

RESEARCH

The Montreal Heart Institute is one of the world's foremost research centres in cardiology. To consolidate its leadership position and remain at the forefront in emerging sectors, the Institute plans to undertake the following three major projects.

EXPANSION OF THE RESEARCH CENTRE

Expanding the research centre will provide the Institute's researchers with spacious and modernized facilities to conduct innovative research activities. This will facilitate the recruitment of new world-class researchers and contribute to major breakthroughs in cardiovascular research. It will enhance the advancement of research – from genetics to clinical trials – in both the traditional and emerging sectors. The expansion will result in new laboratories in the genetics of arrhythmia, vascular electrophysiology, regenerative medicine and mathematical and metabolic modelling. Many existing laboratories will be expanded, including ones that are dedicated to vascular pharmacology, endothelial function, proteomics, cardiovascular biochemistry, cardiovascular imaging, atherosclerosis, coronary interventions, molecular electrophysiology and cardiovascular rheology.

CONSTRUCTION OF A PHARMACOGENOMICS CENTRE

Since the mapping and sequencing of the human genome, pharmacogenomics has become a most promising avenue for treating heart disease and better understanding its risk factors (i.e., hypercholesterolemia, hypertension, diabetes, obesity). Pharmacogenomics will help identify the patients most likely to respond favourably to a specific medication or dose (maximizing effectiveness) as well as those patients who might experience significant side effects (reducing toxicity). The US Food and Drug Administration encourages all patent-drug manufacturers to include a pharmacogenomics program so that pharmacological treatments may eventually be personalized and adapted to each patient. The MHI's pharmacogenomics centre will bring together clinical researchers, experts in genetics, proteomics, advanced statistical analysis, pharmacoeconomics and ethics.

CREATION OF NEW RESEARCH CHAIRS

Four new research chairs will be created with the aim of advancing research in the following areas: pharmacoproteomics, prevention of cardiovascular aging, regenerative medicine and tissue engineering, and heart transplants. The research projects resulting from these investments will lead to major discoveries in the area of heart disease, which in turn will benefit MHI patients, as well as patients in Quebec, Canada and worldwide. These developments will make a positive contribution to the MHI's reputation and attract many world-class researchers and students.