



Recruitment of M.Sc.-level student: Cardiac Stem-Progenitor Cell Therapy

- Director:** Hung Q. Ly, M.D., M.Sc., FRCPC
Interventional Cardiologist, Dept. of Medicine, Montreal Heart Institute
Assistant Professor of Medicine, Université de Montréal.
- Location:** Ly Laboratory, Montreal Heart Institute Research Centre
Affiliated with the University of Montreal Faculty of Medicine
Dept. of Medicine and Dept. of Biomedical Sciences
- Research group:** Montreal Heart Institute Research Centre
- Website:** www.icm-mhi.org
- Research theme:** Cardiac repair and cardiac stem-progenitor cell therapy (Heart-Bone Marrow Axis)
- Research type and axis:** Translational research; Heart Axis

Research program: Heart failure remains a leading cause of hospitalization and mortality worldwide. Cardiac cell therapy, through the use of progenitor-stem cells, has emerged as a promising therapeutic strategy for heart disease. Bone marrow-derived stem cells represent an ideal cell population to promote myocardial healing and cardiac repair. Nevertheless, there are unresolved issues and challenges that need to be addressed in order to allow proper translation towards clinical application, such as stem cell mobilization, targeted delivery and cell survival in a hostile post-infarction microenvironment. The Ly Lab is actively investigating means to overcome the latter challenges through the use of either pharmacological preconditioning, nanotechnology and/or gene transfer. Available research projects will focus on *in vitro* (cell biology) assays and *in vivo* (mouse, rat or swine) models of cardiac ischemic injury.

References:

1. Maltais S, Perrault LP, Ly HQ. The bone marrow-cardiac axis: role of endothelial progenitor cells in heart failure. *Eur J Cardiothorac Surg.* 2010, Jul 19.
2. Maltais S, Tremblay JP, Perrault LP, Ly HQ. The Paracrine Effect: Pivotal Mechanism in Cell-Based Cardiac Repair. *J Cardiovasc Transl Res.* 2010 Jun 8.
3. Ly HQ, Hoshino K, Pomerantseva I, Kawase Y, Yoneyama R, Takewa Y, Fortier A, Gibbs-Strauss SL, Vooght C, Frangioni JV, Hajjar RJ. In vivo myocardial distribution of multipotent progenitor cells following intracoronary delivery in a swine model of myocardial infarction. *Eur Heart J.* 2009; 30(23): 2861-8
4. Ly HQ, Nattel S. Stem cells are not proarrhythmic: letting the genie out of the bottle. *Circulation.* 2009 Apr 7;119 (13):1824-31. Review.

Contact: Applicants should submit by email a resume, a list of publications, university records and the names, with contact information, of two references that could comment on your academic and scientific achievements if possible in one .pdf document.

Qualifications: 1) Applicants that are dynamic and highly motivated, with a great degree of autonomy, with lab research experience and good bench skill. Applicants should hold a BSc (with high academic records) in biomedical sciences, biochemistry, physiology, pharmacology, cell biology (or related topics). French and English knowledge (both oral and written) is an asset.

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