



## OUR RESEARCHERS | DR. TIMOTHY KIEFFER

**Thank you for your generosity. Diabetes Canada is grateful to our donors for supporting critical research that will end diabetes.**

**Through your support, Dr. Timothy Kieffer, Professor, Cellular & Physiological Sciences and Surgery, University of British Columbia, is bringing us one step closer to better health outcomes for people living with type 1 diabetes.**

In healthy individuals, blood sugars are controlled by a hormone called insulin, which lowers blood sugar levels. Insulin is produced by cells in the pancreas called beta cells. For people with type 1 diabetes, their beta cells have been destroyed by their own immune system. They can no longer produce insulin to control their blood sugars, which can lead to health complications such as nerve damage, blindness, heart disease, kidney failure, anxiety, amputations, and even death.

Scientists in Edmonton have discovered a way to transplant clusters of insulin-producing beta cells. The “Edmonton Protocol” is quick and works remarkably well; many patients treated with this protocol are able to live almost as if they no longer have diabetes. Unfortunately, there are very limited numbers of beta cells available for transplant, and only a tiny fraction of people in need can receive them.

Scientists have also discovered ways to produce beta cells in the lab using stem cells; however, these cells currently cannot produce enough insulin to reverse diabetes.

Dr. Timothy Kieffer and his lab are working to significantly improve the manufacturing of beta cells to obtain more robust insulin delivery. The team will engineer new cell culture methods to selectively control cell architecture and enhance cell fitness.

Dr. Kieffer’s work may form the basis for new clinical trials, and ultimately generate an effective therapy that could reverse type 1 diabetes.

**Your support will help Diabetes Canada fund this project and many more, leading to a healthier future for people with type 1 diabetes.**