Cystic Fibrosis Canada

RESEARCH IMPACT REPORT 2022–2024

Our investments in research are made possible through the generosity of our donors and have led to outstanding progress in support of people living with cystic fibrosis. From discovering the gene responsible for CF to creating the protocol now broadly adopted to repair donor lungs, researchers funded by Cystic Fibrosis Canada have gone further in discovery and are closer to a cure than ever before. And we aren't done yet.

2022–2024 RESEARCH AT A GLANCE

$5M	11	4	4	2	5
Committed more than $5 million in funding	Basic Science Grants	Early Career Investigator Grants	Research Fellowships	Clinical Research Grant	Seed Grants

Support from our funding partners doubles the impact of donor dollars

We're continuing our impressive momentum in research. Over the past two years, Cystic Fibrosis Canada has partnered with like-minded organizations to double the impact of our research spending – committing more than $5 million in Canadian CF research. **Here are just a few projects from our recent competitions in which promising preliminary results may translate to positive changes for Canadians with CF.**

Exploring the potential of Trikafta for rare CF mutations

Research led by Dr. Christine Bear at the Hospital for Sick Children is investigating the potential of Trikafta to benefit cystic fibrosis (CF) patients with rare mutations. The study utilizes nasal cells to assess Trikafta responsiveness beyond the common F508 del mutation. The goal is to establish whether the drug can improve the health of individuals with rare CF mutations. Dr. Bear received the Cathleen Morrison Research Impact Award for our Community Reviewer's top ranked project.

Update on this study: Preliminary findings indicate promising results, suggesting that Trikafta may be effective for many who currently lack access due to their rare genetic mutation. Dr. Bear's research could have significant implications for expanding Trikafta's usage, potentially providing therapeutic options for a broader range of CF patients in Canada.

Cystic Fibrosis Canada is proudly able to support this research thanks to a generous grant for basic science research from the Sarah Gordon Sutherland Memorial Fund.

Decreasing the burden of CF in respiratory and digestive systems

Dr. Emile Levy, Scientific Director of the Gastroenterology, Hepatology and Nutrition Unit at Le Centre hospitalier universitaire Sainte-Justine, is leading a study on effective methods to combat oxidative stress and inflammation found in the respiratory and digestive systems of people with CF. Dr. Levy is investigating if natural compounds (polyphenols) such as vegetables and fruits like cranberries which are high in antioxidants and anti-inflammatory properties could be beneficial in reducing disturbances in the gastrointestinal systems of those with CF.

Update on the research: In the first-year of the grant Dr. Levy has demonstrated through animal models that polyphenols were able to greatly eliminate the side effects in the body from oxidative stress and inflammation. Dr. Levy's research will continue to expand our understanding of underlying abnormalities in the digestive systems for those with CF, with polyphenols possibly serving as an efficient tool to aid in intestinal and pulmonary issues for CF patients.

Understanding bacterial infections in those with CF

Dr. Amanda Morris, a research fellow at the Hospital for Sick Children, is studying two common bacteria, *Pseudomonas aeruginosa* and *Staphlylococcus aureus,* that cause infections in people living with cystic fibrosis. Dr. Morris is studying how these two bacteria interact to understand whether or not they are helping each other become more resistant to antibiotics.

Update on the research: Dr. Morris collected sputum samples from 13 pediatric and 6 adult patients from three CF centres. To date, her study shows that there is no significant difference in *Pseudomonas aeruginosa* levels among pediatric samples with high or low *Staphylococcus aureus* amounts. However, patients with chronic *Pseudomonas aeruginosa* infection and high *Staphylococcus aureus* concentrations showed greater *Pseudomonas aeruginosa* amounts compared to those with low *Staphylococcus aureus.* The study is ongoing, with continued sample collection. This study will increase our understanding of how to better treat patients with chronic *Pseudomonas* infections by informing physicians about colonization patterns in the CF lung.

Dr. Morris was awarded Cystic Fibrosis Canada's Fusion Gala Research Fellowship Award, with funding of the two-year grant generously provided by proceeds from the Fusion Gala.