

## 2015 Research Award Recipients

### CANADA RESEARCH CHAIR (TIER I) IN MAMMALIAN MOLECULAR GENETICS

#### Dr. Monica Justice

leads an internationally recognized program in mouse mutagenesis that has produced hundreds of new mouse models of human disease. Her research combines mouse modeling with clinical genetics, leading to new insights into how gene functions impact human diseases. Dr. Justice's current research aims to identify new pathways for therapeutic intervention in Rett Syndrome, a rare genetic neurodevelopmental disorder. She is also using epigenetics to examine tumour initiation in acute lymphoblastic leukemia, a childhood cancer, and to explore alternative treatments that improve quality of life outcomes.



**Monica Justice, PhD**

*Professor, Department of Molecular Genetics  
Senior Scientist and Head of Genetics and Genome Biology,  
SickKids Research Institute, The Hospital for Sick Children*

### CANADA RESEARCH CHAIR (TIER II) IN SIMULATION AND SURGICAL SAFETY



**Teodor Grantcharov, MD, PhD, FACS**  
*Professor, Department of Surgery  
Scientist, Li Ka Shing Knowledge Institute,  
and Staff Surgeon, St. Michael's Hospital*

#### Dr. Teodor Grantcharov's

area of academic interest is in the fields of minimally invasive surgery, surgical education and patient safety. He has become internationally recognized as a leader in this area with a focus on curriculum design, assessment of competence and impact of surgical performance on clinical outcomes. Dr. Grantcharov developed the surgical black box concept, which aims to transform the safety culture in medicine and introduce modern safety management systems in the high-risk operating room environment.

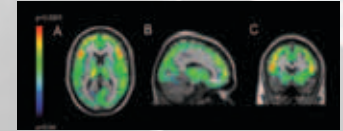
Read more about our Canada Research Chairs at [www.chairs-chaire.gc.ca](http://www.chairs-chaire.gc.ca)

### CANADA RESEARCH CHAIR (TIER I) IN NEUROCHEMISTRY OF MAJOR DEPRESSIVE DISORDER AND DR. SAMARTHJI LAL AWARD FOR MENTAL HEALTH RESEARCH, GRAHAM BOECKH FOUNDATION



**Jeffrey Meyer, MD, PhD, FRCPC**  
*Professor, Department of Psychiatry  
Head, Neurochemical Imaging Program  
in Mood and Anxiety Disorders,  
Campbell Family Mental Health  
Research Institute, Centre for  
Addiction and Mental Health*

Using neuroimaging methods, Dr. Jeffrey Meyer discovered that monoamine oxidase A binding is elevated during major depressive episodes, prior to recurrence and during high risk states for major depressive episodes such as early postpartum and perimenopause, and during some dysphoric states associated with higher risk of depressive symptoms, such as alcohol dependence, early withdrawal from cigarette smoking and borderline personality disorder. He discovered the first definitive evidence of neuroinflammation during major depressive episodes and that serotonin transporter binding is increased in the winter relative to summer. Dr. Meyer has conducted leading antidepressant occupancy studies for serotonin and dopamine transporters, 5-HT<sub>2A</sub> receptors and monoamine oxidase. His work was first to establish the 80% therapeutic occupancy for selective serotonin reuptake inhibitors.



Regional distribution of p-values reflecting elevated MAO-A binding in immediate postpartum period

### CANADA RESEARCH CHAIR (TIER I) IN MOLECULAR BRAIN SCIENCE AND MEMBER, JOHNS HOPKINS SOCIETY OF SCHOLARS

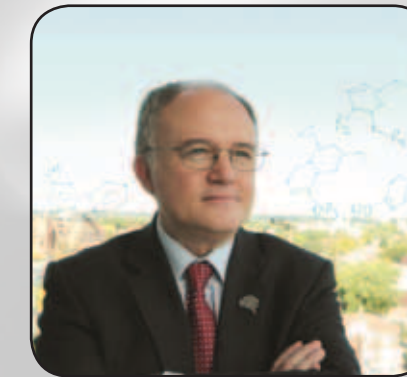
#### Dr. Elise Stanley

is renowned for her field-leading studies of the role of calcium in nerve function and communication. Her current research focuses on the modulation of calcium ion channels located in the synapses of nerve cells, which play a central role in transmitting chemical signals to other nerve cells. Dr. Stanley's work lends broad insights into the mechanisms and control of brain processing and where these processes may go wrong in functional and degenerative brain disorders.



**Elise F. Stanley, PhD**  
*Professor, Department of Physiology  
Senior Scientist, Toronto Western Research Institute, UHN*

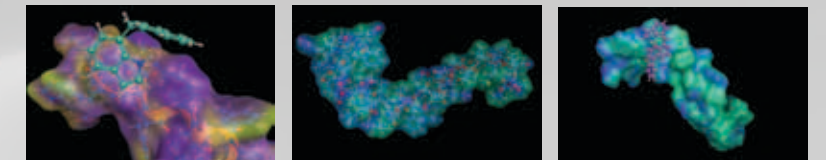
### CANADA RESEARCH CHAIR (TIER I) IN DRUG DESIGN FOR PROTEIN MISFOLDING DISORDERS



**Donald F. Weaver, PhD, MD, FRCPC, FCAHS**  
*Professor, Department of Medicine  
Senior Scientist and Director, Krembil Research Institute, UHN*

#### Dr. Donald Weaver

is breaking new ground in drug design for neurodegenerative disorders using a computer-aided drug design and medicinal chemistry strategy. Dr. Weaver designs, synthesizes and evaluates new small molecules that can effectively bind to protein misfolding receptor sites. He is applying these synthetic molecules to address pharmaceutical challenges in disorders such as Alzheimer's disease, frontotemporal dementia, epilepsy and stroke. In particular, his drug design platforms have focused on compounds that prevent the aggregation of tau and beta-amyloid in Alzheimer's disease.



In silico screening of putative small molecule therapeutics against mistfolding beta-amyloid

# CANADA RESEARCH CHAIRS BOUNDLESS INGENUITY



### CANADA RESEARCH CHAIR (TIER II) IN NEUROIMAGING OF SCHIZOPHRENIA

#### Dr. Aristotle Voineskos

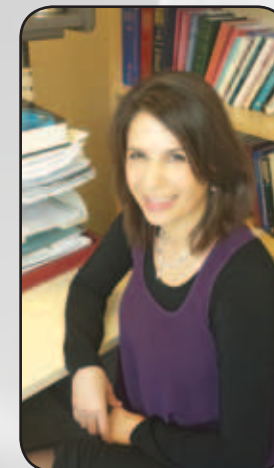
uses neuroimaging and genetics techniques to investigate how genes' effects on brain circuitry can make the brain vulnerable to severe mental illnesses such as schizophrenia. Using magnetic resonance imaging techniques, such as diffusion tensor imaging and cortical thickness mapping, Dr. Voineskos aims to improve early identification and interventions for emerging mental illnesses. He also leads multi-centre trials using neuroimaging to predict and assess responses to treatments for schizophrenia, including pharmaceutical, brain stimulation, and behavioural treatments.



**Aristotle N. Voineskos, MD, PhD, FRCPC**  
*Associate Professor, Department of Psychiatry  
Director, Slight Family Centre for Youth in Transition,  
and Head, Kimel Family Translational Imaging-Genetics  
Laboratory, Centre for Addiction and Mental Health*



### CANADA RESEARCH CHAIR (TIER II) IN TRAUMATIC BRAIN INJURY – COGNITIVE REHABILITATION NEUROSCIENCE

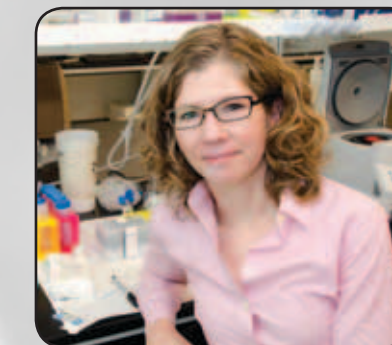


**Robin Green, PhD, CPsych**  
*Associate Professor, Department of Psychiatry  
Senior Scientist, Toronto Rehabilitation Institute, UHN*

Moderate-severe traumatic brain injury (TBI) causes enduring changes to the brain, cognition and emotions; an estimated 1.1% of the Canadian population live with permanent disability from TBI.

Dr. Robin Green's lab has been revealing that these brain changes can, moreover, worsen during the chronic stages of injury (i.e., months to years post-injury). Based on their findings, her lab has been examining novel therapeutic approaches to protect vulnerable brain areas from atrophy during the chronic stages of TBI in order to restore brain function and ameliorate TBI symptoms. Dr. Green is also working to scale up therapy delivery to patients around Ontario through the development of a chronic TBI centre, where patients will receive treatment through their participation in research.

### CANADA RESEARCH CHAIR (TIER II) IN DEVELOPMENTAL NEURAL CIRCUITRY AND SLOAN RESEARCH FELLOW, ALFRED P. SLOAN FOUNDATION



**Julie Lefebvre, PhD**  
*Assistant Professor, Department of  
Molecular Genetics  
Scientist, SickKids Research Institute,  
The Hospital for Sick Children*

#### Dr. Julie Lefebvre's

research examines the development and organization of the intricate "circuits" that connect neurons in the brain to enable sight, motor skills and language. Using microscopy and genetic technologies in mouse models, her team examines the cellular and molecular basis of neural circuit development in the brain and retina. Her research may identify how defects in circuit development contribute to disorders such as autism, epilepsy and schizophrenia.

