Anne Wells, UTHealth San Antonio
My research is focused on the role of L-type calcium channels in excitation-inhibition (E-I) imbalance in neuropsychiatric disease.

Antonio White, Michigan State University
I investigate the effects of different gut microbiota compositions in rodent maternal behavior. I use an undisturbed maternal behavior paradigm to examine maternal behavior in dams. I will utilize untargeted metabolomics to investigate gut metabolomic profiles and neuroactive metabolites in brain regions involved in the expression of maternal behavior. I will reveal whether gut microbiota is an influential factor in expression of rodent maternal behaviors and identify potential targets that could be utilize to promote health infant mother relationships.

Ashley Cunningham, Icahn School of Medicine at Mount Sinai
My research is focused on identifying how genetic, environmental, and epigenetic factors work together to influence the risk for developing mood and anxiety disorders. Previous studies have found that environmental stimuli such as stress can lead to epigenetic changes in germ cells such as sperm. My project in pre-clinical models focuses on understanding the mechanisms by which paternal exposure to stress leads to epigenetic alterations in sperm and how these changes impact offspring's brain transcriptomic changes and alter the risk of the development of mood disorders.

Carlos Orozco, UT Southwestern Medical Center
I research the development and evolution of vocal learning using single-cell RNA sequencing.

Cellas Hayes, University of Mississippi
Aging is a primary risk factor for stroke and cognitive decline. In a clinical setting, reductions in insulin-like growth factor-1 (IGF-1) levels are associated with poor neurological/functional outcomes post-stroke and cognitive decline/impairments. In preclinical animal models, exogenous exerts neuroprotective benefits following a stroke and restores cognitive deficits. My research utilizes inducible transgenic animal models where we selectively reduce the IGF-1 receptor in astrocytes or neurons to determine which cell type is responsible for the neuroprotective role of IGF-1. Our central goal is to uncover mechanisms that are targetable at the cellular level to improve stroke treatments and prohibit cognitive decline.

Dennisha King, University of Rochester
In humans, the amygdala, is dysregulated in anxiety and mood disorders which manifest with difficulties with emotional salience. In primates, the basal nucleus of the amygdala plays a fundamental role in complex emotional processing and is surrounded by the paralaminar nucleus (PL). The PL is unique because it has neuroblasts that carry a molecular signature of glutamatergic neuron precursors and also has a group of immature neurons that persist through adulthood. With my project, I focus on understanding the role of microglia in the PL. As sensors of the surrounding environment, microglia are highly responsive to perturbations that drive different reactive states through morphological and functional changes which in turn impacts neural circuitry formation. I explore these morphological and functional characteristics of the microglia in the PL of infant and adolescent Macaques who have been maternally deprived.

Isabel Soto, University of North Texas Health Science Center
My research aims at understanding how exercise impacts cognition, mobility, biomarkers, and neural mechanisms of Parkinson's disease (PD). To begin this line of inquiry, we implemented a cross-species research paradigm between humans and a genetic PD rat model, the Pink1-/- rat. Through a cross-sectional study design, we compared motor, cognitive and biomarker data from exercising and non-exercising PD patients along with matched controls. Alongside, we plan to longitudinally examine motor/cognitive symptoms and biomarkers in the Pink1-/- rat under an exercise intervention comparable to our human subjects. Hence, we expect that the neurobiological mechanisms that are responsive to exercise in the Pink1-/- rat would have high probability of translatability into human CNS.

Jarildy L. Javier, Emory University
In my thesis research, my interests in the neuroscience of behavior, circuit dissection and ethology gracefully come together, bolstered by the expertise of both my co-advisors and labs. The aim of my research is to understand the role of different brain regions and circuits in the formation of pair bonds in the prairie vole. By leveraging techniques like cellular resolution in vivo calcium imaging in the prairie vole, this project will increase the knowledge, and the accessibility, of these techniques not yet widely applied to this unique model system. Thus, this project will widen the scope of scientific inquiry in the vole and deepen our understanding of this evolutionarily rare behavior and social behavior more generally.

Jillybeth Burgado, UCSD/Salk
I study astrocytes in aging and Alzheimer's Disease, specifically looking at how changes to astrocytes contribute to neuronal dysfunctions. My projects involve investigating how alterations to cholesterol metabolism and extracellular matrix remodeling in disease astrocytes promotes synaptic deficits and eventual synapse loss. I use mouse and human iPSC models to address these questions.

Juan Luis Romero Sosa, University of California, Los Angeles
Reversal learning measures the ability to quickly adapt one's behavior to changing reward contingencies in our environment. Using single-photon imaging, I can record in-vivo calcium traces (a proxy for action potentials) in the Orbitofrontal Cortex (OFC) and the Anterior Cingulate Cortex (ACC), subregions of the prefrontal cortex that have been linked to flexible learning. The goal is to capture the basis of how single neurons as well as the whole population code for individual aspects of the association of stimuli to reward, and how they can adapt to new contingencies and make new associations.

Kailyn Price, The George Washington University My work investigates the role of the ventral tegmental area (VTA), a known interface between the brain's stress and reward circuits, in mediating the relationship between stress coping and post- stress avoidance behavior. I am also interested in the roles of sex and interneuron subtypes in altering synaptic plasticity during stressful experiences.

Lorianna Colon, Children's Hospital of Philadelphia
The goal of my postdoctoral work is to probe causative relationships between sex-specific changes in neural activity and behavior in rodent models of neuropsychiatric disorders (including mood, anxiety and substance use disorders) across development. I am currently studying the functional ramifications of drug-mediated changes to the brain and behavior using an oxycodone self-administration model to map and manipulate dentate gyrus neural ensembles and probe functional changes in behaviorally relevant circuits regulating behavior, cognition, and mood.

O. Hecmarie Meléndez-Fernández, West Virginia University
Circadian disruption through exposure to artificial light at night (ALAN) is a ubiquitous health concern, particularly for vulnerable populations, such as those in need of or providing, nocturnal care or services. Alterations to the molecular mechanisms that sustain these rhythms can impair physiological homeostasis. My work aims to understand how exposure to ALAN affects vascular function in healthy animals, by examining changes in aortic endothelial and metabolic function across a biological day (24h). I also study how exposure to ALAN affects hippocampal vascular recovery in the context of global ischemia.

Paola Negron-Moreno, Yale University
Transitions between brain states are essential for survival and adaptation in response to changes in external factors such as sensory input or emotional burden. Despite the universality of brain state transitions, their dynamics remain poorly understood. My research focuses on investigating the neural circuitry that regulates transitions between differential brain and behavioral states by capitalizing upon the Shank 2 complete knockout mouse model with a deletion of exon 24. The SHANK 2 gene has been strongly implicated in neuropsychiatric disorders from genomic studies, including mood disorders and autism spectrum disorder which exhibit a potential brain state transition deficit or inflexibility.

Rachel E. Frazer, Columbia University
Rachel Frazer is an incoming third-year graduate student and NSF Graduate Research Fellow in the Abdus-Saboor lab at Columbia University. Her research centers on the integration of the central and peripheral nervous systems in order to understand the connection between social interactions and physical pain, specifically how they are regulated by oxytocin. Her passion for research stems from the impact that music has on the brain and body and she hopes to further investigate the mechanisms by which music and sound can treat physical pain in the future.

Víctor Manuel Suárez Casanova, Brandeis University
Evidence that V1 is able to process temporal frequency (TF) and speed would greatly increase our current understanding of how visual information is decoded. We propose to analyze the functional organization underlying stimulus speed processing, namely the relationship between spatial and temporal frequency and speed tuning using acute in-vivo electrophysiology and two-photon calcium imaging in the ferret visual cortex. We hypothesize that the activity of V1 neurons contains the information necessary to decode stimulus direction, speed, and temporal frequency in a non-linear manner. We will examine whether organization of the temporal tuning properties is maintained across visual cortical layers, or if temporal tuning characteristics, speed tuning, emerge across the layers

Yamil Miranda-Negron, University of Puerto Rico – Río Piedras Campus
My research interest is the molecular regulation of nervous tissue regeneration, in particular neurogenesis. To study this process, our laboratory uses the sea cucumber Holothuria glaberrima. This organism has remarkable nervous system regenerative capacities as well as close phylogenetic proximity to chordates. Hence, by studying and comparing regenerating and non-regenerating species we can uncover genes, molecules, and pathways that are essential for nervous system regeneration.

Yasmin Escobedo Lozoya, Harvard Medical School

Neuromodulatory systems excel at biasing intrinsically flexible brain circuit dynamics towards specific dynamical states. In vivo, their recruitment can nudge brain circuits into contextually appropriate states that drive adaptive behavior to optimally promote survival. I study neuromodulation in the context of emotional memory formation by a class of Median Raphe neuromodulatory neurons that expresses the transcription factor Pet1 and signals through both serotonin and glutamate. My postdoctoral work seeks to discover how this class of serotonin neurons gates information transfer across limbic brain regions responsible for reward memory formation, perhaps contributing to maladaptive brain states such as addiction and relapse.