



Hôpital général juif  
Jewish General Hospital

# LADY DAVIS INSTITUTE

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## ANNUAL REPORT 2012



McGill

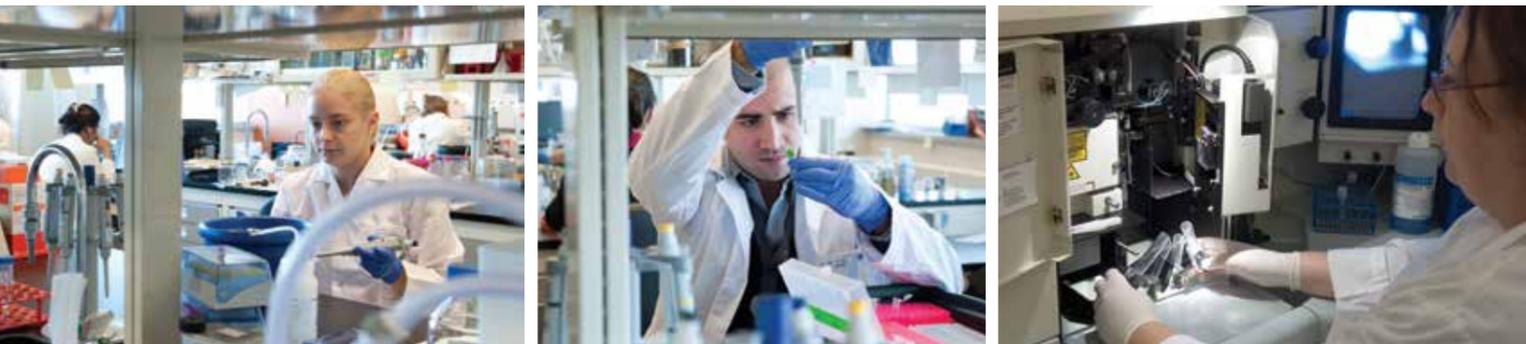
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**A note on contents:** This Annual Report contains highlights from January 1, 2012 to December 31, 2012. The publications cited are only a select sampling of research that has been produced at the LDI. A comprehensive bibliography can be found online by searching individual researchers on PubMed. Funding awards include only new grants obtained during the calendar year in question for which an LDI scientist was the principal investigator. It does not include on-going funding awarded prior to 2012 or those for which the LDI participant is a co-investigator.

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The Lady Davis Institute (LDI) prides itself on being one of the leading medical research institutes in Canada, and on the international regard in which we are held. Evidence of the quality of our research is presented in this Annual Report for 2012.

Scientists in each of our six axes have made truly notable contributions to health research over the past year. LDI investigators have published remarkable findings, have been leaders of important national research programs, and have attracted the support of major funding agencies, all the while training emerging scientists who, themselves, have been recognized for the excellence of their work.

The LDI is proud that Dr. Mark Wainberg, head of the HIV/AIDS Axis and one of the world's most renowned experts in the field, was honoured with Canada's prestigious Killam Prize for Health Science.

Dr. Samy Suissa, head of the Clinical Epidemiology Axis, was chosen by his peers from across Canada to lead the Canadian Network for Observational Drug Effect Studies (CNODES) when it was created in 2011 thanks to \$17.5 million from the CIHR. This year, CNODES began delivering on its ambitious research agenda revealing, for example, a link between high dose statins and the risk of kidney failure, and demonstrating that proton-pump inhibitors do not cause pneumonia.

Under the leadership of Dr. Gerald Batist, Director of the Segal Cancer Centre, our cancer labs are at the forefront of innovations in personalized medicine that promise more effective treatment by unlocking the genetic foundations of tumours. Progress has been made on the construction of the Molecular Pathology Centre, which will place our institution at the forefront of next-generation analysis of cell mutations and tumour progression.

The stature of Dr. Ernesto Schiffrin (head of the Hemovascular Axis) among hypertension researchers was recognized with his election as President of the International Society of Hypertension.

In the Psychosocial Axis, Dr. Brett Thombs and his colleagues exposed the shortcomings of conventional screening methods in identifying patients suffering from depression.

New investigators are critical to the culture of any research institution, and we are delighted to have welcomed outstanding young researchers over this past year. Colin Crist came from the Institut Pasteur in Paris, as the first of our members to focus on stem cell research. Marc Fabian, following a postdoctoral fellowship with Nahum Sonenberg at McGill, focuses on the role of RNA in cancer. Jonathan Afilalo is a cardiologist who is developing novel measures of frailty in elderly patients.

LDI trainees also excelled, including Caroline Paquette, whose work on novel imaging techniques was recognized by the Quebec Heart and Stroke Foundation and Sidi Mehdi Belgnaoui, who was named an Étudiants-chercheurs étoiles by the Fonds de recherche du Québec – Santé for his research on control of the body's immune response.

Our internal grant review process has had a very significant impact on the culture of the LDI. Not only has it led to improvement in our funding success rates, it has also made great contributions to interactions between investigators.

Through our seminars, Distinguished Lecture Series, Annual Scientific Retreat, and communications strategy, we inform our community and the world of the research underway at the LDI. We take pride in our collective pursuit of important and challenging questions to further the quality of care available to patients.

Roderick McInnes, CM, OOnt, MD, PhD, FRSC



Since its founding in 1969, the Lady Davis Institute at the Jewish General Hospital has become one of Canada's leading health research institutes.

Responsible for fundamental and clinical investigations, its scientists and clinicians have made important discoveries, contributing to the health and well-being of patients in Quebec, Canada, and around the world.

- **Age-related diseases**, including cognitive neurosciences and Alzheimer's disease, molecular and cellular biology of aging, and biological and clinical studies of aging bones;
- **Cancer**, emphasizing molecular oncology, cancer prevention, cancer genetics, biomarkers in cancer therapy, new cancer therapies, translational physics and radiobiology, psychosocial oncology, and evaluative research;
- **Epidemiology**, where sophisticated bio-statistical analyses are applied to the causes, diagnosis, treatment, and prognosis of disease, along with assessing the risks and benefits of medications;
- **Hemovascular disease**, including hypertension and vascular disease, coronary heart disease, atherosclerosis, stroke, and venous thrombosis;
- **HIV/AIDS**, where research includes studies on host factors, innate immunity, epidemiology, drug development, drug resistance and advancing the search for novel therapeutics;
- **Psychosocial aspects of disease**, including behavioural and psychological factors associated with pain and/or disability and the largely neglected issue of family and caregiver responses, cultural psychiatry, and risk factors for the development of psychiatric disorders.

There are currently 217 researchers at the LDI, of whom 54 are primarily lab-based, 27 investigate psychosocial aspects of disease, 36 are in epidemiology, while 100 are principally involved in clinical research and other types of investigations.

This year, LDI investigators published findings in some of the world's leading scientific journals and successfully competed for funding from the Canadian Institutes of Health Research (CIHR), the Fonds de recherche du Québec – Santé (FRQS), and other major granting bodies. As well, many were recognized with national and international honours.

# CANCER AXIS

DR. GERALD BATIST, AXIS HEAD



## SPOTLIGHT Dr. Stéphane Richard

Among the achievements of **Dr. Stéphane Richard's** lab during 2012 were two major papers. In one, published in *EMBO Journal*, he identified that when the protein Jumonji D2A is over-expressed, at it is in certain breast and lung cancers, it can overwhelm the capacity of another protein, 53BP1, to repair damaged DNA. When left unchecked, damage accumulates, leading to tumor formation and malignancy. Consequently, from a clinical perspective, a drug that inhibits Jumonji D2A may successfully restore 53BP1's tumor suppressor function.

In another paper, in *Molecular Cell*, he revealed that the suppression of the protein Sam68 produced a genetically skinny mouse that was immune to obesity. This finding could impact efforts to combat obesity and diabetes.

Dr. Richard is a James McGill Professor of Medicine and Oncology at McGill and an FRQS Chercheur National. In addition to running his lab at the LDI, he also serves as Associate Director for Research Space.

## SELECTED DISCOVERIES &amp; PUBLICATIONS

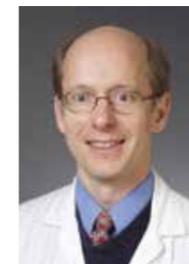
- **Haim Abenheim** (*Breast Journal*); study of the incidence, risk factors, and obstetrical outcomes of pregnancies for women with breast cancer.
- **Sarit Assouline** (*Blood*); report on a phase 1 study of obinutuzumab induction followed by 2 years of maintenance in patients with relapsed CD20-positive B-cell malignancies.
- **Mark Basik** (*PLoS One*); looked at the effect of pre-analytical variability on the measurement of MRM-MS-based mid-to-high-abundance plasma protein biomarkers and a panel of cytokines.
- **Gerald Batist** (*Expert Review of Anticancer Therapy*); new frontiers in therapeutic resistance in cancer.
- **Volker Blank** (*Experimental Hematology*); abnormal differentiation of erythroid precursors in p45 NF-E2<sup>-/-</sup> mice.
- **Colin Crist** (*Cell Stem Cell*); exploration of mechanisms that activate quiescent skeletal muscle stem cells in a healthy body in order to discover the genetic compromise that blocks this process in people suffering from muscular dystrophies.
- **Slobodan Devic** (*Medical Physics*); several articles examining the uses of MRI and PET-based scans for the future of radiotherapy treatment planning.
- **Marc Fabian** (*Nature Structural and Molecular Biology*); the mechanics of microRNA-mediated gene silencing, specifically looking at miRISC.
- **Will Foulkes** (*Trends in Molecular Medicine*); exploration of the endocrine manifestations of DICER1 mutations.
- **Walter Gottlieb** (*Lancet Oncology*); results of a Phase II randomized, double-blind, placebo-controlled study of intravenous aflibercept for the treatment of recurring malignant ascites, a painful side effect, in patients with advanced ovarian cancer.
- **John Hoffer** (*American Journal of Clinical Nutrition*); a systematic narrative regarding appropriate levels of protein provision in critical illness.
- **Natalie Johnson** (*Journal of Clinical Oncology*); studied the concurrent expression of MYC and BCL2 in diffuse large B-cell lymphoma treated with rituximab plus cyclophosphamide, doxorubicin, vincristine, and prednisone.
- **Rongtuan Lin** (*Cell Host & Microbe*); identification of the protein NEMO as a crucial molecular mechanism in terminating the body's early immune response, without which uncontrolled innate immune response can trigger chronic inflammation and autoimmune diseases.
- **Koren Mann** (*Toxicological Sciences*); revealed that arsenic can pose a danger to human health at significantly lower exposure than previously thought.
- **Roderick McInnes** (*Neuron*); how the genes Bhlhb5 and Prdm8 form a repressor complex involved in the assembly of neuronal circuitry.
- **Wilson Miller** (*The Lancet*); results of a multi-centre Phase III randomized trial of dabrafenib in BRAF-mutated metastatic melanoma.
- **Thierry Muanza** (*Anticancer Drugs*); found that sorafenib, in combination with ionizing radiation, has a greater anti-tumour activity in a breast cancer model.
- **Lawrence Panasci** and **Raquel Aloyz** (*International Journal of Cancer*); finding that the phosphatidylinositol-3 kinase I inhibitor BKM120 induces cell death in B-chronic lymphocytic leukemia cells in vitro.
- **Kostas Pantopoulos** and **Antonis Koromilas** (*RNA*); alternative ferritin microRNA translation via internal initiation.
- **Michael Pollak** (*Cancer Prevention Research*); demonstrated that metformin, a drug prescribed to patients with type 2 diabetes, reduces the rate of cellular mutation and accumulation of DNA damage, which could serve to lower the risk of cancer.
- **Uri Saragovi** and **Moulay Alaoui-Jamali** (*Oncogene*); reduced in vivo lung metastasis of a breast cancer cell line after treatment with Herceptin mAb prescribed in conjunction with chemotherapeutic drugs.
- **Alan Spatz** (*Current Oncology*); overview of the role of molecular pathology in non-small-cell lung carcinoma.
- **Ivan Topisirovic** (*Cancer Research*); revealed that the ratio of the proteins eIF4E to 4E-BP predicts the efficacy of mTOR targeted therapies in cancer.
- **Mark Trifiro** (*Human Mutation*); updated the androgen receptor gene mutations database.
- **Togas Tulandi** (*Fertility and Sterility*); on the effects of malignancies on reproductive organ functions.
- **Josie Ursini-Siegel** (*Oncogene*); on how the ShcA adaptor protein activates a survival response during tumour formation in breast cancer.
- **Michael Witcher** and **Lawrence Panasci** (*Frontiers in Pharmacology of Anti-Cancer Drugs*); explored whether there is an epigenetic component underlying the resistance of triple-negative breast cancer to PARP inhibitors.
- **Jian Hui Wu** (*Journal of Medicinal Chemistry*); anti-androgenic, maspin induction and anti-prostate cancer activities of tanshinone IIA and its novel derivatives with modification in ring A.

## NEW MAJOR FUNDING AWARDED

- **Volker Blank** for “Regulation and function of NFE2L3: linking transcription factor activity to carcinogenesis.” CIHR (2012-17) **\$684,000.**
- **Volker Blank**, for “bZIP transcription factor mediated regulation of breast cancer cells.” Quebec Breast Cancer Foundation (2012-2015) **\$468,000.**
- **Wilson Miller** for “Targeting the eukaryotic translation initiation factor eIF4E with ribavirin in breast cancer.” CIHR Operating Grant (2012-2015) **\$425,000.**
- **Wilson Miller** For “Functional role of eIF4E in breast tumor metastasis and epithelial to mesenchymal transition (EMT).” Cancer Research Society Operating Grant (2012-2014) **\$117,000.**
- **Ivan Topisirovic**, for “Identification and characterization of novel substrates of the mammalian target of rapamycin complex 1 (mTORC1).” CIHR New Investigator Award (2012-17) **\$300,000.**
- **Michael Witcher**, CIHR Operating Grant. (2012) **\$696,000.**
- **Moulay Alaoui-Jamali**, for “Optimization of novel therapeutic approach targeting breast cancer cell plasticity and epithelial-to-mesenchymal transition for metastatic breast cancer.” Quebec Breast Cancer Foundation (2012-14) **\$450,000.**
- **Gerald Batist**, Terry Fox Research Institute. Creation of the Canadian Colorectal Cancer Consortium involving fourteen leading cancer care and research centres to embrace the entire spectrum of colorectal cancer care. (2012-13) **\$1,200,000.**
- **Té Vuong**, for “A study looking at systemic therapeutics with biomarkers and screening for hereditary syndromes,” Pan-Canadian Consortium for Colorectal Cancer, funding provided by Terry Fox Institute, **\$2,000,000.**
- **Antonis Koromilas**, for “Mechanisms of Stat1 tumor suppression in ErbB2 positive breast cancer and therapeutic implications.” Quebec Breast Cancer Foundation/Cancer Research Society (2012-2014) **\$450,000.**
- **Antonis Koromilas**, for “Translational control of p27 by stat1 and implications in Ras-mediated oncogenesis.” Canadian Research Society (2012-14) **\$180,000.**
- **John Hoffer**, for “Open clinical trial to validate a short-term vitamin D loading and maintenance dose protocol in people with advanced lung cancer.” Lotte & John Hecht Memorial Foundation (2012-13) **\$105,000.**
- **Thierry Muanza**, for “Novel DNA damaging and anti-EGFR combimolecul ZR2003, to potentiate ionizing radiation in malignant glioma models.” Brain Tumor Foundation of Canada (2012) **\$25,000.**



Dr. Volker Blank



Dr. Wilson Miller



Dr. Antonis Koromilas

- **Tamim Niazi**, for “Does testosterone breakthrough lead to biomarker failure in prostate cancer patients? A study based on different LHRH agonist.” Sanofi Aventis Operating Grant (2012-14) **\$25,000.**

## HONOURS CONFERRED

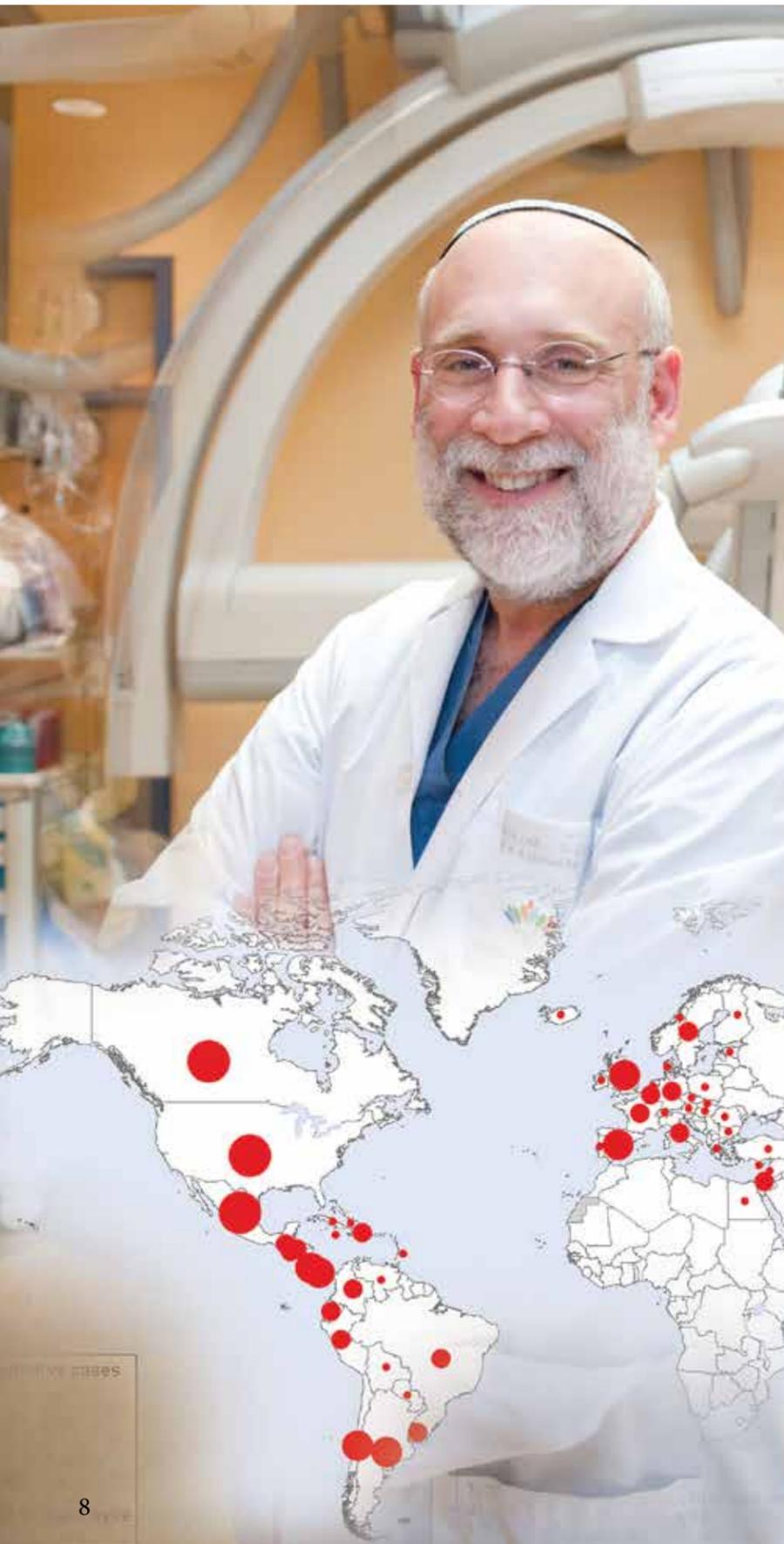
- **Gerald Batist** was elected a **Fellow of the Canadian Academy of Health Sciences** in recognition of his substantial contribution to the study of cellular detoxification in therapeutic resistance to anti-cancer treatment, pre-clinical and early phase clinical trials of novel therapeutics. He leads a highly successful laboratory and clinical research program which has made significant contributions to the development of new cancer treatments. He was, along with **Michael Pollak**, honoured by the JGH with the 49th **André Aisenstadt Memorial Clinical Day**. Dr. Pollak was one of only three Canadians invited to participate in a meeting of 100 international cancer experts hosted by *The Lancet* and the European School of Oncology.
- **John Hoffer** was honoured with the **2012 Khush Jeejeebhoy Award** by the Canadian Nutrition Society for his extraordinary contribution to nutrition research.
- **Togas Tulandi** received the **Canadian Association of Medical Education Certificate of Merit Award**.
- **Michael Witcher** became a Member of the **American Association for Cancer Research**.
- **Sidi Mehdi Belgnaoui**, a post-doctoral fellow in immunology, was recognized as **Étudiants-chercheurs étoiles** by the Fonds de recherche du Québec – Santé for his research on the innate immune response which aims to advance new strategies to fight viruses such as hepatitis C and influenza.



Dr. Gerald Batist

## NEW RESEARCHERS

- **Colin Crist** was recruited from the Institut Pasteur in Paris. His lab aims to discover the dynamics of skeletal muscle stem cell biology, examining, in particular, those cells that proliferate to repair damaged muscles in healthy individuals, but are unable to keep up with the chronic degeneration that characterizes muscular dystrophies. Stem cell therapy is promising for the treatment of MD because it is known that the appropriate satellite cells can be regenerated in adulthood. His findings will have wide-ranging applications for research into all stem cell applications.
- **Marc Fabian** completed his post-doctoral work at McGill's Rosalind and Morris Goodman Cancer Centre. He is a biochemist focusing on microRNA, an exciting new avenue in the quest for innovative cancer treatments. He is seeking to identify how alterations in microRNA levels may prove to be an effective signal against which to target cancer therapies.



**SPOTLIGHT**

**Dr. Mark Eisenberg**

**Dr. Mark Eisenberg** is a clinician-scientist who serves as Director of the Cardiovascular Health Services Research Group at the Jewish General Hospital. His research focuses on preventive measures for cardiovascular disease. He has examined the use and effectiveness of various smoking cessation therapies in several randomized controlled trials. In a study published in the *Journal of the American College of Cardiology*, he revealed that two-thirds of middle aged smokers who were hospitalized for acute myocardial infarction resumed smoking within twelve months, despite being treated with the popular anti-smoking drug bupropion.

“Conventional wisdom was that suffering a heart attack served as a significant wake-up call inspiring smokers to quit,” he observed. “Notwithstanding the relapse rate we observed, the patients did exhibit a significant decrease in consumption, which suggests that a subset could be effectively re-targeted for smoking cessation therapy.”

**SELECTED DISCOVERIES & PUBLICATIONS**

- **Laurent Azoulay** (*British Medical Journal*); demonstrating that pioglitazone, a drug used to treat type 2 diabetes, doubles the risk of bladder cancer following more than two years of daily exposure.
- **Francois Béland** (*Journal of Gerontology: Biological Sciences*); contribution of frailty markers in explaining differences among individuals in five samples of older persons.
- **Howard Bergman, Jonathan Afilalo, Mark Eisenberg, Johanne Monette, Jean-Francois Boivin** (*Circulation: Cardiovascular Quality and Outcomes*); recommended that frailty and disability be factored in when assessing the risks of cardiac surgery for elderly patients.
- **Jean-Francois Boivin** (*Drug and Alcohol Dependency*); explored the potential risk factor for acquiring hepatitis C from the injection of drug residue among young drug users in Montreal.
- **Paul Brassard** (*British Journal of Clinical Pharmacology*); on the use of non-steroidal anti-inflammatory drugs and the risk of C-difficile-associated disease.
- **Kristian Filion** (*American Journal of Public Health*); an exploration of smoking trends between 1980 and 2009 using the Minnesota Heart Survey.
- **Celia Greenwood** (*PLoS Genetics*); meta-analysis studying novel loci for adiponectin levels and their influence on Type 2 diabetes and metabolic traits in a multi-ethnic population.
- **Marie Hudson, Murray Baron, Russell Steele** (*Journal of Rheumatology*); clinical correlates of CENP-A and CENP-B antibodies in a large cohort of patients with systemic sclerosis.
- **Susan Kahn** (*Chest*); revision of clinical practice guidelines of the American College of Chest Physicians for preventing, diagnosing, and treating blood clots.
- **Pierre Pluye and Roland Grad** (*Journal of Continuing Education in the Health Professions*); studied the use of systemic reviews in continuing medical education.
- **Brent Richards** (*Nature Genetics*); identification of 56 genetic pathways – 32 of which are novel – associated with the architecture and physiology of bone density, a crucial factor in osteoporosis.
- **Lawrence Rosenberg** (*American Journal of Physiology – Endocrinology and Metabolism*); comparison of the full-length recombinant protein and a bio-active peptide in the mechanisms of action of islet neogenesis associated protein (INGAP).
- **Ian Shrier** (*Journal of Athletic Training*); assessing best practices for cervical spine stabilization by first responders at the scene of an accident.
- **Samy Suissa and Pierre Ernst** (*Thorax*); redefined the trajectory of chronic obstructive pulmonary disease (COPD) from a gradual decline over time to a step progression of sharp descents following each acute exacerbation.

- **Vicky Tagalakis and Susan Kahn** (*Thrombosis Research*); examined the occurrence of venous thromboembolism in cancer patients following major surgery.

**NEW MAJOR FUNDING AWARDED**

- **Jonathan Afilalo** for “Measurement of frailty to identify high risk elderly patients referred for surgical and transcatheter aortic valve replacement.” CIHR (2012-16) **\$360,000.**
- **Simon Bergman** for “Understanding the association between perioperative process-based quality indicators and recovery in elderly patients.” CIHR (2012-13) **\$100,000.**
- **Mark Eisenberg**, for “The safety of combined oral contraceptives: A systematic review and meta-analysis.” CIHR Open Operating Grant (2012-13) **\$47,250.**
- **Kristian Filion**, for “Drospirenone-containing combined oral contraceptives and the risk of arterial thrombosis.” CIHR Open Operating Grant (2012-14) **\$154,500.**
- **Kristian Filion**, for “The cardiovascular safety of varenicline: a population-based cohort study.” CIHR Operating Grant **\$144,700.**
- **Susan Kahn** for “Randomized controlled trial of anticoagulation vs. placebo for a first symptomatic isolated distal deep-vein thrombosis (IDDVT): The CACTUS Trial (Compression stocking alone versus Anticoagulation for symptomatic Calf vein Thrombosis diagnosed by UltraSonography).” CIHR Operating Grant (2012-15) **\$460,500.**
- **Brent Richards** for “Pinpointing Causal Variants for Osteoporosis.” CIHR (2012-16) **\$816,600.**
- **Brent Richards**, for “RE3: Resequencing and Reassigning for Repositioning.” Genome Québec and McGill University awarded a three month grant to enable submission of a full grant proposal to Genome Canada 2012 Health Competition, **\$15,000.**
- **Ian Shrier** for “The effectiveness of different cervical spine stabilization procedures during pre-hospital management of accident victim.” CIHR (2012-14) **\$92,500.**
- **Vicky Tagalakis** for “The role of frailty in determining outcomes in older patients diagnosed with venous thromboembolism: a pilot study (The FRAVENO Study).” CIHR (2012-13) **\$85,000.**
- **Marie Hudson**, FRQS Chercheur-clinicien junior 2 (2012-2015) **\$105,000.**
- **Pierre Pluye**, for “Mieux comprendre les résultats de santé associés à l’utilisation des informations cliniques acquises avec les technologies de l’information et de la communication dans le contexte des soins de santé de première ligne.” FRQS chercheur-boursier Junior 2 award (salary support) (2012-14) **\$130,400.**

NEW MAJOR FUNDING AWARDED

- **Lawrence Rosenberg and Francois Béland**, for “Optimizing how critical services are delivered to patients in the most effective and efficient manner. The research fits with the hospital’s Transformational Change program and will help it learn best practices for providing multi-disciplinary health services.” FRQS (2012-16) **\$1,400,000** (additional funding from the Fondation Rossy **\$2,000,000** and Lady Davis Institute \$600,000, for a total investment of \$4,000,000).
- **Lawrence Rosenberg**, Private donation solicited through the JGH Foundation to support a Phase 2 Combined IN-GAP-Immunomodulator Clinical trial (\$350,000).
- **Samy Suissa**, named James McGill Professor at McGill University (2012-19), **\$105,000**.
- **Francois Béland**, for “Fragilité et dépendance en contexte de vieillissement.” L’Institut de recherche en santé publique de l’Université de Montréal IRSPUM (2012) **\$50,000**.
- **Christina Greenaway**, for “The burden of infectious diseases in new adult immigrants and refugees: Reviewing the evidence.” JGH Department of Medicine Clinical Research Salary Awards (2012-13) **\$12,000**.



Dr. Lawrence Rosenberg with Rick Dubrovsky (left), President of the JGH, and Dr. Hartley Stern (right), Executive Director of the JGH

**Clinical Research Pilot Project (CliPP) was launched to give principal investigators at the LDI operating funds to obtain preliminary data that will increase their ability to attract external peer-reviewed support for clinical research. Applicants selected for the \$25,000 awards following a competitive review were:**

- **Laurent Azoulay**: “Creating a mother-child registry using large electronic medical databases from the United Kingdom;”
- **Mark J. Eisenberg**: “Administration of fixed dose versus weight-based dose of heparin in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention.”
- **Marie Hudson**: “Epigenetic signatures of systemic autoimmune rheumatic diseases – a pilot study.”

HONOURS CONFERRED

- **Jonathan Afilalo** won the prestigious **Royal College Medal Award** for his research on gait speed as a predictor of outcomes for elderly patients facing cardiac surgery.
- **Brent Richards** won the 2012 **CIHR Maud Menten New Principal Investigator Prize (clinical)**.

NEW RESEARCHERS

- **Jonathan Afilalo** returned to the JGH after completing a two year fellowship at Harvard University. His research seeks an accurate assessment of frailty and to ascertain its impact on how patients are likely to tolerate cardiac procedures.



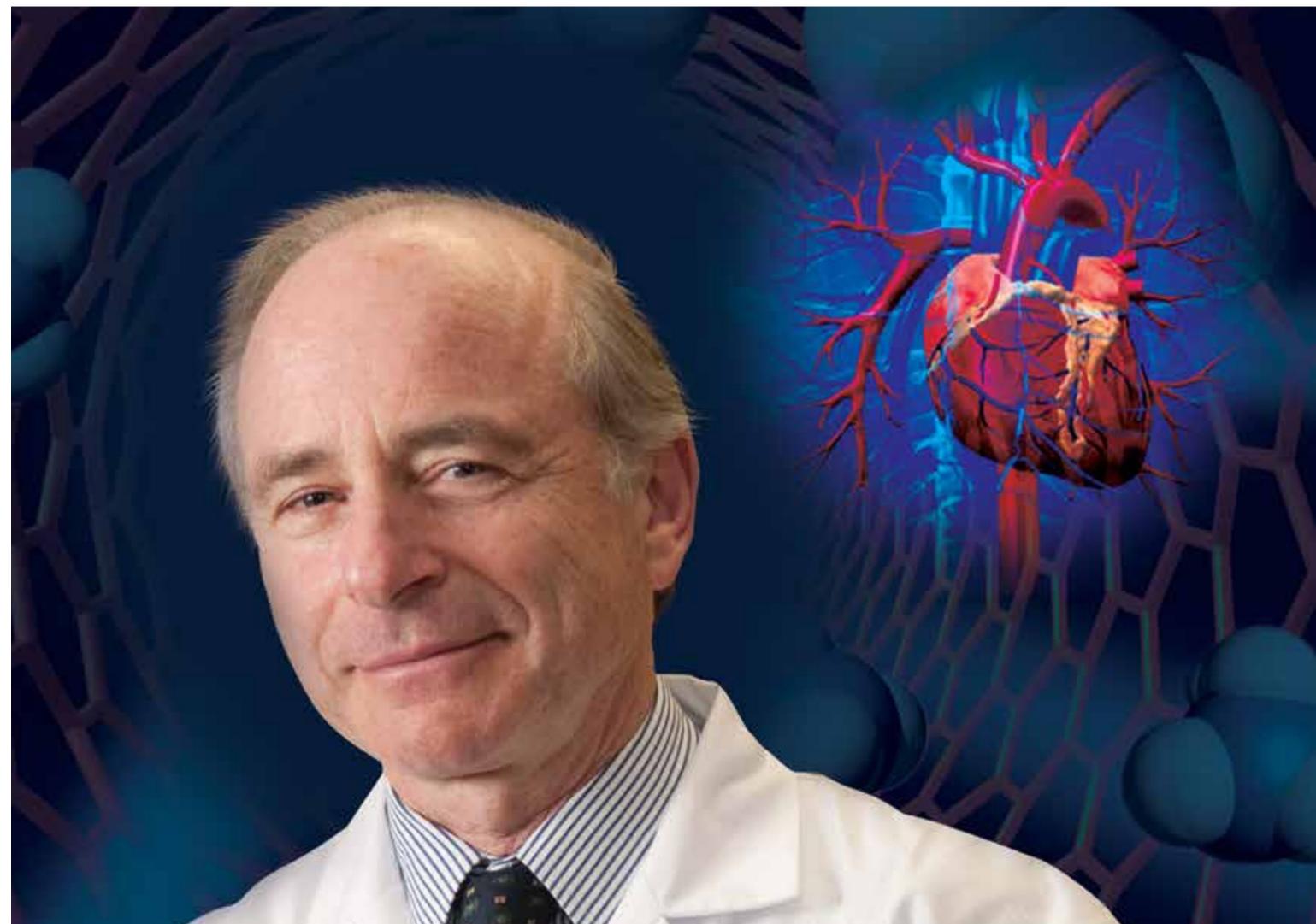
Dr. Jonathan Afilalo receives Royal College Medal from Dr. Ernesto Schiffrin

At the same time, he is working with colleagues in the JGH’s departments of cardiology and radiology to build an academic cardiac MRI program that will establish the JGH as a centre of excellence in cardiac imaging.

- **Christel Renoux** is a practicing neurologist and epidemiologist. After obtaining a PhD in Neurosciences from the University of Lyon 1 (France), she completed her postdoctoral fellowship in the Department of Epidemiology at McGill. An Assistant Professor in the Department of Neurology and Neurosurgery at McGill and investigator at the Centre for Clinical Epidemiology, she conducts neuroepidemiology and pharmacoepidemiology research, primarily in multiple sclerosis and stroke patients.

HEMOVASCULAR AXIS

DR. ERNESTO SCHIFFRIN, AXIS HEAD



SPOTLIGHT Dr. Ernesto Schiffrin

**Dr. Ernesto Schiffrin**, head of the Hemovascular Axis, Physician-in-Chief at the Jewish General Hospital, and Professor and Vice-Chair (Research) in McGill’s Department of Medicine, began a two-year term as President of the International Society of Hypertension. He also had his Tier 1 Canada Research Chair in Hypertension and Vascular Research renewed for the next seven years, at a total of \$1.4 million. As well, he received a CIHR grant of nearly \$600,000 over the next five years for “MicroRNAs and gene regulation on vascular remodeling in hypertension from mice to humans.”

Dr. Schiffrin’s research addresses the mechanisms and treatment of high blood pressure. He investigates the biology of blood vessels and the roles of endothelin, angiotensin, nuclear receptors, inflammation and T cells in hypertension and the cardio-metabolic syndrome, effects of antihypertensive treatment on blood vessels of hypertensive patients, and the molecular and cellular determinants of elevated blood pressure. He received the 2011 Excellence Award for Research in Hypertension from the American Heart Association. The lecture he delivered upon receiving this honour, “Vascular remodeling in hypertension: Mechanisms and treatment,” was published in *Hypertension* in 2012.

## SELECTED DISCOVERIES &amp; PUBLICATIONS

- **Mark Blostein** (*Blood*); examination of the protein GAS6 as a potential drug target for its unique capacity to inhibit venous thrombosis without inducing bleeding.
- **Lorraine Chalifour** (*Toxicology and Applied Pharmacology*); demonstrated that gestational exposure to diethylstilbestrol alters cardiac structure/function, protein expression and DNA methylation in adult male mice progeny.
- **Elizabeth Jones and Stephanie Lehoux** (*Developmental Dynamics*); "Imaging Macrophages during Embryonic Vascular Development," was included among the journal's "highlights," intended to draw attention to particularly important research.
- **Lajos Kovacs** (*JAMA*); a randomized trial of the effect of fresh red blood cell transfusions on clinical outcomes in premature, very low birth-weight infants.
- **David Langleben** (*Lung*); examination of clinical characteristics and long-term survival of elderly patients with pulmonary arterial hypertension.
- **Mark Lipman and Ernesto Schiffrin** (*Current Cardiology Reports*); reviewed the ideal blood pressure goal for patients with diabetes mellitus and nephropathy.
- **Prem Ponka** (*New England Journal of Medicine*); a review of the effects of iron overload in human disease.
- **Andrew Szilagyi** (*Gastroenterology*); found an unusual cause of upper gastrointestinal bleeding.
- **Alexander Thiel and Jeffrey Minuk** (*Journal of Cerebral Blood Flow Metabolism*); looked at changes in callosal motor fiber integrity after subcortical stroke of the pyramidal tract.

## HONOURS CONFERRED

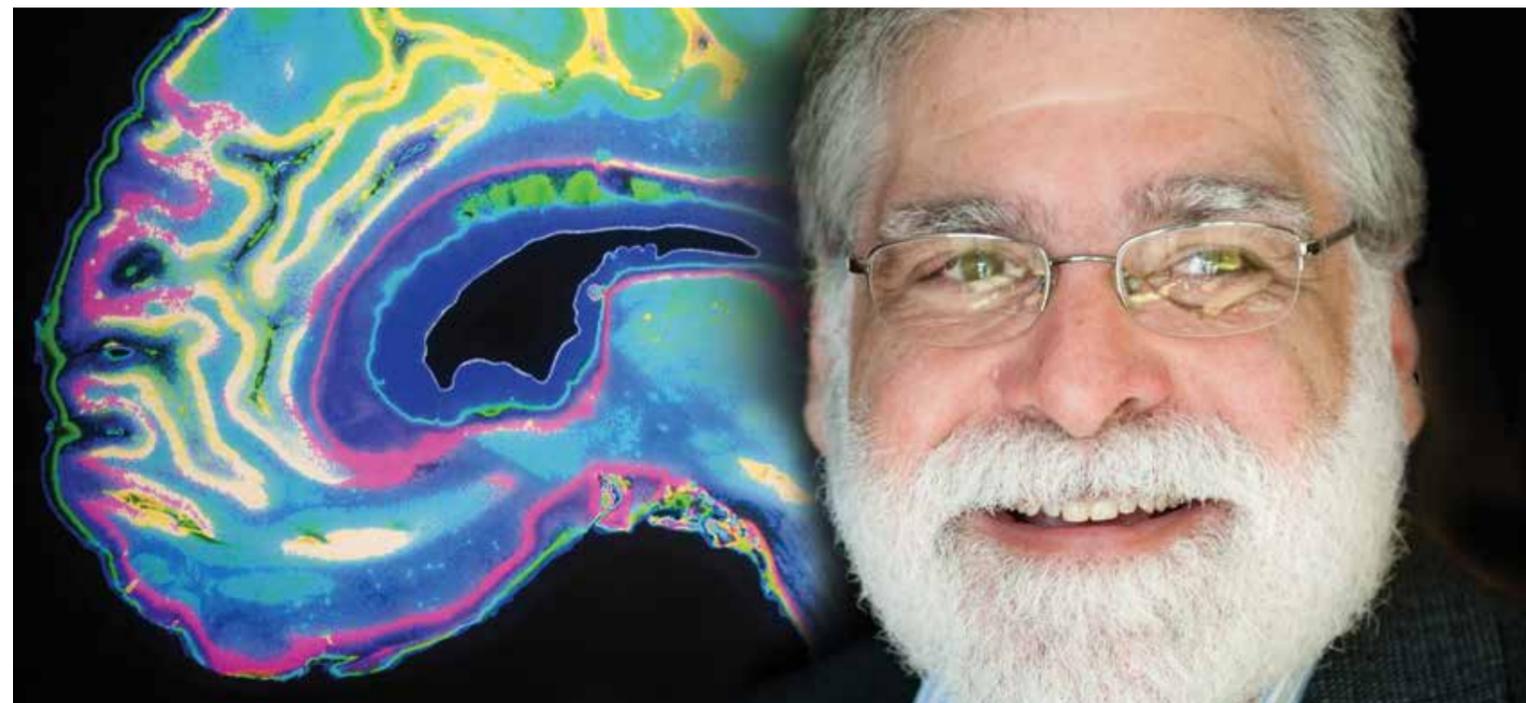
- **Caroline Paquette** received the **Stroke Research Excellence Award** from the Québec Heart and Stroke Foundation (HSF) for a project that will employ a novel imaging technique to quantify how a person's brain functions while walking and navigating turns.

## NEW RESEARCHERS

- **Elizabeth Jones** came to the LDI from the Canada Research Chair in Embryonic Biomechanics at McGill's Department of Chemical Engineering to apply engineering principles of fluid dynamics to health sciences. Her lab seeks to explain the role of physiological signals in the formation of new blood vessels, a process known as angiogenesis. This has important implications in cancer, for example, where tumour growth is fed when new vessels sprout to provide it with a nourishing flow of blood.

## PSYCHOSOCIAL AXIS

## DR. PHYLLIS ZELKOWITZ, AXIS HEAD



## SPOTLIGHT Dr. Laurence Kirmayer

**Dr. Laurence Kirmayer** won the JGH Award for Excellence in Psychosocial or Clinical Research in honour of his pioneering work in cultural psychiatry and incorporating various cultural and traditional factors in treating a patient's mental illness. He has worked with various immigrant, refugee, and indigenous populations to develop and apply cultural-specific mental health treatments.

"The fact that problems differ between various communities demonstrates that there is a social context to consider, a particular environment within which we need to seek solutions," he explains. At the Division of Social and

Transcultural Psychiatry, of which Dr. Kirmayer is the director, models of mental health service and interventions are developed to address the cultural specifics of each patient. Central to this effort is the Cultural Consultation Service, based at the Institute of Community and Family Psychiatry, where patients are treated.

Among his many endeavours, Dr. Kirmayer is a James McGill Professor at McGill University, directs the Culture and Mental Health Research Unit at the Jewish General Hospital, and is the editor-in-chief of *Transcultural Psychiatry*.



## SELECTED DISCOVERIES &amp; PUBLICATIONS

- **Robin Cohen and Melissa Henry** (*Supportive Care in Cancer*); comparative study between how newspapers portray cancer today and twenty years ago.
- **David Dunkley** (*Journal of Personality*); report on the role of self-critical perfectionism in daily self-esteem, attachment, and affect.
- **Catherine Fichten** (*Disability and Rehabilitation*); study of outcomes following graduation for recent junior/community college graduates with and without disabilities.
- **Danielle Groleau and Brett Thombs** (*Qualitative Health Research*); examined the experience of emotional distress among women with scleroderma.
- **Laurence Kirmayer, Eric Jarvis, Brett Thombs, Danielle Groleau** (*Psychiatric Services*); using a cultural formulation to resolve uncertainty in diagnosing psychosis among ethno-culturally diverse patients.
- **Annett Korner** (*Journal of Clinical Psychology in Medical Settings*); distress and coping strategies among patients with skin cancer.
- **Carmen G. Loiselle** (*Palliative and Supportive Care*); study of the salience of existential concerns across the cancer control continuum.
- **Karl Looper** (*Epilepsia*); an overview of recent research that may advance understanding and diagnosis of psychogenic nonepileptic seizures.
- **Apostolos Papageorgiou, Nancy Feeley, Phyllis Zekowitz, Ian Shrier, David Dunkley, Russell Steele, Zeev Rosberger** (*Journal of Early Intervention*); a follow-up report on the Cues and Care trial, an intervention designed to reduce maternal anxiety and promote sensitive interaction in mothers of very low birth-weight infants.
- **Joel Paris** (*Canadian Medical Association Journal*); papers on both the diagnosis and treatment of borderline personality disorder.
- **J. Christopher Perry and Michael Bond** (*American Journal of Psychiatry*); found a correlation between psychiatric problems and lower defensive functioning and how improved defensive functioning decreases a patient's vulnerability to mental illness.
- **Amir Raz** (*Brain and Cognition*); looked at facts and fads in cognitive and behavioural remediation.
- **Zeev Rosberger** (*Health Psychology*); studied the intentions and attitudes of college women with respect to human papilloma virus vaccination.
- **Cecile Rousseau** (*Canadian Medical Association Journal*); explored the mental health impact of detention and the limitations of temporary status on refugee claimants.
- **Brett Thombs** (*British Medical Journal*); revealed that systematic reviews of drug studies fail to report potential financial conflicts of interest which have a direct bearing on the evaluation of findings.

## NEW MAJOR FUNDING AWARDED

- **Melissa Henry** for "Randomized controlled trial of the Meaning-Making intervention (MMi) in patients newly diagnosed with advanced cancer: A pilot study." CIHR (2012-13) **\$100,000.**
- **Melissa Henry** for "Building a solid knowledge foundation: A research program to innovate psychosocial care and reduce health care costs for head and neck cancer patients" FRQS (2012-15) **\$203,400.**
- **Brett Thombs**, to lead an international team, the Scleroderma Patient-centred Intervention Network (SPIN), in the investigation of psychosocial and rehabilitative interventions for people suffering from scleroderma. CIHR Emerging Team Grant: Rare Diseases (2012-17) **\$1,500,000** (plus an additional \$205,000 in partner funding).
- **Brett Thombs**, for "Depression screening and mental health outcomes in children and adolescents: A systematic review." CIHR Knowledge Synthesis and Exchange Grant (2012-13) **\$100,000.**
- **Brett Thombs**, for "Searching for identity in the dark: The experiences of women living with a rare and unpredictable disease." Social Sciences and Humanities Research Council Insight Development Grant (2012-14) **\$75,000.**
- **Isabel Vedel** (Co-PI), for "Le diagnostic et la prise en charge des patients avec troubles cognitifs en première ligne: Déterminer les modèles d'intervention les plus efficaces et leurs conditions de succès." CIHR Knowledge Synthesis Grant (2012-13) **\$100,000.**
- **Isabel Vedel** (Co-PI), for "La prise en charge des personnes avec démence en première ligne : l'implantation et l'évaluation d'un programme régional." CIHR subvention de fonctionnement de Pfizer en prévention et prise en charge des maladies (2012-13) **\$197,500.**
- **Nancy Feeley**, for "Santé psychologique et habiletés parentales pendant la période périnatale." FRSQ Chercheur-boursier – Santé et Société – Junior 2 (Research Scholar Career Award) (2012-14) **\$176,000.**
- **Cecile Rousseau**, for "Les soins partagés en santé mentale jeunesse." FRQS (2012-16) **\$757,500.**
- **Phyllis Zekowitz, Jaswant Guzder, and Rosemary Short**, for a transitional care program designed to help children successfully return to the community and to their regular schools from the Child Psychiatry Day Hospital Services, **Bell Mental Health Award, \$230,000.**
- **David Dunkley**, for "Perfectionism dimensions, neuroticism, and depressive symptoms: A longitudinal study of stress generation and stress reactivity models in a community sample." Social Sciences and Humanities Research Council of Canada, **\$186,500.**



Dr. Brett Thombs

## NEW MAJOR FUNDING AWARDED

- **Robin Cohen**, for "Caring for the caregiver: implementation of an evidence-based novel service for family caregivers of cancer patients at the end of life." Max Bell Foundation (2012-2015) **\$180,000.**
- **Christopher Perry**, for "The prevalence of Eriksonian motives in a normative sample of women using the Wish and Fear List method, and the association of motives with other psychological measures of the women and their children (part 2)" **International Psychoanalytical Association** (2012-13) **\$5,000.**

## HONOURS CONFERRED

- **Robin Cohen** won the **Gerald Bronfman Centre Award for Excellence in Teaching and Mentorship.**
- **Myrna Lashley**, of the Culture and Mental Health Research Unit, has been awarded the **Queen's Diamond Jubilee Medal.**
- **Carmen G. Loiselle** was honoured with the **2012 Prix Florence** in recognition of excellence in nursing research by the Ordre des infirmières et infirmiers du Québec. Her research focuses on documenting the effects of various models of patient care on individuals' adjustment to cancer and reliance on health care services.
- **Joel Paris** was elected Distinguished Fellow of the **Canadian Psychiatric Association.**
- **Dr. Cécile Rousseau** received the **Paul Steinhauer Advocacy Award** from the Canadian Academy of Child Adolescent Psychiatry.
- **Brett Thombs** has received a **William Dawson Scholar Award** from McGill University.

## NEW RESEARCHERS

- **Suparna Choudhury** directed an interdisciplinary research program on critical neuroscience and the developing brain at the Max Planck Institute for History of Science in Berlin after completing her postdoctoral research in transcultural psychiatry at McGill. She explores interdisciplinary approaches to brain research, how it informs mental health policy trans-nationally, how the language of genomics and neuroscience is interpreted by patient communities and lay users, and how these sciences shape everyday practices beyond the realm of scientific research, from education to meditation.



## SPOTLIGHT Dr. Andréa LeBlanc

Dr. Andréa LeBlanc won the JGH Award for Excellence in Basic Research for her work in identifying Caspase-6 as a potential root cause for Alzheimer's disease. She has been honing in on this particular enzyme for almost two decades – to the point where she is now recognized as the foremost expert in this area. It was while examining human neurons that she made the breakthrough of observing high levels of Caspase-6 in individuals with cognitive impairment.

“It wasn't obvious at first, and we did a lot of other work that didn't pan out,” she recalls, “but eventually we determined that this was the most promising pathway to follow.”

In addition to her work at the Bloomfield Centre for Research in Aging, Dr. LeBlanc is a James McGill Professor in the Department of Neurology and Neurosurgery at McGill University and an FRQS Chercheur national. She serves on the College of Scientific Review of the National Institutes of Health in the US.

## SELECTED DISCOVERIES & PUBLICATIONS

- **Chantal Autexier** (*Journal of Cell Science*); regulation of human telomere length and homeostasis by telomerase enzyme processivity.
- **Howard Chertkow** (*Hippocampus*); a comparative study of interview methodologies for recording the autobiographical memories of those with mild cognitive impairment and Alzheimer's disease.
- **Mervyn Gornitsky, Ana Miriam Velly, Mark Trifiro, Hyman Schipper** (*Journal of Oral Pathology & Medicine*); looked at altered redox homeostasis in the saliva of those with diabetes.
- **Andrew Karaplis** (*Endocrinology*); finding that mineralizing enthesopathy is a common feature of renal phosphate-wasting disorders attributed to FGF23 and is exacerbated by standard therapy in Hyp mice.
- **Fackson Mwale and John Antoniou** (*Tissue Engineering*); the effect of acetaminophen and nonsteroidal anti-inflammatory drugs on gene expression of early embryonic stem cells.
- **Natalie Phillips** (*Brain Research*); examined the effects of bilingualism on conflict monitoring and resolution.
- **Hyman Schipper** (*Journal of Neuroscience*); discovery that the protein heme oxygenase-1 (HO-1) may be a promising pathway to unlocking some mysteries of schizophrenia.

## NEW MAJOR FUNDING AWARDED

- **Fackson Mwale & John Antoniou**, “The efficacy of Link N as a mediator of repair in intervertebral disc degeneration.” CIHR (2012-16) **\$564,800.**
- **Mervyn Gornitsky**, for “Saliva Databank.” FRQS Réseau de recherche en santé buccodentaire et osseuse (2012-13) **\$20,000.**

## HONOURS CONFERRED

- **Howard Chertkow** was elected to the **Board of Directors of the International Society to Advance Alzheimer's Research and Treatment**, and was selected by the Canadian Institutes for Health Research to sit as its representative on the **Alzheimer's Disease Neuro-imaging Initiative** of the **National Institutes of Health**. Dr. Chertkow's influential 2005 paper on the Montreal Cognitive Assessment (MoCA), a diagnostic tool that has been widely adopted for determining cognitive impairment, surpassed the 1,000 citation mark in 2012, a milestone in scholarly reference that signifies its importance to the field.
- **Fackson Mwale** began his term as President of the **Canadian Connective Tissue Society**.



Dr. Howard Chertkow (left) with his MOCA co-authors, Dr. Ziad Nasreddine and Dr. Natalie Phillips



### SPOTLIGHT Dr. Mark Wainberg

Dr. Wainberg has been lauded for his role in the discovery of 3TC, one of the most widely used drugs in the treatment of HIV and for his continuing contribution to understanding AIDS on the medical, epidemiological, and political levels. His lab is very active in studying HIV drug resistance and latency, and has published several articles on the subject during the past year in the *Journal of Virology*. He was also the recipient of a \$750,000 grant over five years from the CIHR for “Genetic signatures and functional phenotypes implicated in HIV-1 transmission and drug resistance.”

Dr Mark Wainberg, head of the HIV/AIDS research axis is awarded the 2012 Killam Prize in a ceremony at Rideau Hall in Ottawa. Pictured, left to right, are Myer Bick, President & CEO of the JGH Foundation; Dr. David Eidelman, Dean of Medicine, McGill University; Dr. Wainberg; the Right Honourable David Johnston, Governor General of Canada; Dr. Roderick McInnes, Director, Lady Davis Institute; Dr. Ernesto Schiffrin, Physician-in-Chief, Jewish General Hospital; and Dr. Joachim Madrenas, Chair of Microbiology, McGill University.

### SELECTED DISCOVERIES & PUBLICATIONS

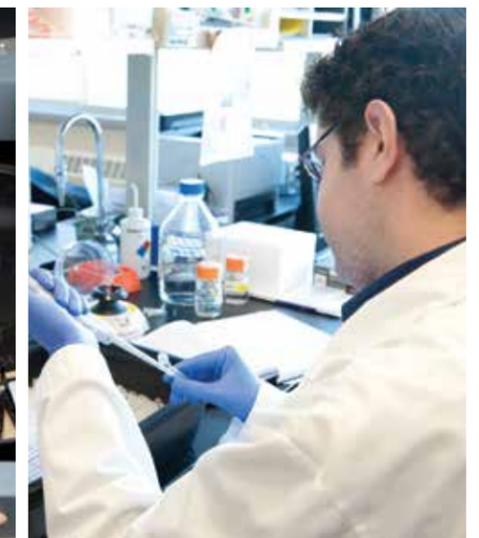
- **Lawrence Kleiman** (*Journal of Virology*); performed In vitro and in vivo analyses of the interaction between RNA helicase A and HIV-1 RNA.
- **Michael Laughrea** (*Biochemistry*); revealed the dominant role of the 5' TAR bulge in dimerization of HIV-1 genomic RNA, but no evidence of TAR-TAR kissing during in vivo virus assembly.
- **Chen Liang** (*Journal of Virology*); how the N-terminal region of the gene IFITM3 modulates its antiviral activity through regulating IFITM3 cellular localization.
- **Andrew Mouland** (*Biology of the Cell*); elucidated ESCRT-II's involvement in HIV-1 genomic RNA trafficking and assembly.
- **Gerasimos Zaharatos** (*Annals of Medicine*); an update on rilpivirine, a new potent non-nucleoside reverse transcriptase inhibitor (NNRTI) of HIV replication.

### NEW MAJOR FUNDING AWARDED

- **Andrew Mouland** for “Evading and subverting host cell machineries to ensure HIV-1 genomic RNA fate.” CIHR (2012-17) **\$160,000.**

### HONOURS CONFERRED

- **Dr. Mark Wainberg** was awarded several distinctions during the past year, including the Canada Council's **2012 Killam prize in Health Sciences**, one of Canada's most distinguished research awards. Dr. Wainberg was also named a **James McGill Professor** in the Faculty of Medicine at McGill University. The Faculty of Medicine at Laval University in Quebec City awarded him an **Honorary Doctorate in Science (Honoris causa)**. He was also the recipient of the **Queen's Diamond Jubilee Medal**, and the **Premio Venezia** from the Italian Chamber of Commerce in Canada, for his collaborations with the Superior Health Institute of Rome in clinical trials that have been instrumental in the development of new drugs to fight HIV-related disease. As well he was honoured with the Canadian Institutes of Health Research and Canadian Medical Association Journal **2012 Top Canadian Achievements in Health Research Award**.





- **Dr. Gerald Batist appointed Deputy Director**  
The appointment recognized Dr. Batist's tremendous success in building the Segal Cancer Centre, of which he is Director, into one of the major cancer research institutes in the country. As Deputy Director, Dr. Batist participates in all major decisions at the LDI.
- **Gustavo Wendichansky appointed Chief Operating Officer**  
While continuing to serve as Chief Financial Officer of the LDI, Gustavo Wendichansky accepted the added responsibility of interim Chief Operating Officer in the Fall of 2012 and was subsequently named to the position on a permanent basis.
- **Michel Fima promoted to Assistant Chief Financial Officer**  
Michel Fima, who has been with the JGH since 2008, and the LDI since 2010, was promoted from Financial Management Officer to Assistant Chief Financial Officer.
- **Dr. Stephanie Lehoux appointed Associate Director for Core Facilities**  
An internationally recognized expert in vascular physiology, Dr. Lehoux became responsible for developing the Institute's core facilities, which provide high quality technological support and services to the research community.
- **Dr. Chen Liang appointed Associate Director for Faculty**  
Dr. Chen Liang, an investigator in the HIV/AIDS research axis and Associate Professor of Medicine at McGill, has been appointed Associate Director for Faculty, a role that he had filled on an acting basis during the 2011-12 academic year.
- **Alain Petit**, who has been Health and Safety Officer for nearly two years and was recently designated Biosafety Officer, was honoured as the LDI Employee of the Year.

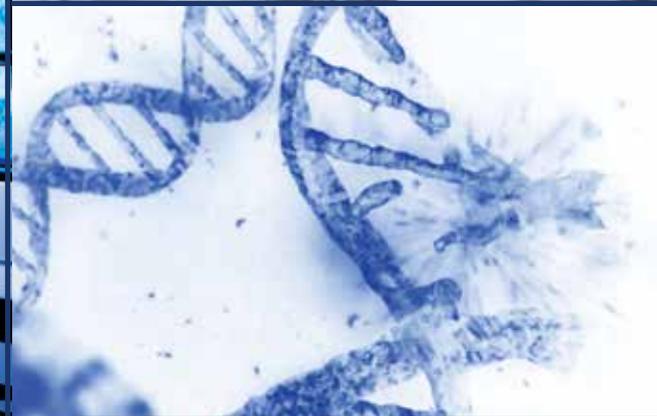
## THANK YOU

The LDI wishes to acknowledge the vital role played by private support in empowering scientific research that will lead to new breakthroughs in the prevention and treatment of disease and provide the JGH's dedicated staff with the tools and knowledge to deliver the most advanced care to patients. Every year, the JGH Foundation contributes over \$3 million in support of research at the LDI – thanks to the support of individuals, foundations and corporations who recognize that an investment in research is an investment in the future of health care, promising new treatments, enhanced access and services, and optimal management of chronic diseases for all Montrealers and Quebecers. These vital funds supplement the funding that public granting agencies provide and enable the LDI to: ensure the continued excellence and growth of existing research programs; recruit first-rank researchers and support their research in priority areas; pursue key areas of research that would not otherwise be funded; and provide critical support to foster new ideas and speed the development and access to novel treatments and therapeutics.

“Private support is increasingly the driving force behind our success in moving forward in all fields of research, with the goal of finding answers to today's most pressing medical questions.”

Roderick McInnes, Director of the LDI





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