

Summary

Friday

Kick-Off Breakfast: 9:00am

Lunch: 11:45am
featuring "Table Topics"

Room Check-In: 4:00pm
Keys will be distributed in the Great Room at the registration desk.

Sports Break: 4:00pm
It doesn't matter if you are a novice or expert.

- Volleyball
- Kickball
- Soccer

Dinner: 5:00pm
Dinner will be served in the Great Room.

Poster Session: 6:00pm
Posters will be available for viewing beginning at 6 pm in the Conference Room.

'Ask Anything' Panel: 7:00pm

Retreat Party: 8:00pm

Saturday

Breakfast: 8:00am
Buffet-style breakfast bar will be set up in the Great Room. Coffee, juice and soda will also be available.

Room Check out: 11:00am

2014 NEUROSCIENCE RETREAT

September 19-20, 2014

Pere Marquette Lodge and Conference Center, Grafton, Illinois



"Axonal Transport, Autophagy, and Neurodegeneration: Why Neurons Require Molecular Motors"

Erika Holzbaur, PhD
Professor of Physiology
University of Pennsylvania

Dr. Erika Holzbaur is a Professor of Physiology at the University of Pennsylvania. Her laboratory is focused on the microtubule-based motor cytoplasmic dynein and its activator dynactin. Dynein and dynactin are required for vesicular trafficking, microtubule organization, mitotic spindle assembly, and development of polarity. We are interested in the mechanisms of force production and motor function, mechanisms of cargo coupling and regulation, effects of dynein and dynactin on dynamics of the cytoskeleton, and the analysis of neurodegenerative diseases resulting from impairments in dynein/dynactin function. Disruptions in dynein/dynactin function cause motor neuron degeneration and muscle atrophy, leading to motor neuron diseases similar to ALS. Approaches in the lab include in vitro motility assays for motors, microtubules and organelles, biochemical and cellular assays for binding partners, live cell microscopy, and development and characterization of transgenic mouse models for motor neuron disease.



"Identifying Common Circuit-Level Mechanisms Underlying Recovery of Consciousness After Brain Injury"

Nicholas Schiff, MD
Jerold B. Katz Professor of Neurology and Neuroscience
Professor of Neuroscience
Weill Cornell Medical College

Dr. Nicholas Schiff directs an integrative translational research program with a primary focus on understanding the process of recovery of consciousness following brain injuries. This research program links basic systems and clinical neuroscience with the goal of developing novel neurophysiologic and neuroimaging diagnostics applied to human subjects and therapeutic strategies. Dr. Schiff and his research group have contributed several landmark advances, including the first demonstrations of brain structural alterations occurring in the setting of very late recovery from severe brain injury.

More recently, Dr. Schiff and his colleagues have taken insights into the neurophysiological mechanisms of arousal regulation and of deep brain electrical stimulation techniques to demonstrate evidence that long-lasting, severe cognitive disability may be influenced by electrical stimulation of the human central thalamus. Dr. Schiff received the 2007 Research Award for Innovation in Neuroscience from the Society for Neuroscience for this research. This work provides an important foundation for developing further understanding of both the mechanisms of recovery of consciousness and basic mechanisms underlying consciousness in the human brain.

*Sponsored by The McDonnell Center for Systems Neuroscience,
The McDonnell Center for Cellular and Molecular Neurobiology, and
the Division of Biology and Biomedical Sciences*

*Coordinated by graduate students in the Neurosciences Program, and the
Office of Neuroscience Research*



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Friday

9:00a Kick-Off Breakfast

9:30a Welcome: Anneliese Schaefer, PhD (Office of Neuroscience Research)

9:40a **Session One**

“A New Tool to Control the Activity of Targeted Neurons Remotely Using Ultrasound” Jan Kubanek, PhD (Cui Lab)

“Modulation of Pathogenic Tau Fibrils Into Microglia by Antibodies and Heparin Mimetics” Kristen Funk, PhD (Diamond Lab)

“Experience-dependent synaptic plasticity modulates functional connectivity” Andrew Kraft (Lee Lab)

“Learning-Related Hippocampal Network Activation” Edward Han, PhD (new faculty, Anatomy & Neurobiology)

10:35a Break

10:45a **Erika Holzbaur, PhD (University of Pennsylvania)**

“Axonal Transport, Autophagy, and Neurodegeneration: Why Neurons Require Molecular Motors”

11:45a Lunch Breakaway: “Table Topics”

1:00p **Session Two**

“Detecting Rapid Fluctuations of Extracellular Metabolites In Vivo with Changing Brain Activity”
Molly Stanley (Holtzman Lab)

“Cerebral Functional Connectivity: Phenomena and Separability” Jonathan Bumstead (Culver Lab)

“Generation of Human Striatal Neurons by MicroRNA-Dependent Direct Conversion of Fibroblasts”
Matheus Victor (Yoo Lab)

“Stem Cell Models of Tauopathies.” Celeste Karch, PhD (new faculty, Psychiatry)

1:55p Break

2:00p **Nicholas Schiff, MD (Weill Cornell Medical College)**

“Identifying Common Circuit-Level Mechanisms Underlying Recovery of Consciousness After Brain Injury”

3:00p Break

3:10p **Session Three**

“Behavioral Correlates of Combinatorial Versus Temporal Features of Odor Codes” Debajit Saha, PhD (Raman Lab)

“Towards an Animal Model of Stuttering” Terra Barnes, PhD (Holy Lab)

“Neurobiology of Pain in Metastatic Bone Cancers” Durga Mohapatra, PhD (new faculty, Anesthesiology)

4:00p Room Check-In and Sports Break

5:00p Dinner

6:00p Poster Session

7:00p Panel Discussion

8:00p Retreat Party

Saturday

8:00 - 10:30a Breakfast

11:00a Checkout