

Lady Davis Institute

Research Newsletter



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Dr. Mark Wainberg awarded 2012 Killam Prize in Health Sciences

Dr. Mark A. Wainberg, head of AIDS research and Director of the McGill AIDS Centre, has been awarded the 2012 Killam Prize in Health Sciences by the Canada Council for the Arts. The Killam Prize is among Canada's most distinguished research awards and is conferred to scholars of exceptional ability whose outstanding achievements are clearly demonstrated, and who are expected to make further contributions to the scholarly and scientific heritage of Canada.

"Mark's research has made a valuable contribution to treating, and preventing the spread of, HIV/AIDS throughout Canada and around the world. We are just extremely proud that our

Institute has served as home to his accomplishments," said LDI Director Dr. Roderick McInnes.

Dr. Wainberg is well known for the initial identification of 3TC as an effective anti-viral drug, along with multiple contributions to the field of HIV drug resistance. His current research focuses on novel concepts in preventing HIV infection in developing countries.

Among his many distinctions, Dr. Wainberg was recently named a fellow of the American Academy for the Advancement of Science. He is an Officer of the Order of Canada and of the *Ordre national du Québec*, and a *Chevalier* in the *Légion d'Honneur* of France.

The Killam Prize is awarded annually in recognition of a distinguished career and with the expectation that the laureates will continue to contribute to the Canadian research community.

Dr. Gerald Batist appointed Deputy Director

Dr. Roderick McInnes, Director of the LDI, is pleased to announce that Dr. Gerald Batist, Director of the Segal Cancer Centre, has been appointed the Deputy Director of the LDI, effective March 1, 2012. The appointment recognizes both the major role of the Segal Cancer Centre in the LDI, as well as the remarkable success that Dr. Batist has had in building the Centre into one of the major cancer research institutes in the country. As Deputy Director, Dr. Batist will participate in making all major decisions at the LDI.

Dr. Batist is the Minda de Gunzburg Professor of Oncology at McGill University and Director of the McGill Centre for Translational Research in Cancer. For a decade, up until 2011, he served as Chair of McGill's Department of Oncology. He is also, along with Dr. Luc Bélanger, co-founder of the Quebec — Clinical Research Organization in Cancer (Q-CROC). He leads a highly successful laboratory and clinical research program at the Segal Cancer Centre. His work focuses on novel therapeutics and he has made significant contributions to the development of new treatments.

Dr. McInnes said, "Gerry is an exceptional leader and it has been a real pleasure to work with him over the past two years. Given that the cancer research program of the Segal is the largest single component of the LDI, it seemed only natural that Gerry should have a more formal role in our leadership structure. I very much look forward to Gerry's contributions to guiding the LDI into the future."

As Deputy Director, Dr. Batist will participate in making all major decisions at the LDI.

*Welcome to this inaugural edition of the LDI Research Newsletter.
A new issue will be posted every two months at www.ladydavis.ca*

Major CIHR grant to study support for those suffering from rare diseases

Dr. Brett Thombs has been awarded a five-year grant worth nearly \$1.5 million from the Canadian Institutes for Health Research (CIHR) to lead an international team to investigate psychosocial and rehabilitative interventions for people with scleroderma, a rare chronic autoimmune disease that causes significant limitations to physical mobility and hand function, pain, fatigue, depressive symptoms, and body image distress brought on by disfigurement. The condition is incurable and, when it affects internal organs, fatal.

Dr. Thombs' research team amalgamates patients, clinicians, and researchers in the Scleroderma Patient-centered Intervention Network (SPIN). It will create a large, longitudinal, international cohort to conduct psychosocial and rehabilitation trials on an ongoing basis, initially developing and pilot-testing four psychosocial or rehabilitation interventions, followed by full-scale randomized clinical trials for all four interventions. The proposed interventions will address high priority areas identified by patients, including telephone peer support for depression, internet-based physical and occupational therapy to reduce hand disability, internet-based general self-management and internet-based management of body image distress.

"We intend to develop and test interventions that can feasibly be made available to the relatively small and dispersed numbers of people suffering from rare diseases," explained Dr. Thombs. "We will also address the ethical and pragmatic dilemmas faced by people with rare diseases, such as scleroderma, and, ultimately, hope to find a way to improve quality of life."

Prior to receiving funding from the CIHR, seed funding to launch SPIN was provided by the Scleroderma Society of Canada (SSC), the Scleroderma Society of Ontario (SSO), and Sclérodémie Québec.

One in twelve Canadians suffer from one of more than 6,000 rare diseases. Because they affect such small populations (less than one in 2,000 people), these conditions are under-researched. Consequently, they are often poorly understood, difficult to diagnose, and likely to defy treatment. Psychosocial and rehabilitative needs of patients are rarely addressed.

Dr. Prem Ponka reviews iron overload in NEJM

Dr. Prem Ponka, Senior Investigator, co-authored an important review article, "Iron Overload in Human Diseases", in the *New England Journal of Medicine*. Dr. Ponka has spent his career exploring the mysterious complexities of iron metabolism. While it is an essential element, an over-accumulation of iron can be toxic, sometimes causing irreversible end-organ injury before clinical symptoms ever become evident.

Though a genetic predisposition to iron overload is not uncommon, the actual manifestation of the phenotype is rather rare. Patients with genetically-based iron overload are treated by regularly drawing blood, a process called phlebotomy.

Iron overload also develops in patients with severe chronic anemias that require regular erythrocyte transfusion therapy. These conditions are fairly common and there is an unmet need for novel therapeutics. This paper reviews the current understanding of iron metabolism and discusses specific iron overload diseases.

This is the second review article published by an LDI researcher in the NEJM in recent months. Dr. Mark Wainberg published "Development of Antiretroviral Drug Resistance" in August 2011.

N Engl J Med 2012; 366: 348-59.
doi/full/10.1056/NEJMra1004967

Dr. Carmen Loiselle honoured with Prix Florence

Carmen G. Loiselle, Ph.D., was honoured with the 2012 Prix Florence in recognition of excellence in nursing research by the *Ordre des infirmières et infirmiers du Québec* (OIIQ).

Dr. Loiselle's research focuses on documenting the effects of various models of patient care on individuals' adjustment to cancer and reliance on health care services. In a recently funded multisite study, she continues to examine how patients can be most empowered through access to high quality cancer information and support, and the impact this can have on the cost-effectiveness of service delivery.

Dr. Ponka has been at McGill since 1979, and joined the LDI as a staff investigator five years later. In 2007 he received the Jewish General Hospital Award for Excellence in Medical Research.

Dr. Stéphane Richard creates a skinny mouse

By eliminating the protein Sam68, Dr. Stéphane Richard has generated a mouse that is genetically lean, has increased energy, greater tolerance for a high fat diet and long-term protection against the onset of obesity. The findings are reported in *Molecular Cell*.

Dr. Richard became interested Sam68 because it is found in every cell, but its functions were unknown. He was trying to determine whether he could affect the animal's susceptibility to cancer and has, in fact, determined that they are protected against certain forms of breast cancer.

Dr. Richard has determined that Sam68 serves to regulate the production of mTOR, which is essential to how the body processes nutrients and the production of adipose tissue, or fat. It determines whether the body stores nutrients, which affects how one gains weight. Without Sam68, significantly less mTOR is produced, resulting in less fat being created and stored. Nonetheless, the mice without Sam68 still have enough fat necessary to support a healthy metabolism. These mice also sustain a normal lifespan. Thus far, the only detrimental side effects are infertility in males and reduced fertility in females, as well as very slight ataxia, or unsteadiness in their gait.

“It was very striking to observe how the mouse model from which we had eliminated the Sam68 protein was visibly leaner and produced less fatty tissue than other mice,” said Dr. Stéphane Richard.

“Sam68 could now emerge as a new avenue to the mTOR pathway,” Dr. Richard said. “Our research has highlighted a new link to mTOR, which could be exploited by subsequent research. At this point, almost nothing is known about this particular area of adipogenesis, so we think we have opened up a very interesting line of inquiry with respect to obesity and links to type II diabetes.”

“The Sam68 STAR RNA-Binding Protein Regulates mTOR Alternative Splicing during Adipogenesis,” Marc-Étienne Huot, Gillian Vogel, Amber Zabaras, Chau Tuan-Anh Ngo, Jasmin Coulombe-Huntington, Jacek Majewski, Stéphane Richard, *Molecular Cell*, 10.1016/j.molcel.2012.02.007, 15 March 2012.

Well-established diabetes drug may be effective against cancer

In a paper published in *Cancer Prevention Research*, Dr. Michael Pollak and his co-authors revealed their finding that metformin, a drug commonly prescribed to treat Type II diabetes, reduces the rate of cellular mutation and the accumulation of DNA damage, both of which are factors in the development of cancer.

Reducing levels of reactive oxygen species, a known DNA damaging agent produced when cells generate energy from nutrients, appears to be the mechanism through which metformin affects cancer. The action occurs in the mitochondria, which is where metformin targets its function against diabetes. It seems to prevent reactive oxygen species production in those mitochondria that have suffered oncogenic mutation.

“The possibility of protecting DNA from oxidative damage by the use of a well-tolerated drug was not expected”, said Dr. Pollak, “and this topic now needs further study at many levels.”

“Metformin reduces endogenous reactive oxygen species and associated DNA damage”, Carolyn Algire, Olga Moiseeva, Xavier Deschenes-Simard, Lilian Amrein, Luca A Petrucelli, Elena Birman, Benoit Viollet, Gerardo Ferbeyre, and Michael N Pollak, *Cancer Prevention Research*, doi: 10.1158/1940-6207.CAPR-11-0536.

Revised thrombosis guidelines

Dr. Susan Kahn, Director of the Thrombosis Program, contributed to the new clinical practice guidelines for preventing, diagnosing and treating blood clots, published by the American College of Chest Physicians, which contain more than 600 recommendations.

Attracting the most public attention was the finding that long-distance flying in cramped economy class seats poses only a small risk of blood clots in healthy travelers. Greater emphasis is being placed on having doctors assess a patient's risk factors before administering or prescribing a preventive therapy. People were also advised against taking aspirin or anticoagulant medications unless advised to do so by a physician. It was found that many patients were receiving unnecessary interventions offering little benefit and risking possible side effects.

The 9th edition of the ACCP guidelines are online at http://chestjournal.chestpubs.org/content/141/2_suppl.

Teen suicide commentary draws national attention

Dr. Laurence Kirmayer of the Institute for Community and Family Psychiatry drew national print and broadcast media attention for a commentary he published in the *Canadian Medical Association Journal*. Statistics reveal that suicide rates among girls between the ages of 10 and 19 are increasing, while the rate for males in the same age group remained stable or declined. Death by suffocation is more prevalent than from firearms or poisoning.

“Economic inequities may expose young people to a wide range of stressors and negative life events in their families and communities, as well as diminish their own hopes and expectations for a positive future,” he posited. He pointed out that suicide rates vary widely across regions and that, for example, in aboriginal communities, where adversity runs deep, suicide rates are disproportionately high.

“Changing patterns in suicide among young people,” by Dr. Laurence Kirmayer, *Canadian Medical Association Journal*, April 2, 2012, doi:10.1503/cmaj.120509.

New Associate Director of Core Facilities

Dr. Stephanie Lehoux, an internationally recognized expert in vascular physiology, has been appointed Associate Director for Core Facilities.

Dr. Lehoux will have the opportunity to build on the excellent contributions that Dr. Andréa Leblanc has made in developing the LDI cores over the past two years. LDI Director Dr. Roderick McInnes expressed his appreciation to Dr. Leblanc for all the great work she has done on behalf of all at the Institute, and wished her continued success in her expanding research program.

Prepared by the Research Communications Office of the Lady Davis Institute. Any suggestions from LDI staff or students with respect to content are welcome.

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Dr. John Hoffer honoured by Canadian Nutrition Society

Dr. L. John Hoffer is the recipient of the 2012 Khush Jeejeebhoy Award. This award is conferred by the Canadian Nutrition Society (CNS) to Canadians who have made an extraordinary contribution to nutrition research that extends the role and impact of clinical nutrition practice.

Dr. Hoffer has devoted his career to studying the impact of malnutrition on disease. An internationally known investigator, he is also a member of the JGH nutritional support team, which consults and organizes the provision of parenteral nutrition therapy for patients who are unable to properly ingest nutrients. He has been a leader in understanding the application of evidence-based nutrition in the clinic. His current research interests include protein and micronutrient deficiencies in hospital settings and the risks and benefits of high dose vitamin C therapy in treating cancer.

Researchers share knowledge

- Dr. Hyman Schipper, Director of the Alzheimer’s Risk Assessment Clinic spoke to several hundred people at an Alzheimer’s Groupe public meeting on the subject of whether the dreaded disease can be prevented. The audio clip of his appearance on CJAD radio is available at www.jgh.ca.
- The Psychiatry Department hosted its 7th annual Research Day on understanding the links between the mental health of mothers and their children. Drs. Ashley Wazana and Joel Paris were among the presenters discussing how their research can lead to better clinical care.
- Dr. Wilson Miller, Director of Clinical Research, was featured in a CTV-Montreal report on the risk that tanning beds hold for skin cancers.
- Dr. Gerald Batist, Director of the Segal Cancer Center, commented on the health hazards of asbestos, particularly for lung cancer, on a CBC-TV national report.
- Drs. Susan Kahn, Vicky Tagalakis and Mark Blostein were among the experts in thrombosis who presented a CIHR Café scientifique on what cancer patients need to know about blood clots.