Diabetes is one of the most important medical problems of our time. The UBC Diabetes Research Group is trying to understand the causes of this disease well enough to design rational therapies to defeat it.

Research Strengths & Facilities

Our Mission: To conduct world-class multi-disciplinary research aimed at curing Diabetes Mellitus.

Members of the Diabetes Research Group are attacking diabetes from multiple angles. Our research aims to understand and treat multiple forms of diabetes including type 1 diabetes, type 2 diabetes and conditions associated with these diseases.

Our scientists are working on projects focused on the fundamental causes of diabetes as well as novel strategies for treatment. A wide range of studies are ongoing, from investigations into the biochemistry of insulin signalling to the physiology of insulin release from pancreatic islets and much more. http://diabetes.ubc.ca/

Why study Diabetes?

Diabetes is a devastating disease that affects more than 2 million Canadians and over 350 million people worldwide. Diabetes costs Canada an estimated $9 billion annually and the incidence of diabetes is increasing dramatically. Because of its chronic nature, the financial burden of diabetes approaches that of all cancers combined. It is estimated someone dies of diabetes every 7 seconds.

There are several forms of diabetes. Type 1 diabetes, previously known as juvenile diabetes, occurs when the body's own immune system destroys the insulin secreting pancreatic beta-cells. Type 1 diabetes is the most severe form of the disease and requires multiple daily insulin injections for survival. Even with excellent glucose control, patients are at significant risk for developing debilitating complications. Type 2 diabetes, formally known as adult-onset diabetes, occurs when there are insufficient functional insulin-producing pancreatic beta-cells for the body's needs. Type 2 diabetes is commonly associated with obesity. There are other forms of diabetes caused by rare mutations in important genes. In all forms of diabetes, the exact causes remain unclear, and better treatments are urgently needed.
DRG Researchers

Roger Brownsey: we aim to understand the molecular mechanisms by which hormones bring about changes in cell metabolism and function. Our work is especially concentrated on the mechanism of insulin action on fatty acid synthesis and on the key lipogenic enzyme acetyl-CoA carboxylase.

Susanne Clee: we use genetics as a tool to gain insight into novel pathways promoting obesity and diabetes. Genetic factors largely determine which individuals will develop obesity and/or diabetes in the context of a lifestyle of diets high in fat and carbohydrate and reduced exercise.

Eric Jan: translational regulation of proteins is fundamental for proper gene expression and cellular functions. Loss of these translational controls can lead to misexpression of proteins that contribute to cellular stress and diseases such as diabetes and cancer. Our laboratory is interested in elucidating these translational control mechanisms during cellular stress.

James Johnson: the Laboratory of Molecular Signalling in Diabetes is focused on understanding the causes of type 1 and type 2 diabetes at a molecular level. Our studies are guided by the discovery of genes and associated gene networks linked to diabetes risk and by known risk factors that predispose individuals to diabetes.

Timothy Kieffer: the Laboratory of Molecular and Cellular Medicine is working to develop novel and innovative therapeutic approaches for diabetes. Our research typically involves sophisticated molecular techniques and studies at the cellular and physiological level. We believe that gene and cell based therapies may be the medicine of the future.

Christopher McIntosh: our work focuses on intestinal hormones involved in the regulation of pancreatic islet function and fat metabolism and the consequences of their altered function in obesity and diabetes.

Calvin Yip: our research focuses on investigating the molecular architecture and function of protein complexes with an emphasis on complexes involved in insulin signalling.

Recent Publications


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UBC is a global centre for research and teaching, consistently ranked among the 40 best universities in the world. Surrounded by the beauty of the Canadian West, UBC embraces bold new ways of thinking that attract exceptional students and faculty. It is a place where innovative ideas are nurtured in a globally connected research community, providing unparalleled opportunities to learn, discover and contribute in one’s own way. UBC is a place of mind.