Research Canada UPDATE

News For Parliamentarians on Canadian Health Research

RESEARCH CANADA | RECHERCHE CANADA

2018 Winter Edition

IN THIS ISSUE

Early Career Investigator

Dr. Tuan Trang,
University of Calgary

Dr. Tuan Trang is a leader in the field of pain and opioid research. Opioids are amongst the most effective pain treatments, but they have many side-effects that limit their usefulness, and underlie opioid addiction. Research in Dr. Trang's laboratory has led to a better understanding of the mechanisms that underlie the development of these side effects, which include debilitating withdrawal symptoms, and a paradoxical increase in pain sensitivity in certain patients. Moreover, this research has led to the identification of drugs that specifically inhibit these side effects without affecting the pain relieving properties of opioids. Dr. Trang's laboratory is

Next Event

Health Research Caucus

Reshaping Health Research and Innovation: Artificial Intelligence and Machine Learning

May 1, 2018
Speaker's Lounge, 216-N
3:30pm - 6:30pm

initiating a clinical trial that translates these bench discoveries to help patients reduce or stop their opioid use, and this innovative research shows promise to address the joint epidemics of chronic pain and opioid addiction that afflict Canada.

Researcher Profile

Dr. Kim Corace,
The Royal's Institute of Mental Health Research

Dr. Kim Corace, CPsych.,is the Director of Clinical Programming and Research in the Substance Use and Concurrent Disorders Program at The Royal Ottawa Mental Health Centre, an Associate Professor in the Department of Psychiatry at University of Ottawa, and a Clinical Investigator with the Institute of Mental Health Research. Working at regional, provincial, and national levels, her work focuses on improving treatment access and outcomes for vulnerable populations struggling with problematic opioid use, other substance use, and mental health co-morbidities.

Dr. Corace co-created and evaluated an innovative regional model of multidisciplinary care targeted to youth (aged 16-25) with concurrent opioid use and mental health disorders. Dr. Corace's work demonstrates that despite fewer years of opioid use, youth struggle with greater drug use severity, more harmful and hazardous drug and alcohol use, and greater mental health problems than adults. Results highlight the need for tailored treatment for youth with opioid use disorders, integrating concurrent mental health treatment and harm reduction, to improve outcomes.

Recent Events

Health Research Caucus

Opioid Crisis: How Can Research Inform Solutions?

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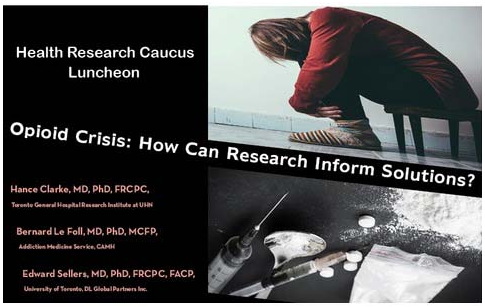
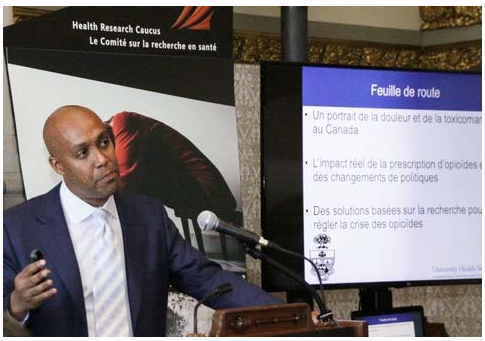
Innovative Medicines Canada
Canadian Mental Health Association
Canadian Association for Neuroscience
McMaster University
McMaster University, Health Sciences
Thunder Bay Regional Health Sciences Centre and Research Institute
University Health Network
Centre for Addiction and Mental Health
Canadian Nurses Association
Santis Health
Vancouver Coastal Health Research Institute





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New Pharmacologic Research for an Old Problem

Edward M. Sellers, MD, PhD, FRCPC, FACP
University of Toronto

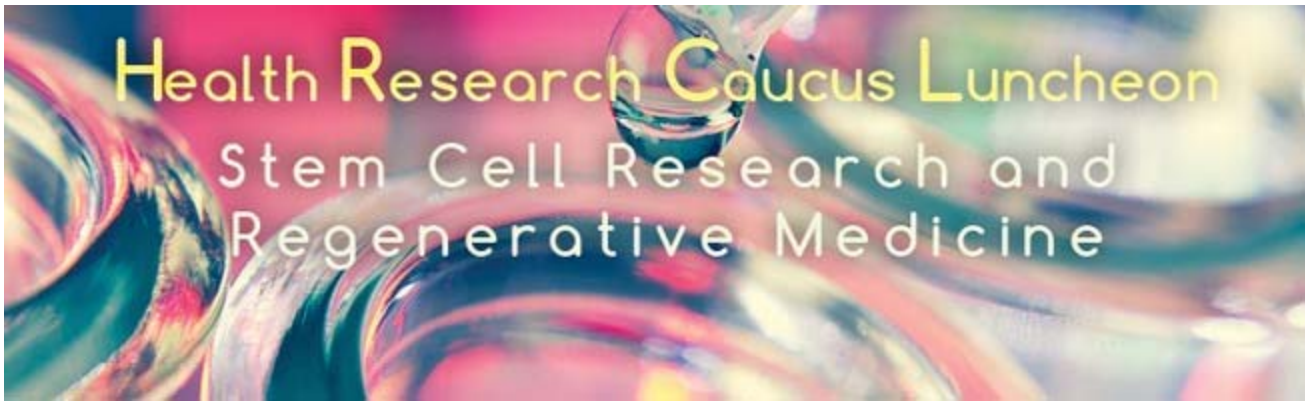
The root cause of the current opiate crisis is the pharmacology of all opiates. While opiates can be analgesic they also have inescapable effects on mood and behavior which can lead, during chronic and high dose use, to serious risk including addiction. Some individuals, whether they have pain or not, learn that opiates can help them cope with stressful situations. We all modulate our mood and feelings but doing this by self-medication with drugs that can produce dependence is extraordinarily dangerous.

While the pharmacology of the opiates is the root cause of the current problem many other factors contribute to or facilitate hazardous use and our current self-inflicted public health problem. Some of these factors include very successful marketing of opiates for chronic pain when there was not sufficient evidence for their role; insufficient education and training of health professionals to be able to assess the appropriateness of using opiates, failure to recognize the behavioral pharmacology of opiates, and the availability of an easily crushable and dissolvable high dose formulations of oxycodone and hydromorphone.

Opiate abuse is not a simple problem and therefore we would not expect a single research intervention to have much impact. However, there are many interesting research activities underway such as finding opiates with less abuse potential, finding new analgesics and devices that stimulate neural pathways, using stem cells to counter inflammation associated with pain, and health systems research to understand causes, consequences and if interventions are working. Another such area is the development of abuse deterrent formulations of opiates (ADFs), such as the reformulation of Oxycontin® to be harder to crush and to for a gel when water was added. These deter abuse but do not prevent abuse or its consequences and is a very active area of research by the pharmaceutical industry.

Well intentioned public health interventions do not substitute for evidenced based action, but these data are largely not used. Research on innovative approaches to treat pain will likely yield some important advances for selected patients. An intimate

knowledge of the genetics of risk and treatment response leading to individualized treatment is a desirable but long-term goal. There is much we do not know about how to deliver acceptable let alone optimal care to even most patients – abuse deterrent formulations affect the patterns of abuse and use of a specific opiate but must be combined with other public health interventions to have a broader impact. While a start has been made, much more needs to be done to mobilize leadership and funding to address the opiate use crisis.



Stem Cell Research and Regenerative Medicine

Thank you to our Sponsors

Co-host Stem Cell Network, Innovative Medicines Canada, STEMCELL Technologies, Canadian Association for Neuroscience, Roche, University Health Network, AbbVie Canada, Ontario Genomics, Montreal Clinical Research Institute, Office of the VP Research & Faculty of Medicine at University of Ottawa, Office of the VP Research at McMaster University.

STEMCELL Technologies Supports the Global Advancement of Immunotherapy and Regenerative Medicine Research

STEMCELL Technologies, Canada's largest biotechnology company with over 1000 employees and global sales of almost $200 million, is providing leading scientists with the latest tools for advancing innovative therapies in regenerative medicine.

STEMCELL has licensed a portfolio of its in-house developed products for immunotherapy research to GE Healthcare. This helps position GE to become a major player in the development of new immunotherapies to treat cancer. In this exclusive licensing agreement announced in August 2016, GE Healthcare will be commercializing

cGMP versions of several of STEMCELL's reagents and tools used for cancer immunotherapy research that will be used in the commercial manufacture of T cell therapies.

This comes at an opportune time when the therapeutic T cell field—namely the chimeric antibody receptor T cell (CAR T) field—is advancing rapidly. This is evident by the first two FDA approvals of commercial CAR T therapies to Novartis and Kite Pharma in the US in 2017. Additionally, numerous acquisitions and partnerships, including the recent acquisitions of Kite Pharma by Gilead and Juno Therapeutics by Celgene, are further fueling interest in CAR T cell immunotherapy.

STEMCELL is well-positioned for ongoing support of these exciting therapeutic advancements.

Stem Cell Network
Réseau de cellules souches

Making Insulin Injections a Thing of the Past

In 1921, Canadian researchers discovered insulin, extending lives of millions around the globe. Now, Canadian researchers are poised to deliver a game changing therapy – one that would end the need for insulin injections altogether.

Two Canadian labs, one led by Dr. James Shapiro at the University of Alberta and the other led by Dr. Timothy Kieffer at UBC are testing unique devices that can be placed under the skin of patients with diabetes. The devices are similar in size and shape to a tea bag, and contain beta cell precursors – cells normally found in the pancreas that are destroyed by the immune system in type 1 diabetes. Within the encapsulated device, the beta cell precursors can safely mature into insulin-producing cells, which are then absorbed into the bloodstream to restore the patient's ability to regulate blood sugar levels.

The Stem Cell Network, funded by the Government of Canada, has supported research relevant to diabetes for over a decade. Today, they are the key funders of Drs. Shapiro and Kieffer's first-in-human clinical trials. Canadian stem cell research is a clear competitive advantage for our country and is driving the field of regenerative medicine. The potential is extraordinary for fighting chronic diseases that cost the health care system upwards of $190B annually.

OTTAWA, February 27, 2018 — Canada's health research community is celebrating Federal Budget 2018's nearly $4 billion historic investment in Canada's research system to support the work of researchers and to provide our community with state-of-the-art facilities.

"This is an unprecedented investment in Canadian research and innovation," says Dr. Robert McMaster, Chair of Research Canada and VP Research, Vancouver Coastal Health and Executive Director of VCH Research Institute *read more...*