

About the CIHR Commercialization Strategy

CIHR's innovative and dynamic commercialization strategy is intended to mobilize research, develop people and build partnerships. CIHR is implementing this strategy with a coherent suite of programs – including the Proof of Principle program, Phase I and Phase II – to move research from the academic setting to the marketplace. They build on CIHR's funded research, which yields the new concepts and materials that fuel the cycle of innovation. Over the past five years, CIHR and its partners have invested more than \$500 million to discover and move innovative research forward. CIHR is working in collaboration with federal and provincial partners in the private and public sectors in the development of strategic and operating initiatives. Through its focus on commercialization, CIHR is playing a central role in encouraging innovation that will result in solutions to the health problems that concern Canadians most as well as contribute to economic growth, investment and high-quality jobs.

About the Canadian Institutes of Health Research

The Canadian Institutes of Health Research is the Government of Canada's agency for health research. Its objective is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health care system. Composed of 13 Institutes, CIHR provides leadership and support to close to 10,000 researchers and trainees in every province of Canada. For more information visit www.cihr-irsc.gc.ca

The Canadian Institutes of Health Research (CIHR) is the Government of Canada's agency for health research. The Government of Canada, through CIHR's dynamic and innovative commercialization strategy, invested \$7 million in 2004-05 in helping researchers take their discoveries a step closer to market.

The innovation index

- Life sciences industries:
 - Employ 68,000 Canadians
 - Spend about \$2.9 billion annually in R&D
 - Generate \$21.8 billion in revenues
 - Include pharmaceutical companies, health-related biotech companies, medical devices companies
- Biotech in Canada:
 - 470 companies, more than 80% health-related
 - Revenues, 2003: \$2.4 billion, up 18% from 2002
 - Industry employs 12,000 highly skilled workers
- More than 500 therapeutic products are currently being developed in Canadian pharmaceutical and biopharmaceutical research labs.
- In 2004-05, CIHR salary support grants totaled \$40 million, providing income to 736 world-class health researchers working in areas of identified importance and concern to Canadians.
- In 2004-05, CIHR training programs invested \$42 million in the career development of 1,759 young researchers and scientists, contributing to the development of a highly skilled, highly trained scientific workforce.

Transforming today's discoveries into tomorrow's health care solutions

CIHR works in partnership with Canadian researchers and the private sector to commercialize the results of publicly funded research right here in Canada, taking research from the laboratory to the marketplace. The result is that advances that save lives and reduce the economic burden of illness are available to Canadians more rapidly. At the same time, commercialization of Canadian research discoveries adds fuel to our economic engine, generating new enterprises and high-quality jobs for Canada's highly qualified workforce.

CIHR has provided support to researchers in many different areas:

- Dr. Ronald Kirby of Dalhousie University has received CIHR support to develop a patented anti-tip device for manual wheelchairs that is more effective at preventing tips without inhibiting the ability to manoeuvre in tight space and negotiate obstacles. Dr. Kirby also teaches a wheelchair skills course enabling users to function independently and avoid serious tipping accidents.
- When cartilage in joints is destroyed, either by injury or arthritis, joint replacement surgery is, currently, often the only answer. CIHR-supported researcher Dr. Michael Buschmann and a group of scientists and engineers at the École Polytechnique have developed a gelling polymer called BST-CarGel[®] that can stimulate the regeneration of new cartilage. When applied to a joint it forms an adhesive scaffolding within the damaged cartilage, on which the body's own cells can build new cartilage. BioSyntech, a Quebec company, is commercializing the discovery and initiating clinical trials in Canada.

- Ovarian cancer is the fifth leading cause of cancer-related deaths in North America. Yet early detection is difficult and screening programs in the general population have been largely unsuccessful. By the time more than 70% of patients are diagnosed, the disease is at an advanced stage. With CIHR support, Dr. Anne-Marie Mes-Masson of the Centre Hospitalier de l'Université de Montréal (CHUM) has identified genes that are associated with aggressive ovarian cancer and is working with Alethia BioTherapeutics in Montreal to identify which of these genes are good targets for drug development and to take these candidates the next step forward. Her work will result in new ways to screen for, identify and combat this devastating cancer.

Building Canada's life sciences companies

While many CIHR-funded researchers partner with others to commercialize their discoveries, some have founded their own companies to take their discoveries forward.

- Neuromed, a spin-off from the University of British Columbia, is a drug development company that focuses on discovering and developing small molecule drugs to treat neurological diseases, primarily pain and stroke. The science behind the company comes from CIHR-supported researcher Dr. Terry Snutch's investigations of the role of calcium channels in blocking pain. The company has raised \$70 million in financing.
- Dr. Lisa McKerracher of the Université de Montréal has won awards for her work on spinal cord repair. Now she has founded BioAxone, a company dedicated to finding solutions to spinal cord injury, brain injury, macular degeneration and brain cancer by targeting Rho signalling. It has one product in clinical trials and several others under development. BioAxone has attracted venture capital investment of more than \$11 million.
- Affinium Pharmaceuticals is the product of three great minds: Drs. Aled Edwards, Cheryl Arrowsmith and Jack Greenblatt, all of the University of Toronto. Affinium describes itself as the bridge from genomics to new medicine and focuses on the development and commercialization of new anti-infective medicines. It has recently launched the development of a new antibiotic to combat drug resistant infections. Affinium has established relationships with two of the world's top ten pharmaceutical companies.

In the pipeline ... The business of science

Uncovering the mysteries of molecules to create a new disease therapy is one thing. Transforming that discovery into a commercial product demands an entirely different set of skills — skills researchers are unlikely to develop in their traditional training.

Science to Business (S²B) provides grants to Deans of Business Schools to recruit PhD scientists in health research to participate in a health/biotech stream Masters of Business Administration (MBA). The program will help to develop a cadre of scientifically knowledgeable entrepreneurs and venture capitalists and foster an entrepreneurial culture within the research community. In addition, the Commercialization Management Grants provide support to Technology Transfer Offices and Industry Liaison Offices within Canada's universities and hospitals to recruit recent MBA graduates to work in commercialization management of health related innovations.

Attracting investment

CIHR funding supports researchers in taking their research to the stage where they can attract outside investors. For instance:

- Liposomes are used to deliver drugs with less toxicity and greater efficacy. Dr. Roy Duncan of Dalhousie University is working on a new family of fusion-associated small transmembrane proteins that make liposomal drug delivery even more efficient. Dr. Duncan and his team have created Fusogenix Inc. to commercialize the technology and have already received seed investment.
- Dr. Yves Raymond of the Université de Montréal has identified a novel anti-thrombotic compound which fights blood clots such as those that lead to stroke; a final patent application has been submitted.
- Dr. Nicole Beauchemin of McGill University has generated mice that are completely resistant to mouse hepatitis virus infection for use in research. She has started consultations with local start-up companies and is working with major breeders and distributors of research animals.