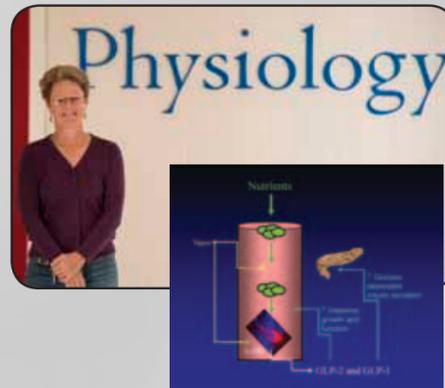


## 2015 Research Award Recipients

### CANADA RESEARCH CHAIR (TIER I) IN VASCULAR AND METABOLIC BIOLOGY



Patricia Brubaker, PhD  
Professor, Department of Physiology

#### Dr. Patricia Brubaker's

research examines how intestinal peptide hormones integrate the regulatory processes of the gut, and how their natural roles in the intestine can be channeled into new therapies for Inflammatory Bowel Disease, Short Bowel Syndrome (SBS), and Type II diabetes. Her widely recognized research on GLP-1 and GLP-2 peptides has enabled clinical trials testing their therapeutic potential to treat diabetes and SBS, respectively. Dr. Brubaker continues to study how peptide hormone secretion is regulated, seeking novel ways to control and balance these hormones to prevent and treat illness.

### CANADA RESEARCH CHAIR (TIER II) IN IMMUNOMETABOLISM

#### Dr. Daniel Winer

studies how immune mediated pathways contribute to insulin resistance in obesity and Type II diabetes. His group focuses on the mechanisms that contribute to chronic inflammation in visceral adipose tissue (VAT), which has been shown to be a significant cause of insulin resistance. Dr. Winer has shown that although the innate immune system was thought to be solely responsible for VAT inflammation, the adaptive immune system also plays an active role. He aims to use this discovery of the adaptive immune component of insulin resistance to develop translational diagnostics and therapeutics, including preventive vaccination strategies.



Daniel Winer, MD, FRCPC  
Assistant Professor, Department of Laboratory Medicine and Pathobiology Scientist, Toronto General Research Institute, and Endocrine Pathologist, Toronto General Hospital, UHN



A model of visceral adipose tissue inflammation leading to insulin resistance

### CANADA RESEARCH CHAIR (TIER I) IN ARTERIAL WALL BIOLOGY AND ATHEROGENESIS

#### Dr. Myron Cybulsky

investigates the molecular and cellular genesis of atherosclerosis, the formation of harmful plaques and lesions in the arteries. As atherosclerosis results in the narrowing of blood vessels and loss of blood supply to tissues, it can lead to heart attack or stroke. Dr. Cybulsky seeks new therapeutic targets for atherosclerosis by studying how the endothelial cells on artery walls recruit and adhere to white blood cells in response to inflammation. His research on the roles of different adhesion molecules, signaling pathways and high blood cholesterol in lesion formation may lead to new ways to inhibit white blood cell recruitment and reduce lipid accumulation contributing to atherogenesis.



Myron Cybulsky, MD, FRCPC  
Professor, Department of Laboratory Medicine and Pathobiology  
Senior Scientist, Toronto General Research Institute, UHN

### CANADA RESEARCH CHAIR (TIER I) IN AUTOIMMUNITY AND TUMOUR IMMUNITY

#### Dr. Pamela Ohashi

directs Princess Margaret Cancer Centre's Tumour Immunotherapy Program, which includes investigator initiated clinical trials in immune therapy. Through this program she has launched the first adoptive T cell therapy trial in Canada. Her basic and translational research program focuses on understanding mechanisms that regulate immune and tumour specific immune responses.



Dr. Ohashi is also active at the national and international levels in promoting immune therapy. She is one of four founding members of the Canadian Cancer Immunotherapy Consortium and is active in the World Immunotherapy Council, which provides global leadership on various initiatives. She currently chairs the American Association for Cancer Research's Cancer Immunology Steering Committee with over 4800 members.

Dr. Pamela Ohashi, PhD, FRSC  
Professor, Department of Medical Biophysics  
Director, Tumour Immunotherapy Program,  
Co-Director, Campbell Family Institute for Breast Cancer Research,  
and Senior Scientist, Princess Margaret Cancer Centre, UHN

### CANADA RESEARCH CHAIR (TIER I) IN STEM CELLS AND REGENERATION



Andras Nagy, MD, PhD  
Professor, Department of Obstetrics and Gynaecology  
Senior Investigator, Lunenfeld-Tanenbaum Research Institute of Sinai Health System  
Adjunct Professor, Monash University, Melbourne, Australia

#### Dr. Andras Nagy

has made significant breakthroughs in the development of mouse and human pluripotent stem cells (both embryonic and induced) that could accelerate research in regenerative medicine and lead to future therapies for currently incurable diseases, such as blindness, diabetes, arthritis, spinal cord injury and many others. His team created the first two Canadian human embryonic stem cell lines and developed a novel method for generating non-viral induced pluripotent stem cells. His current research focuses on understanding the process of reprogramming to stem cells at the molecular level and using sophisticated genome editing methodology to pave the way to safe and effective cell based therapies.

# CANADA RESEARCH CHAIRS BOUNDLESS INGENUITY

### CANADA RESEARCH CHAIR (TIER II) IN OBESITY

#### Dr. Tony Lam's

research examines how nutrient and hormone sensing mechanisms in the gut and brain regulate glucose, lipids and energy homeostasis, and how disruptions to these mechanisms contribute to diabetes and obesity. His group has identified nutrient sensing mechanisms in the small intestine that play a significant role in lowering glucose levels, and are necessary for the anti-diabetic effect of metformin and bariatric surgery. These discoveries may lead to new therapeutic avenues targeting the gut to lower blood glucose levels in diabetes and obesity.



Tony K.T. Lam, PhD  
Professor, Department of Physiology  
Associate Director, Research, Banting & Best Diabetes Centre  
Senior Scientist, Toronto General Research Institute, UHN

### CANADA RESEARCH CHAIR (TIER II) IN SIGNAL TRANSDUCTION AND GENE REGULATION IN CANCER



Leonardo Salmena, PhD  
Assistant Professor, Department of Pharmacology and Toxicology  
Affiliate Scientist, Princess Margaret Cancer Centre, UHN

#### Dr. Leonardo Salmena

investigates basic molecular mechanisms underlying acute myeloid leukemia, seeking new avenues for cancer treatment. His research examines how normal and perturbed cell signaling affects the function of tumour suppressor genes, focusing in particular on the role of microRNA in mediating disease and regulating drug responses. Dr. Salmena's previous work has led to the discovery of endogenous cellular microRNA antagonists, which may play a broad role in gene expression and oncogenesis.

### CANADA RESEARCH CHAIR (TIER II) IN SPATIAL GENOME ORGANIZATION

#### Dr. Karim Mekhail's

genomics research aims to chart the molecular networks that organize DNA in the nucleus and to establish how this organization maintains genome stability, cellular lifespan and human health. His research in yeast and human genetic systems has shown how cooperation between nuclear envelope proteins, motor protein complexes, and RNA-binding factors coordinates DNA expression, replication, and repair. These findings are informing various clinical conditions including natural or premature aging as well as age-related diseases such as cancer and neurodegeneration. Dr. Mekhail is translating some of the fundamental findings of his research to the clinic through UofT's commercialization support.



Karim Mekhail, PhD  
Associate Professor, Department of Laboratory Medicine and Pathobiology  
Director, Dimensional Genome Consortium

Dr. Mekhail discovered that severely damaged DNA (blue) typically attached to the nuclear envelope (gold) can be transported by a new class of DNA repair factors termed molecular DNA ambulances (red) to specialized DNA hospitals near nuclear pore complexes (green basket).

