



CIHR IRSC

Canadian Institutes of Health Research
Instituts de recherche en santé du Canada

Spring 2009

Your Health Research Dollars at Work

An Update from the Canadian Institutes of Health Research

Improving the Health of Canadians



Almost one year has passed since I commenced my term as President of the Canadian Institutes of Health Research (CIHR). My experiences during this period have amplified my already strong conviction about the power of health research to achieve good health.

Good health is a precious possession that we cannot take for granted. As the

Government of Canada's agency responsible for investing in health research, CIHR is committed to helping improve the health of Canadians.

As Canada contends with the global financial downturn, good health is vital to maintaining a productive workforce. Poor mental health, which affects one in five Canadians, costs our economy billions of dollars annually in lost productivity.

Chronic conditions, such as obesity, cardiovascular disease, diabetes and arthritis, also take a significant toll on the national production and on individual well-being.

To help us prevent and treat these diseases and, more generally, promote improved health, CIHR will continue to invest across the entire spectrum of health research. Our efforts to meet the health needs of Canadians will only succeed if we continue to apply this kind of comprehensive approach. In helping build better health, we are also making a significant long-term investment in the knowledge-based economy by cultivating a skilled and expert researcher population and promoting innovation.

Through this newsletter, we will continue to bring you news about how health research is contributing to our good health and well-being.

Alain Beaudet, MD, PhD
President

Canadian Institutes of Health Research

Research Chair Offers New Hope for Organ Transplant Recipients

Research gave Pat Davis his life back. After three failed kidney transplants between 1988 and 1993, the Wallaceburg, Ontario, father was told a fourth transplant was impossible. By 2006, he couldn't work anymore and was ready to give up on dialysis. That was until Dr. Anthony Jevnikar, Medical Director of Kidney Transplantation at London Health Sciences Centre's



Pat Davis (facing camera) embraces Dr. Anthony Jevnikar, who performed a kidney transplant on Mr. Davis in 2007. Dr. Jevnikar is the Wyeth Pharmaceuticals - CIHR Clinical Research Chair in Transplantation.

University Hospital, tried a new, aggressive treatment that allowed Davis' immune system to accept a transplant. In November 2007, Davis received a kidney donated by his wife Donna. "Four months after surgery I was back at work. My life is grand. I'm as healthy as anyone I know," he said. Now, as the new Clinical Research Chair in Transplantation at the University of Western Ontario, Dr. Jevnikar is working to help others needing an organ transplant. Wyeth Pharmaceuticals, CIHR and the Schulich School of Medicine & Dentistry at The University of Western Ontario have come together to provide \$1.1 million in funding for the Chair.

"The return on this investment will be measured not only in new research here, but in the lives of our patients with transplants," said Dr. Jevnikar. This is one of five Clinical Research Chairs in Canada currently being funded by Wyeth Pharmaceuticals through the CIHR/Rx&D Collaborative Research Program. CIHR President Dr. Alain Beaudet described Dr. Jevnikar's Chair as "a wonderful example of our strategy of funding the 'best minds' of Canadian research. His research into better techniques and drugs for organ transplantation offers great promise."

Article courtesy of the Schulich School of Medicine and Dentistry

About the Canadian Institutes of Health Research

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. CIHR's mission is to create new scientific knowledge and to catalyze its translation into improved health, more effective health services and products, and a strengthened Canadian health-care system. Composed of 13 Institutes, CIHR provides leadership and support to nearly 12,000 health researchers and trainees across Canada.



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NATIONAL

Federal Program Designed to Keep Prescription Drugs Safe



Health Minister Leona Aglukkaq and CIHR President Dr. Alain Beaudet announced increased funding earlier this year for the Drug Safety and Effectiveness Network.

The federal government is increasing its commitment to the new CIHR-administered Drug Safety and Effectiveness Network (DSEN), which will study the long-term safety of prescription drugs after they have reached the market. DSEN is receiving \$32 million over the next five years and \$10 million annually thereafter. Health Minister Leona Aglukkaq said the Network will bolster independent research on the risks and benefits of drugs that are already on the market, which ultimately will mean a higher level of safety for Canadians. "This Network complements Canada's rigorous pre-testing of new drugs by studying again the post-market drugs. The new data that will be developed will be used in decision-making and will enhance our overall consumer safety," Aglukkaq said in an interview with Canwest News Service.

INTERNATIONAL

Canadian Blood Test Could Help U.K. Prepare for Second Wave of Mad Cow Disease

Canada, U.K., France: A blood test designed by CIHR spinoff Amorfix Life Sciences Ltd. could help the United Kingdom prepare for a feared second wave of Creutzfeldt-Jakob Disease (vCJD), the human variant of mad cow disease. An editorial published earlier this year in *The Lancet* warned this wave will have an even longer incubation period, which increases the risk of the brain-wasting disease being spread through blood and organ donations. A major blood transfusion clinic in France recently used the Amorfix blood test to screen 10,000 blood samples for vCJD. Amorfix was founded with a grant from the CIHR Proof of Principle program to commercialize the discoveries of Drs. Neil Cashman and Marty Lehto.

Discovery Could Halt Blinding Diseases, Stop Tumour Growth



Dr. Mike Przemyslaw Sapieha

Canada and France: An international team of researchers has discovered what promises to be the on-off switch behind several eye diseases afflicting premature babies, the elderly and people with diabetes. The CIHR-supported research provides new hope for millions at risk of vision loss and blindness. Scientists from

the Sainte-Justine Hospital Research Centre, the University of Montreal and France's Institut national de la santé et de la recherche médicale report how the GPR91 receptor contributes to the unchecked vascular growth that causes vision loss in common blinding diseases. "With the identification of GPR91 as a key player in this disease process, we can move forward to design treatments that block the receptor and consequently stop vision loss," said Dr. Mike Przemyslaw Sapieha, the study's lead author.

Shutting Down Protein Slows Pancreatic Cancer Growth



Dr. Kevin Bennewith

Canada and U.S.:

Dr. Kevin Bennewith, a CIHR-funded researcher at the British Columbia Cancer Research Centre, and researchers at Stanford University have identified a protein that, when blocked, slowed or prevented tumour growth in mice. Lead researcher Dr. Amato Giaccia said the findings offer hope for those with

pancreatic cancer, a disease that accounts for more than 3,300 deaths a year in Canada. Current therapies are largely ineffective. "Right now, we have very little to offer these patients," said Giaccia. "Our hope is that one day, a combination of standard therapy and antibody treatment will have an effect on tumour progression in human patients." Phase 1 clinical trials are currently underway.

WESTERN CANADA

Better MRI Tracking Could Offer New Treatments for Heart Disease

Winnipeg: Stem cells are underused as a therapy for treating heart failure – something researchers at the University of Manitoba hope to change. The team, led by Drs. Rakesh Arora and Ganghong Tian, are working on a better way to use magnetic resonance imaging to significantly increase the retention of cells in the heart, which would make cell transplantation a more effective treatment for heart failure. “We believe that the results of this research have the potential to revolutionize cell therapy for cardiovascular diseases as well as for other diseases,” says Dr. Arora.

Sprawling Cities Contribute to Sprawling Waistlines

Saskatoon: Dr. Nazeem Muhajarine, head of Community Health and Epidemiology in the College of Medicine at the University of Saskatchewan, and a research faculty member in the Saskatchewan Population Health and Evaluation Research Unit, has partnered with the City of Saskatoon, the Saskatoon Health Region



Dr. Nazeem Muhajarine

and others to strengthen our understanding of the effect neighbourhood design has on sedentariness and obesity. The CIHR-funded project is studying Saskatoon's residential neighbourhoods to identify how municipal policies linked to neighbourhood designs can affect children's physical activity levels. The results will help both Saskatoon and other cities and towns identify policies that contribute to a more active and healthy community. More information can be found on the study's website, www.smartcitieshealthykids.ca.

Designing More Bicycle-Friendly and Healthier Communities

Vancouver: Meghan Winters, a PhD student at the University of British Columbia, is surveying some 2,000 Vancouver residents to find out what neighbourhood characteristics and transportation networks make it more likely that they'll hop on their bikes for common weekly trips. While cycling may seem a logical thing to promote (no air and noise pollution and increasing fitness), Canadian cities and towns are struggling to accomplish even modest changes. Ms. Winters hopes that by bridging the gap between health research and urban planning, we will learn how to build neighbourhoods that favour healthy transportation choices.

Calgary Researchers Unlock Secret to Premature Aging

Calgary: Dr. Karl Riabowol at the University of Calgary has unlocked a key feature of Hutchinson Gilford Progeria Syndrome, a premature aging disorder. Dr. Riabowol's team at the Aging and Immortalization Lab discovered a family of growth inhibitors that interact with a protein to accelerate premature aging in children. The findings could help researchers develop treatments that will increase the likelihood of people – even those without this disease – living longer and healthier.



Researcher Karl Riabowol and graduate student Mohamed Soliman in the gene array lab.

CENTRAL CANADA

Research Offers Hope for Learning Disabilities Treatment

Toronto: Dr. Roderick McInnes, scientific director of the CIHR Institute of Genetics and a senior scientist at the Research Institute of The Hospital for Sick Children (SickKids), and Dr. Michael Salter, head of the Program in Neurosciences & Mental Health at SickKids, have connected a crucial brain protein with the power to learn in mice. Their research team found that when this single protein, named Neto 1, is missing, it results in learning impairments. They have also found that a medication, now being tested in Alzheimer's patients, corrected the learning defect in these animals. Their findings, published in the online journal *PLoS Biology*, are important because they establish the principle that it is possible to correct a learning defect with a drug. It is still early days in this research, but these findings raise the hope that similar approaches might someday be used to help humans with learning disabilities.



Dr. Roderick McInnes (left) and Dr. Michael Salter (right)

Finding a Better – And Less Invasive – Way to Test for Colorectal Cancer

Toronto: Let's be honest – colonoscopies are highly unpleasant. The procedure, which requires the bowel to be completely cleaned out and a person to be sedated, is also time-consuming and expensive for the health-care system. Dr. Linda Rabeneck at Sunnybrook Health Sciences Centre is using an easier, quicker and less invasive test, called flexible sigmoidoscopy – which uses a flexible endoscope connected to a fibre optic camera – to better predict who is at high risk of developing colorectal cancer. “By determining who needs a colonoscopy, the results of our study will help guide governments, professionals, and researchers about colon cancer screening in Canada,” she said.



Dr. Linda Rabeneck

Sugar Water: The Sweet Solution for Pain Relief in Babies

Toronto: Researchers at The Leslie Dan Faculty of Pharmacy, University of Toronto, The Hospital for Sick Children (SickKids), Mount Sinai Hospital and York University have found that sucrose, or table sugar, reduces a baby's pain response to routine care following a painful procedure. "This research shows us that the benefits of sucrose analgesia extend beyond the painful event to other potentially uncomfortable procedures," says lead author Dr. Anna Taddio. The CIHR-funded study is the first to determine the effects of sucrose on routine care activities performed after painful procedures, she says.

Nanotechnology Breakthrough Could Lead to Better Implants

Montreal: By exploiting recent advances in nanotechnology, Dr. Antonio Nanci at the University of Montreal and his team of collaborators have discovered a process for producing metal dental and medical implants that decrease the risk of failure. The groundbreaking study could hold the key to developing intelligent materials that are easily accepted by the human body. "Our study is groundbreaking," says Dr. Nanci. "We use simple yet very efficient chemical treatments to alter metals commonly used in the operating room. This will result in new and improved metal implants that are expected to significantly affect the success of orthopedic, dental and cardiovascular prostheses."

First-Ever Canadian Study to Look at End-of-Life Care, Financial Burden

Kingston: Dr. Daren Heyland at Queen's University is examining the quality of end-of-life care, quality of life, survival rates and the financial burden shouldered by families of elderly patients admitted to intensive-care units. The CIHR-funded study – the largest ever undertaken on the subject – will provide information for physicians so they can have frank, informed discussions with patients and their families about options for end-of-life care. "Not only will patients and their families have more accurate paths of patient outcomes on which to base difficult decisions, but our findings could influence policy makers to decide where health care dollars and critical care resources may be best spent," said Dr. Heyland who is also a research director at Kingston General Hospital.

CIHR's *Your Health Research Dollars at Work* is available to Members of Parliament, Senators and policy makers to communicate the benefits of the Government of Canada's investment in health research. News items can be reproduced for use in householders and other communications materials. Visit CIHR's website to download this issue in electronic form, at www.cihr-irsc.gc.ca. If you would like a copy, please contact Caroline Kay, CIHR's Publications Production Coordinator, at caroline.kay@cihr-irsc.gc.ca.

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EASTERN CANADA

Researcher on Mission to Find Drug that Cures Epilepsy

Halifax: Dr. Donald Weaver isn't interested in treating the symptoms of epilepsy – his goal is to obliterate the root cause. "I'm aiming to cure, not just alleviate symptoms or slow down progression," says the Dalhousie University researcher.



Dr. Donald Weaver

Abriel photo, Dalhousie University

Dr. Weaver and his team are using a network of sophisticated computers to identify a new class of anti-epileptic drugs that – when given immediately after a brain injury first occurs, for example – could prevent epilepsy from starting. Computer-aided drug design cuts decades off the arduous drug development process. An anti-Alzheimer drug developed in his laboratory is in preclinical development in the United States. His team is also developing a new class of antibiotics to tackle the problem of antibiotic resistance.

Newfoundland Volunteers Help Find Obesity-Preventing Genes

St. John's: Dr. Guang Sun at Memorial University of Newfoundland has discovered 45 genes involved in gaining weight – results that will provide insights into the genetic targets responsible for individual differences in weight gain. The CIHR-supported study is the first



Dr. Guang Sun

of its kind in the field of obesity research in the world. Unlike other studies, which study obesity by having participants diet and exercise, Dr. Sun's project encouraged volunteers to overeat for seven days by mimicking the overeating in the development of obesity, leading to the discovery of the new genes. "These genes may represent a protective mechanism at the molecular level in people who are lean. This will provide valuable insights into the genetic targets responsible for individual differences in weight gain," says Dr. Sun.

Upcoming Events/News

Each month: CIHR and its partners host Café Scientifiques on topical health issues in cities across Canada.
www.cihr.gc.ca/cafe_scientifique.html