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CHAPTER



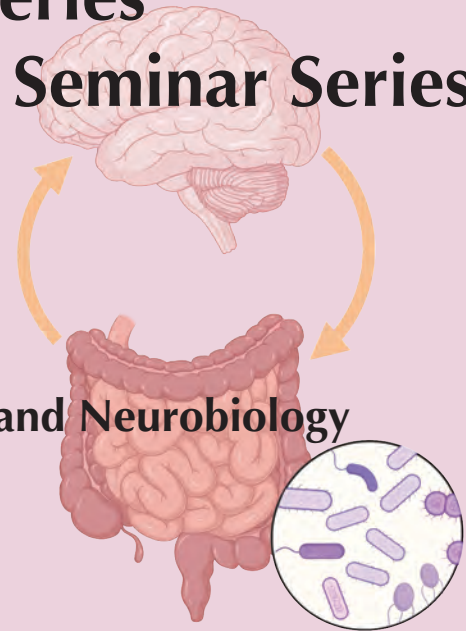
IMCB Seminar Series BRAIN & BODY Seminar Series



Diego Bohórquez

Associate Professor
Department of Medicine and Neurobiology
Duke University, USA

Host: Sarah Luo (IMCB)



Thursday, 16 February (Hybrid)

2:00 PM-3:00PM

IMCB Seminar Room 3-46, Level 3, Proteos, Biopolis

Singapore 138673 (or scan QR code for zoom registration)

SUGAR: A Gut Choice

Our motivation to consume sugars is thought to arise at the surface of the gut. However, the neural circuits are unknown. The Bohórquez Laboratory discovered a neural circuit linking gut to brain in one synapse. The circuit begins with a type of sensory epithelial cell that synapses with the vagus nerve. These epithelial cells are called neuropod cells. In the mouse small intestine, monosynaptic rabies virus infects neuropod cells and spreads onto vagal neurons that project to the nucleus tractus solitarius in the brainstem. This neural circuit is necessary and sufficient to transduce sensory signals from sugars. Silencing neuropod cells silences the ability of the animal to distinguish the caloric content in sugars. This gut sensor for caloric sugars is a portal for nutrients to drive our motivation to eat.

Diego Bohórquez is a neuroscientist and Principal Investigator of The Laboratory of Gut-Brain Neurobiology at Duke University. His laboratory's mission is to dissect gut-brain neural circuits underlying behaviors to improve health, in order to treat the brain from the gut (www.gutbrains.com). Since opening his laboratory in 2015, he published 15 scientific articles, including 13 as senior/corresponding author. Of those, 2 are peer reviewed reviews in *Annual Reviews of Neuroscience* and *Nature Reviews Neuroscience*, and 7 are research articles published in journals like *JCI*, *Cell*, *Nature Neuroscience*, and *Science*. He has presented his lab's work in more than 45 different academic institutions across 18 countries, and is a recipient of 2 Foundation Awards, 1 NIH DP2 New Innovator Award, and 2 NIH R01s. His work has received recognitions by organizations like TED, The New Yorker, The Grass Foundation, The Dana Foundation, The Hartwell Foundation, The American Gastroenterological Association, The Office of the NIH Director, and The U.S. National Academy of Sciences. Beyond the bench, he founded in 2014 *Gastronauts* - a global venue to disseminate knowledge on food, the gut and the brain. With almost 1,700 registered members, it has a seminar series, a podcast, and a biannual global symposium, including *Gastronauts Duke 2016*, *Gastronauts Singapore 2018*, *Gastronauts Global 2021*, and the upcoming *Gastronauts Galapagos 2023*.