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TREATMENT | BIOMEDICAL RESEARCH

Project: Defining the contribution of immune cells to Cystic Fibrosis-Related Diabetes (CFRD)

Cystic fibrosis (CF) is generally known as a lung disease. It is caused by mutations in a gene called CFTR. Mutations in this gene also affect the pancreas. Indeed, about half of adults with CF have lesions in the pancreas. These lesions cause a specific form of diabetes called CF-related diabetes. While we understand the cause of CF, CF-related diabetes is much less studied.

This project aims to understand the cause of CF-related diabetes. It is based on the observation that, in people with CF, immune cells are present in the pancreas. These immune cells could promote CF-related diabetes.

Hypothesis:
Mutations in CFTR alter immune cells, contributing to CF-related diabetes.

Objectives:
CFTR mutations affect many organs, including lungs, pancreas, liver, and more. These organs influence each other and affect the immune system. To pinpoint the specific role of CFTR on immune cells, we must create new research models. 1) We will generate a mouse model lacking CFTR expression only in immune cells. 2) We will remove CFTR from immune cells of healthy individuals. Together, these models will allow us to determine the specific role for CFTR in immune cells.

Impact for people with CFRD:
This study will help understand the role of CFTR in immune cells and their contribution to CFRD. It will also create new models, available to all, to further explore the causes of CFRD. The findings might lead to new treatments that correct the immune system to treat CFRD.

Thank you for your generosity. Diabetes Canada is grateful to our donors for supporting critical research that will improve the lives of people with diabetes.