

University of Houston - Biomedical Engineering Seminar

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Via Zoom: <https://uh-edu-cougarnet.zoom.us/j/93512038041>

Revealing brain circuits underlying sensory processing, plasticity, and neuropsychiatric disease



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Abstract

The Arenkiel Lab has a longstanding interest in identifying mechanisms that may be exploited towards repairing and/or replacing brain cells and their circuits. Stemming from this research, they have serendipitously identified a novel neural circuit that controls aspects of hunger, reward, and addiction through the neurotransmitter acetylcholine, which is produced by a small group of cells that reside deep in the basal forebrain. Notably, the release of acetylcholine from these cells suppresses appetite in mice, and mice with disabled cholinergic circuits eat excessively and rapidly become morbidly obese. More recently, the Arenkiel lab has learned that this same cholinergic basal forebrain circuit is dynamically regulated by diverse sensory input, and proper function of these circuits is critical for maintaining healthy eating habits and suppressing both anorexic and addictive-like behaviors.

Biosketch

Dr. Benjamin Arenkiel received his bachelor's degree in Microbiology and Chemistry from St. Cloud State University, and in 2004 received his doctoral degree in Genetics from the University of Utah, where he trained under Nobel Laureate Dr. Mario Capecchi. From 2005-2010, he was a post-doctoral fellow with Drs Lawrence Katz and Michael Ehlers at Duke University. In December of 2010 Dr. Arenkiel joined the faculty of Baylor College of Medicine as an Assistant Professor in the Department of Molecular and Human Genetics. He is currently an Associate Professor and holds adjunct positions in the Department of Neuroscience. Dr. Arenkiel is currently investigating how genes and activity interface to build, maintain, and remodel neuronal connections in the brain, as well as how basal forebrain circuits influence eating disorders and neuropsychiatric disease.