

## 2007/2008 NSHRF Competition Announcement

### Capacity Grants: Funded Applicants

#### Program

The purpose of the Capacity Grants program is to create a vibrant and productive research environment in Nova Scotia.

NSHRF's Capacity Grants Program helps strengthen research applications made by Nova Scotia researchers in two ways:

*Community Research Alliance (CRA) grants* provide seed funding to build new alliances between communities and universities/research institutions in and outside Nova Scotia.

*Development/Innovative (DI) grants* provide seed funding for Nova Scotia research initiatives that will strengthen a grant submission to a provincial, national or international health research competition.

#### Funding:

- CRA: Up to \$25,000 a grant
- DI: Up to \$10,000 for one year

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**Applicants Funded = 9**

**Total Funding = \$103,020**

#### 1. **Impact of a Flaxseed Lignan Complex in Human Type 2 Diabetics**

**Douglas E. Barre**  
Health Studies  
Cape Breton University

Attempts to reduce the incidence of Type 2 diabetes have been a resounding failure. Consequently, it is critical to improve management of the disease which is characterized by poor blood sugar control and associated with high blood pressure and heart disease, among other complications. Research in animal models has shown that a novel molecule from flaxseed fibre called SDG and in humans components of an SDG-rich flaxseed complex improve these conditions without the side effects of many medications. However, the beneficial effects of this particular complex have yet to be established in diabetics. This project will assess the effects of this complex in Type 2 diabetes in humans for the first time.

Funded Amount: \$10,000

## 2. Targeted Cellular Density Imaging using Magnetic Resonance Imaging (MRI)

### **Chris V. Bowen**

Diagnostic Radiology

Dalhousie University/Capital Health/National Research Council

### **Team Members:**

Alan Fine, Dalhousie University; Steven Beyea, Dalhousie University/National Research Council

Cells play a central role in the progression of almost every disease. Understanding how cells migrate within the body's immune system or in response to treatment is critical. Current techniques for observing cell behavior are invasive, interfere with normal biological activity, and cannot be repeated frequently. This research will develop MRI techniques to non-invasively map the patterns of cells by labeling them with tiny quantities of iron oxide. This will help provide a basic understanding of cell-biology processes in immunology research, and may lead to new cell-implantation therapies in regenerative medicine – what the U.S. Department of Health calls the "next evolution of medical treatments". Nova Scotia is an ideal research community for this project. Nova Scotia expertise in the immunological aspects of disease and the development of stem cell therapies are world renowned.

Funded Amount: \$9,807

## 3. Biobanking of Heart, Vessel and Blood Specimens from Patient with Heart Disease

### **Jean-Francois Légaré**

Surgery

Dalhousie University/Capital Health

### **Team Members:**

Gregory Hirsch, Dalhousie University/Capital Health; Timothy Lee, Dalhousie University; Avrum Ostry, Dalhousie University/Capital Health

In Nova Scotia, detailed information on all patients undergoing open-heart surgery has been collected since 1995. However, the database does not include information from tissue collected at the time of surgery. This information would enhance understanding of the risk factors for patients and help predict how they will benefit from heart surgery. This study will test the feasibility of collecting small pieces of the heart muscle (right atrium), artery, vein, and blood samples that have no clinical usefulness and are often discarded at the end of all open-heart surgeries. Once collected, samples will be processed for long-term storage in a -70 freezer. Part of this proposal will evaluate if the tissue samples remain normal in appearance and substance once stored.

Funded Amount: \$10,000

**4. Novel Approaches to Identify Molecules Contributing to Human Ovarian Cancer Biology**

**Mark Nachtigal**

Pharmacology and Medicine  
Dalhousie University

Ovarian cancer remains the most lethal form of gynecological cancer: There is, at best, a 40% chance of surviving five years from diagnosis. This research will identify molecules that may contribute to the formation of ovarian cancer. In earlier research, a particular protein called PACE4 was examined. While it is normally made in the ovary, it is not made in ovarian cancer cells. Losing PACE4 appears to create problems in normal cells and may contribute to the formation of ovarian cancer. This research will identify the molecules that PACE4 makes active and whether these proteins are no longer active when PACE4 production is stopped, as well as determining the role these molecules may play in regulating normal ovarian cell biology.

Funded Amount: \$10,000

**5. Development of Viral Technology to Investigate the Molecular Mechanisms of Sexual Differentiation of Rat Brain**

**Tara Perrot-Sinal**

Psychology  
Dalhousie University

**Christopher Sinal**

Pharmacology  
Dalhousie University

**Team Member:**

Jan Kenzie, Dalhousie University

The purpose of this study is to develop technology to alter cellular mechanisms influenced by reproductive hormones. The expression of genes will be changed by delivering a non-replicating virus directly into the hypothalamus of rats during early development. The cells in the hypothalamus will incorporate the virus into their DNA, and this will effectively change the expression of the genes of interest in this region of the brain. The resulting protein of these genes will then be examined. If expression is changed, the manipulation will have worked. This method could then be used to investigate how sex differences in adult responses to stress are affected. Abnormal stress response has been linked to a variety of negative health outcomes, many of which are also affected by a person's sex. The ultimate goal is to understand how being male or female alters stress responding in adulthood.

Funded Amount: \$10,000

6. **Beyond Patient Satisfaction: Capturing Women's Experiences and Expectations of Maternity Care Responsiveness**

**Christine Saulnier**

Atlantic Centre of Excellence for Women's Health  
Dalhousie University

**Megan Aston**

School of Nursing  
Dalhousie University

**Team Members:**

Agnes Calliste, Saint Francis Xavier University; Karen Robb, Thames Valley University

There is growing concern over a potential maternity care crisis for women in Nova Scotia. Between 1990 and 2001, 16 community hospitals in the province eliminated their maternity services or closed entirely. At the same time, the provincial government has invested in primary health care and is moving toward regulating midwifery. Despite these significant developments, there has been no investigation of the implications of these changes for women in this province. This project will adapt the World Health Organization's model of responsiveness to assess maternity care in Nova Scotia from the perspective of service users, particularly marginalized and vulnerable women who are exposed to a greater burden of illness and distress. This research will contribute to more effective planning of health services to reduce health inequities, enhance maternity care services, and improve outcomes for mothers and babies in Nova Scotia.

Funded Amount: \$10,000

7. **A Molecular Switch to Regulate Osteoblast and Adipocyte Differentiation in Bone Marrow**

**Christopher Sinal**

Pharmacology  
Dalhousie University

**Team Member:** Muruganandan Shanmugam, Dalhousie University

Osteoporosis is characterized by a loss of bone tissue that ultimately results in bone fragility and an increased risk of fracture. One factor that contributes significantly to the reduction of bone mass in osteoporosis is a decrease in the number of bone-forming cells (osteoblasts) and an increase in the number of fat-storing cells (adipocytes). As both cell types develop from a common precursor cell type, identification of factors that favour osteoblast instead of adipocyte development could lead to new approaches for the prevention and treatment of osteoporosis. This research will examine the role of a secreted protein and the receptor to which it binds in the development of osteoblasts and adipocytes.

Funded Amount: \$10,000

**8. A Health System Knowledge Exchange Project Exploring Functional Indicators for Community Reintegration Post Acute Stay**

**Grace Warner**

School of Occupational Therapy  
Dalhousie University

**Team Members:** Susan Doble, Dalhousie University; Joanne Newell, Dalhousie University; Kathleen MacPherson, Dalhousie University; Gail Dechman, Dalhousie University; Jocelyn Brown, Dalhousie University; Laurie Mallery, Dalhousie University; Madonna MacDonald, Guysborough Antigonish Strait Health Authority

The Nova Scotia Department of Health has released a 10-year Continuing Care Strategy that outlines plans for developing a restorative care program to "reduce premature and unnecessary admissions to hospital and long-term care." Several district health authorities have received funding to create restorative care units designed to provide short-term rehabilitative and social services for individuals experiencing difficulties performing everyday activities after their medical symptoms have been stabilized. This project links academics familiar with the research on functional indicators with members of the health system involved in restorative care to answer two key questions: (1) What key indicators will enable us to determine how services provided within restorative care units help prepare individuals for discharge to the community and support their reintegration into the community? (2) Can these indicators be integrated into one evaluation system for restorative care units across the province?

Funded Amount: \$23,213

**9. Workshop on the "Psychological Impact of Androgen Deprivation Therapy on Prostate Cancer Patients and Their Partners: Defining the Problem, Evaluation, Interventions."**

**Richard J. Wassersug**

Anatomy and Neurobiology  
Dalhousie University

Many men with prostate cancer are treated with hormonal therapy, which has significant side effects including weight gain, loss of muscle mass, development of breast tissue, loss of body hair, and weakened bones. The treatment also causes impotence, loss of libido, and fatigue. These changes are distressful for patients and their partners. Therapists in Halifax, Toronto, Calgary and Vancouver, are currently piloting counseling programs for these couples. These programs, however, are small, individual efforts and are not being rigorously evaluated to establish what works best. This project, a two-day workshop, will bring together researchers and clinicians to develop a national research strategy on how to help prostate cancer patients and their partners deal with the side effects of hormonal therapy.

Funded Amount: \$10,000