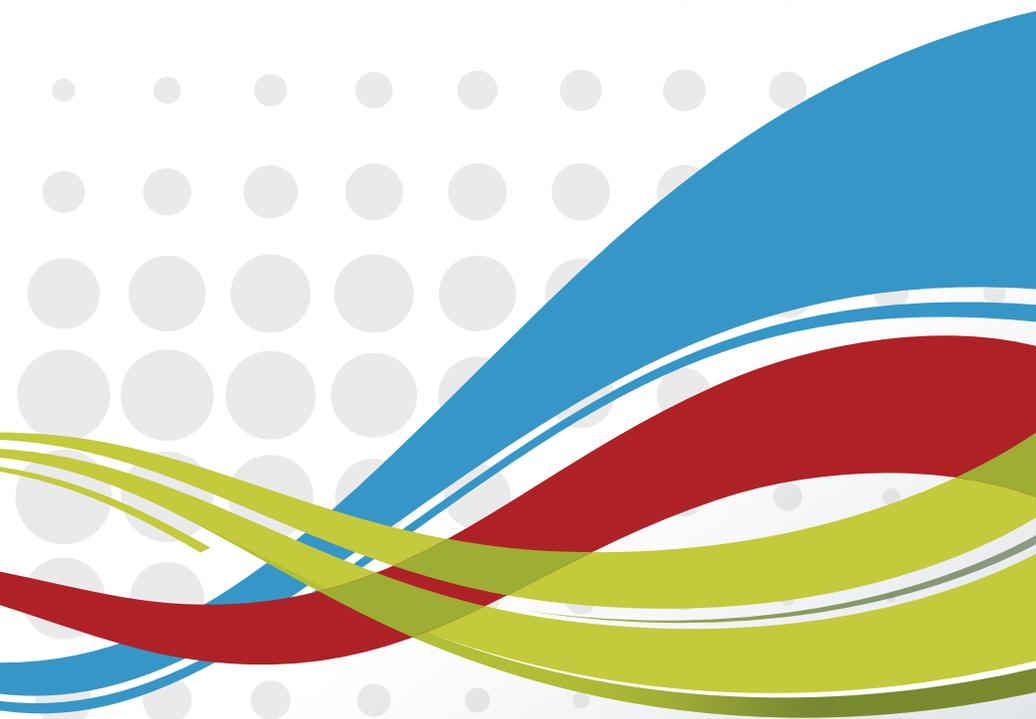


# Fonds de recherche du Québec

*Société et culture*  
*Santé*  
*Nature et technologies*





# THE IMPORTANCE OF SCIENCE DURING A PANDEMIC

Spring 2020: the COVID-19 pandemic hits Québec. Much of the economy is put on hold. Lockdown, telework, school closures, hospitalizations, deaths... Faced with a health crisis of this magnitude, the scientific community is mobilized. International collaborations proliferate in open science mode to fight the coronavirus – the world's number one enemy – and quickly develop treatments and vaccines. Québec is very present and highly dynamic in this scientific “war effort” against COVID-19. For many years, it has been able to rely on a high-performance public and private research ecosystem, solid expertise, and leading-edge research centers and laboratories that have established fruitful scientific collaborations.

There is a great deal of public concern about COVID-19, as little is known about this new invisible enemy. The media call on scientists to explain the many facets of the pandemic. At the same time, there is an “epidemic” of misinformation and fake news, especially on social media. More than ever, the scientific community and science journalists are engaging with the public to convey the latest research knowledge and set the record straight.

Science advice to governments is at work around the world. In Québec, as Chief scientist, my advisory role to the Minister of the Economy and Innovation in matters of research and innovation is extended to other cabinets, particularly those of the Premier and the Minister of Health and Social Services. During a pandemic, science is particularly relevant in informing the decisions of authorities.

It is often said that the past is an indication of the future. The support for fundamental research provided by the Québec and Canadian governments for decades makes it possible for us to face this crisis today with greater confidence and assurance, despite the uncertainty and anxiety surrounding it. Solutions to the COVID-19 pandemic and other similar threats rely heavily on science. Science that is flexible and responds quickly to needs, whether in the areas of public health, therapeutic approaches, antiviral treatments or vaccines, medical technologies, the psychosocial impact on seniors, education, or work organization.

The consequences of the COVID-19 pandemic will be felt in the coming months and years. Québec will need research and social innovation in science and engineering, as well as in health, to recover from this unprecedented crisis.

**Rémi Quirion**, OC, CQ, PhD, FRSC  
Chief scientist of Québec

## Chief scientist of Québec's Report 2019-2020

.....

- Scientific missions and agreements
- Conferences and public affairs
- Intersectoral project development
- Promoting research

# BACKGROUND

The fourth year of my second mandate was marked by the COVID-19 pandemic, which disrupted the activities of my office and those of the Fonds de recherche du Québec (FRQ). Some were postponed or cancelled, while many new activities were added.

Despite this major health crisis, the delivery of services by the FRQ to the research community has remained relatively unchanged. In mid-March, the staff of the Québec and Montréal offices quickly and efficiently switched to teleworking mode. March and April are a very busy time for the FRQ, particularly with the announcement of funding awarded under the previous fall's competitions. Overall, everything went smoothly. The launch of the Fall 2020 competitions took place in July, as usual. The teams showed great flexibility, adaptability and resilience in supporting the research community in a professional manner during this difficult time.

In the face of this crisis, my interactions with government authorities, including the Premier's office, the Ministry of Health and Social Services, Québec's public health department, the Ministry of Economy and Innovation, and the Ministry of Education and Higher Education, increased and were aimed at managing the many priorities related to the pandemic.

Within the first few weeks, the FRQ began launching new initiatives. Three of these are worth noting: the creation of the FRQ-MEI-MSSS committee, the creation of the Québec COVID-19 Biobank, and the establishment of the Québec COVID – Pandemic Network.

In addition to these provincial initiatives, I participated in the pan-Canadian coordination committee CanCOVID, under the auspices of Health Canada, as well as a UNESCO ministerial round table on COVID-19 and open science.

The pandemic has raised many questions among the general public, which has led me to increase my presence on radio, television, print and social media to explain various aspects related to the health crisis: the virus and its mechanisms of action, vaccine and treatment development, the importance of science and the voice of scientists in the current context, and ways to counter fake news and disinformation. These efforts have led to an increase in the number of subscribers to my social media accounts.

The fifth year of my second mandate comes at a time when Québec, like other parts of the world, is developing a post-pandemic economic recovery plan in which research is certain to have an important role to play.

# KEY ACHIEVEMENTS

## QUÉBEC COVID-19 BIOBANK

In the wake of initiatives put forward to find solutions to the COVID-19 pandemic, on March 26, 2020, the FRQ and Génome Québec tasked a group of researchers with setting up a Québec COVID-19 Biobank. This infrastructure will enable the collection, storage and analysis of samples and data required for the study of COVID-19, in addition to catalyzing and facilitating research collaborations in Québec, nationally and internationally.



## QUÉBEC COVID – PANDEMIC NETWORK

With a view to bringing together and focusing energies to combat the COVID-19 pandemic, on April 2, 2020 the FRQ created the Québec COVID – Pandemic Network. This entity is intended to provide a space for close collaboration to coordinate research efforts, prioritize actions, and accelerate discoveries and their applications for SARS-CoV-2, while encouraging the inter-sectoral sharing of knowledge.

## BETTER SUPPORT THE RESEARCH COMMUNITY

In addition to deploying structuring initiatives aimed at uniting scientific efforts in Québec around COVID-19, the FRQ have implemented a series of measures to better support members of the research community during this unprecedented crisis period. A year of additional funding was granted to all centres, institutes and strategic clusters funded by the FRQ. Funding for an additional semester was also provided for students who were to complete their program in the summer of 2020. Furthermore, there will be greater flexibility in the evaluation of scholarship and grant applications for the Fall 2020 competitions, by taking into account the impacts of the pandemic on the productivity of researchers, students and postdoctoral fellows.

## ACTIONS TO PROMOTE EDI

The FRQ continued their actions to encourage equity, diversity and inclusion (EDI) within the scientific community. Thus, as in previous years, individuals involved in the FRQ's peer review process were encouraged to take a short online training course aimed at reducing the

influence of unconscious bias in evaluation. A statement on EDI was added to the Common General Rules as well as to the majority of FRQ program rules. The Fonds also amended the rules of their postdoctoral fellowship programs in order to offer the possibility of staying in the same host environment as at the doctoral

level in certain situations (serious health reasons, disability, major family obligations). Finally, they added EDI expertise to the skills sought on their boards of directors. Further initiatives will be introduced in 2020-2021, including the revision of the evaluation criteria for the master's and doctoral scholarship programs.

## Scientific missions and agreements

### MISSION OF PALESTINIAN UNIVERSITY RECTORS TO QUÉBEC

From October 8 to 11, 2019, the Chief scientist of Québec received a visit from the Palestinian Minister of Education and President of the Palestinian Academy for Science and Technology (PALAST), Professor Marwan Awartani, accompanied by Palestinian university representatives. The goal of this meeting was to encourage collaboration between Québec and Palestine by facilitating the development of joint research programs. As a reminder, in May 2017, the FRQ and PALAST signed a four-year research collaboration agreement to set up a program in Québec universities to host researchers from Palestinian universities.

### CONFERENCE OF THE AMERICAS ON INTERNATIONAL EDUCATION

The Chief scientist of Québec was a guest speaker at the Conference of the Americas on International Education, held in Bogota, Colombia from October 22 to

24, 2019. The event brought together more than 900 participants. In addition, Dr. Quirion took part in a round table on the theme of innovation and development and signed a collaborative agreement between the FRQ and Colciencias, Colombia's primary research funding agency.

### PRESENTATION AT THE FRENCH NATIONAL ASSEMBLY

On November 28, 2019, as part of a public hearing held during a session of the French National Assembly's Parliamentary Office for Evaluation of Scientific and Technological Options (OPECST), Rémi Quirion had the opportunity to speak about Québec's chief scientist model. This model can be summed up in three words: resilience, trust, and availability.

### MISSION TO GERMANY

From January 20 to 24, 2020, Rémi Quirion attended several high-level meetings with government ministers and representatives from regional and national organizations

that fund research and innovation in Germany, specifically in Munich, Berlin, Bonn and Cologne. Together they discussed the implementation of joint research programs funded by the Helmholtz Community and the FRQ, along with the Federal Ministry for Education and Research and the German Research Council.

### FRQ MISSION TO OTTAWA

On February 18 and 19, 2020, the Chief scientist of Québec, accompanied by FRQ directors, met with senior management from a dozen Canadian research organizations during a mission to Ottawa. The main objective was to strengthen mutual ties and explore avenues for collaboration for the coming years, whether in terms of research programs and initiatives, support for the scientific community, Science and Society initiatives, information exchanges, or best practices in scientific management and evaluation.

## Conferences and public affairs

### CELEBRATING THE 40th ANNIVERSARY OF THE FRQSC

2019 marked the 40th anniversary of the Fonds de recherche du Québec – Société et culture (FRQSC). To pay tribute to the people who contributed to its development, to thank its partners, and to recognize the extraordinary contribution of its research community, an anniversary evening was held at the Musée national des beaux-arts du Québec on September 10, 2019, with the participation of the Chief scientist of Québec, who chairs the FRQSC's Board of Directors.

### ROUND TABLES AT THE ANNUAL CSPC CONFERENCE

On November 14 and 15, 2019, at the annual Canadian Science Policy Centre (CSPC) Conference, Rémi Quirion was invited to take part in two round tables to speak about the role and involvement of the next generation in science diplomacy, and the challenges facing scientists in the public sphere.



The Chief scientist of Québec at the CSPC Annual Conference with Madison Rilling, former member of the FRQ Intersectoral Student Committee. †



Rémi Quirion during the American Association for the Advancement of Science Annual Meeting.

### PREPARATIONS FOR THE 4th INGSA CONFERENCE

As part of his mandate to provide science advice and develop the international influence of Québec research, the Chief scientist of Québec is an active member of the International Network for Government Science Advice (INGSA). Originally scheduled to take place in Montréal in September 2020, the 4th international conference on science advice to governments was postponed due to the pandemic. The event, which is now scheduled to take place from August 31 to September 1, 2021 at the Palais des congrès de Montréal, will be hosted by Rémi Quirion.

### FORUM ON INNOVATION ZONES

On January 29, 2020, the Chief scientist of Québec took part in a day of meetings and discussions on innovation zones focused on the theme *From Idea to Market*.

The creation of world-class innovation zones – geographic areas where research, innovation, industry and entrepreneurial stakeholders collaborate in sectors of activity – is at the heart of the Québec Government’s economic vision. The event brought together almost 200 knowledge stakeholders and 150 major companies and other partners from the business and municipal communities. Political representatives were also present, including the Minister of the Economy and Innovation, Pierre Fitzgibbon, and the Minister of Education and Higher Education, Jean-François Roberge.

### INTERNATIONAL SYMPOSIUM: RESPONSIBLE INNOVATION IN DIGITAL HEALTH 2020

In a pre-recorded video, Rémi Quirion delivered opening remarks at the *International Symposium: Responsible Innovation in Digital Health – Opportunities and Barriers* which also took place on January 29, 2020. The event’s themes included international collaborations for innovation on the theme of Healthy Aging.

*tion in Digital Health – Opportunities and Barriers* which also took place on January 29, 2020. The event’s themes included international collaborations for innovation on the theme of Healthy Aging.

### PARTICIPATION IN THE AAAS ANNUAL MEETING

At the Annual Meeting of the American Association for the Advancement of Science (AAAS), which took place from February 13 to 16, 2020 in Seattle, the Chief scientist of Québec moderated a round table discussion on urban resilience and climate change. Rémi Quirion emphasized the role of researchers, who bring facts and evidence to inform decision making, shining a spotlight on the FRQ and Québec in general.

## ❖❖❖ Intersectoral project development

### LAUNCH OF THE FRQ-IIASA PROGRAM

On January 14, 2020, the FRQ and the International Institute for Applied Systems Analysis (IIASA) launched a call for proposals for their postdoctoral research fellowship program, developed to foster the mobility of young researchers towards stimulating and dynamic research environments such as the IIASA.

### LAUNCH OF THE INTERNATIONAL QUÉBEC-LUXEMBOURG AUDACE PROGRAM

Convinced that mobilizing the scientific community from all research sectors will open up new research perspectives, and to promote collaboration between researchers in Québec and Luxembourg, a new call for projects was announced on June 9, 2020 as part of the AUDACE program. With this joint initiative, the FRQ

and the Luxembourg National Research Fund are seeking to stimulate risk-taking and provide researchers in both regions with favourable conditions for initiating projects with a high level of risk and the potential for high impacts, be they scientific, social, economic, technological, cultural or aesthetic.

## STRUCTURING INITIATIVES FOR RESEARCH ON AGING

In order to encourage the Québec research community to study aging from a perspective that focuses more on its complex and multidimensional nature, and less on the deteriorating health of older people, the FRQ launched a first call for projects in 2019-2020 under the funding platform for intersectoral research on aging, which has three components: AUDA-CE, Living Lab, and Cohort. The funded teams were announced in the summer of 2019. The themes addressed in these innovative research projects included

sleep in older adults, intelligent housing, social participation and social isolation of seniors, mobility, and the biomarkers of aging and dementia. Although these projects are in their early stages, they are already generating a great deal of interest among people who work with seniors. A second call for projects should be launched in 2020-2021.

## WORKING GROUP ON THE QUÉBEC UNIVERSITY OF THE FUTURE

Since September 2019, Rémi Quirion has led a working group made up of members from all sectors of the university com-

munity – professors, lecturers, students, management – along with senior officials and a member from the entrepreneurial community, whose mandate is to examine the requirements of the Québec university of the future. Despite the COVID-19 situation, 12 meetings were held throughout the year, providing input for the writing of a report. This document was sent to the Minister of Higher Education, Danielle McCann, in September 2020 and is available for public consultation. It will be the subject of a wide-ranging debate during a day of discussion in the fall of 2020.

## ❖ Promoting research

### SCIENCE EVENTS AT THE QUÉBEC NATIONAL ASSEMBLY

The series of meetings at the Québec National Assembly, held by the Chief scientist of Québec to show MNAs, chiefs of staff and deputy ministers the extent of the scientific expertise available to them through research, continued this year. Taking the form of a breakfast at Le Parlementaire restaurant, the September 18, 2019 meeting featured Colette Brin, a research professor at Université Laval and director of the Centre d'études sur les médias, and Yves Gingras, a research professor at Université du Québec à Montréal and director of the Observatoire des sciences

et des technologies. The two scientists spoke about the importance of separating false news from scientific information in today's context of proliferating sources of information on social media and other digital platforms. Two months later, on November 20, 2019, as part of a 5 à 7 event at the National Assembly library, ÉTS research professor Kaiwen Zhang and Université Laval research professor Charlaïne Bouchard demystified blockchains, the technology behind Bitcoin, which revolutionized information storage and data security.

### CELEBRATING 20 YEARS OF THE CHERCHEUR-E D'UN JOUR PROGRAM

Funded by the Fonds de recherche du Québec – Santé, the Chercheur-e d'un jour program has, since its launch, helped nearly 5,000 Secondary 4 and 5 students and their teachers or guidance counselors learn about the research profession by spending a day in an active research laboratory. On November 20, 2019, Rémi Quirion marked the program's 20th anniversary, congratulating Dr. Michel G. Bergeron and his team at the CHU de Québec – Université Laval Infectious Disease Research Centre, who created the program in 1998.



† Rémi Quirion with Charlaïne Bouchard and Kaiwen Zhang during the activity at the Québec National Assembly.



† Happy celebration for the 20 years of the Chercheur-e d'un jour program.



Team winner of the Scientific Collaboration Award, presented at the IAPQ Annual Congress.

### IAPQ ANNUAL CONFERENCE AND SCIENTIFIC COLLABORATION PRIZE

On November 22, 2019, in the presence of Christian Dubé, then Minister Responsible for Government Administration and President of the Treasury Board, Rémi Quirion congratulated the winning team and the two finalist teams for the Institut d'administration publique de Québec (IAPQ) Scientific Collaboration prize. Created in collaboration with the FRQ, this prize is awarded to a team that has contributed to a project with a significant impact on public programs and policies and on the Québec population through the production, collection and use of scientific knowledge and information.

### DES OISEAUX À LA MAISON BIRDWATCHING PROGRAM

On April 3, 2020, the Chief scientist of Québec and QuébecOiseaux announced the launch of the Des oiseaux à la maison birdwatching program, with the support of the FRQ. This popular program invited Quebecers of all ages to learn about local birds while contributing to a participatory science activity during the isolation measures related to the COVID-19 pandemic. The invitation was accepted by 800 people, who observed 180 bird species from their homes!

### APÉRO SCIENCES: NEWS FROM THE SCIENTIFIC FRONT

At a time when scientists around the world are working day and night and stepping up collaborations to combat COVID-19, Rémi Quirion reviewed this recent flurry of research activity during an online discussion on May 12, 2020 with Nathalie Grandvaux, professor in the Department of Biochemistry and Molecular Medicine at Université de Montréal, researcher at the CHUM research centre and co-director of the Québec COVID – Pandemic Network; and Hugo Soudeyns, director of the Department of Microbiology, Infectiology and Immunology in the Faculty of Medicine at Université de Montréal and head of the Infectious Diseases and Acute Care research axis at CHU Sainte-Justine. This activity was organized in partnership with UQAM's Cœur des sciences and the FRQ.

### WORKS OF ART ON COVID-19 INSPIRED BY SCIENCE

Initially relegated to the domain of science, COVID-19 has become an everyday object, an object that raises profound questions, to the point where artists have appropriated it in a movement known as "#covidart". This led to the launch by the FRQ, on June 25, 2020, of a call for proposals to municipalities and art centres for the production of urban #covidart. These works of art inspired by science will leave a lasting mark on the urban landscape for several years, reflecting this historic period for Québec society.

## Media presence

The COVID-19 pandemic thrust the Chief scientist of Québec into the media limelight, giving him opportunities to discuss the health crisis and the progress of research on the subject. Of particular note were his interview on *Salut Bonjour* on April 1, 2020, followed by his participation in *La semaine des 4 Julie* on April 2, culminating in his appearance on the popular show *Tout le monde en parle* on April 4.

In addition, Rémi Quirion spoke on Ici Première and QUB Radio. He also wrote or co-wrote several opinion pieces in *La Presse*, *Le Devoir* and *Le Soleil*, highlighting the importance of science and scientific research in the fight against the pandemic, and warning the public against another type of epidemic: misinformation.

This increased media presence has led to a steady flow of social media publications and the growth of his Facebook, Twitter and LinkedIn communities.



scientifique-en-chef.gouv.qc.ca/en/    @SciChefQC

### Fonds de recherche du Québec

500 Sherbrooke St. West, suite 800  
Montréal (Québec) H3A 3C6  
514 873-2114

140 Grande Allée East, 4th floor  
Québec (Québec) G1R 5M8  
418 643-8560 or 418 643-7582

Québec 