Neuroscience Seminar Series schedule

All seminars are currently scheduled Tuesdays from 4-5 pm mountain time. All speakers will be in-person unless noted.

Spring 2025

January 28th, 2025 – Dr. Tom LaRocca
Associate Professor, Department of Health and Exercise Science and the Center for Healthy Aging, Cell & Molecular Biology Program, and Molecular, Cellular & Integrative Neuroscience Program, Colorado State University, Fort Collins

Title: **What puts the "age" in age-related neurodegeneration?**

Abstract: Tom LaRocca is an associate professor in the Department of Health and Exercise Science and the Center for Healthy Aging at Colorado State University. His laboratory, the Healthspan Biology Lab, uses cells, *C. elegans*, mice, human research and bioinformatics to study the links between aging and disease, with a focus on brain aging and neurodegeneration. In this talk, Tom will give an overview of his lab's research approach and discuss several current projects aimed at understanding processes like neuroinflammation that "put the age" in age-related neurodegenerative diseases, such as Alzheimer's disease.

February 11th, 2024 – Dr. Rachel Rowe

Assistant Professor, Department of Integrative Physiology, University of Colorado Boulder.

Title: **Investigating sleep after traumatic brain injury: How sex, age, and injury characteristics shape sleep patterns in preclinical models**

Abstract: Sleep is essential for cognitive function, immune health, endocrine balance, and overall well-being. It plays a pivotal role in promoting brain health and recovery from illnesses, infections, and injuries. Following traumatic brain injury (TBI), sleep disturbances are common and likely contribute to post-traumatic complications by exacerbating neuroinflammation and impairing recovery. These disturbances not only reflect the severity of the injury but may also serve as valuable biomarkers of injury progression and therapeutic targets. This talk investigates how biological sex, age, injury model, and injury severity influence sleep patterns in preclinical models of TBI. These factors significantly shape the extent and nature of sleep disturbances, emphasizing the need to account for them in experimental designs to enhance the translational relevance of findings. Understanding the interplay between these variables and sleep disturbances could inform more personalized and effective strategies for recovery after TBI.

February 25th, 2024 – Dr. Kelsie Eichel

Assistant Professor, HHMI Nanna Gray Faculty Fellow, Department of Molecular, Cellular, and Developmental Biology, University of Colorado Boulder.

Title: **How to build a polarized neuron: From *C. elegans* to humans.**

Abstract: Neuronal polarity—the formation of distinct axonal and dendritic domains—is critical for neuronal circuit formation and function. This extreme polarization is a defining feature that enabled the evolution of nervous systems capable of fast neurotransmission. As such, the loss of neuronal polarity is associated with neurological dysfunction and numerous disease states. Despite knowing for over a century that neurons are polarized and that polarization is essential for neuronal function, we still do not have a clear understanding of how neurons establish and maintain their polarity. Our understanding has lagged because visualizing the axon initial segment, a specialized compartment at the axon-dendrite boundary, has been difficult in living cells. Thus, the molecular choreography at the axon initial segment that drives neuronal polarity has remained mysterious. My previous work developed strategies to visualize protein dynamics at the axon initial segment in living neurons. This approach enabled the discovery of an active mechanism at the axon initial segment that is essential for maintaining neuronal polarity and is conserved from C. elegans to humans. This work reveals that the axon initial segment is a dynamic region with active mechanisms that are precisely regulated to control neuronal function. Overall, this work highlights the importance of visualizing protein dynamics within living neurons to illuminate mechanisms that drive neuronal function.

March 11th, 2025 – Dr. Sergio Iniguez

Professor, Psychology Department, University of Texas at El Paso, Texas

Title: **Preclinical approaches to evaluate depression- and antidepressant-related phenotypes**

Abstract: Dr. Iniguez will discuss how traditional behavioral and pharmacological experimental approaches in rodents can be adopted to evaluate the neurobiology of depression-related illnesses. Specifically, how exposure to social stress and/or antidepressant medications, in female and juvenile mice, can recapitulate specific phenotypes that resemble some of the core symptoms of depression (including anhedonia, social avoidance, despair, and memory impairment).

April 8th, 2025 – Dr. Susan Ingram

Professor, The Richard Traystman PhD Endowed Chair Professor of Anesthesiology, University of Colorado School of Medicine, Vice Chair of Research, Department of Anesthesiology, Denver, Colorado

Title: **Persistent inflammation regulates the endocannabinoid system and presynaptic CB1 receptors**

Abstract: The rapid rise in cannabis legalization has allowed patients to self-medicate resulting in altered states of endocannabinoid (eCB) synthesis and degradation, and receptor activation prior to seeking medical care, and the clinical consequences of an altered eCB system due to exogenous cannabinoids are unknown. Our studies find that inflammation also affects the endocannabinoid system and responses to exogenous cannabinoids. This talk will discuss the basic science and how we are translating discoveries into clinical practices.

April 22nd, 2025 – Dr. Moriel Zelikowsky

Assistant Professor, Department of Neurobiology, University of Utah, Salt Lake City

Title: **The neurobiology of social isolation**

Abstract: TBA