



BRAIN & BEHAVIOR INSTITUTE

Seed Grant Symposium & Kavli Distinguished Seminar

Tuesday, May 2, 2023 | 1103 Bioscience Research Building

1:00 – 1:05 p.m.

Symposium Welcome

Dr. Elizabeth Quinlan, Director, Brain and Behavior Institute

Cellular & Molecular

1:05 – 1:10 p.m.

The aging proteome in accelerated Alzheimer's disease progression

Drs. Kan Cao, Peter Nemes

1:15 – 1:20 p.m.

Identifying cell type and subcompartment-specific defects in gene regulation underlying multimodal sensory defects in neurodevelopmental disease

Drs. Colenso Speer, Lisa Taneyhill

1:25 – 1:45 p.m.

Machine learning and quantum materials-enabled early detection of Alzheimer's disease with exosomes isolated from human iPSCs-derived hippocampal neurons

Drs. Xiaoming (Shawn) He, Cheng Gong

1:50 – 2:10 p.m.

Cytoskeletal excitability and network dynamics in Alzheimer's and other age-related neurological diseases

Drs. Kan Cao, Wolfgang Losert

2:15 – 2:20 p.m.

Remarks

Dr. Jennifer King Rice, Senior Vice President and Provost

Complex Systems

2:20 – 2:25 p.m.

Cortical mechanisms underlying auditory dysfunction in autism spectrum disorder

Drs. Nikolas Francis, Behtash Babadi

2:30 – 2:35 p.m.

Development of an optogenetics-fMRI system to study the mouse brain: Application to the study of large-scale networks involved in fear and anxiety from adolescence to adulthood

Drs. Luiz Pessoa, Konstantin Cherkas

2:40 – 3:00 p.m.

Machine learning analyses of audiological data to predict age-related declines in hearing and cognition

Drs. Matthew Goupell, Michael P. Cummings

Cognition & Human Neuroimaging

3:15 – 3:20 p.m.

Toward a non-linguistic measure of auditory processing deficits in older and younger monolingual and bilingual adults

Drs. Jonathan Simon, Nick Pandža, Samira Anderson

3:25 – 3:30 p.m. *Toward an adaptive view of neural synchrony: Assessing moment-to-moment dynamics during caregiver-child brain-to-brain synchrony in majority-BIPOC, low-SES dyads*
Drs. Rachel Romeo, Christopher Metzler, Eliza Thompson

3:35 – 3:55 p.m. *Respiratory sinus arrhythmia as a biomarker of anxiety in adolescents with autism spectrum disorder*
Drs. Heather Yarger, Angel Dunbar, Elizaberth Redcay

4:00 – 4:20 p.m. *Neurocognitive mechanisms of sentence production in aging and stroke*
Drs. Yasmeeen Farooqi-Shah, L. Robert Slevc

4:30 – 5:45 p.m. **BBI-Kavli Distinguished Seminar**
Introduction by Dr. Juan Angueyra, Assistant Professor, Biology

Control of neurogenic competence in retinal glia

Dr. Seth Blackshaw

Professor of Neuroscience
Solomon H. Snyder Department of Neuroscience
School of Medicine
Johns Hopkins University

The Blackshaw group uses comparative single-cell multiomic analysis to identify gene regulatory networks that control neurogenesis and cell fate specification in developing retina and hypothalamus, as well as those that control neurogenic competence in retinal and hypothalamic glial cells. By integrating these findings, the Blackshaw lab aims to develop methods of replacing photoreceptors lost due to hereditary retinal dystrophies and of therapeutically modifying hypothalamic neural circuits that control essential physiological processes. In this talk, Dr. Blackshaw will focus on recent progress in identifying gene regulatory networks that repress neurogenesis in retinal glia and genes that promote photoreceptor specification.

5:45 – 7:00 p.m. **Reception**