



NATIONAL RESEARCH PROGRAMS

FUNDING REPORT

2007-2008

THE LUNG ASSOCIATION
RESEARCH FUNDING REPORT

2007/2008 TOTAL (\$1,736,156.33)

1. The CRHP Research Committee of the Canadian Lung Association peer reviewed 12 fellowship applications and 13 grant applications for the 2007/08 competition. Here are the successful award recipients:

CRHP TOTAL: \$183,291.33

Fellowships (1 year awards):

Beauchamp, Marla Kim	\$7,500 PhD Rehabilitation Science, University of Toronto
Camp, Pat	\$7,500 PhD, University of British Columbia
D'Amore Larsen, Tania	\$7,500 PhD, Health & Rehabilitation, U of Western Ontario
Delisle, Stephane	\$7,500 PhD, Clinical Sciences, University of Sherbrooke
Guo, Su-ER	\$7,500 PhD, Nursing, Case Western Reserve, Ohio
Madeley, Carole	\$3,750 , Masters of Applied Science , Charles Sturt University
McNab, Kim	\$3,750 , Masters of Science in Nursing, Laurentian University
Ouellet, Paul	\$7,500, PhD in Clinical Sciences, University of Sherbrooke
Prevost, Shelley	\$3,750, Master of Applied Science in Respiratory Science, Charles Sturt University
Price, Shirley	\$3,750, Master of Science , University of Toronto
Sharpe, Heather	\$7,500, PhD Nursing, University of Calgary

Grants (1 year awards):

PI	Dina Brooks , Associate Professor, University of Toronto
Title	The effects of course layout on 6-minute walk distance in COPD
Amount	\$19,730
Significance	The 6 minute walk test is an important outcome measure used to evaluate rehabilitation. The results of this study will add to our knowledge about factors to consider in order to optimize our precision in its application.

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RESEARCH FUNDING REPORT

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Grants (cont'd)

- PI **Richard Debigare**, Associate Professor, University of Laval
Title Establishment and characterization of a primary muscle cell culture model from peripheral muscle biopsies collected from patients with COPD.
Amount \$20,000
Significance: Functional deterioration in patients with COPD results in part from progressive muscle wasting. The results of this study will add to our knowledge about the mechanisms that contribute to the loss of muscle mass in patients with COPD. The results of this study will provide us with a foundation needed for the development of interventions to slow the muscle wasting process.
- PI **Gail Dechman**, Assistant Professor, Dalhousie University
Title Assessing fall risk in people with COPD
Amount \$5,375
Significance The results of this preliminary study will be used to design a larger study. The PI intends to compare the risk of falls in people with COPD, a healthy cohort and people with COPD who are engaging in exercise in a pulmonary rehabilitation program. Ultimately this research will help us to design better pulmonary rehabilitation programs.
- PI **Deborah Lucy**, Associate Professor, University of Western Ontario
Title Effectiveness of respiratory muscle training in facilitating weaning from mechanical ventilation in people that are chronically ventilator dependent
Amount \$12,359
Significance Patients with severe COPD are frequently placed on machines to help them breathe. Once established, it is frequently difficult to get the patient off the assisted mechanical breathing device. The results of this study will help us to find better ways to return the patient to independent breathing status.
- PI **Tom Overend**, Associate Professor, University of Western Ontario
Title Evidence-based Suctioning: An interdisciplinary systematic review
Amount \$8,332
Significance Patients who cannot clear their own respiratory secretions through coughing need to have their airways cleared through a technique called suctioning. Although absolutely necessary for breathing, the suctioning technique is not without risk. It is thus important to use best practice based on best-available literature to inform the suctioning technique. The PI intends to update current recommended procedures for suctioning based on information gleaned from a systematic review of the current research literature.

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RESEARCH FUNDING REPORT

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Grants (cont'd)

- PI **Véronique Pépin**, University of Montreal
Title Optimisation of pulmonary rehabilitation
Amount \$20,245
Significance The goal of this research project is to compare three different exercise training approaches used in pulmonary rehabilitation programs to determine which one is optimal.
- PI **Darlene Reid**, Associate Professor, University of British Columbia
Title Measures of thigh muscle torque associated with balance and functional test in people with COPD
Amount \$26,000
Significance The results of this study will add to our knowledge about screening tools to identify physical disability associated with chronic respiratory disease earlier so treatment or preventative measures can be implemented.

2. The Canadian Thoracic Society (CTS) of The Lung Association is pleased to announce the successful applicants of the 2007/08 fellowships and partnered awards:

CTS TOTAL: \$325,000

CTS Fellowship (1 year awards)

- PI **Robert Varadi**, Master of Science Clinical Epidemiology, University of Toronto's Respiratory Rehabilitation Program
Title The impact of pulmonary rehabilitation on exercise performance and quality of life in patients with idiopathic pulmonary fibrosis (IPF)
Amount \$55,000
Significance Develop a randomized controlled trial to assess the impact of rehabilitation on the course of IPF, focusing on outcomes of quality of life, exercise physiology and clinical morbidity. This study will contribute to better understanding of exercise dysfunction in IPF. If this can be shown that rehabilitation ameliorates this dysfunction, it may offer hope to patients who have so few other options.
- PI **Dr. Tillie-Louise Hackett**, Post Doctorate Research Fellow, James Hogg iCAPTURE
Centre for Cardiovascular and Pulmonary Research, Vancouver
Title The role of epithelial stem/progenitor cells in epithelial repair: Do they play a role in airway remodeling in asthma?
Amount \$45,000

THE LUNG ASSOCIATION
RESEARCH FUNDING REPORT

2007/2008 TOTAL (\$1,736,156.33)

CTS Fellowship (cont'd)

Significance This project combines a unique resource of epithelial cells from asthmatic and non-asthmatic children as well as novel genetically engineered mice. These resources will not only be used to characterize epithelial progenitor cells in pediatric airways but also their role in epithelial repair, under normal conditions as well as in the setting of asthma. The successful completion of this project could have a dramatic and exciting outcome on the pathogenesis and future treatment of asthma.

PI **Dr. Gaspard Montandon**, Post Doctorate Research Fellow, Biomedical Research,
University of Toronto

Title Opioid Receptors and the Control of Breathing During Sleep

Amount \$45,000

Significance Abnormal breathing, especially during sleep, is often observed when opiate drugs such as morphine or fentanyl are administered clinically, e.g., to alleviate chronic pain. Opiates can depress breathing by decreasing the activity of those muscles that generate airflow into the lung such as the diaphragm. Opiates may also suppress breathing by causing narrowing or closure of the air passage in the pharynx, due to the relaxation of those breathing muscles that normally keep this air passage open. Studies will be performed using a unique animal model to record diaphragm and genioglossus muscle activities across sleep-wake states while locally manipulating neurons in the medulla using microdialysis. This research is unique in determining the basic physiological mechanisms in respiratory rhythm generation and muscle control, and the important clinically-relevant effects of opiate drugs.

CLA/CTS/GSK/CHIR:

PI **Dr. Semlali** – Post Doctorate Research Fellow, Hôpital Laval, Laval,
Québec

Title Effect of TGF-beta and EGF on airway epithelial repair in asthma

Amount \$90,000 (2 years)

Significance Epithelial damage is one of the many pathophysiological features of asthma that has been observed even in mild asthma but not in other pulmonary diseases. The objective is to determine whether TGF-beta] disturbs EGF-induced epithelial cell proliferation in asthmatic cells compared to normal cells and to determine whether impaired EGFR signaling interferes with TGF-beta] signaling and promotes the effect of TGF-beta] on epithelial cells. The study will not only advance our understanding of the basic cellular mechanisms but may also identify new target pathways for therapeutic strategies to improve epithelium repair in asthma.

THE LUNG ASSOCIATION
RESEARCH FUNDING REPORT

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CLA/CTS/GSK/CHIR (cont'd)

PI **Dr. Ghavani** – Post Doctorate Research Fellow, Faculty of Medicine, University of Manitoba
Title Effects of the neutrophil inflammatory mediator, S100A8/A9, on airway mesenchymal cells
Amount \$90,000 (2 years)
Significance The experiments proposed will elucidate fundamental mechanisms related to the pathogenesis of severe asthma. Such insight is essential for the development of new strategies for effective therapeutic intervention. The focus of this proposal is on the role and mechanisms of action of an inflammatory mediator called S100A8/9 that is known to be released by neutrophils, cells that predominate in the bronchi of severe asthmatics who are resistant to steroid therapy. The results are designed to test the rationale that development of strategies that inhibit local release of S100A8/9 or antagonize its receptor (called RAGE) may be effective in severe asthmatics where inhaled steroids are ineffective.

3. National Grant Peer Review 2007/2008 (\$1,227,865)

The summary results and the rankings were sent to the Provincial Lung Associations for their review and funding approval. The following research grants were awarded:

Alberta Lung Association (\$160,000)

Recipients from University of Calgary

Dr. Davidson and Dr. Eves - \$30,000 (1 year)

Project Title: The Effect of Exercise on Pulmonary and Systemic Inflammation in Patients with Chronic Obstructive Pulmonary Disease

Dr. Christopher Mody - \$25,000 (1 year)

Project Title: Mechanisms that Fungal Infections Spread from Lung to Brain

Recipients from University of Alberta

Dr. Gary Eitzen - \$25,000 (1 year)

Project Title: Regulation of Mast Cell Degranulation by Rho GTPases

Dr. Bernard Thebaud - \$25,000 (1 year)

Project Title: Stem Cell Therapy for Cystic Fibrosis

Dr. Lisa Cameron - \$30,000 (1 year)

Project Title: Effect of the Environmental Pollutant Polyaromatic Hydrocarbon on the Th2 Immunity

Alberta Lung Association (cont'd)

Dr. Paige Lacy - \$25,000 (1 year)

Project Title: Role of Rac2 in Regulation of Superoxide Release and Degranulation in Eosinophils

British Columbia Lung Association (\$680,000)

All grants are effective October 2007 to September 2008

Dr. Yossef Av-Gay - \$42,000 (over 2 years)

Location of Study: UBC, Faculty of Medicine, Department of Medicine

Project Title: *Mycobacterium tuberculosis* Protein Kinase J: role in infection and antibiotic resistance

Dr. Delbert R. Dorscheid - \$42,000 (over 2 years)

Location of Study: The James Hogg iCAPTURE Centre, Faculty of Medicine, St. Paul's Hospital/UBC

Project Title: Airway inflammation and CLA to reduce airway remodeling

Dr. Lindsay D. Eltis - \$42,000 (over 2 years)

Location of Study: UBC Department & Faculty: Microbiology & Immunology, Science

Project Title: A steroid-degrading enzyme as a target for novel TB therapeutics

Dr. Fawziah Marra - \$42,000 (over 2 years)

Location of Study: BC Centre for Disease Control, Vancouver Coastal Health Research Institute

Project Title: Does exposure to fluoroquinolone antibiotics delay diagnosis of pulmonary tuberculosis?

Dr. Darryl A. Knight - \$40,000 (over 2 years)

Location of Study: The James Hogg iCAPTURE Centre, Faculty of Medicine, St. Paul's Hospital/UBC

Project Title: Dysregulated STAT-3 Activation in the Pathogenesis of Idiopathic Pulmonary Fibrosis

Dr. James Kronstad - \$42,000 (over 2 years)

Location Study: Michael Smith Laboratories, Faculty of Science, UBC

Project Title: Emergence of *Cryptococcus gattii* in British Columbia: evaluation of the immune response during pulmonary infection

Dr. Pascal Lavoie - \$57,000 (over 2 years)

Location of Study: Child and Family Research Institute and Children's and Women's Health Centre of BC

Project Title: Innate Immune Responses in Premature Neonates at Risk of Bronchopulmonary Dysplasia

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RESEARCH FUNDING REPORT

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British Columbia Lung Association (cont'd)

Dr. Janet E. McElhaney - \$42,000 (over 2 years)

Location of Study: Vancouver Coastal Health Research Institute, Department & Faculty of Medicine

Project Title: The Effect of Chronic Obstructive Pulmonary Disease on Age-Related Changes in the Immune Response to Influenza

Dr. William W. Mohn - \$57,000 (over 2 years)

Location of Study: UBC Department & Faculty: Microbiology & Immunology, Science

Project Title: The role of a mycobacterial P450 monooxygenase in cholesterol metabolism and pathogenesis

Dr. Margo M. Moore - \$57,000 (over 2 years)

Location of Study: Departments of Biology/Molecular Biology and Biochemistry, Faculty of Science, Simon Fraser University

Project Title: Novel antifungal and antibacterial drug targets in lung pathogens

Dr. Charles J. Thompson - \$57,000 (over 2 years)

Location of Study: UBC Department & Faculty: Microbiology & Immunology, Science

Project Title: WhiB7-dependent regulation of drug resistance and virulence genes in *M. tuberculosis*

Dr. Stuart Eric Turvey - \$57,000 (over 2 years)

Location of Study: Department of Pediatrics, Child & Family Research Institute, UBC

Project Title: Use of Primary Airway Epithelial Cells to Identify Novel Anti-inflammatory Targets for Cystic Fibrosis Lung Disease

Dr. Stephan van Eeden - \$40,000 (over 2 years)

Location of Study: The James Hogg iCAPTURE Centre, Faculty of Medicine, St. Paul's Hospital/UBC

Project Title: Particulate Matter Air Pollutants and Chronic Obstructive Pulmonary Disease

Dr. Helen Dimich-Ward - \$21,000

Location of Study: Department & Faculty of Medicine, UBC

Project Title: The relationship of respiratory health to the quality of life of seniors

Dr. Joanne Lynne Wright - \$42,000 (over 2 years)

Location of Study: Department of Pathology, Faculty of Medicine, UBC

Project Title: Longitudinal Telemetric Measurements of Pulmonary Hypertension: An Aid to Interventional Studies

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Ontario Lung Association (\$387,865)

Dr. Matthew Binnie - \$44,976 (1 year)

Location: University of Toronto/St. Michael's Hospital

Project Title: Role of REGIIly in Defence of the Respiratory Tract

Dr. Martin Kolb - \$47,000 (1 year)

Location: Firestone Institute for Respiratory Health

Project Title: Circulating Mesenchymal Progenitor Cells in Patients with Chronic versus Acute Lung Disease

Dr. Andrew Leask - \$50,000 (1 year)

Location: University of Western Ontario

Project Title: Protein Kinase C Epsilon: A New Target for Drug Intervention in Pulmonary Fibrosis

Dr. Diane Lougheed - \$49,600 (1 year)

Location: Queen's University

Project Title: Physiology of Cough in Asthma: Sensory-Mechanical Responses to High-dose Methacoline in Asthma, Cough-variant Asthma and Eosinophilic Bronchitis

Dr. Martin Stampfli - \$47,950 (1 year)

Location: McMaster University

Project Title: Impact of Cigarette Smoke on Immune Inflammatory Processes and Tissue Remodeling Elicited by Surrogate and Common Environmental Allergens

Dr. Matthew Stanbrook - \$48,339 (1 year)

Location: University of Toronto/University Health Network

Project Title: Death in Chronic Obstructive Pulmonary Disease (COPD) in the Ontario Population

Dr. Haibo Zhang - \$50,000 (1 year)

Location: University of Toronto/St. Michael's Hospital

Project Title: Critical Role of Bone Marrow-derived Mesenchymal Stem Cells in the Repair of Lung Injury

Ontario Lung Association (cont'd)

OLA/OTS Breathe New Life Award

Dr. Chung-Wai Chow - \$50,000 (1 year)**

Location: University of Toronto

Project Title: The Role of Syk and Ezrin in HRV Endocytosis And Signalling

** The funds for the "Breathe New Life Award" are partly raised by the OTS members through the Top It Up! for Respiratory Research fund. This fund enhances the nationally reviewed and acclaimed Grant-in-Aid research competition and funds grants above and beyond the normal value of the GIA budget provided by the Ontario Lung Association.