Mount Sinai Research Scholar Award

Richard and Susan Friedman Research Scholar Award

Nan Yang, Ph.D. Assistant Professor, Neuroscience

Functional annotation of non-coding variants in neuropsychiatric diseases using human neurons

Autism spectrum disorder (ASD) is diagnosed in roughly 1% of the population and has complex genetic roots. Analysis of exome and de novo sequence variation in ASD has led to recent success in identifying genes and the biology underlying ASD. However, most of the disease associated variants do not reside in protein coding sequences, and this renders the interpretation of the sequencing results. The current study aims to identify regulatory elements that act as functional non-coding DNA sequences and will provide the basis for identification and functional studies of ASD associated non-coding variants and their role in ASD pathology.

Katz and Martin Research Scholar Award

Joseph M Castellano, PhD Assistant Professor, Neuroscience and Neurology

Blood-borne molecules to target Alzheimer’s disease pathology

Alzheimer’s disease is the leading cause of dementia, affecting nearly 60 million people worldwide. In the aftermath of many unsuccessful trials, new therapeutic approaches are needed to address novel possible causes. Recent studies have found that aged rodents exposed to young blood exhibit superior learning and memory while aged blood confers cognitive impairments in young organisms. These data raise the question of whether Alzheimer’s may be initiated by factors within blood. This project will profile human blood for such factors that may drive the disease process, screening these activities in a newly developed animal model to examine key disease hallmarks.

Mount Sinai Research Scholar Award

Fascieltti Research Scholar Award

Joseph and Nancy DiSabato Research Scholar Award

Drew D Kiraly, MD Assistant Professor, Psychiatry and Neurology

Interruption of microbiome effects on nicotine accumbens circuit function in cocaine reward

Addictive disorders are a group of difficult to treat conditions that severely damage the lives of affected patients and their families, and exert a tremendous burden on society. In our laboratory, we have recently discovered that alterations in the composition of the resident bacteria of the intestines, the gut microbiome, can dramatically affect the addictive properties of drugs of abuse. We now plan to use cutting edge Miniscope microscopy technologies to image how changes in the gut microbiome affect activation patterns of reward centers of the brain. These studies will provide crucial information on changes in brain activity in models of addiction, and have high potential for clinical translation to help reduce addiction and relapse in human populations.

Mount Sinai Research Scholar Award

Nash Family Research Scholar Award

Tristan Shuman, PhD Assistant Professor, Psychiatry and Neuroscience

In vivo imaging of neuronal activity in the nonhuman primate brain with miniature fluorescent microscopes

Miniature fluorescent microscopes have been powerful tools to visualize the activity of large populations of neurons in defined circuits in the mouse brain. We will extend this technology to nonhuman primates. With this technology, we will be able to see how specific neural circuits respond in complex tests of decision-making and memory. This will give new insights into how the activity of specific brain circuits might be modulated to improve decision-making and memory in brain disorders, including Alzheimer’s disease and substance addiction.

Mount Sinai Research Scholar Award

Joseph L. Cagan, PhD Assistant Professor, Pharmacology and Experimental Therapeutics

To Prevent Parkinson’s Disease

Parkinson’s disease (PD) is a progressive, neurodegenerative disorder that affects movement. Notably, PD patients exposed to common anti-TNF therapies have a reduced risk of PD. Therefore, the goal of our study is to test whether anti-TNF therapies administered early in life could reduce the risk of PD. Recently, in a zebrafish model of neurological disorders, 40 years old or younger. By introducing versions of these genes causing juvenile parkinsonism that affects people of this age, we will be able to test whether these disease-associated versions contribute to new targets for therapy that appear to slow disease progression. The FBI Scholar Awards will allow the Dar and Cagan laboratories to deepen their exploration of these targets to develop new candidate treatments designed to slow loss of brain tissue in patients suffering from neurodegeneration.

Mount Sinai Research Scholar Award

Inga Peter, PhD Associate Professor, Neuroscience

TNF-α Inhibitors as Novel Therapeutic Targets To Prevent Parkinson’s Disease

Inflammatory bowel disease (IBD) is a group of intractable disorders that cause prolonged inflammation of the digestive tract. Recent data suggest that IBD patients are at a higher risk of developing Parkinson disease (PD), a progressive disorder of the nervous system that affects movement. Notably, IBD patients exposed to common anti-TNF therapies have a reduced risk of PD. Therefore, the goal of our study is to test whether anti-TNF therapies administered early in life could reduce the risk of PD. Recently, in a mouse model of neurological disorders, 40 years old or younger. By introducing versions of these genes causing juvenile parkinsonism that affects people of this age, we will be able to test whether these disease-associated versions contribute to new targets for therapy that appear to slow disease progression. The FBI Scholar Awards will allow the Dar and Cagan laboratories to deepen their exploration of these targets to develop new candidate treatments designed to slow loss of brain tissue in patients suffering from neurodegeneration.