The Evelyn F. McKnight Brain Foundation

Preserving Memory, Enhancing Life

ANNUAL REPORT // 2018

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Director, Alzheimer's Disease Center
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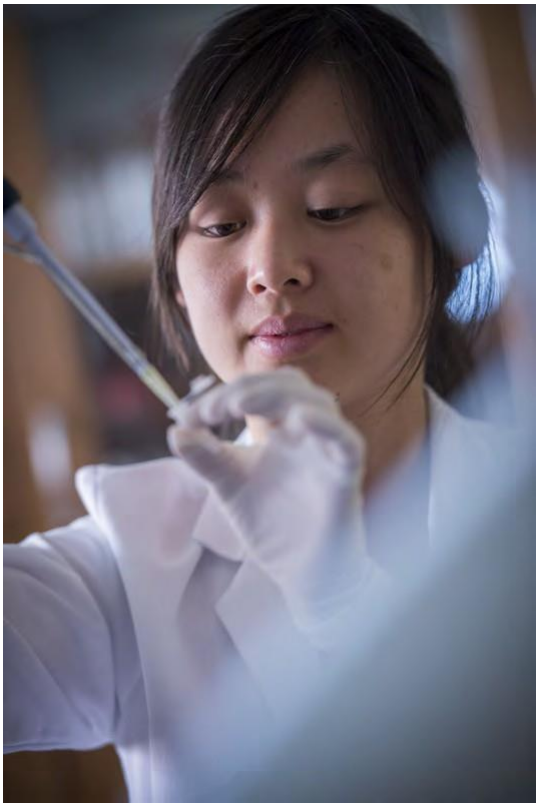
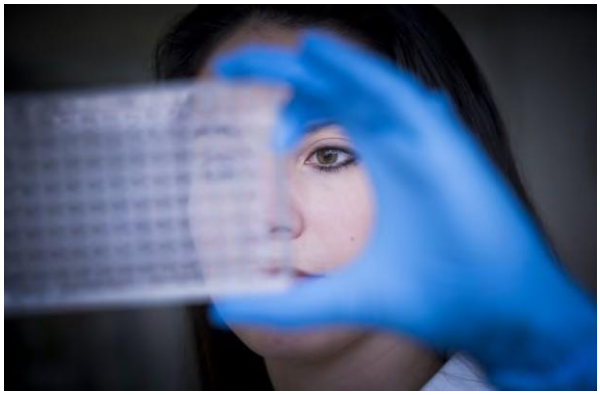
UAB THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Sections

THE EVELYN F. McKNIGHT BRAIN INSTITUTE®
UNIVERSITY OF ALABAMA AT BIRMINGHAM
Preserving memory, enhancing life





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INSTITUTE DIRECTOR'S OVERALL REPORT

Institute Director's Overall Report

The University of Alabama at Birmingham (UAB) Evelyn F. McKnight Brain Institute (EMBI) has just completed its first complete reporting year under the leadership of **Ronald M. Lazar, PhD**, Evelyn F. McKnight Endowed Chair in Learning and Memory in Aging and Director of the UAB EMBI. Consistent with his vision to build upon the already-existing strengths in basic and translational neuroscience by establishing new relationships with patient-oriented departments, the clinical faculty now includes representatives from: Neuropsychology, Movement Disorders, Memory Disorders (Neurology); Behavioral Neuroscience, Medical Psychology (Psychology); Molecular Imaging & Therapeutics, Advanced Medical Imaging Research (Radiology); Biostatistics; Gerontology/Geriatrics, Cardiovascular Medicine, Pulmonology, Infectious Disease (Medicine); Ophthalmology; and Behavioral Neurobiology (Psychiatry). In all, the total faculty membership over Dr. Lazar's initial 18 months of leadership has expanded from 30 to 55 investigators.

The 2018 reporting year began with a request for pilot grant proposals in which there would be collaboration between basic and clinical neuroscientists, and as described below, we funded three outstanding projects, beginning March 15. Then, on April 4 – 6, the UAB EMBI hosted the Tenth Annual McKnight Institutional Meeting in Birmingham (See McKnight Chair Report, Section 12). There was a newly-fashioned Pre-Meeting in 2-hour sessions, with an organizer for every session, giving roughly equal representation across the four EMBI sites. At the end of the main meeting on Friday, Apr 6, an hour was devoted for all of the 10 organizers to spend 5 minutes each outlining the nature of their group meeting sessions and the action items for follow-up. Fifty-four faculty from the four EMBI's attended. There were four sessions across two days for the main meeting. We were extremely pleased to have the April 5 lunchtime Keynote Address delivered by Steve Horvath, PhD, from UCLA. The dinner Keynote Address that night was delivered at Vulcan Park by Madhav Thambisetty, MD, PhD, from the National Institute of Aging and Board Member of the MBRF.

To help foster McKnight MBI inter-institutional relationships, Dr. Lazar also had important conversations during the Inter-Institutional Meeting with Drs. Lee Ryan and Meredith Hay from the University of Arizona about a joint NIH/NIA application for a late Phase 1/Early Phase 2 randomized controlled trial. Using a design to examine safety and early efficacy of an experimental drug to mitigate neuroinflammation related to the angiotensin-renin-aldosterone system in patients with heart failure, UAB and UA submitted a proposal in November 2018 for review in early 2019.

The scientific productivity of UAB faculty continued to flourish, again with more than 200 peer-reviewed publications in high-impact journals, many of which are listed below.

Under the leadership of **David Standaert, M.D., Ph.D.,** Chairman of the UAB Department of Neurology and former Interim Director of the UAB MBI, The University of Alabama at Birmingham became one of eight Udall Centers of Excellence in Parkinson's Disease Research by the National Institutes of Health. The Udall centers, begun in 1997, are funded by congressional legislation in honor of former U.S. Rep. Morris Udall of Arizona, who died in 1998 after a long battle with the disease. The Alabama Udall Center was established as the result of a new NIH award of nearly $10 million over five years, and will focus on the role of inflammation and immune response in the progression of Parkinson's, which is a new approach to the disease.

Dr. Lazar and his colleagues Drs. Toby Gropen from the UAB Department of Neurology and Mark Harrigan from the UAB Department of Neurosurgery will serve as Multiple Principal Investigators for a new stroke initiative to fill a large gap in the stroke belt as UAB will lead a consortium of medical institutions from the Deep South in joining the National Institutes of Health StrokeNet under a grant of $1 million over five years from the National Institute of Neurological Disorders and Stroke. NIH StrokeNet is a network of 25 regional centers across the U.S., involving more than 200 hospitals, designed to serve as the infrastructure and pipeline for exciting new potential treatments for patients with stroke and those at risk for stroke.

Drs. Gerstenecker, Triebel, Martin, and Marson studied financial capacity among older adults who represented the cognitive spectrum from normal cognitive aging to mild cognitive impairment. They were able to extract four skill-based factors, which can serve as clinical metrics for potential financial changes during aging and targets for intervention.

Dr. Mark Bolding and colleagues are pioneering new systems of drug delivery into the brain. They have validated a novel method of non-invasive delivery of viruses and nanoparticle scintillators to hippocampus and motor cortex of the brain in a murine model. Both viruses and nanoparticles were injected IV and localized delivery was induced with focused ultrasound. Delivery of viruses was confirmed by light-induced expression, nanoparticle delivery was confirmed with PET and MRI, and histology confirmed that delivery did not cause damage to the tissue.

The McKnight Brain Aging Registry (MBAR) study is well underway. Recruitment and the data acquisition are in progress. The tremendous investment in organization across sites to harmonize data acquisition of neuropsychological data, computerized behavioral data of several types, tissue of several types from blood draws, and 7 different kinds of MRI data has been worth it to see harmonized data from 4 different sites, which have undergone quality control and are similar enough to be compared across sites. The protocol involves two visits at which behavioral testing (neuropsychological testing and other behavioral tests including the NIH toolbox) is performed. During one of these visits, blood is acquired from the participants. On the third visit, the participants undergo an extensive MRI battery. The study has a massive number of moving parts, including organizing neurologists to be available on time for participants, blood draws, recruiting potential participants, running MRI scans, and quality checking all the data. This machinery, which took great care to build, is running smoothly. For recruitment, along with other standard recruitment methods, we regularly visit local senior centers and

have a second big postcard recruitment campaign scheduled after the holidays. The four sites still have weekly telephone calls during which we discuss ongoing quality assurance issues and ensure compatibility across sites. Our first analyses beyond extensive quality control and across-site checks, looking at aggregate data across sites, are scheduled for early 2019. UAB has had a very strong role in all aspects of the project. UAB's MBAR coordinator is Sara Sims, who is the go-to person for all MBAR questions from the other coordinators. She was the driver of the MOP creation (though it was a collaborative effort), and she has been instrumental in setting up and maintaining both the RedCap and Supercomputer (Hipergator) databases. All these things have been instrumental at all sites and contribute to keeping data quality the same across sites. She and Dr. Virginia Wadley developed the online training protocols that we use to train new people at the other sites. Sara has been instrumental in identifying a behavioral metric that needed to be taken out of the protocol due to inconsistent data. She has caught and remediated several inconsistencies in MRI data acquisition.

Additionally, Sara and Jeff Edberg of UAB's CCTS have been instrumental in finalizing our blood bio-banking protocols, used at all four sites. UAB was strong out of the gate recruiting participants — for a time most of the participants were from UAB. However, the others are catching up, as recruitment here has slowed. We are approaching 100 participants across all 4 sites.

Additional Highlights:

- The Evelyn F. McKnight Brain Institute requested grant applications for pilot studies (Appendix A) on age related memory and cognitive decline that demonstrated a collaboration between clinical and pre-clinical faculty. The intent of the award was to create teams of basic and applied neuroscientists whose research goals are to generate and test novel, integrative hypotheses. The award is expected to create preliminary data that will support more permanent funding through Federal agencies and/or non-profit entities. Recipients of this year's awards presented their data at the Evelyn F. McKnight Brain Institute Scientific Updates seminar which was held on December 6, 2018.

    - *"Exercise related effects on memory function and neural circuitry – a parallel clinical and preclinical investigation"*
      Jane B. Allendorfer, Ph.D., Assistant Professor, Department of Neurology
      Farah Lubin, Ph.D., Associate Professor, Department of Neurobiology
    - *"Cardiorespiratory fitness, cognition, neuroimaging, and aging in persons with secondary progressive multiple sclerosis"*
      Brian Sandroff, PhD, Assistant Professor, Department of Physical Therapy
    - *"Status Update - Effects of cardiovascular disease in a mouse model of HIV-associated neurological damage"*
      John Shacka, PhD, Assistant Professor, Department of Pharmacology & Toxicology

- Dr. Farah Lubin's research titled *"Novel epigenetic control mechanism found for critical brain proteins in memory strengthening"* was published in the Journal of Neuroscience. It addresses understanding how memories form and are retrieved, which has implications for neurological and

neurodegenerative disorders, and may be helpful to attenuate maladaptive memories in psychiatric disorders.

- **Erik Roberson, M.D., Ph.D.** continues in his role as Associate Director of the UAB MBI. Dr. Roberson is the Patsy W. and Charles A. Collat Endowed Professor of Neuroscience, Director of the Alzheimer's Disease Center and Co-Director, Center for Neurodegeneration and Experimental Therapeutics.

The Roberson lab studies the neurobiology of age-related cognitive changes, especially Alzheimer's disease and frontotemporal dementia (FTD), using mouse models to understand the cellular and molecular mechanisms of these disorders and to identify new therapeutic strategies. Dr. Roberson is active in clinical research, patient care, leading clinical trials, and caring for patients with memory disorders and dementia. As a physician-scientist working at the interface between basic science animal model studies and human clinical research, Dr. Roberson helps focus the translational research of the UAB EMBI. He and colleagues from University of Arizona and University of Florida EMBIs published an important paper in *Trends in Neuroscience.* A predominant view of perirhinal cortex (PRC) and postrhinal/parahippocampal cortex (POR/PHC) function contends that these structures are tuned to represent objects and spatial information, respectively. However, known anatomical connectivity, together with recent electrophysiological, neuroimaging, and lesion data, indicate that both brain areas participate in spatial and nonspatial processing. Instead of content-based organization, the PRC and PHC/POR may participate in two computationally distinct cortical-hippocampal networks: one network that is tuned to process coarse information quickly, forming gist-like representations of scenes/environments, and a second network tuned to process information about the specific sensory details that are necessary for discrimination across sensory modalities. The available data suggest that the latter network may be more vulnerable in advanced age.

- With the NIH's new emphasis on rigor and reproducibility in research, Dr. Lloyd Edwards, Chairman of the Department of Biostatistics in the UAB School of Public Health, is forming the building blocks for a new biostatistics neuroscience program. The goal is to foster collaborations between neuroscientists and experts in contemporary methods of data analysis in animal and clinical models.

- Dr. Meador-Woodruff and his colleagues have long argued that given the early onset of memory impairment in patients with schizophrenia, that this illness may be a useful model of cognitive aging in non-psychiatric populations, and that insights learned from defining the pathophysiology of this illness may prove useful to identify novel targets for the treatment of age-related memory decline. During 2018, they added to their body of work examining neurochemical abnormalities in postmortem brain of elderly subjects that had suffered from schizophrenia while living, including discovering abnormalities of the post translational modification of protein glycosylation, as well as evidence for protein processing abnormalities in the endoplasmic reticulum and Golgi apparatus in the brain in schizophrenia.

- The Civitan International Neuroimaging Laboratory (CINL) located on the first floor of UAB Highlands Hospital houses a Siemens Prisma 3T whole body scanner for structural and functional brain and body imaging. It is operated as a University core facility, and is of great value to McKnight investigators. It provides a state-of-the-art imaging facility to study human brain function and its relationship to memory and aging. It serves these roles in the MBAR project.

- The CIRC Neurodevelopmental Bioinformatics Initiative has established the dedicated expertise and infrastructure necessary for the application of genomic/epigenomic techniques to studies related to neurodevelopmental disorders, cognitive impairment and aging. This support is now available for the UAB EMBI faculty, postdocs and students.

- Dr. Dudenbostel's group has identified a phenotype of young adults with premature hypertension and premature cardiovascular morbidity and mortality, including stroke, coronary artery disease, heart failure and kidney disease. Early vascular aging in these individuals has been identified as a main driver of premature cardiovascular disease. Dr. Lazar and his group are now exploring within this cohort whether this group, which is also suspected to have early cognitive decline, represents a model of premature cognitive aging.

- The Tenth Annual McKnight Brain Foundation Poster Reception was held in San Diego, CA on November 4, 2018. Guests from across the nation attended the event. Seventy-eight posters were presented by scientists from the four McKnight Brain Institutes for review by judges. Six posters were selected to receive cash awards and certificates for display. UAB's own **Yuliya Voskobiynyk** from the lab of Dr. Erik Robinson won second place honors. Ms. Voskobiynyk, seen here, accepted the award from McKnight Brain Research Foundation Trustees, Dr. Robert Wah and Dr. Lee Dockery.

1. Summary of Scientific Achievements since Last Report

Individual McKnight Investigators' scientific accomplishments are noted in a separate section. The next few paragraphs highlight a few of the principal discoveries from the Institute this year.

- For patients with asymptomatic high-grade carotid stenosis, clinical investigations have focused on preventing cerebral infarction, yet stenosis that reduces cerebral blood flow may independently impair cognition. Dr. Lazar and his team studied pre-revascularization cognitive function in the first 200 patients randomized in the Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2). Cognition at 49 nation-wide medical centers was assessed via a centralized, telephone-administered test battery. We found that these CREST-2 participants had significantly lower baseline cognitive scores than the general population, even in the absence of frank stroke.

2. Publications in Peer Reviewed Journals

The publication rate from the UAB Evelyn F. McKnight Brain Institute was very successful with investigators publishing a total of 214 research papers, reviews, and commentaries in peer-reviewed journals.

3. Publications (Other)

Successful research was documented in one book and three book chapters.

4. Presentations at Scientific Meetings (Also Includes Invited Research Seminars)

Investigators presented their research at various institutions and also at national meetings. Over 170 presentations were given by key faculty representing the Evelyn F. McKnight Institute at the University of Alabama at Birmingham.

5. Presentations at Public (Non-Scientific) Meetings or Events

Community service continues with McKnight key representatives speaking at over 40 meetings.

6. Awards and Honors

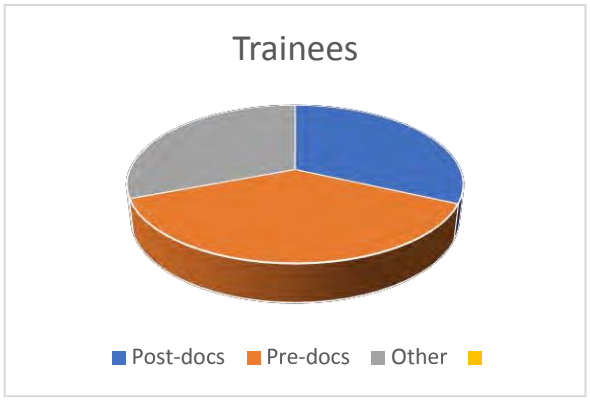
- Dr. Craig Powell, Department of Neurobiology
  Director; Civitan International Research Center;
  Virginia B. Spencer Endowed Chair
- Dr. Kristen Triebel, Fellow of the National Academy of Neuropsychology
- Dr. Tanja Dudenbostel, Member of European Society of Hypertension, Elected Member
  Southern American Federation of Medical Research/Society of Clinical Investigation
  American Heart Association, Blogger and Social Media News Team
  Fellow (FAHA), American Heart Association
  Ramon F. Dacheux Promising Scientist Award
- Dr. Sumanth Prabhu, Scientific Committee, Sarnoff Cardiovascular Research Foundation, 2018-2021

7. Faculty

For faculty bios, see Appendix D.

8. Trainees

Training the future generation of researchers continues to be a priority as indicated with number of students receiving ongoing guidance from the faculty.



A. Post-doctoral, residents,
63

B. Pre-doctoral students,
74

C. Other students,
61

9. Clinical/Translational Programs

A. New Programs

Dr. Craig Powell is laying the groundwork to bring autism and neurodevelopmental clinical entities together with central triage intake and increased access.

Dr. David Geldmacher is conducting qualitative analyses on the effects of telemedicine caregiver coaching in people with behavioral and psychiatric symptoms of dementia and differences between caregiver needs related to behavioral symptoms in Alzheimer's disease vs. Traumatic Brain Injury survivors.

Additional new programs are noted in the Chair Report below.

B. Update on Existing Clinical Studies

Dr. Erik Roberson continues his work in the Alzheimer's Disease Center with enrollment underway and seeking ~50% African-American patients.

Dr. Wadley continues her work with the Center for Translational Research on Aging and Mobility and also her work with CARDIA, which is a multisite study in which cognitive testing and brain MRIs were measured.

Additional clinical studies are noted in the Chair Report.

10. Technology transfer

A. Patent Applications

Bolding, Mark
MRI-DETECTABLE MULTILAYER MICROCAPSULES FOR ULTRASOUND-TRIGGERED DELIVERY OF PHARMACOLOGICALLY ACTIVE AGENTS

With Eugenia Kharlampieva in Chemistry and Jason Warram in Otolaryngology

B. Revenue Generated from Technology

Not applicable

11. Budget Update

A full financial report is included in the Finance Section.

12. Educational Programs Focusing on Age-Related Memory Loss

A. Scientific

Scientific Updates seminar was held on December 6, 2018, allowing recipients of the UAB McKnight pilot grants to share their findings. – Appendix B

B. Public

Throughout the year, faculty members represented the Evelyn F. McKnight Brain Institute by participating in speaking engagements to various civic groups at Neuroscience Café events and Civitan Club meetings.

13. Collaborative Programs with other McKnight Institutes, Institutions and Research Programs

- In addition to the Collaborative Programs mentioned in the Chair Report below, collaborative work continues on the McKnight Brain Aging Registry. This is a collaborative project in many ways, but UAB has had a very strong role in all aspects of the project. Sara Sims been instrumental in setting up and maintaining both the RedCap and Supercomputer (Hipergator) databases.
- As a result of a discussion during the Tenth Annual McKnight Institutional Meeting, Dr. Lazar and Drs. Lee Ryan and Meredith Hay from the **Univ of Arizona** EMBI submitted an NIH grant application to the National Institute of Aging, entitled "Safety and Efficacy of Angiotensin -(1-7) on Cognitive Impairment in Heart Failure Patients At-Risk for Alzheimer's Disease."

14. Collaborative Programs with Non McKnight Institutes, Institutions and Research Programs

Investigators have identified inter and intra institutional collaborations locally, nationally, and internally. Additional programs are noted in the Chair Report Below.

15. Briefly describe plans for future research and/or clinical initiatives.

See Chair Report Below.

16. If applicable, please provide endowment investments results for the report period.

See Finance report.

17. Were any funds used for a Prohibited Purpose during the report period?

No

18. Do you recommend any modification to the Purpose or mandates in the Gift Agreement?

No

19. Did all activities during the report period further the Purpose?

Yes

20. Please describe any negative events (loss of personnel, space, budget, etc.) that occurred during the report period and the possible impact on carrying out the Gift Agreement.

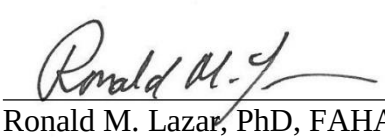
No negative events to report.

21. Please provide any general comments or thoughts not covered elsewhere – a response is not required. Please respond only if you would like to add something not covered elsewhere.

22. What do you consider your most important scientific achievement this year?

The McKnight Brain Aging Registry continues to grow. The principal investigators, along with co-investigators and study coordinators involved in both the MBAR Neuroimaging and Cognitive Cores have worked hard to advance the project and considerable progress has been made over the current reporting period. To date, 88 participants who have been recruited across the four MBI sites and have been fully enrolled in the registry, approaching 50% of our targeted enrollment. It is anticipated that recruitment and assessments will be completed by the end of the next fiscal year with enrollment of the originally planned cohort of 200 MBAR oldest old participants.

23. Signature, date, and title of person submitting report



Date: *1/15/2019*

Ronald M. Lazar, PhD, FAHA, FAAN
Professor of Neurology

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Director, UAB Evelyn F. McKnight Brain Institute
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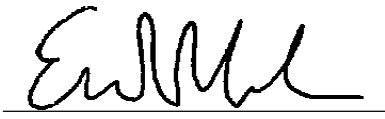

Date: *1/15/2019*

Erik D. Roberson, MD, PhD

Associate Professor of Neurology and Neurobiology
Patsy W. and Charles A. Collat Professor of Neuroscience
Director, Alzheimer's Disease Center
Associate Director, UAB Evelyn F. McKnight Brain Institute
Co-Director, Center for Neurodegeneration and Experimental Therapeutics

FINANCE

INVESTMENT REPORT

For Internal Use Only

Investment Report

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MCKNIGHT CHAIR'S REPORT

McKnight Chair Report

1. **Summary of scientific achievements since last report**

- Patients with end-stage heart failure, not eligible for heart transplant, can now receive a permanent left ventricular assist device (LVAD) to augment blood flow into the aorta, and then to the rest of the body. We discovered for the first time that prior to LVAD placement, patients (usually older) have impaired cognition, which remains unchanged at 30-days after implantation, but is found to improve significantly by Day 90. Our findings suggest that systemic inflammation from the reperfusion to the brain affecting cognition persists far longer than previously known. (Pavol, M.A., Willey, J.Z., Wei, Y., Yuzefpolskaya, M., Marshall , R.S., Marascalco, P.J., Harwood, J., **Lazar, R.M**., Does cognition improve following LVAD implantation? General Thoracic and Cardiovascular Surgery, 2018, Aug;66(8):456-463.)

- We studied the long-term patterns of cognitive recovery among cardiac arrest (CA) survivors and explored factors that are associated with the evolution of their cognitive recovery at 1 year relative to their outcomes at hospital discharge, now made possible for the first time because of longer-term survival. To our surprise, there was significant variability in the recovery patterns among patients discharged with mild-to-moderate cerebral dysfunction. An early good outcome at discharge did not necessarily maintain neurological status over 1 year. Variables showing significant associations with a poor recovery pattern (62.5%) in a multivariate model were age more than 70 years, Hispanic ethnicity, and discharge to home, and the need for acute rehabilitation. (Agarwal S, Presciutti A, Roth W, Matthews E, Rodriguez A, Roh DJ, Park S, Claassen J, **Lazar RM.** Determinants of Long-Term Neurological Recovery Patterns Relative to Hospital Discharge Among Cardiac Arrest Survivors. Crit Care Med. 2018 Feb;46(2):e141-e150.)

- For patients with asymptomatic high-grade carotid stenosis, clinical investigations have focused on preventing cerebral infarction, yet stenosis that reduces cerebral blood flow may independently impair cognition. We studied baseline cognitive function in the first 200 patients randomized in the Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2). Cognition at 49 nation-wide medical centers was assessed via a centralized, telephone-administered test battery. We found that these CREST-2 participants had significantly lower baseline cognitive scores than the general population, even in the absence of frank stroke. (**Lazar, RM**, Wadley, VG, Marshall, RS, Howard, G, Howard V, Voeks, JH, Yuan, Y, Lal, BK, Meschia, J, Brott, T. Baseline cognitive function among participants in the Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial [CREST-2]), Neurology, Abstr, 2018.

2. **Publications in peer reviewed journals**

- **Lazar, R.M.**, Pavol, M., Browndyke, J., Bormann, Dwyer, M.G., Kraemer, C., White, R., Zivadinov,R., Wertheimer, J.C., Thöne-Otto, A., Ravdin, L.D., Naugle,R., Mechanic-Hamilton, D., Garmoe.W.S., Stringer. A.Y., Bender, H.A., Kapadia, S.R., Susheel Kodali, S.K., Ghanem, A., Linke, A., Mehran, R., Virmani, R., Nazif, T., Parhizgar, A., Leon, M.B. Neurocognition and Cerebral lesion

burden in High Risk Patients before Undergoing TAVR: Insights from the Sentinel Trial, JACC Cardiovasc Interv. 2018 Feb 26;11(4):384-392PMID: 29397361.

- Pavol, M.A., Willey, J.Z., Wei, Y., Yuzefpolskaya, M., Marshall , R.S., Marascalco, P.J., Harwood, J., **Lazar, R.M**., Does cognition improve following LVAD implantation? General Thoracic and Cardiovascular Surgery, 2018, Aug;66(8):456-463. PMID: 29796750

- Marshall, R.S., **Lazar, R.M**., Liebeskind, D.S., Connolly, E.S., Howard, G., Lal, B.K., Huston III, J., Meschia, J.F., Brott, T.G., on behalf of the CREST-H investigators, Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis – Hemodynamics (CREST-H): Study Design and Rationale. International Journal of Stroke, 2018 Aug;66(8):456-463. PMID: 30132751.

- Agarwal S, Presciutti A, Roth W, Matthews E, Rodriguez A, Roh DJ, Park S, Claassen J, **Lazar RM**. Determinants of Long-Term Neurological Recovery Patterns Relative to Hospital Discharge Among Cardiac Arrest Survivors. Crit Care Med. 2018 Feb;46(2):e141-e150. PMID: 29135522.

- Norling, A.M., Marshall, R.S., Pavol, M.A., Howard, H., Howard, V., Liebeskind, D., **Lazar, R.M.** Is Hemispheric Hypoperfusion a Treatable Cause of Cognitive Impairment? Current Cardiology Reports, 2018, in press.

- Gerstenecker, A., **Lazar, R.M.** Language recovery following stroke. The Clinical Neuropsychologist, 2018, in press.

3. Publications (other)

- Dunn, L.E., Willey, J.Z., **Lazar, R.M**., (2018) Neuroprotection for Mechanical Circulatory Support. In D.L. Reich, S.A. Mayer, S. Uysal (Eds) Neuroprotection in Critical Care and Perioperative Medicine. Oxford: New York, pp 211-223.

- **Lazar, R.M.,** Stroke. Encyclopedia of Clinical Neuropsychology, In Kreutzer, J, DeLuca, J., Caplan, B. (Eds.) Encyclopedia of Clinical Neuropsychology. Volume 4, 2018, New York: Springer, in press.

- Dwyer MG, **Lazar RM**, Zivadinov R. Reply: Don't Leave the Back Door Open. JACC Cardiovasc Interv. 2018 Jul 23;11(14):1420.

4. Presentations at scientific meetings

- Turan TN, Voeks J, Barrett KM, Brown, Jr RD, Chaturvedi S, Chimowitz M, Demaerschalk B, Em yP, Howard G, Howard VJ, Huston J III, Jones M, Lal BK, Lazar RM, Meschia JF, Moore W, Mo y CS,Roldan AM, Roubin GS, Brott TG for the CREST2 Investigators. Relationship Between Risk Factor Control and Physician Specialty in the CREST2 Trial. International Stoke Conference, 201 8. Stroke. 2018.

- Turan TN, Meschia JF, Voeks J, Barrett KM, Brown, Jr RD, Chaturvedi S, Chimowitz M, Demaer schalk B, Emmady P, Howard G, Howard VJ, Huston J III, Jones M, Lal BK, Lazar RM, Moore W, Moy CS, Roldan AM, Roubin GS, Brott TG for the CREST2 Investigators. Relationship Betwe en Risk Factor Control and Physician Specialty in the CREST2 Trial. American Academy of Neur ology Annual Meeting, 2018. Neurology. 2018. 25.

- Meschia JF, Lal BK, Howard G, Roubin G, Brown RD Jr, Barrett KM, Chaturvedi S, Chimowitz M, Demaerschalk BM, Howard VJ, Huston III J, Lazar R, Moore W, Moy C, Turan T, Voeks J, Br ott TG, for the CREST2 Investigators. Carotid Revascularization and Medical Management for As ymptomatic Carotid Stenosis: CREST2 Update. American Academy of Neurology Annual Meetin g, 2018. Neurology. 2018. 26.

- Lazar RM, Wadley VG, Marshall RS, Howard G, Howard VJ, Meschia JF, Voeks JH, Yuan Y, Lal BK, Heck D, Jones M, Brott TG. Baseline cognitive function among participants in the Carotid Re vascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2). American Academy of Neurology Annual Meeting, 2018. Neurology. 2018.

- Meschia JF, Barrett KM, Roubin G, Heck D, Jones M, Wechsler L, Rapp JH, Turan TN, Demaersc halk BM, Lal BK, Voeks JH, Howard G, Howard VJ, Brott TG for the CREST2 Investigators. Con trol of vascular risk factors at baseline in CREST2. American Academy of Neurology Annual Mee ting, 2018. Neurology. 2018. 28.

- Howard VJ, Wadley VG, Wolff P, Zhang Y, Knopman D, Lal BK, Meschia JF, Voeks JH, Howard G, Brott TG, Lazar R. Methods, Successes and Lessons Learned from Centralized Cognitive Asse ssment in a Multicenter Clinical Trial of Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis (CREST2). Society for Clinical Trials Annual Meeting, 2018. SC T Journal. 2018.

- Meschia JF, Lal BK, Howard G, Roubin G, Brown RD Jr, Barrett KM, Chaturvedi S, Chimowitz M, Demaerschalk BM, Howard VJ, Huston III J, Lazar R, Moore W, Moy C, Turan T, Voeks J, Br ott TG, for the CRES2 Investigators. Carotid Revascularization and Medical Management for Asy mptomatic Carotid Stenosis: CREST2 Update. American Neurological Association Annual Meetin g, 2018.

- Heart Brain Symposium 2018. Cognition and the Heart. Aortic Stenosis, TAVR and Cognition: Imaging and Clinical Findings. Chicago, IL

- UAB Stroke Symposium 2018. Pharmacology and Stroke Recovery, Birmingham, AL.

- Arizona Stroke Conference 2018. Cognition and Silent Brain Infarction. Phoenix, AZ

- Aortic Stenosis, TAVR and Cognition. Division of Gerontology, Geriatrics, and Palliative Care Conference, February, 2018.

5. Presentations at public (non-scientific) meetings or events

Aphasia and Stroke, Neuroscience Café, Mountain Brook Library, Mount4/19/2018

6. Awards (other)

7. CV

See Appendix D

8. Trainees

a. Post doctoral
Benjamin Jones, MD
Stephen Benesh, MD

b. Pre-doctoral
Amani Norling, MA
Alexandra Jacob, BA

c. Other
Adam Gerstenecker, PhD
Lin Chen, MD
Ekaterina Bakradze, MD
Andrew MacDonald, MD
Thomas Buford, PhD

9. Clinical/translational programs

a. New programs

- **U24NS107223 (Gropen, Lazar, Harrigan)**
  NIH/NINDS StrokeBelt StrokeNet
  The goal of the newly-funded (August 2018) StrokeBelt StrokeNet is to establish a Regional Coordinating Center to facilitate Stroke research in the Southeastern States of Alabama and Mississippi. This infrastructure will provide research opportunities in acute stroke treatment, primary and secondary prevention, and post-stroke rehabilitation for an underserved, high-risk stroke population.

- **R01 AG057709-01 (PI: Gutierrez, Columbia; Role: Co-I))**
  NIH/NINDS Genetic Contribution to Brain Arterial Dilatation and its Role in Cognition and Dementia
  The goal of this new project is to study the role of gene regulation in the dilatation of intracerebral arteries in response to systemic cardiovascular risk factors and its contribution to the onset of cognitive decline.
- **Cerebral Oxygen Perfusion and Exercise in Aging.**

  UAB McKnight Funds. Increasing age is highly associated with alterations in the cardiovascular and cerebrovascular systems. A weakened capacity of the cerebral arteries to expand and contract in response to changes in cerebral blood pressure during the cardiac cycle has been linked with compromised cardiovascular function and elevated risks of high blood pressure, stroke, heart attack and congestive heart failure. Studying

women over 65 years old, we are determining if there is a positive association between increased levels of fitness and enhanced cognitive function. We propose that improved cognition is facilitated by a biochemical cascade of events that begins with an increase in cerebral flood flow and oxygen extraction, and vascular inflammation, followed by increased growth factors and angiogenesis and neurogenesis, ultimately leading to improved cognition.

- **Neuroinflammation after Myocardial Infarction**

  UAB Impact Funds. The association between cardiovascular disease and cognitive impairment has been known since the 1970's, leading to the search for the underlying cause for brain dysfunction. We and others have shown that coronary artery bypass grafting (CABG), congestive heart failure and associated heart transplant and mechanical device support, abnormal heart rhythms, valve disease and repair/replacement, and carotid artery blockage and corrective surgery affect cognition, especially among older patients. Recent animal models have shown that a temporary blockage of a coronary artery and removing the blockage causes inflammation in the brain in specific regions, with alterations on memory tasks. It is now possible to measure brain inflammation in patients using novel methods of brain imaging. The purpose of this study is to determine whether patients who recently experienced a heart attack and treated with a stent have an inflammatory response in their brains, which affects their cognitive function, and whether the inflammatory effects last over time.

- **Cognitive and Surgical Predictors of Post-Surgical Delirium in the Elderly**

  UAB McKnight Funds. Elderly patients are uniquely susceptible to post-surgical delirium detected during post-procedural care. Moreover, the cognitive changes appearing during hospitalization often persist for months and sometimes never resolve, and appear unrelated to any underlying dementia. In this unique collaboration among specialists from Neuropsychology; Gerontology, Geriatrics and Palliative Care; Anesthesiology; Orthopedic Surgery; and Nursing, we have just begun designing a protocol to examine the relationships between pre-surgical cognition and other medical and demographic factors, with the long-term goals of establishing a delirium risk model and formulating preventive strategies.

b. Update on existing clinical studies

- **1 R01 NS076277-01A1 (Lazar/Marshall)**

  NIH/NIND. Blood Flow and Cognition in Asymptomatic Carotid Artery Disease. This project studies the relationship of four measures of cerebral hemodynamics and cognitive function in patients with asymptomatic carotid artery disease. We completed enrollment for both patients and controls. Having published several papers on the effects of hemodynamic compromise on brain structure, we are now examining the relationship between these hemodynamic factors and cognition in elderly patients (mean age = 76). Collaboration is between UAB and Columbia.

- **1 U01 NS080168-01A1 (PI: Brott; Cognitive Core PI: Lazar)**

  NIH/NINDS CREST-2 Clinical Coordinating Center.
  The goal of this project is to assess if contemporary medical therapy is not inferior to contemporary revascularization (carotid endarterectomy or carotid angioplasty/stenting)

plus best medical therapy in patients with ≥ 70% asymptomatic carotid stenosis. The cognitive substudy is to assess whether medical therapy alone is non-inferior to revascularization to maintain the level of cognitive function at 4 years of follow-up. We reported at the 2018 meeting of the American Academic of Neurology the cognitive profile of the first 200 randomized patients, demonstrating cognitive decline in the absence of stroke. Collaboration is among UAB, Columbia, Mayo Clinic and UMaryland.

- **1R21NS096972-01A1 (Lazar/Kodali)**

  NIH/NINDS/NIA Cerebral Hemodynamics and Neurocognition in Aortic Valve Disease.
  The goal of this project is to determine whether severe aortic stenosis is associated with impaired cerebral hemodynamics and, in turn, impaired cognition, and whether valve replacement is associated with improved cerebral hemodynamics and improved cognition. This grant was successfully transferred to UAB, and enrollment was resumed in September 2017. We have enrolled 30 patients. Collaboration is between UAB and Columbia.

- **R01NS097876 (Lazar, Marshall, Liebeskind, Connolly)**
  NIH/NINDS Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics
  The purpose of this project is to determine whether there is a subset of patients with carotid stenosis who have MRI-detected cerebral hemodynamic compromise and associated cognitive decline, and whether revascularization will be associated with improved hemodynamics and improved cognition. This new grant was funded just as Dr. Lazar arrived at UAB, and clinical site training has taken place for 150 investigators and coordinators across the US. The first enrollment took place in January 2018, and we now have enrolled 35 patients. (Collaboration is among UAB, Columbia and UCLA).

10. Technology transfer

a. Patents applications - None
b. Revenue generated from technology – N/A

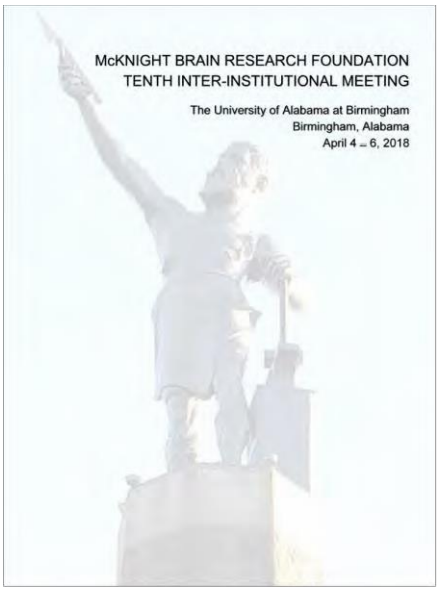
11. Budget update

A full financial report is included in the Finance Section.

12. Educational programs focusing on age related memory loss

a. Scientific –

- The UAB Evelyn F. McKnight Brain Institute and Dr. Lazar (Chair) hosted the **Tenth McKnight Inter-Institutional Meeting** in Birmingham on April 4 – 6, 2018 (Appendix C). The overarching theme was clinical translation of pre-clinical science toward the overall goal of promoting memory and cognitive resilience in aging.



Pre-Meeting: To expand and make more accountable, we structured the pre-meeting into two, 2-hour sessions. There was an organizer for every session, giving roughly equal representation across the four EMBI sites. The organizers held a conference call with attendees in advance of April 4 so that an agenda and goals could be formulated. Every attendee was able to participate in at least two group meetings. At the end of each session, the organizer facilitated the listing the action items. At the end of the main meeting on Friday, Apr 6, an hour was devoted for all of the 10 organizers to spend 5 minutes each outlining the nature of their group meeting sessions and the action items for follow-up. The topics, reflecting in large part the recent position papers by the National Academies and the American Heart Association/American Stroke Association, included perirhinal cortex, vascular risk factors, Inflammation, Exercise, MBAR, stress, cerebral blood flow, epigenetics, sleep and cognitive training. Fifty-four faculty from the four EMBI's attended.

Main Meeting: There were four sessions across two days: "Intervention" moderated by Carol Barnes, "McKnight Brain Aging Registry (MBAR)" moderated by Tatjana Rundek, "New Faculty" moderated by Ronald Cohen, and "Data Blitz: Trends in Neuroscience" moderated by Erik Roberson. We were extremely pleased to have the April 5 lunchtime Keynote Address, entitled "Epigenetic Clock Analysis of Cognitive Aging," delivered by Steve Horvath, PhD, Professor of Human Genetics and Biostatistics at the David Geffen School of Medicine at UCLA. The dinner Keynote Address that night, entitled "Bears, Bile and the Brain: Towards New Cures for Alzheimer's Disease," was delivered at Vulcan Park by Madhav Thambisetty, MD, PhD, MBRF Board member and Investigator and Chief, Unit of Clinical and Translational Neuroscience, National Institute of Aging.

- "Scientific Updates" seminar was held on December 6, 2018 (Appendix B) allowing guests from across the UAB campus the opportunity to see the work currently being done at the UAB McKnight Institute.

b. Public - None

13. Collaborative programs with other McKnight Institutes, institutions and research programs.

As a result of a discussion during the Tenth Annual McKnight Institutional Meeting, Dr. Lazar and Drs. Lee Ryan and Meredith Hay from the **Univ of Arizona** EMBI submitted an NIH grant application to the National Institutes of Aging, entitled "Safety and Efficacy of Angiotensin -(1-7) on Cognitive Impairment in Heart Failure Patients At-Risk for Alzheimer's Disease." This project is a late Phase

1/Early Phase 2 randomized controlled trial to determine if a novel drug developed in Dr. Hay's laboratory is safe and has an early indication of efficacy in the protection against neuroinflammatory-related changes in cognition among heart-failure patients with reduced ejection fraction. This application, submitted in November 2018, will be reviewed in February 2019.

14. Collaborative program with non-McKnight Institutes, institutions and research programs.

- Dr. Lazar and Dr. Maarten Lansberg from the **Stanford University School of Medicine** submitted a Multi-PI NIH grant application in June 2018 that is an ancillary study to the ARCADIA trial, which is determining whether aspirin or apixaban (a novel anticoagulant) is superior in secondary stroke prevention among patients with atrial cardiopathy. The purpose of this ancillary is to ascertain whether aspirin or apixaban reduces the number of silent brain infarcts in this patient cohort, with the concomitant effect of mitigating cognitive decline. Five-hundred patients will be studied across 100 hospital in the US. This application underwent Study Section review on 11/5/2018 and received an excellent impact score, and it is expected to be brought to NINDS Council in January 2019.

- Grants/Contracts (2018-present)

  ACTIVE

  - U24NS107223 (Gropen, Lazar, Harrigan) 09/01/2018 – 08/31/2023
    NIH/NINDS StrokeBelt StrokeNet
    The goal of the StrokeBelt StrokeNet is to establish a Regional Coordinating Center to facilitate Stroke research in the Southeastern States of Alabama and Mississippi. This infrastructure will provide research opportunities in acute stroke treatment, primary and secondary prevention, and post-stroke rehabilitation for an underserved, high-risk stroke population.

  - 1 U01 NS080168-01A1 (Brott) 1/1/2014 – 12/31/2021

    NIH/NINDS CREST-2 Clinical Coordinating Center.
    The goal of this project is to assess if contemporary medical therapy is not inferior to contemporary revascularization (carotid endarterectomy or carotid angioplasty/stenting) plus best medical therapy in patients with ≥ 70% asymptomatic carotid stenosis. The cognitive aim is to assess whether medical therapy alone is non-inferior to revascularization to maintain the level of cognitive function at 4 years of follow-up.
    Role: Co-I and Cognitive Core Leader.

  - R01NS097876 (Lazar, Marshall, Liebeskind, Connolly) 4/1/2017 – 3/31/2022
    NIH/NINDS Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics
    The purpose of this project is to determine whether there is a subset of patients with carotid stenosis who have MRI-detected cerebral hemodynamic compromise and associated cognitive decline, and whether revascularization will be associated with improved hemodynamics and improved cognition.

  - AMC21 Multi-PI Pilot Grant, UAB School of Medicine (MPI:C Brown, Corresponding PI; Lazar, Co-PI) Prevention of and Recovery from Hospital-Associated Disability. (1/20/2018 – 1/19/2020)
    Pilot funding in preparation for 2019 submission for an NIA Claude D Pepper Older Americans Independence Center

- 1R21NS096972-01A1 (Lazar/Kodali) 8/1/2016 – 3/31/2018
  NIH/NINDS Cerebral Hemodynamics and Neurocognition in Severe Aortic Valve Disease.
  The goal of this project is to determine whether severe aortic stenosis is associated with impaired cerebral hemodynamics and, in turn, impaired cognition, and whether valve replacement is associated with improved cerebral hemodynamics and improved cognition.

- R01 AG057709-01 (Pl Gutierrez)
  NIH/NINDS Genetic Contribution to Brain Arterial Dilatation and its Role in Cognition and Dementia
  The goal of this project is to study the role of gene regulation in the dilatation of intracerebral arteries in response to systemic cardiovascular risk factors.
  Role: Co-I (neurocognitive outcomes).

- **PENDING**

- 1U01NS110728-01 (Lazar/Lansberg) 04/01/2019 - 03/31/2024
  NIH/NINDS ARCADIA CSI (Cognition and Silent Infarcts)
  This ancillary study to the ARCADIA trial will determine whether aspirin or apixaban reduces the number of silent brain infarcts in patients with atrial cardiomyopathy, with the concomitant effect of mitigating cognitive decline.

- 1R01AG059697-01A1 (Ryan/Lazar/Sweitzer) 07/01/2019 - 06/31/2024
  NIH/NIA Safety and Efficacy of Angiotensin-(1-7) on Cognitive Impairment in Heart Failure Patients At-Risk for Alzheimer's Disease.
  This project is a late phase1/early phase 2 clinical trial to determine if this drug is safe and has an early indication of efficacy in the protection against neuroinflammation among heart-failure patients with reduced ejection fraction.

15. Briefly describe plans for future research and/or clinical initiatives

The future of the Evelyn F. McKnight Brain Institute is bright as new focus has begun with innovative research projects and clinical initiatives. There's a pilot project planned to study a cohort of 35- to 50-year-old patients with refractory hypertension as a model of premature vascular aging and cognitive decline. A new collaboration has been established with the mechanical circulatory team in the Heart Failure Service in the Division of Cardiovascular Medicine to study the long-term cognitive effects of artificial pumps on the brain's vascular system.

LISTING OF INVESTIGATORS

Listing of Investigators

Professors

Ronald M. Lazar, PhD, FAHA, FAAN
Professor, Department of Neurology
Evelyn F. McKnight Endowed Chair for Learning and Memory in Aging
Director, McKnight Brain Research Institute
Director, Division of Neuropsychology (Neurology)
Area of Interest: Cognitive Resilience and Recovery in Aging, Cerebral hemodynamics, Neurovascular Disease.

Steve Austad, PhD
Professor and Chair, Department of Biology
Area of Interest: Molecular and organismal biology of aging

Karlene Ball, PhD
Professor and Chair, Department of Psychology
Area of Interest: Aging-related cognitive function

Etty (Tika) Benveniste, PhD
Senior Associate Dean for Research Administration, SOM
Associate Vice President for Medicine and Basic Sciences
Charlene A. Jones Endowed Chair in Neuroimmunology
Professor, Department of Cell, Developmental and Integrative Biology
Co-Director, UAB Multiple Sclerosis Center
Associate Director, Basic Science Research • Comprehensive Cancer Center

Virginia Wadley Bradley, PhD
Associate Professor, Division of Gerontology, Geriatrics, and Palliative Care
Director, Dementia Care Research Program
Associate Director, Edward R. Roybal Center for Translational Research on Aging and Mobility
Area of Interest: Mild Cognitive Impairment, Alzheimer's disease, comorbid cerebrovascular disease

Michael Brenner, PhD
Professor Emeritus, Department of Neurobiology
Area of Interest: Glial cell biology, Alexander Disease

Cynthia J. Brown, MD, MSPH
Professor
Director, Division of Gerontology, Geriatrics and Palliative Care
Comprehensive Center for Healthy Aging
Area of Interest: quality of life for the aging through research, education and clinical care

Lynn Dobrunz, PhD
Professor, Department of Neurobiology
Area of Interest: Regulation of short-term synaptic plasticity in the hippocampus

Lloyd J. Edwards, PhD
Professor and Chair
Department of Biostatistics, School of Public Health
Area of Interest: Conducting statistical research in linear and generalized linear mixed model methodology, longitudinal data analysis, health disparities, cardiovascular disease, neuroscience, and clinical trials design and analysis

Paul Gamlin, PhD
Professor, Department of Ophthalmology
Area of Interest: Cell biology and systems neuroscience of vision and visual disorders

David Geldmacher, MD
Professor, Collat Scholar, Department of Neurology
Area of Interest: Aging-related memory disorders and visual cognition in AD.

John Hablitz, PhD
Professor
Interim Chair, Department of Neurobiology
Area of Interest: Modulation of excitability in neocortical circuits

Adrianne Lahti, MD
Patrick H. Linton Professor
Director, Division of Behavioral Neurobiology
Co-director, Alabama Advanced Imaging Consortium
Area of Interest: Neuroimaging

Seth Landefeld, MD
Professor and Chair
Department of Medicine
Area of Interest: Geriatrics and Health Care Research

Robin Lester, PhD
Professor, Department of Neurobiology
Area of Interest: Nicotinic receptors in CNS function

Dan Marson, JD, PhD
Professor Emeritus, Department of Neurology
Area of Interest: Neuropsychology

Lori McMahon, PhD
Professor and Dean, Graduate School
Professor, Department of
Physiology/Biophysics Director, UAB
Comprehensive Neuroscience Center
Area of Interest: Hormonal control of synaptic plasticity in aging

James H. Meador-Woodruff, MD
Professor and Chair, Department of Psychiatry and Behavioral Neurobiology
Area of Interest: Cellular alterations of neural circuitry and molecular expression in psych

Vlad Parpura, MD, PhD
Professor, Department of Neurobiology
Area of Interest: Imaging approaches to investigating synaptic and glial cell function

Craig Powell, MD, PhD
Professor and Chair, Department of Neurobiology
Area of Interest: Autism

Lucas Pozzo-Miller, PhD
Professor, Department of Neurobiology
Area of Interest: Mechanisms controlling dendritic spine morphology

Sumanth D. Prabhu, MD
Mary G. Waters Chair of Cardiovascular Medicine
Professor of Medicine and Cell, Developmental, and Integrative Biology
Area of Interest: cardiovascular disease

Michael Saag, MD
Division of Infectious Diseases
Director, The William C. Gorgas Center for Geographic Medicine
Director, Center for AIDS Research
Areas of Interest: Infectious Diseases, HIV/AIDS, Blood Equality, Hepatitis, Antiretroviral Therapy

David Standaert, MD, PhD
John N. Whitaker Professor and Chair of Neurology
Area of Interest: Aging, Neurodegeneration, and Translational Neuroscience

Victor J. Thannickal, MD
Professor and Chair of Medicine in Respiratory Disease, Division of Pulmonary, Critical Care
Area of Interest: Fibrotic lung diseases, acute lung injury

Anne Theibert, PhD
Professor, Department of Neurobiology
Director, UAB Undergraduate Neuroscience B.S. Program
Area of Interest: PI-3-Kinase signal transduction in neuronal cell biology

Erobo Ubogu, PhD
Professor, Department of Neurology
Director of the Neuromuscular Division of Neurology
Area of Interest: Inflammatory neuropathies

Associate Professors

Mark Bolding, PhD
Associate Professor, Division of Advanced Medical Imaging Research
Area of Interest: Visual cognition, MRI, and neuroimaging

Thomas Buford, PhD, FACSM, FAHA
Associate Professor, Division of Gerontology, Geriatrics & Palliative Care
Area of Interest: Exercise medicine

Christy Carter, PhD
Associate Professor, Division of Gerontology, Geriatrics & Palliative Care
Area of Interest: Exercise medicine

Matt Goldberg, PhD (Recruited from UT Southwestern) Associate Professor, Neurology
Area of Interest: Mechanisms of neurodegeneration

Michelle Gray, PhD
Associate Professor, Dixon Scholar, Department of Neurology
Area of Interest: Neurogenetics, glial function, and Huntington's disease

Alecia Gross, PhD
Associate Professor, Department of Vision Sciences
Area of Interest: Signal transduction mechanisms in the CNS

Richard E. Kennedy, MD, PhD, FAPM
Associate Professor, Department of Gerontology, Geriatrics & Palliative Care
Area of Interest: aging

David Knight, PhD
Associate Professor, Department of Psychology
Area of Interest: Human imaging approached to investigating memory

Farah Lubin, PhD
Associate Professor, Department of Neurobiology
Area of Interest: Signal transduction mechanisms in memory and memory disorders

Roy C. Martin, PhD
Associate Professor, Department of Neurology
Area of Interest: Neuropsychology

Kazu Nakazawa, PhD
Associate Professor, Department of Psychiatry
Area of Interest: Epigenetics and cognition

Linda Overstreet-Wadiche, PhD
Associate Professor, Department of Neurobiology
Area of Interest: Adult neurogenesis in the dentate gyrus

Erik Roberson, MD, PhD
Associate Professor, Department of Neurology
Patsy W. and Charles A. Collat Professor of Neuroscience
Director, Alzheimer's Disease Center
Co-Director, UAB Center for Neurodegeneration and Experimental Therapeutics
Associate Director, Evelyn F. McKnight Brain Institute
Area of Interest: Aging-related memory disorders

Kristen Triebel, PsyD
Assistant Professor, Department of Neurology
Area of Interest: Neuropsychology

Kristina Visscher, PhD
Assistant Professor, Department of Neurobiology
Co-director, Civitan International Neuroimaging Laboratory
Area of Interest: Human imaging approaches to investigating memory.

Jacques Wadiche, PhD
Associate Professor, Department of Neurobiology
Area of Interest: Synaptic plasticity and function in the cerebellum

Scott Wilson, PhD
Associate Professor, Department of Neurobiology
Area of Interest: The ubiquitin/proteasome system in neuronal function

Assistant Professors

Amy Amara, MD, PhD
Assistant Professor
Area of Interest: Sleep disorders, movement disorders

Jeremy Day, PhD
Assistant Professor, Department of Neurobiology
Area of Interest: Epigenetic mechanisms in memory formation.

Tanja Dudenbostel, MD
Assistant Professor, Department of Medicine, Cardiovascular Disease
Area of Interest: Cardiovascular disease

Cristin Gavin, PhD
Assistant Professor, Department of Neurobiology
Co-director, Undergraduate Neuroscience Program
Co-director, Post baccalaureate Research Education Program
Area of Interest: Cellular and molecular mechanisms of structural and functional plasticity

Adam Gerstenecker, PhD
Assistant Professor, Department of Neurology
Area of Interest: Functional activity, decisional capacity, and cognition in persons with cognitive impairment and dementia.

Jeremy Herskowitz, PhD
Assistant Professor, Department of Neurology
Area of Interest: Amyloid beta effects on neurons.

Gwen King, PhD
Assistant Professor, Department of Neurobiology
Area of Interest: Memory and aging, Klotho proteins in aging and cognition

Scott Phillips, PhD
Assistant Professor, Department of Neurobiology
Area of Interest: Neurogenetics, neurobiochemistry

Mohammad S. Sarraf, MD
Assistant Professor, Division of Cardiovascular Disease
Area of Interest: Cardiovascular disease

INDIVIDUAL INVESTIGATORS' REPORTS

Individual Investigators' Reports

1. **Summary of Scientific Achievements**

Amar, Amy

1. Completion of randomized, controlled study investigating effects of high-intensity exercise on sleep, vigilance, resting state functional connectivity, and cognition in patients with Parkinson's disease (PD).
2. Submission of manuscript showing relationship between slow wave sleep and cognition in PD.
3. Acceptance of manuscript showing the relationship between physical activity and disease progression in PD, in collaboration with the Parkinson's Progression Markers Initiative.
4. Presented oral presentation at ANA annual meeting
5. Completion of study procedures in an investigation of the effects of speed of processing training on pedestrian safety in PD and healthy controls.

Austad, Steven

Since the last report, my laboratory has initiated a study in mice of the mechanisms involving sex differences in responsiveness to senescence-retarding drugs such as 17α-estradiol, acarbose, and rapamycin using a novel mouse model which allows separation of chromosomal from gonadal sex. We have also been evaluating the metabolome of companion dogs to try to learn what metabolic pathways are involved in the relative rapid physical, sensory, and cognitive aging of large dogs relative to small dogs. We have also been working on a comparative analysis of the proteomes of a large selection of fibroblasts from diverse bird species, again, seeking to understand the metabolic pathways involved in slow vs fast aging.

Ball, Karlene

Just completed the Roybal Center competing renewal which includes a progress report (summary of achievements) and highlights our translational programs, resources of the Center, ongoing grants (including new ones) in part supported by the Center and recent successes with technology transfer.

Benveniste, Tika

Continued work on the role of neuroinflammation in Parkinson's Disease (PD), Multiple Sclerosis (MS) and Brain Tumors. Assessing the role of T-cells, monocytes/microglia, B-cells and astrocytes in pre-clinical models of these diseases as well as evaluation of peripheral blood from patients.

Bolding, Mark

1. Non-invasive delivery of viruses and of nanoparticle scintillators to hippocampus and motor cortex of the brain in a murine model. Both viruses and nanoparticles were injected IV and localized delivery was induced with focused ultrasound. Delivery of viruses was confirmed by GFP expression. Nanoparticle delivery was confirmed with PET and MRI. Histology confirmed that delivery did not cause damage to the tissue.
2. Started using c. elegans to investigate the use of x-rays for optogenetics. Initial results suggest this may be possible.

Day, Jeremy

1. Engineered CRISPR/dCas9 tools that allow robust and modular regulation of gene expression profiles across brain regions and cell types of rodent model systems. We have used this system to alter levels of Brain-derived neurotrophic factor (BDNF), a key signaling protein linked to learning and memory
2. Obtained new R01 funding for our work on understanding non-coding RNAs that arise from enhancer regions of the genome.

3. Began collaborations with Roberson and Herskowitz labs to use high-throughput multielectrode array recordings to identify neuronal alterations following amyloid beta treatment.

Dobrunz, Lynn

1. My lab has shown differences in short-term plasticity at excitatory inputs onto inhibitory interneurons and pyramidal cells in hippocampus during physiologically relevant stimulus patterns that contributes to dynamic regulation of the excitation/inhibition balance in hippocampus. In addition, we used mathematical modeling to show that this is primarily caused by target cell specific differences in the initial release probability per vesicle at different synapses.
2. My lab has shown that chronic overexpression of NPY does not reduce baseline anxiety-like behavior in mice, but instead causes downregulation of NPY receptors. Because increasing NPY has been proposed as a treatment or preventative for anxiety and PTSD, our result suggest that long-term increases in NPY may not be effective.
3. My lab has shown that specific radioluminescent nanoparticles that have been proposed for noninvasive optogenetics are not toxic to neurons, but have effects themselves to modulate the activity of excitatory and inhibitory synaptic transmission. As a result, other materials are being investigated to potentially reduce these effects.

Dudenbostel, Tanja

Identification of a phenotype of young adults with premature hypertension and premature cardiovascular morbidity and mortality including stroke, coronary artery disease, heart failure and kidney disease. Early vascular aging in these individuals has been identified by my laboratory as main driver of premature cardiovascular disease.

Edwards, Lloyd

Dr. Eddy Kwessi begins 1-year sabbatical in Department of Biostatistics with concentration in biostatistical and computational neuroscience.

Gamlin, Paul

1. We were able to show somatic gene editing of guanylate cyclase 2D, retinal (GUCY2D) in macaque photorececeptors using subretinally-delivered AAV-CRISPR/Cas9 (Adeno-associated virus -Clustered Regularly Interspaced Short Palindromic Repeats/ CRISPR associated protein 9).
2. We further investigated the neural substrates for the control of eye movements in non-human primates.
3. We investigated the roles of intrinsically-photosensitive retinal ganglion cells in pupillary and circadian responses.

Gerstenecker, Adam

1. Awarded NIH K23 mentored research grant.
2. Became lead neuropsychologist for Alabama Udall Center.
3. Served on two internal grant review panels.
4. Continued to publish in peer-reviewed journals.
5. Continued to conduct peer review for academic journals.

Goldberg, Matthew

A major research focus of the Goldberg laboratory is the role of mitochondrial dysfunction in aging and age-dependent neurodegenerative disease, particularly loss-of-function mutations in the mitochondrial kinase, PINK1, linked to early onset Parkinson's disease. With funding from three new research grants since the last report, we have identified the mechanism of age-dependent axon terminal degeneration in PINK1 deficient rats, identified age-dependent electrophysiological abnormalities in the striatum of PINK1 deficient rats, and begun to analyze mitochondrial function and dysfunction caused by alpha-synuclein protein inclusions in the brains of mice.

Gray, Michelle

1. We published our work on the contribution of the mutated huntingtin gene in astrocytes to the progression of Huntington's Disease (HD) pathology.

2. We previously identified significant changes in heart rhythms in HD mouse models. Some of these changes have been observed by others in other mouse models of HD. We wanted to determine if similar changes were observed in HD patients seen at our clinic at UAB. We initiated an observational study of Huntington's Disease patients to assess heart rhythm using 48-hour Holter monitoring. To date, we have enrolled 10 patients.

Gross, Alecia

We have uncovered the molecular mechanisms of disk formation in rod and cone photoreceptors and have made strides in understanding the role of key ciliopathic proteins in the transition zone of primary cilia in disease.

Hablitz, John

We have been investigating developmental changes in modulation of inhibitory interneurons in neocortical layer 1 (L1). L1 interneurons are critical for proper cortical development and cortical layering. We identified three physiologically discrete IN populations which were classified as regular spiking (RS), burst accommodating (BA) and non-accommodating (NA). A distinct developmental pattern of excitability modulation by HCN channels was observed for each group. RS and NA cells displayed distinct morphologies with modulation of EPSPs increasing in RS cells and decreasing in NA cells across development. The results indicate a possible role of HCN channels in the formation and maintenance of cortical circuits through alteration of the excitability of distinct L1 Ins.

Herskowitz, Jeremy

Published 3 papers and received another NIH R01 grant.

Kennedy, Richard

Since the last report, we are continuing to expand our research on the identification and management of delirium occurring in hospitalized older adults. We are also continuing our research on novel clinical trial designs and biomarkers in Alzheimer's disease.

King, Gwendolyn

We published a paper showing that klotho is important for postnatal neurogenesis. Some assume that all klotho effects are the result of FGF23 signaling. Thus, we examined the brain of the FGF23-deficient mouse and report that klotho functions independent of FGF23 to effect neurogenesis in a paper just submitted.

We discovered that klotho-deficiency decreases the threshold to seizure induction in mice and are working to understand what occurs in neurons to allow this.

We conducted RNA-seq analysis on our conditional klotho-deficient mice missing klotho from only the choroid plexus. We compared hippocampus and choroid plexus from these mice and have discovered that klotho-deficiency increases immune related signaling in both locations.

Lahti, Adrianne

1. Awarded a second R01
2. Named F. Cleveland Kinney Endowed Professor
3. Named Vice Chair for Research Training and Faculty Development
4. Published 9 papers (7 in press) and one book chapter (in press)
5. Six oral presentations at national and international meetings

Landefeld, Seth

Dr. Seth Landefeld leads the Department of Medicine in growing high impact research at UAB. Accomplishments this year include the growth of Department of Medicine NIH funding from $84 million dollars to $87 million dollars and the publication of over ten high impact discoveries in the New England Journal of Medicine, Circulation, and Nature journals.

Lubin, Farah

1. This year we held our **Fourth** annual NEURAL (**N**ational **E**nhancement of **U**nder**R**epresented **A**cademic **L**eaders) conference at UAB. We had ~35 non-UAB underrepresented minority (URM) neuroscience graduate students join us from across the country and ~75 UAB students including neuroscience graduate and undergraduate students, PREP students, and SPIN students. This year we

included URM junior faculty (2) that were paired with our keynote speakers for the opportunity to be mentored by senior scientists.
2. I continue to present my research both at national and international meetings. This includes being invited as a Merritt Putnam Symposium Plenary speaker at the annual American Epilepsy Society (AES) annual meeting.
3. I continue to pursue additional research funding for my research program through submission of grant applications. This year I secured an NIH R56 MH097909 grant and a McKnight Foundation grant award.

McMahon, Lori

1. Published novel research on rapid antidepressant effects of ketamine
2. Published the first synaptic physiology study showing prodromal dysfunction in a novel rat model of Alzheimer's disease that recapitulates human disease more faithfully than any rodent model to date.

Marson, Daniel

1. Co-authorship on key MCI guideline publication for the field of Neurology
2. Creation of alternative form of FCI-SF financial cognition assessment measure
3. Creation of UK version of FCI-SF financial cognition assessment measure
4. Other peer reviewed publications and scientific and non-scientific presentations

Martin, Roy

Participation on grant projects:
1. NSF EPSCoR grant (UAB Site PI: Jerzy Szaflarski) RII Track-2 FEC: Probing and Understanding the Brain: Micro and Macro Dynamics of Seizure and Memory Networks," awarded to Louisiana Tech University to the National Science Foundation EPSCoR's Research Infrastructure Improvement Track-2 solicitation.
2. NIH grant "noninvasive biomarkers to advance emerging DBS electrode technologies in Parkinson's disease" (PI: Harrison Walker).
3. NIA R01 AG059009 grant (M Weiner: PI; UAB Site PI: Erik Roberson) Validation of Online Measures to Predict and Monitor Cognitive Decline.

Meador-Woodruff, James

We have long argued that given the early onset of memory impairment in patients with schizophrenia, that this illness may be a useful model of cognitive aging in non-psychiatric populations, and that insights learned from defining the pathophysiology of this illness may prove useful to identify novel targets for the treatment of age related memory decline. During 2018, we have added to our body of work examining neurochemical abnormalities in postmortem brain of elderly subjects that had suffered from schizophrenia while living, including discovering abnormalities of the post translational modification of protein glycosylation, as well as evidence for protein processing abnormalities in the endoplasmic reticulum and Golgi apparatus in the brain in schizophrenia.

Parpura, Vladimir

Astrocytes play roles in health and disease. Since astrocytes release glutamate and can respond to stimulation by glutamate with Ca^{2+} increases, they may contribute to the pathology of Alzheimer's disease. We continue a collaborative effort with the Zorec laboratory to begin studying astrocytic contributions to this disease.
We are making efforts related to various tissue organs pathologies/injuries by developing scaffolds and dispersible materials, most notably modified colloidal solutes and films of carbon nanotubes and exfoliate graphene. In a collaborative effort with the Milasin laboratory, graphene dispersion water-soluble single walled carbon nanotubes (ws-SWCNT) both had neuro-stimulatory effects of variable degree on stem cells from apical papilla, as judged by the production of neural marker.

Powell, Craig

The Powell Laboratory continues its investigations into cognitive function in the mammalian brain and cognitive dysfunction in brain disorders such as Alzheimer's Disease, Intellectual Disability, and Autism.

We have made significant progress advancing our understanding Alzheimer's Disease (AD) that will contribute to its treatment and prevention.

Pozzo-Miller, Lucas

1. Demonstration that homeostatic synaptic plasticity is impaired in *Mecp2* knockout neurons due to lower levels of EEA1, an endosomal protein involved in synaptic AMPAR recycling. Increasing EEA1 levels in *Mecp2* KO neurons restores homeostatic synaptic plasticity. Published in *Journal of Physiology (London)*, with an accompanying Perspective commentary.
2. Demonstration that a BDNF mimetic with partial agonist activity at TrkB receptors improves hippocampal-dependent spatial memory by rebalancing network activity and promoting synaptic plasticity at excitatory hippocampal synapses. Published in *Disease Models & Mechanisms*, with an accompanying press release.
3. Demonstrating that the *BDNF* val-66-met polymorphism affects neuronal morphology and synaptic transmission in hippocampal neurons from Rett syndrome mice. Published in *Frontiers in Neuroscience*.
4. Demonstration that hippocampal dysfunction in *Mecp2* knockout mice spreads to the medial prefrontal cortex via a direct monosynaptic projection, altering network activity and social memory. Mary Phillips PhD dissertation; pre-print posted in bioRxiv.

Roberson, Erik

Preclinical efficacy of gene therapy for progranulin-deficient frontotemporal dementia

Saag, Michael

1. Have initiated discussions and planning meetings to establish a research vector to study cognitive impairment among older HIV patients. The focus is to characterize the nature, associated co-morbid conditions, and potential causes or enhancers of cognitive impairment among HIV patients and compare these findings to non-HIV infected, age-matched individuals

Once characterized, interventions will be explored to arrest, or hopefully reverse, the cognitive dysfunction in older HIV infected patients.

Sarraf, Mohammad

1. We have established "Heart-Brain Clinic" to share the decision making on the complex neurology-cardiology intersection cases.
2. I will also be a consultant for a randomized trial in the department of neurology for early intervention of exercise and its impact on cognition.

Standaert, David

1. Our group has made important progress in establishing the role of neuroinflammation in the pathogenesis of Parkinson disease. This is the basis for our recently awarded Morris K Udall Center of Excellence in Parkinson Disease Research (NIH Award P50NS108675). Under this 5 year award, we will pursue investigations in a human cohort of early PD, as well as mechanistic studies in two coordinating basic science projects.
2. We have established an important new area of investigation exploring the relationship of the microbiome with PD. This is a joint project with Dr. Haydey Payami, and is funded by the Department of Defense (Award Nos. W81XWH1810508 & W81XWH1810509). In this study, Dr. Payami is investigating the gene-environment interactions which confer risk for PD (with the microbiome being the environment). My lab is coordinating with this study and will investigate the effects of defined microorganism populations in a rodent model of synucleinopathy.

Thannickal, Victor

Dr. Thannickal's research focuses on the biology of aging that pre-disposes organ systems such as the lung and the brain to age-related diseases. Over the last year, he has identified metabolic pathways involving AMPK that are essential to the resolution of lung fibrosis following injury published in Nature Medicine, August 2018. Ongoing studies are evaluating the role of NOX4 inhibitors and SIRT3 activators for age related lung fibrosis.

Tribel Kristen

1. Successfully enrolled 106/120 participants in the American Cancer Society DECEMBER study (ahead of projected recruitment)
2. Submitted an R21 to NIH/NCI "Improving the Assessment of Cancer Related Cognitive Impairment" submitted to NIH in April 2018. The application received good scores and I am currently in the process of revising it for an April 2019 resubmission.
3. Submitted grant proposal to the Breast Cancer Research Foundation titled "Neuroinflammation and age-associated brain pathology: two potential mechanisms of cognitive impairment in breast cancer" (Role: PI; Co-Investigators – Burt Nabors, M.D., Suzanne Lapi, Ph.D., Jonathan McConathy, M.D., Ph.D.) (December 1, 2018).
4. Submitted grant proposal to the Breast Cancer Research Foundation titled "Neuroinflammation and age-associated brain pathology: two potential mechanisms of cognitive impairment in breast cancer" (Role: PI; Co-Investigators – Burt Nabors, M.D., Suzanne Lapi, Ph.D., Jonathan McConathy, M.D., Ph.D. We are collecting preliminary data and plan to submit an R01 to NIH/NIA in the fall of 2019.
5. Served on the American Academy of Neurology grant review committee.

Ubogu, Eroboghene

1. Publication of the first adult human blood-nerve barrier transcriptome
2. Deduction of cytoplasmic and membrane proteome of human blood-nerve barrier induced by exogenous GDNF *in vitro*
3. Publication of projects elucidating role of GDNF in blood-nerve barrier recovery *in vitro* and *in vivo*
4. Completion of project to more comprehensively characterize the normal human adult blood-nerve barrier *in situ* (guided by published transcriptome).
5. Development a conditional MHC Class II knockout mouse strain (C57BL/6-*H2-Aa*$^{tm1c(KOMP)WistUbee}$/Mmmh)
6. Development of a tamoxifen-inducible von Willebrand Factor Cre recombinase mouse strain
7. Initiation of clinical trial (NeuroNext) in idiopathic polyneuropathy (NN108)

Visscher, Kristina

1. Developed and maintained UAB's McKnight Brain Aging Registry – 23 participants over the age of 85 have been enrolled so far at UAB. 20 participants have completed the whole protocol, with extensive MRI, behavioral data including neuropsychological data and the NIH toolbox, and blood based biomarkers. Sara Sims, a graduate student in my lab, helped to coordinate all the McKnight centers' efforts in this domain, acting as the go to person for our manual of operations and redcap data input work.
2. Plasticity observed in participants who have age-related macular degeneration is exquisitely retinotopically specific. We see robust increases in cortical thickness associated with increased use of peripheral vision in age-related macular degeneration subjects – but not juvenile macular degeneration subjects. Because both groups have similar visual experience and behaviors, this suggests that each group adopts different mechanisms for plasticity, perhaps because of the differing mechanisms of plasticity available to people of different ages. These effects appear to be localized to the specific area of the cortex associated with the vision that these participants are using more, the "preferred retinal locus." (Defenderfer, in progress)
3. Increased use of peripheral vision for everyday tasks is associated with changes in the structure of the network of brain regions involved in vision.

Following long term use of peripheral vision for daily tasks, we find that connections between areas involved in peripheral vision become relatively stronger to brain areas involved in high-acuity tasks like recognizing faces (FFA) and reading words (VWFA). Additionally, in MD participants, we found that a graph theoretic measure of the whole visual network, the 'modularity' of the network, goes down in participants with macular degeneration. (Fleming, in progress)

4. Structural connections differ for central vs. peripheral V1. Many textbook descriptions of connectivity structure of the cortex assume that cortical connections are uniform across 'areas' of the brain (classically defined based on sharing function, architectonics, connectivity and topography). Our previous work (Griffis et al, 2017), showed that functional connectivity to central and peripheral V1 are indeed different.

Our current data supports this idea, showing that these distinctions arise from structural differences, not simply multisynaptic functional connectivity differences. The work is important for its basic description of a key brain area, and is also important as a baseline upon which to build our work examining plasticity of these connections. (Sims, in progress)

5. Neural evidence that training of older adults improves efficiency of attentional resource allocation. We examined the neural mechanisms of "Useful Field of View" training, a training protocol used in many previous experiments, and shown to have long lasting transfer effects to activities of daily living in an older adult population. Our data, published this year, are consistent with training improving the efficiency of processing in older adults. Our data suggest that improvements in efficiency are achieved through improvements in connection strength among the brain regions involved in performance of the task. Together, this work shows that the effects of common training algorithms arise from processes at a higher level than simply changes in eye movements or low level brain areas, and that such training influences efficiency of attentional resource allocation. This sets the stage for future work examining how experience with changing vision alters the visual and cognitive control systems. (Ross et al, 2018)

Wadiche, Jacques

1. We have completed a study that shows details the mechanisms regulating multivesicular release, a process that determines the quantity of vesicles released at single synapses. Interestingly, multivesicular release appears to be the common mode of transmission at cortical axon terminals in humans and is widespread in rodent CNS. Furthermore, we have identified synapsin as a key molecular target that confers multivesicular release independent of release probability.

2. We are continuing to uncover how AMPA receptors are regulated by synaptic or extrasynaptic glutamate concentration profiles. Experiments assaying AMPA receptor together with numerical simulations suggest that the receptor's biophysical signature and ion permeability differs with neurotransmitter concentration. We have setup and began gathering data with a 2P microscope so that we can better map AMPAR function with femtoliter resolution in an ex vivo preparation.

Wadiche, Linda

We are continuing to study the sequence and timing of GABA synaptic innervation of adult generated neurons, using cre/loxp systems to express channelrhodopsin in specific subtypes of hippocampal interneurons. As part of this project, we have identified the mechanism underlying the hallmark hyperpolarized resting membrane potential of mature GCs that differentiate them from other hippocampal principal cells (2 manuscripts in preparations)

Wilson, Scott

Determined that endosomal signaling of ERBB2/3 receptors is required to induce myelination during development.

Determined that chronic ubiquitin overexpression can impair learning and memory, synaptic plasticity and reduce GRIA receptor expression

2. Publications in Peer Reviewed Journals

Amara, Amy

1. Sharma, V.D., S. Sengupta, S. Chitnis, and A.W. Amara (2018) Deep Brain Stimulation and Sleep-Wake Disturbances in Parkinson Disease: A Review. *Frontiers in Neurology*. In press

2. Amara, A.W., L. Chahine, N. Seedorff, C.J. Caspell-Garcia, C. Coffey, and T. Simuni and the Parkinson's Progression Markers Initiative. (2018) Self-reported Physical Activity Levels and Clinical Progression in Early Parkinson's Disease. *Parkinsonism and Related Disorders*. In press

3. Szalflarski, J.P., J. Friffis, J. Vannest, J.B. Allendorfer, R. Nenert, A.W. Amara, V. Sung, H.C. Walker, A.N. Martin, V.W. Mark, and X. Zhou (2018) A Feasibility Study of Combined Intermittent Theta Burst Stimulation and Modified Constraint-Induced Aphasia Therapy

Austad, Steve

1. Austad SN, Hoffman JM. 2018. Is antagonistic pleiotropy ubiquitous in aging biology? *Evolutionary Medicine and Public Health*. doi: 10.1093/emph/eoy033.
2. Beltrán-Sánchez H, Austad SN, Finch CE. 2018. Comment on "The plateau of human mortality: demography of longevity pioneers." *Science* Sept. 28:361(6409). pii: eaav1200. doi: 10.1126/science.aav1200.
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4. Hood WR, Austad SN, Bize P, Jimenez AG, Montooth KL, Schulte PM, Scott GR, Sokolova K, Treberg JR, Salin K. 2018. The mitochondrial contribution to animal performance, adaptation, and life-history variation. *Integrative and Comparative Biology*. 58(3):480-485. doi:10.1093/icb/icy089/504967.
5. Austad SN. 2018. The comparative biology of mitochondrial function and the rate of aging. *Integrative and Comparative Biology*. 58(3):559-566. doi: 10.1093/icb/icy068.
6. Hoffman JM, O'Neill DG, Creevy KE, Austad SN. 2018. Do female dogs age differently than male dogs? *Journals of Gerontology: Biological Science and Medical Sciences* 73(2), 150-156. DOI: 10.1093/gerona/glx061. PMC5861885.

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2. Gibson, S. A., and E. N. Benveniste. 2018. Protein kinase CK2: An emerging regulator of immunity. Invited Review. Trends in Immunol. 39(2):82-85.
3. Meares, G.P., Rajbhandari, R., Gerigk, M., Tien, C-L., Chang, C., Fehling, S.C., Rowse, A., Mulhern, K.C., Gray, G.K., Berbari, N.F., Benveniste, E.N., and Nozell, S.E. 2018. MicroRNA-31 is required for maintaining astrocyte identity. Glia. 66(5):987-998.
4. Gibson, S. A., Yang, W., Yan, Z., Qin, H., and E.N. Benveniste. 2018. CK2 controls Th17 and regulatory T cell differentiation through inhibition of FoxO1. J. Immunol. 201 (2) 383-392

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3. Fellows, B. D., Ghobrial, N., Mappus, E., Hargett, A., Bolding, M., Dean, D., & Mefford, O. T. (2018). In vitro studies of heparin-coated magnetic nanoparticles for use in the treatment of neointimal hyperplasia.. Nanomedicine, 14(4), 1191-1200. doi:10.1016/j.nano.2018.02.011
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2. TM Manini, TW Buford, JA Kairalla, MM McDermott, CA Vaz Fragoso, RA Fielding, FC Hsu, N Johannsen, S Kritchevsky, TB Harris, AB Newman, SR Cummings, AC King, M Pahor, AJ Santanasto, GJ Tranah. Meta-analysis identifies mitochondrial DNA sequence variants associated with walking speed. Geroscience. (epub ahead of print)
3. AA Wanigatunga, TM Manini, DR Cook, JA Katula, RA Fielding, AF Kramer, J Verghese, SR Rapp, KM Sink, AC King, TW Buford, SD Anton, N Nadkarni, JJ Jennings, KF Reid, MA Espeland, TM Gill, M Pahor, JR Nocera. Community-based activity and sedentary patterns associated with cognitive performance in mobility-limited older adults. Frontiers Aging Neurosci. (in press)
4. TW Buford*, TM Manini, JA Kairalla, MM McDermott, CA Vaz Fragoso, H Chen, RA Fielding, AC King, AB Newman, GJ Tranah. Mitochondrial DNA sequence variants associated with blood pressure among two cohorts of older adults. J Am Heart Assoc. 7(18). 2018.
5. PG Bowen, RT Mankowski, SA Harper, TW Buford. Exercise is Medicine as a Vital Sign: Challenges and Opportunities. Trans J ACSM. (in press)
6. Y Guo, J Bian, Q Li, T Leavitt, EI Rosenberg, TW Buford, MD Smith, HK Vincent, F Modave. A 3-minute test of cardiorespiratory fitness for use in primary care clinics. PLOS One. 13(7): e0201598. 2018.
7. IM Hower, SA Harper, TW Buford*. Circadian Rhythms, Exercise, and Cardiovascular Health. J Circadian Rhythms. 16:7. 2018.
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Pozzo-Miller, Lucas

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Publications as part of consortia

63–164. As of 12/3/2018, 102 additional publications as part of the Alzheimer's Disease Genetics Consortium (ADGC), Alzheimer's Disease Neuroimaging Initiative (ADNI), and AL-108- 231 Investigators group (PSP clinical research), available on PubMed at this link.

Submitted manuscripts

1. Sohn, P.D., T.E. Tracy, C. Huang, R. Yan, C.M. Camargo, S.-A. Mok, R. Freilich, J. Baik, E.D. Roberson, C.M. Karch, J. Gestwicki, K. Xu, K.S. Kosik, and L. Gan. Tau-mediated EB3 abnormality impairs axon initial segment plasticity in human iPSC-derived neurons with FTD-tau mutation. Submitted.
2. Guzman-Karlsson, M.C., L.L. Fleming, J.A. Brown, F. Sesay, J.W. Leis, R.L. Lifer, K.E. Hawkins, A.J. Kennedy, J.J. Day, E.D. Roberson, and J.D. Sweatt. Genome-wide transcription and DNA methylation profiling in an APP mouse model of Alzheimer's disease. Submitted.
3. Kornak, J., J. Fields, W. Kremers, S. Farmer, H. Heuer, L. Forsberg, D. Brushaber, A. Rindels, H. Dodge, S. Weintraub, L. Besser, B. Appleby, J. Bove, Y. Bordelon, P. Brannelly, C. Caso, G. Coppola, R. Dever, C. Dheel, B. Dickerson, S. Dickinson, S. Dominguez, K. Domoto-Reilly, K. Faber, J. Ferrell, A. Fishman, J. Fong, T. Foroud, R. Gavrilova, D. Gearhart, B. Ghazanfar, N. Ghoshal, J. Goldman, J. Graff-Radford, N. Graff-Radford, M. Grossman, D. Haley, J. Hsiao, R. Hsiung, E. Huey, D. Irwin, D. Jones, L. Jones, K. Kantarci, A. Karydas, D. Kaufer, D. Kerwin, D.

Knopman, R. Kraft, J. Kramer, W. Kukull, I. Litvan, P. Ljubenkov, D. Lucente, C. Lungu, I. Mackenzie, M. Maldonado, M. Manoochehri, S. McGinnis, E. McKinley, M. Mendez, B. Miller, N. Multani, C. Onyike, J. Padmanabhan, A. Pantelyat, R. Pearlman, L. Petrucelli, M. Potter, R. Rademakers, E. Ramos, K. Rankin, K. Rascovsky, E.D. Roberson, E. Rogalski-Miller, P. Sengdy, L. Shaw, A. Staffaroni, M. Sutherland, J. Syrjanen, C. Tartaglia, N. Tatton, J. Taylor, A. Toga, J. Trojanowski, P. Wang, B. Wong, Z. Wszolek, B. Boeve, A. Boxer, and H. Rosen. Nonlinear Z-score estimation for establishing cognitive norms from the National Alzheimer's Coordinating Center (NACC) dataset. Submitted.

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J. Bove, Y. Bordelon, P. Brannelly, D.E. Brushaber, C.D. Caso, G. Coppola, R. Dever, C. Dheel, B. Dickerson, S. Dickinson, S. Dominguez, K. Domoto-Reilly, K. Faber, J. Ferrall, J. Fields, A. Fishman, J. Fong, T. Foroud, L.K. Forsberg, R. Gavrilova, D.J. Gearhart, B. Ghazanfari, N. Ghoshal, J. Goldman, J. Graff-Radford, N. Graff-Radford, I. Grant, M. Grossman, D. Haley, H.W. Heuer, R. Hsiung, E. Huey, D. Irwin, D. Jones, L. Jones, K. Kantarci, A. Karydas, D. Kaufer, D. Kerwin, D. Knopman, R.A. Kraft, J.H. Kramer, W. Kremers, W. Kukull, I. Litvan, P. Ljubenkov, D. Lucente, C. Lungu, I. Mackenzie, M. Maldonado, M. Manoochehri, S. McGinnis, E. McKinley, M. Mendez, B. Miller, N. Multani, C. Onyike, J. Padmanabhan, A. Pantelyat, R. Pearlman, L. Petrucelli, M. Potter, R. Rademakers, E.M. Ramos, K. Rankin, K. Rascovsky, E.D. Roberson, E. Rogalski-Miller, P. Sengdy, L. Shaw, J. Syrjanen, C. Tartaglia, N. Tatton, J. Taylor, A. Toga, J. Trojanowski, S. Weintraub, P. Wang, B. Wong, Z. Wszolek, A.L. Boxer, and B. Boeve. Individualized Atrophy-Based Prediction of Dementia Onset in Familial Frontotemporal Lobar Degeneration. Submitted
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3. Arora P, Venkatraman A, Callas P, McClure LA,Unverzagt F, Arora G, Howard V, **Wadley VG**, Cushman M. Galectin-3 & incident cognitive impairment in REGARDS, a cohort of blacks & whites Alzheimers Dement (N Y). 2018 Apr 26;4:165-172. doi: 0.1016/j.trci.2018.03.006. eCollection 2018. PMID: 29756004
4. Panwar B, Judd SE, **Wadley VG**, Jenny NS, Howard VJ, Safford MM, Gutiérrez OM. Association of Fibroblast Growth Factor 23 With Risk of Incident Coronary Heart Disease in Community-Living Adults. JAMA Cardiol. 2018 Apr 1;3(4):318-325. doi: 10.1001/jamacardio. 2018.0139. PMID: 29516098
5. Venkatraman A, Callas P, McClure LA, Unverzagt F, Arora G, Howard V, **Wadley VG**, Cushman M, Arora P. Galectin-3 and incident cognitive impairment in REGARDS, a cohort of blacks and whites. Alzheimers Dement (N Y). 2018 Apr 26;4:165-172. doi: 10.1016/j.trci. 2018.03.006. eCollection 2018. PMID: 29756004
6. Gillett SR, McClure LA, Callas PW, Thacker EL, Unverzagt FW, **Wadley VG**, Letter AJ, Cushman M. Hemostasis biomarkers and incident cognitive impairment: the REGARDS study. J Thromb Haemost. 2018 Jul;16(7):1259-1267. doi: 10.1111/jth.14138. Epub 2018 Jun 6. PMID: 29733497
7. Howard G, Cushman M, Moy CS, Oparil S, Muntner P, Lackland DT, Manly JJ, Flaherty ML, Judd SE, **Wadley VG**, Long DL, Howard VJ. Association of clinical and social factors with excess hypertension risk in black compared to white US adults. JAMA, Journal of the American Medical Association 2018 Oct 2;320(13):1338-1348. Doi:10.1001/jama.2018.13467. PMID: 30285178
8. Long DL, Howard G, Long DM, Judd S, Manly JJ, McClure LA, **Wadley VG**, Safford MM, Katz R, Glymour MM. An Investigation of Selection Bias in Estimating Racial Disparity in Stroke Risk Factors: The REasons for Geographic And Racial Differences in Stroke (REGARDS) Study. Am J Epidemiol. 2018 Nov 19. Doi: 10.1093/aje/kwy253. [Epub ahead of print] PMID: 30452548
9. Still CH, Pajewski NM, Chelune GJ, Rapp SR, Sink KM, **Wadley VG**, Williamson JD, Lerner AJ; SPRINT Research Group. The Association between the Montreal Cognitive Assessment and Functional Activity Questionnaire in the Systolic Blood Pressure Intervention Trial (SPRINT). Arch Clin Neuropsychol. 2018 Dec 5. Doi: 10.1093/arclin/acy094. [Epub ahead of print] PMID: 30517599
10. *Marceaux, J., Prosje, M., McClure, L., Unverzagt, F.W., Kana, B., Crowe, M., Clark, D., Wagner, E., Webb, N., Kissela, B., Howard, G., **Wadley, V.G**. Verbal fluency in a national sample: telephone administration, computer-assisted scoring, and factors affecting performance. Int J Ger Psychiatry. 2019 [in press]
11. The **SPRINT MIND Investigators for the SPRINT Research Group**. Intensive versus Standard Blood Pressure Control, Mild Cognitive Impairment, and Dementia: A Randomized Clinical Trial. JAMA, Journal of the American Medical Association 2019 [in press]

Wilson, Scott

Chronic overexpression of ubiquitin impairs learning, reduces synaptic plasticity, and enhances GRIA receptor turnover in mice. J. Neurochemistry. In press.

3. Publications (Other)

Austad, Steve

20 newspaper columns for AL.com
3 column's for PBS's Next Avenue Health blog

Day, Jeremy

1. Gallus, N.V.N., Simon, R., Salisbury, A.J., Revanna, J.S., Bunner, K.D., Savell, K.E., Sultan, F., & Day, J.J. (2018). Functional modulation of activity-dependent transcription by non-coding enhancer RNAs. *BioRxiv*. doi: https://doi.org/10.1101/270967.
2. Savell, K.E., Bach, S.V., Zipperly, M.E., Revanna, J.S., Goska, N.A., Tuscher, J.J., Duke, C.G., Sultan, F.A., Burke, J.N., Williams, D.M., Ianov, L., & Day, J.J. (2018). A neuron-optimized CRISPR/dCas9 activation system for robust and specific gene regulation. *BioRxiv*. doi: https://doi.org/10.1101/371500.

Dudenbostel, Tanja

1. Siddiqui M, Judd EK, DudenbostelT, Gupta P, Tomaszewski M, Patel P, Oparil S, Calhoun DA. Antihypertensive medication non-adherence is common in patients with suspected refractory hypertension. Hypertension. 2018. Volume 72, Issue Suppl_1
2. Siddiqui M, Thomas SJ, Judd EK, Dudenbostel T, Harding S, Oparil S, Calhoun DA. Obstructive sleep apnea is more common in patients with masked uncontrolled hypertension. Hypertension. 2018 Volume 72, Issue Suppl_1
3. Valaiyapathi B, Siddiqui M, El Hachem M, Judd EK, DudenbostelT, Oparil S, Calhoun DA. Nocturnal blood pressure variability is associated with hs-CRP in hypertensive patients. Hypertension. 2018. Volume 72, Issue Suppl_1
4. El Hachem M, Siddiqui M, Thomas SJ, Dudenbostel T, Judd EK, Patel P, Gupta P, Tomaszewski M, Oparil S, Calhoun DA. Non-adherence to antihypertensive medications is associated with higher blood pressure and anxiety levels. Hypertension. 2018. Volume 72, Issue Suppl_1
5. Siddiqui M, Dudenbostel T. Aldosterone-Renin Ratio is inconsistent in diagnosing with hyperaldosteronism. One half of patients have masked hyperaldosteronism. Endocr Rev. 2018;6:38(3) Supplement

Geldmacher, David

Pilonieta G, Geldmacher DS. Accelerating dementia care. Practical Neurology 2018;17(3):50-52

Gerstenecker, Adam

1. Gerstenecker, A. Neurobehavioral aspects of multiple sclerosis. In: Greenamyre J. T., editor-in-chief. MedLink Neurology. San Diego: MeLink Corporation. Available at www.medlink.com. Last updated: November 2018.
2. Triebel, K. L., Gerstenecker, A., & Marson, D. C. (in press). Financial and Medical Decision
3. Making Capacity in MCI and Dementia. In G. Smith & S. Farias (Eds.), *APA Handbook of Dementia.* Washington DC: APA Books.
4. Gerstenecker, A., Triebel, K. L., & Marson, D. C. (in press). Medico-legal capacities in Mild Cognitive Impairment. In R. W. Parks, R. Zec, M. Bondi, & A. Jefferson (Eds.), *Neuropsychology of Alzheimer's Disease and Other Dementias.* New York, NY: Oxford University Press.

Gray, Michelle

Expert Commentary provided for "ASOs Restore Cognitive Deficits in Huntington's Disease Mice" in Neurology Today, November 15, 2018, Volume 18, Issue 22.

Kennedy, Richard

1 book chapter

Lahti, Andrienne

Adrienne C. Lahti & Nina V. Kraguljac: "Neurobiology of psychosis: imaging biomarkers: Spectroscopy" (Volume on Psychosis edited Carol Tamminga, Oxford Press)

Lubin, Farah

Timothy J. Jarome, Anderson A. Butler, Gabriella Perez, Megan C. Rich, and **Farah D. Lubin**. Histone Ubiquitination controls heterochromatin and euchromatin dynamics during memory consolidation. In preparation for submission.

Meador-Woodruff, James

Mueller TM, Kim P, Meador-Woodruff JH: Fractionation of Subcellular Compartments from Human Brain Tissue. In Burger C and Velardo MJ (editors): Glutamate Receptors. A volume in the series Methods in Molecular Biology. New York: Humana Press/Springer Publishing Group. In press.

Pozzo-Miller, Lucas

Phillips ML, HA Robinson & L Pozzo-Miller (2018). Ventral hippocampal projections to the medial prefrontal cortex regulate social memory. *bioRxiv* 461533 (doi: https://doi.org/10.1101/461533).

Roberson, Erik

Book Chapters

1. E.D. Roberson. (2018). Treatment of central nervous system degenerative disorders. In *Goodman & Gilman's The Pharmacological Basis of Therapeutics, Thirteenth Edition.* L. Brunton, ed. (New York: McGraw-Hill Companies, Inc.).

2. E.D. Roberson. Alzheimer's Disease. In *Mechanisms of Memory*, Third Edition. J.D. Sweatt, E. Klann, eds. (London: Academic Press). In preparation.

Books

Amthor, F., E.D. Roberson, A.M. Theibert, and D.G. Standaert. (2018). *Essentials of Modern Neuroscience*. (New York: McGraw-Hill Companies, Inc.) In press.

Triebel, Kristen

1. Triebel, K. L., Gerstenecker, A., & Marson, D. C. 2018. Financial and Medical Decision Making Capacity in MCI and Dementia. In G. Smith & S. Farias (Eds.), *APA Handbook of Dementia* (pp. 219-236). Washington DC: APA Books.
2. Gerstenecker, A., Triebel, K. L., & Marson, D. C. (in press). Medico-legal capacities in Mild Cognitive Impairment. In R. W. Parks, R. Zec, M. Bondi, & A. Jefferson (Eds.), *Neuropsychology of Alzheimer's Disease and Other Dementias.* New York, NY: Oxford University Press.
3. Triebel, K. L., Hollis, S., Novack, T. (in press). In J. Moye (Ed.), Capacity in Traumatic Brain Injury. *Assessment of Older Adults with Diminished Capacity: A Casebook for Resolving Pragmatic and Ethical Challenges*. *APA Book Series.*

Ubogu, Eroboghene

A blueprint for future blood-nerve barrier and peripheral nerve disease research (by Jeff Hansen). UAB News, February 6th, 2018. Accessible on-line at: https://www.uab.edu/news/research/item/9102-a- blueprint-for-future-blood-nerve-barrier-and-peripheral-nerve-disease-research
Published in UAB School of Medicine News on February 15th, 2018

4. **Presentations at scientific meetings Amara, Amy**

1. 5th Annual Virginia Regional Movement Disorders Symposium: Keynote Address: "Sleep Dysfunction in Parkinson's Disease"
2. American Academy of Neurology Annual meeting Experiential Talk: "The Exciting World of Movement Disorders", Los Angeles, CA
3. 142nd Annual meeting of the American Neurological Association: "Slow Wave Sleep is Associated with Cognitive Performance in Patients with Parkinson's Disease", San Diego, CA

Austad, Steve

1. Invited panelist. Live Better Longer: A Celebration of 30 Years in Aging Research. Buck Institute for Research on Aging. Novato, CA
2. Invited speaker. 4th Institute for Basic Science Conference on Genetics of Aging and Life History. Daegu, Republic of Korea.
3. The Darden Lecture. University of Alabama, Department of Biological Sciences, Tuscaloosa, Alabama.
4. Keynote address. The Fourteenth International Symposium on Neurobiology and Neuroendocrinology of Aging. Bregenz, Austria.
5. Keynote address and external evaluator. Northwestern University Interdepartmental Neuroscience Program. Cognitive Neurology and Alzheimer's Disease Center. Chicago, IL
6. Invited symposium speaker. Inside the Black Box: the mitochondrial basis of life-history variation and animal performance. Society for Integrative and Comparative Biology Annual Meeting. San Francisco, CA
7. Meeting co-organizer and speaker (with Emma Teeling, University College Dublin). Bats: New Models for Aging Research. The Banbury Center, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
8. Invited seminar. Department of Biology. Birmingham Southern College. Birmingham, AL
9. Keynote Speaker. 2018 *Nothobranchius* Symposium. Max Planck Institute for the Biology of Ageing. Cologne, Germany
10. Invited symposium speaker. The Ninth Annual Glenn Workshop on the Biology of Aging. Santa Barbara, CA.
11. Faculty lecturer. National Institute on Aging's Butler-Williams Scholarship Program, Bethesda, MD.
12. Invited speaker. 9th Aquatic Models of Human Diseases Symposium, Woods Hole, MA

Benveniste, Tika

1. Session Chair/Invited Speaker, American Society of Neurochemistry Riverside, California, March, 2018.
2. Invited Speaker, Consortium of Multiple Sclerosis Centers Nashville, Tennessee, June , 2018.
3. Invited Speaker, Conference Co-Organizer, Brain Tumors: From Biology to Therapy, 2018, Warsaw, Poland,
4. • Invited Speaker, 143rd Annual Meeting of The American Neurological Association, "Inflammation and Neurological Disease: Friend or Foe", Atlanta, Georgia, October, 2018

Buford, Thomas

1. Exercise and Aging: The Lion in the Path. UAB Center for Exercise Medicine Annual Research Symposium, Birmingham, AL, 9/21/2018.
2. S Harper, A Layne, B Jaeger, R Fillingim, T Manini, K Sibille, K Vincent, S Wu, P Borsa, TW Buford. Blood flow-restricted resistance exercise for muscle strength, physical function, and pain among older adults with knee osteoarthritis. Submitted for American College of Sports Medicine Integrative Physiology of Exercise Meeting, September 5-8, 2018, San Diego, CA.
3. The Gut Microbiome: A Target for Improving Late-Life Cognition? Evelyn F. McKnight Brain Institute Annual Inter-Institutional Meeting, Birmingham, AL, 4/5/2018.
4. Beyond Blood Pressure: The Renin-Angiotensin System and Aging. University of Alabama at Birmingham, Birmingham, AL. 2/16/2018.
5. Models of Accelerated Sarcopenia: A Template for Cross-Discipline Aging Research? University of Alabama at Birmingham, Birmingham, AL. 3/20/2018.

Day, Jeremy

1. Alice McLean Stewart Endowed Lecture for Addiction Education, University of Alabama at Tuscaloosa
2. Speaker, Fusion Neuroepigenetics and Neuroepitranscriptomics Conference (Cancun, Mexico)
3. Invited Speaker, Alabama Rural Health Conference (Tuscaloosa, Alabama)
4. Invited Speaker, UAB Non-coding RNA Symposium

Dobrunz, Lynn

1. March 2018 University of Tennessee Health Science Center, Department of Pharmacology Seminar Series, Memphis, TN

2. March 2018 Northwestern University School of Medicine, Department of Physiology, Chicago, IL

Dubenbostel, Tanja

1. Antihypertensive medication non-adherence is common in patients with suspected refractory hypertension. American Heart Association Joint Hypertension Scientific Sessions 2018, Sept. 6-9, 2018, Chicago, IL.

2. Obstructive sleep apnea is more common in patients with masked uncontrolled hypertension. American Heart Association Joint Hypertension Scientific Sessions 2018, Sept. 6-9, 2018, Chicago, IL.

3. Nocturnal blood pressure variability is associated with hs-CRP in hypertensive patients. American Heart Association Joint Hypertension Scientific Sessions 2018, Sept. 6-9, 2018, Chicago, IL.

4. Non-adherence to antihypertensive medications is associated with higher blood pressure and anxiety levels. American Heart Association Joint Hypertension Scientific Sessions 2018, Sept. 6-9, 2018, Chicago, IL.

5. Aldosterone-Renin Ratio is Inconsistent in diagnosing with hyperaldosteronism. One half of patients have masked hyperaldosteronism. ENDO 2018, March 17-20, IL, USA.

6. Aldosterone-Renin Ratio is Inconsistent in diagnosing with hyperaldosteronism. One half of patients have masked hyperaldosteronism. 43rd Meeting of the International Aldosterone Conference, March 15-16, 2018 Chicago, IL, USA.

7. High prevalence of atrial fibrillation in a large cohort of European American and African American patients with apparent resistant hypertension and primary aldosteronism. (SAFMR/SSCI Research Award Winner) S outhern Regional Meeting, Thursday 22nd, 2018, New Orleans, LA, USA.

Geldmacher, David

1. Geldmacher DS. The evolving concept of Alzheimer''s disease Alabama Academy of Neurology Annual meeting. Hoover, AL August 2018
2. Geldmacher DS, Natelson Love M, Hammond, J, Pilonieta G. Impaired Clock Drawing Test in Progressive Supranuclear Palsy and Corticobasal Syndrome: Differences from Alzheimer Disease. Presented at the *70th Annual American Academy of Neurology Meeting*, Los Angeles, April 2018.
3. Boxer A,Qureshi I, Grundman M, Tirucherai GS, Bechtold C, Ahlijanian M, Kolaitis G, Golbe LI, Honig LS, Isaacson S, Grossman M, McFarland NR, Litvan I, Geldmacher DS, Xie T, Bordelon Y, Tuite P, O'Suilleabhain P, Zesiewicz T. Multiple Ascending Dose Study of the Tau-Directed Monoclonal Antibody BIIB092 in Patients With Progressive Supranuclear Palsy. *Presented at the 70th Annual American Academy of Neurology Meeting*, Los Angeles, April 2018.
4. Geldmacher DS, Hammond J, Pilonieta G. The Alabama Brief Cognitive Screener Serves as a Method for Monitoring Cognitive Function Over Time in Neurodegenerative Disorders. Presented at the *American Association of Geriatric Psychiatry Annual Meeting*, Honolulu, March 2018.
5. Hammond J, Pilonieta G, Natelson Love M, Perez S, Geldmacher DS. The Clock Drawing Test Serves as a Time Saving Surrogate for the Alabama Brief Cognitive Screener as a Method to Distinguish Mild Cognitive Impairment and Alzheimer's Disease. Presented at the *American Association of Geriatric Psychiatry Annual Meeting*, Honolulu March 2018

Gerstenecker, Adam

1. Gerstenecker, A. (2018). *Assessing for Cognitive Impairment in Parkinson's Disease.* Orally Presented at the Alabama Udall Interdisciplinary Transitional Research Meeting. Birmingham, AL.
2. Gerstenecker, A. (2018). *Hippocampal Internal Architecture and Systemic Inflammation in Multiple Sclerosis.* Orally Presented at UAB MS Collaborative Research Meeting. Birmingham, AL.

Goldberg, Matthew

1. Creed, RB and Goldberg MS, Analysis of cortico-striatal glutamatergic transmission in PINK1 KO rats, Society for Neuroscience Annual meeting.

2. A. M. Rizwan, L. J. Mcmeekin, S. K. Barodia, M. V. King, N. K. Mokha, R. B. Creed, M. S. Goldberg; Analysis of neuromuscular degeneration and regeneration in PINK1 knockout rats, Society for Neuroscience Annual meeting.

Gray, Michelle

Heriditary Disease Foundation, HD2018:The Milton Wexler Celebration of Life, Boston, MA, August 2018; "Astrocytes in Huntington's Disease: An Analysis in BACHD Mice"

Gross, Alecia

1. May 2018: "Retinal degeneration and protein mislocalization in Mks6 mutants," poster presentation, Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Honolulu, HI
2. May 2018: "Congenital knock-out of transition zone protein BBS5 reveals cone-rod dystrophy with light-induced protein mislocalization," ARVO Annual Meeting, Honolulu, HI

Hablitz, John

1. Lado, W.E. and Hablitz, J.J.. Role of somatostatin and parvalbumin interneurons in 4- aminopyridine-induced epileptiform discharges in mouse cortex. Soc. Neurosci. 2017, 292.21

2.McMeekin, L.J., Jenkins, L.M. B., Wwatkins, B.M., Bohannon, A., Patel, A, Kralli, A., Hablitz, J.J. and Cowel, R.M. ERRα as a putative mediator of PGC-1α-dependent gene expression: Relevance for the pathophysiology of Schizophrenia. Soc for Neurosci. 2017, 1715.18

Herskowitz, Jeremy

1. Volpicelli-Daley LA, Froula JM, Henderson BW, Gonzales J, Vaden JH, Dib AG, Overstreet-Wadiche L, Herskowitz JH. Neuronal defects caused by early formation of alpha-synuclein inclusions. *Society for Neuroscience*. Washington, DC, 2017.
2. Henderson BW, Herskowitz JH. Amyloid-β induces dendritic degeneration by altering Rho kinase (ROCK) signaling in Alzheimer's disease. *Society for Neuroscience*. Washington, DC, 2017.
3. Boros BD, Gentry EG, Birchall EL, Gearing M, Herskowitz JH. Dendritic spine structural remodeling provides cognitive resilience against Alzheimer's disease pathology. *Society for Neuroscience*. Washington, DC, 2017.

Selected for SfN Hot Topics

1. Boros BD, Curtis KA, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spines provide cognitive resilience against Alzheimer's disease. *Alzheimer's Association International Conference*. Chicago, IL, 2018.
2. Henderson BW, Bach SV, Day JJ, Herskowitz JH. RhoA-associated kinases ROCK1 and ROCK2 mediate amyloid-β induced synaptic degeneration in Alzheimer's disease. *Society for Neuroscience*. San Diego, CA, 2018.
3. Walker CK, Boros BD, Greathouse KM, Curtis KA, Ramdas, R, Herskowitz JH. Dendritic spine pathology links tauopathy mouse models to Alzheimer's disease. *Society for Neuroscience*. San Diego, CA, 2018.
4. Boros BD, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spine structural remodeling accompanies Alzheimer's disease pathology in cognitively normal human aging. *Society for Neuroscience*. San Diego, CA, 2018.
5. Curtis KA, Boros BD, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spines provide

cognitive resilience against Alzheimer's disease. *Society for Neuroscience*. San Diego, CA, 2018.

6. Vo HT, Phillips ML, Herskowitz JH, King GD. Klotho regulates the activity of hippocampal neurons. *Society for Neuroscience*. San Diego, CA, 2018.

Kennedy, Richard

1. Poster presentation at the 2018 annual meeting of the Alzheimer's Association International Conference,
2. Poster presentation at the 2018 annual meeting of the Clinical Trials in Alzheimer's Disease, and
3. Oral presentation and 4 poster presentations at the 2018 annual meeting of the Gerontological Society of America

King, Gwendalyn

1. Nathan Shock Center Symposium, April 2018, UAB
2. Society for Neuroscience, November 2018

Knight, David

1. Mrug, S. Knight, D. C., Davis, E. S., Harnett, N. G., Goodman, A. M., Elliott, M. N., Tortolero, S., Schuster, M. A., (2018). Violence Exposure through Adolescence and Neural Activity to Stress. Society for Research on Adolescence.

2. Davis, E. S., Goodman, A. M., Orem, T. R., Wheelock, M. D., Harnett, N. G., Mrug, S., Knight, D. C. (2018). Racial differences in violence exposure and their effects on the psychosocial stress response. Poster presented at Ost Undergraduate Research Competition. University of Alabama at Birmingham.

3. Orihuela, C. A., Mrug, S., Davies, S., Elliot, M., Knight, D., Reisner, S., Tortolero, S., Schuster, S. (2018). Relationships Between Parental Monitoring, Parental Nurturance and Risky Sexual Behaviors and Outcomes. Society for Research in Child Development.

4. Purcell, J. B., Harnett, N. G., Mrug, S., Elliott, M.N., Tortolero Emery, S., Schuster, M. A., Knight, D. C. (2018). Alterations in gray matter volume of the prefrontal cortex, hippocampus, and amygdala persist into young adulthood following alcohol, tobacco, and cannabis use during adolescence. Alabama Psychological Association, Orange Beach, Alabama.

5. Harnett, N. G., Wheelock, M. D., Wood, K. H., Goodman, A. M., Mrug, S., Elliott, M., Schuster, M., Tortolero Emery, S., & Knight, D.C. (November, 2018). Negative life experiences contribute to racial differences in the neural response to threat. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, CA.

6. Dark, H. E., Harnett, N. G., Goodman, A. M., Mrug, S., Schuster, M. A., Elliott, M. N., Tortolero, S., Knight, D. C. (2018). Functional connectivity influences stress-induced changes in autonomic arousal. The Society for Neuroscience Annual Conference, San Diego, CA.

7. Purcell, J.B., Harnett, N.G., Mrug, S., Elliott, M.N., Tortolero Emery, S., Schuster, M.A., Knight, D.C. (2018). Alterations in gray matter volume of the prefrontal cortex, hippocampus, and amygdala persist into young adulthood following alcohol, tobacco, and cannabis use during adolescence. Presented at Neuroscience 2018 in San Diego, CA.

8. Davis, E. S. Goodman, A. M., Orem, T. R., Harnett, N. G., Wheelock, M. D., Mrug, S., Schuster, M. A., Elliott, M. N., Tortolero, S. R., & Knight, D. C. (2018, November). Race, violence exposure, and the psychosocial stress response. Presented at the Society for Neuroscience Conference 2018, San Diego, California.

9. Bell, K.L., Harnett, N., Mrug, S., Schuster, M., Elliot, M., Tortolero, S., Knight, D., (2018). The

influence of neighborhood disadvantage during adolescence on volume of the adult amygdala, hippocampus, and thalamus. Poster presented at the 48th Annual Meeting of the Society for Neuroscience. San Diego, CA.

Lahti, Andrienne

Oral Presentations

1. Hippocampal Glutamate and Resting State Functional Connectivity in schizophrenia and in a ketamine Model. ACNP annual meeting, Palm Springs, California, December 2017Understanding White Matter Pathology Using Diffusion Tensor Imaging and MR Spectroscopy. Schizophrenia Interntational Research Society (SIRS) meeting, Florence, *Italy*, April 2018.
2. Synaptic Dysfunction in Schizophrenia: Exploration of Novel Hypotheses and Promising New Leads Panel: Discussant, SIRS meeting, Florence, *Italy*, April 2018.
3. Magnetic Resonance Spectroscopy Panel: Moderator, 7th Annual Alabama Advanced Imaging Consortium Retreat, Cheaha National Park, July 2018

Poster Presentations:

1. Kraguljac NV, Thomas A, Skidmore FM, White DM, Lahti AC. White matter integrity and effects of antipsychotic medicaitons in patients with schizophrenia. American College of Neuropsychopharmacology Annual Meeting, Palm Springs, CA, December 2017
2. Lottman KK, White DM, Kraguljac NV, Reid MA, Gawronski B, Lahti AC. Multimodal fusion of 7T imaging data using mCCA+jICA model in first-episode schizophrenia. UAB Department of Psychiatry Annual Research Symposium, Birmingham, AL, April 2018
3. Kraguljac NV, Thomas A, Skdomre FM, Marstrander J, White DM, Lahti AC. White matter integrity and antipsychotic medication effects in patients with schizoprhenia. UAB Department of Psychiatry Annual Research Symposium, Birmingham, AL, April 2018
4. Nelson EA, White DM, Kraguljac NV, Varghese A, Lahti AC. Cortical folding indices are related to treatment response in schizophrenia. UAB Department of Psychiatry Annual Research Symposium, Birmingham, AL, April 2018
5. Kraguljac NV, Thomas A, Skidmore FM, Monroe W, Martrander J, White DM, Lahti AC. Antipsychotic medications do not affect abnormal extracellular free water and spatial configuration of neurites in unmedicated patients with schizophrenia. Society of Biological Psychiatry Annual Meeting, New York, NY, May 2018
6. Birur B, Kraguljac N, White D, Lahti A. Neurochemistry in the Medial Prefrontal Cortex in Medication-naïve Fist Episode Psychosis and Response to Antipsychotic Treatment. Society of Biological Psychiatry Annual Meeting, New York, NY, May 2018
7. Lathi AC, Overbeek G,White D, Gawne TJ. A Combined 7T Stroopp fMRI and MRS Study in First Episode Schizophrenia. Organization of Human Brain Mapping. Singapore, June 2018.
8. Kraguljac NV, Thomas A, Skidmore FM, Monroe W, Martrander J, White DM, Lahti AC. Antipsychotic medications do not affect abnormal extracellular free water and spatial configuration of neurites in unmedicated patients with schizophrenia. Organization of Human Brain Mapping. Singapore, June 2018.

Lubin, Farah

1. F.D. Lubin. Neurobiology of Memory in Epilepsy. Merritt Putnam Symposium Plenary speaker. American Epilepsy Society (AES) annual meeting.
2. F.D. Lubin. The Epigenetic basis of memory and epilepsy-related memory dysfunction. the Developmental Neurosciences Grand Rounds at the Alberta Children's Hospital in Calgary, University of Calgary, Alberta Canada. Invited by Dr. Jong M. Rho.
3. F.D. Lubin. Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR)/Cas9

101. SciCafe, Birmingham AL. Invited by Research Civitan Club and McWane Science Center.
4. F.D. Lubin. Epigenetic Regulation of Gene Transcription in Epilepsy. Neuroscience Retreat University of Michigan, Ann Arbor, MI. Invited by the Neuroscience students
5. F.D. Lubin. O-GlcNAcylation and Epigenetic Regulation of Gene Transcription in Epilepsy. NIGMS-RISE Program UPR - Medical Sciences Campus Seminar Series. University of Puerto Rico medical campus. Invited by the Neuroscience students.
6. F.D. Lubin. O-GlcNAcylation and Epigenetic Regulation of Gene Transcription in Epilepsy. The Center for Neurodegeneration and Experimental Therapeutics (CNET) Retreat at UAB. Invited by Drs. Eric Roberson and Andrew West CNET Directors at UAB.

Marson, Daniel

Marson, D. (April 27, 2018). Neuroscience evidence in a case of alleged dementia and incapacity to stand trial.
Presentation at the Our Aging Brains–Decision-Making, Fraud and Undue Influence conference, hosted by the Center for Law, Brain and Behavior (Massachusetts General Hospital) and the Petrie-Flom Center for Health Law Policy, Biotechnology and Ethics (Harvard Law School), Harvard Law School, Cambridge, MA.

McMahon, Lori

1. American College of Neuropsychopharmocology (ACNP) Annual Meeting, 2018, Hollywood, FL
2. George Washington University, Neuroscience Institute, 2018, Washington, DC, M2588587;1
3. Gordon Research Conference, Synaptic Transmission, 2018, Waterville Valley, NH

Meador-Woodruff, James

1. Scott MR, Meador-Woodruff JH: Proteasome activity and expression in schizophrenia brain. Abstract #807.01. Presented at the 47th Annual Meeting of the Society for Neuroscience, Washington, D.C., November, 2017.

2. Mueller, T., Pinner, A., Meador-Woodruff, J.H.: O-GIcNAc Dysregulation in Schizophrenia Cortex. Presented at the 6th Schizophrenia International Research Society Conference, Florence, Italy, April 4-8, 2018.

3. Chadha, R., Meador-Woodruff, J.H.: AKT-MTOR Signaling Pathway is Downregulated in Schizophrenia. Presented at the 6th Schizophrenia International Research Society Conference, Florence, Italy, April 4-8, 2018.

4. Kim, P., Meador-Woodruff, J.H.: Abnormal Remodeling Processing in Neural GPI-Aps Secretory Pathway in Schizophrenia. Presented at the 6th Schizophrenia International Research Society Conference, Florence, Italy, April 4-8, 2018.

5. Meador-Woodruff JH: Mechanisms of Abnormal Posttranslational Protein Processing in Schizophrenia Brain. Presented as part of the symposium "Digging Deeper in the Proteome of Schizophrenia" at the 6th Schizophrenia International Research Society Conference, Florence, Italy, April 4-8, 2018.

Parpura, Vladimir

1. "Astroglial cells release glutamate by regulated exocytosis in health and disease". International Clinical Research Centre, St. Anne's University Hospital Brno, Czech Republic
2. "The role of enteric glia in regulation of gut motility: Implications to oculo-dento digital dysplasia", In Colloquium 1: Glia in model Organisms (Chair: Margaret Ho, Shanghai Tech University; co-Chair: Vladimir Parpura, UAB) 49th Annual Meeting of the American Society for Neurochemistry, Riverside, CA.
3. "Neurochemistry: As a trainee learning all of the skills you need to run a lab", Speaker in YIAC

(Young Investigator Advisory Committee of the American Society for Neurochemistry/YSSC (Young Scientist Steering Committee of the International Society for neurochemistry) workshop "Finding the Right Fit: Academia" (Chair: Haley E. Titus Northwestern University, Chicago IL) 49th Annual Meeting of the American Society for Neurochemistry, Riverside, CA.

Powell, Craig

1. American Neurological Association (ANA) Behavioral Neurology Special Interest Group, Atlanta, GA, 2018
2. UNC, Neuroscience Center and Carolina Institute for Developmental Disabilities Seminar, Chapel Hill, NC, 2018
3. UAB, Neurobiology Seminar, Birmingham, AL, 2018
4. Asia Cold Spring Harbor Laboratory Autism Meeting, Shanghai, China, 2018
5. International Union of Biochemistry and Molecular Biology, Seoul, Korea, 2018

Pozzo-Miller, Lucas

1. Speaker at the Gordon Research Conference on "*Excitatory Synapses and Brain Function"*. Les Diablerets, Switzerland.
2, Instituto Ferreyra, CONICET, Córdoba, Argentina.

Prabhu, Sumanth

1. Invited Speaker: "Immune Cell Activation in Heart Failure" Temple University, Center of Translational Medicine
Philadelphia, PA 05/09/2018
2. Invited Speaker: "Immune Cells and Cardiac Repair" NIH Cardiovascular Bioengineering (CVBE) Symposium
Birmingham, AL 03/01/2018
3.Invited Speaker: "Immune Activation in Heart Failure" Pathology Grand Rounds, Birmingham, AL 01/11/2018

Roberson, Erik

1. Johns Hopkins University Neuroscience Seminar
2. Ohio State University Neuroscience Seminar
3. Arizona State University Neuroscience Seminar
4. Southeastern Neurodegenerative Disease Conference
5. UAB School of Medicine Research Retreat
6. Deep South Resource Center for Minority Aging Research Advisory Committee Meeting
7. Alabama Drug Discovery Alliance Symposium
8. UAB Molecular Imaging Symposium

Sarraf, Mohammad

1. TCT 2018
2. TVT 2018
3. CRT 2018

Standaert, David

1. Michael J. Fox Foundation PD Therapeutics Conference, Oct, 2017, New York, Moderator
2. NIH Board of Scientific Counselors (BSC) Meeting, Bethesda, MD, 1/28-31/18
3. International Society for CNS Clinical Trials (ISCTM) Meeting, Washington, DC, 2/22/18, Novel Targets of Disease Modifying Therapy.
4. NINDS T32 Regional Meeting, Philadelphia, PA, 2/26-27/18
5. University of Virginia Grand Rounds presentation, Charlottesville, VA 3/8-9/18, Neuroinflammation in Parkinson disease
6. NIH Board of Scientific Counselors (BSC) Meeting, Bethesda, MD, 4/15-17/18
7. Edmond J. Safra Fellowship in Movement Disorders Meeting, New York, NY, 5/1-3/18
8. American Parkinson Disease Association Scientific Advisory Board Meeting, Elizabeth, NJ, 5/17/18

9. MDS 2nd Pas Congress Meeting, Miami, FL 6/22/18, Plenary Chair, Parallel Session Chair, Workshop on Infusion Therapies for PD
10. UAB-SR Research Retreat, Birmingham, AL, July 27, 2018, Strategic Opportunities in Neurosciences
11. Alabama Academy of Neurology, August 12, 2018, Birmingham, AL., Update on Medical Therapy for Parkinson disease.
12. Southeast Neurodegeneration Conference, Orlando, FL, 9/27-30/18
13. 20th Annual NINDS Udall Centers Meeting, Innate and Adaptive Immunity in Parkinson Disease, 10/17-18/18
14. American Neurological Association, Dystonia Therapeutics, Atlanta, GA, Oct 22, 2108
15. UAB Symposium on Molecular Imaging, Birmingham, AL, Oct 24, 2018, Imaging inflammation in Parkinson disease
16. NINDS Symposium on Dystonia, Bethesda, MD, Oct 29-30, Co-Chair
17. MDS Course on Neurobiology of Movement Disorders, San Diego, CA Nov 2, 2018, Co-Director, Introduction to Clinical Features of Parkinson disease
18. Fresco International Workshop on Synaptic Plasticity, Florence Italy, 11/14-18/18. Plasticity, genetics and epigenetics in L-DOPA-induced dyskinesia

Thannickal, Victor

1. Invited Speaker, Symposium on Pathobiology of Age-Related Lung Disease: from Bench to Bedside, "Idiopathic Pulmonary Fibrosis: Prototype of Aging-Related Lung Disease", American Thoracic Society International Conference, San Diego, CA
2. Invited Speaker, "Mechanisms of Lung Fibrosis" in Session I: Biology of Organ Fibrosis: What's New? Hepatic Fibrosis: New Concepts and Controversies – Single Topic Conference, American Association for the Study of Liver Diseases, Hyatt Regency DFW, Dallas, TX

Ubogu, Eroboghene

1. Palladino S, Helton ES, Dong C, Ubogu E. The CCR5-CD11d-CD99L2 axis in the pathogenesis of HIV distal sensory neuropathy. Journal of NeuroVirology 2018; 13 (Suppl 1): S64 (Presented at the Joint Meeting of the International Society of Neurovirology and the Society on NeuroImmune Pharmacology, April 12, 2018 in Chicago, IL).
2. NN103 BEATMG Study Team. B Cell Targeted Treatment in Myasthenia Gravis (BeatMG) – A Phase 2 Trial of Rituximab in MG: Topline Results (Presented at the 15th International Congress on Neuromuscular Diseases (ICNMD), July 9, 2018 in Vienna, Austria).
3. Ubogu, E.E. Glial-derived neurotrophic factor (GDNF): An essential paracrine regulator of the blood-nerve barrier. Department of Molecular Physiology and Biophysics Seminar Series, Baylor College of Medicine, Houston, Texas, September 18th, 2018.
4. Jiang N, Ubogu EE. Cervical spine magnetic resonance imaging with neck flexion in the early diagnosis of Hirayama disease. Muscle and Nerve 2018; 58 (Suppl S2): S62 (Presented at the 2018 Annual meeting of the American Association of Neuromuscular and Electrodiagnostic Medicine, October 2018 in Washington, DC).
5. Ubogu, E.E. Investigating the human blood-nerve barrier in health and peripheral nerve disease. 2018 Comprehensive Neuroscience Center Retreat, the University of Alabama at Birmingham, Regions Field Ballroom, Birmingham, Alabama, October 19th, 2018

Visscher, Kristina

Perceptual Learning Workshop 5th International invited biannual conference (June, 2018) Macular Degeneration as a model for perceptual learning.

Wadiche, Jacques

1. University of Connecticut Special Seminar "Regulation of Multivesicular Release" Storrs, Connecticut

2. SfN Symposium: Jahr Symposium "Many vesicles, many years" Bethesda, Maryland

Wadiche, Linda

1. Keynote speaker, Hudson-Berkshire SFN meeting, Albany, NY
2. Meet-the-Expert session at Society for Neuroscience meeting, San Diego

Wadley, Virginia

1. Passler JS, Kennedy RE, Crowe M, Clay OJ, Howard VJ, Wadley VG. The relationship of cognitive decline and impairment to the AD8 and activities of daily living in the REGARDS sample. Presented at the 46th annual meeting of the International Neuropsychological Society, Washington, DC, February, 2018.
2. The SPRINT MIND Investigators for the SPRINT Research Group. Intensive versus Standard Blood Pressure Control, Mild Cognitive Impairment, and Dementia: A Randomized Clinical Trial. Presented at the Alzheimer's Association International Conference; Chicago, IL; July 25, 2018.
3. The SPRINT MIND Investigators for the SPRINT Research Group. Intensive Versus Standard Blood Pressure Control and Brain Structure: A Randomized Clinical Trial. Alzheimer's Association International Conference; Chicago, IL; July 25, 2018.
4. Zahodne L, Manly JJ, Sumner J, Crowe M, Weuve J, Wadley V, Howard VJ. Social support during childhood and longitudinal cognitive trajectories in later life. Presented as part of a symposium LIFE COURSE PSYCHOSOCIAL RESOURCES AND COGNITIVE AGING Chair: L. Zahodne Discussant: M. E. Lachman, to the annual meetings of the Gerontological Society of America, Boston, MA, November 2018
5. Bull TP, Steward KA, Kennedy RE, Elgin JM, Marson DC, Owsley C, Wadley VG. Investigating Decline in Driving Performance and Financial Skills Within a Continuum of Mild Cognitive Impairment. Presented at the annual meetings of the Gerontological Society of America, Boston, MA, November 2018.
6. Jang B, Melendez R, Kim M, Judd S, Wadley VG, Colabianchi N, Manly J, Clarke P. Neighborhood Environments and Racial Disparities in Cognitive Decline With Age. Presented at the annual meetings of the Gerontological Society of America, Boston, MA, November 2018.
7. Wadley VG, Crowe M, McLaughlin MC, Steward KA, Bull TP, Geldmacher DS, Marson DC, Kennedy RE. Useful Field of View Score Predicts Performance of Instrumental Activities and Financial Capacity in MCI. Presented at the annual meetings of the Gerontological Society of America, Boston, MA, November 2018.
8. Wadley VG, Howard VJ, Knopman DS, Lal BK, Meschia JF, Howard G, Brott TG, Lazar R. Centralized Cognitive Assessment in a Multicenter Trial of Treatment Modes for Asymptomatic Carotid Artery Disease. Presented at the annual meetings of the Gerontological Society of America, Boston, MA, November 2018.
9. Gullett JM, Bharadwaj PK, Rezaei RF, Forbes M, Sims SA, Franchetti MK, Merritt SS, McInerney KF, Sarno M, Jessup CJ, Hishaw GA, Trouard TP, Levin BE, Rundek T, Wadley VG, Visscher K, Porges ES, Woods AJ, Alexander GE, Cohen RA. Brain Volume and Toolbox Performance. Presented at the Society for Neuroscience McKnight Reception, San Diego, CA, November 2018.
10. Raichlen DA, Bharadwaj PK, Franchetti MK, Sims S, Rezaei RF, Merritt S, Jessup CJ, Porges ES, Geldmacher D, Hishaw GA, Alperin N, Trouard TP, Wadley VG, Levin BE, Woods AJ, Rundek T, Visscher K, Cohen RA, Alexander GE. Relation of Physical Activity to Regional Maps of Cortical Gray Matter Volume in the Healthy Oldest Old: Findings from the McKnight Brain Aging Registry. Presented at the Society for Neuroscience McKnight Reception, San Diego, CA, November 2018.
11. Wadley Bradley VG. Intensive Treatment of Hypertension is Better for the Brain: Results from SPRINT MIND. Presented at the Comprehensive Center for Healthy Aging Scientific Seminar Series, University of Alabama at Birmingham, Birmingham, AL, November 2018

12. Wadley VG. MildCognitive Impairment: Definitions, Modifiable Risk Factors, Interventions. Presented to Geriatric and Internal Medicine interns and fellows, University of Alabama at Birmingham, Birmingham, AL, November 2018.

5. **Presentations at public (non-scientific) meetings or events**

Amara, Amy

1. 10/19/2018: Grand Rounds, University of Virginia: "Training the Brain: Non-Pharmacologic Interventions for Sleep and Cognition in Parkinson's Disease
2. 06/02/2018: Women and PD TALK Regional Forum Leader, Parkinson Foundation
3. 10/30/2018: Rehabilitation Science Seminar Series: Training the Brain: The Impact of Exercise on Sleep and Cognition in Parkinson's Disease, Birmingham, AL

Benveniste, Tika

1. Co-Facilitator, Council for Faculty and Academic Societies (CFAS) Annual Meeting, "Practical Strategies for Basic Science Faculty Engagement in Governance and Leadership", Chicago, Illinois, April 19-21, 2018.
2. Invited Speaker, AAMC Annual Meeting, "Revitalizing and Invigorating the Ph.D. Education", Austin, Texas, November 2-6, 2018.

Geldmacher, David

1. Alzheimer's Update Middle Alabama Area Agency on Aging Annual Conference; Monteballo, AL June 2018

2. From sensation to cognition: Osher Lifelong Learning Institute – Birmingham Chapter Vestavia Hills, AL, March 2018

Gray, Michelle

Comprehensive NeuroScience Café, Homewood Public Library, "Advances in Huntington's Disease: New Therapeutic Strategies

Lahti, Andrienne

1. Schizophrenia and Psychosis Related Disorders. Neuroscience Café, Homewood library
2. Schizophrenia and Psychosis Related Disorders. Neuroscience Café, Mountain Brook library
3. Schizophrenia and Psychosis Related Disorders. Community Psychiatry Program, Birmingham, AL

Lubin, Farah

1. F.D. Lubin The Minority Youth Science Academy (MYSA) Samford University, Birmingham, AL Invited by Assisstant Provost for Diversity and Intercultural Initiatives, Denise Gregory

2. F.D. Lubin. STEM: Neuroscience. GirlSprings, Inc. STEM fair, Children's Hospital Bradley Lecture Center, Birmingham AL. Invited by GirlSpring Executive director Kristen Greenwood

Marson, Daniel

1. Marson, D. (March 1, 2018). Capacity loss in an aging society: Impact on estate planning professionals. Presentation at the monthly meeting of the Estate Planning Council of Birmingham, Harbert Center, Birmingham, Alabama.
2. Marson, D. (March 29, 2018). Clinical, legal and judicial judgments of capacity in persons with dementia. Keynote presentation at the Dementia Diagnosis and the Law, Continuing Judicial Education Conference, held at the Penn State/Dickinson Law School, Carlisle, PA.
3. Marson, D. (September 28, 2018). The neurological basis of autism: an introduction for agency staff and parents. Presentation for parents of persons with ASD hosted by and at Glenwood Mental Health, Inc, Birmingham, Alabama.
4. Godfrey, D., Marson, D. (October 24, 2018). Legal ethics when counseling individuals with diminished capacity. Ethics presentation at the National Aging and Law Conference, sponsored by the American Bar Association, Crowne Plaza Old Town, Alexandria, VA.
5. Upcoming – Neuroscience Café Speaker, January 24, 2019

McMahon, Lori

Keynote Speaker, Southeastern Association of Advocates for Women in Science and Medicine, 2018, Birmingham, AL

Meador-Woodruff, James
Schizophrenia as a Disorder of Receptor Trafficking. Biomedical Sciences Seminar Series, Florida State University College of Medicine, Tallahassee, Florida, March 7, 2018.

Parpura, Vladimir
Multiple public presentations/appearance as President for American Society for Neurochemistry. I do not maintain database for this.

Roberson, Erik
1. Alzheimer's of Central Alabama Lunch & Learn
2. Neuroscience Café, Homewood Public Library

Standaert, David
1. Neurology Grand Rounds, UAB Department of Neurology, *UAB Neurology: The Road Ahead,* 9/18/18
2. Parkinson Association of Alabama Annual Symposium, September 15, 2018, *Alabama Udall Center*
3. UAB Board of Visitors, Oct 8, 2018, *Neurology Highlights 2018*

Thannickal, Victor
1. Visiting Professor, Pulmonary Research Conference, "Idiopathic Pulmonary Fibrosis: Mechanisms of Initiation and Progression", University of Iowa, Iowa City, IA
2. Visiting Professor, Pulmonary Grand Rounds, "Mechanisms of Fibrosis Resolution", Brigham and Women's Hospital, Harvard Medical School, Boston, MA

Triebel, Kristen
Presented (invited) to the Birmingham American Cancer Society chapter fundraising event "Hope in the Ham" on July 26, 2018. The title of the presentation was "Detecting and improving cancer-related cognitive impairment."

Visscher, Kristina
1.Birmingham Taste of Science Festival April 23, 2018. "Taste of Neuroscience: Plasticity and Vision"
2. Osher Lifelong Learning Institute, Tuscaloosa, AL October 3, 2018, "Better Brain Training for an Aging World."

6. Awards

Amara, Amy
2018 B-metro Top Women in Medicine

Benveniste, Tika
National Multiple Sclerosis Society Volunteer Hall of Fame, Scientific Researcher, 2018

Buford, Thomas
1. Elected Fellow, Gerontological Society of America
2. Invited Attendee, NIA Division of Biology New Investigators Forum

Dudenbostel, Tanja
1. European Society of Hypertension, Elected Member
2. Southern American Federation of Medical Research/Society of Clinical Investigation
   American Heart Association, Blogger and Social Media News Team
3. Fellow (FAHA), American Heart Association Ramon F. Dacheux Promising Scientist Award

Gross, Alecia
American Optometric Student Association (AOSA) Excellence in Basic/Vision Science Instruction Award, Spring 2018

Herskowitz, Jeremy

Dr. James A. Pittman Scholar, UAB School of Medicine

Lahti, Andrienne
1. Named F. Cleveland Kinney Endowed Professor
2. Named Vice Chair for Research Training and Faculty Development

Lubin, Farah
1. Co-Director, MERIT-IRACDA postdoctoral program

2. Mentor training on cultural awareness - National Research Mentoring Network
3. Nominated for UAB Commission on the Status of Women - Outstanding Women Award

McMahon, Lori

Women to Watch by Birmingham Business Journal, September 2018, Birmingham, AL

Parpura, Vladimir

1. 2018 Nomination, School of Medicine, Dean's Excellence Award in Teaching, Senior Faculty.
2. 2018 Nomination, UAB, President's Award for Excellence in Teaching
3. 2018 Nomination, UAB, President's Award for Excellence in Teaching Honors
4. 2018 Nomination, UAB, Provost's award for Faculty Excellence in Learning in a Team Environment
5. 2017-2018 McNulty Civitan Scientist Award, The UAB Civitan International Research Center and The Chesapeake District of Civitan International
6. 2017- Elected Fellow, The American Association for the Advancement of Science (AAAS), Section on Neuroscience

Prabhu, Sumanth

1. Scientific Committee, Sarnoff Cardiovascular Research Foundation, 2018-2021
2. Innovation in Research Award, UAB Department of Medicine, 2018

Roberson, Erik

1. UAB Graduate Dean's Award for Excellence in Mentorship
2. American Society for Clinical Investigation

Standaert, David

"Best Doctors in America", 2007-2018 inclusive

Thannickal, Victor

Nominated to the National Heart, Lung, and Blood Institute Advisory Council Elected member, American Clinical and Climatological Association

Triebel, Kristen

Fellow of the National Academy of Neuropsychology, 2018, (awarded to neuropsychologists who have been determined by their peers to have made significant contributions to the science or service of neuropsychology).

Wadiche, Linda

1. Nominated by Journal of Neuroscience Reviewing Editors for recognition of the quality and thoughtfulness of reviews during peer-review week
2. Received a new NIH R01 award to study the function of slow-spiking GABAergic interneurons in dentate neurogenesis and inhibition
3. Selected as Chairperson of the NIH study section "Neurogenesis and Cell Fate"

Wadley, Virginia

UAB Department of Medicine Research Excellence Award, 2017-2018

7. **Faculty**

Please include abbreviated CV with publications for previous 12 months. Appendix D.

8. **Trainees**

Amara, Amy

Post doctoral

Adeel Memon

Pre-doctoral

Conner Reese

Brandon Bodie

Neuroscience Honors Undergraduate

Hemant Srivastava

Benveniste, Tika

a. Post doctoral- (3)
b. Pre-doctoral- (1)
c. Other- (2) undergraduates

Bolding, Mark

Pre-doctoral

Lisa H. Antoine
Shthira Ratnayaka
Patrick Alford
Shervonne Poleon
Megan Rich

Buford, Thomas

Post-doctoral

Brandon Roberts	2017-	UAB	Co-Mentor
Liliana Baptista	2018-	UAB	Primary Mentor
Sara Harper	2018-	UAB	Primary Mentor
Lisa Roberts	2018-	UAB	Primary Mentor
Yi Sun	2018-	UAB	Primary Mentor

Day, Jeremy

Post doctoral
Faraz Sultan, M.D. PhD.
Svitlana Bach, PhD. Kendra
Bunner, Ph.D. Jen Tuscher,
Ph.D.
Mika Guzman-Karlsson, M.D./Ph.D. Pre-
doctoral
Katherine Savell Nancy
Gallus Morgan Zipperly
Corey Duke Robert
Phillips **Dobrunz,**
Lynn

a. Post doctoral – Dwipayan Bhattacharya, PhD
b. Pre-doctoral – Katelynn Corder-Grier, PhD, Mariana Cortes
c. Other – Paula Dorcenat, PREP; Maya Feldhouse Summer Program in Neuroscience (SPIN);

Dudenbostel, Tanja

Post doctoral
Mohammed Siddiqui, MD Badhma Valaiyapathi, MD Maria El Hachem, MD Faris Matenes, MD Pre-
doctoral
Jacob Mayfield, MD candidate, Class of 2020
Nitin Gharpure, Undergraduate, UAB Early Medical School Admission Program Grace Selzer

Edwards, Lloyd

Pre-doctoral: Justin Leach and Steve Ampah – Department of Biostatistics dissertation students.

Gamlin, Paul

Post doctoral
Kevin Schultz; Julie Quinet; Michael Savage Pre-
doctoral
Kevin Chang Other
Cristina Dieni, Research Asst. Prof.

Geldmacher, David

Post doctoral
Luke Smelser, MD – Neurology
John Hammond, MD, PhD – Geriatirc Psychiatry

Goldberg, Matthew

Post doctoral
Sandeep Kumar Barodia Pre-

doctoral
Rose B. Creed
UndergraduatesAffan
Rizwan Mitchel King
Nimrit Mokha **Gross,**
Alecia Post doctoral
Dr. Meredith Hubbard Pre-
doctoral
Katie L. Bales Evan
Boitet

Other MS student Adrianna Reyes
Moon **Gray, Michelle**
Pre-doctoral

Annesha King, Graduate Biomedical Sciences: Neuroscience Theme Other
Undergraduates: Amyarani Garcia, Neuroscience major Rose
Endfinger, Neuroscience major
Hablitz, John
Post doctoral
W.E. Wudu, Ph.D. Xin Xu,
Ph.D. **Herskowitz, Jeremy**
Post-doctoral students - 2
Pre-doctoral - 3 undergraduates
Kennedy, Richard
Pre-doctoral
1 pre-doctoral in psychology and 1 pre-doctoral in epidemiology
King, Gwendalyn
Pre-doctoralHai Vo
Other
Baylea Davenport Molly
Strickland Tate Pollock
Knight, David Pre-doctoral
5
Undergraduate5
Lahti, Andrienne
Post doctoral
Jose O. Maximo, PhD Frederic
Briend, PhD Pre-doctoral
Eric Nelson Other
Taylor Carter
Lubin, Farah Post doctoral
Victoria Huang (PhD, 2015) Neurobiology Department, UAB.
Pre-doctoral Graduating in 2019
Anderson Butler (2013-present) Cellular and Molecular Biology Program, UAB. Richard Sanchez (2014-present) Pathobiology and Molecular Medicine Program, UAB. Recent
Rebecca Hauser (2016-Present) Genetics and Genomic Sciences program, UAB
Silvienne C. Sint Jago (2018-Present), Pathobiology and Molecular Medicine program, UAB
Ashleigh Irving (2018-Present), Neuroscience program, UAB
Co-Mentored

Megan Rich (2015-Present) co-mentored with Dr. Mark Bolding Neuroscience Program, UAB

Martin, Roy

Pre-doctoral

UAB Psychology Interns (Katie Hannah Smith), UAB Psychology Graduate Students (Carla Ammons, Julia Beattie, Heather Dark, Kayla Steward)

McMahon, Lori

Post doctoral

1. Justin Barnes

Pre-doctoral

1. Luke Stewart- doctoral student graduated April 2018
2. Allie Widman- doctoral student graduated June 2018
3. Lindsey Smith – doctoral student graduated July 2018

Current doctoral students:

1. Anthoni Goodman
2. Kavitha Abiraman
3. Rose Creed (co-mentor)

Other

1. Bethany Langner

Undergraduates

1. Micah Bagley
2. Capri Alex
3. Chatur Shivananda

Meador-Woodruff, James

Post doctoral

Pitna Kim, Ph.D.

Toni Mueller, Ph.D.

Matthew Vallejo, Ph.D.

Brandon Scott Pruett, M.D., Ph.D. (faculty level trainee)

Pre-doctoral

Madeline Scott (Neuroscience Graduate Program, UAB)
Radhika Chadha (Neuroscience Graduate Program, UAB)

Other (clinical supervison of psychiatry trainees)

Katie Thrower, M.D. (Psychiatry Resident, UAB)
Rosey Swafford, M.D. (Psychiatry Resident, UAB)
Matt Pixley, M.D. (Psychiatry Resident, UAB)
Stephen Richardson, D.O. (Psychiatry Resident, UAB)
Faculty Consultation Clinic attending (for PG3 Psychiatry Residents), Department of Psychiatry, UAB
Medical Student Psychiatry Clinic attending (for medical students and senior residents), Department of Psychiatry, UAB

Powell, Craig

Post doctoral

Angela Walker, Ph.D. 2016-2018
Roopashri Holehonurr, Ph.D. 2016-2018
Zhenzhong Ma, Ph.D. 2017-2018
Qiangqiang Xia, Ph.D. 2018-present
Song, Chenghui, Ph.D. 2018-present

Other

Zhong Xuan, MD, PhD 2003-present

Pozzo-Miller, Lucas

Pre-doctoral

Mary Phillips, Neuroscience Theme, GBS, UAB

Other
Karen Ayala-Baylon (Masters in Biology program, UAB
Holly Robinson, UNP, UAB
Nirvignesh Vador, UNP, UAB
Dr. Wei Li, Assistant Professor (NTE), Neurobiology, UAB

Prabhu, Sumanth
Post doctoral
Qiongxin Wang, PhD
Pre-doctoral
Sergey Antipenko, MS; Scott Nguyen (undergradaute)
Other Junior Faculty: 3; Technicians: 4; Research Associates: 3

Roberson, Erik
Undergraduate
Ote Staton, An Tran, Adam Aldaher
Graduate and Medical Students
Nick Boyle, Hunter Dean, Shreya Kashyap

Standaert, David
Pre-doctoral
Greg Williams – admitted to PhD candidacy, awarded NIH F31
Aubrey Schonhoff – admitted to PhD candidacy, awarded NIH F31
Lindsay Stoyka – admitted to PhD candidacy, awarded NIH F30

Thannickal, Victor
Post-doctoral
Kevin Dsouza, MD (Fellow), 2018-present
Bruno Pereira, MD, PhD (Fellow), 2018-present
Pre-doctoral
Morgan Locy, MD/PhD student, 2014-present
Sam Smith, Graduate student, PhD Program in Biochemistry, Structural and Stem Cell Biology), 2018-present
Other
Ren-Jay She , Ph.D., Postdoctoral Trainee, Division of Pulmonary, Allergy and Critical Care Medicine,
Jacelyn Peabody, M.D., PhD. Candidate, MSTP Committee Member, UAB School of Medicine
Kenneth P. Hough, PhD candidate, Co-Mentor and Doctoral Thesis Advisory Committee

Triebel, Kristen
Pre-doctoral
6 (2 Clinical Psychology Interns; 2 Psychology Doctoral Students, 1 Nursing Doctoral Student, 1 Doctoral Student in the School of Public Health)
Other
2 Junior Faculty (Donna Murdaugh, Ph.D. and Noha Sherafeldin, M.D., Ph.D.)

Ubogu, Eroboghene
Neurology Residents (PGY3)/ Clinical Neurophysiology and Neuromuscular medicine fellows at UAB

Visscher, Kristina
Post doctoral
Research Mentor for Dr. Pinar Demirayak
Pre-doctoral
Leland Fleming, Ph.D., Neuroscience, Visscher lab Matthew
Defenderfer, Ph.D., Neuroscience, Visscher lab Mandy Biles,
Ph.D., Neuroscience, Visscher lab

Sara Sims, PhD., Psychology, Visscher lab
Jason Vice, PhD, rotating from Vision Science, Visscher lab Undergraduate
Utkarsh Pandey, Neuroscience Honors and Sci Tech honors, Visscher Lab
Ishant Santosh, Neuroscience Honors and Sci Tech honors, Visscher Lab
Simone Cetodal, Neuroscience Honors, Visscher Lab
Hannah Cowart, Jefferson County International Baccalaureate program

Wadiche, Jacques
Post doctoral
Jada Vaden, PhD; Reagan Pennock, PhD
Pre-doctoral
Gokul Bunumurthy Other
Shreya Malthora

Wadiche, Linda
Post doctoral
Jose-Carlos Gonzalez, PhD
Chelsea Griffith, PhD Other
Stacey Niver (graduated in May) Lora Stewart
Alyshia Bohannon

Wadley, Virginia Pre-doctoral
Caroline Lassen-Greene, PhD, Medical Psychology doctoral program.
Kayla Steward, PhD candidate, Medical Psychology doctoral program
Tyler Bull, MA, Medical Psychology doctoral program

9. **Clinical/translational programs**

Beveniste, Tika
Project Leader on new Udall Grant

Geldmacher, David
We have conducted qualitative analyses on the effects of telemedicine caregiver coaching in people with behavioral and psychiatric symptoms of dementia and differences between caregiver needs related to behavioral symptoms in Alzheimer's disease vs. Traumatic Brain Injury survivors

Kennedy, Richard
a. New programs
Received a 13th percentile from NIH/NIA for a new grant to develop new data mining methods for identifying delirium among hospitalized older adults
b. Update on existing clinical studies
Continued funding on R21/R33 grant from NIH/NIA to examine speed of processing training as an intervention to prevent cognitive decline among older adults after an episode of delirium; continued funding on R01 grant performing data mining among concomitant medications of older adults with Alzheimer's disease to identify potential novel therapeutic agents

Lahti, Andrienne
a. New programs
Trajectories of treatment response as window into the heterogeneity of psychosis: a longitudinal multimodal imaging study in medication-naïve first episode psychosis patients (NIMH R01MH113800)
b. Update on existing clinical studies
Glutamate, brain connectivity and duration of untreated psychosis (R01MH102951)

Lubin, Farah

UAB McKnight Award – "Exercise-related effects on memory function and neuronal circuitry- a clinical and preclinical investigation"

Powell, Craig

a. Currently laying the groundwork to bring UAB School of Medicine autism and neurodevelopmental disorders clinical entities together with central triage intake and increased access.

b. Update on existing clinical studies

Near completion of enrollment of clinical studies of autism patients with Shank3 deletions/mutations (so-called Phelan McDermid Syndrome) funded by NIH RDCRN

c. Near completion of enrollment of clinical studies of Phelan-McDermid Syndrome funded by Novartis for biomarker discovery

d. Completed sample acquisition and enrollment in Autism Speaks Foundation-funded microbiome study in autism and typical development.

Prabhu, Sumanth

a. New programs – Investigator initiated studies: Immune activation in acute decompensated heart failure; Cognitive function and brain inflammation following ST elevation MI; Inflammatory Activation and Biomarkers during acute ST elevation MI

b. Update on existing clinical studies - **GRAHF 2**: Genomic Analysis of Enhanced Response to Heart Failure Therapy in African Americans (enrollment closed December 2018); **DREAM HF-1**: A Double-blind, Randomized, Sham–Procedure–Controlled, Parallel-Group Efficacy and Safety Study of Allogeneic Mesenchymal Precursor Cells (rexlemestrocel-L) in Patients with Chronic Heart Failure Due to Left Ventricular Systolic Dysfunction of Either Ischemic or Nonischemic Etiology (enrollment closed December 2018)

Meador-Woodruff, James

As the chair of the UAB Psychiatry department, I have been working on numerous faculty recruitment efforts; we are actively recruiting into more than a dozen faculty slots at this time. Relevant to the McKnight mission, we have two open positons for geriatric psychiatrists to grow our total capacity for aged psychiatric patients, many of whom have memory related problems. We are likely to fill both positions in 2019. First is a well-trained geriatric psychiatrist from Harvard who will join our faculty in early 2019, adding outpatient capacity to our busy clinical services. The second is currently being recruited, and is a current trainee in a collaborative effort between the Division of Geriatric Psychiatry (in Psychiatry) and the Memory Disorders Program (in Neurology). We expect this trainee to finish and join our faculty in the summer of 2019.

Roberson, Erik

Alzheimer's Disease Center. Enrollment underway, in mid-30s. ~50% African American.

Standaert, David

New programs - The Alabama Udall Center of Excellence in
Parkinson's disease Research

Thannickal, Victor

New programs

A phase-II clinical study has been initiated with a NOX4 inhibitor (GKT831)

National Institutes of Health, NHLBI: P01 HL114470

"Targeting the Myofibroblast in Fibrotic Lung Disease"

Role: Principal Investigator; Project 1 Leader (25% effort); Administrative and Biostatistics Core (5% effort); Animal and Therapeutics Core (10% effort)

Ubogu, Erobo

1. New programs: Autonomic Testing Laboratory (Director: Mohamed Kazamel, M.D.).

2. Update on existing clinical studies: Successful FDA audit for Phase 3 LMS- 002 Study (Catalyst Pharmaceuticals). Continued participation in the NIH-funded Agrin/LRP4 antibody positive myasthenia gravis study. Initiation and successful enrolment for the NN108 NeuroNext idiopathic polyneuropathy study

Visscher, Kristina

1. A graduate student in my lab, Mandy Biles, from the Psychology, Behavioral Neuroscience Graduate Program is leading a study on the basic science of the mechanisms behind training to use peripheral vision. This basic science study, using the human brain as a model, tests how training to use a specific part of the peripheral retina influences brain areas associated with that part of the retina. This is very relevant to understanding neural plasticity in older adults, as it is a direct model of Age-
related Macular Degeneration – a real-world case in which older adults drastically change the way they use vision.
2. The McKnight Brain Aging Registry (MBAR) and its Neuroimaging and Cognitive Cores continues to make progress. This initiative has a primary goal of facilitating expanded cross-institute collaborations across the four McKnight Brain Institutes, while focusing on advancing the collective mission of enhancing our understanding of cognitive and brain aging to support the development of interventions for age-related cognitive decline. Despite experiencing a number of significant challenges during the initial start-up phases of the project, we have made considerable progress over this last reporting period, and have data collection fully underway.

Wadley, Virginia

1. McKnight Brain Aging Registry—Cognitive Aging and Memory Intervention Core Processing speed training to preserve driving and functional competencies in MCI
2. Reasons for Geographic and Racial Differences in Stroke (REGARDS) VCID and Stroke in a Biracial National Cohort (REGARDS)
3. Systolic Blood Pressure Intervention Trial (SPRINT) Clinical Center Networks And Co-Investigator and Vice Chair, Memory and Cognition IN Decreased Hypertension Substudy (SPRINT MIND)
4. Carotid Revascularization Endarterectomy versus Stenting Trial-2
5. An RCT of Speed of Processing Training in Middle-Aged and Older Adults with HIV
6. Co-Investigator - Systolic Blood Pressure Intervention Trial – Alzheimer's, Senior and Kidney (SPRINT ASK)
7. Co-investigator - Visual Processing Variables Associated with Driver Behaviors and Crash Risk
8. Co-investigator - UAB Alzheimer's Disease Center
9. Co-investigator Speed of Processing Training for Cognitive Deficits After Delirium in Older Adults
10. Co-investigator - Cognitive Resilience and Community Context: Examining the Role of Neighborhood Built and Social Environments for Slowing the Progression of Dementia among Older Americans

10. **Technology transfer**

A. Patent applications

Bolding, Mark

MRI-DETECTABLE MULTILAYER MICROCAPSULES FOR ULTRASOUND-TRIGGERED DELIVERY OF PHARMACOLOGICALLY ACTIVE AGENTS
With Eugenia Kharlampieva in Chemistry and Jason Warram in Otolaryngology

B. Revenue generated from technology

None

11. Educational programs focusing on age-related memory loss

A. Scientific

Gavin, Cristin
Mechanisms of Memory course for graduate and undergraduate students (ongoing)
King, Gwendalyn
Journal club each semester for graduate students
Prabhu, Sumanth
Scientific: Cognitive function and brain inflammation following ST elevation MI (collaboration with Dr. Ron Lazar); Effects of cardiovascular disease in a mouse model of HIV-associated neurological damage (collaboration with Dr. John Shacka)
Roberson, Erik
Neuroscience Café 11/2018
Visscher, Kristina
Osher Lifelong Learning Institute, Tuscaloosa, AL October 3, 2018, "Better Brain Training for an Aging World."
B.. Public

Gavin, Cristin
Educational programming about aging at the 2017 Alabama Brain Bee
Geldmacher, David
From sensation to cognition: Osher Lifelong Learning Institute – Birmingham Chapter Vestavia Hills, AL, March 2018
Visscher, Kristina
Along with colleagues at the McWane Science Center, and through our Research Civitan Club, I run a monthly science outreach event called Sci Café at John's City Diner downtown. We have speakers about various topics, and have recently had speakers focusing on aging.

12. Collaborative programs with other McKnight Institutes, institutions and research programs

Dobrunz, Lynn
I collaborate with Dr. Lori McMahon from UAB, Dr. Mark Bolding from UAB, and Dr. Mark Bevensee from UAB.
Geldmacher, David
McKnight Brain Aging Registry. 23 subjects enrolled at UAB as of 11/15/18
Kennedy, Richard
With a colleague from the Department of Psychiatry, we are developing a curriculum for graduate students to teach reproducible research in neurosciences and other basic science fields.
King, Gwendalyn
Lynn Dobrunz – synaptic function in aging models
Linda Wadiche – adult neurogenesis in aging models
Jeremy Herskowitz – spine density in aging models
Peter King – ALS biomarkers
Meador-Woodruff, James
We have a collaborative partnership between Psychiatry and Neurology to train a psychiatrist as both a geriatric psychiatrist as well as spending time in the Memory Disorder Program. This is a two year combined program, and our current trainee will likely join the faculty of Psychiatry in 2019. He would spend half of his time practicing as a geriatric psychiatrist and the other half of his time in the Memory Disorders clinic. In addition, my lab is now starting a scientific collaboration with Dr. Lori McMahon (a well-known UAB MBI member) focused on glycosylation in hippocampal cells.
Gamlin, Paul
I collaborate with a number of investigators working on retinal and CNS gene therpay at the University of Florida. These include Drs Shannon Boye, William Hauswirth, Ronald Mandel, Coy Heldermon, Sergei Zolotukhin, Barry Byrne, Manuela Corti.
Prabhu, Sumanth
Scientific: Cognitive function and brain inflammation following ST elevation MI (collaboration with Dr. Ron Lazar); Effects of cardiovascular disease in a mouse model of HIV-associated neurological damage

(collaboration with Dr. John Shacka)

Roberson, Erik

Perirhinal group - Burke, S.N., L.S. Gaynor, C.A. Barnes, R.M. Bauer, J.L. Bizon, **E.D. Roberson**, and L. Ryan. (2018). Shared functions of perirhinal and parahippocampal cortices: Implications for cognitive aging. *Trends Neurosci.*, 41:349–359.

Standaert, David

We have a collaborative program with University of Florida addressing gene therapy for dystonia, funded partly by Tyler's Hope.

Wadiche, Jacques

Linda Wadiche UAB Neurobiology, Synaptic properties of Adult Neurogenesis

Wadley, Virginia

McKnight Foundation Cognitive Intervention Core
McKnight Brain Aging Registry Cognitive Assessment Core

13. Collaborative programs with non-McKnight Institutes, institutions and research Programs

Bolding, Mark

1. Working with Jason Weick at University of New Mexico to develop a technique for controlling neural activity with x-rays.
2. Working with Fraser Robb of GE Healthcare to build a transcranial focused ultrasound device for use in a PET/MRI scanner. They will provide the hardware needed and will assist in building custom coils and pulse sequences. This support may eventually include a graduate student stipend and tuition.
3. Working with Rajiv Chopra at FUS Instruments to secure an Investigator Sponsored Research Agreement for the development of a subcutaneous transcranial focused ultrasound transducer for drug delivery in the brain.
4. Working with Steve Foulger at Clemson University to develop a technique for controlling neural activity with x-rays.
5. Working with Thompson Mefford at Clemson University to develop MRI contrast agents that are sensitive to brain activity.
6. Working with Yuping Bao at the University of Alabama to develop new MRI contrast agents that are biocompatible and can remain in the brain safely for many years.

Dobrunz, Lynn

I collaborate with Dr. Yuping Bao from the University of Alabama, with Dr. Stephen Foulger from Clemson, Dr. Jason Weick from the University of New Mexico, Dr. Rita Cowell from Southern Research Institute, and Dr. Kazu Nakazawa from Southern Research Institute.

Edwards, Lloyd

Continuing collaborative relationship with UAB McKnight Investigators.

Geldmacher, David

Invited Participant, Symposium for "Brain Health" centers, Northshore University HealthSystem, Chicago Sep 7-9, 2018

King, Gwendalyn

Stefanie Krick – lung function and klotho
Daryl Quarles – renal function and klotho
Christian Faul – FGF23 and klotho
Yabing Chen – calcification in aging models
Ichiro Nakano – aging brain and glioma growth

McMahon, Lori

1. Collaboration with Erik Roberson to investigate the role of BIN1 in AD using transgenic mice
2. Collaboration with Karen Gamble to investigate the impact of circadian rhythms on synaptic circuits in hippocampus in WT and AD mouse models
3. Collaboration with Qin Wang to investigate noradrenergic mechanisms in hippocampus in AD mouse models

Parpura, Vladimir

The role of sodium-bicarbonate exchangers in astrocytes (M. Bevensee)

<u>Outside the UAB system</u>

1. Pools of glutamate for exocytotic glutamate release (H.S. Waagepetersen and A. Schousboe; Univ of

Copenhagen, Danmark)
2. The role of connexin 43 in astrocytic exocytosis (E. Scemes and D.C Spray, Albert Einstein College of Medicine, NY)
3. SNARE complex proteins (R. Zorec, Univ of Ljubljana, Slovenia)
4. BDNF- and VGLUT-laden vesicle trafficking in astrocytes (R. Zorec, Univ of Ljubljana
5. The role of presenilins in vesicular trafficking in astrocytes (R. Zorec, Univ of Ljubljana, Slovenia)
6. Graphene in biological applications (V. Jokanović, Vinča Institute, Belgrade, Serbia)
7. Mechanisms underlying GFAP modulation of hyposmotic regulation of hypothalamic vasopressin neuron activity (Y-F. Wang, Harbin Medical University, P.R. China)
8. Exocytotic glutamate release from gliomas (H. Sontheimer, Virginia Tech University)

Pozzo-Miller, Lucas

Alan Percy (UAB), Jeff Neul (Vanderbilt), Maurizio Giustetto (Turin), Frank Longo (Stanford), Michelle Olsen (VA Tech)

Saag, Michael

CNICS (CFAR Network of Integrated Clinical Science)

Standaert, David

We have extensive collaborative relationships through basis and clinical programs. Key programs include the Udall Center, involving a collaboration with Duke University; the Fox Foundation PPMI study, an international multi-center effort, and our ongoing P01-funded work in dystonia involving Mass General Hospital and investigators at the University of Rome Tor Vergata.

Triebel, Kristen

I have collaborations with the UAB Comprehensive Cancer Center, UAB Center for Clinical and Translational Research, Collaborations with the School of Nursing, Collaborations with UAB's Royball Center, and Washington State University.

Ubogu, Eroboghene

1. Molecular determinants and signaling mechanisms implicated in blood-nerve barrier junctional complex formation in health and disease
2. Molecular determinants and mechanisms of pathogenic leukocyte trafficking across the blood-nerve barrier in peripheral neuroinflammation and HIV disease
3. Molecular neuroimmune mediators of acute and chronic pain in peripheral neuropathies using murine models

Visscher, Kristina

1. Several collaborations, including with Dr. Aaron Seitz at University of California, Riverside, examining adult cortical plasticity in the context of cognitive training. The results of this work will be very relevant for our aging studies, as we are interested in identifying the mechanisms of adult cortical plasticity. Keeping the adult brain plastic is essential for maintaining healthy cognition throughout aging.
2. Collaboration with Dr. Lesley Ross at Penn State. We examine the effects of training in older adults. We recently had a U series grant funded with Lesley as PI. I am lead on the MRI portion of that grant.

Wadiche, Jacques

Anastassios Tzingounis UConn (Storrs, Conn) - K-channel in cerebellar function

Wadiche, Linda

Jacques Wadiche
Farah Lubin
Karen Gamble
Laura Volpicelli-Daley

Wadley, Virginia

Multi-site collaborations— REGARDS, SPRINT, SPRINT ASK, CREST-2, CARDIA

15. Briefly describe plans for future research and/or clinical initiatives

Amara, Amy

I plan to investigate slow wave sleep as a biomarker of exercise-induced changes in cognition in Parkinson's disease-mild cognitive impairment

Beveniste, Tika

Assessment of involvement of peripheral immune system in pre-clinical models of PD and MS, as well as

peripheral blood from patients with PD and MS. Will determine relationship with cognitive decline in PD and clinical symptoms in MS.

Bolding, Mark

We intend to use our recently successful method for non-invasive delivery of drug loaded nanoparticles to the hippocampus (an area of the brain responsible for memory) to erase fearful memories in rats while preserving their memory of location or context in which the fearful memory was formed.

Buford, Thomas

Working on continuing our work on age-related physical decline with new integrations in cognitive decline as contributors to age-related loss of independence. New initiatives include animal studies evaluating interventions to improve late-life cognition as well as a mid-career development award (K02) submission from the NIH to facilitate learning theories and methods related to cognition and pain in aging. Also working with Dr. Lazar on a pilot study related to exercise and brain O2 extraction capabilities.

Day, Jeremy

We will focus on the role of gene regulatory pathways in drug addiction and memory formation, with a new focus on enhancer RNAs. This includes in vitro work designed to explore the mechanism by which these regulatory mechanisms influence gene expression programs that are critical to neuronal function and physiology, as well as pre-clinical work to manipulate genes in behaving animals.

Dobrunz, Lynn

I will continue my lab's current research initiative studying the effect of Neuropeptide Y on hippocampal function and behavior. I will continue our ongoing collaborative effort to develop a new noninvasive technique for in vivo optogenetics using radioluminescent nanoparticles, and collaborative studies on the effects of sodium bicarbonate cotransporters on pH modulation of hippocampal function.

Dudenbostel, Tanja

Investigation of mechanisms of premature cardiovascular disease including stroke in individuals younger than 50 years of age.

Edwards, Lloyd

Plans are to build a biostatistics neuroscience program in the UAB Department of Biostatistics.

Gamlin, Paul

Using non-human primate models, we intend to continue our gene therapy FDA-enabling studies of Friedrich's ataxia. We are also examining treatment options for San Filioppo syndrome. We are interested in persuing gene therapeutic approaches for retinal and CNS diseases in general.

Geldmacher, David

2019 funding proposals for development of "Lay Navigators" for dementia caregivers, technology support for caregivers, and the role of Respite Ministries in supporting dementia caregivers.

Gerstenecker, Adam

-Research: Collect data for K23 project and continue to publish and review grants and manuscripts.
-Clinical: Exceed high-performance RVU goal.

Goldberg, Matthew

Over the next year, we plan to increase our research on the role of alpha-synuclein protein inclusions in age-related brain dysfunction.

Gray, Michelle

-Our lab primarily focuses on the contribution of astrocytes to Huntington's Disease pathogenesis. We use a human mutant huntingtin expressing mouse model for these studies. In the animals we perform behavioral studies to assess cognitive, psychiatric and motor impairments. We use baseline abnormalities of the mice to determine if modulating different aspects of astrocyte function contributes to the abnormalities observed in this model. We will continue these studies in the laboratory.
-We are continuing our observational study of HD patient cardiac function. We have already observed some changes in the HD patients already enrolled in our study. We expect to continue this study and include this preliminary data in an R01 submission in the coming year.

Gross, Alecia

We have submitted two different R01 applications to the NEI investigating the role of protein complexes residing or functioning in compartments comprising the connecting cilium of photoreceptors. This includes the Meckel-Gruber Syndrome (MKS) complex that is critical for forming the gate in the transition zone, NudC which we have discovered directly effects the size and length of disks in rod and cone photoreceptors, and the BBS complex (BBSome) thought to mediate anterograde and retrograde transport across the connecting cilium in photoreceptors. The genes encoding these proteins are critical for the function and health of photoreceptors,

since if mutated, they are associated with age-related retinal degenerations.

Hablitz, John
We are starting animal studies on how hippocampal seizures alter memory functions in prefrontal cortex.

Kennedy, Richard
We are continuing to expand our delirium research programs to include prevention studies, epidemiology of delirium in the hospital, and improved identification of delirium using electronic medical records.

King, Gwendalyn
We are working to understand how loss of klotho, as happens in aging brain, effects function of neurons.

Lahti, Andrienne
I have plans to submit a T32 to support graduate students in the Department of Psychiatry.

Landefeld, Seth
The UAB Department of Medicine seeks to invest and advance new research programs in age related memory loss in partnership with the McKnight Brain Research Foundation.

Lubin, Farah
UAB McKnight Award – "Exercise-related effects on memory function and neuronal circuitry- a clinical and preclinical investigation"

Marson, Daniel
-Work as a consultant in a multi-site R01 AD research project recently funded by NIA—UAB is a site (E. Roberson, site PI)
-Continue as co-investigator in Dr. Wadley's NIA funded APPS study
-Continue as Director Emeritus of Alzheimer's Disease Center

McMahon, Lori
1. Investigations into the role of O-GlcNAcylation in modulating synaptic excitability and tau accumulation in a novel rat model of AD (TgF344-AD rat)
2. Investigations into the impact of locus coeruleus degeneration on hippocampus synaptic function and learning and memory in the novel TgF344-AD rat model of AD, and the role of estrogen loss in menopause

Meador-Woodruff, James
Clinically, we will continue to grow psychiatric services in 2019 to meet the demand for clinical care in our community. We expect to bring the two new geriatric psychiatrists on board next year, as well as grow other clinical services including the addition of one or two neuropsychologists. My own lab will continue current projects focused on subcellular protein processing in schizophrenia brain.

Parpura, Vladimir
Astrocyte-neuron signaling, a.k.a. gliotransmission, can modulate synaptic transmission/plasticity at tripartite synapses. Among the processes regulated by gliotransmission are sleep-regulation, respiration, and learning/memory. Despite these roles of gliotransmission in such fundamental life processes, its mechanism is not understood. Elucidating this mechanism should provide insights into basic brain processes, and suggest interventions when they go awry. Two early studies of astrocyte-neuron signaling explored the hypothesis that astrocytic glutamate release acts on neuronal glutamate receptors, but they led to different conclusions regarding the mechanism. One study concluded that glutamate is not the messenger but instead suggested that gap junctions might mediate astrocyte-neuron signaling. The other study concluded that the signaling is mediated by Ca^{2+}-dependent glutamate release from astrocytes, subsequently shown to occur by regulated exocytosis of glutamate-containing vesicles. Virtually nothing is known about the subcellular distribution/localization of astrocyte release sites. It is not clear if they are localized uniquely to the tripartite synaptic regions of astrocytes or more broadly. There is much debate about the relative roles of exocytosis vs. gap junction-mediated communication as critical for astrocyte-neuron signals. Our preliminary data point to a novel, unifying hypothesis that these two mechanisms are, in fact, mechanistically linked.

Gliomas comprise the large majority of malignant brain tumors and are one of the deadliest cancers, having a median survival of 14 months. High grade gliomas, of which the most common is *glioblastoma multiforme* (GBM), are characterized by extensive dispersal throughout the brain, indicative of their highly invasive nature. Finding new treatments that would stop/attenuate the progression of GBMs would be a milestone. We propose a novel hypothesis that human GBMs utilize Ca^{2+}-dependent exocytosis to dually secrete glutamate (Glu), a transmitter acting as a motogen, i.e. a cell motility stimulus; and matrix metalloproteinases (MMPs), extracellular matrix (ECM) degrading enzymes, that together advance GBM progression into the healthy brain

tissue. GBM invasiveness is stimulated by bradykinin (BK), a signaling molecule generated at the interface between the brain parenchyma and the vasculature. BK activates B2 receptors (B2Rs), abundantly expressed on GBMs, causing intracellular Ca^{2+} excitability that could trigger release of both Glu and MMPs. Release of Glu from GBMs can lead to epileptic seizures, which could also occur due to an increase in the activity of extracellular MMPs. However, whether Glu/MMP release from GBMs is indeed regulated by Ca^{2+} dynamics is unknown. We will determine the extent to which Ca^{2+}-dependent regulated vesicular release of Glu and MMPs play a role in the BK-mediated progression of the GBM and the generation of seizures. The data generated will be highly relevant for the development of adjuvant treatments for people suffering from this cancer.

Powell, Craig

The Powell Lab will continue ongoing studies of mouse genetic models of cognitive disorders including autism and intellectual disability. We also plan to initiate collaborations with partnering laboratories here at UAB in the neurodegeneration space as the laboratory becomes more established.

Pozzo-Miller, Lucas

Test if a TrkB ligand improves social memory in Rett mice by normalizing the function of the vHIP-mPFC projection. Extend our studies of cognitive and social deficits in Rett mice to other mouse models of intellectual disability and autism.

Prabhu, Sumanth

Continue ongoing projects; NIH grant submission on immune cell circadian rhythm and heart failure

Roberson, Erik

We will continue working on our basic research on Alzheimer's disease and frontotemporal, investigating both the mechanistic pathways contributing to these disorders and finding new therapeutic interventions. We will continue our clinical research including the Alzheimer's Disease Center program enrolling particpants with age-related memory problems.

Saag, Michael

-Have initiated discussions and planning meetings to establish a research vector to study cognitive impairment among older HIV patients

-The focus is to characterize the nature, associated co-morbid conditions, and potential causes or enhancers of cognitive impairment among HIV patients and compare these findings to non-HIV infected, age-matched individuals

-Once characterized, interventions will be explored to arrest, or hopefully reverse, the cognitive dysfunction in older HIV infected patients

Thannickal, Victor

Work with McKnight Institute investigators on the link between chronic lung disease, aging and memory loss.

Triebel, Kristen

Research: I have several projects in the works that are focused on aging and cancer-related cognitive impairment (CRCI) that seek to address the following: (1) identify the mechanisms of CRCI (investigating the role of inflammation and age-related pathology as potential mechanisms of cancer related cognitive impairment in adults over 65 years of age with breast cancer) (through collaborations with Burt Nabors, M.D. (neuro-oncology) and Suzanne Lapi, Ph.D., Jonathan McConathy, M.D., Ph.D. (both have extensive molecular imaging experience); (2) improve the assessment of CRCI (developing more sensitive, ecologically valid tests for CRCI) (through collaborations with Maureen Schmitter-Edgecomb, Ph.D. and others); and, (3) improve cognitive function, everyday functioning, and quality of life of cancer survivors through a variety of interventions including exercise, technology assistive devices, computerized cognitive training, mindfulness training, and use of innovative technology (through collaborations with David Vance, Ph.D., Maureen Schmitter-Edgecomb, Ph.D. and others). I also have developed a national reputation as a researcher in decision making capacity research in persons that suffer from cognitive impairment due to age-related medical conditions and pathology including Alzheimer's disease, mild cognitive impairment, Parkinson's disease, and cancer.

Clinical: I am collaborating with a Rhoda Maron, M.D. who is a neuro-oncologist to start a new clinical service that will provide persons with cancer and cancer survivors and their caregivers treatment in an integrated manner. My role will be overseeing neuropsychological assessment, interpretation, and feedback and Dr. Maron will see patients later in the day for treatment. We also are working with several other people so that we can add a cognitive or behavioral intervention component to their service. We have already have planned this service and we plan to implement this first as a pilot project in the spring of 2019. We are going to name the clinic the Cancer Neurology Brain Health Clinic.

A second clinical project for 2019 is to develop a pilot program using technology to improve patient's access and satisfaction to cognitive assessment services. There is a growing population of individuals over the age of 65 who are at risk for developing cognitive impairment. Our current service models are outdated and must be improved so that we can meet the growing demand of patients needing cognitive assessments. I am working with Dr. Ron Lazar, Dr. David Randall and Melissa Mancini (from the UAB Medicine Strategic Planning and Business Development and UAB Innovation Board), and Bart Kelly (UAB Hospital billing) to develop this program. This program if successful may have broad implications for a wide range of medical services that could be implemented on a national level.

Visscher, Kristina

Much of the research in my lab focuses on Age-related Macular Degeneration (AMD), one of the most common causes of vision loss (projected to affect almost 200 million people worldwide by 2020). This is an ecological example of perceptual learning in an older adult population with a positive clinical outcome. Our work (current work as well as work proposed) will shed light on what types of plasticity are possible in the aging population. We can use these insights in general to understand how the aging brain learns and can learn optimally.

I have recently (December, 2018) submitted a multi-PI R01 to NIH which is specifically focused on understanding the cortical changes that occur after different types of training. Our overarching hypothesis is that an individual's specific pattern of behavioral outcomes from training track that individual's pattern of brain plasticity, and that these patterns are shaped through the four vision performance factors. This is addressed through 3 specific aims: 1) Determine relationships between training and behavioral change, 2) Determine relationships between behavioral change and brain plasticity, and 3) Determine how individual differences at baseline relate to training outcome**.** This work is significant as it will provide information about how different behavioral learning effects relate to different underlying brain changes.

I plan a single-PI application to NIH which focuses on differences in plasticity across ages in a similar model. This application will build on our observations that populations of people who acquired Macular degeneration due to Age-related forms of the disease, as opposed to forms which have onset in early adulthood show different patterns of neural plasticity.

The McKnight Brain Aging Registry group plans an NIH grant proposal to follow up to our current project in 2019. We will be examining some of these participants in a longitudinal follow up. This approach is very powerful, and is only possible following the generous support from McKnight.

Wadiche, Jacques

a) Explore how regulation of multivesicular release is a common to synapses and synaptic function.
b) Determine how neurotransmitter concentration affects AMPAR function affects and calcium permeability.

Both of these mechanisms are fundamental to understanding brain function in normal and diseased states.

16. What do you consider your most important scientific achievement this year?

Amara, Amy

Identification of association between slow wave sleep and cognition in patients with Parkinson's disease.

Beveniste, Tika

Eludication of the involvement of the protein kinase CK2 in regulating both innate and adaptive immunity, and its role in pre-clinical models of MS.

Bolding, Mark

Non-invasive delivery of viruses to hippocampus of the brain in a rat. The viruses were injected IV and localized delivery was induced with focused ultrasound. Delivery of viruses was confirmed by GFP (green fluorescent protein) expression. Succinctly stated, we made the brain cells in one location in the brain glow green by guiding the viruses with ultrasound. This means we can genetically alter specific cells in the brain without doing any surgery or relying on molecular targets. We only need an MRI image. If this technique can be translated to humans it could potentially be used to cure (not just treat) certain neurological disorders without brain surgery. Potential targets include temporal lobe epilepsy and Parkinson's.

Buford, Thomas

Work soon to be published indicating that a gut-delivered intervention reduces pre-frontal neuroinflammatory gene expression and modulates pre-frontal VMAT2 protein expression.

Day, Jeremy

Engineered gene editing tools that allow robust and modular regulation of gene expression profiles across brain regions and cell types of rodent model systems. We have used this system to alter levels of Brain-derived neurotrophic factor (Bdnf), a key signaling protein linked to learning and memory

Dobrunz, Lynn

Our discovery that differences in short-term plasticity at excitatory inputs onto inhibitory interneurons and pyramidal cells in hippocampus during physiologically relevant stimulus patterns contributes to dynamic regulation of the excitation/inhibition balance in hippocampus.

Dudenbostel, Tanja

Identification of a phenotype of young adults with premature hypertension and premature cardiovascular morbidity and mortality including stroke, coronary artery disease, heart failure and kidney disease. Early vascular aging in these individuals has been identified by my laboratory as main driver of premature cardiovascular disease.

Edwards, Lloyd

My most important scientific achievement this year forming forming the building blocks for the biostatistics neuroscience program at UAB by bringing in Dr. Eddy Kwessi for a 1-year sabbatical, developing statistical and computational methods to focused on epilepsy and multiple sclerosis, and arranging and participating biostatistic seminars in neuroscience.

Gamlin, Paul

We were able to show somatic gene editing of guanylate cyclase 2D, retinal (GUCY2D) in macaque photorececeptors using subretinally-delivered AAV-CRISPR/Cas9 (Adeno-associated virus -Clustered Regularly Interspaced Short Palindromic Repeats/ CRISPR associated protein 9).

Gerstenecker, Adam

Being awarded a K23 by the NIH.

Goldberg, Matthew

We found that PINK1-deficient rats, but not wild-type rats, spontaneously develop age-dependent alpha-synuclein protein aggregates throughout the brain. This provides a unique research tool for further studies of the role of alpha-synuclein protein in normal brain function and the role of alpha-synuclein aggregates in dysfunction and degeneration.

Gross, Alecia

The successful defense of one of my PhD students, Dr. Katie Bales. Her project encompasses our BBS and MKS projects. She has been offered outstanding postdoc positions across the country at Universities such as Georgia Tech/VA, UCLA, UCSD and UMass Medical School.

Hablitz, John

We demonstrated that synchronized inhibition can be proconvlusant.

Herskowitz, Jeremy

My group identified a cellular substrate for resilience to dementia.

Kennedy, Richard

Expanding our Virtual ACE program to include delirium assessments of all hospitalized older adults at UAB hospital, which will greatly facilitate future studies of delirium by multiple investigators.

King, Gwendalyn

Our initial data showing that klotho-deficiency effects immune signaling at the choroid plexus.

Knight, David

Multiple publications on learning, memory, and emotion topics and impact social processes have on these functions.

Lahti, Andrienne

Award of a second R01 to pursue resolving the heterogeneity of psychosis using multimodal imaging techniques.

Landefeld, Seth

Support the development of young investigators and the growth of high impact research in the Department of Medicine.

Lubin, Farah

Publishing and maintaining funding.

Marson, Daniel

Creation of an alternative form of the FCI-SF and a UK version of the FCI-SF

Martin, Roy

A multi-disciplinary team of UAB clinicians and researchers is currently developing a preoperative risk assessment model of post-operative delirium (POD) in adults undergoing non-cardiac surgery. The initial project phase will assess for potential preoperative cognitive markers predicting at-risk individuals. Recruitment referral will occur through initial identification from the UAB Anesthesiology Preoperative Surgery Clinic with follow-up contact from the UAB Neurology/ Neuropsychology Division. This prospective design will involve neuropsychological testing of adults prior to their hospitalization. The key study aim will investigate whether preoperative cognitive function predicts the occurrence of POD. This project will extend already existing in- patient clinical care protocols at UAB (i.e., Virtual Acute Care in Elders program) currently assessing for peri- operative delirium identification and in-hospital intervention. Our current research team members include Roy Martin, Ph.D. and Ronald Lazar, Ph.D. (UAB Department of Neurology), Kellie Flood, M.D. and Richard Kennedy, M.D., Ph.D. (UAB Department of Medicine/Division of Gerontology/Geriatrics/Comprehensive Center for Aging), Brent Ponce, M.D. (UAB Department of Orthopedic Surgery), and Jeffery Simmons, M.D.(UAB Department of Anesthesiology).

McMahon, Lori

1. PNAS publication investigating the synaptic mechanisms underlying the rapid antidepressant effects of ketamine
2. Journal of Neuroscience publication demonstrating the anti-epilpetic effects of increasing O-GlcNAcylation
3. Neurobiology of Disease publication demonstrating early prodromal synaptic dysfunction in the novel TgF344-AD rat model of AD

Meador-Woodruff, James

In our work on the endoplasmic reticulum and Golgi, where protein synthesis and early processing occurs in cells, we have discovered in schizophrenia brain that the identification of malformed and misfolded proteins is abnormal. This is similar to a number of other brain disorders (including Alzheimer's) in which protein folding abnormalities underlie some of the pathophysiology of the disorder. This finding support sour proposal of schizophrenia as a model of age related memory decline given the early onset of cognitive impairment in these patients.

Parpura, Vladimir

Demonstration that presenilin 1 mutation disrupts mobility of secretory organelles in rat astrocytes.

Powell, Craig

Identifying the molecular mechanism of synaptic dysfunction in a genetic model of relevance to neurodevelopmental cognitive and behavioral challenges targeting the *KCTD13* gene in a mouse model. Identifying two drugs that can reverse such synaptic dysfunction is our most significant achievement in the past year.

Pozzo-Miller, Lucas

Demonstration that hippocampal dysfunction in *Mecp2* knockout mice spreads to the medial prefrontal cortex via a direct monosynaptic projection, altering network activity and social memory. Mary Phillips PhD dissertation; pre-print posted in bioRxiv.

Prabhu, Sumanth

The following publication, whci presents a new paradaigm on the inflammatory basis for heart failure:
Bansal SS, Ismahil MA, Goel M, Zhou G, Rokosh G, Hamid T, **Prabhu SD**. Dysfunctional and pro-inflammatory regulatory T-lymphocytes are essential for adverse cardiac remodeling in ischemic cardiomyopathy. *Circulation*. 2018 Aug 16. doi: 10.1161/ CIRCULATIONAHA.118.036065

Roberson, Erik

Preclinical efficacy of gene therapy for progranulin-deficient frontotemporal dementia

Sarraf, Mohammad

Working on vortex formation of blood flow in the animal lab (prelim. Data, not published yet).

Standaert, David

Our discoveries related to the role of the immune system in Parkinson disease continue to advance the field towards new therapies.

Thannickal, Victor

Identification of AMPK activators (Metformin) as a drug to treat aged-related lung fibrosis.

Triebel, Kristen

Putting together a project investigating the role of neuroinflammation and age-associated pathology as potential

mechanisms of cancer related cognitive impairment in older adults).

Ubogu, Eroboghene

1. Elucidation of the cytoplasmic and membrane proteome of human blood-nerve barrier induced by exogenous GDNF in vitro (2nd revision of submitted manuscript under review) AND
2. Development a conditional MHC Class II knockout mouse strain (C57BL/6-*H2-Aa*$^{tm1c(KOMP)WistUbee}$/ Mmmh)

Visscher, Kristina

We have ramped up our capability to run participants through our extensive behavioral and neural pipleline as part of our NIH connectomes in human diseases grant. This is a huge undertaking – participants come in 6 times, for about 3 hours per session. The participants are happy. The lab is able to sustain the very heavy participant load. I'm really proud of the work that the lab has put forward to make that happen.

Wadiche, Jacques

Organized and obtained funds for a day long symposium before 2017 SfN meeting to celebrate the scientific accomplishments of Craig E Jahr, PhD, my postdoctoral advisor. Over 50 attendees listened to speakers that included Roger Nicoll PhD, Bruce Bean PhD, and Gary Westbrook MD. (http://jahrsymposium.org)

Wadiche, Linda

We have identified the mechanism underlying the hallmark hyperpolarized resting membrane potential of mature dentate neurons that differentiate them from other hippocampal principal cells and adult-born neurons (Gonzalez et al., 2018).

Wadley, Virginia

Results of SPRINT MIND and SPRINT ASK, in which I serve as investigator and vice chair of the SPRINT MIND Committee, showing reduced rate of MCI with intensive blood pressure control (publication in press at JAMA).

APPENDICES

Appendices

Appendix A

2018 Request for Applications (RFA)

PURPOSE:

The UAB McKnight Brain Institute (MBI) invites grant applications for pilot studies on age-related memory and cognitive decline that demonstrate a collaboration between clinical andpre-clinical faculty. The intent of this award is to create teams of basic and applied neuroscientists whose research goals are to generate and test novel, integrative hypotheses.This award is expected to create preliminary data that will support more permanent fundingthrough Federal agencies (preferred) and/or non-profit entities.

ELIGIBILITY:

- UAB faculty investigators (Instructor to Professor) with permanent appointments
- At least one human/clinical investigator and one basic-research neuroscientist
- Cannot be an already-funded project or have significant overlap with existing projects

TERMS of SUPPORT:

- Up to $35,000 in project-related direct costs and appropriate supplies. No indirect costs, equipment or travel.
- Support must stay at UAB and can be used internally
- Duration: One (1) year – March 15, 2018 to March 14, 2019
- Successful applicants will be required to provide a written progress report and to meet withthe MBI Leadership at six (6) months.
- Preference will be given to projects for which departmental matching funds are available
- Preference will be given to projects with a biostatistician
- Up to 4 projects will be funded, based on the merit of the applications

SUBMISSION OF APPLICATIONS:

- Cover Page -- include Title of project, Investigators names, Departmental affiliations, Budget amount requested, Signature of investigators

- ½ - page lay summary
- Itemized budget and justification. NIH forms can be used.
- NIH Biosketches (Rev. 9/17)
- Three (3) page project narrative (Single-spaced, 11-point Arial font, 1" margins) that includes the innovation arising from the collaboration, research plan, and future plans.
- References

SUBMISSION OF APPLICATIONS

- Application Deadline: February 1, 2018
- Proposals are not required to go through OSP
- Submit to: Vicki Hixon (vhixon@uab.edu)

Appendix B

THE EVELYN F. McKNIGHT BRAIN INSTITUTE
UNIVERSITY OF ALABAMA AT BIRMINGHAM
Preserving memory, enhancing life

HISTORY

On November 5, 2004, the University of Alabama Board of Trustees approved the establishment of the Evelyn F. McKnight Brain Institute at UAB. The Evelyn F. McKnight Brain Institute has the long term
goal of translating discoveries from basic biomedical research into processes and products to minimize the deleterious effects of aging on learning and memory in humans.

The purpose of the McKnight Brain Research Foundation is to promote research and investigation of the brain in the fundamental mechanisms that underlie the neurobiology of memory with clinical relevance to the problems of age related memory loss.

NOTES:

Evelyn F. McKnight Brain Institute

Scientific Updates

December 6, 2018
11:30 a.m. – 1:00 p.m.
Volker Hall
Lecture Room B

SYNOPSIS

In the Spring 2018, the UAB McKnight Brain Institute (MBI) requested grant applications for pilot studies on age-related memory and cognitive decline that would demonstrate a collaboration between clinical and pre-clinical faculty. The intent of the awards was to create teams of basic and applied neuroscientists whose research goals are to generate and test novel, integrative hypotheses. This award has created preliminary data that will support more permanent funding through Federal agencies (preferred) and/or non-profit entities.

11:30 Lunch

12:00 Welcome
Ronald Lazar, PhD
Evelyn F. McKnight Endowed Chair for Learning and Memory in Aging
Department of Neurology

12:10 – 12:25 p.m.

"Exercise-related effects on memory function and neural circuitry – a parallel clinical and preclinical investigation"

Jane B. Allendorfer, PhD
Assistant Professor
Department of
Neurology

Farah D. Lubin, PhD
Associate Professor
Department of
Neurobiology

12:25 – 12:40 p.m.

"Cardiorespiratory fitness, cognition, neuroimaging, and aging in persons with secondary progressive multiple sclerosis"

Brian Sandroff, PhD,
Assistant Professor
Department of
Physical Therapy

12:40 – 12:55 p.m.

"Status Update - Effects of cardiovascular disease in a mouse model of HIV-associated neurological damage"

John Shacka, PhD,
Assistant Professor
Department of Pharmacology & Toxicology

Appendix C

Tenth McKnight Inter-Institutional Meeting Birmingham, Alabama April 4 – 6, 2018

Wednesday, April 4, 2018

1:00 – 6:00 p.m. Registration: DoubleTree by Hilton – Lower Level - Foyer
6:00 - 6:30 p.m. Reception: Doubletree Hilton Hotel - Lower evel - Heritage 1 6:30 -

8:00 p.m. Dinner: Doubletree Hilton Hotel – Lower Level – Heritage 1

Welcome
Ronald M. Lazar, PhD, FAAN, FAHA Evelyn F. McKnight Endowed Chair Professor of Neurology
Director, Evelyn F. McKnight Brain Institute at UAB Director, Division of Neuropsychology
University of Alabama at Birmingham

J. Lee Dockery, MD
Chair, Board of Trustees
McKnight Brain Research Foundation

Thursday, April 5, 2018

7:30 – 8:40 a.m. Breakfast: Doubletree Hilton Hotel

– Heritage 2 8:45 - 9:00 a.m. Opening Remarks –

Heritage 1

Ronald M. Lazar, PhD, FAAN, FAHA
Evelyn F. McKnight Endowed Chair
Director, Evelyn F. McKnight Brain Institute at UAB University of Alabama at Birmingham

Christopher S. Brown, PhD
Vice President for Research University of Alabama at Birmingham

J. Lee Dockery, MD

Chair, Board of Trustees
McKnight Brain Research Foundation

SESSION I Intervention

Location: Heritage 1 Moderator: **Carol Barnes, PhD**

9:00 – 9:15 a.m. *"Intervention Opportunities for Cognitive Decline: Report from the National Academy of Medicine"*
Ralph Sacco, MD, MS, FAHA, FAAN
Professor and Olemberg Chair of Neurology
Executive Director McKnight Brain Institute
Chief of Neurology Jackson memorial Hospital
Director, UM Clinical & Translational Science Institute
Senior Associate Dean for Clinical & Translational Science
Miller School of Medicine, University of Miami
President, American Academy of Neurology

9:20 – 9:45 a.m. *"Exercise is Regenerative Medicine: Impact on Aging"*
Marcas M. Bamman, PhD, FACMS
Professor and Center Director
Center for Exercise Medicine
University of Alabama at Birmingham

9:50 – 10:15 a.m. *"The ACT Intervention Trial"*
Ronald Cohen, PhD, ABPP, ABCN
Evelyn McKnight Chair of Clinical Translation in Cognitive Aging
Professor, Clinical and Health Psychology, Neurology and Psychiatry
Director, Center for Cognitive Aging and Memory
University of Florida

Adam Woods, PhD
Assistant Professor, Clinical and Health Psychology, Neuroscience
Assistant Director, Ctr for Cognitive Aging and Memory Clinical Trans Res
University of Florida

10:20 – 10:25 a.m. Additional Q & A

10:30 – 10:40 a.m. Break

10:40 – 11:00 a.m. *"Modifiable Risk Factors in Cognitive Aging: Influence of Vascular Health and Physical Activity"*
Gene Alexander, PhD
Professor
Departments of Psychology and Psychiatry
University of Arizona

11:05 - 11:25 a.m. *"Cognitive Resilience: Mechanisms and Therapeutic Windows for Memory Loss"*
Jeremy Herskowitz, PhD
Assistant Professor
Department of Neurology
University of Alabama at Birmingham

11:25 – 11:30 a.m. Additional Q & A

11:30 – 12:30 p.m. Lunch - Heritage

KEYNOTE ADDRESS

12:30 -1:45 p.m. *"Epigenetic Clock Analysis of Cognitive Aging"*
Steve Horvath, PhD
Professor, Human Genetics and Biostatistics
David Geffen School of Medicine
University of California

SESSION II McKnight Brain Aging Registry (MBAR)

Location: Heritage 1 Moderator: **Tatjana Rundek, MD, PhD, FANA**

2:00 - 2:20 p.m. "*MBAR I: Clinical Update"*
Bonnie Levin, PhD
Bernard and Alexandria Schoninger Professor of Neurology
Director, Division of Neuropsychology
University of Miami, Miller School of medicine

2:20 - 2:40 p.m. "*MBAR II: Imaging Update"*
Kristina Visscher, PhD
Associate Professor
Department of Neurobiology
University of Alabama at

Birmingham 2:40 – 2:45 p.m. Additional Q & A

2:45 – 3:00 p.m. Break

SESSION III New MBI Faculty

Location: Heritage 1 Moderator: **Ron Cohen, PhD**

3:00 – 3:12 p.m. *"Cardiac Reperfusion, Neuro-inflammation and Human Cognition"*
Ronald M. Lazar, PhD, FAAN, FAHA
Evelyn F. McKnight Endowed Chair
Director, Evelyn F. McKnight Brain Institute at UAB
University of Alabama at Birmingham

3:15 – 3:27 p.m. *"Novel Peptide Therapy to Treat Cognitive Impairment in Heart Disease Patients at Risk for Alzheimer's Disease"*
Meredith Hay, PhD
Professor, Physiology, Psychology
Evelyn F. McKnight Brain Institute
Arizona Health Sciences Center

3:30 – 3:42 p.m. *"Cognitive, Cultural and Affective Dimensions of Frailty"*
Katalina McInerney, PhD
Assistant Professor – Clinical
Department of Neurology
University of Miami

Sarah Getz, PhD
Neuropsychology Postdoctoral Fellow
Department of Neurology
University of Miami

3:45 – 3:57 p.m. "*Exosomes: Biomarkers of Aging and Potential Mediators of Therapeutic Interventions"*
Brittney Yegla, PhD
Post-doctoral Researcher
University of Florida

4:00 – 4:12 p.m. *"The Gut Microbiome: A Target for Improving Late Life Cognition?"*
Tom Buford, PhD
Associate Professor
Med – Gerontology, Geriatrics, and Palliative Care
University of Alabama at Birmingham

4:15 – 4:27 p.m. *"Encoding and Retrieval of Complex Events: A Shift towards Knowledge-Based Processing with Normal Aging"*
Matthew Grilli, PhD
Assistant Professor
Department of Psychology
Evelyn F. McKnight Brain Institute
University of Arizona

4:30 – 4:42 p.m. *"Sleep and Neurocognitive Aging in Population Based Studies"*
Alberto Ramos, MD, MSPH, FAASM
Associate Professor
Research Director, Sleep Disorders Program
University of Miami, Miller School of Medicine

4:45 – 4:57 p.m. *"Frontal Gamma-Aminobutyric Acid Concentrations are Associated with Cognitive Performance in Older Adults"*
Eric Porges, PhD
Assistant Professor
University of Florida

5:00 – 5:05 p.m. Additional Q & A

Friday, April 6, 2018

7:30 - 9:00 a.m. Breakfast Buffet and Hotel Check-out
Location: Heritage 2

7:30 – 9:00 a.m. Board of Directors Breakfast with MBI Directors
Breakfast Buffet: Location: Heritage 2
Meeting: Hotel Boardroom – Lower Level

SESSION IV Data Blitz: Trends in Neuroscience

Location: Heritage 1 MODERATOR – **Erik Roberson, MD, PhD**

9:00 – 9:08 a.m. *"Neurobiological Mechanisms of Age-Associated Changes in Decision– Making"*
Jennifer Bizon, PhD
Professor
College of Medicine
Department of Neuroscience and Psychiatry
Evelyn F. and William L. McKnight Brain Institute
University of Florida

9:10 – 9:18 a.m. *"Contributions of Perirhinal and Postrhinal Cortex to Memory: Implications for Aging"*
Lee Ryan, PhD
Professor and Department Head
Associate Director, Evelyn F. McKnight Brain Institute
Director, Cognition and Neuroimaging Laboratory
University of Arizona

9:20 – 9:28 a.m. *"Processing Speed Training to Preserve Driving and Functional Competencies in Persons with Mild Cognitive Impairment"* **Virginia Bradley, PhD**
Professor
Med-Gerontology/Geriatrics/Palliative Care
University of Alabama at Birmingham

9:30 – 9:38 a.m. *"Retinal Microvascular and Microstructural Changes in Normal Aging and Alzheimer's Disease"*
Hong Jiang, MD, PhD
Assistant Professor of Clinical
Neuro-ophthalmology &
Neurology Bascom Palmer Eye
Institute Department of Neurology
University of Miami

9:40 – 9:48 a.m. *"Perforant Path Fiber Loss Impairs Mnemonic Similarity Task Performance in Rats"*
Sara Burke, PhD
Assistant Professor
Department of Neuroscience
University of Florida

9:50 – 9:58 a.m.	"*Neat1 Mediated Histone Methylation and c-Fos Gene Expression in Memory and Age-Related Memory Deficits"* **Farah Lubin, PhD** Associate Professor Department of Neurobiology University of Alabama at Birmingham
10:00 – 10:08 a.m.	*"Post-Stroke Physical Exercise Improves Cognitive Outcomes in Young and Elderly Animals"* **Kunjan Dave, PhD** Research Associate Professor Department of Neurology University of Miami
10:10 – 10:18 a.m.	*"Use of Internet-Based Testing to Identify Factors Associated with Successful Cognitive Aging"* **Matthew Huentelman, PhD** Professor, Neurogenomics Division Scientific Director, Center for Rare Childhood Disorders The Translational Genomics Research Institute University of Arizona
10:20 - 11:20 a.m.	Pre-Meeting Reports
11:20 a.m.	Closing Remarks **Ronald M. Lazar, PhD** **J. Lee Dockery, MD**
11:30 a.m.	Travelers pick up box lunches Foyer – Lower Level
11:30 a.m.	Shuttle service to airport begins

Appendix D
Biographical Sketches

NAME **Ronald M. Lazar**, PhD, FAAN, FAHA		POSITION TITLE Evelyn F. McKnight Endowed Chair in Learning and Memory in Aging	
EDUCATION/TRAINING			
New York University, University Heights, NY	BA	06/71	Psychology
Northeastern University, Boston, MA	MA	06/73	Psychology
Northeastern University, Boston, MA	PhD	05/77	Psychology
Georgetown University, Washington, DC	Post-Doc	08/78	Psychology
Eunice K. Shriver Ctr, Waltham, MA	Post-Doc	01/80	Behavioral Sci
Memorial Sloan-Kettering Cancer Center	Fellow	06/83	Neuropsychology

Position

1980-1984 Graduate Faculty, Neuropsychology and Learning Processes Programs, CUNY, NY
1980-1984 Asst Professor of Psychology, Dept of Psychology, Queens College of CUNY, NY
1981-1983 Adj Attending Psychol, Dept of Neurol, Memorial Sloan-Kettering Cancer Ctr, NY
1983-1984 Assistant Attending Psychologist, Dept of Psychiatry, New York Hospital, NY
1983-1984 Adj Asst Prof of Psychology (Psychiat), Cornell Univ Medical College, NY
1983-1984 Asst Attending Psychol, Dept of Neurol, Memorial Sloan-Kettering Cancer Ctr, NY
1984-1993 Chief Psychologist and Director of Neuropsychological Services, Dept of Psychology, Kings County Hospital Center, Brooklyn, NY
1984-1993 Director, Neuropsychol Service, Dept of Neurol, State Univ Hospital of Brooklyn, NY
1984-1993 Asst Prof of Neurology and Psychiatry, SUNY/Health Science Ctr at Brooklyn, NY
1993-1994 Asst Prof of Clinical Neuropsychol, Dept of Neurology, Columbia Univ College of Physicians & Surgeons, NY
1994-1996 Assoc Professor of Clinical Neuropsychol, Dept of Neurology, Columbia Univ Coll of
Physicians & Surgeons, NY
2003-2013 Professor of Clinical Neuropsychology, Depts of Neurology and Neurological Surgery
(Tenured), College of Physicians & Surgeons, Columbia University, NY
1994-2017 Professional Neuropsychologist, Dept of Neurology, NY Presbyterian Hospital, NY
1994-2017 Director, Levine Cerebral Localization Laboratory, Stroke Division, Dept of Neurol, NY Neurological Institute, Columbia Univ Medical Center, New York, NY

2013-Pres Prof of Neuropsychology in Neurol and Neurological Surgery at the Columbia University Medical Center, NY
2017-Pres Evelyn F. McKnight Endowed Chair. Dept of Neurology, Univ of Alabama at Birmingham, Birmingham AL
2017-Pres Professor of Neurology (with Tenure), Dept of Neurology, Univ of Alabama at Birmingham, AL
2017-Pres Director, UAB McKnight Brain Institute, Dept of Neurology, Univ of Alabama at Birmingham, AL
2017-Pres Director, Neuropsychology Division, Dept of Neurology, Univ of Alabama at Birmingham, AL
2017-Pres Senior Scientist, UAB Center for Exercise Medicine, Univ of Alabama at Birmingham
2017-Pres Senior Scientist, UAB Comprehensive Neuroscience Center, Univ of Alabama at Birmingham
2017-Pres Senior Scientist, Center for Neurodegeneration and Experimental Therapeutics at UAB

Honors, Awards, and Advisory Committees

Honors:

Psi Chi / Robert Formica Memorial Award, Department of Psychology, New York Univ, 1971
Andrew W Mellon Fellow, Dept of Neurology, Memorial Sloan-Kettering Cancer Ctr, 1982-1983
Sigma Xi, 1980
Fellow, American Psychological Association, 2000
Fellow, American Heart Association, 2005
Fellow, American Academy of Neurology, 2011
Fellow, American Neurological Association, 2012
Evelyn K. McKnight Endowed Chair in Learning and Memory in Aging, 2017

Federal Government Advisory Committees

2016 - Pres	Fogarty Global Brain Disorders Study Section ZRG1 BDCN-N (55) R, CSR, NIH
2013 – 2015	Agency for Healthcare Quality and Research (AHRQ) US Dept of Health and Human Services Evidence-based Practice Center Program, Evidence-based Practice Center Program
2009 – 2015	Chartered Member, Acute Neural Injury and Epilepsy (ANIE) Study Section, Center for Scientific Review (CSR), NIH
2002 – 2010	Permanent Member, Circulatory System Devices Advisory Panel, Medical Devices Advisory Committee, Center for Devices and Radiological Health, US FDA
2009 – 2010	ZRG1 BDCN-L (95) S Competitive Revisions; Clinical Neuroscience and Disease, NIH.
1996	Select Committee on Aging. US House of Representatives Alzheimer's Disease and Related Disorders: The Government's Response. Ninety-Ninth Congress, Second Session (Cold Spring Harbor, New York)

Other Advisory Committees

1995 – 1997 Division 40 (Society for Clinical Neuropsychology), American Psychological Assn National Co-Chair, Hospital Staff Membership Task Force Practice Advisory Committee
2014 – 2016 National Institutes of Neurological Disorders and Stroke, NIH StrokeNet Recovery Working Group

Peer-Review Panels
2011 – Pres Editorial Review Board, *Stroke*
1993 - Pres Ad Hoc Reviewer: New England Journal of Medicine, Anesthesiology, Cancer, Journal of Applied Behavioral Analysis, Annals of Neurology, Epilepsia, Neuropsychologia, Neuropsychology, Circulation, Neuroscience Letters, Journal of the International Neuropsychological Society, Neurology, Stroke, Journal of Neurology, Neurosurgery, & Psychiatry, Cerebrovascular diseases, American Journal of Physical Medicine and Rehabilitation, Resuscitation, Neurosurgery, Brain, Neuropsychology Review, Journal of Neurological Sciences, American Journal of Medicine, Journal of Clinical Anesthesia, Journal of Alzheimer's Disease, Frontiers of Neurology, Cardovascular Therapy, Annals of Internal Medicine, Neurorehabilitation and Neural Repair, Aphasiology,

Publications (2018 Peer-Review only)

1. **Lazar, R.M.**, Pavol, M., Browndyke, J., Bormann, Dwyer, M.G., Kraemer, C., White, R., Zivadinov,R., Wertheimer, J.C., Thöne-Otto, A., Ravdin, L.D., Naugle,R., Mechanic-Hamilton, D., Garmoe.W.S., Stringer. A.Y., Bender, H.A., Kapadia, S.R., Susheel Kodali, S.K., Ghanem, A., Linke, A., Mehran, R., Virmani, R., Nazif, T., Parhizgar, A., Leon, M.B. Neurocognition and Cerebral lesion burden in High Risk Patients before Undergoing TAVR: Insights from the Sentinel Trial, JACC Cardiovasc Interv. 2018 Feb 26;11(4):384-392PMID: 29397361.

2. Pavol, M.A., Willey, J.Z., Wei, Y., Yuzefpolskaya, M., Marshall , R.S., Marascalco, P.J., Harwood, J., **Lazar, R.M**., Does cognition improve following LVAD implantation? General Thoracic and Cardiovascular Surgery, 2018, Aug;66(8):456-463. PMID: 29796750

3. Marshall, R.S., **Lazar, R.M**., Liebeskind, D.S., Connolly, E.S., Howard, G., Lal, B.K., Huston III, J., Meschia, J.F., Brott, T.G., on behalf of the CREST-H investigators, Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis – Hemodynamics (CREST-H): Study Design and Rationale. International Journal of Stroke, 2018 Aug;66(8):456-463. PMID: 30132751.

4. Agarwal S, Presciutti A, Roth W, Matthews E, Rodriguez A, Roh DJ, Park S, Claassen J, **Lazar RM**. Determinants of Long-Term Neurological Recovery Patterns Relative to Hospital Discharge Among Cardiac Arrest Survivors. Crit Care Med. 2018 Feb;46(2):e141-e150. PMID: 29135522.

5. Norling, A.M., Marshall, R.S., Pavol, M.A., Howard, H., Howard, V., Liebeskind, D., **Lazar, R.M.** Is Hemispheric Hypoperfusion a Treatable Cause of Cognitive Impairment? Current Cardiology Reports, 2018, in press.

6. Gerstenecker, A., **Lazar, R.M.** Language recovery following stroke. The Clinical Neuropsychologist, 2018, in press.

Grants/Contracts (2018-present)

U24NS107223 (Gropen, Lazar, Harrigan) 09/01/2018 – 08/31/2023
NIH/NINDS StrokeBelt StrokeNet
The goal of the StrokeBelt StrokeNet is to establish a Regional Coordinating Center to facilitate Stroke research in the Southeastern States of Alabama and Mississippi. This infrastructure will provide research opportunities in acute stroke treatment, primary and secondary prevention, and post-stroke rehabilitation for an underserved, high-risk stroke population.

1 U01 NS080168-01A1 (Brott) 1/1/2014 – 12/31/2021
NIH/NINDS CREST-2 Clinical Coordinating Center.
The goal of this project is to assess if contemporary medical therapy is not inferior to contemporary revascularization (carotid endarterectomy or carotid angioplasty/stenting) plus best medical therapy in patients with ≥ 70% asymptomatic carotid stenosis. The cognitive aim is to assess whether medical therapy alone is non-inferior to revascularization to maintain the level of cognitive function at 4 years of follow-up.
Role: Co-I and Cognitive Core Leader.

R01NS097876 (Lazar, Marshall, Liebeskind, Connolly) 4/1/2017 – 3/31/2022
NIH/NINDS Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics
The purpose of this project is to determine whether there is a subset of patients with carotid stenosis who have MRI-detected cerebral hemodynamic compromise and associated cognitive decline, and whether revascularization will be associated with improved hemodynamics and improved cognition.

AMC21 Multi-PI Pilot Grant, UAB Schl of Med (MPI:C Brown, Corresponding PI; Lazar, Co-PI) Prevention of and Recovery from Hospital-Associated Disability. (1/20/2018 – 1/19/2020)
Pilot funding in preparation for 2019 submission for an NIA Claude D Pepper Older Americans Independence Center

1R21NS096972-01A1 (Lazar/Kodali) 8/1/2016 – 3/31/2018
NIH/NINDS Cerebral Hemodynamics and Neurocognition in Severe Aortic Valve Disease.
The goal of this project is to determine whether severe aortic stenosis is associated with impaired cerebral hemodynamics and, in turn, impaired cognition, and whether valve replacement is associated with improved cerebral hemodynamics and improved cognition.

R01 AG057709-01 (Pl: Gutierrez) 7/1/2018 - 6/30/2023
NIH/NINDS Genetic Contribution to Brain Arterial Dilatation and its Role in Cognition and Dementia
The goal of this project is to study the role of gene regulation in the dilatation of intracerebral arteries in response to systemic cardiovascular risk factors.
Role: Co-I (neurocognitive outcomes).

NAME **Amy Willis Amara**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Agnes Scott College, Atlanta, GA	B.A.	1998	Medicine
Medical College of Georgia, GA	Ph.D.	2003	Medicine
Medical College of Georgia, GA	M.D.	2005	Medicine

HOSPITAL AND OTHER (NON ACADEMIC) APPOINTMENTS:

Hospital Privileges:

Birmingham Veterans Affairs Medical Center	2011-2012
Children's Hospital of Alabama	2010-present
University of Alabama Hospital	2009-present
University of Alabama at Birmingham Highlands Hospital	2009-present
Cooper Green Hospital	2009-present
Investigator, Evelyn F. McKnight Brain Institute	2018-present

2018 PUBLICATIONS:

1. Amara, A.W., L. Chahine, N. Seedorff, C.J. Caspell-Garcia, C. Coffey, and T. Simuni and the Parkinson's Progression Markers Initiative. (2018) Self-reported Physical Activity Levels and Clinical Progression in Early Parkinson's Disease. Parkinsonism and Related Disorders. In press
2. Szalflarski, J.P., J. Friffis, J. Vannest, J.B. Allendorfer, R. Nenert, A.W. Amara, V. Sung, H.C. Walker, A.N. Martin, V.W. Mark, and X. Zhou (2018) A Feasibility Study of Combined Intermittent Theta Burst Stimulation and Modified Constraint-Induced Aphasia Therapy in Chronic Post-Stroke Aphasia. Restorative Neurology and Neuroscience. In press

EXHIBITS:

McGhee, S.A., Fleming, L., Memon, R., Joop, A., Nenert, R., Pilkington, J., Gerstenecker, A., Triebel, K., Bamman, M.M., Visscher, K.M., Amara, A.W., Wood, K.H. (2018). Brain atrophy is associated with cognitive function and motor features of Parkinson's disease. Annual Meeting of the Alabama Advanced Imaging Consortium. Delta, AL.

UNIVERSITY ACTIVITIES:

University activities include clinical research, teaching, and clinical care roles. I direct a research laboratory investigating interventions to improve sleep, cognition, safety, and motor symptoms in patients with Parkinson's disease. The laboratory is actively engaged in several projects, with students and other lab members. My laboratory has been funded through NIH as well as foundations. I am also site investigator for studies investigating biomarkers of Parkinson's disease.

MAJOR RESEARCH INTERESTS:

My major research interests include investigation of the impact of exercise on sleep, cognition, motor outcomes, and functional connectivity in patients with Parkinson's disease. I have also investigated the influence of deep brain stimulation and other therapies on sleep in these patients.

My lab also studies the effects of cognitive training (speed of processing training) on pedestrian safety, cognition, and visual processing in patients with Parkinson's disease and healthy older adults. In addition, I am site investigator for multi-site studies evaluating biomarkers and investigational therapies in patients with Parkinson's disease and dementia with Lewy bodies.

NAME **Steven N. Austad**		POSITION TITLE Professor and Chair	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Uni of CA, Los Angeles	B.A.	1969	English Literature
CA State Uni, Norhtridge	B.A.	1976	Biology
Purdue University	PhD	1981	Biological Sciences

Positions

2014 – present: Distinguished Professor & Chair, Department of Biology, University of Alabama at Birmingham (UAB), Birmingham, AL

- Director. UAB Nathan Shock Center of Excellence in the Basic Biology of Aging.
- Associate Director. UAB Comprehensive Center for Healthy Aging.
- Senior Scientist. UAB Nutrition Obesity Research Center.
- Senior Scientist. UAB Center for Exercise Medicine.
- Senior Scientist. UAB Diabetes Research Center
- Steering Committee Member. UAB Mentored Experiences in Research, Instruction, and Teaching (MERIT) Program.
- Scientist. UAB Alzheimer's Disease Center.
- Executive Committee Member. UAB Comprehensive Neuroscience Center.
- Investigator, Evelyn F. McKnight Brain Institute
- Scientific Director, American Federation for Aging Research, New York City, NY
- Co-Director, Nathan Shock Centers Coordinating Center.

Honors and Awards

2018 Outstanding Teacher Award. UAB University Honors Program.

Publications

1. Austad SN, Hoffman JM. 2018. Is antagonistic pleiotropy ubiquitous in aging biology? Evolutionary Medicine and Public Health. doi: 10.1093/emph/eoy033.

2. Beltrán-Sánchez H, Austad SN, Finch CE. 2018. Comment on "The plateau of human mortality: demography of longevity pioneers." Science Sept. 28:361(6409). pii: eaav1200. doi: 10.1126/science.aav1200.

3. Barzilai N, Cuervo AM, Austad SN. 2018. Viewpoint: Aging as a biological target for prevention and therapy. Journal of the American Medical Association. doi: 10.1001/jama.2018.9562. Oct 2;320(13):1321-1322.

4. Hood WR, Austad SN, Bize P, Jimenez AG, Montooth KL, Schulte PM, Scott GR, Sokolova K, Treberg JR, Salin K. 2018. The mitochondrial contribution to animal performance, adaptation, and life-history variation. Integrative and Comparative Biology. 58(3):480-485. doi:10.1093/icb/icy089/504967.

5. Austad SN. 2018. The comparative biology of mitochondrial function and the rate of aging. Integrative and Comparative Biology. 58(3):559-566. doi: 10.1093/icb/icy068.

6. Hoffman JM, O'Neill DG, Creevy KE, Austad SN. 2018. Do female dogs age differently than male dogs? Journals of Gerontology: Biological Science and Medical Sciences 73(2), 150-156. DOI: 10.1093/gerona/glx061. PMC5861885-24.

NAME **Karlene Ball**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Indiana University	B.A.	1974	Psychology
Northwestern University	M.S.	1977	Psychology
Northwestern University	Ph.D.	1979	Psychology
Northwestern University	Post-doc	1979-1984	Psychology

Positions
Director, UAB Edward R. Roybal Center for Research on Applied Gerontology
Associate Director, Comprehensive Center for Healthy Aging
Investigator, Evelyn F. McKnight Brain Institute

2018 Accomplishments
Submission of the Roybal Center competing renewal. The UAB Roybal Center Theme is Translational Research on Aging and Mobility. This theme was selected due to the prevalence of mobility problems among older adults, and the impact that mobility problems have on everyday function. The theme has expanded and broadened over time and now includes additional areas of research in which mobility can be threatened (e.g., pain and obesity), as well as other factors which can impact adherence to behavioral interventions.

In Press:
1. Pope, C.N., Stavrinos, D., Vance, D.E., Ball, K., & Fazeli, P.L. (in press, 2018). A pilot investigation on the effects of combination transcranial direct current stimulation and speed of processing cognitive remediation therapy on simulated driving behavior in older adults with HIV. Transportation Research Part F: Traffic Psychology and Behaviour.
2. Pope, C. N.*, Stavrinos, D., Vance, D. E., Woods, A. J., Bell, T. R., Ball, K. K., & Fazeli, P. L. (in press). A pilot investigation on the effects of combination transcranial direct current stimulation and speed of processing cognitive remediation therapy on simulated driving behavior in older adults with HIV. Transportation Research Part F: Psychology and Behaviour.

NAME **Etty (Tika) Benveniste**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
CA State Uni, Chico, CA	B.A.	1978	Biological Sciences
Univ of CA, Los Angeles, CA	PhD	1983	Immunology
Univ of CA, Los Angeles, CA	Post-doc	1986	Neuroimmunology

Positions

2015 – present Co-Director, UAB Multiple Sclerosis Center, UAB
2015 – present Senior Associate Dean for Research Administration, UAB
2016 – present Charlene A. Jones Endowed Chair in Neuroimmunology, UAB
2017 – present Senior Vice President for Basic Sciences
2017 – present, Investigator, Evelyn F. McKnight Brain Institute

Honors, Awards, and Advisory Committees

Chair: SOM Executive Risk Oversight Committee, 2015-
Chair: SOM Master Space Planning Committee, 2016-
Member: Science and Technology Honors Program Leadership Council, 2016-
Co-Chair: Search Committee, Director of the Comprehensive Cancer Center, 2016-2017
Member: Search Committee, Vice President for Research, 2016
Chair: Internal Advisory Board, UAB Women's Reproductive Health Research (WRHR) Program, 2016-
Member: Search Committee, Chair of Neurobiology, 2017
Member: Internal Advisory Board, Institute for Cancer Outcomes and Survivorship, 2017

Professional Societies

Past-President, American Society of Neurochemistry, 2015- 2017
Member: Council of Faculty and Academic Societies, Association of American Medical Colleges, 2013-
Member: Council of Faculty and Academic Societies, Administrative Council, 2013-
Member: AAMC Distinguished Research Award Selection Committee, 2014, 2015
Member: Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) Program Committee Advisory Board, 2017-

Publications 2018

1. MicroRNA-31 is required for astrocyte specification. Meares GP, Rajbhandari R, Gerigk M, Tien CL, Chang C, Fehling SC, Rowse A, Mulhern KC, Nair S, Gray GK, Berbari NF, Bredel M, Benveniste EN, Nozell SE. Glia. 2018; 66(5):987-998. NIHMSID: NIHMS933728
2. CK2 Controls Th17 and Regulatory T Cell Differentiation Through Inhibition of FoxO1. Gibson SA, Yang W, Yan Z, Qin H, Benveniste EN., Journal of immunology (Baltimore, Md. : 1950). 2018; 201(2):383-392. NIHMSID: NIHMS968993
3. Protein Kinase CK2: An Emerging Regulator of Immunity. Gibson SA, Benveniste EN. Trends in immunology. 2018; 39(2):82-85. NIHMSID: NIHMS928484
4. Role of the JAK/STAT signaling pathway in regulation of innate immunity in neuroinflammatory diseases. Yan Z, Gibson SA, Buckley JA, Qin H, Benveniste EN. Clinical immunology (Orlando, Fla.). 2018; 189:4-13. NIHMSID: NIHMS893697

NAME **Mark Bolding**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION Clemson University University of Alabama at Birmingham	DEGREE B.S. Ph.D.	YEAR(S) 1997 2012	FIELD OF STUDY Mathematics Vision Science/Philosophy

Current Positions:

2017 – Present: Associate Professor, Radiology, UAB
Associate Professor
Division of Advanced Medical Imaging
Department of Radiology
Director, Civitan International Neuroimaging Laboratory
Investigator, Evelyn F. McKnight Brain Institute
mbolding@uabmc.edu
205-975-4060

Areas of interest:

Vision - visual behavior and visual cognition; psychiatry – schizophrenia; imaging - MRI and neuroimaging

2018 Publications:

1. Bing, C., Hong, Y., Hernandez, C., Rich, M., Cheng, B., Munaweera, I.Chopra, R. (2018). Characterization of different bubble formulations for blood-brain barrier opening using a focused ultrasound system with acoustic feedback control.. Sci Rep, 8(1), 7986. doi:10.1038/s41598-018-26330-7
2. Fellows, B. D., Ghobrial, N., Mappus, E., Hargett, A., Bolding, M., Dean, D., & Mefford, O. T. (2018). In vitro studies of heparin-coated magnetic nanoparticles for use in the treatment of neointimal hyperplasia.. Nanomedicine, 14(4), 1191-1200. doi:10.1016/j.nano.2018.02.011
3. Dowla, S., Pendergrass, M., Bolding, M., Gower, B., Fontaine, K., Ashraf, A.,Goss, A. (2018). Effectiveness of a carbohydrate restricted diet to treat non-alcoholic fatty liver disease in adolescents with obesity: Trial design and methodology.. Contemp Clin Trials, 68, 95-101. doi:10.1016/j.cct.2018.03.014

NAME **Michael Brenner**		POSITION TITLE Emeritus Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Harvard College, Cambridge, MA Churchill College, Cambridge, UK Uni CA Berkeley, CA	A.B. PhD	1965 1966 1970	Biochemical Sciences Biochemistry

Positions

2015-present Emeritus Professor, Department of Neurobiology, UAB
2007-2015 Professor Department of Neurobiology, UAB
2006 – present Investigator, Evelyn F. McKnight Brain Institute
1999-2007 Associate Professor, Department of Neurobiology, UAB
1992-1998 Research Scientist, National Institute of Neurological Disorders and ("Special Expert") Stroke, NIH, Bethesda, MD, Laboratory of Dr. John Hallenbeck
1987-92 Research Scientist, National Institute of Neurological Disorders and ("Special Expert") Stroke, NIH, Bethesda, MD., Laboratory of Dr. Ernst Freese
1985-87 ("Expert") Research Scientist, National Institute of Diabetes, Digestive and Kidney Diseases, NIH, Bethesda, MD, Laboratory of Dr. Jun-ichi Tomizawa
1980-84 Associate Professor, Temple Univ. Medical School, Philadelphia, PA
1979-80 Visiting Assistant Professor, Boston College, Chestnut Hill, MA
1979-80 Research Associate, Harvard University, Cambridge, MA
1976-79 Associate Professor, Harvard University, Cambridge, MA
1972-76 Assistant Professor, Harvard University, Cambridge, MA, Department of Biology

Patent:

United States Patent Number 5,627,047, "Astrocyte-Specific Transcription of Human Genes." granted 6 May 1997, covers the use of the human GFAP regulatory sequences for targeting expression of genes to astrocytes in culture or in transgenic animals. Licensing agreements have been executed with several biotechnology companies.

Publications 2018

Brenner, M., Messing, A. and Olsen, M. L. (2018). AP-1 and the injury response of the GFAP gene. J Neurosci Res. doi:10.1002/jnr.24338

NAME **Cynthia J. Brown**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
East Carolina Uni, Greenville, NC	B.S.	1982	Physical Therapy
North Carolina St, Raleigh, NC		1991	
Univ of North Carolina, Chapel Hill	MD	1996	
UAB	M.S.	2006	Public Health

Positions

2003 – present Investigator, Birmingham/Atlanta VA Geriatric Research, Education and Clinical Center (GRECC)

2003 – present Medical Director, Birmingham/Atlanta GRECC Fall Prevention and Mobility Clinic

2003 – present Staff Physician, UAB Hospital, UAB Highlands and the Veterans Affairs Medical Center, Birmingham, Alabama

2008 – 2013 Quality Improvement Director, Acute Care for Elders (ACE) Unit, UAB Highlands, Birmingham, Alabama

2017 – present Investigator, Evelyn F. McKnight Brain Institute

Publications

1. Dermody G, Sawyer P, Kennedy R, Brown CJ. ED Utilization and Self-Reported Symptoms in Community-Dwelling Older Adults. *J Emerg Nurs*. 2017 Jan;43(1):57-69. PMID: 28131350.

2. Kennedy RE, Sawyer P, Williams CP, Lo AX, Ritchie CS, Roth DL, Allman RM, Brown CJ. Life-Space Mobility Change Predicts 6-Month Mortality. *J Amer Geriatr Soc.* 2017; 65(4):833-838. PMID: 28152168.

3. Clay OJ, Perkins M, Wallace G, Crowe M, Sawyer P, Brown CJ. Associations of Multimorbid Medical Conditions and Health-related Quality of Life among Older African American men. *J Gerontol B Psychol Sci Soc Sci*. 2017 Jun 27. [Epub ahead of print] PMID: 28658936.

4. Balentine CJ, Leverson G, Vanness D, Knight S, Turan J, Brown CJ, Kennedy G, Chen H, Bhatia S. Selecting Post-Acute Care Settings After Abdominal Surgery: Are We Getting It Right? *Am J Surg*. 2017 Sep 20. [Epub ahead of print] PMID: 28951065.

5. Stec MJ, Thalaker-Mercer A, Mayhew DL, Kelly NA, Tuggle C, Merritt EK, Brown CJ, Windham ST, Dell'Italia LJ, Bickel CS, Roberts BM, Vaughn KM, Isakova-Donahue I, Many G, Bamman MM. Randomized, Four-Arm, Dose-Response Clinical Trial to Optimize Resistance Exercise Training for Older Adults with Age-Related Muscle Atrophy. *Exp Gerontol*. 2017;99:98-109. PMID: 28964826.

Manuscripts in preparation

Kennedy RE, Williams CP, Sawyer P, Lo AX, Connelly K, Nassel A, Brown CJ. Life-space Predicts Healthcare Utilization in Community-Dwelling Older Adults (Journal of Aging and Health)

NAME **Christy Carter**		POSITION TITLE Research Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION Univ of Colorado Univ of North Carolina	DEGREE B.A. Ph.D.	YEAR(S) 1991 1998	FIELD OF STUDY Psychology Psychology

Positions

06/18 – present Investigator, Evelyn F. McKnight Brain Institute
01/16-present Program Director, Education Programs, Department of Aging & Geriatric Research, College of Medicine, University of Florida
07/12-present Research Assistant Professor, Department of Aging & Geriatric Research, College of Medicine, University of Florida (Multi-mission track, non-tenure accruing)
04/05-07/12 Assistant Professor, Department of Aging & Geriatric Research, College of Medicine, University of Florida, (tenure accruing)
2007-2008 North Florida South Georgia VAMC, Associate Director for Research, Geriatric Research, Education & Clinical Center, (non- tenure accruing,)
09/04-03/05 Assistant Professor, Wake Forest University, Department of Internal Medicine, Section on Geriatrics & Gerontology, School of Medicine, (tenure accruing)
07/01-08/04 Instructor, Department of Internal Medicine, Section on Geriatrics & Gerontology, Wake Forest University, (non-tenure accruing)
09/99-06/01 Research Associate, Department of Internal Medicine, Section on Geriatrics & Gerontology, Wake Forest University, (non-tenure accruing)

Honors, Awards, and Advisory Committees

2016 UF COM Teaching Incentive Award
2016 Online Education Excellence Award in the category of Graduate Course
2014 Fellow, Gerontological Society of America
2010 Online Education Excellence Award in the category of Graduate Course
2008 Outstanding Rating, US Department of Veterans Affairs
2003 Young Investigator Award, American Geriatrics Society
2001 Bloch Post-Doctoral Fellow Award, American Geriatrics Society
2001 "Physical Ability in Aged and Dwarf (dw/dw) Rats: Isolating Growth Hormone Effects", American Federation for Aging Research (AFAR)/Pfizer
1996 Travel Award to Annual Meeting, Neurobehavioral Teratology Society
1995 National Research Service Fellowship Award (NRSA) (#MH11262 F31) at University of North Carolina, Chapel Hill, The National Institute of Mental Health (NIMH)

Publications 2018

Schorr A, Carter C, Ladiges W. The potential use of physical resilience to predict healthy aging. Pathobiol Aging Age Relat Dis 2018;8:1403844. doi: 10.1080/20010001.2017.1403844. eCollection 2018.

Loftus TJ, Kannan KB, Carter CS, et al. Persistent injury-associated anemia in aged rats. Exp Gerontol 2018;103:63-68.:10.1016/j.exger.2018.01.001. Epub Jan 4.

NAME **Jeremy J. Day**		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Auburn University	B.A.	2000-2003	Psychology
University of North Carolina at Chapel Hill	M.A.	2004-2006	Psychology
University of North Carolina at Chapel Hill	PhD	2006-2009	Psychology
University of Alabama at Birmingham		2009-2014	Neurobiology

Positions

2016-present	Scientist, Alzheimer's Disease Center	UAB
2015-present	Associate Scientist, Civitan International Research Center	UAB
2014-present	Graduate Faculty	UAB
2014-present	Assistant Professor, Dept. of Neurobiology (Primary)	UAB
2014-present	Assistant Professor, Dept. of Genetics (Secondary)	UAB
2014-present	Assistant Professor, Dept. of CDIB (Secondary)	UAB
2014-present	Assistant Professor, Dept. of Psychology (Secondary)	UAB
2014-present	Investigator, Evelyn F. McKnight Brain Institute	
UAB		

Publications

1. Stefanelli, G., Azam, A.B., Walters, B.J., Brimble, M.A., Gettens, C.P., Bouchard-Cannon, P., Cheng, H-Y.M., Davidoff, A.M., Narkaj, K., **Day, J.J.**, Kennedy, A.J., & Zovkic, I.B. (2018). Learning and age-related changes in genome-wide H2A.Z binding in the hippocampus. *Cell Reports* 22:1-8.

2. McMeekin, L.J., Li, Y., Crossman, D.K., **Day, J.J.,** Li, Y., Detloff, P.J., & Cowell, R.M. (2018). Cell-specific deletion of PGC-1a from medium spiny neurons causes transcriptional alterations and age-related motor impairment. *The Journal of Neuroscience* 38(13):3273-3286.

Publications (other)

3. Gallus, N.V.N., Simon, R., Salisbury, A.J., Revanna, J.S., Bunner, K.D., Savell, K.E., Sultan, F., & **Day, J.J.** (2018). Functional modulation of activity-dependent transcription by non-coding enhancer RNAs. *BioRxiv*. doi: https://doi.org/10.1101/270967.

4. Savell, K.E., Bach, S.V., Zipperly, M.E., Revanna, J.S., Goska, N.A., Tuscher, J.J., Duke, C.G., Sultan, F.A., Burke, J.N., Williams, D.M., Ianov, L., & **Day, J.J.** (2018). A neuron-optimized CRISPR/dCas9 activation system for robust and specific gene regulation. *BioRxiv*. doi: https://doi.org/10.1101/371500.

NAME **Lynn Dobrunz**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Harvard University, Cambridge, MA	B.S.	1988	Engineering Science
Johns Hopkins, Baltimore, MD	PhD	1994	Biomedical Engineering
Salk Institute, La Jolla, CA	Postdoc	1999	Molecular Neurobiology

Positions

2014-present Associate Director, UAB Comprehensive Neurosciences Center
2008-present Associate Professor, Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL.
2012-present Secondary appointment, UAB Department of Cell, Developmental and Integrative Biology
2006-present Member, UAB Civitan International Research Center
2006-present Member, UAB Comprehensive Neurosciences Center
2006-present Investigator, Evelyn F. McKnight Brain Institute
2005-present Member, UAB Center for Aging
2002-2012 Secondary appointment, UAB Department of Physiology and Biophysics
1999-2008 Assistant Professor, Department of Neurobiology, University of Alabama at Birmingham

Honors, Awards, and Advisory Committees

1988 Magna Cum Laude, Harvard University
1988 Phi Beta Kappa
1988-1989 National Science Foundation Award for Creativity in Engineering
1988-1989 Able Wolman Fellowship, The Johns Hopkins School of Medicine
1999-2000 Howard Hughes Medical Institute Career Development Award
2010-2014 Member, NIH MNPS Study Section
2014 Member, NIH Committee of Visitors
2014-2017 Member, NIH BRAIN Initiative Review Panel
2015 Member, NIH Conte Center Review Panel

AWARDS/HONORS:

2018 UAB Healthcare Leadership Academy

AME **Lloyd J. Edwards**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Morehouse College, Atlanta, GA	B.A.	1980	Mathematics
Univ of Maryland, College Park, MA	M.A.	1982	Mathematical Statistics
Univ of NC, Chapel Hill, NC	PhD	1990	Biostatistics

Positions

August 2017 Present, Professor and Chair - Department of Biostatistics, UAB
2017-present Investigator, Evelyn F. McKnight Brain Institute
2000 – 2017 Associate Professor - Department of Biostatistics University of North Carolina, Chapel Hill Chapel Hill, North Carolina
1998 - 2000 - Associate Professor - Department of Community and Family Medicine / Division of Biometry Head of Department of Medicine Biostatistics Unit Duke University Medical Center Durham, North Carolina
1998 Associate Professor, Dept Biostatistics, Uni of NC, Chapel Hill, NC
1991 – 1998 Assistant Professor - Department of Biostatistics, University of North Carolina - Chapel Hill, Chapel Hill, North Carolina
1990 – 1991 Visiting Assistant Professor - Department of Biostatistics, University of North Carolina - Chapel Hill, Chapel Hill, North Carolina
1986 – 1990 Graduate Research Assistant, University of North Carolina - Chapel Hill, Chapel Hill, North Carolina
1983 – 1986 Software Engineer/Statistician, TRW Defense Systems Group, McLean, Virginia

Organizations/Honors

Member, UNC IRB Scientific Review Committee (August 2012 - May 2017)
Member of Clinical Research Committee of the Cystic Fibrosis Foundation (Oct 2011 - June 2017)

Publications 2018

1. Byron C Jaeger, Lloyd J Edwards, Matthew J Gurka (2018). An R2 statistic for covariance model selection in the linear mixed model. J Applied Statistics 46:164-184.
2. Bryce B Reeve, Lloyd J Edwards, Byron C Jaeger, Pamela S Hinds, Carlton Dampier, Debbie S Gipson, David T Selewski, Jonathan P Troost, David Thissen, Vaughn Barry, Heather E Gross, Darren A DeWalt (2018). Assessing responsiveness over time of the PROMIS®pediatric symptom and function measures in cancer, nephrotic syndrome, and sickle cell disease. Quality of Life Research 27 (1), 249-257.
3. Mohammed Siddiqui, Eric K Judd, Byron C Jaeger, Hemal Bhatt, Tanja Dudenbostel, Bin Zhang, Lloyd J Edwards, Suzanne Oparil, David A Calhoun (2018). Out-of-Clinic Sympathetic Activity Is Increased in Patients With Masked Uncontrolled Hypertension. Hypertension 73:132–141.

NAME		POSITION TITLE	
Gamlin, Paul Douglas Roger		Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of Cambridge, England	B.A.	1978	Zoology
State Uni of New York, Stony NY	PhD	1984	Neurobiology

Positions

2013 - present Professor, Department of Ophthalmology, University of Alabama at Birmingham
2013-present Investigator, Evelyn F. McKnight Brain Institute
1997 – present Professor, Departments of Biomedical Engineering, Psychology, and Neurobiology, University of Alabama at Birmingham
1996 - 2013 Professor, Department of Vision Sciences, University of Alabama at Birmingham
2003 - 2013 Director, UAB Center for the Development of Functional Imaging
2004 - 2012 Chairman, Department of Vision Sciences
2001 - 2006 Director, UAB Neuroscience Graduate Program
2002 - 2003 Associate Director, UAB Center for the Development of Functional Imaging
1995 - 1999 Director, UAB Vision Science Research Center
1995 - 1996 Scientist, Neurobiology Research Center, University of Alabama at Birmingham
1992 - 1996 Associate Professor, Departments of Physiological Optics and Psychology; Scientist, Vision Science Research Center, University of Alabama at Birmingham
1989 - 1992 Assistant Professor, Departments of Physiological Optics and Psychology; Associate Scientist, Vision Science Research Center, UAB
1989 Research Assistant Professor, Department of Physiological Optics, School of Optometry, University of Alabama at Birmingham
1984 - 1986 Research Associate, Neurosciences Program, UAB

Honors, Awards, and Advisory Committees

1984 Sigma Xi Award for Achievement in Research
1993 American Optometric Student Asso Award for Excellence in Basic Science Teaching
1997 UAB President's Award for Excellence in Teaching
2009 Irene E. Loewenfeld Lecturer
2014 RPB Walt and Lilly Disney Award for Amblyopia Research

Publications 2018

1. McCullough KT, Boye SL, Fajardo D, Calabro KR, Peterson JJ, Strang CE, Chakraborty D, Gloskowski S, Haskett S, Samuelsson S, Jiang H, Witherspoon CD, Gamlin PD, Maeder ML, Boye S. Somatic gene editing of GUCY2D by AAV-CRISPR/Cas9 alters retinal structure and function in mouse and macaque. Hum Gene Ther. 2018 Oct 25. doi: 10.1089/hum.2018.193. [Epub ahead of print] PubMed PMID: 30358434.
2. May PJ, Warren S, Gamlin PDR, Billig I. An Anatomic Characterization of the Midbrain Near Response Neurons in the Macaque Monkey. Invest Ophthalmol Vis Sci. 2018 Mar 1;59(3):1486-1502. doi: 10.1167/iovs.17-23737. PubMed PMID: 29625471; PubMed Central PMCID: PMC5861931.

NAME **Cristin F. Gavin**		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Birmingham-Southern College			
Birmingham-Southern College	BS, Biology	2006	Biology
University of Alabama at Birmingham	BA, Philosophy	2006	Philosophy
	PhD, Neuroscience	2012	Neuroscience

Positions

-Assistant Professor, Primary, Department of Neurobiology, Secondary, Department of Psychology, University of Alabama at Birmingham
-Co-Director, Undergraduate Neuroscience Program
-Co-Director, Post-baccalaureate Research Education Program
- Investigator, Evelyn F. McKnight Brain Institute

Honors, Awards, and Advisory Committees

Awards and Honors

2017-present Science and Technology Honors Program Leadership Council, Neuroscience representative
2017-present CLSS Process & Policy Advisory Group, Joint Health Sciences Programs Representative
2016-present Honors College Faculty Fellow

Manuscripts submitted but not yet accepted

Genome-wide transcription and DNA methylation profiling in an APP mouse model of Alzheimer's Disease
Guzman-Karlsson MC, Fleming LL, Brown JA, Sesay F, Lewis JW, Hawkins KE, Kordasiewicz HB, Motley T, Swayze EE, Ecker DJ, Michael TP, Gavin CF, Kennedy, AJ, Day JJ, Roberson ED, Sweatt JD (under review at *Nature Communications*)

Manuscripts in preparation

Actin-myosin dynamics regulate structural plasticity in single spines.
Cristin F. Gavin, Maria Rubio, Erica Young, Courtney Miller and Gavin Rumbaugh. Department of Neuroscience, The Scripps Research Institute, Jupiter, FL

BOOKS AND BOOK CHAPTERS

Book Chapters

Synaptic Plasticity
Cristin F. Gavin and W. Anne Burton Theibert. Essentials of Modern Neuroscience, by Franklin Amthor, W. Anne Burton Theibert, David G. Standaert, and Erik Roberson, McGraw Hill, 2017 (in press)

NAME **David S. Geldmacher**		POSITION TITLE Patsy and Charles Collat Endowed Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of Rochester	B.A.	1978	
SUNY Health Science Center at Syracuse, NY	M.D.	1986	

Positions

2011 – present Professor of Neurology (tenured)
Professof of Neurobiology
2014 – present Patsy can Charles Collat Endowed Professor in Neuroscience UAB
2014 – present Investigator, Evelyn F. McKnight Brain Institute , UAB

Publications

Pilonieta G, Geldmacher DS. Accelerating dementia care. Practical Neurology 2018;17 (3):50-52

Presentations

1. Geldmacher DS. The evolving concept of Alzheimer''s disease Alabama Academy of Neurology Annual meeting. Hoover, AL August 2018
2. Geldmacher DS, Natelson Love M, Hammond, J, Pilonieta G. Impaired Clock Drawing Test in Progressive Supranuclear Palsy and Corticobasal Syndrome: Differences from Alzheimer Disease. Presented at the 70th Annual American Academy of Neurology Meeting, Los Angeles, April 2018.
3. Boxer A,Qureshi I, Grundman M, Tirucherai GS, Bechtold C, Ahlijanian M, Kolaitis G, Golbe LI, Honig LS, Isaacson S, Grossman M, McFarland NR, Litvan I, Geldmacher DS, Xie T, Bordelon Y, Tuite P, O'Suilleabhain P, Zesiewicz T. Multiple Ascending Dose Study of the Tau-Directed Monoclonal Antibody BIIB092 in Patients With Progressive Supranuclear Palsy. Presented at the 70th Annual American Academy of Neurology Meeting, Los Angeles, April 2018.
4. Geldmacher DS, Hammond J, Pilonieta G. The Alabama Brief Cognitive Screener Serves as a Method for Monitoring Cognitive Function Over Time in Neurodegenerative Disorders. Presented at the American Association of Geriatric Psychiatry Annual Meeting, Honolulu, March 2018
5. Hammond J, Pilonieta G, Natelson Love M, Perez S, Geldmacher DS. The Clock Drawing Test Serves as a Time Saving Surrogate for the Alabama Brief Cognitive Screener as a Method to Distinguish Mild Cognitive Impairment and Alzheimer's Disease. Presented at the American Association of Geriatric Psychiatry Annual Meeting, Honolulu March 2018

NAME **Adam Gerstenecker**		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
So Illinois Univ at Carbondale	B.A.	2001	
Murray State University	M.S.	2007	
University of Louisville	PhD	2014	

Positions

2016 – present Assistant Professor UAB, Department of Neurology
03/16 – present Faculty Member, UAB Multiple Sclerosis Center
09/16 – present Faculty Research Member, UAB Alzheimer's Disease Center
2017 – present Investigator, Evelyn F. McKnight Brain Institute

Publications 2018

Manuscripts in press:

1. Gerstenecker, A., Grimsley, L., Otruba, B., Cowden, L., Marson, D. C., Triebel Gerstenecker, K., Martin, R. C., & Roberson, E. D. (in press) Medical Decision-Making in progressive supranuclear palsy: A Comparison to other Neurodegenerative Disorders. Parkinsonism and Related Disorders.
2. Gerstenecker, A. & Lazar, R. M. (in press). Language Recovery Following Stroke. The Clinical Neuropsychologist.

Manuscripts submitted but not yet accepted

1. Duff-Canning, S., Armstrong, M. J., Reginold, W., Fox, S., Nisenbaum, R., Meaney, C. A., Rothberg, B., Tang-Wai, D. F., Gill, D., Eslinger, P. J., Zadikoff, C., Kennedy, N., Marshall, F. J., Mapstone, M., Chou, K. L., Persad, C., Litvan, I., Mast, B. T., Gerstenecker, A., Weintraub, S., & Marras, C. (in review). Predictors of cognitive change in Parkinson's disease: A two year follow-up study.
2. Wood, K. H., Memon, R. A., Joop, A., Pilkington, J., Gerstenecker, A., Triebel, K., Bamman, M. M., & Amara, A. W. (in review). Slow-wave sleep is associated with cognitive function in patients with Parkinson's disease.
3. Marson, D. C., Gerstenecker, A., Triebel, K. L., Martin, R. C., Edwards, K., Pankratz, V. S., McPherson, T., Swenson-Dravis, D., & Petersen, R. C. (in resubmission). Detecting Functional Impairment in Preclinical Alzheimer's Disease Using a Brief Performance Measure of Financial Skills.
4. Gerstenecker, A., Martin, R., Triebel, K., & Marson, D. (in review). Anosognosia of Financial Ability Begins to Emerge in Mild Cognitive Impairment.

NAME **Matthew S. Goldberg**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of Michigan	B.S.	1990	Physics
Yale University	PhD	1998	Mol Biophysics
Harvard Medical School	Postdoc	1997- 2003	
Brigham and Women's Hospital	Postdoc	1997 - 2003	

Positions

Year	Rank/Title	Institution
2014-present	Associate Professor	University of Alabama Birmingham
2014-present	Investigator, Evelyn F. McKnight Brain Institute	UAB

Honors, Awards, and Advisory Committees

Grant reviewer March 2017: French Federation for Brain Research (FRC)
Grant reviewer April 2017: Michael J. Fox Foundation for Parkinson's Research
Ad-hoc reviewer Feb 5-7, 2017 Reston, VA: US Army Medical Research and Materiel Command CDMRP Parkinson's Research Program

Publications 2018

1. Creed, RB and Goldberg MS*, New Developments in Rat Models of Parkinson's Disease, Movement Disorders, 2018 May:717-729. *corresponding author
2. Tran AN, Walker K, Harrison DG, Chen W, Mobley J, Hocevar L, Hackney JR, Sedaka RS, Pollock JS, Goldberg MS, et al. Reactive species balance via GTP cyclohydrolase I regulates glioblastoma growth and tumor initiating cell maintenance. Neuro Oncol. 2018 20:1055-1067.

Manuscripts submitted but not yet accepted

1. Ding X, Goldberg MS*, Phosphorylated alpha-synuclein increases LRRK2 abundance, inclusion formation and cell toxicity, submitted. *corresponding author
2. Creed, RB and Goldberg MS*, Analysis of □lpha-synuclein pathology in PINK1 knockout rats, BMC Neuroscience, submitted. *corresponding author

NAME **Michelle Gray**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Alabama State University, Montgomery, AL	B.S.	1997	Biology
Ohio State University, Columbus, OH	PhD	2003	Molecular, Cellular, and Developmental Biology
University of California, Los Angeles, Los Angeles, CA	Post doc	2008	Neurogenetics/mouse genetics

Positions

2010 - present Assistant Professor, Dixon Scholar in Neuroscience, Department of Neurology, Center for Neurodegeneration and Experimental Therapeutics, University of Alabama at Birmingham

2010 – present Investigator, Evelyn F. McKnight Brain Institute

Publications 2018

Wood TE, Barry J, Yang Z, Cepeda C, Levine MS, **Gray M**. Mutant huntingtin reduction in astrocytes slows disease progression in the bachd conditional huntington's disease mouse model. Hum Mol Genet. 2018 Oct 12. doi: 10.1093/hmg/ddy363

Published Abstracts

1. Annesha King, Tara Wood, Efrain Rodriquez, and Michelle Gray. BACHD/dnSNARE mice reveal the contribution of gliotransmission to Huntington's disease pathogenesis, Society for Neuroscience, San Diego, CA November 2018
2. Annesha King, Tara Wood, Efrain Rodriquez, and Michelle Gray. Huntington's Disease and astrocytes. Comprehensive Neuroscience Center Retreat, University of Alabama at Birmingham, Birmingham, AL, October 2018
3. Annesha King and Michelle Gray. BACHD/dnSNARE mice reveal the contribution of gliotransmission to Huntington's disease pathogenesis Southeastern Neurodegenerative Disease Conference, Orlando, FL, September 2018
4. Kristian Anderson, Efrain Rodriquez, Annesha King and Michelle Gray. Plakophilin 2 expression in the hearts of a Huntington's Disease mouse model. Center for Community Outreach and Development, Summer Science Institute. University of Alabama at Birmingham. Birmingham, AL, August 2018.
5. Annesha King, Tara Wood, Efrain Rodriguez and Michelle Gray. University of Alabama at Birmingham Center for Neurodegeneration and Experimental Therapeutics 6th Annual Retreat. Birmingham, AL, March 2018.
6. Annesha King and Michelle Gray. University of Alabama School of Medicine Research Roundtable. Birmingham, AL, March 2018.
7. Yujie Zhu, Isaac Shamblin, Sameen Ali, Michelle Gray and Sabine Huke. Cardiac Conduction Disease in Huntington's Disease Mouse Model (BACHD). Experimental Biology, San Diego, CA, April 2018.

NAME **Alecia K. Gross**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Univ of New Hampshire	B.S.	1993	Biochemistry
Brandeis University	PhD	2002	Biochemistry
Baylor College of Medicine	Postdoc	2006	

Positions

Year	*Rank/Title*	*Institution*
2006 – 2011	Assistant Professor	UAB Department of Vision Sciences
2006 – present	Secondary Appointment	UAB Department of Cell, Developmental and Integrative Biology
2007 – present	Secondary Appointment	UAB Department of Neurobiology
2008 – present	Secondary Appointment	UAB Department of Biochemistry and Molecular Genetics
2006 – present	Scientist	UAB Comprehensive Neuroscience Center
2006 – present	Scientist	UAB Vision Science Research Center
2006 – present	Scientist	UAB Civitan International Research Center
2006 – present	Scientist	UAB Evelyn F. McKnight Brain Institute
2011 – present	Project Leader	UAB Intellectual and Developmental Disabilities Research Center
2011 – present	Associate Professor (with tenure)	UAB Department of Vision Sciences

Honors, Awards, and Advisory Committees

2016-present Director, Cell, Molecular and Developmental Biology Graduate Program

Publications 2018

1. Bales KL, Ianov L, Kennedy AJ, Sweatt JD and Gross AK. (2018) Autosomal dominant retinitis pigmentosa rhodopsin mutant Q344X drives specific alterations in chromatin complex gene transcription. Molecular Vision 15 (24) 153-164. PMCID: PMC5815338.

2. Lewis WR*, Bales KL, Revell DZ, Croyle MJ, Engle SE, Song CL, Malarkey EB, Uytingco CR, Shan D, Anotnellis PK, Nagy TR, Kesterson RA, Mrug MM, Martens JR, Berbari NF, Gross AK*, Yoder BK. (2018) Mks6 mutations reveal tissue- and cell-type specific roles for the cilia transition zone. FASEB J Aug22:fj201801149R [Epub ahead of print] PMID: 30133325 (PMCID in preparation). https://www.ncbi.nlm.nih.gov/pubmed/30133325

Presentations at scientific meetings

1. May 2018: "Retinal degeneration and protein mislocalization in Mks6 mutants," poster presentation, Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Honolulu, HI

2. May 2018: "Congenital knock-out of transition zone protein BBS5 reveals cone-rod dystrophy with light-induced protein mislocalization," ARVO Annual Meeting, Honolulu, HI

NAME **John Hablitz**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
State University of New York, Plattsburgh	B.A.	1968	Physiological
University of Houston, Houston,	M.A.	1970	Psychology
University of Houston, Houston,	PhD	1972	Physiological Psychology

Positions

1989 – present Professor of Physiology and Biophysics, University of Alabama at Birmingham
1995 – present Professor of Psychology, University of Alabama at Birmingham
1996 – present Professor of Neurobiology, University of Alabama at Birmingham
2002 – present Vice Chair, Department of Neurobiology
2006 – present Investigator, Evelyn F. McKnight Brain Research Institute

Guest reviewer, Behavioral Neuroscience, Brain Research, British Journal of Pharmacology, Cellular and Molecular Neurobiology, Epilepsy Research, Experimental Biology and Medicine, Experimental Neurology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Physiology, Molecular Pharmacology, Neuroscience, Neuroscience Letters, Pflugers Archive.

Publications (2018)

1. Bohannon AS, Hablitz JJ. Developmental Changes in HCN Channel Modulation of Neocortical Layer 1 Interneurons. Front Cell Neurosci. 2018, 12:20. PMID: 29440994; PMC: 5797556
2. Bohannon AS, Hablitz JJ. Optogenetic dissection of roles of specific cortical interneuron subtypes in GABAergic network synchronization. J Physiol. 2018, 596:901-919. PMID: 29274075; PMC5830415

NAME **Jeremy H. Herskowitz**		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of North Carolina Chapel Hill, NC	B.S.	2001	Chemistry
Emory University Atlanta, GA	Ph.D.	2007	Microbiology and Molecular Genetics

Positions

2014- Assistant Professor, Departments of Neurology and Neurobiology, University of Alabama at Birmingham

2014 - Investigator, McKnight Brain Institute

Publications 2018

1. Froula JM, Henderson BW, Gonzalez JC, Vaden JH, Mclean JW, Wu Y, Banumurthy G, Overstreet-Wadiche L, Herskowitz JH, Volpicelli-Daley LA. α-Synuclein fibril-induced paradoxical structural and functional defects in hippocampal neurons. Acta Neuropathologica Communications. 6(1):35, 2018. PMID: 29716652. PMCID: PMC5928584.
2. Greathouse KM, Boros BD, Deslauriers JF, Henderson BW, Curtis KA, Gentry EG, Herskowitz JH. Distinct and Complementary Functions of Rho kinase isoforms ROCK1 and ROCK2 in Prefrontal Cortex Structural Plasticity. Brain Structure and Function. 2018. PMID: 0196430. DOI: 10.1007/s00429-018-1748-4.
3. Boros BD, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spine remodeling accompanies Alzheimer's disease pathology and genetic susceptibility in cognitively normal aging. Neurobiology of Aging. In press.

Presentations at Scientific Meetings

1.Boros BD, Curtis KA, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spines provide cognitive resilience against Alzheimer's disease. Alzheimer's Association International Conference. Chicago, IL, 2018.
2. Henderson BW, Bach SV, Day JJ, Herskowitz JH. RhoA-associated kinases ROCK1 and ROCK2 mediate amyloid-β induced synaptic degeneration in Alzheimer's disease. Society for Neuroscience. San Diego, CA, 2018.
3. Walker CK, Boros BD, Greathouse KM, Curtis KA, Ramdas, R, Herskowitz JH. Dendritic spine pathology links tauopathy mouse models to Alzheimer's disease. Society for Neuroscience. San Diego, CA, 2018.
4. Boros BD, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spine structural remodeling accompanies Alzheimer's disease pathology in cognitively normal human aging. Society for Neuroscience. San Diego, CA, 2018.
5.Curtis KA, Boros BD, Greathouse KM, Gearing M, Herskowitz JH. Dendritic spines provide cognitive resilience against Alzheimer's disease. Society for Neuroscience. San Diego, CA, 2018.
6.Vo HT, Phillips ML, Herskowitz JH, King GD. Klotho regulates the activity of hippocampal neurons. Society for Neuroscience. San Diego, CA, 2018.

NAME **Gwendalyn D. King**		POSITION TITLE Assistant Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Purdue University	B.S.	1999	
University of Michigan	M.S.	2002	
University of Michigan	PhD	2004	
Cedars Sinai Medical Center	Post-doc	2008	
Boston University School of Med	Post-doc	2011	

Positions

2008 – present, Assistant Professor, Department of Neurobiology, UAB
2008 – present, Investigator, Evelyn F. McKnight Brain Institute

Honors, Awards, and Advisory Committees

2017 UAB Graduate Program in Biomedical Sciences Outstanding Service Award - Faculty

Publications 2018

Krick S, Grabner A, Baumlin N, Yanucil C, Helton S, Brosche A, Sailland J, Geraughty P, Viera L, Russell DW, Wells JM, Xu X, Gaggar A, Barnes J, King GD, Campos M, Faul C, Salathe M. Fibroblast Growth Factor 23 and klotho contribute to airway inflammation. Eur Respir J, (2018), PMCID in process.

Reviews

Vo H, Laszczyk AM, King GD. Klotho, the key to healthy brain aging? Brain Plasticity (2018), PMCID in progress

Manuscripts submitted but not accepted

1. Shah K, King GD, Jiang H. A chromatin modulator sustains self-renewal and enables differentiation of postnatal neural stem cells. Stem Cell Reports, 2018, under review
2. Barnes J, Duncan D, Helton E, Hutchenson S, Kurundkar D, Logsdon N, Locy M, Garth J, Farver C, King GD, Faul C, Kulkarni T, De Andrade J, Thannickal V, Krick S. Role of Fibroblast Growth Factor 23 and klotho cross talk in idiopathic pulmonary fibrosis. American Journal of Physiology – Lung Cellular and Molecular Physiology 2018, under review.
3. Jones LD, Laszczyk AM, Pollock T, Garcia ML, Fox SF, Quarles DE, King GD. FGF23-deficiency causes cognitive impairment. Submission 2018.

Manuscripts in preparation

Vo H, Garcia ML, Phillips M, King GD. KL regulates homeostatic plasticity of hippocampal neurons. Submission 2018.

NAME **David C. Knight**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Truman State University, Kirksville MO	B.S.	1994	Psychology
University of Wisconsin, Milwaukee WI	M.S.	1999	Clinical Psychology
West Virginia Uni, Morgantown WV	Intern	2002	Neuropsychology
University of Wisconsin, Milwaukee WI	PhD	2002	Clinical Psychology
National Institute of Mental Health, Bethesda MD	Postdoc	2007	Cognitive Neuro

Positions

2013-Present Associate Professor, Department of Psychology and Neurobiology, UAB
2014-Present Co-Director, Undergraduate Neuroscience Program, UAB
2014-present Investigator, Evelyn F. McKnight Brain Institute
2017 – Present Director, Graduate Behavioral neuroscience Program, UAB

Other Experience and Professional Memberships

1995-Present Society for Neuroscience
1996-Present Organization for Human Brain Mapping
2004-Present Pavlovian Society
2016-Present Council on Undergraduate Research
2016-Present Faculty for Undergraduate Neuroscience
2007-Present Editorial Board: The Open Neuroimaging Journal
2016 Associate Editor: The Open Neuroimaging Journal
2017-Present Editor-in-Chief: The Open Neuroimaging Journal

Publications

Manuscripts under review

1. Grant, M. M., *Wood, K. H., White, D., *Wheelock, M. D., & Knight, D. C. (Submitted). Influence of early life stress on fear conditioning in subregions of the human amygdala.
2. Guo, J., Mrug, S., & Knight, D. C. (Submitted). Emotion Socialization and Internalizing Problems in Late Adolescence and Emerging Adulthood: Coping Styles as Mediators.
3. Grant, M. M., Black, S., *Wood, K., White, D., *Wheelock, M. D., Hollon, S. D. & Knight, D. C. (Submitted). Stressor Controllability Rapidly Mitigates Deleterious Effects of MDD on Medial and Lateral PFC.
4. *Harnett, N. G., Goodman, A. M., and Knight, D. C. (Submitted). PTSD-related neuroimaging abnormalities in brain function, structure, and biochemistry.
5. *Orem, T. R., *Wheelock, M. D., *Goodman, A. M., *Harnett, N. G., *Wood, K. H., *Gossett, E. W., Granger, D. A., Mrug, S. & Knight, D. C. (Submitted). Amygdala and prefrontal cortex activity varies with individual differences in the emotional response to psychosocial stress.
6. Zhang, Y. Taub, E., Purvis, J., Uswatte, G., Mark V. W., Knight, D. C. (Submitted). Neurometabolic changes in adult ischemic stroke evaluated by proton magnetic resonance spectroscopy (1H-MRS).

* Indicates a trainee; t Indicates a co-mentored trainee; IF = Impact Factor

NAME **Adrienne C. Lahti**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Universite de Liege, Liege, Belgium	MD	1978	
Universite de Liege, Liege, Belgium	Resident	1983	
University of Maryland, Baltimore,	Research Fellow	1989	
University of Michigan, Ann Arbor, MI	Resident	1992	

Positions

2017-Present	Investigator, Evelyn F. McKnight Brain Institute
9/2014-Present	Patrick H. Linton Professor of Psychiatry
9/2012- Present	Professor with Tenure
1/2012-Present	Professor, Secondary Appointment, Psychology, UAB
2011-Present	Professor, Biomedical Engineering, Secondary Appointment, UAB
10/2010-Present	Professor, of Psychiatry and Behavioral Neurobiology, UAB

Publications

1. A Longitudinal Multimodal Neuroimaging Study to Examine Relationships Between Resting State Glutamate and Task Related BOLD Response in Schizophrenia.
Cadena EJ, White DM, Kraguljac NV, Reid MA, Maximo JO, Nelson EA, Gawronski BA, Lahti AC. Front Psychiatry. 2018 Nov 29;9:632. doi: 10.3389/fpsyt.2018.00632. eCollection 2018.
2. Relationship between Cortical Excitation and Inhibition and Task-Induced Activation and Deactivation: A Combined Magnetic Resonance Spectroscopy and Functional Magnetic Resonance Imaging Study at 7T in First-Episode Psychosis. Overbeek G, Gawne TJ, Reid MA, Salibi N, Kraguljac NV, White DM, Lahti AC. Biol Psychiatry Cogn Neurosci Neuroimaging. 2018 Oct 16. pii: S2451-9022(18)30256-8. doi: 10.1016/j.bpsc.2018.10.002. [Epub ahead]
3. Neurometabolic abnormalities in the associative striatum in antipsychotic-naïve first episode psychosis patients. Sivaraman S, Kraguljac NV, White DM, Morgan CJ, Gonzales SS, Lahti AC. Psychiatry Res Neuroimaging. 2018 Nov 30;281:101-106. doi: 10.1016/j.pscychresns.2018.06.003.
4. Digital Trajectories to Care in First-Episode Psychosis. Birnbaum ML, Rizvi AF, Faber K, Addington J, Correll CU, Gerber C, Lahti AC, Loewy RL, Mathalon DH, Nelson LA, Voineskos AN, Walker EF, Ward E, Kane JM. Psychiatr Serv. 2018 Sep 26:appips201800180. doi: 10.1176/appi.ps.201800180. [Epub ahead of print]
5. Cognitive control network dysconnectivity and response to antipsychotic treatment in schizophrenia. Cadena EJ, White DM, Kraguljac NV, Reid MA, Jindal R, Pixley RM, Lahti AC. Schizophr Res. 2018 Aug 8. pii: S0920-9964(18)30491-2. doi: 10.1016/j.schres.2018.07.045. [Epub ahead of print]
6. A Review of Recent Advances in Ultrasound, Placed in the context of pain Diagnosis and Treatment. Bobola MS, Chen L, Ezeokeke CK, Kuznetsova K, lahti, AC, Lou W Myroniv AN, Schimek, NW, Selby ML, Mourad PD. Curr Pain Headache Rep. 2018 Jul 10;22(9): 60.
7. Digital Trajectories to Care in First-Episode Psychosis. Birnbaum ML, Rizvi AF, Faber K, Addington J, Correll CU, Gerber C, Lahti AC, Loewy RL, Mathalon DH, Nelson LA, Voineskos AN, Walker EF, Ward E, Kane JM. Psychiatr Serv. 2018 Sep 26:appips201800180. doi: 10.1176/appi.ps.201800180. [Epub ahead of print]

NAME **Charles Seth Landefeld**		POSITION TITLE Professor and Chair	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Harvard University			
Oxford University	B.A.	1974	History and Science
Yale University	B.A.	1978	Philosophy/Theology
UCSF	MD	1979	Medicine
UCSF	Intern	1980	Medicine
Harvard University	Resident	1982	Medicine
Weatherhead, Case Western Uni	Fellow	1985	Internal Medicine
Academic Alliance for Internal		1991	Academic Mgmt
Medicine		2007	Executive Leadership

Positions

University of Alabama at Birmingham

2012-present Professor and Chair, Department of Medicine, University of Alabama at Birmingham

2012-present Board of Directors, University of Alabama Health Services Foundation 2012-present Executive Committee, University of Alabama Health Services Foundation 2012-present Board of Directors, University of Alabama at Birmingham Health System (including Audit and Finance Committees)

2017-present Investigator, Evelyn F. McKnight Brain Institute

Biographical Sketch

Seth Landefeld is Chair, Department of Medicine and the Spencer Chair in Medical Science Leadership.

Dr. Landefeld completed his undergraduate work at Harvard and New College, Oxford, where he was a Rhodes Scholar. He received his M.D. from Yale. He trained in internal medicine at UCSF and in clinical epidemiology at Harvard Medical School. He is a member of the American Society for Clinical Investigation and the Association of American Physicians and was recently a Fellow at the Center for Advanced Study in the Behavioral Sciences at Stanford University. He is Past-President of the Society of General Internal Medicine and served on the Boards of the American Geriatrics Society, the Association of Directors of Geriatric Academic Programs, and San Francisco's Institute on Aging. In 2011, Dr. Landefeld received the Robert J. Glaser Award "For Exceptional Contributions to Education and Research", the highest award of the Society of General Internal Medicine.

Dr. Landefeld's work has aimed to transform and personalize health care to meet the needs of older Americans and their families in this Aging Century, a century that will be dominated by the medical and social issues of the aging global population. His research has improved outcomes of older persons with serious illness. In landmark studies of acutely ill hospitalized elders, Landefeld and his colleagues invented the Acute Care for Elders (ACE) Unit, a novel method for improving patients' functional outcomes. This model has been adapted at medical centers nationwide. In incremental studies of anticoagulant therapy, he developed the first valid, reliable measure of hemorrhagic complications, designed and validated risk assessment indices for anticoagulant-related bleeding, developed interventions to prevent major bleeding, and demonstrated their efficacy in clinical trials.

NAME **Robin Lester**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of Bristol, U.K.	B.Sc.	1984	
University of Bristol, U.K.	PhD	1988	
Vollum Institute, Portland, OR	Post-doc	1991	

Positions

1992-1993 Research Assistant Professor / Baylor College of Medicine
1993-1995 Assistant Professor / Neuroscience / Baylor College of Medicine
1995-1996 Associate Scientist / NRC, University of Alabama at Birmingham
1996-2001 Assistant Professor / Neurobiology, University of Alabama at Birmingham
2006-present, Investigator, Evelyn F. McKnight Brain Institute
2001-2011 Associate Professor / Neurobiology, University of Alabama at Birmingham
2011-present Professor / Neurobiology, University of Alabama at Birmingham

Research

The critical role of CNS nicotinic acetylcholine receptors (nAChRs) in tobacco addiction has focused our attentions on understanding the overall function of these receptors in the brain both under physiological and diseased conditions. nAChRs are ligand-gated ion channels composed of five individual protein subunits that cause neuronal excitation when bound and activated by synaptically released neurotransmitter, acetylcholine, or exogenous drugs like nicotine. Molecular biological studies have characterized at least twelve receptor subunits that can be assembled together in numerous combinations giving rise to a wide variety of nAChRs with distinct functional roles. It is because of this diversity that nAChRs have been implicated in a range of CNS behaviors from pain sensation to learning and memory, and multiple pathological states such as epilepsy and schizophrenia. High-resolution electrophysiological (patch-clamp) techniques combined with intracellular calcium measurements provide the most powerful way of examining these receptors. The physiological and pharmacological properties of single and multiple nAChR channels in isolated membrane patches and whole cells can be fully resolved using these methods. The roles of nAChRs at both pre and postsynaptic zones of central synapses can be studied by recording from visually identified neurons in brain slice preparations. These approaches are complemented by molecular biological approaches that allow the expression and characterization of known cloned nAChRs and the determination of nAChR RNAs from CNS neurons (by single cell RT-PCR). Thus, a full array of methods are available to address the following types of questions. How do nAChRs contribute to synaptic transmission and plasticity? How are nAChRs regulated by intracellular calcium, phosphorylation and the cytoskeleton? How does chronic nicotine affect the long-term functioning of the various nAChRs and untilmately lead to drug craving and relapse?

NAME **Farah Lubin**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION AL State Univ, Montgomery, AL SUNY, Binghamton, NY	DEGRE E B.S. PhD	YEAR(S) 1996 2001	FIELD OF STUDY Cell/Moleular Bio Biology

ACADEMIC APPOINTMENTS:

2015-Present Associate Professor with Tenure, Dept. of Neurobiology, Dept. of Cell, Developmental and Integrative Biology, and Genetics Dept., University of Alabama at Birmingham, Birmingham, AL

2015-Present Director, Comprehensive Neuroscience Center EEG core

2014-Present Director, NINDS Neuroscience Roadmap Scholar Program; Co-Director: Lori L. McMahon, PhDat University of Alabama at Birmingham, Birmingham, AL

2009-Present Investigator, Evelyn F. McKnight Brain Institute , University of Alabama at Birmingham, Birmingham, AL

Publications 2018

1. J.L. Cohen, A.E. Ata1, N.L. Jackson, E.J. Rahn, W.M. Webb, F.D. Lubin, and S.M. Clinton. Amygdalar expression of the microRNA miR-101a and its target Ezh2 contribute to rodent anxiety-like behavior. 2017. European Journal of Neuroscience Oct; 46(7):2241-2252.
2. R. M. Hauser, D.C. Henshall, and F.D. Lubin. The epigenetics of epilepsy and its progression. 2018. Neuroscientist Apr;24(2):186-200.
3. K. Corder, M. Cortes, A. Bartley, S. Lear, F.D. Lubin, and L. Dobrunz. Anxiety-like behavior in adolescent mice is enhanced by selective knockdown of GAD67 in Neuropeptide Y interneurons. 2018. PLOS ONE Jul 19;13(7):e0200809.
4. T. J. Jarome, G.A. Perez, R.M. Hauser, K.M. Hatch and F.D. Lubin. EZH2 Methyltransferase Activity Controls Pten Expression and mTOR Signaling During Fear Memory Reconsolidation. 2018. J. Neuroscience Aug 29;38(35):7635-7648.
5. W.M. Webb , M.E Pepin , B.W. Henderson, V. Huang, A.A. Butler, J.H. Herskowitz, A.R. Wende, A.E. Cash, and F.D. Lubin. Methylation of NF-κB by the SETD6 Methyltransferase Plays an Essential Role in Hippocampus-Dependent Memory Formation. 2018. Biological Psychiatry Under Review.
6. V. Huang , A.A. Butler, and F.D. Lubin. Telencephalon transcriptome analysis of chronically stressed adult zebrafish. 2018. Nature Scientific Reports Under Review.
7. R.G. Sanchez, R.R. Parrish, M. Rich, W.M. Webb, R.M. Lockhart, K. Nakao, L. Ianov, S.C. Buckingham, D.R. Broadwater, A. Jenkins, N.C de Lanerolle, M. Cunningham, T. Eid, K. Riley, and F.D. Lubin. Human and rodent Temporal Lobe Epilepsy is characterized by changes in O-GlcNAc homeostasis. 2018. Neurobiology of Disease Under Review.

Manuscripts in preparation

Timothy J. Jarome, Anderson A. Butler, Gabriella Perez, Megan C. Rich, and Farah D. Lubin. Histone Ubiquitination controls heterochromatin and euchromatin dynamics during memory consolidation. In preparation for submission.

NAME **Roy C. Martin**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION Augusta College, Augusta, GA Louisiana State University West Virginia University	DEGREE BS PhD Postdoctoral Fellowship	YEAR(S) 1984 1990-1995 1995	FIELD OF STUDY Psychology Clinical Psychology Neuropsychology

Positions
Associate Professor, Department of Neurology
Investigator, Evelyn F. McKnight Brain Institute

Book Chapters
1. Hamilton J, Martin RC, Stone J, Sherwood I. The costs and burden of psychogenic nonepileptic seizures in context: PNES and other conversion disorders. In S.C. Schachter, W.C. LaFrance (Eds.), Gates and Rowan's Nonepileptic Seizures (4th Edition), 2018; pg. 31-43.
2. Wiseman H, Mercer G, Martin R, Reuber M. Health related quality of life: Utility and limitations in patients with psychogenic nonepileptic seizures. In S.C. Schachter, W.C. LaFrance (Eds.), Gates and Rowan's Nonepileptic Seizures (4th Edition), 2018; pg. 165-177.

Publications 2018
1. Faught E, Szaflarski JP, Richman J, Funkhouser E, Martin RC, Piper K, Dai C, Juarez L, Pisu M. Risk of pharmacokinetic interactions between antiepileptic and other drugs in older persons and factors associated with risk. Epilepsia 2018; 59 (3): 715-723.
2. Gerstenecker A, Triebel K, Eakin A, Martin R, Marson D. Exploring the factor structure of financial capacity in cognitively normal and impaired older adults. Clinical Gerontologist 2018, 41 (1): 33-41.
3. Martin R, Gerstenecker A, Triebel K, Falola M, McPherson T, Cutter G, Marson D. Declining financial capacity in mild cognitive impairment: A six-year longitudinal study. Archives of Clinical Neuropsychology In Press.

NAME **Lori McMahon**		POSITION TITLE Professor Dean, Graduate School	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
-Southern Illinois University, Edwardsville, IL	B.A.	1987	Biology/Chemistry
-St. Louis Health Science Ctr, St. Louis, MO	PhD	1993	Neuropharmacology
-Duke University, Durham, NC	Postdoc	1998	Neurophysiology

Positions

1998 Primary Appointment – Department of Physiology and Biophysics
Cell, Developmental & Integrative Biology
Secondary Appointments: Neurobiology
Other Appointments:
Evelyn F. McKnight Brain Institute , Neurology, Civitan International Research Center, comprehensive Ctr for healthy Aging, General Clinical Research Center, Electrical & Computer Engineering, Medicine,

Professional Experience

2012-pres	Scientist, Center for Exercise is Medicine
2012-pres	Professor, UAB Dept of Cell, Developmental, and Integrative Biology
2012-pres	Jarman F Lowder Endowed Professor of Neuroscience
2012-pres	Director, Comprehensive Neuroscience Center
2012-pres	Member, UAB SOM Dean's Executive Committee
2012-2015	Associate Director, Comprehensive Center for Healthy Aging
2013-2016	Associate Director, UAB Evelyn F. McKnight Brain Institute
2015-pres	Dean, UAB Graduate School

Awards and Honors

2018 Keynote Speaker, Southeastern Association of Advocates for Women in Science and Med
2018 Women to Watch, Birmingham Business Journal

Council and Committees

2017-pres Member, Program committee, Society of Biological Psychiatry
2017-2020 Member, Government and Public Affairs Committee, Society for Neuroscience
McMahon, Lori L.
2018 NIH NINDS Special Emphasis Panel: ZNS1 SRB-E (11), Jan 2018, chair
2018 Chair, Program Committee Society for Biological Psychiatry Annual Meeting 2018
2018 NIH NIMH 2018/10 ZMH1-ERB-M-07, June 2018
2018 NIH Study Section CDIN, October 2018

Complete List of Published Work:

https://www.ncbi.nlm.nih.gov/pubmed/?term=mcmahon+LL

NAME **James H. Meador-Woodruff, MD**		POSITION TITLE Heman E. Drummond Professor and Chairman Department of Psychiatry	
EDUCATION/TRAINING **EDUCATION** 09/73-06/76 Manchester High School, Richmond, Virginia 09/76-05/80 University of Richmond, Richmond, Virginia; B.S. in Chemistry, minor subject Mathematics (*summa cum laude*) 08/80-05/84 Medical College of Virginia Commonwealth University, Richmond, Virginia; M.D. **POSTDOCTORAL TRAINING** 06/84-06/85 Intern, Department of Psychiatry, University of Michigan 07/85-06/89 Resident, Department of Psychiatry, University of Michigan (*Graduation with Distinction*) 07/85-12/89 Postdoctoral Fellow, Mental Health Research Institute,			
INSTITUTION AND LOCATION Department of Psychiatry and Behavioral Neurobiology University of Alabama at Birmingham SC 560C	DEGR EE M.D.	YEAR(S) 1984	FIELD OF STUDY Psychiatry

Positions

04/06-present Heman E. Drummond Professor, Department of Psychiatry and Behavioral Neurobiology, University of Alabama at Birmingham

04/06-present Professor of Neurobiology, University of Alabama at Birmingham

04/06-present Senior Scientist, Civitan International Research Center, University of Alabama at Birmingham

04/06-present Investigator, Evelyn F. McKnight Brain Institute

8/06-present Senior Scientist, Center for Glial Biology in Medicine, University of Alabama at Birmingham

10/06-present Senior Scientist, Comprehensive Neuroscience Center, University of Alabama at Birmingham

07/07-present Senior Scientist, Center for Neurodegeneration and Experimental Therapeutics, University of Alabama at Birmingham

01/09-present Senior Scientist, Evelyn F. McKnight Brain Institute, University of Alabama at Birmingham

04/09-present Senior Scientist, Alzheimer's Disease Research Center (ADRC), University of Alabama at Birmingham

Publications 2018

1.Hammond JC, Shan D, Meador-Woodruff JH, and McCullumsmith RE: Evidence of Glutamatergic Dysfunction in the Pathophysiology of Schizophrenia. In Popoli M, Diamond D, and Sanacora G (editors), Stress at the Synaptic Level: Synaptic Stress and Pathogenesis of Neuropsychiatric Disorders. New York: Springer. In press.

2. Mueller TM, Kim P, Meador-Woodruff JH: Fractionation of Subcellular Compartments from Human Brain Tissue. In Burger C and Velardo MJ (editors): Glutamate Receptors. A volume in the series Methods in Molecular Biology. New York: Humana Press/Springer Publishing Group. In press.

NAME **Kazutoshi (Kazu) Nakazawa**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
-Keio University School of Medicine, Tokyo, Japan -Graduate School of Medicine, Keio University, Tokyo, Japan ological Science rontier Science Program, Riken nstitute, Japan- Picower Center for Learning	MD PhD Post-doctoral Post-doctoral	1981 – 1987 1987 – 1991 1991- 1995 1995 - 2003	Medicine Biological Science

Positions

2018 – present Fellow in Neuroscience, Druge Discovery Division, Southern Research Institute
2013 – present Investigator, Evelyn F. McKnight Brain Institute

Publications 2018

Nakao K, Jeevakumar V, Jiang SZ, Fujita Y, Diaz NB, Pretell Annan CA, Eskow Jaunarajs KL, Hashimoto K, Belforte JE, Nakazawa K (2018). Schizophrenia-Like Dopamine Release Abnormalities in a Mouse Model of NMDA Receptor Hypofunction. Schizophr Bull. doi: 10.1093/schbul/sby003. [PMID 29394409]

NAME **Vladimir Parpura, MD, PhD**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
School of Medicine in Split, University of Zagreb, Croatia	MD	1989	Biological role of gangliosides
Iowa State University, Ames, IA	PhD	1993	Glia-neuron signaling

Positions
Professor, Departments of Neurobiology, Biomedical Engineerting, Cell, Developmental and Integrative Biology, Visioin Sciences, UAB
Investigator, Evelyn F. McKnight Brain Institute

Research
My current research includes: i) studying the modulation of calcium-dependent glutamate release from astrocytes in health and disease; ii) assessing the role of the enteric glia in gut functions; iii) visualization of vesicular/receptor trafficking; iv) examination of the nature and energetics of interactions between exocytotic proteins using single molecule detection approaches; v) development of scaffolds and dispersible materials, most notably modified carbon nanotubes, which can be used in repair after brain injury, vi) development of biosensors (e.g. botulinum toxin and nanofabricated carbon-based detectors, and viii) bio-mimetic micro-robotics. It should be noted that the work done in these overlapping categories is highly interrelated. Parpura has been interfacing neuroscience with nanoscience/nanotechnology, synthetic biology and biomedical engineering.

Teaching
3/7/18 “Astroglial cells release glutamate by regulated exocytosis in health and disease”. International Clinical Research Centre, St. Anne’s University Hospital Brno, Czech Republic
3/25/18 “The role of enteric glia in regulation of gut motility: Implications for oculo-dento digital dysplasia”, In Colloquium 1: Glia in model Organisms (Chair: Margaret Ho, Shanghai Tech University; co-Chair: Vladimir Parpura, UAB) 49th Annual Meeting of the American Society for Neurochemistry, Riverside, CA.
9/8/18 “The role of enteric glia in regulation of gut motility: Implications for oculo-dento digital dysplasia”, in Japanese Society for Neurochemistry (JSP)/International Society for Neurochemistry (ISN) Joint Symposium: Neurochemistry of Neuron-Glia interaction (Chairs: Schuichi Koizumi, University of Yamanashi, Japan and Hiroko Baba, Tokyo University of Pharmacy and Life Sciences, Japan) The Joint Congress of the 40th Annual Meeting of Japanese Society of Biological Psychiatry and the 61th Annual Meeting of the Japanese Society for Neurochemistry, Kobe, Japan
10/8/18 “Rheology in Astrocytes: Mechanically-induced vesicular glutamate release from astrocytes at the interface of signaling and metabolism.” International Biophysical School "Academician Radoslav K. Andjus" (NERKA): “Mechanobiology”, Kotor, Montenegro (delivered by Skype)

AWARDS/HONORS
2017-2018 McNulty Civitan Scientist Award, The UAB Civitan International Research Center and The Chesapeake District of Civitan International

NAME **Craig Powell, MD, PhD**		POSITION TITLE Professor and Chair	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Louisiana State University	B.S.	1984-1988	Zoology
Baylor College of Medicine	MD, PhD	1988-1997	Neuroscience

Positions

University of Alabama at Birmingham School of Medicine, Birmingham, AL
Dept. of Neurobiology
Director, Civitan International Research Cen**ter** 9/1/18-pres
University of Alabama at Birmingham, Birmingham, AL
Dept. of Neurobiology and Depts. of Neurology, Pediatrics, Psychology, Psychiatry, &Cell Developmental & Integrative Biology
Professor with Tenure 9/1/18-pres
University of Alabama at Birmingham School of Medicine, Birmingham, AL
Dept. of Neurobiology and Depts. of Neurology, Pediatrics, Psychology, Psychiatry, &Cell Developmental & Integrative Biology
Investigator, The Evelyn F. McKnight Brain Institute 9/1/18-pres
University of Alabama at Birmingham School of Medicine, Birmingham, AL

Publications

Research Papers

Srivastava, S., Scherrer, B., Prohl, A., Filip-Dhima, R., Kapur, K., Kolevzon, A., Buxbaum, J., Berry-Kravis, E., Soorya, L., Thurm, A., Powell, C., Bernstein, J.A., Warfield, S.K., & Sahin, M., Developmental Synaptopathies Consortium (2018) Volumetric Analysis of the Basal Ganglia and Cerebellar Structures in Patients with Phelan-McDermid Syndrome. Pediatric Neurology, online September 21, (in press).

Invited Lectures

American Neurological Association (ANA) Behavioral Neurology Special Interest Group, Atlanta, GA, 2018
UNC, Neuroscience Center and Carolina Institute for Developmental Disabilities Seminar, Chapel Hill, NC, 2018
UAB, Neurobiology Seminar, Birmingham, AL, 2018

NAME **Lucas Damian Pozzo-Miller**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Universidad nacional de Cordoba, Argentina	B.S.	1985	Physical/Natural Sci
Universidad Nacional de Cordoba Argentina	M.S.	1986	Physical/Natural Sci
Universidad Nacional de Cordoba Argentina	PhD	1989	
Case Western Reserve Uni Cleveland, OH	Postdoc	1992	Hippocampal synapse
Roche Institute of Molecular Bio Nutley, NJ	Postdoc	1995	Hippocampal synapse
Master Teacher Program UAB		2006	
Healthcare Leadership Academy		2013	

Positions

1995-1998 *Senior Staff Fellow* (Research-track Assistant Professor). Laboratory of Neurobiology (Tom Reese, Lab Chief, member US National Academy of Sciences), National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health (NIH), Bethesda, MD.

1998-2006 *Assistant Professor* (tenure-track), Department of Neurobiology, School of Medicine, UAB. Secondary appointments in the Departments of Cell Biology and Physiology & Biophysics (currently Cell, Developmental & Integrative Biology), School of Medicine, UAB.

2006-present *Scientist*, Civitan International Research Center; *Investigator*, Evelyn F. McKnight Brain Institute; *Scientist*, Center for Glial Biology in Medicine; *Scientist*, Vision Science Research Center; *Member*, Comprehensive Neuroscience Center, UAB.

2006-2009 *Associate Professor* (with tenure), Department of Neurobiology, School of Medicine, UAB.

2006-present *Investigator*, Evelyn F. McKnight Brain Institute

2009-present *Professor*, Department of Neurobiology, School of Medicine, UAB.

2013-present *Professor*, Department of Neurobiology, College of Arts & Sciences, UAB. 2014-present Secondary appointment in the Department of Neurology, School of Medicine, UAB.

2014-present *Associate Director*, Comprehensive Neuroscience Center, UAB.

2016-present *Interim Scientific Co-Director*, Civitan International Research Center, UAB.

2017-present *Co-Director*, Neuroscience Theme, Graduate Biomedical Sciences (GBS), UAB.

Publications (2018)

Loss of *Mecp2* Causes Atypical Synaptic and Molecular Plasticity of Parvalbumin-Expressing Interneurons Reflecting Rett Syndrome-Like Sensorimotor Defects.

Morello N, Schina R, Pilotto F, Phillips M, Melani R, Plicato O, Pizzorusso T, **Pozzo-Miller** L, Giustetto M.; eNeuro. 2018 Sep 24;5(5). pii: ENEURO.0086-18.2018. doi: 10.1523/ENEURO.0086-18.2018. eCollection 2018 Sep-Oct.

NAME **Sumanth D. Prabhu**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Pennsylvania State Uni, PA	B.S.	1983	Science
Jefferson Medical Collge, PA	MD	1985	Medicine
Uni of Pittsburgh, PA	Intern & Resident	1988	
University of Pittsburgh, PA	Research Fellow	1989	
Univ of TX Health Science Ctr, Antonio, TX		1992	

Positions

Professor, Department of medicine – Cardiovascular Disease; Cell, developmental and Integrative Biology; Biomatrix Eng Regen Med Ctr; Comprehensive Diabetes Center, Ctr for Exercise

Investigator, Evelyn F. McKnight Brain Institute

Honors, Awards, and Advisory Committees

Member, NIH MPOR Study Section 7/2015-6/2019

Dr. Prabhu received a BS degree in Science from Penn State University and his MD degree from Jefferson Medical College in Philadelphia. He did internal medicine residency at the University of Pittsburgh and a cardiology fellowship at the University of Texas Health Science Center at San Antonio. He was a cardiology faculty there as well as at the University of Louisville, before his arrival to UAB as Director of the Division of Cardiovascular Disease. He is also Director of the UAB Comprehensive Cardiovascular Center. Dr. Prabhu serves as a Consulting Editor of Circulation Research and is a member of the American Society for Clinical Investigation.

Dr. Prabhu is actively studying fundamental mechanisms of pathological remodeling in the failing heart, with a particular focus on inflammatory pathways (tumor necrosis factor, nuclear factor-kappaB) and immune cell types (e.g., macrophages). He is also interested in the interplay between inflammatory signaling and cardiac stem cell-mediated repair in the failing heart. Our clinical studies examine the effects of mechanical support (ventricular assist devices) on forward and reverse remodeling in human heart failure.

NAME **Erik Roberson**		POSITION TITLE Associate Professor Virginia B. Spencer Professor of Neuroscience	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Princeton University, Princeton, NJ	A.B.	1990	Molecular Biology
Baylor College of Medicine	PhD	1997	Neuroscience
Baylor College of Medicine	MD	1999	

Positions

2005–08 Assistant Adjunct Professor of Neurology, UCSF
2006–08 Staff Scientist, Gladstone Institute of Neurological Disease 2008–12 Assistant Professor of Neurology, UAB
2012– Associate Professor of Neurology with tenure, UAB
2013–15 Associate Director, UAB Alzheimer's Disease Center
2013– Co-Director, UAB Center for Neurodegeneration and Experimental Therapeutics
2015– Co-Director, Evelyn F. McKnight Brain Institute at UAB
2015– Director, UAB Alzheimer's Disease Center

Concurrent Appointments

2008–12 Assistant Professor of Neurobiology, UAB (joint appointment) 2012– Associate Professor of Neurobiology, UAB (joint appointment)
2008– Investigator, UAB Center for Neurodegeneration and Experimental Therapeutics 2008– Investigator, Evelyn F. McKnight Brain Institute , UAB
2008– Neurologist, UAB Division of Memory Disorders and Behavioral Neurology 2008–Faculty, UAB Graduate School
2008– Faculty, UAB Medical Scientist Training Program
2008– Scientist, UAB Comprehensive Center for Healthy Aging 2010– Scientist, UAB Center for Glial Biology in Medicine

Honors, Awards, and Advisory Committees

- Valedictorian, Washington High School, Cedar Rapids, IA, 1986
- Phi Beta Kappa, 1990
- NIH Medical Scientist Training Program fellowship, 1990–1999
- Baylor College of Medicine Presidential Scholar, 1990–1999
- Baylor College of Medicine Dean's Award for Excellence, 1992–1997
- Life & Health Insurance Medical Research Fund Young Scientist Scholar, 1992–1997
- Alpha Omega Alpha, 1999
- UCSF Chief Resident in Neurology, 2002–2003
- S.D. Bechtel, Jr. Young Investigator Award, 2004
- Kathryn Grupe Award for Excellence in Alzheimer's Disease Research, 2005
- Virginia B. Spencer Endowed Scholar in Neuroscience at UAB, 2008–2013
- Fellow, American Neurological Association, 2012
- McNulty Civitan Scientist Award, 2012
- Virginia B. Spencer Endowed Professor of Neuroscience at UAB, 2013–
- Derek Denny-Brown Neurological Scholar Award, American Neurological Association, 2015

Publications

1. Arrant, A.E., V.C. Onyilo, D.E. Unger, and E.D. Roberson. (2018). Progranulin gene therapy improves lysosomal function and microglial pathology associated with frontotemporal dementia and neuronal ceroid lipofuscinosis. J. Neurosci. 38:2341–2358.
- Commentary in Nat. Rev. Neurology, doi:10.1038/nrneurol.2018.35.

2. Burke, S.N., L.S. Gaynor, C.A. Barnes, R.M. Bauer, J.L. Bizon, E.D. Roberson, and L. Ryan. (2018). Shared functions of perirhinal and parahippocampal cortices: Implications for cognitive aging. Trends Neurosci., 41:349–359.
3. Arrant, A.E., A.M. Nicholson, X. Zhou, R. Rademakers, and E.D. Roberson. (2018). Partial Tmem106b reduction does not correct abnormalities due to progranulin haploinsufficiency. Mol. Neurodegen. 13:32.
4. Arrant, A.E., A.J. Filiano, A.R. Patel, M.Q. Hoffmann, N.R. Boyle, S.N. Kashyap, V.C. Onyilo, A.H. Young, and E.D. Roberson. (2018). Reduction of microglial progranulin does not exacerbate pathology or behavioral deficits in neuronal progranulin-insufficient mice. Neurobiol. Dis. 10.1016/j.nbd.2018.11.011.
5. Gerstenecker, A., L. Grimsley, B. Otruba, L. Cowden, D.C. Marson, K. Triebel Gerstenecker, R.C. Martin, and E.D. Roberson. (2018). Medical decision-making capacity in progressive supranuclear palsy. Parkinsonism Rel. Disord. In press.

Publications as part of consortia

63–164. As of 12/3/2018, 102 additional publications as part of the Alzheimer's Disease Genetics Consortium (ADGC), Alzheimer's Disease Neuroimaging Initiative (ADNI), and AL-108-231 Investigators group (PSP clinical research), available on PubMed at this link.

Submitted Manuscripts

1. Sohn, P.D., T.E. Tracy, C. Huang, R. Yan, C.M. Camargo, S.-A. Mok, R. Freilich, J. Baik, E.D. Roberson, C.M. Karch, J. Gestwicki, K. Xu, K.S. Kosik, and L. Gan. Tau-mediated EB3 abnormality impairs axon initial segment plasticity in human iPSC-derived neurons with FTD-tau mutation. Submitted.
2. Guzman-Karlsson, et al. Genome-wide transcription and DNA methylation profiling in an APP mouse model of Alzheimer's disease. Submitted.
3. Kornak, J., et al. Nonlinear Z-score estimation for establishing cognitive norms from the National Alzheimer's Coordinating Center (NACC) dataset. Submitted.
4. Staffaroni, A., et al. Individualized Atrophy-Based Prediction of Dementia Onset in Familial Frontotemporal Lobar Degeneration. Submitted.
5. Staffaroni, A., et al. Assessment of executive function declines in presymptomatic and mildly symptomatic familial frontotemporal dementia: NIH-examiner as a potential clinical trial endpoint. Submitted.

Book Chapters

2. E.D. Roberson. (2018). Treatment of central nervous system degenerative disorders. In Goodman & Gilman's The Pharmacological Basis of Therapeutics, Thirteenth Edition. L. Brunton, ed. (New York: McGraw-Hill Companies, Inc.).
2. E.D. Roberson. Alzheimer's Disease. In Mechanisms of Memory, Third Edition. J.D. Sweatt, E. Klann, eds. (London: Academic Press). In preparation.

Books

Amthor, F., **E.D. Roberson**, A.M. Theibert, and D.G. Standaert. (2018). *Essentials of Modern Neuroscience*. (New York: McGraw-Hill Companies, Inc.) In press.

NAME **Michael Switow Saag**		POSITION TITLE Professor of Medicine Associate Dean for Global Health Director, UAB Center for	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Chemistry, Tulane Uni	B.S.	1977	Chemistry
University of Louisville, Kentucky	MD	1981	Medicine
UAB	Intern	1982	Medicine
UAB	Resident	1984	
UAB	Chief Resident	1985	
UAB	Fellow	1987	
UAB	Post Doc	1987	

Positions

1987 - 2010	Staff Physician, Medical Service Infectious Diseases, Department of Veterans Affairs Medical Center, Birmingham, Alabama
1987 - 2010	Consulting Physician, Cooper Green Hospital, Birmingham, Alabama
1987 - Present	Attending Physician, Department of Medicine, University of Alabama at Birmingham, School of Medicine, Birmingham, Alabama
2009 - Present	Secondary Appointment to Epidemiology, University of Alabama at Birmingham, School of Public Health, Birmingham Alabama
2017 – Present	Investigator, Evelyn F. McKnight Brain Institute

Honors, Awards, and Advisory Committees

2012 - Present	Board Member, Infectious Diseases and Therapy
2012 - Present	Member, WHO Antiretroviral Therapy Guidelines Committee
2013 -	Member, CFAR Sub-Saharan Africa Working Group (CFAR-SSA)
2013 - Present	Member, NIH R13 Grant Review Panel
2013 - Present	Member, NIH NIAID/DIR Board of Scientific Counselors
2013 - Present	Co-Chair, AASLD/IDSA/ IAS-USA Hepatitis C Guidelines Committee
2016-present	Member, United Health Council

Manuscripts in preparation

Gibbons LE, R Fredericksen, JO Merrill, ME McCaul, G Chander, H Hutton, WB Lober, WC Mathews, K Mayer, G Burkholder, JH Willig, MJ Mugavero, MS **Saag**, MM Kitahata, TC Edwards, D Patrick, HM Crane, PC Crane. The PROMIS Alcohol Use Short Form in a Clinical Care Setting. Drug Alcohol Depend (in press).

NAME **David George Standaert**		POSITION TITLE Professor and Chair	
EDUCATION/TRAINING			
INSTITUTION/LOCATION Harvard University Washington University School of	DEGREE A.B. MD/PhD	YEAR(S) 1982 1988	FIELD OF STUDY Biochemistry Medicine, Pharmacolog

Positions

2006 – present	Neurologist, University of Alabama Hospital
2006 – present	Investigator, Evelyn F. McKnight Brain Institute
2011 – present	Chair, UAB Department of Neurology

Honors, Awards, and Advisory Committees

2007-2018 (inclusive) "Best Doctors in America"

Biosketch

Dr. Standaert was named the John N. Whitaker Professor & Chair of Neurology in 2012. Prior to that, he was appointed the John T. and Juanelle D. Strain Endowed Chair by the Board of Trustees of the University of Alabama system, which he held for five years. He received his M.D. and Ph.D. degrees from Washington University in St. Louis in medicine and pharmacology in 1988. He completed a one-year internship in medicine at Jewish Hospital of St. Louis in 1989 and a three-year neurology residency in 1992 at the University of Pennsylvania. He completed a three-year research and clinical fellowship in neurology (movement disorders) at Harvard Medical School Massachusetts General Hospital in 1995. Dr. Standaert is licensed to practice medicine in the states of Massachusetts and Alabama and was board certified in 1993 by the American Board of Psychiatry and Neurology. Dr. Standaert's clinical teaching has consisted of: serving as an attending physician on the MGH Neurology inpatient service, one month each year; teaching residents, fellows and medical students in the Movement Disorders clinic on a weekly basis; and teaching in Resident's clinic about once a month. Classroom teaching has consisted of serving as member of the Core Faculty for Harvard Health Sciences Technology Pharmacology course (HST150) and a lecturer for the Harvard Medical School Human Neuroscience and Behavior course. Dr. Standaert serves as Director of the Center for Neurodegeneration and Experimental Therapeutics, Director of the Division of Movement Disorders in the Department of Neurology, Director of the American Parkinson Disease Association (APDA) Advanced Center for Parkinson Research, and Director of the UAB Bachmann-Straus Dystonia and Parkinson's Disease Center of Excellence. He sees many patients in a weekly clinic and oversees many clinical trials for new treatments in Parkinson's disease.

NAME **Anne Theibert**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Goucher College, Baltimore, MD	B.A.	1979	Chemistry
Johns Hopkins Uni, Baltimore, MD	PhD	1985	Biochemistry
Johns Hopkins Uni, Baltimore, MD	Postdoc	1987	
Johns Hopkins Uni, Baltimore, MD	Postdoc	1991	

Positions

Year	Rank/Title	Institution
2009-present	Undergraduate Neuroscience Program Director	University of Alabama at Birmingham
2006-present	Investigator	Evelyn F. McKnight Brain Institute
2000-present	Associate Professor (primary) Department of Neurobiology	University of Alabama at Birmingham
2000-present	Associate Professor (secondary) Department of Cell, Developmental and Integrative Biology	University of Alabama at Birmingham
2000-2012	Associate Professor (secondary) Department of Physiology and Biophysics	University of Alabama at Birmingham
1996-2000	Assistant Professor (primary) Department of Neurobiology	University of Alabama at Birmingham
1991-1996	Assistant Professor (primary) Department of Cell Biology	University of Alabama at Birmingham

Honors, Awards, and Advisory Committees

Undergraduate Neuroscience Program Director; Undergraduate Neuroscience Program Curriculum Committee; Neurobiology Department Graduate Program Director and Executive Committee Chair; Graduate Biomedical Science (GBS) Steering and Oversight Committee (SOC); GBS Curriculum Committee; GBS Neuroscience Curriculum Committee; Comprehensive Neuroscience Center (CNC) Executive Committee; Science and Technology Honors Program Admissions Committee

NAME **Kristen L. Triebel**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Pittsburg State University	B.A.	2002	
Forest Institute	M.A.	2005	Psychology
Forest Institute	PsyD	2006	Psychology
Coatesville VA Med Ctr, Coatesville, PA	Intern	2006	
Dept of Neurology, UAB	Fellow	2008	

Positions

Year	Rank/Title	Institution
10/2017 - Present	Associate Professor/Neuropsychologist (Tenure-track)	UAB, Neurology
2017-present	Investigator, Evelyn F. McKnight Brain	Institute

Biographical Sketch

Dr. Triebel joined the faculty in 2008 after completing a two-year postdoctoral residency in clinical neuropsychology at UAB. She is board certified in clinical neuropsychology. Her clinical work involves neuropsychological evaluation of adults and older adults with a wide variety of neurological disorders, with a speciality focus in cancer, dementia, and movement disorders (including DBS pre-surgical evaluations). Dr. Triebel is also involved in educating graduate students, interns, and postdoctoral fellows in neuropsychology. She has served as Chair on dissertation committees and provides clinical and research supervision to predoctoral trainees, interns, and postdoctoral fellows. She is the Secretary Elect and member of the board of directors of the National Academy of Neuropsychology (NAN). She currently serves NAN as the Chair of the Membership Committee and Professional Member Advisor of the Student Membership Committee.

Research Interest

Dr. Triebel is a clinician scientist investigating cognitive impairment and functional and quality of life outcomes in patients with cancer-related cognitive impairment and a variety of neurological disorders. She is funded by the American Cancer Society, NIH, and other private organizations. Her research focuses on decisional capacity, cognition, and everyday functioning of patients with a variety of neurological disorders including cancer, traumatic brain injury, mild cognitive impairment, and Parkinson's disease.

NAME **Eroboghene E. Ubogu**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
King's College, Lagos, Nigeria		1991	Secondary School
University of Lagos, Lagos, Nigeria		1992	Pre-medical
Abbey Tutorial College, London, England		1993	Advanced Level
Imperial College School of Medicine London, England, United Kingdom		1998	MBBS

Positions

2013 Professor (tenured), Department of Neurology, University of Alabama at Birmingham Director, Neuromuscular Immunopathology Research Laboratory
Director, Shin J. Oh Muscle and Nerve
Histopathology Director, Electromyography and
Clinical Neurophysiology Director, Clinical
Neurophysiology Residency Program Director,
Neuromuscular Medicine Fellowship Program
Investigator, Evelyn F. McKnight Brain Institute

Presentations

1. Palladino S, Helton ES, Dong C, Ubogu E. The CCR5-CD11d-CD99L2 axis in the pathogenesis of HIV distal sensory neuropathy. Journal of NeuroVirology 2018; 13 (Suppl 1): S64 (Presented at the Joint Meeting of the International Society of Neurovirology and the Society on NeuroImmune Pharmacology, 04/12/2018 Chicago.
2. NN103 BEATMG Study Team. B Cell Targeted Treatment in Myasthenia Gravis (BeatMG) – A Phase 2 Trial of Rituximab in MG: Topline Results (Presented at the 15th International Congress on Neuromuscular Diseases (ICNMD), 07/08/2018 Vienna, Aus.
3. Ubogu, E.E. Glial-derived neurotrophic factor (GDNF): An essential paracrine regulator of the blood-nerve barrier. Department of Molecular Physiology and Biophysics Seminar Series, Baylor College of Medicine, Houston, Texas, 09/18/2018.
4. Jiang N, Ubogu EE. Cervical spine magnetic resonance imaging with neck flexion in the early diagnosis of Hirayama disease. Muscle and Nerve 2018; 58 (Suppl S2): S62 (Presented at the 2018 Annual meeting of the American Association of Neuromuscular and Electrodiagnostic Medicine, October 2018 in Washington, DC).
5. Ubogu, E.E. Investigating the human blood-nerve barrier in health and peripheral nerve disease. 2018 Comprehensive Neuroscience Center Retreat, the University of Alabama at Birmingham, Regions Field Ballroom, Birmingham, Alabama, 10/19/2018.

Publications 2018

1. Dong C, Helton ES, Zhou P, Ouyang X, d'Anglemont de Tassigny X, Pascual A, López-Barneo J, Ubogu EE. Glial-derived neurotrophic factor is essential for blood-nerve barrier functional recovery in an experimental murine model of traumatic peripheral neuropathy. Tissue Barriers 2018; 6:1-22 (on-line version: DOI: 10.1080/21688370.2018.1479570).
2. Liu S, Dong C, Ubogu EE. Immunotherapy of Guillain-Barré syndrome. Human Vaccines & Immunotherapeutics 2018; 28:1-12 (On-line version: DOI: 10.1080/21645515.2018.1493415).

Publications (other) A blueprint for future blood-nerve barrier and peripheral nerve disease research (by Jeff Hansen). Published in UAB School of Medicine News on February 15th, 2018.

NAME **Kristina M. Visscher**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Carleton College, Northfield MN	B.A.	1998	Physics
Washington Uni, St. Louis, MO	PhD	2004	Neuroscience

Positions

2009-2017 Assistant Professor, Neurobiology, UAB,
Secondary appointments in Psychology, Vision Sciences/optometry, Biomedical Engineering, Ophthalmology, Vision Science Research Center, Comprehensive Center for Healthy Aging
2017-present Associate Professor, Neurobiology, UAB
Secondary appointments in Psychology, Vision Sciences/Optometry, Biomedical Engineering, Ophthalmology, Vision Science Research Center, Comprehensive Center for Healthy Aging
2009-present Investigator, Evelyn F. McKnight Brain Institute, UAB

Invited Talks

1. Perceptual Learning Workshop 5th International invited biannual conference (June, 2018) Macular Degeneration as a model for perceptual learning.
2. Evelyn F. and William L. McKnight Brain Institute Annual Inter-Institutional Meeting (April, 2018) McKnight Brain Aging Registry: Imaging update
3. Nathan Shock Center Conference UAB (March, 2018) MRI measures of the Aging Brain
4. Vision Science Research Center, UAB (January, 2018) Understanding Plasticity in the Visual System: Macular Degeneration as a Model System

Peer-reviewed Journal Articles

1. Elkhetali, A. S., Fleming, L. L., Vaden, R. J., Nenert, R., Mendle, J. E., & Visscher, K. M. (2018). Background connectivity between frontal and sensory cortex depends on task state, independent of stimulus modality. NeuroImage, 184(September 2018), 790–800. PMID: 30237034
2. Ross, LA, Webb, CE, Whitaker, C, Hicks, JM, Schmidt, EL, Samimy, S, Dennis, NA, Visscher, KM (2018) The effects of useful field of view training on brain activity and connectivity, Journal of Gerontology B Psychological Sciences Society, 2018. Doi: 10.1093/geronb/gby041 PMID: 29757433

Abstracts

Sims, S.A., DeRamus, T., Pandey, U., Robinson, J., Visscher, K.M. (2018) Structural connections differ for central vs. peripheral V1. Cognitive Neuroscience Society Meeting Abstracts

Graduate Student Teaching

2016-present Course Director: Systems Neuroscience
This course, offered in the spring to neuroscience graduate students, covers basic systems neuroscience concepts for a first year neuroscience graduate student audience.

Primary Graduate Mentor,

Leland Fleming, Ph.D., Neuroscience, Visscher lab
Matthew Defenderfer, Ph.D., Neuroscience, Visscher lab
Mandy Biles, Ph.D., Neuroscience, Visscher lab
Sara Sims, PhD., Psychology, Visscher lab
Jason Vice, PhD, rotating from Vision Science, Visscher lab

NAME		POSITION TITLE	
Jacques I. Wadiche		Associate Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
Northwestern University; IL	B.A.	1984-1988	Neurobio. & Physiology
Vollum Institute, OHSU; Portland, OR	PhD	1992-1998	Neurosci. /
Vollum Institute, OHSU; Portland, OR	Postdoctoral Student	1998-2006	Biophysics Synaptic Transmission
CSHL Imaging Course; Cold Harbor, NY		2003	Neuroimaging

Positions

1987 - 1988 Undergraduate Thesis Fellow, Department of Neurobio. and Physiol., Northwestern University, Evanston, IL; Advisor: Fred Turek, PhD

1990 - 1992 Research Assistant, Department of Neuroscience, Baylor College of Medicine, Houston, TX; Advisor: James W. Patrick, PhD

1992 - 1998 Graduate Student, Vollum Institute, Oregon Health Sciences University, Portland, OR; Advisor: Michael P. Kavanaugh, PhD

1998 - 2006 Postdoctoral Fellow, Vollum Institute, Oregon Health Sciences University, Portland, OR; Advisor: Craig E. Jahr, PhD

2004 Teaching Assistant, Cold Spring Harbor Laboratories Imaging Course, Cold Spring Harbor, NY

2006 – 2013 Assistant Professor, Department of Neurobiology, University of Alabama at Birmingham; Birmingham, AL

2006-present Investigator, Evelyn F. McKnight Brain Institute

2013 - Associate Professor, Department of Neurobiology, University of Alabama at Birmingham; Birmingham, AL

Honors, Awards, and Advisory Committees

2008 - Ad hoc reviewer: Netherlands Organization for Scientific Research, Agence Nationale de la Recherce (France), North Carolina Biotechnology Center

2009 - Ad hoc reviewer NSF Peer Review Committees (Biomolecular Systems, Cellular Systems)

2011 - Editorial Board, Frontiers in Behavioral and Psychiatric Genetics 2016 Graduate Dean's Excellence in Mentorship Award, UAB

Publications (2018)

Non-synaptic signaling from cerebellar climbing fibers modulates Golgi cell activity. Nietz AK, Vaden JH, Coddington LT, Overstreet-Wadiche L, Wadiche JI. Elife. 2017 Oct 13;6. pii: e29215. doi: 10.7554/eLife.29215.

Gonzalez JC, Epps SA, Markwardt SJ, Wadiche JI, Overstreet-Wadiche L (2018) Constitutive and synaptic activation of GIRK channels differentiates mature and newborn dentate granule cells. Journal of Neuroscience pii: 0674-18. doi:10.1523/JNEUROSCI.0674-18.2018. [Epub ahead of print].

NAME **Linda Wadiche**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
North Park Uni, Chicago, IL	B.S.	1992	Biology
Northwestern Uni, Chicago, IL		1997	
Vollum Institute, Oregon Health	PhD	2004	

Positions

2011 – present Associate Professor, Department of Neurobiology, UAB
2006 - 2011 Assistant Professor (primary), Department of Neurobiology, UAB
2006-present Investigator, Evelyn F. McKnight Brain Institute
2005 - 2006 Assistant Research Professor, Vollum Institute, Oregon Health & Sciences University, Portland, OR

Biographical Sketch

Linda Overstreet Wadiche received a BS in Biology from North Park University in Chicago, IL. In 1997 she received her Ph.D. from the Department of Physiology at Northwestern University Medical School under the mentorship of Dr. N. Traverse Slater. From 1998-2004 she was a postdoctoral fellow with Dr. Gary Westbrook at the Vollum Institute, Oregon Health & Science University. Dr. Wadiche became a Research Assistant Professor at the Vollum Institute in 2004. In June of 2006 she joined the Department of Neurobiology at UAB as an Assistant Professor.

Research Interest

Most neurons in the brain are generated during embryogenesis. However, neural stem cells in discrete regions of the adult continuously produce newborn neurons that can functionally integrate by forming synapses with the existing neural circuitry. One of the regions where adult neurogenesis occurs is the dentate gyrus, an area that is involved learning and memory. My laboratory focuses on the mechanisms underlying functional maturation and synaptogenesis of newborn granule cells, the principal neurons in the dentate gyrus. We use a variety of techniques to explore how newborn neurons survive and integrate, and how these processes are modified by aging, exercise and disease.

Honors, Awards, and Advisory Committees

-2018-19 Standing member, CURE grant review board
-Nominated by Journal of Neuroscience Reviewing Editors for recognition of the quality and thoughtfulness of reviews during peer-review week
-Received a new NIH R01 award to study the function of slow-spiking GABAergic interneurons in dentate neurogenesis and inhibitionPublications 2018

NAME **Virginia G. Wadley**		POSITION TITLE Professor	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of Alabama at Birmingham	B.S.	1991	Psychology and English
University of Alabama at Birmingham			
Duke University Medical Center	M.A., PhD	1994, 1997	Medical Psychology Clinical Psychology
	Internship	1996-1997	

Positions

2015 - pres. Professor, Department of Medicine, Division of Gerontology, Geriatrics, and Palliative Care; School of Social and Behavioral Sciences, Department of Psychology (secondary appointment); and Department of Ophthalmology (secondary appointment),

2012 - pres. Senior Scientist, Center for Outcomes and Effectiveness Research and Education,
2009 - 2015 Associate Professor, Department of Medicine, Division of Gerontology, Geriatrics, and Palliative Care; School of Social and Behavioral Sciences, Department of Psychology (secondary appointment); and Department of Ophthalmology (secondary appointment—2014-2015)),

2009 - pres. Scientist, appointed, UAB Comprehensive Neuroscience Center

2007 - pres. Associate Director, UAB Edward R. Roybal Center for Translational Research on Aging and Mobility

2007 - pres. Graduate Faculty, University of Alabama, Tuscaloosa, AL

2005 - 2009 Assistant Professor, Department of Medicine, Division of Gerontology, Geriatrics, and Palliative Care; and School of Social and Behavioral Sciences,

2005 - pres. Director, Dementia Care Research Program, Division of Gerontology, Geriatrics, and Palliative Care, University of Alabama at Birmingham, Birmingham, AL

2005 - pres. Director, Alzheimer's Family Program, Comprehensive Center for Healthy Aging, University of Alabama at Birmingham, Birmingham, AL

2000 - pres. Senior Scientist (2015), UAB Comprehensive Center for Healthy Aging (formerly Center for Aging)

2015 – present Investigator, Evelyn F. McKnight Brain Institute

Research Interests

Cognitive and functional assessment of older adults in the contexts of normal aging, Mild Cognitive Impairment, Alzheimer's disease, and stroke. Interventions to maintain cognition and daily function.

Website

https://www.ncbi.nlm.nih.gov/sites/myncbi/virginia.wadley%20bradley.1/bibliography/47840873/public/?sort=date&direction=descending

NAME **Scott Wilson**		POSITION TITLE Associate Professor	
EDUCATION/TRAINING			
INSTITUTION/LOCATION	DEGREE	YEAR(S)	FIELD OF STUDY
University of South Florida	B.S.	1986	Biology
University of South Florida	M.S.	1989	Microbiology
University of Florida	PhD	1996	Molecular Genetics
National Cancer Institute	Postdoc	2002	Genetics

Positions

1990-1991 Instructor, Introductory Biology, Hillsboro Community College, Tampa, Florida

1992-1996 Graduate student in the laboratory of Maurice Swanson, Department of Molecular Genetics and Microbiology, University of Florida College of Medicine, Gainesville, Florida

1997-2002 Postdoctoral Fellow in the laboratory of Drs. Neal Copeland and Nancy Jenkins, National Cancer Institute, Frederick, MD.

8-02 to present Assistant Professor, Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL,

11-3 03 to present Secondary Appointment in the Department of Biochemistry and Molecular Genetics

11-4 04 to present Secondary Appointment in the Department of Genetics 2006-present Investigator, Evelyn F. McKnight Brain Institute

6-06 to present Director of Summer Program in Neuroscience

10-06 to present Director of Molecular Recombineering Core. NIH Blueprint Core facility.

8-10 to present Associate Professor, Department of Neurobiology, University of Alabama at Birmingham, Birmingham, AL

Publications

Chronic overexpression of ubiquitin impairs learning, reduces synaptic plasticity, and enhances GRIA receptor turnover in mice. J. Neurochemistry. In press.