The Friedman Brain Institute Announces
2019 FBI Research Scholars

On behalf of the Philanthropic Leadership Council of The Friedman Brain Institute, we are pleased
to announce the 2019 recipients of The FBI Research Scholars Awards.

Fascitelli Research Scholar Award

Hala Hanony-Nicolas, Ph.D.
Assistant Professor, Psychiatry

Implication of the hypothalamic oxytocin system in autism-associated social deficits

The proposed study aims to examine the effect of a mutation in ASD high-risk gene, SHANK3, on the brain oxytocin system, which modulates social behavior. We will test, in rats, how Shank3 mutation affects the function of oxytocin-producing neurons in the brain and the central release of the oxytocin hormone. We will also test whether impaired function of the oxytocin system underlies social behavior deficits, caused by Shank3 mutation.

Mount Sinai Research Award

Daniel Wacker, PhD
Assistant Professor, Pharmacological Sciences and Neuroscience

Empowering structure-based discovery of new medicines to combat the opioid epidemic

Developing safer medications to treat opioid addiction or severe pain without the unwanted side effects has been severely obstructed by a poor mechanistic understanding of how clinically used analgesics bind to and activate the µ-opioid receptor (MOR). The Wacker and Filizola labs aim at elucidating the molecular details of how the clinically used opioids fentanyl and methadone interact with MOR, using a novel combination of X-ray crystallography and machine learning predictions.

Richard and Susan Friedman Research Scholar Award

Henrietta A Szutorisz, PhD
Assistant Professor, Psychiatry

The role of the gut-brain axis in the etiology of Parkinson’s disease

Our studies will apply novel circuit-mapping technologies to study the role of the vagus nerve in the etiology of sporadic Parkinson’s disease. We will determine whether gut-to-brain vagal sensory fibers participate in the transmission of Parkinson’s disease-related pathways from gastrointestinal organs to brain. These studies will also allow us to test the idea of gastrointestinal vagal denervation as potential early interven- tion of Parkinson’s disease.

Nash Family Research Scholar Award

James Murrough, MD
Associate Professor, Psychiatry and Neuroscience

Brain-computer interface (BCI) technology for neurocircuit-based treatment of depression in humans

Major depressive disorder (MDD) is the world’s largest health problem, and current available treatments fail at relieving symptoms for many patients. True precision medicine will require a more individualized approach to treatment, directly targeting core psychopathology. We intend to conduct a non-invasive protocol for direct and individualized brain activity regulation in people with depression using brain-computer interface technology. The use of this brain-computer interface technology will provide a critical next step in directly targeting neural circuit dysfunction in a non-invasive, individualized manner.

Joseph and Nancy DiSabato Research Scholar Award

Erin L Rich, MD, PhD
Assistant Professor, Neuroscience

Wireless neural recording of social behavior in freely moving non-human primates

This proposal will combine wireless recording methods with computer vision algorithms to establish an integrated system for studying neural activity in freely and socially behaving monkeys. These approaches will provide a framework for understanding the neural basis of behaviors that are studied with traditional task-based neurophysiology, such as sleep and social interaction. They could also be used to identify neural mechanisms underlying superordinate behavioral states, such as motivation or mood-like states.

Katz / Martin Scholar Award

Kristen Brennand, PhD
Associate Professor, Neuroscience, Psychiatry and Genomics

CRISPR activation screens to identify factors for stem cell maturation

Genetic risk factors for psychiatric diseases are greatly enriched for genes expressed during cortical development, and there is a critical need to more comprehensively understand regulators of the developmental process. This project is designed to engineer and apply a forward-genetic CRISPR-based screening platform to interrogate cell type-specific mechanisms of neuronal maturation and activity regulation.

Satter Research Scholar Award

Samuel J Miale, MD, PhD
Assistant Professor, Psychiatry

Vasopressin and machine learning predictions

Interact with MOR, using a novel combination of X-ray crystallography and machine learning predictions.

Dyal Research Scholar Award

Maria de las Mercedes Perez-Rodriguez, MD, PhD
Assistant Professor, Psychiatry

Cerebrospinal fluid (CSF) biomarkers of mother-infant social behavior

This study aims to assess cerebrospinal (CSF) fluid oxytocin and vasopressin levels in pregnant women during labor to elucidate the neurochemical processes underlying maternal caregiving behavior and to find biomarkers that predict mother-infant social behavior. Maternal caregiving behavior is impaired in mothers with postpartum depression or substance use disorders, and in those exposed to psychosocial stress. The results of this study can uncover biomarkers to identify mothers at high-risk of impaired caregiving behavior, and discover potential targets for interventions to enhance maternal caregiving behavior.