



Another project brought to you by **GenomeCanada**

---

## Protein Expression Profiling Platform for Heart Disease Biomarker Discovery

<b>Status</b>	Current
<b>Competition</b>	Applied Genomics and Proteomics Research in Human Health
<b>Sector</b>	Health
<b>Genome Centre</b>	Ontario Genomics Institute
<b>Project Leaders</b>	Peter Liu, Andrew Emili, David MacLennan & Anthony Gramolini

---

### Project Description

#### *Identifying patients with early-stage or at risk for heart failure*

Heart disease is the number one killer of Canadians. While most people associate heart disease with heart attacks, a new epidemic is the lesser-known but more insidious form of heart disease - heart failure. Heart failure occurs when the muscle is weakened by damage over time, to the point where the heart cannot pump enough blood to all the parts of the body to support normal activities. Those suffering from late-stage heart failure can barely walk up one flight of stairs, gasp for breath, and feel like they are drowning.

Dr. Liu is heading up a team of researchers whose goal is to discover molecular biomarkers in the blood to identify patients with early-stage heart failure or at risk for heart failure. The Protein Expression Profiling Platform for Heart Disease Biomarker Discovery project will allow existing heart failure medications to be tried to see which work in early-stage disease, and will lead to the development and testing of new medications that can prevent or delay the development of heart failure.

Development of this new diagnostic tool for early stage heart failure will be driven by a team of experts in cardiovascular science and proteomics research at the University of Toronto. Dr. Emili is a world renowned expert in the new science of proteomics – exploring unique protein patterns in health and disease. Dr. MacLennan is an international authority on the pathways leading to heart failure. By comparing changes in the proteomes of heart tissue from patients suffering from heart failure with those with normal healthy hearts, Dr. Liu's team can identify the unique protein markers associated with heart failure. The ultimate goal is to have a simple blood test that can be used by physicians all over the world to screen for early forms of heart disease, and prevent the emerging tide of heart disease and heart failure.