

# 2010-2011

## *Research Grants and Awards*

The Canadian Diabetes Association administers the Charles H. Best Research Fund to support research to enhance our understanding of diabetes and its prevention, treatment and management.

The Canadian Diabetes Association is proud to be a leading supporter of diabetes research in Canada. Since 1975 and the establishment of the Charles H. Best Research Fund – named for insulin co-discoverer and Association co-founder Dr. Charles H. Best – the Association has awarded more than \$100 million in research grants to scientists who have dedicated themselves to the fight against diabetes.

Since Banting and Best's discovery of insulin in 1922, the scope of diabetes research in Canada has been vast and the numerous studies both varied and unique. With topics ranging from insulin sensitivity of muscle tissue, to the role of cholesterol in the development of type 2 diabetes, to the effect of eating habits on the risk of gestational diabetes, to the role of ACE2 in diabetes-related kidney injury, there have been huge strides and key advances in mapping and understanding the physiology, biochemistry and genetics of diabetes.

The Canadian Diabetes Association understands funding of diabetes research is a crucial step in providing these advances. This is why we choose, each year, to fund Canada's most renowned scientists and clinicians in their quest for new and innovative developments in the prevention, treatment and management of diabetes. Although the research is diverse in its scope, covering a broad range of specialties, the objectives of every study and researcher remain the same – to improve the quality of life of people living with diabetes and to find a cure.

This year's researchers continue the tradition of innovation and discovery with studies covering an array of topics, including: biology, problems with insulin, prevention and management, obesity, complications (both microvascular and macrovascular), special populations and new therapies.

A total of 107 operating grants and personnel awards are being funded from July 1, 2010, to June 30, 2011.

Operating grants are held by independent researchers who can receive funding for up to three years per grant. Grant holders must have a doctoral degree (MD, PhD, DSc, DDS, PharmD, DVM or equivalent) and an independent faculty position with institutional support at a university or research institution in Canada.

Personnel awards fall into four categories: Clinician Scientist Awards, Scholar Awards, Post-Doctoral Fellowship Awards and Doctoral Student Research Awards. Personnel awards are intended to further the development and training of promising young researchers in the Canadian diabetes research community. Eligibility requirements vary based on the type of award. Awards must be held at Canadian institutions with the exception of Post-Doctoral Fellowships. If there is compelling scientific justification, Canadian citizens and permanent residents may apply for Post-Doctoral Fellowships to be held outside Canada. It is the intent that these promising young researchers will return to Canada to continue their careers.

#### Grant/Award Type

**OG** Operating Grant  
**CS** Clinician Scientist Award  
**SA** Scholar Award

**PF** Post-Doctoral Fellowship  
**DS** Doctoral Student Research Award

## ALBERTA

Anderson, Colin C, Dr.

**University of Alberta**

**OG** Defining the barrier of split tolerance in islet transplantation

Eurich, Dean T, Dr.

**University of Alberta**

**OG** Safety and effectiveness of Sitagliptin in relation to other oral antidiabetic agents in patients with type 2 diabetes: A population based analysis

Kienesberger, Petra C, Dr.

*(Supervisor: Dyck, Jason R B, Dr.)*

**University of Alberta**

**PF** The role of adipose triglyceride lipase (ATGL, PNPLA2) in cardiac energy metabolism

Kolic, Jelena, Ms.

*(Supervisor: MacDonald, Patrick E, Dr.)*

**University of Alberta**

**DS** The molecular control of actin remodelling in P13K-gamma mediated regulation of insulin secretion

Light, Peter E, Dr.

**University of Alberta**

**OG** Endocrine cell sodium/calcium exchange and glucose homeostasis

Lopaschuk, Gary D, Dr.

**University of Alberta**

**OG** Hypothalamic arcuate malonyl CoA control of food intake and body energy balance

MacDonald, Patrick E, Dr.

**University of Alberta**

**OG** **SA** The novel G-protein-coupled P13 kinase: role in beta-cell function

Santamaria, Pere, Dr.

**University of Calgary**

**OG** The contribution of 'bystander' autoreactive T-cell memory to islet allograft failure in spontaneously diabetic hosts

Shearer, Jane, Dr.

**University of Calgary**

**SA** Mechanisms of glycogen induced insulin resistance in diabetic cardiomyopathy

Simpson, Scot H, Dr.

**University of Alberta**

**OG** Is there a difference in cardiovascular risk amongst the sulfonylureas?

Wang, Jinguo, Dr.  
(Supervisor: Santamaria, Pere, Dr.)

**University of Calgary**

**PF** Kinetic evolution of a diabetogenic autoimmune CD8+ T-cell response

Yang, Yang, Dr.

**University of Calgary**

**OG** The role of PD-L1 signal in tolerogenic differentiation of dendritic cells

## BRITISH COLUMBIA

Ghosh, Sanjoy, Dr.

**University of British Columbia-Okanagan**

**SA** Cardiotoxicity of omega-6 polyunsaturated fatty acids in diabetes

Gray, Sarah L, Dr.

**University of Northern British Columbia**

**OG SA** PPARs in pancreatic beta-cell lipotoxicity and type 2 diabetes

Horwitz, Marc S, Dr.

**University of British Columbia**

**OG** Signalling through toll-like receptors influences regulatory T cells and consequently the development of type 1 diabetes

Johnson, James D, Dr.

**University of British Columbia**

**OG** Novel pathways in fatty acid-induced beta cell death: Gene-environment interactions

**SA** Calcium-dependent pathways in fatty acid-induced beta-cell death: Gene-environment interactions

Marzban, Lucy, Dr.

**University of British Columbia**

**SA** Molecular mechanisms of islet amyloid-induced beta cell death

McIntosh, Christopher H S, Dr.

**University of British Columbia**

**OG** Glucose-dependent insulinotropic polypeptide (GIP) and the adipocyte: Physiology and pathophysiology

Panagiotopoulos, Constadina, Dr.

**University of British Columbia**

**CS** Brighter smiles: A community-driven model for prevention and treatment of type 2 diabetes in remote First Nations communities

Potter, Kathryn J, Ms.

(Supervisor: Verchere, C Bruce, Dr.)

**University of British Columbia**

**DS** Role of islet amyloid in long-term dysfunction and failure of transplanted islets

Puthanveetil, Prasanth N, Mr.

(Supervisor: Rodrigues, Brian B, Dr.)

**University of British Columbia**

**DS** Alterations in cardiac glucose utilization following glucocorticoid-induced insulin resistance

Rhodes, Ryan E, Dr.

**University of Victoria**

**OG** Obesogenic behaviours of new parents: an 18-month trial

Rodrigues, Brian B, Dr.

**University of British Columbia**

**OG** Metabolic basis for diabetic heart disease: role of cardiac lipoprotein lipase

Soliman, Hesham A F, Mr.

(Supervisor: MacLeod, Kathleen M, Dr.)

**University of British Columbia**

**DS** Rho kinase in diabetic cardiomyopathy: cellular mechanisms for novel treatment

Verchere, C Bruce, Dr.

**University of British Columbia**

**OG** Islet amyloid and islet transplant failure

Wang, Fang, Ms.

(Supervisor: Rodrigues, Brian B, Dr.)

**University of British Columbia**

**DS** Endothelial heparanase regulation of cardiac lipoprotein lipase after diabetes

Warnock, Garth L, Dr.

**University of British Columbia**

**OG** Inhibition of human islet allograft rejection by B7-H4 in a novel, humanized T1D NOD mouse model

## MANITOBA

Shen, Garry X, Dr.

**University of Manitoba**

**OG** Mechanism for glycosylated lipoproteins induced fibrinolytic regulators in vascular endothelial cells

## ONTARIO

Advani, Andrew, Dr.

**St Michael's Hospital**

**OG** Unravelling the role of SDF-1/CXCR4 signalling in diabetic nephropathy

**CS** Exploring the therapeutic potential of SDF-1 modulation in diabetic nephropathy

Alberga, Angela S, Ms.

*(Supervisor: Kenny, Glen P, Dr.)*

**University of Ottawa**

**DS** The effects of aerobic, resistance and combined aerobic and resistance training on regional body composition and metabolic profile in obese adolescents aged 14 to 18 years old

Bandsma, Robert H J, Dr.

*(Supervisor: Lewis, Gary F, Dr.)*

**University Health Network**

**PF** The role of glucagon-like peptides on intestinal and hepatic lipoprotein metabolism

Bates, Holly E, Dr.

*(Supervisor: Drucker, Daniel J, Dr.)*

**Mount Sinai Hospital**

**PF** The contribution on neuronal GLP-1 and GIP receptor signalling to their effects on glucose homeostasis, energy balance and behaviour

Brubaker, Patricia L, Dr.

**University of Toronto**

**OG** Mechanisms underlying secretion of the insulinotropic hormone, glucagon-like peptide-1

Chakrabarti, Subrata, Dr.

**University of Western Ontario**

**OG** Pathogenesis of diabetic retinopathy

Cherney, David Z I, Dr.

**University Health Network**

**CS** Hemodynamic and molecular mechanisms of hyperfiltration in type 1 diabetes mellitus

Daneman, Denis, Dr.

**Hospital for Sick Children**

**OG** Adolescent Type 1 Diabetes Cardio-Renal Intervention Trial (AdDIT)

Drucker, Daniel J, Dr.

**Samuel Lunenfeld Research Institute**

**OG** Incretin hormones, diabetes and skeletal health

El-Soheily, Ahmed, Dr.

**University of Toronto**

**OG** Genetic determinants of sugar consumption in a multiethnic population

Fantus, Ivan George, Dr.

**Mount Sinai Hospital**

**OG** Tyrosine kinase signalling in the pathogenesis of diabetic nephropathy

Feig, Denice S, Dr.

**Mount Sinai Hospital**

**OG** Hypertensive disorders of pregnancy and future risk of diabetes in affected women and their offspring

Fu, Accalia, Ms.

*(Supervisor: Srean, Robert A, Dr.)*

**Children's Hospital of Eastern Ontario**

**DS** The role of Lkb1 and Mark2 in regulation of beta cell mass and insulin secretion

Gaidhu, Mandeep P, Ms.

*(Supervisor: Ceddia, Rolando B, Dr.)*

**York University**

**DS** Regulation of glucose uptake and metabolism by AMPK in white adipose tissue

Gaisano, Herbert Y, Dr.

**University of Toronto**

**OG** Mechanism and rescue of islet alpha cell dysregulated glucagon secretion in type 1 diabetes

Giacca, Adria, Dr.

**University of Toronto**

**OG** Treatment of restenosis and atherosclerosis with insulin and insulin sensitizers

Gibala, Martin J, Dr.

**McMaster University**

**OG** High-intensity interval training as a time-efficient strategy to optimize the therapeutic benefits of exercise in persons with type 2 diabetes: a pilot study

Guo, Hui Jun (June), Ms.

*(Supervisor: Giacca, Adria, Dr.)*

**University of Toronto**

**DS** Potential treatments of atherosclerosis and restenosis with insulin and insulin sensitizers

Hamilton, Sara R, Dr.

*(Supervisor: Ohashi, Pamela S, Dr.)*

**University Health Network**

**PF** Role of the hyaluronan receptor, rhamn in T cell function and autoimmune responses

Hanley, Anthony J G, Dr.

**University of Toronto**

**OG** Progression of core and emerging components of the metabolic syndrome: a longitudinal study

Jenkins, Alexandra L, Dr.

**St Michael's Hospital**

**OG** Efficacy and safety of whole grain Salba (*Salvia hispanica* L.) on weight-loss in overweight and obese individuals with type 2 diabetes

Jin, Tianru, Dr.

**University Health Network**

**OG** Re-assess mechanisms underlying the function of the incretin hormone glucagon-like-peptide-1 and Exendin-4

Khan, Zia Ali, Dr.

**University of Western Ontario**

**OG** Vascular stem cells in diabetic complications

Kim, Min Suk, Dr.

*(Supervisor: Drucker, Daniel J, Dr.)*

**Samuel Lunenfeld Research Institute/**

**Mount Sinai Hospital**

**PF** The role of incretins and dipeptidyl peptidase-4 in the pathophysiology of atherosclerosis

Klip, Amira, Dr.

**Hospital for Sick Children**

**OG** Interplay between fatty acids and macrophages in the genesis and relief of muscle cell insulin resistance

Krepinsky, Joan C, Dr.

**McMaster University**

**OG** SREBP in the pathogenesis of diabetic nephropathy

Lam, Tony K T, Dr.

**University Health Network**

**OG** Glucagon action in the control of glucose homeostasis

Lipscombe, Lorraine L, Dr.

**Women's College Research Institute**

**CS** Diabetes risk following breast cancer

McGuire, K Ashlee, Ms.

*(Supervisor: Ross, Robert, Dr.)*

**Queen's University**

**CS** Dose-response effects of exercise on abdominal obesity and risk factors for cardiovascular disease in men and women

O'Connor, Deborah, Dr.

**University of Toronto**

**OG** Impact of maternal abnormalities in pregnancy on breast milk composition and subsequent infant metabolic development

Perkins, Bruce A, Dr.

**University Health Network**

**OG** In-vivo corneal confocal microscopy as a non-invasive biomarker of early neuropathy in type 2 diabetes

Radziuk, Jerry, Dr.

**Ottawa Civic Hospital – Riverside Campus**

**OG** Insulin-mediated ablation of nocturnal glucose peak in type 2 diabetes: effects on subsequent insulin sensitivity

Remington, Gary J, Dr.

**Center for Addiction and Mental Health**

**OG** The direct effect of antipsychotics on glucose dysregulation

Retnakaran, Ravi R, Dr.

**Mount Sinai Hospital**

**OG** The impact of dietary factors on the pathophysiology of gestational diabetes and subsequent type 2 diabetes

**CS** The role of adipokines and inflammatory proteins in the early pathophysiology of type 2 diabetes in women with a history of gestational diabetes

Rozakis Adcock, Maria, Dr.

**University of Toronto**

**OG** Novel genetic animal models of PHIP1

Ruchat, Stephanie-May, Dr.

*(Supervisor: Mottola, Michelle, Dr.)*

**University of Western Ontario**

**PF** A family-based nutrition and exercise lifestyle intervention program (NELIP) during first year postpartum to prevent long term obesity and type 2 diabetes in the GDM mother and her infant

Schertzer, Jonathan D, Dr.

*(Supervisor: Steinberg, Gregory R, Dr.)*

**McMaster University**

**PF** Multiple components of innate immunity propagate obesity-induced inflammation leading to insulin resistance and type 2 diabetes

Scholey, James W, Dr.

**University of Toronto**

**OG** The role of ACE2 in diabetic kidney injury

Scott, Fraser W, Dr.

**Ottawa Health Research Inst.**

**OG** Endogenous formation of beta-cells in spontaneous diabetes-prone rats: role of diet and trophic factors on beta-cell cycle and immune status

Shah, Baiju R, Dr.

**Sunnybrook Health Sciences Ctr.**

**CS** Diabetes care and outcomes from people with Chinese and South Asian origins

Steinberg, Gregory R, Dr.

**McMaster University**

**OG** Role of acetyl-CoA carboxylase phosphorylation in the control of fatty acid metabolism and insulin sensitivity

Sweeney, Gary, Dr.

**York University**

**OG** Influence of diabetes on the cardioprotective effects of adiponectin

Thomas, Jason M, Dr.

*(Supervisor: Berti, Paul J, Dr.)*

**McMaster University**

**PF** Designing better enzyme inhibitors for controlling postprandial hyperglycemia in type 2 diabetes: transition state analysis for maltase-glucoamylase

Tsushima, Robert G, Dr.

**York University**

**OG** Role of endogenous cholesterol in beta-cell stimulus-secretion coupling

Vuksan, Vladimir, Dr.

**St. Michael's Hospital**

**OG** Efficacy and safety of combined American Ginseng (*Panax Quinquefolius*) and Rg3-enriched Korean Red Ginseng (*Panax ginseng* C. A. Mayer) as poly-therapy in treatment of concomitant hypertension in type 2 diabetes-long term RCT

Wang, Rennian, Dr.

**University of Western Ontario**

**OG** Role of SOX genes in the developing human fetal pancreas

Werstuck, Geoffrey H, Dr.

**McMaster University**

**OG** Investigating the pro-atherogenic potential of chronic hyperglycemia

Wheeler, Michael B, Dr.

**University of Toronto**

**OG** The identification of proteins linked to the development of type-2 diabetes: A quantitative proteomics approach

Wolever, Thomas M S, Dr.

**University of Toronto**

**OG** The effect of a low glycemic index (GI) diet on maternal and neonatal markers of glycemic control and post-partum diabetes risk

Wright, David C, Dr.

**University of Guelph**

**SA** Exercise induced adipose tissue mitochondrial biogenesis: Implications for the treatment of type 2 diabetes

Xie, Li, Dr.

*(Supervisor: Gaisano, Herbert Y, Dr.)*

**University of Toronto**

**PF** Molecular mechanisms of docking/ tethering and priming of insulin granules for exocytosis

Zinman, Bernard, Dr.

**Mount Sinai Hospital**

**OG** Role of the arginine/nitric oxide metabolome in the early natural history of cardiovascular disease in young women with varying degrees of glucose intolerance in pregnancy

## QUEBEC

Ardilouze, Jean-Luc, Dr.

**University of Sherbrooke**

**OG** Early screening for gestational diabetes mellitus

Buteau, Jean, Dr.

**Université Laval**

**SA** Glucagon-like peptide-1 and beta cell neogenesis

Carpentier, André C, Dr.

**University of Sherbrooke**

**OG** Energy metabolism of brown fat in humans

Chicoine, Jarred D, Dr.

*(Supervisor: Sladek, Robert, Dr.)*

**McGill University**

**PF** Functional characterization of type 2 diabetes mellitus susceptibility loci

Fernandes, Maria F A, Ms.

*(Supervisor: Fulton, Stephanie E, Dr.)*

**University of Montreal**

**DS** Role of STAT3 in the actions of leptin in the ventral tegmental area to reduce food intake and modulate dopamine tone

Fulton, Stephanie E, Dr.

**Centre de Recherche-CHUM**

**OG** The role of neural mechanisms of food reward and their contribution to appetite and obesity

Gallo-Payet, Nicole, Dr.

**Université de Sherbrooke**

**OG** Roles and mechanisms of action of the type 2 receptor of angiotensin II (AT2R) in adipocyte physiology and insulin resistance

Gauthier, Marie-Soleil, Dr.

*(Supervisor: Rabasa-Lhoret, Rémi, Dr.)*

**CHUM-Research Centre, Hotel-Dieu Campus**

**PF** Role of AMP-activated protein kinase in adipose tissue inflammation, oxidative stress and insulin resistance

Geraldes, Pedro M, Dr.

**Université de Sherbrooke**

**OG** Role of SHP-1 in PDGF and VEGF inhibition causing poor collateral vessel formation in diabetes

Horb, Marko E, Dr.

**Institute de Recherches Cliniques de Montréal**

**OG** Functional analysis of a new neonatal diabetes candidate in gene in pancreas development

Jacques, Hélène, Dr.

**Université Laval**

**OG** Assessment of cod protein as an insulin-sensitizing agent in women with polycystic ovary syndrome

Kebede, Melkam A, Dr.

*(Supervisor: Poitout, Vincent, Dr.)*

**Centre de Recherche-CHUM**

**PF** Regulation of GPR40 expression

Marette, André, Dr.

**Université Laval**

**OG** AMPK-dependent and independent pathways mediating the metabolic effects of exercise and metformin

Menard, Sebastien, Mr.

*(Supervisor: Carpentier, André C, Dr.)*

**Université de Sherbrooke**

**DS** Fatty acid uptake in non-adipose tissues during the natural history of type 2 diabetes

Prentki, Marc, Dr.

**Centre de Recherche-CHUM**

**OG** Triglyceride/free fatty acid cycling and regulation of fuel-induced insulin secretion: Role of adipose triglyceride lipase

Pshezhetsky, Alexey V, Dr.

**Center de recherche CHU Sainte-Justine**

**OG** Lysosomal sialidase Neu1: novel role in insulin signalling

Schmitz, Norbert, Dr.

**Douglas Mental Hospital University Institute**

**OG** Depression and disability in diabetes: a longitudinal community study

## SWITZERLAND

Guay, Claudiane, Ms.

*(Supervisor: Regazzi, Romano, Dr.)*

**Université de Lausanne, LAUSANNE**

**PF** Role of islet-specific microRNAs in the regulation of pancreatic beta cell functions

## UNITED STATES OF AMERICA

Lessard, Sarah J, Dr.

*(Supervisor: Goodyear, Laurie J, Dr.)*

**Joslin Diabetes Centre, BOSTON, MA**

**PF** SNARK as a novel mediator of contraction-stimulated glucose uptake in skeletal muscle

Lopes, Jared E, Dr.

*(Supervisor: Mathis, Diane J, Dr.)*

**Harvard Medical School, BOSTON, MA**

**PF** The function of the RING domain of AIRE in preventing autoimmune diseases

Santosa, Sylvia, Dr.

*(Supervisor: Jensen, Michael D, Dr.)*

**Mayo Medical School, ROCHESTER, MN**

**PF** Regional free fatty acid metabolism in humans: effect of sex hormones on central and lower body fat metabolism

Ninov, Nikolay N, Dr.

*(Supervisor: Stainier, Didier YR, Dr.)*

**University of California-San Francisco, SAN FRANCISCO, CA**

**PF** Genetic mechanisms of pancreatic beta cell replacement through cellular reprogramming

Across the country, the Canadian Diabetes Association is leading the fight against diabetes by helping people with diabetes live healthy lives while we work to find a cure. We are supported in our efforts by a community-based network of volunteers, members, employees, healthcare professionals, researchers and partners. By providing education and services, advocating on behalf of people with diabetes, supporting research and translating research into practical applications – we are delivering on our mission. For more information, please visit [diabetes.ca](http://diabetes.ca) or call 1-800-BANTING (226-8464).