

Research Canada Update

News for Parliamentarians on Canadian Health Research

Spring 2013



Health Research Caucus to Showcase Latest Advancements in Cardiac Research and Heart Health

Join us on May 6th for one-on-one discussions with leading Canadian scientists

With Canada's aging population and an increasing incidence of obesity and diabetes, research in heart and cardiovascular health is more vital than ever. The burden of cardiovascular disease in Canada and other developed countries is growing at a rate that will have major socio-economic implications in the decades to come. Indeed, heart disease, stroke and related cardiovascular conditions are among the most pressing of today's public health challenges.

The Heart and Stroke Foundation estimates that 8 out of every 10 Canadians are at risk of developing cardiovascular disease—an illness that 74,000 die from each year. There are more than 40,000 strokes in Canada each year; about 16,000 of these prove fatal. More than 300,000 Canadians are living with the effects of a stroke.



According to recent research, 9 in 10 Canadians over the age of 20 have at least one risk factor for cardiovascular disease, and 4 in 10 have three or more risk factors. Such factors include: family history and age, being a smoker, lack of exercise, unhealthy eating, being overweight, high cholesterol, high blood pressure, diabetes, and stress.

Canadian researchers are dedicated to uncovering the causes of cardiovascular diseases. Their commitment has brought about key advancements in pre-

ventive care, public health, clinical care and disease management. Working alongside partners in the private and not-for-profit sector, our scientists are making a remarkable contribution to the global research community.

Heart health innovations lead to economic benefits

While improving the health and productivity of Canadians, research also represents savings to health-related expenditures. Furthermore, research initiatives are valuable investments to our burgeoning life sciences industry. The Canadian research enterprise has made great strides toward mobilizing knowledge and transferring technology. With a renewed sense of partnership, our interconnected sectors will realize the full potential of our collaborative efforts.

About the Event

This event will feature a series of presentations and kiosk exhibits that showcase Canadian research priorities and recent successes in heart health and cardiovascular research. Our presenters will provide insight into Canada's progress along the full continuum of research, from "discovery" research to commercialization and clinical practice, including:

- **Personalized medicine**
- **Regenerative medicine**
- **Causes and prevention of heart disease and stroke**
- **Innovative technologies and new treatments**

Guest Speakers

- **Mr. Russell Williams**, President, Rx&D
- **Dr. Robert Roberts**, President and CEO, University of Ottawa Heart Institute
- **Dr. Jean-Claude Tardif**, Director, Montreal Heart Institute
- **Dr. Duncan J. Stewart**, CEO and Scientific Director, Ottawa Hospital Research Institute



HEALTH RESEARCH CAUCUS

Coming Events

**Kiosk Session on
Cardiac Research and
Heart Health**

**May 6, 2013, 4 p.m. - 7 p.m.
Commonwealth Room (238-S)**

**RSVP to 613-234-5129 or
rsvp.rc-rc.ca**

Key dates for upcoming health awareness campaigns

April is Daffodil Month
(Canadian Cancer Society)
www.cancer.ca

April is Parkinson
Awareness Month
www.parkinson.ca

May is Cystic Fibrosis Month
www.cysticfibrosis.ca

May is Speech and Hearing
Awareness Month
www.caslpa.ca

RESEARCH IN ACTION

Sharing news of Canadian health research advancements

Following are brief profiles of some of the excellent research and collaborative programs underway among members of Research Canada: An Alliance for Health Discovery.



PREVENT working to fast-track development of vaccines that respond to public health needs

The Pan-Provincial Vaccine Enterprise Inc. (PREVENT) is a Centre of Excellence for Commercialization and Research (CERC) established in February, 2008 through the Networks of Centres of Excellence program. PREVENT is a not-for-profit corporation headquartered at the Vaccine and Infectious Disease Organization, University of Saskatchewan.

PREVENT fulfills the need for a national mechanism to prioritize the development of new vaccine in terms of public health demands—independently, rather than by multi-national pharmaceutical priorities. PREVENT has a mandate to fast-track veterinary and human vaccine development for diseases of major public health concern, and to address the commercialization challenges faced by Canada's biotechnology industry. Among PREVENT's current initiatives are:

Group A Streptococcus Vaccine

PREVENT, in collaboration with Vaxent, Inc. is developing a 30-valent vaccine which will provide coverage for at least 95% of North American and 90% of European GAS infections, as well as significant protection in the rest of the world. Phase I clinical study will be initiated in 2013.

RSV-P3 Vaccine

PREVENT in collaboration with the Vaccine and Infectious Disease Organization/International Vaccine Centre (VIDO-InterVac), is developing a vaccine that combines the RSV F-protein immunogen with a novel adjuvant. Phase I clinical study is slated to begin in early 2014.

ALS Vaccine

PREVENT and Amorfix are in collaboration to develop a vaccine for Amyotrophic Lateral Sclerosis. Disease specific epitopes (DSEs) have been identified in superoxide dismutase 1 (SOD1) from ALS patients and these form the basis of the vaccine. Pre-clinical studies are set to be completed in late 2014, and from this data a candidate will be selected for clinical studies that will begin in 2015.

Celebrating 20 years of inspiring future Canadian scientists with the Sanofi BioGENEius Challenge Canada

Over the past 20 years, over 4,500 high school students across Canada have participated in the Sanofi BioGENEius Challenge Canada (SBCC), a national biotechnology research competition that encourages students to pursue careers in science. Inspired by the question "How will you change the world?" these Canadian teens, mentored by leading academics and scientists, have created astounding and life-changing scientific discoveries, many of which have been patented and commercialized.

Now in its 20th year, the 2013 Sanofi BioGENEius Challenge Canada (SBCC) starts in mid-March and culminates in a national awards ceremony in Ottawa on April 9. For many of the students, it provides a path to careers and research in science and biotechnology. According to a survey of past SBCC participants by Bioscience Education Canada, 84% said their participation in the competition helped determine their field of study or career plan and 74% were pursuing biotechnology-related education or professions. Nearly 60% of respondents were female.

Cattle vaccine holds promise to reduce public health risk of E. coli O157:H7 infections

The most recent issue of the Canadian Journal of Public Health (CJPH) features a commentary that explores the public health risks of E. coli O157 infections. Certainly, this issue has been top of mind for those monitoring food safety issues, who remember well the XL Foods contaminated meat recalls of 2012, which represented the largest food safety recall of meat in Canadian history.

Escherichia coli (E. coli) strain O157:H7 is a fecal coliform bacterium that is commonly found in the intestines of animals and humans. Hundreds of E. coli strains exist, most of which normally inhabit the human intestine and cause no disease. However, E. coli O157:H7 produces powerful toxins that can cause severe illness in humans. Only a small number (fewer than 10 bacteria) are required to cause serious human illness.

"To reduce this public health risk, immunization of cattle would be an effective intervention. Several models have shown that on-farm pathogen reduction programs would significantly reduce the risk of human illness," state authors of the CJPH commentary.

Canada's Bioniche Life Sciences Inc., based in Belleville, Ontario, has made great strides with Econiche™, a world-first vaccine that is given to cattle — not people — to address a human health concern. Econiche reduces the level of E. coli O157 in water, food and the environment. The vaccine has been shown to reduce the colonization and shedding of the pathogen in cattle. The vaccine is fully licensed in Canada (and other countries) and is available at approximately \$3 per dose.

To learn more, visit www.bioniche.com. The CJPH article is available online at www.journal.cpha.ca

As the founding sponsor of the SBCC, Sanofi Pasteur is excited to see what new ideas spring forth from the curious young minds participating in the SBCC's 20th year, and ultimately, to celebrate those ideas that evolve into commercial uses for some of our toughest challenges, whether it's a way to improve agricultural conditions or a treatment for degenerative diseases.

For more information, please visit sanofibiogeneiuschallenge.ca, follow us on Facebook or Twitter @BioscienceEdCan #SBCC2013



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www.rc-rc.ca