

## Kardami, Kirshenbaum, Anderson receive \$2.2M in CIHR funding

Thursday, 11 February 2010

Congratulations to Dr Elissavet Kardami, Dr. Lorrie Kirshenbaum, and Dr. Chris Anderson, who together received 5-year grants totaling over \$2.2 million in the recent round of funding from the Canadian Institutes of Health Research (CIHR).

### FGF2 Isoforms in Cardiac Hypertrophy

Principal Investigator: Elissavet Kardami, PhD

Grant: \$818,110

Many cardiovascular diseases are characterized by abnormal heart growth, which predicts poor cardiac outcome. Dr. Kardami's previous studies have indicated that a protein, believed to be involved in promoting abnormal growth, FGF2, is more complex than generally known: FGF2 is made as both a 'long' version (Hi-FGF2) and a 'short' version (Lo-FGF2), and their data suggest that only the Hi-FGF2 version promotes hypertrophy (the 'bad' FGF) while the Lo-FGF2 version is actually beneficial.

This funding will enable the Kardami lab to use experimental mouse models of abnormal heart growth, as well as in vitro systems, to confirm and expand their data, and potentially provide a strategy that would convert the 'bad' FGF2 to its beneficial version (Lo FGF2). This may then provide a means to prevent and even regress pathological hypertrophy.

### Cytoprotective role of nuclear factor kappa beta in heart

Principal Investigator: Lorrie A. Kirshenbaum, PhD

Grant: \$747,560

When oxygen delivery to the heart muscle is decreased such as seen during heart attack or myocardial infarction, the cells of the heart begin to die by a genetically regulated process known as Apoptosis. This is a major clinical problem since once injured cardiac cells die they are not replaced by new ones. Understanding the signaling pathways and cellular factors that regulate cell death/survival processes in the heart is tremendously important for developing new therapeutic agents that could prevent excess cardiac cell death and heart failure.

Dr. Kirshenbaum's lab will specifically address this issue by testing the postulated role of the cellular factor Nuclear factor -kB (NF-kB) as a survival factor in the heart. This innovative research will provide important information regarding the molecular mechanisms that regulate cardiac cell survival during disease conditions. The long-term therapeutic objective of this research is directed toward improving the quality of life of patients with heart disease by developing novel agents that would reduce apoptosis during heart attack. The spin-off benefit to this research would be realized by a substantial reduction in costly medications and need for long-term patient care. It can be seen that this research will have a major and positive impact on society and Canada's health care system in particular.

### Cerebrovascular effects of endothelial NMDA receptors

Principal Investigator: Christopher M Anderson, PhD

Grant: \$651,921

Brain cells are normally protected by a mechanism that delivers enhanced blood flow to areas that have increased demand. Defects in this protective mechanism are associated with development of dementias including Alzheimer's Disease. The Anderson lab has identified a protein inside the lining of brain blood vessels that responds to neurotransmitters released during brain activity by increasing the vessel diameter and, consequently, the amount of blood that can flow through the vessel - the first description of this mechanism.

This funding will enable the Anderson lab to thoroughly characterize the structural and functional characteristics of this receptor target, and then to examine how brain cells communicate with this blood vessel protein in intact brain models. Their experiments will produce results with important implications for all research streams involving this protein, including stroke, brain inflammation and Alzheimer's Disease.

#### About the Canadian Institutes of Health Research (CIHR)

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge and to enable its translation into improved health, more effective health services and products, and a strengthened Canadian health-care system. Composed of 13 Institutes, CIHR provides leadership and support to nearly 13,000 health researchers and trainees across Canada. [www.cihr-irsc.gc.ca](http://www.cihr-irsc.gc.ca)