2018 University of Rochester

Neuroscience Retreat

Friday, April 20, 2018

Memorial Art Gallery

500 University Avenue

Sponsored by:

The Neuroscience Graduate Program

The Department of Neuroscience

The University Council on Interdisciplinary Studies

The Rochester SfN Chapter

SCHEDULE

8:30am – *Parlor*
Continental Breakfast

9:00am – *Auditorium*
Welcome

9:05am – *Auditorium*
Kevin A. Mazurek, PhD
Postdoctoral Fellow, Schieber Lab
Department of Neuroscience
"Injecting instructions into premotor cortex using microstimulation"

9:35am – *Auditorium*
Jessica Hogestyn, MS
Neuroscience Graduate Program
Mayer-Proschel Lab
"Investigating the role of latent human herpesvirus 6 in demylenating disease"

10:05am – *Auditorium*
Poster Teasers I

10:20am – *Ballroom*
Poster Session I/Coffee Break
Even numbered posters

11:30am – *Auditorium*
Farran Briggs, PhD
Associate Professor
Department of Neuroscience
"*Neuronal and circuit mechanisms of visual attention"*

12:00pm – *Auditorium*
Overview of the Neuroscience Department
Dr. John Foxe

12:15pm – *Auditorium*
Award Presentations & Neuroscience Photograph

12:30pm – *Ballroom*
Lunch

1:30pm – *Auditorium*
SfN Chapter Meeting
Dr. Lizabeth Romanski

1:50pm – *Auditorium*
State of the Neuroscience Graduate Program
Dr. Ania Majewska

2:10pm – *Auditorium*
Poster Teasers II

2:25pm – *Ballroom*
Poster Session II/Coffee Break
Odd numbered posters

3:30pm – *Auditorium*
Keynote Lecture: Dr. Brian MacVicar
Department of Psychiatry Professor and Co-Director
of Djavad Mowafaghian Centre for Brain Health
University of British Columbia

"New roles for pericytes and astrocytes in the function, repair and regeneration of cerebral blood vessels"

4:30pm – *Auditorium*
Poster Award Presentation

4:45pm – *Parlor*
Cocktail Reception

Kevin A. Mazurek, PhD

Schieber Laboratory
Postdoctoral Fellow, Department of Neuroscience

"Injecting instructions into premotor cortex using microstimulation"

Dr. Kevin A. Mazurek received his bachelor's degree in electrical engineering from Brown University in 2008 and his Ph.D. in electrical engineering from Johns Hopkins University in 2013. During his Ph.D., Kevin received an NIH NINDS F31 Ruth L. Kirschstein National Research Service Award (NRSA) Predoctoral Fellowship to develop prosthetic systems for electrically stimulating the spinal cord to restore walking. Upon receiving his Ph.D., Dr. Mazurek joined the laboratory of Professor Marc Schieber as a Postdoctoral Fellow at the University of Rochester in the Department of Neurology to study the cortical mechanisms controlling hand and finger movements. Kevin received the Center for Visual Science T32 Postdoctoral Fellowship and then received an NIH NINDS F32 NRSA Postdoctoral Fellowship to study how intracortical microstimulation can be used to deliver instructional information in different cortical areas (the focus of this talk). Dr. Mazurek has received the Clinical & Translational Science Institute (CTSI) KL2 award from the University of Rochester which will begin this summer. For his KL2 project, Kevin will analyze changes in neural communication as human participants perform the same movements using different instructions. Identifying the nature in which different neurologic diseases affect cortical communication could lead to targets for rehabilitative treatment. Dr. Mazurek's career goal is to apply his interdisciplinary training in the fields of neuroscience, biomedical engineering, and electrical engineering towards understanding how brain regions communicate information when performing voluntary movements, and towards developing rehabilitative solutions that can bypass damaged neural pathways and restore function for individuals with neurologic diseases.

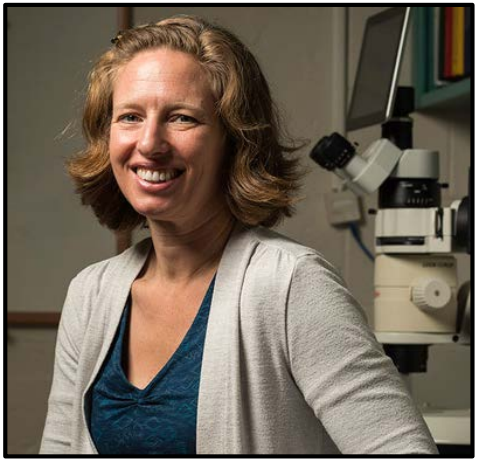
Jessica Hogestyn, MS
Mayer- Pröschel Laboratory
Neuroscience Graduate Program

"Investigating the role of latent human herpesvirus 6 in demylenating disease"

Jessica Hogestyn received her B.S. in Brain and Cognitive Sciences from the University of Rochester in 2014. She is now a fourth year student in the University of Rochester Neuroscience Graduate Program, conducting her thesis project on the impact of neurotropic herpesviruses on remyelination in the lab of Dr. Margot Mayer-Pröschel. Jessica is also heavily involved in outreach; she is a three-year member of the Brain Awareness Campaign Planning Committee and the co-founder of a graduate student science communication club. Jessica has earned a number of awards in her graduate career, including the Irving L. Spar Award in 2014 and the Edward Peck Curtis Award for Excellence in Teaching by a Graduate Student in 2017.

Farran Briggs, PhD
Assistant Professor
Department of Neuroscience

"Neuronal and circuit mechanisms of visual attention"



After graduating from Dartmouth College in 1997 with a B.A. in Biology, Dr. Briggs attended graduate school at the University of California, San Diego where she studied local cortical circuitry with Dr. Ed Callaway at the Salk Institute. She received her Ph.D. in Biology from UCSD in 2003. Dr. Briggs conducted her post-doctoral research at the University of California, Davis where she studied visual systems neurophysiology with Drs. Marty Usrey, Barbara Chapman, and Ron Mangun. From 2011 to 2017, Dr. Briggs was an Assistant Professor in the Physiology & Neurobiology department at the Geisel School of Medicine at Dartmouth. In 2017, Dr. Briggs moved her lab to the University of Rochester, joining the Neuroscience and Brain and Cognitive Sciences departments. Dr. Briggs' research is aimed at understanding how neuronal circuits in the early visual system encode and process visual information and how spatial attention modulates these activities.

Brian A. MacVicar, PhD, FRSC, FCAHS

Co-Director, Djavad Mowafaghian Centre for Brain Health
University of British Columbia and Vancouver Coastal Health

"New roles for pericytes and astrocytes in the function, repair and regeneration of cerebral blood vessels"

Dr. MacVicar's research has focused on the interactions between nerve cells and the surrounding support cells of the brain called glia. In 1984 he was the first to show that glia previously thought to be inert can display neuronal-like active ion currents and responses to transmitters. Since then his work has shown that that glia are not just supporting cells but are active participants in brain activity, both responding to and altering activity of nerve cells. His work has shown that astrocytes, one type of glial cell, can alter cerebral blood flow by directly constricting or dilating blood vessels in the brain. Dr. MacVicar's lab has also shown how neuroinflammation acts on another type of glia, called microglia, to disrupt neuronal communication by causing a new form of long term depression possibly leading to memory deficits. These studies on glia published in Nature, Science and Neuron have transformed our concepts of how brain activity is controlled and on how cerebral blood flow is maintained to support a healthy level of brain activity. Dr. MacVicar's lab has also made several groundbreaking discoveries on the changes to nerve cells when stroke occurs by showing that pannexin channels open disrupting nerve cell integrity thereby pointing to new targets for preventing neuronal death during stroke. His latest work, published in Cell, describes his recent discovery of a key but unexpected neuronal chloride channel that is required for brain edema or swelling and maybe a novel therapeutic target to prevent brain damage from traumatic brain injury.

Dr. MacVicar received his PhD from the University of Toronto. He completed postdoctoral training at New York University Medical School. He has held multiple professorships during his career: 1983-2003, Assist, Assoc and Professor, Dept Physiology and Biophysics, Univ. Calgary; 2003-present Professor, Department of Psychiatry UBC, Canada Research Chair in Neuroscience; 2015-present, Co-Director of the Djavad Mowafaghian Centre for Brain Health (DMCBH) at the University of British Columbia.

Poster Presenters

Poster Teasers Underlined

1. Aby Joseph
In vivo time-lapse imaging of retinal microglia shows dynamic process motility at rest

2. Adam Rouse
Temporal dynamics of reach-to-grasp: Evidence for sequential encoding.

3. Alexandra McHale
A more complete picture of cortico-amygdala paths: inclusion of the intermediate basal nucleus

4. Andres Guevara-Torres
Population analysis of red blood cell flux in retinal capillaries of mice

5. Ankani Chattoraj
Inference by binary sampling as a model for V1 spiking responses

6. Brendan Whitelaw
Characterization of microglial P2Y12 expression throughout brain development

7. Dawling A. Dionisio-Santos
Ameliorating Alzheimer's disease through immunomodulation: A novel application for glatiramer acetate

8. Emily Warner
Sex differences in behavioral training

9. Herman Li
Prion protein in neuroinflammation

10. Garrick Salois
Modeling neurodevelopmental iron deficiency

11. J. Michael Hasse
Corticogeniculate feedback enhances temporal prevision of LGN relay neurons in a stream-specific manner

12. Holly Beaulac
Mechanisms of oxidative stress and outer hair cell death in noise-exposed Foxo3 Knock-Out mice

13. Jason Atlas
Characterization of astrogliosis during microglia depletion

14. Josh Hinkle
Cranial irradiation causes dendritic spine loss that is microglial complement receptor 3-dependent and associated with cognitive impairment

15. Karl Foley
Visualization of PP1-l2 interactions with FRET-FLIM and BiFC

16. Keshov Sharma
Topography of projections and collaterization of a subset of projections from the amygdala to the ventromedial and dorsomedial prefrontal cortex in the macaque

17. Laura Owlett
Modulating microglial phagocytosis and inflammation in Alzheimer's disease: investigating a role for Axl

18. Monique Mendes
Are microglia replaceable in vivo?

19. Lauren Hablitz
Glymphatic fluid influx is under diurnal control

20. Rianne Stowell
Noradrenergic modulation of microglial dynamics and synaptic plasticity

21. Richard Lange
Neural signatures of inference and task learning in macaque V1

22. Sabyasachi Shivkumar
Approximate inference explains paradoxical data in two-event causal inference task

23. Shraddha Shah
Effects of prefrontal lesions on auditory working memory

24. Udaysankar Chockanathan
High density awake recording of CA1 neurons in APP/PS1 mouse model of Alzheimer's disease

25. Xiaowei Wang
Ocular glymphatic clearance system, physiological

26. Yinghui Li
C/EBP induced VEGF expression regulates neural stem cell proliferation and neurite growth in developing neurons

27. Humberto Mestre
Transcranial optical imaging reveals a pathway for optimizing the delivery of immmunotherapeutics to the brain

Notes:

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Thank you for coming!