

Scientific Program
2014 Canadian Association for Neuroscience Annual Meeting
Montreal, Canada - May 25 – 28, 2014



Saturday, May 24, 2014

3:00 - 5:00 PM CAN 2014 Public Lectures:
3:00 PM [Gustavo Turecki](#), McGill University: **Comment le vécu affecte la santé mentale**
4:00 PM [Michael Meaney](#), McGill University: **How life experiences impact on mental health**

Both researchers will answer questions from the public in English and French
Venue: Jeanne Timmins Auditorium, Montreal Neurological Institute, 3801 University street

Sunday, May 25, 2014

5:00 - 5:15 PM Welcome and Opening Remarks by
Samuel David, President of the Canadian Association for Neuroscience

5:15 - 5:30 Young Investigator Award Presentation
Yves De Koninck, Chair of the Nominations Committee

5:30 – 6:00 **Anthony Phillips**
Director of the Institutes of Neuroscience, Mental Health and
Addiction, CIHR

6:00 – 7:00 Presidential Lecture: **Lynn A Raymond**, University of British Columbia
Mechanisms and neuroprotective strategies in neurodegeneration: Huntington disease can lead the way

7:00 – 8:15 Opening Reception



Monday, May 26, 2014

8:30 - 9:30 AM Featured Plenary speaker: **Edward S. Boyden, MIT**
Tools for Mapping Brain Computations

9:30 - 9:45 Brain Star talk: **Kaylena A. Ehgoetz Martens**, U of Waterloo
Freezing of Gait in Parkinson's Disease: A Mysterious Phenomenon with an Unknown Neural Mechanism

9:45 - 10:00 Coffee break

10:00 - 11:00 **Posters/exhibits**

11:00 - 12:00 Plenary symposium: **Development and application of optogenetic tools**

Chair: **Robert Campbell**, University of Alberta

- **Timothy H Murphy**, University of British Columbia
In vivo optogenetic assessment and control of mouse cortical circuits
- **Andrew Woolley**, University of Toronto
Optogenetic control using photoactive yellow protein



12:00 - 12:30 Launch of CQDM/Brain Canada Partnership Funding Program, with

- **Diane Gosselin**, President and CEO of CQDM
- **Inez Jabalpurwala**, President and CEO of Brain Canada
- **Rémi Quirion**, Quebec Chief Scientist

12:00 - 1:30 Lunch on own - Posters & Exhibits

1:30 - 3:00 **Parallel symposia**

Symposium 1: ***Functional and dysfunctional regulation of brain blood flow***

Sponsored by Hotchkiss Brain Institute

Chair: **Grant Gordon**, HBI, U Calgary

1. **Grant Gordon**, HBI, U Calgary: Tonic activity-independent blood flow control by astrocytes
2. **Bijoy Menon**, HBI, U Calgary: Pial Collaterals in humans: Imaging, hemodynamics, determinants and effect on clinical outcomes in patients with acute ischemic stroke
3. **Ian R Winship**, U Alberta: Imaging and augmenting collateral blood flow in the brain during acute ischemic stroke
4. **Campbell Teskey**, HBI, U Calgary: Seizures Induce a Severe Ischemic/Hypoxic Episode

Symposium 2: **Genetic and environmental regulation of gene expression and development of vulnerability to psychiatric disorders**

Sponsored by Institut universitaire en santé mentale de Québec

Chair: **Michael Meaney**, McGill University

1. **Rosemary C Bagot**, Mount Sinai, NY: Circuit-wide transcriptional profiling in a mouse model of depression
2. **Timothy W. Bredy**, U Queensland: Role of DNA hydroxylation in regulating memory associated with fear-related anxiety disorder
3. **Kieran J O'Donnel**, McGill U: Epigenetics and Early intervention: a study of DNA methylation in the Nurse Family Partnership
4. **Michael S. Kobor**, UBC: Genomic Embedding of Early Life Experiences

Symposium 3: **Synaptic Adhesion Molecules: From Synapse Development to Complex Behavior**

Sponsored by The Research Institute of the McGill University Health Centre

Chairs: **Valérie Mongrain**, U Montreal, **Hideto Takahashi**, U Montreal

1. **Hideto Takahashi**, U Montreal: Synaptogenic adhesion complexes for excitatory and inhibitory synapse development
2. **Jason Lerch**, SickKids H: Variable effects on brain and behaviour in mouse models featuring loss of function mutations in Neuroligin3, Neurexin1, and Cntnap2
3. **Valérie Mongrain**, U Montréal: Role of Neuroligins and Eph receptors in sleep regulation



4. **Nahum Sonenberg**, McGill U: Translational control of autism and Fragile-X syndrome

Symposium 4: Moving toward an understanding of brain functioning using computational approaches.

*Sponsored by the **Montreal Neurological Institute and Hospital - The Neuro***

Chairs: **Frances K Skinner**, U Toronto, **Maurice Chacron**, McGill U

1. **Eve Marder**, Brandeis U: Variability, homeostasis and modulation in neural circuits
2. **Tara Klassen**, UBC: Multi-scale in silico modeling of personal ion channel gene mutations as a cause of epilepsy and brain mediated sudden death
3. **Jesse Gillis**, Cold Spring Harbor Lab: Gene networks for understanding brain function and dysfunction
4. **Gunnar Blohm**, Queen's University: Understanding sensory-to-motor transformations through network models

3:00 – 5:30PM Posters and Exhibits

5:30 Parallel Sessions: Career Development Sessions of Potential Interest to All (Choose your favorite!)

- Parkinson Society Canada Donald Calne Lecture (of interest to all)
- Career development workshop– Careers Inside Academia (targeted to trainees and junior faculty)
- Implicit Gender Bias workshop (of interest to all)
- Publishing 2.0 (of interest to all)

7:15 - 8:45 **W. Garfield Weston Foundation Reception**

The W. Garfield Weston Foundation invites all CAN Meeting registrants to a reception to learn more about their neuroscience medical research funding. They will share details of upcoming funding programs, and answer any questions you have.

The reception is open to researchers and post-docs who are, or could be doing translational research in Alzheimer's, Parkinson's, FTD, ALS, PSP, dementia with Lewy bodies, multiple system atrophy or mild cognitive impairment as prodromal to one of the other listed diseases. Drinks and hors d'oeuvres provided.

Space is limited and preregistration is required. Email or call Crystal Braganza crystal.braganza@weston.ca or (416) 922-1383 ext.5695 to RSVP.

7:30 – 9:30 CAN Student Social

Tuesday, May 27, 2014

8:30 – 9:30 A.M. Featured Plenary speaker: **Eric Nestler**, Mt. Sinai, NYC
Transcriptional and Epigenetic Mechanisms of Drug Addiction

Sponsored by **Fonds de recherche du Québec - Santé**

9:30 - 9:45 Brain Star talk: **Francesco Ferrini**, U of Turin, Italy
Microglia-mediated alteration of Cl⁻ homeostasis underlies morphine hyperalgesia

9:45 - 10:00 Coffee break



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- 10:00 - 11:00 **Posters/exhibits**
Sponsored by SickKids Center for Brain & Mental Health
- 11:00 - 12:00 Plenary symposium: **Mechanisms in learning reward value.**
*Sponsored by the **Canadian Institutes of Health Research***
- Chair: **Stephanie Borgland**, HBI, U Calgary
Jonathan Britt, McGill U: *Dissecting the Neural Circuits Underlying Motivated Behaviours Relevant to Reward Learning and Drug Addiction*
Stan Floresco, UBC: *Dopaminergic circuits mediating risk/reward decision biases*
- 12:00 - 1:30 Lunch on own - Posters and Exhibits
Sponsored by SickKids Center for Brain & Mental Health
- 1:30 - 3:00 Parallel symposia
- 1:30 - 3:00 Symposium 5: **Large-scale brain dynamics: combining insights from intracranial EEG and fMRI**

*Sponsored by **Tucker-Davis technologies***
- Chairs: **Karim Jerbi**, U de Montréal, **Christopher Honey**, U Toronto
1. **Yuri Saalman**, U of Wisconsin: Thalamic control of cortical dynamics
 2. **Christopher Honey**, U Toronto: Large-scale patterns of rhythmic suppression in human cerebral cortex
 3. **Thilo Womelsdorf**, York U: How single cell activity in prefrontal and anterior cingulate cortex contributes to large-scale network dynamics: State specific burst synchronization at beta and gamma band activity
 4. **Karim Jerbi**, U Montreal: The neurophysiological basis of the default-mode network
- 1:30 - 3:00 Symposium 6: **Novel cellular and molecular mechanisms in the pathophysiology of parkinsonism**

*Sponsored by **Department of Neurology and Neurosurgery at McGill University***
- Chair: **Austen J Milnerwood**, UBC
1. **Edward Fon**, McGill U: Function of Parkin and PINK1 in mitochondrial Quality-Control
 2. **Louis-Eric Trudeau**, U Montréal: Axonal arborization and energetic metabolism of nigral dopamine neurons: a window into selective vulnerability
 3. **Martin Lévesque**, U Laval: Multiple roles of Lmx1a and Lmx1b in dopaminergic axonal connectivity and maintenance
 4. **Austen J Milnerwood**, UBC: Multiple Parkinson's disease-linked proteins regulate synaptic transmission and neurotransmitter receptor trafficking
- 1:30 - 3:00 Symposium 7: **New cuts by calpain to remodel the nervous system**

*Sponsored by **Institut universitaire en santé mentale de Québec***
- Chair: **Wayne Sossin**, McGill University
1. **Tim O'Connor**, UBC: Calpain activity maintains the stability of neurite morphology in Vivo
 2. **Mandana Amini**, U Ottawa: Dual nature of calpain in the CNS: Plasticity and Injury
 3. **Paul De Koninck**, U Laval: A tail to memorize : cleavage of synaptic GluN2B by calpain to support synaptic plasticity



4. **Carole Abi Farah**, McGill U: Role of typical and atypical calpains in cleavage of PKCs into PKMs for memory formation

1:30 - 3:00 Symposium 8: **Linking neural circuit dynamics to cognition and behaviour**

Chair: **Masami Tatsuno**, U Lethbridge, **Paul Frankland**, U Toronto

1. **Masami Tatsuno**, U Lethbridge: Role of sleep for motor skill learning
2. **Jennie Young**, MIT: Processing objects and space in the hippocampus
3. **Matthijs van der Meer**, U Waterloo: Segmentation of spatial experience by theta oscillations
4. **Kari Hoffman**, York U: Hippocampal oscillations in monkey and humans during memory-guided visual search

3:00 – 5:00 **Posters and Exhibits**
Sponsored by SickKids Center for Brain & Mental Health

5:00 – 6:00 **Young investigator award and lecture**
Sponsored by Faculty of Medicine - McGill University

6:00 - 7:00 Keynote Lecture:
Michael E. Greenberg, Harvard Medical School
Signaling Networks that Regulate Synapse Development and Cognitive Function

Wednesday, May 28, 2014

8:30 – 9:30 A.M. Featured Plenary Speaker:
Jay Gottfried, Northwestern U
All Roads Lead to Smell: What Odors Can Teach Us About Brain Function

9:30 – 9:45 Brain Star talk: **Marc Bergeron**, CRIUSMQ – U Laval
Chloride extrusion enhancers as novel therapeutics for neurological diseases

9:45 – 10:00 Coffee break

10:00- 11:00 **Posters/exhibits**

11:00 – 12:00 Plenary symposium: **The Cognitive Neuroscience of the Senses**
Sponsored by the Canadian Institutes of Health Research

Chair: **Shayna Rosenbaum**, York U

1. **Morris Moscovitch**, U Toronto: Spatial (and event) memory in humans and rodents
2. **Ingrid Johnsrude**, Queen's U: The role of prediction and attention in speech perception

12:00 - 12:30 Focus on Brain : new CQDM/Brain Canada partnership funding program in neurosciences to accelerate drug discovery – information session, with

- **Judith Caron**, Director of Programs, CQDM
- **Haifa Staiti**, Manager, Research Programs, Brain Canada, and
- **Steven Xanthoudakis**, Director, Business Development & Licensing at Merck

12:00 – 1:00 Lunch on own

1:00 – 3:00 **Posters and Exhibits**

3:00 – 3:30 **CAN Annual General Meeting** – all CAN members invited to attend



3:30 – 5:00 Symposium 9: **An unexpected roundtrip journey through the hippocampal trisynaptic excitatory network**

Sponsored by Institut universitaire en santé mentale de Québec

Chair: **Jean-Claude Béique**, U of Ottawa

1. **Katalin Toth**, U Laval: Synaptic vesicle dynamics and the timing and efficacy of glutamate release at hippocampal mossy fibre terminals
2. **Richard Robitaille**, U de Montréal: Astrocytes detect and regulate basal synaptic transmission at single CA1 synapses
3. **Jean-Claude Béique**, U of Ottawa: Developmentally-regulated spatiotemporal features of calcium signaling at CA1 glutamatergic synapses
4. **Sylvain Williams**, McGill U: New mechanisms for bidirectional communication in the trisynaptic glutamatergic circuit of the hippocampus

3:30 – 5:00 Symposium 10: **Novel Pharmacology of Ion-Channels & Transporters**

Sponsored by The Research Institute of the McGill University Health Centre

Chairs: **Derek Bowie**, McGill U and **Yu-Tian Wang**, UBC

1. **Yu-Tian Wang**, UBC: Allosteric potentiation of synaptic inhibition by excitatory neurotransmitters
2. **Brent Dawe**, McGill U: Sodium ion On/Off switch for ionotropic glutamate receptors
3. **Anne McKinney**, McGill U: Na⁺/H⁺ exchanger NHE6, X-linked intellectual disability and autism
4. **Yves De Koninck**, U Laval: Chloride dysregulation; a culprit for several brain diseases

3:30 – 5:00 Symposium 11: **Alzheimer's disease molecular mechanisms and therapeutics**

Chairs: **Marco AM Prado**, Robarts RI, **Douglas P Munoz**, Queen's U

1. **Weihong Song**, UBC: The role of BACE1 in Alzheimer's Disease Pathogenesis
2. **Marco AM Prado**, Robarts RI: Chaperoning neurotoxicity in Alzheimer's disease
3. **Douglas P Munoz**, Queen's U: Role of beta oligomers in triggering Alzheimer's like pathology and the role of insulin receptor signalling in neuroprotection
4. **R. Jane Rylett**, U Western Ontario: Multiple roles of cholinergic neurons in the modulation of amyloid production

3:30 – 5:00 Symposium 12: **Comfort Feeding: Functional Interplay Between Feeding Behaviour, Stress and Emotionality**

Sponsored by the Douglas Mental Health University Institute

Chair: **Barbara Woodside**, Concordia U

1. **Alfonso Abizaid**, Carleton U: Ghrelin signaling drives social stress---mediated obesity
2. **Matthew Hill**, HBI, U Calgary: Glucocorticoid hormones recruit endocannabinoid signaling to promote obesity and metabolic syndrome
3. **Claire-Dominique Walker**, McGill U: Early life exposure to high fat diet modulates the development and maturation of stress responses
4. **Stephanie Fulton**, U Montréal: Nutritional, metabolic and neural signals connecting obesity and depression

End of Meeting