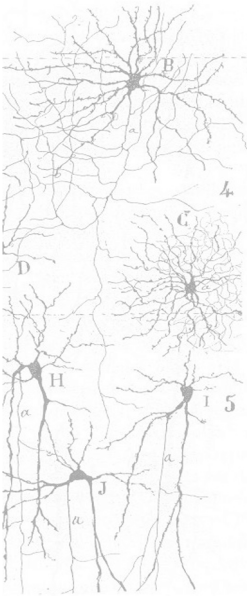


# CUNY Neuroscience Collaborative Seminar Series SPRING 2024

Friday, March 15<sup>th</sup>, 3:00 - 4:30 PM  
The CUNY Graduate Center, Rm. 6495



**Juan Gomez, Ph.D.,**  
*National Institute on Drug  
Abuse (NIDA)*

## **Negative Feedback Neuromodulation: A Novel Cocaine-Sensitive Chemogenetic Receptor**

*Behavioral and/or pharmacological therapies for substance use disorder (SUD) have varying success rates. Current pharmacological interventions for SUDs have undesirable side effects because they influence general-purpose motivational processes as well as other behavioral and physiological systems. Chemogenetics is a valuable neuroscience technique for drug-controlled neuromodulation of the neural circuitry that mediates addiction. This technique involves an engineered receptor that is exogenously expressed in a cell type of interest where it is inert until engaged by a cognate chemical agonist. To test the contributions of neural populations to SUD, precisely tied to the self-administered time course of addictive drugs, we have developed chemogenetic receptors that are directly responsive to cocaine. These mutated ion channels are designed to activate cell populations when cocaine is present and bound. Modulating brain activity that is time-locked to specific drug use events can be leveraged to alter the behavioral response of drug seeking. The goal of this novel ion channel is to manipulate specific cell populations to create a synthetic negative-feedback loop which will reduce drug seeking without altering natural rewards.*

### ***In-person***

Hosts: **Dr. Nisha Burghardt** ([nb844@hunter.cuny.edu](mailto:nb844@hunter.cuny.edu)) and **Dr. Asohan Amarasingham** ([aamarasingham@ccny.cuny.edu](mailto:aamarasingham@ccny.cuny.edu))  
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