

SUMMARY

Thursday

Lunch: 11:30am

Great Room/Lobby

Talks: 1:00pm

Meeting Room/Ballroom

Room Check-In: 4:30pm

Registration Desk

Keys will be distributed in the Great Room.

Sports Break: 4:30pm

It doesn't matter if you are a novice or expert.

- Volleyball
- Kickball
- Soccer

Dinner: 6:00pm

Great Room/Lobby

Featuring "Table Topics"

Poster Session: 7:30pm

Meeting Room/Ballroom

Retreat Party: 9:00pm

Cabin Lawn

Friday

Breakfast: 7:30am

Great Room/Lobby

Buffet-style breakfast bar

Talks: 9:00 am

Meeting Room/Ballroom

Room Check-out by 11am

Check-out at Lodge desk during morning break (10:05am)

2015 NEUROSCIENCE RETREAT

September 24-25, 2015

Pere Marquette Lodge and Conference Center, Grafton, Illinois



Dr. Amy Bastian

We are thrilled to host Dr. Amy Bastian back to Washington University where she earned a Ph.D. in Movement Science, training with the late Dr. Thomas Thach (WUSTL Anatomy & Neurobiology). Dr. Bastian is a neuroscientist and physical therapist who studies the neural control of human movement. She is Chief Science Officer of the Kennedy Krieger Institute and the Director of the Motion Analysis Laboratory. Dr. Bastian holds the rank of Professor of Neuroscience at Johns Hopkins, with a joint appointment in Neurology. Dr. Bastian studies how people with and without neurological damage control movement and learn new patterns. Her laboratory uses computerized movement tracking techniques, non-invasive brain stimulation, novel devices and robotics to control walking and reaching movements.

One major focus of Dr. Bastian's work has been the role of the cerebellum in moving, sensing and learning. A second focus is on locomotor control and plasticity in adults, children and stroke survivors. She has coauthored over 100 scientific papers and numerous book chapters. Dr. Bastian has given many named lectures including a special lecture at the Society for Neuroscience meeting in 2014. She recently received a Javits award from the National Institute of Neurological Disorders and Stroke at the National Institutes of Health. Dr. Bastian has served on many national neuroscience and rehabilitation committees.



Dr. Richard Haganir

Dr. Richard Haganir is a Professor and Director of the Solomon H. Snyder Department of Neuroscience, Professor of Biological Chemistry at The Johns Hopkins University School of Medicine, and Co-Director of the Johns Hopkins Brain Science Institute.

Neurotransmitter receptors mediate signal transduction at synaptic connections between neurons in the brain. Dr. Haganir has been studying the regulation of glutamate receptors, the major excitatory receptors in the central nervous system. Studies in his laboratory have found that glutamate receptors are multiply phosphorylated by a variety of protein kinases. Phosphorylation regulates several properties of these receptors including ion channel properties and membrane targeting. Research in his lab has demonstrated that phosphorylation of glutamate receptors are required for the expression of synaptic plasticity, including long-term potentiation (LTP), and long-term depression (LTD), and is critical for several forms of learning and memory. His lab has also identified a variety of proteins, including the PDZ-domain containing proteins GRIPI/2 and PICK1, that directly interact with glutamate receptors and are necessary for their proper subcellular trafficking. They have shown that this PDZ-domain based complex is critical for several forms of synaptic plasticity and learning and memory. These studies indicate that the modulation of receptor function is a major mechanism for the regulation of synaptic transmission and is a critical determinant of animal behavior. Importantly, recent evidence has implicated the regulation of glutamate receptors is disrupted in several neuropsychiatric disorders including Alzheimer's disease, intellectual disability, schizophrenia and autism.

The Neuroscience Retreat is brought to you by...

*The McDonnell Center for Systems Neuroscience
The McDonnell Center for Cellular and Molecular Neurobiology
The Division of Biology and Biomedical Sciences
The Office of Neuroscience Research*



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Thursday

11:30am Lunch

1:00pm Welcome, Anneliese Schaefer, Ph.D. (Office of Neuroscience Research) and Wade Self, Ph.D. Candidate (Neuroscience Program)

1:10pm Short Talks, Session One

- **Courtney Sobieski** (Neuroscience Program; Mennerick Lab (WUSTL Psychiatry))
"Hippocampal Neurons Utilize Multiple, Yet Distinct Energy Sources During Metabolic Challenges"
- **Li Xia** (Biomedical Engineering Program, Bruchas Lab (WUSTL Anesthesiology))
"Imaging CA1-Hippocampal Neuronal Ensembles During Nicotine-Dependent Contextual Associations"
- **Tahnbee Kim** (Neuroscience Program, Kerschensteiner Lab (WUSTL Ophthalmology & Visual Sciences))
"An Excitatory Amacrine Cell Detecting Object Motion Provides its Feature-Selective Input to Ganglion Cells"
- **Harrison Gabel, Ph.D.** (Assistant Professor, WUSTL Anatomy & Neurobiology)
"The Neuron-Specific Epigenome in Development and Disease"

2:10pm Break

2:20pm Short Talks, Session Two

- **Rinaldo D'Souza, Ph.D.** (Burkhalter Lab (WUSTL Anatomy & Neurobiology))
"Distinct Long-Range Connections in Mouse Visual Cortex Provide a Pathway-Specific Drive of Excitation and Inhibition"
- **Yahya Karimipناه** (Physics Program; Wessel Lab (WUSTL Physics))
"On the Emergent Properties of Critical Neural Networks"
- **Ilya Monosov, Ph.D.** (Assistant Professor, WUSTL Anatomy & Neurobiology)
"Reward Uncertainty in the Brain"

3:10pm **James Fitzpatrick, Ph.D.** (Associate Professor, Cell Biology & Physiology; Scientific Director, WUCCI)
"Washington University Center for Cellular Imaging (WUCCI)"

3:20pm Break

3:30pm **Keynote Speaker: Amy Bastian, Ph.D.** (Kennedy Krieger Institute/Johns Hopkins School of Medicine)
"Learning and Relearning Movement"

4:30pm Introduction of First Year Graduate Students (all programs)

4:35pm Break; Room Check-In

6:00pm Dinner and Table Topics

7:30pm Poster Session

9:00pm Retreat Party

Friday

7:30am Breakfast

9:00am Video

9:05am Short Talks, Session Three

- **Kathleen Schoch, Ph.D.** (Miller Lab (WUSTL Neurology))
"Mouse Tau Knockdown Rescues Alzheimer's Disease-Induced Behavioral Deficit Without Altering Amyloid Deposition"
- **David Baranger** (Neuroscience Program; Bogdan Lab (WUSTL Psychology))
"Diurnal Variation of Amygdala Reactivity: Moderation by Sleep Quality and HPA-Axis Genetic Variation"
- **Elinor Harrison** (Movement Science Program; Earhart Lab (WUSTL Physical Therapy))
"Feasibility of Singing to Improve Gait Measures in Parkinson's Disease"
- **Cynthia Rogers, M.D.** (Assistant Professor, WUSTL Psychiatry)
"Using Neonatal Neuroimaging to Predict Developmental Outcomes"

10:05am Break; Room Check-Out

10:15am **Keynote Speaker: Richard Huganir, Ph.D.** (Johns Hopkins School of Medicine)
"Regulation of Neurotransmitter Receptors and Synaptic Plasticity in the Brain"