

Dr. Gareth Lim



TREATMENT | BIOMEDICAL RESEARCH

Project: Can 14-3-3zeta serve as a target to treat type 2 diabetes?

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

Through your support, Dr. Gareth Lim, Principal Scientist at the University of Montreal Hospital Center (CHUM) Research Centre and Canada Research Chair in Adipocyte Development, is bringing us one step closer to new treatments for type 2 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 2 diabetes, their beta cells can no longer produce enough insulin to manage their blood sugars, which can lead to health complications such as nerve damage, sight loss, heart disease, kidney failure, anxiety, amputations, and even death.

Dr. Lim is examining whether it is possible to treat type 2 diabetes by targeting beta cells and restoring their ability to produce insulin.

In a beta cell, mitochondria act as the cell's power plant, and generate the energy that the cell requires to produce insulin. This process is regulated by a protein called 14-3-3zeta, which helps coordinate messages through the cell. Reducing levels of this coordinating protein increases insulin production.

Dr. Lim and his team will:

1. Determine how 14-3-3zeta regulates the function of mitochondria in beta cells
2. Target 14-3-3zeta in the beta cell to improve insulin production in obesity and type 2 diabetes

This project may ultimately lead to the discovery of a new treatment for type 2 diabetes.