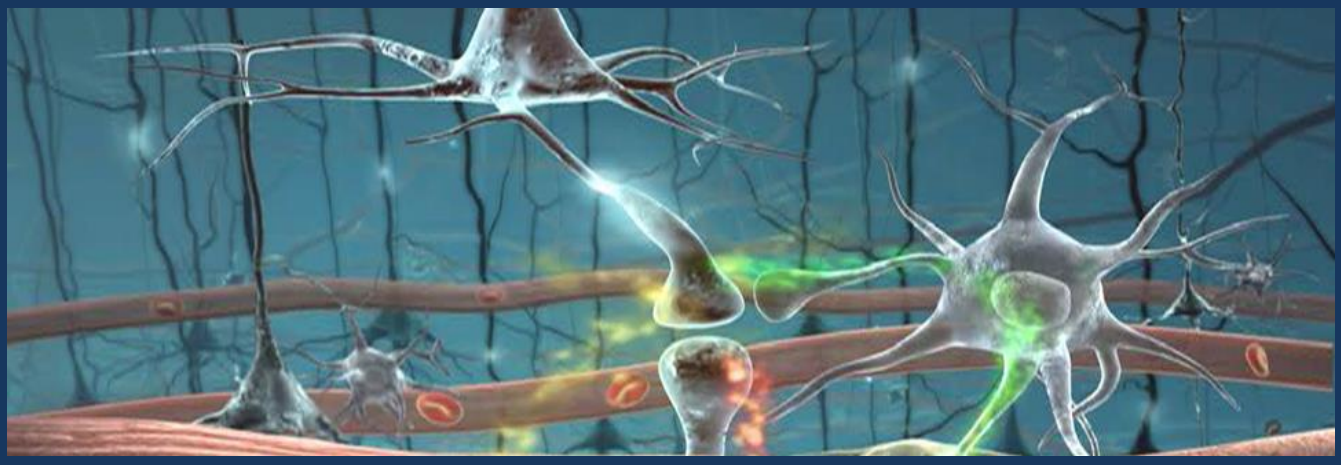
ENDURE

NIH Blueprint for Neuroscience Research



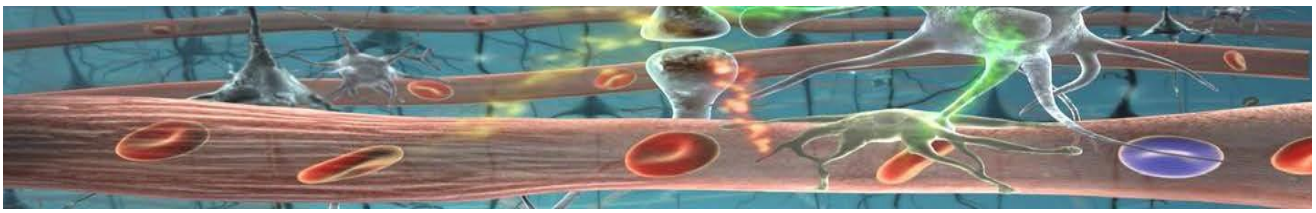
10th Annual Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) Meeting

October 8, 2020 | Virtual

The NIH Office of the Director and these NIH Institutes and Centers participate in the NIH Blueprint for Neuroscience Research:

- NCATS
- NCCIH
- NEI
- NIA
- NIAAA
- NIBIB
- NICHD
- NIDA
- NIDCR
- NIEHS
- NIMH
- NINDS
- NINR
- OBSSR

NIH Blueprint for Neuroscience Research



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ENDURE PROGRAM GOALS

The NIH Blueprint for Neuroscience Research is a collaborative framework between the NIH Office of the Director and 14 NIH Institutes and Centers (ICs) to support research on the nervous system. By pooling resources and expertise, the Blueprint identifies cross-cutting areas of research and confronts challenges too large for any single IC. The NIH Blueprint Program for Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (BP-ENDURE) aims to raise interest and opportunities in neuroscience research for individuals who are typically underrepresented in the neurosciences. The goal is to provide such individuals with training at the undergraduate level, so that they are prepared to enter and successfully complete neuroscience Ph.D. programs. ENDURE provides undergraduate training through partnerships between research-intensive institutions and institutions with a substantial enrollment of neuroscience majors from diverse groups. This includes individuals from underrepresented racial and ethnic groups; individuals with disabilities; and individuals from economically disadvantaged backgrounds. ENDURE undergraduate training programs support a range of activities to increase student interest and involvement in the neurosciences, including research experiences, core and advanced neuroscience courses, seminars, and journal clubs. In FY 10, five ENDURE awards were granted. Six ENDURE awards were granted in FY 15 and six awards in FY 20.

ENDURE MEETING GOALS

As issued, the funding announcement (RFA-NS-20-015) cites, "it is a goal of this initiative that the NIH Blueprint Institutes will convene an annual meeting that will bring together BP-ENDURE program directors and participating students." The purpose of this virtual meeting will be to discuss best practices and provide a forum for student scientific and academic enhancing activities. The students will enhance their networks with other ENDURE participants, peer mentoring from ENDURE Alumni and other diverse graduate students, and T32 program directors.

ORGANIZING COMMITTEE

Dr. Michelle Jones-London (NIH/NINDS)
Dr. Marguerite Matthews (NIH/NINDS)
Dr. Lauren Ullrich (NIH/NINDS)
Kim Williamson (Rose Li & Associates)
Greg Richards (Rose Li & Associates)
Sabira Mohamed (Rose Li & Associates)

For more information about BP-ENDURE and the program sites over our 10-year history, visit https://neuroscienceblueprint.nih.gov/endure-undergraduate-education

Visit and like An ENDUREing Network Facebook page @BP.ENDURE
Follow NINDS Office of Programs to Enhance Neuroscience Workforce Diversity on Twitter @NINDSDiversity

10th Annual Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences (ENDURE) Meeting

AGENDA

October 8, 2020| Via Zoom

1:00 – 1:10 pm **ENDURE Meeting Goals and Introduction**
Dr. Michelle Jones-London, Chief, Office of Programs to Enhance Neuroscience Workforce Diversity (OPEN), National Institute of Neurological Disorders and Stroke (NINDS)

1:10 – 1:40 pm **NIH Welcome and Keynote Address**
Dr. Francis Collins, Director, National Institutes of Health (NIH)

Q&A

1:40 – 2:00 pm **Feature Presentation on Pathways and Perspectives on Being a Researcher**
Dr. Kizzmekia Corbett – Scientific Lead, Coronavirus Vaccine Program, Vaccine Research Center Research Fellow, National Institute of Allergy and Infectious Diseases (NIAID)

Q&A

2:00 – 3:00 pm **Panel on Pathways and Perspectives on Advancing Your Career**
Moderated by Dr. Mark Chavez, Division of Adult Translational Research and Treatment Development, National Institute of Mental Health (NIMH)

What should a graduate student expect, both of school and themselves? What are the qualities of a good mentor? Why is a career in neuroscience fulfilling? What are effective strategies to navigate some of the challenges of research training?

Each panelist will share their scientific background and address being underrepresented in neuroscience, navigating their careers, and lessons learned along the way.

Panelists:

- Mr. Jean Carlos Rodriguez Diaz – ENDURE alumnus and doctoral student at the University of Michigan
- Ms. Tanisha London – ENDURE alumna and doctoral student at the University of Southern California
- Dr. Rigo Cintrón-Colón – ENDURE alumnus and Biomarker Operations Manager at Genentech

3:00 – 5:00 pm **Graduate Program Recruitment and Networking Fair**
Virtual "rooms" will be reserved for institutions with a strong record of neuroscience training to recruit for their predoctoral research programs.

SPEAKER BIOGRAPHIES

NIH Blueprint Welcome & Keynote

Francis Collins, M.D., Ph.D.
Director
National Institutes of Health

Francis S. Collins, M.D., Ph.D. was appointed the 16th Director of the National Institutes of Health (NIH) by President Barack Obama and confirmed by the Senate. He was sworn in on August 17, 2009. On June 6, 2017, President Donald Trump announced his selection of Dr. Collins to continue to serve as the NIH Director. In this role, Dr. Collins oversees the work of the largest supporter of biomedical research in the world, spanning the spectrum from basic to clinical research.

Dr. Collins is a physician-geneticist noted for his landmark discoveries of disease genes and his leadership of the international Human Genome Project, which culminated in April 2003 with the completion of a finished sequence of the human DNA instruction book. He served as director of the National Human Genome Research Institute from 1993-2008.

Before coming to NIH, Dr. Collins was a Howard Hughes Medical Institute investigator at the University of Michigan. He is an elected member of the National Academy of Medicine and the National Academy of Sciences, was awarded the Presidential Medal of Freedom in November 2007, and received the National Medal of Science in 2009. In 2020, he was elected as a Foreign Member of the Royal Society (UK) and was also named the 50th winner of the Templeton Prize, which celebrates scientific and spiritual curiosity.

Follow Dr. Collins on Twitter @NIHDirector.

Feature Presentation: Pathways and Perspectives on Being a Researcher

Kizzmekia S. Corbett, Ph.D.
Scientific Lead of the Coronavirus Vaccine Team and Vaccine Research Center Research Fellow
National Institute of Allergy and Infectious Diseases

Kizzmekia Corbett is a senior research fellow at the NIH Vaccine Research Center and the scientific lead for the Coronavirus Vaccine Program. Her scientific career began at University of Maryland, Baltimore County (UMBC) as a Meyerhoff Scholar and a NIH Undergraduate Scholar. She received a BS in Biological Sciences, with a secondary major in Sociology, in 2008. After one year of post-baccalaureate training at NIH, she enrolled at University of North Carolina at Chapel Hill (UNC), from where she obtained her Ph.D. in Microbiology and Immunology in 2014. Her dissertation research, "Dissecting Human Antibody Responses to Dengue Virus Infection," garnered her several awards including a Doctoral Merit Award and induction into UNC's Frank Porter Graham Honor Society. Notably, she also received a travel fellowship to complete part of her dissertation project in Sri Lanka. A viral immunologist by training, Dr. Corbett's research interests entail elucidating mechanisms of viral pathogenesis and host immunity as they pertain to vaccine development. Appointed to the NIH Vaccine

Research Center in 2014, she focuses on assessing and improving the immunogenicity of novel vaccine platforms for coronaviruses and influenza. In addition to research, Dr. Corbett invests much of her time bringing STEM awareness to youth in local underserved communities through mentorship and volunteering. Combining her scientific interests with her knack for mentoring, she hopes to one day become an independent principal investigator.

Follow Dr. Corbett on Twitter @KizzyPhD.

Panel: Pathways and Perspectives on Advancing Your Career

Rigo Cintrón-Colón, Ph.D.

Biomarker Operations Manager
Genentech

Dr. Rigo Cintrón-Colón was born and raised in Puerto Rico and received his bachelor's degree in Natural Sciences from Universidad del Sagrado Corazón. In 2012, he earned the BP-ENDURE fellowship and conducted research under the mentorship of Dr. Irving Vega at the University of Puerto Rico, studying the mechanisms underlying peripheral neuropathies. He was awarded an undergraduate research fellowship at Scripps Research in San Diego, where he studied the effects of environmental toxins in protein aggregation in C. elegans.

In 2014, Dr. Cintrón-Colón joined Scripps' doctoral program, in the laboratory of Dr. Bruno Conti. He discovered and characterized several neuroendocrine signaling pathways regulating metabolism during reduced food intake in mice. Furthermore, he contributed to the understanding of the role of inflammation in models of Parkinson's disease. During his time at Scripps, Dr. Cintrón-Colón served as the Vice President of the student council, helping introduce policies that improved mental health awareness, increased student stipend, and introduced an academic allowance to support professional development. In addition to serving as mentor to undergraduate and graduate students, he introduced a forum where graduate students presented their research and coordinated the research talks for summer fellows. For his contributions to science and the community, he was awarded the ARCS scholarship.

In 2019, Dr. Cintrón-Colón joined the drug discovery division of Charles River Laboratories, where he helped clients develop potential therapies for diseases affecting the nervous system. Recently, he joined Genentech, where he is supporting their biomarkers strategy and operations for clinical trials.

Tanisha London

Doctoral Student, Neuroscience Graduate Program
University of Southern California

Tanisha D. London is a third year Ph.D. student at the University of Southern California (USC). Tanisha earned a Bachelor of Arts in Psychology from Spelman College, where she received the BP-ENDURE fellowship. During her tenure, she conducted research at the Georgia Institute of Technology, Georgia State University, and the University of California San Diego, studying topics ranging from clinical treatment of social anxiety to manipulating dopamine neurons underlying attention modulation in

songbirds. Her BP-ENDURE research experiences helped her realize her interests in understanding neural circuit organization and their effect on behavioral output. She built upon this foundation with a Post-baccalaureate Intramural Research Training Award at the NIH, where she examined the role of the basal ganglia in feeding, obesity, and motivated behaviors, culminating in two publications and eight conference presentations. She went on to pursue her Ph.D. at USC in the lab of Dr. Andrew Hires, studying how norepinephrine's release patterns in cortex contribute to the neuromodulation of sensory processing. Tanisha is currently a National Science Foundation Graduate Research Fellow and Society for Neuroscience's Neuroscience Scholar Program Associate. Outside of lab, Tanisha is active in the neuroscience community, serving on several student-led committees in her graduate program, as well as participating in outreach programs in Southern California.

Follow Tanisha on Twitter @tanisha_london.

Jean Carlos Rodríguez Díaz

Doctoral Student, Neuroscience Graduate Program
University of Michigan

Jean Carlos Rodríguez Díaz graduated from the University of Puerto Rico, Río Piedras Campus with a bachelor's in biology and is an alumnus of the BP ENDURE – NeuroID Program. He is currently a Ph.D. student in the Neuroscience Graduate Program at the University of Michigan - Ann Arbor. He is working under the mentorship of Dr. Kevin Jones studying the role of NMDA receptors in neuronal network activity. His dissertation is focused on determining how antagonists of the NMDA receptor alter the development of neuronal networks and the short- and long-term effects of acute exposure to these antagonists on a mature network. Jean Carlos's long-term goal is to become an independent academic researcher studying how neurons participate in coordinated network activity. In his free time, he enjoys board games, video games, and recently has gotten into making terrariums and Bonsai.

ENDURE PROGRAM INFORMATION

BP-ENDURE AT HUNTER & NYU

HUNTER COLLEGE

http://www.bpendure.org/

Partner Institutions: Brown University, New York University, University of Michigan, Vanderbilt University, Yale University

Principal Investigator: Glenn Schafe, Ph.D. | Hunter College of CUNY

Principal Investigator: Nesha Star Burghardt, Ph.D. | Hunter College of CUNY

Principal Investigator: Chiye Aoki, Ph.D. | New York University

Program Administrator: Kizzy Vazquez | Hunter College of CUNY

Description: The BP-ENDURE program, administered through Hunter College, is conducted in partnership with New York University, Brown University, University of Michigan, Vanderbilt University, and Yale University to expose BP-ENDURE trainees to a research-intensive curriculum and an environment of active research. The BP-ENDURE program is designed to encourage and prepare undergraduate students from diverse backgrounds to succeed in Ph.D. programs in the neurosciences.

BP-ENDURE: THE ST. LOUIS NEUROSCIENCE PIPELINE

WASHINGTON UNIVERSITY IN ST. LOUIS

http://endure.wustl.edu/

Partner Institutions: University of Missouri-St. Louis, Harris-Stowe State University

Principal Investigator: Erik Herzog, Ph.D. | Washington University in St. Louis

Co-Investigator: Diana José-Edwards, Ph.D. | Washington University

Description: The Washington University in St. Louis (WUSTL) ENDURE summer research program prepares undergraduates from diverse backgrounds for neuroscience Ph.D. programs. We combine outstanding research training, a rigorous curriculum and an empowering support system so participants thrive on their path to graduate school and beyond. With support from the NIH Blueprint ENDURE initiative and Washington University, accepted students are funded for up to two summers and trips to the annual Society for Neuroscience meeting. Overall, the program embeds students in a network of neuroscientists and enhances the success of trainees towards our goal of increasing diversity in neuroscience.

Each component of the WUSTL ENDURE program is designed to provide trainees a solid foundation for future success. This begins with hypothesis-driven research in a world-class Washington University lab where students gain research skills and a taste of life as a graduate student. A summer curriculum focused on professional development hones critical thinking and communication abilities. Students also participate in an online workshop series and attend and present at the Society for Neuroscience meeting to sustain and strengthen skills during the academic year. Combined with personalized advising and an empowering community, WUSTL ENDURE offers holistic training budding neuroscientists will use for years to come.

BRAiN: BUILDING RESEARCH ACHIEVEMENT IN NEUROSCIENCE

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

https://www.cuanschutz.edu/graduate-programs/neuroscience/about-us/brain

Partner Institutions: New Mexico State University and University of Colorado Denver

Principal Investigator: Diego Restrepo, Ph.D. | University of Colorado Anschutz Medical Campus

Principal Investigator: Barbara Lyons, Ph.D. | New Mexico State University

Principal Investigator: Sondra Bland, Ph.D. | University of Colorado Denver

Research Education Facilitator: Isaac del Rio | New Mexico State University

Description: The University of Colorado Denver Anschutz Medical Campus, in collaboration with New Mexico State University, is proud to present an exciting opportunity for junior and senior undergraduate students to perform cutting edge neuroscience research in the state-of-the-art research facilities at the Anschutz Medical Campus Research facilities in Aurora, Colorado and at their home campus in Denver, Colorado or Las Cruces, New Mexico.

As a recipient of the National Institutes of Health's multi-million-dollar initiative Blueprint ENDURE (Enhancing Neuroscience Diversity through Undergraduate Research Education Experiences), the BRAiN program aims to raise interest and opportunities in neuroscience research for individuals who are typically underrepresented in the field. Specifically, BRAiN is designed for the budding undergraduate scientist who is from an underrepresented population and who is interested in pursuing a graduate degree (Ph.D.) in neuroscience.

BRIDGE TO PH.D. IN NEUROSCIENCES PROGRAM

MICHIGAN STATE UNIVERSITY

https://www.msubpnp.com/programs.html

Partner Institutions: St. Mary's University (San Antonio, Texas), Northern New Mexico College, University of Puerto Rico at Arecibo, University of Puerto Rico at Cayey

Principal Investigator: William Atchison, Ph.D. | Michigan State University

Co-Investigator: Brian Mavis, Ph.D.| Michigan State University

Program Coordinator: Melissa Jaiman-Cruz | Michigan State University

Description: Bridge to Ph.D. in Neurosciences Program (BPNP) reflects a series of interrelated fields designed to develop students interest and success as graduate scholars in Ph.D. programs. Our future scholars would have the opportunity to perform research at a lab with biomedical and/or behavioral areas, with interest in learning underlying neural mechanisms of these. The goal of BPNP is to increase the number of underrepresented minority Ph.D.s trained in neurosciences: specifically, to facilitate their entry into high quality and highly competitive mainland Ph.D. or dual degree) programs with a neuroscience emphasis and enhance their likeliness of their success in the program. Central to this is the need to 1) identify talented students with potential for Ph.D. studies in neuroscience; 2) introduce them to career opportunities in neuroscience; 3) provide research training and individual mentoring; 4) increase their competitiveness for graduate study; and 5) provide additional professional development activities.

BROOKLYN NEURAL NETS (NEUROSCIENCE EDUCATION AND TRAINING FOR SCIENTISTS)

BROOKLYN COLLEGE

Partner Institutions: Medgar Evers College, State University of New York Downstate Medical Center

Principal Investigator: Louise Hainline, Ph.D. | Brooklyn College

Co-Investigator: Paul Forlano, Ph.D. | Brooklyn College

Co-Investigator: Mark Stewart, Ph.D. | State University of New York Downstate Medical Center

Description: Brooklyn Neural NETS (Neuroscience Education and Training for Scientists) or B-NETS is designed to develop academically-strong well-qualified underrepresented juniors and seniors interested in, qualified for, and motivated to seek neuroscience careers requiring Ph.D. or M.D./Ph.D. degrees. Elements of the B-NETS's program include attainment of academic success in relevant science courses, acquisition of robust research skills needed for careers in neuroscience, and multiple opportunities for mentored research experiences under the guidance of active neuroscience researchers. Our program increases the motivation of UR students to pursue doctoral degrees in neuroscience through an explicit set of activities by which B-NETS Fellows learn about and participate in neuroscience research with an explicit focus on the causes of and means to reduce the significant neurological health disparities in under-represented groups. B-Nets students both increase the diversity of researchers in the field of neuroscience and contribute research findings that address chronic neurological conditions that occur more frequently in minority and low-income populations, including in the communities in which our students both live and study. To support the completion of graduate degrees by the B-NETS Fellows, the program also helps our Fellows employ individual development plans to acquire the cognitive and social skills to insure the completion of graduate degrees and to plan for the subsequent credentials and milestones that support the development of successful careers in the neurosciences.

NEUROSCIENCE RESEARCH OPPORTUNITIES TO INCREASE DIVERSITY (Neuro-ID)

UNIVERSITY OF PUERTO RICO, RÍO PIEDRAS CAMPUS

http://neuroid.uprrp.edu/

Partner Institutions: Inter American University of Puerto Rico- Bayamón, Metropolitan University, Sacred Heart University of Puerto Rico

Principal Investigator: Jose García-Arrarás, Ph.D. | University of Puerto Rico, Río Piedras Campus

Principal Investigator: Carmen S. Maldonado-Vlaar, Ph.D. | University of Puerto Rico, Río Piedras Campus

Administrative Assistant: Marimar Velázquez-Vargas | University of Puerto Rico, Río Piedras Campus

Description: NeuroID is a program designed to increase diversity in Neuroscience by providing opportunities to undergraduate students interested in this area and enhance their scientific knowledge, research capability and social responsibility. We provide a comprehensive research experience during the last two years of the bachelor's degree at one of the mentors' laboratories. Professors in Neuroscience will have the opportunity to participate in seminars, workshops and selected courses to enhance their knowledge in Neurobiology and understanding of a research career. In addition to the academic and research program, students will be exposed to a series of extracurricular activities in which they will use their acquired scientific knowledge for the benefit of his or her community.

THE NIH/NINDS-LSUHSC-NO, UNDERGRADUATE DIVERSITY IN NEUROSCIENCE RESEARCH EXPERIENCES

LOUISIANA STATE UNIVERSITY HEALTH SCIENCES CENTER NEW ORLEANS

https://www.medschool.lsuhsc.edu/odce/endure/

Partnering Institutions: Dillard University, Southern University, Tulane University, University of New Orleans, Xavier University of Louisiana

Principal Investigator: Allison Augustus Wallace, Ph.D. | Louisiana State University Health Sciences Center New Orleans (LSUHSC-NO)

Co-Investigator: Scott Edwards, Ph.D. | LSUHSC-NO

Co-Investigator: Hamilton Farris, Ph.D. | LSUHSC-NO

Co-Investigator: Patricia Molina, M.D., Ph.D. | LSUHSC-NO

Co-Investigator: Fern Tsien, Ph.D. | LSUHSC-NO

Program Coordinator: Melissa Prestwood | LSUHSC-NO

Description: Inspiring Diversity to Explore the Mind in the 21st Century: The NIH/NINDS-LSUHSC-NO, Undergraduate Diversity in Neuroscience Research Experiences Program is a one year, non-residential/commutator undergraduate summer academic enrichment program, which will provide students from partnered-institutions the opportunity to perform research and experience graduate education under the egis of neurosciences. This program leverages multi-university partnerships to provide structured mentored research experiences in neuroscience to undergraduate students from underrepresented / underserved populations in Louisiana. This is accomplished through summer and year-round mentor and mentee training in science, critical thinking, professional, and career skills. The program will increase the number of diverse applicants prepared for independent research, graduate school, and, ultimately, careers in neuroscience, helping to address population disparities in neurological diseases.

UNIVERSITY OF WASHINGTON ENDURE

UNIVERSITY OF WASHINGTON

http://depts.washington.edu/endure/

Partner Institutions: Puget Sound Community Colleges

Principal Investigator: Horacio O. de la Iglesia, Ph.D. | University of Washington

Co-Investigator: Eric H. Chudler, Ph.D. | University of Washington

Program Manager: Jessica Huszar, Ph.D. | University of Washington

Description: Diseases of the nervous system represent an existing and growing emotional and economic burden to society. Neuroscientific research is critical to the discovery of new therapies and treatments for these disorders. With this goal in mind, it is imperative that we train research scientists who represent US society, including ethnic minorities, people from economically disadvantaged groups and people with disabilities. Therefore, the University of Washington ENDURE (UW-ENDURE) program was created to prepare students from diverse backgrounds for graduate (Ph.D.) programs in neuroscience. More specifically, the UW-ENDURE program will help community college students in the Puget Sound region transition into graduate research careers by exposing them to summer and academic-year mentored research experiences in the field.

UW-ENDURE students will participate in academic-year and summer research experiences and as well as training in the field of neuroscience. These students will first be enrolled in a UW undergraduate neuroscience course that will provide a basic understanding of nervous system function and structure. Subsequently, students will be incorporated into the research program of a neuroscience laboratory at the UW where they will be actively engaged in neuroscientific data collection and analysis. Students will also

receive professional development opportunities such a scientific communication classes. Mentoring of students will take place during summer workshops and academic-year courses and will receive a one-on-one mentoring plan that will continue throughout the program. The impact of UW-ENDURE on students' quantitative skills and understanding of neuroscience principles, and on the students' success in applying to and entering competitive STEM graduate careers will be evaluated to ensure that the program goals are being met and to modify the program as needed.

We extend a warm welcome to the newest additions to the ENDURE Network!

BP-ENDURE at the University of Nevada (Nevada ENDURE)

UNIVERSITY OF NEVADA, RENO

Partner Institutions: Stanford University; Truckee Meadows Community College (TMCC); University of California, Berkeley; University of California, Davis; University of Michigan

Principle Investigator: Mariann Weierich, Ph.D. | University of Nevada, Reno

Co-Investigator: Marian Berryhill, Ph.D. | University of Nevada, Reno

Co-Investigator: Dennis Mathew, Ph.D. | University of Nevada, Reno

The Mid-Atlantic Neuroscience Diversity Scholars (MINDS) Program

TEMPLE UNIVERSITY

Partner Institutions: Lincoln University, University of Maryland

Principle Investigator: Ingrid R. Olson, Ph.D. | Temple University

Summer Transfer Ahead into Research Training in Neuroscience (STARTneuro)

UNIVERSITY OF CALIFORNIA SAN DIEGO

Partner Institutions: Grossmont Community College, MiraCosta College, San Diego City College, San Diego Mesa College, San Diego Miramar College, Southwestern Community College

Principle Investigator: Ashley L. Juavinett, Ph.D. | University of California San Diego

Co-Investigator: Brenda Bloodgood, Ph.D.

ENDURE Scholar Profiles

Sydney Arriaga

Email: sydneyarriaga@email.arizona.edu

Home Institution: University of Arizona

Academic Level: Junior

Undergraduate Major and Graduation Date: Neuroscience, 2023

Home Institution Mentor: Katrina Miranda, Ph.D.

Scientific Interests: Build a technology that can reproduce humans' memory in order to find better ways to help people with mental health.

Career Goals: I want to attend graduate school and be an inventor.

Christian Andino Del Valle

Email: c.andino11@gmail.com

Home Institution: Ana G. Mendez University, Cupey Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Cell and Molecular Biology. 2021

Scientific Interests: Since I started in the neuroregeneration field I was captivated by how different organisms have the capacity to regenerate a full organ but organs while in others the capacity is highly limited. I rapidly immersed myself in reading papers to better understand the different regeneration processes and how this could help millions of people if one day we could have the same capabilities. That is why I am deeply interested in the Regenerative Medicine field where I will pursue a Ph.D. to diverse myself in research where hopefully I can provide a better quality of life to millions of people.

Career Goals: My short-term goals are to take advantage of the research opportunities I have to learn more of regenerative medicine and a goal of mine is to publish a paper in one of the scientific journals. After I have completed my baccalaureate, I will do a postbac to gain even more experience to enter a Ph.D. to continue in my focus which is regenerative medicine. After I have completed my Ph.D. I hope to create different programs for minorities like myself so that they can have better opportunities at success.

Ayomiposi B. Adewakun

Email: aba407@nyu.edu

Home Institution: New York University

Academic Level: Senior

Undergraduate Major and Graduation Date: Neural Science, 2021

Home Institution Mentor: Robert Froemke, Ph.D.; Ismail Ahmed, Ph.D.

Scientific Interests: I am interested in studying the mechanisms behind learning and memory, and how they affect behavior. I am currently conducting research in the Froemke lab studying the effects of oxytocin on maternal behavior. Our goal is to detect the presence of oxytocin expressed in virgin mice compared to mice who have given birth and see how changes in oxytocin levels affect maternal behavior.

Career Goals: I am planning to pursue a doctorate in neuroscience with the goal of becoming a professor at an active research university in the future. I want to focus on systems neuroscience and the question of how large brain networks and neural circuits interact to produce complex behaviors. I am also interested in cellular/molecular neuroscience and the question of how differences in neuron morphology and function lead to the development of larger brain networks that regulate and influence learning and behavior, as well as how alterations in these mechanisms can lead to the presences of neurological disorders.

Valentina Alvarez Martinez

Email: valentina.alvarez@nyu.edu

Home Institution: New York University

Academic Level: Junior

Undergraduate Major and Graduation Date: Neural Science (Business, Chinese), 2022

Home Institution Mentor: Chiye Aoki, Ph.D.; Margarita Kaplow, Ph.D.

Scientific Interests: The development of pharmacological treatments for psychiatric and neurodegenerative disorders.

Career Goals: I hope to consolidate and apply existing research in order to create tangible solutions for people suffering from psychiatric or neurodegenerative disorders. Through research, I want to help make the most direct and practical impact possible that reaches the medicinal regimen of American patients.

Maya Bluitt

Email: mbluitt@ad.unc.edu

Home Institution: University of Kansas

Academic Level: Recent graduate

Undergraduate Major and Graduation Date: Behavioral Neuroscience, 2020

Home Institution Mentor: Brian Ackley, Ph.D.

Scientific Interests: My research interests include studying the neurobiology underlying neuropsychiatric disease, specifically alcohol and substance use disorders. I am interested in taking a multidisciplinary approach to investigate factors that alter neurotransmission and result in behaviors related to addiction.

Career Goals: Following graduation, I began graduate school at the University of North Carolina at Chapel Hill. My ultimate goal is to work as a research scientist studying addiction and alcohol use disorder.

Devin Burris

Email: devinburris@knights.ucf.edu

Home Institution: University of Central Florida

Academic Level: Junior

Undergraduate Major and Graduation Date: Biomedical Sciences, 2022

Home Institution Mentor: Charissa de Bekker, Ph.D.; Alicia Hawthorne, Ph.D.

Scientific Interests: My scientific interests include a wide range of neuroscience sub-disciplines including neuro-genetic therapies, disease pathology, and behavior sciences. I believe the future of medicine is in

holistic approaches to long term problems and one crucial component of that being genetic therapy. I want to be a part of the scientists who make strides in gene therapy for neurological disorders with otherwise detrimental outcomes. I also want to be part of those that ensure ethical guidelines are set as policy in the realm of genetic therapy progresses.

Career Goals: I plan to pursue a Ph.D. in either neuroscience, cell and gene therapy, or another similar discipline. I aim to either enter academia or industry to work on designing and implementing trials on neurogenetic therapies. Along the way, I hope to continue to impact other people in their path through S.T.E.M. by staying involved with the International Brain Bee and other forms of outreach.

Lorena Casiano

Email: casiano3@nmsu.edu

Home Institution: New Mexico State University

Academic Level: Senior

Undergraduate Genetics and Biotechnology, 2021

Home Institution Mentor: Elba Serrano, Ph.D.

Scientific Interests: My research interests lie in neurodegenerative disorders. I would like to delve into different methods that can help individuals with neurological disorders to live normal lives with less impact from their disorders. I want to help individuals whom have Autism, Epilepsy, and other disorders which lead them to not enjoy activities that many get to, due to their anxieties of social interactions, the thought of having an epileptic episode, or other issues that make them fear day-to-day tasks. I want to find a way for their lives to improve, where their disorders do not over-run their lives.

Career Goals: When I graduate, I wish to attend one of my top three choices for graduate school. As mentioned earlier in my research interests, I wish to stay in neurodegenerative disorder research. The career I wish to pursue includes those interests; I wish to become a neuroscientist. For my dissertation, I want to specifically formulate a project to connect autism and epilepsy to one another. My older brother has both neurological disorders and it is something that interests me not only at home and academically, but also as a next step in my career path.

Stephanie L. Cruz Rodríguez

Email: stephanie.cruz26@upr.edu

Home Institution: Polytechnic University of Puerto Rico

Academic Level: Senior

Undergraduate Major and Graduation date: Biomedical Engineering, 2021

Scientific Interests: As a researcher and engineering student, I have developed different computational organization strategies in the research laboratory. Through this incorporation, I now know the importance of implementing the two multidisciplinary science and engineering fields. My future interests lie in integrating engineering into biological sciences to have a better approach to understanding subject behavior and getting complete and organized data for a better analysis through research and having more efficiency in data collection and getting more success in results.

Career Goals: My career goals are to become a bioengineer to solve problems that appear in scientific questions with different physical and mathematical approaches. I have researched with gentle Africanized honeybees in Puerto Rico, and through this research, I started getting interested in understanding the

behavior in this species. My goals are to do research not only in molecular and physiological aspects but be able to develop mathematical algorithms that can detect the consistencies in results to get more realistic and direct results.

Ian Alberto Díaz Nieves

Email: ian.diaz4@upr.edu

Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Junior

Undergraduate Major and Graduation Date: Cellular and Molecular Biology, 2022

Home Institution Mentors: Alfredo Ghezzi, Ph.D.; Carmen Maldonado-Vlaar, José E. García-Arrarás, Ph.D.

Scientific Interests: I am interested in the cellular & molecular mechanisms of drug dependence, as well as its effects on behavior.

Career Goals: My plans after graduation are to enter a graduate studies program in neuroscience and pursue a Ph.D.

Andrea F. Edwards-Cintrón

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Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Cellular and Molecular Biology, 2021

Home Institution Mentors: Amaya Miquelajáuregui, Ph.D.; Carmen Maldonado-Vlaar. Ph.D.; José E. García-Arrarás, Ph.D.

Scientific Interests: I am interested in pursuing research topics regarding brain development, specifically neurodevelopmental disorders. My current research project focuses on the translational aspect of this field, where we seek to further understand rhythmic processing by considering how rhythmic capabilities are displayed during childhood and adulthood.

Career Goals: After completing my undergraduate education in cellular and molecular biology, I plan to pursue an M.D./Ph.D. in neurodevelopmental pediatrics and neuroscience. My interest in these degrees stems from my determination to actively investigate neurodevelopmental disorders as well as provide care to patients in a clinical setting. Given that these fields greatly complement each other, completing a dual-degree will enable me to become a more competent researcher and physician. Becoming a practicing physician-scientist will allow me to contribute towards understanding neurodevelopment and disease.

Olumide Fagboyegun

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Home Institution: University of Maryland, Baltimore County

Academic Level: Senior

Undergraduate Major and Graduate Date: Biochemistry and Molecular Biology, 2021

Home Institution Mentor: Erin Green, Ph.D.

Scientific Interests: I aim to understand the mechanisms and computations by which astrocytes and other glial cells regulate neuronal circuit and network activity. With a comprehensive understanding of network regulation, I hope to then probe how this is affected by glial perturbations, such as reactive gliosis in neurological disorders.

Career Goals: After graduation, I will join a neuroscience Ph.D. program. This will be the first step to achieve my goal of becoming a principal investigator at a preeminent research institution, and a leader in the field of glial biology.

Britney Fernandez

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Home Institution: Hunter College

Academic Level: Junior

Undergraduate Major and Graduation Date: Psychology, 2022

Scientific Interests: My scientific and research interests currently consist of the development of personalities, the mechanics of memory and learning, and understanding the factors of autism. Other interests I have are related to sleep, how it is affected in an era of constant exposure to blue light, and the effects of strokes on motor functions.

Career Goals: My career goals are to purse a Ph.D. in behavioral neuroscience and to work on research topics such as the development of personalities and learning in autistic individuals.

Midori Flores

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Home Institution: St. Mary's University (San Antonio, Texas)

Academic Level: Junior

Undergraduate Major and Graduation Date: Environmental Science, 2022

Scientific Interests: My scientific interests include Environmental Health and Toxicology. I am very interested in learning how environmental contaminants affect public health physiologically, and at the cellular level.

Career Goals: My career goals after graduation include working at a government facility, such as the CDC, as a Dr. in Environmental Health Sciences.

Hector Alejandro Haddock-Martinez

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Home Institution: University of Puerto Rico, Río Piedras Campus

Undergraduate Level: Senior

Undergraduate Major and Graduation Date: Interdisciplinary Studies, 2021

Home Institution Mentor: Demetrio Sierra-Mercado, Ph.D.

Scientific Interests: I am interested in how the brain responds to damage at a molecular level, and how these responses can influence behavior.

Career Goals: I aspire to complete dual M.D./Ph.D. training and establish my own laboratory with the goal of leading “bench to bedside" research focused on brain damage. After graduation, I plan to enroll in an M.D./Ph.D. program and begin working towards my end goal.

Corin Humphrey

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Home Institution: Hunter College

Academic Level: Junior

Undergraduate Major and Graduation Date: Neuroendocrinology, 2022

Scientific Interests: I am interested in neuroendocrinology specifically as it relates to trans people. I am specifically interested in how hormone replacement therapy helps trans people with depression, anxiety, suicidality, and other psychological challenges that face trans people at higher rates than the general population. I am interested in examining the effect of hormones and mood and social behavior, as well as smaller scale circuit by circuit. Currently I am fortunate enough to work at the Shuman Lab at the Mount Sinai School of Medicine researching how hormones impact cyclical seizure susceptibility in temporal lobe epilepsy.

Career Goals: I intend to pursue a Ph.D. in neuroscience and a career in research. I hope to harness the power of scientific institutions in order to produce work that can positively impact trans people's lives. In my work as a scientist I hope to integrate the rich tradition of queer theory into neuroscience, using new conceptual models as a basis for scientific research and rethinking questions of hormones, sex differences, and social behavior. In my career I hope to always focus on research that has direct consequences to improving the care of trans people and to advocate ceaselessly for my community.

Claudia Irizarry-Hernandez

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Home Institution: University of Puerto Rico at Bayamón

Academic Level: Junior

Undergraduate Major and Graduation Date: Biology, 2022

Scientific Interests: Neuroscience and genetics in *drosophila*

Career Goals: Current goal is to pursue a Ph.D. after graduation. I am not sure whether I want to work in academia or industry.

Raisa Karim

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Home Institution: Hunter College

Academic Level: Senior

Undergraduate Major and Graduation Date: Biochemistry, 2021

Home Institution Mentors: Kizzy Vazquez; Allyson K. Friedman, Ph.D.; Janette Gomos Klein, Ph.D.

Scientific Interests: I am interested in studying the underlying mechanisms of stress resilience as I have

worked with the reward and stress pathways in the Friedman and Carter Labs. I am also interested in pathological research (Alzheimer's, stroke) because the application of benchwork to bedside treatment is more apparent. I was exposed to these topics at a Columbia talk on Hip Hop Stroke.

Career Goals: I am interested in the M.D./Ph.D. career path because I would like to apply what I learn and create/ administer treatments to patients. This would give me a well-rounded understanding of what I am working on in the lab. I also hope to teach. During my 2 gap years I plan to do more research and gain more clinical experience.

Milana Khaitova

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Home Institution: Hunter College

Academic Level: Senior

Undergraduate Major and Graduate Date: Psychology, 2022

Home Institution Mentors: Tracy A. Dennis-Tiwary, Ph.D.; Sarah Myruski, Ph.D.

Scientific Interests: My interest is to apply multidisciplinary approaches to study mood disorders, stress and anxiety, especially individual differences in participants' biological and behavioral reactions to stressors. I aim to explore how mood disorders impact individuals differently both biologically and in how people function, perceive, and behave in their environment. The multidisciplinary approach that intrigues me involves combining survey methods, physiological tests such as the electrocardiogram (ECG) and electroencephalogram (EEG) machines to track biological/physiological responses, and observational methods. This approach allows for a more holistic exploration of one's psychological state.

Career Goals: After receiving a bachelor's in psychology, I aim to attend graduate school and pursue a Ph.D. in psychology. My goal is to work in academia and continue exploring individual differences in responses to stressors with relation to different types of mood disorders. I want to understand both the general population's experiences with stressful situations, but also the individual's experience. I hope to ultimately become a professor of psychology, teach experimental methods and/or content courses, and eventually open up my own laboratory, where I could apply the multidisciplinary approach to my experiments.

Jaysen Andrés Lara-Jiménez

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Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Molecular Cell Biology, 2021

Home Institution Mentors: Carmen Maldonado-Vlaar, Ph.D.; José García-Arrarás, Ph.D.

Scientific Interests: Understanding the complexity behind neuronal circuits that underlie threat responses and stress behaviors is one of the main reasons I want to explore the field of neuroscience. I want to focus on recognizing how multiple projections and innervations coming from different areas in the brain cause changes in behaviors.

Career Goals: My ultimate goal is to establish a research laboratory in Puerto Rico to train students and provide them with hands-on experiences that will allow them to grow as scientists. Focusing my laboratory

to contribute to the field of neuroscience is an indication of the potential I can bring not just to academia, but to worldwide knowledge.

Scott Lee

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Home Institution: Saint Louis University

Academic Level: Recent Graduate

Undergraduate Major and Graduation Date: Neuroscience, 2020

Home Institution Mentor: Fenglian Xu, Ph.D.

Scientific Interests: I am broadly interested in how one's genetic makeup and environment interact to increase the risk of various neurological diseases, especially in the context of precision medicine. My current research is focused on developing models for pediatric low-grade gliomas, aiming to empower researchers with novel tools to further investigate potential clinical solutions for this niche in cancer biology. Moving forward, I plan on leveraging pharmacogenomics to better understand and address haywire neuron-glia interactions implicated in nervous system disorders.

Career Goals: My ultimate career goal is to become a physician-scientist in academia and spearhead a lab that will help elucidate molecular mechanisms underlying diseases of the nervous system. I am currently working at the Jackson Laboratory for Genomic Medicine as part of a post-baccalaureate program designed to prepare prospective M.D./Ph.D. students for a career integrating science and medicine. I will start applying to schools within the next year.

Heather Lucente

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Home Institution: St. Mary's University (San Antonio, Texas)

Academic Level: Senior

Undergraduate Major and Graduation Date: Psychology, 2021

Home Institution Mentor: Jillian Pierucci, Ph.D.

Scientific Interests: I have an interest in studying how the central nervous system affects behavior in neurodegenerative diseases such as Alzheimer's and Parkinson’s. My goal is to apply any new findings or research in a clinical setting to further progress the studies.

Career Goals: I am in between pursuing a neuroscience or clinical psychology Ph.D. I enjoy research but I also do enjoy applying my knowledge to improve the lives of others first hand.

Emily Makowicz

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Home Institution: Hunter College

Academic Level: Senior

Undergraduate Major and Graduation Date: Biology and Psychology, 2020

Scientific Interests: My research at NYU enabled me to combine both my interests of behavioral and

molecular neuroscience. My interests in neuroscience include exploring developmental plasticity at a molecular level to explore behavioral patterns in disorders and diseases.

Career Goals: In the future, I want to pursue a Ph.D. degree in neurobiology and behavior and continue my research as a future professor.

Miguel Martinez

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Home Institution: University of Arizona

Academic Level: Junior

Undergraduate Major and Graduation Date: Neuroscience with emphasis in Computation, 2021

Home Institution Mentor: Ulises M. Ricoy, Ph.D.

Scientific Interests: My scientific interests are in neuroscience, computation, and electrical engineering. I've worked towards being proficient in all these fields because I want to unify them all. The research I am interested in will hopefully overlap each of them and even be able to implement the work being done into clinical work. Research in neuronal circuits or development of biosensors is the type of work I hope to focus on.

Career Goals: One of my career goals is to develop an interface for brain and computer communication. This interface would correctly move a prosthetic body part as one would normally do by thinking of the action. Another example would be applying this interface to the visual cortex and allowing for a prosthetic eye to function. After graduation I will join a lab that focuses on computer systems and neuronal circuits for graduate work. With that experience I'll work towards a Ph.D. and continue doing research.

Alexandra Martinez Lopez

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Home Institution: Wellesley College

Academic Level: Junior

Undergraduate Major and Graduation Date: Neuroscience, 2022

Home Institution Mentor: Barbara Beltz, Ph.D.

Scientific Interests: I am interested in investigating the relationship between the brain and the immune system, particularly during neuroinflammation and neurodegeneration caused by autoimmune diseases such as Multiple Sclerosis (MS). I am also interested in the role of environmental factors on neural stem cell production and ways they can be used to treat MS.

Career Goals: After graduating, I aspire to become a Ph.D. or M.D./Ph.D. student in the field of neuroscience and neuroimmunology. My career goal is to teach at a major research university and lead a research laboratory with the goal of identifying novel therapeutic targets for neurodegenerative and autoimmune disorders. I dream of being in a position where I can mentor Latinx students in their academic and research journey.

Oscar Martinez Romero

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Home Institution: Reed College

Academic Level: Junior

Undergraduate Major and Graduation Date: Neuroscience, 2022

Home Institution Mentor: Derek Applewhite, Ph.D.

Scientific Interests: I try to keep an open mind to learn the different topics in neurobiology, though I tend to lean more to glial cells. In glial cells, I am interested in learning about glial-neuron and glial-glial interactions. Other research topics that I am familiar with and would like to learn more about include behavioral neuroscience, the cytoskeleton, genetics, microbiome, and cell signaling pathways. Any research interests not listed here are those that I have not encountered in the time being. However, I am ready to learn more about them and would be eager to discuss them.

Career Goals: I plan to attend graduate school to earn my Ph.D. After that, I hope to continue to participate in neuroscience research.

Megan Maxwell

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Home Institution: Washington University in St. Louis

Academic Level: Senior

Undergraduate Major and Graduation Date: Psychology, 2021

Home Institution Mentor: Deanna Barch, Ph.D.

Scientific Interests: I am interested in mental health, specifically the underlying cognitive neuroscience. Specifically, I am interested in the effects of early life adversity on children's mental health outcomes by looking at the disruption in brain structure (among other variables).

Career Goals: After completing a Ph.D. in Clinical Psychology, I would like to work in an applied setting that allows me to integrate research and practice, such as in an academic medical center or hospital.

Ra'Janae Morris

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Home Institution: Tulane University

Academic Level: Junior

Undergraduate Major and Graduate Date: Neuroscience and Psychology, 2022

Home Institution Mentor: Elizabeth Fucich, Ph.D.

Scientific Interests: Adverse effects of nicotine use on young adults who undergo repeated mild traumatic brain injury (rmTBI).

Career Goals: Dual M.D./Ph.D. program

Research Experience Institution: Louisiana State University Health Science Center at New Orleans

Research Mentor: Patricia Molina, M.D., Ph.D.

Paula Andrea Muñoz Rodríguez

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Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major: Cellular and Molecular Biology

Home Institution Mentor: Carmen S. Maldonado-Vlaar, Ph.D.

Scientific Interests: My scientific interests are the study of behavior associated with addiction disorders, anxiety and depression. I would like to design and carry out experiments that contribute to understanding the neurocircuits/mechanisms that mediate these disorders, so that the information obtained will serve to find effective treatments that can safely and feasibly counteract the negative effects caused by these disorders.

Career Goals: After graduation, I plan to pursue a Ph.D. in neuroscience to continue my studies as a postdoctoral researcher in the field of drug abuse and behavioral neuroscience. Determined to become a Principal Investigator in order to: a) Improve people's quality of life by studying the neurobiology of behavior caused by anxiety disorders, depression disorders, and drug abuse disorders; and b) Increase diversity by providing research opportunities for minorities in STEM.

Amajindi Nwankpa

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Home Institution: New York University

Academic Level: Junior

Undergraduate Major and Graduation Date: Neural Sciences, 2022

Home Institution Mentors: Paul Michael McNulty; Rui Wu; Mark Gershow; Ph.D.

Scientific Interests: I am interested in learning about the neuro-mechanisms of addiction. I also enjoy the process of discovering novel ways to combat addiction. Since joining the Gershow lab, I have developed a fascination with convolutional neural networks. Although I am not a coding savant, I am developing my coding skills at a speedy rate. I love observing the ways machines can be trained/weighted to give results that can mimic the actual perception of living being. I intend to use my knowledge on coding in order to increase the rate in which data is collected and sorted.

Career Goals: I plan on enrolling in a M.D./Ph.D. program after undergrad. I would like to use the knowledge I obtain in this program to develop new techniques and logarithms that can assist diagnosis and or treatment. My hope is that these techniques will increase the efficiency in which neurological disorders are treated and or cured.

Angel Gabriel Ojeda Hernaiz

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Home Institution: University of Puerto Rico at Cayey

Academic Level: Senior

Undergraduate Major and Graduation Date: Biology, 2022

Home Institution Mentor: Robert Ross, Ph.D.

Scientific Interests: My research interest in the scientific community has shifted from one main concentration to another since I started college. At first, I longed to obtain a Ph.D. in biomolecular science, later on I got the opportunity to do neuroscience research for one summer. Now days after having successfully accomplished three summer research internships at Michigan State University I can firmly state that a Ph.D. in neuroscience is what I want. My main field of interest in the neuroscience department is to study how the human body responds to different environmental toxicants and how exogenous treatments can affect these responses.

Career Goals: I consider myself a very competitive, dedicated, and honest student with the eagerness to help others. Therefore, it is my greatest desire to be able to share and fructify these qualities in a career that will also expand my limitations, where I feel comfortable helping others. The world of science has much to offer. I will continue doing research and exploring different areas of the Ph.D. after graduation. For now, I am looking forward to a combined M.D./Ph.D. program where I can be a scientific cardiologist who can integrate and/or relate the clinical background to my scientific research.

Ephraim Oyetunji

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Home Institution: Washington University in St. Louis

Academic Level: Sophomore

Undergraduate Major and Graduation date: Neurobiology, African and African-American Studies, 2023

Home Institution Mentor: Joan Downey, M.D., M.P.H.; Timothy Miller, M.D., Ph.D.; Kathleen Schoch, Ph.D.; Erik Herzog, Ph.D.; Diana Jose-Edwards, Ph.D.

Scientific Interests: My research interests lie in understanding the underlying biological mechanisms in neurodegenerative diseases like Alzheimer's disease and Parkinson's disease. I hope to continue investigating these pathologies and discover new therapeutic targets as we work towards a cure.

Career Goals: After graduation, I hope to become both a medical researcher and a practicing neurologist or neurosurgeon with either an M.D. or M.D./Ph.D. I want to be at the forefront of improving patient care through translational research to further my impact.

Dariangelly Pacheco Cruz

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Home Institution: Pontifical Catholic University of Puerto Rico

Academic Level: Senior

Undergraduate Major and Graduation Date: Biomedical sciences, 2021

Home Institution Mentor: Gladys Chompre Gonzalez, Ph.D.

Scientific Interests: My interests are in neurobiology of epilepsy and its molecular mechanisms; I have special interest in Dravet syndrome and possible treatments that include genetic therapies and similar approaches.

Career Goals: After graduating from my undergraduate degree, I would like to reach a Ph.D. in neurobiology or molecular neuroscience and do a postdoc in a high-end institution to then investigate for the NINDS.

Andrew Parra

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Home Institution: New Mexico State University

Academic Level: Master's Student

Undergraduate Major and Graduation Date: Biochemistry, 2020

Home Institution: Paola Mera, Ph.D.

Scientific Interests: Neuroscience and cancer

Career Goals: I would like to work on clinical trials with humans.

Asia Parson

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Home Institution: Washington University in St. Louis

Academic Level: Junior

Undergraduate Major and Graduate Date: Psychology, 2022

Home Institution Mentors: Brian Carpenter, Ph.D.; Matthew Wynn; Matthew Picchiello; Meghan McDarby

Scientific Interests: I am interested in neuropsychology. I would like to study neuroscience and how it relates with behavior. I would like to study neuro developmental diseases and to learn how it varies and causes different types of behavior. I want to study specifically the disease Rett syndrome and try to find possible treatment options and study how the disease is formed. I am very interested in how changes in the brain can cause a change in behavior and ability. I am currently a part of a geropsychology lab, and I spend much time studying neurodegenerative diseases such as Alzheimer's disease.

Career Goals: My career goals are to become a neuropsychologist. I would like to have a position in a hospital where I would evaluate patients, conduct brain scans and advise them on ways to improve their life style and make living with their disease more comfortable. I plan on going to graduate school to earn a Ph.D. in either neuroscience or neuropsychology.

Ikponmwosa Pat-Osagie

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Home Institution: Hunter College

Academic Level: Senior

Undergraduate Major and Graduate Date: Psychology, 2021

Home Institution Mentor: Kizzy Vazquez

Scientific Interests: My scientific interest include memory, addiction, and decision making.

Career Goals: I plan on attending graduate school where I will be conducting research and obtaining my Ph.D. in behavioral neuroscience.

Caroline Perez

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Home Institution: Xavier University of Louisiana

Academic Level: Junior

Undergraduate Major and Graduation Date: Biology, 2022

Home Institution Mentor: Kristal Huggins

Scientific Interests: My scientific interests dip into both the medical and research fields. My first interest was in human anatomy and physiology. From here I developed a joint interest in the endocrine and nervous systems.

Career Goals: My career goals are a bit underdeveloped right now. I know that after graduation I plan to attend either medical school or graduate school.

Marina Pérez-Gil

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Home Institution: University of Puerto Rico at Cayey

Academic Level: Senior

Undergraduate Major and Graduation Date: Biology, 2022

Home Institution Mentor: Robert Ross, Ph.D.

Scientific Interests: When I began my first year of college my scientific interest was in veterinary research and to obtain a D.V.M./Ph.D. degree. But, once I was able to complete my first summer research internship in neuroscience, I learned that my interest truly lies in a career in Biomedical Research. By earning my Ph.D. in biomedical science, I may be able to study biological processes and diseases with the ultimate goal of developing effective treatments and cures.

Career Goals: As a strong and competitive candidate, I hope to get into a good graduate school program, here I may be able to continue doing research as a graduate student until I graduate and earn my Ph.D. My overall career goal in provide insight and understanding of pathophysiological mechanisms that cause disease. Comprehending these processes and pathways is essential for new diagnostic procedures, treatments, and preventative strategies.

Astrid Ramos

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Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Interdisciplinary Sciences, 2021

Home Institution Mentor: Carmen Maldonado-Vlaar, Ph.D.

Scientific Interests: I want to work within the field of behavioral neuroscience to study the neural and molecular bases of mental illnesses like depression. With my research, I would live to contribute to possible ways to treat such diseases.

Career Goals: Firstly, I plan to graduate by December 2021 from my bachelor's degree in Interdisciplinary Sciences, do a postbaccalaureate program, and then pursue a doctoral degree (Ph.D.) in neuroscience. I strive to continue a career in academia as a PI and professor. Also, I would like to be active in programs that increase the research field's diversity, just like in the program that I participate in.

Jose Riguero

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Home Institution: University of Colorado at Denver

Academic Level: Recent Graduate

Undergraduate Major and Graduation Date: Psychology, 2020

Scientific Interests: My scientific interests pertain mostly towards furthering the biological mechanisms that underlie severe mental disorders, such as schizophrenia, autism, bipolar disorder, etc.

Career Goals: I seek to further my education and pursue either an M.D./Ph.D. career path or devote myself to a Ph.D. in neuroscience.

Shamauri Joshua Rivera

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Home Institution: Hunter College

Academic Level: Junior

Undergraduate Major and Graduation Date: Behavioral Neuroscience, 2023

Home Institution Mentor: Sandeep Prasada, Ph.D.

Scientific Interests: My future career interest is in the investigation of how perceptual experiences directly affect the brain biologically and conceptually. I would like to do this by exploring the relationship between the biomechanics and conceptual processes of the brain, specifically how in adjunction they produce our conscious experience. The goal of my research is to better explore how certain neurological disorders and substances may affect these processes to produce varying levels of consciousness and how that is reflective on society.

Career Goals: My goal is to expand my understanding of the neuroscience/psychology of social structures and group interactions through the interdisciplinary study of social neuroscience/psychology. My career plans after graduation is to implement my research and experience into aiding groups that reside in countries on the UN's list of least developed Nations.

Vitmary Rivera Rodriguez

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Home Institution: Ana G. Méndez, Gurabo Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Biology (Pre-Med), 2021

Home Institution Mentor: Lisandro Cunci, Ph.D.

Scientific Interests: I am interested in neuroscience in neurodegenerative diseases or disease that affect the function of the gut due to mast cell, interleukin or some neurological factor.

Career Goals: I want study medicine and do clinical research.

María V. Rivera-Santana

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Home Institution: University of Puerto Rico, Mayagüez Campus

Academic Level: Senior

Undergraduate Major and Graduation Date: Biology, 2021

Scientific Interests: I am intrigued by highly translational neuroscience research. Particularly fascinating to me is clinical research that involves the use of novel therapeutics, prosthetics, and neuroengineering to improve outcomes and quality of life. However, my interests are in no way limited to exclusively these types of studies, since I am also very interested in basic neuroscience research that has a focus on the adverse effects that disease can have over the neurological system and what novel therapeutics, drugs, or technologies can be created to improve life after disease.

Career Goals: I wish to become a physician-scientist. With this dual degree I aspire to conduct research on the development of therapeutics and technologies which would later be implemented at a clinical level. Besides conducting translational research, I would also be interesting in working with local and international government agencies to make medical services and education more accessible to underdeveloped communities, as well as work to reduce health care disparities. I also wish to become a strong voice that can advocate and enable for a greater representation of minorities within the sciences and health related fields.

Mia Roberts

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Home Institution: Hunter College

Academic Level: Senior

Undergraduate Major and Graduation Date: Psychology Major,2021

Home Institution Mentor: Nesha Burghardt, Ph.D.

Scientific Interests: My research interests mainly lie in drugs, brain, and behavior. I am interested in drug abuse and the neural circuits that underlie it, such as reward and motivation. I am also interested in neuroendocrinology and brain development—specifically, the role of the neuroendocrine system during drug use. In the Burghardt Lab, we are currently investigating the effects of prenatal exposure to curcumin on the development of neural circuits underlying fear and anxiety, which aligns with my interest in behavioral psychopharmacology.

Career Goals: In the future, I hope to attain a Ph.D. in neuroscience. Eventually, I want to become a faculty member at a research university researching drugs, brain, and behavior. More specifically, I am interested in helping to discover new ways to treat and better understand addictions such as opioid addiction.

Jesús M. Rosario Claudio

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Home Institution: University of Puerto Rico at Cayey

Academic Level: Junior

Undergraduate Major and Graduation Date: Natural Science, 2022

Scientific Interests: Neuroscience; toxicology

Career Goals: In very few words, my career goals and plans after graduation evolved around going to medicine school and/or graduate school in areas around neuroscience and toxicology.

Karen San Agustin Ruiz

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Home Institution: New York University

Academic Level: Junior

Undergraduate Major and Graduation Date: Neural Science, 2022

Home Institution Mentor: Prerana Shrestha, Ph.D.

Scientific Interests: My research interests include memory, particularly the consolidation of or the loss of, learning, and development. My goal is to better understand how learning and memory are shaped throughout the various stages of development and what pathways govern this processes.

Career Goals: I plan on following the Ph.D. track and entering academia. While I would love to continue working with memory, I hope to gain insight into various other fields through my studies.

Krystal M. Santiago Colón

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Home Institution: University of Puerto Rico at Cayey

Academic Level: Senior

Undergraduate Major and Graduation: Biology, 2022

Home Institution Mentor: María de Jesús, Ph.D.

Scientific Interests: Witnessing first-hand how easily neuroscience merges with other disciplines made me realize that my interests lie in figuring out the problem-solving approaches that neuroscience encompasses. My research interests are in neurotoxicology, neuroendocrinology, and neuropharmacology.

Career Goals: After finishing my baccalaureate degree, I plan to pursue a Ph.D. in pharmacology or neuroscience.

Gabrielle Sheets

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Home Institution: University of New Orleans

Academic Level: Junior

Undergraduate Major and Graduation Date: Psychology, 2022

Home Institution Mentor: Elliot Beaton, Ph.D.

Scientific Interests: I am interested in a variety of research fields including oncology, neurology, psychology, and surgery.

Career Goals: After my undergrad, I wish to apply to M.D./Ph.D. programs. I hope to become a physician who is involved in research and is able to include the latest research in my practice.

Elge Stevens

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Home Institution: Xavier University of Louisiana

Academic Level: Senior

Undergraduate Major and Graduation Date: Neuroscience, 2021

Scientific Interests: I am currently interested in exploring the endocannabinoid system neuroadaptations in pain and alcohol/fentanyl addiction.

Career Goals: I plan to work as a research technician to fully emerge myself into the lab while taking a few graduate courses so that I may gain admittance into a Medical Scientist Training Program.

Adrianna Suazo

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Home Institution: The University of New Mexico

Academic Level: Recent Graduate

Undergraduate Major and Graduation Date: Psychology, 2019

Scientific Interests: Neuropsychology with an emphasis in cognitive behavioral studies and approaches.

Career Goals: To continue onto graduate school.

Jennifer Tepan

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Home Institution: Hunter College

Academic Level: Junior

Undergraduate Major and Graduate Date: Psychology, 2022

Home Institution Mentor: Maria E. Figueiredo-Pereira, Ph.D.

Scientific Interests: My scientific interests include understanding the neural mechanisms involved in neurodegeneration and how it directly affects cognition and memory. As well as evaluating the effectiveness of certain medications at improving neurodegenerative diseases through the use of psychological tests, neuroimaging and cellular assays.

Career Goals: My career interests lie in the pathology of memory decline and how it may target certain pathways of the brain. As well as becoming a researcher and professor.

Julienn Torres Rodriguez

Email: jtorresrodriguez12@pucpr.edu

Home Institution: Pontifical Catholic University of Puerto Rico

Academic Level: Senior

Undergraduate Major and Graduation Date: Biomedical sciences, May 2021

Home Institution Mentor: Dinah L. Ramos Ortolaza, Ph.D.

Scientific Interests: I want to complete a Ph.D. in neuroscience to contribute to the search for knowledge of our nervous system. I want to reach the opportunity to understand each process that goes through our brain with the purpose of informing society. In the future, I hope to educate the next generations to share the knowledge that I have acquired in the last years of study. I am committed to the search made by each researcher to respond to the different situations that affect us as human beings. My motivation is to be part of the modern neuroscientific world.

Career Goals: After graduating, I want to be admitted to a graduate school. I see myself working on a laboratory directed to neuroscience and maybe teaching other students. I want to contribute to society, and I know that research is the right route. I want to reach a Ph.D. title and with all the knowledge that I acquired, I want to inform the world, share good science without discrimination.

Ngan Tran

Email: ntran46@lsu.edu

Home Institution: Louisiana State University

Academic Level: Sophomore

Undergraduate Major and Graduate Date: Biochemistry, 2023

Scientific Interests: I am interested in HIV/AIDS impact on the nervous system

Career Goals: I hope to enroll in LSU's M.D./Ph.D. program and work with underrepresented communities while contributing to the scientific community.

Viviana Paola Valentín-Valentín

Email: viviana.valentin1@upr.edu

Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major: Biology

Home Institution Mentor: Gregory Quirk, Ph.D.

Scientific Interests: My research interests are centralized in studying neuropsychiatric diseases, emotions, social and motivational behaviors, and learning and memory.

Career Goals: After graduation, my plans are to pursue a Ph.D. in neuroscience and follow my research interests in behaviors. In the future, I aspire to become a Principal Investigator and an efficient mentor for the next generation of underrepresented minority scientists.

Omaris Vélez-Acevedo

Email: omaris.velez@upr.edu

Home Institution: University of Puerto Rico, Río Piedras Campus

Academic Level: Senior

Undergraduate Major and Graduate Date: Cellular and Molecular Biology, 2022

Home Institution Mentors: Carlos Jiménez-Rivera, Ph.D.; Carmen Maldonado-Vlaar, Ph.D.; José E. García-

Arrarás, Ph.D.

Scientific Interests: Identification of new molecular targets for the development of possible treatments for neuropsychiatric disorders such as schizophrenia.

Career Goals: Conducting my own research as a principal investigator in the field of neuropsychiatry and becoming a professor.

Sierra Williams-McLeod

Email: sierra.williamsmcleod@my.hamptonu.edu

Home Institution: Hampton University

Academic Level: Senior

Undergraduate Major and Graduation Date: Biochemistry, Spanish (minor), 2021

Scientific Interests: My research interests include using cellular and molecular techniques to study the mechanisms of brain cancer metabolism, neurodegenerative disease, and investigating therapeutic interventions for potential treatment.

Career Goals: Upon graduation, I will go on to complete a Ph.D. in Neuroscience in hopes of going into academia or working in the neuropharmaceutical industry.

Hunter Yamada

Email: hunter_yamada@brown.edu

Home Institution: Brown University

Academic Level: Senior

Undergraduate Major and Graduation Date: Neuroscience, 2021

Home Institution Mentor: Monica Linden, Ph.D.

Scientific Interests: I am largely interested in research involving regenerative and developmental processes in the CNS.

Career Goals: I aim to pursue a career in neurosurgery.

ENDURE SCHOLAR RESEARCH PROJECTS

Christian Andino Del Valle

Research Experience Institution: University of Puerto Rico, Río Piedras Campus

Research Mentor: José E. García-Arrarás, Ph.D.

Project Title: Effects of Pharmacological Inhibition of NOX-Derived ROS in Early Intestinal Regeneration in *Holothuria glaberrima*

Project Abstract: Echinoderms are well known for their ability to regenerate complete body parts, such as their digestive tube. Although the early signals that initiate regeneration in these and other animals are poorly understood, previous studies have proposed important factors in the early injury that initiate regeneration. Among these factors are the reactive oxygen species (ROS), which are endogenously-generated molecules known to function as signals that initiate regenerative processes in many animal groups. In our animal model the sea cucumber *Holothuria glaberrima*, a process of regeneration begins after autotomizing its digestive system. After autotomy, the wounded mesentery which previously attached the digestive tube begins to heal and then the growth of a blastema-like structure will give rise an intestinal rudiment. Later, this will be transformed into a new and functional intestine. This process depends on multiple cellular processes, including cell proliferation, apoptosis, cell dedifferentiation, and remodeling of the extracellular matrix. The aim of the study is to determine the possible role of ROS during early intestinal regeneration in *H. glaberrima* by using a known inhibitor of NADPH oxidase (NOX), an important enzyme for the production of ROS.

Ayomiposi B. Adewakun

Research Experience Institution: Brown University

Research Mentors: Stephanie Jones, Ph.D.; Blake Caldwell, Ph.D.

Project Title: Using Laminar Data Analysis to Derive LFP & CSD Signals with HNN

Project Abstract: Magneto- and electro-encephalography (MEG/EEG) recordings allow neurologists and psychiatrists to non-invasively record brain activity from patients with a relatively fast temporal resolution to help diagnose patients and pinpoint the source of neural ailments, as well to examine neural responses to physical and perceptual tasks. Through computational modeling, Human Neocortical Neurosolver (HNN) can assist clinicians in applying these large-scale recordings to identify hypotheses regarding the origins of these signals at the neuronal and circuit level. This project adds a new capability to HNN of validating predictions with laminar animal local field potentials (LFP) and current source density (CSD) recordings. To do so, we use computational modelling methods to determine LFP and createCSD plots, which can be used to infer more information regarding the biophysical properties of these neocortical cells. Our group is developing novel methods that extract features from simulated and experimental data representing canonical patterns of cortical activation in sensory event-related potentials across species. In short, this process of analyzing non-invasive MEG/EEG recordings provides a new way to validate predictions of micro-scale laminar activity in the human neocortex by drawing on data collected from microelectrode recordings in animals.

Valentina Alvarez Martinez

Research Experience Institution: New York University

Research Mentors: Chiye Aoki, Ph.D.; Margarita Kaplow, Ph.D.

Project Title: The Directional Effect of Acyl Ghrelin Binding in Excitatory and Inhibitory Neurons in the Amygdala, its Effect on Anxiety, and Possible Implications on the Pharmacological Treatment of Anorexia Nervosa

Project Abstract: Pharmacological treatments for anorexia nervosa (AN) should target the ghrelin system, because previous studies suggest that ghrelin may counteract key symptoms like depression, anxiety, and gastric discomfort. Additionally, genome-wide association studies suggest that mutations in ghrelin-related genes may be involved in the etiology of the disorder. Furthermore, ghrelin treatments are proven to prevent vulnerability in activity-based AN—the animal model. To deduce what specific interventions of the ghrelin system would best treat AN, we us whole cell recordings to predict acyl ghrelin's effect on anxiety. We observe the directional effect that acyl ghrelin binding to the growth hormone secretagogue receptors 1a have on the firing of either excitatory or inhibitory neurons in the amygdala. We extrapolate that increased firing in excitatory cells correlates with greater anxiety and decreased firing in the inhibitory cells correlates with lower anxiety. Our findings will guide how drug candidates for AN target the ghrelin system, on a physiological level, to reduce anxiety—a critical symptom and perhaps even a cause of AN.

Maya Bluitt

Research Experience Institution: Washington University in St. Louis

Research Mentor: Alexxai Kravitz, Ph.D.

Project Title: Investigating Effort After Weight Loss in Mice

Project Abstract: Disruptions in motivation and reward-based decision making are associated with a variety of neuropsychiatric diseases, including obesity. In the context of obesity, there is considerable evidence that withdrawal from palatable food can increase food motivation in formerly obese rodents. However, the majority of studies employ persistence-based assays that cannot assess other kinematic aspects of reward responding. Here we use a novel behavioral assay to demonstrate that weight loss following obesity results in increased force exertion to obtain a palatable reward. Furthermore, we found that D1- and A2A-expressing medium spiny neuron activity in the nucleus accumbens reflect force exerted for a reward, and accumbal D1 MSN activity is increased in formerly obese mice. We conclude that weight loss following obesity promotes increased effort to obtain a palatable reward, and this may be due to underlying synaptic changes in accumbal circuitry.

Devin Burris

Research Experience Institution: University of Washington in St. Louis.

Research Mentor: Harrison Gabel, Ph.D.

Project Title: Topographical Map of DNMT3A Mutations: An in-Silico Analysis of Mutations Related to Neurodevelopmental Disorders

Project Abstract: DNA Methyltransferase 3A (DNMT3A) is a de novo methyltransferase critical for methylation of both canonical CG dinucleotides and uniquely enriched neuronal CA dinucleotides. Mutations in DNMT3A cause Tatton-Brown Rahman Syndrome (TBRS) which is characterized by intellectual disability and overgrowth. While the structure of DNMT3A has been well studied, the potential impact of

neurodevelopmental-disease-associated DNMT3A mutations on function had not been closely examined using this structural information. I was able to plot over 80 mutations on PDB files of the three domains of DNMT3A in the PyMOL Molecular Graphics System 2.0 Schrodinger. Mutations were analyzed for potential severity of effects by examining frequency of a particular mutation, strength of known phenotypes for the mutation, and the amino acid hinderance of the mutation using mutagenesis settings to examine rotamers. Additional information was gathered by topographic representation such as 3-D clustering of mutations not apparent from linear sequencing. My analysis implicates mutation interaction with histone modifications, reveals new areas of interest in the ADD and catalytic domain that may indicate important and unexpected interactions are present, and allows for a holistic understanding of deleterious mutation function when comparing previous in vitro work and also narrows down candidates for future in vitro work.

Lorena Casiano

Research Experience Institution: University of Colorado Anschutz Medical Campus

Research Mentors: Stephanie M. Garcia; Wenbo Zhou, Ph.D.; Curt Freed, M.D.

Project Title: Assessing HDACi Drug Phenylbutyrate's Clinical Translational Potential

Project Abstract: Parkinson's disease (PD) is a neurodegenerative disease characterized by motor and non-motor deficits. Pathological hallmarks of PD include alpha-synuclein protein aggregation in neurons, known as Lewy bodies, and neurodegeneration of dopamine neurons. The calcium channel blocker drug isradipine promotes neuroprotection in cell culture and rodent models of PD but failed to show effectiveness in a Phase 3 double-blind placebo-controlled clinical trial. Previous work in Dr. Curt R. Freed's lab has shown that sodium phenylbutyrate protects dopamine neurons from neurotoxicity induced by oxidative stress or alpha-synuclein aggregations in both cell culture and transgenic mouse models. Phase I clinical trials demonstrated that oral doses of glycerol phenylbutyrate was well received by PD patients. The goal of this project is to prevent the same fate of isradipine for the drug sodium phenylbutyrate by further testing the two drugs against our dopaminergic cell lines and animal models to differentiate the two. Using three variations of rat dopaminergic cell lines, the drugs were tested against cells that underwent oxidative stress chemically induced by hydrogen peroxide. Cell viability was measured, and the results showed that isradipine could block the negative effects of oxidative stress on all three cell lines and outperformed sodium phenylbutyrate.

Stephanie L. Cruz Rodríguez

Research Experience Institution: University of Puerto Rico, Río Piedras Campus

Research Mentors: José Agosto, Ph.D.; José E. García-Arrarás, Ph.D.; Carmen Maldonado-Vlaar, Ph.D.

Project Title: Long-term Multiparameter Assessment of the Impact of Seasonality and Hurricane Maria on Colony Measures: A Case Study of Africanized Honey Bees in Puerto Rico

Project Abstract: On September 20, 2017, Hurricane Maria hit Puerto Rico and was associated with the loss of approximately 80% of managed honey bee colonies mainly due to the winds and the posterior lack of floral resources. As part of an ongoing project, we were monitoring a colony with video at the hive entrance, photos from all frames, and various sensors measuring internal parameters. This capturing the period before and after Hurricane Maria to gain insight into how surviving honey bee colonies responded to this event. In addition, we were able to investigate whether administration of supplements is sufficient for survival, reproduction, and physiological control of the internal colony environment. Our findings indicate that despite the presence of high levels of honey from our syrup administration, there was a dramatic

decrease in brood one month after the hurricane (October). We interpret this brood decrease as being caused by cannibalism. Using our novel methodology to automatically detect pollen entry, we found that by the 2nd month after the hurricane (November), pollen entry was recovered to pre-hurricane levels and coincided with the recovery brood levels. We speculate that fresh pollen entry, is a key parameter for brood regulation to either nurse or cannibalize larvae.

Andrea F. Edwards-Cintrón

Research Experience Institution: University of Puerto Rico, Medical Sciences Campus

Research Mentor: Amaya Miquelajáuregui, Ph.D.

Project Title: The Effects of Musical Education in Rhythmic Perception and Production in Puerto Rican Adults with or without Musical Training

Project Abstract: Our remarkable musical abilities seem to be rooted in biological principles and inherent capacities of the human brain. Rhythm, the fundamental structure of music, is incorporated into a great part of our everyday lives, from playing music to heart rate. In this study, we seek to understand intrinsic rhythmic capabilities in Puerto Rican adults and consider how musical education influences these abilities. To account for these skills, Puerto Rican adults with or without musical training participated in a series of rhythmic perception and production tests (Montreal Battery Evaluation of Musical Abilities, Metronome Synchronization, and Free Tapping). Rhythmic outputs were quantified by measuring Inter-beat Intervals. We expect musicians will display less variability and more accuracy in rhythmic perception and production. Although all participants reflected consistent rhythmic output, preliminary data reflects less variability in musicians during rhythmic production tests when compared to non-musicians. Additionally, participants obtained an overall score of 90% or higher in the rhythmic perception test. This supports that although there seem to be inherent capabilities related to rhythm, musical training may enhance these skills. By characterizing rhythmic aptitude in Puerto Rican adults and children, we hope to shed light on the maturation of rhythmic abilities during neurodevelopment and adulthood.

Olumide Fagboyegun

Research Experience Institution: Washington University in St. Louis

Research Mentor: John Cirrito, Ph.D.

Project Title: Principal Component Extraction Eliminates Oxidative Peak Drift and Increases Precision of Micro-immunoelectrode Measurements of Amyloid-β

Project Abstract: Amyloid-beta (Aβ) plaque deposition is a hallmark feature of Alzheimer's disease. Interstitial fluid (ISF) Aβ is temporally dynamic; however, common tools lack the temporal resolution to study rapid changes in Aβ concentration, particularly in vivo. To characterize rapid regulation of ISF Aβ, we developed a novel micro-immunoelectrode (MIE) tool. MIEs detect oxidation of tyrosine amino acids within Aβ via voltammetry, however, measurements can be subject to oxidative peak drift, which we suspect increases the variance between measured peak oxidation values. I hypothesized that eliminating this drift would decrease MIE measurement variance, thereby increasing precision and accuracy of the instrument. I extracted the drift using Principal Components Analysis, which significantly reduced the variance between individual peak oxidation measurements during calibration of MIEs in samples of Aβ. Importantly, this did not significantly change the average peak oxidation values, meaning that drift extraction does not impair MIE accuracy. We obtained similar results in samples of human cerebrospinal fluid, suggesting that this is a method for increasing precision of MIE's in biological samples.

To study the in vivo kinetics of ISF Aβ more reliably, we will explore whether drift extraction can be used to improve precision of MIE measurements of Aβ in vivo.

Britney Fernandez

Research Experience Institution: Hunter College

Research Mentor: Thomas Preuss, Ph.D.

Project Title: Visual Threat Assessment and C-Start Behaviors in Teleostei

Project Abstract: Startle responses are a largely unconscious defensive response to sudden or threatening stimulus. Startle responses in humans can be characterized as a jump and bringing forward motion of the shoulders to protect the neck when a sudden movements or loud and unexpected noise is presented. One of the best visual representations of a startle response can be seen in fish and their C- start behavior. This response is separated into two sections, the body turns at the center of mass and then they propel their body forward in an attempt to escape a threatening stimulus. With this background information I formulated a hypothetical experiment using larval zebrafish that would allow us to identify the regions of the brain that could be associated with startle responses in relation to stimulus approaching at different velocities made possible with light field microscopy. In the lab, my main project was to identify the behavioral markers of the C- start behavior in the goldfish loom experiments through high-speed video analysis of the behavior.

Midori Flores

Research Experience Institution: Michigan State University

Research Mentor: William Atchison, Ph.D.

Project Title: The Role of Environmental Stressors on a UNC13A Single Nucleotide Polymorphism in *C. elegans* and Motor Neuron Degeneration: A Possible Cause of Sporadic Amyotrophic Lateral Sclerosis

Project Abstract: Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease that is highly fatal and is characterized by specific clinical manifestations and pathophysiology. Previous research suggests a gene-environment interaction may influence the development of sporadic ALS (SALS) which make up 90%-95% of all ALS diagnoses. A meta-analysis revealed that a single nucleotide polymorphism (SNP), rs12608932, located in an intron of UNC13A was associated with a greater risk of SALS development. The CRISPR/Cas9 system will be used to incorporate the UNC13A SNP in a novel *C. elegans* model using the unc-13 homolog A strain. It is hypothesized that the polymorphism rs12608932 in UNC13A in a *C. elegans* model exhibits characteristics of motor neuron degeneration like that of ALS after exposure to environmental stressors. As we are commonly exposed to methylmercury, lead, and pesticides, it is imperative that their influence on genes are closely examined to create targeted therapeutics and genome-wide association studies.

Hector Alejandro Haddock-Martinez

Research Experience Institution: Vanderbilt University

Research Mentors: Kendra Oliver, Ph.D.; Joey Barnett, Ph.D.

Project Title: Reaching a General Audience Through an Animated Video that Explains the Connection Between Mental and Cardiovascular Health

Project Abstract: Mental health can influence cardiovascular health via the autonomic nervous system. Thus, proper mental health can help reduce the risk of cardiovascular disease. However, many people are not aware of this. This is especially true among minorities and socioeconomically disadvantaged groups, who tend to have low health literacy. To address this issue, we prepared an animated video targeted towards a general audience that highlights the interaction between mind and heart. To measure the impact and reach of our video, we also prepared a survey that allowed us to collect data regarding viewer demographics. Results from our survey showed that our video failed to reach a heterogeneous audience based on racial distribution amongst viewers. Thus, a stronger promotion campaign is needed in order to increase the reach of our video.

Corin Humphrey

Research Experience Institutions: Hunter College and Icahn School of Medicine at Mount Sinai

Research Mentor: Tristan Shuman, Ph.D.

Project Title: Investigating the Effects of Estrogen and Progesterone on Hyperexcitability of Medial Entorhinal Cortex Layer II Stellate Cells in a Mouse Model of Temporal Lobe Epilepsy

Project Abstract: Often in epilepsy seizure frequency and susceptibility fluctuate alongside hormonal state. Previous research has suggested that estrogen is proconvulsive while progesterone is anticonvulsant. We propose to examine the effect of hormones on seizure generation in light of the dentate gate theory of temporal lobe epilepsy which posits that, in healthy mice, the dentate gyrus plays a key protective role in filtering excitatory signals from the entorhinal cortex before they reach the hippocampus. In temporal lobe epilepsy, medial entorhinal cortex layer II stellate cells become hyperexcitable and, as they are the primary excitatory inputs to the dentate gyrus, are thought to be particularly important in seizure generation. Utilizing whole cell slice electrophysiology, we recapitulated the general finding that medial entorhinal cortex layer II stellate cells are hyperexcitable in epilepsy. Next, we propose to investigate the effect of acute bath application of estrogen and progesterone on excitability of medial entorhinal cortex layer II stellate cells and the dentate gyrus. Examining the effect of hormones on the dentate gate circuit will help reveal how hormonal state may impact seizure susceptibility in all people with epilepsy, especially people who are postmenopausal, trans, entering puberty, or on birth control.

Raisa Karim

Research Experience Institution: Hunter College

Research Mentor: Allyson K. Friedman, Ph.D.

Project Title: Correlation Between Variance in Anxious Behavior and Electrophysiological Properties in BNST Type III Neurons

Project Abstract: Although nearly everyone experiences stress, some people do not develop depression or anxiety and become resilient to stress. Determining the underlying mechanisms of stress resilience are of therapeutic interest. Our study focuses on the connection between brain regions for anxiety (BNST: bed nucleus of stria terminalis) and social behavior/reward (VTA: ventral tegmental area). Previous research shows that the VTA receives input from the BNST, which consists of Type I-III neurons distinguishable through electrophysiological properties. Among this heterogeneous population, only Type III neurons are corticotropin-releasing factor positive, suggesting that they are stress-responsive. Furthermore, 80% of the VTA-projecting BNST cells are Type III. Studying BNST to VTA projections can provide insight on the stress response. Mice received eYFP viral retrograde injections from the VTA to BNST two weeks prior to

behavior. They underwent a series of anxiety tests. After perfusion, we analyzed electrophysiological properties in the BNST neuron and confirmed viral injection coordinates in the VTA using immunohistochemistry. We found that baseline excitability of the Type III neuron correlated with anxiety level. Next steps would be to include a stressor in our paradigm to study the effect of stress on the BNST-VTA projections.

Milana Khaitova

Research Experience Institution: Hunter College and New York University

Research Mentors: Tracy A. Dennis-Tiwary, Ph.D.; Sarah Myruski, Ph.D.; Qin Lin, Ph.D.

Project Title: Is Respiratory Sinus Arrhythmia a Marker for Stress and Anxiety During a Stressor?

Project Abstract: Anxiety disorders are the most common mental health diagnosis. Anxiety's adverse impacts on individuals motivate investigations for how stressors develop bio-behavioral anxiety symptoms. The Trier Social Stress Test (TSST) increases cortisol levels and heart rate. Respiratory sinus arrhythmia (RSA) reflects heart rate variability, specifically heart rate changes due to changes in respiration, and may reflect parasympathetic nervous system (PSNS) activity. The ability to suppress RSA during stressors suggests the PSNS is suppressed, thus the sympathetic nervous system engages, helping individuals cope. This proposed study aims to clarify links among RSA, behavioral responses during the TSST, and anxiety severity. Participants will self-report anxious symptoms and complete the TSST, during which an electrocardiogram (ECG) will be recorded. Anxious behaviors will be coded from videotaped TSST observations. RSA suppression during stressor versus baseline will be quantified from the ECG, with more negative scores indicating greater suppression. We hypothesize that individuals with high versus low anxiety will show reduced RSA suppression during the TSST, which in turn will predict increased frequency of anxious behaviors. We will test this hypothesis using moderation analyses. Results will inform knowledge of biological vulnerabilities associated with anxiety, helping advance towards better early detection and development of more targeted treatments.

Jaysen Andrés Lara-Jiménez

Research Experience Institution: University of Puerto Rico Medical Sciences Campus

Research Mentor: Demetrio Sierra-Mercado, Ph.D.

Project Title: Effect of Glyphosate-Based Herbicide on Locomotor Behavior in Rats

Project Abstract: Glyphosate is the active ingredient of the most commonly used herbicides. Initially glyphosate was considered safe by the Environmental Protection Agency (EPA), as it acts by inhibiting a metabolic route not present in mammals. The maximum contaminant level of glyphosate permitted by the EPA in drinking water is 0.7g/ml. Recent studies in rodents have shown that a high dosage of glyphosate-based herbicides (GBH) decreases locomotion. However, the effects of prolonged GBH exposure using EPA approved dosages have not been studied. To determine the effects of lower dosage consumption, rats were provided with GBH-contaminated drinking water with ad libitum access for six weeks. We hypothesized that rats exposed to GBH contaminated water would have decreased locomotion. Locomotion was assessed using the open field test after seven weeks of exposure. Interestingly, we observed that glyphosate caused an increase in distance traveled, and average speed, but had no effect on maximum speed. To assess for the cause of these results, we evaluated for changes in locomotor phenotype. Darting has previously been described as a locomotor activity that may be indicative of anxiety. Hence, high levels of anxiety may contribute to changes in locomotor parameters measured. Therefore, we re-analyzed the

recordings of the open field test and measured darting. Results showed that animals exposed to GBH-contaminated drinking water displayed more darting events. In conclusion, the lower oral dosage provided appears to increase locomotion, which is contradictory to previous studies. However, given the change in locomotor phenotype, it is possible that this difference is due to GBH's effect on other behaviors such as anxiety, which has been shown with other studies. Future directions include prolonging time of exposure and assessing immunohistochemistry in areas of the brain involved with locomotion such as the basal ganglia.

Scott Lee

Research Experience Institution: Washington University in St. Louis

Research Mentor: Joseph Dougherty, Ph.D.

Project Title: Mosaic Knockout of the QKI RNA-binding Protein in Cortical Astrocytes

Project Abstract: Peripheral astrocyte processes (PAPs) flank pre- and post-synaptic neurons to create a "tripartite synapse," playing crucial roles in synapse formation and stability. Recent work has shown that astrocytes locally translate specific transcripts in their peripheral processes and that many of the transcripts enriched in PAPs contain binding motifs for the RNA-binding protein *quaking* (QKI), which has been reported to facilitate nuclear export of myelin basic protein's transcript in oligodendrocytes. It is not clear, however, which targets QKI binds to *in vivo* and how this process is involved in brain development. Given that full QKI knockout is fatal, we utilized the CRISPR-Cas9 system to induce mosaic knockout of QKI in cortical astrocytes. Through a series of immunofluorescent experiments, we found that the CRISPR-Cas9 system can induce up to ~60% non-lethal knockout of three isoforms of QKI in P21 mice. Interestingly, we also stained for Caspase-3 to assess the effect of QKI deficiency on cell viability and found no evidence of cell death in QKI-deficient astrocytes. Overall, our results show that the CRISPR-Cas9 system can be leveraged to induce non-lethal, mosaic knockout of QKI in astrocytes and may serve as a powerful tool to further understand the complex functions of astrocytes.

Heather Lucente

Research Experience Institution: Michigan State University

Research Mentor: William Atchison, Ph.D.

Project Title: Pre-natal Exposure to Mercury in *C. elegans* with the Fused in Sarcoma (FUS) Mutation: A Possible Association with the Development of Pediatric and Juvenile Amyotropic Lateral Sclerosis (JALS)

Project Abstract: The fused in sarcoma (FUS) genetic mutation in individuals poses as a genetic predisposition for the development of ALS and is more often found in pediatric and juvenile ALS cases. Environmental factors such as mercury and methylmercury (MeHg) can hasten the onset of familial ALS. This proposed study will be the first to investigate pre-natal exposure MeHg in transgenic *C. elegans* expressing the FUS gene mutation and wild-type FUS gene. Because individuals with the FUS genetic mutation experience a more aggressive progression with ALS signs and symptoms, this study can further investigate if MeHg exposure is associated with the faster progression of the development of ALS. This will be done by exposing pre-natal *C. elegans* with the FUS mutation to MeHg through nutrient media with different MeHg concentrations. Motility of the *C. elegans* will demonstrate the effect of the mutation and MeHg exposure on motor function. It is expected that MeHg hastens the development of and could be a cause of the rapid progression of ALS in juveniles with the FUS gene mutation.

Miguel Martinez

Research Experience Institution: Michigan State University

Research Mentor: Patricia Perez-Bonilla

Project Title: Activation of Neurotensin Receptor-1 and its Effect on Stereotypy

Project Abstract: Energy intake and expenditure cues are closely coordinated by the brain. However, an inability to coordinate energy level cues is problematic when reaching for energy homeostasis. A surplus of energy with a lack of enough exercise can lead to obesity. Identification of which neurons are responsible for these behaviors identified subsets of dopamine (DA) neurons within the ventral tegmental area (VTA) that have been previously implicated in suppressing feeding and increasing locomotor activity. More specifically, VTA DA neurons that express neurotensin receptor-1 (VTA NtsR1) have shown this change in behavior when the neuropeptide, neurotensin (Nts), was infused into the VTA. Due to dopamine neurons being activated, the locomotor activity we are looking for is classified as stereotypical. My hypothesis is that activation of VTA NtsR1 neurons causes an increase in stereotypic behavior. Using Cre-lox technology and NtsR1 serving as a molecular marker, we used DREADDS to achieve site specific activation of VTA NtsR1 neurons. Observation and data taken through TSE metabolic cages in the horizontal and Z-Plane showed Significant Increase in activity. This increase confirmed my hypothesis and showed that the manipulation of VTA DA NtsR1 neurons will play a future role in correcting energy imbalance and possibly treating obesity.

Alexandra Martinez Lopez

Research Experience Institution: Washington University in St. Louis

Research Mentor: Gregory F. Wu, M.D., Ph.D.

Project Title: Utilizing Single Cell RNA Sequencing to Characterize B Cells During Neuroinflammation

Project Abstract: Multiple Sclerosis (MS) is a chronic inflammatory disease of the central nervous system (CNS), characterized by demyelination and axonal damage, that affects over 2 million people worldwide. MS patients experience parenchymal inflammation along with the formation of ectopic lymphoid tissue (ELT) in the meninges, the membrane that encapsulates the CNS. B cell aggregates resembling ELT in patients with MS are observed in an experimental autoimmune encephalomyelitis (EAE) mouse model of MS developed in our lab. The mechanisms by which these B cell clusters form and accumulate in the spinal meninges of mice during EAE remain unclear. We hypothesize that there are B cell intrinsic properties critical for the infiltration and retention of B cells in the meninges during EAE. To test this, we used single cell RNA sequencing to identify gene expression patterns that highlight functional differences between B cells within the spinal cord meninges and deep cervical lymph nodes (DCLN) of mice. Preliminary results confirmed the successful isolation of viable cells for analysis. We anticipate that our results will identify subpopulations of meningeal B cells that differ from those found in control DCLNs, suggesting that B cells acquire various transcriptional states during EAE that may be linked to migratory pathways to the spinal meninges and transcriptional regulators of cell retention. Investigating the formation of meningeal B cell clusters during EAE could provide insight to the formation of ELT and refine B cell depletion therapies for patients with MS.

Oscar Martinez Romero

Research Experience Institution: Washington University in St. Louis

Research Mentor: Tristan Li, Ph.D.

Project Title: Microglia Heterogeneity in Mice Aging and Parabiosis Model by Single-Cell Sequencing

Project Abstract: Aging can change microglia's ability to maintain homeostasis by decreasing its surveillance speeds, becoming more reactive, and expressing more proinflammatory genes. However, it remains unknown how aging affects microglia's gene expression. To investigate the effects of aging in microglia gene expressions, we used single-cell sequencing in parabiotic and singular mice model. The singular mice model allowed us to observe how microglia-like clusters change as they age. A parabiosis model will let us observe the gene expressions changed when a young mice receives blood plasma from an older mice and vice-versa. By separating microglial-like cells into different clusters based on variable genes, we were able learn about microglia heterogeneity and its relation to aging.

Megan Maxwell

Research Experience Institution: Washington University in St. Louis

Research Mentor: Deanna Barch, Ph.D.

Project Title: Evidence That Neighborhood Threat and Brain Volume Mediate the Relationship Between Neighborhood Poverty and Children's Psychopathology

Project Abstract: My research project investigated the relationship between neighborhood poverty and children's mental health outcomes, specifically internalizing and externalizing disorder symptoms. We also looked at variables that potentially mediated this relationship, including neighborhood threat (composed of feelings of safety and objective crime rates) and brain structure volumes of the amygdala and dorsolateral prefrontal cortex. We were interested in seeing the extent to which neighborhood poverty explains these outcomes above and beyond individual household socioeconomic status. Our data came from the ongoing Adolescent Brain Cognitive Development study being conducted at universities across the nation, from which we had ~8,600 9-10-year-old participants. We first used generalized linear models to test for evidence of a mediation, and if this was supported, we then used SEM mediation models to more explicitly examine indirect pathways. We found that both parent and child perception of neighborhood safety and left hemisphere amygdala volume significantly mediated the relationship between neighborhood poverty and children's externalizing behaviors. These results have implications for targeting early life adversity and identifying neurological markers associated with risk for later mental health problems.

Paula Andrea Muñoz Rodríguez

Research Experience Institution: University of Pennsylvania

Research Mentor: Amelia J. Eisch, Ph.D.

Project Title: Effects of Intravenous Oxycodone Self-Administration and Contextual Renewal of Oxycodone-Seeking Behavior on Ultrasonic Vocalizations in Rats

Project Abstract: Opioid abuse is a pervasive public health problem that devastates the wellbeing of individuals, families, and communities. Self-reports suggest the prescription opioid oxycodone possesses "unparalleled addictive potential." Measuring this subjective likability of oxycodone in animals is important to better evaluate oxycodone's abuse potential. We recorded ultrasonic vocalizations (USVs) — interpreted to reflect positive and negative affective states based on emission frequency — in rats trained to self-administer oxycodone. Adult male Long-Evans rats trained to bar press for 3-s infusions of oxycodone. A subset of rats proceeded to extinguish bar pressing in an alternate context. For the reinstatement test, rats were returned either to the oxycodone-paired context (ABA) or the extinction context (ABB). USVs were recorded during the entire self-administration session, and for 5 min prior to self-administration, on days 1,

7, and 13 of acquisition as well as during reinstatement. Results show that, during acquisition, rats emit more 50-kHz USVs during pre- and post-lever periods on days 7 vs. day 1 (and more pre-lever 50-kHz USVs on day 13 vs. day 1). A within-session analysis shows that 50-kHz USVs drop to near-zero levels after ~15 min of self-administration on all recorded days despite continued oxycodone self-administration. During reinstatement, ABA rats both pressed more and emitted greater 50-kHz USVs vs. ABB rats. These data suggest that a positive anticipatory (pre-drug) response develops as rats learn that contextual stimuli predict the opportunity to self-administer oxycodone. Surprisingly, USVs during reinstatement suggest that returning to an opioid-paired context elicits a positive (albeit transient) subjective state. Finally, correlational analyses from this study show the relationships between USVs and drug-taking and -seeking behaviors are intriguingly mixed and warrant additional study. Future studies will be designed to better understand the neurocircuitry underlying the maintenance and retrieval of contextual memories shown to imbue physical environments with salience and relapse-driving properties.

Amajindi Nwankpa

Research Experience Institution: New York University

Research Mentors: Paul Michael McNulty; Rui Wu; Mark Gershow, Ph.D.

Project Title: Exploring the Use of Convolutional Neural Networks for Behavioral Characterization in Larvae

Project Abstract: Social Leap Estimating Animal Pose (SLEAP) is a piece of software that was created by Mala Murthy to automate the process of tracking freely moving organisms. SLEAP can be trained to identify specific body parts at a relatively fast speed and can increase the efficacy in which the behavior of an organism can be deciphered. SLEAP has been used on organisms with distinct body parts and directional body parts. These are body parts such as wings on a fly which are posterior and a nose on a mouse which is anterior. Both of these body parts have pronounced edges that make them easy to identify. Larvae do not have these directional pronounced body parts; they are a long tube. This can be problematic for SLEAP because SLEAP will have to decipher the direction of the organism's body and the location of its limbs in order to identify the behavior that is being exhibited. Due to these complications, I suspect that SLEAP will have a harder time characterizing larval behavior and therefore the accuracy might decrease. I think that the accuracy will still be good enough to use in experiments. Over the course of this project, a human being will decide if SLEAP is able to characterize behavior more efficiently than the current tech nique (threshold-contour).

Angel Gabriel Ojeda Hernaiz

Research Experience Institution: Michigan State University

Research Mentors: Wilmarie Morales-Soto; Antonio White; Brian Gulbransen Ph.D.; William Atchison Ph.D.

Project Title: Tachykinin Signaling in the ENS Induces the Release of Interleukin-6 and Contribute to Visceral Hypersensitivity

Project Abstract: Chronic inflammatory bowel disease (IBD) is a gastrointestinal disorder characterized by long lasting inflammation and sores in the inner wall of the large bowel. Studies have shown that polymodal c-fiber nociceptors transduce a variety of potentially noxious stimuli. Tachykinins (a series of structurally related peptides) are released by extrinsic sensory neurons in response to peripheral tissue damage. Interleukin-6 (IL-6) is a small type of proinflammatory cytokine protein that plays a major role in intestinal pathology. The production of these cytokines is increased during IBS and IBD resulting in higher visceral hypersensitivity. However, the mechanisms in which tachykinins relate to neuroinflammation through neurons and glia cells is not fully understood yet. Therefore, we hypothesize that tachykinin

signaling in the enteric nervous system induces the release of proinflammatory cytokine IL-6 in the intestine and contributes to visceral hypersensitivity during inflammation. In this project we will use wild type C57Black6/C57BL6 and GFAP:hM3Dq mice (DREADDs) male and female mice as our animal model to test the hypothesis that tachykinins modulate IL-6 release during inflammation and that inflammatory visceral hypersensitivity is regulated by tachykinins. This will be tested by inducing colitis on the mice and measuring IL-6 concentrations at different timepoints and using VMR to measure the pressure of the inflamed colon to quantify visceral hypersensitivity. With the outcomes of these studies we will be able to expose crucial mechanisms involved on information relay between enteric neurons in the intestine.

Ephraim Oyetunji

Research Experience Institution: Washington University in St. Louis

Research Mentors: Joan Downey, M.D., M.P.H.; Timothy Miller, M.D., Ph.D.; Kathleen Schoch, Ph.D.; Erik Herzog, Ph.D.; Diana Jose-Edwards, Ph.D.

Project Title: Investigating TREM2's Role in Tau Accumulation using Antisense Oligonucleotides in a Mouse Tauopathy Model

Project Abstract: Neuroinflammation, particularly involving microglia, contributes to the characteristic pathological hallmarks of Alzheimer's disease (AD) and facilitates hippocampal damage. Partial loss-of-function variants of the gene TREM2, encoding a microglial receptor, increase risk for AD. Though TREM2 knockout models have shed light on TREM2's role in AD, it is unclear what short-term reductions in TREM2 expression reveal about TREM2's role in tau pathology. Since the TREM2 partial loss-of-function variant increases AD risk, I hypothesized that TREM2 reduction would increase phosphorylated tau in the hippocampus. Using antisense oligonucleotides (ASOs) that acutely reduce gene expression, we lowered TREM2 levels in a mouse model of tauopathy at seven months of age, when neurofibrillary tangles composed of phosphorylated tau are apparent. One month later, the brains were stained for phosphorylated tau. Although TREM2-lowering ASOs appeared to reduce tau phosphorylation within the dentate gyrus and CA3 subregions, there was no statistically significant differences in the proportion of phosphorylated tau found in the overall hippocampus or its subregions (dentate gyrus, mossy fibers, CA3, and CA1). TREM2 reduction in potentially vulnerable subregions may have limited tau spread leading to regional differences in tau pathology. Additionally, these results may be stage-dependent so other intervention times may affect tau pathology differently.

Dariangelly Pacheco Cruz

Research Experience Institution: Michigan State University

Research Mentors: William Atchison, Ph.D.; Alexandra Colón-Rodríguez, Ph.D.; Kimberly Rivera-Caraballo

Project Title: MeHg Exposure Down-Regulates the Expression of GABA Receptor Subunits in the Forebrain of Male Sprague Dawley Rats

Project Abstract: In this project, the effect of methylmercury on $GABA_A$ receptors in the forebrain of rats was investigated. Male rats were exposed to different concentrations of methylmercury (untreated, 0.75 mg/kg/day, 1.5 mg/kg/day) for a period of 15, 30 and 60 days. Exposure began on postnatal day 4, and methylmercury was administered via subcutaneous injection. Forebrain was extracted, dissected, and preserved at -80°C. RNA extraction was performed using the Trizol reagent protocol, then RT-PCR and qPCR were performed. The data was analyzed using the ΔΔCT procedure. The results showed significant differences (p value = 0.0024) between the groups of 15, 30 and 60 days, where it was noted that there

was a sub-expression of the α_1 and $\beta_{1,3}$ subunits at 30 days. The expression of α_1, $\beta_{1,3}$, γ_2 and δ increased at 60 days. The increased expression of the α_1, $\beta_{1,3}$, γ_2 and δ subunits is suspected to be due to compensatory mechanisms, although more studies are needed to confirm this. It was concluded that exposure to methylmercury and the down-regulation of the $GABA_A$ receptors are directly related to epileptogenesis, however, more studies are needed to elucidate the mechanisms involved.

Asia Parson

Research Experience Institution: Washington University in St. Louis

Research Mentor: Brian Carpenter, Ph.D.

Project Title: Evaluating Online Search Abilities Within Older Adults

Project Abstract: There are various diseases that can hinder cognitive performance in older adults, but the most common one is Alzheimer's disease. Alzheimer's Disease is more common within older adults and it is important for older adults to know more about this health risk as they age. Currently, the internet is becoming one of the main sources of gathering health information for older adults (Huang et al. 2012). As time goes by, more older adults are using the internet to search for health information. Huang and colleagues (2012) found that 60% of adults aged 55-64 in 2003 used the internet to seek health information, but the number increased to 84% of older adults by 2011. As aged adults look to the internet as a source of health information, it becomes increasingly important for this information to be accurate and accessible to the older population. Since seeking health information online has become more common amongst older adults, it is important for older adults to have eHealth literacy (Huang et al. 2012). E-health literacy is "the ability to search, locate, understand and use health information through electronic resources and use this knowledge to resolve health-related problems" (NIH, 2020). It is important for people to know how to discern truthful information online versus false and unsupported information. Our participants are older adults aged 50 and up, since they are at ages that make them more at risk for AD, we have them search for Alzheimer's related information because its more relevant to them.

Ikponmwosa Pat-Osagie

Research Experience Institution: New York University

Research Mentor: Chiye Aoki, Ph.D.

Project Title:

Project Abstract: Anorexia nervosa is one of the deadliest psychological disorders, with one of the highest morbidity rates, even beating out depression. Characterized by a distorted self-image, food restriction and in most cases excessive exercise, these three features are the reason why anorexia's morbidity rate, especially among adolescent girls are so high. But how is it that we are seeing people compulsively exercise when science says they should not have the energy to do so? This is the question that drives the current research. Previous research tells us that aspects of anorexia, like food restriction are addictive, so we ask, is exercise addictive as well, and if so how? We use the ABA model, activity-based anorexia, in mice to answer this question. The current research studies the role mu and delta opioid receptors have on the addictive components of anorexia, in an effort to further understand addiction as a whole. Behaviorally, we separate the mice into four groups, food restricted and exercise (ABA), exercise only, food restriction only, and control. We then remove the brains, and for the use of electron microscopy, we label for mu and delta opioid receptors in the nucleus accumbens, a key brain structure in addiction. We do this to identify what neurons these receptors are on and how prolific they are in the area. Giving us insight on what is being

activated and how frequent these receptors are being activated. All in an attempt to further understand anorexia and its addictive components, which will offer help in the treatment of anorexia nervosa.

Marina Pérez-Gil

Research Experience Institution: Michigan State University

Research Mentor: William Atchison, Ph.D.

Project Title: Role of *Lachnospiracae* Bacterium in Repetitive and Social Interaction Behaviors in Mice

Project Abstract: The human body contains as many bacterial cells as human cells. The majority reside in the gut, with over 1,000 species and 7,000 strains. These bacterial communities have a biological significance in maintaining the host's health, influencing our maturation, immune system development, digestion, and mood. How can bacteria in our gut affect higher functions, such as behavior, thoughts, and actions, in our brains? One way is via the brain-gut axis. The brain-gut axis consists of a bidirectional brain-gut communication via the vagus nerve, which may explain why people with mood disorders may experience gut issues. An example of this may be autism spectrum disorder (ASD), a neurodevelopment condition whose symptoms include deficits in social interaction, repetitive patterns of behavior, and anxiety. Up to 90% of people with autism suffer from gut issues. Research has revealed that mice developed autism-like behaviors when colonized by microbes from the feces of people with autism. The long-term goal of this project is to have a more in-depth assessment of the role of *Lachnospiraceae* in mood disorders and ASD's physiological functions. Uncovering the role of *Lachnospiraceae* would facilitate the development of new and safe targeted microbial therapy for the management of ASD and mood disorders. The overall hypothesis is that the *Lachnospiraceae* family influences behavior.

Astrid Ramos

Research Experience Institution: Brown University

Research Mentor: Gregorio Valdez, Ph.D.

Project Title: Discovery of Molecules Utilized by Glial Cells to Repair Synapses

Project Abstract: The neuromuscular junction (NMJ) is a tripartite synapse formed between an alpha motor neuron, skeletal muscle fiber, and perisynaptic Schwann cells (PSCs). As the synaptic glia of the NMJ, PSCs are essential for the repair of damaged NMJs following injury, and in disease; however, little is known about the molecular mechanisms that guide this process. This study aims to better understand how PSCs support the repair of damaged NMJs. To uncover such genes, RNA seq was performed on RNA collected from the TA at multiple time points following nerve injury, including the periods of complete muscle denervation (1 and 4d post-injury) and NMJ reinnervation and synaptic refinement (7, 9, and 12d post-injury). This dataset was then analyzed for changes in expression of genes known to be enriched in PSCs to identify differentially regulated genes and signaling pathways that could be utilized by PSCs to support the repair of damaged NMJs. Using Ingenuity Pathway Analysis (IPA), we identified changes in PSC enriched genes involved in neurotransmission, altering the extracellular matrix and in cell adhesion following denervation and when motor axons return to the TA and PSCs assist in NMJ repair and synaptic refinement. Among 15 candidate genes, we propose that Prima1 and MEGF10 are key genes that are differentially regulated by PSCs to support cholinergic transmission and synaptic refinement, respectively, during NMJ repair. The results presented here will serve as the basis for future detailed cellular and molecular analyses of the roles of Prima1, MEGF10, and other PSCs enriched genes in repairing damages to the NMJ caused by injuries, diseases, and old age.

Jose Riguero

Research Experience Institution: University of Colorado Anschutz Medical Campus

Research Mentor: Diego Restrepo, Ph.D.

Project Title: Imaging Odor Associated Activity in the Basolateral Amygdala Using Implanted Gradient Index Lenses

Project Abstract: I studied basolateral amygdala (BLA) activity in a mouse model of anxiety and autism. Previous research indicates that the BLA regulates stress response and assists in the processing of potential dangers and/or stressors. This occurs through its ability to mediate the processing of correlating sensory experience with appropriate stress responses. My work entailed the use of viral injection (GCaMP6f through AAV5.Syn.GCaMP6s.WPRE.SV40) in sample mice, the implantation of an Inscopix GRIN lens, the administration of a go/no-go odor discrimination task, and head-fixed imaging to analyze and further the understanding of the neural circuit of the BLA. Data from this process displayed associated activity in the BLA in conjunction to the training process in the go/no-go task.

Shamauri Joshua Rivera

Research Experience Institution: Hunter College

Research Mentor: Sandeep Prasada, Ph.D.

Project Title: Judging Explanations: The Role of Formal Explanation

Project Abstract: Cognition allows us to process and understand the world, but when we seek to explain phenomenon to one another, is there a preferred method to do so? The categorization of objects and their features allow us to identify and differentiate them and their roles, which is important information in effective communication. In previous literature, explanation types have been presented as a structured hierarchy, with inherent explanations (e.g. “That flies because it has hollow bones.”) at the pinnacle and formal explanations (e.g. “That flies because it is a bird”) as placeholders for the former. We hypothesize that formal explanation is more than just a placeholder and has its own role in the process of conceptualization. Testing our hypothesis, we conducted five experiments by internet-based survey with 53-210 Amazon MTurk workers aged 18-65 years old. We presented questions in varying conditions and asked subjects to rate the satisfaction/naturalness of a given explanation. The proposed experiments looked to address questions such as: Are formal explanations or mere tautologies? Is there variation in applicability across domains? and How does the presence and absence of critical properties effect use of these explanations? We end this discussion by acknowledging the implications of expanding our knowledge on explanations types and their usages.

Mia Roberts

Research Experience Institution: Brown University

Research Mentor: Christopher Moore, Ph.D.

Project Title: The BL-base: A Neuronex Bioluminescent Database

Project Abstract: Bioluminescence (BL) has been used in the field of neuroscience as a tool to tag and manipulate cells. It is the chemical production of light by a living organism and is proving its use as an important technique in the biological sciences. However, choosing the appropriate BL molecule can be

difficult, and this produces a need for a database that contains information on different bioluminescent properties, such as enzymes, substrates, endogenous organisms, and more. By storing credible information into one database, it provides an option for researchers to efficiently gather all the information necessary to help them with their projects. In the NeuroNex Bioluminescence Hub, we are currently developing an open-access bioluminescent database to catalog and define previously discovered BL molecules that are used repeatedly in research. This will allow for more efficient and accurate data collection. Moreover, the implications of an open-access database will increase public access to information and will assist researchers in determining what BL molecule is the most suitable for their projects.

Karen San Agustin Ruiz

Research Experience Institution: New York University

Research Mentor: Prerana Shrestha, Ph.D.

Project Title: Safety vs Fear Memories: How Are They Encoded?

Project Abstract: This summer, I was able to participate in research that focused on how the brain distinguishes between safety and threat, particularly in similar situations. In this project, our aim was to gain temporal and cell specific understanding of salient memories. In previous experiments, we established that threat and safety associative memories are stored in two different cell types (somatostatin and PKCd) during recent long-term memory. We then chose to test if this held true in remote memory, or if the consolidation of these associative memories caused a change in the interneuron subgroups responsible for them. In order to do so we created a threat conditioning paradigm that served to create these associative memories and then used both threat conditioning scoring and staining methods to determine the cell types active for the threat and safety memories.

Krystal M. Santiago Colón

Research Experience Institution: Michigan State University

Research Mentor: Yukun Yuan, M.D., Ph.D.

Project Title: Effects of Scn1b Deletion on Neuronal Excitability and Synaptic Function of Vagal Nucleus of the Brainstem in the Scn1b Null Mouse Model of Dravet Syndrome

Project Abstract: The *Scn1b*$^{-/-}$ mice model show severe phenotypic characteristics that resemble Dravet syndrome and SUDEP. β1-subunits of $Na_v1.1$ are critical for sodium channel expression, localization and cell-cell adhesion. We aim to understand the effect of *Scn1b* deletion on the excitability of the nucleus tractus solitarius (NTS). Preliminary data showed an increase in spontaneous excitatory postsynaptic currents (sEPSCs) and a significant decrease in spontaneous inhibitory post synaptic currents (sIPSCs) of NTS interneurons. Based on preliminary data, we hypothesize that *Scn1b* ablation will alter the function of inhibitory circuits and networks in the NTS at a receptor level. To assess this, we will examine GABAa receptor mRNA and protein expression levels, along with immunohistochemical localization of $Na_v1.1$ and GABAa receptors. A potential outcome could show GABAa receptor downregulation and altered GABAergic transmission in the NTS. This study could help to understand the potential mechanisms that result in the sudden death of *Scn1b*$^{-/-}$ mice.

Jennifer Tepan

Research Experience Institution: Hunter College

Research Mentor: Maria E. Figueiredo-Pereira, Ph.D.

Project Title: Atractylenolide III regulation of the NF-κB pathway in HMC3 & SY5Y cells: relevance to Alzheimer's Disease

Project Abstract: Alzheimer's Disease (AD) is a neurodegenerative disorder, its major hallmarks include insoluble β-amyloid plaques, tau neurofibrillary tangles and neuroinflammation. Microglia are responsible for neuroinflammation in the central nervous system (CNS). Microglia are calcium-dependent and serve as a first line of defense. However, overactivation of microglia can result in the release of pro-inflammatory cytokines as well as neurodegeneration. AD currently has no cure. Thus, we explored how pharmacological inhibition of pro-inflammatory pathways is able to prevent or reduce the major hallmarks of AD. The drug atractylenolide III (ATL-3) was previously shown to be an anti-cancer agent and to be gastroprotective. However, ATL-3 has not been heavily studied in relevance to AD. The aim of our study was to target neuroinflammation through modulating microglia with the drug ATL-3. ATL-3 is an NF-κB (nuclear factor kappa-light-chain-enhancer of activated B cells) pathway inhibitor and there is evidence supporting its anti-inflammatory effects. ATL-3 was shown to decrease the production of factors, such as nitric oxide (NO), ROS, pro-inflammatory cytokines (e.g., TNF-α, IL-1β, IL-6), chemokines (e.g., IL-18), and prostaglandins (e.g., PGE2), known to promote neuronal death. We expect to observe that IL-6, and NO levels will decrease upon treatment with differing concentrations of ATL-3.

Julienn Torres Rodriguez

Research Experience Institution: Michigan State University

Research Mentors: Alexandra Colón-Rodríguez, Ph.D.; Kimberly A. Rivera-Caraballo

Project Title: Methylmercury Upregulates Gene Expression of AMPA Receptors Subunits on hiPSC-MNs

Project Abstract: Methylmercury (MeHg), is a commonly encountered form of environmental mercury due both to its widespread use as well as to biomethylation by sulfate-reducing bacteria in bodies of water, generating MeHg and entering in the food chain by which comes to humans. MeHg causes sensory and motor dysfunction, and it is known that α-amino-3-hydroxy-5-methyl-4-isoxazole propionic acid receptor (AMPAR) is associated with the MeHg induced cell death possibly due to excitotoxicity. AMPAR are responsible for primary depolarization in glutamate-mediated neurotransmission. It has been reported that MeHg affects motor neurons (MNs) by increasing the intracellular [$Ca2^{+}$] which occur through AMPAR. To explore this possibility, we used human-induced pluripotent stem cells motor neurons (hiPSC-MNs), a hybrid cell line that expresses typical markers of MNs. We specifically aimed to determine whether MeHg exposure at different concentrations increase or decrease the gene expression of AMPAR subunits. To achieved this, we culture the hiPSC-MNs and treated them with 1 µM, 2 µM, and 5 µM concentrations of MeHg. To assess gene expression, we carried out RT-PCR and qPCR of the hiPSC-MNs. Immediate expression after exposure shows that there is an increase of expression of all the subunits at 0.1 µM through 1.5 µM MeHg exposure. After 24hr, the effect of MeHg in gene expression seems to be irreversible because of the decrease observed in all the concentrations, except the lowest concentrations. In summary, our results demonstrate that MeHg causes a differential effect in the expression of the AMPAR subunits in a human cell model compare to the control group. These preliminary results are relevant because it is the first study that demonstrate that MeHg affects by a concentration-dependent manner a human cell model.

Viviana Paola Valentín-Valentín

Research Experience Institution: University of Puerto Rico, Medical Sciences Campus

Research Mentor: Gregory Quirk, Ph.D.

Project Title: Prefrontal Neuronal Signaling of Approach-Avoidance Conflict

Project Abstract: The ability to implement adaptive strategies during approach-avoidance conflict is an important evolutionary tool. However, the neural mechanisms that underlie adaptive approach-avoidance conflict resolution remain unknown. We developed a rodent conflict task that pits the motivation to approach reward against the motivation to avoid shock. In the task, rats learned that: 1) a 30s tone predicts a foot shock at the end of the tone that could be avoided by stepping onto a platform, 2) a 30s light-cue signals the availability of sucrose upon pressing a bar away from the platform. When the tone and light cues were co-presented, rats learned to delay avoidance to accommodate pressing early during the tone-light period. Pharmacological inactivation of the prelimbic (PL) cortex accelerated avoidance, suggesting that in contrast to previous work, PL delays avoidance when it is favorable to do so. Electrophysiological recordings showed populations of PL neurons that distinguished the combined tone-light stimulus from tone-only and light-only stimuli. Other PL neurons signaled pressing during the tone-light (high conflict), but not during the light-only (low conflict). Additionally, other populations distinguished pressing early in the tone-light (less risky) from pressing late in the tone-light (more risky). These findings suggest that PL resolved approach-avoidance conflict by signaling conflict stimuli and driving appropriately timed pressing and avoidance behaviors.

Sierra Williams-McLeod

Research Experience Institution: Washington University in St. Louis

Research Mentor: Joseph Ippolito, M.D., Ph.D.

Project Title: Sex Differences in Visceral Fat as an Indicator for Overall Survival in Renal Cell Carcinoma

Project Abstract: Visceral obesity is a risk factor for many diseases, including cancer. However, the impact of visceral obesity on sex differences in survival outcomes in cancer patients are not well understood. Here, we show that visceral fat serves as an imaging biomarker for stratifying male/female survival differences. We demonstrated that the relative visceral fat area was significantly higher in males compared to females. However, female, but not male, overall survival was uniquely stratified by visceral fat and poorer prognosis. We anticipate that this sex-based stratification may potentially identify survival outcomes in other forms of tumorigenesis. These results show visceral fat as an imaging biomarker that was more robust in stratifying overall survival in female patients with kidney cancer.

Hunter Yamada

Research Experience Institution: Washington University in St. Louis

Research Mentor: Mayssa Mokalled, Ph.D.

Project Title: Exploring Glial Cell Populations Following Spinal Cord Injury

Project Abstract: In cases of mammalian spinal cord injury, glial scars form and create a physical barrier against regeneration. In stark contrast with the lack of spinal cord regenerative abilities in humans, zebrafish are capable of efficient and spontaneous spinal cord repair. Following complete spinal cord transection in zebrafish, specialized glial cells form a scaffold-like glial bridge that connects the severed cord and supports axon regrowth. Here, we utilized Seurat single-cell analysis to explore the differentially

expressed top markers within glial cells. We identified glial cell populations, compared their top markers to a glial bridge FACS-Seq dataset, and generated differentially expressed top markers for the glial subset clusters.

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UNIVERSITY OF UTAH	**Jeanette Ducut-Sigala, Ph.D.** Manager of the Science Diversity Program **Jim Heys, Ph.D.** Assistant Professor of Neurobiology and Anatomy Recruitment Chair for the Neuroscience Program
UNIVERSITY OF WASHINGTON	**Kyle Shea** Graduate Program Advisor
VANDERBILT UNIVERSITY	**Bruce Carter, Ph.D.** Professor of Biochemistry Associate Director of Vanderbilt Brain Institute **Douglass McMahon, Ph.D.** Professor and Stevenson Chair of Biological Sciences **Lisa Monteggia, Ph.D.** Professor of Pharmacology Barlow Family Director of the Vanderbilt Brain Institute **Danny G. Winder, Ph.D.** Bixler-Johnson-Mayes Professor, Molecular Physiology & Biophysics, Pharmacology and Psychiatry & Behavioral Sciences Director of the Vanderbilt Center for Addiction Research Associate Director for Graduate Training in the Medical Scientist Training Program
WAKE FOREST SCHOOL OF MEDICINE	**Carol Milligan, Ph.D.** Professor of Neurobiology and Anatomy Director of the Graduate Programs in Neuroscience **Brianna George** Doctoral Student **Rachel Jones** Doctoral Student

	Scott Smyre Doctoral Student
WASHINGTON UNIVERSITY IN ST. LOUIS	**Tamara Hershey, Ph.D.** Professor of Psychiatry and Radiology Co-Director, Neuroscience Ph.D. Program **Erik Herzog, Ph.D.** Professor of Biology Director of the St. Louis Neuroscience Pipeline **Timothy E. Holy, Ph.D.** Alan A. and Edith L. Wolff Professor of Neuroscience **Sally Vogt** Graduate Student Coordinator of the Division of Biology and Biological Sciences
YALE UNIVERSITY	**Charles A. Greer, Ph.D.** Professor of Neurosurgery and Neuroscience Director, Neuroscience Graduate Program **Noa Golan** Doctoral Student **Paola Negron-Moreno** Doctoral Student

GRADUATE PROGRAM DESCRIPTIONS

Brandeis University

Neuroscience Program | https://www.brandeis.edu/neuroscience/

Program Representatives: Susan Birren, Ph.D.; Leslie Griffith, M.D., Ph.D.

Program Description: The Interdepartmental Neuroscience graduate program at Brandeis comprises a comprehensive training program designed to give the next generation of outstanding neuroscientists the cognitive and technical skills they need to make important breakthroughs in understanding nervous system function and health. Our program is characterized by a diverse and highly collaborative set of internationally renowned faculty, with research programs that incorporate all the major subdisciplines of the field. Collaboration is part of the air we breathe; being a vibrant program embedded in a small and intimate research university naturally encourages interactions across model systems and at the interfaces between disciplines. During laboratory rotations students are encouraged to explore intellectual frameworks and acquire a range of skills, and throughout their graduate training will interact with and receive mentoring from a diverse group of faculty, as well as near-peer mentoring from a strong cohort of interdisciplinary and diverse graduate students and postdocs. Our trainees are highly successful in a range of pursuits after graduation, including academic and industrial science, science policy, and science communication. For more information, email scigradoffice@brandeis.edu.

Application deadline: December 1, 2020

Application fee waivers: Participants in ENDURE can use "ENDURE20" for an application fee waiver.

GRE: The GRE is not required.

Information regarding COVID-19: "P" grades will be accepted from Spring 2020 courses.

Post-Annual ENDURE Meeting Zoom Networking:

> **Oct 8, 2020, 5:00 - 6:00 PM EDT**
> https://brandeis.zoom.us/j/94680763146?pwd=WEQ1WDR1TXNLM05PSmYyMzNYT3BtQT09
> Zoom Meeting ID: 946 8076 3146
> Passcode: brandeis

Brown University

Neuroscience Graduate Programs | http://neuroscience.brown.edu/graduate/ & https://www.brown.edu/academics/neuroscience/graduate-partnerships-program/

Program Representatives: Gilad Barnea, Ph.D.; Anne C. Hart, Ph.D.; David Sheinberg, Ph.D.

Program Description: The Neuroscience Graduate Programs and the faculty at Brown University are deeply committed to graduate student scholarship and research training. We promote interdisciplinary research that crosses traditional disciplinary and departmental boundaries, while providing a strong foundation in the core concepts of neuroscience. Research in both of our programs employs an impressive array of the most current techniques and encompasses multiple levels of investigation from genes, molecules, and cells to neural networks, systems, computation, and behavior. Brown University graduate training in neuroscience is supported by numerous funding sources to ensure that students have guaranteed support throughout their studies. Integral to our program is an advising structure that ensures each student has an opportunity to chart their own graduate course with appropriate guidance and support. We offer exceptional courses taught by exceptional faculty that integrate lectures, discussions, critical analyses, statistical rigor, computer programming, and hands on experience with various research methods. Beyond our courses and research training, the graduate program offers numerous opportunities to learn skills essential for a successful career including teaching, grant writing, and interviewing. The neuroscience community at Brown is vibrant and collegial, and Brown University is also the home of the Robert J. Carney

and Nancy D. Carney Institute for Brain Science. Students benefit from the resources offered by the Carney Institute including workshops focused on training in new research methodologies and computational approaches of relevance to the field of neuroscience. Brown University is a unique community that offers outstanding scholarship and research in a highly collaborative environment that is committed to societal impact and scientific excellence. For more information, email nsgp@brown.edu.

Application deadline: December 1, 2020 (for both programs)

Application fee waivers: Fee waivers are available for U.S. citizens or permanent residents who are members of SACNAS, MARC, BP-ENDURE, Leadership Alliance, RISE programs or similar programs, or under-represented groups. Also, fee waivers are available for U.S. citizens or permanent residents who show financial need. Applicants requesting a fee waiver should email NSGP@brown.edu at least 1 week in advance of the application deadline for instructions. There is no application fee for the Brown-NIH Graduate Partnership Program.

GRE: The GRE is not required.

Information regarding COVID-19: Brown University is committed to providing a high level of support to our current and future students. We appreciate the large impact that COVID-19 will have on applicants and our admissions committees will consider this as part of our holistic application review process.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 14, 2020, 3:30 - 5:00 PM EDT
https://brown.zoom.us/j/99301226934?pwd=QWpZenFVR3hNZWZ1RlITQzhpdzlrUT09
Zoom Meeting ID: 993 0122 6934
Passcode: 825294

Columbia University

Doctoral Program in Neurobiology and Behavior | http://www.neurosciencephd.columbia.edu/

Program Representatives: Aniruddha Das, Ph.D.; Darcy B. Kelley, Ph.D.

Program Description: Established by John Koester and Darcy Kelley in 1995, Columbia's Doctoral Program in Neurobiology and Behavior (NB&B) provides a central focus for Neuroscience training at Columbia. With over 130 approved mentors from 14 departments located on three campuses, the program provides rigorous training in a wide range of neuroscience disciplines, from the atomic structure of neural signaling molecules to neural development, cellular function, behavior, cognition and disease. Our program is designed to train students whose choice of a particular sub-field of neuroscience and scientific career is informed, supported academically, and driven by a compelling personal interest. The NB&B program emphasizes excellence in research, training in experimental design and quantitative approaches, and professional development including effective scientific and proposal writing, communication to both scientific and lay audiences, and ethics. Strong emphasis on quantitative and computational approaches is supported by our highly collaborative Center for Theoretical Neuroscience, which enhances training across the NB&B program. Training goals are met in the early years through research rotations, neuroscience courses, training in quantitative approaches and statistics, and a qualifying exam for advancement to Ph.D. candidacy, and in later years through intensive research experience, thesis committee meetings, paper writing, public research presentations, professional skills instruction, and the thesis defense. Our mentors help trainees explore a range of research-intensive and -related career options; from academic positions, to science policy, outreach, data science, and industry. We expose students to a range of career paths through professional development training, outreach opportunities, and interactions with alumni from diverse scientific career trajectories. Our program recruits and retains students from diverse backgrounds, with 25% of entering Ph.D. students in the past 5 years coming from underrepresented groups. Underrepresented students in the program have all completed the Ph.D. degree and 42% have obtained pre-doctoral external funding between 2014-2018.

Application deadline: December 1, 2020

Application fee waivers: Application fees are waived for: (1) US citizens or permanent residents currently enrolled in a US college/university who demonstrate financial need. Please provide a letter verifying your Estimated Family Contribution (EFC) signed by a financial aid officer at the institute you currently attend; (2) participants in the following programs: American Indian Science and Engineering Society (AISES), AmeriCorps, Annual Biomedical Research Conference for Minorities Students (ABRCMS), Bill and Melinda Gates Millennium Scholar, Leadership Alliance Summer Research Early Identification Program, Society for the Advancement of Chicanos and Native Americans in Sciences (SACNAS), MARC, RISE, NIH PREP, Peace Corps, Teach for America, etc. Please provide a letter from the program officer confirming your participation in the program; and (3) applicants who are currently serving in the US military.

Information regarding COVID-19: Interviews will likely be virtual. We will visit this issue in November or December when we have a better understanding of the pandemic in the fall.

Additional Information: R&D: Research and Diversity https://kelleylab.biology.columbia.edu/research-and-diversity

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://columbiauniversity.zoom.us/j/97583052270?pwd=MXYzUFllSlptZ3UzWUowaUFhSnlvUT09
Zoom Meeting ID: 975 8305 2270
Passcode: 547638

Emory University

Emory Graduate Neuroscience Program | http://www.biomed.emory.edu/PROGRAM_SITES/NS/

Program Representative: Yoland Smith, Ph.D. (ysmit01@emory.edu)

Program Description: The Graduate Program in Neuroscience at Emory University provides a broad interdisciplinary training in a wide spectrum of neurobiological issues spanning several basic and clinical neuroscience-related disciplines. A total of 81 Ph.D. students (+ 17 new recruits for fall 2020), including 25% from under-represented minority groups, are currently enrolled in the Emory Graduate Neuroscience program. Over 90% of trainees who completed their Ph.D. during the past ten years have successfully developed research-related careers. The attrition rate of the program has been below 10% for the past ten years. A total of 130 faculty spread across 22 university departments and centers are members of the Emory Graduate Neuroscience Program, which provides a broad range of training opportunities in various fields of neuroscience. Students in the program receive a broad curriculum of molecular, cellular and systems neuroscience courses in their first two years. A required hypothesis design and grant writing course helps students prepare their thesis proposal (with oral defense) in the form of a National Research Service Award (NRSA) predoctoral fellowship application. The Emory Neuroscience Program is currently ranked 4th in the nation for the total number of NRSAs. Training in quantitative literacy, scientific rigor and reproducibility has been integrated in these core courses. Trainees are also required to participate in 3 laboratory rotations before they pick their advisor (usually at the beginning of year 2). A wide variety of elective courses ranging from Basic Mechanisms of Neurological Diseases, Brain imaging, Computational Neuroscience and Neuropharmacology are available to advanced trainees. Finally, students actively participate in various seminar series and receive significant training in teaching, neuroethics and scholar integrity.

Application deadline: December 1, 2020

Application fee waivers: For students who are racial minorities, from an economically disadvantaged background, or have a disability.

GRE: The GRE is not required.

Information regarding COVID-19: Emory is closely monitoring the COVID-19 (novel coronavirus) pandemic. The Georgia Department of Public Health has announced there are multiple cases in the state. Emory Healthcare has admitted patients who tested positive for COVID-19. Emory's commitment to the health and

safety of our community is paramount. A team of representatives from emergency preparedness, health care, campus life and other units are taking action around-the-clock to protect students, faculty, staff and visitors. We also continue to work closely with local and state partners to monitor and manage the pandemic.

Georgetown University

Interdisciplinary Program in Neuroscience | https://neuroscience.georgetown.edu/

Program Representatives: Ludise Malkova, Ph.D. (malkoval@georgetown.edu); William Rebeck, Ph.D.; Kaela Singleton, Ph.D.

Program Description: The Ph.D. Interdisciplinary Program in Neuroscience (IPN) has existed since 1994. With faculty from more than 10 departments across Georgetown, the IPN program encourages interdisciplinary collaboration and approaches toward research. IPN is highly ranked in the National Research Council's rankings of U.S. graduate programs in Neuroscience. IPN has 50 Ph.D. students investigating topics ranging from glial activation, neuron signaling, and dendritic spine plasticity, to mechanisms of Parkinson's disease, Alzheimer's disease, and traumatic brain injury, to systems of face recognition, word reading, and interpretation of sounds. Our Ph.D. students actively participate in organizing our program and teaching courses, and they have an excellent record of publishing manuscripts and receiving grants. Georgetown University also offers a MS in Integrative Neuroscience, providing students with a comprehensive neuroscience education. Our faculty members are from various departments at Georgetown University and neighboring institutions. We have strong programs in neurodegeneration, examining molecular mechanisms of pathogenic processes, and cognitive neuroscience, investigating development, language, memory, social interactions, and impairments of these systems. A specific training program is available for students interested in neural injury and plasticity and translational biomedical science. It is also possible for our students to apply for a concentration in cognitive science. Our mission is to educate women and men to be excellent neuroscientists, lifelong learners, and responsible, active participants in the global scientific community. The success of our alumni in diverse scientific career paths gives us great pride and demonstrates their commitment to be stewards of the discipline of neuroscience while living generously in service to the community.

Application deadline: December 1, 2020

Application fee waivers: Application fee waivers available upon request.

GRE: The GRE is not required.

Harvard University Medical School

Program in Neuroscience (PiN) | http://dms.hms.harvard.edu/neuroscience/

Program Representatives: John Assad, Ph.D.; Busola Olukoya; Rosalind Segal, Ph.D.; Taralyn Tan, Ph.D. (taralyn_tan@hms.harvard.edu)

Program Description: The Harvard Ph.D. Program in Neuroscience, (known as PiN), spans the neuroscience community throughout Harvard University. The Program provides mentoring and advising to a close and supportive community of students who carry out Ph.D. thesis research in laboratories in the Harvard Medical School Neurobiology department, in Harvard affiliated Hospitals, or in the Faculty of Arts and Sciences. Program students come from diverse scientific, personal and cultural backgrounds. More than 130 faculty members provide exciting and rigorous research training in all areas of neuroscience, and our 100+ students take full advantage of these opportunities. We are dedicated to educating students so they develop as neuroscientists who will change science in the 21st Century and beyond. PiN provides training for neuroscience careers including academic research, science policy, biotech, pharmaceuticals, consulting, K-12 education, community education, science writing and outreach, "big data," science policy and other developing fields. PiN offers students the opportunity to earn a Certificate in Computational

Neuroscience (CiCN) and PiN students also have access to other specialized certificate programs for Ph.D. students such as the Leder Human Biology and Translational Medicine Certificate Program, the Therapeutics Graduate Program, and the SEAL Teaching Certificate Program. Attending graduate school at the Harvard Program in Neuroscience is a wonderful and inspiring experience. We welcome your application! Connect with us on Twitter @PiN_Harvard.

Application deadline: December 1, 2020

Application fee waivers: Application fee waivers available. Students should email admiss@fas.harvard.edu for more information.

GRE: The GRE is not required.

Information regarding COVID-19: We are still accepting applications and admitting students as usual (i.e. for a normal class size) this application cycle.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://harvard.zoom.us/j/92194490418?pwd=UE8vaExZTm5uaXo3Tk1KQlVVam04dz09
Zoom Meeting ID: 921 9449 0418
Password: 460900

Icahn School of Medicine at Mount Sinai

Ph.D. in Neuroscience Program | https://icahn.mssm.edu/education/phd/neuroscience

Program Representatives: George Huntley, Ph.D. (george.huntley@mssm.edu); Joseph Simon

Program Description: Mount Sinai's Neuroscience Ph.D. program provides multidisciplinary and highly collaborative research training in basic, translational and clinical neuroscience. Ranked 3rd nationally in NIH funding, the Neuroscience department and Graduate program leverage partnerships with the School of Medicine, the Mount Sinai Hospital and Health System, and other Institutions to provide extraordinary diversity of scientific and clinical strengths ranging from structure/function analysis of individual synapses, to computational modeling of gene, protein and connectivity networks in healthy and diseased brains, to behavioral, electrophysiological and imaging studies of a variety of organisms, including humans. Trainees participate in an integrated program of Core and advanced courses (spanning genes, molecules, cells, synapses, circuits, systems, behaviors and brain pathophysiology) and includes a course with direct patient contact. Trainees in our program also benefit from numerous activities that enhance their research experience, including science theme-based Clubs, seminars, career development opportunities, teaching and peer-mentoring activities, an annual retreat and other cohesion-building events.

Application deadline: December 1, 2020

Application fee waivers: Available from the Graduate School

GRE: The GRE is not required.

Additional Information:

Neuroscience Program Diversity Recruitment Symposium, Oct 21, 2020, 1:00-4:00 ET
https://icahn.mssm.edu/files/ISMMS/Assets/Departments/Neuroscience/DiversityinNeuroscienceProgram.pdf
Admissions Informational Webinars - https://icahn.mssm.edu/education/graduate/virtual-phd-admissions

Johns Hopkins University School of Medicine

Neuroscience Training Program | http://neuroscience.jhu.edu/

Program Representative: Jay Baraban, M.D., Ph.D. (rgragan@jhmi.edu)

Program Description: The Neuroscience Training Program (NTP) at Johns Hopkins University provides students with advanced instruction and research training in fundamental neuroscience and the basis of neuropsychiatric diseases. The program encompasses a broad array of research areas, including molecular, cellular, developmental, sensory, systems, cognitive and computational neuroscience, as well as neurobiology of disease, providing diverse training options and unique opportunities for collaboration for our students. We typically matriculate 14-16 Ph.D. candidates each year, from a pool of >500 applicants, along with 1-4 additional candidates for combined M.D./Ph.D. degrees. Students enter the program with diverse backgrounds ranging from computer science to biochemistry. To ensure that they learn the basic tenets of neuroscience, they are required to take a year-long integrative lecture and laboratory course, "Neuroscience and Cognition", and receive rigorous formal training in quantitative methods, statistics, rigor and reproducibility and neurological diseases. Students learn about research opportunities through a mini-symposium series led by Program Faculty (featuring short chalk talks), the Program Retreat, and Lab Lunches (which feature work-in-progress by NTP faculty). This information is used to help students arrange three laboratory rotations, which are typically completed by the end of the first academic year and form the basis for selecting a thesis advisor. In the spring of Year 2, students write and defend a Thesis Proposal that is written in the form of a Predoctoral NRSA application and are tested on their understanding of the broader topic area, as well as methods for analysis and reproducibility. Over the past ten years, the average time to complete the Program has been 6.0 years. Ninety-three percent of NTP alumni are pursuing careers in a science or medicine-related field.

Application deadline: December 1, 2020

Application fee waivers: Liberal application fee waiver policy – please see website for details.

GRE: The GRE is not required.

Information regarding COVID-19: Interviews will be held virtually this cycle.

New York University

Neuroscience Program | http://www.neuroscience.nyu.edu/

Program Representatives: Andre Fenton, Ph.D.; Elnaz Hozhabri; Katherine Nagel, Ph.D.; Rachel Weintraub-Brevda, Ph.D. (rachel.weintraub@nyulangone.org)

Program Description: NYU neuroscience arises from two cooperative centers located just a few city blocks apart in NYC: the Center for Neural Science (CNS) and the Neuroscience Institute (NI). CNS, located at NYU's Washington Square campus, is home to core neuroscience labs, has affiliate labs in biology, psychology, physics and data science, and is NYU's portal for undergraduate neuroscience education. The NI is located at NYU's School of Medicine and houses additional core neuroscience labs, as well as affiliates from clinical departments and the Nathan Kline Institute. Together, CNS and NI serve as the joint pillars of graduate training in neuroscience at NYU, with research spanning genetic, molecular, cellular, developmental, systems, behavioral, and computational levels. Prospective graduate students apply through a single online portal and applications are jointly reviewed by a single admissions committee that spans CNS and NI.

Application deadline: December 1, 2020

Application fee waivers: NYU does offer application fee waivers in certain circumstances. Visit https://gsas.nyu.edu/content/nyu-as/gsas/admissions/gsas-application-resource-center/nyu-gsas-general-application-policies.html#2 for more information.

GRE: The GRE is not required.

Oregon Health and Science University

Neuroscience Graduate Program | https://www.ohsu.edu/school-of-medicine/neuroscience-graduate-program

Program Representatives: Kelly Monk, Ph.D.; Jessica Parks; Sierra Smith

Program Description: Founded in 1992, the Neuroscience Graduate Program (NGP) at OHSU has 55 predoctoral students and more than 140 faculty (including an influx of many new junior faculty) in a broad range of subdisciplines. The program is intended for students planning a career in academic or industry research, but we encourage student to explore the career path that matches their ambitions and expertise. The program is particularly strong in cellular neuroscience, neuronal signaling, gene regulation, biophysics of channels and transporters, sensory systems, and neuroendocrinology with increasing strength in developmental neuroscience, glial biology, and disease-oriented neuroscience research. Faculty members are located within research institutes at OHSU including the Vollum Institute, the Oregon National Primate Research Center (ONPRC), Oregon Hearing Research Center, Jungers Center, the Oregon Institute for Occupational Health Sciences, as well as the basic and clinical departments in the OHSU School of Medicine. For more information, email ngp@ohsu.edu.

Application deadline: December 1, 2020

Application fee waivers: Application fees are happily waived upon request.

GRE: The GRE is not required.

Information regarding COVID-19: Interviews will likely be virtual in 2021, although this has not been officially decided. If recruitment is virtual, we will host a number of alternative events to allow applicants to get to know fellow applicants, current students, faculty, the campus, and Portland. Every year, we host a revisit for all accepted URM applicants. This year, we may expand the revisit to include all accepted applicants, COVID-19 permitting. Decisions deadlines can also be extended upon request.

Post-ENDURE Annual Meeting Zoom Networking:

> **Oct 8, 2020, 5:30 - 6:30 PM EDT**
> https://us02web.zoom.us/j/83878266125?pwd=UjBTdVBCRkNCb0JieXU5Q1VoSzlxQT09
> Zoom Meeting ID: 838 7826 6125
> Passcode: 2D531E

Princeton University

Princeton Neuroscience Institute | https://pni.princeton.edu/graduate-program/ph.d.-neuroscience

Program Representatives: Edwin Clayton, Ph.D. (ec12@princeton.edu); Ken Igarza; Kenneth Norman, Ph.D.

Program Description: How do millions of individual neurons work together to give rise to behavior at the level of a whole organism? How do our brains work? Training researchers to answer these fundamental, unanswered questions is the goal of the Princeton Neuroscience Institute graduate program. Students in this program learn to use the latest techniques and approaches in neuroscience and are trained how to think and how to develop new techniques and approaches. Creativity and originality in research are essential to cracking the puzzle of the brain. Ph.D. Neuroscience students take lecture and laboratory courses; learn to read, understand, and present current scientific literature; develop and carry out substantial original research, and present their research at meetings and conferences, including the annual Neuroscience retreat each Spring. During the first year, all students participate in a unique year-long Core Course that surveys current neuroscience. The subjects covered in lectures are accompanied by direct experience in the lab. Students learn through first-hand experience how to run their own fMRI experiments; to design and run their own computer simulations of neural networks; to image neural activity at cellular resolution in behaving animals; and to patch-clamp single cells, to name a few examples. This core course offers students a unique opportunity to learn the practical knowledge essential for successfully developing new experiments and techniques. Incoming students are encouraged to rotate through up to

three different labs to choose the lab that best matches their interests. During this process, students may discover an area of research completely new and fascinating to them. Following their rotations and by mutual agreement with their prospective faculty adviser, students choose a lab in which they will carry out their Ph.D. research.

Application deadline: November 23, 2020

Application fee waivers: ENDURE, NSF REU, IMSD, MARC, NIH-PREP

GRE: The GRE is not required.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://princeton.zoom.us/j/99648702269?pwd=ekxJUVNZNE4wM3dPT2FCcldLVzR0QT09
Zoom Meeting ID: 996 4870 2269
Passcode: 356446

Temple University

Biomedical Neuroscience Graduate Program | http://www.temple.edu/neuroscience/

Program Representatives: Lisa Briand, Ph.D.; Ellen Unterwald, Ph.D. (ellen.unterwald@temple.edu)

Program Description: Temple scientists are at the forefront of research and teaching in the rapidly expanding world of neuroscience. We support an interdisciplinary approach to this exciting field of study, with our neuroscience programs spanning multiple Schools, Colleges, and research centers. The College of Liberal Arts Neuroscience Program offers a neuroscience degree program that teaches students to explore neural and brain function at multiple levels in a rapidly growing field. These students study the neural basis of addiction, developmental disorders, ADHD, depression, anxiety, age-related disorders and much more. The Neuroscience Cluster at the Lewis Katz School of Medicine is an educational working group, supporting Ph.D., M.D./Ph.D., and M.S. educational/research programs within Lewis Katz School of Medicine at Temple University's Biomedical Sciences Graduate Program. This cluster provides thematic courses, research opportunities, and educational activities related to neuroscience, bringing together faculty members from basic science and clinical departments, as well as research centers—Center for Substance Abuse Research, Center for Neurovirology and Comprehensive NeuroAIDS Center, Shriners Hospitals Pediatric Research Center and the Alzheimer's Center at Temple. The Neuroscience Cluster offers graduate students exposure to a number of areas of basic neuroscience research and education with the goal of translating basic research advances into treatments for neurological and neuropsychiatric disorders. Indeed, the breadth and depth of the faculty members encourages an interdisciplinary approach to neuroscience education and research.

Application deadline: February 21, 2021

Application fee waivers: Inquires should be made directly to the program of interest.

GRE: The GRE is not required.

University of California, Berkeley

Neuroscience Ph.D. Program | http://neuroscience.berkeley.edu/

Program Representatives: Dan Feldman, Ph.D.; Candace Groskreutz (candaceg@berkeley.edu); Michael Silver, Ph.D.

Program Description: The Berkeley Neuroscience Ph.D. Program offers intensive, integrated training in multiple areas of neuroscience research. The program includes 70 faculty members from many different campus departments, with expertise ranging from molecular and cellular neuroscience to systems and computational neuroscience to human cognitive neuroscience. The program provides a highly

interdisciplinary training environment of coursework, research training, professional development, and mentoring, within a strong research program that produces fundamental advances in knowledge and cutting-edge techniques. Our program has 65 students. Graduates of the Neuroscience Ph.D. Program have been extremely successful in both academia and industry. Since awarding our first Ph.D. in 2006, a total of 112 students have graduated from the program. Within this group, 31 alumni already have academic faculty positions, 29 hold postdoctoral research positions, and 27 have obtained positions in industry, including neuroscience, biotechnology, and Silicon Valley companies. We strive to provide an inclusive and supportive training community for students with a wide variety of backgrounds.

Application deadline: November 16, 2020

Application fee waivers: Please contact candaceg@berkeley.edu for fee waiver information.

GRE: The GRE is not required.

Information regarding COVID-19: Our students continue to receive training during the Covid crisis, with many experimental labs having resumed in-person research with appropriate precautions according to UC Berkeley campus policies. We welcome applications in Fall 2020 for the incoming class of 2021. We expect that interviews will be virtual this year, but that graduate education will return to normal by Fall 2021.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://berkeley.zoom.us/j/93507460530
Meeting ID: 935 0746 0530

University of California, Davis

Neuroscience Graduate Program | https://neuroscience.ucdavis.edu/

Program Representatives: Ashley Hodel, Ph.D. (arhodel@ucdavis.edu); Kimberley McAllister, Ph.D.; W. Martin Usrey, Ph.D.

Program Description: The UC Davis Center for Neuroscience is dedicated to understanding brain function in health and in illness. Our teams of internationally recognized scientists study areas, ranging from cellular and molecular neurobiology, through systems and developmental neuroscience, to studies of human perception, attention, memory, language, and the nature of consciousness. Their discoveries provide the raw material and building blocks that translate into advances in the clinic through close collaboration between bench scientists and physicians. In addition to discovery-driven research, the Center for Neuroscience is home to three premier NIH T32 training programs for graduate and postdoctoral researchers. The Neuroscience Graduate Program provides students with unparalleled opportunities for research at the cutting edge of neuroscience. The Neuroscience Graduate Group, one of the premier training programs in the United States, offers a comprehensive program of courses and outstanding research opportunities leading to M.S. and Ph.D. degrees, and it participates in joint Physician and Veterinary Scientist Training Programs. The group is composed of over 80 faculty members drawn from 20 departments, divisions and sections, including the School of Medicine, the School of Veterinary Medicine, the College of Biological Sciences, the College of Agriculture and Environmental Sciences and the College of Letters and Sciences.

For more information about the Training Program in Basic Neuroscience, visit https://neuroscience.ucdavis.edu/training-program-basic-neuroscience

For more information about the Training Program in Learning, Memory and Plasticity (LaMP), visit https://neuroscience.ucdavis.edu/training-program-learning-memory-and-plasticity

Application deadline: December 1, 2020

Application fee waivers: Available to applicants affiliated with graduate prep programs (e.g., IMSD, MARC, RISE). For a full list, visit https://grad.ucdavis.edu/admissions/admission-requirements/steps-applying.

GRE: The GRE is not required.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 14, 2020, 3:00 - 4:00 PM EDT
https://ucdavis.zoom.us/j/93914167176?pwd=QU5nTlpqaXZkWlgzRGJqUCtEcENudz09
Meeting ID: 939 1416 7176
Passcode: 130275

University of California San Diego

Neurosciences Graduate Program | https://neurograd.ucsd.edu/

UCSD is not participating in the Graduate Program Recruitment and Networking Fair

Primary Contacts: Erin Gilbert (egilbert@ucsd.edu); Cathy Pugh (cpugh@ucsd.edu)

Program Description: The Neurosciences Graduate Program, at the University of California, San Diego, is an interdisciplinary, inter-institutional, student-centered, research training program. Our top-ranked program provides training to an extremely high-quality pool of graduate students who share the goal of becoming the next generation of neuroscience leaders. The program encompasses over 170 affiliated research faculty laboratories distributed across more than fifteen academic and clinical science departments at UC San Diego, the School of Medicine, The Salk Institute, The Scripps Research Institute, V.A. Medical Center, Scripps Institution of Oceanography (SIO), and the Sanford Burnham Prebys Medical Discovery Institute. The program combines broad-based intellectual scholarship and training, with focused, cutting-edge research cultivating experimental design, quantitatively rigorous data analysis, problem solving, and communication skills, yielding a wide breadth of foundational understanding in the fundamental principles and practice of all neurosciences. We guide the professional development of each student through intensive, personalized career advising, strong mentoring, and broad outreach and teaching opportunities. We provide unparalleled access to established world-leading research environments at all levels of discovery, exceptional young faculty, progressive curricula, and an outstanding record of placement for our graduates. The collective efforts of our students, faculty and staff have carried our program to remarkable levels of achievement. If you share the goal of joining the next generation of innovative, productive, impactful neuroscience leaders, join us.

Application deadline: December 2, 2020

Application fee waivers: Visit https://grad.ucsd.edu/admissions/requirements/application-fee-and-fee-waiver/index.html.

GRE: The GRE is not required.

Information regarding COVID-19: Visit https://returntolearn.ucsd.edu/return-to-campus/fall-2020-plan/index.html.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:30 -6:30 PM EDT
https://uchealth.zoom.us/j/83872493044?pwd=STBWVXorbUJ6a2FwazBYcUh1aVM3dz09
Zoom Meeting ID: 838 7249 3044
Passcode: UCSDNGP

University of Cincinnati

Neuroscience Graduate Program | https://med2.uc.edu/neurosciences

Program Representative: James Herman, Ph.D.

Program Description: The broadly based predoctoral training program in the neurosciences at the University of Cincinnati is intended to support a total of 30-35 students. The major objectives of the

training program are to: 1) equip students with a broad foundation of knowledge in neuroscience, emphasizing mechanisms of disease and the problems that confront effective diagnosis and treatment; 2) provide in-depth research training that emphasizes modern, innovative approaches to understanding nervous system function and the ethical conduct of research; 3) facilitate development of outstanding written and oral communication skills; 4) foster excellence in the dissemination of research findings in the form of professional presentations and written manuscripts; and 5) prepare students for continued success in a wide variety of scientific careers. In response to a strong endorsement of the program in our recent reviews, the University of Cincinnati has made substantial financial commitments to the neuroscience community, providing new funds for recruitment of new faculty and programmatic enhancement. These additional funds supplement the already strong level of financial and administrative support from the College of Medicine. The training faculty are active and well-funded and share a strong commitment to graduate education. Efforts of the institution and program faculty have resulted in maintenance of a strong applicant pool from top universities and colleges, and the program has consistently matriculated outstanding candidates from diverse backgrounds. Our trainees routinely land postdoctoral positions at prominent institutions, and go on to successful careers in academia, industry, scientific publishing, regulatory affairs and scientific policy, attesting to the strength and vitality of the training program. Recent initiatives include the recruitment of additional faculty across our broad neuroscience base; the development of new opportunities for students to gain teaching experience; changes to the neuroscience curriculum in response to recent advances in the field and the changing needs of our students; using individual development plans to ensure strong mentoring of all students; and the creation of an Alumni Seminar Series which further advances our goal of providing trainees ample opportunity to understand the diversity of neuroscience career options available to them. We anticipate that the graduates of our program will continue to play a major role in future research efforts to discover mechanisms underlying pathology of the nervous system and to develop new strategies to treat or prevent neurological disease. For more information, email madania@ucmail.uc.edu.

Application deadline: December 7, 2020

Application fee waivers: Application fee waivers are available to McNair Scholars, State of Ohio STARS Scholars, and GEM Scholars. For more information, visit https://grad.uc.edu/admissions/faqs/process.html.

GRE: The GRE is not required.

Information regarding COVID-19: Classes are currently in 'hybrid' mode (some online, some in person), labs are open, and rotations are in-lab.

University of Colorado Anschutz Medical Campus

Neuroscience Graduate Program | http://medschool.ucdenver.edu/neuroscience

Program Representatives: Abigail Person, Ph.D.; Juan Santiago-Moreno; Nathan Schoppa, Ph.D.

Program Description: The Neuroscience Graduate Program at the University of Colorado School of Medicine outside Denver is an interdisciplinary program that brings together faculty studying the brain at levels spanning ion channels to computational neuroscience and behavior. We pride ourselves as a particularly open and collaborative community, with strong peer support across the student body and faculty. Our program is energetic and dynamic, reflecting campus-wide investments in Neuroscience that support cutting edge Core facilities including extensive nanoscopy facilities and neuroengineering resources. Our aim is to train highly competitive scientists, equipped for successful biomedical careers. As the recipient (for the last 17 years) of a prestigious NIH T32, programming has remained highly relevant over time, reflecting emerging trends in neuroscience. In addition, we host an NIH ENDURE program, titled BRAiN that brings to campus and mentors underrepresented minorities who go on to successful scientific careers. We boast an excellent success rate for our students winning prestigious national fellowships, with over half of senior students receiving individual NIH or NSF pre-doctoral fellowships. Our curriculum includes a rigorous review of cellular, systems, and developmental neuroscience, with additional training in quantitative methods in neuroscience and grant writing. A student outreach group is highly active in local initiatives to

enhance community engagement with neuroscience, including programs for school children, high schoolers and undergraduates. The NSP combines scientific excellence with a high quality of life. Denver ranks among the most bike friendly cities, and in 2019 was ranked as the second-best place to live in the country by U.S. News and World Report. It has all the advantages of big city life while the same time, boasts easy access to the mountains for hiking, climbing and other recreation. We welcome you to contact us with any questions.

Application deadline: December 1, 2020

Application fee waivers: After the Graduate Recruitment and Networking Fair, you will receive an email message from CU Anschutz where you can acknowledge the waiver. Or you can contact Program Administrator Deanne Sylvester (deanne.sylvester@cuanschutz.edu).

GRE: The GRE is not required.

Information regarding COVID-19: Remote interviews and recruitment are planned for this year, but if conditions permit, accepted students may be invited back to campus for an in-person visit.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://ucdenver.zoom.us/j/94724656450
Meeting ID: 947 2465 6450

University of Iowa

Neuroscience Graduate Program | https://neuroscience.grad.uiowa.edu/

Program Representatives: C. Andrew Frank, Ph.D.; Marco Pipoly

Program Description: The University of Iowa has a long tradition as a leading center for study of the nervous system and behavior, and for the training of graduate students in this area. Building on this foundation, the Neuroscience Graduate Program, established in 1984, formalizes the long-standing, interdisciplinary commitment of a diverse faculty. The program promotes interaction among faculty, postdoctoral fellows, and graduate students, and fosters a congenial and collaborative environment for investigating the structure and function of the nervous system and its role in determining behavior. The curriculum is designed to provide a multidisciplinary foundation in the conceptual and methodological approaches to study of the nervous system, emphasizing original, independent student research. The Neuroscience Program at the University of Iowa offers broad research opportunities. The curriculum for the Neuroscience Program is designed around a two-track system. Specifically, students can select and specialize in one of two offered tracks: molecular/cellular or cognitive/behavioral. Opportunities are available for students to organize and present lectures and seminars and assist in laboratory instruction of undergraduate and health professions students. With a Neuroscience degree from the University of Iowa your venues for the future are wide open. Whether you decide to go into academia, a research institute, or industry, the background you will receive from our program will have you fully prepared. Most of our Ph.D. students pursue a post-doctoral training position after the completion of their studies with us. Afterwards, our graduates pursue careers that often place them in academia. Whatever you decide, when your time with us nears an end, you will find yourself in the center of a large number of options. For more information, email grad-neuroscience@uiowa.edu.

Application deadline: December 1, 2020 for best consideration; January 1, 2021 firm deadline

Application fee waivers: Fee waivers are available to students who participated in McNair, SROP, PREP, Big 10 Alliance, AGEP. For more information, visit https://grad.admissions.uiowa.edu/finances/graduate-fee-waiver.

GRE: The GRE is not required.

Information regarding COVID-19: Visit https://coronavirus.uiowa.edu/.

University of Maryland School of Medicine

Program in Neuroscience | http://lifesciences.umaryland.edu/Neuroscience/

Program Representatives: Mary Kay Lobo, Ph.D.; Brian Mathur, Ph.D.; Jessica Mong, Ph.D.; Georgia Rogers, Ph.D. (grogers@som.umaryland.edu)

Program Description: PIN is a doctoral degree-granting program. For more than two decades our prestigious program's major mission has been to prepare its graduate students and postd octoral fellows with the training necessary to excel as neuroscientists in academic, industrial and governmental settings. PIN has 60 graduate students, 78 postdoctoral fellows working with over 100 neuroscientists in the Medical, Dental, Nursing and Pharmacy Schools, and the Maryland Psychiatric Research Center. PIN provides a hub of excellence for campus neuroscience. We provide monthly seminars from internationally recognized neuroscientists, the Neuroscience Journal Club in addition to many department-sponsored neuroscience seminars. We offer regular networking opportunities culminating in the Annual PIN Retreat held in a beautiful off-campus setting. PIN offers a broad perspective into the field while tailoring mentoring to each trainee's individual interests and talents. Research is increasingly interdisciplinary and interactive. PIN mentoring is highly engaged and interactive, with a keen eye on developing students for next-generation neuroscience. PIN stands against all forms of racism, inequality, prejudice and bias. The pandemic of racism in this country is clearly a public health crisis and PIN is committed to actively addressing this. We are confident that acting together, we can make real and positive change.

Application deadline: December 1, 2020

Application fee waivers: Please contact grogers@som.umaryland.edu for fee waiver information.

GRE: The GRE is not required.

Post-ENDURE Annual Meeting Zoom Networking:

> **Oct 8, 2020, 5:15 - 6:15 PM EDT**
> https://umaryland.zoom.us/j/92430600515?pwd=eU9xQWxqcEthaTg5N0d2eUdVRzFjZz09
> Zoom Meeting ID: 924 3060 0515
> Passcode: 065318

University of Michigan

Neuroscience Graduate Program | http://neuroscience.med.umich.edu/

Program Representatives: Richard Altschuler, Ph.D.; Shelly Flagel, Ph.D.; Katie Furman; Audrey Seasholtz, Ph.D.

Program Description: The University of Michigan Neuroscience Graduate Program (NGP) is a collegial, diverse, and interactive group of students and faculty that work across the breadth of the neuroscience field. The NGP focuses on excellence in education and training of our 75 Ph.D. students. Our program encompasses the complete spectrum of neuroscience training and research, incorporating the full range of multidisciplinary techniques in an integrative and supportive environment. The NGP program captures the excitement and interdisciplinary collaboration intrinsic to the field of neuroscience by drawing on the expertise of over 155 faculty members from more than 29 departments. The NGP at the University of Michigan was constituted in 1971, making this the longest-standing neuroscience graduate program in the United States. The Neuroscience graduate students form a cohesive group that promotes the interactions among the faculty, making the NGP the nexus of the neuroscience community on campus. Graduates receive a Ph.D. in Neuroscience that provides tremendous flexibility in choosing one's career path. There are more than 220 alumni of our Program, and these graduates work in many different areas including academic research/medicine, biotechnology, biomedical and pharmaceutical research and development, and science communication and policy. Our goal is to facilitate training of the future leaders in the field of neuroscience and to develop students that compete successfully in the scientific marketplace. For more information, email neuroscience.program@umich.edu.

Application deadline: December 1, 2020

Application fee waivers: The Rackham Graduate School at the University of Michigan coordinates a number of fee waivers – for more information, visit https://rackham.umich.edu/admissions/applying/application-fee-and-waivers/. Please contact neuroscience.program@umich.edu with any additional questions about fee waivers.

GRE: The GRE is not required.

Information regarding COVID-19: There is not currently a policy for extensions to the application deadline. However, due to the rapidly changing nature of the COVID-19 Pandemic, we are STRONGLY encouraging applicants to complete their applications and request letters of recommendation as early as possible. The application is available from September 1st through December 1st and we encourage any applicant who is running into a delay due to COVID to be in contact with us at neuroscience.program@umich.edu.

Post-ENDURE Annual Meeting Zoom Networking:

> **Oct 8, 2020, 5:00 -7:00 PM EDT**
> https://umich-health.zoom.us/j/94136025478?pwd=YkM3UFZYRFMwSGxiVkJYS09FZUlRZz09
> Zoom Meeting ID: 941 3602 5478
> Passcode: 018438

University of Minnesota

Graduate Program in Neuroscience | http://www.neuroscience.umn.edu/

Program Representative: Geoffrey Ghose, Ph.D.

Program Description: We are a large and growing interdisciplinary program that spans more than dozen departments and research centers and includes over 150 faculty. We are an active and vibrant community that, in the past few years, has added dozens of new faculty to our university and program and is committed to training a new generation of neuroscientists in cutting-edge techniques and approaches. We are highly collaborative - just look at the publications listed on the opening page of our web site - and productive. We take training Ph.D. students very seriously, not only working to ensure they do great Neuroscience research, but also building leadership capacity by involving students in all parts of program governance to ensure an interactive community of research and scholarship. The success of our graduates across many different fields, including academia, industry, journalism, and public policy, is a testament to the world class education and training we provide. For more information, email neurosci@umn.edu.

Application deadline: December 1, 2020

Application fee waivers: Contact neurosci@umn.edu to request an application fee waiver.

GRE: The GRE is not required.

Information regarding COVID-19: All events, including student colloquiums and retreat, follow University and state health guidelines and are currently remote.

Post-ENDURE Annual Meeting Zoom Networking:

> **Oct 8, 2020, 5:15 - 6:15 PM EDT**
> https://umn-private.zoom.us/j/95800081785?pwd=L1BjSnBqRGZOKzJaN2hCektMK3lidz09
> Meeting ID: 958 0008 1785
> Passcode: 6cX2wR

University of Pennsylvania

Neuroscience Graduate Group | https://www.med.upenn.edu/ngg/

Program Representatives: Josh Gold, Ph.D.; Ilenna Jones; Hannah Loo; Amita Sehgal, Ph.D.; Mary Taylor

Program Description: The University of Pennsylvania Neuroscience Graduate Group is a collaborative and interdisciplinary Ph.D. program that provides training for careers in neuroscience research, teaching, and more. Our training program is designed to provide a strong foundation of neuroscientific knowledge while at the same time taking into account each student's strengths, needs, and career goals. We place a high value on activities that promote professional development, cohesiveness within our program, and outreach to the outside community. Many of these activities are organized by our students through the Graduate-Led Initiatives and Activities (GLIA) Committee. We also emphasize both diversity and inclusion. We embrace differences in background, age, color, disability, ethnicity, family or marital status, gender identity or expression, language, national origin, ability, political affiliation, race, religion, sexual orientation, socio-economic status, veteran status, and other characteristics that help define who we are. We continue to work to promote a sense of inclusion for everyone in the program via mentoring, workshops, and other mechanisms that focus on open communication. For more information, email tayma@pennmedicine.upenn.edu.

Application deadline: December 1, 2020

Application fee waivers: Application fee waivers are available for participants in the following programs: ENDURE, MARC, RISE, McNair Scholar, PREP Scholar, LSAMP Leadership Alliance, SACNAS, ABRCMS Email bgs@pennmedicine.upenn.edu to request a waiver.

GRE: The GRE is not required.

University of Pittsburgh

Center for Neuroscience at the University of Pittsburgh | https://www.cnup.pitt.edu/

Program Representative: Alan Sved, Ph.D.

Program Description: The Center for Neuroscience at the University of Pittsburgh (CNUP) has 35 years of experience producing neuroscientists who identify and investigate the most important scientific questions. Our program is supported in part by a large pre-doctoral training grant from the National Institutes of Health that we use to support second year students. At the core of our Ph.D. program is the balance between mastering emerging technologies and experimental design in the laboratory, with the practical skills (grant writing, literature evaluation, data presentation) necessary to become leaders in neuroscience research. Our goal is to identify students that have a passion and commitment to research and then provide the support and freedom necessary for them to reach their full potential. We currently have 118 training faculty and 84 graduate students spread across many departments at the University of Pittsburgh, and some at near-by Carnegie Melon University. For more information, email cnup@pitt.edu.

Application deadline: December 1, 2020

Application fee waivers: Applicants who are currently serving or who previously served as members of the U.S. Armed Services, Gates Millennium Scholars, McNair Scholars, members of the Society for Advancement of Chicanos & Native Americans, and others may be considered for application fee waivers on a case-by-case basis. For more information, contact the Director of Diversity Initiatives and Academic Affairs, Philippa Carter, at pkc3@pitt.edu.

GRE: The GRE is not required.

Information regarding COVID-19: The University of Pittsburgh is current operating under a "Flex" teaching schedule that moves between on-line, in-class, and hybrid teaching depending on the current state of the pandemic in Pittsburgh. The research labs are open and working under a COVID lab-specific re-start plans that outline the use of PPE and social distancing in our research spaces.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://pitt.zoom.us/j/96841533631
Meeting ID: 968 4153 3631

University of Southern California

Neuroscience Graduate Program | https://ngp.usc.edu/

Program Representative: Dawn Burke; Deanna Solorzano; Jason David Zevin, Ph.D.
Program Description: The USC Neuroscience Graduate Program (NGP) is the largest and only university-wide Ph.D. program at USC. A NIH-designated T32 Neuroscience Training Program, NGP students and faculty come from a variety of academic backgrounds to study questions spanning the spectrum of modern neuroscience research. Departing from the traditional focus on individual disciplines, USC Neuroscience is characterized by collaborative interactions between faculty and students who have undergraduate or graduate degrees in biology, engineering, mathematics, computer science, psychology, neuroscience, molecular biology, behavior, cell biology, genetics and other disciplines. They work at many different levels of analysis, including research on cell-molecular neurobiology, systems-level analysis of normal and disrupted neural circuits due to disease, neural engineering, and cognitive and computational neuroscience. In addition to our NIH Neuroscience T32 training, grant, the diversity in research is matched by our faculty also having training positions on Hearing and Communication and Stem Cell and Developmental Biology NIH T32 Training Grants. This reflects the national recognition of the excellence of the research programs of our training faculty, who seek to work with the best and brightest students in their laboratories. When combined with a varied curriculum, a focus on professional development, grant writing, and science communication, weekly seminars, an annual graduate student symposium, and an extremely active neuroscience graduate student forum, the USC Neuroscience Graduate Program provides a highly supportive, research-intensive training experience designed to prepare students for a variety of successful careers.

Application deadline: December 1, 2020

Application fee waivers: USC offers several options for graduate application fee waivers. For more information, visit https://ngp.usc.edu/prospective-students/faq/#fees.

GRE: The GRE is not required.

University of Texas Health Science Center at San Antonio

Neuroscience Graduate Program | http://uthscsa.edu/neuroscience/

Program Representative: David Morilak, Ph.D. (morilak@uthscsa.edu)

Program Description: The Neuroscience Program at UT Health San Antonio provides didactic and laboratory training in a range of subject areas and levels of analysis from molecular, cellular, and neurochemical to systems, behavioral, and clinical, all focused on the regulation and function of the nervous system. Drawing on the expertise of approximately 60 faculty from 5 basic science departments and 8 affiliated departments or divisions within the medical and dental schools. Research strengths include aging and neurodegenerative disorders, pain, drug addiction, animal models of neuropsychiatric disorders and psychotherapeutics, autonomic neurophysiology, ion channel electrophysiology, stroke, TBI, neuroinflammation, stress, developmental neurobiology, neural stem cells, receptor theory, and more. We have a world-class research imaging center employing state-of-the-art neuroimaging techniques in all modalities in humans, non-human primates and small animals, including rats and mice. We emphasize a flexible program of study and research tailored to the individual needs and interests of all students in Neuroscience. In addition to fundamental courses, we offer a rich diversity of research rotation opportunities, upper-level electives, translational experience, and a broad selection of faculty dedicated to mentoring graduate students in dissertation research. Our Neuroscience students enjoy a number of enrichment opportunities, including journal clubs, seminars, an annual retreat, participation in brain awareness week activities, professional and career development sessions, and a rich and diverse social environment. Students are encouraged to present their research in a variety of settings, to attend professional meetings locally, nationally and internationally, and to publish in high-impact peer-reviewed

journals. Our program is the recipient of a Neuroscience T32 training grant. A highly interactive community of faculty, post-doctoral fellows, laboratory staff and fellow students all contribute to a challenging, stimulating and supportive environment within which our students can develop into successful neuroscientists.

Application deadline: January 1, 2020 (Priority deadline)

Application Fee Waivers: NO APPLICATION FEE.

Information regarding COVID-19: We are in full operation, classes are currently all virtual, lab rotations are in person with PPE and other appropriate precautions. Research labs are functioning.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://zoom.us/j/98640424637
Meeting ID: 986 4042 4637
Passcode: Uthsa2020!

University of Utah

Neuroscience Ph.D. Program | http://neuroscience.med.utah.edu/

Program Representatives: Jeanette Ducut-Sigala, Ph.D.; Jim Heys, Ph.D. (jim.heys@neuro.utah.edu)

Program Description: The primary goal of the Neuroscience Program at Utah is to develop well-rounded scientists who are passionate about science and will become the next generation of leaders in our society. The Neuroscience Ph.D. Program at the University of Utah offers rigorous training through a combination of coursework, research training, mentoring, and professional development. More than 70 program faculty from 26 participating departments provide broad expertise from molecular and cellular neuroscience, to systems and cognitive neuroscience. Students receive hands-on training and mentorship within a world-class research environment, collegial and collaborative mentorship and a vibrant research community. They have the unique opportunity to develop professionally through a variety of student leadership roles, such as organizing the Annual Snowbird Neuroscience Symposium and Neuroscience Program Speaker Series.

Prospective applicants can also schedule a 1-1 virtual meeting with recruitment chair, Jim Heys Ph.D., Assistant Professor of Neurobiology and Anatomy, by emailing jim.heys@neuro.utah.edu.

Application deadline: December 31, 2020

Application fee waivers: NO APPLICATION FEE.

GRE: The GRE is not required.

University of Washington

Graduate Program in Neuroscience | https://depts.washington.edu/neurogrd/

Program Representatives: Kyle Shea (sheak2@uw.edu)

Program Description: The University of Washington's Graduate Program in Neuroscience is an interdisciplinary Ph.D. program in Seattle, Washington. Our program consists of over 160 faculty in 26 different departments, programs, and institutes across the city of Seattle. Students will spend the first year taking a set of core courses that cover the full breadth of the Neuroscience field. They will also complete rotations during this first year to help decide which lab they want to join. There is a TA internship requirement and 10 electives required to complete the degree. Then students research and work to write and defend their thesis. The goal of the Graduate Program in Neuroscience is to produce the best neuroscientists possible. The breadth of our faculty allows us to provide interdisciplinary training drawing from a variety of topics, techniques and perspectives, including neuroanatomy, biochemistry, molecular

biology, physiology, biophysics, pharmacology, in vivo brain imaging (e.g., fMRI, M-EEG), computational modeling and behavior. A graduate of our program will be well versed in the neurosciences, prepared to conduct independent research, and equipped to pursue a variety of career paths.

Application deadline: November 30, 2020

Application fee waivers: The Graduate School at UW offers application fee waivers based on financial need: https://www.grad.washington.edu/admission/application-fee-waivers/.

GRE: The GRE is not required.

Information regarding COVID-19: Interviews will be held virtually for the 2020-2021 application cycle.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020. 5:00 - 6:00 PM EDT
https://washington.zoom.us/j/98450244849
Meeting ID: 984 5024 4849

Vanderbilt University

Neuroscience Graduate Program | https://medschool.vanderbilt.edu/brain-institute/

Program Representatives: Bruce Carter, Ph.D.; Douglass McMahon, Ph.D.; Lisa Monteggia, Ph.D.; Danny G. Winder, Ph.D.

Program Description: Vanderbilt's Neuroscience Graduate Program prepares each student to make significant contributions in neuroscience and fosters development from trainee to independent research scientist and educator. This is achieved by combining sound training in the fundamentals of neural science with more specialized training that focuses on the integration of this knowledge base into a study of nervous system function and disease. Students have the option of a curriculum and research program that emphasizes either two paths, one based on first developing a strong biomedical knowledge base, and one based on rapid integration into neuroscience principles. The training, which combines rigorous course work with opportunities for state-of-the-art research, is designed to prepare graduates for a future in which neuroscientists must be able to make the transition from molecules and cells to neural systems and behavior. For more information, contact roz.johnson@vanderbilt.edu.

Application deadline: December 1, 2020

Application fee waivers: For application fee waiver eligibility information, visit https://gradschool.vanderbilt.edu/admissions/application/index.php.

GRE: The GRE is not required.

Information regarding COVID-19: For up to date information, visit https://www.vanderbilt.edu/coronavirus/.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:30 - 6:30 PM EDT
https://vanderbilt.zoom.us/j/99808950553?pwd=cjM5ekJ2dTRqTm4zU0FPNTU0MUw5QT09
Meeting ID: 998 0895 0553
Passcode: 009623

Wake Forest School of Medicine

Neuroscience Program | http://neuroscience.graduate.wfu.edu/

Program Representatives: Carol Milligan, Ph.D. (milligan@wakehealth.edu); Brianna George; Rachel Jones; Scott Smyre

Program Description: The Neuroscience Program at Wake Forest is a vibrant, productive, and collaborative effort by faculty and trainees to investigate molecular and cellular structures, local neural circuits and brain

areas, and behavior to enhance our understanding of the functional organization of the nervous system. We are committed to the idea that neuroscience, broadly conceived, provides a fundamental framework for understanding the biological basis of behavior and the causes of neurological and psychiatric disorders. For almost 30 years, our graduate program has provided state-of-the-art research training, coupled with foundational and specialized knowledge, and career development opportunities to students. As scientists and educators, we embrace our responsibility to train individuals capable of pioneering research into both normal development and function of the nervous system and into the underlying causes and mechanisms of neurological disease. While the vast majority of our graduating Ph.D. students go on to research-related positions, the ability to expertly analyze and interpret data provides a foundation for success in a wide variety of professions including finance, law, public policy, and education. We feel strongly that the Neuroscience program at Wake Forest provides students with a rigorous, critical thinking skillset, and that is precisely what will be required to tackle the burden on society of neurological disorders and disease.

Application deadline: December 6, 2020

Application fee waivers: Application fee waivers are available for BP ENDURE attendees, PREP students, and other programs.

Additional Information:

Virtual Information Sessions on Oct 14 @ 9 AM EDT, Oct 14 @ 8 PM EDT, Nov 11 @ 9 AM EDT Nov 11 @ 4 PM EDT
https://docs.google.com/forms/d/e/1FAIpQLSdqT7mnHRVIwpCqwA_uVeZ4cXJDIwCrkpgzCgRiwvGUJh7ddA/viewform

Washington University in St. Louis

Program in Neuroscience | http://neuroscience.wustl.edu/

Program Representatives: Tamara Hershey, Ph.D.; Erik Herzog, Ph.D.; Timothy E. Holy, Ph.D.; Sally Vogt (vogts@wustl.edu)

Program Description: The Neuroscience Ph.D. Program at Washington University in St. Louis began in 1973 and has a long tradition of excellence. Today, a large and interactive faculty focuses interest on almost every area of modern neuroscience ranging from molecular analysis of ion channels to positron emission tomography of the human brain. Faculty from across the university serve as advisers for thesis research and serve as teaching faculty in the neurosciences. The remarkable breadth of faculty interests in neuroscience at Washington University guarantees a student's exposure to a wide range of current neurobiological problems and approaches. The Program currently has 118 students and 178 faculty and ranks within the top 10 graduate programs for neuroscience in the US (2018 ranked #8 by NRC & 2019 ranked #9 globally by US News & World Report). It has also been on the forefront of innovations in graduate training including the early recognition that cutting-edge interdisciplinary science is fostered by an organizational structure that rises above any single department's interests. This once-novel organizational structure is now common across the US and allows students to interact with faculty and students from a wide range of biomedical disciplines. Our program also strives to be at the forefront of innovative training in rigor and reproducibility, statistical thinking and quantitative skills. We aim to give students the essential neuroscience content that they need for their subsequent training and career, to provide core skills for their future career paths, and to develop quantitative literacy, a deep understanding of experimental design, statistical inference and scientific and ethical principles, all of which will serve to enhance the rigor and reproducibility of their work, their colleagues' work and the field of neuroscience.

Application deadline: December 1, 2020

Application fee waivers: Fee waivers are granted to applicants from the following programs: MARC, McNair, RISE, IMSD, LSAMP, PREP, PPIA, DACA students, IRT-Institute for the Recruitment of Teachers, Target Hope, Fulbright Scholars, AmeriCorps, Vista/Peace Corps, Teach for America, Gates Millennium Scholars, Mellon Mays Graduate Initiative, Ron Brown Scholars, Vietnam Education Foundation. Fee waivers are also available for: Washington University undergraduates, participants in Washington University summer

bioscience research programs, students mentored by a DBBS Alum, applicants with financial need. If you think you qualify for a fee waiver, please send an email to DBBSPhDAdmissions@email.wustl.edu.

GRE: The GRE is not required.

Information regarding COVID-19: Limitations on applicant's access to research experiences or other activities due to the pandemic will be taken into account.

Post-ENDURE Annual Meeting Zoom Networking:

Oct 8, 2020, 5:00 - 6:00 PM EDT
https://wustl-hipaa.zoom.us/j/98967540001
Zoom Meeting ID: 989 6754 0001

Yale University

Interdepartmental Neuroscience Program | http://medicine.yale.edu/inp/

Program Representatives: Charles Greer, Ph.D.; Noa Golan; Paola Negron-Moreno

Program Description: The interdisciplinary research activities of Yale neuroscience faculty are central to Yale's Graduate Neuroscience Program. This unique, broad-based training program is best described as a "department without walls," whose primary purpose is providing students with maximum diversity and depth in the most important areas of neuroscience research. The training program draws on the knowledge and expertise of 130+ faculty members, representing at least 20 departments, ranging from Neuroscience, Psychiatry and Pharmacology to Computer Science. Faculty work together as a cohesive and collaborative unit whose aim is to foster in graduate students an appreciation of and familiarity with the breadth of neuroscience and to create an environment in which students are encouraged to study problems from several perspectives. The Neuroscience Track students graduate with both specialized knowledge and a broad understanding of the discipline. Students engage with a recently revised core curriculum, designed to ensure a comprehensive understanding of modern neuroscience. Students complete at least two laboratory rotations in different areas of neuroscience. A course in Statistics and Data Analysis is required as well as two additional electives. Admission to candidacy requires passing a qualifying examination and a dissertation prospectus (NIH NRSA grant format). These requirements, in addition to journal clubs, Student Research Talks, a seminar series and an annual one-day research retreat expose students to the multi-disciplinary nature of the field in a highly interactive environment.

Successful candidates come from undergraduate institutions such as Cornell, University of Wisconsin, Johns Hopkins, NYU, University of Oregon, Kenyon College, Rutgers, UCSD, Howard, UMBC and many more. They have range and depth of research experience and strong academic preparation. Clear communication and demonstrated leadership ability are valued skills. Average time to degree is 5.4 years and our graduates go on to careers in academia, industry (consulting, biotech and pharma), and other related fields.

Application deadline: December 1, 2020

Application fee waivers: For detailed information, visit https://gsas.yale.edu/admissions/phdmasters-application-process/application-fees-fee-waivers.

Information regarding COVID-19: All recruitment activities this year will be virtual. There will be faculty interviews as well as opportunities to meet with our graduate students in small groups.

PARTICIPANT LIST

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MENTORING RESOURCES

"A mentor is not someone who walks ahead of you to show you how they did it. A mentor walks alongside you to show you what you can do." – Simon Sinek

Getting the Most Out of Your Mentoring Relationship | https://neuronline.sfn.org/Articles/Professional-Development/2015/Getting-the-Most-Out-of-Your-Mentoring-Relationship

How to Find the Right Mentors and Ask for Career Advice | https://neuronline.sfn.org/Articles/Professional-Development/2015/How-to-Find-the-Right-Mentors-and-Ask-for-Career-Advice

How to Get the Mentoring You Want: A Guide for Graduate Students at a Diverse University | http://www.rackham.umich.edu/downloads/publications/mentoring.pdf

Making the Right Moves and Training Scientists to Make the Right Moves | http://www.hhmi.org/programs/resources-early-career-scientist-development

Your Science Avengers: How to Assemble Your Mentoring Team | https://neuronline.sfn.org/Articles/Professional-Development/2017/Your-Science-Avengers-How-to-Assemble-Your-Mentoring-Team

Individual Development Plan (IDP), a web-based career-planning tool created to help trainees in the sciences define and pursue their career goals | http://myidp.sciencecareers.org/

Mentoring Compacts | https://ictr.wisc.edu/mentoring/mentoring-compactscontracts-examples/

National Research Mentoring Network | https://nrmnet.net/

SCIENTIFIC ORGANIZATIONS

Diverse venues for professional development activities, scientific presentations, and networking opportunities with research trainees, faculty, and academic biomedical research institutions.

American Indian Science and Engineering Society (AISES) https://www.aises.org/

Annual Biomedical Research Conference for Minority Students (ABRCMS) http://www.abrcms.org/

Association of Minority Health Professions Schools, Inc. (AMHPS) https://www.minorityhealth.org/

Black in Neuro https://www.blackinneuro.com/home

Científico Latino https://www.cientificolatino.com/

Hispanic Association of Colleges and Universities (HACU) https://www.hacu.net/

Neuroscience Scholars Program, Society for Neuroscience https://www.sfn.org/initiatives/diversity-initiatives/neuroscience-scholars-program

Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) https://www.sacnas.org/

ENDURE PRIDE

ENDURE has been changing the face of neuroscience research and impacting the scientific community for ten (10) years! Stay connected to the ENDURE network and as scientists use the evidence below to replicate your own success! Visit and like the ENDURE Facebook page, www.facebook.com/BP.ENDURE, to (1) build/maintain a support system, (2) facilitate future transition and research collaboration, and (3) provide awareness of neuroscience resources within and outside of NIH.

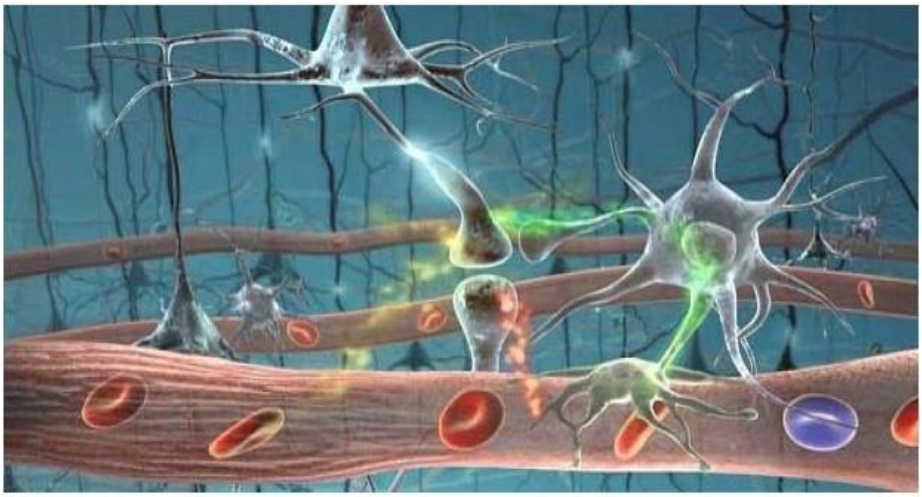
We wish the best to current scholars completing their undergraduate education during a global pandemic – keep up the great work! We also offer congratulations to alumni who have completed their tenure with ENDURE and are continuing their education, training, and career development journeys!

As of Sep 2020, 228 of 310 alumni (74%) are pursuing STEM careers!

- 98 enrolled in Ph.D. programs
- 34 enrolled in postbaccalaureate or master's programs
- 29 enrolled in M.D., D.O., or M.D./Ph.D. programs
- 27 engaged in research-related professions
- 22 engaged in science- or health-related professions
- 7 pursuing postdoctoral research training
- 6 enrolled in other doctorate (Psy.D., Pharm.D.) programs
- 5 pursuing medical residency training

Ph.D. graduate programs of ENDURE alumni

Albert Einstein College of Medicine
Boston University
Brown University
City University of New York
Columbia University
Cornell University
Emory University
Georgetown University
Harvard University
Icahn School of Medicine at Mount Sinai
Institute of Science and Technology Austria
Johns Hopkins University
Massachusetts Institute of Technology
Michigan State University
New Mexico State University
New York University
The Ohio State University
Oregon Health & Science University
Ponce Health Sciences University
Princeton University
Rosalind Franklin University of Medicine and Science
Stanford University
University of Alabama
University of Alabama at Birmingham
University of Arizona
University of California, Berkeley
University of California Irvine
University of California, Los Angeles
University of California San Diego
University of California, San Francisco
University of Cincinnati
University of Colorado Boulder
University of Colorado Anschutz Medical Campus
University of Georgia
University of Houston
University of Illinois at Chicago
University of Iowa
University of Massachusetts Amherst
University of Michigan
University of North Carolina at Chapel Hill
University of Pennsylvania
University of Pittsburgh
University of Puerto Rico
University of Southern California
University Texas at Austin
The University of Texas at San Antonio
University of Texas Southwestern Medical Center
University of Texas Health Science Center at San Antonio
University of Washington
University of Wisconsin-Madison
University of Utah
Washington State University
Washington University in St. Louis



THANK YOU FOR YOUR PARTICIPATION!!

Stay safe and take care!