MONDAY, JUNE 24

8:00am-8:45am   **Plenary Session I – INVITED**

NEUROIMMUNE MECHANISMS OF STRESS SUSCEPTIBILITY: IMPLICATIONS FOR ALCOHOL USE DISORDER

<u>**Scott Russo, Ph.D.**</u>**,** Neurobiologist and Professor in the Nash Family Department of Neuroscience, Icahn School of Medicine at Mount Sinai and The Friedman Brain Institute

Presentation: Alcohol abuse is a global health concern that is often comorbid with stress disorders like major depressive disorder (MDD). Though the underlying etiology driving these comorbid illnesses is largely unknown, several recent reports have implicated innate myeloid cells (i.e., monocytes and neutrophils) in both alcohol use disorder and depression. Here I will discuss recent evidence from chronic stress and intermittent alcohol drinking models, which implicates several myeloid derived factors. Interestingly, both conditions are marked by the mobilization of myeloid cells in the periphery due to enhanced proliferation and egress from bone marrow stores into the circulation and followed by active trafficking to target tissues, such as the brain. Using single-cell RNA-sequencing along with advanced bioinformatics, we have begun to define the cellular and molecular pathways that interface myeloid cells and the brain during stress or alcohol exposure in mice. We find that both stress and alcohol exposure increases myeloid derived endopeptidases, such as matrix metalloproteinase 8 (MMP8) and neutrophil elastase (NE) known to remodel the tissue extracellular matrix (ECMs) and promote blood brain barrier (BBB) permeability. We further demonstrate that these peripheral myeloid derived factors can directly infiltrate the nucleus accumbens (NAc) parenchyma to control ECM reorganization. Strategies to deplete MMP8 or NE from circulating immune cells prevents stress- and alcohol-induced behaviors via alterations in extracellular matrix reorganization that ultimately control NAc neurophysiology. Collectively, these data establish a novel mechanism by which peripheral immune factors can affect central nervous system function and behavior in the context of stress and alcohol and may explain the significant comorbidity between these conditions.

Bio: Dr. Scott Russo is a renowned neurobiologist and Professor in the Nash Family Department of Neuroscience at the Icahn School of Medicine at Mount Sinai and The Friedman Brain Institute where he directs the Center for Affective Neuroscience. Scott joined Mount Sinai as an Assistant Professor in 2008 where he rapidly developed a world class research program and is now internationally recognized for his contributions to understanding the neural and immunological basis of neuropsychiatric disorders. His translational studies of the immune system in depression have changed the way we think about mental illness providing detailed mechanisms by which disturbances in peripheral immunity lead to changes in complex behavior. He has also dissected the circuitry in the brain that controls abnormal social behaviors—including aggression and

violence—leading to new perspectives on social dysfunction in people with neuropsychiatric illness.

Scott has been very prolific over the past decade, having published in journals such as Nature, Nature Reviews Neuroscience, Science, Nature Medicine and Nature Neuroscience. His work is frequently cited in the field and featured in the popular press. He has been listed as a "highly cited researcher" in the field of neuroscience by Clarivate analytics since 2015.

Scott has received numerous honors and awards in recognition of his work, including being named a Kavli National Academy of Science Frontiers Fellow in 2009, receiving the Johnson and Johnson/International Mental Health Research Organization Rising Star Translational Research Award in 2011, being elected Fellow of the American College of Neuropsychopharmacology in 2016 and receiving the Daniel H. Efron Award for Basic Science in 2019.

In addition to his own research program, Scott has played a major role in building the Nash Family Department of Neuroscience. The Center for Affective Neuroscience, which he directs, has recruited world class researchers and serves as the intellectual hub at Mount Sinai for research on the neural circuitry of emotional behavior.

TUESDAY, JUNE 25

8:00am–8:45am   **Plenary Session II – RSA Distinguished Researcher Awardee – 2024**

BRAIN FUNCTION, GENETIC AND ENVIRONMENTAL IMPACTS ON RISK AND RESILIENCE TO ALCOHOL USE DISORDER OVER THE LIFESPAN

Bernice Porjesz, Ph.D., SUNY Downstate Health Sciences University

Presentation: This presentation provides an overview of current work and its antecedents at the intersection of brain function, alcohol use disorders (AUD) and genomics. It will present longitudinal data on brain development and cognitive decline over the lifespan, beginning with data prior to alcohol use and over the course of AUD in individuals at increased risk. Multi-domain data from the large Collaborative Study on the Genetics of Alcoholism (COGA) and its key focus on brain function, along with integration across clinical, genomic, molecular and socio-environmental data will be presented to elucidate factors influencing risk and resilience in AUD and related neuropsychiatric disorders over the lifespan.

Bio: Bernice Porjesz, PhD is a Distinguished Professor of Psychiatry and Behavioral Sciences and Director of the Henri Begleiter Neurodynamics Laboratory at SUNY Downstate Health Sciences University. Her research over the past 40 years has transformed understanding of the relationships between brain function, genetics and alcohol use disorders (AUD), and the underlying factors that increase risk to develop AUD. She has had a long and productive career dedicated to understanding the role of brain function, genetic and environmental factors in risk and resilience to the development, consequences, and remission from AUD across the lifespan. She has >300 publications and is on the editorial boards of several scientific journals and has received several awards for her seminal work. She has been the Principal Investigator of various NIH funded projects, with continuous funding since the beginning of her career, including a MERIT award, and has been PI of the large Collaborative Study on the Genetics of Alcoholism (COGA) for the last 18 years.

WEDNESDAY, JUNE 26

8:00am–8:45am   **Plenary Session III - RSA Early Career Investigator Awardee – 2023**

OPPRESSION-BASED STRESS AND ALCOHOL INEQUITIES AMONG SEXUAL AND GENDER MINORITY YOUNG ADULTS

Ethan Mereish Ph.D., Associate Professor at the Department of Psychology and Director of the Lavender Lab at the University of Maryland, College Park

Presentation: Sexual and gender minority (SGM) youth and young adults are at increased risk for alcohol use, hazardous drinking, and alcohol use disorder compared to their heterosexual and cisgender peers. These alcohol inequities are often explained by oppression-based stressors, which manifest in structural (e.g., heterosexist and cissexist laws and policies), interpersonal (e.g., victimization, discrimination, microaggressions), and intrapersonal (e.g., internalized oppression, concealment) domains, and contribute to increased alcohol use and hazardous drinking. However, the extant literature primarily relies on correlational designs, often neglects the importance of alcohol craving, despite its foundational role in addiction, and lacks an intersectional understanding of oppression-based stress for SGM people of color. Leveraging a novel experimental laboratory paradigm and experience sampling methods, my research examines the impact of exposure to oppression-based stress on alcohol craving and use and identifies mechanisms that explain or mitigate these associations among SGM youth and young adults.

Bio: Ethan Mereish is an Associate Professor and the director of the Lavender Lab in the Department of Psychology at the University of Maryland, College Park. He's also an Adjunct Associate Professor at American University and Brown University. He completed his doctoral training at Boston College, a clinical psychology residency at Harvard Medical School, and a postdoctoral research fellowship at Brown University's Center for Alcohol and Addiction Studies. His research program focuses on understanding the effects of social, psychological, and cultural determinants of alcohol and other substance use, suicide, and other mental health outcomes for lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals and racial and ethnic minorities as well as factors that promote their resilience.