



## **Diabetes Research: Alberta**

Since 1971, Diabetes Canada (formerly the Canadian Diabetes Association) has proudly supported outstanding diabetes research in Canada, administering more than \$140 million in research grants, awards and partnerships to scientists and clinicians who have dedicated their careers to the fight against diabetes.

Since Banting and Best's discovery of insulin in Toronto, in 1922, Canadian researchers have made huge strides and key advances in mapping and understanding the physiology, biochemistry and genetics of diabetes. This is why we choose, each year, to fund Canada's most renowned researchers in their quest for new and innovative developments in the prevention, treatment and management of diabetes. And although the research is diverse in its scope, covering a broad range of specialties and topics, the underlying goal of each study remains the same - to improve the quality of life of people living with diabetes and to find a cure.

Every year, our researchers continue a tradition of innovation and discovery. Below is a list of the scientists and clinicians in Alberta who are currently funded by Diabetes Canada.

### **Research Grants & Awards**

#### **Dr. Rami Al-Batran (Post-Doctoral Fellowship)**

Supervisor: Dr. John Edward Reyes Ussher

University of Alberta (Edmonton, AB)

Funded: 2016-2019

**Title:** Skeletal muscle ketone body metabolism & type 2 diabetes

During starvation, the liver makes ketone bodies as an energy source. Dr. Al-Batran believes that, in type 2 diabetes, the body somehow mistakenly believes it is starving and begins making and using these ketone bodies all of the time. Dr. Al-Batran will test what role ketone bodies play in the development of type 2 diabetes to find out if this false-starvation process could be stopped.

### **Dr. Sonia Butalia (New Investigator Award)**

University of Calgary (Calgary, AB)

Funded: 2018-2021

**Title:** Tools and strategies to improve dyslipidemia in individuals with diabetes

Dr. Butalia's goal is to develop and assess innovative tools and strategies to improve cholesterol management in people with diabetes. Her research program will: (1) Gain an understanding about the reasons people with diabetes do not take or continue to take cholesterol-lowering medications; (2) Assess if sending a letter to patients, their doctors, or both improves treatment of elevated cholesterol in people with diabetes through the laboratory system; and (3) Assess if sending letters to patients and/or their doctors is cost-effective.

These findings will not only provide a better understanding of why there is under-treatment of cholesterol in people with diabetes, but improve care in new and innovative ways using existing resources.

### **Dr. Kerry McBrien (Operating Grant)**

University of Calgary (Calgary, AB)

Funded: 2016-2018

**Title:** Understanding the barriers and facilitators to care in patients with poorly controlled diabetes

Dr. McBrien and her team want to know more about what Albertans with poorly controlled diabetes think are the barriers and facilitators to their care. She is conducting a survey and phone interviews to gain insights into health status, health-care experience, self-management, financial barriers and sociodemographic factors. The results of the study will provide decision makers, health-care providers and researchers with the knowledge needed to design relevant and targeted interventions for Albertans with high-risk diabetes, with the ultimate goal of improving care for these patients and reducing the risk of complications.

### **Dr. John Ussher (Scholar Award)**

University of Alberta (Edmonton, AB)

Funded: 2015-2020

**Title:** Skeletal muscle ketone body metabolism and type 2 diabetes

Dr. Ussher's research examines a fuel source in the body, called ketone bodies, which he believes may contribute to obesity-related diabetes. The research community has put a lot of effort into understanding how increased sugar and fat in our diets negatively impact the skeletal muscle and cause obesity-related diabetes. However, this strategy has not yet resulted in any successful new drugs for this disease. Dr. Ussher is investigating the ketone body, a different energy source, which is made in the liver during starvation. It has been suggested that the body of someone with diabetes thinks it is starving, even though their organs are being supplied with a high amount of sugar and fats. This triggers ketone bodies to be continually made and used for energy, even though these people are not starving. Dr. Ussher's research compares mice in two different situations to see if increasing ketone body metabolism can cause diabetes, and if decreasing ketone body metabolism can treat diabetes. This research may lead to the discovery of new drugs that can treat and/or prevent obesity-related diabetes.

### **Dr. Jessica Yue (Scholar Award)**

University of Alberta (Edmonton, AB)

Funded: 2016-2021

**Title:** Brain glucocorticoid action on glucose and lipid metabolism

Stress can cause damaging changes in eating habits, physical activity, and in how the human body regulates control of blood glucose and lipid (fat) levels. Dr. Yue is examining how certain stress hormones are used by the brain to control blood glucose and lipid levels. This research will help understand if treatments targeting stress hormones could reduce blood glucose and lipid levels in people with, and at risk of, type 2 diabetes.

### **Chairs & Partnerships**

#### **Julia McFarlane Chair in Diabetes Research**

Dr. Pere Santamaria

University of Calgary (Calgary, AB)