoral fellow at University of Houston, Houston, TX.

16. Colleen Jeffrey, MS. Major: Interdepartmental Toxicology, Iowa State University, Spring 2012. Her MS work involved Neuroinflammatory mechanisms and translational approaches in environmental neurotoxicity models. She is currently a Scientist at, Pioneer Hybrid, Johnston, IA.

17. Hilary Afeseh Hgwa, Ph.D. Major: Interdepartmental Toxicology, Iowa State University, Fall 2011. The Ph.D. work of Hilary involved characterization of neurotoxic mechanisms associated with exposures of manganese, vanadium and metal nanoparticle in cell and animal models. He is currently a Senior Product Safety and Regulatory Manager, Duracell - Berkshire Hathaway, Belgium.

18. Arunkumar Asaithambi, Ph.D. Major: Interdepartmental Toxicology, Iowa State University, Fall 2011. Arun studied the signal transduction mechanisms underlying Protein Kinase D1 activation in cell culture and animal models of PD. He received an ISU Research Excellence Award for his doctoral research work. Dr. Asaithambi is currently CEO of Lantern Pharma, Addison TX.

19. Richard Gordon, Ph.D. Major: Interdepartmental Immunobiology, Iowa State University, Summer 2011. Richard studied the neuroinflammatory mechanisms mediated by PKC delta isoform in cell culture and animal model. He received an ISU Research Excellence Award for his doctoral research work. Dr. Gordon is currently Faculty Member, Biomedical Sciences, University of Queensland, Australia.

20. Hariharan Saminathan, Ph.D. Interdepartmental Toxicology, Iowa State University, Spring 2011. Hari studied the cellular mechanisms underlying Fyn kinase activation in cell culture and animal models of PD. Dr. Saminathan is an Assistant Professor Veterinary Pharmacology and Toxicology, United Arab Emirates.

21. Huajun Jin, Ph.D., Major: Molecular, Cellular and Developmental Biology, Iowa State University, Winter 2010. His Ph.D. thesis was focused on the understanding of molecular and cellular mechanisms underlying dopaminergic neurodegeneration in Parkinson's disease, especially the contributions of gene-environment and epigenetic-environment interactions targeting the promoter region of a proapoptotic kinase PKCdelta. Dr. Jin is an Assistant Scientist IV in the Department of Biomedical Sciences at ISU.

22. Chunjuan Song, Ph.D., Co-Major: Genetics and Neuroscience, Iowa State University, Fall 2010. Dr. Song's special area of study focused on the role of hyperacetylation of histones

and non-histone proteins in environmental neurotoxicants-induced dopaminergic neuronal cell death. Dr. Song is the Director of Gene Therapy at the University of Pennsylvania.

23. Danhui Zhang, Ph.D., Major: Neuroscience, Iowa State University, Summer 2008. Dr. Zhang Ph.D study focused on Translational approaches to development of Neuroprotective mechanisms directed against kinase signaling in animal PD models and is currently a postdoctoral scholar at Center for Health Sciences, SRI International Palo Alto, California.

24. Christopher Choi, Ph.D., Major: Neuroscience, Minor: Toxicology, Iowa State University, Fall 2007. Received Research Excellence award for his Ph.D. work. Dr. Choi is a Manager, Toxicology, EHS, Ashland Inc.

25. Faneng Sun, Ph.D., Major: Neuroscience, Iowa State University, Summer 2007. Dr. Sun completed postdoctoral work at the Washington University School of Medicine, St. Louis, MO. He is currently a Research Scientist at BioVision Inc, Milipitas, CA.

26. Yongjie Yang, Ph.D., Major Professor, Co-major in Interdepartmental Genetics and Neuroscience, Iowa State University, Spring 2005. Received: Research Excellence award for his Ph.D. work, Dr. Yang is currently a tenured Associate professor in the Neuroscience Department of Tufts University School of Medicine, Boston, MA.

27. Siddharth Kaul, M.D, Ph.D., Interdepartmental Toxicology Graduate Program, Iowa State University, Completed 2004, served as Major Professor, Received: Research Excellence award for his Ph.D. work. Dr. Kaul is Neurologist at the SSM Health Care, Midwest Emergency Department Services (MEDS), SIU School of Medicine, St. Louis, MO.

28. Masashi Kitazawa, Ph.D., Interdepartmental Toxicology Graduate Program, Iowa State University, Completed in 2003. Served as Major Professor, Received: Research Excellence award for his Ph.D. work. Dr. Kitazawa is currently a tenured Associate Professor at University of California at Irvine.

29. Jarrad Wagner, Ph.D, University of California Irvine, Completed in 1999, Served as Major Professor, Currently Dr. Wagner is a tenured Professor of Forensics at the Center for Health Sciences at the Oklahoma State University, Tulsa, OK.

30. Jessica Robertson, M.S. medical student in Des Moines University

Awards won by graduate students 2009-2019:

Adhithiya Charli, Graduate Student

1. Russ and Lora Talbot Research Graduate Scholarship, Iowa State University, Ames, 2018
2. Best Post-Doctoral Researcher Poster Award, CVM Research Day, 2018 Conference, Iowa State University, August 10, 2018, Ames, IA.
3. Graduate Research Excellence Award, Graduate College of Iowa State University, Ames, 2018

Souvarish Sarkar, Graduate Student 2018-2019

1. Best paper in Neurotoxicology Award, NTSS, SOT 2018

2. Toxicology Exploratory Pathology SS/STP Student Award, Society of Toxicology
3. 2nd Prize, Drug Discovery Specialty section, SOT
4. Best paper in Neurotoxicology Award, NTSS, SOT 2018
5. 3rd Prize ImmunoTox Award, SOT 2018
6. Dr. Hariharan Mehendale Graduate Student Best Abstract, 2018
7. Seahorse Travel Award, Society of Toxicology, 2018
8. Research Excellence Award, Iowa State University, 2018
9. 1st Prize, Best presenter competition (Post-doctoral), Toxicology Division, American Society of Pharmacology and Experimental Therapeutics. 2019

Minhong Huang, Graduate Student

1. CVM traveling award, Society for Neuroscience, Nov. 3-7, 2018.
2. GPSS traveling award, Society for Neuroscience, Nov. 3-7, 2018.

Bharathi Palanisamy, Graduate Student

1. Seahorse Travel Award, 2018 (57th) SOT Annual Meeting and ToxExpo, March 11–15, in San Antonio, TX.
2. CVM Travel Award, 2018 (57th) SOT Annual Meeting and ToxExpo, March 11–15, in San Antonio, TX.

Naveen Kondru, Graduate Student

1. 1st Place in the Post-Doctoral Oral Presentations, 2018 Central States Society of Toxicology, October 18-19, 2018, Manhattan, KS.
2. 1st Place in Poster Presentations in the Post-Doctoral Category, College of Veterinary Medicine Research Day, central States Society of Toxicology, October 18-19, 2018, Ames, IA.

Emir Malovic, Graduate Student

1. 1st Place Presenter in the Toxicology Division, Experimental Biology, April 21-25, 2018, San Diego, CA.

Sireesha Manne, Graduate Student

1. North American Travel Grant, American College of Toxicology, 39th Annual Meeting, West Palm Beach, FL.
2. Best Poster Award, Neurotoxicology Specialty Section, Society of Toxicology 57thAnnual Conference, San Antonio, TX.
3. Toshio Narahashi Trainee Conference Award, Society of Toxicology 57th Annual Conference, San Antonio, TX.

Dharmin Rokad, Graduate Student

1. 1st Place Metals Specialty Section Graduate Student Research Award by the Metals Specialty Section, 57th Annual Meeting of the Society of Toxicology, March 11–15, 2018, San Antonio, TX.
2. 2nd Place Carl C. Smith Graduate Student Award by the Mechanisms Specialty Section, 57th Annual Meeting of the Society of Toxicology, March 11–15, 2018, San Antonio, TX.

3. Student Travel Award by the Medical Device and Combination product Specialty Section, 57th Annual Meeting of the Society of Toxicology, March 11–15, 2018, San Antonio, TX.
4. SOT Graduate Student Travel Award, 57th Annual Meeting of the Society of Toxicology, March 11–15, 2018, San Antonio, TX.
5. 1st Place Award for Research Poster by the CVM Summer Scholar Research Program, Scheman Hall at Iowa State University, August 11, 2018, Ames, IA.

2017: Adhithiya Charli, Graduate Student

1. Student achievement award by the Biotechnology Specialty Section (BTSS). 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.
2. Dr. Laxman Desai Graduate Student Best Abstract Award instituted by the Association of Scientist of Indian Origin (ASIO). 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.
3. Toxicology High Impact Publication Award by the Interdepartmental Toxicology program and Toxicology Supervisory Committee at Iowa State University for the year 2017.

2017 Monica Langley, Graduate Student

1. 1st Place, Toshio Narahashi Neurotoxicology Specialty Section Graduate Student Poster Endowment Award. 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.

2017 Dharmin Rokad, Graduate Student

1. 3rd Place, Metals Specialty Section Graduate Student Research Award 3rd place. 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.

2017 Souvarish Sarkar, Graduate Student

1. 2nd Place, Graduate Student Award, Metals Specialty Section. 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.

2017 Shivani Ghaisas, Graduate Student

1. Toxicology and Exploratory Pathology STP Student Award. 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore.
2. Graduate and Professional Student Senate Graduate Research Award, ISU.

2017 Jie Luo, Graduate Student

1. The Medical Device and Combination Product Specialty Section (MDCPSS) Student Travel Award. 56th Annual meeting of the Society of Toxicology Meeting, March 12–16, 2017, Baltimore, MD.

2016 Dilshan Harischandra, Post Doctoral Fellow

1. Best Abstract Award (1st place), Inhalation and Respiratory Specialty Section, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA.

2. Graduate Student Award, miRNA Biomarkers, Contemporary Concepts in Toxicology Meeting, SOT 55th Annual Meeting. New Orleans, LA.
3. ISU Research Excellence Award.

2016 Shivani Ghaisas, Graduate student

1. 3rd place, Metals Specialty Section, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA.
2. 3rd place, Toshio Narahashi Graduate student award, Neurotoxicology Specialty Section, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA
3. Honorable mention, Carl C. Smith Mechanism Award, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA.
4. 2nd Place for best poster presentation, August 2016, CVM Summer Scholar Research Day.

2016 Monica Langley, Graduate student

1. Young Investigator Award, 2nd place poster, 2016 Society of Toxicologic Pathology (STP), ACVP/ASVCP/STP Combined Annual Meeting, Minneapolis.
2. Drug Discovery Toxicology SS Emil A. Pfitzer Endowment Award, 3rd place graduate student poster award, SOT Annual Meeting 2016, New Orleans, CA.
3. Toxicologic and Exploratory Pathology SS (TEPSS) Charles River Travel Award, SOT Annual Meeting, 2016 New Orleans, LA.
4. Stem Cells Specialty Section (SS) Excellence in Research Award, 1st place graduate student award, SOT Annual Meeting, 2016 New Orleans, LA.

2016 Muhammet Ay, Post Doctoral Fellow

1. ISU Research Excellence Award, May 2016.

2016 Nikhil Panicker, Post Doctoral Fellow

1. ISU Research Excellence Award, May 2016.

2016 Dharmin Rokad, Graduate Student

1. Best Poster Award, GPSS Poster Session, Iowa State University, April 2016.

2016 Adhithiya Manohar Charli, Graduate Student

1. BMS Travel Award, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA.
2. Seahorse Travel Award, SOT 55th Annual Meeting, 13-17 March 2016, New Orleans, LA.

2016 Souvarish Sarkar, Graduate Student

1. 3rd prize in poster competition in CVM research day, August 2016.

2015 Dilshan Harischandra, Graduate student.

1. First place in Neurotoxicology Specialty Section's Toshio Narahashi Graduate Student Poster Award. 54th Annual Meeting of the Society of Toxicology, 22-26, Mar 2015, San Diego, CA.

2. Second Place in Molecular and Systems Biology Specialty Section Graduate Student Poster Award. 54th Annual Meeting of the Society of Toxicology, 22-26, Mar 2015, San Diego, CA.
3. Best Poster Award, CS-SOT meeting, 8-9 October 2015, UK Medical Center, Kansas City, KS.

2015 Monica Langley, Graduate student.

1. Toxicologic and Exploratory Pathology Specialty Section (TEPPS), Society of Toxicologic Pathology (STP) Inaugural award. 54th Annual Meeting of the Society of Toxicology, 22-26, Mar 2015, San Diego, CA.
2. Second Place, Emil A. Pfitzer Graduate Student Poster Award from the Drug Discovery Specialty Section (DDTSS). 54th Annual Meeting of the Society of Toxicology, 22-26, Mar 2015, San Diego, CA.
3. Outstanding Poster Presentation Travel Award, CS-SOT meeting, 8-9 October 2015, U. of Kansas Medical Center, Kansas City, KS.

2015 Souvarish Sarkar, Graduate student

1. Toxicology Grad Program Travel Award, SfN, October 2015.

2015 Adhithiya Manohar Charli, Graduate Student

1. Oral presentation at the CS-SOT meeting, 8-9 October 2015, UK Medical Center, Kansas City.

2015 Muhammet Ay, Graduate Student

1. 3rd place, Drug Discovery Toxicology SS Emil A. Pfitzer Student Award at the 53nd Annual meeting of the Society of Toxicology Meeting, March 10-14, 2014, Phoenix, AZ.

2014 Shivani Ghaisas, Graduate student.

1. Travel Award ($1000), Iowa State University and Professional Advancement Grant Travel award for the 4th Annual American Society for Nanomedicine, Rockville, MD.

2014 Dilshan Harischandra, Graduate student

1. Syngenta Fellowship Award in Human Health Applications of New Technologies,
2. Toxicologic and Exploratory Pathology Specialty Section's Charles River Research Award and Mechanisms specialty section Carl C Smith award,
3. Neurotoxicology Specialty Section Graduate student research award and was also elected as the Student representative for Neurotoxicology Specialty Section.
4. 2014-2015 roster at the 53nd Annual meeting of the Society of Toxicology.
5. Best Graduate Student Presentation, Central States Society of Toxicology Meeting, October 16–17, 2014, Kansas City, MO.2014.

2014 Dongsuk Kim, Graduate student

1. 2nd place, Metals Specialty Section at the 53nd Annual meeting of the Society of Toxicology Meeting, Phoenix, AZ.

2. Best Graduate Student Poster Award, Central States Society of Toxicology Meeting, October 16–17, 2014, Kansas City, MO.2014.

2014 Dan Lou, Graduate student

1. 1st place, Metals Specialty Section at the 53nd Annual meeting of the Society of Toxicology Meeting.
2. Graduate Student Best Poster Award, Central States Society of Toxicology Meeting, October 16–17, 2014, Kansas City, MO.2014.

2014 Monica Langley, Graduate student

1. Graduate Student Best Poster Award, Central States Society of Toxicology Meeting, October 16–17, 2014, Kansas City, MO.2014.

2014 Nikhil Panicker, Graduate Student

1. ASPET Graduate Student Travel Award
2. Biotex Laboratories Junior Scientist Award in Immunology at ASPET meeting.
3. Professional Advancement Grant Travel award, Iowa State University.
4. Brown Graduate Fellowship from Iowa State University.

2013 Nikhil Panicker, Graduate Student

1. David Gladson Scholarship from Iowa State University.

2013 Matthew Neal, Graduate Student

1. 1st Place, CVM research Day, Iowa State University.

2013 Dilshan Harischandra, Graduate student

1. 1st Place Dean E Carter Poster Award, Metals Specialty Section.
2. 2nd Place. Best Poster Award, Neurotoxicology Specialty Section, 52nd Annual Meeting of Society of Toxicology.
3. Best Graduate Student Poster Award, U. of Iowa Health Sciences Research Week.
4. Best Poster Award at the Annual Meeting, Central States Society of Toxicology.

2013 Monica R Langley, Graduate student.

1. 2nd Place Best Poster Emil A Pftizer Graduate Student Award, Drug Discovery Toxicology Specialty Section. 52nd Annual Meeting of Toxicology
2. 3rd Place, Best Poster Award, CVM research Day, Iowa State University.

2013 Muhammet Ay, Graduate student.

1. Best Poster Award at the Annual Meeting, Central States Society of Toxicology.

2012 Dilshan Harischandra, Graduate student

1. Third place, Neurotoxicology specialty section, Society of Toxicology Meeting, San Francisco.

2. First place metal toxicology specialty section, Society of Toxicology Meeting, San Francisco.

2012 Huajun Jin, Post Doctoral Fellow
1. First place in Neurotoxicology specialty section, Society of Toxicology Meeting, San Francisco.

2012 Dilshan Harischandra, Graduate student.
1. Best poster award, Central State Society of Toxicology, Manhattan, Kansas.

2012 Nikhil Panicker, Graduate student.
1. Best poster award, Central State Society of Toxicology, Manhattan, Kansas.

2012 Monica Langley, Graduate student.
1. Best poster award, Central State Society of Toxicology, Manhattan, Kansas.

2012 Anamitra Ghosh, Graduate student.
1. Best Poster Award. Annual Research Week on Neuroscience. University of Iowa, Iowa City, IA.

2012 Arunkumar Asaithambi, Graduate student.
1. Emil Alvin Pfitzer Drug Discovery award, 50th Annual meeting Society of Toxicology, Washington DC.
2. Biotechnology Award, 50th Annual meeting Society of Toxicology, Washington DC.

2012 Hariharan Swaminathan, Graduate student.
1. Neurotoxicology Award, 50th Annual meeting Society of Toxicology, Washington DC.
2. Harihara Mehendele-Association of Scientists of Indian Origin Divisions, 50th Annual meeting Society of Toxicology, Washington DC.

2011 Hilary Afesha-Ngwa, Graduate student.
1. Best poster award at the Central States Society of Toxicology Annual Meeting, Omaha, Nebraska.

2011 Dongsuk Kim, Graduate student.
1. Best poster award at the Central States Society of Toxicology Annual Meeting, Omaha, Nebraska.

2010 Arunkumar Asaithambi, Graduate student.
1. Dr. Laxman Desai Graduate Student Best Abstract Award, from Association of Scientists of Indian origin (ASIO), 49th Annual Meeting of the Society of Toxicology, Salt Lake City, UT.
2. Graduate Student Honorable Mention, from Molecular Biology Specialty Section at 49th Annual Meeting of the Society of Toxicology, Salt Lake City, UT.

2010 Chunjuan Song, Graduate Student.

1. Best Paper Award and travel awards, International Neurotoxicology Meeting, Portland, OR.

2010 Hariharan Swaminathan, Graduate student

1. Best Poster Awards, Drug Discovery and Neurotoxicology Divisions, Society of Toxicology Annual meeting, Washington DC.

2009 Arunkumar Asaithambi, Graduate student.

1. Emil A Pftizer Graduate Student Award, from Drug Discovery Toxicology
2. Specialty Section at 48th Annual Meeting of the Society of Toxicology,
3. Baltimore, MD.

2009 Chunjuan Song, Graduate student.

1. Gordon Research Conference Travel Fellowship, Lucca, Italy
2. Graduate Student Poster Award, 3rd place from Neurotoxicology Specialty Section at 48th Annual Meeting of the Society of Toxicology, Baltimore, MD.

2009 Richard Gordon, Graduate student

1. Best poster award, American Society of Pharmacology and Experimental Therapeutics (ASPET) 22nd Annual Regional Meeting, Chicago, IL.

Students served as POS Committee Members, Co-major Professors

Name	Degree Sought	Major / Year
Mathew Jefferson	Ph.D.	Immunobiology, 2016
Jorell Fredericks	Ph.D.	Toxicology, 2016
Chi-Fu Yen	Ph.D.	Electrical and Computer Engineering and Biophysics
Qi Li	Ph.D.	Toxicology, Co-major in Human Nutrition, 2014
Lawrence Crowther	Ph.D.	Electrical and Computer Engineering
Maryam Jamil	M.S.	Animal Science
Shanthi Ganesan	Ph.D.	Toxicology, 2013
Garrett.R. Mccormack	Ph.D.	Biomedical Science, 2013
Joonbae Seo	Ph.D.	Biomedical Science, 2013
Jennifer Parker	Ph.D.	Neuroscience and Health and Human Performance, 2012
Dan Chen	Ph.D.	Toxicology, 2011
Matt Meyer	Ph.D.	Biochemistry, Biophysics, & Molecular Biology, 2010
Avanika Mahajan	Ph.D.	Animal Science, 2010
Dai Vo	Ph.D.	Biomedical Sciences, 2010

Eman Mohammed	Ph.D.	Interdepartmental Genetics, 2010
Venekatesh Mani	Ph.D.	Interdepartmental Toxicology, 2010
Summit Ranjan	M.S.	Health and Human Performance, 2010
Joonbae Seo	Ph.D.	Interdepartmental Genetics, 2009
Boris Jovanovic	Ph.D.	Interdepartmental Toxicology, 2009
Samuel Buxton	Ph.D.	Interdepartmental Toxicology, 2008
Siddarth Ranade	Ph.D.	Biomedical Sciences–Anatomy
Sinisa Grozdanic	Ph.D.	Department of Biomedical Sciences–Anatomy
Gumei Liu,	Ph.D.	Interdepartmental Neuroscience Program
Aleksandar Jeremic	Ph.D.	Department of Biomedical Sciences–Anatomy
Aleksandra Glavaski	Ph.D.	Department of Biomedical Sciences–Anatomy
Ehab Abu-Basha	Ph.D.	Dept. of Biomedical Sciences–Physiology/Pharmacology
Samantha VanHoffelen	Ph.D	Interdepartmental Neuroscience Program,
Sarah Wagner	Ph.D.	Dept. of Biomedical Sciences–Physiology/Pharmacology
Nipattra Debavalya	Ph.D.	Dept. of Biomedical Sciences- Physiology/Pharmacology
Jelena Ostojic	Ph.D.	Dept. of Biomedical Sciences- Physiology/Pharmacology
Heather Barwick	M.S.	Department of Food Science and Human Nutrition
Justin Grodnitzky	Ph.D.	Interdepartmental Toxicology program
Shirley Guo-Ross	Ph.D.	Environmental Toxicology, UCI
Arazoo Campbell	Ph.D.	Environmental Toxicology, UCI

Advisor During Lab Rotation

Divya Sinha.	Rotational	Interdepartmental MCDB Program, Fall 2007
Xiuli Xang	Rotational	Interdepartmental Genetics Program, Fall 2007
Nalee Wang	Rotational,	Interdepartmental Neuroscience Program, Fall 2007
Dustin Martin	Rotational	Interdepartmental Genetics Program, Fall 2007
Laura Schmitt	Rotational	Interdepartmental Toxicology, Spring 2003
Cyrus McNally	Rotational	Interdepartmental Neuroscience Program, Fall 2002
Yi Zhang	Rotational	Inter. Molecular, Cellular & Develop. Bio. Program, Spring 2003
Kim Petry	Rotational	Interdepartmental Genetics Program, Fall 2003
YueYueYu	Rotational	Inter. Molecular, Cellular & Develop. Bio. Program, Fall 2003
Ruth Swanson	Rotational	Interdepartmental Genetics Program, Fall 2003.

TRAINING POSTDOCTORAL FELLOWS

Dr. Muhammet Ay	Iowa State University	2016-2017
Dr. Richard Gordon	Iowa State University	2011-2012
Dr. Huajun Jin	Iowa State University	2010-2012
Dr. Pallavi Shrivastava	Iowa State University	2010-2011
Dr. Quilin Li	Iowa State University	2006-present
Dr. Michael Kirby	Iowa State University	2001-2002
Dr. Calivarathan Latchoumycandane	Iowa State University.	2003-2005
Dr. John Bang	University of California Irvine, Long Beach Memorial Medical Center	1995-1999
Dr. Toan Vu	University of California Irvine	1995-1997
Dr. Annie Tran,	University of California Irvine	1996-1997
Dr. Vellareddy Anantharam	University of California Irvine	1997-1999

TRAINING/MENTORING JUNIOR FACULTY

Dr. Vellareddy Anantharam Research Associate Professor	Department of Biomedical Sciences Iowa State University	2001-present
Dr. Arthi Kanthasamy Assistant Professor, Tenured	Department of Biomedical Sciences Iowa State University	2001-2011
Dr. Mathew Ellinwood Associate Professor, tenured	Department of Animal Sciences Iowa State University	2004-present
Dr. Dianne McFarlane	Department of Physiological Sciences	
Assistant Professor	Oklahoma State University	2006-present
Dr. Dusan Palic Assistant Professor	Department of Biomedical Sciences Iowa State University	2007-2011

TRAINING UNDERGRADUATE AND HIGH SCHOOL STUDENTS

- **Served as research mentor for the following students**

Kaci McCleary,	Junior, Iowa State University	Fall 2010- 2014
Amy Peet	Freshman Honors Program, Iowa State University	Spring 2003
Amanda Fergusan,	Senior research student, Iowa State University	Spring 2003
Martha Carvour	Senior Honors Program, Iowa State University	Fall 2003- 2005
Erin Parker	Honors Program & Work Study Iowa State University.	2002 - 2003
Brenda Crabtree	Freshman Honors Program, Iowa State University	Fall 01 Spring 2002

Ghideen Ezaz,	PIPELINES/Science Bound student Jackson Preparatory School, Jackson, MS	June-Aug, 2001
Marquesa Washington	PIPELINES/Science Bound student McKinley Senior High School, Baton Rouge, LA.	June-Aug, 2001
Jennifer Wessel	Veterinary Student (VM2), Iowa State University NIH T-35 Training Grant Summer Research Scholar	May-Aug, 2001
Steven Muhammad II	Ronald E. McNair post-baccalaureate minority scholar and PIPELINES/Science Bound student	2000-2001
Sarai Arnold	PIPELINES/Science Bound student Baton Rouge Magnet High, Baton Rouge, LA,	June-Sept. 2000
April Wells	PIPELINES/Science Bound student Hoover High School, Des Moines, IA,	June-Aug 2000
Cindy Palmer	Predoctoral student, Golden State University- University of California Irvine	1999
Micheal Ajao	Research Associate University of California, Irvine Long Beach Memorial Medical Center	1998-1999
Vinh Nguyen	Predoctoral student University of California, Irvine	1998-1999
Ben Contreras	Predoctoral student University of California, Irvine Long Beach Memorial Medical Center	1998-1999
Tevy Tith	High school senior student/predoctoral student University of California, Berkeley	1998-1999
Amy Tran	Predoctoral student, University of California Irvine Long Beach Memorial Medical Center	1998
Thuy Luong	Predoctoral student California State University-Long Beach	1997-1999
Eddie Ramierz	Predoctoral student University of California Irvine	1997-1998
Richard Yun	Predoctoral student University of California Irvine	1995-1997
David Chao,	Predoctoral student University of California Irvine	1995-1996
Arthi Kanthasamy	Summer research scholar Purdue University	1995 and 1996

PEER REVIEWS OF PROMOTION/APPOINTMENT CONDUCTED

2017 Dr. Ulrike Dynak, Promotion to Professor with tenure, Purdue University

2016 Dr. Nick Filipov, Promotion to Professor with tenure, University of Georgia

2016 Dr. Yongjie Yang, Promotion to Associate Professor, Tuffs Medical School, Boston

2016 Dr. Malu Tansey, Promotion to Professor, Emory School of Medicine, Atlanta

2015 Dr. Carey Pope, Appointment to Regents Distinguished Award, Oklahoma State University

2015 Dr. Aaron Bowman, Promotion to Associate Professor with tenure, Vanderbilt University

2014, Dr. Yoon-Seong Kim, Promotion to Associate Professor with tenure, University of Central Florida

2013, Dr. Masashi Kitazawa, Appointment to tenure track Assistant Professor, University of California

2012 Dr. Ron Tjalkens, Promotion to Full Professor, Colorado State University

2012 Dr. D. Samba Reddy, Promotion to Full Professor, Texas A&M University

2012 Dr. Jason Richardson, Promotion to Associate Professor with tenure, Rutgers University

2012 Dr. Ulrike Dynak, Promotion to Associate Professor with tenure, Purdue University

2012 Dr. Hans-Joachim Lehmler, Promotion to Associate Professor with tenure, University of Iowa

2011 Dr. Louise Abbot, Promotion to Full Professor, Texas A&M University

2011 Dr. Richard Martin, Promotion to Distinguished Professor, Iowa State University

2011 Annelise Nguyen, Promotion to Associate Professor with tenure, Kansas State University

2011 Dr. Shi-Hua Li, Associate to Full Professor review review, Emory University

2011 Dr. Michael Caudle, Appointment of Assistant Professor, Emory University

2010 Dr. Manisha Patel, Associate to Full Professor review, University of Colorado

2010 Dr. Deb Lahiri, Full Professor to Chancellor Professor review, Indiana University

2010 Dr. Asgar Zaheer, Assistant Professor to Associate Professor review, University of Iowa

2010 Dr. Yansheng Du, Assistant Professor to Associate Professor, Indiana University

2010 Dr. Yongjie Yang, Assistant Professor new hire, Tuffs University School of Medicine

2009 Dr. Madhavi Rane, Assistant Professor to Associate Professor, University of Louisville

2009 Dr. Deb Lahiri, Full Professor to Chancellor Professor, Indiana University

2008 Dr. Jeff Eells, Assistant Professor to Associate Professor, Mississippi State University

2008 Dr. Nick Filipov, Assistant Professor to Associate Professor, University of George

2006 Dr. Ronald Tjalkens, Assistant Professor to Associate Professor, Colorado State Univ.

2006 Dr. Carey Pope, Professor to Regents Professor, Oklahoma State University

2006 Dr. Shi-Hua Li, Assistant to Associate Professor, Emory University

2006 Dr. Manju Reddy, Assistant to Associate Professor, Iowa State University

2006 Dr. Adibtala Rao, Assistant to Associate Professor, University of Wisconsin, Madison

2004 Dr. Nasser Zawia, Associate to Full Professor, University of Rhode land

OTHER PROFESSIONAL SERVICE AND COMMITTEES

1. 2015-present, Associate Editor, Toxicological Sciences, Handling neurotoxicology manuscripts.
2. Journal Reviewer: Journal Neuroscience, Toxicology and Applied Pharmacology, Journal of Pharmacology and Experimental Therapeutics, Journal Neurochemistry, Journal of Neuroscience Research, Journal of Neurochemical Research, Neurotoxicology, Neurotoxicity Research, Journal of Brain Research, Experimental Neurology, Neurochemistry International, Environmental Pharmacology & Toxicology, US-EPA publications, American College of Nutrition, Free Radical Biology and Medicine, Journal of Cellular and Molecular Medicine, Journal of Cell Biology, Neurotoxicology, Toxicological Sciences, Environmental Health and Perspective, and Oncogene.
3. 2012- present, Neurochemical Research, editorial board
4. 2007-present, Current Aging Research, editorial board.
5. 2006-present, Molecular Brain, editorial board.
6. 2006-present, Neurotoxicology, editorial board.
7. 2000-present, serving various NIH Study section review panels as a member or Adhoc members. Detailed Awards and Honors section for detail.
8. 2006, Symposium Co-Chair, Chair, 23rd International Neurotoxicology Conference, Symposium on Manganese Neurotoxicity, Sept. 17-21, 2006, Little Rock, AK.
9. 2006, Postdoctoral best presentation award Panel", Chair, 23rd International Neurotoxicology Conference, Sept. 17-21, 2006, Little Rock, AK.
10. 2006, Symposium Chair, Silver Jubilee Indian Academy of Neuroscience Meeting, Lucknow, India. Dec 2006.
11. 2006, "Predoctoral and Young Scientist Research Presentation Award Committees" Chair, Indian Academy of Neuroscience Meeting, Lucknow, India, Dec. 17-21.
12. 2005, Central Society of Toxicology organizing committee.
13. 2004 Organizing committee, 7th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. August, 2004.
14. 2005, Workshop organizer, "Cellular/Molecular Mechanisms Involved in Environmental Chemical Induced Dopaminergic Neurotoxicity and Consequences on Neurodegeneration". 44th Annual Society for Toxicology, Workshop session. March 10, 2005, New Orleans, LA.
15. 2003, Chair, Organizing committee, 6th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. August, 2003.
16. 2003, Organizing committee, 5th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. August, 2003.

17. 2003, Chair, Organizing committee, 4th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. August, 2003.
18. 2001, Chair, 2th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. August, 2001.
19. 1999, Organizing committee, 1st International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. July 1999.

OUTREACH AND SERVICES TO COMMUNITY

1. Given interviews to newspapers (Des Moines Register, Ames Tribune, Omaha World Herald, Successful Farming Magazine, Farm Progress Company, Iowa State Daily, Progressive Farmer) regarding pesticides and Parkinson's disease. 2000 - present.
2. Consulted with/spoken before the Iowa chapter, American Parkinson's Disease Association and other Parkinson's disease support groups, 2003-present.
3. Consulted with local area physicians specializing in Parkinson's disease. 2003-present.
4. Consulting/counseling many Iowa farmers and others with Parkinson's disease. 2001-present.
5. Consulted with many Iowans with Parkinson's disease with previous exposure to pesticides, 2003-present.
6. Scientific consultation to 'Environmental Health Perspectives' (NIEHS publication) on 'Aging and Environment'- 2003
7. Participated in the UK Government's Advisory Committee on Pesticides report on the role of pesticides in the development of Parkinson's Disease – 2003.
8. Work referenced by National Public Radio, 2002.
9. Interview on 'Parkinson's disease' published in Iowa State Daily Newspaper, 2002.
10. Given interview to Darrel Anderson, (North Shore production, Minneapolis) regarding pesticide exposure and Parkinson's disease, March 2002.
11. Given interview to High School Students (Agwsar High School, Ackley, IA) and others on chemicals and Parkinson's disease (2001).
12. Spoken in many Parkinson's Disease Patients Support Group in Orange County, CA. University of California Irvine, 1996-1999.

INVITED TALKS, SEMINARS AND SYMPOSIUM PRESENTATIONS:

1. 'Exosomes as Mediators of Neuroinflammation and Neurotoxicity: Translational Implications for Biomarker Discovery in Environmentally Linked Parkinsonism', University of Iowa Health Sciences Research Center, Iowa City, September 4s, 2020.
2. 'Neurotoxicity and Neuroprotection: Emerging Trends and Approaches', Indian National Academy of Neurosciences, Hyderabad, India, Oct 4-7, 2020.

3. ‘Exosomes as Mediators of Neuroinflammation and Neurotoxicity: Translational Implications for Biomarker Discovery in Environmentally Linked Parkinsonism’, Purdue School of Health Sciences 40th Anniversary Seminar, March 2-4, 2020.
4. ‘Microbiome Based Translational Strategy in Parkinson’s Disease’, 34th Annual Meeting the Developmental Neurotoxicology Society Symposium on the microbiome as modulator of neurodevelopment and neurodegenerative disorders, San Diego, CA, June 23-26, 2020.
5. ‘Discovery of Multi-model Biomarkers for Parkinsonian Syndromes, their Progression and Pathological Change’ 2019-NIH Parkinson’s Disease Biomarker Program, Bethesda, August 12, 2019.
6. ‘Mitochondrial Stress Disassembles Nuclear Architecture through Proteolytic Activation of PKCδ and Lamin B1 phosphorylation in Neuronal Cells: Implications for Pathogenesis of Age-related Neurodegenerative Diseases’, American Society of Cell Biology, San Diego, December 9, 2018.
7. Gene Editing: Promises and Perils, Iowa State University Alumni Association, October 25, 2018.
8. MitoPark Transgenic Mouse Model of Progressive Dopaminergic Neurodegeneration: Relevance to Drug Discovery in Parkinson’s Disease, Receptos- Celgene Pharmaceuticals, San Diego, August, 15, 2017
9. Novel Translational Strategies in Parkinson’s Disease, University of Georgia, July 27, 2017
10. ‘Role of Manganese in Alpha-Synuclein Protein Misfolding and Cell-to-Cell Transmission of Protein Aggregates in Cell Culture and Animal Models of Neurodegenerative Diseases’, Colorado State University, October 11, 2016.
11. ‘Manganese and Protein Aggregation, International Neurotoxicology Conference on Manganese, Mt. Sinai Medical School, New York, Sept 26-29, 2016.
12. ‘Role of Manganese in Alpha-Synuclein Protein Misfolding and Cell-to-Cell Transmission of Protein Aggregates in Cell Culture and Animal Models of Neurodegenerative Diseases’, Oberlin College, Ohio, February 12, 2016.
13. Novel Oxidative Signaling in Environmental Factors Induced Dopaminergic Neurotoxicity: Relevance to Etiopathogenesis of Parkinson’s Disease’, University of California Davis, January 26, 2016.
14. ‘Role of Divalent Metal Manganese in Protein Misfolding and Cell-to-Cell Transmission of Protein Aggregates in Cell Culture and Animal Models of Neurodegenerative Diseases’, University of California Santa Cruz, November 10, 2015.
15. ‘Role of Divalent Metal Manganese in Protein Misfolding and Cell-Transmission of Protein Aggregates via Exosomes in Cell Culture and Animal Models of Neurodegenerative Diseases, 2015 Society of Toxicology Meeting, San Diego, March 23, 2015
16. ‘Novel Oxidative Stress Signaling in Experimental Models of Parkinson’s Disease”, University of Texas, Austin, March 5, 2015.
17. ‘Epigenetic Regulation of Proapoptotic kinase PKCdelta in Neurotoxicity Models of Parkinson’s disease’, Luxemburg, Europe, September 10, 2014.
18. ‘Metallic Nanoparticles: Effects on Neuronal Protein Degradation and Neurotoxicity’ Experimental Biology Meeting, San Diego, April 29, 2014.

19. “Compensatory Oxidative Signaling in Experimental Models of Parkinson’s Disease”, Emory University, Atlanta, May 30, 2013.
20. “Translational Oxidative Signaling in Parkinson’s Disease”, Neurobiology Symposium in honor of Jim Bloedel, May 17, 2013
21. “Novel Oxidative Signaling in Neurotoxicity Models of Parkinson’s Disease”, Society of Toxicology, San Antonio, March 11, 2013.
22. “Emerging Neurotoxicology Mechanisms in Environmental Neurotoxicity” Texas A&M University, College of Veterinary Medicine, January 14, 2013.
23. Novel Oxidative Stress Signaling in Dopaminergic Neurodegeneration and Translational Strategies, University Nebraska Medical Center, January25, 2013.
24. “Novel Oxidative Stress Signaling in Experimental Models of Parkinson’s Disease: Relevance to Translational Discovery” Texas A&M University Neuroscience Program Seminar, April 14, 2012.
25. “Novel Protein Kinase-C signaling in Experimental models of Parkinson’s disease: Relevance to Translational Strategy in Neuronal Degeneration,” 14th International Congress of Histochemistry and Cytochemistry, Kyoto, Japan, 8/26-29, 2012.
26. “Novel Oxidative Stress Signaling in Experimental Models of Parkinson’s Disease: Relevance to Translational Discovery” Texas A&M University Neuroscience Program Seminar, April 14, 2012.
27. “Novel Translational Strategy Targeting Oxidative Stress Signaling in Experimental Models of Parkinson’s Disease,” University of Iowa, Iowa City, Iowa, 4/19/11
28. ‘Novel Oxidative Cell Death Signaling in Experimental Models of Parkinson’s Disease: Relevance to Translational Discovery’, University of Nebraska-Lincoln, 10/10/10.
29. ‘Novel NOX2 Inhibitor Suppresses Neuroinflammation in Experimental Models of Parkinson’s Disease: A New Translational Strategy in Neuroprotection’ Society of Free Radical Biology and Medicine, Orlando, FL, 11/19/10.
30. ‘Novel Oxidative Cell Death Signaling in Experimental Models of Parkinson’s Disease: Relevance to Translational Discovery’, Neurodyne and University of Prince Edwards Island, 7/7/10.
31. ‘International Symposium on Emerging Infectious Diseases’, Ulaan Bator, Mongolia, invited speaker, 7/29-30/10
32. ‘Role of Metals in Prion Protein Upregulation and Aggregation: Relevance to Unifying Mechanisms of Neurodegenerative Processes’ 7/24/10
33. ‘Role of Metals in Prion Protein Upregulation and Aggregation: Relevance to Unifying Mechanisms of Neurodegenerative Processes’ International Neurotoxicology Meeting, Portland, OR, 6/8/10.
34. ‘Novel Oxidative Stress Signaling in Environmental Neurotoxicants Induced Dopaminergic Degeneration: Relevance to Etiopathogenesis of Parkinson’s Disease,’ 12th Biennial Meeting of the International Neurotoxicology Association, Ma'ale Hachamisha, Israel, 6/7-12/09.
35. ‘Novel PKC Signaling in Oxidative Damage in Chemical-Induced Dopaminergic Neurotoxicity Models, 48th Society of Toxicology Annual Meeting, Baltimore, 3/16/09.

36. ‘Oxidative Signaling in Environmental Chemical Induced Neurotoxicity’ In: Emerging issues in environmental neurotoxicology, Tripathi, India meeting, 7/23/09.

37. ‘Role of Divalent Metal Manganese in Pathogenesis of Prion Diseases’ DoD Manganese Health Research Program, Washington D.C., 6/25/09

38. ‘Divalent Metals Stabilize Cellular Prion Proteins and Alter the Rate of Proteinase-K dependent Limited Proteolysis, Universidad Centroccidental Lisandro Alvarado (UCLA) Barquisimeto, Venezuela, 11/06/2009.

39. ‘Novel Oxidative Stress Signaling in Neurotoxicity Models of Parkinson’s Disease’ Toxicology graduate program, Indiana University Medical Center, Indianapolis, 1/8/2009.

40. ‘Mitochondria-Targeted Antioxidants Protect against Oxidative Damage to Iron-Sulfur Clusters in Preclinical Model of Parkinson’s Disease’ presented at the Society of Free Radical Biology and Medicine, 11/20/2009

41. ‘Novel oxidative cell death signaling in neurotoxicity models of Parkinson’s disease’ invited to present a talk at Indiana School of Medicine, Gary, Indiana, 4/11/08.

42. ‘Oxidative stress signaling in environmental neurotoxicants-induced dopaminergic toxicity’ invited to present a talk at Vanderbilt University Medical School, Nashville, TN, 5/16/08.

43. ‘Novel oxidative cell death signaling in neurotoxicity models of Parkinson’s disease’ invited to present a talk in the central-SOT meeting at the Kansas University Medical Center, Kansas City, KS, 9/25/08.

44. ‘Manganese upregulates prion protein in cell culture models’ invited to present the work in the Neuroprion international meeting, Madrid, Spain, 10/07/08-10/10/08.

45. ‘Novel oxidative cell death signaling in neurotoxicity models of Parkinson’s disease’ invited to present a talk at the Loyola Medical Center, Chicago, 10/21/08.

46. ‘Role of manganese in the prion pathogenesis’ invited to present a talk in the International Emerging disease symposium at the Kansas State University Medical Center, Kansas, 11/14/08.

47. ‘Novel oxidative cell death signaling in experimental models of Parkinson’s disease’ invited to present a talk in the neurodegeneration meeting at the Norwegian School of Veterinary Medicine, Oslo, Norway, 12/1/08 to 12/5/08.

48. Transcriptional Regulation of Proapoptotic kinase PKCδ Expression by α-Synuclein via an NF-kB dependent Mechanism in Parkinson’s Disease, International Symposium on Advances in Neuroscience-Silver jubilee Conference of Indian Academy of Neuroscience, Varanasi, India, Nov.22-25, 2007.

49. “Neurotoxic Insults Modulate Oxidative Stress-dependent PKCδ Gene Promoter Activity: Implications for Gene-Environment Interactions in Neurodegeneration, 24th International Neurotoxicology meeting, San Antonio, TX. 11/12-14/07.

50. “Oxidative Stress-dependent PKC Signaling in Experimental Models of Parkinson’s Disease: A Translational Approach”, Rutgers `University, Environmental and Occupational Health Sciences Institute, Piscataway, New Jersey, 10/17-18/07.

51. “Oxidative Stress-dependent PKC Signaling in Experimental Models of Parkinson’s Disease”, University of Colorado Health Science Center, Denver, CO. 9/2/07.

52. "Oxidative Stress Signaling in Experimental Models of Parkinson's Disease", Purdue University, IA, 1/11/-13/06.

53. "Oxidative Stress Signaling in Experimental Models of Parkinson's Disease", Colorado State University, Fort Collins, CO, WI, 4/25-4/27/06.

54. "Oxidative Stress Signaling in Parkinson's Disease", Des Moines Medical University, Des Moines, IA, 5/5/06.

55. "Oxidative Stress Signaling in Parkinson's Disease", University of Iowa, IA, 5/11-5/12/06.

56. "Oxidative Stress Signaling in Parkinson's Disease", The Parkinson's Institute, Sunnyvale, CA, 2/6-/8/06.

57. "Oxidative Stress Signaling in Neurotoxicants-induced Models of Parkinson's Disease", Okalahoma State University, Stillwater, OK, 8/27-29/06.

58. "Manganese upregulates cellular prion proteins and inhibits the rate of proteinase-K dependent proteolysis in culture models of prion diseases", 23rd International Neurotoxicology Conference, Little Rock, AK.,9/17-21/06,

59. "Health effects of manganese exposure: Humans and Animal Models-1", Symposium Co-Chair, 2[3rd] International Neurotoxicology Conference, Little Rock, AK. 9/17-21/06.

60. "Oxidative Stress Signaling in Parkinson's Disease," Medical University of Wisconsin, Milwaukee, WI, 11/08-11/06.

61. "Recent Advances in Parkinson's Disease Research," Santosh Medical Academy, New Delhi, WI, 12/06-12/07/06.

62. "A Novel Oxidative Stress Signaling in Neurotoxic Models of Parkinson's Disease," Indian Academy of Neuroscience, Lucknow, India, 12/17-21/06.

63. "A Deadly Proteolytic Cleavage- An Attractive Molecular Target for Development of Neuroprotective Strategies in Parkinson's Disease" 7th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. 8/04.

64. "Environmental Factors, Ubiquitin-proteasome dysfunction and Parkinson's Disease", 44th Annual Society for Toxicology, Symposium session: The ubiquitin-proteasome system as a biological target in toxic responses and disease. 3/9/05, New Orleans, LA.

65. "Cellular/Molecular Mechanisms Involved in Environmental Chemical Induced Dopaminergic Neurotoxicity and Consequences on Neurodegeneration". 44th Annual Society for Toxicology, Workshop session. 3/10/05, New Orleans, LA.

66. "Oxidative Stress Signaling in Parkinson's Disease Models", Department of Genetics, Emory University, Atlanta. 11/28/05

67. "Antimyoclonic Effect of Sarizotan in an Animal Model of Cardiac Arrest-Induced Posthypoxic Myoclonus" Society for Neuroscience, Neurological diseases platform session, 11/06

68. "Oxidative Stress Signaling in Experimental Models of Parkinson's Disease", Interdepartmental Neuroscience Program, Michigan State University. 3/04, - Invited Talk.

69. "Role of Oxidative Stress-Sensitive Kinase in Dieldrin-Induced Dopaminergic Cell Death: Relevance to Parkinson's Disease"-Invited symposium talk.

70. "Oxidative Stress Signaling in Experimental Models of Parkinson's Disease", Pennington Biomedical Research Center – Louisiana State University, LA. 8/03, - Invited Talk.

71. "Microarray analysis of oxidative stress regulated genes in mesencephalic dopaminergic neuronal cells: Relevance to pathogenesis of Parkinson's disease", 33nd Society for Neuroscience Meeting", New Orleans, LA.

72. "Role of an Oxidative Stress Sensitive Kinase in Metal-Induced Neuronal Apoptosis" 6th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. 8/03, - Invited talk.

73. "Caspase-3 dependent Proteolytic Activation of PKCδ Regulates NF-kB Nuclear Translocation in Oxidative Stress-Induced Cell Death, World Congress on Inflammation, 8/03.

74. "Isoform Specific Suppression of a Proapoptotic Kinase by RNAi Rescues Dopaminergic Neurons in Parkinson's Disease Model", 24th Midwest Neurobiology Meeting, Iowa State University, 5/03.

75. "A New Player in Oxidative Mediated Neuronal Apoptosis" 5th International conference on Antioxidants & Free Radicals in Health & Disease, Vancouver, B.C. Canada. 8/02, - Invited talk.

76. "A Novel Oxidative Stress-dependent Apoptotic Pathway in Pesticide-induced Dopaminergic degeneration: Relevance to Environmental Factors and Parkinson's disease" American Neurochemical Society (ANS), Palm Beach, Florida, 3/02.

77. "A Novel Oxidative Stress-dependent Apoptotic Pathway in Environmental Toxin- induced Dopaminergic degeneration: Regulatory Role of PKCδ", Growth Factor and Signal Transduction Conference – Molecular Targets for Dietary Intervention in Disease, Iowa State University, 9/02, -Invited talk.

78. "Efficacy of EMD-281014 on Posthypoxic Myoclonus in Cardiac Arrest Model" Merck KGaA Pharmaceuticals – Clinical Trial Meeting, New York, 10/02 – Invited talk.

79. "A Novel Proteolytic Activation of PKCδ Promotes Apoptotic Cell Death in Dopaminergic Neuronal Cells during Pesticide Exposures: Relevance to Environmental Factors and Parkinson's disease," 20th International Neurotoxicology – Emerging Issues in Neurotoxicology, Little Rock, Arkansas, 11/02, - Invited talk.

80. "Chemicals, Oxidative Stress and Parkinson's Disease", Gerontology Program, Iowa State University, 11/02.

81. "Animal Models of Posthypoxic Myoclonus" Merck KGaA Pharmaceuticals, Darmstadt, Germany, 5/02, - Invited talk.

82. "Neurodegeneration in Parkinson's Disease: Mechanisms and Animal Models," Merck KGaA Pharmaceuticals, Darmstadt, Germany, 5/02, -Invited talk.

83. "A New Player in Neuronal Apoptosis" Veterinary Pathology Seminar Series, 4/02, Iowa State University.

84. "Cell Death Mechanisms in Environmental Factors-Induced Dopaminergic Degeneration", University of North Dakota College of Medicine, Grand Forks, ND. 5/01.

85. “Cellular and Molecular Mechanisms of Methylcyclopentadienyl Manganese Tricarbonyl (MMT)-induced Dopaminergic Toxicity” International Symposium on Metal Neurotoxicity, University of California Irvine, 9/2000.

86. “Animal Model of Posthypoxic Myoclonus –II: Pharmacological Characterization”, International symposium on myoclonus and paroxysmal movement disorders, Atlanta, GA. 10/2000.

87. “Neuroprotective Strategies in Parkinson’s Disease”, Annual Meeting on Recombinant Technology, Loras College, Dubuque, IA, 12/2000.

88. “Parkinson’s Disease in Agricultural Community”, Iowa State University Advancement in Technology Seminar, 3/2000.

89. “Environmental Factors, Aging and Degeneration”, Interdepartmental toxicology program, Iowa State University, 4/2000.

90. “Environmental factors-induced oxidative stress in dopaminergic degeneration: Relevance to the etiopathogenesis of Parkinson’s disease,” 2nd International conference on antioxidants and free radicals in health and disease, Vancouver B.C. Canada. 7/99.

91. “Novel Neuroprotective Strategies in Parkinson’s Disease” Iowa State University, 9/99.

92. "Development of an Animal Model of Cardiac-arrest Induced Neurological Deficits" NIH-NINDS and Myoclonus Foundation, Bethesda, MD, 3/99.

93. "Role of Serotonergic Neurotransmission in Posthypoxic Myoclonus", American Academy of Neurology, Annual Meeting, Minneapolis, MN, 5/98

94. "Excitotoxic Mechanisms in Neurotoxin Exposure: Implications for Neurodegenerative disorders", Dept. of Community and Environmental Medicine, University of California, Irvine, CA, 3/97.

95. "Neurochemical Dynamics in Experimental Animal Models of Myoclonus", European Society for Clinical Neuropharmacology-3rd Annual meeting, Rome, Italy, 11/96.

96. “Development of Novel Therapeutic agents for Parkinson’s Disease”, Parkinson Disease Foundation- West Coast, 7/96.

97. "Antimyoclonic Effects of Riluzole and Benzamide in Posthypoxic Myoclonus, Society for Neuroscience-26th Annual meeting, Washington, D.C. 11/96.

98. “Neurochemical Aspects of Chemical Hypoxia-induced Neurotoxicity”, New York University Medical Center, Department of Environmental Medicine, Tuxedo, New York, 7/94.

99. “Activation of Nitric Oxide Synthase (NOS) in Cerebellar Granule Cells by Neurotoxic Compounds”, Society of Toxicology, Dallas, Texas, 2/94.

100. “Development of Cyanide Antidotes” US-Army Medical Command Mid-term Progress Review, Purdue University, 1992.

MEMBERSHIP/AFFILIATIONS:

1. Society for Neuroscience
2. Society of Toxicology
3. American Society for Pharmacology and Experimental Therapeutics

4. American Society for Cell Biology
5. American Association for the Advancement of Science
6. The American Society for Biochemistry and Molecular Biology
7. Central States Chapter, Society of Toxicology
8. International Neurochemistry Society
9. Society for Free Radical Biology and Medicine
10. New York Academy of Sciences
11. Association of Scientists of Indian Origin, Board of Directors
12. Gamma Sigma Delta

ARTHI KANTHASAMY, Ph.D.

CURRENT ADDRESS:
Professor
Center for Neurological Disease Research
Department of Physiology and Pharmacology
College of Veterinary Medicine
University of Georgia
Athens, GA 30602
Tel: 706-542-2379
e-mail: arthi.kanthasamy@uga.edu

EDUCATION AND TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
PSG College of Sciences, India	B.S.	1990	Biochemistry
Purdue University, W. Lafayette, IN	Ph.D.	2001	Medicinal Chemistry and Molecular Pharmacology

PROFESSIONAL EXPERIENCE:

Oct-1 2021-present	*Professor Tenured*	Department of Physiology and Pharmacology, Univ. of Georgia, Athens, GA
2016 –Sept. 30 2021	*Professor tenured*	Department of Biomedical Sciences, Iowa State University, Ames, IA
2011-2016	*Associate Professor-tenured*	Department of Biomedical Sciences, Iowa State University, Ames, IA
2005-2011	*Assistant Professor*	Department of Biomedical Sciences, Iowa State University, Ames, IA
2001-2005	*Adjunct Assistant Professor/ Associate Scientist*	Department of Biomedical Sciences, Iowa State University, Ames, IA
1996-2001	*Graduate Research/Teach. Assistant*	Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN
1995-1996	*Research Assistant*	Departments of Psychobiology & Neurology, Drs. Ian Lipkin and Carl Cottman's Labs, University of California, Irvine, CA

1992-1994	*Lab Research Assistant*	Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN

Other ISU Appointments

2017-2018: Associate Chair, Pharmacology and Toxicology Minor Under Graduate Program
2015-2018: Chair, College of Veterinary Medicine Research Advisory Committee
2005-2018: Associate Chair, Interdepartmental Toxicology Graduate Program
2009-2021: Faculty Member, Interdepartmental Molecular, Cellular and Developmental Biology Graduate Program
2005-2021: Faculty Member, Iowa Center for Advanced Neurotoxicology
2013-2021: Faculty Member, Interdepartmental Neuroscience Graduate Program
2016-2020: John G. Salisbury Endowed Chair in Veterinary Medicine, ISU.

HONORS AND AWARDS

2022-Oct.	Ad-Hoc Member of NOMD **Study Section**
2022-Jun.	Ad-Hoc Member of CDIN **Study Section**
2022-Apr	Mail in member-Director's Pioneer award
2021	Ad-Hoc Member of CMBG **Study Section**
2020	Ad-Hoc Member of ZRG1 DKUS meeting **Study Section**
2020	Ad-Hoc Member of CMBG Study Section
2020	Reviewer Cure Parkinson's Trust Study section
2020	Reviewer CORE 2020 NeuroinFlame—FNR Luxembourg CORE programme
2019	Ad-Hoc Member of ZRG1 MDCN-G meeting Study Section
2019	Ad-Hoc Member of ZRG1 MDCN A(03) study section
2018	Ad-Hoc Member of ZRG1 MDCN A (03) meeting Study Section
2018	Ad-Hoc Member of BDCN-E(02) Special Emphasis panel study section
2014-	Chair, Research Advisory Committee, College of Veterinary Medicine
2017	Ad-Hoc Member of NIH OCT. 2017. Neurodevelopment and Neurodegeneration. Study Section
2017	Ad-Hoc Member of NIH Jul. 2017. ZRG1 MDCN-Q (03). Molecular and Cellular Mechanisms of Neurodegenerative Disease. Study Section
2017	Ad-Hoc Member of NIH Mar. 2017 ZRG1 BDCN-Q 02 M: Neurobiology of Brain Disorders. Study Section
2017	Ad-Hoc Member of NIH Mar. 2017 ZRG1 MDCN-E (03) M : Neuroinflammation and Neurodegeneration. Study Section
2016	Ad-Hoc Member of NIH (March 2016): Molecular and Cellular Developmental Neuroscience (MDCN) Study Section
2016	Ad-Hoc Member of NIH (March 2016): Molecular and Cellular Developmental Neuroscience (MDCN) Study Section

2016	Ad-Hoc Member of NIH (March 2016): Molecular and Cellular Developmental Neuroscience (MDCN) Study Section
2013	Ad-Hoc Member of Gene and Drug Delivery Systems (GDD) Study Section.
2013	Mid-Career Achievement Award in Research, College of Veterinary Medicine, Iowa State University.
2012-2015	Ad-Hoc Member of VA-NURE Study Section.
2011-2012	Ad-Hoc Member of NIH-NOMD Study Section.
2010-2011	Ad-Hoc Member of NIH-SBIR Study Section.
2009	National Institutes of Health, NINDS "New Investigator RO1-Award".
2006	Young Scientist Award, Association of Scientists of Indian Origin in America - Neuroscience Division.
2005	Co-chair, Interdepartmental Toxicology Graduate Program, ISU.
2005	Member, Iowa Center for Advanced Neurotoxicology.
2005	Recipient of Young Scientist Award, Association of Scientists of Indian Origin in America, Neuroscience Division at the Annual Society for Neuroscience held in Washington D.C. Nov 2005.
1999	Outstanding Research Presentation Award at Purdue University Neuroscience (PUN) Retreat.
1999	Recipient of Outstanding Research Presentation Award at Purdue University Neuroscience (PUN) Retreat.
1996	Received Summer fellowship from Parkinson's Disease Foundation.
1996	Recipient of Summer fellowship from Parkinson's Disease Foundation
1995	Recipient of summer fellowship from Parkinson's Disease Foundation

Manuscript Reviewing Responsibilities:

- PLOS
- Neurotoxicology
- Neurotoxicology and teratology
- J Neurochemistry
- J of Neuroinflammation
- Frontiers Aging Neuroscience
- Frontiers Pharmacology
- Nature Communications
- Acta Neuropathologica Communications
- Brain Behavior and Immunity
- Translational Neurodegeneration
- Free Radical Biology and Medicine
- BBA-Molecular Basis of Disease
- Clinical and Translational Medicine

Membership / Affiliations:

Society for Neuroscience
Society of Toxicology
International Society for Trace Element Research in humans (ISTERH)

INSTITUTIONAL SERVICES

- Served on the CNDR new faculty Search committee.
- Served on the CVM admissions committee and College student awards committee (2020-2021).
- Served on the CVM-Seed grant review committee and Chaired the grant review session 2018
- Served on the CVM- Iowa Livestock Health Advisory Council (ILHAC) grant review committee and Chaired the grant review session 2017.
- Served on the CVM-Seed grant review committee and Chaired the grant review session 2017.
- I served on ISU award for early achievement in research (2018).
- Big Data Brain Initiative (BDBI) review committee (2018).
- Big Data Brain Initiative (BDBI) review committee (2016).
- University Career awards committee (2016).
- ISU Bailey awards: Grant reviewer (2016).
- CVM Research Symposium organizing committee (2016).
- Served on the CVM-grant review committee and Chaired CVM seed grant review session 2016.
- Served as Chair of Research advisory committee (RAC) College of Veterinary Medicine (2014-Present).
- Served as co-chair of Research advisory committee (RAC) College of Veterinary Medicine (2013-2014).
- Served on the CVM-grant review committee and Chaired IHLAC grant review session 2013.
- Served on the University Grant review Committee-NSF pre-proposal and Keck grant review 2013.
- Associate Chair, Interdepartmental Toxicology Graduate Program, 2012-present.
- Member of the BMS department, Research and Graduate Education Committee (2007-2015).

- Member of the Curriculum Planning Committee, "Interdepartmental Neuroscience Graduate Program. (2006-2016).
- Member in the internal grant review panel for formula fund proposal (2007-present).

RESEARCH SUPPORT

ACTIVE:

Ongoing Research Support (No Overlaps)

NIH 1RO1 NS124226 Role: PI Arthi Kanthasamy, Wulff, H (PI/MPI); 07/01/2021-06/30/2026

The Role of KCa3.1 in Microglial function and in Parkinson's disease pathogenesis

The proposal addresses the novel neuro-immune signaling events underlying the KCa3.1-mediated reactive microglial activation response, which in turn leads to the progression of the neurodegenerative process in Parkinson's disease (PD).

MJFF Arthi Kanthasamy, Role: PI 02/01/2021- 03/01/2023

Pharmacological Targeting of Inflammation to Modify Disease Progression in Pre-clinical Models of Parkinson's Disease.

The goal of this project is to determine whether PLX5622 promotes a neurorestorative state in preclinical mouse models of PD.

NIH RO1NS121692, Role: MPI 04/15/22-3/31/27

Compensatory Mitochondrial Protective against Oxidative stress in PD

The goal of this application is to determine the contribution of PKD driven signaling mechanisms in mediating an anti-inflammatory response in experimental models of PD.

NIHRO1ES034196-01A1 Role: MPI

Role of Prokineticin 2 in Metal neurotoxicity. 1-25-23-10-31-27

The goal of this project is to elucidate the role of PK2 in Manganese-induced neurotoxicity.

NIH R33NS112441 Role: Co-investigator; PI: Anumantha Kanthasamy

Novel Re-engineered L-DOPA Probiotic therapy for Parkinson's Disease 13-01-21-08-31-24

The goal of this project is to discover a novel microbiome directed therapy for the treatment of PD.

NIHRO1ES034196-01A1 Role: MPI

Novel Rengineered Microbiome based biologic therapy to treat cognitive and Behavioral symptoms of AD and related Dementias 08-15-22 -05-30-27

The goal of this project is to develop a novel chronic delivery of probiotic L-DOPA as a monotherapeutic modality for AD-related dementia

NIH R01 NS088206 Arthi Kanthasamy (PI) 02/01/2015 – 11/30/2021 NCE

Exosomes and Neuroinflammation in Parkinson's Disease.
The goal of this project is to determine the roles of Fyn kinase in exosome-mediated cell-to-cell transfer of aggregated alpha-synuclein and neuroinflammation in Parkinson's disease.

NIH R01 ES026892 AG Kanthasamy (PI); Role: Co-I 06/01/2016 – 05/31/2021
Protein Aggregation and Inflammasome Signaling in Manganese Neurotoxicity.
The goals of this project is to determine the role of alpha-synuclein protein aggregation, cell-to-cell transmission of protein aggregates through the exosomal pathway and activation of proinflammatory inflammasome signaling in manganese neurotoxicity.

NIH R01 NS100090 AG Kanthasamy (PI); Role: Co-I 07/1/2017 – 06/30/2022
Neuroinflammation and microglial Kv1.3 in Parkinson's disease.
The goal of this project is to characterize the role of Kv1.3 potassium channels in microglia activation and neuroinflammatory processes and their relevance to PD progression.

DOD/IIRA W81XWH1810106 AG Kanthasamy (PI); Role: Co-I
07/01/2018 - 06/30/2021
Novel Exosome-Base biomarker discovery for metal mixture exposure: Relevance to PD.
Evaluate the exosome-based α-synuclein protein aggregation and metabolome biomarkers in manganese and vanadium exposed animal models and validate the protein biomarkers in samples from workers occupationally exposed to metals.

1R01 ES027245-01A1 (PI: Kanthasamy, AG) Role: CO-PI 04/01/2017 – 03/31/2022
NIH/NIEHS $1.668 Million Total cost
Novel Mechanisms of Pesticide-Induced Neurotoxicity.
The goal of this project is to characterize the role of histone hyperacetylation in mitochondria inhibiting pesticide-induced nigrostriatal dopaminergic neurons.

1R01 NS100090-01A1 (PI: Kanthasamy, AG) Role: CO-I 08/1/2017 – 04/30/2022
NIH/NINDS $1.884 Million Total cost
Neuroinflammation and microglial Kv1.3 in Parkinson's disease.
The goal of this project is to characterize the role of Kv1.3 potassium channels in microglia activation and neuroinflammatory processes and their relevance to PD progression.

Seed Grant (PI: Ar. Kanthasamy) 06/30/18-06/30/19
Therapeutic targeting of CSF-1R in Experimental Parkinson's Disease (PD) using PLX5622
The goal of this project is to characterize the therapeutic efficacy of PLX5622 in the amelioration of PD associated neuroinflammation.

Seed Grant (PI: Marian Kohut)**;** Role: Co-PI 06/30/16-06/30/18
College of Human Sciences Seed grant program $25,000 Total Cost
The role of PKR/NLRP3 signaling in obesity associated neurodegeneration and Neuroinflammation.
The goal of this project is to characterize the role of obesity induced inflammation within the brain in the pathogenesis of Parkinson's Disease.

1R21 NS089487 (PI: Wilson Rumbeiha); Role: Co-I 09/30/14-07/31/18 (NCE)
NIH/NINDS $394,076 Total cost
Efficacy of Cobinamide for Treatment of Hydrogen Sulfide-induced Neurotoxicity
The goal of this project is to investigate the therapeutic efficacy of cobinamide as an intervention agent for the treatment of hydrogen sulfide-induced neurotoxicity.

Past grants

A. As Principal Investigator

ISU Seed Grant (PI): Arthi Kanthasamy; (CoI) :Anantharam Vellareddy 06/06/18-06/06/19
Big Data Brain Initiative (BDBI) $ 20,000 Total cost
"Therapeutic targeting of CSF-1R in Experimental Parkinson's Disease (PD) using PLX5622"

1R01NS078247 (PI: Arthi Kanthasamy) 05/15/2012-04/30/2017
NIH/NINDS $ 1.2 million Total cost
"Prokineticin 2 and Neuroinflammatory Mechanisms"

1R01NS065167 (PI: Arthi Kanthasamy) 05/15/2012-04/30/2017
NIH/NINDS $ 1.2 million Total cost
"Neuroinflammatory mechanisms in the progression of Parkinson's disease"

RO3 NS54016 (PI: Arthi Kanthasamy)
NIH/NINDS $ 143,585 Total cost 07/6/2006-07/31/2009
"Oxidative Stress PKC delta activation-striatal ischemic death"

New faculty innovative grant (PI: Arthi Kanthasamy) 02/12/2006-01/31/2007
Iowa State University $13,000 Total cost
"Significance of Oxidative Stress-induced Proteolytic activation of PKCδ-mediated cell signaling in ischemia-induced striatal neuronal injury in mouse brain"

B. As Co- Investigator or Investigator

5RO1ES010586 (PI: Anumantha Kanthasamy), Co-I: Arthi Kanthasamy 08/5/2006-07/31/2011
NIH/NIEHS $ 1.2 million Total cost

"Mechanisms of Manganese Toxicity"

RO1 NS038644-11 (PI: Anumantha Kanthasamy) Co-I : Arthi Kanthasamy 04/01/1999 - 03/30/2010
NIH/NINDS $ 1.27 million Total cost
"Neuroprotective Strategies against Oxidative Damage"

5RO1 NS039958-10 (MPI: Anumantha Kanthasamy, and B. Kalayanaraman) Co-I : Arthi Kanthasamy 02/01/2009-01/31/2015
NIH/NINDS $ 2.77 million Total cost
Neuroprotection by Mitochondria-targeted Antioxidants.

5RO1 ES019267 (PI: Anumantha Kanthasamy) Co-I: Arthi Kanthasamy **11/1/2011-10/1 2015**
NIH-NIEHS Victer Proposal $ 1.09 million Total cost
"Role of Prion Protein in Manganese Toxicity"

Seed Grant (PI: Harper Matt); CoI:Arthi Kanthasamy 01/06/09-12/31/10
Iowa Center for Advanced Neurotoxicology $ 15,000 Total cost
"Retinal Diagnostic Imaging in rodent models of Parkinson's disease"

RO1 NS 045133 -04 (PI: Anumantha Kanthasamy) Co-I : Arthi Kanthasamy 09/04/2003 - 008/31/2008
NIH/NINDS $ 1.27 million Total cost
"Caspases, Mitochondrial Function and Parkinson's Disease"
NIH- National Institute of Neurological Disorders and Stroke

Department of Defense (PI: Anumantha Kanthasamy) Co-I : Arthi Kanthasamy 03/03/2006- 02/28/2009
Vanderbilt Grant $188,685 total cost
"Role of Manganese in Prion Disease Pathogenesis"

Pharmaceutical Company grant (PI: Anumantha Kanthasamy) Co-I : Arthi Kanthasamy 11/02/2002/-05/30/2005
Boehringer Ingelheim Pharma GmbH&Co KG $178,818 Total cost

"Evaluation of Antimyoclonic Efficacy of EMD compounds in an Animal Model of Posthypoxic Myoclonus"

INVITED TALKS

- Invited speaker at the WIPC seminar series-UGA, 2022- Role of microglia in PD pathogenesis
- Invited speaker at the CCRC centers annual meeting held at UGA-2022: Potential Role of KCa3.1 in PD: Implications for microglial dysfunction.

- Invited speaker at the Dept. of Physiology and Pharmacology, UGA, Jan.2021. Novel Kinase driven therapeutic strategies for the treatment of PD.

- Invited speaker at the counteract Program, UC Davis. Aug. 2019. Neuroinflammation Associated cell signaling events as novel translational targets for PD.
- Invited speaker in the 23rd Annual Iowa Physiological Society Meeting, Des Moines, IA (2018).

- 16th International Symposium on Trace Elements in Man and Animals (TEMA-16), Saint Petersburg Russia, June 2017. "Manganese Exposure Induces Neuroinflammation by Impairing Mitochondrial Dynamics in Astrocytes"

- International Neurotoxicology Meeting, Florianopolis, Brazil, May 2017. Mechanisms of Alpha-synuclein-induced Neuroinflammation in Neurotoxicity Models: Role for Protein kinase c delta

- Parkinson's Disease symposium, North Eastern Ohio Medical University (NEOMED) (May 2016). The role of the c-Abl tyrosine kinase signaling pathway in the induction of rotenone-induced inflammatory response in microglia.
- International Neurotoxicology Conference Manganese 2016
  Icahn School of Medicine at Mount Sinai. New York City, (Sept.2016). Mechanisms of Alpha-synuclein-induced Neuroinflammation in Neurotoxicity Models

- Molecular mechanisms of apoptotic cell death in manganese-induced neurotoxicity. ISTERH meeting 2015, Croatia.

- Neuroinflammation in Parkinson's disease: The lethal storm. BMS departmental seminar Apr.2015

- "Balancing Acts: The role of autophagy in dopaminergic neurodegeneration. Faculty Research Symposium, College of Veterinary Medicine, Iowa State University, Jan.2015

- First international congress: Global Environmental Contamination, "Environmental contaminant Endosulfan induces neurotoxicity via an impairment of the autophagy dependent protein degradation machinery in dopaminergic neuronal cells: relevance to pathogenesis of Parkinson's disease" Luxemburg. Sept.2014

- Methamphetamine Neurotoxicity Mediated by The Proteasome System and Autophagy, American Society for Investigative Pathology, Sandiego, CA. Apr.2014

- Histone Modifications and Dopaminergic Neurodegeneration: Relevance to Etiopathogenesis of Parkinson's Disease- Neurotoxicology Seminar, Dept. of Neurochemistry,National Institute of Mental Health and Neuro Sciences (**NIMHANS**), Bangalore, India. Jun. 2013.

- Histone Modifications and Dopaminergic Neurodegeneration: Impact and Responses to Pesticide Neurotoxins- RATIA Neurotoxicology seminar, Institute for Risk Assessment Sciences, University of Utrecht, Netherland. Jun. 2013

- Revealing the role of Protein kinase C delta in Neuroinflammation: relevance to pathogenesis of Parkinson 's disease. Department of Pharmacology, University of Nebraska Medical center. Aug. 2013.

- Role for PKC delta mediated cell Death signaling events and Autophagy in MA-induced Dopaminergic Neurodegeneration: The international conference ICEHT-2012 Tirupathy, India.

- "Dual Impairment of Autophagy and Ubiquitin Proteasomal System in a Dopaminergic cell culture model of Parkinson's Disease: Implications for Protein Kinase c Delta. Iowa State University Neuroscience Program, Dec.2011.

- Signaling cross-talk between ubiquitin-proteasome dysfunction mitochondrial dysfunction and autophagy in a neurotoxicity model of dopaminergic degeneration. Xi'an International Neurotoxicology Conference, Xi'an china. Jun. 2011.

- "Role of Protein Kinase C in Neuroinflammatory Events in Parkinson's Disease", Presented a talk in a neuroscience symposium organized by Atlantic Veterinary College, Prince Edwards Island and Neurodyne Pharmaceuticals at Regis and Joan Duffy Research Center, NRC Institute of Nutrisciences and Health, Charlottetown, Canada, August 2010

- "Methamphetamine-induced neurotoxicity linked to increases in autophagy and is influenced by PKCd in dopaminergic neuronal cells". Presented a talk in a drug abuse symposium organized by International Drug Abuse Society and Institute of Pharmaceutical Sciences, Kangwon National University, Seoul, South Korea August, 2009.

- "Novel PKC Signaling in Oxidative Stress and Neuroinflammatory Events Associated with Dopaminergic Degeneration in Parkinson's Disease". Iowa State University Proceedings of the Neuroscience Faculty Retreat, Sept.2009.

- "Methamphetamine-induced Neurotoxicity Linked to Increases in Autophagy and is Influenced by Protein Kinase C delta (PKCδ) in Dopaminergic Neuronal cells". 2009 Central State Toxicology meeting, Iowa State University, Oct. 2009.

- "Regulation of tyrosine hydroxylase activity and dopamine homeostasis by a novel protein kinase C isoform PKC-delta", Society for Neuroscience, Chicago Oct 2009.

- "Caspase-3 dependent Proteolytic activation of PKC delta regulates MA-induced autophagy and apoptosis in Mesencephalic dopaminergic cells", International Society for Neurochemistry, Satellite meeting, Merida, Mexico, Aug. 2007.

- "Cell Death Signaling in cell culture models of Prion diseases", Prion Symposium, Iowa State University, Feb. 2006.

- "Oxidative Insult and Proteolytic activation of PKC-delta in Brain Striatal Ischemic Cell Death", Society for Neuroscience, Washington D.C., 2005.

PUBLICATIONS

1. Huang M, Bargues-Carot A, Riaz Z, Wickham H, Zenitsky G, Jin H, et al. Impact of Environmental Risk Factors on Mitochondrial Dysfunction, Neuroinflammation, Protein Misfolding, and Oxidative Stress in the Etiopathogenesis of Parkinson's Disease. Int J Mol Sci. 2022;23(18).
2. Padhi P, Worth C, Zenitsky G, Jin H, Sambamurti K, Anantharam V, et al. Mechanistic Insights Into Gut Microbiome Dysbiosis-Mediated Neuroimmune Dysregulation and Protein Misfolding and Clearance in the Pathogenesis of Chronic Neurodegenerative Disorders. Front Neurosci. 2022;16:836605.
3. Palanisamy BN, Sarkar S, Malovic E, Samidurai M, Charli A, Zenitsky G, et al. Environmental neurotoxic pesticide exposure induces gut inflammation and enteric neuronal degeneration by impairing enteric glial mitochondrial function in pesticide models of Parkinson's disease: Potential relevance to gut-brain axis inflammation in Parkinson's disease pathogenesis. Int J Biochem Cell Biol. 2022;147:106225.
4. Ghaisas S, Harischandra DS, Palanisamy B, Proctor A, Jin H, Dutta S, **Kanthasamy A,** Kanthasamy AG. Chronic Manganese Exposure and the Enteric Nervous System: An in Vitro and Mouse in Vivo Study. *Environ Health Perspect* 2021; 129(8):87005.
5. Klionsky DJ, Abdel-Aziz AK, Abdelfatah S, Abdellatif M, Abdoli A, Abel S, et al. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition)(1). *Autophagy* 2021; 17(1):1-382.
6. Langley MR, Ghaisas S, Palanisamy BN, Ay M, Jin H, Anantharam V, **Kanthasamy A,** Kanthasamy AG. Characterization of nonmotor behavioral impairments and their neurochemical mechanisms in the MitoPark mouse model of progressive neurodegeneration in Parkinson's disease. *Experimental neurology* 2021; 341:113716.
7. Malovic E, Ealy A, **Kanthasamy A**, Kanthasamy AG. Emerging Roles of N6-Methyladenosine (m6A) Epitranscriptomics in Toxicology. *Toxicological sciences : an official journal of the Society of Toxicology* 2021; 181(1):13-22.
8. Samidurai M, Palanisamy BN, Bargues-Carot A, Hepker M, Kondru N, Manne S, Kanthasamy AG**, Kanthasamy A**. PKC Delta Activation Promotes Endoplasmic Reticulum Stress (ERS) and NLR Family Pyrin Domain-Containing 3 (NLRP3) Inflammasome Activation Subsequent to Asynuclein-Induced Microglial Activation:

Involvement of Thioredoxin-Interacting Protein (TXNIP)/Thioredoxin (Trx) Redoxisome Pathway. *Front Aging Neurosci* 2021; 13:661505.

9. Saminathan H, Ghosh A, Zhang D, Song C, Jin H, Anantharam V, Kanthasamy AG**, Kanthasamy A**. Fyn Kinase-Mediated PKCδ Y311 Phosphorylation Induces Dopaminergic Degeneration in Cell Culture and Animal Models: Implications for the Identification of a New Pharmacological Target for Parkinson's Disease. *Front Pharmacol* 2021; 12:631375.
10. Manne S, Kondru N, Jin H, Serrano GE, Anantharam V, **Kanthasamy A**, Adler CH, Beach TG and Kanthasamy AG. *Accepted*. Blinded RT-QuIC analysis of α-synuclein biomarker in skin tissue from Parkinson's Disease patients. Movement Disorders.
11. Samidurai M, Tarale P, Janarthanam C, Estrada CG, Gordon R, Zenitsky G, Jin H, Anantharam V, Kanthasamy AG, **Kanthasamy A**. 2020. Tumor Necrosis Factor-Like Weak Inducer of Apoptosis (TWEAK) Enhances Activation of STAT3/NLRC4 Inflammasome Signaling Axis through PKCδ in Astrocytes: Implications for Parkinson's Disease. Cells. 9(8):E1831. PMCID: PMC Journal - In Process.
12. Kondru N, Manne S, Kokemuller R, Greenlee J, Greenlee MHW, Nichols T, Kong Q, Anantharam V, **Kanthasamy A**, Halbur P, Kanthasamy AG. 2020. An Ex Vivo Brain Slice Culture Model of Chronic Wasting Disease: Implications for Disease Pathogenesis and Therapeutic Development. Sci Rep. 10(1):7640. PMCID: PMC7203233.
13. Manne S, Kondru N, Jin H, Anantharam V, Huang X, **Kanthasamy A**, Kanthasamy AG. 2020. α-Synuclein real-time quaking-induced conversion in the submandibular glands of Parkinson's disease patients. Mov. Disord. 35(2):268-278. PMCID: PMC7102508.
14. Ghaisas S, Langley MR, Palanisamy BN, Dutta S, Narayanaswamy K, Plummer PJ, Sarkar S, Ay M, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG. 2019. MitoPark transgenic mouse model recapitulates the gastrointestinal dysfunction and gut-microbiome changes of Parkinson's disease. Neurotoxicology. 75:186-199. PMCID: PCM7048412.
15. Panicker N, **Kanthasamy A**, Kanthasamy AG. 2019. Fyn amplifies NLRP3 inflammasome signaling in Parkinson's disease. Aging. (Albany NY). 11(16):5871-5873. PMCID: PMC6738402.
16. Harischandra DS, Rokad D, Ghaisas S, Verma S, Robertson A, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG. 2020. Enhanced differentiation of human dopaminergic neuronal cell model for preclinical translational research in Parkinson's disease. Biochim Biophys Acta Mol Basis Dis. 1866(4):165533. PMCID: PMC7010568.
17. Harischandra DS, Rokad D, Neal ML, Ghaisas S, Manne S, Sarkar S, Panicker N, Zenitsky G, Jin H, Lewis M, Huang X, Anantharam V, **Kanthasamy A**, Kanthasamy AG. 2019. Manganese promotes the aggregation and prion-like cell-to-cell exosomal transmission of α-synuclein. Science Signaling. 12(572). PMCID: PMC6435331.
18. Sarkar S, Rokad D, Malovic E, Luo J, Harischandra DS, Jin H, Anantharam V, Huang X, Lewis M, **Kanthasamy A**, Kanthasamy AG. 2019. Manganese activates NLRP3

inflammasome signaling and propagates exosomal release of ASC in microglial cells. Science Signaling 12(563). PMCID: PMC6420319.

19. Panicker N, Sarkar S, Harischandra DS, Neal M, Kam TI, Jin H, Saminathan H, Langley M, Charli A, Samidurai M, Rokad D, Ghaisas S, Pletnikova O, Dawson VL, Dawson TM, Anantharam V, Kanthasamy AG, **Kanthasamy A**. 2019. Fyn kinase regulates misfolded α-synuclein uptake and NLRP3 inflammasome activation in microglia. J Exp Med. 216(6):1411-1430. PMC6547864.

20. Manne S, Kondru N, Jin H, Anantharam V, Huang X, **Kanthasamy** A, Kanthasamy AG. 2019. α-Synuclein real-time quaking-induced conversion in the submandibular glands of Parkinson's disease patients. Mov Disord. 35(2): 268-278. PMCID: PMC7102508.

21. Song C, Charli A, Luo J, Riaz Z, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG. 2019. Mechanistic Interplay between Autophagy and Apoptotic Signaling in Endosulfan-induced Dopaminergic Neurotoxicity: Relevance to the Adverse Outcome Pathway in Pesticide Neurotoxicity. Toxicol Sci. Feb 22. PMID: 30796443.

22. **Kanthasamy A**, Jin H, Charli A, Vellareddy A, Kanthasamy A. 2019. Environmental neurotoxicant-induced dopaminergic neurodegeneration: a potential link to impaired neuroinflammatory mechanisms. Pharmacol Ther. 2019 Jan 22. PMID: 30677475.

23. Manne S, Kondru N, Hepker M, Jin H, Anantharam V, Lewis M, Huang X, **Kanthasamy A**, Kanthasamy AG. 2019. Ultrasensitive Detection of Aggregated α-Synuclein in Glial Cells, Human Cerebrospinal Fluid, and Brain Tissue Using the RT-QuIC Assay: New High-Throughput Neuroimmune Biomarker Assay for Parkinsonian Disorders. J Neuroimmune Pharmacol. Jan 31.PMID: 30706414.

24. Kanthasamy A, Jin H, Charli A, Vellareddy A, Kanthasamy A.G. 2019. Environmental neurotoxicant-induced dopaminergic neurodegeneration, a potential link to impaired neuroinflammatory mechanisms. Pharmacol Ther. Jan 22. S0163-7258(19)30007-5. PMID: 30677475.

25. Neal M, Luo J, Harischandra DS, Gordon R, Sarkar S, Jin H, Anantharam V, Désaubry L, Kanthasamy A, **Kanthasamy A**. 2018. Prokineticin-2 promotes chemotaxis and alternative A2 reactivity of astrocytes. Glia. 66(10):2137-2157. PMCID: PMC6240381

26. Sarkar S, Malovic E, Sarda D, Lawana V, Rokad D, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG. 2018. Characterization and comparative analysis of a new mouse microglial cell model for studying neuroinflammatory mechanisms during neurotoxic insults. Neurotoxicology. 67:129-140. PMCID: PMC6091676.

27. Singh N, Lawana V, Luo J, Phong P, Abdalla A, Palanisamy B, Rokad D, Sarkar S, Jin H, Anantharam V, Kanthasamy AG, **Kanthasamy A**. 2018. Organophosphate pesticide chlorpyrifos impairs STAT1 signaling to induce dopaminergic neurotoxicity: Implications for mitochondria mediated oxidative stress signaling events. Neurobiol Dis. 117:82-113. PMCID: PMC6108448.

28. Anantharam P, Whitley EM, Mahama B, Kim DS, Imerman PM, Shao D, Langley MR, **Kanthasamy A**, Rumbeiha WK. Characterizing a mouse model for evaluation of countermeasures against hydrogen sulfide-induced neurotoxicity and neurological sequelae. Annals of the New York Academy of Sciences. 2017;1400:46-64.

29. Anantharam P, Whitley EM, Mahama B, Kim DS, Sarkar S, Santana C, Chan A, Kanthasamy AG, **Kanthasamy A**, Boss GR, Rumbeiha WK. Cobinamide is effective for treatment of hydrogen sulfide-induced neurological sequelae in a mouse model. Annals of the New York Academy of Sciences. 2017;1408:61-78.
30. Sarkar S, Malovic E, Harishchandra DS, Ghaisas S, Panicker N, Charli A, Palanisamy BN, Rokad D, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG. Mitochondrial impairment in microglia amplifies NLRP3 inflammasome proinflammatory signaling in cell culture and animal models of Parkinson's disease. NPJ Parkinson's disease. 2017;3:30.
31. Sarkar S, Malovic E, Harischandra DS, Ngwa HA, Ghosh A, Hogan C, Rokad D, Zenitsky G, Jin H, Anantharam V, Kanthasamy AG, **Kanthasamy A** (2017), Manganese exposure induces neuroinflammation by impairing mitochondrial dynamics in astrocytes. Neurotoxicology. 2017 May 21. pii: S0161-813X(17)30094-3.doi:10.1016/j.neuro.2017.05.009
32. Lawana, V, Singh, N., Sarkar, S., Charli, A., Jin, H, Malovic Anantharam V, Kanthasamy AG, **Kanthasamy A** (2017), Involvement of c-Abl kinase in microglial activation of NLRP3 inflammasome and impairment in autolysosomal system. J Neuroimmune Pharmacol. 2017 May 2. doi: 10.1007/s11481-017-9746-5. [Epub ahead of print]
33. Ay M, Luo, Langley, M., Jin H, Anantharam V, **Kanthasamy A,** Kanthasamy AG. (2017). Molecular mechanisms underlying protective effects of quercetin against mitochondrial dysfunction and progressive dopaminergic neurodegeneration in cell culture and MitoPark transgenic mouse models of Parkinson's Disease, J. Neurochem. 2017 Jun;141(5):766-782. doi: 10.1111/jnc.14033.
34. Langley, MR, Ghosh, A., Charlie., A., Sarker, S., Ay, M., Zielonks, J., Brenza, T., Bennet, B., Jin, H, Anantharam, V, **Kanthasamy, A** , Narasimhan B., Kalyanaraman, B., Kanthasamy, AG, (2017). Mitoapocynin prevents mtiochondiral dysfucntion, microglial activation, oxidative damage and progressive neurodegeneration in MitoPark transgneic mice, Antioxidant Redox Signaling, doi. 10: 1098/ars. 206.6905.
35. Kondru, N, Manne S, West Greenlee, H, Anantharam, A., Halbur, P. **Kanthasamy A**, Kanthasamy A,G. (2017) Integrated Organotypic Slice Cultures and RT-QuIC Assay (OSCAR): Implications for Translational Discovery in Prion Misfolding Diseases (2017). Scientific Reports, Feb 24: 7; 43144.
36. Sarker, S., Malovic, E., Plate, B., Jin H, Anantharam V, Kanthasamy A, Kanthasamy AG. (2017), Rapid and refined CD11b magnetic isolation of primary microglia with enhanced purity and versatility, J Vis Exp. 2017 Apr 13;(122). doi: 10.3791/55364
37. Rokad D, Ghaisas S, Harischandra DS, Jin H, Anantharam V, **Kanthasamy A,** Kanthasamy AG. 2016), Role of neurotoxicants and traumatic brain injury in alpha-synuclein misfolding and aggregation, Brain Res Bull. 2016 Dec 16. pii: S0361-9230(16)30467-1.
38. Charli A, Jin H, Anantharam V, **Kanthasamy A** and Kanthasamy AG (2016) Alterations in mitochondrial dynamics induced by tebufenpyrad and pyridaben in a dopaminergic neuronal cell culture model. *Neurotoxicology* **53**:302-313.
39. Ghosh A, Langley MR, Harischandra DS, Neal ML, Jin H, Anantharam V, Joseph J, Brenza T, Narasimhan B, **Kanthasamy A**, Kalyanaraman B and Kanthasamy AG (2016) Mitoapocynin Treatment Protects Against Neuroinflammation and Dopaminergic

Neurodegeneration in a Preclinical Animal Model of Parkinson's Disease. *Journal of neuroimmune pharmacology :* **11**:259-278.

40. Gordon R, Neal ML, Luo J, Langley MR, Harischandra DS, Panicker N, Charli A, Jin H, Anantharam V, Woodruff TM, Zhou QY, Kanthasamy AG and **Kanthasamy A** (2016) Prokineticin-2 upregulation during neuronal injury mediates a compensatory protective response against dopaminergic neuronal degeneration. *Nature communications* **7**:12932.

41. Gordon R, Singh N, Lawana V, Ghosh A, Harischandra DS, Jin H, Hogan C, Sarkar S, Rokad D, Panicker N, Anantharam V, Kanthasamy AG and **Kanthasamy A** (2016) Protein kinase Cdelta upregulation in microglia drives neuroinflammatory responses and dopaminergic neurodegeneration in experimental models of Parkinson's disease. *Neurobiology of disease* **93**:96-114.

42. Kim DS, Jin H, Anantharam V, Gordon R, **Kanthasamy A** and Kanthasamy AG (2016) p73 gene in dopaminergic neurons is highly susceptible to manganese neurotoxicity. *Neurotoxicology*.

43. Rokad D, Ghaisas S, Harischandra DS, Jin H, Anantharam V, **Kanthasamy A** and Kanthasamy AG (2016) Role of neurotoxicants and traumatic brain injury in alpha-synuclein protein misfolding and aggregation. *Brain research bulletin*.

44. Rumbeiha W, Whitley E, Anantharam P, Kim DS and **Kanthasamy A** (2016) Acute hydrogen sulfide-induced neuropathology and neurological sequelae: challenges for translational neuroprotective research. *Annals of the New York Academy of Sciences* **1378**:5-16.

45. Ay M, Jin H, Harischandra DS, Asaithambi A, **Kanthasamy A,** Anantharam V, Kanthasamy AG: Molecular cloning, epigenetic regulation, and functional characterization of Prkd1 gene promoter in dopaminergic cell culture models of Parkinson's disease. J Neurochem 2015;135 (2): 402-15.

46. Panicker N, Saminathan H, Jin H, Neal M, Harischandra DS, Gordon R, Kanthasamy K, Lawana V, Sarkar S, Luo J, Anantharam V, Kanthasamy AG, **Kanthasamy A**: Fyn Kinase Regulates Microglial Neuroinflammatory Responses in Cell Culture and Animal Models of Parkinson's Disease. J Neurosci 2015;35:10058-10077.

47. Jin H, **Kanthasamy A**, Harischandra DS, Anantharam V, Rana A, Kanthasamy A: Targeted toxicants to dopaminergic neuronal cell death. Methods Mol Biol 2015;1254:239-52.

48. Harischandra DS, Jin H, Anantharam V, **Kanthasamy A**, Kanthasamy AG: alpha-Synuclein protects against manganese neurotoxic insult during the early stages of exposure in a dopaminergic cell model of Parkinson's disease. Toxicol Sci 2015;143:454-468.

49. Asaithambi A, Ay M, Jin H, Gosh A, Anantharam V, **Kanthasamy A**, Kanthasamy AG: Protein kinase D1 (PKD1) phosphorylation promotes dopaminergic neuronal survival during 6-OHDA-induced oxidative stress. PLoS One 2014.

50. Harischandra DS, Kondru N, Martin DP, **Kanthasamy A**, Jin H, Anantharam V, Kanthasamy AG: Role of proteolytic activation of protein kinase Cdelta in the pathogenesis of prion disease. Prion 2014;8:143-153.

51. Jin H, **Kanthasamy A**, Harischandra DS, Kondru N, Ghosh A, Panicker N, Anantharam V, Rana A, Kanthasamy AG: Histone hyperacetylation up-regulates protein kinase Cdelta in dopaminergic neurons to induce cell death: relevance to epigenetic mechanisms of neurodegeneration in Parkinson disease. J Biol Chem 2014;289:34743-34767.

52. Jin H, **Kanthasamy A**, Ghosh A, Anantharam V, Kalyanaraman B, Kanthasamy AG: Mitochondria-targeted antioxidants for treatment of Parkinson's disease: preclinical and clinical outcomes. Biochim Biophys Acta 2014;1842:1282-1294.

53. Ngwa HA, **Kanthasamy A**, Jin H, Anantharam V, Kanthasamy AG: Vanadium exposure induces olfactory dysfunction in an animal model of metal neurotoxicity. Neurotoxicology 2014;43:73-81.

54. Ghosh A, Saminathan H, **Kanthasamy A**, Anantharam V, Jin H, Sondarva G, Harischandra DS, Qian Z, Rana A, Kanthasamy AG: The peptidyl-prolyl isomerase Pin1 up-regulation and proapoptotic function in dopaminergic neurons: relevance to the pathogenesis of Parkinson disease. J Biol Chem 2013;288:21955-21971.

55. Chandramani SP, Jin H, Anantharam V, Kanthasamy A, **Kanthasamy A**: N-Acetyl Cysteine Protects against Methamphetamine-Induced Dopaminergic Neurodegeneration via Modulation of Redox Status and Autophagy in Dopaminergic Cells. Parkinsons Dis 2012;2012:424285.

56. Ghosh A, **Kanthasamy A**, Joseph J, Anantharam V, Srivastava P, Dranka BP, Kalyanaraman B, Kanthasamy AG: Anti-inflammatory and neuroprotective effects of an orally active apocynin derivative in pre-clinical models of Parkinson's disease. J Neuroinflammation 2012;9:241. 241-249.

57. Gordon R, Anantharam V, Kanthasamy AG, **Kanthasamy A**: Proteolytic activation of proapoptotic kinase protein kinase Cdelta by tumor necrosis factor alpha death receptor signaling in dopaminergic neurons during neuroinflammation. J Neuroinflammation 2012;9: 82-89.

58. Kanthasamy A, Jin H, Anantharam V, Sondarva G, Rangasamy V, Rana A, **Kanthasamy A**: Emerging neurotoxic mechanisms in environmental factors-induced neurodegeneration. Neurotoxicology 2012;33:833-837..

59. Kanthasamy AG, Choi C, Jin H, Harischandra DS, Anantharam V, **Kanthasamy A**: Effect of divalent metals on the neuronal proteasomal system, prion protein ubiquitination and aggregation. Toxicol Lett 2012;214:288-295.

60. Klionsky DJ, Abdalla FC, Abeliovich H, Abraham RT, Acevedo-Arozena A, Adeli K, …**Kanthasamy, A**…Zuckerbraun, B (2012) Guidelines for the use and interpretation of assays for monitoring autophagy. *Autophagy* **8**:445-544.

61. Lin M, Chandramani-Shivalingappa P, Jin H, Ghosh A, Anantharam V, Ali S, Kanthasamy AG, **Kanthasamy A**: Methamphetamine-induced neurotoxicity linked to ubiquitin-proteasome system dysfunction and autophagy-related changes that can be modulated by protein kinase C delta in dopaminergic neuronal cells. Neuroscience 2012;210:308-32.

62. Afeseh NH, **Kanthasamy A**, Gu Y, Fang N, Anantharam V, Kanthasamy AG: Manganese nanoparticle activates mitochondrial dependent apoptotic signaling and autophagy in dopaminergic neuronal cells. Toxicol Appl Pharmacol 2011;256:227-240.

63. Asaithambi A, **Kanthasamy A**, Saminathan H, Anantharam V, Kanthasamy AG: Protein kinase D1 (PKD1) activation mediates a compensatory protective response during early stages of oxidative stress-induced neuronal degeneration. Mol Neurodegener 2011;6: 43-46.

64. Gordon R, Hogan CE, Neal ML, Anantharam V, Kanthasamy AG, **Kanthasamy A**: A simple magnetic separation method for high-yield isolation of pure primary microglia. J Neurosci Methods 2011;194:287-296.

65. Jin H, **Kanthasamy A**, Anantharam V, Rana A, Kanthasamy AG: Transcriptional regulation of pro-apoptotic protein kinase Cdelta: implications for oxidative stress-induced neuronal cell death. J Biol Chem 2011;286:19840-19859.

66. Jin H, **Kanthasamy A**, Ghosh A, Yang Y, Anantharam V, Kanthasamy AG: alpha-Synuclein negatively regulates protein kinase Cdelta expression to suppress apoptosis in dopaminergic neurons by reducing p300 histone acetyltransferase activity. J Neurosci 2011;31:2035-2051.

67. Kanthasamy K, Gordon R, Jin H, Anantharam V, Ali S, Kanthasamy AG, **Kanthasamy A**: Neuroprotective effect of resveratrol against methamphetamine-induced dopaminergic apoptotic cell death in a cell culture model of neurotoxicity. Curr Neuropharmacol 2011;9:49-53.

68. Latchoumycandane C, Anantharam V, Jin H, Kanthasamy A, **Kanthasamy A**: Dopaminergic neurotoxicant 6-OHDA induces oxidative damage through proteolytic activation of PKCdelta in cell culture and animal models of Parkinson's disease. Toxicol Appl Pharmacol 2011;256:314-323.

69. Martin DP, Anantharam V, Jin H, Witte T, Houk R, **Kanthasamy A**, Kanthasamy AG: Infectious prion protein alters manganese transport and neurotoxicity in a cell culture model of prion disease. Neurotoxicology 2011;32:554-562.

70. Saminathan H, Asaithambi A, Anantharam V, Kanthasamy AG, **Kanthasamy A**: Environmental neurotoxic pesticide dieldrin activates a non receptor tyrosine kinase to promote PKCdelta-mediated dopaminergic apoptosis in a dopaminergic neuronal cell model. Neurotoxicology 2011;32:567-577.

71. Song C, **Kanthasamy A**, Jin H, Anantharam V, Kanthasamy AG: Paraquat induces epigenetic changes by promoting histone acetylation in cell culture models of dopaminergic degeneration. Neurotoxicology 2011;32:586-595.

72. Sun F, Kanthasamy AG, **Kanthasamy A**: Measurement of proteasomal dysfunction in cell models of dopaminergic degeneration. Methods Mol Biol 2011;758:293-305.

73. Zhang D, Kanthasamy A, Anantharam V, **Kanthasamy A**: Effects of manganese on tyrosine hydroxylase (TH) activity and TH-phosphorylation in a dopaminergic neural cell line. Toxicol Appl Pharmacol 2011;254:65-71.

74. Kanthasamy AG, Jin H, Mehrotra S, Mishra R, **Kanthasamy A**, Rana A (2010) Novel cell death signaling pathways in neurotoxicity models of dopaminergic degeneration: relevance to oxidative stress and neuroinflammation in Parkinson's disease. *Neurotoxicology* 31:555-561.

75. Afeseh NH, **Kanthasamy A**, Anantharam V, Song C, Witte T, Houk R and Kanthasamy AG (2009) Vanadium induces dopaminergic neurotoxicity via protein kinase Cdelta dependent oxidative signaling mechanisms: relevance to etiopathogenesis of Parkinson's disease. *Toxicol Appl Pharmacol.* **240**:273-285.

76. Sun F, **Kanthasamy A**, Song C, Yang Y, Anantharam V, Kanthasamy AG. Proteasome inhibitor-induced apoptosis is mediated by positive feedback amplification of PKCdelta proteolytic activation and mitochondrial translocation. *J.Cell Mol.Med*. 2008; 12**:** 2467-2481.

77. Anantharam V, **Kanthasamy A**, Choi CJ Martin DP, Latchoumycandane C, Richt JA,[1] and. Kanthasamy AG. Opposing roles of prion protein in oxidative stress- and ER stress-induced apoptotic signaling. *Free Radic.Biol.Med*. 2008; 45**:** 1530-1541.

78. Kanthasamy AG, Kitazawa M, Yang Y, Anantharam V, **Kanthasamy A**. Environmental neurotoxin dieldrin induces apoptosis via caspase-3-dependent proteolytic activation of protein kinase C delta (PKCdelta): Implications for neurodegeneration in Parkinson's disease. *Mol.Brain*. 2008; 1**:** 12.

79. Carvour M, Song C, Kaul S, Anantharam V, Kanthasamy A, **Kanthasamy A**. Chronic low-dose oxidative stress induces caspase-3-dependent PKCdelta proteolytic activation and apoptosis in a cell culture model of dopaminergic neurodegeneration. *Ann.N.Y.Acad.Sci.* 2008; 1139:197-205.

80. Sun F, **Kanthasamy A**, Song C, Yang Y, Anantharam V, Kanthasamy AG. Proteasome inhibitor-induced apoptosis is mediated by positive feedback amplification of PKCdelta proteolytic activation and mitochondrial translocation. *J.Cell Mol.Med*. 2008; 12**:** 2467-2481.

81. Anantharam V, **Kanthasamy A**, Choi CJ Martin DP, Latchoumycandane C, Richt JA,[1] and. Kanthasamy AG. Opposing roles of prion protein in oxidative stress- and ER stress-induced apoptotic signaling. *Free Radic.Biol.Med*. 2008; 45**:** 1530-1541.

82. Kanthasamy AG, Kitazawa M, Yang Y, Anantharam V, **Kanthasamy A**. Environmental neurotoxin dieldrin induces apoptosis via caspase-3-dependent proteolytic activation of protein kinase C delta (PKCdelta): Implications for neurodegeneration in Parkinson's disease. *Mol.Brain*. 2008; 1**:** 12.

83. Zhang D, **Kanthasamy A**, Yang Y, Anantharam V, Kanthasamy A (2007b) Protein kinase C delta negatively regulates tyrosine hydroxylase activity and dopamine synthesis by

enhancing protein phosphatase-2A activity in dopaminergic neurons. *J Neurosci.* 27:5349-5362.

84. Anantharam V, Kaul S, Song C, **Kanthasamy A**, Kanthasamy AG (2007) Pharmacological inhibition of neuronal NADPH oxidase protects against 1-methyl-4-phenylpyridinium (MPP+)-induced oxidative stress and apoptosis in mesencephalic dopaminergic neuronal cells. *Neurotoxicology.* 28:988-997.
85. Zhang D, Anantharam V, **Kanthasamy A**, Kanthasamy AG (2007a) Neuroprotective effect of protein kinase C delta inhibitor rottlerin in cell culture and animal models of Parkinson's disease. *J Pharmacol Exp Ther.* 322:913-922.
86. Sun F, **Kanthasamy A**, Anantharam V, Kanthasamy AG (2007) Environmental neurotoxic chemicals-induced ubiquitin proteasome system dysfunction in the pathogenesis and progression of Parkinson's disease. *Pharmacol Ther.* 114:327-344.
87. Choi, C.J., Anantharam, V. Saetveit, N.J. Houk, R.S., **Kanthasamy, A** and Kanthasamy, AG. (2007), Normal cellular prion protein protects against manganese-induced oxidative stress and apoptotic cell death, *Toxicol Sci.* 98(2):495-509.
88. Anantharam, V**.** E. Lehrmann, **Kanthasamy A**, Y. Yang, P. Banerjee, KG. Becker, WJ Freed, AG. Kanthasamy (2007). Microarray Analysis of Oxidative Stress Regulated Genes in Mesencephalic Dopaminergic Neuronal Cells: Relevance to Oxidative Damage in Parkinson's disease. *Neurochem. Intl.* 50(6):834-47.
89. **Kanthasamy A**, Anantharam V, Ali SF, Kanthasamy AG**.** (2006), Methamphetamine induces autophagy and apoptosis in a mesencephalic dopaminergic neuronal culture model: role of cathepsin-D in methamphetamine-induced apoptotic cell death. *Ann N Y Acad Sci*. 1074:234-44.
90. Choi CJ, **Kanthasamy A**, Anantharam V, Kanthasamy AG. (2006), Interaction of metals with prion protein: Possible role of divalent cations in the pathogenesis of prion diseases. *Neurotoxicology.* 27: 777-87.
91. Kanthasamy AG, Anantharam V, Zhang D, Latchoumycandane C, Jin H, Kaul S, **Kanthasamy A** (2006) A novel peptide inhibitor targeted to caspase-3 cleavage site of a proapoptotic kinase protein kinase C delta (PKCdelta) protects against dopaminergic neuronal degeneration in Parkinson's disease models. *Free Radic Biol Med.* 41:1578-1589.
92. Kitazawa, M., Anantharam, V., Yang. Y., Hirata, Y., **Kanthasamy, A** and Kanthasamy, AG. (2005) Activation of protein kinase Cδ by proteolytic cleavage contributes to manganese-induced apoptosis in dopaminergic cells: protective role of Bcl-2. *Biochemical Pharmacol.* 69:133-46.
93. Latchoumycandane, C., Anantharam, V., Kitazawa, M., Yang, Y., **Kanthasamy, A.** and Kanthasamy, AG. (2005) Protein Kinase C Delta (PKCδ) is a Key Downstream Mediator of Manganese-induced Apoptosis in Dopaminergic Clonal Cells. *J. Pharmacol. Expt. Therapeutics.* 313:46-45.
94. Kaul S, Anantharam V, **Kanthasamy A**, Kanthasamy AG (2005a) Wild-type alpha-synuclein interacts with pro-apoptotic proteins PKCdelta and BAD to protect dopaminergic neuronal cells against MPP+-induced apoptotic cell death. *Brain Res Mol Brain Res. 139: 137-152.*

95. Kaul S, Anantharam V, Yang Y, Choi CJ, **Kanthasamy A**, Kanthasamy AG (2005b) Tyrosine phosphorylation regulates the proteolytic activation of protein kinase Cdelta in dopaminergic neuronal cells. *J Biol Chem.* 280: 28721-28730.

96. Sun F, Anantharam V, Latchoumycandane C, **Kanthasamy A**, Kanthasamy AG (2005) Dieldrin induces ubiquitin-proteasome dysfunction in alpha-synuclein overexpressing dopaminergic neuronal cells and enhances susceptibility to apoptotic cell death. *J Pharmacol Exp Ther.* 315: 69-79.

97. Kitazawa, M., Anantharam, V. **Kanthasamy, A**. and Kanthasamy, A.G. (2004), Dieldrin promotes proteolytic cleavage of poly(ADP-ribose)polymerase and apoptosis in dopaminergic cells: protective effect of mitochondrial anti-apoptotic protein Bcl-2. *Neurotoxicology,* 25: 589-598.

98. Anantharam, V., Kitazawa, M., Latchoumycandane, C., **Kanthasamy, A**. and Kanthasamy, AG. (2004) Blockade of PKCδ Proteolytic Activation by Loss of Function Mutants Rescue Mesencephalic Dopaminergic Neurons from Methylcyclopentadienyl Manganese Tricarbonyl (MMT)-induced Apoptotic Cell Death. *Ann. N.Y. Acad. Sci.,*1035: 271-289.

99. Kanthasamy, A.G., Kitazawa, M., Kaul., S., Yang, Y., Lahiri, D.K., Anantharam, A., **Kanthasamy, A**. (2003), Proteolytic activation of proapoptotic kinase PKCδ is regulated by overexpression of Bcl-2: Implications for oxidative stress and environmental factors in Parkinson's disease, *Ann. N.Y. Acad. Sci.,* 1010: 683-686.

100. Kaul, S. **Kanthasamy, A**, Kitazawa, M., Anantharam, V. and Kanthasamy, A.G. (2003), Caspase-3-dependent proteolytic activation of Protein Kinase Cδ mediates and regulates MPP^+ induced apoptosis in dopaminergic cells: Relevance to oxidative stress and Parkinson's disease. *Eur. J. Neurosci*., 18: 1387-1407.

101. **Kanthasamy, A**, Sprague, J.E ., Shotwell, J.R ., Nichols, D.E ., (2002) : Infusion of a dopamine transporter antisense into the substantia nigra protects against MDMA-induced serotonergic deficits in the ipsilateral striatum (2002), *Neuroscience* 2002; 114: 917-24.

102. Blair, J.B., Lewicka, D.M., **Kanthasamy, A**., Lucaites, V.L., Nelson, D.L., Nichols, D.E., (1999): Thieno[3,2-b]-and Thieno[2,3-b]pyrrole bioisosteric analogues of N,N-Dimethyltryptamine, *J. Med. Chem.* **42:** 1106-1111.

103. Monte, A.P., Marona-Lewicka., **Kanthasamy, A**., Sanders-Bush, E. and Nichols, D.E. (1995): Stereoselective LSD-like activity in a series of d-Lysergic acid amides of R (-) and (S)-2-Aminoalkanes**,** *J. Med. Chem.,* 38: 958-966.

INVITED BOOK CHAPTERS

1. 'Manganese and Prion Disease' Jin H, Harischandra DS, Choi C, Martin D, Anantharam V, **Kanthasamy A**, and Kanthasamy AG, In: Manganese in Health and Disease, Edited by Lucio Costa and Michael Aschner. (In press)

2. Singh N, Lawana V, Krishnan N, Kanuri S H, Jin H, Anantharam V, Kanthasamy AG, and **Kanthasamy A** (2015). Agrochemicals-Induced Dopaminergic Neurotoxicity: Role of Mitochondria-Mediated Oxidative Stress and Protein Clearance Mechanisms.

"Toxicity and Autophagy in Neurodegenerative Disorders". Springer International Publishing Switzerland.

3. 'Cell Signaling Mechanisms in Developmental Neurotoxicity,' Song, C., **Kanthasamy, A**., Kanthasamy, A.G. Kanthasamy, In: Reproductive and Developmental Toxicology, Edited by: Ramesh Gupta, pp: 835-846, 2011

4. **Kanthasamy A** and Hsu, W (2008). Behavior Modifying drugs, in Handbook of Veterinary Pharmacology. Walter H. Hsu editor, pp. 109-129. Willey Blackwell, Ames.

5. Hsu, W and **Kanthasamy A** (2008). Nonsteroidal Anti-inflammatory drugs (NSAIDs), in Handbook of Veterinary Pharmacology. Walter H. Hsu editor, pp. 153-169. Willey Blackwell, Ames.

ABSTRACTS/CONFERENCE PRESENTATIONS

1. **Kanthasamy A,** Truong, D.D., Huang, X., Freed, C.F. and Kanthasamy, A.G., (1996), Neuroprotective effect of novel strychnine insensitive glycine site antagonists in experimental Parkinson's model: Evidence for excitatory mechanisms of neurodegeneration, *Soc. Neurosci.*, 22: 2129.
2. **Kanthasamy A** and Nichols, D.E. (1999), Gamma-vinyl GABA-GABA transaminase inhibitor attenuates MDMA-induced neurotoxicity, *Soc. Neurosci.,* 25: 565.
3. Sprague, J.E., Worst, T., **Kanthasamy A,** Nichols, D.E. and Kane, M.D. (1999), Effects of antisense oligonucleotide alteration of MAO-B gene expression on MDMA-induced serotonergic neurotoxicity, *Soc. Neurosci.,* 25: 2090.
4. **Kanthasamy A**, Nichols, D.E., (1999), Gamma vinyl GABA (GVG) attenuates MDMA-induced neurotoxicity. Regional chapter of annual neuroscience meeting, Eli Lilly Company; Indianapolis.
5. **Kanthasamy A**, Nichols, D.E., (2000), Attenuation of MDMA-induced neurotoxicity by a selective GABA-B agonist baclofen. *Soc.Neurosci*., 2000.
6. **Kanthasamy A**, Nichols, D.E., (2001) Attenuation of MDMA-induced neurotoxicity using an antisense against dopamine transporter.
7. **Kanthasamy A**, Kitazawa, M., Anantharam, V. and Kanthasamy, A.G. [2003], Methylcyclopentadienyl Manganese Tricarbonyl (MMT) induces apoptosis by PKCδ dependent activation of NF-kB in mesencephalic dopaminergic neuronal cells, *Tox. Sci.,* 72(S-1): 1713.
8. **Kanthasamy A**, Anantharam, V., Kanthasamy, A.G, [2003], Dieldrin-induces apoptosis in dopaminergic neuronal cells via a caspase-3 dependent NF-κB activation and nuclear induction of *gadd 153*, *Soc. Neurosci.,* 410.9.
9. Kanthasamy, A.G., Lehrmann, E., Yang, Y., Kaul, S., **Kanthasamy A**, Becker, K.G. Freed, W.J. and Anantharam, V. [2003], Microarray analysis of oxidative stress regulated genes in mesencephalic dopaminergic neuronal cells: Relevance to pathogenesis of Parkinson's disease, *Soc. Neurosci.,* 233.7.

10. Yang, Y. Petry, K., Anantharam, V., **Kanthasamy A**, and Kanthasamy, A. [2003], Gene expression analysis during dieldrin exposure in rat mesencephalic dopaminergic neuronal cells: Potential mechanisms involved in environmental chemical-induced dopaminergic degeneration, *Toxicologist, 78(1): 1623.*

11. V.Anantharam, I.Vorberg; C.Choi; **Kanthasamy A**; J.A.Richt; S.A.Priola; A.G.Kanthasamy, (2004), Differential role of prion protein in oxidative stress- and ER Stress-induced apoptotic signaling in Neural Cells. United States. Animal Prion Diseases and the Americas International Symposium, Oct 14-16, Ames, IA.

12. D.Zhang; Y.Yang; **Kanthasamy A**; V.Anantharam; A.G.Kanthasamy (2004), Oxidative Stress Sensitive PKCδ Co-Localizes with Tyrosine Hydroxylase (TH) and Suppresses TH Activity In Dopaminergic Cells. 34rd annual meeting of Society of Neuroscience, October, 23-27, San Diego, CA.

13. C.Latchoumycandane; Y.Yang; V.Anantharam, **Kanthasamy A**; A.G.Kanthasamy (2004), RNAi-mediated Knockdown of the Oxidative Stress sensitive Kinase PKCδ protects against Apoptosis ina Parkinsons Disease Model. 34rd annual meeting of Society of Neuroscience, October, 23-27, San Diego, CA.

14. V.Anantharam; I.Vorberg; C.Choi; **Kanthasamy A**; J.A.Richt; S.A.Priola; A.G.Kanthasamy, (2004), Proteolytic activation of PKCδ contributes to Oxidative- and ER-Stress induced Apoptotic Cell Death in Prion-expressing Mouse Neural Cells. 34rd annual meeting of Society of Neuroscience, October, 23-27, San Diego, CA..

15. **Kanthasamy A**; C.Latchoumycandane; V. Anantharam; A.G.Kanthasamy, (2004), Methamphetamine-induced oxidative damage in a Dopaminergic Neuronal Cell Line involves Caspase-3 dependent Proteolytic Cleavage of an Oxidative Stress sensitive kinase PKCδ. 34rd annual meeting of Society of Neuroscience, October, 23-27, San Diego, CA.

16. Y.Yang; D.Zhang, V.Anantharam; **Kanthasamy A**; S.L.Siedlak; G.Perry; A.G.Kanthasamy, (2005), Oxidative Stress sensitive kinase PKCδ is highly expressed in Nigral Dopaminergic Neurons: Relevance to selective Dopaminergic Degeneration in Parkinsons Disease. 34rd annual meeting of Society of Neuroscience, October, 23-27, San Diego, CA.

17. Y. Yang, H. Jin, D. Zhang, V. Anantharam, A. **Kanthasamy A**., A.G. Kanthasamy (2004), Proteolytic activation and nuclear translocation of oxidative stress sensitive kinase PKCδ contribute to apoptotic cell death in dopaminergic neuronal cells. 43nd Annual meeting of Society of Cell Biology, December, 04-08, Washington, DC.

18. C. Choi, V. Anantharam, **Kanthasamy A**, and A.G. Kanthasamy (2005), Neurotoxic effect of manganese and neuroprotective effect of copper in a cell culture model of prion diseases, 44th Annual Meeting of Society of Toxicology, March 6-10, 2005.New Orleans, LA. Abstract#633.

19. A.G. Kanthasamy, H. Jin, V. Anantharam, Y. Yang and **Kanthasamy A**, Parkinson's Disorder Research Laboratory Novel Transcriptional Regulation of Oxidative Stress Sensitive Kinase PKCδ Expression by α-Synuclein via NF-κB in Parkinson's Disease Models . 8th International Conference on Alzheimer`s and Parkinson`s Diseases (AD/PD 2007), March 14-18, 2007, Salzburg, Austria.

20. Anantharam, Vellareddy; Song, Chunjuan; Carrel, Andrew J.; Sun, Faneng; Jin, Huajun; Gordon, Richard; **Kanthasamy A,** Kanthasamy, Anumantha G. Environmental Neurotoxic Agents influence LRRK2, DJ-1, Parkin and Pink1 Expression in Dopaminergic Neuronal Cells: Relevance to Gene-Environment Interaction and Proteasomal Dysfunction in Pathogenesis of Parkinson's Disease. . 46th Annual Meeting of Society of Toxicology, March 25-29, 2007, Charlotte, NC.
21. Kanthasamy, A.G., Saminathan, H., Anantharam, V., **Kanthasamy A**. Fyn Kinase is an Upstream Regulator of PKCdelta-mediated Apoptotic Signaling in Parkinson's disease model. 21st Biennial Meeting of ISN and ASN. August 19 - 24, 2007. Cancún, México.
22. Anumantha Kanthasamy, Christopher Choi, Vellareddy Anantharam, **Kanthasamy A**, Manganese Exposure Enhances Prion Protein Turnover and Proteinase-K Resistance: Possible Role in Pathogenesis of Prion Diseases. VIII Congress SETAC, Oct 8-11, 2007, LA, Uruguay.
23. M.-H. Lin, Q. Li, V. Anantharam, A. G. **Kanthasamy A,** Kanthasamy; Overexpression of caspase-3 cleavage resistant PKC delta mutant in mescencephalic dopaminergic neuronal cells attenuates methamphetamine-induced neurotoxicity. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
24. Chunjuan Song, **Kanthasamy A**, Vellareddy Anantharam and Anumantha Kanthasamy. Hyperacetylation and Nuclear Shuttling of Ku70 during Neurotoxic Insults in Parkinson's Disease Models: A Novel Oxidative Signaling in Dopaminergic Neurodegeneration. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
25. Danhui Zhang, **Kanthasamy A**, Vellareddy Anantharam and Anumantha Kanthasamy. Inhibition of PKCdelta (PKCδ) Isoform in the Substantia Nigra Enhances Dopamine Synthesis and Neurobehavioral Alterations in Mice: Dual Neuroprotective Strategies in Parkinson's Disease. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
26. Faneng Sun, Qinglin Li, Kanthasamy AG, Anantharam Vellareddy, **Kanthasamy A**. Polyubiquination sites determine the fate of dopaminergic neurons during neurotoxicants-induced ubiquitin-proteasome system (UPS) dysfunction in Parkinson's disease models. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
27. Richard Gordon, Vellareddy Anantharam, **Kanthasamy A** and Kanthasamy, AG. Resveratrol Protects Dopaminergic Neurons in Parkinson's Disease Models by Modulating PKC□ dependent Apoptotic Signaling Pathway. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
28. Huajun Jin, **Kanthasamy A**, Vellareddy Anantharam and Anumantha Kanthasamy. Functional Analysis of PKCδ Gene Promoter in Neuronal Cells: Implications for Gene-Environment Interactions in Neurodegeneration. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.
29. **Kanthasamy A**, Mengshien Lin, Qingli, Vellareddy Anantharam, AG. Kanthasamy. Caspase-3 Dependent Proteolytic Activation of PKC delta Regulates MA-induced Autophagy and Apoptosis in Mesencephalic Dopaminergic Neuronal Cells International Society for Neurochemistry, 2007, Merida, Mexico
30. Mengshien Lin, Qingli, Vellareddy Anantharam, AG. Kanthasamy, **Kanthasamy A.** A Overexpression of caspase 3 cleavage resistant PKC delta mutant in Mescencephalic

dopaminergic neuronal cells attenuates MA-induced neurotoxicity. 37th Annual Meeting of the Society for Neuroscience, Nov 10-15, 2007, San Diego, CA.

31. H. Saminathan, A. Ghosh, **Kanthasamy A**, V. Anantharam, A. Rana, A. G. Kanthasamy; Activation of prolyl CIS/trans isomerase- (PIN) in cell culture and animal models of Parkinson's disease. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009 Chicago, IL.
32. Histone acetylation upregulates PKCδ via Sp-dependent transcription in dopaminergic neurons: Relevance to epigenetic mechanisms of neurodegeneration in Parkinson's disease
33. H. Jin, A. Ghosh, **Kanthasamy A**, V. Anantharam, A. G. Kanthasamy. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
34. Repin inhibits ubiquitin-proteasome function and induces protein aggregation and proteasome dysfunction in a Parkinson's disease model
35. D. Huang, **Kanthasamy A**, V. Anantharam, S. Ali, A. G. Kanthasamy. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
36. Methamphetamine-induced neurotoxicity linked to mitochondrial morphological abnormalities and autophagy related changes that can be modulated by PKCδ in dopaminergic neuronal cells **Kanthasamy A**, K. Mohan, A. Vellareddy, A. G. Kanthasamy. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
37. Mixed Lineage Kinase- ablation attenuates neurodegeneration in a sub-acute -methyl-4-phenyl-, , , 6-tetrahydropyridine mouse model of Parkinson's disease. S. Mehrotra, A. Ghosh, R. S. Ray, V. Rangasamy, G. Sondarva, **Kanthasamy A,** *A. Rana. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
38. Regulation of tyrosine hydroxylase activity and dopamine homeostasis by a novel protein kinase C isoform PKC-delta. **Kanthasamy A**. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
39. A novel regulatory mechanism of protein kinase cdelta (PKCδ) dependent proinflammatory cytokine TNF-alpha release from microglia: Relevance to neuroinflammation and progression of Parkinson's disease. *R. Gordon, V. Anantharam, A. G. Kanthasamy, **Kanthasamy A**. Presented at the 39th annual meeting of the Society for Neuroscience, Oct. 17-21, 2009, Chicago, IL.
40. Methamphetamine-induced neurotoxicity linked to mitochondrial autophagy and depletion of glutathione in N27 dopaminergic neuronal cells. P. chandramani, V. Anantharam, A. G. Kanthasamy, **Kanthasamy A.** Presented at the 40th annual meeting of the Society for Neuroscience, Nov.. 13-17, 2010 San Diego, CA..
41. Activation loop phosphorylation of protein kinase Cδ (pThr505-PKCδ) regulates microglial activation in dopaminergic degeneration: Relevance to neuroinflammation and the progression of Parkinson's disease. R. Gordon, V. Anantharam, A. Rana, A. G. Kanthasamy, **Kanthasamy A.** Will be presented at the 40th annual meeting of the Society for Neuroscience, Nov.. 13-17, 2010 San Diego, CA..
42. Characterization of the anti-inflammatory function of mia-4025 in cell culture models of neurotoxicity. C. Hogan, R. Gordon, **Kanthasamy A**, V. Anantharam, B. Kalyanaraman, A. G. Kanthasamy**.** presented at the 40th annual meeting of the Society for Neuroscience, Nov. 13-17, 2010 San Diego, CA..
43. Anti-inflammatory and neuroprotective effect of a novel compound MIA-4025 in a murine model of Parkinson's Disease. *****A. Ghosh, **Kanthasamy A**, H. Swaminathan, J. Joseph,

V. Anantharam, B. Kalyanaraman, A. Kanthasamy**.** Will be presented at the 40th annual meeting of the Society for Neuroscience, Nov.. 13-17, 2010 San Diego, CA..

44. Environmental neurotoxicant endosulfan induces autophagy preceding apoptotic cell death in dopaminergic neuronal cells: Relevance to Pathogenesis of Parkinson's disease. C. Song, V. Anantharam, **Kanthasamy A**, A.G.Kanthasamy **.** Presented at the 40th annual meeting of the Society for Neuroscience, Nov.. 13-17, 2010 San Diego, CA.
45. Induction of Prokineticin-2 and its neuroprotective effect against neurotoxic insult in dopaminergic neurons M. Neal, R. Gordon, V. Anantharam, A. G. Kanthasamy, **Kanthasamy A**; presented at the 41st annual meeting of the Society for Neuroscience, Nov. 12-16, 2011 Washington, DC.
46. Anti-inflammatory and neuroprotective effects of a novel compound Mito-apocynin in a mouse model of Parkinson's Disease A. Ghosh, **Kanthasamy A**, J. Joseph, V. Anantharam, B. Kalyanaraman, A Kanthasamy presented at the 41st annual meeting of the Society for Neuroscience, Nov.. 12-16, 2011 Washington, DC.
47. Molecular cloning and functional characterization of the oxidative stress-sensitive kinase PKD1 gene promoter in a cell culture model of Parkinson's disease M. Ay, H. Jin, A. **Kanthasamy A,**.Asaithambai, V. Anantharam, *A. G. Kanthasamy; presented at the 41st annual meeting of the Society for Neuroscience, Nov.. 12-16, 2011 Washington, DC.
48. NF-kB Mediates Apoptotic Cell Death in Dopaminergic Cells in Response to HDAC Inhibition via Trichostatin A (TSA). N. Singh, V. Lawana G. Huh, C. P, H. Jin, V. Anantharam, A.G. Kanthasamy; **Kanthasamy A**. Presented at the annual meeting of the Society for Neuroscience, Oct.. 13-117, 2012 New Orleans.
49. Orellanine, a novel bipyridyl mycotoxin, induces dopaminergic neuronal cell apoptosis by activating caspase-3-dependent pathways in N27 mesencephalic dopaminergic neurons. B. Taiwo, P. Anantharam, J. Luo, V. Anantharam, **Kanthasamy A**, A Kanthasamy, P. Imerman, *W. Rumbeiha. Presented at the annual meeting of the Society for Neuroscience, Oct.. 13-117, 2012 New Orleans.
50. Prokineticin-2 promotes migration and regulates cytokine levels via PKR1 and PKR2 receptors in astrocytes and microglia. M. Neal, R. Gordon, H. Jin, V. Anantharam, A. G. Kanthasamy, **Kanthasamy A**. Presented at the annual meeting of the Society for Neuroscience, Oct.. 13-117, 2012 New Orleans.
51. Rationally designed PKD1 activator protects against neurodegeneration in pre-clinical models of Parkinson's disease. A. G. Kanthasamy, A. Asaithambi, A. Ghosh, M. Ay, H. Jin, M. Neal, K. Mullin, V. Anantharam, **Kanthasamy A**. Presented at the annual meeting of the Society for Neuroscience, Oct.. 13-117, 2012 New Orleans.
52. TRP73 gene in dopaminergic neurons is highly susceptible to manganese neurotoxicity. Kim, Dong-Suk1; Jin, Huajun1; Anantharam, Vellareddy1; Gordon, Richard1; **Kanthasamy,** Kanthasamy, Anumantha.
53. Manganese exposure induces release of A-synuclein and promotes exosome mediated cell to cell transmission of synuclein aggregates in neurotoxicity models. Harischandra, Dilshan1; Jin, Huajun1; **Kanthasamy A,** Anantharam, Vellareddy 1; Kanthasamy, Anumantha.
54. FYN kinase inhibitors attenuate manganese nanoparticles induced neuroinflammatory signaling in BV2 microglial cells and primary microglia. Kanthasamy, Kavin1; Panicker, Nikhil1; Ngwa, Afeseh1; Jeffery, Colleen1; Neal, Matthew; **Kanthasamy A**; Anantharam, Vellareddy.
55. Trichostatin A (TSA), a histone deactylase inhibitor, mediates dopaminergic cell death via an NF-KB dependent mechanisms. Lawana, Vivek1; Singh, Neeraj1; Huh, Grace1;

Chandramani-Shivalingappa, Prashant1; Jin, Huajun1; Anantharam, Vellareddy1; ; Kanthasamy, Anumantha G; **Kanthasamy A**.

56. Behavioral, neurochemical and histological characterization of a novel mitopark mouse model for neurotoxixity and neuroprotection studies. Langley, Monica R.1; Ghosh, Anamitra1; Ay, Muhammet1; **Kanthasamy A**; Jin, Huajun 1; Anantharam, Vellareddy1; Kanthasamy, Anumantha.
57. Manganese exposure alters mitochondrial biogenesis in dopaminergic neuronal cells. Ay, Muhammet1; **Kanthasamy A**; Jin, Huajun1; Kim, Dong-Suk1; Anantharam, Vellereddy1; Kanthasamy, Anumantha G.
58. Alpha-synuclein protein aggregates activate microglia and contribute to neurotoxicity in the nigral dopaminergic system though a FYN kinase dependent mechanism. Panicker, Nikhil1; Kanthasamy, Kavin2; Harishchandra, Dilshan1;Saminathan, Hariharan1; Gordon, Richard1; Anantharam, Vellareddy1; Kanthasamy, Anumantha1; **Kanthasamy A.**
59. Neurotoxic insults upregulate Prokineticin-2 levels in Parkinson's disease models and in PD patients M. L. Neal, R. Gordon, H. Jin, V. Anantharam, *A. G. Kanthasamy, **Kanthasamy A.**
60. Histone hyperacetylation regulates neuronal apoptosis through upregulation of STAT1 in mesencephalic dopaminergic neuronal cells. N. Singh, V. Lawana, Huajun Jin, V. Anantharam, **Kanthasamy A**, *A. Kanthasamy (2013).
61. Neuroinflammatory role of tumor necrosis factor-like weak inhibitor of apoptosis (TWEAK) in Parkinson's disease models. S. Kanuri1, R. Gordon1, M. Neal1, H. Jin1, *V. Anantharam2, A. Kanthasamy1, **Kanthasamy A** (2014).
62. Involvement of mitochondrial dysfunction and autophagic alterations in tumor necrosis factor like weak inhibitor of apoptosis (tweak) induced dopaminergic neuronal injury. S. Kanuri, H. Jin, V. Anantharam, *A. Kanthasamy, **Kanthasamy A** (2014).
63. Prokineticin-2 gene therapy strategy shows anti-inflammatory and anti-apoptotic effects in preclinical cell culture and animal models of Parkinson's disease M. Neal, D. Luo, D. Harischandra, R. Gordon, H. Jin, V. Anantharam, *A. G. Kanthasamy, **Kanthasamy A** (2014).
64. Protein Kinase C delta (PKCδ) mediates lipopolysaccharide-induced inflammatory response in astrocytes, N. Singh, V. Lawana, H. Jin, *V. Anantharam, A. Kanthasamy, **Kanthasamy A** (2014).
65. c-Abl tyrosine Kinase is a Critical Mediator of Dichlorvos (DCV)-induced Cell Death in Dopaminergic Neuronal cells. Lawana V, Neal M, Anantharam V, Jin H, Kanthasamy AG, **Kanthasamy A** (2015).

66. Therapeutic Efficacy of Cobinamide for Treatment of Hydrogen Sulfide-Induced Neurotoxicity P. Anantharam4, E. M. Whitley1, D.-S. Kim4, D. Shao4, M. Langley4, B. Mahama4, **A. Kanthasamy4**, G. Boss3 and W. K. Rumbeiha4. (2016)1Pathogenesis LLC, Gainesville, FL; 2Biomedical Sciences, Iowa State University, Ames, IA; 3Department of Medicine, University of California, San Diego, San Diego, CA and 4Veterinary Diagnostic
and Production Animal Medicine, Iowa State University, Ames, IA.

67. Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by Histone H3 and H4 Hyperacetylation in Dopaminergic Neuronal Model of Parkinson's Disease A. Charli, H. Jin, V. Anantharam, **A. Kanthasamy** and A. G. Kanthasamy. (2016) Interdepartmental Graduate Program in Toxicology

and Department of Biomedical Science, Iowa State University, AMES, IA.

67. Environmental Neurotoxicant Manganese Alters Exosomal miRNAs and Autophagic Regulation in Cell Culture Model of Parkinson's Disease D. Harischandra1, M. Zamanian2, D. Rhokad1, H. Jin1, V. Anantharam1, M. Kimber1, **A. Kanthasamy1** and A. Kanthasamy1. (2016) 1Iowa State University, Ames, IA and 2Northwestern University, Evanston, IL.

68. Moleclar Mechanisms of Manganese-Induced Exosome Release and Its Relevance to Synucleopathies D. Rokad, D. S. Harischandra, H. Jin, V. Anantharam, **A. Kanthasamy** and A. G. Kanthasamy. (2016) Interdepartmental Toxicology Graduate Program and Department of Biomedical Science, Iowa State University, Ames, IA.

69. c-Abl Regulates Rotenone-induced Inflammatory Response via the Activation of NLRP3 Inflammasome V. J. Lawana, N. Singh, S. Sarkar, H. Jin, V. Anantharam, **A. Kanthasamy** and A. Kanthasamy. (2016) Department of Biomedical Sciences, Iowa State University, Ames, IA; Interdepartmental Toxicology Program, Iowa State University, Ames, IA.

70. Prokineticin 2 Plays a Role in Altered Neurogenesis and Non-Motor Deficits in PD Models M. R. Langley, M. Neal, J. Luo, N. Kondru, C. Berg, H. Jin, V. Anantharam, **A. Kanthasamy** and A. Kanthasamy. (2016) Interdepartmental Toxicology Graduate Program and Department of Biomedical Science, Iowa State University, Ames, IA.

71. Chronic Exposure to Manganese Causes Selective Changes in the Enteric Nervous System and Gut Physiology Leading to Altered Nutrient Metabolism and Intestinal Motility. S. Ghaisas, D. S. Harishchandra, H. Jin, V. Anantharam, **A. Kanthasamy** and A. Kanthasamy. (2016) Interdepartmental Toxicology Graduate Program and Department of Biomedical Science, Iowa State University, Ames, IA.

72. Stat-1 Is a Critical Regulator of Chlorpyrifos-Induced Cell Death in Dopaminergic Neuronal Cells. N. Singh, P. Phan, V. Lawana, H. Jin, V. Anantharam, A. Kanthasamy and **A. Kanthasamy.** (2016) Biomedical Sciences, Iowa State University, Ames, IA.

73. PKD1 activation positively regulates PGC-1α transcriptional activity and protects against dopaminergic neurodegeneration. m. ay[1], a. Asaithambi[1], d. Harischandra[1], **a. Kanthasamy[1]**, h. jin[1], v. Anantharam[1], *a. g. Kanthasamy[2]; (2016) [1]iowa state university, ames, ia; [2]Biomed Sci, Iowa Ctr. for Advanced Neurotoxicology, Iowa State Univ., Ames, IA

74. Organotypic slice culture assay coupled to RT-QuIC (OSCAR) assay: towards rapid translational modeling of prion diseases**.** *n. Kondru[1], s. Manne, 50010[2], j. Greenlee[4], m.

Greenlee[2], p. Halbur[3], **a. Kanthasamy[2]**, a. Kanthasamy[2]; (2016) [1]Biomed. Sci., Iowa State Univ., Ames, IA; [2]Biomed. Sci., Iowa State Univ., AMES, IA.

75. Souvarish Sarkar, Monica Langley, Dilshan Harischandra, Matthew Neal, Dan Luo, Adhithiya Charli, Hai Minh Nguyen, Huajun Jin, Vellareddy Anantharam, **Arthi Kanthasamy**, Heike Wulff, Anumantha Kanthasamy. Microglial Kv1.3, a voltage-gated potassium channel, mediates neuroinflammation and neurodegeneration in cell culture and animal models of Parkinson's disease. Experimental Biology, April 22-26 2017, Chicago, IL.

76. S. Sarkar, D. Rokad, D. Harischandra, S. Ghaisas, J. R. Kumar, E. Malovic, V. Lawana, H. Jin, V. Anantharam, X. Huang, M. Lewis , **A. Kanthasamy**, and A. G. Kanthasamy. Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of ASC in Microglial Cells in Cell Culture and Animal Models. Meeting: SOT, March 12-16, 2017, Baltimore, MA.

77. Emir Malovic, Souvarish Sarkar, Dilshan S. Harischandra, Hillary A. Ngwa, Huajun Jin, Anantharam Vellareddy, **Arthi Kanthasamy**, and Anumantha G. Kanthasamy. Manganese exposure induces neuroinflammation by impairing mitochondrial dynamics in astrocytes. Experimental Biology Meeting, April 22-26, 2017, Chicago , IL.

78. Souvarish Sarkar, M. Langley, D. Harischandra, M. Neal, J. Luo, A. Charli, H. Nguyen, H. Jin, V, Anantharam, **A. Kanthasamy**, H. Wulff, A. Kanthasamy. Microglial Kv1.3, a voltage-gated potassium channel, mediates neuroinflammation and neurodegeneration in cell culture and animal models of Parkinson's disease. Experimental Biology Meeting, April 22-26, 2017, Chicago , IL.

79. Souvarish Sarkar, M. Langley, D. Harischandra, M. Neal, J. Luo, A. Charli, H. Jin, V, Anantharam, A. **Kanthasamy, A**. Kanthasamy. Manganese Exposure Activates NLRP3 Inflammasome Signaling and Propagates Exosomal Release of ASC in Microglial Cells in Cell Culture and Animal Models. Gordon Research Conference, Cellular & Molecular Mechanisms of Toxicity, August 2017, Andover, NH.

80. Adhithiya Charli, Jacob Glyten, Jie Luo, Huajun Jin, Vellareddy Anantharam, **Arthi Kanthasamy**, Anumantha Kanthasamy Protein Kinase Cδ (PKCδ) Controls Basal Mitochondrial Bioenergetics in Dopaminergic Neuronal Cells: Relevance to Mitochondrial Dysfunction in Neurodegenerative Diseases. American Physiological Society (APS), Aug 28-30, 2017, San Diego, CA.

81. Anumantha Kanthasamy, Souvarish Sarkar, Dilshan Harischandra, Nikhil Panicker, Adhithiya Charli, Shivani Ghaisas, Huajun Jin, Vellareddy Anantharam, **Arthi Kanthasamy**. Mitochondrial Impairment Amplifies Nlrp3 Inflammasome Proinflammatory Signaling in Microglia in Cell Culture & Animal Models of PD. International/American Society of Neurochemistry (ISN/ASN), Aug 20-24, Paris, France.

82. Vellareddy Anantharam; Muhammet Ay; Adhithiya Charli; **Arthi Kanthasamy**; Huajun Jin; Balaraman Kalyanaraman; Anumantha G Kanthasamy. Novel Mitochondria-Targeted Drug Induces Pro-Survival Signaling And Increases Respiration To Promote Mitochondrial Biogenesis Against Dopaminergic Neurotoxicity. Grand Challenges in Parkinson's Disease: The Role Of Energy Metabolism, Sep 27-28, Grand Rapids, MI.

83. Adhithiya Charli; Jie Luo; Monica Langley; Muhammet Ay; Huajun Jin; Vellareddy Anantharam; **Arthi Kanthasamy**; Anumantha G. Kanthasamy. Mitochondrial Neurotoxic Pesticides Promote Epigenetic Dysregulation by histone H3 and H4 Hyperacetylation in Dopaminergic Neuronal Model of Parkinson's disease. Grand Challenges in Parkinson's Disease: The Role Of Energy Metabolism, Sep 27-28, Grand Rapids, MI.

84. Pharmacological Activation of Prokineticin-2 Signaling Protects against Dopaminergic Neurodegeneration in MPTP and MitoPark
Rodent Models of Parkinson's Disease. *J. Luo*1, S. Sarkar2, M. Neal3, M. Huang1, L. Burns1, D. Borts1, H. Jin1, V. Anantharam1, *A. Kanthasamy*1,
and *A. Kanthasamy*1. 1Iowa State University, Ames, IA; 2Harvard University, Boston, MA; and 3Florida International University, Miami, FL.

85. Manganese Exposure Induces the Release of Exosomes Containing Misfolded α-Synuclein by Impairing Endosomal Trafficking
and Protein Degradation Machinery. *D. Rokad, D. Harischandra, D. Luo, V. Anantharam, A. Kanthasamy,* and *A. G. Kanthasamy*. Iowa State
University, Ames, IA.

86. Zebrafish Transgenic Model for Studying the Dynamics of Mitochondrial Dysfunction Induced Epigenetic Hyperacetylation:
Relevance to Environmentally Linked Parkinson's Disease. Z. Riaz, *A. Charli, H. Jin, V. Anantharam*, M. McGrail, J. J. Essner, *A. Kanthasamy*,
A. G. Kanthasamy. Iowa State University, Ames, IA.

87. Development of Circulating Exosome-Based Biomarkers for Manganese Neurotoxicity in Human Serum and Plasma Using
RT-QuIC Assay and Exosomal RNA-Sequencing Analysis. *S. Manne*1, N. Kondru1, H. Jin1, E. Lee2, M. Lewis2, V. Anantharam1, X. Huang2,
*A. Kanthasamy*1, and *A. Kanthasamy*1. 1Iowa State University, Ames, IA; and 2Pennsylvania State University-Milton S. Hershey Medical Center,
Hershey, PA.

88. Mitochondrial impairment induces epigenetic histone modifications in microglia: Relevance to neuroinflammation in Parkinson's disease

*A. G. KANTHASAMY, M. HUANG, A. CHARLI, S. SARKAR, J. LUO, H. JIN, V. ANANTHARAM, A. KANTHASAMY;
Biomed Sci, Iowa Ctr. for Advanced Neurotoxicology, Iowa State Univ., Ames, IA

89. Tweak promotes NLRP3 inflammasome activation via PKC delta and mitochondria dependent oxidative stress mechanisms in astrocytes

    *A. KANTHASAMY, C. GOMEZ-ESTRADA, V. LAWANA, H. JIN, V. ANANTHARAM, A. G. KANTHASAMY;
    Biomed. Sci., Iowa State Univ., Ames, IA

90. Aggregated a-synuclein induces innate immune signaling markers concomitant with Fyn kinase activation in Preclinical Models of Parkinson's Disease.
    Karthick Chennakesavan, Mikhail Parker, Huajun Jin, Vellareddy Anantharam, Anumantha G. Kanthasamy, and Arthi Kanthasamy. SENDCON 2022. Sother Neurodegenerative Disease conference. Florida.

PATENTS

1. Anumantha Kanthasamy and **Arthi Kanthasamy**, Full patent issued: US 2011/0059174 A1, 'PKCdelta regulates neuroinflammatory events,' 3/10/11
2. Anumantha G. Kanthasamy, Richard Gordon and **Arthi Kanthasamy**, Patent Disclosure: ISURF #03927 - - Novel Methods and Compositions to Increase Astrocyte Glial Derived Neurotrophic Factor (GDNF) Production and Dopaminergic Neuron Survival-pending
3. Anumantha G. Kanthasamy, Vellareddy Anantharam, **Arthi Kanthasamy** and George Kraus, Patent Disclosure ISURF #03891 - Kanthasamy, Anumantha - Design, Synthesis and Functional Characterization of a Novel Non-Receptor Tyrosine kinase inhibitor for Neuroprotection-pending.
4. Anumantha G. Kanthasamy, Arunkumar Asaithambi, and **Arthi Kanthasamy**, New Disclosure, ISURF #03920 - Kanthasamy, Anumantha G. - Design, Development and Functional Characterization of AKP-4 Peptide Modulators
5. Anumantha Kanthasamy and **Arthi Kanthasamy**, Full patent issued: US 2011/0059174 A1, 'PKC delta regulates neuroinflammatory events,' 3/10/11
6. Anumantha G. Kanthasamy, Richard Gordon and **Arthi Kanthasamy**, Patent Disclosure: ISURF #03927 - - Novel Methods and Compositions to Increase Astrocyte Glial Derived Neurotrophic Factor (GDNF) Production and Dopaminergic Neuron Survival
7. Anumantha G. Kanthasamy, Vellareddy Anantharam, **Arthi Kanthasamy** and George Kraus, Patent Disclosure ISURF #03891 - Kanthasamy, Anumantha - Design, Synthesis and Functional Characterization of Rosmarinic Acid Analogs to Block CNS Inflammation.
8. Anumantha G. Kanthasamy, Arunkumar Asaithambi, and **Arthi Kanthasamy**, New Disclosure, ISURF #03920 - Kanthasamy, Anumantha G. - Design, Development and Functional Characterization of Protein Kinase D1 (PKD1) Peptide Modulators to Improve Mitochondrial Function and Block Neurodegeneration

Teaching

2007- Spring-2018, 2020	BMS 354/554	General Pharmacology	125 students	7 lectures
2007 Spring-2015	BMS 329	Physiology and Functional Anatomy of Domestic Animals	51 students	7 lectures
2007 - Fall-2018, 2019	TOX501	Principles of Toxicology	13 students	1 lecture
2014 Spring- Spring-2018, 2020	BMS 539X	Principles of Pharmacology	21 students	3 lectures
2013 - Fall-2017, 2019,2020	BMS 538X	Principles of Physiology	31 students	6 lectures

Graduate Students Graduated

	PhD Students (name, year)	**Job placement or Major**	**MS Students (name, year)**	**Job placement**
Major Professor	Gordon R. (2011)	Post Doc. School of Biome Sciences. Univ. Queensland		
			Hartnett M (2014)	Medical Student Carver College o Medicine, Unive of Iowa, IA.
	Nikhil Panicker	Post Doc Dept. of Neurosci. . John's Hopkin's Univer	Phan, P (2015)	Research Assista Hoang Lab, Dep Biochemistry an Molecular Biolo Indiana Univ. Co Of Medicine, IN
	Saurish Sarkar	Post Doc Brigham Young		
	Sri Kanuri (2018)	IU College of Medicine	Biomedical Sciences 2018	
	Mathew Neal	Department of Pharmaceutical Sciences, North Eastern Ohio Univ.	Notty. C (2016)	Accepted into D College of Osteo
Committee Member	Martin D (2013)	Adjunct professor of Biology at St. Mary's University, Winona, MN		

	Ghosh A (2012)	Postdoctoral fellow at Translational Parkinson's Disease Research, Van Andel Institute, Grand Rapids, MI.		
	Jeffrey C (2012)	Scientist at, Pioneer Hybrid, Johnston, IA.		
	Ngwa A (2011)	Project Leader, Regulatory Manager, Procter & Gamble Brussels, Belgium.		
	Asaithambi A (2011)	CEO of Lantern Pharma, Addision TX.		
	Saminathan H (2011)	Senior Research Investigator, Biocon Bristol-Myers Squibb R&D Center, Bangalore, India.		
	Jin H (2010)	Post-doctoral Research Assistant in the Department of Biomedical Sciences at ISU.		
	Song C (2010)	Scientist" at the Applied Genetic Technologies Corporation (AGTC), Alachua, FL		
	Zhang D (2008)	Postdoctoral scholar at SRI International Palo Alto, California.		
	Choi C (2007)	Research Scientist II at Res Sci II at Gilead Sciences, Foster City, CA.		
	Sun F (2007)	Research Scientist at BioV Milipitas, CA.		

Postdoctoral Fellow and Full bright Scholar advising

2008-2012	Dr. Prashanth Chandramani	Post doctoral Fellow
2012-2017	Dr. Neeraj Singh	Post doctoral Fellow

2019-2020	Dr. Prashant Tarale	Post doctoral Fellow
2018-2021	Dr. Manikandan Samidurai	Post doctoral Fellow

2021-Present	Dr. Karthick Chennakesavan	Post doctoral Fellow

Outreach and other professional services

- Served as a co-chair TEMA meeting Scientific Session (2017).
- Served as a judge for the Post Doctoral Student Competition, Society of Toxicology Meeting 2017 in Baltimore, Maryland.

- Served as a judge for the Graduate and Post Doctoral Student Competition, Society of Toxicology Meeting 2016 in New Orleans, Louisiana.

- Organized and chaired a mini symposium entitled, "Mechanistic basis of Neuronal susceptibility to toxicants": New avenues for drug discovery, American Society for Investigative Pathology, Experimental Biology Meeting, 2014, San Diego, CA.

- Served as a judge for the Postdoctoral Student Competition, Society of Toxicology Meeting 2014 in Phoenix, Arizona

- Served as a Judge for the Graduate student Poster competition, Society of Toxicology 2013 Meeting, in San Antonio, Texas

- Served as a Judge for the Student Poster Competition, Central States Toxicology meeting 2013 in Ames, IA

- NIH and VA grant review panels over the past years.

- Served on the Executive committee for Association of Neuroscientists from Indian Origin, 2012-present.

- Assisted in organizing 2009 Central States Toxicology meeting, Oct 2nd, 2009. I co-organized this meeting with the help of Dr. A.G. Kanthasamy and Linda Wild. This event was held in the Alumni center at Iowa State University and attended by 50-75 toxicologists from surrounding Midwest universities.

- Co-organized the ICAN meeting, held on July 12th 2010.with Dr. A.G. Kanthasamy to review the annual progress of ICAN seed grants. A total of seven researchers presented their work in this meeting.

Shaolin Liu, PhD

Howard University
College of Medicine
Department of Anatomy
E-mail: shaolin.liu@howard.edu

520 W Street, NW
Washington, DC 20059
Tel: 202-806-3851 (office)
202-806-9763 (lab)

PROFESSIONAL AND EDUCATIONAL HISTORY

Employment

2021 -	Associate Professor (tenured) Department of Anatomy Howard University Washington, DC 20059
2018 - 2021	Assistant Professor (tenure track) Department of Anatomy Howard University Washington, DC 20059
2004 - 2018	Assistant Professor (research track) Department of Anatomy & Neurobiology University of Maryland School of Medicine Baltimore, MD 21201

Training

2003 - 2004	Research Associate Department of Neuroscience Case Western Reserve University Cleveland, OH 44106 Mentor: Dr. David Friel
1998 - 2002	Postdoctoral Associate Department of Ophthalmology and Visual Science Yale University New Haven, CT 06520 Mentor: Dr. Nigel Daw

Education

1998	PhD in Pharmacology Chinese Academy of Medical Sciences & Peking Union Medical College Beijing, China
1995	MS in Physiology Jiangxi Medical College Nanchang, China
1989	BS in Medical Sciences Gannan Medical College Ganzhou, China

RESEARCH SUPPORT

Active

i. "Cellular and circuit mechanisms underlying APOE-4 effects on olfaction".
Role: PI
Agency: NIH/NIA
Type: R01 (1RF1AG069196)
Period: 09/01/2020 – 08/31/2024
Total amount awarded: $1,839,404
(This is a type 4 award. Additional fund ($459,851) for the fifth year (09/01/2024-08/31/2025) will be available upon request at the end of the 4th funding period and contingent on NIH administrative review)

ii. "Functional mechanisms underlying the intrabulbar associational circuit in the olfactory system".
Role: PI
Agency: NIH/NIDCD
Type: R01 (1R01DC014447)
Period: 02/09/2016 - 01/31/2023
Total amount awarded: $1,309,000

iii. "Mechanisms underlying apoe-4 effects on olfactory bulb circuits".
Role: PI
Agency: NIH/NIDCD
Type: R01 supplemental grant (1R01DC014447S1)
Period: 02/01/2019 - 01/31/2023
Total amount awarded: $261,882

iv. "Brain recovery after cardiac arrest with metabolic glycol-engineered stem cells".
Role: Co-I
Agency: NIH/NINDS
Type: R01 (5R01NS110387, PI: Jia)
Period: 09/30/2019 - 06/30/2023
Total amount awarded: $1,689,845

Pending

i. "APOE4 effects on glia-neuron interactions in the olfactory bulb"
Role: PI
Agency: NIH/NIA (pending NIA council meeting with a fundable score and JIT submission per request)
Type: R01 (1R01AG074216-01A1)
Period: 09/01/2022 - 08/31/2027
Total amount requested: $2,453,519.00 (direct cost $1,588,038.00)

ii. "Inflammatory mechanisms underlying olfactory dysfunction in prognosis of TBI progression to dementia"
Role: MPI
Agency: NIH/NIA (pending NIA council meeting with a fundable score)
Type: R01(1R01AG077541-01)
Period: 09/01/2022 - 08/31/2027
Total amount requested: $3,045,847.34 (HU subcontract $993,099.96, $642,783.26 direct cost)

Areas of Research Interest and Current Projects

i. Pathophysiological mechanisms underlying olfactory dysfunction in neurological disorders including Alzheimer's Disease and traumatic brain injury
ii. Glia-neuron interactions
iii. Circuit mechanisms underlying sensory perception and behaviors
iv. Synaptic transmission and plasticity
v. Neurobiological basis of learning and memory
vi. Neuronal excitability, ion channels and channelopathies
vii. Neuromodulatory systems and their roles in stress and neurological disorders
viii. Cellular and circuit mechanisms of neuropsychiatric disorders including anxiety, depression, and schizophrenia
ix. Molecular, cellular and synaptic mechanisms underlying motor coordination, movement disorders
x. Neuromodulation of sympathetic activities

TEACHING

Classroom Teaching

Howard University

SEMESTER	COLLEGE	COURSE	ROLE	RESPONSIBILITIES
2022 Spring	Medicine	Structure & Function Unit 3	Lecturer	2 lectures: 1) Histology of Liver, Exocrine Pancreas and Gall Bladder 2) ANS of Abdomen & Pelvis
			Instructor	7 Histology Labs
2021 Fall	Medicine	Structure & Function Unit 1	Facilitator	1 small group learning (SGL) (Brachial plexus)
		Structure & Function Unit 2	Lecturer	5 lectures: 1) Orbit 2) Brainstem 3) Vestibular and Auditory Pathways 4) Blood Supply to Brainstem and Cerebral Cortex 5) Ear & Temporal bone
			Instructor	5 Neuroanatomy labs 3 Neurohistology labs 1 Gross anatomy lab 1 Histology lab
			Facilitator	10 SGLs
		Molecules & Cells Unit 1B	Lecturer	3 lectures: 1) Blood Vessels 2) Lymph Nodes & Vessels

				3) Lymphoid Organs
			Instructor	6 Histology labs
			Facilitator	6 SGLs 5 Discussions
	Dentistry	General Anatomical Sciences	Lecturer	3 lectures: 1) Orbit 2) Brainstem 3) Blood Supply to Brainstem & Cerebral Cortex
			Instructor	5 Neuroanatomy labs
		Histology of the Organ Systems	Lecturer	4 lectures: 1) Blood Vessels 2) Lymph Nodes & Vessels 3) Lymphoid Organs 4) Liver, Gallbladder & Exocrine Pancreas
			Instructor	16 Histology labs 1 Gross anatomy lab
	Nursing & Allied Health Sciences	General Anatomical Sciences	Lecturer	2 lectures: 1) Orbit and extraocular muscles 2) Blood Supply to the Brain, Blood Brain Barrier, & Meninges
2021 Spring	Medicine	Structure & Function Unit 3	Lecturer	1 lecture: Liver, Gallbladder & Exocrine Pancreas
			Instructor	7 Histology Labs
2020 Fall	Medicine	Structure & Function Unit 2	Lecturer	3 lectures: 6) Brainstem 7) Vestibular and Auditory Pathways 8) Blood Supply to Brainstem and Cerebral Cortex
			Instructor	5 Neuroanatomy labs 3 Neurohistology labs 1 Histology lab
			Facilitator	10 Small group learning (SGLs)
		Molecules & Cells Unit 1B	Lecturer	3 lectures: 1) Blood Vessels 2) Lymph Nodes & Vessels 3) Lymphoid Organs
			Instructor	6 Histology labs
			Facilitator	6 SGLs 5 Discussions

	Dentistry	General Anatomical Sciences	Lecturer	2 lectures: 3) Brainstem 4) Blood Supply to Brainstem & Cerebral Cortex
			Instructor	4 Neuroanatomy labs
		Histology of the Organ Systems	Lecturer	4 lectures: 5) Blood Vessels 6) Lymph Nodes & Vessels 7) Lymphoid Organs 8) Liver, Gallbladder & Exocrine Pancreas
			Instructor	16 Histology labs
	Nursing & Allied Health Sciences	General Anatomical Sciences	Lecturer	1 lecture: Blood Supply to the Brain, Blood Brain Barrier, & Meninges
2020 Spring	Medicine	Structure & Function Unit 3	Lecturer	1 lecture: Histology of Liver, Gallbladder, & Exocrine Pancreas
			Instructor	8 Histology labs
2019 Fall	Medicine	Structure & Function Unit 2	Lecturer	1 lecture: Brainstem
			Instructor	5 Neuroanatomy labs 3 Neurohistology labs 1 Histology lab
			Facilitator	10 SGLs
		Molecules & Cells Unit 1B	Lecturer	2 lectures: 1. Blood Vessels 2. Lymph Nodes and Vessels
			Instructor	6 Histology labs
			Facilitator	6 SGLs 5 Discussions
	Dentistry	General Anatomical Sciences	Instructor	4 Neuroanatomy labs
		Histology of the Organ Systems	Lecturer	2 lectures: 1. Blood Vessels 2. Lymph Nodes and Vessels
			Instructor	16 Histology labs
2019 Spring	Medicine	Structure & Function	Instructor	5 Neuroanatomy labs 3 Neurohistology labs

		Unit 2		
2018 Fall	Medicine	Molecules & Cells Unit 1B	Lecturer	2 lectures 1) Blood Vessels 2) Lymph Nodes & Vessels
			Instructor	6 Histology labs
			Facilitator	6 SGLs 5 Discussions
	Dentistry	Histology of the Organ Systems	Lecturer	2 lectures: 1) Blood Vessels 2) Lymph Nodes & Vessels
			Instructor	6 histology labs

University of Maryland School of Medicine

SEMESTER	STUDENT	COURSE	ROLE	RESPONSIBILITY
2016-2018 (Spring)	15-20 graduate students/yr.	Systems Neuroscience	Lecturer	1 lecture/semester: Olfactory & Gustatory Systems

Mentoring & Research Training

i. Medical students

2022 -	Rohan Kuruvilla	Basic Science
2022 -	Sarah Adeola	Basic Science
2021 -	Enyinnaya Kamalu	Basic Science
2021 -	Zai Afzal	Basic Science
2019 -	Temitope Adedolapo	Basic Science
2019 -	Cassandra Federman	Basic Science

ii. Undergraduate student trainees

2020 -	Alexia Lemus	Part-time Research
2019 Summer	Natalie Rivera	Summer Research Leadership Alliance Summer Research Program

iii. Research Assistants

10/2021 -	Laura Castillo
11/2019 -	Dylan Gilhooly
01/2019 - 2021	Rashika Budhathoki
01/2019 - 09/2019	Corrine Perloski

iv. Postdoctoral fellows

2021 -	Abimbola Idowu
2019 - 2021	Eric Starr
2017 - 2018	Xiang Liu
2016 - 2017	Xicui Sun

PUBLICATIONS

Color Key: **green** = faculty, **red** = postdoc, **blue** = graduate

Code Key:

a: Major responsible author as trainee: conceived, directed, analyzed, and documented the investigation under faculty supervision.

b: Major responsible (first) author as faculty member: conceived, directed, analyzed, documented the investigation, and served as corresponding author.
c: Senior author: served as corresponding author; supervised major responsible author, who was usually a trainee.
d: Co-author (as trainee or faculty): contributed to conception, conduct, analysis, and/or documentation, but not major responsible author.

i. Peer-reviewed Articles

1. [b,c]Sun X, Liu X, Starr ER, **Liu S**. (2020) CCKergic tufted cells differentially drive two anatomically segregated inhibitory circuits in the mouse olfactory bulb. *J Neurosci*, 40 (32) 6189-6206. DOI: https://doi.org/10.1523/JNEUROSCI.0769-20.2020
2. [b,c]**Liu S**. (2020) Dopaminergic modulation of glomerular circuits in the mouse olfactory bulb. *Front. Cell. Neurosci*. 14:172. doi: 10.3389/fncel.2020.00172
3. [b,c]**Liu S**. (2020) Dopamine suppresses synaptic responses of fan cells in the lateral entorhinal cortex to olfactory bulb input in mice. *Front. Cell. Neurosci*. 14:181. doi: 10.3389/fncel.2020.00181
4. [d]Shao Z, **Liu S**, Zhou F, Puche AC, Shipley MT. (2019) Reciprocal Inhibitory Glomerular Circuits Contribute to Excitation-Inhibition Balance in the Mouse Olfactory Bulb. *eNeuro*. Jun 12;6(3) e0048-19.2019 1–11.
5. [d]Wang Z, Yang X, He J, Du J**,** **Liu S**, Jia X. (2019) Intracerebroventricular Administration of Neural Stem Cells after Cardiac Arrest. Conf Proc IEEE Eng Med Biol Soc. Jul;2019:4213-4216.
6. [c]Liu X & **Liu S.** (2018) Cholecystokinin selectively activates short axon cells to enhance inhibition of olfactory bulb output neurons. *J Physiol*, 596: 2185-2207. (Editor's Choice & Cover-Featured).
7. [b,c]**Liu S[#],** Puche AC, Shipley MT. (2016) The interglomerular circuit potently inhibits the olfactory bulb output neurons by both direct and indirect pathways. *J Neurosci* 36: 9604-9617. (#correspondent)
8. [d]Cockerham R, **Liu S**, Cachope R, Kiyokage E, Cheer J, Shipley MT, Puche, AC. (2016) Sub-second regulation of synaptically released dopamine by COMT in the olfactory bulb. *J Neurosci* 36:7779-7785.
9. [d]Zhang J, **Liu S**, Chu S, Yang Y, Lian X, Wang X. (2016) Let us start with big brains and discuss the nootropic actions and mechanisms of ginseng. *Journal of Jiangsu University (Medicine Edition)* 26:264-272.
10. [b]Chu S*,* **Liu S***,* Duan W*, et al.* (2016) The anti-dementia drug candidate, (-)-clausenamide, improves memory impairment through its multi-target effect. *Pharmacol Ther* 162:179-187. *(co-first author)
11. [b,c]**Liu S[#]***, et al.* (2015) Muscarinic receptors modulate dendrodendritic inhibitory synapses to sculpt glomerular output. *J Neurosci* 35:5680-5692. (#correspondent)
12. [d]Zhang J, **Liu S**, Jiang X, Chu S. (2015) Cognitive pharmacology - History and Status Quo. *Acta Neuropharmacologica* 5:1-9.
13. [b,c]**Liu S[#]**, Plachez C, Shao Z, Puche AC, & Shipley MT (2013) Olfactory bulb short axon cell release of GABA and dopamine produces a temporally biphasic inhibition-

excitation response in external tufted cells. *J Neurosci* 33:2916-2926. (#correspondent)

14. [d]Shao Z, Puche A, C, **Liu S**, & Shipley MT (2012) Intraglomerular inhibition shapes the strength and temporal structure of glomerular output. *J Neurophysiol* 108:782-793.
15. [b]**Liu S**, Aungst JL, Puche AC, & Shipley MT (2012) Serotonin modulates the population activity profile of olfactory bulb external tufted cells. *J Neurophysiol* 107:473-483.
16. [b]**Liu S** & Shipley MT (2008) Multiple conductances cooperatively regulate spontaneous bursting in mouse olfactory bulb external tufted cells. *J Neurosci* 28:1625-1639.
17. [b]**Liu S** & Shipley MT (2008) Intrinsic conductances actively shape excitatory and inhibitory postsynaptic responses in olfactory bulb external tufted cells. *J Neurosci* 28:10311-10322.
18. [a]**Liu S** & Friel DD (2008) Impact of the leaner P/Q-type Ca2+ channel mutation on excitatory synaptic transmission in cerebellar Purkinje cells. *J Physiol* 586:4501-4515.
19. [d]Xu L, Wang XY, **Liu S**, & Zhang JT (2007) Two forms of long-term potentiation induced by different compounds. *J Asian Nat Prod Res* 9:217-222.
20. [a]Xu L, **Liu S***, & Zhang JT (2005) (-)-Clausenamide potentiates synaptic transmission in the dentate gyrus of rats. *Chirality* 17:239-244. * (co-first author)
21. [a]**Liu S**, Rao Y, & Daw N (2003) Roles of protein kinase A and protein kinase G in synaptic plasticity in the visual cortex. *Cereb Cortex* 13:864-869.
22. [d]Wang R, **Liu S**, Duan W, Zhang J. (2001) Anti-dementia effects of (-)-clausenamide. *Herald of Medicine* 20:403-405.
23. [d]Wu J, **Liu S**, Pan X, Liu T. (1999) Protective effects of berberine against ischemic injury in cultured rat cortical neurons. *Chinese Pharmacological bulletin* 15:243-246.
24. [d]Wu J, **Liu S**, Pan X, Liu T. (1999) Protective effects of berberine on cultured central neuronal injuries induced by oxidative stress. *Journal of Chinese Pharmaceutical Sciences* 34:525-529.
25. [a]**Liu S** & Zhang JT (1999) Effects of naloxone on l-clausenamide-induced long-term potentiation in dentate gyrus of anesthetized rats. *Zhongguo Yao Li Xue Bao* 20:112-116.
26. [a]**Liu S** & Zhao M, Zhang J. (1999) Effects of clausenamide on synaptic transmission in the dentate gyrus of freely-moving rats. *Acta Pharmaceutica Sinica* 34:325-328.
27. [a]**Liu S** & Zhang J. (1998) Protein kinases involved in the expression of hippocampal long-term potentiation. *Acta Psychologica Sinca* 30:224-229.
28. [a]**Liu S** & Zhang J (1998) Difference between the effects of (-) clausenamide and (+) clausenamide on the synaptic transmission in the dentate gyrus of anesthetized rats. *Yao Xue Xue Bao* 33:254-258.

ii. Manuscripts in Preparation

1. Gilhooly D, Budhathoki R, **Liu S.** (2021) In vivo characterization of neuronal and circuit function in the olfactory system. In preparation.

2. **Liu, S.** (2021) Anatomical and functional organization of glial cells in olfactory bulb (review). In preparation.
3. [c]Starr ER, Budhathoki R, Gilhooly D, Perloski CA, **Liu S.** (2021) CCKergic tufted cells amplify sensory input to olfactory bulb output neurons to facilitate odor detection. In preparation.
4. [c]Liu X, Starr ER, Gilhooly D, Budhathoki R, **Liu S** (2021) Cholinergic modulation of synaptic transmission from olfactory bulb to the lateral entorhinal cortex. In preparation.
5. [c]Gilhooly D, Perloski CA, Rivera NL, Starr ER, **Liu S**. (2021) Detrimental effects of APOE4 on glomerular neurons and ciruits. In preparation.
6. [c]Starr ER, Budhathoki R, Gilhooly D, **Liu S.** (2021) Excitatory output neurons of the olfactory bulb (review). In preparation.

iii. Book

1. Zhang JT, **Liu S** (2020) Cognitive Science and Cognitive Pharmacology. Chemical Industry Press, July 1. Beijing, China.

iv. Book Chapters

1. **Liu S**, Zhang JT (2014) Synaptic pharmacology of clausenamide. In Zhang J (Ed.), The chemistry and biological activities of clausenamide (pp. 64-72). Chemical Industry Press, Beijing, China.
2. Wang X, **Liu S**, Zhang JT (2014) Pharmacological activity of clausenamide as a chiral drug. In Zhang J (Ed.), The chemistry and biological activities of clausenamide (pp. 33-48). Chemical Industry Press, Beijing, China.
3. Wu J, **Liu, S**, Zhang, JT (2002) Methods for Experiments on anti-ageing drugs. In Xu S (Ed.), The methodology of pharmacological experiment (3rd Ed, pp. 834-845). People's Sanitation Press, Beijing, China.
4. **Liu S**, Zhang, JT (2002) Synaptic plasticity: LTP and LTD. The pharmacological basis for new drug developments, ed Zhang JT (Chemical Industry Press, Beijing), pp 259-287.
5. **Liu S**, Zhang, JT (2002) Long-term potentiation recording in hippocampus. In Xu S (Ed.), The methodology of pharmacological experiment (3rd Ed, pp. 830-834). People′s Sanitation Press, Beijing, China.
6. **Liu S**, Zhang, JT (2002) Experiment methods in learning,memory. In Xu S (Ed.), The methodology of pharmacological experiment (3rd Ed, pp. 826-830). People′s Sanitation Press, Beijing, China.
7. **Liu S**, Zhang, JT (1999) Measuring the Propagation Velocity of Action Potentials. In Zhang J (Ed.), Modern Experimental Methods in Pharmacology (1st Ed, pp. 1804-1806). Peking Union Medical College Press, Beijing, China.
8. **Liu S**, Zhang, JT (1999) Quantification of nerve fibers. In Zhang J (Ed.), Modern Experimental Methods in Pharmacology (1st Ed, pp. 1807-1809). Peking Union Medical College Press, Beijing, China.

9. **Liu S**, Zhang, JT (1999) After-hyperpolarization mediated by calcium-dependent potassium channels. In Zhang J (Ed.), Modern experimental Methods in Pharmacology (1st Ed, pp 1800-1801). Peking Union Medical College Press, Beijing, China.
10. **Liu S**, Zhang, JT (1999) Frequency-potentiation. In Zhang J (Ed.), Modern Experimental Methods in Pharmacology (1st Ed, pp 1801-1804). Peking Union Medical College Press, Beijing, China.

Abstracts (meeting presentation)

1. Gilhooly D, Budhathoki R, Starr ER, Liu S. Cellular and circuit vulnerability to apolipoprotein E4 in the olfactory system. Society for Neuroscience 51st Annual Meeting, November 8-11, 2021 (virtual meeting poster)
2. Starr E, Perloski C, Budhathoki R, Sun X, Liu X, **Liu S**. The Regulatory Role of CCKergic Superficial Tufted Cells in Olfactory Bulb Input Output Transformation. International Symposium on Olfaction and Taste (ISOT2020), August 3-7, 2020 (Virtual meeting poster).
3. Rivera N, Perloski CA, Starr ER, Gilhooly D, **Liu S**. Behavioral and physiological measurements of olfactory vulnerability to apolipoprotein E genotypes. International Symposium on Olfaction and Taste (ISOT2020), August 3-7, 2020 (Virtual meeting poster).
4. Yang X, Wang Z, Du J, **Liu S**, Jia X. Intracerebroventricular Administration of Neural Stem Cells after Cardiac Arrest. 41st Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC) (EMBC 2019), Berlin, Germany, July 23-27, 2019.
5. Sun X and **Liu S.** CCKergic superficial tufted cells amplify olfactory bulb output. Society for Neuroscience 47th Annual Meeting, Washington, DC, Nov. 11-15, 2017. (Poster)
6. Sun X and **Liu S.** CCKergic superficial tufted cells drive two major inhibitory circuits in the olfactory bulb. 39th AChemS Annual Meeting, Bonita Springs, FL, April 26-29, 2017. (Poster)
7. **Liu S**, Puche AC and Shipley MT. The interglomerular circuit directly inhibits mitral/tufted cells. 38th AChemS Annual Meeting, Bonita Springs, FL, April 20-23, 2016. (Poster)
8. Cockerham R, **Liu S**, Cachope R, Cheer J, Shipley MT, Puche AC. Enzymatic processing regulates synaptically released dopamine in the olfactory bulb. 37th AChemS Annual Meeting, Bonita Springs, FL, April 22-25, 2015. (Poster)
9. **Liu S,** Puche AC and Shipley MT. Functional Operations of MOB CCKergic Circuitry. Society for Neuroscience 44th Annual Meeting, Washington DC, Nov. 15-19, 2014. (Poster)
10. **Liu S,** Shao Z, Puche AC and Shipley MT. Cholinergic modulation of glomerular circuits sculpts olfactory bulb output. Society for Neuroscience 44th Annual Meeting, Washington DC, Nov. 15-19, 2014. (Poster)
11. **Liu S,** Plachez C, Puche AC and Shipley MT. GABA and dopamine co-release from olfactory bulb short axon cells triggers an inhibition-excitation switch in external tufted

cells. Society for Neuroscience 42nd Annual Meeting, New Orleans, LA, Nov. 13-17, 2012. (Poster)

12. **Liu S**, August JA. and Shipley MT. Serotonin modulates the population profile of olfactory bulb external tufted cells. Society for Neuroscience 41st Annual Meeting, Washington DC, Nov. 12-16, 2011. (Poster)
13. **Liu S**, Shao Z and Shipley MT. DA/GABAergic cotransmission from SA to ET cells activates an inhibitory to excitatory "switch". Society for Neuroscience 41st Annual Meeting, Washington DC, Nov. 12-16, 2011. (Poster)
14. Plachez C, Parrish-Aungst S, Kiyokage E, **Liu S**, Shipley MT. and Puche A. C. Activity dependence of the interglomerular circuit. Society for Neuroscience 41st Annual Meeting, Washington DC, Nov. 12-16, 2011. (Poster)
15. Shao Z, **Liu S**, Shipley MT. An I_h-dependent Switch from Inhibition to Excitation in ET Cells by Co-release of GABA and DA from SA Cells. 32nd AChemS Annual Meeting, St. Pete Beach, FL, Apr. 21-25, 2010. (Poster)
16. **Liu S**, Shipley MT. Physiological Roles of MOB CCKergic Neurons. 32nd AChemS Annual Meeting, St. Pete Beach, FL, Apr. 21-25, 2010. (Poster)
17. **Liu S**, Shipley MT. Cholinergic modulation of glomerular circuits. 31st AChemS Annual Meeting, Saratoga, FL, Apr. 22-26, 2009. (Poster)
18. **Liu S**, Shipley MT. Dopamine Modulates Multiglomerular Circuits. Society for Neuroscience 38th Annual Meeting, Washington DC, Nov. 15-19, 2008. (Slide Talk)
19. **Liu S,** Shipley MT. Dopamine D_2 receptor modulation of ET cell bursting. International Symposium on Olfaction and Taste, San Francisco, CA, Jul. 21-26, 2008. (Poster)
20. Shipley MT, **Liu S.** Intrinsic conductances actively shape excitatory and inhibitory postsynaptic responses in olfactory bulb external tufted cells. International Symposium on Olfaction and Taste, San Francisco, CA, Jul. 21-26, 2008. (Poster)
21. **Liu S,** Puche AC, Shipley MT. In vivo whole cell recording of mouse juxtaglomerular cells. 29th AChemS Annual Meeting, Saratoga, FL, Apr. 25-29, 2007. (Poster)
22. **Liu S,** Shipley MT. L/T-type Ca^{2+} channel regulation of ET cell bursting. 29th AChemS Annual Meeting, Saratoga, FL, Apr. 25-29, 2007. (Poster)
23. **Liu S,** Shipley MT. Multiple conductances cooperatively regulate bursting activity in mouse olfactory bulb external tufted cells. 28th AChemS Annual Meeting, Saratoga, FL, Apr. 26-30, 2006. (Poster)
24. **Liu S,** Shipley MT. Ionic mechanisms regulating bursting activity in mouse olfactory bulb external tufted cells. Society for Neuroscience 35th Annual Meeting, Washington, DC, Nov. 12-16, 2005. (Poster)
25. **Liu S,** Friel DD. Absence of spontaneous electrical activity in cerebellar Purkinje cells from leaner mice – A causative role in ataxia? Society for Neuroscience 34th Annual Meeting, San Diego, CA, Oct. 23-27, 2004. (Poster)
26. Lu C, Li Y, **Liu S**. The expression of IP3 receptor in retina. Society for Neuroscience 31st Annual Meeting, San Diego, CA, Nov. 10-15, 2001. (Poster)
27. **Liu S,** Daw NW. Role of PKA and PKG in synaptic plasticity in the visual cortex. Society for Neuroscience 31st Annual Meeting, San Diego, CA, Nov. 10-15, 2001. (Poster)

28. Zhang JT, Duan WZ, Jiang XY, **Liu S**, Qu ZW, Zhang L. (2001) Effect of (-)clausenamide on impairment of memory induced by amnestic agents. Fundamental and Clinical Pharmacology 15:33-33.
29. Zhang JT, Duan W, Jiang X, **Liu S**, Zhao M. (2000) Effect of (-)clausenamide on impairment of memory and apoptosis. *Neurobiology of Aging* 21 (Suppl. 1): 243.
30. Zhang JT, Duan W, **Liu S**. (1997) (-)clausenamide is a new type of nootropic agent. *Archiv für Experimentelle Pathologie und Pharmakologie* 358(1): R37-R37
31. **Liu S,** Liu H. Effects of histamine on the sympathetic ganglia of toad and rat. Chinese Neuroscience Society 1st Annual Meeting, Shanghai, China, October 2-5, 1995. (Slide talk)

Invited Lectures/seminars

Faculty

1. January 2022: University of Maryland School of Medicine, Department of Anesthesiology, Baltimore, MD (Host: Dr. Junfang Wu)
2. May 2021: Uniform Services University, Department of Anatomy, Physiology & Genetics, Bethesda, MD (Host: Dr. Thomas Flagg)
3. February 2021: Howard University, Department of Biochemistry & Molecular Biology, Washington, DC. (Host: Dr. Yayin Fang)
4. September 2019: Howard University, Department of Pharmacology, Washington, DC. (Host: Dr. Yousef Tizabi)
5. March 2018: University of Maryland School of Nursing, Department of Biomedical Sciences, Baltimore, MD. (Host: Dr. Susan Dorsey).
6. February 2018: Uniform Service University of Health and Science, Department of Psychiatry, Bethesda, MD. (Host: Dr. Edmund Howe).
7. January 2018: Florida State University, Department of Biological Sciences, Tallahassee, FL. (Host: Dr. Thomas Houpt).
8. July 2017: Howard University College of Medicine, Department of Anatomy, Washington, DC. (Host: Dr. Donald Orlic)
9. June 2017: Jiangxi Medical College, Department of Physiology, Nanchang, China. (Host: Dr. Shangdong Liang).
10. June 2017: Chinese Academy of Medical Sciences and Peking Union Medical College, Department of Pharmacology, Beijing, China. (Host: Dr. Guanhua Du).
11. March 2017: Pennsylvania State University College of Medicine, Department of Neural and Behavioral Sciences, Hershey, PA. (Host: Dr. Barnstable Colin)
12. January 2017: Marshall University John C. Edwards School of Medicine, Department of Biomedical Sciences, Huntington, WV. (Host: Dr. Laura Richardson)
13. April 2011: US Environmental Protection Agency, Research Triangle Park, NC. 04/07/2011
14. December 2010: University of Michigan, Department of Molecular and Integrative Physiology, Ann Arbor, MI. (Host: Dr. Suzanne Moenter)
15. December 2010: Howard Hughes Medical Institute at Janelia Research Campus. Ashburn, VA. (Host: Dr. Vivek Jayaraman)

16. May 2008: Allergan Pharmaceutical Company, Neuroscience Division, Irvine, CA. (Host: Dr. Ursula Staubli)
17. April 2006: UCLA, Department of neurology, Los Angeles, CA. (Host: Dr. Istvan Mody).

Postdoctoral

1. April 2004: University of Chicago, Department of Neurology, Chicago, IL. (Host: Dr. James Brorson)
2. October 2003: Cornell University College of Medicine, Department of Anesthesiology, New York, NY. (Host: Dr. Neil Harrison)
3. January 2002: Oregon Health and Science University, Vollum Institute, Portland, OR. (Host: Dr. Henrique von Gersdorff)

SERVICE

Department of Anatomy

2021 - Appointment, Promotion, and Tenure (APT) Committee
2021 - Faculty Search Committee
2019 - Graduate Curriculum Committee
2019 - Graduate Committee
2019 - PhD Dissertation Committee for Rasha Alhazzaa
In Csoka Lab at HU
2019 - Organizer and Coordinator, Department Research Seminars
****initiated, organize and run biweekly research seminar series that invite outstanding scientists to present their research to the department****

College of Medicine

2019 - Professionalism Subcommittee

National and International

i. Editorial Board

2016 - Scientific Reports

ii. Ad Hoc Journal Reviewer

2021 - Frontiers in Neuroscience
2020 - eNeuro
2020 - eLife
2018 - Journal of Neuroscience
2016 - Neuroscience
2012 - Journal of Neurophysiology

iii. Professional Society Memberships

2005 - Association for Chemoreception Sciences AChemS)
1999 - Society for Neuroscience (SfN)

PROFESSIONAL DEVELOPMENT

2021

NBME Course Instruction Development (10/21/2021, by Mr. Stafford Battle)

2020 Blackboard certification

- “Learning Management System (LMS) Essentials”
  Webinar Trainings
- “Championing Equal Access for all Learners----Designing Courses for Effective Inclusivity.” (08/05/2020, by Ms. Glennis Daniel-Bacchus)
- Howard University / Echo360 General Faculty Training - Session 2. (07/30/2020, by Mary Jane Pettola)
- "Managing Instructional Content and Publishing in your Echo360 Course" (07/23/2020, By Dr. John Couperthwaite)
- "Managing Instructional Content and Publishing in your Echo360 Course" (07/22/2020, by Jason Gildner & Dr. John Couperthwaite)
- “Using Video-based Learning with Echo360 to Support Mixed Teaching Modalities” (07/21/2020, by Jason Gildner & Dr. John Couperthwaite)
- Creating and Developing an Active Online Space that Creates Interactivity between Faculty and Students -- We are All in this Together (07/09/2020 CETLA online by Dr. Helen Bond)
- Integrating Student Feedback: One Model to Solicit, Analyze, and Engage Meaningfully in the Virtual Classroom (06/30/2020 CETLA online by Dr. Kristina Alayan)
- Osmosis Workshop “Integrating Online Resources into Your Curriculum. (05/15/2020 online)

2019 Faculty Development Workshops

- "Turning Criticism into Effective Feedback".
- “How to use Blackboard and Tegrity to enhance the teaching experience".
  Junior Faculty Forum
- "The Post Tenure Milieu"
- “What I Wish I Had Known When I Was a Junior Faculty Member".
- “Sleep and Stress”.

2018 Junior Faculty Forum

- “How to Say No and Preserve Your Professional Relationship and
- Careers”
- “Research at Howard University”
- “Staying on Track: Preparing for Promotion and Tenure”
- “Research Trouble Shoot Guide”
- “Staying on Track: Preparing for Promotion and Tenure.

Faculty development Workshop

- “How to Use Scholarly Production in Salary Negotiation and Enhancing Your Institutional and National Profile.”

PeopleSoft Requestor Training

- Office of Procurement and Contracting, Howard University

Curriculum vitae

Gregory J. Phillips, Ph.D.

POSITION TITLE

Professor

CURRENT ADDRESS

Department of Veterinary Microbiology and Preventive Medicine
2213 Pammel Drive
Advanced Teaching and Research Building (ATRB) 5007
College of Veterinary Medicine
Iowa State University
Ames, Iowa 50011
Phone: 515-294-1525
E-mail: gregory@iastate.edu

EDUCATION AND TRAINING

1987-1990: Postdoctoral Fellow, Molecular Biology, laboratory of Dr. Thomas J. Silhavy, Princeton University, Princeton, NJ.
1981-1987: Ph.D., Genetics, laboratory of Dr. Sidney R. Kushner, University of Georgia, Athens, GA.
1979-1981: M.A., Microbiology, laboratory of Dr. Peter Borgia, Southern Illinois University, Carbondale, IL, Microbiology
1975-1979: B. A., Biological Sciences, Southern Illinois University, Carbondale, IL, Biological Sciences

PROFESSIONAL EXPERIENCE

2008-current: Professor, Department of Veterinary Microbiology and Preventive Medicine, Iowa State University, Ames, IA.
2002-2008: Associate Professor, Department of Veterinary Microbiology and Preventive Medicine, Iowa State University, Ames, IA.
1999-2002: Associate Professor, Department of Microbiology, Iowa State University, Ames, IA.
1998-1999: Assistant Professor, Department of Microbiology, Iowa State University, Ames, IA.
1993-1998: Assistant Professor, Department of Microbiology, Immunology, and Preventative Medicine, Iowa State University, Ames, IA.
1990-1993: Assistant Professor, Department of Biology, College of William and Mary, Williamsburg, VA.

PROFESSIONAL SERVICE AND AWARDS

2009-current: Editor, *Plasmid*
2013-current: Editorial Board, *EcoSal Plus* (ASM Press)
2002-2008, 2010-2021: Editorial Board, *Journal of Bacteriology*
2015: Team Award, College of Agriculture and Life Sciences, Iowa State University
2007-2009: Alternate Councilor, Division H, American Society for Microbiology
2005: Pfizer Award for Research Excellence

Gamma Sigma Delta
Member, American Society for Microbiology
Member, American Association for the Advancement of Science

Review panel and study section member for: DOD, NIH, NSF, USDA and foundation grant proposals (eligible for continuous NIH proposal submission through 09/2021)

Reviewer for: *Biochimica et Biophysica Acta*, *Biotechniques*; *BMC Microbiology*; *Biotechnology & Bioengineering; FEMS Microbiology Letters, Genes and Development; iScience; Journal of Bacteriology*, *Journal of Biotechnology*; *MBio*, *Microbial Cell Factories*; *Microbiology*; *Molecular Microbiology*; *Nucleic Acids Research*; *PLoS One*; *PLoS Pathogens*; *Proceedings of the National Academy of Sciences, USA*.; *Protein Expression and Purification; Toxins; Trends in Microbiology; Veterinary Microbiology*

INSTITUTIONAL SERVICE

University

2019-current: Center for Undergraduate Research, Creativity and Innovation (CURCI) Steering Committee
2021: ISU Research Day discussion session moderator
2016: Organizing Committee for symposium: *Genie in a Bottle: The Microbiome in Health and Disease*, Office of Vice President for Research
2015-2016: Data Driven Science Initiative Committee, Office of Vice President for Research
2008-2015: Institutional Biosafety Committee
2012: Search committee for Genome Informatics Facility Director
2004-2007: Biotechnology Council
2007: Panel member, NIH Grantsmanship Workshop, Office of the Vice-Provost for Research
2001: University Academic Advising Committee
Reviewer for Presidential Initiative Research, Bailey Foundation and Post-doctoral award proposals

College

2012-current: Microbiology Undergraduate Program Supervisory Committee, College of Agriculture and Life Sciences (CALS)
2012-current: BSL-3 Laboratory Advisor Group, College of Veterinary Medicine (CVM)
2017: Faculty Grant Writing Workshop for Foundations and DOD, panel member (CVM)
2014-2016: Search committee for Presidential Initiative faculty hires (2 in CVM)
2014: DVM Admissions Committee (CVM)
2006-2010: Director, Veterinary Summer Scholar's Program (CVM)
2006-2008: University of Nebraska Student Assimilation Committee (CVM)
2004-2008: Safety Committee (CVM)
2004-2007: Computer, Library and Information Management Committee (CVM)
2003-2006: Research advisory committee (CVM)
1994-2000: Academic Affairs Committee (College of Agriculture & Life Sciences)
2000: Chair, Academic Affairs Committee (CALS)
1993-1996: Experience Iowa State Planning Committee (CALS)
Reviewer for CVM Seed, Healthy Livestock Initiative and USDA Formula Fund proposals

Department

2012-current: Chair, Promotion and Tenure Committee, Department of Veterinary Microbiology and Preventive Medicine (VMPM)
2012-current: Graduate Curriculum and Admissions Committee (VMPM)
2019-2021: Director of Graduate Education (VMPM)
2021: Search committee for VMPM Department Chair (VMPM)
2005-2006: Search committee for Bacteriologist faculty position (VMPM)
2004-2006: Chair, Seminar Committee (VMPM)
1998: Computer Resources Committee, Department of Microbiology
1998: Graduate Recruitment Committee (Microbiology)
1995-1998: Outcomes Assessment Committee (Microbiology)
1996: Strategic Planning Implementation Committee (Microbiology)
1994-1995: Freshmen Orientation Coordinator (Microbiology)
1993: Off-Campus Education Committee (Microbiology)

Service to other entities

2019-2020: Admissions Committee, Bioinformatics and Computational Biology Graduate Program
2015: Search committee, staff scientist position, National Animal Disease Center (USDA)
2014: Interdepartmental Genetics Spring symposium on *Synthetic Biology*
2010: Co-organizer, Interdepartmental Genetics Spring symposium on *Emerging Model Systems*
2007, 1998: Search committee, Department of Veterinary Pathology
2006, 1996: Search Committee, Research Scientist, Veterinary Diagnostic Laboratory
2007: Search Committee, Research Scientist, Respiratory Disease Unit, National Animal Disease Center
2005-2007: Search Committee, Anatomist position, Dept. of Biomedical Sciences
2007: Search Committee, Plant Science faculty position, Dept. of Biochemistry
2007: Session moderator, Annual Undergraduate Research Symposium
2006: Search Committee, NMR Facility Director position, Dept. of Biochemistry
2004: Chair, Interdepartmental Genetics Graduate Program Admissions Committee
2003-2006: Chair, Microbiology Graduate Program Curriculum Committee
2003-2006: Chair, Recruiting Committee, Molecular, Cellular & Developmental Biology Graduate Program
2002: Evaluation Committee for Promotion and Tenure, Department of Agronom
2001: Co-organizer, Interdepartmental Genetics/Bioinformatics Computational Biology Spring symposium on *Microbial Genomics and Proteomics*

RESEARCH SUPPORT

Active

DOD/Defense Threat Reduction Agency (Phillips, PI) 2021-2024 $850,000
Artificial intelligence-based predictive modeling of the host microbiome to improve vaccine effectiveness.

NIH/National Institute of Neurological Disorders and Stroke/University of Georgia (R61)
(Kanthasamy, PI) 2020-2025 $386,879
Novel re-engineered L-DOPA probiotic therapy for Parkinson's disease.

DOD Army Research Office /The Ohio State University
(Ibba, PI) 2020-2023 $125,000
Regulation of translation homeostasis as a driver of bacterial persistence.
Role on project: co-I.

USDA/ National Institute of Food and Agriculture
(Lyte, PI) 2021-2024 $380,000
Heat stress and respiratory infection in chickens: A novel neuroendocrine- microbiome mechanism mediating development of APEC.
Role on project: co-I.

Barry Family Foundation Cancer Research award
(Phillips, PI) 2021-2023 $180,000
Probiotic-mediated cancer therapy: A new approach for tumor targeted treatment.

ISU Vice President for Research Office, Vaccine and Immunotherapeutics Program
(Phillips, PI) 2021-2022 $48,000
Expanding the commercial use of a live Salmonella *Choleraesuis vaccine*

USDA Capacity Project (Phillips, PI) 2021-2022 $25,000
Development of CRISPR/Cas technology to engineer new Brucella melitensis *vaccines.*

Pending

NIH/National Institute on Aging (U01)
(Kanthasamy and Phillips, MPI) 2022-2027 $1,767,117
Novel reengineered microbiome-based biologic therapy to treat cognitive and behavioral symptoms of Alzheimer's Disease and related dementias.

National Science Foundation (Long, PI) 2022-2026 $998,232
Modeling the interactions between gut microbiota and mini brain model on chip.
Role on project: Co-I.

NIH/National Institute for Biomedical Imaging and Bioengineering (R21)
(Bardhan, PI) 2022-2024 $250,000
Transformative therapy for acute colitis with STING-inhibiting micelles.
Role on project: Co-I.

Completed awards of note

DOD/Defense Threat Reduction Agency (Phillips, PI) 2016-2019 $560,000
Novel approaches for detecting gene amplification events.

NIH/National Cancer Institute (R03) (Phillips, PI) 2018-2020 $100,000
Microbiome dynamics during cancer progression.

NIH/National Institute of Mental Health/University of Wisconin-Madison (R33)
(Coe, Lyte, Phillips, MPI) 2017–2021 $450,000
Maternal and Infant microbiome determinants of brain and behavioral development.

NIH/National Institute of General Medical Sciences (R01)
(Phillips, PI) 2013-2016 $800,000
Highly simplified model of a mammalian intestinal community.

The Kenneth Rainin Foundation (Jergens, PI) 2014-2016 $200,000
Inheritance of inflamed microbiota confers increased susceptibility to colitis.
Role on project: co-I.

NIH/ Office of Infrastructure Programs (ORIP) (T35)
(Phillips, PI) 2008-2011 $287,150
Summer Research Training of Veterinary Medical Students.

Conoco-Phillllips (Phillips, PI) 2008-2009 $100,000
Exploring the use of Cytophaga hutchisonii *for biomass conversion*.

NIH/National Institute of Allergy and Infectious Diseases (R21)
(Phillips, PI) 2008-2009 $200,000
Use of dominant super-repressors for non-antibiotic selection In Yersinia pestis.

DoD/Office of Naval Research, Multidisciplinary University Research Initiative (MURI)
(Minion, PI) 2006-2010 $4,500,000
Novel Therapies for pneumonic plague targeting quorum sensing components.
Role on project: co-I.

Boehringer Ingelheim Vetmedica, Inc. (contract)
(Phillips, PI) 2004-2005 $70,603
Expression of foreign antigens in Salmonella choleraesuis strain 54.

NIH/National Institute of General Medical Sciences (R01)
(Phillips, PI) 2004-2008 $400,000
Function of 4.5S RNA in bacteria.

USDA/ National Institute of Food and Agriculture
(Phillips, PI) 2003-2006 $244,000
Understanding antimicrobial persistence in food borne pathogens.

Boehringer Ingelheim Vetmedica, Inc. (contract)
(Phillips, PI) 2003-2004 $66,125
Expression of foreign antigens in Salmonella choleraesuis strain 54.

NIH/National Institute of General Medical Sciences (R29)
(Phillips, PI) 1995-2000 $350,000
Genetic analysis of the signal recognition particle.

PUBLICATIONS

1. **Phillips, G. J.**, and P. T. Borgia. 1985. Effect of oxygen on morphogenesis and polypeptide expression by *Mucor racemosus*. *J. Bacteriol.* 164:1039-1048. doi: 10.1128/jb.164.3.1039-1048.1985.
2. Borgia, P. T., N. K. Gokul, **G. J. Phillips**. 1985. Respiratory-competent, conditional developmental mutant of *Mucor racemosus*. *J. Bacteriol.* 164:1049-1056. doi: 10.1128/jb.164.3.1049-1056.1985.
3. Arnold, J., E. K. Eckenrode, K. Lemke, **G. J. Phillips**, and S. W. Schaeffer. 1986. A comprehensive package for DNA sequence analysis in Fortran IV for the PDP-11. *Nucleic Acids Res.* 14:239-254. doi: 10.1093/nar/14.1.239.
4. **Phillips, G. J.**, and S. R. Kushner. 1987. Determination of the nucleotide sequence for the exonuclease I structural gene (*sbcB*) from *Escherichia coli* K-12. *J. Biol. Chem.* 262:455-459. PubMed PMID: 3539937.
5. **Phillips, G. J.**, J. Arnold, R. Ivarie. 1987. Mono-through hexanucleotide composition of the *Escherichia coli* genome: a Markov chain analysis. *Nucleic Acids Res.* 15:2611-2626. doi: 10.1093/nar/15.6.2611.
6. **Phillips, G. J.**, R. Ivarie, J. Arnold. 1987. The effect of codon usage on the

oligonucleotide composition of the *Escherichia coli* genome and identification of over- and underrepresented sequences by Markov chain analysis. *Nucleic Acids Res.* 15:2627-2638. doi: 10.1093/nar/15.6.2627.

7. **Phillips, G. J.**, D. C. Prasher, S. R. Kushner. 1988. Physical and biochemical characterization of cloned *sbcB* and *xonA* mutants from *Escherichia coli* K-12. *J. Bacteriol.* 170:2089-2094. doi: 10.1128/jb.170.5.2089-2094.1988.
8. Kiino, D. R., **G. J. Phillips**, T. J. Silhavy. 1990. Increased expression of the bifunctional protein, PrlF, suppresses the overproduction lethality associated with exported ß-galactosidase hybrid proteins in *Escherichia coli*. *J. Bacteriol.* 172:185-192. doi: 10.1128/jb.172.1.185-192.1990.
9. **Phillips, G. J.**, and T. J. Silhavy. 1990. Heat-shock proteins DnaK and GroEL facilitate export of LacZ hybrid proteins in *Escherichia coli*. *Nature.* 344:882-884. doi: 10.1038/344882a0.
10. Bieker, K. L., **G. J. Phillips**, T. J. Silhavy. 1990. The *sec* and *prl* genes of *Escherichia coli*. *J. of Bioenergetics and Biomembranes.* 22:291-310. doi: 10.1007/BF00763169.
11. **Phillips, G. J.**, and T. J. Silhavy. 1992. The *E. coli ffh* gene is necessary for viability and efficient protein export. *Nature* 359:744-746. doi: 10.1038/359744a0.
12. Reece, K. S., and **G. J. Phillips**. 1995. New plasmids carrying antibiotic resistance cassettes. *Gene* 165:141-142. doi: 10.1016/0378-1119(95)00529-f.
13. de Gier, J. W. L, P. Mansournia, Q. A. Valent, **G. J. Phillips**, J. Luirink, G. von Heijne. 1996. Assembly of a cytoplasmic membrane protein in *Escherichia coli* is dependent on the signal recognition particle. *FEBS Letters* 399:307-309. doi: 10.1016/s0014-5793(96)01354-3.
14. Wright, D. A., S. K. Park, D. We, **G. J. Phillips**, S. R. Rodermel, D. F. Voytas. 1997. Recovery of YAC-end sequences through complementation of an *Escherichia coli pyrF* mutation. *Nucleic Acids Res.* 25:2679-2680. doi: 10.1093/nar/25.13.2679.
15. **Phillips, G.J.** 1999. New cloning vectors with temperature sensitive replication. *Plasmid*, 41: 78-81. doi: 10.1006/plas.1998.1380.
16. de Leew, E., B. Graham, **G. J. Phillips**, C. M. ten Hagen-Jongman, B. Oudega, J. Luirink. 1999. Molecular characterization of *E. coli* FtsE and FtsX. *Mol. Microbiol* 31:983-993. doi: 10.1046/j.1365-2958.1999.01245.x.
17. **Phillips, G. J.** 1999. Alteration of open reading frames by use of new gene cassettes. *Anal. Biochem.* 269:207-210. doi: 10.1006/abio.1999.4004.
18. Platt, R., C. D. Drescher, S. K. Park, **G. J. Phillips**. 2000. Genetic system for reversible integration of DNA constructs and *lacZ* gene fusions into the *Escherichia coli* chromosome. *Plasmid* 43:12-23. doi: 10.1006/plas.1999.1433.
19. **Phillips, G. J.,** S. K. Park, D. Huber. 2000. High copy number plasmids compatible with commonly used cloning vectors. *Biotechniques* 28:400-408. doi: 10.2144/00283bm02.
20. Feilmeier, B. J., G. Iseminger, H. Webber, D. Schroeder, **G.J. Phillips**. 2000. Green fluorescent protein functions as a reporter for protein localization in *Escherichia coli*. *J. Bacteriol*. 182:4068-4076. doi: 10.1128/JB.182.14.4068-4076.2000.

21. Samuelson, J.C., M. Chen, F. Jiang, I. Moeller, M. Wiedmann, A. Kuhn, J. Brunner, **G.J. Phillips**, R. Dalbey. 2000. YidC mediates membrane protein insertion in bacteria. *Nature* 406:637-641. doi: 10.1038/35020586.
22. Lee. E., R. Platt, S. Kang, J. A. Roth, **G. J. Phillips**. 2001. Chromosomal integration and expression of the *Escherichia coli* K88 gene cluster in *Salmonella enterica* ser. *Choleraesuis* strain 54 (SC54). *Vet. Microbiol*. 83:177-183. doi: 10.1016/s0378-1135(01)00416-3.
23. **Phillips, G. J.** 2001. Green fluorescent protein-a bright idea for the study of protein localization in bacteria. *FEMS Microbiol. Lett*. 204:9-18. doi: 10.1111/j.1574-6968.2001.tb10854.x.
24. Herkovits, A. A., A. Seluanov, R. Rajsbaum, C. M. ten Hagen-Jongman, T. Heinrichs, E. S. Bochkareva, **G. J. Phillips**, F. J. Probst, T. Nakae, M. Ehrmann, J. Luirink, E. Bibi. 2001. Evidence for coupling of membrane-targeting and function of the SRP-receptor FtsY. *EMBO Reports*, 2:1040-1046. doi: 10.1093/embo-reports/kve226.
25. Park, S.-K., F. Jiang, R. E. Dalbey, **G. J. Phillips**. 2002. Functional analysis of the signal recognition particle (SRP) in *Escherichia coli* by characterization of a temperature-sensitive *ffh* mutant. *J. Bacteriol*. 184:2642-2653. doi: 10.1128/JB.184.10.2642-2653.2002.
26. Froderberg, L., E. Houben, J. C. Samuelson, M. Chen, S.-K. Park, **G. J. Phillips**, R. Dalbey, J. Luirink, J.-W. L. de Gier. 2003. Versatility of inner membrane protein biogenesis in *Escherichia coli*. *Mol. Microbiol*. 47:1015-1027. doi: 10.1046/j.1365-2958.2003.03346.x.
27. Casavant, N.C., G. A. Beattie, **G. J. Phillips**, L. J. Halverson. 2002. Site-specific recombination-based genetic system for reporting transient or low-level gene expression. *Appl. Environ. Microbiol*. 68:3588-3596. doi: 10.1128/AEM.68.7. 3588-3596.2002.
28. Casavant, N.C., D. Thompson, G. A. Beattie, **G. J. Phillips**, L. J. Halverson. 2003. Use of a site-specific recombination-based biosensor for detecting bioavailable toluene and related compounds on roots. *Environ. Microbiol*. 5:238-249. doi: 10.1046/j.1462-2920.2003.00420.x.
29. Platt, R., D. L. Reynolds, **G. J. Phillips**. Development of a novel method of lytic phage delivery by use of a bacteriophage P22 site-specific recombination system. 2003. *FEMS Microbiol*. 223:259-265. doi: 10.1016/S0378-1097(03)00388-4.
30. Schmidt, K. L., N. D. Peterson, R. J. Kustusch, M. C. Wissel, B. Graham, **G. J. Phillips**, D. S. Weiss. 2004. A predicted ABC transporter, FtsEX, is needed for cell division in *Escherichia coli*. *J. Bacteriol*. 186:785-793. doi: 10.1128/JB.186.3.785-793.2004.
31. Isailovic, D., L. Hung-Wing, **G. J. Phillips**, E. S. Yeung. 2005. High-throughput single-cell fluorescence spectroscopy. *Appl Spectrosc.* 59:221-226. doi: 10.1366/0003702053085124.
32. Isailovic, D., I. Sultana, **G. J. Phillips**, E. S. Yeung. 2006. Formation of fluorescent proteins by non-enzymatic attachment of phycoerythrobilin to r-phycoerythrin alpha and beta apo-subunits. *Anal Biochem*. 358:38-50. doi: 10.1016 j.ab.2006.08.011.

33. Zhang, Y., **G. J. Phillips**, E. S. Yeung. 2007. Real-Time monitoring of single bacterial cell lysis events by chemiluminescence microscopy. *Anal. Chem*. 79:5373-5381. doi: 10.1021/ac801701w.
34. Yuan, J., **G. J. Phillips** R. E. Dalbey. 2007. Isolation of cold sensitive *yidC* mutants provide insight into the substrate profile of the YidC insertase and the importance of transmembrane three in YidC function. *J. Bacteriol*. 189:8961-8972. doi: 10.1128/JB.01365-07.
35. Zhang, Y., **G. J. Phillips**, E. S. Yeung. 2008. Quantitative imaging of gene expression in individual bacterial cells by chemiluminescence. *Anal Chem*. 80:597-605. doi: 10.1021/ac071545f.
36. Kraus, G. A., G. Kumar, **G. Phillips**, K. Michalson, M. Mangano. 2008. Synthesis and antibacterial activity of littorachalcone and related diphenyl ethers. *Bioorg. Med. Chem. Lett.* 18:2329-2332. doi: 10.1016/j.bmcl.2008.02.082.
37. Peterson, J. and **G. J. Phillips**. 2008. New pSC101-derivative cloning vectors with elevated copy numbers. *Plasmid*. 59:193-201. doi: 10.1016/j.plasmid.2008.01.004.
38. Peterson, J. and **G. J. Phillips**. 2008. Characterization of conserved bases in 4.5S RNA of *Escherichia coli* by construction of new F′ factors. *J. Bacteriol*. 190:7709-7718. doi: 10.1128/JB.00995-08.
39. Zhang, Y., **G. J. Phillips**, Q. Lia, E. S. Yeung. 2008. Imaging localized astrocyte ATP release with firefly luciferase beads attached to the cell surface. *Anal. Chem*. 80: 9316-9325. doi: 10.1021/ac801701w.
40. Mullins, M. A., K. B. Register, D. O. Bayles, C. L. Loving, T. L. Nicholson, S. L. Brockmeier, D. W. Dyer, **G. J. Phillips**. 2009. Characterization and comparative analysis of the genes encoding *Haemophilus parasuis* outer membrane proteins P2 and P5. *J. Bacteriol*. 191: 5988-6002. doi: 10.1128/JB.00469-09.
41. Carrillo-Conde, B., E. Schiltz, J. Yu, F. C. Minion, **G. J. Phillips**, M. J. Wannemuehler, B. Narasimhan. 2010. Encapsulation into amphiphilic polyanhydride microparticles stabilizes *Yersinia pestis* antigens. *Acta* Biomater. 6:3110–3119. doi: 10.1016/j.actbio.2010.01.040.
42. Duncan, S., R. Sirkanungo, L. Miller, **G. J. Phillips**. 2010. DraGnET: Software for storing, managing and analyzing draft genome data. *BMC Bioinformatics*, 11:100. doi: 10.1186/1471-2105-11-100.
43. Oster, C. J. and **G. J. Phillips**. 2011. Vectors for ligation-independent construction of lacZ gene fusions and cloning of PCR products using a nicking endonuclease. *Plasmid*. 66:180-185. doi: 10.1016/j.plasmid.2011.07.007.
44. Mullins, M. A., K. B. Register, D. O. Bayles, D. W. Dyer, J. S. Kuehn, **G. J. Phillips**. 2011. Genome sequence of *Haemophilus parasuis* strain 29755. *Stand Genomic Sci*. 2011. 15:61-68. doi: 10.4056/sigs.2245029.
45. Phanse, Y., Ramer-Tait, A. E., Friend, S. L., Carrillo-Conde, B., Lueth, P., Oster, C. J., **Phillips, G. J**., Narasimhan, B., Wannemuehler, M. J., Bellaire, B. H. Analyzing cellular internalization of nanoparticles and bacteria by multi-spectral imaging flow cytometery. 2012. *J. Vis. Exp*. 8:e3884. doi: 10.3791/3884.
46. Ariosa, A. R., S. S. Duncan, I. Saraogi, X. Lu, A. Brown, **G. J. Phillips**, Shu-ou Shan. 2013. Fingerloop activates GTPase interactions during co-translational protein targeting. *Mol. Biol. Cell*. 24:63-73. doi: 10.1091/mbc.E12-06-0434.

47. Slattery, A., A. H. Victorsen, A. Brown, K. Hillman, **G. J. Phillips**. 2013. Isolation of highly persistent mutants in *Salmonella enterica* serovar Typhimurium reveals a new toxin antitoxin module. *J. Bacteriol*. 195:647-657. doi: 10.1128/JB.01397-12.
48. Kuehn, J. S., P. J. Gorden, D. Munro, R. Rong, Q. Dong, P. J. Plummer, C. Wang, **G. J. Phillips**. 2013. Bacterial community profiling of milk samples as a means to understand culture-negative bovine clinical mastitis. *PLoS One.* 8:e61959. doi: 10.1371/journal.pone.0061959.
49. Yu, J., M. L. Madsen, M. D. Carruthers, **G. J. Phillips**, J. S. Kavanaugh, J. M. Boyd, A. R. Horswill, F. C. Minion. 2013. Analysis of autoinducer-2 quorum sensing in *Yersinia pestis*. *Infect. Immun*. 81:4053-4062. doi: 10.1128/IAI.00880-13.
50. Kraus, G. A., D. Chaudhary, S. Riley, F. Liu, A. Schlapkohl, M. Weems, **G. J Phillips**. 2013. Synthesis of 3-farnesyl salicylic acid, a novel antimicrobial from *Piper multiplinervium*. *Nat. Prod. Commun*. 8:911-913. PMID: 23980422.
51. Kuehn, J. S., K. B. Register, **G. J. Phillips**. 2013. Draft genome sequences for 10 isolates of the swine pathogen *Haemophilus parasuis*. *Genome Announc*. 1:e00739-13. doi: 10.1128/genomeA.00739-13.
52. Birt, D. F., T. Boylston, S. Hendrich, J.-L. Jane, J. Hollis, L. Li, J. McClelland, S. Moore, **G. J. Phillips**, M. Rowling, K. Schalinske, M. P. Scott, E. M. Whitley. 2014. Digestion resistant starch: Promise for improving human health. *Adv. Nutr*. 4:587-601. doi:10.3945/an.113.004325.
53. Birt, D. F., and **G. J. Phillips**. 2014. Diet, genes, and microbes: complexities of colon cancer prevention. *Toxicol Pathol*. 42:182-188. doi: 10.1177/ 0192623313506791.
54. Wannemuehler, M.J., A. M. Overstreet, D. V. Ward, **G. J. Phillips**. 2014. Draft genome sequences of the Altered Schaedler Flora-a defined bacterial community from gnotobiotic mice. *Genome Announc*. 2:e00287-14. doi: 10.1128/genomeA.00287-14.
55. Krull, A. C., J. K. Shearer, P. J. Gorden, V. L. Cooper, **G. J. Phillips**, P. J. Plummer. 2014. Deep sequencing analysis reveals the temporal microbiota changes associated with the development of bovine digital dermatitis. *Infect Immun*. 82:3359–3373. doi: 10.1128/IAI.02077-14.
56. Brockmeier, S. L., K. B. Register, J. S. Kuehn, T. L. Nicholson, C. L. Loving, S. M. Shore, **G. J. Phillips**. 2014. Virulence and draft genome sequence overview of multiple strains of the swine pathogen *Haemophilus parasuis*. *PLoS One*. 9:e103787. doi: 10.1371/journal.pone.0103787.
57. Wymore Brand, M., M. J. Wannemuehler, **G. J. Phillips**, A. Proctor, A. M. Overstreet, A. E. Jergens, R. P. Orcutt, J. G. Fox. 2015. The Altered Schaedler Flora: continued applications of a defined murine microbial community. *ILAR J*. 56:169-78. doi: 10.1093/ilar/ilv012.
58. Lyte, M, A. Chapel, J. M. Lyte, Y. Ai, A. Proctor, J-L. Jane, **G. J. Phillips**. 2016. Resistant starch alters the microbiota-gut brain axis: Implications for dietary modulation of behavior. *PLoS One*. 11:e0146406. doi:10.1371/journal.pone.0146406.
59. Atherly, T., C. Mosher, C. Wang, J. Hostetter, A. Proctor, M. W. Brand, **G.**

J. Phillips, M. J. Wannemuehler, A. E. Jergens. 2016. *Helicobacter bilis* infection alters mucosal bacteria and modulates colitis development in defined microbiota mice. *Inflamm Bowel Dis*. 22:2571-2581. doi: 10.1097/MIB.0000000000000944.

60. Amaral, W.Z., G. R. Lubach, A. Proctor, M. Lyte, **G. J. Phillips**, C. L. Coe. 2017. Social influences on *Prevotella* and the gut microbiome of young monkeys. *Psychosom Med*. 79:888-897. doi: 10.1097/PSY.0000000000000454.
61. Amaral, W. Z., G. R. Lubach, A. Kapoor, A. Proctor, **G. J. Phillips**, M. Lyte, C. L. Coe. 2017. Low Lactobacilli abundance and polymicrobial diversity in the lower reproductive tract of female rhesus monkeys do not compromise their reproductive success. Am. J. Primatol. 79:10.1002/ajp.22691. doi: 10.1002/ajp.22691.
62. Lyte, J.M., A. Proctor, **G.J. Phillips**, M. Lyte, M. Wannemuehler M. 2019. Altered Schaedler flora mice: A defined microbiota animal model to study the microbiota-gut-brain axis. *Behav Brain Res*. 356:221-226. doi: 10.1016/j.bbr.2018.08.022.
63. Wang, X., D. Tamiev, J. Alagurajan, A. A. DiSpirito, **G. J. Phillips**, M. S. Hargrove. 2019. The role of the NADH-dependent nitrite reductase, Nir, from *Escherichia coli* in fermentative ammonification. *Arch Microbiol*. 201:519-530. doi: 10.1007/s00203-018-1590-3.
64. Proctor, A. and **G. J. Phillips**, 2019. Differential effects of bacitracin methylene disalicylate (BMD) on the distal colon and cecal microbiota of young broiler chickens. *Front. Vet. Sci*. 6:114. doi: 10.3389/fvets.2019.00114.
65. Rendina, D. N., G. R. Lubach, **G. J. Phillips**, M. Lyte, C. L. Coe. 2019. Maternal and breast milk influences on the infant gut microbiome, enteric health and growth outcomes of Rhesus monkeys. *J. Pediatr. Gastroenterol. Nutr*. 69:363-369. doi: 10.1097/ MPG.0000000000002394.
66. Shanmugam, S. K., N. Backes, Y. Chen, A. Belardo, **G. J. Phillips**, R.E. Dalbey. 2019. New insights into amino-terminal translocation as revealed by the use of YidC and Sec depletion strains. *J. Mol. Biol*. 431:1025-1037. doi: 10.1016/j.jmb.2019.01.006.
67. Kong T., N. Backes, U. Kalwa, C. Legner, **G. J. Phillips**, S. Pandey. 2019. Adhesive Tape Microfluidics with an autofocusing module that incorporates CRISPR interference: Applications to long-term bacterial antibiotic studies. *ACS Sens*. 4:2638-2645. doi: 10.1021/acssensors.9b01031.
68. Kelly, P., N. Backes, K. Mohler, C. Buser, A, Kavoor, J. Rinehart, **G. Phillips**, M. Ibba. 2019. Alanyl-tRNA synthetase quality control prevents global dysregulation of the *Escherichia coli* proteome. *mBio*. 10. pii: e02921-19. doi: 10.1128/mBio.02921-19.
69. Sun, L., D. Rollins, Y. Qi, J. Fredericks, T. J. Mansell, A. Jergens, **G.J. Phillips**, M. Wannemuehler, Q. Wang. 2020. TNFα regulates intestinal organoids from mice with both defined and conventional microbiota. Int. *J. Biol. Macromol*. 164:548-556. doi: 10.1016/j.ijbiomac.2020.07.176.
70. Beyi, A.F., A. Hassall, **G. J. Phillips**, P. J. Plummer. 2021. Tracking reservoirs of antimicrobial resistance genes in a complex microbial community using metagenomic Hi-C: The case of bovine digital dermatitis. *Antibiotics* 10: 221. doi.org/10.3390/antibiotics10020221.
71. Mayneris-Perxachs, J., W. Amaral, G. R. Lubach, M. Lyte, **G. J. Phillips**, J. M.

Posma, C. L. Coe, J. R. Swann. 2021. Gut microbial and metabolic profiling reveal the lingering effects of infantile iron deficiency unless treated with iron. *Molec. Nutrition & Food Res*. 65:e2001018. doi: 10.1002/mnfr.202001018.

72. Overstreet, A.-M. C., A. E. Ramer-Tait, J. S. Suchodolski, J. M. Hostetter, C. Wang, A. E. Jergens, **G. J. Phillips**, M. J. Wannemuehler. 2021. Temporal dynamics of chronic inflammation on the cecal microbiota in IL-10$^{-/-}$ Mice. *Front. Immunol*. 11:585431. doi: 10.3389/fimmu.2020.585431.
73. Pierre, J. F., **G. J. Phillips**, L. C. Chandra, D. N. Rendina, N. F. Thomas-Gosain, G. R. Lubach, M. Lyte, C. L. Coe, A. Gosain. 2021. Lyticase facilitates mycobiome resolution without disrupting microbiome fidelity in primates. *J. Surg. Res*. 267:336-341. doi: 10.1016/j.jss.2021.06.023.
74. Ghaisas, S, D. S. Harischandra, B. Palanisamy, A. Proctor, H. Jin, S. Dutta, S. Sarkar, M. Langley, G. Zenitsky, V. Anantharam, A. Kanthasamy, **G. J. Phillips**, A. Kanthasamy. 2021. Chronic manganese exposure and the enteric nervous system: An *in vitro* and mouse *in vivo* study. *Environ Health Perspect*. 129:87005. doi: 10.1289/EHP7877.
75. Rendina, D. N., G. R. Lubach, M. Lyte, **G. J. Phillips**, A. Gosain, J. F. Pierre, R. M. Vlasova, M. A. Styner MA, C. L. Coe. Proteobacteria abundance during nursing predicts physical growth and brain volume at one year of age in young rhesus monkeys. *FASEB J*. 35:e21682. doi: 10.1096/fj.202002162R.
76. Pandey, S. Y, Park, A. Ankita, **G. J. Phillips**. 2021. Scan4CFU: Low-cost, open-source bacterial colony tracking over large areas and extended incubation times. *Hardware-X,* 10: e00249. doi: 10.1016/j.ohx.2021.e00249.
77. Backes, N. and **G.J. Phillips**. 2021. Repurposing CRISPR-Cas systems as genetic tools for the *Enterobacteriales*. *EcoSal Plus*. eESP00062020. doi:10.1128/ecosalplus.ESP-0006-2020.
78. Proctor, A., N. A. Cornick, C. Wang, S. Mooyottu, P. A. Arruda, K. Kobs, **G. J. Phillips**. 2021. Neonatal piglets are protected from *Clostridioides difficile* infection by age dependent increase in intestinal microbial diversity. *Microbiol Spectr*. 9:e0124321. doi: 10.1128/Spectrum.01243-21.
79. Vinithakumari, A. A., P. Padhi, B. Hernandez, S. J. Lin, A. Dunkerson-Kurzhumov, L. Showman, M Breitzman, C. Stokes, Y. Sulaiman, C. Tangudu, D. A. Kuttappan, M. S. Muyyarikkandy, A. A. Willette, **G. J. Phillips**, V. Anantharam, A. Perera, B. A. Sponseller, A. Kanthasamy, S. Mooyottu. 2022. *Clostridioides difficile* infection dysregulates brain dopamine metabolism. Microbiol Spectr. Mar 24:e0007322. doi: 10.1128/spectrum.00073-22.
80. Wymore Brand, M, A. L. Proctor, J. M. Hostetter, N. Zhou, I. Friedberg, A. E. Jergens, **G. J. Phillips**, M. J. Wannemuehler MJ. 2022. Vertical transmission of attaching and invasive *E. coli* from the dam to neonatal mice predisposes to more severe colitis following exposure to a colitic insult later in life. PLoS One. 17:e0266005. doi: 10.1371/journal.pone.0266005.
81. Karp, P. D., S. Paley, M. Krummenacker, A. Kothari, M. J Wannemuehler, **G. J. Phillips**. 2022. Pathway Tools management of pathway/genome data for microbial communities. Frontiers in Bioinformatics, Accepted for publication.

BOOKS

Plasmid Biology. B. A. Funnell, and **G. J. Phillips**. eds. 2004. American Society for Microbiology Press, Washington, D.C.

BOOK CHAPTERS

Kushner, S.R., and **G. J. Phillips**. 1988. Is exonuclease I involved in the regulation of the SOS response in *Escherichia coli*? In: DNA Replication and Mutagenesis, eds. R.E. Moses and W.C. Summers, pp. 362-366. American Society for Microbiology, Washington, D.C.

Phillips, G. J. 2004. Plasmid as tools for genetic analysis of bacteria. In: Plasmid Biology. eds. B. E. Funnell, and G. J. Phillips. pp. 567-587. American Society for Microbiology Press, Washington, D.C.

PATENT APPLICATIONS

Kanthasamy, A. G., **Phillips, G. J.**, Abdalla, A., Backes, N., Padhi, P. 2019. MICROENCAPSULATED AND CHROMOSOME INTEGRATED COMPOSITIONS FOR L-DOPA MICROBIOME THERAPY. Provisional application U.S. Serial No. 62/706,096. Iowa State University Research Foundation, Inc.

Kanthasamy, A. G., **Phillips, G. J**., Anantharam, V. 2020. PROTECTION AGAINST COVID-19 AND OTHER INFECTIOUS DISEASES USING A NOVEL REENGINEERED PROBIOTIC DELIVERY PLATFORM. Provisional application No. 63120350. Iowa State University Research Foundation, Inc.

INVITED TALKS, SEMINARS AND CONFERENCE PRESENTATIONS

1. *Artificial Intelligence (AI)-based predictive modeling of the host microbiome to Improve vaccine effectiveness*. DTRA Artificial Intelligence Medical Discovery (AIMED) workshop. November, 2021.
2. *Microbiome/microbial genetics to improve animal health*. Presentation to Boehringer-Ingelheim, College of Veterinary Medicine, Iowa State University. October, 2021.
3. *Probiotic and microbiome research at ISU*. Presentation to Lallemand, Inc., College of Veterinary Medicine, Iowa State University. November, 2021.
4. *Engineering beneficial bacteria for disease therapy: Application for delivery of neurotransmitter to treat brain disorders.* The Discovery of Medical Countermeasures Against Novel Entities (DOMANE) DTRA virtual workshop. October, 2020
5. *Community involvement: tracking genetic adaptation in the gut microbiome*. Seminar, Food Innovation Center, Nebraska Innovation Campus, University of Nebraska-Lincoln, Lincoln NE. February, 2019.
6. *Experimental approaches for direct hypothesis testing*. Midwest AMR Working Group, University of Nebraska-Lincoln Lincoln NE. November, 2019.
7. *Community involvement: tracking genetic adaptation in the gut microbiome*. Department of Microbiology. The Ohio State University, Columbus OH. March, 2019.
8. *Impact of resistant starch diets on animal hosts: from the microbiota to the mind*. Corn Utilization and Technology Conference, St. Louis MO. June, 2018,
9. *Flexibility of amino acid composition in the signal sequence binding domain of the Escherichia coli Ffh protein, a component of the signal recognition particle.* ASM Microbe, Atlanta GA. June, 2018.
10. *Use of Hi-C metagenomic sequencing to identify antibiotic resistance (AMR) genes and their taxonomic origin directly from the gut microbiome of non-human primates*.

Genomes, Big Data and Emerging Technologies. Wellcome Genome Campus, Hinxton UK. November, 2018.

11. Good housekeeping: Unique strategy by an *E. coli* pathobiont to protect against bacteriophage infection. Genetic Approaches to Understanding Complex Biological Problems. Princeton University, Princeton NJ. May, 2018.
12. Development of a qPCR assay for altered Schaedler flora colonized mice. Sigma Xi: Celebration of Science and Scholarship, Iowa State University. April, 2017.
13. *Community involvement: tracking genetic adaptation in the gut microbiome*. Seminar, Genetics and Genomics Graduate Program. Iowa State University. November, 2017.
14. *Community involvement: tracking genetic adaptation in the gut microbiome*. Department of Biomedical Sciences. Iowa State University. February, 2017.
15. *Community involvement: tracking genetic adaption in gut bacteria*. Faculty Research Symposium, College of Veterinary Medicine. Iowa State University. January, 2016.
16. *AHL and temperature control of maltose (*mal*) gene expression in* Yersinia pestis. ASM Biodefense meeting Washington DC. February, 2016.
17. *Community involvement: tracking genetic adaption of gut microbiome using a gnotobiotic mouse model*. Genie in a Bottle: The Microbiome in Health and Disease Symposium. Iowa State University. October, 2016.
18. *Understanding Host-Microbe Interactions: A Simple Model for Complex Questions*. Des Moines University. October, 2014.
19. *Impact of resistant starch on the gut microbiome in rodent models of disease*. Integrating Resistant Starch, Microbiome, and Disease Risk Reduction Symposium. Iowa State University. May, 2014.
20. *Back to the future: My career studying toxin/antitoxin modules*. Genetic Approaches to Solving Biological Problems Conference. Sedona AZ. March, 2013.
21. *Persistence pays off: Understanding the mechanisms of antimicrobial tolerance by bacterial pathogens*. Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa. Lisbon, Portugal. May, 2013.
22. *Persistence pays off: Identifying the mechanisms of antibiotic persistence*. Department of Microbiology, University of Nevada-Las Vegas, Las Vegas NV. February, 2012.
23. *Persistence pays off: Identifying the mechanisms of antibiotic persistence in a bacterial pathogen*. Microbiology Graduate Program. Iowa State University. March, 2012.
24. *Persistence pays off: Identifying the mechanisms of antibiotic persistence in* Salmonella *Typhiurium*. Great Plains Infectious Disease Meeting, University of Missouri, Columbia MO. October, 2010.
25. *Mix and Match: using comparative genomics and mutagenesis to understand the function of an essential bacterial protein*. Center for Integrated Animal Genomics Spring Workshop. Iowa State University. April, 2010.
26. *Development of non-antibiotic resistance marker for plasmids in* Y. pestis *using a* galR *supperrepressor allele*. NIH/NIAID Worksship, Use of non-antibiotic selectable markers in select agent pathogens, Bethesda, MD. April, 2010.
27. *Persistance pays off, understanding the mechanism of antimicrobial persistence in* Salmonella *enterica.* Department of Microbiology and Immunology, University of Iowa, Iowa City, IA. February, 2010.
28. *Persistance pays off, understanding the mechanism of antimicrobial persistence in*

bacterial pathogens. Department of Microbiology and Immunology, Oklahoma University Health Science Center. Oklahoma City, OK. October, 2008.

29. *Genomic analysis of a respiratory pathogen*. Genetic approaches to biological problems Banff Center, Alberta, Canada. May, 2008.
30. *Phage display & other combinatorial methods to select new polypeptides with biological function*. Boehringer-Ingelheim Vetmedica, Inc., Research and Development Annual Meeting. Ames, IA, March, 2007.
31. *Biotechnology*. Presentation at the USDA program: "Entrepreneurship: Business Development and Collaboration for Economic Improvement of Product Quality". Belgrade Serbia and Montenegro. January, 2006.
32. *Genetic Dissection of the bacterial signal recognition particle.* Department of Molecular Microbiology, Frije University, Amsterdam, The Netherlands. October, 2005.
33. *Genetic Dissection of the bacterial signal recognition particle*. Microbiology Graduate Program. Iowa State University. March, 2005.
34. *New technologies: discovery to marketplace*. Presentation at the USDA program: Entrepreneurship: Business Development and Collaboration for Economic Improvement of Product Quality. Belgrade, Serbia. October, 2005.
35. *4.5S RNA: a small molecule with big responsibilities*. Genetic Approaches to Complex Biological Problems conference. Baltimore, MD. March. 2004.
36. *The signal recognition particle of* Escherichia coli. Department of Biochemistry, Biophysics and Molecular Biology. Iowa State University. November 2004.
37. *The bacterial signal recognition particle: There is more than one way to cross a membrane*. Institute of Molecular Biology, Belgrade, Serbia. March, 2004.
38. *Understanding the molecular mechanisms of bacterial persistence*. Faculty of Veterinary Medicine, Belgrade, Serbia. March 2004.
39. *More than one way out: multiple pathways of protein localization in* Escherichia coli. Department of Microbiology, North Carolina State University, Raleigh, NC. October 2003.
40. *Genetic analysis of a highly conserved pathway for membrane protein localization*. Interdepartmental Genetics program. Iowa State University. November, 2002.
41. Membrane protein localization in bacteria: an old approach to a new problem. Veterinary Microbiology & Preventive Medicine & Veterinary Pathology. Iowa State University. 2001.
42. *The Ffh protein is required for export of all* E. coli *proteins--not*. Genetic Approaches to Complex Biological Problems. Harper's Ferry, WV. March, 1999.
43. *Genetic approaches to the study of membrane protein localization*. Cold Spring Harbor Laboratory Course in Advanced Bacterial Genetics. Cold Spring Harbor, NY, June, 1999.
44. *Genetic analysis of the signal recognition particle—how do bacterial proteins get from here to there?* Department of Microbiology. Iowa State University. 1999.
45. *Green fluorescent protein as a reporter for protein localization in* Escherichia coli-*a bright idea?* American Society for Microbiology, North Central Branch annual meeting. Vermillion, SD, October, 1998.
46. *Molecular analysis of the bacterial signal recognition particle*. Seminar, Department of Biochemistry and Biophysics. Iowa State University. 1996.
47. *Bacterial protein export-study of the signal recognition particle*. Interdepartmental

Genetics Program. Iowa State University. 1996.
48. *Bacterial protein export-genetic analysis of the signal recognition particle*. Department of Microbiology. University of Illinois, Champaign-Urbana IL. March, 1995.
49. *Genetic analysis of the bacterial signal recognition particle*. Department of Microbiology, Immunology and Preventive Medicine. Iowa State University. 1994.
50. *Genetic analysis of bacterial protein export*. Seminar Department of Microbiology, Immunology and Preventive Medicine. Iowa State University. 1992.
51. *Genetic analysis of bacterial protein export*. Virginia ASM branch meeting. Williamsburg, VA. October, 1992.
52. *Genetic analysis of bacterial protein export*. Department of Microbiology, Virginia Commonwealth University, Richmond VA. 1992.
53. *Genetic analysis of bacterial protein export*. Department of Biology. Old Dominion University, Norfolk, VA. 1992.
54. *Study of bacterial protein export by the use of gene fusions*. Department of Biology. College of William and Mary, Williamsburg, VA. April, 1990.

ABSTRACTS AND POSTER PRESENTATIONS

1. *Emerging microbiome genetic engineering technology for stable levodopa delivery in Parkinson's Disease*. P. Padhi, A. Abdalla, N. Backes, B. Schneider, G. Zenitsky, H. Jin, V. Ananthraram, A. Kanthasamy, K. Allenspach, J. Mochel, G. J. Phillips and A. Kanthasamy. Experimental Biology. Philadelphia, PA. Oral and poster presentations. April, 2022.
2. *A hands-on activity using informational suppressor mutant strains to illustrate the central dogma of microbiology*. Center for the Integration of Research, Teaching and Learning (CIRTL) Network Teaching-as-Research Presentations Cross Network Workshop. S. DeWolf, S. Hartman, G. Phillips, N. Boury. Oral presentation. April, 2022.
3. *Promoter mutagenesis to investigate the contribution of a σ70 variant to antibiotic resistance in* E. coli *pathobiont LF82*. S. DeWolf* and G. J. Phillips. American Society for Microbiology, North Central Branch annual meeting. Oral presentation. November, 2021. *3rd place award.
4. *Characterization of a Unique σ70 variant of an adherent invasive* Escherichia coli, *LF82, a pathobiont associated with Crohn's disease*. M. Arroyo-Mendoza, A, Correa-Medina, A. Proctor, N. Backes, D. Hinton, G. Phillips. American Society for Microbiology, North Central Branch annual meeting. Poster presentation. November, 2021.
5. *Understanding the genetic basis of antibiotic resistance in* E. coli *pathobiont* LF82. S. DeWolf, M. Arroyo-Mendoza, G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. Poster presentation. August, 2021.
6. *Coral chromogenic proteins expressed in* Escherichia coli *provide new tools for: Construction of biomarkers & reporter genes, STEM education and biological-inspired design**. R. Brady, M. Jones, G. J. Phillips. Iowa State University Research Day. Poster presentation. March, 2021. *3rd place award.
7. *Engineering* Escherichia coli *Nissle as an effective neurotransmitter delivery system to treat brain disorders*. G. Phillips, N. Backes, A. Abdalla, V. Anantharam, & A. Kanthasamy. Chemical and Biological Defense Science & Technology (CBD S&T) Conference. Long Beach, CA. Poster presentations. November, 2019.
8. *Expanding the microbial color palette by mutagenesis of coral chromoproteins by site-directed mutagenesis*. M. Jones, R. Brady and G. J. Phillips. Undergraduate Honors

Program Symposium. Iowa State University. Poster presentation. May, 2019.

9. *Mitigating antimicrobial resistance through combinatorial drug synthesis of new organic compounds*. GJ. Phillips, B. Brehm-Stecher, GA. Kraus, S. Pandey, L. Stanley, MJ. Wannemuehler and A. Winter. Iowa State University Research Day. Poster presentation. March, 2019.
10. *Flexibility of amino acid composition in the signal sequence binding domain of the* Escherichia coli *Ffh protein, a component of the signal recognition particle*. J. Jones, S. Duncan, A. Campbell and G. J. Phillips. American Society for Microbiology Microbe Conference. Atlanta, GA. June, 2018.
11. *CRISPRimaging*. N. Backes* and G. J. Phillips. American Society for Microbiology Microbe Conference. Atlanta GA. June, 2018. *Received travel award.
12. *Mitigating antimicrobial resistance through combinatorial drug synthesis and optimization of antibiotic cocktails*. G. J. Phillips, B. Brehm-Stecher, GA. Kraus, S. Pandey, L. Stanley and A. Winter. Freshman Research Institute Symposium. Iowa State University, Poster presentation. May, 2018.
13. *Expanding chemistry student skill sets through collaboration with microbiologists*. D. Berger, R. Burgett, R. Croyle, Y. Jiang, K. Kryzer, C. Morales, T. Nesbit, G. A. Kraus, L. Stanley, A. Winter, G. Phillips. Freshman Research Institute Symposium. Iowa State University, Poster presentation. May, 2018.
14. *Impact of the host immune system on the gastrointestinal microbiota using gnotobiotic wild type and IL-10$^{-/-}$ 129 mice colonized with the altered Schaedler flora*. M. Reed, A. Proctor and G. J. Phillips. College of Veterinary Medicine Research Day, Iowa State University. Poster presentation. August, 2018.
15. *Improvement of CRISPRi imaging technology for In vivo bacterial cell imaging utilizing a split-GFP strategy*. N. Backes, G. Cerevantes and G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. Poster presentation. August, 2018.
16. *Examining the effects of proton pump inhibitor medication on* Clostridium difficile *infected patients*. G.M. Wilson, A. Proctor, C. Petersen and G.J. Phillips. Iowa One Health Conference, Iowa State University. November, 2018.
17. *Refining CRISPR imaging technology for improved fluorescent imaging in* Escherichia coli. N. Backes and G. J. Phillips. American Society for Microbiology Microbe Conference. New Orleans, LA. Poster presentation. June, 2017.
18. *Development of a dual CRISPR interference system as a means to combat antimicrobial resistance in bacteria*. N. Backes* and G. J. Phillips. Chemical and Biological Defense Science & Technology (CBD S&T) Conference. Long Beach CA. Oral and poster presentations. November, 2017. *Received travel award.
19. *Use of the altered Schaedler flora (ASF) mouse model reveals a unique genetic adaptation of an* E. coli *pathobiont against bacteriophage infection*. A. Proctor, N. Backes, M. Wymore-Brand, S, Horak, M. Arroyo-Mendoza, J. West, M. J. Wannemuehler, D. M. Hinton and G. J. Phillips. Wind River Conference, Estes Park CO. Poster presentation. June, 2017.
20. *Use of a gnotobiotic mouse model to characterize bacteria/colorectal tumor interactions*. A. Proctor and G. J. Phillips. NCI Microbial Based Cancer Therapy Conference. Bethesdaa, MD., Poster presentation. July, 2017.
21. *Metatranscriptome analysis of gnotobiotic mice harboring the Altered Schaedler Flora during epithelial injury mouse model of colitis-associated cancer*. A. Proctor and G. J.

Phillips. American Society for Microbiology Microbe Conference. Boston MA. Poster presentation. June, 2016.

22. *Development of a qPCR assay for altered Schaedler flora colonized mioce utilizing the* groEL gene. N. Ferrero, A. Proctor and G. J. Phillips. Merial-NIH National Veterinary Scholars Symposium. Columbus OH. Poster presentation. July, 2016.
23. Development of a visual complementation system: application to the essential ffh gene of *Escherichia coli*. A. Campbell and G. J. Phillips. Undergraduate Honors Program Symposium. Iowa State University. Poster presentation. May, 2016.
24. *Determining the cellular localization of the bacterial signal recognition particle (SRP) by constructing fluorescent protein gene fusions*, S. A. Kohles and G. J. Phillips. Undergraduate Honors Program Symposium. Iowa State University. Poster presentation. May, 2016.
25. *Evolution of an intestinal pathobiont: Single nucleotide polymorphisms in LF82, an adherent invasive* Escherichia coli, after multiple generations in C3H/HeN:Tac mice harboring the altered Schaedler flora. Kenneth Rainin Foundation Innovations Symposium: Wound Healing, Repair & IBD. Poster presentation. July, 2015.
26. Development of a gnotobiotic mouse model-the altered Schaedler flora-to measure the impact of bacterial infection on the gastrointestinal bacterial community. A. Proctor, M, Wymore-Brand, J. Hostetter, M. Wannemuehler and G. J. Phillips. American Society for Microbiology Microbe Annual Meeting. Boston MA. Poster presentation. May, 2014.
27. Development of the Altered Schaedler Flora gnotobiotic mouse model to understand host-microbe interactions. S. Horak, A. Proctor and G. J. Phillips. Merial-NIH National Veterinary Scholars Symposium. Ithica NY. Poster presentation. July, 2014.
28. Development of a gnotobiotic mouse model-the altered Schaedler flora-to measure the impact of bacterial infection on the gastrointestinal bacterial community. A. Proctor, M, Wymore-Brand, J. Hostetter, M. Wannemuehler and G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. Poster presentation. August, 2014.
29. Development of the Altered Schaedler Flora gnotobiotic mouse model to understand host-microbe interactions. S. Horak, A. Proctor and G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. Poster presentation. August, 2014.
30. The altered Schaedler flora (ASF) as a model system for host-microbiome interactions. G. J. Phillips and M. J. Wannemuehler. NIH/NIGMS Host-Microbial Community Interactions Conference. Bethesda, MD. Poster presentation. April, 2013.
31. Identifying genes necessary for colonization and survival of adherent-invasive Escherichia coli strain LF82 in the mammalian GI tract. A Proctor and G. J. Phillips. Microbiome and Health Conference. Lisbon Portugal. Poster presentation. May, 2013.
32. The altered Schaedler flora (ASF) as a model system for host-microbiome interactions. G. J. Phillips. Joint Genome Institute Microbial Genomics & Metagenomics Workshop (DOE-JGI). Walnut Creek, CA. Poster presentation. September, 2013.
33. *Characterizing host-microbial interactions by transposon mutagenesis of a mouse commensal* Escherichia coli *strain.* J. Hillesheim, A. Proctor and G. Phillips. Merial-NIH National Veterinary Scholar Conference, Michigan State University, East Lansing MI. Poster presentation. August, 2013.
34. *Characterizing host-microbial interactions by transposon mutagenesis of a mouse commensal* Escherichia coli *strain.* J. Hillesheim, A. Proctor and G. Phillips. College of Veterinary Medicine Research Day, Iowa State University, Poster presentation.

August, 2013.

35. *Dysbiosis characterized by reduced abundance of Roseburia is associated with increased severity of colitis in IL-10-/- mice*. A-M. C. Overstreet, A. E. Ramer-Tait, T. A. Atherly, S. Dowd, G. J. Phillips, J, Hostetter, C. J. Ziemer, C. Wang, M. J. Wannemuehler, A. E. Jergens. International Human Microbiome Congress. Paris France, Poster presentation. March, 2012.
36. *Methionine bristles are not required for Function of the* Escherichia coli *signal recognition particle*. S. Duncan and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces, New London NH, Poster presentation. July, 2010.
37. *Development of* Dictyostelium discoideum *as a model host for bacterial pathogens*. A. M. Gerard and G. J. Phillips. Merial-NIH National Veterinary Scholar Conference, University of Georgia, Athens GA. Poster presentation. August, 2010.
38. *Development of* Dictyostelium discoideum *as a model host for bacterial pathogens*. A. M. Gerard and G. J. Phillips. College of Veterinary Medicine Research Day, Iowa State University. Poster presentation. August, 2010.
39. *Characterization of antimicrobial persistence in foodborne pathogens*. E. Bell and G. J. Merck-Merial National Veterinary Research Symposium. Raleigh NC, Poster presentation. August, 2009.
40. *Development of a recombination-based system to construct reporter genes: Application to the study of quorum sensing in* Yersinia pestis. C. Oster, F. C. Minion and G. J. Phillips. ASM Biodefense and Emerging Infectious Disease Conference. Baltimore MD. Poster presentation. February, 2008.
41. *4.5S RNA is essential in* E. coli *solely as a component of the signal recognition particle*. J. Peterson and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces. New London, NH. Poster presentation. June, 2008.
42. Characterization of antimicrobial persistence in foodborne pathogens. C. Geneczko and G. J. Phillips. Merck-Merial National Veterinary Research Symposium. Michigan State University. East Lansing MI. Poster presentation. August, 2008.
43. 4.5S RNA is essential in *Escherichia coli* solely as a component of the signal recognition particle. J. Peterson and G. J. Phillips. Gordon Research Conference on Protein Transport Across Biological Membranes. Il Ciocco, Italy. Poster presentation. July, 2007.
44. *Use of phage display for detection of microbial pathogens: Polypeptides specific for* Stenocarpella maydis *spores*. S. Aleksandrova, R. Myers and G. J. Phillips. Merck-Merial National Veterinary Scholar Conference. Bethesda, MD. Poster presentation. August, 2007.
45. *Characterization of the signal recognition particle by random mutagenesis*. S. Duncan, X. Lu and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces. New London, NH. Poster presentation. June, 2006.
46. *Isolation of pigment mutants of* Enterobacter sakazakii. E. Grace and G. J. Phillips. Iowa Food Safety Consortium Symposium. Iowa State University. Poster presentation. May, 2006.
47. Impact of a summer research program on veterinary students at Iowa State University. A. Fales-Williams, K. Flaming, D. Reynolds, G. Phillips and R. Griffith. American College of Veterinary Pathologists Annual Meeting. Tucson AZ. Poster presentation. March, 2006.

48. *Characterization of the finger loop domain of Ffh by random insertion libraries*. S. Duncan, X. Lu and G. Phillips. Gordon Research Conference on Protein Translocation, New London, NH. Poster presentation. July, 2005.
49. A*n improved system for 4.5S RNA depletion in* Escherichia coli *and its use to study protein localization and synthesis.* J. M. Peterson and G. J. Phillips. American Society for Microbiology, North Central Branch Annual conference. Poster presentation. October, 2005.
50. *Isolation and characterization of high persistent mutants to* Salmonella enterica *serovar Typhimurium*. A. Slattery and G. J. Phillips. American Society for Microbiology, North Central Branch annual conference. Ames IA. Poster presentation. October 2005.
51. Characterization of the finger loop domain of Ffh by random insertion libraries. S. Duncan, X. Lu and G. Phillips. North Central ASM Branch annual conference. Ames, IA. Poster presentation. October, 2005.
52. *Pathogenesis of* Escherichia coli *OP50 to* Caenorhabditis elegans *under varying culture conditions*. A. Buckingham, E. D. Grace and G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. August, 2005.
53. *Isolation of pigment mutants of* Enterobacter sakazakii. G. J. Phillips and E. Grace. American Society for Microbiology annual conference. New Orleans LA. Poster presentation. May, 2004.
54. In vivo analysis of the association of 4.5S RNA with both Ffh and EF-G. G. J. Phillips and J. Peterson. Gordon Research Conference on Bacterial Cell Surfaces. New London NH. Poster presentation. July, 2004.
55. *Isolation of* Salmonella enterica *serovar Typhimurium mutants exhibiting high persistence*. A. Slattery, A. J. Sullivan and G. J. Phillips. Iowa Food Safety Consortium Annual Meeting. Ames IA. Poster presentation. 2004.
56. *Isolation of* Salmonella enterica *serovar Typhimurium mutants exhibiting high persistence*. A. Slattery, A. J. Sullivan and G. J. Phillips. College of Veterinary Medicine Research Day, Iowa State University. Poster presentation. August, 2004.
57. *Characterization of ytfJ in* E. coli. R. Westermeyer, G. J. Phillips and E. Grace. College of Veterinary Medicine Research Day, Iowa State University. Poster presentation. August, 2004.
58. *Functions of 4.5S RNA as a component of the SRP for protein targeting and translation in* E. coli. R. Westermeyer and G. J. Phillips. College of Veterinary Medicine Research Day. Iowa State University. Poster presentation. August, 2003.
59. Genetic approaches to understanding 4.5S RNA function. G. J. Phillips, T. Brady, D. Huber and T. J. Wang. Gordon Research Conference on Bacterial Cell Surfaces. New London NH. Poster presentation. June, 2002.
60. Genetic Characterization of Ffh-4.5S RNA Interaction. S. K. Park and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces. New London, NH, Poster presentation. June, 2000.
61. *Codon insertion mutagenesis of Ffh reveals regions essential for signal recognition particle function.* D. Huber and G. J. Phillips. American Society for Microbiology annual conference. Los Angeles CA. Poster presentation. June 2000.
62. *A truncated* malE-gfp *gene fusion encodes an outer membrane protein*. B. J. Feilmeier and G. J. Phillips. American Society for Microbiology, North Central Branch annual meeting. Ames IA. October, 1999.

63. *A novel genetic system to direct programmed, high-level gene expression in natural environments*. N. C. Casavant, L. J. Halverson, G. A. Beattie and G. J. Phillips. American Society for Microbiology annual meeting. Chicago IL. Poster presentation. May,1999.
64. *Utilization of* phoA-gfp *gene fusions as a tool for protein export studies in* Escherichia coli. B. J. Feilmeier and G. J. Phillips. American Society for Microbiology annual conference. Chicago IL. Oral presentation. May,1999.
65. *An* ftsE *mutation renders* E. coli *salt-dependent*. B. Grahamand G. J. Phillips. American Society for Microbiology annual meeting. Chicago IL. Poster presentation. May,1999.
66. *Generation o*f ffh *mutants deficient in interaction with 4.5S RNA in* Escherichia coli *using a* ffs *suppressor strain*. D. Huber and G. J. Phillips. American Society for Microbiology annual meeting. Chicago IL. Poster presentation. May,1999.
67. *Cloning of K88 genes into* Salmonella choleraesuis *using a chromosomal integration system*. E. K. Lee, R. Platt, G. Phillips and J. A. Roth. American Society for Microbiology annual meeting. Chicago IL. Poster presentation. May,1999.
68. *Isolation and characterization of temperature sensitive mutations in the* ffh *gene of* Escherichia coli. S. K. Park and G. J. Phillips. American Society for Microbiology annual meeting. Chicago IL. Poster presentation. May, 1999.
69. *Green fluorescent protein functions as a reporter for protein localization in* Escherichia coli. B. J. Feilmeier, G. Iseminger and G. J. Phillips. American Society for Microbiology, North Central Branch annual meeting. Vermillion SD. Poster presentation. 1998.
70. *Insertional inactivation of the* E. coli ftsE *gene yields a salt-dependent mutant*. B. Grahamand G. J. Phillips. American Society for Microbiology, North Central Branch annual meeting. Vermillion SD. Poster presentation. 1998.
71. *Characterization of gene function in bacteria by plasmid shuffling: isolation of temperature sensitive mutations in the* ffh *gene of* Escherichia coli. S. K. Park and G. J. Phillips. American Society for Microbiology, North Central Branch annual meeting. Vermillion SD. Poster presentation. 1998.
72. *Competitive colonization of sheep by different pathotypes of* Escherichia coli. N. Cornick, T. Casey, G. Phillips and H. Moon. 3rd International Symposium and Worksholp on Shiga Toxin. Baltimore MD. Poster presentation. 1997.
73. *GFP functions as a reporter for protein localization in* Escherichia coli. B. Feilmeier, G. Iseminger and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces. New London NH. Poster presentation. 1998.
74. *Characterization of the* ffh *gene from* E. coli *by isolation and characterization of temperature-sensitive mutants*. S. K. Park, G. Iseminger and G. J. Phillips. Gordon Research Conference on Bacterial Cell Surfaces. Henniker NH. Poster presentation. 1996.

WORKSHOPS AND TRAINING

1. NIH Regional Seminar. Palo Alto. CA March 2003.
2. *Genomics Analysis Workshop*. Institute for Genome Sciences University of Maryland School of Medicine. Baltimore, MD. 2011.
3. *MiSeq, Making Sense of the Data*. Short course conducted by Illumina, Inc. San Diego CA. 2013.
4. *Bioinformatics programming Workshop*. Institute for Genome Sciences University of Maryland School of Medicine. Baltimore, MD. 2013.

5. *Genomics & Metagenomics Workshop*. Joint Genome Institute Microbial (DOE-JGI). Walnut Creek, CA. 2013.
6. *Metagenome Analysis Workshop*. Institute for Genome Sciences University of Maryland School of Medicine. Baltimore, MD. 2014.
7. *Pathway Tools Introductory Tutorial*. SRI International. Meno Park CA. 2014.

TEACHING/TRAINING EXPERIENCE

Current graduate students – serving as Major Professor

Alexandra Proctor, Ph.D., Veterinary Microbiology
Sarah DeWolf, Ph.D., Microbiology
Melissa Arroyo-Mendoza, Ph.D., Veterinary Microbiology
Kia Barry, M.S., (co-major professor) Microbiology

Former Graduate students and their current position

Ratree Platt, Ph.D., Veterinary Microbiology, 2000.
Researcher, Iowa State University (retired)
Sei-Kyong Park, Ph.D., Veterinary Microbiology, 2001.
Research Associate Professor, University of Nevada-Reno
Becky Graham, Ph.D. Microbiology, Microbiology, 2002.
Professor, Ohio Domincan University, Columbus OH (deceased)
Eric Matson, Ph.D. (co-major professor), Microbiology, 2004.
Professor, Department of Biology, University of Wisconsin, Oshkosh, WI
Andrew Slattery, M.S., Genetics, 2006.
Supervisor, Research Laboratory at Corteva Agriscience, Indianapolis, IN
Alec Victorsen, M.S., Genetics, 2008.
Researcher, University of Minnesota, Minneapolis MN.
James Peterson, Ph.D., Genetics, 2008.
Senior Systems Engineer, Center for Disease Prevention and Control, Atlanta GA
Stacy Duncan, Ph.D., Bioinformatics and Computational Biology 2010.
Associate Director, Clinical Data Management, Labcorp Drug Develop., Nashville TN
Carrie Oster, M.S., Molecular Cellular Developmental Biology, 2012.
University of Wisconsin-Whitewater, Whitewater WI.
Nicolas Backes, Ph,D., Microbiology, 2020.
Director of Microbiology, QSM Diagnostics, Inc., Boston MA.

Students served as POS Committee Members (since 1993)

Joshua Alterman, M.S., Chemistry
Aleksei Ananin, Ph.D., Chemistry
Chiron Anderson, Ph.D., Microbiology
Catherine Atxell, Ph.D., Microbiology
Riley Austin, M.S., Microbiology
Nathan Bandow Ph.D., Biochemistry, Biophysics, Molecular Biology
Bipin Baral, Ph.D., Biochemistry, Biophysics, Molecular Biology
Ashenafi Beyi, Ph.D., Microbiology
Manesh Bhandari, Ph.D. Immunobiology
Sandyha Boytapella, Ph.D., Genetics
Allison Brost, M.S., Food Science
Shouqiang Cheng, Ph.D., Biochemistry, Biophysics, Molecular Biology

Dong-Won Choi, Ph.D., Biochemistry, Biophysics, Molecular Biology
H. Choi, Ph.D. Microbiology
Alvin Chon, Ph.D., Bioinformatics and Computational Biology
Jeannett Clampitt, M.S., Microbiology
Bienvenido Cortes, Ph.D., Microbiology
Rebeccah Dahlin, Ph.D., Veterinary Pathology
Phil Dershwitz, Ph.D., Biochemistry, Biophysics and Molecular Biology
Meera Desai, Ph.D., Chemistry
Gabi Doughan, DVM, Ph.D., Veterinary Diagnostics and Production Animal Medicine
Bradley Dubbles, Ph.D. Microbiology
Demetrius Finley, Ph.D., Chemistry
Tim Frana, Ph.D., Veterinary Microbiology
Ivan Geraskin, Ph.D., Chemistry
Baoqing Guo, Ph.D., Veterinary Microbiology
Charlotte Halley, M.S., Biomedical Sciences (non-thesis)
Nafiz Hamid, Ph.D. Bioinformatics and Computational Biology
Pedro Hermon, Ph.D., Genetics
Luis Hernandez, Veterinary Microbiology
Stephanie Hice, Ph.D., Food Science
Jessica Hicks, Ph.D. Bioinformatics and Computational Biology
Dragan Isailovic, Ph.D., Chemistry
Indu Jagannathan, Ph.D., Biochemistry, Biophysics, Molecular Biology
Clinton Johnson, Ph.D., Food Science
Kelly Klinge, M.S., Microbiology
Lucas Koester, Ph.D., Microbiology
Benjamin Kosieradzki, M.S., Chemistry
Nayung Lee, Ph.D., Microbiology
Ping Liu, Ph.D. Microbiology
Nic Lizer, Ph.D., Microbiology
Feng Long, Ph.D., Molecular, Cellular and Developmental Biology
Carmen Lopez-Garcia, Ph.D., Chemical and Biological Engineering
Melissa Madsen, Ph.D., Molecular, Cellular and Developmental Biology
Ilse Matise, M.S., Veterinary Diagnostics, Production Animal Medicine
Fukuda Mayumi, M.S., Genetics
Karla Mesterhazy, M.S., Veterinary Microbiology
Lorena Moeller, Ph.D., Plant Sciences
Michael Mullins, Ph.D., Veterinary Microbiology
Wayne Murkota, M.S. Microbiology
Lindsey Nielsen, Ph.D., Microbiology
Piyush Padhi, Ph.D.,
Bharathi Palanisamy, Ph.D., Biomedical Sciences/Toxicology
Xiyu Peng, Ph.D., Bioinformatics and Computational Biology
Jeniffer Perea-Lopez, Ph.D., Ph.D., Chemical and Biological Engineering.
Phong Phan, Ph.D., Biochemistry, Biophysics, Molecular Biology
Kyle Podolak, Ph.D., Chemistry
Roman Pogranichniy, Ph.D., Veterinary Diagnostics, Production Animal Medicine

Yang Qu, Ph.D., Chemistry
Supraja Reddy, Ph.D., Genetics
Alexandria Reed, M.S., Biomedical Sciences (non-thesis degree)
Steven Reilly, Ph.D., Chemistry
Will Rock, Ph.D., Food Science
Marissa Roghair Stroud, Ph.D., Microbiology
Samuel Rothstein, Ph.D., Chemical and Biological Engineering
April Rohlik, M.S., Microbiology
Jenifer Saldanha, Ph.D., Genetics
Miguel C. Santoscoy, Ph.D., Chemical and Biological Engineering
Swastik Sen Ph.D., Microbiology
Ginger Shipp, Ph.D., Microbiology
Wan Sun, Ph.D., Microbiology
Dua Vang, M.S., MIcrobiology
Martin VanDeMortel, Ph.D., Microbiology
Iaoguang Wang, Ph.D., Biochemistry, Biophysics, Molecular Biology
Shuai Wang, Ph.D., Chemistry
Aric Warner, Ph.D., Microbiology
Seth Wenner, Ph.D., Microbiology
Huangchao Yu, Ph.D., Chemistry
Halimatun Zainuddin, Ph.D., Chemical and Biological Engineering
Zhiyi Zheng, Ph.D., Veterinary Microbiology
Huilin Zhu, Ph.D., Biochemistry, Biophysics, Molecular Biology

Undergraduates

Renee Alexander (Freshman Honors Program)
Josh Beck (currently Associate Professor, Iowa State University)
Nicole Benzoni (Senior Honors Program thesis advisor, now M.D.)
Kia Birnbaum (Freshman Honors Program)
Alison Blomme (Freshman Honors Program)
Emily Bowe (Freshman Honors Program)
Rachael Brady (Senior Honors Program thesis advisor, now medical student, Univ. of Iowa)
April Brown (Undergraduate researcher)
Alissa Campbell (Senior Honors Program thesis advisor, now M.D./Ph.D, student, Harvard)
Georgia Cervantes (West Point Cadet)
Inna Couri (Freshman Honors Program)
Veronica Day (Freshman Honors Program)
Craig Ellermeier (currently Professor, University of Iowa)
Emily Eulberg (Freshman honors program)
Alexa Gormley (Freshman Honors Program)
Elicia Grace, (ASM Fellow, now Ph.D.)
Sarah Hogren (Freshman Honors Program)
Kai Hillman (ASM Fellow, Senior Honors Program thesis advisor, co-author, now Ph.D.)
Melissa Irish (Freshman Honors Program)
Kaylie James (Freshman Honors Program)
Megan Jones (Senior Honors Program thesis advisor, now graduate student, Minnesota)
Stephanie Kohles (Senior Honors Program thesis advisor, now D.O)

Emily Malin (Freshman Honors Program)
Marie Mangano (Co-author)
Vishal Sanghri (Undergraduate researcher)
Frank Probst (Senior Honors Program thesis advisor, currently Professor, Baylor Univ.)
Allison Schlaphkohl (Senior Honors Program thesis advisor, co-author, now M.D.)
Diane Schroeder (Co-author, now Ph.D.)
Harshita Sharma (Freshman Honors Program, current)
Bradley Small (Freshman Honors Program)
Hanna Webber (Co-author)
Christina Weber (Senior Honors Program thesis advisor)
Megan Weems (Senior Honors Program thesis advisor, now M.D.)

Professional (DVM) students

Alissa Buckingham
Nicole Ferrero
Amanda Gerard
Charles Gzeko
Joshua Hillsheim
Sarah Horak
Monica Reed
James Sullivan
Gregory Waith
Rebekah Westermeyer

Post-Doctoral Follows

Jenni Boonjuakuahl, Ph.D
Barry Jewel, Ph.D.
Joanna Kuehn, Ph.D.
Yajie Liang, Ph.D.
Ishrat Sultana, Ph.D.

Visiting scientist

Dajean Kjyrnik, DVM, 2003

Research Scientists

Xiodong Lu, M.S. (2004-2006)
Maia Lawson, B.S., 2021-current

COURSES, INSTRUCTOR-IN-CHARGE

Current *undergraduate courses*

Microbial Genetics and Genomics (Micro 402), 3 credits
Laboratory in Microbial Diversity, Physiology and Genetics (Micro 440), 4 credits (team taught with 2 other instructors)

Past *undergraduate courses*

Microbial Genetics & Physiology, Micro 320 (4 credits, team taught with one other instructor)
Microbial Genetics, Micro 402 (3 credits)
Microbial Genetics Laboratory, Micro 402L (3 credits)

Current *graduate course*

Microbial Genetics and Genomics (Micro 502), 3 credits

Additional course participation

Mechanisms of Bacterial Pathogenesis, Micro 625 (1 lecture/year)
Bacterial Molecular Genetics and Physiology, Micro 552 (1 lecture/year)
Introduction to Microbiology, Micro 302 (2 lectures)
Virology, Micro 403 (6 lectures)

PEER REVIEWS OF PROMOTION/APPOINTMENT

Susan Brockmeier, DVM, Ph.D., USDA/ARS Research Position Evaluation
Ann Flower, Ph.D., to Associate Professor, Department of Biomedical Sciences, University of North Dakota
Michelle Giglio, Ph.D., to Associate Professor, University of Maryland School of Medicine, Department of Medicine and Institute for Genome Sciences
Michelle Igo, Ph.D., to Professor, Department of Microbiology and Molecular Genetics, University of California-Davis
Indira Kudva, Ph.D., USDA/ARS Research Position Evaluation
Michael O'Connor, Ph.D., to Professor, Department of Molecular Biology and Biochemistry, University of Missouri at Kansas City
Christine Petersen, DVM, Ph.D., to Professor, School of Public Health, University of Iowa

DATE: March 24, 2022

NAME: Jason R. Richardson MS, PhD DABT Fellow ATS

PRESENT TITLE: Professor of Environmental Health Sciences
Associate Dean for Research

OFFICE ADDRESS: Florida International University
Robert Stempel College of Public Health and Social Work
1200 S.W. 8th St. AHC5-515
Miami, FL 33199

TELPHONE NUMBER 305-348-6742

E-MAIL ADDRESS: jarichar@fiu.edu

CITIZENSHIP: United States of America

EDUCATION:

A. Northeast Louisiana University
Monroe, LA
Bachelor of General Studies: Emphasis in Applied Science, Major in Toxicology May 1997

B. Mississippi State University
Mississippi State, MS
Master of Science: Veterinary Medical Science/Toxicology December 1999
Thesis title: Analysis of the In Vitro Inhibition of AChE by Mixtures of Chlorpyrifos-oxon and Azinphos-methyl-oxon: Are the Effects Purely Additive?

C. Mississippi State University
Mississippi State, MS.
Doctor of Philosophy: Environmental Toxicology December 2002
Dissertation Title: Effects of Repeated Developmental Exposures to Chlorpyrifos on the Ontogeny of Neurochemical Components of the Cholinergic System.

POSTGRADUATE TRAINING:

A. Emory University Rollins School of Public Health and School of Medicine
Atlanta, Georgia
Postdoctoral Fellow: Molecular Neuroscience and Neurotoxicology 2002-2005
Research Focus: Mechanisms of Neurotoxicity in Neurodegenerative Diseases

Professional Licensure: Diplomate, American Board of Toxicology, 2014-2018
Recertified, 2018-2024

Professional Designation: Fellow, Academy of Toxicological Sciences

HONORS AND AWARDS

1st Place Phi Zeta Research Society Platform Presentation, MSU, 1999, 2000, 2001.
Burroughs-Wellcome Travel Award, 2000
Office of Research Outstanding Graduate Student Award for College of Veterinary Medicine, MSU, 2000-2001.
NIH Institutional Training Grant Postdoctoral Fellow; "Training in Translational Research in Neurology", T32-NS007480, 2003.
1st Place International Neurotoxicology Conference Postdoctoral Paper Presentation, 2004
NIH Individual National Research Service Award, F32-ES013457, 2004
1st Place Postdoctoral Research Award, Southeastern SOT Meeting 2004
3rd Place Postdoctoral Research Award, Neurotoxicology Specialty Section, SOT Meeting, 2005
American Society for Pharmacology and Experimental Therapeutics Young Scientist Award, 2005
1st Place Research Award, USEPA Science Forum, 2006
NIH Pediatric Research Loan Repayment Program Recipient, 2006-2008, renewed for 2008-2009
Department of Environmental and Occupational Medicine Nominee for Pew Research Scholar Award, 2007
Outstanding New Environmental Scientist (ONES) Award, NIEHS, 2007-2012
NIEHS Outstanding Paper of the Year (Caudle et al., 2007), NIEHS, 2008
Top Reviewer for Neurotoxicology, 2009
Chair, 26th International Neurotoxicology Conference, 2010
Discussion Leader Gordon Conference Cellular and Molecular Mechanisms of Toxicity, 2013
Chair, Society of Toxicology Annual Meeting Workshop on Environmental Exposures and Alzheimer's Disease: Epidemiology, Mechanisms and Future Strategies, 2015
Co-Chair, Society of Toxicology Annual Meeting Symposium on Patient-Specific Stem Cells as Models for Gene, Drug and Environment Interactions in Disease, 2016
Member, National Institute of Environmental Health Sciences Review Committee, 2014-2018
Member, National Academy of Science Committee on Emerging Science for Environmental Health Decisions 2014-2016
Diplomate, American Board of Toxicology, 2014; Recertified 2019
American Society for Pharmacology and Experimental Therapeutics Toxicology Division Young Investigator Award, 2015
Chair, Environmental Health Sciences Review Committee, NIH/NIEHS, 2016-2018.
Society of Toxicology Achievement Award, 2017.
Fellow, Academy of Toxicological Sciences, 2017.
Keynote Speaker, Allegheny-Erie Society of Toxicology Annual Meeting, 2017
Invited Speaker, Parkinson's Disease Gordon Conference, 2017
Invited Speaker, Molecular Mechanisms of Toxicity Gordon Research Seminar, 2017
Standing Member, NIH/CSR SIEE 2017-2021
Member, Michael J Fox Foundation for Parkinson's Disease Research Inflammation Consortium 2019-present

Society Memberships and Leadership Positions

American Association for the Advancement of Science, Member, 2002-present
Society for Neuroscience (elected), Member, 2003-present
American Society for Pharmacology and Experimental Therapeutics (elected), Member, 2005
Society of Toxicology (elected), Member, 1999-present; full membership 2006
Developmental Neurotoxicity Society (i.e., Neurobehavioral Teratology Society) (elected), Member, 2007
Elected Member 2009-2015; Publications Committee; Neurobehavioral Teratology Society Member; 2011-2014; Chair; 2013-2014; Finance Committee; Neurobehavioral Teratology Society
Society of Toxicology, Neurotoxicology Specialty Section, Secretary/Treasurer; 2012-2014, Vice-President Elect, 2019; Vice-President, 2020; President, 2021; Stem Cells Specialty Section, Councilor 2017-2019; Member, Committee on Diversity Initiatives, 2018-2020.
Northeast Ohio Society for Neuroscience, Councilor 2016-2017
Member, Board of Directors, Academy of Toxicological Sciences, 2020-2022

Academic and Professional Positions Held:

2005-2012	Assistant Professor	Dept. Env. Occ. Med. UMDNJ-RWJMS
2012-2015	Associate Professor	Dept. Env. Occ. Med. Rutgers-RWJMS
2005-2015	Resident Member	Environ. Occ. Health Sci. Institute (EOHSI)
2010-2015	Adjunct Assoc. Professor	Rutgers School of Public Health
2012-2015	Associate Professor	Ernest Mario School of Pharmacy Rutgers
2011-2014	Deputy Director	Joint Graduate Program in Toxicology
2014-2015	Director	Joint Graduate Program in Toxicology
2011-2015	Co-Director	NIEHS Center of Excellence Mechanism Core
2014-2015	Director	NIEHS Center of Excellence Pilot Project Core
2015-2018	Professor	Dept. Pharm Sci. NEOMED
2015-2018	Founding Director	Center for Neurodegenerative Disease and Aging
2016-2018	Acting Assoc. Dean for Research	College of Pharmacy, NEOMED
2017-2018	Acting Chair, Dept. Pharm Sci.	College of Pharmacy, NEOMED
2018-present	Professor	Dept. Environmental Health Sciences, FIU
2018-present	Assoc. Dean for Research	Robert Stempel School of Public Health, FIU

Leadership Achievements

At UMDNJ/Rutgers University

- Successfully led curriculum review and revision for the Joint Graduate Program in Toxicology, one of the country's oldest and most successful toxicology training programs. This included partnering with the School of Pharmacy to develop a new PharmD/PhD program.
- Expanded an existing public-private partnership with Bristol Myers Squibb and developed a new one between Novartis Pharmaceuticals and the Joint Graduate Program in Toxicology for support and training of graduate students in pharmacology and toxicology. This included establishing industry laboratories as rotations for students and generation of industry financial support for fellowships and travel.
- Successfully led a minority recruitment strategy resulting in a 50% increase in minority PhD students in the Joint Graduate Program in Toxicology.
- Played a significant role in the strategic planning and successful selection of both the Neuroscience and Environmental and Occupational Health Programs as 2 of 5 Signature Programs of Rutgers Biomedical and Health Sciences. (Note: this was part of the merger between UMDNJ and Rutgers)
- Revised and implemented new procedures and focus for inviting, reviewing and selecting recipients of $225,000 in pilot awards per year as Director of the Pilot Project Core of the NIEHS-funded Center for Environmental Exposures and Disease.
- Played a significant role in the vision and writing of successful renewals of an NIH-funded T32 training grant in toxicology and P30 Environmental Health Sciences Center Grant
- Played a significant role on the committee to establish a Faculty Council at Robert Wood Johnson Medical School.
- As a member of the Biomedical Advisory Committee, participated in oversight of biomedical research cores and animal facilities.
- Participation in re-accreditation activities for Robert Wood Johnson Medical School

As Founding Director of the Neurodegenerative Disease and Aging Research Focus Area at NEOMED.

- Conceived of, initiated and gained Board of Trustees approval for the first new University-wide Research Focus Area in over 8 years.
- Developed a strategic plan for growing the Focus Area and achieving financial independence in 5 years.
- Conceived of and hosted a community-partnered symposium focused on Parkinson's Disease Research and Treatment. Over 200 participants and 30 selected posters were part of a full day event bringing cutting edge science and community interaction to the participants.
- Raised over $1,000,000 in philanthropic donations to support advancement of Parkinson's and Alzheimer's disease research.

As Acting Associate Dean for Research at NEOMED's College of Pharmacy

- Responsible for oversight of College Research Staff, Space and Facilities. Initiated a "total shared environment" of space and equipment to leverage limited space and resources and improve collaborative research.
- Secured Institutional priority for buildout of 16,000 sq.ft. for expansion of Department of Pharmaceutical Sciences and Research Focus Area.
- Led the successful recruitment of an Assistant Professor and an Associate Professor of Pharmaceutical Sciences.
- Significantly increased funding through philanthropic, extramural and intramural means for Faculty recruitment and equipment purchases.
- Initiated a pilot project program between Kent State and NEOMED to facilitate collaborative research in neurodegenerative disease.
- Developed a shared summer fellowship program between the Gerontology Student Interest group to provide a paid research fellowship for a PharmD or MD student interested in age-related neurodegeneration.
- Established Faculty Research Mentoring program for Department of Pharmaceutical Sciences (two junior faculty received new R01s and one early/mid-career faculty received their first R01)
- Development, implementation, oversight and assessment of plan to increase extramural funding and ranking of College of Pharmacy (Research funding increased from ~ $869,000 per year to ~$4 million per year FY 2015-2018; National ranking for FY2018 was #41 in NIH funding among 141 accredited Pharmacy Schools).

As Acting Chair, Department of Pharmaceutical Sciences NEOMED's College of Pharmacy

- Led curriculum revision for Biomedical and Pharmaceutical Sciences components of the Pharm.D. curriculum in the College of Pharmacy
- Led strategic planning for the Department of Pharmaceutical Sciences
- Developed Faculty workload analysis procedures to harmonize faculty workload assignments
- Instituted a pilot project program to increase success rates of R01 submissions
- Instituted budgeting and projection processes to bring the Department from a net budget deficit to a net budget surplus
- Part of the leadership team for successful re-accreditation of the College of Pharmacy
- Recruited 2 successful female faculty members, both of which received independent R01 funding and tenure

As Associate Dean for Research, Robert Stempel School of Public Health and Social Work

- Completed reorganization of Stempel Research Office (Associate Director and 3 Grant Administrators)
- Created and Assembled College Research Committee
- Revised Policies and Procedures for Grant Submissions
- Initiated Planning and Submission of a Joint NIH T32 Training grant with the Department of Psychology
- Initiated and completed revision of College policies and procedures related to course buyout, effort changes and distribution of effort.
- Developed data-driven analysis to provide projections for the Dean and upper University Leadership to identify areas of excellence, opportunities, challenges and plans for improvement.
- In collaboration with the VPR, designed University-wide F&A split program for investigators and Colleges (currently pending final approval by VPR)
- Led Research Strategic Planning for the new College Strategic Plan
- Part of the leadership team for successful re-accreditation of the College of Public Health
- College most recently ranked 24th overall and 17th among Public Universities in most NIH funded public health programs by Blue Ridge Institute for Medical Research
- College is #1 in FIU in funding per faculty member and overall research funding has more than doubled. Current fiscal year extramural funding is $26.4 million.
- Success rates for applications have averaged between 44-55% for the College.
- F&A balance at the College increased from ~$25K to ~$1 million

SERVICE ON NATIONAL GRANT REVIEW PANELS, STUDY SECTIONS, COMMITTEES:

A. International

United Kingdom Parkinson's Disease Society Grant Review Panel, 2007, 2008, 2009

National Science Center Poland Grant Review, 2012
The Netherlands Organisation for Scientific Research Grant Review, 2012
UK Medical Research Council Neurosciences and Mental Health Board, Grant Review 2012
Parkinson's UK Grant Review, 2013, 2016
Health Canada Grant Review, 2013
Israel Science Foundation Grant Review, 2014
Wellcome Trust/DBT India Alliance, 2016
Ireland Health Research Board, 2017

B. National

NIH/NIEHS workshop "Children's Environmental Health Research: Past, Present, and Future, 2007
Autism Speaks Grant Review Panel, 2008
NIH/NIEHS ZES1 JAB-J Pathways to Independence/Career Development Grant Review, 2009
NIH/NIEHS ZRG1 IFCN-A Challenge Grants Panel 13, 2009
NIH/NIMH ZMH1-ERB-B ARRA Autism Grant Review, 2009
NIH Expert Panel Workshop on Toxic Industrial Chemicals, July 22-23, 2009
Michael J Fox Foundation for Parkinson's Disease Research Rapid Response Awards, 2010
NIH/NIEHS P30 Center Grant Review, 2010
NIH/NIEHS Brainstorming Panel on Autism and the Environment, September 8, 2010
NIH Neurotoxicology and Alcohol Review Committee, 2011
NIEHS ZES1 LKB-J(K9) Research Careers in Environmental Health Grant Review, 2011
NIH/NIEHS ZES1 LWJ-J (DI) Dietary Influence on Human Health Grant Review, 2011
Michael J Fox Foundation for Parkinson's Disease, 2011
NIEHS ZES1 LKB-J(K9) Research Careers in Environmental Health, 2011
Michael J Fox Foundation for Parkinson's Disease, 2012
NIH Pediatric Loan Repayment Review, 2012
Commonwealth of Virginia Alzheimer's and Related Disease Research Fund, 2012
NIEHS/EPA ZES1 LKB-K(P0) Children's Health and the Environment, 2012
Columbia University NIH/NIEHS Center Pilot Project, 2013
NIH ZRG1 IFCN-C (02) M Member Conflict SEP: Alcohol and Drugs, 2014
Chair, NIH ZES1-SET K(R) Sensor Prototype Validation Review, 2014
VA SPLD, Research on Gulf War Veteran's Illness, 2014
NIH/NIEHS ZES1 JAB-D(1R) Outstanding New Environmental Scientist Review, 2014
NIH/NIEHS Environmental Health Science Review Committee-P30 Center Grants, 2014
Michael J Fox Foundation Target Validation Grant Review, 2014
NIH ZRG1 IFCN-C (02) Member Conflict SEP: Alcohol, Drugs, and Heavy Metals, 2014
University of Nebraska Biomedical Seed Grants, 2014
National Toxicology Program, Technical Reviewer, 2014
NIH/NIEHS Environmental Health Science Review Committee- T32/K Grant Review, 2014
NIH ZRG1 IFCN-C(02) Member Conflict SEP: Neurotoxicology and Drugs, 2015
Michael J Fox Foundation Target Validation Grant Review, 2015
Chair; NIH ZRG1 IFCN-C(02) Member Conflict SEP: Alcohol and Heavy Metals, 2015
NIH CSR Systemic Injury from Environmental Exposures (SIEE) ad hoc member, 2015
NIH/NIEHS Outstanding New Environmental Health Scientist Review, 2015
NIH ZRG1 IFCN-C(02) Member Conflict SEP: Alcohol, Neurotoxicicity and Drugs, 2015
NIH/NIEHS ZES1 LKB-D(K9) Training for Career Independence in EHS, 2015
Veterans Administration Merit Review, 2016
NIH/NIEHS Outstanding New Environmental Health Scientist Review, 2016
NIH CSR Systemic Injury from Environmental Exposures (SIEE) ad hoc member, 2016
NIH ZRG1 IFCN-C(02) Member Conflict SEP: Alcohol, Neurotoxicology and Drugs, 2016
Michael J Fox Foundation, Target Validation Review, 2016
Department of Defense, Gulf War Illness Review, 2016
Chair, NIH/NIEHS Career Development Grant Review, 2017
UC Davis Alzheimer Disease Center Pilot Project Grant Review, 2017
Veterans Administration (Neurobiology D) Merit Review, 2017
NIH ZRG1 IFCN-C(02) Member Conflict SEP: Drugs, Alcohol and Heavy Metals, 2017
NIH/NIEHS Outsanding New Environmental Health Scientist Review, 2017
NIH/NIEHS ZES1 LAT-S (K8) Career Development Grant Review, 2017
UC Davis Alzheimer Disease Center Pilot Project Grant Review, 2018

NIH/NIEHS Outstanding New Environmental Health Scientist Review, 2018
Department of Defense, Broad Agency Announcement Review, 2018
NIH/NIEHS K99 Review, 2018
NIH/NIEHS ViCTR Review, 2019
Chair, NIEHS Outstanding New Environmental Health Scientist (ONES) Review, 2019
DOD Gene-Environment Interactions in Parkinson's Disease Review, 2019
NIH/NIEHS R35 RIVER Review, 2019
DOD Gulf War Review, 2020
Michael J Fox Foundation, Environmental Risk Factors, 2020
Michael J Fox Foundation, Target Advancement Program, 2020

University Committees:

A. RWJMS/RBHS/Rutgers University

Member; 2010-2013; Basic Science Liaison Committee; Rutgers-RWJMS (Appointed by the Dean)
Member; 2010-present; Biomedical Advisory Committee; Rutgers-RWJMS (Appointed by the Senior Associate Dean for Research)
Member; 2009-2011; Faculty Council Development & Implementation Committee; UMDN-RWJMS (Elected)
Member; 2010-2011; Faculty Search Committee; Rutgers University, Department of Pharmacology and Toxicology
Member; 2012-2013; Basic Sciences Strategic Planning Committee; Rutgers-RWJMS (Appointed by the Senior Associate Dean for Research)
Member; 2014; RBHS Strategic Planning Signature Programs Committee on Neuroscience

Northeast Ohio Medical University

Member, University Faculty Compensation Appeals Committee, 2015-2018
Member, University Junior Faculty Recognition Award Committee, 2015-2018
Member, Pharmacy Executive Committee, 2016-2018
Member, International Leadership Committee, 2016-2018
Member, University Nominating and Membership Committee, 2017-2018

Florida International University

Member, Dean's Leadership Committee, 2018-present
Member, Stempel College Promotion and Tenure Committee, 2018-2020
Member, Biomolecular Sciences Institute Advisory Committee, 2019-present
Member, FIU Strategic Planning, Research Implementation Committee, 2020-present
Member, Stempel College Strategic Planning Committee, 2020-present

B. Department/Center/Institute

Rutgers-Robert Wood Johnson Medical School, EOHSI, Seminar Committee Member, 2005-2015
Center for Environmental Exposures and Disease Internal Advisory Committee 2012-2015
EOHSI, Director's Advisory Committee 2012-2015

C. External Advisory Committees

Chair, University of Kentucky Center for Environmental Disease External Advisory Committee

D. Review of Promotion and Tenure Packages, Endowed Chairs and Programs

Virginia Commonwealth University, School of Medicine, 2012
Simon Fraser University, British Columbia, 2013
Indiana University, School of Medicine, 2014
Colorado State University, College of Veterinary Medicine, 2015
Purdue University, School of Health Sciences, 2015
University of California Irvine, School of Medicine, 2016
Buck Institute on Aging, 2016
University of Colorado, 2016
SUNY Polytechnic Institute, 2017
MRC Toxicology Unit, 2017
University of Toledo, 2017
Mississippi State University, 2018

Rutgers University, 2018
University of Iowa, 2018
VA Indianapolis, 2019
IUPUI, 2019
UNTHSC, 2019
UC Denver, 2019
University of Iowa, 2021
Case Western Reserve University, 2021
Purdue University, 2021
Rutgers University, 2022

Editor of Special Journal Issues

Neurotoxicology, Editor Special Issue, 2011
Frontiers in Neuroscience, Editor Special Issue, 2017
Frontiers in Neuroscience, Editor Special Issue, 2018
Frontiers in Genetics, Editor Special Issue, 2019
Chemical Research in Toxicology, Editor Special Issue, 2021
Oxidative Medicine and Cellular Longevity, Editor Special Issue, 2021

Editorial Boards

Neurotoxicology, Associate Editor, 2015-present; Editorial Board, 2009-2015
Frontiers in Neurodegeneration, Associate Editor, 2017-present
Current Environmental Health Reports, Section Editor, 2017-present
Life Sciences, Editorial Board Member, 2017-2020
Toxicology and Applied Pharmacology, Editorial Board Member, 2018-present
Toxicological Sciences, Associate Editor, 2021-present; Editorial Board Member, 2010-present
Neurotoxicology and Teratology, Editorial Board Member, 2011-present
Toxics, Editorial Board Member, 2013-present
Toxicology Letters, Editorial Board Member, 2007-2010
BMC Neurology, Associate Editor, 2009-2014
Current Molecular Pharmacology, Editorial Board Member, 2010-2017

Ad Hoc Reviewer for Journals (selected from over 50)

Journal of the American Medical Association, 2008-present
Proceedings of the National Academy of Sciences USA, 2011-present
Annals of Neurology, 2014-present
JAMA Psychiatry, 2014-present
FASEB Journal, 2007-present
Nature Parkinson's Disease, 2017-present
Journal of Neurochemistry, 2006-present
Journal of Neuroinflammation, 2015-present
Journal of Pharmacology and Experimental Therapeutics, 2004-present
Neurobiology of Disease, 2007-present
Neurobiology of Aging, 2009-present
Neuroscience, 2007-present
Neurotoxicology, 2003-present
Neurotoxicology and Teratology, 2007-present
Toxicology Letters, 2003-present
Toxicology, 2005-present
Toxicological Sciences, 2003-present
Toxicology and Applied Pharmacology, 2003-present
Chemical Research in Toxicology, 2011-present
Journal of Toxicology and Environmental Health A, 2005-present
Food and Chemical Toxicology, 2011-present
Environmental Health Perspectives, 2007-present

SERVICE ON GRADUATE SCHOOL COMMITTEES:

Rutgers Joint Graduate Program in Toxicology, Admissions Committee Member, 2005-2015
Rutgers Joint Graduate Program in Toxicology, Curriculum Committee Member, 2007-2015

Rutgers Joint Graduate Program in Toxicology, Curriculum Committee Chair, 2009-2014
Rutgers Joint Graduate Program in Toxicology, Examination Committee Member, 2010-2015
RWJMS Graduate School of Biomedical Sciences Executive Council, Member; 2013-2015

GRADUATE STUDENT PhD THESIS COMMITTEES

Caren Villano, Joint Graduate Program in Toxicology	(dissertation defended 2007)
Alpa Guatam, Graduate Program in Neuroscience	(dissertation defended 2010)
Jessica Graham, Joint Graduate Program in Toxicology	(dissertation defended 2011)
Josephine Bonventre Joint Graduate Program in Toxicology	(dissertation defended 2012)
Lindsey Czarnecki, Graduate Program in Psychology	(MS thesis defended 2012)
Tiffany Kung, Joint Graduate Program in Toxicology	(dissertation defended 2014)
Michal Hausfater; Joint Graduate Program in Toxicology	(dissertation defended 2014)
Jennifer Barrett; Joint Graduate Program in Toxicology	(dissertation defended 2015)
Blair Weig; Joint Graduate Program in Toxicology	(dissertation defended 2016)
Crystal Lewis; Rutgers RBHS Molecular Biosciences	(dissertation defended 2016)
Stephanie Marco, Joint Graduate Program in Toxicology	(dissertation defended 2018)

SERVICE TO THE SCIENTIFIC AND LAY COMMUNITY:

Judge; 2006; 2009; 2011; 2012; 2013; 2014; 2015; 2016 Society of Toxicology Neurotoxicology Specialty Section Postdoctoral Fellow and Predoctoral Poster competition

Chair; Student/Postdoctoral Poster Competition 2007; 2008; International Neurotoxicology Conference

Member; Organizing Committee; 2007; 2008; 2009 International Neurotoxicology Conference

Participant and Lecturer for the Environmental Health Sciences Summer Institute for Educators, 2006

Participant; Community outreach research panel on Parkinson's disease to the New Jersey Chapter of the American Parkinson's Disease Association, 2009

Lecturer; Woodbridge High School Science Students. "Writing Scientific Publications", 2009

Lecturer; Toxicology, Health, and Environmental Disease High School Program, 2013, 2014

Lecturer; Jackson Preparatory School. "Preparation for a Career in Science", 2015

Presenter; Summit County Parkinson's support group, 2016

Presenter; Youngstown Parkinson's support group, 2016

Participant; Community outreach research panel on Alzheimer's disease in collaboration with the Alzheimer's Association, 2019

Participant, Panel discussion on health disparities in Alzheimer's disease in collaboration with Us Against Alzheimer's, 2019

TEACHING:

A. Lectures and Course Directorships

Emory University, **Lecturer**; EOH 520 Occupational and Environmental Toxicology, *Pesticide Toxicology*, 3 hours (2002-2005)

Emory University, **Lecturer**; IBS 536 Drug Metabolism and Toxicology, *Developmental Toxicology*, 3 hours (2002-2005)

Emory University, **Lecturer**; EOH 523 Neurotoxicology, *Neurotoxicity of Drugs of Abuse*, 3 hours (2004)

Emory University, **Lecturer**; IBS 740 Molecular Toxicology, *Molecular Neurotoxicity*, 3 hours (2005)
UMDNJ-Robert Wood Johnson Medical School, **Small Group Preceptor**; Environmental and Community Medicine I, 12 hours. (2006-2009)

UMDNJ-Robert Wood Johnson Medical School, **Small Group Preceptor**; Environmental and Community Medicine II, 12 hours. (2006-2010)

UMDNJ-Robert Wood Johnson Medical School, **Lecturer**; Department of Environmental and Occupational Medicine Elective Course; *Developmental Disabilities*, 1 hour (2007)
Rutgers University, **Course Director**, Lecturer; General Toxicology I; Joint Graduate Program in Toxicology, 12 hours. (2006-2012)

Rutgers University, **Lecturer; Course Director**; Biochemical Toxicology, Joint Graduate Program in Toxicology, *Reactive Oxygen* Species, 3 hours (2007-2015 as lecturer and 2014-2015 as co-Course Director)
Rutgers University**, Lecturer; Course Directo**r; Neural Injury and Repair, Joint Graduate Program in Toxicology, *Pesticide Toxicology*, 3 hours. (2006-2015 and 2011-2015 as Course Director)

Rutgers University, **Lecturer and Course Director**, General Toxicology II, Joint Graduate Program in Toxicology, 12 hours. (2006-2015 as lecturer and 2006-2013 as Course Director)

Rutgers University, **Co-Course Director**; Toxicology Seminar: Joint Graduate Program in Toxicology, 12 hours. (2010-2015)

Rutgers School of Public Health, **Lecturer**; Environmental and Occupational Toxicology, *Developmental and Reproductive Toxicology*, 3 hours. (2007-2009)

Rutgers-Robert Wood Johnson Medical School Graduate School of Biomedical Sciences, **Section Director**, Bio 611 Student Seminar, 12 hours. (2011)

NEOMED, **Course Director and Lecturer**, Principles of Drug Body Interaction, P2 Pharmacy Course, 26 hours. 2015-2017.

Research Training
SPONSORSHIP OF CANDIDATES FOR POSTGRADUATE DEGREE (MPH, MS; PhD):

Michele M. Taylor, BS, PhD	2007-2012* PhD awarded (US EPA)
Jason Magby, BS, PhD	2007-2013* PhD awarded (Colgate Palmolive)
Ashley Green, BS, PhD	2009-2014* PhD awarded (L'Oreal)
Chris Gibson, DVM, PhD	2009-2014* PhD awarded (CEO, Total Pathology)
Angela Baker, BS, MPH	2009-2016* PhD awarded (NASA)
Angela Tiethof, BS, MS	2012-2016* MS awarded (RFMI)
Alexa Boyle, BS, MS	2017-2018* MS awarded (Covance)
Dahea You, PharmD	2014-2018* PhD awarded (NIH/NTP)
Shelbie Burchfield, BS	2015-2019* MS awarded (FIU Biostats MPH)
Kevin Budge, BS	2017-2020* PhD awarded (Eli Lilly)
Isha Mhatre, BS	2016-2021* PhD awarded (FIU postdoc)
Ferass Sammoura, BS	2018-present PhD student (FIU)
Nicole Bloom, BS	2020-present PhD student (FIU)
Arturo Barona, MPH	2020-present PhD student (FIU)

SPONSORSHIP OF POSTDOCTORAL FELLOWS:

Muhammad M Hossain, PhD	2008-2012 (Assistant Professor, FIU)
Carrie Yochum, PhD	2009-2011 (Manager Medical Writing, Pfizer)
Marie Fortin, PhD	2009-2011 (Assoc. Director, Jazz Pharmaceuticals)
Richard von Stein, PhD	2011-2012 (Director, L'Oreal)
Chris Gibson, DVM	2009-2013 (CEO, Total Pathology Solutions)
Eric Beier, PhD	2014-2016 (Scientist, FDA)
Gelerah Alam, PhD	2015-2018 (Assoc. Director, SIMPSON Healthcare)
Melissa Edler, PhD	2016-2019 (Res. Asst. Professor, Kent State)
Matthew Neal, PhD	2016-2019 (Scientist, Battelle)
Aseel Eid, PhD	2016-2020 (Scientist, MSD Systems)
Christina Nadolny, PhD	2018-2020 (Scientist, Molecular Devices)

Undergraduate and Professional Students (Selected from over 30)

Shereef Mabrouk (3rd year pharmacy student Rutgers University)	2006 (CVS Caremark)
Hesham Mabrouk (3rd year Pharmacy Student, Rutgers University)	2006-2007
Alex Rugino (Biochemistry undergraduate Penn State University)	2006-2008 (D.O., PA)
Nabila Houge (Neuroscience undergraduate Rutgers University)	2008-2009 (Ophthotech)
Ashley Press (ASPET Summer Research Fellowship)	2011 (Pharmacy P3 UNC)
Katterin Colon (RISE Summer Research Fellowship)	2012 (The Chemours Co.)
Nicolle Rochino (Pharmacy student Rutgers University)	2012-2013 (ASiM)

Jason Liu (ASPET Summer Research Fellowship)	2013 (Eela Pharma Sci.)
Christina Varghese (Neuroscience undergraduate student Rutgers)	2013-2014 (EOHSI)
Kyle Buckley (ASPET Summer Research Fellowship)	2014 (Purdue)
Jennifer Barringer (Pharmacy student NEOMED)	2016 (P4 NEOMED)
Jay Patel (Medical student NEOMED)	2016 (M2 NEOMED)
Maryam Audu (Medical student NEOMED)	2016-2018 (Physician)
Payton Hagerdorn (Kent State undergraduate)	2016-2017 (Ohio State)
Kajal Madan (University of Akron undergraduate)	2017-18 (NEOMED M1)

Graduate Student Laboratory Rotations

Josephine Bonventre (JGPT)	2006
Jason Magby (JGPT)	2006
Timeka Whitehead (GSBS)	2007
Angela Baker (JGPT)	2008
Ashley Green (JGPT)	2009
Jennifer Perfater (JGPT)	2011
Stephanie Marco (JGPT	2013
Isha Mhatre (Kent State)	2016
Alexa Boyle (Kent State)	2017

Visiting Minority Researchers

Veronica Mackey (Meharry Medical College)	2007
Monique McCallister (Meharry Medical College)	2007
Ella Kasanga (UNTHSC; funded by APDA)	2021

GRANT SUPPORT:

A. Current as Principal Investigator

Richardson, PI 07/01/16-06/30/23
NIH/NIEHS
1R01ES026057-01A1
Mechanism of Gene-Environment Interaction in Alzheimer Disease
The goals of this project include: (1) identifying the mechanism by which DDT exposure increases APP levels; (2) determining the effect of APOE genetic status on the effects of DDT on Aβ accumulation and oligomerization; and (3) assessing the effects of DDT exposure on AD pathology and behavioral dysfunction in transgenic mouse models humanized for APOE polymorphisms. We will achieve these goals using a combination of cutting-edge techniques including patient-specific stem cells and transgenic mice harboring human polymorphisms.
Total Direct Costs: $1,920,854

Richardson, PI; Laskin, PI 09/01/18-08/31/23
NIH/NINDS
1U01NS108956
Advanced Development of Drugs to Mitigate Parathion Intoxication
The goal of this project under the CounterACT program is to perform advanced drug development activities to develop new agents to counteract a high priority chemical threat agent.
Total Direct Costs: $2,500,000

Richardson, PI (contact); Wu, PI 03/01/21-12/31/26
NIH/NIEHS

1R01-ES033892
Microglial Hv1 Proton Channel as a Mediator of Environmentally-Induced Neuroinflammation and Neurodegeneration
This is a dual PI grant with Dr. Long Jun Wu at the Mayo Clinic. The overall objective of this proposal is to define the role of the microglial Hv1 proton channel as a contributor to paraquat-induced neuroinflammation and dopaminergic neurodegeneration.

Richardson, PI 07/01/2020-06/30/25
R13AG069380
Health Disparities in Alzheimers and Related Diseases
This proposed 4-series Conference is highly relevant to public health issues related to Alzheimer's disease and related dementias (ADRD). The series will serve as a forum to bring together an interdisciplinary group of clinicians, scientists and the community to develop a population disease framework related to unique factors related to the susceptibility of minority populations to ADRD. Focus will include genetic, environmental, lifestyle and sociodemographic factors will the goal of understanding how genetic factors interact with these other factors to enhance risk of ADRD within and between minorities.

B. Current as Co-Investigator

Hossain, PI; *Richardson, co-I* 08/1/17-06/30/22
NIH/NIEHS
1R01ES027481-01A1
Pesticide Exposure and Adult Neurogenesis: Role of ER Stress.
This grant will investigate the effects of pesticide exposure on adult hippocampal neurogenesis.

Hossain, PI; *Richardsdon, co-I* 08/01/21-07/31/22
NIH/NIEHS
3R01ES027481-04S1
Gene-Pyrethroid Interaction in Alzheimer's Disease
This supplemental grant will explore interactions between pyrethroid pesticide exposure, APOE genotype and the ER stress response.

Chen, PI; *Richardson, consultant* 10/1/18-09/30/23
NIH/NIEHS
1R01ES029227-01A1
Pesticides, Olfaction and Neurodegeneration Among US Farmers
The goal of this epidemiology project is to determine connections between pesticide exposure, olfactory deficits and prodromal neurodegeneration.

Salvatore, PI; *Richardson, co-I* 04/01/19-03/31/22
Department of Defense
W81XWH1910757
Increasing nigral tyrosine hydroxylase expression as a mechanism of exercise-mediated recovery
The major goal of this project is to determine regulatory mechanisms of exercise-induced alterations in tyrosine hydroxylase expression in animal models of Parkinson's disease in rats.

Chambers, PI; Richardson, co-I 09/01/21-08/31/23
NIH/NIEHS
R21ES032597-01A1
Acetylcholinesterase Complex Protein-Protein Interactions as Drug Targets Against Organophosphate-induced Neurotoxicity
This grant seeks to assess whether targeting proteins in the synaptic AChE complex can increase AChE turnover and restore optimal AChE activity following organophosphate exposure.

C. Pending

Richardson, MPI; German, MPI (contact) 12/01/22-11/30/26
NIH/NIA
R01AG076631-01A1
Environmental Links to Alzheimer's Disease Among Mexican Americans

Richardson, MPI; Jones, MPI; Cohn, MPI (contact) 12/01/22-11/30/27
NIH/NINDS/NIA
Developmental Basis of Cognitive Dysfunction and Prodromal AD: Role of the Exposome

Richardson, PI (contact); Allen, MPI; Lucchini, MPI 07/01/23-06/30/28
NIH/NIEHS
T32ES033955
Training in Environmental Neuroscience

D. Previous as Principal Investigator:

Richardson, PI (contact); Aleksunes, PI 09/01/14-06/30/20
NIH/NIEHS
1R01-ES021800-A1
Gene-Environment Interactions in Neurodegeneration: Role of Efflux Transporters
This is a dual PI Grant with Dr. Lauren Aleksunes. The overall objective of this proposal is to identify MDR1 as a primary efflux transporter responsible for removing pesticides from the brain and protecting against neurodegeneration.
Total Direct Costs: $1,250,000

Richardson; PI; Laskin, PI (contact) 09/06/13-8/31/19
NIH/NINDS
1U01-NS079249-A1
Developing Drugs to Mitigate Parathion Intoxication
This is a dual PI grant with Dr. Jeff Laskin at Rutgers-RWJMS. The overall objective of this proposal is to develop a novel class of therapeutics that will mitigate mortality and morbidity caused by acute exposure to parathion, an insecticide that is considered a high priority chemical threat.
Total Direct Costs: $2,500,000

Richardson, PI
Michael J Fox Foundation for Parkinson's Disease Research 02/15/17-08/01/19
No Number
Farnesoid X Receptor as a Target to Reduce Neuroinflammation
The goal of this project is to validate the nuclear receptor FXR as a target to reduce neuroinflammation and subsequent dopaminergic neurodegeneration in pre-clinical models of PD.
Total Direct Costs: $90,910

Richardson, PI
1R01ES021800-03S1 05/31/16-05/30/18
This is a diversity supplement for a graduate student to perform research on the role of MDR1 in the disposition of environmental contaminants
Total Direct Costs: $92,086

Richardson; PI
Michael J Fox Foundation for Parkinson's Disease Research 1/22/13-08/31/16
No Number
Targeting the Voltage-Gated Proton Channel Hv1 for Neuroprotection
The goal of this project is to validate the voltage-gated proton channel Hv1 as a target for neuroprotection in acute and chronic pre-clinical models of PD.
Total Direct Costs: $200,000

Richardson, PI 9/01/12-06/30/15
NIH/NIEHS

T32ES007148
Training in Environmental Toxicology
The central goal of the program is to provide rigorous training in mechanistic toxicology and related biomedical disciplines, reinforced with focused training in a field of specialization.
Total Direct Costs: $2,198,630

Richardson; PI
NIH/NIEHS 8/01/07-6/30/14
1R01-ES015991
Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD
The goal of this project is to investigate mechanisms underlying the effects of deltamethrin on the dopamine system and characterize the behavioral effects of developmental deltamethrin exposure.
Total Direct Costs: $1,622,54

Richardson; PI
NIH/NIEHS 10/01/10-06/30/14
3R01-ES015991-04S1
Translational Studies on the Role of Developmental Pyrethroid Exposure in ADHD
This is a grant through the Virtual Consortium for Translational/Transdisciplinary Environmental Research (VICTER) Program. A virtual consortium was built between experts in neurotoxicology (Richardson), ADHD genetics (Dr. Steve Faraone), and children's health (Drs. Kim Yolton, Bruce Lanphear and Tanya Froehlich) to perform translational research on ADHD.
Total Direct Costs: $500,000

NIH/NIEHS 9/03/09-7/31/12
3R01ES015991-03S1
Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD
This is a competitive supplement to the parent grant supporting a minority graduate student.
Total Direct Costs: $48,000

NIEHS Core Center Pilot Grant 5/07/10-04/30/11
P30-ES005022
Gene-Environment Interactions in Parkinson's Disease: Role of Susceptibility to Neuroinflammation and Oxidative Stress.
This is a pilot project grant from the RUTGERS/RWJMS NIEHS Core Center to determine whether loss of GSTM1 enhances neuroinflammation and neurotoxicity in animal models of PD and to test the ability of sodium channel blockers to ameliorate these effects.
Total Direct Costs: $25,000

NIH/NIEHS 9/26/05-6/30/09
1R21-ES013828
Developmental Pyrethroid Exposure and ADHD
The goals of this project are to identify the critical period during which developmental pyrethroid exposure alters the dopamine system and determine whether these alterations produce neurochemical and behavioral alterations similar to those observed in ADHD.
Total Direct Costs: $300,000

Michael J. Fox Foundation for Parkinson's Disease Research 10/31/07-10/30/08
Gene-Environment Interactions in Parkinson's Disease
This study focuses on the identification of genetic polymorphisms in drug metabolizing enzymes that may be responsible for elevated levels of B-HCH in current Parkinson's disease patients.
Total Direct Costs: $74,687

NIH/NIEHS 8/24/06-8/24/10
Pediatric Research Loan Repayment Program

This competitive grant was awarded to repay student loans incurred by the PI during his undergraduate and graduate training. The grant was competitively renewed for the 2008-2009 and 2009-2010 period.

NIEHS Core Center Pilot Grant 4/15/06-04/14/07
P30-ES005022
Development of Peripheral Biomarkers for Dopaminergic Neurodgeneration
This is a pilot project grant from the RUTGERS/RWJMS NIEHS Core Center to develop biomarkers for dopaminergic neurodegeneration in Parkinson's disease.
Total costs: $30,000

NIH/NIEHS 8/1/04-8/31/05
1F32- ES013457
Developmental Pyrethroid Exposure and Parkinson's Disease
The goal of this project is to determine whether alterations in the dopamine system by developmental pyrethroid exposures increases the susceptibility of the dopamine system to parkinsonism in the adult animal.

E. Previous as Co-Investigator

Beck, PI; *Richardson, co-I* 01/1/2018 – 12/31/2020
Department of Veterans Affairs
Volatile organic compound effects on brain and behavior
The major goal of this project is to determine if the ingestion of volatile organic compounds over time via drinking water can cause Parkinson's disease-like behavioral and neurobiological alterations in rats.

Beck, PI; Richardson, co-I 08/1/17-7/30/20
Department of Veterans Affairs
Neuroinflammation and Abnormal Behavior Following Combined Chemical Exposures and Bacterial Infection.
The goal of this project is to establish a model of combined pesticide and bacterial exposure relevant to model exposures that occurred during the Gulf War.

Plassman, PI (Richardson, co-PI) 08/01/16-04/30/20
NIH/NIEHS
1R01ES024288-03S1
Translational Studies on the Role of Pesticides in Cognitive Aging and Alzheimer's Disease
This is a collaborative ViCTER grant with Drs. Brenda Plassman at Duke that seeks to assess the association between pesticide exposure, cognitive aging, and Alzheimer disease in the Agricultural Health Study. My component of the project is to use animal models to develop blood-based molecular biomarkers for pesticide exposure and cognitive deficits.
Total Direct Costs to JRR: **$225,000**

Laskin, PI, Richardson, Co-PI 09/30/10-8/31/13
1R21-NS072097
NIH/NINDS
Development of Drugs to Mitigate Parathion Intoxication
This is a collaborative grant with Dr. Jeff Laskin. The goal of this project is to develop a novel class of therapeutics that will mitigate mortality and morbidity caused by acute exposure to parathion.
Total Direct Costs: $500,000

White, PI, Richardson, Co-PI 5/10/10-04/30/11
NIH/NIEHS
1R56-ES018836
Modeling Developmental Neurotoxicity of Pesticides in Zebrafish
The goals of this project are to characterize the neurochemical and behavioral effects of developmental pyrethroid exposure and to screen other pyrethroids for their ability to reproduce these effects.
Total Direct Costs: $100,000

Sonsalla, PI; Richardson, Co-I 9/01/08-07/31/11
NIH/NINDS

1R21-NS058329
Angiotensin and Neurodegeneration
This study is a collaboration with Dr. Pat Sonsalla in the Department of Neurology at RUTGERS-RWJMS that will test the hypothesis that the ACE inhibitor captopril impairs or reverses microglial activation and protects dopamine neurons from MPP^+-induced toxicity. Dr. Richardson is responsible for molecular analysis of inflammation and microglial activation.
Total Direct Costs: $275,000

NIEHS Core Center Pilot Grant (White, PI; Richardson Co-PI) 5/10/07-03/31/08
P30-ES005022
Effects of Developmental Pesticide Exposure on Gene Expression and Behavior in the Zebrafish.
This is a pilot project grant from the RUTGERS/RWJMS NIEHS Core Center to develop a zebrafish model of pesticide-induced neurobehavioral dysfunction.
Total Direct Costs: $30,000

NIEHS Core Center Pilot Grant (Gray, PI; Richardson, Co-PI) 10/07-03/31/08
P30-ES005022
Mechanisms and Consequences of Inhibition of Thioredoxin Reductase by Paraquat in Dopaminergic Neurons.
This is a pilot project grant from the RUTGERS/RWJMS NIEHS Core Center to determine the role of thioredoxin reductase in the toxicity of paraquat towards dopamine neurons.
Total Direct Costs: $30,000

F. Institutional Grant Contributions

Zarbl, PI, Richardson, co-I; Pilot Project Core Director 4/01/09-03/31/19
NIH/NIEHS
P30ES005022
The NIEHS Center at EOHSI in Piscataway, NJ provides support and continuity to the mission of improving environmental and public health through research, education, outreach and communication.

Brewer, PI; Richardson, Research Mentor 9/01/10-08/31/15
NIH/NIGMS
1K12-GM093854
IRACDA New Jersey/New York for Science Partnerships in Research & Education (INSPIRE)
The INSPIRE Program at RUTGERS-RWJMS supports postdoctoral training that combines research training with educational development. As part of this program, RUTGERS-RWJMS partners with three local minority-serving institutions with large undergraduate populations.

Publications

A. Refereed Peer-Reviewed Original Journal Articles

Citations = 7303; H-Index: 45; I10 Index: 92
https://scholar.google.com/citations?user=JsepnFUAAAAJ&hl=en
 # Denotes Corresponding/Senior Author; ^Denotes student or postdoctoral fellow supervised.

1. **Richardson, J.R**., Chambers, H.W., and Chambers, J.E. (2001). Analysis of the Additivity of In Vitro Inhibition of AChE by Mixtures of Chlorpyrifos-oxon and Azinphos-Methyl-Oxon. Toxicol. Appl. Pharmacol. 172: 128-139.
2. Carr, R.L., Chambers, H.W., Guarisco, J.A., **Richardson, J.R**., Tang, J., and Chambers, J.E. (2001). Effects of Neonatal Exposure to Chlorpyrifos on Open Field Activity in Juvenile Rats. Toxicol. Sci. 59: 260-267.
3. Carr, R.L., **Richardson, J.R**., Guarisco, J.A., Kachroo, A., Couch, T.A., Meek, E.C., and Chambers, J.E. (2002). Effects of PCB Exposure on the Toxic Impact of Organophosphorus Insecticides. Toxicol. Sci. 67: 311-321.
4. Carr, R.L., Chambers, H.W., Chambers, J.E., Oppenheimer, S.F., and **Richardson, J.R**. (2003). Modeling the Interactions of Organophosphorus Insecticides with Cholinesterase. Elec. J. Diff. Equations, Conference 10: 89-99.
5. **Richardson, J.R**., and Chambers, J.E. (2003). Effects of Gestational Exposure to Chlorpyrifos on

Postnatal Central and Peripheral Cholinergic Neurochemistry. J. Toxicol. Environ. Health A. 66: 1-15.

6. Sherer, T.B., Betarbet, R., Testa, C.M., Seo, B.B., **Richardson, J.R**., Kim, J.H., Miller, G.W., Yagi, T., Matsuno-Yagi, A., and Greenamyre, J.T. (2003). Mechanism of Toxicity in Rotenone Models of Parkinson's Disease. J. Neurosci. 23: 10756-10764.
7. **Richardson, J.R**., and Chambers, J.E. (2004). Neurochemical Effects of Repeated Gestational Exposure to Chlorpyrifos in Developing Rats. Toxicol. Sci. 77:83-90.
8. **Richardson, J.R**., and Miller, G.W. (2004). Acute Exposure to Aroclor 1016 or Aroclor 1260 Differentially Affects Dopamine Transporter and Vesicular Monoamine Transporter 2 levels. Toxicol. Lett. 148: 29-40.
9. Caudle, W.M.*, **Richardson, J.R**.*, Wang, M.Z., and Miller, G.W. (2005). Perinatal Heptachlor Exposure Preferentially Disrupts Dopaminergic Neurochemistry. ***denotes equal contribution**. Neurotoxicology 26: 721-728.
10. **Richardson, J.R**., and Chambers, J.E. (2005). Effects of Repeated Oral Postnatal Exposure to Chlorpyrifos on Cholinergic Neurochemistry. Toxicol. Sci. 84: 352-359.
11. **Richardson, J.R.,** Quan, Y., Sherer, T.B., Greenamyre, J.T., and Miller, G.W. (2005). Paraquat Neurotoxicity is Distinct from that of MPTP and Rotenone. Toxicol. Sci. 88: 193-201.
12. Elwan, M.A., **Richardson, J.R**., Guillot, T.S., Caudle, W.M., and Miller, GW. (2006). Pyrethroid Pesticide-Induced Alterations of Dopamine Transporter Function. *Toxicol. Appl. Pharmacol*. 211: 188-197.
13. Caudle, W.M., **Richardson, J.R**., Delea, K.C. Wang, M.Z., Guillot, T.S., Pennell, K.D., and Miller, G.W. (2006). Polychlorinated Biphenyl (PCB)-Induced Reduction of Dopamine Transporter Expression as a Precursor to Parkinson's Disease-Associated Dopamine Toxicity. *Toxicol. Sci*. 92: 490-499.
14. **Richardson, J.R**., Caudle, W.M., Wang, M.Z., Dean, E.D., Pennell, K.D., and Miller, G.W. (2006) Developmental Exposure to the Pesticide Dieldrin Alters the Dopamine System and Increases Neurotoxicity in an Animal Model of Parkinson's Disease. F*ASEB J*. 20: 1695-1697.
15. Ramachandiran, S., Hansen, J.M., Jones, D.P., **Richardson, J.R**., and Miller, G.W. (2007). Divergent Mechanisms of Paraquat, MPP+, and Rotenone Toxicity: Oxidation of Thioredoxin and Caspase-3 Mediated Apoptosis. *Toxicol. Sci*. 95: 163-171.
16. **Richardson, J.R**., Caudle, W.M., Guillot, T.S., Watson, J.L., Seo, B.B., Sherer, T.B., Greenamyre, J.T., Yagi, T., Matsuno-Yagi, A., and Miller, G.W. (2007). Obligatory Role for Complex I inhibition in the Dopaminergic Neurotoxicity of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP). *Toxicol. Sci*. 95: 196-204.
17. Sherer, T.B.*, **Richardson, J.R**.*, Testa, C.M., Seo, B.B., Panov, A.V., Yagi, T., Matsuno-Yagi, A., Miller, G.W., and Greenamyre, J.T. (2007). Mechanism of Toxicity of Pesticides Acting at Complex I: Relevance to Environmental Etiologies in Parkinson's Disease. *J. Neurochem*. 100: 1469-1479. ***denotes equal contribution**
18. Hatcher, J.M., **Richardson, J.R**., Guillot, T.S., McCormack, A.L., Di Monte, D.A., Jones, D.P., Pennell, K.D., and Miller, G.W. (2007). Dieldrin Exposure Induces Oxidative Damage in the Mouse Nigrostriatal Dopamine System. *Exp. Neurol*. 204: 619-630.
19. Caudle, W.M., **Richardson, J.R**., Wang, M.Z., McCormack, A.L., Di Monte, D.A., Colebrooke, R., Emson, P.C., and Miller, G.W. (2007). Reduced Vesicular Storage of Dopamine Causes Age-Dependent Neurodegeneration. *J. Neurosci*. 27: 8138-8148. *NIEHS Paper of the Year*
20. Hammill, C.E., Caudle, W.M., **Richardson, J.R.**, Pennell, K.D., Greene, J.G., Miller, G.W., and Traynelis, S.F. (2007). Exacerbation of Dopaminergic Degeneration by Protease-Activated Receptor-1 (PAR1) Activation. *Mol. Pharmacol*. 72: 653-664.
21. Rocha, M., A., Crockett, D.P., Wong, L., **Richardson, J.R**., and Sonsalla, P.K. (2008). Na+/H+ Exchanger Inhibition Modifies Dopamine Neurotransmission During Normal and Metabolic Stress Conditions. *J. Neurochem* 106: 231-243.
22. Hatcher, J.M., Delea, K.C., **Richardson, J.R**., Pennell, K.D., and Miller, G.W. (2008). Disruption of Dopamine Transport by DDT and its Metabolites. *Neurotoxicology* 29: 682-690.
23. Guillot, T.S., Shepherd, K.R., **Richardson, J.R**., Wang, M.Z., Li, Y., Emson, P.C., and Miller, G.W. (2008). Reduced Vesicular Storage of Dopamine Exacerbates Methamphetamine-Induced Neurodegeneration and Astrogliosis. *J. Neurochem*. 106: 2205-2217.
24. Guillot, T.S., **Richardson, J.R**., Wang, M.Z., Li, Y., Taylor, T.N., Ciliax, B.J., Zachrisson, O.,

Mercer, A., and Miller, G.W. (2008). PACAP38 Increases Vesicular Monoamine Transporter 2 (VMAT2) Expression in the Striatum and Attenuates Methamphetamine Toxicity. *Neuropeptides* 42: 423-434.

25. **Richardson, J.R**., Caudle, W.M., Wang, M.Z., Dean, E.D., Pennell, K.D., and Miller, G.W. (2008). Developmental Heptachlor Exposure Increases Susceptibility of Dopamine Neurons to N-Methyl-4-Phenyl-1,2,3,6-Tetrahydropyridine (MPTP) in a Gender-Specific Manner. *Neurotoxicology*. 29: 855-863.
26. Guillot, T.S., Asress, S., **Richardson, J.R**., Glass, J., and Miller, G.W. (2008). Treadmill Gait Analysis Does Not Detect Motor Deficits in Animal Models of Parkinson's Disease and Amyotrophic Lateral Sclerosis. *J Motor Behav.* 40: 568-577.
27. Prasad, K.N., Tarasewicz, E., Mathew, J., Ohman-Strickland, P.A., **Richardson, J.R.**, and Richfield, E.K. (2009). Toxicokinetics and Toxicodynamics of Paraquat Accumulation in Mouse Brain. *Exp. Neurol*. 215: 358-367.
28. Schuh, R.A.*, **Richardson, J.R.***, Gupta, R.K., Flaws, J.A., and Fiskum, G. (2009). Effects of the Organochlorine Pesticide Methoxychlor on Dopamine Metabolites and Transporter Levels in the Mouse Brain. *Neurotoxicology* 30: 274-280. ***Denotes equal contribution**.
29. **Richardson, J.R**.[#], Shalat, S.L., Buckley, B.B., Winnik, B., O'Suilleabhain, P., Diaz-Arrastia, R., Reisch, J., and German D.C. (2009). Elevated Serum Pesticide Levels and Risk of Parkinson's Disease. *Arch Neurol*. 66: 870-875. *Highlighted in Nature Reviews Neurology*.
30. ^DeMicco, A., Cooper, K.R., **Richardson, J.R.[#]*** and White, L.A.* (2010). Developmental Neurotoxicity of Pyrethroid Pesticides in Zebrafish Embryos. *Toxicol. Sci*. 113: 177-186. ***denotes co-corresponding authors**.
31. Yang, I., ^Fortin, M.C., **Richardson, J.R**., and Buckley, B. (2011). Determination of Global DNA Methylation by Ultra Performance Liquid Chromatography-Electrospray Ionization Tandem Mass Spectrometry, *Analytical Biochemistry*. 409: 138-143.
32. ^Hossain, M.M., and **Richardson, J.R**.[#] (2011). Mechanism of Pyrethroid Pesticide-Induced Apoptosis: Role of Calpain and the ER Stress Pathway. *Toxicol. Sci.*122: 512-525
33. **Richardson, J.R**.[#], Roy, A., Shalat, S.L., Buckley, B.B., Winnik, B., Gearing, M., Levey, A.I., Factor, S.A., O'Suilleabhain, P., and German D.C. (2011). β-Hexachlorocyclohexane Levels in Serum and Risk of Parkinson's Disease. *Neurotoxicology*. 32: 640-645.
34. Sonsalla, P.K., Wong, L.Y., Harris, S.L., **Richardson, J.R**., Khobahy, I., Li, W., Gadad, B.S., and German, D.C. (2012). Delayed Caffeine Treatment Prevents Nigral Dopamine Neuron Loss in a Progressive Rat Model of Parkinson's Disease. *Exp Neurol*. 234: 482-487.
35. Peltier, M.R., Klimova, N.G., Arita, Y., Gurzenda, E.M., Murthy, A., Chawala, K., Lerner, V., **Richardson, J**., and Hanna, N. (2012). Polybrominated Diphenyl Ethers Enhance the Production of Proinflammatory Cytokines by the Placenta. *Placenta* 33: 741-744.
36. ^Gibson, C.J., Hossain, M.M., **Richardson, J.R**.[*#], and Aleksunes, L.M*#. (2012). Inflammatory Regulation of ABC Efflux Transporter Expression and Function in Microglia. *J Pharmacol Exp Ther*. 343: 650-660. ***denotes co-senior authors**
37. ^Sheleg, M., ^Yochum, C.L., Wagner, G.C., Zhou, R., and **Richardson, J.R**.[#] (2013). Ephrin-A5 Deficiency Alters Sensorimotor and Monaminergic Development. *Behav Brain Res*. 236: 139-147.
38. ^Hossain, M.M., Suzuki, T., **Richardson, J.R.**, and Kobayashi, H. (2013). Acute Effects of Type I and Type II Pyrethroids on Serotonin Release in the Striatum of Awake Rats: An in vivo microdialysis study. *J Biochem Mol Toxicol*. 27: 150-6.
39. ^Bircsak, K.M., **Richardson, J.R*,**[#]., and Aleksunes, L.M*#. (2013). Inhibition of Human MDR1 and BCRP Transporter ATPase Activity by Organochlorine and Pyrethroid Insecticides. *J Biochem Mol Toxicol*. 27: 157-64. ***denotes co-senior authors**
40. Zhu, Y., Li, G., Dong, Y, Zhou, H.H., Kong, B., Aleksunes, L., **Richardson, J**., Li, Fei, and Guo, G.L. (2013). Modulation of Farnesoid X Receptor Results in Post-translational Modification of Poly (ADP-ribose) polymerase 1 in the liver. *Toxicol Appl Pharmacol.* 266: 260-6.
41. ^Fortin, M.C., Aleksunes, L.M., and **Richardson, J.R**.[#] (2013). Alteration of the Expression of Pesticide-Metabolizing Enzymes in Pregnant Mice: Potential Role in the Increased Vulnerability of the Developing Brain. *Drug Metab Disp*. 41: 326-31.
42. Bradner, J., Suragh, T., Wilson, W., Lazo, C., Stout, K., Kim H.M., Wang, M., Walker, D., Pennell, K.D., **Richardson, J.R**., Miller, G.W., and Caudle, W.M. (2013). Exposure to the Polybrominated Diphenyl Ether Mixture DE-71 Damages the Nigrostriatal Dopamine System: Role of Dopamine Handling in Neurotoxicity. *Exp Neurol*. 241: 138-47.

43. Armstrong, L., Driscoll, M.V., Donepudi, A.C., Xu, J., Baker, A.B., Aleksunes, L.M., **Richardson, J.R**., and Slitt, A.L. (2013). Effects of Developmental Deltamethrin Exposure on White Adipose Tissue Gene Expression and Weight. *J Biochem Mol Toxicol.* 27: 165-71.
44. Hossain, M.M., Sonsalla, P.K., and **Richardson, J.R**.[#] (2013). Coordinated role of voltage-gated sodium channel and the Na^+/H^+ exchanger in sustaining microglial activation during inflammation. *Toxicol Appl Pharmacol*. 273: 355-364.
45. Sonsalla, P.K., Coleman, C., Wong, L.Y., Harris, S.L., **Richardson, J.R**., Gadad, B., Li, W., and German, D.C. (2013). The Angiotensin Converting Enzyme Inhibitor Captopril Protects Nigrostriatal Dopamine Neurons in Animal Models of Parkinson's Disease. *Exp. Neurol*. 250: 376-383.
46. **Richardson, J.R**.[#], and Hossain, M.M. (2013). Microglial Ion Channels as Potential Targets for Neuroprotection in Parkinson's Disease. *Neural Plast*. 587418. dx.doi.org/10.1155/2013/587418
47. Inamdar, A.A., Hossain, M.M., Bernstein, A.I., Miller, G.W., **Richardson J.R.**, and Bennett, J. (2013). Fungal-Derived Semiochemical 1-octen-3-ol Disrupts Dopamine Packaging and Causes Neurodegeneration. *Proc. Natl. Acad. Sci. USA*. 110: 19561-6. *NIEHS Paper of the Month February 2014*.
48. ^Inamdar, A.A., Masurekar, P., Hossain, M.M., **Richardson, J.R**., and Bennett, J.W. (2014). Signaling Pathways Involved in 1-Octen-3-ol-Mediated Neurotoxicity in Drosophila melanogaster: Implication in Parkinson's Disease. *Neurotox Res.* 25: 183-191.
49. Meng, Y., Sohar, I., Sleat, D.E., **Richardson, J.R**., Reuhl, K.R., Jenkins, R.B., Sarkar, G., and Lobel, P. (2014). Effective Intravenous Therapy for Neurodegenerative Disease with a Therapeutic Enzyme and a Peptide that Mediates Delivery to the Brain. *Mol Ther*. 22:547-53.
50. **Richardson, J.R**.[#], Roy, A., Shalat, S.L., ^von Stein, R.T., Hossain, M.M., Buckley, B.B., Gearing, M., Levey, A.I., and German D.C. (2014). Increased Serum Pesticide Levels and Risk for Alzheimer Disease. *JAMA Neurol*. 71:284-90. *NIEHS Paper of the Month April 2014; Highlighted in Nature Reviews Neurology.*
51. ^Yochum, C., Doherty-Lyon, S., Hoffman, C., Hossain, M.M., Zelikoff, J.T., and **Richardson, J.R**.[#] (2014). Prenatal Cigarette Smoke Exposure Causes Hyperactivity and Aggressive Behaviors: Role of Catecholamines and Neurotrophins. *Exp Neurol*. 254: 145-152.
52. Kong, B., Huang, J., Zhu, Y., Li, G., Williams, U.A., Shen, S., Aleksunes, L.M., **Richardson, J.R**., Apte, U., Rudnick, D.A., and Guo, G.L. (2014). Fibroblast Growth Factor 15 Deficiency in Mice Impairs Liver Regeneration. *Am J Physiol Gastrointest Liver Physiol*. 306: G893-902.
53. Zheng, R., Dragomir, A.C., Mishin, V., **Richardson, J.R**., Heck, D.E., Laskin, D.L., and Laskin, J.D. (2014). Differential Metabolism of 4-hydroxynonenal in Liver, Lung and Brain of Mice and Rats. *Toxicol Appl Pharmacol.* 279: 43-52.
54. Wen, X., Gibson, C.J., Yang, I., Buckley, B., Goedken, M., **Richardson, J.R**., and Aleksunes, L. (2014). MDR1 Transporter Protects Against Paraquat-Induced Toxicity in Human and Mouse Proximal Tubule Cells. *Toxicol. Sci*. 141: 475-483. *Editor's Highlighted Article*
55. Hossain, M.M, DiCicco-Bloom, E., and **Richardson, J.R.#** (2015). Hippocampal ER stress and Deficits in Learning and Memory Following Repeated Pyrethroid Exposure. *Toxicol. Sci.* 143: 220-228.
56. Masoud, S.T., Vecchio, L.M., Bergeron, Y., Hossain, M.M., Bermejo, M.K., Kile, B., Sotnikova, T.D., Siesser, W.B., Gainetdinov, R.R., Wightman, R.M., Caron, M.G., **Richardson, J.R**., Miller, G.W., Ramsey, A.J., Cyr M., and Salahpour, A. (2015). Increased Expression of the Dopamine Transporter Induces Degeneration of Dopamine Neurons. *Neurobiol. Dis.* 74: 66-75.
57. Yang, S., Jan, Y.H., Mishin, V., **Richardson, J.R.**, Hossain, M.M., Heindel, N.D., Heck, D.E., Laskin, D.L., and Laskin, J.D. (2015). Sulfa Drugs Inhibit Sepiapterin Reduction and Chemical Redox Cycling by Sepiapterin Reductase. *J Pharmacol Exp Ther*. 352: 529-40.
58. ^Magby, J., **Richardson, J.R.#**. (2015). Role of Calcium and Calpain in the Down-Regulation of Voltage Gated Sodium Channel Expression by the Pyrethroid Pesticide Deltamethrin. *J Biochem Mol Toxicol.* 29: 129-134.
59. Eyo, U.B., Gu, N., De, S., Dong, H., **Richardson, J.R**., and Wu, L.J. (2015). Modulation of Microglial Process Convergence towards Neuronal Dendrites by Extracellular Calcium. *J. Neurosci*. 35: 2417-2422.
60. **Richardson, J.R.#**, ^Taylor, M.M., Shalat, S.L., ^Guillot, T.S., ^Caudle, W.M., Hossain, M.M., Mathews, T.A., Jones, S.R., Cory-Slechta, D.A., and Miller, G.W. (2015). Developmental Pesticide Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder. *FASEB J.* 29: 1960-1972. *NIEHS Paper of the Month April 2015.*

61. Hausfater, M., Yochum, C.L., **Richardson, J.R**., Wagner, G.C., and Zhou, R. (2015). Ephrin A5 Regulates Inter-Male Aggression in Mice. *Behav Brain Res*. 286: 300-307.
62. Wagner-Schuman, M., **Richardson, J.R.**, Auinger, P, Braun, J.M., Lanphear, B. Epstein, J.N., Yolton, K., and Froehlich, T.E. (2015). Association of Pyrethroid Pesticide Exposure with Attention-Deficit/Hyperactivity Disorder in a Nationally Representative Sample of U.S. Children. *Environ Health*. **14(1)**:44.
63. ^Kung, T., **Richardson, J.R**., Cooper, K.R., and White, L.A. (2015). Developmental deltamethrin exposure causes persistent changes in dopaminergic gene expression, neurochemistry, and locomotor activity in zebrafish. *Toxicol Sci*. 146:235-43.
64. ^Green, A.L., Tee, S.C., Zarbl, H., Guo, G.L., and **Richardson, J.R.#** (2015). Epigenetic Regulation of Dopamine Transporter Expression. *Neurochem Res.* 40: 1372-78.
65. Coughlan, C., Walker, D., Lohr, K, **Richardson, J.R.**, Saba, L., Caudle, W., Fritz, K.S., and Roede, J. (2015). Comparative Proteomic Analysis of Carbonylated Proteins from the Striatum and Cortex of Pesticide Treated Mice. *Parkinson's Disease*. 2015:812532.
66. ^Baker, A.B., Guo, G.L., Aleksunes, L.M., and **Richardson, J.R.**# (2015). Isoform-Specific Regulation of Mouse Carboxylesterase Expression and Activity by Prototypical Nuclear Receptor Agonists. *J Biochem Mol Toxicol.* 29: 545-551.
67. Genskow, K.R., Bradner, J.M., Hossain, M.M., **Richardson, J.R**., and Caudle, W.M. (2015). Selective Damage to Dopaminergic Transporters Following Exposure to the Brominated Flame Retardant, HBCDD. *Neurotoxicol. Teratol*. 52: 162-169.
68. Jan, Y.H., **Richardson, J.R.**#, ^Baker, A.B., Mishin, V., Heck, D.E., Laskin, D.L., and Laskin, J.D.# (2015). Vitamin K3 (Menadione) Redox Cycling Inhibits Cytochrome P-450-Mediated Activation and Protects Against Parathion Intoxication. *Toxicol Appl Pharmacol.* 288: 114-120.
69. Szilagyi, J.T., Mishin, V., Heck, D.E., Jan, Y., Leksunes, L.M., **Richardson, J.R**., Hendel, N.D., Laskin, D.L., and Laskin, J.D. (2016). Selective Targeting of Heme Protein in Cytochrome P450 and Nitric Oxide Synthase by Diphenyleneiodonium. *Toxicol Sci*. 151: 150-159.
70. Weig, B., **Richardson, J.R**., Lowndes, H.E., and Reuhl, K.R. (2016). Trimethyltin Intoxication Induces the Migration of Ventricular/Subventricular Zone Cells to the Injured Murine Hippocampus. *Neurotoxicology*. 54: 72-80.
71. Jan, Y.H., **Richardson, J.R.#**, ^Baker, A.A., Mishin, V., Heck, D.E., Laskin, D.L., and Laskin, J.D. (2016). Novel Approaches to Mitigating Parathion Toxicity: Targeting Cytochrome P450-mediated Metabolism with Menadione. *Ann NY Acad Sci*. 1378:80-86.
72. Hossain, M.M., ^Liu, J., and **Richardson, J.R.#** (2017). Pyrethroid pesticides directly activate microglia through voltage-gated sodium channels leading to increased TNFα release. *Toxicol. Sci*. 155:112-123.
73. ^Magby, J.P., and **Richardson, J.R**.# (2017). Developmental Pyrethroid Exposure Causes Long-Term Decreases of Neuronal Sodium Channel Expression. *Neurotoxicology.* 60: 274-279.
74. ^Alam, G., ^Edler, M., ^Burchfield, S., and **Richardson, J.R.#** (2017). Single Low Doses of MPTP Decrease Tyrosine Hydroxylase Expression in the Absence of Overt Neuron Loss. *Neurotoxicology*. 60: 99-106.
75. Schumacher, J.D., Kong, B., Pan, Y., Sun, R., Aa, J., Rizzolo, D., **Richardson, J.R.**, Chen, A., Goedken, M., Aleksunes, L.M., Laskin, D.L., and Guo, G.J. (2017). The Effect of Fibroblast Growth Factor 15 Deficiency on the Development of High Fat Diet Induced Non-Alcoholic Steatohepatitis. T*oxicol Appl Pharmacol.* 330:1-8.
76. ^Green, A.L., Zhan, L., Eid, A., Zarbl, H., Guo, G.L., and **Richardson, J.R.#** (2017). Valproate Increases Dopamine Transporter Expression through Histone Acetylation and Enhanced Promoter Binding of Nurr1. *Neuropharmacology* 125:189-196.
77. ^Beier, E.E., Neal, M, Wu, L.J., and **Richardson, J.R.#** (2017). Alternative Microglial Activation is Associated with Cessation of Progressive Dopamine Neuron Loss in Mice Systemically Administered Lipopolysaccharide. *Neurobiology of Disease* 108: 115-127.
78. Geldenhuys, W., Benkovic, S., Li, L, Yonutas, H., Crish, S., Sullivan, P, Darvesh, A., Brown, C. and **Richardson, J.R.** (2017). MitoNEET (CISD1) Knockout Mice Show Signs of Striatal Mitochondrial Dysfunction and a Parkinson's Disease Phenotype. *ACS Chem Neurosci*.8: 2759-2765.
79. ^Neal, M. and **Richardson, J.R.#** (2018). Epigenetic Regulation of Astrocyte Function in Neurodegeneration. *Biochim Biophys Acta Mol Basis Dis*.1864: 432-443.
80. ^Gould, F.D.H., Gross, A., German, R.Z. and **Richardson, J.R.** (2018). Evidence of Oropharyngeal Dysfunction in Feeding in the Rotenone Rat Model of Parkinson's Disease. *Parkinson's Disease* 6537072.

81. ^Neal, M., ^Boyle, A., ^Budge, K., Safadi, F., and **Richardson, J.R.#** (2018). GPNMB Attenuates Cytokine-induced Inflammatory Responses in Astrocytes Through CD44. *J Neuroinflammation*. 15(1):73.
82. ^Neal, M and **Richardson, J.R.#** (2018). Time to Get Personal: A Framework for Personalized Targeting of Oxidative Stress in Neurotoxicity and Neurodegenerative Disease. *Current Opinion in Toxicology* 7:127-132.
83. ^Budge, K.M., ^Neal, M.L., **Richardson, J.R.**, and Safadi, F.F. (2018). A New Bone to Pick: A Role for Osteoactivin/GPNMB in the Brain. *Mol Neurobiol*. 55:5167-76.
84. Bosco, D.B., Zhen, J., Xu, Z., Peng, J., Eyo, U.B., Tang, K., Yan, C., Huang, J., Feng, L., Wu, G., **Richardson, J.R.**, Wang, H., and Wu, L.J. (2018). RNAseq Analysis of Hippocampal Microglia after Kainic Acid-induced Seizures. *Mol Brain*. 11:34
85. Szilagyi, J.T., Fussell, K.C., Jan, Y.H., Mishin, V., **Richardson, J.R.**, Heck, D.E., Yang, S., Aleksunes, L.M., Laskin, D.L., and Laskin, J.D. (2018). Quinone and Nitrofurantoin Redox Cycling by Recombinant Cytochrome b5 Reductase. *Toxicol Appl Pharmacol*. 359: 102-107.
86. ^Hossain, M.M., Weig, B., Reuhl, K.R., Gearing, M., Wu, L.J. and **Richardson, J.R.#** (2018). The Anti-Parkinsonian Drug Zonisamide Reduces Neuroinflammation: Role of Microglial Na_v 1.6. *Exp Neurol*. 308: 111-119.
87. Tiethof, A.K., **Richardson, J.R.#** and Hart, R.P. (2018). Knockdown of Butyrylcholinesterase but not Inhibition by Chlorpyrifos Alters Early Differentiation Mechanisms in Human Neural Stem Cells. *Toxics* 6(3):E52
88. Hossain, M.M., Sivaram, G., and **Richardson, J.R.#** (2019). Regional Susceptibility to ER stress and Protection by Salubrinal Following a Single Exposure to Deltamethrin. *Toxicol Sci*. 167:249-257.
89. Wen, X., ^Baker, A.B., Klassen, C.D., Corton, J.C., **Richardson, J.R.#** and Aleksunes, L.M#. (2019). Hepatic Carboxylesterase Enzymes are Differentially Regulated in PPARα-Null Mice Treated with Perfluoroctanoic Acid. *Toxicology* 416: 15-22.
90. ^You., D., Shin, H.M., Mosaad, F., **Richardson, J.R.#** and Aleksunes, L.M.# (2019). Brain Region-Specific Regulation of Histone Acetylation and Efflux Transporters in Mice. *J Biochem Mol Toxicol.* 33: e22318.
91. ^Eid, A., ^Mahtre, I. and **Richardson, J.R.#** (2019). Gene-Environment Interactions in Alzheimer's Disease: A Potential Path to Precision Medicine. *Pharmacol Ther*. 199: 173-187.
92. Feng, L., Murugan, M., Bosco, D.B., Liu, Y., Peng, J., Worrell, G.A., Wang, H.L., Ta, L.E., **Richardson, J.R.**, Shen, Y., Wu, L.J. (2019). Microglial Proliferation and Monocyte Infiltration Contribute to Microgliosis following Status Epilepticus. *Glia*. 67: 1434-1448.
93. Zhou, L.J., Peng, J., Xu, Y.N, Zeng, W.J., Zhang, J., Wei, X., Mai, C.L., Lin, Z.J., Liu, Y., Murugan, M., Eyo, U.B., Umpierre, A.D., Xin, W.J., Chen, T., Li, M., Wang, H., **Richardson, J.R.**, Tan, Z., Liu, X.G., and Wu, L.J. (2019). Microglia Are Indispensable for Synaptic Plasticity in the Spinal Dorsal Horn and Chronic Pain. Cell Rep. 27:3844-3859.
94. **Richardson, J.R.#**, Fitsanakis, V., Westerink, R. and Kanthasamy, A.G. (2019). Neurotoxicity of Pesticides. *Acta Neuropathologica*. 138:343-362.
95. ^You, D., Wen, X., Gorczyca, L., Morris, A., **Richardson, J.R.#** and Aleksunes, L.M.# (2019). Increased MDR1 Transporter Expression in Human Brain Endothelial Cells through Enhanced Histone Acetylation and Activation of Aryl Hydrocarbon Receptor Signaling. *Mol Neurobiol.* 56: 6986-7002.
96. Peng, J., Liu, Y., Umpierre, A.D., Xie, M., Tian, D.S., **Richardson, J.R.** and Wu, L.J. (2019). Microglial P2Y12 Receptor Regulates Ventral Hippocampal CA1 Neuronal Excitability and Innate Fear in Mice. *Mol Brain*. 12:71.
97. ^Green, A.G., Zhan, L., ^Eid, A., Zarbl, H., Guo, G.L., and **Richardson, J.R.#** (2019). Epigenetic Regulation of Dopamine Transporter Expression During Development. *Front Genetics*. 10:1099.
98. ^Neal, M., Fleming, S.F., ^Alam, G., ^Beier, E.E., Budge, K., Boyle, A., Wu, L.J., and **Richardson, J.R.#** (2020). Inhibition of CSF1R by GW2580 does not Deplete Microglia and is Protective against Neuroinflammation and Dopaminergic Neurodegeneration. *FASEB J*.34:1679-1694.
99. Hossain, M.M. and **Richardson, J.R.#** (2020). Nerve Growth Factor Protects Against Pyrethroid-induced ER Stress in Primary Hippocampal Neurons. *Tox Sci*. 174: 147-158. **Selected as Tox Spotlight article and for Cover Art.*
100. ^You, D., **Richardson, J.R.#** and Aleksunes, L.A.# (2020). Epigenetic Regulation of MDR1 and BCRP Transporters by HDAC Inhibition. *Drug Metab. Disp.* 48: 459-480.

101. ^Budge, K.M., ^Neal, M.L., **Richardson, J.R.#**, and Safadi, F.F. (2020). Transgenic Overexpression of GPNMB Protects Against MPTP-Induced Dopaminergic Neurodegeneration. *Mol Neurobiol*. 57: 2920-2933.
102. Wu, W., Li, Y., Wei, Y., Bosco, D.B., Xie, M., **Richardson, J.R.** and Wu, L.J. (2020). Microglial Depletion Aggravates the Severity of Acute and Chronic Seizures in Mice. *Brain Behav Immunity*. 89: 245-255.
103. Hossain, M.M., Al-Haddad, S., Rabbani, R., Belkadi, A and **Richardson, J.R.** (2020). Deltamethrin Exposure Inhibits Adult Hippocampal Neurogenesis and Causes Deficits in Learning and Memory in Mice. *Toxicol. Sci.* 178: 347-357. **Selected for Cover Art.*
104. ^Edler, M.K., Johnson, C.T., Ahmed, H.S. and **Richardson, J.R.#.** (2021). Age, Sex and Regional Differences in Scavenger Receptor CD36 in Mouse Brain: Potential Relevance to Cerebral Amyloid Angiopathy and Alzheimer's Disease. *J Comp Neurol*. 529: 2209-2226.
105. ^Wren, M., Liu, M., Vetrano, A., **Richardson, J.R.**, Shalat, S.L. and Buckley, B. (2021). Analysis of Six Pyrethroid Insecticide Metabolites in Cord Serum using a Novel Gas Chromatography-Tandem Mass Spectrometry Method. *J Chromatog B*. 1173: 122656
106. ^Edler, M., ^Mhatre-Winters, I. and **Richardson, J.R.#** (2021). Microglia in Aging and Alzheimer's Disease: A Comparative Approach. *Cells*. 10: 1138.
107. Peng, J., Yi, M., Jeong, H., McEwan, P., Zheng, J., Wu, G., Ganatra, S., Ren, Y., **Richardson, J.R.**, Oh, S.B. and Wu, L.J. (2021). The voltage-gated proton channel Hv1 promotes microglia-astrocyte communication and neuropathic pain after peripheral nerve injury. *Mol Brain*. 14:99.
108. Barahona, A.J., Bursac, Z., Veledar, E., Lucchini, R., Tieu, K. and **Richardson, J.R.#** (2022). Relationship of Blood and Urinary Manganese Levels with Cognitive Function in Elderly Individuals in the United States. *Toxics* 10:191.
109. ^Eid, A., ^Mahtre-Winters, I., ^Sammoura, F., ^von Stein, R., Hossain, M.M., ^Edler, M., DeRespiris, L., Lisci, M., Carney, K., Konsolaki, M., Hart, R.P., Bennett, J.W., and **Richardson, J.R.#** (2022). DDT Increases Amyloid Precursor Protein Levels and Amyloid Beta Pathology in Animal Models of Alzheimer's Disease: Mechanistic Links to Alzheimer's Disease Risk. *In Revision Environ Health Perspectives*.
110. Budge, K., Ball, H.C., Hussein, N., Morley, S., Nadolny, C., **Richardson, Jason R**. and Safadi, F.F. (2022). L-plastin Inhibition Attenuates Neuroinflammation in Mouse Microglial Cells. *In Revision Mol. Neurobiol.*
111. ^Mahtre-Winters, I., ^Eid, A., Barahona, A., Han, Y., Tieu, K. and **Richardson, J.R.#** (2022). Sex and APOE Genotype Alter the Basal and Induced Inflammatory State of Primary Microglia from APOE Targeted Replacement Mice. *Submitted. Cells.*
112. Moser, V.C., Morris-Schaffer, K., **Richardson, J.R.** and Li, A.A. (2022). Glyphosate and Neurological Outcomes: A Systematic Literature Review of Animal Studies. *Submitted J Toxicol Environ Health Part B.*
113. ^Mahtre-Wingers, I., ^Eid, A., Barahona, A., Han, Y., Tieu, K., and **Richardson, J.R.#** (2022). Sex and APOE Genotype Alter the Basal and Induced Inflammatory State of Primary Astrocytes. *Submitted. Cells.*
114. ^Eid, A., ^Mhatre-Winters, I. ^Bloom, N., ^Sammoura, F. and **Richardson, J.R.**# (2022). DDT Directly Activates Microglia Through Sodium Channels to Increase Neuroinflammation *in vitro* and *in vivo*. *In Preparation Frontiers Immunol.*
115. ^Sammoura, F.M., ^Eid, A., and **Richardson, J.R.#** (2022). Lead and DDT Interactively Increase Levels of Amyloid Precursor Protein and Aβ secretion In Primary Neurons. *In preparation Neurotoxicology.*
116. ^Eid, A., ^Edler, M., ^Mahtre-Winters, I., Ahmed, H.S., Dengler-Crish, C., and **Richardson, J.R.#** (2022). Early and persistent sex differences in the age-associated increase of amyloid beta species in 3XTG-AD mice. *In preparation Cells*.
117. ^Neal, M., ^Beier, E.E., Hossain, M.M., ^Boyle, A., Peng, J., and Wu, L.J., **Richardson, J.R.#** (2022). The Voltage-Gated Proton Channel Hv1 Contributes to Dopaminergic Neurodegeneration in Parkinson's Disease Models through Microglial Activation. *In Revision Neurobiol Dis.*
118. ^Mhatre-Winters, I., ^Eid, A., Han, Y., Edler, M., Bursac, Z., Tieu, K. and **Richardson, J.R.#** (2022). Sex, Age, and APOE Genotype alter LPS-Induced Neuroinflammation in Humanized Targeted Replacement APOE Mice. *In preparation Mol Neurodegeneration.*
119. Graber, J., Harris, G., Shalat, S., ^Eid, A., German, D.C., and **Richardson, J.R.#** (2022). Race/Ethnicity Differences in Serum Pesticide Levels and Cognitive Dysfunction in Elderly Individuals in the United States. *In preparation JAMA Neurol*.

120. ^Edler, MK, Wilson, G.N., ^Eid, A. Crish, S.D., Ely, J.J., Erwin, J.M., **Richardson, J.R.**, Sherwood, C.C. and Raghanti, M.A. (2022). Baboons and chimpanzees express higher levels of four-repeat tau than three-repeat tau isoforms. *In preparation J Comp Neurol*.
121. ^Beier, E.E., ^Nadolny, C., ^Edler, M., Kong, B., Schumacher, J.D., Wu, L.J., Guo, G.J., and **Richardson, J.R.#** (2022). Farnesoid X Receptor Deficiency Promotes Neuroinflammation and Dopaminergic Neurodegeneration. *In preparation J Neuroinflammation*.
122. Wu, G., Eyo, U.B., Fu, H., Weig, B., Reuhl, K.R., Murugan, M., Peng, J., Gearing, M., Ren, Y., **Richardson, J.R.**, and Wu, L.J. (2022). Deficiency of Microglial Hv1 Proton Channel Reduces Beta-Amyloid Deposition in a Mouse Model of Alzheimer's Disease-Like Pathology. *In preparation.*
123. ^Magby, J.P. and **Richardson, J.R.#** (2022). Developmental Deltamethrin Exposure Causes Long-term Downregulation of Sodium Channel Isoforms and Reduced Glutamate Release in the Hippocampus. *In preparation*.
124. ^Gibson, C.J., Wen, X., Aleksunes, L.M.#, and **Richardson, J.R.#** (2022). Microglial-Derived TNF Down-Regulates MDR1/ABCB1 Transporter Expression. *In preparation ACS Chem Neurosci*.

B. Books, Monographs and Chapters

1. **Richardson, J.R.** (2005). Azamethiphos. In *Encyclopedia of Toxicology* (P. Wexler, ed.), Elsevier, San Diego, Vol. 1, pp. 195-196.
2. **Richardson, J.R.** (2005). Parathion. In *Encyclopedia of Toxicology* (P. Wexler, ed.), Elsevier, San Diego, Vol. 2, pp. 331-333.
3. **Richardson, J.R**. and Miller, G.W. (2005). Toxicology in Environmental Health. In *Environmental Health: From Global to Local* (H. Frumkin, ed.), Jossey-Bass, pp. 24-45.
4. Snyder, R. and **Richardson, J.R**. (2009). Education of the Toxicologist and Career Prospects. In: *General and Applied Toxicology* (B. Ballantyne, T. Marrs, and T. Syversen, eds.) John Wiley & Sons.
5. Jett, D.A., and **Richardson, J.R**. (2009). Neurotoxic Pesticides. In *Clinical Neurotoxicology: Syndromes, Substances, and Environments*. (M. Dobbs, ed.) Elsevier, San Diego, pp. 491-499.
6. **Richardson, J.R**. and Miller, G.W. (2010). Toxicology in Environmental Health. In *Environmental Health: From Global to Local* (H. Frumkin, ed.), Jossey-Bass. Pp. 24-45.
7. ^Magby, J. and **Richardson, J.R**. (2011). Selective Vulnerability in the Nervous System. *In Comprehensive Toxicology: Neurotoxicology* (M. Philbert, ed.). Elsevier. Pp. 29-38.
8. ^Baker, A., ^Taylor, M.M, and **Richardson, J.R**. (2011). Environmental Factors in Attention Deficit Hyperactivity Disorder. In *Developmental Neurotoxicology Research: Principles, Models, Techniques, Strategies and Mechanisms* (W. Slikker Jr. and C Chang, eds). John Wiley and Sons. Pp. 257-274.
9. **Richardson, J.R.** (2014). Azamethiphos. In *Encyclopedia of Toxicology* (P. Wexler, ed.), Elsevier, San Diego, In Press.
10. ^Beier, E. and **Richardson, J.R.** (2015). Parkinson's Disease: Animal and In Vitro Studies on Dopaminergic Neurotoxicants. In *Environmental Factors in Neurodevelopmental and Neurodegenerative Disorders*. Elsevier, San Diego.
11. Darvesh AS, McClure M, Sadana P, Paxos C, Geldenhuys WJ, Lambert JD, Haqqi TM, **Richardson JR**. (2016). Neuroprotective properties of dietary polyphenols in Parkinson's disease. In: *Neuroprotective Effects of Phytochemicals in Neurological Disorders*, Eds: Farooqui T, Farooqui AA, John Wiley & Sons, Hoboken, NJ, 2016.
12. Moser, V.C., Aschner, M., **Richardson, J.R**., Bowman, A.B., and Richardson, R.J. (2018). Toxic Responses of the Nervous System. In: *Casarett and Doull's Toxicology: The Basic Sciences of Poisons*.
13. Costa, L.G., Aschner, M., **Richardson, J.R.**, and Bowman, A.B. (2018). Toxicology of the Nervous System. In: *Comprehensive Toxicology. Reference Module in Biomedical Sciences*.
14. ^Eid, A. and **Richardson, J.R.** (2019). Pharmacoepigenetics and Pharmacoepigenomics of Valproate in Neurodegenerative Disease. In: *Pharmacoepigenetics*, Editor: Cacabelos, R. Elsevier. Ch. 30, pp, 1-16.
15. ^Alam, G. and **Richardson, J.R.** (2020). Regulation of Tyrosine Hydroxylase: Relevance to Parkinson's Disease. In: *Genetics, Neurology, Behavior, and Diet in Parkinson's Disease*. Academic Press.
16. Rancourt, R.C., **Richardson, J.R.**, Laskin, D.L. and Laskin, J.D. (2020). Chemical Weapons. In: *Environmental Toxicants-Human Exposures and their Health Effects*. John Wiley & Sons.

C. Other Published Articles

1. Cranmer, J.M., Reuhl, K.R**., Richardson, J.R**., and Lang, L.A. (2011). Unifying Mechanisms of Neurological Disorders-Scientific, Translational, and Clinical Implications: Overview and Theme of the 26th International Neurotoxicology Conference. *Neurotoxicology* 32: 499-501.
2. **Richardson, J.R**., German, D., and Levey A. (2014). Alzheimer Disease Risk Factors. *JAMA Neurology* 71:1051.
3. **Richardson, J.R**., Levey, A.I., and German, D.C. (2014). Elevated Serum DDE and Risk for Alzheimer Disease-Reply. *JAMA Neurology* 71:1056
4. **Richardson, J.R**. (2014). Testosterone as the Missing Link Between Pesticides, Alzheimer Disease, and Parkinson Disease-Reply. *JAMA Neurology* 71:1190.

D. PUBLISHED ABSTRACTS

1. **Richardson, J.R.**, and Chambers, J.E. (1999) Possible Influence of Vitellogenin Synthesis on the Toxicity of Chlorpyrifos in Channel Catfish, *Ictalurus punctatus*. Toxicologist 48:186.
2. **Richardson, J.R.**, Chambers, H.W., and Chambers, J.E. (2000) Analysis of the Additivity of *In Vitro* Inhibition of AChE by Mixtures of Chlorpyrifos-oxon and Azinphos-Methyl-Oxon. Toxicologist 54:1239.
3. **Richardson, J.R**., and Chambers, J.E. (2001). Effects of Gestational Exposure to Chlorpyrifos on Postnatal Central and Peripheral Cholinergic Neurochemistry. Toxicologist 60:1145.
4. **Richardson, J.R**., and Chambers, J.E. (2001). Neurochemical Effects of Repeated Gestational or Postnatal Exposures to Chlorpyrifos on the Developing Cholinergic System. Neurotoxicology 22(6):336.
5. Chambers, J.E., **Richardson, J.R**., Moore, C.A., Oppenheimer, S.O., Carr, R.L., and Chambers, H.W. (2002). In Vitro Inhibition of Rat Brain and Serum Cholinesterase by Binary Mixtures of Six Organophosphates. Toxicologist 66:171.
6. Carr, R.L., Chambers, J.E., Kachroo, A., and **Richardson, J.R**. (2002). Effects of Early Postnatal Estradiol and Diethylstilbesterol Exposure on Cincinnati Water Maze Performance of Male and Female Juvenile Rats. Toxicologist 66:1226.
7. **Richardson, J.R**., and Chambers, J.E. (2002). Neurochemical Effects of Repeated Developmental Exposures to Chlorpyrifos on the Cholinergic Nervous System. Toxicologist 66:636.
8. **Richardson, J.R**., and Chambers, J.E. (2002). Effects of Repeated Developmental Exposure to Chlorpyrifos on Presynaptic Components of the Cholinergic System. Neurotoxicology 24:304.
9. **Richardson, J.R**., Quan, Y., Miller, G.W. (2002). Paraquat Toxicity is not Mediated by the Dopamine Transporter. Society for Neuroscience Abstracts 194.13.
10. **Richardson, J.R**., and Miller, G.W. (2003). Polychlorinated Biphenyls Inhibit Dopamine Uptake in Human Neuroblastoma Cells Stably Expressing the Human Dopamine Transporter. Toxicologist 72:1290; Neurotoxicology 24:304-305.
11. Elwan, M.A., Caudle, W.M., **Richardson, J.R**., and Miller, G.W. (2003). Effect of Pyrethroids on Dopamine Uptake in SK-N-MC Cells Expressing the Dopamine Transporter. FASEB J. 17:6670.
12. Wolf, D.S., Sherer, T.B., **Richardson, J.R.**, Seo, B., Miller, G.W., Matsuno-Yagi, A, Yagi, T., and Greenamyre, J.T. (2003). Pesticides That Inhibit Complex I Kill Cells Through and Oxidative Mechanism. Society for Neuroscience Abstracts 95.17.
13. Sherer, T.B., **Richardson, J.R.**, Panov, A.V., Miller, G.W., and Greenamyre, J.T. (2003). Pesticides That Inhibit Complex I: In Vitro Toxicity and Affinities for the Rotenone-Binding Site in Brain Mitochondria. Society for Neuroscience Abstracts 95.18. 24.
14. **Richardson, J.R.**, Sherer, T.B., Greenamyre, J.T., and Miller, G.W. (2003). Mechanism of Complex I Inhibition by MPP+ and Paraquat. Society for Neuroscience Abstracts 732.3.
15. Chambers, J.E., Carr, R.L., Chambers, H.W., Kamykowski, J., Meek, E.C., Oppenheimer, S.F., **Richardson, J.R.** (2004). Predictive Modeling of in vitro Brain Cholinesterase Inhibition Following Simultaneous or Sequential Exposures to Binary Mixtures of Organophosphates. Toxicologist 78:1317.
16. Guillot, T.S., **Richardson, J.R.,** and Miller, G.W. (2004). Deltamethrin Increases Dopamine Transporter Expression and Enhances Basal and Cocaine-induced Locomotion. Toxicologist 78:1357.
17. Caudle, W.M., **Richardson, J.R**., Dean, E.D., Wang, M.Z., and Miller, G.W. (2004). Dopamine Transporter and Vesicular Monoamine Transporter 2 Levels are Increased by Perinatal Heptachlor Exposure. Toxicologist 78:1837; Neurotoxicology 25:A161.

18. **Richardson, J.R.,** Caudle, W.M., Wang, M.Z., and Miller, G.W. (2004). Perinatal Exposure to Deltamethrin Alters Dopaminergic Neurochemistry in Developing Mouse Brain. Toxicologist 78:1842; Neurotoxicology 25:A127. (*1st place Postdoctoral Paper at 21st International Neurotoxicology Conference*)
19. **Richardson, J.R**., Sherer, T.B., Greenamyre, J.T., and Miller, G.W. (2004). Screening of Pesticides that Inhibit Complex I: Implications for Parkinson's Disease. Neurotoxicology 25:A100. (*1st place Postdoctoral Research Award at Southeastern Society of Toxicology Meeting*).
20. **Richardson, J.R**., Guillot, T.S., Caudle, W.M., Wang, M.Z., and Miller, G.W. (2004). Developmental Pesticide Exposure Enhances Amphetamine Response and MPTP Toxicity. Society for Neuroscience Abstracts 167.3.
21. Guillot, T.S., **Richardson, J.R**., and Miller, G.W. (2004). Pesticide Exposure Upregulates the Dopamine Transporter and Increases Cocaine-induced Locomotor Activity while Abolishing Place Preference. Society for Neuroscience Abstracts 804.14.
22. Caudle, W.M., **Richardson, J.R**., and Miller, G.W. (2004). Subchronic Exposure to Low Levels of Polychlorinated Biphenyls Reduces Dopamine Transporter and Vesicular Monoamine Transporter 2 Levels. Society for Neuroscience Abstracts 53.14.
23. Hatcher, J.M., **Richardson, J.R**., Testa, C.M., Greenamyre, J.T., and Miller, G.W. (2004). In Vitro and in vivo Effects of Organochlorine Insecticides on the Dopaminergic System. Society for Neuroscience Abstracts 94.19.
24. Hammill, C.E., Caudle, W.M., **Richardson, J.R**., Miller, G.W., and Traynelis, S. (2004). Role for Protease-activated Receptor (PAR1) in MPTP-induced Dopaminergic Neurotoxicity. Society for Neuroscience Abstracts 562.6.
25. Sherer, T.B., Betarbet, R, Taylor, G., Na, H.M., Caboni, P., Zhang, N., **Richardson, J.R**., Miller, G.W., Casida, J.E., and Greenamyre, J.T. (2004). Degeulin, a Complex I Inhibitor found in Cube Resin, is Toxic to Neuroblastoma Cells and the Nigrostriatal Dopaminergic Pathway. Society for Neuroscience Abstracts 754.8.
26. Hatcher, J.M., Guillot, T.S., **Richardson, J.R**., and Miller, G.W. (2005). Dieldrin Exposure Causes Oxidative Damage in Dopamine Neurons. Toxicologist 84:1961.
27. Guillot, T.S., **Richardson, J.R**., and Miller, G.W. (2005). Sensitive Detection of Behavioral Impairments in Moderately Lesioned MPTP Mice by Automated Gait Analysis. Toxicologist 84:1097.
28. **Richardson, J.R**., Guillot, T.S., Caudle, W.M., Wang, M.S., and Miller, G.W. (2005). Developmental Pyrethroid Exposure Alters Dopaminergic Neurochemistry Resulting in Hyperactivity and Enhanced Toxicity of MPTP. Toxicologist 84:973. (*3rd Place Neurotoxicology Specialty Section Postdoctoral Competition*).
29. Hammill, C.E., Caudle, W.M., **Richardson, J.R**., Miller, G.W., and Traynelis, S.F. (2005). Role for Protease-Activated Receptor 1 (PAR1) in MPTP-induced Dopaminergic Neurotoxicity. Toxicologist 84:1529.
30. Caudle, W.M., **Richardson, J.R**., and Miller, G.W. (2005). Subchronic Exposure to Low-levels of Polychlorinated Biphenyls Reduces Dopamine Transporter and Vesicular Monoamine Transporter 2 Levels. Toxicologist 84:1545.
31. **Richardson, J.R**., Caudle, W.M., Ramachandiran, S., and Miller, G.W. (2005). Activation of PKC and Down-regulation of the Dopamine Transporter Following In Vivo Exposure to Polychlorinated Biphenyls. FASEB J.
32. Ramachandiran, S., **Richardson, J.R**., and Miller, G.W. (2005). Dopamine exacerbates toxicity of paraquat but not MPTP or rotenone in neuroblastoma cells stably expressing dopamine transporter. Society for Neuroscience Abstracts.
33. **Richardson, J.R**., Caudle, W.M., Wang, M.Z., Pennell, K.D., and Miller, G.W. (2005). Developmental Dieldrin Exposure Alters the Dopaminergic System and Increases MPTP Toxicity. Society for Neuroscience Abstracts.
34. Caudle, W.M., **Richardson, J.R**., Wang, M.Z., and Miller, G.W. (2005). VMAT2 Reduction Causes Age-Related Neurodegeneration. Society for Neuroscience Abstracts.
35. Hatcher, J.M., **Richardson, J.R**., Guillot, T.S., Pennell, K.D., and Miller, G.W. (2005). Dieldrin Causes Oxidative Damage and Decreases Dopamine Transporter Levels in Mouse Striatum. Society for Neuroscience Abstracts.
36. Chambers, J.E., Meek, E.C., Chambers, H.W., **Richardson, J.R**., Sabatino, B., Carr, R.L., Shows, E.B., and Oppenheimer, S.F. (2005). Effects of Binary or Ternary Mixtures of Organophosphates on Esterases In Vitro. Neurotoxicology.

37. Caudle, W.M., **Richardson, J.R**., Wang, M.Z., Pennell K.D., and Miller, G.W. (2006). PCB-induced Alterations in the Dopamine Transporter as a Precursor to Nigrostriatal Dopamine Damage. Toxicologist 2441
38. Hatcher, J.M., **Richardson, J.R**., Guillot, T.S., McCormack, A.L., DiMonte, D.A., Pennell, K.D., and Miller, G.W. (2006). Oxidative Damage and Nigrostriatal Dopamine Dysfunction Following Exposure to the Organochlorine Pesticide Dieldrin. Toxicologist. 1112
39. Ramachandiran, S., **Richardson, J.R**., and Miller, G.W. (2006). Mechanism of Action of Paraquat is Distinct from that of MPP+ or Rotenone in Neuroblastoma Cells Stably Expressing Dopamine Transporter. Toxicologist. 1106
40. Pennell, K.D., Hatcher, J.M., Caudle, W.M., **Richardson, J.R**. Gearing, M., Levey, A.I., Jones, D.P., and Miller, G.W. (2006). Elevated levels of Dieldrin are Associated with Parkinson's Disease. 232nd American Chemical Society Meeting.
41. Richardson, J.R., Guillot, T.S., Caudle, W.M., and Miller, G.W. (2006). Developmental Pesticide Exposure Reproduces Features of ADHD. Society for Neuroscience Abstracts.
42. Caudle, W.M., Richardson, J.R., Wang, M.Z., McCormack, A.L., Di Monte, D.A., Colebrooke, R., Emson, P.C., and Miller, G.W. (2006). Reduced Vesicular Storage of Dopamine Causes Age-Related Neurodegeneration. Society for Neuroscience Abstracts.
43. Caudle, W.M., **Richardson, J.R.,** Shepherd, K.R., Wang, M.Z., Guillot, T.S., McCormack, A.L., Colebrooke, R.E., Di Monte, D.A., Emson, P, and. Miller, G.W. (2007). Reduced Vesicular Storage of Dopamine Causes Progressive Nigrostriatal Neurodegeneration. Toxicologist 794.
44. Watson, J.L., Caudle, W.M., **Richardson, J.R**., and Miller, G.W. (2007). Polychlorinated Biphenyl-Mediated Loss of Striatal Dopamine Terminal Markers: Possible Role of Vesicular Monoamine Transporter 2 Inhibition. Toxicologist 1046.
45. **Richardson, J.R**., and Mathew, J.M. (2007). Potentiation of Methamphetamine Neurotoxicity in Adult Rats Following Postnatal Exposure to Deltamethrin. Toxicologist 1794.
46. Ramachandiran, S., Hansen, J.M., Jones, D.P., **Richardson, J.R**., and Miller, G.W. (2007). Mechanisms of MPP+, Rotenone, and Paraquat Toxicity: Thioredoxin Oxidation, and Activation of Cell Death Pathways. Toxicologist 902.
47. Schuh, R.A., **Richardson, J.R**., Gupta, R., Flaws, J.A., and Fiskum, G. (2007). Effects of the Organochlorine Pesticide Methoxychlor on Dopamine Metabolites and Transporters in the Mouse Brain. Toxicologist 904.
48. **Richardson, J.R**., Buckley, B., Winnik, B., O'Suilleabhain, P., Diaz-Arristia, R., and German, D.C. (2007). Elevated Levels of an Organochlorine Pesticide in the Serum of Parkinson's Disease Patients. Society for Neuroscience Abstracts 253.13.
49. Taylor, T.N., Caudle, W.M., Wang, M.Z., Hansen, J.M., **Richardson, J.R**., Jones, D.P., and Miller, G.W. (2007). Altered Redox Status in a Mouse model of Parkinson's Disease based on Reduced Vesicular Storage of Dopamine. Society for Neuroscience Abstracts 794.11.
50. DeMicco, A., Green, A., Cooper, K.R., **Richardson, J.R**. and White, L.A. (2008). Pyrethroid exposure of zebrafish (*Danio rerio*) embryos results in abnormal development. Toxicologist 275.
51. DeMicco, A., Green, A., Cooper, K.R., **Richardson, J.R**. and White, L.A. (2008). Exposure of Zebrafish (Danio rerio) Embryos to Deltamethrin Results in Alteration of Dopaminergic Gene Expression and Increased Activity. Toxicologist 266.
52. **Richardson, J.R**. (2008). Molecular Mechanisms of Deltamethrin-Induced Alterations in Dopamine Transporter Expression. Toxicologist 2269.
53. Taylor, M., Cory-Slechta, D., and **Richardson, J.R**. (2008). Developmental Deltamethrin Exposure Produces Impulsive-like Behavior that is Reversed by Methylphenidate: Relevance to ADHD. Toxicologist 2267.
54. **Richardson, J.R**., Shalat, S.L., Buckley, B., Winnik, B., O'Suilleabhain, P., Diaz-Arristia, R., and German, D.C. (2008). Elevated Pesticide Levels in the Serum are Associated with Increased Risk of Parkinson's Disease. Society for Neuroscience Abstracts 442.1.
55. Prasad, K., Mathew, J., Ohman-Strickland, P., Buckley, B., **Richardson, J.R**., and Richfield, E.K. (2008). The Unusual Toxicokinetic and Toxicodynamic Properties of Paraquat in Mouse Brain may Contribute to the Risk of Parkinson's Disease. Society for Neuroscience Abstracts 341.12.
56. Guatam, A., **Richardson, J.R**., and Zeevalk, G.D. (2008). Regional, Age and Gender Characterization of Glutaredoxin in Rat Brain: Relevance to Parkinson's Disease. Society for Neuroscience Abstracts 343.7.
57. Richfield, E.K., Tarasewicz, E., Ohman-Strickland, P., **Richardson, J.R**., Tep, S., Mueller-Steiner, S., O'Neill, M., Mitchell, S.N., Merchant, K., Buttini, M., Prasad, K. (2008). Functional

and Abnormal Consequences of Human Alpha-synuclein in a Mouse Alpha-synuclein Null Background. Society for Neuroscience Abstracts 832.28.

58. Hossain, M.M., and **Richardson, J.R.** (2009). Deltamethrin Exposure Causes Caspase-3 Mediated Apoptosis in SK-N-AS Neuroblastoma Cells. Toxicologist 2133.
59. Green, A.L., White, L.A., and **Richardson, J.R.** (2009). Cloning, Expression, and Pharmacological Characterization of the Zebrafish Dopamine Transporter. Toxicologist 1025.
60. Magby, J.P, and **Richardson, J.R**. (2009). Developmental Exposure to Deltamethrin Results in Regional Alterations in Sodium Channel Subunit and Brain-Derived Neurotrophic Factor mRNA Expression. Toxicologist 183.
61. DeMicco, A., **Richardson, J.R**., Cooper, K.R., and White, L.A. (2009). Exposure to Pyrethroid Insecticides Alters Expression of Genes Important for Dopaminergic Neuronal Development. Toxicologist 172.
62. Gray, J.P., Trzaska, K.A., **Richardson, J.R.**, Heck, D.E., Rameshwar, P., and Laskin, J.D. (2009). Differentiation of Bone Marrow-Derived Stem Cells into Dopaminergic Progenitor Cells Increases Their Sensitivity to Paraquat. Toxicologist 1546.
63. Magby, J.P., and **Richardson, J.R**. (2010). Role of Calcium Influx and and Calpain Activation in Pyrethroid Pesticide-Induced Down-Regulation of Sodium Channel Expression. Toxicologist 1250.
64. Hossain, M.M., and **Richardson, J.R**. (2010). Pyrethroid Pesticide-Induced Apoptosis: Role of the ER Stress Pathway. Toxicologist 1288.
65. Baker, A., Taylor, M.M., and **Richardson, J.R**. (2010). Developmental Exposure to Deltamethrin Results in Gender-Specific Changes in Carboxylesterase Expression and Increased Metabolism of Methylphenidate. Toxicologist 1251.
66. Green, A., Baker, A., and **Richardson, J.R**. (2010). Developmental Exposure to Deltamethrin Results in Gender-Specific Changes in Hepatic UDP-Glucuronosyltransferase Expression. Toxicologist 1234.
67. White, L.A., Demicco, A., Cooper, K.R., and **Richardson, J.R**. (2010). The Zebrafish as a Model for Developmental Exposure to Pyrethroid Pesticides. Toxicologist 2027.
68. Green, A.L. and **Richardson, J.R**. (2011). Epigenetic Alterations Following Developmental Exposure to the Pyrethroid Pesticide Deltamethrin. Toxicologist 105.
69. Magby, J.P. and **Richardson, J.R**. (2011). Age-Dependent Modulation of Sodium Channel Levels and Calpain Activation Following Acute Deltamethrin Exposure. Toxicologist 1341.
70. Hossain M.M. and **Richardson, J.R**. (2011). Lipopolysaccharide Increases Sodium Influx and Down-Regulates Voltage Gated Sodium Channel mRNA Expression in Activated Microglia. Toxicologist 171.
71. Fortin, M.C., Aleksunes, L.M., and **Richardson, J.R**. (2011). Alterations in the Expression of Pyrethroid-Pesticide Metabolizing Enzymes During Gestation in Mice. Toxicologist 2104.
72. Yang, S., **Richardson, J.R**., Reuhl, K.R., Mishin, V., and Laskin, J.D. (2011). Sepiapterin Reductase as a Target for Methyl Mercury Toxicity. Toxicologist 1399.
73. Barrett, J.T., **Richardson, J.R**., Reuhl, K.R., and Zarbl, H. (2011). The Absence of CArG-Box Binding Factor-A in Complete Knockout Mice Exhibit A Low-Anxiety Phenotype. Toxicologist 2647.
74. Kung, T.S., **Richardson, J.R**., and White, L.A. (2011). Embryonic Exposure to Deltamethrin Results in Dopaminergic Gene Expression Changes and Altered Swim Activity. Toxicologist 873.
75. Becker, C. and **Richardson, J.R**. (2011). Neuroprotective Effects of Gamma-Tocopherol-Rich Mixed Tocopherols in Animal Models of Parkinson's Disease. Toxicologist 2795.
76. Gibson, C.J., Hossain, M.M., **Richardson, J.R**., and Aleksunes, L. (2011). Lipopolysaccharide Activation of Microglia Differentially Regulates mRNA Expression of ABC Efflux Transporters. Toxicologist 171.
77. Baker, A.A. and Richardson, J.R. (2011). Alteration in Expression of Mouse Carboxylesterase Isoforms Following Developmental Deltamethrin Exposure: Role of Nuclear Receptors. Toxicologist 1857.
78. Yochum, C., Doherty-Lyon, S., Hoffman, C., Zelikoff, J.T., and **Richardson, J.R.** (2012). Prenatal Cigarette Smoke Exposure Reproduces Features of ADHD. Toxicologist 480
79. Fortin, M.C., Aleksunes, L.M., and **Richardson, J.R.** (2012). Alteration of gene expression of hepatic phase 1 enzymes involved in the biotransformation of pesticides during gestation in a murine model of Type 1 diabetes. Toxicologist 512
80. Hossain, M.M. and **Richardson, J.R.** (2012). Lipopolysaccharide activates microglia through Na+ channel and Na+/H+ exchanger-dependent mechanisms. Toxicologist 694

81. Gibson, C.J., **Richardson, J.R**., and Aleksunes, L.M. (2012). Functional characterization of ABC efflux transporters in microglia: Implications during neuroinflammation. Toxicologist 990
82 Baker, A.A. and **Richardson, J.R**. (2012). Induction of mouse carboxylesterase expression and function following developmental deltamethrin exposure: Role of the Constitutive Androstane Receptor. Toxicologist 1401
83. Armstrong, A., Donepudi, A., Xu, J., Baker, A., Aleksunes, L.M., **Richardson, J.R**., and Slitt, A. (2012). Metabolic effects of perinatal deltamethrin exposure in white adipose tissue of mice. Toxicologist 1402
84. Bircsak, K.M., **Richardson, J.R**., and Aleksunes, L.M. (2012). In Vitro screen for pesticide interactions with human MDR1 and BCRP efflux transporters. Toxicologist 1410
85. Press, A., Fortin, M.C., and **Richardson, J.R**. (2012). Different sensitivity of carboxylesterase 1 genetic variants to irreversible inhibition by oxon metabolites of organophosphate pesticides. Toxicologist 1612
86. Magby, J.P. and **Richardson, J.R**. (2012). Isoform-specific downregulation of sodium channels following developmental deltamethrin exposure. Toxicologist 2567
87. von Stein, R.T. and **Richardson, J.R**. (2012). In vitro DDT exposure alters the expression of Alzheimer's disease-related genes. Toxicologist 2864.
88. **Richardson, J.R**., von Stein, R., Shalat, S., Levey, A., and German, D. (2012). Pesticide exposure is associated with increased risk of Alzheimer's disease: Potential role of altered APP expression. Society for Neuroscience Abstracts 649:F17
89. Inamdar, A.A., Hossain, M., **Richardson, J**., and Bennett, J. (2012). Fungal volatile organic compounds: Potential environmental agent(s) for the pathogenesis of Parkinson's disease? Society for Neuroscience Abstracts 757:J4.
90. Hossain, M.M., and **Richardson, J.R**. (2013). Subchronic exposure to deltamethrin causes hippocampal neuroinflammation and deficits in learning and memory. Toxicologist 262.
91. Lauterstein, D.E., Hoffman, C., Hossain, M., **Richardson, J**., Ganey, F., and Zelikoff, J. (2013). Effects of a smokeless tobacco, gutkha on neurotransmitter levels and associated parameters in mouse brain. Toxicologist 916.
92. Barrett, J.T., Zhang, X., **Richardson, J.R**., Fang, M., and Zarbl, H. (2013). Phenotypic characterization of CArg-box binding factor-A knock-out mice. Toxicologist 1114.
93. Kung, T.S., **Richardson, J.R**., Cooper, K.R., and White, L.A. (2013). The effect of embryonic exposure to deltamethrin on the dopaminergic system and swim activity in the zebrafish. Toxicologist 1380.
94. Inamdar, A.A., Hossain, M., **Richardson J**., and Bennett, J. (2013). Fungal volatile organic compound(s): Potential environmental agent(s) for the pathogenesis of Parkinson's disease. Toxicologist 1844.
95. **Richardson, J.R**., Hossain, M.M, Shalat, S.L., Buckley, B., Levey, A.I., Gadad, B., and German D.C. (2013). Pesticide exposure is associated with increased risk of Alzheimer's disease. Society for Neuroscience Abstracts 45.13/K9.
96. Hossain, M.M, DiCicco-Bloom E., and **Richardson J.**R. (2014). Repeated pesticide exposure causes hippocampal ER stress, neuroinflammation, and cognitive deficits in mice. Toxicologist 1845.
97. Derispiris, L., Konsolaki, M., Reuhl, K.R., and **Richardson, J.R**. (2014). DDT and DDE enhance the toxicity of amyloid beta peptides in drosophila. Toxicologist 1841.
98. Green, A.L., Zhan, L., Zarbl, H., Guo, G.L., and **Richardson, J.R**. (2014). Epigenetic regulation of dopamine transporter expression. Toxicologist 973.
99. Tiethof, A.K., Hart, R.P., Moore, J.C., and **Richardson, J.R**. (2014). Modeling the developmental neurotoxicity of chlorpyrifos in human neural stem cells: Role of butyrylcholinesterase in neuronal differentiation. Toxicologist 1752.
100. Liu, J., Hossain, M.M., and **Richardson, J.R**. (2014). Pyrethroid pesticides directly activate microglia through voltage-gated sodium channels leading to increased TNFα release. Toxicologist 1844.
101. Wen, X., Gibson, C.J., Yang, I., Buckley, B., **Richardson, J.R**., Goedken, M.J., and Aleksunes, L.M. (2014). Deficiency in Mdr1/MDR1 increases paraquat accumulation and toxicity in mice and human renal proximal tubule cells. Toxicologist 2053.
102. **Richardson, J.R**. (2014). Pharmacokinetic and pharmacodynamic consequences of long-term increases in carboxylesterase expression following developmental pesticide exposure. Toxicologist 51.

103. Tiethof, A.K., Hart, R.P., and **Richardson, J.R.** (2015). Effect of APOE genotype on DDT-induced amyloid precursor protein levels and Aβ secretion in isogenic N2A cells. Toxicologist.
104. Hossain, M.M., and **Richardson, J.R.** (2015). Nerve growth factor protects against deltamethrin-induced apoptosis in primary hippocampal neurons. Toxicologist 1502.
105. Beier, E.E., Hossain, M.M., Kong, B., Guo, G.L., and **Richardson, J.R.** (2015). Farnesoid X receptor deficiency in mice enhances MPTP-induced neuroinflammatory response. Toxicologist 1527.
106. Szilagyi, J.T., Mishin, V., Heck, D.E., Jan, Y.H., **Richardson, J.R.**, Laskin, D.L., and Laskin, J.D. (2015). Targeting heme in cytochrome P450 to inhibit mixed function oxidase reactions. Toxicologist 1022.
107. Kung, T., Cooper, K., White, L., and Richardson, J. (2015). The effects of developmental deltamethrin exposure on aggression in adult zebrafish. Toxicologist 264.
108. Wren, M., Liu, M., Buckley, B., **Richardson, J**., Shalat, S., and Vetrano, A. (2015). Assessment of prenatal exposure to pyrethroid pesticides and metabolites in umbilical cord blood. Toxicologist 2789.
109. You, D., and **Richardson, J**. (2015). Microarray analysis of gene expression in mouse midbrain following developmental deltamethrin exposure reveals sex-specific changes associated with behavior, cognition and movement disorders. Toxicologist 2160.
110. **Richardson, J.R.** (2015). Pesticide Exposure Disrupts Adult Neurogenesis and Behavior: Role of Inflammation and ER Stress. Toxicologist
111. **Richardson, J.R.** (2015). Pesticide Exposure as a Risk Factor for AD: Evidence in Mice and Man. Toxicologist
112. Wren, M., Liu, M., Vetrano, A., Buckley, B., **Richardson, J.R**., and Shalat, S.L. (2016). Prenatal exposure to pyrethroid insecticides metabolites measured in umbilical cord blood serum. Toxicologist 1135.
113. Schumacher, J.D., Kong, B., Yang, P., Zhan, L., Sun, R., J., **Richardson, J**., Laskin, D., and Guo, G. (2016). Role of fibroblast growth factor 15 in the development of high fat diet induced NASH. Toxicologist 1953.
114. Wen, X., Baker, A.A., Klaassen, C.D., Richardson, J.R., and Aleksunes, L.M. (2016). Pparα and Car receptors differentially regulate hepatic carboxylesterase expression in mice treated with perfluorooctanoic acid. Toxicologist 1969.
115. Lewis, C.A., Estrella, B., Green, A., Barrett, J., Gallo, M., **Richardson, J**., and Zarbl, H. (2016). Transgenerational effects of developmental exposure to low-dose zeranol on sexual development, reproduction and mammary carcinogenesis. Toxicologist 2069.
116. Beier, E. and **Richardson, J**. (2016). M1 to M2 Microglial Switch Accompanies Cessation of Progressive Dopaminergic Cell Loss Following Lipopolysaccharide Exposure. Toxicologist 2348.
117. You, D., Gibson, C.J., Hossain, M.M., Wen, X., Yang, I., Buckley, B., **Richardson, J.R**., and Aleksunes, L.M. (2016). MDR1 transporter protects agains paraquat-induced dopaminergic neurodegeneration. Toxicologist 2371.
118. Hossain, M.M., and **Richardson, J.R**. (2016). Deltamethrin exposure inhibits adult hippocampal neurogenesis and causes deficits in learning and memory in mice. Toxicologist 2413.
119. **Richardson, J.R**. (2016). Modeling gene-environment interactions in Alzheimer's disease. Toxicologist 2554.
120. Marco, S.M., Tiethof, A., **Richardson, J**., and Buckley B. (2016). Evaluation of the structurally similar organophosphate flame retardants, plasticizers and pesticides for neurotoxic potential. Toxicologist 2400.
121. Wilson, G.N., Smith, M.A., Dengler-Crish, C.M., **Richardson, J.R.**, and Crish, S.D. (2016). Effects of IL-4 on inflammation in the visual projection of DBA/2J glaucomatous mice. Society for Neuroscience Abstracts 48.06/T1.
122. Smith, M.A., Wilson, G.N., Dengler-Crish, C.M., **Richardson, J.R.**, and Crish, S.D. (2016). Sodium channel redistribution in the DBA/2J mouse model of glaucoma. Society for Neuroscience Abstracts 48.04/S13.
123. Darvesh, A.S., Geldenhuys, W.J., Hossain, M.M., Sadana, P., Prus, A.J., Berger, S.P., and **Richardson, J.R**. (2016). Effect of nitric oxide synthase inhibitors on methamphetamine-induced hyperthermia and dopaminergic neurotoxicity in mice. Society for Neuroscience Abstracts 318.11/U6.
123. Manickavasagam, D., Novak, K., **Richardson, J.R**., and Oyewumi, M.O. (2016). Simvastatin-loaded PEG-PLA polymersomes confers neuroprotection through inhibition of inflammation in Parkinson's disease. Society for Neuroscience Abstracts 787.22/I10.

124. Santiago, N., Blackwood, R., Dirr, E., Karkare, S., Liou, B., Sun, Y., Fernagut, P., Bezard, E., **Richardson, J.R.**, and Fleming, S. (2017). Interactions between Atp13a2, alpha-synuclein and Zinc in vivo. Toxicologist 1433.
125. You, D., Wen, X., Morris, A., **Richardson, J.R.**, and Aleksunes, L.M. (2017). Histone modification is a novel epigenetic mechanism to up-regulate human blood-brain barrier transporters. Toxicologist 1741.
126. Burchfield, S., Kong, B., Guo, G., and **Richardson, J.R.** (2017). Farnesoid X Receptor activation decreases nitrite production following cytokine exposure of immortalized mouse astrocytes. Toxicologist 1764.
127. Alam, G., Edler, M, and **Richardson, J.R.** (2017). Differential susceptibility of distinct dopamine neuron populations to prototypical dopaminergic neurotoxicants. Toxicologist 2873.
128. Gould, F.D., Gross, A., German, R.Z., and **Richardson, J.R.** (2017). Effect of rotenone-induced parkinsonism on chewing and swallowing in rats. Toxicologist 2874.
129. Hossain, M.M., Sivaram, G., and **Richardson, J.R.** (2017). Regional differences in ER-stress and apoptosis in the brain of adult mice following a single exposure to deltamethrin. Toxicologist 2876.
130. **Richardson, J.R.** (2017). Developmental deltamethrin exposure causes long-term downregulation of Nav protein and reduced neurotransmitter release. Toxicologist 3140.
131. Neal, M., Alam, G., Beier, E., Wu, L. and **Richardson, J.** (2017). Differential expression of CSF1R and its cognate ligands in toxicant-induced mouse models of Parkinson's disease. Toxicologist 3468.
132. Eid, A. and **Richardson, J.R.** (2017). Alterations of Alzheimer's disease-related gene expression by DDT treatment in mouse primary neuronal cultures. Toxicologist 3472.
133. Budge, K.M., Alam, G., Edler, M., **Richardson, J.** and Safadi, F. (2017). A novel neuroprotective effect of osteoactivin in Parkinson's disease. FASEB J 31(S1), 183.1.
134. Neal, M., Boyle, A., Budge, K., Safadi, F. and **Richardson, J.** (2017). Osteoactivin reduces basal levels of inflammatory factors and attenuates cytokine-induced inflammatory response in cultured astrocytes. American Society for Neurochemistry Abstracts.
135. Eid, A, Mhatre, I., Edler, M.K., Audu, M., Crish, C., and **Richardson, J.R.** (2018). Sex-specific effects on Alzheimer's disease-related proteins after exposure to DDT in 3XTG Mice. Toxicologist 1448.
136. Hossain, M.M., Rabbani, R., and **Richardson, J.R.** (2018). Age-related hippocampal vulnerability to adult neurogenesis following pyrethroid exposure. Toxicologist 1449.
137. Mhatre, I., Eid, A., and **Richardson, J.R.** (2018). DDT-induced mitochondrial dysfunction in primary mouse astrocytes. Toxicologist 1450.
138. Wen, X., Zhou, Y., Mangipudy, V., Abed, D., Hu, L., **Richardson, J.R.**, and Aleksunes, L.M. (2018). Novel keap1 inhibitors protect against neuroinflammation in vitro. Toxicologist 1461.
139. Neal, M., Budge, K., Safadi, F., and **Richardson, J.R.** (2018). Expression of the histone methyltransferase Ezh2 is increased in Parkinson's disease brain and Ezh2 inhibition reduces the astrocyte inflammatory response: Potential role for epigenetic alterations in neurodegeneration. Toxicologist 2216.
140. Boyle, A., Neal, M., Wu, L.J, and **Richardson, J.R.** (2018). The role of microglial proton channel Hv1 in paraquat-induced neuroinflammation. Toxicologist 2228.
141. Al-rhayyel, Y., Lepp, J., Chandra, R., Nasseri, I., Weber, L., **Richardson, J.R.**, Dengler-Crish, C.M., and Fleming, S.M. (2018). The effect of paraquat on cognitive function and emotional reactivity in mice overexpressing human alpha-synuclein. Toxicologist 2231.
142. Burchfield, S., Kong, B., Beier, E., Guo, G.L., and **Richardson, J.R.** (2018). Farnesoid x receptor agonists reduce cytokine-induced inflammatory response of immortalized and primary mouse astrocytes. Toxicologist 3022.
143. Marco, S.M., Rickard, B., Krumm, E.A., Patel, V.J., Yasrebi, A., Yang, I., Roepke, T.A., **Richardson, J.R.**, Aleksunes, L.M., and Buckley, B.T. (2018). Tissue distribution of organophosphate flame retardants in mice: Analysis of dose-dependency, chemical species and sex differences in a subchronic study. Toxicologist 3220.
144. Plyer, E., Smith, M.A., Richardson, J.R., Dengler-Crish, C.M., and Crish, S.D. (2018). Retinal amyloid pathology requires CD36 receptors. Invest. Opthal. Vis. Sci. 59(9):3720.
145. Eid, A., Edler, M., Mhatre, I., Dengler-Crish, C., and **Richardson, J.R.** (2018). Early and persistent sex differences in the age-associated increase of amyloid beta in 3XTG-AD mice. SFN Abstracts.

146. **Richardson, J.R.**, Eid, A., Buckley, B.B., White, C.L., and German, D.C. (2018). DDT exposure increases amyloid precursor protein levels and amyloid beta pathology: Mechanistic links to Alzheimer's disease risk. SFN Abstract.
147. Neal, M., Boyle, A., Wu, L., and **Richardson, J.R.** (2019) Paraquat directly induces the microglial Nlrp3 inflammasome via the voltage-gated proton channel Hv1. Toxicologist 1311.
148. Yang, S., Jan, Y., Mishin, V., Heck, D., **Richardson, J.**, and Laskin, J. (2019). Identification of accessible cysteine residues in neuronal-derived sepiapterin reductase as targets of methyl mercury. Toxicologist 1398.
149. Hom, M., Nair, M., Khooblall, P., Alamir, P., Belkadi, A., **Richardson, J.R.**, and Hossain, M.M. (2019). Inhibition of ER stress attenuates deltamethrin-induced hippocampal neuroinflammation in mice. Toxicologist 1425.
150. Eid, A., Mhatre, I., and **Richardson, J.R.** (2019). DDT increases neuroinflammation and microglial activation: Role of microglial sodium channels. Toxicologist 1426.
151. Morris, A.D., Eid, A., **Richardson, J.R.**, and Hart, R.P. (2019). Gene-environment interaction of DDT/DDE and APOE on the amyloid pathway in induced human neurons. Toxicologist 1446.
152. Viramontes, D., Marco, S.M., Wen, X., **Richardson, J.R.**, Buckley, B.B., and Aleksunes, L.M. (2019). Interaction of organophosphate flame retardants with the MDR1 efflux transporter. Toxicologist 3130.
153. You, D., Shin, H., Mosaad, F., **Richardson, J.R.**, and Aleksunes, L.M. (2019). Brain region-specific histone acetylation and up-regulation of Mdr1 and Bcrp transporters in mice. Toxicologist 3133.
154. Nadolny, C., Chambers, J., Guo, G. and **Richardson, J.R.** (2019). Identification of functional farnesoid x receptor in glioblastoma NCI-60 cell lines. Toxicologist 3372.
155. Sammoura, F.M., Eid, A. and **Richardson, J.R.** (2020). Lead and DDT additively increase the levels of amyloid precursor protein in hippocampal HT22 cells. Toxicologist 1438.
156. Kim, C., Neal, M., Boyle, A., Wu, L. and **Richardson, J.R.** (2020). Paraquat primes the microglial NLRP3 inflammasome via the voltage-gated proton channel Hv1. Toxicologist 1452.
157. Morris, A.D., Eid, A., **Richardson, J.R.** and Hart, R.P. (2020). Assessing DDT/DDE in Alzheimer's disease pathways in human stem cell-derived neurons carrying APOE gene variants. Toxicologist 2080.
158. Nadolny, C.A., Chambers, J., Guo, G. and **Richardson, J.R.** (2020). Regulation of ubiquitin specific peptidase 2 by farnesoid x receptor in glioblastoma NCI-60 cell lines. Toxicologist 1843.
159. Mhatre, I., Eid, A., Han, Y. and **Richardson, J.R.** (2020). The effects of age, sex and genotype on LPS-induced neuroinflammation in humanized targeted replacement APOE mice. Toxicologist 1860.
160. Laskin, J.D., Yan, Y., Neal, M.L., Mishin, V., Kim, C., Hossain, M.M. and **Richardson, J.R.** (2020). Protection against parathion-induced neurotoxicity by a menadione/vitamin C combination drug. Toxicologist 3038.
161. Eid, A., Mhatre, I., Hart, R.P. and **Richardson, J.R.** (2020). RNA-seq evaluation of DDT exposure in the hippocampus of humanized APOE mice. Toxicologist 3048.
162. Wen, X., Ritzau, R., **Richardson, J.R.** and Aleksunes, L.M. (2021). In Vitro transport of toxicants by MDR1 (ABCB1) polymorphic variants. Toxicologist 2086.
163. Mhatre-Winters, I., Eid, A., Han, Y., Bursac, Z. and **Richardson, J.R.** (2021). The Effects of Sex, Age, and Genotype on Neuroinflammation in Humanized Targeted Replacement APOE Mice. Toxicologist 2657.
164. Sammoura, F.M., Eid, A. and **Richardson, J.R.** (2021). Lead and DDT Additively Increase Levels of Amyloid Precursor Protein in HT22 Cells and Mouse Primary Hippocampal Neurons. Toxicologist 2658.
165. Kim, C., Neal, M., Boyle, A., Wu, L. and **Richardson, J.R.** (2021). Paraquat Primes the Microglial NLRP3 Inflammasome via the Voltage-Gated Proton Channel Hv1. Toxicologist 2661.
166. Mhatre-Winters, I., Eid, A., Han, Y., Bursac, Z. and Richardson, J.R. (2022). Sex-specific Responses of Primary Microglia and Astrocytes from Humanized APOE3 and APOE4 Mice to Inflammatory Stimuli. Toxicologist 3294.
167. Sammoura, F.M., Barahona, A.J., Mhatre-Winters, I. and Richardson, J.R. (2022). DDT and its Metabolite DDE Increase Levels of Amyloid Precursor Protein and Secretion of Amyloid Beta. Toxicologist 3874.
168. Barahona, A.J., Sammoura, F.M., Mhatre-Winters, I. and Richardson, J.R. (2022). The Effects of the Organochlorine Pesticide DDT and its metabolite DDE on Amyloid Beta pathology in the 5xFAD mouse Model of Alzheimer's Disease. Toxicologist 3865.

169. Blum, N., Mhatre-Winters, I., Kim, C. and Richardson, J.R. (2022). Role of NLRP3 in Mediating Neuroinflammation in Primary Microglia from Humanized Targeted Replacement APOE3 and APOE4 Mice. Toxicologist 3297.
170. Kim, C., Neal, M., Boyle, A., Wu, L.J. and Richardson, J.R. (2022). Deficiency of Microglial Hv1 Proton Channel Attenuates Paraquat-Induced Microglial NLRP3 Inflammasome. Toxicologist 3839.
171. Molina, M.A., Gamba, L.M., Toltin, A.C., Richardson, J.R. and Hossain, M.M. (2022). Pyrethroid Exposure Causes Enhanced Hippocampal ER Stress, Impairs Hippocampal Neurogenesis and Worsens Cognitive Function in APOE4 Mice. Toxicologist 3831.

INVITED SCIENTIFIC PRESENTATIONS:

1. Emory University Department of Environmental and Occupational Health. Environmental Factors in Neurological Disease: Models and Mechanisms. January 25, 2005. Atlanta, GA.
2. University of Kansas Medical Center Department of Pharmacology, Toxicology, and Therapeutics. Pesticides and Parkinson's Disease: Models and Mechanisms. January 27, 2005. Kansas City, KS.
3. University of Kansas-Lawrence Department of Pharmacology and Toxicology. Pesticides and Neurological Disease: Models and Mechanisms. February 2, 2005. Lawrence, KS.
4. University of Medicine and Dentistry New Jersey/Robert Wood Johnson Medical School Department of Environmental and Occupational Medicine. Pesticides and Parkinson's Disease: Models and Mechanisms. February 7, 2005. Piscataway, NJ.
5. National Institute of Environmental Health Sciences (NIH/NIEHS) Fetal Basis of Adult Disease Grantees Meeting. Developmental Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder. November 1, 2005. Durham NC.
6. United States Environmental Protection Agency Science Forum "Your Health, Your Environment, Your Future". Developmental Pesticide Exposure Reproduces Features of ADHD. May 16, 2006. Washington D.C.
7. National Institute of Environmental Health Sciences (NIH/NIEHS) Children's Environmental Health Research Workshop. "Mechanisms of Environmental Influences in ADHD". January 23, 2007. Durham, NC.
8. Rutgers, The State University of New Jersey, Cook College Department of Animal Science. "Developmental Pesticide Exposure and the Fetal Basis of Parkinson's Disease and ADHD". February 16, 2007. New Brunswick, NJ.
9. National Institute of Environmental Health Sciences (NIH/NIEHS) Outstanding New Environmental Scientist Award Finalist Seminar. "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD". May 14, 2007. Durham, NC.
10. Rutgers Occupational Medicine Resident's Seminar Series. "Pesticides: Historical Perspectives and Future Implications in Environmental and Occupational Health". May 15, 2007. Piscataway, NJ.
11. Rutgers, The State University of New Jersey, Department of Biochemistry and Microbiology. "Molecular Mechanisms of Pesticide-Induced Dopaminergic Dysfunction: Relevance to ADHD". September 28, 2007. New Brunswick, NJ.
12. 24th International Neurotoxicology Conference. Developmental Pesticide Exposure: A New Risk Factor for ADHD? November 12, 2007. San Antonio, TX.
13. National Institute of Environmental Health Sciences (NIH/NIEHS) Outstanding New Environmental Scientist Awardees Conference. "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD. January 7, 2008. Research Triangle Park, NC.
14. United States Environmental Protection Agency. "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD. January 8, 2008. Research Triangle Park, NC.
15. Emory University, Rollins School of Public Health, Department of Environmental and Occupational Health. Developmental Pesticide Exposure: A New Risk Factor for ADHD? April 22, 2008. Atlanta, GA.
16. Neurobehavioral Teratology Society Annual Meeting Symposium "Impact of the Environment on Neurodevelopment in Children: Pesticides, Metals and Animal Models". "Developmental Pesticide Exposure: A New Risk Factor for ADHD? July 1, 2008. Monterrey, CA.
17. 25th International Neurotoxicology Conference Symposium "Accelerated Aging Associated with Early Environmental Exposures**"**. "Organochlorine Pesticide Exposure as a Risk Factor for Neurodegenerative Disease". October 13, 2008. Rochester, NY.
18. Emory University School of Medicine, Center for Neurodegenerative Disease, Department of Neurology. "Association of Pesticide Exposure with Neurological Disease and Dysfunction: Evidence in Mice and Man. October 23, 2008. Atlanta, GA.

19. Michael J. Fox Foundation for Parkinson's Research Biomarkers Meeting. "Gene-Environment Interactions in Parkinson's Disease. December 11, 2008. New York, NY
20. Society of Toxicology Annual Meeting Symposium "The Future of Environmental Health Science". "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD. March 17, 2009. Baltimore, MD.
21. National Institute of Environmental Health Sciences (NIH/NIEHS) Town Hall Meeting. "Developmental Pesticide Exposure and Neurological Disease". June 17, 2009, New Brunswick, NJ.
22. Society for Neurobehavioral Endocrinology Symposium. "The Endocrine Disruptor Hypothesis: What Do We Know and What Do We Need to Know". "Developmental Exposures to Pesticides and Endocrine Disruptors: Common Pathways Leading to Neurobehavioral Dysfunction". June 25, 2009, East Lansing, MI.
23. Winthrop University Hospital, Division of Neonatology. "Developmental Pesticide Exposure as a Risk Factor for ADHD: Evidence in Mice and Man". October 23, 2009. Mineola, NY.
24. 26th International Neurotoxicology Conference Symposium "Epigenetic Mechanisms in Neurodevelopmental Disorders". "Epigenetics in Neurodevelopmental Disorders and Neurotoxicology". June 9, 2010, Portland, OR.
25. Bristol-Myers Squibb. "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD". October 5, 2010. New Brunswick, NJ.
26. Columbia University, Mailman School of Public Health. "Developmental Pesticide Exposure as a Risk Factor for ADHD: Evidence in Mice and Man". January 11, 2011. New York, NY.
27. Chulalongkorn University, College of Public Health. "Persistent Organochlorine Pesticides and Neurodegeneration". March 25, 2011. Bangkok, Thailand.
28. Chulalongkorn University, College of Public Health. "Current Research on the Neurodevelopmental Effects of Pyrethroid Insecticides" March 25, 2011. Bangkok, Thailand.
29. NIEHS ONES Forum. "Mechanisms of Pesticide-Induced Neurobehavioral Deficits: Relevance to ADHD". July 18-19, 2011. Research Triangle Park, NC.
30. Gordon Research Conference 'Cellular and Molecular Mechanisms of Toxicity". "Developmental Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder: Role of Epigenetic Alterations in the Dopamine System". August 8, 2011. Andover, NH.
31. University of Connecticut, College of Pharmacy. "Developmental Pesticide Exposure as a Risk Factor for ADHD: Evidence in Mice and Man". October 3, 2011. Storrs, CT.
32. 27th International Neurotoxicology Conference Symposium "ADHD-The Roles of Genetics, Environmental Contaminants, and Sex". "Developmental Exposure to Diverse Environmental Compounds: Common Pathways Leading to Neurobehavioral Dysfunction Associated with ADHD. November 1, 2011. Raleigh, NC.
33. Vanderbilt University. "Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder: Role of Epigenetic Alterations in the Dopamine System". December 2, 2011.
34. Merck and Company. "Gene-Environment Interactions in Neurodegenerative Disease" February 22, 2012. Kenilworth, NJ.
35. Central American Institute for Studies on Toxic Substances (IRET) of the Universidad Nacional Costa Rica. 'Pesticide Exposure as a Risk Factor for Neurological Disease". March 26, 2012. Heredia, Costa Rica.
36. North Jersey American Chemical Society Drug Metabolism Discussion Group. "Induction of Mouse Carboxylesterase Expression and Function Following Developmental Pesticide Exposure: Role of the Constitutive Androstane Receptor". October 11, 2012. Somerset, NJ.
37. Society of Toxicology Annual Meeting Workshop on Environmental Factors in Neurodegenerative Disease. "Integrating Epidemiological and Basic Research to Assess the Role of Pesticide Exposure in Neurodegenerative Disease". March 10, 2013. San Antonio, TX.
38. XIII International Congress of Toxicology. "Developmental Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder: Role of Epigenetic Alterations in the Dopamine System". July 1, 2013. Seoul, South Korea. (Could not attend because of illness).
39. University of Iowa School of Pharmacy. "Pharmacokinetic and Pharmacodynamic Consequences of Long-term Increases in Carboxylesterase Expression following Developmental Pesticide Exposure". November 5, 2013.
40. Society of Toxicology Annual Meeting Workshop: Developmental Programming of Hepatic Metabolism: Assessing the Impact of Perinatal Exposure to Xenobiotics. "Pharmacokinetic and Pharmacodynamic Consequences of Long-term Increases in Carboxylesterase Expression following Developmental Pesticide Exposure". March 24, 2014. Phoenix, AZ.
41. University of Rochester School of Medicine. "Pesticide Exposure as a Risk Factor For Alzheimer's

Disease: Epidemiological and Mechanistic Studies". May 1, 2014. Rochester, NY.

42. National Institute of Environmental Health Sciences. "Translational Research on the Role of Pesticide Exposure in ADHD". July 2, 2014. Research Triangle Park, NC.
43. Environmental Protection Agency. "Pesticide Exposure as a Risk Factor for Alzheimer's Disease: Evidence in Mice and Man". August 13, 2014. Research Triangle Park, NC.
44. National Institute of Environmental Health Sciences. "Pesticide Exposure as a Risk Factor For Alzheimer's Disease: Evidence in Mice and Man". August 12, 2014.
45. Third International Conference of Parkinson's Disease & Movement Disorders. "Novel Targets for Mitigating Neuroinflammation in Parkinson's Disease". September 1, 2014. Shanghai, China.
46. Child Health Institute of New Jersey. Developmental Pesticide Exposure as a Risk Factor for ADHD: Evidence in Mice and Man". September 15, 2014. New Brunswick, NJ.
47. Louisiana State University College of Veterinary Medicine. "Gene-Environment Interactions in Neurodegeneration: Role of Efflux Transporters and Neuroinflammation". October 27, 2014. Baton Rouge, LA.
48. Mississippi State University College of Veterinary Medicine. "Developmental Pesticide Exposure as a Risk Factor for ADHD: Evidence in Mice and Man". November 2, 2014. Starkville, MS.
49. Purdue University."Gene-Environment Interactions in Neurodegeneration: Role of Efflux Transporters and Neuroinflammation". February 17, 2015. West Lafayette, IN.
50. Rutgers University, Department of Animal Science. "Developmental Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder: Role of Epigenetic Alterations in the Dopamine System". February 27, 2015. New Brunswick, NJ.
51. Northeast Ohio Medical University. "Translational Approaches to Alzheimer Disease". March 16, 2015. Rootstown, OH.
52. American Society for Neurochemistry. "Gene-Environment Interactions in Alzheimer Disease". March 2015. Atlanta, GA.
53. Society of Toxicology Annual Meeting. "Pesticide Exposure Disrupts Adult Neurogenesis and Behavior: Role of Inflammation and ER Stress". March 2015. San Diego, CA.
54. Society of Toxicology Annual Meeting. "Pesticide Exposure as a Risk Factor for Alzheimer Disease: Evidence in Mice and Man". March 2015. San Diego, CA.
55. University of Texas Medical Branch at Galveston. "Pesticide Exposure Disrupts Adult Neurogenesis and Behavior: Role of Inflammation and ER Stress". April 24, 2015. Galveston, TX.
56. Molecular Bioscience Lecture, Wichita State University. "Epigenetic Regulation of the Dopamine Transporter". October 28, 2015. Wichita, KS.
57. University of Rhode Island. "Developmental Pyrethroid Exposure Reproduces Features of Attention-Deficit Hyperactivity Disorder: Role of Epigenetic Alterations in the Dopamine System". February 25, 2016. Kingston, RI.
58. Society of Toxicology Annual Meeting Workshop. "Modeling Gene-Environment Interactions in Alzheimer Disease. March 16, 2016. New Orleans, LA.
59. American Society for Pharmacology and Experimental Therapeutics Symposium. "Modeling Gene-Environment Interactions in Alzheimer Disease". April 5, 2016. San Diego, CA.
60. Michael J Fox Foundation. Targeting Microglial Ion Channels in Neuroinflammation. April 20, 2016.
61. National Institute of Environmental Health Sciences. "Developmental Pesticide Exposure Causes Long-Term Decreases in Sodium Channels and Glutamate Release in the Hippocampus". May 18, 2016. Research Triangle Park, NC.
62. Pittsburgh Institute for Neurodegenerative Disease, University of Pittsburgh. "Novel Targets for Reducing Neuroinflammation in Parkinson's Disease". October 5, 2016.
63. University of Kentucky Department of Toxicology and Cancer Biology. "Pesticide Exposure as a Risk Factor For Alzheimer's Disease: Evidence in Mice and Man." November 28, 2016.
64. Society of Toxicology Annual Meeting Workshop. "Developmental Pesticide Exposure Causes Long-Term Decreases in Sodium Channels and Glutamate Release in the Hippocampus". March 17, 2017. Baltimore, MD.
65. Keynote Lecture. Allegheny-Erie Chapter of the Society of Toxicology Annual Meeting. "Pesticide Exposure as a Risk Factor For Alzheimer's Disease: Evidence in Mice and Man.". May 16, 2017. Morgantown, WV.
66. Developmental Neurotoxicity Society. "Translational Studies on the Role of Developmental Pyrethroid Exposure in ADHD: From Cells to Zebrafish to Mice to Humans and Back Again". June 25, 2017. Denver, CO.
67. Parkinson's Disease Gordon Conference. "Gene-Environment Interactions in PD: Role of Efflux Transporters". June 26, 2017. Newry, ME.

68. Mechanisms of Toxicity Gordon Research Seminar (could not attend because of illness).
69. Oberlin College."Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". September 22, 2017. (re-scheduled due to illness)
70. University of North Texas Health Science Center. "Novel Targets for Reducing Neuroinflammation in Parkinson's Disease". October 9, 2017. (re-scheduled for Fall 2018)
71. University of North Texas Health Science Center. "Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". October 10, 2017. (re-scheduled for Fall 2018)
72. North Carolina State University. "Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". October 17, 2017.
73. Institute of Integrative Toxicology, Michigan State University. "Novel Targets for Reducing Neuroinflammation in Parkinson's Disease". November 10, 2017.
74. Baylor College of Medicine, Department of Medicine. Emerging Role of the Gut-Liver-Brain Axis in Regulating Neuroinflammation in Parkinson's Disease. November 28, 2017
75. UT Southwestern Medical Center, Neuroscience Program. Gene-Environment Interactions in Alzheimer's Disease. December 5, 2017.
76. Florida International University, Roger Stempel School of Public Health and Social Work. "Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". December 8, 2017.
77. Harvard T.H. Chan of Public Health. Colloquium on Environmental Exposures in Aging and Cognitive Decline. "Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". February 22, 2018.
78. University of Cincinnati Neuroscience Program. "Pesticide Exposure Disrupts Adult Neurogenesis and Behavior: Role of Inflammation and ER Stress". April 5, 2018.
79. Duke University. "Gene-Environment Interactions in Neurodegeneration: Role of Efflux Transporters and Neuroinflammation". October 12, 2018. Re-scheduled February 14, 2019.
80. University of Texas. "Gene-Environment Interactions in Alzheimer's Disease". November 15, 2018
81. The Academy of Medicine, Engineering & Science of Texas Annual Conference: Neuroscience and Brain Health. "Gene-Environment Interactions in Alzheimer's Disease". January 15, 2019.
82. Texas A&M University. "Gene-Environment Interactions in Alzheimer's Disease: Evidence in Man and Mice". March 18, 2019.
83. 9th Global Health Conference. "Environmental factors as contributors to age-related neurodegeneration: opportunities for prevention, intervention and personalized medicine". May 9, 2019. Miami, FL.
84. Preserving Brain Health in Disadvantaged Communities: Exploring Pathways to Intervention Development Workshop. "Gene-Environment Interactions in Alzheimer's Disease: A Path to Precision Medicine and Precision Public Health". June 3rd, 2019. Miami, FL.
85. Michael J Fox Foundation. "Targeting the Farnesoid X Receptor for Reducing Neuroinflammation". September 10, 2019, New York, New York.
86. National Academies of Science, Engineering and Medicine Forum on Neuroscience and Nervous System Disorders. Environmental Neuroscience: Advancing the Understanding of How Chemical Exposures Impact Brain Health and Disease—A Virtual Workshop. June 25, 2020 via Zoom.
87. University of Miami Neural Engineering Symposium. "The Effects of Sex, Age and Genotype on Neuroinflammation in Humanized Targeted Replacement APOE Mice". October 26, 2020.
88. Department of Neuroscience and Rio Grande Valley Alzheimer's disease RCMAR, University of Texas Rio Grande Valley. "Environmental Factors in Alzheimer's Disease: Susceptible Populations and Mechanisms. November 30, 2021.
89. Department of Neurobiology and Anatomy, Virginia Commonwealth University. Microglial Hv1 Proton Channel as a Mediator of Environmentally-Induced Neuroinflammation and Dopaminergic Neurodegeneration. February 4, 2022.

CURRICULUM VITAE

Hui (Iris) Zhang, Ph.D.
Department of Neuroscience and Farber Institute for Neurosciences
Thomas Jefferson University
900 Walnut St, JHN Rm 451, Philadelphia, PA 19107
hxz012@jefferson.edu; Iriszhang@yahoo.com
Phone: 215-503-7213 (O); 646-734-8653 (M)

EDUCATION

1984-1989	B.S. (*Biophysics)*	Fudan University, Shanghai, China
1989-1992	M.S. (*Neuroscience)*	Chinese Academy of Sciences, Shanghai, China
1992-1998	Ph.D. (*Neurobiology)*	Columbia University, New York, USA
	Mentor: Dr. Arthur Karlin	

POSTGRADUATE TRAINING AND FELLOWSHIP APPOINTMENTS

2000-2003	Postdoctoral Research Scientist Department of Neurology, Columbia University, New York *Mentor: Dr. David Sulzer*
2003-2007	Associate Research Scientist, Dept. of Neurology, Columbia University

FACULTY APPOINTMENTS

2008-2009	Research Scientist; Director of Optical Imaging Facility, Dept. of Neurology, Columbia University
2010-2012	Assistant Professor of Clinical Neurobiology, Dept. of Psychiatry, Columbia University (*non-tenure-track*)
2013-Current	Assistant Professor (Academic Investigator-Track; tenure-track) Sidney Kimmel Medical College at Thomas Jefferson University Department of Neuroscience Vickie and Jack Farber Institute for Neuroscience

Awards, Honors and Membership in Honor Societies

1984-1989	Distinguished Graduate Scholarship, FuDan University
1989-1992	Graduate Fellowship, Chinese Academy of Sciences
1992-1998	Graduate Fellowship, Columbia University
2005-2008	NARSAD Young Investigator Award
2011-2012	Feldstein Medical Foundation Research Award

Memberships in Professional and Scientific Societies

1995-current	Society for Neuroscience
2016-current	Society for Neurochemistry
2018-current	New York Academy of Sciences

Editorial Boards

2021-current	Handling Editor, Journal of Neurochemistry
2021-current	Senior Editor, Molecular Neurodegeration
2022-current	Associate Editor, Neural Technology, Frontiers in Neuroscience

Invited Journal and Grant Reviewer

2006-present	Ad hoc reviewer for journals including J of Neuroscience, eLife, Neuron, Nature communication, Molecular Neurodegeration, J of Neurochemistry, Cerebral Cortex, Brain Research, Translational Neurodegeneration
2013	MRC (Medical Research Council), UK
2015	VA Peer Review Committee: Neurobiology E (NURE), *ad hoc* reviewer
2016	Biotechnology and Biological Sciences Research Council (BBSRC), UK
2018	NIH ZES1 LKB-D (K99) Study Section, *Ad hoc reviewer*
2018	NIH CNNT Study Section, *Ad hoc reviewer*
2019	NIH ZNS1SRB (NINDS Udall Center for Parkinson's Disease Research), *hoc reviewer*
2019	NIH NOMD Study Section, *Ad hoc reviewer*

Academic Committees at the Thomas Jefferson University, Medical College and Affiliated Hospitals:

2013-2017 PhD Admission Committee, Neuroscience Graduate Program, Thomas Jefferson University

2015-2017 Qualifying Exam Committee, Neuroscience Graduate Program, Thomas Jefferson University

Major Teaching and Clinical Responsibilities at Thomas Jefferson University and Affiliated Hospitals:

Medical Teaching

- 2013-2015, TJU MC MCBM Molecular and Cellular Basis of Medicine (lecturer)
- 2013-2017, TJU MC ID150 Neuroscience (lecturer)

Graduate Teaching

- 2013-present, TJU NS690 Neuropharmacology (lecturer and course director)
- 2013-present, TJU NS601 Profiles in Neuroscience Research (lecturer and course director)
- 2013-present, TJU NS700 Cellular Neurophysiology (lecturer)
- 2013-2016, TJU NS626 and NS 636 Journal Club (course director)
- 2013-2018, TJU NS715 Molecular and Cellular Neuroscience (lecturer)

Major Mentorship Experience/Trainees

Current

- Jingyu Zhao, PhD student
- Yuanxin Chen, Senior research investigator

Past

- Lulan Chen, PhD in Neuroscience, 2013-2014, Fudan University, China *Current position: Research Assistant Professor, Fudan University, China*
- Qi Qin, PhD in Neuroscience, 2014-2016. *Current position: Chief Physician, Xuanwu Hospital Capital Medical University, Beijing, China*
- Msema Msackyi, Master in Biomedical Science, 2017-2018. *Current position: PhD student at Thomas Jefferson University*
- Sejoon Choi, Ph.D., Post-Doctoral Fellow, 2010-2012. *Current position: Associate Research Scientist, Columbia University*
- Lianteng Zhi, Ph.D., Post-Doctoral Fellow, 2013-2015. *Current position: Research Associate, Thomas Jefferson University*

- Yuanxin Chen, Ph.D., Post-Doctoral Fellow, 2013-2014. *Current position: Senior Research Investigator, Thomas Jefferson University*
- Bin Gou, Ph.D., Post-Doctoral Fellow, 2017-2018. *Current position: Associate professor, State Key Laboratory of Primate Biomedical Research, Institute of Primate Translational Medicine, Kunming University of Science and Technology*
- Ninghan Wang, Ph.D. in Bioengineering, 2018-2019, Drexel University
- Wangchen Tsering, B.S., Technician, 2017-2019. *Current position: PhD student at Florida University*
- Wei Wang, B.S., summer intern, 2019. *Current position: master student at Columbia University*

- Tom Westguard, PhD in Neuroscience, 2013, lab rotation
- Tanziyah Muqeem, MD/PhD student, 2014, lab rotation
- David Jaffe, MD/PhD student, 2019, lab rotation
- Christopher Herbst, PhD student, 2019, lab rotation

Ph.D. and Master's Degree Thesis Committee Member

- Xinmei Wen, Advisor: Davide Trotti; Neuroscience Ph.D. Program
- Nan Xia, Advisor: Matthew Dalva; Neuroscience Ph.D. Program
- Shelly Jones, Advisor: Manuel Covarrubias; Master's Program: Biomedical Science

Ph.D. and Master's Degree Thesis Advisor

2014-2016 Qi Qin, PhD Program: Neuroscience
2017-2018 Msema Msackyi, Master's Program: Biomedical Science
2019-2021 Jingyu Zhao, PhD Program: Neuroscience

INVITED LECTURES/PRESENTATIONS

National

2007 Stony Brook University, NY. Plasticity of dopamine release and its effect on corticostriatal synapses.
2008 University of Colorado School of Medicine. Plasticity of dopamine release.
2012 Columbia University, NY. Presynaptic dysfunction in LRRK2 Parkinson's disease.
2012 Thomas Jefferson University, PA. Presynaptic dysfunction in LRRK2 Parkinson's disease.
2015 University at Buffalo, NY. LRRK2 mediated dopaminergic axonal degeneration and synaptic transmission deficits
2016 Drexel University, PA. Dopamine Storage and Release at Individual Presynaptic Terminals Visualized with Fluorescent False Neurotransmitters
2017 National Institute of Environmental Health Sciences, NIH. LRRK2 mediated dopaminergic axonal degeneration and synaptic transmission deficits
2017 SFN conference, LRRK2-R1441G mutation increases oxidative stress in substantia nigra dopamine neurons
2022 Winter Brain Research Conference (WCBR), Synaptic dysfunction and energy failure in Parkinson's Disease

2022 Rutgers University, Synaptic dysfunction and energy failure in Parkinson's Disease

International

2008 Vancouver, Canada. Visualizing presynaptic activity of individual striatal dopamine terminals with fluorescent false neurotransmitters. Invited talk for the 12th International conference on In vivo Methods.

2008 KunMing, China. Frequency-dependent modulation of dopamine release. Invited talk for International symposium on drug addiction: mechanisms and therapeutic approaches.

2008 Shanghai Institute of Neuroscience, Chinese Academy of Sciences, China. Plasticity of dopamine release and its effect on corticostriatal synapses.

2016 Beijing, China. Altered excitation-inhibition balance upon dopamine modulation in schizophrenia. Invited talk for ABERRANT PLASTICIT AND CIRCUIT MECHANISMS IN NEUROLOGICAL AND PSYCHIATRIC DISORDERS symposium

2019 Duke-NUS Medical School, Singapore. Synapses, mitochondria and Parkinson's disease

2020 TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY, Israel. Synapses, mitochondria and Parkinson's disease

2022 Montreal, Canada. Chair and speaker of symposium “LRRK2 and GTPase Activity” for Dopamine 2020 Meeting (*Scheduled on May 17, 2020 but postponed to May 21, 2022 due to COVID-19 outbreak*)

Organizing Role in Scientific Meetings

2022 Montreal, Canada. Dopamine 2020 Meeting, chair of symposium “LRRK2 and GTPase Activity” (*Scheduled on May 17, 2020 but postponed to May 21, 2022 due to COVID-19 outbreak*)

PUBLICATIONS

Peer Reviewed Original Contributions (* corresponding author)

1. Shih YL, Wang WP, **Zhang H**, and Xu K (1992) Channel-forming activity at planar lipid bilayers of the membrane active polypeptide B from venom of Bungarus Fasciatus. Sheng Li Xue Bao 44: 533-44.
2. Shih YL, Wang WP, **Zhang H**, Wang, KY, and Guo M (1992) Cation channels formed in planar lipid bilayer by Pinellia Ternata Lectin. Sheng Li Xue Bao 44: 142-8.
3. **Zhang H**, and Shih YL (1994) Lectin and ion channel (Review). Prog Physiol Sci 256 (3): 223-7.
4. Shih YL, Xu YF, and **Zhang H** (1994) Effect of Pinellia Ternata Lectin on membrane currents of mouse motor nerve terminals. Science in China (Series B) 37 (5): 448-53.
5. **Zhang H**, and Shih YL (1994) Cation selectivity of channels formed at planar lipid bilayers by Pinellia Ternata Lectin. Science in China (Series B) 37 (5): 547-56
6. **Zhang H**, and Karlin A (1997) Identification of acetylcholine receptor channel-lining residues in the M1 segment of the β subunit. Biochemistry 36: 15856-64.

7. **Zhang H**, and Karlin A (1998) Contribution of the β subunit M2 segment to the ion-conducting pathway of the acetylcholine receptor. Biochemistry 37: 7952-64.
8. Fremeau RT Jr, Burman J, Qureshi T, Tran CH, Proctor J, Johnson J, **Zhang H**, Sulzer D, Copenhagen DR, Storm-Mathisen J, Reimer RJ, Chaudhry FA, and Edwards RH (2002) The identification of vesicular glutamate transporter 3 suggests novel modes of signaling by glutamate. Proc Natl Acad Sci U S A 99: 14488-93.
9. Venton BJ, **Zhang H**, Garris PA, Phillips PE, Sulzer D, and Wightman RM (2003) Real-time decoding of dopamine concentration changes in the caudate-putamen during tonic and phasic firing. J Neurochem 87: 1284-95
10. **Zhang H**, and Sulzer D (2003) Glutamate spillover in the striatum depresses dopaminergic transmission by activating group I metabotropic glutamate receptors. J Neurosci 23: 10585-92.
11. Chuhma N, **Zhang H**, Masson J, Zhuang X, Sulzer D, Hen R, and Rayport S (2004) Dopamine neurons mediate a fast excitatory signal via their glutamatergic synapses. J Neurosci 24: 972-81.
12. Kholodilov N, Yarygina O, Oo TF, **Zhang H**, Sulzer D, Dauer W, and Burke RE (2004) Regulation of the development of mesencephalic dopaminergic systems by the selective expression of glial cell line-derived neurotrophic factor in their targets. J Neurosci 24: 3136-46.
13. Bamford NS, **Zhang H**, Schmitz Y, Wu NP, Cepeda C, Levine MS, Schmauss C, Zakharenko SS, Zablow L, and Sulzer D (2004) Heterosynaptic dopamine neurotransmission selects sets of corticostriatal terminals. Neuron 42: 653-63.
14. **Zhang H**, and Sulzer D (2004) Frequency-dependent modulation of dopamine release by nicotine. Nat Neurosci 7: 581-2.
15. Son JH, Kawamata H, Yoo MS, Kim DJ, Lee YK, Kim S, Dawson TM, **Zhang H**, Sulzer D, Yang L, Beal MF, Degiorgio LA, Chun HS, Baker H, and Peng C (2005) Neurotoxicity and behavioral deficits associated with Septin 5 accumulation in dopaminergic neurons. J Neurochem 94: 1040-53.
16. Paterlini M, Zakharenko SS, Lai WS, Qin J, **Zhang H**, Mukai J, Westphal KG, Olivier B, Sulzer D, Pavlidis P, Siegelbaum SA, Karayiorgou M, and Gogos JA (2005) Transcriptional and behavioral interaction between 22q11.2 orthologs modulates schizophrenia-related phenotypes in mice. Nat Neurosci 8:1586-94.
17. Bamford NS**, Zhang H,** Joyce JA, Scarlis CA, Harleton E, and Sulzer D (2008) Chronic methamphetamine induces reversible long-term presynaptic depression at corticostriatal terminals. Neuron 58:89-103. *Please also see Comment on this research in Neuron 2008, 58: 6-7 and in Nature Reviews Neurosci, 2008.*
18. Gubernator NG, **Zhang H** *(co-first author),* Mosharov,EV, Staal RG, Balsanek V, Cadola PA, Wallender E, Edwards RH, Sulzer D, and Sames D (2009) Fluorescent false neurotransmitters visualize dopamine release from individual presynaptic terminals. Science 324:1441-4.
19. **Zhang H***, Gubernator NG, Yue M, Staal RG, Mosharov EV, Pereira D, Balsanek V, Vadola PA, Mukherjee B, Edwards RH, Sulzer D, and Sames D (2009) Dopamine release at individual presynaptic terminals visualized with FFNs. J Vis Exp. pii: 1562. doi: 10.3791/1562
20. Hnasko TS, Chuhma N, **Zhang H**, Goh G, Sulzer D, Palmiter RD, Rayport S, and Edwards RH (2010) Vesicular glutamate transport promotes dopamine storage and glutamate corelease in vivo. Neuron*. 65: 643-56.*
21. **Zhang H***, and Sulzer D (2012) Regulation of striatal dopamine release by presynaptic auto- and heteroreceptors. Basal Ganglia 2: 5-13. *Review*

22. Rodriguez PC, Pereira DB, Borgkvist A, Wong MY, Barnard C, Sonders MS, **Zhang H**, Sames D, and Sulzer D (2013) Fluorescent dopamine tracer resolves individual dopaminergic synapses and their activity in the brain. PNAS 110: 870-5.
23. Divito CB, Steece-Collier K, Case DT, Williams SP, Stancati JA, Zhi L, Rubio ME, Sortwell CE, Collier TJ, Sulzer D, Edwards RH, **Zhang H**, and Seal RP (2015) Loss of VGLUT3 produces hyperdopaminergia and ameliorates motor dysfunction and L-dopa mediated dyskinesias in a model of Parkinson's disease. J. Neurosci 35:14983-99.
24. Qin Q, Zhi LT, Li XT, Yue ZY, Li GZ, and **Zhang H*** (2016) Effects of LRRK2 Inhibitors on Nigrostriatal Dopaminergic Neurotransmission. CNS Neurosci Ther. doi: 10.1111/cns.12660.
25. Choi SJ, Mukai J, Kvajo M, Xu B, Diamantopoulou A, Pitychoutis, PM, Gou B, Gogos JA, and **Zhang H*** (2017) A schizophrenia-related deletion leads to KCNQ2-depended abnormal dopaminergic modulation of prefrontal cortex interneuron activity. Cereb Cortex 28:2175-2191, Epub 2017 May 19. doi: 10.1093/cercor/bhx123.
26. Zhi LT, Qin Qi, Liu W, Seifert E, Li C, and **Zhang H*** (2019) Loss of PINK1 causes age-dependent decreased dopamine release in the dorsal striatal slices. Neurobiol Aging. 75:1-10. doi:10.1016/j.neurobiolaging.2018.10.025. Epub 2018 Nov 2
27. Schaffner A, Li X, Gomez-Llorente Y, Leandrou E, Memou A, Clemente N, Yao C, Afsari F, Zhi L, Pan N, Morohashi K, Hua X, Zhou MM, Wang C, **Zhang H**, Chen SG, Elliott CJ, Rideout H, Ubarretxena-Belandia I, and Yue Z (2019). Vitamin B12 modulates Parkinson's disease LRRK2 kinase activity through allosteric regulation and confers neuroprotection. Cell Res. 29(4):313-329. doi: 10.1038/s41422-019-0153-8.
28. Singh A, Zhi L, and **Zhang H*** (2019) LRRK2 and mitochondria: Recent advances and current views. Brain Res. 2019 Jan 1;1702:96-104. doi: 10.1016/j.brainres.2018.06.010. Epub 2018 Jun 9. *Review*
29. Shani V, Safory H, Szargel R, Wang NH, Cohen T, Elghani FA, Hamza H, Savyon M, Radzishevsky I, Shaulov L, Rott R, Lim KL, Ross CA, Bandopadhyay R, **Zhang H,** and Engelender S (2019) Physiological and pathological roles of LRRK2 in the nuclear envelope integrity. Hum Mol Genet. 2019 Dec 1;28(23):3982-3996. doi: 10.1093/hmg/ddz245..
30. Crittenden JR, Zhai S, Sauvage M, Kitsukawa T, Burguière E, Thomsen M, **Zhang H**, Costa C, Martella G, Ghiglieri V, Picconi B, Pescatore KA, Unterwald EM, Jackson WS, Housman DE, Caine SB, Sulzer D, Calabresi P, Smith AC, Surmeier DJ, and Graybiel AM (2021) CalDAG-GEFI mediates striatal cholinergic modulation of dendritic excitability, synaptic plasticity and psychomotor behaviors. Neurobiol Dis. 2021 Aug 8;158:105473. doi: 10.1016/j.nbd.2021.105473. PMID: 3437114
31. Zhi LT, Zhao JY, Jaffe D, Chen YX, Wang NH, Qin Qi, Seifert EL, Li CJ, and **Zhang H*** (2022) Seahorse measurement of oxygen consumption rate (OCR) in acute striatal slices from adult Mice. JOVE (Accepted).

In review

32. Msackyi M, Chen YX, Tsering WC, Wang NH, Zhao JY, and **Zhang H*** (2022) Dopamine release neuroenergetics in mouse striatal slice. *BioRxidoi:* https://doi.org/10.1101/2020.06.02.130328.
33. Chen YX, Zhi LT, Zhao JY, Wang NH, Seasack S, and **Zhang H*** (2022) UCPs mediated increased oxidative stress in human LRRK2-R1441G transgenic mice.
34. Zhi LT, Wang NH, Zhao JY, Tseing WC, Msackyi M, Wang Wei, McIntire LB, Chang A, Tang GM, and **Zhang H*** (2022) Age-dependent autophagy impairment and decrease of striatal dopamine release in syanptojanin1 heterozygous mice.

In preparation

35. Qin Q, Osterstock G, Chen YX, Zhi LT, Chen LL, Choi SJ, **and Zhang H*** (2022) NCS-1 mediated decreased D2-autoreceptor function in human LRRK2-R1441G transgenic mice.
36. Chen YX, Zhi LT, Zhao JY, Li CJ, **Zhang H*** (2022) Impaired mitochondrial trafficking in LRRK2 models of Parkinson's Disease.
37. Chen YX, Zhao JY, Zhang H* (2022) Activation of D2 receptor rescues impaired response of microglia to damage in LRRK2 models of Parkinson's Disease.

Books and Chapters in Books

Sulzer D, **Zhang H**, Benoit-Marand M, and Gonon F (2010) Regulation of extracellular dopamine. In: Handbook of Basal Ganglia Structure and Function, a Decade of Progress, Elsevier: New York

GRANTS AND CONTRACT SUPPORT

Current Grants

RO1 NS09753 Zhang (PI) 9/15/16-12/31/22
NIH/NINDS
Role of LRRK2 in Dopaminergic Transmission
In this study, we plan to determine how LRRK2 affects dopaminergic transmission and how dopaminergic transmission is altered by LRRK2 mutations which may lead to the neurites degeneration.

Completed

R21 NS098393 Zhang (PI) 6/01/16-5/30/19
NIH/NINDS
Mechanisms of LRRK2 Mediated Dopaminergic Axonal Degeneration and Synaptic Transmission Deficits
In this project, we plan to determine whether mitochondria dysfunction is a cause of synaptic dysfunction and axonal degeneration in LRRK2 mutant mice.

R21 MH090356 Zhang (PI) 4/01/10-12/31/12
NIMH
Elucidating Aberrant Dopamine Release in Schizophrenia

MJFF Zhang (PI) 1/01/10-6/30/12
The Michael J. Fox Foundation for Parkinson's Research
LRRK2 Mediated Pathogenic Pathway in Dopaminergic Axonal Degeneration and Synaptic transmission

Pending

RO1 (NIH/NINDS) **5%** Zhang (PI) 7/01/22-6/31/27
Synaptic Dysfunction and Energy Failure in Parkinson's Disease

R21 (NIH/NIA) Zhang (PI) 7/01/22-6/31/24
Dopamine Signaling in Alzheimer's disease

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

BIOGRAPHICAL SKETCH
DO NOT EXCEED FIVE PAGES.

NAME: Vellareddy Anantharam

eRA COMMONS USER NAME (credential, e.g., agency login): vellareddypi

POSITION TITLE: Part-Time Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Bangalore University, INDIA	B.S.	1980	Chemistry
Bangalore University, INDIA	M.S.	1982	Biochemistry
Indian Institute of Science, Bangalore, INDIA	Ph.D.	1987	Molecular Biophysics
Johns Hopkins Medical School	Post-doc	1990	Membrane-Cell Biology

My research focuses on neurodegenerative diseases and neurotoxicology, specifically, mitochondrial dysfunction, oxidative stress, protein aggregation, neuroinflammation and apoptosis in neurotoxicity models of Parkinson's and prion diseases. During my research career, I have published more than 175 research papers. Since my primary focus is translational research, I have extensive experience with the science of developing neuroprotective drugs and testing their efficacy in both cell culture and animal models of neurotoxicity and neurodegenerative diseases with the goal of advancing them for further preclinical and clinical evaluations. I have successfully administered numerous projects (e.g. staffing, research and animal safety protocols, budgeting, instrument maintenance and demos, sample preservation, long-term data management, and interim reports), collaborated with other researchers, and produced several peer-reviewed publications from each project. In summary, I have a broad background and over 30 years of research experience in molecular neurobiology, neuropharmacology and neurotoxicology.

Listed below are my most relevant publications pertaining to this proposal:

1. Gendelman HE, **Anantharam V**, Bronich T, Ghaisas S, Jin H, Kanthasamy AG, Liu X, McMillan J, Mosley RL, Narasimhan B, Mallapragada SK (2015) Nanoneuromedicines for degenerative, inflammatory, and infectious nervous system diseases. Nanomedicine 11(3): 751-67. PMCID: PMC4387001.

2. Ay M, Luo J, Langley M, Jin H, **Anantharam V**, Kanthasamy A, Kanthasamy AG (2017) Molecular mechanisms underlying protective effects of quercetin against mitochondrial dysfunction and progressive dopaminergic neurodegeneration in cell culture and MitoPark transgenic mouse models of Parkinson's Disease. J Neurochem. 141(5): 766-782. PMCID: PMC5643047.

3. Putra M, Sharma S, Gage M, Gasser G, Hinojo-Perez A, Olson A, Gregory-Flores A, Puttachary S, Wang C, **Anantharam V**, Thippeswamy T (2019) Inducible nitric oxide synthase inhibitor, 1400W, mitigates DFP-induced long-term neurotoxicity in the rat model. Neurobiol Dis. 133:104443. PMCID: PMC6768773.

4. Sarkar S, Nguyen HM, Malovic E, Luo J, Langley M, Palanisamy BM, Singh N, Manne S, Neal M, Gabrielle M, Abdalla A, Anantharam P, Rokad D, Panicker N, Singh V, Ay M, Charli A, Harischandra D, Jin L, Jin H, Rangaraju S, **Anantharam V**, Wulff H and Kanthasamy AG (2020) Kv1.3 modulates neuroinflammation and neurodegeneration in Parkinson's disease. The Journal of Clinical Investigation. 130(8):4195-4212. PMCID: PMC7410064.

B. Positions and Honors

Positions and Employment

11/87 - 06/90	*Post-Doctoral Fellow,* Dept. of Physiology. Johns Hopkins University School of Medicine, Baltimore, MD.
07/90 - 07/95	*Instructor*, Neuroscience Program and Department of Pharmacology, University of Massachusetts Medical Center, Worcester, MA.
08/95 - 08/97	*Assistant Professor (Research)*, Dept. of Physiological Science, Univ. of California at Los Angeles, CA.
09/97 - 06/99	*Senior Scientist*, Drug Discovery Division, Axiom Biotechnologies Inc., San Diego, CA.
07/99 - 11/99	*Assistant Specialist,* Dept. of Community and Environmental Medicine, University of California, Irvine, CA.
07/00 - 6/06	*Adjunct Assistant Professor,* Department of Biomedical Sciences, College of Veterinary Medicine, Iowa State University, Ames, IA.
07/06 - 8/21	*Associate Professor (*Research*),* Biomedical Sciences, CVM, Iowa State Univ., Ames, IA.
05/19-	*Chief Scientific Officer*, Probiome Therapeutics Inc, Ames, IA.
09/21 -	*Part-Time Professor*, Dept. of Physiology and Pharmacology, Center for Neurological Disease Research, University of Georgia, Athens.

Honors

1987 - 90	Johns Hopkins Medical School Physiology Fellowship Award.
1999	Employee of the Year Award, Axiom Biotechnologies Inc. (now Sequenom, Inc).
2008	Iowa Technology Commercialization Fellow, Iowa State University.

Other Experience

2020	NIH NIA Study section member, SEP Review Panel.
2023	DOD CDMRP TERP NE-2 Review Panel

Professional Memberships

Society for Neuroscience
American Society for Cell Biology
International Brain Research Organization
Society for Toxicology
Central States Society of Toxicology
International Society of Neurotoxicology
American Society for Transplantation

C. Contributions to Science

1) My primary interest is in biomedical translational research, specifically in developing new therapies targeting signaling molecules to alter degenerative processes in PD and related neurodegenerative diseases. As a faculty member at the University of California, Los Angeles, I guided graduate and post-doctoral students in engineering immortalized neuronal cell lines to express GAD65 and to produce GABA for transplantation experiments using stereotaxic injections in animal models of epilepsy, Parkinson's and Huntington's disease. Here at Iowa State University, my colleagues and I found that pharmacologically inhibiting PKCδ activity could be a neuroprotective strategy for treating PD. More recently, my research team has been developing mitochondria-targeted antioxidants as potential neuroprotective agents in PD. These studies have made substantial translational contributions toward identifying neuroprotective therapeutic targets for neurodegenerative disorders. I served as Co-I on these studies.

   a) Jin H, Kanthasamy A, Ghosh A, **Anantharam V**, Kalyanaraman B, and Kanthasamy AG (2014) Mitochondria-targeted antioxidants for treatment of Parkinson's disease: Preclinical and clinical outcomes. Biochim Biophys Acta. 1842(8): 1282-94. PMCID: PMC3961561.

   b) Sarkar S, Malovic E, Harishchandra DS, Ghaisas S, Panicker N, Charli A, Palanisamy BN, Rokad D, Jin H, **Anantharam V**, Kanthasamy A, Kanthasamy AG (2017) Mitochondrial impairment in microglia

amplifies NLRP3 inflammasome proinflammatory signaling in cell culture and animal models of Parkinson's disease. NPJ Parkinson's Dis. 3: 30. PMCID: PMC5645400.

c) Langley M, Ghosh A, Charli A, Sarkar S, Ay M, Luo J, Zielonka J, Brenza T, Bennett B, Jin H, Ghaisas S, Schlichtmann B, Kim D, **Anantharam V**, Kanthasamy A, Narasimhan B, Kalyanaraman B, Kanthasamy AG (2017) Mitoapocynin prevents mitochondrial dysfunction, microglial activation, oxidative damage and progressive neurodegeneration in MitoPark transgenic mice, Antioxidant Redox Signaling 27(14): 1048-1066. PMCID: PMC5651937.

d) Ghosh A, Langley MR, Harischandra DS, Neal ML, Jin H, **Anantharam V**, Joseph J, Brenza T, Narasimhan B, Kanthasamy A, Kalyanaraman B, Kanthasamy AG (2016) Mitoapocynin treatment protects against neuroinflammation and dopaminergic neurodegeneration in a preclinical animal model of Parkinson's disease. J Neuroimmune Pharmacol. 11(2): 259-78. PMCID: PMC4995106.

2) One area of productive research that grew out of my long collaboration with Dr. AG Kanthasamy is our focus on how environmental neurotoxic factors influence the etiopathogenesis of neurodegenerative disorders. Inclusion bodies comprising deposits of protein aggregates are common pathophysiological features of many neurodegenerative diseases such as PD, AD, HD and prion diseases. We found that protein aggregation gets accelerated by chronic exposure to environmental neurotoxic agents via a dysfunctional ubiquitin-proteasome pathway. Our findings demonstrated that the neurotoxic metal manganese and the organochlorine pesticide dieldrin induce ubiquitin-proteasome dysfunction and promote α-synuclein aggregation in dopaminergic neuronal cells. Our studies also revealed that when manganese binds to cellular prion protein, it increases the stability of the protein, which ultimately promotes protein aggregation and neurotoxicity in neuronal cells. These studies provide new insights into the interactions between diverse environmental factors and the aggregation of neurodegenerative proteins. I served as Co-I on these studies.

a) Sun F, **Anantharam V**, Latchoumycandane C, Kanthasamy A, and Kanthasamy AG (2005) Dieldrin induces ubiquitin-proteasome dysfunction in alpha-synuclein overexpressing dopaminergic neuronal cells and enhances susceptibility to apoptotic cell death. J Pharmacol Exp Ther 315: 69-79. PMID: 15987830.

b) Choi CJ, **Anantharam V**, Saetveit NJ, Houk RS, Kanthasamy A, and Kanthasamy AG (2007) Normal cellular prion protein protects against manganese-induced oxidative stress and apoptotic cell death. Toxicol Sci 98: 495-509. PMCID: PMC3407037.

c) Choi CJ, **Anantharam V**, Martin DP, Nicholson EM, Richt JA, Kanthasamy A, and Kanthasamy AG (2010) Manganese upregulates cellular prion protein and contributes to altered stabilization and proteolysis: relevance to role of metals in pathogenesis of prion disease. Toxicol Sci 115: 535-546. PMCID: PMC2871751.

d) Harischandra DS, Jin H, **Anantharam V**, Kanthasamy A, Kanthasamy AG (2015) α-Synuclein protects against manganese neurotoxic insult during the early stages of exposure in a dopaminergic cell model of Parkinson's disease. Toxicol Sci. 143(2): 454-68. PMCID: PMC4306724.

3) Over the past decade, my research has resulted in several fundamental advances in signal transduction mechanisms associated with cell death processes in Parkinson's disease. A progressive and relatively selective loss of dopaminergic neurons in the substantia nigra pars compacta is a hallmark of PD. Our goal has been to identify key signaling molecules and pathways involved in neurotoxic stress-induced degenerative processes in hopes of guiding future treatment approaches for PD. We were the first to demonstrate that the protein kinase Cδ is ubiquitously expressed in nigral dopaminergic neurons and serves as a key substrate for caspase-3 during oxidative stress, thus identifying a novel mechanism of dopaminergic degeneration induced by Parkinsonian toxicants. Again, employing models of neurotoxic stress, we were the first to report transcriptional mechanisms underlying neuronal PKCδ expression. These studies shed new light on the molecular mechanisms behind oxidative damage in the neurodegenerative processes of PD and identified PKCδ signaling as a new treatment target for possibly slowing disease progression. I served as Co-I on these studies.

a) **Anantharam V**, Kitazawa M, Wagner J, Kaul S, and Kanthasamy AG (2002) Caspase-3-dependent proteolytic cleavage of protein kinase Cdelta is essential for oxidative stress-mediated dopaminergic

cell death after exposure to methylcyclopentadienyl manganese tricarbonyl. J Neurosci 22: 1738-1751. PMID: 11880503.

b) Kitazawa M, **Anantharam V**, and Kanthasamy AG (2003) Dieldrin induces apoptosis by promoting caspase-3-dependent proteolytic cleavage of protein kinase Cdelta in dopaminergic cells: relevance to oxidative stress and dopaminergic degeneration. Neuroscience 119: 945-964. PMID: 12831855.

c) Harischandra DS, Kondru N, Martin D, Kanthasamy A, Jin H, **Anantharam V**, Kanthasamy AG (2014) Role of proteolytic activation of protein kinase Cδ in the pathogenesis of prion disease. Prion 8(1): 143-53. PMCID: PMC4988799.

d) Gordon R, Singh N, Lawana V, Ghosh A, Harischandra DS, Jin H, Hogan C, Sarkar S, Rokad D, Panicker N, **Anantharam V**, Kanthasamy AG, Kanthasamy A (2016) Protein kinase Cδ upregulation in microglia drives neuroinflammatory responses and dopaminergic neurodegeneration in experimental models of Parkinson's disease. Neurobiol Dis. 93: 96-114. PMCID: PMC4995107.

4) Recently, I collaborated on research reporting on key upstream and downstream mediators of PKCδ signaling in dopaminergic neuronal cells. We used neurotoxicity models of pesticide exposure to show that the non-receptor tyrosine kinase Fyn regulates upstream signaling of the PKCδ-mediated apoptotic cell death pathway. We also found that a PKCδ-dependent mechanism activates PKD1 kinase to protect dopaminergic neurons from the early stages of oxidative stress. Our findings revealed new treatment strategies for fighting PD and thus have high clinical significance and therapeutic potential. I served as Co-I on these studies.

a) Gordon R, Neal ML, Luo J, Langley MR, Harischandra DS, Panicker N, Charli A, Jin H, **Anantharam V**, Woodruff TM, Zhou QY, Kanthasamy AG, Kanthasamy A (2016) Prokineticin-2 upregulation during neuronal injury mediates a compensatory protective response against dopaminergic neuronal degeneration. Nat Commun. 7: 12932. PMC5059486.

b) Asaithambi A, Ay M, Jin H, Gosh A, **Anantharam V**, Kanthasamy A, and Kanthasamy AG (2014) Protein kinase D1 (PKD1) phosphorylation promotes dopaminergic neuronal survival during 6-OHDA-induced oxidative stress. PLoS One 9: e96947. PMCID: PMC4013052.

c) Jin H, Kanthasamy A, Harischandra DS, Kondru N, Ghosh A, Panicker N, **Anantharam V**, Rana A, Kanthasamy AG (2014) Histone hyperacetylation up-regulates protein kinase Cδ in dopaminergic neurons to induce cell death: relevance to epigenetic mechanisms of neurodegeneration in Parkinson disease. J Biol Chem. 289(50): 34743-67. PMCID: PMC4263877.

d) Panicker N, Sarkar S, Harischandra DS, Neal M, Kam TI, Jin H, Saminathan H, Langley M, Charli A, Samidurai M, Rokad D, Ghaisas S, Pletnikova O, Dawson VL, Dawson TM, **Anantharam V**, Kanthasamy AG, Kanthasamy A (2019) Fyn kinase regulates misfolded α-synuclein uptake and NLRP3 inflammasome activation in microglia. J Exp Med. 216(6): 1411-1430. PMCID: PMC6547864.

Complete List (>175) of PubMed Publications (Please copy link to web browser):
http://www.ncbi.nlm.nih.gov/sites/myncbi/1HA7G-oqmmW/collections/48329323/public/

GAYLEN L. EDWARDS
(Short Biosketch)

Georgia Athletic Association Professor of Veterinary Medicine & Department Head
Department of Physiology and Pharmacology

Interim Associate Dean of Undergraduate Affairs
College of Veterinary Medicine

Adjunct Professor
Department of Nutritional Sciences

Adjunct Professor
Department of Psychology

Office

Department of Physiology
and Pharmacology
College of Veterinary Medicine
University of Georgia
Athens, GA 30602

Phone: (706) 542-5854 (706) 202-4148
FAX: (706) 542-3015
e-mail: gedwards@uga.edu

Academic Training

B.S.	Idaho State University	1978
M.S.	University of Idaho	1980
D.V.M.	Washington State University	1984
Ph.D.	Washington State University	1986

Professional Experience

Postdoctoral Fellow (1986 - 1989)	Cardiovascular Center University of Iowa Iowa City, Iowa
Assistant Professor (Oct 1989 - June, 1994)	Department of Physiology and Pharmacology College of Veterinary Medicine University of Georgia Athens, Georgia

Associate Professor (July, 1994 to July, 1999)	Department of Physiology and Pharmacology College of Veterinary Medicine University of Georgia Athens, Georgia
Professor (July 1999 to present)	Department of Physiology and Pharmacology College of Veterinary Medicine University of Georgia Athens, GA
Chair (2002-2011)	Neuroscience Division Biomedical Health Sciences Institute University of Georgia Athens, GA
Interim Asst. VP for Research/Director of Anim. Care (Feb, 2004-Aug 2004)	Office of the VP for Research University of Georgia Athens, GA
Acting Department Head (Aug 2006 to Sept 2007)	Department of Physiology and Pharmacology College of Veterinary Medicine University of Georgia Athens, GA
Department Head (Sept 2007 to present)	Department of Physiology and Pharmacology College of Veterinary Medicine University of Georgia Athens, GA

Professional and Honorary Organizations

American Association for the Advancement of Science
American Veterinary Medical Association
Georgia Veterinary Medical Association
American Physiological Society
    -Chair ACE Committee (2013-2015)
    -Member-Science Policy Committee
Society for Neuroscience
FASEB
    -Member Animals in Research and Education Subcommittee
Society for the Study of Ingestive Behavior
Phi Zeta
Sigma Xi
Alpha Psi

Statement of Research Interests

The focus of most of my research has been on hindbrain controls of food and water intake. These studies included techniques that ranged from molecular biology to behavioral analysis. The brain region we focused on was the dorsal vagal complex. Notably, we found that lesions in this region of the brain resulted in a marked weight loss that was maintained. Interestingly, the animals were behaviorally competent not impaired by the weight loss. These lesions also impacted water and sodium balance and were quite effective at reversing the hypertension observed in a number of rodent models. Finally, the lesioned animals had a marked appetite for highly palatable foods. We were able to demonstrate that taste was not impaired in these animals and they would work harder for palatable foods. The increased appetite was correlated with changes in hypothalamic neuropeptide Y. In separate studies, we demonstrated that cannabinoids injected into a hindbrain cerebroventricle were highly effective at stimulating appetite. Moreover, cannabinoids were effective at reducing activation of nodose ganglion cells by cholecystokinin.

Classroom instruction

Veterinary Neuroanatomy, Neurophysiology & Applied Neuroscience, VPHY 5190, College of Veterinary Medicine, University of Georgia (Course Coordinator)

Neurophysiology, VPHY 8400, College of Veterinary Medicine, University of Georgia

Neuroscience Literature Review, BHSI 8900, Biomedical Health Sciences Institute, University of Georgia (weekly meeting with Neuroscience Graduate Students)

Principles of Physiology I, VPHY 5111/7111, College of Veterinary Medicine, University of Georgia

Principles of Physiology II, VPHY 5112/7112, College of Veterinary Medicine, University of Georgia (1 lecture to professional and graduate students)

First Year Odyssey, FYOS 1001, University of Georgia

Graduate Training:

Major Professor for 16 MS and PhD students. Served on over 100 Graduate Student Committees.

Publications (last 10 years)

Saba CF, Schmiedt CW, Freeman KG, Edwards GL. Indirect assessment of dihydropyrimidine dehydrogenase activity in cats. Vet Comp Oncol. 2013 Dec;11(4):265-71.

Creevy KE, Gagnepain JF, Platt SR, Edwards GL, Kent M. Comparison of concentrations of γ-aminobutyric acid and glutamate in cerebrospinal fluid of dogs with idiopathic epilepsy with and without seizure-related magnetic resonance imaging hyperintense areas in the limbic system. Am J Vet Res. 2013 Aug;74(8):1118-25.

Platt SR, Coates JR, Eifler DM, Edwards GL, Kent M, Bulsara KR. Effect of treatment with simvastatin and cyclosporine on neurotransmitter concentrations in cerebrospinal fluid after subarachnoid hemorrhage in dogs. Am J Vet Res. 2013 Aug;74(8):1111-7.

Ogbonmwan YE, Sciolino NR, Groves-Chapman JL, Freeman KG, Schroeder JP, Edwards GL, Holmes PV, Weinshenker D. The galanin receptor agonist, galnon, attenuates cocaine-induced reinstatement and dopamine overflow in the frontal cortex. Addict Biol. 2014 Jul 23.

Sciolino NR, Smith JM, Stranahan AM, Freeman KG, Edwards GL, Weinshenker D, Holmes PV. Galanin mediates features of neural and behavioral stress resilience afforded by exercise. Neuropharmacology. 2015 Feb;89:255-64.

Pryor WM, Freeman KG, Larson RD, Edwards GL, White LJ. Chronic exercise confers neuroprotection in experimental autoimmune encephalomyelitis. J Neurosci Res. 2015 May;93(5):697-706.

Bogert, K, Platt, S, Haley, A, Kent, M, Edwards, G, Dookwah, H, Johnsen,K. Development and Use of an Interactive Computerized Dog Model to Evaluate Cranial Nerve Knowledge in Veterinary Students. Journal of Veterinary Medical Education, Volume 42 No. 5, Winter 2015. (Posted online on 11 Nov 2015)

Johnston, J. R., Freeman, K. G., & Edwards, G. L. (2018). Activity in nodose ganglia neurons after treatment with CP 55,940 and cholecystokinin. *Physiological reports*, *6*(23), e13927. doi:10.14814/phy2.13927

Edwards, G. L., Azain, M. J., & Parks, A. (2018). Agricultural Animals as Biomedical Models: Occupational Health and Safety Considerations. *ILAR journal*. doi:10.1093/ilar/ily013

Mortuza, T. B., Edwards, G. L., White, C. A., Patel, V., Cummings, B. S., & Bruckner, J. V. (2019). Age Dependency of Blood-Brain Barrier Penetration by cis- and trans-

Permethrin in the Rat. *Drug metabolism and disposition: the biological fate of chemicals*, *47*(3), 234-237. doi:10.1124/dmd.118.084822

Cui XB, Fei J, Chen S, Edwards GL, Chen SY. ADAR1 deficiency protects against high-fat diet-induced obesity and insulin resistance in mice. (2021). Am J Physiol Endocrinol Metab. 1;320(1):E131-E138. doi: 10.1152/ajpendo.00175.2020.

Vagal Gut-Brain Communication Mediates Bacterial Driven Modulation of Reward Signaling. Jiyoung S. Kim, Kevin C. Williams, Rebecca A. Kirkland, Ruth Schade, Kimberly G. Freeman, Maddie Carlson, Carolina R. Cawthon, Allison Rautmann, Jessica M. Smith, Gaylen L. Edwards, Travis C. Glenn, Philip V. Holmes, Guillaume de Lartigue, Claire B. de La Serre. Submitted

Other Professional Activities:

Editorial Board American Journal of Physiology: Regulatory, Integrative and Comparative Physiology (1998-2002)

Editorial Board Experimental Neurology (2003-2008)

Manscript Review for:
American Journal of Physiology, Physiology and Behavior, Brain Research, Endocrinology, Metabolism, Nutritional Neuroscience, Physiological Genomics, Experimental Neurology, Neuroscience Letters, Life Sciences, Biochemical Pharmacology.

Ad Hoc specialist AAALAC (2006-2011)

AAALAC Council (2011-present)
-President (2020-2022)

AAALAC Board of Directors (2018-2022)

Association for Chairs of Departments of Physiology
-Board member (2017 to 2020)

Organizing Committee for USARO (USA Research Openness) 2020 to present

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Filipov, Nikolay M.

eRA COMMONS USER NAME (credential, e.g., agency login): NFILIPOV

POSITION TITLE: Professor, Department of Physiology and Pharmacology, University of Georgia

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Higher Inst. Zootech. & Vet. Med., Bulgaria	**B.S.**	**1990**	**Animal Science**
University of Georgia, Athens, GA	**M.S.**	**1996**	**Physiology**
University of Georgia, Athens, GA	**Ph.D.**	**1998**	**Toxicology**
Wadsworth Center, NYSDOH, Albany, NY	**Post-Doc**	**1998-2001**	**NeuroImmunoToxicology**

A. Personal Statement

General Research Focus: A major research focus of my research program is on the neuro-immune communication and miscommunication in health and disease across the lifespan, including miscommunication due to toxicant (i.e., manganese, pesticides) overexposures, dietary (i.e., high fat diet), and immune challenges. We are using imaging, molecular, cellular, neurochemical, systems biology, and behavioral techniques to ascertain functional deficits within the context of aging, a disease (Parkinson's ASD, AD), toxicant exposures, and/or dietary manipulations. I have led multiple projects funded by the NIH, DOD, USDA, or NSF. Currently, I am the PI on two federally funded grants and a co-investigator on another two. Ongoing and recently completed projects that I would like to highlight include:

Ongoing

1. Type: 1R01NS119610-01 Period: 2/01/21 – 3/31/26
Agency: NIH (NINDS)
Principal Investigator: Jae-Kyung Lee
Co-investigator: Nick M. Filipov
Title: "*Elucidating the role of NK cells in Lewy body diseases*"
The objective of this new R01 application is to elucidate the role of natural killer cells in Lewy body diseases.

2. Type: GW200063; W81XWH2110661 Period: 07/15/21 – 07/14/24
Agency: Department of Defense (CDMRP)
Principal Investigator: Nick M. Filipov
Co-investigators: Donald A. Harn, Garret Suen, and John J. Wagner
Title: "Validation of a novel glycan conjugate as a safe treatment option for Gulf War Illness Veterans by expanded evaluation efforts"
The objective of this DoD application is to fully evaluate and validate a novel immunomodulatory treatment in animal models of Gulf War Illness (GWI) before proceeding with its testing in GWI veterans.

3. Type: NIFA ((2020-67015-31301) Period: 7/01/20- 6/30/23
Agency: USDA (AFRI)
Principal Investigator: Nick M. Filipov
Co-investigators: Nick Hill, Garret Suen, and Todd Callaway
Title: "Dysregulated microbiome, metabolome, and microbiome-metabolome interactions in beef cattle

grazing toxic tall fescue"
The objective of this new grant interrogate the integrome of fescue toxicosis in the search of biomarker signatures and therapeutic targets.
4. Type: NIFA (2019-06021) Period: 4/01/20- 3/31/23
Agency: USDA (AFRI)
Principal Investigator: Hea Jin Park
Co-investigators: Nick Filipov and Todd Callaway
Title: "Assessing the effects of maternal supplementation of eggs and docosahexaenoic acid on gut microbiome and cognitive development in an infant piglet model"
The objective of this grant is to use a novel model for testing the role of the gut-brain axis in cognition.

Recently Completed

1. Type: GWI150195 Period: 9/01/16 - 8/31/21
Agency: Department of Defense (CDMRP)
Principal Investigator: Nick Filipov
Co-investigators: Donald Harn and John J. Wagner
Title: "Evaluation of treatment efficacy with a potent novel immunomodulatory glycan conjugate in Gulf War Illness models"
The objective of this DoD application was to begin to evaluate a novel immunomodulatory treatment in animal models of Gulf War Illness.
2. Type: 1R21ES026383 Period: 5/01/16 - 4/30/21
Agency: NIH (NIEHS)
Principal Investigator: Nick M. Filipov
Co-Investigator: Kaori Sakamoto
Title: "*Mycobacterium tuberculosis*-manganese interactions and neurotoxicity"
The objective of this R21 application was to determine the nature of the interaction between manganese and *M. tuberculosis*, which is highly relevant to miner occupationally exposed to both.
3. Type: NIFA (2015-09429) Period: 3/01/16 - 2/28/20
Agency: USDA (AFRI)
Principal Investigator: Nick M. Filipov
Co-investigator: Nick Hill
Title: "Bovine metabolomics: A novel approach towards characterizing and ameliorating fescue toxicosis, heat stress, and their interaction"
The objective of this project is to use plasma and urine metabolomics in the quest of finding better ameliorative strategies for fescue toxicosis and heat stress.

B. Positions, Scientific Appointments, and Honors

Positions

1989 – 1990	Undergraduate Research Assistant. Higher Institute of Zootechnics and Veterinary Medicine, Stara Zagora, Bulgaria.
1994 – 1998	Graduate Research Assistant. Graduate Program of Toxicology/Dept. of Physiology and Pharmacology, College of Veterinary Medicine, University of Georgia, Athens, GA.
1998 – 1999	Post Doctoral Research Fellow. NeuroImmunoToxicology Post Doctoral Fellowship Training Program (T32: ES07251), Wadsworth Center, Albany, NY.
1999 – 2001	Individual National Research Service Fellow in NeuroImmunoToxicology (F32: ES05879), Wadsworth Center.
2001 – 2007	Assistant Professor. Center for Environmental Health Sciences, Department of Basic Sciences, College of Veterinary Medicine, Mississippi State University, MS.
2007 – 2008	Associate Professor. Center for Environmental Health Sciences, Department of Basic Sciences, College of Veterinary Medicine, Mississippi State University.
2008 – 2017	Associate Professor. Department of Physiology and Pharmacology, College of Veterinary Medicine, University of Georgia.
2017–	Professor, Department of Physiology and Pharmacology, College of Veterinary Medicine, University of Georgia.
2019-	Lalita and Raghubir Sharma Distinguished Professor in Toxicology, College of Veterinary Medicine, University of Georgia.

Scientific Appointments

1996-2000 Member, American Society of Animal Science (ASAS)
1997- Member, Society of Toxicology (SOT)
1999- Member, Society for Neuroscience (SFN)
2002- Member, Psychoneuroimmunology Research Society (PNIRS)
2002-2005 EUROTOX, The European Association of Toxicologists
2002-2008 Member, American Association for the Advancement of Science (ASAS)
2005 Member, Sigma Xi, the Scientific Research Society
2008- Member, Editorial Board of Journal of Applied Toxicology
2009-2012 Member, Editorial Board of NeuroToxicology
2011- Member, Editorial Board of Frontiers in Toxicogenomics
2008- *Ad hoc* Member of various NIH Study Sections, i.e., NAL, DBD, CMBG, R15 Standing Panel
2010- *Ad hoc* Member/Chair of various DOD Review Panels, i.e., CDMRP
2013- Associate Editor of NeuroToxicology
2013- Member, Editorial Board of Toxicology Letters
2015- Standing member of the NURE VA review panel
2020- Member, Editorial Board of Toxicological Sciences

Honors

1993 Member, Phi Theta Kappa Honor Society
1993 – 1998 Dean's List
1994 – 1998 Graduate Research Assistantship, The University of Georgia, Athens, GA
1995 – 1998 Graduate Assist. Suppl. Award for Res. and Acad. Excellence, The University of Georgia 1997 Member, Gamma Sigma Delta, The Honor Society of Agriculture
1998 Graduate student Travel Award, Society of Toxicology
1998 Individual National Research Service Fellowship Award
2001 Neurotox. Spec. Section (2001 SOT Annual meeting) 1st Place Award for best post-doc
2001 Office of the Vice President for Research Travel Award, Mississippi State University
2004 Society of Toxicology/American Chemistry Council Early Career Award
2004 Pfizer Award for Research Excellence
2005 Honorary Member, Phi Zeta, the Honor Society of Veterinary Medicine
2005 Fellow, Institute for Neurocognitive Science and Technology (INST)
2006 Sigma Xi Ralph Powe Research Award
2007 Outstanding Faculty Research Award for the College of Veterinary Medicine, Mississippi State University Office of Research and Economic Development
2018- Fellow, Academy of Toxicological Sciences (ATS)
2019-2020 Vice-President, Neurotoxicology Specialty Section of the Society of Toxicology
2020 Zoetis Award for Research Excellence
2020-2021 President, Neurotoxicology Specialty Section of the Society of Toxicology

C. Contribution to Science

1. My dissertation work focused on the effects of ergot alkaloids found in endophyte-induced tall fescue on the nervous, immune, and endocrine systems of the target species, bovine, and in laboratory models of ergot alkaloid intoxication. This is a research area where periodically I have performed additional studies. As a result of this work, major adverse outcomes, i.e., exaggerated inflammatory response after chronic alkaloid ingestion, were established for a first time in the field. Below, are two examples of publications on this topic:

a. **Filipov**, N.M., F.N. Thompson, M. Tsunoda, and R.P. Sharma. 1998. Region-specific decrease of dopamine and its metabolites in brains of mice given ergotamine. *J. Toxicol. Environ. Health*, **56**: 47-58. PMID: 9923753
b. **Filipov**, N.M., F.N. Thompson, J.A. Stuedemann, T.H. Elsasser, S. Kahl, R.P. Sharma, C.R. Young, L.H. Stanker, and C.K. Smith. 1999. Increased responsiveness to intravenous lipopolysaccharide challenge in steers grazing endophyte-infected tall fescue compared to steers grazing endophyte-free tall fescue *J. Endocrinol*., **163**: 213-220. PMID: 10556770

2. Through competitive funding by the USDA, I resumed my research on fescue toxicosis where we are applying modern, multi-omic approaches to decipher the pathogenesis of this disease and aid in the development of novel therapeutic approaches for it. We were the first to publish on the effects of fescue toxicosis on the metabolome, microbiome, and their interaction. Below, are two examples of publications on

this topic:

a. Mote R. S., N. S. Hill, K. Uppal, V. T. Tran, D. P. Jones, N. M. **Filipov**. (2017). Metabolomics of fescue toxicosis in grazing beef steers. *Food and Chemical Toxicology*. 105:285-299. *Epub: April 18, 2017.* PMID: 28428084
b. Mote, R. S. , N. S. Hill, J. H. Skarlupka, V. T. Tran, D. I. Walker, Z. B. Turner, Z. P. Sanders, D. P. Jones, G. Suen, and N. M. **Filipov**. (2020). Toxic tall fescue grazing increases susceptibility of the Angus steer fecal microbiota and plasma/urine metabolome to environmental effects. *Scientific Reports,* 10(1): 2497. *Epub: February 12, 2020*. PMID: 32051515

3. My postdoctoral training was in neuroimmunology, neuroimmunotoxicology, and neurotoxicology; this is the broader research area I am still engaged in with my current focus being on the neuroimmunology of pregnancy and lactation. In addition to investigating broader brain-immune system communications, some of my studies were one of the first to focus on basal ganglia-immune system (mis)communication. Below, are few examples of publications on this topic:

a. **Filipov**, N.M., L. Cao, R.F. Seegal, and D.A. Lawrence. 2002. Compromised peripheral immunity of mice injected intrastriatally with six-hydroxydopamine. *J. Neuroimmunol.* **132(1-2)**: 129-139. PMID: 12417443
b. **Filipov**, N.M., D.A. Lawrence, and R.F. Seegal. 2005. Influence of polychlorinated biphenyls and turning preference on striatal dopamine metabolism. *J. Toxicol. Environ. Health.* **68(3)**: 167-183. PMID: 15762178
c. **Filipov**, N. M., A. B. Norwood, and S. C. Sistrunk. 2009. Strain-specific sensitivity to MPTP of C57BL/6 and BALB/c mice is age-dependent. *NeuroReport*. **20**: 713-717. PMID: 19349914

4. A major research focus of my laboratory is on the toxicity of the widely used herbicide atrazine. With our research efforts, atrazine's detrimental effects on the nervous and immune system are now better understood, including when exposure takes place during development. In addition, because there were no comprehensive kinetic studies with this pesticide, we developed adult and developmental (gestational and lactational) models for its kinetic behavior in rodents. We also developed and validated analytical methods for detection of atrazine and its metabolites in multiple biological matrices. Below, are examples of key atrazine-centered publications:

a. Coban, A., and N.M. **Filipov**. 2007. Dopaminergic toxicity associated with oral exposure to the herbicide atrazine in juvenile male C57BL/6 mice. *J. Neurochem.* **100**: 1177-1187**.** PMID: 17217422
b. Ross, M. K., T. L. Jones, and N. M. **Filipov**. 2009. Disposition of the herbicide 2-chloro-4-(ethylamino)- 6-(isopropylamino)-s-triazine (Atrazine) and its major metabolites in mice: a liquid chromatography/mass spectrometry analysis of urine, plasma, and tissue levels. *Drug Metabolism and Disposition*. **37:** 776-786. PMID:19116264
c. Lin, Z., C. A. Dodd, and N.M. **Filipov**. (2013). Short-term atrazine exposure causes behavioral deficits and disrupts monoaminergic systems in male C57BL/6 mice. *Neurotoxicology and Teratology,* **39:** 26–35. PMID: 23770127
d. Lin Z., C. A. Dodd, S. Xiao, S. Krishna, and N. M. **Filipov**. (2014). Gestational and lactational exposure to atrazine via the drinking water causes specific behavioral deficits and selectively alters monoaminergic systems in C57BL/6 mouse dams, juvenile and adult offspring. *Toxicol. Sci.* **141:** 90-102*.* PMID: 24913803

5. Beginning while still a postdoc and continuing at present, the major research focus in my laboratory centers on the role of inflammation and glial cell activation in the neurotoxicity of manganese. Thanks in part to our efforts, there is now little doubt that glia (microglia and astrocytes) are key players and modulators of the toxic effects of manganese on the brain. From our research, we also know some of the mechanisms manganese uses to affect glial inflammatory mediator output, i.e., the role of transcription factors, such as NFkB, and of MAPKs, such as p38. Below, are examples of key manganese-centered publications:

a. **Filipov**, N.M., R.F. Seegal, and D.A. Lawrence. 2005. Manganese potentiates *in vitro* production of proinflammatory cytokines and nitric oxide by microglia through a nuclear factor kappa B-dependent mechanism. *Toxicol. Sci.* **84:** 139-148. PMID: 15601679
b. Sistrunk, S.C., M.K. Ross, and N.M. **Filipov**. 2007. Direct effects of manganese compounds on dopamine and its metabolite Dopac: An in vitro study. *Environ. Toxicol. Pharmacol.* **23:** 286-296. PMID: 18449324
c. Dodd, C. A., and N. M. **Filipov**. 2011. Manganese potentiates LPS-induced heme-oxygenase 1 in microglia but not dopaminergic cells: role in controlling microglial hydrogen peroxide and inflammatory cytokine output. *Neurotoxicology*. **32:** 683-692. PMID: 21963524

d. Krishna, S., C. A. Dodd, S. K. Hekmatyar, and N. M. **Filipov**. 2014. Brain deposition and neurotoxicity of manganese in adult mice exposed via the drinking water. *Archives of Toxicology,* **88**:47-64. PMID: 23832297

5. Additional, more recent focus in my laboratory is on the role of dietary, environmental, and immunomodulatory influences across the lifespan and in the context of sex in neurodevelopmental and adulthood neurological disorders, such as autism, anxiety/depression, and deficits in cognition. Example manuscripts, highlighting the importance of examining the effects of high fat diet in females, which are understudied, the lasting nature of the depressive-like deficits caused by chronic mild inflammation, and sex differences in behavior (cognition, mood, and motor) and immune status during the important transitional middle age are below.

a. Krishna, S., M. M. Keralapurath, Z. Lin, J. J. Wagner, C. B. de La Serre, D. A. Harn, and N. M. **Filipov**. 2015. Neurochemical and electrophysiological deficits in the ventral hippocampus and selective behavioral alterations caused by high-fat diet in female C57BL/6 mice. *Neuroscience.* **297**:170-181. PMID:25849614

b. Krishna, S., C. A. Dodd, and N. M. **Filipov**. 2016. Behavioral and monoamine perturbations in adult male mice with chronic inflammation induced by repeated peripheral lipopolysaccharide administration. *Behavioural Brain Research.* **302**: 279–290. PMID: 26802725

c. Krishna , S., Z. Lin, C. B. de La Serre, J. J. Wagner, D. H. Harn, L. M. Pepples, D. M. Djani, M. T. Weber, L. Srivastava, and N. M. **Filipov**. 2016. Time-dependent behavioral, neurochemical, and metabolic dysregulation in female C57BL/6 mice caused by chronic high-fat diet intake. *Physiology and Behavior*. **157**: 196-208. PMID: 26852949

d. Pati, S., S. Krishna, J. H. Lee, M. K. Ross, C. B. de La Serre, D. A. Hard Jr., J. J. Wagner, N. M. **Filipov**, B. S. Cummings. 2018. Effects of high-fat diet on the blood lipidome and circulating endocannabinoids in female C57BL6 mice. *Biochimica et biophysica acta. Molecular and cell biology of lipids*. 1863(1):26-39. PMID: 28986283

e. Dockman, R. L. , J. M. Carpenter, A. N. Diaz, R. A. Benbow, and N. M. **Filipov**. (2022). Sex differences in behavior, response to LPS, and glucose homeostasis in middle-aged mice. *Behavioural Brain Research.* **418**: 113628. PMID**:** 34687827

6. Another recent focus in my laboratory is on the etiology of Gulf War Illness (GWI), specifically, on the neurological and immune dysfunctions associated with the disease and on ways to restore these dysfunctions. Examples, highlighting the early neurochemical/neuroinflammatory deficits observed after GWI-relevant chemical exposures, the electrophysiological deficits in the hippocampus caused by GWI exposures, and their lasting behavioral abnormalities, and the way GWI chemicals affect the gut-brain axis, are listed below.

a. Carpenter, J. M., H. E. Gordon, H. D. Ludwig, J. J. Wagner, D. A. Harn, T. Norberg, and N. M. **Filipov**. (2020). Neurochemical and neuroinflammatory perturbations in two Gulf War Illness models: Modulation by the immunotherapeutic LNFPIII. *Neurotoxicology*, **77:** 40-50. PMID: 31866310

b. Brown, K, N. M. **Filipov**, and J. J. Wagner. 2020. Dorsoventral-specific effects of a sarin surrogate, diisopropylfluorophosphate, on synaptic transmission in the mouse hippocampus. *Journal of Pharmacology and Experimental Therapeutics*. **373(1)**: 10-23. PMID: 31907304

c. Mote, R. S., J. M. Carpenter, R. L. Dockman, A. J., Steinberger, G. Suen, T. Norberg, D. A. Harn, J. J. Wagner and N. M. **Filipov**. (2020). Assessing the beneficial effects of the immunomodulatory glycan LNFPIII on gut microbiota and health in a mouse model of Gulf War Illness. *International Journal of Environmental Health Research and Public Health (IJEHRH),* **17**: 7081. PMID: 32992640

d. Brown, K. A., J. M. Carpenter, C. J. Preston, H. D. Ludwig, K. B. Clay, D. A. Harn, T. Norberg, J. J. Wagner, and N. M. **Filipov**. (2021). Lacto-N-fucopentaose-III (LNFPIII) ameliorates acute and persisting hippocampal synaptic plasticity and transmission deficits in a Gulf War Illness mouse model. *Life Sciences.* **279:** 119707. PMID: 34102195

e. Carpenter, J. M., K. A. Brown, A. N. Diaz, R. L. Dockman, R. A. Benbow, D. A. Harn, T. Norberg, J. J. Wagner, and N. M. **Filipov**. (2021). Delayed treatment with the immunotherapeutic LNFPIII ameliorates multiple neurological deficits in a pesticide-nerve agent prophylactic mouse model of Gulf War Illness. *Neurotoxicology and Teratology.* **87**: 107012. PMID: 34256162

Complete List of Published work in MyBibliography:

https://www.ncbi.nlm.nih.gov/myncbi/1jkj2ddhi7k5d/bibliography/public/

Updated: 10 November 2021 Jarrod A. Call, PhD

Curriculum Vitae

Academic History

2011 Ph.D. Rehabilitation Sciences
Minor: Biochemistry, Molecular Biology, & Biophysics
University of Minnesota (Minneapolis, Minnesota)
2007 M.S. Human Nutrition, Foods and Exercise
Focus Area: Muscle Physiology & Biochemistry
Virginia Tech (Blacksburg, Virginia)
2005 B.S. Biology & Chemistry
Wittenberg University (Springfield, Ohio)

Employment History

2019-Present Associate Professor, Department of Kinesiology, University of Georgia
2017-Present Adjunct Professor, Department of Physiology & Pharmacology, University of Georgia
2014-2019 Assistant Professor, Department of Kinesiology, University of Georgia
2011-2014 Postdoctoral Research Fellow, Cardiovascular Research Center, University of Virginia
2007-2011 Graduate Research Assistant, University of Minnesota
2005-2007 Graduate Research Assistant, Virginia Tech

Active Extramural Grants – Primary Investigator (reverse chronological order)

National Science Foundation (CMaT Industry Seed Grant)
Funding Period: 4/1/2022-3/31/2023
Role: PI
Leveraging mitochondrial bioenergetics for long-term quality control and near-term optimization of live MSC potency
This primary objective of this study is to determine if mitochondrial bioenergetics predict MSC immunomodulatory potency and then to determine if manipulating mitochondrial bioenergetics can alter MSC cellular attributes

National Institutes of Health (R01)
Funding Period: 4/1/2022 – 3/31/2027
Role: Multi-PI with Sarah M. Greising (Minnesota)
Pathological Foundations of Skeletal Muscle After Volumetric Muscle Loss and Targets for Rehabilitation
The primary objective of this study is to elucidate cellular mechanisms of underlying pathology following volumetric muscle loss

Department of Defense, US Army, Medical Research and Material Command (Level-2)
Funding Period: 09/2020-08/2024
Role: Multi-PI with Sarah M. Greising (Minnesota)
Regenerative rehabilitation solutions to improve functional limitations and plasticity following volumetric muscle loss
The primary objective of this study is to validate regenerative rehabilitation approaches to improve function after orthopedic combat casualties.

Department of Defense, US Army, Clinical & Rehabilitation Medicine Research Program (Level-1)
Funding Period: 09/2018-09/2022
Role: Multi-PI with Sarah M. Greising (Minnesota)
Early interventions to address functional limitations and comorbidities to volumetric muscle loss
The primary objective of this study is to validate regenerative rehabilitation approaches to improve function after orthopedic combat casualties.

Other Active Grants – Co-I/Collaborator (reverse chronological order)

Alliance for Regenerative Rehabilitation Research and Training
Funding Period: 3/2022-2/2023
Role: Co-Investigator

PI: Frank West, PhD University of Georgia
NSC for pediatric traumatic brain injury
The primary objective of this study is to determine if a combination of rehabilitation and regenerative medicine has an additive effect on neurocognition, mobility, and skeletal muscle strength following traumatic brain injury in a pediatric piglet model.

University of Georgia Obesity Initiative (Seed Grant)
Funding Period: 01/2022-12/2022
Role: Collaborator
PI: Chad Paton, PhD University of Georgia
Suppression of mitochondrial maturation through free fatty acid-mediated miRNA expression
The primary objective of this study is to determine function-structure changes in hippocampus and hypothalamus mitochondria associated with high-fat diet.

Department of Defense, US Army, Military Performance Optimization Research
Funding Period: 03/2021-02/2024
Role: Collaborator
PI: Rob Lynall, PhD University of Georgia
Post-concussion neuromuscular function and musculoskeletal injury risk
The primary objective of this study is to assess neuromuscular risk factors for musculoskeletal injuries following concussion

University of Georgia Obesity Initiative (Seed Grant)
Funding Period: 03/2021-12/2021
Role: Co-Investigator
PI: Emily Noble, PhD University of Georgia
Diet induced neuronal and mitochondrial network remodeling as a mechanism for dysregulated appetite in obesity
The primary objective of this study is to determine function-structure changes in hippocampus and hypothalamus mitochondria associated with high-fat diet.

National Institutes of Health (SBIR)
Funding Period: 09/2020-08/2021
Role: Co-Investigator
PI: Hang Yin, PhD University of Georgia
Feasibility study of HIF2A inhibitor PT2385 to treat muscle strain injury
The primary objective of this study is to determine if PT2385 treatment enhances skeletal muscle contractile recovery from injury

Veterans Affairs (SPIRE)
Funding Period: 07/2019-12/2021
Role: Co-Investigator
PI: Luke Brewster, MD Emory University
Quantifying recovery of muscle strength after exercise in large animal model of ischemic myopathy from peripheral arterial disease (PAD)
The primary objective of this study is to determine if exercise is sufficient to improve skeletal muscle strength following ischemic injury in pigs.

National Institutes of Health (R01)
Funding Period: 07/2016-06/2022 (no-cost extension)
Role: Collaborator
PI: Hang Yin, PhD University of Georgia
Impacts of hypoxia and hypoxia-inducible factors on skeletal muscle repair and muscle stem cells
The primary objectives of this study are: 1) identify key factors that mediate the hypoxia signaling in satellite cells; 2) investigate key regulators that modulate satellite cell responses to hypoxia; and 3) explore novel

therapeutic approaches that may improve skeletal muscle repair in physiological and human disease-relevant conditions.

Past Funding Summary (chronological order)

NIH/NIAMS AR007612-10
Funding Period: 05/2009 – 05/2011
Minnesota Muscle Training Grant
University of Minnesota Wellstone Muscular Dystrophy Center
Role: Pre-doctoral fellow
Project: Adaptations in dystrophic muscle to voluntary, resistance wheel running

NIH/NHLBI 2HL007284-35
Funding Period: 09/2011 – 06/2012
Basic Cardiovascular Training Grant
University of Virginia Robert M. Berne Cardiovascular Research Center
Role: Post-doctoral fellow
Project: Skeletal muscle-heart crosstalk in prevention of diabetic cardiomyopathy

American Heart Association
Funding Period: 07/2012 – 06/2014
Post-doctoral Fellowship
Role: PI
Project: Skeletal muscle-heart crosstalk in prevention of diabetic cardiomyopathy

Regenerative Engineering & Medicine
Funding Period: 11/2014-10/2015
Role: Co-PI
Co-Investigator: Robert Guldberg, PhD Georgia Institute of Technology
Project: Engineering the regenerative niche to facilitate muscle repair via cell-based delivery of adipose-derived stem cells

University of Georgia Faculty Research Grants
Funding Period: 07/2015-06/2016
Role: PI
Co-Investigator: Aaron Beedle, PhD University of Georgia
Project: Does mitochondrial capacity impact dystrophic muscle regeneration?

Alliance for Regenerative Rehabilitation Research and Training
Funding Period: 07/2016-03/2019
Role: PI
Project: Early interventions for orthopedic combat casualties

Nathan Shock Center
Funding Period: 07/2017-06/2018
Role: PI
Project: Age-associated declines in muscle function due to accumulation of mtDNA mutations

Regenerative Engineering & Medicine
Funding Period: 07/2017-06/2018
Role: PI
Project: Exploring mechanosensitive cues to enhance mitochondrial structure and function during regeneration

Muscular Dystrophy Association
Funding Period: 02/2017-01/2020
Role: Co-investigator
PI: Aaron Beedle, PhD, Pharmaceutical Sciences, University of Georgia

Project: Is mTOR inhibition a valid therapy for dystroglycan muscular dystrophy?

Scholarship
Journal Article Summary
Total: 53
Number since starting independent lab (circa 2014): 32

1. Wolff AV, Niday AK, Voelker KA, **Call JA**, Evans NP, Granata KP, Grange RW. Passive mechanical properties of maturing extensor digitorum longus are not affected by lack of dystrophin. Muscle & nerve. 2006; 34(3):304-12.

2. Grange RW, **Call JA**. Recommendations to define exercise prescription for Duchenne muscular dystrophy. Exercise and sport sciences reviews. 2007; 35(1):12-7.

3. **Call JA**, Voelker KA, Wolff AV, McMillan RP, Evans NP, Hulver MW, Talmadge RJ, Grange RW. Endurance capacity in maturing mdx mice is markedly enhanced by combined voluntary wheel running and green tea extract. Journal of applied physiology (Bethesda, Md.: 1985). 2008; 105(3):923-32.

4. Baltgalvis KA, **Call JA**, Nikas JB, Lowe DA. Effects of prednisolone on skeletal muscle contractility in mdx mice. Muscle & nerve. 2009; 40(3):443-54.

5. Evans NP, **Call JA**, Bassaganya-Riera J, Robertson JL, Grange RW. Green tea extract decreases muscle pathology and NF-kappaB immunostaining in regenerating muscle fibers of mdx mice. Clinical nutrition (Edinburgh, Scotland). 2010; 29(3):391-8.

6. Verma M, Asakura Y, Hirai H, Watanabe S, Tastad C, Fong GH, Ema M, **Call JA**, Lowe DA, Asakura A. Flt-1 haploinsufficiency ameliorates muscular dystrophy phenotype by developmentally increased vasculature in mdx mice. Human molecular genetics. 2010; 19(21):4145-59.

7. **Call JA**, McKeehen JN, Novotny SA, Lowe DA. Progressive resistance voluntary wheel running in the mdx mouse. Muscle & nerve. 2010; 42(6):871-80.

8. Prins KW, **Call JA**, Lowe DA, Ervasti JM. Quadriceps myopathy caused by skeletal muscle-specific ablation of β(cyto)-actin. Journal of cell science. 2011; 124(Pt 6):951-7.

9. Garlich MW, Baltgalvis KA, **Call JA**, Dorsey LL, Lowe DA. Plantarflexion contracture in the mdx mouse. American journal of physical medicine & rehabilitation. 2010; 89(12):976-85.

10. Markert CD, Ambrosio F, **Call JA**, Grange RW. Exercise and Duchenne muscular dystrophy: toward evidence-based exercise prescription. Muscle & nerve. 2011;43(4):464-78.

11. **Call JA**, Ervasti JM, Lowe DA. TAT-μUtrophin mitigates the pathophysiology of dystrophin and utrophin double-knockout mice. Journal of applied physiology (Bethesda, Md.: 1985). 2011; 111(1):200-5.

12. Greising SM, **Call JA**, Lund TC, Blazar BR, Tolar J, Lowe DA. Skeletal muscle contractile function and neuromuscular performance in Zmpste24 -/- mice, a murine model of human progeria. Age (Dordrecht, Netherlands). 2012; 34(4):805-19.

13. **Call JA**, Eckhoff MD, Baltgalvis KA, Warren GL, Lowe DA. Adaptive strength gains in dystrophic muscle exposed to repeated bouts of eccentric contraction. Journal of applied physiology (Bethesda, Md.: 1985). 2011; 111(6):1768-77.

14. Baltgalvis KA, **Call JA**, Cochrane GD, Laker RC, Yan Z, Lowe DA. Exercise training improves plantar flexor muscle function in mdx mice. Medicine and science in sports and exercise. 2012; 44(9):1671-9.

15. McKeehen JN, Novotny SA, Baltgalvis KA, **Call JA**, Nuckley DJ, Lowe DA. Adaptations of mouse skeletal muscle to low-intensity vibration training. Medicine and science in sports and exercise. 2013; 45(6):1051-9.

16. Hochreiter-Hufford AE, Lee CS, Kinchen JM, Sokolowski JD, Arandjelovic S, **Call JA**, Klibanov AL, Yan Z, Mandell JW, Ravichandran KS. Phosphatidylserine receptor BAI1 and apoptotic cells as new promoters of myoblast fusion. Nature. 2013; 497(7448):263-7.

17. **Call JA**, Warren GL, Verma M, Lowe DA. Acute failure of action potential conduction in mdx muscle reveals new mechanism of contraction-induced force loss. The Journal of physiology. 2013; 591(15):3765-76.

18. Novotny SA, Eckhoff MD, Eby BC, **Call JA**, Nuckley D, Lowe DA. Musculoskeletal response of dystrophic mice to short term, low intensity, high frequencyvibration. Journal of musculoskeletal & neuronal interactions. 2013;13(4):418-29.

----------Start of faculty position at the University of Georgia----------

19. **Call JA**, Chain KH, Martin KS, Lira VA, Okutsu M, Zhang M, Yan Z. Enhanced skeletal muscle expression of extracellular superoxide dismutase mitigates streptozotocin-induced diabetic cardiomyopathy by reducing oxidative stress and aberrant cell signaling. Circulation. Heart failure. 2015; 8(1):188-97.

20. Okutsu M, **Call JA**, Lira VA, Zhang M, Donet JA, French BA, Martin KS, Peirce-Cottler SM, Rembold CM, Annex BH, Yan Z. Extracellular superoxide dismutase ameliorates skeletal muscle abnormalities, cachexia, and exercise intolerance in mice with congestive heart failure. Circulation. Heart failure. 2014; 7(3):519-30

21. Warren GL, **Call JA**, Farthing AK, Baadom-Piaro B. Minimal Evidence for a Secondary Loss of Strength After an Acute Muscle Injury: A Systematic Review and Meta-Analysis. Sports medicine (Auckland, N.Z.). 2017; 47(1):41-59.

22. Foltz SJ, Luan J, **Call JA**, Patel A, Peissig KB, Fortunato MJ, Beedle AM. Four-week rapamycin treatment improves muscular dystrophy in a fukutin-deficient mouse model of dystroglycanopathy. Skeletal muscle. 2016; 6:20.

23. Nichenko AS, Southern WM, Atuan M, Luan J, Peissig KB, Foltz SJ, Beedle AM, Warren GL, **Call JA**. Mitochondrial maintenance via autophagy contributes to functional skeletal muscle regeneration and remodeling. American journal of physiology. Cell physiology. 2016; 311(2):C190-200.

24. **Call JA**, Lowe DA. Eccentric Contraction-Induced Muscle Injury: Reproducible, Quantitative, Physiological Models to Impair Skeletal Muscle's Capacity to Generate Force. Methods in molecular biology (Clifton, N.J.). 2016; 1460:3-18.

25. Southern WM, Nichenko AS, Shill DD, Spencer CC, Jenkins NT, McCully KK, **Call JA**. Skeletal muscle metabolic adaptations to endurance exercise training are attainable in mice with simvastatin treatment. PloS one. 2017; 12(2):e0172551

26. **Call JA**, Wilson RJ, Laker RC, Zhang M, Kundu M, Yan Z. Ulk1-mediated autophagy plays an essential role in mitochondrial remodeling and functional regeneration of skeletal muscle. American journal of physiology. Cell physiology. 2017; 312(6):C724-C732.

27. Shill DD, Polley KR, Willingham TB, **Call JA**, Murrow JR, McCully KK, Jenkins NT. Experimental intermittent ischemia augments exercise-induced inflammatory cytokine production. Journal of applied physiology (Bethesda, Md.: 1985). 2017; 123(2):434-441.

28. Yan Z, Kronemberger A, Blomme J, **Call JA**, Caster HM, Pereira RO, Zhao H, de Melo VU, Laker RC, Zhang M, Lira VA. Exercise leads to unfavourable cardiac remodelling and enhanced metabolic homeostasis in obese mice with cardiac and skeletal muscle autophagy deficiency. Scientific reports. 2017; 7(1):7894.

29. **Call JA**, Donet J, Martin KS, Sharma AK, Chen X, Zhang J, Cai J, Galarreta CA, Okutsu M, Du Z, Lira VA, Zhang M, Mehrad B, Annex BH, Klibanov AL, Bowler RP, Laubach VE, Peirce SM, Yan Z. Muscle-derived extracellular superoxide dismutase inhibits endothelial activation and protects against multiple organ dysfunction syndrome in mice. Free radical biology & medicine. 2017; 113:212-223.

30. Corona BT, Flanagan KE, Brininger CM, Goldman SM, **Call JA**, Greising SM. Impact of volumetric muscle loss injury on persistent motoneuron axotomy. Muscle & nerve. 2017; 57(5):799-807.

31. Tehrani KF, Pendleton EG, Southern WM, **Call JA**, Mortensen LJ. Two-photon deep-tissue spatially resolved mitochondrial imaging using membrane potential fluorescence fluctuations. Biomedical optics express. 2018; 9(1):254-259.

32. McCully KK & **Call JA**. Commentaries on Viewpoint: Principles, insights, and potential pitfalls of the noninvasive determination of muscle oxidative capacity by near-infrared spectroscopy. Journal of applied physiology (Bethesda, Md.: 1985). 2018; 124(1):249-255.

33. Shill DD, Lansford KA, Hempel HK, **Call JA,** Murrow JR, Jenkins NT. Effect of exercise intensity on circulating microparticles in men and women. Experimental physiology. 2018; 103(5):254-259.

34: Greising SM, Warren GL, Southern WM, Nichenko AS, Qualls AE, Corona BT, **Call JA**. Early rehabilitation for volumetric muscle loss injury augments endogenous regenerative aspects of muscle strength and oxidative capacity. BMC Musculoskeletal disorders. 2018 May 29;19(1):173. doi: 10.1186/s12891-018-2095-6.

35: Xie L, Yin A, Nichenko AS, Beedle AM, **Call JA**, Yin H. Transient HIF2A inhibition promotes satellite cell proliferation and muscle regeneration. Journal of clinical investigation. 2018 Jun 1;128(6):2339-2355.

36: Ruehle MA, Stevens HY, Beedle AM, Guldberg RE, **Call JA**. Aggregate mesenchymal stem cell delivery ameliorates the regenerative niche for muscle repair. Journal of tissue engineering and regenerative medicine. 2018 Aug;12(8):1867-1876.

37: Wilson RJ, Drake JC, Cui D, Ritger ML, Guan Y, **Call JA**, Zhang M, Leitner LM, Gödecke A, Yan Z. Voluntary running protects against neuromuscular dysfunction following hindlimb ischemia-reperfusion in mice. Journal of applied physiology (1985). 2019 Jan 1;126(1):193-201.

38: Southern WM, Nichenko AS, Tehrani KF, McGranahan MJ, Krishnan L, Qualls AE, Jenkins NT, Mortensen LJ, Yin H, Yin A, Guldberg RE, Greising SM, **Call JA**. PGC-1α overexpression partially rescues impaired oxidative and contractile pathophysiology following volumetric muscle loss injury. Scientific reports. 2019 Mar 11;9(1):4079.

39: Tehrani KF, Latchoumane CV, Southern WM, Pendleton EG, Maslesa A, Karumbaiah L, **Call JA**, Mortensen LJ. Five-dimensional two-photon volumetric microscopy of in-vivo dynamic activities using liquid lens remote focusing. Biomedical optics express. 2019 Jun 26;10(7):3591-3604.

40: Nichenko AS, Southern WM, Tehrani KF, Qualls AE, Flemington AB, Mercer GH, Yin A, Mortensen LJ, Yin H, **Call JA.** Mitochondrial-specific autophagy linked to mitochondrial dysfunction following traumatic freeze injury in mice. American journal of physiology. Cell physiology. 2020 Feb 1;318(2):C242-C252.

41: **Call JA** & Nichenko AS. Autophagy: an essential but limited cellular process for timely skeletal muscle recovery from injury. Autophagy. 2020 Jul;16(7):1344-1347.

42: Greising SM, Corona BT, **Call JA**. Musculoskeletal regeneration, rehabilitation, and plasticity following traumatic injury. International journal of sports medicine 2020 Jul;41(8):495-504.

43: Southern WM, Nichenko AS, Qualls AE, Portman K, Gidon A, Beedle AM, **Call JA**. Mitochondrial dysfunction in skeletal muscle of fukutin-deficient mice is resistant to exercise- and 5-aminoimidazole-4-carboxamide ribonucleotide-induced rescue. Experimental physiology. 2020 Oct;105(10):1767-1777.

44: Fagan MM, Harris P, Adams A, Pazdro R, Krotky A, **Call JA**, Duberstein KJ. Form of Vitamin E supplementation affects oxidative and inflammatory response in exercising horses. Journal of equine veterinary science. 2020 Aug;91:103103.

45: Tehrani KF, Pendleton EG, Southern WM, **Call JA**, Mortensen LJ. Spatial frequency metrics for analysis of microscopic images of musculoskeletal tissues. Connective tissue research. 2021 Jan;52(1):4-14.

46: Qualls AE, Southern WM, **Call JA**. Mitochondria-cytokine crosstalk following skeletal muscle injury and disuse: a mini-review. American journal of physiology. Cellular physiology. 2021 May 1;320(5):C681-C688.

47: Klionsky DJ, [et al. including **Call JA**]. Guidelines for the use and interpretation of assays for monitoring autophagy (4th edition). Autophagy. 2021 Jan;17(1):1-382.

48: Nichenko AS, Sorensen JR, Southern WM, Qualls AE, Schifino AG, McFaline-Figueroa J, Blum JE, Tehrani KF, Yin H, Mortensen LJ, Thalacker-Mercer AE, Greising SM, **Call JA**. Lifelong Ulk1-Mediated Autophagy Deficiency in Muscle Induces Mitochondrial Dysfunction and Contractile Weakness. International journal of molecular science. 2021 Feb 16;22(4)1937.

49: Dalske KA, Raymond-Pope CJ, McFaline-Figueroa J, Basten AM, **Call JA**, Greising SM. Independent of physical activity, volumetric muscle loss injury in a murine model impairs whole-body metabolism. PLoS One. 2021;16(6):e0253629.

50: Greising SM & **Call JA**. Commentaries on Viewpoint: The bread baker and the sandwich shop: "Partnering small businesses" for success. Journal of applied physiology. 2021 Aug; 131(2):743-745.

51: Corona BT, **Call JA**, Borkowski M, Greising SM. In vivo measurement of hindlimb dorsiflexor isometric torque from pig. Journal of visual experimentation (JOVE). 2021;175: e62905.

52: Laudato JA, Tice AL, **Call JA**, Gordon BS, Steiner JL. Effects of binge alcohol on skeletal muscle contractile performance in male and female mice. PLos One. 2021;16(8):e0255946.

53: Lord MN, Heo JW, Schifino AG, Hoffman JR, Donohue KN, **Call JA**, Noble EE. Sexually dimorphic effects of a Western diet on brain mitochondrial bioenergetics and neurocognitive function. Nutrients. 2021; 13(12):4222.

54: Lempke LB, **Call JA**, Hoch MC, Schmidt JD, Lynall RC. Lower-extremity neuromuscular function following concussion: a preliminary examination. Journal of Sports Rehabilitation. 2022. 22:1-9.

55: Lempke LB, Hoch MC, **Call JA**, Schmidt JD, Lynall RC. Lower extremity somatosensory function throughout concussion recovery: a prospective cohort study. Journal of Head Trauma Rehabilitation. 2022. Ahead of Print

56: McFaline-Figueroa J, Schifino AG, Nichenko AS, Lord MN, Hunda ET, Winders EA, Noble EE, Greising SM, **Call JA.** Tissue Engineering part A. 2022. Ahead of Print

Published Books and Chapters

1. **Book Editor**: *Regenerative Rehabilitation: from basic science to the clinic*. Published by Springer-Nature, e-book catalog of the American Physiological Society. 459 pages. doi:10.1007/978-3-030-95884-8.
2. **Chapter Author**: Considerations for small animal physical rehabilitation. Chapter 2 in Regenerative Rehabilitation: from basic science to the clinic. Pages 39-59. Published by Springer-Nature, e-book catalog of the American Physiological Society
3. **Chapter Author**: Pathophysiology of volumetric muscle loss and targets for regenerative rehabilitation. Chapter 6 in Regenerative Rehabilitation: from basic science to the clinic. Pages 177-225. Published by Springer-Nature, e-book catalog of the American Physiological Society

Published Abstracts [n = 28]

1. **Call JA**, Baltgalvis KA, Lowe DA. 2008. Short term, progressive wheel running by C57BL/10 mice is not sufficient to mimic resistance exercise. The Physiologist December Vol. 51.
2. Baltgalvis KA, Kosir AM, **Call JA**, Lowe DA. 2008. Mitochondrial adaptations following exercise training in dystrophic mouse skeletal muscle. The Physiologist December Vol. 51.
3. Bueche J, Conrad M, Dittner H, Emms S, Flategraff T, Fuller S, **Call JA**, Baltgalvis K, Dorsey L, Lowe D. 2009. Contracture properties of lower leg muscles due to Duchenne muscular dystrophy. Ped. Physical Ther. Vol 21: 88-136.

4. Markert CD, Fabrisia A, **Call JA**, Grange RW. 2010. Exercise and Duchenne muscular dystrophy: Towards evidence-based exercise prescription. Medicine & Science in Sports & Exercise 42(10):supplement 2:29.
5. Dommer D, Kelly T, Ludowese D, Neeser P, Schoess J, Cochrane G, **Call JA**, Lowe D. 2011. Plantarflexion torque is improved by wheel running in mice with Duchenne muscular dystrophy. Ped. Physical Ther. 23:96-105.
6. **Call JA**, Eckhoff MD, Baltgalvis KA, Warren GL, Lowe DA. 2011. Dystrophin is not required for skeletal muscle to adapt to repeated bouts of lengthening contractions. The FASEB Journal 25:1105.13
7. McKeehen JM, Baltgalvis KA, **Call JA**, Greising SM, Novotny SA, Lowe DA. 2011. Adaptations of mouse skeletal muscle to chronic low-level, high-frequency vibration. The FASEB Journal 25:1107.21
8. Novotny SA, Eby BC, Nuckley DJ, **Call JA**, Eckhoff MD, Lowe DA. 2012. Low magnitude vibration to improve musculoskeletal health in a mouse model of muscle disease. Medicine & Science in Sports and Exercise 44(5):supplement 2:354.
9. Lira V, **Call JA**, Laker RC, Lira A, Zhang M, Yan Z. 2015. Loss of Ulk1 in skeletal muscle and heart prevents exercise protection against diet-induced insulin resistance. The FASEB Journal 29:821.6
10. Lira V, Kronemberg A, **Call JA**, Caster HM, Pereira RO, Laker RC, Zhang M, Yan Z. 2016. Defective autophagy causes a maladaptive cardiac phenotype to exercise that leads to premature death and FGF21-mediated protection against obesity and insulin resistance. The FASEB Journal 30:1014.4
11. Greising SM, Corona BT, Warren GL, **Call JA**. Early rehabilitation and volumetric muscle loss injury adapts the genetic response of the remaining muscle mass. The FASEB Journal 31:1083.10
12. Southern WM, Nichenko AS, Beedle AM, **Call JA**. Mitochondrial abnormalities may contribute to skeletal muscle weakness and poor regeneration in fukutin-deficient muscular dystrophy mice. The FASEB Journal 31:1081.3
13. Nichenko AS, Southern WM, Qualls A, Spencer CC, **Call JA**. Autophagy related Ulk1 is necessary for the recovery of mitochondrial function after skeletal muscle injury. The FASEB Journal 31:1082.6
14. Qualls A, Nichenko AS, Southern WM, Agan Z, Warren GL, Greising SM, **Call JA**. Early rehabilitation to augment skeletal muscle function following volumetric muscle loss injury. The FASEB Journal 31:1022.9
15. Shill DD, Polley KR, Willingham TB, **Call JA**, Murrow JR, McCully KK, Jenkin NT. 2017. Experimental intermittent ischemia augments exercise-induced inflammatory cytokine production. Medicine & Science in Sports & Exercise 49:64
16. Fagan MM, Pazdro R, **Call JA,** Abrams A, Harris P, Krotky AD, Duberstein KJ. 2017. Assessment of oxidative stress and muscle damage in exercising horses in response to level and form of vitamin E. Journal of Equine Veterinary Science 52:80-81
17. Southern WM, Nichenko AS, Qualls AE, Yin A, Yin H, Greising SM, **Call JA.** 2018. Forced Pgc1a1 expression improves oxidative capacity and partially rescues strength following volumetric muscle loss injury. Medicine & Science in Sports & Exercise 50:845-846
18. Nichenko AS, Southern WM, Flemington A, Graulich BL, **Call JA.** 2018. Importance of autophagy in the recovery of muscle function after injury in an ovariectomized model. Medicine & Science in Sports & Exercise 50:369
19. Nichenko AS, Southern WM, Mercer G, Greising SM, **Call JA**. 2019. Lifelong deficiency in Ulk1-mediated autophagy precipitates skeletal muscle aging. Medicine & Science in Sports & Exercise 51(6):146
20. Mortensen LJ, Nichenko AS, **Call JA**, Pendleton EG. 2019. Mitochondrial dysfunction may contribute to muscle weakness in hypophosphatasia. Journal of Bone and Mineral Research Plus 3(S4):23
21. Greising SM, Warren GL, **Call JA**. 2019. Bone deterioration and metabolic deficiency after volumetric muscle loss injury: targets for regenerative rehabilitation. Journal of Bone and Mineral Research Plus 3(S4):10-11
22. Hoffman DB, Sorensen JR, **Call JA**, Corona BT, Greising SM. 2020. Temporal changes in pathologic fibrosis following volumetric muscle loss injury. The FASEB Journal 34(S1):1-1
23. Nichenko AS, Tehrani KF, Yin A, Yin H, Mortensen LJ, **Call JA**. 2020. Autophagy flux: A bottleneck in the clearance of damaged organelles and proteins after skeletal muscle injury. The FASEB Journal 34(S1):1-1
24. Dalske KA, Basten AM, Raymond-Pope CJ, **Call JA**, Greising SM. 2020. Interplay between whole body metabolism, physical activity, and muscle function following volumetric muscle loss injury. The FASEB Journal 34(S1):1-1
25. McFaline-Figueroa J, Nichenko AS, Schifino AG, **Call JA**. 2020. Ca2+-induced complex I inactivity: a model for early mitochondrial dysfunction following volumetric muscle loss injury. The FASEB Journal 34(S1):1-1
26. Lempke LB, Schmidt JD, **Call JA**, Hoch MC, Lynall RC. 2021. Examining somatosensory and neuromuscular function throughout concussion recovery: A preliminary study. Journal of Athletic Training 56(6s):S-61
27. McFaline-Figueroa J, Schifino A, Hunda T, Winder E, Greising SM, **Call JA**. 2021. Testing adjunctive oxidative modulators to improve functional capacity in a murine model of volumetric muscle loss. The FASEB Journal 35(S1):02897

28. Raymond-Pope C, McFaline-Figueroa J, Basten A, Hunda T, Kalske K, **Call JA**, Greising SM. 2021. Whole-body and remaining muscle-specific metabolic function is limited following volumetric muscle loss. The FASEB Journal 35(S1):03219
29. Heo JW, Schifino AG, McFaline-Figueroa J, Greising SM, **Call JA.** 2022. Exploring the combined effect of high-fat high sugar diets on volumetric muscle loss injury on skeletal muscle metabolic and contractile function in mice. The FASEB Journal 36(S1):L7673
30. Schifino AG, Heo JW, McFaline-Figueroa J, Greising SM, **Call JA.** 2022. Assessing high- and low-intensity physical rehabilitation approaches to address skeletal muscle dysfunction following volumetric muscle loss. The FASEB Journal 36(S1):L7929
31. Raymond-Pope CJ, Basten AM, McFaline-Figueroa J, **Call JA**, Greising SM. 2022. The whole-body and muscle specific metabolic costs of repair following volumetric muscle loss injury: the role of limited physical activity and adjunctive oxidative modulation. The FASEB Journal 36(S1):L7646

Scholarly Presentation and Invited Talks since joining UGA in August of 2014 [n = 19]

1. Is mitochondrial maintenance via mitophagy contributing to skeletal muscle adaptation and recovery? *Southeastern American College of Sports Medicine*. Jacksonville, FL. 12 February 2015.
2. Skeletal muscle function: contraction and beyond. *University of South Carolina Department of Exercise Science Seminar*. Columbia, SC. 20 March 2015
3. Welcome address: Learning from failures in science. *Regenerative Bioscience Center Undergraduate Research Symposium*. Athens, GA. 22 April 2015.
4. Engineering the regenerative niche to facilitate muscle repair via cell-based delivery of adipose-derived stem cells. *Annual Regenerative Engineering & Medicine Retreat*. Atlanta, GA. 7 August 2015.
5. Starting your research laboratory. *Robert M. Berne Cardiovascular Research Center Career Development Symposium*. Charlottesville, VA. 18 May 2016.
6. Recovery from varying types of muscle injury: importance of repair versus regeneration and role of mitochondria. *Southeastern American College of Sports Medicine*. Greenville, SC. 16 February 2017.
7. Skeletal muscle function and regeneration: investigating targets for therapeutic intervention. *Augusta University Department of Cellular Biology and Anatomy Seminar* Augusta, GA. 26 October 2017
8. Ulk1-mediated autophagy is critical for functional regeneration of skeletal muscle after traumatic injury. *University of Georgia Department of Physiology & Pharmacology Seminar* 2 Athens, GA. October 2017
9. Autophagy and skeletal muscle regeneration. *American College of Sports Medicine* Minneapolis, MN. 31 May 2018
10. Exploring metabolic plasticity of the remaining muscle after volumetric muscle loss injury as a means to preserve and/or improve functional capacity and regeneration. *Military Health System Research Symposium* Orlando, FL. 21 August 2018.
11. PGC1α1 activation is necessary and sufficient for endurance exercise-induced oxidative plasticity in the remaining muscle after volumetric muscle loss injury. *Regenerative Medicine Workshop* Charleston, SC. 22 March 2019.
12. Bone deterioration and metabolic deficiency after volumetric muscle loss injury: targets for regenerative rehabilitation. *Muscle-Bone Interactions: Mechanical and Beyond* Indianapolis, IN. 16 August 2019.
13. Stranger Things: the upside-down of muscle, mitochondrial, and bone plasticity after volumetric muscle loss injury. *Symposium on Regenerative Rehabilitation* Charlottesville, VA. 24 October 2019
14. Mitochondrial physiology: metabolic influences on muscle contractility to tissue regeneration. *University of Georgia Foods and Nutrition Departmental Seminar* Athens, GA. 7 October 2019
15. Metabolic and contractile consequences of skeletal muscle injury and aging: targets for rehabilitation. *Duke University Molecular Physiology Institute Seminar Series* Raleigh, NC. 10 December 2019
16. The autophagy flux bottleneck and implications for muscle repair and muscular dystrophy. *Muscular Dystrophy Center University of Minnesota* Minneapolis, MN. 12 March 2020
17. Molecular metabolism as a nexus for regenerative rehabilitation. *Experimental Biology*, San Diego, CA. 29 April 2021
18. Molecular insights into regenerative rehabilitation for traumatic musculoskeletal injuries. *Seminars in Metabolism: Diabetes and Metabolism Research Center, University of Utah*. Salt Lake City, UT. 2 September 2021
19. Regenerative rehabilitation for traumatic muscle injury: contractile and metabolic considerations. *University of California-San Diego Physiology Seminar Series*. 13 December 2021.
20. Using mitochondrial bioenergetics to elucidate pathology and as a target for tissue remodeling. *Department of Physiology & Pharmacology* University of Georgia, Athens, GA. 8 April 2022.

21. Molecular insights into regenerative rehabilitation for traumatic musculoskeletal injuries. *Cardiovascular Research Center Seminar* University of Virginia, Charlottesville, VA. 15 April 2022.
22. Pathological foundations of metabolic dysfunction following traumatic muscle injury. *Human Nutrition, Foods and Exercise* Virginia Tech, Blacksburg, VA. 25 April 2022.
23. Divergent musculoskeletal adaptations following volumetric muscle loss injury. *3rd International Conference on Musculoskeletal and Neuronal Interactions*. Atlanta, GA. 26 August 2022.

Mentorship

Primary Mentor:

1. Anna Nichenko (Ph.D.) –2015-2020 — Current: Postdoc Virginia Tech
2. Michael Southern (Ph.D.) –2016-2018 — Current: Postdoc University of Minnesota
3. Jennifer McFaline-Figueroa (Ph.D.) –2019-present
4. Albino Schifino (Ph.D.) –2019-present
5. Jun-Won Heo (Ph.D.) –2020-present

Graduate Committees:

1.	Kasey Lansford	2015-2016	M.S. Kinesiology
2.	Dan Shill	2015-2016	M.S. Kinesiology
3.	Thomas Novak	2015-2016	M.S. Kinesiology
4.	Madison Fagan	2016-2018	M.S. Animal Dairy Science
5.	Brad Willingham	2016-2017	Ph.D. Kinesiology
6.	Yang Liu	2016-2021	Ph.D. Biochemistry and Molecular Biology
7.	Yu-Tsung Matthew Wang	2017	M.S. Biochemistry and Molecular Biology
8.	Lauren Brown	2018-2019	M.S. Kinesiology
9.	Wenyan Fu	2018-Present	Ph.D. Biochemistry and Molecular Biology
10.	Austin Passaro	2018-2021	Ph.D. Neuroscience
11.	Brian Jurgielewicz	2018-2021	Ph.D. Neuroscience
12.	Eddie Green	2018-Present	Ph.D. Kinesiology
13.	Alyssa Olenick	2018-Present	Ph.D. Kinesiology
14.	Regis Pearson	2019-Present	Ph.D. Kinesiology
15.	Shannon Anderson	2019-2021	Ph.D. Biomedical Engineering (Georgia Tech)
16.	Allison Ramey	2019-2021	Ph.D. Chemistry (Emory University)
17.	Hannah Kemelmakher	2019-Present	DVM/Ph.D. Physiology & Pharmacology
18.	Denise Fahey	2019-Present	Ph.D. Biochemistry
19.	Hallie Wachsmuth	2019-2020	M.S. Kinesiology
20.	Uma Dixit	2019-2020	M.S. Kinesiology

UNDERGRADUATE STUDENTS MENTORED: ** Peer-reviewed publications or # published abstracts

Mark Atuan (Kinesiology)**	2014-2015	Current: Dental School
Alexandra Flemington (Biology)** #	2014-2018	Current: Medical School
Corey Spencer (Kinesiology)**	2015-2016	Current: Medical School
Anita Qualls (Biology)** #	2015-2019	Current: Medical School
Emily Lyons (Biology)	2016	Current: unknown
Hannah James (Kinesiology)	2016	Current: unknown
Zach Agan (Kinesiology #	2016	Current: Physical therapy school
Grant Mercer (Biology)** #	2017-2020	Current: Medical School
Taylor Bergstrom (Biology)	2017	Current: Podiatry School
Bethany Graulich (Biology) #	2017-2020	Current: Medical School
Tyra Kimbler (Marine Biology)	2019	
Erin Osbourne (Biology)	2019-2020	
Tate Hunda (Animal Dairy Science) #	2019-Present	
Elizabeth Winders (Biology) #	2019-Present	
Amber Palmer (Biology)	2020-2021	
Robel Yohannes (Biology)	2020-Present	

Kylie Tobey (Biology)	2020-Present
Ayoub Abubaker (Biology)	2021-Present
Bailey Amberg (Biology)	2021-Present

Instruction Summary

Course Title	*Semester Taught*	*Years Taught*
Neuromuscular Physiology	Fall & Spring Semesters	2014-Present
Mitochondrial Physiology	Spring Semesters	2016-Present
Exercise Physiology	Fall Semesters	2015-Present
Neuromuscular Mechanisms of Exercise	Fall Semester	2019, 2021
The Physiology and Philosophy of Running	Fall Semesters	2016-Present

Professional Service

Invited Grant Peer Reviewer:

NIH:

2018: SMEP Study Section
2022: ZRG1 MOSS Study Section
2022: MTE Study Section
2022: SMEP Study Section

US Army Medical Research & Development Command:

2019: Medical Research & Development Command-Broad Agency
2020: Peer Reviewed Medical Research Program
2020: Peer Reviewed Orthopaedic Research Program
2021: Military Operational Medicine Research Program
2021: Peer Reviewed Medical Research Program
2022: Medical Research & Development Command-Broad Agency
2022: Peer Reviewed Medical Research Program

Regenerative Engineering & Medicine:

2019: seed grant program

Invited Manuscript Peer Reviewer:

Gender Medicine
International Journal of Vitamin and Nutrition Research
European Journal of Sports Science
Journal of Endocrinology
Cardiology Journal
Autophagy
Nature Communications
Physiological Genomics
AJP-Regul, Intgr. Compar. Physiol.
PLoS One
Cells, Tissues, Organs
AJP-Endo Metab Gastro Phsyiol
Journal of Applied Physiology
Medicine & Science in Sports & Exercise
Muscle & Nerve
Physiological Reports
Journals of Gerontology
Connective Tissue Research
Scientific Reports
AJP-Cell Physiol
Journal of Orthopaedic Research
Science Advances

Committees:

Executive Committee for Regenerative Bioscience Center, Anti-Racism Departmental Committee, Faculty Search Committee Kinesiology, Faculty Search Committee Physiology & Pharmacology, Penland Award Committee, Graduate Instruction Strategic Planning Committee, Kindig Award Committee, Departmental Space Allocation Committee

Jae-Kyung 'Jamise' Lee, Ph.D.

Associate Professor of Department of Physiology and Pharmacology
University of Georgia College of Veterinary Medicine
501 D.W. Brooks Dr.
Athens GA 30602 USA
706-542-9671 (office)
817-266-4529 (cell)
jamlee@uga.edu

EMPLOYMENTS:

2022-	Associate Professor (Tenured), Physiology & Pharmacology, UGA, Athens, GA
2015-22	Assistant Professor (Tenure-track), Physiology & Pharmacology, UGA, Athens, GA
2010-15	Assistant Professor (Research-track), Physiology, Emory University, Atlanta, GA
2008-10	Instructor, Physiology, UT Southwestern Medical Center, Dallas, TX

EDUCATION:

2008	Postdoc., Physiology, UT Southwestern Medical Center at Dallas, TX
2005	Ph.D., Biomedical Sciences, Univ. North Texas Health Science Center, Ft. Worth, TX
1999	M.S., Biology, Kyungpook National University, South Korea
1997	B.S., Biology, Kyungpook National University, South Korea

PUBLICATIONS:

https://www.ncbi.nlm.nih.gov/myncbi/jae%20kyung.lee.1/bibliography/public/

A. PEER-REVIEWED PUBLICATIONS: **Corresponding author*

1. Menees K, **Lee JK***. (2022) New Insights and Implications of NK cells in Parkinson's disease. Doi:10.3233/JPD-223212
2. Menees K[#], Earls RH[#], Chung J, Jernigan J, **Lee JK*.** (2021) Age-related changes in immune cells may influence risk for age-related degeneration. *Immun Ageing* **18,** 3 (2021). Immun Ageing. 2021 Jan 8;18(1):3. doi: 10.1186/s12979-021-00214-3. PubMed PMID: 33419446; PubMed Central PMCID: PMC7791703.
3. Almurairi F, Sarr D, Tucker S, Fantone K, Lee JK, Rada B. (2021) RGS10 reduces lethal influenza infection and associated lung inflammation in mice. Front Immunol. 2021;12:772288. doi: 10.3389/fimmu.2021.772288. eCollection 2021. PubMed PMID: 34912341; PubMed Central PMCID: PMC8667315.
4. Earls RH, **Lee JK***. (2020) The role of natural killer cells in Parkinson's disease. ***Experimental Molecular Medicine,*** *Review*, doi.org/10.1038/s12276-020-00505-7.
5. Almutairi FA, **Lee JK**, Rada B. (2020) Regulator of G-protein signaling 10: structure, expression and functions in physiology and disease, Review. ***Cell Signal.*** 2020 Aug 31:109765. doi: 10.1016/j.cellsig.2020.109765. PubMed PMID: 32882407.
6. Schank J, Schroeder J, Lee S, Chang J, Li JM, Jin Z, Birnir B, Chung J, **Lee JK**, Aalkjaer C, Boedtkjer E and Choi I. (2020) Increased alcohol consumption in mice lacking sodium bicarbonate transporter NBCn1. ***Sci Rep.*** 2020 Jul 3;10(1):11017. doi: 10.1038/s41598-020-67291-0. PubMed PMID: 32620847; PubMed Central PMCID: PMC7335059.

7. Earls RH[#], Menees KB[#], Chung J[#], Gutekunst CA, Lee HJ, Hazim MG, Rada B, Wood LB, **Lee JK*** (2020) NK cells clear α-synuclein and the depletion of NK cells exacerbates synuclein pathology in a mouse model of α-synucleinopathy. ***Proc Natl Acad Sci U S A.*** 2020 Jan 21;117(3):1762-1771. doi: 10.1073/pnas.1909110117. Epub 2020 Jan 3. PubMed PMID: 31900358; PubMed Central PMCID: PMC6983411.
8. Earls RH, Menees KB, Chung J, Barber J, Gutekunst CA, Hazim MG, **Lee JK*** (2019) Intracerebral injection of pre-formed alpha-synuclein fibrils alters central and peripheral immune cell profiles in mice***. Journal of Neuroinflammation.*** 2019 Dec 3;16(1):250. doi: 10.1186/s12974-019-1636-8. PubMed PMID: 31796095; PubMed Central PMCID: PMC6889316. **Corresponding author*
9. Shao Q, Yang M, Liang C, Ma L, Zhang W, **Lee JK**, Liang C, Chen JF (2019) c9orf72 and smcr8 mutant mice reveal MTORC1 activation due to impaired lysosomal degradation and exocytosis. ***Autophagy.*** 2019 Dec 26;1-16. doi: 10.1080/15548627.2019.1703353. PMID: 31847700.
10. Fang X., Chung J, Olsen E., Snider I, Earls RH, Jeon J. Park HJ, **Lee JK*** (2018) RGS10 depletion exaggerates high-fat diet induced-insulin resistance and inflammation in mice that mitigated by green tea extract. ***Nutritional Research*** 2019 Oct;70:50-59. doi: 10.1016/j.nutres.2018.06.004. Epub 2018 Jun 28. PubMed PMID: 30032988. **Corresponding author*
11. **Lee JK***, Bou Dagher J. (2016) Regulator of G-protein Signaling (RGS) 1 and RGS 10 proteins as potential drug targets for neuroinflammatory and neurodegenerative diseases. ***AAPS Journal*** 2016 May;18(3):545-9. doi: 10.1208/s12248-016-9883-4. Epub 2016 Feb 22. PubMed PMID: 26902301; PubMed Central PMCID: PMC5256602. **Corresponding author (Review)*
12. **Lee JK*,** Kannarkat G, Chung JG, Lee HJ, Graham KG, Tansey MG (2016) RGS10 deficiency ameliorates the severity of disease in experimental autoimmune encephalitis. ***Journal of Neuroinflammation*** 2016 Feb 1;13:24. doi: 10.1186/s12974-016-0491-0. PubMed PMID: 26831924; PubMed Central PMCID: PMC4736282. **Corresponding author*
13. Won S, **Lee JK**, Stein D. (2015) Recombinant tissue plasminogen activator promotes, and progesterone attenuates, microglia/macrophage M1 polarization and recruitment of microglia after MCAO stroke in rats. ***Brain, Behavior, and Immunity*** 2015 Oct;49:267-79. doi: 10.1016/j.bbi.2015.06.007. Epub 2015 Jun 17. PubMed PMID: 26093305.
14. Tansey MG, **Lee JK**. (2015) Inflammation in Nervous System Disorders: Introduction. ***Neuroscience*** 2015 Aug 27;302:1. doi: 10.1016/j.neuroscience.2015.05.006. Epub 2015 May 16. PubMed PMID: 25988757.
15. **Lee JK*** and Tansey MG (2015) Physiology of RGS10 in neurons and immune cells. ***Progress in Molecular Biology and Translational Science.*** 2015;133:153-67. doi: 10.1016/bs.pmbts.2015.01.005. Epub 2015 Apr 1. Review. PubMed PMID: 26123306.
16. Kannarkat G, **Lee JK,** Ramsey C, Chung J, Chang J, Liu X, Oliver D, Shepherd K, Tansey MG (2015) Age-related changes in RGS10 expression in peripheral immune cells but not in the midbrain may influence risk for age-related degeneration. ***Neurobiology of Aging*****,** 2015 May;36(5):1982-93. doi: 10.1016/j.neurobiolaging.2015.02.006. Epub 2015 Feb 13. PubMed PMID: 25784210; PubMed Central PMCID: PMC4417042.
17. Kannarkat GT, Cook DA, **Lee JK**, Chang J, Chung J, Sandy, E, Sperin EM, Factor S, Boss JM and Tansey MG (2015) Common Genetic Variant Association with Altered HLA Expression, Synergy with Pyrethroid Exposure, and Risk for Parkinson's Disease: An Observational and

Case-Control Study. ***NPJ Parkinson's Disease*** 2015;1. doi: 10.1038/npjparkd.2015.2. Epub 2015 Apr 22. PubMed PMID: 27148593; PubMed Central PMCID: PMC4853162.

18. **Lee JK*,** Chung J, Kannarkat G, Tansey MG*. (2013) Critical Role of Regulator G-protein Signaling 10 (RGS10) in modulating Macrophage M1/M2 Activation. ***PLoS ONE*** 013;8(11):e81785. doi: 10.1371/journal.pone.0081785. eCollection 2013. PubMed PMID: 24278459; PubMed Central PMCID: PMC3836764.
19. **Lee JK***, Tansey MG. (2013) Microglia isolation from adult mouse brain. *Methods in Molecular Biology***,** 2013;1041:17-23. doi: 10.1007/978-1-62703-520-0_3. PubMed PMID: 23813365; PubMed Central PMCID: PMC4145600.
20. **Lee JK*,** Chung J, Druey K, Tansey MG*. (2012) Neuroprotective role of RGS10 in dopaminergic neuronal through PKA/cAMP-response element binding protein (CREB) pathway**.** ***Journal of Neurochemistry,*** 2012 Jul;122(2):333-43. doi: 10.1111/j.1471-4159.2012.07780.x. Epub 2012 May 30. PubMed PMID: 22564151; PubMed Central PMCID: PMC3435458.
21. Harms AS, **Lee JK**, Nguyen TA, Chang J, Ruhn KM, Treviño I, Tansey MG. (2012) Regulation of Microglia Effector Functions by Tumor Necrosis Factor (TNF): implications for anti-TNF therapy in the CNS. ***Glia*** 2012 Feb;60(2):189-202. doi: 10.1002/glia.21254. Epub 2011 Oct 11. PubMed PMID: 21989628; PubMed Central PMCID: PMC3232308.
22. **Lee JK,** Chung J, McAlpine FE, Tansey MG. (2011) Regulator of G-protein Signaling-10 negatively regulates NF-kB in microglia and neuroprotects dopaminergic neurons in hemiparkinsonian rats. ***Journal of Neuroscience***, 2011 Aug 17;31(33):11879-88. doi: 10.1523/JNEUROSCI.1002-11.2011. PubMed PMID: 21849548; PubMed Central PMCID: PMC3326398.
23. Tran T, Nguyen AD, Chang JJ, Goldberg MS, **Lee JK***, Tansey MG*. (2011) Lipopolysaccharide and Tumor Necrosis Factor regulate Parkin expression via Nuclear Factor-Kappa B. ***PLoS One,*** 2011;6(8):e23660. doi: 10.1371/journal.pone.0023660. Epub 2011 Aug 17. PubMed PMID: 21858193; PubMed Central PMCID: PMC3157435.
24. **Lee JK,** Tran T, Tansey MG. (2009) Microglia and Neuroinflammation in Parkinson's disease. ***Journal of Neuroimmune Pharmacology***, 2009 Dec;4(4):419-29. doi: 10.1007/s11481-009-9176-0. Epub 2009 Oct 10. Review. PubMed PMID: 19821032; PubMed Central PMCID: PMC3736976.
25. McAlpine FE, **Lee JK**, Harms AS, Ruhn KA, Hong J, Das P, Golde TE, LaFerla FM, Oddo S, Blesch A, Tansey MG. (2009) Inhibition of soluble TNF signaling in a mouse model of Alzheimer's disease prevents early amyloid-associated neuropathology. ***Neurobiology of Disease****,* 2009 Apr;34(1):163-77. doi: 10.1016/j.nbd.2009.01.006. PubMed PMID: 19320056; PubMed Central PMCID: PMC2948857.
26. **Lee JK**, McCoy MK, Harms AS, Ruhn KA, Gold SJ, Tansey MG (2008). Regulator of G-protein signaling-10 (RGS10) promotes dopaminergic neuron survival via regulation of the microglial inflammatory response. ***Journal of Neuroscience***, 2008 Aug 20;28(34):8517-28. doi: 10.1523/JNEUROSCI.1806-08.2008. PubMed PMID: 18716210; PubMed Central PMCID: PMC2739568.
27. Tansey MG, Frank-Cannon TC, McCoy MK, **Lee JK**, Martinez TN, McAlpine FE, Ruhn KA, Tran TA. (2008) Neuroinflammation in Parkinson's disease: Is there sufficient evidence for mechanism-based interventional therapy? ***Frontiers in Bioscience*** Jan 1;13:709-17. doi: 10.2741/2713. Review. PubMed PMID: 17981581.

28. **Lee JK**, Mathew, SO, Vaidya SV, Kumaresan PR, Mathew PA. (2007) CS1 (CRACC) induces Proliferation and autorine cytokine expression on human B Lymphocytes. ***Journal of Immunology*** 2007 Oct 1;179(7):4672-8. doi: 10.4049/jimmunol.179.7.4672. PubMed PMID: 17878365.
29. Mathew SO, Kumaresan PR, **Lee JK**, Huynh VT, Mathew PA. (2005) Mutational analysis of the human 2B4 (CD244)/CD48 interaction: Lys68 and Glu70 in the V domain of 2B4 are critical for CD48 binding and functional activation of NK cells. ***Journal of Immunology*** 2005 Jul 15;175(2):1005-13. doi: 10.4049/jimmunol.175.2.1005. PubMed PMID: 16002700.
30. Vaidya SV, Stepp SE, McNerney ME, **Lee JK**, Bennett M, Lee KM, Stewart CL, Kumar V, Mathew PA. (2005) Targeted disruption of the 2B4 gene in mice reveals an in vivo role of 2B4(CD244) in the rejection of B16 melanoma cells. ***Journal of Immunology*** 2005 Jan 15;174(2):800-7. doi: 10.4049/jimmunol.174.2.800. PubMed PMID: 15634901.
31. **Lee JK**, Boles KS, Mathew PA. (2004) Molecular and functional characterization of a CS1 (CRACC) splice variant expressed in human NK cells that does not contain immunoreceptor tyrosine-based switch motifs. ***European Journal of Immunology*** 2004 Oct;34(10):2791-9. doi: 10.1002/eji.200424917. PubMed PMID: 15368295.
32. Chuang SS, **Lee JK** and Mathew PA. (2003) Protein kinase C is involved in 2B4 (CD244)-mediated cytotoxicity and AP-1 activation in NK cells. ***Immunology*** 2003 Jul;109(3):432-9. doi: 10.1046/j.1365-2567.2003.01662.x. PubMed PMID: 12807490; PubMed Central PMCID: PMC1782976.
33. **Lee JK**, Jung JC, Chun JS, Kang SS, Bang OS. (2002) Expression of p21 WAF1 is dependent on the activation of ERK during Vitamin E-Succinate-Induced Monocytic differentiation**.** ***Molecules and Cells*** 2002 Feb 28;13(1):125-9. PubMed PMID: 11911463.

B. MANUSCRIPTS IN PREPARATION, SUBMITTED OR UNDER REVISION:

1. Weber S, Menees KB, Alcalay RN, **Lee JK***. Distinctive blood CD56^{bright} NK cell subset profile and increased NKG2D expression in CD56^{bright} NK cells in Parkinson's disease. (Submitted to NPJ Parkinson's disease)
2. Spellicy S, Hu C, Passaro A, Kandel M, **Lee JK,** Popescu G, Stice S. Label free spatial interference microscopy reveals unique extracellular vesicle uptake and transport. *(Submitted to Cells)*
3. Chung J, Jernigan J, Menees K, **Lee JK**. Dual role of RGS10 in managing oxidative stress and inflammatory responses to enhance microglia phagocytosis of synuclein aggregates. (*In preparation)*
4. Menees K, Preston C, Chung J, Jernigan J, Earls RH, Snider I, Wagner J, **Lee JK**. RGS10-deficient mice display an insulin resistance phenotype and impaired long-term potentiation. (*In preparation*)

C. BOOK CHAPTERS AND OTHER PUBLICATIONS:

1. Ahhers-Dannen K, Alqinyah M, Bodle C, Bou Dagher J, Chakravarti B, Choudhuri SP, Druey KM, Fisher RA, Gerber KJ, Hepler JR, Hooks SB, Kantheti HS, Karaj B, **Lee JK**, Luo Z, Martemyanov K, Mascarenhas LD, Phan Thi Nhu H, Roman DL, Shaw V, Sjögren B, Spicer M, Squires KE, Sutton L, Wilkie TM, Xie K, Zolghadri Y. (2020) "Regulators of G protein Signaling (RGS) proteins (version 2020.5) in the IUPHAR/BPS Guide to Pharmacology Database", *IUPHAR/BPS Guide to Pharmacology CITE*, 2020(5). doi: 10.2218/gtopdb/F891/2020.5.
2. Ahhers-Dannen K, Alqinyah M, Bodle C, Bou Dagher J, Chakravarti B, Choudhuri SP, Druey KM, Fisher RA, Gerber KJ, Hepler JR, Hooks SB, Kantheti HS, Karaj B, **Lee JK**, Luo Z,

Martemyanov K, Mascarenhas LD, Phan Thi Nhu H, Roman DL, Shaw V, Sjögren B, Spicer M, Squires KE, Sutton L, Wilkie TM, Xie K, Zolghadri Y. (2020) "Regulators of G protein Signaling (RGS) proteins (version 2020.4) in the IUPHAR/BPS Guide to Pharmacology Database", *IUPHAR/BPS Guide to Pharmacology CITE*, 2020(4). doi: 10.2218/gtopdb/F891/2020.4.

3. Alqinyah M, Bodle C, Bou Dagher J, Chakravarti B, Choudhuri SP, Druey KM, Fisher RA, Gerber KJ, Hepler JR, Hooks SB, Kantheti HS, Karaj B, **Lee JK**, Luo Z, Martemyanov K, Mascarenhas LD, Phan Thi Nhu H, Roman DL, Shaw V, Sjögren B, Squires KE, Sutton L, Wilkie TM, Xie K, Zolghadri Y. Regulators of G protein Signaling (RGS) proteins (version 2019.4) in the IUPHAR/BPS Guide to Pharmacology Database. IUPHAR/BPS Guide to Pharmacology CITE. **2019**; 2019(4). https://doi.org/10.2218/gtopdb/F891/2019.4
4. Bou Dagher J, **Lee JK** (2018) Regulator of G-Protein Signaling 1 (RGS1). Encyclopedia of Signaling Molecules_Second edition, Springer, ISBN 978-3-319-67200-7 (print and electronic bundle) https://doi.org/10.1007/978-3-319-67199-4. 12 Jan **2018**, pp 4577-4583.

D. INTELLECTUAL PROPERTY

1. **AAV-MEDIATED DELIVERY OF RGS10 TO MICROGLIA**

   Patent Application No.: 63/391,500
   Filing Date: July 22, 2022
   Inventor(s): Jae-Kyung LEE, et al.
   WSGR Ref. No.: 63436-701.101

E. PUBLISHED ABSTRACTS IN CONFERENCE PROCEEDINGS:

1. Liao Z, Gao J, Khang MK, Chung J, **Lee JK**, Webb K, Detloff MR, Lee JS. (2022) Rolipram delivered by PgP nanocarrier via intrathecal injection enhances motor function and reduces neuropathic pain in a rat moderate contusion SCI model. MHSRS 2022, Sep. 12-15, 2022, Kissimmee, FL. (to be presented)
2. Weber S, Menees KB, Chung J, Earls R, Alcalay R, **Lee JK.** The neuroprotective role of NK cells in the CNS and the phenotype of NK cell subsets as a potential biomarker of Parkinson's disease. Keystone Symposia 2022, Neuro-Immune Interactions in the Central Nervous System. June 5-9, 2022, Keystone, CO (poster session 2 #2047)
3. Menees KB, Weber S, Chung J, Ruma M, Tansey MG, Volpicelli-Daley L, Chakrabarty P, **Lee JK**. (2022) Investigating the effects of endotoxin and species specificity on the PFF α-syn induced inflammatory phenotype in mice. Keystone Symposia 2022, Neuro-Immune Interactions in the Central Nervous System. June 5-9, 2022, Keystone, CO
4. **Lee JK**, Menees KB, Weber S, Chung J, Ruma M, Tansey MG, Volpicelli-Daley L, Chakrabarty P. (2022) Validate the inflammatory phenotypes in pre-formed fibrils alpha-synuclein mice. Synuclein 2022, Apr. 12-15, 2022, Leuven, Belgium (poster presentation #72)
5. **Lee JK**, Menees KB, Weber S, Chung J, Alcalay R. (2022) Characterization of NK cells in Parkinson's disease. AD/PD^{TM} 2022 Advances in Science and Therapy, Mar. 15-20, 2022, Barcelona, Spain +Hybrid (poster P533/#1403)
6. Menees KB, Chung J, Earls RH, **Lee JK**. (2020) Evaluating the effects of systemic NK cell depletion in a preclinical mouse model of Parkinson's disease. Cold Spring Harbor Laboratory Neurodegenerative Diseases: Biology & Therapeutics (Virtual) Dec. 2-4, 2020

7. Earls RH, Menees KB, Chung J, Gutekunst CA, Hazim MG, Lee HJ, **Lee JK**. (2019) Depletion of natural killer cells augments synuclein pathology in a preclinical mouse model of Parkinson's disease. Gordon Research Conference Parkinson's disease, Newry, ME. June 25-29, 2019 (poster presentation)
8. Menees KB, Chung J, Earls RH, **Lee JK**. (2019) Natural killer cells scavenge extracellular α-synuclein aggregates and modulate synuclein pathology in mouse primary neuron co-culture system. Gordon Research Conference Parkinson's disease, Newry, ME. June 25-29, 2019 (poster presentation)
9. Baker K, Snider I, Jernigan J, Earls RH, **Lee JK**. (2018) The novel role of RGS10 in metabolic homeostasis and diet-induced obesity in age- and sex- specific manners. UGA Graduate School Research Day 2018 Athens, GA. Apr. 10, 2018. (poster presentation)
10. Earls RH, Chung JG, **Lee JK**. (2018) A novel immunoregulatory action of alpha-synuclein on human natural killer cell. 4th Annual Regenerative Bioscience Center Symposium Spring 2018, Athens, GA. Apr. 13, 2018 (poster presentation)
11. Weinstock L, Earls RH, Sankar S, Baker K, Chung J, Wood L, **Lee JK**. (2018) Elucidating Natural Killer Cells as a Cell Therapy for Parkinson's disease. Regenerative Engineering and Medicine (REM) Annual Retreat 2018, Atlanta GA. May 8, 2018. (poster presentation)
12. **Lee JK,** Baker K, Snider I, Jernigan J, Chung J. (2018) Regulator of G-protein Signaling 10 modulates neuroinflammation and metabolic homeostasis; a potential role in Alzheimer's diseases. 10th World Congress on Alzheimer's Disease & Dementia, Osaka, Japan. May 30, 2018. (poster presentation)
13. Fang X, Chung J, Olsen E, Jeon J, **Lee JK*,** Park HJ*. (2018) The role RGS10 in serum lipid profile and hepatic antioxidant defenses in mice fed high fat diet. Nutrition Conference 2018, Boston MA. June 9-12, 2018. (poster presentation)
14. Baker K, Preston C, Jernigan J, Snider I, Chung J, Wagner J, **Lee JK**. (2018) Regulator of G-protein Signaling 10 modulates neuroinflammation and metabolic homeostasis; a potential role in Alzheimer's diseases. Alzheimer's disease & Dementia 2018, Osaka, Japan. May 30, 2018. (poster presentation)
15. Earls RH, Menees KB, Chung J, **Lee JK**. (2018) Intracerebral injection of pre-formed alpha-synuclein fibrils into mice alters immune cell profiles. 1st Southeastern Neurodegenerative Disease Conference (SEND), Orlando FL. Sep. 26, 2018. (poster presentation)
16. Chung J, Menees KB, Earls RH, **Lee JK**. (2018) Human natural killer cells clear extracellular alpha-synuclein while their effector cell functions are inhibited. Society for Neuroscience San Diego, CA. Nov 3-7, 2018 (Abstract control number: 8252, Session #470, Presentation #470.19, Poster M10)
17. Park HJ, Olsen E, Fang X, Bou Dagher J. Chung J, **Lee JK**. (2017) The Effect of a High-Fat Diet and Green Tea Extract on Glucose Metabolism and Inflammation in Regulator of G protein Signaling 10 Knockout Mice, Experimental Biology, Chicago, IL. April 23, 2017. Abstract number 5839, Program number 646.56 (Poster C342) USA abstract published; April 2017 The FASEB Journal vol. 31 no. 1 Supplement 646.56.
18. Chung J, Earls RH, **Lee JK**. (2017) Aggregated alpha-synuclein modulates natural killer cell function: potential role in PD. Gordon Research Conference 2017, Newry, ME. June 25-30, 2017. (poster presentation)
19. Earls RH, Chung JG, **Lee JK.** (2017) A novel immunoregulatory action of alpha-synuclein on human natural killer cell. Society for Neuroscience, Washington DC, Nov 9-15, 2017. Abstract control number: 2206, Session #571, Presentation #571.01. (Poster P6) (poster presentation)

20. **Lee JK.** Role of RGS10 in high fat-related neuroinflammation. (2016) US Korean-American in Science and Engineering Conference (UKC), Food, Agriculture and Nutrition Symposium (FAN), Nutrition, Diet and Disease session. Dallas, TX, Aug. 11-13th, 2016.
21. **Lee JK.** Role of RGS10 in demyelinating disease. (2016) Annual Conference on Life Sciences and Engineering, Seoul, South Korea, July 6th, 2016.
22. Choi I, Jones J, Chung J, **Lee JK**, Schank J. (2016) Effects of NBCn1 deletion on behavioral actions of ethanol in mice. Experimental Biology, San Diego, CA, Apr 01,2016. The FASEB Journal. Federation Amer Soc Exp Biol. 30:2 pages.
23. Tansey MG, Cook DA, Kannarkat GT, MacPherson KP, Butkovich L., Chang J., Chung, J., Factor S., **Lee JK**, Boss JM. (2014) Role of LRRK2 in Human Monocytes and T-cell Subset Frequencies and Activation as a Function of Age and in Idiopathic Parkinson's disease, Neuroscience Meeting Planner: Society for Neuroscience, San Diego, CA 2014.
24. **Lee JK**, Chung J, Kannarkat G, Graham K, Tansey M. (2014) A novel function of RGS10 I n effector T lymphocytes to augment mouse EAE. American Association of Immunologists Annual Meeting Pittsburgh, PA. May 2-4, 2014
25. Cook DA, **Lee JK**, Kannarkat GT, Boss JM, Tansey MG. (2013) Elucidating the role of LRRK2 mutations in T cell signaling and activation in Parkinson's Disease. Neuroscience Meeting Planner: Society for Neuroscience, San Diego, CA 2013. Online
26. Kannarkat GT, **Lee JK**, Ramsey CP, Chung J, Chang J, Porter I, Oliver D, Shepherd K, and Tansey MG. (2013) Age-related Changes in RGS10 Expression in Peripheral Immune Cells but not in the Midbrain may Influence Risk for Age-related Neurodegeneration. Neuroscience Meeting Planner: Society for Neuroscience, San Diego, CA 2013. Online
27. **Lee JK**, Chung J, Tansey MG. (2013) Role of neuroinflammation in Neurodegenerative diseases. Korean American Scientists and Engineers Association, Southeast Regional Conference 2013, Atlanta GA
28. **Lee JK**, Chung J, Kannakat G, Graham K, Tansey MG. (2012) RGS10 as a key regulator for the classical vs. alternative activation of microglia and macrophages. 12th International Society of Neuroimmunology Meeting 2012, Boston MA.
29. Kannarkat G, Choi NM, **Lee JK**, Cook D, Factor S, Miller G, Boss JM, Tansey MG. (2012) The PARK18 SNP is associated with altered expression and regulation of major histocompatibility complex II genes in Parkinson's disease patients. 12th International Society of Neuroimmunology Meeting 2012, Boston MA.
30. **Lee JK,** Chung J, Druey K, Tansey MG (2012). RGS10 exerts a neuroprotective role through the PKA/c-AMP response-element binding protein (CREB) pathway in dopaminergic neuron-like cells**.** Program No. 659.06. Neuroscience Meeting Planner: Society for Neuroscience, New Orleans, 2012. Online.
31. Kannarkat G, Choi NM, **Lee JK**, Cook D, Factor S, Boss JM, Tansey MG. (2012) The PARK18 SNP is associated with altered expression and regulation of major histocompatibility complex II genes in Parkinson's disease patients. Neuroscience Meeting Planner: Society for Neuroscience, New Orleans, 2012. Online.
32. **Lee JK,** Chung J, McAlpine FE, Tansey MG. (2011) Regulator of G-protein signaling-10 (RGS10) regulates microglia activation in nigral neurodegenerative pathway. 4*rd RGS Protein Colloquium,* April 2011, Washington DC (poster presentation).
33. Tansey MG, Chung J, Lohr K, Kannakat G, **Lee JK**. (2011) RGS10 is essential for the regulation of classical vs. alternative activation of microglia and macrophages. Program No.

667.07. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online

34. **Lee JK**, Chung J, Tansey MG. (2011) Novel function of Regulator of G-protein Signaling 10 in mouse dopaminergic neuron; direct neuroprotective role of RGS10. Program No. 321.03. 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online
35. Ramsey CP, **Lee JK**, Tansey MG. (2011) Studies of regulator of G-protein signaling 10 reveal distinct biochemical properties in neuronal versus glial cell types. Program No. 554.01 2011 Neuroscience Meeting Planner. Washington, DC: Society for Neuroscience, 2011. Online
36. **Lee JK**, Chung J, McAlapine F, Tansey MG. (2011) Regulator of G-protein Signaling-10 negatively regulates NF-kB in microglia and neuroprotects dopaminergic neurons in hemiparkinsonian rats. US Korea Conference on Science, Technology and Entrepreneurship (UKC), Park City, Utah, Aug. 2011. (oral presentation).
37. **Lee JK**, Chung JG, Traveno I, Tansey MG. (2010) Mechanism of RGS10 regulation in microglia and neuroprotective effects of RGS10 overexpression in a rat model of Parkinson's disease. *Society of Neuroscience* 2010, San Diego, CA. Session; Neuron-Glia Interactions: Response to Cell Stress and Injury, 345.20, H37. (poster presentation)
38. **Lee JK**, McCoy MK, Harms AS, Keefer E, Ruhn K, Tansey MG. (2010) Mechanism of Regulator of G-protein Signaling 10 in regulating microglia activation and DA neuron survival in the ventral midbrain. *Society of Neuroscience* 2008 in Washington, D.C. Session; Neuroinflammation and Neurodegeneration II, DD27
39. **Lee JK**, McCoy MK, Harms AS, Ruhn KA, Gold SJ, and Tansey MG. (2008) Regulator of G-protein signaling (RGS10) regulates microglial response to chronic inflammatory stimuli and impacts dopaminergic neuron survival. *3rd RGS Protein Colloquium* April 2008, San Diego, CA. (poster presentation)
40. **Lee JK**, McCoy MK, Harms AS, Ruhn KA, Gold SJ, and Tansey MG. (2008) Regulator of G-protein signaling (RGS10) regulates microglial response to chronic inflammatory stimuli and impacts dopaminergic neuron survival. *Experimental Biology 2008*, *American Association of Immunologists*, April 2008, San Diego, CA. (Block symposium oral and poster presentation)
41. **Lee JK**, McCoy MK, Harms AS, Ruhn KA, Gold SJ, Tansey MG. (2007) Regulator of G-protein Signaling (RGS10) promotes dopaminergic neuron survival via regulation of the microglial inflammatory response. *5th Annual Postdoctoral Symposium & Poster Session*, Dallas, TX. December 2007.
42. **Lee JK**, McCoy MK, Harms AS, Ruhn KA, Gold SJ, Tansey MG. (2007) Regulator of G-protein Signaling (RGS10) promotes dopaminergic neuron survival via regulation of the microglial inflammatory response. *Society of Neuroscience*, San Diego, CA. Nov. 2007. (Poster #605.10)
43. Sinha SK, Lee J, Bai X, **Lee JK**, Liu S, Scheuermann RH. (2006) CKLFSF8-A novel component of the antigen processing and presentation pathway revealed by microarray analysis following B cell antigen receptor (BCR) stimulation. *American Association of Immunologists*, Boston, MA. May 2006. (Poster #B128)
44. **Lee JK**, Lee JA, Sinha SK, Liu S, Bai X and Scheuermann RH. (2006) Functional study to evaluate Candidate Molecules involving Antigen Processing and Presentation Pathway following B cells antigen receptor (BCR) stimulation. The University of Texas Southwestern Medical Center at Dallas, *Laboratory of Molecular Pathology Annual Scientific Retreat*, Dallas, TX. Feb. 2006.

45. **Lee JK**, Lee JA, Scheuermann RH. (2005) Functional study to evaluate Candidate Molecules involving Antigen Processing and Presentation Pathway following B cells antigen receptor (BCR) stimulation. The University of Texas Southwestern Medical Center at Dallas, *Third Annual Postdoctoral Symposium & Poster Session,* Dallas, TX. Dec. 2005.
46. **Lee JK** and Mathew PA. (2005) Characterization of a Novel Receptor CS1 (CRACC) in Human B-Lymphocytes. *Research appreciation Day*, Fort Worth, TX. April 2005.
47. **Lee JK,** Boles KS and Mathew PA. (2004) Characterization of a novel CS1 splice variant in human NK cells. *Experimental Biology* 2004, *American Association of Immunologists*, April 2004, Washington DC
48. **Lee JK** and Mathew PA. (2004) Characterization of a Novel Receptor CS1 in Human Lymphocytes. *Research appreciation Day*, Fort Worth, TX. April 2, 2004. (oral presentation)
49. **Lee JK,** Kumaresan PR, Boles KS and Mathew PA. (2003) Molecular characterization of a novel CS1 splice variant in human NK cells. *American Association of Immunologists 90th Anniversary Annual Meeting*, Denver, CO, May 2003.
50. Vaidya S, Stepp S, **Lee JK**, Stewart C, Bennett M, Kumar V and Mathew PA. (2003) *In vivo* role of 2B4 in tumor rejection as revealed by differential metastasis of B16 melanoma in 2B4 deficient male and female mice. *American Association of Immunologists 90th Anniversary* Annual Meeting, Denver, CO, May 2003.

F. ARTICLES IN NON-PROFESSIONAL PUBLICATIONS:

1. https://www.eurekalert.org/pub_releases/2020-03/uog-kc031720.php
2. https://www.sciencecodex.com/natural-killer-cells-could-halt-parkinsons-progression-643167
3. https://medicalxpress.com/news/2020-03-natural-killer-cells-halt-parkinson.html
4. https://www.technology.org/2020/03/13/natural-killer-cells-could-halt-parkinsons-progression/
5. https://neurosciencenews.com/natural-killer-cells-parkinsons-15916/
6. https://www.technologynetworks.com/tn/news/turning-the-bodys-natural-killers-cells-against-parkinsons-disease-332092
7. https://www.wgauradio.com/news/local/uga-researchers-report-possible-breakthrough-parkinson-treatment/KOtyfDFIBEmgThRbAcGriJ/
8. https://www.reachmd.com/news/natural-killer-cells-could-halt-parkinsons-progression/1633810/
9. https://www.newswise.com/articles/natural-killer-cells-could-halt-parkinson-s-progression
10. https://parkinsonsnewstoday.com/2020/03/17/natural-killer-immune-cells-limit-parkinsons-disease-progression-may-lead-new-therapies/
11. https://flipboard.com/article/natural-killer-cells-could-halt-parkinson-s-progression/a-xTQRCaFOSAio6GZdRS6D5A%3Aa%3A59456404-73823baca7%2Fneurosciencenews.com
12. https://www.newsbreak.com/news/0OQ3Ekhj/natural-killer-cells-could-halt-parkinsons-progression
13. https://parkinsonhope.org/parkinson-research-news/
14. https://www.newsnow.co.uk/h/Lifestyle/Health/Neurological+Diseases/Parkinson%27s+Disease
15. https://www.terkko.helsinki.fi/article/22487240_natural-killer-cells-could-help-stop-progression-of-parkinsons-disease
16. https://neurosciencenews.com/natural-killer-cells-parkinsons-15916/
17. https://www.youtube.com/watch?v=nVzkSyhLRAw

G. INVITED SEMINARS AND PLATFORM PRESENTATIONS

NATIONAL/INTERNATIONAL

1. Understanding the relationship between innate immunity and proteinopathy in Parkinson's disease. ABL Bio Biotech Company, Seongnam, South Korea, Jul. 11, 2022, *Invited Seminar Speaker*
2. Career in Academia: Research University Setting, WISET-KWiSE STEM Career Talk Concert, Jul. 29, 2022. Virtual Seminar, *Invited Panelist*
3. Neuroinflammation and Neurodegenerative diseases, K-BioX x 20 K-Institutions, Season 3 Global Class Seminar, Virtual Conference, Oct. 28, 2021. *Invited Speaker*
4. Neuroinflammation and Neurodegenerative diseases, K-BioX, Cancer/Metabolism/Immunogy Subsetion Seminar Series, Virtual, Jul. 30, 2021. *Invited Speaker*
5. Neuroprotective role of NK cells in Synucleinopathies World Immunotherapy Congress, Festival of Biologics USA, The Loews, Coronado, San Diego. March 4, 2020. *Invited Speaker*
6. Role of RGS10 in demyelinating disease. Annual Conference on Life Sciences and Engineering, Seoul, South Korea. July 6th, 2016. *Session Chair* and *Invited Speaker*
7. Role of Neuroinflammation in Neurodegenerative diseases. US Korean-American in Science and Engineering Conference (UKC) Annual Conference Symposium on Drug Discovery and Development. New Jersey, NJ. Aug. 9th, 2013. *Invited speaker*
8. Role of Neuroinflammation in Neurodegenerative diseases. Korean-American Women in Science and Engineering (KWISE), Atlanta, GA. Dec. 8th, 2012. *Invited Speaker*
9. RGS10 negatively regulates NF-κB in microglia and neuroprotects dopaminergic Neurons in Hemiparkinsonian Rats. US-Korea Conference on Science (UKC), Technology and Entrepreneurship, Aug. 11th, 2011. *Invited Speaker*
10. Novel function of RGS10 in mouse dopaminergic neuron; direct neuroprotective role of RGS10. Society for Neuroscience, Washington D. C. Nov. 14th, 2011. *Oral presentation*
11. Regulator of G-protein signaling (RGS) 10 regulates the microglial response to chronic inflammatory stimuli and impacts dopaminergic neuron survival. Experimental Biology 2008, American Association of Immunologists, Apr. 7th, 2008. *Oral presentation*

REGIONAL

1. Lee JK (2020) Neuroprotective role of NK cells in Synucleinopathies. Neuroscience Seminar Series, UF Center for Translational Research in Neurodegenerative Disease McKnight Brain Institute Department of Neuroscience, University of Florida, Jacksonville, FL. Jan. 23, 2020. *Invited seminar hosted by Dr. Malu G. Tansey.*
2. Lee JK (2019) Elucidating the role of natural killer cells in synucleinopathies. Neurobiology and Anatomical Sciences Seminar Series, University of Mississippi Medical Center (UMMC), Jackson, MS, Mar. 26th, 2019. *Invited seminar hosted by Drs. Hyunjoon Lee and Bernadette Grayson.*
3. Lee JK (2019) Elucidating the role of natural killer cells in synucleinopathies. Program in Experimental and Molecular Medicine, Dartmouth University School of Graduate and Advanced Studies, Honover, NH. May 10th, 2019. *Invited seminar hosted by Dr. Matthew Havrda.*
4. Lee JK (2019) Elucidating the role of innate immune cells in synucleinopathies. Hunter Department Seminar Series, Clemson University Bioengineering Department, Clemson, SC. Oct. 10th, 2019. *Invited seminar hosted by Dr. Jeoungsoo Lee.*
5. Lee JK (2018) The role of NK cells in Parkinson's disease. 1st Southeastern Neurodegenerative Disease Conference (SEND), Orlando FL, Sep. 26-28, 2018. *Oral presentation* (selected as a Hot Topic)

6. Lee JK (2016) Role of RGS10 in high fat-related neuroinflammation. US Korean-American in Science and Engineering Conference (UKC), Dallas, TX. Food, Agriculture and Nutrition Symposium (FAN), Nutrition, Diet and Disease session, serve as a session co-chair and presenter, *Aug. 11-13th, 2016. Oral presentation*
7. Lee JK (2016) Introducing a novel regulator of neuroinflammation. Department of Biology, Kyungpook National University, Daegu, South Korea. June 15th, 2016. *Invited seminar hosted by Dr. Jae-Chang Jung.*
8. Lee JK (2014) Role of RGS10 as a novel regulator of myeloid cell activation in brain inflammation and the peripheral immune system. Cardiovascular Biology Seminar, Emory University School of Medicine, Atlanta, GA. April 14, 2014. *Invited seminar hosted by Dr. Alejandra San Martin.*
9. Lee JK (2014) Novel Neuroinflammatory mechanisms in Parkinson's disease. Neurology Department Seminar, Biogen Idec, Cambridge, MA. July 30, 2014. *Invited seminar Hosted by Dr. Brian Wipke.*
10. Lee JK (2013) Novel function of RGS10 in Neuroinflammation and models of Parkinson's disease. Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University, West Lafayette, IN. Feb. 19th, 2013. *Invited seminar hosted by Dr. Val Watts.*
11. Lee JK (2013) Novel function of RGS10 in neuroinflammation and neurodegenerative diseases. Mercer University School of Medicine, Mercer, GA. Dec. 9th, 2013. *Invited seminar hosted by Dr. Andon Placzek.*
12. Lee JK (2012) Novel function of RGS10 in Neuroinflammation and models of Parkinson's disease. Department of Cell Biology and Neuroscience, Rutgers University, Piscataway, NJ. Mar. 28th, 2012. *Invited seminar hosted by Dr. Kerl Herrup.*

LOCAL

1. Lee JK (2020) Elucidating the role of innate immunity in neurodegenerative diseases. Center for Molecular Medicine Seminar Series, University of Georgia, Athens, GA. Feb. 21st, 2020. *Invited seminar hosted by Dr. Nadja Zeltner.*
2. Lee JK (2019) Aging and neurodegenerative diseases. Department of Foods and Nutrition, University of Georgia, Athens, GA. Feb. 12th, 2019. *Invited lecture.*
3. Lee JK (2018) Elucidating the dual role of RGS10 in inflammation and metabolism and its potential role in aging brain. Department of Foods and Nutrition, University of Georgia, Athens, GA. Feb. 28th, 2018. *Invited Seminar hosted by Dr. Hea-Jin Park.*
4. Lee JK (2017) Ageing and the brain health. Korean-American in Science and Engineering Association (KSEA), Duluth, GA, May. 13th, 2017. *Invited seminar hosted by Dr. Dongkuk Kim.*
5. Lee JK (2014) The novel function of Regulator of G-protein Signaling 10 in neuroinflammation and neurodegenerative diseases. Department of Physiology and Pharmacology, University of Georgia, Athens, GA. Dec. 16th, 2014. *Invited seminar hosted by Dr. Edward Gaylen.*
6. Lee JK (2012) Role of RGS10 in neuroinflammation and models of Parkinson's disease. Center for Neurodegenerative Diseases, Emory University, Atlanta, GA. Feb. 23rd, 2012. *Invited seminar*
7. Lee JK (2012) Role of RGS10 in neuroinflammation and models of Parkinson's disease. Transporters Workers Union Seminar, Emory University, Atlanta, GA. Feb. 17th, 2012. *Invited seminar*

8. Lee JK (2011) RGS10 negatively regulates NF-κB in microglia and neuroprotects dopaminergic Neurons in hemiparkinsonian rats. Department of Physiology, Emory University School of Medicine, Atlanta, GA. Oct. 13th, 2011. *Invited seminar*

RESEARCH GRANTS

A. ACTIVE RESEARCH GRANTS:

1. **Title:** Elucidating the role of natural killer cells in Lewy body diseases.
   Funder name: NIH/NINDS (R01NS119610-01)
   Role: PI **Amount:** USD 1,409,635 **Period:** 2/2021-3/2026
2. **Title:** Mechanisms and indicators of inflammasome signaling in toxicant exposure models and Parkinson's disease.
   Funder name: NIH/NIA ViCTER R01ES033462-01 (PI: Havrda)
   Role: Subaward PI (Aim 2) **Subaward Amount:** USD $450,000 **Period:** 8/2021-7/2024
3. **Title:** Validate PFF α-syn induced inflammatory phenotype in mice (Supplement grant)
   Funder name: MICHAEL J. FOX FOUNDATION
   Role: PI **Amount:** USD 23,000 **Period:** 8/2022-6/2023
4. **Title:** Validate PFF α-syn induced inflammatory phenotype in mice.
   Funder name: MICHAEL J. FOX FOUNDATION
   Role: Contact PI (Multi-PIs Lee/Tansey/Volpicelli-Daley) **Amount:** USD 319,100 **Period:** 9/2020-6/2023 (NCE)
5. **Title:** Microglial RGS10 as a therapeutic target for Lewy body diseases.
   Funder name: NIH/NIHDS (R21NS118224-01)
   Role: PI **Amount:** USD 275,000 **Period:** 9/2020-8/2023 (NCE)

B. COMPLETED RESEARCH GRANTS:

1. **Title:** Evaluating the role of NK cells in PD pathology.
   Funder name: MICHAEL J. FOX FOUNDATION (Target Validation Supplement Grant)
   Role: PI **Amount:** USD 150,000 **Period:** 2/2020 - 08/2021
2. **Title:** Evaluating the role of NK cells in PD pathology.
   Funder name: MICHAEL J. FOX FOUNDATION (Target Validation Grant 2018)
   Role: PI **Amount:** USD 100,000 **Period:** 5/2018 - 07/2019
3. **Title:** Elucidating Natural Killer Cells as a Cell Therapy for Parkinson's disease.
   Funder name: Regenerative Engineering & Medicine Center Seed Grant Program 2017
   Role: PI (Lee/Wood) **Amount:** USD 81,666 **Period:** 9/2017 - 8/2018
4. **Title:** The role of RGS1 in mouse experimental autoimmune encephalitis (EAE).
   Funder name: Faculty Research Grant 2017, University of Georgia
   Role: PI **Amount:** USD 10,000 **Period:** July 2017 - June 2018
5. **Title:** Development of ICT Convergence Contents for Cognitive enhancement in the elderly.
   Funder name: Korean Human Care Technology Center Initiative, ICT and Future Planning
   Role: Consultant **Period:** 9/2014 - 8/2016
6. **Title:** Age-related alterations in LRRK2 expression in immune cells and risk for idiopathic PD.

Funder name: MICHAEL J. FOX FOUNDATION (LKKR2 role in idiopathic PD 2013) (Tansey)
Role: Collaborator **Amount:** USD 250,000 **Period:** 11/2013 - 10/2015

7. **Title:** RGS10 in microglia activation and dopaminergic neuron survival.
Funder name: National Institutes of Health (R01 NS072467-01) NIH/NINDS (Tansey)
Role: Co-I **Amount:** USD 250,000 per year **Period:** 9/15/2010 - 7/31/2015

8. **Title:** Role of PARK18 in Parkinson's disease.
Funder name: MICHAEL J. FOX FOUNDATION (Target Validation Grant 2011) (Boss)
Role: Co-I **Amount:** USD 250,000 **Period:** 6/2011 - 5/2013

9. **Title:** Neuroprotective role of neuronal RGS10 in nigrostriatal degeneration.
Funder name: Emory University (University Research Committee)
Role: PI **Amount:** USD 35,000 **Period:** 5/2012 - 4/2013

10. **Title:** Neuroinflammation and RGS10 in Parkinson's disease.
Funder name: Udall Parkinson's disease Center and the Emory Parkinson's Disease Collaborative Center for Environmental Research (PD-CERC) 5P01 ES016731 (Miller)
Role: PI **Amount:** USD 30,000 **Period:** 7/2010 - 6/2011

11. **Title:** Dopaminergic Neuroprotection by microglial RGS10.
Funder name: MICHAEL J. FOX FOUNDATION (Target Validation Grant 2008) (Lee/Tansey)
Role: Co-PI **Amount:** USD 250,000 **Period:** 6/2008 - 5/2010

12. **Title:** Development of Lentiviral dominant negative vectors: Novel anti-inflammatory gene therapy to block nigrostriatal degeneration.
Funder name: MICHAEL J. FOX FOUNDATION (Target Validation Grant 2007) (Tansey)
Role: Co-I **Amount:** USD 250,000 **Period:** 5/2007 - 6/2009

C. PENDING/SUBMITTED RESEARCH GRANTS:

1. **Title:** RGS10-mediated regulation of respiratory infections.
Funder name: NATIONAL INSTITUTES OF HEALTH/NINDS
Role: Co-PI **Amount:** USD 275,000 **Period:** 2/2021-3/2023

2. **Title:** Realizing Equity and Systemic Change through One health Precision medicine Expansion (RESCOPE)
Funder name: NATIONAL INSTITUTES OF HEALTH (NIH)/ NIH Faculty Institutional Recruitment for Sustainable Transformation (FIRST) Program: FIRST Cohort (U54 Clinical Trial Optional)/RFA-RM-22-008
Role: Co-PI **Amount:** USD 15,267,296 **Period:** 4/2023-

D. SUBMITTED NOT FUNDED GRANTS:

1. **Title:** High throughput morphological profiling of microglia as a tool to assess mesenchymal stromal cell potency in the context of Parkinson's Diseases.
Funder name: NATIONAL INSTITUTES OF HEALTH (NINDS) (PI: Marklein)
Role: Co-I **Amount:** USD 250,000 **Period:** 7/2020-5/2022
2. **Title:** Priming MSCs to enhance modulation of neuroinflammation
Funder name: Alzheimer's Disease Assoc Inc (PI: Marklein)

Role: Co-I **Start date:** 20 February 2020 **End date:** 19 February 2023

3. **Title:** Elucidating the role of NK cells in synucleinopathies
   Funder name: NATIONAL INSTITUTES OF HEALTH (R01NS112314)
   Role: PI **Start date:** 1 April 2020 **End date:** 31 March 2025
4. **Title:** Neural and Mesenchymal Stem Cell- Derived Extracellular Vesicle-Mediated Inhibition of Microglial NF-kB Activation Rescues Motor Neurons in an in Vitro Amyotrophic Lateral Sclerosis Model (Passaro)
   Funder name: NATIONAL INSTITUTES OF HEALTH (F31)
   Role: Sponsor **Start date:** 1 July 2019 **End date:** 30 June 2021
5. **Title:** MicroPET imaging of brain-infiltrated T cells for Parkinson's Disease rodent models
   Funder name: NATIONAL INSTITUTES OF HEALTH (R21NS112830) (PI: Mun)
   Role: Co-PI **Start date:** 1 July 2019 **End date:** 30 June 2021
6. **Title:** Uterine epithelial innate immunity for embryo attachment (PI: Yi)
   Funder name: National Institutes Of Health (R01)
   Role: Co-I **Start date:** 1 June 2019 **End date:** 31 May 2024
7. **Title:** Elucidating the role of natural killer cells in Parkinson's disease
   Funder name: Parkinson Foundation of Research
   Role: PI **Start date:** 1 June 2018 **End date:** 31 May 2019
8. **Title:** C3 transferase and luminopsin neuromodulation as neuroprotective therapies for Parkinson's Disease (PI: Gutekunst/Gross)
   Funder name: US Department Of Defense
   Role: Co-I **Start date:** 1 March 2018 **End date:** 28 February 2021
9. **Title:** RGS1, a novel MS susceptibility locus, in demyelinating disease
   Funder name: National Institutes Of Health (R03AI133125)
   Role: PI **Start date:** 1 July 2017 **End date:** 30 June 2019
10. **Title:** RGS1, a novel MS susceptibility locus, in demyelinating disease
    Funder name: NATIONAL INSTITUTES OF HEALTH (R21AI128158)
    Role: PI **Start date:** 1 September 2016 **End date:** 31 August 2018
11. **Title:** The role of RGS10 in EAE and MS pathogenesis
    Funder name: NATIONAL INSTITUTES OF HEALTH (R01AI121895)
    Role: PI **Start date:** 1 September 2015 **End date:** 31 August 2020
12. **Title:** Neuroprotective role of neuronal RGS10
    Funder name: NATIONAL INSTITUTES OF HEALTH (R01NS082272)
    Role: PI **Start date:** 1 April 2013 **End date:** 31 March 2018
13. **Title:** RGS10 as a novel regulator of T lymphocytes in EAE
    Funder name: NATIONAL INSTITUTES OF HEALTH (R21AI111207)
    Role: PI **Start date:** 1 April 2014 **End date:** 31 March 2016
14. **Title:** Neuroprotective role of neuronal RGS10
    Funder name: NATIONAL INSTITUTES OF HEALTH (R21NS078679)
    Role: PI **Start date:** 1 April 2012 **End date:** 31 March 2014

SERVICES

A. INSTITUTE/UNIVERSITY SERVICE:

2022	Faculty Search Committee, Center for Brain Sciences and Neurodegenerative Diseases (CBSND), UGA
2022	Faculty Search Committee, Physiology and Pharmacology, UGA

2020 Isackson Chair Search Committee, UGA
2017- Executive Committee, Physiology and Pharmacology, UGA
2017 Judger, Poster and Oral presentation, UGA GSBS Research Day
2016 Committee, College of Vet Med, Educational Resources Center and IT Committee, UGA
2014 University Research Committee, Biology/Health Science Committee, Emory University
2013 University Research Committee, Biology/Health Science Committee, Emory University

B. REVIEWER FOR THE FOLLOWING JOURNALS:

Brain Behavior Immunity, Neuroscience, Journal of Neurochemistry, Journal of Neuroinflammation, Experimental Neurology, British Journal of Pharmacology, Journal of Neuroscience, Neurobiology of Disease, PLoS One, FEBS letter, Cellular & Molecular Immunology, Oncotarget, Neuroimmune Modulation, Journal of Neuroscience Research, Science Translational Medicine, Glia, Proceedings of the National Academy of Sciences, Journal of Parkinson's disease, Molecular Neurodegeneration, Frontier Immunology, Brain Research, Journal of Nanobiotechnology, npj Parkinson's Disease , JOVE, Translational Neurodegeneration, Acta Neuropathologica Communications, Frontier Neuroscience

C. JOURNAL EDITOR:

2020 *Review Editor*, Frontiers Editorial Board, Review Editor on the Editorial Board of Vaccines and Molecular Therapeutics (Specialty section of Frontiers in Immunology and Frontiers in Public Health)
2014 *Guest editor,* Neuroscience *(for a special issue 'Inflammation in Nervous System Disorders')*

D. GRANT REVIEW SERVICES:

2021 *Ad hoc* reviewer, NIH 2021/05 CMBG study section
2020 *Accessor*, Inflammation Consortium, Michael J. Fox Foundations for Parkinson's disease
2020 *Reviewer*, The Cure Parkinson's Trust's Research Grant Funding
2020 *Ad hoc* reviewer, 2020/05 ZAG1 ZIJ-1 (M2) – Transition to Aging Research Award for Predoctoral Students (F99/K00)
2018 *Ad hoc* reviewer, NIH 2019 01 CNBT study section
2018 *Ad hoc* reviewer, NIH 2019 01 ZRG1 CNBT-W (06) S CNBT study section
2017 *Reviewer*, Inflammation Biomarkers RFA-Fall 2017, Michael J Fox Foundation of Parkinson's disease
2016 *Reviewer*, Target Validation Grant, Michael J Fox Foundation of Parkinson's disease
2014 *Reviewer*, University Research Committee Grant, Emory University
2013 *Reviewer*, University Research Committee Grant, Emory University

E. LEADERSHIP AND ACADEMIC SERVICES

2022 Scientific Advisor, Neuronity Therapeutics, Inc.
2022 Mentor, Korean-American Women in Science and Engineering (KWiSE)-WISET Global Cross Mentoring Program 2022
2021 Scientific Consultant, Axonis Therapeutics, Inc.
2021 Secretary, UGA Korean American Faculty Association (KAPA)
2021 Mentor, Korean-American Women in Science and Engineering (KWiSE)-WISET Global Cross Mentoring Program 2021

2021	Executive Advisory Committee, Regenerative Bioscience Center, UGA
2021	Organizer committee and Session Moderator, 2nd Southeastern Neurodegenerative Disease Conference (SEND), FL, Sep. 27-30, 2021.
2020	Invited Speaker, Women in STEM, Lambert High School, hosted by GAINS club, GA Sep. 26th, 2020
2020	Invited Panelist, Bigger Future Series 3: Road to Academia, hosted by KSEA-Young generation (YG), Atlanta, GA Feb. 27, 2020,
2018	Session Chair, Therapeutics I, 1st Southeastern Neurodegenerative Disease Conference (SEND), Orlando, FL, Sep. 26-28, 2018.
2018-21	Scholarship Committee, Korean-American in Science and Engineering Association (KSEA)
2017	Invited Speaker, KSEA-GA Seminar IV, title "Aging and Neurodegenerative diseases", May 13th, Duluth, GA
2016	Session Co-Chair, Nutrition, Diet and Disease, US Korean-American in Science and Engineering Conference (UKC), Dallas, TX
2016	Session Chair, Biomedical Science, Annual Conference on Life Sciences and Engineering, South Korea
2015	Local Committee, American Society of Neurochemistry Annual Meeting, Atlanta, GA
2015	Chapter President, KWiSE Southeastern Chapter
2014	Vice President, Korean-American Women in Science and Engineering (KWiSE) Southeastern Chapter
2014	Conference Committee, KSEA Southeastern Chapter
2014	Session Chair, Biology, KSEA Southeastern Regional Conference, Atlanta, GA
2014	Session Chair, KWiSE, KSEA Southeastern Regional Conference, Atlanta, GA

F. HONORS & AWARDS

2020	Accessor, Inflammation Consortium, Michael J. Fox Foundations for Parkinson's disease
2020-	The Frontiers Editorial Board, Review Editor on the Editorial Board of Vaccines and Molecular Therapeutics (Specialty section of Frontiers in Immunology and Frontiers in Public Health)
2020	Invited Panelist, Bigger Future Series 3: Road to Academia, KSEA-Young Generation
2018-21	Scholarship Committee, Korean-American in Science and Engineering Association (KSEA)
2018	Therapeutics I Session Chair, 1st Southeastern Neurodegenerative Disease Conference
2016-	Fox Advisors, Michael J. Fox Foundations of Parkinson's disease
2015	Outstanding Chapter President Award, US Korean Conference, Atlanta, GA
2015	Southeastern Chapter President, Korean-American Women in Science and Engineering (KWiSE)
2014	AAI Early Career Faculty Award, Pittsburg, PA
2012	University Research Committee Grant Award, Emory University
2011	Invited panelist, KWiSE Bio Summit Meeting, UKC 2011, Park City, UT
2011	Parkinson's disease Collaborative Environmental Research Center Pilot Grant Award
2008	American Association of Immunology Trainee Abstract Award, San Diego, CA
2005	Outstanding Graduate Student Award, GSBS at UNTHSC, Fort Worth, TX
2004	The Sigma Xi Grant-in-Aid of Research Grant Award

G. PROFESSIONAL AFFILIATIONS

2005-	Society for Neuroscience (SFN)
2010-	Korean-American Scientists and Engineers Association (KSEA)
2010-	Korean-American Women in Science and Engineering (KWISE)
2014-16	American Society for Neurochemistry (ASN)
2010-12	International Society of Neuroimmunology (ISNI)
2004-09	Sigma Xi, The scientific research society
2002-08	American Association of Immunologists (AAI)
2000-01	Society of Experimental Biology

TEACHING

A. COURSES TAUGHT

2022 Fall	VPHY7111	Principle of Physiology (7 lectures)
2022 Fall	BCMB4960R	Undergraduate Research I (1 students)
2022 Spr	VPHY8200	Neuroanatomy (2 lecture)
2021 Fall	VPHY7111	Principle of Physiology (7 lectures)
2021 Fall	BCMB4970R	Undergraduate Research II (1 student)
2021 Fall	VPHY4960R	Undergraduate Research I (2 students)
2021 Spr	VPHY8200	Neuroanatomy (2 lectures)
2021 Spr	VPHY5190	Veterinary Neuroanatomy (1 lecture)
2021 Spr	BCMB4970R	Undergraduate Research II (1 student)
2021 Spr	VPHY4960R	Undergraduate Research I (2 students)
2020 Fall	VPHY7111	Principle of Physiology (7 lectures)
2020 Spr	VPHY8200	Neuroanatomy (2 lectures)
2020 Spr	VPHY8600	Synaptic Physiology (3 lectures)
2020 Spr	VPHY5190	Veterinary Neuroanatomy (2 lectures)
2020 Spr	BCMB4960R	Undergraduate Research Lab I
2019 Spr	VPHY8200	Neuroanatomy, University of Georgia College of Vet Med (1 lecture)
2019 Spr	VPHY5190	Veterinary Neuroanatomy (1 lecture)
2019 Spr	BIOL4990H	Undergraduate Research Biology Research Lab Honor
2019 Fall	VPHY7111	Principle of Physiology, UGA (8 lectures)
2019 Fall	VPHY8010	Mammalian Cell Physiology (3 lectures, Course coordinator)
2019 Fall	BIOL4990H	Undergraduate Research Biology Research Lab Honor Thesis
2018 Spr	VPHY8200	Neuroanatomy, University of Georgia College of Vet Med (1 lecture)
2018 Spr	VPHY5190	Veterinary Neuroanatomy (1 lecture)
2018 Spr	BIOL4960	Undergraduate Research Biology Research Lab
2018 Spr	BIOL4990H	Undergraduate Research Biology Research Lab Honor Thesis
2018 Fall	VPHY7111	Principle of Physiology, UGA (8 lectures)
2018 Fall	BIOL4960H	Undergraduate Research Biology Research Lab Honor
2017 Spr	VPHY8200	Neuroanatomy, University of Georgia College of Vet Med (1 lecture)
2017 Spr	BCMC4970H	Biochemistry Molecular Biology Research Lab II Honor
2017 Spr	BIOL4960	Undergraduate Research Biology Research Lab
2017 Spr	BIOL4960H	Undergraduate Research Biology Research Lab Honor
2017 Fall	BCMB4970H	Biochemistry Molecular Biology Research Lab II Honor

2017 Fall	VPHY7111	Principle of Physiology, UGA (8 lectures)
2017 Fall	VPHY8010	Cell Physiology (3 lectures)
2016 Fall	BCMB4960H	Biochemistry Molecular Biology Research Lab I Honor
2016 Fall	VPHY7111	Principle of Physiology, UGA (8 lectures)
2015 Fall	VPHY7111	Principle of Physiology, UGA (8 lectures)
2015 Spr	BMED6042	Systems Physiology, Georgia Tech and Emory University (2 lectures)
2014 Fall	BAHS502	Physiology, Emory Anesthesia Assistant Master Program (2 lectures)

B. RESEARCH MENTORING

PHD STUDENTS

2022-	Mastura Ruma	IPP program, UGA
2020-	Stephen Weber	ILS Neuroscience PhD program, UGA
2017-22	Kelly Menees	ILS Neuroscience PhD program, UGA (Postdoc, University of Florida)
2016-20	Rachael H. Earls	ILS Neuroscience PhD program, UGA (Medical Liaison, Myriad Genetics)

MS STUDENTS

2021 Fall	Mikaela Mooney	MS student, Comparative Biomedical Science, Phys/Pharm, UGA

ROTATING PHD STUDENTS

2021 Fall	Oranti Ahmed Omi	Neuroscience PhD program, UGA
2021 Fall	Yujie Chen	ILS Neuroscience PhD program, UGA
2021 Fall	Hitomi Nakasato	ILS Neuroscience PhD program, UGA
2021 Fall	Alexandria Burke	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2021 Fall	Mikaela Mooney	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2021 Fall	Macy Willis	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2021 Fall	Robert Anderson	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2020 Fall	Katelyn Jamison	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2020 Fall	Branson Cosby	Comparative Biomedical Science MS program, Phys/Pharm, UGA
2019 Fall	Dong Eun Seo	ILS Neuroscience PhD program, UGA
2019 Fall	Eunbee Park	ILS Neuroscience PhD program, UGA
2018 Fall	Longwen Xu	ILS Neuroscience PhD program, UGA
2018 Fall	Chaitayna Tondepu	ILS Neuroscience PhD program, UGA
2017 Fall	Kelly Baker	ILS Neuroscience PhD program, UGA
2017 Fall	Ivana Rodriguez	ILS Neuroscience PhD program, UGA
2017 Fall	Paul Freeman	ILS Neuroscience PhD program, UGA
2016 Fall	Min Kyoung Sun	ILS Neuroscience PhD program, UGA
2016 Fall	Rachael H. Earls	ILS Neuroscience PhD program, UGA
2015 Spr	Josephine Dagher	ILS Neuroscience PhD program, UGA

UNDERGRADUATE STUDENTS

2021	Adrian Bozocea	Biological Engineering, UGA
2021	Sewook Park	Biology, UGA
2020-	Krishna Pari	Biochemistry & Molecular Biology, UGA
2018-19	Janna Jernigan	Biology & Psychology, UGA (UF Graduate program)
2017-18	Isabelle Snider	Biology and History, UGA (UF School of Medicine)

2017	Allison Gaede	Biology, UGA
2016-17	Erik Olsen	Biochemistry & Molecular Biology, UGA (Medical College of Georgia, Augusta University)

C. SERVICES ON THESIS COMMITTEES

PHD STUDENTS

2022-	Ahyoung Jang	PhD student, Neuroscience Program, UGA
2020-	Kristen Nicole Amico	PhD student, ILS Neuroscience program, UGA
2020-21	Chaitanya Tondepu	PhD student, Regenerative Bioscience Center, UGA
2020	Stephen Weber	PhD student, ILS Neuroscience program, UGA
2019	Eileen M. Martinez	PhD student, Neuroscience, Dartmouth College
2018-21	Austin P. Passaro	PhD Student, Regenerative disease, UGA
2018-20	Angel Santiago-Lopez	PhD Student, Bioengineering, Georgia Tech & Emory University
2017-21	Faris Almutairi	PhD Student, Pharmaceutical and Biomedical Sciences, UGA
2017-22	Menbere Wendimu	PhD Student, Pharmaceutical and Biomedical Sciences, UGA
2017-22	Jessica Carpenter	PhD Student, Toxicology Graduate program, UGA
2017-20	Xi Fang	PhD Student, Foods and Nutrition, UGA (Yale, Postdoc)
2016-19	Sadie Nenning	PhD Student, ILS Neuroscience, UGA (UIC, Postdoc)

MS STUDENTS

2022	Austin Brand	MS student, Comparative Biomedical Science, Phys/Pharm, UGA
2021	Branson Cosby	MS student, Comparative Biomedical Science, Phys/Pharm, UGA
2020	Kanupriya Daga	M.S. Biochemical Engineering program, UGA
2019	Jasmine Burris	MS student, Comparative Biomedical Science, Phys/Pharm, UGA
2019	Nathalie Brook	MS student, Comparative Biomedical Science, Phys/Pharm, UGA

D. AWARDS RECEIVED BY MENTORED TRAINEES

GRADUATE STUDENTS

2019	Gordon Research Seminar Travel Award to Rachael H. Earls
2019	Gordon Research Seminar Travel Award to Kelly Menees
2019	Regenerative Bioscience Symposium Oral presenter award to Rachael H. Earls
2019	Biomedical and Health Sciences Institute Travel Award to Rachael H. Earls
2018	Graduate School Travel Award to Rachael H. Earls
2018	Graduate School Travel Award to Kelly Menees
2017	Biomedical and Health Sciences Institute Travel Award to Rachael H. Earls

UNDERGRADUATE STUDENTS

2019	UGA CURO Honors Scholarship to Janna Jernigan
2018	UGA CURO Honors Scholarship to Isabelle Snider
2017	UGA CURO Honors Scholarship to Erik Olsen

Jesse R. Schank, Ph.D.

University of Georgia
Department of Physiology and Pharmacology
501 D.W. Brooks Drive
Athens, GA 30602
(706) 542-0661
jschank@uga.edu

POSITIONS

Associate Professor **2019-present**
University of Georgia, Athens, GA
Department of Physiology and Pharmacology

Graduate Coordinator **2022-present**
Neuroscience PhD Program
Biomedical and Translational Sciences Institute
University of Georgia

Assistant Professor **2014-2019**
University of Georgia, Athens, GA
Department of Physiology and Pharmacology

Post-Doctoral Research Fellow **2008-2014**
National Institute on Alcohol Abuse and Alcoholism, Bethesda, MD
Lab of Clinical and Translational Studies, Molecular Pathophysiology Section
Mentor: Markus Heilig, MD, PhD

EDUCATION

Doctor of Philosophy **2008**
Emory University, Atlanta, GA
Degree Program: Neuroscience
Research Advisor: David Weinshenker, PhD

Bachelor of Arts **2001**
University of Virginia, Charlottesville, VA
Majors: Biology & Psychology
Research Advisor: Emilie Rissman, PhD

HONORS/AWARDS/FELLOWSHIPS

2022	ASPIRE Fellows Program, University of Georgia
2019	Awarded Tenure at University of Georgia
2018	American College of Neuropsychopharmacology, Associate Membership
2016	Winter Conference on Brain Research Travel Fellowship
2013	Travel Award, American College of Neuropsychopharmacology
2013	Advanced Techniques in Molecular Neuroscience Course, Cold Spring Harbor Labs
2011	NIH Fellows Award for Research Excellence
2010	Travel Award, Midwestern Alcohol Research Center, Guze Symposium on Alcoholism
2008	SFN Chapters Graduate Student Travel Award, SFN Conference 2008
2007	Selected Student Speaker at Emory Neuroscience Graduate Seminar “Frontiers”
2004-2006	NIH/NIDA T32 Institutional Training Grant in Drug Abuse Fellowship (Emory University)
2001-2002	NIH/NIMH Postbaccalaureate Intramural Research Training Award
2000-2001	Psi Chi Psychology Honor Society
2000	NSF Research Institute in Experimental Psychology at University of South Carolina

FUNDING

Active

NIH R01 Research Project Grant, PI **05/2018-04/2023** **$1,125,000**
R01 AA026362 – *"The Neurokinin-1 Receptor as a Mediator of Alcoholism and Depression Comorbidity"*

NIH R03 Small Research Project Grant, PI **01/2020-12/2022** **$100,000**
R03 AA026989 – *"Sex Differences in Aversion-Resistant Ethanol Intake"*

NIH R03 Small Research Project Grant, PI **06/2020-05/2023** **$100,000**
R03 AA027009 – "*The Effect of Vicarious Exposure to Social Defeat on Alcohol Intake*"

University of Georgia Faculty Research Seed Grant **07/2021-06/2023** **$12,046**
"Modeling Polysubstance Abuse - Concurrent Alcohol and Oxycodone Self-Administration in Rats"

NIH R21 Exploratory/Developmental Research Grant, subcontract **09/2021 – 08/2023** **$20,000**
R21 AA028606-R1 – *"Testing a new strategy to reduce alcohol consumption by pH"*
PI: Inyeong Choi, Emory University

Pending

NIH R21 Exploratory/Developmental Research Grant, PI **$275,000**
R21 AA028882-R1 – *"Traumatic Brain Injury and Alcohol Consumption in Pigs"*
Priority score: 24

Under Review

NIH R01 Research Project Grant, PI **$1,250,000**
R01 DA058087 – "Neuroanatomical and Pharmacological Mechanisms of Polysubstance Self-Administration"

NIH R01 Research Project Grant, co-I **$1,952,498**
R01 AA000000 **– "**Study of alcoholic ketoacidosis in mice"
PI: Inyeong Choi, Emory University

Completed

NIH F31 Predoctoral National Research Service Award (Mentor) **09/2017-09/2019**
F31 AA026481 – *"NFkB: A critical link between alcohol abuse and stress-sensitivity"*
PI: Sadie Nennig

University of Georgia Research Foundation **07/2017-06/2018** **$9,906**
Faculty Research Grant - "*Establishment of Rodent Model of Oral Oxycodone Self-Administration"*

NIH K99/R00 Pathway to Independence Award (NIAAA) **12/2012-04/2018** **$747,000**
K99R00 AA021805 - *"The role of the neurokinin-1 receptor and NF kappa B in alcohol-induced behavior"*

University of Georgia Research Foundation **07/2015-06/2016** **$8,500**
Faculty Research Grant - "*Cell Sorting to Determine NFkB-regulated Gene Expression in Brain Cell Subtypes*"

NIH F31 Predoctoral National Research Service Award (NIDA) **11/2006-08/2008**
F31 DA019746 – *"Dopamine Beta-hydroxylase and Responses to Cocaine"*

PUBLICATIONS

1. Arnold ME, Butts AN, Amico KN, and **Schank JR** (2022) Sex differences in neuronal activation during aversion-resistant alcohol consumption, *in revision*.

2. Amico KN, Arnold ME, Dourron MS, Solomon MG, **Schank JR** (2022) The effect of concurrent access to alcohol and oxycodone on self-administration and reinstatement in rats, *Psychopharmacology*, *in press.*

3. Solomon MG, Nennig SE, Amico KN, Arnold ME, Cotton MR, Whiting KE, Fulenwider HD, **Schank JR** (2022) Neurokinin-1 receptors in the nucleus accumbens shell mediate sensitivity to social defeat stress, *in revision*.

4. Tapocik JD, **Schank JR**, Mitchell JR, Damazdic R, Mayo CL, Brady D, Pincus AB, King CE, Heilig M, Elmer GI (2021) Live predator stress results in distinct behavioral consequences and dorsal diencephalic brain activation patterns in a novel adolescent trauma model. *Behavioral Brain Research, in press.*

5. Shin SK, Sneed SE, Nennig SE, Cheek SR, Kinder HA, Solomon MG, **Schank JR**, West FD (2021) An adolescent porcine model of voluntary alcohol consumption exhibits binge drinking and motor deficits in a two bottle choice test. *Alcohol and Alcoholism, 56(3):266-274*.

6. **Schank JR**, Lee S, Gonzalez-Islas CE, Nennig SE, Fulenwider HD, Chang J, Li JM, Kim Y, Jeffers LA, Chung J, Lee J-K, Jin Z, Aalkjaer C, Boedtkjer E, Choi I (2020) Increased alcohol consumption in mice with genetic deletion of Na/HCO3 transporter, *Scientific Reports, 10(1):11017.*

7. **Schank JR** (2020) Neurokinin Receptors in Drug and Alcohol Addiction. *Brain Research, 1734:146729.*

8. Haass-Koffler C, **Schank JR** (2020) Translational Research in the Neurobiological Mechanisms of Alcohol and Substance Use Disorders. *Neurotherapeutics*, 17(1):1-3.

9. Nennig SE, Fulenwider HD, Eskew JE, Whiting KE, Cotton MR, McGinty GE, **Schank JR** (2020) Intermittent ethanol access increases sensitivity to social defeat stress. *Alcoholism: Clinical and Experimental Research,* 44(3):600-610*.*

10. Fulenwider HD, Nennig SE, Hafeez H, Price ME, Baruffaldi F, Pravetoni M, Cheng K, Rice KC, Manvich DF, **Schank JR** (2019) Sex differences in oral oxycodone self-administration and stress-primed reinstatement in rats. *Addiction Biology,* 25(6):e12822*.*

11. Nelson BS, Fulenwider HD, Nennig SE, Smith BM, Sequeira MK, Chimberoff SH, Richie CT, Cheng K, Rice KC, Harvey BK, Heilig M, **Schank JR** (2019) Escalated alcohol self-administration and sensitivity to yohimbine-induced reinstatement in alcohol preferring rats: Potential role of neurokinin-1 receptors in the amygdala. *Neuroscience*, 413:77-85*.*

12. Fulenwider HD, Nennig SE, Price ME, **Schank JR** (2019) Sex differences in aversion-resistant ethanol intake in mice. *Alcohol and Alcoholism,* 54(4):345-352*.*

13. Sequeira MK, Nelson BS, Fulenwider HD, King CE, Nennig SE, Bohannon JB, Cheng K, Rice KC, Heilig M, **Schank JR** (2018) The neurokinin-1 receptor mediates escalated alcohol intake induced by multiple drinking models. *Neuropharmacology,* 137: 194-201.

14. Fulenwider HD, Smith BM, Nichenko AS, Carpenter JM, Nennig SE, Cheng K, Rice KC, **Schank JR** (2018) Cellular and behavioral effects of lipopolysaccharide treatment are dependent upon neurokinin-1 receptor activation. *Journal of Neuroinflammation,* 15(1): 60*.*

15. Nelson BS, Sequeira MK, **Schank JR** (2018) Bidirectional Relationship between Alcohol Intake and Sensitivity to Social Defeat: Association with Tacr1 and Avp Expression. *Addiction Biology,* 23(1):142-153.

16. Nennig SE, Fulenwider HD, Chimberoff SH, Smith BM, Sequeira MK, Eskew JE, Karlsson C, Liang C, Chen J, Heilig M, **Schank JR** (2017) Selective silencing of nuclear factor kB activated cells in the nucleus accumbens shell attenuates alcohol reward. *Neuropsychopharmacology*, 43(5): 1032-1040.

17. Nennig SE, **Schank JR** (2017) The Role of NFkB in Drug Addiction: Beyond Inflammation. *Alcohol and Alcoholism,* 52(2):172-179.

18. Barbier E, Johnstone A, Khomtchouk B, Tapocik J, Pitcairn C, Rehman F, Augier E, Borich A, **Schank JR**, Rienas C, Van Booven D, Sun H, Nätt D, Wahlestedt C, Heilig M (2017) Dependence-induced increased of alcohol self-administration and compulsive drinking mediated by the histone methyltransferase PRDM2. *Molecular Psychiatry,* 22(12):1746-1758.

19. Karlsson C*, **Schank JR*** Rehman F, Stojakovic A, Björk K, Barbier E, Solomon M, Tapocik J, Engblom D, Thorsell A, Heilig M (2017) Proinflammatory signaling regulates voluntary alcohol intake and stress-induced consumption after exposure to social defeat stress in mice. *Addiction Biology,* 22(5):1279-1288. *Authors contributed equally

20. Karlsson C, Rehman F, Damadzic R, Atkins AL, **Schank JR**, Gehlert DR, Steensland P, Thorsell A, Heilig M (2016) The melanin-concentrating hormone-1 receptor modulates alcohol-induced reward and DARPP-32 phosphorylation. *Psychopharmacology,* 233(12): 2355-2363.

21. Ayanwuyi L, Stopponi S, Ubaldi M, Cippitelli A, Nasuti C, Damadzic R, Heilig M, **Schank J**, Cheng K, Rice K, Ciccocioppo R (2015) Neurokinin 1 Receptor Blockade in the Medial Amygdala Attenuates Alcohol Drinking in Rats with Innate Anxiety but not in Wistar Rats. *British Journal of Pharmacology,* 172(21): 5136-5146.

22. **Schank JR**, Nelson BS, Damadzic R, Tapocik JD, Yao M, King CE, Rowe KE, Cheng K, Rice KC, Heilig M (2015) Neurokinin-1 receptor antagonism attenuates neuronal activity triggered by stress-induced reinstatement of alcohol seeking. *Neuropharmacology,* 99: 106-114.

23. Barbier E, Tapocik JD, Juergens N, Pitcairn C, Borich A, **Schank JR**, Sun H, Schuebel K, Zhou Z, Yuan Q, Vendruscolo L, Goldman D, Heilig M (2015) DNA-methylation in the medial prefrontal cortex regulates alcohol-induced behavior and plasticity. *Journal of Neuroscience*, 35 (15): 6153-6164.

24. **Schank JR** (2014) The Neurokinin-1 Receptor in Addictive Processes. *Journal of Pharmacology and Experimental Therapeutics*, 351: 2-8.

25. Augier E, Flanigan M, Dulman RS, Pincus A, **Schank JR**, Rice KC, Cheng K, Heilig M, Tapocik JD (2014) Wistar rats acquire and maintain self-administration of 20% ethanol without water deprivation, saccharin/sucrose fading, or extended access training. *Psychopharmacology (Berl)*, 231(23): 4561-4568.

26. Heilig M, **Schank JR** (2014) Kappa-Opioid Receptor Antagonism: A Mechanism for Treatment of Relief Drinking? *Biological Psychiatry*, 75(10): 750-751.

27. Tapocik JD, Barbier E, Flanigan M, Solomon M, Pincus A, Pilling A, Sun H, **Schank JR**, King C, Heilig M (2014) microRNA-206 in rat medial prefrontal cortex regulates BDNF expression and alcohol drinking. *Journal of Neuroscience*, 34(13): 4581-4588.

28. **Schank JR**, King CE, Sun H, Cheng K, Rice KC , Heilig M, Weinshenker D, Schroeder JP (2014) The role of the neurokinin-1 receptor in stress-induced reinstatement of alcohol and cocaine seeking. *Neuropsychopharmacology*, 39(5): 1093-1101.

29. **Schank JR**, Tapocik JD, Barbier E, Damadzic R, Eskay RL, Sun H, Rowe KE, King CE, Yao M, Flanigan ME, Solomon MG, Karlsson C, Cheng K, Rice KC, Heilig M. (2013) TacR1 gene variation and

NK1R expression associates with antagonist efficacy in genetically selected alcohol preferring rats. *Biological Psychiatry*, 73(8): 774-781.

30. Barbier E, Vendruscolo LF, Schlosburg JE, Edwards S, Park PP, Misra KK, Cheng K, Rice KC, **Schank J**, Schulteis G, Koob GF, Heilig M. (2013) The NK1 receptor antagonist L822429 reduces heroin reinforcement. *Neuropsychopharmacology*, 38(6): 976-984.

31. Tapocik JD, Solomon M, Flanigan M, Meinhardt M, Barbier E, **Schank JR**, Schwandt M, Sommer W, Heilig M. (2013) Coordinated dysregulation of mRNAs and microRNAs in the rat medial prefrontal cortex following a history of alcohol dependence. *Pharmacogenomics Journal*,13(3): 286-296.

32. **Schank JR**, Ryabinin AE, Giardino WJ, Ciccocioppo R, Heilig M. (2012) Stress related neuropeptides and addictive behaviors: Beyond the usual suspects. *Neuron*, 76(1): 192-208.

33. **Schank JR**, Goldstein AL, Rowe KE, King CE, Marusich JA, Wiley JL, Carroll FI, Thorsell A, Heilig M. (2012) The kappa opioid receptor antagonist JDTic attenuates alcohol seeking and withdrawal anxiety. *Addiction Biology*, 17(3): 634-647.

34. **Schank JR**, Pickens CL, Rowe KE, Cheng K, Thorsell A, Rice KC, Shaham Y, Heilig M (2011) Stress-induced reinstatement of alcohol seeking in rats is selectively suppressed by the neurokinin 1 (NK1) antagonist L822429. *Psychopharmacology (Berl)*, 218(1): 111-119.

35. Schroeder JP, Cooper DA, **Schank JR**, Lyle MA, Gaval-Cruz M, Ogbonmwan YE, Pozdeyev N, Freeman KG, Iuvone PM, Edwards GL, Holmes PV, Weinshenker D (2010) Disulfiram attenuates drug-primed reinstatement of cocaine seeking via inhibition of dopamine beta-hydroxylase. *Neuropsychopharmacology*, 35: 2440-2449.

36. Thorsell A, **Schank JR**, Singley E, Hunt SP, Heilig M (2010) Neurokinin-1 receptors, alcohol consumption, and alcohol reward in mice. *Psychopharmacology (Berl)*, 209(1): 103-111.

37. **Schank JR**, Liles LC, Weinshenker D (2008) Norepinephrine signaling through β-adrenergic receptors is critical for expression of cocaine-induced anxiety. *Biological Psychia*try, 63: 1007-1012.

38. **Schank JR**, Puglisi-Allegra S, Ventura R, Alcaro A, Cole CD, Liles LC, Seeman P, Weinshenker D (2006) Dopamine β-hydroxylase knockout mice have alterations in dopamine signaling and are hypersensitive to cocaine. *Neuropsychopharmacology*, 31: 2221-30.

39. **Schank JR**, Liles LC, Weinshenker D (2005) Reduced anticonvulsant efficacy of valproic acid in dopamine β-hydroxylase knockout mice. *Epilepsy Research,* 65: 23-31.

BOOK CHAPTERS

Schank JR, Heilig M, Substance P and the Neurokinin-1 Receptor: The New CRF. In Todd E. Thiele, editor: The Role of Neuropeptides in Addiction and Disorders of Excessive Consumption, Vol 136, IRN, UK: Academic Press, 2017, pp. 151-175.

CONFERENCE SPEAKER ABSTRACTS

Schank JR (2022) Concurrent oral self-administration of alcohol and oxycodone: Drug intake, neuropeptide mechanisms, and relapse-like behavior. Research Society on Alcoholism Conference, Orlando, Florida. *Sympoisum chair

Schank JR (2020) Bidirectional relationship between alcohol exposure and sensitivity to social stress. Alcoholism and Stress: A Framework for Future Treatment Strategies, Volterra, Italy. Conference cancelled due to COVID-19.

Schank JR (2019) Sex differences in aversion-resistant alcohol intake in mice. Research Society on Alcoholism Conference, Minneapolis, Minnesota.

Schank JR (2018) Sex differences in oral oxycodone self-administration in a preclinical rodent model. Interdisciplinary Opioid Epidemic Symposium. University of Georgia, Athens, Georgia.

Schank JR (2017) Bidirectional Relationship Between Alcohol Intake and Sensitivity to Social Defeat: Association with Tacr1 and Avp Expression. Research Society on Alcoholism Conference, Denver, Colorado. *Symposium Chair

Schank JR (2016) The neurocircuitry of stress-induced alcohol seeking: Focus on the neurokinin-1 receptor. Research Society on Alcoholism Conference, New Orleans, Louisiana.

Schank JR (2016) Neurokinin-1 Mediated Activation of NFkB in Alcohol Reward. Winter Conference on Brain Research, Breckenridge, Colorado.

Schank JR (2015) Nuclear factor kB activity is increased by alcohol reward conditioning. Southern Translational Education and Research Conference, Athens, Georgia.

Schank JR (2014) A Dual Mechanism for Neurokinin 1 Receptor Antagonism as a Therapeutic Target in Addictive Disorders. Research Society on Alcoholism Conference, Bellevue, Washington.

Schank JR, King CE, Heilig M, Weinshenker D, Schroeder JP (2014) The Neurokinin-1 Receptor Mediates Stress-Induced Reinstatement of Drug Seeking. Southeast Neuroscience Conference, Augusta, Georgia.

Schank JR, Tapocik JD, Barbier E, Damadzic R, Eskay RL, Sun H, Rowe KE, King CE, Yao M, Karlsson C, Cheng K, Rice KC, Heilig M (2012) Escalated alcohol self-administration in alcohol preferring P rats is associated with up-regulated neurokinin-1 receptors in the central amygdala. Society for Neuroscience Conference, New Orleans, Louisiana.
*Session organizer

Schank JR (2011) Revisiting Kappa-Opioid Receptors as a Target for Treatment of Alcoholism: Some Unexpected Results Using the Antagonist JDTic. Research Society on Alcoholism Conference, Atlanta, Georgia.

Schank JR, Thorsell A, Rice KC, Heilig M (2010) Neurokinin 1 receptor (NK1R) antagonism: A novel target for treatment of alcoholism. International Society in Biomedical Research on Alcoholism Conference, Paris, France.

INVITED TALKS

“The Role of the Neurokinin-1 Receptor in Stress-Induced Drug and Alcohol Seeking.” University of Georgia, Monthly Neuroscience Seminar Series, October 6, 2021.

“The Role of the Neurokinin-1 Receptor in Stress-Induced Drug and Alcohol Seeking.” Department of Pharmacology and Physiology, Drexel University, Philadelphia, Pennsylvania, October 20, 2020.

Rowan University School of Medicine, Department of Cell Biology and Neuroscience, Stratford, New Jersey, April 1, 2020. Seminar postponed due to COVID-19.

"Sex Differences in Oral Oxycodone Self-Administration and Stress-Primed Reinstatement in Rats" Neuroscience Institute, Georgia State University, Atlanta, Georgia; March 15, 2019.

"The Role of the Neurokinin-1 Receptor in Alcohol Seeking: Neuroanatomical and Molecular Mediators." Alcohol Research Center, Medical University of South Carolina, Charleston, South Carolina; January 21, 2016.

"Preclinical Animal Models Used to Develop Treatments for Addiction: The Neurokinin-1 Receptor and Alcohol Abuse." Duke TIPS Program Pharmacology Course, Guest Lecture, University of Georgia, Athens, Georgia; July 23, 2015.

"The Role of the Neurokinin-1 Receptor in Stress-Induced Alcohol Seeking: Pharmacological and Neuroanatomical Perspectives." Department of Physiology Seminar, Emory University, Atlanta, Georgia; April 30, 2015.

"The Role of the Neurokinin-1 Receptor in Stress-Induced Drug Seeking." Center for Substance Abuse Research Seminar, Temple University, Philadelphia, Pennsylvania; May 20, 2014.

TEACHING EXPERIENCE

Spring 2022, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Spring 2022, Guest Lecturer (2 lectures), VPHY 5190 – Veterinary Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Gaylen Edwards

Spring 2021, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Spring 2021, Guest Lecturer (2 lectures), VPHY 5190 – Veterinary Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Gaylen Edwards

Spring 2020, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Spring 2020, Guest Lecturer (2 lectures), VPHY 8600 – Synaptic Physiology
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Julie Coffield

Spring 2020, Guest Lecturer (2 lectures), VPHY 5190 – Veterinary Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Gaylen Edwards

Fall 2019, Guest Lecturer (3 Lectures), VPHY 8010 – Mammalian Cell Physiology
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Jamise Lee

Spring 2019, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Spring 2019, Guest Lecturer (2 lectures), VPHY 5190 – Veterinary Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Gaylen Edwards

Fall 2018, Coordinator, BHSI 8900 – Seminar in Neuroscience

University of Georgia, Biomedical and Health Sciences Institute

Fall 2018, Course Instructor, FYOS 1001 – Behavioral Neuroscience of Stress, Depression, and Alcoholism
University of Georgia, First Year Odyssey Seminar Program

Spring 2018, Guest Lecturer (1 lecture), VPHY 5190 – Veterinary Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Gaylen Edwards

Spring 2018, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Fall 2017, Course Instructor, FYOS 1001 – Behavioral Neuroscience of Stress, Depression, and Alcoholism
University of Georgia, First Year Odyssey Seminar Program

Fall 2017, Guest Lecturer (3 Lectures), VPHY 8010 – Mammalian Cell Physiology
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Shiyou Chen

Spring 2017, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Spring 2017, Guest Lecturer (2 lectures), PHRM 8020 – Molecular Pharmacology of Disease & Therapeutics
University of Georgia, Pharmaceutical and Biomedical Sciences
Course Coordinator: Dr. Shelley Hooks

Fall 2016, Course Instructor, GRSC 8020 – Critical Reading of the Primary Scientific Literature
University of Georgia Graduate School

Spring 2016, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Fall 2015, Guest Lecturer (3 Lectures), VPHY 8010 – Mammalian Cell Physiology
University of Georgia, Department of Physiology and Pharmacology
Course Coordinator: Dr. Shiyou Chen

Fall 2015, Guest Lecturer (1 Lecture), PHRM 8600 – Drug Targets in Cell Signaling Pathways
University of Georgia, Pharmaceutical and Biomedical Sciences
Course Coordinator: Dr. Shelley Hooks

Spring 2015, Course Instructor, VPHY 8020 – Neuroanatomy
University of Georgia, Department of Physiology and Pharmacology

Fall 2014, Course Instructor, BHSI 8030 – Current Literature in Neuroscience
University of Georgia, Biomedical and Health Sciences Institute

Spring 2012, **Course Instructor,** PHAR 332 - Neurobiology of Addiction
NIH Graduate School, Foundation Advanced Education Sciences

Summer 2011, Journal Club Instructor, "The Neurobiology of Addiction"
NIH Journal Club for Summer Interns

Summer 2010, Journal Club Instructor, "The Neurobiology of Addiction"
NIH Journal Club for Summer Interns

Spring 2007, **Course Instructor**, PSY 310 - Drugs, the Brain, and Behavior

Oglethorpe University, Department of Psychology

Spring 2004, **Teaching Assistant**, NBB 301 - Introduction to Neurobiology
Emory University, Neuroscience and Behavioral Biology Department

MENTORSHIP

Postdoctoral Research Advisor
Dr. Matthew Solomon, September 2019-July 2021
Dr. Britta Nelson, August 2014-May 2017

Dissertation Advisor
Ellie Decker Ramirez, Neuroscience Graduate Program, December 2021-present
Miranda Arnold, Neuroscience Graduate Program, December 2019-present
Kristen Amico, Neuroscience Graduate Program, December 2019-present
Hannah Fulenwider, Neuroscience Graduate Program, November 2015-February 2020
Sadie Nennig, Neuroscience Graduate Program, December 2014-September 2019

Undergraduate Research Mentor
Abigale Derusha, January 2022-May 2022
Arielle Butts, October 2021-May 2022
Morgan Dourron, August 2020-May 2022
*#& Mallory Cotton, January 2019-May 2022
Hope Nestlehutt, June 2021-August 2021
David Thomas, August 2020-May 2021
* Kelton McConnell, August 2019-May 2021
Kimberly Whiting, May 2019-May 2020
Hiba Hafeez, May 2018-May 2019
Shervin Hovanloo, June 2018-December 2018
Raquel Hazzard, January 2018-May 2018
Jacob Eskew, August 2016-May 2018
Casey Meck, January 2018-May 2018
Jennifer Bohannon, May 2017-May 2018
*^ Michaela Price, January 2017-May 2018
*^ Michelle Sequeira, August 2015-May 2017
Scott Chimberoff, January 2015-May 2016

*undergraduate honors thesis
#regional research award
^university research award
&professional society travel award

Summer Undergraduate Research Experience Mentor
Anna Diaz, NSURE program, Summer 2022
Loren Villalobos Millan, NSURE program, Summer 2021
Gabi McGinty, NSURE program, Summer 2019
Daisha Oruru, NSURE program, Summer 2019

Summer Veterinary Student Research Experience Mentor
Mei Nathan, Georgia Veterinary Scholars Program, Summer 2022

High School Student Mentor
Esha Dhawan, Young Dawgs Research Program, Summer 2018

Lab Rotations
Sydney Bedillion, Integrated Life Sciences Program, September 2021-October 2021

Dong Eun Seo, Integrated Life Sciences Program, September 2019-November 2019
Rachel Dockman, Integrated Life Sciences Program, August 2019-September 2019
Seungwoo Kang, Integrated Life Sciences Program, November 2018-December 2018
Ashley Brock, Integrated Life Sciences Program, August 2018-September 2018
Paul Freeman, Integrated Life Sciences Program, August 2017-September 2017
Kyle Brown, Integrated Life Sciences Program, November 2016-December 2016
Elizabeth Edge, Integrated Life Sciences Program, September 2016-November 2016
Jessica Carpenter, Integrated Life Sciences Program, August 2016-September 2016
Josephine Bou Dagher, Integrated Life Sciences Program, September 2015-November 2015
Erin Baker, Integrated Life Sciences Program, November 2014-December 2014
Anna Nichenko, Integrated Life Sciences Program, August 2014-May 2015

University of Georgia Committee Membership (current)
Jennifer Art, Neuroscience Graduate Program, January 2022-present
Hsueh-Fu Wu, Biochemistry and Molecular Biology Graduate Program, July 2019-present

University of Georgia Committee Membership (completed)
Maria Luisa Valle, Pharmaceutical and Biomedical Sciences Graduate Program, Completed November 2021
Collin Preston, Toxicology Graduate Program, Completed November 2020
Chen Liang, Cellular Biology Graduate Program, Ph.D. Completed June 2020
*Hannah Fulenwider, Neuroscience Graduate Program, Ph.D. Completed February 2020
*Sadie Nennig, Neuroscience Graduate Program, Ph.D. Completed September 2019
Jessica Hooversmith, Neuroscience Graduate Program, Ph.D. Completed November 2018
Yuhan Pu, Cellular Biology Graduate Program, Ph.D. Completed July 2016
Emily Trunnell, Neuroscience Graduate Program, Ph.D. Completed July 2016
*Thesis Advisor

External Committee Membership (current)
Christopher Searles, Georgia State University, Neuroscience Graduate Program, September 2019-present
Nicole Hinds, Rowan University, Department of Cell Biology and Neuroscience, May 2020-present

External Committee Membership (completed)
Mandy Bekhbat, Emory University Neuroscience Graduate Program, Ph.D. Completed March 2018

SERVICE

Institutional Service
Job Search Committee, Department of Physiology and Pharmacology (2021)
Job Search Committee, Department of Physiology and Pharmacology (2019-2020)
Graduate Affairs Committee Representative, College of Veterinary Medicine (May 2017-August 2022)
Animal Resources Committee Representative (April 2015-September 2020)
Organizer, University of Georgia Neuroscience Seminar Series (September 2014-April 2019)

Professional Service
Education Committee, Research Society on Alcoholism, 2022-present
Diversity Committee, Subcommittee on Climate and Representation, Research Society on Alcoholism, 2020-present
Conference Program Committee, Research Society on Alcoholism, 2019-2020

Grant/Fellowship Review
Standing Member, NIH Review, AA-4 Neuroscience and Behavior Study Section, NIAAA, July 2022-present
NIH Review Panel, Neurotoxicology and Alcohol Study Section, 2020
Israel Science Foundation Joint NSFC-ISF Research Grant
NIH Member conflict review panel SEP ZRG1 IFCN-L(02)
University of Georgia NSURE Summer Research Program

Austrian Science Foundation Schroedinger Fellowship
Achievement Rewards for College Scientists (ARCS) Foundation Fellowship

Journal Editorial Activities
Guest Editor of Special Issue for the journal *Neurotherapeutics*
Special Issue Title: “Neurobiological Targets in Translational Addiction Research”
Guest Editor of Special Issue for the journal *Frontiers in Psychiatry*
Special Issue Title: “Molecular Aspect of Alcohol Addiction and its Comorbidities with Affective Disorders”

Manuscript Review
Addiction
Addiction Biology
Addiction Neurobiology
Alcohol
Alcohol and Alcoholism
Alcoholism: Clinical and Experimental Research
Biological Psychiatry
BMC Pharmacology and Toxicology
Brain and Behavioural Research
Brain, Behavior, and Immunity
Brain Sciences
Cellular and Molecular Neurobiology
eNeuro
European Journal of Neuroscience
Frontiers Cell and Developmental Biology
Genes, Brain, and Behavior
International Journal of Molecular Sciences
Journal of Neuroendocrinology
Journal of Neuroimmunology
Journal of Pharmacology and Experimental Therapeutics
Neurochemistry International
Neuropeptides
Neuropharmacology
Neuropsychopharmacology
Neurotoxicology
Peptides
PLOS One
Pharmacology, Biochemistry, and Behavior
Progress in Neuropsychopharmacology and Biological Psychiatry
Psychoneuroendocrinology
Psychopharmacology
Physiology and Behavior
Regulatory Toxicology and Pharmacology
Science Advances
Scientific Reports

Poster Session Judge
Graduate Students and Postdocs in Science Research Day, University of Georgia (March 2016, April 2017, April 2018, June 2019)
Southern Translational Education and Research Conference (September 2015)
Southeastern Neuroscience Conference (April 2014)
NIH Graduate Student Research Symposium (January 2011, October 2009)

Community Service
Koshland Science Museum Volunteer, Washington DC (February 2011-August 2013)

PROFESSIONAL MEMBERSHIP

American College of Neuropsychopharmacology (2018 – present)
Research Society on Alcoholism (2014 – present)
Society for Neuroscience (2004 – 2012)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: WAGNER, JOHN J

eRA COMMONS USER NAME (credential, e.g., agency login): johnwagtn

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Eastern Washington University, Cheney , WA	BS	06/1987	Chemistry
University of Washington, Seattle , WA	PHD	12/1991	Pharmacology
University of Maryland, Baltimore , MD	Postdoctoral Fellow	11/1995	Physiology

A. Personal Statement

General: I have over 30 years' experience using electrophysiological approaches in the rodent hippocampal slice preparation and investigating the effects of various drugs on synaptic transmission and synaptic plasticity processes. My laboratory has used field potential and whole-cell voltage-clamp recording technique in ex vivo slices as well as whole-cell recording from acutely dissociated hippocampal neurons. Since moving to the University of Georgia in 2003, I have also established behavioral protocols for cocaine-induced sensitization, place preference and cocaine or sucrose pellet self-administration, extinction, and reinstatement of reward seeking behavior. More recently (2011), I have established a protocols for the assessment of spatial working memory in mice using the 8-arm radial maze. As PI I have successfully administered all aspects (e.g. staffing, research compliance, budget) of four previous NIH grant awards since 1995. As a result of these previous experiences, I am well able to construct a realistic research plan, timeline, and budget considering the personnel resources available to me. As a CoPI at the University of Georgia, over the past ten years I have successfully collaborated on DOD, EPA and NIH funded projects that have resulted in publications from interdisciplinary groups formed across multiple departments, schools, and colleges. Six of my recent publications are listed below and have been published along with faculty colleagues, indicating a solid record of effective collaborations here at UGA.

1. *Brown, K, N. M. Filipov, and J. J. Wagner. (2020).* Dorsoventral-specific effects of a sarin surrogate, diisopropylfluorophosphate, on synaptic transmission in the mouse hippocampus*. Journal of Pharmacology and Experimental Therapeutics. PMID: 31907304*
2. Carpenter, J. M., H. E. Gordon, H. D. Ludwig, J. J. Wagner, D. A. Harn, T. Norberg, and N. M. Filipov. (2020). Neurochemical and neuroinflammatory perturbations in two Gulf War Illness models: Modulation by the immunotherapeutic LNFPIII. *Neurotoxicology*, 77: 40-50. PMID: 31866310
3. Pati S, Angel P, Drake RR, Wagner JJ, Cummings BS. (2019). Lipidomic changes in the rat hippocampus following cocaine conditioning, extinction, and reinstatement of drug-seeking. Brain Behavior Dec;9(12):e01451. doi: 10.1002/brb3.1451. PMID: 31701674
4. Pati S, Krishna S, Lee JH, Ross MK, de La Serre CB, Harn DA Jr, Wagner JJ, Filipov NM, Cummings BS. Effects of high-fat diet and age on the blood lipidome and circulating endocannabinoids of female C57BL/6 mice. Biochimica et biophysica acta. Molecular and cell biology of lipids. 2018; 1863(1):26-39. PubMed [journal] PMID: 28986283
5. Krishna S, Lin Z, de La Serre CB, Wagner JJ, Harn DH, Pepples LM, Djani DM, Weber MT, Srivastava L, Filipov NM. Time-dependent behavioral, neurochemical, and metabolic dysregulation in female C57BL/6 mice caused by chronic high-fat diet intake. Physiology & behavior. 2016; 157:196-208. NIHMSID:

NIHMS761304 PubMed [journal] PMID: 26852949, PMCID: PMC4783236

6. Scholpa NE, Briggs SB, Wagner JJ, Cummings BS. Cyclin-Dependent Kinase Inhibitor 1a (p21) Modulates Response to Cocaine and Motivated Behaviors. The Journal of pharmacology and experimental therapeutics. 2016; 357(1):56-65. PubMed [journal] PMID: 26791604, PMCID: PMC4809318

B. Positions and Honors

Positions and Employment

1987 - 1991	Predoctoral Student, University of Washington, Department of Pharmacology
1992 - 1992	Postdoctoral Fellow, University of Washington, Department of Pharmacology
1992 - 1994	Postdoctoral Fellow, University of Maryland, Department of Physiology
1994 - 1995	Research Associate/Assistant Professor, University of Maryland, Department of Physiology
1995 - 2002	Assistant Professor, North Dakota State University, Department of Pharmaceutical Sciences
2002 - 2003	Associate Professor, North Dakota State University, Department of Pharmaceutical Sciences
2003 - 2009	Associate Professor, University of Georgia, Department of Physiology and Pharmacology
2009 - current	Professor, University of Georgia, Department of Physiology and Pharmacology

Other Experience and Professional Memberships

1990 - current	Member, Society For Neuroscience
2003 - 2007	Recurring member, NIH Neuroscience Fellowship Section
2005 - current	Ad hoc member (~20 sections) , NIH (CSR & NIDA) review panels
2008 - 2008	Visiting Scientist, University of Otago, New Zealand

Honors

1998	Outstanding Academic Advisor, College of Pharmacy, North Dakota State
2003	Researcher of the Year, College of Pharmacy, North Dakota State

C. Contributions to Science

1. **A description of dynorphin as a retrograde neurotransmitter.** As a PhD graduate student working in Charley Chavkin's lab at the University of Washington, I led a comprehensive effort to characterize the actions of endogenously released dynorphin neuropeptide in the hippocampus. A highlight of this work include it being one of the first examples of retrograde neurotransmission (postsynaptic dynorphin from dentate granule cells inhibits glutamate release from presynaptic perforant path terminals), in a manner that would now be characterized as depolarization-induced suppression of excitation (DSE).

   a. Wagner JJ, Caudle RM, Neumaier JF, Chavkin C. Stimulation of endogenous opioid release displaces mu receptor binding in rat hippocampus. Neuroscience. 1990;37(1):45-53. PubMed PMID: 1978741.

   b. Wagner JJ, Evans CJ, Chavkin C. Focal stimulation of the mossy fibers releases endogenous dynorphins that bind kappa 1-opioid receptors in guinea pig hippocampus. J Neurochem. 1991 Jul;57(1):333-43. PubMed PMID: 1675664.

   c. Wagner JJ, Caudle RM, Chavkin C. Kappa-opioids decrease excitatory transmission in the dentate gyrus of the guinea pig hippocampus. J Neurosci. 1992 Jan;12(1):132-41. PubMed PMID: 1345943.

   d. Wagner JJ, Terman GW, Chavkin C. Endogenous dynorphins inhibit excitatory neurotransmission and block LTP induction in the hippocampus. Nature. 1993 Jun 3;363(6428):451-4. PubMed PMID: 8099201.

2. **GABAergic gating of LTD and the influence of DSI on excitability in CA1 pyramidal neurons.** As a Postdoc working in Brad Alger's lab at the University of Maryland, I primarily published on two projects: 1) I initiated one of the first studies concerning the potential role for GABAergic inhibition to modulate the induction of Long-term Depression in the hippocampus. 2) I participated in studies concerning the early

mechanistic properties of depolarization-induced suppression of inhibition (DSI), including a demonstration that DSI could enhance the excitability of CA1 pyramidal cells and thereby influence the induction of synaptic plasticity processes such as Long-term Potentiation. This work also helped set the stage for the subsequent identification of endogenous cannabinoids (by Roger Nicoll's lab) as being the mediators of this form of retrograde synaptic transmission.

a. Wagner JJ, Alger BE. GABAergic and developmental influences on homosynaptic LTD and depotentiation in rat hippocampus. J Neurosci. 1995 Feb;15(2):1577-86. PubMed PMID: 7869119.
b. Wagner JJ, Alger BE. Homosynaptic LTD and depotentiation: do they differ in name only? Hippocampus. 1996;6(1):24-9. PubMed PMID: 8878738.
c. Wagner JJ, Alger BE. Increased neuronal excitability during depolarization-induced suppression of inhibition in rat hippocampus. J Physiol. 1996 Aug 15;495 (Pt 1):107-12. PubMed PMID: 8866355.
d. Alger BE, Pitler TA, Wagner JJ, Martin LA, Morishita W, Kirov SA, Lenz RA. Retrograde signaling in depolarization-induced suppression of inhibition in rat hippocampal CA1 cells. J Physiol. 1996 Oct 1;496 (Pt 1):197-209. PubMed PMID: 8910208.

3. **Priming of LTD and Drug-induced Metaplasticity.** As an assistant professor at North Dakota State University, I led early studies describing a priming phenomenon for the induction of LTD and showed its properties are consistent with the BCM theory of synaptic strength modification outlined by Leon Cooper and colleagues. Also, our initial studies at NDSU indicated that in vivo exposure to cocaine resulted in metaplasticity of Long-term Potentiation (enhanced induction). The primary findings of our initial report describing the effects of cocaine self-administration on LTP in the CA1 region ("Modulation of long-term potentiation in the rat hippocampus following cocaine self-administration." Thompson AM, Swant J, Gosnell BA, Wagner JJ. Neuroscience. 2004;127(1):177-85.) have been reproduced by several other groups. This area of drug-induced metaplasticity following cocaine exposure is an ongoing area of interest in my lab here at the University of Georgia.

a. Holland LL, Wagner JJ. Primed facilitation of homosynaptic long-term depression and depotentiation in rat hippocampus. J Neurosci. 1998 Feb 1;18(3):887-94. PubMed PMID: 9437010.
b. Wang H, Wagner JJ. Priming-induced shift in synaptic plasticity in the rat hippocampus. J Neurophysiol. 1999 Oct;82(4):2024-8. PubMed PMID: 10515995.
c. Wagner JJ, Etemad LR, Thompson AM. Opioid-mediated facilitation of long-term depression in rat hippocampus. J Pharmacol Exp Ther. 2001 Mar;296(3):776-81. PubMed PMID: 11181906.
d. Thompson AM, Gosnell BA, Wagner JJ. Enhancement of long-term potentiation in the rat hippocampus following cocaine exposure. Neuropharmacology. 2002 Jun;42(8):1039-42. PubMed PMID: 12128005.

4. **Mechanism of Action of Cocaine in the CA1 region of the hippocampus.** Following my move to the University of Georgia, we continued to carry out several studies concerning the pharmacological mechanisms by which cocaine acts in the CA1 region of the hippocampus (i.e. via DAT/D_3R/$GABA_A$R/ etc.). My lab has been a leader in this area of work over the past 20 years. In addition to the publications listed below, my most recent published studies regarding the persisting effects of cocaine exposure on hippocampal synaptic plasticity are "Withdrawal from cocaine conditioning progressively alters AMPA receptor-mediated transmission in the ventral hippocampus." Preston CJ & Wagner JJ. (2021) Addiction Biology Jan:27(1):e13101. Also, “” Preston CJ, Brown KA, Wagner JJ. (2019) Neuropharmacology May 15;150:27-27 concerns the effects of cocaine conditioning on hippocampal dependent learning and memory and synaptic plasticity. I believe that the characterization of cocaine-induced alterations in the ventral sector of the hippocampus will prove to be an impactful body of work that my colleagues and I have contributed towards the understanding of the persisting consequences of cocaine exposure that contribute to relapse following extended periods of abstinence.

a. Thompson AM, Swant J, Wagner JJ. Cocaine-induced modulation of long-term potentiation in the CA1 region of rat hippocampus. Neuropharmacology. 2005 Aug;49(2):185-94. PubMed PMID: 15996567.
b. Hammad H, Wagner JJ. Dopamine-mediated disinhibition in the CA1 region of rat hippocampus via D3 receptor activation. J Pharmacol Exp Ther. 2006 Jan;316(1):113-20. PubMed PMID: 16162819.

c. Keralapurath MM, Clark JK, Hammond S, Wagner JJ. Cocaine- or stress-induced metaplasticity of LTP in the dorsal and ventral hippocampus. Hippocampus. 2014 May;24(5):577-90. PubMed PMID: 24464838.

d. Keralapurath MM, Briggs SB, Wagner JJ. Cocaine self-administration induces changes in synaptic transmission and plasticity in ventral hippocampus. 2017 Mar;22(2):446-456. doi: 10.1111/adb.12345. Epub 2015 Dec 22. PMID: 26692207.

5. **Cognitive Enhancement in the treatment of Addiction.** The initial work at the University of Georgia concerning the role of NMDARs in extinction learning and reinstatement was motivated by the interest in cognitive enhancement as a supplement to behavioral therapy for the treatment of cocaine addiction. Our early studies yielded promising results demonstrating that the NMDAR co-agonist D-serine was effective in enhancing the effects of extinction training to reduce subsequent reinstatement to cocaine-seeking in rats. Unfortunately, in the most recent published study listed below, we identified a potential explanation for why so many human trials using cognitive enhancement for the treatment of addiction were not showing positive results; essentially the context dependency of extinction learning precludes the beneficial aspect of cognitive enhancement that occurs in the treatment environment vs. the patient's everyday life environment. Despite this negative outcome, I consider this work to be an important contribution that reconciles an apparent discrepancy in the literature between preclinical and clinical studies of addiction.

   a. Kelamangalath L, Swant J, Stramiello M, Wagner JJ. The effects of extinction training in reducing the reinstatement of drug-seeking behavior: involvement of NMDA receptors. Behav Brain Res. 2007 Dec 28;185(2):119-28. PubMed PMID: 17826849; PubMed Central PMCID: PMC2117900.

   b. Kelamangalath L, Seymour CM, Wagner JJ. D-serine facilitates the effects of extinction to reduce cocaine-primed reinstatement of drug-seeking behavior. Neurobiol Learn Mem. 2009 Nov;92(4):544-51. PubMed PMID: 19595781; PubMed Central PMCID: PMC2745305.

   c. Kelamangalath L, Wagner JJ. D-serine treatment reduces cocaine-primed reinstatement in rats following extended access to cocaine self-administration. Neuroscience. 2010 Sep 1;169(3):1127-35. PubMed PMID: 20541592; PubMed Central PMCID: PMC2914147.

   d. Hammond S, Wagner JJ. The context dependency of extinction negates the effectiveness of cognitive enhancement to reduce cocaine-primed reinstatement. Behav Brain Res. 2013 Sep 1;252:444-9. PubMed PMID: 23796972; PubMed Central PMCID: PMC3786700.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/john.wagner.2/bibliography/public/

D. Additional Information: Research Support and/or Scholastic Performance

Active Research Support

2021/05/01-2024/04/30 DoD, Dept. of the Army – USAMRAA, Filipov (PI) CDMRP GWI200063
Validation of a Novel Glycan Conjugate as a Safe Treatment Option for Gulf War Illness Veterans by Expanded Evaluation Efforts
Role: CoI

Completed Research Support
2016/09/01-2020/08/31 DoD, Dept. of the Army – USAMRAA, Filipov (PI) CDMRP GW150195
Evaluation of treatment efficacy with a potent novel immunomodulatory glycan conjugate in Gulf War Illness
Role: CoI

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Steven L. Stice

eRA COMMONS USER NAME (credential, e.g., agency login): SLSTICE

POSITION TITLE: D.W. Brooks Distinguished Professor; Director of Regenerative Bioscience Center

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois, Champaign, Il	B.S.	1983	Ag Science
Iowa State University, Ames, IA	M.S.	1986	Animal Reproduction
University of Massachusetts, Amherst, MA	Ph.D.	1989	Developmental Biology

A. Personal Statement

My academic lab has published extensively on the use of human neural stem cells and now neural stem cell derived exosomes, with over 40 publications on these cells or NSC EV. I am the chief scientific officer of ArunA Bio and I dedicate approximately one third of my time in this role to move our product into the clinics. As PI on a prior ArunA Biomedical STTR we developed the first human embryonic stem cell product, a neural stem cell line marketed by Millipore in 2005. I serve as a co-investigator on several ArunA led EPA and NIH grants helping ArunA raise $10 million for clinical advances.

I was a co-founder and first CEO of Advanced Cell Technology in 1996 and lead a team of 25 people working on genetic modification of stem cells derivation of pluripotent stem cells. The company is now in human clinical trials using human pluripotent stem cells. I have held numerous research and development leadership roles in the stem cell biology and industry starting in 1989. I am currently in charge of a neural circuit's research project for a $50 million NSF Science and Technology Center (STC) grant along with MIT, Univ. of Illinois and Georgia Tech. Furthermore, I am co-PI from the University of Georgia on a recently funded NSF engineering research center focused on cell manufacturing. I am on the FDA scientific advisory board for the National Center for Toxicology Research Center and have already discussed how we can work with NCTR to advance this new technology in concert with the FDA.

In recent years, we have published with our primary focus on the use of NSCEV to treat neurological indications, see below. I have successfully managed stem cell research contracts for NIH, NSF, DOD, and private pharmaceutical companies, including Pfizer, each of which required coordination among multiple investigators.

I have mentored over 50 postgraduate students or fellows. Most mentees have gone on to faculty and industry positions in regenerative medicine. I have hired and facilitated the promotion and tenure of every junior faculty we have hired, seven to date, in the Regenerative Bioscience Center. Mentoring is the focus of my academic activities.

a. Webb, R. L., Kaiser, E. E., Scoville, S.L., Thompson, T.A., Fatima, S., Pandya, C. & Stice, S. L. (2017). Human Neural Stem Cell Extracellular Vesicles Improve Tissue and Functional Recovery in the Murine Thromboembolic Stroke Model. Translational Stroke Research. [Epub ahead of print]
b. Webb, R. L., Kaiser, E.E., Jurgielewicz, B.J., Spellicy, S., Scoville, S.L., Thompson, T.A & Stice, S.L. (2018). Human Neural Stem Cell Extracellular Vesicles Improve Recovery in a Porcine Model of Ischemic Stroke. Stroke, 49(5): 1248-1256.

c. Baker EW, Platt SR, Lau VW, Grace HE, Holmes SP, Wang L, Duberstein KJ, Howerth EW, Kinder HA, Stice SL, Hess DC, Mao H, West FD. Induced Pluripotent Stem Cell-Derived Neural Stem Cell Therapy Enhances Recovery in an Ischemic Stroke Pig Model. Sci Rep. 2017 Aug 30;7(1):10075. doi: 10.1038/s41598-017-10406-x. PubMed PMID: 28855627; PubMed Central PMCID: PMC5577218.
d. Karumbaiah, L., Betancur, M., Mason, H., Holmes, P., West, F., Stice, S.L., Yu, P., & Abdo, Z. (2017). Brain Glue for the Acute Treatment of Severe Traumatic Brain Injuries. Brain Injury, 3(6-7): 860-861.
e. Spellicy, S.E., Kaiser, E.E., Bowler, M.M., Jurgielewicz, B.J., Webb, R.L., West, F.D., Stice, S.L., (August 2020). Neural Stem Cell Extracellular Vesicles Disrupt Midline Shift Predictive Outcomes in Porcine Ischemic Stroke Model. Transl. Stroke Res. doi.org/10.1007/s12975-019-00753-4

B. Positions and Honors

Positions and Employment

1988-1989 Research Scientist, TSI Inc., Worcester, MA
1989-1993 Research Scientist, American Breeders Service, DeForest, WI
1993-1994 Manager of Cloning and Stem Cell Research, American Breeders Service, DeForest, WI
1994-1998 Adjunct Assistant Professor, University of Massachusetts, Amherst, MA
1994-1996 ES Cell Project Leader, Advanced Cell Technology, Inc., Amherst, MA
1996-1997 Vice President of Research and Development, Advanced Cell Technology, Inc., Amherst, MA
1997-1998 Chief Scientific Officer, Advanced Cell Technology, Inc., Worcester, MA
1998-2001 Associate Professor and Senior Research Scientist, University of Georgia, Athens, GA
1998-2003 Co-founder and Chief Scientific Officer, ProLinia Inc., Athens, GA
2000-2001 Co-founder and VP of Research, Cytogenesis Inc., Athens GA
2001-2013 Professor, University of Georgia, Athens, GA
1998-present GRA Eminent Scholar, University of Georgia, Athens, GA
2004-present Director, Regenerative Bioscience Center, University of Georgia, Athens GA
2005-present CSO and co-founder of ArunA Biomedical, Inc.
2013-present D. W. Brooks Distinguished Professor, University of Georgia, Athens GA

Honors, Awards and Government and Professional Service

1998-2006 ad hoc study section reviewer for USDA NRI
1999 Georgia Research Alliance Eminent Scholar
1999, 2007-08 ad hoc study section reviewer NIH- NCRR
2001 AAAS stem cell grant reviewer
2002 Chairmen of the GRA Applied Genomics Cluster
2002 Emtech Bio scientific advisory board
2002-2006 Editorial board of *Journal of Animal Reproduction*
2003-2005 Editorial board of *Domestic Animal Endocrinology*
2003 Guggenheimer Innovation Award
2004 Hoag Award
2004 ad hoc study section reviewer NIH-DEV I
2005-present Editorial board of *Stem Cells*
2005 Univ. of Georgia Inventor of the Year
2005-2008. Seven NIH special emphasis, including stem cell translational and iPSC grants
2005-2007 ad hoc study section reviewer for *Neurogenesi*s and *Cell Fate*
2006-present Editorial Board of *Experimental Biology and Medicine*
2007-2008 Editorial Board of *Biology of Reproduction*
2007-2009 NCRR National Primate Center review member
2007-present SBIR/STTR study section *Cell Biology*
2010 ad hoc study section reviewer for DEV2
2009- 2013 NIH Roadmap Scientific Advisory Board for Epigenome Mapping
2016-present FDA NCTR Scientific Advisory Board
2017 Industry Growth Award, Georgia Bio
2017 Fellow of the National Academy of Inventors (NAI)

Reviewer for; *Nature Methods, Nature Genetics, Nature Communications, Lancet, Stem Cells, and many others*

C. Contribution to Science

1. My academic and industry labs have focused on using neural stem cells to further therapeutics and toxicology in representative stem cell populations. This includes early work on the genetic manipulation of neural stem cells using viral and non-viral factors. We have published one of the first comprehensive studies using mouse and human pluripotent derived neural cells in a drug discovery assay with Pfizer for Amino-3-hydroxyl-5- methyl-4-soxazolepropionate-type Glutamate receptor activity and discovery of AMPA potentiation/cognitive enhancers. We have a comprehensive understanding of the ion channel profiles of these cells. More recently we have used PSC derive cells for metabolomics characterization of endocrine active compounds with an EPA investigator. Finally we have concentrated on how to implement neural cells into informative high content assays along with EPA investigator Bill Mundy. We plan to use the lessons learned here for optogenetic model for synaptic activity in the current proposal.

    a. Passaro, A.P., Aydin, O., Taher, M., Saif, A., Stice, S.L., (April 2021). Development of an objective index, neural activity score (NAS), reveals neural network ontogeny and treatment effects on microelectrode arrays. Scientific Reports 11 (9110), 2021. doi.org/10.1038/s41598-021-88675-w
    b. Wu, X., Yang, X., Majumder, A., Swetenburg, R., Goodfellow, F., Bartlett, M.G., & Stice, S.L. (2017) Astrocytes are protective against chlorpyrifos developmental neurotoxicity in human pluripotent stem cell derived astrocyte-neuron co-cultures. Toxicol Sci. 2017 Jun 1;157(2):410-420.
    c. McNeish, J., Roach, M., Hambor, J., Mather, R.J., Weibley, L., Lazzaro, J., Gazard, J., Schwarz, J., Volkmann, R., Machacek, D., Stice, S.L., Zawadzke, L., O'Donnell, C. & Hurst, R. (2010). High-throughput screening in Embryonic Stem Cell-derived Neurons Identifies Potentiators of Amino-3-hydroxyl-5- methyl-4-soxazolepropionate-type Glutamate Receptors. J. Biol. Chem, 31 (3):277.
    d. West, F.D., Henderson, W.M., Yu, P., Yang, J.Y., Stice, S.L. & Smith, M.A. (2012). Metabolomic Response of Human Embryonic Stem Cell-derived Germ-like Cells after Exposure to Steroid Hormones. Toxicol Sci. 129(1):9-20.

2. I have directed early research on the derivation of human pluripotent stem cells and derivation of neural progenitors from these cells. My laboratories at ArunA Biomedical and UGA have over 14 years of experience with human pluripotent stem cells both hESC and human iPSC. In 2001, we were first in deriving one set of the original human embryonic stem cell lines in collaboration with BresaGen Inc. (BG01, 02 and 03). These lines were placed on the first NIH human ESC registry. My laboratory was one of five NIH sponsored sites for training NIH investigators over a six-year period on the propagation, differentiation, and use of hESC.

    a. Mitalipova, M., Calhoun, J., Shin, S. Wininger, D., Shulz, T., Lyons, I., Robins, A., & **Stice, S.L.** (2003). Human Embryonic Stem Cell Lines Derived from Discarded Embryos. *Stem Cells.* 21:521-526.
    b. Mitalipova, M.M., Rao, R.R., Hoyer, D. M., Johnson, J.A., Meisner, L.F., Jones, K.L., Dalton, S., & **Stice, S.L.** (2005). Preserving the Genetic Integrity of Human Embryonic Stem Cells. *Nature Biotech,* 23(1), 9-20.
    c. Shin, S. Mitalipova, M., Noggle, S., Tibbitts, D., Venable, A., Rao, R.R., & **Stice, S.L**. (2006). Long-term Proliferation of Human Embryonic Stem Cell-derived Neuroepithelial Cells using Defined Adherent Culture Conditions. *Stem Cells*, 24:125-38.
    d. Shin, S., Dalton, S. & **Stice S.L.** (2005). Human Motor Neuron Differentiation from Human Embryonic Stem Cells. *Stem Cells and Dev*, 14(3): 266-9.

3. Finally, there is a continued need to develop better ways to characterize the cell types derived from PSC. If the starting cell types in an assay are not uniform, the assay is likely doomed to failure or at best will generate ambiguous results. Our early work in karyotype analysis demonstrated that many common PSC used today can be aneuploid if not cultured in consistent cell culture systems and protocols. This work was published in *Nature Biotechnology*. ArunA has generated extensive standard operating procedures for cell manufacturing. We have developed new methods to define the membrane signature using proteomics and lectin binding to characterize the starting material of cell based high-content assays. We have also collaborated with a group at Georgia Tech to develop a method to separate differentiating cells, including neurons, from the starting PSC population using micro-shear forces.

a. Gerwe, B.A., Angel, P.M., West, F.D., Hasneen, K., Young, A., Orlando, R., & **Stice, S.L.** (2011). Membrane Proteomic Signatures of Karyotypically Normal and Abnormal Human Embryonic Stem Cell Lines and Derivatives. *Proteomics,* 11(12):2515-27.
b. Singh, A., Suri, S., Lee, T., Chilton, J.M., Cooke, M.T., Chen, W., Fu, J., Stice, S.L., Lu, H., McDevitt, T.C., & García, A.C. (2013). Adhesion Strength–based, Label-free Isolation of Human Pluripotent Stem Cells. Nature Methods, 10:438-444.
c. Goodfellow, F.T., Simchick, G.A., Mortensen, L.J., Stice, S.L., & Zhao, Q. (2016). Tracking and quantification of magnetically labeled stem cells using magnetic resonance imaging. Advanced Functional Materials, 26(22):3899-3915.
d. Goodfellow, F., Swetenburg, R., Wu, X., & Stice, S.L. (2017, May). Modeling of developmental neurotoxicity using pluripotent stem cell-derived neurons and astrocytes is generating new mechanistic insights. Birth Defects Research, 109 (9):625-625.

Complete List of Published Work in My Bibliography:

https://www.ncbi.nlm.nih.gov/sites/myncbi/steven.stice.1/bibliography/41162841/public/?sort=date&direction=descending

D. Research support

Current

EEC-1648035 (Co-PI Stice SL) 10/01/2017-9/30/2022
NSF ERC: "NSF Engineering Research Center for Cell Manufacturing Technologies (CMaT)"
The objective is to develop advances in cell manufacturing processes, standards, potency, safety and train workforce
Role: Co-PI; Primary Partner
No Overlap

1 R43 NS103596-01 (PI Webb) 10/01/2017-09/30/2018
NIH: "Human Neural Cell Exosomes as a Therapeutic Treatment for Stroke."
We will develop neural stem cell derived exosomes as a therapeutic for stoke
Role: Co-Investigator
No Overlap

CBET 0939511 (PI Kamm) 09/15/2010-8/31/2020
NSF: "STC: Emergent Behaviors of Integrated Cellular Systems"
The objective of this multi-investigator, multi-institutional research consortium is to engineer biological machines from integrated cellular systems.
Role: Project leader; Co-Investigator
No Overlap

Role: Co-Investigator
No Overlap

Completed

EP-D-13-056 (PI Stice SL) 12/27/2013-12/28/2018
EPA: "Developmental Toxicity Models"
Role: Primary Investigator
No Overlap

1 R43 ES026944-01 (PI Majumder) 05/01/2016-4/30/2018
NIH: "Cryopreserved Adherent Neural Cell Assay Plates"
We will develop cryopreserved neural cells in a 96 well format so they can be thawed and used by customers
Role: Co-Investigator
No Overlap

EP-D-13018 Phase II (PI Majumder) 09/01/2014-08/31/2018
EPA: “Developmental Neurotox Assay Using Scalable Neurons and Astrocytes in High-content Imaging.”
We will develop high content imaging neural systems using and produce cryopreservable astrocytes and establish a tunable neural and astrocytic co-culture system.

EPA- R835551-STAR-F1 (PI Stice) 09/1/2013-08/31/2017
EPA: “Human Neural Stem Cell Metabolomics, Cellular, and Organ Level Adverse Outcome Pathway Relationships for Endocrine Active Compounds.”
The major goal of this project was to determine the adverse outcome pathways in developing human neural stem cells after exposure to endocrine active compounds. Cellular, metabolomics and organ level effects were determined and adverse outcome pathways identified.
Role: Primary Investigator

1 R43 ES026944-01 (PI Majumder) 05/01/2016-04/30/2017
NIH: “Cryopreserved Adherent Neural Cell Assay Plates.”
We developed cryopreserved neural cells in a 96 well format so they could be thawed and used by customers.
Role: Co-Investigator

5R43NS080407-02 (PI Majumder) 09/2014-08/2016
NIH: “Adhesion Signature Based Label-free Isolation of Stem Cell Derived Neural Cells.”
We used label-free, microfluidic-based approach to efficiently isolate different cell populations based on their distinct ‘adhesive signature’ via controllable fluid forces.
Role: Co-Investigator

SECTION D: BIOGRAPHICAL SKETCHES

OMB No. 0925-0001 and 0925-0002 (Rev. 12/2020 Approved Through 02/28/2023)

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: Barany, Deborah A.

eRA COMMONS USER NAME (credential, e.g., agency login): dbarany

POSITION TITLE: Assistant Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Hamilton College, Clinton, NY	BA	05/2011	Neuroscience Mathematics
University of California, Santa Barbara, CA	MA	12/2013	Psychology
University of California, Santa Barbara, CA	PHD	05/2016	Dynamical Neuroscience
Emory University, Atlanta, GA	NIH training grant	07/2018	Neurology
University of Georgia, Athens, GA	Postdoctoral Fellow	07/2020	Kinesiology

A. Personal Statement

I am an Assistant Professor in the Department of Kinesiology at the University of Georgia (UGA). My research focuses on the neural mechanisms underlying goal-directed movement and how these mechanisms are altered in neurological disease. During my NSF graduate research fellowship, I used novel analyses of functional magnetic resonance imaging (fMRI) and kinematic data to dissociate neural representations for visually-guided movement. In subsequent postdoctoral work at Emory University, I investigated the neural organization for movements at different levels of demand and how this neural organization changes in patients with stroke affecting upper-extremity motor function. My postdoc was funded by the NIH T32 training grant in Translational Research in Neurology and the NIH Georgia StrokeNet Fellowship. In a second American Heart Association-funded postdoctoral fellowship at UGA in 2018, I developed innovative behavioral paradigms for studying rapid visuomotor control in healthy young and older adults. I started my current position at UGA in 2020, where I direct the Brain and Action Laboratory and co-direct the Neurostimulation Laboratory with Dr. Jing Xu. My current projects use a multimodal approach (behavior, neuroimaging, and non-invasive brain stimulation) to systematically explore how the brain flexibly transforms goals into motor-specific representations to guide action. Current collaborations at UGA extend this work to investigate the neural basis of motor impairments in different clinical populations, including children with cerebral palsy, adults recovering from stroke, and adults with mild traumatic brain injury.

Ongoing and recently completed projects that I would like to highlight include:

Oregon Health & Science University Medical Research Foundation
Barany (Collaborator)
07/01/22 – 06/30/23
Motor prediction under uncertainty in healthy aging

Department of Kinesiology Seed Grant, University of Georgia
Barany (PI)
01/01/22 - 12/31/22
Behavioral and neurophysiological comparison of cognitive control during reaching and jumping movement preparation

American Heart Association 18POST34060183
Barany (PI)
08/01/18-07/31/20
Abnormally High Activation in Motor Cortex after Stroke: Reorganization or Increased Motor Demand?

Citations:

1. *Gómez-Granados A, ***Barany DA**, Schrayer M, Kurtzer IL, Bonnet CT, Singh T. Age-related deficits in rapid visuomotor decision-making. J Neurophysiol. 2021 Nov 1;126(5):1592-1603. PubMed PMID: 34614375. **equal co-authorship*
2. **Barany DA**, Revill KP, Caliban A, Vernon I, Shukla A, Sathian K, Buetefisch CM. Primary motor cortical activity during unimanual movements with increasing demand on precision. J Neurophysiol. 2020 Sep 1;124(3):728-739. PubMed Central PMCID: PMC7509291.
3. **Barany DA**, Gómez-Granados A, Schrayer M, Cutts SA, Singh T. Perceptual decisions about object shape bias visuomotor coordination during rapid interception movements. J Neurophysiol. 2020 Jun 1;123(6):2235-2248. PubMed PMID: 32374224.
4. Revill KP, **Barany DA**, Vernon I, Rellick S, Caliban A, Tran J, Belagaje SR, Nahab F, Haut MW, Buetefisch CM. Evaluating the Abnormality of Bilateral Motor Cortex Activity in Subacute Stroke Patients Executing a Unimanual Motor Task with Increasing Demand on Precision. Front Neurol. 2022;13:836716. PubMed PMID: 35693005; PubMed Central PMCID: PMC9174784.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2021 -	Affiliate, Owens Institute for Behavioral Research, University of Georgia
2020 -	Assistant Professor, Department of Kinesiology, University of Georgia, Athens, GA
2020 -	Program Faculty, Division of Neuroscience, University of Georgia, Athens, GA
2020 -	Assistant Professor, AU/UGA Medical Partnership, Athens, GA
2020 -	Member, International Association of Medical Science Educators
2018 - 2020	Fellow, American Heart Association
2017 - 2018	Georgia NIH StrokeNet Fellow, Emory University, Atlanta, GA
2017 - 2017	Part-time Assistant Professor, Department of Educational Psychology, University of Georgia, Athens, GA
2016 -	Member, American Society of Neurorehabilitation
2016 - 2017	NIH T32 Postdoctoral Fellow in Translational Research in Neurology, Emory University, Atlanta, GA
2013 - 2014	Member, American Psychological Association
2012 -	Member, Society for Neuroscience
2011 -	Member, Sigma Xi Honor Society
2011 -	Member, Society for the Neural Control of Movement

Honors

2022	Interdisciplinary Grant Proposal Incentive Program Award, University of Georgia
2021	Training in Grantsmanship for Rehabilitation Research Award, American Society of Neurorehabilitation
2017	Best Poster Award, Emory University Postdoctoral Research Symposium, Atlanta, GA
2015	Affiliates Graduate Dissertation Fellowship, University of California, Santa Barbara
2014	Grants-in-Aid of Research, Sigma Xi Society
2014	Runner-up, Grad Slam Research Talk Competition, University of California, Santa Barbara
2012	Student Travel Award, American Psychological Association
2011	Milton H. Jannone Scholar-Athlete Award, Hamilton College, Clinton, NY
2011	Capital One Academic All-American Second Team, CoSIDA

2011 Elihu Root Fellowship for Graduate Study, Hamilton College, Clinton, NY
2011 Senior Prize in Neuroscience, Hamilton College, Clinton, NY
2010 Huntington Memorial Mathematical Scholarship, Hamilton College, Clinton, NY
2010 Phi Beta Kappa, Hamilton College, Clinton, NY
2010 Barry M. Goldwater Scholarship, Scholarship & Excellence in Education Foundation
2008 Charles A. Dana Prize Scholarship, Hamilton College, Clinton, NY

C. Contributions to Science

1. **Neural representations of goal-directed movement**

   Successful visually-guided movement requires accurately transforming visual information into motor commands, but it is unclear how different cortical regions contribute to this transformation. In a first-author publication as a graduate student with Dr. Scott Grafton, I used fMRI and a novel application of multivoxel pattern analysis to identify how features of simple wrist movements are represented. I reported an interaction between decoding of target location and movement direction in the superior parietal lobule, which may reflect an underlying transformation between the two features, and additionally provided new evidence that neural representations of hand posture are more widespread than previously thought. In both my own work and in collaboration with others, I applied representational similarity analysis to fMRI data to investigate (a) how cortical and cerebellar regions differentially encode sensorimotor memories and online motor planning during grasping, and (b) how primary motor cortex represents movement features at different levels of task demand on precision. Finally, I have extended this work (currently in preparation for publication) to investigate movement representations during continuous tracking. I found that different sensorimotor regions differentially encode the moment-to-moment changes in target location, movement direction, and movement goal.

   a. **Barany DA**, Revill KP, Caliban A, Vernon I, Shukla A, Sathian K, Buetefisch CM. Primary motor cortical activity during unimanual movements with increasing demand on precision. J Neurophysiol. 2020 Sep 1;124(3):728-739. PubMed Central PMCID: PMC7509291.
   b. Marneweck M, **Barany DA**, Santello M, Grafton ST. Neural Representations of Sensorimotor Memory- and Digit Position-Based Load Force Adjustments Before the Onset of Dexterous Object Manipulation. J Neurosci. 2018 May 16;38(20):4724-4737. PubMed Central PMCID: PMC6596020.
   c. **Barany DA**, Shapiro AD, Lee TG. Multivariate fMRI Approaches to Flexible Sensorimotor Maps in Parietal Cortex. J Neurosci. 2015 Aug 26;35(34):11763-5. PubMed Central PMCID: PMC6705456.
   d. **Barany DA**, Della-Maggiore V, Viswanathan S, Cieslak M, Grafton ST. Feature interactions enable decoding of sensorimotor transformations for goal-directed movement. J Neurosci. 2014 May 14;34(20):6860-73. PubMed Central PMCID: PMC4099499.

2. **Behavioral aspects of rapid visuomotor processing in health and in neurological disease**

   My behavioral work has focused on developing novel tasks to better understand the factors that determine how we plan and update movements in complex environments. As an undergraduate at Hamilton College under the supervision of Dr. Jonathan Vaughan, I helped design and analyze data for a 3D obstacle-avoidance task to extend Fitts's Law to movements around obstacles. The extension was mechanistically based on a model of motor control that assumes we move to goal postures, providing important implications for understanding how we effectively move around obstacles. I also contributed to the design and analysis on a subsequent publication that showed that the cost of moving with the non-dominant left hand (versus the dominant right) increased with task difficulty. As a postdoctoral researcher with Dr. Tarkeshwar Singh at the University of Georgia, I helped design a novel reaching and interception task to examine the role of ventral-dorsal stream interactions in rapid visuomotor decision-making. In a first-author publication, we found that differences in hand and eye movements during perceptual decision-making revealed evidence for altered integration of ventral and dorsal stream information based on the imposed (or perceived) task demands. In a follow-up study, we showed evidence of impaired ventral-dorsal stream interactions in older adults. Results from a study that extends this task paradigm to children with cerebral palsy was presented at the American Society of Neurorehabilitation annual meeting and is currently in preparation for publication.

a. *Gómez-Granados A, ***Barany DA**, Schrayer M, Kurtzer IL, Bonnet CT, Singh T. Age-related deficits in rapid visuomotor decision-making. J Neurophysiol. 2021 Nov 1;126(5):1592-1603. PubMed PMID: 34614375. **equal co-authorship*
b. **Barany DA**, Gómez-Granados A, Schrayer M, Cutts SA, Singh T. Perceptual decisions about object shape bias visuomotor coordination during rapid interception movements. J Neurophysiol. 2020 Jun 1;123(6):2235-2248. PubMed PMID: 32374224.
c. Vaughan J, **Barany D**A, Rios T. The cost of moving with the left hand. Exp Brain Res. 2012 Jul;220(1):11-22. PubMed PMID: 22623090.
d. Vaughan J, **Barany DA**, Sali AW, Jax SA, Rosenbaum DA. Extending Fitts' Law to three-dimensional obstacle-avoidance movements: support for the posture-based motion planning model. Exp Brain Res. 2010 Nov;207(1-2):133-8. PubMed PMID: 20931178.

3. **Cortical reorganization after brain injury**

After stroke, neural activity in the motor cortex ipsilateral to the affected side increases. This increase is often attributed to neural reorganization processes related to recovery, but other evidence suggests the increase is due to increased motor demand. To disentangle these two hypotheses, I worked as part of a team during my postdoctoral fellowship at Emory University under advisors Drs. Cathrin Buetefisch and Krish Sathian to measure fMRI activity in stroke patients while they performed a task that varied the task demand on precision. Our results, recently published in *Frontiers in Neurology*, showed that while stroke patients have demand-dependent activity in contralateral motor cortex that mirrors that of healthy adults, activity in ipsilateral motor cortex did not vary with demand, suggesting unique organizational changes during post-stroke recovery. Additionally, I was co-first-author on a review paper that establishes the utility of using rodent models to inform non-invasive brain stimulation approaches for facilitating recovery of reach-to-grasp function after stroke and traumatic brain injury.

a. Revill KP, **Barany DA**, Vernon I, Rellick S, Caliban A, Tran J, Belagaje SR, Nahab F, Haut MW, Buetefisch CM. Evaluating the Abnormality of Bilateral Motor Cortex Activity in Subacute Stroke Patients Executing a Unimanual Motor Task with Increasing Demand on Precision. Front Neurol. 2022;13:836716. PubMed PMID: 35693005; PubMed Central PMCID: PMC9174784.
b. *Latchoumane CV, ***Barany DA**, Karumbaiah L, Singh T. Neurostimulation and Reach-to-Grasp Function Recovery Following Acquired Brain Injury: Insight from Pre-clinical Rodent Models and Human Applications. Front Neurol. 2020;11:835. PubMed Central PMCID: PMC7396659. **equal co-authorship*

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/deborah.barany.1/bibliography/public/

Brett A. Clementz, Ph.D.
Psychology Department, Psychology Building
University of Georgia
Athens, Georgia 30602-3013
Department: (706) 542-2174; FAX: (706) 542-3275
email: clementz@uga.edu
(Updated 19 September 2022)

Every effort has been made to ensure this document's accuracy

EDUCATION

5/82	Bachelor of Arts, Butler University, Indianapolis, Indiana. Major: Psychology (Cum laude)
12/85	Master of Arts, Kent State University, Kent, Ohio. Major: Clinical Psychology. Thesis: "The effects of false heart rate feedback on different measures of aggression." Advisor: Richard Hirschman, DMD, PhD
8/89	Doctor of Philosophy, Kent State University, Kent, Ohio. Major: Clinical Psychology. Dissertation: "Pursuit eye movement dysfunction as a biological marker for schizophrenia." Advisors: Michael Hirt, PhD, John A. Sweeney, PhD

ACADEMIC POSITIONS

7/91-6/94	Assistant Professor of Psychology, University of California, San Diego, La Jolla, CA
7/94-6/00	Associate Professor of Psychology, University of California, San Diego, La Jolla, CA
4/00-7/00	Guest Professor, University of Konstanz, Konstanz, Germany
7/00-7/02	Professor of Psychology, University of California, San Diego, La Jolla, CA
7/02-pres	Professor of Psychology and Neuroscience, University of Georgia, Athens, GA
6/10-5/13	Zukunftskolleg Fellow, University of Konstanz, Konstanz Germany
7/18-pres	Distinguished Research Professor, University of Georgia, Athens GA
7/18-pres	Director, BioImaging Research Center, University of Georgia, Athens GA

GRANT SUPPORT

Completed

1/92-6/92	UCSD Academic Senate Grant RR182-G ($4835). "Liability for schizophrenia." (PI)
7/92-6/93	UCSD Academic Senate Grant RS143-G ($5040). "Liability for schizophrenia." (PI)
9/92-8/95	NIH R03 MH49906 ($98,571). "Psychophysiology and liability for schizophrenia." (PI)
9/93-6/98	NIH R29 MH51129 ($285,270). "Ocular motor and neuroanatomic studies of schizophrenia." (PI)
7/95-6/96	Tourette Syndrome Association Permanent Research Fund, Inc. ($23,543). "Saccadic system functioning in Tourette Syndrome." (PI)
5/96-6/97	UCSD Academic Senate Grant RV230-G ($5380) "Genetic linkage studies of schizophrenia." (PI)
10/97-9/00	Veterans Administration Merit Review Grant ($300,000) "Mapping genes for information processing in schizophrenia." (Co-Investigator; John Kelsoe, M.D., PI)
12/98-11/04	NIH R01 MH51129 ($510,180) "Ocular motor and neuroanatomic studies of schizophrenia." (PI)
4/00-4/04	NIH R01 57886 ($301,406) "MEG studies of P50 suppression in schizophrenia." (PI)

9/00-8/04 NARSAD ($97,552) "Genetic study of schizophrenia among multiplex families from Palau, Micronesia." (PI)

1/04-6/04 UGA Gerontology Center Pilot Project Award ($5000). "MEG Study of auditory processing in aging." (PI)

2/06-6/06 UGA Gerontology Center Pilot Project Award ($2000). "MEG Study of auditory processing in aging." (PI)

7/06-10/08 Institute for Research on Gambling and Related Disorders ($145,294) "The cognitive neuroscience of control and decision making in problem gambling." (PI)

2/05-9/09 NIH R01 MH57886 ($600,000) "MEG studies of P50 suppression in schizophrenia." (PI)

5/12-5/13 NIH 3R01 MH077851-04S1 ($220,962 total cost; $43,483 is UGA share) "Bipolar and schizophrenia consortium for parsing intermediate phenotypes" (UGA PI; Project PI is Pearlson at Yale University)

8/09-5/14 NIH R01 MH085485 ($290,627 total annual cost) "Neural mechanisms for antisaccade errors among schizophrenia families" (PI)

2/11-1/16 NIH R01 ($74,250 total annual cost) "4/4-Psychosis and Affective Research Domains and Intermediate Phenotypes (PARDIP)" (PI)

8/13-7/16 NIH R01 MH094172 ($361,550 total annual cost) "Neural noise and Cognitive Control in Schizophrenia" (PI)

6/17-5/19 NIH R21 MH112925 (417,456 total cost) "Modeling anhedonia in schizophrenia: a stochastic dynamic systems approach" (PI: Strauss) (Co-Investigator)

8/15-4/21 NIH R01 MH094172 ($674,217 total annual cost) "5/5 Bipolar-Schizophrenia Network for Intermediate Phenotypes (B-SNIP)" (PI)

6/17-4/21 NIH R01 MH094172-S1 ($501,738 total cost) "5/5 Bipolar-Schizophrenia Network for Intermediate Phenotypes (B-SNIP)" - Longitudinal Supplement" (PI)

6/17-4/21 NIH R01 MH094172-S2 ($160,000 total cost) "5/5: Bipolar-Schizophrenia Network for Intermediate Phenotypes (B-SNIP)" – MEG Supplement" (PI)

6/17-5/22 NIH R01 MH11808992-S1 ($101,827 total annual cost) "Characterizing cognition across the lifespan in untreated psychosis in China" (PIs: Yang, Phillips, Seidman, New York University) (UGA PI)

12/20-6/22 Georgia Research Alliance Venture Development Fund ($50,000 total cost). "B-SNIP Diagnostics" (PI).

7/20-7/22 diaMentis Inc. (contract) (192,309 total cost) "Assessment of ERG components to discriminate between schizophrenia and bipolar type 1" (PI)

Active

8/04-7/25 Franklin Foundation Award to Bio-Imaging Research Center ($50,000 total annual cost). Private foundation award. (Co-Awardee with Jennifer McDowell, PhD. L. Steven Miller, PhD)

7/21-6/23 NIH R01 MH124806 (490,750 Total Cost) "1/2: B-SNIP: Algorithmic Diagnostics for Efficient Prescription of Treatments (ADEPT) (PI)

2/21-1/26 NIH R01 MH124803 ($900,000 Total Direct Cost) "5/5: Selective Antipsychotic Response to Clozapine in B-SNIP Biotype-1 (CLOZAPINE)" (PI)

7/21-10/22 OIBR Seed grant ($9900 Total Cost) (PI)

1/22-12/23 NIH R21 MH126398 ($275,000 Total Direct Cost) “Identification of distributed neural sources of the auditory steady state response in psychosis Biotypes” (PI)

3/20-12/24 NIH R01 (96’925 Total Cost) “Computational modeling-informed reward subgroups in adolescent ADHD” (co-PI)

7/20-6/25 NIH P50 (9,990,720 Total Cost). “Neuroscience, immunology, social adversity and the roots of addictive behaviors: Toward a new framework for drug use etiology and prevention.” (Co-I), Brody PI.

9/22-8/27 NIH R01 (1,359,000 Total Cost) “5/5 – “Biomarkers/Biotypes, Course of Early Psychosis and Specialty Services (BICEPS)” (PI)

Under Review

Submitted NIH R21 ($275,000 Total Direct Cost) “Sensory Target Engagement for Psychosis B-SNIP Biotype-1 (STEP-1)” (PI)

CLINICAL TRAINING

3/81-3/82 New Hope Foundation of Indiana, Indianapolis, Indiana. Developmental Skills Technician.

5/83-6/84 Psychology Department, Kent State University, Kent, Ohio. Clinical Practicum.

3/84-6/85 Mental Health Center of Eastern Stark County, Alliance, Ohio. Psychology Traineeship.

7/85-6/86 Akron Child Guidance Center, Barberton, Ohio. Psychology Traineeship.

7/86-6/88 New York Hospital Cornell University Medical College. Fellow of Psychology in Psychiatry, Payne Whitney Clinic.

7/88-6/89 New York Hospital Cornell University Medical College. Senior Psychology Fellow, Payne Whitney Clinic.

RESEARCH TRAINING

8/82-5/84 Psychology Department, Kent State University, Kent, Ohio. Research Assistantship.

7/87-6/89 New York Hospital-Cornell University Medical College. Predoctoral Fellowship.

8/89-7/91 Department of Psychology, University of Minnesota. Post-doctoral Fellowship in Behavioral Genetics (USPHS Training Grant, Institutional NRSA #AG00143)

TEACHING EXPERIENCE

9/89-12/89 Lecturer in Psychology, Department of Psychology, Continuing Education and Extension, University of Minnesota.

Undergraduate Course: Psychology and Living.

9/91-7/02 Assistant to Full Professor of Psychology, University of California, San Diego.

Undergraduate courses: Abnormal Psychology; Advanced Abnormal Psychology; Introduction to Statistics.

Graduate courses: Selected Topics in Psychopathology; Biopsychology Proseminar; Introduction to Experimental Psychopathology; Evaluating Scientific Hypotheses in Psychology.

7/02-pres Full Professor, University of Georgia

Undergraduate courses: How the Brain Does Various Things, Cognitive Neuroscience, EEG and MEG Research in Psychology, Neurological Patient HM.

Graduate courses: History of Psychology, Cognitive Neuroscience, EEG and MEG Research in Psychology, Neurological Patient HM, B-SNIP Research Seminar, Evaluating Scientific Hypotheses in Psychology

AWARDS AND HONORS

1981 Edgar Yeager Award, presented to the outstanding student in psychology, Butler University, Indianapolis, Indiana

1982 Sigma Xi Inductee, Butler University, Indianapolis, Indiana

1989 Young Investigator Award, 2nd International Congress on Schizophrenia Research, San Diego, California

1997 Distinguished Scientific Award for an Early Career Contribution (Society for Psychophysiological Research)

2001 Essel Investigator, National Alliance for Research on Schizophrenia and Depression

2010 Zukunftkolleg Fellow, University of Konstanz, Konstanz Germany

2014 Graduate Teaching Award, University of Georgia Psi Chi, Athens GA

2015 Clinical Plenary Lecture, International Congress on Schizophrenia Research, Colorado Springs, CO

PROFESSIONAL ACTIVITIES

Licensed Psychologist:

1992-2001 State of California, #PSY 13092 (Inactive)

Memberships in Professional Organizations:

1989-2006 American Psychological Society
1994-present Society of Biological Psychiatry
1996-present Society for Neuroscience
1990-present Society for Psychophysiological Research
2002-2005 Cognitive Neuroscience Society
2006-2008 Organization for Human Brain Mapping

Reviewed for:

American Journal of Psychiatry; Archives of General Psychiatry; Biological Psychiatry*; Biological Psychology; Bipolar Disorders; Brain; Brain Imaging and Behavior; British Journal of Psychiatry; Cerebral Cortex; Cognitive and Behavioral Neurology; Contemporary Psychology; European Archives of Psychiatry and Clinical Neuroscience; European Journal of Neuroscience, Experimental Brain Research; Frontiers in Human Neuroscience; Harvard Review of Psychiatry*; International Journal of Psychophysiology; Journal of Abnormal Psychology; Journal of Neurophysiology*; Journal of Neuroscience*; Methods in Psychiatric Research; NeuroImage; Psychiatry Research; Psychological Assessment: A Journal of Consulting and Clinical Psychology; Psychological Bulletin; Psychological Methods; Psychonomic Bulletin & Review; Psychopharmacology; Psychophysiology*; Science; Schizophrenia Bulletin*; Schizophrenia Research*.

2002-2009 Editorial Board, International Journal of Psychophysiology
2009-present Reviewing Editor, Frontiers in Human Neuroscience
2010-2017 Associate Editor, Psychophysiology
2018-present Associate Editor, Biomarkers in Neuropsychiatry

Committees:

University:

7/96-6/97 Ad hoc tenure review committee
2003-04 UGA Research Office Grant Review Committee
2018-pres UGA DISTINGUISHED RESEARCH PROFESSOR REVIEW COMMITTEE
2020-pres Franklin College Professorship Awards Committee

Departmental:

7/92-6/94 Colloquium Committee (Chair)
7/94-6/97 Graduate Affairs Committee
7/94-6/96 Colloquium Committee (Distinguished Lecturer Series)
7/94-6/95 Ad hoc Tenure Review Committee
7/94-6/95 Biopsychology Faculty Search Committee
7/95-6/96 Ad hoc Tenure Review Committee

7/96-6/97	Ad hoc Tenure Review Committee
7/96-6/97	Biopsychology Faculty Search Committee (Chair)
7/98-6/99	Biopsychology Faculty Search Committee (Chair)
7/98/6/99	Ad hoc Merit Review Committee
7/00/6/01	Ad hoc Tenure Review Committee
8/02-7/05	Long Range Planning Committee
9/3-4/04	Cognitive Neuroscience Faculty Search Committee (Chair)
8/04	Interim Department Head Search Committee (Chair)
Spring 07	Department of Neuroscience Graduate Admissions Committee
8/07-7/08	Personnel Committee
Spring 08	Bio-Imaging Research Center Faculty Search Committee
8/09-7/12	Long Range Planning Committee

Other:

10/92	Tursky Award Committee (for outstanding graduate student poster), 32nd annual meeting of the Society for Psychophysiological Research, San Diego, California.
3/95	Ad hoc reviewer, PHS Child Psychopathology and Treatment Review Committee.
4/95	Ad hoc Reviewer, PHS B/Start.
96-99	Society for Psychophysiological Research, By-Laws Committee
96-98	Society for Psychophysiological Research, Program Committee
8/96	VA Merit Review (Ad Hoc Reviewer)
11/97	British Columbia Health Research Foundation (Ad Hoc Reviewer)
4/98	PHS, B/Start (Ad Hoc Reviewer)
11/98	KU Medical Center Research Institute, Reviewer for faculty research proposal.
03/00	PHS, B/Start (Ad Hoc Reviewer)
03/01	VA Merit Review (Ad Hoc Reviewer)
03/01	Wellcome Trust Grant (Ad Hoc Reviewer)
09/02	PHS, B/Start (Ad Hoc Reviewer)
04/03-04/04	Reviewer for Conte Center Grants (NIH)
09/03-06/06	VA Merit Review Subcommittee for Mental health and Behavioral Sciences (Member)
3/05	NIH Imaging and Mood Disorders II (Ad Hoc Reviewer)
10/04-06/06	NIH, Neural Basis of Psychopathology, Addictions and Sleep Disorders Study Section (Temporary Member)
07/06-06/10	NIH Neural Basis of Psychopathology, Addictions, and Sleep Disorders Study Section (Member)
11/10-11/11	T32 Review Panel
02/11	NASA Crew Health Neurocognitive Performance Panel.
02/11	NIH Neural Basis of Psychopathology, Addictions, and Sleep Disorders Study Section (Temporary Member)
6/11	National Center for Responsible Gambling, Seed Grant Review Panel
10/11	National Center for Responsible Gambling, Large Grant Review Panel
3/12	NIMH Special Emphasis Panel
6/12	CSR Grant Review Panel (Temporary Member)
11/12	T32 Review Panel
1/13	CNNT Review Panel (Temporary Member)
3/13	Collaborative R01 for Clinical Services, Cognitive Neuroscience and Schizophrenia Panel
1/14	NPAS Review (Temporary Member)
6/14	ITVA Temporary Member
10/14	T32 Review Panel
3/15	BBBP Temporary member
11/15	ERB-M Special Emphasis panel
2/16	RDoC Special Emphasis Panel
6/16	K99/R00 Special Emphasis Panel
9/19	NPAS CSR Review Committee
10/20	NPAS CSR Review Committee

STUDENT SUPERVISION

Undergraduate (Major Professor Only Listed):

- **Reid, Stephanie (1992).** "Ocular motor functioning of patients with schizotypal personality disorder and the first-degree biological relatives of schizophrenics." (Honors Thesis, University of California, San Diego)

- **Hartley, Nichole (1992).** "Violence against women." (Academic Internship Program, University of California, San Diego)
- **Kremer, Stephanie (1992).** "The Wisconsin Card Sorting Test: A test of frontal lobe deficits in schizophrenia." (Academic Internship Program, University of California, San Diego)
- **Goff, Arleen B. (1993).** "A mathematical analysis of the main sequence for volitional saccades." (Honors Thesis, University of California, San Diego)
- **Lam, Mona N. (1993).** "Saccadic eye movement dysfunction in obsessive-compulsive disorder." (Honors Thesis, University of California, San Diego)
- **Palitz, Jeff (1993).** "Adolescent depression and interpersonal development." (Academic Internship Program, University of California, San Diego)
- **Rogosin, Jennifer (1993).** "CPT task difficulty: The key to measuring sustained attention." (Honors Thesis, University of California, San Diego)
- **Spence, John T. (1993).** "The effect of nicotine on ocular motor performance." (Honors Thesis, University of California, San Diego)
- **Gottlieb, Marc R. (1994).** "Ability to produce short reaction time saccades as a function of gap interval among schizophrenia patients." (Honors Thesis, University of California, San Diego)
- **Larsen, Jeff T. (1995).** "The heritability of ocular motor functioning: a twin study." (Honors Thesis, University of California, San Diego)
- **Leon, Scott C. (1995).** "Using saccade metrics to assess inhibitory functioning among schizophrenics on the antisaccade task." (Honors Thesis, University of California, San Diego)
- **Stewart, Jennifer (1998).** "P50 suppression among bipolar disorder and schizophrenia patients." (Honors Thesis, University of California, San Diego)
- **Barber, Stefanie (2000).** "Effect of stimulus expectancies on auditory evoked response suppression." (Honors Thesis, University of California, San Diego)
- **Dzau, Jacqueline (2001).** “MEG study of auditory evoked responses suppression to monaural stimuli in schizophrenia.” (Honors Thesis, University of California, San Diego)
- **Brahmbhatt, Shefali (2002).** “Neural correlates of visuospatial attention and saccadic behavior as revealed by EEG.” (Honors Thesis, University of California, San Diego)
- **Trotti, Rebekah (2016).** “Emotional modulation of the late positive potential.” (Honors Thesis, University of Georgia)
- **Rogers, Megan (2017).** “Determining the relationship between subjective experience and neurological response using the International Affective Picture System.” (Honors Thesis, University of Georgia)
- **Schneider, Zoe (2017).** “Investigation of the visual steady-state response in schizophrenia, schizoaffective, and psychotic and nonpsychotic bipolar disorders.” (Honors Thesis, University of Georgia)

Graduate (Major Professor Only Listed):

- **McDowell, Jennifer E. (1992).** "Reflexive, predictive, and anti-saccades in schizophrenia." (First Year Research Project and Masters Thesis, Department of Psychology, University of California, San Diego)
- **Farber, Robert H. (1994).** "Visually-guided and predictive saccades in obsessive-compulsive disorder." (First Year Research Project and Masters Thesis, Department of Psychology, University of California, San Diego)
- **Taffe, Michael (1995).** "The contribution of cholinergic and dopaminergic systems to delayed response and selective attention in the macaque." (Co-Chair, Dissertation Defense, Department of Psychology, University of California, San Diego)
- **Krebs, Kirstin (1996).** "Multiple Serotonin Receptor Influences in the Behavioral Effects of Hallucinogens in Rats: The Role of 5-HT1A and 5-HT2 Receptors." (Co-Chair, Dissertation Defense, Department of Psychology, University of California, San Diego)
- **McDowell, Jennifer E. (1996).** "Studies of saccadic system functioning in schizophrenia." (Dissertation Defense, Department of Psychology, University of California, San Diego)
- **Blumenfeld, Laura D. (1997).** "The gamma band response may account for poor P50 suppression in schizophrenia." (First Year Research Project and Masters Thesis, Department of Psychology, University of California, San Diego)
- **Farber, Robert H. (1998).** "Ocular motor system functioning in obsessive-compulsive disorder and Tourette Syndrome." (Dissertation Defense, Department of Psychology, University of California, San Diego)
- **Galuhn, Anthony (1999).** "Single trial analysis of cortical activity in response to saccades using functional magnetic resonance imaging." (First Year Research Project and Masters Thesis, Department of Psychology, University of California, San Diego)
- **Blumenfeld, Laura D. (2001). “**Auditory evoked response suppression in schizophrenia.” (Dissertation Defense, Department of Psychology, University of California, San Diego).
- **Dzau, Jacqueline (2002).** “Effects of Binaural and Monaural Presentation of Pure Tone Stimuli on Auditory Evoked Responses.” (Masters Thesis, University of California, San Diego)

- **Gilmore, Casey (2003).** "Stimulus sequence effects on P300 in schizophrena." (First Year Research Project, University of Georgia)
- **Brigham, Timothy (2003).** "Neural substrates of prospective memory." (First Year Research Project, University of Georgia)
- **Gao, Yuan (2004).** "Evaluation of inhibition during anti-saccade performance using SSVEPs" (First Year Research Project, University of Georgia)
- **Brigham, Timothy (2005).** "Neural substrates of prospective memory." (Master's Thesis in Psychology, University of Georgia)
- **Gao, Yuan (2006).** "Normal aging associated functional alterations in auditory sensory and working memory processing." (Master's Thesis in Psychology, University of Georgia)
- **Gilmore, Casey (2007).** "Is faster always better? Rate of stimulation affects auditory evoked responses in schizophrenia." (Doctoral Dissertation in Psychology, University of Georgia)
- **Wang, Frank (2007).** "Neural correlates of selective attention when viewing spatially overlapping objects." (Master's Thesis in Psychology, University of Georgia)
- **Gao, Yuan (2008).** "A cross-sectional study of normal aging-associated working memory differences." (Doctoral Dissertation in Psychology, University of Georgia)
- **Wang, Jun (2008).** "A specific relationship between motion processing and neural activity deficits in schizophrenia." (Doctoral Dissertation in Psychology, University of Georgia)
- **Hamm, Jordan (2009).** "Schizophrenia patients have abnormal transient and entrained neural responses to increasing stimulus density in auditory cortex." (Master's Thesis in Neuroscience, University of Georgia)
- **Ethridge, Lauren (2011).** "Intrinsic and evoked oscillatory brain activity as potential endophenotypes for schizophrenia and psychotic disorders." (Doctoral Dissertation in Neuroscience, University of Georgia)
- **Knight, Justin (2012). "**On the dynamic role of attention in event-based prospective memory." (Doctoral Dissertation in Psychology, University of Georgia)
- **Hamm, Jordan (2013).** "Understanding psychotic pathophysiology with transient, sustained, and oscillatory auditory neural response abnormalities." (Doctoral Dissertation in Neuroscience, University of Georgia)
- **Bobilev, Anastasia (2016).** Neuroanatomical and sensory processing abnormalities in Aniridia: PAX6 mutations and their implications in the brain (Co-Chair with Lauderdale, Doctoral Dissertaion, University of Georgia).
- **Hudgens-Haney, Matthew (2017).** Preparatory modulation of intrinsic neural activity among psychotic illnesses. (Doctoral Dissertation in Neuroscience, University of Georgia

BIBLIOGRAPHY

Book reviews:

1. **Clementz BA**. Integrating research approaches of psychopathology. A review of *The Physiology of Psychological Disorders: Schizophrenia, Depression, Anxiety, and Substance Abuse* (1990), by James G. Hollandsworth, Jr., 318 pp. New York: Plenum. *Contemporary Psychology* 1991; 36; 883-884.
2. **Clementz BA**. Psychophysiology: The integration and mastery of a complex discipline. A review of *Principles of Psychophysiology: Physical, Social, and Inferential Elements* (1990), by John T. Cacioppo and Louis G. Tassinary (Eds.), 914 pp. Cambridge: Cambridge University Press. *Contemporary Psychology* 1992; 37: 197-198.
3. **Clementz BA**. Schizophrenia and the brain: The (gradually) unfolding story. A review of *Schizophrenia Research* (1991) (Advances in neuropsychiatry and psychopharmacology; v. 1), by Carol A. Tamminga and S. Charles Schulz (Eds.), 373 pp. New York: Raven Press. *Contemporary Psychology* 1993; 38: 39-40.

Paper presentations and colloquia (talks are *underlined and italicized*):

1. Wildman BG, **Clementz BA**. Assertive, empathic assertive, and conversational behavior: Perception of likability, effectiveness, and sex-role. Paper presented at the Midwestern Psychological Association annual meetings, Chicago, IL, 1984.
2. Rea MR, Sweeney JA, **Clementz BA**, Deck M, Mann JJ, Frances A. Saccades during visual fixation in schizophrenia. Presented at the American Psychiatric Association annual meetings, Montreal, CAN, 1988.
3. Sweeney JA, Shear MK, Halper J, **Clementz BA**, De Meo M, Walsh V. Eye tracking in obsessive compulsive disorder. Presented at the American Psychiatric Association annual meetings, Montreal, CAN, 1988.
4. **Clementz BA**, Sweeney JA, Haas G. Eye movement abnormalities and schizotypy in family members of probands with schizophrenia. Presented at the 2nd International Congress on Schizophrenia Research, San Diego, CA, 1989.
5. Sweeney JA, **Clementz BA**, Hill J, Solomon C, Weiden P, Frances A. Eye movement abnormalities in schizophrenia. Paper presented at the 2nd International Congress on Schizophrenia Research, San Diego, CA, 1989.
6. **Clementz BA**, Sweeney JA, Weiden P, Frances A, Mann JJ. Eye movement dysfunction and schizotypy in first-degree relatives of probands with schizophrenia. Paper presented at the 44th annual meeting of the Society of Biological Psychiatry, San Francisco, CA, 1989.
7. Sweeney JA, Haas G, **Clementz BA**, Weiden P, Frances A, Mann JJ. Eye movement abnormalities in schizophrenia. Paper presented at the 44th annual meeting of the Society of Biological Psychiatry, San Francisco, CA, 1989.

8. **Clementz BA**, Grove WM, Iacono WG, Sweeney JA, McGuire K. Eye movement dysfunction (EMD) and schizotypy: Familial correlations in relatives of affected probands. Paper presented at the 20th annual meeting of the Behavior Genetics Association, Modane, FRA, 1990.
9. ***Clementz BA,*** *Grove WM. Oculomotor dysfunction and liability for schizophrenia. Paper presented as part of a symposium entitled: "What can the study of oculomotor dysfunction tell us about schizophrenia?" (W.G. Iacono, Chair), 30th annual meeting of the Society for Psychophysiological Research, Boston, MA, 1990.*
10. Gooding DC, **Clementz BA**, Sweeney JA, Iacono WG. Methods for assessing tracking proficiency: A comparative analysis. Paper presented at the 30th annual meeting of the Society for Psychophysiological Research, Boston, MA, 1990.
11. **Clementz BA**, Grove WM, Katsanis J, Iacono WG. Perceptual aberration and physical anhedonia in schizophrenics' relatives. Paper presented at the 5th annual meeting of the Society for Research in Psychopathology, Boulder, CO, 1990.
12. **Clementz BA**, Ficken J, Iacono WG, Beiser M. A family study of nailfold capillary visibility in psychotic disorders. Paper presented at the 5th annual meeting of the Society for Research in Psychopathology, Boulder, CO, 1990.
13. Grove WM, **Clementz BA**, Iacono WG, Katsanis J. A segregation analysis of smooth pursuit eye movement dysfunction in the families of schizophrenics. Paper presented at the 21st annual meeting of the Behavior Genetics Association, St. Louis, M), 1991.
14. **Clementz BA**, Sponheim S, Iacono WG. Resting EEG in chronic schizophrenia. Paper presented at the 31st annual meeting of the Society for Psychophysiological Research, Chicago, IL, 1991.
15. **Clementz BA**, Iacono WG, Sponheim S, Ficken J. Multivariate psychophysiological assessment of schizophrenia. Paper presented at the 6th annual meeting of the Society for Research in Psychopathology, Cambridge, MA, 1991.
16. Renk KF, **Clementz BA**, Iacono WG, Grove WM, Hanson D. Antisaccade movements and frontal lobe functioning in schizophrenics. Paper presented at the 6th annual meeting of the Society for Research in Psychopathology, Cambridge, MA, 1991.
17. Grove WM, **Clementz BA**, Iacono WG. A segregation analysis of ocular motor dysfunction in schizophrenia: Evidence for a major gene. Paper presented at the American Psychopathological Association, New York, NY, 1992.
18. Iacono WG, Grove WM, **Clementz BA**. Evidence for a major gene influencing smooth pursuit dysfunction in schizophrenia. Paper presented at the Association for Research in Vision and Ophthalmology, Sarasota, FL, 1992.
19. ***Clementz BA.*** *Ocular motor functioning and the genetics of schizophrenia. Invited colloquium for the Summer Research Program at the University of California, San Diego, San Diego CA, 1992.*
20. Lund TR, Iacono WG, Sponheim SR, **Clementz BA**. The internal consistency reliability of resting EEG in normal controls and schizophrenic patients. Paper presented at the 32nd annual meeting of the Society for Psychophysiological Research, San Diego CA, 1992.
21. **Clementz BA**, Sponheim SR, Iacono WG, Beiser M. Resting EEG in first-episode psychosis. Paper presentated at the 32nd annual meeting of the Society for Psychophysiological Research, San Diego CA, 1992.
22. Sponheim SR, **Clementz BA**, Iacono WG. EEG abnormalities in first-episode and chronic schizophrenia. Paper presented at the 32nd annual meeting of the Society for Psychophysiological Research, San Diego CA, 1992.
23. McDowell JE, **Clementz BA**, Jernigan TL Reflexive, predictive, and anti-saccades in schizophrenia. Paper presented at the 7th annual meeting of the Society for Research in Psychopatholo*gy*, Palm Springs CA, 1992.
24. **Clementz BA**, Iacono WG, Beiser M. Symptoms diagnostic of schizophrenia: Discriminant analysis with external validation. Paper presented at the 7th annual meeting of the Society for Research in Psychopatholo*gy*, Palm Springs CA, 1992.
25. **Clementz BA**, McDowell JE, Jernigan TL, Braff DL. Saccadic abnormalities among schizophrenics, their first-degree biological relatives, and relationship to structural brain imaging. Paper presented at the Fourth International Congress on Schizophrenia Research, Colorado Springs CO, 1993.
26. ***Clementz BA.*** *Ocular motor abnormalities in schizophrenia: Implications for neuropathology. Invited colloquium presented at the UCSD Psychiatric Outpatient Clinic, San Diego CA, 1992.*
27. Sponheim SR, **Clementz BA**, Iacono WG. Brain morphology correlates of the electroencephalogram in schizophrenia. Paper presented at the 8th annual meeting of the Society for Research in Psychopathology, Chicago IL, 1993.
28. **Clementz BA**, McDowell JE, Lam MN, Swerdlow NR, Braff DL. Antisaccades in schizophrenia, obsessive-compulsive disorder, and nonpsychiatric subjects. Paper presented at the 32nd annual meeting of the American College of Neuropsychopharmacology, Honolulu HI, 1993.
29. ***Clementz BA.*** *Eye movement abnormalities as a biological marker for schizophrenia. Invited colloquium presented at the First Annual California State University-San Marcos Psychology Student Research Fair, San Marcos CA, 1994.*
30. McDowell JE, **Clementz BA**, Braff DL. Timing and amplitude during predictive saccadic tracking in schizophrenia. Paper presented at the 49th annual meeting of the Society for Biological Psychiatry, Philadelphia PA, 1994.
31. **Clementz BA**, Lam ML, Swerdlow NR. Smooth pursuit eye movements and predictive saccades in patients with obsessive-compulsive disorder. Paper presented at the 49th annual meeting of the Society for Biological Psychiatry, Philadelphia PA, 1994.
32. Braff DL, **Clementz BA**, Geyer MA. Sensory gating and schizophrenia: Critical methodological issues. Paper presented at the 49th annual meeting of the Society for Biological Psychiatry, Philadelphia PA, 1994.

33. Cadenhead KS, **Clementz BA**, McDowell JE, Braff DL. Visual backward masking as a phenotypic marker in schizophrenic spectrum individuals. Paper presented at the 49th annual meeting of the Society for Biological Psychiatry, Philadelphia PA, 1994.
34. **Clementz BA**, Gottlieb MR. The ability to produce short-reaction time saccades as a function of gap interval among schizophrenia patients. Paper presented at the Fifth International Congress on Schizophrenia Research, Warm Springs VA, 1995.
35. **Clementz BA**, Chesak C, Stearns SM, McDowell JE. Saccadic and smooth pursuit responses to visual motion among schizophrenia patients. Paper presented at the Fifth International Congress on Schizophrenia Research, Warm, Springs VA, 1995.
36. McDowell JE, Farber RH, **Clementz BA**. Memory-guided saccade performance among schizophrenia and obsessive-compulsive disorder patients. Paper presented at the Fifth International Congress on Schizophrenia Research, Warm Springs VA, 1995.
37. Larsen JT, **Clementz BA**. Antisaccade performance among monozygotic and dizygotic twins. Paper presented at the annual meeting of the West Coast College of Biological Psychiatry, San Diego CA, 1995.
38. **Clementz BA**, Schatz A. Sustained attention as measured by the continuous performance test in schizophrenia patients, their relatives, and nonpsychiatric subjects. A paper presented at the annual meeting of the West Coast College of Biological Psychiatry, San Diego CA, 1995.
39. Farber RH, **Clementz BA**. Smooth pursuit performance among obsessive-compulsive disorder patients. A paper presented at the annual meeting of the West Coast College of Biological Psychiatry, San Diego CA, 1995.
40. Braff DL, **Clementz BA**, Geyer MA. P50 ERP suppression (gating) and habituation deficits in schizophrenia. Paper presented at the 50th annual meeting of the Society for Biological Psychiatry, Miami FL, 1995.
41. Farber RH, **Clementz BA**, Swerdlow NR, Lehmann-Masten VD. Saccadic inhibition among Tourette syndrome patients. Paper presented at the 26th Annual Meeting of the Society for Neuroscience, Washington DC, 1996.
42. ***Clementz BA,*** *McDowell JE. Eye movement abnormalities as indicators of schizophrenia risk. Paper presented at Park City Molecular Psychiatry Conference, Park City UT, 1997.*
43. **Clementz, BA**, Geyer MA, Braff DL. P50 suppression deficits among the relatives of schizophrenia patients. Paper presented at the Biennial Meeting of the International Congress on Schizophrenia Research, Colorado Springs CO, 1997.
44. McDowell JE, Blumenfeld LD, **Clementz BA**. Fast reaction time predictive saccades among schizophrenia patients may be consistent with a failure of inhibition. Paper presented at the Biennial Meeting of the International Congress on Schizophrenia Research, Colorado Springs CO, 1997.
45. McDowell JE, Brenner C, **Clementz BA**. Antisaccade performance of schizophrenia patients and relatives. Paper presented at the annual meeting of the Society of Biological Psychiatry, San Diego CA, 1997.
46. ***Clementz BA.*** *The neuropathology and genetics of schizophrenia: Evidence from studies of ocular motor performance. Invited paper presented at the 3rd European Congress of Psychophysiology, Konstanz GER, 1997.*
47. ***Clementz BA.*** *Psychophysiological measures of (dis)inhibition as liability indicators for schizophrenia. Invited address on the occasion of receiving the Distinguished Scientific Award for an Early Career Contribution at the annual meeting of the Society for Psychophysiological Research, Cape Cod MA, 1997.*
48. Coon H, Myles-Worsley M, Hasstedt SJ, McDowell JE, **Clementz BA**, Byerley W. Using correlated physiological abnormalities to create a sensitive phenotype for detecting schizophrenia susceptibility genes. Paper presented at the World Congress on Psychiatric Genetics, Sante Fe NM, 1997.
49. **Clementz BA**, McDowell JE, Brenner C, Coon H, Byerley W, Myles-Worsley M. Measures of eye movement performance for identifying unaffected gene carriers in schizophrenia pedigrees. Paper presented at the World Congress on Psychiatric Genetics, Sante Fe NM, 1997.
50. McDowell JE, Coon H, Myles-Worsley M, **Clementz BA**, Byerley W. Linkage analyses of antisaccade performance among schizophrenia pedigrees. Paper presented at the World Congress on Psychiatric Genetics, Sante Fe NM, 1997.
51. **Clementz BA**, Blumenfeld LD, Cobb S. Gamma band activity may account for the P50 suppression effect in schizophrenia. Paper presented at the annual meeting of the *Society for Neuroscience*, New Orleans LA, 1997.
52. Farber RH, Feifel D, **Clementz BA**. Measures of saccade inhibition among adult attention-deficit hyperactivity disorder patients. Paper presented at the annual meeting of the Society for Neuroscience, New Orleans LA, 1997.
53. ***Clementz BA****, McDowell JE. Auditory evoked response suppression among schizophrenia subjects. Paper presented at Park City Molecular Psychiatry Conference, Park City UT, 1998.*
54. Cadenhead KS, Geyer MA, Swerdlow NR, Shafer K, Diaz M, **Clementz BA**, Braff DL. Sensorimotor gating deficits in schizophrenic patients and their relatives. Paper presented at the 53rd annual convention of the Society of Biological Psychiatry, Toronto, Ontario CA, 1998.
55. Myles-Worsley M, McDowell J, **Clementz BA**, Byerley W, Coon H. Inhibitory neurophysiological dysfunctions in large schizophrenia families in the genetic isolate of Palau, Micronesia. Paper presented at the 53rd annual convention of the Society of Biological Psychiatry, Toronto, Ontario CA, 1998.
56. Brenner CA, McDowell JE, Myles-Worsley M, Coon H, Byerley W, **Clementz BA**. Ocular motor delayed response task performance in schizophrenia patients and their biological relatives. Paper presented at the 53rd annual convention of the Society of Biological Psychiatry, Toronto, Ontario CA, 1998.

57. Brenner C, McDowell J, Cadenhead K, **Clementz BA**. Antisaccade performance in schizotypal personality disorder. Paper presented at the 53rd annual convention of the *Society of Biological Psychiatry*, Toronto, Ontario CA, 1998.
58. ***Clementz BA**. Abnormal eye movements in psychiatric disorders. Invited paper presented at the Joint meeting of the International Neuropsychiatry Congress and the American Neuropsychiatric Association, Toronto, Ontario CAN, 1998.*
59. ***Clementz BA**. Ocular motor abnormalities in Tourette's Syndrome and related disorders. Colloquium presented at the Eye Research Institute of Canada, Toronto, Ontario CAN, 1998.*
60. *Rochstroh B, **Clementz BA**, Pantev C, Blumenfeld LD, McDowell J, Sterr A, Elbert T. Missing contralateral dominance for auditory stimulation in schizophrenia. Paper presented as part of a symposium entitled: "Neurophysiologic studies of schizophrenia." (G.E. Bruder & L.E. Adler, Chairs), 38th annual meeting of the Society for Psychophysiological Research, Denver CO, 1998.*
61. Blumenfeld LD, **Clementz BA**. An MEG study of auditory evoked response suppression in schizophrenia. Paper presented at the 38th annual meeting of the Society for Psychophysiological Research, Denver CO, 1998.
62. Brenner CA, McDowell JE, Cadenhead K, **Clementz BA**. Ocular motor delayed response task performance of schizophrenia spectrum subjects. Paper presented at the 38th annual meeting of the Society for Psychophysiological Research, Denver CO, 1998.
63. ***Clementz BA.** Schizophrenia's neurobiology and genetics: evidence from studies of ocular motor performance. Colloquium presented at the Department of Psychology, University of California, Los Angeles, 1998.*
64. Blumenfeld LD, **Clementz BA**. Single trial analyses of auditory evoked response suppression in schizophrenia and normal subjects. Paper presented at the 7th International Congress on Schizophrenia Research, Santa Fe NM, 1999.
65. Cadenhead KS, Geyer MA, Swerdlow NR, **Clementz BA**, Shafer K, Braff DL. Prepulse inhibition and laterality in schizophrenic patients and their relatives. Paper presented at the 7th International Congress on Schizophrenia Research, Santa Fe NM, 1999.
66. ***Clementz BA**. On inhibitory deficits in schizophrenia. Paper presented as part of a symposium entitled: "Inhibition and disinhibition in psychopathology" (Peter R. Finn, Chair), 11th annual meeting of the American Psychological Society, Denver CO, 1999.*
67. ***Clementz BA**, McDowell JE. The neurobiology and genetics of schizophrenia: evidence from studies of saccade system functioning. Invited talk given to the staff of the Belau National Hospital, Koror, Republic of Palau, 2000.*
68. ***Clementz BA**, McDowell JE. The neurobiology and genetics of schizophrenia: evidence from studies of saccade system functioning. Invited colloquium, Department of Psychology, University of California, San Diego, 2000.*
69. ***Clementz BA**. No filtering problem in schizophrenia: studies of evoked gamma and theta band responses. Invited colloquium, Department of Psychology, University of Konstanz, 2000.*
70. **Clementz BA**. Style and substance: MEG in psychopathology research. Symposium chaired at the 40th annual meeting of the Society for Psychophysiological Research, San Diego CA, 2000.
71. *Blumenfeld LD, **Clementz BA**. Single trial analyses of evoked fields to multiple auditory stimuli in schizophrenia. Paper presented as part of a symposium entitled 'Style and substance: MEG in psychopathology research' at the 40th annual meeting of the Society for Psychophysiological Research, San Diego CA, 2000.*
72. Stewart SE, McDowell JE, Braff DL, **Clementz BA**. Visual evoked response potentials in prosaccade and antisaccade paradigms. Paper presented at the 40th annual meeting of the Society for Psychophysiological Research, San Diego CA, 2000.
73. Barber SK, Blumenfeld LD, Dzau J, **Clementz BA**. Gamma and theta band response and stimulus uncertainty. Paper presented at the 40th annual meeting of the Society for Psychophysiological Research, San Diego CA, 2000.
74. Blumenfeld LD, Braff DL, **Clementz BA**. An MEG study os stimulus expectancies on auditory evoked response suppression in schizophrenia. Paper presented at the 9th International Congress on Schizophrenia Research, Whistler BC, 2001.
75. Keil A, Kissler J, **Clementz BA**. Evaluation of coherence decay following the visual steady state response in schizophrenia. Paper presented at the 7th International Congress on Schizophrenia Research, Whistler BC, 2001.
76. **Clementz BA**, Dobkins KR. Analysis of motion perception in schizophrenia. Paper presented at the 7th International Congress on Schizophrenia Research, Whistler BC, 2001.
77. McDowell JE, Kissler J, Berg P, **Clementz BA**. Pre-response MEG and EEG activity in frontal cortex during saccadic tasks differentiates normal and schizophrenia subjects. Paper presented at the 7th International Congress on Schizophrenia Research, Whistler BC, 2001.
78. ***Clementz BA**. MEG and EEG studies of auditory information processing in schizophrenia. Invited colloquium, Department of Psychology, University of Georgia, 2001.*
79. **Clementz BA**, Brahmbhatt S, McDowell JE. Prefrontal and parietal cortex activations in response to antisaccade, prosaccade and no-go tasks. Paper presented at the 10th Annual Cognitive Neuroscience Society Meeting, New York NY, 2003.
80. ***Clementz BA**, Gilmore C. Temporal integration of steady-state auditory stimuli in schizophrenia. Paper presented as part of a symposium entitled "Gamma-band measures of neuronal activity: A new frontier in schizophrenia research, Society of Psychophysiological Research Annual Meeting, Chicago IL, 2003.*
81. Brown R, Dobkins KD, **Clementz BA**. Motion detection in relation to MT function in schizophrenia. Presented at the Society for Psychophysiological Research Annual Meeting, Chicago IL, 2003.

82. Brahmbhatt SB, Brown R, Dyckman KA, McDowell JE, **Clementz BA**. Neural correlates of decision-making and response preparation in blocked versus interleaved saccadic tasks. Presented at the Society for Psychophysiological Research Annual Meeting, Chicago IL, 2003.
83. Goodie AS, Camchong J, **Clementz BA**, McDowell JE, Jarrell HM, Tran, A. Neuro-magnetic activity as a function of confidence and accuracy: Early findings in decision neuroscience. Paper presented at the annual meeting of the Society for Judgment and Decision Making, Minneapolis MN, 2004.
84. ***Clementz BA**. MEG and EEG studies of auditory information processing in schizophrenia. Invited colloquium, Departments of Psychiatry and Neurology, Medical College of Georgia, 2004.*
85. **Clementz BA**, Brown R, Buckley P. Motion processing and MT functioning in schizophrenia. Paper presented at the 9th International Congress on Schizophrenia Research, Savannah GA, 2005.
86. Moratti S, Gao A, Buckley P, **Clementz BA**. Interaction of driven oscillatory neural activity and visual evoked potentials in schizophrenic patients. Paper presented at the 9th International Congress on Schizophrenia Research, Savannah GA, 2005.
87. Gilmore C, **Clementz BA**, Buckley P. Auditory information integration in schizophrenia. Paper presented at the 9th International Congress on Schizophrenia Research, Savannah GA, 2005.
88. ***Clementz BA**. Information processing in schizophrenia: What's wrong when and where? Invited talk at Institute for Psychiatric Research, Indiana University Medical School, Indianapolis IN, 2005.*
89. ***Clementz BA**. Information processing in schizophrenia: What's wrong when and where? Invited talk at Department of Psychology, Indiana University, Bloomington IN, 2005.*
90. ***Clementz BA**. Dysfunction of adaptive neural gain control in schizophrenia. Invited talk at Department of Psychiatry, University of Chicago, Chicago IL, 2006.*
91. ***Clementz BA**, Campbell WK, Krusemark EA, Dyckman KA, McDowell JE. A MEG investigation of neural correlates of social exclusion and self control. Paper presented at BIOMAG, Vancouver BC, 2006.*
92. *Wang J, **Clementz BA**, Keil A. Normal neural enhancements but abnormal behavioral performance during visual selective attention in schizophrenia. Paper presented at the Society for Neuroscience Annual Meeting, Atlanta GA, 2006.*
93. *Keedy S, McDowell JE, **Clementz BA**, Sweeney JA. Combined fMRI/EEG analysis of top-down control of sensory input and neural investment in peripheral target locations during antisaccade performance. Paper presented at the Society for Neuroscience Annual Meeting, Atlanta GA, 2006.*
94. ***Clementz BA**, Moratti S, Gao Y, Keil A. Neural mechanisms of evoked oscillations: stability and interaction with transient events. Paper presented at the Society for Neuroscience Annual Meeting, Atlanta GA, 2006.*
95. Gilmore CS, **Clementz BA**. Hemispheric lateralization of evoked potentials in an auditory oddball task. Paper presented at the Society for Psychophysiological Research Annual Meeting, Vancouver BC, 2006.
96. Gilmore CS, Puetz T, O'Conner P, Dishman R, **Clementz BA**. Spatio-temporal reliability of evoked potentials in an auditory oddball task across repeated measurements. Paper presented at the Society for Psychophysiological Research Annual Meeting, Vancouver BC, 2006.
97. Gilmore C, **Clementz BA**. Dysfunction of adaptive neural gain control in schizophrenia. Paper presented at the International Congress on Schizophrenia Research Biennial Meeting, Colorado Springs CO, 2007.
98. Dyckman KA, Camchong J, McDowell JE, **Clementz BA**. Context affects behavior and brain activity during saccade tasks. Paper presented at the Cognitive Neuroscience Society Annual Meeting, New York NY, 2007.
99. Krusemark E, Camchong J, McDowell JE, Goodie A, **Clementz BA**. Neural correlates of wins and losses during a gambling task in pathological and non-pathological gamblers. Paper presented at the Society for Psychophysiological Research Annual Meeting, Savannah GA, 2007.
100. Gao Y, Boyd M, Poon L, **Clementz BA**. Age-associated hemispheric asymmetry reduction on the auditory M100 to nonverbal stimuli. Paper presented at the Society for Psychophysiological Research Annual Meeting, Savannah GA, 2007.
101. Wang J, Wilson J, Dobkins KR, McDowell JE, **Clementz BA**. A specific relationship between motion processing and neural activity deficits in schizophrenia. Paper presented at the Society for Psychophysiological Research Annual Meeting, Savannah GA, 2007.
102. Ethridge LE, Malone S, Iacono WG, **Clementz BA**. ERP source analysis of genetic influences on early and late processing in a visual oddball task. Paper presented at the Society for Psychophysiological Research Annual Meeting, Savannah GA, 2007.
103. Goodie AS, Krusemark EA, **Clementz BA**, Camchong J, Young DL, & McDowell JE. Neural correlates of performance during the Georgia Gambling Task: an MEG investigation. Poster presented at the Annual Conference of Judgment and Decision Making, Los Angeles CA, 2007.
104. Krusemark EA, Campbell WK, **Clementz BA**. Investigating the neural correlates of the self-serving bias using dense array EEG. Poster presented at the Society for Personality and Social Psychology, Albuquerque NM, 2008.
105. Wang J, Keil A, **Clementz BA**. Neural consequences of integrating space- and object-based visual attention requirements in a single task. Paper presented at the Society for Psychophysiological Research Annual Meeting, Austin TX, 2008.

106. Ethridge LE, Brahmbhatt S, Gao Y, McDowell JE, **Clementz BA**. Task parameters and task switching: not all saccade paradigms are created equal. Paper presented at the Society for Psychophysiological Research Annual Meeting, Austin TX, 2008.
107. Austin BP, Dyckman KA, Amlung MT, Li Q, **Clementz BA**, McDowell JE. Practice-induced Changes in Neural Circuitries Supporting Saccade Performance in Schizophrenia: an fMRI Study. Paper presented at the *International Conference on Schizophrenia Research***,** San Diego CA, 2009.
108. Moore M, Austin BP, Dyckman KA, Li Q, Amlung MT, Meyer F, **Clementz BA**, McDowell JE. Behavioral Changes Following Daily Practice of Saccade Tasks in Schizophrenia. Paper presented at the International Conference on Schizophrenia Research**,** San Diego CA, 2009.
109. Knight JB, Ethridge LE, **Clementz BA**, Marsh RL. Neural Substrates of Prospective Memory. Paper presented at the GA/SC Regional Neuroscience Conference, Athens, GA, 2009.
110. *Ethridge LE, Malone S, Iacono WG, **Clementz BA**. Genetic influences on early and late neural processing in a visual oddball task: ERP voltage mapping and current source density measures. Paper presented at the GA/SC Regional Neuroscience Conference, Athens, GA, 2009.*
111. Thom NJ, **Clementz BA**, Puetz TW, O'Connor PJ, Dishman RD. Acute effects of cycling on mood and EEG in sedentary young adults with persistent fatigue. Paper presented at the National American College of Sports Medicine Conference, Seattle, WA, 2009**.**
112. Hamm JP, Dyckman KA, Ethridge LE, McDowell JE, **Clementz BA**. Pre-gap alpha phase and preparatory cortical signals during gap determine express versus regular saccade generation. Paper presented at International Conference on Event-related Potentials of the Brain (EPIC), Bloomington, Indiana, 2009.
113. ***Clementz BA**. The neural regulation of visual processing in schizophrenia. Invited talk at Department of Psychological and Brain Sciences, Indiana University, Bloomington IN, 2009.*
114. Hamm JP, Gilmore CS, **Clementz BA**, Sponheim SR, Pichetti N. Schizophrenic patients display abnormal neural responses in auditory cortex to increasing rates of stimulation. SouthEast Nerve Net and the Georgia/South Carolina Neuroscience Consortium Conference, Emory University, Atlanta GA, March 2010.
115. Knight JB, Brewer GA, **Clementz BA**, Marsh RL On The Role Of Attentional Processes In Event-Based Prospective Memory. Poster presented at the annual meetings of the Cognitive Neuroscience Society, Montréal, Canada, April 2010.
116. Hamm JP, Gilmore CS, **Clementz BA**, Sponheim SR, Pichetti N. Abnormal auditory cortical processing as a function of stimulus density in schizophrenic patients, Presented at Human Brain Mapping, Barcelona Spain, June 2010.
117. Ethridge LE, Reilly J, Keedy S, McDowell JE, Sweeney JA, **Clementz BA**. Modulation of neural bias signals preceding anti-saccades as an endophenotype for schizophrenia. Presented at Human Brain Mapping, Barcelona, Spain, June 2010.
118. ***Clementz BA**. The Neural regulation of visual processing in schizophrenia. Invited talk at Department of Psychology, University of Konstanz, Konstanz Germany, June 2010.*
119. Knight JB, **Clementz BA**, Marsh RL. Oscillatory dynamics provide insight into the role of attention in prospective memory. Poster presented at the International Conference of Prospective Memory, Vancouver, Canada, July 2010.
120. Goodie AS, Hudgens-Haney M, Hamm JP, Krusemark E, McDowell JE, **Clementz BA**. Neural Correlates of the Impact of Control on Decision Making in Pathological Gamblers. Presented at the NCRG Annual Conference on Gambling and Addition, Las Vegas NV, 2010.
121. **Clementz BA**, Hamm JP, Ethridge L, Shapiro J. Auditory ERPs for discerning psychosis risk among bipolar and schizophrenia families. Presented as part of Electrophysiology Symposium to International Congress on Schizophrenia Research, Colorado Springs, CO, 2011.
122. Hamm JP, Gilmore C, **Clementz BA**. High gamma (>60Hz) abnormalities in schizophrenia patients during auditory steady-state stimulation. Presented at the International Conference on Schizophrenia Research**,** Colorado Springs, CO, 2011.
123. ***Clementz BA**, Ethridge LE, Sweeney JA, McDowell, JE. Top-down control of visual sensory processing during antisaccade performance in psychosis. Paper presented as part of a symposium entitled "Normal and abnormal development of saccade control and its underlying neural circuitry", at the 21st Annual Meeting of Society for the Neural Control of Movement, San Juan, Puerto Rico, April 2011.*
124. ***Clementz BA**. The neural regulation of visual processing in schizophrenia. Invited talk at Department of Psychiatry and Behavioral Neurobiology, University of Alabama, Birmingham, June 2011.*
125. ***Clementz BA**. The Neural regulation of visual processing in schizophrenia. Invited talk at Department of Psychiatry, University of Texas, Southwestern, Dallas, TX, August 2011.*
126. ***Clementz BA**, Hamm J, Ethridge L, Shapiro J. Auditory ERPs for discerning psychosis risk among bipolar and schizophrenia families. Presented as part of Waves beyond Waveforms Symposium to 51st Annual Meeting of Society for Psychophysiological Research, Boston, MA, 2011.*
127. Hamm JP, Dyckman KA, McDowell JE, **Clementz BA**. Pre-trial alpha phase in frontal cortex predicts correct vs. incorrect antisaccade performance. Presented at the 51st Annual Meeting of the Society for Psychophysiological Research, Boston, MA, 2011.

128. Hudgens-Haney M, Hamm JP, Krusemark EA, Goodie AS, McDowell JE, **Clementz BA**. Neural correlates of peceved control and risky decision making in pathological gambling. Paper presented at the Society for Neuroscience Annual Meeting, Washington DC, 2011.
129. Narayanan B, Gill A, O'Neil K, Stevens MC, Tamminga CA, Sweeney JA, Keshavan MS, **Clementz BA**, Pearlson GD. Abnormal Neural Oscillations in Resting State Electroencephalogram (EEG) in First Degree Relatives of Schizophrenia and Bipolar Disorder. Presented at the Society for Biological Psychiatry Annual Meeting, Philadelphia PA, May 2012.
130. Hamm JP, Ethridge LE, Shapiro JR, Parker EM, Keshavan MS, Sweeney JA, Pearlson GD, Tamminga CA, Thaker G, **Clementz BA**. Auditory Evoked Oscillations Discriminate Major Mood and Psychotic Diagnoses. Presented at the Society for Biological Psychiatry Annual Meeting, Philadelphia PA, May 2012.
131. Tandon T, Sanghavi K[1], Kumar S, Mitra P, Francis A, Bergen S, Petryshen T, Ruano G, Windemuth A, Kocherla M, **Clementz BA**, Pearlson GD, Seidman L, Sweeney JA, Taminga CA, Thaker G, Keshavan MS. Genes and MRI Structural Intermediate Phenotypes in Pyschotic Bipolar Disorder and Schizophrenia. Presented at the Society for Biological Psychiatry Annual Meeting, Philadelphia PA, May 2012.
132. Ethridge LE, Hamm JP, Shapiro JR, Summerfelt AT, Keedy SK, Stevens MC, Pearlson GD, Tamminga CA, Boutros NN, Sweeney JA, Keshavan MS, **Clementz BA**. Late Beta Accentuation and Decreased N2 Amplitude to Auditory Oddball Stimuli Discriminate Psychosis Groups and Co-Occur in First-Degree Relatives. Presented at the Society for Biological Psychiatry Annual Meeting, Philadelphia PA, May 2012.
133. ***Clementz BA****. Neural responses to auditory paired stimuli among bipolar psychosis and schizophrenia families. Presented at the Society for Biological Psychiatry Annual Meeting as part of a Symposium entitled "Using endophenotypes to define psychotic diagnoses", Philadelphia PA, May 2012.*
134. Oliver W, Hamm JP, Hetrick WP, **Clementz BA**. Auditory gating in schizophrenia: context or ISI? Presented at the Society for Psychophysiological Research Annual Meeting, New Orleans LA, 2012.
135. Hayrynen LK, Hamm JP, Sponheim SR, **Clementz BA**. Frequency-specific disruptions of neuronal oscillations reveal aberrant cortical network properties in schizophrenia. Presented at the Society for Psychophysiological Research Annual Meeting, New Orleans LA, 2012.
136. Hudgens-Haney ME, Hamm JP, Goodie AS, Krusemark EA, McDowell JE, **Clementz BA**. An MEG study of risk and overconfidence in pathological gamblers. Presented at the Society for Neuroscience Annual Meeting, New Orleans LA, 2012.
137. Ivleva EI, Bidesi AS, Meda SA, Witte B, Keshevan MS, Pearlson GD, Sweeney JA, **Clementz BA**, Thaker GK, Tamminga CA. Brain gray matter intermediate phenotypes across the categorical DSM-IV diagnoses and the psychosis dimension. Presented at the Society for Neuroscience Annual Meeting, New Orleans LA, 2012.
138. Hamm JP, Dyckman KA, Ciarochi JA, McDowell JE, **Clementz BA**. Intrinsic frontal alpha and occipital gamma oscillations predict express saccades and antisaccade errors. Presented at the Society for Neuroscience Annual Meeting, New Orleans LA, 2012.
139. Ethridge LE, Reilly JL, McDowell JE, **Clementz BA**, Frankovich K, Krafft CE, Pierce JE, Keshevan MS, Pearlson GD, Tamminga CA, Thaker GK, Sweeney JA. Poor antisaccade performance in schizophrenia related to speed of visual orienting: a cluster analysis. Presented at the Society for Neuroscience Annual Meeting, New Orleans LA, 2012.
140. Arnold SJ, Gopal TA, Dantu A, Hu A, Reddy AP, Wallace-Servera M, Sacco CB, Bidesi AS, Ivleva EI, Francis A, Pearlson GD, Sweeney JA, **Clementz BA**, Thaker GK, Keshavan MS, Tamminga CA. Bipolar-schizophrenia network on intermediate phenotypes (B-SNIP): hippocampal volumes contrasting manual tracings and Freesurfer. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
141. Narayanan B, Neil KO, Stevens MC, Tamminga CA; Sweeney JA; Keshavan MS, **Clementz BA**, Pearlson GD, Ruano G, Windermuth A. Genetic association of slow alpha oscillations in resting state EEG of schizophrenia and psychotic bipolar disorder subjects from the B-SNIP Study. presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
142. **Clementz BA**, Keshavan MS; Pearlson GD; Sweeney JA; Tamminga CA. Taxometric integration of neurocognitive biomarkers reveals distinct biotype structures in psychosis independent of phenomenological diagnoses. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
143. Ethridge LE, Hamm JP, Shapiro JR, Summerfelt A, Keedy S, Stevens MC, Pearlson GD, Tamminga CA, Boutros NN, Keshavan MS, **Clementz BA**, Sweeney JA. Early sensory processing deficits during an auditory oddball task are greater than P3 abnormalities and are more consistently familial across psychotic disorders. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
144. Giakoumatos CI, Tandon N, Mathew IT, Howard ER, Francis AN, **Clementz BA**, Pearlson GD, Sweeney JA, Thaker G, Tamminga CA, Keshavan MS. Do structural brain abnormalities underlie self-harm in patients with psychotic disorders? Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
145. Tandon N, Eack SM, Mathew IT, Howard ER, Francis AN, **Clementz BA**, Pearlson GD, Sweeney JA, Thaker G, Tamminga CA, Keshavan MS. A large-scale structural MRI study across the psychosis spectrum. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
146. Ivleva EI, Bidesi AS, Meda SA, Dodig D, Witte B, Keshavan MS, Pearlson GD, Sweeney JA, **Clementz BA**, Thaker GK, Tamminga CA. Brain gray matter intermediate phenotypes across the categorical DSM-IV diagnoses and the

psychosis dimension: Bipolar–Schizophrenia Network on Intermediate Phenotypes (B-SNIP). Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.

147. *Pearlson GD, Meda IS, Narayanan B, **Clementz BA**, Stevens MS, Tamminga CA, Sweeney JA, Keshavan MS, Berwise C, O'Neil K. Genetic Underpinnings of Classic and Novel Endophenotypes for Schizophrenia and Psychotic Bipolar Disorder Families in the B-SNIP Study. Presented at the International Conference on Schizophrenia Research, Orlando FL, 2013.*
148. ***Clementz BA**, Ethridge LE, Hamm JP, Reilly JL. Thaker G, Tamminga CA, Keshavan MS, Pearlson GD, Sweeney JA. Multivariable indicators of distinct and shared heritable disease risk for schizophrenia and psychotic bipolar disorder families. Presented at the International Conference on Schizophrenia Research, Orlando FL, 2013.*
149. *Bobilev AM, Hamm JP, Oliver WT, Hudgens-Haney ME, Buckley PF, Dyckman KA, McDowell JE, **Clementz BA**. Resting state neural oscillations in schizophrenia and high and low working memory. Presented at the International Conference on Schizophrenia Research, Orlando FL, 2013.*
150. Nanda P, Mathew IT, Tandon N, Giakoumatos CI, Howard ER, **Clementz BA**, Pearlson GD, Sweeney JA, Thaker G, Tamminga CA, Keshavan MS. Cortical gyrification in first-degree relatives of patients with psychotic disorders. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
151. Gardin T, Tandon N, Francis AN, Mathew IT, Giakoumatos CI, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Hippocampal subfield alterations in psychotic disorders in the B-SNIP study. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
152. Hamm JP, Oliver WT, Hudgens-Haney ME, Bobilev AM, Buckley PF, McDowell JE, **Clementz BA**. Stimulus duration and context moderate gamma-band auditory neural abnormalities in schizophrenia. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
153. Meda IS, Narayanan B, Keshavan MS, Sweeney JA, **Clementz BA**, Thaker G, Tamminga CA, Ruano G, Windermuth A. Pearlson GD. Genetic associations of the Default-Mode network derived using Parallel-ICA: A Bipolar – Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Study. Presented at the International Conference on Schizophrenia Research**,** Orlando FL, 2013.
154. Parker DA, Hudgens-Haney ME, Oliver WT, Hayrynen LK, Knight JB, Bobilev AM, Arkin SC, Buckley PF, McDowell JE, **Clementz BA**. Alpha band dynamics in schizophrenia during an ocular motor inhibition task. Presented at the *Society for Psychophysiological Research* Annual Meeting, Atlanta GA, 2014.
155. Hugens-Haney ME, Ethridge LE, McDowell JE, Sweeney JA, **Clementz BA**. Endophenotypes discriminate psychosis groups better than clinical diagnosis. Presented at the *Society for Psychophysiological Research* Annual Meeting, Atlanta GA, 2014.
156. Schaeffer DJ, Rodrigue AL, Pierce JE, **Clementz BA**, McDowell JE. Diffusion tensor imaging reveals differences between people with schizophrenia and healthy individuals with low levels of cognitive control. Presented at the *Society for Psychophysiological Research* Annual Meeting, Atlanta GA, 2014.
157. Hayrynen LK, Hamm JP, Ethridge LE, Tamminga CA, Sweeney JA, Pearlson GD, Keshavan MS, **Clementz BA**. Aberrant long range neural synchronization in schizophrenia. Presented at the *Society for Psychophysiological Research* Annual Meeting, Atlanta GA, 2014.
158. *McDowell JE, **Clementz BA**. Saccades: the basics. Talk presented at the 2nd European Summer School on Eye Movements. Freiburg, Germany, September 2014.*
159. ***Clementz BA**, McDowell JE. Saccadic behavior and distributed cortical activations: Ideen und Meinungen. Talk presented at the 2nd European Summer School on Eye Movements. Freiburg, Germany, September 2014.*
160. **Clementz BA,** Hudgens-Haney ME, Knight JB, Ethridge JE, Pearlson GD, Keshavan MS, Tamminga CA, McDowell JE, Sweeney JA. Psychosis biotypes account for variations in neural synchrony during cognitive control: findings from the Bipolar-Schizophrenia Network on Intermediate Phenotypes. Presented at the 2014 Annual Meeting of the American College of Neuropsychoparmacology, Phoenix AZ.
161. Nanda P, Padmanabhan J, Tandon N, Mathew I, Ruano G, Windemuth A, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CT, Keshavan MS. Polygenic Correlates of Psychotic Disorder across Neurobiological Taxonomy: Potential Opportunity for Precision Medicine. Present at the ACNP Annual Conference, 2014.
162. Pearlson GD, Meda S, Narayanan B, **Clementz BA**, Keshavan MS, Tamminga CT, Sweeney JA. Measures Derived from Resting State Functional MRI and Resting State EEG Aggregate with Psychosis Biotypes More Definitively than with DSM Diagnoses: Findings from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (BSNIP). Present at the ACNP Annual conference, 2014.
163. Ivleva E, Bidesi A, Meda S, Witte B, Poudyal G, **Clementz BA**, Pearlson G, Sweeney J, Keshavan M, Tamminga C. What Do Gray Matter Volume Biomarkers Tell Us about the Psychosis Dimension? Findings from the Bipolar-Schizophrenia Network on Intermediate Phenotypes. Present at the ACNP Annual conference, 2014.
164. Oliver WT, Hamm JP, Bobilev AM, Hudgens-Haney M, Hayrynen LK, Parker DA, Buckley PF, Sweeney JA, McDowell JE, **Clementz BA**. Neuronal oscillatory patterns during sustained visual attention task in schizophrenia and high/low cognitive control. Presented at the Society for Psychophysiological Research Annual Meeting, 2015.
165. Thorne SA, Oliver WT, Hammond BR, **Clementz BA**, Miller S, Renzi L. CNS xanthophyll status and nonspecific brain activation in younger and older adults. EUROPEAN JOURNAL OF OPHTHALMOLOGY 2015.

166. Oliver WT, Thorne SA, **Clementz BA**, Renzi L, Hammond BR. Neural activation during visual attention task differs in elders with high vs low macular pigment density. EUROPEAN JOURNAL OF OPHTHALMOLOGY 2015.
167. **Clementz BA**, Hudgens-Haney M, Knight J, Ethridge LE, McDowell JE, Sweeney JA. Modulation of visual cortex activity in psychosis as a function of cognitive control during saccadic tasks. Presented at the International Congress on Schizophrenia Research, 2015.
168. Hudgens-Haney ME, Knight JB, Ethridge LE, McDowell JE, Sweeney JA, **Clementz BA**. Alpha synchrony during cognitive control across the schizophrenia-bipolar spectrum: findings from the Bipolar- Schizophrenia Network on Intermediate Phenotypes. Presented at the International Congress on Schizophrenia Research, 2015.
169. ***Clementz BA***. *Conceptual approaches to the identification of psychosis taxa, biotypes, and other classifiers. Presented at the International Congress on Schizophrenia Research, 2015.*
170. Padmanabhan J, Nanda P, Tandon N, Mathew I, Ruano G, Windemuth A, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Biotype classification distinguishes subgroups of psychosis with distinctive polygene-cortical thickness profiles. Presented at the International Congress on Schizophrenia Research, 2015.
171. Ivleva EI, Arnold SJ, Bidesi AS, Meda SA, Witte B, Poudyal G, **Clementz BA**, Sweeney JA, Pearlson GD, Keshavan MS, Tamminga CT. Biotypes vs. DSM Diagnoses: do gray matter volume biomarkers support novel biologically-driven disease definitions? Presented at the International Congress on Schizophrenia Research, 2015.
172. Parker DA, Hudgens-Haney M, Oliver WT, Hayrynen L, Bobilev A, Knight J, Hart R, Buckley PF, McDowell JE, **Clementz BA**. Reduced steady-state phase synchronization during a cognitive control task. Presented at the International Congress on Schizophrenia Research, 2015.
173. Rodrigue A, Schaeffer D, Pierce J, **Clementz BA**, McDowell JE. Schizophrenia-specific disruptions in cognitive control network connectivity during resting state fMRI. Presented at the International Congress on Schizophrenia Research, 2015.
174. ***Clementz BA.*** *Organizing neurobiological heterogeneity in psychosis via brain-based biomarkers: when you come to a fork in the road…. Clinical Plenary Lecture presented at the International Congress on Schizophrenia Research, 2015.*
175. ***Clementz BA.*** *Neurobiological phenotypes of psychosis. Talk presented to the Program in Neuroscience at Indiana University, Bloomington; Neuroscience Colloquium Series, August 2016.*
176. Parker DA, Hudgens-Haney ME, McDowell JE, Sabatinelli D, Keshavan MS, Tamminga CA, Pearlson GD, **Clementz BA**. Multivariate Discrimination of Neural Processing in Bipolar Disorder with or without Psychosis: Findings from the Bipolar & Schizophrenia Network on Intermediate Phenotypes. Talk presented at Society of Biological Psychiatry Annual Meeting, 2016.
177. Parker DA, McDowell JE, Sabatinelli D, Keshavan MS, Tamminga CA, Pearlson GD, **Clementz BA** (2016). Auditory Steady-State Response in Bipolar Disorder with or without Psychosis: Findings from the Bipolar & Schizophrenia Network on Intermediate Phenotypes. Poster presented at Society for Psychophysiological Research Annual Meeting, Minneapolis MN 2016.
178. Huang LY, Parker DA, Hill SK, Keshavan MS, Pearlson GD, Tammiga CT, Sweeney JA, **Clementz BA**. Neural power dysfunction implicated in executive inflexibility in psychosis. Presented at the Society for Neuroscience Annual Meeting, San Diego CA, 2016.
179. ***Clementz BA***. *Neurobiological heterogeneity and symptomatic variation in the "psychiatric" psychoses. Invited talk at the School of Psychiatry, Medical Research Foundation, Royal Perth Hospital, Perth WA. February 2017.*
180. Eum S, Hill SK, Carnahan RM, Reilly JL, Ivleva EI, Rubin LH, Keedy SK, Tamminga CA, Pearlson JD, **Clementz BA**, Gershon ES, Keefe RSE, Keshavan MS, Sweeney JA, Bishop JR. Cogntive burden of anticholinergic medications in psychotic disorders. Presented at the International Congress on Schizophrenia Research, 2017.
181. Schneider Z, Parker D, Kittle F, McDowell JE, Buckley P, Keedy S, Gershon E, Sweeney JA, Keshavan M, Pearlson G, Tamminga CA, **Clementz BA**. Investigation of the visual steady state response in schizophrenia, schizoaffective disorder, psychotic and nonpsychotic bipolar disorders. Presented at the International Congress on Schizophrenia Research, 2017.
182. Tamminga C, Ivleva E, **Clementz BA**, Sweeney JA, Pearlson G, Keshavan M. Can neurobiological subgroups in psychotic illness advantage drug discovery? Presented at the International Congress on Schizophrenia Research, 2017.
183. Ivleva E, **Clementz BA**, Dutcher A, Aslan S, Witte B, Poudyal G, Lu H, Meda S, Pearlson GD, Sweeney JA, Keshavan M, Tamminga C. Brain structure biomarkers at the psychosis/nonpsychosis interface. Presented at the International Congress on Schizophrenia Research, 2017.
184. Karpouzian T, Sweeney JA, Rubin L, McDowell JE, **Clementz BA**, Gershon E, Keshavan M, Pearlson G, Tamminga C, Reilly J. Lack of pupillary modulation by antisaccade performance in schizophrenia, schizoaffective disorder, and psychotic bipolar disorder suggests reduced top-down control during response preparation on an executive control task. Presented at the International Congress on Schizophrenia Research, 2017.
185. *Tamminga C,* ***Clementz BA****, Keshavan M, Gershon E, Pearlson G, Ivleva E. Endophenotypes guide psychosis neurobiological formulations. Talk presented at the International Congress on Schizophrenia Research, 2017.*

186. Chen J, Calhoun VD, Lin D, Perrone-Bizzozero NI, Bustillo J, Pearlson GD, Potkin S, Van Erp TGM, Ehrlich S, Wang L, **Clementz BA**, Keshavan MS, Gershon E, Sweeney JA, Tamminga CA, Andreassen O, Agartz I, Westlye LT, Turner J, Liu J. Shared genetic risk of schizophrenia and gray matter reduction in 6p22.1. Presented at the International Congress on Schizophrenia Research, 2017.
187. Tandon N, Sudarshan M, Mothi S, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan M. Machine learning to further improve classification of psychotic disorders using clinical and biological stratification. Presented at the International Congress on Schizophrenia Research, 2017.
188. Sheffield J, Kandala S, Tamminga CA, Pearlson GD, Keshavan MS, Sweeney JA, **Clementz BA**, Hill SK, Leman-Sinkoff D, Barch D. Transdiagnostic relations between functional brain network integrity and cognition. Presented at the International Congress on Schizophrenia Research, 2017.
189. Francis A, Mothi S, Mathew I, Tandon N, **Clementz BA**, Pearlson G, Sweeney JA, Tamminga C, Keshavan M. Is the anterior splenium an intermediate phenotype across the psychosis dimension? Presented at the International Congress on Schizophrenia Research, 2017.
190. Lencer R, Mills LJ, Alliey-Rodriguez N, Reilly JL, Sprenger A, McDowell JE, Shafee R, McCarroll SA, Keshavan MS, Pearlson GD, Tamminga CA, **Clementz BA**, Gershon ES, Sweeney JA, Bishop JR. Extended association studies of smooth pursuit and antisaccade eye movements: findings from the B-SNIP study. Presented at the International Congress on Schizophrenia Research, 2017.
191. Parker D, Kittle F, McDowell JE, Buckley P, Keedy S, Gershon E, Sweeney JA, Keshavan M, Pearlson G, Tamminga C, **Clementz BA**. Investigation of the auditory steady state response in schizophrenia, schizoaffective, psychotic, and nonpsychotic bipolar disorders. Presented at the International Congress on Schizophrenia Research, 2017.
192. Wojcik J, Tucker L, Lutz O, Mesholam-Gately R, Sweeney JA, Pearlson G, **Clementz BA**, Tamminga CA, Keshavan MS. Do psychosis Biotypes differ across traditional schizophrenia subtypes? Presented at the International Congress on Schizophrenia Research, 2017.
193. Bishop J, Hill S, Mills L, Alliey-Rodriguez N, Reilly J, Shaffee R, McCarroll S, Keefe R, Pearlson G, **Clementz BA**, Tamminga C, Keshavan M, Gershon E, Sweeney J. Genetic analyses of cognitive performance in psychotic disorders from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) consortium. Presented at the International Congress on Schizophrenia Research, 2017.
194. Hudgens-Haney ME, Hayrynen LK, Keshavan MS, Pearlson GD, Tamminga CA, Sweeney JA, **Clementz BA**. Neural adaptation differences among psychosis Biotypes. Presented at the International Congress on Schizophrenia Research, 2017.
195. Huang LY, Sweeney JA, Hamm JP, Ethridge LE, Pearlson GD, Keshavan MS, Tamminga CA, **Clementz BA**. Data-driven approach identified functionally and physiologically distinct psychosis subtypes. Presented at the International Congress on Schizophrenia Research, 2017.
196. Rubin L, Li S, Yao L, Keedy SK, Reilly J, Hill SK, Bishop J, Carter S, Pournajafi-Nazarloo H, Drogos L, Gershon E, Pearlson GD, Tamminga CA, **Clementz BA**, Keshavan MS, Lui S, Sweeney JA. Peripheral oxytocin and vasopressin modulates regional brain activity differently in men and women with schizophrenia. Presented at the International Congress on Schizophrenia Research, 2017.
197. Khadka S, Tamminga C, Keshavan M, **Clementz BA**, Gershon E, Pearlson GD. Abnormal resting state functional connectivity in bipolar disorder with and without psychosis. Presented at the Society for Biological Psychiatry Annual Meeting, San Diego CA, May 2017.
198. Rodrigue A, Schaeffer DJ, **Clementz BA**, McDowell JE. Individual differences in the healthy population helps identify schizophrenia-specific disruptions in resting state networks related to cognitive control. Presented at the Society for Biological Psychiatry Annual Meeting, San Diego CA, May 2017.
199. Lutz O, Lizano P, Mothi SS, Tandon N, Tamminga C, **Clementz BA**, Sweeney JA, Pearlson G, Keshavan M. Investigating brain structure across bipolar disorder subtypes: findings from the Psychosis Affective Domain Intermediate Phenotypes (PARDIP) study. Presented at the Society for Biological Psychiatry Annual Meeting, San Diego CA, May 2017.
200. Bobilev A, Li W, **Clementz BA**, Keshavan M, Pearlson G, Sweeney JA, Tamminga C. Identification of Biotypes in psychosis using biomarkers and iPSCs. Presented at the Society for Biological Psychiatry Annual Meeting, San Diego CA, May 2017.
201. Massa N, Bhattacharya A, Sweeney JA, Pearlson GD, Keshavan MS, Tamminga CA, **Clementz BA**, Duncan E. Acoustic startle latency is prolonged in schizophrenia in the Bipolar-Schizophrenia Network for Intermediate Phenotypes (B-SNIP) cohort. Presented at the Society for Biological Psychiatry Annual Meeting, San Diego CA, May 2017.
202. ***Clementz BA**. Time for a change in psychosis research. Invited talk at Indiana University-Bloomington Clinical Psychology Seminar Series, Bloomington IN, September 2017.*
203. **Clementz BA**, Wang J, Pearlson G, Keshavan M, Sweeney JA, Hamm J, Ethridge LE, Ivleva E, Tamminga C. Intrinsic activity and intra-individual variability differences among B-SNIP psychosis cases assessed by single trial EEG time-frequency analyses. Presented at the 2017 Annual Meeting of the American College of Neuropsychopharmacology, Palm Springs CA.

204. Guimond S, Kelly S, Mike L, Chakravarty M, Sweeney JA, Pearlson G, **Clementz BA**, Tamminga C, Keshavan M. Amygdala-hippocacmpal differences across the psychosis spectrum: diagnosis and Biotype comparisons from the Bipolar-Schizophrenia Network on Intermediate Phenotypes. Presented at the 2017 Annual Meeting of the American College of Neuropsychoparmacology, Palm Springs CA.
205. Massa N, Bhattacharya A, Owens A, Keedy S, Harmon W, Sweeney JA, Pearlson G, Keshavan MS, Ivleva E, Tamminga C, **Clementz BA**, Duncan E. Relationship of prolonged acoustic startle latency to diagnosis and Biotype in the Bipolar-Schizophrenia Netwprk on Intermediate Phenotypes (B-SNIP) cohort. Presented at the 2017 Annual Meeting of the American College of Neuropsychoparmacology, Palm Springs CA.
206. Yang A, Hager B, Brady R, **Clementz BA**, Pearlson G, Sweeney J, Tamminga C, Keshavan M. Neural Complexity as a Potential Translational Biomarker for Psychosis. Presented at the 2017 Annual Meeting of the American College of Neuropsychoparmacology, Palm Springs CA.
207. **Clementz BA**, Wang J, Pearlson G, Keshavan M, Sweeney J, Hamm J, Ethridge L, Ivleva E, Tamminga C. Intrinsic Activity and Intra-Individual Variability Differences Among B-SNIP Psychosis Cases Assessed by Single Trial EEG Time-Frequency Analyses. Presented at the 2017 Annual Meeting of the American College of Neuropsychoparmacology, Palm Springs CA.
208. Guimond S, Kelly S, Mike L, Chakravarty M, Sweeney J, Pearlson G, **Clementz BA**, Tamminga C, Keshavan M. Amygdala-Hippocampal Differences Across the Psychosis Spectrum: Diagnosis and Biotype Comparisons from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Study. Presented at the 2017 Annual Meeting of the American College of Neuropsychoparmacology, Palm Springs CA.
209. Parker D, McDowell J, Keedy S, Gershon E, Ivleva E, Pearlson G, Keshavan M, Sweeney J, **Clementz BA**. INVESTIGATION OF THE VISUAL STEADY-STATE RESPONSE AS A PSYCHOSIS BIOMARKER: FINDINGS FROM BIPOLAR-SCHIZOPHRENIA NETWORK ON INTERMEDIATE PHENOTYPES (B-SNIP) CONSORTIUM. Paper presented at the 2018 Annual meeting of the Society for Psychophysiological Research, Quebec City, Quebec, Canada.
210. Edge E, Parker D, Hamm J, Buckley P, McDowell J, **Clementz BA**. VISUAL STEADY-STATE RESPONSE DIFFERENCES RELATED TO COGNITION RATHER THAN PSYCHOPATHOLOGY. Paper presented at the 2018 Annual meeting of the Society for Psychophysiological Research, Quebec City, Quebec, Canada.
211. Trotti R, Parker D, Sabatinelli D, Tamminga C, Gershon E, Keedy S, Sweeney J, Keshavan M, Pearlson G, McDowell J, **Clementz BA**. EFFECT OF LITHIUM ON EMOTIONAL PROCESSING IN BIPOLAR DISORDER WITH AND WITHOUT PSYCHOSIS: FINDINGS FROM THE PSYCHOSIS AND AFFECTIVE RESEARCH DOMAINS AND INTERMEDIATE PHENOTYPES (PARDIP) Study. Paper presented at the 2018 Annual meeting of the Society for Psychophysiological Research, Quebec City, Quebec, Canada.
212. Lizano P, Lutz O, Ling G, Padmanabhan J, Tandon N, Alliey-Rodriguez N, **Clementz BA**, Pearlson G, Sweeney J, Gershon E, Tamminga C, Keshavan M. Choroid Plexus Enlargement Across Psychotic Disorders: Findings From the Bipolar Schizophrenia Network Intermediate Phenotypes (BSNIP) Study. Paper presented at the 2018 Annual meeting of the American Psychiatric Association, New York, New York.
213. Zeng V, Lizano P, Bolo N, Tamminga C, Clementz BA, Sweeney J, Pearlson G, Keshavan M. Alterations of Hippocampal Cerebral Blood Flow in Bipolar Disorder Subtypes: Findings from the Psychosis and Affective Research Domains and Intermediate Phenotypes (PARDIP) Study. Paper presented at the 2018 Annual meeting of the American Psychiatric Association, New York, New York.
214. Trotti R, Parker D, Sabatinelli D, Tamminga C, Gershon E, Keedy S, Sweeney J, Keshavan M, Pearlson G, McDowell JE, **Clementz BA**. Emotional processing in Bipolar Disorder With and Without Psychosis: Findings From the Psychosis and Affective Research Domains and Intermediate Phenotypes Consortium. Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.
215. Meda S, **Clementz BA**, Sweeney J, Keshavan M, Tamminga C, Ivleva EI, Pearlson G. Resting State Connectivity in Traditional and Biologically Derived B-SNIP Psychosis Subtypes. Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.
216. **Clementz BA**, Stan A, Pearlson G, Sweeney J, Keshavan M, Tamminga CA, Gibbons R. Consolidation Across Multiple Levels of Analysis for Parsing Biological Heterogeneity in Psychosis. Paper Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.
217. Kelly S, Guimond S, Sweeney J, Pearlson G, **Clementz BA**, Tamminga C, Shenton M, Pasternak O, Keshavan M.Diagnosis and Biotype Comparisons Across the Psychosis Spectrum: Investigating White Matter Microstructural Differences From the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Consortium. Paper Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.
218. ***Clementz BA**. Time for a Change in Psychosis Research. Invited Address Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.*
219. Guimond S, Kelly S, Mike L, Chakravarty MM, Sweeney J, Pearlson G, **Clementz BA**, Tamminga C, Keshavan M.Diagnosis and Biotype Comparisons Across the Psychosis Spectrum: Investigating Amygdala-Hippocampal Differences From the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Consortium. Paper Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.

220. Parker D, Trotti R, McDowell JE, Keedy S, Sweeney J, Gershon E, Pearlson G, Keshavan M, Tamminga C, **Clementz BA**. Auditory and Visual EEG Validators of Psychosis Biotypes, Findings from Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) Consortium. Paper Presented at the Society for Biological Psychiatry Annual Meeting, New York, NY, May 2018.
221. Reininghaus U, Boehnke J, Chavez-Baldini UY, **Clementz BA**, Pearlson G, Keshavan M, Sweeney JA, Tamminga C. Evidence of a Transdiagnostic Psychosis Spectrum of Schizophrenia, Schizoaffective and Psychotic Bipolar Disorder in the Bipolar-schizophrenia Network on Intermediate Phenotypes. Paper presented at the Biennial Meeting of the Schizophrenia International Research Society, Florence IT, April 2018.
222. Guimond S, Tingue S, Devenyi GA, Tang YZ, Mike L, Chakravarty MM, Sweeney JA, Pearlson GD, Clementz BA, Tamminga CA, Keshavan MS. Pituitary Gland Volume Differences In Individuals With Psychosis: Results From The Bipolar-schizophrenia Network On Intermediate Phenotypes (b-snip) Study. Paper presented at the Biennial Meeting of the Schizophrenia International Research Society, Florence IT, April 2018.
223. ***Clementz BA**, Pearlson GD, Tamminga CA, Sweeney JA, Keshavan MS. Psychosis Biotypes Versus Clinical Syndromes Through The Prism Of Intrinsic Neural Activity. Invited Paper presented at the Biennial Meeting of the Schizophrenia International Research Society, Florence IT, April 2018.*
224. ***Clementz BA.** Can Laboratory Tests Enhance Diagnostic Validity and Treatment Targeting for Psychosis? Invited address sponsored by Silvio Conte Center, Maryland Psychiatric Research Center, September 2020.*

… and many more poster and symposium presentations in 2019-2021.

Manuscripts

1. Hirschman R, **Clementz BA**. Dental Anxiety. In E. Bernstein (Ed.), *Medical and Health Annual* 1986; 195-198: Encyclopedia Britannica, Inc.: Chicago, Illinois.
2. Wildman BG, **Clementz BA**. Assertive, empathic assertive, and conversational behavior: Perception of likability, effectiveness, and sex-role. *Behavior Modification* 1986; 10: 315-332.
3. **Clementz BA**, Sweeney JA. In support of rational conceptualizations of schizophrenia (Comment). *American Psychologist* 1989; 44: 1078-1079.
4. **Clementz BA** Pursuit eye movement dysfunction as a biological marker for schizophrenia (Doctoral Dissertation, Kent State University). *Dissertation Abstracts International* 1990; 50(9B): 4269.
5. **Clementz BA**, Sweeney JA. Is eye movement dysfunction a biological marker for schizophrenia? A methodological review. *Psychological Bulletin* 1990; 108: 77-92.
6. **Clementz BA**, Sweeney JA, Hirt M, Haas G. Pursuit gain and saccadic intrusions in first-degree relatives of probands with schizophrenia. *Journal of Abnormal Psychology* 1990; 99: 327-335.
7. **Clementz BA**, Sweeney JA, Hirt M, Haas G. Phenotypic correlations between oculomotor functioning and schizophrenia-related characteristics in relatives of schizophrenic probands. *Psychophysiology* 1991; 28: 570-578.
8. Grove WM, Lebow BS, **Clementz BA**, Cerri A, Medus C, Iacono WG. Familial prevalence and coaggregation of schizotypy indicators: A multitrait family study. *Journal of Abnormal Psychology* 1991; 100: 115-121.
9. **Clementz BA**, Grove WM, Katsanis J, Iacono WG. Psychometric detection of schizotypy: Perceptual aberration and physical anhedonia in relatives of schizophrenics. *Journal of Abnormal Psychology* 1991; 100: 607-612.
10. **Clementz BA**, Grove WM, Iacono WG, Sweeney JA. Smooth-pursuit eye movement dysfunction and liability for schizophrenia: Implications for genetic modeling. *Journal of Abnormal Psychology* 1992; 101: 117-129.
11. **Clementz BA**, Iacono WG, Ficken J, Beiser M. A family study of nailfold plexus visibility in psychotic disorders. *Biological Psychiatry* 1992; 31: 378-390.
12. Grove WM, **Clementz BA**, Iacono WG, Katsanis J. Smooth pursuit ocular motor dysfunction in schizophrenia: Evidence for a major gene**.** *American Journal of Psychiatry* 1992; 149: 1362-1368.
13. Christianson GA, Chernoff-Clementz E, **Clementz BA**. Personality and clinical characteristics of patients with trichotillomania. *Journal of Clinical Psychiatry* 1992; 53: 407-413.
14. **Clementz BA**, Iacono WG. Nosology and diagnosis. In AS Bellack, M Hersen (Eds.), *Psychopathology in Adulthood: An Advanced Text* 1993; New York: Allyn and Bacon.
15. Iacono WG, **Clementz BA**. A strategy for elucidating genetic influences on complex psychopathological syndromes (with special reference to ocular motor functioning and schizophrenia). *Progress in Experimental Personality and Psychopathology Research* 1993; 16: 11-65.
16. Sweeney JA, Haas GL, **Clementz BA**. Schizophrenia: Etiology. In AS Bellak, M Hersen (Eds.), *Psychopathology in Adulthood: An Advanced Text* 1993; New York: Allyn and Bacon.
17. Sweeney JA, **Clementz BA**, Escobar MD, Li S, Pauler DK, Haas GL. Mixture analysis of pursuit eye-tracking dysfunction in schizophrenia. *Biological Psychiatry* 1993; 34: 331-340.
18. Sponheim SR, **Clementz BA**, Iacono WG, Beiser M. Resting EEG in first-episode and chronic schizophrenia. *Psychophysiology* 1994; 31: 37-43.
19. **Clementz BA**, McDowell JE. Smooth pursuit in schizophrenia: Abnormalities of open- and closed-loop responses. *Psychophysiology* 1994; 31: 79-86.

20. Sweeney JA, **Clementz BA**, Haas GL, Escobar MD, Drake K, Frances AJ. Eye tracking dysfunction in schizophrenia: Characterization of component eye movement abnormalities, diagnostic specificity and the role of attention. *Journal of Abnormal Psychology* 1994; 103: 222-230.
21. **Clementz BA**, McDowell JE, Zisook S. Saccadic system functioning among schizophrenia patients and their first-degree biological relatives. *Journal of Abnormal Psychology* 1994; 103: 277-287.
22. **Clementz BA**, Iacono WG, Beiser M. Handedness in first-episode psychotic patients and their first-degree biological relatives. *Journal of Abnormal Psychology* 1994; 103: 400-403.
23. **Clementz BA**, Sponheim SL, Iacono WG, Beiser M. Resting EEG in first-episode schizophrenia patients, bipolar psychosis patients, and their first-degree relatives. *Psychophysiology* 1994; 31: 486-494.
24. Lund TR, Sponheim SR, Iacono WG, **Clementz BA**. Internal consistency reliability of resting EEG power spectra in schizophrenic and normal subjects. *Psychophysiology* 1995; 32: 66-71.
25. **Clementz BA**, Reid SA, McDowell JE, Cadenhead KS. Abnormality of smooth pursuit eye movement initiation: Specificity to the schizophrenia spectrum? *Psychophysiology* 1995; 32: 130-134.
26. McDowell JE, **Clementz BA**, Wixted JT Timing and amplitude and saccades during predictive saccadic tracking in schizophrenia. *Psychophysiology* 1996; 33: 93-101.
27. **Clementz BA**, Farber RH, Lam MN, Swerdlow NR. Ocular motor responses to unpredictable and predictable smooth pursuit stimuli among patients with obsessive-compulsive disorder. *Journal of Psychiatry and Neuroscience* 1996; 21: 21-25.
28. **Clementz BA**, Iacono WG, Grove WM. The construct validity of RMS error for quantifying smooth pursuit eye tracking abnormalities in schizophrenia. *Biological Psychiatry* 1996; 39: 448-450.
29. **Clementz BA**. Saccades to moving targets in schizophrenia: Evidence for normal posterior cortex functioning. *Psychophysiology* 1996; 33: 650-654.
30. McDowell JE, **Clementz BA**. Ocular motor delayed-response task performance among schizophrenia patients. *Neuropsychobiology* 1996; 34: 67-71.
31. **Clementz BA**. The ability to produce express saccades as a function of gap interval among schizophrenia patients. *Experimental Brain Research* 1996; 111: 121-130.
32. Farber RH, **Clementz BA**, Swerdlow NR. Characteristics of open- and closed-loop smooth pursuit responses among obsessive-compulsive disorder, schizophrenia, and nonpsychiatric individuals. *Psychophysiology* 1997; 34: 157-162.
33. Sponheim SR, Iacono WG, **Clementz BA**, Beiser M. Season of birth and EEG power abnormalities in schizophrenia. *Biological Psychiatry* 1997; 41: 1020-1027.
34. **Clementz BA**, Geyer MA, Braff DL. P50 suppression among schizophrenia and normal comparison subjects. *Biological Psychiatry* 1997; 41: 1035-1044.
35. McDowell JE, **Clementz BA**. Effect of fixation condition manipulation on antisaccade performance in schizophrenia: studies of diagnostic specificity. *Experimental Brain Research* 1997; 115: 333-344.
36. **Clementz BA**, Blumenfeld LD, Cobb S. The gamma band response may account for poor P50 suppression in schizophrenia. *NeuroReport*, 1997; 8: 3889-3893.
37. **Clementz BA**, Geyer MA, Braff DL. Multiple site evaluation of P50 suppression among schizophrenia and normal comparison subjects. *Schizophrenia Research* 1998; 30: 71-80.
38. Kissler J, **Clementz BA**. Fixation stability among schizophrenia patients. *Neuropsychobiology* 1998; 38: 57-62.
39. **Clementz BA**. Psychophysiological measures of (dis)inhibition as liability indicators for schizophrenia. *Psychophysiology* 1998; 35: 648-668.
40. **Clementz BA**, Geyer MA, Braff DL. Poor P50 suppression among schizophrenia patients and their first-degree biological relatives. *American Journal of Psychiatry* 1998; 155: 1691-1694.
41. Rockstroh B, **Clementz BA**, Pantev C, Blumenfeld LD, Sterr A, Elbert T. Failure of dominant left-hemispheric activation to right-ear stimulation in schizophrenia. *NeuroReport*, 1998; 9: 3819-3822.
42. McDowell BA, Myles-Worsley M, Coon H, Byerley W, **Clementz BA**. Assessing liability for schizophrenia using optimized antisaccade stimulus parameters. *Psychophysiology* 1999; 36: 138-141.
43. Farber RH, Swerdlow NR, **Clementz BA**. Saccadic performance characteristics and the behavioral neurology of Tourette syndrome. *Journal of Neurology, Neurosurgery, and Psychiatry* 1999; 66: 305-312.
44. Blumenfeld LD, **Clementz BA**. Hemispheric differences on auditory evoked response suppression in schizophrenia. *NeuroReport* 1999; 10: 2587-2591.
45. Myles-Worsley M, Coon H, McDowell JE, Brenner C, Hoff M, Holik J, Lind B, Rosenthal J, Bennett P, Freedman R, **Clementz BA**, Byerley W. Linkage of a composite inhibitory phenotype to a chromosome 22q locus in eight Utah families. *American Journal of Medical Genetics* 1999; 88: 544-550.
46. **Clementz BA**, Iacono WG. Nosology and diagnosis. In A. S. Bellack and M. Hersen (Eds.), *Psychopathology in Adulthood: An Advanced Text (2nd ed)* 2000; New York: Allyn and Bacon.
47. Light GA, Geyer MA, **Clementz BA**, Cadenhead KS, Braff DL. Normal P50 suppression in schizophrenia patients treated with atypical antipsychotic medications. *American Journal of Psychiatry* 2000; 157: 767-771.
48. Sponheim SR, **Clementz BA**, Iacono WG, Beiser M. Clinical and biological concomitants of resting state EEG power abnormalities in schizophrenia. *Biological Psychiatry* 2000; 48: 1088-1097.

49. McDowell JE, Brenner CA, Myles-Worsley M, Coon H, Byerley W, **Clementz BA**. Ocular motor delayed response task performance in schizophrenia patients and their biological relatives. *Psychophysiology* 2001; 38: 153-156.
50. Brenner CA, McDowell JE, Cadenhead K, **Clementz BA**. Saccadic inhibition among schizotypal personality disorder and schizophrenia subjects. *Psychophysiology* 2001; 38: 399-403.
51. McDowell JE, **Clementz BA**. Behavioral and brain imaging studies of saccadic performance in schizophrenia. *Biological Psychology* 2001; 57: 5-22.
52. **Clementz BA**, Blumenfeld LD. Multichannel EEG assessment of auditory evoked response suppression in schizophrenia. *Experimental Brain Research* 2001; 139: 377-390.
53. Blumenfeld LD, **Clementz BA**. Response to the first stimulus determines reduced auditory evoked response suppression in schizophrenia: single trial analyses using MEG. *Clinical Neurophysiology* 2001; 112: 1650-1659.
54. **Clementz BA**, McDowell JE, Stewart SE. Timing and magnitude of frontal activity differentiates refixation and anti-saccade performances. *NeuroReport* 2001; 12: 1863-8.
55. **Clementz BA**, Barber SK, Dzau JR. Knowledge of stimulus repetition affects the magnitude and spatial distribution of low-frequency event-related brain potentials. *Audiology and Neuro-Otology* 2002; 7: 303-14.
56. Finney EM, **Clementz BA**, Hickok G, Dobkins KR. Visual stimuli activate auditory cortex in the deaf: evidence from MEG. *NeuroReport* 2003; 14: 1425-7.
57. **Clementz BA**, Dzau JR, Blumenfeld LD, Kissler J. Ear of stimulation determines schizophrenia-normal brain activity differences in an auditory paired-stimuli paradigm. *European Journal of Neuroscience* 2003; 18: 2853-8.
58. **Clementz BA**, Keil A, Kissler J. Aberrant brain dynamics in schizophrenia: delayed onset and prolonged decay of the visual steady-state response. *Cognitive Brain Research* 2004; 18: 121-9.
59. Feifel D, Farber RH, **Clementz BA**, Perry W, Anllo-Vento L. Oculomotor behavior in adults with attention-deficit hyperactivity disorder. *Biological Psychiatry* 2004; 56: 333-9.
60. Gilmore C, **Clementz BA**, Buckley P. Rate of stimulation affects schizophrenia-normal differences on the N1 auditory-evoked potential. *NeuroReport* 2004; 15: 2713-17.
61. Gilmore C, **Clementz BA**, Buckley P. Stimulus sequence affects schizophrenia-normal differences in event processing during an auditory oddball task. *Cognitive Brain Research* 2005; 24: 215-27.
62. McDowell JE, Kissler J, Berg P, Dyckman K, Gao Y, Rockstroh B, **Clementz BA**. An EEG/MEG study of cortical activities preceding pro-and anti-saccades. *NeuroReport* 2005; 16: 663-8.
63. Campbell WK, Krusemark EA, Dyckman KA, Brunell AB, McDowell JE, Twenge JM, **Clementz BA**. A magnetoencephalography study of neural substrates for social exclusion and self-control. *Social Neuroscience* 2006; 1: 124-34.
64. Camchong J, Goodie AS, McDowell JE, Gilmore C, **Clementz BA**. A cognitive neuroscience approach to studying the role of overconfidence in problem gambling. *Journal of Gambling Studies* 2007; 23:185-99.
65. Wang J, **Clementz BA**, Keil A. The neural correlates of feature-based selective attention when viewing spatially and temporally overlapping images. *Neuropsychologia* 2007; 45:1393-9.
66. Sweeney JA, Luna B, Keedy SK, McDowell JE, **Clementz BA**. fMRI studies of eye movement control. *NeuroImage* 2007; 36 (Supplement 2): T54-T60.
67. **Clementz BA**, Brahmbhatt SB, McDowell JE, Brown R, Sweeney JA. When does the brain inform the eyes whether and where to move? An EEG study in humans. *Cerebral Cortex* 2007; 17: 2634-43.
68. Dyckman K, Camchong J, **Clementz BA**, McDowell JE. An effect of context on saccade-related behavior and brain activity. *NeuroImage* 2007; 36: 774-84.
69. **Clementz BA**, McDowell JE, Dobkins KD. Compromised speed discrimination among schizophrenia patients when viewing smooth pursuit targets. *Schizophrenia Research* 2007; 95: 61-4.
70. Gao Y, Boyd M, Poon L, **Clementz BA**. Age-associated hemispheric asymmetry reduction on the auditory M100 to nonverbal stimuli. *Brain Imaging and Behavior* 2007; 1: 93-101.
71. Moratti S, **Clementz BA**, Gao Y, Ortiz T, Keil A. Neural mechanisms of evoked oscillations: stability and interaction with transient events. *Human Brain Mapping* 2007; 28: 1318-1333.
72. Krusemark EA, Campbell WK, **Clementz BA**. Attributions, deception, and event-related potentials: an investigation of the self-serving bias. *Psychophysiology* 2008; 45: 511-515.
73. McDowell JE, Dyckman K, Austin B, **Clementz BA**. Neurophysiology and neuroanatomy of reflexive and volitional saccades: evidence from studies of humans. *Brain and Cognition* 2008; 68: 255-270.
74. Camchong J, Dyckman K, Austin B, **Clementz BA**, McDowell JE. Common neural circuitry supporting volitional saccades and their disruption in schizophrenia patients and relatives. *Biological Psychiatry* 2008; 64: 1042-1050.
75. **Clementz BA**, Wang J, Keil A. Normal electrocortical facilitation but abnormal target identification during visual sustained attention in schizophrenia. *Journal of Neuroscience* 2008; 28: 13411-13418.
76. Ethridge LE, Brahmbhatt SB, Gao Y, McDowell JE, **Clementz BA**. Consider the context: blocked versus interleaved presentation of antisaccade trials. *Psychophysiology* 2009; 46: 1100-1107.
77. Gilmore C, **Clementz BA**, Berg P. Hemispheric differences in auditory oddball responses during monaural versus binaural stimulation. *International Journal of Psychophysiology* 2009; 73: 326-333.

78. Brenner, CA, Kieffaber PD, **Clementz BA**, Johannesen JK, Shekhar A, O'Donnell BF, Hetrick WP. Early event-related potential abnormalities in schizophrenia: A failure to "gate in" salient information? *Schizophrenia Research* 2009; 113: 332-338.
79. Knight JB, Brigham TD, Ethridge, LE, **Clementz BA**, Marsh RL. Neural substrates of prospective memory. *Frontiers in Human Neuroscience* 2010; 4 (Article 5): 1-13.
80. Wang J, Brown R, Dobkins KR, McDowell JE, **Clementz BA**. Diminished parietal cortex activity accounts for poor motion direction discrimination performance in schizophrenia. *Cerebral Cortex* 2010; 20: 1749-55.
81. Hamm JP, Dyckman KA, Ethridge LE, McDowell LE, **Clementz BA**. Preparatory cortical activations across a distributed network determine production of express saccade in humans. *Journal of Neuroscience* 2010; 30: 7350-7.
82. **Clementz BA**, Gao Y, McDowell JE, Moratti S, Keedy SK, Sweeney JA. Top-down control of visual sensory processing during an ocular motor response inhibition task. *Psychophysiology* 2010; 47: 1011-8.
83. Dishman RK, Thom NJ, Puetz TW, O'Conner PJ, **Clementz BA**. Effects of cycling exercise on vigor, fatigue and electroencephalographic activity among young adults who report persistent fatigue. *Psychophysiology* 2010; 47:1066-74.
84. McDowell JE, Sweeney JA, **Clementz BA**. Eye movements in psychiatric patients. In Liversedge S, Gilchrist I, Everling S (Eds), The Oxford Handbook of Eye Movements 2011 (pp 687-708); Oxford University Press.
85. Hamm JP, Gilmore C, Picchetti NA, Sponheim SR, **Clementz BA**. Abnormalities of neural oscillations and temporal integration to low and high frequency auditory stimulation in schizophrenia. *Biological Psychiatry* 2011; 69:989-996.
86. Ethridge LE, Moratti S, Gao Y, Keil A, **Clementz BA**. Sustained versus transient brain responses in schizophrenia: the role of intrinsic neural activity. *Schizophrenia Research* 2011; 133:106-111.
87. Wang J, McDowell JE, Dobkins KD, **Clementz BA**. Neural response to the second stimulus determines poor speed discrimination performance in schizophrenia. *Psychophysiology* 2012; 49(2):198-206.
88. Hamm JP, Ethridge LE, Shapiro JR, Stevens MC, Boutros NN, Summerfelt AT, Keshavan MS, Sweeney JA, Pearlson GD, Tamminga CA, Thaker G, **Clementz BA**. Spatio-temporal and frequency domain analysis of auditory paired stimuli processing in schizophrenia and psychotic bipolar disorder. *Psychophysiology* 2012; 49(4):522-530.
89. Hamm JP, Dyckman KD, McDowell JE, **Clementz BA**. Preparatory fronto-occipital alpha phase and distributed cortical oscillations predict failures of cognitive control. *Journal of Neuroscience* 2012; 32(20):7034-41.
90. vanDellen MR, Knowles ML, Krusemark E, Sabet RF, Campbell WK, McDowell JE, **Clementz BA**. Trait self-esteem moderates decreases in self-control following rejection: An information processing account. *European Journal of Personality* 2012; 26(2):123-132.
91. Hamm JP, Gilmore C, **Clementz BA**. Augmented gamma band auditory steady-state responses: support for NMDA hypofunction in schizophrenia. *Schizophrenia Research* 2012; 138(1):1-7.
92. Hamm JP, Sabatinelli D, **Clementz BA**. Alpha oscillations and the control of voluntary saccadic behavior. *Experimental Brain Research* 2012; 221:123-128.
93. Knight JB, Marsh RL, Brewer GA, **Clementz BA**. Preparatory distributed cortical synchronization determines execution of some, but not all, future intentions. *Psychophysiology*; 2012; 49:1155-1167.
94. Li Q, Amlung MT, Valtcheva M, Camchong J, Austin BP, Dyckman DA, Unsworth N, **Clementz BA**, McDowell JE. Evidence from cluster analysis for differentiation of antisaccade performance groups based on speed/accuracy tradoffs. *International Journal of Psychophysiology* 2012; 85(2):274-277.
95. Ethridge LE, Hamm JP; Shapiro JR, Stevens MC, Boutros NN, Summerfelt AT, Keshavan MS, Sweeney JA, Pearlson GD, Tamminga CA, Thaker G, **Clementz BA**. Neural activations during auditory oddball processing discriminating schizophrenia and psychotic bipolar disorder. *Biological Psychiatry* 2012; 72(9):766-774.
96. Ethridge LE, Malone SM, Iacono WG, **Clementz BA**. Genetic influences on composite neural activations supporting visual target detection. *Biological Psychology 2012*; 92:329-341.
97. Hudgens-Haney ME, Hamm JP, Goodie AS, Krusemark EA, McDowell JE, **Clementz BA**. Neural correlates of the impact of control on decision making in pathological gamblers. *Biological Psychology* 2012; 92:365-372.
98. Keshavan MS, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA. Reimaging psychoses: an agnostic approach to diagnosis. *Schizophrenia Research*; 2013; 146:10-16.
99. Skudlarski P, Schretlen DJ, Thaker GK, Stevens MC, Keshavan MS, Sweeney JA, Tamminga CA, **Clementz BA**, O'Neil K, Pearlson GD. Diffusion tensor imaging white matter endophenotypes in patients with schizophrenia or psychotic bipolar disorder and their relatives. *American Journal of Psychiatry* 2013; 170:1263-1274.
100. Giakoumatos CI, Tandon N, Shah J, Mathew IT, Brady RO, **Clementz BA**, Pearlson GD, Thaker GK, Tamminga CA, Sweeney JA, Keshavan MS. Are structural brain abnormalities associated with suicidal behavior in patients with psychotic disorders? J Psychiatr Res 2013; 47:1389-1395.
101. Tamminga CA, Ivleva EI, Keshavan MS, Pearlson GD, **Clementz BA**, Morris D, Witte, B, Eliot A, Thaker GK, Sweeney JA. Characterizing the Psychosis Phenotype: Bipolar and Schizophrenia Network on Intermediate Phentypes (B-SNIP). *Am J. Psychiatry* 2013; 170:1263-1274.
102. Hamm JP, Ethridge LE, Shapiro JR, Pearlson GD, Tamminga CA, Sweeney JA, Keshavan MS, Thaker G, **Clementz BA**. Intact early auditory cortical responses mark resilience to psychosis in bipolar disorder. *Bipolar Disorders* 2013; 15:774-786.

103. Ivleva EI, Bidesi AS, Keshavan MS, Pearlson GD, Meda SA, Dodig D, Moates AF, Francis A, Tandon N, Schretlen DJ, Sweeney JA, **Clementz BA**, Tamminga CA. Gray matter volume as an intermediate phenotype for psychosis: Bipolar and Schizophrenia Network on Intermediate Phenotypes (B-SNIP). *Am J Psychiatry* 2013; 170:1285-96.
104. Thom NJ, Knight J, Dishman RK, Sabatinelli D, **Clementz BA**. Early and late event-related potential correlates of emotional face and scene processing. *Cognitive, Affective, and Behavioral Neuroscience* 2014; 14:849-60.
105. Tamminga CA, Pearlson GD, Keshavan M, Sweeney JA, **Clementz BA**, Thaker G. Bipolar and schizophrenia network for intermediate phenotypes (B-SNIP): Outcomes across the psychosis continuum. *Schizophrenia Bulletin* 2014; 40 Suppl 2: S131-137.
106. Nanda P, Tandon N, Mathew IT, Giakoumatos CI, Abhishekh HA, **Clementz BA**, Pearlson G, Sweeney JA, Tamminga C, Keshavan MS. Local gyrification index in probands with psychotic disorders and their first-degree relatives. *Biological Psychiatry* 2014; 76:447-55.
107. Hamm JP, Ethridge LE, Boutros NN, Keshavan MS, Sweeney JA, Pearlson GD, Tamminga CA, **Clementz BA**. Diagnostic Specificity and Familiality of Early vs Late Evoked Potentials to Auditory Paired-Stimuli across the Schizophrenia-Bipolar Psychosis Spectrum. *Psychophysiology* 2014; 51:348-357.
108. Ivleva EI, Moates AF, Hamm JP, Bernstein IH, O'Neill HB, Cole D, **Clementz BA**, Thaker GK, Tamminga CA. Smooth pursuit eye movement, prepulse inhibition, and auditory paired stimuli processing endophenotypes across schizophrenia-bipolar disorder psychosis dimension. *Schizophrenia Bulletin* 2014; 40:642-52.
109. Narayanan B, O'Neill K, Berwine C, Stevens MC, **Clementz BA**, Tamminga CA, Sweeney JA, Keshavan MS, Pearlson GD. Resting electroencephalography oscillatory abnormalities in schizophrenia, psychotic bipolar patients and their first-degree relatives. *Biological Psychiatry* 2014; 76:456-65.
110. Mathew I, Gardin TM, Tandon N, Eack S, Francis AN, Seidman LJ, **Clementz B**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Medial temporal lobe structures and hippocampal subfields in psychotic disorders: findings from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) study. *JAMA Psychiatry* 2014; 71:769-77.
111. Meda SA, Ruano G, Windemuth A, O'Neil K, Berwise C, Dunn S, Boccaccio L, Narayanen B, Kocherla M, Sprooten E, Keshavan MS, Tamminga CA, Sweeney JA, **Clementz BA**, Calhoun VD, Pearlson GD. Multivariate analysis reveals genetic associations of the resting default mode network in psychotic bipolar disorder and schizophrenia. *Proc Natl Acad Sci USA* 2014; 111:E2066-75.
112. Ethridge LE, Hamm JP, Pearlson GD, Tamminga CA, Sweeney JA, Keshavan MS, **Clementz BA**. Event-related potential and time-frequency endophenotypes for schizophrenia and psychotic bipolar disorder. *Biological Psychiatry* 2014; 77:127-36.
113. Arnold SJM, Ivleva EI, Gopal BS, Reddy AP, Jeon-Slaughter H, Sacco CB, Francis AN, Tandon N, Bidesi AS, Witte B, Poudyal G, Pearlson GD, Sweeney JA, **Clementz BA**, Keshavan MS, Tamminga CA. Hippocampal volume as a putative psychosis biomarker. *Schizophr Bull* 2014; 41:233-49.
114. Padmanabhan JL, Tandon N, Haller CS, Mathew IT, Eack SM, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Correlations Between Brain Structure and Symptom Dimensions of Psychosis in Schizophrenia, Schizoaffective, and Psychotic Bipolar I Disorders. *Schizophr Bull* 2015; 41:154-62.
115. **Clementz BA**, Sweeney JA Keshavan MS, Pearlson GD, Tamminga CA. Using biomarker batteries. *Biological Psychiatry* 2015; 77:90-2.
116. Giakoumatos CI, Nanda P, Mathew IT, Tandon N, Shah J, Bishop JR, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Effects of lithium on cortical thickness and hippocampal subfield in psychotic bipolar disorder. *J Psychiatr Res* 2015; 61:180-7.
117. Hamm JP, Bobilev AM, Hayrynen LK, Hudgens-Haney ME, Oliver WT, Parker DA, McDowell JE, Buckley PA, **Clementz BA**. Stimulus train duration but not attention moderates γ-band entrainment abnormalities in schizophrenia. *Schizophr Res* 2015; 165:97-102.
118. Narayanan B, Ethridge LE, O'Neil K, Dunn S, Mathew I, Tandon N, Calhoun VD, Ruaño G, Kocherla M, Windemuth A, **Clementz BA**, Tamminga CA, Sweeney JA, Keshavan MS, Pearlson GD. Genetic sources of subcomponnts of event-related potential in the dimension of psychosis analyzed from the B-SNIP study. *Am J Psychiatry* 2015; 172:466-78.
119. Meda SA, Wang Z, Ivleva EI Poudyal G, Keshavan MS, Tamminga CA, Sweeney JA, **Clementz BA**, Schretlen D, Calhoun VD, Lui S, Damaraju E, Pearlson GD. Frequency specific neural signatures of spontaneous low-frequency resting state fluctuations in psychosis: evidence from Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) consortium. *Schizophr Bull* 2015; 41:1336-48.
120. Narayanan B, Soh P, Ruaño G, Kocherla M, Windemuth A, Calhoun V, **Clementz BA**, Tamminga C, Sweeney JA, Keshavan M, Pearlson G. Multivariate genetic determinants of EEG oscillations in schizophrenia and psychotic bipolar disorder from the BSNIP study. *Transl Psychiatry* 2015; 5:e588.
121. **Clementz BA**, Sweeney JA, Hamm JP, Ivleva EI, Ethridge LE, Pearlson GD, Keshavan MS, Tamminga CA. Identification of distinct psychosis biotypes using brain-based biomarkers. *Am J Psychiatry* 2015; 173(4): 373-84.
122. Soh P, Narayanan B, Khadka S, Calhoun VD, Keshavan MS, Tamminga CA, Sweeney JA, **Clementz BA**, Pearlson GD. Joint coupling of awake EEG frequency activity and MRI gray matter volumes in the psychosis dimension: a BSNIP study. *Front Psychiatry* 2015; 6:162.

123. Schaeffer DJ, Rodrigue AL, Burton CR, Pierce JE, Unsworth N, **Clementz BA**, McDowell JE. White matter structural integrity differs between people with schizophrenia and healthy groups as a function of cognitive control. *Schizophr Res* 2015; 169:62-8.
124. Lencer R, Sprenger A, Reilly JL, McDowell JE, Rubin LH, Badner JA, Keshavan MS, Pearlson GD, Tamminga CA, Gershon ES, **Clementz BA**, Sweeney JA. Pursuit eye movements as an intermediate phenotype across psychotic disorders: evidence from the B-SNIP study. *Schizophr Res* 2015; 169:326-33.
125. Samudra N, Ivleva EI, Hubbard NA, Rypma B, Sweeney JA, **Clementz BA**, Keshavan MS, Pearlson GD, Tamminga CA. Alterations in hippocampal connectivity across the psychosis dimension. *Psychiatry Res* 2015; 233:148-57.
126. Mothi SS, Tandon N, Padmanabhan J, Mathew IT, **Clementz BA**, Tamminga C, Pearlson G, Sweeney J, Keshavan MS. Increased cardiometabolic dysfunction in first-degree relatives of patients with psychotic disorders. *Schizophr Res* 2015; 165:103-7.
127. Wang Z, Meda SA, Keshavan MS, Tamminga CA, Sweeney JA, **Clementz BA**, Schretlen DJ, Calhoun VD, Lui S, Pearlson GD. Large-scale fusion of gray matter and resting-state functional MRI reveals common and distinct biological markers across the psychosis spectrum in the B-SNIP Cohort. Front Psychiatry 2015; 6:174.
128. Nanda P, Tandon N, Mathew IT, Padmanabhan JL, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Impulsivity across the schizophrenia spectrum: correlates of cortical volume, suicidal history, and social and global function. Schizophr Res 2016; 170:80-6.
129. Hochberger WC, Hill SK, Nelson CL, Reilly JL, Keefe RS, Pearlson GD, Keshavan MS, Tamminga CA, **Clementz BA**, Sweeney JA. Unitary contruct of generalized cognitive ability underlying BACS performance across psychotic disorders and in their first-degree relatives. Schizophr Res 2016; 170:156-61.
130. Pearlson GD, **Clementz BA**, Sweeney JA, Keshavan MS, Tamminga CA. Does biology transcend the symptom-based boundaries of psychosis? Psychiatr Clin North Am 2016; 39:165-74.
131. Padmanabhan JL, Nanda P, Tandon N, Mothi SS, Bolo N, McCarrol S, **Clementz BA**, Gershon ES, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Polygenic risk for type 2 diabetes mellitus aong individuals with psychosis and the relatives. J Psychiatr Res 2016; 77:52-8.
132. Mokhtari M, Narayanan B, Hamm JP, Soh P, Calhoun VD, Ruaño G, Kocherla M, Windemuth A, **Clementz BA**, Tamminga CA, Sweeney JA, Keshavan MS, Pearlson GD. Multivariate genetic correlates of the auditory paired stimuli-based P2 event-related potential in the psychosis dimension from the BSNIP study. *Schizophr Bull* 2016; 42:851-62.
133. Rubin LH, Connelly JJ, reilly JL, Carter CS, Drogos LL, Pournajafi-Nazarloo H, Ruocco AC, Keedy SK, Matthew I, Tandon N, Pearlson GD, **Clementz BA**, Tamminga CA, Gershon ES, Keshavan MS, Bishop JR, Sweeney JA. Sex and diagnosis specific asociations between DNA methylation of the xytosin receptor gene with emotion processing and temporal-limbic and pre-frontal brain volumes in psychotic disorders. Biol Psychiatry Cogn Neurosci Neuroimaging 2016; 1:141-151.
134. Hayrynen LK, Hamm JP, Sponheim SR, **Clementz BA**. Frequency-specific disruptions of neuronal oscillations reveal aberrant auditory processing in schizophrenia. Psychophysiology 2016; 53:786-95.
135. **Clementz BA.** Challenges facing the identification of neurobioloically distinct psychosis subtypes: response to Neuhaus. Am J Psychiatry 2016; 173:838-9.
136. Frances AN, Mothi SS, Mathew IT, Tandon N, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CA, Keshavan MS. Callosal abnormalities across the psychosis dimension: Bipolar Schizophrenia Network on Intermediate Phenotypes. Biol Psychiatry 2016; 80(8):627-35.
137. Meda SA, **Clementz BA**, Sweeney JA, Keshavan MS, Tamminga CA, Ivleva EI, Pearlson GD. Examining functional resting-state connectivity in psychosis and its subgroups in the Bipolar-Schizophrenia Network on Intermediate Phenotypes Cohort. Biol Psychiatry Cogn Neurosci Neuroimaging 2016; 1(6):488-97.
138. Clementz BA, Keshavan M, Pearlson, G, Sweeney, JA, Tamminga CA. Phenotypes of Psychosis. In Kaplan and Sadock's Comprehensive Textbook of Psychiatry, Lippincott, Williams, & Wilkins, 2017.
139. Reilly JL, Hill, SK, Gold JM, Keefe RS, **Clementz BA**, Gershon E, Keshavan MS, Pearlson G, Tamminga CA, Sweeney JA. Impaired context processing is attributable to global neuropsychlogical impairment in schizophrenia and psychotic bipolar disorder. Schizophr Bull 2017; 43(2):397-406.
140. Ivleva EI, **Clementz BA**, Dutcher AM, Arnold SJ, Jeon-Slaughter H, Aslan S, Witte B, Poudyal G, Lu H, Meda SA, Pearlson GD, Sweeney JA, Keshavan MS, Tamminga CA. Brain structure biomarkers in the psychosis Biotypes: findings from the Bipolar-Schizophrenia Network for Intermediate Phenotypes. Biol Psychiatry 2017; 82(1):26-39.
141. Tandon N, Nanda P, Padmanabhan JL, Mathew IT, Eack SM, Narayanan B, Meda SA, Bergen SE, Ruano G, Windemuth A, Kocherla M, Petryshen TL, **Clementz BA**, Sweeney JA, Tamminga CT, Pearlson GD, Keshavan MS. Novel gene-brain structure relationships in psychotic disorder revealed using parallel independent component analysis. Schizophr Res 2017; 182:74-83.
142. Hager B, Yang AC, Brady R, Meda S, **Clementz BA**, Pearlson GD, Sweeney JA, Tamminga CT, Keshavan M. Neural complexity as a potential translational biomarker for psychosis. J Affect Disord 2017:216:89-99.
143. Rubin LH, Yao L, Keedy SK, Reilly JL, Bishop JR, Carter CS, Pournajafi-Nazarloo H, Drogos LL, Tamminga CA, Pearlson GD, Keshavan MS, **Clementz BA**, Hill SK, Liao W, Ji GJ, Lui S, Sweeney JA. Sex differences in associations of arginine vasopressin and oxytocin with resting state functional connectivity. J Neurosci Res 2017; 95(1-2):576-586.

144. Tamminga CT, Pearlson GD, Stan AD, Gibbons RD, Padmanabhan J, Keshavan MS, **Clementz BA**. Strategies for advancing disease definition using biomarkers and genetics: The Biopolar and Schizophrenia Network for Intermediate Phenotypes. Biol Psychiatry Cogn Neurosci Neuroimaging 2017; 2(1):20-27.
145. Du Y, Pearlson GD, Lin D, Sui J, Chen J, Salman M, Tamminga CA, Ivleva EI, Sweeney JA, Keshavan MS, **Clementz BA**, Bustillo J, Calhoun VD. Identifying dynamic functional connectivity biomarkers using GIG-ICA: application to schizophrenia, schizoaffective disorder, and psychchotic bipolar disorder. Human Brain Mapping 2017; 38(5):2683-2708.
146. Sheffield JM, Kandala S, Tamminga CA, Pearlson GD, Keshavan MS, Sweeney JA, **Clementz BA**, Lerman-Sinkoff DB, Hill SK, Barch DM. Transdiagnostic associations between functional brain network integrity and cognition. JAMA Psychiatry 2017; 74(6):605-613.
147. Eum S, Hill SK, Rubin LH, Carnahan RM, Reilly JL, Ivleva EI, Keedy SK, Tamminga CA, Pearlson GD, **Clementz BA**, Gershon ES, Keshavan MS, Keefe RS, Sweeney JA, Bishop JR. Cognitive burden of anticholinergic medications in psychotic disorders. Schizophr Res 2017; 190:129-135.
148. Hudgens-Haney ME, Ethridge LE, Knight JB, McDowell JE, Keedy SK, Pearlson GD, Tamminga CA, Keshavan MS, Sweeney JA**, Clementz BA**. Intrinsic neural activity differences among psychotic illnesses. Psychophysiology 2017; 54(8):1223-1238.
149. Schaeffer DL, Rodrigue AL, Burton CR, Pierce JE, Murphy MN, **Clementz BA**, McDowell JE. White matter fiber integrity of the saccadic eye movement network differs between schizophrenia and healthy groups. Psychophysiology 2017; 54(12):1967-1977.
150. Lencer R, Mills LJ, Alliey-Rodriguez N, Shafee R, Lee AM, Reilly JL, Sprenger A, McDowell JE, McCarroll SA, Keshavan MS, Pearlson GD, Tamminga CA, **Clementz BA**, Gershon ES, Sweeney JA, Bishop JR. Genome-wide association studies of smooth pursuit and antisaccade eye movements in psychotic disorders: findings from the B-SNIP study. Translational Psychiatry 2017; 9(10); e1249.
151. Hochberger WC, Combs T, Reilly JL, Bishop JR, Keefe RSE, Clementz BA, Keshavan MS, Pearlson GD, Tamminga CA, Hill SK, Sweeney JA. Deviation from expected cognitive ability across psychotic disorders. Schizophr Res 2018; 192:300-307.
152. Hudgens-Haney ME, Ethridge LE, McDowell JE, Keedy SK, Pearlson GD, Tamminga CA, Keshavan MS, Sweeney JA**, Clementz BA**. Psychosis subgroups differ in intrinsic activity but not task-specific processing. Schizophr Res 2018; 195:222-230.
153. Gershon ES, Pearlson G, Keshavan MS, Tamminga C, **Clementz BA**, Buckley PF, Alliey-Rodriguez N, Liu C, Sweeney JA, Keedy S, Meda S, Tandon N, Shaffee R, Bishop JR, Ivleva EI. Genetic analysis of deep phenotyping projects in common disorders. Schizophr Res 2018; 195:51-57.
154. Rodrigue AL, McDowell JE, Tandon N, Keshavan MS, Tamminga CA, Pearlson GD, Sweeey JA, Gibbons RD, **Clementz BA**. Multivariate relationships between cognition and brain anatomy across the psychosis spectrum. Biol Psychiatry: CNNI 2018; 3(12):992-1002.
155. Chen J, Calhoun VD, Lin D, Perrone-Bizzozero NI, Bustillo JR, Pearlson GD, Potkin SG, van Erp TGM, Macciardi F, Ehrlich S, Ho BC, Sponheim SR, Wang L, Stephen JM, Mayer AR, Hanlon FM, Jung RE, **Clementz BA**, Keshavan MS, Gershon ES, Sweeney JA, Tamminga CA, Andreassen OA, Agartz I, Westlye LT, Sui J, Du Y, Turner JA, Liu J. Shared genetic risk of schizophrenia and gray matter reduction in 6p22. 1. Schizophrenia Bull 2018; 45(1):222-232.
156. Rodrigue AL, Schaeffer DJ, Pierce JE, **Clementz BA**, McDowell JE. Evaluating the Specificity of Cognitive Control Deficits in Schizophrenia Using Antisaccades, Functional Magnetic Resonance Imaging, and Healthy Individuals with Poor Cognitive Control. Frontiers in Psychiatry 2018; 9:107 (https://doi.org/10.3389/fpsyt.2018.00107).
157. Shafee R, Nanda P, Padmanabhan JL, Tandon N, Alliey-Rodriguez N, Kalapurakkel S, Weiner DJ, Gur RE, Keefe RSE, Hill SK, Bishop JR, **Clementz BA**, Tamminga CA, Gershon ES, Pearlson GD, Keshavan MS, Sweeney JA, McCarroll SA, Robinson EB. Polygenic risk for schizophrenia and measured domains of cognition in individuals with psychosis and controls. Translational Psychiatry 2018; 8:78.
158. Abush H, Ghose S, Van Enkevort EA, **Clementz BA**, Pearlson GD, Sweeney JA, Keshavan MS, Tamminga CA, Ivleva EI. Associations between adolescent cannabis use and brain structure in psychosis. Psychiatry Research: Neuroimaging 2018; 276:53-64.
159. Lizano P, Lutz O, Ling G, Padmanabhan J, Tandon N, Sweeney J, Tamminga C, Pearlson G, Ruaño G, Kocherla M, Windemuth A, **Clementz BA**, Gershon E, Keshavan M. VEGFA GENE variation influences hallucinations and frontotemporal morphology in psychotic disorders: a B-SNIP study. Translational Psychiatry 2018; 8(1):215.
160. Rubin LH, Li S, Yao L, Keedy SK, Reilly JL, Hill SK, Bishop JR, Carter CS, Pournajafi-Nazarloo H, Drogos LL, Gershon E, Pearlson GD, Tamminga CA, **Clementz BA**, Keshavan MS, Lui S, Sweeney JA. Peripheral oxytocin and vasopressin modulates regional brain activity differently in men and women with schizophrenia. Schizophrenia Res 2018; 202:173-179.
161. Burton CR, Schaeffer DJ, Bobilev AM, Pierce JE, Rodrigue AL, Krafft CE, **Clementz BA**, Lauderdale JD, McDowell JE. Microstructural differences in visual white matter tracts in people with aniridia. Neuroreport 2018; 29(17):1473-1478.
162. Wang LY, Chung J, Park C, Choi H, Rodrigue AL, Pierce JE, **Clementz BA**, McDowell JE. Regularized aggregation of statistical parametric maps. Human Brain Mapping 2019; 40(1):65-79.

163. Lencer R, Yao L, Reilly JL, Keedy SK, McDowell JE, Keshavan MS, Pearlson JD, Tamminga CA, Gershon ES, **Clementz BA**, Lui S, Sweeney JA. Alterations in intrinsic fronto-thalamo-parietal connectivity are associated with cognitive control deficits in psychotic disorders. Human Brain Mapping 2019; 40(1): 163-174.
164. Reininghaus U, Böhnke JR, Chavez-Baldini UY, Gibbons R, Ivleva E, **Clementz BA**, Pearlson GD, Keshavan MS, Sweeney JA, Tamminga CA. Transdiagnostic dimensions of psychosis in the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP). World Psychiatry 2019; 18(1):67-76.
165. Lizano P, Lutz O, Ling G, Lee AM, Eum A, Bishop JR, Kelly S, Pasternak O, **Clementz B**, Pearlson G, Sweeney JA, Gershon E, Tamminga C, Keshavan M. Association of Choroid Plexus Enlargement With Cognitive, Inflammatory, and Structural Phenotypes Across the Psychosis Spectrum. Am J Psychiatry 2019; 176(7):564-572.
166. Ceravolo SA, Hammond BR, Oliver W, **Clementz B**, Miller LS, Renzi-Hammond LM. Dietary Carotenoids Lutein and Zeaxanthin Change Brain Activation in Older Adult Participants: A Randomized, Double-Masked, Placebo-Controlled Trial. Mol. Nutr. Food Res. 2019; 63:1801051.
167. Oliver W, Renzi-Hammond LM, Thorne SA, **Clementz B**, Miller LS, Hammond BR. Neural Activation During Visual Attention Differs in Individuals with High versus Low Macular Pigment Density. Mol. Nutr. Food Res. 2019; 63:1801052.
168. Thom NJ, O'Connor PJ, **Clementz BA**, Dishman RK. Acute Exercise Prevents Angry Mood Induction but Does Not Change Angry Emotions. Medicine and Science in Sports and Exercise 2019; 51:1451-1459.
169. Ji L, Meda SA, Tamminga CA, **Clementz BA**, Keshavan MS, Sweeney JA, Gershon ES, Pearlson GD. Characterizing functional regional homogeneity (ReHo) as a B-SNIP psychosis biomarker using traditional and machine learning approaches. Schizophrenia Res 2019; 215:430-438.
170. Bobilev AM, Hudgens-Haney ME, Hamm JP, WT, McDowell JE, Lauderdale JD, **Clementz BA**. Early and late auditory information processing show opposing deviations in aniridia Brain Research 2019; 146307.
171. Parker DA, Hamm JP, McDowell JE, Keedy SK, Gershon ES, Ivleva EI, Pearlson GD, Keshavan MS, Tamminga CA, Sweeney JA, **Clementz BA**. Auditory steady-state EEG response across the schizo-bipolar spectrum. Schizophrenia Res 2019; 209:218-226.
172. Pierce JE, **Clementz BA**, McDowell JE. Saccades: Fundamentals and Neural Mechanisms. Eye Movement Research 2019; 11-71.
173. Chen J, Calhoun VD, Lin D, Perrone-Bizzozero NI, Bustillo JR, Pearlson GD, Potkin SG, Van Erp TGM, Macciardi F, Ehrlich S, Ho BC, Sponheim SR, Wang L, Stephen JM, Mayer AR, Hanlon FM, Jung RE, **Clementz BA**, Keshavan MS, Gershon ES, Sweeney JA, Tamminga CA, Andreassen OA, Agartz I, Westlye LT, Jing Sui, Du Y, Turner JA, Liu J. Shared genetic risk of schizophrenia and gray matter reduction in 6p22. 1. Schizophrenia Bulletin 2019; 45:222-232.
174. Alliey-Rodriguez N, Grey TA, Shafee R, Asif H, Lutz O, Bolo NR, Padmanabhan J, Tandon N, Klinger M, Reis K, Spring J, Coppes L, Zeng V, Hegde RR, Hoang DT, Bannai D, Nawaz U, Henson P, Liu S, Gage D, McCarroll S, Bishop JR, Hill S, Reilly JL, Lencer R, **Clementz BA**, Buckley P, Glahn DC, Meda SA, Narayanan B, Pearlson G, Keshavan MS, Ivleva EI, Tamminga C, Sweeney JA, Curtis D, Badner JA, Keedy S, Rapoport J, Liu C, Gershon ES. NRXN1 is associated with enlargement of the temporal horns of the lateral ventricles in psychosis. Translational psychiatry 2019; 9:1-7.
175. Ji JL, Diehl C, Schleifer C, Tamminga CA, Keshavan MS, Sweeney JA, **Clementz BA**, Hill SK, Pearlson G, Yang G, Creatura G, Krystal JH, Repovs G, Murray J, Winkler A, Anticevic A. Schizophrenia exhibits bi-directional brain-wide alterations in cortico-striato-cerebellar circuits. Cerebral Cortex 2019; 29:4463-4487.
176. Mothi SS, Sudarshan M, Tandon N, Tamminga C, Pearlson G, Sweeney J, **Clementz BA**, Keshavan MS. Machine learning improved classification of psychoses using clinical and biological stratification: Update from the bipolar-schizophrenia network for intermediate phenotypes (B-SNIP). Schizophr Res. 2019; 214:60-69. doi: 10.1016/j.schres.2018.04.037.
177. Thomas O, Parker D, Trotti R, McDowell J, Gershon E, Sweeney J, Keshavan MS, Keedy SK, Ivleva E, Tamminga CA, Pearlson GD, **Clementz BA**. Intrinsic neural activity differences in psychosis biotypes: Findings from the Bipolar-Schizophrenia Network on Intermediate Phenotypes (B-SNIP) consortium. Biomarkers in Neuropsychiatry 2019; 1:100002.
178. Stan AD, Tamminga CA, Han K, Kim JB, Padmanabhan J, Tandon N, Hudgens-Haney ME, Keshavan MS, **Clementz BA**, Pearlson GD, Sweeney JA, Gibbons RD. Associating Psychotic Symptoms with Altered Brain Anatomy in Psychotic Disorders Using Multidimensional Item Response Theory Models. *Cerebral Cortex 2019* 30:2939-2947. https://doi.org/10.1093/cercor/bhz285.
179. Dai W, Chen M, Duan W, Zhao L, Bolo NR, Tamminga C, **Clementz BA**, Pearlson GD, Alsop DC, Keshavan MS. Abnormal perfusion fluctuation and perfusion connectivity in bipolar disorder measured by dynamic arterial spin labeling; Bipolar Disorders 2020; 22:401-410. https://doi.org/10.1111/bdi.12856.
180. Zhang W, Du L, Keedy SK, Ivleva EI, Eum S, Yao L, Tamminga CA, **Clementz BA**, Keshavan MS, Pearlson GD, Gershon ES, Bishop JR, Gong Q, Lui S, Sweeney JA. Brain gray matter network organization in psychotic disorders. *Neuropsychopharmacology* 2020; 45:666–674.
181. Asif H, Alliey-Rodriguez N, Keedy S, Tamminga CA, Sweeney JA, Pearlson G, **Clementz BA**, Keshavan MS, Buckley P, Liu C, Neale B, Gershon ES. GWAS significance thresholds for deep phenotyping studies can depend upon minor

allele frequencies and sample size. *Molecular Psychiatry* 2020; 26:2048-2055. https://doi.org/10.1038/s41380-020-0670-3.

182. Hudgens-Haney ME, **Clementz BA**, Ivleva EI, Keshavan MS, Pearlson GD, Gershon ES, Keedy SK, Sweeney JA, Gaudoux F, Bunouf P, Canolle B, Tonner F, Gatti-McArthur S, Tamminga CA. Cognitive Impairment and Diminished Neural Responses Constitute a Biomarker Signature of Negative Symptoms in Psychosis, *Schizophrenia Bulletin* 2020; 46:1269-1281. https://doi.org/10.1093/schbul/sbaa001.
183. Blackburn KM, Ivleva EI, Weir RA, Kim M, Hopkins SC, Hudgens-haney ME, Keedy SK, Geshon ES, Sweeney JA, Keshavan MS, Pearlson GD, **Clementz BA**, Tamminga CA, Vernino S. NMDA receptor antibody seropositivity in psychosis: A pilot study from the Bipolar-Schizophrenia Network for Intermediate Phenotypes (B-SNIP). Schizophr Res 2020; 218:318-320. doi: 10.1016/j.schres.2020.01.004.
184. Trotti RL, Parker DA, Sabatinelli D, Tamminga CA, Gershon ES, Keedy SK, Keshavan MS, Pearlson GD, Sweeney JA, McDowell JE, **Clementz BA**. Electrophysiological correlates of emotional scene processing in bipolar disorder. Journal of Psychiatric Research 2020; 120:83-90.
185. Tamminga CA, **Clementz BA**. Biological fingerprints for psychosis. Neuropsychopharmacology 2020; 45(1):235-237. doi: 10.1038/s41386-019-0505-6.
186. Massa N, Owens AV, Harmon W, Bhattacharya A, Ivleva EI, Keedy SK, Sweeney JA, Pearlson GD, Keshavan MS, Tamminga CA, **Clementz BA**, Duncan E. Relationship of prolonged acoustic startle latency to diagnosis and biotype in the bipolar-schizophrenia network on intermediate phenotypes (B–SNIP) cohort. Schizophrenia Research 2020; 216:357-366.
187. Brakemeier S, Sprenger A, Meyhöfer I, McDowell JE, Rubin JH, Hill SK, Keshavan MS, Pearlson GD, Tamminga CA, Gershon ES, Keedy SK, Sweeney JA, **Clementz BA**, Lencer R. Smooth pursuit eye movement deficits as a biomarker for psychotic features in bipolar disorder - Findings from the PARDIP study. Bipolar Disorders 2020; 22:602-611. DOI: 10.1111/bdi.12865.
188. Okuneye VT, Meda S, Pearlson GD, **Clementz BA**, Keshavan MS, Tamminga CA, Ivleva E, Sweeney JA, Gershon ES, Keedy SK. Resting state auditory-language cortex connectivity is associated with hallucinations in clinical and biological subtypes of psychotic disorders. Neuroimage: Clinical 2020; 27: 102358.
189. Bannai D, Lizano P, Kasetty M, Lutz O, Zeng V, Sarvode S, Kim LA, Hill S, Tamminga C, **Clementz BA**, Gershon E, Pearlson G, Miller JB, Keshavan M. Retinal layer abnormalities and their association with clinical and brain measures in psychotic disorders: A preliminary study. Psychiatry Research: Neuroimaging 2020; 299:111061.
190. Zeng V, Lizano P, Bolo NR, Lutz O, Brady Jr R, Ivleva EI, Dai W, **Clementz BA**, Tamminga C, Pearlson G, Keshavan M. Altered cerebral perfusion in bipolar disorder: A pCASL MRI study. Bipolar Disorders 2020; 23:130-140. https://doi.org/10.1111/bdi.12966.
191. **Clementz BA**, Trotti RL, Pearlson GD, Keshavan MS, Gershon ES, Keedy SK, Ivleva EI, McDowell JE, Tamminga CA. Testing psychosis phenotypes from Bipolar–Schizophrenia Network for Intermediate Phenotypes for clinical application: Biotype characteristics and targets. Biological Psychiatry: Cognitive Neuroscience and Neuroimaging 2020; 5:808-818.
192. Lutz O, Lizano P, Mothi SS, Zeng V, Hegde RR, Hoang DT, Henson P, Brady Jr R, Tamminga CA, Pearlson G, **Clementz BA**, Sweeney JA, Keshavan MS.Do neurobiological differences exist between paranoid and non-paranoid schizophrenia? Findings from the bipolar schizophrenia network on intermediate phenotypes study. Schizophrenia Research 2020; 223:96-104.
193. Herms EN, Bishop JR, Okuneye VT, Tamminga CA, Keshavan MS, Pearlson GD, **Clementz BA**, McDowell JE, Ivleva EI, Gershon ES, Sweeney JA, Keedy SK. No connectivity alterations for striatum, default mode, or salience network in association with self-reported antipsychotic medication dose in a large chronic patient group. Schizophrenia Research 2020; 223:359-360.
194. Gotra MY, Hill SK, Gershon ES, Tamminga CA, Ivleva EI, Pearlson GD, Keshavan MS, **Clementz BA**, McDowell JE, Buckley PF, Sweeney JA, Keedy SK. Distinguishing patterns of impairment on inhibitory control and general cognitive ability among bipolar with and without psychosis, schizophrenia, and schizoaffective disorder. Schizophrenia Research 2020; 223:148-157.
195. Cetin-Karayumak S, Di Biase MA, Chunga N, Reid B, Somes N, Lyall AE, Kelly S, Solgun B, Pasternak O, Vangel M, Pearlson G, Tamminga C, Sweeney JA, **Clementz BA**, Schretlen D, Verena Viher P, Stegmayer K, Walther S, Lee J, Crow T, James A, Voineskos A, Buchanan RW, Szeszko PR, Malhotra AK, Hegde R, McCarley R, Keshavan M, Shenton M, Rathi Y, Kubicki M. White matter abnormalities across the lifespan of schizophrenia: a harmonized multi-site diffusion MRI study. *Mol Psychiatry* 2020; 12: 3208-3219. https://doi.org/10.1038/s41380-019-0509-y
196. Parker DA, Trotti RL, McDowell JE, Keedy SK, Gershon ES, Ivleva EI, Pearlson GD, Keshavan MS,Tamminga CA, Sweeney JA, **Clementz BA**. Auditory paired-stimuli responses across the psychosis and bipolar spectrum and their relationship to clinical features. Biomarkers in Neuropsychiatry 2020; 3:100014.
197. Lizano P, Lutz O, Xu Y, Rubin LH, Paskowitz L, Lee AM, Eum S, Keedy SK, Hill SK, Reilly JL, Wu B, Tamminga CA, **Clementz BA**, Pearlson GD, Gershon ES, Keshavan MS, Sweeney JA, Bishop JR. Multivariate relationships between peripheral inflammatory marker subtypes and cognitive and brain structural measures in psychosis. Molecular Psychiatry 2021; 3430-3443 https://doi.org/10.1038/s41380-020-00914-0

198. Seitz J, Cetin-Karayumak S, Lyall A, Pasternak O, Baxi M, Vangel M, Pearlson G, Tamminga C, Sweeney J, **Clementz BA**, Schretlen D, Verena Viher P, Stegmayer K, Walther S, Lee J, Crow T, James A, Voineskos A, Buchanan RW, Szeszko PR, Malhotra A, Keshavan M, Koerte IK, Shenton ME, Rathi Y, Kubicki M. Investigating Sexual Dimorphism of Human White Matter in a Harmonized, Multisite Diffusion Magnetic Resonance Imaging Study. Cerebral Cortex 2021; 31:201-212.
199. Tamminga CA, **Clementz BA**, Pearlson G, Keshavan M, Gershon ES, Ivleva EI, McDowell JE, Meda SA, Keedy S, Calhoun VD, Lizano P, Bishop JR, Hudgens-Haney M, Alliey-Rodriguez A, Asif H, Gibbons. R. Biotyping in psychosis: using multiple computational approaches with one data set. Neuropsychopharmacology 2021; 46:143-155.
200. Kelly S, Guimond S, Pasternak O, Lutz O, Lizano P, Cetin-Karayumak S, Sweeney JA, Pearlson G, **Clementz BA**, McDowell JE, Tamminga CA, Shenton ME, Keshavan MS. White matter microstructure across brain-based biotypes for psychosis – findings from the bipolar-schizophrenia network for intermediate phenotypes. Psychiatry Research: Neuroimaging 2021; 308:111234.
201. Seitz-Holland J, Cetin-Karayumak S, Wojcik JD, Lyall A, Levitt J, Shenton ME, Pasternak O, Westin C-F, Baxi M, Kelly S, Mesholam-Gately R, Vangel M, Pearlson G, Tamminga CA, Sweeney JA, **Clementz BA**, Schretlen D, Viher PV, Stegmayer K, Walther S, Lee J, Crow T, James A, Voineskos A, Buchanan RW, Szeszko PR, Malhotra AK, Rathi Y, Keshavan M, Kubicki M. Elucidating the relationship between white matter structure, demographic, and clinical variables in schizophrenia—a multicenter harmonized diffusion tensor imaging study. Molecular Psychiatry 2021; 26:5357-5370. https://doi.org/10.1038/s41380-021-01018-z
202. Guimond S, Gu F, Shannon H, Kelly S, Mike L, Devenyi GA, Chakravarty MM, Sweeney JA, Pearlson G, **Clementz BA**, Tamminga C, Keshavan M. A diagnosis and biotype comparison across the psychosis spectrum: investigating volume and shape amygdala-hippocampal differences from the B-SNIP Study. Schizophrenia Bulletin 2021; 47:1706-1717.
203. Parker DA, Trotti RL, McDowell JE, Keedy SK, Hill SK, Gershon ES, Ivleva EI, Pearlson GD, Keshavan MS, Tamminga CA, **Clementz BA**. Auditory oddball responses across the schizophrenia-bipolar spectrum and their relationship to cognitive and clinical features. American Journal of Psychiatry 2021; 178:952-964.
204. Huang LY, Jackson BS, Rodrigue AL, Tamminga CA, Gershon ES, Pearlson GD, Keshavan MS, Keedy SK, Hill SK, Sweeney JA, **Clementz BA**, McDowell JE. Antisaccade error rates and gap effects in psychosis syndromes from the bipolar-schizophrenia network for intermediate phenotypes 2 (B-SNIP2). Psychological Medicine 2021; 1-10.
205. Frässle S, Harrison SJ, Heinzle J, **Clementz BA**, Tamminga CA, Sweeney JA, Gershon ES, Keshavan MS, Pearlson GD, Powers A, Stephan KE. Regression dynamic causal modeling for resting-state fRMI. Human Brain Mapping 2021; 42:2159-2180.
206. Oliver W, Parker D, Hetrick W, **Clementz BA**. Is a paired-stimuli configuration necessary to obtain typical evoked response differences in studies of psychosis? An MEG study. Biomarkers in Neuropsychiatry 2021; 4:100033.
207. Türközer HB, Ivleva EI, Palka J, **Clementz BA**, Shafee R, Pearlson GD, Sweeney JA, Keshavan MS, Gershon ES, Tamminga CA. Biomarker profiles in psychosis risk groups within unaffected relatives based on familiality and age. Schizophrenia Bulletin 2021; 47:1058-1067.
208. Trotti RL, Abdelmageed S, Parker DA, Sabatinelli D, Tamminga CA, Gershon ES, Keedy SK, Keshavan MS, Pearlson GD, Sweeney JA, McDowell JE, **Clementz BA**. Neural processing of repeated emotional scenes in schizophrenia, schizoaffective disorder, and bipolar disorder. Schizophrenia Bulletin 2021; 47:1473-1481.
209. Brown JA, Jackson BS, Burton CR, Hoy JE, Sweeney JA, Pearlson GD, Keshavan MS, Keedy SK, Gershon ES, Tamminga CA, **Clementz BA**, McDowell JE. Reduced white matter microstructure in bipolar disorder with and without psychosis. Bipolar Disorders 2021; 23:801-809.
210. del Re EC, Zeng V, Alliey-Rodriguez N, Lizano P, Bolo N, Lutz O, Pearlson G, Sweeney JA, **Clementz BA**, Gershon E, Tamminga CA, Keshavan MS. Anterior-posterior axis of hippocampal subfields across psychoses: A B-SNIP study. Biomarkers in Neuropsychiatry 2021; 5:100037.
211. Rubin LH, Han J, Coughlin JM, Hill SK, Bishop JR, Tamminga CA, **Clementz BA**, Pearlson GD, Keshavan MS, Gershon ES, Heilman KJ, Porges SW, Sweeney JA, Keedy S. Real-time facial emotion recognition deficits across the psychosis spectrum: A B-SNIP Study. Schizophrenia Research 2022; 243:489-499. https://doi.org/10.1016/j.schres.2021.11.027.
212. **Clementz BA.** Psychosis and fever revisited. Schizophrenia Research 2022; 242:17-19. doi: 10.1016/j.schres.2021.11.025.
213. **Clementz BA**, Parker DA, Trotti RL, McDowell JE, Keedy SK, Keshavan MS, Pearlson GD, Gershon ES, Ivleva EI, Huang LY, Hill SK, Sweeney JA, Thomas O, Hudgens-Haney M, Gibbons RD, Tamminga CA. Psychosis biotypes: replication and validation from the B-SNIP consortium. Schizophrenia Bulletin 2022; 48:56-68. https://doi.org/10.1093/schbul/sbab090.
214. Xiao Y, Liao W, Long Z, Tao B, Zhao Q, Luo C, Tamminga CV, Keshavan MS, Pearlson GD, **Clementz BA**, Gershon ES, Ivleva EI, Keedy SK, Biswal BB, Mechelli A, Lencer R, Sweeney JA, Lui S, Gong Q. Subtyping schizophrenia patients based on patterns of structural brain alterations. Schizophrenia Bulletin 2022; 48:241-250.
215. Tamminga CA, Pearlson G, Gershon E, Keedy S, Hudgens-Haney ME, Ivleva EI, Parker DA, McDowell JE, **Clementz BA**. Using psychosis biotypes and the Framingham model for parsing psychosis biology. Schizophrenia Research 2022; 242:132-134.

216. Zhang L, Hill SK, Guo B, Wu B, Alliey-Rodriguez N, Eum S, Lizano P, Ivleva EI, Reilly JL, Keefe RSE, Keedy SK, Tamminga CA, Pearlson GD, **Clementz BA**, Keshavan MS, Gershon ES, Sweeney JA, Bishop JR. Impact of polygenic risk for coronary artery disease and cardiovascular medication burden on cognitive impairment in psychotic disorders. Progress in Neuro-Psychopharmacology and Biological Psychiatry 2022; 113:110464.
217. Gershon ES, Lee H, Zhou X, Sweeney JAS, Tamminga C, Pearlson GA, **Clementz BA**, Keshavan MS, Alliey-Rodriguez N, Hudgens-Haney M, Keedy SK, Asif H, Lencer R, Hill SK. An opportunity for primary prevention research in psychotic disorders. Schizophrenia Research 2022; 243:433-439. https://doi.org/10.1016/j.schres.2021.07.001.
218. Karpouzian-Rogers T, Sweeney JA, Rubin LH, McDowell JE, **Clementz BA**, Gershon E, Keshavan MS, Pearlson GD, Tamminga CA, Reilly JA. Reduced task-evoked pupillary response in preparation for an executive cognitive control response among individuals across the psychosis spectrum. Schizophrenia Research 2022; 248:79-88.
219. Türközer HB, Lizano P, Adhan I, Ivleva EI, Lutz O, Zeng V, Zeng A, Raymond N, Bannai D, Lee A, Bishop JR, **Clementz BA**, Pearlson GD, Sweeney JA, Gershon ES, Keshavan MS, Tamminga CA. Regional and Sex-Specific Alterations in the Visual Cortex of Individuals with Psychosis Spectrum Disorders. Biological Psychiatry 2022; 92:396-406.
220. Seitz-Holland J, Wojcik JD, Cetin-Karayumak S, Lyall AE, Pasternak O, Rathi Y, Vangel M, Pearlson G, Tamminga C, Sweeney JA, **Clementz BA**, Schretlen DA, Viher PV, Stegmayer K, Walther S, Lee J, Crow T, James A, Voineskos A, Buchanan RW, Szeszko PR, Malhotra AK, Kelly S, Shenton MS, Keshavan MS, Mesholam-Gately RI, Kubicki M. Cognitive deficits, clinical variables, and white matter microstructure in schizophrenia: a multisite harmonization study. Molecular Psychiatry 2022; https://doi.org/10.1038/s41380-022-01731-3.
221. Zhang L, Lizano P, Guo B, Xu Y, Rubin LH, Hill SK, Alliey-Rodriguez N, Lee AM, Wu B, Keedy SK, Tamminga CA, Pearlson GD, **Clementz BA**, Keshavan MS, Gershon ES, Sweeney JA, Bishop JR. Inflammation subtypes in psychosis and their relationships with genetic risk for psychiatric and cardiometabolic disorders. Brain, Behavior, & Immunity-Health 2022; 22:100459. https://doi.org/10.1016/j.bbih.2022.100459.
222. Raymond N, Lizano P, Kelly S, Hegde R, Keedy S, Pearlson GD, Gershon ES, **Clementz BA**, Tamminga CA, Keshavan M. What can clozapine's effect on neural oscillations tell us about its therapeutic effects? A scoping review and synthesis. Biomarkers in Neuropsychiatry 2022; 6:100048. https://doi.org/10.1016/j.bionps.2022.100048.
223. Zhao Q, Cao H, Zhang W, Li S, Xiao Y, Tamminga CA, Keshavan MS, Pearlson GD, **Clementz BA**, Gershon ES, Hill SK, Keedy SK, Ivleva EI, Lencer R, Sweeney JA, Gong Q, Lui S. A subtype of institutionalized patients with schizophrenia characterized by pronounced subcortical and cognitive deficits. Neuropsychopharmacology 2022 ; PMID: 35260788

Current as of 19 August 2022

CURRICULUM VITAE

Stephen Correia, Ph.D., ABPP-CN
Cell: (401) 261-9485
Office: (706) 543-4093
e-mail: scorreia52@gmail.com

EDUCATION

Undergraduate	Manhattanville College September 1978 – December 1979 (transferred)
	University of Rhode Island Psychology, Bachelor of Arts January 1980 - May 1982 Summa cum laude
Graduate	University of Rhode Island Clinical Psychology, Master of Arts, September 1994 - May 1998
	University of Rhode Island Clinical Psychology, Doctor of Philosophy May 1998 - May 2001

PRE- AND POST-DOCTORAL TRAINING

Pre-Doctoral Internship (APA Accredited)	Malcolm Randall Veterans Affairs Medical Center, Gainesville, FL Neuropsychology/Geropsychology Internship September 1999 – August 2000
Post-Doctoral Fellowship (Clinical/Research) (APA Accredited)	Neuropsychology Fellow Department of Psychiatry and Human Behavior Brown Medical School (Butler Hospital) September 2000 – August 2002
Post-Doctoral Fellowship (Research) (APA Accredited)	Dementia Research Fellow (T32, National Institute on Aging) Department of Psychiatry and Human Behavior Brown Medical School Providence, RI September 2003-August 2005

POSTGRADUATE HONORS AND AWARDS

July 2002	Travel Fellowship: 8th International Conf on Alzheimer's Disease and Related Disorders, Stockholm, Sweden
June 2003	National Institute on Aging Summer Research Institute, Airlie, VA

July 2003	National Institute of Mental Health/University of California San Diego Summer Research Institute, Los Angeles, CA
August 2003	Travel Fellowship: The First Congress of the International Society for Vascular Behavioural and Cognitive Disorders (VAS-COG), Göteborg, Sweden
July 2004	Travel Fellowship: 9th International Conference on Alzheimer's Disease and Related Disorders, Philadelphia.
June 2005	Travel Fellowship: 2nd Congress of the International Society for Vascular Behavioural and Cognitive Disorders (VAS-COG). Florence, Italy.
June 2005	Student Representative to the Scientific Committee, International Society for Vascular Behavioural and Cognitive Disorders.
July 2006	Travel Fellowship, 10th International Conference on Alzheimer's Disease – Imaging Consortium, Madrid, Spain,
July 2006	Poster Award: "Diffusion-tensor imaging tractography: Correlation with processing speed in aging." 10th International Conference on Alzheimer's Disease – Imaging Consortium, Poster 83. Madrid, Spain
June 2009	Outstanding Teaching Award, Psychology 2008-2009 Department of Psychiatry & Human Behavior Alpert Medical School, Brown University
June 2017	The Toy Caldwell-Colbert Excellence in Teaching Award (Psychology) Department of Psychiatry & Human Behavior Alpert Medical School, Brown University

MILITARY SERVICE: None

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

Rhode Island
Psychology, PS00796
Awarded 12 December 2002

BOARD CERTIFICATION: American Board of Professional Psychology
Specialization in Clinical Neuropsychology
December 2016

ACADEMIC APPOINTMENTS

University of Georgia
Associate Professor
Department of Health Promotion and Behavior
School of Public Health
August 2022 – present

Associate Professor of Psychiatry & Human Behavior
Teaching Scholar Track
Alpert Medical School, Brown University
May 2017 – April 2022

Assistant Professor of Psychiatry & Human Behavior
Alpert Medical School, Brown University
September 2005 – May 2017

Graduate Faculty (Adjunct)

Department of Psychology
University of Rhode Island
April 2010 – June 2015

HOSPITAL APPOINTMENTS

Director of Clinical Research, Memory & Aging Program
Butler Hospital, Providence, Rhode Island
September 2002 – August 2003
Full-time., 40 hours per week

Providence Veterans Affairs Medical Center
September 2005 – September 2019
Full-time., 40 hours per week

Neuropsychologist
Neuropsychology Section Leader (Supervisor)
Mental Health and Behavioral Science Service

Polytrauma/Traumatic Brain Injury Team
Co-Leader
September 2007 – September 20198

Pre-Employment Psychological Examiner for VA Police
Employee Health Service
June 2012 – September 2009

Representative to APA for Continuing Education
Mental Health and Behavioral Science Service
September 2016 – September 2019

Butler Hospital, Providence, Rhode Island
September 2019 – April 2022
Full-time, 40 hours per week
Director of Research, Memory & Aging Program
Director of Psychology (hospital-wide)

OTHER APPOINTMENTS

REVIEWING
Alzheimer's Association (grant reviewer, 5-year assignment 2012-2017)
Human Brain Mapping 2016 – present (ad hoc)

International Journal of Geriatric Psychiatry 2003-2005 (ad hoc)
Journal of Psychiatry and Neuroscience – 2016 – present (ad hoc)
NeuroImage (ad hoc)
Journal of Clinical Neurosciences (ad hoc)
Neurobiology of Aging (ad hoc)
Archives of Neuropsychology (ad hoc)
Clinical Neuropsychiatry 2006 – present (ad hoc)
Wellcome Trust (ad hoc)
Psychiatry Neuroimage (ad hoc)
PLOS One, 2016 – present (ad hoc)
Training & Education in Professional Psychology (2018 – present)
The Clinical Neuropsychologist (2019 - present)
Neuropsychology

HOSPITAL COMMITTEES

Incident Command
Butler Hospital
March 2020-April 2022

Institutional Review Board (alternate member)
Butler Hospital
2003-2015

Institutional Review Board (alternate member)
Providence VA Medical Center
2006-present

Protected Peer Review Committee
Providence VA Medical Center
April – June 2009

Imaging Core Committee
Department of Psychiatry & Human Behavior
2010-2012

Ad Hoc By-Law Committee
Outpatient Consultation
Providence VA Medical Center
2012

Education Committee
Mental Health & Behavioral Sciences Service
Providence VA Medical Center
2016-2019

MRI Safety Committee
Diagnostic Imaging Service
Providence VA Medical Center
2016-2019

Incident Command
Butler Hospital
March2020 -- present

OTHER COMMITTEES & SERVICE

International Society for Vascular Behavioural and Cognitive Disorders,
Student representative to Scientific Committee
2005-2007

Neuropsychology Grant Writing Seminar, Director
Brown University
2006-2009

MRI Research Facility, Brown University
Educational & Safety Committee
2008-2012

Imaging Core Executive Committee
Dominantly Inherited Alzheimer's Disease (DIAN) Study
Washington University, St. Louis (coordinating center)
Butler Hospital Memory and Aging Program
2008-present

Program Committee Member
APA Division 40 (Clinical Neuropsychology)
2009 - 2012

Neuropsychology Internship Track Coordinator
Brown University Clinical Psychology Training Consortium
2011- 2017

Center for Neurorestoration & Neurotechnology
Assistant Director MRI Research Core
Providence VA Medical Center
2012 – present (see Grants below)

Association for Internship Training in Clinical Neuropsychology
Secretary/Treasurer 2012 – 2017
President Elect 2017-2018
President 2018-2022

International Neuropsychology Society
Continuing Education Committee
2012 - present

MRI Research Facility, Brown University
Executive Committee
2012 - present

Neuroimaging Center, Butler Hospital
Assistant Director 2010 – 2012
Director
2012 – 2018

Clinical Neuropsychology Specialty Program (CNSP)
(postdoctoral clinical neuropsychology fellowship program)
(APA Accredited on Contingency)
Brown University Clinical Psychology Training Consortium
2017 – 2022

Center for Neurorestoration and Neurotechnology
Training & Education Committee
Providence VA Medical Center
2018 – present

Chair, Advisory Board
Navigating Neuropsychology Podcast
2019-present

Planning Commission for Neuropsychology Training Guidelines Revision (Minnesota Update Conference, member). Part of the American Academy of Neuropsychology Relevance 2050 initiative
2021-present

Steering Committee for Neuropsychology Training Guidelines Revision (Minnesota Update Conference, member). Part of the American Academy of Neuropsychology Relevance 2050 initiative
2022-present

MEMBERSHIP IN SOCIETIES

American Psychological Association
National Academy of Neuropsychology
International Neuropsychological Society
American Academy of Clinical Neuropsychology
Phi Beta Kappa

PUBLICATIONS LIST

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. **Correia S**, Faust D, & Doty R. (2001). A re-examination of the rate of vocational dysfunction among patients with anosmia and mild to moderate closed head injury. *Archives of Clinical Neuropsychology,* 16(5), 477-488.
2. Salloway S, Boyle P, **Correia S**, Malloy P, Cahn-Weiner D, Schneider L, K. Krishnan R, & Nakra R. (2002). The relationship of MRI subcortical hyperintensities to treatment response in a placebo-controlled trial of sertraline in geriatric depressed outpatients. *Am J Ger Psych*, 10, 107-111.
3. Salloway S, Gur T, Berzin T, Zipser B, **Correia S**, Hovanesian V, Fallon J, Kuo-Leblanc V, Glass D, Hulette C, Rosenberg C, Vitek M, & Stopa E. (2002) Effect of APOE genotype on microvascular basement membrane in Alzheimer's disease. *J Neurol Sci*, 203-204, 183-187.
4. Salloway S, **Correia S**, Boyle P, Malloy P, Schneider L, Lavretsky H, Sackheim H, Roose S, & Krishnan K.R.R. (2002). MRI Subcortical Hyperintensities in Old and Very-Old Depressed Outpatients: The Important Role of Age in Late-Life Depression. *J Neurol Sci*, 203-204, 227-233.
5. Rymer S, Salloway S, Norton L, Malloy P, **Correia S**, & Monast D. (2002). Contributions to caregiver burden in Alzheimer's disease: Awareness of deficit and behavioral disturbance. *Alzheimer's Disease and Associated Disorders*, Oct-Dec; 16(4):248-53.
6. Salloway S, **Correia S**, Peck J, & Harrington C. (2002) Dementia with Lewy Bodies: A Diagnostic and Treatment Challenge. Medicine and Health/Rhode Island, 85, 207-209.

7. MacLean A, **Correia S**, Woods R, Stopa E, Cortez S, Alderson L, Salloway S. Spontaneous lobar hemorrhage in CADASIL. *J Neurology Neurosurgery and Psychiatry*, 2005.
8. Grant JE, **Correia S**, Brennan-Krohn T, Laidlaw D. (2006). White matter integrity in kleptomania: A pilot study. *Psychiatry Research*, 147(2-3), 233-7.
9. Malloy P, **Correia S**., Stebbins G., & Laidlaw DH. (2007) Neuroimaging of white matter: A review of methods and neuropsychological correlates in aging. Invited review paper, Archives of Clinical Neuropsychology. *The Clinical Neuropsychologist*, 21(1) 73-109.
10. Salloway S, **Correia S**, Richarson S. (2007). Key Lessons Learned from Short-Term Treatment Trials of Cholinesterase Inhibitors for Amnestic MCI. *International Psychogeriatrics*, June 28, 1-7.
11. Laidlaw DH, Lee SY, **Correia S**, Tate DF, Paul RH, Zhang S, Salloway SP, & Malloy PF. (2006). Quantitative TOI Metrics for White Matter Integrity Based on Diffusion Tensor MRI Data. *Views Radiology* 8(4) 21-23.
12. Grant JE, **Correia S**, Brennan-Krohn T, Malloy PF, Schulz C. (2007) White matter integrity in borderline personality disorder with self-injurious behavior: a pilot study. *Journal of Neuropsychiatry and Clinical Neurosciences* 19(4) 383-90.
13. Zhang S, **Correia S**, Laidlaw DH (2008) Identifying white-matter fiber bundles in DTI data using an automated proximity-based fiber-clustering method" *IEEE Transactions on Visualization and Computer Graphics* 14(5) 1044-1505.
14. Chen W., Zhang S., **Correia S**, Ebert D. Abstractive Representation and Exploration of Hierarchically Clustered Diffusion Tensor Fiber Tracts. 2008. Special Issue of *Eurographics/IEEEVGTC Symposium on Visualization*, 27(3).
15. **Correia S**, Lee S, Voorn T, Tate D, Paul R, Zhang S, Salloway S., Malloy P, Laidlaw DH. (2008) Quantitative Tractography Metrics of White Matter Integrity in Diffusion-Tensor MRI *NeuroImage,* 42 568-81.
16. Salloway, S. & Correia, S. (2009) One hundred years of Alzheimer's disease: Time to improve diagnosis and treatment in primary care. *Cleveland Clinic Journal of Medicine* 76:49-58.
17. Chen W., Ding, Z., Zhang S., MacKay-Brandt A., **Correia S**., Qu H., Crow JA., Tate DF., Yan Z., Peng, Q. (2009). A Novel Interface for Interactive Exploration of DTI Fibers. *IEEE Transactions on Visualization and Computer Graphics* 15(6) 1433-40.
18. Mernoff, S & Correia, S. (2010). Military blast injury in Iraq and Afghanistan: The Veterans Health Administration's Poytrauma System of Care. *Rhode Island Medicine & Health*, 93(1): 16-18.
19. **Correia S**., Hubbard E., Hassenstab J., Yip A., Vymazal J., Herynek V., Giedd J., Murphy DL., Greenberg BD. (2010). Basal ganglia MR relaxometry in obsessive-compulsive disorder: T2 depends upon age of symptom onset. *Brain Imaging and Behavior*.4(1) 35-45.
20. Brennan-Krohn T., Salloway, S., **Correia S**., Dong M., de la Monte S. (2010). Glial-vascular degeneration in cerebral autosomal dominant arteriopathy with subcortical infarction and leukoencephalopathy (CADASIL). *Journal of Alzheimer's Disease* 1(21) 1393-1402.
21. Gongvatana A., Cohen R., **Correia S**., Devlin K., Miles J., Kang H., Ombao H., Navia B., Laidlaw DH., Tashima KT. (2011) Clinical contributors to cerebral white matter integrity in HIV-infected individuals. *Journal of Neurovirology* 17(5) 477-86.
22. Chhatwal JP, Schultz AP, Johnson KA, Benzinger TLS, Jack CR, Salloway S, Ringman J, Koeppe R, Marcus D, Thompson PM, Saykin AJ, **Correia S**, Schofield PR, Rowe C, Fox

NC, Brickman AM, Mayeux R, McDade E, Bateman R, Fagan A, Goate A, Xiong C, Buckles V, Moulder K, Morris JC, Sperling RA for the Dominantly Inherited Alzheimer Network. (2013). Impaired default network functional connectivity in autosomal dominant Alzheimer's disease: Findings from the DIAN study. *Neurology* 81(8) 736-44

23. Benzinger TS, Blazey T, Jack CR, Koeppe RA, Su Y, Xiong C, Raichle ME, Snyder AZ, Ances BM, Bateman RJ, Cairns NJ, Fagan AM, Goate A, Marcus DS, Aisen PS, Christensen JJ, Ercole L, Hornbeck RC, Farrar AM, Aldea P, Jasielec MS, Owen CJ, Xie X, Mayeux R, Brickman A, McDade E, Klunk W, Mathis CA, Ringman J, Thompson PM, Ghetti B, Saykin AJ, Sperling RA, Johnson KA, Salloway S, **Correia S**, Schofield PR, Masters CL, Rowe C, Villemagne VL, Martins R, Ourselin S, Rossor MN, Fox NC, Cash DM, Weiner MW, Holtzman DM, Buckles VD, Moulder K, & Morris JC. (2013). Regional variability of biomarkers in autosomal dominant Alzheimer's disease. *PNAS* . 110(47) e4502-9.

24. **Correia S**, Cohen R. Gongvatana A, Ross S., Olchowski J, Devlin K., Navia B., Delamonte S., (2013). Relationship of plasma cytokines and clinical biomarkers to memory performance in HIV. *Journal of Neuroimmunology*. 265(1-2) 117-23.

25. Salminen LE, Schofield PR, Lane EM, Heaps JM, Pierce KD. Cabeen R, Laidlaw DH, Akbudak E, Conturo TE, **Correia S**, & Paul RH. (2013). Neural fiber bundle lengths in healthy adult carriers of the ApoE4 allele: A quantitative tractography DTI study. *Brain Imaging and Behavior* 7:274-281.

26. Baker LM, Laidlaw DH, Conturo TE, Hogan J, Zhao Y, Luo X, **Correia S**, Cabeen R, Lane EM, Heaps JM, Bolzenius J, Salminen LE, Akbudak E, McMiceal AR, Usher BS, Behrman A, Paul RH. (2014). White matter changes with age utilizing quantitative diffusion MRI. *Neurology* 15;83(3):247-52.

27. Behrman AM, Usher C, Conturo TE, **Correia S**, Laidlaw DH, Lane EM, Bolzenius J, Heaps JM, Salminen LE, Baker LM, Cabeen R, Akhudak E, Luo X, Yan P, Paul RH. (2015). Fiber bundle length and cognition: A length-based tractography magnetic resonance imaging study. *Biological Psychiatry* 9(4): 765-75

28. Gongvatana A, **Correia S**, Dunsiger S, Gauthier L, Devlin KN, Ross S, Navia B, Tashima KT, DeLaMonte S, & Cohen RA. (2014). Plasma cytokine levels are related to brain volumes in HIV-infected individuals. Journal of Neuroimmune Pharmacology. 9(5): 740-50

29. **Correia S**, Ahern DC, Rabinowitz AR, Farrer TJ, Smith Watts AK, Salloway S, Malloy P, Deoni S. (2015). Lowering the Floor on Trail Making Test – Part B: Psychometric and Neuroimaging Evidence for a New Scoring Metric. *Archives of Clinical Neuropsychology,* November; 30(7):643-656.

30. Seider TR, Gongvatana A, Woods AJ, Chen H, Porges EC, Cummings T, **Correia S**, Tashima K, & Cohen RA. (2015) Age Exacerbates HIV-Associated White Matter Abnormalities. Journal of Neurovirology, 22(2): 201-212.

31. Baker LM, Laidlaw DH, Cabeen R, Conturo T, Akbudak E, **Correia S**, Tate D, Heaps-Woodruff JM, Brier MR, Bolzenius J, Salminen LE, Lane EM, McMichael AR, & Paul R. (2016). Cognitive reserve moderates the relationship between neuropsychological performance, and white matter fiber bundle length in healthy older adults. *Brain Imaging and Behavior,* June, 11(3):632-639.

32. Hancock L, **Correia S**, Ahern D, Barredo J, & Resnik L. (2016) . Cognitive Predictors of Skilled Performance with an Advanced Upper Limb Multifunction Prosthesis: A Preliminary Analysis. Disability and Rehabilitation: Assistive Technology, July 12(5):504-511

33. Viqar F, Seonjoo L, Zimmerman ME, Narkhede A, Tosto G, Benzinger TLS, Marcus DS, Fagan AM, Goate A, Fox NC, Cairns NJ, Holtzman DM, Buckles V, Aisen PS, Ghetti B, McDade E, Martins RN, Saykin A, Masters CL, Ringman JM, Ryan NS, Forster S, Schofield PR, Speling R, Salloway S, **Correia S**, Jack C, Weiner M, Bateman RJ, Morris JC, Mayeux R, & Brickman AM. (2016). White matter hyperintensities are a core feature of Alzheimer disease: Evidence from the Dominantly Inherited Alzheimer Network. *Annals of Neurology,* 79(6) 929-39.

34. Kavanaugh B., **Correia S**., Jones J., Blum A., LaFrance WC, Davis JD. White Matter Integrity Correlates with Depressive Symptomatology in Temporal Lobe Epilepsy. (2017). *Epilepsy & Behavior.* Dec;77:99-105.

35. Smith Watts AK, Ahern DC, Jones J, Farrer TJ, & **Correia, S. (**2018). Trail-Making Test Part B: Evaluation of the Efficiency Score for Assessing Floor-Level Change in Veterans. (2018) *Archives of Clinical Neuropsychology.* March 22 (epub ahead of print).

36. Kinnumen KM, Cash DM, Poole T, Frost C, Benzinger TLS, Ahsana L, Leunga KK, Cardosa MJ, Modata M, Malonea IB, Morris JC, Bateman RJ, Marcus DS, Goate, Salloway S, **Correia S**, Sperling RA, Chhatwal JP, Mayeux R, Brickman AM, Marinsi RN, Farlow MR, Bhetti B, Saykin AJ, Jack Jr CR, Schofield PR, McDade E, Weiner MW, Ringmano M, Thompson PM, Masters CL, Rowe CC, Rossor MN, Ourselina S, Fox NC, for the Dominantly Inherited Alzheimer Network (DIAN). (2017). Presymptomatic atrophy in autosomal dominant Alzheimer's disease: a serial MRI study. 2017. *Alzheimer's & Dementia.* 14(1); 43-53.

37. Gordon BA, Blazey TM, Su Y, Hari-Raj A, Dincer A, Flores S, Christensen J, Jack Jr, C, Weinder M, McDade E, Wang G, Hornbeck R, Paurnier K, Xiong C, Cairns N, Hassenstab J, Fagan A, Holtzman D, Raichle M, Morris J, Ances B, Berman S, Brickman A, Cash D, Chhatawal J, **Correia S**, Forster S, Fox N, Graft-Radford J, la Fougere C, Levin J, Masters C, Rosser M, Salloway S, Saykin A, Schofield P & Thompson P, for the Dominantly Inherited Alzheimer Network (DIAN). (2018). Spatial patterns of longitudinal neuroimaging biomarker change in autosomal dominant Alzheimer disease. *The Lancet Neurology* 17(3); 241-50.

38. Lee S, Zimmerman ME, Narkhede A, Nasrabady SE, Tosto G, Meier IB, Benzinger TLS, Marcus DS, Fagan AM, Fox NC, Cairns NJ, Holtzman DM, Buckles V, Ghetti B, McDade E, Martins RN, Saykin AJ, Masters CL, Rignman JM, Forster S, Schofield PR, Sperling RA, Johnson KA, Chatwal JP, Salloway S, **Correia S**, Jack CR, Weiner M, Bateman RJ, Morris, JC, Mayeux R, Brickman AM; Dominantly Inherited Alzheimer's Network. (2018). White Matter Hyperintensities and the mediating role of cerebral amyloid angiopathy in dominantly-inherited Alzheimer's disease. *PLoS One.* 13(5): e0195838.

39. Spader HS, Dean DC, LaFrance WC, Raukar NP, Cosgrove GR, Eyerly-Webb SA, Ellemeier A, **Correia S**, Deoni SC, & Rogg J. (2018). Prospective study of myelin water fraction changes after mild traumatic brain injury in collegiate contact sports. *Journal of Neurosurgery,* 175:61-67.

40. Lafo J, **Correia S**, Borgia M, Acluche F, & Resnik L. (2019). Cognitive characteristics associated with device adoption, skill retention, and early withdrawal from a study of an advanced upper limb prosthesis. *American Journal of Physical Medicine and Rehabilitation,* 98(10):879-887.

41. Barredo J, Bellone JA, Edwards M, Carpenter L, **Correia S**, & Philip N. (2019). White Matter Integrity and Functional Predictors of Response to Repetitive Transcranial Magnetic Stimulation for Posttraumatic Stress Disorder and Major Depression. *Depression and Anxiety* 36(11):1047-1057.

42. Asken BM, Thomas KR, Lee A, Davis JD, Malloy PF, Salloway SP, **Correia S**. (2019). Discrepancy-Based Evidence for Loss of Thinking Abilities (DELTA): Development and Validation of a Novel Approach to Identifying Cognitive Changes. *Journal of the International Neuropsychological Society.* 26(5):464-479.

43. Lee AKW. **Correia S**, Salloway, S. (2020). Accelerating preclinical Alzheimer's clinical trials through a trial-ready cohort with diverse representation (invited editorial). *Journal of Prevention of Alzheimer's Disease*, 7(4):204-205.

44. Keret O, Staffaroni AM, Ringman J, Cobigo Y. Goh S-YM. Allen IE, Wolf A, Chui H. Salloway S. Oh H, Bodge C, Lee A, **Correia S**, et al., Dominantly Inherited Alzheimer's Network. (2021). Pattern and degree of individual brain atrophy predicts dementia onset in dominantly inherited Alzheimer's disease. Alzheimers Dementia (Amsterdam) 13(1):e12197.

45. Joseph-Mathurin N, Wang G, Kantarci K, Jack CR, McDade E, Hassenstab J, Blazey TM, Gordon BA, Su Y, Hornbeck RC, Ances BM, Berman S, Brickman AM, Brooks WS, Cash DM, Chhatwal JP, Chui HC, **Correia S**, et al. (2021). Longitudinal accumulation of cerebral microhemorrhages in dominantly inherited Alzheimer disease. *Neurology*, 96(12):e1632-e1645.

46. Goodman A, Allendorfer J, Blum A, Bolding M, **Correia S**, Ver Hoef L, Gaston T, Grayson L, Kraguljac N, Lahti A, Martin A, Monroe W, Phillip N, Tocco K, Vogel V, LaFrance WC, Szaflarski J. (2020). White matter and neurite morphology differ in psychogenic non-epileptic seizures. *Annals of Clinical and Translational Neurology*. (10):1973-1984.

47. Bruchage MMK, **Correia S**, Malloy P, Salloway S, Deoni S. (2020). Machine Learning Classification Identifies Cerebellar Contributions to Early and Moderate Cognitive Decline in Alzheimer's Disease. *Frontiers in Aging Neuroscience*. 12; 1-7.

48. Madrigal C, Kim J, Jiang L, Lafo J, Bozzay M, Primack J, **Correia S**, Erqou S, Wu W-C, & Rudolph J. Delirium and Functional Recovery in Patients Discharged to Skilled Nursing Facilities after Hospitalization for Heart Failure. (2021) *JAMA Network Open* 4(3): e2037968.

49. Alber, J., Popescu, D., Thompson, L.I., Tonini, G.M., Arthur, E., Oh, H., **Correia, S**., Salloway, S.P., & Lee, A.K. (2021). Safety and tolerability of *APOE* genotyping and disclosure in cognitively normal volunteers from the Butler Alzheimer's Prevention Registry. *Journal of Geriatric Psychiatry and Neurology*, 35(3):293-301.

50. O'Shea DM, Thomas KR, Asken BA, Lee AKW, Davis JD, Malloy PF, Salloway SP. & **Correia S**. 2021 (Alzheimer's Disease Neuroimaging Initiative). Adding cognition to the Alzheimer's disease biomarker framework improves prediction of cognitive and functional decline in non-demented older adults. (2021) *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*. 13(1), e12174.

51. Sharma A., Goodman A, Allendorfer J, Philip N, **Correia, S**, LaFrance CW, & Szlafarski J. (2021). Regional brain atrophy and aberrant cortical folding relate to anxiety and depression in patients with psychogenic non-epileptic seizures. *Epilepsia.* 63(1):222-236.

52. Lafo J, Singh M, Jiang L, **Correia S**, Madrigal C, Clements R, Kim J, Wu W-C, Erqou S, Rudolph JL, MD. (2022) Outcomes in heart failure patients discharged to skilled nursing facilities with delirium. *ESC Heart Failure*, 9)3):1891-1900.

53. Thompson, L., Harrington, K., Roque, N., Strenger., J., **Correia, S**., Jones, R., Salloway, S., & Sliwinski, M. (2022). A highly feasible, reliable, and fully remote protocol for mobile app-based cognitive assessment in cognitively healthy older adults. *Alzheimer's & Dementia: Diagnosis & Disease Monitoring*, 14(1):e12283.

54. Szaflarski JP, Allendorfer JB, Goodman AM, Byington C, Philip NS. **Correia S**, & LaFrance CW. Diagnostic delay in functional seizures is associatetd with abnormal processing of facial emotions. *Epilepsy & Behavior*, 131(Pt A):108712.

55. Gold D, Wisialowski C, Piryatinsky I, Malloy P, **Correia** S, Salloway S, Klinge P, Gaudet C, Niermeyer M, & Lee A. Longitudinal post-shunt outcomes in idiopathic normal pressure hydrocephalus with and without comorbid Alzheimer's disease. *Biological Psychiatry: Cognitive Neuroscience and Neuroimaging.* (under review).

56. Gaudet CE, Gold D, Castelluccio B McLaughlin NCR, & **Correia, S.** Limitations of Performance Validity Tests in Dementia Evaluations: The Role of Base Rates. *Psychological Assessment* (in press).

57. Popescu D, Alber J., Arthur E, Thompson L, **Correia S,** & Lee KWA. (2022). APOE genotype disclosure influences decisions about future planning but not adoption of healthy lifestyle changes in cognitively unimpaired individuals. *Journal of Geriatric Psychiatry and Neurology* (under review).

<u>BOOKS AND BOOK CHAPTERS (NON-PEER REVIEWED)</u>

Correia S, McNicoll L. 2007. Dementia. In Wachtel, T. ed. *Geriatric Advisor*: *Instant Diagnosis and Treatment* Philadelphia: Elsevier, 54-58.

Salloway S., Brennan-Krohn T., **Correia S**., Mellion M., delaMonte S. 2009. CADASIL: A genetic model of arteriolar degeneration, white matter injury, and dementia in later life. In *Behavioral Neurology of Dementia* Miller B & Boeve B eds. Cambridge University Press, 329-344.

Correia S. & Gongvatana, A. Diffusion-tensor imaging in behavioral medicine. 2010. In Cohen, RA, and Sweet, LH, (Eds). *Brain Imaging in Behavioral Medicine and Neuropsychology*. Springer, New York.

Correia S. Pulvinar; Tachistoscope; Paced Auditory Serial Addition Test (separate entries); **Correia S**. & Cohen R. Vigilance (separate entries). 2010. In Kreutzer J., DeLuca J., & Caplan, B. (Eds). *Encyclopedia of Clinical Neuropsychology* New York: Springer.

Cabral D, Mellion M, Salloway S., Brennan-Krohn T., **Correia S**., delaMonte S. 2014. CADASIL: A genetic model of arteriolar degeneration, white matter injury, and dementia in later life. In *Behavioral Neurology of Dementia*, 2nd Edition. Miller B & Boeve B eds. Cambridge University Press, 329-344.

Correia S.: (1) Pulvinar; (2) Vigilance, (3) Tachistoscope; & **Correia S**. Figueroa C., & Cohen R. (4) Paced Auditory Serial Addition Test (separate entries revised and updated from 2010); In Kreutzer J., DeLuca J., & Caplan, B. (Eds). *Encyclopedia of Clinical Neuropsychology Revised* New York: Springer.

Correia S. Diffusion MRI: Quantitative Diffusion Tractography. 2016. In Cohen L. (Ed). *Wiley Encyclopedia of Health Psychology.* Hoboken, NJ: Wiley-Blackwell.

Asken BM, **Correia, S**, Mernoff, ST. Chapter 60: Neurodegeneration (CTE), Dementia, Predementia. 2021. In: *Brain Injury Medicine: Board Review*, Eapen B and Cifu D, eds, Elsevier. In press.

ABSTRACTS

1. Salloway S, Boyle P, **Correia S**, Malloy P, Cahn-Weiner D, Scheider L, Krishnan KRR, Nakra R, Sackeim H, Roose S, & Lavretsky H. (2002). MRI Subcortical Hyperintensities and Response to Sertraline and Citalopram in Geriatric Outpatients with Major Depression. Presented at the 15th Annual Meeting of the American Association of Geriatric Psychiatry, Orlando, FL.
2. Salloway S, Boyle PA, **Correia S**, Malloy PF, Cahn-Weiner DA, Schneider L, & Krishnan KRR, Nakra, R. (2002) MRI Subcortical Hyperintensities and Response to Sertraline in Geriatric Depressed Outpatients. Presented at the 2nd Annual Conference on Vascular Dementia, Salzburg Austria.
3. **Correia S**, Salloway S., Boyle, P Malloy P, Cahn-Weiner D, Schneider L, Krishnan RR, Nakra R. (2002) Relationship of subcortical hyperintensities to treatment response in young and old elderly with outpatient geriatric depression: Results of two placebo-controlled trials. Abstract. Presented at the 8th International Conference on Alzheimer's Disease and Related Disorders, Stockholm, Sweden July 2002. *Neurobiology of Aging*, 23, abstract #598.
4. Boyle PA, Malloy PF, Salloway S, & **Correia S**. (2002) Functional Consequences of Subcortical White Matter Changes in Alzheimer's Disease. Abstract. Presented at the 8th International Conference on Alzheimer's Disease and Related Disorders, Stockholm, Sweden July 2002. *Neurobiology of Aging*, 23, abstract #1803.
5. Correia, S. & Faust, D. (2002). The potential clinical utility of methods for estimating prior standing on specific cognitive domains: An illustration study. Poster. Presented at the 22nd National Academy of Neuropsychology Conference, Miami, FL, September 2002.
6. **Correia S**, Salloway S, Roman G. (2003) Critical review of the NINDS-AIREN criteria for vascular dementia. American Academy of Neurology 55th Annual Meeting, April 2003, Honolulu. *Neurology* 2003;60:A377-8
7. Salloway S, Malloy P, **Correia S**. A comparison of the cognitive benefits of donepezil in patients with cortical versus subcortical vascular dementia: a subanalysis of two 24-week, randomized double-blind, placebo-controlled trials. American Academy of Neurology 55th Annual Meeting, April 2003, Honolulu. *Neurology* 2003;60:A141-2.
8. **Correia S**, Salloway S, Belanger H, Nassery S, Malloy P, Drodge S (2003). Ambulatory Blood Pressure Monitoring in Alzheimer's Disease Patients with High and Low Degree of Subcortical Hyperintensities. Poster. Presented at the First Congress of the International Society for Vascular Behavioural and Cognitive Disorder, Gothenburg, Sweden, August 2003.

9. Laidlaw DH, Zhang S, Bastin ME, **Correia S**, Salloway S, Malloy P. (2004) Ramifications of isotropic sampling and acquisition orientation on DTI analyses. Accepted poster. International Society for Magnetic Resonance in Medicine, 12th Scientific Meeting and Exhibition, May 15-21, Kyoto Japan.
10. **Correia S**, Salloway S, Malloy P, Song C, Li R. (2004) Systolic Blood Pressure Variability and Subcortical Hyperintensities in Patients with Mild-To-Moderate Alzheimer's Disease. Poster. 9th International Conference on Alzheimer's Disease and Related Disorders, July 17-22, Philadelphia. Abstract P2-182 *Neurobiology of Aging*, 25(S2), S278
11. **Correia S**, Zhang S, Laidlaw D, Malloy P, Salloway S. Diffusion-tensor imaging: linear, planar, and spherical diffusion in CADASIL. Poster. 9th International Conference on Alzheimer's Disease and Related Disorders, July 17-22, 2004, Philadelphia. Abstract P2-232 *Neurobiology of Aging*, 25(S2), S298.
12. Brennan-Krohn T, **Correia S**., Zhang S, Laidlaw D, Malloy P, Salloway S. Diffusion-Tensor Imaging and Executive Function in Vascular Cognitive Impairment. Poster. International Society of Magnetic Resonance in Medicine, Workshop on Aging Connections: Advanced MRI of Age-Related White Matter Changes in the Brain, October 21-23, 2004, Boston.
13. **Correia S**. Diffusion-Tensor Imaging: Executive functioning in subcortical ischemic vascular disease and mild cognitive impairment. Paper Presentation. 33rd Annual Meeting of the International Neuropsychological Society, St. Louis, MO February 2005.
14. **Correia S**, Brennan-Krohn T, Schlicting E, Zhang S, Laidlaw D, Malloy P, Salloway S. Diffusion-tensor imaging in vascular cognitive impairment and mild cognitive impairment: relationship with executive functioning. Accepted abstract. 2nd Congress of the International Society for Vascular, Cognitive and Behavioural Disorders (VAS-COG), Florence, Italy June 8-12, 2005.
15. Grant JE, **Correia S**, Brennan-Krohn T. White matter integrity in kleptomania: a pilot study. Scientific Abstracts, American College of Neuropsychopharmacology 44th Annual Meeting. Kona, Hawaii: ACNP, 2005
16. **Correia S**, Lee S, Malloy P, Mehta N, Zhang S, Salloway S, Laidlaw DH. Diffusion-Tensor MRI Tractography Methods For Assessing White Matter Health And Its Relationship To Cognitive Functioning. Poster. International Neuropsychological Society 34th Annual Meeting, Boston, February 2006.
17. Zhang S, **Correia S**, Tate DF, and Laidlaw DH. Correlating DTI fiber clusters with white matter anatomy. Oral Presentation. 14th ISMRM Scientific Meeting & Exhibition, Seattle, Washington, May 2006.
18. Lee SY, **Correia S**, Tate DF, Paul RF, Zhang S, Salloway SP, Malloy PF, and Laidlaw DH. Quantitative Tract-of-Interest Metrics for White Matter Integrity Based on Diffusion Tensor MRI Data. Clinical Focus Presentation. 14th ISMRM Scientific Meeting & Exhibition, Seattle, Washington, May 2006.
19. **Correia S**, Lee SY, Zhang S, Malloy PF, Salloway SP, Laidlaw DH. Diffusion-tensor imaging tractography: Correlation with processing speed in aging. *Alzheimer's and Dementia*, 2(3) Suppl 1 Abstracts: 10th International Conference on Alzheimer's Disease and Related Disorders. Abstract P2-270.
20. Patel K., **Correia S**, Foley J, Schlicting E, Zhang S, Laidlaw D, Salloway S. Cognitive impairment, hippocampal volume, and white matter integrity in CADASIL. 35th Meeting

of the International Neuropsychological Society, Portland WA, February 7-10, 2007. *Journal of the International Neuropsychological Society*, 13(S1) Abstract #95

21. Schlicting E, **Correia S**, Malloy P, Salloway S. N-back performance and standardized measures of processing speed, executive function, and working memory in mild cognitive impairment vs. normal controls. 35th Meeting of the International Neuropsychological Society, Portland WA, February 7-10, 2007. *Journal of the International Neuropsychological Society*, 13(S1) Abstract #248
22. Clayden, JD, Zhang S, **Correia S**, Laidlaw, DH. Fine-grained comparison of anisotropy differences between groups of white matter tracts. *Proceedings of ISMRM*. e-poster. Berlin, May 19-25, 2007.
23. Zhang S, **Correia S**, Laidlaw DH. Template-based automatic DTI fiber bundle labeling. *Proceedings of ISMRM.* e-poster. Berlin, May 19-25, 2007
24. Stephen Correia, Jessica Foley, Song Zhang, David Laidlaw, Paul Malloy, Stephen Salloway. Processing speed in CADASIL: Relationship to cingulum vs. callosal fibers. 3rd International Congress of the Society for Vascular Cognitive Disorders and Behaviour (VAS-COG) 2007, San Antonio, TX.
25. Patel K, **Correia S**, Epstein S, Schlicting S, Zhang S, Laidlaw D, Malloy P, Salloway S. Grey and white matter changes on MRI and diffusion-tensor imaging and cognitive function in mild cognitive impairment. (2008). Paper presentation. 36th Meeting of the International Neuropsychological Society, Waikoloa, Hawaii, February 6-9, 2008. *Journal of the International Neuropsychological Society*, 14(S1) Abstract #50
26. Song S, **Correia S**, Schlicting S, Malloy P, Salloway S. Executive impairment and MoCA performance in mild cognitive impairment and Alzheimer's disease (2008). Poster abstract. 36th Meeting of the International Neuropsychological Society, Waikoloa, Hawaii, February 6-9, 2008. *Journal of the International Neuropsychological Society*, 14(S1) Abstract #258.
27. Schlicting E, **Correia S**, Malloy P, Salloway S. Classification of patients with amnestic mild cognitive impairment vs. normal controls based on N-back, Self-Ordered Pointing Task, and standardized cognitive measures. Poster abstract. 36th Meeting of the International Neuropsychological Society, Waikoloa, Hawaii, February 6-9, 2008. *Journal of the International Neuropsychological Society*, 14(S1) Abstract #191.
28. Epstein, S, **Correia S**, MacKay-Brandt A, Laidlaw D, Malloy P, Salloway S. Superior longitudinal fasciculus and working memory in CADASIL. Poster abstract. 37th Meeting of the International Neuropsychological Society, Atlanta, Georgia, February 11-14, 2009. *Journal of the International Neuropsychological Society*, 15(S1) Abstract #67
29. Chen W, Zhang S, **Correia S**, Tate, DF. "Visualizing Diffusion Tensor Imaging Data with merging ellipsoids". IEEE Pacific Visualization Symposium 2009, Beijing, China
30. Halilaj E, Demirlap C, **Correia S**, Laidlaw DH. Quantitative Tractography Metrics of White Matter Integrity in Diffusion-Tensor MRI Using Diffusivity Scalars. Eighteenth Annual Meeting April 18-24, 2009 Honolulu, Hawai'i.
31. **Correia S**., Ahern D.C., Piryatinsky I., Malloy, P.F. Frontal Systems Behavioral Scale and Cortical Atrophy in Frontotemporal Dementia. (Poster abstract #725420) International Neuropsychological Society 38th Annual Meeting. February 3-6, 2010 Acapulco, Mexico (accepted)

32. Schlicting E.G., **Correia S**., Malloy, P.F., Salloway, S. Performance on the MMSE, MoCA, and Expanded MoCA in Mild Cognitive Impairment and Dementia. (Poster abstract #725420) International Neuropsychological Society 38th Annual Meeting. February 3-6, 2010, Acapulco, Mexico.

33. Halilaj E., **Correia S**., Laidlaw DH, Salloway S. A quantitative tractography approach for exploring associations between white matter pathways and cognitive function. Annual ISMRM-ESMRMB Joint Meeting. 2010. Stockholm, Sweden.

34. Hill B. Su T., **Correia S**. White matter integrity and working memory in mild cognitive impairment. National Academy of Neuropsychology, 30th Annual Conference October 13-16, 2010. (Abstract C14) Vancouver, British Columbia.

35. Deoni S., **Correia S**., Su T., Man J., Malloy P., & Salloway S. Myelin alteration in Alzheimer's disease. International Society of Magnetic Resonance in Medicine, Annual Meeting May 2011, Montreal.

36. **Correia S**., Worden M., Ahern DC., Hochberg LR., Benedicto D., Gianfrancesco M., Mernoff S., & Lo AC. Reaction time enhancement in a modified Attention Network Task. International Neuropsychological Society 39th Annual Meeting, February 2-5, 2011, Boston MA; Journal of the International Neuropsychological Society, vol 17, Supplement 1, p. 205.

37. Deoni S., **Correia S**., Su T., Man J., Malloy P., & Salloway S. Investigating white matter myelin content across the spectrum of Alzheimer's disease. Poster 17107. International Conference on Alzheimer's Disease, July 2011, Paris.

38. Deoni S., **Correia S**., Su T., Man J., Malloy P., & Salloway S. Investigating limbic system myelin alteration in Alzheimer's disease. Poster 17106. International Conference on Alzheimer's Disease, July 2011, Paris.

39. Cai H, Auchus A, Chen J, **Correia S**, & Laidlaw DH. InBox: In-situ Multiple-selection and multiple-view exploration of diffusion tensor MRI visualization. 1st IEEE Symposium on Biological Data Visualization (BioVis). October 23-24, 2011, Providence, RI.

40. Ahern D, Rabinowitz A, Jerskey B, Deoni S, Salloway S, **Correia S**. Lowering the Floor on Trail Making Test Part B: A New Scoring Metric. . 40th Annual Meeting of the International Neuropsychological Society, February 15-18, Montreal.

41. Treem J, Rabinowitz A, Ahern D, Jerskey B, Deoni S, Salloway S, **Correia S**. Brain Correlates of a New Scoring Metric for Trail Making Test B. 40th Annual Meeting of the International Neuropsychological Society, February 15-18, 2012, Montreal.

42. Gongvatana A, **Correia S**, Devlin K, Dunsiger S, Ross, S, Navia B, Tashim K, DeLaMonte S, & Cohen R. Clinical Factors and Plasma Cytokine Markers are Related to Brain Volumes in HIV-Infected Individuals. 19th Conference on Retroviruses and Opportunistic Infections, March 5-8, 2012, Seattle.

43. Benzinger TLS, Blazey T, Koeppe R, Jack CR, Raichle M, Su Y, Marcus D, Thompson PM, Saykin AJ, **Correia S**, Johnson K, Sperling R, Schofield P, Rowe C, Fox NC, Brickman AM, Morris JC. [11C] PIB, FDG and MR findings of preclinical AD in the DIAN cohort. Human Amyloid Imaging Conference, January 2012, Miami.

44. Benzinger TLS, Koeppe R, Su Y, Blazey T, Jack CR, Thompson PM, Saykin AJ, **Correia S**, Sperling R, Schofield P, Rowe C, Fox NC, Brickman, AM, Johnson K. Reference tissue normalization in autosomal dominant AD: Comparison of cerebellar versus brainstem referencing for [11C]PIB in the DIAN cohort. Human Amyloid Imaging Conference, January 2012, Miami.

45. **Correia S**., Rabinowitz A., Ahern D., D'Angelo C., Salloway S., Malloy P., Deoni S. White matter correlates of a new scoring metric for Trail Making Test part B. Alzheimer's Association International Conference. July 14-19, 2012, Vancouver BC.

46. Kinnunen KM, Cash DM, Leung KK, Liang Y, Cardoso MJ, Modat MM, Nicholas J, Benzinger TLS, Koeppe R, Jack CR, Raichle M, Marcus D, Ringman J, Thompson PM, Saykin AJ, Salloway S, **Correia S**, Johnson K, Sperling R, Schofield P, Rowe C, Brickman AM, Mayeux R, Rimajova M, Mathis C, McDade E, Klunk W, Weiner M, Bateman R, Goate A, Xiong C, Buckles V, Moulder K, Morris JC, Rossor MN, Ourselin S, Fox NC. Brain and hippocampal rates of atrophy in familial Alzheimer's disease mutation carriers: preliminary findings from the DIAN study. Alzheimer's Association International Conference. July 14-19, 2012 Vancouver BC.

47. Kinnunen KM, Cash DM, Leung KK, Liang Y, Cardoso MJ, Modat MM, Nicholas J, Benzinger TLS, Koeppe R, Jack CR, Raichle M, Marcus D, Ringman J, Thompson PM, Saykin AJ, Salloway S, **Correia S**, Johnson K, Sperling R, Schofield P, Rowe C, Brickman AM, Mayeux R, Rimajova M, Mathis C, McDade E, Klunk W, Weiner M, Bateman R, Goate A, Xiong C, Buckles V, Moulder K, Morris JC, Rossor MN, Ourselin S, Fox NC. Cross-sectional cerebral volumetric differences and associations with estimated time to age-at-onset in familial Alzheimer's disease: Findings from the DIAN study. Alzheimer's Association International Conference. July 14-19, 2012, Vancouver BC.

48. Cash DM, Ridgway GR, Ryan NS, Kinnunen KM, Yeatman T, Malone I, Benzinger TLS, Koeppe R, Jack CR, Raichle M, Marcus D, Ringman J, Thompson PM, Saykin AJ, Salloway S, **Correia S**, Johnson K, Sperling R, Schofield P, Rowe C, Brickman AM, Mayeux R, Rimajova M, Mathis C, McDade E, Klunk W, Weiner M, Bateman R, Goate A, Xiong C, Buckles V, Moulder K, Morris JC, Rossor MN, Ourselin S, Fox NC. A Voxel Based Morphometry Study of Volumetric MRI in Familial Alzheimer's Disease. Alzheimer's Association International Conference. July 14-19 2012, Vancouver BC.

49. Chatwal, J, Schultz A, Johnson K, Benzinger T, Jack C, Salloway S, Ringman J, Koeppe R, Marcus D, Thompson P, Saykin A, **Correia S**, Schofield P, Rowe C, Fox N, Brickman A, Mayeux R, Mathis C, Weiner M, Fagan A, Goate A, Cairns N, Xiong C, Masters C, Ghetti B, Mouler K, Martins R, Bateman R, Buckles V, Morris J, Sperling R. Disrupted Functional Connectivity in Autosomal Dominant Alzheimer's Disease: Preliminary Findings From the DIAN Study. Alzheimer's and Dementia 2012, in press. Alzheimer's Association International Conference July 2012, Vancouver, Canada.

50. Becker J, Koeppe R, Benzinger T, Jack C, Marcus D, Raichle M, Thompson P, Saykin A, **Correia S**, Schofield P, Rowe C, Fox N, Brickman A, Ghetti B, Masters C, Mathis C, Weiner M, Bateman R, Fagan A, Goate A, Xiong C, Buckles V, Moulder K, Mayeux R, Martins R, Cairns N, Ringman J, Salloway S, Morris J, Sperling R, Johnson K. FDG Metabolism in the DIAN Study of Autosomal Dominant Alzheimer's Disease. Alzheimer's and Dementia 2012, in press. Alzheimer's Association International Conference July 2012, Vancouver, Canada.

51. Benzinger T, Blazey T, Koeppe R, Jack C, Raichle M, Su Y, Snyder A, Marcus D, Ringman J, Thompson P, Ghetti B, Saykin A, Salloway S, **Correia S**, Johnson K, Sperling R, Schofield P, Masters C, Rowe C, Villemagne V, Fox N, Brickman A, Mayeux R, Martins R, Mathis C, Klunk W, Weiner M, Bateman R, Fagan A, Goate A, Cairns N, Buckles V, Moulder K, Morris J. Elevated PIB Precedes Dementia In Autosomal Dominant Alzheimer's Disease: PIB, FDG and Atrophy In The DIAN Cohort. Alzheimer's and Dementia 2012, in press. Alzheimer's Association International Conference July 2012, Vancouver, Canada.

52. Benzinger T, Blazey T, Ances B, Raichle M, Snyder A, Su Y, Marcus D, Ringman J, Thompson P, Ghetti B, Saykin A, Salloway S, **Correia S**, Johnson K, Sperling R, Schofield P, Masters C, Rowe C, Villemagne V, Fox N, Brickman A, Mayeux R, Martins R, Mathis C, Weiner M, Bateman R, Fagan A, Goate A, Cairns N, Buckles V, Moulder K, Morris J. Progressive White Matter Abnormalities in Autosomal Dominant Alzheimer's Disease: Results of The DIAN Study. Alzheimer's and Dementia 2012, in press. Alzheimer's Association International Conference July 2012, Vancouver, Canada.

53. Sperling R, Salloway S, Raskind M, Ferris S, Honig L, Porsteinsson A, Sabbagh M, Liu E, Miloslavsky M, Reichert M, Ketter N, Lu Y, Wang D, Nejadnik B, Grundman M, Black R, Brashear R. Bapineuzumab Phase 3 trials in mild to moderate Alzheimer's disease dementia in apolipoprotein E e4 carriers (Study 302) and non-carriers (Study 301). American Neurological Association Annual Meeting, Boston, MA, October, 2012.

54. Lehman K, O'muircheartaigh J, Brescia M, Correia, S, Malloy P, Salloway P, Deoni S. Myelin Content Changes in Alzheimer's Disease; Society for Neuroscience, Annual Meeting, October 13-17, 2012, New Orleans.

55. Ahern DC, **Correia S**, Resnik L. Barnabe K, Gnepp DP. Cognitive Predictors of Successful Adaptation to an Advanced Multifunction Prosthesis. 32nd Annual Conference, National Academy of Neuropsychology, November 7-10, 2012, Nashville.

56. Rao J, Lee A, vanHuiden S, O'Muircheartaigh J, Correia, S, Salloway S, Malloy P, Deoni S. Myelin integrity, ApoE genotype, and cognitive function in MCI and AD. 41st Annual Meeting International Neuropsychological Society, February 6-9, 2013 Waikoloa, HI.

57. vanHuiden S, Lee A, Rao J, Correia, S, O'Muircheartaigh J, Gongvatana A, Salloway S, Malloy P, Deoni S. Myelin integrity, Imaging markers of myelin in Alzheimer's disease: diffusion-tensor imaging and mcDESPOT. 41st Annual Meeting International Neuropsychological Society, February 6-9, 2013 Waikoloa, HI.

58. Blazey T, Jack C, Ringman A, Brickman A, Raichle M, Hornbeck R, Saykin A, Salloway S, McDade M, Rosser M, Fox N, Thompson P, **Correia S**, Rowe C, Weiner M, Mayeux R, Ghetti B, Sperling R, Johnson K, Schofield P, Masters C, Martins R, Aisen P, Bateman R, Cairns N, Goate A, Marcus D, Fagan A, Xiong C, Buckles V, Moulder K, Morris JC, Benzinger TLS, for the DIAN Study Group. Prevalence and Growth of Cerebral Microhemorrhages in Autosomal Alzheimer's Disease. Alzheimer's Association International Conference July 13-18, 2013.

59. Chhatwal JP, Schultz AP, Johnson K, Benzinger TLS, Jack C, Ances BM, Sullivan CA, Salloway SP, Ringman JM, Koeppe RA, Marcus DS, Thompson P, Saykin AJ, **Correia S**, Schofield PR, Rowe CC, Fox NC, Brickman AM, Mayeux R, McDade E, Bateman R, Fagan AM, Goate AM, Xiong C, Buckles VD, Morris JC, Sperling RA. Disrupted functional connectivity in autosomal dominant AD demonstrates network specificity and precedes structural changes: Findings from DIAN. Alzheimer's Association International Conference July 13-18, 2013 Boston.

60. Lee A, Rao J, van Huiden S, **Correia S**, O'Muircheartaigh J, Deoni S, Salloway S, Malloy P. Myelin integrity, cognitive function, and hypertension in MCI and AD Alzheimer's Association International Conference July 13-18, 2013 Boston

61. Ahern D, Del Prince C, Worden M, Rogg J, Spader H, **Correia S**. Modified Attention Network Task Performance in Acute Mild Traumatic Brain Injury. 42nd Annual Meeting International Neuropsychological Society, February 12-15, 2014 Seattle, WA.

62. Hartman ERT, Nelson Schmitt SS, **Correia S**, Lee A, Rao J, Malloy P, Salloway S, Deoni S. Myelin integrity and Trails B performance in normal elderly, mild cognitive impairment, and Alzheimer's disease. 42nd Annual Meeting International Neuropsychological Society, February 12-15, 2014 Seattle, WA.

63. Seider TR, Cohen RA, **Correia S**, Gongvatana A, Cummings T, Tashima KT, de la Monte SM, & Navia B. Synergistic Effects of Age and HIV on White Matter Hyperintensities. Abstract, The American Academy of Clinical Neuropsychology, June 2014.

64. Seider TR, Gongvatana A, **Correia S**, Tashima KT, Navia B, & Cohen RA. Clinical Factors Affecting Cerebral White Matter Damage in HIV. Poster. 43rd Annual Meeting of the International Neuropsychological Society, Feb 2015, Denver.

65. Devlin, K. N., Gongvatana, A., Correia, S., Ross, S., Navia, B., Tashima, K., de la Monte, S., & Cohen, R. A. (2015, February). IP-10 Mediates HIV-Associated Neuropsychological Dysfunction. Poster. 43rd Annual Meeting of the International Neuropsychological Society, February 2015, Denver.

66. Smith Watts, AK, Farrer TJ, Walker L, Hartman ERT, Nelson Schmitt S, Lee A, **Correia S**, Salloway S, Malloy P, & Deoni S. Pilot Test of the Utility of a Visual Rating System for Identifying Artifacts in Diffusion-Tensor Imaging (DTI) Data. 43rd Annual Meeting of the International Neuropsychological Society, Feb 2015, Denver.

67. Farrer TJ, Smith Watts, AK, Hartman ERT, **Correia S**, van Huiden S, Salloway S, Malloy P, & Deoni S. Association between White Matter Hyperintensities and Alternate Scoring for Trail Making Test Part B. 43rd Annual Meeting of the International Neuropsychological Society, Feb 2015, Denver.

68. Salminen LE, Laidlaw DH, Cabeen RP, Conturo TE, Akbudak, E, Peng C, **Correia S**, Woodruff JM, Baker LM, Cagle LM, & Paul RH. Tract-Specific Changes in White Matter Fiber Bundle Lengths with Age . 44th Meeting of the International Neuropsychological Society Annual Meeting, February 2016, Boston.

69. Kavanaugh B, Jones J, **Correia S**, Davis J Blum A, & LaFrance CW. Relationship Between Depression and White Matter Integrity in Adult versus Child Onset Temporal Lobe Epilepsy. 44th Meeting of the International Neuropsychological Society Annual Meeting, February 2016, Boston.

70. Hartman ERT, **Correia S**, Cabeen R, Laidlaw D, Malloy P, Salloway S, & Deoni S. Effects of Cerebrovascular Risk on White Matter Network Characteristics in Mild Cognitive Impairment and Alzheimer's Disease. 44th Meeting of the International Neuropsychological Society Annual Meeting, February 2016, Boston.

71. Jones J, Farrer T, Mernoff S, Spencer M, Sullivan M, & **Correia S**. White Matter Integrity and Self-Reported Sleep Complaints in OEF/OIF/OND Veterans with Deployment-Related Mild TBI. 44th Meeting of the International Neuropsychological Society Annual Meeting, February 2016, Boston.

72. Katipally R, **Correia S**, Salloway S. An Amyloid-PET Connectome for Alzheimer's Disease. Human Amyloid Imaging Conference. January 13-15, 2016. Miami Beach.

73. Lee S, Zimmerman ME, Viqar F, Narkhede A, Tosto G, Benzinger TLS, Marcus DS, Fagan AM, Goate A, Fox NC, Cairns NJ, Holtzman DM, Buckles V, Ghetti B, McDade E, Martins RN, Saykin AJ, Masters CL, Ringman JM, Ryan NS, Förster S, Laske C, Schofield PR, Sperling RA, Salloway S, **Correia S**, Jack CJr, Weiner M, Bateman RJ, Morris JC, Jack C, Mayeux R, and Brickman AM. Are white matter hyperintensities a core feature of Alzheimer's disease or just a reflection of amyloid angiopathy: Evidence from the Dominantly Inherited Alzheimer Network. Alzheimer's Disease International Conference, July 24-27, 2016. Toronto, CANADA.

74. Smith Watts AK, Ahern AC, Jones J, Farrer TJ, **Correia S**. Examination of the Trail Making Test Part B Efficiency Score in a Longitudinal Clinical Sample. American Academy of Clinical Neuropsychology, June 9-12, 2016. Chicago.

75. Edwards M, Hartman E, Cabeen R, **Correia S**, Laidlaw D, Malloy P, Salloway S, & Deoni, S. Association between network connectivity of select brain regions and cognitive abilities based on deterministic single tensor and multi-fiber diffusion MRI tractography. International Neuropsychological Society, 45th Annual Meeting, New Orleans. February 1-5, 2017.

76. Lindbergh CA, **Correia S**, vanHuiden S, Hartman E, Salloway S, Malloy P, & Deoni SCL. White Matter Hyperintensities Relate to Functional Ability in Individuals with Mild Cognitive Impairment and Alzheimer's Disease. International Neuropsychological Society, 46th Annual Meeting, Washington, DC. February 14-17, 2018.

77. Edwards M, Bellone JA, **Correia S**, Barredo J, Carpenter LL, & Philip NS. White matter integrity before and after repetitive transcranial magnetic stimulation in individuals with comorbid PTSD and depression. International Neuropsychological Society, 46th Annual Meeting, Washington, DC. February 14-17, 2018.

78. Bellone JA, Miller L, Wu WC, Moran S, & **Correia S**. Feasibility and initial results of inspiratory muscle training on cognition and functional capacity in older veterans with heart failure. International Neuropsychological Society, 46th Annual Meeting, Washington, DC. February 14-17, 2018.

79. Sofko, C.A., Ahern, D.C., Davis, J., Kenney, L., **Correia, S**., & Ott, B.R. (2018, November). Validity of a novel scoring method for Trail Making Part B: Application to real-world driving skill. Poster. Annual Convention of the Gerontological Society of America, Boston, MA. 2019.

80. Oh H, **Correia S**, Salloway, S. Associations between Alzheimer's disease biomarkers and cognition among cognitively normal older adults. Poster presented at the Human Amyloid Imaging meeting, Miami, FL. January 15-17, 2020

81. Asken BM, Thomas KR, Lee A, Davis JD, Malloy PF, Sallowa SP, **Correia S**. Discrepancy-Based Evidence for Loss of Thinking Abilities (DELTA): Development and Validation of a Novel Approach to Identifying Cognitive Changes. Paper presentation. International Neuropsychology Society, 47th Annual Meeting, Denver, CO. February 5-8, 2020.

82. Lafo JA, Jiang L, **Correia S**, Rudolph JL. The Interface of Cognitive Impairment and Delirium in Congestive Heart Failure: Increased Mortality Risk is Compounded When the Disorders Co-Occur. Paper presentation. International Neuropsychology Society, 47th Annual Meeting, Denver, CO. February 5-8, 2020.

83. O'Shea DM, Asken BM, Thomas KR, Lee A, Davis JD, Malloy PF, Salloway SP, **Correia S**. Structural Imaging and Molecular Biomarkers of the DELTA Cognitive Risk Score for Dementia. Poster presentation. International Neuropsychology Society, 47th Annual Meeting, Denver, CO. February 5-8.

84. Rudolph JL, Lafo JA, Madrigal C, Jiang L, **Correia S**, Wu WC. Delirium is Independently Associated with Poor Functional Recovery after Hospitalization for Heart Failure. Poster. American Delirium Society, 10th Annual Meeting, June 14-16, 2020. (postponed to March 14-16, 2021 due to coronavirus pandemic)

85. Madrigal, C., Lafo, J., Jiang, L., **Correia, S.**, Wu, W-C, Rudolph, J. (2020). Poor Cognitive Function is Independently Associated with Poor Physical Functional Recovery after Hospitalization for Heart Failure. Poster Presentation. Academy Health Annual Meeting, Virtual Conference August 2020.

86. Kim, J., Madrigal, C., Jiang, L., Lafo, J., Bozzay, M., Primack, J., **Correia, S**., Erqou, S.,Wu, W-C., & Rudolph, J.L. (2021). Delirium and Functional Recovery in Patients Discharged to Skilled Nursing Facilities After Hospitalization for Heart Failure. Invited Presentation. Delirium's World Delirium Awareness Day, Virtual.

87. Thompson L., Harrington K., Strenger J., Roque N., **Correia S**., Salloway S., Jones R., & Sliwinski M. Feasibility of a remote mobile app-based protocol for cognitive screening in cognitively normal older adults. Alzheimer's Association International Conference, Amsterdam, July 2021.

88. Strenger, J. Alber J., Arthur E., Snyder P., Sinoff S., **Correia S**., Salloway S., & Thompson L. Validation of a 4-item subjective cognitive decline screening questionnaire in cognitively normal older adults. Alzheimer's Association International Conference, Amsterdam, July 2021.

89. Popescu D., Alber J., Thompson L., Arthur E., Oh H., **Correia S**., Salloway S., & Lee A. The impact of APOE genotype disclosure on lifestyle behaviors and decisions about future directives. Alzheimer's Association International Conference, Amsterdam, July 2021.

90. Baker LD., Espeland MA., Whitmer RA., . . . **Correia S**., et al., and U.S. POINTER. U.S. POINTER: Lessons Learned About Delivery of a Multi-Domain Lifestyle Intervention during the COVID-19 Pandemic. Alzheimer's Association International Conference, Amsterdam, July 2021.

91. Sharma AA, Goodman AM, Allendorfer JB, Philip NS, **Correia S**, LaFrance WC, & Szlafarski JP. (2021) Are brain atrophy and aberrant cortical folding in regions regulating emotion morphological fingerprints of psychogenic non-epileptic seizures? American Epilepsy Society. Annual Conference, December 3-7, Chicago

92. Nenert R, Allendorfer JB, Goodman AM, Kakulamarri P, Philip NS, **Correia S**, LaFrance WC, & Szlafarski JP. (2021). Fronto-parietal network functional connectivity, depression and quality of life in people with epilepsy or psychogenic non-epileptic seizures (PNES). American Epilepsy Society. Annual Conference, December 3-7, Chicago.

93. Goodman AM, Allendorfer JB, Martin AN, Vogel V, Tocco K, Philip NS, **Correia S**, LaFrance WC, & Szlafarski JP. Altered neural response to stress differs in functional and epileptic seizures following TBI. American Epilepsy Society. Annual Conference, December 3-7, Chicago.

94. Byington C, Goodman AM, Allendorfer JB, **Correia S**, LaFrance WC, & Szlafarski JP (2021). Anatomy of the right uncinate fasciculus is related to mental health symptom expression in functional seizures following TBI. American Epilepsy Society. Annual Conference, December 3-7, Chicago.

95. Allendorfer JB, Goodman AM, Byington C, **Correia S**, LaFrance WC, Szlafarski JP (2021). Differential emotion processing is associated with delay in diagnosis of functional seizures. American Epilepsy Society. Annual Conference, December 3-7, Chicago.

96. Gaudet CE, Castelluccio BC, Gold D, **Correia S**, & McLaughlin N. (2021). Why bother with base rates? Limitations of Performance Validity Tests in dementia evaluations of older adults. International Neuropsychology Society, 49th Annual Meeting, New Orleans.

97. Lee KWA, De Vito A, Brick LAD, Coutinho MT, & **Correia S**. (2011). Is there measurement invariance in subjective cognitive decline instruments across diverse ethnoracial groups? Alzheimer's Association International Conference, July 2022 San Diego.

98. Blujus, J.K., Cole, M.W., Festa, E., **Correia, S**., Salloway, S., Heindel, W., & Oh, H. (2022). Posterior hippocampal redundancy is smaller among nondemented older adults with beta-amyloid deposition. Mind-Brain Research Day, Brown University.

99. Arulpragasm, AR, Faucher CR, Aiken EM, van't Wout-Frank M, Mernoff S, **Correia S**, Van Patten R, Liberzon, I, McDannold N, Barrredo J, Greenberg BD, Philip NS. Low intensity focused ultrasound for depression - early experience from first-in-human study. 8th International Symposium on Focused Ultrasound, October 2022, Betheseda, MD. USA (under review).

100. Van Patten R, Baird G, Blum A, **Correia S**, Philp N, Allendorfer J, Goodman A, Szaflarski J, Tocco K, & LaFrance C. (2022). Neuroimaging Biomarker for Seizures clinical outcomes. 4th International Conference on Functional Neurological Disorders, Boston.

101. Van Patten R, Baird G, Blum A, **Correia S**, Philip NS, Allendorder J, Gaston TE, Goodman A, Grayson LP, Tocco K, Vogel V, Martin A, Fry S, Szaflarski JP, & LaFrance WC. Neuroimaging Biomarkers of Seizures: Treatment Outcomes. American Epilepsy Society Annual Meeting, Nashville, TN, December 2022 (accepted).

102. Turok N, Krengel M, Correia S, & Piryatinsky I. (2023) Optimizing the Mapping out of Neurocognitive Functioning in Glioblastomas in the Era of Intraoperative Mapping in Surgical Resection. International Neuropsychological Society, 50th Annual Meeting, San Diego (under review)

SCHOLARLY WORK PUBLISHED IN OTHER MEDIA

NON-PEER REVIEWED

Rater training videos: Demonstration of cognitive and behavioral test administration for clinical trials rater-training. (5 videos)

Pharmastar, Inc., 2003-present

Assessments: Mini-mental state exam (MMSE), Alzheimer's disease assessment scale-cognitive (ADAS-Cog), clinical dement rating scale (CDR), Rey Auditory Learning Test, Logical Memory I & II from Wechsler Memory Scale – Revised.

Neuroimaging and Neuropsychology, Friend or Foes? Navigating Neuropsychology Podcast. Part 1, July 2018; Part 2, September 2018.

INVITED PRESENTATIONS

1. Diffusion-Tensor Imaging: Basics and application to subcortical ischemic vascular disease. Division of Orthopaedic Engineering Research, Department of Orthopaedics, University of British Columbia/Vancouver Hospital, Vancouver, BC, CANADA, August 2004.
2. Diffusion-tensor imaging in aging and dementia. Geriatric Psychiatry Seminar Series, Butler Hospital, Providence RI. April 1, 2004
3. Frontal systems functioning in mild cognitive impairment. Geriatric Psychiatry Seminar Series, Butler Hospital, Providence RI. April 7, 2005
4. Diffusion-Tensor Imaging: A new MRI technique for characterizing white matter health. Grand Rounds: Department of Psychiatry. St. Luke's Hospital, New Bedford, MA. May 3, 2005.
5. White Matter Aging: Imaging and cognition. Colloquium presentation. Mental Health and Behavioral Sciences Service, Providence Veterans Affairs Medical Center, Providence, RI November 16, 2005.
6. Quantitative DTI tractography: Longitudinal assessment of vascular white matter injury. Scientific Visualization Group, Department of Computer Science, Brown University, November 26, 2006.
7. Traumatic brain injury: Summary of Veterans Health Initiative. Providence VA Medical Center, December 13, 2006.
8. Cognitive impairment, hippocampal volume, and white matter integrity in mild cognitive impairment. Geriatric Psychiatry Seminar Series, Butler Hospital, Providence RI. April 5, 2007
9. Traumatic brain injury. Rhode Island National Guard. Warwick, RI, September 14, 2007.
10. Blast-related traumatic brain injury. Non-commissioned Officer Training, Rhode Island National Guard. Warwick, RI, November 7. 2007.
11. Combat-related mild traumatic brain injury. Geriatric Psychiatry Seminar Series, Butler Hospital, Providence RI. June 5, 2008.
12. Traumatic brain injury and posttraumatic stress disorder in the workplace. EEO and Diversity Summit "Managing a Diverse Workforce." Naval Undersea Warfare Center, Newport, RI May 19, 2010.
13. Blast-related traumatic brain injury. Memorial Hospital of Rhode Island. Sports Concussion Clinic. Pawtucket, RI May 21, 2010.
14. Update on Sports and Military TBI. Medical Service Grand Rounds, Veterans Affairs Medical Center, Providence RI. November 5, 2010.
15. Attention-Deficit Hyperactivity Disorder. Mental Health and Behavioral Science Service, Colloquium Veterans Affairs Medical Center, Providence, RI. December 15, 2011.
16. Blast-Related Traumatic Brain Injury. Norman Prince Institute Workshop on Traumatic Brain Injury, Rhode Island Hospital, April 29, 2011
17. In-vivo Measurement of Myelin in Alzheimer's Disease Using mcDESPOT, Geriatric Psychiatry Rounds, College of Physicians and Surgeons, Columbia University, November 15, 2011.
18. Advances in Neuroimaging of Dementia. Dementia Seminar. Providence Veterans Affairs Medical Center, April 11, 2012.
19. Diffusion-Tensor Imaging and Sleep in Mild Traumatic Brain Injury. Research Week Series, Providence Veterans Affairs Medical Center, May 20, 2015.

20. Mild Traumatic Brain Injury: Clinical & Research Neuroimaging Features. In: From TBI to CTE: A Review and Update on Diagnosis, Management, and Pathophysiology of Mild TBI and Chronic Traumatic Encephalopathy. Skoble L (chair). Presenters: Mernoff S, **Correia S**, Alosco M. American Association for Geriatric Psychiatry, March 19, 2016. Washington, DC.
21. Clinical Neuroimaging. Guest presentation, Neuropsychology Training Rounds. Cleveland Hospital Neuropsychology Service. March 03, 2022 (virtual platform).

GRANTS

ACTIVE

1. Low intensity focused ultrasound: A new paradigm for depression and anxiety.
   Role: Investigator (PI: Noah S. Philip, MD)
   Funding Source: NIMH U01 MH 123427
   Project: This study will perform the first in-human studies to develop low intensity focused ultrasound as a future treatment for depression and anxiety.
   6/2021 – 3/2024
2. Center for Neurorestoration and Neurotechnology.
   Role: Investigator (PI: Leigh Hochberg, Ph.D.)
   Co-Director of MRI Research; Executive Committee
   Funding Source: Department of Veterans Affairs RR&D (N9228-C)
   Project: Provides physical and human infrastructure to advance basic and translational brain research, neurorehabilitation, and neurotechnology at the Providence VA Medical Center.
   2018-2023
3. Neuroimaging Biomarkers for Seizures.
   Role: Investigator (PI: William C. LaFrance JR, M.D., MPH; Jerzy P. Szaflarski, M.D.)
   Funding Source: Department of Defense (W81XWH-17-0169)
   Project: Examines neuroimaging biomarkers of epileptic and non-epileptic seizures and treatment response to cognitive behavior therapy for seizures in patients with TBI.
   2017-2021 (on extension)
4. Atlas of Retinal Imaging in Alzheimer's Study (ARIAS)
   St. Anthony's Hospital Foundation
   8/30/2019-8/30/2024
   Longitudinal study of retinal imaging changes in preclinical AD
   PI-Brown/Butler site as of April 2020
5. NIH R01, Research on Current Topics in Alzheimer's Disease and Its Related Dementias.
   09/15/2020-05/31/2025 "Developing novel cognitive and neuroimaging markers of early Alzheimer's disease pathologies"
   Role: Co-Investigator (Hwamee Oh, Principal Investigator)
6. U.S. Study to Protect Brain Health Through Lifestyle Intervention to Reduce Risk (U.S. POINTER).
   Sponsor: Alzheimer's Association/National Institute on Aging
   Role: Site PI, RI-New England Site as of April 2022; I was Co-I prior to April 2022
   Overall PI: Laura Baker
   Project: two-year clinical trial to evaluate whether lifestyle interventions that simultaneously target multiple risk factors protect cognitive function in older adults (age 60-79) at increased risk for cognitive decline.
   2020-2025

7. U.S. POINTER-Neuroimaging Ancillary Study
   Sponsor: Alzheimer's Association/NIH
   Role: Site PI, RI-New England Site as of April 2022. I was site Co-I prior to April 2022
   Overall PI: Susan Landau
   Project: Uses MRI and PET imaging to examine cerebral structural and functional consequences of lifestyle interventions in the U.S. POINTER study (entry #6 above)
   2020 – 2024
8. U.S. POINTER-zzz Ancillary Study
   Sponsor: Alzheimer's Association/NIH
   Role: Site PI, RI-New England Site as of April 2022
   Overall PI: Kathleen Hayden & Laura Baker
   Project: Uses sleep diaries, WatchPAT, and ActiGraph Link to examine effect of structured and self-guided interventions in the parent U.S. POINTER study (entry #6 above) on sleep.
   2020 – 2024
9. U.S. POINTER-Microbiome Ancillary Study
   Sponsor: Alzheimer's Association/NIH
   Role: Site PI, RI-New England Site as of April 2022
   Overall PI: Ali Keshavarzian
   Project: In-home fecal sample collection and plasma donation to examine effect of structured and self-guided interventions in the parent U.S. POINTER study (entry #6 above) on the gut microbiome.
   2020 – 2024
10. U.S. POINTER-NV (neurovascular) Ancillary Study
    Sponsor: Alzheimer's Association/NIH
    Role: Site PI, RI-New England Site as of April 2022
    Overall PI: Tina Brinkley & Hossam Shaltout
    Project: Neurovascular assessment (non-invasive continuous blood pressure and heart rate monitoring, aortic structure and function, and carotid structure and function to examine effect of structured and self-guided interventions in the parent U.S. POINTER study (entry #6 above) on vascular health.
    2020 – 2024
11. Alzheimer's Disease Biomarkers and Risk Disclosure (BioFINDER-Brown)
    Sponsor: Warren Alpert Foundation & Brown University Carney Center for Brain Studies
    Role: PI as of April 2022; I was Co-I prior to April 2022
    Project: Validate plasma pTau-181 & pTau-217; digital cognitive assessment, and retinal imaging for early detection of Alzheimer's disease. Validate a machine-learning algorithm for identifying Alzheimer's risk and refine protocols for safe risk disclosure. Study is performed in collaboration with the Swedish BioFINDER Study in Lund, Sweden.
    Anticipated start date June 2022 (delayed due to COVID and other factors)
    2021 – 2023.

TRAINING GRANTS

1. VA Interprofessional Mental Health Education Expansion Initiative
   Role: Author
   Funding Source: Department of Veterans Affairs
   Project: Seven trainee positions were successfully funded as of November 28, 2012 as part of a nationally competitive VA initiative to promote interprofessional training in mental health. Positions funded were two psychiatry residents, two pharmacy residents, one psychology

postdoctoral fellow, and two social work residents. I was the lead author and conceptual developer of the Providence VAMC proposal.

2. Postdoctoral Fellowship in Neuropsychology/Geropsychology
   Role: Author, Primary Mentor
   Funding Source: Department of Veterans Affairs
   Project: Successfully funded nationally competitive grant to enhance psychology training at Veterans Affairs Medical Centers. This unique project funds a clinical APA-approved clinical neuropsychology fellow whose primary role is to provide supervised neuropsychological services to veterans directly in the Primary Care, Geriatric Specialty, and Home-Based Primary Care services.
   July 2010-June 2011
3. VA Study to Optimize the DEKA Arm
   Role: Investigator (PI: Linda, PhD, PT, OCS; Providence VAMC)
   Funding Source: Department of Veterans Affairs (RR&D A6780I)
   Project: Evaluate and optimize the effectiveness of the DEKA arm for amputees.
   Four year award budget: $1,766,559
   2009-2011 (extended)
4. Enhancements to Psychology Training at the Providence VAMC
   Role: Lead Author, Primary Mentor for Neuropsychology
   Funding Source: Department of Veterans Affairs
   Project: Successfully funded nationally competitive grant to enhance psychology training at Veterans Affairs Medical Centers. This proposal funded new permanent psychology training positions at the Providence VAMC: two pre-doctoral clinical psychology interns including one in neuropsychology and one in behavioral health; and one clinical psychology post-doctoral fellow specializing in post-traumatic stress disorder.
   July 2007- ongoing
5. Enhancements to Psychology Training at the Providence VAMC (Phase IV)
   Role: Author & Primary Supervisor
   Funding Source: Department of Veterans Affairs
   Project: Successfully funded nationally competitive grant to enhance psychology training at Veterans Affairs Medical Centers. This proposal funded a recurring two-year postdoctoral resident position in clinical neuropsychology. The position involves providing services at the Providence and Community Based Outpatient Clinics of PVAMC; it involves remote assessments via Clinical Video Telehealth; and delivery of cognitive rehabilitation.
   Starts September 2018

EQUIPMENT GRANTS

1. Diffusion-Tensor Imaging Acquisition and Evaluation License for Siemens Verio 3T MRI Scanner
   Role: Author
   Funding Source: Department of Veterans Affairs; Shared Equipment and Evaluation Program
   Project: Obtained funding to purchase licenses for diffusion-tensor imaging acquisition pulse sequences and computation of scalar parameter maps.
   Amount Awarded: $45,832
   Funded: April 2011

OTHER GRANTS

Internet-based Cognitive Rehabilitation.
Role: Collaborator/Contributor (Donald Labbe, Ph.D., Award Recipient)
Funding Source: Department of Veterans Affairs. Innovation Award
Project: Highly competitive award designed to improve healthcare delivery within the Veterans Health Administration. This award will develop a secure website that provides evidence-based psychoeducational tools to veterans with mild cognitive difficulty due to mild traumatic brain injury or other neurological or psychiatric disorder other than stroke or neurodegenerative dementia. Patients will also have the opportunity for face-to-face cognitive rehabilitation via secure video link.
Amount Awarded: $150,000
Funded: 2016 (12-month award commencing after all contracting agreements are in place).

SUBMITTED – UNDER REVIEW

1. Intraindividual Variability as an Early Marker of Cognitive Decline
   PI: Alyssa De Vito, Ph.D. (postdoctoral fellow)
   Role: Investigator/mentor
   Funding Source: Alzheimer' Association (Research Fellowship Award).
   Project: Examines intra-test vs. intra-item intra-individual test performance variability in a cohort of healthy controls with and without subjective cognitive decline, mild cognitive impairment, and early-stage Alzheimer's disease.
   $165,613
2. Blood-brain Barrier Breach and its Effect on Neurons in AD Brains
   PI: Sheina Emrani, Ph.D. (postdoctoral fellow)
   Role: Investigator/mentor
   Funding Source: Alzheimer' Association (Research Fellowship Award).
   Project: Post-mortem study to examine the impact of blood brain barrier breach on cerebral amyloidosis in excitatory vs. inhibitory neurons and neural nets.
   $154,999

COMPLETED

1. Validation of a Modified Attention Network Task for Mild Traumatic Brain Injury
   Role: Principal Investigator
   Funding Source: Brown Vice President for Research
   Project: Tests a modification of the Attention Network Task using auditory stimulation to assess alerting, orienting, and executive aspects of attention in college football players with and sports-related concussion vs. non-concussed, non-contact sport athletes.
   $10,000
   January 2009 – 2015
2. Working memory and frontal white matter integrity in mild cognitive impairment.
   Role: Principal Investigator
   Funding Source: Alzheimer's Association; Young Investigator Award (NIRG-03-6195)
   Project: Uses diffusion-tensor imaging and cognitive testing to examine frontal systems integrity in patients with mild cognitive impairment.
   $100,000
   2003 – 2007
3. Diffusion Tensor MRI Mapping of How Brain Fiber Tracts Change After Gamma Knife Capsulotomy for Intractable Obsessive Compulsive Disorder
   Role: Investigator (PI: Benjamin Greenberg, MD)
   Funding Source: Charles A. Dana Foundation

Project: Tests the hypothesis that reduction on thalamo-orbitofrontal cortex fibers on diffusion tensor imaging following gamma capsulotomy will be associated with improvement in symptoms of obsessive compulsive disorder
$100,000
2003 - 2008

4. Diffusion-tensor and perfusion-weighted MRI for improved detection of white matter injury in patents with hypertension.
Funding Source: Brown Department of Diagnostic Imaging (PI: Jerrold Boxerman, MD)
Role: Co-Principal Investigator
Project: Uses advanced neuroimaging to examine the impact of hypertension on subcortical white matter and its relationship to cognition.
$15,000
2005 – 2006

5. Advanced quantitative diffusion-tensor imaging metrics for clinical application.
Role: Investigator
Funding Source: Brown Vice President for Research Seed Grant (PI: David Laidlaw, Ph.D.)
Project: This project will develop new interactive tools for rapid selection and quantification of specific white matter pathways for correlation with clinical status.
$100,000
2005 – 2007

6. Aging brain: DTI, subcortical ischemia, and behavior.
Role: Investigator
Funding Source: NIA PAR-03-056 (PI: Stephen Salloway, MD)
Project: This project uses diffusion-tensor imaging to investigate changes in the integrity of frontal systems white matter on executive function and behavior in patients with genetic and sporadic forms of subcortical ischemic white matter disease.
$100,000
2005 – 2007

7. Diffusion-tensor and perfusion-weighted MRI type 2 diabetes.
Funding Source: The Rhode Island Foundation
Role: Principal Investigator
Project: Uses advanced neuroimaging to examine the impact of type 2 diabetes on subcortical white matter and its relationship to cognition.
$10,000
January 2006 – December 2006

8. Optimizing histopathological correlation of diffusion-tensor imaging data
Funding Source: Brown MRI Research Facility
Role: Principal Investigator
Project: Examines the impact of brain fixation in sucrose vs. formalin for performing DTI-histopathological correlations.
$6750 (scan time only)
2006 – 2007

9. Age Effects on HIV-associated Brain Dysfunction
Funding Source: NIMH R01MH074368
Role: Investigator (PI: Ronald Cohen PhD)
$1,250,000
2006-2011

10. Neuromarkers of age-related cognitive decline
    Funding Source: NIA 1 R01 NS052470-01A2
    Role: Consultant (PI: Robert Paul, PhD)
    Project: Examines neuroimaging and genetic markers of age-related cognitive decline. I provided critical pilot DTI analysis to support the third revision of this proposal.
    $3,161,007
    2007 - 2012

11. Investigation of Myelin Loss Associated with Alzheimer's Dementia (NIRG-09-131008)
    Role: Investigator
    Funding Source: Alzheimer's Association (PI: Sean Deoni, PhD)
    Project: Examines myelin loss in early Alzheimer's disease using advanced MRI techniques
    $80,000
    2010 –2012 (ongoing data analysis)

12. Existing practice patterns for screening mild TBI in OEF/OIF veterans.
    Role: Site PI, Providence VA Medical Center
    Funding Source: Department of Veterans Affairs (IAC 08-101)
    Project: Examines provider and patient adherence to VHA Directive 2007-013 guidelines for screening and treating traumatic brain injury in OEF/OIF veterans.
    $373,000
    2010 - 2013

13. Alcohol and HIV: Biobehavioral Interactions and Intervention (1 P01 AA019072)
    Role: Investigator
    Funding Source: National Institute on Alcohol Abuse and Alcoholism (PI: Peter Monti, PhD)
    Project: The goals of this alcohol research center are to study the effects of alcohol use on HIV disease progression and the effects of interventions to reduce alcohol use in HIV-infected populations. The center also fosters multidisciplinary collaborations and training in research on alcohol and HIV and dissemination of research findings to clinicians treating addictions and HIV.
    $1,174,485
    2010 – 2015

14. Home Study of an Advanced Upper Limb Prosthesis.
    Role: Investigator (PI: Linda Resnik, Ph.D.)
    Funding Source: VA RR&D (A9226-R)
    Project: Examines the feasibility, acceptance and benefits of home use of an advanced upper limb prosthetic device as well as the logistical support requirements utilized during 3 months of home usage.
    $5,860,348
    2011 – 2015

15. Pilot Study of Acupuncture as an Alternative Treatment for PTSD.
    Role: Investigator
    Funding Source: RI Foundation (PI: Madhavi Reddy, Ph.D.)
    Project: Examines the feasibility, acceptance, and preliminary efficacy of acupuncture for PTSD.
    $10,000
    2012-2014

16. Amyloid pathology and shunt outcome in normal pressure hydrocephalus
    Role: Investigator
    Funding Source: Avid Pharmaceuticals (PI: Stephen Salloway, M.D.)
    Project: To determine the impact of Alzheimer's disease and cerebral amyloid burden on physical and cognitive outcome following ventriculoperitoneal shunt placement for normal pressure hydrocephalus. To determine the clinical phenotype of NPH with and without significant cerebral amyloid burden.
    $45,000
    2012-2015
17. White Matter Integrity and Sleep Complaints in Mild Traumatic Brain Injury.
    Role: Principal Investigator
    Funding Source: Center for Neurorestoration and Neurotechnology
    Project: Pilot project to examine whether veterans of Iraq and Afghanistan with traumatic brain injury and sleep complaints have alterations in white matter pathways involved in sleep. This project was the first to establish MRI research at the Providence VA Medical Center.
    $11,625
    2013 – 2019
18. Treating the chronic effects of mild traumatic brain injury in veterans
    Role: Investigator (PI: William C. LaFrance, M.D.)
    Funding Source: Center for Neurorestoration and Neurotechnology (Providence VAMC)
    Project: Pilot project examines the utility and neuroimaging correlates of a validated cognitive-behavioral treatment for non-epileptic seizures modified for treatment of chronic post-concussive symptoms.
    $14,040
    2015 – 2016
19. The effects of inspiratory muscle training on cognition and functional capacity in older adults with heart failure.
    Role: Investigator/Mentor (PI: Lindsay Miller, Ph.D.)
    Funding Source: American Psychological Association Society for Clinical Neuropsychology
    Project: Pilot investigation of whether inspiratory muscle training augments cognitive status in older adults with heart failure by improving functional capacity.
    $14,050
    2015 – 2019

OTHER RESEARCH ACTIVITY

Member, Data Safety Management Board: Stage 2 Cognitive-Behavioral Trail: Reduce Alcohol First in Kenya Intervention (RAFIKI). Rebecca Papas, PI

HOSPITAL TEACHING ROLES

Co-supervision of neuropsychology interns, Butler Hospital (ended 2005)

Co-supervision of neuropsychology practicum students, Butler Hospital (ended 2005)

Introduction to Clinical Neuroimaging I and II: Annual lectures to 1st year geriatric psychiatry residents. (2005-present)

Stroke: Annual lecture to neuropsychology interns and fellows (2005 – present)

Neuroimaging for neuropsychologists: MRI: Annual lecture to neuropsychology interns and fellows (2005 – present)

Monthly neuropsychology case presentations/didactics for psychiatry residents, pharmacy residents, and other trainees; Inpatient Psychiatry Service; Providence VAMC (2005-2012)

Annual neuropsychology didactics for psychiatry residents; Providence VAMC. (2005-present)

Pitfalls of clinical decision-making

Clinical neuropsychology in the hospital setting: Overview of clinical practice, roles, strengths, limitations, and referrals.

Introduction to Clinical Neuroimaging: Annual lecture to general psychiatry residents (PGY 3: 2005-2015; PGY 1 & 2: 2016-present)

Neuropsychology intern supervision; Providence VAMC (2006 – present)

Monthly Dementia Research and Case Conferences, Providence VAMC (2009 – 2012)

Interprofessional Training Rounds, Providence VAMC (2013 – present)

Supplement to Traumatic Brain Injury seminar for neuropsychology interns and fellows (2013 – present)

Traumatic Brain Injury: Annual lecture (co-lead with Dr. Megan Spencer) to PVAMC post-doctoral fellows (2013 – present).

Attention: Annual lecture to general psychiatry residents (PGY 1 & 2; 2016 -- present)

UNIVERSITY TEACHING ROLES (mentoring)

Brown Undergraduates

Audrey Kwak, 2001-2 Psychology Honors Thesis
Project: Predictors of functional impairment in Alzheimer's disease

Leah Belsky, 2001-2 Biology
Project: When familial FTD is suspected: Ethical and clinical issues in genetic research

Sophie Desbiens, Summer 2002 Brain Science UTRA Fellow
Project: Development of an assay for notch-3 mutations

Suzanne Drodge, Summer 2002 MRI Research Facility UTRA Fellow
Project: Diffusion tensor imaging in CADASIL

Stan Pelosi, Summer 2002 PLME summer research assistantship
Project: Working memory in Alzheimer's disease (co-mentor with Dr. Malloy)

Jonathan Greer, 2003 PLME summer research assistantship
Project: A PCR-SSCP reliant assay for notch-3 mutations in CADASIL patients

Ryan Li, 2003-4 Neuroscience honors thesis
Project: MRI correlates of ambulation and motor functioning in Alzheimer's disease.

Thea Brennan-Krohn, 2004 Summer Training in Aging Research topics Mental Health- NIMH Award
Project: Diffusion tensor imaging and working memory in SIVD

Christopher Song, 2004 Summer Training in Aging Research topics Mental Health- NIMH Award
Project: Development of an assay for notch3 mutations

Kevin Patel 2005 Summer Brown MRI Research Facility UTRA Fellow
Project: Diffusion-tensor imaging in Alzheimer's disease.

Lyle Muller Spring 2006 Volunteer: Motion correction in diffusion-tensor imaging

Andrea Posa 2006 Summer Volunteer: Clinical Neuropsychology, Diffusion-tensor imaging pre-processing.

Sharon Song 2006-2007 Honors Thesis: Performance on the Mini-Mental Status Exam vs. the Montreal Cognitive Assessment in Patients with CADASIL.

Kevin Patel, 2005, Brown MRI Research Facility Fellowship (Fall semester)
Project: DTI Tractography Metrics: Incremental Validity and Correlation with Cognitive Function in Vascular White Matter Injury.

Kevin Patel, 2006-7, Department of Psychology Honors Thesis Project: Differential Impact of Grey Matter vs. White Matter Changes on Cognitive Function in Mild Cognitive Impairment. Recipient of Psychology Department's Harold Schlosberg Memorial Premium

Sara Epstein, 2007-8, Department of Neuroscience, Honors Thesis Project: "Frontal-temporal white matter connections and executive aspects of memory performance in CADASIL."

Jessica Man, 2010 Brown University Teaching and Training Award (Summer)
Project: Myelin and instrumental activities of daily living in Alzheimer's disease.

W. Reece Chandler, 2010 – 2011 (mentor) Department of Human Biology (Senior Capstone Project):
Project: Validation of a modified Attention Network Task.

Jessica Man, 2010 Honors Thesis, Department of Human Biology
Project: Myelin and instrumental activities of daily living in Alzheimer's disease.

Clayton Del Prince, 2012 – 2013 (mentor) Department of Human Biology (Senior Capstone Project):
Project: A modified Attention Network Task in Mild Traumatic Brain Injury.

Ava Runge 2015 (second reader) Department of Human Biology, Honors Thesis:
Myelination and Autism: A Quantitative Investigation of Myelin Water Fraction using MRI.

Brown Medical Students

Shirine Nassery, 2001 PLME summer research assistantship
Project: Relationship of subcortical microvascular changes in Alzheimer's disease to ApoE genotype and systolic hypertension

Risha Kopel, 2001 summer research project
Project: Use of diffusion tensor MRI to differentiate normal pressure hydrocephalus from Alzheimer's disease

Ainsley MacLean, 2002 PLME summer research assistantship
Project: Phenotypic variation in a large family with CADASIL
Recipient of an Alzheimer's Association Travel Award to present her work at the 8th World Alzheimer's Disease Congress in Stockholm, 7/2002

Michael Joseph, 2005, Clinical Neuroscience Research Assistantship (summer)
Project: Relationship of hippocampal and whole brain volume to cognitive impairment in CADASIL.
Performed qualitative and quantitative ratings of hippocampal volume adjusted for intracranial volume.

James Enos, 2008 (co-mentor) START-MH recipient (Sponsored by National Institute of Mental Health)
Project: Neuropathological correlates of normal pressure hydrocephalus in Alzheimer's disease.

Lindsey Gurin, 2009, summer research project
Project: Implementation of the Department of Veterans Affairs Polytrauma System of Care at the Providence VA Medical Center.

Jonathan Treem, 2010, Recipient: Medical Student Training and Research Experience in Aging and Mental health, Summer Award (sponsored by NIMH and UC San Diego) Project: Myelin and susceptibility-weighted imaging in Alzheimer's disease.

Other Brown Students

Ryan Cabeen, 2016 Doctoral Committee, Department of Computer Science. "Developing and Evaluating Computational Tools for the Modeling, Visualization, and Analysis of Brain White Matter with Diffusion MRI." David H. Laidlaw, PhD, Major Professor.

Wenjin Zhou, 2006. Doctoral Committee. Department of Computer Science. "Quantitative comparison of methods for interactively selecting 3D tracts-of-interest in Diffusion Imaging Datasets." David H. Laidlaw, PhD, Major Professor.

Margot Lawton, 2008 (co-mentor). Neuropathological Correlates of Normal Pressure Hydrocephalus in Alzheimer's Disease.

Ryan Cabeen, 2011-2012. Masters Thesis Committee. Shape Analysis of the Cortical Surface and White Matter Fiber Tracks from Surface-Based Parcellation Methods. David H. Laidlaw, Major Professor.

Ryan Cabeen, 2015-2016. Doctoral Dissertation Committee. Developing and Evaluating Computational Tools for the Modeling,Visualization, and Analysis of Brain White Matter with Diffusion MRI. David H. Laidlaw, Major Professor.

Brown Pre-Doctoral Psychology Interns (Research)

Jessica Foley, July 2006 – June 2007: Diffusion-tensor imaging in aging.
Jason Hassenstab, July 2007-June 2008: Diffusion-tensor imaging in vascular cognitive impairment
Anna MacKay, July 2008-June 2009: Diffusion-tensor imaging in CADASIL
David Ahern, July 2009-June 2010: Cortical Atrophy in Fronto-Temporal Dementia in Relation to FrSBe Scores
Trevor Wu, July 2010-June 2011: Diffusion-tensor imaging and myelin integrity in early Alzheimer's disease.
Amanda Rabinowitz, July 2011-June 2012: White matter correlates of a new scoring metric for Trail Making Test part B in Alzheimer's disease
Athene Lee, July 2012 – June 2013: Myelin imaging in Alzheimer's disease.
Julia Rao, July 2012 – June 2013: Myelin imaging in Alzheimer's disease.
Shawn Nelson Schmitt, July 2013 – June 2014: DTI in Alzheimer's disease.
Elizabeth Hartman, July 2013 – June 2014: DTI and Sleep in OIF/OEF Veterans with TBI.
Thomas J. Farrer, July 2014 – June 2015: DTI and Sleep in OIF/OEF Veterans with TBI.
Ashley Smith Watts, July 2014 – June 2015: Myelin imaging in Alzheimer's disease.
Jacob D. Jones, July 2015 – June 2016: Myelin imaging in Alzheimer's disease.
Melissa L. Edwards, July 2016 – June 2017: 1) Graph theory metrics of diffusion-tensor imaging in Alzheimer's disease; 2) White matter correlates of treatment response to transcranial magnetic stimulation in chronic post-traumatic stress disorder.
Umesh Venkatesan, March 2017 – June 2017: Diffusion tensor and arterial spin labeling of acute and post-acute sports-related mild traumatic brain injury.
Jacob A. Lafo, July 2017 – June 2018: Gait retraining in stroke: Cognitive predictors of response to virtual-reality and transcranial direct current stimulation interventions.
Cutter A. Lindbergh, July 2017 – June 2018: Does cognitive reserve moderate associations between myelin integrity and cognitive function in Alzheimer's disease?
Breton Asken, July 2018 – June 2019: Neuropsychological patterns of mismatches between clinical diagnosis of Alzheimer's disease and amyloid PET results.
Deirdre M. O'Shea. July 2019 – June 2020. Structural neuroimaging correlates of cognitive decline as measured by a proposed score that captures discrepancy between predicted and obtained cognitive scores.

Brown Pre-Doctoral Psychology Interns (Clinical)

Jessica Foley, July 2006 – October 2006
Andrew Preston, November 2006 – February 2007
Willoughby Britton, March 2007 – June 2007
Jason Hassenstab, July 2007 – October 2007
Farzin Irani, November 2007 – February 2008
Marc Kruse, March 2008 – June 2008
Anna Jean MacKay-Brandt, July 2008 – October 2008
Susan Vanderhill, November 2008 – February 2009
Susan Wenze, March 2009 – June 2009
Dawn Mechanic-Hamilton, July 2009 – October 2009
Jing-ee Tan, November 200 – February 2010
Ann E. Mikos, March 2010 – June 2010
Trevor C. Wu, July 2010 – October 2010, March 2011 – June 2010
Janessa Carvalho, November 2010 – February 2011
Donald Labbe, July 2011 – February 2012

Amanda Rabinowitz, March 2012 – June 2012
Mandi Musso, July 2012 – February 2013
Athene Lee, March 2013 – June 2013
Shawn Nelson Schmitt, July 2013 – February 2014
Elizabeth Hartman, March 2014 – June 2014
Thomas J. Farrer, July 2014 – February 2015
Ashley Smith Watts, March 2015 – June 2015
Jacob D. Jones, July 2015 – February 2016
Deepti Putcha, March 2016 – June 2015
Sarah K. Pillemer, July 2016 – February 2017
Umesh Venkatesan, March 2017 – June 2017
Jacob A. Lafo, July 2017 – February 2018
Ryan Van Patten, March 2018 – June 2018
Laura Korthauer, March 2018 – June 2018
Breton Asken, July 2018 – February 2019
Gennarina Santorelli, July 2018 – February 2019
Tatiana Karpouzian Rogers, March 2019 – June 2019
Madison Niermeyer, March 2019 – June 2019
Amy Karstens, July 2019 – June 2020
Emily Hallowell, July 2019 – August 2019

Brown Postdoctoral Neuropsychology Fellows (Research)

David C. Ahern, July 2010 – June 2012: Validation of a modified Attention Network Task
Donald Labbe, July 2012 – June 2014: Prospective memory in mild traumatic brain injury.
Athene Lee July 2013 – June 2015: (1) White matter correlates of early life stress. White matter correlates of child and adolescent bipolar disorder. (2) Bipolar disorder and structural connectivity: A developmental comparison between children and adults.
Elizabeth Hartman, July 2014 June 2016: Association of vascular risk factors with white matter network changes in Alzheimer's disease.
Lindsay Miller, June 2014 – July 2015: Inspiratory muscle training to improve cognitive function in congestive heart failure (Principal Investigator; APA Division 40 Grant Award).
Brian Kavanaugh, June 2015 – June 2016: Cognitive and behavioral correlates of white matter integrity in temporal lobe epilepsy.
Ashley Smith Watts July 2015 – June 2016: Longitudinal validity of Trail Making Test part B efficiency score
John Bellone, September 2016 – August 2018: 1) Inspiratory muscle training to improve cognitive function in congestive heart failure (Investigator – see Lindsay Miller above); 2) White matter correlates of treatment response to transcranial magnetic stimulation in chronic post-traumatic stress disorder.
Jacob Lafo, July 2017 – June 2018. Cognitive characteristics associated with device adoption, skill retention, and early withdrawal from a study of an advanced upper limb prosthesis.
Jacob Lafo, May 2018 – August 2020. Neuropsychological service disparities in veterans with congestive heart failure.
Kristen Wesbecher, September 2018 – August 2020: Effects of mindfulness-based interventions on the brain-behavior mechanisms of self-referential processing in patients with moderate to severe depression.
Emma Gosselin, September 2019 – present: Atlas of Retinal Imaging Atlas; Snellen Memory Test.
Alyssa De Vito, 202 – present: The role of persistent stress/anxiety in the trajectory of Alzheimer's disease. Development of digital cognitive assessments.
Sheina Emrani, 2021 – present: The impact of cardiovascular risk on blood-brain barrier integrity and its role in the trajectory of cognitive aging and dementia.

Brown Postdoctoral Neuropsychology Fellows (Clinical)
David C. Ahern, July 2010 – June 2012
Donald Labbe, July 2012 – June 2014
Lindsay Miller, July 2014 – June 2016
John A. Bellone, September 2016 – August 2018
Jacob Lafo, July 2018 – April 2019
Kristen Wesbecher, September 2018 – 2019
Brian Castelluccio, May 2020 – July 2020.
Charles Gaudet, August 2020 – August 2021

Brown Postdoctoral Psychology Fellows (Clinical; PVAMC Polytrauma/TBI Clinic)
Samantha Collum, September 2014 – 2015
Jessica Urgelles, September 2015 – 2016
Daria Mamon, September 2016 – August 2017
Kristin Healey, September 2017 – August 2018

Brown Postdoctoral Psychology Fellows (Clinical; PVAMC Polytrauma/TBI Clinic)
Olivier Barthelemy, September 2020 – August 2021

Brown Psychiatry Residents
Gail Serruya, MD 2006 Histopathological correlation of diffusion-tensor imaging.

Brown Psychiatry Fellows
Jamison Rogers, M.D. – Forensic Psychiatry Fellowship

Practicum students
Erin Schlicting, practicum student, University of Rhode Island (2003)
Elizabeth Schlicting, practicum student, University of Rhode Island (2004-2005)
Dawn Brock, practicum student, Antioch New England Graduate School (Summer 2006)
David Ahern, practicum student, University of Rhode Island (2007)
Elizabeth Springate, University of Connecticut (2008)
Andrea Lavinge, University of Rhode Island (2008)
Jason Angel, Harvard University (Summer 2009)
Rachel Baldwin, University of Rhode Island (2009-2010)
Radhika Pasupuleti, University of Rhode Island (2010)
Valerie Maine, Antioch New England Graduate School (Summer 2011)
Aaron Baker, University of Rhode Island (Summer 2011-Spring 2012)
Nicole Amoyal, University of Rhode Island (Summer 2012)
Kyle Faust, University of Rhode Island (Summer 2014)
Sarah Burrous, Providence College (Fall 2016)
Franzy Acluche, Research Assistant, Providence VA Medical Center (Fall 2016 – Spring 2017)
Abigail Waters, Suffolk University (January 2020 – September 2020)
Charda Davis, William James College (January 2020 – June 2020)
Kirolos Boulos, William James College (July 2020 – June 2021)

Other students
Thom Voorn 2007-8, Faculty of Earth and Life Sciences, Vrije Universitet, Amsterdam, Masters Thesis Project: "Correlation of executive/processing speed with transcallosal frontal white matter and cingulum bundles in CADASIL patients and healthy controls."
Sean Boyle, 2009, Northeastern University, undergraduate extern.
Natalie Burrows 2009, University of Rhode Island, undergraduate intern.
Tanja Su 2010, Faculty of Earth and Life Sciences, Vrije Universitet, Amsterdam, Masters Thesis Project: "Assessment of myelin integrity in Alzheimer's disease."
Zachary Wicks 2011, University of Rhode Island, undergraduate intern.

Steven vanHuiden 2012, Faculty of Earth and Life Sciences, Vrije Universitet, Amsterdam, Masters Thesis Project: "Myelin integrity and radial diffusivity in white matter in Alzheimer's disease."
Samantha Curran, Imaging research assistant (volunteer), Roger Williams University (2012 – 2013)
Jordan Bernard, Psychometric research assistant (volunteer), Providence College (2017 – 2018)

REFERENCES

Tracy O'Leary-Tevyaw, PhD. Clinical Associate Professor of Psychiatry and Human Behavior, Alpert Medical School, Brown University. Chief Psychologist (Acting), Veterans Affairs Medical Center, 830 Chalkstone Ave. Providence, RI 02908 (401) 273-7100. tracy_oleary@brown.edu.

Stephen Mernoff, M.D., Chief of Neurology, 830 Chalkstone Ave. Providence, RI 02908 (401) 273-7100. stephen.mernoff@va.gov; stephen_mernoff@brown.edu

Paul Malloy, Ph.D., Professor of Psychiatry and Human Behavior, Alpert Medical School, Brown University. Director of Neuropsychology, Butler Hospital, 345 Blackstone Blvd., Providence, RI 02906 (401) 455-6359. pmalloy@butler.org; paul_malloy@brown.edu.

William C. LaFrance Jr., M.D., M.P.H., Associate Professor of Psychiatry and Human Behavior, Professor of Neurology. Brown University. (401) 273-7100. william_lafrance_jr@brown.edu

Elizabeth McQuaid, Ph.D., ABPP, Professor, Director of Division of Psychology and Director of Clinical Psychology Training Programs in Department of Human Behavior; Professor of Pediatrics; Brown University. (401) 455-7573. elizabeth_mcquaid@brown.edu.

James Sullivan, M.D., Clinical Associate Professor of Psychiatry and Human Behavior, Alpert Medical School, Brown University. Executive Chief of Psychiatry, Care New England. (401) 455-6383. JamSullivan@butler.org.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: David Crich

eRA COMMONS USER NAME (credential, e.g., agency login): dcrich

POSITION TITLE: Georgia Research Alliance and David Chu Eminent Scholar in Drug Design

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Surrey, UK	BSc	07/1981	Chemistry
University of Paris XI, Orsay, France	PhD	11/1984	Organic Chemistry
ICSN, CNRS, Gif-sur-Yvette, France	Postdoc	09/1985	Organic Chemistry

A. Personal Statement

I have many years of experience working in the field of synthetic and mechanistic chemistry and particularly carbohydrate chemistry for which I am an internationally renowned expert. Over the course of the last three years I have collaborated with Professor Erik Böttger and Jochen Schacht on the design and synthesis and aminoglycosides with reduced ototoxicity resulting in the extensive results, publications, and patents that underpin this proposal. I have supervised approximately 75 PhD students and more 45 postdoctoral fellows including the present crop, and have appreciated many years of support from the NIH in support of my programs. I consider myself well-suited to serve as PI on this submission directed at the synthesis and evaluation less-ototoxic aminoglycoside antibiotics that overcome common mechanisms of resistance.

a. Apralogs: Apramycin 5-O-Glycosides and Ethers with Improved Antibacterial Activity and Ribosomal Selectivity and Reduced Susceptibility to the Aminoacyltranserferase (3)-IV Resistance Determinant, J. C. K. Quirke, P. Rajasekaran, V. A. Sarpe, A. Sonousi, I. Osinnii, M. Gysin, K. Haldimann, Q.-J. Fang, D. Shcherbakov, S. N. Hobbie, S.-H. Sha, J. Schacht, A. Vasella, E. C. Böttger and D. Crich, *J. Am. Chem. Soc*. **2020**, *142*, 530-544.

b. *Design, Multigram Synthesis, and in Vitro and in Vivo Evaluation of Propylamycin: A Semisynthetic 4,5-Deoxystreptamine Class Aminoglycoside for the Treatment of Drug-Resistant Enterobacteriaceae and Other Gram-Negative Pathogens,* T. Matsushita, G. C. Sati, N. Kondasinghe, M. G. Pirrone, T. Kato, P. Waduge, H. S. Kumar, A. Cortes Sanchon, M. Dobosz-Bartoszek, D. Shcherbakov, M. Juhas, S. N. Hobbie, T. Schrepfer, C. S. Chow, Y. S. Polikanov, J. Schacht, A. Vasella, E. C. Böttger, and D. Crich, *J. Am. Chem. Soc*. **2019**, *141*, 5051-5061.

c. *In-vitro Activity of Apramycin Against Multidrug-, Carbapenem-, and Aminoglycoside-Resistant Enterobacteriaceae and Acinetobacter baumannii*, M. Juhas, E. Widlake, J. Teo, D. L. Huseby, J. M. Tyrrell, Y. Polikanov, O. Ercan, A. Petersson, S. Cao, A. F. Aboklaish, A. Rominski, D. Crich, E. C. Böttger, T. R. Walsh, D. Hughes, and S. N. Hobbie, *J. Antimicrob. Chemother.* **2019**, *74*, 944-952.

d. *Structure-Based Design and Synthesis of Apramycin-Paromomycin Analogues. Importance of the Configuration at the 6'-Position and Differences Between the 6'-Amino and Hydroxy Series*, A. R. Mandhapati, G. Yang, T. Kato, D. Shcherbakov, S. N. Hobbie, A. Vasella, E. C. Böttger, and D. Crich. *J. Am. Chem. Soc*. **2017**, *139*, 14611-14619.

B. Positions, Scientific Appointments, and Honors

Positions

1984-1985	Postdoctoral, Inst. for Natural Products Chemistry, CNRS, Gif-sur-Yvette, France.
1985-1990	Lecturer in Chemistry University College London, London, UK
1990-1994	Assoc Professor of Chemistry, University of Illinois at Chicago, Chicago, IL.
1994-2000	Full Professor of Chemistry, University of Illinois at Chicago, Chicago, IL.
2000-2007	Distinguished Professor of Chemistry, University of Illinois at Chicago, Chicago, IL.
2007-2009	Schaap Professor of Chemistry, Wayne State University, Detroit, MI.
2009-2011	Director (Head), Institute for Natural Products Chemistry, CNRS, Gif-sur-Yvette, France.
2011-2019	Schaap Professor of Chemistry, Wayne State University, Detroit, MI.
2019-	Professor of Pharmaceutical and Biomedical Science, University of Georgia, Athens, GA
2019-	Professor of Chemistry, University of Georgia, Athens, GA
2019-	Adjunct Member, Center for Complex Carbohydrate REs, University of Georgia, Athens, GA
2019-	Georgia Research Alliance Eminent Scholar in Drug Design, University of Georgia, Athens, GA

Other Experience and Professional Memberships

1991-	Member of the American Chemical Society
2000-2004	DHHS, NIH Medicinal Chemistry Study Section
2002-2009	Editor, Electronic Encyclopedia of Reagents for Organic Synthesis
2003,	Chair, Gordon Research Conference of Free Radicals
2006-	Carbohydrate Research, Editorial Advisory Board
2009-2014	Editor-in-Chief, Electronic Encyclopedia of Reagents for Organic Synthesis
2015-2018	Organic Letters, Editorial Advisory Board
2015-	Founder and Board Member, Juvabis AG
2016-2020	DHHS, SBCA Study Section
2021-	Founder and President, Hydroxalogs Biosciences, Inc

Honors

1989	Franco-British Prize of the Academy of Sciences of France
1990	Corday Morgan Medal, Royal Society of Chemistry
1994	Fellow of the AP Sloan Foundation
1994	Tate and Lyle Carbohydrate Chemistry Award, Royal Society of Chemistry
2004	University of Illinois, University Scholar
2006	Fellow of the Japan Society for the Promotion of Science
2008	Wolfrom Award, American Chemical Society, Carbohydrate Division
2011	AC Cope Senior Scholar, American Chemical Society
2011	Emil Fischer Prize, European Carbohydrate Society
2014	Haworth Memorial Lecture and Medal, Royal Society of Chemistry
2017	Claude S Hudson Award in Carbohydrate Chemistry, American Chemical Society
2017	Elected Lifetime Member of the Wayne State University Academy of Scholars
2018	Roy L Whistler Award, International Carbohydrate Organization

C. Contributions to Science

1. My laboratory is widely recognized for its contributions to the glycosciences, with particular emphasis on study of glycosylation mechanisms, the development of new mechanism-based glycosylation methods, and the synthesis of complex oligosaccharides. Our work on glycosylation mechanisms, particularly the use of low temperature NMR spectroscopy to identify reactive intermediates, has transformed the field of preparative glycochemistry. We have developed solutions to the long-standing problems of β-mannoside and α-sialoside synthesis which have been very widely adopted by the community and have reduced previously almost insurmountable problems to routine operations. These methods have enabled the synthesis of very complex oligosaccharides, many of bacterial origin, and some of which were conducted in our own laboratory. More recently, we have focused our attention on the development of late stage modification of sialic acid glycosides for medicinal chemistry purposes, and on the development of methods for the synthesis of the legionaminic and sialic acid glycosides.

a. *Cation Clock Reactions for the Determination of Relative Reaction Kinetics in Glycosylation Reactions: Applications to Gluco- and Mannopyranosyl Sulfoxide and Trichloroacetimidate Type Donors*, P. O. Adero, T. Furukawa, M. Huang, D. Mukherjee, P. Retailleau, L. Bohe, and D. Crich, *J. Am. Chem. Soc*. **2015**, *137*, 10336-10345.
b. *Dissecting the Mechanisms of a Class of Chemical Glycosylation Using Primary ^{13}C Kinetic Isotope Effects*, M. Huang, G. E. Garrett, N. Birlirakis, L. Bohé, D. A. Pratt, and D. Crich, *Nature Chemistry* **2012**, 4, 663-667.
c. *The Isothiocyanato Moiety. An Ideal Protecting Group for Stereoselective Sialic Acid Glycoside Synthesis and Subsequent Diversification*, A. Mandhapati, S Rajender, J. Shaw, and D. Crich, *Angew. Chem. Int. Ed*. **2015**, *54*, 1275-1278.
d. *Stereoselective Synthesis of the Equatorial Glycosides of Legionaminic Acid*, O. Popik, B. Dhakal, and D. Crich, *J. Org. Chem*. **2017**, *82*, 6142-6152.

2. My laboratory is very-experienced in the synthesis of complex oligosaccharides and is fully capable of executing all of the synthetic schemes outlined in the proposal including the diagnosis and solution of any unanticipated problems and bottle necks.

a. *Synthesis and Stereocontrolled Equatorially Selective Glycosylation Reactions of a Pseudaminic Acid Donor: Importance of the Side Chain Conformation, and Regioselective Reduction of Azide Protecting Groups*, B. Dhakal and D. Crich, *J. Am. Chem. Soc*. 2018, **140**, 15008-15015.
b. *The Benzylidene Acetal Fragmentation Route to 6-Deoxy Sugars: Direct Reductive Cleavage in the Presence of Ether Protecting Groups Permitting the Efficient, Highly Stereocontrolled Synthesis of β-D-Rhamnosides from D-Mannosyl Glycosyl Donors. Total Synthesis of α-D-Gal-(1→3)-α-D-Rha-(1→3)-β-D-Rha-(1→4)-β-D-Glu-OMe, the Repeating Unit of the Antigenic Lipopolysaccharide from Escherichia hermannii ATCC 33650 and 33652*, D. Crich and Q. Yao. *J. Am. Chem. Soc*. 2004, **126**, 8232-8236.
c. *Stereocontrolled Synthesis of the D- and L-glycero-β-D-mannoheptopyranosides and their 6-Deoxy Analogs. Synthesis of Methyl α-L-Rhamnopyranosyl-(1→3)-D-glycero-β-D-manno-heptopyranosyl-(1→3)-6-deoxy-glycero-β-D-manno-heptopyranosyl-(1→4)-α-L-rhamnopyranoside, a Tetrasaccharide Subunit of the Lipopolysaccharide from Plesimonas shigelloides,* D. Crich and A. Banerjee, *J. Am. Chem. Soc*. **2006**, *128*, 8078-8086.
d. *Stereocontrolled Synthesis of the Equatorial Glycosides of 3-Deoxy-D-manno-oct-2-ulosonic Acid (KDO): Role of Side Chain Conformation*, P. Ngoje and D. Crich, *J. Am. Chem. Soc*. 2020, **142**, 7760-7764.

3. My laboratory is also well-known for its work on the synthesis of glycan mimetics, as opposed to native glycans.

a. *Synthesis, Characterization and Coupling Reactions of Six-membered Cyclic P-Chiral Ammonium Phosphonite-boranes; Reactive H-Phosphinate Equivalents for the Stereoselective Synthesis of Glycomimetics*, A. Ferry, X. Guinchard, P. Retailleau, and D. Crich, *J. Am. Chem. Soc*. **2012**, *134*, 12289-12301.
b. *Asymmetric Synthesis of Polyhydroxylated N-Alkoxypiperidines by Ring Closing Double Reductive Amination; Facile Preparation of Isofagomine and Analogues*, G. Malik, X. Guinchard, and D. Crich, *Org. Lett.* **2012**, *14*, 569-599.
c. *N-O Bond as a Glycosidic Bond Surrogate; Synthetic Studies Toward Polyhydroxylated N-Alkoxypiperidines*, G. Malik, A. Ferry, X. Guinchard, T. Cresteil, and D. Crich, *Chem. Eur. J.* **2013**, *19*, 2168-2179.
d. *Synthesis and Evaluation of Di- and Trimeric Hydroxylamine-Based β-(1→3)-Glucan Mimetics*, A. Ferry, G. Malik, X. Guinchard, V. Vetvicka, and D. Crich, *J. Am. Chem. Soc*. **2014**, *136*, 14852-14557.

4. We have made important contributions to numerous other areas of organic, bioorganic and medicinal chemistry. Our contributions to the fields of free radical chemistry, amino acid and peptide chemistry, and alkaloid synthesis are widely recognized.

a. Synthesis, Cytotoxicity and Genotoxicity of 10-Aza-9-oxakalkitoxin, An N,N,O-Trisubstituted Hydroxylamine Analog, or Hydroxalog, of a Marine Natural Product, S. Dhanju, K. Upadhyaya, C. A. Rice, S. D. Pegan, J. Media, F. A. Valeriote, and D. Crich, *J. Am. Chem. Soc*. **2020**, *142*, 9147-9151.
b. Characterization and Noncovalent Inhibition of the Deubiquitinase and DeISGylase Activity of SARS-COV-2 Papain-Like Protease, B. T. Freitas, I. A. Durie, J. Crabtree, J. E. Longo, H. C. Miller, D. Crich, R. j. Hogan, R. A. Tripp, and S. d. Pegan, *ACS Infect. Dis*. **2020**, *6*, 2099-2109.
c. *Chemistry of the Hexahydropyrrolo[2,3-b]indoles: Configuration, Conformation, Reactivity, and Applications in Synthesis*, D. Crich and A. Banerjee, *Acc. Chem. Res*. **2007**, *40*, 151-161.
d. *Native Chemical Ligation at Phenylalanine*, D. Crich and A. Banerjee, *J. Am. Chem. Soc*. **2007**, *129*, 10064-1006.

Complete list of Published Work in My Bibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/david.crich.1/bibliography/40698691/public/?sort=date&direction=ascending

updated September 19, 2022

Arthur S. Edison, Ph.D.

Professor and GRA Eminent Scholar
Department of Biochemistry & Molecular Biology
Institute of Bioinformatics
Complex Carbohydrate Research Center
315 Riverbend Road
University of Georgia
Athens, GA 30602
Office: (706) 542-8156

Web: https://edisonomics.org/
Email: aedison@uga.edu
GitHub: https://github.com/artedison
Linkedin: arthur-edison-455957b6
Twitter: @Art_Edison
ORCID: 0000-0002-5686-2350

Quick links

Research Interests (top)

Metabolomics. We are developing NMR and mass spectrometry-based approaches to metabolomics studies. This is highly interdisciplinary involving analytical chemistry, statistical analysis, computer technology, biochemistry, physiology, and other biophysical methods. We were part of both phases of the NIH NIH Metabolomics Common Fund with the Southeast Center for Integrated Metabolomics (SECIM) (Edison, founding PI and Director) in phase 1 and one of 5 Compound Identification Cores (CIDC) in phase 2. We currently have several funded grants supporting different applications of metabolomics in a variety of organisms.

Natural Products Chemistry. NP chemistry ultimately merges with metabolomics, in that both are interested in discovering small molecules that are important in biological function. We are using very high sensitivity NMR and mass spectrometry, chromatographic methods, and bioassays to identify biologically active secreted chemicals in *C. elegans, N. crassa,* and other organisms. We are also investigating mechanisms that worms use to defend themselves against environmental toxins through our undergraduate VIP team.

Methods development for high-sensitivity NMR. Through collaborations with groups in RF engineering at the NHMFL, we have developed probes with small sample volumes and improved signal to noise for proteins and small molecule natural products. We are also working with groups to optimize calculations of NMR parameters and mixture analysis of small molecules.

Education (top)

St. John's College, Santa Fe, N.M.
1979-81, Great Books, no degree

University of Utah, Salt Lake City
1986-89, Chemistry, B.S.

University of Wisconsin-Madison
1989-93, Biophysics, Ph.D.
John Markley/Frank Weinhold, co-advisors

University of Wisconsin-Madison
1993-96, Zoology, Postdoctoral
Antony O. W. Stretton, advisor

Employment History (top)

2015-Present

Professor and GRA Eminent Scholar
Director, CCRC NMR Facility
University of Georgia

Courtesy Professor, Departments of Biochemistry and Chemistry
University of Florida

2013-2015

PI and Director, Southeast Center for Integrated Metabolomics

2012-2013

Associate Laboratory Director, NHMFL

2011-2013

Co-chair, NHMFL Science Council

2010-2015

Professor, Biochemistry & Molecular Biology, University of Florida

2008-2012

Director of Chemistry & Biology, National High Magnetic Field Laboratory

2007-2013

Co-Principal Investigator, National High Magnetic Field Laboratory

2005-2015

Affiliate member, Department of Biomedical Engineering, University of Florida

2003-2015

Faculty mentor in the UF Beckman Scholar Program for undergraduate students

2002-2010

Associate Professor (with tenure), Biochemistry & Molecular Biology, University of Florida College of Medicine

2001-2008

Director, Advanced Magnetic Resonance Imaging and Spectroscopy (AMRIS) facility of the McKnight Brain Institute.

1996-2002

Assistant Professor, Biochemistry & Molecular Biology, University of Florida College of Medicine

1996-2015

Member of the McKnight Brain Institute of the University of Florida

1996-2015

Member of the National High Magnetic Field Laboratory

Honors and Awards (top)

2015-Present

Georgia Research Alliance Eminent Scholar in NMR Spectroscopy

2014, 2013, 2012

College of Medicine Exemplary Teachers Award, UF

2014

Winner, NIH Common Fund Video Contest (http://directorsblog.nih.gov/2014/08/14/cool-videos-metabolomics/)

2012

International Educator of the Year, UF College of Medicine

2012-14

University of Florida Research Foundation Professor

2012-17

Fulbright Specialist grant, National University of Buenos Aires, Argentina to teach NMR and metabolomics.

2009

Karcher Lecture, University of Oklahoma, Department of Chemistry & Biochemistry for accomplishments in small-molecule NMR solutions to problems in the field of natural products (Seminar Sept 24, 2009).

First Place, Multimedia category for “Worm Belt”: 17th International *C. elegans* meeting Art Show.

2008-2011

Founder and head of the weekly Pineridge after school Science Club for underprivileged children.

2007

Jack L. Beal award for best paper in Journal of Natural Products

Journal of Natural Products 2007 “Hot Article”

2003

Volunteer of the year, Prairie View Elementary School: Science Club

2000-2003

Founder and head of the weekly Prairie View Elementary School Science Club for underprivileged children.

1999

NSF CAREER award

1997

Robert J. Boucek, M.D. Research Award for research grant with highest merit rating, American Heart Association, Florida Affiliate

1993-1996

Fellow of the Jane Coffin Childs Memorial Fund for Medical Research

1989-1993

National Institutes of Health Training Grant in Molecular Biophysics

1989

American Institute of Chemists Award

Phi Beta Kappa, *Summa cum laude*, University of Utah

Committees and Advisory Boards (<u>top</u>)

2020-Present

Chair, COVID-19 NMR Governing Board

2019-Present

UGA Distinguished Professor evaluation committee

2018-2019

Faculty search committee for joint Institute of Bioinformatics/Marine Sciences

2017-2018

Faculty search committee for joint Institute of Bioinformatics/Infectious Disease

2017-2020

Founding board member of the Metabolomics Association of North America (MANA)

2016-Present

Scientific Advisory Committee for the wwPDB

2016-2018

External Scientific Advisory Committee (ESAC) to the Genomes to Natural Products Network (GNPN) U01

Advisor to the NIH Common Fund Glycoscience Program

2015-2020

External Advisory Board, NMRbox: Center for Biomolecular NMR Data Processing and Analysis

2015-Present

Chair, BMRB Advisory Board

2015-2017

External Advisory Board for the Mayo Clinic Metabolomics Center

MRC-NIHR Phenome Centre – International Scientific Advisory Board

2010-2013

UF Graduate Council

2009-2014

Co-Chair, Science Council, NHMFL

2009-2012

Chair, Search Committee for NHMFL Chief Scientist

2008-2010

UF Biomedical Engineering Faculty Search Committee

2006-2007

UF Biomedical Engineering Endowed Chair Search Committee

UF Department of Neuroscience Chair Search Committee

2005-2007
UF Biomedical Engineering Faculty Search Committee

2004-2005

Advisory Committee for the McKnight Brain Institute, UF

2003-2007

Research Advisory Committee for University of Florida College of Medicine

2001-2015

Executive Committee National High Magnetic Field Laboratory

2000

Committee member, "Mathematics curriculum for Health & Life Science Students" sponsored by the Mathematical Association of America, Virginia Commonwealth University.

1996-2000

Graduate Recruiting and Admissions Committee for UF College of Medicine

Editorial Board (top)

Frontiers Review Editor in Metabolomics, part of the journal(s) Frontiers in Ecology and Evolution, Environmental Science and Molecular Biosciences.

Metabolites

Manuscript Reviewer (top)

Biochemistry, Journal of the American Chemical Society, Nature, Journal of Biomolecular NMR, Biophysical Journal, Peptide and Protein Letters, FEBS, European Journal of Biochemistry, Journal of Magnetic Resonance, Journal of Molecular Biology, Analytical Chemistry, Nature Medicine, ACS Chemical Biology, PNAS, Science, Nature Protocols, Journal of Proteome Research, Journal of Medicinal Chemistry, npj Molecular Phenomics

Guest Editor (top)

2018-2019

Frontiers Special Topic Editor: *C. elegans* Metabolomics and Glycomics

2009

Wilson, D. M., Hurd, R. E., Keshari, K., Van Criekinge, M., Chen, A. P., Nelson, S. J., Vigneron, D. B., and Kurhanewicz, J. Generation of hyperpolarized substrates by secondary labeling with [1,1-13C] acetic anhydride, *Proc Natl Acad Sci U S A 106*, 5503-5507.

Grant Reviewer (top)

2019-Present

Study section member, NIH CRFS

2018

NIH ZRG1 BST-W (50) R, Metabolomic Data Analysis and Interpretation Tools

2017-2018

Ad hoc member, NIH CRFS

2013-2016

Fulbright Specialist Program, Chemistry Education

2014

Reviewer for NIH Transformative Research Awards: ZRG1 BCMB-A 51R

2013

Member Special NIH Emphasis Panel/Scientific Review Group ZDC1 SRB-Y (52)

2013

Wellcome Trust guest reviewer

2012

Member of NIH ZRG1 BST-P (50) "Technology development for metabolomics" panel

2009

National Institutes of Health, ZRG1 SBIB-V (58) R (Stage 1 Reviewer)

National Institutes of Health, ZRG1 MOSS-C (58) R (Stage 1 Reviewer)

2005

National Institutes of Health, NCRR shared instrumentation grants

2004-2007

American Heart Association (Southeast Affiliate), regular panel member

2006

National Science Foundation, ad hoc

Royal Society of New Zealand, ad hoc

Science Foundation of Ireland, ad hoc

Human Frontier Science Program, ad hoc

Conference/Workshop Chair (top)

2002

Southeast Magnetic Resonance Conference, Gainesville FL

June 28 – July 1, 2010

UF Workshop on Metabolomics

June 4 – 7, 2012

UF Workshop on Metabolomics

May 20-23, 2014

UF Workshop on Metabolomics

May 11-14, 2015

UF Workshop on Metabolomics

Sept 20, 2017

Parsing the Microbiome, UGA Institute of Bioinformatics Symposium, Athens GA

May 18, 2019

CCRC NMR Facility Rededication Symposium, Athens GA

Society Memberships (top)

2018-Present

Metabolomics Society of North America

2015-Present

Genetics Society of America

2009-Present

International Metabolomics Society

1996-Present

American Chemical Society

AAAS

Major Administrative Responsibilities (top)

2015-Present

Director of the UGA Complex Carbohydrate Research Center NMR facility: This facility has 8 spectrometers ranging from 300-900 MHz and serves researchers at UGA and beyond in structural biology and metabolomics.

2013-2015

Director of the Southeast Center for Integrated Metabolomics (SECIM): I was the PI for the NIH Common Fund grant to support SECIM and the founding Director. SECIM had 6 cores and offered mass spectrometry and NMR metabolomics services to users. A bioinformatics core developed tools for analysis, and promotion & outreach provided pilot grants to users.

2012-2013

Associate Laboratory Director, NHMFL: As ALD, I was the primary liaison between the University of Florida upper administration, UF NHMFL user programs, and the NHMFL Director. I was responsible for coordinating NHMFL efforts at UF and for representing chemistry & biology in weekly ALD meetings with the NHMFL Director.

2008-2012

Director of Chemistry & Biology, NHMFL: As DCB, I advised the NHMFL Director on NHMFL chem/bio activities, work with funding agencies (primarily NSF and NIH) to identify new opportunities for the NHMFL to increase its programs in chemistry and biology. I promoted the NHMFL chem/bio activities to universities and other national laboratories around the world. I helped to identify emerging new areas in chem/bio in which the NHMFL can make a substantial technical contribution and then organize efforts to develop the new technology.

2001-2008

AMRIS Director: I directly supervised between 8 and 12 full-time employees, oversaw the operations of a facility with 7 magnetic resonance instruments with capabilities from small molecule NMR to human MRI research, managed an annual budget of about $1,000,000, and facilitated interactions with over 100 users from around the world. AMRIS is the biological magnetic resonance user facility for the NSF National High Magnetic Field Laboratory (Florida State University, University of Florida, and Los Alamos National Laboratory).

Teaching (top)

2021-Present

Virtual Metabolomics Journal Club: Promoted through MANA, we have over 140 participants from around the world. There are 2 presentations each week by zoom.

2020-Present (delayed due to pandemic)

BCMB 8080: “History of Metabolism Reading Group”, weekly student/faculty reading group of original papers in metabolism.

September 2019

Ecuador Metabolomics workshop. Week 1 was lectures in Quito and week 2 was hands on experience in Tena. Attended by about 25 students and faculty.

2018-Present

BINF 4550/6550: “Introduction to Bioinformatics” 3 credit advanced undergraduate/graduate class on bioinformatics, including MATLAB programming introduction, omics analysis, trees, and graphs. Taught with Profs. Jonathan Arnold and Jim Leebens-Mack.

VIP: Vertically Integrated Projects: “Big Data of Small Things”. Undergraduate research team (8-15 students/semester) with meetings and collaborative research projects.

September 2017

“Introduction to NMR, metabolomics, and natural products” 40 hours of lecture/discussion at National Research Institute of Public Health (INSPI), Quito, Ecuador. This was funded through a Fulbright Specialist grant.

October 2012

“Introduction to NMR, metabolomics, and natural products” 40 hours of lecture/discussion at the University of Buenos Aires. This was funded through a Fulbright Specialist grant.

2010-2015

BCH 6206: Advanced metabolism. I taught 4 lectures covering metabolomics.

2007-2015

GMS 6001: Fundamentals of Biomedical Science. I was course coordinator for the biochemistry and molecular biology section. Duties include coordinating 34 lectures, 4 discussion sections, 2 grand round lectures, and 4 computer-based learning exercises.

1997-2015

BCH 6745: Biomolecular NMR (15 lectures). This was a short class to introduce graduate students to the basic theory and applications of biological NMR. Jointly taught with Prof. Joanna Long.

2002-2015

BCH 6745L: Laboratory class to accompany BCH 6745. Five 3-hour labs on data collection, processing, and analysis. Students received formal training on AMRIS instruments and apply principles taught in the lectures. Jointly taught with Prof. Joanna Long.

1997-2015

BCH 6740: Structural Biochemistry for first year graduate students, and we covered structural biology, biophysical techniques, and enzyme kinetics. I taught introductory lectures in biomolecular NMR.

2001-2012

BMS 6204: Clinical Correlation Discussion Groups. I was a basic scientist in clinical correlations, discussion-based classes for first year medical students to learn about the biochemical basis of disease (10 discussion sections each year).

1993-1996

Founder and organizer of the weekly University of Wisconsin-Madison “Evolution Reading Group”. This was a collection of students, postdocs, and faculty members from genetics, zoology, biochemistry, and history of science. We read Darwin’s “Origin of Species” and several other major works in evolution.

Students/Postdocs/Research Scientists Trained (<u>top</u>)

<u>Senior Research Associates</u>

2022-Present

Dr. Mario Uchimiya, Ph.D. University of Tokyo.

Dr. Alexander Eletski

2017-2020

Dr. Fariba Tayyari, Ph.D. chemistry Purdue University (now at U. of Iowa)

2017-2018

Dr. Mohammad Chegeni, Ph.D. from Purdue University (now at Dupont)

Dr. Franklin Leach, Ph.D. chemistry UGA (now Assistant Prof, UGA)

<u>Postdoctoral Fellows:</u>

2019-2022

Dr. Mario Uchimiya, Ph.D. University of Tokyo.

2018-2019

Dr. Jacquelyn Walejko, Ph.D. University of Florida. Currently a postdoc at Duke University

2016-2018

Dr. Haris Panagos, Ph.D., currently NMR lab manager, Germany.

2015-2018

Dr. Adrien Le Guennec, Ph.D. Analytical Chemistry Institut de Chimie des Substances Naturelles (ICSN), Gif-sur-Yvette, France. (Staff scientist at King's College, London)

2015

Dr. Chaevien Clendinen, Ph.D. Biomedical Sciences, University of Florida. Currently a research scientist at Pacific Northwest National Laboratory.

2013-2017

Dr. Fariba Tayyari, Ph.D. Chemistry Purdue University. Promoted to Research Scientist in 2017.

2012-2014

Dr. Caroline Williams, Ph.D. (co-mentored with Prof. Dan Hahn). Currently an Assistant Professor at University of California, Berkeley.

2009-2012

Dr. Tatsuji Chuman, Ph.D. Chemistry, University of Tokyo. Retired.

2006-2010

Dr. Aaron Dossey, Ph.D. IDP, University of Florida. Founder and CEO of "All Things Bugs".

2006-2008

Dr. Fatma Kaplan, Ph.D. Plant Pathology, University of Florida. Currently an Adjunct lecturer and self-employed consultant.

2003-2004

Dr. Yu Li, Ph.D. Electrical Engineering, University of Illinois. Dr. Li designs novel NMR probes for small sample detection. Currently a faculty member at the Cincinnati Children's Hospital.

2000-2003

Dr. Steve Thomas, Ph.D. Physics, University of Florida. Dr. Thomas became a research scientist at the Naval Research Laboratory.

1996-2008

Dr. Cherian Zachariah, Ph.D. Loyola University. Dr. Zachariah is a biochemist who started as a postdoctoral scientist and became an Assistant Scientist managing the protein expression and molecular biology efforts of my group. Currently a patent lawyer.

Graduate Students:

2021-Present

Conrad Epps, Ph.D. candidate, UGA Biochemistry & Molecular Biology

Zarif Hossain, Ph.D. candidate, UGA Bioinformatics

Ying (JoJo) Xiang, Ph.D. candidate, UGA Bioinformatics

Nicole Cammack, Ph.D. candidate, UGA VetMed

Deanna Lanier, Ph.D. candidate, UGA Bioinformatics

2020-Present

Abby Moore, Ph.D. candidate, UGA Bioinformatics

2018-Present

Muhammad Zaka Asif, Ph.D. candidate, UGA Biochemistry (co-mentored with Prof. Erin Dolan)

Nicole Holderman, Ph.D. candidate, UGA Biochemistry & Molecular Biology

Omid Sanati, Ph.D. candidate UGA Engineering

2018-2022

Yue Wu, Ph.D. UGA Bioinformatics (Snyder lab, Stanford University)

Xunan (Sara) Shen, Ph.D. UGA Bioinformatics (Beijing Genome Institute)

Amanda Shaver, Ph.D. UGA Genetics (postdoc with Erik Andersen, Northwestern)

Brianna Garcia, Ph.D. UGA Chemistry (postdoc with Liz Kujawinski, WHOI)

Goncalo Gouveia, Ph.D. UGA Biochemistry & Molecular Biology (postdoc with Frank Delaglio/John Marino, NIST)

2016-2022

Sicong Zhang, Ph.D. UGA Biochemistry & Molecular Biology

2016-Present

Max Colonna, Ph.D. candidate UGA Biochemistry & Molecular Biology (co-mentored with Prof. Shaying Zhao)

2015-2021

Michael Judge, Ph.D. candidate UGA Genetics (co-mentored with Prof. Jonathan Arnold)

Rahil Taujale, Ph.D. UGA Bioinformatics (co-mentored with Prof. Natarajan Kannan)

Olatomiwa Oluwadamilola Bifarin, Ph.D., UGA Biochemistry & Molecular Biology. “Metabolic Phenotyping Meets Machine Learning: Detecting Renal Cell Carcinoma in Urine”

2015-2018

Tyler Carter, M.S. UGA Biochemistry & Molecular Biology (high school teacher)

Nick Batora, Ph.D. (UGA Genetics, co-mentored with Rodney Mauricio)

2013-2018

Jacquelyn Walejko, Ph.D. UF IDP (co-mentored with Prof. Maureen Keller-Wood, UF). “Global Metabolomics of Complications in Pregnancy”. Currently a postdoc at Duke University.

2012-2016

Brittany Lee, Ph.D. (IDP) (co-mentor with Prof. Glenn Walter). Postdoc with Michael Snyder, Stanford.

2012-2015

Vijaykumar Ramaswamy, Ph.D. Currently a research scientist at Bruker.

2010-2014

Greg Stupp, Ph.D. (IDP) “Metabolomics as a Tool for Understanding Stress Responses in Caenorhabditis elegans”. Currently in bioinformatics industry.

Chaevien Clendinen, Ph.D. (IDP) “Development of 13C-Based Metabolomics Using 13C Nuclear Magnetic Resonance and Mass Spectrometry”. Currently a research scientist at Ocean Spray.

2009-2011

Vijaykumar Ramaswamy, M.S. Biomedical Engineering. Currently an engineer at Bruker Biospin.

2005-2009

Heather Cornnell, Ph.D. (Biomedical Engineering, co-supervised with Dr. Glenn Walter, Physiology and Functional Genomics), “Optimization of Contrast Agents for High Magnetic Fields”. Currently a research scientist at Florida Hospital, Orlando.

2002-2008

Iman Al-Naggar, Ph.D. (co-supervised with Dr. Michael Bubb, Medicine) “Structure/function of MARCKS”. Currently a secondary school science teacher.

2001-2008

Omjoy Ganesh, Ph.D. (co-supervised with Dr. Steve Hagen, Physics) “Folding and Binding of IA_3, a Potent Protein Inhibitor of Yeast Proteinase A”. Currently a pharmacist.

2001-2006

Aaron Dossey, Ph.D. “Chemical Biodiversity and Signaling: Detailed Analysis of FMRFamide-like Neuropeptides and Other Natural Products by NMR and Bioinformatics.” Founder and CEO of “All Things Bugs”.

1997-2003

Terry Green, Ph.D. (co-supervised with Dr. Ben Dunn, Biochemistry) “Structure-function Studies of IA-3, an Inhibitor of Yeast Proteinase A.” Currently product development leader at Elanco.

1999-2002

Alexis Harrison, M.S. (co-supervised with Dr. Michael Bubb, Medicine) “Actin-binding Properties of MARCKS”. Currently a medical doctor.

1997-2002

Ramanan Thirumoorthy, Ph.D. (co-supervised with Dr. Nigel Richards, Chemistry) “Structure-function Studies of AGRP-derived Peptides”.

Matthew Carrigan, Ph.D. (co-supervised with Dr. Steve Benner, Chemistry) “Evolutionary and Functional Analysis of Group II Introns and Spliceosomal UsnRNAs.” Currently a professor at Santa Fe College, Gainesville FL.

1996-2002

James Leif Smith, Ph.D. (co-supervised with Dr. Jeff Hillman, Oral Biology) “Structure and Function of Mutacin 1140.” Currently Professor at Texas A&M.

<u>Undergraduate Students Trained:</u>

The Vertically Integrated Project (VIP) team at UGA called “Big data of small things”, which is the systems biology of C. elegans, has 8-15 UGA undergraduate students each semester.

Start 2021

Brandon Reece, UGA, NMR team

Start 2020

Lindsay S. Anderson, Savannah State University, VIP Field team

Deontis Spencer, Savannah State University, VIP Field team

Marie Delcy, Ft. Valley State University, Field team

Aleya Johnson, Ft. Valley State University, Computational team

Rockford Watkins, UGA, Computational and NMR teams, GRA Student Scholar

Maci Benveniste, UGA, Computational team

Niyelle Tucker, UGA, Computational team

Kennady Boyd, UGA, Computational team

Kyra Chism, UGA, Computational and NMR teams, GRA Student Scholar

Start 2019

Bailey Nicolas, Clemson postbac, Computational team

Ari Levin, UGA, Computational team

Man Shah, UGA Biochem, VIP Analytical team

Cole Muzio, UGA Biochem, VIP Pathogen team

Youssef Mohamed, UGA Biochem, VIP NMR team

Kelsey Nocilla, UGA Biochem, VIP Pathogen team

Start 2018

Zaki Hafeez, UGA Biochem, VIP CRISPR team

Victoria Van der Gaag, UGA Biochem, VIP Pathogen team (end 2020)

Sharon Maina, UGA Biochem, VIP Pathogen team (end 2019)

Hailey Goldberg, UGA Biochemistry, VIP CRISPR (end 2020)

Sixie Liu, UGA Biochemistry, VIP NMR team (end 2019)

Start 2017

Jane Guo, UGA Biochemistry, VIP Crispr team (end 2020)

Jack Doll, UGA Engineering, VIP Crispr team (end 2020)

Ivy Lin, UGA Biochemistry: VIP NMR group leader (end 2018)

Jaqueline Anthony, UGA Biochemistry, VIP NMR team (end 2018)

Kieanna Doctrine, UGA Biochemistry, VIP NMR team (end 2018)

Noah Floyd, UGA Biochemistry, VIP Automation team (end 2019)

William Pearson, UGA Biochemistry, VIP Bioinformatics group leader (end 2019)

Rachel Xu, UGA Biochemistry, VIP Bioinformatics team (end 2018)

Taha Rahmatullah, UGA Biochemistry, VIP Bioinformatics team (end 2019)

Start 2016

Sung Alexander, UGA Biochemistry, VIP Automation group leader (end 2018)

Nana Awuku, UGA Biochemistry and Genetics, VIP Automation team (end 2018)

Justin Anthony, UGA Biochemistry, VIP Crispr team (end 2018)

Julia Roth, UGA Genetics and Biology, VIP Bioinformatics group leader (end 2019)

Start 2015

Oudhay Sohal, UGA Biochemistry, VIP Crispr group leader (end 2018)

Summer REU students

2021

Jhonna Roeback, Claflin University

2019

Hope Cobbs, Claflin University

2018

Tamera Jones, Claflin University

Bryan Alava, University of Florida

2017

Gideon Adu, Claflin University

Kai Cobb, Claflin University

2016

Abigael Kosgei, Claflin

Marisa Capeda, FSU

2012

Keiko Cooley, Claflin University

Justin Mincey, Bethune Cookman

UGA non-VIP

2015-2018

Andrew Martin, UGA

John Cord Helken, UGA

UF undergraduate students

Start 2014

Dawit Woldegiorgis (end 2015)

Start 2013

Francesca Ponce, Beckman Scholar (end 2015)

Start 2012

Wei Li, University Scholar awardee (medical school) (end 2014)

Christine Ho, HHMI Science for Life awardee (end 2013)

Start 2011

Alyssa M Bagadion (end 2012)

Start 2010

Karim Kahn (medical school) (end 2012)

Start 2009

Abdulrahman Zeinomar (pharmD) (end 2011)

Michael Garrote (end 2011)

Jessica Antonio (nursing) (end 2010)

Circe Lassegue, HHMI Science for Life Scholar (end 2013)

Bo Park (end 2009)

Amanda Gostigian (end 2009)

Start 2008

Hasan Rasheed (medical school) (end 2010)

Start 2007

Denny Agana (currently a MS student) (end 2011)

Ethan Wilson, HHMI Science for Life Scholar (medical school) (end 2009)

Sunny Kar (end 2008)

Elbert Vaca (medical school) (end 2008)

Alex Brasher (grad student at Scripps-FL) (end 2008)

Start 2006

Steve Robinette, HHMI Science for Life and Provost Scholar, Marshall Scholarship recipient, Ph.D. from Imperial College (currently with Atlas Investing) (end 2010)

Maria Laura Amaya. (medical school) (end 2007)

Gloria Tavera, medical school (end 2007)

Cynthia Nwachukwu (end 2007)

Start 2005

Nathan O'Brien (medical school) (end 2006)

Start 2004

Michael Stadler, Beckman Scholar. Ph.D. Stanford University (end 2007)

Start 2003

Romina Hennig, McNair Minority Scholar, vet school (end 2004)

Tom Bemben. Medical School (end 2004)

Jill Adox. Medical School (end 2004)

Start 2002

Kalyani Marathe. Medical School (end 2003)

Frank Rauci. Medical School (end 2003)

Start 2001

Ramadan Ajredini, Became my lab manager (end 2004)

Jay Hall (end 2003)

Jennifer Jeung. Medical school. (end 2003)

Start 2000

Eric Shen (high school student). (UF grad school) (end 2001)

Jonathan Shin. (end 2002)

Start 1999

Kyle Perry. M.D., Medical school. (end 2001)

Start 1998

Christina Norris. (grad school) (end 2001)

Start 1997

Elena Rodriguez. Ph.D. from UC-Berkeley (end 1999)

Vijay Antharam. Ph.D. from UF. (end 2000)

Visiting Scholars in Edison Laboratory (top)

November, 2019 to November, 2020: Ting Liu, Research Associate, Beijing Academy of Agricultural and Forestry Science, Institute of Plant and Environment Protection (IPEP), Beijing 2449-19 box, Shuguang Garden Middle Road 9, Haidian District, Beijing, 100097, China

September to December, 2018: Andrea del Valle Carranza, Centro de Investigaciones en Bioquímica Clínica e Inmunología, Universidad Nacional de Cordoba, Argentina (Fulbright Scholar)

September to November, 2018: Dr. Ricardo Borges, Instituto de Pesquisas de Produtos Naturais Walter Mors – IPPN, Universidade Federal do Rio de Janeiro – UFRJ (Fulbright Scholar)

August to November, 2017: Dr. Francisco Dillon, University of Buenos Aires, Faculty of Agronomy, Buenos Aires, Argentina

October, 2017: Dr. Romina Giacometti, University of Buenos Aires, Faculty of Agronomy, Buenos Aires, Argentina

May, 2016: Dr. Jorge Zavala, University of Buenos Aires, Faculty of Agronomy, Buenos Aires, Argentina

May, 2015 to November, 2016: Dr. Ricardo Borges, Instituto de Pesquisas de Produtos Naturais Walter Mors – IPPN, Universidade Federal do Rio de Janeiro – UFRJ

December, 2014 to March, 2015: Dr. Martín Arán, Fundación Instituto Leloir, Patricias Argentinas 435, CABA, Argentina.

November, 2014 to January, 2016: Prof. Zhenyu Li, Modern Research Center for Traditional Chinese Medicine of Shanxi University, Taiyuan, Wucheng 92, 03006, China.

March, 2013 to February 2014: Mr. Rafael Teixeira Freire, visiting graduate student from Universidade Estadual Paulista "Júlio de Mesquita Filho" UNESP, Instituto de Química - Araraquara - SP – BRASIL.

January, 2012 to December, 2012: Prof. Ting Liu, visiting scholar from the Beijing Academy of Agricultural and Forestry Science.

March, 2009 to March, 2010: Ian Castro-Gamboa, Ph.D., Assistant Professor, Department of Organic Chemistry, São Paulo State University – UNESP – Araraquara – SP – Brazil.

Summer, 2009: Mr. Christian Pasquel, Undergraduate physics student from Pontificia Universidad Católica Del Perú (PUCP), Lima, Peru

Summers, 2007/2008: Ms. Rathika Nimalendran, Undergraduate neuroscience student from Wellesley College. Edison subsequently arranged a 1-year internship for Rathika at Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru.

Outreach (top)

Personal Blog (http://edisonleatherworks.com/home/blog/): This site documents some of my outside interests, career path, and musings on art, science, and education. Some of the primary target audiences for the blog are students and young adults who are facing career choices.

2008-Present: Annual trips to Claflin University to give guest lectures and recruit underrepresented students to summer research programs and graduate school.

2005-2015: Participant in the National High Magnetic Field Laboratory College Outreach – Workforce Initiative (CO-WIN) Program. This NSF program involved traveling annually to colleges and universities with significant numbers of underrepresented minority students. I presented a seminar on opportunities at the NHMFL and met with students and professors. The goal was to get talented students into labs for summer research projects in the NHMFL and to show them different options for graduate research.

Spring 2009-2012: Founder and leader of the Pine Ridge Science Club. The Pine Ridge community is severely economically disadvantaged. I organized and led a weekly science club on Friday afternoons for about 9 children from 2nd to 5th grades. All of the students were poor and African American. We did activities similar to those described below for the Prairie View Science Club.

2000-2003: Founder and leader of the Prairie View Rattler Science Club. This was a weekly science club for kids from 2nd to 5th grades in the after school program at Prairie View Elementary School. We did simple hands on activities in chemistry, biology, physics, environmental studies, and engineering that are designed to show the excitement of science. We specifically did not try to substitute for another science class. On alternate weeks, we provided math tutoring in either one-on-one sessions or in the form of math games played by the entire group. Over 90% of the students attending Prairie View are minority and qualify for Federal subsidized lunch programs. This ended when the afterschool program was eliminated.

External Grant Support (top)

ACTIVE

Mid-scale RI-2 Consortium: Network for Advanced NMR
NSF 1946970 (Hoch, PI)
07/01/21 – 06/30/25, $39,723,283 ($15,389,282 at UGA; 2.00 summer)

To establish a network of advanced NMR in the US with a data portal and hub at UConn and 1.1 GHz NMR at UGA and UW-Madison. Edison is leading the UGA component.

Role: Co-PI

Center for Chemical Currencies of a Microbial Planet (C-CoMP)
NSF STC 2019589 (Kujawinski and Moran, PIs)
10/01/21 – 09/30/26, $24,999,972 ($99,338 direct to Edison; 0.50 summer)

Science and Technology Center to study interactions between marine microbes and metabolites.

Role: Collaborator

Effects of Climate Change Variables on Microbial Autotroph-Heterotroph
NSF 1948104 (Hopkinson, PI)
04/01/20 – 03/30/23, $988,916 ($72,659 direct to Edison; 0.10 summer)

The goal of this project is to identify the effects of climate change on interactions between phytoplankton and associated marine bacteria. We will analyze specific compounds that pass between phytoplankton and bacteria in surface ocean waters in order to provide insights into how the marine carbon cycle is regulated. Dr. Edison will conduct metabolomics and natural products experiments to quantify changes in metabolites from changes in temperature or pH.

Role in Project: Co-PI

Genetics and Quantum Chemistry as Tools for Unknown Metabolites – Supp. SARS-CoV-2
NIH/NIEHS 3U2C ES030167-03S2 (Edison, PI)
09/14/20 – 06/03/22, $142,268 ($110,705 direct to Edison; 0.06 summer)

The goal of this supplemental award is to discover metabolic predictive biomarkers of COVID-19 infection in ferrets that have been exposed to poly-fluorinated alkyl substances (PFAS) to better understand the COVID-19 disease and to support discovery of vaccines and cures.

Role in Project: PI

Industry Support and Commercialization of ^{13}C NMR Probe for Metabolomics and Structural Biology developed under GM120151
Bruker BioSpin AG, (FP00014350)
04/01/2018 – 03/31/2022, $ 80,000 (US)
Role: PI

Metabolic Currencies of the Ocean Carbon Cycle
NSF 1656311 (Moran, PI)
07/01/17 – 06/30/22 (NCE), $749,220 ($60,032 direct to Edison; 0.66 summer)

Edison will conduct metabolomics and natural products experiments to identify novel metabolites produced by phytoplankton and released to associated bacteria.

Role: Co-PI

An Engineering Research Center for Cell Manufacturing Technologies (CMaT)
NSF 1648035 (Roy, PI)
10/01/17 – 09/30/22, $19,750,000 ($88,501 direct to Edison; 0.5 academic)

Edison co-Directs Thrust 1: Cell-Omics: comprehensive characterization, big-data analytics, and computational modeling to identify predictive cell therapy biomarkers

Role: UGA Co-PI

Genetics and Quantum Chemistry as Tools for Unknown Metabolite Identification
NIH/NIEHS 1U2CES030167-01 (Edison, PI)
09/01/18 – 06/30/22, $4,016,202 ($164,291 direct to Edison; 3.33 academic)

A center as part of the NIH Metabolomics Common Fund for unknown compound identification. In partnership with the University of Florida, Cornell, Northwestern, Michigan State, and Georgia Tech.

Role: PI

Developing Free-Living Marine Nematodes as a New Model System for the Study of Aquatic Symbioses

Moore Foundation 9236 (Bik, PI)

04/25/20 – 03/31/23, $350,000 ($5,000 direct to Edison; 0.01 academic)

The Edison lab will have a small part (e.g. partial support for a technician to sort new worms and evaluate cultures).

Role: Co-PI

Collective Behavior of Cellular Oscillators

NSF 2041546 (Arnold, PI)

02/01/21 – 01/31/24, $807,190 ($37,954 direct to Edison; 0.2 summer)

The goal of this project is to understand the synchronization of biological clocks between cells in the model filamentous fungus Neurospora crassa *in order to help explain far-reaching communication between single cell clocks.*

Role: Co-PI

PENDING

Regulation of Nickel-homeostasis in the Fungal Pathogen *Cryptococcus neoformans*

NIH (Lin, PI)

04/01/22 – 03/31/27, Requested amount: $3,442,933

The goal of this proposal is to identify nickel-responsive pathways in the fungal pathogen Cryptococcus neoformans*. Edison's role is to characterize changes in the* Cryptococcus *metabolome in response to nickel supplementation and genetic mutations.*

Role: Co-I

RECODE: Reproducible Differentiation of Mesenchymal Stromal Cells Using a 3D-printed, Granular Hydrogel System

NSF 2135050 (Marklein, PI)

11/21 – 11/25, Requested amount: $1,500,000

Develop a 3D-printed biomaterial culture system that enables the manufacture of mesenchymal stromal cells (MSCs) with reproducible immunomodulatory function and to identify metabolic pathways that regulate MSC differentiation into immunomodulatory cells.

Role: Co-PI

Unexplored Effects of a Greenbeard Supergene at the Individual and Collective Levels in the Red Imported Fire Ant

NSF (Sasaki, PI)

10/2022 – 09/2024, Requested amount: $660,496

The main objective is to investigate the relationship between a greenbeard signal and the individual and collective behaviors that it modulates using the red imported fire ant, Solenopsis invicta*, as a model system.*

Platform for *in vivo* Metabolism

NIH R35 GM145348-01 (Edison, PI)

01/01/2023 – 12/31/2027, Requested amount: $3,505,823

Use CIVM-NMR to develop a comprehensive platform for in vivo *metabolism, using* N. crassa *as the primary model organism.*

COMPLETED

Development of a High-Sensitivity ^{13}C NMR Probe for Metabolomics

NIH/NIGMS 1R01 GM120151-02 (Edison, PI)
09/01/2016 – 11/30/2021 (NCE), $80,773 (Edison portion of current year direct costs), 0.5 summer

The major goal of this project is the design and implementation of a new HTS NMR probe with ^{13}C and ^{1}H optimization for 900 MHz.

Role in Project: PI

Effects of Maternal Cortisol on Perinatal Cardiac Metabolism Function
NIH R01 HD087306 (Keller-Wood, PI)
09/01/16 – 11/31/21, $454,058

Edison to assist with metabolomics.

Role: Co-I

Measuring and Modeling How Clocks in Single Cells Communicate
NSF 1713746 (Arnold, PI)
07/01/17 – 06/30/21, $830,000

Edison will perform metabolomics and assist with modeling.

Role: Co-PI

Metabolite Flux Through the Fast Loop of the Surface Ocean Carbon Cycle
Moore Foundation (Moran, Edison, Kujawinski, Co-PIs)
12/01/16 – 11/30/19 (NCE), $1,383,528

To use DNP to measure 13C flux from phytoplankton to associated bacteria.

Role: Co-PI

Admin Supplement: Genetics and Quantum Chemistry as Tools for Unknown Metabolite Identification
NIH/NIEHS (Edison, PI)
09/11/19 – 06/30/20, $104,518

Supplement for LC-MS and quantum chemistry.

Role: PI

Therapeutic Use of Dichloroacetate in Treatment of Perinatal Mitochondrial Deficiency and Cardiac Dysfunction
NIH R21 HD091599 (Keller-Wood, PI)
04/07/17 – 03/31/20, $241,375

Edison to assist with metabolomics.

Role: Co-I

12 T FTICR-MS System for the Analysis of Metabolites
NIH HEI (Amster, PI; Edison, Co-PI)
02/01/18 – 01/31/19, $1,967,710

Shared instrumentation grant for metabolomics at UGA.

Role: Co-PI

Predictive Modeling to Identify Biomarkers of Disease Severity in Zika Virus Infections
NIH Administrative supplement 5U01AI111598-05 (Ross, PI)
09/01/16 – 8/31/18, $131,242

Edison will conduct metabolomics on human urine and plasma of infected subjects.

Role: Co-I

Southeast Resource Center for Integrated Metabolomics (SECIM)
NIH U24 DK097209 (Yost, PI; Edison, PI - UGA subcontract)
09/01/13 – 08/31/18, $9.3M (subcontract $274,834)

To establish a regional center for metabolomics.

Role: PI

Note: Edison was the founding PI and Director of SECIM before moving to UGA.

National High Magnetic Field Laboratory
NSF R00902, FSU subcontract to UF (Long, PI), Edison 10% effort
1/1/13 – 12/31/17

These funds support an external user program and develop new biological magnetic resonance technologies. Edison's role is diversity and outreach and metabolomics interface.

Role: Co-PI

Collaborative research: Integrating Physiological and Genetic Mechanisms to Understand the Evolution of Cold Tolerance
NSF/IOS 0919998 (Hahn, PI)
07/01/10 – 06/30/13

To characterize small molecule metabolite markers of cold tolerance in insects.

Role: Co-PI

Magnetic Resonance Imaging and Biomarkers for Muscular Dystrophy
NIH/NIAMS R01 AR056973 (supplement to parent grant), (Vandenborne, PI)
05/01/12 – 04/30/14

Edison analyzed serum and urine from children with Duchene MD to develop biomarkers.

Role: Co-PI

Improved NMR Technology for Natural Products and Metabolomics
NIH/NIBIB 1R01 EB009772-01 (Edison, PI)
08/01/09 – 06/30/14, $1,480,622

The major goals were to build a new HTS NMR probe for the highest mass sensitivity for both ^{1}H and ^{13}C detection of natural products.

Role: PI

Comparative Behavioral Metabolomics in Nematodes
NIH/NIGMS 1R01 GM085285-01A1 (Edison, PI)
05/01/09 – 02/28/2014, $318,009

To isolate, identify, and characterize mating and dauer pheromones and receptors from several rhabditid species of nematode.

Role: PI

Endogenous G-Protein Coupled Receptor Antagonists
NIH 1R01 DK064250 (Haskell-Luevano, PI)
09/15/08 – 07/31/13, $1,247,300

The major goals of this project were to design and characterize antagonists of melanocortin receptors. The Edison laboratory used NMR to model the conformation of select compounds. Edison provided assistance in NMR data collection and modeling.

Role: Co-I

An Integrated Chemical Platform to Elucidate Eukaryotic Sensing of Bacterial Crosstalk: QUORUMPROBES

European Commission ERC-DIC (Meijler, PI – Ben-Gurion University of the Negev)
5 years total, Edison 2 year contract

This project utilized chemical probes to isolate quorum sensing (QS) receptors in a variety of organisms.

Role: Investigator

National High Magnetic Field Laboratory
NSF ARRA-R01218 (Edison, PI of UF subcontract)
1/1/08 – 12/31/12, $200,000

These funds helped to purchase a 4.7T/33 cm animal imaging system for AMRIS.

Role: PI

National High Magnetic Field Laboratory
UF NHMFL Institutional Matching Funds
1/1/08-12/31/12, $75,000/yr

These funds supported a postdoc and supplies for the development of high sensitivity NMR to enhance the NHMFL external user program.

Role: PI

Administrative Supplement: Comparative Behavioral Metabolomics in Nematodes
NIH/NIGMS 3R01 GM085285-01A1S1 (Edison, PI)
07/17/09 – 06/30/11, $349,634

To expand Aim 4 of the parent grant to improve our mechanistic understanding of nematode chemical signaling.

Role: PI

Upgrade of an 11T/40cm MRI/S System
NIH/NCRR 1S10 RR025671-01 (Edison, PI)
01/16/09 – 01/15/10, $500,000 total

Shared instrumentation grant for 11T imaging console upgrade.

Role: PI

Discovery of *Caenorhabditis elegans* Chemical Ecology
Human Frontiers Science Program (Edison, PI)
5/01/05 – 4/30/08, $350,000/yr

The major goals of this project were to isolate, identify, and characterize C. elegans *pheromones.*

Role: PI

High Field Magnetic Resonance Research and Technology
NIH P41 RR16105 (Blackband, PI)
05/01/01 – 04/30/07, $5,145,741

The major goals of this resource grant were to develop improved sensitivity for NMR and MRI measurements. This was the funding used to develop and build the high-sensitivity 1-mm HTS probe.

Role: Core PI

Development of Molecular Imaging at UF
UF Opportunity Fund (Edison, PI)
04/01/05 – 3/30/06, $70,000

The major goal of this project was to establish MRI molecular imaging at UF by bringing together particle scientists, cell biologists, physiologists, chemists, and imaging specialists.

Role: PI

MARCKS-Actin Structure: Implications for Neuroplasticity
Veterans' Administration (Bubb, PI)
10/01/01 – 09/30/05, $15,000/yr

The major goals of this project were to characterize the biophysical properties of MARCKS.

Role: Subcontractor

Novel Inhibitors of Fungal Aspartic Proteinases
NIH 5R01 AI049063 (Dunn, PI)
2001 – 2004, $450,000

The major goals were to structurally and dynamically characterize the folding and binding of IA-3, an endogenous inhibitor of yeast proteinase A.

Role: Co-I

Structure-Function of FMRFamide Like Peptides
NSF Career (Edison, PI)
06/1/99 – 05/31/04, $450,000

The major goals of this project were to use NMR to study the structural basis of neuropeptide variability.

Role: PI

Purchase of a Circular Dichroism Spectrometer
NIH S10 RR016765-01 (Edison, PI)
03/01/02 – 02/28/03, $109,260

This was a shared instrumentation grant that resulted in an Aviv spectrometer with stopped flow.

Role: PI

Small Bioeffector Molecules of *Streptococcus mutans*
NIH 5R01 DE12327 (Hillman, PI)
06/01/98 – 05/31/02, $1,168,660

The major goals were to determine the structure of mutacin 1140, a potent and broad-spectrum antibiotic.

Role: Co-PI

NMR Studies of the Cardioactive Neuropeptide FMRFamide Bound to the FMRFamide-gated Sodium Channel Receptor
American Heart Association/Florida Affiliate (Edison, PI)
1997 – 2001, $225,000

The major goals were to express a sodium channel and determine the bound structure of its ligand, FMRFamide.

Role: PI

Patents (<u>top</u>)

Provisional: Method for Predicting Prostate Cancer Recurrence, Facundo Fernandez, Chaevien Clendinen, Arthur S. Edison, David Gaul, John Petros

NMR RF Probe Coil Exhibiting Double Resonance, US Patent 8779768.

Ascarosides as Nematode Sex Pheromones, US Patent 8318146

Publications (top)

Archived Preprints

1. An anchored experimental design and meta-analysis approach to address batch effects in large-scale metabolomics, Amanda O. Shaver, Brianna M. Garcia, Goncalo J. Gouveia, Alison M. Morse, Zihao Liu, Carter K. Asef, Ricardo M. Borges, Franklin E. Leach III, Erik C. Andersen, I. Jonathan Amster, Facundo M. Fernández, Arthur S. Edison, Lauren M. McIntyre, bioRxiv 2022.03.25.485859; doi: https://doi.org/10.1101/2022.03.25.485859
2. Odeh-Couvertier, V. Y., Dwarshuis, N. J., Colonna, M. B., Levine, B. L., Edison, A. S., Kotanchek, T., Roy, K., and Torres-Garcia, W. (2021) Predicting T Cell Quality During Manufacturing Through an Artificial Intelligence-based Integrative Multi-Omics Analytical Platform, *bioRxiv*, 2021.2005.2005.442854.
3. Gouveia, G. J., Shaver, A. O., Garcia, B. M., Morse, A. M., Andersen, E. C., Edison, A. S., and McIntyre, L. M. (2021) Long-Term Metabolomics Reference Material, *bioRxiv*, 2021.2003.2024.436834.
4. Uchimiya, M., Schroer, W., Olofsson, M., Edison, A. S., and Moran, M. A. (2020) Diel Investments in Phytoplankton Metabolite Production Influenced by Associated Heterotrophic Bacteria, *bioRxiv*, 2020.2011.2018.388827.
5. Taujale, R., Venkat, A., Huang, L.-C., Yeung, W., Rasheed, K., Edison, A. S., Moremen, K. W., and Kannan, N. (2020) Deep evolutionary analysis reveals the design principles of fold A glycosyltransferases, *bioRxiv*, 2019.2012.2031.891697.
6. Shrestha, S., Katiyar, S., Sanz-Rodriguez, C. E., Kemppinen, N. R., Kim, H. W., Kadirvelraj, R., Panagos, C., Keyhaninejad, N., Colonna, M., Chopra, P., Byrne, D. P., Boons, G. J., van der Knaap, E., Eyers, P. A., Edison, A. S., Wood, Z. A., and Kannan, N. (2020) A novel redox-active switch in Fructosamine-3-kinases expands the regulatory repertoire of the protein kinase superfamily, *bioRxiv*, 2020.2001.2013.904870.
7. Judge, M. T., Wu, Y., Tayyari, F., Hattori, A., Glushka, J., Ito, T., Arnold, J., and Edison, A. S. (2018) Continuous in vivo metabolism by NMR, *BioRxiv*, 501577.

Submitted for peer review or in revision

Accepted, In Press, or Published

1. “Uncovering *in vivo* biochemical networks from real time time-series metabolic dynamics”, Yue Wu, Michael T. Judge, Arthur S. Edison, and Jonathan Arnold, In revision PLoS One (2021).
2. “Dissolved organic metabolite extraction from high salt media”, Nicole R. Holderman[1]*, Frank Ferrer-Gonzalez[2]*, John Glushka[1], Mary Ann Moran[2], Arthur S. Edison, In revision NMR in Biomedicine (2021)
3. "In silico Collision Cross Section (CCS) Calculations to Aid Metabolomic Annotation", Das, Susanta; Tanemura, Kiyoto; Dinpazhoh, Laleh; Keng, Mithony; Schumm, Christina ; Leahy, Lydia ; Asef, Carter ; Rainey, Markace ; Edison, Arthur; Fernandez, Facundo; Merz, Kenneth M., Accepted Anal Chem (2022)
4. “Growth-Stage Related Shifts in Diatom Endometabolome Composition Set the Stage for Bacterial Heterotrophy”, Malin Olofsson, Frank X. Ferrer-Gonzalez, Mario Uchimiya, Jeremy E. Schreier,

Nicole R. Holderman, Christa B. Smith, Arthur S. Edison, Mary Ann Moran, Accepted (2022) ISME Communications.

5. “Microbial Metabolites in the Marine Carbon Cycle”, Mary Ann Moran[1]*, Elizabeth B. Kujawinski [2]*, William F. Schroer[1], Shady A. Amin[3], Nicholas R. Bates[4], Erin M. Bertrand[5], Rogier Braakman[6], C. Titus Brown[7], Markus W. Covert[8], Scott C. Doney[9], Sonya Dyhrman[10,11], Arthur S. Edison[12], A. Murat Eren[13,14], Naomi M. Levine[15], Liang Li[16], Avena C. Ross[17], Mak A. Saito[1], Alyson E. Santoro[18], Daniel Segré[19], Ashley Shade[20], Matthew B. Sullivan[21], and Assaf Vardi, Accepted Nature Micro (2022).
6. “Application of Counter-wound Multi-arm Spirals in HTS Resonator Design”, Taylor L. Johnston, Arthur S. Edison, Vijaykumar Ramaswamy, Nicolas Freytag, Matthew E. Merritt, Jeremy N. Thomas, Jerris W. Hooker, Ilya M. Litvak, William W. Brey (2022), Accepted EUCAS 2021 Special Issue of the IEEE Transactions on Applied Superconductivity
7. “Urine-Based Metabolomics and Machine Learning Reveals Metabolites Associated with Renal Cell Carcinoma Stage” Olatomiwa O. Bifarin, David A. Gaul, Samyukta Sah, Rebecca S. Arnold, Kenneth Ogan, Viraj A. Master, David L. Roberts, Sharon H. Bergquist, John A. Petros, Arthur S. Edison *, Facundo M. Fernández * (2021) Accepted, Cancers.
8. “Predicting T Cell Quality During Manufacturing Through an Artificial 1 Intelligence-based Integrative Multi-Omics Analytical Platform”, V. Y. Odeh-Couvertier, N. J. Dwarshuis, M. B. Colonna, B. L. Levine, A. S. Edison, T. Kotanchek, K. Roy, and W. Torres-Garcia, Accepted Bioengineering & Translational Medicine (2021)
9. Uchimiya, M., Schroer, W., Olofsson, M., Edison, A. S., and Moran, M. A. (2021) Diel Investments in Phytoplankton Metabolite Production Influenced by Associated Heterotrophic Bacteria, Accepted, ISMEJ.
10. "Sodium dichloroacetate stimulates cardiac mitochondrial metabolism and improves cardiac conduction in the ovine fetus during labor", Serene Joseph, Mengchen Li, Sicong Zhang, Lloyd Horne, Peter Stacpoole, Stephanie Wohlgemuth, Arthur Edison, Charles Wood, and Maureen Keller-Wood, Accepted, American Journal of Physiology (2021)
11. “Multi-omics characterization of mesenchymal stem/stromal cells for the identification of putative critical quality attributes” Corresponding Author: Steven L Stice, Co-Authors: Ty S Maughon; Xunan Shen; Danning Huang; Adeola O Adebayo Michael; William A Shockey; Seth H Andrews; Jon M McRae; Manu O Platt; Facundo M Fernández; Arthur S Edison; Ross A Marklein, Accepted, Cryotherapy (2021)
12. Gouveia, G. J., Shaver, A. O., Garcia, B. M., Morse, A. M., Andersen, E. C., Edison, A. S., and McIntyre, L. M. (2021) Long-term metabolomics reference material, *Anal Chem 93*, 9193-9199.
13. Huang, D., Bouza, M., Gaul, D. A., Leach III, F. E., Amster, I. J., Schroeder, F. C., Edison, A. S., and Fernandez, F. M. (2021) Comparison of high-resolution fourier transform mass spectrometry platforms for putative metabolite annotation, *Anal Chem 93*, 12374-12382. [doi: 10.1021/acs.analchem.1c02224]
14. Bifarin, O. O., Gaul, D. A., Sah, S., Arnold, R. S., Ogan, K., Master, V. A., Roberts, D. L., Bergquist, S. H., Petros, J. A., Fernandez, F. M., and Edison, A. S. (2021) Machine learning-enabled renal cell carcinoma status prediction using multiplatform urine-based metabolomics, *J Proteome Res 20*, 3629-3641.
15. Sanati, O., Edison, A. S., Hornak, L. A., Litvak, I., Ramaswamy, V., Freytag, N., and Brey, W. W. (2021) 13C-optimized HTS NMR RF coil design at 21.1 T, *IEEE Transactions on Applied Superconductivity*, 1-5.

16. Borges, R. M., Colby, S. M., Das, S., Edison, A. S., Fiehn, O., Kind, T., Lee, J., Merrill, A. T., Merz, K. M., Jr., Metz, T. O., Nunez, J. R., Tantillo, D. J., Wang, L. P., Wang, S., and Renslow, R. S. (2021) Quantum chemistry calculations for metabolomics, *Chem Rev 121*, 5633-5670, [PMC8161423]

17. Asif, M. Z., Van der Gaag, V. L., Guo, J., Nocilla, K. A., Muzio, C. J., and Edison, A. S. (2021) A plate based assay for determination of the median lethal dose of 1-hydroxyphenazine in Caenorhabditis elegans, *MicroPubl Biol 2021*. [PMC7807258]

18. Edison, A. S., Colonna, M., Gouveia, G. J., Holderman, N. R., Judge, M. T., Shen, X. and Zhang, S. (2021) NMR: Unique strengths that enhance modern metabolomics research, *Anal Chem 93(1)*, 478-499. Invited review. doi: https://pubs.acs.org/doi/10.1021/acs.analchem.0c04414

19. Shaver, A. O., Gouveia, G. J., Kirby, P. S., Andersen, E. C., and Edison, A. S. (2021) Culture and assay of large-scale mixed-stage C. elegans populations. *J Vis Exp (171).* doi: 10.3791/61453

20. Thomas, J. N., Ramaswamy, V., Johnston, T. L., Belc, D. C., Freytag, N., Hornak, L. A., Edison, A. S., and Brey, W. W. (2020) Modeling the Resonance Shifts Due to Coupling Between HTS Coils in NMR Probes, *Journal of Physics: Conference Series 1559*, 012022.

21. Ferrer-González, F. X., Widner, B., Holderman, N. R., Glushka, J., Edison, A. S., Kujawinski, E. B., and Moran, M. A. (2021) Resource partitioning of phytoplankton metabolites that support bacterial heterotrophy, *ISME J 15(3)*, 762-773. doi: 10.1038/s41396-020-00811-y

22. Joseph, S., Walejko, J. M., Zhang, S., Edison, A. E., and Keller-Wood, M. (2020) Maternal hypercortisolemia alters placental metabolism: a multiomics view, *Am J Physiol Endocrinol Metab 319(5)*, E950-E960. [PMC7790119] doi: 10.1152/ajpendo.00190.2020

23. Giacometti, R., Jacobi, V. Kronberg, F., Panagos, C., Edison, A. S., and Zavala, J. A. (2020) Digestive activity and organic compounds of *Nezara viridula* watery saliva induce defensive soybean seed responses, *Sci Rep 10(1)*, 15468. [PMC7508886]

24. Walejko, J. M., Chelliah, A., Keller-Wood, M., Wasserfall, C., Atkinson, M., Gregg, A., and Edison, A. S. (2020) Diabetes leads to alterations in normal metabolic transitions of pregnancy as revealed by time-course metabolomics, *Metabolites 10(9)*, 350. [PMC7570364]

25. Wu, Y., Judge, M. T., Arnold, J., Bhandarkar, S. M., and Edison, A. E. (2020) RTExtract: Time-series NMR spectra quantification based on 3D surface ridge tracking, *Bioinformatics 36(20)*, 5068-5075. [PMC7755419]

26. Das, S., Edison, A. E., and Merz Jr., K. M. (2020) Metabolite structure assignment using *in silico* NMR techniques, *Anal Chem 92(15)*, 10412-10419. doi: 10.1021/acs/analchem.0c00768

27. Shrestha, S., Katiyar, S., Sanz-Rodriguez, C. E., Kemppinen, N. R., Kim, H. W., Kadirvelraj, R., Panagos, C., Keyhaninejad, N., Colonna, M., Chopra, P., Byrne, D. P., Boons, G. J., van der Knapp, E., Eyers, P. A., Edison, A. E., Wood, Z. A., Kannan, N. (2020) A redox-active switch in fructosamine-3-kinases expands the regulatory repertoire of the protein kinase superfamily, *Sci Signal 13(639)*, eaax6313. doi: 10.1126/scisignal.aax6313

28. Taujale, R., Venkat, A., Huang, L.-C., Zhou, Z., Yeung, W., Rasheed, K. M., Li, Sheng, Edison, A. S., Moremen, K. W., and Kannan, N. (2020) Deep evolutionary analysis reveals the design principles of fold A glycosyltransferases, *Elife 9*, e54532. [PMC7185993]

29. Borchert, A. J., Gouveia, G. J., Edison, A. S., and Downs, D. M. (2020) Proton nuclear magnetic resonance metabolomics corroborates serine hydroxymethyltransferase as the primary target of 2-aminoacrylate in a *ridA* mutant of Salmonella enterica, *mSystems 5(2)*, e00843-19. [PMC7065518]

30. Borchert, A. J., Walejko, J. M., Guennec, A. L., Ernst, D. C., Edison, A. S., and Downs, D. M. (2019) Integrated metabolomics and transcriptomics suggest the global metabolic response to 2-aminoacrylate stress in Salmonella enterica, *Metabolites 10*, E12. [PMC7023182] doi: 10.3390/metabo10010012

31. Edison, A. S., Le Guennec, A., Delaglio, F., and Kupče, Ē. (2019) Practical Guidelines for 13C-Based NMR Metabolomics, In *NMR-Based Metabolomics: Methods and Protocols* (Gowda, G. A. N., and Raftery, D., Eds.), pp 69-95, Springer New York, New York, NY.

32. Benoit, S. L, Schmalstig, A. L., Glushka, J., Maier, S. E., Edison, A. S., and Maier, R. J. (2019) Nickel chelation therapy as an approach to combat multi-drug resistant enteric pathogens, *Nature Sci Rep 9*, 13851. [PMC6761267] doi: 10.1038/s41598-019-50027-0

33. Sheikh, M. O., Tayyari, F., Zhang, S., Judge, M. T., Weatherly, D. B., Ponce, F. V., Wells, L., and Edison, A. S. (2019) Correlations between LC-MS/MS-detected glycomics and NMR-detected metabolomics in Caenorhabditis elegans development, *Frontiers in Molecular Biosciences 6*, 49. [PMC6611444] doi: 10.3389/fmolb.2019.00049

34. Judge, M. T., Wu, Y., Tayyari, F., Hattori, A., Glushka, J., Ito, T., Arnold, J., and Edison, A. S. (2019) Continuous in vivo metabolism by NMR, *Front Mol Biosci 6*, 26. [PMC6502900]

35. Amouzandeh, G., Ramaswamy, V., Freytag, N., Edison, A. S., Hornak, L. A., and Brey, W. W. (2019) Time and frequency domain response of HTS resonators for use as NMR transmit coils, *IEEE Trans Appl Supercond 29*, 1102705. [PMC6921929]

36. Clendinen, C. S., Gaul, D. A., Monge, M. E., Arnold, R. S., Edison, A. S., Petros, J. A., and Fernandez, F. M. (2019) Preoperative metabolic signatures of prostate cancer recurrence following radical prostatectomy, *J Proteome Res 18*, 1316-1327. doi: 10.1021/acs.jproteome.8b00926

37. Monge, M. E., Dodds, J. N., Baker, E. S., Edison, A. S., and Fernandez, F. M. (2019) Challenges in identifying the dark molecules of life, *Annu Rev Anal Chem 12(1)*, 177-199. [PMC6716371]

38. Walejko, J. M., Antolic, A., Koelmel, J. P., Garrett, T. J., Edison, A. S., and Keller-Wood, M. (2019) Chronic maternal cortisol excess during late gestation leads to metabolic alterations in the newborn heart, *Am J Physiol Endocrinol Metab 316*, E546-E556. [PMC6459297]

39. Lee-McMullen, B., Chrzanowski, S. M., Vohra, R., Forbes, S. C., Vandenborne, K., Edison, A. S., and Walter, G. A. (2019) Age-dependent changes in metabolite profile and lipid saturation in dystrophic mice, *NMR Biomed 32*, e4075. [PMC6777843]

40. Walejko, J. M., Koelmel, J. P., Garrett, T. J., Edison, A. S., and Keller-Wood, M. (2018) Multiomics approach reveals metabolic changes in the heart at birth, *Am J Physiol Endocrinol Metab 315*, E1212-E1223. [PMC6336953]

41. Borges, R. M., Taujale, R., de Souza, J. S., de Andrade Bezerra, T., Silva, E. L. E., Herzog, R., Ponce, F. V., Wolfender, J. L., and Edison, A. S. (2018) Dereplication of plant phenolics using a mass-spectrometry database independent method, *Phytochem Anal 29*, 601-612. doi: 10.1002/pca.2773

42. Williams, C. M., Rocca, J. R., Walter, G., Lee McMullen, B. L., Edison, A. S., Morgan, T. J., and Hahn, D. A. (2018) Cold adaptation does not alter ATP homeostasis during cold exposure in *Drosophila melanogaster*, *Inter Zool 13*, 471-481. doi: 10.1111/1749-4877.12326

43. Walejko, J. M., Chelliah, A., Keller-Wood, M., Gregg, A., and Edison, A. S. (2018) Global metabolomics of the placenta reveals distinct metabolic profiles between maternal and fetal placental tissues following delivery in non-labored women, *Metabolites 8*, 10-21. [PMC5876000] doi: 10.3390/metabo801001

44. Nothaft, H., Perez-Munoz, M. E., Gouveia, G. J., Duar, R. M., Wanford, J. J., Lango-Scholey, L., Panagos, C. G., Srithayakumar, V., Plastow, G. S., Coros, C., Bayliss, C. D., Edison, A. S., Walter, J., and Szymanski, C. M. (2017) Co-administration of the Campylobacter jejuni N-glycan based vaccine with probiotics improves vaccine performance in broiler chickens, *Appl Environ Microbiol*, In press. [PMC5691412] doi: 10.1128/AEM.01523-17

45. DeRatt, B. N., Ralat, M. A., Lysne, V., Tayyari, F., Dhar, I., Edison, A. S., Garrett, T. J., Midttun, O., Ueland, P. M., Nygard, O. K., and Gregory, J. F. 3rd. (2017) Metabolomic evaluation of the consequences of plasma cystathionine elevation in adults with stable angina pectoris, *J Nutr 147*, 1658-1668. doi: 10.3945/jn.117.254029

46. Le Guennec, A., Tayyari, F., and Edison, A. S. (2017) Alternatives to Nuclear Overhauser enhancement spectroscopy presat and Carr-Purcell-Meiboom-Gill presat for NMR-based metabolomics, *Anal Chem 89*, pp. 8582-8588. [PMC5588096] doi: 10.1021/acs.analchem.7b02354

47. Bohni, N., Ndjoko-Ioset, K., Edison, A. S., and Wolfender, J.-L. (2017) *Advanced Spectroscopic Detectors for Identification and Quantification: Nuclear Magnetic Resonance*, Vol. 1, pp. 479-514, Elsevier. isbn: 0128093455

48. Hattori, A., Tsunoda, M., Konuma, T., Kobayashi, M., Nagy, T., Glushka, J., Tayyari, F., McSkimming, D., Kannan, N., Tojo, A., Edison, A. S., and Ito, T. (2017) Cancer progression by reprogrammed BCAA metabolism in myeloid leukaemia, *Nature 545*, 500-504. [PMC5554449] doi:10.1038/nature22314

49. Markley, J. L., Bruschweiler, R., Edison, A. S., Eghbalnia, H. R., Powers, R., Raftery, D., and Wishart, D. S. (2017) The future of NMR-based metabolomics, *Curr Opin Biotechnol 43*, 34-40. [PMC5305426] doi:10.1016/j.copbio.2016.08.001

50. Dunn, W. B., Broadhurst, D. I., Edison, A., Guillou, C., Viant, M. R., Bearden, D. W., and Beger, R. D. (2017) Quality assurance and quality control processes: summary of a metabolomics community questionnaire, *Metabolomics 13*, 50. [PMC in process] doi: 10.1007/s11306-017-1188-9

51. Ramaswamy, V., Edison, A. S., and Brey, W. W. (2017) Inductively-coupled frequency tuning and impedance matching in HTS-based NMR probes, *IEEE Trans Appl Supercond 27*, 1-5. [PMC5639725] doi:10.1109/TASC.2017.2672718

52. Reed, L. K., Baer, C. F., and Edison, A. S. (2017) Considerations when choosing a genetic model organism for metabolomics studies, *Curr Opin Chem Biol 36*, 7-14. [PMC5337163] doi:10.1016/j.cbpa.2016.12.005

53. Williams, C. M., Szejner-Sigal, A., Morgan, T. J., Edison, A. S., Allison, D. B., and Hahn, D. A. (2016) Adaptation to low temperature exposure Increases metabolic rates independently of growth rates, *Integr Comp Biol 56*, 62-72. [PMC4930064] doi: 10.1093/icb/icw009.

54. Sud, M., Fahy, E., Cotter, D., Azam, K., Vadivelu, I., Burant, C., Edison, A., Fiehn, O., Higashi, R., Nair, K. S., Sumner, S., and Subramaniam, S. (2016) Metabolomics Workbench: An international repository for metabolomics data and metadata, metabolite standards, protocols, tutorials and training, and analysis tools, *Nucleic Acids Res 44*, D463-470. [PMC4702780] doi:10.1093/nar/gkv1042.

55. Ramaswamy, V., Hooker, J. W., Withers, R. S., Nast, R. E., Edison, A. S., and Brey, W. W. (2016) Development of a 1H-13C Dual-optimized NMR probe based on double-tuned high temperature superconducting resonators, *IEEE Trans Appl Supercond 26*, 1-5. [PMC in process] doi:10.1109/TASC.2016.2522302.

56. Liu, H., Tayyari, F., Edison, A. S., Su, Z., and Gu, L. (2016) NMR-based metabolomics reveals urinary metabolome modifications in female Sprague-Dawley rats by cranberry procyanidins, *J Nutr Biochem 34*, 136-145. [PMC in process] doi:10.1016/j.jnutbio.2016.05.007.

57. Hooker, J. W., Ramaswamy, V., Arora, R. K., Edison, A. S., and Brey, W. W. (2016) Effects of dielectric substrates and ground planes on resonance frequency of Archimedean spirals, *IEEE Trans Appl Supercond 26*, 1501104. [PMC5102264]. doi:10.1109/TASC.2016.2531007.

58. Edison, A. S., Hall, R. D., Junot, C., Karp, P. D., Kurland, I. J., Mistrik, R., Reed, L. K., Saito, K., Salek, R. M., Steinbeck, C., Sumner, L. W., and Viant, M. R. (2016) The time Is right to focus on model organism metabolomes, *Metabolites 6*, 8. [PMC4812337] doi:10.3390/metabo6010008.

59. Clendinen, C. S., Stupp, G. S., Wang, B., Garrett, T. J., and Edison, A. S. (2016) 13-C metabolomics: NMR and IROA for unknown identification, *Curr Metabolomics 4*, 116-120. [PMC5204070] doi:10.2174/2213235X04666160407212156.

60. Wang, B., Park, E. M., King, J. B., Mattes, A. O., Nimmo, S. L., Clendinen, C., Edison, A. S., Anklin, C., and Cichewicz, R. H. (2015) Transferring fungi to a deuterium-enriched medium results in assorted, conditional changes in secondary metabolite production, *J Nat Prod 78*, 1415-1421. [PMC7676450] doi:10.1021/acs.jnatprod.5b00337.

61. Menger, R. F., Clendinen, C. S., Searcy, L. A., Edison, A. S., and Yost, R. A. (2015) MALDI mass spectrometric imaging of the nematode Caenorhabditis elegans, *Curr Metabolomics 3*, 130-137. [PMC in process] doi:10.2174/2213235X03666150525223412.

62. Hooker, J. W., Ramaswamy, V., Arora, R. K., Edison, A. S., Withers, R. S., Nast, R. E., and Brey, W. W. (2015) An empirical expression to predict the resonant frequencies of Archimedean spirals, *IEEE Trans Microw Theory Tech 63*, 2107-2114. [PMC4635680] doi:10.1109/TMTT.2015.2434814.

63. Frelin, O., Huang, L., Hasnain, G., Jeffryes, J. G., Ziemak, M. J., Rocca, J. R., Wang, B., Rice, J., Roje, S., Yurgel, S. N., Gregory, J. F., 3rd, Edison, A. S., Henry, C. S., de Crecy-Lagard, V., and Hanson, A. D. (2015) A directed-overflow and damage-control N-glycosidase in riboflavin biosynthesis, *Biochem J 466*, 137-145. [PMC4477702] doi:10.1042/BJ20141237.

64. Edison, A. S., Clendinen, C. S., Ajredini, R., Beecher, C., Ponce, F. V., and Stupp, G. S. (2015) Metabolomics and natural-products strategies to study chemical ecology in nematodes, *Integr Comp Biol 55*, 478-485. [PMC4543130] doi:10.1093/icb/icv077.

65. Clendinen, C. S., Stupp, G. S., Ajredini, R., Lee-McMullen, B., Beecher, C., and Edison, A. S. (2015) An overview of methods using (13)C for improved compound identification in metabolomics and natural products, *Front Plant Sci 6*, 611. [PMC4548202] doi:10.3389/fpls.2015.00611.

66. Clendinen, C. S., Pasquel, C., Ajredini, R., and Edison, A. S. (2015) 13-C NMR Metabolomics: INADEQUATE Network Analysis, *Anal Chem 87*, 5698-5706. [PMC4537055] doi:10.1021/acs.analchem.5b00867.

67. Ardenkjaer-Larsen, J. H., Boebinger, G. S., Comment, A., Duckett, S., Edison, A. S., Engelke, F., Griesinger, C., Griffin, R. G., Hilty, C., Maeda, H., Parigi, G., Prisner, T., Ravera, E., van Bentum, J., Vega, S., Webb, A., Luchinat, C., Schwalbe, H., and Frydman, L. (2015) Facing and overcoming sensitivity challenges in biomolecular NMR spectroscopy, *Angew Chem Int Ed Engl 54*, 9162-9185. [PMC4943876] doi:10.1002/anie.201410653.

68. Williams, C. M., Watanabe, M., Guarracino, M. R., Ferraro, M. B., Edison, A. S., Morgan, T. J., Boroujerdi, A. F., and Hahn, D. A. (2014) Cold adaptation shapes the robustness of metabolic networks in Drosophila melanogaster, *Evolution 68*, 3505-3523. [PMC4472466] doi:10.1111/evo.12541.

69. Singh, A., Dirain, M. L., Wilczynski, A., Chen, C., Gosnell, B. A., Levine, A. S., Edison, A. S., and Haskell-Luevano, C. (2014) Synthesis, biophysical, and pharmacological evaluation of the melanocortin agonist AST3-88: modifications of peptide backbone at Trp 7 position lead to a potent, selective, and stable ligand of the melanocortin 4 receptor (MC4R), *ACS Chem Neurosci 5*, 1020-1031. [PMC4198065] doi:10.1021/cn5000953.

70. Clendinen, C. S., Lee-McMullen, B., Williams, C. M., Stupp, G. S., Vandenborne, K., Hahn, D. A., Walter, G. A., and Edison, A. S. (2014) 13-C NMR metabolomics: applications at natural abundance, *Anal Chem 86*, 9242-9250. [PMC4165451] doi:10.1021/ac502346h.

71. Bearden, D. W., Beger, R. D., Broadhurst, D., Dunn, W., Edison, A., Guillou, C., Trengove, R., Viant, M., and Wilson, I. (2014) The New Data Quality Task Group (DQTG): ensuring high quality data today and in the future, *Metabolomics 10*, 539-540. doi:10.1007/s11306-014-0679-1.

72. Wolfender, J. L., Bohni, N., Ndjoko-Ioset, K., and Edison, A. S. (2013) Chapter 16 - Advanced Spectroscopic Detectors for Identification and Quantification: Nuclear Magnetic Resonance, (Fanali, S., Haddad, P. R., Poole, C. F., Schoenmakers, P., and Lloyd, D., Eds.), pp 349-384, Elsevier, Amsterdam. doi:10.1016/B978-0-12-415807-8.00016-X.

73. Stupp, G. S., von Reuss, S. H., Izrayelit, Y., Ajredini, R., Schroeder, F. C., and Edison, A. S. (2013) Chemical detoxification of small molecules by Caenorhabditis elegans, *ACS Chem Biol 8*, 309-313. [PMC3747836] doi:10.1021/cb300520u.

74. Stupp, G. S., Clendinen, C. S., Ajredini, R., Szewc, M. A., Garrett, T., Menger, R. F., Yost, R. A., Beecher, C., and Edison, A. S. (2013) Isotopic ratio outlier analysis global metabolomics of Caenorhabditis elegans, *Anal Chem 85*, 11858-11865. [PMC3921967] doi:10.1021/ac4025413.

75. Singh, A., Dirain, M., Witek, R., Rocca, J. R., Edison, A. S., and Haskell-Luevano, C. (2013) Structure-activity relationships of peptides incorporating a bioactive reverse-turn heterocycle at the melanocortin receptors: identification of a 5800-fold mouse melanocortin-3 receptor (mMC3R) selective antagonist/partial agonist versus the mouse melanocortin-4 receptor (mMC4R), *J Med Chem 56*, 2747-2763. [PMC3652311] doi:10.1021/jm301253y.

76. Ramaswamy, V., Hooker, J. W., Withers, R. S., Nast, R. E., Edison, A. S., and Brey, W. W. (2013) Microsample cryogenic probes: Technology and applications, *eMagRes 2*, 215-228. doi:10.1002/9780470034590.emrstm1315.

77. Ramaswamy, V., Hooker, J. W., Withers, R. S., Nast, R. E., Brey, W. W., and Edison, A. S. (2013) Development of a (13)C-optimized 1.5-mm high temperature superconducting NMR probe, *J Magn Reson 235C*, 58-65. [PMC3785096] doi:10.1016/j.jmr.2013.07.012. *Featured in C&E News, Science, and Technology Concentrates, Dec 3, 2012.*

78. Srinivasan, J., von Reuss, S. H., Bose, N., Zaslaver, A., Mahanti, P., Ho, M. C., O'Doherty, O. G., Edison, A. S., Sternberg, P. W., and Schroeder, F. C. (2012) A modular library of small molecule signals regulates social behaviors in Caenorhabditis elegans, *PLoS Biol 10*, e1001237. [PMC3254649] doi:10.1371/journal.pbio.1001237.

79. Robinette, S. L., Bruschweiler, R., Schroeder, F. C., and Edison, A. S. (2012) NMR in metabolomics and natural products research: two sides of the same coin, *Acc Chem Res 45*, 288-297. doi:10.1021/ar2001606

80. Kaplan, F., Alborn, H. T., von Reuss, S. H., Ajredini, R., Ali, J. G., Akyazi, F., Stelinski, L. L., Edison, A. S., Schroeder, F. C., and Teal, P. E. (2012) Interspecific nematode signals regulate dispersal behavior, *PLoS One 7*, e38735. [PMC3368880] doi: 10.1371/journal.pone.0038735

81. Choe, A., Chuman, T., von Reuss, S. H., Dossey, A. T., Yim, J. J., Ajredini, R., Kolawa, A. A., Kaplan, F., Alborn, H. T., Teal, P. E., Schroeder, F. C., Sternberg, P. W., and Edison, A. S. (2012)

Sex-specific mating pheromones in the nematode Panagrellus redivivus, *Proc Natl Acad Sci U S A 109*, 20949-20954. [PMC352902] doi:10.1073/pnas.1218302109.

82. Singh, A., Wilczynski, A., Holder, J. R., Witek, R. M., Dirain, M. L., Xiang, Z., Edison, A. S., and Haskell-Luevano, C. (2011) Incorporation of a bioactive reverse-turn heterocycle into a peptide template using solid-phase synthesis to probe melanocortin receptor selectivity and ligand conformations by 2D 1H NMR, *J Med Chem 54*, 1379-1390. [PMC3076140] doi:10.1021/jm101425m.

83. Robinette, S. L., Ajredini, R., Rasheed, H., Zeinomar, A., Schroeder, F. C., Dossey, A. T., and Edison, A. S. (2011) Hierarchical alignment and full resolution pattern recognition of 2D NMR spectra: application to nematode chemical ecology, *Anal Chem 83*, 1649-1657. [PMC3066641] doi:10.1021/ac102724x.

84. Kaplan, F., Srinivasan, J., Mahanti, P., Ajredini, R., Durak, O., Nimalendran, R., Sternberg, P. W., Teal, P. E., Schroeder, F. C., Edison, A. S., and Alborn, H. T. (2011) Ascaroside expression in Caenorhabditis elegans is strongly dependent on diet and developmental stage, *PLoS One 6*, e17804. [PMC3058051] doi:10.1371/journal.pone.0017804.

85. Waller, J. C., Alvarez, S., Naponelli, V., Lara-Nunez, A., Blaby, I. K., Da Silva, V., Ziemak, M. J., Vickers, T. J., Beverley, S. M., Edison, A. S., Rocca, J. R., Gregory, J. F., 3rd, de Crecy-Lagard, V., and Hanson, A. D. (2010) A role for tetrahydrofolates in the metabolism of iron-sulfur clusters in all domains of life, *Proc Natl Acad Sci U S A 107*, 10412-10417. [PMC2890791] doi:10.1073/pnas.0911586107.

86. Edison, A. S., and Schroeder, F. C. (2010) Modern Methods in Natural Product Chemistry - Characterization Methodologies: (I) NMR Spectroscopy of Small Molecules and Analysis of Complex Mixtures, (Mander, L. L. H. W., Ed.), pp 169-196, Elsevier, Oxford.

87. Wang, B., Dossey, A. T., Walse, S. S., Edison, A. S., and Merz, K. M., Jr. (2009) Relative configuration of natural products using NMR chemical shifts, *J Nat Prod 72*, 709-713. doi:10.1021/np8005056.

88. Kaplan, F., Badri, D. V., Zachariah, C., Ajredini, R., Sandoval, F. J., Roje, S., Levine, L. H., Zhang, F., Robinette, S. L., Alborn, H. T., Zhao, W., Stadler, M., Nimalendran, R., Dossey, A. T., Bruschweiler, R., Vivanco, J. M., and Edison, A. S. (2009) Bacterial attraction and quorum sensing inhibition in Caenorhabditis elegans exudates, *J Chem Ecol 35*, 878-892. [PMC4109049] doi: 10.1007/s10886-009-9670-0

89. Edison, A. S. (2009) Caenorhabditis elegans pheromones regulate multiple complex behaviors, *Curr Opin Neurobiol 19*, 378-388. [PMC2779695]

90. Dossey, A. T., Gottardo, M., Whitaker, J. M., Roush, W. R., and Edison, A. S. (2009) Alkyldimethylpyrazines in the defensive spray of Phyllium westwoodii: a first for order Phasmatodea, *J Chem Ecol 35*, 861-870. [PMC3787517] doi: 10.1007/s10886-009-9666-9.

91. Dalisay, D. S., Rogers, E. W., Edison, A. S., and Molinski, T. F. (2009) Structure elucidation at the nanomole scale. 1. Trisoxazole macrolides and thiazole-containing cyclic peptides from the nudibranch Hexabranchus sanguineus, *J Nat Prod 72*, 732-738. [PMC2753413] doi:10.1021/np8007649.

92. Srinivasan, J., Kaplan, F., Ajredini, R., Zachariah, C., Alborn, H. T., Teal, P. E., Malik, R. U., Edison, A. S., Sternberg, P. W., and Schroeder, F. C. (2008) A blend of small molecules regulates both mating and development in Caenorhabditis elegans, *Nature 454*, 1115-1118. [PMC2774729] doi:10.1038/nature07168. *Featured in Nature Chemical Biology and SpectroscopyNOW.com.*

93. Narayanan, R., Ganesh, O. K., Edison, A. S., and Hagen, S. J. (2008) Kinetics of folding and binding of an intrinsically disordered protein: the inhibitor of yeast aspartic proteinase YPrA, *J Am Chem Soc 130*, 11477-11485. doi:10.1021/ja803221c.

94. Dossey, A. T., Walse, S. S., and Edison, A. S. (2008) Developmental and geographical variation in the chemical defense of the walkingstick insect Anisomorpha buprestoides, *J Chem Ecol 34*, 584-590. doi:10.1007/s10886-008-9457-8.

95. Zhang, F., Dossey, A. T., Zachariah, C., Edison, A. S., and Bruschweiler, R. (2007) Strategy for automated analysis of dynamic metabolic mixtures by NMR. Application to an insect venom, *Anal Chem 79*, 7748-7752. doi:10.1021/ac0711586.

96. Woodling, K. A., Eyler, J. R., Tsybin, Y. O., Nilsson, C. L., Marshall, A. G., Edison, A. S., Al-Naggar, I. M., and Bubb, M. R. (2007) Identification of single and double sites of phosphorylation by ECD FT-ICR/MS in peptides related to the phosphorylation site domain of the myristoylated alanine-rich C kinase protein, *J Am Soc Mass Spectrom 18*, 2137-2145. doi:10.1016/j.jasms.2007.09.010.

97. Samuel-Landtiser, M., Zachariah, C., Williams, C. R., Edison, A. S., and Long, J. R. (2007) Incorporation of isotopically enriched amino acids, *Curr Protoc Protein Sci Chapter 26*, Unit 26 23.

98. Edison, A. S., and Long, J. R. (2007) Spectroscopy: the magic of solenoids, *Nature 447*, 646-647.

99. Dossey, A. T., Walse, S. S., Conle, O. V., and Edison, A. S. (2007) Parectadial, a monoterpenoid from the defensive spray of Parectatosoma mocquerysi, *J Nat Prod 70*, 1335-1338. doi:10.1021/np070151g. *JNP 2007 Hot Article, C&E News, Beal Award.*

100. Li, Y., Webb, A. G., Saha, S., Brey, W. W., Zachariah, C., and Edison, A. S. (2006) Comparison of the performance of round and rectangular wire in small solenoids for high-field NMR, *Magn Reson Chem 44*, 255-262. doi:10.1002/mrc.1777.

101. Ganesh, O. K., Green, T. B., Edison, A. S., and Hagen, S. J. (2006) Characterizing the residue level folding of the intrinsically unstructured IA3, *Biochemistry 45*, 13585-13596. doi:10.1021/bi061358w.

102. Dossey, A. T., Walse, S. S., Rocca, J. R., and Edison, A. S. (2006) Single insect NMR: A new tool to probe chemical biodiversity, *ACS Chem Biol 1*, 511-514. doi:10.1021/cb600318u. *ACS Chem Biol cover article. Featured in C&E News "News of the Week", Sept. 25, 2006.*

103. Dossey, A. T., Reale, V., Chatwin, H., Zachariah, C., deBono, M., Evans, P. D., and Edison, A. S. (2006) NMR analysis of Caenorhabditis elegans FLP-18 neuropeptides: implications for NPR-1 activation, *Biochemistry 45*, 7586-7597. [PMC2517133] doi:10.1021/bi0603928.

104. Brey, W. W., Edison, A. S., Nast, R. E., Rocca, J. R., Saha, S., and Withers, R. S. (2006) Design, construction, and validation of a 1-mm triple-resonance high-temperature-superconducting probe for NMR, *J Magn Reson 179*, 290-293. doi:10.1016/j.jmr.2005.12.008. *J Magn Reson cover article.*

105. Wilczynski, A., Wilson, K. R., Scott, J. W., Edison, A. S., and Haskell-Luevano, C. (2005) Structure-activity relationships of the unique and potent agouti-related protein (AGRP)-melanocortin chimeric Tyr-c[beta-Asp-His-DPhe-Arg-Trp-Asn-Ala-Phe-Dpr]-Tyr-NH2 peptide template, *J Med Chem 48*, 3060-3075. doi:10.1021/jm049010r.

106. Tapp, H., Al-Naggar, I. M., Yarmola, E. G., Harrison, A., Shaw, G., Edison, A. S., and Bubb, M. R. (2005) MARCKS is a natively unfolded protein with an inaccessible actin-binding site: evidence for long-range intramolecular interactions, *J Biol Chem 280*, 9946-9956. doi:10.1074/jbc.M414614200.

107. Fu, R., Brey, W. W., Shetty, K., Gor'kov, P., Saha, S., Long, J. R., Grant, S. C., Chekmenev, E. Y., Hu, J., Gan, Z., Sharma, M., Zhang, F., Logan, T. M., Bruschweller, R., Edison, A., Blue, A., Dixon,

I. R., Markiewicz, W. D., and Cross, T. A. (2005) Ultra-wide bore 900 MHz high-resolution NMR at the National High Magnetic Field Laboratory, *J Magn Reson 177*, 1-8. doi:10.1016/j.jmr.2005.07.013. *J Magn Reson cover article.*

108. Wilczynski, A., Wang, X. S., Bauzo, R. M., Xiang, Z., Shaw, A. M., Millard, W. J., Richards, N. G., Edison, A. S., and Haskell-Luevano, C. (2004) Structural characterization and pharmacology of a potent (Cys101-Cys119, Cys110-Cys117) bicyclic agouti-related protein (AGRP) melanocortin receptor antagonist, *J Med Chem 47*, 5662-5673. doi:10.1021/jm049620r.
109. Wang, H., Ciobanu, L., Edison, A. S., and Webb, A. G. (2004) An eight-coil high-frequency probehead design for high-throughput nuclear magnetic resonance spectroscopy, *J Magn Reson 170*, 206-212.
110. Schneider-Muntau, H. J., Brandt, B. L., Brunel, L. C., Cross, T. A., Edison, A. S., Marshall, A. G., and Reyes, A. P. (2004) The National High Magnetic Field Laboratory, *Physica B-Condensed Matter 346*, 643-648.
111. Makokha, M., Huang, Y. J., Montelione, G., Edison, A. S., and Barbar, E. (2004) The solution structure of the pH-induced monomer of dynein light-chain LC8 from Drosophila, *Protein Sci 13*, 727-734.
112. Green, T. B., Ganesh, O., Perry, K., Smith, L., Phylip, L. H., Logan, T. M., Hagen, S. J., Dunn, B. M., and Edison, A. S. (2004) IA3, an aspartic proteinase inhibitor from Saccharomyces cerevisiae, is intrinsically unstructured in solution, *Biochemistry 43*, 4071-4081.
113. Smith, L., Zachariah, C., Thirumoorthy, R., Rocca, J., Novak, J., Hillman, J. D., and Edison, A. S. (2003) Structure and dynamics of the lantibiotic mutacin 1140, *Biochemistry 42*, 10372-10384.
114. Li, Y., Logan, T. M., Edison, A. S., and Webb, A. (2003) Design of small volume HX and triple-resonance probes for improved limits of detection in protein NMR experiments, *J Magn Reson 164*, 128-135.
115. Zachariah, C., Cameron, A., Lindberg, I., Kao, K. J., Beinfeld, M. C., and Edison, A. S. (2001) Structural studies of a neuropeptide precursor protein with an RGD proteolytic site, *Biochemistry 40*, 8790-8799.
116. Yarmola, E. G., Edison, A. S., Lenox, R. H., and Bubb, M. R. (2001) Actin filament cross-linking by MARCKS: characterization of two actin-binding sites within the phosphorylation site domain, *J Biol Chem 276*, 22351-22358.
117. Thirumoorthy, R., Holder, J. R., Bauzo, R. M., Richards, N. G., Edison, A. S., and Haskell-Luevano, C. (2001) Novel agouti-related-protein-based melanocortin-1 receptor antagonist, *J Med Chem 44*, 4114-4124.
118. Edison, A. S. (2001) Linus Pauling and the planar peptide bond, *Nat Struct Biol 8*, 201-202.
119. Edison. (2001) Theoretical Biochemistry: Processes and Properties of Biological Systems. Theoretical and Computational Chemistry 9 Edited by Leif A. Eriksson (Uppsala University). Elsevier: Amsterdam. 2001. xiv + 704 pp, *JACS*.
120. Smith, L., Novak, J., Rocca, J., McClung, S., Hillman, J. D., and Edison, A. S. (2000) Covalent structure of mutacin 1140 and a novel method for the rapid identification of lantibiotics, *Eur J Biochem 267*, 6810-6816.
121. Espinoza, E., Carrigan, M., Thomas, S. G., Shaw, G., and Edison, A. S. (2000) A statistical view of FMRFamide neuropeptide diversity, *Mol Neurobiol 21*, 35-56.
122. Carlacci, L., and Edison, A. S. (2000) Computational analysis of two similar neuropeptides yields distinct conformational ensembles, *Proteins 40*, 367-377.

123. Edison, A. S., Espinoza, E., and Zachariah, C. (1999) Conformational ensembles: the role of neuropeptide structures in receptor binding, *J Neurosci 19*, 6318-6326.

124. Edison, A. S., Espinoza, E., and Zachariah, C. (1999) Conformational studies of FMRFamide-like neuropeptides by NMR, *Brain Research 848*, A25-A25.

125. Carrigan, M., Espinoza, E., Thomas, S., Benner, S. A., and Edison, A. S. (1999) Sequence analysis of FMRFamide-like peptides and precursors, *Brain Research 848*, A24-A24.

126. Bubb, M. R., Lenox, R. H., and Edison, A. S. (1999) Phosphorylation-dependent conformational changes induce a switch in the actin-binding function of MARCKS, *J Biol Chem 274*, 36472-36478.

127. Sorgen, P. L., Bubb, M. R., McCormick, K. A., Edison, A. S., and Cain, B. D. (1998) Formation of the b subunit dimer is necessary for interaction with F1-ATPase, *Biochemistry 37*, 923-932.

128. Edison, A. S., Messinger, L. A., and Stretton, A. O. (1997) afp-1: a gene encoding multiple transcripts of a new class of FMRFamide-like neuropeptides in the nematode Ascaris suum, *Peptides 18*, 929-935.

129. Edison, A. S., Weinhold, F., and Markley, J. L. (1995) Theoretical-Studies of Protium Deuterium Fractionation Factors and Cooperative Hydrogen-Bonding in Peptides, *Journal of the American Chemical Society 117*, 9619-9624.

130. Edison, A. S., Markley, J. L., and Weinhold, F. (1995) Calculations of one-, two- and three-bond nuclear spin-spin couplings in a model peptide and correlations with experimental data, *J Biomol NMR 5*, 332.

131. Edison, A. S., Markley, J. L., and Weinhold, F. (1995) Calculations of One-Bond, 2-Bond and 3-Bond Nuclear Spin-Spin Couplings in a Model Peptide and Correlations with Experimental-Data (Vol 4, Pg 519, 1994), *Journal of Biomolecular Nmr 5*, 332-332.

132. Edison, A. S., Markley, J. L., and Weinhold, F. (1995) Ab-Initio Calculations of Protium Deuterium Fractionation Factors in O2h5+ Clusters, *Journal of Physical Chemistry 99*, 8013-8016.

133. Panasik, N., Jr., Eberhardt, E. S., Edison, A. S., Powell, D. R., and Raines, R. T. (1994) Inductive effects on the structure of proline residues, *Int J Pept Protein Res 44*, 262-269.

134. Edison, A. S., Weinhold, F., Westler, W. M., and Markley, J. L. (1994) Estimates of phi and psi torsion angles in proteins from one-, two- and three-bond nuclear spin-spin couplings: application to staphylococcal nuclease, *J Biomol NMR 4*, 543-551.

135. Edison, A. S., Markley, J. L., and Weinhold, F. (1994) Calculations of one-, two- and three-bond nuclear spin-spin couplings in a model peptide and correlations with experimental data, *J Biomol NMR 4*, 519-542.

136. Edison, A. S., Abildgaard, F., Westler, W. M., Mooberry, E. S., and Markley, J. L. (1994) Practical introduction to theory and implementation of multinuclear, multidimensional nuclear magnetic resonance experiments, *Methods Enzymol 239*, 3-79.

137. Edison, A. S., Westler, W. M., Weinhold, F., and Markley, J. L. (1993) Abinitio Calculations of Backbone Coupling-Constants in a Model Peptide, *Journal of Cellular Biochemistry*, 252-252.

138. Edison, A. S., Markley, J. L., and Weinhold, F. (1993) Calculation of Nuclear Spin-Spin Coupling-Constants with Ab-Initio Molecular-Orbital Wave-Functions, *Journal of Physical Chemistry 97*, 11657-11665.

139. Chylla, R. A., Edison, A. S., Westler, W. M., and Markley, J. L. (1993) Improved Spectral Resolution of 3d and 4d Nmr Data through Multidimensional Bayesian-Analysis, *Journal of Cellular Biochemistry*, 250-250.

140. Byeon, I. J. L., Yan, H. G., Edison, A. S., Mooberry, E. S., Abildgaard, F., Markley, J. L., and Tsai, M. D. (1993) Mechanism of Adenylate Kinase - H-1, C-13, and N-15 Nmr Assignments, Secondary Structures, and Substrate-Binding Sites, *Biochemistry 32*, 12508-12521.

141. Byeon, I. J. L., Edison, A. S., Yan, H. G., Mooberry, E., Abildgaard, F., Markley, J. L., and Tsai, M. D. (1993) H-1-Nmr, C-13-Nmr, and N-15-Nmr Assignments and Secondary Structure of Chicken Muscle Adenylate Kinase Complexed to Mgap5a, *Journal of Cellular Biochemistry*, 291-291.

142. Buckley, P., Edison, A. S., Kemple, M. D., and Prendergast, F. G. (1993) 13C alpha-NMR assignments of melittin in methanol and chemical shift correlations with secondary structure, *J Biomol NMR 3*, 639-652.

143. Dzakula, Z., Westler, W. M., Edison, A. S., and Markley, J. L. (1992) The Cupid Method for Calculating the Continuous Probability-Distribution of Rotamers from Nmr Data, *Journal of the American Chemical Society 114*, 6195-6199.

144. Dzakula, Z., Edison, A. S., Westler, W. M., and Markley, J. L. (1992) Analysis of Chi-1 Rotamer Populations from Nmr Data by the Cupid Method, *Journal of the American Chemical Society 114*, 6200-6207.

145. Epstein, W. W., Klobus, M. A., and Edison, A. S. (1991) Irregular Monoterpene Constituents of Artemisia-Tridentata-Cana - the Isolation, Characterization, and Synthesis of 2 New Chrysanthemyl Derivatives, *Journal of Organic Chemistry 56*, 4451-4456.

146. Edison, A. S., Westler, W. M., and Markley, J. L. (1991) Elucidation of Amino-Acid Spin Systems in Proteins and Determination of Heteronuclear Coupling-Constants by Carbon Proton Proton 3-Dimensional Nmr, *Journal of Magnetic Resonance 92*, 434-438.

147. Edison, A. S. (1990) Propagation of an error: beta-sheet structures, *Trends Biochem Sci 15*, 216-217.

Public Speaking (top)

Invited Conferences, Workshops, and Guest Teaching

November 2, 2021	In vivo metabolism by NMR, Chicago Area NMR meeting (Virtual)
September 16, 2021	In vivo metabolism by NMR, Gateway NMR meeting (Virtual)
August 22, 2021	Fraction libraries in Metabolomics, ACS Workshop (Virtual)
September 3-13, 2019	Metabolomics Workshop, lecture and hand's on measurements, Quito and Tena, Ecuador.
June 23-27, 2019	Keynote: "Genetics and Quantum Chemistry for Unknown Compound ID", International Metabolomics Society, The Hague Netherlands.
May 3, 2019	Keynote: Genetics and Quantum Chemistry for Unknown Compound ID, The Second Annual Canadian Metabolomics Conference, Canmore, Alberta.
April 8-12, 2019	Development of a C. elegans reference material for long-term metabolomics quality control and unknown compound ID, ENC, Monterey, CA.
March 15-15, 2019	Keynote: "In vivo metabolism using NMR", SER-CAT meeting, Birmingham, AL
Sept 16-19, 2018	"In vivo metabolism using NMR", SMASH, Philadelphia PA.
July 29-Aug 4, 2018	"In vivo metabolism using NMR", Frontiers in Metabolomics, Telluride CO.

April 29-May 4, 2018	“Developments toward the detection of oscillating metabolites in the fungus Neurospora crassa” Experimental NMR Conference, Orlando
April 26-27, 2018	“In vivo metabolomics by NMR” SECIM annual workshop, Gainesville FL
July 29, 2017	“The power of statistical correlation spectroscopy” CENAPT qNMR workshop at ASP, Portland OR
July 3-7, 2017	Metabolomics workshop, CIBION, Buenos Aires, Argentina
May 10-11, 2017	“MS is more sensitive and cheaper, so why use NMR at all?” Penn State symposium for model organism metabolomics
October 14-15, 2016	“How can model organisms expand our understanding of systems biology and precision medicine?”, Plenary lecture (Oct 16): Mayo Metabolomics Workshop
October 14-16, 2016	“Strategies to Integrate NMR and Mass Spectrometry in Metabolomics” SEMRC lecture (Oct 14):
August 15-26, 2016	Fulbright Specialist teaching visit in Quito, Ecuador (Class in Metabolomics and Natural Products)
July 18-22, 2016	Plenary lecture, 3rd International & Interdisciplinary Workshop on Mathematical Modeling, Ecology, Evolution, Health, Challenges and Opportunities in Latin America, Quito, Ecuador
June 10, 2016	“Will NMR metabolomics be relevant in 10 years?” Lecture, Workshop on NMR-based Metabolomics, Madison, WI
May 30-June 2, 2016	Plenary lecture, France RFMF Metabolomics meeting, Monpellier FR
March 6-10, 2016	“Development of 13C-based Metabolomics”, Pittcon, Atlanta GA
February 20-23, 2016	“Integrating NMR and MS Metabolomics Data” ABRF Conference, Ft. Lauderdale, FL
October 26, 2015	“C13-based Metabolomics” Plenary lecture, Mayo Clinic Metabolomics Symposium
October 12, 2015	“C13-based Metabolomics” Plenary lecture, Big Data Symposium, UGA
October 3, 2015	“C13-based Metabolomics” Plenary lecture, Ohio State University NMR Center Dedication.
August 26, 2015	“C13-based Metabolomics” UC-Davis Metabolomics Workshop Lecture.
July 5, 2015	Plenary lecture, EUROMAR, Prague, Czech Republic.
June 16, 2015	After dinner speaker, UAB Metabolomics Workshop
Jan 7, 2015	“Metabolomics as a tool to study chemical communication” Society for Integrative and Comparative Biology, West Palm Beach, FL
Oct 25, 2014	“What’s New in Metabolomics?” Center for Inflamation and Mucosal Immunology Retreat, University of Florida
Sept 11, 2014	Guest NMR lecture, metabolomics workshop, UC-Davis

Aug 11-15, 2014	Guest lecturer at Instituto de Química - UNESP – Car, Núcleo de Bioensaios, Biossíntese e Ecofisiologia de Produtos Naturais – NuBBE: 4 classes in NMR and metabolomics.
July 26, 2014	"^{13}C-based Metabolomics: Integrating LC-MS IROA with NMR", International Metabolomics Society meeting, Tsuruoka, Japan.
Nov 3, 2013	"Lunch with a Scientist" for the Science Writers 2013 conference, Gainesville FL
Oct. 10, 2013	Invited speaker Florida Genetics 2013 "New Approaches in Metabolomics"
June 1-7, 2013	Invited discussion leaders at the Computational Aspects of Metabolomic NMR Gordon Research Seminar and Computational Aspects of Biomolecular NMR Gordon Research Conference. Unable to attend because of accident.
May 19-24, 2013	Invited speaker at the 18th International Society of Magnetic Resonance (ISMAR), Rio de Janeiro, Brazil. Unable to attend because of accident.
April 14-19, 2013	Invited speaker at the 54th ENC, Asilomar, CA.
Mar 18-19, 2013	Visiting guest lecturer for introductory classes in NMR for general and organic chemistry undergraduate students. Claflin University, Orangeburg, S.C.
March 15, 2013	Invited speaker at the 10th SERCAT Structure Biology Symposium, Florida State University.
Feb 26-28, 2013	Invited lecturer in "BioNMR Foresight Workshop", Weizmann Institute, Rehovot Israel.
Jan 24-26, 2013	Plenary Speaker: 2nd International Conference on Computational Biomedicine, University of Florida.
Nov 1-28, 2012	Fulbright specialist, University of Buenos Aires.
June 27-28, 2011,	35th Steenbock Symposium: Advances in Biomolecular NMR.
May, 2011	Visiting guest lecturer for a 3 day class (9 hours total) in NMR, metabolomics, and statistical analysis. UNESP, Araraquara, São Paolo, Brazil.
April, 2011	The XL Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq): April 30th to May 3rd, 2011 in Foz do Iguaçu, Paraná, Brazil.
March 9-11	Visiting guest lecturer for introductory classes in NMR for general and organic chemistry undergraduate students. Claflin University, Orangeburg, S.C.
Oct, 2010	Plenary Speaker Latin American Association of Chemical Ecology (ALAEQ), Colonia del Sacramento, Uruguay, October 17-20, 2010.
July, 2010	Invited Speaker EUROMAR 2010 and 17th International Society of Magnetic Resonance Conference, Florence Italy, July 5-9, 2010
Feb, 2010	Lecturer in 2 day metabolomics class in UNESP, Araraquara, São Paolo, Brazil.
Feb, 2010	Plenary lecture at the 1st Workshop on Metabolomics in the Context of Systems Biology: A Rational Approach to Search for Lead Molecules from Nature, São Paulo city, State of São Paulo, February, 25-26, 2010.
Jan, 2010	Invited Speaker at LabAutomation 2010: "High Sensitivity NMR Probes for Natural Products and Metabolomics", Palm Springs, CA January 25-27, 2010.
Nov, 2009	Plenary lecture at 2nd Brazilian Conference on Natural Products (2nd BCNP), São

Pedro - SP – Brazil, November 9-12, 2009

Aug, 2009 Lecturer in NMR workshop for Fifth Annual International Conference of the Metabolomics Society, Edmonton, Alberta, Canada, August 28-Sept 2.

Jan, 2009 EU-NMR Annual Meeting, Autrans, France: "Would the EU-NMR Model Work in the USA?"

Oct, 2008 Southeast Magnetic Resonance Conference, Tallahassee, FL: "WORM SEX AND DEVELOPMENT: HIGH SENSITIVITY NMR IN BIOLOGY

July, 2008 Human Frontier Science Program Annual Meeting, Berlin, Germany: "Identification of *Caenorhabditis elegans* Mating Pheromone*:* Relationship Between Mating and Dauer"

June, 2008 PASI (Pan-American Advanced Studies Institute): Interdisciplinary Studies in the Chemical Biology of the Tropics (Tambopata National Reserve, Peru)

May, 2008 *Gordon Conference: 'Computational Aspects – Biomolecular NMR', May 18 -23, 2008, Il Ciocco, Italy. "The Life of a Worm: Sex, Eating, and Starvation: The Role of Small Molecules in the Ecology of C. elegans"*

Sept, 2007 Small Molecule NMR Conference, Chamonix France "Ultra high sensitivity NMR for insects and worms"

July, 2007 American Society of Pharmacognosy, Portland Maine "Single Insect NMR"

April, 2006 Experimental NMR Conference, Asilomar CA "Ultra High Sensitivity NMR: 1-mm HTS Triple Resonance Probe"

March, 2005 Sanibel Symposium "Not all proteins are well-behaved spheres: Experimental and theoretical challenges in unstructural biology"

Nov, 2004 Southeastern Regional NMR meeting of the ACS "Microcoils for protein NMR"

Nov, 2002 Southeast American Society of Micobiologists (SEASM) "Structure and function of the lantibiotic mutacin 1140"

Nov, 2000 Neuroscience Meeting, New Orleans "Phosphorylation-dependent conformational changes determine the actin-binding function of MARCKS."

May, 1999 Florida ACS Meeting, Orlando FL "NMR Measurements of Reverse Turns in Neuropeptides and Correlations with Receptor Binding Affinities"

May, 1998 Florida ACS meeting "Structure/Function Studies of Neuropeptides"

<u>Invited Seminars</u>

April 14, 2021 "New Approaches to Investigate *in vivo* Metabolism", UGA GTP seminar (virtual)

April 26, 2021 "New Approaches to Investigate *in vivo* Metabolism", NIST seminar (virtual)

Oct 16, 2019	“Genetics and Quantum Chemistry in Metabolomics” Riken, Yokohama, Japan.
Jan 30-31, 2019	Claflin University, guest lectures in metabolomics and REU recruitment seminar.
Feb 26, 2018	Augusta University/University of Georgia Health Science partnership: “Introduction to Metabolomics”
May 5, 2017	“Integration of NMR and MS for metabolomics” UT Austin invited seminar
Nov 16, 2016	Penn State University
Nov 2, 2016	“Integration of NMR with LC-MS in Metabolomics”, NIH
March 30, 2016	“Metabolomics and you” Claflin University
March 21, 2016	Integration of NMR and MS in Metabolomics, Montana State University
Feb 10, 2016	Microbiome seminar series, UGA
Oct 9, 2015	“Challenges in Metabolomics” IOB seminar, UGA
Sept 4, 2015	“New Developments in Metabolomics” EDGE seminar, UGA
May 15, 2015	“Developments in Metabolomics” Research seminar Whitney Laboratory
May 14, 2015	“Sex in the Soil”, Public lecture at the Whitney Laboratory, University of Florida
Jan 16, 2015	University of Georgia, “"The Interplay Between Technology, Natural Products, and Metabolomics”
Oct 16, 2014	“Development of ^{13}C Metabolomics” University of Florida, Department of Physics Symposium.
Sept 24, 2014	University of Georgia, “Development of ^{13}C Metabolomics”
Sept 12, 2014	SRI International, Menlow Park, CA, “Development of ^{13}C Metabolomics”
July 2, 2014	Institute of Plant and Environmental Protection (IPEP), Beijing Academy of Agricultural and Forestry Science (BAAFS), “Development of ^{13}C Metabolomics”
July 3, 2014	Modern Research Center for Traditional Chinese Medicine of Shanxi University, Taiyuan, Wucheng 92, 03006, China, “Development of ^{13}C Metabolomics”
May 1, 2014	University of Michigan, “Development of ^{13}C Metabolomics”
April 9-11, 2014	Claflin University, Introduction to Metabolomics, biochemistry lecture, and lab.
Feb 21, 2014	University of North Florida, Joint Chemistry & Biology seminar.
Feb 13, 2014	UF Nephrology Department.

Jan 27, 2014 “What’s New in Metabolomics?” UF Center for Neurogenetics.

Jan 13, 2014 “What is the Role of NMR in Metabolomics?”, Agilent Technologies, Santa Clara CA

Dec 12, 2013 "Improving NMR Sensitivity (why a 1.7-mm cryoprobe is a good choice!)", Noble Foundation for the commissioning of a new NMR system.

Dec 12, 2013 "Nematode Chemical Communication", Noble Foundation, Ardmore OK

Sept 6, 2013 “Metabolomics from Worms to People”, Dept of Animal Science, UF.

Nov 27, 2012 “Nematode Chemical Ecology” University of Buenos Aires, Argentina

Nov 23, 2012 “Nematode Metabolomics” University of Montevideo, Uruguay

Nov 21, 2012 “The National High Magnetic Field Laboratory” Leloir Institute, Buenos Aires, Argentina

Nov 21, 2012 “Nematode Chemical Ecology” Leloir Institute, Buenos Aires, Argentina

Nov 19, 2012 “The National High Magnetic Field Laboratory” University of Buenos Aires, Argentina

Nov 2, 2012 “Introduction to Metabolomics” University of Buenos Aires, Argentina

March 27, 2012 Science Café, Thomas University, Thomasville, GA: “Sex in the Soil”.

May 9, 2011 Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru: “Chemical Ecology of Nematodes”

March 22, 2011 University of Mississippi, National Center for Natural Products Research

March 11, 2011 “Nematode Chemical Ecology”, Claflin University, Orangeburg, S.C.

March 1, 2011 Science Café, NHMFL. “Sex in the Soil” (public talk on nematode chemical biology)

Feb 25, 2011 University of Florida, Animal Sciences

Feb 4, 2011 New College-Florida. “The Chemistry of Worm Sex”

Jan 12, 2011 New York University, Department of Biology. “Chemical Communication in Nematodes.”

May 20, 2010 University of Toronto, Department of Chemistry.

March 15, 2010 University of Florida, Department of Entomology and Nematology

Jan 14, 2010 University of Florida, Department of Chemistry. “NMR technology for natural products: Applications to nematode mating pheromones”

Sept 24, 2009	University of Oklahoma, Dept of Chemistry & Biochemistry: Karcher Lecture Award: “Technology and Applications in Natural Products”
Sept, 2009	Claflin College, Dept of Biology & Chemistry, Orangeburg, SC
Feb 2, 2009	Imperial College, London: “High-Sensitivity NMR and Natural Products”
Jan 29, 2009	Neurospin, Saclay, France: “The NHMFL and High-Sensitivity NMR”
Jan 22, 2009	University of Florida, Dept of Physics: “Development of High-Sensitivity NMR for the Discovery of Molecules Used in Biological Communication”
Oct 15, 2008	City College, CUNY, NYC, New York: “*The Life of a Worm: Sex, Eating, and Starvation*”
Oct 14, 2008	City College, CUNY, NYC, New York: “Opportunities for research at the National High Magnetic Field Laboratory”
Oct 8, 2008	University of Florida, Dept of Neuroscience: “*The Life of a Worm: Sex, Eating, and Starvation*”
Aug 8, 2008	Varian, Palo Alto, CA: “High-Sensitivity NMR for Natural Products”
Feb 8, 2007	University of Texas, El Paso: “Opportunities for research at the National High Magnetic Field Laboratory”
Dec 4, 2007	Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru: “Ultra High-Sensitivity NMR and Applications in Natural Products”
Oct 17, 2007	Pontificia Universidad Católica Del Perú (PUCP), Lima, Peru: “Opportunities for research at the National High Magnetic Field Laboratory”
Oct 4, 2007	Eisai Research Institute, Andover, Massachusetts “Ultra High-Sensitivity NMR and Applications in Natural Products”
April 3, 2007	Colorado State University: “Ultra High-Sensitivity NMR and Applications in Natural Products”
Feb 9, 2007	University of Texas, El Paso: “Ultra High-Sensitivity NMR and Applications in Natural Products” and “Opportunities for research at the National High Magnetic Field Laboratory”
Jan 24, 2007	Southern University, Baton Rouge Louisiana: “Opportunities for research at the National High Magnetic Field Laboratory”
Dec 12, 2006	University of California at San Diego and Scripps Institute for Oceanography: “Ultra High-Sensitivity NMR and Applications in Natural Products”
Nov 17, 2006	University of Central Florida, Orlando Florida: “Ultra High-Sensitivity NMR and Applications in Natural Products”

May 12, 2005	Scripps Florida, Jupiter Florida: “NMR Technology for Small Volume Samples and Two Short Stories in Unstructural Biology”
April 21, 2005	Protein Folding Group, Louisiana State University, University of New Orleans, Loyola University, and Xavier University: “Unstructural Biology”.
April 21, 2005	Xavier University, New Orleans: “Opportunities for research at the National High Magnetic Field Laboratory”
April 20, 2005	Dillard University, New Orleans: “Opportunities for research at the National High Magnetic Field Laboratory”
May 13, 2004	Oregon State University, Department of Chemistry and Biochemistry: “Unstructural Biology: IA-3 simultaneously folds while binding to yeast proteinase A”
Sept. 19, 2003	Florida Atlantic University, Department of Chemistry: “Structural and thermodynamic investigations of IA_3, an unfolded protease inhibitor that folds upon binding to yeast proteinase A”
Nov. 15, 2002	Ohio University, Department of Chemistry & Biochemistry: “Structural studies of neuropeptides”
Sept. 18, 2000	University of Utah Chemistry Department: “Structural Studies of partially folded proteins”
Feb. 5, 1999	University of Vermont Department of Biochemistry: “Neuropeptide signaling as seen through the eyes of NMR”
Oct. 13, 1998	Florida State University Structural Biology: “Signaling Diversity in the Nervous System”
Oct. 8, 1998	Florida State University Physics: “NMR spectroscopy as a probe of neuropeptide conformations”
Apr. 27, 1998	Louisiana State University Department of Chemistry, New Orleans: “Structure/Function Studies of Neuropeptides”
Apr. 26, 1998	Loyola University Department of Chemistry, New Orleans: “Conformational Studies of neuropeptides by NMR and Monte Carlo simulated annealing”
Dec. 5, 1997	Ohio State University Department of Chemistry: “Structure/Function Studies of Neuropeptides”
Dec. 4, 1997	Ohio Wesleyan University Department of Chemistry: “Structure/Function Studies of Neuropeptides”
Nov. 24, 1997	University of Utah Department of Chemistry: “Structure/Function Studies of Neuropeptides using NMR and Molecular Biology”

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Rabindranath De La Fuente

eRA COMMONS USER NAME: DELAFUENTE

POSITION TITLE: Associate Professor: Veterinary Medicine, University of Georgia

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE	Completion Date MM/YYYY	FIELD OF STUDY
National Autonomous University of Mexico, Mexico City.	D.V.M.	04/89	Veterinary Medicine
Ontario Vet. Coll. University of Guelph, Canada.	MSc.	04/93	Biomedical Sciences
Ontario Vet. Coll. University of Guelph, Canada.	Ph.D.	02/98	Biomedical Sciences (Genetics)
The Jackson Laboratory, Bar Harbor, ME. USA.	Postdoc	04/98-11/2002	Reproductive Genetics and Epigenetics

A. Personal Statement

The focus of my research program is the analysis of the functional differentiation of chromatin structure in mammalian germ cells and embryonic stem cells. My laboratory was the first to identify a critical role for the lymphocyte-specific helicase (LSH) in the establishment of DNA methylation and homologous chromosome synapsis[1]. In addition, our studies lead to the initial identification of a critical role for the chromatin remodeling protein ATRX in centromere function and chromosome segregation during the oocyte to embryo transition[2,3]. More recently, we have established that reduced SMYD3 expression is associated with severe telomere instability in oocytes deficient for the bromo domain protein BRWD1[4]. My laboratory was also the first to identify a role for CBX2 in homologous chromosome synapsis in female germ cells. More recently, we have developed state of the art protocols for genome-wide chromatin organization and super resolution imaging of nuclear architecture in mouse oocytes and embryonic stem cells. Through the University of Georgia Regenerative Engineering and Medicine Center (REM) we have established a formal collaboration with colleagues at Emory University, the Georgia Institute of Technology and the University of Wisconsin to participate in a multi-institutional NSF Engineering Research Center for Cell Manufacturing. My lab is contributing with the epigenetic analysis of embryonic stem cells and iPSC's during induced differentiation into the cardiomyocyte cell lineage. I have an established record of productive research projects on the study of epigenetics in mammalian germ cells and ES cells. Moreover, I have ample experience in mentoring post-doctoral fellows, research associates and junior faculty. This has provided me with the expertise and leadership required to participate as an investigator in genomics and epigenomics at the Center for Neurological Disease Research (CNDR).

[1] De La Fuente R*, Baumann C., Fan T., Schmidtmann A., Dobrinski I., Muegge K. (2006) Lsh is required for meiotic chromosome synapsis and retrotransposon silencing in female germ cells. **Nature Cell Biology** (8); 12:1448-1454. PMID: 17115026. *Corresponding author

[2] Baumann C., Viveiros M and De La Fuente R.* (2010) Loss of maternal ATRX function results in centromere instability and aneuploidy in the mammalian oocyte and pre-implantation embryo. **PLoS Genetics** Sep

6(9): e1001137. doi:10.1371/journal.pgen.1001137 PMC2944790

[3] De La Fuente*, Baumann C and Viveiros MM. (2015). ATRX contributes to epigenetic asymmetry and silencing of major satellite transcripts in the maternal genome of the mouse embryo. **Development** 142 (10):1806-17.

[4] Pattabiraman S., Baumann C., Guisado D., Eppig JJ., Schimenti C., De La Fuente R* (2015). The bromodomain and WD repeat-containing protein BRWD1 is critical for post-meiotic transcription in mouse spermatids and chromosome stability during female meiosis. **Journal of Cell Biology** 208(1): 53-59.

B. Positions and Honors

1986 - 1987 Research Fellow, Department of Biomedical Research, Reproductive Biology Group, National Medical Center, Mexico City, Mexico.

1988 - 1990 Resident Veterinarian (Theriogenology), LICONSA, Mexico, Genetic Improvement and Embryo Transfer Center (Bovine Reproduction Center), Mexico

1998 - 2002 Postdoctoral Research Fellow, The Jackson Laboratory, In Vitro Gametogenesis: Transcriptional Regulation of the Oocyte Genome: Mentored by J.J. Eppig

2003 - 2010 Assistant Professor. Department of Clinical Studies. School of Veterinary Medicine, University of Pennsylvania

2010-Present Associate Professor (Tenured). Department of Physiology and Pharmacology. College of Veterinary Medicine. University of Georgia.

Other Experience and Professional Memberships

07/2009 Medical Research Council Scotland U.K.

09/2009 Netherlands Organization for Scientific Research: Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO)

12/2009 National Institutes of Health (NIH): Special Emphasis Panel Study Section. Washington DC.

11/2010 National Institutes of Health (NIH) Special Emphasis Panel: U54 Reproduction Centers Study Section: Nov 3-5, 2010 Washington D.C. ZHD1 DSR-L (LD)-1

03/2011 National Institutes of Health (NIH) Special Emphasis Panel: Study Section: March 28, 2011 ZHD1 DSR-L (LD)-1

03/2011 National Science Foundation (NSF): Grant Review Panel: Division of Molecular and Cellular Biosciences, March 10, 2011

02/2012 French National Research Agency (ANR): French equivalent to NIH.

03/2012 National Research Council, Belgium Leuven: Belgium Research, BE.

03/2012 National Institutes of Health: Special Emphasis Panel: U54 Reproduction Centers Study Sect

2012-2016 Standing Member: Reproduction, Andrology and Gynecology Study Section, NIH (NICHD).

2016-2018 Standing Member: Reproduction, Andrology and Gynecology Study Section, NIH (NICHD).

2015-Present Editorial Board Member: Molecular Human Reproduction. Oxford University Press.

Memberships in Professional & Scientific Societies:

02/2011-pres Georgia Veterinary Medical Association (Active Member)

04/2011-pres Interdisciplinary Toxicology Program, University of Georgia. Faculty Member

07/2011-pres Regenerative Bioscience Center (RBC), University of Georgia, Faculty Member

11/2011-07/2013 The society for the Study of Reproduction (SSR): Chair: Bylaws Committee

---

C. Contribution to Science

Uncovered a role for the lymphocyte-specific helicase (LSH/Hells) in the establishment of DNA methylation and homologous chromosome synapsis in female germ cells.

As an independent investigator, I discovered that LSH is required for transposon DNA methylation and transcriptional silencing in female germ cells. Our studies revealed that LSH is essential for homologous chromosome synapsis in both female and male germ cells where it exhibits a previously unidentified role in pericentric heterochromatin function and maintenance of genomic stability during meiosis.

De La Fuente R*, Baumann C., Fan T., Schmidtmann A., Dobrinski I., Muegge K. (2006) Lsh is required for meiotic chromosome synapsis and retrotransposon silencing in female germ cells. **Nature Cell Biology** (8); 12:1448-1454. PMID: 17115026. *Corresponding author

Zeng,W., Bauman,C., Schmidtmann, A., Honaramooz, A., Fan,T., Rahthi, R., **De La Fuente, R.**, Muegge, K., Dobrinski, I. **(2011)** Lymphoid specific helicase (HELLS) is essential for meiotic progression in mouse spermatocytes. **Biol Reprod.** 84(6):1235-41. **Equal Contribution**. PMC3099587

Baumann C, Ma W, Wang X, Kandasamy M, Viveiros M, **De La Fuente R* (2020).** Helicase LSH/Hells regulates kinetochore function, histone H3/Thr3 phosphorylation and centromere transcription during oocyte meiosis. **Nature Communications** Sep 8; 11(1): 4486. doi: 10.1038/s41467-020-18009-3.

Discovered a critical role for the chromatin remodeling protein ATRX in centromere stability and accurate chromosome segregation during the mammalian oocyte to embryo transition.

Our studies on centromere structure and function lead to the initial identification of ATRX as an important component of both constitutive and facultative heterochromatin in mouse oocytes and trophoblast stem cells, respectively. Importantly, our studies provided the first evidence for a role of ATRX in chromosome segregation and maintenance of a euploid chromosome complement during meiotic maturation of pre-ovulatory oocytes. More recently, we have discovered that ATRX is exclusively inherited through the female germ line in the zygote stage embryo where it confers epigenetic asymmetry to pericentric heterochromatin to maintain a transcriptionally repressive chromatin environment and prevent illegitimate centromeric mitotic recombination during the oocyte to embryo transition. Importantly, we provided the first evidence suggesting that ATRX is required to maintain heterochromatin function in the absence of DNA methylation at centromeres in neonatal spermatogonia.

De La Fuente R*, Viveiros MM, Wigglesworth K and Eppig JJ. (2004) *ATRX*, a Member of the SNF2 Family of Helicase /ATPases, is required for Chromosome Alignment and Meiotic Spindle Organization in Metaphase II Stage Mouse Oocytes. **Dev Biol** 272: 1-14. PMID: 12730498

Baumann C, Schmidtmann A, Muegge K, De La Fuente R* (2008). Association of ATRX with pericentric heterochromatin and the Y chromosome of neonatal mouse spermatogonia. **BMC Mol Biol**.13;9:29. doi: 10.1186/1471-2199-9-29. PubMed PMID: 18366812; PubMed Central PMCID: PMC2275742.

Baumann C., Viveiros M and De La Fuente R.* (2010) Loss of maternal ATRX function results in centromere instability and aneuploidy in the mammalian oocyte and pre-implantation embryo. **PLoS Genetics** Sep 6(9): e1001137. doi:10.1371/journal.pgen.1001137 PMC2944790

De La Fuente*, Baumann C and Viveiros MM. (2015). ATRX contributes to epigenetic asymmetry and silencing of major satellite transcripts in the maternal genome of the mouse embryo. **Development** 142 (10):1806-17.

Discovered that the Bromodomain protein BRWD1 is required in pre-ovulatory oocytes for maintenance of chromosome stability and silencing of long interspersed nuclear elements (LINE-1) transposons

These studies revealed that loss of BRWD1 function in pre-ovulatory oocytes affects large-scale Telomere structure, chromosome condensation and segregation during meiotic maturation and that severe chromosome instability is associated with reduced SMYD3 transcripts and overexpression of LINE-1 elements.

Pattabiraman S., Baumann C., Guisado D., Eppig JJ., Schimenti C., De La Fuente R* (2015). The bromodomain and WD repeat-containing protein BRWD1 is critical for post-meiotic transcription in mouse spermatids and chromosome stability during female meiosis. **Journal of Cell Biology** 208(1): 53-59.

Discovery of a role for the Polycomb protein CBX2/M33 in the regulation of meiosis onset and homologous chromosome synapsis in male and female germ cells

Our studies on the epigenetic regulation of meiotic prophase-I revealed that Polycomb group proteins which are essential for the estabilshment of heritable expression patterns for developmental control genes also have a major role in the control of chromatin remodeling processes during meiosis. Notably, germ cells recovered from CBX2 mutant testes on day 17.5 of fetal development exhibited premature meiosis onset with synaptonemal complex formation. This study was the first to demonstrate that CBX2 functions in the control of meiotic entry in male germ cells and homologous chromosome synapsis in female germ cells. Subsequent

studies revealed an important role for CBX2 in regulation of genome-wide chromatin accessibility, heterochromatin homeostasis and maintenance of chromosome stability.

Baumann C., **De La Fuente R.* (2011)** Role of Polycomb group protein CBX2/M33 in meiosis onset and maintenance of chromosome stability in the mammalian germ line. **Genes** 2(1), 59-80: PMCID: PMC3244348

Baumann C, Zhang X, **De La Fuente R* (2020).** Loss of CBX2 induces genome instability and senescence associated chromosomal rearrangements **Journal of Cell Biology**. Nov 2; 219 (11): e201910149. doi10.1083/jcb.201910149.

Complete List of Published Work:

https://www.ncbi.nlm.nih.gov/sites/myncbi/1v3cdriRcGGQ5/bibliography/47770105/public/?sort=date&direction=ascending

---

D. Research Support

Relevant Research Projects Ongoing or Completed:

Principal Investigator: Rabindranath De La Fuente DVM., Ph.D.
Genome-wide chromatin organization and chromosome instability during the bovine oocyte to embryo transition: **National Institutes of Health-US Department of Agriculture (Dual Benefit Grant) RO1**
Grant Awarded: 06/01/2020-05/31/2025. $1,650,000.
Goals: Genomics and epigenomics analyses of mouse and bovine oocytes and embryos to study conserved mechanisms of chromatin modifications and chromosome instability.

Principal Investigator: Rabindranath De La Fuente DVM., Ph.D.
Role of the DNA Helicase LSH in Female Meiosis: **National Institutes of Health (NIH)**. Grant awarded 09/13/2018-08/30/2021. $300,000.
Goals: Genomics and Epigenomic Analysis of Female Germ Cells and the Role of LSH in DNA methylation Mechanisms.

Principal Investigator: (Roy K). De La Fuente Co-I: Multiple Co-I: Georgia Institute of Technology, Emory University and University of Georgia. National Science Foundation Engineering Research Center for Cell Manufacturing Technologies (CMaT). **National Science Foundation**. Grant awarded 09/2017-08/2022. $4,000 000/Year. De La Fuente Direct Costs $57,000/year
Goals: Development of novel cell therapy technologies that can be used on a large scale for potential regenerative medicine applications.

Principal Investigator: Rabindranath De La Fuente. DVM., Ph.D.
Identification of molecular and epigenetic signatures of cell potency and enhanced embryonic stem cell reprogramming: **Regenerative Engineering and Medicine Center**. Emory University-Georgia Institute of Technology-UGA. Grant awarded to the PI.09/01/2017-08/31/2018. $70,000
Goals: To develop non-invasive epigenetic sensors and single-molecule super-resolution chromatin analysis for live cell imaging of ES cell reprogramming.

Principal Investigator: Rabindranath De La Fuente. DVM., Ph.D.
Epigenetic Therapy for Feline Contraception: **Swanson Foundation Feline Research Grant**. Grant awarded to the PI.10/24/2017-10/23/2020. $30,000
Goals: Molecular analysis of feline germ cells.

Principal Investigator: Rabindranath De La Fuente. DVM., Ph.D.
Single Cell Epigenomics: Towards understanding the mechanisms regulating cell potency and epigenetic stability for regenerative biomanufacturing: **Regenerative Engineering and Medicine Center**. Emory University-Georgia Institute of Technology-UGA. Grant awarded to the PI.09/01/2016-08/31/2017. $70,000

Goals: To develop non-invasive epigenetic sensors and single-molecule super-resolution chromatin analysis methods using stochastic optical reconstruction (STORM) in ES cells.

Principal Investigator: Rabindranath De La Fuente. DVM.,Ph.D., **Co-PI:** Maria Viveiros Ph.D.
Genome Dynamics and Chromosome Instability in the Bovine Embryo. **USDA-NIFA** 10/01/2016-9/30/2017. $15,000
Goals: This project uses the bovine embryo as a model to determine the mechanisms of cleavage stage chromosome instability in the human conceptus. Our goal is to determine the function of conserved epigenetic markers of chromosome instability in the biogenesis of complex chromosomal rearrangements in the early embryo.

Principal Investigator: Rabindranath De La Fuente. DVM, PH.D.**Epigenetic Control of Heterochromatin Formation in Mammalian Oocytes**. National Institutes of Health (NIH) **Grant #:** 2**RO1-HD042740** 07/27/2009-06/30/2013. $800,000. Completed.

Goals: The goals of this project were to determine the role of DNA helicases (Lsh) and ATRX on chromosome stability at different stages of female meiosis. This project uncovered a role for Lsh in homologous chromosome synapsis in both male and female germ cells and revealed that ATRX is essential for centromere stability during the oocyte to embryo transition.

Responsibilities: R. De La Fuente is the sole PI of this ward and responsible for all aspects of the research.

Principal Investigator: Rabindranath De La Fuente DVM., Ph.D. Role of the Polycomb Cbx2/M33 protein in Chromosome Instability during Cellular Senescence and Malignant Neoplastic Transformation. **Georgia Cancer Coalition Grant.** 02/01/2011-07/30/2013. $50,000

Goals: The goals of this project are to understand the function of Polycomb proteins in large-scale chromatin remodeling and epigenetic modifications associated with senescence and test the hypothesis that CBX2 is critical for chromosome stability during malignant neoplastic transformation. **Responsibilities:** R. De La Fuente is the sole PI of this ward and responsible for all aspects of the research.

Principal Investigator: Rabindranath De La Fuente DVM., Ph.D. Role of Chromatin Remodeling Proteins In Chromosome Instability of Canine Mammary Gland Carcinomas. **Morris Animal Foundation.** 04/2012-08/2013. $10,000
Goals: The goals of this project are to analyze clinical samples of canine mammary gland carcinomas for epigenetic markers associated with malignant neoplastic transformation for diagnostics.
Responsibilities: R. De La Fuente was the sole PI of this ward and responsible for all aspects of the research.

Principal Investigator: Rabindranath De La Fuente. DVM, PH.D. **Epigenetic Control of Heterochromatin Formation** National Institutes of Health (NIH) **Grant #: RO1-HD042740** 6/1/2004-6/30/2009. $951,000

Goals: The goals of this project were to determine the role of the chromatin remodeling ATRX in heterochromatin formation and chromosome segregation in mammalian oocytes and trophoblast stem cells. This project provided the first evidence indicating that ATRX is required for maintenance of centromere stability in mammalian oocytes and pre-implantation embryos and thus essential for female fertility.

Responsibilities: R. De La Fuente was the sole PI of this ward and responsible for all aspects of the research.

Pending:

Principal Investigator: Rabindranath De La Fuente. DVM, Ph.D. Role of the DNA Helicase LSH in Female Meiosis**. RO1 Grant Application: (NIH).**

CLAIRE DE LA SERRE

Department of Nutritional Sciences 706-542-4873
372 Dawson Hall cdlserre@uga.edu
University of Georgia, Athens, GA 30602

PROFESSIONAL EXPERIENCE

Associate Professor	University of Georgia, Department of Nutritional Sciences	2019-
Assistant Professor	University of Georgia, Department of Nutritional Sciences	2013-2019
Instructor	University of Georgia, Department of Nutritional Sciences	2012-2013
Postdoctoral Research Fellow	Johns Hopkins University, School of Medicine	2011-2012
Exchange Scholar	University of California, Davis, Veterinary Medicine	2008-2011

EDUCATION AND TRAINING

Johns Hopkins University	Postdoctoral Fellowship, Behavioral Neurosciences laboratory	2011-2012
AgroParisTech, France	Ph.D. in Physiology and Nutrition Laboratory work conducted at *UC Davis, Veterinary Medicine*	2011
AgroParisTech, France	M.S in Biological Engineering	2008
	M.S in Physiology and Nutrition Laboratory work conducted at *UC Davis, Veterinary Medicine*	2008

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES (***** denotes supervised UGA student, **#** denotes corresponding authorship)

1. Schade R*****, Song L, Cordner ZA, Ding H, Peterson DA, Moran TH, Tamashiro KL, **de La Serre CB**[#]. Rat offspring's microbiota composition is predominantly shaped by the postnatal maternal diet rather than prenatal diet. *Physiology and Behavior (2022)*, in revisions
2. Rautmann AW*****, **de La Serre CB**[#]. Microbiota's role in diet-driven alterations in food intake: satiety, energy balance, and reward. *Nutrients (2021)*
3. Noble E, Olson CA, Davis E. Tsan L, Chen YW, Schade R*****, Liu C, Suarez A, Jones RB, Goran MI, **de La Serre CB**, Yang X, Hsiao EY, Kanoski SE. Gut microbial taxa elevated by dietary sugar disrupt memory function. *Translational Psychiatry (2021)*
4. McDougle M, Quinn D, Diepenbroek C, Singh A, **de la Serre C**, de Lartigue G. Intact vagal gut-brain signalling prevents hyperphagia and excessive weight gain in response to high-fat high-sugar diet. *Acta physiologica (2021)*. Acta Physiologica award for most outstanding original paper
5. Cawthon CR***, de La Serre CB**[#]. The critical role of CCK in the regulation of food intake and diet-induced obesity. *Peptides (2021)*
6. Cawthon CR*****, Kirkland RA, Pandya S*****, Brinson NA*****, **de La Serre CB**[#]. Non-neuronal crosstalk promotes an inflammatory response in nodose ganglia cultures after exposure to byproducts from gram positive, high-fat-diet-associated gut bacteria. *Physiology and Behavior (2020)*
7. Kim JS*****, Kirkland RA, Lee SH*****, Cawthon CR*****, Rzepka KW, Minaya DM, de Lartigue G, Czaja K, **de La Serre CB**[#]. Gut microbiota composition modulates inflammation and structure of the vagal afferent pathway. *Physiology and Behavior (2020)*
8. Singh A, **de la Serre C**, de Lartigue G. Gut microbiota sPARk vagus nerve excitation. *The Journal of physiology (2020)*

9. Klingbeil EA*, Cawthon C*, Kirkland R, **de La Serre CB**#. Potato-resistant starch supplementation improves microbiota dysbiosis, inflammation, and gut-brain signaling in high fat-fed rats. *Nutrients (2019)*
10. Lee SH*, Kirkland R, Grunewald Z*, Sun Q, Wicker L, **de La Serre CB**#. Beneficial effects of non-encapsulated or encapsulated probiotic supplementation on microbiota composition, intestinal barrier functions, inflammatory profiles, and glucose tolerance in high fat fed rats. *Nutrients (2019)*
11. Grunewald ZI*, Kirkland R, Lee SH*, Ross M, **de La Serre CB**#**.** Cannabinoid receptor type-1 partially mediates metabolic endotoxemia-induced inflammation and insulin resistance. *Physiology and Behavior (2019)*
12. Klingbeil E*, **de La Serre CB**#. Microbiota modulation by eating patterns, dietary and macronutrient composition; impact on food intake. *American Journal of Physiology -Regulatory, Integrative and Comparative Physiology (2018)*
13. Kim J*, **de La Serre CB**#. Diet, gut microbiota composition and feeding behavior. *Physiology and Behavior (2018)*
14. Cawthon C*, **de La Serre CB**#. Gut bacteria interaction with vagal afferents. *Brain Research (2018)*
15. Lee SH*, Keirsey K, Kirkland R, Grunewald ZI*, Fischer JG, **de La Serre CB**#. Blueberry supplementation improves gut microbiota, inflammatory profile and insulin signaling in high fat fed rats. *The Journal of Nutrition (2018)*
16. Pati S, Krishna S, Lee JH, Ross MK, **de La Serre CB**, Harn DH, Wagner JJ, Filipov NM, Cummings BS. Effects of high-fat diet and age on the blood lipidome and circulating endocannabinoids of female C57BL/6 mice. *BBA - Molecular and Cell Biology of Lipids (2018)*
17. Sen T, Cawthon C*, Ihde BT, Hajnald A, DiLorenzo PM, **de La Serre CB**#, Czaja K. Diet-driven microbiota dysbiosis is associated with vagal remodeling and obesity. *Physiology and Behavior (2017)*
18. Vaughn AC, Cooper EM, DiLorenzo PM, O'Loughlin LJ, Konkel ME, Peters JH, Hajnal A, Sen T, Lee SH*, **de La Serre CB**#, Czaja K. Energy-dense diet triggers changes in gut microbiota, reorganization of gut-brain vagal communication and increases body fat accumulation. *Acta Neurobiologiae Experimentalis (2017)*
19. Li L, **de La Serre CB**, Zhang N, Hong L, Bi S. Dorsomedial hypothalamic neuropeptide Y modulate hepatic insulin sensitivity and glucose. *Endocrinology (2016)*
20. **de La Serre CB**, Kim YJ, Moran TH, Bi S. Dorsomedial hypothalamic NPY affects cholecystokinin-induced satiety via modulation of brainstem catecholamine neuronal signaling, *American Journal of Physiology --Regulatory, Integrative and Comparative Physiology (2016)*
21. Krishna S, Lin Z, **de La Serre CB**, Wagner JJ, Harn DH, Pepples LM, Djani DM, Weber MT, Srivastava L, Filipov NM.. Time-dependent behavioral, neurochemical, and metabolic dysregulation in female C57BL/6 mice caused by chronic high-fat diet intake. *Physiology and Behavior (2016)*
22. Brown J, Gregory C, **de La Serre CB**, Magnan N. Summer garden programs improve children's food knowledge and preferences: evidence using stated and revealed preference measures. *HortTechnology (2016)*
23. Lee SH*, **de La Serre CB**#. Gut microbiome-brain communications regulate host physiology and behavior the microbiota-gut-brain axis. *Journal of Nutritional Health & Food Science (2015)*
24. Dollé L, **de La Serre CB**, and van Grunsven LA. Are dietary emulsifiers making us fat? *Journal of hepatology (2015)*
25. Krishna S, Keralapuratha MM, Lina Z, Wagner JJ, **de La Serre CB**, Harn DA, Filipov NM. Neurochemical and electrophysiological deficits in the ventral hippocampus and selective behavioral alterations caused by high-fat diet in female C57BL/6 mice. *Neurosciences (2015)*
26. **de La Serre CB**, de Lartigue G, Raybould HE. Chronic exposure to low dose bacterial lipopolysaccharide inhibits leptin signaling in vagal afferent neurons. *Physiology and Behavior (2015)*
27. de Lartigue G, **Barbier de la Serre C**, Espero E, Lee J, Raybould HE, Leptin resistance in vagal afferent neurons inhibits cholecystokinin signaling and satiation in diet induced obese rats. *PLoS ONE (2012)*
28. de Lartigue G, **de La Serre CB,** Raybould HE. Vagal afferent neurons in high fat diet-induced obesity; intestinal microflora, gut inflammation and cholecystokinin. *Physiology and Behavior (2011)*
29. de Lartigue G, **Barbier de La Serre C**, Espero E, Lee J, Raybould, HE. Diet-induced obesity leads to the development of leptin resistance in vagal afferent neurons. *American Journal of Physiology - Endocrinology and Metabolism (2011).*

30. **de La Serre CB**, Ellis CL, Lee J, Hartman AL, Rutledge JC, Raybould HE. Propensity to high fat diet-induced obesity in rats is associated with changes in the gut microbiota and gut inflammation. *American Journal of Physiology - Gastrointestinal and Liver Physiology (2010)*. Selected for highlights in Physiology 2010, no. 5
31. de Lartigue G, Dimaline R, Varro A, Raybould H, **de La Serre CB**, Dockray GJ. Cocaine-and amphetamine-regulated transcript mediates the actions of cholecystokinin on rat vagal afferent neurons. *Gastroenterology (2010)*
32. Paulino G, **Barbier de La Serre C**, Knotts T, Oort PJ, Newman J, Adams S, et al. Increased expression of receptors for orexigenic factors in nodose ganglion of diet-induced obese rats. *American Journal of Physiology - Endocrinology and Metabolism (2009)*

BOOK CHAPTERS

Laye S and **de La Serre C,** Neuroinflammation et obésité, Les obésités, médecine et chirurgie (*2021)*

Barbier de La Serre, C. and Moran TH. Cholecystokinin and Satiety, Handbook of Biologically Active Peptides, Second Edition, Abba J. Kastin (ed), Elsevier – Academic Press, Amsterdam *(2013)*

RESEARCH SUPPORT

SOURCE	TITLE	DATES	ROLE	AMOUNT
National institute of Health – NIDDK	Maternal diet and programming of offspring gut-brain axis	2022-2027	**Co-PI** **Sub award** **PI**	$3,333,395 Sub-award $902,749
National institute of Health – NIDDK	Consequence and mechanism of diet-driven vagal remodeling on gut-brain feeding behavior	2020-2025	**PI**	$1,772 800
Alliance for Potato Research & Education	Efficacy of potato resistant starch on improving gut microbiota composition, inflammatory profile, and insulin signaling in high fat fed rats	2017-2019	**PI**	$151,458
National institute of Health – NIDDK	Microbiome-Vagal-Brain signaling: impact on the reward system and food intake	2016-2019	**PI**	$434,938
UGA Clinical & Translational Research Unit seed grant	Autism Spectrum Disorder: The Role of Diet, Physical Activity, and Gut Microbiome on Bone Strength	2017-2018	**Co-PI**	$38,639
UGA faculty research grant	Influence of meal patterning on microbiota composition and insulin resistance	2016-2018	**PI**	$10,000
USDA - National Institute of Food and Agriculture	Impact of a High Anthocyanin Food on Intestinal Microbiota and Intestinal and Systemic Inflammation	2014-2017	**Co-PI**	$325,000
UGA faculty research grant	Role of the endocannabinoid system in endotoxemia-induced insulin resistance	2014-2015	**PI**	$10,000
UGA Seed Grant Funding	Reducing obesity induced gastrointestinal inflammation by using encapsulated probiotics	2014	**Co-PI**	$10,000
UGA obesity initiative Preliminary data research proposal	Inflammation and autism: an investigation on the contribution of diet-induced maternal obesity to autism and the feasibility of intervention treatment with a potent anti-inflammatory glycan	2014 2013	**Co-PI** **Co-PI**	$25,000 $25,000

HONORS

2022 Flatt Outstanding Faculty Research Award, *College of Family and Consumer Sciences*, UGA
2019 Travel fellow, *Winter Conference on Brain Research*
2017 Invited speaker, *Society for the Study of Ingestive Behavior*
2017 Early Career Research Award, *College of Family and Consumer Sciences*, UGA
2016 Selected to attend the biennial *Little Brain Big Brain* meeting
2011 New Investigator Travel Award, *Society for the Study of Ingestive Behavior*

SCHOLARLY REVIEW OF PUBLICATIONS

2021 Article "Intact vagal gut-brain signalling prevents hyperphagia and excessive weight gain in response to high-fat high-sugar diet" received the *Acta Physiologica award* for most outstanding original paper
2019 Article "Blueberry supplementation influences gut microbiota, inflammation, and insulin resistance in high-fat fed rats" selected for special collection of content, *The American Society for Nutrition*
2018 Article "Blueberry supplementation influences gut microbiota, inflammation, and insulin resistance in high-fat fed rats" selected for press release, *The Journal of Nutrition*
2017 Article "Diet-driven microbiota dysbiosis is associated with vagal remodeling and obesity" selected for weekly *Obesity and Energetics Offerings* release
2016 Article "Dorsomedial hypothalamic NPY affects cholecystokinin-induced satiety via modulation of brainstem catecholamine neuronal signaling" selected as a Featured Article in *American Journal of Physiology*
2014, 16 Abstract selected for press release, *Society for the Study of Ingestive Behavior*
2010 Article "Propensity to high fat diet-induced obesity in rats is associated with changes in the gut microbiota and gut inflammation" selected for highlights in *Physiology*

GRADUATE STUDENT RECOGNITION

I have listed the national and international awards and honors received by my graduate students.

Jiyoung Kim, Ph.D., 2021
2021 New Investigator Travel Award, *Society for the Study of Ingestive Behavior*
2019 New Investigator Travel Award, *Society for the Study of Ingestive Behavior*

Carolina Cawthon, Ph.D., 2019
2019 Best poster presentation, *Society for the Study of Ingestive Behavior*
2019 Awarded the Irene J. Jones Memorial Scholarship, *the Academy of Nutrition and Dietetics Foundation*
2017 Awarded the Patsyjane O'Malley Memorial Scholarship, *the Academy of Nutrition and Dietetics Foundation*

Ruth Schade, M.S, 2019
2018 Honorable Mention, *Barry M. Goldwater Scholarship*
2017 Honorable Mention, *Barry M. Goldwater Scholarship*
2017 Selected for the *DAAD RISE internship program*. Competitive Research Internships in Science and Engineering in Germany with a 3-month stipend
2016 Awarded a *Dow Chemical* Scholarship

Sun Hye Lee, Ph.D., 2018
2016 Winner for North America of *Alltech's Young Scientist Competition*

Zachary Grunewald, M.S. student, 2016

2015 Awarded the *Kappa Omicron Nu Honor Society* Eileen C. Maddex Master's Fellowship

SERVICES

BOARD MEMBER

- The Society for the Study of Ingestive Behavior, 2019 -

EDITORIAL BOARD MEMBERSHIPS

- American Journal of Physiology (Gastrointestinal and Liver Physiology)
- American Journal of Physiology (Regulatory, Integrative and Comparative Physiology)
- Physiology and Behavior

AD HOC MANUSCRIPT REVIEWER

Journal of Clinical Investigation (JCI), Nature Communications, Journal of Comparative Neurology, Translational Psychiatry, Scientific Reports, Cellular and Molecular Life Sciences, The Journal of Nutritional Biochemistry, *The ISME Journal: Multidisciplinary Journal of Microbial Ecology, Food and Nutrition Research, Nutritional Neurosciences, Physiology and Behavior, American Journal of Physiology, Experimental Physiology, Journal of Translational Medicine, The Journal of Nutrition*

AD HOC GRANT REVIEWER

National Institute of Health, Digestive and Nutrient Physiology and Diseases study section, 2021 -2022

National Institute of Health, Gastrointestinal (GI) and Microbiome Explorers: Development of Swallowable Smart Pills or Devices for Precision Nutrition, Microbiome and Digestive Disease Application, PAR-20-133, 2020 -2021

National Institute of Health, NIH Blueprint for Neuroscience Research: Functional Neural Circuits of Interoception, RFA-AT-21-003, 2021

National Institute of Health, NIDDK, Catalyst Award, mail reviewer 2021

Agence National de la Recherche (French NIH), 2020 Proposals

National Institute of Health, Mouse Metabolic Phenotyping Centers, 2020

National Institute of Health, Fogarty Global Brain Disorders Panel, 2020

National Institute of Health, NIDDK, Digestive Diseases and Nutrition C Subcommittee, 2018

National Sciences Foundation, Integrative Ecological Physiology Program, 2017

UNIVERSITY SERVICE

2021 ILS Executive committee member
2014 Grant reviewer, Obesity Initiative
2014 Graduate Awards reviewer, Graduate School
2014 Reviewer, Agricultural Experiment Station HATCH project
2013 Team leader, Obesity Initiative Central Nervous System Team

COLLEGE SERVICE

2022-2024 Dean Advisory Committee
2018-2020 Dean Advisory Committee

DEPARTMENTAL SERVICE

I currently serve on two committees:

- Berdanier Undergraduate Research award and CURO committee, member, 2015-

- Graduate committee, member, 2013-

I have previously served on three additional committees:

- Graduate Student Recruitment Committee, member, 2016 –2017
- Seminar Committee, member, 2013-2014
- Research Committee, member, 2014-2015

I have served as departmental seminar director since Fall 2014

BILLY R. HAMMOND, JR.

Professor, Brain and Behavioral Sciences
Franklin College of Arts & Sciences
University of Georgia, Athens, GA 30602
Phone: 706-542-4812 FAX: 706-542-3275
E-mail: bhammond@uga.edu
URL Address: http://www.uga.edu/psychology/faculty/rhammond.html

EDUCATION

1989	B.S. with Honors University of Oregon, Eugene, OR
1994	Ph.D., Experimental Psychology, Neuroscience University of New Hampshire, Durham, NH
1994-1996	Post-doctoral Fellow Department of Ophthalmology, Harvard Medical School and Schepens Eye Research Institute, Boston, MA

PROFESSIONAL EMPLOYMENT

1985-1989	Research Assistant, University of Oregon, Eugene, OR, Supervisor: Dr. Jacob Beck
1989-1991	Graduate Research Assistant, University of New Hampshire, Durham, NH, Supervisor: Dr. Kenneth Fuld
1991-1994	Graduate Teaching Assistant, University of New Hampshire, Durham, NH
1994-1996	Research Fellow, Schepens Eye Research Institute and Harvard Medical School, Boston, MA.
1996-1999	Assistant Professor, Arizona State University, Phoenix, AZ
1999-2001	Assistant Professor, University of Georgia, Athens, GA.
2001-2006	Associate Professor, University of Georgia, Athens, GA
2006-Present	Full Professor, University of Georgia, Athens, GA

TEACHING EXPERIENCE

University of New Hampshire

1991-1993	Courses: Introduction to Psychology; Perception, Language, and Thought; Statistics

Arizona State University

1996-1999	Courses: Sensation and Perception; Memory and Cognition; Health Psychology; Laboratory Practicum

University of Georgia

1999-Present	Courses: Advanced General Psychology; Sensation and Perception; Graduate Vision Science seminar; Health Psychology; Graduate Laboratory Practicum in Vision Science; Graduate Sensory Psychology; Honors Introductory Psychology; Elementary Psychology

University of Innsbruck, Austria

2005	Courses: Health Psychology, Personality

PUBLICATIONS

1. **Hammond, B.R**. and Fuld, K. (1992). Interocular differences in macular pigment density. Investigative Ophthalmology and Visual Science., 33(2), 350-355.

2. **Hammond, B.R**., Fuld, K. and Curran-Celentano, J. (1995). Macular pigment density in monozygotic twins. Investigative Ophthalmology and Visual Science.,36(12), 2531-2541.

3. **Hammond, B.R.,** Warner, R.M. and Fuld, K. (1995). The relationship between blood pressure and sensitivity to flicker. Journal of Psychophysiology, 9(3), 212-220.

4. **Hammond, B.R**., Fuld, K. and Snodderly, DM. (1996). Iris color and macular pigment optical density. Experimental Eye Research, 62, 715-720.

5. **Hammond, B.R**. Wooten, B.R. and Snodderly, D.M. (1996). Cigarette smoking and retinal carotenoids: Implications for age-related macular degeneration. Vision Research, 36, 3003-3009.

6. **Hammond, B.R.,** Curran-Celentano, J., Judd, S., Fuld, K., Krinsky, NI, Wooten, BR and Snodderly, DM. (1996). Sex differences in macular pigment optical density: Relation to serum and dietary patterns. Vision Research, 36(13), 2001-12.

7. **Hammond, B.R.,** Wooten, B.R., Snodderly, D.M. (1997). Individual variations in the spatial profile of macular pigment. Journal of the Optical Society of America A. 14(6), 1187-1196.

8. **Hammond, B.R.,** Johnson, E.J., Russell, R.M., Krinsky, N.I., Yeum, KJ, Edwards, R.B. and Snodderly, D.M. (1997). Dietary modification of human macular pigment. Investigative Ophthalmology and Visual Science. 38(9), 1795-1801.

9. **Hammond, B.R.,** Wooten, B.R., Snodderly, D.M. (1997). Density of the human crystalline lens is related to the macular pigment carotenoids, lutein and zeaxanthin. Optometry and Vision Science. 74(7), 499-504.

10. **Hammond, B.R.,** Wooten, B.R., Snodderly, D.M. (1998). Preservation of visual sensitivity of older individuals: Association with macular pigment density. Investigative Ophthalmology and Visual Science., 39, 397-406.

11. **Hammond, B.R**., Wenzel., A.J., Luther, M.S., Rivera, R.O., King, S.J. and Choate, M.L. (1998). Scotopic Sensitivity: Relation to Age, Dietary Patterns, and Smoking Status. Optometry and Vision Science., 75, 867-872.

12. **Hammond, B.R.,** Wooten, B.R., Náñez, J.E., Wenzel, A.J. Smoking and Lens Optical Density. (1999). Ophthalmic and Physiological Optics, 19, 300-305.

13. **Hammond, B.R**., Náñez, J.E., and Comer, B. (1999). Prevention of lenticular senescence through nutritional and behavioral modification. Arizona Geriatric Society Journal., 4, 10-19.

14. Wooten, B.R., **Hammond, B.R**., Land, R. and Snodderly, D.M. (1999). A practical method of measuring macular pigment optical density. Investigative Ophthalmology and Visual Science.,40, 2481-2489.

15. Cooper, D.A., Curran-Celentano, J., Cuilla, T.A., **Hammond, B.R**., Danis, R.B., Pratt, L. M., Riccardi, K.A. and Filloon, T.G. (2000) Olestra consumption is not associated with macular pigment optical density in a cross-sectional volunteer sample in Indianapolis. Journal of Nutrition, 130(3), 642-47.

16. **Hammond, B.R**., Myers-Evitt, J. and Loebach, J. (2000). Behavioral prevention of retinal degenerations. Arizona Geriatric Society Journal., 5, 3-19.

17. **Hammond, B.R.** and Caruso-Avery, M. (2000). Macular pigment optical density in a Southwestern sample. Investigative Ophthalmology and Visual Science., 41(6),1492-1497.

18. Johnson, E.J., **Hammond,B.R.**, Yeum, K.J., Qin, J, Dong Wang, X., Castaneda, C.,Snodderly, D.M. and Russell, R.M. (2000). Relation among serum and tissue concentrations of lutein and zeaxanthin and macular pigment density. American Journal of Clinical Nutrition. 71(6), 1555-1562.

19. Náñez, Sr., J.E. **Hammond, B.R**. and Ruediger, S.C. (2000). Biological Markers of Aging: Assessing the Health of the Visual System. Arizona Geriatric Society Journal., 4 (2), 11-12, 20.

20. **Hammond, B.R**., Náñez, J., Fair, C. and Snodderly, D.M. (2000). Iris color and age-related changes in lens optical density. Ophthalmic and Physiological Optics., 20 (5), 381-386.

21. **Hammond, B.R.,** Wooten, B.R., Curran-Celentano, J. (2001). Carotenoids in the retina and lens: Possible acute and chronic effects on human visual performance. Archives of Biochemistry and Biophysics, 385(1), 41-46.

22. Ciulla, T. Curran-Celentano, J., Cooper, D., **Hammond, B.R**. Danis, R.P., Pratt, L.M., Riccardi, K.A. and Filloon, T.G. (2001). Macular pigment optical density in a midwestern sample. Ophthalmology,108, 730-737.

23. Ciulla, T. A.. **Hammond, B. R**., Yung, C.W. and Pratt, L. (2001). Macular pigment optical density before and after cataract extraction. Investigative Ophthalmology and Visual Science., 42(6),1338-41.

24. Delori, F.C., Goger, D.G., **Hammond, B.R**., Snodderly, D.M. and Burns, S.A. (2001). Macular Pigment Density Measured by Autofluorescence Spectrometry; Comparison with Reflectometry and Heterochromatic Flicker Photometry**.** Journal of the Optical Society of America A, 18(6), 1212-30.

25. Náñez, Sr., J.E. **Hammond, B.R.,** Morris, K., Thomas, C. (2001). Aging and visual loss. Arizona Geriatric Society Journal, 6(2), 6,7,13.

26. Curran-Celentano, J., **Hammond, B.R**., Ciulla, T.A., Cooper, D.A., Pratt, L.M. and Danis, R.B. (2001). Relation between dietary intake, serum concentrations, and retinal concentrations of lutein and zeaxanthin in adults in a Midwest population. American Journal of Clinical Nutrition, 74, 796-802.

27**. Hammond, B.R**., Ciulla, T.A., and Snodderly, D.M. (2002). Macular pigment density is reduced in obese subjects. Investigative Ophthalmology and Visual Science, 43, 47-50.

28. Curran-Celentano, J., Burke, J.D. and **Hammond, B.R.** (2002). *In Vivo* Assessment of Retinal carotenoids: Macular pigment detection techniques and their impact on monitoring pigment status. Journal of Nutrition,132, 535S-539S.

29. *Wooten, B.R. and **Hammond, B.R.** (2002). Macular Pigment: Influences on visual acuity and visibility. Progress in Retinal and Eye Research. 21, 225-240.

30. ***Hammond, B.R.** and Johnson, M.A. (2002). The Age-Related Eye Disease Study. Nutrition Reviews, 60, 283-288.

31. Wooten, B.R. and **Hammond, B.R.** (2003). Assessment of the Raman method of

measuring human macular pigment. Investigative Ophthalmology and Visual Science, 44. Published online at http://www.iovs.org/cgi/eletters.

32. Wooten, B.R. and **Hammond, B.R.** (2003). Assessment of the Raman method of measuring human macular pigment: Response to Bernstein and Gellerman. Investigative Ophthalmology and Visual Science., 45. Published online at http://www.iovs.org/cgi/eletters.

33. **Hammond, B.R.**, Wooten, B.R. (2004). Validity issues with the *in vivo* measurement of skin carotenoids using Raman spectroscopy. Investigative Dermatology. 122, 544-546.

34. Gutherie, A., and **Hammond, B.R.** (2004). CFF thresholds: Relation to blood pressure variations. Optometry and Vision Science. 81, 373-76.

35. Ciulla, T. and **Hammond, B.R**. (2004). The relation between aging and macular pigment density, assessed in the normal elderly, and subjects with cataracts and age-related macular degeneration. American Journal of Ophthalmology. 138, 582-587.

36. Stringham, J.S. and **Hammond, B.R**. (2005). Dietary lutein and zeaxanthin: Possible effects on visual function. Nutrition Reviews, 63 (2), 59-64.

37. **Hammond, B.R.** and Wooten, B.R. (2005). CFF Thresholds: Relation to macular pigment optical density. Ophthalmic and Physiological Optics. 25, 315-319.

38. **Hammond, B.R.**, Wooten, B.R. and Smollon, B. (2005). Assessment of the Validity of *in vivo* Methods of Measuring Human Macular Pigment Optical Density. Optometry and Vision Science, 82(5), 387-404.

39. Wooten, B. R., and **Hammond, B.R.** (2005). Spectral absorbance and spatial distribution of macular pigment using heterochromatic flicker photometry. *Optometry and Vision Science*, *82*(5), 378-386.

40. **Hammond, B.R.,** and Wooten, B.R. (2005). A comparison of heterochromatic flicker photometry and Raman spectroscopy for measuring human macular pigment. Investigative Ophthalmology and Visual Science., Vol. 46. Published online at http://www.iovs.org/cgi/eletters.

41. **Hammond, B.R.,** and Wooten, B.R. (2005) Resonance Raman spectroscopic measurement of carotenoids in the skin and retina. Journal of Biomedical Optics. 10(5), 054002-054014.

42. **Hammond, B.R.**, Wooten, B.R. and Smollon, B. (2006). Assessment of the validity of *in vivo* methods of measuring human macular pigment optical density: Response to Gellerman and Bernstein. Optometry and Vision Science. 83(4), 256-259.

43. Gutherie, A.G., McDowell, J. and **Hammond, B.R.** (2006). Scotopic sensitivity and schizophrenia. Schizophrenia Research, 84, 378-85.

44. **Hammond, B.R.** and Wooten, B.R. (2006). Comments on the use of Raman spectroscopy for measuring human macular pigment. Applied Spectroscopy, 60 (11), 1348-49.

45. Stringham, J., **Hammond, B.R.** , Wooten, B.R. and Snodderly, D.M. (2006). Compensation for light loss due to filtering by macular pigment: Relation to the π-1 mechanism. Optometry and Vision Sciences. 83 (12), 887-94.

46. Stringham, J., **Hammond, B.R.** (2007). Compensation for light loss due to filtering by macular pigment: Relation to hue-cancellation functions. Ophthalmic and Physiological Optics. 27, 232-237.

47. Wooten, B.R., **Hammond, B.R**. and Renzi, L. (2007). Using scotopic and photopic flicker to measure lens optical density. Ophthalmic and Physiological Optics. 27, 321-328.

48. Engles, M., Wooten, B.R **Hammond, B.R**. (2007). The relation between macular pigment density and hyper-and-gap acuity. Investigative Ophthalmology and Visual Science 48, 2922-31.

49. ***Hammond, B.R.** and Frick, J. Nutritional protection of the developing retina. (2007). Hong Kong Practitioner, 29, 200-207.

50. *Zimmer, J. P. and **Hammond, B.R.**. (2007). Possible influences of lutein and zeaxanthin on the developing retina. Clinical Ophthalmology, 1, 25-35.

51. Stringham, J., **Hammond, B.R.** (2007). The glare hypothesis of macular pigment function. Optometry and Vision Science, 84, 859-64.

52. ***Hammond, B.R**. (2007). The retina as a nutritionally-responsive tissue. Aging Health, 3(5), 585-588.

53. Stringham, J., **Hammond, B.R**. (2008). Macular pigment and visual performance under glare conditions. Optometry and Vision Science, 85, 82-88.

54. ***Hammond, B.R.** (2008). The role of dietary lutein and zeaxanthin in retinal development and disease. Complete Nutrition, 3, 16-18.

55. Stringham, J., **Hammond, B.R**. Nolan, J.M., Wooten, B.R., Mammen, A., Smollon, W. and Snodderly, D.M. (2008). The utility of using customized heterochromatic flicker photometry (cHFP) to measure macular pigment in patients with age-related macular degeneration. Experimental Eye Research, 87, 445-53.

56. **Hammond, B.R.** (2008). A possible role for dietary lutein and zeaxanthin in visual

development. Nutrition Reviews, 66(12), 695-702.

57. **Hammond, B.R.,** Bernstein, B. And Dong, J. (2009). The Effect of the AcrySof(R) Natural lens on Glare Disability and Photostress. American Journal of Ophthalmology, 148, 272-76.

58. Stringham, J., Bovier, E., Wong, J. and **Hammond, B.R.** (2010). The influence of dietary lutein and zeaxanthin on visual performance. Journal of Food Science, 75(1), 24-29.

59. Renzi, L. and **Hammond, B.R.** (2010). The relation between the macular carotenoids, lutein and zeaxanthin, and temporal vision. Ophthalmic and Physiological Optics, 30(4), 351-357.

60. Wooten, B.R., Renzi, L., Moore, R. and **Hammond, B.R.** (2010). A practical method of measuring the temporal modulation transfer function. Biomedical Optics Express, 1(1), 47-58.

61. Renzi, L. and **Hammond, B.R.** (2010). The effect of macular pigment on heterochromatic luminance contrast. Experimental Eye Research, 91(6), 896-900.

62. **Hammond, B.R.,** Renzi, L.M., Sachak, S. and Brint, S.F. A (2010). A contralateral comparison of blue-filtering and non-blue-filtering intraocular lenses: glare disability, heterochromatic contrast threshold, and photostress recovery. Clinical Ophthalmology, 4, 1465-73.

63. Lien, E. and **Hammond, B.R.** (2011). Nutritional influences on visual development and function. Progress in Retinal and Eye Research, 30, 188-203.

64. Renzi, L. M., **Hammond, B.R**., Dengler, M. and Roberts, R. (2012). The relation between serum lipids and lutein and zeaxanthin in the serum and retina: results from cross-sectional, case-control and case study designs. Lipids in Health and Disease, 11, 33-38.

65. **Hammond, B.R.,** Wooten, B.R., Engles, M. and Wong, J.C. (2012). The influence of filtering by the macular carotenoids on contrast sensitivity measured under simulated blue haze conditions. Vision Research, 63, 58-62.

66. **Hammond, B.R.** (2012). The visual effects of intra-ocular colored filters. Scientifica, 42965, 1-18.

67. **Hammond, B. R**., and Fletcher, L. M. (2012). Influence of the dietary carotenoids lutein and zeaxanthin on visual performance: application to baseball. The American Journal of Clinical Nutrition, 96(5), 1207S-1213S.

68. **Hammond, B.R.** (2012). The dietary carotenoids lutein and zeaxanthin in pre-and-

postnatal development. Functional Food Reviews, 4 (3). 130-137.

69. **Hammond, B.R.,** Fletcher, L. and Elliott, J. (2013) Glare disability, photostress recovery, and chromatic contrast: relation to serum and retinal lutein and zeaxanthin. Investigative Ophthalmology and Visual Science. 54(1), 476-81.

70. Renzi, L., Bovier. E and **Hammond, B.R.** (2013). A role for the macular carotenoids in visual motor response. Nutritional Neuroscience. 16(6), 262-268.

71. Bovier, E. R., Lewis, R. D., and **Hammond, B. R. (**2013). The Relationship between Lutein and Zeaxanthin Status and Body Fat. Nutrients, *5*(3), 750-757.

72. **Hammond, B.R**. and Renzi, L. (2013). Carotenoids. Advances in Nutrition, 4, 474-76.

73. Renzi, L.M., Dengler, M.J., Puente, A., Miller, L.S. and **Hammond, B.R**. (2014) Relations between macular pigment optical density and cognitive function in unimpaired and mildly cognitively impaired older adults. Neurobiology of Aging, 35(7), 1695-1699.

74. Wong, J., Kaplan, H. and **Hammond, B.R**. (2014). Lutein and Zeaxanthin Status and Auditory Thresholds in a Sample of Young Healthy Adults. Nutritional Neuroscience.

75. Fletcher, L., Engles, M. and **Hammond, B.R**. (2014) Visibility through Atmospheric Haze and its Relation to Macular Pigment. Optometry and Vision Science.91(9), 1089-96..

76. Bovier, E.R., Renzi, L. and **Hammond, B.R**. (2014). A double-blind, placebo-controlled study on the effects of lutein and zeaxanthin on neural processing speed and efficiency. PLoS ONE 9(9): e108178. doi:10.1371/journal.pone.0108178.

77. **Hammond, B.R**., Johnson, B.A., George, ER. (2014). Oxidative photodegradation of ocular tissues: beneficial effects of filtering and exogenous antioxidants. Experimental Eye Research, 129, 135-50.

78. **Hammond, B.R.,** Fletcher, L., Roos, F., Wittwer, J. and Schalch, W. (2014) A double-blind, placebo-controlled study on the effects of lutein and zeaxanthin on photostress recovery, glare disability and chromatic contrast. Investigative Ophthalmology and Visual Science, 55, 8583-89.

79. **Hammond, BR**. (2014). Lutein and Cognition in Children. Journal of Nutritional Science, e54, 1-2.

80. Bovier, ER and **Hammond, B.R**. (2015). A randomized placebo-controlled study on the effects of lutein and zeaxanthin on visual processing speed in young healthy subjects. Archives of Biochemistry and Biophysics. 572, 54-57.

81. **Hammond, B.R.** (2015). Attenuating glare disability and photostress in pseudophakes through the addition of a short-wave absorbing filter. Journal of Ophthalmology, 215, 1-8.

82. Smollon, W.E., Wooten, B.R., and **Hammond, B.R**. (2015). Photopigment self-screening and the determination of macular pigment absorbance using heterochromatic flicker photometry. Experimental Eye Research. 140, 10-18.

83. Mewborn, C., Renzi, L., **Hammond, B.R.** and Miller, S. (2015). Critical Flicker Fusion Predicts Executive Function in Younger and Older Adults. Archives of Clinical Neuropsychology, 30(7), 605-10.

84. Smollon, W.E., Wooten, B.R., and **Hammond, B.R**.. (2015). Stimulus edge effects when measuring macular pigment using heterochromatic flicker photometry. Journal Biomedical Optics, 20 (11), 115004.

85. McCorkle, S., Raine, L.B., **Hammond, B.R**., Renzi, L., Hillman, C. and Khan, N.A. (2015). Reliability of heterochromatic flicker photometry in measuring macular pigment optical density among preadolescent children. Foods, 4, 594-604.

86. **Hammond, B.R.** (2015) Dietary carotenoids and the nervous system. Foods, 4, 698-701.

87. Renzi, L. and **Hammond, B.R**. (2016). The effects of photochromic lenses on visual performance. Clinical and Experimental Optometry, 1-7.

88. **Hammond, B.R.** and Renzi-Hammond, L. (2016). A critical look at the ancillary Age-Related Eye Disease Study 2: Nutrition and cognitive function results in older individuals with age-related macular degeneration. Advances in Nutrition, 7, 433-37.

89. Lindbergh, C, Mewborn, C. **Hammond, B.R**., Renzi-Hammond, L., Curran-Celentano, J. and Miller, LS. (2017). The relationship of lutein and zeaxanthin levels to neurocognitive functioning: An fMRI study of older adults. J. International Neuropsychological Society. 23, 11-22.

90. Hassevoort, K.M. Khazoum,S.E., Walker,J.A., McCorkle,S.M., Raine, L.B., **Hammond, B.R.,** Renzi-Hammond, L.M., Kramer,A.F., Khan, N.A., Hillman, C.H., and Cohen, N.J., (2017). Macular carotenoids, aerobic fitness, and central adiposity are differentially associated with hippocampal-dependent relational memory in preadolescent children. Journal of Pediatrics, 183, 108-114.

91. Barnett, S.M., Khan, N.A., Walk, A., Raine, L., Moulton, C., Cohen, N., Kramer, A., **Hammond, B.R.,** Renzi-Hammond, L., and Hilman, C.H. (2017) Macular pigment optical density is positively associated with academic performance among

preadolescent children. Nutritional Neuroscience. DOI: 10.1080/1028415X.2017.1329976

92. **Hammond, B.R.** (2017). Comments on the evidence informing the surgeon's selection of intraocular lens on the basis of light transmittance properties. Eye, 1-3.

93. Walk, A., Barnett, S., Raine, L., Kramer, A., Cohen, N., Moulton, C., Renzi-Hammond, L., **Hammond, BR**., Hillman, C. (2017). From Neuro-pigments to Neural Efficiency: The Relationship between Retinal Carotenoids and Behavioral and Neuroelectric Indices of Cognitive Control in Childhood. International Journal of Psychophysiology. 118, 1-8.

94. Walk, A.M., Edwards, C.G., Baumgartner, N.W., Chojnacki, M.R., Covello, A.R., Reeser, G.E., **Hammond, B.R.,** Renzi-Hammond, L.M. and Khan, N.A., (2017). The Role of Retinal Carotenoids and Age on Neuroelectric Indices of Attentional Control among Early to Middle-aged Adults. Frontiers in Aging Neuroscience, *9*, 183, 1-13.

95. **Hammond, B.R**., Miller, L.S., Bello, M.O., Lindbergh, C.A., Mewborn, C.M., Renzi-Hammond. L.M. (2017). Effects of a lutein/zeaxanthin intervention on cognitive function: a randomized, double-masked, placebo- controlled trial of community dwelling older adults. Frontiers in Aging Neuroscience, 9, 1-9.

96. Saint, S.E. **Hammond, B.R.,** O'Brien, K.J. and Frick, J.E. (2017). Developmental trends in infant temporal processing speed. Vision Research, 138, 71-77.

97. Bovier, E. and **Hammond, B.R**. (2017). The macular carotenoids are related to increased bone density in young healthy adults. Foods *6*(9), 78; doi:10.3390/foods6090078

98. Renzi- Hammond, L., Bovier, E., Fletcher, L., Miller, L.S., Mewborn, C., Lindbergh, C., Baxter, J. and **Hammond, B.R.** (2017). Effects of a lutein/zeaxanthin intervention on cognitive function: a randomized, double-masked, placebo-controlled trial of younger healthy adults. Nutrients, 14 (9) 11.

99. Mewborn, C.M., Terry, D.P., Renzi-Hammond, L., **Hammond, B.R.,** and Miller, L.S. (2017). Relation of retinal and serum lutein and zeaxanthin to white matter integrity in older adults. A diffusion tensor imaging study. Archives of Clinical Neurology, 1-14.

100. Lindbergh, C. A., Renzi-Hammond, L. M., **Hammond, B. R**., Terry, D. P., Mewborn, C. M., Puente, A. N., & Miller, L. S. (2018). Lutein and Zeaxanthin Influence Brain Function in Older Adults: A Randomized Controlled Trial. *Journal of the International Neuropsychological Society*, *24*(1), 77-90.

101. Saint, S.E., Renzi-Hammond, L., Khan, N.A., Hillman, C.H., Frick, J. and **Hammond,**

B.R. (2018). The macular carotenoids and cognitive function in preadolescent children. Nutrients, 10. 193, 1-10.

102. Mewborn, C.M., Lindbergh, C.A., Robinson, T.L., Gogniat, M.A., Terry, D.P., Jean, K.R., **Hammond, B.R**., Renzi-Hammond, L.M. and Miller, S. (2018). Lutein and Zeaxanthin are Positively Associated with Visual-Spatial Functioning in Older Adults: An fMRI Study. Nutrients, 10, 458, 1-16.

103. **Hammond, B. R.,** & Renzi-Hammond, L. (2018). Individual variation in the transmission of UVB radiation in the young adult eye. PloS one, 13(7), e0199940.

104. Lindbergh, C.A., Li, J., Zhao, Y., Mewborn, C.M., Puente, A.N., Terry, D.P. Renzi-Hammond, L.M., **Hammond, B.R.,** Liu, T. and Miller, L.S. (2019). The effects of lutein and zeaxanthin on resting state functional connectivity in older Caucasian adults: A randomized controlled trial. Brain Imaging and Behavior, 1-14.

105. Lindbergh, C.A., Zhao, Y., Li, J., Mewborn, C.M., Puente, A.N., Terry, D.P. Renzi-Hammond, L.M., **Hammond, B.R.,** Liu, T. and Miller, L.S. (2019). Intelligence moderates the relation between age and inter-connectivity of resting state networks in older adults. Neurobiology of Aging, 78, 121-129.

106. Oliver, W., Renzi-Hammond, L. M., Thorne, S. A., Clementz, B., Miller, L. S., & **Hammond, B. R.** (2019). Neural Activation During Visual Attention Differs in Individuals with High vs. Low Macular Pigment Density. Molecular nutrition & food research, 63, 1801052.

107. Ceravolo S.A., **Hammond B.R.**, Oliver W, Clementz B, Miller L.S, Renzi-Hammond L.M. (2019). Dietary carotenoids lutein and zeaxanthin change brain activation in older adult participants: a randomized, double-masked, placebo-controlled trial. Molecular nutrition & food research, 63, 1801052.

108. Stringham, J.M., Johnson, E.J. and **Hammond, B.R.** (2019). Lutein across the lifespan: From childhood cognitive performance to the aging eye and brain. Current Developments in Nutrition, 1-8.

109. **Hammond, B.R.** et al. (2019). The effects of blue-light intraocular lenses on the protection and function of the visual system. Clinical Ophthalmology.

110. Saint, S. E., **Hammond, B. R.,** Khan, N. A., Hillman, C. H., & Renzi-Hammond, L. M. (2019). Temporal vision is related to cognitive function in preadolescent children. Applied Neuropsychology: Child, 1-8.

111. Mewborn, C. M., Lindbergh, C. A., **Hammond, B. R.,** Renzi-Hammond, L. M., & Miller, L. S. (2019). The Effects of Lutein and Zeaxanthin Supplementation on Brain Morphology in Older Adults: A Randomized, Controlled Trial. *Journal of Aging Research*, *2019*.

112. Renzi-Hammond, L., Buch, J. R., Cannon, J., Hacker, L., Toubouti, Y., & **Hammond, B. R.** (2020). A contra-lateral comparison of the visual effects of a photochromic vs. non-photochromic contact lens. Contact Lens and Anterior Eye, 43(3), 250-255.

113. Renzi-Hammond, L. M., Buch, J. R., Hacker, L., Cannon, J., & **Hammond, B. R**. (2020). The Effect of a Photochromic Contact Lens on Visual Function Indoors: A Randomized, Controlled Trial. Optometry and Vision Science, 97(7), 526-530.

114. **Hammond, B. R**., Buch, J., Hacker, L., Cannon, J., Toubouti, Y., & Renzi-Hammond, L. M. (2020). The effects of light scatter when using a photochromic vs. non-photochromic contact lens. Journal of Optometry.

115. **Hammond, B. R**., Buch, J., Sonoda, L., & Renzi-Hammond, L. (2020). The Effects of a Senofilcon A Contact Lens With and Without a Photochromic Additive on Positive Dysphotopsia Across Age. Eye & Contact Lens.

116. **Hammond, B. R.,** & Buch, J. (2020). Individual differences in visual function. Experimental Eye Research, 108186.

117. Buch, J., & **Hammond, B.R.** (2020). Photobiomodulation of the Visual System and Human Health. International Journal of Molecular Sciences, *21*(21),1-22.

118. Nightingale, J. and **Hammond, B.R.** (2021). Measuring the behavioral effects of intraocular scatter. JOVE, 168 (e62290). 1-15.

119. Liu R, Hannon, B.A., Robinson, K.N., Raine, L., **Hammond, B.R.,** Renzi-Hammond, L, Cohen, N.J., Kramer A., Hillman C, Teran-Garcia M and Khan, N.A. (2021). Single Nucleotide Polymorphisms in CD36 are Associated with Macular Pigment among Children. Journal of Nutrition, nxab153.

120. **Hammond, B.R**. Wooten, B.R., Saint, S.E. and Renzi-Hammond, L (2021). The Effects of a Blue-Light Filtering Versus Clear Intraocular Implant on Color Appearance. Trans. Vis. Sci. Tech. 10(12):25.

121. Renzi-Hammond, L., **Hammond, B.R.** (2022). Blue-light filtering intraocular implants and darker irises reduce the behavioral effects of higher-order ocular aberrations. Current Eye Research, 1-7.

122. Bailey, R. L., Dog, T. L., Smith-Ryan, A. E., Das, S. K., Baker, F. C., Madak-Erdogan, Z. **Hammond, B.R**.,, ... & Nguyen, H. (2022). Sex Differences Across the Life Course: A Focus On Unique Nutritional and Health Considerations among Women. The Journal of Nutrition, 1-16.

123. **Hammond, B.R.** and Renzi-Hammond, L. (2022). The influence of the macular carotenoids on women's eye and brain health. Nutritional Neuroscience, 1-7.

124. Renzi-Hammond, L., Buch, J., Xu, J. and **Hammond, B.R.** Reduction of glare discomfort and photostress recovery time through use of an HEV-filtering contact lens. Eye & Contact Lens

125. Renzi-Hammond, L., Buch, J., Xu, J. and **Hammond, B.R.** The influence of HEV-filtering contact lenses on behavioral indices of glare. Eye & Contact Lens

BOOK CHAPTERS/TECHNICAL REPORTS

1. Snodderly, D.M. and **Hammond, B.R**. (1999). *In vivo* psychophysical assessment of nutritional and environmental influences on human ocular tissues: lens and macular pigment. In Taylor, A.J. (Ed.). Nutritional and Environmental Influences on Vision. CRC Press, Boca Raton, pgs. 251-273.

2. **Hammond, B.R.** and Johnson, M.A. (2002). Dietary prevention and treatment of age-related macular degeneration. Recent Research Developments in Nutrition, Research Signpost. 5, 43-68.

3. **Hammond, B.R**., and Wooten, B.R. (2003). Noninvasive assessment of the macular carotenoids. In Ciulla, T.A., Regillo, C.D. and Harris A. (Eds.). Retina and Optic Nerve Imaging. Lippincott, Williams & Wilkins, Delaware, pgs. 231-43.

4. **Hammond, B.R**., and Wooten, B.R. (2004). Questions about Raman spectroscopic detection of carotenoids in human skin and retina. Carotenoid News, 14(1), pgs. 7-8.

5. ***Hammond B.R.** and Renzi, L. (2008). The characteristics and function of lutein and zeaxanthin within the human retina. Phytochemicals: Aging and Health, CRC Press, Boca Raton, FL, pgs. 89-106.

6. Renzi, L. and **Hammond, B.R.** (2009). The influence of dietary pigments lutein and zeaxanthin on human visual function. The World of Food Ingredients, 12, 61-63.

7. Frick, J., Dengler, M. and **Hammond, B.R.** (2009). Effects of dietary intake of lutein and zeaxanthin on maturation of the human visual system. Agrofood Industry Hi-Tech Suppl: Focus on Infant/Children Nutrition, 20, 6, 18-20.

8. Bovier, E., OBrien, K. and **Hammond, B.R.** (2010). The effects of lutein and zeaxanthin on select visual functions: glare disability, photostress, contrast enhancement and temporal vision. Agrofood Industry Hi-Tech, 21, 4, 22-24.

9. Renzi, L. and **Hammond, B.R.** (2010). Nutrition as a mediator of visual health across the lifespan. Sight and Life, 3, 15-24.

10. **Hammond, B.R.** and SanGiovanni, J.P. (2010). Nutrition in Eye Health: Visual Performance and Protection. DSM Nutritional Products, Technical Report 50-0231/1010.

11. **Hammond, B.R.** (2012). Researchers explore relationship between macular pigment and visuomotor function: lutein and zeaxanthin may affect more aspects of vision than originally thought. Ocular Surgery News, (11-10-12).

12. **Hammond, B.R.** (2013). Lutein, zeaxanthin and vision across the lifespan. Carotenoids and Vitamin A in Translational Medicine. In Sommerbrg, O., Siens W. and Kraemer, K. (Eds). CRC Press, Boca Raton, FL.

13. **Hammond, B.R**. and Elliot, J.G. (2013). Effects of lutein and zeaxanthin within the visual system. Carotenoids and Retinal Disease. In Landrum, J. and Nolan, J. (Eds). CRC Press, Boca Raton, FL.

14. **Hammond, B.R**. and Lien, E. (2013) Dietary prevention and treatment of ocular disease. Duane's Atlas of Ophthalmology, 34(3), 1-25.

15. **Hammond, B. R.** (2014). Lutein's Influence on Neural Processing Speed. Technical report published on ANHI.org (http://static.abbottnutrition.com/cms-prod/anhi.org/img/Hammond.pdf)

16. **Hammond, B.R.** (2014). Diet and Preventive Medicine. Nutraceutical Business Review, 1, 5-8.

17. Bovier, E.R. and **Hammond, B.R.** (2015). Possible benefits of lutein and zeaxanthin for visual symptoms of mild traumatic brain injury. Dietary supplements in Health Promotion. Taylor and Francis. Pgs. 267-280.

18. **Hammond, B.R.** (2015). Blue light filtration: What is the evidence today? Eye World, February edition.

19. **Hammond, B.R.** (2015). Foveal morphology and the macular carotenoids. Research Highlight in Investigative Ophthalmology and Visual Science (http://iovs.arvojournals.org/article.aspx?articleid=2476143)

20. Renzi-Hammond, L., Miler, L.S. and **Hammond, B.R.** (2016). Oral nutrient supplementation and cognitive function. JAMA, 315, 515-16.

21. **Hammond, B.R**. (2016). The pioneers of lutein science and discovery. Natural Products Insider, April. Digital Issue.

22. **Hammond, B.R.** (2016). Macular pigment & visual function. Eye Health Insider. Dec. Digital Issue.

23. **Hammond, B.R.** and vanDellen M. (2017). The effects of intraocular lens implant type on mood. A response to Zambrowski et al. Aging and Mental Health: 1-2.

24. **Hammond, B.R.,** Renzi-Hammond, L.M., Buch, J. and Nankivil, D. (2018). Measuring total visual experience. Continuing education, technical report. Contact Lens Spectrum, 32-37.

25. **Hammond, B.R.**, Buch, J. Gardere, J. and Ruston, D. (2019). The dark side of light and a solution in sight. Continuing education, technical report. Optician, 259, 32-35. (https://www.opticianonline.net/cet).

26. Buch, J. **Hammond, B.R**., and Ruston, D. (2019). The contact lens that knows light. Continuing education, technical report Optician, 259, 31-34.

27. Hammond, B.R., Renzi-Hammond, L. (2022). Comment on Blue-light hazard vs blue-light hype. American Journal Ophthalmology.

SELECTED PUBLISHED ABSTRACTS

Curran-Celentano, J., Fuld, K. and **Hammond, B.R.** (1992). Dietary and physiological effect of lutein and zeaxanthin: Distribution in human blood and tissue. Experimental Biology '93, FASEB Journal, 6(4), 1605.

Curran-Celentano, J.M., Fuld, K. and **Hammond, B.R.** (1992). Effect of diet on lutein and zeaxanthin in human blood and macular pigment. Abstracts of the Gordon Research Conference on the Chemistry and Biology of Carotenoids.

Curran-Celentano, J., Fuld, K. and **Hammond, B.R. and** Thomson, K. (1992). Macular pigment: Its relationship to dietary and serum carotene levels. Faseb Journal, 6(4): A1109.

Hammond, B.R. & Fuld, K. (1992) The role and measurement of macular pigment in human vision. XXV International Congress of Psychology Abstracts. International Journal of Psychology (Suppl.), 27 (3&4), 34.

Fuld, K., Curran-Celentano, J.M., **Hammond, B.R.**, and Thompson, K.L. (1992). Dietary and serum carotenoids and their relationship to macular pigment. Optical Society of America (Suppl.), Technical Digest Series, 23, TuLL2.

Hammond, B.R., Snodderly, D.M. and Wooten, B.R. (1995). The relationship between cigarette smoking and peak macular pigment density. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 36 (4). S233.

Judd, S., **Hammond, B.R**., Heon, S.M., Fuld, K., and Curran-Celentano, J.M. (1995). relationship between MP and serum response to a single-dose beta carotene supplement in human subjects. FASEB Journal, 9(3), A458.

Hammond, B.R., Wooten, B.R., and Snodderly, D.M. (1996). Protection of the retina by macular pigment. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 37 (3). S666.

Hammond, B.R., Wooten, B.R., and Snodderly, D.M. (1997). The clarity of the human crystalline lens is related to the macular pigment carotenoids, lutein and zeaxanthin. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 38 (4). S20.

Snodderly, D.M **, Hammond, B.R**., and Wooten, B.R.. (1997). Enhanced visual sensitivity in older subjects with high macular pigment density. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 38 (4). S66.

Delori, FC, Goger, DG, **Hammond, BR**, Snodderly, DM, Burns, SA. Foveal lipofuscin and macular pigment. (1997). ARVO Abstracts. Investigative Ophthalmology and Visual Science. 38 (4), S355.

Hammond, B.R. and Nanez, J.E. (1997). A possible role for the antioxidants lutein and zeaxanthin in protecting against age-related increases in lens density. Perception, 26, 62.

Hammond, B.R., Wenzel, A.**,** Nanez, J.E. and Hernandez, A. (1998). Smoking and lens optical density. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 39 (4), S313.

Hammond, B.R., Wenzel, A.**,** Nanez, J.E. and Burleson, M.H. (1998). Factors related to individual differences in lens optical density. Experimental Eye Research, 67, S484.

Hammond, B.R., Wooten, B.R. and Snodderly, D.M. (1999). A practical method for measuring macular pigment optical density in diverse populations. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 40 (4), S165.

Cooper, D.A., Cuilla, T.A., **Hammond, B.R**., Riccardi, K.A., Filloon, T.G. and Curran-Celentano, J. (1999). Macular carotenoid pigment density and olestra consumption in a cross-sectional volunteer sample in Indianapolis. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 40 (4), S165.

Caruso-Avery, M. Perez, J., Myers-Evitt, M.J., Crosley, R., Nenez, G., Alexander, B., Nanez, J. and Hammond, B.R. (1999). Factors related to individual differences in macular pigment optical density in a southwestern population. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 40 (4), S165.

Curran-Celentano, J., **Hammond, B.R.,** Cooper, D.A., Pratt, L.M., Danis, R.P., and Cuilla, T.A. (1999). The relationship between dietary intake, blood and retinal concentrations of carotenoids in adult volunteers in the Indianapolis area. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 40 (4), S568.

Pratt, L.M., Cuilla, T.A., **Hammond, B.R**. and Yung, C.W. (2000). Macular pigment optical density before and after cataract extraction. ARVO Abstracts. Investigative Ophthalmology and Visual Science. 41 (4), S600.

Hammond, B.R. (2000). Lutein in age-related macular degeneration. Free Radical Biology and Medicine, 29, S8.

Hammond, B.R., and Snodderly, D.M. (2001). Reduced macular pigment optical density in people with high body fat. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 42 (4). S359.

Cole, J.F, Cuilla, T., **Hammond, B.R**., Morris, K. (2001). Macular pigment carotenoids are related to age-related increased in lens density. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 42 (4). S359.

Hix, A., Williams, L.B., **Hammond, B.R**. Clark. L.D. (2001). The relationship between CFF thresholds and resting blood pressure. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 42 (4). S851.

Nanez, J.E., Hammond, B.R., Morris, K.A., Thompson, C.A., Ekstrom, J.M., Mendivil, R.R., Helmers, T.J., Bell, T.I., and Taylor, K.C. (2001). Relationship between age-related glare disability, iris color, and gender. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 42 (4). S853.

Hammond, B.R. (2002). Macular pigment density is increased in vegetarians. ARVO Abstracts. Investigative Ophthalmology and Visual Science.

Hix, A., Reingold, J.L., **Hammond, B.R**. (2002). Critical flicker fusion thresholds: Relation to blood pressure variation across and within subjects. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E4729.

Hammond, B.R., Wooten, B.R. and Gutherie, A.H. (2004). A practical method of measuring lens optical density. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E4338.

Ciulla, T.A., and **Hammond, B.R.** (2004). Macular pigment density in the normal elderly and subjects with cataracts and age-related macular degeneration. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E2973.

Renzi, L.M. and **Hammond, B.R.** (2005). The relation between macular pigment and serum triglyceride levels. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E1775.

Stringham, J.M.. **Hammond, B.R**., Wooten, B.R. and Snodderly, D.M. (2005). Compensation for light loss due to filtering by macular pigment. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E1780.

Gutherie, A.H. and **Hammond, B.R.** (2005). Macular pigment and scotopic noise. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E1784.

Haase, K.A., Engles, M., **Hammond, B.R**. and Wooten, B.R. (2005). The relation between macular pigment optical density and hyperacuity. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E4568.

Smollon, W.E., Wooten, B.R., and **Hammond, B.R**. (2005). Stimulus edge effects when measuring macular pigment using heterochromatic flicker photometry. ARVO Abstracts. Investigative Ophthalmology and Visual Science, E4569.

Stringham, J.M., **Hammond, B.R.,** Wooten, B.R. and Snodderly, D.M. (2006). Evaluation of the compensation mechanism for macular pigment. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 3809.

Renzi, L., Wenzel, A, **Hammond, B. R.,** and Curran-Celentano, J. (2006). Statin use and macular pigment optical density: A case control study. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 3807.

Engles, M., **Hammond, B.R.** and Wooten, B.R. (2006). The relation between macular pigment and resolution acuity. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 5352.

Hammond, B.R., Stringham, J.S., Nolan, J.M., Wooten, B.R. and Snodderly, D.M. (2007). The validity of macular pigment measurements using HFP in patients with age-related macular degeneration. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 2135.

Stringham, J.S. and **Hammond, B.R.** , Engles, M. (2007). The glare hypothesis of macular pigment function. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 2146.

Renzi, L., **Hammond, B.R**. and Wooten, B.R. (2008). The effects of macular pigment on temporal vision. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 4958.

Engles, M., **Hammond, B.R.** and Wooten, B.R. (2008). Evaluation of the Acuity Hypothesis of Macular Pigment Using an Assessment of the Entire Contrast Sensitivity Function. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 4163.

Renzi, L., Snodderly, D.M., and **Hammond, B.R.** (2009). Reduction of Surround Suppression and Enhancement of Discriminability by Macular Pigment. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 1703.

Dengler, M.J. Engles, M. Varga,K. Frick, J. and **Hammond, B.R.** (2009). Contrast thresholds in infants compared to adults. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 1705.

Wong, J.C., Engles, M., Wooten, B.R. and **Hammond, B.R.** (2009). Testing the Visibility hypothesis of macular pigment using a filter that simulates changes in macular pigment density. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 1704.

Bovier, E., Bernstein, B., Wong, J.C. and **Hammond, B.R.** (2009). The effect of yellow intraocular lenses on glare disability and photostress. ARVO Abstracts. Investigative Ophthalmology and Visual Science, 5598.

Renzi, L., **Hammond, B.R.** and Wooten, B.R. (2009). Age-related changes in the temporal modulation transfer function assessed foveally and parafoveally. VSS Abstracts. Journal of Vision, 8(17), 76.

Wong, J.C., Bovier, E.R., and **Hammond, B.R**. (2009) Extending visible range through increases in lutein and zeaxanthin. 2009 Neuroscience Meeting Planner. Chicago, IL: Society for Neuroscience, 2009; Program No. 651.2.

Wong J.C. and **Hammond, B.R.** (2010). Variance Across the Temporal Contrast Sensitivity Function Curve. Conference Abstract: 2010 South East Nerve Net (SENN) and Georgia/South Carolina Neuroscience Consortium (GASCNC) conferences. doi: 10.3389/conf.fnins.2010.04.00089.

Wong, J.C., Engles, M., Wooten, B.R., O'Brien, K.J., and **Hammond, B.R.** (2010) Macular pigment: visual effects of deficiency. ARVO Abstracts. Investigative Ophthalmology and Vision Science. 2010; Session 225:1288/A100.

Dengler, M.J., Fletcher, L.M., Stringham, J., Renzi, L., Schalch, W and **Hammond, B.R.** (2010). Macular Pigment is Related to Reduced Glare Disability, Improved Photostress Recovery, and Contrast Enhancement. ARVO Abstracts. Investigative Ophthalmology and Vision Science. 2010; Session 225:1296/A109.

Hammond, B.R. (2013). Effects of the macular carotenoids from eye to brain, from infancy to old age. European Journal of Ophthalmology, 23(4), 604.

Frick, J. Saint, S., OBrien, K., **Hammond, B.R**. (2013). The effects of lutein on infant brain development: assessment using a novel temporal device. European Journal of Ophthalmology, 23(4), 608.

Fletcher, L. and **Hammond, B.R**. (2013). The effects of macular pigment on visibility in haze conditions. European Journal of Ophthalmology, 23(4), 609.

Bovier, E., Fletcher, L., Thorne, S**., Hammond, B.R.,** Renzi, L. (2013). Critical flicker fusion thresholds: Relations to neurocognitive function. European Journal of Ophthalmology, 23(4), 6010.

Terry, D.P., Duda, B., Mewborn, C., Lindberg, C.A., Bovier, E., Shon, D., Puente, A.N. Chu, K., Washington, T.D., Stapley, L., **Hammond, BR**., Renzi, L., Miller, L.S. (2014). Brain activity associated with verbal learning and recall in older adults and its relationship to lutein and zeaxanthin concentrations. *Archives of Clinical Neuropsychology, 29*, 506, 2014. Doi: 10.1093/arclin/acu038.7.

Terry, D.P., Lindberg, C.A., Duda, B., Mewborn, C., Shon, D., Bovier, E., Puente, A.N., Stapley, L., Chu, K., Washington, T.D., Renzi L**., Hammond, BR.,** Miller, L.S. (2014). An fMRI investigation of visual judgment in older adults and its relationship with a measure of lutein and zeaxanthin..:*Archives of Clinical Neuropsychology, 29* (6): 505-506, 2014. doi:10.1093/arclin/acu038.6

Mewborn, C., Duda, B., Lindbergh, C.A., Terry, D.P., Puente, A.N., Bovier, E., Shon, D., Chu, K., Washington, T.D., Stapley, L., **Hammond, B.R.,** Renzi, L.M., Miller, L.S. (2014). Processing speed and critical flicker fusion as mediators of age and cognition. Abstract:*Archives of Clinical Neuropsychology, 29*, 506-507, 2014. Doi 10.1093/arclin/acu038.9.

Thorne, S.A. Oliver, W.T., **Hammond, B.R**. Clementz, B.A., Miller, S. and Renzi, L. (2015). CNS xanthophyll status and nonspecific brain activation in younger and older adults. European Journal of Opthalmology, 22, e64.

Oliver, W.T., Thorne, S.A. Clementz, B.A., Renzi, L., **Hammond, B.R.** (2015). Neural activation during visual attention tasks differ in elders with high vs low macular pigment density. European Journal of Opthalmology, 25, e64.

Hammond, B.R. (2015). The macular carotenoids in pre-and post-natal development. European Journal of Opthalmology, e73.

Lindbergh, C., Terry, D., Mewborn, C., Renzi-Hammond, L., **Hammond, B**., & Miller, S. (2016). Aging and Dementia-1Lutein and Zeaxanthin Supplementation Improves Neurocognitive Function in Older Adults as Measured Using Functional Magnetic Resonance Imaging: A Randomized Controlled Trial. *Archives of Clinical Neuropsychology*, *31*(6), 574-574.

Lawler, T. P., Liu, Z., Blomme, C., **Hammond, B.R**., Gangnon, R., Johnson, E., ... & Smollon, B. (2017). Lutein and Zeaxanthin Supplement Use and Macular Pigment Change Over 14 years in the Second Carotenoids and Age-Related Eye Diseases Study (CAREDS2), an Ancillary Study to the Women's Health Initiative. *The FASEB Journal*, *31*(1 Supplement), lb337-lb337.

Liu, R., Hannon, B., Robinson, K., Raine, L., **Hammond, B**., Renzi-Hammond, L., ... &

Khan, N. (2019). Single Nucleotide Polymorphisms in BCO1 and CD36 Are Related to Macular Pigment Among Children. *Current Dev. Nutrition, 3*, (OR05-04-19).

Liu, Y., Lawler, T., Liu, Z., Thuruthumaly, C., Vajaranant, T. S., Nalbandyan, M., ... **Hammond B.R.** & Mares, J. A. (2021). Low macular pigment levels are associated with manifest primary open-angle glaucoma in the Carotenoids in Age-Related Eye Disease Study. *Investigative Ophthalmology & Visual Science*, *62*(8), 1582.

Lawler, T., Liu, Z., Nalbandyan, M., Liu, Y., **Hammond, B.,** Wallace, R. B., & Mares, J. A. (2021). Lutein and zeaxanthin supplement use is associated with increased macular pigment density over 15 years and greater contrast sensitivity in the Carotenoids in Age-Related Eye Disease Study of older-adult women. *Investigative Ophthalmology & Visual Science*, *62*(8), 2950.

SELECTED PRESENTATIONS

Posters

Hammond, B.R. and Fuld, K. The role and measurement of macular pigment in human vision. Poster presented at *the XXV International Congress of Psychology, 1992.* Brussels, Belgium.

Curran-Celentano, J.M., Fuld, K., **Hammond B.R.** and Thompson, K.L. Dietary and physiological effect of lutein and zeaxanthin: Distribution in human blood and macular pigment. Poster presented at the *Experimental Biology Conference, 1993*. Anaheim, CA.

Hammond, B.R. and Nanez, J.E. A possible role for the antioxidants lutein and zeaxanthin in protecting against age-related increases in lens density. Poster presented at the *European Conference on Visual Perception*, *1997*. Helsinki-Espoo, Finland.

Hammond, B.R., Wenzel, A.**,** Nanez, J.E. and Burleson, M.H. Factors related to individual differences in lens optical density. Poster presented at the *XIII International Congress of Eye Research*, *1998*. Paris, France.

Ciulla, T.A., **Hammond, B.R.,** and Pratt, L.M. Age-related changes in macular pigment optical density. Poster presented at the *Annual Meeting of the American Academy of Ophthalmology, 2000*, Dallas, TX.

Israel, J.E., Tracy, H.S. and **Hammond, B.R**. Age-related increases in glare disability. Poster presented at the 12th Annual Southeastern Regional Student Convention on Gerontology and Geriatrics, 2001, Dahlonega, GA.

Morris, K.A., Phillips, M.J., Cole, J.F. and **Hammond, B.R**. Changes in the foveal avascular zone throughout the lifespan. Poster presented at the 12th Annual Southeastern Regional Student Convention on Gerontology and Geriatrics, 2001, Dahlonega, GA.

Jorgensen, M., Nanez, J. E., **Hammond, B.R.,** Holloway, S. R., & Zimmerman, D. The effects of stress on contrast sensitivity. Poster presented at the Rocky Mountain Psychological Association, 2002, Park City,Utah.

Holloway, S. R., Nanez, J. E., **Hammond, B.R.,** Jorgensen, M., & Zimmerman, D. The relationship between smoking, glare disability, and age. Poster presented at the Rocky Mountain Psychological Association, 2002, Park City, Utah.

Barnard, C., Kuhn, J. and **Hammond, B.R**. The relationship between macular pigment and age. 13th Annual Southeastern Regional Student Convention in Gerontology & Geriatrics, 2002, Athens, GA.

Reingold, J. and **Hammond, B.R.** The relationship between systolic blood pressure and critical flicker fusion thresholds. CURO Honor's Symposium, UGA, 2002, Athens, GA.

Stilson, F.R., Robertson, H.E. and **Hammond, B.R**. The relationship between macular pigment optical density and glare in young participants. 26th Annual Convention of the Behavioral Sciences, PSI CHI, 2003, Athens, GA.

Guthrie, S.T., Konter, J.L., and **Hammond, B.R**. The relationship between variations in body fat and blood pressure. 14th Annual Southeastern Regional Student Convention in Gerontology and Geriatrics, 2003, Tybee Island, GA.

Holt, A.R., Passmore, J.R. and **Hammond, B.R**. The relationship between macular pigment optical density and blood pressure. 14th Annual Southeastern Regional Student Convention in Gerontology and Geriatrics, 2003, Tybee Island, GA.

Gutherie, A. H. & **Hammond, B. R., Jr.** Critical flicker fusion frequency (CFF) thresholds: Relation to macular pigment optical density. Poster presented at the 15th Annual Convention of the American Psychological Society (APS), 2003, Atlanta, GA.

Denney, H. I. & **Hammond, B. R., Jr.** Influence of iris color on age-related declines in macular pigment density. Poster presented at the 15th Annual Convention of the American Psychological Society (APS), 2003, Atlanta, GA.

Hammond, B.R., Stringham, J.M., Wooten, B.R. Compensation effects associated with prereceptoral screening by macular pigment. Poster presented at the 29th European Conference on Visual Perception, 2006, St. Petersburg, Russia.

Snodderly, D.M., Hammond, B.R., Stringham, J., and Wooten, B.R. Compensation

for light loss due to fi ltering by the macular pigment: Specificity of the mechanism. Poster presented at the Vision Sciences Society, 7th Annual Meeting, 2007, Sarasota, FL.

Engles, M., Renzi, L.M. and **Hammond, B.R**. The influence of chromatic blur on spatial resolution. Poster presented at the European Retina Meeting, 2007, Frankfurt, Germany.

Engles, M., Wong, J. and **Hammond, B.R**. Attenuation of the debilitating effects of chromatic aberration by the macular pigment as measured by contrast sensitivity. European Retina Meeting, 2009, Oldenburg, Germany.

Wong, J., Bovier, E. and **Hammond, B.R.** Extending visible range through increases in retinal lutein and zeaxanthin. Poster no. 651.2/X33. Society for Neuroscience, 2009, Chicago, IL.

Wong, J. and **Hammond, B.R.**. Assessing the temporal contrast sensitivity function (TCSF) in a young healthy population. Society for Neuroscience Annual Meeting, 2010, San Diego, CA.

Bovier, E. R. Lewis, R., Asef, M., Crabbe, J. Hammond, B.R. Macular pigment and its relation to body composition. Society for Neuroscience Annual Meeting 2010, San Diego, CA.

Davison, J.A. and **Hammond, B.R.** Enhanced Heterochromatic Contrast With Blue Light–Filtering IOLs: Contralateral Controlled Study. ASCRS Symposium on Cataract, IOL, and Refractive Surgery. 2011, San Diego, CA.

Maxwell, W. and **Hammond, B.R.** Resistance to Glare Disability Provided by Blue Light–Filtering IOLs: Contralateral-Controlled Study. ASCRS Symposium on Cataract, IOL, and Refractive Surgery. 2011, San Diego, CA.

Renzi, L.M., Bovier, E.R., Shon, W.D., Biegler, P,.Kennedy, C.A., **Hammond, B.R**. The effects of macular carotenoids lutein and zeaxanthin on visual performance and neural efficiency in young, healthy subjects and college athletes. Presented at the Macular Carotenoids and AMD meeting; Downing College; 2011, Cambridge, England.

Wood, N.T., Stringham, J.M., and **Hammond, B.R.**. Compensation for macular pigment is mediated by temporal mechanisms. American Academy Optometry, 2012, Phoenix, AZ.

Renzi, L.M. Bovier, E.R., Tankersley, M., Shon, D.W., Mewborn, C.A., Duda, B., Lindbergh, C., Miller, L.S., **Hammond, B.R**. Increasing retinal lutein concentrations improves cognitive performance in young, healthy adults: Results from one year of follow-up. Triennial meeting of the International Carotenoid Society; 2014, Park City, UT.

Saint, S.E., Frick, J.E., Obrien, K**., Hammond, B.R.** and Tracy, Q. Investigating the development of infant temporal processing speed. International Society of Infant Studies, 2014, Berlin, Germany.

Lindbergh, C. A., Terry, D. P., Mewborn, C. M., Renzi-Hammond, L. M., **Hammond, B. R.**, & Miller, L. S. Lutein and zeaxanthin supplementation improves neurocognitive function in older adults as measured using functional magnetic resonance imaging: A randomized controlled trial.2016, Oral paper session to be presented at the National Academy of Neuropsychology's 36th Annual Conference, Seattle, WA.

Hammond, B.R. and Renzi-Hammond, L. Comparing the visual effects of a photochromic contact lens under simulated outdoor vs indoor conditions. British Contact Lens Association, 2019, Manchester, England.

Renzi-Hammond, L and **Hammond, B.R.** The effects of a photochromic contact lens on glare geometry when tested indoors. British Contact Lens Association, 2019, Manchester, England.

Papers

Curran-Celentano, J.M., Fuld, K. and **Hammond, B.R.** Effect of diet on lutein and zeaxanthin in human blood and macular pigment. Paper presented at the *Gordon Research Conference on the Chemistry and Biology of Carotenoids,* 1992. Oxnard, CA.

Fuld, K., Curran-Celentano, J.M., **Hammond B.R.**, and Thompson, K.L. Dietary and serum carotenoids and their relationship to macular pigment. Paper presented at the *Optical Society of America/ ILS-VIII, 1992*. Albuquerque, NM.

Hammond, B.R., Fuld, K., and Curran-Celentano, J.M. Macular pigment densities in monozygotic twins. Paper presented at the *Optical Society of America/ILS-IX, 1993.* Toronto, Canada.

Hammond, B.R., Wooten, B.R. and Snodderly, DM. Preventing age-related macular degeneration by behavioral control of retinal carotenoids. Paper presented at *XII International Congress of Eye Research, 1996.* Yokohoma, Japan.

Hammond, B.R. Protection from age-related decreases in visual function by the retinal

carotenoids lutein and zeaxanthin. Paper presented at *the New Frontiers in Aging Research Symposium, UGA Gerontology Center and Consortium*, 2000, Athens, GA.

Hammond, B.R. The use of psychophysics to assess biomarkers of aging, health and disease. Paper presented at *the Institute for Behavioral Research Seminar Series*, 2001, Athens, GA.

Hammond, B.R. Visual Biomarkers of Aging and Disease. Paper presented at *the 93rd Annual Meeting of the Southern Society of Psychology and Philosophy*, 2001, New Orleans, LA.

Lane, S., Boyle, T. and **Hammond, B.R.** The Relationship between blood pressure variations and retinal lutein and zeaxanthin. Paper presented at the *18th Annual Southeastern Undergraduate Psychology Research Conference, UAB*, 2003, Birmingham, AL.

Renzi, L., **Hammond, B.R.,** Wooten, B.R. Age-related changes in the temporal modulation transfer function (TMTF) assessed with a novel optical device in the fovea and parafovea. Paper presented at the *Vision Sciences Society Annual Meeting*, 2009, Naples, FL.

Renzi, L.M.; Dengler, M.; Thorne, S.A.; Puente, A.N.; **Hammond, B.R.** Miller, L.S. The relationship between retinal carotenoids and cognitive function in healthy and cognitively impaired elders. Presented at the American Society for Nutrition annual meeting at Experimental Biology; 2012, San Diego, CA.

Berdahl., J., **Hammond, B.R.,** and Venkiteshwar, M. Visual effects of blue light filtration. Paper presented at the American Society of Cataract and Refractive Surgery, 2014, Boston, MA.

Hammond, B.R. Attenuating glare disability and photostress through the addition of a blue-light filter. 2014. XXXII Congress of the European Cataract and Refractive Society, London, UK.

Berdahl, J. and **Hammond, B.R,**. Visual effects of blue-light filtration. American 2014, Academy Ophthalmology Annual Meeting, Chicago, IL.

Edwards, C., **Hammond, B.R.** Retinal carotenoids, adiposity, and response variability in selective attention . Obesity Week 2016, New Orleans, LA

Hammond, B.R. A Contra-lateral Comparison of the Visual Effects of Clear vs. Photochromic Contact Lenses. 2018, American Academy of Optometry, San Antonio, TX.

Invited Presentations

Hammond B.R. Carotenoids in the retina, blood and diet. Invited paper presented at

Harvard Medical School, *1994.* Boston, MA.

Hammond, B.R. Preventing age-related macular degeneration. Invited paper presented at *International Symposium on Age-related Macular Degeneration, Schepens International Society, 1995.* Mexico City, Mexico.

Hammond, B.R. Psychophysical methods. Workshop taught at *Pre-Experimental Biology Conference. Carotenoid Research Interaction Group. Workshops on Carotenoid Function Endpoints, 1995.* Atlanta, GA.

Hammond B.R. Retinal carotenoids and neovascular age-related macular degeneration. Invited colloquium given at *Human Nutrition Research Center, Tufts University School of Medicine, 1995.* Boston, MA.

Hammond, B.R. Determinants of macular pigment density in mid-western and north-eastern United States populations. Invited colloquium presented at *Hoffman La-Roche*, *1998*. Basel, Switzerland.

Hammond, B.R. Psychophysical evidence for ocular protection by the macular carotenoids. Invited colloquium presented at *The Role of Neutraceuticals in the Diet of an Aging Population, Alcon Laboratories, 1998*. Ft. Worth, TX.

Hammond, B.R. Good nutrition for the general patient who is being cared for at home. Invited colloquium presented at the *American Red Cross Caregivers Workshop, American Cancer Society, 1998*. Glendale, AZ.

Hammond, B.R. Effects of Olestra on serum and retinal carotenoid concentrations. Invited colloquium presented at *Macular Disease Group*, *Schepens Eye Research Institute, 1998*. Boston, MA.

Hammond, B.R. Photoreceptor aging and protection. Invited colloquium presented to the *Department of Psychology, University of New Hampshire*, *1998*, Durham, NH

Hammond, B.R. Protection from age-related vision loss and macular degeneration by the retinal carotenoids lutein and zeaxanthin. Invited colloquium presented to the *research science group at Hoffman La-Roche, 1999*, Parsippany, NJ

Hammond, B.R. Macular pigment in AMD and normal eyes. Invited colloquium presented to the *Ophthalmology Research Laboratory group at Cedars-Sinai Medical Center, 1999*, Los Angeles, CA

Hammond, B.R. Lutein and eye health. Invited colloquium presented at the *Roche Neutraceutical Conference*, 2000, Orlando, FL

Hammond, B.R. Carotenoids: Implications for age-related macular degeneration. Invited

colloquium presented at the *Family Nutrition Program Training Conference, UGA Extension Office, Callaway Gardens Conference Center, 2000*, Pine Mountain, GA.

Hammond, B.R. Lutein in age-related macular degeneration. Plenary speaker at the Annual Meeting of the *Oxygen Society, 2000*, San Diego, CA.

Hammond, B.R. Nutrition and age-related eye disease. Guest speaker, WBAI- 99.5 FM, New York, NY, January 9, 2001, produced by Jonathon Eder, hosted by Gary Null.

Hammond, B.R. Visual Sensitivity: Association with Macular Pigment Density. Invited colloquium presented at the *Gordon Carotenoid Conference, 2001*, Ventura, CA.

Hammond, B.R. Vitamins in age-related macular degeneration. Invited colloquium presented at the conference on *New Aspects in the Treatment of Age-related Macular Degeneration, 2001*, Rome, Italy.

Hammond, B.R. Carotenoids and macular degeneration. Invited paper presented at *Physiological Functions of Antioxidant Nutrients and Phytochemicals, FASEB Summer Research Conference, 2001*, Tucson, AZ.

Hammond, B.R. Lutein and zeaxanthin assessment in normal and clinical populations. Invited colloquium presented at the *RS Dow Neurological Sciences, Good Samaritan Hospital and Oregon Health Sciences University, 2001*, Portland, OR.

Hammond, B.R. Dietary influences on eye disease. Invited colloquium presented to the *North East Georgia Dietetic Association, 2001*, Athens, GA.

Hammond, B.R. Effects of lifestyle on the aging process. Invited colloquium presented at the *Dorminy Medical Center, 2001*, Fitzgerald, GA.

Hammond, B.R. Nutrition for better vision. Invited colloquium presented for the *DHR-Division of Aging Services, Conference on Nutrition and Aging, 2002*, Atlanta, GA.

Hammond, B.R. Effects of lutein on vision and eye physiology. Invited colloquium presented for *New Advances in Infant and Pediatric Nutrition for Eye Health, 2006,* Beijing, China.

Hammond, B.R. Biology of Lutein. Invited presentation for *the Chinese Food Additive Evaluation Committee , 2006,* Beijing, China.

Hammond, B.R. Physiological development and protection of the eye. Invited presentation for the Hong Kong Society of Neonatal Medicine, The Obstetrical and Gynaecological Society of Hong Kong, 2006, MongKoK, Hong Kong

Hammond, B.R. Lutein and Biology. Invited presentation for the Hong Kong College of Family Physicians. , 2006, MongKoK, Hong Kong.

Hammond, B.R. Diet and Vision Health. Invited presentation for the Hong Kong Dieticians Association, Hong Kong Nutrition Association, 2006, MongKoK, Hong Kong.

Hammond, B.R. Lutein and ARMD. Invited presentation for the 6th International Conference on Phytochemicals: Aging and Health, 2006, Buena Park, CA.

Hammond, B.R. Possible functions and characteristics of the macular pigments. The Roy Erickson Lecture, Distinguished Alumni Series, Department of Psychology, University of New Hampshire, 2006, Durham, NH.

Hammond, B.R. Macular pigment: Compensation mechanisms and effects on visual performance. Coloured Filters In The Eye: Protective Functions and Effects on Visual Performance with Emphasis on Colour Vision, 2006, London, England.

Hammond, B.R. Biology of Aging. Athens Community Counsel on Aging, 2006, Athens, GA.

Hammond, B.R. Acute effects of lutein and zeaxanthin on visual performance, DSM Nutritional Industries, Inc., 2007, Parsippany, NJ.

Hammond, B.R.. Retinal lutein and zeaxanthin: Influences on glare disability and photostress. 2007, Wyeth Industries, Madison, NJ.

Hammond, B.R. Retinal maturation and lutein. 2007, Early-life Nutrition and long-term outcomes. Pediatric Nutrition Symposium, Singapore.

Hammond, B.R. Lutein and infant formula. 2007, Pediatric Nutrition Symposium, Shanghai, China.

Hammond, B.R. Lutein and retinal physiology. 2007, Pediatric Nutrition Symposium, Guangzhou, China.

Hammond, B.R. Lutein and retinal maturation. 2007, Pediatric Nutrition Symposium, Shenzhen, China.

Hammond, B.R. Development of the human visual system. 2007, Pediatric Nutrition Symposium, Jakarta, Indonesia.

Hammond, B.R. Development of the human visual system. 2007, Pediatric Nutrition Symposium, Denpasar, Bali, Indonesia.

Hammond, B.R. Lutein's effects on retinal development. 2007, Pediatric Nutrition Symposium, Medan, Indonesia.

Hammond, B.R. Macular pigment in the Infant. 2007, Pediatric Nutrition Symposium, Bandung, Indonesia.

Hammond, B.R. Effects of lutein on visual development. 2008, Pediatric Nutrition Symposium, Cali, Colombia.

Hammond, B.R. Effects of lutein on visual development. 2008, Pediatric Nutrition Symposium, Medellin, Colombia.

Hammond, B.R. Effects of lutein on visual development. 2008, Pediatric Nutrition Symposium, Barranquilla, Colombia.

Hammond, B.R. Effects of lutein on visual development. 2008, Pediatric Nutrition Symposium, Bogotá, Colombia.

Hammond, B.R. The role of dietary lutein and zeaxanthin in vision and visual development. 2008, CARIG, Experimental Biology, San Diego, CA.

Hammond, B.R. Integrated Nutrition and the Retina. 2008, 2nd Latin American Pediatric Summit, Cartagena de Indias, Colombia.

Hammond, B.R. Retinal development. 2008, The Sonia Wolf Wilson Lectureship Series. University of Texas, Austin, Austin, TX.

Hammond, B.R. Compensation for macular pigment: Color appearance and sensitivity regulation. 2008, Optical Society of America, Vision Meeting, Rochester, NY.

Hammond, B.R. Lutein and vision. Early Life Nutrition and Long Term Outcomes, Pediatric Symposium, 2008, Bangkok, Thailand.

Hammond, B.R. Visual health in early development. 2008, Expert panel, Bangkok Television, Thailand.

Hammond, B.R. Visual development. 2008, Expert panel, Indonesia ministry of Health, BoH/BPOM-Jakarta, Indonesia.

Hammond, B.R. Macular pigment: Influences on visual function. 2009, Macula and Nutrition group, Association for Research in Vision and Ophthalmology Annual Meeting, Fort Lauderdale, FL.

Hammond, B.R. Understanding the Role of Carotenoids in the Structure and Function of the Retina and Lens. 2009, Institute Food Technologists Annual Meeting, Anaheim, CA.

Hammond, B.R. Visual performance advantages of lutein and zeaxanthin. 2009, American Optometric Association Annual Meeting, Washington, DC.

Hammond, B.R. The effects of lutein and zeaxanthin on selected visual functions: glare disability, photostress, contrast enhancement, and temporal vision. 2010, Gordon Research Conference: Carotenoids, Ventura, CA.

Hammond, B.R. Antioxidants in the infant diet and their role in the prevention of eye disease. 2010, Peadiatric Nutrition, Future Steps: Sydney, Australia.

Hammond, B.R. Influence of a retinal filter on visual function. 2010, Four Leaf Seminar Series, Florida International University, Miami, FL.

Hammond, B.R. Antioxidants in the prevention of degenerative eye disease. 2010, Pediatric Nutrition, Future Steps: Brisbane, Australia.

Hammond, B.R. A role for integrated infant nutrition in optimal eye development. 2010, Pediatric Nutrition, Future Steps: Melbourne, Australia.

Hammond, B.R. Dietary antioxidants and the development of eye disease, 2010, Lutein Symposium, Auckland, New Zealand.

Hammond, B.R. Lutein: effects on visual health and development. 2010, Pediatric Nution Symposium, Singapore.

Hammond B.R. Integrated nutrition: influences on visual development. Wyeth Education Workshop, 2010, Kota Kinabulu, Malaysia.

Hammond, B.R. Lutein influences on visual function. InnoStage, Research and Development Colloquium, DSM Nutritional Products, Inc., 2010, Basel, Switzerland.

Hammond, B.R. Reducing priority eye disease through behavioral intervention. IAPB: Global Health Partnership for Eye Care, Vision 2020. 2010, Geneva, Swtizerland.

Hammond, B.R. Cognition, eye health and lutein. Abbott Nutrition National Sales Meeting, 2011, Dallas, TX.

Hammond, B.R. The role of lutein and zeaxanthin in improving visual performance in healthy subjects. New Developments in Carotenoids Research Conference at the Jean Mayer Human Nutrition Research Center on Aging (HNRCA) at Tufts University, 2011, Boston, MA.

Hammond, B.R. Visual performance advantages: retinal lutein. Congress: Lutein and its benefits in eye health. 2011, Munich, Germany.

Hammond, B.R. Macular pigments, nutrition, ocular health. Vistakon R&D, Johnson & Johnson Vision Care, Inc. 2011, Jacksonville, FL.

Hammond, B.R. Lutein and DHA important nutrients during the critical time of Eye and

Brain Development. 57th Annual Convention of the Puerto Rico Pediatric Society. 2011, San Juan, Puerto. Rico.

Hammond, B.R. Lutein and nervous system development. Symposium given at the Bella Vista Hospital, 2011, Mayaguez, Puerto Rico.

Hammond, B.R. Macular carotenoids and visual performance. Macular Carotenoids and AMD, Downing College, 2011, Cambridge, England.

Hammond, B.R. . Lutein and zeaxanthin: static and dynamic effects on visual function, 16th International Symposium on Carotenoids, 2011, Krakow, Poland.

Hammond, B.R. Lutein and DHA: critical nutrients in eye and brain function. American Academy of Pediatrics, 2011, Boston, MA.

Hammond, B.R. Effects of lutein on visual development and cognition. Webinar symposium, Abbott Nutrition, 2011, New York City, NY.

Hammond, B.R. Lutein: effects on visual function across the lifespan. Ocular Nutrition Society, Education Symposium, 2011, Boston, MA.

Hammond, B.R. Lutein and zeaxanthin: physiology and function. University of Wisconsin,
Madison, Department of Ophthalmology and Visual Science, 2011, Madison, WI.

Hammond, B.R. Lutein and DHA: key nutrients in visual development. Symposium, Beth Israel Hospital, Neonatology Division, 2011, Newark, NJ.

Hammond, B.R. Lutein and DHA: key nutrients in visual development. Symposium, Children's Hospital of Orange County, 2011, Orange, CA.

Hammond, B.R. Xanthophylls and eye development. Carotenoid Research Interactive Group, CARIG, Experimental Biology, 2012, San Diego, CA.

Hammond, B.R. Lutein and visual development. Neonatology, Barnabas Medical Center, 2012, W. Orange, NJ.

Hammond, B.R. Visual development. Pediatrics/Neonatology, Brookwood Hospital, 2012, Birmingham, AL.

Hammond, B.R. Visual development, Pediatrics, Lutheran General Hospital, 2012, Park Ridge, IL

Hammond, B.R. Visual and brain development in neonates: Effects of Lutein. Sanford Health Children's Hospital,2012, Sioux Falls, SD.

Hammond, B.R. Developmental effects of lutein. Ground Rounds, Winchester Medical

Center, 2012, Winchester, VA.

Hammond, B.R. The influence of DHA and Lutein on the central nervous system of premature infants. Ground Rounds, Washington Hospital Center, 2012, Washington, DC.

Hammond, B.R. Lutein and prematurity. Ground Rounds, INOVA Alexandria Hospital, 2012 Alexandria, VA

Hammond, B.R. Functional effects of the macular carotenoids. Iowa State University, 2013, Ames, IA.

Hammond, B.R. Lutein effects in infancy. Women's Healthcare Associates, 2013, Portland, OR.

Hammond, B.R. Nutrients for visual performance. IFT Wellness 13, 2013, Chicago, IL.

Hammond, B.R. Lutein's influence on neural processing speed. 114th AN Research Conference, 2013, Columbus, OH.

Hammond, B.R. Lutein and omega-fatty acids. Methodist Willowbrook Hospital, 2013, Houston, TX.

Hammond, B.R. Lutein and infant development. Clear Lake Regional Medical Center, 2013, Webster, TX.

Hammond, B.R. Sports Vision, Optometry Day, Macular Carotenoids Conference, 2013, Cambridge, England.

Hammond, B.R. Effects of the macular carotenoids, from eye to brain, from infancy to old age. Macular Carotenoids Conference, 2013, Cambridge, England.

Hammond, B.R. Lutein and zeaxanthin's effects on visual function in healthy subjects. Vision Congress Lisbon 2013, Lisbon, Portugal.

Hammond, B.R. Guts, bugs, and brains: The gut-brain axis and the microbiome. Abbott Nutrition Health Institute, Continuing Education Speakers ' Program, 2013, Raleigh, NC.

Hammond, B.R. Early nutrition in premature infants. Scott and White Memorial Hospital. 2014, Temple, TX.

Hammond, B.R. Early nutrition in premature infants. Pediatrix Medical Group, 2014, Nashville, TN.

Hammond, B.R. Early nutrition in premature infants. Medical Center at Bowling Green, 2014 Bowling Green, TX.

Hammond, B.R. Visual motor benefits related to lutein and zeaxanthin. Ocular Nutrition Society, 2014, New York, NY.

Hammond, B.R. Can we prevent blindness using filters. Plenary Address. OPTOM2014, Madrid Spain.

Hammond, B.R. Using filters in optometry. OPTOM 2014, Madrid Spain.

Hammond, B.R. Lutein and neural development. Sau Paulo Pediatric Hospital, 2014, Sau Paulo, Brazil.

Hammond, B.R. Clinical benefits of lutein on neural development. Pediatric Congress, Catholic University of Porto Alegre, 2014, Porto Alegre, Brazil.

Hammond, B.R. The role of lutein in neural maintenance and development. European Society of Paediatric Gastroenterology, Hepatology and Nutrition, 47th Annual Meeting, 2014, Jerusalem, Israel.

Hammond, B.R. Bovier, E.R. and Renzi, L.M. Effects of the macular carotenoids on behavioral and neural measures of brain function. 17th Triennial Meeting of the International Carotenoid Society, 2014, Park City, Utah.

Hammond, B.R. The effects of macular pigment upon visual performance. 17th Triennial Meeting of the International Carotenoid Society, 2014, Park City, Utah.

Hammond, B.R. Ecological validity in visual assessment. CVNR Seminar Series, Atlanta Department of Veterans Affairs Center for Visual and Neurocognitive Rehabilitation, 2014, Atlanta, GA.

Hammond, B.R. Macular pigment and visual function. Supply Side West Global Expo and Conference 2014, Las Vegas, Nevada.

Hammond, B.R. The role of lutein, DHA and natural vitamin E on visual development. Saint Clares Hospital 2015, Denville, NJ,

Hammond, B.R. Visual Assessment, 2015. Nutrition and the Eye VIII, University of Missouri, 2015, St. Louis, MI.

Hammond, B.R. Visual motor performance in sports. Annual meeting for the Collegiate and Professional Sports Dietician Association, 2015, Point Clear, AL.

Hammond, B.R. The macular xanthophylls in pre-and-postnatal development. Macular Carotenoids Conference, 2015, Cambridge, England.

Hammond, B.R. The Effects of Fortified Nutritional Supplementation on Cognition, Memory, & Achievement. CNLM Seminar Series, 2016. Beckman Institute,

University of Illinoi, Urbana-Champagne. Champagne, IL.

Hammond, B.R. The role of sensory stimulation and nutrition. Learning Congress, the future of learning and cognition, 2016. Manilla, Philippines.

Hammond, B.R. Effects of carotenoids on retina and brain. Curso Internacional de Avances E Innovacio en Oftalmologia, 2016, Monterrey, Nuevo Leon , Mexico.

Hammond, B.R. Blue light filtration, macular pigment and visual performance. FloraGlo Lutein Congress Lisbon, 2016, Lisbon Portgual.

Hammond, B.R. Sensory stimulation and learning, the role of lutein, natural vitamin E and DHA. Learning Congress: The future of learning and cognition II. 2016, Manilla, Philippines.

Hammond, B.R. The macular carotenoids in pre-and-post natal development. Nutrition and Sensory stimulation for optimal cognitive outcomes. Malaysian Pediatric Society, 2016. Port Dickson, Malaysia.

Hammond, B.R. Reduction in glare and photostress through the strategic use of intra-and-extra ocular filters. American Academy of Optometry, 2016, Anaheim, CA.

Hammond, B.R. The eye-brain axis. 18th International Symposium on Carotenoids, 2017, Lucerne, Switzerland.

Hammond, B.R. Aging and nutrition in modern eye care. American Academy of Optometry, 2017, Chicago, IL.

Hammond, B.R. Effects of blue-light filtering intraocular lenses. Alcon-Aspex Campus, 2018, Fort Worth, TX.

Hammond, B.R. The influence of the macular carotenoids on auditory and visual-motor thresholds. CARIG, American Society for Nutrition, 2018, Boston, MA.

Hammond, B.R. Lutein and childhood cognitive performance. American Society for Nutrition, 2018, Boston, MA.

Hammond, B.R. A contra-lateral comparison of the visual effects of clear vs photochromic contact lenses. American Academy of Optometry, 2018, San Antonio, TX.

Hammond, B.R. Macular pigment and glare geometry. Brain and Ocular Nutrition, 2018, Cambridge, England.

Hammond, B.R. Collaborations between academia and industry. Association for Vision in Research and Ophthalmology, 2019, Vancouver, British Columbia, Canada.

Hammond, B.R. Light filtration and visual comfort. British Contact Lens Association, 2019, Manchester, England.

Hammond, B.R. Influence of dietary behavior on women's eye and brain health. 2021, Dana Point, CA.

Hammond, B.R. Functional effects of the neuro-pigments lutein and zeaxanthin on eye. 2022, Japanese 15th Ophthalmologic Society of Anti-Aging Medicine, Kyoto, Japan.

ACADEMIC AWARDS/FELLOWSHIPS

Psychology Departmental Honors, University of Oregon, 1989

Pre-doctoral fellowships, University of New Hampshire, 1991-1993

Travel Grant, American Psychological Association, 1992

Research Award, Center for International Perspectives, UNH, 1992

Dissertation fellowship, University of New Hampshire, 1993, 1994

Post-doctoral fellowship, Research to Prevent Blindness America, ARVO/CIBA Research Support Award, 1995, 1996

Outstanding Academic Advisor Award, Franklin College of Arts and Sciences, UGA, 2001

Garland W. Clay Award, awarded by the American Academy of Optometry, 2001.

Undergraduate teaching award, , Psi Chi, UGA, 2004-2005

Outstanding Professor award (excellence in teaching, University-wide), Academic Affairs, UGA, 2007.

CONSULTING/SCIENTIFIC ADVISING:

1997	Applied Food Biotechnology, Fenton, MO
1998	Office of the Attorney General, Consumer Protection and Advocacy Section, Tucson, AZ
1998-Pres	Alcon Laboratories, Fort Worth, TX
1999-2004	Kemin Foods Inc., Des Moines, IA
1998-2000	Proctor and Gamble Co., Cincinnati, OH.
2000-2001	Hoffman La-Roche, Basel, Switzerland and Parsippany, NJ
1999-2001	Newsweek Magazine, Anne Underwood (Scientific writer), New York, NY

2000-2001	Scientific Advisory Committee(Mares-Perlman, J., Lead PI), Women's Health Initiative, Beaver Dam Eye Study, Madison, WI
2000-2001	Scientific Advisory Committee, (Dagnelie, G., Lead PI), Retinitis Pigmentosa Study, Lions Vision Center, John Hopkins University, Baltimore, MD
2000-2001	Scientific Advisory Committee, (Iannaccone, A., Lead PI), Retinal Degeneration Research Center and Lions Laboratory for Visual Electrophysiology, University of Tennessee, Memphis, TN
2000-2007	Consultant, Jean Mayer Human Nutrition Research Center, Tufts University School of Medicine, Nutrition Grant to the National Institute of Complementary and Alternative Medicine.
2002	GRAS approval committee, Roche Vitamins, Parsippany, NJ.
2003-Pres	Scientific Advisory Committee(Mares-Perlman, J., D. Max Snodderly Lead PI), Carotenoid Eye Disease Study Group (CAREDs), multi-site
2004	Scientific Consultant, 3P Unlimited Phosphorescence, Woodstock, GA.
2004	GRAS approval committee, Roche Vitamins, Parsippany, NJ.
2004-2008	Scientific Consultant, Wyeth Nutrition, Collegeville, PA.
2005-Pres	DSM Products LTD, Kaisergaust, SZ and Parsippany, NJ
2005	Review Committee, GIP Agence Nationale de la Recherche, National Research Agency Public Interest Group
2005-2006	Scientific Consultant, Sure-Foot Industries Corporation, Cleveland, OH
2009-	Member of the Global Burden of Disease project- Vision Loss Group. Institute for Health Metrics and Evaluation, Seattle, WA.
2011-	Vistakon, Johnson and Johnson, Jacksonville, FL.

GRANTS (INTERNAL)

Hammond, B.R. (1990). *"Dichroism of human macular pigment"* $1200 Central University Research Fund, UNH.

Hammond, B.R. (1996). *"Factors related to individual differences in the aging lens"* $6000 Faculty Grant-In-Aid, ASU.

Hammond, B.R. (1996). *"Individual variation in visual sensitivity to short-wave light: Implications for the prevention of age-related macular degeneration"* $5500 Scholarship, Research and Creative Activities Grant Program, ASU.

Hammond, B.R. (1998). *"Postmenopausal estrogen replacement therapy: Effects on optical density of the crystalline lens"* $11,000 Scholarship, Research and Creative Activities Grant Program, ASU.

Hammond, B.R. (1999). "*Age-related variations in CFF thresholds"* $5000 Seed Grant, Gerontology Center, UGA.

Hammond, B.R. (1999). *"Smoking and visual sensitivity*" $3000 Faculty Research Grants Program, UGA, 1999.

GRANTS (EXTERNAL)

Hammond, B.R. (1992-94). "*Genetic Contributions to Variations in Macular Pigment Density*," $3,000 Sigma Xi.

Hammond, B.R. (1996-97). "*The Association of Retinal Carotenoids to Lens Density Variations*," $21,000 Hoffman-La Roche.

Hammond, B.R. (1999-2000). *"Macular Pigment and Human Visual Performance,"* $27,000 Roche Vitamins Inc.

Hammond, B.R. (2000-2001). "*Influence of Macular Pigmentation on High Frequency Contrast Sensitivity,"* $45,394 Roche Vitamins Inc.

Hammond, B.R. (2001-2002). "*Macular pigment density assessment in a clinical population,"* $20,000. Cognis Corporation, La Grange, IL.

Hammond, B.R. (2002-2003). "*Macular Pigment Effects on Visibility,"* $95,118 Roche Vitamins Inc.

Hammond, B.R. and Wooten, B.R. (2004-2007). *"Influence of Macular Pigmentation on Acuity and Visibility,"* $272,650*,* National Sciences Foundation.

Hammond, B.R. and Renzi, L. (2005-2006). *"Circulating lipids and human macular pigment density," $*25,000, Kemin Health L.C.

Stringham, J. and Hammond, B.R. (2005-2006). *"The Effect of Macular Pigment on Visual Problems Caused by Glare,"* $82,516, DSM Inc.

Hammond, B.R. (2008-2009). "The influence of IOL type on glare disability." $48,701, Alcon Laboratories, Inc.

Hammond, B.R. (2007-2009). *"Carotenoids and temporal vision,"* $138,130, Cognis Corp.

Hammond, B.R. (2009-2012). "Effects of supplementation with lutein and zeaxanthin upon MPOD and its effects upon glare disability, photostress recovery, and contrast enhancement in healthy subjects." $329,300 DSM/Kemin Industries.

Renzi, L and Hammond, B.R. (2010-2011). "Visual performance in baseball players." $45,100, Zeavision.

Renzi, L. and Hammond, B.R. (2012-13). Macular Pigment and Visuo-motor Function in Young, Healthy Adult. $49,500 Zeavision.

Hammond, B.R., Miller, S., Renzi, L. (2012-2015). Lutein, mild cognitive impairment, AZ. $676,950.00 Global Nutrition Research and Development, Abbott Industries.

Hammond, B.R. and Renzi, L. (2015-2016). The effects of lutein on cognition in children. $30,099. Subaward: University of Illinois, Urbana-Champagn.

Miller, S. and Hammond, B.R. (2015-2017). Neuroimaging photochromic processing in the brain. $242,464 Vistakon, Johnson and Johnson.

Hammond, B.R. and Renzi, L. (2016-2017). The effects of Contact Lenses with Experimental Dye on Visual Performance Measured Under Intense Light Conditions. $115,875 Vistakon, Johnson and Johnson.

Hammond, B.R. and Renzi-Hammond, L. (2018-2019). The effects of contact lenses with experimental dye on visual function. $271, 872, Vistakon, Johnson and Johnson.

Renzi-Hammond, L. and Hammond, B.R. (2018-2020). The effects of contact lenses with experimental dye on visual function II. $173,022, Vistakon, Johnson and Johnson.

Renzi-Hammond, L. and Hammond, B.R. (2019-2021). BLF study. $408,945, Alcon Laboratories Inc.

Hammond, B.R. and Renzi-Hammond, L. (2019-2021). The effects of light filtration on contrast sensitivity in young viewers. $216,953. Vistakon, Johnson and Johnson.

Hammond, B.R. and Renzi-Hammond, L. (2020-2022). Visual performance of senofilcon A with and without a new UV/HEV-filter. $259,007.. Vistakon, Johnson and Johnson.

Hammond, B.R. and Renzi-Hammond, L. (2021-2022). Assessment of blue light filtering on visual performance. $240,000. Alcon Laboratories.

Hammond, B.R, and Renzi-Hammond, L (2021-2022). Evaluation of multifocal and spherical soft contact lens designs with and without HEV-blocker on visual function. $332, 352. Johnson and Johnson Vision Care.

Hammond, B.R, and Renzi-Hammond, L (2022-). The effects of light filtration via contact lenses on novel metrics of visual function. $477,046. Johnson and Johnson Vision Care.

Hammond, B.R, and Renzi-Hammond, L (2022-). Determining the action spectra of glare in habitual contact lens wearers. $279,028. Johnson and Johnson Vision Care.

Hammond, B.R, and Renzi-Hammond, L (2022-). Using photochromic spectacle lenses to attenuate light stress in adults, Transitions Optical. $117,867.

Hammond, B.R, and Renzi-Hammond, L (2022-). Role of glare and spectral filtering on contrast sensitivity: a pilot study. Johnson and Johnson Vision Care, Inc. $256,582.

PROFESSIONAL HISTORY/SERVICE

Affiliations:

Association for Research in Vision and Ophthalmology (1990-present)
Fellow, Institute of Behavioral Research, University of Georgia (1999-2002)
Adjunct Faculty, Gerontology Program, Arizona State University (1996-1999)
Adjunct Faculty, Foods and Nutrition Department, University of Georgia (1999- present)
Faculty, Gerontology Program, University of Georgia (1999-present)
American Academy of Ophthalmology (2014-present)

Ad hoc Reviewer:

Journals: Experimental Eye Research, American Journal of Clinical Nutrition, Investigative Ophthalmology and Visual Science, Optometry and Vision Science, Ophthalmic and Physiological Optics, British Journal of Ophthalmology, Vision Research, Archives of Biochemistry and Biophysics, Current Eye Research, European Journal of Clinical Nutrition, Lipids, Visual Neuroscience, Current topics in Nutraceutical Research, Journal of the American College of Nutrition, Journal of Ocular Pharmacology and Therapeutics, Proc. R. Soc. B, Chinese Medicine

Granting Agencies:

- National Institutes of Health, Bethesda, MD
- Medical Research Counsel, London, UK.
- The Wellcome Trust, London, UK.
- Research Funding and Policy Division, Health Research Board, Dublin, Ireland.
- Minority Biomedical Research, Support Program SCORE and RISE, FIU, Miami, FL.
- GIP Agence Nationale de la Recherche, National Research Agency Public Interest Group, Paris, France, U.S. Civilian Research and Development Foundation (CRDF)

Conferences:
Moderator for a session entitled "Color: Clinical aspects"
2004, Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL.

Moderator for a session entitled " Lutein & Zeaxanthin in Visual Performance : New Opportunities for the Food & Beverage Industry" 2009, Institute Food Technologists Annual Meeting, Anaheim, CA.

Editorial Service:

Guest/associate editor: Investigative Ophthalmology and Visual Science, Medical Physics

Editorial Board: Foods (http://www.mdpi.com/journal/foods/editors)

Departmental service (UGA)

Undergraduate Studies Committee (2001-2009)
Long-range planning Committee (2004- 2008)
Graduate Coordinator (2006- 2017)
Clinical Promotion and Advisory Committee (2006)
Personnel Committee (2005- present)
Faculty Search Committee (Revolving)

College Service (UGA)

Senator, Franklin College Faculty Senate (2001-2002)
Senate Steering Committee (2001-2002)
Senate Promotion and Tenure Review Committee (2001-2002)
Secretary, Franklin College Faculty Senate (2003-2004)
Pro Tem, Franklin College faculty Senate (2004-2005)
Senate Academic Standards Committee (2004-2005)
Social and Behavioral Committee (FGI reviews)(2005- present)

University/Community Service (ASU)

Internal Grant Review Committee, SCRA, and IDSG, 1996- 1999
New Psychology Faculty Search Committee, 1996, Clinical Psychology and Gerontology director Search Committee, 1996
Committee to develop new Master's program in Applied Health Psychology, 1996-
Chair, Academic standards Committee, 1996-1999
Teaching Excellence Committee, 1997-1999
Standing speaker for the Sun City Chapter of the Lions International Society
Standing speaker for the Scottsdale Kiwanis Club
PSI CHI Advisor, 1997-1999
Human Subjects Office Advisory Committee (2006- present)
University Review Committee (2007)
Internal Review Board (IRB1)(2016-Present)

RELEVANT CERTIFICATIONS

Certified training in the Ethical Practice of Scientific Research by the *Division of Medical Ethics, Harvard Medical School,* 1996

REFERENCES

Kenneth Fuld, Ph.D.

Professor of Psychology, Dean of College of Arts and Sciences
University of New Hampshire,
Durham, NH 03824
603-862-3173

D. Max Snodderly, Ph.D.,
Professor, Human Ecology/ Nutritional Sciences and Institute for Neuroscience
1 University Station/ A2700
The University of Texas
Austin, Texas 78712
Office: (512) 232-3307

Billy R. Wooten, Ph.D.
Professor, Psychology
Brown University
Providence, RI 02912
401-863-3973

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Hart, Gerald Warren

eRA COMMONS USER NAME (credential, e.g., agency login): ghart1

POSITION TITLE: Eminent Scholar in Drug Discovery, and Professor of Biochemistry and Molecular Biology

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Washburn University (Topeka, Kansas)	B.S.	05/1971	Biology & Chemistry
Hospital Corp School (San Diego, CA)	----------	12/1972	First Aid & Medicine
Kansas State University (Manhattan, KS)	Ph.D.	06/1977	Developmental Biology
Johns Hopkins Univ. (Baltimore, MD)	Post-doc.	06/1979	Glycoprotein Biochem.

A. Personal Statement - – I have worked on nearly all aspects of Glycobiology since my time as a graduate student in the mid-1970s. I did some of the very earliest studies on cell surface heparan sulfate proteoglycans (e.g., *Developmental Biol. (1975) 44,* 253). I characterized the roles of glycosaminoglycans and hyaluronic acids in the development of corneal transparency, and performed early studies on the importance of proteoglycan sulfotransferases (e.g., *J. Biol. Chem*. (1976) 251, 6513; *J. Biol. Chem.* (1978) 253, 347). As a postdoc., I showed that keratan sulfate I is synthesized by the N-linked biosynthetic pathway, and established that the sequon, Asn-X-Ser(Thr) is the minimal structural requirement for N-glycan oligosaccharyltransferase. As an independent scientist, Hart's laboratory performed some of the earliest studies mapping N-glycan attachment sites and they were among the first to show that N-linked protein glycosylation heterogeneity is site specific and highly regulated by cellular physiology (e.g., *J. Biol. Chem*. (1985) 260, 4046). We also showed that site-specific N-linked glycosylation is tightly controlled also by protein structure at all levels (e.g., *J. Biol. Chem.* (1986) 261:13186-13196). Hart's laboratory purified several of the most important glycosyltransferases and developed methods to use them to probe glycan structures on living cells (e.g., *Meth. Enzymol*. (1989) 179, 82). In collaboration with Paul Englund's group, at Johns Hopkins, they elucidated the biosynthetic pathway for GPI-Anchors (e.g., Cell (1989) 56, 793). In the early 1980's, while probing cells with glycosyltransferases, *Hart's laboratory discovered cytoplasmic and nuclear protein glycosylation by O-linked N-acetylglucosamine (O-GlcNAc) (e.g., J. Biol. Chem. 259:3308; J. Biol. Chem. 261:8049). Since that time, the Hart laboratory has published nearly 200 papers on O-GlcNAcylation, identifying and cloning the enzymes controlling cycling, characterizing O-GlcNAcylation and its interplay with phosphorylation on hundreds of proteins, and they have developed many of the tools and methods in use today to study this modification.* To date, Hart has published about 300 papers all in the area of glycosciences. During my career, I have mentored 38 postdoctoral fellows and 47 pre-doctoral fellows. Most are in faculty appointments or have good jobs in the biotech or pharmaceutical industry. **Google Scholar H-factor = 129; *i10-index=284.***

B. Positions, Scientific Appointments, and Honors

1973 Graduate Research Assist. for Dr. Gary W. Conrad, Dept. of Biol. , Kansas State Univ., Manhattan.
1973-1977 NIH Developmental Biology Trainee, Grad. Stud., Kansas State Univ., Manhattan, KS.
1977-1979: Post-doc. Fell. of Jane Coffin Childs Memorial Fund, in the Dept. of Physiol Chem., Johns Hopkins Univ., Sch. of Med. in the Lab. of Dr. William J. Lennarz.
1979 - Appointed Assistant Professor of Physiol. Chem., The Johns Hopkins Univ., Sch of Med.
1984 - Appointed Associate Professor of Biological Chemistry, The Johns Hopkins Univ., Sch of Med.
1985 - Dir. of Med. Sch Biochem. Course, Johns Hopkins Univ, School of Med, Balt., MD
1988 - Professor of Biological Chemistry, Johns Hopkins Med. Sch.
1993 - Appointed Lee Chair & Chair Dept. of Biochem. & Molec. Genetics at UAB Birmingham; Senior Scientist UAB Cancer CTR, Aging CTR and AIDS CTR

.

1994 Appointed Assoc. Dir. Basic Sci. Res. UAB Comprehensive Cancer CTR.
1997-Oct. 1, 2018 Appointed Director, Biological Chemistry, Johns Hopkins Medical School.
2000-2014 Visiting Professor Imperial College London (~3days/yr)
Oct. 1, 2018-Pres Georgia Research Alliance, William Henry Terry, Sr. Eminent Scholar in Drug Discovery, and Professor of Biochemistry and Molecular Biology at the University of Georgia

Memberships: Chaired Common Fund Study Section on Tools for Glycosciences Member, NIH Common Fund Glycomics Panel, Member, National Academy of Sciences Glycosciences Task Force; Member, NIGMS Glue Grant Assessment Panel; Complex Carbohydrates Res. CTR Advisory Panel, Chair, UGA; Member, NIH College of CSR Reviewers -2010-2012; Chair, Alliance of Glycobiologists for Detection of Cancer (U01) Study Section; HHMI Review Panel (October 2009; April 2010); Numerous NIH panels; Finance Committee ASBMB; Member, NIH COBRE Review panel, NIH Cell Biology IRG Reorganization committee; SAB, Sigma Chemical Co. Biotech. Division; Intl. Glycoconjugate Org. Awards Com.; American Society of Biochem. & Mol. Biol. (ASBMB); ASBMB Awards Committee ~'89-'92; Sigma Xi Research Society, Society for Glycobiology, Amer Soc. for Cell Biology, Society for Developmental Biology; Amer ChemSociety; NIH Pathobiochem. Study Section 10/95 – 2001.
Editorial Boards: Associate Editor J. Biological Chemistry *June 2011 – December 31, 2021;* Assoc. Ed. Molec. & Cell Preoteomics, July '08 – present; board member MCP July 2001-July 08; Editor of Biochem Biophys Res Communications (BBRC) 2015-2018; ASBMB Today; Founding Editor-in-Chief, *Glycobiology 1989-2001.*; J. Biol. Chem.1989-1994; Jul. 1995-2000; Exec. Editor, J. Biochemistry (Tokyo), May 2006 – 2011; Arch. of Biochem.& Biophys.1988 - 1994; Glyco. Correspo.*Trends Biochem. Sci.* (1988-90).

Honors: 2022 Elected Fellow of American Society for Biochemistry and Molecular Biology; 2019 President's Innovator Awd, Soc. Glycobiology, 2018 Yamakawa Award from the Japanese Glycobiology Society (JCCG), Named First Paul & Christine Englund Endowed Professor, Opening Lecture at Brazil National Society for Biochemistry Meeting, Richard Hanson Lecture Case Western Reserve, 2018 Herbert Tabor Award, ASBMB, President ASBMB 2018-2020; NIH Director's Wednesday Afternoon Lecturer (WALS), Dec. 2011, Washington, DC; Opening Lecture, 2011 Society for Glycobiology Meeting, Seattle, WA; Plenary Lecture 2011 IUBMB Cell Signaling Networks, Merida Mexico 2011 Irwin Goldstein Lecturer, Univ. Michigan; Honorary Professor of Shanghai Medical College, Fudan Univ., Shanghai, China; Hall of Fame, Topeka High School; KSU 2008 Alumni Fellow; President, (2010-2011) International Glycoconjugate Organization (IGO); 2007 Edwin G. Krebs Lecturer, UC Davis; 2006 Karl Meyer Award, Society for Glycobiology; Opening Lecturer, Glyco XVIII (2005), Florence, Italy; Plenary Lecturer XXIII Intl. Carbohydrate Symp.; Inaugural B.Conner Johnson-John R. Sokatch Lecturer, Univ. Oklahoma Med. Sch.; Keynote Speaker Am. Heart Assoc. 2005, Keystone, Co.; Plenary Lecturer, 20th IUBMB Intl. Congress, June 2006, Kyoto, Japan; 2003 Adam Nevelle Lecturer, Dundee Scotland; Keynote Speaker Society for Glycobiology Meeting, Boston, November, 2001; Elected USA Rep. Intl. Glycoconjugate Organization; Chair (1999-2000), Pathobiochemistry Study Section, NIH; Merit Award From Natl Inst. Child Health & Human Development, NIH; First International Glycoconjuate Organization Awardee - awarded in Zurich, Sept. '97; Elected to the Council of ASBMB; 1995 President, Society for Glycobiology; Reilly Award Lecturer Univ. Notre Dame, 1996; 1993 Disting. Dow Lecturer Univ. Indiana; Elected Glycobiology Gordon Conf. Chair for 1997; Elected Board Dir. Soc. Complex Carbohydrates 1992-1994;1989 Winzler Lecturer; Banquet Speaker 1988 UCLA Symp. on Glycobiology; Established Investig. of the American Heart Assoc., July 1, 1983 to June 31,1988. Fellow of the Jane Coffin Childs Mem. Fund for Med. Res..; 1975 H.H. Haymaker Award for Excellence in Grad. Stud. Res.;Company Honorman, Hospital Corps Sch., Balboa Naval Hosp., San Diego.

C. Contributions to Science

C. Contributions to Science – ~317 Publications to date

Elucidated the Roles of Protein Structure in Site Specific N-Glycosylation – My early work experimentally established that Asn-X-Ser(Thr) is the minimal sequence requirement for N-linked protein glycosylation. Then in studies of murine histocompatibility antigens we showed that site-specific N-glycosylation is highly regulated and highly dependent upon protein structure at all levels. Different alleles of nearly identical histocompatibility antigens were shown to be site-specifically N-glycosylated in an allelic specific manner. Even very small changes in protein structure alters site-specific glycosylation, including even sialylation in a reproducible manner. We also showed that quaternary structure (in which the same polypeptide associates with two different polypeptides) also regulated site-specific protein N-glycosylation. These findings are important since they show that site-specific glycosylation 'microheterogeneity" is not a random process, but rather is likely a regulated mechanism for fine-tuning glycoprotein functions.

a. **Hart GW**, Brew K, Grant GA, Bradshaw RA, Lennarz WJ (1979) Primary Structural Requirements for the Enzymatic Formation of the N-Glycosidic Bond in Glycoproteins. Studies with Natural and Synthetic Peptides. *J Biol Chem.* **254(19):**9747-9753. [PMID: 489565]

b. Swiedler SJ, Tarentino AL, Plummer TH, Freed JH, **Hart GW** (1985) Oligosaccharide Microheterogeneity of the Murine Major Histocompatibility Antigens. Reproducible, Site-Specific Patterns of Sialylation and Branching in Asparagine-Linked Oligosaccharides. *J Biol Chem.* **260(7):**4046-4054. [PMID: 3980466]

c. Dahms N, **Hart GW** (1986) Influence of Quaternary Structure on Glycosylation. Differential Subunit Association Affects the Site-Specific Glycosylation of the Common ß-Chain from Mac-1 and LFA-1. *J Biol Chem.* **261:**13186-13196.

d. Powell LD, Smith K, **Hart GW** (1987) Site Specific Glycosylation Patterns of H-2K: Effects of Allelic Polymorphism and Mitogenic Stimulation. *J Immunol.* **139(4):**1206-1213. [PMID: 3497198]

Helped to Elucidate the Biosynthetic Pathway for GPI-Anchors – My laboratory had a long-standing and fruitful collaboration with a leading parasitologist, Professor Paul Englund. Together, we elucidated the biosynthetic pathway for GPI-anchors.

a. Bangs JD, Doering TL, Englund PT, **Hart GW** (1988) Biosynthesis of a Variant Surface Glycoprotein of Trypanosoma brucei: Processing of the Glycolipid Membrane Anchor and N-Linked Oligosaccharides. *J Biol Chem.* **263(33):**17697-17705. [PMID: 3182868]

b. Masterson WJ, Doering TL, **Hart GW**, Englund PT (1989) Biosynthesis of the glycan moiety of the glycosylphosphatidylinositol membrane anchor of the trypanosome variant surface glycoprotein. *Cell.* **56:**793-800.

c. Doering TL, Masterson WJ, Englund PT, **Hart GW** (1989) Biosynthesis of the Glycosyl Phosphatidylinositol Membrane Anchor of the Trypanosome Variant Surface Glycoprotein: Origin of the Non-Acetylated Glucosamine. *J Biol Chem.* **264(19):**11168-11173. [PMID: 2525555]

d. Masterson WJ, Raper J, Doering TL, **Hart GW**, Englund PT (1990) Fatty acid remodeling: a novel reaction sequence in the biosynthesis of trypanosome glycosyl phosphatidylinositol membrane anchors. *Cell.* **62(1):**73-80. [PMID: 1694728]

Discovered Cytoplasmic and Nuclear Protein O-GlcNAcylation – In the early 1980s, we used purified glycosyltransferases to study the surface topography of glycans on living cells. During these investigations, using bovine milk galactosyltransferase, we discovered that many proteins within the cytoplasm and nucleus are glycosylated by β-N-acetylglucosamine monosaccharides (O-GlcNAc). At the time, it was widely believed that protein glycosylation did not occur in the nucleus or cytoplasm. Early studies established that the modification is highly enriched on chromatin, occurring at sites of active gene expression, and is highly concentrated on nuclear pore proteins. Later studies established that O-GlcNAc cycles and has the properties of a regulatory modification. Of course, we now know that O-GlcNAcylation is amongst the most abundant form of post-translational modification, and has a complex interplay with phosphorylation.

a. Torres CR, **Hart GW** (1984) Topography and Polypeptide Distribution of Terminal N-Acetylglucosamine Residues on the Surfaces of Intact Lymphocytes. Evidence for O-linked GlcNAc. *J Biol Chem*. **259(5):**3308-17. [PMID: 6421821]

b. Holt GD, **Hart GW** (1986) Subcellular Distribution of Terminal N-Acetylglucosamine Residues on Oligosaccharides. Distribution of the Novel Protein-Saccharide Structure - O-Linked GlcNAc. *J Biol Chem*. **261(17):**8049-8057. [PMID: 3086323]

c. Holt GD, Snow CM, Senior A, Haltiwanger RS, Gerace L, **Hart GW** (1987) Nuclear Pore Complex Glycoproteins Contain Cytoplasmically Disposed O-Linked N-Acetylglucosamine. *J Cell Biol.* **104(5):**1157-1164. [PMC2114481]

d. Kelly WG, **Hart GW** (1989) Glycosylation of Chromosomal Proteins: Localization of O-Linked N-Acetylglucosamine in Drosophila Chromatin. *Cell.* **57(2):**243-251. [PMID: 2495182]

Discovered, Purified, Cloned and Characterized the Enzymes that Control O-GlcNAc Cycling – We developed assays, identified, purified and characterized the enzymes that control O-GlcNAc cycling. Using protein sequencing and PCR methods, we cloned the O-GlcNAc transferase and O-GlcNAcase and characterized their enzymatic properties. Deletion of OGT in mice was shown to be embryonic lethal even in single ES cells and cells in culture. We investigated the roles of UDP-GlcNAc and TPR domains of the protein in the regulation of OGT.

a. Haltiwanger RS, Blomberg MA, **Hart GW** (1992) Glycosylation of Nuclear and Cytoplasmic Proteins.

Purification and Characterization of a Uridine diphospho-N-acetyl-glucosamine:polypeptide ß-N-acetylglucosaminyltransferase. *J Biol Chem*. **267(13):**9005-9013. [PMID: 1533623]

b. Dong DL, **Hart GW** (1994) Purification and Characterization of an O-GlcNAc Selective N-Acetyl-ß-D-glucosaminidase from Rat Spleen Cytosol. *J Biol Chem*. **269(30):**19321-19330. [PMID: 803496]

c. Kreppel LK, Blomberg MA, **Hart GW** (1997) Cloning and Characterization of an O-GlcNAc Transferase: A Unique, Highly-Conserved Protein with Eleven TetraTricopeptide (TPR) Repeats. *J Biol Chem*. **272(14):**9308-9315.

d. Gao Y, Wells L, Comer FI, Parker GJ, **Hart GW** (2001) Dynamic O-Glycosylation of Nuclear and Cytosolic Proteins: Cloning and Characterization of the Neutral, Cytosolic O-ß-N-Acetylglucosaminidase from Human Brain. *J Biol Chem.* **276(13):**9838-9845. [PMID: 11148210]

Established That O-GlcNAcylation is a Nutrient Sensor that has Extensive Crosstalk with Phosphorylation and Regulates Signaling and Transcription - O-GlcNAcylation serves as a major sensor of cellular nutrient status, and has extensive crosstalk with phosphorylation. O-GlcNAc also regulates other abundant post-translational modifications, such as ubiquitination, methylation, and acetylation. This extensive crosstalk regulates transcription, signaling and cellular metabolism in response to nutrient status. O-GlcNAcylation plays a fundamental role in gene transcription at many levels, including regulation of the basal machinery, as well as modifying the interactions and localizations of transcription factors. O-GlcNAc is part of the histone code. Prolonged excess O-GlcNAcylation, as occurs in diabetes, underlies fundamental mechanisms of glucose toxicity. Abnormal O-GlcNAcylation is associated with neurodegenerative disease, and is elevated in most types of cancer. Recent glycomic analyses have found that over one-half of all kinases are both modified and many are regulated by O-GlcNAcylation. For example, O-GlcNAcylation either inhibits or activates, depending upon the kinase, and can alter substrate specificity. Hyper-O-GlcNAcylation of mitochondrial proteins in diabetic tissues contributes directly to production of reactive oxygen species (ROS). Mitochondrial O-GlcNAc transferase (OGT) is strikingly elevated and mis-localized in cardiac mitochondria from diabetic rats. O-GlcNAcylation is very abundant at nerve terminals, where it is highly enriched on myriad synaptic vesicle proteins, and appears to play a direct role in learning and memory. Focused, inducible knock out of OGT in adult brain neurons produces a satiety defect and a morbidly obese mouse within only two weeks.

a. Wang Z, Udeshi N, Slawson C, Compton P, Shabanowitz J, Hunt DF, **Hart GW** (2010) Extensive Crosstalk Between GlcNAcylation and Phosphorylation Regulates Cytokinesis. *Sci Signal.* **3(104):**ra2. [PMC26866299]

b. Sakabe K, **Hart GW** (2011) O-GlcNAc is Part of the Histone Code Proc. Natl. Acad. Sci. (USA) **107(46):**19915-19920. [PMC2993388]

c. Lagerlöf O, Blackshaw S, **Hart GW***, Huganir RL* (2016) The nutrient sensor OGT regulates feeding in αCaMKII-positive neurons of the PVN. *Science*. **351(6279):**1293-1296. [PMC4817221] (*Co-Mentors of Lagerlöf).

d. Hardivillé S, Banerjee PS, Alpergin ESS, Smith, DM, Han G, Ma G, Talbot CC Jr., Hu P, Wolfgang MJ, Hart GW (2019) TATA-Box Binding Protein O-GlcNAcylation at T114 regulates formation of the B-TFIID complex and is critical for metabolic gene regulation. *Mol Cell.* **77(5):**1143-1152. [PMC7061307]

List of Publications in Google Scholar and in MyBibliography - Google Scholar H-factor = 129; *i10-index=284.*

http://scholar.google.com/citations?user=PgQ_b2IAAAAJ&hl=en

http://www.ncbi.nlm.nih.gov/sites/myncbi/gerald.hart.1/bibliography/41145287/public/?sort=date&direction=ascending

D. Additional Information: Research Support and/or Scholastic Performance
GERALD W. HART

Active Support:

5R01GM116891-05 **Role: PI** **08/01/20-07/31/25**
Agency: NIH/NIGMS
Nutrient Regulation of Cell Physiology by O-GlcNAcylation
This application is to determine the roles of O-GlcNAcylation in the nutrient regulation of transcription by studying the roles of O-GlcNAc on RNA polymerase II, and we are developing novel optogenetic methods to target O-GlcNAc transferase to specific substrates.
OVERLAP: None

1K12HL141952-01 **De La Motte (PI)** **7/1/18-6/30/23**
NIH/NHLBI **Role: Co-I**
Immersive Training in Glycosciences
Goals: To build a community of "Glycobiology Literate Researchers", and thus to broaden the application of the glycosciences to diverse fields leading to a more comprehensive understanding of the roles that glycans play in disease. Specifically, didactic, practical, and professional development opportunities will be combined with cross-disciplinary laboratory projects to provide fellows (M.D., M.D./Ph.D., Ph.D.) with advanced training to in the glycosciences. **All of these funds go to support Scholar trainees in this program.**
Overlap: None

R01 DK124366-01
NIDDK **Role: PI** **04/01/20 – 03/31/25**
Regulation of Translation by O-GlcNAc
Goals: To understand how nutrients regulate protein synthesis via O-GlcNAcylation.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Holmes, Philip V.

eRA COMMONS USER NAME (credential, e.g., agency login): pvholmes

POSITION TITLE: Professor of Psychology and Chair, Neuroscience Program, BTSI

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary).*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
The University of Vermont, Burlington, VT	BA	05/1986	Biology/Psychology
Brown University, Providence, RI	Ph.D.	05/1992	Experimental Psychology
National Institute of Mental Health, Bethesda, MD	Postdoctoral Fellow	07/1995	Behavioral Neuropharmacology

A. Personal Statement

As my publication record shows, my scholarly and technical expertise spans several disciplines within the field of behavioral neuropharmacology. The sample of recent publications listed below (out of a total of 64) were selected to demonstrate that I possess the technical expertise, scholarship, and critical insight necessary to supervise and interpret the experiments described in the present proposal. My graduate and postdoctoral training, as well as my independent research program for the past 25 years, have established my credentials in the area of rodent models of stress, anxiety, depression, and cognition. My leadership and management abilities are evident in my roles as a PI or co-PI on four NIH grants and co-investigator on three others. I have directly supervised 14 graduate students and more than 60 undergraduate students in my laboratory during my time at UGA. I am directly involved in all aspects of the work in my laboratory, and I individually train all students in rodent behavioral paradigms, surgery, histology, and biochemical analyses. I believe that my direct involvement in the research enhances my insight into the nature of our findings, particularly as they relate to the interpretation of behavioral data. The citations listed below represent the range of rodent behavioral paradigms conducted in my laboratory that are relevant to the present proposal.

Citations:

1. Weinshenker, D., & Holmes, P. V. (2016). Regulation of neurological and neuropsychiatric phenotypes by locus coeruleus-derived galanin. *Brain Research*, *1641*(Pt B), 320-337.

2. Hooversmith, J.M., Bhatti, D.L., Holmes, P.V. (2019) Galanin Administration into the Prelimbic Cortex Impairs Consolidation and Expression of Contextual Fear Conditioning. Behavioural Brain Research, 375, 112160.

3. Tillage, R. P., Wilson, G. E., Liles, L. C., Holmes, P. V., & Weinshenker, D. (2020). Chronic Environmental or Genetic Elevation of Galanin in Noradrenergic Neurons Confers Stress Resilience in Mice. The Journal of Neuroscience : The Official Journal of the Society for Neuroscience, 40(39), 7464–7474.

Ongoing Research Projects
R01 NS099596 , Karumbaiah (PI) 2017-2022

"Creating endogenous stem cell niches to promote functional brain repair post-TBI", Studies of the optimal environment for transplanted stem cells to optimize behavioral recovery following trauma.
Role: Co-Investigator

R01 AA026362 Schank (PI) 2018-2023
"The Neurokinin-1 Receptor as a Mediator of Alcoholism and Depression Comorbidity", Project examines the role of neurokinin signaling in mediating stress-induced increases in alcohol consumption.
Role: Co-Investigator

Recently Completed Research Projects
R21 DK110511 de La Serre (PI) 2016-2018
Microbiome-Vagal-Brain signaling: impact on the reward system and food intake", Mesolimbic dopamine microdialysis and behavioral studies in a model of obesity produced by manipulations of the gut microbiome.
Role: Co-investigator

Omniactive Health Technologies, Holmes (PI) 2017-2018
"The Macular Carotenoids and Blue Light Exposure: Relationships with Cognition, Sleep, Health, and Quality of Life Across the Lifespan", Studies of lutein supplementation effects on cognition and mood in young and old adults.
Role: PI

B. Positions, Scientific Appointments, and Honors

Positions and Employment:
2011-present: Chair, Neuroscience Division, Biomedical and Translational Sciences Institute, University of Georgia
2009-present: Professor, Behavioral and Brain Sciences Program, Psychology Department, University of Georgia and Augusta University/UGA Medical Partnership
2009-present: Adjunct Professor, Department of Cellular Biology and Anatomy, Augusta University
2008-2011: Graduate Coordinator, Neuroscience Ph.D. Program
2001-2009: Associate Professor, Neuroscience and Behavior Program, Psychology Dept., Univ. of Georgia
2001-2002: Acting Chair, Neuroscience and Behavior Program, Psychology Dept., University of Georgia
1997-2010: Chair *pro tem* UGA Animal Care and Use Committee
1995-2001: Assistant Professor, Neuroscience and Behavior Program, Psychology Dept., Univ. of Georgia
1992-1995: Staff Fellow, Section on Behavioral Neuropharmacology, NIMH
1988-1992: Graduate Teaching Assistant and Research Assistant, Brown University Dept. of Psychology
1986-1988: Research Assistant, Brown University Dept. of Medicine

Honors:
2019: Augusta University/University of Georgia Medical Partnership Exemplary Teaching Award
2012: Richard L. Marsh Mentoring Award, Psychology Dept., UGA
2010: Psi Chi National Honor Society Graduate Teaching Award, Psychology Dept., UGA
2007: Psi Chi National Honor Society Undergraduate Teaching Award, Psychology Dept., UGA

C. Contribution to Science
For many years my laboratory has been a leader in researching the anxiolytic and antidepressant effects of exercise, and we were the first to report that exercise exerts antidepressant-like effects in a rodent model of chronic depression. More recently, my laboratory has reported that exercise specifically reduces anxiety-like behaviors through the promotion of stress resilience, which involves synaptic plasticity in the prefrontal cortex. From the outset, we have focused on the role that long-term adaptations in the noradrenergic locus coeruleus system may play in the beneficial effects of exercise. We are particularly interested in galanin, a peptide neuromodulator and trophic factor. My laboratory was the first to report that exercise increases galanin gene expression in the locus coeruleus. These findings provided the basis for our recent report in The Journal of Neuroscience (2020) with my long-time collaborator, Dr. David Weinshenker of Emory University Department of Human Genetic. This paper builds upon previous work in my laboratory showing that galanin is necessary and sufficient for the exercise-mediated protection against uncontrollable stress.

1. Sciolino, N.R., Dishman, R.K., Holmes, P.V. (2012) Voluntary exercise offers anxiolytic potential and amplifies galanin gene expression in the locus coeruleus of the rat. Behavioural Brain Research, 233, 191-200.

2. Sciolino, N.R. and Holmes, P.V. (2012) Exercise offers anxiolytic potential: A role for stress and brain noradrenergic-galaninergic mechanisms. Neuroscience and Biobehavioral Reviews, 36, 1965-1984.

3. Sciolino, N. R., Smith, J. M., Stranahan, A. M., Freeman, K. G., Edwards, G. L., Weinshenker, D., and Holmes, P. V. (2015) Galanin mediates features of neural and behavioral stress resilience afforded by exercise. Neuropharmacology, 89, 255-264.

4. Tillage, R. P., Wilson, G. E., Liles, L. C., Holmes, P. V., & Weinshenker, D. (2020). Chronic Environmental or Genetic Elevation of Galanin in Noradrenergic Neurons Confers Stress Resilience in Mice. The Journal of Neuroscience : The Official Journal of the Society for Neuroscience, 40(39), 7464–7474.

The second publication listed in Section A above reflects another direction for my research that focuses on the role of noradrenergic systems in cognitive functions in rodents. It reports the first experiments on the effects of contraceptive hormone treatments on declarative memory processes in rats. The findings are also the first to show a prominent role of locus coeruleus noradrenergic mechanisms in the cognitive decline associated with suppressed endogenous estrogen induced by low doses of contraceptive hormones.

Published Work in PubMed-Indexed Journals:
http://www.ncbi.nlm.nih.gov/sites/myncbi/philip.holmes.1/bibliography/50253716/public/?sort=date&direction=ascending.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Hooks (Pence), Shelley B.

eRA COMMONS USER NAME (credential, e.g., agency login): SHPENCE

POSITION TITLE: Associate Professor of Pharmaceutical and Biomedical Sciences

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Clemson University	B.S.	06/96	Biochemistry
University of Virginia	Ph.D.	12/00	Biochemistry
University of North Carolina, Chapel Hill	Postdoctoral	09/04	Pharmacology

A. Personal Statement

The proposed research seeks to define the biochemistry, cell biology, and pharmacology of RGS10 interaction with calcium machinery to regulate inflammatory signaling. My research expertise is in the molecular and cellular regulation of cell signaling pathways and how these regulatory mechanisms impact basic cellular functions. As an independent investigator at the University of Georgia since 2004, my lab has explored the regulation of G-protein signaling pathways by RGS proteins in cancer, neural development, and inflammation. We have established novel roles for RGS10 in ovarian cancer chemoresistance and microglial neuroinflammation, and have shown for the first time that RGS10 regulates COX-2 expression through G protein independent mechanisms in both systems. We have identified a novel interaction between RGS10 and the calcium sensor STIM2, and have extensive (unpublished) data characterizing their biochemical and signaling interactions in microglia. Co-investigator Grimsey is an exceptionally promising junior faculty member in my department with expertise in live cell imaging of dynamic cell signaling, and Co-Investigators Urbauer and Moreno are close colleagues at UGA and are experts in protein structure and calcium signaling, respectively. Together, we represent a diverse, cohesive team with all of the essential expertise, molecular tools, and equipment to complete the proposed studies. During the past year of bridge funding, we have established a strong foundation for communication, collaboration, and collective innovation, and have provided an exceptional interdisciplinary training environment for postdocs and graduate students in our labs. In addition to scientific expertise, I have strong leadership and management skills needed to coordinate this diverse research team. Thus, we have all of the expertise and tools required to complete the proposed studies, including a well-established collaborative relationship.

1. Yan, X., Maixner, D., Yadav, R., Gao, M., Ali, M., **Hooks, S.B**., Weng, H.-R. (2019) Interleukin-1beta released by microglia initiates the enhanced glutamatergic activity in the spinal dorsal horn during paclitaxel-associated acute pain syndrome. *Glia*. 67(3) 482-497. DOI: https://doi.org/10.1002/glia.23557

2. Alqinyah, M., Almutairi, F., Wendimu, M.Y., **Hooks, S.B.** (2018) RGS 10 Regulates the Expression of Cyclooxygenase-2 and Tumor Necrosis Factor Alpha through a G Protein-Independent Mechanism. *Molecular Pharmacology*, 94 (4) 1103-1113. DOI: https://doi.org/10.1124/mol.118.111674

3. Alqinyah, M., Maganti, N., Ali, M.W., Yadav, R., Gao, M., Weng, H-R., Greer, S.F., **Hooks, S.B**. (2017) Regulator of G-protein Signaling 10 (*Rgs10*) expression is transcriptionally silenced in activated microglia by histone deacetylase activity. *Molecular Pharmacology*, 91(3) 197-207. DOI: https://doi.org/10.1124/mol.116.106963.

4. **Hooks, S.B**. Waldo, G.L., Corbitt, J., Bodor, E.T., Krumins, A.M., and Harden, T.K. (2003). RGS6, RGS7, RGS9 and RGS11 Stimulate GTPase activity of Gi family G-proteins with differential selectivity and maximal activity. *Journal of Biological Chemistry*. 278:10087-10093. http://www.jbc.org/content/278/12/10087.full.pdf+html

B. Positions and Honors

ACADEMIC APPOINTMENTS:

2004-2010	Assistant Professor, University of Georgia College of Pharmacy, Department of Pharmaceutical and Biomedical Sciences
2010-2019	Associate Professor with Tenure, University of Georgia College of Pharmacy, Department of Pharmaceutical and Biomedical Sciences
2010-2017	Graduate Coordinator, Department of Pharmaceutical and Biomedical Sciences
2015-2016	Associate Director, University of Georgia Center for Drug Discovery
2016-2018	Interim Director, University of Georgia Center for Drug Discovery
2018-present	Associate Vice President for Research
2019-present	Professor, University of Georgia College of Pharmacy, Department of Pharmaceutical and Biomedical Sciences

RESEARCH TRAINING:

1997-2000 Dissertation Research. University of Virginia, Department of Pharmacology.
Advisor: Dr. Kevin R. Lynch, Professor
Research focus: Biochemistry and Cell Biology of Lysophospholipid signaling mediators, receptors, and degradative enzymes in cancer cells.

2001-2004 Postdoctoral Research. University of North Carolina, Department of Pharmacology.
Advisor: Dr. T. Kendall Harden, Kenan Professor
Research focus: Mechanistic biochemical investigation of multifunctional Regulator of G-protein Signaling (RGS) proteins and their role in receptor-mediated signaling.

AWARDS and AFFILIATIONS:

- UGA Searle Scholar nominee (2005)
- Alfred P. Sloan Research Fellowship nominee (2005)
- Winner, oral communication award at the Western Pharmacology Society conference (1999)
- Awarded Clemson Scholars program scholarship (1992-1996)
- American Association for the Advancement of Science (**AAAS**)
- American Association of Colleges of Pharmacy (**AACP**)
- American Society of Pharmacology and Experimental Therapeutics (**ASPET**) (since 1999)
  - 2009-2012 Executive committee, Molecular Pharmacology Division
  - 2009-2010 Secretary/Treasurer, Molecular Pharmacology Division
  - 2019-present Executive committee, Molecular Pharmacology Division
- Editorial Board Member, Molecular Pharmacology (2016-2019)

C. Contributions to Science

1.. Novel cell signaling pathways in microglia. We have established novel mechanisms for regulating neural differentiation and neuroinflammation in the central nervous system. The lysophospholipids Sphingosine 1-phosphate (S1P) and Lysophosphatidic Acid (LPA) are critical endogenous mediators of multiple cell growth and differentiation responses. They activate a family of at least 10 GPCRs, with broad and overlapping function. Our studies have focused on the effects of LPA and S1P on human neuroepithelial progenitor cells and the cell signaling pathways that account for their effects. We have defined distinct receptor expression profiles, G-protein coupling, and neuronal differentiation effects for S1P and LPA, and identified specific receptors that mediate these effects. Further, we have reported unique cell signaling interactions between these GPCRs and receptor tyrosine kinase pathways. More recently, we have focused on the

mechanisms of G protein regulators on signaling in microglia, and how these mechanisms impact disease. We have found that the small Regulator of G protein Signaling protein RGS10 strongly suppresses TLR4-stimulated COX-2 and TNFα expression, but does so via a novel G protein-independent mechanism. We have further described a novel microglial inflammatory cytokine signaling pathway linking paclitaxel to chronic pain.

a. Hurst, J.H·, Machacek, D., Stice, S.L. and **Hooks, S.B.** (2008) Human neural progenitors express functional lysophospholipid receptors that regulate cell growth and morphology. *BMC Neuroscience,* 11(9): 118. PMCID: PMC2621239. http://www.biomedcentral.com/1471-2202/9/118.

b. Calihan, C.P., Ali, M., Salazar, H., Quach, N., Wu, X., Stice, S.L., **Hooks, S.B**. (2014) Convergent regulation of neuronal differentiation and Erk and Akt kinases in human neural progenitor cells by Lysophosphatidic Acid, Sphingosine 1-phosphate, and LIF: specific roles for the LPA1 receptor. *ASN Neuro,* 6(6): 1759091414558416 https://doi.org/10.1177/1759091414558416

c. Alqinyah, M., Almutairi, F., Wendimu, M.Y., **Hooks, S.B.** (2018) RGS 10 Regulates the Expression of Cyclooxygenase-2 and Tumor Necrosis Factor Alpha through a G Protein-Independent Mechanism. Molecular Pharmacology, 94 (4) 1103-1113. DOI: https://doi.org/10.1124/mol.118.111674

d. Yan, X., Maixner, D., Yadav, R., Gao, M., Ali, M., **Hooks, S.B**., Weng, H.-R. (2019) Interleukin-1beta released by microglia initiates the enhanced glutamatergic activity in the spinal dorsal horn during paclitaxel-associated acute pain syndrome. Glia. 67(3) 482-497. DOI: https://doi.org/10.1002/glia.23557

e. Wendimu, M.Y., **Hooks, S.B**.* (2022) Microglia Phenotypes in Aging and Neurodegenerative Diseases. *Cells* 11 (13): 2091.

f. Maixner, D. W.; Christy, D.; Kong, L.; Viatchenko-Karpinski, V.; Horner, K. A.; **Hooks, S. B.;** Weng, H.-R. (2022) Phytohormone abscisic acid ameliorates neuropathic pain via regulating LANCL2 protein abundance and glial activation at the spinal cord. *Molecular Pain* 18: 17448069221107781

2. Molecular mechanisms of GPCRs, G-proteins, and RGS proteins. As one of the largest classes of drug targets, GPCRs have been widely studied for decades. However, the molecular mechanisms by which these receptors activate G-proteins and how the G-proteins are subsequently deactivated were unknown until fairly recently. In the late 90s, a novel class of G-protein regulators, the Regulators of G-protein Signaling (RGS) proteins, were identified as critical deactivating negative regulators of G-protein signaling, which directly controlled the strength and duration of GPCR-mediated signaling. However, the specificity of RGS proteins for distinct G-proteins subtypes was unknown, and their impact on receptor-G-protein coupling was undefined. My work in this area focused on the R7 family of multi-domain RGS proteins and used a combination of biochemical approaches using purified, reconstituted proteins and well as cell-based signaling assays. We developed techniques for purifying these RGS proteins as Gβ dimers, defined the Gi/o selectivity of their activity, and described structural features of R7-Gβ dimers with broad implications. Further, I characterized the functional activity of a novel Gα protein mutant that was developed as a molecular tool in probing endogenous G-protein signaling. I began studying GPCR signaling as a graduate student in the 1990s, prior to completion of the genome and before the molecular identify of many functional receptors was known. At this time, it was known that the lysophospholipid lysophosphatidic acid (LPA) and the purinergic nucleotides were important signaling molecules that functioned by activating G-protein coupled receptors (GPCRs), but the molecular subtypes, their G-protein coupling, and their ligand specificity were incompletely defined. My work on these projects included defining and developing the chemical biology of receptor selective compounds, reconstituting purified receptors and G-protein in proteoliposomes to quantitatively define G-protein coupling and ligand specificity, cloning novel regulators of ligand metabolism, and using these molecular pharmacology tools to define receptor subtype-specific roles in cell signaling.

a. **Hooks, S.B**., Ragan, S.P., Hopper, D.W., Honneman, C.W., Durieux, M.E., Macdonald, T.L., and Lynch, K.R. (1998). Characterization of a receptor subtype-selective lysophosphatidic acid mimetic. Molecular Pharmacology. 53: 188-194. https://doi.org/10.1124/mol.53.2.188

b. **Hooks, S.B***. Waldo, G.L., Corbitt, J., Bodor, E.T., Krumins, A.M., and Harden, T.K. (2003). RGS6, RGS7, RGS9 and RGS11 Stimulate GTPase activity of Gi family G-proteins with differential selectivity and maximal activity. *Journal of Biological Chemistry*. 278:10087-10093. http://www.jbc.org/content/278/12/10087.full.pdf+html

c. **Hooks, S.B**., Santos, W.L., Im, D.S., Macdonald, T.L., and Lynch, K.R. (2000). Lysophosphatidic Acid induced mitogenesis is regulated by Lipid Phosphate Phosphatases and is Edg-receptor independent. *Journal of Biological Chemistry*. 276:4611-4621. http://www.jbc.org/content/276/7/4611.full.pdf+html

d. Wu, Y.-L., **Hooks, S.B**., Harden, T.K., Dohlman, H. (2004). Dominant-negative inhibition of pheromone receptor signaling by a single point mutation in the G protein α subunit. *Journal of Biological Chemistry*. 279: 35287-97. https://doi.org/10.1074/jbc.M404896200

e. Wendimu, M., Alqinyah, M., Vella, S., Dean, P., Almutairi, F., Rivera, R.D., **Hooks, S.B**.*. (2021) RGS10 physically and functionally interacts with STIM2 and requires store-operated calcium entry to regulate proinflammatory gene expression in microglia. Cellular Signaling 83: 109974.

3. Epigenetic regulation of RGS10 expression in cancer, neural progenitors, and microglia. RGS proteins are primarily regulated by mechanisms that control their localization and expression level, and the primary mechanism by which RGS expression has been shown to be regulated is post-translational protein turnover. While investigating the functional role of RGS proteins in ovarian cancer survival signaling and its contribution to chemoresistance, we observed that RGS transcripts were suppressed in chemoresistant ovarian cancer cells. However, we have shown that this does not reflect protein turnover, but rather a novel epigenetic transcriptional mechanism that requires cooperative DNA methylation and histone deacetylation. Using DNA bisulfite sequencing, chromatic immunoprecipitation, and multiple genetic and pharmacological manipulations in cell lines, we have established direct DNA methylation and HDAC enzyme recruitment at the proximal RGS10 promoter as ovarian cancer cells become chemoresistant. Further, we have recently demonstrated that expression of multiple RGS proteins is epigenetically regulated during the differentiation of human neural progenitors to neurons. Finally, we have established that RGS10 is rapidly and reversibly silenced in BV-2 cells and primary microglia via HDAC activity. Because RGS proteins critically regulate multiple GPCR signaling pathways, and because these epigenetic mechanisms for gene suppression are reversible and "druggable", the ability to epigenetically control RGS expression has significant therapeutic potential.

a. Ali, M.W., Cacan, E., Liu, Y., Pierce, J.Y., Creasman, W.T., Murph, M.M., Govindarajan, R., Eblen, S.T., Greer, S.F., **Hooks, S.B.** (2013) Transcriptional suppression, DNA methylation, and histone deacetylation of the Regulator of G-protein Signaling 10 (RGS10) gene in ovarian cancer cells. *PLoS ONE*. 8(3): e60185. http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0060185.

b. Cacan, E., Ali, M.A., Boyd, N.H., **Hooks, S.B**., Greer, S.F. (2014) Inhibition of HDAC1 and DNMT1 modulate RGS10 expression and decrease ovarian cancer chemoresistance. *PLOS One*, 9 (1): e87455. PMID: 24475290. https://doi.org/10.1371/journal.pone.0087455

c. Tuggle, K., Ali, M.W., Salazar, H., **Hooks, S.B**. (2014) Regulator of G-protein Signaling (RGS) transcript expression in human neural progenitor differentiation: R7 subfamily regulation by DNA methylation. NeuroSignals, 22(43-51) https://doi.org/10.1159/000362128

d. Alqinyah, M., Maganti, N., Ali, M.W., Yadav, R., Gao, M., Weng, H-R., Greer, S.F., **Hooks, S.B**. (2017) Regulator of G-protein Signaling 10 (*Rgs10*) expression is transcriptionally silenced in activated microglia by histone deacetylase activity. *Molecular Pharmacology*, 91(3) 197-207. https://doi.org/10.1124/mol.116.106963

4. RGS protein function in ovarian cancer. GPCR mediated cell growth and survival signaling pathways have been established as critical oncogenic drivers of cancer progression, even though their role in cancer has generally been less appreciated than kinase coupled receptors such as EGF-family receptors. Because of this under-appreciation of GPCR signaling in cancer, the mechanisms that regulate or suppress GPCR oncogenic

pathways in cancer have not been defined. Over the past several years, our lab has explored the role of Regulator of G-protein Signaling (RGS) proteins in suppressing oncogenic signaling through LPA receptors in ovarian cancer. Our results have established that endogenous RGS proteins suppress growth and survival signaling in ovarian cancer and directly regulate the strength of Map kinase and ERK signaling in these cells. Further, we showed that RGS proteins are suppressed in the development of cancer chemoresistance as a novel mechanism for amplifying GPCR signaling. (This observation led directly to our studies focused on epigenetic regulation of RGS gene expression, described below.) Finally, we identify RGS10 as a specific regulator of chemotherapeutic drug sensitivity, and demonstrate direct alteration of cell survival and chemoresistance by manipulation of RGS10 expression.

a. Hurst, J.H., Henkel, P.A., Brown, A.L., **Hooks, S.B**. (2007) Endogenous RGS Proteins Attenuate G alpha(i)-mediated Lysophosphatidic Acid Signaling Pathways in Ovarian Cancer Cells, *Cellular Signaling,* 20(2), 381-9. http://dx.doi.org/10.1016/j.cellsig.2007.10.026

b. Hurst, J.H., and **Hooks, S.B.** (2009) Regulator of G-protein Signaling (RGS) proteins in Cancer Biology. *Biochemical Pharmacology*, 78 (10): 1289-97. http://dx.doi.org/10.1016/j.bcp.2009.06.028

c. Hurst, J.H. and **Hooks, S.B**. (2009) Lysophosphatidic Acid stimulates cell growth by different mechanisms in SKOV-3 and Caov-3 ovarian cancer cells: Distinct roles for Gi and Rho. *Pharmacology,* 83:333-347. https://doi.org/10.1159/000217582

d. **Hooks, S.B.*,** Callihan, C.P., Altman, M., Ali, M., Hurst, J.H., Murph, M.M. (2010) Regulators of G-protein Signaling RGS10 and RGS17 regulate chemoresistance in ovarian cancer cells. Molecular Cancer, 9:289. http://www.biomedcentral.com/content/pdf/1476-4598-9-289.pdf

*Corresponding Author

Complete publication listing: http://www.ncbi.nlm.nih.gov/pubmed/?term=hooks+sb

D. Research Support

Ongoing Research Support

NIH(NINDS) R56 Hooks (PI) 2019-2022

"RGS10 Regulation of Inflammatory Signaling"
Role: PI
The goal of this bridge funding was to generate the RGS10/STIM2 mouse model and explore RGS10 and STIM2 physical and functional interactions.

NIH (NIA) R21 Sjogren and Hooks (co-PIs) 2019-2022

"Assay Development and Screening for small Molecule RGS10 regulators to Target Neuroinflammation"
Role: co-PI
The goal of this project is to develop a cell-based reporter assay and screen for small molecules that stabilize RGS10 expression in microglia.

NIH (NINDS) R01 Weng (PI) 2018-2023

"Targeting GPR109A for the treatment of pain in systemic lupus erythematosus"
Role: Co-Investigator
The goal of this project is to define the molecular mechanism by which microglial GPR109A regulates chronic pain and glutamatergic activity in the spinal dorsal horn in a mouse model of Lupus.

Curriculum Vita
Jesse Michael Hostetter

Jesse.Hostetter@uga.edu
Rm. 1058 College of Veterinary Medicine
501D.W. Brooks Dr.
Athens, GA 30602

1. Educational Background

DVM	Iowa State University	1991
PhD	Iowa State University	2000

2. Specialty Certifications

Diplomate American College of Veterinary Pathologists - Anatomic Pathology (by examination) 2001

3. Honors and Awards

Barry G. Harmon Professor of Pathology, College of Veterinary Medicine, University of Georgia 2019 - present

Charles Dobbins Award for Service, College of Veterinary Medicine, University of Georgia 2021

4. Professional Experience

University of Georgia

Professor and Head: Department of Pathology, College of Veterinary Medicine, University of Georgia 2019 - present
Responsible for all personnel and teaching, service, and research activities associated with the Department of Pathology. Department houses thirty faculty members, over 30 admin and technical staff, and 19 residents and graduate students.

Executive Director: Georgia Veterinary Diagnostic Laboratories 2019 - present
College of Veterinary Medicine, University of Georgia
Responsible for two diagnostic labs in the university system. The first in Athens and the second in Tifton Georgia. Both diagnostic laboratories are AAVLD accredited and part of the National Animal Health Laboratory Network as Tier 1 (Athens) and one Tier 2 (Tifton).

Project coordinator for COVID-19 testing at the University of Georgia 2019 - 2022
Responsible for establishing and coordinating laboratory diagnostic testing with sample collection for the university's surveillance testing program. Reported to the Provost and Medical Oversight Task force

Member, Council on Education, American Veterinary Medical Association, representing post graduate education 2022 - present

Iowa State University

Professor**:** Department of Veterinary Pathology, College of Veterinary Medicine,

Iowa State University 2016 - 2019

Director Comparative Pathology Core Services, Iowa State University 2012 –2019
Comparative Pathology Core provides pathology support to researchers within and outside of the university.

Director of Graduate Education, Veterinary Pathology, Iowa State University 2012 - 2019

Chair Immunobiology Graduate Program**,** Iowa State University 2011 - 2014

Associate Professor (with tenure), Department of Veterinary Pathology,
College of Veterinary Medicine, Iowa State University 2009 - 2016

Assistant Professor, Department of Veterinary Pathology,
College of Veterinary Medicine Iowa State University 2001 – 2009

Adjunct Appointments:
Adjunct Professor, Department of Veterinary Pathology
College of Veterinary Medicine, Iowa State University 2019 - present

Adjunct Professor: Department of Epidemiology, College of Public Health,
University of Iowa 2017 - 2019

Adjunct Associate Professor: Department of Diagnostic Medicine/Pathobiology
College of Veterinary Medicine, Kansas State University 2013 - 2019

Adjunct Associate Professor: Department of Epidemiology,
College of Public Health, University of Iowa 2010 - 2017

Adjunct Assistant Professor: Department of Epidemiology,
College of Public Health, University of Iowa 2007 – 2010

Other Professional Experience:
Section Editor – Pathology, Journal of Veterinary Diagnostic Investigation 2015 - 2022

Consulting anatomic pathologist for gastrointestinal biopsies. 2011 - present
Gastrointestinal Laboratory, Texas A&M University

Small animal general practice in Chicago, IL and Des Moines, IA 1991-1996

5. Publications and Creative Works

Book Chapters

Uzal F, Plattner B, **Hostetter J.** Jubb, Kennedy, and Palmer's Pathology of Domestic Animals. 6th Edition. Volume 2, p1-296, Alimentary System, Elsevier, Grant Maxie Editor. 2015

Stabel J, Bannantine J, **Hostetter J**. Tuberculosis, Leprosy and other Mycobacterial Diseases of Man and Animals, Chapter - *Mycobacterium avium subsp. paratuberculosis* Infection,

Immunology and Pathology of Livestock. Mukundan, Waters, Larsen Editor. CABI Publishing. 2015

Publications

1. Hostetter, J. M., & Uzal, F. A. (2022). Gastrointestinal biopsy in the horse: overview of collection, interpretation, and applications. *JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION*, *34*(3), 376-388. doi:10.1177/10406387221085584
2.
3. Overstreet, A. -M. C., Ramer-Tait, A. E., Suchodolski, J. S., Hostetter, J. M., Wang, C., Jergens, A. E., . . . Wannemuehler, M. J. (2021). Temporal Dynamics of Chronic Inflammation on the Cecal Microbiota in IL-10(-/-) Mice. *FRONTIERS IN IMMUNOLOGY*, *11*, 13 pages. doi:10.3389/fimmu.2020.585431
4. Musser, M. L., Viall, A. K., Phillips, R. L., Hostetter, J. M., & Johannes, C. M. (2021). Analysis of gene expression of prostaglandin EP4 receptor in canine osteosarcoma. *CANADIAN JOURNAL OF VETERINARY RESEARCH-REVUE CANADIENNE DE RECHERCHE VETERINAIRE*, *85*(1), 68-71. Retrieved from http://gateway.webofknowledge.com/
5. Brand, M. W., Sahin, O., Hostetter, J. M., Trachsel, J., Zhang, Q., & Wannemuehler, M. J. (2020). Campylobacter jejuni persistently colonizes gnotobiotic altered Schaedler flora C3H/HeN mice and induces mild colitis. *FEMS MICROBIOLOGY LETTERS*, *367*(20), 6 pages. doi:10.1093/femsle/fnaa163
6. Saminathan, H., Charli, A., Luo, J., Panicker, N., Gordon, R., Hostetter, J. M., . . . Kanthasamy, A. (2020). Fyn kinase mediates pro-inflammatory response in a mouse model of endotoxemia: Relevance to translational research. *EUROPEAN JOURNAL OF PHARMACOLOGY*, *881*, 11 pages. doi:10.1016/j.ejphar.2020.173259
7. Caston, S. S., Sponseller, B. A., Dembek, K. A., & Hostetter, J. M. (2020). Evaluation of Locally Injected Mycobacterium Cell Wall Fraction in Horses with Sarcoids. *JOURNAL OF EQUINE VETERINARY SCIENCE*, *90*, 6 pages. doi:10.1016/j.jevs.2020.103102
8. Stabel, J. R., Bannantine, J. P., & Hostetter, J. M. (2020). Comparison of Sheep, Goats, and Calves as Infection Models for Mycobacterium avium subsp. paratuberculosis. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *225*, 11 pages. doi:10.1016/j.vetimm.2020.110060
9. Musser, M. L., Viall, A. K., Phillips, R. L., Hostetter, J. M., & Johannes, C. M. (2020). Gene expression of prostaglandin EP4 receptor in three canine carcinomas. *BMC VETERINARY RESEARCH*, *16*(1), 10 pages. doi:10.1186/s12917-020-02431-2
10. Chen, Y. -M., Helm, E. T., Gabler, N., Hostetter, J. M., & Burrough, E. R. (2020). Alterations in Intestinal Innate Mucosal Immunity of Weaned Pigs During Porcine Epidemic Diarrhea Virus Infection. *VETERINARY PATHOLOGY*, *57*(5), 642-652. doi:10.1177/0300985820932140
11. Uzal, F. A., Navarro, M. A., & Hostetter, J. M. (2020). Focus issue on clostridial disease. *JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION*, *32*(2), 173-174. doi:10.1177/1040638720908420
12. Parate, K., Rangnekar, S. V., Jing, D., Mendivelso-Perez, D. L., Ding, S., Secor, E. B., . . . Claussen, J. C. (2020). Aerosol-Jet-Printed Graphene Immunosensor for Label-Free Cytokine Monitoring in Serum. *ACS APPLIED MATERIALS & INTERFACES*, *12*(7), 8592-8603. doi:10.1021/acsami.9b22183
13. Stabel, J., Krueger, L., Jenvey, C., Wherry, T., Hostetter, J., & Beitz, D. (2019). Influence of Colostrum and Vitamins A, D-3, and E on Early Intestinal Colonization of Neonatal Holstein Calves Infected with Mycobacterium avium subsp. paratuberculosis. *VETERINARY SCIENCES*, *6*(4), 18 pages. doi:10.3390/vetsci6040093

14. Putz, E. J., Putz, A. M., Boettcher, A., Charley, S., Sauer, M., Palmer, M., . . . Tuggle, C. K. (2019). Successful development of methodology for detection of hapten-specific contact hypersensitivity (CHS) memory in swine. *PLOS ONE*, *14*(10), 15 pages. doi:10.1371/journal.pone.0223483

15. Jenvey, C. J., Hostetter, J. M., Shircliff, A. L., Bannantine, J. P., & Stabel, J. R. (2019). Quantification of Macrophages and Mycobacterium avium Subsp. paratuberculosis in Bovine Intestinal Tissue During Different Stages of Johne's Disease. *VETERINARY PATHOLOGY*, *56*(5), 671-680. doi:10.1177/0300985819844823

16. Suarez-Fuentes, D. G., Tatarniuk, D. M., Caston, S. S., Bell, C. D., Loinaz, R. J., & Hostetter, J. M. (2019). Adaptation and evaluation of a monopolar electrosurgical triangle-tip knife for transendoscopic ventriculocordectomy in healthy horses. *VETERINARY SURGERY*, *48*(4), 481-487. doi:10.1111/vsu.13154

17. Kittana, H., Gomes-Neto, J. C., Heck, K., Sughroue, J., Munoz, R. S., Cody, L. A., . . . Ramer-Tait, A. (2019). ESTABLISHING THE SPECIFIC CONTRIBUTION OF ADHERENT AND INVASIVE ESCHERICHIA COLI TO THE ONSET OF INFLAMMATORY BOWEL DISEASE. In *INFLAMMATORY BOWEL DISEASES* Vol. 25 (pp. S70). Las Vegas, NV: OXFORD UNIV PRESS INC. doi:10.1093/ibd/izy393.174

18. Kittana, H., Gomes-Neto, J. C., Heck, K., Sughroue, J., Munoz, R. S., Cody, L. A., . . . Ramer-Tait, A. (2019). ESTABLISHING THE SPECIFIC CONTRIBUTION OF ADHERENT AND INVASIVE ESCHERICHIA COLI TO THE ONSET OF INFLAMMATORY BOWEL DISEASE. In *GASTROENTEROLOGY* Vol. 156 (pp. S102). Las Vegas, NV: W B SAUNDERS CO-ELSEVIER INC. doi:10.1053/j.gastro.2019.01.237

19. Kittana, H., Gomes-Neto, J. C., Heck, K., Geis, A. L., Munoz, R. R. S., Cody, L. A., . . . Ramer-Tait, A. E. (2018). Commensal Escherichia coli Strains Can Promote Intestinal Inflammation via Differential Interleukin-6 Production. *FRONTIERS IN IMMUNOLOGY*, *9*, 13 pages. doi:10.3389/fimmu.2018.02318

20. Jenvey, C. J., Hostetter, J. M., Shircliff, A. L., & Stabel, J. R. (2018). Relationship between the pathology of bovine intestinal tissue and current diagnostic tests for Johne's disease. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *202*, 93-101. doi:10.1016/j.vetimm.2018.06.012

21. Albarrak, S. M., Waters, W. R., Stabel, J. R., & Hostetter, J. M. (2018). Evaluating the cytokine profile of the WC1(+) gamma delta T cell subset in the ileum of cattle with the subclinical and clinical forms of MAP infection. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *201*, 26-31. doi:10.1016/j.vetimm.2018.05.003

22. Kingsbury, D. D., Mochel, J. P., Atherly, T., Chandra, L. C., Phillips, R. L., Hostetter, J., . . . Allenspach, K. (2018). COMPARISON OF ENDOSCOPICALLY (EGD/COLO) PROCURED ENTEROIDS AND COLONOIDS FROM NORMAL DOGS AND DOGS WITH NATURALLY OCCURRING CHRONIC ENTEROPATHIES (IBD). In *GASTROENTEROLOGY* Vol. 154 (pp. S686-S687). Washington, DC: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

23. Schaut, R. G., Brewer, M. T., Hostetter, J. M., Mendoza, K., Vela-Ramirez, J. E., Kelly, S. M., . . . Jones, D. E. (2018). A single dose polyanhydride-based vaccine platform promotes and maintains anti-GnRH antibody titers. *VACCINE*, *36*(7), 1016-1023. doi:10.1016/j.vaccine.2017.12.050

24. Kittana, H., Quintero-Villegas, M. I., Bindels, L. B., Gomes-Neto, J. C., Schmaltz, R. J., Munoz, R. R. S., . . . Ramer-Tait, A. E. (2018). Galactooligosaccharide supplementation provides protection against Citrobacter rodentium-induced colitis without limiting pathogen burden. *MICROBIOLOGY-SGM*, *164*(2), 154-162. doi:10.1099/mic.0.000593

25. Gomes-Neto, J. C., Kittana, H., Mantz, S., Munoz, R. R. S., Schmaltz, R. J., Bindels, L. B., . . . Ramer-Tait, A. E. (2017). A gut pathobiont synergizes with the microbiota to instigate inflammatory disease marked by immunoreactivity against other symbionts but not itself. *SCIENTIFIC REPORTS*, *7*, 14 pages. doi:10.1038/s41598-017-18014-5

26. Albarrak, S. M., Waters, W. R., Stabel, J. R., & Hostetter, J. M. (2017). WC1(+) gamma delta T cells from cattle naturally infected with Mycobacterium avium subsp. paratuberculosis respond differentially to stimulation with PPD-J. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *190*, 57-64. doi:10.1016/j.vetimm.2017.07.007

27. Powell, E. J., Graham, J., Ellinwood, N. M., Hostetter, J., Yaeger, M., Ho, C. -S., . . . Tuggle, C. K. (2017). T Cell Lymphoma and Leukemia in Severe Combined Immunodeficiency Pigs following Bone Marrow Transplantation: A Case Report. *FRONTIERS IN IMMUNOLOGY*, *8*, 7 pages. doi:10.3389/fimmu.2017.00813

28. Brand, M. W., Hostetter, J., Jergens, A., & Wannemuehler, M. J. (2017). NEONATAL COLONIZATION WITH LF82 INCREASES SEVERITY OF ADULT DSS-INDUCED COLITIS. In *GASTROENTEROLOGY* Vol. 152 (pp. S997). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. doi:10.1016/S0016-5085(17)33380-2

29. Ding, S., Mosher, C., Lee, X. Y., Das, S. R., Cargill, A. A., Tang, X., . . . Claussen, J. C. (2017). Rapid and Label-Free Detection of Interferon Gamma via an Electrochemical Aptasensor Comprising a Ternary Surface Monolayer on a Gold Interdigitated Electrode Array. *ACS SENSORS*, *2*(2), 210-217. doi:10.1021/acssensors.6b00581

30. Wymore, M. B., Proctor, A., Phillips, G., Jergens, A., Hostetter, J., & Wannemuehler, M. (2017). Age-related Influence of Colonization by an AIEC Pathobiont on the Severity of DSS-induced Colitis. In *INFLAMMATORY BOWEL DISEASES* Vol. 23 (pp. S80). Orlando, FL: LIPPINCOTT WILLIAMS & WILKINS. Retrieved from http://gateway.webofknowledge.com/

31. Atherly, T., Mosher, C., Wang, C., Hostetter, J., Proctor, A., Brand, M. W., . . . Jergens, A. E. (2016). Helicobacter bilis Infection Alters Mucosal Bacteria and Modulates Colitis Development in Defined Microbiota Mice. *INFLAMMATORY BOWEL DISEASES*, *22*(11), 2571-2581. doi:10.1097/MIB.0000000000000944

32. Metcalf, G. L., McClure, S. R., Hostetter, J. M., Martinez, R. F., & Wang, C. (2016). Evaluation of adipose-derived stromal vascular fraction from the lateral tailhead, inguinal region, and mesentery of horses. *CANADIAN JOURNAL OF VETERINARY RESEARCH-REVUE CANADIENNE DE RECHERCHE VETERINAIRE*, *80*(4), 294-301. Retrieved from http://gateway.webofknowledge.com/

33. Caston, S. S., Cooper, E. E., Chandramani-Shivalingappa, P., Sponseller, B. A., Hostetter, J. M., & Sun, Y. (2016). CD47 expression in cryopreserved equine cutaneous masses and normal skin. *JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION*, *28*(4), 408-413. doi:10.1177/1040638716643352

34. Brand, M. W., Proctor, A., Phillips, G., Hostetter, J., Jergens, A., & Wannemuehler, M. J. (2016). Age-Related Influence of Colonization by an AIEC Pathobiont on the Severity of DSS-Induced Colitis. In *GASTROENTEROLOGY* Vol. 150 (pp. S576). San Diego, CA: W B SAUNDERS CO-ELSEVIER INC. doi:10.1016/S0016-5085(16)31971-0

35. Atherly, T., Moser, C., Hostetter, J., Wang, C., Proctor, A., Phillips, G., . . . Jergens, A. (2016). Helicobacter Bilis Infection Alters Mucosal Bacteria in Defined Microbiota Mice. In *INFLAMMATORY BOWEL DISEASES* Vol. 22 (pp. S52). Orlando, FL: LIPPINCOTT WILLIAMS & WILKINS. doi:10.1097/01.MIB.0000480243.16265.e0

36. Henderson, A. L., Brand, M. W., Darling, R. J., Maas, K. J., Detzel, C. J., Hostetter, J., . . . Weaver, E. M. (2015). Attenuation of Colitis by Serum-Derived Bovine Immunoglobulin/Protein Isolate in a Defined Microbiota Mouse Model. *DIGESTIVE DISEASES AND SCIENCES*, *60*(11), 3293-3303. doi:10.1007/s10620-015-3726-5

37. Brand, M. W., Proctor, A., Phillips, G., Jergens, A., Hostetter, J. M., & Wannemuehler, M. J. (2015). Increased Severity of DSS-Induced Colitis Following Vertical Transmission of AIEC Pathobiont Associated With Altered Mucosal Homeostasis and Bacterial Community Dynamics. In *GASTROENTEROLOGY* Vol. 148 (pp. S709). Washington, DC: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

38. Brenza, T. M., Petersen, L. K., Zhang, Y., Huntimer, L. M., Ramer-Tait, A. E., Hostetter, J. M., . . . Narasimhan, B. (2015). Pulmonary Biodistribution and Cellular Uptake of Intranasally Administered Monodisperse Particles. *PHARMACEUTICAL RESEARCH*, *32*(4), 1368-1382. doi:10.1007/s11095-014-1540-y

39. Vela-Ramirez, J. E., Goodman, J. T., Boggiatto, P. M., Roychoudhury, R., Pohl, N. L. B., Hostetter, J. M., . . . Narasimhan, B. (2015). Safety and Biocompatibility of Carbohydrate-Functionalized Polyanhydride Nanoparticles. *AAPS JOURNAL*, *17*(1), 256-267. doi:10.1208/s12248-014-9699-z

40. Solin, S. L., Wang, Y., Mauldin, J., Schultz, L. E., Lincow, D. E., Brodskiy, P. A., . . . McGrail, M. (2014). Molecular and Cellular Characterization of a Zebrafish Optic Pathway Tumor Line Implicates Glia-Derived Progenitors in Tumorigenesis. *PLOS ONE*, *9*(12), 31 pages. doi:10.1371/journal.pone.0114888

41. Tracey, A. K., Alcott, C. J., Schleining, J. A., Safayi, S., Zaback, P. C., Hostetter, J. M., & Reinertson, E. L. (2014). The effects of topical oxygen therapy on equine distal limb dermal wound healing. *CANADIAN VETERINARY JOURNAL-REVUE VETERINAIRE CANADIENNE*, *55*(12), 1146-1152. Retrieved from http://gateway.webofknowledge.com/

42. Jergens, A. E., Evans, R. B., Ackermann, M., Hostetter, J., Willard, M., Mansell, J., . . . Day, M. J. (2014). Design of a Simplified Histopathologic Model for Gastrointestinal Inflammation in Dogs. *VETERINARY PATHOLOGY*, *51*(5), 946-950. doi:10.1177/0300985813511123

43. Maas, K. J., Brand, M. W., Henderson, A., Detzel, C. J., Horgan, A., Hostetter, J. M., . . . Weaver, E. (2014). Serum-Derived Bovine Immunoglobulin/Protein Isolate Attenuated DSS-Induced Colitis in a Defined Floral Model. In *GASTROENTEROLOGY* Vol. 146 (pp. S641). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

44. Brand, M. W., Jergens, A., Proctor, A., Phillips, G., Hostetter, J. M., & Wannemuehler, M. J. (2014). Vertical Transmission of AIEC Pathobiont Increases Severity of DSS-Induced Colitis in Offspring. In *GASTROENTEROLOGY* Vol. 146 (pp. S288). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

45. Jergens, A., Young, J., Moore, D., Wang, C., Hostetter, J., Augustine, L., . . . Mosher, C. (2014). Bcl-2/Caspase 3 mucosal imbalance favors T cell resistance to apoptosis in dogs with inflammatory bowel disease. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *158*(3-4), 167-174. doi:10.1016/j.vetimm.2014.01.004

46. Johnson, C., Wannemuehler, M., & Hostetter, J. (2014). Mycobacterium avium paratuberculosis infection augments innate immune responses following intestinal epithelial injury. *EXPERIMENTAL BIOLOGY AND MEDICINE*, *239*(4), 436-441. doi:10.1177/1535370213518280

47. Plattner, B. L., Huffman, E., Jones, D. E., & Hostetter, J. M. (2014). T lymphocyte responses during early enteric Mycobacterium avium subspecies paratuberculosis infection in cattle. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *157*(1-2), 12-19. doi:10.1016/j.vetimm.2013.11.001

48. Plattner, B. L., Huffman, E. L., & Hostetter, J. M. (2013). Gamma-Delta T-Cell Responses During Subcutaneous Mycobacterium avium Subspecies paratuberculosis Challenge in Sensitized or Naive Calves Using Matrix Biopolymers. *VETERINARY PATHOLOGY*, *50*(4), 630-637. doi:10.1177/0300985812463404

49. Dzikamunhenga, R. S., Wilberts, B., Yaeger, M., Burrough, E., Hostetter, J., Bender, H., . . . Griffith, R. W. (2013). Safety Evaluation of Lasalocid Use in Chinese Ring-Necked Pheasants (Phasianus colchicus). *AVIAN DISEASES*, *57*(2), 188-191. doi:10.1637/10320-080612-Reg.1

50. Huntimer, L., Ramer-Tait, A. E., Petersen, L. K., Ross, K. A., Walz, K. A., Wang, C., . . . Wannemuehler, M. J. (2013). Evaluation of Biocompatibility and Administration Site Reactogenicity of Polyanhydride-Particle-Based Platform for Vaccine Delivery. *ADVANCED HEALTHCARE MATERIALS*, *2*(2), 369-378. doi:10.1002/adhm.201200181

51. Ramer-Tait, A., Overstreet, A. -M., Hostetter, J., Jergens, A., & Wannemuehler, M. (2012). Colonization With Distinct Proteobacteria Provocateurs Induces Multifactorial Gastrointestinal Inflammation That Is Regulated by CD4+T Cells. In *INFLAMMATORY BOWEL DISEASES* Vol. 18 (pp. S92). Hollywood, FL: WILEY-BLACKWELL. doi:10.1097/00054725-201212001-00227

52. Ramer-Tait, A. E., Overstreet, A. -M. C., Hostetter, J. M., Jergens, A., & Wannemuehler, M. J. (2012). CD4(+) T Cells Regulate the Multifactorial Gastrointestinal Inflammation Induced Following Colonization With Bacterial Provocateurs. In *GASTROENTEROLOGY* Vol. 142 (pp. S678). San Diego, CA: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

53. Burrough, E., Deitz, K., Kinyon, J., Andreasen, C., Frana, T., Sutton, D., . . . Hostetter, J. (2012). Disseminated aspergillosis in a dog due to Aspergillus alabamensis.. *Med Mycol Case Rep*, *1*(1), 1-4. doi:10.1016/j.mmcr.2012.02.002

54. Haarberg, K., Hauck, C., Murphy, P., Liu, J., Dixon, P., Hostetter, J., . . . Wannemuehler, M. (2011). Prunella vulgaris prophylaxis attenuates spontaneous colitis in mdr1a deficient mice. In *INFLAMMATORY BOWEL DISEASES* Vol. 17 (pp. S85). WILEY-BLACKWELL. doi:10.1097/00054725-201112002-00283

55. Ramer-Tait, A., Overstreet, A. -M., Atherly, T., Hostetter, J., Ziemer, C., Jergens, A., & Wannemuehler, M. (2011). Enhanced susceptibility to an inflammatory insult following Escherichia coli colonization is associated with changes in the density and spatial distribution of the microbiota. In *INFLAMMATORY BOWEL DISEASES* Vol. 17 (pp. S80). WILEY-BLACKWELL. doi:10.1097/00054725-201112002-00262

56. Madron, M. S., Caston, S. S., Reinertson, E. L., Tracey, A. K., & Hostetter, J. M. (2011). Diagnosis and treatment of a primary splenic lymphoma in a mule. *EQUINE VETERINARY EDUCATION*, *23*(12), 606-611. doi:10.1111/j.2042-3292.2011.00250.x

57. Ye, Z., Hong, C. -O., Lee, K., Hostetter, J., Wannemuehler, M., & Hendrich, S. (2011). Plasma Caffeic Acid Is Associated with Statistical Clustering of the Anticolitic Efficacy of Caffeic Acid in Dextran Sulfate Sodium-Treated Mice. *JOURNAL OF NUTRITION*, *141*(11), 1989-1995. doi:10.3945/jn.111.142208

58. Liu, Z., Ramer-Tait, A. E., Henderson, A. L., Demirkale, C. Y., Nettleton, D., Wang, C., . . . Wannemuehler, M. J. (2011). Helicobacter bilis Colonization Enhances Susceptibility to Typhlocolitis Following an Inflammatory Trigger. *DIGESTIVE DISEASES AND SCIENCES*, *56*(10), 2838-2848. doi:10.1007/s10620-011-1701-3

59. Osanya, A., Song, E. -H., Metz, K., Shimak, R. M., Boggiatto, P. M., Huffman, E., . . . Petersen, C. A. (2011). Pathogen-Derived Oligosaccharides Improve Innate Immune Response to Intracellular Parasite Infection. *AMERICAN JOURNAL OF PATHOLOGY*, *179*(3), 1329-1337. doi:10.1016/j.ajpath.2011.05.053

60. Sponseller, B. T., Plattner, B. L., & Hostetter, J. M. (2011). Pathology in Practice. *JAVMA-JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION*, *238*(10), 1265-1267. doi:10.2460/javma.238.10.1265

61. Plattner, B. L., Chiang, Y. -W., Roth, J. A., Platt, R., Huffman, E., Zylstra, J., & Hostetter, J. M. (2011). Direct Inoculation of Mycobacterium avium Subspecies Paratuberculosis Into Ileocecal

Peyer's Patches Results in Colonization of the Intestine in a Calf Model. *VETERINARY PATHOLOGY*, *48*(3), 584-592. doi:10.1177/0300985810383874

62. Heerkens, T. M. -J., Smith, J. D., Fox, L., & Hostetter, J. M. (2011). Peritoneal fibrosarcomatous mesothelioma in a cat. *JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION*, *23*(3), 593-597. doi:10.1177/1040638711403405
63. Overstreet, A. -M. C., Ramer-Tait, A. E., Atherly, T. A., Dowd, S. E., Phillips, G. J., Hostetter, J. M., . . . Jergens, A. (2011). Dysbiosis Characterized by Reduced Abundance of Roseburia is Associated With Increased Severity of Colitis in IL-10(-/-) Mice. In *GASTROENTEROLOGY* Vol. 140 (pp. S696). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/
64. Ramer-Tait, A. E., Overstreet, A. -M. C., Atherly, T. A., Hostetter, J. M., Ziemer, C. J., Jergens, A., & Wannemuehler, M. J. (2011). Enhanced Susceptibility to an Inflammatory Insult Following Escherichia coli Colonization is Associated With Changes in the Density and Spatial Distribution of the Microbiota. In *GASTROENTEROLOGY* Vol. 140 (pp. S329). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/
65. McGrail, M., Hatler, J. M., Kuang, X., Liao, H. -K., Nannapaneni, K., Watt, K. E. N., . . . Essner, J. J. (2011). Somatic Mutagenesis with a Sleeping Beauty Transposon System Leads to Solid Tumor Formation in Zebrafish. *PLOS ONE*, *6*(4), 14 pages. doi:10.1371/journal.pone.0018826
66. Boggiatto, P. M., Gibson-Corley, K. N., Metz, K., Gallup, J. M., Hostetter, J. M., Mullin, K., & Petersen, C. A. (2011). Transplacental Transmission of Leishmania infantum as a Means for Continued Disease Incidence in North America. *PLOS NEGLECTED TROPICAL DISEASES*, *5*(4), 6 pages. doi:10.1371/journal.pntd.0001019
67. Sponseller, B. A., Sponseller, B. T., Alcott, C. J., Kline, K., Hostetter, J., Reinertson, E. L., & Fales-Williams, A. (2011). Syringohydromyelia in horses: 3 cases. *CANADIAN VETERINARY JOURNAL-REVUE VETERINAIRE CANADIENNE*, *52*(2), 147-152. Retrieved from http://gateway.webofknowledge.com/
68. Ramer-Tait, A., Henderson, A., Hostetter, J., Jergens, A., & Wannemuehler, M. (2011). Selective colonization with Helicobacter bilis or Escherichia coli induces differential host immune responses following an inflammatory trigger. In *INFLAMMATORY BOWEL DISEASES* Vol. 17 (pp. S1). Hollywood, FL: JOHN WILEY & SONS INC. doi:10.1002/ibd.21581
69. Johnson, C. S., Wannemuehler, M. J., & Hostetter, J. M. (2011). Persistent enteric mycobacterial infection enhances sensitivity to acute mucosal injury. *EXPERIMENTAL BIOLOGY AND MEDICINE*, *236*(1), 36-43. doi:10.1258/ebm.2010.010152
70. Ramer-Tait, A. E., Henderson, A., Hostetter, J., Jergens, A., & Wannemuehler, M. J. (2010). Selective Colonization With Helicobacter bilis or Escherichia coli Induces Differential Host Immune Responses Following a Colitic Insult. In *GASTROENTEROLOGY* Vol. 138 (pp. S579). W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/
71. Haarberg, K. M., Hauck, C., Murphy, P. A., Liu, J., Dixon, P., Hostetter, J., & Wannemuehler, M. J. (2010). Prunella Vulgaris and Hypericum Gentianoides Oral Extracts Attenuate Spontaneous Typhlocolitis in Mdr1a Deficient (-/-) Mice. In *GASTROENTEROLOGY* Vol. 138 (pp. S703). W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/
72. Overstreet, A. -M. C., Ramer-Tait, A. E., Atherly, T. A., Phillips, G. J., Hostetter, J., Ziemer, C. J., . . . Jergens, A. (2010). Changes in Composition of the Intestinal Microbiota Precede Onset of Colitis in Genetically-Susceptible (IL-10-/-) Mice. In *GASTROENTEROLOGY* Vol. 138 (pp. S748-S749). W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

73. Osman, M. A., Stabel, J. R., Hostetter, J. M., Nettleton, D. S., & Beitz, D. C. (2010). Prevention of Mycobacterium avium subsp paratuberculosis (MAP) infection in BALB/c mice by feeding probiotic Lactobacillus acidophilus NP-51 (R). In *FASEB JOURNAL* Vol. 24 (pp. 1 page). FEDERATION AMER SOC EXP BIOL. Retrieved from http://gateway.webofknowledge.com/

74. Plattner, B. L., Huffman, E., & Hostetter, J. M. (2010). Evaluation of the initial host immune response to Mycobacterium avium subspecies paratuberculosis infection in exposed and naive calves using matrix bipolymers. In *FASEB JOURNAL* Vol. 24 (pp. 1 page). FEDERATION AMER SOC EXP BIOL. Retrieved from http://gateway.webofknowledge.com/

75. Johnson, C. S., May, E. R., Myers, R. K., & Hostetter, J. M. (2010). Extracutaneous neutrophilic inflammation in a dog with lesions resembling Sweet's Syndrome (vol 20, pg 200, 2009). *VETERINARY DERMATOLOGY*, *21*(2), 232. doi:10.1111/j.1365-3164.2010.00888.x

76. Boggiatto, P. M., Ramer-Tait, A. E., Metz, K., Kramer, E. E., Gibson-Corley, K., Mullin, K., . . . Petersen, C. A. (2010). Immunologic Indicators of Clinical Progression during Canine Leishmania infantum Infection. *CLINICAL AND VACCINE IMMUNOLOGY*, *17*(2), 267-273. doi:10.1128/CVI.00456-09

77. Liu, Z., Wilson-Welder, J. H., Hostetter, J. M., Jergens, A. E., & Wannemuehler, M. J. (2010). Prophylactic treatment with Hypoxis hemerocallidea corm (African potato) methanolic extract ameliorates Brachyspira hyodysenteriae-induced murine typhlocolitis. *EXPERIMENTAL BIOLOGY AND MEDICINE*, *235*(2), 222-229. doi:10.1258/ebm.2009.009269

78. Osman, M. A., Stabel, J. R., Hostetter, J. M., Nettleton, D. S., & Beitz, D. C. (2010). Prevention of Mycobacterium avium ssp paratuberculosis (MAP) infection in Balb/c mice by feeding probiotic Lactobacillus acidophilus NP-51. In *JOURNAL OF DAIRY SCIENCE* Vol. 93 (pp. 550). ELSEVIER SCIENCE INC. Retrieved from http://gateway.webofknowledge.com/

79. Plattner, B. L., Doyle, R. T., & Hostetter, J. M. (2009). Gamma-delta T cell subsets are differentially associated with granuloma development and organization in a bovine model of mycobacterial disease. *INTERNATIONAL JOURNAL OF EXPERIMENTAL PATHOLOGY*, *90*(6), 587-597. doi:10.1111/j.1365-2613.2009.00679.x

80. Ramer-Tait, A., Overstreet, A., Sung, C., Henderson, A., Hostetter, J., Jergens, A., & Wannemuehler, M. (2009). Impact of Escherichia coli colonization on susceptibility to colitic insults It takes two to tango. In *INFLAMMATORY BOWEL DISEASES* Vol. 15 (pp. S55-S56). Hollywood, FL: JOHN WILEY & SONS INC. doi:10.1097/00054725-200912002-00174

81. Plattner, B. L., & Hostetter, J. M. (2009). Cutaneous viral papilloma with local extension and subungual cyst formation in a dog. *JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION*, *21*(4), 551-554. doi:10.1177/104063870902100423

82. Johnson, C. S., May, E. R., Myers, R. K., & Hostetter, J. M. (2009). Extracutaneous neutrophilic inflammation in a dog with lesions resembling Sweet's Syndrome. *VETERINARY DERMATOLOGY*, *20*(3), 200-205. doi:10.1111/j.1365-3164.2009.00746.x

83. Ye, Z., Liu, Z., Henderson, A., Lee, K., Hostetter, J., Wannemuehler, M., & Hendrich, S. (2009). Increased CYP4B1 mRNA Is Associated with the Inhibition of Dextran Sulfate Sodium-Induced Colitis by Caffeic Acid in Mice. *EXPERIMENTAL BIOLOGY AND MEDICINE*, *234*(6), 605-616. doi:10.3181/0901-RM-1

84. Stabel, J. R., Palmer, M. V., Harris, B., Plattner, B., Hostetter, J., & Robbe-Austerman, S. (2009). Pathogenesis of Mycobacterium avium subsp paratuberculosis in neonatal calves after oral or intraperitoneal experimental infection. *VETERINARY MICROBIOLOGY*, *136*(3-4), 306-313. doi:10.1016/j.vetmic.2008.11.025

85. Henderson, A., Ramer-Tait, A., Dorn, A., Hostetter, J., Jergens, A., & Wannemuehler, M. J. (2009). Degree of Inflammatory Insult Modulates Enhanced Susceptibility to DSS-Induced Typhlocolitis in Escherichia coli-Colonized Defined Flora Mice. In *GASTROENTEROLOGY* Vol.

136 (pp. A707). Chicago, IL: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

86. Liu, Z., Henderson, A. L., Nettleton, D., Wilson-Welder, J. H., Hostetter, J. M., Ramer-Tait, A., . . . Wannemuehler, M. J. (2009). Mucosal gene expression profiles following the colonization of immunocompetent defined-flora C3H mice with Helicobacter bilis: a prelude to typhlocolitis. *MICROBES AND INFECTION*, *11*(3), 374-383. doi:10.1016/j.micinf.2008.12.013

87. Henderson, A., Ramer-Tait, A., Dorn, A., Hostetter, J., Jergens, A., & Wannemuehler, M. (2008). Helicobacter bilis colonization enhances susceptibility to DSS-induced colitis. In *INFLAMMATORY BOWEL DISEASES* Vol. 14 (pp. S8). Hollywood, FL: JOHN WILEY & SONS INC. Retrieved from http://gateway.webofknowledge.com/

88. Gibson-Corley, K. N., Hostetter, J. M., Hostetter, S. J., Mullin, K., Ramer-Tait, A. E., Boggiatto, P. M., & Petersen, C. A. (2008). Disseminated Leishmania infantum infection in two sibling foxhounds due to possible vertical transmission. *CANADIAN VETERINARY JOURNAL-REVUE VETERINAIRE CANADIENNE*, *49*(10), 1005-1008. Retrieved from http://gateway.webofknowledge.com/

89. Lei, L., Plattner, B. L., & Hostetter, J. M. (2008). Live Mycobacterium avium subsp paratuberculosis and a killed-bacterium vaccine induce distinct subcutaneous granulomas, with unique cellular and cytokine profiles. *CLINICAL AND VACCINE IMMUNOLOGY*, *15*(5), 783-793. doi:10.1128/CVI.00480-07

90. Sponseller, B. A., Clark, S. K., Hostetter, J. M., & Jones, D. (2008). Cloning of equine CD40 ligand: An important molecule in the regulation of cellular & humoral immune responses. In *JOURNAL OF VETERINARY INTERNAL MEDICINE* Vol. 22 (pp. 817-818). BLACKWELL PUBLISHING. Retrieved from http://gateway.webofknowledge.com/

91. Zhong, Y., Hong, C. -O., Lee, K., Hostetter, J., Wannemuehler, M., & Hendrich, S. (2008). Variability in caffeic acid protection from dextran sulfate sodium-induced colitis in mice. In *FASEB JOURNAL* Vol. 22 (pp. 1 page). FEDERATION AMER SOC EXP BIOL. Retrieved from http://gateway.webofknowledge.com/

92. Johnson, C. S., & Hostetter, J. M. (2008). Exacerbation of DSS induced intestinal inflammation following inoculation of BALB/c mice with Mycobacterium avium subsp paratuberculosis. In *FASEB JOURNAL* Vol. 22 (pp. 1 page). FEDERATION AMER SOC EXP BIOL. Retrieved from http://gateway.webofknowledge.com/

93. Lei, L., & Hostetter, J. M. (2007). Limited phenotypic and functional maturation of bovine monocyte-derived dendritic cells following Mycobacterium avium subspecies paratuberculosis infection in vitro. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *120*(3-4), 177-186. doi:10.1016/j.vetimm.2007.06.031

94. Jergens, A. E., Wilson-Welder, J. H., Dorn, A., Henderson, A., Liu, Z., Evans, R. B., . . . Wannemuehler, M. J. (2007). Helicobacter bilis triggers persistent immune reactivity to antigens derived from the commensal bacteria in gnotobiotic C3H/HeN mice. *GUT*, *56*(7), 934-940. doi:10.1136/gut.2006.099242

95. Henderson, A. L., Jergens, A., Liu, Z., Hostetter, J., Dorn, A., & Wannemuehler, M. (2007). Nature of Bacterial Provocation Determines Susceptibility To Colitis. In *JOURNAL OF IMMUNOLOGY* Vol. 178 (pp. 1 page). AMER ASSOC IMMUNOLOGISTS. Retrieved from http://gateway.webofknowledge.com/

96. Simutis, F. J., Jones, D. E., & Hostetter, J. M. (2007). Failure of antigen-stimulated gamma delta T cells and CD4+ T cells from sensitized cattle to upregulate nitric oxide and mycobactericidal activity of autologous Mycobacterium avium subsp paratuberculosis-infected macrophages. *VETERINARY IMMUNOLOGY AND IMMUNOPATHOLOGY*, *116*(1-2), 1-12. doi:10.1016/j.vetimm.2006.12.005

97. Grubor, B., Meyerholz, D. K., Lazic, T., DeMacedo, M. M., Derscheid, R. J., Hostetter, J. M., . . . Ackermann, M. R. (2006). Regulation of surfactant protein and defensin mRNA expression in cultured ovine type II pneumocytes by all-trans retinoic acid and VEGF. *INTERNATIONAL JOURNAL OF EXPERIMENTAL PATHOLOGY*, *87*(5), 393-403. doi:10.1111/j.1365-2613.2006.00494.x

98. Hostetter, J., Zhang, W., & Simutis, F. (2006). Mycobacterium avium subspecies paratuberculosis infection of cattle does not diminish peripheral blood-derived macrophage mycobactericidal activity. *IMMUNOLOGY LETTERS*, *107*(1), 76-79. doi:10.1016/j.imlet.2006.06.004

99. Jergens, A. E., Dorn, A., Wilson, J., Dingbaum, K., Henderson, A., Liu, Z., . . . Wannemuehler, M. J. (2006). Induction of differential immune reactivity to members of the flora of gnotobiotic mice following colonization with Helicobacter bilis or Brachyspira hyodysenteriae. *MICROBES AND INFECTION*, *8*(6), 1602-1610. doi:10.1016/j.micinf.2006.01.019

100. Wilson-Welder, J. H., Jergens, A. E., Johnson, C., Sullivan, J., Drey, M., Dorn, A., . . . Wannemuehler, M. J. (2006). Assessment of immunological ignorance or tolerance to antigens-derived from the enteric flora prior to and after infection with Helicobacter bilis. In *GASTROENTEROLOGY* Vol. 130 (pp. A371). Los Angeles, CA: W B SAUNDERS CO-ELSEVIER INC. Retrieved from http://gateway.webofknowledge.com/

101. Hostetter, J., Kagan, R., & Steadham, E. (2005). Opsonization effects on Mycobacterium avium subsp paratuberculosis-macrophage interactions. *CLINICAL AND DIAGNOSTIC LABORATORY IMMUNOLOGY*, *12*(6), 793-796. doi:10.1128/CDLI.12.6.793-796.2005

102. Hostetter, J., Huffman, E., Byl, K., & Steadham, E. (2005). Inducible nitric oxide synthase immunoreactivity in the granulomatous intestinal lesions of naturally occurring bovine Johne's disease. *VETERINARY PATHOLOGY*, *42*(3), 241-249. doi:10.1354/vp.42-3-241

103. Kraus, G. A., Nguyen, T., Bae, J., Hostetter, J., & Steadham, E. (2004). Synthesis and antitubercular activity of tricyclic analogs of puupehenone. *TETRAHEDRON*, *60*(19), 4223-4225. doi:10.1016/j.tet.2004.03.043

104. Jergens, A. E., Wannemuehler, M., Dorn, A., Wilson, J., Lozano, A., Liu, Z. P., & Hostetter, J. (2004). Gnotobiotic mice colonized with Helicobacter bilis demonstrate antigen-specific immune responses to resident enteric flora. In *GASTROENTEROLOGY* Vol. 126 (pp. A292). New Orleans, LA: W B SAUNDERS CO. Retrieved from http://gateway.webofknowledge.com/

105. Vanloubbeeck, Y., Hostetter, J., & Jones, D. E. (2003). The biology of dendritic cells and their potential use in veterinary medicine.. *Anim Health Res Rev*, *4*(2), 131-142. doi:10.1079/ahr200354

106. Hostetter, J., Steadham, E., Haynes, J., Bailey, T., & Cheville, N. (2003). Phagosomal maturation and intracellular survival of Mycobacterium avium subspecies paratuberculosis in J774 cells. *COMPARATIVE IMMUNOLOGY MICROBIOLOGY AND INFECTIOUS DISEASES*, *26*(4), 269-283. doi:10.1016/S0147-9571(02)00070-X

107. Cheville, N. F., Hostetter, J., Thomsen, B. V., Simutis, F., Vanloubbeeck, Y., & Steadham, E. (2001). Intracellular trafficking of Mycobacterium avium ss. paratuberculosis in macrophages. *DEUTSCHE TIERARZTLICHE WOCHENSCHRIFT*, *108*(6), 236-+. Retrieved from http://gateway.webofknowledge.com/

Published abstracts/presentations (selected)

Kittana, H., Gomes-Neto, J. C., Heck, K., Sughroue, J., Munoz, R. S., Cody, L. A., . . . Ramer-Tait, A. (2019). Establishing the specific contribution of adherent and invasive escherichia coli to the onset of inflammatory bowel disease. in inflammatory bowel diseases Vol. 25 (pp. S70). Las Vegas, NV

Kittana, H., Gomes-Neto, J. C., Heck, K., Sughroue, J., Munoz, R. S., Cody, L. A., . . . Ramer-Tait, A. (2019). Establishing the specific contribution of adherent and invasive escherichia coli to the onset of inflammatory bowel disease. In gastroenterology Vol. 156 (pp. S102). Las Vegas, NV.

Kingsbury, D. D., Mochel, J. P., Atherly, T., Chandra, L. C., Phillips, R. L., Hostetter, J., . . . Allenspach, K. (2018). Comparison of endoscopically (egd/colo) procured enteroids and colonoids from normal dogs and dogs with naturally occurring chronic enteropathies (IBD). In gastroenterology Vol. 154 (pp. S686-S687). Washington, DC:

Brand, M. W., **Hostetter**, J., Jergens, A., & Wannemuehler, M. J. (2017). Neonatal colonization with lf82 increases severity of adult dss-induced colitis. In gastroenterology Vol. 152 (pp. S997). Chicago, IL

Wymore, M. B., Proctor, A., Phillips, G., Jergens, A., **Hostetter**, J., & Wannemuehler, M. (2017). Age-related Influence of Colonization by an AIEC Pathobiont on the Severity of DSS-induced Colitis. In inflammatory bowel diseases Vol. 23 (pp. S80). Orlando, FL

Brand, M. W., Proctor, A., Phillips, G., **Hostetter**, J., Jergens, A., & Wannemuehler, M. J. (2016). Age-Related Influence of Colonization by an AIEC Pathobiont on the Severity of DSS-Induced Colitis. In Gastroenterology Vol. 150 (pp. S576). San Diego, CA

Atherly, T., Moser, C., **Hostetter**, J., Wang, C., Proctor, A., Phillips, G., . . . Jergens, A. (2016). Helicobacter Bilis Infection Alters Mucosal Bacteria in Defined Microbiota Mice. In inflammatory bowel diseases Vol. 22 (pp. S52). Orlando, FL:

Lindquist, T. **Hostetter, J.** Hostetter, S. Development of a novel diagnostic implant for detection of specific immune responses in mycobacterium avium paratuberculosis (MAP) infected cattle, MAP vaccinated cattle, and naïve cattle. American College of Veterinary Pathology Annual Meeting Dec. 2016. New Orleans, LA

S Albarrak, Waters W, Stabel J, and **J. Hostetter**
Gamma-delta T cells responses in in cattle naturally infected with *Mycobacterium avium paratuberculosis*. American College of Veterinary Pathology Annual Meeting, October 2015, Minneapolis MN.

K. Soltysiak, H. Simmons, V. York, **J. Hostetter**, D. Mosier.*iTeach: Building an Inter-University Veterinary Pathology Community of Learning. Institute for Infectious Animal Diseases, Texas A&M, College Station, TX. North American Colleges and Teachers of Agriculture (NACTA) Conference. 2015. Orlando FL

J. Gomes Neto, H. Kittana, L. Bindels, R. Segura Munoz, **J. Hostetter** and A. Ramer-Tait
Role of the resident microbiota in pathobiont-mediated susceptibility to intestinal inflammation
American Society for Microbiology Annual Meeting, New Orleans, LA. May 2015.

M. Wymore-Brand, Al. Proctor, G. Phillips, Al. Jergens, **J. Hostetter**, and M. Wannemuehler.
Increased severity of DSS-induced colitis following vertical transmission of AIEC pathobiont

associated with altered mucosal homeostasis and bacterial community dynamics. Digestive Disease Week. May 2015. Washington DC.

Conference proceedings

J Hostetter, Remembering the Zebras – Emerging and Exotic Diseases of Animals, Proceedings of Michigan Veterinary Conference, East Lancing Michigan, Jan 28, 2010

J. Hostetter, Characterization of intracellular survival of *Mycobacterium avium subspecies paratuberculosis* in macrophages, Proceedings of the 53rd Annual Meeting of the American College of Veterinary Pathologists. 202-205. 2002

J. Hostetter, Disseminated Histoplasmosis in a Horse, Case Submission, Wednesday Slide Conference, Armed Forces Institute of Pathology, 2002

Invited presentations

F. Uzal**, J. Hostetter,** B. Plattner**:** Approach to gastrointestinal pathology. CL Davis Diagnostic Pathology Symposium, October 2018, Kansas City, MO

J. Hostetter. Using a subcutaneous implant to screen for MAP vaccine efficacy in calves. Iowa Veterinary Medical Association Annual Meeting. Bovine Session, Des Moines, IA. February 2018.

J. Hostetter. Host and tissue specificity in Mycobacterial Infections. The Many Hosts of Mycobacteria VI Host Specificity and Mycobacterial Disease Dynamics, Panel 4. Hosted by: National Institutes of Allergy and Infectious Diseases (NIAID). U.S. National Institutes of Health (NIH). Tulane University. LA. March 2015

J. Hostetter and D. Jones, Removable Implant for Diagnosis of Early Bovine Paratuberculosis. Iowa Veterinary Medical Association Annual Meeting. Bovine Session, Ames, IA. September 2012.

J. Hostetter. Emerging and Exotic Diseases of Animal: Impacts on Veterinary Medicine" Veterinary Drug Delivery Symposium sponsored by American Association of Pharmaceutical Scientists Student Chapter (University of Iowa) Iowa Memorial Union University of Iowa. April 2011

J. Hostetter. Development of a novel diagnostic for the diagnosis of bovine paratuberculosis, Iowa Veterinary Medical Association Mid Winter Conference. Bovine Session. Ames, IA February 6, 2008

J. Hostetter. Immunopathology of *Mycobacterium avium subspecies paratuberculosis* infection, The Many Hosts of Mycobacteria II: Immunopathology, A Comparative Animal Model Symposium. Hosted by: National Institutes of Allergy and Infectious Diseases (NIAID). U.S. National Institutes of Health (NIH), September 15, 2008, Gettysburg PA

J. Hostetter. Subcutaneous Challenge Model for Bovine Mycobacterial Infection. The Many Hosts of Mycobacteria Symposium, National Animal Disease Center, Ames IA. Hosted by: National Institutes of Allergy and Infectious Diseases (NIAID). U.S. National Institutes of Health (NIH) September, 2007

J. Hostetter. Granuloma function during *Mycobacterium avium ss paratuberculosis* infection. Inflammation Group, College of Medicine, University of Iowa, Iowa City, IA. July 29, 2005

J. Hostetter. Dendritic cell assay: Development of a diagnostic tool for detection of bovine Johne's disease. Iowa Veterinary Medical Association Mid Winter Conference. Bovine Session. Ames, IA. February 11, 2004

J. Hostetter. Host-parasite interaction in bovine intestinal mycobacteriosis (Johne's disease). Biochemistry Seminar. University of Northern Iowa, Cedar Falls, IA. April 5, 2002

J. Hostetter. Characterization of intracellular survival strategies used by *Mycobacterium avium subspecies paratuberculosis* in macrophages. 53rd Annual meeting of the American College of Veterinary Pathologists. Session on Intracellular Pathogens. New Orleans, LA. December 10, 2002

5. Funded Grants (PI and Co-I)

Investigators: **Hostetter J (PI)**, D. Jones. Title: Microbial transciptomics as an indicator of paratuberculosis vaccine efficacy in calves
Funding Source: Iowa Veterinary Medical Association Bovine Research Grant
Dates of beginning and end of grant: Nov. 2017 – July 2018
Total dollar amount: 9,000

Investigators: **Hostetter J.** (PI), D. Jones. Title: Development of an in vivo assay for testing new *Mycobacterium avium ss. paratuberculosis* vaccines in cattle.
Funding Agency: CVM Seed Grant
Dates of beginning and end of grant: July 1, 2016 to June 30, 2018
Total dollar amount: 40,000

Investigators: Narasimhan B (PI), Bellaire, B, **Hostetter J**, Wannemuehler M
Title: Enhanced shelf-life nanovaccine formulation for immunity to biodefense pathogens
Funding Source: NIH – NIAID R01
Dates of beginning and end of grant: October 1, 2014 to September 30, 2019
Total dollar amount: 6,085,692

Investigators: Wannemuehler M (PI), Jergens A, **Hostetter J**, Phillips G. Evaluation of SBI using the ASF gnotobiotic mouse model of colitis.
Funding Source: Entera Health
Dates of beginning and end of grant: 3/15/2014 to 3/14/2015
Total dollar amount: $72,035

Investigators: **Hostetter J**. (PI), Jones D
Title: Developing a novel diagnostic for detection of *Mycobacterium avium ss paratuberculosis* infection in asympatomatic cattle
Funding source: Iowa Livestock Health Advisory Council
Dates of beginning and end of grant: July 1, 2014-2016.
Total dollar amount $40,000

Investigators: **Hostetter J**. (PI), Waters R, McGill, J.
Title: Defining gamma delta T cell responses and role in shaping protective immunity during early *Mycobacterium avium* subspecies *paratuberculosis* infection.
Funding source: CVM Seed Grant
Dates of beginning and end of grant: 2013-2015.
Total dollar amount: $40,000

Investigators: Narasiman B (PI), Wannemuhler, Jones D, **Hostetter J**, (20 Co-Is)
Title: Systems Design of Nanovaccines Funding Source: Iowa State University Presidential Initiative for Interdisciplinary Research
Dates of beginning and end of grant: July 1, 2013 to June 30 2017
Total Dollar Amount: $4,500,000

Investigators: Mosier D (PI-KSU), Roth J, Flaming K, Brown G, **Hostetter J**
Curriculum and Teaching Enhancement for Diseases that Threaten Food Security
Funding source: USDA Higher Education Grant
Dates of beginning and end of gran: Sept 2012- Aug 2015
Total dollar amount: $713,537

Investigators: G. Phillips (PI), M. Wannemuehler, A. Jergens, **J. Hostetter**
Title: Highly Simplified Model of a Mammalian Intestinal Community.
Grant Agency: NIH- National Institute of General Medical Sciences (NIGMS):
Dates of beginning and end of grant: October 1, 2012 to October 1, 2016
Total Dollar Amount: $1,616,574

Investigators: Phillips G (PI), Wannemuehler M, **Hostetter J**, Jergens A, Hendricks S.
Title: Transdisciplinary Institute of Mucosal Biology for Improved Gastrointestinal Health.
Funding Source ISU Vice Present for Research and Economic Development Health Research Pursuit Initiative.
Dates of beginning and end of grant: December 2012 to June 2013
Total Dollar Amount: 138,000.

Investigators: Roth J, (PI), **Hostetter J**, Bickett-Weddle D, Dvorak, G Flaming K, and Eia C
Title: National Center of Excellence for Zoonotic and Emerging Animal Diseases, Education, and Outreach
Funding Source: Kansas State University (subcontract)
Dates of beginning and end of grant: July 2010 to June 2015
Total Dollar Amount: $135,000.

Investigators: **J. Hostetter** (PI) and D. Jones.
Title: Development of an in vivo diagnostic for Johne's disease
Funding Agency: Iowa Veterinary Medical Association
Dates of beginning and end of grant: October 30, 2010 to Oct 30, 2013
Total dollar amount: $37, 500.

Investigators: **Hostetter J (PI**), Plattner B.
Title: Development Of A Novel Assay For The Early And Rapid Diagnosis Of *Mycobacterium avium Subspecies paratuberculosis* Infection (Johne's Disease) In Subclinical Infected Calves

Funding Source: American Association of Bovine Practitioners
Dates of beginning and end of grant: July 1, 2009 to June 1, 2010
Total dollar amount: $10,000

Investigators: Petersen C, **Hostetter J**, Pohl N
Title: Role of pathogen-derived capping carbohydrates in altering immunity
Funding Source: R21 NIH NIAID
Dates of beginning and end of grant: July 2008 to June 2010
Total dollar amount: $350,000

Investigators: **Hostetter J (PI)**
Title: Dendritic cell function during *Mycobacterium avium subspecies paratuberculosis* infection
Funding Source: Healthy Livestock Initiative
Dates of beginning and end of grant: July 2005 to June 2007
Total dollar amount: $40,000

Investigators: **Hostetter J (PI)**
Title: Antigen discovery: Screening for immunogenic potential of recombinant proteins derived from *Mycobacterium avium subspecies paratuberculosis*.
Funding Source: Iowa Livestock Health Advisory Committee
Dates of beginning and end of grant: July 2006 to June 2008
Total dollar amount: $50,000

Investigators: **Hostetter J (PI)**, Roth J
Title: Development of an intestinal infection model of *Mycobacterium avium subspecies paratuberculosis*
Funding Source: Fort Dodge Animal Health Division of Wyeth.
Dates of beginning and end of grant: December 2007 to July 2008
Total dollar amount: $75,000
Investigators: **Hostetter J (PI**), Wannemuehler M
Title: Immunopathogenesis of intestinal *Mycobacterium avium ss paratuberculosis* infection: the role of IL-17
Funding source: Healthy Livestock Initiative
Dates of beginning and end of grant: July 2007 to June 2009
Total dollar amount: $50,000

Investigators: **Hostetter J (PI)**, Jones D
Title: Development of a novel diagnostic assay for *Mycobacterium avium subspecies paratuberculosis* (MAP) infection by rapid quantification of in vivo immune responses to MAP antigens
Funding Source: Iowa Veterinary Medical Association Bovine Research Grant
Dates of beginning and end of grant: July 2007 to June 2008
Total dollar amount: $12,500

Investigators: **Hostetter J (PI)**, Wannemuehler M
Title: Development of an animal model to evaluate the role *Mycobacterium avium subspecies paratuberculosis* in the pathogenesis of inflammatory bowel disease
Funding Source: Iowa State University Special Research Initiation Grant

Dates of beginning and end of grant: July 2005 to June 2006
Total dollar amount: $25,000

Investigators: **Hostetter J (PI**), Wannemuehler M
Title: Development of a Flowmetrics assay for the serological evaluation of cattle exposed to *Mycobacterium avium subspecies paratuberculosis*
Funding Source: USDA APHIS
Dates of beginning and end of grant: July 2005 to June 2006
Total dollar amount: $57,000

Investigators: **Hostetter J (PI)**, Jones D, Wannemuehler M.
Title: Killing of *Mycobacterium avium subspecies paratuberculosis* in macrophages activated by antigen responsive CD4+ cells
Funding Source: USDA APHIS
Dates of beginning and end of grant: July 2003 to June 2004
Total dollar amount: $37,521

Investigators: **Hostetter J (PI),** Jones D, Wannemuehler M
Title: Supplemental funds for comparison of bovine dendritic cell stimulation of T cells isolated from *Mycobacterium avium subspecies paratuberculosis* infected and non-infected cattle
Funding Source: Iowa Veterinary Medical Association Bovine Research Grant
Dates of beginning and end of grant: July 2003 to June 2005
Total dollar amount: $30,000

Investigators: **Hostetter J (PI),** Jones D, Wannemuehler M
Title: Comparison of bovine dendritic cell stimulation of T cells isolated from *Mycobacterium avium subspecies paratuberculosis* infected and non-infected cattle
Funding Source: Iowa Livestock Health Advisory Council Program
Dates of beginning and end of grant: July 2003 to June 2006
Total dollar amount: $75,000

Investigators: **Hostetter J (PI)**, Jones D, Wannemuehler M
Title: Immune response compartmentalization in cattle clinically infected with *Mycobacterium avium subspecies paratuberculosis*.
Funding Source: USDA APHIS
Dates of beginning and end of grant: July 2002 to June 2003
Total dollar amount: $28,000

6. Mentoring

Faculty mentoring committees

Shankumar Mooyottu, Assistant Professor, Veterinary Pathology 2017 – 2019
Iowa State University

Jodi Smith, Assistant Professor, Veterinary Pathology, 2013 - 2019
Iowa State University

Eric Burrough, Associate Professor, Veterinary Diagnostic and Production

Animal Medicine, Iowa State University 2012 - 2019

Graduate Student Major/Co-major Professor (Iowa State University)

Student	Program	Degree /Year awarded	Comment
Ya-Mei Chen	Veterinary Pathology	PhD	Co-major with Eric Burrough
Saleh Albarrak	Immunobiology	PhD/2018	
Tracy Lindquist	Veterinary Pathology	PhD/2018	Co-major with S. Hostetter
Taylor Wherry	Microbiology/Immunobiology	PhD	Co-major with J. Stabel
Jayne Wiarda	Immunobiology	MS	Co-major with M. Palmer
Heather Flaherty	Immunobiology	MS	
Panchan Sitthicharoenchai	Veterinary Pathology	PhD/2018	Co-major with M. Ackermann
Mayara Maggioli	Immunobiology	PhD / 2016	Co-major with R. Waters
Kristen Bass	Immunobiology	MS / 2013	Co-major with R. Waters
Teresa Sigafoose	Immunobiology	MS / 2012	Co-major with R. Waters. Currently at USDA APHIS
Aaron Lehmkuhl	Veterinary Pathology	MS / 2011	Co-Major with B. Thompson. Currently at USDA APHIS
Charles Johnson	Veterinary Pathology	PhD / 2010	Currently at Abaxis
Brandon Plattner	Veterinary Pathology	PhD / 2010	Currently Associate Professor Ontario Veterinary College
Lying Lei	Immunobiology	PhD / 2007	Currently Research Scientist at David Murdock Research Institute

Postdoctoral advising

Kun Yang, Project: cytokine expression in mycobacterial granulomas, 2008 - 2009

Program of Study Committee Member (Iowa State University)

Student	Program	Degree / Year Awarded
Sanjana Mahadev-Bhat	Immunobiology	PhD
Franco Matias-Ferreyra	Veterinary Pathology	PhD
Tyler Harms	Veterinary Pathology	PhD
Eric Cassmann	Veterinary Pathology	PhD/2018
Alyona Michaels	Veterinary Pathology	PhD/2017
Najiba Mammadova	Immunobiology	PhD/2017
Victoria Lashley	Veterinary Pathology	PhD / 2016
Shaowei Ding	Mechanical Engineering	PhD/2017
Sarhad Alnajjar	Veterinary Pathology	PhD/2016
Andrea Binnebose	Microbiology	PhD/2017
Matthew Jefferson	Neuroscience	PhD/2017
Nicholas Van Engen	Pharmacology/ Coetzee	PhD / 2017
Wiechert, Sarah	Immunobiology	PhD
Marie Bockenstedt	Veterinary Pathology	PhD / 2015
Bailey Wilberts	Veterinary Pathology	PhD / 2014
Paulo Arruda	Veterinary Pathology	PhD / 2014
Meghan Wymore-Brand	Immunobiology	PhD / 2016
Lucas Krueger	Nutrition	MS / 2015
Drew Magstadt	Veterinary Microbiology	MS / 2015

Shivani Ghaisas	Immunobiology	PhD / 2017
Jordan Elder	Immunobiology	PhD
Zahra Olsen	Immunobiology	MS / 2015
Dustin Martin	Molecular Cellular and Developmental Biology	PhD / 2013
Anne Marie Overstreet	Veterinary Microbiology	PhD / 2012
Eric Burrough	Veterinary Pathology	PhD / 2011
Katherine Gibson-Corley	Veterinary Pathology	PhD / 2010
Kelly Haarberg	Immunobiology	PhD / 2010
Alicia Oliver	Veterinary Pathology	PhD / 2010
Bingqi Zhang	Chemical Biological Engineering	PhD / 2010
Tatjana Lazic	Veterinary Pathology	PhD / 2009
John Oliver	Entomology	PhD / 2009
Jodi Smith	Veterinary Anatomy	PhD / 2009
Elizabeth Williams	Immunobiology	PhD / 2007
Zhiping Liu	Immunobiology	PhD / 2007
Sasha Fach	Immunobiology	PhD / 2006

Supervision of undergraduate research and independent study

Mentor – College of Veterinary Medicine Summer Scholar Research Program
Bailey Gray (VMIII): Role of Gamma Delta T cells in mucosal immune responses to *Mycobacterium avium paratuberculosis*, 2015

Jared Vogue (VMII): role of TNF-α in early mycobacterial infection in a Matrigel Biopolymer model, 2012

Jamie Gosch (VMII): development of a diagnostic implant for diagnosis of bovine paratuberculosis, 2010

Stephanie Larson (VMII): identification of early humoral responses to enteric mycobacterial disease, 2010

Maria Bockenstedt (VMI) (co-mentor with D. Jones), in vivo assay for diagnosis of *Mycobacterium avium subspecies paratuberculosis* infection, 2008

Vanessa Fraseur (VMI), Role of nitric oxide production in intracellular trafficking of *Mycobacterium avium subspecies paratuberculosis,* 2007

Beth Anderson (VMI), Role of ERK kinase inhibitor in nitric oxide production and phagosomal pH in response to *Mycobacterium avium subspecies paratuberculosis* in bovine macrophages, 2006

David Shirbaum (VMI), Antigen presentation capacity of dendritic cells infected with *Mycobacterium avium subspecies paratuberculosis*, 2005

Stephanie Mann (VMII), Infection of Bovine Dendritic Cells with *Mycobacterium avium subspecies paratuberculosis*, 2004

Kevin Byle VMII, iNOS production by bovine macrophages infected with *Mycobacterium avium subspecies paratuberculosis*, 2003

Cody Alcott (VMII), Flow cytometric analysis of phagosomal acidification in bovine macrophages infected with *Mycobacterium avium subspecies paratuberculosis*, 2002

Rebecca Kagan (VMII), Characterization of the effects of opsonization on *Mycobacterium avium subspecies paratuberculosis* on intracellular survival in primary bovine monocytes, 2001

Professional student advising
Faculty contact – 15 veterinary medical students, College of Veterinary Medicine

7. University Service

Iowa State University

Iowa State University Student Relations Committee	2016 - 2019
Iowa State University Faculty Review Board	2014 - 2019
Faculty Senate – VPTH representative	2010-2013
Faculty Senate Governance Council	2010-2013

Iowa State University CVM

Faculty Student Relations Committee	2013 - 2019
Chair	2015 - 2019
Faculty Senate Caucus	2010 – 2013

CVM Research Advisory Council	2005 to 2012
CVM Committee on Instructional Assessment	2002 to 2005

Departmental
Veterinary Pathology:

Departmental Promotion and Tenure Committee, Veterinary Pathology	2015 - 2019
Anatomic Pathologist Faculty Search Committee, Chair, Veterinary Pathology	2014
Anatomic Pathologist Faculty Search Committee, Chair, Veterinary Pathology	2013
Director of the Comparative Pathology Service (CPC)	2012 to 2019
Director of Graduate Education (DOGE) Veterinary Pathology	2012 to 2019
Chair Search Committee, Veterinary Pathology	2012
Anatomy Faculty Search Committee, Biomedical Science	2012

Immunobiology Graduate Program:

Chair Immunobiology (IMBIO) Graduate Program	2011 - 2014
Immunobiology Graduate Program Admissions Committee	2011 - 2018
Immunobiology Graduate Program Curriculum Committee	2011-2014
Immunobiology Graduate Program Supervisory Committee	2006- 2011

8. Course Instruction

Instructor in charge
Iowa State University

Systemic Pathology I and II (VPTH 570, 571), 4 credits, 6 student average / class, one course in sequence offered every fall. Instructor for 3 topics (2 weeks each): gastrointestinal, cardiovascular, and dermatopathology, 12-24 hours of lecture each semester. Started Fall 2012

Case Studies III (VPTH 377), 2 credits, 125 professional students/ class. Required course in the DVM curriculum. 14 hours of lecture each semester. Started Fall 2011

Immunobiology Graduate Student Seminar (IMBIO 604), 1 credit, 18 graduate students / class, spring semesters. The Chair of Immunobiology leads this seminar course. 2011-2014

Emerging and Exotic Diseases of Animals, (173:172 EXW) 1 credit, Distance Education Course, ~10 students / class, elective course in the University of Iowa College of Public Health Medicine

Masters of Public Health Program, offered every fall semester. 15 hours of lecture each session. Started Fall 2008,

Ethics in Scientific Research (VPTH 544), 1 credit, 25 students average / class, offered every other spring semester, fulfills Iowa State University graduate student requirement for research ethics course, 18 hours of lecture each semester. Started Fall 2002

Instructor
University of Georgia:
Biopsy Rounds (VPAT 8008), 1 credit, Biopsy rounds for pathology residents. Started Fall 2019

Biopsy Practicum (VPAT 7020), 3 credits, Biopsy duty with pathology residents, Started Fall 2019

Biopsy Practicum (VPAT 7021), 3 credits, Biopsy duty with pathology residents, Started Fall 2019

Biopsy Practicum (VPAT 7022), 3 credits, Biopsy duty with pathology residents, Started Fall 2019

Iowa State University:
Anatomic Pathology I (VPTH 342). 2 credits, 125 professional students, spring semester, cardiac and dermatopathology sections. 12 hours of lecture each semester, Started 2013

Veterinary Histopathology Seminar (VPTH 604), 1 credit, 1-5 graduate students/course. Weekly review of selected histopathology cases from domestic and exotic animals, taken by veterinary pathology residents. Fall 2009, Fall 2014, Fall 2017

Necropsy Laboratory Practicum (VPTH 456), 1 credit, 6-8 weeks per year, 6-7 senior veterinary students per rotation, spring, fall and summer semesters since 2002

Mechanisms of Bacterial Pathogenesis (VMPM 625), 4 credits, 10 students/class, every other spring, lecturer on intracellular pathogens and overview immunology, 4.5 hours of lecture each semester, semesters taught – spring 2003 to 2011

Continuing Education Courses / Seminars
Pathology Teaching Seminar Series– KSU / Texas AM / ISU USDA Higher Education Grant, My role was to coordinate pathology resident seminars and identify speakers from ISU in a webinar format. There was one seminar/month during the academic year. 2015

Exotic and Emerging Diseases of Animal: Remembering the Zebras. South Dakota Veterinary Medical Responders Annual Meeting. January 2013. Pierre SD. 6 hours (Invited)

Emerging and Exotic Diseases of Animal, Center for Emerging and Exotic and Zoonotic (CEZAAD) Animal Diseases (Kansas State University), Course instructor for a 6-week online course, summer 2012 to present.
Remembering the Zebras, Emerging and Exotic Diseases of Animals, Michigan Veterinary Conference January 2010, East Lancing MI, 6 hours. (Invited)

Emerging and Exotic Diseases of Animals, Illinois Veterinary Emergency Response Team Training, November 2009, 6 hours Peoria Il. (Invited)

Emerging and Exotic Diseases of Animals, offered through the Veterinary Interactive Network. Online continuing education course for veterinarians, course consists of weekly assigned case based scenarios with one hourly live lecture per week, duration of course is 6 weeks, 2006 to 2019

9. Peer Review

Editor

Guest Editor (with Paco Uzal, California Animal Health and Food Safety Lab Pathology, Microbiology & Immunology), Journal of Veterinary Diagnostic Investigation, Special Issue on Clostridial Diseases, 2020

Section Editor - for Anatomic Pathology (with Francisco Uzal, California Animal Health and Food Safety Lab Pathology, Microbiology & Immunology), Journal of Veterinary Diagnostic Investigation. July 2016 to present

Editor (with Mitch Palmer National Animal Disease Center, Agricultural Research Service, USDA, and Michael Welsh - Agri-Food and Biosciences Institute, Belfast), Veterinary Medicine International, Special Issue – Mycobacterial Diseases of Animals, 2010-12

Editorial Board

Journal of Veterinary Diagnostic Investigation, July 2016 to present

Ad Hoc Review

European Journal of Nutrition
International Journal of Experimental Pathology
Clinical and Vaccine Immunology
Veterinary Immunology and Immunopathology
Veterinary Pathology
Journal of Veterinary Diagnostic Investigation
Comparative Microbiology, Immunology and Infectious Diseases
Journal of Leukocyte Biology
International Journal of Biologic Sciences
Canadian Journal of Veterinary Medicine
Vaccine
Journal of the American Association for Laboratory Animal Science
Journal of Emerging and Transboundary Diseases
Veterinary Microbiology

Grant Review

Johne's Disease Integrated Program (NIFA) grant reviewer	2010
United States Department of Agriculture Formula Funds	2007 – 2012
U.S. Civilian Research and Development Foundation	2008

Life Science Trust Research Grant,
Missouri Life Science Research Board 2007

NIH NIAID, Special Emphasis Panel/Scientific Review Group 2006

Panel Member - USDA- NRI CGP: Animal Protection Section A 2005

Iowa Healthy Livestock Initiative/CVM Seed Grants Program (2007- 2019)

Iowa Livestock Health Advisor Council Grants Program (2007- 2019)

Iowa State University Bailey Research Career Development Award (2019)

10. Professional Memberships

Committee activity

American College of Veterinary Pathologists Nominations Committee 2013

America Animal Health Association Committee on Animal Emergency Management 2011 - 2014

American College of Veterinary Pathologists, Exam Committee special proctor for ADA candidates 2010 - 2015

Iowa Veterinary Medicine Public Health Committee 2009 – 2014

Organizing Committee for International Colloquium on Paratuberculosis 2009

Memberships

American Veterinary Medical Association 1991 - present
American College of Veterinary Pathologists 2001 – present

Georgia Veterinary Medical Association 2019 – present

International Association for Paratuberculosis 2002 – present

American Association of Veterinary Laboratory Diagnosticians 2009 – present

11. Professional Service

Surgical Pathology Service University of Georgia, Department of Pathology **–** senior pathologist. 10 weeks per calendar year. During this rotation I mentor 1 veterinary pathology resident and teach 6-7 professional students. Caseload typically consists of dogs, exotics, cats, birds (wildlife, psittacines).

Post mortem Service Iowa State University, Department of Veterinary Pathology – senior pathologist. 6-8 weeks per calendar year with typically 7-15 cases/week. During this rotation I

mentor 1 veterinary pathology resident and teach 6-7 professional students. Caseload typically consists of dogs, exotics, cats, birds (wildlife, psittacines), cattle, and horses.

Surgical Pathology Service Iowa State University, Department of Veterinary Pathology **–** senior pathologist**,** 7-9 weeks per calendar year with typically 100+ cases/week. During this rotation I mentor one veterinary pathology resident. Caseload typically consists of dogs, cats, birds (psittacines), horses, and exotics.

Pathology Research Support - Comparative Pathology Core Service (CPC) Iowa State University): The CPC started in 2011 and provides pathology support for researchers using animal models of disease. Services are available to investigators within and outside of Iowa State University. I am the founding director of this service. I directly supervise one full time assistant scientist, one part time laboratory assistant, and oversee project assignment to pathologists and progress/completion of each project. The departmental faculty pathologists (anatomic and clinical pathology) are study pathologists for each project. A goal of the CPC is to link researchers with core pathologists that will progress to development of collaborative relationships.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Natalia B. Ivanova

eRA COMMONS USER NAME (credential, e.g., agency login): NIVANOVA

POSITION TITLE: Associate Professor, Center for Molecular Medicine and Department of Genetics

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Moscow Institute for Physics and Technology, Moscow, Russia	MS	06/1991	Mathematics and Physics
Engelhardt Institute for Molecular Biology, Moscow, Russia	PhD	05/1996	Molecular and Developmental Biology
Lindsley F. Kimball Research Institute, New York Blood Center, New York, NY	Postdoc	07/1998	Stem Cell Biology
Princeton University, Princeton, NJ	Postdoc	12/2007	Stem Cell Biology

A. Personal Statement

Research: I have a broad background in stem cell biology with specific training and expertise in embryonic and hematopoietic stem cells. In addition, I hold a Master Degree in mathematics and physics, which enables the use of computational approaches in our proposed studies. I completed my postdoctoral training under the mentorship of Dr. Ihor Lemischka at Princeton University. During that time, I was among the first to apply a systematic transcriptional profiling approach to identify and compare molecular signatures of embryonic and adult stem cells (Phillips et al., *Science* 2000; Ivanova et al., *Science* 2002). Following up on those studies, I developed a functional genomics approach that combines transcriptional profiling and shRNA-based loss-of-function techniques to infer gene regulatory functions. This new approach allowed me to identify a complex transcriptional network that controls self-renewal in mouse ES cells (Ivanova et al., *Nature* 2006). Since starting my independent research program in 2008, my laboratory has been systematically extending these studies to mechanistically dissect self-renewal and differentiation in mouse and human ESC models. Our recent work identified novel mechanisms that regulate self-renewal, differentiation and cellular reprogramming (Wang et al., *Cell Stem Cells* 2012; Zhang et al., *PNAS* 2013; Wang et al., *Cell Stem Cell* 2018; Hernandez et al., *Cell Stem Cell* 2018). Particularly relevant to this proposal is our expertise in developing novel single cell RNA sequencing analyses methodologies which we have recently applied to analyze complex hESC differentiation model (Moon et al, *Nature Biotechnology,* 2019; Wang et al., *Developmental Cell*, 2021).

a. **Ivanova N**, Dobrin R, Lu R, Kotenko I, Levorse J, DeCoste C, Schafer X, Lun Y, Lemischka IR. Dissecting self-renewal in stem cells with RNA interference. *Nature*. 2006;442(7102):533-8. PubMed PMID: 16767105.

b. Wang Z, Gearhart MD, Lee YW, Kumar I, Ramazanov B, Zhang Y, Hernandez C, Lu AY, Neuenkirchen N, Deng J, Jin J, Kluger Y, Neubert TA, Bardwell VJ, **Ivanova NB**. A Non-canonical BCOR-PRC1.1 Complex Represses Differentiation Programs in Human ESCs. *Cell Stem Cell*. 2018; 22(2):235-51 e9. PubMed PMID: 29337181; PubMed Central PMCID: PMC5797497.

c. Moon KR, van Dijk D, Wang Z, Gigante S, Burkhardt DB, Chen WS, Yim K, Elzen AVD, Hirn MJ, Coifman RR, **Ivanova NB*#**, Wolf G*, Krishnaswamy S*. Visualizing structure and transitions in high-dimensional biological data. *Nat Biotechnol*. 2019; 37(12):1482-1492. PMID: 31796933. *Equal senior author contribution, #Corresponding author for experiments.

d. Wang T, Wang Z, de Fabritus L, Tao J, Saied EM, Lee HJ, Ramazanov BR, Jackson B, Burkhardt D, Parker M, Gleinich AS, Wang Z, Seo DE, Zhou T, Xu S, Alecu A, Azadi P, Arenz C, Hornemann T, Krishnaswamy S, van de Pavert SA, Kaech SM*, **Ivanova NB***, Santori FR*. 1-deoxysphingolipids bind to COUP-TF to modulate lymphatic and cardiac cell development. *Developmental Cell*, 2021, 56: 3128–3145. PMID: 34762852. *Equal senior author contribution.

Mentoring: I have served as a mentor for 8 PhD students, one MD student, 2 postbac research scholars and 9 postdoctoral associates at Yale University (2008-2019) and at the University of Georgia (2019-present). Mentees who completed training in my lab have proceeded successfully on toward careers in academia, medicine or industry.

Many postdoctoral fellows who trained in my laboratory have received prestigious awards and continued towards careers in academia, government and industry as shown in the table below:

Name	Years in training	Awards	Current position
Zheng Wang	2008-2019	James Hudson Brown-Coxe Fellowship, CT Innovation Seed Grant	Assistant Professor, School of Basic Medicine, Qingdao University, China
Efrat Oron	2009-2012	Rudolph J. Anderson Endowed Fellowship, CT Innovation Seed Grant	Current position: Director of Research and Outreach, Manna Center for Food Safety and Security, Tel Aviv University, Israel
Anna Kloc	2009-2013	T32 Postdoctoral Fellowship, James Hudson Brown-Coxe Postdoctoral Fellowship	Assistant Professor, University of New Haven, CT
Marc Hansel	2013-2014		Director, Medical Alignment, AstraZeneca
Cheryl Dambrot	2014-2015		Project Scientist, Cergentis, Netherlands
Yu-Wei Li	2014-2016		Senior Project Scientist, Medical Scientific Liaison, Eisai inc, Taiwan
Bulat Ramazanov	2016-2019		Associate Research Scientist, Yale School of Medicine

I have demonstrated a long-term commitment to the professional advancement of the individuals that I have helped train. Moreover, I have a passion for, and a track record in the tmentoring of trainees who fall under the classification of “minorities underrepresented in the biomedical sciences”. These include a former PhD student (Charles Hernandez, a Latino American, who graduated in 2018, received a T32 NIH Predoctoral Fellowship and the Lo Family Individual Predoctoral Fellowship, published several papers including a first-author papers in Cell Stem Cells and now works as a Senior Field Application Scientist at Nexcelom Bioscience), a former MD student (Michael Astudillo, a Latino American, who is now a pathology fellow at the Massachusetts General Hospital) and a former postbac student (Kaleab Tessema, an African American, who is currently a MD/PhD student at UCLA). I am proud to have invested in the careers of these talented individuals through providing them critical training, knowledge and encouragement and in supporting their next career steps through providing letters of support for the professional schools and programs that they ended up applying to and entering. I am likewise fully committed to ensuring that Antavius receives the special attention and training that he needs to overcome any deficits due to his background and circumstances and to connect his passion for science with the reality of becoming a successful research scientist.

Thus, a proven track record is in place and honed mentoring skills have been established to ensure that Antavius Cain will receive superb training and professional development toward earning his PhD degree and progressing toward his professional goals of becoming an independent principal investigator.

B. Positions and Honors

Positions and Employment

2008-2014 Assistant Professor of Genetics, Yale University, New Haven, CT
2014-2019 Associate Professor of Genetics, Yale University, New Haven, CT
2019-present Associate Professor of Genetics, University of Georgia, Athens, GA
2019-present Adjunct Faculty, Department of Biochemistry and Molecular Biology, University of Georgia, Athens, GA

Other Experience and Professional Memberships

2021-present DEV2 Study Section, Member
2014-2021 DEV2 Study Section, Ad hoc member
2019 PN Study Section, ad hoc member

2016	DEV1 Study Section, Ad hoc member
2003-present	Member, International Society for Stem Cell Research
2018-present	Reviewer, *Cell*
2012-present	Reviewer, *Nature Communications*
2011-present	Reviewer, *Molecular Cell*
2011-present	Reviewer, *Developmental Cell*
2011-present	Reviewer, *Cell Reports*
2011-present	Reviewer, *Development*
2011-present	Reviewer, *Journal of Biological Chemistry*
2008-present	Reviewer, *Cell Stem Cell*

Awards and Honors

1985-1991	Academic Excellence Award, Moscow Institute for Physics and Technology
1993-1996	Pre-Doctoral Excellence Award, Engelhardt Institute for Molecular Biology
2008	Robert T. McCluskey, MD, Yale Scholar Award

C. Contribution to Science

Methods for analysis of differential expression. My graduate work focused on developing approaches to analyze transcriptional profiles of cells on a genome-wide scale when microarray technologies were not yet available. I have developed and applied restriction nuclease-based fingerprinting to study differential gene expression in Xenopus embryos, and later to compare different subsets of hematopoietic stem cells.

a. **Ivanova N**, Fesenko I, Belyavsky A. A novel method for comparative analysis of gene expression and identification of differentially expressed mRNA. *Molekularnaya Biologia (Russian)* 1994, 28, p. 1367-1375.
b. **Ivanova N** and Belyavsky A. Identification of differentially expressed genes by restriction endonuclease-based gene expression fingerprinting., *Nucleic Acids Res.* 1995, v. 23, p. 2954-2958.
c. Belyavsky AV, **Ivanova NB**. Method of identification and cloning differentially expressed messenger RNAs. US Patent 5,814,445
d. **Ivanova N**, Luchinskaya N, Popsueva A and Belyavsky A. Identification of mRNAs localized in different regions of Xenopus laevis embryos at the early gastrula stage. *Dokl. Akad. Nauk (Russian)* 1998, 359, n. 1, p. 156-162.

Molecular and functional characterization of adult stem cells. As a postdoc, I joined the laboratory of Ihor Lemischka at Princeton University where I was among the first to apply a systematic transcriptional profiling to identify and compare molecular signatures of adult and embryonic stem cells.

a. Phillips R, Ernst R, Brunk B, **Ivanova N**, Moore K, Overton G and Lemischka I. The Genetic Program of Hematopoietic Stem Cells. *Science.* 2000 Jun 2;288(5471):1635-40.
b. De Haan G, Bystrykh L, Weersing E, Dontje B, Geiger H, **Ivanova N**, Lemischka I, Vellenga E, Van Zant G. A genetic and genomic analysis identifies a cluster of genes associated with hematopoietic turnover. *Blood* 2002, 100(6): 2056-2062.
c. **Ivanova N**, Dimos J, Schaniel C, Hackney J, Moore K, Lemischka I. A Stem Cell Molecular Signature. *Science* 2002 298: 601-604.
d. **Ivanova N**, Dimos J, Schaniel C, Hackney J, Moore K, Ramalho-Santos M, Yoon S, Matsuzaki Y, Mulligan R, Melton D, and Lemischka I. Response to Comments on " 'Stemness': Transcriptional Profiling of Embryonic and Adult Stem Cells" and "A Stem Cell Molecular Signature". *Science* 2003: 393.

Gene regulatory networks in mouse ESCs. In the second half of my postdoctoral training I moved onto developing functional shRNA-based screens to identify regulatory networks supporting self-renewal in mouse embryonic stem cells. I have identified a new regulatory module – Esrrb, Tbx3 and Tcl1 – that is now considered the core component of the “naïve” pluripotent state. In addition, I provided shRNA reagents to study the role of Bmi-1 in self-renewal of neural stem cells. Most recently, we have shown that ESC-specific chromatin-associated factors Dppa2 and Dppa4 are the key components responsible for the reset of somatic chromatin to a pluripotent configuration during cellular reprogramming

a. **Ivanova N**, Dobrin R, Lu R, Kotenko I, Levorse J, DeCoste C, Schafer X, Lun Y, Lemischka IR. Dissecting self-renewal in stem cells with RNA interference. *Nature* 2006 Aug 3; 442: 533-8.
b. Shen Q, Wang Y, Dimos JT, Fasano CA, Phoenix TN, Lemischka IR, **Ivanova N**, Stifani S, Morrisey EE, Temple S. The timing of cortical neurogenesis is encoded within lineages of individual progenitor cells. *Nature Neuroscience.* 2006 Jun; 9(6):743-51.

c. Fasano C, Dimos J, **Ivanova N**, Lowry N, Lemischka I, Temple S. shRNA Knockdown of Bmi-1 Reveals a Critical Role for p21-Rb Pathway in NSC Self-Renewal during Development. *Cell Stem Cell* 2007 1: 87-99.
d. Hernandez C, Wang Z, Ramazanov B, Tang Y, Mehta S, Dambrot C, Lee YW, Tessema K, Kumar I, Astudillo M, Neubert T, Guo S and **Ivanova NB**. Dppa2/4 facilitate epigenetic remodeling during reprogramming to pluripotency. *Cell Stem Cell*. 2018; 23(3):396-411.e8.

Molecular control of primed pluripotency in humans. As an independent PI, I am interested in deciphering the molecular regulation of pluripotency, particularly in the human model. To this end, we have shown that primed pluripotency in humans is regulated by a unique transcriptional network different from that of naïve mouse ESCs. We have demonstrated that the core pluripotency module, NANOG, OCT4 and SOX2, is reorganized in hESCs to suppress differentiation into embryonic, rather than extraembryonic, lineages. We have utilized genome-wide shRNA screens to identify regulators of human pluripotency and differentiation. We have developed an experimental platform for mechanistic studies in hESCs and utilized it to dissect the role of the BCOR-PRC1.1 complex in human ESC maintenance and to uncover novel mechanisms of targeting and repression by the non-canonical PRC1 complexes.

a. Wang Z, Oron E, Nelson B, Razis S, **Ivanova N**. Distinct lineage specification roles for NANOG, OCT4 and SOX2 in human embryonic stem cells. *Cell Stem Cell* 2012 10: 440-454. *Selected as "Best of Cell Stem Cells" in 2012.
b. Zhang Y, Schulz V, Reed B, Wang Z, Pan X, Mariani J, Euskirchen G, Snyder M, Vaccarino F, **Ivanova N**, Weissman S, Szekely A. Functional genomic screen of human stem cell differentiation reveals pathways involved in neurodevelopment and neurodegeneration. *PNAS.* 2015*,* 110(30):12361-6.
c. Wang Z, Gearhart MD, Lee YW, Kumar I, Ramazanov B, Zhang Y, Hernandez C, Lu AY, Neuenkirchen N, Deng J, Jin J, Kluger Y, Neubert TA, Bardwell VJ, **Ivanova NB**. A Non-canonical BCOR-PRC1.1 Complex Represses Differentiation Programs in Human ESCs. *Cell Stem Cell*. 2018;22(2):235-51.
d. Wang Z, Zhang Y, Lee YW, **Ivanova NB**. Combining CRISPR/Cas9-mediated knockout with genetic complementation for in-depth mechanistic studies in human ES cells. *Biotechniques*. 2019; vol. 66, no. 1; https://doi.org/10.2144/btn-2018-0115

Novel computational approaches for analyzing single-cell RNA sequencing data. High dimensional, high-throughput scientific data is accumulating at a staggering rate, especially from biological datasets featuring single-cell transcriptomics and other genomic and epigenetic assays. Since humans are visual learners, it is vitally important that these datasets are presented to researchers in intuitive ways, with faithful visualizations that can lead to hypothesis generation. However, popular existing methods such as tSNE, PCA, Isomap and Diffusion Maps are limited in their ability to produce clean and denoised visualizations that reveal both local and global nonlinear structure without imposing stringent assumptions on the latent structure of the data. In collaboration with computational biologists at Yale we have developed an unsupervised visualization method, PHATE, which captures both local and global non-linear structure in data by preserving informational distance between data points. PHATE is applicable to a wide variety of data types including mass cytometry, single-cell RNA-seq, Hi-C, and gut microbiome data, where it can generate interpretable insights into the underlying systems. We have applied PHATE to our newly generated scRNA-seq dataset from human ESCs differentiating as embryoid bodies to reveal a comprehensive picture of human stem cell differentiation in unparalleled detail.

a. Moon KR, van Dijk D, Wang Z, Gigante S, Burkhardt DB, Chen WS, Yim K, Elzen AVD, Hirn MJ, Coifman RR, **Ivanova NB*#**, Wolf G*, Krishnaswamy S*. Visualizing structure and transitions in high-dimensional biological data. Nat Biotechnol. 2019 Dec;37(12):1482-1492. doi: 10.1038/s41587-019-0336-3. Epub 2019 Dec 3. PMID: 31796933. *Equal senior author contribution, #Corresponding author for experiments.
b. Wang T, Wang Z, de Fabritus L, Tao J, Saied EM, Lee HJ, Ramazanov BR, Jackson B, Burkhardt D, Parker M, Gleinich AS, Wang Z, Seo DE, Zhou T, Xu S, Alecu A, Azadi P, Arenz C, Hornemann T, Krishnaswamy S, van de Pavert SA, Kaech SM*, **Ivanova NB***, Santori FR*. 1-deoxysphingolipids bind to COUP-TF to modulate lymphatic and cardiac cell development. *Developmental Cell*, 2021, 56: 3128–3145. PMID: 34762852. *Equal senior author contribution.

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/natalia.ivanova.1/bibliography/48022498/public/?sort=date&direction=decending

D. Research Support

Active

R01GM107092 Ivanova, N (PI) 05/01/14-08/31/23
NIH
Molecular control of pluripotency in human ES cells
Our long-term goal is to decipher the architecture of the regulatory network that allows for unrestricted hESC proliferation while preserving their potential to form the full repertoire of cell types found in the human body.

R21HD099694 Ivanova, N (PI) 09/01/19-08/31/21 NCE until 08/31/2022
NIH
Derivation and characterization of induced trophoblast stem cells
The goal of this proposal is to derive human induced trophoblast stem cells via direct lineage conversion.

R01GM130847 Ivanova, N (Co-I; PI: Krishnaswamy) 08/01/19-04/30/24
NIH
Deciphering genetic and epigenetic regulatory logic of germ layer differentiation with manifold learning
The goal of this project is to understand the gene regulatory logic that guides differentiation of human ES cells along specific cell lineages

Completed

R01GM105772 Ivanova, N (PI) 02/01/14-08/31/2020
NIH
Epigenetic control of the pluripotent state by chromatin-associated factor Dppa2
The major goal of this project is to better understand epigenetic mechanisms responsible for the maintenance of the pluripotent state.

16-RMB-YALE-07 Ivanova, N (PI) 01/01/17-08/31/19
Connecticut Innovations
BCOR-PRC1 repressive complex as the key regulator of pluripotency in human embryonic stem cells
The major goal of this project is to decipher the mechanism by which the BCOR-PRC1 complex maintains pluripotency in human ESCs.

Academic History

1. **Present rank:** Assistant Professor
2. **Faculty web page:** https://cellbio.uga.edu/directory/people/daichi-kamiyama
3. **Lab web page:** https://research.franklin.uga.edu/kamiyamalab/
4. **Highest degree, institution, the date:**

   Ph.D., University of Illinois at Urbana-Champaign, August 2007
5. **List of academic position:**

   Assistant Professor (2016 - present)
   Department of Cellular Biology
   University of Georgia

   Assistant Professional Researcher (2010 - 2016)
   Department of Pharmaceutical Chemistry
   University of California, San Francisco
   Mentor: Bo Huang

   Postdoctoral Fellow (2007 - 2010)
   Department of Biology
   University of Miami
   Mentor: Akira Chiba

Publication

Journal articles (in print or accepted)

- Tamura, R., and **Kamiyama, D.** (2022) CRISPR-Cas9-mediated knock-in approach to insert the GFP_{11} tag into the genome of a human cell line. **Methods in Molecular Biology**. (accepted)
- Banzai, K., Shen, P., and **Kamiyama, D.** (2022) A genetic toolkit for simultaneous generation of LexA- and QF-expressing clones in selected cell types in *Drosophila*. **Neuroscience Insights** 17, 1-5.
- Inal, MA*., Bui, KC*., Marar, A., Li, S., Kner, P., and **Kamiyama, D.** (2021) Imaging of in vitro and in vivo neurons in *Drosophila* using stochastic optical reconstruction microscopy. **Current Protocols** 1(7), e203. (* co-first authors)
- Kamiyama, R*., Banzai, K*., Liu, P., Marar, A., Tamura, R., Jiang, F., Fitch, MA., Xie, J., and **Kamiyama, D.** (2021) Cell-type-specific, multi-color labeling of endogenous proteins with split fluorescent protein tags in *Drosophila*. **Proc. Natl. Acad. Sci. USA.** 118(23), e2024690118. (* co-first authors)
- Tamura, R., Jiang, F., Xie, J., and **Kamiyama, D.** (2021) Multiplexed labeling of cellular proteins with split fluorescent proteins. **Communications Biology** 4(1), 257.
- Inal, MA., Banzai, K., and **Kamiyama, D.** (2020) Retrograde tracing of *Drosophila* embryonic motor neurons using lipophilic fluorescent dyes. **Journal of Visualized Experiments** 155, e60716.
- Kelliher, MT., Yue, Y., Ng, A., **Kamiyama, D.**, Huang, B., Verhey, KJ., and Wildonger, J. (2018) Autoinhibition of kinesin-I is essential to the dendrite-specific localization of Golgi outposts. **Journal of Cell Biology** 217(7), 2531-2547.
- Li, Q., Reinig, M., **Kamiyama, D.**, Huang, B., Tao, X., Bardales, A., and Kubby, J. (2017) Woofer-tweeter adaptive optical structured illumination microscopy. **Photonics Research** 5(4), 329-334.

Papers Prior to Becoming a UGA Assistant Professor

- Leonetti, MD., Sekine, S., **Kamiyama, D*.**, Weissman, SJ*., and Huang, B*. (2016) A scalable strategy for high-throughput GFP tagging of endogenous human proteins. **Proc. Natl. Acad. Sci. USA.** 113(25), E3501-E3508. (* co-corresponding authors)
- **Kamiyama, D*.**, Sekine, S*., Barsi-Rhyne, B., Hu, J., Chen, B., Gilbert, L., Ishikawa, H., Leonetti, MD., Wallace, F., Weissman, J., and Huang, B. (2016) Versatile protein tagging in cells with split fluorescent protein. **Nature Communications** 7, 111046. (* co-first authors)
- **Kamiyama, D*.**, McGorty, R., Kamiyama, R., Kim, M., Chiba, A., and Huang, B*. (2015) Specification of dendritogenesis in *Drosophila* aCC motoneuron by membrane-enrichment of Pak1 through Dscam1. **Developmental Cell** 35(1), 93-

106. (* co-corresponding authors)

- Ong, W.Q., Citron, Y.R., Schnitzbauer, J., **Kamiyama, D.**, and Huang, B. (2015) Heavy water: a simple solution to increasing the brightness of fluorescent proteins in super-resolution imaging. **Chemical Communications** 51(70), 13451-13453.
- McGorty, R., Liu, H., **Kamiyama, D.**, Dong, Z., Guo, S., and Huang, B. (2015) Open-top selective plane illumination microscope for conventionally mounted specimens. **Optics Express** 23(12), 16142-16153.
- Sharifai, N., Samarajeewa, H., **Kamiyama, D.**, Deng, T.C., Boulina, M., and Chiba, A. (2014) Imaging dynamic molecular signaling by the Cdc42 GTPase within the developing CNS. **PLOS ONE** 9(2), e88870.
- McGorty, R., **Kamiyama, D.**, and Huang, B. (2013) Active Microscope Stabilization in Three Dimensions Using Image Correlation. **Optical Nanoscopy** 2(1).
- **Kamiyama, D*.**, and Huang, B*. (2012) Development in the STORM. **Developmental Cell** 23(6), 1103-1110. (* co-corresponding authors)
- **Kamiyama, D.**, and Chiba, A. (2009) Endogenous activation patterns of Cdc42 GTPase within *Drosophila* embryos. **Science** 324(5932), 1338-1340.
- Buranachai, C., **Kamiyama, D.**, Chiba, A., Williams, B.D., and Clegg, R.M. (2008) Rapid frequency-domain FLIM spinning disk confocal microscope: lifetime resolution, image improvement and wavelet analysis. **Journal of Fluorescence** 18(5), 929-942.
- Furrer, M.P., Vasenkova, I., **Kamiyama, D.**, Rosado, Y., and Chiba, A. (2007) Slit and Robo control the development of dendrites in Drosophila CNS. **Development** 134(21), 3795-3804.
- Kim, M.D., **Kamiyama, D.**, Kolodziej, P., Hing, H., and Chiba, A. (2003) Isolation of Rho GTPase effector pathways during axon development. **Developmental Biology** 262(2), 282-293.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Lohitash Karumbaiah

eRA COMMONS USER NAME (credential, e.g., agency login): LKARUMBAIAH

POSITION TITLE: Associate Professor of Regenerative Medicine

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Bangalore University, Bangalore, India	B.Sc	07/96	Microbiology
Griffith University, Queensland, Australia	M.Sc	11/98	Biotechnology
The University of Georgia, Athens, Georgia	Ph.D	08/07	Biochemistry (Advisor - Dr. Michael Adang)
Georgia Institute of Technology/Emory University School of Medicine, Atlanta, Georgia	Postdoctoral Training	11/09	Neuroscience and Neural Tissue Engineering (Advisor - Dr. Ravi Bellamkonda)

A. Personal Statement

Traumatic injuries and invasive tumors in the brain and spine have devastating long-term consequences. These central nervous system (CNS) injuries and diseases carry a poor prognosis due to the lack of effective treatments. Research in my lab is focused on two related areas - (1) the development of regenerative niche mimicking glycomaterials to help trigger the endogenous regenerative cascade and facilitate functional recovery following traumatic brain injuries; and (2) gaining a fundamental understanding of the role of the extracellular matrix in the brain tumor microenvironment and developing targeted strategies to stem tumor invasion and enhance the efficacy of standard-of-care therapeutics. My lab has developed novel biomaterials, microphysiological “on-chip” potency assays, and functional electrical stimulation tools to answer fundamental questions related to these areas of study.

Ongoing and recently completed projects that I would like to highlight include:

NIH 1R01NS099596-01A1
PI: Karumbaiah
07/15/2017-05/31/2023
Creating endogenous Stem Cell Niches to Promote Functional Brain Repair Post-TBI

NSF 1648035
PI: Roy
10/1/2017-9/30/2022
NSF Engineering Research Center (ERC) for Cell Manufacturing Technologies

GRA Venture Award
PI: Karumbaiah
9/1/2021 – 12/31/2022
A chimeric small-molecule cytostatic and cytotoxic agent for glioblastoma

AR^{3}T Technology Development Grant

PI: Karumbaiah
7/01/2019 - 6/30/2021
An integrated microfluidics-based approach to model brain damage and recovery responses

ABTA Discovery Grant
PI: Karumbaiah
12/31/2019-6/30/2021
Immunosensing Glioblastoma Induced Glycomodulation

Citations:

1. Latchoumane CV, Chopra P, Sun L, Ahmed A, Palmieri F, Wu HF, Guerreso R, Thorne K, Zeltner N, Boons GJ, **Karumbaiah L**. Synthetic Heparan Sulfate Hydrogels Regulate Neurotrophic Factor Signaling and Neuronal Network Activity. **ACS Applied Materials & Interfaces**. 2022 Jun 16.
2. Latchoumane CF, Betancur MI, Simchick GA, Sun MK, Forghani R, Lenear CE, Ahmed A, Mohankumar R, Balaji N, Mason HD, Archer-Hartmann SA, Azadi P, Holmes PV, Zhao Q, Bellamkonda RV, **Karumbaiah L**. Engineered glycomaterial implants orchestrate large-scale functional repair of brain tissue chronically after severe traumatic brain injury. **Science Advances.** 2021 Mar 5;7(10):eabe0207.
3. Latchoumane CF, Barany DA, **Karumbaiah L**, Singh T. Neurostimulation and Reach-to-Grasp Function Recovery Following Acquired Brain Injury: Insight From Pre-clinical Rodent Models and Human Applications. **Frontiers in Neurology**. 2020 Jul 21;11:835.
4. Sun MK, Passaro AP, Latchoumane CF, Spellicy SE, Bowler M, Goeden M, Martin WJ, Holmes PV, Stice SL, **Karumbaiah L**. Extracellular vesicles mediate neuroprotection and functional recovery after traumatic brain injury. **J Neurotrauma**. 2019.

B. Positions, Scientific Appointments, and Honors

Positions and Employment

Jan 1999 – Sept 1999	Research Associate, Department of Biotechnology, University of Agricultural Sciences, Bangalore, India
Oct 1999 – Feb 2001	Quality Assurance Officer, Monsanto Company
Feb 2001 – June 2002	Assistant Manager, Biotech Traits, Monsanto Company
Sep 2007 – June 2009	Postdoctoral Fellow, Department of Biomedical Engineering, Georgia Tech/Emory University School of Medicine
June 2009 – Apr 2010	Research Scientist, Department of Biomedical Engineering, Georgia Tech/Emory University School of Medicine
Apr 2010 – Sep 2013	Senior Research Scientist, Department of Biomedical Engineering, Georgia Tech/Emory University School of Medicine
Oct 2013 – Present	Assistant Professor of Regenerative Medicine, Regenerative Bioscience Center, The University of Georgia
Jan 2019 – Present	Associate Professor of Regenerative Medicine, Regenerative Bioscience Center, The University of Georgia

Other Experience and Professional Memberships

2007 - Present	Ad-Hoc Reviewer for >40 neuroscience and materials chemistry publications
2007 – Present	Member Society for Neuroscience
2010 – Present	Member Tissue Engineering and Regenerative Medicine International Society (TERMIS)
2011 – 2012	Study director for a biomedical device company
2012 – Present	Member Society for Biomaterials
2012 – 2013	Veterans Affairs Merit Review Panel Member
2014 – 2015	Connecticut Department of Public Health - 2015 DPH Biomedical Review Process Panel Member
2015 – Present	Ohio Cancer Research Associates – Ad Hoc grant reviewer
2015 – Present	Editorial Board Member - Frontiers in Neuroscience (Neural Technology and Neuroprosthetics
2015 – Present	Editorial Board Member - Frontiers in Molecular Biosciences, Bioengineering and Biotechnology and Materials (Biomaterials)

2016 – Present American Society for Matrix Biology
2016 – Present Atlanta Clinical & Translational Science Institute (ACTSI) – Ad Hoc grant reviewer
2016 – Present External Grant Reviewer - Brain Canada-CQDM Focus on Brain" grant competition for pre-competitive research
2018 – 2021 Chair of the UGA Bio-imaging Research Center (BIRC) Scientific Review Committee
2019 – Present Editorial Board Member – Nature Scientific Reports
2019 – Present UGA Regenerative Bioscience Center Steering Committee Member
2021 - Present Ad Hoc reviewer Bioengineering of Neuroscience and Vision Technologies (BNVT) NIH study section

Honors

June 2002 – 'Rapid Recognition Award', Monsanto Company.
Nov 2012 – 'Expert Panelist' at the International Conference on Neuroprosthetic Devices (ICNPD-2012), Freiburg, Germany.
March 2016 – UGA Global Programs Faculty International Travel Award.
Sep 2016 – Southern Translational Education and Research (STaR) Young Investigator Award.
March 2017 – Best Early Stage Investigator Abstract Award, 12th World Congress on Brain Injury, International Brain Injury Association
August 2019 – UGA Aspire Fellow
January 2020 – UGA Faculty Innovation Fellow

C. Contributions to Science

1. Chondroitin sulfate (CS) proteoglycans have long been implicated in mediating neuronal growth repulsion after central nervous system (CNS) injuries. However, the glycosaminoglycan sulfation dependent regulation of these mechanisms were largely unknown. As a postdoc in Ravi Bellamkonda's lab at Georgia Tech, I was the first to identify the potent neurite growth inhibiting attributes of an oversulfated CS disaccharide associated with astroglial scar. These studies also pointed to the contrasting roles played by other sulfated CS disaccharides linked to CS proteoglycans, in facilitating neurotrophic factor enrichment and maintenance of stem cell self-renewal. These insights into CS biology have laid the foundation for ongoing work in my laboratory, which is focused on exploiting the structural and functional diversity of sulfated CS to develop engineered glycomaterial implants to promote large-scale cellular and functional repair of brain tissue after sTBI.

   a) Latchoumane CF, Betancur MI, Simchick GA, Sun MK, Forghani R, Lenear CE, Ahmed A, Mohankumar R, Balaji N, Mason HD, Archer-Hartmann SA, Azadi P, Holmes PV, Zhao Q, Bellamkonda RV, **Karumbaiah L***. Engineered glycomaterial implants orchestrate large-scale functional repair of brain tissue chronically after severe traumatic brain injury. **Science Advances**. 2021 Mar 5;7(10):eabe0207.
   b) Latchoumane CF, Barany DA, **Karumbaiah L****, Singh T. Neurostimulation and Reach-to-Grasp Function Recovery Following Acquired Brain Injury: Insight From Pre-clinical Rodent Models and Human Applications. **Frontiers in Neurology**. 2020 Jul 21;11:835.
   c) McCrary MR, Jesson K, Wei ZZ, Logun M, Lenear C, Tan S, Gu X, Jiang MQ, **Karumbaiah L****, Yu SP, Wei L. Cortical Transplantation of Brain-Mimetic Glycosaminoglycan Scaffolds and Neural Progenitor Cells Promotes Vascular Regeneration and Functional Recovery after Ischemic Stroke in Mice. **Adv Healthc Mater**. 2020 Jan 24:e1900285.
   d) Sun MK, Passaro AP, Latchoumane CF, Spellicy SE, Bowler M, Goeden M, Martin WJ, Holmes PV, Stice SL, **Karumbaiah L***. Extracellular vesicles mediate neuroprotection and functional recovery after traumatic brain injury. **J Neurotrauma**. 2019.

   (***- Corresponding Author; ****Co-lead*)

2. Neural interfaces have tremendous potential to modulate damaged neuronal networks and facilitate the functional independence of individuals affected by severe injuries to the central nervous system. I have a significant interest in developing chronically functional neural interfaces and neuromodulation approaches to accelerate neuroplasticity and functional re-wiring of neural circuits. I have used low-magnitude cyclic strain to investigate inflammatory signaling cascades in astrocytes and microglia surrounding chronically implanted brain electrodes. Subsequent studies involving the assessment of chronic foreign body response to indwelling neural interfaces, and evoked electrophysiological measurements obtained from the rodent barrel cortex helped us converge upon the causative factors leading to electrode recording failure. These studies have led to a better understanding of electrode strain induced inflammatory cascades, and have paved the path to the rational design and fabrication of chronically functional neural interfaces and neuromodulation

approaches. My lab is currently exploring the use of these technologies in combination with tissue engineering approaches to accelerate functional recovery post-TBI.

a) Latchoumane CF, Jackson L, Sendi MS, Tehrani KF, Mortensen LJ, Stice SL, Ghovanloo M, **Karumbaiah L***. Chronic Electrical Stimulation Promotes the Excitability and Plasticity of ESC-derived Neurons following Glutamate-induced Inhibition In vitro. **Scientific Reports**. 2018 Jul 19;8(1):10957.
b) Shen W, **Karumbaiah L**, Liu X, Saxena T, Chen S, Patkar R, Bellamkonda RV, Allen MG. Extracellular matrix-based intracortical microelectrodes: Toward a microfabricated neural interface based on natural materials. **Microsystems & Nanoengineering**. 2015. 1, Article number: 15010. doi:10.1038/micronano.2015.10
c) Saxena T[+], **Karumbaiah L[+]**, Gaupp EA, Patkar R, Patil K, Betancur M, Stanley GB, Bellamkonda RV.The impact of chronic blood-brain barrier breach on intracortical electrode function. **Biomaterials**, 2013, Jul; 34(20):4703-13.
d) **Karumbaiah L**, Saxena T, Carlson D, Patil K, Patkar R, Gaupp EA, Betancur M, Stanley GB, Carin L, Bellamkonda RV. Relationship between intracortical electrode design and chronic recording function. **Biomaterials**, 2013, Nov; 34(33):8061-74.
([+]- Equal contribution; ***- *Corresponding Author*)

3. My lab has developed sulfated CS-glycomaterials consisting of altered sulfation patterns that mimic the oversulfated extracellular brain tumor microenvironment. We have used these 3D constructs to quantify glioblastoma cell choice and invasion in vitro using novel microfluidics-based assays. We have recently reported the invasion blocking effects of a sulfated GAG antagonist – Surfen, on GBM progression in vivo. These studies are the first to demonstrate the use of sulfation signaling blocking small molecules to restrict GBM invasion. These studies have also led to a better understanding of the role of tumor extracellular matrix associated sulfated glycosaminoglycans in promoting brain tumor invasion. Ongoing work is focused on the development of cytostatic agents and combination therapies that can more effectively target GBM. In previous work, I have developed tumor targeting nanoprobes for diagnostic imaging and stemming glioma invasion, and investigated the state of vasculature surrounding invasive breast tumors.

a) Logun MT, Wynens KE, Simchick G, Zhao W, Mao L, Zhao Q, Mukherjee S, Brat DJ, **Karumbaiah L***. Surfen-mediated blockade of extratumoral chondroitin sulfate glycosaminoglycans inhibits glioblastoma invasion. **The FASEB Journal**. 2019 Aug 9:fj-201802610RR.
b) Logun MT, Zhao W, Mao L, **Karumbaiah L***. Microfluidics in Malignant Glioma Research and Precision Medicine. **Advanced Biosystems**. 2018 May;2(5):1700221.
c) Saxena T, Lyon JG, Pai SB, Pare D, Amero J, **Karumbaiah L**, Carroll SL, Gaupp E, Bellamkonda RV. Engineering Controlled Peritumoral Inflammation to Constrain Brain Tumor Growth. **Advanced healthcare materials**. 2018 Dec 11:1801076.
d) Logun MT, Bisel NS, Tanasse EA, Zhao W, Gunasekera B, Mao L, **Karumbaiah L***. Glioma cell invasion is significantly enhanced in composite hydrogel matrices composed of chondroitin 4-and 4, 6-sulfated glycosaminoglycans. **J Mater Chem B** 2016, 4, 6052 - 6064.
(**- *Corresponding Author*)

4. Traumatic musculoskeletal and nervous system injuries have devastating long-term consequences. Individuals suffering from these injuries often experience severe functional deficits, and poor prognosis due to lack of treatment options. My lab conducts research at the interface of biology and engineering, exploring the design and application of complex glycomaterials that are designed to mimic the native properties of polysaccharides in the extracellular matrix of the nervous system and other tissues. These materials are composed of natural and synthetic polysaccharide composites that possess growth factor binding and signaling attributes to accelerate the endogenous regenerative cascade and facilitate functional recovery following severe nervous system and musculoskeletal tissue trauma.

a) Logun MT, Dowling MB, Raghavan SR, Wallace ML, Schmiedt C, Stice S, **Karumbaiah L***. Expanding Hydrophobically Modified Chitosan Foam for Internal Surgical Hemostasis: Safety Evaluation in a Murine Model. **Journal of Surgical Research**. 2019 Jul 1;239:269-77.
b) Andrews S, Cheng A, Stevens H, Logun MT, Webb R, Jordan E, Xia B, **Karumbaiah L****, Guldberg RE, Stice S. Chondroitin Sulfate Glycosaminoglycan Scaffolds for Cell and Recombinant Protein-Based Bone Regeneration. **Stem Cells Transl Med**. 2019 Jun;8(6):575-585.

c) Birdwhistell KE, **Karumbaiah L****, Franklin SP. Sustained Release of Transforming Growth Factor-β1 from Platelet-Rich Chondroitin Sulfate Glycosaminoglycan Gels. **The journal of knee surgery**. 2018 May;31(5):410.
(**Corresponding Author; **Co-lead)*

Complete List of Published Work in MyBibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/lohitash.karumbaiah.1/bibliography/40232329/public/?sort=date&direction=ascending

Eileen J. Kennedy, Ph.D.

Dr. Samuel C. Benedict Professor
Interim Department Head
Director, UGA Cancer Center
University of Georgia
Department of Pharmaceutical and Biomedical Sciences
College of Pharmacy
240 W. Green St, 342 Pharmacy South
Athens, GA 30602

E-mail: ekennedy@uga.edu; phone (office): 1-706-542-6497
Web site: http://rx.uga.edu/faculty-member/eileen-kennedy-ph-d/

CURRENT POSITION

2022-Present	Co-Director, UGA Cancer Center
2022-Present	Interim Department Head, University of Georgia Department of Pharmaceutical and Biomedical Sciences
2019-Present	Dr. Samuel C. Benedict Professor, University of Georgia College of Pharmacy
2017-Present	Associate Prof. with Tenure, University of Georgia

EDUCATION

2006-2010	American Cancer Society Postdoctoral Fellow, Harvard University Advisor: Gregory L. Verdine, Chemistry and Chemical Biology
2000-2005	Ph.D. Chemistry, American Heart Association Predoctoral Fellow, UCSD Advisor: Gourisankar Ghosh, Chemistry and Biochemistry
1995-1998	B.S. Biochemistry, University of Washington Advisor: Craig Beeson

ACADEMIC EMPLOYMENT AND POSITIONS

2022-Present	Co-Director, UGA Cancer Center
2022-Present	Interim Department Head, University of Georgia Department of Pharmaceutical and Biomedical Sciences
2022-Present	University of Georgia, Full Prof. with Tenure Department of Pharmaceutical and Biomedical Sciences College of Pharmacy
2021-2022	Interim Associate Department Head, University of Georgia Department of Pharmaceutical and Biomedical Sciences
2020-2021	Interim Assistant Department Head, University of Georgia

	Department of Pharmaceutical and Biomedical Sciences
2019-Present	Dr. Samuel C. Benedict Professor, University of Georgia College of Pharmacy
08/2017-2022	University of Georgia, Associate Prof. with Tenure Department of Pharmaceutical and Biomedical Sciences College of Pharmacy
01/2017-Present	Adjunct Associate Professor, University of Georgia Departments of Chemistry and Biochemistry and Molecular Biology
08/2010-2016	Assistant Professor (tenure track), University of Georgia Department of Pharmaceutical and Biomedical Sciences
08/2010-2016	Adjunct Assistant Professor, University of Georgia Department of Biochemistry and Molecular Biology
06/2009-06/2010	Harvard University, Research Associate Department of Chemistry and Chemical Biology
01/2006-05/2009	Harvard University, American Cancer Society Postdoctoral Fellow Department of Chemistry and Chemical Biology
09/2000-12/2005	Univ. of CA San Diego, American Heart Association Predoctoral Fellow Department of Chemistry and Biochemistry
08/1998-08/2000	Puget Sound Blood Bank, Seattle, WA; Research Technologist II Division of Research, Genomic Research laboratory
07/1997-08/1998	University of Washington, Undergraduate Researcher Department of chemistry

AWARDS AND HONORS

1. *Session Chair*, 27th American Peptide Symposium, Whistler, Canada, June 2022
2. *Women's Leadership Fellow*, Selected by UGA Provost, 2021-2022
3. *Session Chair*, GRC on Chemistry and Biology of Peptides, Ventura, CA, March 2020
4. Endowed Professorship (Dr. Samuel C. Benedict Professor), 2019-Present
5. *Elected Member of Council*, American Peptide Society, 2019-2025
6. *Session Chair*, 26th American Peptide Symposium, Monterey, CA, June 2019
7. *Guest Editor,* Special Symposium-in-Print issue "Constrained Peptides and Biological Targets" for *Bioorganic and Medicinal Chemistry,* March 2018
8. *Session Chair, Gordon Research Conference on Phosphorylation and G-Protein*

Mediated Signaling Networks, Biddeford, ME, June 2016

9. *Session Chair*, 24th American Peptide Symposium, Orlando, FL, June 2015
10. *Elected Member of the Nominating Committee*, American Peptide Society, 2015-2017
11. *Keynote Speaker*, 12th Annual Biochemistry Retreat, University of Kassel, Wesendorf, Germany, January 22, 2015
12. *Session Chair*, 23rd American Peptide Symposium/ 6th Annual International Peptide Symposium, Waikoloa, HI, June 2013
13. *Faculty Summer Research Support for Outstanding Faculty*, Office of the Provost, University of Georgia, 2013
14. *Nominated Member,* Career Development and Mentoring Committee, ASPET, 2013-2016
15. *Session Chair*, Gordon Research Conference on Bioorganic Chemistry, Andover, NH, June 2011
16. *FASEB MARC Travel Awardee,* Sponsored by FASEB, EB 2011, Washington D.C., April 2011
17. *NCI Transition Career Development Award,* NCI K22 Award, 2011-2014
18. *Scholar-In-Training Award*, AACR-ACS Chemistry in Cancer Research, New Orleans, LA, 2009
19. *Scholar-In-Training Award*, AACR-ACS Chemistry in Cancer Research, San Diego, CA, 2007
20. *Carl. F. Storm Underrepresented Minority Fellowship*, Gordon Research Conference on Molecular Pharmacology, Lucca, Italy, 2005
21. *Postdoctoral Fellowship*, American Cancer Society, 2006-2009
22. *Travel Award*, Third International Conference on Structural Biology, Singapore, 2004
23. *Predoctoral Fellowship*, American Heart Association, 2003-2005
24. *Best Poster Award*, Molecular and Theoretical Biophysics Symposium, San Diego, CA, 2003
25. *Predoctoral Fellowship*, NSF MASEM Program, 2000-2001
26. *Outstanding Teaching Assistant Award*, Organic Chemistry Laboratory Teach Assistant, UCSD, 2000

U.S. AND INTERNATIONAL PATENTS

1. "Ligation of Stapled Polypeptides." Verdine GL and **Kennedy EJ.** (2015) 9,458,189 issued 10/4/2016
2. "EGFR targeting compounds and methods of use thereof." **Kennedy EJ** and Hanold LE. (2015) PCT/US2015/35621
3. "Chemically-stabilized A Kinase Anchoring Protein (AKAP) peptide disruptors." **Kennedy EJ,** Wang Y and Taylor SS. (2015), PCT/US2014/047236 and WO 2015/010048 A1
4. "Stably linked peptides and methods for their use." **Kennedy EJ** and Hanold LE. (2014) USSN 61/774,928

5. “Antiparasitic chemically-stabilized peptide disruptors.” **Kennedy EJ** and Peterson DS. (2014) USSN 61/866,580
6. “Disruption of the WAVE3 (WASF3) protein complex.” **Kennedy EJ.** (2015) USSN 62/144,631
7. “Disruption of the WAVE3 protein complex for suppression of invasion and metastasis.” **Kennedy EJ.** (2017) 15/565,229
8. “Chemically-stabilized allosteric modulators of Leucine-Rich Repeat Kinase 2 (LRRK2)” **Kennedy EJ,** Kortholt A and Helton LG. (2021) WO 2021/173802 A1

PUBLICATIONS

Publications, 2010-Present (* indicates corresponding author)

1. Bendzunas GN, Limaye AJ, Whittaker M, Cowell J, **Kennedy EJ**.* (2022) “Targeting the WASF3 complex to suppress metastasis.” *Pharmacological Research,* 182:106302, DOI: 10/1016/j.phrs.2022.106302 (PMID: 35691539).

2. Byrne DP, Omar MH, **Kennedy EJ**, Eyers PA, Scott JD. (2022) “Biochemical analysis of AKAP-anchored PKA signaling complexes.” Methods Mol Biol, 2483:297-317, DOI: 10.1007/978-1-0716-2245-2_19 (PMID: 35286684).

3. Singh R, Soliman A, Guaitoli G, Stormer E, von Zweydorf F, Maso TD, Van Rillaer L, Schmidt S, Chatterjee D, Pardon E, Knapp S, **Kennedy EJ**, Steyaert J, Herberg FW, Kortholt A, Gloeckner CJ, Versees W. (2022) “Nanobodies as allosteric modulators of Parkinson’s disease-associated LRRK2.” *Proc. Nat. Acad. Sci.,* 119: e2112712119, DOI: 10.1073/pnas.2112712119 (PMID: 35217606).

4. Limaye AJ, Bendzunas GN, Whittaker M, LeClair TJ, Helton LG, **Kennedy EJ.*** (2022) “In silico optimized stapled peptides targeting WASF3 in breast cancer,” *ACS Med Chem Letters,* DOI: 10.1021/acsmedchemlett.1c00627 (PMID: 35450347).

5. Helton LG, Rideout HJ, Herberg FW, **Kennedy EJ.*** (2022) “Leucine Rich Repeat Kinase 2 (LRRK2) Peptide Modulators: Recent Advances and Future Directions.” *Peptide Science,* 114:e24251, DOI: 10.1002/pep2.24251
**Featured on Cover

6. Helton LG, Soliman A, von Zweydorf F, Kentros M, Manschwetus JT, Hall S, Gilsbach BK, Ho F, Athanasopoulos P, Singh R, LeClair TJ, Versees W, Raimondi F, Herberg FW, Gloeckner CJ, Rideout HJ, Kortholt A*, **Kennedy EJ**.* (2021) “Allosteric inhibition of Parkinson’s-linked LRRK2 by constrained peptides.” *ACS Chem Biol,* 16:2326-2338, DOI: 10.1021/acschembio.1c00487 (PMID: 34496561).

7. Limaye AJ, Bendzunas GN, **Kennedy EJ.*** (2021) “Targeted disruption of PKC from AKAP signaling complexes.” *RSC Chem Biol,* 2:1227-1231, DOI: 10.1039/d1cb00106j (PMID: 34458835).

8. Lasonder E, More K, Singh S, Haidar M, Bertinetti D, **Kennedy EJ**, Herberg FW, Holder T, Langsley G, Chitnis C. (2021) “cAMP-dependent signalling pathways as potential targets for inhibition of *Plasmodium falciparum* blood stages.” *Frontiers in Microbiology,* 12:684005, DOI: 10.3389/fmicb.2021.684005 (PMID: 34108954).

9. Baffi TR, Lorden G, Wozniak JM, Feichtner A, Yeung W, Kornev AP, King CC, Del Rio JC, Limaye AJ, Bogomolovas J, Gould CM, Chen J, **Kennedy EJ**, Kannan N, Gonzalez DJ, Stefan E, Taylor SS, Newton, AC. (2021) "mTORC2 controls the activity of PKC and Akt by phosphorylating a conserved TOR-interaction motif." *Science Signaling,* 14: 678, DOI: 10.1126/scisignal.abe4509 (PMID: 33850054).

10. Peng H, Cassel J, McCracken DS, Prokop JW, Sementino E, Cheung M, Collop PR, Polo A, Joshi S, Mandell JP, Ayyanathan K, Hinds D, Malkowicz SB, Harbour JW, Bowcock AM, Salvino J, **Kennedy EJ**, Testa JR, Rauscher FJ III. (2021) "Kinetic characterization of ASXL1/2-mediated allosteric regulation of the BAP1 deubiquitinase." *Mol. Cancer Research*, DOI: 10.1158/1541-7786.MCR-20-0080 (PMID: 33731362).

11. Helton L.G., Limaye A.J., Bendzunas G.N., **Kennedy E.J.*** (2020). "Novel Stabilized Peptide Inhibitors of Protein Kinases." In: Shapiro P. (eds) Next Generation Kinase Inhibitors. Springer, Cham. DOI: 10.1007/978-3-030-48283-1_7.

12. Ding K, McGee-Lawrence ME, Kaiser H, Sharma AK, Pierce JL, Irsik DL, Bollag WB, Xu J, Zong Q, Hill W, Shi X-M, Fulzele S, **Kennedy EJ**, Elsalanty M, Hamrick MW and Isales CM (2020). "Picolinic acid, a tryptophan oxidation product, does not impact bone mineral density but increases marrow adiposity." *Experimental Gerontology,* 133:110885, DOI: 10.1016/j.exger.2020.110885 (PMID: 32088397).

13. Helton LG and **Kennedy EJ*** (2020). "Targeting plasmodium with constrained peptides and peptidomimetics." *IUBMB Life,* DOI: 10.1002/iub.2244 (PMID: 32037730).

14. Manschwetus JT, Bendzunas GN, Limaye AJ, Knape MJ, Herberg FW*, **Kennedy EJ*** (2019) "A stapled peptide mimic of the pseudosubstrate inhibitor PKI inhibits Protein Kinase A." *Molecules,* 24(8):1567, DOI: 10.3390/molecules24081567 (PMID: 31009996).

15. Cao Z, Singh B, Li C, Markham NO, Carrington LJ, Franklin JL, Graves-Deal R, **Kennedy EJ**, Goldenring JR and Coffey EJ (2019) "PKA-mediated phosphorylation of NKD2 stimulates cell-surface delivery of TGF-a for EGFR transactivation." *Traffic*, 20(5): 357-368, DOI: 10.1111/tra.12642 (PMID: 30941853).

16. Flaherty B, Ho TG, Schmidt S, Herberg FW, Peterson D, **Kennedy EJ*** (2019) "Targeted Inhibition of Plasmodium falciparum Calcium-Dependent Protein Kinase 1 With A Constrained J Domain-Derived Disruptor Peptide." *ACS Infect Dis.*, 5(4): 506-514, DOI: 10.1021/acsinfecdis.8b00347. (PMID: 30746930).

17. **Kennedy EJ*** (2018) "Constrained peptides and biological targets." *Bioorg. Med. Chem*., 26: 1117. DOI: 10.1016/j.bmc.2018.02.046 (PMID: 29519596).

18. Burgess SG, Mukherjee M, Sabir S, Joseph N, Gutiérrez-Caballero C, Richards MW, Huguenin-Dezot N, Chin JW, **Kennedy EJ**, Pfuhl M, Royle SJ, Gergely F, Bayliss R. (2018) "Mitotic spindle association of TACC3 requires Aurora-A-dependent stabilization of a cryptic a-helix." *EMBO J.*, 37(8). pii: e97902. DOI: 10.15252/embj.201797902 (PMID: 29510984).

19. Bendzunas NG, Dörfler S, Autenrieth K, Bertinetti D, Machal EMF, **Kennedy EJ***, Herberg FW*. (2018) "Investigating PKA-RII specificity using analogs of the PKA:AKAP peptide inhibitor STAD-2." *Bioorg. Med. Chem.,* 26(6):1174-1178. DOI: 10.1016/j.bmc.2018.02.001 (PMID: 29449124).

20. Haidar M, de Laté PL, **Kennedy EJ**, Langsley G. (2018) “Cell penetrating peptides to dissect host-pathogen protein-protein interactions in Theileria-transformed leukocytes.” *Bioorg. Med. Chem.,* 26(6):1127-1134. DOI: 10.1016/j.bmc.2017.08.056 (PMID: 28917447).

21. Fulton MD, Hanold LE, Ruan Z, Patel S, Beedle AM, Kannan N, **Kennedy EJ***. (2018) “Conformationally constrained peptides target the allosteric kinase dimer interface and inhibit EGFR activation.” *Bioorg. Med. Chem.,* 26(6):1167-1173. DOI: 10.1016/j.bmc.2017.08.051 (PMID: 28911855).

22. Egan JB, . . . , **Kennedy EJ**, Klee EW, Borad MJ, Fernandez-Zapico ME. (2017) “Functional analysis of exome sequencing-derived variants identifies a novel constitutively active FGFR2 mutant in cholangiocarcinoma.” *Journal of Clinical Oncology: Precision Oncology,* DOI: 10.1200/PO.17.00018.

23. El Refaey M, Lawrence-McGee ME, Fulzele S, **Kennedy EJ**, Bollag WB, Elsalanty M, Zhong Q, Ding KH, Bendzunas NG, Shi XM, Xu J, Hill WD, Johnson MH, Hunter M, Pierce JL, Yu K, Hamrick MW, Isales CM. (2017) “Kynurenine, a tryptophan metabolite that accumulates with age, induces bone loss.” *Journal of Bone and Mineral Research,* DOI: 10.1002/jbmr.3224 (PMID 28727234).

24. Cowell JK, Teng Y, Bendzunas NG, Ara R, Arbab AS, **Kennedy EJ***. (2017) “Suppression of breast cancer metastasis using stapled peptides targeting the WASF regulatory complex.” *Cancer Growth Metastasis,* DOI 10.1177/1179064417713197 (PMID: 28680267).

25. Mo GC, Ross B, Hertel F, Manna P, Yang X, Greenwald E, Booth C, Plummer AM, Tenner B, Chen Z, Wang Y, **Kennedy EJ**, Cole PA, Fleming KG, Palmer A, Jimenez R, Xiao J, Dedecker P, Zhang J. (2017) “Genetically-encoded biosensors for visualizing live-cell biochemical activity at superresolution.” *Nature Methods,* 14(4): 427-434, DOI: 10.1038/nmeth.4221 (PMID: 28288122).

26. Hanold LE, Fulton MD, **Kennedy EJ*.** (2017) “Targeting kinase signaling pathways with constrained peptide scaffolds.” *Pharmacology and Therapeutics,* 173: 159-170, DOI: 10.1016/j.pharmthera.2017.02.014 (PMID: 28185915).

27. Haidar M, Lombes A, Bouillaud F, **Kennedy EJ** and Langsley G (2017). “HK2 recruitment to phospho-BAD prevents its degradation promoting Warburg glycolysis by Theileria-transformed leukocytes.” *ACS Infectious Diseases,* 3(3):216-224, DOI: 10.1021/acsinfecdis.6b00180 (PMID: 28086019).

28. Haidar M, Ramdani G, **Kennedy EJ** and Langsley G. (2017) “PKA and apicomplexan parasite diseases.” *Horm. Metab. Res.,* 48: 1-5, DOI 110.1055/s-0042-118459 (PMID: 27835919).

29. Teng Y*, Qin H, Bahassan A, Bendzunas NG, **Kennedy EJ***, Cowell JK*. (2016) “The WASF3-NCKAP1-CYFIP1 Complex Is Essential for Breast Cancer Metastasis.” *Cancer Res*earch, 76(17):5133-42, DOI: 10.1158/0008-5472.CAN-16-0562 (PMID: 27432794).

30. Gotz F, Roske Y, Schulz MS, Autenrieth K, Bertinetti D, Faelber K, Zuhlke K, Kreuchwig A, **Kennedy EJ**, Krause G, Daumke O, Herberg FW, Heinemann U and Klussmann E.

(2016) “AKAP18:PKA-RIIa structure reveals crucial anchor points for recognition of regulatory subunits of PKA.” *Biochemical J.,* 473(13):1881-94, DOI 10.1042/BCJ20160242 (PMID: 27102985).

31. Mohanty S, Oruganty K, Kwon A, Byrne DP, Ferries S, Ruan Z, Hanold LE, Katiyar S, **Kennedy EJ,** Eyers PA and Kannan N. (2016) “Hydrophobic core variations provide a structural framework for tyrosine kinase evolution and functional specialization.” *PLoS Genetics*, 12: e1005885, DOI 10.1371/journal.pgen.1005885 (PMID: 26925779).

32. Bavencoffe A, Li Y, Wu Z, Yang Q, Herrera J, **Kennedy EJ**, Walters ET, Dessauer CW. (2016) “Persistent Electrical Activity in Primary Nociceptors after Spinal Cord Injury Is Maintained by Scaffolded Adenylyl Cyclase and Protein Kinase A and Is Associated with Altered Adenylyl Cyclase Regulation.” *J. Neuroscience*, 36(5):1660-8, DOI 10.1523/JNEUROSCI.0895-15.2016 (PMID: 26843647).

33. Teng Y, Bahassan A, Dong D, Hanold LE, Ren X, **Kennedy EJ**, Cowell JK. (2016) “Targeting the WASF3-CYFIP1 Complex Using Stapled Peptides Suppresses Cancer Cell Invasion.” *Cancer Research*, 76(4):965-73, DOI 10.1158/0008-5472.CAN-15-1680 (PMID: 26676744).

34. Autenrieth K, Bendzunas G, Bertinetti D, Herberg FW*, **Kennedy EJ***. (2016) “Defining A-Kinase Anchoring Protein (AKAP) Specificity for Protein Kinase A Subunit RI (PKA-RI).” *ChemBioChem*, 17(8):693-7. DOI 10.1002/cbic.201500632 (PMID: 26611881).

35. Nguyen HT, Jia W, Beedle AM, **Kennedy EJ**, Murph MM. (2015) “Lysophosphatidic Acid Mediates Activating Transcription Factor 3 Expression Which Is a Target for Post-Transcriptional Silencing by miR-30c-2-3p.” *PLoS One,* 10(9):e0139489, DOI 10.1371/journal.pone.0139489 (PMID: 26418018).

36. **Kennedy EJ*** and Kannan N. (2015) “Dialing in EGFR signaling.” *Chemistry and Biology,* 22(6): 687-8, DOI 10.1016/j.chembiol.2015.06.001 (PMID: 26091165).

37. Flaherty BR, Wang Y, Trope EC, Ho TG, Muralidharan V, **Kennedy EJ*** and Peterson DS*. (2015) “The Stapled AKAP disruptor peptide STAD-2 displays antimalarial activity through a PKA-independent mechanism.” *PLoS One,* 10(5): e0129239, DOI 10.1371/journal.pone.0129239 (PMID: 26010880).

38. **Kennedy EJ** and Scott JD. (2015) “Selective disruption of the AKAP signaling complexes.” *Methods in Molecular Biology*, 1294: 137-50, DOI 10.1007/978-1-4939-2537-7_11 (PMID: 25783883).

39. Hermann JS, Skroblin P, Bertinetti D, Hanold LE, von der Heide EK, Wagener E-M, Zenn H-M, Klussmann E, **Kennedy EJ** and Herberg FW. (2015) “Neurochondrin is an atypical RIIalpha-specific A-kinase anchoring protein.” *Biochim. Biophys. Acta,* 1854:1667-75, DOI 10.1016/j.bbapap.2015.04.018 (PMID: 25916936).

40. Mohanty S, **Kennedy EJ**, Herberg FW, Hui R, Taylor SS, Langsley G and Kannan N. (2015) “Structural and evolutionary divergence of cyclic nucleotide binding domains in eukaryotic pathogens: Implications for drug design.” *Biochim. Biophys. Acta,* 1854:1575-85. DOI 10.1016/j.bbapap.2015.03.012. (PMID: 25847873).

41. Hanold LE, Watkins, CP, Liaw P, Beedle AM and **Kennedy EJ***. (2015) "Design of a selenylsulfide-bridged EGFR dimerization arm mimic." *Bioorg. Med. Chem.,* 23(12):2761-6. DOI 10.1016/j.bmc.2015.03.040 (PMID: 25840798).

42. Hanold LE, Oruganty K, Ton NT, Beedle AM, Kannan N and **Kennedy EJ***. (2015) "Inhibiting EGFR dimerization using triazolyl-bridged dimerization arm mimics." *PLoS One*, 10(3): e0118796, DOI 10.1371/journal.pone.0118796 (PMID: 25790232).

43. Wang Y, Ho TG, Franz E, Hermann JS, Smith FD, Hehnly H, Esseltine JL, Hanold LE, Murph MM, Bertinetti D, Scott JD, Herberg FW and **Kennedy EJ***. (2015) "PKA-type I Selective constrained peptide disruptors of AKAP complexes." *ACS Chemical Biology*, 10(6):1502-10. DOI 10.1021/acschembio.5b00009 (PMID 25765284).

44. El Refaey M, Watkins CP, **Kennedy EJ**, Chang A, Zong Q, Ding K-H, Shi X-M, Xu J, Bollag WB, Hill WD, Johnson M, Hunter M, Hamrick MW and Isales CM. (2015) "Oxidation of the aromatic amino acids tryptophan and tyrosine disrupts their anabolic effects on bone marrow-derived mesenchymal stem cells." *Mol. Cell. Endrocinol.,* 410:87-96. DOI 10.1016/j.mce.2015.01.034 (PMID: 25637715).

45. **Kennedy EJ***. (2014) "EMBO conference series: Chemical Biology 2014." *ChemBioChem*. 15(18):2783-7. DOI 10.1002/cbic.201402527. (PMID: 25318996).

46. Fortunato MJ, Ball CE, Hollinger K, Patel NB, Modi JN, Rajasekaran V, Nonneman DJ, Ross JW, **Kennedy EJ,** Selsby JT, Beedle AM. (2014) "Development of rabbit monoclonal antibodies for detection of alpha-dystroglycan in normal and dystrophic tissue." *PLoS One,* 9(5):e97567. doi: 10.1371/journal.pone.0097567 (PMID: 24824861).

47. **Kennedy EJ***. (2014) "Biological Drug Products: Development and Strategies." Edited by Wei Wang and Manmohan Singh. *ChemMedChem.* 9(12): 2814-2815.

48. Wang Y, Ho TG, Bertinetti D, Neddermann M, Franz E, Mo GC, Schendowich LP, Sukhu A, Spelts RC, Zhang J, Herberg FW, **Kennedy EJ**. * (2014) "Isoform-selective disruption of AKAP-localized PKA using hydrocarbon stapled peptides." *ACS Chemical Biology,* 9(3):635-42. doi: 10.1021/cb400900r (PMID: 24422448).

Publications, Prior to 2010

49. Yang J, **Kennedy EJ**, Wu J, Deal MS, Pennypacker J, Ghosh G, and Taylor SS. (2009) "Contribution of non-catalytic core residues to activity and regulation in PKA." *J. Biol. Chem.,* 284: 6241-6248, (PMCID 19122195).

50. **Kennedy EJ**, Yang J, Pillus L, Taylor SS, and Ghosh G. (2009) "Identifying critical non-catalytic residues that modulate PKA activity." *PLoS One,* 4:e4746, (PMCID 19270744).

51. **Kennedy EJ**, Ghosh G, and Pillus L. (2008) "Identification of functionally distinct regions that mediate biological activity of the Protein Kinase A homolog Tpk2." *J. Biol. Chem.,* 283: 1084-1093, (PMCID 17971450).

52. **Kennedy EJ**, Pillus L, and Ghosh G. (2005) "Pho5p and newly identified E-NPPs regulate nucleotide phosphate metabolism in *S. cerevisiae*," *Eukaryotic Cell,* 11: 1892-1901, (PMCID 16278456).

53. Gaur LK, Nitta Y, **Kennedy E**, Lernmark A, Nelson K, Allen M, Nepom G. (2002) "Induction of islet allotolerance in nonhuman primates." *Ann. NY Acad. Sci.,* 958, 199-203, (PMCID 12021106).

54. Gaur LK, **Kennedy E,** Nitta Y, Nepom G, Nelson K, Allen M, Lernmark A. (2002) "Induction of donor-specific tolerance to islet allografts in nonhuman primates." *Ann. NY Acad. Sci.,* 958, 194-198, (PMCID 12021105).

INVITED PRESENTATIONS

CONFERENCE LECTURES, 2010-Present

1. Confirmed Speaker: Canadian Chemistry Conference and Exhibition, Vancouver, Canada, June 4-8, 2023
2. Confirmed Speaker: GRC Chemistry and Biology of Peptides, Oxnard, CA, Oct 30-Nov 4, 2022
3. Foldamers NYU Meeting, New York, NY, July 26-29, 2022, "Doubly-constrained peptides targeting LRRK2"
4. UGA-Emory Joint Cancer Center Retreat, Stone Mountain, GA, July 17-18, 2022, "Targeting the WASF3 regulatory complex with constrained peptides"
5. LRRK2 Central, July 7, 2022, "Targeting LRRK2 with constrained peptides"
6. Biochemical Society LRRK2 Meeting, Lille, France, June 28-July 1, 2022, "Targeting LRRK2 with constrained peptides"
7. Pacifichem 2021, December 15-20, 2021, ""Allosteric Targeting of LRRK2"
8. Experimental Biology 2021, April 27-30, 2021, "Targeting LRRK2 in Parkinson's"
9. 2021 American Chemical Society National Meeting, April 5-30, 2021 "Design of constrained peptides targeting the tumor metastasis regulator WASF3"
10. Michael J. Fox Foundation LRRK2 Consortium, March 24, 2021 "Allosteric targeting of the Parkinson's related kinase LRRK2"
11. American Peptide Society eSeminar Series, Feb. 16, 2021 "Allosteric Targeting of Kinases using constrained peptides"
12. 17th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 8-11, 2020
13. Moving Breast Cancer Treatments Forward Symposium, Jayne Koskinas Ted Giovanis Foundation for Health and Policy (JKTG Foundation), Washington, DC, Oct. 30, 2019
14. 10th Inhibitors of Protein Kinases Conference, Warsaw, Poland, Sept. 14-18, 2019 "Targeted inhibition of the plasmodium kinase CDPK1 using constrained peptides"
15. 26th American Peptide Symposium, Monterey, CA, June 22-27, 2019 "Targeting LRRK2 Dimerization in Parkinson's"
16. 2019 American Chemical Society National Meeting, Orlando, FL, Mar. 31-April 4, 2019 "Allosteric kinase inhibition via disrupted dimerization"
17. 16th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 9-12, 2019, "Targeted degradation of the DnaJ1-PRKACA chimera"

18. ASBMB Kinases and Pseudokinases, San Diego, CA, Dec 9-12, 2018, “Targeted inhibition of LRRK2 using constrained peptides”
19. Greater Atlanta Chemical Biology Symposium, Atlanta, GA, April 21, 2018, "Targeting kinase regulation with constrained peptide Scaffolds”
20. 15th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 10-13, 2018, “Targeting WASF3 in Tumor Metastasis”
21. Pharmacology 2017 and the British Pharmacological Society, London, England, Dec. 11-13, 2017, "Targeting kinase regulation with constrained peptides”
22. LRRK2 Workshop, Kassel, Germany, Sept. 14-15, 2017, “Targeted disruption of kinase dimerization for allosteric inhibition”
23. 9th Inhibitors of Protein Kinases Conference, Warsaw, Poland, September 17-21, 2017 “Targeting AKAP signaling complexes with constrained peptide scaffolds”
24. 25th American Peptide Symposium, Whistler, Canada, June 17-22, 2017 “Targeting AKAP signaling complexes with constrained peptide scaffolds”
25. 14th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 11-14, 2017, “Pharmacological inhibition of kinase activation”
26. 5th International Meeting on Anchored cAMP Signaling, Zermatt, Switzerland, Oct. 6-9, 2016, “Targeting AKAP complexes using constrained peptide scaffolds”
27. Gordon Research Conference on Phosphorylation and G-Protein Mediated Signaling Networks, Biddeford, ME, June 5-10, 2016, “Targeting allosteric activation of EGFR”
28. Experimental Biology 2016, San Diego, CA, April 2-6, 2016, “Developing novel chemical biology strategies to synthetically disrupt protein-protein interactions”
29. 13th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 20-23, 2016, “Targeting regulation and allosteric activation of protein kinases”
30. ASBMB Special Symposia on Kinases and Pseudokinases, San Diego, CA, Dec. 5-8, 2015, “Targeting allosteric activation of EGFR”
31. 4th International Workshop on cAMP signaling, PKA and phosphodiesterases, Erciyes University, Kayseri, Turkey, September 3-5, 2015, “Dissecting AKAP signaling complexes”
32. UGA Cancer Center Retreat, Athens, GA, October 30, 2015, “Chemical biology approaches to study kinase allostery”
33. Drug Discovery and Therapy World Congress, Boston, MA, July 21-25, 2015, “Inhibiting EGFR dimerization using triazolyl-bridged dimerization arm mimics”
34. Research Symposium Honoring Gourisankar Ghosh, UCSD, San Diego, CA, June 18-20, 2015, “Chemical biology approaches to study kinase allostery”
35. 12th Annual Biochemistry Retreat, Universitat Kassel, Wesendorf, Germany, Jan. 21-24, 2015, "Design of chemically modified peptides to study regulation of protein kinases”
36. EMBO Chemical Biology Meeting, EMBL Heidelberg, Heidelberg, Germany, Aug. 20-23, 2014, "Isoform-selective disruption of PKA-AKAP complexes and its effects as an antimalarial"
37. 8th International Conference on Inhibitors of Protein Kinases, Warsaw, Poland, Sept. 21-25, 2014, "Stabilized peptides targeting AKAP anchoring complexes"

38. Cyclic Nucleotide Signaling Workshop, CNRS, Paris, France, Dec. 15-17, 2013, “Design of conformationally constrained AKAP inhibitor peptides”
39. 4th International Meeting on Anchored cAMP Signaling Pathways, Denver, CO, October 4-6, 2013, “Design of conformationally constrained AKAP inhibitor peptides”
40. UGA-GRU Joint Cancer Center Retreat, Lake Oconee, GA, Nov. 1, 2013, “Designing peptide-based allosteric kinase effectors”
41. Experimental Biology 2012, San Diego, CA, April 21-25, 2012, “Targeting EGFR in cancer: cancer drug discovery”
42. Southern Translational Education and Research Conference, Augusta, GA, Sept. 16, 2011, “Design of novel peptide-based inhibitors targeting EGFR”

ACADEMIC SEMINARS, 2010-Present

1. University of Iowa, Dept. of Pharmaceutical Sciences and Experimental Therapeutics, March 23, 2022, “Targeting PPIs with Constrained Peptides”
2. University of Leeds, Leeds, England, Asbury Lecture, Feb. 28, 2020, “Allosteric inhibition of kinases with constrained peptides”
3. University of Groningen, Groningen, Netherlands, Dept. of Cell Biochemistry, Feb. 26, 2020, “Allosteric inhibition of kinases with constrained peptides”
4. University of South Carolina, Dept. of Drug Discovery and Biomedical Sciences, Oct. 8, 2019, “Allosteric kinase inhibition with constrained peptides”
5. Oregon Health Sciences University, Dept. of Pharmacology, Oct. 18, 2018, “Targeting kinases with constrained peptide scaffolds”
6. University of Georgia, Dept. of Chemistry, Oct. 4, 2018, “Targeting kinases with constrained peptide scaffolds”
7. University of Kassel, Kassel, Germany, December 12, 2017, “Targeting kinase regulation with constrained peptide scaffolds”
8. University of Texas Medical Center, Houston, Texas, November 21, 2016, “Targeting Kinase Regulation Using Chemical Biology”
9. Max Delbruck Centrum, Berlin, Germany, October 9-10, 2016, “Stapled peptides for pharmacological interference with cAMP signaling"
10. The Wistar Institute, Program in Gene Expression and Regulation, Philadelphia, PA, March 9, 2016, “Targeting kinase regulation using constrained peptide scaffolds”
11. University of Iowa, Div. of Medicinal and Natural Products Chemistry and Molecular and Cellular Biology, Iowa City, IA, March 3, 2016, “Targeting kinase regulation using constrained peptide scaffolds”
12. Max Planck Institute for Molecular Physiology, Dortmund, Germany, Jan. 19, 2015, “Chemical Biology Tools to Study Kinase Regulation"
13. San Diego State University, Dept. of Chemistry, Dec. 12, 2014, "Design of chemically modified peptides to study regulation of protein kinases”
14. University of California, San Diego, Dept. of Chemistry and Biochemistry, Dec. 11, 2014, "Design of chemically modified peptides to study regulation of protein kinases”

15. University of Vermont, Dept. of Pharmacology, Aug. 28, 2014, "Design of chemically modified peptides to study regulation of protein kinases"
16. Mayo Clinic, Dept. of Oncology, Rochester, MN, March 20, 2014, "Design of chemically modified peptides to study kinase regulation"
17. *European Molecular Biology Laboratory (EMBL),* Dept. of Cell Biology and Biophysics, *Heidelberg, Germany, December 18, 2013,* "Designing modified peptides to study kinase cell signaling"
18. University of Georgia, Dept. of Infectious Diseases, Sept. 16, 2013, "Designing modified peptides to study kinase cell signaling"
19. University of Virginia, School of Medicine, Dept. of Molecular Physiology and Biophysics, Charlottesville, VA, March 11, 2013, "Designing modified peptides to study kinase cell signaling"
20. Georgia Regents University, Inst. of Molecular Medicine and Genetics, Augusta, GA, Feb. 25, 2013, "Designing modified peptides to study kinase cell signaling"
21. University of Georgia, Office of the Vice President for Research, April 8, 2013, "Writing a winning NIH K award application"
22. University of Georgia, Center for Drug Discovery, March 5, 2013, "Designing modified peptides to study kinase cell signaling"
23. University of Georgia, Dept. of Physiology and Pharmacology, March 26, 2012, "Spatiotemporal regulation of kinase signaling in cancer"
24. *University of Georgia, Biochemistry Graduate Student Association Seminar Series, Jan. 4, 2011, "Synthetic biologics: new approaches to temporally alter cell signaling"*
25. Foundation for Applied Molecular Evolution, Gainesville, FL, July 15, 2011, "Synthetic Biologics: New Approaches to Target Cell Signaling"
26. *University of Georgia, Dept. of Biochemistry and Molecular Biology, Sept. 8, 2010, "Chemical Stabilization of alpha helices, beta sheets, and semi-synthetic proteins"*

SUMMARY OF TEACHING RESPONSIBILITIES, 2016-Present

Semester	Course	Total Enrollment	Percent Responsible	Credit Hours
Fall 2021	**PHRM4060 – Medicinal Chemistry II**	143	87	2
Fall 2021	PHRM9000 – Doctoral Research	4	100	12
Fall 2021	BCMB4960R – Undergraduate Research	1	100	4
Spring 2021	**PHRM8020 – Mol. Pharm. of Disease and Therapeutics**	6	30	4
Spring 2021	PHRM9000 – Doctoral Research	5	100	11.6
Spring 2021	BCMB4970R – Undergraduate Research	1	100	4
Spring 2021	BCMB4980R – Undergraduate Research	1	100	4
Spring 2021	PHRM9300 – Doctoral Dissertation	1	100	3
Fall 2020	**PHRM4060 – Medicinal Chemistry II**	144	83	2
Fall 2020	PHRM9000 – Doctoral Research	3	100	12.3
Fall 2020	BCMB4960R – Undergraduate Research	1	100	4
Fall 2020	BCMB4970R – Undergraduate Research	1	100	4
Summer 2020	PHRM9000 – Doctoral Research	3	100	17.3
Spring 2020	PHRM3070 – Medicinal Chemistry I	1	100	2
Spring 2020	**PHRM8020 – Mol. Pharm. of Disease and Ther.**	18	30	4
Spring 2020	PHRM8010 – Structural Bio and Med Chem	8	6	4
Spring 2020	PHRM9000 – Doctoral Research	3	100	12

Spring 2020	BCMB4960R – Undergraduate Research	1	100	4
Spring 2020	BCMB4970R – Undergraduate Research	1	100	4
Fall 2019	**PHRM4060 – Medicinal Chemistry II**	131	83	2
Fall 2019	PHRM9000 – Doctoral Research	3	100	13.7
Fall 2019	BCMB4980R – Undergraduate Research	1	100	4
Summer 2019	PHRM9000 – Doctoral Research	3	100	18
Summer 2019	BCMB4980H – Undergraduate Research	1	100	4
Spring 2019	PHRM3070 – Medicinal Chemistry I	138	20	2
Spring 2019	PHRM8080 – Grantsmanship	15	5	3
Spring 2019	**PHRM8020 – Mol. Pharm. of Disease and Ther.**	14	30	4
Spring 2019	PHRM8010 – Structural Bio and Med Chem	5	6	4
Spring 2019	PHRM9000 – Doctoral Research	2	100	13
Spring 2019	BIOL4970H – Undergraduate Research	1	100	4
Spring 2019	CBIO4970H – Directed Laboratory Research	1	100	4
Fall 2018	**PHRM4060- Medicinal Chemistry II**	133	60	2
Fall 2018	PHRM 9000 – Doctoral Research	3	100	9
Fall 2018	BIOL4960H – Undergraduate Research	1	100	4
Fall 2018	CBIO4980H – Directed Laboratory Research	1	100	4
Summer 2018	PHRM9000 – Doctoral Research	2	100	18
Summer 2018	CBIO4980H – Directed Laboratory Research	1	100	4
Spring 2018	PHRM3070 – Medicinal Chemistry I	137	20	2
Spring 2018	PHRM8020 – Mol. Pharm. of Disease and Ther.	19	28	4
Spring 2018	PHRM8010 – Structural Bio and Med Chem	17	6	4
Spring 2018	PHRM8080 – Grantsmanship	5	5	3
Spring 2018	PHRM5980 – PharmD Research	4	100	4
Spring 2018	PHRM9000 – Doctoral Research	2	100	9
Spring 2018	PHRM7000 – Master's Research	1	100	4
Fall 2017	**PHRM4060 – Medicinal Chemistry II**	142	50	2
Fall 2017	PHRM5980 – PharmD Research	2	100	3
Fall 2017	BCMB4970R – Undergraduate Research	1	100	4
Fall 2017	CBIO4970H – Directed Laboratory Research	1	100	4
Fall 2017	PHRM7000 – Master's Research	1	100	9
Summer 2017	CBIO4960H – Directed Laboratory Research	1	100	4
Spring 2017	PHRM3070 – Medicinal Chemistry I	145	20	2
Spring 2017	PHRM8020 – Mol. Pharm. of Disease and Ther.	15	5	4
Spring 2017	PHRM8080 – Grantsmanship	7	5	3
Spring 2017	PHRM8010 – Structural Bio and Med Chem	5	7	4
Spring 2017	BCMB4960L – Undergraduate Research	1	100	4
Spring 2017	BCMB4970L – Undergraduate Research	1	100	4
Spring 2017	PHRM7000 – Master's Research	1	100	7
Fall 2016	**PHRM4060 – Medicinal Chemistry II**	137	50	2
Fall 2016	BCMB4960L – Undergraduate Research	1	100	4
Fall 2016	PHRM5980 – PharmD Research	1	100	3
Fall 2016	PHRM9000 – Doctoral Research	1	100	13
Summer 2016	PHRM9000 – Doctoral Research	1	100	18

SUMMARY OF PharmD TEACHING EVALUATIONS, 2016-Present

Course	**PHRM 3070 (Med Chem I)**				
(1-5 Scale; 1 strongly disagree - 5 strongly agree) **Year**	**2016**	**2017**	**2018**	**2019**	**2020**
Instructor was organized & prepared:	4.82	4.65	4.78	4.79	4.90
Clarity in presenting materials:	4.66	4.40	4.90	4.74	4.87
Stimulated interest in the topic:	4.47	4.09	4.74	4.90	4.97

Assessments were consistent and clear:	4.64	4.29	4.71	4.71	4.84
Professional interaction with students:	4.92	4.65	4.91	4.91	4.89
Average	**4.70**	**4.42**	**4.81**	**4.81**	**4.89**

Course	**PHRM 4060 (Med Chem II)**				
(1-5 Scale; 1 strongly disagree - 5 strongly agree) **Year**	**2016**	**2017**	**2018**	**2019**	**2020**
Instructor was organized & prepared:	4.88	4.83	4.92	4.93	4.91
Clarity in presenting materials:	4.88	4.71	4.87	4.87	4.89
Stimulated interest in the topic:	4.77	4.33	4.97	4.97	4.96
Assessments were consistent and clear:	4.87	4.83	4.86	4.92	4.90
Professional interaction with students:	4.88	4.89	4.95	4.97	4.96
Average	**4.86**	**4.72**	**4.91**	**4.93**	**4.92**

SUPERVISION OF RESEARCH

Supervision of Graduate Student Research (My Role as Primary Research Advisor)

Years	Graduate Student	Current Position
2011-2016	Laura E. Hanold, Ph.D.	Postdoctoral Fellow, U Florida
2011-2014	Yuxiao Wang, M.S.	Director of Research, Parkway Clinical Labs
2012-2019	Melody Fulton, Ph.D.	(changed labs in 2017) Res. Scientist, U Idaho
2017-2021	George N. Bendzunas	Postdoctoral Fellow, UGA
2017-2022	Leah G. Helton, Ph.D.	Research Scientist, Athira Pharma
2017-2022	Ameya Limaye	Research Scientist, SyntheX
2020-Present	Matt Whittaker	Continuing Ph.D. Student
2020-Present	Krista Barbour	Continuing Ph.D. Student

Graduate Student Advisory Committee Membership

Years	Graduate Student	Department at UGA
2012-2015	Briana Flaherty, Ph.D.	Infectious Diseases
2011-2015	Ha Nguyen, Ph.D	Pharmaceutical and Biomedical Sciences
2011-2013	Ranjan Behera, Ph.D.	Cellular Biology
2011-2014	Linna Yan, M.S.	Pharmaceutical and Biomedical Sciences
2012-2014	MD Fazlur Rahman, Ph.D.	Pharmaceutical and Biomedical Sciences
2010-2011	DJ Bernsteel, Ph.D.	Biochemistry and Molecular Biology
2011-2016	Catherine Sullenberger, Ph.D.	Cellular Biology
2012-2017	Kaitlyn Ledwich, Ph.D.	Pharmaceutical and Biomedical Sciences
2013-2019	Hyunjin Kwon, Ph.D.	Biochemistry and Molecular Biology
2012-2017	Yiwen Zhang, Ph.D.	Cellular Biology
2012-2018	Emily Carpinone, Ph.D.	Microbiology
2012-2018	Mohammed Alqinyah, Ph.D.	Pharmaceutical and Biomedical Sciences
2012-2018	Zhen Han, Ph.D.	Pharmaceutical and Biomedical Sciences
2012-2018	Liza Ngo, Ph.D.	Pharmaceutical and Biomedical Sciences
2012-2018	Ruan Zheng, Ph.D.	Biochemistry and Molecular Biology
2012-2018	Wided Missaoui, Ph.D.	Pharmaceutical and Biomedical Sciences
2013-2020	Charnel Byrnes, Ph.D.	Pharmaceutical and Biomedical Sciences
2015-2020	Sukhneeraj Kaur, Ph.D.	Pharmaceutical and Biomedical Sciences
2016-Present	Menbere Wendimu	Pharmaceutical and Biomedical Sciences
2018-2020	Dylon Stephens, M.S.	Pharmaceutical and Biomedical Sciences
2017-Present	Wayland Yeung	Biochemistry and Molecular Biology
2016-Present	Yueze Yang	Pharmaceutical and Biomedical Sciences
2019-Present	Safal Shrestha	Biochemistry and Molecular Biology

2021-Present	Autumn Tobin	Pharmaceutical and Biomedical Sciences

Supervision of Undergraduate Researchers

Years	Undergrad. Student	Current Position
2010-2011	Fenil Patel	Chief Resident, Sioux Fall Family Med. Residency
2011-2012	Viral Patel	Clinical Pharmacist Lead, Humana
2013	Nita Jain	Freelance writer
2011-2013	Norman Ton	Pharmacist, US Army
2012-2014	Christopher Watkins	PhD Student, U of Chicago
2013-2014	Avinash Sukhu	Lab Technician, Georgia State University
2013-2014	Lewis Schendowich	Resident Physician, St. Mary's Medical Center
2014-2015	Peter Cieszewski	Chemist, HB Fuller
2014-2015	Peter Liaw	Resident, University of Virginia School of Medicine
2016-2017	Tonya Ly	Compounder, Averr Aglow Skincare
2017	Patrick Humphreys	Graduate Student, Imperial College London
2017-2019	Ismar Miniel	Graduate Student, U Texas Austin
2018-2020	Scotty Hall	Medical Student, Augusta University
2020-Present	Tyler Moore	Medical Student, Mercer University
2020-Present	Jonathan Schulz	Medic training, Boston, MA
2021-Present	Nick Tsavaris	Continuing BS student
2022-Present	Nick Tawadrous	Continuing BS student

Supervision of PharmD Researchers and High School Students

Years	PharmD Student	Current Position
2011	Laura Cotter	Senior Manager of Ed., Discovery Gateway Museum
2012-2014	Tienhuei Grace Ho	Pharmacist, CHOA Scottish Rite
2012-2013	Raybun Spelts	Pharmacist, Hospital Authority of Miller County
2014	Huong Pham	Pharmacist, Emory University
2015-2016	Courtlyn Smith	Pharmacist Resident, Navicent Health
2015-2016	Michelle Vu	Pharmacist, Northeast GA Health System
2016	Kevin Lunceford	Pharmacist, Pruitt Health
2017	Aaron Chase	Pharmacist Resident, Augusta
2017	Sarah Payne	Pharmacist Resident, Mission Health
2018	Minna Hassan	PharmD Student, UGA
2018	Laura Pyronneau	Pharmacist, Kroger
2018	Catherine Rothery	Pharmacist Resident, Banner Health

Years	High School Student
2012	Ian Dawkins
2013-2014	Augustine Song
2015	Mary Glassman

PROFESSIONAL SERVICE

Department

2022-Present	Interim Department Head
2021-2022	Interim Associate Department Head
2020-2021	Interim Assistant Department Head
2021-Present	Member, Dept Head Search Committee
2019-Present	Chair, Faculty Mentoring Committee
2019-Present	Member, Executive Committee

2018-2019	Member, Committee for Research
2018-2019	Member, Faculty Search Committee, UGA Chemistry (Organic)
2018-2019	Member, Faculty Search Committee, PBS and CTEDG
2017-2018	Member, Faculty Search Committee, PBS
2014-2017	Chair, Seminar Committee
2015	Member, PBS Self-Study Committee
2014-2017	Executive Committee Member
2014-Present	Chair, Seminar Committee
2012-Present	Member, Chu Lectureship Planning Committee
2012-Present	Chair, Equipment Maintenance and Training
2011-2013	Member, Seminar Committee
2011-2013	Member, Social and Entertainment Committee
2011-2012	Member, Strategic Plan Task Force

College of Pharmacy

2022-Present	Administrative Committee
2021-2022	Chair, Faculty and Staff Awards Committee
2020-2021	Member, Faculty Council
2017-2019	Member, Graduate Education and Curriculum Committee
2016-2019	Member, Academic and Professionalism Committee
2014-2016	Chair, Computer and Instructional Technology Committee
2013-2014	Member, Computer and Instructional Technology Committee
2012-2013	Chair, Graduate Education and Curriculum Committee
2012	Chair, Ad hoc PharmD/PhD Program Committee
2011-2012	Committee Member, Graduate Education and Curriculum Committee

University

2022-Present	Director, UGA Cancer Center
2021	Member, UGA Pew Biomedical Scholar Award Committee
2021	Member, UGA Cancer Center Review Committee
2020-Present	Member, Campus-Wide Faculty Search Committee for President's Cluster Hiring Initiative
2020-2021	Member, International Research Collaborations Working Group
2019-Present	Member, UGA innovation District Faculty Advisory Group
2018-2019	Member, Faculty Search Committee (Dept. of Chemistry)
2017-2018	Member, Search Committee for COP Dean Position
2015	Invited Member, Faculty Focus Group, UGA OVPR eResearch Portal
2014-2022	Executive Committee Member, UGA Cancer Center
2012-2017	Executive Committee Member, Chemical Biology Group, Integrated Life Sciences Program
2010-Present	Member, Center for Drug Discovery
2010-Present	Member, Center for Undergraduate Research Opportunities
2011-Present	Member, Louis Stokes Alliance for Minority Participation
2011-Present	Member, Interdisciplinary Life Sciences
2011-Present	Member, Biomedical Health Sciences Institute

National

2020-2021	Chair, Young Investigator Award Committee, American Peptide Society (APS)
2019-2025	Elected Council Member, American Peptide Society (APS)

2019-2025	Member, International Liaison Committee, American Peptide Society (APS)
2019-Present	Member, SRC Advisory Committee, FASEB
2017-2019	Co-Chair, Student Affairs Committee, American Peptide Society (APS)
2015-2017	Elected Member, Nominating Committee, American Peptide Society (APS)
2012-2015	Committee Member, Mentoring and Career Development, ASPET
2011-2012	Committee Member, Diversity, ASPET

Service for Other Universities

2020	External Reviewer, BS, MS, and PhD Programs, Pharmaceutical Sciences, U. of South Carolina College of Pharmacy

EDITORSHIPS/EDITORIAL BOARD MEMBERSHIPS

2021-2022	Guest Editor, Special Issue on "Macrocyclic Peptides" for *Frontiers in Molecular Biosciences*
2018	Guest Editor, Special Symposium-in-Print issue "Constrained Peptides and Biological Targets" for *Bioorganic and Medicinal Chemistry,* March 2018
2015-Present	Review Board Editor, *Frontiers in Pharmacology*

GRANT REVIEWS/STUDY SECTIONS

2021	Member, ZRG1 BCMB-G 55 study section (NIH), October
2021	Ad hoc member, Synthetic Biological Chemistry B (NIH SBCB), June
2020	Member, ZRG1 BCMB-G 55 study section (NIH), October
2020	National Science Center (Poland)
2020	Wellcome Trust UK (United Kingdom)
2020	Michael J. Fox Foundation
2019	Ad hoc member, Synthetic Biological Chemistry B (NIH SBCB), October
2019	Cystic Fibrosis Canada
2019	Michael J. Fox Foundation, Staff-Initiated Projects
2018	Inserm Plan Cancer Programmes (France), EVA3 Grants
2017	Inserm Plan Cancer Programmes (France), Biologie des Systemes

GRANTS RECEIVED, 2010-Present:

1. **Michael J. Fox Research Grant**
   Time Period: 8/1/2020-7/31/2022
   Total Amount: $1,458,265
   Role: PI

2. **NIH R01 GM134097**
   Targeting WASF3 in tumor metastasis
   Time Period: 8/5/2019-7/31/2023
   Total Amount: $1,197,785
   Role: PI

3. **Michael J. Fox Idea Award**
   Time Period: 10/15/2018-2/15/2021
   Total Amount: $186,238
   Role: PI

4. **NIH P01 AG036675**
   Age Induced Impairment of Nutrient Signaling Results in Bone Loss
   Time Period: 04/01/2017– 03/31/2022
   Total Amount: $ 2,277,404 (Kennedy: $42,726)
   Role: Collaborator

5. **DoD Cancer Research Program: Idea Award**
   Therapy for the Adolescent/Young Adult Cancer Fibrolamellar Hepatocellular Carcinoma
   Time Period: 04/15/2017-3/15/2020 (NCE)
   Total Amount: $140,000
   Role: Co-Investigator

6. **COP Foundation Funds**
   AKAP Signaling in Liver Cancer
   Time Period: 2/21/2017-6/30/2018
   Total Amount: $5000
   Role: PI

7. **NIH R03 CA188439**
   Targeted inhibition of EGFR dimerization
   Time Period: 07/01/2015– 06/31/2017
   Total Amount: $ 150,000
   Role: PI

8. **NIH R01 EB016100**
   Secretory phospholipases $SPLA_2$ and their receptors for delivering nanoparticles
   Time Period: 1/1/2013-12/31/2016
   Total Amount: $1,345,892 (Kennedy: $30,000)
   Role: Co-Investigator (5%) (PIs: B.S. Cummings and R.D. Arnold)

9. **NCI Transition Career Development Award K22 CA154600**
   Probing the role of AKAPs in breast cancer using stapled peptide inhibitors
   Time Period: 9/01/11-8/31/15
   Total Amount: $571,000
   Role: PI

10. **COP Foundation Funds**
    Synthetic modulation of AKAP signaling
    Time Period: 10/08/2015-6/30/2016
    Total Amount: $3000
    Role: PI

11. **UGA-GRU Offices of the Vice President for Research**
    Targeting the WASF3/NCKAP1 interaction to suppress cancer cell invasion and metastasis
    Time Period: 9/1/2015-6/31/2016
    Total Amount: $37,500
    Role: PI

12. **UGA-GRU Cancer Centers**
    Targeting WAVE3 in tumor metastasis
    Time Period: 9/1/2014-8/31/2015

Total Amount: $37,500
Role: PI

13. **COP Foundation Funds**
Dissecting AKAP complexes
Time Period: 9/01/2014-6/30/2015
Total Amount: $3500
Role: PI

14. **Faculty Summer Research Support, Office of the Provost, UGA**
Time Period: 7/1/2013-6/30/2014
Total Amount: $5000
Role: PI

15. **UGA Pharmacy Special Project Fund**
EGFR Inhibition in Asthma
Time Period: 12/01/2010-06/30/2012
Total Amount: $22,000
Role: PI

16. **UGA College of Pharmacy Foundation Funds**
Uncovering the Role of AKIP1 Regulation on Androgen Receptor Localization
Time Period: 10/01/2011-06/30/2012
Total Amount: $4,000
Role: PI

17. **UGA College of Pharmacy Foundation Funds**
Targeting the EGFR dimerization interface as a novel strategy for inhibition.
Time Period: 11/01/2012-10/31/2013
Total Amount: $4,000
Role: PI

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. DO NOT EXCEED FIVE PAGES.

NAME: LAUDERDALE, JAMES D

eRA COMMONS USER NAME (credential, e.g., agency login): JDLAUDERDALE

POSITION TITLE: Member

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	END DATE MM/YYYY	FIELD OF STUDY
Alma College	BS	05/1986	Biology and Chemistry
Purdue University	PHD	10/1992	Biochemistry & Molecular Biology
PURDUE UNIVERSITY, WEST LAFAYETTE, IN	NIH training grant	06/1992	Biophysical interactions
UNIVERSITY OF MICHIGAN AT ANN ARBOR, ANN ARBOR, MI	NIH training grant	08/1994	Mech Neural Development
Univeristy of Michigan, Ann Arbor, MI	Postdoctoral Fellow	03/1997	Neural development
Univeristy of Michigan Medical School, Ann Arbor, MI	Postdoctoral Fellow	05/2000	Human Genetics

A. Personal Statement

I have a long-standing interest in understanding the effects that mutations of the PAX6 transcription factor have on eye and brain development, especially those that give rise to the human genetic disorder known as aniridia, and in developing approaches that can be used to better treat this disorder. As part of this effort, I served from 2014 to 2020 as Chair of the Scientific Advisory Board for Aniridia Foundation International and currently serve as an invited expert for the Scientific Committee of Aniridia Europe (2016-current). In 2021, I am a founding board member of Aniridia North America, which is a nonprofit organization with a mission to represent, serve, and support the North American community of persons affected by aniridia and their families, patient advocacy organizations, and clinicians and scientists. Since 2007, I have been instrumental in organizing international meetings that bring together physicians, researchers and those with, or affected by, aniridia, and I provide guidance on aniridia research and clinical efforts world-wide.

I have the scientific expertise and leadership skills to assist on this project and help bring it to a successful conclusion. I am a PI or co-PI on several university-, private- and NIH-funded grants, and have several long-standing, productive collaborations that have resulted in peer-reviewed publications and funded proposals. I have more than 25 years of experience studying the vertebrate eye and central nervous system. I have extensive expertise in generating and using genetically modified animals to study eye development, as well as using modern molecular methods to investigate the gene networks involved in the development of the visual system.

Ongoing and recently completed projects that I would like to highlight include:

Children’s Glaucoma Foundation Lauderdale (PI) 10/01/2016 – 09/30/2023 Development of cell-based approaches for the treatment of aniridic keratopathy and other corneal dystrophies.

NSF IOS-1827647 Menke (PI) , Role: MPI 09/01/2018 – 08/31/2022 NCE EDGE: Establishment of

genome-editing and transgenic tools in Anolis lizards

1. Rasys AM, Pau SH, Irwin KE, Luo S, Kim HQ, Wahle MA, Trainor PA, Menke DB, Lauderdale JD. Ocular elongation and retraction in foveated reptiles. Dev Dyn. 2021 Nov;250(11):1584-1599. PubMed PMID: 33866663.
2. Grant MK, Bobilev AM, Branch A, Lauderdale JD. Structural and functional consequences of PAX6 mutations in the brain: Implications for aniridia. Brain Res. 2021 Apr 1;1756:147283. PubMed PMID: 33515537.
3. Rasys AM, Park S, Ball RE, Alcala AJ, Lauderdale JD, Menke DB. CRISPR-Cas9 Gene Editing in Lizards through Microinjection of Unfertilized Oocytes. Cell Rep. 2019 Aug 27;28(9):2288-2292.e3. PubMed Central PMCID: PMC6727204.
4. Infante CR, Mihala AG, Park S, Wang JS, Johnson KK, Lauderdale JD, Menke DB. Shared Enhancer Activity in the Limbs and Phallus and Functional Divergence of a Limb-Genital cis-Regulatory Element in Snakes. Dev Cell. 2015 Oct 12;35(1):107-19. PubMed Central PMCID: PMC4605891.

B. Positions, Scientific Appointments and Honors

Positions and Scientific Appointments

2022 -	Member, American Association for Anatomy
2022 -	Director, Neuroscience Division, Biomedical & Translational Sciences Institute, University of Georgia, Athens, GA
2021 -	Founding Board Member and Scientific Chair, Aniridia North America, Charlottesville, VA
2020 - 2020	NIH Peer Review, NINDS NIH Emerging Technologies and Training in Neurosciences
2019 - 2019	NSF Peer Review, ad hoc, National Science Foundation, Developmental Systems Cluster
2017 - 2017	Vice chair, DDC Peer Review Panel, American Cancer Society
2017 - 2017	NIH Peer Review, NINDS Special Emphasis Panel (N14), BRAIN Initiative
2016 -	Invited Expert, Scientific Committee, Aniridia Europe
2016 - 2019	DDC Peer Review Panel, ad hoc, American Cancer Society
2015 - 2017	NIH Peer Review, NINDS Special Emphasis Panels (ZRG/ZNS)
2014 - 2020	Chair, Scientific Advisory Board, Aniridia Foundation International, Memphis, TN
2012 - 2015	Member DDC Panel, American Cancer Society
2011 - 2022	Graduate Coordinator, Neuroscience Division, Biomedical & Translational Sciences Institute, University of Georgia, Athens, GA
2010 -	Adjunct Faculty, Department of Genetics, University of Georgia, Athens, GA
2008 -	Associate Professor, University of Georgia, Athens, GA
2008 - 2011	DDC Peer Review Panel, ad hoc, American Cancer Society, Atlanta, GA
2008 - 2010	NSF Peer Review Panel, Neural Systems Cluster, National Science Foundation
2007 -	Member, Association for Research in Vision and Ophthalmology
2007 - 2007	NSF Peer Review Panel, ad hoc, Developmental Systems Cluster, National Science Foundation
2006 - 2014	Co-chair, Scientific Advisory Board, Aniridia International Foundation, Memphis, TN
2003 - 2020	Medical Advisory Board, Aniridia International Foundation, Memphis, TN
2000 - 2008	Assistant Professor, University of Georgia, Athens, GA
1997 - 2000	Postdoctoral Associate, University of Michigan Medical School, Ann Arbor, MI
1993 -	Member, Society of Developmental Biology
1992 -	Member, Society for Neuroscience
1992 - 1997	Postdoctoral Associate, University of Michigan, Ann Arbor, MI
1988 -	Member, American Association for the Advancement of Science

Honors

2022	Co-recipient AAAS 2022 Newcomb Cleveland Prize, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
2013	Angel Award, Aniridia Foundation International
2011	Sharon Stewart “Make a Miracle” Research Award, Aniridia Foundation International
2007	Make a Miracle Research and Service award, Aniridia Foundation International
2006	Rookie of the Year, Visual System Development Gordon Research Conference, Barga Italy

C. Contribution to Science

1. Evidence supporting that aniridia should be considered as a syndrome: Research from my lab has helped redefine aniridia as a syndrome by bringing attention to non-visual phenotypes associated with PAX6 mutations in humans, including altered cognitive functions and perturbations in endocrine systems/metabolism. We have established, using high-density electroencephalography (EEG), whole-head magnetoencephalography (MEG) and functional magnetic resonance imaging (fMRI) that people with aniridia exhibit significant changes in auditory processing, and that this does not correlate with reduced commissures. In recently completed work, we establish, using our mouse model of aniridia: 1) that PAX6 haploinsufficiency results in reduced plasticity in the adult rodent brain; and 2) that pituitary function is altered. We have now confirmed this latter finding in people with aniridia.

    a. Grant MK, Bobilev AM, Branch A, Lauderdale JD. Structural and functional consequences of PAX6 mutations in the brain: Implications for aniridia. Brain Res. 2021 Apr 1;1756:147283. PubMed PMID: 33515537.
    b. Grant MK, Bobilev AM, Rasys AM, Branson Byers J, Schriever HC, Hekmatyar K, Lauderdale JD. Global and age-related neuroanatomical abnormalities in a Pax6-deficient mouse model of aniridia suggests a role for Pax6 in adult structural neuroplasticity. Brain Res. 2020 Apr 1;1732:146698. PubMed PMID: 32014531.
    c. Grant MK, Bobilev AM, Pierce JE, DeWitte J, Lauderdale JD. Structural brain abnormalities in 12 persons with aniridia. F1000Res. 2017;6:255. PubMed Central PMCID: PMC5615777.
    d. Netland PA, Scott ML, Boyle JW 4th, Lauderdale JD. Ocular and systemic findings in a survey of aniridia subjects. J AAPOS. 2011 Dec;15(6):562-6. PubMed PMID: 22153401.

2. Elucidating PAX6 function in eye development: Although there are a number of genes critical for eye development, the Pax6 transcription factor is notable for the number of roles it plays in the formation of this organ, many of which are not well understood. The Pax6 gene has a complex structure and regulation, which is conserved amongst vertebrates, and reflects the many functions of this gene. I have worked to elucidate the regulatory mechanisms governing Pax6 expression and to understand how the three different Pax6 protein isoforms (canonical Pax6, Pax6+5a, paired-less Pax6) act to control the gene networks involved in different spatiotemporal aspects of eye morphogenesis, especially those underlying development of the retina, iris, and cornea. Our work, particularly our studies showing that paired-less Pax6 has a role in eye development, has contributed to a more detailed knowledge about Pax6 function not only in the eye, but also in understanding human neural development and the ability to coax stem cells into neural and ocular fates.

    a. Kim J, Lauderdale JD. Overexpression of pairedless Pax6 in the retina disrupts corneal development and affects lens cell survival. Dev Biol. 2008 Jan 1;313(1):434-54. PubMed PMID: 18062951.
    b. Kim J, Lauderdale JD. Analysis of Pax6 expression using a BAC transgene reveals the presence of a paired-less isoform of Pax6 in the eye and olfactory bulb. Dev Biol. 2006 Apr 15;292(2):486-505. PubMed PMID: 16464444.

c. Lakowski J, Majumder A, Lauderdale JD. Mechanisms controlling Pax6 isoform expression in the retina have been conserved between teleosts and mammals. Dev Biol. 2007 Jul 15;307(2):498-520. PubMed PMID: 17509554.

d. Nakayama T, Fisher M, Nakajima K, Odeleye AO, Zimmerman KB, Fish MB, Yaoita Y, Chojnowski JL, Lauderdale JD, Netland PA, Grainger RM. Xenopus pax6 mutants affect eye development and other organ systems, and have phenotypic similarities to human aniridia patients. Dev Biol. 2015 Dec 15;408(2):328-44. PubMed Central PMCID: PMC4549229.

3. Development of the Anolis lizard as a model system for eye research: My lab is concerned with the genetic pathways controlling cell fate decisions and differentiation in different tissues of the eye (retina, iris, cornea). In addition to expertise with the genetics and developmental toolkits typically used for these types of studies, my lab has developed live-imaging techniques that allow us to monitor cell movements, quantitatively measure changes in neuronal calcium, and map functional connectivity between neuronal ensembles. My research group takes advantage of the power of comparative biology, especially when applied to the eye. Therefore, we study gene function in humans, mice, zebrafish, and now Anolis lizards. As a result, we are expert at identifying features of eye development that are conserved amongst vertebrates as well as those that are species specific. We have, in collaboration with Dr. Doug Menke, developed a genetically tractable vertebrate model in which to study foveal development. As proof of principle, we have generated albino lizards and shown that these lizards, like people, have foveal hypoplasia.

   a. Rasys AM, Divers SJ, Lauderdale JD, Menke DB. A systematic study of injectable anesthetic agents in the brown anole lizard (*Anolis sagrei*). Lab Anim. 2020 Jun;54(3):281-294. PubMed Central PMCID: PMC6982557.

   b. Rasys AM, Park S, Ball RE, Alcala AJ, Lauderdale JD, Menke DB. CRISPR-Cas9 Gene Editing in Lizards through Microinjection of Unfertilized Oocytes. Cell Rep. 2019 Aug 27;28(9):2288-2292.e3. PubMed Central PMCID: PMC6727204.

   c. Rasys AM, Pau SH, Irwin KE, Luo S, Kim HQ, Wahle MA, Trainor PA, Menke DB, Lauderdale JD. Ocular elongation and retraction in foveated reptiles. Dev Dyn. 2021 Nov;250(11):1584-1599. PubMed PMID: 33866663.

4. Neural processing and pediatric seizures: Normal neural function requires a constant balance between excitation and inhibition. In a variety of neural circuits in the vertebrate brain, this balance is achieved by center-surround connectivity in which an excitatory center is bounded by an inhibitory surround. An increase in excitatory activity elicits a corresponding increase in inhibitory activity, and high levels of excitation induce high levels of inhibition. Perturbations of this equilibrium can result in significant neurological effects, including psychiatric and seizure disorders in people. As part of my efforts to understand information processing in the visual system, I am collaborating with Drs. Peter Kner (Engineering: light-sheet microscopy) and Ping Ma (Statistics) to develop and use novel high-resolution optical imaging technologies to functionally characterize sensory neural circuits in zebrafish larvae and mouse brains. Because mutations in one of the eye-related genes that my lab studies results in a seizure disorder, we are also using our methods to investigate in collaboration with Scott Baraban (epilepsy) the molecular mechanisms underlying pediatric seizures. I am expert in a variety of light microscopy techniques, including widefield (live cell imaging, time-lapse, fluorescence, DIC, phase, bright-field), confocal (including 3 and 4D) and multiphoton. In addition to developing new imaging technologies, my collaborators and I have developed new photocaged compounds for manipulating neurophysiology. I am on several patents or patent-applications resulting from these efforts. This work has revealed exciting new insights into how GABAergic interneurons act to maintain homeostasis between excitation and inhibition in the intact live vertebrate brain and their role in information processing in the retina.

   a. Liu Y, Lauderdale JD, Kner P. Stripe artifact reduction for digital scanned structured illumination light sheet microscopy. Opt Lett. 2019 May 15;44(10):2510-2513. PubMed Central PMCID:

PMC7038152.

b. Liu Y, Dale S, Ball R, VanLeuven AJ, Sornborger A, Lauderdale JD, Kner P. Imaging neural events in zebrafish larvae with linear structured illumination light sheet fluorescence microscopy. Neurophotonics. 2019 Jan;6(1):015009. PubMed Central PMCID: PMC6400141.

c. Sornborger AT, Lauderdale JD. A Multitaper, Causal Decomposition for Stochastic, Multivariate Time Series: Application to High-Frequency Calcium Imaging Data. Conf Rec Asilomar Conf Signals Syst Comput. 2016 Nov;2016:1056-1060. PubMed Central PMCID: PMC5479311.

d. Tao L, Lauderdale JD, Sornborger AT. Mapping Functional Connectivity between Neuronal Ensembles with Larval Zebrafish Transgenic for a Ratiometric Calcium Indicator. Front Neural Circuits. 2011;5:2. PubMed Central PMCID: PMC3044448.

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Puliyur S. MohanKumar

eRA COMMONS USER NAME (credential, e.g., agency login): psmohan

POSITION TITLE: CEO

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Madras Veterinary College, Madras, India	BVSc (DVM)	1988	Veterinary Medicine
Kansas State University, Manhattan, KS	PhD	1993	Neuroendocrinology
Kansas State University, Manhattan, KS	Postdoc	1993-1994	Neuroendocrinology
University of Kansas Medical Center, Kansas City, KS	Postdoc	1994-1997	Neuroendocrinology

A. Personal Statement

I am a veterinarian by training, developed a passion for reproductive medicine during vet school and have worked in Reproductive Neuroendocrinology ever since. I also developed an interest in Aging and metabolic disorders and have done several studies investigating the interaction between Aging, metabolic disorders and how neuroendocrine function is altered in different states. I have watched the gradual change in methodology used for assessing catecholamine activity in the brain- from radioactive labeling to HPLC-EC and in vivo voltammetry. Although we still use sensitive HPLC-EC methods today, I have always wanted to develop a non-invasive method to assess catecholaminergic activity in the brain. When we moved to UGA in 2015, I saw an opportunity to develop nanoparticles for this purpose and hired Dr. Yen-Jun Chuang as a post-doc. He had previously developed bimodal inorganic nanoparticles for cancer imaging. We used his expertise to develop an organic bimodal nanoparticle to target catecholaminergic neurons and hope that this will benefit the field of neuroimaging. My role in the project would be to help with the design of the nanoparticles, design experiments, troubleshoot experiments, help with statistical analysis of data, manuscript preparation and publication.

B. Positions and Honors

1988-1991	Graduate Research Assistant, Department of Anatomy and Physiology, College of Veterinary Medicine, KSU
1991-1993	Graduate Research Assistant with teaching responsibilities, Department of Anatomy and Physiology, College of Veterinary Medicine, KSU.
1993-1994	Postdoctoral Associate, Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University (Dr. S. K. Quadri, Mentor)
1994-1997	Postdoctoral Fellow, Department of Molecular and Integrative Physiology, University of Kansas Medical Center, Kansas City, Kansas (Dr. James Voogt, Mentor)
1997-1998	Postdoctoral Fellow, College of Veterinary Medicine, Kansas State University, Manhattan, KS
1998-May 2000	Assistant Professor, Department of Diagnostic Medicine & Pathobiology, College of Veterinary Medicine, Kansas State University. Member of Graduate Faculty of Kansas State University
Jun 2000-Jun 2006	Assistant Professor, Department of Pathobiology & Diagnostic Investigation, College of Veterinary Medicine, Michigan State University,

	East Lansing, MI
Jun 2002-Aug 2009	Coordinator, Graduate Studies
Jun 2003-Aug 2009	Director, the NIH T32 Training grant, Department of Pathobiology & Diagnostic Investigation, CVM, MSU
Oct 2006-2015	Coordinator, CVM MSU – TANUVAS Memorandum of Understanding
Jun 2000-2015	Member, Neuroscience Graduate Program, MSU; Member, Comparative Medicine and Integrative Biology Graduate Program, CVM, MSU
Jun 2006-Jun 2012	Associate Professor, Department of Pathobiology & Diagnostic Investigation, College of Veterinary Medicine, Michigan State University, East Lansing, MI
Jan 2010-2015	Adjunct Professor, International Institute of Health, Michigan State University, East Lansing, MI
Apr 2012-2015	Scientific Director, Building Interdisciplinary Research Careers in Women's Health (BIRCWH)
Jul 2012-2015	Professor, Department of Pathobiology & Diagnostic Investigation, College of Veterinary Medicine, MSU
July 1 2015-present	Professor, Department of Veterinary Biosciences and Diagnostic Imaging, College of Veterinary Medicine, University of Georgia, Athens, GA

Honors

1992	First Prize for Research in Basic Sciences, Phi Zeta Society, KSU Chapter.
1991	Travel Award, The Endocrine Society (U.S.A.)
1991	Travel Award, Sigma Xi (KSU Chapter)
2002	SCAVMA Excellence in Teaching Award, College of Veterinary Medicine, MSU
2002	Finalist, Carl Norden Distinguished Teacher Award, College of Veterinary Medicine, MSU
2006	SCAVMA Excellence in Teaching Award, College of Veterinary Medicine, MSU
2006	Lilly Teaching Fellowship
2006	Carl Norden Distinguished Teacher Award, College of Vet. Medicine, MSU
2008	Merial Innovation in Teaching Award, College of Veteirnary Medicine, MSU
2010	Pfizer Research Excellence Award
2016, 2017, 2019, 2020, 2021	Faculty Recognition Award, UGA CVM
2017	A.M. Mills Award for outstanding contributions to veterinary medicine
2017	Zoetis Distinguished Veterinary Teacher Award
2018	David Tyler Award for Advances in Teaching

NIH Study section Membership:

2008 Temporary member, Aging and Geriatrics Study Section
Temporary member, IPOD study section
2009 Temporary member, NNB study section
Temporary member, IPOD study section
2010 Temporary member, IPOD study section
2014 - 2016 Temporary member, ICER study section

Membership in Professional Societies

American Association for Veterinary Anatomists, The Endocrine Society, The Society for Neuroscience, The Indian Society for the Study of Animal Reproduction, International Society of Neuroendocrinology, Sigma Xi Scientific Society, The Phi Zeta Research Society, International Brain Research Organization, FASEB, American Veterinary Medical Association

C. Contributions to Science

1. Developed a novel nanoparticle for imaging brain catecholaminergic neurons in a rat model.

Over the past few years, our lab has been engaged in developing a few nanoparticles. One of them is for imaging brain catecholaminergic neurons. This nanoparticle is small (<50nm), can easily cross the blood brain barrier and is actively taken up by catecholaminergic neurons by 2 hours after administration. We believe that this nanoparticle will be very useful in monitoring brain catecholaminergic activity for diagnostic purposes and for monitoring the efficacy of therapeutics. We have a provisional patent (WO 2020/106859 A1) for this nanoparticle.

2. Identified the role of norepinephrine and dopamine in the preovulatory luteinizing hormone (LH) surge in rats and the changes associated with aging.

During my PhD, I studied the role of hypothalamic catecholamines in the onset of the preovulatory LH surge. I demonstrated using push-pull perfusion that norepinephrine levels increase prior to the surge while

dopamine levels decrease. Previous studies had used qualitative methods, the whole hypothalamus or catecholamine receptor antagonists to show the involvement of this class of neurotransmitters in LH regulation. Our study measured catecholamine levels in a specific hypothalamic nuclei using sophisticated technology and established the role of these neurotransmitters in the LH surge. We also demonstrated that norepinephrine levels were reduced in aging animals. This reduction in norepinephrine was accompanied by changes in the activities of noradrenergic synthesizing enzymes in the hypothalamus.

Mohankumar PS, Thyagarajan S, Quadri SK. Cyclic and age-related changes in norepinephrine concentrations in the medial preoptic area and arcuate nucleus. Brain Res Bull. 1995;38(6):561-4. PubMed PMID: 8590078.

ThyagaRajan S, MohanKumar PS, Quadri SK. Cyclic changes in the release of norepinephrine and dopamine in the medial basal hypothalamus: effects of aging. Brain Res. 1995 Aug 14;689(1):122-8. PubMed PMID: 8528695.

Mohankumar PS, Thyagarajan S, Quadri SK. Tyrosine hydroxylase and DOPA decarboxylase activities in the medical preoptic area and arcuate nucleus during the estrous cycle: effects of aging. Brain Res Bull. 1997;42(4):265-71. PubMed PMID: 9043712.

MohanKumar SM, MohanKumar PS. Aging alters norepinephrine release in the medial preoptic area in response to steroid priming in ovariectomized rats. Brain Res. 2004 Oct 8;1023(1):24-30. PubMed PMID: 15364015.

3. **Manipulation of dopaminergic neurons using physiological and pharmacological approaches: the impact of aging, use of ovine prolactin and exposure to estradiol.**

Older animals that are in constant estrous have low levels of prolactin during the early stages of the constant estrous phase, but develop hyperprolactinemia during the later stages of constant estrous. This predisposes them to mammary and pituitary tumors. It is established that prolactin is regulated by tuberoinfundibular dopaminergic (TIDA) neurons in the hypothalamus. During my postdoctoral training, I completed a series of studies on the effects of hyperprolactinemia on TIDA neurons. For this purpose, I studied changes in TIDA neurons during the course of normal aging. I also subjected animals to hyperprolactinemia by treating them with ovine prolactin. More recently, we became interested in the molecular mechanisms that lead to age-related changes in TIDA neurons. For this purpose, we used a paradigm involving chronic exposures to low doses of estradiol and measured changes in TIDA function using gene expression, dopamine measurement using HPLC and prolactin measurements using radioimmunoassay.

MohanKumar SM, Kasturi BS, Shin AC, Balasubramanian P, Gilbreath ET, Subramanian M, Mohankumar PS. Chronic estradiol exposure induces oxidative stress in the hypothalamus to decrease hypothalamic dopamine and cause hyperprolactinemia. Am J Physiol Regul Integr Comp Physiol. 2011 Mar;300(3):R693-9. doi: 10.1152/ajpregu.00481.2010. Epub 2010 Dec 22. PubMed PMID: 21178126;

Kasturi BS, MohanKumar SM, Sirivelu MP, Shin AC, **Mohankumar PS**. Chronic estradiol-17β exposure suppresses hypothalamic norepinephrine release and the steroid-induced luteinizing hormone surge: role of nitration of tyrosine hydroxylase.
Brain Res. 2013 Feb 1;1493:90-8. doi: 10.1016/j.brainres.2012.11.031. Epub 2012 Nov 26.

Balasubramanian P, Subramanian M, Nunez JL, Mohankumar SM, **Mohankumar PS**.Chronic estradiol treatment decreases brain derived neurotrophic factor (BDNF) expression and monoamine levels in the amygdala--implications for behavioral disorders.Behav Brain Res. 2014 Mar 15;261:127-33. doi: 10.1016/j.bbr.2013.12.018. Epub 2013 Dec 19.

Gilbreath, ET, Jagannathan, L, Subramanian, M, Balasubramanian, P, Linning, KD, MohanKumar, SM, MohanKumar, PS. Chronic estrogen affects TIDA neurons through IL-1beta and NO: Effects of Aging. Journal of Endocrinology, 2019 (in press).

4. **Measurement of catecholaminergic activity in the context of metabolic disorders.**

We have used techniques such as push-pull perfusion and Palkovits' microdissection to measure changes in neurotransmitter activity in specific brain regions. These techniques were used in combination with HPLC-EC. Our current HPLC-EC systems are highly sensitive requiring very little perfusate or tissue extracts and are capable of detecting pg quantities of neurotransmitters. We have used HPLC for over 25 years for this purpose.

Shin AC, MohanKumar SM, Sirivelu MP, Claycombe KJ, Haywood JR, Fink GD, **MohanKumar PS**. Chronic exposure to a high-fat diet affects stress axis function differentially in diet-induced obese and diet-resistant rats.
Int J Obes (Lond). 2010 Jul;34(7):1218-26. doi: 10.1038/ijo.2010.34. Epub 2010 Mar 9.

Clark KA, Jacob EB, **MohanKumar PS**, MohanKumar SMJ.

Leptin and HPA Axis Activity in Diabetic Rats: Effects of adrenergic agonists. Brain Res 2019. doi: 10.1016/j.brainres.2018.11.025. Epub 2018 Nov 20.

Shin, AC, MohanKumar SMJ, Balasubramanian P, SIrivelu MP, Linning K, Woolcock A, James, M, **MohanKumar PS.** Responsiveness of hypothalamo-pituitary adrenal axis to leptin is impaired in diet-induced obese rats. Nutr Diab. 2019. doi: 10.1038/s41387-019-0076-y.

Clark, KA, Shin, AC, Sirivelu MP, MohanKumar RC, Maddineni SR, Ramachandran R, **MohanKumar PS**, MohanKumar SMJ. Evaluation of the central effects of system lentiviral-mediated leptin delivery in Streptozotocin-induced diabetic rats. Int J Mol Sci. 2021. Dec 7:22(24):13197. Doi:10.3390/ijms222413197.

Link to My Bibliography:
http://www.ncbi.nlm.nih.gov/myncbi/collections/bibliography/48780367

D. Additional Information: Research Support and/or Scholastic Performance

Current:

Nanoparticles for the detection of noradrenergic neurons in Alzheimer's disease. STTR. 8/15/2020- present.

Aim of the project: To design and develop a nanoparticle that crosses the blood brain barrier and facilitates non-invasive imaging of LC noradrenergic neurons in Alzheimer's disease.

Role: PI and CEO, S.G. Endocrine Research.

Pending:

Targeted nanoparticles for prostate cancer. Department of Defense

Aim of the project: To develop a nanoparticle to target prostate cancer cells using *in vitro* and *in vivo* studies.

Role: One of three multiple PIs. Will be responsible for *in vitro* studies.

Completed:

USDA 0210553 PI: Mohankumar 5/1/2012-6/30/15

The effects of chronic estrogen exposure on the neuroendocrine system

Many chemicals used in agriculture and in other industries have estrogenic potential. These compounds interact with various body systems to affect reproductive health, leading to a gradual loss of reproductive functions ultimately resulting in biodiversity loss. The main goal of this proposal is to understand the mechanisms by which environmental estrogens cause reproductive failure in animal models.

Role in the project: PI

USDA 2010-51160-21066 9/1/2010-8/31/2014

Globalization of Food Systems Training Programs for Veterinary Students - International Science Education Grant,

The aim of this project is to provide international exposure to veterinary students in the area of Food systems, specifically, in Southern India. Role in Project: Co-PI

USDA/USAID, 58-3148-2-207 Co-PI: Mohankumar 2/1/2012-6/1/2014

Dairy Value Chain: Trilateral approach – MSU/TANUVAS, India/Bunda College, Malawi

Aim of the project: To bring direct links between food security, agricultural development, and improved capacity in African agricultural universities, the Bunda College of Agriculture-Michigan State University (MSU)-Tamil Nadu Veterinary & Animal Sciences University (TANUVAS) trilateral partnership will achieve lasting developmental impact through an integrated approach to institutional capacity building by developing training and outreach. Role in project: PI (Drs. John Kaneene and Deepa ThiagaRajan, co-PIs)

NIH, R01-ES-016541-05 PI: Padmanabhan V 2/11/2009-11/30/2014

Bisphenol-A and Reproductive functions

Aim of the project: To study the effects of prenatal bisphenol-A exposure in sheep. Help with tissue collection and identification. Role in the project: Collaborator

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Sheba M.J. MohanKumar

eRA COMMONS USER NAME (credential, e.g., agency login): smohankumar

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Madras Veterinary College, Madras, India	BVSc (DVM)	1988	Veterinary Medicine
Kansas State University, Manhattan, KS	MS	1992	Molecular Biology
Kansas State University, Manhattan, KS	PhD	1992-1996	Neuroendocrinology
Kansas State University, Manhattan, KS	Postdoctoral Training	1996-1998	Neuroendocrinology

A. Personal Statement

I have been working in the area of Neuroimmunoendocrinology for the past 25 years. My focus has been on the neuroendocrine regulation of stress and reproductive functions. I am very familiar with the distribution of catecholaminergic neurons in the brain, how they function and how catecholamines are synthesized and metabolized. We have manipulated these neuronal systems using immune molecules and have been studying the influence of environmental exposures on the stress and reproductive axes. We have used L-dopa to reverse the effects of cytokines on reproductive function. Therefore, the incorporation of L-dopa into the nanoparticle was a logical extension of our previous studies. We have always used HPLC-EC to measure catecholamines in different brain regions in combination with push-pull perfusion and Palkovits' microdissection. Over the last 5 years, we have been working in collaboration with Dr. Yen-Jun Chuang to develop an organic nanoparticle that has magnetic and luminescent properties to target catecholaminergic neurons. The purpose was to non-invasively assess catecholaminergic function in conscious animals especially to detect early functional changes that could help to identify patients at risk for neurodegenerative disorders.

B. Positions and Honors

List in chronological order previous positions, concluding with the present position. List any honors. Include present membership on any Federal Government public advisory committee.

7/2022-present	Professor, Department of Biomedical Sciences, UGA.
2015-6/2022	Associate Professor, Department of Veterinary Biosciences and Diagnostic Imaging, University of Georgia, Athens, GA.
2012-2014	Associate Professor, Department of Pharmacology and Toxicology, College of Veterinary Medicine, Michigan State University, E. Lansing, MI
2006-2012	Assistant Professor, Department of Pharmacology and Toxicology, College of Veterinary Medicine, Michigan State University, E. Lansing, MI

2000-2006	Assistant Professor, Department of Pathobiology & Diagnostic Investigation, Michigan State University
1998-2000	Research Assistant Professor, Department of Diagnostic Medicine and Pathbiology, College of Veterinary Medicine, Kansas State University, Manhattan, KS.
1996-1998	Postdoctoral fellow, Kansas State University, Manhattan, KS.
1992-1996	Graduate Research Assistant with teaching responsibilities, Department of Anatomy and Physiology, College of Veterinary Medicine, Kansas State University (Dr. S. K. Quadri, Mentor)
1990-1992	Graduate Teaching Assistant, Department of Biochemistry, Kansas State University, Manhattan, KS.
1988-1990	Veterinary Assistant Surgeon, Department of Animal Husbandry, Government of Tamil Nadu, India.

C. Contributions to Science

Briefly describe up to five of your most significant contributions to science. For each contribution, indicate the historical background that frames the scientific problem; the central finding(s); the influence of the finding(s) on the progress of science or the application of those finding(s) to health or technology; and your specific role in the described work. For each of these contributions, reference up to four peer-reviewed publications or other non-publication research products (can include audio or video products; patents; data and research materials; databases; educational aids or curricula; instruments or equipment; models; protocols; and software or netware) that are relevant to the described contribution. The description of each contribution should be no longer than one half page including figures and citations. Also provide a URL to a full list of your published work as found in a publicly available digital database such as SciENcv or My Bibliography, which are maintained by the US National Library of Medicine.

1. Developed novel nanoparticles to non-invasively assess catecholaminergic function in the brain.

We have recently been involved in the generation of novel nanoparticles to non-invasively monitor brain catecholaminergic neurons. The nanoparticle that we have developed is used to assess noradrenergic function in an Alzheimer's disease model. We hope that this nanoparticle will transform brain imaging of catecholaminergic neurons and help with longitudinal assessment of catecholaminergic function. We have a provisional patent: WO 2020/106859 A1.

2. Assess monoaminergic activity in response to cytokines and bacterial lipopolysaccharide. Reverse the effects of IL-1ß on the reproductive axis using L-dopa.

During my PhD, I studied the effects of IL-1ß on neurotransmitter levels in specific areas of the hypothalamus using a combination of Palkovits' microdissection and HPLC-EC. I have also used push-pull perfusion to assess time dependent changes in norepinephrine release from two hypothalamic nuclei simultaneously. Later, we have measured changes in norepinephrine levels using push-pull perfusion in combination with HPLC-EC to study how IL-1ß suppresses stress axis activity. IL-1ß treatment decreased norepinephrine release in the medial preoptic area of the hypothalamus which resulted in a decrease in luteinizing hormone levels. We also attempted to reverse this effect by using L-dopa. This treatment restored norepinephrine levels and prevented the decrease in luteinizing hormone.

Mohankumar, S.M., and Mohankumar PS. Systemic Interleukin-1beta stimulates the simultaneous release of norepinephrine in the paraventricular nucleus and the median eminence. *Brain Res Bull. 65: 451-456, 2005.*

Sirivelu MP, Shin AC, Perez GI, MohanKumar PS**, MohanKumar SM** Effect of L-dopa on interleukin-1 beta-induced suppression of luteinizing hormone secretion in intact female rats*. Hum Reprod. 24(3):718-25, 2009*.

Sirivelu MP, Burnett R, Shin AC, Kim C, MohanKumar PS, **MohanKumar SM**. Interaction between GABA and norepinephrine in interleukin-1beta-induced suppression of the luteinizing hormone surge. *Brain Res. 1248:107-14, 2009.*

Sirivelu MP, MohanKumar PS and **MohanKumar SM**. Differential effects of systemic interleukin-1 beta on gene expression in brainstem noradrenergic nuclei. *Life Sci. 90(1-2):77-81, 2012.*

3. Studying the impact of endocrine disruptors on reproductive, cardiovascular and neuroendocrine function.

Over the past decade, we have investigated the effects of various endocrine disrupting chemicals and pollutants on the neuroendocrine system. We have studied the effects of perfluorooctane sulfonate, particulate matter and low levels of estradiol-17ß on stress and reproductive functions. We have used Palkovits' dissection of various brain nuclei and have analyzed them for catecholamine and indoleamine concentrations using progressively sophisticated HPLC-EC systems. The HPLC system that we currently have is ultrasensitive, requiring very low sample volumes and has excellent neurotransmitter resolution power. Although we continue to measure hormones using radioimmunoassays, we are in the process of migrating to microfluidics and non-radioactive methods of hormone measurement.

Gilbreath, E.T., **MohanKumar, S.M.**, Balasubramanian, P., Agnew, D.W., MohanKumar, P.S. Chronic exposures to low levels of estradiol and their effects on the ovaries and reproductive hormones: Comparison with aging. *Endo. Dis.* 2014;2(1). pii: e967127.

Subramanian, M., Hahn-Townsend C., Clark K.A., **MohanKumar S.M.** and MohanKumar P.S. Chronic estrogen exposure affects gene expression in the rostral ventrolateral medulla of young and aging rats: Possible role in hypertension. Brain Res. 2015 Nov 19;1627:134-42. doi: 10.1016/j.brainres.2015.09.007.

MohanKumar, S.M., Balasubramanian, P., Subramanian, M., MohanKumar, P.S. Chronic estradiol exposure-harmful effects on behavior, cardiovascular and reproductive functions. Reproduction 2018 Sep 17. pii: REp-18-0116. doi: 10.1530/REP-18-0116.

Gilbreath, E.T., Jagannathan, L., Balasubramanian P., Subramanian, M., Linning, K.D., **MohanKumar, S.M.,** MohanKumar, P.S. Chronic estrogen affects TIDA neurons through IL-1ß and NO: Effects of aging. Journal of Endocrinology 240(2): 157-167, 2019.

Link to My Bibliography:
http://www.ncbi.nlm.nih.gov/sites/myncbi/collections/bibliography/48779216/

D. Additional Information: Research Support and/or Scholastic Performance

List both selected ongoing and completed research projects for the past three years (Federal or non-Federally-supported). *Begin with the projects that are most relevant to the research proposed in the application.* Briefly indicate the overall goals of the projects and responsibilities of the key person identified on the Biographical Sketch. Do not include number of person months or direct costs.

Past and current projects:

Current:

Nanoparticles for the detection of noradrenergic neurons in Alzheimer's disease. STTR. 8/15/2020- present.

Aim of the project: To design and develop a nanoparticle that crosses the blood brain barrier and facilitates non-invasive imaging of LC noradrenergic neurons in Alzheimer's disease.

Role: PI of subcontract. PI: Dr. P.S. MohanKumar, CEO, S.G. Endocrine Research.

Pending:

Repurposing BT2 as a novel strategy to alleviate Alzheimer's disease. NIH R01.

Aim of the project: To inhibit BCAA metabolism to prevent neurodegeneration in Alzheimer's disease.

Role: Co-investigator to complete neurotransmitter analysis. PI: Dr. Andrew Shin, Texas Tech University.

SBIR Phase II proposal to NIH. Nanoparticles for the detection of noradrenergic neuronal function in Alzheimer's disease.

Aim of the project: to detect functional changes in noradrenergic neurons in AD and to correlate them with behavioral changes in an AD model. Complete PK/PD studies with the novel nanoparticle.

Role: PI of subcontract. PI: Dr. P.S. MohanKumar, CEO, S.G. Endocrine Research.

Completed:

Effects of Chronic Estrogen on TIDA Neurons: Role of Cytokines and NO [2006-2011]

Aim of the project: To investigate the mechanism behind chronic estrogen-induced changes in hypothalamic dopamine neurons

Role in the project: Co-P.I.

Neurotransmitters, interleukin-1 and luteinizing hormone, NSF [2003-2007]

Aim of the project: To investigate the mechanisms behind IL-1-induced suppression of luteinizing hormone secretion.

Role in the project: PI

Neuroendocrinology of Reproductive Aging in Rats - NIH, R01 [1998-2002]

Aim of the project: The overall goal of the project to investigate the role of hypothalamic monoamines in age-related in luteinizing hormone secretion.

Role in the project: Co-P.I.

Suppression of heat in female greyhounds, Kansas Racing and Gaming Commission, [1999-2002]

Aim of the project: The overall goal of the project was to develop alternate paradigms to suppress heat female greyhounds.

Role in the project: PI

EMILY E. NOBLE, Ph.D.

Curriculum Vitae, updated August 2022

Department of Nutritional Sciences, University of Georgia
305 Sanford Dr, Athens, GA 30602
Tel: 651-246-0377, email: emily.noble@uga.edu

EDUCATION AND POSTDOCTORAL TRAINING

B.A. in Natural Science (May 2001): Hampshire College, Amherst, MA
M.S. in Nutrition (January 2010): University of Minnesota, Minneapolis, MN
Ph.D. in Nutritional Biochemistry (May 2014): University of Minnesota, Minneapolis, MN
Postdoctoral Research in Neuroscience (June 2014-July 2015): University of California (Los Angeles, CA); Fernando Gomez-Pinilla Lab
Postdoctoral Fellow in Neuroscience (July 2015-Sept 2018): University of Southern California (Los Angeles, CA); Scott Kanoski Lab

---

ACADEMIC APPOINTMENTS

Research Assistant Professor (September 2018-July 2019): University of Southern California Dornsife College of Letters, Arts, and Sciences; Department of Biological Sciences, Human and Evolutionary Biology Section (Los Angeles, CA)

Assistant Professor (Tenure Track) (August 2019-present) University of Georgia College of Family and Consumer Sciences; Department of Foods and Nutrition (Athens, GA)

RESEARCH SUPPORT

Current Funding

Total costs

K01: Career Development Award, KDK118000 — $764, 295
NIH/NIDDK (3/26/2019-3/26/2024)
Title: Melanin Concentrating Hormone and the Neural Regulation of Feeding
Role: Principal Investigator
Institutional Affiliation: University of Georgia, Athens, GA

R03: Small Research Grant Program, DK128306 — $213,000
NIH/NIDDK (4/1/2021-3/31/2023)
Title: Central Melanin Concentrating Hormone: Neural Pathways and Obesity
Role: Principal Investigator
Institutional Affiliation: University of Georgia, Athens, GA

Obesity Initiative Seed Grant (UGA) — $10,000
Title: Discovering the role and regulation of neuronal ciliary length in obesity/energy balance (11/01/2021-6/30/2022)
Role: Principal Investigator
Institutional Affiliation: University of Georgia, Athens, GA

Completed Awards

Obesity Initiative Seed Grant (UGA) — $12, 854
Title: Diet induced neuronal and mitochondrial network remodeling as a mechanism for dysregulated appetite in obesity (01/01/2021-06/30/2021)

Role: Principal Investigator
Institutional Affiliation: University of Georgia, Athens, GA

Early Career Grant Challenge Award $25,000
The Obesity Society (2018-2019)
Title: Effects of early life sugar consumption on cognitive function during adulthood
Role: Principal Investigator
Institutional Affiliation: University of Southern California, Los Angeles, CA

F32: Ruth Kirschstein National Research Service Award (NRSA), DK111158 $118,332
NIH/NIDDK (7/1/17- 7/1/19)
Title: Early life sugar consumption: effects on cognitive impairment and susceptibility to obesity
Role: Principal Investigator
Institutional Affiliation: University of Southern California, Los Angeles, CA

T32: Minnesota Obesity Prevention Training Grant, T32DK083250
NIH/NIDDK (5/13/13- 5/13/14)
Goals: This funding supported my doctoral research on the hypothalamic regulation of energy balance at the University of Minnesota
Role: Graduate Student Trainee
Institutional Affiliation: University of Minnesota, Minneapolis, MN

SCIENTIFIC PUBLICATIONS

Peer-reviewed journal publications (in reverse chronological order) ***h-index: 22****;*

** indicates co-corresponding*

2022

1. **Noble EE.**, "Behavioral consequences of a rumbling tummy: fasting alters emotional state via the vagus nerve" *Biological Psychiatry* (commentary; Accepted and in press)
2. Décarie-Spain L., Liu CM., Tierno Lauer L., Subramanian K., Bashaw AG., Klug ME., Gianatiempo IH., Suarez AN., **Noble EE.**, Donohue KN., Cortella AM., Hahn JD., Davis EA., Kanoski SE., "Ventral Hippocampus-Lateral Septum circuitry promotes foraging-related memory" *Cell Reports* (Accepted and in press)
3. McFaline-Figueroa J., Schifino AG., Nichenko AS., Lord MN., Hunda ET., Winders EA., **Noble EE.**, Greising SM., Call JA., "Pharmaceutical agents for contractile-metabolic dysfunction after volumetric muscle loss" *Tissue Engineering Part A*. 2022; Aug. 1 (PMID 35620911)
4. Olszewski PK., **Noble EE**., Paiva L., Ueta Y., Blevins JE., "Oxytocin as a potential pharmacological tool to prevent obesity." *Journal of Neuroendocrinology,* 2022; Feb. 12; e13106. (PMID 35192207)

2021

5. Lord MN., Heo JW. Schifino AG., Hoffman, JR., Donohue KN., Call JA., **Noble EE.**, "Sexually dimorphic effects of a Western Diet on brain mitochondrial bioenergetics and neurocognitive function." *Nutrients,* 2021; 13(12), 4222. (PMID 34959774)
6. Liu, CM., Spaulding MO., Rea JJ., **Noble EE.***, Kanoski SE.*, "Oxytocin and food intake control: Neural, Behavioral, and Signaling Mechanisms." *IJMS*, 2021; Oct. 8; 22(19): 10859 PMID 34639199
7. Tsan L., Sun S., Bridi L., Chirala L., **Noble EE**., Fodor, A., Kanoski SE., "Early life Western

diet-induced memory impairments and gut microbiome changes in female rats are long lasting despite healthy dietary intervention." *Nutritional Neuroscience*, 2021; Sept. 27:1-17; PMID 34565305

8. **Noble EE.**, Olson, CA., Davis E., Tsan, L., Chen YW., Schade R., Liu CM., Suarez AN., Jones RB., de La Serre, C., Yang X., Hsiao EY., and Kanoski SE. "Gut microbial taxa elevated by dietary sugar disrupt memory function" *Translational Psychiatry*, 2021; Mar 31; 11(1):194 PMID: 33790226
9. Tsan, L., Decarie-Spain, L., **Noble EE.***, Kanoski SE.* "Western diet consumption during development: setting the stage for neurocognitive dysfunction" *Frontiers in Neuroscience* 2021; 15:632312, PMID 33642988
10. Lord, MN., Subramanian K., Kanoski SE.*, **Noble EE.*** "Melanin-concentrating hormone and food intake control: neural pathways and mechanisms" *Peptides* 2021; Mar; 137:170476, PMID: 33370567

2020

11. Reed DR., Alhadeff AL., Beauchamp GK., Chaudhari N., Duffy VB., Dus M., Fontanini A., Glendinning JI., Green BG., Joseph PV., Kyriazis GA., Lyte M., Maruvada P., McGann JP., McLaughlin JT., Moran TH., Murphy C., **Noble EE.**, Pepino MY., Pluznick JL., Rother KI., Saez E., Spector AC., Sternini C., and Mattes RD., "Perspective: Sensory Nutrition and Disease." *American Journal of Clinical Nutrition* 2020; *epub ahead of print* PMID 33300030
12. Terrill SJ., Subramanian K., Lan R. Liu CM., Cortella AM., Kanoski SK.*****, **Noble EE.*** "Nucleus accumbens melanin-concentrating hormone signaling promotes feeding in a sex-specific manner" *Neuropharmacology* 2020 Nov 1; 178:108270; PMID 32795460
13. Liu CM., Davis, EA., Suarez, AS., Wood RI., *Kanoski SE, ***Noble EE.,** "Sex differences and estrous influences on oxytocin control of food intake" *Neuroscience* 2020; Nov 1; 447:63-73; PMID 31738883
14. Liu CM., Hsu TM., Suarez AN., Subramanian KS., Fatemi RA., Cortella AM., **Noble EE.**, Roitman MF., Kanoski SE. "Central oxytocin signaling inhibits food reward-motivated behaviors and VTA dopamine responses to food-predictive cues" *Hormones and Behavior* 2020 Oct 1; 126:104885; PMID 32991888
15. Suarez AN., Liu CM., Cortella AM., **Noble EE.**, Kanoski SE. "Ghrelin and orexin interact to increase meal size through a descending hippocampus to hindbrain signaling pathway" *Biol Psychiatry* 2020 Jun 1; 87(11): 1001-1011; PMID 31836175

2019

16. **Noble EE.**, Wang Z., Liu CM., Davis EA., Suarez AN., Stein LM., Tsan L., Terrill SJ., Hsu TM., Jung A., Raycraft LM., Hahn JD., Darvas M., Cortella AM., Schier LA., Johnson AW., Hayes MR., Holschneider DP., Kanoski SE. "Hypothalamus-hippocampus circuitry regulates impulsivity via melanin-concentrating hormone**"** *Nature Communications* 2019; 10(1):4923; PMID 31664021
17. Suarez A., **Noble EE**., Kanoski S. "Regulation of memory by feeding-relevant biological systems: following the breadcrumbs to the hippocampus" *Frontiers in Molecular Neuroscience* 2019; 12:101 PMID 31057368
18. **Noble EE.**, Hsu TM., Liang J., Kanoski SE. "Early life sugar consumption has long-term negative effects on memory function in Male rats" *Nutritional Neuroscience* 2019; 1-11; PMID 28944721
19. Malaeb S., Perez-Leighton CE., **Noble EE.**, Billington C. "A 'NEAT' approach to obesity prevention in the modern work environment" *Workplace Health Saf.* 2019; 67(3): 102-110; PMID: 30370831

2018

20. Ying Z., Byun H., Meng Q., **Noble EE.**, Zhang G., Yang X., Gomez-Pinilla F. "The biglycan

gene connects metabolic dysfunction with brain disorder" *Biochim Biophys Acta*. 2018 1864(12):3679-87; PMID: 30291886

21. **Noble EE**., Hahn JD., Konanur VR., Hsu TM., Page SJ., Cortella AM., Liu CM., Song MY., Suarez AN., Szujewski CC., Rider D., Clarke JE., Darvas M., Appleyard SM., Kanoski, SE. "Control of feeding behavior by cerebral ventricular volume transmission of melanin-concentrating hormone" *Cell Metabolism* 2018; PMID 29861386 ***Featured on the cover***
22. Suarez AN., Hsu TM., Liu CM., **Noble EE.**, Cortella AM., Nakamoto EM., Hahn JD., de Lartigue G., Kanoski SE. "Gut vagal sensory signaling regulates hippocampus function through multisynaptic pathways" *Nature Communications* 2018; PMID 29872139
23. Hsu TM., **Noble EE.**, Reiner DJ., Liu CM., Suarez AN., Konanur VR., Hayes MR., Kanoski SE. "Hippocampus ghrelin receptor signaling promotes socially-mediated learned food preference" *Neuropharmacology* 2018; 131:487-96; PMID 29191751

2017

24. Reiner DJ., Mietlicki-Baase EG., Olivos DR., McGrath LE., Zimmer DJ., Koch-Laskowski K., Krawczyk J., Turner CA., **Noble EE.**, Hahn JD., Schmidt HD., Kanoski SE., Hayes MR. "Amylin acts in the lateral dorsal tegmental nucleus to regulate energy balance through gamma-aminobutyric acid signalling" *Biological Psychiatry* 2017; 82(11):828-838; PMID 28237459 ***Featured on the cover***
25. Lopez-Ferreras L., Richard JE., **Noble EE**., Eerola K., Anderberg RH., Olandersson K., Tiang L., Kanoski SE., Hayes MR., Skibicka KP. "Lateral hypothalamic GLP-1R receptors are critical for the control of food reinforcement, ingestive behavior and body weight" *Molecular Psychiatry* 2017; PMID 28894301
26. Hsu, TM., **Noble EE.**, Liu CM., Cortella AM., Konanur VR., Suarez AN., Reiner DJ., Hahn JD., Hayes MR., Kanoski SE. "A hippocampus to prefrontal cortex neural pathway inhibits food motivation through glucagon-like peptide-1 signalling" *Molecular Psychiatry* 2017; PMID 28461695
27. **Noble EE.**, Hsu, TM., Kanoski SE. "Gut to brain dysbiosis: Mechanisms linking Western Diet consumption, the microbiome, and cognitive impairment" *Frontiers in Behavioral Neuroscience*. 2017; 11:9; PMID 28194099
28. **Noble EE.**, Hsu TM., Jones RB., Fodor AA., Goran MI., Kanoski SE. "Early life sugar consumption affects the rat microbiome independently of obesity" *Journal of Nutrition* 2017; 147(1): 20-8; PMID 27903830

2016

29. **Noble E.E.** and Kanoski S.E. "Early life exposure to obesogenic diets and learning and memory dysfunction" *Curr Opin Behav Sci* 2016; 9:7-14; PMID 26858972
30. Meng Q., Ying Z., **Noble E.** Zhao Y., Agrawal R., Mikhail A., Zhuang Y., Tyagi E., Zhang Q., Lee J., Morselli M., Orozco L., Guo W., Kilts T., Zhu J., Zhang B., Pellegrini M., Xiao X., Young M., Gomez-Pinilla F., Yang, X. "Systems nutrigenomics reveals brain gene networks linking metabolic and brain disorders" *eBioMedicine* 2016; 7:157-66; PMID: 27322469
31. Agrawal R., Zhuang Y., **Noble E.E.**, Vergnes L., Ying Z., Reue K., Gomez-Pinilla F. "Dietary fructose aggravates the pathobiology of TBI by influencing energy homeostasis and plasticity" *J Cereb Blood Flow Metab.* 2016; PMID: 26661172.
32. Teske JA., Perez-Leighton CE., **Noble EE.**, Wang C., Billington CJ., Kotz CM. "Effect of housing types on growth, feeding, physical activity, and anxiety-like behavior in male Sprague-Dawley rats" *Front Nutr* 2016;3:4; PMID: 26870735

2015

33. Hsu TM., Hahn, JD., Konanur VR., **Noble EE.**, Suarez AN., Thai J., Nakamoto EM., Kanoski SE. "Hippocampus ghrelin signaling mediates appetite through lateral hypothalamic orexin pathways" *Elife* 2015; 4; PMID: 26745307
34. Agrawal R., **Noble E.**, Tyagi E., Zhuang Y., Ying Z., Gomez-Pinilla F. "Flavonoid

Derivative 7,8-DHF attenuates TBI pathology via TrkB activation" *Biochim Biophys Acta*. 2015; 1852 (5): 862-72; PMID 25661191

35. Wu A., **Noble EE.,** Tyagi E., Ying Z., Zhuang Y., Gomez-Pinilla F. "Curcumin boosts DHA in the brain: implications for the prevention of anxiety disorders" *Biochim Biophys Acta.* 2015; 1852(5): 951-61; PMID 25550171

2014

36. **Noble EE.**, Mavanji V., Little MR., Kotz CM., Billington CJ., Wang, C. "Exercise reduces diet-induced cognitive decline and increases hippocampal brain-derived neurotrophic factor in CA3 neurons" *Neurobiology of Learning and Memory* 2014; 114C: 40-50; PMID 24755094

2013

37. **Noble EE.**, Little MR., Billington CJ., Kotz CM., Wang CF. "Oxytocin in the ventromedial hypothalamus reduces feeding and body weight in Sprague Dawley rats" *Am J Physiol Regul Integr Comp Physiol.* 2013; 307 (6): R737-45; PMID 24990860

2011

38. **Noble EE.**, Billington CJ., Kotz CM., Wang C. "The lighter side of BDNF" *Am J Physiol Regul Integr Comp Physiol* 2011; 300: R1053-1069; PMID 21346243

ABSTRACT PRESENTATIONS

1. Madu, G. and **Noble EE.**, " Characterization of adult hippocampal primary cilia changes during diet-induced weight changes" – Poster presentation, *Society for the Study of Ingestive Behavior annual meeting*, July 2022

2. Spaulding MO., Hoffman JR., Lord MN., Donohue KN., **Noble EE.** "Paraventricular hypothalamic melanin-concentrating hormone signaling and food intake control" – Poster presentation, *Society for the Study of Ingestive Behavior annual meeting*, July 2022
3. Lord MN., Hoffman JR., Donohue KN., Schifino AG., Heo JW., Call JA, and **Noble EE.** "Sexually dimorphic effects of Western Diet on brain mitochondrial bioenergetics and neurocognitive function" – Oral presentation *Society for the Study of Ingestive Behavior annual meeting*, July 2022
4. Hoffman JR., Spaulding MO., Lord MN., Soares-Iizuka CA., de La Serre C., and **Noble EE.**, "Impact of a Western Diet on Brain Mitochondrial Network Dynamics and Behavior" – Poster presentation *Society for the Study of Ingestive Behavior annual meeting*, July 2022
5. Lord MN., Hoffman JR., Donohue KN., Schifino AG., Heo JW., Call JA, and **Noble EE.** "Sexually dimorphic effects of Western Diet on brain mitochondrial bioenergetics and neurocognitive function " – Poster presentation, *Society for Neuroscience annual meeting*, November 2021
6. Spaulding MO., Hoffman JR., Lord MN., Donohue KN., **Noble EE.** "Paraventricular hypothalamic melanin-concentrating hormone signaling and food intake control" – Poster presentation, *Society for Neuroscience annual meeting*, November 2021
7. Hoffman JR., **Noble EE.** "Brain glycogen metabolism and feeding behavior" – Poster presentation, *The Obesity Society annual meeting*, November 2020
8. **Noble EE.**, Jones RJ., Olson C., Tsan L.,Fodor A., Goran I., Hsiao E., Kanoski SE. "Elevated gut *Parabacteroides* due to early life sugar consumption impairs memory function in rats"- Oral presentation, *The Obesity Society annual meeting*, October 2019
9. **Noble EE.**, Kanoski SE., "Early life sugar consumption alters the gut microbiome and negatively impacts memory function in rats" -Oral presentation, *Society for the Study of Ingestive Behavior*, July 2018
10. **Noble EE.**, Hsu TM., Kanoski SE., "Central melanin-concentrating hormone neural

signaling increases impulsive responding for food." – Oral presentation (Ethan Sims Young Investigator Award Session), *The Obesity Society annual meeting*, October 2017 ***1st place winner of the Ethan Sims Young Investigator Award.***

11. **Noble EE.**, Kanoski SE., "Effects of early life sugar consumption on memory function during adulthood" –Oral Presentation, (Early Career Research Grant Challenge Session), *The Obesity Society annual meeting*, October 2017 ***1st place winner of the Early Career Research Grant Challenge***

12. **Noble EE.**, Hsu TM., Kanoski SE., "Melanin-concentrating hormone signaling in the ventral hippocampus increases impulsive responding for palatable food." –Oral presentation, *Society for the Study of Ingestive Behavior*, July 2017 ***1st place for the Harry R. Kissileff Award for best oral presentation***
13. **Noble EE.**, Hsu TM., Suarez A., Liu CM, Cortella A., Kanoski SE. "Melanin-concentrating hormone neuronal signaling increases food impulsivity: evidence for a role of the ventral hippocampus."- Oral presentation *Diabetes and Obesity Research Symposium*, February 2017 ***2nd place for best trainee oral presentation***
14. **Noble EE.**, Liu CM., Song MY., Konanur VR., Hsu TM., Suarez AN., Hahn JD., Kanoski SE. "Evidence for 'bulk flow' neurohumoral transmission by the orexigenic neuropeptide, melanin-concentrating hormone"- Oral presentation, poster presentation *Winter Conference on Brain Research*, January 2017 ***Selected as an "outstanding junior scientist" to give a talk featured in the Pioneer Session***
15. **Noble EE.**, Hsu TM., Jones RB., Fodor AA., Goran MI., Kanoski SE. "Early life sugar consumption alters the gut microbiome and negatively impacts memory function in rats." - Oral presentation, *The Obesity Society annual meeting*, October 2016
16. **Noble EE.**, Song MY., Konanur V., Hsu TM., Suarez A., Hahn JD., Kanoski, SE. "Evidence for 'bulk flow' neurohumoral transmission by the orexigenic neuropeptide, melanin-concentrating hormone"- Oral presentation, *Society for the Study of Ingestive Behavior*, July 2016
17. **Noble EE.**, Konanur V., Hsu TM., Suarez A., Hahn JD., Kanoski SE. "Evidence for neurohumoral transmission by the orexigenic neuropeptide, melanin-concentrating hormone" – poster presentation *Diabetes and Obesity Research Symposium*, February 2016
18. **Noble EE.,** Meng Q., Ying Z., Zhuang Y., Gomez-Pinilla F., Yang X. "Proteoglycans of the extracellular matrix influence body composition and glucose homeostasis during high fructose consumption"- Oral presentation, *The Obesity Society annual meeting*, November 2015
19. **Noble EE.,** Meng Q., Ying Z., Zhuang Y., Byun HR., Yang X., Gomez-Pinilla F. "The extracellular matrix proteoglycan biglycan and fructose-induced central and peripheral metabolic disease" – Poster presentation, The Society for Neuroscience annual meeting, November 2015
20. **Noble EE.**, "Skiing through lunch: exercise, obesity and the dynamically modifyable brain."– Oral presentation *Winter Conference on Brain Research annual meeting*, January 2015
21. **Noble EE.**, Dieuleveult A., Duffy C., Lee R., Bainter H., Nixon J., Butterick T., Billington CJ., Kotz CM., Wang CF. "Impact of environmental enrichment on individual food intake and hypothalamic genes related to energy balance." – Poster presentation *Society for Neuroscience annual meeting*, November 2014

22. **Noble EE.** "Effect of dietary fructose on the brain during TBI"- Oral presentation *UC Neurotrauma annual meeting*, September 2014

23. **Noble EE.**, Little MR., Billington CJ., Kotz CM., Wang CF. "Oxytocin in the ventromedial hypothalamus reduces feeding and increases energy expenditure in Sprague Dawley rats" – Poster presentation *Society for Neuroscience annual meeting*, November 2013
24. **Noble EE.**, Mavanji V., Little MR., Kotz CM., Billington CJ., Wang CF. "Exercise reduces

cognitive decline induced by dietary fat" – Poster presentation *Society for Neuroscience annual meeting*, November 2012

25. **Noble EE.**, Perez-Leighton C., Billington CJ., Kotz CM., Wang CF. "Exercise effects on tropomyosin-related kinase receptor B (trkB) in the hypothalamic paraventricular nucleus (PVN): characterization of PVN trkB fibers."– Poster presentation *Society for Neuroscience annual meeting*, November 2012
26. **Noble EE.** "Homeostatic and reward mechanisms involved in the neural regulation of energy homeostasis and obesity"– Oral presentation *Winter Conference on Brain Research annual meeting*, January 2012
27. **Noble EE.**, Billington CJ., Kotz CM., Wang CF. "Effects of exercise on markers of hypothalamic neuroplasticity and neurodegeneration: changes in appetite and energy balance."– Poster presentation *Society for Neuroscience annual meeting*, November 2011

INVITED RESEARCH PRESENTATIONS

Scientific Symposia

- **Gut-Brain Communication in Metabolic Control and Regulation of Energy Homeostasis workshop** (Ascona Switzerland) (August 2022, Ascona Switzerland)
- **American Society for Nutrition EAN GEM Forum** (June 2022, NUTRITION LIVE online) "Nutrition and neurocognitive dysfunction: impact of age, sex, and diet composition"
- **The Obesity Society annual meeting** (November 2021, virtual due to COVID 19) "Taking flight: reflections on my TOS Early Career Pilot Grant and where is it now"
- **Presidential Symposium at The International Society for the Study of Ingestive Behavior annual meeting** (July 2021, virtual due to COVID 19) "Western dietary factors and neurocognitive dysfunction: impact of sex, age, and diet composition"
- **International Symposium on Regulatory Peptides** (August 2021, Acapulco, Mexico) "Central oxytocin in social and reward-based feeding"
- **National Institutes of Health (NIDDK) Sensory Nutrition and Disease Workshop** (November 2019, Bethesda, MD) "Early-life flavors and sweet response as it relates to cognitive development and obesity"
- **The Obesity Society annual meeting** (November 2018, Nashville TN) "Melanin-concentrating hormone and food intake regulation: neural signaling vs. CSF volume transmission"

Invited Seminar Presentations

-Department of Molecular and Integrative Physiology, University of Kansas Medical Center (2022)
-Department of Neuroscience, University of Florida (2022)
-Department of Biological Sciences, Kent State University (2020)
-Monell Chemical Senses Research Center, Philadelphia, PA (2020)
-Department of Physiology and Pharmacology, University of Georgia (2019)
-Neuroscience Program, University of Georgia (2019)
-Department of Foods and Nutrition, University of Georgia (2018)
-Department of Nutrition, Penn State University (2018)
-Department of Nutritional Sciences, University of Arizona (2014)
-Department of Psychology, Saint Catherine's University (2014)

OTHER PROFESSIONAL ACTIVITES AND DISTINCTIONS

Awards and Honors

-BioServ Award in Experimental Animal Nutrition

American Society for Nutrition 2022
-FACS Early Career Research Award
University of Georgia 2022
-Rolls-Simons Travel Award
The Obesity Society 2019
-Ethan Sims Young Investigator Award (for best abstract and oral presentation)
The Obesity Society, 2017
-Early Career Grant Challenge Award (for best oral presentation and grant proposal)
The Obesity Society, 2017
-Harry R. Kissileff Award (for best oral presentation by a postdoctoral researcher)
The Society for the Study of Ingestive Behavior, 2017
-2nd place award for best presentation by a trainee
The Diabetes and Obesity Research Institute (USC), 2017
-Young Investigator Travel Award
Winter Conference on Brain Research, 2017
-New Investigator Travel Award
Society for the Study of Ingestive Behavior, 2016
-Travel Award
Women in Science and Engineering, 2015

Reviewer- Scientific Journals (ad hoc)
-American Journal of Clinical Nutrition
-American Journal of Physiology (Regulatory, Integrative, and Comparative)
-Biological Psychiatry
-Brain Research
-Experimental Gerontology
-International Journal of Obesity
-Journal of Neurophysiology
-Journal of Nutrition
-Molecular Psychiatry
-Nature Communications
-Neuropharmacology
-Nutritional Neuroscience
-Nutrition Research
-Obesity
-Physiology and Behavior

Reviewer- Grants (ad hoc)
-National Institutes of Health POMD Study Section ECR program
-National Science Foundation CAREER grant program
-Mouse Metabolic Phenotyping Centers MICROmouse grant program

Professional Memberships
-American Society for Nutrition 2021-
-The Obesity Society 2013-
-Society for Ingestive Behavior 2013-
-Society for Neuroscience 2011-

Service to Professional Societies
-Program Committee Track 2 Co-chair
The Obesity Society, 2022

-Program Committee
The Obesity Society, 2020-
-Symposium Session Co-chair
Society for the Study of Ingestive Behavior 2019, 2021, 2022
Obesity Society Annual Meeting 2017, 2021
Experimental Biology 2020 (Cancelled due to Covid)
-Public Information Committee
The Society for the Study of Ingestive Behavior, 2019-present
-New Investigator Advisory Board
The Society for the Study of Ingestive Behavior, 2018, 2019
-Oral Presentation Referee
The Society for the Study of Ingestive Behavior, 2019
-Poster Presentation Referee
The Society for the Study of Ingestive Behavior, 2016, 2019, 2021
-Abstract Reviewer
The Obesity Society Annual Meeting, 2016-2017, 2020-2021

University Service
-Search Committee Member
Associate Dean for Research, Innovation & Entrepreneurship for the College of Family and Consumer Sciences, University of Georgia, Fall 2021
-Bernadier Undergraduate Research Award and CURO
Department of Nutrition, University of Georgia, Fall 2021
-Neuro Symposium Steering Committee
Neuroscience Graduate Program, University of Georgia, 2021
-Graduate Committee
Department of Nutrition, University of Georgia, Fall 2020- Spring 2021
-Departmental Seminar Series Coordinator
Department of Nutrition, University of Georgia, Fall 2019- Spring 2021

Outreach
-Cooking class at The Obesity Society annual meeting
The Obesity Society annual meeting, 2021
-Invited Presenter (High School Outreach Event)
USC InterAxon Research Day, 2016
-Invited Presenter (Undergraduate Outreach Event)
USC WiSE and Dine event, 2016
-Co-organizer WISTEM (Women in STEM) and Presenter
Developed an after school program to teach STEM to middle school girls, 2015-2016

TEACHING EXPERIENCE

Courses
-*Nutrition and Neuroscience FDNS 8240 (Spring 2022)
University of Georgia, Athens, GA **Developed this course*
-Food and Nutritional Biochemistry FDNS/FDST 8150 (Fall 2020)
University of Georgia, Athens, GA
-Introduction to Foods and Nutrition FDNS 2100 (Fall 2019, Fall 2021)
University of Georgia, Athens, GA
-Undergraduate Research I FDNS 4960 (Spring 2020)
University of Georgia, Athens, GA

-Special Problems in Foods and Nutrition FDNS 3010 (Spring 2020)
University of Georgia, Athens, GA
-Undergraduate Research I HONS 4960R (Spring 2020)
University of Georgia, Athens, GA
-Foods and Nutrition Topics FDNS 8580 (Spring 2020)
University of Georgia, Athens, GA

Graduate Students Mentored (University of Georgia)
-Magen Lord (PhD student; Fall 2020-present; Department of Foods and Nutrition, UGA)
-Mai Spaulding (PhD/DI student; Fall 2020-present; Department of Foods and Nutrition, UGA)
-Grace Madu (PhD, Summer 2021-present, Department of Foods and Nutrition, UGA)

Graduate Rotation Students
-Gene Rodrick (Fall 2021 rotation student, Integrated Life Sciences program, UGA)
-Jacob Harth (Fall 2020 rotation student, Integrated Life Sciences program, UGA)
-Felicia Ebot-Ojong (Fall 2019 rotation student, Integrated Life Sciences program, UGA)
-Rachel Dockman (Fall 2019 rotation student, Integrated Life Sciences program, UGA)

Undergraduate Students Mentored (present)
Maggie Whitehead (Spring 2020- present)
- *Recipient of the CURO Fellowship for Undergraduate Research (Spring 2020)*
- *Recipient of the Carolyn Berdanier Undergraduate Research Grant (Fall 2020)*

Prashant Kolachala (Spring 2020- present)
- *Recipient of the CURO Fellowship for Undergraduate Reseach (Fall 2020)*

Kamayla Ko (Spring 2021-present)
- *Recipient of the CURO Fellowship for Undergraduate Reseach (Fall 2021)*

Tiffany Le (Spring 2021-present)
Gayathri Annamraju (Spring 2021-present)
Omeka Bhatia (Summer 2021-present)
- *Recipient of the Carolyn Berdanier Undergraduate Research Grant (Fall 2021)*
- *Recipient of the FACS Undergraduate Research Award (Fall 2021)*

Ethan Rimando (Fall 2021-present)
Oscar Vanegas (Fall 2021-present)
Rahul Patel (Fall 2021-present)
Ian meeks (Fall 2021-present)
Caroline Iizuka (Fall 2021-present)
Rawad Basma (Fall 2021-present)
- *Recipient of the CURO Fellowship for Undergraduate Reseach (Spring 2022)*

Undergradate Students Mentored (past)
Shi Chen (Spring 2020)
- *Pursuing a masters degree in nutrition and dietetics at Illinois State*

Adele Bloodworth (Spring 2020)
- *Accepted to medical school at the University of Alabama*

Jacqueline Yalta (Fall 2020-Spring 2021)
- *Recipient of the CURO Fellowship for Undergraduate Reseach (Fall 2020)*

Mary Catherine DeMatteo (Fall 2020-Spring 2021)
- *Recipient of the CURO Fellowship for Undergraduate Reseach (Spring 2021)*
- *Recipient of the Carolyn Berdanier Undergraduate Research Grant (Spring 2021)*

Kristen Donohue (Spring 2020- Spring 2021)

- *Worked in the lab as a summer lab technician (Summer 2021), currently a Lab Manager in the Kanoski Lab at the University of Southern California*

Lauren Ballew (Fall 2020- Spring 2021)

- *Recipient of the CURO Fellowship for Undergraduate Reseach (Fall 2020, Spring 2021)*
- *Currently in dental school at the University of Alabama*

BIOGRAPHICAL

Name: Karen Ann Shalala Norris, PhD

Business Address: Center for Vaccines and Immunology
College of Veterinary Medicine Building North
University of Georgia
501 D.W. Brooks Drive - Athens, GA 30602

Email: kanorris@uga.edu

URL: https://vet.uga.edu/person/karen-a-norris/
URL: https://nxtbiologics.com

Phone Number: (706) 542-3111
Fax: (706) 583-0297

EDUCATION AND TRAINING

UNDERGRADUATE:

9/76- 6/80	Bowling Green University Bowling Green, OH	B.S. Chemistry and 1980 Microbiology

GRADUATE:

9/80 - 6/85	Wright State University, Dayton, OH	Ph.D. Biomedical Sciences 1985 Microbiology

POST-GRADUATE:

6/85 - 6/90	Scripps Research Institute Department of Molecular Biology La Jolla, CA	Postdoctoral Fellow Director: Magdalene So, Ph.D.

APPOINTMENTS AND POSITIONS

1990 -1998	Department of Molecular Genetics & Biochemistry University of Pittsburgh School of Medicine	Assistant Professor
1990 – 2016	University of Pittsburgh Cancer Institute University of Pittsburgh	Member
1998-2002	Department of Molecular Gen, & Biochem.	Associate Professor

	University of Pittsburgh School of Medicine	
2002- 2016	Department of Immunology University of Pittsburgh School of Medicine	Associate Professor
2007-2016	Center for Vaccine Research University of Pittsburgh	Affiliate Member
2010-2016	Department of Immunology University of Pittsburgh School of Medicine	Professor
2010-2016	University of Pittsburgh HIV Lung Research Center	Director of Basic Science
2011-2016	U. Pitt. Clinical Translational Science Institute	Professor
2016-present	Department of Infectious Diseases College of Veterinary Medicine University of Georgia	Professor
2016-present	Center for Vaccines and Immunology University of Georgia	Member
2016-present	University of Georgia Non-Human Primate Research Core	Director
2016-present	Charles H. Wheatley Chair in Immunology and Translational Biomedicine	Endowed Chair
2016-present	Georgia Research Alliance Eminent Scholar	
2018-present	NXT Biologics, Inc.	Founder, President

PROFESSIONAL SOCIETIES AND RELATED ORGANIZATIONS

1985 - present	American Society for Microbiology
1993 - present	American Association of Immunologists
2005 - present	American Thoracic Society

HONORS

1985-1989	Individual National Research Service Award, NIH
1990-1991	Tropical Disease Research and Training Award, World Health Organization
1996-1997	Established Investigator Award, American Heart Association

2003 Excellence in Teaching Award, nomination, University of Pittsburgh School of Medicine

2016 Georgia Research Alliance, Eminent Scholar

PUBLICATIONS

Refereed Articles

1. Paul, C., **K.A. Shalala**, R.L. Warren and R.A. Smith. 1985. Adoptive transfer of murine host protection to salmonellosis using *Salmonella* specific T cell lines. Infection and Immunity 48:40-43.

2. Paul, C., **K.A. Norris**, R.L. Warren and R.A. Smith. 1988. Transfer of murine host protection using Interleukin-2-dependent T-lymphocyte lines. Infection and Immunity 56:3335.
3. **Norris, K.A.,** G. Harth and M. So. 1989. Purification of a membrane protein of *Trypanosoma cruzi* which elicits lytic antibodies. Infection and Immunity. 57:2372-2377.

4. Flynn, J., W. Weiss, **K.A. Norris,** Siefert, H.S., Kumar, S. and M. So. 1990. Generation of a cytotoxic T lymphocyte response using a *Salmonella* antigen delivery system. Mol. Microbiol. 4 (12):2111-18.

5. **Norris, K.A.,** B. Bradt, N.R. Cooper and M. So. 1991. Characterization of a *Trypanosoma cruzi* C3 binding protein with functional and genetic similarities to the human complement regulatory protein, decay accelerating factor. J. Immunol. 147:2240-2247.

6. **Norris, K.A**. and J. E. Schrimpf. 1993. Biochemical analysis of the membrane and soluble forms of the complement regulatory protein of *Trypanosoma cruzi*. Infect. Immun. 62 (1):236-243.

7. **Norris, K.A.,** L. M.C. Galvão, J.E. Schrimpf, J.R. Cançado, and A.U. Krettli. 1994. Humoral immune response to the *Trypanosoma cruzi* complement regulatory protein as an indicator of parasitologic cure in human Chagas' disease. Infect. Immun. 62 (6): 4072.

8. **Norris, K.A.,** J.E. Schrimpf, J.L. Flynn and S. Morris. 1995. Enhancement of macrophage microbicidal activity: supplemental arginine and citrulline augment nitric oxide production in peritoneal macrophages and promote intracellular killing of *Trypanosoma cruzi.* Infect. Immun. 63 (7):2793-96.

9. **Norris, K.A**. 1996. Ligand-binding renders the 160 kDa *Trypanosoma cruzi* complement regulatory protein susceptible to proteolytic cleavage. Micro. Path. 21:235-248.

10. **Norris, K. A**. 1996. Microbial Evasion of Complement-Mediated Clearance. J. Liposome Res. 6 (1):117-132.

11. **Norris, K.A.,** J.E. Schrimpf, and M. Szabo. 1997. Identification of the gene family encoding the 160 kDa *Trypanosoma cruzi* complement regulatory protein. Infect. Immun. 65(2):349-357.

12. **Norris, K.A.** 1998. Stable transfection of *Trypanosoma cruzi* epimastigotes with the trypomastigote-specific complement regulatory protein cDNA confers complement resistance. Infect. Immun. 66(6):2460-2465.

13. Sepulveda, P., M. Hontebeyrie, P. Liegeard, A. Mascilli, and **K.A. Norris**. 2000. DNA-based immunization with *Trypanosoma cruzi* complement regulatory protein elicits lytic antibodies and confers protection against *T. cruzi* infection in mice. Infect. Immun.,68:4986-4991.

14. Croix, D.A., K. Board, S. Capuano, M. Murphey-Corb, C.G. Haidaris, J.L. Flynn, Reinhart, T., and **K.A. Norris**. 2002. Alterations in T lymphocyte profiles in bronchoalveolar lavage fluid in SIV-infected rhesus macaques with *Pneumocystis carinii* infection. AIDS Research and Human Retrovirus 18:395-405.

15. Meira, WS.,L. Galvao, ED. Gontija, GL Machado-Coehlo, **Norris**,**K.A**., and E. Chiari. 2002. *Trypanosoma cruzi* recombinant complement regulatory protein: a novel antigen for use in enzyme-linked immunosorbent assay for the diagnosis of Chagas' disease. J. Clin. Microbiol.40(10):3735-40.

16. Beucher, M. WS. Meira, V. Zagarra, L. Galvao, E. Chiari, and **Norris, K.A**. 2003. Expression and purification of functional, recombinant *Trypanosoma cruzi* complement regulatory protein. Protein Exp. Purification. 27(1):19-26.

17. Board, K., S. Patil, S., Lebedeva, I., Capuano III, S., Trichel, A., Murphey-Corb, M., Rajakumar, P. Flynn, JL, C.G. Haidaris, and **Norris, K.A**. 2003. Experimental *Pneumocystis carinii* infection in SIV-infected Rhesus Macaques. J. Infect. Dis. 187:576-88.

18. **Norris, K.A**., Wildschutte, H., Franko, J., Board, KF. 2003. Genetic variations at the mitochondrial large subunit ribosomal RNA locus of *Pneumocystis carinii* from simian immunodeficiency virus-infected rhesus macaques. Clin. Diag. Lab. Immunol. 10:1037-1042.

19. Patil, SP, Board, KF, Lebedeva, IP, **Norris, K.A**. 2003. Immune responses to *Pneumocystis* colonization and infection in a simian model of AIDS. J Eukaryot Microbiol. 50:661-2.

20. Morris, A., Kingsley, L., Groner, G., Lebedeva, I.P., Beard, C.B., and **Norris, K.A**. 2004. Prevalence and clinical predictors of *Pneumocystis* carriage among HIV-infected men. AIDS, 18:793-798.

21. Morris, A., Sciurba, F., Lebedeva, I.P., Githaiga, A., Elliott, W.M., Hogg, J.C., Huang, L., **Norris, K.A.** 2004. Association of chronic obstructive pulmonary disease severity and *Pneumocystis* colonization. Am. J. Resp. Crit. Care Med. 170:408-13.

22. Guillot, J, Demanche, C**., Norris, K.A.,** Wanert, F., Berthelemy, M., Tataine, S., Dei-Cas, E., Chermette, R. 2004. Population structure of *Pneumocystis* from Asian macaques questions the species concept in both fungi and mammalian hosts. Mol. Phylogen. Evol. 31:988-996.

23. Meira, WS., Galvao, LM., Gontijo, ED, Machado-Coelho, GL., **Norris, K.A**., Chiari, E. 2004. The use of the *Trypanosoma cruzi* recombinant complement regulatory protein ELISA to evaluate therapeutic efficacy following treatment of chronic Chagas' disease. J. Clin. Microbiol. 42:707-12.

24. Zheng, M., Ramsay, A., Robichaux, M., **Norris, K.A**., Kliment, C. Crowe, C., Steele, C., McAllister, F., Shellito, J., Marrero, L., Kolls, J.K. 2005. CD4+ T-cell independent DNA vaccination against *Pneumocystis carinii* in mice. J. Clin. Invest. 115:3536-44.

25. **Norris, K.A.,** Morris, A., Patil, S., Fernandes, E. 2006. *Pneumocystis* colonization, airway inflammation and pulmonary function decline in Acquired Immunodeficiency Syndrome. Immunol. Res. 36:175-187

26. Morris, A., Sciurba, F., and **Norris, K.A**. 2008. *Pneumocystis*: A novel pathogen in chronic obstructive pulmonary disease? COPD: Journal of Chronic Obstructive Pulmonary Disease 5:1-9.

27. Beucher M. and **Norris, K.A**. 2008. Sequence diversity of the *Trypanosoma cruzi* Complement Regulatory Protein family. Infect. Immun. 76(2): 750-8.

29. Morris, A., Netravali, M., Kling, H.M., Shipley, T.W., Ross, T., Sciurba, F.C. and **Norris, K.A**. 2008. Relationship of *Pneumocystis* antibody response and severity of chronic obstructive pulmonary disease. Clin. Infect. Dis: 47(7):64-8.

30. Kling, H M., Shipley, T.W., Patil, S., Morris, A., and **Norris, K.A**. 2008. *Pneumocystis* colonization in immunocompetent and simian immunodeficiency virus-infected cynomolgus macaques. J Infect Dis. 199(1):89-96. [Epub ahead of print, Nov 17. 2008] PMCID: PMC2622722.

31. Morris, A., Alexander, T., Radhi, S., Lucht, L., Sciurba, F.C., Steele, C., and **Norris, K.A.** 2009. Airway obstruction is increased in *Pneumocystis*-colonized HIV-infected outpatients. J. Clin. Microbiol. 47:3773-6. PMCID: PMC2772636.

32. Bryan, M. and **Norris, K.A.** 2009. Gene gun delivery converts the *T. cruzi* B cell mitogen to immunogen. Infect Immun. 78:810-22. PMCID: PMC2812217.

33. Shipley, TW, Kling, HE, Morris, A, Patil, S, Kristoff, JA, Guyach, SE, Murphy, JA, Shao, X, Sciurba, FC, Rogers, RM, Richard, T, Thompson, P, Montelaro, RC, Coxson, HO, Hogg, JC, **Norris, KA**. 2010. Persistent *Pneumocystis* colonization leads to the development of chronic obstructive pulmonary disease (COPD) in a non-human primate model of AIDS. J. Infect. Dis. 202:302-12. PMID:20533880.

34. Kling, HE, Shipley, TW, **Norris, KA**. 2010. Relationship of *Pneumocystis* Humoral Immunity to Prevention of Colonization and COPD in a Primate Model of HIV Infection. Infect. Immun. 78(10):4320-30. PMID:20961277.

35. Shipley, TW, Kling, HE, Morris, AM, **Norris, KA**. Pulmonary gene expression analysis in primate model of HIV-related COPD reveals novel genes associated with early disease pathogenesis. *Submitted.*

36. Bryan, MA, Guyach, S and **Norris, KA**. 2010. Specific Humoral Immunity versus Polyclonal B cell Activation in *Trypanosoma cruzi* Infection of Susceptible and Resistant Mice. PLoS Neglected Trop. Dis. 4(7):e733, 1-16.

37. George, MP, Brower, A, Kling, HE, Shipley, TW, Kristoff, JA, Murphey-Corb, M, Reinhart, T, Gladwin, M, Champion, HC, Morris, A, **Norris, KA**. 2011. Pulmonary vascular lesions are common in SIV- and SHIV-Env-infected macaques. AIDS Res. and Hum. Retroviruses. 27(2):103-11. PMID:20961277

38. Kling, HM, Shipley, TW and **Norris, KA**. 2011. Alterations in Peripheral Blood B Cell Populations in SHIV89.6P-infected Macaques. Comp. Med.61:269-277. PMID:21819698

39. Gingo, MR, Lucht, L, Daly, KR, Djawe, K, Palella, FJ, Abraham, AG, Bream, JH, Witt, MD, Kingsley, LA, **Norris, KA**, Walzer, PD, Morris, A. 2011. Serologic responses to *Pneumocystis* proteins in human immunodeficiency virus patients with and without *Pneumocystis jirovecii* infection. J. Acquir. Immune Defic Syndr. 57(3):190. PMID:21372726.

40. Sivam, S. Sciurba, FC, Lucht, LA, Zhang, Y, Duncan SR, **Norris, KA** and Morris, A. 2011. Distribution of *Pneumocystis jirovecii* in lungs from colonized COPD patients. Diagn. Microbiol. Infect. Dis. 71:24-8. PMID: 21851870.

41. Morris, A, Gingo, MR, Lucht, L, Kessinger, C, Singh V, Hillenbrand, M, Busch, M, McMahon, D, **Norris, KA**, Champion, HC, Gladwin, MT, Zhang Y, Steele C, Sciurba, FC. 2012. Cardiopulmonary function in individuals with HIV infection in the antiretroviral therapy era. AIDS. 27;26(6):731-40. PMID:22210636.

42. Empey KM, Orend JG, Peebles RS Jr, Egaña L, **Norris KA,** Oury TD, Kolls JK. 2012. Stimulation of immature lung macrophages with intranasal interferon gamma in a novel neonatal mouse model of respiratory syncytial virus infection. PLoS One. 2012;7(7):e40499. Epub 2012 Jul 6. PMID:22792355.

43. Morris A, Hillenbrand M, Finkelman M, George MP, Singh V, Kessinger C, Lucht L, Busch M, McMahon D, Weinman R, Steele C, **Norris KA**, Gingo MR. 2012. Serum (1→3)-β-D-glucan levels in HIV-infected individuals are associated with immunosuppression, inflammation, and cardiopulmonary function. J Acquir Immune Defic Syndr. 2012 Sep 11. [Epub ahead of print]. PMID:22972021.

44. George MP, Champion HC, Simon M, Guyach S, Tarantelli R, Kling HM, Brower A, Janssen C, Murphy J, Carney JP, Morris A, Gladwin MT, **Norris KA**. 2012. Physiologic changes in a nonhuman primate model of HIV-associated pulmonary arterial hypertension. Am J Respir Cell Mol Biol. 2013 Mar;48(3):374-81. Epub 2012 Dec 13. PMID: 23239493.

45. Bryan M, Guyach S, **Norris KA**. 2013. Biolistic DNA vaccination against *Trypanosoma* infection. Methods Mol Biol. 940:305-15. PMID:2310435.

46. Kling, HM, Shipley, TW, Guyach, S, Tarantelli, R, Morris, A, Norris, KA. 2014. Trimethoprim-sulfamethoxazole treatment does not reverse obstructive pulmonary changes in *Pneumocystis*-Colonized non-human primates with SHIV infection. J Acquir Immune Defic Syndr 65(4):381-9. PMID:24121760

47. Fitzpatrick ME, Tedrow JR, Hillenbrand ME, Lucht L, Richards T, Norris KA, Zhang Y, Sciurba FC, Kaminski N, Morris A. Microbiol Immunol. 2014 Mar;58(3):202-11. doi: 10.1111/1348-0421.12135. PMID:24438206.

48. Amsellem V, Lipskaia L, Abid S, Poupel L, Houssaini A, Quarck R, Marcos E, Mouraret N, Parpaleix A, Bobe R, Gary-Bobo G, Saker M, Dubois-Randé JL, Gladwin MT, **Norris KA**, Delcroix M, Combadière C, Adnot S. 2014 Circulation. Jul 3. pii: CIRCULATIONAHA.114.010757. PMIC:24993099.

49. Morris, A., Norris, KA and Gladwin, MT. 2014. Acute and chronic lung infection. Novel pathogens, diagnostics, and therapeutics. Ann. Am. Thorac. Soc. Suppl. 4:S187-8. PMID:25148423.

50. George, MP, Masur, H. Norris, KA, Palmer SM, Clancy, CJ, McDyer, JF. 2014. Infections in the immunosuppressed host. Ann. Am. Thorac. Soc. Suppl. 4:S211-20. PMID: 25148427.

51. Fitzpatrick, ME, Singh, V., Bertolet, M, Lucht, L, Kessinger, C, Michel, J, Logar, A, Weinman, R McMahon, D, Norris KA, Vallejo, AN, Morris. A. 2015. Relationships of pulmonary function, inflammation and T-cell activation and senescence in an HIV-infected cohort. AIDS. 28:2505-15. PMID. 25574956.

53. Kling, HH and **Norris KA.** 2016. Vaccine-induced immunogenicity and protection against *Pneumocystis* pneumonia in a non-human primate model of HIV and *Pneumocystis* co-infection**.** J Infect Dis. PMID:26823337.

54. Morris A, Paulson JN, Talukder H, Tipton L, Kling H, Cui L, Fitch A, Pop M, Norris KA, Ghedin E. 2016. Longitudinal analysis of the lung microbiota of cynomolgous macaques during long-term SHIV infection. Microbiome. 4(1):38. doi: 10.1186/s40168-016-0183-0. PMID. 27391224.

55. Bertero, T. et al. 2016. Vascular stiffness mechano-activates YAP/TAZ-dependent glutaminolysis to drive pulmonary hypertension. J. Clin. Invest. Sep 1;126(9):3313-35. PMID:27548520.

56. Henrique PM, Marques T, da Silva MV, Nascentes GA, de Oliveira CF, Rodrigues V, Gómez-Hernández C, **Norris KA**, Ramirez LE, Meira WS. 2016. Correlation between the virulence of T. cruzi strains, complement regulatory protein expression levels, and the ability to elicit lytic antibody production. Exp Parasitol. 170:66-72. PMID:27614283.

57. Barbara C. Hansen, Sylvia Gografe, Stacy Pritt, Kai-lin Catherine Jen, Camille A. McWhirter, Susan M. Barman, Anthony Comuzzie, Molly Greene, Justin A. McNulty, Daniel Eugene Michele, Naz Moaddab, Randal J. Nelson, **Karen Norris**, et al. 2017. Ensuring Due Process in the IACUC and Animal Welfare Setting: Considerations in Developing Noncompliance Policies and Procedures for Institutional Animal Care and Use Committees and Institutional Officials. FASEB J. Oct;31(10):4216-4225. PMID: 28821637.

58. Ruan S, Cai Y, Ramsay AJ, Welsh DA, **Norris K**, Shellito JE. 2017. B cell and antibody responses in mice induced by a putative cell surface peptidase of Pneumocystis murina protect against experimental infection. Vaccine: 35(4):672-679. doi: 10.1016/j.vaccine.2016.11.073.PMID:28012778

59. Tarantelli, RA, Schweitzer, F, Simon, MA, Vanderpool, R, Christman, I, Rayens, E, Kling, HM, Zullo, T, Carney, JP, Lopresti, B, Bertero, T, Chan, SY**, Norris, KA**. 2018. Longitudinal Evaluation of Pulmonary Arterial Hypertension in a Non-Human Primate Model of HIV Infection. Comp. Med. 68(6):461-473. PMID:30541636.

60. Schweitzer, F, Tarantelli, RA, Rayens, E, Kling, HM, and **Norris, KA.** 2018. Monocyte and alveolar macrophage skewing is associated with progression of pulmonary arterial hypertension (PAH) in a primate model of HIV-infection. *AIDS Res. Hum Retroviruses.* 2019 Jan;35(1):63-74. doi: 10.1089/AID.2018.0132. PMID:30229666

61. Marques T, Silva GC, Henrique Paiva PM, Nascentes GAN, Ramirez LE, **Norris K**, Meira WSF 2018. Use of Tc-rCRP as a target for lytic antibody titrations after experimental Trypanosoma cruzi infection. Exp. Parasitol. 184:103-8. PMID 29246832.

62. Cobos Jimenez, V, Rabacal, W, Rayens, E, **Norris KA**. 2019. Immunization with Pneumocystis recombinant KEX1 induces robust and durable humoral responses in immunocompromised non-human primates. Hum Vaccin Immunother. 15(9):2075-2080. PMID 31348719

63. Bourgeois A, Bonnet S, Breuils-Bonnet S, Habbout K, Paradis R, Tremblay E, Lampron MC, Orcholski ME, Potus F, Bertero T, Peterlini T, Chan SY, Norris KA, Paulin R, Provencher S, Boucherat O. 2019. Arterioscler Thromb Vasc Biol. 39(8):1667-1681. PMID: 31092016

64. Rabacal, W., Schweitzer, F., Rayens, E., Tarantelli, R., Whang, P., Cobos-Jimenez, V., Outwater, JA, Norris, K.A. 2019. Statin treatment prevents the development of pulmonary arterial

hypertension in a nonhuman primate model of HIV-associated PAH. Sci Rep **9,** 19832 (2019). PMID:31882598.

65. Gingerich AD, **Norris KA**, Mousa JJ. 2021. *Pneumocystis* Pneumonia: Immunity, Vaccines, and Treatments. Pathogens. 10(2):236. doi: 10.3390/pathogens10020236.PMID: 33669726.

66. Rayens E, Noble B, Vicencio A, Goldman DL, Bunyavanich S, **Norris KA. 2021.** Relationship of *Pneumocystis* antibody responses to paediatric asthma severity. BMJ Open Respir Res. 2021 Mar;8(1):e000842. doi: 10.1136/bmjresp-20000842. PMID: 33762359.

67. Rayens E, **Norris KA**, Cordero JF. 2021. Mortality Trends in Risk Conditions and Invasive Mycotic Disease in the United States, 1999-2018. Clin Infect Dis. 74(2):309-318 PMID: 33876235.

68. Rayens, E., Rabacal, W, Kang, SE, Celia, BN, Momany, M, and **Norris, KA**. 2021. Vaccine-induced Protection in Two Murine Models of Invasive Aspergillosis. Front. Immunol. 12:670578. PMID 34084170.

69. Rayens, E and Norris, KA. 2022. Prevalence and Healthcare Burden of Fungal Infections in the United States, 2018. Open Forum Infect Dis. 2022 Jan 10;9(1). PMID: 35036461.

70. Rayens, E., Rayens, M.K. Norris, KA. 2022. Demographic and Socioeconomic Factors Associated with Fungal Infection Risk, United States, 2019. Emerging Infect. Dis. 28(10):1955.

71. Rayens, E. et al., Immunogenicity and Protective Efficacy of a Recombinant Pan-Fungal Vaccine in Pre-Clinical Models of Aspergillosis, Candidiasis, and Pneumocystosis, submitted, PNAS.

72. Rabacal, W. et al., A therapeutic vaccine strategy to prevent *Pneumocystis* pneumonia in an immunocompromised host in a nonhuman primate model HIV and *Pneumocystis* co-infection, submitted, Frontiers in Immunol.

Reviews and Book Chapters

1. So, M., **K. Norris,** and H. Seifert. 1990. Escape from the Host Humoral Responses. In: Immune Recognition and Evasion: Molecular Aspects of Host-Parasite Interaction, L.Van der Ploeg, C. Cantor, and H. Vogel (eds.). Academic Press, Inc., Orlando, FL

2. Cooper, N.R., B. Bradt, and **K. A. Norris.** 1991. Mimicry of complement sequences and functional epitopes by pathogens. In**:** New Comprehensive Biochemistry. R.A. Harrison, ed. Elsevier Science Publishers.

3. **Norris, K.A.** 1999. Inflammation and Septic Shock. *In*: Microbial Pathogenesis: A Principles-Oriented Approach, B. McClane, T. Mietzner eds., Fence Creek Publishing.

4. **Norris, K.A**. 2001. Dendritic cells and the biology of parasitism. In: Dendritic Cells, 2cd ed. M. T. Lotze and A. W. Thomson, eds. Academic Press, San Diego.

5. Bryan, M. and **Norris, K.A**. 2009. Natural killer cells and Parasites. In Natural Killer Cells, M.T. Lotze and A.W. Thomson, eds, Elsevier Pub.

6. **Norris, KA** and Morris A. 2011. *Pneumocystis* infection and the pathogenesis of chronic obstructive pulmonary disease. Immunol. Res. 50:175-80. PMID:21717077.

7. Morris, A and **Norris, KA**. 2011. Colonization by *Pneumocystis jirovecii* and its role in disease and colonization. Clin. Micro. Rev. 25(2): 297-317. PMID: 22491773.
8. George MP, Champion HC, Gladwin MT, Norris KA, Morris A. 2012. Injection drug use as a "second hit" in the pathogenesis of HIV-associated pulmonary hypertension. Commentary. Am J Respir Crit Care Med. 2012 Jun 1;185(11):1144-6. PMID:22661521

PROFESSIONAL ACTIVITIES

Student, Postdoctoral fellows, Clinical fellows supervised

1991-1993	Lucia Galvao, Ph.D. Post-doctoral fellow, Present position: Associate Professor, Faculty of Medicine, Federal University of Minas Gerais, Belo Horizonte, Brasil. **Extramural funding: WHO Tropical Diseases Research Grant**
1997-2000	Margaret Beucher, Ph.D., Post-doctoral fellow Present position, Assist. Professor, Brigham Young University.
2000-2003	Katherine Board, Graduate Student, MS, Graduate Program in Immunology Present position, Environmental Health and Safety, University of Pittsburgh.
2001-2003	Alison Morris, MD, Fellow, Div. Pulmonary, Allergy and Critical Care Medicine, MS, Graduate Student, GSPH Present position: Associate Professor of Medicine, University of Pittsburgh. **Extramural funding: NIH K23 award**
2002-2005	Wendell Meira, Ph.D., Post-doctoral fellow, Present position: Professor of Biology, Universidade Federal do Triangulo Mineiro, Uberaba, Brasil. **Extramural Funding: American Heart Association, Post-doctoral Fellowship**
2003-2005	Eustace Fernandes, MD, Fellow, Div. Pulmonary, Allergy and Critical Care Medicine. **Extramural funding: Ruth L. Kirschstein National Research Service Award, NIH**
2001-2006	Sangita Patil, Ph.D., Post-doctoral fellow
2005-2007	Mahesh Netravali, MD, Fellow, Division of Allergy and Immunology
2003-2009	Marianne Bryan, PhD, Graduate Program in Immunology
2005-2010	Tim Shipley, PhD, Graduate Program in Immunology

2005-2010	Heather Kling, PhD, Graduate Program in Molecular Virology and Microbiology
2007-2008	Patty George, MD, Fellow, Division of Pulmonary, Allergy and Critical Care Medicine **Extramural funding, NIH K23 award and Parker B. Francis**
2008-2009	Danielle Roe, Medical student, Scholarly Project
2009-2012	Jessica Murphy, Medical student Scholarly Project
2011- 2015:	Heather Kling, PhD, post-doctoral fellow
2015-2019:	Finja Schweitzer, PhD, post-doctoral fellow
2016-2021:	Whitney Rabacal, PhD, post-doctoral fellow **Extramural Funding, NIH Minority Fellowship**
2017-2021:	Viviana Cobos Jimenez, PhD, post-doctoral fellow
2017-2021	Emily Rayens, PhD, MPH student
2018-2019	Alexandria Maddox, Undergraduate Student, McNair Scholar
2021-present	Emily Rayens, PhD, MPH, post-doctoral fellow
2021-present	Marjo Willems, PhD, post-doctoral fellow
2021-present	Sara Khalife, PhD, post-doctoral fellow
2021-present	Whitney Rabacal, Assistant Research Professor **Extramural Funding, American Heart Association**
2022-present	Daniel Wychrij, PhD student
2022-present	Kwadwo Otieku Oworae, PhD student
2022-present	Taylor Chapman, PhD student

Junior Faculty Mentor:

2003-08	Alison Morris, MD, MS. Associate Professor, Pulmonary and Critical Care Medicine Mentor, NIH K23 award Mentor, Master's Degree (MS, GSPH)
2007- 2010	Kerry Empey, PharmD, PhD. Assistant Professor, Department of Pharmacy, University of Pittsburgh. Co-mentor, NIH, K12 Award, Multidisciplinary Clinical Research Scholars Program
2009-2015	M. Patricia George, MD. Assistant Professor, Department of Medicine, Division of Pulmonary, Allergy and Critical Care Medicine, University of Pittsburgh, Co-mentor, NIH K23, Parker B. Francis Award
2015-2016	Matt Nicotra, PhD, Assistant Professor, Starzl Transplant Institute, Department of Surgery, University of Pittsburgh
2017-present	Jarrod Mousa, PhD, Assistant Professor, Center for Vaccines and Immunology, UGA. Mentor, K01 Award 2018-2021.
2018-2020	Sushma Cribbs, MD, Assistant Professor, Emory University

2020-present	Neil Grimsley, PhD, Assistant Professor, Pharmaceutical and Biomedical Sciences, UGA

Undergraduate Research Students supervised:

1999	Helena Levitt, Haverford College
2000	Heather Turowski, University of Pittsburgh
2000-01	Jennifer Franko, Geneva College
2001-02	Elizabeth Persson, Case Western Reserve University
2001	Matthew DeMarco, University of Pittsburgh
2007	Jessica Lum, Loyola University
2008	Benjamin Pollock, University of Pittsburgh
2010-14	Esteban Villareal, University of Pittsburgh
2014-16	Atta Ehbrahimi, University of Pittsburgh
2014-16	Adria Schlessman, University of Pittsburgh
2014-16	Eden Watterson, University of Pittsburgh
2017-present	Erick Godinez, University of Georgia
2018-2020	Alexandra Outwater, University of Georgia
2021-2022	Rachel Phan, University of Georgia
2021-present	Zoya McCook, University of Georgia
2020-present	Emma Sayeski, University of Georgia

Thesis Committees:

1993-6	Chadd Nesbitt, Ph.D. Department of Biological Sciences
1993-7	John K. Kun, Ph.D., Molecular Genetics and Biochemistry
1997-8	Susan Bracken, M.S., Molecular Genetics and Biochemistry
1997-00	Natalia Serbinka, Ph.D., Immunology
1997-00	Charles Scanga, Ph.D., Molecular Virology and Microbiology
1997-02	Kendra Bodner, Ph.D.,Molecular Virology and Microbiology
2000-02	Craig Fuller, M.S., Infectious Disease and Microbiology, GSPH
2000-04	Vanja Lazarevic, Ph.D., Molecular Virology and Microbiology
2000-04	Sonali Sanghavi, Ph.D.,Infectious Disease and Microbiol, GSPH
2003-07	Franklin Toapanta, MD, Ph.D., Molecular Virology and Microbiology
2006-07	Jan Kristoff, M.S., Infectious Disease and Microbiol, GSPH
2005-2008	Hillarie Plessner, Ph.D., Immunology.
2005-2010	Angela Green, Molecular Virology and Microbiology

2006-2010	Srividya Ramachadra, Ph.D., Molecular Virology and Microbiology
2006-2010	David Kuhrt, Ph.D., Molecular Virology and Microbiology
2007-2009	Sean McBurney,Ph.D., Molecular Virology and Microbiology
2008-2012	Hermancia Eugene, Ph.D., Molecular Virology and Microbiology
2008-2010	Greg Davenport, Ph.D., GSPH, University of Pittsburgh
2009-2012	Collin Diedrich, Ph.D., Molecular Virology and Microbiology
2009-2013	Jiayao Phuah, Molecular Virology and Microbiology
2009-2013	Brian Russo, Ph.D. Molecular Virology and Microbiology
2013-2015	Ben Treat, Molecular Virology and Microbiology
2013-2015	Adam Jakub, Infectious Disease and Microbiology, GSPH
2013-2016	Anthony Cadena, Molecular Virology and Microbiology
2013-2016	Robert DiFazio, Molecular Virology and Microbiology
2018-2019	Sydney Ronzulli, Masters, Comparative Biomedical Sciences, U. of Georgia
2016-2021	Jessica Ramadhin, Infectious Disease, University of Georgia
2018-2020	Ivette Nunez, Infectious Disease, University of Georgia
2018-2020	Naoko Uno, Infectious Disease, University of Georgia
2019-2022	Jianchen Huang, Infectious Diseases, University of Georgia
2020-2022	Katherine Greeson, Environmental Health Sciences, UGA
2020-2022	Krishna Latha, Infectious Disease, University of Georgia
2020-present	Jeremy Burton, Pharmaceutical Sciences, University of Georgia

Grants

- - Sponsored project awards - -

UGA-NXT Biologics-GRA PhIIA (FP00021046)
GEORGIA RESEARCH ALLIANCE, GRAVL20D9, *August 3, 2020–June 30, 2021*
Amount: $ 50,000 (US), Role: Principal Investigator, Credit: 100%
Application date: April 22, 2020, Award date: July 9, 2020, Funding type: Research, Status: Awarded

Evaluation of pregnancy on vaccine-induced immunity and protection in a pre-clinical model of RSV infection (A1) (FP00016728)
NATIONAL INSTITUTES OF HEALTH, 1R01AI14164801A1, *September 1, 2020–August 31, 2024*
Amount: $ 3,086,703 (US), Role: Principal investigator of, Credit: 90%
Application date: March 4, 2020, Award date: October 15, 2020, Funding type: Research, Status: Awarded

Prevention and Treatment of Pneumocystis Pneumonia (A1) (FP00019507)
NATIONAL INSTITUTES OF HEALTH, 1R01AI14836501A1, *July 1, 2020–April 30, 2025*
Amount: $ 3,713,398 (US), Role: Principal investigator of, Credit: 90%
Application date: November 4, 2019, Award date: June 9, 2020, Funding type: Research, Status: Awarded

Immunopathogenesis of HIV-associated pulmonary hypertension (FP00009215)
NATIONAL INSTITUTES OF HEALTH, 5R01HL131449-04, *December 23, 2016–May 31, 2021, NCE 2022*
Amount: $ 2,927,577 (US), Role: Principal investigator of, Credit: 100%
Application date: October 11, 2016, Award date: January 5, 2017, Funding type: Research, Status: Awarded

STTR: Development of a vaccine to prevent Pneumocystis pneumonia (A1) (FP00017683)
NATIONAL INSTITUTES OF HEALTH, n/a, *September 1, 2019–December 31, 2021*
Amount: $ 147,044 (US), Role: Principal investigator of, Credit: 100%
Application date: April 3, 2019, Award date: February 12, 2020, Funding type: Research, Status: Awarded

Evaluation of pregnancy on vaccine-induced immunity and protection in a pre-clinical model of RSV infection (R56) (FP00016917)
NATIONAL INSTITUTES OF HEALTH, 1R56AI141648-01, *February 5, 2019–January 31, 2021*
Amount: $ 786,606 (US), Role: Principal investigator of, Credit: 90%
Application date: January 10, 2019, Award date: February 26, 2019, Funding type: Research, Status: Awarded

Center for Influenza Vaccine Research for High Risk Populations (FP00015525)
NATIONAL INSTITUTES OF HEALTH, 75N93019C00052, *September 1, 2019–September 9, 2021*
Amount: $ 130,177,556 (US), Role: Co-investigator, Credit: 5%
Application date: November 29, 2018, Award date: October 10, 2019, Funding type: Research, Status: Awarded

Dysbiosis Impact on Lung Disease in HIV (DIMPL) Study (FP00009584)
NATIONAL INSTITUTES OF HEALTH, 0056302 (130179-1), *September 1, 2017–May 31, 2021*
Amount: $ 110,484 (US), Role: Co-investigator, Credit: 100%

Completed Projects:

Vaccines Strategies against Pneumocystis in NHP. NATIONAL INSTITUTES OF HEALTH 5P01 HL076100. Role: Principal Investigator, Project 3. 08/01/2011 - 07/31/2016. Status: Closed

Vaccines Strategies against Pneumocystis in NHP. NATIONAL INSTITUTES OF HEALTH 5P01 HL076100. Role: Principal Investigator, Non-Human Primate Core. 08/01/2011 - 07/31/2016. Status: Closed

Immunopathogenesis of HIV-associated pulmonary hypertension (Rabacal) (FP00010733)
NATIONAL INSTITUTES OF HEALTH, 3R01HL131449-03S1, *December 23, 2016–May 31, 2020*
Amount: $ 80,226 (US), Role: Principal investigator of, Credit: 100%
Application date: February 27, 2017, Award date: July 21, 2017, Funding type: Research, Status: Closed

Molecular Drivers of Vascular Stiffness and Metabolic Dysfunction in HIV-Induced Pulmonary Arterial Hypertension (FP00009015)
NATIONAL INSTITUTES OF HEALTH, R01 HL0055772 (130240-1), *July 1, 2017–June 30, 2020*
Amount: $ 885,179 (US), Role: Co-Principal investigator, Credit: 100%
Application date: September 21, 2016, Award date: November 13, 2017, Funding type: Research, Status: Closed
Longitudinal Evaluation of HIV-Associated Lung Disease, NATIONAL INSTITUTES OF HEALTH 5R01 HL125049, August 2014- June 2019, Role: Co- investigator, Funding type: Research, Status: Closed

Translational Evaluation of Aging Complications of Chronic HIV, NATIONAL INSTITUTES OF HEALTH 5R01 HL125049, September 2013- June 2019, Role: Co-investigator, Funding type: Research, Status: Closed

Immune Dysfunction & Pulmonary Hypertension in Primate Model, NATIONAL INSTITUTES OF HEALTH, 1R56 HL126525-01, June 2014 – August 2016, Role, Principal Investigator, Funding type: Research, Status: Closed

Non-human primate models of diabetes and metabolic syndrome, Salk Institute of Biological Sciences, Sponsored Research, 2017-2018. Role, Co-Principal Investigator, Funding type: Research, Status: Closed.

Serologic memory and prevention of *Pneumocystis*-related COPD in AIDS macaque model, NATIONAL INSTITUTES OF HEALTH, 1R56AI091576-01A1, July 2011- June 2014, Role, Principal Investigator.

Pittsburgh International Lung Conference 2013: Acute and Chronic Lung Infections, NATIONAL INSTITUTES OF HEALTH R13HL121917-01, 2013, Role, Co-Principal Investigator.

Pathogenesis of Obstruction/Emphysema and the Microbiome (POEM) in HIV,
NATIONAL INSTITUTES OF HEALTH U01 HL098962-02, September 2009 – July 2014, Role**,** Co-investigator.

Vascular Sub-phenotypes of Lung Disease (Non-Human Primate Core), NATIONAL INSTITUTES OF HEALTH 1 P01 HL103455-01, April 2011- March 2016. Role, Co-investigator.

Prevalence and pathogenesis of pulmonary disease in a large multicenter HIV cohort, NATIONAL INSTITUTES OF HEALTH HL090339-04, 10/01/07 – 09/30/12, Role: Collaborator

Pneumocystis and COPD in a Simian Model of AIDS, NATIONAL INSTITUTES OF HEALTH R01 HL083462-05, 5R01 077095-1, 07/29/05-06/30/11, Role, Principal Investigator

Immune Response to *Pneumocystis* in Simian Model of AIDS, NATIONAL INSTITUTES OF HEALTH, 5R01HL077095, 12/01/04-11/30/10, Role, Principal Investigator.

Pneumocystis in Pathogenesis of HIV-associated emphysema, NATIONAL INSTITUTES OF HEALTH R01 HL083461-05, September 2005- June 2010, Role: Collaborator.

CereTom CT for use with a microPET scanner for preclinical PET/CT imaging. NATIONAL INSTITUTE OF HEALTH, S10 RR025461-01, 07/01/09-06/30/10, Role, Principal Investigator, Project 1.

Epidemiology and Significance of *P. carinii* colonization, NATIONAL INSTITUTES OF HEALTH 1K23HL072837, August 2003- July 2009, Role, Mentor.

***Pneumocystis carinii* pneumonia model in rhesus macaques**, NATIONAL INSTITUTES OF HEALTH, RO1 HL64563-03, 1999-2003, Role, Principal investigator.

***Pneumocystis carinii* pneumonia model in rhesus macaques-supplement**, NATIONAL INSTITUTES OF HEALTH, RO1 HL64563-03S1, 2002- 2003, Role, Principal investigator.

Role of *Pneumocystis* in COPD Progression, University of California, Tobacco-Related Research Program, 2002-2004, Role, Co-investigator.

Complement regulation in *Trypanosoma cruzi,* NATIONAL INSTITUTES OF HEALTH, R01AI032719, January 1998- September 2001, Role, Principal investigator.

Complement regulation in *Trypanosoma cruzi,* NATIONAL INSTITUTES OF HEALTH, 5 R29AI032719, March 1992- December 1997, Role, Principal investigator.

A Rhesus Macaque Model of Chronic Chagas Disease, UNIVERSITY OF PITTSBURGH CMRF, 2001- 2003. Role, Co-PI.

Complement regulation in *Trypanosoma cruzi,* UNIVERSITY OF PITTSBURGH CMRF, 2001- 2002. Role, Principal investigator.

Immune Evasion Strategies of *Trypanosoma cruzi,* American Heart Association, Established Investigator Award, 1996-1997, Role, Principal investigator.

Effect of increased nitric oxide production in experimental Chagas' disease, American Heart Association, 1995-1997, Role, Principal investigator.

Complement Resistance in *Trypanosoma cruzi,* WORLD HEALTH ORGANIZATION, TROPICAL DISEASE RESEARCH 900392, 1990-1992, Role, Principal investigator.

PATENTS and PATENT APPLICATION

US 9,181,538, Kexin-derived vaccines to prevent or treat fungal infections.

Norris, K and Kling, H. Inventors and Applicants

US 9,914,917, Kexin-derived vaccines to prevent or treat fungal infections.

Norris, K and Kling, H. Inventors and Applicants

US 16,650,493, Treatment and detection of infection and disease associated with different fungal pathogens.

Norris, K., Rabacal, W. and Rayens, E., Inventors

Pending Patent Applications:

US16/650,493; EU18861139. Antigenic compositions for use for diagnosing, treating and preventing fungal infections.

Pan-Fungal vaccine, PCT/US2020/014805

Aspergillus vaccine, PCT/US2020/60125

STATINS TO TREAT AND PREVENT HIV-ASSOCIATED PULMONARY ARTERIAL HYPERTENSION.

Seminars and Invited Lectureships

1988	Invited speaker, FASEB Summer Research Conference, Copper Mountain, CO," Differential gene expression in *Trypanosoma cruzi.*"
1989	Invited speaker, XIIIth International Complement Workshop, San Diego, CA, "Restriction of complement activation by *Trypanosoma cruzi.*"
1990	Invited speaker, XVIIth Annual Meeting on Basic Research in Chagas Disease, Caxambu, Brazil, Complement resistance of *Trypanosoma cruzi.*
1991	Invited speaker, XIVth International Complement Workshop, Cambridge, U.K. "A complement regulatory protein in *Trypanosoma cruzi.*"
1995	Division of Infectious Disease, Univ. Pittsburgh Research in Progress Seminars
1995-01	Pittsburgh Cancer Institute, Program in Immunology
1997	Invited speaker, University of Rochester, "Immune evasion in parasites."
1999	Invited speaker, Gordon Summer Research Conference, Newport, R.I., "Immune evasion strategies of *Trypanosoma cruzi.*"
2000	Speaker, Discussion Leader, Animal Models of Opportunistic Lung Infections in AIDS, National Heart, Lung, Blood Institute, NIH, Bethesda, MD, 2000, "Non-human primate models of AIDS-associated *Pneumocystis carinii* pneumonia."
2000	Invited speaker, Brazilian Society of Protozoology, Brazil, "The *Trypanosoma cruzi* complement regulatory protein as a vaccine target."

2000 Invited speaker, XXVIIth Annual Meeting on Basic Research in Chagas Disease, Caxambu, Brazil, "The *Trypanosoma cruzi* complement regulatory protein as a vaccine target."

2002 Invited speaker, American Thoracic Society, Annual Meeting, Atlanta, GA., "Experimental model of *Pneumocystis carinii* pneumonia in SIV-infected rhesus macaques."

2003 Session Chair and speaker, International Workshop on Protozoology, Hilo, Hawaii

2005 Invited Speaker, American Thoracic Society, *Pneumocystis* Workshop: *Recent Advances and Future Directions in Pneumocystis Pneumonia*, San Diego, CA.

2005 Invited speaker, NIH Symposium: Innate Immunity in HIV and HIV-Related Lung Disease, Bethesda, MD, "*Pneumocystis* Colonization and Airway Obstruction in a Simian Model of AIDS."

2006 Session chair, American Thoracic Society, Annual Meeting, San Diego, CA, *Recent Advances and Future Directions in Pneumocystis Pneumonia.*

2007 Invited speaker, University of Kentucky, "*Pneumocystis* and COPD: Lessons from monkeys and men."

2008 Session Chair and invited presentations, International Workshop on Protozoology, Boston, MA.

2008 Invited speaker, Department of Microbiology and Molecular Genetics, University of Pittsburgh, "HIV and COPD: Of Monkeys and Men".

2009 Invited speaker, Pennsylvania Society for Biomedical Research Science Literacy, Rx for Science Literacy Workshop: "HIV and COPD: Of Monkeys and Men"

2010 Invited speaker, Federation of Clinical Immunology Societies, "Infection, Immunity and COPD", Boston, MA.

2010 Invited speaker, Loyola University School of Medicine, "Infection, Immunity and COPD", Chicago, IL

2011 Invited speaker, University of Pittsburgh, Center for Vaccine Research Symposium, "Protective Immunity to Pneumocystis", Pittsburgh, PA

2012 Invited speaker, Aspen Lung Conference, "Non-human Primate Models of HIV-related Pulmonary Arterial Hypertension", Aspen, CO

2014 Co-chair and speaker, Pittsburgh International Lung Conference, HIV-related co-morbidities in non-human primate model, Pittsburgh, PA

2015 Invited speaker, University of Georgia, "Non-human primate models of HIV-associated co-morbidities", Athens, GA

2016 Invited speaker, NIH, NHBLI, Immunopathogenesis of HIV-related Pulmonary Hypertension. Bethesda, MD

2016 Invited speaker, Southern Translational Education and Research Conference, Athens, GA.

2017 Keynote Speaker, Centers for Disease Control, Intellectual Property Awards, Atlanta GA

2017 Grand Rounds, Albert Einstein College of Medicine, Montefiore Hospital, Infectious Disease, "Immunologic Approaches to Diagnosis and Prevention of Fungal Infections in Immunocompromised Hosts". New York, NY

2019 President's Address, American Association of Immunologists, "Immunity in the Immunocompromised Host", San Diego, CA

2019 State-of-the-Art Speaker, Aspen Lung Conference, "Immunologic and Metabolic Alterations in a Nonhuman Primate Model of Pulmonary Hypertension", Aspen CO

2020 Department of Pharmaceutical and Biomedical Sciences. Pulmonary Arterial Hypertension associated with HIV infection. UGA.

2020 9th Advances Against Aspergillosis and Mucormycosis, Lugano, Switzerland

Other Research Related Activities

1996-10 Editorial Board, Infection and Immunity
Ad Hoc Reviewer:
American Journal Respiratory Cell and Molecular Biology
American Journal Respiratory Critical Care Medicine
American Journal of Pathology
Cellular Immunology
Clinical Immunology and Immunopathology
European Respiratory Journal
Gene Therapy
Immunology
Journal of Immunology
Journal of Infectious Diseases
Molecular and Cellular Biochemistry
Protein Expression and Purification
PLoS Pathogen
PLoS Neglected Tropical Diseases
PLoS One
Vaccine

- - Reviewing/Refereeing: Conferences - -

2022 NIH, Special Emphasis Panel, Chair, California National Primate Research Center
2022 NIH, Vaccines Microbial Disease study section, Member
2022 NIH, Lung Cellular, Molecular and Immunobiology study section, ad hoc reviewer
2021 NIH, AIDS study section, ad hoc reviewer 12/2021
2021 NIH, Vaccines Microbial Disease study section, ad hoc reviewer 6/2021
2021 NIH, Vaccines Microbial Disease study section, ad hoc reviewer 3/2021

2020	NIH, Special Emphasis Panel, reviewer, Southwest National Primate Research Center
2020	NIH, Special Emphasis Panel, reviewer, Yerkes National Primate Research Center
2020	Bio-manufacturing Research Infrastructure Workshop Review
2018	NIH, Special Emphasis Panel, reviewer, Tulane National Primate Research Center
2017	NIH, Special Emphasis Panel, reviewer, California National Primate Research Center
2016	NIH, Special Emphasis Panel, reviewer, Wisconsin National Primate Research Center
2015	NIH, Special Emphasis Panel, reviewer, Yerkes National Primate Research Center
2015	NIH, AIDS Opportunistic Infections and Cancer study section, ad hoc
2015	NIH, Special Emphasis Panel, ad hoc reviewer
2014	NIH, Special Emphasis Panel, Neuro AIDS and End-organ Disease, ad hoc
2014	NIH, Special Emphasis Panel, reviewer, California National Primate Research Center
2014	American Heart Association, Reviewer, Established Investigator Awards
2013	NIH, Vaccines Microbial Disease study section, ad hoc
2012	NIH Special Emphasis Panel, Lung Injury, Repair and Remodeling, ad hoc
2011	NIH Study Section, NIH Pathway to Independence K99/R00, ad hoc
2011	NIH Special Emphasis Panel, reviewer, Washington National Primate Center
2010	NIH, Vaccines Microbial Disease study section, ad hoc reviewer
2005-2009	NIH Study Section, Member, AIDS Opportunistic Infections and Cancer
2004	NIH, Study Section, AIDS Opportunistic Infections and Cancer, Ad hoc
2002	Veterans' Administration
1998	NIH, Special Emphasis Panel: Tropical Disease Research Units
1997	Ad hoc, USDA, National Research Initiative
1993	NIH, Study Section, Bacteriology and Mycology 2, Ad hoc

Professional Activities

SERVICE: UNIVERSITY OF GEORGIA

- - Administrative effort - -

Director NHP Research Core, *October 15, 2018–2020*

- - Consulting/Business Development - -

NXT Biologics, Inc. President and Founder, *2018- present*

Novel treatments for diabetes, *October 7, 2020–October 21, 2020*
(Scientific research)

Client type: Business/Industry
Consulting

- - Memberships: Committee - -

University

Provost's Task Force on Academic Excellence (Member), *September 24, 2019–July 31, 2020; 2021-2022*

Director, Non-Human Primate Research Core, *2016-2021.*

Department

Post Tenure Review (Member), *March 27, 2020–Present*, Dept. Infectious Disease.

- - Recruitment - -

Associate Dean of Research, College of Veterinary Medicine (Faculty recruitment), *September 25, 2018*

Senior Vice President of Academic Affairs and Provost (Faculty recruitment), *August 13, 2018*

Senior Vice President of Academic Affairs and Provost, *2019*

Provost Task Force, Faculty Cluster Hire Subcommittee, *May 2021-Present*

SERVICE: UNIVERSITY OF PITTSBURGH

1991-99	Chair, Biosafety Level III Facility Steering Committee Developed first Biosafety Level III animal and research facility in the School of Medicine.
2007	Reviewer, Basic Science-Clinical Collaborative Grant proposals
2005-present	Ad hoc Reviewer, Office of Technology Transfer
2007-2010	Committee Member, Standing Committee for Tenured Faculty Promotions and Appointments
2009, 2012	Grant Reviewer, Clinical and Translational Science Institute (CTSI)
2010	Grant Reviewer, Center for AIDS Research, University of Pittsburgh
2010-12	Grant Reviewer, Vascular Medicine Institute, University of Pittsburgh

2010-2012	Member, Regional Biosafety Laboratory Utilization Committee
2010-2015	Committee Member, University Council on Graduate Studies
2010-present	Director of Basic Science, University of Pittsburgh HIV Lung Research Center
2012-present	Panel member, “Staying on Track for Promotion”, University of Pittsburgh School of Medicine, Faculty Development Workshop
2015	Judge, American Heart Association, Research Fellows’ Day
2015-2016	Member, University of Pittsburgh Faculty Assembly
2015-2016	Member, University of Pittsburgh Tenure and Academic Freedom Committee

University of Pittsburgh Interdisciplinary Biomedical Graduate Program:

1997-01	Member, Recruitment Committee
1998-9	Chair, Recruitment Committee
2000-05	Member, Curriculum Committee
2005-06	Member, Admissions Committee
2006-07	Vice Chair, Admissions Committee
2007-08	Chair, Admissions Committee
2007-08	Chair, Admissions Committee, International Subcommittee
Annually	Member, Graduate student comprehensive examination committees

University of Pittsburgh Graduate Program in Immunology:

1997-05	Member, Curriculum Committee
2000-05	Chair, Curriculum Committee
2006-2016	Member, Steering Committee

University of Pittsburgh Graduate Program in Microbiology and Molecular Virology:

1991-6	Member, Graduate Student Examinations Committee
1996-7	Chair, Graduate Student Examinations Committee
1999-2001	Director, MVM Summer Undergraduate Research Program
1997-2004	Member, Recruiting Committee
1997-2004	Member, Evaluations Committee

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Anne O. Summers

eRA COMMONS USERNAME: aosummers (previously Summers)

POSITION TITLE: Professor

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois-Urbana	B.S.	06/1964	Chemistry
University of Illinois-Urbana	M.S.	08/1965	Microbiology
Washington University, St. Louis	Ph.D.	08/1973	Molecular Biology
University of Virginia, Charlottesville	Postdoc	08/1975	Membrane Biochemistry
Mass. General Hospital-Harvard Med Sch.	Postdoc	08/1977	Plasmid Biology

A. Personal Statement

My career has involved bacterial metal resistance and horizontal gene transfer. This non-obvious association of interests started when a 1969 grad school class mentioned plasmids and a Science paper alerted me to one that conferred metal resistance. It seemed a fitting topic as I'd just decided on a mentor who worked in cation transport. Only a decade later everyone knew about plasmids, integrons, and "penta-resistance" and an entirely separate field of science was blooming on the inorganic side of life – metallobiology. Both are immensely absorbing and important areas and I've never been successful in leaving one aside for long but have been fortunate to find excellent students and collaborators at the cutting edges in both areas. Since 2002, I have been the lead PI on three multi-institutional awards from the Dept of Energy Office (DOE) of Biological and Environmental Research (OBER) involving molecular and biochemical analyses of the effects of inorganic and organic mercury exposure on pure proteins and whole bacterial cells. I also led two large projects to sequence staphylococcal plasmids (NIAID/TIGR-JCVI) and plasmids of diverse environmental bacteria (NSF) as well as doing genetic and molecular analyses of integron ecology, in vivo integration rates, and integron gene expression (USDA). Details on some products of those and earlier awards follow. Directly below are some invited reviews in both areas on which I was the corresponding author.

1. Barkay, T., S.M. Miller, and A. O. Summers. 2003. Bacterial mercury resistance from atoms to ecosystems. FEMS Microbiol Rev 27:355-84. PMID: 12829275
2. Frost, L. S., R. Leplae, A. O. Summers, and A. Toussaint. 2005. Mobile Genetic Elements: The Agents Of Open Source Evolution. Nature Reviews Microbiology 3:722. PMID: 16138100
3. Summers, A. O. 2009. Damage control: regulating defenses against toxic metals and metalloids. Curr Opin Microbiol. 12:138-44 PMID: 19282236
4. Wiggins, A.G., LaVoie, S.P., and A. O. Summers. 2018. Thinking outside the (pill) box: Does toxic metal exposure thwart antibiotic stewardship best practices? Plasmid 99:68-71 doi.org/10.1016/ j.plasmid.2018.08.003

B. Positions and Honors

Employment

1965-67 Staff Biochemist, Eli Lilly Research Laboratories, Indianapolis, IN
1967-69 Staff Virologist, Institute for Molec. Virology, St. Louis Univ. Sch of Medicine, St. Louis, MO.
1969-73 NIH Pre-doctoral Trainee, Washington Univ, St. Louis
1973-75 American Cancer Society Post-doctoral Fellow, Univ. of Virginia Med. School, Charlottesville
1975-77 Associate in Medicine (Infectious Diseases), Massachusetts General Hospital, Boston, MA
1976-77 Instructor, Harvard Medical School, Boston, MA
1977-83 Assistant Professor, Dept. of Microbiology, University of Georgia, Athens, GA
1983-88 Associate Professor, Dept. of Microbiology, University of Georgia, Athens, GA
1986-87 Visiting Professor, Biology Dept., MIT, Cambridge, MA
1988-present Professor, Dept. of Microbiology, University of Georgia, Athens, GA
1993-98 Research Professor, Dept. of Microbiology, University of Georgia, Athens, GA

Other Experience and Professional Memberships

Member: American Chemical Society, American Society of Microbiology, American Association for the Advancement of Science, American Society for Biochemistry and Molecular Biology, Genetics Society of America

1991-3 Chair-elect, Chair, ASM Division H: Molecular Biology
1995 Organizer, Keystone Conference on Metal & Redox Regulation, Park City, UT, March
1988-91 Panelist, NSF, Microbial Biology
1994-97 Member, NIH MBC2 Study Section
1991-94 Editorial Board, Journal of Bacteriology
1999-2001 Editorial Board, Applied and Environmental Microbiology
2005-10 Associate Editor, Research in Microbiology (Institut Pasteur)
2006 Participant, NRC Workshop on Antibiotic Resistance
2008- Associate Editor, BMC Microbiology
2006-08 Chair-elect, Chair, Gordon Research Conference on Environmental Biogeochemistry
2010- Associate Editor, Frontiers in Microbiology: Microbiological Chemistry
2015- Guest Associate Editor, Frontiers in Microbiology: Antimicrobials, Resistance, and Chemotherapy

Honors

1981-85 NIH Career Development Award, University of Georgia, Athens, GA
1986-87 Fellow, J.S.Guggenheim Foundation, Biology Dept. MIT, Cambridge, MA
1986-87 Fellow, Mary Ingraham Bunting Institute, Radcliffe College, Cambridge, MA
1990-present Fellow, American Academy of Microbiology
1994-present Fellow, American Association for the Advancement of Science

C. Contributions to Science

1. Mercury Resistance in Bacterial Cells and Microbiomes

Bacterial mercury resistance is very widely found phylogenetically, typically carried by plasmids, sometimes on the chromosome. It is a dedicated, Hg-specific defense system under control of a unique repressor-activator, MerR, now the scion of the eponymous clan of exclusively bacterial regulators. Much of our molecular work has centered on this protein. We did the first and most extensive genetic dissection of MerR's function (Ross, 1989). A key contribution regarding MerR was our discovery that in vivo it captures RNA polymerase at a stable pre-induction complex, the first prokaryote regulator found to do so (Heltzel, 1990). In the early 90's we began whole animal studies that showed Hg released from dental amalgam provokes a great increase in antibiotic resistant bacteria in the oral and intestinal microbiota of primates (Summers, 1993) and subsequently showed both Hg and multiple antibiotic resistance loci were on conjugative plasmids (Wireman, 1997).

a. Ross, W., S. J. Park, and A. O. Summers. 1989. Genetic analysis of transcriptional activation and repression in the Tn*21 mer* operon. J Bacteriol 171:4009-18. PMC210155
b. Heltzel, A., I. W. Lee, P. A. Totis, and A. O. Summers. 1990. Activator-dependent preinduction binding of sigma-70 RNA polymerase at the metal-regulated mer promoter. Biochemistry 29:9572-84.

PMID:2176850
c. Summers, A. O., J. Wireman, M. J. Vimy, F. L. Lorscheider, B. Marshall, S. B. Levy, S. Bennett, and L. Billard. 1993. Mercury released from dental "silver" fillings provokes an increase in mercury- and antibiotic-resistant bacteria in oral and intestinal floras of primates. Antimicrob Agents Chemother 37:825-34. PMC187773
d. Wireman, J., C. A. Liebert, T. Smith, and A. O. Summers. 1997. Association of mercury resistance with antibiotic resistance in the gram-negative fecal bacteria of primates. Appl Environ Microbiol 63:4494-503. PMC168768
e. Yin, L, Lin, S, Summers, AO, Roper, V, Campen, MJ, and Yu, X. 2021. Children with Amalgam Dental Restorations Have Significantly Elevated Blood and Urine Mercury Levels. Toxicol. Sci. 184(1):104-26. doi.org/10.1093/toxsci/kfab108.

2. Mercury Resistance in Vitro. Further in vitro work showed free MerR cross-linked to three RNA polymerase subunits and these interactions were strengthened when it was operator-bound (Kulkarni, 1999). With ^{19}F-NMR we found that metal-specific allosteric changes in MerR occurred only when it was bound to its operator, i.e. metal-specificity resided in the MerR:MerOP complex (Song, 2007). Subsequently we collaborated with structural and computational chemists to learn that the dynamics of metal-bound MerR is consistent with its known, novel, DNA-under-winding mechanism of activation (Guo, 2010). We also did the first structure-function analysis of MerB, the organomercurial lyase, showing the distinct roles of its three conserved cysteines (Pitts, 2002).

a. Kulkarni, R. D., and A. O. Summers. 1999. MerR cross-links to the alpha, beta, and sigma 70 subunits of RNA polymerase in the preinitiation complex at the merTPCAD promoter. Biochemistry 38:3362-8. PMID: 10079080
b. Pitts, K. E., and A. O. Summers. 2002. The roles of thiols in the bacterial organomercurial lyase (MerB). Biochemistry 41:10287-10296. PMID: 12162744
c. Song, L., Q. Teng, J. Brewer, R. S. Phillips, and A. O. Summers. 2007. 19F-NMR reveals Metal- and Operator-induced Allostery in MerR. J. Molec. Biol. 371:79-92. PMID: 17560604
d. Guo, H., A. Johs, J. M. Parks, L. Olliff, S. M. Miller, A. O. Summers, L. Liang, and J. C. Smith. 2010. Structure and conformational dynamics of the metalloregulator MerR upon binding of Hg(II). J. Mol. Biol. 396:555-68. PMID: 20303978

3. Horizontal Gene Transfer
In the area of horizontal gene transfer we precisely quantified mobile element genes per gram of chicken litter (Nandi, 2004), discovering 1000-fold more Class I integrons in that ecosystem than gamma-proteobacteria, the expected host of that integron class and showing IntI1 was actually in the much more abundant Firmicutes in that very common ecosystem. In lab cultures, we quantified integron recombination rates directly in whole *E.coli* cells, observing frequencies of gene cassette insertion 100-fold higher (Shearer, 2009) than measured by others using an indirect method. To advance “mobilomics” we introduced the use of BAC preparation kits as tools for high yields of large low-copy natural plasmids (Williams, 2006) and used this method to triple the number of staphylococcal plasmid sequences in GenBank (Shearer, 2011).

a. Nandi, S., J. J. Maurer, C. Hofacre, and A. O. Summers. 2004. Gram-positive bacteria are a major reservoir of Class 1 antibiotic resistance integrons in poultry litter. Proc Natl Acad Sci U S A 101:7118-22. PMC406475
b. Shearer, J. E., and A. O. Summers. 2009. Intracellular steady-state concentration of integron recombination products varies with integrase level and growth phase. J Mol Biol 386:316-31. PMID: 19135452
c. Shearer, J. E., J. Wireman, J. Hostetler, H. Forberger, J. Borman, J. Gill, S. Sanchez, A. Mankin, J. Lamarre, J. A. Lindsay, K. Bayles, A. Nicholson, F. O'Brien, S. O. Jensen, N. Firth, R. A. Skurray, and A. O. Summers. 2011. Major families of multiresistant plasmids from geographically and epidemiologically diverse staphylococci. G3 (Bethesda) 1:581-91. PMC3276174
d. Williams, L. E., C. Detter, K. Barry, A. Lapidus, and A. O. Summers. 2006. Facile recovery of individual high-molecular-weight, low-copy-number natural plasmids for genomic sequencing. Appl Environ Microbiol 72:4899-906. PMC1489313

4. Molecular Mechanisms of Hg Intoxication and Recovery
The biochemical nuances of how mercury compounds damage cells are not well understood and bear on the

differences in the toxicological profiles of inorganic and organic mercurials, as well as on the cell's ability to recover from that damage. We have exploited the fingerprint of Hg's 7 stable isotopes to observe the adducts that a common organomercurial makes with specific cysteine-containing proteins, the prime targets of Hg damage (Polacco, 2011). In collaboration with computational chemists we traced the quantum underpinnings of mercury's strong attraction for sulfur and the role that water plays in that preference (Riccardi, 2013). Most recently we began to tease apart the distinct physiological and proteomic effects (LaVoie, 2015) and the underlying dramatic transcriptomic differences (LaVoie, 2017) that inorganic and organic mercury compounds have on a prokaryotic model system. Many Hg-affected systems are highly conserved in humans, notably in mitochondria.

a. Polacco, BJ, Purvine, SO, Zink, EM, LaVoie, SP, Lipton, MS, Summers, AO, Miller, SM (2011) Discovering mercury protein modifications in whole proteomes using natural isotope distributions in liquid chromatography-tandem mass spectrometry. Mol Cell Proteomics10(8):M110.004853 PMID:21532010
b. Riccardi, D, Guo, H-B, Parks, JM, Gu, B, Summers, AO, Miller, SM, Liang, L, Smith, JC (2013) Why mercury prefers soft ligands. J Phys Chem Lett4:2317-22. DOI: 10.1021/jz401075b
c. LaVoie, SP, Mapolelo, DT, Cowart, DM, Polacco, BJ, Johnson, MK, Scott, RA, Miller, SM, Summers, AO (2015) Organic and inorganic mercurials have distinct effects on cellular thiols, metal homeostasis, and Fe-binding proteins in *Escherichia coli*. J Biol Inorg Chem 20(8)1239-51 PMID:26498643
d. LaVoie, SP & Summers, AO (2017) Transcriptional responses of *Escherichia coli* during recovery from inorganic or organic mercury exposure. BMC Genomics (2017) 19:52, DOI:10.1186/s12864-017-4413-z
e. Nehzati, S, Summers, AO, Dolgova, N, Zhu, J, Sokaras< D, Kroll, T, Pickering, I, George, GN. 2021 Hg(II) Binding to Thymine Bases in DNA. Inorg. Chem. 60(10)7442-52. DOI: 10.1021/acs.inorgchem.1c00735

Complete List of Published Works in Google Scholar
http://scholar.google.com/citations?user=tQy38l8AAAAJ&hl=en

Research Support

Ongoing Research Support

The University of Georgia Foundation, Mercury Research Fund.
A private account managed by the Department of Microbiology to support personnel (except the PI) and expenses for research on aspects of Hg toxicology and recovery and related mobile genetic elements.
Summers, Anne O (Principal Investigator)
January 2016 – December 2023

Recent Completed Research Support

Purchase of a Milestone DMA80 Hg Analyzer for use in several projects in Summers' lab
The International Academy of Oral Medicine and Toxicology (IAOMT)
Summers, Anne O. (Principal Investigator)
March 2018.

Identifying Key Proteins In Hg Methylation Pathways Of Desulfovibrio By Global Proteomics,
US Department Of Energy,
Summers, Anne O (Principal Investigator)
September 2011 - February 2015

Molecular Mechanisms Of Bacterial Mercury Transformation,
US Department Of Energy,
Summers, Anne O (Principal Investigator at UGA on subaward from U Tenn, Jeremy Smith, PI) September 2010 - February 2015

Defining The Molecular-Cellular-Field Continuum Of Mercury Detoxification,
US Department Of Energy,
Summers, Anne O (Principal Investigator), Momany, Cory, UGA (Co-Investigator)
June 2010 - November 2015

Lisa M. Renzi-Hammond, Ph.D.
Institute of Gerontology
Department of Health Promotion and Behavior
College of Public Health; The University of Georgia
102 Spear Road, Suite 135, Athens, GA 30602
Tel: (706) 542-2252; e-mail: lrenzi@uga.edu

Academic History

Present rank: Associate Professor with tenure (August 2022)
Proportion time assignments: 9-month; 75% FTE: Instruction, 37.5%; Research, 33.8%; Service, 3.7%
Graduate Faculty status: Appointed to the Graduate Faculty August 01, 2017

Education:

Year	Degree	University
2003	BS, High Honors; Psychology	University of Georgia
2005	MS, Psychology; Neuroscience and Behavior	University of Georgia
2008	Ph.D., Psychology; Neuroscience and Behavior	University of Georgia

Academic positions, excluding graduate student teaching assistantships:

Year	Title	Department	University
2006	Visiting Scholar	Carotenoids in Health; USDA Human Nutrition Research Center on Aging	Tufts University
2008-2009	Postdoctoral Fellow	Institute for Neuroscience	University of Texas at Austin
2009-2010	Assistant Professor	School of Liberal Arts	Georgia Gwinnett College
2010-2016	Clinical Assistant Professor	Psychology	University of Georgia
2016-2017	Neuroscience Lecturer	Psychology	University of Georgia
2017-2020	Assistant Professor (tenure track)	Institute of Gerontology; Health Promotion and Behavior	University of Georgia
2018-present	Adjunct Assistant Professor	Behavioral and Brain Sciences Program; Department of Psychology	University of Georgia
2019-present	Faculty	Integrated Life Sciences; Division of Neuroscience; Office of Research	University of Georgia
2021-present	Associate Professor Co-Director, Cognitive Aging Research and Education (CARE) Center	Institute of Gerontology; Health Promotion and Behavior (tenure granted 08/2022)	University of Georgia
2022-present	Director, Institute of Gerontology Associate Professor Co-Director, Cognitive Aging Research and Education (CARE) Center	Institute of Gerontology; Health Promotion and Behavior	University of Georgia

Other professional employment, while part-time at UGA:

2012-2013 Medical Science Liaison, Southeast Region; Pediatric Research and Development; Abbott Nutrition; Columbus, OH

2013-2015 Manager, Adult Clinical Nutrition; Scientific and Medical Affairs; Global Research and Development; Abbott Nutrition; Columbus, OH

Instruction

Format	Course Number(s)	Title	Semesters Taught
Doctoral Level Research Courses: 254.50 hours generated			
Doctoral 1:1 research mentorship	HPRB 8000, 9000, 9005; GRNT 8000; BHSI 9000	Directed Study and Doctoral Research	All
Doctoral writing	HPRB 9300	Doctoral Dissertation Writing	All
In-person seminar	HPRB 8510	Research Methods I	Fall 2018 Fall 2019
In-person seminar	HPRB 8520	Research Methods II	Spring 2019
In-person seminar	HPRB 8990	Research Seminar	Spring 2019
Masters Level Research Courses: 33 hours generated			
MPH 1:1 research mentorship and seminar	HPRB 7000; 7005	Masters Research	All
MPH 1:1 research mentorship	PBHL 7800	Capstone Project in Public Health	All
MPH 1:1 mentorship	PBHL 7560	Internship in Public Health	All
Undergraduate Level Research Courses: 183.84 hours generated			
Undergraduate research in Public Health	HPRB, GRNT 4960-4990R; GLOB 4960	Mentored Research	All
Undergraduate research in other academic units	PSYC, BIOL, HONS, GRNT, HPRB 4000+	Mentored Research	All
Traditional Course Instruction, All Levels: 450 hours generated			
Online lecture	GRNT 8200e	Public Health and Aging	Spring 2018 Spring 2019
Online lecture	GRNT 7100e	Foundations of Aging	Fall 2018
Online lecture	GRNT 7400e	Cognition and the Aging Brain	Spring semesters
Online lecture	GRNT 3400e	Cognition and the Aging Brain	Fall and spring semesters
Online lecture	GRNT 7600e	Pharmacology, Health and Aging	Fall semesters

New courses entirely redesigned or developed at current rank:

Re-designed	Developed
HPRB 8510: Research Methods I	GRNT 7400e: Cognition and the Aging Brain
HPRB 8520: Research Methods II	GRNT 3400e: Cognition and the Aging Brain

GRNT 7100e: Foundations of Aging	GRNT 7600e: Pharmacy, Health and Aging
GRNT 8200e: Public Health and Aging	

Supervision of graduate student research:

Student Name	Degree Objective	Graduation Date	Current Placement	Role
Doctoral students				
Natalia Truczcynski, PhD	Ph.D., Health Promotion	August 2019	Postdoctoral Fellow, UGA College of Public Health	Doctoral Advisory Committee
Jessica Shotwell, PhD	Ph.D., Health Promotion	May 2021	UGA College of Public Health	Major Professor
Anita Reina, MS, RD	Ph.D., Health Promotion	August 2022	UGA College of Public Health	Co-Major Professor (with Heather Padilla)
Kasey Smith, MPH	Ph.D., Health Promotion	August 2022	UGA College of Public Health	Co-Major Professor (with Jenay Beer)
Katherine Ingerson, RD, LD	Ph.D., Nutrition Science	August 2022	UGA College of Family and Consumer Sciences	Doctoral Advisory Committee
Bailey Collette, MPH	Ph.D., Health Promotion	May 2023	UGA College of Public Health	Doctoral Advisory Committee
Jade Dandurand	Ph.D., Clinical Psychology	May 2024	UGA Department of Psychology	Doctoral Advisory Committee
Jeffrey Nightingale	Ph.D., Psychology	May 2024	UGA Department of Psychology	Doctoral Advisory Committee
Jacob Harth	Ph.D., Neuroscience	May 2025	UGA Integrated Life Sciences, Division of Neuroscience	Major professor
Heidi Sarles-Whittlesey	Ph.D., Psychology	May 2025	UGA Department of Psychology	Doctoral Advisory Committee
Holly Fleischmann	Ph.D. ,Psychology	May 2026	UGA Department of Psychology	Doctoral Advisory Committee
Tiffany Anderson	Ph.D., Neuroscience	May 2026	UGA Integrated Life Sciences, Division of Neuroscience	Co-Major Professor (with Robert Lynall)
Kassidy Hogan	Ph.D., Psychology	May 2027	UGA Department of Psychology	Doctoral Advisory Committee
Kathryn Chiang	Ph.D. Health Promotion and Behavior	May 2025	UGA College of Public Health	Major professor
MPH Capstone Supervision				
Taylor Kennedy, MSW, MPH	MSW; MPH, Gerontology	December 2018	Emory University Winship Cancer Institute	Capstone advisor
Kasey Smith, MPH	MPH, Gerontology	May 2019	Doctoral student, UGA College of Public Health	Capstone advisor

Brandon Dunlap, MPH	MPH, Health Promotion	August 2020	UGA College of Public Health	Capstone advisor
Thais Diaz, MPH	MPH, Health Promotion	May 2020	UGA College of Public Health	Capstone Advisor
Marquell Cole, MPH	MPH, Health Promotion	May 2022	UGA College of Public Health	Capstone Advisor
Brandon Brown	MPH, Health Promotion	May 2023	UGA College of Public Health	Capstone Advisor
Madelyn Watkins, MPH	MPH, Health Policy and Management	May 2022	UGA College of Public Health	Research Capstone Advisor
Professional Degree Students				
Logan Hobus	MD, AU-UGA Medical Partnership	August 2022	AU-UGA Medical Partnership	Medical Scholars Program mentor
Daniel Chung	MD, AU-UGA Medical Partnership	August 2022	AU-UGA Medical Partnership	Medical Scholars Program mentor
Mary Thornsberry	MD, AU-UGA Medical Partnership	August 2023	AU-UGA Medical Partnership	Medical Scholars Program mentor
Rachel Gerald	MD, AU-UGA Medical Partnership	August 2023	AU-UGA Medical Partnership	Medical Scholars Program mentor
Julia Scher	MD, AU-UGA Medical Partnership	August 2024	AU-UGA Medical Partnership	Medical Scholars Program co-mentor, with Dr. Don Scott
Medical Residents				
Neha Naithani, MD	Piedmont Internal Medicine Residency	January 2020	Private Practice	Research Mentor
Tanya Reddy, MD	Piedmont Internal Medicine Residency	January 2020	Private Practice	Research Mentor
Oluwabukola Taiwo, MD	Piedmont Internal Medicine Residency	January 2021	Resident at Piedmont Athens-Regional Community Care Clinic	Research Mentor
Manisha Patel, MD	Piedmont Internal Medicine Residency	January 2021	Resident at Piedmont Athens-Regional Community Care Clinic	Research Mentor

Note, I have also developed a training program for medical residents in the St. Mary's Internal Medicine residency program, Geriatrics rotation. The program began in January 2019, and I train residents on a monthly basis.

Supervision in current rank of undergraduate student research:
via the CURO Program, or departmental research courses, e.g., BIOL 4960, PSYC 4800 and HPRB 4960

Student name	Degree/Degree program	Expected or actual graduation
Christine Kaba	BS, Psychology and Biology	May 2018

Neha Madangarli	BS, Psychology and Biology	May 2018
Abby Thomas	BS, Psychology and Biology	May 2018
Annie Stewart	BS, Psychology	December 2018
Anuhya Manne	BS, Health Promotion and Behavior	May 2021
Margaret Tew	BS, Health Promotion and Behavior	May 2019
Lydia Schultz	BS, Psychology and Biology	December 2018
Madeline Eason	BS, Health Promotion; MS, Gerontology	May 2020
Claire Anderson	BS, Biology and Health Promotion	May 2020
Kassidy Hogan	BS, Psychology	May 2021
Taylor Leathers	BS, Psychology and Biology	May 2021
Jimmy Pham	BS, Psychology and Biology	May 2021
Sarah Schultz	BS, Biology; BA, Music	May 2021
Nicholas Shaw	BS, Psychology and Biology	May 2021
Hannah Kim	BS, Cellular Biology and Health Promotion	May 2021
Darby Gainey	BS, Psychology	May 2021
Sanjana Darsipudi	BS, Biology	May 2021
Sheba Mathew	BS, Biology	May 2021
Alec Murphy	BS, Biology, Psychology	May 2021
Francis Kim	BS, Biology	May 2021
Hannah Huff	BS, Psychology	December 2021
Hannah Springfield	BS, Biology	May 2022
Srinidhi Vangala	BS, Biology	May 2022
Megan Harris	BS, Biology	May 2022
Jeremy Altman	BS, Biology	May 2022
Ann Britton	BS, Biology	May 2022
Ciara Page	BS, Psychology	May 2022
Brianna Putnam	BS, Psychology	May 2022
Annaleesa Rogers	BS, Biology, Psychology	August 2022
Grace McCorkle	BS, Biology, Psychology	May 2023
Rebecca Mai	BS, Biology	May 2023

Note, this list is limited to students taking research hours for credit. UGA students who earned credit prior to August 2017 have not been included, nor have those who volunteer in my laboratory.

Internship Supervision

MPH Internship Supervision				
Brandon Dunlap	MPH, Health Promotion	August 2020	Site: Nuçi's Space	Academic supervisor
Thais Diaz	MPH, Health Promotion	May 2020	Site: UGA Food Services	Academic supervisor
Marquell Cole	MPH, Health Promotion	August 2021 (projected)	Site: Gwinnett Medical Center	Academic supervisor
Brandon Brown	MPH, Health Promotion	May 2023 (projected)	Not yet determined	Academic supervisor

Recognition and Outstanding Achievements

- Received Charles L. Darby award from the UGA Psychology faculty for outstanding teaching (2008).
- Received the Outstanding Mentor award from the UGA Psychology graduate students (2016).

- Each year of full-time employment, beginning in 2015, I have been named by a graduating senior in the UGA Career Center Career Outcomes Survey as an influential professor.
- Student Organization Achievement and Recognition (SOAR) Award (2020)

Professional Development in Instruction
- Completed Sexual Assault Response Team (SART) Training at UGA Training and Development Center for instructional faculty
- Participated in a Faculty Learning Community on Evidence-Based Practices in teaching

Scholarly Activities

Publications: * indicates an invited submission. † indicates a book chapter. After 2008, student co-authors are underlined.
Note: In my field, first authorship denotes study oversight and primary responsibility for drafting the manuscript. The last author position is the senior authorship position, usually designated for the study PI.

Peer-Reviewed Publications:
1. Wooten, B.R., Hammond, B.R., & **Renzi, L.M.** (2007). Using scotopic and photopic flicker to measure lens optical density, *Ophthalmic and Physiological Optics, 27*, 321-328.
2. *** Renzi, L.M.** & Johnson, E.J. (2007). Lutein and eye-related disorders in the older adult: a review. *Journal of Nutrition for the Elderly, 26*, 139-157.
3. *† Hammond, B.R., & **Renzi, L.M.** (2008). The Characteristics and function of lutein and zeaxanthin within the human retina. In: Meskin, M.S., Bidlack, W.R., & Randolph, R.K. (Eds). *Phytochemicals: Aging and Health*, CRC Press.
4. **Renzi, L.M.**, Hammond, B.R. (2010). The relation between the macular carotenoids, lutein and zeaxanthin, and temporal vision. *Ophthalmic and Physiologic Optics, 30*(4), 351-357.
5. Wooten, B.R., **Renzi, L.M.**, Moore, R., & Hammond, B.R. (2010). A practical method of measuring the human temporal contrast sensitivity function. *Biomedical Optics Express, 1*(1), 47-58.
6. **Renzi, L.M.**, Hammond, B.R. (2010). The effect of macular pigment on contrast thresholds. *Experimental Eye Research*, *91*(6), 896-900.
7. Hammond, B.R., **Renzi, L.M.**, Sachak, S., Brint, S.F. (2010). A contralateral comparison of blue-filtering and non-blue-filtering intraocular lenses: glare disability, heterochromatic contrast threshold, and photostress recovery. *Clinical Ophthalmology, 4*, 1465-1473.
8. **Renzi, L.M.**, Hammond, B.R., Dengler, M., Roberts, R. (2012). Relations between serum lipids, serum carotenoids and macular pigment optical density. *Lipids in Health and Disease, 11*(33), 1-10.
9. **Renzi, L.M.**, Bovier, E., & Hammond, B.R. (2013). A role for the macular carotenoids in visual motor response. *Nutritional Neuroscience, 16*(6), 262-8.
10. *Hammond, B.R., **Renzi, L.M.** (2013). Carotenoids. *Advances in Nutrition, 4*, 474-476.
11. **Renzi, L.M.**, Dengler, M.J., Puente, A., Miller, L.S., Hammond, B.R. (2014). Relations between macular pigment optical density and cognitive function in unimpaired and mildly cognitively impaired older adults. *Neurobiology of Aging,* 35(7),1695-1699
12. Vishwanathan, R., Iaccannone, A., Scott, T.M., Krtichevsky, S.B., Jennings, B.J., Carboni, G., Forma, G., Satterfield, S., Harris, T., Johnson, K.C., Schalch, W., **Renzi, L.M.**, Rosano, C., & Johnson, E.J. (2014). Macular pigment optical density is related to cognitive function in older people. *Age and Ageing, 43*(2), 271-275.
13. Sherry, C.L.; Oliver, J.S.; **Renzi, L.M.**; Marriage, B.J. (2014). Lutein supplementation increases breast milk and plasma lutein concentrations in lactating women and in infant plasma concentrations but does not affect other carotenoids. *J Nutr, 144*(8),1256-63.
14. Bovier, E.R.; **Renzi, L.M.**; Hammond, B.R. (2014). A double-blind, placebo controlled study of the effects of lutein and zeaxanthin on neural processing speed and efficiency. *PLoS ONE, 9*(9), e108178.

15. Mewborn, C.; **Renzi, L.M.**; Hammond, B.R.; Miller, L.S. (2015). Critical flicker fusion moderates the relationship between age and executive function in younger and older adults. *Archives of Clinical Neuropsychology, 30*(7), 605-10.
16. *McCorkle, S.M.; Raine, L.B.; Hammond, B.R.; **Renzi-Hammond, L.M.**; Hillman, C.H.; Khan, N.A. (2015). Reliability of heterochromatic flicker photometry in measuring macular pigment optical density among preadolescent children. *Foods, 4*(4), 594-604.
17. Hammond, B.R.; **Renzi-Hammond, L.M.** (2016). A critical look at the ancillary Age-Related Eye Disease Study (AREDS 2): Nutrition and cognitive function results in older adults with Age-Related Macular Degeneration (AMD). *Advances in Nutrition, 7*(3), 433-437.
18. **Renzi-Hammond, L.M.**, Hammond, B.R. (2016). The effects of photochromic lenses on visual performance. *Clinical and Experimental Optometry, 99*(6), 568-574.
19. Lindbergh, C.A., Mewborn, C.A., Hammond, B.R., **Renzi-Hammond, L.M.**, Curran-Celentano, J., Miller, L.S. (2017). The relationship of lutein and zeaxanthin levels to neurocognitive functioning: An fMRI study of older adults. *Journal of the International Psychological Society, 23*(1), 11-22.
20. Walk, A.M., Edwards, C.G., Baumgartner, N.W., Curran, M.R., Covello, A.R., Reeser, G.E., Hammond, B.R., **Renzi-Hammond, L.M.**, Khan, N.A. (2017). The Role of Retinal Carotenoids and Age on Neuroelectric Indices of Attentional Control Among Early to Middle-aged Adults. *Frontiers in Aging Neuroscience, 9*, No. 183.
21. Walk, A., Khan, N., McCorkle, S., Raine, L., Kramer, A., Cohen, N., Moulton, C., **Renzi-Hammond, L.M.**, Hammond, B.R., Hillman, C. (2017). From neuro-pigments to neural efficiency: The relationship between retinal carotenoids and behavioral and neuroelectric indices of cognitive control in childhood. *International Journal of Psychophysiology, 118*, 1-8.
22. Barnett, S., Khan, N.A., Walk, A.M., Raine, L.B., Moulton, C., Cohen, N.J., Kramer, A.F., Hammond, B.R., **Renzi-Hammond, L.M.**, Hillman, C.H. (2017). Macular pigment optical density is positively associated with academic performance among preadolescent children. *Nutritional Neuroscience, 21*(9), 632-640.
23. Hassevoort, K.M., Khazoum, S.E., Walker, J.A., McCorkle, S., Raine, L.B., Hammond, B.R., **Renzi-Hammond, L.M.**, Kramer, A.F., Khan, N.A., Hillman, C.H., Cohen, N.J. (2017). Macular lutein, aerobic fitness, and central adiposity are differently associated with hippocampal-dependent memory in preadolescent children. *Journal of Pediatrics, 183*, 108-114.
24. Hammond, B.R., Miller, L.S., Bello, M.O., Lindbergh, C.A., Mewborn, C.M., **Renzi-Hammond, L.M.** (2017). Effects of a lutein / zeaxanthin supplementation on the cognitive function of community dwelling older adults: a randomized, double-masked, placebo-controlled trial. *Frontiers in Aging Neuroscience,* August 3, *9*(254).
25. Lindbergh, C.A., **Renzi-Hammond, L.M.,** Hammond, B.R., Terry, D.P., Mewborn, C.M., Puente, A.N., Miller, L.S. (2017). Lutein and zeaxanthin influence brain function in older adults: A randomized controlled trial. *Journal of the International Neuropsychological Society, 23*, 1-14.
26. ***Renzi-Hammond, L.**, Bovier, E., Fletcher, L., Miller, L, Mewborn, C., Lindbergh, C. Baxter, J., Hammond, B. (2017). Effects of a lutein/zeaxanthin intervention on cognitive function: a randomized, double-masked, placebo-controlled trial of younger healthy adults. *Nutrients, 9*(11), 1246.
27. Mewborn, C. M., Terry, D. P., **Renzi-Hammond, L. M.**, Hammond, B. R., & Miller, L. S. (2017). Relation of retinal and serum lutein and zeaxanthin to white matter integrity in older adults: A diffusion tensor imaging study. *Archives of Clinical Neuropsychology*, *33*(7), 861-874.
28. *Saint, S. E., **Renzi-Hammond, L. M**., Khan, N. A., Hillman, C. H., Frick, J. E., & Hammond, B. R. (2018). The macular carotenoids are associated with cognitive function in preadolescent children. *Nutrients*, *10*(2), 193.
29. Mewborn, C. M., Lindbergh, C. A., Robinson, T. L., Gogniat, M. A., Terry, D. P., Jean, K. R., Hammond, B.R., **Hammond, L.M.** & Miller, L. S. (2018). Lutein and zeaxanthin are positively associated with visual–spatial functioning in older adults: an fMRI study. *Nutrients*, *10*(4), 458.
30. Hammond Jr, B. R., & **Renzi-Hammond, L.** (2018). Individual variation in the transmission of UVB radiation in the young adult eye. *PloS one*, *13*(7), e0199940

31. Lindbergh, C.A., Zhao, Y.B.E.; Lu, J., Mewborn, C.M., Puente, A.N., Terry, D.P., **Renzi-Hammond, L.M.,** Hammond, B.R., Liu, T., Miller, L.S. (2019). Intelligence moderates the relation between age and inter-connectivity of resting state networks in older adults. *Neurobiology of Aging, 78*, 121-129.
32. *****Oliver, W., **Renzi-Hammond, L. M.**, Ceravolo, S.A., Clementz, B., Miller, L. S., & Hammond Jr, B. R. (2019). Neural activation during visual attention differs in individuals with high versus low macular pigment density. *Molecular Nutrition & Food Research*, 1801052.
33. *Ceravolo, S. A., Hammond, B. R., Oliver, W., Clementz, B., Miller, L. S., & **Renzi-Hammond, L. M.** (2019). Dietary Carotenoids Lutein and Zeaxanthin Change Brain Activation in Older Adult Participants: A Randomized, Double-Masked, Placebo-Controlled Trial. *Molecular Nutrition & Food Research*, 1801051.
34. Edwards, C., Cannavale, C., Flemming, I., Iwinski, S., Walk, A., **Renzi-Hammond, L.M.**, Khan, N. (2019). Skin and macular carotenoids and their implications for cognitive control in children. *Current Developments in Nutrition, 3*(Supplement 1); OR05-18-19.
35. Mewborn, C., Lindbergh, C.A., Hammond, B.R., **Renzi-Hammond, L.M.**, Miller, L.S. (2019). The effects of lutein and zeaxanthin supplementation on brain morphology in older adults: a randomized, controlled trial. *Journal of Aging Research*, in press.
36. Saint, S., Hammond, B., Khan, N., Hillman, C., **Renzi-Hammond, L.** (2019) Temporal vision is related to cognitive function in preadolescent children. *Applied Neuropsychology: Child*., in press.
37. Lindbergh, C.A., Lv, J., Zhao, Y., Mewborn, C.M., Puente, A.N., Terry, D.P., **Renzi-Hammond, L.M.**, Hammond, B.R., Miller, L.M. (2020). The effects of lutein and zeaxanthin on resting state functional connectivity in older Caucasian adults: a randomized controlled trial. *Brain Imaging and Behavior, 14*(3), 668-681.
38. Hammond, B.R., Buch, J., Hacker, L., Cannon, J., Toubouti, Y., **Renzi-Hammond, L.M.** (2020). The effects of light scatter when using a photochromic vs. non-photochromic contact lens. *Journal of Optometry, in press.*
39. Hammond, B.R., Buch, J., Sonoda, L., **Renzi-Hammond, L.M.** (2020). The effects of a senofilcon A contact lens with and without a photochromic additive on positive dysphotopsia across age. *Eye and Contact Lens: Science and Clinical Practice, in press*.
40. **Renzi-Hammond, L.M.**, Buch, JR, Hacker, L, Cannon, J, Hammond, B.R. (2020). The effects of a photochromic contact lens on visual function indoors: a randomized, controlled trial. *Optometry and Vision Science, 97*(7), 526-30.
41. **Renzi-Hammond, L.M.**, Buch, J., Cannon, J., Hacker, L., Toubouti, Y., Hammond, B.R. (2020). A contra-lateral comparison of the visual effects of a photochromic vs. non-photochromic contact lens. *Contact Lens and Anterior Eye, 43*(3), 250-255.
42. Liu R, Edwards CG, Cannavale CN, Flemming IR, Chojnacki MR, Reeser GE, Iwinski SJ, **Renzi-Hammond LM**, Khan NA. (2021) Weight Status and Visceral Adiposity Mediate the Relation between Exclusive Breastfeeding Duration and Skin Carotenoids in Later Childhood. *Current Developments in Nutrition, 5*(3):epub.
43. Liu R, Hannon BA, Robinson KN, Raine LB, Hammond BR, **Renzi-Hammond LM**, Cohen NJ, Kramer AF, Hillman CH, Teran-Garcia M, Khan, NA. (2021). Single nucleotide polymorphisms in CD36 are associated with macular pigment among children. *J Nutr, in press.*
44. Hammond, B.R., Wooten, B.R., Saint, S., **Renzi-Hammond, L.M.** (2021). The effects of a blue-light filtering (BLF) vs clear intraocular implant (IOL) on color appearance. *Translational Vision Science and Technology*,*10*(12), 25-.
45. **Renzi-Hammond LM**, Hammond Jr BR. (2022) Blue-light filtering intraocular implants and darker irises reduce the behavioral effects of higher-order ocular aberrations. *Current Eye Research*. Feb 18(accepted in 2021):1-21.
46. Hammond BR, **Renzi-Hammond, LM.** (2022). The influence of the macular carotenoids on women's eye and brain health. *Nutritional Neuroscience*, 1-7.

Technical Reports, Editorials:

1. **Renzi, L. M.**, Engles, M. P., Gutherie, A. H. & Hammond, B. R. (2003) Response to the Vision Health Debate. *AgroFood Industry HiTech,14* (3), 6-9.
2. Engles, M. P., & **Renzi, L. M.** (2004). Response to the Vision Health Debate. *AgroFood Industry HiTech, 16*(3), 9-10.
3. ***Renzi, L.M.**, Hammond, B.R. (2009). The influence of dietary pigments lutein and zeaxanthin on human visual function. *World of Food Ingredients, 12*, 61-63.
4. ***** **Renzi, L.M.**, Hammond, B.R. (2010). Nutrition as a mediator of vision health across the lifespan. *Sight and Life, 3*, 2-11.
5. **Renzi-Hammond, L.M.**, Miller, L.S., Hammond, B.R. (2016). Response to: Effect of omega-3 fatty acids, lutein / zeaxanthin, or other nutrient supplementation on cognitive function: The AREDS2 randomized clinical trial. *JAMA*, 315*(*5), 516.
6. ***Renzi-Hammond, L.M.**, Karpecki, P., Sherman, J., Beatty, S. (2016). Transforming eye health through proved ocular nutrition strategies. *Review of Optometry*, special supplement, 15 Feb.
7. ***Renzi-Hammond, L.M.** (2017). Nutrition and Processing Speed. *Pediatric Nutrition Advocate*, https://static1.squarespace.com/static/586517308419c2577561e2ce/t/58c302cb37c581a0d280b6d0/1489175244655/Nutrition-and-Processing-Speed.pdf
8. ***Renzi-Hammond, L.M.**, Johnson, E., Richer, S. (2018). Carotenoids: essential to the eyes, and more. In *Wellness Essentials for Clinical Practice;* special supplement in *Review of Optometry*. https://www.reviewofoptometry.com/CMSDocuments/2018/09/ns0918i.pdf
9. *Hammond, B.R., **Renzi-Hammond, L.M.**, Buch, J., Nankivil, D. (2018). Measuring total visual experience. *Contact Lens Spectrum,* December 2018 issue. https://www.clspectrum.com/issues/2018/december-2018
10. Hammond, B.R., **Renzi-Hammond, L.M.**, Buch, J. (2018). Key measures of visual performance. *Contact Lens Spectrum,* December 2018 issue.

Selected Published Abstracts and Proceedings:

1. **Renzi, L.M.**, & Hammond, B.R. (2005). The relation between macular pigment and serum triglyceride levels. *ARVO Abstracts. Investigative Ophthalmology and Vision Science*.
2. **Renzi, L.M.**, Wenzel, A.J., Hammond, B.R., & Curran-Celentano J. (2006). Statin use and macular pigment optical density: a case-control study. *ARVO Abstracts. Invest Ophthalmol and Vis Sci*.
3. **Renzi, L.M.**, Iannaccone, A., Gallaher, K.T., Satterfield, S., Kenyon, E., Harris, T., Johnson, K.C., Kritchevsky, S.B., Schalch, W., Johnson, E.J. (2007). Relationships among macular pigment optical density (MPOD), serum lutein (L), zeaxanthin (Z), and n3 fatty acids (FAs). *ARVO Abstracts. Investigative Ophthalmology and Vision Science*.
4. **Renzi, L.M.**, Hammond, B.R., Wooten, B.R. (2008). The effects of macular pigment on temporal vision. *ARVO Abstracts, Investigative Ophthalmology and Vision Science*.
5. **Renzi, L.M.**, Hammond, B.R., Wooten, B.R. (2008). Age-related changes in the temporal modulation transfer function, assessed foveally and parafoveally. *Journal of Vision, 8*(17), Abstract 76, 76-a.
6. **Renzi, L.M.**, Snodderly, D.M., Hammond, B.R. (2009). Reduction of surround suppression and enhancement of discriminability by macular pigment. *ARVO Abstracts. Investigative Ophthalmology and Visual Science.*
7. Dengler, M.J., Fletcher, L.M., Stringham, J.M., **Renzi, L.M.**, Schalch, W., Hammond, B.R. (2010). Macular pigment is related to reduced glare disability, improved photostress recovery, and contrast enhancement. *ARVO Abstracts. Investigative Ophthalmology and Visual Science.*
8. Crast, J.L., **Renzi, L.M.**, Jorgensen, M., Grand, A., Finnie, K., Sousa, J., Kaplan, J.R., Jentsch, J.D. (2011). Serum lipid levels influence cognitive performance in older vervet monkeys (*Chlorocebus aethiops sabaeus*) on a long-term, stable diet. *Experimental Biology Abstracts, FASEB J.*
9. Bovier, E.R., O'Brien, K.J., Fletcher, L.M., Gierhart, D.L., **Renzi, L.M.** (2011). Macular pigment: relations to fixed and variable reaction time and coincidence anticipation across the lifespan. *ARVO Abstracts. Investigative Ophthalmology and Visual Science.*

10. Bovier, E.R., O'Brien, K.J., Ross, S., & **Renzi, L.M.** (2011). Static and dynamic measures of visual performance in athletes. *Journal of Vision, 11*(15), 27.
11. Dengler, M.J., Thorne, S.A., Puente, A.N., Watts, A., Hammond, B.R., Miller, L.S., & **Renzi, L.M.** (2011). Measuring the temporal contrast sensitivity function and macular pigment optical density in older adults with and without cognitive impairment. *Journal of Vision, 11*(15), 35.
12. **Renzi, L.M.** (2012). The relationship between retinal carotenoids and cognitive function in healthy and cognitively impaired elders. *Experimental Biology Abstracts, FASEB J.*
13. Dengler, M.J., Puente, A.N., Bovier, E.R., Miller, L.S., Hammond, B.R., & **Renzi, L.M.** (2012). The relationship between macular pigment and visuomotor function. *ARVO Abstracts. Investigative Ophthalmology and Visual Science.*
14. Bovier, E.R., Fletcher, L.M., Thorne, S.A., Hammond, B.R., & **Renzi, L.M.** (2013). Critical flicker fusion (CFF) thresholds: relations to neurocognitive function. *European Journal of Ophthalmology.*
15. Terry, D., Duda, B., Mewborn, C., Lindbergh, C., Bovier, E., Shon, D., Puente, A., Chu, K., Washington, T., Stapley, L., Hammond, B.R., **Renzi, L.M.**, Miller, L.S. (2014). Brain activity associated with verbal learning and recall in older adults and its relationship to lutein and zeaxanthin concentrations. *Archives of Clinical Neuropsychology, 29*(6), 505-6.
16. Mewborn, C., Duda. B., Lindbergh, C., Terry, D., Puente, A., Bovier, E.R., Shon, D., Chu, K., Washington, T., Stapley, L., Hammond, B.R., **Renzi, L.M.**, Miller, L.S. (2014). Processing speed and critical flicker fusion as mediators of age and cognition. *Arch of Clinical Neuropsychol, 29*(6), 506-7.
17. Terry, D., Lindbergh, C., Duda, B., Mewborn, C., Shon, D., Bovier, E.R., Puente, A., Stapley, L., Chu, K., Washington, T., **Renzi, L.M.**, Hammond, B.R., Miller, L.S. (2014). An fMRI investigation of visual judgment in older adults and its relationship with a measure of lutein and zeaxanthin. *Archives of Clinical Neuropsychology, 29*(6), 505-6.
18. Thorne, S; Cromer, D.; Kim, H.; Middlebrooks, K.; Paige, M.; Kennedy, R.; **Renzi, L**; Hammond, B.R. (2015). The influence of piano training on verbal memory in healthy older adults. *J of ISQRMM*
19. **Renzi, L.M.** (2015). Challenges in evaluating the role of xanthophylls in cognition across multiple levels of analysis. *Eur. J. Ophthalmol*, e-70.
20. Thorne, S.A.; Oliver, W.T.; Hammond, B.R.; Clementz, B.A.; Miller, L.S.; **Renzi, L.M.** (2015). CNS xanthophyll status and non-specific brain activation in younger and older adults. *Eur. J. Ophthalmol*, poster abstract MC022, e-64.
21. Oliver, W.T.; Thorne, S.A.; Clementz, B.A.; **Renzi, L.M.**; Hammond, B.R. (2015). Neural activation during visual attention differs in elders with high macular pigment density. *Eur. J. Ophthalmol*, poster abstract MC025, e-65.
22. Walk, A.; Raine, L.; Moulton, C.; Kuchan, M.; Cohen, N.; Kramer, A.; Hammond, B.; **Renzi-Hammond, L.**; Hillman, C.; Khan, N. (2016). MON-LB278: Macular carotenoids are positively related to academic achievement in pre-adolescent children. *Clinical Nutrition, 35*(Supp 1), S255-6.
23. Walk, A., Khan, N.A., McCorkle, S., Drollette, E.S., Raine, L.B., Kramer, A.F., Cohen, N.J., **Renzi, L.**, Hammond, B., Hillman, C. (2016). The role of macular pigment optical density in children's attentional control and academic achievement. *Psychophysiology, 53:*S89.
24. Lindbergh, C; Lv, J.; Zhao, Y.; Mewborn, C.; Puente, A.; Terry, D.; **Renzi-Hammond, L.M.**; Hammond, B.; Liu, T.; Miller, L.X. (2017). Cognitive reserve moderates the positive relation between older ages and inter-connectivity of resting state networks. *Arch Neuropsychol, 32*(6), 656.
25. Miller, L, Lindbergh, C., Terry, D., Mewborn, C., **Renzi-Hammond, L.**, Hammond, B. (2017). Lutein supplementation improves neurocognitive function in older adults as measured using functional magnetic resonance imaging: A randomized controlled trial. *Arch Clin Neuropsych, 574*, 1.
26. **Renzi-Hammond, L**., Saint, S., Shotwell, J., & Hammond Jr, B. R. (2018). Understanding the role of nutrition in lifespan brain development. *Journal of Alzheimer's Disease, 64*(3), 1043-4.
27. Hammond, B. R., & **Renzi-Hammond, L.** (2018). Macular pigment does not screen the retina from ultraviolet B radiation. *Journal of Alzheimer's Disease, 64*(3),1021-1021.
28. Shotwell, J., Dunlap B., Mungenast, J., **Renzi-Hammond, L.** (2018). Health literacy and patient autonomy: Does age matter? *Innovation in Aging, 2*(Suppl 1), 307.

29. Liu, R., Hannon, B., Robinson, K., Raine, L., Hammond, B., **Renzi-Hammond, L.**, ... & Khan, N. (2019). Single Nucleotide Polymorphisms in BCO1 and CD36 Are Related to Macular Pigment Among Children (OR05-04-19)
30. Edwards, C., Cannavale, C., Flemming, I., Iwinski, S., Walk, A., **Renzi-Hammond, L.**, & Khan, N. (2019). Skin and Macular Carotenoids and Their Implications for Cognitive Control and Achievement in Children (OR05-08-19).
31. Mois, G., Collette, B., **Renzi-Hammond, L.M.**, Boccanfuso, L., Ramachandran, A., Gibson, P., Emerson, K., Beer, J.M. (2019). Attitudes and preferences for robot-led piano cognitive training: Feasibility in mild cognitive impairment. *Innov Aging, 3*(Suppl 1): S946.
32. Shotwell, J., Smith, K., Naithani, N., Reddy, T., Murrow, L., Sailors, D., Tally, W., **Renzi-Hammond, L.M.** (2019). Communication breakdown: relations between health literacy and shared decision making across the lifespan. In *APHA's 2019 Annual Meeting and Expo (Nov. 2-Nov. 6)*. American Public Health Association.
33. Collette, B.A., **Renzi-Hammond, L.M.**, Hammond, B.R., Miller, L.S. (2019). Macular pigment and emotional wellbeing in community-dwelling older adults. In *APHA's 2019 Annual Meeting and Expo (Nov. 2 – Nov. 6)*. American Public Health Association.
34. Cannon, J., Hammond, B., **Renzi-Hammond, L.**, Buch, J., & Toubouti, Y. (2019). A contralateral comparison of the effects of light scatter when using an activated photochromic vs. clear contact lens. *Contact Lens and Anterior Eye*, *42*(6), e2.
35. Hammond, B., **Renzi-Hammond, L.**, Buch, J., Cannon, J., & Toubouti, Y. (2019). Comparing the visual effects of a photochromic contact lens under simulated outdoor vs indoor conditions. *Contact Lens and Anterior Eye*, *42*(6), e10.
36. **Renzi-Hammond, L.**, Hammond, B., Buch, J., Cannon, J., & Toubouti, Y. (2019). The effects of a photochromic contact lens on glare geometry when tested indoors. *CLAE, 42*(6), e34-e35.
37. Ingerson, K., McDaniel, M., **Renzi-Hammond, L.M.**, Padilla, H., Thapa, J., Berg, A., Cox, G. (2020). The "healthy" dining hall: how does student perception influence eating behaviors and perceived healthiness of college dining halls? *Journal of Nutr Education and Behavior, 52*(7), S47.
38. Mois, G., Collette, B.A., **Renzi-Hammond, L.M.**, Boccanfuso, LM, Ramachandran, A., Gibson, P., Emerson, K., Beer, J.M. (2020). Understanding robots' potential to facilitate piano cognitive training in older adults with mild cognitive impairment. *HRI 2020: Companion of the 2020 ACM/IEEE International Conference on Human-Robot Interaction*
39. Mois G., Collette, B., **Renzi-Hammond, L. M.**, Boccanfuso, L., Ramachandran, A., Gibson, P., Emerson, K. G., & Beer, J. M. (2021, January). Utilizing a Socially Assistive Robot to Increase Access to Cognitive Training Resources. Society for Social Work and Research Annual Conference.
40. Collette B, Mois G, *Beer JM*, Boccanfuso L, Ramachadran A, Gibson P, *Emerson KG*, **Renzi-Hammond LM**. Robot-Led Piano Lessons May Improve Cognitive Function: A Feasibility Study in a Sample with Mild Cognitive Impairment. In Proceedings of the Human Factors and Ergonomics Society Annual Meeting 2021 Sep (Vol. 65, No. 1, pp. 21-25). Sage CA: Los Angeles, CA: SAGE Publications.
41. Collette B, Shotwell J, Shepherd A, Shepherd K, **Renzi-Hammond LM**, *Beer JM*. Developing an Integrated Virtual Assistant (IVA): Feasibility of a Behavior Tracking and Reminder Prototype Solution to Assist Persons with Dementia and Their Care Partners. InProceedings of the Human Factors and Ergonomics Society Annual Meeting 2021 Sep (Vol. 65, No. 1, pp. 16-20). Sage CA: Los Angeles, CA: SAGE Publications.

Intellectual property

1. **Renzi, L.M.**, Hammond, B.R. (2012). Use of xanthophyll carotenoids to improve visual performance and neural efficiency. US20140221487A1. Assigned to University of Georgia Research Foundation; Exclusively licensed by ZeaVision, LLC.

2. Hammond BR, **Renzi-Hammond, LM** (2021). System and method for optical screening of health conditions. Provisional Patent, docket assignment 222105-8401.

Manuscripts under review

1. Ceravolo, S.A., Hammond, B.R., Kennedy, R., Jutras, P., **Renzi-Hammond, L.M.** (under review). The effects of piano training on cognitive function and brain activation in older adults.
2. **Renzi-Hammond LM**, Gardner C, Hammond, BR. The effects of blue-light filtering intraocular lens implants on positive dysphotopsia symptoms. (under review)

Grants Awarded

Funding Agency	Mechanism and Years Active	Title	Amount and Role	% Academic Credit
As a graduate student: $48,400 total funding				
Kemin Foods, LC	Contract; 2004-2005	Circulating lipids and human macular pigment density	$25,000; Co-PI	100
US Department of Agriculture	Grant; 2006	Summer fellowship: lipids and human macular pigment density	$5700; Co-I	100
University of Georgia	Dissertation completion award; 2007-2008	The relation between macular pigment optical density and temporal vision	$17,000; PI	100
National Eye Institute	Competitive travel grant; 2008	2008 Association for Research in Vision and Ophthalmology annual meeting	$700; N/A	N/A
As a Clinical Assistant Professor: $919,525 total funding; $459,762.50 by academic credit.				
ZeaVision, LLC	Investigator-initiated grant; 2010-2012	Visual performance in baseball players	$45,100; Co-I	50% ($22,550)
ZeaVision, LLC	Investigator-initiated grant; 2011-2013	Macular pigment and visuomotor function in young, healthy adults	$49,500; Co-I	50% ($24,750)
Abbott Nutrition	Investigator-initiated grant; 2011-2015	The effects of a lutein and zeaxanthin intervention on cognitive performance and neural efficiency	$676,950; PI	50% ($338,475)
Beckman Institute for Advanced Science Technology	Grant; 2015	Cognitive function in pre-adolescent children	$29,850; Co-I	50% ($14,925)
Johnson and Johnson Vision Care, Inc.	Contract; 2016-2017	The effects of light filtration by photochromic contact lenses on visual performance in intense light conditions	$118,125; Co-I	50% ($59,062.50)
In Assistant Professor Rank: $2,268,010 total funding; $1,082,442.50 by academic credit				
Johnson and Johnson Vision Care, Inc.	Contract; 2018-2019	The effects of contact lenses with experimental dye on visual function	$253,680; PI	50% ($126,840)

National Institutes of Health	Grant; 2018-2022	Robot-assisted cognitive training for socially isolated older adults with mild cognitive impairment	$1,304,990; Co-I	45% ($587,245.50)
Johnson and Johnson Vision Care, Inc	Contract; 2018-2020	The effects of short-wave light filtering contact lenses on visual function	$173,022; PI	50% ($86,511)
Alcon Laboratories	Investigator-initiated grant; 2018-2020	The effects of a blue-filtering IOL on visual function	$408,945; PI	50% ($204,472.50)
National Institutes of Health	Grant; 2019-2020	Developing an integrated virtual assistant (IVA): a tailored behavior tracking and reminder solutions to assist persons with dementia and their caregivers	$99,999; PI	50% ($49,999.50)
U.S. Egg Board	Grant; 2019-2020	Carotenoids, cognition and achievement during childhood	$7374; PI subaward	100%
The Brookdale Foundation	Foundation grant; 2019-2020	Relatives as parents program (RAPP)	$20,000; PI subaward	100%
Since promotion to Associate Professor: $1,989,446 total funding; $1,063,028 by academic credit				
Alcon Laboratories	Contract; 2020-2021	Safety and benefit assessment of yellow filters on visual function	$240,000; PI	50% (120,000)
Johnson and Johnson Vision Care, Inc.	Contract; 2021-2023	Visual performance of senofilcon A with and without a new UV/HEV blocker	$259,007; PI	50% (129,503.50)
Johnson and Johnson Vision Care, Inc.	Contract;2021-2023	The effects of light filtration via contact lenses on novel metrics of visual function	$360,000; PI	50% (180,000)
Georgia Department of Public Health	Contract; 2021 (will be renewed until 2024)	University of Georgia Cognitive Aging Research and Education Center	$10,000; co-PI	50% ($5,000)
Johnson and Johnson Vision Care, Inc	Contract; 2021-2023	Evaluation of multifocal and spherical soft contact lens designs with and without HEV blocker on visual function	$332,352; PI	50% (166,176)
The Brookdale Foundation	Contract; 2021-2022	Brookdale Relatives as Parents Foundation Tier II renewal	$10,000; PI subaward	100%
National Academy of Medicine	Grant; 2021-2022	A new state-wide tele-health model to deliver ADRD tele-assessment and tailored care planning to older adults in low-access, high-risk rural communities	$50,000; co-PI	40% ($20,000)
Johnson and	Contract; 2022-	Determining the action	$279,028;	50%

Johnson Vision Care, Inc.	2023	spectra of glare in habitual contact lens wearers	co-PI	($139,514)
Transitions Optical	Contract; 2022-2023	Using photochromic spectacle lenses to attenuate light stress in adults.	$117,867; co-PI	50% ($59,933.50)
National Institutes of Health	2022-2026	Enhancing Children's Cognitive Function and Achievement through Carotenoid Consumption	$3,669,835 Co-I (PI UGA sub award)	100% subaward ($124,610)
Johnson and Johnson Vision Care, Inc.	2022-2023	Role of glare and spectral filtering on contrast sensitivity: A pilot study	$256,582; co-I	50% ($128,291)

Total funding: $5,275,381.00 **By academic credit: $2,890,586.00**

Selected Press, Recognition and Outstanding Achievements

Awarded the Herbert Zimmer Award by the University of Georgia Neuroscience faculty for Excellence in Research, 2008.
Inaugural Cohort of UGA's NSF Innovation Corps; Project: Team Harmonized, 2017-2018.
Featured in the November "Focus on the Faculty" feature on the UGA homepage, November 2019.
Featured on *Classic City Science*; WUGA; June 2019
Featured in *Georgia Health News*; April 03, 2019
Featured on 90.1, WABE, Atlanta's NPR station, April 5, 2019
Featured in the feature length documentary, "Open Your Eyes," which premiered in New York City on March 27, 2020 (scheduled)
Faculty presenter, TEDxUGA, "Next Level," March 19, 2021
Delta Omega Honor Society in Public Health, 2020
Inaugural Cohort, Rural Engagement Working Group, 2021; **Awarded $5,000 seed grant**
Working Group Lead in Gerontology, UGA College of Public Health, 2021-2022
Nominated for the L2-IRT leading large teams initiative from the Office of Research, 2021-2022
Featured in *Georgia Health News*; June 10, 2021
Featured in the *Atlanta Journal-Constitution*; June 11, 2021
Visiting Scholar for the University of Alabama at Birmingham Vision Sciences Research Center; January 8, 2021

Selected scholarly presentations (Academic Societies; *indicates an invited submission)

1. ***Renzi, L.M.** (2006). An investigation of supplementation response profiles for serum and macular pigment: A critical look at the non-responder problem. Presented at the Jean Mayer Human Nutrition Research Center on Aging at Tufts University; Boston, MA.
2. ***Renzi, L.M.** (2006). Statins, lipoproteins and macular pigment optical density. Presented at the Jean Mayer Human Nutrition Research Center on Aging at Tufts University; Boston, MA.
3. **Renzi, L.M.** (2009). Neural compensation within the human retina. Presented at the Annual meeting of the University of Texas Section on Neurobiology; Austin, TX.
4. **Renzi, L.M.** (2009). The protective, visual function and neural efficiency hypotheses of macular pigment. Presented at the Center for Perceptual Systems meeting at the University of Texas; Austin.
5. **Renzi, L.M.**, Hammond, B.R., Wooten, B.R. (2009). Age-related changes in the temporal modulation transfer function (TMTF) assessed with a novel optical device in the fovea and parafovea. Presented at the 2009 Annual Meeting of the Vision Sciences Society; Naples, FL.
6. ***Renzi, L.M.** (2011). Dietary lutein in visual and neural development: A focus on the infant. Presented at the 2011 annual meeting of the American Dietetic Association; San Diego, CA.

7. **Renzi, L.M.** (2012). The relationship between retinal carotenoids and cognitive function in healthy and cognitively impaired elders. Presentation for the American Society of Nutrition's annual meeting at Experimental Biology; San Diego, CA.
8. *Hammond, B.R.; Bovier, E.R.; **Renzi, L.M.** (2014). Effects of the macular carotenoids on behavioral and neural measures of brain function. Presented at the triennial meeting of the International Carotenoid Society; Park City, UT.
9. ***Renzi, L.M.** (2015). Challenges in evaluating the role of xanthophylls in cognition across multiple levels of analysis. Presented at biennial Macular Carotenoids conference in Downing College, Cambridge University; Cambridge, UK.
10. ***Renzi-Hammond, L.M.** (2017). Lifespan nutrition for cognitive health. Presented at the Center for Nutrition, Learning and Memory Cognition Summit at the University of Illinois, Urbana-Champaign; Champaign, IL.
11. ***Renzi-Hammond, L.M.** (2017). Macular carotenoids improve central nervous system efficiency across the lifespan: behavioral and neuroimaging results. Presented at triennial meeting of the International Carotenoid Society; Lucerne, Switzerland.
12. ***Renzi-Hammond, L.M.** (2017). Macular carotenoids in pregnancy, infancy and early childhood. Presented at the triennial meeting of the International Carotenoid Society; Lucerne, Switzerland.
13. ***Renzi-Hammond, L.M.**, Miller, L.S., Hammond, B.R. (2017). The biological function of lutein and zeaxanthin in the brain. Presented at the triennial meeting of the International Carotenoid Society; Lucerne, Switzerland.
14. ***Renzi-Hammond, L.M.** (2018). Nutrition, cognition and health: a lifespan perspective. Presented at the Canadian Nutrition Society annual meeting; Halifax; Nova Scotia, Canada.
15. ***Renzi-Hammond, L.M.** (2018). Carotenoids in brain health, cognitive function and neural efficiency: Emerging evidence from across the lifespan. Presented at the Carotenoids section of the Gordon Research Conferences; Newry, ME.
16. ***Renzi-Hammond, L.M.,** Saint, S., Shotwell, J., & Hammond Jr, B. R (2018). Understanding the role of nutrition in lifespan brain development: Application to dietary behavior. Presented the tri-enniel Brain and Ocular Nutrition meeting; Downing College, Cambridge University; Cambridge, UK.
17. Collette, B., Hammond, B.R., Miller, L.S., **Renzi-Hammond, L.M.** (2019). Macular pigment optical density and emotional wellbeing in community-dwelling older adults. *Annual Meeting of the American Public Health Association*; Philadelphia, PA.
18. **Renzi-Hammond LM,** Sesso H. (2021). Cognition and mental wellbeing, from early life to adulthood. Presented at the annual BASF Day of Science; virtual congress.
19. **Renzi-Hammond, L.M.** How human milk oligosaccharides and the gut microbiome communicate with the brain. Presented at the World Congress on Pediatric Gastroenterology, Hepatology and Nutrition; Vienna, Austria. Presented on June 04, 2021 as part of a symposium (co-presenter, B. Brett Finlay; University of British Columbia)

Selected Poster Presentations. Student co-authors are underlined after 2008; for the sake of brevity, only first and senior authored posters are included.

1. **Renzi, L.M.**, & Hammond, B.R. (2005). The relation between macular pigment and serum triglyceride levels. Presented at the 2005 Annual Meeting for the Association for Research in Vision and Ophthalmology; Ft. Lauderdale, FL.
2. **Renzi, L.M.**, Wenzel, A.J., Hammond, B.R., & Curran-Celentano, J. (2006). Statin use and macular pigment optical density. Presented at the 2006 Annual Meeting for the Association for Research in Vision and Ophthalmology; Ft. Lauderdale, FL.
3. **Renzi, L.M.**, Iannaccone, A., Gallaher, K.T. et al. (2007). Relationships among macular pigment optical density, serum lutein, zeaxanthin and n3 fatty acids. Presented at the 2007 Annual Meeting for the Association for Research in Vision and Ophthalmology; Ft. Lauderdale, FL.
4. **Renzi, L.M.**, Iannaccone, A., et al for the Health ABC Study Group. (2008). The relation between serum xanthophylls, fatty acids, macular pigment and cognitive function in the Health ABC Study.

Presented at the 2008 Annual Federation of American Societies for Experimental Biology; San Diego, CA.

5. **Renzi, L.M.**, Hammond, B.R., Wooten, B.R. (2008). The effects of macular pigment on temporal vision. Presented at the 2008 Annual Meeting for the Association for Research in Vision and Ophthalmology; Ft. Lauderdale, FL. ***Awarded National Eye Institute Travel Grant for Best Poster Submission***
6. **Renzi, L.M.**, Hammond, B.R., Wooten, B.R. (2008). Age-related changes in the temporal modulation transfer function, assessed foveally and parafoveally. Presented at the 2008 Annual Meeting for the Optical Society of America; Rochester, NY
7. **Renzi, L.M.**, Snodderly, D.M., & Hammond, B.R. (2009). Reduction of surround suppression and enhancement of discriminability by macular pigment. Presented at the 2009 Annual Meeting for the Association for Research in Vision and Ophthalmology; Ft. Lauderdale, FL.
8. Bovier, E.R., O'Brien, K.J., Fletcher, L.M., Gierhart, D.L., **Renzi, L.M.** (2011). Macular pigment: relations to fixed and variable reaction time and coincidence anticipation across the lifespan. Presented at the annual meeting of the Association for Research in Vision and Ophthalmology; Fort Lauderdale, FL.
9. **Renzi, L.M.**, Bovier, M.R., Shon, W.D., Biegler, P., Kennedy, C.A., & Hammond, B.R. (2011). The effects of macular carotenoids lutein and zeaxanthin on visual performance and neural efficiency in young, healthy subjects and college athletes. **Invited poster presentation** for the first bi-enniel Macular Carotenoids and AMD meeting; Downing College, Cambridge, England.
10. Bovier, E.R., O'Brien, K.J., Ross, S., & **Renzi, L.M.** (2011). Static and dynamic measures of visual performance in athletes. Presented at the annual meeting for the Optical Society of America; Seattle, WA.
11. Dengler, M.J., Thorne, S.A., Hammond, B.R., Miller, L.S., & **Renzi, L.M.** (2011). Measuring the temporal contrast sensitivity function and macular pigment optical density in older adults with and without cognitive impairment. Presented at the annual meeting for the Optical Society of America; Seattle, WA.
12. Dengler, M.J., Puente, A.N., Bovier, E.R., Miller, L.S., Hammond, B.R., & **Renzi, L.M.** (2012). The relationship between macular pigment and visuomotor function. Presented at the annual meeting of the Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL.
13. Bovier, E.R., Fletcher, L.M., Thorne, S.A., Hammond, B.R., & **Renzi, L.M.** (2013). Critical flicker fusion (CFF) thresholds: relations to neurocognitive function. Presented at the bi-enniel meeting of Macular Carotenoids and AMD meeting; Downing College; Cambridge, England. **Ranked within the top three poster submissions.**
14. **Renzi, L.M.** Bovier, E.R., Tankersley, M., Shon, D.W., Mewborn, C.A., Duda, B., Lindbergh, C., Miller, L.S., Hammond, B.R. (2014). Increasing retinal lutein concentrations improves cognitive performance in young, healthy adults: Results from one year of follow-up. Presented at the Triennial meeting of the International Carotenoid Society; Park City, UT
15. Thorne, S.A.; Oliver, W.T.; Hammond, B.R.; Clementz, B.A.; Miller, L.S.; **Renzi, L.M.** (2015). CNS xanthophyll status and non-specific brain activation in younger and older adults. Presented at the biennial Macular Carotenoids conference in Downing College, Cambridge University; Cambridge, UK.
16. Hammond, B. R., & **Renzi-Hammond, L.** (2018). Macular pigment does not screen the retina from ultraviolet B radiation. Presented at the Brain and Ocular Nutrition triennial meeting; Cambridge, United Kingdom.
17. Shotwell, J., Dunlap, B., Mungenast, J., **Renzi-Hammond, L.** (2018). Health literacy and patient autonomy: Does age matter? Presented at the annual Gerontological Society of America annual meeting; Boston, MA.
18. Naithani, N, Reddy, T, Shotwell, J., Rabeeah, Z, Murrow, L., & **Renzi-Hammond, L.M.** (2019). Talk the talk: effective patient communication and shared decision making. Presented at the American College of Physicians Internal Medicine annual meeting; Philadepliha, PA.

19. Kaba, C., Thomas, A., Mandangarli, N., Hammond, B.R., Miller, L.M., **Renzi-Hammond, L.M.** (2019). The relation between blood antioxidant potential, reactive oxygen metabolites, and response to antioxidant supplementation in younger and older participants. Presented at the Centennial Congress of the Medical Women's International Association; New York City, NY.
20. Shotwell, J., Smith, K., Naithani, N., Reddy, T., Murrow, L., Sailors, D., Tally, W., **Renzi-Hammond, L.M.** (2019). Communication breakdown: Relations between health literacy and shared decision-making across the lifespan. 4286.0, Presented at the American Public Health Association annual meeting, Delta Omega poster session II; Philadelphia, PA. **Won the Delta Omega award for best poster presentation.**
21. Liu R, Edwards CG, Cannavale CN, Flemming IR, Chojnacki MR, Reeser GE, Iwinski SJ, **Renzi-Hammond LM**, Khan NA. Weight Status and Visceral Adiposity Mediate the Relationship between Exclusive Breastfeeding Duration and Skin Carotenoids in Later Childhood. Current Developments in Nutrition. 2021 Mar.
22. Buch J, Ruston D, Meyler J, Hammond B, **Renzi-Hammond L**, Cannon J. The effects of a senofilcon A contact lens with and without a photochromic additive on positive dysphotopsia across age. Contact Lens and Anterior Eye. 2021 Feb 1;44(1):19.

Public Service

Integration of Public Health research, instruction, and service: Presentations to academic medical societies, government panels, etc.; * indicates an invited submission; † indicates a keynote address; ‡ indicates that the presentation was given for CE / CME credit for healthcare professionals

1. ***Renzi, L.M.** (2007). The role of lutein and zeaxanthin in the development of the retina. Presented at the Rehab Research and Development group at Emory University / Veteran's Affairs Hospital; Atlanta, GA.
2. *†**Renzi, L.M.** (2008). The developing retina: What do we know about it? Presented at the annual meeting of the Mayalsian Pediatric Association; Melaka, Malaysia.
3. ***Renzi, L.M.** (2008). Dietary lutein in vision and visual development. Presented to the Indonesian Ministry of Health; Jakarta, Indonesia.
4. *‡**Renzi, L.M.** (2008), *in conjunction with Landrum, J.T., & Hammond, B.R.* Lutein and zeaxanthin: functional nutrients for the developing retina. Presented at the annual meeting of the Indonesian Pediatric Association; Jakarta, Indonesia.
5. ***Renzi, L.M.** (2009). Reducing visual function loss in older adults. Presented to the Rehab Research and Development Group at Emory University. Veteran's Affairs Hospital; Atlanta, GA.
6. ***Renzi, L.M.** (2010). Nutrition as a mediator of disease risk in macular degeneration, diabetic retinopathy, retinopathy of prematurity and age-related cataract in the developing world. Presented at 2010 International Association for Preventing Blindness "Countdown to 2020" Gala; Geneva, Switzerland.
7. ***Renzi, L.M.** (2011). The effects of nutrition on the aging brain: a focus on neural efficiency and cognitive function. Presented at The Aging Primate Brain: A Multisystem Approach symposium at the Wake Forest University School of Medicine; Winston-Salem, NC.
8. ***Renzi, L.M.** (2012). The Emerging Science Behind Lutein. Presented Neonatal Grand Rounds at Georgetown University Hospital; Washington, DC.
9. ***Renzi, L.M.** (2012). The Emerging Science Behind Lutein. Presented at Perinatal Grand Rounds; Women and Infants Hospital at Brown University; Providence, Rhode Island.
10. ***Renzi, L.M.** (2012). The Emerging Science Behind Lutein. Presented to the Long Island, NY chapter of NAPNAP; Long Island, NY.
11. *‡**Renzi, L.M.** (2012). The Emerging Science Behind Lutein. Presented to the Atlanta, GA chapter of NAPNAP; Atlanta, GA.

12. *‡**Renzi, L.M.** (2013). Understanding the physiology and psychopharmacology of neonatal abstinence syndrome. Presented at the annual meeting of AWHONN; Tampa, FL.
13. *‡**Renzi, L.M.** (2013). The emerging science behind lutein. Presented to the New Jersey Biomedical Research Institute; Morristown, NJ.
14. ***Renzi, L.M.** (2013). The emerging science behind lutein. Presented at Perinatal Grand Rounds, Medical Center of Central Georgia; Macon, GA.
15. *‡**Renzi, L.M.** (2013). Narrowing down the discussion: A focus on lutein, an emerging phytochemical for cognitive and visual development. Presented at the "Emerging Research on the Role of Specific Nutrients on Cognitive and Visual Development" symposium at the 46th annual meeting of the European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN); London, England.
16. ***Renzi, L.M.** (2013). The emerging science behind lutein. Presented at Perinatal Grand Rounds, Medical College of Georgia; Augusta, GA.
17. *†**Renzi, L.M.** (2014). Lutein in developing eyes and brain: A focus on this emerging phytochemical for cognitive and visual development. Presented at the annual meeting of the Vietnamese Pediatric Association in Hanoi, Hue and Ho Chi Minh City, Vietnam.
18. *†**Renzi, L.M.** (2014). The role of lutein in the developing nervous system: A focus on retinal and brain development and cognitive function. Presented at the annual meeting of the Singapore Pediatric Association; Singapore.
19. *†**Renzi, L.M.** (2015). Stimulating the senses: nutrition as a link between sensory engagement and neurological development. Presented at the annual meeting of the Vietnamese Pediatric Association in Hanoi and Ho Chi Minh City, Vietnam.
20. ***Renzi-Hammond, L.M.**, Karpecki, P., Sherman, J., Beatty, S. (2015). Transforming eye health through proved ocular nutrition strategies. Presented at the Vision Expo West annual meeting; Las Vegas, NV.
21. *‡**Renzi-Hammond, L.M.** (2015). Nutrition, vision and cognition: New links and applications. Presented at the American Academy of Optometry annual meeting; New Orleans, LA.
22. *‡Hanlen, H., Nolan, J., **Renzi-Hammond, L.M.** (2016). Enriching macular pigment and its impact on visual performance, macular health and overall patient health. Presented at the Vision Source Exchange annual meeting; San Antonio, TX.
23. *‡**Renzi-Hammond, L.M.** (2016). Macular carotenoids and cognitive and visual function across the lifespan. Presented at the Vision Expo East annual meeting; New York, NY.
24. *‡**Renzi-Hammond, L.M.** (2016). Macular carotenoids: Visual function and the brain. Presented at the annual meeting of the Vision Institute Canada; Toronto, Canada.
25. *‡**Renzi-Hammond, L.M.** (2017). New advances in cognitive development: The role of nutrition in neurological development. Presented at the Growth, Development and Tolerance Summit, a joint meeting of the Malaysian Pediatric Association, the Malaysian Association of Maternal and Neonatal Health, and the Obstetrical and Gynecological Society of Malaysia; Penang, Malaysia.
26. *‡**Renzi-Hammond, L.M.** (2017). The role of nutrition in pre- and post-natal development: A spotlight on lutein. Presented at the Growth, Development and Tolerance Summit, a joint meeting of the Malaysian Pediatric Association, the Malaysian Association of Maternal and Neonatal Health, and the Obstetrical and Gynecological Society of Malaysia; Penang, Malaysia
27. *‡**Renzi-Hammond, L.M.** (2017). Macular carotenoids and cognitive and visual function across the lifespan. Presented at the annual meeting of the New Jersey Society of Optometric Physicians / American Optometric Association satellite meeting; Atlantic City, NJ
28. *‡**Renzi-Hammond, L.M.** (2017). Oral nutritional supplementation. Presented at the annual meeting of the New Jersey Society of Optometric Physicians / American Optometric Association satellite meeting; Atlantic City, NJ.
29. ***Renzi-Hammond, L.M.** (2017). The science of early brain development: The importance of lutein and natural vitamin E. Presented at the annual meeting of the Vietnamese Pediatric Association; Hanoi and Ho Chi Minh City, Vietnam.

30. *‡**Renzi-Hammond, L.M.** (2018). Nutrition in the Neonatal Intensive Care Unit: Setting the stage for lifespan brain development. Presented at the annual meeting of the Canadian Pediatric Society; Quebec City; Montreal, Canada.
31. Hammond, B. R., **Renzi-Hammond, L. M.**, Buch, J., Cannon, J., & Toubouti, Y. (2019). A Contralateral Comparison of the Visual Effects of Clear vs Photochromic Contact Lenses. Presented at the American Academy of Optometry Annual Meeting; Orlando, FL.
32. **Renzi-Hammond, L.M.,** Buch, J., Cannon, J., Hacker, L., Hammond, B.R. (2019). A contralateral comparison of the effects of light scatter when using an activated photochromic vs. clear contact lens. Presented at the British Contact Lens Association Annual Meeting; Manchester, United Kingdom.
33. Hammond, B.R., Saint, S., Hacker, L., **Renzi-Hammond, L.M.** (2020). The effects of a blue-light filtering (BLF) vs. clear intraocular implant (IOL) on color appearance. Presented at the Annual Meeting of the American Society for Cataract and Refractive Surgery; Boston, MA.
34. **Renzi-Hammond, L.M.**, Saint, S., Hammond, B.R. (2020). The effects of a blue-light filtering (BLF) intraocular lens (IOL) on visual halos produced by bright light. Presented at the Annual Meeting of the American Society for Cataract and Refractive Surgery; Boston, MA.
35. *‡**Renzi-Hammond, L.M.** (2020). Dementia and stroke: A guide for practitioners. Presented at Nursing Education Week at St. Mary's Stroke Support Unit; Athens, GA.
36. ***Renzi-Hammond**, **L.M.** (2021) Evolution of pediatric nutrition. Presented at the Annual Meeting of the Taiwan Pediatric Association*;* Taipei, Taiwan
37. ***Renzi-Hammond, L.M.**, Finlay, B.B. (2021). How human milk oligosaccharides and the microbiome communicate with the gut and brain. Presented at the 6th World Congress of Pediatric Gastroenterology, Hepatology and Nutrition; Vienna, Austria.
38. ***Renzi-Hammond, L.M**. From retina to brain: macular pigment and the development of the neural efficiency hypothesis. Presented at the University of Alabama at Birmingham Vision Science Research Symposium. January 08, 2021.
39. ***Renzi-Hammond, L.M**. Focus on Fellows: understanding the benefits and drawbacks to careers in academia and industry. Presented at the National Eye Institute annual postdoctoral fellows trainee symposium. October 28, 2021.

Selected local boards and advisory panels

1. Athens Community Council on Aging Grandparents Raising Grandchildren community advisory board; **Member**, 2020
2. Nutrition Council, Chick-Fil-A; **Member**, 2015-2017
3. Parent Council, University Childcare Center; **Member**, 2017-2020
4. Alzheimer's Association, Georgia Chapter; **Volunteer**, 2019-current
5. Alzheimer's Association Memory Walk, 2018-2020
6. **Speaker**, Osher Lifelong Learning Institute; annually, 2016-2020
7. Institute of Gerontology / Alzheimer's Association Partnership; deliver educational support groups and programming; 2019-2020
8. Dementia Action Alliance Brain Health Sub-Committee; **Member**; 2019-2020
9. Wellbridge Senior Community; **Scientific Advisor**; Morgan County, GA; 2019-current
10. Presbyterian Village Oconee County; **Academic Advisor**; 2019-current.
11. Advisor, Cohort 4 of the NIH-sponsored STAHR program. Mentee: Dr. Ankita Garg.

Local service presentations: I have delivered more than 40 educational presentations to community groups Georgia, such as the Athens Community Council on Aging and other community groups.

Professional Service

Scientific and clinical leadership positions: 2015 – present; Director, Ocular Nutrition Society

Editorial service: Associate Editor, *Frontiers in Social and Evolutionary Neuroscience* (2015-present)
Ad hoc reviewer; *Ophthalmic and Physiologic Optics, Neurobiology of Aging, Molecular Nutrition and Food Research, Nutrients, Journal of Nutrition, Journal of the Optical Society of America*
Grant Reviews: Georgia Clinical and Translational Science Alliance Seed Grant; 2019; Canadian Institute for Health Research; 2019
Conference submission reviews: American Psychological Association "Technology, the Mind and Society" Conference; 2018, 2021

Service on departmental, college or university committees, in current rank

Year	Reach	Committee	Role
2018-2020	University	Institutional Review Board 2 (Biomedical and Clinical Trials)	Board Member
2018-present	Departmental	Mary Ann Johnson Scholarship Review	Reviewer
2019	College	Manager of IT Search Committee	Member
2019-2020	College	Strategic Planning Committee	Member
2019-2020	College	Brand Excavation Team	Member
2019-2021	College	Research Advisory Committee	Member
2020-present	University	Institutional Review Board 2 (Biomedical and Clinical Trials)	Vice-Chair
2020-2024	University	University Council	Member
2020-2024	University	University Strategic Planning Committee	Member
2021-2024	University	Committee on Intercollegiate Athletics	Member
2020-2022	Departmental	Health Promotion Diversity, Equity and Inclusion Committee	Chair, Policy Sub-Committee
2020-2022	University	Faculty Conference	Steering Committee
2021-2022	College	Gerontology Working Group	Lead
2021-2022; 2022-2023	Departmental	Health Promotion and Behavior department chair search committee	Member
2021-2022	College	Health Policy and Management assistant professor search	Member
2022-2023	University	Precision One Health search committee	Member; Chair of Cognitive Aging position
2022-2023	University	Center for Neurodegenerative Diseases	Member; Named Chair and Assistant/Associate Professor

Service to student groups and organizations

Faculty advisor, Undergraduate Neuroscience Organization
Faculty advisor, Nuçi's Space Student Organization

CURRICULUM VITAE

Name: Fabio R. Santori **Citizenship:** USA

Present Position: Associate Research Scientist
Center for Molecular Medicine
Athens, GA 30602 USA

Email: fabio.santori@yale.edu **Webpage:** http://www.researchgate.net/profile/Fabio_Santori

Language Skills: Fluent in Portuguese, German, Italian and English
Reading proficient in Spanish and French

Education and professional experience:

1983-1988 Biology University of Araras, Araras, Brazil

1988-1991 M. S. in Microbiology (Cellular Biology)
Escola Paulista de Medicina, São Paulo, Brazil
Mentor: Renato Arruda Mortara, Ph.D.

1992-1993 Research technician in Biochemistry
Escola Paulista de Medicina, São Paulo, Brazil
Supervisor: Maria Lucia Cardoso de Almeida, Ph.D.

1993-1996 Ph.D. in Microbiology and Immunology
Escola Paulista de Medicina, São Paulo, Brazil
Mentor: Nobuko Yoshida, Ph.D.

1996-1998 Visiting scientist
New York Blood Center, New York, USA
Supervisor: Pablo Rubinstein, M.D., Ph.D.

1998-2003 Assistant Research Scientist
Department of Pathology,
New York University Medical Center, New York, USA
Mentor: Stanislav Vukmanovic, M.D., Ph.D.

2003-2014 Postdoctoral fellow, Skirball Institute of Biomolecular Medicine, New York, NY 10016, USA
Mentor: Dan R. Littman, M.D., Ph.D.

2015- Associate Research Scientist
Department of Immunobiology, Yale University, CT 06519, USA

2021- Associate Research Scientist
Center for Molecular Medicine
University of Georgia, Athens, GA30602

Awards:

Fellowship Centro de Apoio a Pesquisa (CAPES) (1993-1996)

Fellowship Fundação de Amparo a Pesquisa do Estado de São Paulo (FAPESP)(1996-1998)

Tropical Diseases Research (TDR) training grant WHO – declined in favor of FAPESP grant

NIH-T32 Research Training T32HL007151 (2005-2006).

Yale University Dowry Fund 2015-present

Grants:

Active:

NGA-HIPC U19 GR101641 (Multi-PI, Co-PI: Santori) 12/19/2016-11/30/21
NIH $75,000
Human Immunoprofilling project.

Pending IRG review:

R01HL153359 (Multi-PIs: Santori, Ivanova)
NIH
Natural COUP-TF ligands driving lymphatic vessel development

Completed:

R21 AI131015, NIH (PI: Santori) 01/01/2017-12/31/19
NIH $275,000
Discovery of NR4A1/2 ligands controlling tissue resident memory T cells.

Publications:

1. Chou, C.-H., Mohanty, S., Kang, H.A., Kong, L, Avila-Pacheco, J., Joshi, S.R., Ueda, I., Devine, L., Raddassi, K., Pierce, K., Jeanfavre, S., Bullock, K., Meng, H., Clish, C., **Santori, F.R.**, Shaw, A.C., Xavier, R.J. Metabolomics and transcriptomics signatures of influenza vaccine response in healthy young and older adults. Aging Cell, 21(9):e13682, 2022.

2. Wang, T., Wang, Z., de Fabritus, L., Saied, E.M., Lee, H.-J., Ramazanov, B.R., Ghumman, N.S., Burkhardt, D., Jackson, B., Seo, D.E., Zhou, T., Xu, S., Alecu, I, Arenz, C., Hornemann, T., Krishnaswamy, S., van de Pavert, S.A., Kaech, S.M., Ivanova, N.B., **Santori, F.R**. Deoxysphingolipids are COUP-TF ligands modulating lymphatic and cardiac development. Dev Cell, 56(22): 3128-3145, 2021.

3. Tao, L.J., Seo, D.E., Jackson, B., Ivanova, N.B. & **Santori, F.R**. Nuclear Hormone Receptors and their ligands: metabolites in control of transcription. Cells, 9(12):2606-2618, 2020.

4. ***Santori, F.R.**,Huang, P., van de Pavert, S., Douglass Jr., E.F.,Leaver, D., Haubrich, B.A., Keber, R., Lorbek, G., Konijn, T., Rosales, B.N., Horvat, S., Rozman, D., Rahier, A., Nes, W.D., Mebius, R., Rastinejad, F. & Littman, D.R. Natural RORγ ligands that regulate the development of lymphoid cells. *Cell Metabolism*. 21(2): 286-297, 2015. * Corresponding author.

5. ***Santori, F.R**. The Immune system as a self-centered network of lymphocytes. *Immunol. Lett.*, 166(2): 109-116, 2015. * Corresponding author.

6. ***Santori, F.R**. Nuclear hormone receptors put immunity on sterols. Review. *Eur. J. Immunol.*, 45(10): 2730-2741, 2015. * Corresponding author.

7. van de Pavert, S.A., Ferreira, M., Domingues, R.G., Ribeiro, H., Molenaar, R., Moreira-Santos, L., Almeida, F.F., Ibiza, S., Barbosa, I., Goverse, G., Labão-Almeida, C., Godinho-Silva, C., Konijn, T., Schooneman, D., O'Toole, T., Mizee, M.R., Habani, Y., Haak, E., **Santori, F.R.**, Littman, D.R., Schulte-Merker, S., Dzierzak, E., Simas, J.P., Mebius, R.E., Veiga-Fernandes, H. Maternal retinoids control type 3 innate lymphoid cells and set the offspring immunity. *Nature.* 508(7494):123-7, 2014.

8. Lima, F.M., Souza, R.T., **Santori, F.R.**, Santos, M.F., Cortez, D.R., Barros, R.M., Cano, M.I., Valadares, H.M., Macedo, A.M., Mortara, R.A., da Silveira, J.F. Interclonal variations in the molecular karyotype of *Trypanosoma cruzi*: chromosome rearrangements in a single cell-derived clone of the G strain. *PLoS One.* 8(5):e63738, 2013.

9. Huh, J.R., Leung, M.W., Huang, P., Ryan, D.A., Krout, M.R., Malapaka, R.R., Chow, J., Manel, N., Ciofani, M., Kim, S.V., Cuesta, A., **Santori, F.R**., Lafaille, J.J., Xu, H.E., Gin, D.Y., Rastinejad, F. & Littman, D.R. Digoxin and its derivatives suppress Th17 cell differentiation by antagonizing RORγt activity. *Nature*, 472: 486-490, 2011.

10. Popmihajlov Z., **Santori F.R.**, Gebreselassie, D., Sandler, A.D., Vukmanovic, S. Effective adoptive therapy of tap-deficient lymphoma using diverse high avidity alloreactive T cells. *Cancer Immunol Immunother.* 59(4):629-33, 2010. doi: 10.1007/s00262-009-0805-5.

11. Voo, K.S., Wang, Y.H., **Santori, F.R.**, Boggiano, C., Arima, K., Bover, L., Hanabuchi, S., Khalili, J., Marinova, E., Zheng, B., Littman, D.R., Liu, Y.J. Identification of IL-17-producing FOXP3+ regulatory T cells in humans. *Proc. Nat. Acad. Sci. USA.* 106:4793-8, 2009.

12. Stojakovic, M., Salazar-Fontana, L.I., Tatari-Calderone, Z., Badovinac, V.P., **Santori, F.R.**, Kovalovsky, D., Sant'Angelo, D., Harty, J.T. & Vukmanovic, S. Adaptable TCR avidity thresholds for negative selection. *J. Immunol*., 181:6770-8, 2008.

13. **Santori, F.R.**, Popmihajlov, Z., Nesic, D., Smith, C., Vollmer, A. & Vukmanovic, S. TCR beta chain that forms peptide-independent alloreactive TCR transfers reduced reactivity with irrelevant peptide/MHC complex *J. Immunol*., 178(10):6109-14, 2007.

14. Vukmanovic S. & **Santori, F.R.** Self-peptide/MHC and TCR antagonism: physiological role and therapeutic potential. *Cell Immunol*., 233(2):75-84, 2005.

15. Demaria, S., **Santori, F.R.**, Ng, B., Liebes, L., Formenti, S.C., & Vukmanovic, S. Select forms of tumor cell apoptosis induce dendritic cell maturation. *J. Leukoc. Biol.*, 77(3): 361-8, 2005.

16. **Santori, F.R.** & Vukmanovic S. Delineation of signals required for thymocyte positive selection. *J.Immunol*., 173(9): 5517-23, 2004a.

17. **Santori, F.R.**, Holmberg, K., Ostrov, D., Gascoigne, N.R.J.& Vukmanovic, S. Distinct footprints of TCR engagement with highly homologous ligands. *J. Immunol*., 172(12): 7466-7475, 2004b.

18. Dong ,Y., Demaria, S., Sun, X., **Santori, F.R.**, Jesdale, B.M., De Groot, A.S., Rom, W.N., & Bushkin, Y. HLA-A2-restricted CD8+ cytotoxic T-cell responses to novel *Mycobacterium tuberculosis* targets superoxide dismutase, alanine dehydrogenase and glutamine synthetase. *Infect. Immun*., 72(4): 2412-2415, 2004.

19. Vukmanović S, **Santori FR**. Cooperation or sabotage? Self-peptide-MHC complexes influence T-cell responses to antigens.*Trends Immunol*., 24(9):472, 2003.

20. Chen, Y., Dabovic, B., Colarossi, C., **Santori, F.R.**, Lilic, M., Vukmanovic, S. & Rifkin, D.B. Growth retardation as well as spleen and thymus involution in latent TGF-β binding protein (Ltbp)-3 null mice. *J. Cell Physiol*., 196(2): 319-25, 2003.

21. Vukmanovic, S. Neubert, T.A. & **Santori, F.R.** Could T cell receptor antagonism explain associations between Major Histocompatibility Complex genes and disease? *Trends Mol. Med.* 9(4): 139-46, 2003.

22. **Santori, F.R.**, Brown, S.M., Vukmanovic, S. Genomics- based identification of self-ligands with T cell receptor-specific biological activity. *Immunol. Rev*.; 190: 146-160, 2002a.

23. Lilic M., **Santori, F.R.**, Nielson, E.G., Frey, A.B., Vukmanovic, S. The role of fibroblasts in positive selection of T cells. *J. Immunol*., 169(9):4945-50, 2002.

24. Santori F.R., Kieper W., Brown S., Lu Y., Neubert T., Johnson K., Naylor S., Vukmanovic S., Hogquist K., Jameson S. Rare, structurally homologous self-peptides promote thymocyte positive selection. *Immunity*, 17(2):131-142, 2002b.

25. Santori, F.R., Arsov, I., Lilic, M. & Vukmanovic, S. Editing autoreactive TCR enables efficient positive selection. *J. Immunol*.; 169(4):1729-34, 2002c.

26. Nesic, D., Maric, M., **Santori, F.R.** & Vukmanovic, S. Factors influencing the patterns of T lymphocyte allorecognition. *Transplantation*; 73(5):797-803, 2002.

27. Santori, F.R., Brown, S., Lu, Y., Neubert, T. & Vukmanovic, S. Positive selection induced by a self peptide with TCR antagonist activity. *(Cutting Edge)* *J. Immunol.*; 167(11):6092-5, 2001a.

28. Vukmanovic, S., Lilic, M., **Santori, F.R.**, Demaria, S. & Kulig, K. Peptide loading of nascent MHC class I molecules. *Arch. Immunol. Ther. Exp (Warsz)*; 49(3):195-201, 2001.

29. Santori, F.R., Arsov, I. & Vukmanovic, S. Modulation of $CD8^+$ T cell response to antigen by levels of self MHC class I. *J. Immunol*.; 166(9):5416-21, 2001b.

30. Nesic, D., **Santori, F.R.** & Vukmanovic, S. αβTCR+ cells are a minimal fraction of peripheral CD8+ pool in MHC Class I-deficient mice. *J. Immunol.*, 165(4): 1896-1901, 2000.

31. Santori, F.R., Dorta, M.L., Juliano, L., Juliano, M.A, da Silveira, J.F., Ruiz, R.C. & Yoshida, N. Identification of a domain of *Trypanosoma cruzi* metacyclic trypomastigote surface molecule gp82 required for attachment and invasion of mammalian cells. *Mol. Biochem. Parasitol.*, 78(1-2): 209-216, 1996.

32. Santori, F.R., Paranhos-Bacalla, G.S., Franco da Silveira, J., Yamauchi, L.M., Araya, J.E. & Yoshida, N. A recombinant protein based on *Trypanosoma cruzi* metacyclic trypomastigote 82 kDa antigen that induces an effective immune response to acute infection. *Infect. Immun*. 64(4): 1093-1099, 1996.

Patents: Vukmanovic, S., Santori, F.R., Popmihajlov, Z. T cell receptors with enhanced sensitivity recognition of antigen. Application number 20060127377, 2006.

Membership in Academic Societies: American Association of Immunologists (AAI FASEB).

Trainees & Students:

Post-docs:

2018-2019	Ting Wang, MD., Ph.D. Yale University, currently researcher at Tianjin Medical University, China.
2019-2021	Jing Lian Tao, M.D., Ph.D. Co-mentored with Dr. Natalia B. Ivanova, Center for Molecular Medicine. University of Georgia, currently completing her post-doc.

Ph.D. Students:

2020-	Dong Eun Seo. Co-mentored with Dr. Natalia B. Ivanova, Center for Molecular Medicine. Ph.D. student University of Georgia, Department of Biochemistry and Molecular Biology.
2020-	Benjamin Jackson. Co-mentored with Dr. Natalia B. Ivanova, Center for Molecular Medicine. Ph.D. student University of Georgia, Department of Genetics.
2017-2018	Ruveyda Ayasun. Co-mentored with Dr. Susan M. Kaech, Department of Immunobiology,

Yale University. Currently starting a post-doc at New York University.

Rotation and visiting students:

2006-2006 Alice Lepelley. Co-mentored with Dr. Dan R. Littman. Visiting student NYU Skirball Institute. Currently in the Imagine Institute for Genetic diseases. Paris, France.

Mentoring Philosophy

My main aim is to form scientists by fostering their natural curiosity and promote a desire to search for answers to scientific problems. To do this, I believe that the students need to understand how the question they are trying to answer fits and will affect the field they are working. Students under my supervision are encouraged to read the literature, understand the history of their field, and develop independent and critical thinking. They are also encouraged to be as independent as possible in developing and designing their own experiments. My role as mentor is to discuss their own plan before they perform experiments and if necessary, give advice and suggestions. I have an open-door policy where students can come anytime if they have questions on their research.

Finally, students are encouraged to write reviews in their fields and participate in scientific manuscripts other then their own projects by performing experiments and generating publication quality figures. This improves their CVs, fosters intra-lab collaborations, and gives a taste for what can be achieved by their work. I use my extensive collaborations to help students interact with other labs, inside or outside UGA, to help them solve problems they could not solve by intra-lab collaborations. Finally, they also participate in grant writing and preliminary data generation.

References:

Susan M. Kaech, Ph.D.
Department of Immunobiology
The Anlyan Center
300 Cedar Street, Ste S640
New Haven, CT 06519 USA
Phone: +1 (203) 737-2423
FAX: +1 (203) 785-4263
E-mail: susan.kaech@yale.edu

Dan R. Littman, Ph.D., M.D.
Helen L. and Martin S. Kimmel Professor of Molecular Immunology
Molecular Pathogenesis Program
Skirball Institute of Biomolecular Medicine
Skirball 2-17
540 First Avenue
New York NY 10016
Phone: +1 (212) 263-7520
Fax: +1 (212) 263-5711
E-mail: Dan.Littman@med.nyu.edu

Stanislav Vukmanovic, Ph.D., M.D.
Food and Drug Administration (FDA)
4300 River Road Room 1042
College Park, MD 20740
Phone: +1 (240) 402-2829
E-mail: stanislav.vukmanovic@fda.hhs.gov

Fraydoon Rastinejad, Ph.D.
Nuffield Department of Medicine
University of Oxford, OX3 7FZ, UK
Phone: +44 0 1865 612885
E-mail: fraydoon.rastinejad@ndm.ox.ac.uk

Research Interests

Keywords: Biochemistry, Immunology, lymphoid tissues, T cells and nuclear hormone receptors.

My long-term goal is to understand how nuclear hormone receptors (NHR) regulate organ development and function. Nuclear hormone receptors (NHRs) are an important family of transcription factors that connect metabolism and diet to gene transcription. There are 48 NHRs in the human genome, 12 are classic receptors for hormones like steroid and thyroid hormones or vitamin A. Since NHRs are regulated by small molecules, they are excellent targets for drug development - 10% of all known drugs, indeed, target NHRs. However, 19 NHRs are still orphan with no known ligand. My goal is (1) to identify ligands for orphan NHRs using biochemical and structural approaches, (2) to define how the ligand induced NHR genetic program affects various aspects of cellular differentiation and physiology and (3) apply this basic knowledge to develop innovative treatments for relevant diseases. Currently my efforts are focused on three orphan NHRs - NR2F1/2 that drive the development of lymphatic and venous endothelium, as well as cardiomyocyte differentiation (collaboration with the Ivanova lab, UGA); NR2E1, that is required for neural and glioma stem cell maintenance (collaboration with the Ivanova lab, UGA); and NR4A1, a receptor that plays a key role in T cell mediated immunity (collaboration with Susan M. Kaech, Salk Institute). The identification of ligands and metabolic pathways that regulate NR2F1/2 activity could lead to drugs that modulate venous and lymphatic endothelium development as well as better protocols for the differentiation of cardiomyocytes “in vitro” while identification of ligands for NR2E1 may result in therapies for brain tumors and neurodegenerative diseases. Identification of ligand biosynthetic pathways for NR4A1 will lead to the generation of improved tumor infiltrating lymphocytes and CAR T cells for cancer therapy.

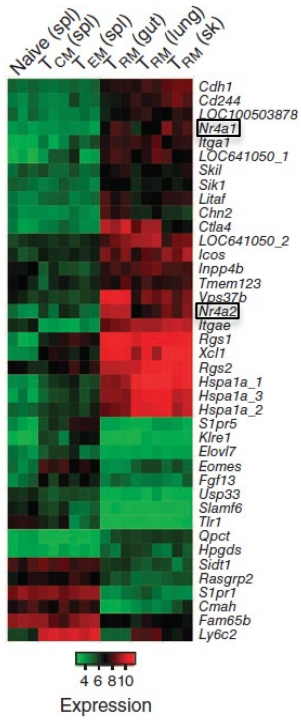


Figure 1. NR4s are part of the core transcriptional signature of CD8+ T_{RM} cells. Heatmap comparing the gene expression profiles of CD8+ T_{RM} cells derived from gut, lung and skin with naïve CD8+ T cells and CD8+ T_{EM} and T_{CM} from spleen. From [8].

In the past 5 years I focused on three main areas: The first was the discovery of natural ligands for orphan NHRs using a combination of enzyme overexpression and metabolite screens to identify pathways required for ligand synthesis. This was coupled to analysis of metabolites bound to NHR ligand binding domains isolated from cells. Second, we focused on the genetic manipulation of NHR and ligand biosynthetic pathways in cells to define the effects that these mutations have on cell differentiation and function. We also started to define animal models to track NHR transcriptional activity “in vivo” using reporters that measure the endogenous activity of NHRs. There are many orphan NHRs with important immune functions, for example, NR2F2 (COUP-TFII) that is essential for the differentiation of the lymphatic endothelium[1], NR5A1 which is required for spleen development in humans and mice[2,3], NR2F6 (EAR2) that acts as a suppressor of Th17 cell function[4] and RORγt transcriptional activity[5], NR3B1 (ESRRA) which is essential for the development of effector and memory T cells[6] and the NR4A family (NUR77, NURR1, NOR1) which are important suppressors of Th1, Th2 cell and Treg differentiation[7]. Finally, mouse CD8+ Tissue resident memory T cells (T_{RMs}) share a gene expression signature[8] that contains the orphan NHRs NR4A1 (NUR77) and NR4A2 (NURR1) (Figure 1). The ligands for NR4A1 and NR4A2 are unknown, forming a gap in our understanding of the function of these receptors in T_{RM} cell biology. We have not limited ourselves only to NHRs related to immune tissue function and development. Recently we have started a project on the identification of ligands for NR2E1, a receptor required for neural stem cell maintenance in adult mouse brains[9,10].

So far, we have identified ligands for RORγ and RORα, NR2F1 and NR2F2 and have mapped the metabolic pathways that regulate NR2E1, NR2F6 and ESRRA as well as developed reporters and cell lines to identify ligands for the members of the NR4 family of NHRs.

Program 1: To discover natural ligands for orphan nuclear hormone receptors

The natural ligands for orphan NHRs are unknown. This limits our ability to understand how endogenous metabolism, hormones or dietary factors affect the physiology of these receptors and consequently of the immune response. This is an important question not only for immunology but also cell biology, cancer, metabolism, and endocrine regulation.

One model system to study the effect of NHRs on lymphoid tissue development are Lti cells. RORγt+ Lti and Lti-like cells drive the development of lymph nodes in the fetus[11,12] and gut associated lymphoid tissues in adult mice[13]. These cells, now called ILC3s, develop from a CXCR6+ common lymphoid progenitor (CLP)[14] and their development is regulated by two NHRs: RAR, retinoic acid receptor[15] (a study I collaborated to) and RORγt, the last one being essential for the terminal differentiation of Lti and Lti-like cells[11-13]. Five years ago, I found that sterol lipids are necessary and sufficient to promote the transcriptional activity of RORγt and that in mammalian cells RORγt is modulated by a small subset of cholesterol biosynthetic intermediates (CBIs) (Santori et al 2015). These CBIs where identified using sophisticated lipid isolation and mass spectrometry protocols as well as chemical synthesis and/or isolation of the target CBIs. These share the same basic backbone structure of cholesterol and related compounds. Some sterols seem to exert a positive regulatory activity on RORγt, while others act as inverse agonists for the receptor. Importantly, I have shown that using genetic tools it is feasible to map the specific branch within the cholesterol biosynthetic pathway that is required for RORγt ligand synthesis. Furthermore, genetic manipulation of the enzymes involved in ligand biosynthesis affected the development of both Lti cells and lymph node development as well as the development of Th17 cells, all are RORγt dependent.

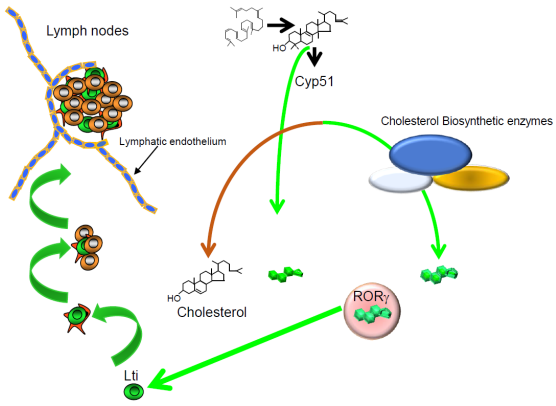


Figure 2. Interplay of RORγt, cholesterol biosynthesis and lymph node Development. The transcriptional activity of RORγt is dependent on cholesterol biosynthetic intermediates, suggesting that cholesterol biosynthesis regulates the function of RORγt dependent lineages like Lti cells that drive the development of lymph nodes by stimulating stromal cells that then produce chemokines to recruit other hematopoietic cells to promote the expansion of the lymph node anlagen.

My plan is to extend the methodology used to identify ligands for RORγt to other NHRs that have immune functions. Analysis using luciferase reporters driven by NHR specific promoters suggest that many of these receptors recognize cellular metabolites instead of exogenous vitamins and hormones (Santori, F.R. unpublished data). The question is: How is the genetic program of nuclear hormone receptors integrated to cellular metabolism and organelle organization? A gene like RORγt can regulate the expression of hundreds of genes required for the differentiation of naïve CD4+ T cells into Th17 cells[16]. RORγt recognizes a small number of cholesterol biosynthetic intermediates, suggesting that coordination of the RORγt genetic program by the cholesterol biosynthetic pathway is required for the differentiation of naïve CD4+ T cells into CD4+ Th17 cells and CXCR6+ CLPs into Lti cells[17]. In figure 2 a schematic of this concept is shown for Lti cells and lymph node development.

To achieve my long-term goal, I needed to identify ligands for other orphan nuclear hormone receptors. The identification of such ligands is challenging and to address this question I developed luciferase reporters to test for nuclear hormone receptor activities in cell lines that are well characterized for their gene and protein expression patterns. These cell lines were used for overexpression screens by transfection with cDNAs of 516 metabolic enzymes. The fine identification of ligands was further pursued by testing NHR reporter activity with metabolites from the pathways identified in the enzyme overexpression screen. Using this approach, I have now identified 1-deoxysphingosines, a product of the sphingolipid metabolic pathway, as ligands for the orphan nuclear hormone receptors NR2F1 and NR2F2 (Wang, T et al, under review). NR2F1 and NR2F2 have redundant function in eye development in mice[18]. However, these receptors also have non-redundant functions. NR2F1 regulates the development of oligodendrocytes[19], formation of glossopharyngeal cranial nerves IX, axon guidance and arborization in the peripheral nervous system[20]. Haploinsufficiency of NR2F1 is the cause of Bosch-Boonstra-Schaaf optic atrophy syndrome in humans[21]. In contrast, NR2F2 is required for heart development in both mice[22] and humans[23], formation of GABAergic interneurons in the mouse brain [24] and the development of venous[25] and lymphatic endothelium[1,26]. The identification of metabolic pathways that drive NR2F1 and NR2F2 transcriptional activity has allowed us to investigate the role of sphingolipid biosynthesis in development of lymphatic endothelium, blood vessels and cardiomyocytes derived from human embryonic stem cells. Currently, we have completed enzyme overexpression screens for other orphan nuclear hormone receptors NR2F6 and NR2E1 and started to map pathways involved in NR4A1 transcriptional activity.

We developed a system to produce large amounts of flag-tagged ligand binding domains (LBD) of nuclear hormone receptors for immunoprecipitation studies. Previously, we immunoprecipitated RORγ/γt ligand binding domain (LBD) from mammalian cells and isolated protein bound lipids for analysis using high accuracy mass spectrometry[17]. A basic scheme of this procedure is presented in Figure 3. I have generated stable HEK-293FT cell lines expressing 2xFlag-NHR-LBD of interest and 2xFlag-RAR-LBD. We run 4-5 for each comparative group: 1- empty vector; 2- 2xFlag-NHR-LBD; 3- 2xFlag-RAR-LBD. The last is the retinoic acid receptor that functions as a positive control. The retinoic acid receptor binds all-trans retinoic acid (ATRA) with high affinity[27] and ATRA is not produced by mammalian cells and has to be added to media to activate the receptor[27]. This is used to calibrate and define the minimum concentration of 2xFlag-RAR-LBD required to detect an enrichment of ATRA specific signal in the RAR cell line when compared to ATRA added to empty vector control. The 2xFlag-LBDs are extracted and immunoprecipitated with anti-Flag beads. The lipids bound to the NHR-LBD are extracted using organic solvent and dried under nitrogen. The samples are processed simultaneously for high accuracy LC-MS and data are analyzed using the XCMS package[28] to identify peaks common to the experimental group but absent from control groups.

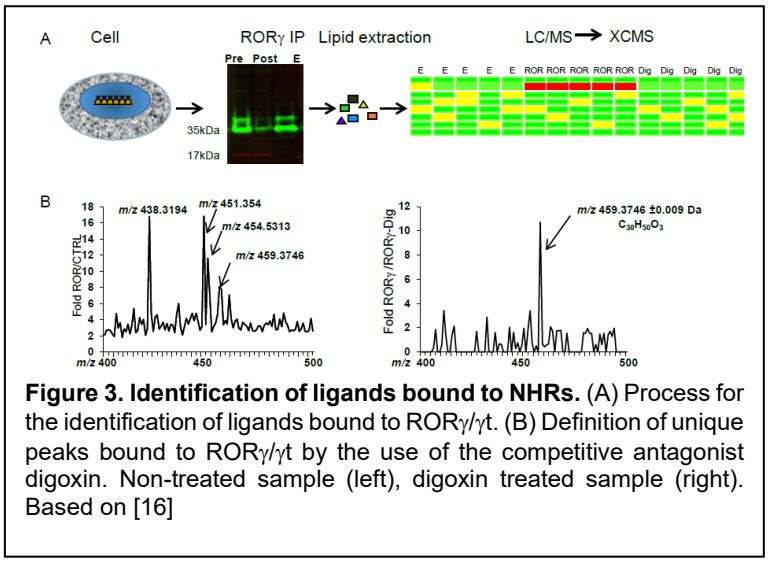


Figure 3. Identification of ligands bound to NHRs. (A) Process for the identification of ligands bound to RORγ/γt. (B) Definition of unique peaks bound to RORγ/γt by the use of the competitive antagonist digoxin. Non-treated sample (left), digoxin treated sample (right). Based on [16]

Further confirmations of ligand binding to receptor are required and we use surface plasmon resonance, recruitment assays for fluorescently labelled coactivator peptides (fluorescence polarization) and thermal denaturation assays. I plan to further investigate the structure of ligand-receptor couples by NMR or X-ray crystallography. These techniques are essential for targeted modification of ligands for drug development.

Program 2- Defining the role played by the genetic program of NHRs and ligand biosynthetic pathways on cellular differentiation and function.

How cellular metabolism regulates cell fate? This is an important question relevant to fields of immunology as well as stem cells and cancer metabolism. NHRs are the transcription factors at the interface between cell metabolism and cell fate. However, we do not understand how the genetic program modulated by an NHR starts a process of cellular remodeling the leads a human iPS or embryonic stem cell to differentiate into a specific cell lineage. To address this question, I developed a strong genetic (single-cell RNAseq and Bulk RNA-seq), microscopy and biochemical suite to study the effects of manipulating the NHR or its ligand biosynthetic pathway in the metabolism and organelle reorganization of cells. This will be achieved by using electron microscopy based cellular tomography as well as super-resolution microscopy to identify changes in the intracellular organization after manipulation of NHR or its ligand biosynthetic pathway. One model system that is in advanced stage resulted from our identification of ligands for NHRs NR2F1 and NR2F2. We have generated human embryonic stem cells that are double deficient in NR2F1 and NR2F2 to study cardiomyocyte differentiation (Figure 4A). The double knockout cells show delayed differentiation into mature cardiomyocyte populations (Figure 4A) and have metabolic defects in lipid biosynthesis (Figure 4B). Inhibition of sphingolipid biosynthesis phenocopies the phenotype of NR2F1 and NR2F2 double knockout cells (Figure 4C). This is reflected in the increased presence of lipid droplets and autophagosomes in these cells (Figure 4B). The process of cardiomyocyte differentiation from human embryonic stem cells is well defined in the use of growth factors required and its temporal order. This will allow us to study in detail the changes that occur in the cellular structure

of these embryonic stem cells while they are differentiating into cardiomyocytes and what roles NR2F1/2 and sphingolipid biosynthesis play in this process. We believe this will be a good model system to study the interface of metabolism, transcription, and cellular differentiation.

Similar procedures can be developed to study the role of these receptors and their ligand metabolic pathways in other cell systems. For example, the role of sphingolipid biosynthesis and NR2F1/2 in venous and lymphatic vessel development. NR2E1 in neural stem cell maintenance or NR4A1 in T cell function. NR4A1 is particularly interesting since it regulates tissue resident memory generation. The regulation of NR4A1 by small molecules could be key to develop better Tumor infiltrating lymphocyte (TIL) and CAR T cell based treatment for cancer.

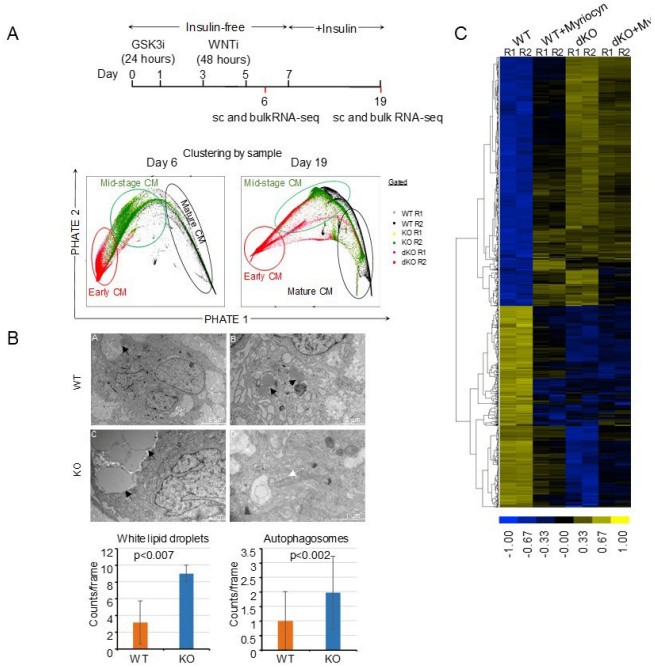


Figure 4. NR2F1/2-ligand interface drive cardiomyocyte differentiation. (A) top: Cardiomyocyte differentiation protocol. Bottom Combined single cell RNA-sequencing data of cardiomyocytes derived from WT, *NR2F2*-KO and *NR2F1/2*-dKO hESCs. Shown are data from day 6 (left) and day 19 (right) of differentiation. (B). Number of lipid droplets and autophagosomes are increased in *NR2F2*-KO day 12 cardiomyocytes. Quantitation below. Shown are representative TEM images. Black arrows-lipid droplets, white arrows-autophagosomes. (C) Heatmap Myriocin modulates NR2F1/2-dependent gene expression in day 6 hESC-derived cardiomyocytes.

Program 3- Developing new reporters to study the function of NHR ligand biosynthetic pathways "*in vitro*" and "in vivo" for physiological studies and drug development.

We are developing a new suite of NHR reporters that use bioluminescent-fluorescent proteins like nanolantern[29] driven by natural NHR promoters. These can be used for two purposes. The first is for genetic screens and test NHR hormone activity in cells in vitro. The second is the development of reporter system to track NHR activity in vivo. Currently we are designing genetic screens to identify new ligands and partners for NR2F1 and NR2F2 in venous and lymphatic endothelial cells. We are testing a similar process for NR4A1 in human TILs using standard protocols established for TIL expansion from patients. The endothelial cells for NR2F1 and NR2F2 projects or the TILs for the NR4A1 project can be transduced with NHR-specific promoter driving fluorescent-bioluminescent reporter that detects NHR activity in cells. These cells can be transduced with a GeCKO library that targets 19050 human genes[30,31]. We expect that knockout in the NHR ligand pathway will result in loss of NHR fluorescent-bioluminescent reporter activity in the targeted cells. The Reporter low cells will be sorted by FACS and gRNAs that are enriched in this population will be identified by deep sequencing. We will use this information to map the ligand biosynthetic pathway in the KEGG and Reactome databases and generate NHR ligand deficient cell clones for biochemical and microscopy studies. These clones can be used for rescue experiments by re-introduction of the missing metabolite or overexpression of the wild type enzyme that reconstitutes the pathway.

To study the function of NHRs and their ligand biosynthetic pathway in cell lineages will require animal models. That is because not all lineages can be generated "in vitro" from embryonic stem cells and animal models are required to confirm that the processes identified in cells generated "in vitro" are confirmed by experiments "in vivo". For example, lineage specific deletion of NHR ligand biosynthetic pathways may require the introduction of gene specific gRNAs into mice that express CAS9 in a lineage specific fashion. Furthermore, it may require

the introduction of tetracycline (Tet) regulatory elements into promoters of metabolic enzymes, allowing for the external regulation of metabolic enzyme expression by doxycycline. The specificity of such a system can be increased by having transgenic mice that express the tet transactivator (tTA) in lineage specific fashion. We are currently testing a system in which we plan to track the development of CD8+ T_{RMs} in vivo by transducing CD8+ T cells with a retrovirus containing a fluorescent-bioluminescent reporter that is dependent on NR4A1 transcriptional activity. The prediction is that only cells that have a transcriptionally active NR4A1 gene will produce luciferase reporter protein that can be followed either on whole animals using an "in vivo imaging system" (IVIS) or on tissues by FACS and immunofluorescence microscopy[29,32] (Figure 5). Such reporters can be quickly developed for other NHRs and it will be advantageous to produce transgenic mice, or ROSA locus knock in that contain these reporters allowing one to track NHR transcriptional activity on several lineages and tissues simultaneously. Presently, it is important to define the parameters that are required to ensure that such reporters are specific and reflect with fidelity NHR specific transcriptional activity. My plan is to have these reporters crossed to mice that contain floxed alleles for the target NHR. Thus, by cre recombinase expression, one can generate negative controls where reporter expression should be absent or low.

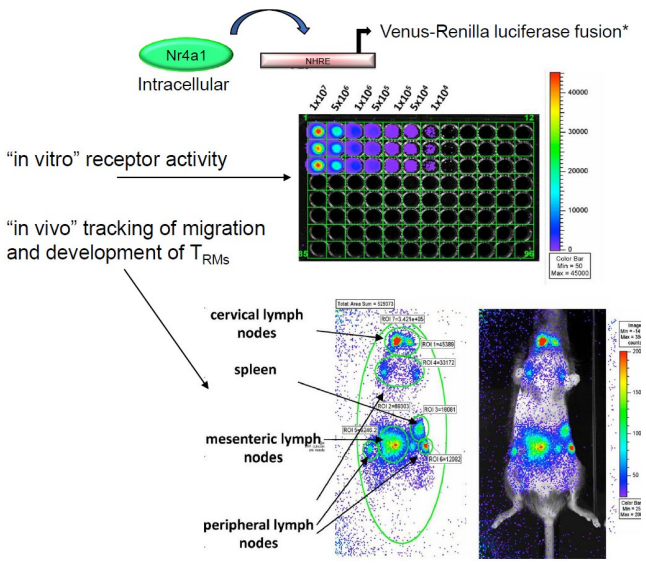


Figure 5. Reporters to measure NR4A1 activity "in vivo". Top. A NR4A1 promoter is used to drive a fluorescent-bioluminescent reporter that allows for the detection of cells with NR4A1 transcriptional activity by either FACS/immunofluorescence or bioluminescence. Bottom. Bioluminescence can be detected by using a Renilla luciferase substrate for detection of luciferase activity in 96 well plates (small cell populations) or "in vivo" by using a IVIS. Based on [24,25]

It is important to point out that NHRs are excellent drug targets and the luciferase reporter systems developed for these studies can be adapted to large scale screening of compounds – natural endogenous metabolites or libraries of synthetic chemicals - with agonist/antagonist activity for orphan nuclear hormone receptors. I will collaborate with groups and companies for the identification of small molecules that target NHRs using my reporter systems. These small molecule inhibitors and agonists could be used to modulate the development and function of several immune and non-immune lineages for therapeutic purposes.

This research plan would bring a special set of skills to the Center for Molecular Medicine at University of Georgia. It is an interdisciplinary project with a very strong focus on biochemistry, genetics, metabolomics and cellular physiology. The identification of ligands for orphan NHRs would add another arsenal of compounds to modulate the immune response towards tumor elimination or inhibition of autoimmune responses as well as for uses in regenerative medicine. My intention is to use my skills to foster collaboration with scientists inside and outside the institution to solve the complex problem of understanding how cells differentiate.

Bibliography:

1 Lin, F. J. *et al.* Direct transcriptional regulation of neuropilin-2 by COUP-TFII modulates multiple steps in murine lymphatic vessel development. *J Clin Invest* **120**, 1694-1707, doi:10.1172/JCI40101 (2010).

2 Morohashi, K. *et al.* Structural and functional abnormalities in the spleen of an mFtz-F1 gene-disrupted mouse. *Blood* **93**, 1586-1594 (1999).

3 Zangen, D. *et al.* Testicular differentiation factor SF-1 is required for human spleen development. *J Clin Invest* **124**, 2071-2075, doi:10.1172/JCI73186 (2014).

4 Hermann-Kleiter, N. *et al.* The nuclear orphan receptor NR2F6 suppresses lymphocyte activation and T helper 17-dependent autoimmunity. *Immunity* **29**, 205-216, doi:10.1016/j.immuni.2008.06.008 (2008).

5 Hermann-Kleiter, N. *et al.* Nuclear orphan receptor NR2F6 directly antagonizes NFAT and RORgammat binding to the Il17a promoter. *J Autoimmun* **39**, 428-440, doi:10.1016/j.jaut.2012.07.007 (2012).

6 Michalek, R. D. *et al.* Estrogen-related receptor-alpha is a metabolic regulator of effector T-cell activation and differentiation. *Proc Natl Acad Sci U S A* **108**, 18348-18353, doi:10.1073/pnas.1108856108 (2011).
7 Sekiya, T. *et al.* Nr4a receptors are essential for thymic regulatory T cell development and immune homeostasis. *Nature immunology* **14**, 230-237, doi:10.1038/ni.2520 (2013).
8 Mackay, L. K. *et al.* The developmental pathway for CD103(+)CD8+ tissue-resident memory T cells of skin. *Nature immunology* **14**, 1294-1301, doi:10.1038/ni.2744 (2013).
9 Zhang, C. L., Zou, Y., He, W., Gage, F. H. & Evans, R. M. A role for adult TLX-positive neural stem cells in learning and behaviour. *Nature* **451**, 1004-1007, doi:10.1038/nature06562 (2008).
10 Shi, Y. *et al.* Expression and function of orphan nuclear receptor TLX in adult neural stem cells. *Nature* **427**, 78-83, doi:10.1038/nature02211 (2004).
11 Sun, Z. *et al.* Requirement for RORgamma in thymocyte survival and lymphoid organ development. *Science* **288**, 2369-2373 (2000).
12 Kurebayashi, S. *et al.* Retinoid-related orphan receptor gamma (RORgamma) is essential for lymphoid organogenesis and controls apoptosis during thymopoiesis. *Proc Natl Acad Sci U S A* **97**, 10132-10137 (2000).
13 Eberl, G. & Littman, D. R. Thymic origin of intestinal alphabeta T cells revealed by fate mapping of RORgammat+ cells. *Science* **305**, 248-251, doi:10.1126/science.1096472 (2004).
14 Possot, C. *et al.* Notch signaling is necessary for adult, but not fetal, development of RORgammat(+) innate lymphoid cells. *Nature immunology* **12**, 949-958, doi:10.1038/ni.2105 (2011).
15 van de Pavert, S. A. *et al.* Maternal retinoids control type 3 innate lymphoid cells and set the offspring immunity. *Nature* **508**, 123-127, doi:10.1038/nature13158 (2014).
16 Ciofani, M. *et al.* A validated regulatory network for Th17 cell specification. *Cell* **151**, 289-303, doi:10.1016/j.cell.2012.09.016 (2012).
17 Santori, F. R. *et al.* Identification of Natural RORgamma Ligands that Regulate the Development of Lymphoid Cells. *Cell Metab* **21**, 286-297, doi:10.1016/j.cmet.2015.01.004 (2015).
18 Tang, K. *et al.* COUP-TFs regulate eye development by controlling factors essential for optic vesicle morphogenesis. *Development* **137**, 725-734, doi:10.1242/dev.040568 (2010).
19 Yamaguchi, H. *et al.* The nuclear orphan receptor COUP-TFI is important for differentiation of oligodendrocytes. *Dev Biol* **266**, 238-251 (2004).
20 Qiu, Y. *et al.* Null mutation of mCOUP-TFI results in defects in morphogenesis of the glossopharyngeal ganglion, axonal projection, and arborization. *Genes Dev* **11**, 1925-1937 (1997).
21 Bosch, D. G. *et al.* NR2F1 mutations cause optic atrophy with intellectual disability. *Am J Hum Genet* **94**, 303-309, doi:10.1016/j.ajhg.2014.01.002 (2014).
22 Pereira, F. A., Qiu, Y., Zhou, G., Tsai, M. J. & Tsai, S. Y. The orphan nuclear receptor COUP-TFII is required for angiogenesis and heart development. *Genes Dev* **13**, 1037-1049 (1999).
23 Al Turki, S. *et al.* Rare variants in NR2F2 cause congenital heart defects in humans. *Am J Hum Genet* **94**, 574-585, doi:10.1016/j.ajhg.2014.03.007 (2014).
24 Kanatani, S. *et al.* The COUP-TFII/Neuropilin-2 is a molecular switch steering diencephalon-derived GABAergic neurons in the developing mouse brain. *Proc Natl Acad Sci U S A* **112**, E4985-4994, doi:10.1073/pnas.1420701112 (2015).
25 You, L. R. *et al.* Suppression of Notch signalling by the COUP-TFII transcription factor regulates vein identity. *Nature* **435**, 98-104, doi:10.1038/nature03511 (2005).
26 Srinivasan, R. S. *et al.* Lineage tracing demonstrates the venous origin of the mammalian lymphatic vasculature. *Genes Dev* **21**, 2422-2432, doi:10.1101/gad.1588407 (2007).
27 Petkovich, M., Brand, N. J., Krust, A. & Chambon, P. A human retinoic acid receptor which belongs to the family of nuclear receptors. *Nature* **330**, 444-450, doi:10.1038/330444a0 (1987).
28 Smith, C. A., Want, E. J., O'Maille, G., Abagyan, R. & Siuzdak, G. XCMS: processing mass spectrometry data for metabolite profiling using nonlinear peak alignment, matching, and identification. *Anal Chem* **78**, 779-787, doi:10.1021/ac051437y (2006).
29 Saito, K. *et al.* Luminescent proteins for high-speed single-cell and whole-body imaging. *Nat Commun* **3**, 1262, doi:10.1038/ncomms2248 (2012).

30 Sanjana, N. E., Shalem, O. & Zhang, F. Improved vectors and genome-wide libraries for CRISPR screening. *Nat Methods* **11**, 783-784, doi:10.1038/nmeth.3047 (2014).
31 Shalem, O. *et al.* Genome-scale CRISPR-Cas9 knockout screening in human cells. *Science* **343**, 84-87, doi:10.1126/science.1247005 (2014).
32 Chewning, J. H., Dugger, K. J., Chaudhuri, T. R., Zinn, K. R. & Weaver, C. T. Bioluminescence-based visualization of CD4 T cell dynamics using a T lineage-specific luciferase transgenic model. *BMC Immunol* **10**, 44, doi:10.1186/1471-2172-10-44 (2009).

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Stice, Steven L

eRA COMMONS USER NAME (credential, e.g., agency login): SLSTICE

POSITION TITLE: D.W. Brooks Distinguished Professor; Director of Regenerative Bioscience Center

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Illinois, Champaign, Il	BS	05/1983	Ag Science
Iowa State University, Ames, IA	MS	05/1986	Animal Reproduction
University of Massachusetts, Amherst, MA	PhD	05/1989	Developmental Biology

A. Personal Statement

I know that our greatest strengths come from the people who make up your team. As Director of the Regenerative Bioscience Center (RBC), University of Georgia, I am passionately committed to the values of diversity, equity, and inclusion and most of all, opening the door for others. Because of these efforts, I have been recognized over the years for mentoring and teaching including being named for outstanding service to UGA's Young scholars program in 2001, awarded the Excellence in Undergraduate Research Mentoring Early Career Faculty Award in 2007, and the honor of the 2013 D.W. Brooks Award Recipient for Distinguished Professor of Excellence in Teaching. In 2017, I received the Georgia Bio Industry Growth Award, and was recognized for my longstanding commitment to growing the life science industry in Georgia as well as the advancement of regenerative medicine research and commercialization in the state.

Our Regenerative Bioscience Center is closely aligned with the Center for Undergraduate Research Opportunities (CURO), my research center trains between 4-6 CURO undergraduates a semester. Many of these students have gone on to graduate education at Yale, Duke, Columbia and John Hopkins. More than 75 undergraduates, graduates and post-docs alone, have worked under my direction in the Stice lab. Mentoring our RBC students, and the commitment we carry as a student-centered learning environment has even carried over to our students receiving awards; including UGA's Outstanding Teaching Award, UGA's Outstanding Teaching Assistant Award, and the E. Broadus Browne Research Award. All awarded during the 2016 commencement, which was given by a RBC research fellow undergraduate.

The RBC has helped produce Goldwater Scholarship winners, as well as Gates and Udall winners, and several prestigious nominees. In 2016 alone, two nominees; one Goldwater and one Truman nominee and one Goldwater recipient — were RBC fellows. (Muktha Sundar Natrajan 2009, Michael Burel 2011, Karishma Sriram 2014, Catherine Callaway 2016) In 2019, RBC fellows Anita Qualls was named UGA's first Churchill Scholar.

Working collaboratively across every corner of Georgia, I have dedicated my efforts to influence an outstanding academic environment aligned with workforce needs that positively impacts students and faculty for the benefit of our community. I am currently in charge of a neural circuit's research project for a $50 million NSF Science and Technology Center (STC) grant along with MIT, Univ. of Illinois and Georgia Tech. Furthermore, I am the University of Georgia's lead co-PI on a funded $50 million multi-institutional NSF engineering research center focused on cell manufacturing (CMaT). In 2014 I was appointed Co-director of the Regenerative Engineering

and Medicine (REM), a joint research collaboration between UGA, Emory University and Georgia Tech. I am also the chief scientific officer of ArunA Bio, serving in a role in which I dedicate approximately one third of my time to move our discoveries into clinical practice. As PI on a prior ArunA Biomedical STTR we developed the first human embryonic stem cell product, a neural stem cell line marketed by Millipore in 2005. I serve as a co-investigator on several ArunA led EPA and NIH grants helping ArunA raise $10 million for clinical advances.

I have served on multiple editorial boards, NIH and international review panels and collaborative networks, and have published more than 250 peer-reviewed articles, book chapters and commentaries. To date, I have hired and facilitated the promotion and tenure of every RBC junior faculty hired, seven total, including two women of Asian descent.

In demonstrating my long-standing commitment for advancing diversity and inclusion in research, I co-coordinated efforts that earned the RBC its designation for diversity by winning the first team 2018 College of Agricultural and Environmental Sciences Excellence in Diversity award.

The following grants represent projects in which trainees would engage in academic lab and the RBC and reflect my mentoring experience:

EEC-1648035 Stice (PI) 10/01/2017-9/30/2022
NSF ERC: “NSF Engineering Research Center for Cell Manufacturing Technologies (CMaT)”

R43 NS103596 Webb (PI) 10/01/2017-09/30/2023
NIH: “Human Neural Cell Exosomes as a Therapeutic Treatment for Stroke.”
Role: Co-I

CBET 0939511 Kamm (PI) 09/15/2010-08/31/2020
NSF: “STC: Emergent Behaviors of Integrated Cellular Systems”
Role: Project leader; Co-I

EP-D-13-056 Stice (PI) 12/27/2013-12/28/2018
EPA: “Developmental Toxicity Models”

R43 ES026944 Majumder (PI) 05/01/2016-04/30/2018
NIH: “Cryopreserved Adherent Neural Cell Assay Plates”
Role: Co-I

EP-D-13018 Phase II Majumder (PI) 09/01/2014-08/31/2018
EPA: “Developmental Neurotox Assay Using Scalable Neurons and Astrocytes in High-content Imaging.”
Role: Co-I

EPA- R835551-STAR-F1 Stice (PI) 09/01/2013-08/31/2017
EPA: “Human Neural Stem Cell Metabolomics, Cellular, and Organ Level Adverse Outcome Pathway Relationships for Endocrine Active Compounds.”

R43 ES026944 Majumder (PI) 05/01/2016-04/30/2017
NIH: “Cryopreserved Adherent Neural Cell Assay Plates.”
Role: Co-I

R43 NS080407 Majumder (PI) 09/30/2014-08/31/2016
NIH: “Adhesion Signature Based Label-free Isolation of Stem Cell Derived Neural Cells.”
Role: Co-I

A few publications authored by students, residents, and/or postdoctoral fellows are highlighted below #:

1. **Wu, X.#; Swetenburg, R #**.; **Goodfellow, F.#;** and **Stice, S. L.** (2018). "Modeling human pregnancy-associated developmental neurotoxicity in vitro using pluripotent stem cell-derived neurons and astrocytes." Journal of Pediatrics, 37: 42.
2. **Webb, R. L.,#** Kaiser, E.E., **Jurgielewicz, B.J.,# Spellicy, S.,#** Scoville, S.L., Thompson, T.A & **Stice, S.L.** (2018). Human Neural Stem Cell Extracellular Vesicles Improve Recovery in a Porcine Model of Ischemic Stroke. *Stroke*, 49(5): 1248-1256. PMCID: PMC5916046
3. **Jurgielewicz BJ#**, Yao Y and **Stice SL** (2020). Kinetics and specificity of HEK293T extracellular vesicle uptake using Imaging Flow Cytometry. Nanoscale Research Letters 15 (1):170 (# Co-corresponding author)
4. **Passaro AP#**, **Stice SL**. "Electrophysiological Analysis of Brain Organoids: Current Approaches and Advancements." Frontiers in neuroscience vol. 14 622137. 12 Jan. 2021, doi:10.3389/fnins.2020.622137

B. Positions, Scientific Appointments, and Honors

Positions and Scientific Appointments

2013-present D. W. Brooks Distinguished Professor, University of Georgia, Athens GA
2005-present CSO and co-founder of ArunA Biomedical, Inc.
2004-present Director, Regenerative Bioscience Center, University of Georgia, Athens GA
2001-2013 Professor, University of Georgia, Athens, GA
2000-2001 Co-founder and VP of Research, Cytogenesis Inc., Athens GA
1998-present GRA Eminent Scholar, University of Georgia, Athens, GA
1998-2003 Co-founder and Chief Scientific Officer, ProLinia Inc., Athens, GA
1998-2001 Associate Professor and Senior Research Scientist, University of Georgia, Athens, GA
1997-1998 Chief Scientific Officer, Advanced Cell Technology, Inc., Worcester, MA
1996-1997 Vice President of Research and Development, Advanced Cell Technology, Inc., Amherst, MA
1994-1998 Adjunct Assistant Professor, University of Massachusetts, Amherst, MA
1994-1996 ES Cell Project Leader, Advanced Cell Technology, Inc., Amherst, MA
1993-1994 Manager of Cloning and Stem Cell Research, American Breeders Service, DeForest, WI
1989-1993 Research Scientist, American Breeders Service, DeForest, WI
1988-1989 Research Scientist, TSI Inc., Worcester, MA

Honors, Awards and Government and Professional Service

2017 Industry Growth Award, Georgia Bio
2017 Fellow of the National Academy of Inventors (NAI)
2016-present FDA NCTR Scientific Advisory Board
2010 ad hoc study section reviewer for DEV2
2009- 2013 NIH Roadmap Scientific Advisory Board for Epigenome Mapping
2007-present SBIR/STTR study section *Cell Biology*
2007-2009 NCRR National Primate Center review member
2007-2008 Editorial Board of *Biology of Reproduction*
2006-present Editorial Board of *Experimental Biology and Medicine*
2005-present Editorial board of *Stem Cells*
2005-2008 Seven NIH special emphasis, including stem cell translational and iPSC grants
2005-2007 ad hoc study section reviewer for *Neurogenesi*s and *Cell Fate*
2005 Univ. of Georgia Inventor of the Year
2004 Hoag Award
2004 ad hoc study section reviewer NIH-DEV I
2003-2005 Editorial board of *Domestic Animal Endocrinology*
2003 Guggenheimer Innovation Award
2002-2006 Editorial board of *Journal of Animal Reproduction*
2002 Emtech Bio scientific advisory board
2002 Chairmen of the GRA Applied Genomics Cluster
2001 AAAS stem cell grant reviewer
1999, 2007-08 ad hoc study section reviewer NIH- NCRR
1999 Georgia Research Alliance Eminent Scholar
1998-2006 ad hoc study section reviewer for USDA NRI

Reviewer for; *Nature Methods, Nature Genetics, Nature Communications, Lancet, Stem Cells, and many others*

C. Contributions to Science

1. My academic and industry labs have focused on using neural stem cells to further therapeutics and toxicology in representative stem cell populations. This includes early work on the genetic manipulation of neural stem cells using viral and non-viral factors. We have published one of the first comprehensive studies using mouse and human pluripotent derived neural cells in a drug discovery assay with Pfizer for Amino-3-hydroxyl-5- methyl-4-soxazolepropionate-type Glutamate receptor activity and discovery of AMPA potentiation/cognitive enhancers. We have a comprehensive understanding of the ion channel profiles of these cells. More recently we have used PSC derive cells for metabolomics characterization of endocrine active compounds with an EPA investigator. Finally, we have concentrated on how to implement neural cells into informative high content assays along with EPA investigator Bill Mundy.
   a. Passaro, A.P., Aydin, O., Taher, M., Saif, A., **Stice, S.L.**, (2021). Development of an objective index, neural activity score (NAS), reveals neural network ontogeny and treatment effects on microelectrode arrays. *Scientific Reports* 11 (9110).
   b. Wu, X., Yang, X., Majumder, A., Swetenburg, R., Goodfellow, F., Bartlett, M.G., & **Stice, S.L.** (2017) Astrocytes are protective against chlorpyrifos developmental neurotoxicity in human pluripotent stem cell derived astrocyte-neuron co-cultures. *Toxicol Sci.* 2017 Jun 1;157(2):410-420.
   c. McNeish, J., Roach, M., Hambor, J., Mather, R.J., Weibley, L., Lazzaro, J., Gazard, J., Schwarz, J., Volkmann, R., Machacek, D., **Stice, S.L.**, Zawadzke, L., O'Donnell, C. & Hurst, R. (2010). High-throughput screening in Embryonic Stem Cell-derived Neurons Identifies Potentiators of Amino-3-hydroxyl-5- methyl-4-soxazolepropionate-type Glutamate Receptors. *J. Biol. Chem*, 31 (3):277. PMCID: PMC2878023.
   d. West, F.D., Henderson, W.M., Yu, P., Yang, J.Y., Stice, S.L. & Smith, M.A. (2012). Metabolomic Response of Human Embryonic Stem Cell-derived Germ-like Cells after Exposure to Steroid Hormones. *Toxicol Sci*. 129(1):9-20.

2. I have directed early research on the derivation of human pluripotent stem cells and derivation of neural progenitors from these cells. My laboratories at ArunA Biomedical and UGA have over 14 years of experience with human pluripotent stem cells both hESC and human iPSC. In 2001, we were first in deriving one set of the original human embryonic stem cell lines in collaboration with BresaGen Inc. (BG01, 02 and 03). These lines were placed on the first NIH human ESC registry. My laboratory was one of five NIH sponsored sites for training NIH investigators over a six year period on the propagation, differentiation, and use of hESC.
   a. Mitalipova, M., Calhoun, J., Shin, S. Wininger, D., Shulz, T., Lyons, I., Robins, A., & **Stice, S.L.** (2003). Human Embryonic Stem Cell Lines Derived from Discarded Embryos. *Stem Cells.* 21:521-526.
   b. Mitalipova, M.M., Rao, R.R., Hoyer, D. M., Johnson, J.A., Meisner, L.F., Jones, K.L., Dalton, S., & **Stice, S.L.** (2005). Preserving the Genetic Integrity of Human Embryonic Stem Cells. *Nature Biotech,* 23(1), 9-20.
   c. Shin, S. Mitalipova, M., Noggle, S., Tibbitts, D., Venable, A., Rao, R.R., & **Stice, S.L**. (2006). Long-term Proliferation of Human Embryonic Stem Cell-derived Neuroepithelial Cells using Defined Adherent Culture Conditions. *Stem Cells*, 24:125-38.
   d. Shin, S., Dalton, S. & **Stice S.L.** (2005). Human Motor Neuron Differentiation from Human Embryonic Stem Cells. *Stem Cells and Dev*, 14(3): 266-9.

2. As a scientific researcher, businessman and entrepreneur, I understand what it takes for an initiative like this one, to continue to thrive and grow. Networking is one of the most important requirements of my leadership role. Through the sharing of my personal network, this new group will have access to a larger network of experts with whom we can engage to identify opportunities in leveraging resources and financial revenue. Ensure equity. Marshal information, funding support, and resources from one collaborator to achieve results with another through transparent leadership, strategy and innovation. As stated I'm Co-Director of the Regenerative Engineering and Medicine (REM), a research center focused on endogenous repair or how the body can harness its own potential to heal or regenerate. REM is a joint collaboration between Emory

University and Georgia Tech. I'm also Co-PI of a NSF/ ERC named as CMaT, a highly engaged industry consortium that serves to integrate academic leaders from partner institutions, and establish a world class infrastructure that is unparalleled in resources and technical expertise. Beyond developing technologies to help make these life-saving cell therapies broadly available and affordable, the initiative will also help train the specialized workforce needed to manufacture these therapies at large scale. Closely related publications from REM and CMaT students and junior faculty#:

a. **Ty S. Maughon#**, Xunan Shen, Danning Huang, Adeola O Adebayo Michael, William A. Shockey, **Seth H. Andrews**#, Jon M. McRae III, Manu O Platt, Facundo M. Fernández, Arthur S. Edison, **Steven L. Stice**, **Ross A. Marklein.**# Multi-omics characterization of mesenchymal stem/stromal cells for the identification of putative critical quality attributes. bioRxiv 2021.05.10.440010.
b. **Maughon, T. S.,#** Shen, X., Edison, A., **Stice, S.,** & **Marklein, R#**. (2022, May). Non-destructive, Dynamic Profiling Reveals Metabolites That Predict Mesenchymal Stromal Cell Immunosuppression in Cytotherapy. (Vol. 24, No. 5, pp. S46-S47). The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1GB, Oxon, England: Elsevier SCI LTD.
c. **Baker EW#,** Platt SR, Lau VW, Grace HE, Holmes SP, Wang L, Duberstein KJ, Howerth EW, **Kinder HA#, Stice SL,** Hess DC, Mao H, **West FD.#** Induced Pluripotent Stem Cell-Derived Neural Stem Cell Therapy Enhances Recovery in an Ischemic Stroke Pig Model. Sci Rep. 2017 Aug 30;7(1):10075. doi: 10.1038/s41598-017-10406-x. PMID: 28855627; PMCID: PMC5577218.
d. **Rajapaksha, P**#.; **Venkatesan, N.#; Wang, Z.#; Tehrani, K.F**#.; Payne, J.; **Swetenburg, R.L#.;** Kawabata, F.; Tabata, S.; **Mortensen, L.J.**;# **Stice, S.L.;** Beckstead, R.; **Liu, H#.** Labeling and analysis of chicken taste buds using molecular markers in oral epithelial sheets. Scientific Reports, 2016, 6, 37247.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/sites/myncbi/steven.stice.1/bibliography/41162841/public/?sort=date&direction=descending

CURRICULUM VITA

August 2022

NAME: Tianming Liu

ADDRESS: Department of Computer Science and Bioimaging Research Center
University of Georgia
Boyd GSRC 420
Athens, GA 30602
Phone: 706-542-3478
Email: tliu@cs.uga.edu
Personal web: http://www.cs.uga.edu/~tliu/

EDUCATION:

B.A. (Automation)	Northwestern Polytechnic University	1994-1998
M.S. (Automation)	Northwestern Polytechnic University	1998-1999
Ph.D. (Computer Science)	Shanghai Jiao Tong University	1999-2002

RESEARCH INTERESTS:

Primary Research Interests: Brain Imaging, Computational Neuroscience, and Brain-inspired Artificial Intelligence.

Other Research Interests (with sporadic publications): Biomedical Imaging, Neuroimaging, Imaging Informatics, Healthcare Informatics, Bioinformatics, Neuroscience, Computational Neuroscience, Brain Disorders, Neuroinformatics, Cancer, Cardiovascular Diseases, Image Processing, Computer Vision, Multimedia, Natural Language Processing, Blockchain, Cognitive Computing, Brain-Computer Interface, Multiscale Modeling, Human-Computer Interaction, Machine Learning, Deep Reinforcement Learning, Data Science, Knowledge Graph, and Artificial Intelligence.

POSITIONS:

04/2017 -	Distinguished Research Professor, The University of Georgia.
08/2015 -	Professor, Department of Computer Science, The University of Georgia
08/2013 – 07/2015	Associate Professor (with tenure), Primary: Department of Computer Science, The University of Georgia. Affiliated faculty member: Bioimaging Research Center; Institute of Bioinformatics; Biomedical and Health Sciences Institute; College of Engineering; The University of Georgia
08/2008 – 07/2013	Assistant Professor (tenure track), Primary: Department of Computer Science, The University of Georgia. Affiliated faculty member: Bioimaging Research Center; Institute of Bioinformatics; Biomedical and Health Sciences Institute; Faculty of Engineering; The University of Georgia
07/2007 – 08/2008	Assistant Professor of Computer Science in Radiology, Weill Medical College, Cornell University. Research Scientist, Methodist Hospital Research Institute.

08/2005 – 06/2007	Instructor of Radiology, Harvard Medical School, Harvard University
10/2004 – 08/2005	Research Fellow in Radiology, Brigham and Women's Hospital and Harvard Medical School, Harvard University
09/2002 – 10/2004	Postdoctoral Researcher, School of Medicine, University of Pennsylvania
11/2000 – 06/2002	Visiting Student, Media Computing Group, Microsoft Research Asia

HONORS & AWARDS:

General Chair, MICCAI 2019
Fellow, American Institute of Medical and Biological Engineering, 2018
NSF CAREER Award, 2012-2017
NIH Career Award, 2007-2012
UGA Creative Research Medal 2014
UGA CS department Excellent Faculty Research Award, 2014
One of the seven finalists for Best Student Paper Award in ISBI 2013.
Excellent Research Award, Department of Computer Science, University of Georgia, 2012
Nominated for the Young Scientist Award and top 14 student paper, MICCAI 2011
Travel grant awards, MICCAI 2011
Student Travel Award, IPMI 2011
Nominated for the Best Student Paper Award and top 10 papers, ISBI 2011
Travel grant award, ISBI 2011
Excellent Research Award, Department of Computer Science, University of Georgia, 2011
Nominated for the Best Student Paper Award, ACM Multimedia, 2010
Runner ups for Young Scientist Award, MICCAI 2009
Travel grant award, ISBI 2006
Microsoft Fellowship, Microsoft Research, 2000-2002
Dupond Scholarship, Dupond Cooperation, 2000-2001

GRANTS:

Research Grants Received:

NIH R01: R01NS128534-01 (Zhu/Li/Liu) 09/01/2022-08/30/2027 (Total cost: $2,867,033)
NIH/NINDS
Developing an Individualized Deep Connectome Framework for ADRD Analysis.
The project's primary is to design an individualized deep connectome framework for ADRD analysis.
Role: MPI.

NIH R01: R01MD013886-05 (Zhang) 06/15/2022-05/14/2023 (Total cost: $364,375)
NIH/NIMHD
Using Machine Learning and Causal Inference Methods to Examine Disparities in Alzheimer's Disease and Related Dementias.
The project's primary objective is to find effective solutions to reduce disparities in cardiovascular disease, and the well-established statewide ADRD registries in two southern states: Georgia and South Carolina.
Role: Co-Investigator.

DoD W911NF2110028 (Li/Liu) 06/15/2022-05/14/2023 (Total cost: $180,729)
DoD
Deep Learning Platform for Large-Scale Representation Learning and Visual Understanding.
The project's primary objective is to establish new research capabilities on large-scale visual representation learning using deep learning and GPU clusters.
Role: PI.

NIH R01: R01AG075582-01 (Zhu/Li) 02/15/2022-02/14/2027 (Total cost: $2,707,967)
NIH/NIA
Mapping Trajectories of Alzheimer's Progression via Personalized Brain Anchor-nodes.
The project's primary is to discover brain anchor-nodes for mapping the trajectories of Alzheimer's progression.
Role: Co-Investigator.

NIH R01: CA252713-01 (Zhao) 06/01/2021-05/31/2026 (Total cost: $1,887,500)
NIH/NCI
Canine MHC-I genotyping and tumor specific neoantigen determination.
The project's primary is to discover tumor specific neoantigen using comparative genomic methods and genomics datasets across species.
Role: Co-Investigator.

NSF CRCNS IIS-2011369 (Wang/Liu) 10/2020– 09/2023 (Total cost: $566,999)
NSF IIS
CRCNS Research Proposal: Exploring the Mechanism of 3-Hinge Gyral Formation and its Role in Brain Networks
This project aims to explore the fundamental mechanism of 3-hinge gyral formations and their role in brain networks.
Role: Co-PI

NIH R01: R01 AG-042599-01 (Liu/Shen) 08/01/13-05/31/19 (Total cost: $1,200,000)
NIH/NIA
Assessing Large-scale Brain Connectivities in Mild Cognitive Impairment
The project's primary is to develop, validate, and apply novel computational algorithms to elucidate the hypothesized widespread connectivity alternations in mild cognitive impairment.
Role: PI.

NIH R01: R01 DA-033393-01 (Liu/Hu) 04/2012-03/2019 (Total Cost: $1,600,000)
NIH/NIDA
Assessing Large-scale Connectivities in Prenatal Cocaine Exposure Affected Brains
The project aims to elucidate the hypothesized widespread connectivity alternations in the prenatal cocaine affected brains.
Role: PI

NSF CAREER Award IIS-1149260 (Liu) 09/2012– 08/2017 (Total cost: $447,399)
NSF IIS
Discover common human brain architecture
This project aims to discover the common structural and functional human architectures across populations.
Role: PI

NSF BME Core Program: CBET-1302089 (Liu) 08/2013– 07/2017 (Total cost: $298,488)
NSF Biomedical Engineering
Exploring Functional Interactions between Gyri and Sulci
This project aims to establish a novel gyri-centric representation of functional cortical architecture.
Role: PI

NSF Cognitive Neuroscience Core Program: BCS-1439051 (Liu) 09/2014– 08/2017 (Total cost: $297,819)
NSF Cognitive Neuroscience
Reciprocal Functional Architecture of Human Brain Function
This project aims to establish a novel theory of reciprocal functional architecture of human brain function.
Role: PI

NSF Advances in Biological Informatics (ABI) Program: DBI-1564736 (Liu) 05/2016– 04/2019 (Total cost: $425,501)
NSF ABI
NBO: ABI Innovation: Multiscale Multimodal Mouse Connectomes
This project aims to construct multiscale and multimodal mouse connectomes based on macroscale and mesoscale neuroimaging connectivity data of mouse.
Role: PI

NIH Career Award: K01 EB-006878 (Liu) 8/2007 – 7/2011 (Direct Cost: $470,000, no-cost extended to 07/2012)
NIH/NIBIB
Computer aided diagnosis and followup of Alzheimer's disease
The goal is to develop new computational imaging algorithms for computer aided diagnosis and followup of Alzheimer's disease.
Role: PI

NIH R01 HL-087923-03S2 8.3%
NHLBI 9/2010 – 8/2012, Davis, McDowell & Tomporowski (PIs) (Direct Cost: $150,000)
Exercise and Overweight Children's Cognition
Supplement to evaluate brain structure, fiber tracking and cortical folding after an 8 month aerobic exercise intervention.
Role: Co-Investigator

UGA Willson Center Faculty Research Cluster 09/2013-08/2016 (Total cost: $25,000)
UGA OVPR-Willson Center
Neuroimaging, Movie Trailers, and Spectator Cognition
This project aims to explore the functional responses of human brain to selected movie trailers by neuroimaging.
Role: Co-Director

UGA-GRU Seed Grant Program 07/2015-06/2016 (Total cost: $40,000)
Novel Tools for Decoding Fear Memory of the Mouse Brain
This project aims develop and apply novel imaging and computational tools for decoding the fear memory of freely-behaving mouse.

Role: PI

Teaching Grants Received:

UGA Teaching Technology Grant 12/2010 – 11/2012 (Direct Cost: $25,000)
Interactive Learning Studio: Enhancing the Computer Science Lab Experience
Role: Co-Director

UGA Teaching Technology Grant 8/2009 – 7/2011 (Direct Cost: $25,000)
Teaching Magnetic Resonance Imaging and Spectroscopy with Neuroimaging Visualization
Role: Co-Director

Service Grants Received:

NIH Conference Grant: R13EB025723 (Liu) 01/01/2019 – 12/31/2019 (Direct Cost: $10,000)
NIH/NIBIB
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2019
The goal is to support USA-based students to attend MICCAI 2019.
Role: PI

NSF Conference Grant: IIS-1917288 (Liu/Shen) 05/01/2019 – 04/30/2020 (Direct Cost: $10,000)
NSF/IIS/RI
Doctoral Symposium at the 2019 Medical Image Computing and Computer Assisted Intervention Conference (MICCAI 2019)
The goal is to support USA-based students to attend a doctoral symposium in MICCAI 2019.
Role: PI

PROFESSIONAL ACTIVITIES:

Editorial Boards:

- Medical Image Analysis, 2020-
- ACM/IEEE Transactions on Computational Biology and Bioinformatics, 2013-
- IEEE Journal of Biomedical and Health Informatics, 2021-
- Sensors, 2021-
- Frontiers in Computational Neuroscience, 2015-
- Frontiers in Radiology, 2020-
- Psychoradiology, 2020-
- Intelligent Medicine, 2020-
- Scientific Reports, 2015-2018
- BMC Neuroscience, 2015-2018

Guest Editors:

- Guest editor of Special Issue on Imaging Information for Personalized Medicine, International Journal of Functional Informatics and Personalized Medicine, 2009
- Editor, Special Issue on Bioimage Informatics, International Journal of Computational Biology and Drug Design, 2012.

- Editor, Special Issue on Multimodal Modeling and Analysis Informed by Brain Imaging, IEEE Trans. on Autonomous Mental Development, 2014.
- Editor, Special Issue on Probabilistic methods in computational neuroscience, IEEE/ACM Transactions on Computational Biology and Bioinformatics, 2014.
- Editor, Special Issue on Intelligent Analysis of COVID-19 Imaging Data, Medical Image Analysis, 2020.
- Editor, Special Issue on Explainable and Generalizable Deep Learning, IEEE Transactions on Neural Networks and Learning Systems, 2022.

Program Committees/Professional Services:

- General Chair of MICCAI 2019
- Member of MICCAI 2017 program committee
- Member of Paper Selection Committee of ISBI 2014.
- Member of MICCAI 2013 program committee.
- Member of Paper Selection Committee of ISBI 2013.
- Organizer: International Workshop on Multimodal Brain Image Analysis (MBIA) 2013, in conjunction with MICCAI 2013, Nagoya, 2013
- Organizer: International Workshop on Multimodal Brain Image Analysis (MBIA) 2012, in conjunction with MICCAI 2012, Nice, 2012
- International Symposium on Advancements in Neuroimaging (ISAN), Xi'an, China, June, 2012.
- Organizer: International Workshop on Multimodal Brain Image Analysis (MBIA) 2011, in conjunction with MICCAI 2011, Toronto, 2011
- Organizer: International Symposium on Advancements in Medical Image Analysis (AMIA) 2011, Xi'an, China, 2011
- Organizer: Special Session on Nonlinear Signal Analysis for Biomedical and Biological Systems, IMACS, Athens, GA, 2011.
- Chair, ISBI 2011 Session on Brain Imaging and Analysis, Chicago, 2011
- Member, Program Committee, Microscopic Image Analysis with Applications in Biology Chicago, IL, August 1, 2011.
- Co-Chair, Publicity Committee, MICCAI 2010.
- Co-organizer, MICCAI 2010 Tutorial on Microscopy Image Analysis.
- The Tenth Asian Conference on Computer Vision, (ACCV) 2010.
- Medical Imaging and Augmented Reality (MIAR) 2010.
- The International Joint Conference on Bioinformatics, Systems Biology and Intelligent Computing (IJCBS 2009).
- The Eighth International Conference on Machine Learning and Applications (ICMLA 2009)
- Special Session "From Desktop to Bedside – Computational Intelligence for Biopattern" at the 2009 International Joint Conference on Neural Networks (IJCNN'09), June 14-19, 2009.
- International joint conference on Bioinformatics, Systems Biology and Intelligent Computing, 2009.
- ISCAS Workshop on Life Science Systems and Applications, 2009.
- IEEE BIBM workshop on systems biology and medicine, 2008.
- International Conference on Communications, Circuits and Systems, 2008.
- Houston Society for Engineering in Medicine and Biology, 2008.
- The 4th International Workshop on Medical Imaging and Augmented Reality, MIAR 2008.

- International Joint Conference on Neural Networks (IJCNN 2008).
- IEEE/NIH BISTI 2007 Life Science Systems and Applications Workshop (LISSA 2007).
- IEEE 7th International Conference on Bioinformatics and Bioengineering, 2007.
- International Conference on Communications, Circuits and Systems, 2006.

Grant Reviewers:

- NSF EPSCoR Research Infrastructure Improvement (RII), 2021
- NIH NIMH BRAINS study section, 2021
- NSF Biological Infrastructure, 2021
- NIH BRAIN Initiative study section, 2020
- NIH EITN study section, 2020
- NSF BRAIN Initiative panel, 2020
- NSF ABI, 2019
- NSF Cognitive Neuroscience, 2019
- NSF Developmental Neuroscience, 2018
- NIH BRAIN Initiative, 2018
- NSF CogNeuro, 2017, 2018
- NSF IIS panel, 2016
- NSF Cognitive Neuroscience panel, 2016
- Netherlands Organization for Scientific Research, 2015
- NSF BRAIN Initiative panel, 2015
- NSF IIS panel, 2015
- NSF CISE panel, 2015
- NSF CAREER grant reviewer, 2014
- NSF CAREER proposals reviewer, 2013
- Alzheimer's Disease Association, 2013
- NSF review panel, January, 2012
- NIH BDMA study section, Oct, 2012
- Alzheimer's Disease Association, 2011

Publication Reviewers:

- Regular Reviewer, NeuroImage 2003- present
- Regular Reviewer, Medical Image Computing and Computer-Assisted Intervention (MICCAI) 2004-present
- Regular Reviewer, IEEE Transactions on Medical Imaging 2004-present
- Regular Reviewer, Human Brain Mapping 2005-present
- Regular Reviewer, Computerized Medical Imaging and Graphics 2005-present
- Regular Reviewer, Pattern Recognition 2005-present
- Regular Reviewer, Journal of Neuroscience Methods 2006-present
- Regular Reviewer, IEEE Transactions on PAMI, 2007-present
- Regular Reviewer, IEEE Transaction on Biomedical Engineering, 2007-present
- Regular Reviewer, Medical Image Analysis, 2007-present
- Regular Reviewer, Journal of Electronic Imaging, 2008-present
- Regular Reviewer, Bioinformatics, 2007-present

- Regular Reviewer, International Journal of Biomedical Imaging, 2008-present
- Regular Reviewer, ACM Transactions on Intelligent Systems and Technology, 2009-present
- Regular Reviewer, American Journal of Neuroradiology, 2007-present
- Regular Reviewer, American Journal of Pathology, 2009-present
- Regular Reviewer, Journal of Computational Biology, 2009-present
- Regular Reviewer, Journal of Theoretical Biology, 2008-present
- Regular Reviewer, Medical Physics, 2009-present
- Regular Reviewer, Magnetic Resonance in Medicine, 2009-present
- Regular Reviewer, Neuroinformatics, 2009-present
- Regular Reviewer, PLoS One, 2011-present
- Ad-hoc Reviewer, BMC Bioinformatics, 2010-present
- Ad-hoc Reviewer, Biological Psychiatry, 2011-present
- Ad-hoc Reviewer, European Archives of Psychiatry and Clinical Neuroscience, 2011-present
- Ad-hoc Reviewer, Cerebral Cortex, 2011-present
- Ad-hoc Reviewer, Biological Psychiatry, 2011-present
- Ad-Hoc Reviewer, Psychiatric Research: Neuroimaging, 2012-present
- Ad-Hoc Reviewer, Brain and Behavior, 2013-present
- Ad-Hoc Reviewer, Brain Connectivity, 2013-present
- Ad-Hoc Reviewer, Alzheimer's and dementia, 2013-present
- Ad-Hoc Reviewer, Asian Journal of Control, 2013-present
- Regular Reviewer, Brain Structure and Function, 2013-present
- Ad-Hoc Reviewer, Brain Topography, 2013-present
- Ad-Hoc Reviewer, Frontiers in Human Neuroscience, 2013-present
- Ad-Hoc Reviewer, Frontiers in Neuroinformatics, 2013-present
- Regular Reviewer, Journal of American Medical Informatics Association, 2013-present
- Regular Reviewer, Molecular Neurobiology, 2013-present
- Regular Reviewer, Neurology, 2013-present
- Regular Reviewer, Schizophrenia Bulletin, 2013-present
- Regular Reviewer, Physical Biology, 2013-present
- Ad-Hoc Reviewer, Medical & Biological Eng & Computing, 2013-present
- Ad-hoc Reviewer, Journal of Alzheimer' disease, 2014-present
- Ad-hoc Reviewer, Journal of Affective Disorders, 2014-present
- Ad-hoc Reviewer, IEEE Transactions on Image Processing, 2014-present
- Regular Reviewer, IEEE Transactions on Cybernetics, 2014-present
- Ad-hoc Reviewer, Methods, 2014-present
- Ad-hoc Reviewer, IEEE Transactions on Neural Systems & Rehabilitation Engineering, 2014-present
- Ad-hoc Reviewer, Frontiers in Computational Neuroscience, 2014-present.
- Ad-hoc Reviewer, Computational and Mathematical Methods in Medicine, 2014-present.
- Ad-hoc Reviewer, Multimedia Tools and Applications, 2015-present
- Ad-hoc Reviewer, NeuroReport, 2015-present
- Ad-hoc Reviewer, Developmental Cognitive Neuroscience, 2015-present
- Ad-hoc Reviewer, Frontiers in Neuroanatomy, 2015-present
- Ad-hoc Reviewer, Frontiers in Systems Neuroscience, 2015-present
- Ad-hoc Reviewer, IEEE Signal Processing Magazine, 2015-present
- Regular Reviewer, IEEE Journal of Biomedical and Health Informatics, 2015-present

- Ad-hoc Reviewer, Brain and Behavior, 2016-present
- Ad-hoc Reviewer, Nature Communications, 2016-present
- Regular Reviewer, Brain Informatics, 2016-present
- Regular Reviewer, IEEE Transactions on Cognitive and Developmental Systems, 2018-present
- Regular Reviewer, IEEE Access, 2018-present
- Regular Reviewer, Neurotherapeutics, 2020-

Professional Memberships:

- Senior Member: Institute of Electrical and Electronics Engineers (IEEE), 2008-present
- Member, Association for Computing Machinery (ACM), 2008-present
- Member, Society for Neuroscience, 2008-present
- Member, Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2004-present

REFEREED PUBLICATIONS:

JOURNALS

1. Lei Guo, Tianming Liu, and Junwei Han. Adaptive Self-excitation Groups in Visual Curve Integration. *Neurocomputing*. 2002, 43(1):277-306.
2. Tianming Liu, Hong-Jiang Zhang, and Feihu Qi. A Novel Video Key Frame Extraction Algorithm based on Perceived Motion Energy Model. *IEEE Transactions on Circuits and Systems for Video Technology*. 2003, 13(10):1006-1013.
3. Tianming Liu, Hong-Jiang Zhang, and Feihu Qi. A Systematic Rate Controller for MPEG-4 FGS Video Streaming. *ACM/Springer Multimedia Systems*. 2004, 8(5):369-379.
4. Tianming Liu, Dinggang Shen, and Christos Davatzikos. Deformable Registration of Cortical Structures via Hybrid Volumetric and Surface Warping. *NeuroImage*. 2004, 22(4):1790-801.
5. Tianming Liu, Geoffrey Young, Ling Huang, Nan-Kuei Chen, Stephen Wong. 76-space Analysis of Grey Matter Diffusivity: Methods and Applications. *Neuroimage*. 2006, 15(31):51-65.
6. William A. Campbell, Henrik Zetterberg, Stephanie Baulac, Tianming Liu, Stephen T. C. Wong, Tao Zhong, Weiming Xia. Zebrafish lacking Alzheimer presenilin enhancer 2 (Pen-2) demonstrate excessive p53-dependent apoptosis and neuronal loss. *Journal of Neurochemistry*. 2006, 96:1423-40.
7. Tianming Liu, J Lu, Y Wang, William A Campbell, Ling Huang, J Zhu, Weiming Xia, Stephen Wong. Computerized Image Analysis for Quantitative Neuronal Phenotyping in Zebrafish. *Journal of Neuroscience Methods*. 2006, 153(2):190-202.
8. Tianming Liu and A Docef. Eval-Ware: Medical Imaging Resources. *IEEE Signal Processing Magazine*. 2006, 23(4):136-137.
9. Tianming Liu. A quantitative zebrafish phenotyping tool for developmental biology and disease modeling. *IEEE Signal and Processing Magazine*. 2007, 24(1):126-129.
10. Gang Li, Tianming Liu, Jingxin Nie, Lei Guo, Jarema Malicki, Andrew Mara, Scott Holley, Weiming Xia, Stephen Wong. Detection of Blob Objects in Microscopic Zebrafish Images Based on Gradient Vector Diffusion. *Cytometry A*., 71(10):835-45, 2007.
11. Gang Li, Tianming Liu, Ashley Tarokh, Jingxin Nie, Lei Guo, Andrew Mara, Scott Holley,

Stephen TC Wong, 3D Cell Segmentation Based on Gradient Flow Tracking, *BMC Cell Biology*, 8(1):40, 2007.
12. Tianming Liu, Jingxin Nie, Ashley Tarokh, Lei Guo, Stephen TC Wong, Reconstruction of Central Cortical Surface from MRI Brain Images: Method and Application. *NeuroImage*, 15, 40(3):991-1002, 2007.
13. Tianming Liu, Hai Li, Kelvin Wong, Ashley Tarokh, Lei Guo, Stephen Wong, Brain Tissue Segmentation Based on DTI Data, *NeuroImage*, 38(1):114-23, 2007.
14. Jingxin Nie, Tianming Liu, Gang Li, Geoffrey Young, Ashley Tarokh, Lei Guo, Stephen TC Wong, Least-Square Conformal Brain Mapping with Spring Energy, *Computerized Medical Imaging and Graphics*, 31(8):656-664, 2007.
15. Sibel Kantarci, Lihadh Al-Gazali, Robert S. Hill, Dian Donnai, Graeme C.M. Black, Eric Bieth, Nicolas Chassaing, Didier Lacombe, Koen Devriendt, Ahmad Teebi, Maria Loscertales, Caroline Robson, Tianming Liu**,** David T. MacLaughlin, Kristin M. Noonan, Meaghan K. Russell, Christopher A. Walsh, Patricia K. Donahoe, Barbara R. Pober, Mutations in megalin, a multi-ligand receptor, cause Donnai-Barrow syndrome characterized by corpus callosum, ocular, neurosensory, craniofacial, and diaphragmatic defects, *Nature Genetics*, 39(8):957-959, 2007.
16. V Mok, Tianming Liu, W.W.M. Lam, A Wong, X Hu, L Guo; XY Chen, KS Wong, S Wong, Neuroimaging predictors for cognitive impairment in confluent white matter lesion: Volumetric analyses of 99 brain regions, *Dementia and Geriatric Cognitive Disorders*, 25(1):67-73, 2007.
17. Bernard S. Chang, M.D.* Tami Katzir, Ph.D.* Tianming Liu, Kathleen Corriveau,Mirit Barzillai, Kira A Apse, Adria Bodell, David Hackney,David Alsop, Stephen Wong, Christopher A. Walsh, A structural basis for reading fluency: White matter fiber tracts and reading disability in a neuronal migration disorder *These authors contributed equally to this work, *Neurology*, 69: 2146-2154, 2007.
18. Gang Li, Tianming Liu, Jingxin N, Guo L, Andrew M, Holley S, Zhu J, Chen J, Wong STC. Segmentation of touching cell nuclei using gradient flow tracking, *Journal of Microscopy*, 231(Pt 1):47-58, 2008.
19. Tianming Liu, Jingxin Nie, Gang Li, Lei Guo, Stephen Wong, ZFIQ: a software package for zebrafish biology, *Bioinformatics*, 24(3):438-439, 2008.
20. Tianming Liu, Winnie CW Chu, Geoffrey Young, Kaiming Li, Benson HY Yeung, Lei Guo, Gene CW Man, Wynnie WM Lam,Stephen TC Wong, Jack CY Cheng, MR analysis of Regional Brain Volume in Adolescent Idiopathic Scoliosis – neurological manifestation of a systemic disease, *Journal of Magnetic Resonance Imaging***,** 27:732–736, 2008.
21. Tianming Liu, Gang Li, Jingxin Nie, Ashley Tarokh, Xiaobo Zhou, Lei Guo, Jarema Malicki, Weiming Xia, Stephen TC Wong, An Automated Cell Detection Method for Cell Detection in Zebrafish, *Neuroinformatics*, 6(1):5-21, 2008.
22. Kaiming Li, Lei Guo, Jingxin Nie, Gang Li, Tianming Liu, Review of Methods for Functional Brain Connectivity Detection Using fMRI. *Computerized Medical Imaging and Graphics***,** Volume 33, Issue 2, Pages 131-139. 2008.
23. Gang Li, Lei Guo, Jingxin Nie, Tianming Liu, Automatic Cortical Sulcal Parcellation Based on Surface Principal Direction Flow Field Tracking, *Neuroimage*, 46(4):923-37 2009.
24. Jingxin Nie, Zhong Xue, Tianming Liu, Geoffrey S. Young, Kian Setayesh, Lei Guo, Stephen T.C. Wong, Automated brain tumor segmentation using spatial accuracy-weighted hidden Markov Random Field, *Computerized Medical Imaging and Graphics*, Volume 33, Issue 6, 2009, Pages 431-441.
25. Gang Li, Lei Guo, Tianming Liu. Deformation invariant attribute vector for deformable

registration of longitudinal brain MR images, *Computerized Medical Imaging and Graphics*, Volume 33, Issue 5, July 2009, Pages 384-398.
26. Walker LM, Katzir T, Liu T, Ly J, Corriveau K, Barzillai M, Chu F, O'Connor MG, Hackney DB, Chang BS. Gray matter volumes and cognitive ability in the epileptogenic brain malformation of periventricular nodular heterotopia. *Epilepsy Behav*, Volume 15, Issue 4, Pages 456-460, 2009.
27. Hai Li, Zhong Xue, Lei Guo, Tianming Liu, Jill Hunter, Stephen Wong, A Hybrid Approach to Automatic Clustering of White Matter Fibers, *NeuroImage*, Volume 49, Issue 2, Pages 1249-1258, 2009.
28. Gang Li, Lei Guo, Jingxin Nie, Tianming Liu, An Automated Pipeline for Cortical Sulcal Fundi Extraction, *Medical Image Analysis*, Volume 14, Issue 3, Pages 343-359, 2010.
29. Kaiming Li, Lei Guo, Gang Li, Jingxin Nie, Carlos Faraco, Guangbin Cui, Qun Zhao, Stephen Miller, Tianming Liu, Gyral folding pattern analysis via surface profiling, 52(4):1202-14, *NeuroImage*, 2010.
30. Jingxin Nie, Lei Guo, Gang Li, Carlos Faraco, Stephen Miller, Tianming Liu, "A Computational Model of Cerebral Cortex Folding", *Journal of Theoretical Biology*, 264(2):467-78, 2010.
31. Faraco CC, Unsworth N, Langley J, Terry D, Li K, Zhang D, Tianming Liu, Miller LS., Complex span tasks and hippocampal recruitment during working memory, *NeuroImage*, 55(2):773-87, 2011.
32. Tianming Liu, A few thoughts on brain ROIs, *Brain Imaging and Behavior*, 5(3):189-202, 2011.
33. Yanting Lu, Jianfeng Lu, Tianming Liu, Jingyu Yang, Automated Gene Oscillation Phase Classification for Zebrafish Presomitic Mesoderm Cells, *Cytometry, A*, 9(9):727-35, 2011.
34. Degang Zhang, Lei Guo, Xintao Hu, Kaiming Li, Qun Zhao, Tianming Liu, Increased cortico-subcortical functional connectivity in schizophrenia, *Brain Imaging and Behavior*, 6(1):27-35, 2012.
35. Dajiang Zhu, Kaiming Li, Carlos Faraco, Fan Deng, Degang Zhang, Xi Jiang, Hanbo Chen, Lei Guo, Stephen Miller, Tianming Liu, Optimization of Functional Brain ROIs via Maximization of Consistency of Structural Connectivity Profiles, 59(2):1382-93, *NeuroImage*, 2012.
36. Tuo Zhang, Lei Guo, Kaiming Li, Changfeng Jing, Yan Yin, Dajing Zhu, Guangbin Cui, Lingjiang Li, Tianming Liu, Predicting Functional Cortical ROIs via DTI-derived Fiber Shape Models, *Cerebral Cortex*, 2012, doi: 10.1093/cercor/bhr152.
37. Xintao Hu, Kaiming Li, Junwei Han, Xian-Sheng Hua, Lei Guo, Tianming Liu, Bridging the Semantic Gap via Functional Brain Imaging, *IEEE Transactions on Multimedia*, 14(2):314-325, 2012.
38. Jingxin Nie, Lei Guo, Kaiming Li, Yonghua Wang, Guojun Chen, Longchuan Li, Hanbo Chen, Fan Deng, Xi Jiang, Tuo Zhang, Ling Huang, Carlos Faraco, Degang Zhang, Cong Guo, Pew-Thian Yap, Xintao Hu, Gang Li, Jinglei Lv, Yixuan Yuan, Dajiang Zhu, Junwei Han, Dean Sabatinelli, Qun Zhao, L Stephen Miller, Bingqian Xu, Ping Shen, Simon Platt, Dinggang Shen, Xiaoping Hu, Tianming Liu, Axonal Fiber Terminations Concentrate on Gyri, *Cerebral Cortex*, 22(12):2831-2839 2012.
39. Kaiming Li; Lei Guo; Dajiang Zhu; Xintao Hu; Junwei Han, Tianming Liu, Individual Functional ROI Optimization via Maximization of Group-wise Consistency of Structural and Functional Profiles, *Neuroinformatics*, pp. 1369-1377, 2012.
40. Kaiming Li*, Dajiang Zhu*, Lei Guo, Zhihao Li, Mary Ellen Lynch, Claire Coles, Xiaoping Hu**, Tianming Liu**, Connectomics Signatures of Prenatal Cocaine Exposure Affected Adolescent Brains, *Joint first authors, **Joint corresponding authors, *Human*

Brain Mapping, 34(10):2494-2510, 2012.

41. Dajiang Zhu*, Kaiming Li*, Lei Guo, Xi Jiang, Tuo Zhang, Degang Zhang, Hanbo Chen, Fan Deng, Carlos Faraco, Changfeng Jin, Chong-Yaw Wee, Yixuan Yuan, Peili Lv, Yan Yin, Xiaolei Hu, Lian Duan, Xintao Hu, Junwei Han, Lihong Wang, Dinggang Shen, L Stephen Miller, Lingjiang Li, Tianming Liu, DICCCOL: Dense Individualized and Common Connectivity-based Cortical Landmarks, *Joint first authors, *Cerebral Cortex*, 2012, bhs072.
42. Kaiming Li; Lei Guo; Carlos Faraco; Dajiang Zhu; Hanbo Chen; Yixuan Yuan; Jinglei Lv; Fan Deng; Xi Jiang; Tuo Zhang; Xintao Hu; Degang Zhang; Lloyd Miller, Tianming Liu, Visual Analytics of Brain Networks, *NeuroImag*e, 61(1):82-97, 2012.
43. Jiehuan Sun*, Xintao Hu*, Xiu Huang, Yang Liu, Kaiming Li, Xiang Li, Junwei Han, Lei Guo, Tianming Liu**, Jing Zhang**, Inferring Consistent Functional Interaction Patterns from Natural Stimulus FMRI Data, *Joint first authors, **Joint corresponding authors, *NeuroImage*, 61(4):987-999, 2012.
44. Hanbo Chen*, Tuo Zhang*, Lei Guo, Kaiming Li, Xiang Yu, Longchuan Li, Xintao Hu, Junwei Han, Xiaoping Hu**, Tianming Liu**, Coevolution of Gyral Folding and Structural Connection Patterns in Primate Brains, *Joint first authors, **Joint corresponding authors, *Cerebral Cortex*, 2012, bhs113.
45. Fan Deng, Dajiang Zhu, Lei Guo and Tianming Liu, FMRI Signal Analysis Using Empirical Mean Curve Decomposition, *IEEE Transactions on Biomedical Engineering*, 60(1):42-54, 2012.
46. Jianfeng Lu, Tao Wu, Tianming Liu, Chen Chen, Chunxia Zhao, Jingyu Yang, Automated Quantification of Zebrafish Somites, *Journal of Microscopy*, 248(2):156-162, 2012.
47. Xiang Li*, Chulwoo Lim*, Kaiming Li, Lei Guo, Tianming Liu, Detecting Brain State Changes via Fiber-Centered Functional Connectivity Analysis, *Joint first authors, conditionally accepted and in second round of review, *Neuroinformatics*, 11(2):193-210 2012.
48. Yixuan Yuan; Xi Jiang; Dajiang Zhu; Hanbo Chen; Kaiming Li; Peili Lv; Xiang Yu; Xiaojin Li; Shu Zhang; Tuo Zhang; Xintao Hu; Junwei Han; Lei Guo, Tianming Liu, Meta-analysis of Functional Roles of DICCCOLs, *Neuroinformatics*. 11(1):47-63, 2012.
49. Bao Ge; Lei Guo; Tuo Zhang; Xintao Hu; Junwei Han, Tianming Liu, Resting State fMRI-guided Fiber Clustering: Methods and Applications, *Neuroinformatics*, 11(1):119-133, 2012.
50. Degang Zhang, Lei Guo, Dajiang Zhu, Kaiming Li, Longchuan Li, Hanbo Chen, Qun Zhao, Xiaoping Hu**, and Tianming Liu**, Diffusion Tensor Imaging Reveals Evolution of Primate Brain Architectures, **Joint corresponding authors, *Brain Structure and Function*, 218(6):1429-1450, 2012.
51. Junwei Han, Sheng He, Tianming Liu, and Lei Guo, An object-oriented saliency detection framework based on sparse coding representations, *IEEE Transactions on Circuits and Systems for Video Technology,* 23(12):2009-2021, 2012.
52. Tao Wu, Jianfeng Lu, Yanting Lu, Tianming Liu, Jingyu Yang, Embryo Zebrafish Segmentation Using an Improved Hybrid Method, *Journal of Microscopy*, 250(1):68-75, 2013.
53. Junwei Han, Ming Xu, Xin Li, Lei Guo, Tianming Liu, Interactive Object-based Image Retrieval and Annotation on iPad, *Multimedia Tools and Applications*. 72(3):2275-2297, 2013.
54. Xintao Hu; Dajiang Zhu; Peili Lv; Kaiming Li; Junwei Han; Lihong Wang; Dinggang Shen; Lei Guo, Tianming Liu, Fine-Granularity Functional Interaction Signatures for Characterization of Brain Conditions, *Neuroinformatics*, 11(3):301-317,2013.

55. Junwei Han, Xiang Ji, Xintao Hu, Dajiang Zhu, Kaiming Li, Xi Jiang, Guangbin Cui, Lei Guo, and Tianming Liu, Representing and Retrieving Video Shots in Human-Centric Brain Imaging Space, *IEEE Transactions on Image Processing*, 22(7):2723-2736, 2013.
56. Xiang Li, Dajiang Zhu, Xi Jiang, Changfeng Jin, Xin Zhang, Lei Guo, Xiaoping Hu, Jingjiang Li, Tianming Liu, Dynamic Functional Connectomics Signatures for Characterization and Differentiation of PTSD Patients, *Human Brain Mapping*, 35(4):1761-1778, 2013.
57. Tuo Zhang, Dajiang Zhu, Xi Jiang, Lei Guo, Tianming Liu, Predicting Cortical ROIs via Joint Modeling of Anatomical and Connectional Profiles, *Medical Image Analysis*, 17(6): 601-615, 2013.
58. Hanbo Chen, Kaiming Li, Dajiang Zhu, Xi Jiang, Yixuan Yuan, Peili Lv, Tuo Zhang, Lei Guo, Dinggang Shen, Tianming Liu, Inferring Group-wise Consistent Multimodal Brain Networks via Multi-view Spectral Clustering, *IEEE Transactions on Medical Imaging*, 32(9), 1576-1586: 2013.
59. Fan Deng, Xi Jiang, Dajiang Zhu, Kaiming Li, Lei Guo, Tianming Liu, A functional model of cortical gyri and sulci, *Brain Structure and Function*, 219(4):1473-1491, 2013.
60. Xiaojin Li, Xintao Hu, Changfeng Jin, Junwei Han, Tianming Liu, Lei Guo, Wei Hao, and Lingjiang Li, A Comparative Study of Theoretical Graph Models for Characterizing Structural Networks of Human Brain, *International Journal of Biomedical Imaging,* Volume 2013, Article ID 201735, 8 pages, 2013.
61. Xin Zhang, Lei Guo, Xiang Li, Tuo Zhang, Dajiang Zhu, Kaiming Li, Hanbo Chen, Jinglei Lv, Changfeng Jin, Qun Zhao, Lingjiang Li, Tianming Liu, Characterization of Task-free and Task-performance Brain States via Functional Connectome Patterns, *Medical Image Analysis*, 17(8):1106-1122, 2013.
62. Dajiang Zhu, Kaiming Li, Douglas Terry, Lihong Wang, Dinggang Shen, L. Stephen Miller, Tianming Liu, Connectome-scale Assessments of Structural and Functional Connectivity in MCI, *Human Brain Mapping*, 35(7):2911-2923, 2013.
63. Jianquan Ouyang, Hao Zhen, Fanbin Kong, Tianming Liu, Visual Exploratory Search of Relationship Graphs on Smartphones, *PLOS One*, 8(11): e79379, 2013.
64. Joe Z. Tsien, Meng Li, Remus Osan, Guifen Chen, Longian Lin, Phillip Lei Wang, Sabine Frey, Julietta Frey, Dajiang Zhu, Tianming Liu, Fang Zhao, Hui Kuang, On initial Brain Activity Mapping of associative memory code in the hippocampus, *Neurobiology of Learning and Memory*, 105:200-210, 2013.
65. Peili Lv, Xintao Hu, Jinglei Lv, Junwei Han, Lei Guo, Tianming Liu, A Linear Model for Characterization of Synchronization Frequencies of Neural Networks, *Cognitive Neurodynamics*, 8(1):55-69, 2013.
66. Mo Chen, Junwei Han, Xintao Hu, Xi Jiang, Lei Guo, Tianming Liu, Survey of Encoding and Decoding of Visual Stimulus via FMRI: An Image Analysis Perspective, *Brain Imaging and Behavior*. 8(1):7-23, 2013.
67. Bin He, Todd Coleman, Guy M. Genin, Gary Glover, Xiaoping Hu, Nessa Johnson, Tianming Liu, Scott Makeig, Paul Sajda, Kaiming Ye, Grand Challenges in Mapping the Human Brain: NSF Workshop Report, *IEEE Transactions on Biomedical Engineering*, 60(11):2983-2992, 2013
68. Dajiang Zhu, Tuo Zhang, Xi Jiang, Xintao Hu, Ning Yang, Jinglei Lv, Junwei Han, Lei Guo, Tianming Liu, Fusing DTI and FMRI Data: A Survey of Methods and Applications, *NeuroImage*, 102:184-191, 2013
69. C.E. Krafft, J.E. Pierce, N.F. Schwarz, L. Chi, A.L. Weinberger, D.J. Schaeffer, A.L. Rodrigue, J. Camchong, J. D. Allison, N.E. Yanasak, Tianming. Liu, C.L. Davis, J.E. McDowell, An Eight Month Exercise Intervention Alters Resting State Synchrony in

Overweight Children, *Neuroscience*, 256:445-455, 2013.

70. Jing Zhang*, Xiang Li, Cong Li, Zhichao Lian, Xiu Huang, Guocheng Zhong, Dajiang Zhu, Kaiming Li, Changfeng Jin, Xintao Hu, Junwei Han, Lei Guo, Xiaoping Hu, Lingjiang Li, Tianming Liu*, Inferring Functional Interaction and Transition Patterns via Dynamic Bayesian Variable Partition Models, *Joint corresponding authors, *Human Brain Mapping*, 35(7):3314-3331, 2013.
71. Krafft CE, Schaeffer DJ, Schwarz NF, Chi L, Weinberger AL, Pierce JE, Rodrigue AL, Allison JD, Yanasak NE, Liu Tianming, Davis CL, and McDowell JE, Improved Fronto-Parietal White Matter Integrity in Overweight Children is Associated with Attendance in an After-School Exercise Program, *Developmental Neuroscience*, 36(1):1-9, 2013.
72. Junwei Han, Xiang Ji, Xintao Hu, Jungong Han and Tianming Liu, Clustering and Retrieval of Video Shots based on Natural Stimulus FMRI, *Neurocomputing*, 144:128-137, 2013.
73. Xi Jiang, Dajiang Zhu, Kaiming Li, Tuo Zhang, Lihong Wang, Dinggang Shen, Lei Guo, Tianming Liu, Predictive Models of Resting State Networks for Assessment of Altered Functional Connectivity in Mild Cognitive Impairment, *Brain Imaging and Behavior*, 8(4):542-557, 2013.
74. Tianming Liu, Xintao Hu, Xiaojin Li, Mo Chen, Junwei Han, Lei Guo, Merging Neuroimaging and Multimedia: Methods, Opportunities and Challenges, *IEEE Transactions on Human-Machine Systems*, 44(2):270-280, 2013.
75. Junwei Han, Kaiming Li, Xintao Hu, Sheng He, Lei Guo, Tianming Liu. Video abstraction based on fMRI-driven visual attention model, *Information Sciences*, 281:781-796, 2014.
76. Jun Fang, Xintao Hu, Junwei Han, Xi Jiang, Dajiang Zhu, Lei Guo, Tianming Liu, Data-driven Analysis of Functional Brain Interactions during Free Listening to Music and Speech, *Brain Imaging and Behavior*, 9(2):162-177, 2014.
77. Xin Zhang, Xiang Li, Changfeng Jin, Hanbo Chen, Kaiming Li, Dajiang Zhu, Xi Jiang, Tuo Zhang, Jinglei Lv, Xintao Hu, Junwei Han, Qun Zhao, Lei Guo, Lingjiang Li, Tianming Liu, Identifying and Characterizing Resting State Networks in Temporally Dynamic Functional Connectomes, *Brain Topography*, 27(6):747-765, 2014.
78. Jinglei Lv, Lei Guo, Dajiang Zhu, Tuo Zhang, Xintao Hu, Junwei Han, Tianming Liu, Group-wise FMRI Activation Detection on DICCCOL Landmarks, *Neuroinformatics*, 12(4):513-534, 2014.
79. Schaeffer DJ, Krafft CE, Schwarz NF, Chi L, Weinberger AL, Pierce JE, Rodrigue AL, Allison JD, Yanasak NE, Liu Tianming, Davis CL, and McDowell JE, An 8-month Exercise Intervention Alters Fronto-temporal White Matter Integrity in Overweight Children, *Psychophysiology*, 51(8):728-733, 2014.
80. Tuo Zhang, Hanbo Chen, Lei Guo, Kaiming Li, Longchuan Li, Shu Zhang, Dinggang Shen, Xiaoping Hu, Tianming Liu, Characterization of U-shape Streamline Fibers: Methods and Applications, *Medical Image Analysis*, 18(5):795-807, 2014.
81. Junwei Han, Shijie Zhao, Xintao Hu, Lei Guo, Tianming Liu, Encoding Brain Network Response to Free Viewing of Videos, *Cognitive Neurodynamics*. 8(5):389-397, 2014.
82. Schaeffer DJ, Krafft CE, Schwarz NF, Chi L, Weinberger AL, Pierce JE, Rodrigue AL, Allison JD, Yanasak NE, Liu Tianming, Davis CL, and McDowell JE, The Relationship between Uncinate Fasciculus White Matter Integrity and Verbal Memory Proficiency in Children, *NeuroReport*, 25(12):921-925, 2014.
83. Jinli Ou*, Zhichao Lian*, Li Xie, Xiang Li, Peng Wang, Yun Hao, Dajiang Zhu, Rongxin Jiang, Yufeng Wang, Yaowu Chen, Jing Zhang**, Tianming Liu**, Atomic Dynamic Functional Interaction Patterns for Characterization of ADHD, *Joint first authors, **Joint corresponding authors, *Human Brain Mapping*, 35(10):5262-5278, 2014.

84. Tao Zeng, Hanbo Chen, Ahmed Fakhry, Xiaoping Hu, Tianming Liu*, Shuiwang Ji*, Allen Mouse Brain Atlases Reveal Different Neural Connection and Gene Expression Patterns in Cerebellum Gyri and Sulci, *Brain Structure and Function*, 220(5):2691-2703, 2014. *Joint-correspondence authors.
85. Junwei Han, Changyuan Chen, Xintao Hu, Lei Guo and Tianming Liu, Learning Computational Models of Video Memorability from FMRI Brain Imaging, *IEEE Transactions on Cybernetic*s, 45(8):1692-1703, 2014.
86. Xi Jiang, Tuo Zhang, Dajiang Zhu, Kaiming Li, Hanbo Chen, Jinglei Lv, Xintao Hu, Junwei Han, Dinggang Shen, Lei Guo, Tianming Liu, Anatomy-guided Dense Individualized and Common Connectivity-based Cortical Landmarks (A-DICCCOL), *IEEE Transactions on Biomedical Engineering*, 62(4):1108-1119, 2014.
87. Anirban Mukhopadhyay, Zhen Qian, Suchendra M. Bhandarkar, Tianming Liu, Szilard Voros, and Sarah Rinehart, Morphological Analysis of the Left Ventricular Endocardial Surface Using a Bag-of-Features Descriptor, *IEEE Journal of Biomedical and Health Informatics*, 19(4):1483-1493, 2014.
88. Armin Iraji, Randall R Benson, Robert D. Welch, Brian J. O'Neil, John L. Woodard, Syed Imran Ayaz, Andrew Kulek, Patrick Medado, Hamid Soltanian-Zadeh, Tianming Liu, E Mark Haacke, Zhifeng Kou, Resting State Functional Connectivity in Mild Traumatic Brain Injury at the Acute Stage, *Journal of Neurotrauma*, 32(14):1031-1045, 2014.
89. Jinli Ou, Li Xie, Changfeng Jin, Xiang Li, Dajiang Zhu, Rongxin Jiang, Yaowu Chen, Jing Zhang, Lingjiang Li, and Tianming Liu, Characterizing and Differentiating Brain State Dynamics via Hidden Markov Models, *Brain Topograph*y, 28(5):666-679,2014.
90. Jinli Ou, Li Xie, Xiang Li, Dajiang Zhu, Douglas P. Terry, A. Nicholas Puente, Rongxin Jiang, Yaowu Chen, Lihong Wang, Dinggang Shen, Jing Zhang, L. Stephen Miller, Tianming Liu, Atomic Connectomics Signatures for Characterization and Differentiation of Mild Cognitive Impairment, *Brain Imaging and Behavior*, 9(4):663-677, 2014.
91. Jinglei Lv*, Xi Jiang*, Xiang Li*, Dajiang Zhu, Hanbo Chen, Tuo Zhang, Shu Zhang, Xintao Hu, Junwei Han, Heng Huang, Jing Zhang, Lei Guo, Tianming Liu, Sparse Representation of Whole-brain FMRI Signals for Identification of Functional Networks, *These authors contributed equally to this work, *Medical Image Analysis*, 20(1):112-134, 2014.
92. Jinglei Lv*, Xi Jiang*, Xiang Li*, Dajiang Zhu*, Shu Zhang, Shijie Zhao, Hanbo Chen, Tuo Zhang, Xintao Hu, Junwei Han, Jieping Ye, Lei Guo, Tianming Liu, Holistic Atlases of Functional Networks and Interactions Reveal Reciprocal Organizational Architecture of Cortical Function, *These authors contributed equally to this work, *IEEE Transactions on Biomedical Engineering*, 62(4):1120-1131, 2014.
93. Bao Ge, Yin Tian, Xintao Hu, Hanbo Chen, Dajiang Zhu, Tuo Zhang, Junwei Han, Lei Guo, Tianming Liu, Construction of Multi-scale Consistent Brain Networks: Methods and Applications, *PLoS One*, 10(4):e0118175, 2014.
94. Shu Zhang, Xiang Li, Jinglei Lv, Xi Jiang, Lei Guo, Tianming Liu, Characterizing and Differentiating Task-based and Resting State FMRI Signals via Two-stage Sparse Representations, *Brain Imaging and Behavior*, 10(1):21-32, 2014.
95. Junwei Han, Xiang Ji, Xintao Hu, Lei Guo, and Tianming Liu, Arousal Recognition Using Audio-Visual Features and FMRI-based Brain Response, *IEEE Transactions on Affective Computing*, 6(4):337-347, 2015.
96. Junwei Han, Dingwen Zhang, Shifeng Wen, Lei Guo, Tianming Liu, and Xuelong Li, Two-stage Learning to Predict Human Eye Fixations via Stacked Denoising Autoencoders, *IEEE Transactions on Cybernatics*, 46(2):487-498, 2015.
97. Xintao Hu, Cheng Lv, Gong Cheng, Jinglei Lv, Lei Guo, Junwei Han, Tianming Liu,

Sparsity Constrained fMRI Decoding of Visual Saliency in Naturalistic Video Streams, *IEEE Transactions on Autonomous Mental Development*, 7(2):65-75, 2015.

98. Xintao Hu, Lei Guo, Junwei Han*, Tianming Liu*, Decoding Semantics Categorization during Natural Viewing of Video Streams, *IEEE Transactions on Autonomous Mental Development*, 7(3):201-210, 2015. *Co-corresponding authors.
99. Shijie Zhao, Junwei Han*, Member IEEE, Jinglei Lv, Xi Jiang, Xintao Hu, Yu Zhao, Bao Ge, Lei Guo, Tianming Liu, Supervised Dictionary Learning for Inferring Concurrent Brain Networks, *IEEE Transactions on Medical Imaging*, 34(10):2036-2045, 2015.
100. Hanbo Chen, Tao Liu, Yu Zhao, Tuo Zhang, Yujie Li, Meng Li, Hongmiao Zhang, Hui Kuang, Lei Guo, Joe Tsien*, Tianming Liu*, Optimization of Large-scale Mouse Brain Connectome via Joint Evaluation of DTI and Neuron Tracing Data, *Joint corresponding authors, *NeuroImage*, 115:202-213, 2015.
101. Yimin Hou, Ting Xiao, Shu Zhang, Xi Jiang, Xiang Li, Xintao Hu, Junwei Han, Lei Guo, L Stephen Miller, Richard Neupert, and Tianming Liu, Predicting Movie Trailer Viewer's "Like/Dislike" via Learned Shot Editing Patterns, *IEEE Transactions on Affective Computing*, 7(1):29-44, 2015.
102. Jinglei Lv, Xi Jiang, Xiang Li, Dajiang Zhu, Shijie Zhao, Tuo Zhang, Xintao Hu, Junwei Han, Lei Guo, Zhihao Li, Claire Coles, Xiaoping Hu*, Tianming Liu*, Assessing Effects of Prenatal Alcohol Exposure Using Group-wise Sparse Representation of FMRI Data, *Joint correspondence authors. *Psychiatry Research: Neuroimaging*, 233(2):254-268, 2015.
103. Hanbo Chen, Hang Xiao, Tianming Liu, Hanchuan Peng, SmartTracing: Self-learning based Neuron Reconstruction, *Brain Informatics*, 2(3):135-144, 2015.
104. Armin Iraji, Hanbo Chen, Natalie Wiseman, E. Mark Haacke, Tianming Liu and Zhifeng Kou, Connectome-scale assessment of structure and function connectivity in mild traumatic brain injury at the acute stage, *Neural Plasticity*, 12:100-115, 2015.
105. Mir Jalil Razavi, Tuo Zhang, Xiao Li, Tianming Liu*, and Xianqiao Wang*, Role of Mechanical Factors on the Cortical Folding Development, *Physical Review E*, 92(3):032701, 2015. *Joint corresponding authors.
106. Mir Jalil Razavi, Tuo Zhang, Tianming Liu*, and Xianqiao Wang*, Cortical Folding Pattern and its Consistency Induced by Biological Growth, *Scientific Reports*, 5, 2015. *Joint corresponding authors.
107. Gang Li, Tianming Liu, Dong Ni, Weili Lin, John H. Gilmore, Dinggang Shen Spatiotemporal Patterns of Cortical Fiber Density in Developing Infants, and Their Relationship with Cortical Thickness, *Human Brain Mapping*, 36(12):5183-5195, 2015.
108. Xi Jiang, Xiang Li, Jinglei Lv, Tuo Zhang, Shu Zhang, Lei Guo, Tianming Liu, Sparse Representation of HCP Grayordinate Data Reveals Novel Functional Architecture of Cerebral Cortex, *Human Brain Mapping*, 36(12):5301-5319, 2015.
109. Milad Makkie, Shijie Zhao, Xi Jiang, Jinglei Lv, Yu Zhao, Bao Ge, Xiang Li, Junwei Han, Tianming Liu, HAFNI-Enabled Largescale Platform for Neuroimaging Informatics (HELPNI), *Brain Informatics*, 2(4):225-238, 2015.
110. Bao Ge, Milad Makkie, Jin Wang, Junwei Han, Shijie Zhao, Xi Jiang, Xiang Li, Jinglei Lv, Shu Zhang, Lei Guo, Tianming Liu, Signal Sampling for Efficient Sparse Representation of Resting State FMRI Data, *Brain Imaging and Behavior*, 10(4):1206-1222, 2015.
111. Xintao Hu, Lei Guo, Junwei Han, Tianming Liu, Decoding Power-spectral Profiles by FMRI Brain Activities during Naturalistic Auditory Experience, *Brain Imaging and Behavio*r, 1-11, 2016.
112. Tuo Zhang, Dajiang Zhu, Xi Jiang, Shu Zhang, Zhifeng Kou, Lei Guo, Tianming Liu,

Group-wise Consistent Cortical Parcellation Based on Connectional Profiles, *Medical Image Analysis*, 32:32-45 2016.

113. Yu Zhao, Hanbo Chen, Yujie Li, Jinglei Lv, Xi Jiang, Fangfei Ge, Tuo Zhang, Shu Zhang, Bao Ge, Cheng Lyu, Shijie Zhao, Junwei Han, Lei Guo, Tianming Liu, Connectome-scale Group-wise Consistent Resting-state Network Analysis in Autism Spectrum Disorder, *Neuroimage: Clinical*, pp. 23-33, 2016.
114. Xi Jiang, Xiang Li, Jinglei Lv, Shijie Zhao, Shu Zhang, Wei Zhang, Tuo Zhang, Junwei Han, Lei Guo, Tianming Liu, Temporal Dynamics Assessment of Spatial Overlap Pattern of Functional Brain Networks Reveals Novel Functional Architecture of Cerebral Cortex, *IEEE Transactions on Biomedical Engineering*, PP(99):1-1, 2016.
115. Armin Iraji+, Hanbo Chen+, Natalie Wiseman, Tuo Zhang, Robert Welch, Brian O'Neil, Andrew Kulek, Syed Imran Ayaz, Xiao Wang, Conor Zuk, E Mark Haacke, Tianming Liu*, Zhifeng Kou*, Connectome-scale Assessment of Structural and Functional Connectivity in Mild Traumatic Brain Injury at the Acute Stage, +Authors made equal contributions. *Joint correspondence authors, *Neuroimage: Clinical,* 12:100-115, 2016.
116. Yudan Ren, Jun Fang, Jinglei Lv, Xintao Hu, Cong Christine Guo, Lei Guo, Jiansong Xu, Marc N. Potenza*, Tianming Liu*, Assessing the Effects of Cocaine Dependence and Pathological Gambling Using Group-wise Sparse Representation of Natural Stimulus FMRI Data, *Joint correspondence authors, *Brain Imaging and Behavior*, 1-13, 2016.
117. Xiao Li*, Hanbo Chen*, Tuo Zhang*, Xiang Yu, Xi Jiang, Kaiming Li, Longchuan Li, Mir Jalil Razavi, Xianqiao Wang, Xintao Hu, Junwei Han, Lei Guo, Xiaoping Hu**, Tianming Liu**, Commonly-Preserved and Species-Specific Gyral Folding Patterns across Primate Brains, *Co-first authors; **Joint corresponding authors. *Brain Structure and Function*, 1-15, 2016.
118. Tuo Zhang*, Mir Jalil Razavi*, Xiao Li, Hanbo Chen, Tianming Liu**, Xianqiao Wang**, Mechanism of Consistent Gyrus Formation: an Experimental and Computational Study, *These authors contributed equally to this work. **Joint correspondence authors. *Scientific Reports 6*, 2016.
119. Kun Xie†, Grace E. Fox†, Jun Liu†, Cheng Lyu†, Jason Lee†, Hui Kuang†, Stephanie Jacobs, Meng Li, Tianming Liu, Sen Song and Joe Z. Tsien, Brain computation is organized via power-of-two-based permutation logic, †Equal contribution, *Frontiers in Systems Neuroscience*, 10, 2016.
120. Nian Liu, Junwei Han, Tianming Liu, Xuelong Li, Learning to Predict Eye Fixations via Multiresolution Convolutional Neural Networks, *IEEE Transactions on Neural Networks and Learning Systems*, pp. 362-370, 2016.
121. Jinglei Lv, Binbin Lin, Qingyang Li, Wei Zhang, Yu Zhao, Xi Jiang, Lei Guo, Junwei Han, Xintao Hu, Christine Guo, Jieping Ye, Tianming Liu, Task FMRI Data Analysis Based on Supervised Stochastic Coordinate Coding, accepted, *Medical Image Analysis*, 2016.
122. Tuo Zhang*, Mir Jalil Razavi*, Hanbo Chen, Yujie Li, Xiao Li, Longchuan Li, Lei Guo, Xiaoping Hu, Tianming Liu**, Xianqiao Wang**, Mechanisms of Gyral Convolution in Circumferential Direction of Primate Brains, accepted, *Journal of Computational Neuroscience*, 2017. *These authors contributed equally to this work. **Joint correspondence authors.
123. Hanbo Chen, Daniel M. Iascone, Nuno Macarico da Costa, Ed S. Lein, Tianming Liu, Hanchuan Peng, Fast Assembling of Neuron Fragments in Serial 3D Sections, in press, *Brain Informatics*, 2017.
124. Changfeng Jin, Hao Jia, Pradyumna Lanka, D Rangaprakash, Lingjiang Li, Tianming Liu, Xiaoping Hu, and Gopikrishna Deshpande, Dynamic Brain Connectivity Is a Better

Predictorof PTSD than Static Connectivity, in press, *Human Brain Mapping*, 2017.

125. Heng Huang, Xintao Hu, Yu Zhao, Milad Makkie, Qinglin Dong, Shijie Zhao, Lei Guo, Tianming Liu, Modeling Task fMRI Data via Deep Convolutional Autoencoder, in press, *IEEE Transactions on Medical Imaging*, 2017.
126. Yu Zhao, Qinglin Dong, Shu Zhang, Wei Zhang, Hanbo Chen, Xi Jiang, Lei Guo, Xintao Hu, Junwei Han, Tianming Liu, Automatic Recognition of fMRI-derived Functional Networks using 3D Convolutional Neural Networks, in press, *IEEE Transactions on Biomedical Engineering*, 2017.
127. Yujie Li, Hanbo Chen, Xi Jiang, Xiang Li, Jinglei Lv, Meng Li, Hanchuan Peng, Joe Z. Tsien, Tianming Liu, Transcriptome architecture of adult mouse brain revealed by sparse coding of genome-wide in situ hybridization images, in press, *Neuroinformatics*, 2017.
128. Shu Zhang, Yu Zhao, Xi Jiang, Dinggang Shen#, Tianming Liu#, Joint Representation of Consistent Structural and Functional Profiles for Identification of Common Cortical Landmarks, #Co-corresponding authors, in press, *Brain Imaging and Behavior*, 2017.
129. Qinghua Zhao, Will X. Y. Li, Xi Jiang, Jinglei Lv, Jianfeng Lu*, Tianming Liu*, Functional Brain Networks Reconstruction Using Group Sparsity-Regularized Learning, *Joint corresponding authors, in press, *Brain Imaging and Behavior*, 2017.
130. Shijie Zhao, Junwei Han*, Xintao Hu, Xi Jiang, Jinglei Lv, Tuo Zhang, Shu Zhang, Lei Guo, Tianming Liu*, Extendable Supervised Dictionary Learning for Exploring Diverse and Concurrent Brain Activities in Task-based fMRI, in press, *Brain Imaging and Behavior*, 2017.
131. Yujie Li, Hanbo Chen, Xi Jiang, Xiang Li, Jinglei Lv, Hanchuan Peng, Joe Z. Tsien, Tianming Liu, Discover Mouse Gene Co-expression Landscapes Using Dictionary Learning and Sparse Coding, in press, *Brain Structure and Function*, 2017.
132. Wei Zhang*, Xi Jiang*, Shu Zhang*, Brittany R Howell*, Yu Zhao, Tuo Zhang, Lei Guo, Mar M. Sanchez**, Xiaoping Hu**, Tianming Liu**, Connectome-scale Functional Intrinsic Connectivity Networks in Macaques, *Co-first authors. **Corresponding authors, accepted, *Neuroscience*, 2017.
133. Hanbo Chen*, Yujie Li*, Fangfei Ge, Gang Li, Dinggang Shen, Tianming Liu, Gyral Net: A New Representation of Cortical Folding Organization, accepted, *Medical Image Analysis*, 2017.
134. Huan Liu; Xi Jiang; Tuo Zhang; Rudan Ren; Xintao Hu; Lei Guo; Junwei Han; Tianming Liu, Elucidating Functional Differences between Cortical Gyri and Sulci via Sparse Representation HCP Grayordinate fMRI Data, accepted, *Brain Research*, 2017.
135. Mir Jalil Razavi*, Tuo Zhang*, Hanbo Chen, Yujie Li, Simon Platt, Yu Zhao, Lei Guo, Xiaoping Hu, Xianqiao Wang** and Tianming Liu**, Radial Structure Scaffolds the Convolution Patterns of Developing Cerebral Cortex, *Co-first authors, **Corresponding authors, accepted, *Frontiers in Computational Neuroscience*. 2017.
136. Junhui Gong, Xiaoyan Liu, Tianming Liu, Jiansong Zhou, Gang Sun, Juanxiu Tian, Dual Temporal and Spatial Sparse Representation for Inferring Group-wise Brain Networks from Resting-state fMRI Dataset, accepted, *IEEE Transactions on Biomedical Engineering*. 2017.
137. Fangfei Ge*, Xiao Li*, Mir Jalil Razavi*, Hanbo Chen, Tuo Zhang, Shu Zhang, Lei Guo, Xiaoping Hu, Xianqiao Wang**, Tianming Liu**, Denser Growing Fiber Connections Induce 3-hinge Gyral Folding, *Joint first authors, **Joint correspondence authors, accepted, *Cerebral Cortex*, 2017.
138. Yu Zhao, Qinglin Dong, Hanbo Chen, Armin Iraji, Yujie Li, Milad Makkie, Zhifeng Kou, Tianming Liu, Constructing Fine-granularity Functional Brain Network Atlases via

Deep Convolutional Autoencoder, accepted, *Medical Image Analysis*, 2017.

139. Jing Yuan, Xiang Li, Jinhe Zhang, Liao Luo, Qinglin Dong, Jinglei Lv, Yu Zhao, Xi Jiang, Shu Zhang, Wei Zhang, Tianming Liu, Spatio-temporal Modeling of Connectome-Scale Brain Network Interactions via Time-evolving Graphs, accepted, *NeuroImage*, 2017.
140. Shijie Zhao, Junwei Han; Xi Jiang; Heng Huang; Huan Liu; Jinglei Lv; Lei Guo, Tianming Liu, Decoding Auditory Saliency from Brain Activity Patterns during Free Listening to Naturalistic Audio Excerpts, accepted, *Neuroinformatics*, 2018.
141. Xintao Hu, Heng Huang, Bo Peng, Junwei Han, Nian Liu, Jinglei Lv, Lei Guo, Christine Guo, Tianming Liu, Latent Source Mining in FMRI via Restricted Boltzmann Machine, in press, *Human Brain Mapping*, 2018.
142. Milad Makkie, Xiang Li, Shannon Quinn, Binbin Lin, Jieping Ye, Geoffrey Mon, Tianming Liu, A Distributed Computing Platform for fMRI Big Data Analytics, in press, *IEEE Transactions on Big Data*, 2018.
143. Bao Ge, Xiang Li, Xi Jiang, Yifei Sun, Tianming Liu, A Dictionary Learning Approach for Signal Sampling in Task-based fMRI for Reduction of Big Data, in press, *Frontiers in Neuroinformatics*, 2018.
144. Yu Zhao, Fangfei Ge, Tianming Liu, Automatic Recognition of Holistic Functional Brain Networks Using Iteratively Optimized Convolutional Neural Networks (IO-CNN) with Weak Label Initialization, in press, *Medical Image Analysis*, 2018.
145. Wei Zhang, Jinglei Lv, Xiang Li, Dajiang Zhu, Xi Jiang, Shu Zhang, Yu Zhao, Lei Guo, Jieping Ye, Dewen Hu, Tianming Liu, Experimental Comparisons of Sparse Dictionary Learning and Independent Component Analysis for Brain Network Inference from fMRI Data, in press, *IEEE Transactions on Biomedical Engineering*, 2018.
146. Tuo Zhang, Hanbo Chen, Mir Jalil Razavi, Yujie Li, Fangfei Ge, Lei Guo, Xianqiao Wang, Tianming Liu, Exploring 3-hinge Gyral Folding Patterns among HCP Q3 868 Human Subjects, in press, *Human Brain Mapping*, 2018.
147. Jun Liu, Cheng Lyu, Meng Li, Tianming Liu, Sen Song, Joe Tsien, Neural coding of food experiences in the amygdala, *Neurobiology of Learning and Memory*, in press, 2018.
148. Shu Zhang*, Xi Jiang*, Wei Zhang*, Tuo Zhang, Hanbo Chen, Yu Zhao, Jinglei Lv, Lei Guo, Brittany R Howell, Mar M. Sanchez**, Xiaoping Hu**, Tianming Liu**, *Co-first authors. **Corresponding authors, *Joint Representation of Connectome-scale Structural and Functional Profiles for Identification of Consistent Cortical Landmarks in Macaque Brain*, in press, Brain Imaging and Behavior, 2018.
149. Tuo Zhang, Jun Kong, Ke Jing, Hanbo Chen, Xi Jiang, Longchuan Li, Lei Guo, Jianfeng Lu, Xiaoping Hu, Tianming Liu, Optimization of Macaque Brain DMRI Connectome by Neuron Tracing and Myelin Stain Data, *Computerized Medical Imaging and Graphics*, in press, 2018.
150. Xi Jiang, Lin Zhao, Huan Liu, Lei Guo, Keith M Kendrick, Tianming Liu, A Cortical Folding Pattern-Guided Model of Intrinsic Functional Brain Networks in Emotion Processing, in press, *Frontiers in Neuroscience*, in press, 2018.
151. Yujie Li, Heng Huang, Hanbo Chen, Tianming Liu, Deep Neural Networks for Exploration of Transcriptome of Adult Mouse Brain, *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, in press, 2018.
152. Han Wang, Kun Xie, Zhichao Lian, Yan Cui, Yaowu Chen, Jing Zhang, Li Xie, Joe Tsien, Tianming Liu, Large-scale Circuitry Interactions upon Earthquake Experiences Revealed by Recurrent Neural Networks, *IEEE Transactions on Neural Systems & Rehabilitation Engineering*, in press, 2018.
153. Shu Zhang, Huan Liu, Heng Huang, Yu Zhao, Xi Jiang, Brook Bowers, Lei Guo, Xiaoping Hu, Mar Sanchez, Tianming Liu, Deep Learning Models Unveiled Functional

Difference between Cortical Gyri and Sulci, in press, *IEEE Transactions on Biomedical Engineering,* 2018.

154. Milad Makkie, Heng Huang, Yu Zhao, Athanasios V. Vasilakos, Tianming Liu, Fast and Scalable Distributed Deep Convolutional Autoencoder for fMRI Big Data Analytics, in press, *Neurocomputing*, 2018.
155. Han Wang, Kun Xie, Li Xie, Xiang Li, Meng Li, Cheng Lyu, Hanbo Chen, Yaowu Chen, Xuesong Liu, Joe Tsien, Tianming Liu, Functional Brain Connectivity Revealed by Sparse Coding of Large-Scale Local Field Potential Dynamics, in press, *Brain Topography*, 2018.
156. Yan Cui, Shijie Zhao, Han Wang, Li Xie, Yaowu Chen, Junwei Han, Lei Guo, Fan Zhou, Tianming Liu, Identifying Brain Networks at Multiple Time Scales via Deep Recurrent Neural Network, in press, *IEEE Journal of Biomedical and Health Informatics*, 2018.
157. Han Wang, Shijie Zhao, Qinglin Dong, Yan Cui, Yaowu Chen, Junwei Han, Li Xie, Tianming Liu, Recognizing Brain States Using Deep Sparse Recurrent Neural Network, in press, *IEEE Transactions on Medical Imaging*, 2018.
158. Huan Liu, Shu Zhang, Xi Jiang, Tuo Zhang, Heng Huang, Fangfei Ge, Lin Zhao, Xiao Li, Xintao Hu, Junwei Han, Lei Guo, Tianming Liu, The Cerebral Cortex is Bisectionally Segregated into Two Fundamentally Different Functional Units of Gyri and Sulci, in press, *Cerebral Cortex*, 2018.
159. Cutter A. Lindbergh, Jinglei Lv, Yu Zhao, Catherine M. Mewborn, Antonio N. Puente, Douglas P. Terry, Lisa M. Renzi-Hammond, Billy R. Hammond, Tianming Liu, L. Stephen Miller, The effects of lutein and zeaxanthin on resting state functional connectivity in older Caucasian adults: A randomized controlled trial, in press, *Brain Imaging and Behavior*, 2019.
160. Cutter A. Lindbergh, Yu Zhao, Jinglei Lv, Catherine M. Mewborn, Antonio N. Puente, Douglas P. Terry, Lisa M. Renzi-Hammond, Billy R. Hammond, Tianming Liu, L. Stephen Miller, Intelligence moderates the relation between age and inter-connectivity of resting state networks in older adults, in press, *Neurobiology of Aging*, 2019.
161. Bao Ge, Huan Wang, Panpan Wang, Yin Tian, Xin Zhang, Tianming Liu, Discovering and Characterizing Dynamic Functional Brain Networks in Task FMRI, in press, *Brain Imaging and Behavior*, 2019.
162. Shu Zhang, Qinglin Dong, Wei Zhang, Heng Huang, Dajiang Zhu, Tianming Liu, Discovering Hierarchical Common Brain Networks via Multimodal Deep Belief Network, in press, *Medical Image Analysis*, 2019.
163. Bing Ji, Silun Wang, Zhou Liu, Brent D Weinberg, Xiaofeng Yang, Tianming Liu, Hui Mao, Revealing Hemodynamic Heterogeneity of Gliomas Based on Signal Profile Features of Dynamic Susceptibility Contrast Enhanced MRI, in press, *NeuroImage: Clinical*, 2019.
164. Shimin Yang, Zhongbo Zhao, Han Cui, Tuo Zhang, Lin Zhao, Zhibin He, Huan Liu, Lei Guo, Tianming Liu, Benjamin Becker, Keith Maurice Kendrick, Xi Jiang, Temporal Variability of Cortical Gyral-Sulcal Resting State Functional Activity Correlates with Fluid Intelligence, in press, *Frontiers in Neural Circuits*, 2019.
165. Yu Zhao, Xiang Li, Heng Huang, Wei Zhang, Shijie Zhao, Milad Makkie, Mo Zhang, Quanzheng Li, Tianming Liu, 4D Modeling of fMRI Data via Spatio-Temporal Convolutional Neural Networks (ST-CNN), *IEEE Transactions on Cognitive and Developmental Systems*, in press, 2019.
166. Tuo Zhang, Xiao Li, Xi Jiang, Fangfei Ge, Shu Zhang, Lin Zhao, Huan Liu, Ying Huang, Xianqiao Wang, Jian Yang, Lei Guo, Xiaoping Hu, Tianming Liu, Cortical 3-

hinges Could Serve as Hubs in Cortico-cortical Connective Network, in press, *Brain Imaging and Behavior*, 2019.

167. Wenyu Li, Qinglin Dong, Hao Jia, Shijie Zhao, Yongchen Wang, Li Xie, Qiang Pan, Feng Duan, Tianming Liu, Training a Camera to Perform Long-Distance Eye Tracking by another Eye-Tracker, in press, *IEEE Access*, 2019.
168. Yan Cui, Shijie Zhao, Yaowu Chen, Junwei Han, Lei Guo, Li Xie, Tianming Liu, Modeling Brain Diverse and Complex Hemodynamic Response Patterns via Deep Recurrent Autoencoder, in press, *IEEE Transactions on Cognitive and Developmental Systems*, 2019.
169. Qinglin Dong, Fangfei Ge, Qiang Ning, Yu Zhao, Jinglei Lv, Heng Huang, Jing Yuan, Xi Jiang, Dinggang Shen, and Tianming Liu, Modeling Hierarchical Brain Networks via Volumetric Sparse Deep Belief Network (VS-DBN), in press, *IEEE Transactions on Biomedical Engineering*, 2019.
170. Wei Zhang, Shijie Zhao, Xintao Hu, Qinglin Dong, Heng Huang, Shu Zhang, Yu Zhao, Haixing Dai, Fangfei Ge, Lei Guo, Tianming Liu, Hierarchical Organization of Functional Brain Networks Revealed by Hybrid Spatiotemporal Deep Learning, *Brain Connectivity*, in press, 2020.
171. Tuo Zhang, Ying Huang, Lin Zhao, Zhibin He, Xi Jiang, Lei Guo, Xiaoping Hu, Tianming Liu, Identifying Cross-individual Correspondences of 3-hinge Gyri, *Medical Image Analysis*, in press, 2020.
172. Shijie Zhao, Yan Cui, Linwei Huang, Li Xie, Yaowu Chen, Junwei Han, Lei Guo, Shu Zhang, Jinglei Lv, Tianming Liu, Identifying Diverse Functional Brain Networks Using DRNN Driven Supervised Dictionary Learning, *IEEE Access*, in press, 2020.
173. Lin Zhao, Tuo Zhang, Lei Guo, Tianming Liu, Xi Jiang, Gyral-Sulcal Contrast in Intrinsic Functional Brain Networks across Task Performances, *Brain Imaging and Behavior*, in press, 2020.
174. Ning Qiang, Qinglin Dong, Wei Zhang, Bao Ge, Fangfei Ge, Hongtao Liang, Yifei Sun, Jie Gao, Tianming Liu, Modeling Task-based fMRI Data via Deep Belief Network with Neural Architecture Search, in press, *Computerized Medical Imaging and Graphics*, 2020.
175. Ning Qiang, Qinglin Dong, Fangfei Ge, Hongtao Liang, Bao Ge, Shu Zhang, Yifei Sun, Jie Gao and Tianming Liu, Deep Variational Autoencoder for Mapping Functional Brain Networks, *IEEE Transactions on Cognitive and Developmental Systems*, in press, 2020.
176. Liting Wang, Xintao Hu, Huan Liu, Shijie Zhao, Lei Guo, Junwei Han, Tianming Liu, Functional Brain Networks underlying Auditory Saliency during Naturalistic Listening Experience, in press, *IEEE Transactions on Cognitive and Developmental Systems*, 2020.
177. Xiao Li, Tao Liu, Yujie Li, Qing Li, Xianqiao Wang, Xintao Hu, Lei Guo, Tuo Zhang, Tianming Liu, Marmoset Brain ISH Data Revealed Molecular Difference Between Cortical Folding Patterns, in press, *Cerebral Cortex*, 2020.
178. Qing Li, Xia Wu, Tianming Liu, Differentiable Neural Architecture Search for Optimal Spatial/Temporal Brain Function Network Decomposition, in press, *Medical Image Analysis*, 2021.
179. Xi Jiang, Tuo Zhang, Shu Zhang, Keith M Kendrick, Tianming Liu, Fundamental Functional Differences between Gyri and Sulci: Implications for Brain Function, Cognition and Behavior, in press, *Psychoradiology*, 2021.
180. Guangyu Guo, Zhuoyan Liu, Shijie Zhao, Junwei Han, Lei Guo, Tianming Liu, Eliminating Indefiniteness of Clinical Spectrum for Better Screening COVID-19, in press, *IEEE Journal of Biomedical and Health Informatics*, 2021.
181. Yunze Yang, Carlos E. Vargas, Ronik S. Bhangoo, William W. Wong, Steven E.

Schild, Thomas B. Daniels, Sameer R. Keole, Jean-Claude M. Rwigema, Jennifer L. Glass, Jiajian Shen, Todd A. DeWees, Tianming Liu, Martin Bues, Mirek Fatyga, Wei Liu, Exploratory Investigation of Dose-Linear Energy Transfer (LET) Volume Histogram (DLVH) for Adverse Events Study in Intensity-Modulated Proton Therapy (IMPT), *International Journal of Radiation Oncology, Biology, Physics*, in press, 2021.

182. Qing Li, Qinglin Dong, Fangfei Ge, Ning Qiang, Xia Wu, and Tianming Liu, Simultaneous Spatial-temporal Decomposition of Connectome-scale Brain Networks by Deep Sparse Recurrent Auto-encoders, in press, *Brain Imaging and Behavior*, 2021.
183. Lu Zhang, Li Wang, Jean Gao, Shannon L. Risacher, Jingwen Yan, Gang Li, Tianming Liu, Dajiang Zhu, and the Alzheimer's Disease Neuroimaging Initiative, Deep Fusion of Brain Structure-Function in Mild Cognitive Impairment, in press, *Medical Image Analysis*, 2021.
184. Tianming Liu, Grand Challenges in AI in Radiology, in press, *Frontiers in Radiology*, 2021.
185. Tianming Liu, Dinggang Shen, Yue Gao, Hayit Greenspan, Wiro Niessen, Islem Rekik, Julia Schnabel and James Thrall, Intelligent Analysis of COVID-19 Imaging Data (editorial), in press, *Medical Image Analysis*, 2021.
186. Poorya Chavoshnejad, Xiao Li, Songyao Zhang, Weiying Dai, Lana Vasung, Tianming Liu, Tuo Zhang, Xianqiao Wang, Mir Jalil Razavi, Role of Axonal Fibers in the Cortical Folding Patterns: A Tale of Variability and Regularity, in press, *Brain Multiphysics*, 2021.
187. Mir Jalil Razavi, Tianming Liu, and Xianqiao Wang, Mechanism Exploration of 3-Hinge Gyral Formation and Pattern Recognition, in press, *Cerebral Cortex Communications*, 2021.
188. Ning Qiang, Qinglin Dong, Hongtao Liang, Bao Ge, Shu Zhang, Yifei Sun, Wei Zhang, Jie Gao and Tianming Liu, Modeling and Augmenting of fMRI Data using Deep Recurrent Variational Auto-encoder, in press, *Journal of Neural Engineering*, 2021.
189. Ning Liu, Poorya Chavoshnejad, Mir Jalil Razavi, Tianming Liu, Ramana M. Pidaparti, Xianqiao Wang, Geometrical Nonlinear Elasticity of Axon Under Tension: A Coarse-grained Computational Study, *Biophysical Journal*, in press, 2021.
190. Qing Li, Wei Zhang, Lin Zhao, Xia Wu, and Tianming Liu, Evolutional Neural Architecture Search for Optimization of Spatiotemporal Brain Network Decomposition, in press, *IEEE Transactions on Biomedical Engineering*, 2021.
191. Tianming Liu and Xiang Xiao, *A Framework of AI Approaches to Improving eHealth Literacy and Combating Infodemic*, Frontiers in Public Health, in press, 2021.
192. Shengfeng Liu, Fangfei Ge, Lin Zhao, Tianfu Wang, Dong Ni, Tianming Liu, NAS-optimized Topology-preserving Transfer Learning for Differentiating Cortical Folding Patterns, in press, *Medical Image Analysis*, 2021.
193. Xiaoyan Cai, Sen Liu, Junwei Han, Libin Yang, Zhenguo Liu and Tianming Liu, ChestXRayBERT: A Pretrained Language Model for Chest Radiology Report Summarization, in press, *IEEE Transactions on Multimedia*, 2021.
194. Xiaoyan Cai, Sen Liu, Junwei Han, Libin Yang, Xin Mei, Yan Lu and Tianming Liu, COVIDSum: A Linguistically Enriched SciBERT-based Summarization Model for COVID-19 Scientific Papers, in press, *Journal of Biomedical Informatics*, 2021.
195. Jing Yuan, Senquan Ji, Liao Luo, Jinglei Lv, Tianming Liu, Control Energy Assessment of Spatial Interactions among Macro-Scale Brain Networks, in press, *Human Brain Mapping*, 2022.
196. Sheng Wang, Xi Ouyang, Tianming Liu, Qian Wang, Dinggang Shen, Follow My Eye: Using Gaze to Supervise Computer-Aided Diagnosis, in press, *IEEE Transactions on Medical Imaging*, 2022.

197. Qiyu Wang, Junwei Han, Shijie Zhao, Zhibin He, Shu Zhang, Xi Jiang, Tuo Zhang, Cirong Liu, Tianming Liu, Modeling Functional Difference between Gyri and Sulci within Intrinsic Connectivity Networks, in press, *Cerebral Cortex*, 2022.
198. Tianming Liu, Eliot Siege and Dinggang Shen, Review of Deep Learning and Medical Image Analysis for COVID-19 Diagnosis and Prediction, in press, *Annual Review of Biomedical Engineering*, 2022.
199. Tianji Pang, Junwei Han, Shijie Zhao, Shu Zhang, Lei Guo, Tianming Liu, Gumbel-Softmax based Neural Architecture Search for Optimal Decomposition of Hierarchical Brain Networks, in press, *Medical Image Analysis*, 2022.
200. Songyao Zhang, Poorya Chavoshnejad, Xiao Li, Lei Guo, Xi Jiang, Junwei Han, Li Wang, Gang Li, Xianqiao Wang, Tianming Liu, Mir Jalil Razavi, Shu Zhang, Tuo Zhang, Gyral Peaks and Patterns in Developing Macaque Brains, in press, *Human Brain Mapping*, 2022.
201. Jiadong Yan, Yuzhong Chen, Shimin Yang, Shu Zhang, Mingxin Jiang, Zhongbo Zhao, Tuo Zhang, Jinglei Lv, Benjamin Becker, Junwei Han, Keith M. Kendrick, Tianming Liu, Xi Jiang, Modeling Spatio-Temporal Patterns of Holistic Functional Brain Networks via Multi-Head Guided Attention Graph Neural Networks (Multi-Head GAGNNs), in press, *Medical Image Analysis*, 2022.
202. Yunze Yang, Samir Patel, Jidapa Bridhikitti, William Wong, Michele Halyard, Lisa McGee, Jean-Claude Rwigema, Steven Schild, Sujay Vora, Tianming Liu, Martin Bues, Mirek Fatyga, Robert Foote, and Wei Liu, Seed spots analysis to characterize dose and linear energy transfer effect in adverse event initialization of pencil beam scanning proton therapy, in press, *Medical Physics*, 2022.
203. Ning Qiang, Qinglin Dong, Hongtao Liang, Jin Li, Shenmin Zhang, Cheng Zhang, Bao Ge, Yifei Sun, Jie Gao, Tianming Liu, Huiji Yue, Shijie Zhao, Learning brain representation using recurrent Wasserstein generative adversarial net. In press, *Computer Methods and Programs in Biomedicine*. 2022.
204. Xuyang Cao, Houjin Chen, Yanfeng Li, Yahui Peng, Yue Zhou, Lin Cheng, Tianming Liu, Dinggang Shen, Auto-DenseUNet: Searchable Neural Network Architecture for Mass Segmentation in 3D Automated Breast Ultrasound, in press, *Medical Image Analysis*, 2022.

BOOKS/BOOK CHAPTERS:

1. Tianming Liu and Stephen TC Wong, "Diffusion Tensor Imaging Based Analysis of Neurological Disorders", In Principles and Advances in Medical Imaging and Image Analysis, Atam P. Dhawan, H. K Huang, Da World Scientific Publishing Company, 2007.
2. Tianming Liu and Stephen Wong, "Brain Tissue Segmentation Based on Multiple Modality DTI data", in Structure and Function of the Brain, NOVA science publishers, 2008.
3. Jiang X, Zhu D, Liu T. Holistic Atlases of Functional Networks and Interactions (HAFNI). Machine Learning in Medical Imaging-Elsevier, Chapter 15, pp. 435-454, 2016.

REFEREED CONFERENCE PUBLICATIONS:

4. Tianming Liu, Wei Qi, Hong-Jiang Zhang, and Feihu Qi, "A Content-aware Rate Controller for Streamed Delivery of MPEG-4 FGS Video", in, *IEEE International Conference on Multimedia and Expo (ICME)*, Tokyo Japan, 2001, pp. 669- 672.
5. Tianming Liu, Wei Qi, Hong-Jiang Zhang, and Feihu Qi, "A Systematic Rate Controller for MPEG-4 FGS Video Streaming", in, *IEEE International Conference on Image Processing (ICIP)*, Greece, 2001, pp. 985-988.
6. Tianming Liu, Hong-Jiang Zhang, and Feihu Qi, "A Novel Video Key Frame Extraction Algorithm", in, *IEEE International Symposium on Circuits and Systems (ISCAS)*, Arizona, 2002, pp. 149-152.
7. Tianming Liu, Hong-Jiang Zhang, and Feihu Qi, "Perceptual Frame Dropping in Adaptive Video Streaming", in, *IEEE International Symposium on Circuits and Systems*, Arizona, 2002. pp. Special section on Multimedia.
8. Tianming Liu, Dinggang Shen, and Christos Davatzikos, "Deformable Registration of Cortical Structures via Hybrid Volumetric and Surface Warping", in, *Medical Image Computing and Computer-Assisted Intervention*, Montreal, Canada, 2003, pp. 780-787.
9. Tianming Liu, Dinggang Shen, and Christos Davatzikos, "Predictive Modeling of Anatomic Structures Using Canonical Correlation Analysis", in, *International Symposium on Biomedical Imaging*, Washington DC, 2004, pp. 1279-1282.
10. Tianming Liu, Dinggang Shen, and Christos Davatzikos, "Deformable Registration of Tumor-diseased Brain Images", in, *Medical Image Computing and Computer-Assisted Intervention*, St. Malo, France, 2004, pp. 720-728.
11. Tianming Liu, Geoffrey Young, Ling Huang, Nan-Kuei Chen, Stephen TC Wong, "76-space Analysis of Grey Matter Diffusivity: Methods and Applications", in *Medical Image Computing and Computer-Assisted Intervention*, Palm Springs, 2005, pp. 148-155.
12. Jingxin Nie, Tianming Liu, Geoffrey Young, Lei Guo, and Stephen TC Wong, "Least square conformal mapping with spring energy", in, *International Symposium on Biomedical Imaging*, Washington DC, 2006, pp. 1308 - 1311.
13. Hai Li, Tianming Liu, Geoffrey Young, Lei Guo, and Stephen TC Wong, "Brain tissue segmentation based on DWI/DTI data", in, *International Symposium on Biomedical Imaging*, Washington DC, 2006, pp. 442 - 445.
14. Gang Li, Tianming Liu, Geoffrey Young, Lei Guo, and Stephen TC Wong, "Deformation invariant attribute vector for 3D medical image registration", in, *International Symposium on Biomedical Imaging*, Washington DC, 2006, pp. 1308 - 1311.
15. Li H, Tianming Liu, Guo L, Stephen TC Wong, "Deformable registration of DTI and SPGR images", in *International Symposium of Biomedical Imaging*, Washington DC, April 2007.
16. Li G, Tianming Liu, Nie J, Guo L, Stephen TC Wong, "Segmentation of touching cells using gradient flow tracking", in *International Symposium of Biomedical Imaging*, Washington DC, April 2007.
17. Nie J, Tianming Liu, Guo L, Stephen TC Wong, "Reconstruction of central cortical surface from brain MRI images: Method and Application", in *International Symposium of Biomedical Imaging*, Washington DC, April 2007.
18. Gang Li, Tianming Liu, Jingxin Nie, Lei Guo, Stephen Wong, "A Novel Method for Cortical Sulcal Fundi Extraction", *Medical Image Computing and Computer-Assisted Intervention (MICCAI)*, September. 2008.
19. Gang Li, Lei Guo, Tianming Liu, "Grouping of Brain MR Images via Affinity Propagation", *IEEE International Symposium on Circuits and Systems (ISCAS)* 2009, Taiwan.

20. Gang Li, Lei Guo, Jingxin Nie and Tianming Liu, Automatic Cortical Sulcal Parcellation Based on Surface Principal Direction Flow Field Tracking, *Information Processing in Medical Imaging (IPMI)*, 2009.
21. Jingxin Nie, Lei Guo, Tianming Liu, A computational model of cerebral cortex folding, *Medical Image Computing and Computer Assisted Intervention (MICCAI)* 2009.
22. Tuo Zhang, Lei Guo, Gang Li, Jingxin Nie, Tianming Liu, Parametric representation of cortical surface folding via polynomials, *Medical Image Computing and Computer Assisted Intervention (MICCAI)* 2009.
23. Kaiming Li, Lei Guo, Gang Li, Jingxin Nie, Carlos Faraco, Qun Zhao, L. Stephen Miller, Tianming Liu, Gyral folding pattern analysis via surface profiling, *Medical Image Computing and Computer Assisted Intervention (MICCAI)* 2009.
24. Yanting Lu, Jingfeng Lu, Tianming Liu, Jingyu Yang, Automated Cell Phase Classification for Zebrafish Fluorenscence Microscope Images, *ICPR* 2010.
25. Kaiming Li, Lei Guo, Gang Li, Jingxin Nie, Carlos Faraco, Qun Zhao, Stephen Miller, Tianming Liu, Cortical surface based identification of brain networks using high spatial resolution resting state fMRI data, *International Symposium of Biomedical Imaging (ISBI)* 2010.
26. Degang Zhang, Lei Guo, Gang Li, Jingxin Nie, Xi Jiang, Fan Deng, Kaiming Li, Dajiang Zhu, Qun Zhao, Tianming Liu, Automatic cortical surface parcellation based on fiber density information, *International Symposium of Biomedical Imaging (ISBI)* 2010.
27. Yixuan Yuan, Lei Guo, Gang Li, Tuo Zhang, Xintao Hu, Tianming Liu, Joint anlaysis of cortical folding pattern, thickness and fiber density using structural and DTI data, *International Symposium of Biomedical Imaging (ISBI)*, 2010.
28. Tuo Zhang, Lei Guo, Xintao Hu, Gang Li, Jingxin Nie, Xi Jiang, Degang Zhang, Tianming Liu, Joint analysis of fiber shape and cortical folding patterns, *International Symposium of Biomedical Imaging (ISBI)*, 2010.
29. Gang Li, Lei Guo, Jingxin Nie, Kaiming Li, Tianming Liu, Direction Field Diffusion on Cortical Surface via Graph Cuts, *CVPR Mathematical Methods in Biomedical Image Analysis (MMBIA)* 2010.
30. Jinglei Lv, Lei Guo, Xintao Hu, Tuo Zhang, Kaiming Li, Tianming Liu, Fiber-centered Analysis of Brain Connectivities Using DTI and Resting State FMRI Data, *MICCAI* 2010.
31. Hanbo Chen, Lei Guo, Jingxin Nie, Tuo Zhang, Xintao Hu, Tianming Liu, A dynamic skull model for simulation of cerebral cortex folding, *MICCAI* 2010.
32. Kaiming Li, Tuo Zhang, Xintao Hu, Dajiang Zhu, Hanbo Chen, Xi Jiang, Fan Deng, Jinglei Lv, Carlos, Faraco, Degang Zhang, Arsham Mesbah, Junwei Han, Lie Lu, Xian-Sheng Hua, Lei Guo, Stephen Miller, Tianming Liu, Human-friendly Attention Models for Video Summarization, invited, *ACM 12th International Conference on Multimodal Interfaces (ICMI)*, 2010.
33. Xintao Hu, Fan Deng, Kaiming Li, Tuo Zhang, Hanbo Chen, Xi Jiang, Jinglei Lv, Dajiang Zhu, Li Xie, Carlos, Faraco, Degang Zhang, Arsham Mesbah, Junwei Han, Xian-Sheng Hua, Stephen Miller, Lei Guo, Tianming Liu, Bridging Low-level Features and High-level Semantics via fMRI Brain Imaging for Video Classification, full paper, *ACM Multimedia, 2010*.
34. Kaiming Li, Lei Guo, Carlos Faraco, Dajiang Zhu, Fan Deng, Tuo Zhang, Xi Jiang, Degang Zhang, Hanbo Chen, Xintao Hu, L. Stephen Miller, Tianming Liu, Individualized ROI Optimization via Maximization of Group-wise Consistency of Structural and Functional Profiles, *NIPS 2010*.

35. Dajiang Zhu, Kaiming Li, Carlos Faraco, Fan Deng, Degang Zhang, Xi Jiang, Hanbo Chen, Lei Guo, Stephen Miller, Tianming Liu, Fine Granularity Parcellation of Gyrus via Fiber Shape and Connectivity Based Features, *ISBI 2011*.
36. Dajiang Zhu, Kaiming Li, Carlos Faraco, Fan Deng, Degang Zhang, Xi Jiang, Hanbo Chen, Lei Guo, Stephen Miller, Tianming Liu, Optimization of Functional Brain ROIs via Maximization of Consistency of Structural Connectivity Profiles, *ISBI 2011*.
37. Chulwoo Lim, Xiang Li, Kaiming Li, Lei Guo, Tianming Liu, Brain State Change Detection via Fiber-centered Functional Connectivity Analysis, *ISBI 2011*.
38. Xintao Hu, Lei Guo, Degang Zhang, Kaiming Li, Tuo Zhang, Jinglei Lv, Junwei Han, Tianming Liu, Assessing the Dynamics on Functional Brain Networks using Spectral Graph Theory, *ISBI 2011*.
39. Yixuan Yuan, Lei Guo, Peili Lv, Xintao Hu, Degang Zhang, Junwei Han, Li Xie, Tianming Liu, Assessing Graph Models for Description of Brain Networks, *ISBI 2011*.
40. Bao Ge, Lei Guo, Tuo Zhang, Xintao Hu, Junwei Han, Tianming Liu, Resting state fMRI-guided fiber clustering, *MICCAI 2011*.
41. Xiang Li, Chuwoo Lim, Kaiming Li, Lei Guo, Tianming Liu, Fiber-centered Granger Causality Analysis, *MICCAI 2011*.
42. Hanbo Chen, Lei Guo, Kaiming Li, Xintao Hu, Tianming Liu, Assessment of Regularity and Variability of Cortical Folding Patterns of Working Memory ROIs, *MICCAI 2011*.
43. Tuo Zhang, Lei Guo, Xintao Hu, Kaiming Li, Tianming Liu, Predicting Functional Cortical ROIs based on Fiber Shape Models, *MICCAI 2011*.
44. Xiang Ji, Junwei Han, Xintao Hu, Kaiming Li, Fan Deng, Jun Fang, Lei Guo and Tianming Liu, Retrieving Video Shots in Semantic Brain Imaging Space Using Manifold-Ranking, *ICIP 2011*.
45. Dajiang Zhu, Kaiming Li, Carlos Faraco, Fan Deng, Degang Zhang, Xi Jiang, Hanbo Chen, Lei Guo, Stephen Miller, Tianming Liu, Discovering Dense and Consistent Landmarks in the Brain, *IPMI 2011*.
46. Jinglei Lv, Lei Guo, Xintao Hu, Kaiming Li, Tianming Liu, Activated Fibers: Fiber-centered Activation Detection in Task-based FMRI, *IPMI 2011*.
47. Anirban Mukhopadhyay, Zhen Qian, Suchendra Bhandarkar, Tianming Liu, Szilard Voros, Shape analysis of left ventricular endocardial surface and its application in detecting coronary artery disease, *Sixth International Conference on Functional Imaging and Modeling of the Heart (FIMH)*, 2011.
48. Sheng He, Junwei Han, Xintao Hu, Ming Xu, Lei Guo, Tianming Liu, A Biologically Inspired Computational Model for Image Saliency Detection, *ACM Multimedia, 2011*.
49. Xi Jiang, Tuo Zhang, Xintao Hu, Lie Lu, Junwei Han, Lei Guo, Tianming Liu. Music/Speech Classification Using High-level Features Derived from fMRI Brain Imaging, pp. 825-828, *ACM Multimedia*, 2012.
50. Hanbo Chen, Kaiming Li, Dajiang Zhu, Tuo Zhang, Changfeng Jin, Lei Guo, Lingjiang Li, Tianming Liu. Inferring Group-wise Consistent Multimodal Brain Networks via Multi-view Spectral Clustering, 32(9):1576-1586, *MICCAI* 2012.
51. Hanbo Chen, Xiao Cai, Dajiang Zhu, Feiping Nie, Tianming Liu, Heng Huang , Group-wise Consistent Parcellation of Gyri via Adaptive Multi-view Spectral Clustering of Fiber Shapes, pp. 271-279, M*ICCAI* 2012.
52. Fan Deng, Dajiang Zhu, Lei Guo, Tianming Liu, Optimization of fMRI-derived ROIs based on Coherent Functional Interaction Patterns. pp. 214-222, *MICCAI* 2012.
53. Bao Ge, Lei Guo, Dajiang Zhu, Kaiming Li, Xintao Hu, Junwei Han, Tianming Liu, Group-wise Consistent Fiber Clustering Based on Multimodal Connectional and Functional Profiles, pp. 485-492, *MICCAI* 2012.

54. Xin Zhang, Lei Guo, Xiang Li, Dajiang Zhu, Kaiming Li, Zhenqiang Sun, Changfeng Jin, Xintao Hu, Junwei Han, Qun Zhao, Lingjiang Li, Tianming Liu, Characterization of Task-free/Task-performance Brain States, pp. 237-245, *MICCAI* 2012.
55. Anirban Mukhopadhyay, Zhen Qian, Suchi Bhandarkar, Tianming Liu, Sarah Rienhart, Morphological analysis of the left ventricular endocardial surface and its clinical implications, pp. 502-510, *MICCAI* 2012.
56. Dajiang Zhu, Xiang Li, Xi Jiang, Hanbo Chen, Dinggang Shen, Tianming Liu, Exploring High-Order Functional Interactions via Structurally-Weighted LASSO Models, pp. 13-24, *IPMI* 2013.
57. Bao Ge, Lei Guo, Tuo Zhang, Dajiang Zhu, Xintao Hu, Junwei Han, Tianming Liu, Construction of Multi-scale Common Brain Network Via DICCCOL, pp. 692-704, *IPMI* 2013.
58. Dajiang Zhu, Dinggang Shen, Tianming Liu, Inferring Functional Network-based Signatures via Structurally-weighted LASSO Model, pp. 970-973, *ISBI* 2013.
59. Xiang Yu*, Hanbo Chen*, Tuo Zhang, Xintao Hu, Lei Guo, Tianming Liu, Joint Analysis of Gyral Folding and Fiber Shape Patterns, pp. 85-88, *ISBI* 2013. *Joint first authors.
60. Hanbo Chen, Kaiming Li, Dajiang Zhu, Tianming Liu, Identifying Consistent Brain Networks via Maximizing Predictability of Functional Connectome from Structural Connectome, pp. 978-981, *ISBI* 2013.
61. Xiang Li, Dajiang Zhu, Xi Jiang, Changfeng Jin, Lei Guo, Lingjiang Li, Tianming Liu, Discovering Common Functional Connectomics Signatures, pp. 620-623, *ISBI* 2013.
62. Tuo Zhang, Dajiang Zhu, Xi Jiang, Lei Guo, Tianming Liu, Predicting Functional Cortical ROIs via Joint Modeling of Anatomical and Connectional Profiles, pp. 516-519, *ISBI* 2013.
63. Shu Zhang, Jinglei Lv, Xiang LI, Xi Jiang, Lei Guo, Tianming Liu, Activated Cliques: Network-based Activation Detection in Task-based FMRI, pp. 274-277, *ISBI* 2013.
64. Xintao Hu, Tuo Zhang, Junwei Han, Lei Guo, Tianming Liu, Functional Brain Interactions During Free Viewing of Video Stream, pp. 1082-1085, *ISBI* 2013.
65. Yingjie Zhang, Junwei Han, Xintao Hu, Lei Guo, Tianming Liu, Data-driven Evaluation of Functional Connectivity Metrics, pp. 532-535, *ISBI* 2013.
66. Jia Chen, Jianfeng Lu, Hanbo Chen, Dajiang Zhu, Tianming Liu, Assessing Regularity and Variability of Cortical Folding Patterns of DICCCOLs, pp. 974-977, *ISBI* 2013.
67. Bao Ge, Lei Guo, Tuo Zhang, Dajiang Zhu, Xintao Hu, Junwei Han, Tianming Liu, Construction of Multi-scale Brain Networks via DICCCOL Landmarks, pp. 680-683, *ISBI* 2013.
68. Peng Wang*, Dajiang Zhu*, Hanbo Chen, Xi Jiang, Li Sun, Qingjiu Cao, An Li, Tianming Liu, Yufeng Wang, Identifying Functional Connectomics Abnormality in Attention Deficit Hyperactivity Disorder, pp. 544-547, *ISBI* 2013. *Joint first authors.
69. Jinli Ou, Li Xie, Peng Wang, Xiang Li, Dajiang Zhu, Yufeng Wang, Yaowu Chen, Jing Zhang, Tianming Liu, Modeling Brain Functional Dynamics via Hidden Markov Models, *IEEE EMBS Conference on Neural Engineering*, pp. 569-572, 2013.
70. Jianchuan Xing, Jinglei Lv, Zhichao Lian, Xiang Li, Dajiang Zhu, Tianming Liu, Jing Zhang, Group-wise Change Point Detection in Task FMRI Data by Bayesian Methods, *IEEE EMBS Conference on Neural Engineering*, pp. 597-600, 2013.
71. Jinglei Lv, Xi Jiang, Xiang Li, Dajiang Zhu, Hanbo Chen, Tuo Zhang, Shu Zhang, Xintao Hu, Junwei Han, Heng Huang, Jing Zhang, Lei Guo, Tianming Liu, Identifying Functional Networks via Sparse Representation of Whole-brain FMRI Signals, *IEEE EMBS Conference on Neural Engineering*, pp. 778-781, 2013.

72. Peili Lv, Lei Guo, Xintao Hu, Xiang Li, Changfeng Jin, Junwei Han, Lingjiang Li, Tianming Liu, Modeling Dynamic Functional Information Flows on Large-scale Brain Networks, pp. 698-705, *MICCAI* 2013.
73. Shu Zhang, Xiang Li, Jinglei Lv, Xi Jiang, Dajiang Zhu, Hanbo Chen, Tuo Zhang, Lei Guo, Tianming Liu, Sparse Representation of Higher-order Functional Interaction Patterns in Task-based FMRI Data, pp. 626-634, *MICCAI* 2013.
74. Jinglei Lv, Dajiang Zhu, Xintao Hu, Xin Zhang, Lei Guo, Tianming Liu, Group-wise FMRI Activation Detection on Corresponding Cortical Landmarks, pp. 665-673, *MICCAI* 2013.
75. Jinglei Lv, Xiang Li, Dajiang Zhu, Xi Jiang, Xin Zhang, Lei Guo, Tianming Liu, Sparse Representation of Group-wise FMRI Signals, pp. 608-616, *MICCAI* 2013.
76. Hanbo Chen, Tuo Zhang, Tianming Liu, Identifying Group-wise Consistent White Matter Landmarks via Novel Fiber Shape Descriptor, pp. 66-73, *MICCAI* 2013.
77. Xi Jiang, Tuo Zhang, Dajiang Zhu, Kaiming Li, Jinglei Lv, Lei Guo, Tianming Liu, Anatomy-guided Discovery of Large-scale Consistent Connectivity-based Cortical Landmarks, pp. 617-625, *MICCAI* 2013
78. Xi Jiang, Dajiang Zhu, Kaiming Li, Tuo Zhang, Dinggang Shen, Lei Guo, Tianming Liu, Predictive Models of Resting State Networks for Assessment of Altered Functional Connectivity in MCI, pp. 674-681, *MICCAI* 2013.
79. Jinli Ou, Li Xie, Peng Wang, Xiang Li, Dajiang Zhu, Yufeng Wang, Yaowu Chen, Jing Zhang, Tianming Liu, Modeling Brain Functional Dynamics via Hidden Markov Models, *IEEE EMBS Conference on Neural Engineering*, pp. 569-572 2013.
80. Jianchuan Xing, Jinglei Lv, Zhichao Lian, Xiang Li, Dajiang Zhu, Tianming Liu, Jing Zhang, Group-wise Change Point Detection in Task FMRI Data by Bayesian Methods, *IEEE EMBS Conference on Neural Engineering*, pp. 597-600, 2013.
81. Jinglei Lv, Xi Jiang, Xiang Li, Dajiang Zhu, Hanbo Chen, Tuo Zhang, Shu Zhang, Xintao Hu, Junwei Han, Heng Huang, Jing Zhang, Lei Guo, Tianming Liu, Identifying Functional Networks via Sparse Representation of Whole-brain FMRI Signals, *IEEE EMBS Conference on Neural Engineering*, pp. 778-781, 2013.
82. Jinglei Lv, Tuo Zhang, Xintao Hu, Dajiang Zhu, Kaiming Li, Lei Guo, Tianming Liu, Group-wise connection activation detection based on DICCCOL, pp. 681-684, *ISBI* 2014.
83. Shu Zhang, Xintao Hu, Jinglei Lv, Tuo Zhang, Xiang LI, Xi Jiang, Lei Guo, Tianming Liu, Learning fMRI-guided predictor of video shot changes, pp. 1210-1213, *ISBI* 2014.
84. Dajiang Zhu, Dinggang Shen, Tianming Liu, Connectomics signature for characterization of mild cognitive impairment and schizophrenia, pp. 325-328, *ISBI* 2014.
85. Dajiang Zhu, Tianming Liu, Sparse representation of working memory processes based on fMRI data, pp. 584-587, *ISBI* 2014.
86. Tuo Zhang, Dajiang Zhu, Xi Jiang, Lei Guo, Tianming Liu, Group-wise consistent cortical parcellation based on DTI-derived connectional profiles, pp. 826-829, *ISBI* 2014.
87. Xi Jiang, Jinglei Lv, Dajiang Zhu, Tuo Zhang, Xiang LI, Xintao Hu, Lei Guo, Tianming Liu, Discovery network-level functional interactions from working memory fMRI data, pp. 13-16, *ISBI* 2014.
88. Xi Jiang, Jinglei Lv, Dajiang Zhu, Tuo Zhang, Xintao Hu, Lei Guo, Tianming Liu, Inferring group-wise functional brain activities via point processes, pp. 669-672, *ISBI* 2014.
89. Zhichao Lian, Xiang LI, Jianchuan Xing, Jinglei Lv, Xi Jiang, Dajiang Zhu, Jiansong Xu, Marc N. Potenza, Tianming Liu, Jing Zhang, Exploring functional brain dynamics via a Bayesian connectivity change point model, pp. 600-603, *ISBI* 2014.

90. Zhichao Lian, Jinglei Lv, Jianchuan Xing, Xiang LI, Xi Jiang, Dajiang Zhu, Jiansong Xu, Marc N. Potenza, Tianming Liu, Jing Zhang. Generalized fMRI activation detection via Bayesian magnitude change point model, pp. 21-24, *ISBI* 2014.
91. Hanbo Chen, Xiang Yu, Xi Jiang, kaiming li, Longchuan Li, Xintao Hu, Junwei Han, Lei Guo, Xiaoping Hu, Tianming Liu, Evolutionarily-preserved consistent gyral folding patterns across primate brains, pp. 1218-1221, *ISBI* 2014.
92. Hanbo Chen, kaiming li, Dajiang Zhu, Lei Guo, Tianming Liu, Group-wise optimization and individualization prediction of structural connectomes, pp. 742-745, *ISBI* 2014.
93. Zhichao Lian, Xiang Li, thomas young, Yun Hao, Jianchuan Xing, Jinglei Lv, Xi Jiang, Dajiang Zhu, Tianming Liu, Jing Zhang, Dynamic network partition via Bayesian connectivity bi-partition change point model, pp. 545-548, *ISBI* 2014.
94. Zhichao Lian, Xiang Li, Hongmiao Zhang, Hui Kuang, Kun Xie, Jianchuan Xing, Dajiang Zhu, Joe Z. Tsien, Tianming Liu, Jing Zhang, Detecting cell assembly interaction patterns via Bayesian based change-point detection and graph inference model, pp. 17-20, *ISBI* 2014.
95. Cheng Lv, Xintao Hu, Junwei Han, Gong Cheng, Lei Guo, Tianming Liu, Exploring consistent functional brain networks during free viewing of videos via sparse representation, pp. 349-352, *ISBI* 2014.
96. Dajiang Zhu, Jinglei Lv, Tianming Liu, Group-wise Optimization of Common Brain Landmarks with Joint Structural and Functional Regulations, pp. 716-723, *MICCAI* 2014.
97. Hanbo Chen, Yu Zhao, Tuo Zhang, Hongmiao Zhang, Hui Kuang, Meng Li, Joe Z. Tsien, Tianming Liu, Construct and Assess Multimodal Mouse Brain Connectomes via Joint Modeling of Multi-scale DTI and Neuron Tracer Data, pp. 273-280, *MICCAI* 2014.
98. Shijie Zhao, Xi Jiang, Junwei Han, Xintao Hu, Dajiang Zhu, Jinglei Lv, Tuo Zhang, Lei Guo and Tianming Liu, Decoding Auditory Saliency from FMRI Brain Imaging, *ACM Multimedia,* pp. 873-876, 2014.
99. Bao Ge, Jin Wang, Jinglei Lv, Shu Zhang, Shijie Zhao, Wei Zhang, Qinghua Zhao, Xiang Li, Xi Jiang, Junwei Han, Lei Guo, Tianming Liu, Signal sampling for efficient sparse representation of resting state fMRI data, pp. 1360-1363, *ISBI* 2015.
100. Fangfei Ge, Jinglei Lv, Xintao Hu, Lei Guo, Junwei Han, Tianming Liu, Deriving ADHD biomarkers with sparse coding based network analysis, pp. 22-25, *ISBI* 2015.
101. Shu Zhang, Xiang Li, Jinglei Lv, Xi Jiang, Lei Guo, Tianming Liu, Characterizing and Differentiating Task-based and Resting State FMRI Signals via Two-stage Sparse Representations, 10(1):21-32, *ISBI* 2015.
102. Ke Jing, Tuo Zhang, Jianfeng Lu, Hanbo Chen, Lei Guo, Longchuan Li, Xiaoping Hu, Tianming Liu, Multiscale and multimodal fusion of tract-tracing and DTI-derived fibers in macaque brains, pp. 938-942, *ISBI* 2015.
103. Tuo Zhang, Hanbo Chen, Xi Jiang, Lei Guo, Tianming Liu, Group-wise consistent sulcal fundi segmentation on dMRI-derived ODF features, pp. 638-641, *ISBI* 2015.
104. Xiang Li, Zhi Zhou, Philipp Keller, Hongkui Zeng, Tianming Liu, Hanchuan Peng, Interactive exemplar-based segmentation toolkit for biomedical image analysis, pp. 168-171, *ISBI* 2015.
105. Gong Cheng, Junwei Han, Lei Guo, Tianming Liu, Learning Coarse-to-Fine Sparselets for Efficient Object Detection and Scene Classification, pp. 1173-1181, *CVPR 2015*.
106. Nian Liu, Junwei Han, Dingwen Zhang, Shifeng Wen, Tianming Liu, Predicting Eye Fixations using Convolutional Neural Networks, pp. 362-370, *CVPR 2015*.
107. Heng Huang, Xintao Hu, Junwei Han, Jinglei Lv, Nian Liu, Lei Guo, Tianming Liu, Latent Source mining in fmri data via deep neural network, pp. 638-641, *ISBI 2016*.

108. Xiao Li, Tuo Zhang, Xintao Hu, Lei Guo, Tianming Liu, A data-driven method to study brain structural connectivities via joint analysis of microarray data and dMRI data, pp. 829-832, *ISBI 2016*.
109. Xiang Li, Qinglin Dong, Xi Jiang, Jinglei Lv, Tianming Liu, Multiple-demand system identification and characterization via sparse representations of fMRI data, pp. 70-73，*ISBI 2016.*
110. Xiang Li, Binbin Lin, Jieping Ye, Tianming Liu, Modeling functional network dynamics via multi-scale dictionary learning and network continuums, pp. 66-69, *ISBI 2016*.
111. Cheng Lyu, Xiang Li, Jinglei Lv, Xintao Hu, Junwei Han, Lei Guo, Tianming Liu, Identifying group-wise consistent sub-networks via spatial sparse representation of natural stimulus fMRI data, pp. 62-65, *ISBI 2016*.
112. Yudan Ren, Xintao Hu, Jinglei Lv, Lei Guo, Junwei Han, Tianming Liu, Identifying autism biomarkers in default mode network using sparse representation of resting-state fMRI data, pp. 1278-1281, *ISBI 2016*.
113. Jinglei Lv, Armin Iraji, Hanbo Chen, Fangfei Ge, Lei Guo, Zhifeng Kou, Tianming Liu, Group-wise sparse representation of brain states reveal network abnormalities in mild traumatic brain injury, pp. 58-61, *ISBI* 2016.
114. Shijie Zhao, Junwei Han, Xi Jiang, Xintao Hu, Jinglei Lv, Shu Zhang, Bao Ge, Lei Guo, Tianming Liu, Exploring auditory network composition during free listening to audio excerpts via group-wise spare representation, pp. 1-6, *ICME* 2016.
115. Xiang Li*, Milad Makkie*, Binbin Lin, Mojtaba Sedigh Fazli, Ian Davidson, Jieping Ye#, Tianming Liu#, Shannon Quinn#, Scalable Fast Rank-1 Dictionary Learning for fMRI Big Data Analysis, pp. 511-519, *ACM KDD* 2016. *Equal contributions; #Joint corresponding authors.
116. Jinglei Lv, Armin Iraji, Fangfei Ge, Shijie Zhao, Xintao Hu, Tuo Zhang, Junwei Han, Lei Guo, Zhifeng Kou, Tianming Liu. Temporal Concatenated Sparse Coding of Resting State fMRI Data Reveal Network Interaction Changes in mTBI, pp. 46-54, *MICCAI* 2016.
117. Shijie Zhao, Junwei Han, Jinglei Lv, Xi Jiang, Xintao Hu, Shu Zhang, Mary Ellen Lynch, Claire Coles, Lei Guo, Xiaoping Hu, Tianming Liu, A Multi-Stage Sparse Coding Framework to Explore the Effects of Prenatal Alcohol Exposure, pp. 28-36, *MICCAI* 2016.
118. Qinghua Zhao, Jianfeng Lu, Jinglei Lv, Xi Jiang, Shijie Zhao, Tianming Liu, Exploring Brain Networks via Structured Sparse Representation of FMRI Data, pp. 55-62, *MICCAI* 2016.
119. Xi Jiang, Xiang Li, Jinglei Lv, Shijie Zhao, Shu Zhang, Wei Zhang, Tuo Zhang, Tianming Liu, Modeling Functional Dynamics of Cortical Gyri and Sulci, pp. 19-27, *MICCAI*, 2016.
120. Yujie Li*, Hanbo Chen*, Xi Jiang, Xiang Li, Jinglei Lv, Hanchuan Peng**, Joe Z. Tsien**, Tianming Liu**, Discover Mouse Gene Coexpression Landscape Using Dictionary Learning and Sparse Coding, pp. 63-71, *MICCAI*, 2016. *Co-first Authors, **Joint Corresponding Authors.
121. Xiao Li, Lei Du, Tuo Zhang, Xintao Hu, Xi Jiang, Lei Guo, Tianming Liu, Species Preserved and Exclusive Structural Connections Revealed by Sparse CCA, pp. 123-131, *MICCAI*, 2016.
122. Sidi Liu, Yimin Hou, Ting Xiao, Qinglin Dong, Jinglei Lv, Tianming Liu, What Makes a Good Movie Trailer? Interpretation from Simultaneous EEG and Eyetracker Recording, *ACM Multimedia*, pp. 82-86, 2016.

123. Dehua Ren, Yu Zhao, Hanbo Chen, Qinglin Dong, Jinglei Lv, Tianming Liu, 3D functional brain network classification using convolutional neural networks, *ISBI* 2017.
124. Hanbo Chen, Yujie Li, Yu Zhao, Jinglei Lv, Tianming Liu, Inter-subject fMRI registration based on functional networks, accepted, *ISBI* 2017.
125. Shu Zhang, Xiang LI, Lei Guo, Tianming Liu, Exploring human brain activation via nested sparse coding and functional operators, accepted, *ISBI* 2017.
126. Lin Yuan, Tianming Liu, Dewen Hu, Group-wise sparse representation of resting-state fMRI data for better understanding of schizophrenia, accepted, *ISBI* 2017.
127. Yu Zhao, Xiang LI, Milad Makkie, Shannon Quinn, Binbin Lin, Jieping Ye, Tianming Liu, Template-guided Functional Network Identification via Supervised Dictionary Learning, accepted, *ISBI* 2017.
128. Yu Zhao, Shu Zhang, Hanbo Chen, Wei Zhang, Jinglei Lv, Xi Jiang, Dinggang Shen*, Tianming Liu*, A novel framework for groupwise registration of fMRI images based on common functional networks, *Joint correspondence authors, accepted, *ISBI* 2017.
129. Huan Liu, Mianzhi Zhang, Xintao Hu, Yudan Ren, Junwei Han, Lei Guo, Tianming Liu, FMRI data classification based on hybrid temporal and spatial sparse representation, accepted, *ISBI* 2017.
130. Liting Wang, Xintao Hu, Meng Wang, Junwei Han, Shijie Zhao, Lei Guo, Tianming Liu, Decoding dynamic auditory attention during naturalistic experience, accepted, *ISBI* 2017.
131. Xiao Li, Tuo Zhang, Xintao Hu, Lei Du, Lei Guo, Tianming Liu, Predicting cortical 3-hinge locations via structural connective features, accepted, *ISBI* 2017.
132. Heng Huang, Xintao Hu, Qinglin Dong, Junwei Han, Lei Guo, Tianming Liu, Modeling fMRI Data via Deep Convolutional Auto-Encoder, accepted, *IPMI* 2017.
133. Shu Zhang, Xi Jiang, Tianming Liu, Joint Representation of Connectome-scale Structural and Functional Profiles for Identification of Consistent Cortical landmarks in Human Brains, accepted, *MICCAI* 2017.
134. Tuo Zhang, Xiao Li, Lin Zhao, Xintao Hu, Tianming Liu, Lei Guo, Multi-way Regression Method Reveal Backbone of Macaque Brain Connectivity in Longitudinal Datasets, accepted, *MICCAI* 2017.
135. Fangfei Ge, Hanbo Chen, Tuo Zhang, Xianqiao Wang, Lin Yuan, Xintao Hu, Lei Guo, Tianming Liu, A Novel Framework for Analyzing Cortical Folding Patterns based on Sulcal Baselines and Gyral Crestlines. *ISBI* 2018.
136. Huan Liu*, Shijie Zhao, Xi Jiang, Xintao Hu, Lei Guo, Tianming Liu, Characterizing Task-evoked and Intrinsic Functional Networks from Task-based fMRI Data via Two-stage Sparse Dictionary Learning, *ISBI* 2018.
137. Fangfei Ge, Jinglei Lv, Xintao Hu, Lei Guo, Junwei Han, Tianming Liu, Exploring Intrinsic Networks and Their Interactions Using Group Wise Temporal Sparse Coding, *ISBI* 2018.
138. Shu Zhang*, Tuo Zhang, Xiao Li, Lei Guo, Tianming Liu, Joint Representation of Cortical Folding, Structural Connectivity and Functional Networks, *ISBI* 2018.
139. Qinghua Zhao*, Xi Jiang, Shijie Zhao, Xintao Hu, Junwei Han, Jianfeng Lu, Tianming Liu, Identifying Consistent Functional Brain Landmarks via Group-wise Sparse Representation of Concatenated Multitask fMRI Data, *ISBI* 2018.
140. Lei Li, Xintao Hu*, Heng Huang, Chunlin He, Liting Wang, Junwei Han, Lei Guo, Tianming Liu, Latent Source Mining of fMRI Data via Deep Belief Network, *ISBI* 2018.
141. Heng Huang*, Xintao Hu, Qinglin Dong, Yu Zhao, Shu Zhang, Lei Guo, Tianming Liu, Modeling Task fMRI Data via Mixture of Deep Expert Networks, *ISBI* 2018.

142. Wei Zhang, Jinglei Lv, Shu Zhang, Yu Zhao, Tianming Liu, Modeling Resting State FMRI Data via Longitudinal Supervised Stochastic Coordinate Coding, *ISBI* 2018.
143. Tuo Zhang, Xiao Li, Lin Zhao, Ying Huang, Lei Guo, Tianming Liu, Identification of Species-Preserved Cortical Landmarks, accepted, *MICCAI* 2018.
144. Shu Zhang, Tianming Liu, Dajiang Zhu, Exploring Fiber Skeletons via Joint Representation of Functional Networks and Structural Connectivity, accepted, *MICCAI* 2018.
145. Yu Zhao, Shu Liao, Yimo Guo, Liang Zhao, Zhennan Yan, Gerardo Hermosillo, Tianming Liu, Xiang Zhou, Yiqiang Zhan, Towards MR-Only Radiotherapy Treatment Planning: Synthetic CT Generation Using Multi-view Deep Convolutional Neural Networks, accepted, *MICCAI* 2018.
146. Yu Zhao, Fangfei Ge, Tianming Liu, 3D Deep Convolutional Neural Network Revealed the Value of Brain Network Overlap in Differentiating Autism Spectrum Disorder from Healthy Controls, accepted, *MICCAI* 2018.
147. Yu Zhao, Xiang Li, Wei Zhang, Shijie Zhao, Milad Makkie, Mo Zhang, Quanzheng Li, Tianming Liu, Modeling 4D fMRI Data via Spatio-Temporal Convolutional Neural Networks (ST-CNN), accepted, *MICCAI* 2018.
148. Yan Cui, Shijie Zhao, Han Wang, Leo Xie, Yaowu Chen, Junwei Han, Lei Guo, Fan Zhou, Tianming Liu, Identifying Brain Networks of Multiple Time Scales via Deep Recurrent Neural Network, accepted, *MICCAI* 2018.
149. Yu Zhao, Haixing Dai, Wei Zhang, Fangfei Ge, Tianming Liu, Two-stage Spatial Temporal Deep Learning Framework for Functional Brain Network Modeling, accepted, *ISBI* 2019.
150. Liting Wang, Xintao Hu, Huan Liu, Heng Huang, Lei Guo, Tianming Liu, Explore the Hierarchical Auditory Information Processing via Deep Convolutional Audoencoder, accepted, *ISBI* 2019.
151. Fangfei Ge, Shu Zhang, Heng Huang, Xi Jiang, Lei Guo, Xianqiao Wang, Tianming Liu, Exploring Intrinsic Functional Differences of Gyri, Sulci and 2-hinge, 3-hinge Joints on Cerebral Cortex, accepted, *ISBI* 2019.
152. Lin Zhao, Huan Liu, Xi Jiang, Shijie Zhao, Zhibin He, Tianming Liu, Lei Guo, Tuo Zhang, A Task Performance-guided Model of Functional Networks Identification, accepted, *ISBI* 2019.
153. Yin Zhang, Xintao Hu, Chunlin He, Yudan Ren, Huan Liu, Liting Wang, Lei Guo, Tianming Liu, A Two-stage DBN-based Method to Exploring Functional Brain Networks in Naturalistic Paradigm fMRI, accepted, *ISBI* 2019.
154. Qing Li, Qinglin Dong, Fangfei Ge, Ning Qiang, Yu Zhao, Han Wang, Heng Huang, Xia Wu, and Tianming Liu, Simultaneous Spatial-temporal Decomposition of Connectome-scale Brain Networks by Deep Sparse Recurrent Auto-encoders, accepted, *IPMI* 2019.
155. Ying Huang, Zhibin He, Lei Guo, Tianming Liu, Tuo Zhang, Multi-view Graph Matching of Cortical Landmarks. *MICCAI* 2019.
156. Tuo Zhang, Xiao Li, Lin Zhao, Ying Huang, Zhibin He, Lei Guo, Tianming Liu, Group-wise Graph Matching of Cortical Gyral Hinges. *MICCAI* 2019.
157. Wei Zhang, Lin Zhao, Qing Li, Shijie Zhao, Qinglin Dong, Xi Jiang, Tuo Zhang, Tianming Liu, Identify Hierarchical Structures from Task-based fMRI Data via Hybrid Spatiotemporal Neural Architecture Search Net, *MICCAI* 2019.
158. Huan Wang, Ning Qiang, Bao Ge, Tianming Liu, Task fMRI guided fiber clustering via a deep clustering method, *ISBI 2020*.

159. Ning Qiang, Qinglin Dong, Bao Ge, Tianming Liu, Deep Variational Autoencoder for Modeling Functional Brain Networks and ADHD Identification, *ISBI 2020*.
160. Haixing DAI, Fangfei Ge, Qing Li, Wei Zhang, Tianming Liu, Optimize CNN model for fMRI signal classification via Adanet-based neural architecture search, *ISBI 2020*.
161. Qing Li, Wei Zhang, Jinglei Lv, Xia Wu and Tianming Liu, Neural Architecture Search for Optimization of Spatial-temporal Brain Network Decomposition, *MICCAI 2020*.
162. Qinglin Dong, Ning Qiang, Jinglei Lv, Xiang Li, Tianming Liu, Quanzheng Li, Spatiotemporal Attention Autoencoder (STAAE) for ADHD Classification, *MICCAI 2020.*
163. Tuo Zhang, Zhibin He, Xi Jiang, Lei Guo, Xiaoping Hu, Tianming Liu, Lei Du. Species-Shared and -Specific Structural Connections Revealed by Dirty Multi-Task Regression. *MICCAI 2020*.
164. Qinglin Dong, Ning Qiang, Jinglei Lv, Xiang Li, Tianming Liu, Quanzheng Li, Discovering Functional Brain Networks with 3D Residual Autoencoder (ResAE). *MICCAI 2020*.
165. Yudan Ren, Zeyang Tao, Wei Zhang, Tianming Liu, Modeling Hierarchical Spatial and Temporal Patterns of Naturalistic fMRI Volume via Volumetric Deep Belief Network with Neural Architecture Search, *ISBI 2021*.
166. Yudan Ren, Zeyang Tao, Wei Zhang, Tianming Liu, Modeling Hierarchical Spatial and Temporal Patterns of Naturalistic fMRI Volume via Volumetric Deep Belief Network with Neural Architecture Search, in press, *ISBI 2021*.
167. Lin Zhao, Haixing Dai, Xi Jiang, Tuo Zhang, Dajiang Zhu, Tianming Liu, Exploring the Functional Difference of Gyri/Sulci via Hierarchical Interpretable Autoencoder, in press, *MICCAI* 2021.
168. Jiadong Yan, Yuzhong Chen, Shimin Yang, Shu Zhang, Mingxin Jiang, Zhongbo Zhao, Tuo Zhang, Yu Zhao, Benjamin Becker, Tianming Liu, Keith M Kendrick, Xi Jiang. Multi-Head GAGNN: A Multi-Head Guided Attention Graph Neural Network for Modeling Spatio-Temporal Patterns of Holistic Brain Functional Networks, in press, *MICCAI* 2021.
169. Xiaowei Yu, Dan Hu, Lu Zhang, Ying Huang, Zhengwang Wu, Tianming Liu, Li Wang, Weili Lin, Dajiang Zhu, Gang Li, Longitudinal Infant Functional Connectivity Prediction via Conditional Intensive Triplet Network, accepted, *MICCAI* 2022.
170. Lin Zhao, Haixing Dai, Zihao Wu, Tuo Zhang, Dajiang Zhu, Tianming Liu, Embedding Human Brain Function via Transformer, accepted, *MICCAI* 2022.
171. Shijie Zhao, Tianji Pang, Junwei Han, Tianming Liu, Dajiang Zhu, Hierarchical Brain Networks Decomposition via Prior Knowledge Guided Deep Belief Network, accepted, *MICCAI* 2022.
172. Saed Rezayi, Haixing Dai, Zhengliang Liu, Zihao Wu, Akarsh Hebbar, Andrew H. Burns, Lin Zhao, Dajiang Zhu, Xiang Li, Quanzheng Li, Wei Liu, Sheng Li and Tianming Liu. ClinicalRadioBERT: Knowledge-Infused Few Shot Learning for Clinical Notes Named Entity Recognition. In: The 13th International Workshop on Machine Learning in Medical Imaging (*MLMI 2022*), in conjunction with MICCAI 2022, 2022.
173. Haixing Dai, Qing Li, Lin Zhao, Liming Pan, Cheng Shi, Zhengliang Liu, Zihao Wu, Lu Zhang, Shijie Zhao, Xia Wu, Dajiang Zhu, Tianming Liu. "Graph Representation Neural Architecture Search for Optimal Spatial/Temporal Functional Brain Network Decomposition." In International Workshop on Machine Learning in Medical Imaging (*MLMI 2022*), in conjunction with MICCAI 2022, 2022.

OTHER PUBLICATIONS:

Workshop Papers:

1. Qinglin Dong, Ning Qiang, Xiang Li, Jinglei Lv, Liang Dong, Tianming Liu, Quanzheng Li, A Novel fMRI Representation Learning Framework with GAN, The 11th International Workshop on Machine Learning in Medical Imaging, 2020.
2. Songyao Zhang, Lei Du, Jinglei Lv, Zhibin He, Xi Jiang, Lei Guo, Li Wang, Tianming Liu, Dinggang Shen, Gang Li, Tuo Zhang, Gyral Growth Patterns of Macaque Brains Revealed by Scattered Orthogonal Nonnegative Matrix Factorization, The 11th International Workshop on Machine Learning in Medical Imaging, 2020.
3. Zhibin He, Shu Zhang, Songyao Zhang, Yin Zhang, Xintao Hu, Xi Jiang, Lei Guo, Tianming Liu, Lei Du, Tuo Zhang, Interwound Structural and Functional Difference Between Preterm and Term Infant Brains Revealed by Multi-view CCA, The 11th International Workshop on Machine Learning in Medical Imaging, 2020.
4. Zhao, Shijie; Cui, Yan; Chen, Yaowu; Zhang, Xin; Zhang, Wei; Liu, Huan; Han, Junwei; Guo, Lei; Xie, Leo; Liu, Tianming, Exploring Brain Hemodynamic Response Patterns Via Deep Recurrent Autoencoder, MICCAI 2019 MBIA Workshop, 2019.
5. M Makkie and T Liu, A cloud-based distributed deep learning platform for neuroimaging bigdata analytics, NIPS Med-NIPS Workshop, 2017.
6. G Mon, M Makkie, X Li, T Liu, S Quinn, Implementing dictionary learning in Apache Flink, Or: How I learned to relax and love iterations, IEEE BigData Open Science in Big Data (OSBD) Workshop, 2016.
7. M. Makkie, X. Li, B. Lin, J. Ye, M. Fazli, T. Liu, and S. Quinn. Distributed Rank-1 Dictionary Learning: Towards Fast and Scalable Solutions for fMRI Big Data Analytics. IEEE BigData KDDBHI Workshop. 2016.

Abstracts:

1. Tianming Liu, William Campbell, Lu J., Ling Huang, Zhu J., Weiming Xia, Stephen Wong, "An Integrated Image Analysis Pipeline for Neuronal Phenotyping in Zebrafish", Annual Meeting of the Society of Neuroscience, 2005.
2. Weiming Xia, William Campbell, Stephanie Baulac, Jacqueline A. Sears, Tianming Liu, Stephen Wong, Tao Zhong, "Knockdown of Alzheimer's disease gama-secretase components causes neuronal loss separate from defective Notch signaling in zebrafish", Annual Meeting of the Society of Neuroscience, 2005.
3. Tianming Liu, Geoffrey Young, Ling Huang, Nan-Kuei Chen, William Dillon, Stephen Wong, "76-space Analysis of Grey Matter Diffusivity of Creutzfeldt-Jakob Disease", Annual Meeting of Radiological Society of North America (RSNA), 2005.
4. Henrik Zetterberg, William Campbell, Hong Wei Yang, Tianming Liu, Stephen Wong, Tao Zhong, Weiming Xia, "Molecular Dissection of Alzheimer's gamma-Secretase Component Presenilin Enhancer 2 and Its Protection of Zebrafish from Apoptosis", *Seventh Conference on Zebrafish Development and Genetics*, 2006.
5. Tianming Liu and Stephen Wong, "Brain Mapping Techniques for Computer Aided Diagnosis and Follow Up", *SIAM Symposium on Mathematics for Brain Imaging,* 2006.
6. Liu T., Nie J., Lu J., Chen D., Wu X., Zhu J., J Yang., Guo L., Campbell W. A., Xia W., Wong S. T., "ZFIQ: an integrated software platform for image-based phenotyping in zebrafish biology", Annual Meeting of Society of Neuroscience*,* 2006.

7. Weiming Xia, H. Zetterberg, William Campbell, Tianming Liu, Stephen Wong, "Functional domain of Ã-secretase component presenilin enhancer-2 for neuronal survival in zebrafish", Annual Meeting of the Society of Neuroscience, 2006.
8. Tianming Liu, Chu WCW, Li K, Yeung BHY, Guo L, Man GCW, Lam WWM, Wong STC, Cheng JCY, "Asymmetrical regional brain volume in Adolescent Idiopathic Scoliosis Girls-An MRI quantitative pilot study", British Scoliosis Society Annual Meeting, 2006.
9. Stephen Wong and Tianming Liu, "Brain Mapping Techniques for Computer-Aided Neurological Diagnosis and Follow-up Studies", *International Workshop on Scientific Computing: Models, Algorithms and Applications,* 2006.
10. Tianming Liu, Jingxin Nie, Dexing Chen, Gang Li, Xiao Wu, Jianfeng Lu, Lei Quo, Jinmin Zhu, Weiming Xia, Jarema Malicki, Scott Holley, Stephen Wong, "ZFIQ: Zebrafish Image Quantitator - a computerized tool for automated quantitative zebrafish phenotyping", 2nd Strategic Conference of Zebrafish Investigators, 2007.
11. Bernard Chang, Tami Katzir, Tianming Liu, Kathleen Corriveau, Mirit Barzillai, Kira A. Apse, Adria Bodell, David Hackney, David Alsop, Stephen Wong, and Christopher Walsh, "A Structural Basis for Reading Fluency: Cortico-cortical Fiber Tract Disruptions Are Associated with Reading Impairment in a Neuronal Migration Disorder", Annual Meeting of American Academy of Neurology, 2007.
12. Sibel Kantarci, Lihadh Al-Gazali, Robert S. Hill, Dian Donnai, Graeme C.M. Black, Eric Bieth, Nicolas Chassaing, Didier Lacombe, Koen Devriendt, Ahmad Teebi, Maria Loscertales, Caroline Robson, Tianming Liu, David T. MacLaughlin, Kristin M. Noonan, Meaghan K. Russell, Christopher A. Walsh, Patricia K. Donahoe, Barbara R. Pober, "Mutations in megalin, a multi-ligand receptor, cause Donnai-Barrow syndrome characterized by corpus callosum, ocular, neurosensory, craniofacial, and diaphragmatic defects", *European Human Genetics Conference*, 2007.
13. Tianming Liu, Stephen Wong, "Human brain mapping for the understanding of neurodegenerative and neurological diseases", Houston Society for Engineering in Medicine and Biology, Feb. 2008.
14. Tianming Liu, "Brain Morphometry based on Central Cortical Surface Representation", NIH NIBIB Career Award Grantee Meeting, June, 2008.
15. Tami Katzir, Tianming Liu, Jenny Ly, Kathleen Corriveau, Mirit Barzillai, Margaret O'Connor, David B. Hackney, Bernard S. Chang, "Volumetric analysis of neuronal migration disorders: Gray matter heterotopia and cognitive function", *American Epilepsy Society*, 2008.
16. Tianming Liu, "Computational Modeling of Gyrification of the Human Cerebral Cortex", HHMI Workshop on "What can computer vision do for neuroscience and visa versa", Janelia farm campus, 2008.
17. Vincent Mok, Tianming Liu, Wynnie W.M. Lam, Adrian Wong, Xintao Hu, Lei Guo, Xiang Yan Chen, Ka S Wong, and Stephen Wong, "Neuroimaging predictors for cognitive impairment in confluent white matter lesions: volumetric analysis of 99 brain regions", *10th International Hong Kong/Springfield Pan-Asian Symposium on Advances in Alzheimer Therapy*, 2008.
18. Tianming Liu, Joint modeling of cortical folding and connectivity patterns, International symposium of computational medicine, Beijing, 2009.
19. Faraco, C.C., Li, K., Langely, J., Zhao, Q., Tianming Liu, & Miller, L.S, Granger Causality and Tractography Reveal Unique Connectivity of Complex Working Memory Span System, *Human Brain Mapping*, 2010.
20. Dajiang Zhu, Tianming Liu, Connectomics signatures for characterization of Schizophrenia, *Human Brain Mapping*, 2012.

21. Xiang Li, Dajiang Zhu, Xi Jiang, Changfeng Jin, Tianming Liu, Common Functional Connectomics Discovered from Brain Functional Connectivity Dynamics, *Organization of Human Brain Mapping (OHBM)*, 2013.
22. Xiang Li, Changfeng Jin, Dajiang Zhu, Xi Jiang, Tianming Liu, Functional Initiator, Terminator and Communicator: Roles of DICCCOLs, *Organization of Human Brain Mapping (OHBM)*, 2013.
23. Jinglei Lv, Lei Guo, Dajiang Zhu, Tuo Zhang, Kaiming Li, Xi Jiang, Tianming Liu, Group-wise fMRI activation detection based on DICCCOL, *Organization of Human Brain Mapping (OHBM)*, 2013.
24. Jinglei Lv, Xintao Hu, Tuo Zhang, Dajiang Zhu, Kaiming Li, Lei Guo, Tianming Liu, Modeling Cognitive Processes via Multi-stage Consistent Functional Response Detection Using DICCCOL, *Organization of Human Brain Mapping (OHBM)*, 2013.
25. Xi Jiang, Tuo Zhang, Dajiang Zhu, Kaiming Li, Hanbo Chen, Jinglei Lv, Changfeng Jin, Yixuan Yuan, Xintao Hu, Junwei Han, Dinggang Shen, L Stephen Miller, Lingjiang Li, Lei Guo, Tianming Liu, DICCCOL-II: The Second Generation of Dense Individualized and Common Connectivity-based Cortical Landmarks*, Organization of Human Brain Mapping (OHBM)*, 2013.
26. Xi Jiang, Jinglei Lv, Tuo Zhang, Lei Guo, Tianming Liu, Integrating Group-wise Functional Brain Activities via Point Processes, *Organization of Human Brain Mapping (OHBM)*, 2013.
27. Shu Zhang, Jinglei Lv, Tuo Zhang, Xiang Li, Xi Jiang, Lei Guo, Tianming Liu, Activated Cliques: Network-based Activation Detection in Task-based FMRI, *Organization of Human Brain Mapping (OHBM)*, 2013.
28. Tuo Zhang, Dajiang Zhu, Xi Jiang, Lei Guo, Tianming Liu, Predicting functional cortical ROIs via joint modeling of anatomical and connectional profiles, *Organization of Human Brain Mapping (OHBM)*, 2013.
29. Tuo Zhang, Dajiang Zhu, Xi Jiang, Lei Guo, Tianming Liu, U-shape axonal fibers course along sulci and connect neighboring gyri, *Organization of Human Brain Mapping (OHBM)*, 2013.
30. Dajiang Zhu, Kaiming Li, Douglas P. Terry, A. Nicholas Puente, Lihong Wang, Dinggang Shen, L. Stephen Miller, Tianming Liu, Connectome-scale Assessments of Structural and Functional Connectivity in Mild Cognitive Impairment, *Organization of Human Brain Mapping (OHBM)*, 2013.
31. Dajiang Zhu, Tianming Liu, Modeling Hierarchical Components and Information Flows in Working Memory Cognitive Processes, *Organization of Human Brain Mapping (OHBM*), 2013.
32. Hanbo Chen, Kaiming Li, Dajiang Zhu, Xi Jiang, Yixuan Yuan, Peili Lv, Tuo Zhang, Lei Guo, Dinggang Shen, Tianming Liu, Inferring Group-wise Consistent Multimodal Brain Networks via Multi-view Spectral Clustering, *Organization of Human Brain Mapping (OHBM)*, 2013.
33. Hanbo Chen, Kaiming Li, Dajiang Zhu, Lei Guo, Tianming Liu, Group-wise Optimization and Individualized Prediction of Structural Connectomes, *Organization of Human Brain Mapping (OHBM)*, 2013.
34. Lindbergh, C. A., Lv, J., Zhao, Y., Mewborn, C. M., Puente, A. N., Terry, D. P., Renzi-Hammond, L. M., Hammond, B. R., Tianming, L., & Miller, L. S., Cognitive reserve moderates the relationship between older ages and inter-connectivity of resting state networks, *National Academy of Neuropsychology*, 2017.

INVITED PRESENTATIONS:

1. "Perceptual Frame Dropping in Adaptive Video Streaming", *IEEE International Symposium on Circuits and Systems*, June, 2002
2. "Perception-aware Techniques in Video Compression and Streaming", Department of Electrical Engineering and Computer Sciences, University of California at Berkeley June, 2002
3. "Predictive Modeling of Cortical Structures", Department of Neurology, Yale University, July, 2004
4. "Predictive Modeling of Cortical Structures", Center for Bioinformatics, Harvard Center for Neurodegeneration and Repair, Harvard Medical School, August, 2004
5. "Predictive Modeling of Cortical Structures", University of Pennsylvania, Department of Radiology, August 4, 2004.
6. "Gray Matter Diffusivity Analysis of the Brain", Brigham and Women's Hospital, Harvard Medical school, July 27, 2005.
7. "Neuroimage Analysis for Neurodegeneration Diseases", MR Unit, VA Medical Center, University of California, San Francisco November, 2005
8. "Computer-Aided Diagnosis and Follow-up of Neurodegenerative & Neurological Diseases", Brigham and Women's Hospital and Harvard Medical School, April 4, 2006.
9. "Brain Mapping Techniques for Computer Aided Diagnosis and Follow Up", *Society for Industrial and Applied Mathematics,* June, 2006
10. "Neuroimage computing for neurodegenerative and neurological diseases", Methodist Hospital Research Institute, Houston and Weill Medical College of Cornell University, June, 2007
11. "Human brain mapping for the understanding of neurodegenerative and neurological diseases", Houston Society for Engineering in Medicine and Biology, February, 2008.
12. "Neuroimaging of neurodegenerative and neurological diseases", Department of Neurology, University of Alabama at Birmingham January, 2008
13. "Human brain mapping for diagnosis and followup of neurodegenerative and neurological diseases", Institute of Biomedical Imaging Science annual meeting, University of Houston, March, 2008
14. "Human Brain Mapping: Methods and Applications", Department of Computer Science, University of Houston, April, 2008
15. "Human Brain Mapping: Methods and Applications", Department of Biostatistics, Emory University, Department of Biostatistics and Bioinformatics October, 2008.
16. "Human Brain Mapping: Methods and Applications", Laboratory of Computational Systems Biology, Department of Biogeochemistry and Molecular Biology, University of Georgia, November, 2008
17. "Towards self-contained coordinate system for cerebral cortex", Vanderbilt University, Institute of Imaging Science, January, 2009.
18. Human Brain Mapping: Challenges and Opportunities, Med-X Institute, Shanghai Jiaotong University, May, 2009.
19. Human Brain Mapping: Challenges and Opportunities, School of Computer Science, Nanjing University of Science and Technology, May, 2009.
20. Human Brain Mapping: Challenges and Opportunities, Department of Biomedical Engineering, Zhejiang University, May, 2009.
21. Overview of fMRI data analysis, School of Automation, Northwestern Polytechnic University, May, 2009.

22. Human Brain Mapping: Challenges and Opportunities, Brain Imaging Institute, Beijing Normal University, June, 2009.
23. Human Brain Mapping: Challenges and Opportunities, Department of Computer Science, Central South University, June, 2009.
24. Visual knowledge discovery for Alzheimer's disease, Shenzhen Graduate School, Tsinghua University, June, 2009.
25. Joint modeling of cortical folding and connectivity patterns, University of Georgia, Department of Statistics, Oct. 2009.
26. Joint modeling of cortical folding and connectivity patterns, Emory University and Georgia Tech, Biomedical Imaging Technology Center, Oct. 2009.
27. Joint modeling of cortical folding and connectivity patterns, International Symposium of Computational Biomedicine, Chinese Academy of Science, Nov. 2009.
28. Dynamics on and of brain networks, Institute of Automation, Chinese Academy of Science, June, 2010.
29. Dynamics on and of brain networks, Institute of Automation, School of Computer Science, Shangdong University, June, 2010.
30. Neuomediomics: the interface of brain imaging and multimedia, Department of Computer Science, Indiana University-Purdue University Indianapolis, January, 2011.
31. Empirical mean curve decomposition for fMRI signal processing, special session on Control Systems and Signal Processing, 1068th American Mathematical Society (AMS) Sectional Meeting, Statesboro, GA, March, 2011.
32. Neuomediomics: the interface of brain imaging and multimedia, Department of Radiology, University of North Carolina, Chapel Hill, October, 2011.
33. Neuomediomics: the interface of brain imaging and multimedia, Department of Mathematics, University of Georgia, September, 2011.
34. Connectomics signatures for characterization of brain conditions, Department of Psychology, University of Georgia, November, 2011.
35. Imaging and Mapping of Human Brain Architecture, UGA NaoSEC, January, 2012.
36. Connectomics signatures for characterization of brain conditions, Department of Statistics, Yale University, January, 2012.
37. Neuomediomics: the interface of brain imaging and multimedia, Georgia Scientific Computing Symposium, February, 2012.
38. Imaging and mapping human brain architectures, Institute of Automation, Chinese Academy of Science, June, 2012.
39. Imaging and mapping human brain architectures, Zhejiang University, June, 2012.
40. Imaging and mapping human brain architectures, International Conference on Medical Image Analysis and Medical Applications, June, 2012.
41. Imaging and mapping human brain architectures, Department of ECE, Virginia Tech, October, 2012
42. Imaging and mapping human brain architectures, Department of Neuroscience, Georgia Health Sciences University, December, 2012.
43. Computational Representation of Brain Architectures, Department of EECS, Vanderbilt University, March 2013
44. Computational Representation of Brain Architectures, Department of Computer Science, Old Dominion University, April 2013.
45. Computational Representation of Brain Architectures and Its Applications in Brain Disorders, Georgia State University, February, 2014.
46. Multi-scale Mapping of Cortical Architectures, Oak Ridge National Lab, May, 2014.

47. Holistic Atlases of Functional Networks and Interactions, Department of Biostatistics, Emory University, Dec, 2014.

MAJOR PROFESSOR OF:

1. Dajiang Zhu, PhD student, (2008-2014)
2. Hanbo Chen, PhD student, (2010-2016)
3. Xi Jiang, PhD student, (2010-2016)
4. Xiang Li, PhD student, (2010-2016)
5. Shu Zhang, PhD student, (2012-2018)
6. Yu Zhao, PhD student, (2013-2018)
7. Wei Zhang, PhD studnet, (2014-2019)
8. Qinglin Dong, PhD stuent, (2014-2019)
9. Milad Makkie, PhD student, (2014-2018)
10. Yujie Li, PhD student, (2015-2018)
11. Fangfei Ge, PhD student, (2015-2019)
12. Lin Zhao, PhD student, (2019-)
13. Haixing Dai, PhD student, (2019-)
14. Zhengliang Liu, PhD student, (2021-)
15. Zihao Wu, PhD student, (2021-)
16. Steven Xu, PhD student, (2021-)
17. Fan Deng, PhD student, (2009-2011), Master student (2011-2012), graduated in May 2012.
18. Xin Li, Master student, (2010-2011, graduated in May 2011)
19. Hui Li, Master student, (2011-2012, transferred to USC in Dec 2012)
20. Sayali Birari, (2011-2013, graduated in May 2013)
21. Chan Il Park, (2011-2013, graduated in May 2013)
22. Michael Lavoi (2012-2014, graduated in July 2014)
23. Ting Xiao (2013-2014, graduated in July 2014)
24. Ruicheng Dai (2014-2015, graduated in July 2015)
25. Jinze Li (2016-2017, graduated in July 2017)
26. Zheliang Liu (2016-2018, graduated in July 2018)
27. Jugal Panchal (2017-2018, graduated in Sept 2018)
28. Anna Gann (2019-2020, graduated in April, 2020)

SUPERVISOR OF VISITING SCHOLARS:

1. Tuo Zhang, PhD student, (2010-2015)
2. Jinglei Lv, PhD student, (2011-2016)
3. Peng Wang, PhD student, (2012-2013)
4. Tao Liu, PhD, (2013-2014)
5. Yimin Hou, PhD, (2013-2014)
6. Shijie Zhao, PhD student, (2013-2015)
7. Qinghua Zhao, PhD student (2013-2015)
8. Xin Zhang, PhD student, (2011-2013)
9. Shu Zhang, PhD student, (2012)
10. Kaiming Li, PhD student, (2008-2012)
11. Degang Zhang, PhD student, (2009-2012)
12. Can Feng, PhD student, (2010-2011)
13. Jianquan Ouyang, PhD, (2010-2012)

14. Xingqiang Yang, PhD, (2009-2010)

GRADUATE/UNDERGRADUATE TEACHING

1. CSCI 6900, Special Topics in Computer Science, Spring 2009
2. CSCI 4850/6850, Biomedical Image Analysis, Fall 2009
3. CSCI 2720, Data Structures, Spring 2010
4. CSCI 8850, Advanced Biomedical Image Analysis, Spring 2010
5. CSCI 4810/6810, Computer Graphics, Fall 2010
6. CSCI 8850, Advanced Biomedical Image Analysis, Spring 2011
7. CSCI 4850/6850, Biomedical Image Analysis, Fall 2011
8. CSCI 2720, Data Structures, Spring 2012
9. CSCI 8850, Advanced Biomedical Image Analysis, Spring 2012
10. CSCI 1730, Systems Programming, Fall 2012
11. CSCI 8850, Advanced Biomedical Image Analysis, Spring 2013
12. CSCI 4850/6850, Biomedical Image Analysis, Fall 2013
13. CSCI 8850, Advanced Biomedical Image Analysis, Spring 2014
14. CSCI 2720, Data Structures, Fall 2014
15. CSCI 8860, Biomedical Informatics, Fall 2017

UNIVERSITY AND DEPARTMENTAL SERVICE:

1. Organizer, Fres 1010 (Franklin College of Arts and Sciences), Research Seminars for Freshman Students, Fall 2010
2. Award Committee (Chair), Department of Computer Scienece, 2010-present
3. Space Committee, Department of Computer Science, 2009-present
4. Web and Publication Committee, Department of Computer Science, 2011-present
5. Research Event Committee, Department of Computer Science, 2010-present
6. Faculty Search Committee, Bioimaging Research Center, 2010-2011
7. Faculty Search Committee, Institute of Bioinformatics and Department of Computer Science, Spring, 2012
8. Department Head Search Committe, Department of Computer Science, Spring, 2013
9. Faculty Search Committee, Departments of Computer Science and Cellular Biology, Spring, 2014.
10. Faculty Search Committee, Departments of Computer Science and College of Engineering, Spring, 2016.
11. Advisory Committee, OVRP GACRC, 2014-2017
12. Advisory Committee, UGA BIRC, 2015-now
13. Faculty Search Committee, Departments of Computer Science, Spring, 2018.
14. UGA BIRC advisory committee, Spring 2018
15. Faculty Senate of Franklin College, Fall 2018
16. Provost's Academic Excellence Task Force, Fall 2019-Spring 2020
17. UGA Faculty Admission Committee, Spring 2020 -

Michael Tiemeyer
Curriculum Vitae

Contact Information:

Michael Tiemeyer
Complex Carbohydrate Research Center
315 Riverbend Rd.
Athens, GA 30602-4712

706-542-2740 Phone
706-542-4412 FAX
770-315-9048 Cell
mtiemeyer@ccrc.uga.edu

Education/Training:

B.A.: The Johns Hopkins University, Baltimore, MD; Biology, 1982
Ph.D.: The Johns Hopkins University School of Medicine, Baltimore, MD; Neuroscience, 1989
Post-Doctoral: University of California at Berkeley, Berkeley, CA; Developmental Neurobiology, 1990-94

Professional Experience:

2022-Present: Director, Complex Carbohydrate Research Center
2022-Present: Interim Director, Center for Molecular Medicine
2019-Present: Co-Director, Complex Carbohydrate Research Center
2018-Present: Distinguished Research Professor, University of Georgia
2012-2019: Associate Director, Complex Carbohydrate Research Center
2010-Present: Professor, University of Georgia, Athens, GA, Complex Carbohydrate Research Center and Department of Biochemistry and Molecular Biology--Genetic control of glycan expression, Structure and function of cell-surface carbohydrates
2003-2010: Associate Professor, University of Georgia, Athens, GA, Complex Carbohydrate Research Center and Department of Biochemistry and Molecular Biology
2002-2003: Carbohydrate Chemist, Glyco Analytical Services, Eurofins Scientific, Inc.
2000-2002: Director of Analytics and New Method Development, Glyko, Inc. (a wholly-owned subsidiary of BioMarin Pharmaceuctical, Inc.); Manager, Biochemical and Clinical Analytics, BioMarin Pharmaceutical, Inc.; Led analytic groups through BLA/MAA submission and Pre-approval inspections by FDA and EMEA
1995-2000: Faculty member, Interdepartmental Neuroscience Program, Yale University
1994-2000: Assistant Professor, Yale University School of Medicine, Department of Cell Biology--Structure and function of cell-surface carbohydrates
1993-1994: Howard Hughes Medical Institute Research Associate--Continuation of studies begun under Helen Hay Whitney Fellowship in Corey Goodman's Laboratory
1990-1993: Helen Hay Whitney Foundation Post-Doctoral Fellowship, University of California at Berkeley, Department of Molecular and Cell Biology, Laboratory of Dr. Corey S. Goodman--Cell-surface glycoconjugates and cell-cell recognition in the developing nervous system of *Drosophila*
1990-1994: Consultant to Glycomed, Inc., Alameda, CA
1989-1990: Scientist, Glycomed, Inc., Alameda, CA--Identification and characterization of bioactive carbohydrate structures and their mode of action
1984-1989: Graduate Student, The Johns Hopkins University School of Medicine, Department of Neuroscience, Laboratory of Dr. Ronald L. Schnaar--Demonstration of protein receptors which specifically bind ganglioside oligosaccharides in the rat nervous system
1982-1984: Research Technician, The Johns Hopkins University School of Medicine, Department of Pediatric Neurology, Laboratories of Dr. Joseph T. Coyle and Dr. Harvey S. Singer--Neurochemistry and neuropathology associated with Down's Syndrome, cerebellar ataxia's, ganglioside storage diseases and Tourette's Syndrome

Awards and Honors:

2018-2021: President-elect, President, and Past-President, Society for Glycobiology
2018-Present: Distinguished Research Professor, University of Georgia
2013-2017: Poster and Social Chair, Vice Chair, and Chair over three consecutive Glycobiology Gordon Conferences
2011-Present: Editorial Board, Glycobiology
2011-2019: Publications Committee, Society for Glycobiology
2009-2012: Board of Directors, Society for Glycobiology
2006-2011: Editorial Board, Journal of Biological Chemistry

2005-2009: NIH Regular Study Section Member, Intercellular Interactions (ICI)
1999: European Society for Neurochemistry/International Society for Neurochemistry Young Investigator
1997-1999: March of Dimes Basil O'Connor Starter Scholar
1995-1998: Patrick and Catherine Weldon Donaghue Medical Research Foundation New Investigator
1993-1994: Howard Hughes Medical Institute Research Fellowship
1990-1993: Helen Hay Whitney Foundation Post-Doctoral Fellowship
1989: Certificate of Merit, Young Investigators Day, The Johns Hopkins University School of Medicine
1980-1981: Josiah Milbank Foundation Student Fellowship, Columbia University College of Physicians and Surgeons, Parkinson's Disease Foundation

Publications:

1. Takagi J, Aoki K, Turner B, Lamont S, Lehoux S, Kavanaugh N, Gulati M, Arevalo AV, Lawrence TJ, Kim C, Bakshi B, Nobile CJ, Cummings RD, Wozniak D, Tiemeyer M, Hevey R, Ribbeck K (2022) Mucin O-glycans as natural inhibitors of C. albicans filamentation, biofilm formation, and dual species competition. ***Nature Chem Bio***, re-submitted after revision.
2. Dookwah M, Wagner SK, Ishihara M, Yu S-H, Ulrichs H, Kulik MJ, Zeltner N, Dalton S, Strauss KA, Aoki K, Steet R, Tiemeyer M (2022) Neural-specific alterations in glycosphingolipid biosynthesis and cell signaling associated with two human ganglioside GM3 Synthase Deficiency variants. ***Hum Mol Genet***, resubmitted after revision.
3. Kumagai T, Ishihara M, Azadi P, Aoki K, Suzuki M, Ogawa S, Furukawa K, Tiemeyer M (2022) N- and O-linked glycans of the terrestrial worm *Enchytraeus japonensis*. ***Glycobiology***, under minor revision.
4. Prescott M, Fine-Coulson K, Metcalfe M, Gupta T, Dookwah M, Pavlicek R, Azami HY, Reaves B, Hikal A, Tiemeyer M, Karls R, Quinn F (2022) Role of Rv3351c in trafficking *Mycobacterium tuberculosis* bacilli in alveolar epithelial cells and its contribution to disease. ***PLOS ONE***, under minor revision.
5. Kato T, Radicioni G, Papanikolas MJ, Stoychev GV, Markovetz MR, Aoki K, Porterfield M, Okuda K, Barbosa Cardenas SM, Gilmore RC, Morrison CB, Ehre C, Burns KA, White KK, Brennan TA, Goodell HP, Thacker H, Loznev HT, Forsberg LJ, Nagase T, Rubinstein M, Randell SH, Tiemeyer M, Hill DB, Kesimer M, O'Neal WK, Ballard ST, Freeman R, Button B, Boucher RC (2022) Mucus concentration-dependent biophysical abnormalities unify submucosal gland and superficial airway dysfunction in cystic fibrosis. ***Sci Adv 8***, doi: 10.1126/sciadv.abm9718. PMID: 35363522
6. Aoki K, Kumagai T, Ranzinger R, Bergmann C, Camus A, Tiemeyer M. Serum N-Glycome Diversity in Teleost and Chondrostrean Fishes. (2021) ***Front Mol Biosci. 8***, doi: 10.3389/fmolb.2021.778383. PMID: 34859056
7. Kanack AJ, Aoki K, Tiemeyer M, Dahms NM. (2021) Platelet and myeloid cell phenotypes in a rat model of Fabry disease. ***FASEB J. 35***, e21818. doi: 10.1096/fj.202001727RR. PMID: 34320241
8. Navelkar R, Owen G, Mutherkrishnan V, Thiessen P, Cheng T, Bolton E, Edwards N, Tiemeyer M, Campbell MP, Martin M, Vora J, Kahsay R, Mazumder R. (2021) Enhancing the interoperability of glycan data flow between ChEBI, PubChem and GlyGen. ***Glycobiology 31***, 1510-1519. PMID: 34314492
9. Ng BG, Sosicka P, Fenaille F, Harroche A, Vuillaumier-Barrot S, Porterfield M, Xia ZJ, Wagner S, Bamshad MJ, Vergnes-Boiteux MC, Cholet S, Dalton S, Dell A, Dupré T, Fiore M, Haslam SM, Huguenin Y, Kumagai T, Kulik M, McGoogan K, Michot C, Nickerson DA, Pascreau T, Borgel D, Raymond K, Warad D, Flanagan-Steet H, Steet R, Tiemeyer M, Seta N, Bruneel A, Freeze HH. (2021) A mutation in SLC37A4 causes a dominantly inherited congenital disorder of glycosylation characterized by liver dysfunction. ***Am J Human Genetics 108***, 1040-1052. PMID: 33964207
10. Prescott M, Fine-Coulson K, Metcalfe M, Gupta T, Dookwah M, Pavlicek R, Azami HY, Reaves B, Hikal A, Tiemeyer M, Karls R, Quinn F (2021) Role of Rv3351c in trafficking *Mycobacterium tuberculosis* bacilli in alveolar epithelial cells and its contribution to disease. ***PLOS ONE***, under minor revision.
11. Huang YF, Aoki K, Akase S, Ishihara M, Liu YS, Yang G, Kizuka Y, Mizumoto S, Tiemeyer M, Gao XD, Aoki-Kinoshita KF, Fujita M. (2021) Global mapping of glycosylation in human-derived cells. ***Dev Cell 56***, 1195-1209; PMID: 33730547
12. Werlang CA, Chen WG, Aoki K, Wheeler KM, Tymm C, Mileti C, Tiemeyer M, Ribbeck K (2021) Mucin glycans suppress quorum sensing and genetic transformation in Streptococcus mutans. ***Nature Microbiology 6,*** 574-583. PMID: 33737747

13. Kurz S, Sheikh MO, Lu S, Wells L, Tiemeyer M. (2021) Separation and identification of permethylated glycan isomers by reversed phase nanoLC-NSI-MS^n. ***Mol Cell Proteomics, Online ahead of print.*** PMID: 33376194
14. Miller JJ, Bohnsack RN, Olson LJ, Ishihara M, Aoki K, Tiemeyer M, Dahms N (2021) Tissue plasminogen activator is a ligand of cation-independent mannose 6-phosphate receptor and consists of glycoforms that contain mannose 6-phosphate. ***Sci Rep***. ***11***, 8213. PMID: 33859256
15. Gonzalez-Gil A, Li TA, Porell RN, Fernandes SM, Tarbox HE, Lee HS, Aoki K, Tiemeyer M, Kim J, Schnaar RL. (2021) Isolation, identification, and characterization of the human airway ligand for the eosinophil and mast cell immunoinhibitory receptor Siglec-8. ***J Allergy Clin Immunol. 147***, 1442-1452. PMID: 32791164.
16. Perez-Gelvez YNC, Unger S, Kurz S, Rosenbalm K, Wright WM, Rhodes OE Jr, Tiemeyer M, Bergmann CW. (2021) Chronic exposure to low doses of ionizing radiation impacts the processing of glycoprotein N-linked glycans in Medaka (*Oryzias latipes*). ***Int J Radiat Biol. 97***, 401-420. PMID: 33346724
17. Rosenbalm KE, Tiemeyer M, Wells L, Aoki K, Zhao P. (2020) Glycomics-informed glycoproteomic analysis of site-specific glycosylation for SARS-CoV-2 spike protein. ***STAR Protoc. 1***, 100214. PMID: 33377107
18. Gestal MC, Blas-Machado U, Johnson HM, Rubin LN, Dewan KK, Bryant C, Tiemeyer M, Harvill ET (2020) Disrupting *Bordetella* Immunosuppression Reveals a Role for Eosinophils in Coordinating the Adaptive Immune Response in the Respiratory Tract. ***Microorganisms 8***, 1808. doi: 10.3390/microorganisms8111808. PMID: 33212993
19. Zhao P, Praissman JL, Grant OC, Cai Y, Xiao T, Rosenbalm KE, Aoki K, Kellman BP, Bridger R, Barouch DH, Brindley MA, Lewis NE, Tiemeyer M, Chen B, Woods RJ, Wells L. (2020) Virus-Receptor Interactions of Glycosylated SARS-CoV-2 Spike and Human ACE2 Receptor. ***Cell Host Microbe 28***, 586-601. PMID: 32841605
20. Ozdilek A, Paschall AV, Dookwah M, Tiemeyer M, Avci FY. (2020) Host protein glycosylation in nucleic acid vaccines as a potential hurdle in vaccine design for nonviral pathogens. ***Proc Natl Acad Sci USA 117***,1280-1282. PMID: 31907319.
21. Wang S, Voronin Y, Zhao P, Ishihara M, Mehta N, Porterfield M, Chen Y, Bartley C, Hu G, Han D, Wells L, Tiemeyer M, Lu S. (2020) Glycan Profiles of gp120 Protein Vaccines from Four Major HIV-1 Subtypes Produced from Different Host Cell Lines under Non-GMP or GMP Conditions. ***J Virol 94***, e01968-19. PMID: 31941770.
22. Olson LJ, Misra SK, Ishihara M, Battaile KP, Grant OC, Sood A, Woods RJ, Kim JP, Tiemeyer M, Ren G, Sharp JS, Dahms NM. (2020) Allosteric regulation of lysosomal enzyme recognition by the cation-independent mannose 6-phosphate receptor. ***Commun Biol. 3***, 498. PMID: 32908216.
23. Sun L, Paschall AV, Middleton DR, Ishihara M, Ozdilek A, Wantuch PL, Aceil J, Duke JA, LaBranche CC, Tiemeyer M, Avci FY. (2020) Glycopeptide epitope facilitates HIV-1 envelope specific humoral immune responses by eliciting T cell help. ***Nat Commun 11***, 2550. PMID: 32439962.
24. Markovetz MR, Subramani DB, Kissner WJ, Morrison CB, Garbarine IC, Ghio A, Ramsey KA, Arora H, Kumar P, Nix DB, Kumagai T, Krunkosky TM, Krause DC, Radicioni G, Alexis NE, Kesimer M, Tiemeyer M, Boucher RC, Ehre C, Hill DB. (2019) Endotracheal tube mucus as a source of airway mucus for rheological study. ***Am J Physiol Lung Cell Mol Physiol. 317***, L498-L509. PMID: 31389736.
25. Miller JJ, Aoki K, Mascari CA, Beltrame AK, Sokumbi O, North PE, Tiemeyer M, Kriegel AJ, Dahms NM. (2019) α-Galactosidase A-deficient rats accumulate glycosphingolipids and develop cardiorenal phenotypes of Fabry disease. ***FASEB J. 33***, 418-429. PMID: 29979634.
26. Dutta S, Aoki K, Doungkamchan K, Tiemeyer M, Bovin N, Miller DJ. (2019) Sulfated Lewis A trisaccharide on oviduct membrane glycoproteins binds bovine sperm and lengthens sperm lifespan. ***J Biol Chem. 294***, 13445-13463. PMCID: PMC6737213.
27. Miller JJ, Aoki K, Reid CA, Tiemeyer M, Dahms NM, Kassem IS. (2019) Rats deficient in α-galactosidase A develop ocular manifestations of Fabry disease. ***Sci Rep. 9***, 9392. doi: 10.1038/s41598-019-45837-1. PMID: 31253878.
28. Aoki K, Heaps AD, Strauss KA, Tiemeyer M (2019) Mass spectrometric quantification of plasma glycosphingolipids in human GM3 ganglioside deficiency. ***Clin Mass Spectrometry, accepted in press***.

29. Kumagai T, Palacios A, Casadevall A, García MJ, Toro C, Tiemeyer M, Prados-Rosales R (2019) Serum IgM Glycosylation Associated with Tuberculosis Infection in Mice. ***mSphere 4***, pii: e00684-18. doi: 10.1128/mSphere.00684-18. PMID: 30918063
30. Weatherly DB, Arpinar FS, Porterfield M, Tiemeyer M, York WS, Ranzinger R. (2019) GRITS Toolbox - a freely available software for processing, annotating, and archiving glycomics mass spectrometry data. ***Glycobiology 29,*** 452-460. PMID: 30913289
31. Bowser LE, Young M, Wenger OK, Ammous Z, Brigatti KW, Carson VJ, Moser T, Deline J, Aoki K, Morlet T, Scott EM, Puffenberger EG, Robinson DL, Hendrickson C, Salvin J, Gottlieb S, Heaps AD, Tiemeyer M, Strauss KA (2019) Recessive GM3 synthase deficiency: Natural history, biochemistry, and therapeutic frontier. ***Mol Genet Metab S1096-7192***, pii: S1096-7192(18)30764-9. doi: 10.1016/j.ymgme.2019.01.013. [Epub ahead of print]. PMID: 30691927
32. Aoki K, Tiemeyer M. (2018) Applying Glycomic Technology to Investigate the Consequences of Altered Glycosylation in Human ST3GAL5 Deficiency. ***Trends in Glycoscience snd Glycotechnology 30***, E33-E40.
33. Frappaolo A, Sechi S, Kumagai T, Karimpour-Ghahnavieh A, Tiemeyer M, Giansanti MG. (2018) Modeling Congenital Disorders of N-Linked Glycoprotein Glycosylation in Drosophila melanogaster. ***Front Genet. 9,*** doi: 10.3389/fgene.2018.00436. PMID: 30333856
34. Ferreira CR, Xia ZJ, Clément A, Parry DA, Davids M, Taylan F, Sharma P, Turgeon CT, Blanco-Sánchez B, Ng BG, Logan CV, Wolfe LA, Solomon BD, Cho MT, Douglas G, Carvalho DR, Bratke H, Haug MG, Phillips JB, Wegner J, Tiemeyer M, Aoki K; Undiagnosed Diseases Network; Scottish Genome Partnership, Nordgren A, Hammarsjö A, Duker AL, Rohena L, Hove HB, Ek J, Adams D, Tifft CJ, Onyekweli T, Weixel T, Macnamara E, Radtke K, Powis Z, Earl D, Gabriel M, Russi AHS, Brick L, Kozenko M, Tham E, Raymond KM, Phillips JA 3rd, Tiller GE, Wilson WG, Hamid R, Malicdan MCV, Nishimura G, Grigelioniene G, Jackson A, Westerfield M, Bober MB, Gahl WA, Freeze HH. (2018) A Recurrent De Novo Heterozygous COG4 Substitution Leads to Saul-Wilson Syndrome, Disrupted Vesicular Trafficking, and Altered Proteoglycan Glycosylation. ***Am J Hum Genet. 103***, 553-567. PMID: 30290151
35. Sun L, Ishihara M, Middleton DR, Tiemeyer M, Avci FY. (2018) Metabolic labeling of HIV-1 envelope glycoprotein gp120 to elucidate the effect of gp120 glycosylation on antigen uptake. ***J Biol Chem. 293***, 15178-15194. PMID: 30115684
36. Gonzalez-Gil A, Porell RN, Fernandes SM, Wei Y, Yu H, Carroll DJ, McBride R, Paulson JC, Tiemeyer M, Aoki K, Bochner BS, Schnaar RL. (2018) Sialylated keratan sulfate proteoglycans are Siglec-8 ligands in human airways. ***Glycobiology 28***, 786-801. PMID: 29924315
37. Yu WH, Zhao P, Draghi M, Arevalo C, Karsten CB, Suscovich TJ, Gunn B, Streeck H, Brass AL, Tiemeyer M, Seaman M, Mascola JR, Wells L, Lauffenburger DA, Alter G (2018) Exploiting glycan topography for computational design of Env glycoprotein antigenicity. ***PLoS Comput Biol 14***, ePub ahead of print. PMCID: PMC5931682
38. Miller JJ, Aoki K, Moehring F, Murphy CA, O'Hara CL, Tiemeyer M, Stucky CL, Dahms NM (2018) Neuropathic pain in a new Fabry Disease rat model. ***JCI Insight 3****, ePub ahead of print*. PMCID: PMC5926911
39. Kumagai T, Kiwamoto T, Brummet M, Wu F, Aoki K, Zhu Z, Bochner, B, Tiemeyer M (2018) Airway glycomic and allergic inflammatory consequences resulting from keratan sulfate galactose 6-O-sulfotransferase deficiency. ***Glycobiology 28****, 406-417*. PMCID: PMC5967469
40. Itoh K, Akimoto Y, Kondo S, Ichimiya T, Aoki K, Tiemeyer M, Nishihara, S (2018) Glucuronylated core 1 glycans are required for precise localization of neuromuscular junctions and normal formation of basement membranes on Drosophila muscles. ***Dev Biol 436***, 108-124. PMCID: PMC5898651
41. Tiemeyer M, Aoki K, Paulson J, Cummings RD, York WS, Karlsson NG, Lisacek F, Packer NH, Campbell MP, Aoki NP, Fujita A, Matsubara M, Shinmachi D, Tsuchiya S, Yamada I, Pierfce M, Ranzinger R, Narimatsu H, Aoki-Kinoshita KF (2017) GlyTouCan: an accessible glycan structure repository. ***Glycobiology 27***, 915-919. [PMID 28922742]
42. Carroll DJ, O'Sullivan JA, Nix DB, Cao Y, Tiemeyer M*, Bochner BS* (2017) Sialic acid-binding immunoglobulin-like lectin 8 (Siglec-8) is an activating receptor mediating β2-integrin-dependent function in

human eosinophils. ***J Allergy Clin Immunol***, *141, 2196-2207*. PMCID: PMC5839929 *co-corresponding authors

43. Frappaolo A, Sechi S, Kumagai T, Robinson S, Frashini R, Ghahnavieh AK, Belloni G, Piergentili R, Tiemeyer KH, Tiemeyer M*, Giansanti MG* (2017) COG7 deficiency in Drosophila generates multifaceted developmental, behavioral, and protein glycosylation phenotypes. ***J Cell Sci***, *130, 3637-3649* [PMID 28883096] *co-corresponding authors
44. Tiemeyer M, Nakato H, Esko JD (2017) Arthropoda, Chapter 26 in ***Essentials of Glycobiology***, (A. Varki, R. Cummings, J. Esko, P. Stanley, G. Hart, M. Aebi, A.G. Darvill, T. Kinoshita, N.H. Packer, J.H. Prestegard, R.L. Schnaar, P.H. Seeberger, eds.), 3rd edition, 335-349, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 2015-2017
45. Zhou T, Doria-Rose NA, Cheng C, Stewart-Jones GBE, Chuang GY, Chambers M, Druz A, Geng H, McKee K, Kwon YD, O'Dell S, Sastry M, Schmidt SD, Xu K, Chen L, Chen RE, Louder MK, Pancera M, Wanninger TG, Zhang B, Zheng A, Farney SK, Foulds KE, Georgiev IS, Joyce MG, Lemmin T, Narpala S, Rawi R, Soto C, Todd JP, Shen CH, Tsybovsky Y, Yang Y, Zhao P, Haynes BF, Stamatatos L, Tiemeyer M, Wells L, Scorpio DG, Shapiro L, McDermott AB, Mascola JR, Kwong PD (2017) Quantification of the impact of the HIV-1 glycan shield on antibody elicitation. ***Cell Rep*** 19, 719-732. PMCID: PMC5538809
46. Liu Y, McBride R, Stoll M, Palma AS, Silva L, Agravat S, Aoki-Kinoshita KF, Campbell MP, Costello CE, Dell A, Haslam SM, Karlsson NG, Khoo KH, Kolarich D, Novotny MV, Packer NH, Ranzinger R, Rapp E, Rud PM, Struwe WB, Tiemeyer M, Wells L, York WS, Zaia J, Kettner C, Paulson JC, Feizi T, Smith DF (2016) The minimum information required for a glycomics experiment (MIRAGE) project: Improving the standards for reporting glycan microarray-based data. ***Glycobiology 27***, 280-284. PMCID: PMC5444268
47. Struwe WB, Agravat S, Aoki-Kinoshita KF, Campbell MP, Costello CE, Dell A, Feizi T, Haslam SM, Karlsson NG, Khoo KH, Kolarich D, Liu Y, McBride R, Novotny MV, Packer NH, Paulson JC, Rapp E, Ranzinger R, Rudd PM, Smith DF, Tiemeyer M, Wells L, York WS, Zaia J, Kettner C. (2016) The minimum information for a glycomic experiment (MIRAGE) project: sample preparation guidelines for reliable reporting of glycomics datasets. ***Glycobiology 26***, 907-910. PMCID: PMC5045532
48. Mehta N, Porterfield M, Struwe WB, Heiss C, Azadi P, Rudd PM, Tiemeyer M*, Aoki K* (2016) Mass spectrometric quantification of N-linked glycans by reference to exogenous standards. ***J Proteome Res 15***, 2969-2980. [PMID 27432553] *co-corresponding authors
49. Parkinson WM, Dookwah M, Dear ML, Gatto CL, Aoki K, Tiemeyer M, Broadie K (2016) Synaptic roles for phosphomannomutase type 2 in a new Drosophila congenital disorder of glycosylation disease model. ***Dis Model Mech 9***, 513-527. [PMID 26940433]
50. Kurz S, Aoki K, Jin C, Karlsson NG, Tiemeyer M, Wilson I, Pashinger K (2015) Targeted release and fractionation reveal glucuronylated and sulphated N- and O-glycans in larvae of dipteran insects. ***J Proteomics 126,*** 172-188. [PMID 26047717]
51. Dwyer CA, Katoh T, Tiemeyer M, Matthews RT (2015) Neurons and glia modify receptor protein-tyrosine phosphatase ζ (RPTPζ)/phosphacan with cell-specific O-manosyl glycans in the developing brain. ***JBC 290***, 10256-10273. [PMID 25737452]
52. Bammens R, Mehta N, Race V, Foulquier F, Jaeken J, Tiemeyer M, Steet R, Matthijs G, Flanagan-Steet H. (2015) Abnormal Cartilage Development and Altered N-Glycosylation in Tmem165-Deficient Zebrafish Mirrors the Phenotypes Associated with TMEM165-CDG. ***Glycobiology 25,*** 669-682. [PMID 25609749]
53. Al Jadda K, Porterfield MP, Bridger R, Heiss C, Tiemeyer M, Wells L, Miller JA, York WS, Ranzinger R. (2015) EUROCarbDB(CCRC): a EUROCarbDB node for storing glycomics standard data. ***Bioinformatics 31***, 242-5. [PMID 25217575]
54. Kiwamoto T, Katoh T, Evans CM, Janssen WJ, Brummet ME, Hudson SA, Zhu Z, Tiemeyer M*, Bochner BS*. Endogenous airway mucins carry glycans that bind Siglec-F and induce eosinophil apoptosis. (2014) ***J Allergy Clin Immunol. 135***,1329-1340. [PMID 25497369] *co-corresponding authors
55. Allam H, Aoki K, Benigno BB, McDonald JF, Mackintosh SG, Tiemeyer M, Abbott KL. (2015) Glycomic Analysis of Membrane Glycoproteins with Bisecting Glycosylation from Ovarian Cancer Tissues Reveals Novel Structures and Functions. ***J Proteome Res 14,*** 434-446. [PMID 25437919]

56. Nix DB, Kumagai T, Katoh T, Tiemeyer M, Aoki K. (2014) Improved in-gel reductive β-elimination for comprehensive O-linked and sulfo-glycomics by mass spectrometry. ***J Vis Exp. 20***;(93):e51840. doi: 10.3791/51840. [PMID 25489664]
57. Eavonson M, Kochut KJ, Miller JA, Ranzinger R, Tiemeyer M, Aoki K, York WS (2015) Qrator: A web-based curation tool for glycan structures. ***Glycobiology 25***, 66-73. [PMID 25165068]
58. Kunduri G, Yaun C, Parthibane V, Nyswaner KM, Kanwar R, Nagashima K, Britt SG, Mehta N, Kotu V, Porterfield M, Tiemeyer M, Dolph PJ, Acharya U, Acharya JK (2014) Phosphatidic acid phosopholipase A1 mediates ER-Golgi transit of a family of G-protein-coupled receptors. ***J Cell Biol 206***, 79-95. [PMID 25002678]
59. York, WS, Agravat S, Aoki-Kinoshita KF, McBride R, Campbell MP, Costello CE, Dell A, Feizi T, Haslam SM, Karlsson N, Khoo KH, Kolarich D, Liu Y, Novotny M, Packer NH, Paulson JC, Rapp E, Ranzinger R, Rudd PM, Smith DF, Struwe WB, Tiemeyer M, Wells L, Zaia J, Kettner C. (2014) MIRAGE: The minimum information required for a glycomics experiment. ***Glycobiology 24***, 402-406. [PMID 24653214]
60. Porterfield M, Zhou P, Haiyong H, Cunningham J, Aoki K, Von Hoff DD, Demeure MJ, Pierce JM, Wells L*, Tiemeyer M* (2014) Discrimination between adenocarcinoma and normal pancreatic ductal fluid by glycoproteomic analysis. ***J Proteome Res 13***, 395-407 [PMID 24328148] *co-corresponding authors
61. Buccuto, L., Aoki, K., Flanagan-Steet, H., Chen, C-F., Fan, X., Bartel, F., Petukh, M., Pittman, A., Saul, R., Chaubey, A., Alexov, E., Tiemeyer, M.*, Steet, R.*, Schwartz, C.E.* (2014) A mutation in a ganglioside biosynthetic enzyme, ST3GAL5, results in Salt & Pepper Syndrome, a neurocutaneous disorder with altered glycolipid and glycoprotein glycosylation. ***Hum Mol Genet. 23,*** 418-433. [PMID 24026681] *co-corresponding authors
62. Kumagai, T., Katoh, T., Nix, D.B., Tiemeyer, M., Aoki, K. (2013) In gel b-elimination and aqueous-organic partition for improved O- and sulfoglycomics. ***Anal Chem. 85,*** 8692-9. [PMID 23937624]
63. Katoh, T., Takase, J., Tani, Y., Amamoto,R., Aoshima, N., Tiemeyer, M., Yamamoto, K., Ashida, H. (2013) Deficiency of a-glucosidase I alters glycoprotein glycosylation and lifespan in Caenorhabditis elegans. ***Glycobiology 23,*** 1142-51 [PMID 23836288]
64. Xiang, Y., Zhang, X., Nix, D., Katoh, T., Aoki, K., Tiemeyer, M., and Wang, Y. (2013) Regulation of protein glycosylation and sorting by the Golgi matrix proteins GRASP55/65. ***Nature Communications 4***, 1659. [PMID 23552074]
65. Kiwamoto T, Katoh T, Tiemeyer M, Bochner BS (2013) The role of lung epithelial ligands for Siglec-9 and Siglec-F in eosinophilic inflammation. ***Curr Opin Allergy Clin Immunol 13***, 106-111 [PMID 23160308]
66. Talabnin, K., Aoki, K., Saichua, P., Wongkham, S., Kaewkes, S., Boons, G-J., Sripa, B., and Tiemeyer, M. (2013) Stage-specific expression and antigenicity of glycoprotein glycans isolated from the human liver fluke, Opisthorchis viverrini. ***Int J Parasitol 43***, 37-50 [PMID 23174105]
67. Kadirvel G, Machado SA, Korneli C, Collins E, Miller P, Bess KN, Aoki K, Tiemeyer M, Bovin N, Miller DJ (2012) Porcine sperm bind to specific 6-sialylated biantennary glycans to form the oviduct reservoir. ***Biol Reprod 87***, 147, 1-11 [PMID 23115267]
68. Katoh T, Tiemeyer M (2012) The N's and O's of Drosophila glycoprotein glycobiology. ***Glycoconj J 30,*** 57-66. [PMID 22936173]
69. Nairn AV, Aoki K, dela Rosa M, Porterfield M, Lim J-M, Kulik M, Pierce JM, Wells L, Dalton S, Tiemeyer M*, Moremen KW* (2012) Regulation of glycan structures in murine embryonic stem cells: Combined transcript profiling of glycan-related genes and glycan structural analysis. ***J Biol Chem 287***, 37835-37856 [PMID 22988249] *co-corresponding authors
70. Geisler C, Kotu V, Sharrow M, Rendic D,Poltl G, Tiemeyer M*, Wilson IB*, Jarvis DL* (2012) The Drosophila neurally altered carbohydrate mutant has a defective Golgi GDP-fucose transporter. ***J Biol Chem 287***, 29599-29609 [PMID 22745127]. *co-corresponding authors
71. Sturgill ER, Aoki K, Lopez PH, Colacuricio D, Vajn K, Lorenzini I, Majic S, Yang WH, Heffer M, Tiemeyer M, Marth JD, Schnaar RL (2012) Biosynthesis of the major brain gangliosides GD1a and GT1b. ***Glycobiology 22***, 1289-1301 [PMID 22735313]
72. Moremen KW, Tiemeyer M, Nairn AV (2012) Vertebrate protein glycosylation: diversity, synthesis and function. ***Nat Rev Mol Cell Biol 13***, 448-462 [PMID 22722607]

73. Reilly MC, Aoki K, Wang ZA, Skowyra ML, Williams M, Tiemeyer M, Doering TL (2011) A xylophosphotransferase of Cryptococcus neoformans acts in protein O-glycan synthesis. ***J Biol Chem 286,*** 26888-26899
74. Stalnaker SH, Aoki K, Lim JM, Porterfield M, Liu M, Satz JS, Buskirk S, Xiony Y, Zhang P, Campbell KP, Hu H, Live D, Tiemeyer M, Wells L (2011) ***J Biol Chem 286***, 21180-21190
75. Baas S, Sharrow M, Kotu V, Middleton M, Nguyen, K, Flanagan-Steet H, Aoki K, **Tiemeyer M** (2011) Sugar-free frosting/SAD kinase drives neural-specific glycan expression in the Drosophila embryo. ***Development* 138**: 553-563. [PMID: 21205799] (A ***Nature Functional Glycomics Gateway*** featured article; March, 2011; N-glycosylation: Regulatory affairs. ***Functional Glycomics 2011***, doi:10.1038/fg.2011.10)
76. Aoki K, Tiemeyer M (2010) The glycomics of glycan glucuronylation in Drosophila melanogaster. ***Methods Enzymol 480***, 297-321
77. Stalnaker SH, Hashmi S, Lim JM, Aoki K, Porterfield M, Gutierrez-Sanchez G, Wheeler J, Ervasti JM, Bergmann C, Tiemeyer M, Wells L (2010) Site-mapping and characterization of O-glycan structures on alpha-dystroglycan isolated from rabbit skeletal muscle. ***J. Biol. Chem.* 285**: 24882-91.
78. Rendic, D., Sharrow, M., Katoh T., Overcarsh, B., Nguyen, K., Kapurch, J., Aoki, K., Wilson, IB, Tiemeyer, M (2010) Neural-specific alpha3-fucosylation of N-linked glycans in the Drosophila embryo requires Fucosyltransferase A and influences developmental signaling associated with O-glycosylation. ***Glycobiology* 20:** 1353-1365.
79. Orlando, R., Lim, J-M., Atwood, J., Angel, P., Fang, M., Alvarez-Manilla, G., Moremen, K., York, W., Tiemeyer, M., Pierce, M., Dalton, S., and Wells, L. (2009) IDAWG: Metabolic incorporation of stable isotope labels for quantitative glycomics of cultured cells. ***J Proteome Res 8,*** 3816-3823
80. Sharrow, M., Aoki, K., Baas, S., Porterfield, M., and Tiemeyer, M. (2009) Genetic and Structural Analysis of the Glycoprotein and Glycolipid Glycans of *Drosophila melanogaster*. in ***Handbook of Glycomics*** (R. Cummings and J.M. Pierce, eds), Elsevier, Amsterdam
81. Lim J-M, Aoki, K., Angel, P., Garrison, D., King, D., Tiemeyer, M., Bergmann, C., and Wells, L. (2009) Mapping glycans onto specific N-linked glycosylation sites of Pyrus communis PGIP redefines the interface for EPG-PGIP interactions. ***J Proteome Res 8,*** 673-680
82. Aoki, K., Porterfield, M., Lee, S.S., Dong, B., Nguyen, K., McGlamry, K.H., and Tiemeyer, M. (2008) The diversity of O-linked glycans expressed during *Drosophila melanogaster* development reflects stage- and tissue-specific requirements for cell signaling. ***J Biol Chem 283***, 30385-30400 (A ***Nature Functional Glycomics Gateway*** featured article; October, 2008; Protein O-glycosylation: *Drosophila* on acid. ***Functional Glycomics 2008***, doi:10.1038/fg.2008.44)
83. Nimrichter, L., Burdick, M.M., Aoki, K., Laroy, W., Fierro, M.A., Hudson, S.A., Von Seggern, C.E., Cotter, R.J., Bochner, B.S., Tiemeyer, M., Konstantopoulos, K., and Schnaar, R.L. (2008) E-selectin receptors on human leukocytes. ***Blood 112***, 3744-3752
84. Abbott, K.L., Aoki, K., Lim, J-M., Perlman, M., Johnson, R., O'Regan, R.M., Wells, L., Tiemeyer, M., and Pierce, M. (2008) Targeted glycoproteomic identification of biomarkers for human breast carcinoma. ***J Proteome Res 7***, 1470-1480
85. Tiemeyer, M., Selleck, S.B. and Esko, J.D. (2008) Arthropoda, Chapter 24 in ***Essentials of Glycobiology***, (A. Varki, R. Cummings, J. Esko, H. Freeze, G. Hart and J. Marth, eds.), Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 347-362
86. Koles, K., Lim, J-M., Aoki, K., Porterfield, M., Tiemeyer, M.*, Wells, L.*, and Panin, V.* (2007) Identification of N-glycosylated proteins from the central nervous system of *Drosophila melanogaster*. ***Glycobiology 17***, 1388-1403, *co-corresponding authors
87. Aoki, K., Perlman, M., Lim, J-M, Cantu, R., Wells, L., and Tiemeyer, M. (2007) Dynamic developmental elaboration of N-linked glycan complexity in the *Drosophila melanogaster* embryo. ***J Biol Chem 282***, 9127-9142
88. Matani, P.M., Sharrow, M., and Tiemeyer, M. (2006) Ligand, modulatory, and co-receptor functions of neural glycans. Invited review, ***Frontiers of Bioscience 12***, 3852-3879
89. Müller, R., Hülsmeier, A.J., Altmann, R., Ten-Hagen, K., Tiemeyer, M. and Hennet, T. (2005) Characterization of mucin-type core-1 beta1-3 galactosyltransferase homologous enzymes in *Drosophila melanogaster*. ***FEBS Journal 272***, 4295-4305

90. Seppo, A.S., Matani, P.M., Sharrow, M. and Tiemeyer, M. (2003) Induction of neuron-specific glycosylation by Tollo/Toll-8, a *Drosophila* Toll-like receptor expressed in non-neural cells. ***Development 130***, 1449-1448 (Featured by ***Science STKE*** as an Editor's Choice article; February, 2003; Toll-like Receptor Influences Glycosylation. ***Sci. STKE 2003***, tw77)
91. Matthews, R.T., Kelly, G.M., Zerillo, C.A., Tiemeyer, M. and Hockfield, S. (2002) Aggrecan glycoforms contribute to the molecular heterogeneity of perineuronal nets. ***J Neurosci 22***, 7536-7547
92. Sharrow, M and Tiemeyer, M. (2001) Gliolectin-mediated carbohydrate binding at the *Drosophila* midline ensures the fidelity of axon pathfinding. ***Development 128***, 4585-4595
93. Colmenares, M., Tiemeyer, M., Kima, P. and McMahon-Pratt, D. (2001) Biochemical and biological characterization of the protective *Leishmania pifanoi* amastigote antigen, P8. ***Infection and Immunity 69***, 6776 - 6784
94. Stern, C.A. and Tiemeyer, M. (2001) A ganglioside-specific sialyltransferase localizes to axons and non-Golgi structures in neurons. ***J Neurosci 21***, 1434-1443
95. Seppo, A. and Tiemeyer, M. (2000) Function and structure of *Drosophila* glycans. ***Glycobiology 10***, 751-760
96. Seppo, A., Moreland, M., Schweingruber H. and Tiemeyer, M. (2000) Zwitterionic and acidic glycolipids of the *Drosophila melanogaster* embryo. ***Eur J Biochem 267***, 3549-3558
97. Stern, C.A., Braverman, T.R. and Tiemeyer, M. (2000) Molecular identification, tissue distribution and subcellular localization of mST3GalV/GM3 synthase. ***Glycobiology 10***, 365-374
98. Tiemeyer, M. (1999) How sweet the fly? ***ISN News 2***, 64-67
99. Seppo, A. and Tiemeyer, M. (1998) Protein Glycosylation in ***Cells: A Laboratory Manual*** (D.L. Spector and R. Goldman, eds.) Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York
100. Tiemeyer, M. and Goodman, C.S. (1996) Gliolectin is a novel carbohydrate binding protein expressed by a subset of glia in the embryonic *Drosophila* nervous system. ***Development 122***, 925-936
101. Schnaar, R.L., Mahoney, J.A., Swank-Hill, P., Tiemeyer, M. and Needham, L.K. (1994) Receptors for gangliosides and related glycosphingolipids on central and peripheral nervous system cell membranes. ***Prog Brain Res 101***, 185-97
102. Tiemeyer, M., Brandley, B.K., Ishihara, M., Swiedler, S.J., Greene, J., Hoyle, G.W. and Hill, R.L. (1992) The binding specificity of normal and variant rat Kupffer cell (lectin) receptors expressed in COS cells. ***J Biol Chem 267***, 12252-12257
103. Srnka, C.A., Tiemeyer, M., Gilbert, J.H., Moreland, M., Schweingruber, H., De Lappe, B.W., James, P.G., Gant, T., Willoughby, R.E., Yolken, R.H., Nashed, M.A., Abbas, S.A. and Laine, R.A. (1992) Cell surface ligands for rotavirus: Mouse intestinal glycolipids and synthetic carbohydrate analogs. ***Virology 190***, 794-805
104. Tiemeyer, M., Swiedler, S.J., Ishihara, M., Moreland, M., Schweingruber, H., Hirtzer, P and Brandley, B.K. (1991) Carbohydrate ligands for endothelial-leukocyte adhesion molecule-1. ***PNAS 88***, 1138-1142
105. Tiemeyer, M., Swank-Hill, P. and Schnaar, R.L. (1990) A membrane receptor for gangliosides is associated with central nervous system myelin. ***J Biol Chem 265***, 11990-11999
106. Tiemeyer, M. and Schnaar, R.L. (1990) Receptors for gangliosides on rat brain membranes: specificity, regional and subcellular distribution. in ***Trophic Factors in the Nervous System***, (L.A. Horrocks, et al., eds.), Raven Press, Ltd., New York, pp. 119-133
107. Tiemeyer, M., Yasuda, Y. and Schnaar, R.L. (1989) Ganglioside specific binding protein on rat brain membranes. ***J Biol Chem 264***, 1671-1681
108. Yasuda, Y., Tiemeyer, M., Blackburn, C.C. and Schnaar, R.L. (1987) Neuronal recognition of gangliosides: Evidence for a brain ganglioside receptor. in ***New Trends in Ganglioside Research: Neurochemical and Neuroregenerative Aspects*** (R. Ledeen, G. Tettamanti, R. Yu, E. Hogan, and A. Yates, eds.), Liviana Press, Padova and Springer Verlag, New York, pp. 229-243
109. Singer, H.S., Tiemeyer, M., Slesinger, P. and Sinnott, M. (1987) Inactivation of GM1 ganglioside β-galactosidase by a specific inhibitor: A model for ganglioside storage disease. ***Ann of Neurol 21***, 497-503
110. Singer, H.S. and Tiemeyer, M. (1985) The establishment of in vitro systems to evaluate neuronal toxicity. in ***In vitro Toxicology*** (Goldberg, A.M., ed.) Mary Ann Liebert, New York. pp. 269-292

111. Tiemeyer, M., Singer, H.S., Troncoso, J.C., Cork, L.C., Coyle, J.T. and Price D.L. (1984) Synaptic neurochemical alterations associated with neuronal degeneration in an inherited cerebellar ataxia of Gordon Setters. ***J Neuropath and Exp Neurol 43***, 580-591
112. Singer, H.S., Tiemeyer, M., Hedreen, J.C., Gearhart, J. and Coyle, J.T. (1984) Morphologic and neurochemical studies of embryonic brain development in murine trisomy 16. ***Dev Brain Res 15***, 155-166
113. Singer, H.S., Weaver, D., Tiemeyer, M. and Coyle, J.T., (1983) Synaptic chemistry associated with aberrant neuronal development in the reeler mouse. ***J Neurochem 41***, 874-881

Patent Authorships:

1. Wells, L., Orlando, R., Dalton, S., Moremen, K., Pierce, M., Atwood, J., Tiemeyer, M., and York, W. (2008) IDAWG: A novel quantitative method for glycomics. ***U.S. Pat. No. 20100297609***
2. Brandley, B.K., Tiemeyer, M., Swiedler, S.J., Moreland, M. and Schweingruber, H. (1992) Method of determining a site of inflammation utilizing ELAM-1 ligands. ***U.S. Pat. No. 5,143,712***
3. Brandley, B.K., James, P.G. and Tiemeyer, M. (1992) Electro-blotting of electrophoretically resolved fluorescent-labeled saccharides and detection of active structures with protein probes. ***U.S. Pat. Nos. 5,019,231 and 5,094,731***
4. Brandley, B.K., Tiemeyer, M. and Stack, R.J. (1992) Fluorescent tag for sugar electrophoresis. ***U.S. Pat. No. 5,087,337***

Invited Presentations:

Common Fund Glycoscience Annual Meeting, 2022
Emory University School of Medicine, 2022
Common Fund Data Ecosystem Anatomy Working Group, 2021
George Washington University, 2021
ASBMB Annual meeting, 2021
NCI Alliance of Glycobiologists for Cancer Research, 2021
Glycobiology Gordon Conference, 2021 (Cancelled due to COVID-19)
ASBMB Special Topic Webinar, 2020
Stony Brook University, 2020
GlyGen Webinar, 2020
Swiss Bioinformatics Institute Webinar, 2020
University of Chicago, 2020 (Cancelled due to COVID-19)
Glycobiology Gordon Conference, 2019
Boston Glycoscience Discussion Group, Boston, MA, 2019
Human Glycome Meeting, Split, Croatia, 2019
Texas A&M, College Station, TX, 2018
Society for Glycobiology, New Orleans, Louisiana, 2018
Medical College of Wisconsin, 2018
Society for Glycobiology, Portland, OR, 2017
University of Arkansas for Medical Science, Little Rock, AR, 2017
GM3 Family Day, Clinic for Special Children, Strasburg, PA, 2017
Johns Hopkins University School of Medicine, Dept. Biological Chemistry Seminar, Baltimore, MD, 2017
Mucous and Mucociliary Diseases Gordon Conference, Galveston, TX, 2017
Children's Hospital of Pittsburgh, 2016
Warren Workshop, Sapporo, Japan, 2016
Ishikawa Prefectural University, Ishikawa, Japan, 2016
Society for Glycobiology, 2016
University of Copenhagen, Copenhagen, Denmark, 2016
Gates Foundation, Seattle, WA, 2016
Emory University School of Medicine, Atlanta, GA, 2015
University of North Carolina, Chapel Hill, NC, 2015
Translational Medicine in Plain Populations, Annual Meeting of the Clinic for Special Children, Franklin and Marshall College, Lancaster, PA, 2015

Society for Glycobiology, Honolulu, HI, 2014
Warren Workshop, Galway, Ireland, 2014
Cleveland Clinic, Cleveland, OH, 2014
FDA/NIH Glycoscience Day, NIH, 2014
GM3 Family Day, Clinic for Special Children, Strasburg, PA, 2014
Society for Glycobiology, 2013
Northwestern University Feinburg School of Medicine, 2013
Academia Sinica, Taipai, Taiwain, 2013
International Glycoconjugate Meeting, Dalian, China, 2013
Beilstein Glycoinformatics Conference, Berlin, Germany, 2013
USHUPO, Baltimore, MD, 2013
Warren Workshop, Athens, GA, 2012
Society for Glycobiology, 2012
University of Michigan, 2012
FDA/NIH Glycoscience Day, NIH, 2012
National Technology Centers for Networks and Pathways Annual Meeting, NIH, 2012
GlycoT, Hanover, Germany, 2012
International Symposium for Glycobiology and Systemic Bioscience, Busan, Korea, 2012
Korean Society for Glycoscience, Changwon National University, 2012
Eurocarb 16th European Carbohydrate Symposium, Sorrento, Naples, 2011
Society for Glycobiology, 2011
Glycobiology Gordon Conference, 2011
Society for Glycobiology, 2010
USHUPO Raleigh-Durham, NC, 2010
International Glycoconjugate Meeting, San Juan, Puerto Rico, 2009
EurocarbDB Closing Meeting, University College Dublin, Dublin, 2009
HUPO Membrane Proteomics Initiative Meeting, Academia Sinica, Taipai, Taiwain, 2009
EurocarbDB Annual Meeting, Imperial College, London, 2009
NIH, Analytical Glycomics and Bioinformatics, Bethesda, MD, 2009 (meeting co-organizer)
Kyoto University, Kyoto, Japan, 2009
JSPS Cancer Glycomics, Ise-Shima, Japan, 2009
Medical College of Georgia, 2009
Glycobiology Gordon Conference, 2009 (Invited to present but could not attend)
Society for Glycobiology, 2008
Einstein Medical College/Yeshiva University, 2008
International Glycosyltransferase Meeting, 2008
Vanderbilt University, 2008
Society for Glycobiology, 2007
University of Wyoming, 2007
Glycobiology Gordon Conference, 2007 (Session Chair and Research Presentation)
Society for Glycobiology, 2006
Neurology Update, St. Mary's Healthcare System, 2006
Clemson University, 2005
Glycobiology Gordon Conference, 2005
Georgia Glycoscience Symposium, 2005
Society for Glycobiology, 2004
Texas A & M, 2004
University of Georgia, Dept. of Cell Biology, 2003
Medical College of Georgia, 2003
Complex Carbohydrate Research Center, 2002
NIH-NCI, 2001
European Soc. for Neurochem./International Soc. for Neurochem. Young Investigator, Berlin, Germany, 1999

Society for Glycobiology, 1997
Society for Glycobiology, 1996
University of Michigan Medical School, 1995

Grants Awarded:

1. GlyGen Growth and Evolution into a Central Resource for Glycans and Glycoconjugates, NIH, co-PI. $1,500,00 per year direct, 5 years (Award Notice pending, expected Sept. 30, 2022)
2. Computational and Informatics Resources and Tools for Glycoscience Research. 6/17-5/22
   NIH Directors Office Common Fund/NIGMS, U01GM125267, PI
   $1,800,000 Direct per year (Tiemeyer portion: $1,100,000)
3. Development of selective chemical tools to investigate sialyltransferases and sialoside products. 4/20-4/22
   NIH/NIGMS, 1R221GM13534, co-PI
   $125,000 Direct per year (Tiemeyer portion: $50,000)
4. Ganglioside replacement therapy for GM3 Synthase Deficiency. 9/19-8/21
   NIH/NICHD, 1R21HD097403, co-PI
   $125,000 Direct per year (Tiemeyer portion: $30,000)
5. Human Airway Colonization by Mycoplasma pneumoniae. 4/14-4/20
   NIH/NIAID, 1R01AI110098, co-PI
   $200,000 Direct per year (Tiemeyer portion: $40,000)
6. 2017 and 2019 Glycobiology Gordon Research Conference and Gordon Research Seminar. 12/16-11/19
   NIH-NIDCR, PI
   $62,990 Direct per year
7. The Glycomics of Human Neurodegenerative, Developmental, and Cognitive Disorders. 1/15-12/18
   The WM Keck Foundation, PI
   $600,000 Direct per year
8. Workshops in Glycosciences. 8/13-8/15
   NIH-NIGMS, 1U13GM101862, PI (J. Prestegard, co-PI)
   $85,000 Direct per year
9. HIV ENV glycoprotein glycosylation. 10/13-10/16
   Gates Foundation, co-PI
   $250,000 Direct per year
10. Lung Inflamatory Disease, Program of Excellence in Glycoscience. 7/11-5/18
    NIH/NHLBI, 1P01 HL107151, PI Project 4
    $1,905,970 Total; $262,500 Direct per year for Project 4
11. Mechanisms regulating glycan expression and function. 7/05-6/09
    NIH/NIGMS, 1R01GM07283901, PI
    $1,184,000 Total; $200,000 Direct per year
12. N-glycosylation mechanism in insect cells. 7/09-5/11
    NIH/NIGMS, 3R01GM049734-15S1, PI on subcontract to the supplement
    $177,600 Total; $60,000 Direct per year
13. Defining the interface between innate immunity and glycan expression. 6/10-5/11
    Mizutani Foundation for Glycoscience, Co-PI
    $70,000 Total; $64,000 Direct per year
14. Understanding mechanisms of hESC self-renewal and cell fate commitment. 8/08-7/13
    NIGMS, 1 P01 GM085354, Co-PI
    $925,000 Total; $125,000 Direct per year
15. Tumor glycomics for discovery of pancreatic cancer markers. 7/07-6/17
    NIH/NCI, U01 CA128454, Co-PI
    $555,000 Total; $75,000 Direct per year
16. National Center for Biomedical Glycomics. 7/13-6/18
    NIH/NCRR, P41RR018502, Co-PI
    $555,000 Total; $125,000 Direct per year
17. Integrated resource for biomedical glycomics. 7/08-6/13

NIH/NCRR, P41RR018502, Co-PI
$555,000 Total; $75,000 Direct per year

18. N-linked oligosaccharide standards for glycomics. 8/09-7/10
NIH//NIGMS/Consortium for Functional Glycomics Bridging Grant, PI
$75,000 Total; $35,000 Direct per year
19. O-linked oligosaccharide standards for glycomics. 8/09-7/10
NIH/NIGMS/Consortium for Functional Glycomics Bridging Grant, Co-PI
$75,000 Total; $15,000 Direct per year
20. Glycan site-mapping and characterization of alpha-dystroglycan. 12/05-12/07
Muscular Dystrophy Association, MDA4074, Co-PI
$183,000 Total; $83,000 Direct per year
21. Carbohydrates and lectins in neural development. 4/97-3/00
NIH/NICHD, 1R01HD33878, PI
$580,000 Total; $114,000 Direct per year
22. Functional analysis of carbohydrates and lectins in neural development. 2/97-1/99
March of Dimes, Basil O'Connor Starter Award, PI
$73,000 Total; $36,00 Direct per year
23. Cell surface carbohydrates and neural development. 7/95-6/98
Donaghue Foundation, New Investigator Grant 95-070, PI
$150,000 Total; $50,000 Direct per year

Grants Pending:
None

Memberships:
1996-Present: Society for Glycobiology
1987-1998: Society for Neuroscience

Mentoring Activities:
13 PhD students: Degree awarded--C. Stern, M. Sharrow, P. Matani, S. Baas, V. Kotu, M. Porterfield, N. Mehta, D. Nix, M. Waltamath, H. Grace, M. Dookwah; Katlyn Rosenbalm; In training—Sydney Bedillion
2 Masters Student: Degree awarded--W. Wang; Shannon Wagner
9 Post-Doctoral Fellows: A. Seppo, M. Sharrow, K. Aoki, T. Katoh, T. Kumagai, V. Kotu, M. Porterfield, S. Kurz, S. Robinson
1 Research Assistant, Associate, Senior Professor: K. Aoki
1 Research Assistant Professor: T. Katoh
4 Visiting Scientists: Dubravko Rendic (Austria), Krajang Talabnin (Thailand), Yuan-An Wei (Johns Hopkins University, Baltimore, MD), Simone Kurz (Austria)
Undergraduate students: 50+ students at UGA and Yale University

Teaching Experience:
At UGA:
BMB4120/6120 Human Biochemistry (course organizer and lecturer)
BMB8150 Cell Signaling (course organizer and lecturer)
BMB8130 Glycobiology (course organizer and lecturer)
BMB8060 Seminar in Biochemistry and Molecular Biology (course organizer and committee chair)
BMB8080 Glycobiology Journal Club (co-organizer)

At Yale University:
Introductory Molecular Cell Biology
Advanced Topics in Molecular Cell Biology
Interfaces in Cell Biology (Integrative Cell Biology, course organizer and lecturer)
Medical Histology
Introductory Neuroscience
Nerve Cell Biology

Course organizer and lecturer for various Advanced Graduate Seminars in Cell Biology, Genetics and Neuroscience

Academic Administrative Experience:

Various COVID task forces (Research Reopening, Research Communications)
Faculty Search Committee, Center for Brain Science and Neurodegenerative Disorders
Center for Vaccine Development Program Review Committee, UGA
Department of Genetics Program Review Committee, UGA
Research Integrity Office, Chair of Investigation Committee, UGA
Chemical Purchasing Working Group, Vice President for Research, UGA
Department of Biochemistry and Molecular Biology Executive Committee, UGA
Vice President for Research Distinguished Research Professor Selection Committee, UGA
Vice President for Research Center Evaluation Committee, UGA
Genetics Dept. Search committee for Headship
Complex Carbohydrate Research Center, Director's Executive Committee
UGA Faculty Senate, Representative for Dept. Biochemistry and Molecular Biology, 2006-2009
UGA Faculty Senate Committee on Academic Standa0rds, Committee Member, 2006-2008
UGA Faculty Senate Committee on Academic Standards, Committee Chairperson, 2008-2009
Departmental Seminar Series, Co-organizer and Chair, UGA Dept. Biochemistry and Molecular Biology
Dept. of Biochemistry and Molecular Biology Faculty Search Committee
Graduate Affairs Committee, UGA Dept. Biochemistry and Molecular Biology
Provost's Task Force on Graduate Education at UGA
Developmental Biology at UGA, Graduate Steering Committee and Faculty Search Committee
Developmental Biology at UGA, Organizer, Research in Progress Seminar Series
Complex Carbohydrate Research Center Faculty Search Committees
Thesis Committees (30+), UGA
Thesis Committees (12) and Qualifying Exam Committees (13), Yale University
Director of Graduate Admissions, Dept. Cell Biology, Yale Medical School
Co-Director of Graduate Studies, Dept. Cell Biology, Yale Medical School
BBS Executive Committee (Combined Graduate Program in Biomedical and Biological Sciences, Yale Medical School)
Admissions Committees for CBMP (Cell Biology and Molecular Physiology), INP (Interdepartmental Neuroscience Program) and Genetics and Development Tracks of the BBS (Yale Medical School)
CBMP Track Advisory and Admissions Committee (Yale Medical School)
Cell and Molecular Biology Training Grant Executive Committee, Yale University
MD/PhD Advisory and Admissions Committee, Yale Medical School
Faculty Computing Committee, Yale Medical School
Co-organizer, INP Annual Retreat (Yale, 1998)
Organizer, CBMP Track Orientation (Yale, 1997 and 1998)
Organizer, BBS Orientation Activities (Yale, 1998)
Organizer, BBS Admissions Weekend II (Yale, 1999)

Manuscripts Reviewed for:

Journal of Biological Chemistry (Editorial Board, 2006-2011), Glycobiology (Editorial Board, 2011-Present), EMBO Journal, Nature, Journal of Neuroscience, Journal of Neurochemistry, Journal of Molecular Biology, Archives of Biochemistry and Biophysics, Journal of Protein Science, Genetics, Glycoconjugate Journal, Developmental Dynamics, Development, Developmental Biology, PNAS, PLoS One, PLoS Genetics, Nature Communications, Insect Biochemistry and Molecular Biology, eLife

Grants Reviewed for:

NIH, Regular Study section member, Intercellular Interactions (ICI, 2006-2010)
NIH, Ad Hoc for Intercellular Interactions Study Section
NIH, Ad Hoc for Membrane Biophysics and Protein Processing Study Section
NIH, Ad Hoc for Enabling Technologies Study Section

NIH, Ad Hoc for Medical Biochemistry Study Section
NIH, Special Emphasis Panel for review of regular study section members' grants
NIH, ERDN Site Visit reviewer
Human Frontier Science Program
California Institute for Regenerative Medicine
FWF, Der Wissenschaftsfonds, Austria
Newfelpro, Croatia
European Research Council, Consolidator Grant Program

Other Professional Activities:

President, Society for Glycobiology 2020
Member, FASEB Executive Officers Advisory Committee, 2018-2020
Member, FASEB Science Research Conference Advisory Committee, 2017-2020
Steering Committee Member, Consortium for Functional Glycomics, 2015-Present
PI for R13 grant to support conferences for the Consortium for Functional Glycomics (2 conferences annually from 2013-2015)
Poster Chair, Glycobiology Gordon Conference (Ventura, CA, March, 2013; Elected vice-chair for 2015 meeting and chair for 2017 meeting)
Meeting Co-organizer, Georgia Glycoscience Symposium: Emerging paradigms in glycobiology, Athens, GA, October 3, 2012
Meeting Co-organizer, 4th Charles Warren Workshop, Athens, GA, August 8-11, 2012
Meeting Co-organizer, Georgia Glycoscience Symposium and CFG Workshop: Paradigms for glycan action in development and disease, Athens, GA, March 14-15, 2011
Elected by Society Members to Board of Directors, The Society for Glycobiology
Member, Publications Committee, The Society for Glycobiology
Member, Consortium for Functional Glycomics
Sub-Group Leader, Analytical Glycomics Subgroup, Consortium for Functional Glycomics
Regular Member of the Glycan Analysis Oversight Subcommittee of the Consortium for Functional Glycomics
Meeting Co-organizer, Consortium for Functional Glycomics Joint Subgroup Meeting, Analytic and Bioinformatic Glycomics, April 17-18, 2009, Bethesda, MD
Chair, Working Group on Glycan Standards, Consortium for Functional Glycomics
Meeting Co-organizer, 6th International GlycoT Conference, May 18-20, 2008, Atlanta, GA

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Wells, Lance

eRA COMMONS USER NAME (credential, e.g., agency login): LANCEWELLS

POSITION TITLE: Distinguished Research Professor of Biochemistry and Molecular Biology, Director of Integrated Life Sciences, Georgia Research Alliance Distinguished Investigator

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Georgia Institute of Technology, Atlanta	B.S.	1991	Chemistry
Emory University School of Medicine, Atlanta, GA	Ph.D.	1998	Biochem & Mol Biol
Johns Hopkins University School of Medicine, Baltimore MD	Postdoc	1998-2003	Biological Chemistry

A. Personal Statement

My laboratory in the Complex Carbohydrate Research Center (CCRC) at UGA is focused on understanding the role that post-translational modifications, specifically glycosylation, play in increasing the functional diversity of proteins. For the last 18 years, my lab has primarily focused on the biomedical significance of glycosylation. Specifically, we study the O-mannosylation pathway that is defective in many cases of congenital muscular dystrophy, the nutrient-sensing O-GlcNAc modification of nuclear and cytosolic proteins that is defective in X-linked intellectual disability, and the underpinnings of N-linked microheterogeneity as well as the role of glycosylation in viral evasion, infection, and vaccine development. The laboratory also has extensive experience in analytical mass spectrometry and the development/application of glycomic and glycoproteomic capture, identification, and quantification approaches applied to multiple systems including viruses, stem cells, and disease models. I serve as a Co-Director of the ThermoFisher Scientific appointed Center of Excellence in Glycoproteomics that allows my laboratory to interact at the software and hardware level with a leading instrument manufacturer to drive technology developments. As the Director of the Integrated Life Sciences Program, I oversee the recruitment, rotations, first semester course work, and placement of ~65 graduate students a year into the laboratories of PIs in 15 Life Science departments at UGA. In the last 18 years, I have mentored 14 individuals in achieving their Ph.D. degree and 7 Post-Doctoral Fellows, all of whom are still in the life science field. Thus, I believe I am well prepared to lead the proposed effort that builds on my experience in biochemistry, glycobiology, analytical chemistry, cell & molecular biology, and chemical biology.

Ongoing Projects on which I serve as PI or MPI:

-R01GM111939 Wells (PI) **This Proposal** 08/01/14-04/30/22
NIH/NIGMS Role: PI
Structure and Function in Alpha-Dystroglycan Glycosylation
Determine the enzymes and structures required for functional glycosylation of alpha-dystroglycan.

-R01GM130915 Moremen (Contact PI) **Competitive Renewal in Progress** 09/01/18-08/31/22
NIH/NIGMS Role: MPI with Moremen, Wood, and Kannan
Origin of N-Glycan Site-Specific Heterogeneity
Elucidating the structural and temporal constraints that lead to site-specific heterogeneity on N-glycoproteins.

-U01CA233581 Bellis (Contact PI) 09/18/18-08/31/23
NIH/NCI Role: MPI with Bellis
Sialylation-dependent mechanisms driving pancreatic cancer progression
Define the sialylated glycoproteome in normal and cancer derived pancreatic cells, tissues, and organoids

Relevant Review Citations:

a. Praissman J, **Wells L** (2021) Proteomics-based insight into the SARS-CoV-2 mediated COVID-19 Pandemic: A review of the first year of research. *Mol Cell Proteomics*. **20:** 100103. [PMID: 34089862].
b. Stephen HM, Adams TM, **Wells L** (2021) Regulating the Regulators: Mechanisms of substrate selection of the O-GlcNAc cycling enzymes OGT and OGA. *Glycobiology*. **31:** 724-33. [PMID: 3348085]
c. Pravata VM, Omelkova M, Stavridis M, Desbiens C, Stephen H, Lefeber D, Gecz J, Gundogdu M, Ounap K, Joss S, Schwartz C, **Wells L**, van Aalten D (2020) An intellectual disability syndrome with single-nucleotide variants in O-GlcNAc transferase. *Eur J Hum Genet.* **28:** 706-14. [PMCID: PMC7253464]
d. Sheikh MO, Halmo SM, **Wells L** (2017) Recent advancements in understanding mammalian O-mannosylation. *Glycobiology*. **27:** 806-19. [PMCID: PMC6082599]

B. Positions and Honors

Professional Experience

2022-Present	Distinguished Research Professor at the University of Georgia
2022-Present	Associate Director, Center for Molecular Medicine
2020-Present	Georgia Research Alliance Distinguished Investigator
2018-Present	Director, Integrated Life Sciences Program at the University of Georgia
2015-Present	Professor, Department of BMB and CCRC and Adjunct in Chemistry
2011-2017	Georgia Research Alliance Lars G. Ljungdahl Distinguished Investigator, UGA
2010-2014	Associate Professor, Department of Biochemistry and Molecular Biology and Complex Carbohydrate Research Center and Adjunct in Chemistry
2008-2018	Director of Graduate Studies, Department of Biochemistry and Molecular Biology, UGA
2004-Present	Georgia Cancer Coalition Distinguished Scholar
2003-2009	Assistant Professor, Department of Biochemistry and Molecular Biology and CCRC, and Adjunct in Chemistry, University of Georgia, Athens, GA
1998-2003	Postdoctoral Fellow, Department of Biological Chemistry (Laboratory of Dr. Gerald W. Hart), Johns Hopkins University School of Medicine, Baltimore, MD
1991-1993	Research Specialist with Dr. Jan Pohl, Microchemical Facility, Winship Cancer Center, Emory University School of Medicine, Atlanta, GA

Honors, Awards, and Experiences

2020-2024	Standing Member, NIH Intercellular Interactions (ICI) Study Section
2020-Present	Georgia Research Alliance Distinguished Investigator (Endowed, 5 in Georgia state system)
2019	Lamar Dodd Creative Research Award from UGA (1 faculty/year)
2016	Award Winner and Invited Speaker, *Molecular and Cellular Proteomics ASBMB Lectureship (2 international awards per year)* presented at Society for Glycobiology Annual Meeting
2015-Present	Co-Director, ThermoFisher Appointed Center of Excellence in Glycomics/Glycoproteomics
2015	Reviewer for NHLBI/NIH P01 Program
2013-Present	Editorial Board Member, *Glycobiology*
2013-15, 20-22	Member of Board of Directors, Society for Glycobiology
2013, 16	Theme Organizer, Session Chair, and Speaker, ASBMB/Experimental Biology
2013, 21	Guest Editor for *Mol. and Cell. Proteomics*, Glycomics/Glycoproteomics Special Issues
2012, 13, 17	Ad-Hoc Reviewer for NIH Intercellular Interactions (ICI) Study Section
2011-Present	Editorial Board Member for *Mol. and Cell. Proteomics*
2011-2017	Editorial Board Member for *J. Biol. Chem.*
2011-2017	Endowed Position, Georgia Research Alliance Lars G. Ljungdahl Distinguished Investigator
2010, 11	Reviewer for NIH Special Emphasis Panel ZRG1 Study Section
1999-2002	National Research Award (NRSA) (F32 CA83261), National Cancer Institute at NIH

C. Contributions to Science (Citations: 13,163, H-index=58, i10-index=129, 7/22, Google Scholar)

1. The O-mannosylation pathway and Congenital Muscular Dystrophy (CMD). Defects in the dystrophin-glycoprotein (alpha-dystroglycan) complex that bridges the cytoskeleton to the extracellular matrix lead to multiple forms of muscular dystrophy. Of interest, defects in enzymes involved in the complex O-mannosylation

pathway that modifies alpha-dystroglycan are causal for congenital muscular dystrophy, specifically secondary dystroglycanopathies including Walker-Warburg syndrome, Muscle-Eye-Brain-Disease, Fukuyama syndrome, and Limb-Girdle disease. Our laboratory is extensively investigating the O-mannosylation pathway in terms of defining the glycan structures made, assigning and characterizing the enzymes responsible (including naturally occurring mutants in patients), and examining the function of the O-mannose glycans in binding extracellular matrix proteins and certain classes of arenaviruses.

a. Praissman JL, Willer T, Sheikh MO, Toi A, Chitayat D, Lin YY, Lee H, Stalnaker SH, Wang S, Prabhakar PK, Nelson SF, Stemple DI, Moore SA, Moremen KW, Campbell KP, **Wells L** (2016) The functional O-mannose glycan on alpha-dystroglycan contains a phospho-ribitol primed for matriglycan addition. *Elife.* **5:** e14473. [PMCID: PMC4924997]
b. Halmo SM, Singh D, Patel S, Wang S, Edlin M, Boons GJ, Moremen KW, Live D, **Wells L** (2017) Protein O-linked mannose beta-1,4-N-acetylglucosaminyl-transferase 2 (POMGNT2) is a gatekeeper enzyme for functional glycosylation of alpha-dystroglycan. *J Biol Chem.* **292:** 2101-2109. [PMCID: PMC5313085]
c. Sheikh MO, Venzke D, Anderson ME, Yoshida-Moriguchi T, Glushka JN, Nairn AV, Galizzi M, Moremen KW, Campbell KP, **Wells L** (2020) HNK-1 Sulfotransferase modulates α-dystroglycan glycosylation by 3-O-sulfation of glucuronic acid on matriglycan. *Glycobiology.* **30:** 817-29**.** [PMID: 32149355]
d. Sheikh MO, Capicciotti CJ, Liu L, Praissman J, Ding D, Mead DG, Brindley MA, Willer T, Campbell KP, Moremen KW, **Wells L***, Boons GJ* (2022) Cell surface glycan engineering reveals that matriglycan alone can recapitulate dystroglycan binding and function. *Nat Commun*. **13:** 3617. [PMID: 35750689]
* Co-Corresponding Authors

2. Glycomics/Glycoproteomics capture, site-mapping, assignment, and microheterogeneity quantification approaches applied to viral spike proteins. Our laboratory has invested significant efforts to develop better glycomic, site-mapping, and proteomic platforms so that we can begin to define microheterogeneity, assign functions to individual post-translational modifications, and test glycans as potential biomarkers of disease. Towards this we have built high-throughput glycomic platforms, developed quantitative glycomic strategies at the in vitro and in cell culture level, developed triggered collision approaches with an instrument manufacturer for site-mapping of labile post-translational modifications, developed and/or applied tagging and enrichment strategies, and applied our glycomic and proteomic technologies to modifications beyond glycosylation as well as to defining individual components in protein complexes. Below are manuscripts using these developed methodologies (not cited) applied to viral spike proteins.

a. Zhou T, Doria-Rose NA, et al., **Wells L**, Scorpio DG, Shapiro L, McDermott AB, Mascola JR, Kwong PD (2017) Quantification of the impact of the HIV-1-Glycan shield on antibody elicitation. *Cell Rep.* **19:** 719-32. [PMCID: PMC5538809]
b. Duan H, Chen X, et al., **Wells L**, Schief WR, Tian M, Alt FW, Kowng PD, Mascola JR (2018) Glycan masking focuses immune responses to the HIV-1 CD4-binding site and enhances elicitation of VRC01-class precursor antibodies. *Immunity*. **49:** 301-11. [PMCID: PMC6896779]
c. Escolano A, Gristick H, et al., **Wells L**, Martin M, Bjorkman P, Nussenzweig M (2019) Immunization expands HIV-1 V3-glycan specific B-cells in mice and macaques. *Nature.* **570:** 468-73. [PMCID: PMC6657810]
d. Zhao P, Praissman JL, Grant OC, Cai Y, Xiao T, Rosenbalm KE, Aoki K, Kellman BP, Bridger R, Barouch DH, Brindley MA, Lewis NE, Tiemeyer M, Chen B, Woods RJ, **Wells L** (2020) Virus-receptor interactions of glycosylated SARS-CoV-2 Spike and Human ACE2 receptor. *Cell Host Microbe*. **28:** 586-601**. [**PMID: 32841605]

3. O-GlcNAc cycling, function, and site mapping. O-GlcNAc is a dynamic and inducible single sugar modification of nuclear and cytosolic proteins discovered by my post-doctoral mentor Dr. Jerry Hart in 1984. Since that time more than a thousand proteins have been identified that carry this modification and multiple functions have been assigned. There is only one mammalian gene for the transferase (OGT) and one for the hydrolase (OGA) that add and remove O-GlcNAc, respectively. Thus, characterizing the regulation of the O-GlcNAc cycling enzymes is a major endeavor of my laboratory. Furthermore, assigning function to specific sites of modification has been a major challenge and focus. Towards this end we have developed site-mapping methodologies and have proposed a working model along with Dr. Hart and others that O-GlcNAc is a nutrient sensor that modulates signaling and transcription/translation. We have also recently assigned causality to mutations in OGT associated with X-linked intellectual disability (XLID).

a. Durning SP, Flanagan-Steet H, Prasad N, **Wells L** (2016) O-linked β-N-acetylglucosamine (O-GlcNAc) acts as a glucose sensor to epigenetically regulate the insulin gene in pancreatic beta cells. *J Biol Chem.* **291:** 2107-2118. [PMCID: PMC4732198]
b. Vaidyanathan K, Niranjan T, Selvan N, Teo CF, May M, Patel S, Weatherly B, Skinner C, Opitz J, Carey J, Viskochil D, Gecz J, Shaw M, Peng Y, Alexov E, Wang T, Schwartz C, **Wells L** (2017) Identification and characterization of a missense mutation in the O-linked β-N-acetylglucosamine (O-GlcNAc) transferase gene that segregates with X-linked intellectual disability. *J Biol Chem.* **292:** 8948-8953. [PMCID: PMC5448127]
c. Selvan N, George S, Serajee FJ, Shaw M, Hobson L, Lascheuer V, Prasad N, Levy SE, Taylor J, Afitmos S, Schwartz CE, Huq AM, Gecz J, **Wells L** (2018) O-GlcNAc transferase missense mutations linked to XLID deregulate genes involved in cell fate determination and signaling. *J Biol Chem.* **293:** 10810-24. [PMCID: PMC6036218]
d. Stephen HM, Praissman JL, **Wells L** (2021) Generation of an interactome for the tetratricopeptide repeat domains of O-GlcNAc transferase indicates a role for the enzyme in intellectual disability. *J Proteome Res*. **20**: 1229-42. [PMID: 33356293]

Complete list of Published Work (in NCBI My Bibliography):
URL: https://www.ncbi.nlm.nih.gov/myncbi/1TQxccqtjjM5z/bibliography/public/

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Franklin D. West

eRA COMMONS USER NAME (credential, e.g., agency login): WESTFD

POSITION TITLE: Associate Professor of Regenerative Medicine

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
Morehouse College, Atlanta, Georgia	B.S.	12/2003	Biology
University of Georgia, Athens, Georgia	Ph.D.	12/2008	Stem Cell Biology

A. Personal Statement

For the past decade, my research has focused on the development of regenerative therapies for disease and injury, including traumatic brain injury (TBI). During this process, my team has developed the large animal, translational pig TBI model that has comparable brain anatomy and physiology to humans. We have established a number of cutting-edge tools to perform in-depth longitudinal studies in this challenging and critically important pig model. We have established longitudinal MRI approaches including specialized sequences to evaluate cytotoxic and vasogenic edema, hemorrhage, and structural changes in brain tissue. These approaches are executed on a clinical grade scanner and equipment to ensure study results are translatable to humans. We have also established and validated strategies to assess changes in learning, memory, behavior, and motor function in pig models such as the novel object recognition and open field tests. For motor function assessment, we have generated and optimized protocols using a walkway system (Gait4Dog) that is modeled off a similar human clinical walkway system (GaitRite) to evaluate spatial (stride length and maximum hoof height) and temporal (swing time, stance time, and 2/3-limb support phases) gait changes. My laboratory's work with pigs has also led to the development and optimization of pig-specific analysis techniques including ELISAs, quantitative RT-PCR, immunohistochemistry, and western blot approaches. This is significant as molecular tools for pigs are limited and can be challenging to develop relative to many off-the-shelf rodent and human assays.

1. "Detecting functional connectivity disruptions in a translational pediatric traumatic brain injury porcine model using resting-state and task-based fMRI." Greg Simchick, Kelly M. Scheulin, Wenwu Sun, Sydney E. Sneed, Madison M. Fagan, Savannah R. Cheek, **Franklin D. West**, and **Qun Zhao**. Scientific Reports. 2021 Jun 11; 11(1):12406.
2. "Controlled cortical impact leads to cognitive and motor function deficits that correspond to cellular pathology in a piglet traumatic brain injury model." Holly A. Kinder, Emily W. Baker, Elizabeth W. Howerth, Kylee Jo J. Duberstein and **Franklin D. West**. Journal of Neurotrauma. [Epub ahead of print 2019 May].2019 Oct 1;36(19):2810-2826.
3. "Traumatic Brain Injury Results in Dynamic Brain Structure Changes Leading to Acute and Chronic Motor Function Deficits in a Pediatric Piglet Model." Holly A. Kinder*, Emily W. Baker*, Silun Wang, Candace C. Fleischer, Elizabeth W. Howerth, Kylee Jo J. Duberstein, Hui Mao, Simon R. Platt, and

Franklin D. West. Journal of Neurotrauma. [Epub ahead of print 2019 May]. 2019 Oct 15;36(20):2930-2942. *= Co-first Authors

4. "Human neural stem cell extracellular vesicles improve recovery in a porcine model of ischemic stroke." Robin L. Webb*, Erin E. Kaiser*, Brian J. Jurgielewicz, Samantha E. Spellicy, Shelley L. Scoville, Tyler A. Thompson, Raymond L. Swetenburg, David C. Hess, **Franklin D. West** and **Steve L. Stice**. Stroke. 2018 May;49(5):1248-1256. *= Co-first Authors

B. Positions and Honors

2000-2003 David and Lucille Packard Research Fellow, Morehouse College
2002-2003 MARC U*STAR Research Fellow, Morehouse College
2004-2008 Graduate Recruitment Opportunities Research Assistant, University of Georgia
2007-2008 Independent Scientific Consultant, Aruna Biomedical
2009-2010 Assistant Research Scientist, University of Georgia
2010-2016 Assistant Professor, University of Georgia
2018-2020 Development 1 Study Section member, National Institutes of Health
2010-Current Regenerative Bioscience Center Executive Committee Member
2014- Current Regenerative Bioscience Center Undergraduate Research Program Leader
2016-Current Associate Professor, University of Georgia
2017-Current Stem Cell Therapies as an Emerging Paradigm in Stroke Consortium Member
2018-Current University of Georgia Research Foundation Board Member, University of Georgia
2021-Current Oversight Advisory Committee Member, American Heart Association/American Stroke Association- Bugher Foundation Centers of Excellence in Hemorrhagic Stroke

Other Experience and Professional Memberships

Member – National Neurotrauma Society, Society for Neuroscience, International Society for Stem Cell Research, American Heart Association, Society for the Study of Reproduction, Gamma Sigma Delta: The Honor Society of Agriculture, Golden Key International Honor Society, National Society of Collegiate Scholars

Instructor, NIH-sponsored Human Embryonic Stem Cell Workshop at University of Georgia and Virginia Commonwealth University (2007-2009)

Director and Instructor, University of Georgia Induced Pluripotent Stem Cell Workshop. Athens, GA (2010)
International Stem Cell Expert and Instructor, National Dairy Research Institute (NDRI) "Hands on training on stem cell for quality animal production." Karnal, India (2011)

Selected Honors and Awards

2005 University of Georgia, Graduate Student Travel Grant - Meeting: Therapeutic Potential of Stem Cells in Reproductive Medicine
2006 Outstanding Teaching Assistant Award for the College of Agricultural and Environmental Sciences, Recipient
2008 Georgia Tech Student Travel Award - Meeting: Regenerative Medicine: Advancing to Next Generation Therapies
2010 Georgia Trends Magazine, "Top 40 under 40: Georgia's Best and Brightest"
2019 University of Georgia Young Alumni Award
2020 University of Georgia Alumni Association 40 Under 40 Class of 2020

C. Contributions to Science

In addition to my research in developing stem cell therapies and pig neural injury models, my work has focused on understanding the cell signaling and genetic mechanisms orchestrating meiosis. This is critical to preventing and eliminating germ cell related conditions in humans (infertility, spontaneous abortion, and Down's syndrome) and livestock (sterility, reduced liter sizes, and overall health). In addition to the emotional toll, the economic concerns in both humans and livestock are considerable. For example, the Environmental Protection Agency found that the average lifetime cost for medical care, developmental service, and special education alone for one of the thousands of Down's syndrome children born each year is over $350,000. My research led to the development of a novel culture system to differentiate embryonic and induced pluripotent stem cells into germ cells. This enabling system allowed our group, and others, to study the effects of environmental compounds that could lead to abnormal germ cell development and diseases. Additionally, I served as the PI or co-I in the following studies.

1. **Franklin D. West**, W. Matthew Henderson, Ping Yu, Jeong-Yeh Yang, Steven L. Stice, and Mary Alice Smith. "Metabolomic Response of Human Embryonic Stem Cell Derived Germ-like Cells after Exposure to Steroid Hormones." Toxicological Sciences (Journal Cover Image August 2014 edition). [Epub ahead of print 2012 May 30]. 2012 Sep; 129 (1):9-20. PMID: 22649186
2. **F. D. West**, J. L. Mumaw, A. Gallegos-Cardenas, A. Young and S. L. Stice. "Human Haploid Cells Differentiated from Meiotic Competent Clonal Germ Cell Lines that Originated from Embryonic Stem Cells." Stem Cells and Development. [Epub ahead of print 2010 Oct 7]. 2011 Jun; 20 (6):1079-88. PMID: 20929355
3. **F. D. West**, M. I. Roche-Rios, S. Abraham, R. R. Rao, M. S. Natrajan, Bacanamwo, M., and S. L. Stice. "KIT Ligand and Bone Morphogenetic Protein Signaling Enhances Human Embryonic Stem Cell to Germ-like Cell Differentiation." Human Reproduction. [Epub ahead of print 2009 Oct 19]. 2010 Jan 25 (1): 168-78. PMID: 19840987
4. **Franklin D. West**, David W. Machacek, Nolan L. Boyd, Kurinji Pandiyan, Kelly R. Robbins, and Steven L. Stice. "Enrichment and Differentiation of Human Germ-like Cells Mediated by Feeder Cells and Basic Fibroblast Growth Factor Signaling." Stem Cells. 2008 Nov 26 (11): 2768-76 [Epub ahead of print 2008 Aug 21]. PMID: 18719225

I have also worked on the development of induced pluripotent stem cells (iPSCs) in livestock species for the generation of improved large animal disease models (cystic fibrosis) and animals with enhanced traits (disease resistance and increased meat or milk production). This has led to the first pig iPSCs capable of generating chimeras and incorporating into the germline, the first quail iPSCs, and the first direct reprogramming event of chicken skin cells to germ cells. These works have been recognized as being seminal in the field.

1. Yubing Liu, Jeong Yeh Yang, Yangqing Lu, Ping Yu, C. Robert Dove, Jessica M. Hutcheson, Jennifer L. Mumaw, Steven L. Stice and **Franklin D. West.** "α-1,3-Galactosyltransferase Knockout Pig Induced Pluripotent Stem Cells: A Cell Source for the Production of Xenotransplant Pig." Cellular Reprogramming. [Epub ahead of print 2013 Febuary 12]. 2013 Apr; 15 (2):107-16. PMID: 23402576
2. Shu Xiao, Dan Xie, Xiaoyi Cao, Pengfei Yu, Xiaoyun Xing, Chieh-Chun Chen, Mingchao Xie, **Franklin D. West**, Harris Lewin, Ting Wang, Sheng Zhong. "Comparative Epigenomic Annotation of Regulatory DNA." Cell. 2012 Jun 8; 149 (6):1381-92. PMID: 22682255
3. **Franklin D. West**, Elizabeth W. Uhl, Yubing Liu, Heather Stowe, Yangqing Lu, Ping Yu, Amalia Gallegos Cardenas, Scott L. Pratt and Steven L. Stice. "Chimeric Pigs Produced from Induced Pluripotent Stem Cells Demonstrate Germline Transmission and No Evidence of Tumor Formation." Stem Cells. [Epub ahead of print 2011 Sep 27]. 2011 Oct 29 (10): 1640-1643. PMID: 22039609
4. **F. D. West**, S. L. Terlouw, D. Kwon, J. L. Mumaw, S. K. Dhara, K. Hasneen, J. R. Dobrinsky and S. L. Stice. "Porcine Induced Pluripotent Stem Cells Produce Chimeric Offspring." Stem Cells and Development (Journal Cover Image). [Epub ahead of print 2010 Apr 9]. 2010 Aug 19 (8): 1211-20. PMID: 20380514

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/sites/myncbi/franklin.west.2/bibliography/49990989/public/?sort=date&direction=ascending

Yao Yao, Ph.D
Regenerative Bioscience Center, Department of Animal and Dairy Science, University of Georgia
254 Edgar L. Rhodes Center, 425 River Road, Athens, GA 30602
Email: yao.yao@uga.edu Phone: (706) 542-9767

EDUCATION

2004-2009 **Doctor of Philosophy** (**Ph.D.**), Genetics, July 2009
Shanghai Institute for Biological Sciences, Chinese Academy of Sciences, P.R. China

2000-2004 **Bachelor of Science** (**B.S.**), Bioengineering, July 2004
Bachelor of Science (**B.S.**), Business Administration, July 2004
Shanghai Jiao Tong University, Shanghai, P.R. China

PROFESSIONAL EXPERIENCE

2019-Present Assistant Professor

Regenerative Bioscience Center, Department of Animal and Dairy Science, University of Georgia
Research in my lab focuses on two major themes: The therapeutic potential and pathological roles of extracellular vesicles in neuromuscular diseases; and the gene regulation during the differentiation of fibro-adipogenic progenitor cells in response to muscle disorders. Leveraging cellular and mouse models, we are aiming to reveal the mechanism of neuromuscular diseases and shape efficient gene therapy to treat these devastating disorders.

2017-2019 Assistant Research Scientist

Regenerative Bioscience Center, Department of Animal and Dairy Science, University of Georgia

1) Established a high throughput imaging flow cytometry-based platform to quantify the kinetics of cellular exosome uptake.
2) Develop extracellular vesicle-based *in vivo* delivery platform for CRISPR system and other genome editing tools to facilitate related therapeutic applications;

2009-2017 Postdoctoral Fellow (2009-2014) and **Research Associate** (2014-2017)

Department of Genetics, University of Pennsylvania **Mentor:** Dr. Douglas J. Epstein

1) Investigated enhancer mediated transcriptional regulation in brain development, diseases and evolution: Developed a pipeline to identify enhancers, decode enhancer activity and uncover gene regulatory network underlying brain signaling center formation; Revisited the evolutionary trajectory of brain enhancers to trace the evolutionary origin of vertebrate brain; Generated mouse enhancer mutants using CRISPR system to dissect unique function of Sonic hedgehog in specific brian signaling center;
2) Explored the genetic programs underlying inner ear development using high throughput genomic methods and uncovered novel deafness associated genes.

2004-2009 Ph.D. Student

Chinese Academy of Sciences, P.R.China **Mentor**: Dr. Hai Huang
Identified and characterized a group of novel regulators, the ribosomal proteins, in specifying leaf adaxial cell fate, indicating the conserved translational regulation is required for leaf patterning.

SELECTED HONORS AND AWARDS

2021	Amyotrophic Lateral Sclerosis Research Program Therapeutic Idea Award (DoD's CDMRP)
2018	Faculty International Travel Funding, University of Georgia
2016	Kaushal Family Awards for outstanding publications in Genetics, University of Pennsylvania
2014	Postdoctoral Travel Award, Biomedical Postdoctoral Programs, University of Pennsylvania
2014/2016	Award-winning poster presentation at the Genetics Symposium, University of Pennsylvania
2010	The Zhu Liyuhua Scholarship for excellent Ph.D. students，Chinese Academy of Sciences
2009	Tri-Merit Outstanding Student, Chinese Academy of Sciences
2008	Award-winning poster presentation at the national workshop on Arabidopsis research
2004	Outstanding Graduate Award, Shanghai Jiao Tong University
2001-2003	Scholarship awarded to the top 10% of students, Shanghai Jiao Tong University
2000	Scholarship awarded to the top 5% of admitted students, Shanghai Jiao Tong University

PUBLICATIONS

Brian Jurgielewicz, Steven Stice, **Yao Yao.** (2021) Therapeutic Potential of Nucleic Acids when Combined with Extracellular Vesicles. **Aging Dis.** Sep 1;12(6):1476-1493

Ellison TJ, Jurgielewicz BJ, Stice SL, **Yao Y**. (2021) Quantifying Neural Stem Cell-Derived Extracellular Vesicle Uptake Using Imaging Flow Cytometry. **J Cancer Immunol.** 3(3): 143-146.

Passaro AP, Lebos AL, **Yao Y**, Stice SL. (2021) Immune Response in Neurological Pathology: Emerging Role of Central and Peripheral Immune Crosstalk. **Front Immunol.** Jun 10;12:676621.

Jia C, Shi J, **Yao Y**, Han T, Yu ACH and Qin P. (2021) Plasma Membrane Blebbing Dynamics Involved in the Reversibly Perforated Cell by Ultrasound-Driven Microbubbles. Ultrasound Med Biol. S0301-5629(20)30537-8. PMID: 33358511

Jurgielewicz BJ, **Yao Y**[#] and Stice SL[#] (2020) Kinetics and specificity of HEK293T extracellular vesicle uptake using Imaging Flow Cytometry. **Nanoscale Research Letters** 2020 Aug 24;15(1):170 PMID: 32833066 ([#] **Co-corresponding author**)

Yu WX, Ishan M, **Yao Y**, Stice SL and Liu HX (2020) *SOX10-Cre*-Labeled Cells Under the Tongue Epithelium Serve as Progenitors for Taste Bud Cells That Are Mainly Type III and Keratin 8-Low. **Stem Cells Dev.** 29(10):638-647. PMCID: PMC7232695

Muthu V, Rohacek A, **Yao Y**, Rakowiecki S, Brown AS, Zhao YT, Meyers J, Won KJ, Ramdas S, Brown CD, Peterson KA, Epstein DJ (2019) Genomic architecture of Shh dependent cochlear morphogenesis. **Development**. 146(18) PMCID: PMC6765179

Yao Y, Minor P, Zhao YT, Jeong Y, Pani AM, King AN, Symmons O, Gan L, Cardoso WV, Spitz F, Lowe CJ and Epstein DJ (2016) *Cis*-regulatory architecture of a brain-signaling center predates the origin of chordates. **Nature Genetics** 48: 575-580 PMCID: PMC4848136

Yao Y*, Ling Q*, Wang H, Huang H. (2008) Ribosomal proteins promote leaf adaxial identity.

Development 2008 135: 1325-1334. PMID: 18305007 (* equal contribution)

Ling Q*, **Yao Y***, Huang H. (2008) A model for the 26S proteasome and ribosome actions in leaf polarity formation. **Plant Signaling & Behavior** 2008 3:10 804-805. PMCID: PMC2634378 (* equal contribution)

SELECTED RESEARCH PRESENTATIONS

Selected Invited Talk:

2022 *Extracellular Vesicle-mediated Delivery of Gene Therapy for Neurological Diseases*
Animal & Dairy Science and Agricultural Leadership, Education & Communication Joint Seminar Series, University of Georgia, GA

2021 *Extracellular Vesicle-mediated Drug Delivery for Neurodegenerative Diseases*
Regenerative Engineering and Medicine (REM) Annual Retreat, online

2019 *Gene Regulation in Meat Production and Muscle Disorders: from Decoding to Editing*
Animal and Dairy Science Department, University of Georgia, GA

2018 *Decoding the "junk DNA" in development and diseases*
Animal & Dairy Science and Agricultural Leadership, Education & Communication Joint Seminar, University of Georgia, GA

2018 *How to deliver CRISPR system In Vivo?*
Shanghai Jiao Tong University, Shanghai, P.R. China

2016 *Decoding enhancer activity in the developing brain*
Kaushal Family Awards ceremony, University of Pennsylvania, PA

2011 *Short and long range regulation of Sonic Hedgehog (Shh) expression*
Genetics Research Talks, University of Pennsylvania, PA

2007 *Identify and characterize the Asymmetric Leaves2 enhancers in leaf polarity formation*
Annual Symposium for Plant Science, Shanghai, P.R. China

Selected Abstract and Poster presentations:

2022 *Develop Exosome as Therapeutic Delivery Shuttle of Antisense Oligonucleotides for Amyotrophic Lateral Sclerosis treatment*
Abstract & Poster presentation, Keystone Symposia, Neurodegeneration: The biological Pathways driving the future of therapeutic development 2022

2022 *Dystrophic Fibro-adipogenic progenitors induce muscle atrophy and motor defects through extracellular vesicles in Amyotrophic lateral sclerosis*
Abstract & Poster presentation, Regenerative Bioscience Center symposium, UGA

2022 *Exploring the therapeutic potential of Fibro-adipogenic progenitors-derived extracellular vesicles in amyotrophic lateral sclerosis*
Abstract & Poster presentation, Regenerative Bioscience Center symposium, UGA

2021 *Platform Development for High-Throughput Analysis of Extracellular Vesicle Uptake by Target Cells.*
Abstract & Poster presentation, CURO Symposium, University of Georgia

2021 *Quantitative Analysis of RNA Foci in Amyotrophic Lateral Sclerosis (ALS) – Derived Cells by RNA FISH*
Abstract & Poster presentation, CURO Symposium, University of Georgia

2020 *CRISPR-Cas9 Mediated Insertion of Green Florescent Protein Construct into a Genomic Safe Harbor Site of Human Induced Pluripotent-Derived Neural Stem Cells.*
Abstract & Poster presentation, Regenerative Bioscience Center symposium, UGA

2020 *Extracellular Vesicles: Assessment of Uptake and Enhancing the Delivery of Therapeutics*
Abstract & Poster presentation, Regenerative Bioscience Center symposium, UGA

2019 *Identifying the Sorting Signal of Exosome-Associated Lamp2b Protein*
Abstract & Poster presentation, Regenerative Bioscience Center Fellow symposium, UGA

2019 *Imaging Flow Cytometry Quantitively Elucidates the Selective Uptake of Extracellular Vesicles*
Abstract & Poster presentation, Georgia Bio Innovation Summit, GA

2018 *Decoding enhancer activity in brain development and evolution*
Poster presentation, Keystone Symposia Conference, X6: Gene Control in Development and Disease, Whistler, British Columbia, Canada

2016 *Cis-regulatory architecture of a brain-signaling center predates the origin of chordates*
Poster presentation, Department of Genetics retreat, University of Pennsylvania, PA
(Best Poster Award*)*

2016 *Cis-regulatory architecture of a brain-signaling center predates the origin of chordates*
Poster Presentation, EPIGENOMICS 2016, Puerto Rico

2014 *A transcription factor collective governs Sonic hedgehog expression in the evolution of a vertebrate brain-signaling center*
Genetics Symposium, University of Pennsylvania, PA **(Best Poster Award*)***

2008 *Ribosomal proteins promote leaf adaxial identity*
National Workshop on Arabidopsis Research, Shanghai, China (**Best Poster Award**)

MENTORING & TEACHING EXPERIENCE

Major Advisor (University of Georgia):

2021- Jinghui Gao, **Ph.D**. degree in Animal and Dairy Science
2021- Yaochao Zheng, **Ph.D.** degree in Animal and Dairy Science
2020-2022 Nicolin Trowbridge Dedecker, Double Dawgs program
2019-2022 Taylor Jade Ellison, **MS** degree in Animal and Dairy Science
2017-2021 Brian Jurgielewicz**, Ph.D.** degree in Neuroscience (co-advised with Dr. Steven Stice)

Graduate committees (University of Georgia):

2021-2022 Katherine Watkins Greeson, **Ph.D.** degree in Public Health
2019- Xiaoxing Xu, **Ph.D.** degree in Animal and Dairy Science
2019-2021 Sydney Elizabeth Sneed, **MS** degree in Animal and Dairy Science
2019-2020 Rachel Hampton, **MS** degree in Animal and Dairy Science

Teaching (University of Georgia):

Courses:

ADSC 8120-8120L Experimental Methods in Animal Biotechnology
ADSC 8888 Current Literature in Stem Cell Biology and Regenerative Medicine

Guest Lecture:

2022 ADSC 3330, Therapies for Tissue Repair and Regeneration, Spring semester

2021 BIOL 1990, Orientation to Biology Degree Programs, Spring semester
2019 First year odyssey, Fall semester
2018 ADSC 4300/6300, Food Animal Growth and Development, Spring semester
2017 Workshop In situ hybridization with animal tissues, Regenerative Bioscience Center

PROFESSIONAL ACTIVITIES & SERVICE

2021 Member, American Association of Extracellular Vesicles (AAEV)
2021 Guest editor, Frontiers in Genetics
2020-Present Editorial Board of Animal Nutrition as Review Editor for Frontiers in Animal Science
2015-2017 Committee member of the Gender Equality seminars in the Department of Genetics, University of Pennsylvania.
2013 Member, American Society for Cell Biology

Ad hoc Reviewer:

Stem Cells and Development, Experimental Dermatology, International archives of allergy and immunology, Frontiers, Molecular Medicine Reports, Leukemia and Lymphoma, Neural Regeneration Research, Genes

RESEARCH SUPPORT

Current Support

2021 DoD CDMRP Amyotrophic Lateral Sclerosis Research Program Therapeutic Idea Award
PI: Yao (2022/07/01-2024/06/30)
"Develop Exosome as a Therapeutic Delivery Shuttle of Antisense Oligonucleotides for Amyotrophic Lateral Sclerosis Treatment"
This Seed Grant supports the pilot study on developing an exosome-based drug delivery platform, and preliminary data collection for extramural grant application.

2020 Regenerative Engineering & Medicine Center Seed Grant Program
PI: Yao 2020/10/01-2022/10/30
"Engineered exosome as a delivery shuttle of antisense oligonucleotide therapy for amyotrophic lateral sclerosis"
The major goal is to develop an exosome-based *in vivo* delivery platform to facilitate ASO-mediated therapies for ALS treatment.

Completed Research Support

Global Research Collaboration Grant Program (PI: Yao) 06/30/2019-06/30/2020
University of Georgia
Exosomes driven by acoustics cavitation as a therapeutic delivery platform of CRISPR system for neurological diseases.

CAES Grants on the Edge (PI: Yao) 10/01/2018-10/01/2019
College of Agriculture & Environmental Science, University of Georgia
Exosomes as a therapeutic delivery platform of CRISPR-Cas9 for neurological diseases.