AN OVERVIEW
THE CHIEF SCIENTIST OF QUÉBEC

Rémi Quirion is the Chief Scientist of Québec. His position at the interface of the three research funds enables him to build connections and implement changes that will boost knowledge production and innovation within Québec’s research system and, ultimately, extend its influence on national and international levels.

The mandate of the Chief Scientist of Québec is as follows:

- To advise the Ministre de l’Éducation, de l’Enseignement supérieur et de la Recherche on matters pertaining to the development of research and science in Québec;
- To foster the excellence, position and influence of Québec research in Canada and internationally, and ensure its commercialization;
- To chair the boards of directors of each of the three Québec research funds, and coordinate issues of common concern and the development of cross-sectoral research;
- To administer the human, material, financial and information resources of the three funds, and ensure the consolidation and integration of their administrative activities.

THE SCIENTIFIC DIRECTOR

Serge Marchand is the Scientific Director of the Fonds de recherche du Québec – Santé.

As Scientific Director, Dr. Marchand has the following mandate:

- To advise the Chief Scientist on matters pertaining to the orientations, objectives, priorities, strategies and action plans of the FRQS;
- To oversee the implementation of the orientations, policies and development strategies of the FRQS;
- To play a leadership role in the development of partnerships and alliances with the research community and government, as well as with public and private sectors at provincial, national and international levels in all domains covered by the FRQS.
THE MISSION OF THE FRQS

The functions of the Fonds de recherche du Québec – Santé (FRQS) are as follows:

- to promote and provide financial support for all types of health research, including basic, clinical and epidemiological research as well as research on public health and health services;
- to promote and provide financial support for knowledge mobilization in fields relating to health research;
- to promote and provide financial support for the training of researchers through achievement scholarship programs for master’s and doctoral students and postdoctoral fellows and scholarships for re-entering the research community;
- to create any necessary partnerships with universities, colleges, health care institutions, government departments, and public agencies and organizations.

ITS VISION

To position Québec as a leader in research and innovation, for a prosperous and healthy population.

ITS VALUES

The actions of the FRQS are guided by four sets of values: excellence and rigour – integrity and professionalism – collaboration and synergy – boldness and avant-gardism.
BACKGROUND INFORMATION

In 2013, Québec spent 8.4 billion dollars on intramural research and development (GERD), representing 2.32% of Québec’s GDP, compared with 1.69% across Canada as a whole. The chart below illustrates the distribution of GERD expenditure by funding sector in Québec.

Québec obtained 28% ($270M) of the Canadian Institutes of Health Research (CIHR) funding in 2015-2016. This share, which has remained relatively stable for several years, is higher than the demographic weight of Québec faculty within Canada (23%). This performance can be broken down as follows: $258M in research and career awards, and $11M in training awards.

QUÉBEC SHARE OF CIHR FUNDING (%) BETWEEN 2006-2007 AND 2015-2016

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<tr>
<td>Grants</td>
<td>28.3</td>
<td>28.3</td>
<td>28.8</td>
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<td>28.6</td>
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<td>Awards and scholarships</td>
<td>29.3</td>
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<td>TOTAL</td>
<td>28.4</td>
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Source: CIHR Awards Search Engine, 2017
THE FRQS AND ITS 2014-2017 STRATEGIC ORIENTATIONS

As part of its 2014-2017 Strategic Plan, the Fonds de recherche du Québec – Santé is pursuing five broad strategic orientations:

- **OPTIMIZING RESEARCH SETTINGS**
  The FRQS aims to train a new generation of high-calibre scientists and to increase funding for internships in practice settings. It also wishes to promote the mobility of Québec students and attraction of foreign students, the recruitment and retention of high-calibre scientists in Québec, and careers in clinical research.

- **SUPPORTING AND PROMOTING RESEARCH EXCELLENCE**
  The FRQS proposes to consolidate the current research system, update the priority research areas and secure funding for these areas. In addition, the FRQS wishes to oversee the development of a culture of ethics and scientific integrity in research, and foster the leadership role of researchers in major national and international health strategies.

- **STRENGTHENING INTERDISCIPLINARITY, PARTNERSHIPS AND INTERSECTORAL COLLABORATION**
  The FRQS intends to encourage the development of intersectoral projects and centres of excellence, as well as the sharing of major research infrastructures and technology platforms. It also proposes to increase partnerships, while acting as a catalyst for the establishment of new collaborations.

- **PROMOTING A SCIENTIFIC CULTURE IN QUÉBEC**
  The FRQS proposes to facilitate access to scientific publications and research results. It wishes to promote the integration of research results by health professionals, heads of health services and policy makers. The FRQS aims to enhance the influence of science and its public dissemination in the French language, and improve the measurement of research impact.
IMPROVING THE EFFICIENCY AND PERFORMANCE OF THE ORGANIZATION

The FRQS wishes to improve the quality and user-friendliness of the services it provides to the scientific community, its public and private partners and society, within an open government framework. It intends to promote workplace wellness and collegiality between the different teams of the Fonds de recherche du Québec, and wishes to oversee the implementation of best practices in governance, sound management of public funds and resource optimization in accordance with the principles of integrity.
RESEARCH AREAS OF THE FRQS

The Fonds de recherche du Québec – Santé covers 12 areas of research:

- musculoskeletal system and arthritis
- cancer
- human genetics
- infectious and immune diseases
- neurosciences, mental health and addictions
- nutrition and metabolism
- circulatory and respiratory health
- mother, child and youth health
- public health
- gender and health
- health services
- aging
GRANTS AND SCHOLARSHIPS

In 2016-2017, the Fonds de recherche du Québec – Santé awarded:

- 16.8 million dollars in training awards to support 564 master’s and PhD students and 161 postdoctoral fellows and professional postgraduate students;
- 24.8 million dollars in career awards to support 406 research scholars (258 regular, 116 clinical, 7 national, 9 chair, 7 support, 6 college researchers and 3 career awards FRQ-IRSST);
- 8.1 million dollars to support among others 302 research grants and strategic initiatives and 37 international collaborations;
- 43.0 million dollars to support 9 research groups, 17 research centres and 18 thematic research networks.

These sums include 20.7 million dollars funding contributed by partners.

FUNDING DISTRIBUTION BY PROGRAM

* Total budget $96.2M — FRQS Annual Management Report 2016-2017

- Research careers $24.8M (26.7%)
- Research clusters $43.0M (46.4%)
- New generation $16.8M (18.2%)
- Research projects $8.1M (8.7%)
RESEARCH PARTNERSHIPS

Partnerships drive the actions of the Fonds de recherche du Québec – Santé (FRQS), which develops many alliances with public sector, charitable foundations, other research funding agencies and the biopharmaceutical industry.

There are several types of partnership arrangements:

- Grants and awards in targeted fields;
- Support for international exchange programs;
- Support for strategic interprovincial initiatives;
- Support for international research networks;
- Scientific evaluation of proposals outsourced by other organizations.

A partner may provide financial support to applicants selected in one of the regular competitions of the FRQS or collaborate with the FRQS to offer a joint award or grant program in a targeted research field.

The Régie de l’assurance maladie du Québec is the main financial backer of the research scholar award programs.
IMPACTS ON SOCIETY

Health research provides a better understanding of the world in which we live, clarifies decisionmaking and public policy, improves practices and interventions; in short, it fosters innovation for the common good. Here is a look at some of positive research impacts of health research.

YOUR BRAIN ON SATURATED FAT: Fatty foods make you lazy! In fact, a diet high in saturated fat is detrimental to the brain system that controls motivation—an effect that occurs well before any weight gain. According to Stéphanie Fulton, researcher at the CHUM Research Centre and professor in the Department of Nutrition at Université de Montréal, that is the very reason why people who consume a lot of fast food generally lack motivation to exercise. Fulton and her team reached the conclusion based on their studies of three groups of rats that were put on different diets: a low-fat diet, one high in monounsaturated fat (olive oil) and a third high in saturated fat (palm oil). After eight weeks, all of the rats had a comparable weight. But when behavioural and biochemical tests were carried out on the animals, the researchers noticed that the reward systems in the brains of the rats that had been fed a diet high in saturated fat were unbalanced. The reward system is a circuit of nerve fibres meant to provide the motivation required to carry out vital functions such as eating and drinking by triggering a sensation of wellbeing. Just a few more reasons to eat light!

SLEEP BETTER, SUCEED BETTER: A good night’s sleep can help students perform better in mathematics and languages. Reut Gruber, a researcher at the Douglas Institute and professor in the Department of Psychiatry at McGill University, has found that learning outcomes in these subjects often depend on the quality of the student’s sleep—a parameter that is seldom taken into account when a child experiences academic difficulties. The clinical child psychologist hopes that her conclusions will incite pediatricians to inquire about their patients’ sleep habits during routine medical examinations and persuade schools to teach healthy sleeping, just as they do for exercising and eating. Reut Gruber used actigraphy to monitor the sleep of 75 healthy children between the ages of 7 and 11 enrolled in the Riverside School Board in Saint-Hubert. She observed that the children who slept efficiently—without waking for at least 85% of the night—performed better in mathematics and languages. But surprisingly, sleep did not seem to impact grades in science or art. She concluded that the executive functions involved in planning, being attentive and multitasking require a well-rested brain.
QUICK DETECTION OF INFECTION: Thanks to Dr Michel G. Bergeron, infectious disease specialist, researcher and director of the Infectious Diseases Centre of Université Laval, it is now possible to detect bacteria in less than one hour! The development of DNA-based diagnostic tests has revolutionized the diagnostic world. As a result, it is no longer necessary to examine the characteristics of the bacteria as a whole, as in the standard culture method that required 48 hours to obtain a diagnosis. Two initial tests have been developed and are now sold around the world: the first is used to detect Group B *Streptococcus* in pregnant women and to prevent meningitis in newborns, while the second is used to identify methicillin-resistant *Staphylococcus aureus*. It is hoped that this test will help to control hospital-associated infections. To commercialize these innovations, Dr Bergeron created the company BD Diagnostic-GeneOhm. Two more tests, for the detection of Vancomycin-Resistant *Enterococcus* and *Clostridium difficile*, will soon be added to the list of available products.