



# PROOF

Centre of | Centre d'  
**EXCELLENCE**

*Biomarker solutions for health care.*

*Biomarqueurs – Solutions en soins de santé.*



PROGRAMS

## The PROOF Centre's Biomarker Programs

The PROOF (Prevention of Organ Failure) Centre is a not-for-profit organization that develops and implements blood-based biomarker tests to better manage patients with heart, lung and kidney risks and failure, and to prevent disease progression. By embracing a cross-disciplinary team of people and bringing all relevant organizations from all sectors together, we will speed up the development of these tests, applying them sooner to improve and save lives.

[www.proofcentre.ca](http://www.proofcentre.ca)

### We're facing an epidemic.

Lifestyle, environmental and genetic factors are driving the epidemics of heart, lung and kidney failure in Canada and around the world. Our work is urgent and of global significance.

### The PROOF Centre's biomarker programs move discovery into the clinic faster.

The process for new diagnostic techniques to move into clinical practice is lengthy. Our biomarker development approach streamlines this process by emphasizing collaboration and innovation to speed up

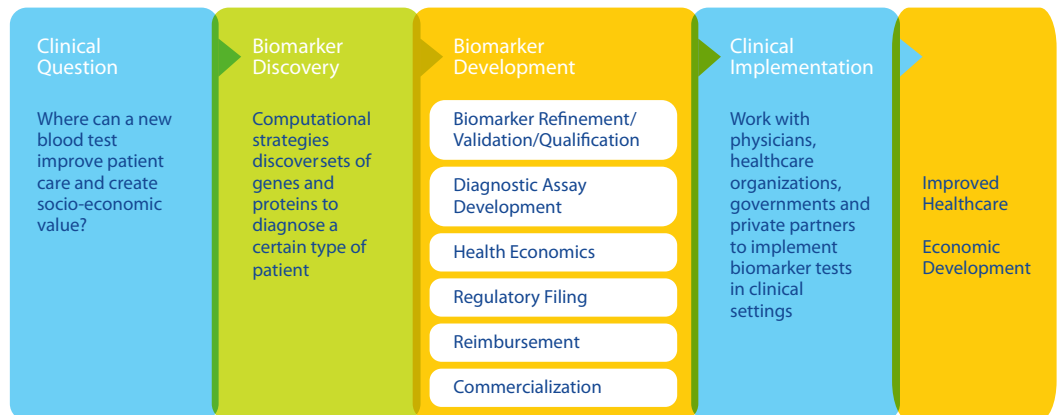
development of these new tests and apply them sooner. This approach results in improved patient care, better treatments, improved quality of life, cost savings and health system efficiency.

### We've already shown that this approach works.

We refined this collaborative approach through our *Biomarkers in Transplantation (BiT)* program. The team has developed blood-based biomarker tests to predict and diagnose acute and chronic rejection in heart and kidney transplant recipients. The BiT program serves as a model for other PROOF Centre biomarker initiatives.

FIGURE 1:  
PROOF Centre's  
Biomarker Pathway

Our approach from clinical need to clinical implementation.



The PROOF Centre of Excellence is supported by the Government of Canada through the Networks of Centres of Excellence Centres of Excellence for Commercialization and Research (CECR) program.



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Biomarker initiatives focused on heart, lung, and kidney failure are underway.

Using the Biomarker Development Pathway, each of the PROOF Centre's programs is intent on delivering improved patient care. Partnerships are the key to success and each program is built with complementary partners, cohorts, technology platforms, or other resources as required for success.

**Chronic Kidney Disease (CKD)** patients can experience a range of possible disease outcomes; however, physicians currently have a limited ability to predict individual patient outcomes and treat patients accordingly. The PROOF Centre is discovering and developing panels of blood biomarkers to help clinicians to distinguish patients with rapidly progressive disease from patients with stable or slowly progressive disease. These tests will allow physicians to implement patient- and time-appropriate treatment plans for individual CKD patients.

**Chronic Obstructive Pulmonary Disease (COPD)** is a progressive, epidemic lung disease that leads to poor quality of life and productivity. Patients are routinely under-diagnosed because of poor diagnostics. The goal of this program is to identify blood-based COPD biomarkers that allow a physician to determine who will undergo frequent exacerbation episodes, thus allowing more effective management and reducing hospital visits and costs.

**Chronic Heart Failure (CHF)** is a progressive disease arising when the heart is unable to fill with (diastolic failure) and/or pump (systolic failure) blood sufficiently. Current diagnostic tools, beyond ultrasound, are unable to differentiate systolic and diastolic heart failure, but different management strategies are required for each. The PROOF Centre is working to develop blood biomarker tests to distinguish

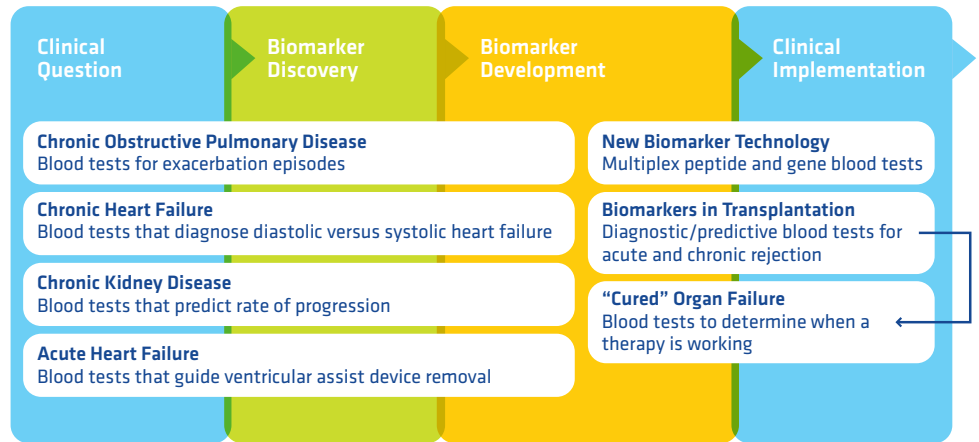


FIGURE 2:  
PROOF Centre's  
Biomarker Programs

diastolic from systolic heart failure, to guide clinicians in selecting the most appropriate therapy for individual patients regardless of their remoteness geographically.

**Acute Heart Failure (AHF)** is a life-threatening condition characterized by inadequate cardiac output and blood pressure instability. AHF patients may develop CHF, or progress to require ventricular assist devices /cardiac transplantation, or death. Our objective is to discover blood biomarkers of acute heart failure to better manage patients facing the possibility of a ventricular assist device.

**"Cured" Organ Failure** is achieved in many heart transplant recipients. Identifying when a therapy for organ failure is working allows physicians to tailor treatment decisions to each individual patient, thereby saving costs and potentially reducing side effects and complications over time. This program is using BiT data to develop biomarkers of cured heart failure in the transplant patient setting, and then bringing them to bear on patients with heart failure to monitor therapy for improvement.

**New Biomarker Technology** is needed for improved biomarker monitoring. The PROOF centre is working with the UVic Genome BC Proteomics Center in developing and validating a multiplexed protein assay to improve specificity and enable targeted approaches for quantitation with increased sensitivity and decreased cost.

Contact us to learn more or to find out how you can get involved.

The PROOF Centre is based at St. Paul's Hospital (Institute for Heart + Lung Health) in Vancouver, Canada, and is hosted by the University of British Columbia. Our objective is to improve the health of Canadians, while decreasing the financial burden on our healthcare system by preventing disease and improving health.

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