



Lady Davis Institute Research Newsletter



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New funding to boost mental health research

The Irving Ludmer Family Foundation made a gift of \$2.9 million to further strengthen the **Ludmer Centre for Neuroinformatics and Mental Health**, which was established at the Douglas Mental Health University Institute and the LDI in 2013. This new funding expands the partnership to include the Montreal Neurological Institute and Hospital and adds brain imaging and neuroinformatics capacity, driving discoveries that will help scientists understand how different genetic and environmental factors influence brain development in children. Among the Centre's co-leaders is **Dr. Celia Greenwood**, a biostatistician and epidemiologist at the LDI, whose expertise is in analyzing large quantities of genetic and genomic data to identify risk factors.

Hope is on the horizon to understand why some children are vulnerable to conditions like autism, attention deficit disorder and social anxiety, and what can be done to prevent these disorders before they take hold. These discoveries will open new pathways for diagnosis, prevention and treatment, and have a far-reaching impact on millions of children debilitated by mental illness, and the families and communities who help care for them.

The Foundation's newest gift will be supplemented by contributions from McGill's Faculty of Medicine, The Neuro, public and private granting agencies, bringing total funding for this phase of the Ludmer Centre to more than \$10 million. In addition to the Centre's primary focus on childhood and adolescent risk factors, this investment will boost research into other conditions including Alzheimer's, schizophrenia and depression. The collaboration represents an unprecedented investigation into mental health across the lifespan.

Irving Ludmer has donated an additional \$2.9 million to support the Ludmer Centre For Neuroinformatics and Mental Health

New Scientific Statement from AHA for Postthrombotic Syndrome

Dr. Susan Kahn, Director of the Centre of Excellence in Thrombosis and Anticoagulation Care (CETAC) at the JGH, led the international panel that composed the first evidence-based practice guidelines issued by the American Heart Association (AHA) for the prevention, diagnosis, and treatment for postthrombotic syndrome (PTS). [The statement is published in *Circulation*.](#)

PTS is the most frequent complication of deep vein thrombosis (DVT), affecting between 20% and 40% of patients with a DVT. It can be a debilitating condition, causing severe pain in the legs, resulting in difficulty walking, standing, and ability to function at work and in the home.

The guidelines represent a comprehensive search and synthesis of the best available data, and include recommendations on prevention, diagnosis, and how to treat patients who develop PTS.

"This is an exhaustive scientific statement which presents the most salient points in a practical manner for physicians and nurses who may encounter this condition in clinic," Dr. Kahn said. "They are meant to give front-line clinicians extra expertise in treating PTS when confronted with it."



Long-term benefits of popular diets less than evident

Popular commercial diets can help you lose some weight in the short term, but whether the weight stays off after the first year and the diet's impact on heart health are unclear, according to a study led by **Dr. Mark Eisenberg** and published in [Circulation: Cardiovascular Quality and Outcomes](#).

Nearly 70 percent of American adults are overweight or obese – and therefore at higher risk for health problems such as heart disease, stroke, high blood pressure and diabetes. Whether a diet will be effective is, therefore, an important public health question.

“Despite their popularity and important contributions to the multi-million dollar weight loss industry, we still do not know if these diets are effective to help people lose weight and decrease their risk factors for heart disease,” said Dr. Eisenberg. “With such a small number of trials looking at each diet and their somewhat conflicting results, there is only modest evidence that using these diets is beneficial in the long-term.”

To better understand the potential benefits from any one or all of these diets, researchers need to conduct large clinical trials directly comparing all four popular diets for long-term weight loss and changes in other heart disease risk factors, Dr. Eisenberg said.

“A broader lifestyle intervention, which also involves doctors and other health professionals, may be more effective,” he added. “This also tells doctors that popular diets on their own may not be the solution to help their patients lose weight.”

SAVE THE DATE

FRIDAY JUNE 5, 2015

6th Annual Scientific Retreat

Keynote Speaker: Dr. Peter St. George-Hyslop

Director, Centre for Research in Neurodegenerative Diseases, University of Toronto,
Toronto Western Research Institute

Professor, Experimental Neuroscience, University
of Cambridge

Location: La Plaza, 420 Sherbrooke St. West

Normal levels of Vitamin D sufficient for health

Vitamin D deficiency is of significant concern because it has been associated with the risk of type 2 diabetes, stroke, coronary artery disease, and bone disorders, including osteoporosis. However, as **Dr. Brent Richards** points out, an *association* does not prove *cause*. With many patients taking Vitamin D supplements in the hope of fending off disease, he set about trying to determine whether a causal relationship exists.

In order to isolate low vitamin D from other risk factors for these same conditions, he conducted a Mendelian randomization study of people with genetically lowered vitamin D to determine whether this population had higher incidents of disease. [The results, published in PLOS Medicine, suggested that they did not.](#) Consequently, if a low level of vitamin D is not a cause of disease, taking supplements to boost it seems unnecessary.

“Our findings suggest that taking a vitamin D supplement will not prevent type 2 diabetes, stroke or coronary artery disease in individuals who already have normal vitamin D levels,” Dr. Richards concludes.



Many have been compelled by news reports playing up the association of low vitamin D with disease to take supplements. “Low vitamin D correlates with poor health in general. A lot of vitamin D is produced naturally from sunlight and sick people have less opportunity to be outside. So, for example, in seniors’ residences you will see this correlation between low vitamin D and disease, since seniors tend to spend less time outside.”

While the prevailing logic seems to be that if a normal level of a vitamin is good for you, then an elevated level will be better. This is not necessarily the case. In fact, having too much of a substance can have negative impacts.

“We don’t know whether there might be some negative outcomes from elevating vitamin D,” he says. “Once you have a certain amount, you probably won’t benefit from having more.”

High incidence of bowel disease seen in people with lung conditions

People with airway diseases, including asthma and chronic obstructive pulmonary disease (COPD), have a higher incidence of inflammatory bowel disease, such as Crohn's disease and ulcerative colitis, according to a study by **Dr. Paul Brassard**, [published in the *European Respiratory Journal*](#).

The results showed that the incidence of Crohn's Disease was 27% higher in people with asthma and 55% higher in people with COPD, compared to the general population. The incidence of ulcerative colitis was 30% higher in people with COPD compared to the general population.

Dr. Brassard conducted the first population-based study to examine the association between airway diseases and the incidence of bowel disease.

"These findings have important implications for the early detection of inflammatory bowel disease in airway disease patients," said Dr. Brassard. "Although a link has previously been suggested, this is the first study to find significantly increased rates of inflammatory bowel disease incidence in people with asthma and COPD. If we can confirm a link between the two conditions it will help diagnose and treat people sooner, reducing their symptoms and improving their quality of life."

Previous studies have suggested a link between the two conditions, which could be a result of common genetic and environmental factors, or similar inflammatory responses seen in the immune system. If the link is proven, it would have key implications for clinicians treating people with airway diseases.

By using information on the prescriptions of both asthma and COPD medications from 2001 to 2006, the researchers identified 136,178 people with asthma and 143,904 people with COPD. Data from doctor and hospital visits was then used to identify the bowel conditions, Crohn's Disease and ulcerative colitis, in both groups.

First pan-Canadian proteomics program links LDI and UVic

With the arrival of **Dr. Christoph Borchers**, the LDI assumes a central role in the development of clinical proteomics applications as part of the first pan-Canadian proteomics program. Dr. Borchers will divide his time between the Segal Cancer Centre, and serving as the McGill-Segal Chair in Molecular Oncology, and the [University of Victoria \(UVic\) – Genome BC Proteomics Centre](#), where he serves as Director.

"Rather than duplicating the equipment we have in Victoria, the ideal solution is to use those facilities to analyze tumor samples from patients at the JGH, making the most efficient use of both institutions' strengths," Dr. Borchers explains.

This partnership takes novel technologies for protein identification and quantitative proteomics developed at UVic and applies them to clinically testable hypotheses for biomarker discovery and validation at the Segal Cancer Centre's Molecular Pathology Centre and, ultimately, to therapeutic evaluation at the Clinical Research Unit. Proteomics holds the promise of providing deeper insights into biological processes underlying cancer by identifying the proteins expressed in a patient's tumor.

"We are developing assays in Victoria, which we will validate with clinical samples at the LDI," he said. "We can determine, very quickly and accurately, whether drugs are affecting the proteins that are active in a tumor. With a simple blood test, we correlate a genomic profile with a proteomic profile, giving us a very accurate diagnostic tool to help define a therapeutic strategy, and to modify it over time as a tumor evolves. This allows us to devise treatments that are most likely to be effective for each individual patient."

The technology to bring proteomics into the clinic has only recently emerged, so it is a major achievement for the LDI to be at the forefront of this field. What is being pioneered here will be a model for other hospitals to emulate in cancer and other diseases.



Tramadol linked to increased risk of hospitalization for hypoglycemia

The opioid pain-reliever tramadol is associated with an increased risk of hospitalization for hypoglycemia, a potentially fatal condition caused by low blood sugar, according to a study led by **Dr. Samy Suissa** and published in [JAMA Internal Medicine](#).

Tramadol hydrochloride is a weak opioid whose use has increased steadily worldwide. However, concerns have been raised about the drug and an increased risk for hypoglycemia.

Because of increasing use of the doctor-prescribed pain reliever, Dr. Suissa and his team examined whether tramadol, compared with codeine, was associated with an increased risk of hypoglycemia severe enough to send patients to the hospital.

The authors analyzed a database of all patients newly treated with tramadol or codeine for non-cancer pain between 1998 and 2012 using information from the United Kingdom. The study included 334,034 patients (28,100 new users of tramadol and 305,924 new users of codeine), of whom 1,105 were hospitalized for hypoglycemia during an average follow-up of five years (112 of the cases were fatal).

Study results indicate that compared with codeine, tramadol was associated with an over two-fold increased risk of hospitalization for hypoglycemia, especially in the first 30 days the pain reliever was used.

“Although rare, tramadol-induced hypoglycemia is a potentially fatal adverse event. The clinical significance of these novel findings requires additional investigation,” the study concludes.

Prepared by the Research Communications Office, Lady Davis Institute at the Jewish General Hospital. Any suggestions with respect to content are welcome. Not to be reproduced without attribution.

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The Montreal Cognitive Assessment (MoCA) was featured in the most recent edition of the [CIHR's Show Me the Evidence](#). Devised by **Dr. Howard Chertkow** and his associates in 2005 for the purpose of diagnosing the earliest signs of cognitive impairment, the MoCA has been adopted internationally as a clinical tool. It is available for free online in 43 languages and is used by clinicians in 100 countries.



- **Dominique Guillet**, a graduate student in medical physics working with Drs. Alasdair Syme and François DeBlois, placed second in the Young Investigator Symposium at the 2014 annual meeting of the Canadian Organization of Medical Physicists. Her work was an investigation on the use of Microsoft Kinect software to produce 3D patient scans as a device to enhance the accuracy of radiotherapy.

On the occasion of its 50th anniversary, the Fonds de recherche du Québec – Santé (FRQS) produced videos to illustrate the national and international stature of the research it supports in Quebec.

[Click here](#) to see one on **Dr. Mark Wainberg**, director of the HIV/AIDS axis at the LDI and Director of the McGill AIDS Centre.



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