

Position for a M.Sc. or a PhD student

Site :

Montreal Heart Institute
5000, Bélanger Street
Montréal, Québec H1T 1C8

Laboratory of :

Dr. Nicolas Bousette

Project description:

We are interested in the effect of lipid accumulation in the heart, a condition referred to as cardiac steatosis. Cardiac steatosis is a major contributory factor to diabetic cardiomyopathy. Lipids are generally stored as intracellular lipid droplets covered by a phospholipid monolayer and a variety of lipid droplet binding proteins. Currently we are focusing on the role of lipid droplet binding proteins in lipid metabolism. Specifically we are investigating how the proteins are altered in states of cardiac steatosis and what effect that has on cellular stress, apoptosis and contractility.

To investigate the role of these proteins we are utilizing cutting edge viral based genetic transduction techniques to alter the expression of these proteins in cardiomyocytes in vitro and in vivo.

We employ functional assays including image based calcium transient analysis for in vitro studies as well as echocardiography for in vivo studies. In addition we also utilize mass spectrometry based protein identification technology for the characterization of proteins involved in lipid homeostasis as well as a wide range of basic molecular biology techniques for biochemistry and cell biology based investigations.

References :

α Crystallin B prevents apoptosis following H₂O₂ exposure in mouse neonatal cardiomyocytes.
Chis R, Sharma P, Bousette N, Miyake T, Wilson A, Backx PH, Gramolini AO. *Am J Physiol Heart Circ Physiol*. 2012 Aug 17. [Epub ahead of print]

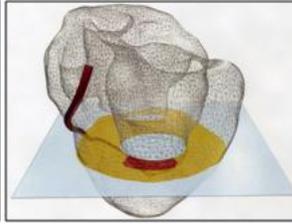
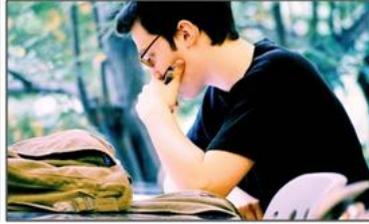
Constitutively active calcineurin induces cardiac endoplasmic reticulum stress and protects against apoptosis that is mediated by alpha-crystallin-B.

Bousette N, Chugh S, Fong V, Isserlin R, Kim KH, Volchuk A, Backx PH, Liu P, Kislinger T, MacLennan DH, Emili A, Gramolini AO. *Proc Natl Acad Sci U S A*. 2010 Oct 26;107(43):18481-6. Epub 2010 Oct 11.

Large-scale characterization and analysis of the murine cardiac proteome.

Bousette N, Kislinger T, Fong V, Isserlin R, Hewel JA, Emili A, Gramolini AO. *J Proteome Res*. 2009 Apr;8(4):1887-901.

Urotensin II receptor knockout mice on an ApoE knockout background fed a high-fat diet exhibit an enhanced hyperlipidemic and atherosclerotic phenotype. Bousette N, D'Orleans-Juste P, Kiss RS, You Z, Genest J, Al-Ramli W, Qureshi ST, Gramolini A, Behm D, Ohlstein EH, Harrison SM, Douglas SA, Gaid A. *Circ Res*. 2009 Sep 25;105(7):686-95



Qualifications:

We would like to add a highly motivated graduate student to our team, with lab research experience and good bench skills. Applicants should hold a BSc or a MSc in biomedical sciences, biochemistry, physiology, cellular or molecular biology (or related topics). French and English knowledge is an asset.

Contact:

Applicants should submit a resume including a list of publications (if any) by email to:
nicolas.bousette@umontreal.ca

Available: Summer 2013, open until filled. Successful candidates will be supported by research grants (salary based on CIHR guidelines) and will have the opportunities to apply at various competitions for studentship.