



Report  
*on*  
Research +  
Innovation  
2022



McGill

Research and  
Innovation

# TABLE OF CONTENTS



|  |    |
|--|----|
| Message from Martha Crago, Vice-Principal, Research + Innovation | 02 |
| Year in Review   | 06 |
| Research Impact  | 07 |
| Research that Made an Impact                                     | 11 |
| Investments that Made a Difference                               | 19 |
| Partnerships that Propel Innovation                              | 23 |
| Innovation in Action   | 26 |
| McGill Spinoffs in Action  | 27 |
| Awards + Prizes  | 31 |
| By the Numbers   | 36 |
| Rankings   | 39 |
| Research Funding Performance                                     | 41 |
| Tri-Agency Funding   | 47 |
| Fonds de Recherche du Québec Funding                             | 53 |
| Industry Sponsored Research Funding                              | 54 |
| Publications + Bibliometrics                                     | 57 |
| Policy Impact  | 61 |

## LIST OF TABLES



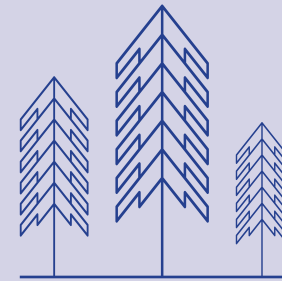
|   |    |
|---|----|
| Table 1: U6 University Rankings, 2023 (2022)  | 39 |
| Table 2: U15 Total Research Funding (\$M) and Faculty Count, FY2021   | 44 |
| Table 3: Total Amount of Tri-Agency Funding and Percent Share of Funding for U15, FY2020                                    | 47 |
| Table 4: Key Bibliometrics for McGill, 2012 to 2021   | 57 |
| Table 5: Top 10 International Institutions Collaborating with McGill<br>by Number of Co-Authored Publications, 2017 to 2021 | 59 |

## LIST OF FIGURES



|  |    |
|--|----|
| Figure 1: Categories of Total Research Funding and Amount (\$M), FY2021  | 41 |
| Figure 2: McGill's Research Funding Over 5 Years By Category of Funding (\$M), FY2021                                    | 42 |
| Figure 3: Canada First Research Excellence Fund  | 43 |
| Figure 4: U15 Research Funding per Faculty Member (Research Intensity), FY2021 (\$K)                                     | 45 |
| Figure 5: U6 Total Tri-Agency Funding, FY2021  | 48 |
| Figure 6: McGill's Share of U15 Tri-Agency Funding and Total Funding Amount FY2017 to FY2021                             | 49 |
| Figure 7: Total \$ Awarded (\$M) In the CIHR Project Competition, Fall 2022  | 50 |
| Figure 8: McGill's Share of U15 Tri-Agency Funding Relative to Faculty Size (Funding Efficiency Index), FY2017 to FY2021 | 51 |
| Figure 9: QC4 Total FRQ Funding, FY2021  | 53 |
| Figure 10: McGill's Industry Sponsored Research Funding Over Six Years, FY2017 to Fy2022                                 | 54 |
| Figure 11: Innovation and Partnership Metrics, FY2018 to FY2021  | 55 |
| Figure 12: U6 Publication Count vs Percent of Publications in Top Journal Percentiles, 2017 to 2021                      | 58 |

## LAND ACKNOWLEDGEMENT



*McGill University is located on land, which has long served as a site of meeting and exchange among Indigenous peoples, including the Haudenosaunee and Anishinaabeg nations. McGill honours, recognizes, and respects these nations as the traditional stewards of the lands and waters on which the university stands today.*



Message  
*from*  
Martha Crago,  
Vice-Principal,  
Research +  
Innovation



Photo: Owen Egan

*The exchange of knowledge, expertise and data is fundamental to addressing global challenges.*

I am therefore pleased to present McGill's Report on Research and Innovation, a review of our research funding performance, and a spotlight on the discoveries and innovations that pushed the boundaries of knowledge and made a difference in 2022.

McGill's global reputation attracts researchers, community collaborators, and industry partners from across Canada and around the world to further expand our impact. For the 18th consecutive year, McGill has been named the best medical doctoral university in Canada by Maclean's Magazine, and we continue to perform well in global rankings. These successes are proof of the University's steadfast commitment to excellence across our three campuses and affiliated research institutes and hospitals

“

McGill’s global reputation attracts researchers, community collaborators, and industry partners from across Canada and around the world to further expand our impact.

”

The University continues to look for ways to invest in research and set audacious goals. McGill is leading a revolution in RNA medicine, focusing on underserved groups and untreated disorders and diseases. Working together with a unique constellation of global partners and communities, we aspire to create an inclusive and healthier future for all.

McGill’s talented researchers and students are turning challenges into opportunities through the development of new tools and technologies. To help them take their first steps into commercialization, in 2021, Innovation and Partnerships launched the McGill Innovation Fund (MIF), a University-wide funding competition for projects that are based on technology developed by McGill researchers.

Since then, the MIF has provided more than a half million dollars to trailblazing projects in a variety of fields, including cleantech, AI and medicine.

The excellence of McGill’s research community is matched by the dedication of those who support their endeavours. As Vice-Principal, I want to take this opportunity to thank the many mission-driven research administrators who work diligently and collaboratively behind the scenes in support of research excellence, innovation, compliance and transparent reporting. Their work provides support for researchers to take risks on bold ideas with transformative potential.

**Martha Crago**  
Vice-Principal, Research + Innovation



+ A focused moment of study in the McCall MacBain Arts Building (Photo: Alex Tran)





# Year *in* Review

RESEARCH  
IMPACT



*McGill consistently ranks among the best research-intensive universities in Canada and the world, including topping Maclean's best medical doctoral university category for 18 years running. Funding from a variety of sources, including federal, provincial, non-profit, industry, and municipal grants powers McGill's vision to be the premier research-intensive university in Canada.*

---



Maclean's University  
Rankings 2023



QS World University  
Rankings 2023



Times Higher Ed World University  
Ranking 2023

**\$687.4M**

IN FUNDING FROM  
ALL SOURCES  
(FY2021)

**\$79M**

IN FUNDING FROM  
QUEBEC PROVINCIAL  
SOURCES  
(FY2021)

**\$391M**

IN FUNDING FROM  
CANADIAN FEDERAL  
SOURCES  
(FY2021)

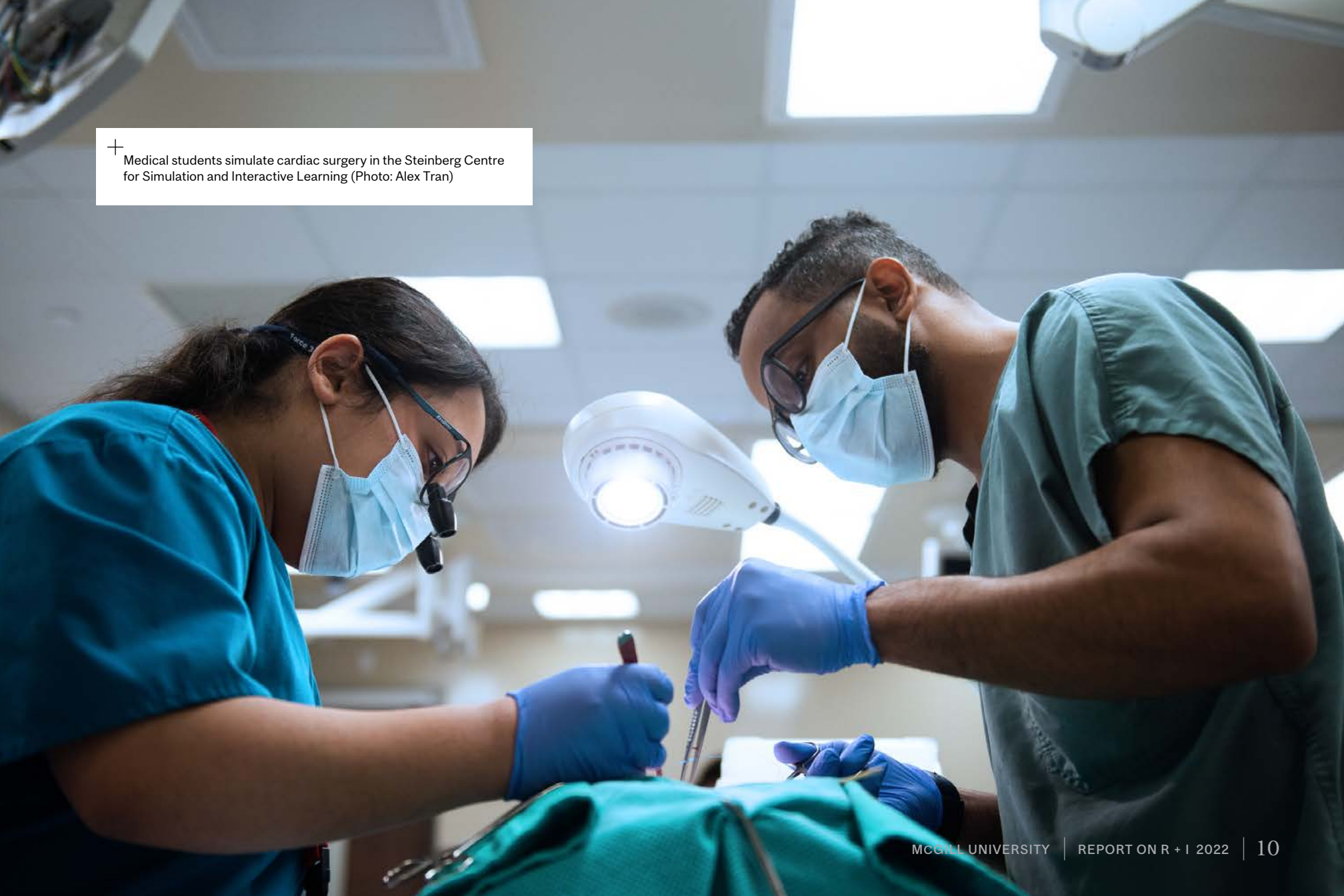
**1,325**

POLICY DOCUMENTS  
CITING MCGILL AUTHORED  
PUBLICATIONS  
(2021)

**10,464**

PUBLICATIONS WITH  
MCGILL AUTHORS  
(2021)

+ Medical students simulate cardiac surgery in the Steinberg Centre for Simulation and Interactive Learning (Photo: Alex Tran)

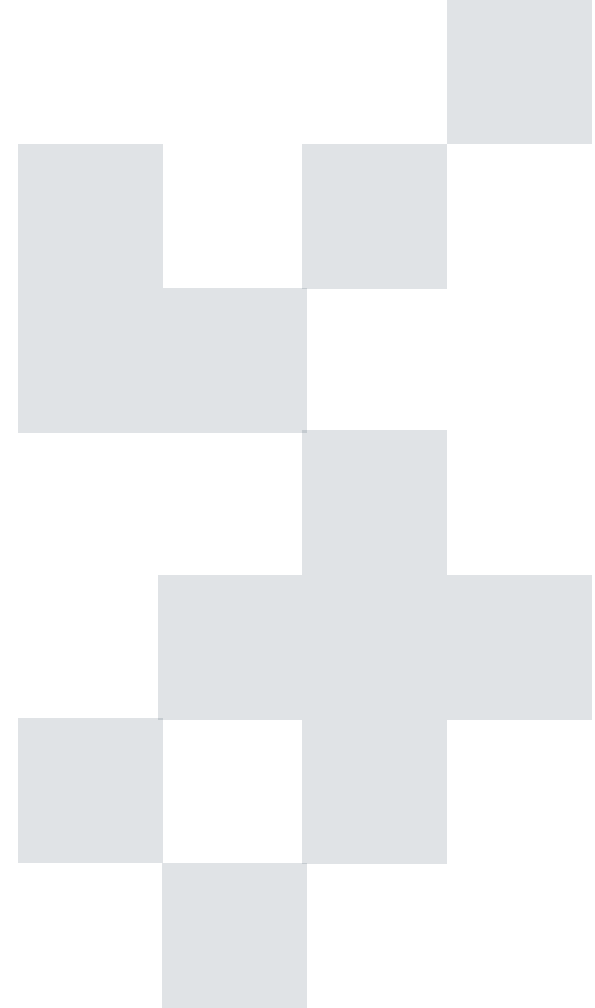




RESEARCH  
THAT MADE  
AN IMPACT

*In 2022, McGill's diverse groups of researchers pushed the frontiers of knowledge and led world-class research programs in a wide variety of fields.*

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## LESSONS FROM THE ARCTIC FOR FUTURE LIFE ON MARS

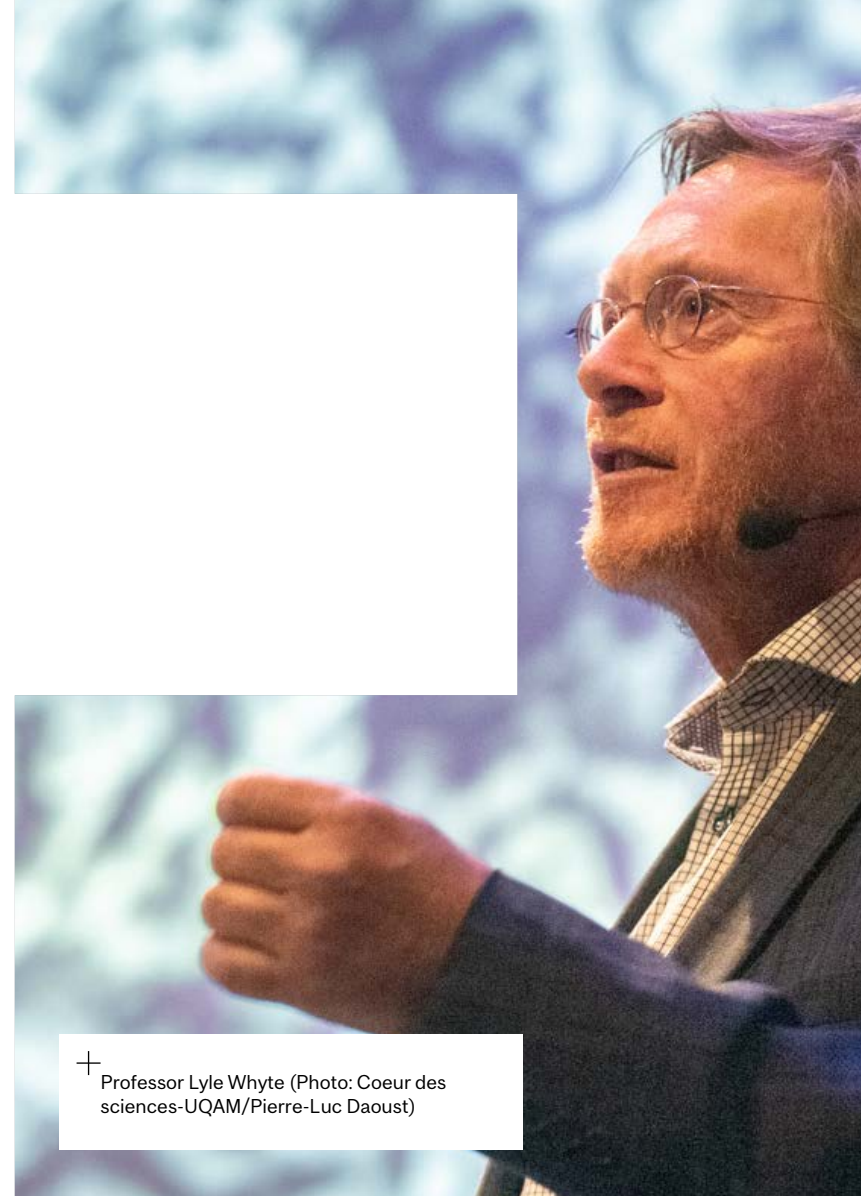
A McGill research team, led by Professor and Canada Research Chair, Lyle Whyte (Department of Natural Resource Sciences), has demonstrated, for the first time, that microbial communities found living in Canada's High Arctic hold vital information for possible future inhabitation of Mars.

The microbes can survive by eating and breathing simple inorganic compounds of a kind that have been detected on Mars (such as methane, sulfide, sulfate, carbon monoxide, and carbon dioxide). The discovery of these previously unknown organisms published in *The Multidisciplinary Journal of Microbial Ecology* (ISME) was so compelling that samples of the Lost Hammer surface sediments have been selected by the European Space Agency to test the life-detecting capabilities of the instruments they plan to use on the next ExoMars Mission, a pair of missions, led by the European Space Agency (ESA).

*The work has been highlighted in the 30<sup>th</sup> edition of **Québec Science's annual list** of the most significant scientific advances made in the province during 2022.*

**READ MORE [+]**

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+ Professor Lyle Whyte (Photo: Coeur des sciences-UQAM/Pierre-Luc Daoust)





## UNLOCKING NATURE'S POTENTIAL FOR FUNCTIONAL BIOMATERIALS

Two renewable resources, cellulose from wood pulp and chitin from the shells of crustaceans, are known to industrial chemists for their potential for creating highly versatile nanocrystals, which are useful for making pharmaceuticals, cosmetics, industrial additives and much more.

A team of researchers, including Professor **Audrey Moores** (Department of Chemistry), graduate student Tony Jin and collaborator Edmond Lam from the National Research Council of Canada (NRC), has developed a new, ecologically sensitive way to produce these nanocrystals through a process called high-humidity shaker aging. The new technique represents an advance over existing methods in that it costs less, uses less water, and eliminates the need for toxic solvents, all while producing higher yields.

[READ MORE \[+\]](#)

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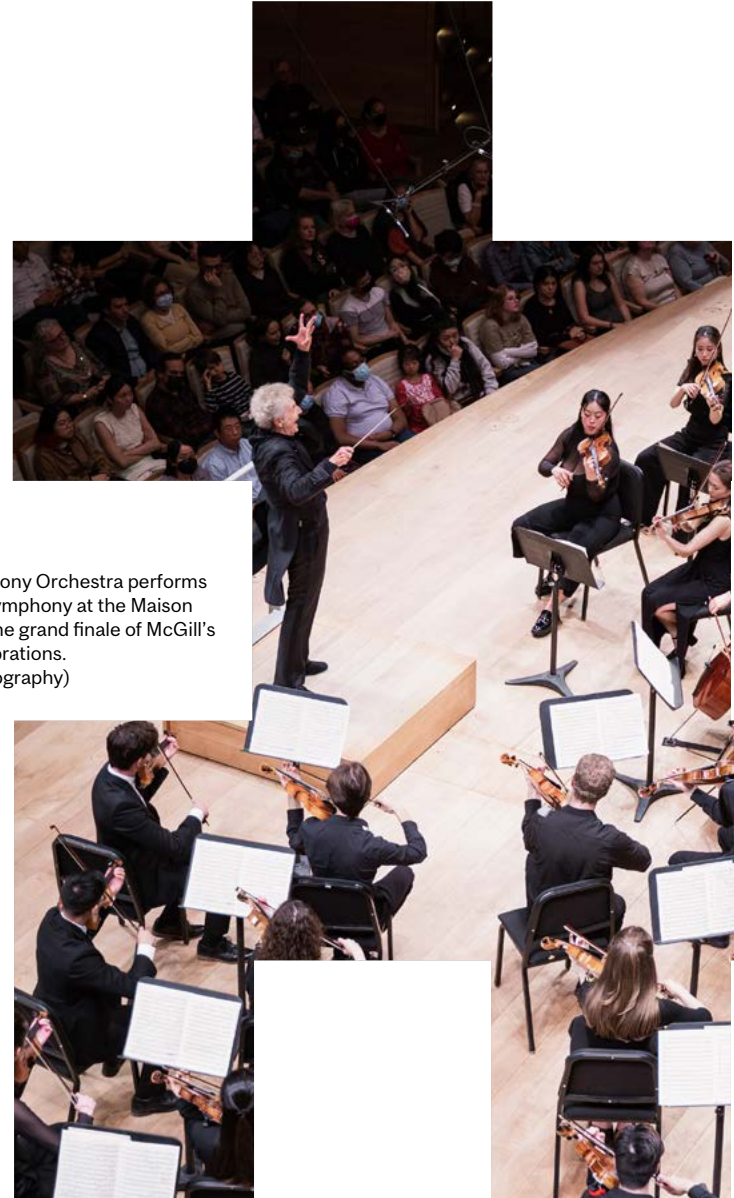
## CHANGING THE SCORE FOR MUSIC RESEARCHERS

Music researchers looking to find scores in different notations, collections of performing parts, choir arrangements, and more, are thwarted by text-based databases and search engines. There are currently hundreds of specialized online music databases containing this content, but they use different organizing systems. A \$2.5 million SSHRC Partnership Grant-funded project led by Professor **Ichiro Fujinaga** (Schulich School of Music) is working to solve these issues.

Fujinaga is working in collaboration with an international music library consortium and non-profit organizations hosting large music databases to create a linked metadata search engine called SIMSSA, where many different musical resources can be searched simultaneously and linked back to the individual databases. The project will also create an online Virtual Instruments Museum (VIM), which will crowd-source names and pictures for instruments through history and in different languages.

[READ MORE \[+\]](#)

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+ The McGill Symphony Orchestra performs Beethoven's 9<sup>th</sup> Symphony at the Maison Symphonique in the grand finale of McGill's Bicentennial celebrations. (Photo: Tam Photography)

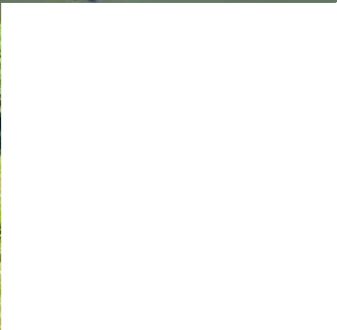


## **CURBING GREENHOUSE GAS EMISSIONS TAKES A TEAM**

McGill is committed to identifying sustainable solutions for local and global challenges. In 2022, the Government of Canada's Environmental Damages Fund, administered by Environment and Climate Change Canada (ECCC), invested \$4.8 million in three McGill-led projects through the Climate Awareness and Action Fund (CAAF).

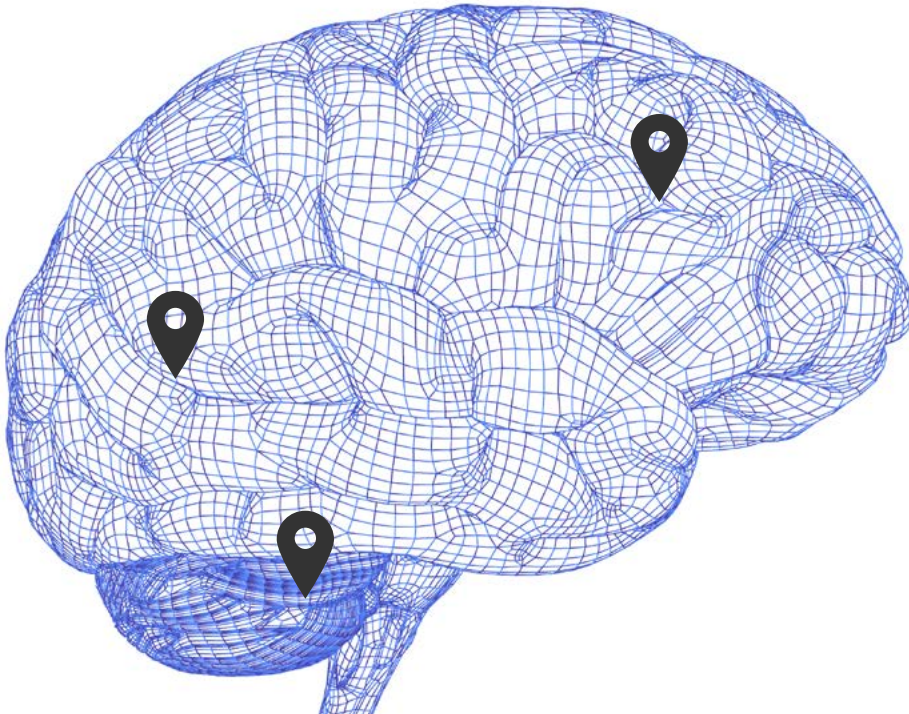
McGill's funded projects will address critical data and knowledge gaps about greenhouse gas emissions. The projects led by **Associate Professor Grant Clark** (Department of Bioresource Engineering and the McGill School of Environment), **Professor Yi Huang** (Department of Atmospheric and Oceanic Sciences), and **Associate Professor Luis Miranda-Moreno**, (Department of Civil Engineering), will quantify greenhouse gas emissions (GHG) and improve our understanding of their impact on the environment, the economy, transportation, and urban living.

---



## A 'GOOGLE MAP' FOR THE BRAIN

In 2022, researchers funded by the interdisciplinary neuroscience program, **Heathy Brains Healthy Lives**, published work in the journal Nature Methods that takes a big step towards making a multi-layered brain map a reality. This effort comes out of the Helmholtz International BigBrain Analytics & Learning Laboratory (**HIBALL**) initiative combining neuroscience and artificial intelligence to build highly detailed 3D models of the brain at the cellular level.



Using open data sourced from publicly-accessible repositories like GitHub and from researchers using neuroimaging in their work, **Dr. Bratislav Mistic's** (The Neuro) team created “neur-omaps” – an open-source software toolbox for contextualizing human brain maps. Now any researcher can generate a brain map from their own data and compare it against a library of other data types from the published literature to gain new insights and make groundbreaking discoveries. Researchers in Mistic's lab have already uncovered new associations between different neurotransmitter receptors and things like brain structure, neurological activity, and neuropsychiatric disorders.

[READ MORE \[+\]](#)

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## THE ROAD TO RESEARCH: THE IMPRESS PROGRAM

*From May to August 2022, researchers funded by Healthy Brains, Healthy Lives (HBHL) hosted students interested in brain and mental health research as part of the Indigenous Mentorship and Paid Research Experience for Summer Students (IMPRESS) initiative, developed by McGill's Branches community outreach program.*

*The initiative provides Indigenous undergraduates from Quebec post-secondary institutions with paid research opportunities under the supervision of a McGill professor, with support from a graduate-student mentor.*



+ Dane Malenfant  
(Photo: Brier Malenfant)

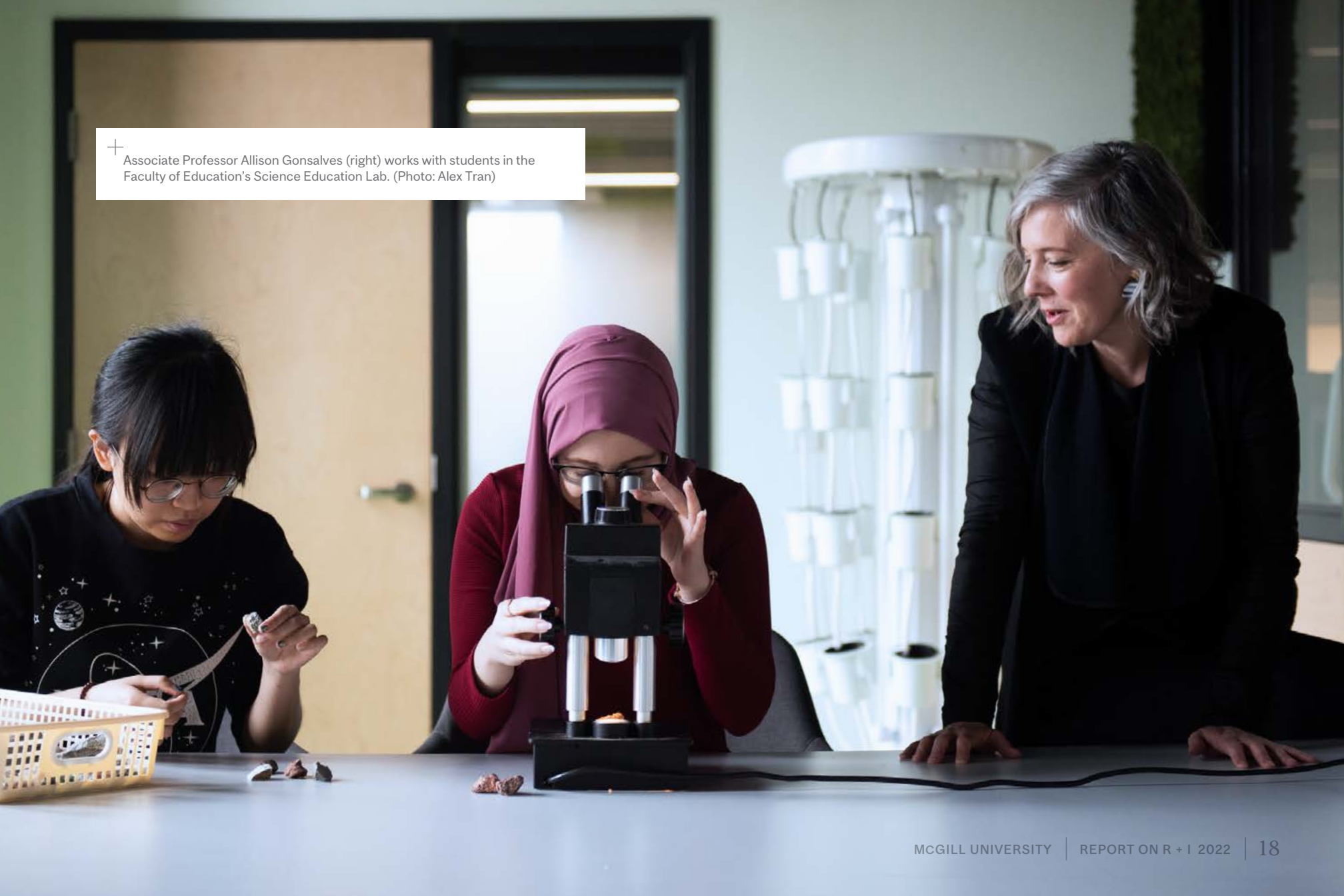
“

The IMPRESS program not only introduced me to research but set me up on a path directly towards graduate school. The support I received was phenomenal and I'm very privileged that this opportunity for Indigenous students exists at McGill.

”

**Dane Malenfant, BA '22**

+ Associate Professor Allison Gonsalves (right) works with students in the Faculty of Education's Science Education Lab. (Photo: Alex Tran)





## INVESTMENTS THAT MADE A DIFFERENCE

### FORGING A HEALTHIER FUTURE THROUGH RESEARCH: THE NEW VICTOR PHILLIP DAHDALEH INSTITUTE OF GENOMIC MEDICINE

McGill has long been a leader in Canada and North America in genomic medicine research. In 2022, McGill received a landmark \$30 million donation to support its renowned genomics research and education programs from alumnus and long-time donor, Victor Dahdaleh.

Thanks to this gift, McGill launched the **Victor Phillip Dahdaleh Institute of Genomic Medicine**, which harnesses the inter-

disciplinary expertise and research infrastructure across McGill's Faculties to expand its high-impact research programs, invest in top talent, and train the next generation of scientific world leaders.

Taking a "full spectrum" approach to genomic medicine, the Institute will help us understand a person's genes and how they interact to inform an individual's clinical care.

+ World-leading genomics research is conducted at McGill (Photo: Alex Tran)





## **BOOSTING SPACE RESEARCH AT MCGILL TO THE OUTER LIMITS**

The ground-breaking work by researchers at McGill includes major discoveries in the area of neutron stars and **fast radio bursts**. Physics Professor **Victoria Kaspi**, an award-winning astrophysicist who holds the Lorne Trottier Chair in Astrophysics and Cosmology at McGill, has been pivotal to these successes.

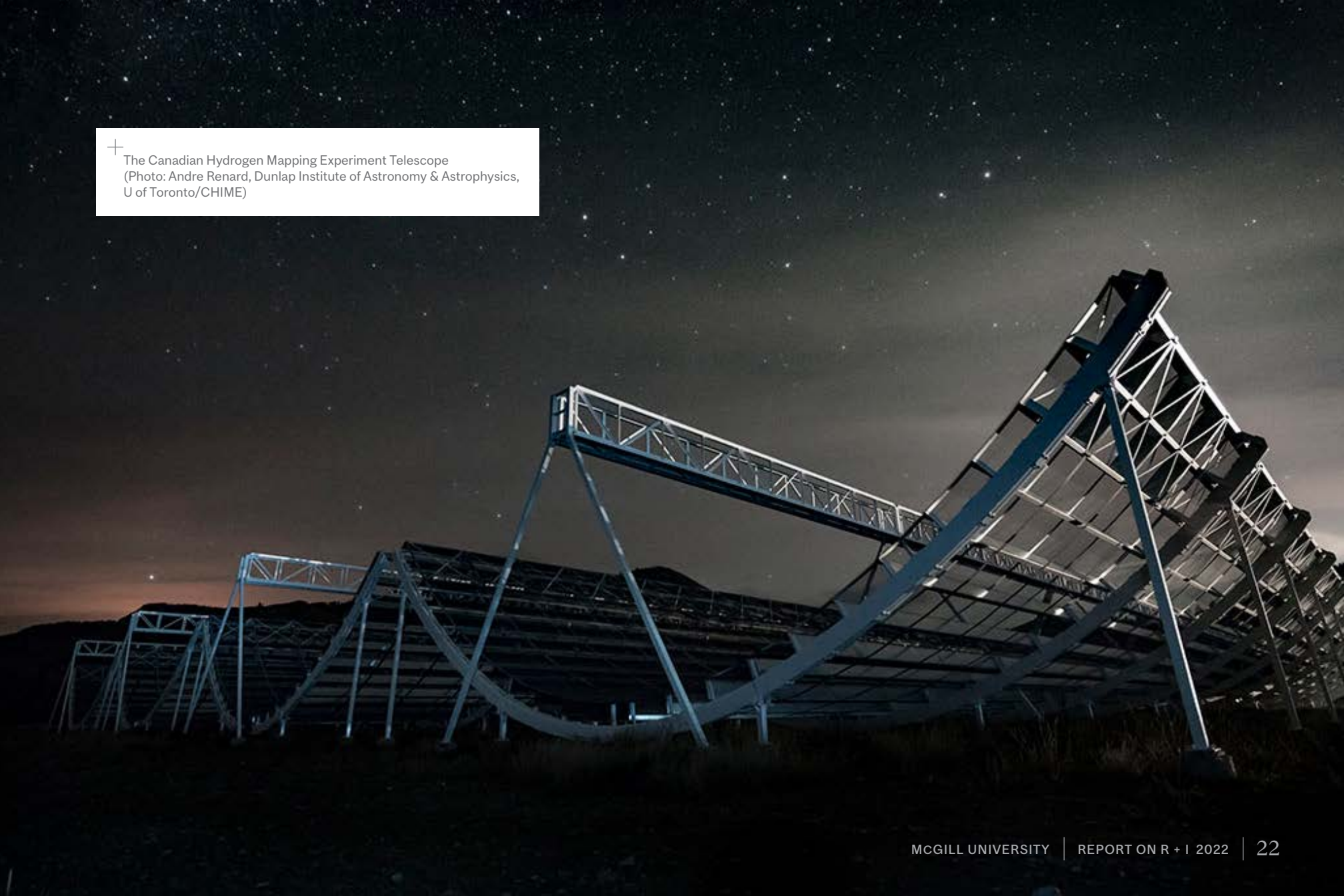
In 2022, the Trottier Family Foundation invested \$16 million in McGill's world-leading space research. The investment will help to build new research facilities and to fund graduate and

postdoctoral fellowships, as well as to expand on existing programmatic and research support.

In recognition of this historic gift, the McGill Space Institute is renamed the **Trottier Space Institute** at McGill. The \$16 million, of which half will go towards the construction of an annex to the Institute's current building on University Street, will be used to fund graduate and postdoctoral fellowships, as well as to expand on existing programmatic and research support.



The Canadian Hydrogen Mapping Experiment Telescope  
(Photo: Andre Renard, Dunlap Institute of Astronomy & Astrophysics,  
U of Toronto/CHIME)





## PARTNERSHIPS THAT PROPEL INNOVATION

### **BATTLING AGAINST GLOBAL HEALTH THREATS: MODERNA'S OPEN ACCESS PROGRAM**

McGill was the first university in Canada to join Moderna's mRNA Open Access Program, a global platform that will accelerate the development and expand the impact of mRNA vaccines and medicines.

The program offers researchers an inside track to rapidly prototyping and developing vaccine candidates by enabling institutional partners to use Moderna's state-of-the-art antigen design capabilities. Promising candidates can be brought to a clinical trial stage more rapidly, offering a chance to shorten the development path and bring effective and safe solutions to the populations that need them.

**Anne Gatignol**, a senior investigator in the Department of Medicine and Microbiology & Immunology at the Lady Davis Institute for Medical Research is one of the many McGill researchers who will leverage the new platform. The Gatignol lab has identified conserved elements in HIV RNA. Gatignol and her team intend to use Moderna's mRNA Access platform to design novel HIV vaccine candidates based on HIV structural proteins.

**[READ MORE \[+\]](#)**

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+

At the announcement that Moderna will build a state-of-the-art manufacturing facility in the Montreal area, Prime Minister of Canada, Justin Trudeau, and Quebec Premier, François Legault, meet with students and Martha Crago, Vice-Principal, Research and Innovation, in Professor Nahum Sonenberg's lab. (Photo: Alex Tetrault)

## **INTERNATIONAL PARTNERSHIP FOR THE INTERNATIONAL LABORATORY ON LEARNING SYSTEMS (ILLS)**

In 2022, a new international lab dedicated to artificial intelligence kicked off in Montreal, with McGill as a key partner. A consortium of research organizations formed the new International Laboratory on Learning Systems (ILLS) focused on artificial intelligence (AI).

The new centre connects McGill University, École de technologie supérieure (ÉTS), Mila - Québec AI Institute, France's Centre Nationale de la Recherche Scientifique (CNRS), Université Paris-Saclay, and the École Centrale Supélec. The new centre will emphasize interdisciplinary collaborations with the aim of developing new methodologies and integrating these techniques into learning systems.

[READ MORE \[+\]](#)

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*In 2021, the Office of Innovation + Partnerships launched the McGill Innovation Fund (MIF) to help projects move out of the lab and toward commercialization.*

---

The fund is structured to support McGill-developed Intellectual Property (IP). Teams are awarded one of three funding packages, ranging from \$25,000 to \$100,000. Teams also receive a one-year package of mentoring and advising. With nearly \$500,000 awarded each year, it is the largest entrepreneurial scheme of its kind at the University.

In its first year, nine projects were selected for support, with a total of \$475,000 awarded. Professor Nancy Mayo's team, PhysioBiometrics, aims to provide solutions to people suffering

from mobility issues by offering a self-supported walking monitor system. They successfully leveraged their \$100,000 award to advance the development of their product, expand their customer base, and increase their staff.

In 2022, ten projects were chosen, with an additional cleantech supplement fund of \$40,000 awarded to one team.

This supplemental prize was created following the generous gift of an alumnus benefactor. The **MIF** is just one example of how the University feeds its pipeline of spinoff projects.



## MCGILL SPINOFFS IN ACTION

### **CARBICRETE: CLEAN TECH FOR A MORE SUSTAINABLE FUTURE**

Founded by a team of McGill alumni, **CarbiCrete** has developed a formula for making cement-free, carbon-negative concrete. The material is used in Concrete Masonry Units (CMUs) that not only are cheaper to make, faster to cure and stronger than normal CMUs, but that also sequester carbon dioxide in their manufacture.

The Montreal-based start-up has won a string of international honours for its breakthrough technology: It was named to the 2020 and 2021 Building Tech 50 List in the High-Performance Materials category, and in 2022, it was classed among the fastest-growing sustainable companies in Canada in the Corporate Knights Future 50 ranking.



CarbiCrete co-founders Mehrdad Mahoutian (left) and Chris Stern (right)  
(Photo: McGill staff)

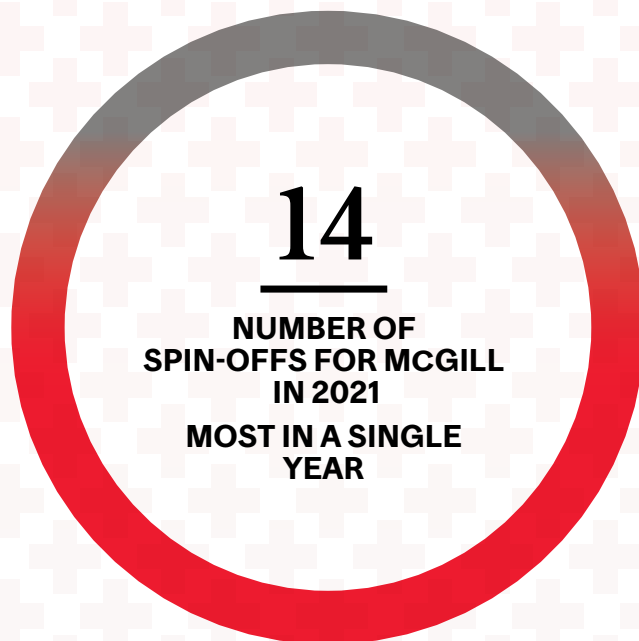


Photo: Owen Egan

## ANOMERA

In 2014, a team of researchers from McGill and the Government of Quebec discovered plastic microbeads – often used by the cosmetic industry – at the bottom of the St. Lawrence River. The search for a replacement for these polluting plastics may stop with McGill spinoff **Anomera Inc.**, which manufactures carboxylated Cellulose Nanocrystals (CNC) in a patented eco- friendly method. In 2021, Canada Economic Development (CED) invested \$4.25 million to support the construction of a facility that will produce 250 tonnes per year of carboxylated-cellulose nanocrystals (cCNC) and bring its cosmetics ingredients and industrial products to market. By the end of the year, Anomera started manufacturing its first commercial product, ChromaPur, at the facility in Temiscaming, Quebec. In 2022, the company opened a new 5,000 sq-ft lab space in its headquarters in downtown Montreal.







+ A quiet moment of study in the McGill Islamic Studies Library  
(Photo: Alex Tran)

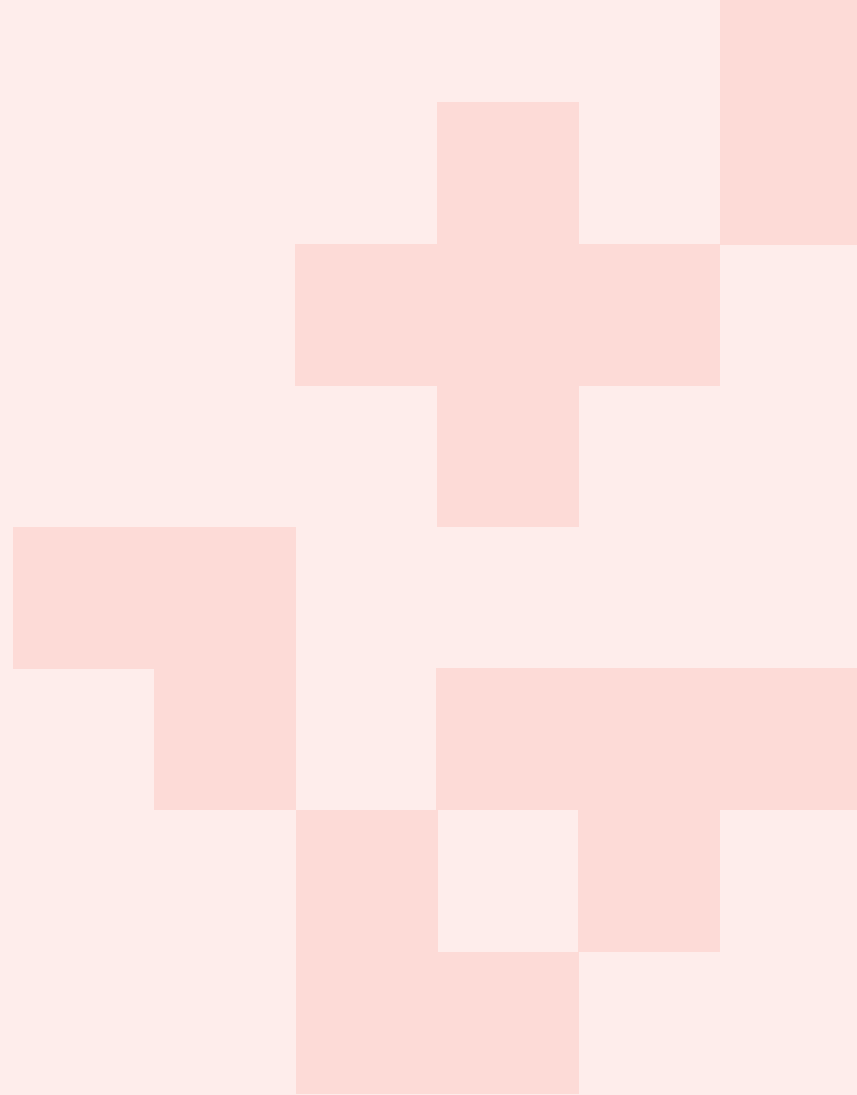


## AWARDS + PRIZES

*In 2022, 112 McGill researchers received major national and international prizes and awards. Bravo to all awardees!*

*Some of our prestigious winners are included on the following pages:*

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**BROCKHOUSE CANADA PRIZE  
FOR INTERDISCIPLINARY RESEARCH  
IN SCIENCE AND ENGINEERING/  
CHIME TEAM**

**Victoria Kaspi**, Professor, Department of Physics

---

**Matt Dobbs**, Professor, Department of Physics

---

**JOHNSON AND JOHNSON  
WISTEM2D SCHOLARS AWARD**

**Noémie-Manuelle Dorval Courchesne**, Assistant Professor, Department of Chemical Engineering

---

**ROYAL SOCIETY OF CANADA (RSC)  
FELLOWS**

**Ehab Abouheif**, James McGill Professor, Department of Biology, Faculty of Science

---

**Roussos Dimitrakopoulos**, Professor, Department of Mining and Materials Engineering, Faculty of Engineering; Tier 1 Canada Research Chair in Sustainable Mineral Resource Development and Optimization Under Uncertainty

---

**Allan Hepburn**, James McGill Professor, Department of English, Faculty of Arts

---

**Joel Kamnitzer**, Professor, Department of Mathematics and Statistics, Faculty of Science

---

**Gergely L. Lukacs**, Distinguished James McGill Professor, Department of Physiology, Faculty of Medicine and Health Sciences

---

**Stephen McAdams**, Professor, Department of Music Research, Schulich School of Music; Tier 1 Canada Research Chair in Music Perception and Cognition

---

**Heidi McBride**, Full Professor, Department of Neurology and Neurosurgery, and the Department of Anatomy and Cell Biology, Faculty of Medicine and Health Sciences; Tier 1 Canada Research Chair in Mitochondrial Cell Biology

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**Satya Prakash**, Professor, Department of Biomedical Engineering, and Department of Physiology, Faculty of Medicine and Health Sciences

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**Doina Precup**, Associate Professor, School of Computer Science, Faculty of Science

---

**Jonathan Sterne**, James McGill Professor, Department of Art History & Communication Studies, Faculty of Arts

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**Jennifer Welsh**, Professor, Department of Political Science, Faculty of Arts; Canada 150 Research Chair in Global Governance and Security; Director of the Centre for International Peace and Security Studies (CIPSS)

---

### **MEMBERS OF THE RSC COLLEGE OF NEW SCHOLARS, ARTISTS, AND SCIENTISTS**

**Nicolas Cowan**, Professor, Department of Earth and Planetary Sciences, Faculty of Science

---

**Patricia Pelufo Silveira**, Associate Professor, Department of Psychiatry, Faculty of Medicine and Health Sciences

---

**Nathan Spreng**, Professor, Department of Neurology and Neurosurgery, Faculty of Medicine and Health Sciences

---

**Debra Thompson**, Associate Professor, Department of Political Science, Faculty of Arts; Tier 2 Canada Research Chair in Racial Inequality in Democratic Societies

---

### **RSC RUTHERFORD MEMORIAL MEDAL IN PHYSICS & NSERC HERZBERG MEDAL**

**Daryl Haggard**, Associate Professor, Department of Physics

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### **RSC FLAVELLE MEDAL**

**Graham Bell**, Professor, Department of Biology

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### **RSC LORNE PIERCE MEDAL**

**Robert Lecker**, Department of English: Lorne Pierce Medal

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### **WORLD CULTURAL COUNCILS ALBERT EINSTEIN WORLD AWARD OF SCIENCE**

**Vicky Kaspi**, Professor, Department of Physics

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### **JOSE VASCONCELOS WORLD AWARD OF EDUCATION**

**Claudia Mitchell**, Distinguished James McGill Professor, Department of Integrated Studies in Education



## SPOTLIGHT ON THE SSHRC GOLD MEDAL

*One of Canada's most important social work scholars and an indefatigable advocate for Indigenous children's rights and welfare, Professor of Social Work, **Cindy Blackstock**, has been awarded the Social Sciences and Humanities Research Council's (SSHRC) Gold Medal, the federal agency's highest honour. The Gold Medal is awarded to an individual whose sustained leadership, dedication, and originality of thought have inspired students and colleagues alike.*

A member of the Gitxsan First Nation, Blackstock is a Professor in McGill's School of Social Work and the Executive Director of the First Nations Child and Family Caring Society of Canada. Blackstock has devoted decades of work to changing the state of First Nations Child Welfare in Canada, saying that children remind her of how to defeat anger and injustice in society through love. Her academic research focuses on inequities in First Nations' public and voluntary sector services and the over-representation of First Nations children in the welfare system. She has worked tirelessly to develop policy interventions to address these issues.

[READ MORE \[+\]](#)

---



Professor Cindy Blackstock  
(Photo: First Nations Child and  
Family Care Society of Canada)





*By the*  
Numbers



*By the Numbers examines McGill's overall standing in major funding programs and progress in areas related to industry and partnerships in FY2021.*

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This period reflects the most recent and complete data available from various sources including:

- **InfoEd Global**, McGill's internal research administration database;
- **Canadian Association of University Business Officers (CAUBO)**, a non-profit organization representing the chief administrative and financial officers of over 100 institutions across Canada;
- **Observatoire des sciences et des technologies (OST)**, an organization dedicated to science, technology, and innovation that maintains a national research funding database for its partners from the Tri-Agency, the three federal research funding agencies;
- **Les Fonds de recherche du Québec (FRQ)**, the Province's three research funding agencies;
- **SciVal**, a bibliometric tool, based on the Scopus database, that offers access to research performance metrics of over 10,000 institutions in 230 regions and countries;

- **Statistics Canada**, Canada's national statistics office; and
- **AUTM**, formerly known as the **Association of University Technology Managers**, a non-profit organization that supports and advances technology transfer.

Certain metrics within this report are benchmarked in comparison to the U15 Group of Canadian Research Universities. For other metrics, the University of Toronto, the University of British Columbia, l'Université de Montréal, the University of Alberta and McMaster University have been selected as comparator peer institutions as they resemble McGill in size, scope of research and research intensity with a medical doctoral program, referred to as the U6 along with McGill for the purposes of this report. Provincially, l'Université de Montréal, l'Université Laval, and l'Université de Sherbrooke serve as comparators as they are the only peer institutions with medical schools, referred to as the QC4 along with McGill for the purposes of this report.



## RANKINGS

TABLE 1: U6 UNIVERSITY RANKINGS, 2023 (2022)

| INSTITUTION                    | MACLEAN'S<br>MEDICAL/ DOCTORAL<br>2023 (2022) | QUACQUARELLI SYMONDS<br>(QS) WORLD UNIVERSITY<br>RANKINGS 2023 (2022) | TIMES HIGHER EDUCATION<br>(THE) WORLD UNIVERSITY<br>RANKINGS 2022 (2021) |
|--------------------------------|---|---|--|
| <b>McGill University</b>       | <b>1 (1)</b>                                  | <b>31 (27*)</b>   | <b>46 (44)</b>   |
| University of Toronto          | 2 (2)   | 34* (26*)   | 18 (18*)   |
| University of British Columbia | 2 (3)   | 47 (46)   | 40 (37)  |
| McMaster University            | 4 (4)   | 152 (140)   | 85 (80*)   |
| University of Alberta          | 5 (6)   | 110 (126)   | 118 (125)  |
| Université de Montréal         | 10 (9*)                                       | 116* (111)  | 111 (88*)  |

Source: Maclean's, QS, THE. \* indicates a tie with another institution.

*McGill is the top ranked Canadian University for the first time in five years in the QS World University Rankings in 2023 at 31<sup>st</sup>.*



# RESEARCH FUNDING PERFORMANCE

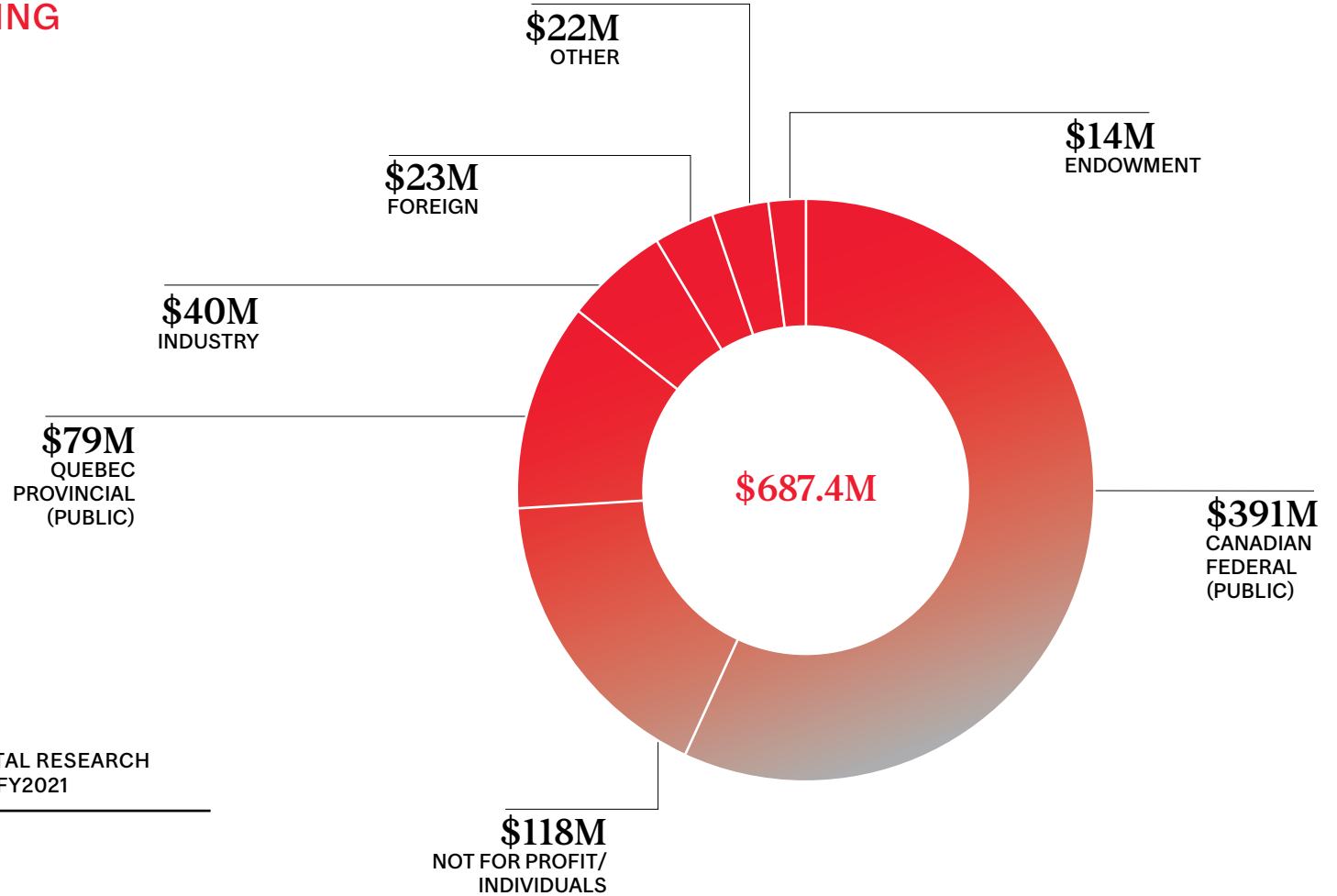
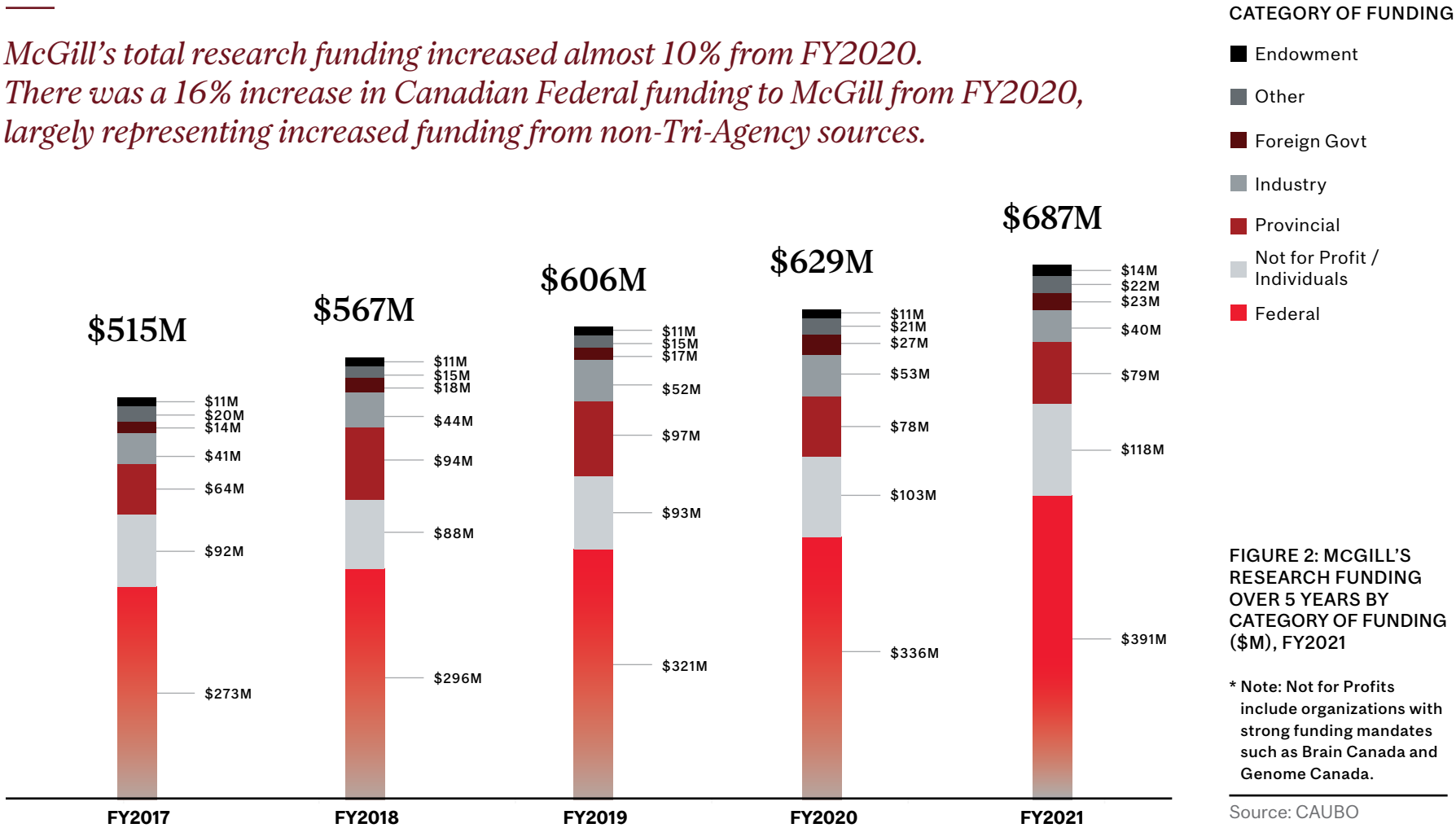


FIGURE 1: CATEGORIES OF TOTAL RESEARCH FUNDING AND AMOUNT (\$M), FY2021

Source: CAUBO

McGill's total research funding increased almost 10% from FY2020. There was a 16% increase in Canadian Federal funding to McGill from FY2020, largely representing increased funding from non-Tri-Agency sources.

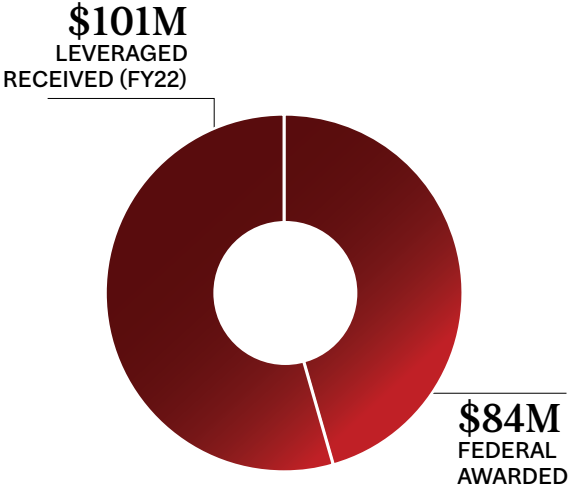


**FIGURE 2: MCGILL'S RESEARCH FUNDING OVER 5 YEARS BY CATEGORY OF FUNDING (\$M), FY2021**

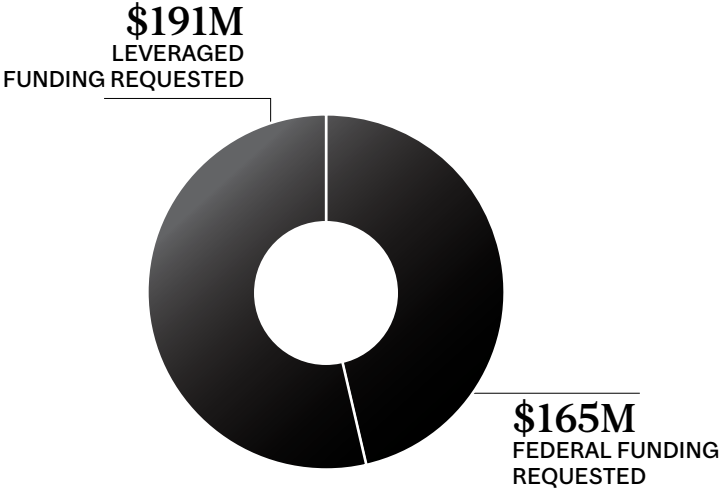
\* Note: Not for Profits include organizations with strong funding mandates such as Brain Canada and Genome Canada.

Source: CAUBO

The Canada First Research Excellence Fund (CFREF), is a significant source of federal funding for McGill. In the past, McGill obtained \$84M in CFREF funding for an initiative titled Healthy Brains, Healthy Lives (HBHL). In 2022, McGill again applied for CFREF grant, but for almost double that amount, \$165M. If successful, McGill could also use this funding to leverage an additional \$191M from partners. Results of the competition are expected to be publicly announced in late April.



Funding awarded (\$M) for the Healthy Brains, Health Lives initiative 2017-2025 (2016 competition)



Funding applied (\$M) for DNA to RNA: An Inclusive Canadian Approach to Genomic-based RNA Therapeutics (D2R) initiative 2023-2030 (2022 competition, results not yet announced)

FIGURE 3: CANADA FIRST RESEARCH EXCELLENCE FUND

TABLE 2: U15 TOTAL RESEARCH FUNDING (\$M)  
AND FACULTY COUNT, FY2021

\* Faculty counts include full time, tenure / tenure track academic staff.

Source: CAUBO (Totals) and Statistics Canada (Faculty Counts)

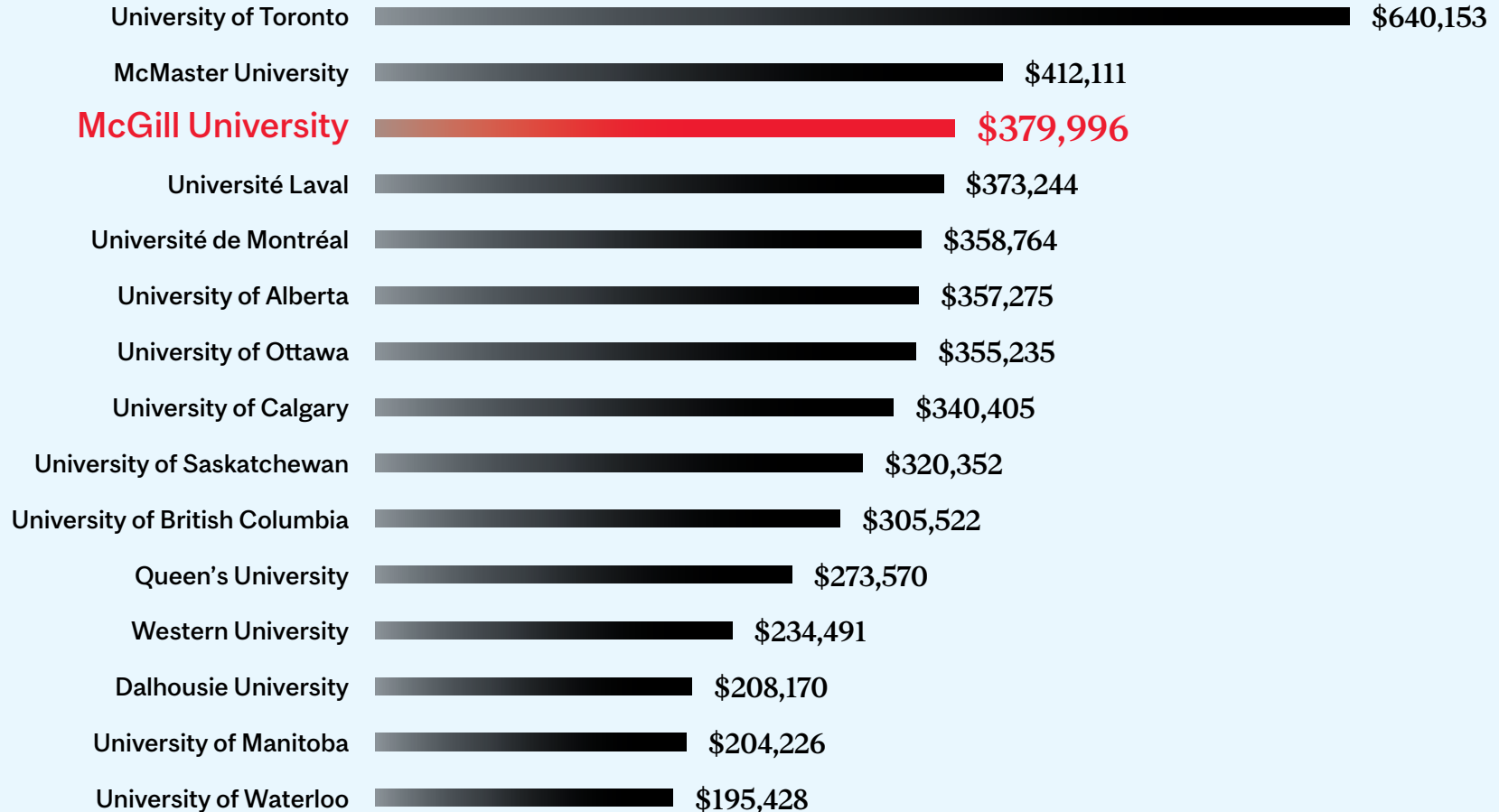
| INSTITUTION                    | TOTAL RESEARCH FUNDING<br>(IN 1000'S) | FACULTY COUNT* |
|--------------------------------|---------------------------------------|----------------|
| University of Toronto          | \$1,461M                              | 2,283          |
| University of British Columbia | \$726.8M                              | 2,379          |
| <b>McGill University</b>       | <b>\$687.4M</b>                       | <b>1,809</b>   |
| Université de Montréal         | \$682.3M                              | 1,902          |
| University of Alberta          | \$554.1M                              | 1,551          |
| Université Laval               | \$515.1M                              | 1,380          |
| University of Calgary          | \$504.5M                              | 1,482          |
| University of Ottawa           | \$432.7M                              | 1,218          |
| McMaster University            | \$374.6M                              | 909            |
| University of Saskatchewan     | \$285.4M                              | 891            |
| Western University             | \$263.8M                              | 1,125          |
| University of Manitoba         | \$231.0M                              | 1,131          |
| Queen's University             | \$227.3M                              | 831            |
| University of Waterloo         | \$221.0M                              | 1,131          |
| Dalhousie University           | \$183.6M                              | 882            |

—  
*Total funding and faculty count together are used to calculate the funding per faculty, also referred to as “research intensity” (Figure 4).*



FIGURE 4: U15 RESEARCH FUNDING PER FACULTY MEMBER (RESEARCH INTENSITY), FY2021 (\$K)

Source: CAUBO (totals) and Statistics Canada (faculty counts)





## TRI-AGENCY FUNDING

| INSTITUTION                    | TOTAL TRI-AGENCY FUNDING | SHARE OF U15  |
|--------------------------------|--------------------------|---------------|
| UNIVERSITY OF TORONTO          | \$390.0M                 | 20.5%         |
| UNIVERSITY OF BRITISH COLUMBIA | \$214.2M                 | 11.3%         |
| <b>McGill University</b>       | <b>\$194.5M</b>          | <b>10.1%</b>  |
| UNIVERSITÉ DE MONTRÉAL         | \$162.5M                 | 8.5%          |
| UNIVERSITY OF ALBERTA          | \$140.6M                 | 7.4%          |
| MCMASTER UNIVERSITY            | \$114.7M                 | 6.0%          |
| UNIVERSITY OF CALGARY          | \$110.6                  | 5.8%          |
| UNIVERSITÉ LAVAL               | \$105.1M                 | 5.5%          |
| UNIVERSITY OF OTTAWA           | \$102.2M                 | 5.4%          |
| UNIVERSITY OF WATERLOO         | \$74.9M                  | 3.9%          |
| WESTERN UNIVERSITY             | \$70.4M                  | 3.7%          |
| UNIVERSITY OF SASKATCHEWAN     | \$61.4M                  | 3.2%          |
| DALHOUSIE UNIVERSITY           | \$59.1                   | 3.1%          |
| UNIVERSITY OF MANITOBA         | \$55.0M                  | 2.9%          |
| QUEEN'S UNIVERSITY             | \$49.8M                  | 2.6%          |
| <b>GRAND TOTAL</b>             | <b>\$1,901.9M</b>        | <b>100.0%</b> |

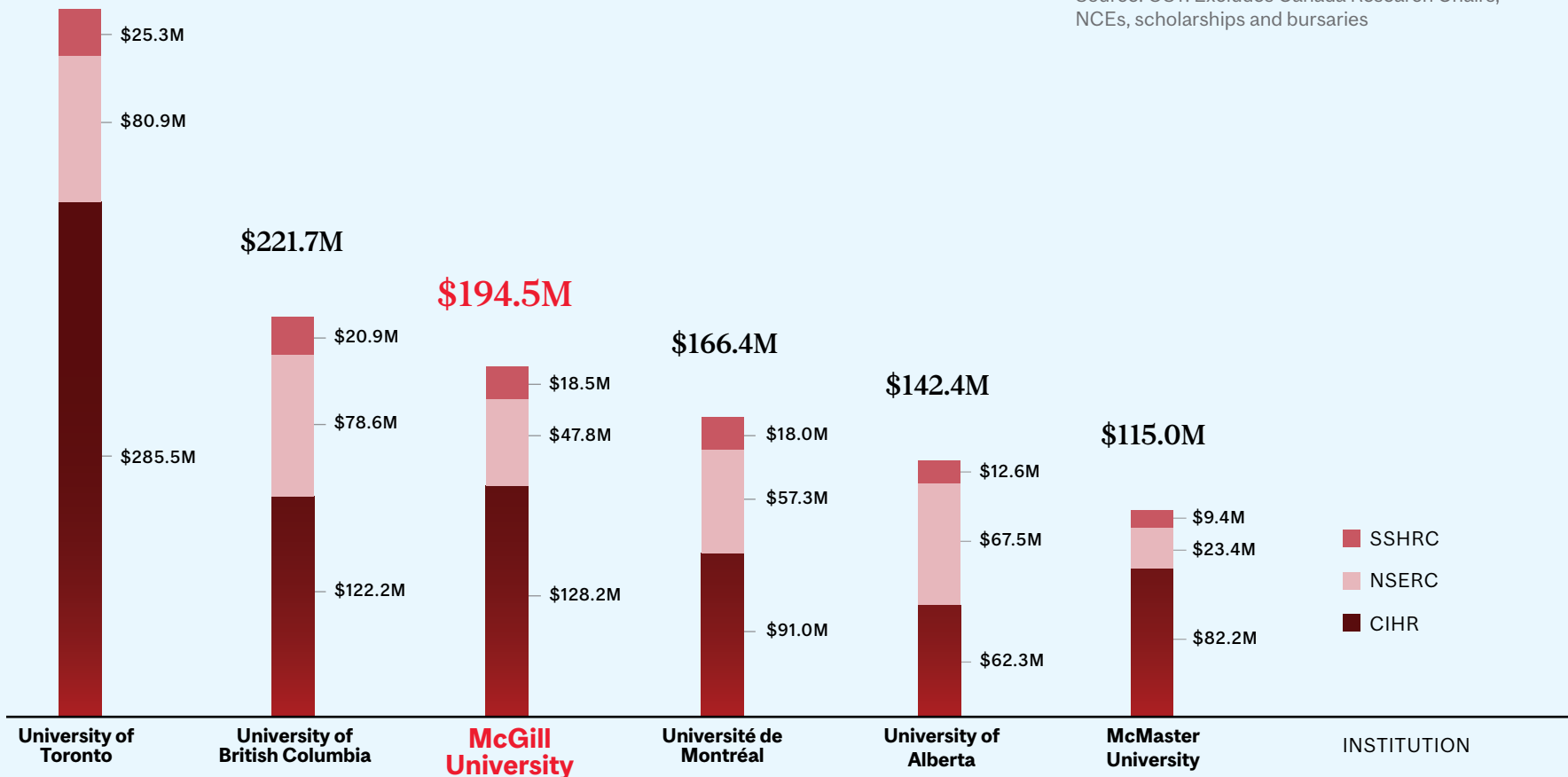
TABLE 3: TOTAL AMOUNT OF TRI-AGENCY FUNDING AND PERCENT SHARE OF FUNDING FOR U15, FY2021

Source: OST

\$391.7M

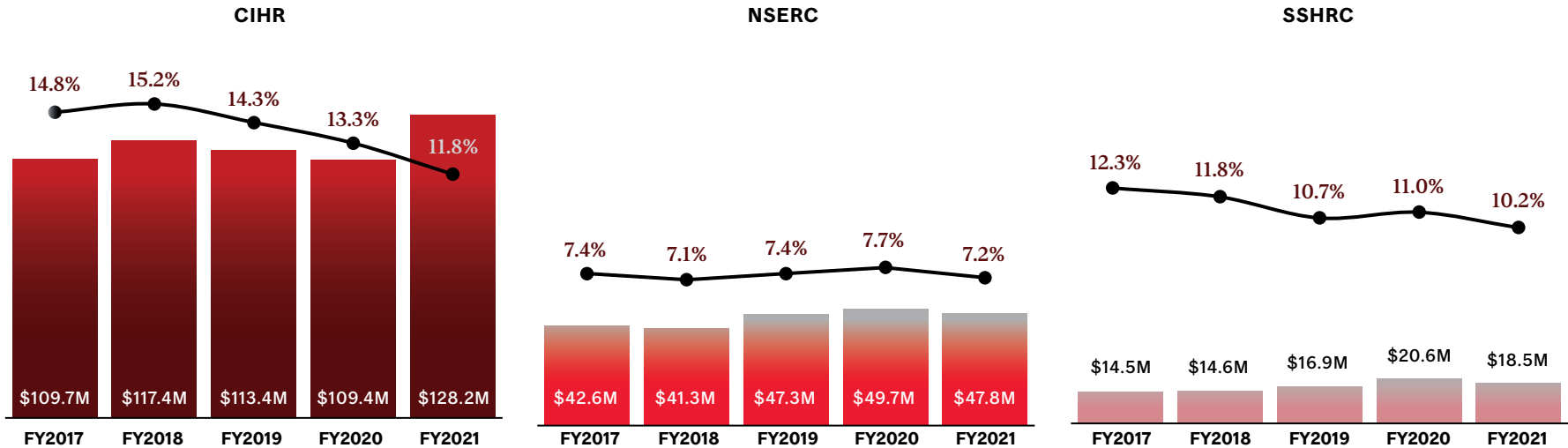
FIGURE 5: U6 TOTAL TRI-AGENCY FUNDING, FY2021

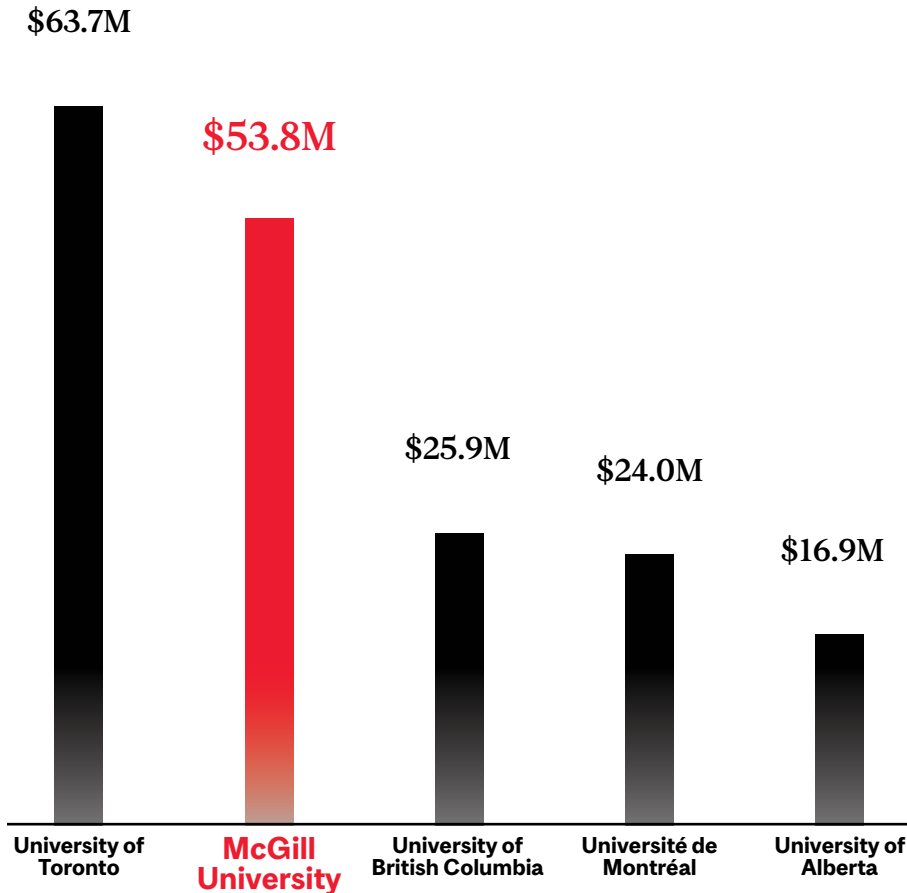
Source: OST. Excludes Canada Research Chairs, NCEs, scholarships and bursaries



**FIGURE 6: MCGILL'S SHARE OF U15 TRI-AGENCY FUNDING AND TOTAL FUNDING AMOUNT FY2017 TO FY2021**

Source: OST. Excludes Canada Research Chairs, NCEs, scholarships and bursaries





*In the Fall 2022 CIHR Project Grant competition, McGill was awarded 63 projects, for a total of \$53.8M, the largest amount McGill has been awarded in a single Project Grant competition over the last six years. The average grant size was \$855K, well above McGill's historic average in this competition. McGill's share of funding in the U5 was also well above its average for this competition at almost 30%. This demonstrates that research funding varies over time, and despite the trends in previous charts, McGill continues to be strong in health research funding.*

FIGURE 7: TOTAL \$ AWARDED (\$M) IN THE CIHR PROJECT COMPETITION, FALL 2022

Source: Canadian Institutes of Health Research

A Funding Efficiency Index (FEI) of 1.00, depicted by the gray line, reflects a situation where the share of the U15 Tri-Agency funding is proportionate to the share of the U15 faculty count. Figure 8 indicates that for CIHR and SSHRC funding, McGill has a greater share of funding relative to faculty size ( $FEI > 1.00$ ). For NSERC, McGill has a smaller share of the NSERC funding to the U15 relative to its faculty count ( $FEI < 1.00$ ).

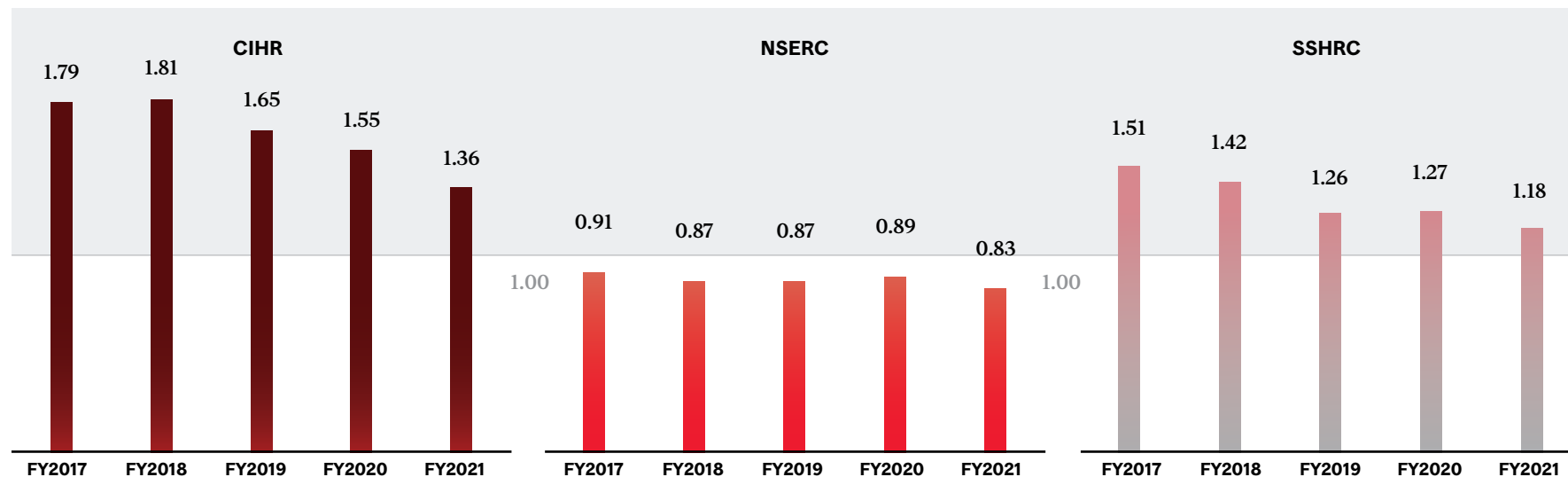
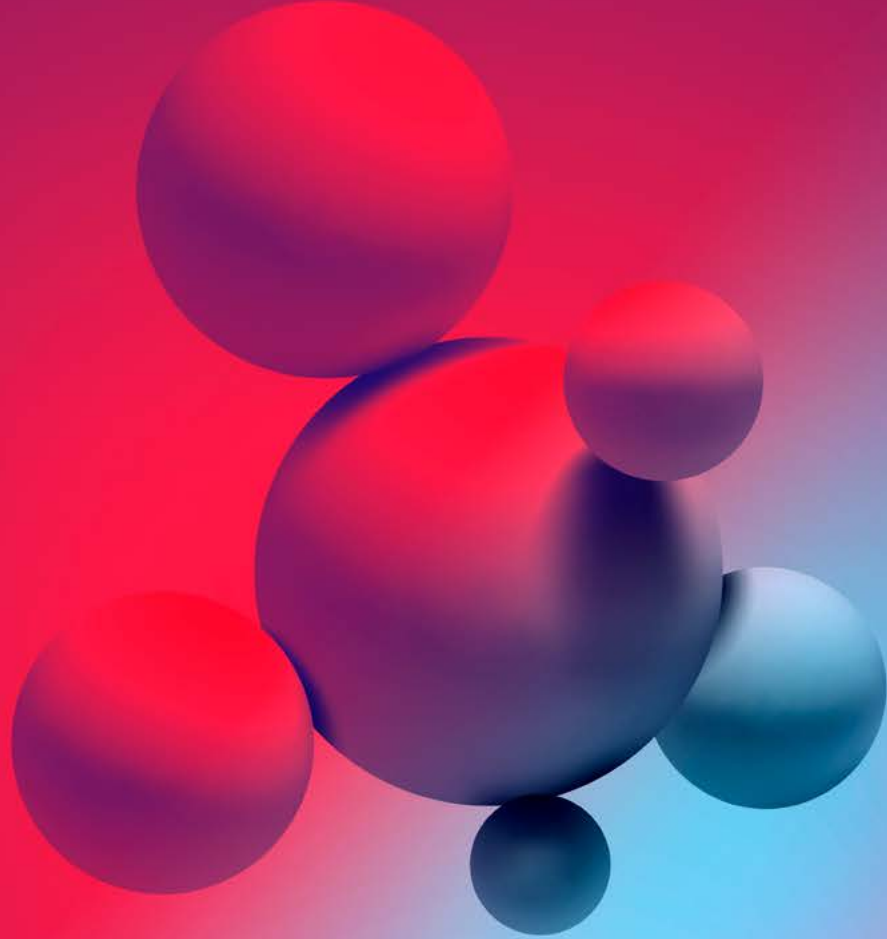


FIGURE 8: MCGILL'S SHARE OF U15 TRI-AGENCY FUNDING RELATIVE TO FACULTY SIZE (FUNDING EFFECIENCY INDEX), FY2017 TO FY2021

Source: OST and Statistics Canada

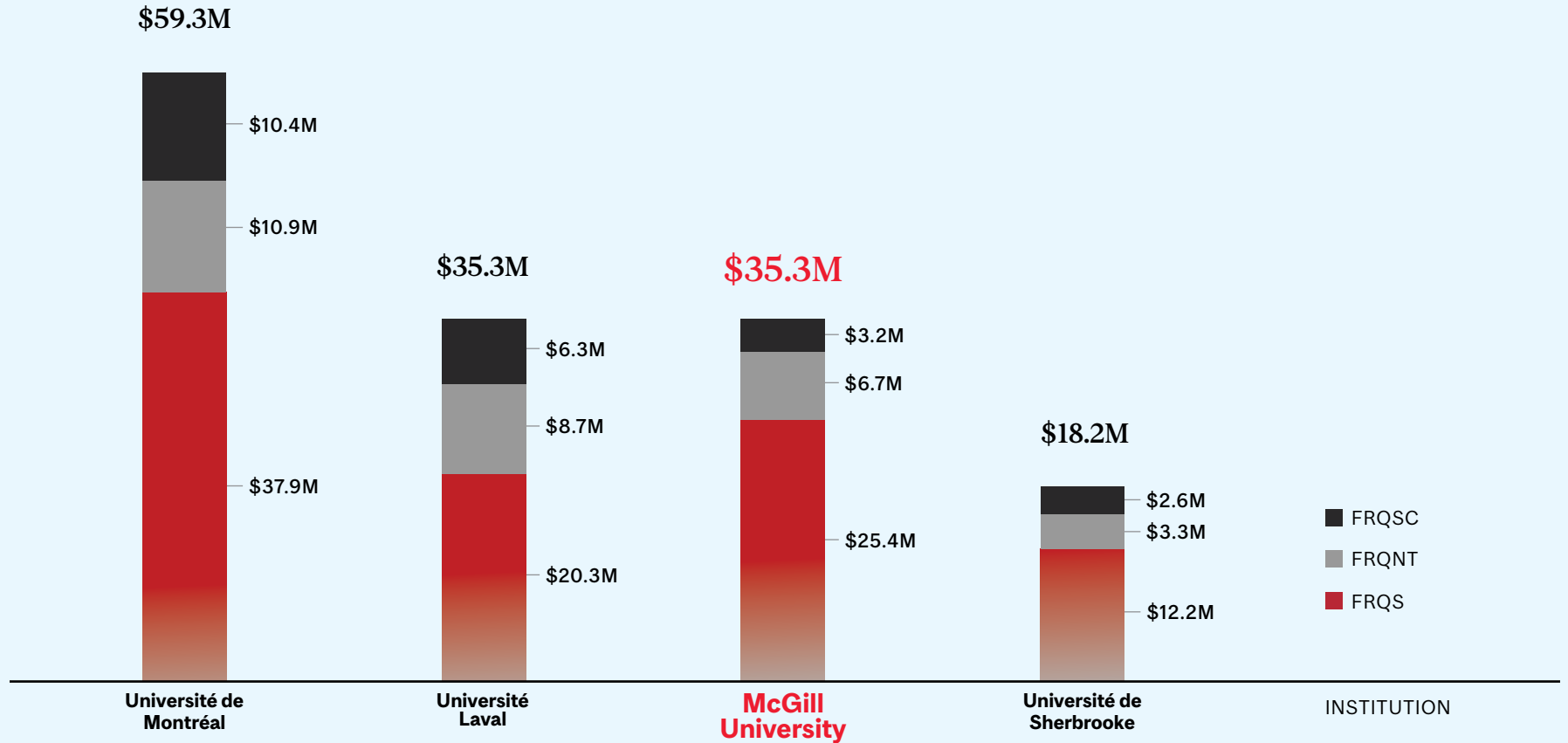




# FONDS DE RECHERCHE DU QUÉBEC FUNDING

FIGURE 9: QC4 TOTAL FRQ FUNDING, FY2021

Source: FRQ. Excludes bourses et stages de formation.  
Fiscal year for FRQ is April 1<sup>st</sup> to March 31<sup>st</sup>.





## INDUSTRY SPONSORED RESEARCH FUNDING

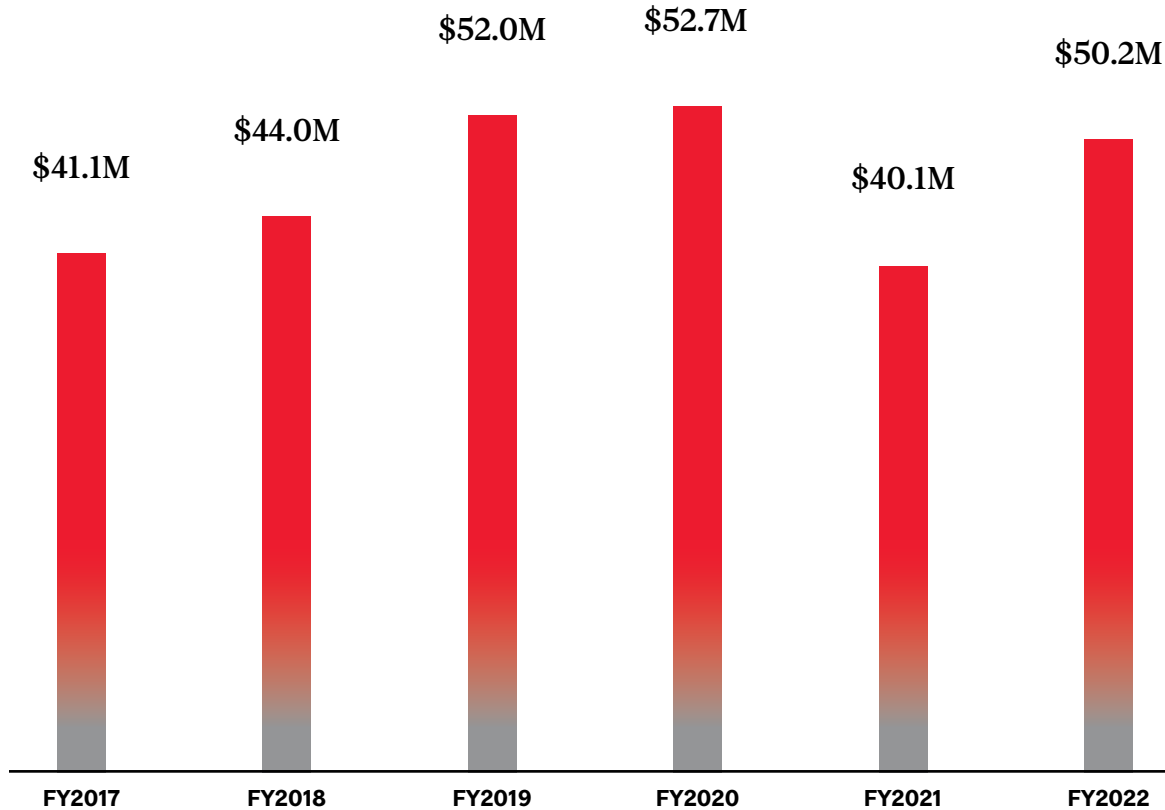


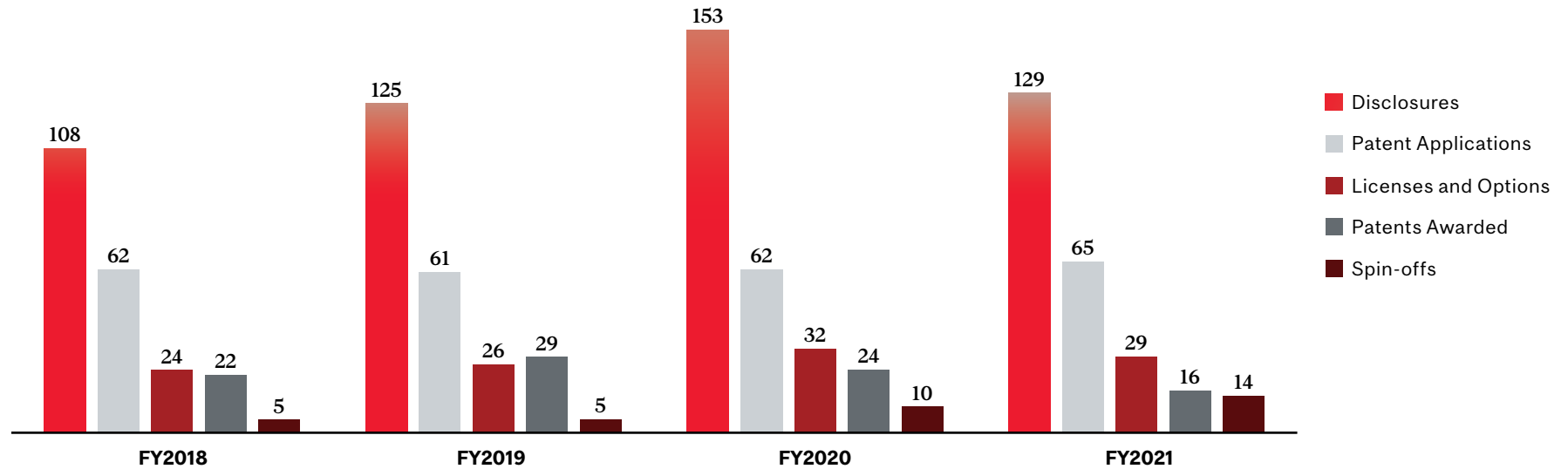
FIGURE 10: MCGILL'S INDUSTRY SPONSORED RESEARCH FUNDING OVER SIX YEARS, FY2017 TO FY2022

Source: CAUBO, includes industry sponsored donations and grants and contracts.

Data for FY2022 is preliminary at this time

FIGURE 11: INNOVATION AND PARTNERSHIP METRICS, FY2018 TO FY2021

Source: McGill Innovation and Partnerships





## PUBLICATIONS + BIBLIOMETRICS

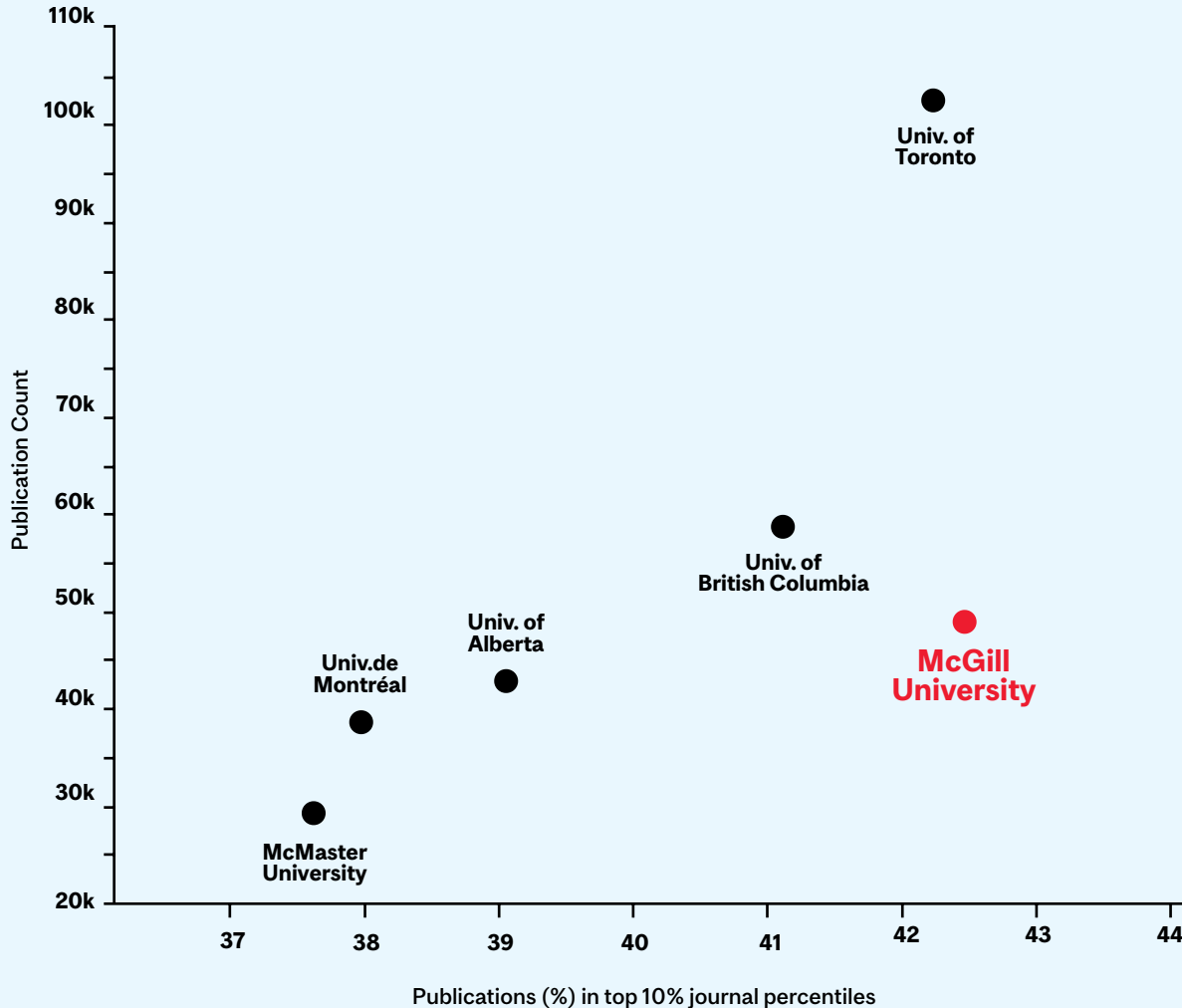
*Since 2012, McGill has shown a consistent yearly increase in scholarly output (publication count). Field-Weighted Citation Impact (FWCI) has also increased, with slight decreases in the last two years for which citation data is not yet complete as it is a time dependent metric.*

*This metric reflects how the number of citations received by McGill publications compares with the average number of citations received by similar publications. A FWCI of 1.00 indicates that publications have been cited as would be expected based on the global average for similar publications. McGill's FWCI has consistently been well over 1.00.*

TABLE 4: KEY BIBLIOMETRICS FOR MCGILL, 2012 TO 2021

| METRIC                         | 2012  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021   |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| NUMBER OF PUBLICATIONS         | 7,871 | 8,244 | 8,416 | 8,705 | 8,716 | 9,132 | 9,323 | 9,407 | 9,737 | 10,464 |
| FIELD-WEIGHTED CITATION IMPACT | 1.88  | 1.79  | 1.83  | 1.95  | 1.96  | 1.85  | 1.86  | 1.83  | 1.59  | 1.63   |

Source: SciVal. Data as of January, 2023



*In the U6, McGill is third in publication count but has the highest percentage of publications in the top 10% journal percentiles.*

*The top journal percentiles are based on CiteScore, which measures the citation impact of journals in Scopus. It is based on number of citations for a journal, divided by number of articles published in the journal, both during the last 4 years.*

FIGURE 12: U6 PUBLICATION COUNT VS PERCENT OF PUBLICATIONS IN TOP JOURNAL PERCENTILES, 2017 TO 2021

Size of bubble reflects combined scholarly output, 2017 to 2021.

Source: SciVal. Data as of January 23, 2023

Table 5 provides a list of the international institutions with which McGill has had the greatest number of co-authored publications over the last five years. At the top of this list is Harvard University, with over 2,500 co-authored publications.

The top 10 institutions collaborating with McGill come from three countries: the United States, France and the United Kingdom.

TABLE 5: TOP 10 INTERNATIONAL INSTITUTIONS COLLABORATING WITH MCGILL BY NUMBER OF CO-AUTHORED PUBLICATIONS, 2017 TO 2021

| RANK | INSTITUTION   | COUNTRY        | CO-AUTHORED PUBLICATIONS |
|------|---|----------------|--------------------------|
| 1    | Harvard University  | United States  | 2522                     |
| 2    | CNRS  | France         | 2016                     |
| 3    | University College London                                 | United Kingdom | 1323                     |
| 4    | Université Paris Cité                                     | France         | 1288                     |
| 5    | University of Pennsylvania                                | United States  | 1284                     |
| 6    | Institut national de la santé et de la recherche médicale | France         | 1266                     |
| 7    | University of Michigan, Ann Arbor                         | United States  | 1263                     |
| 8    | University of Washington                                  | United States  | 1202                     |
| 9    | Columbia University                                       | United States  | 1189                     |
| 10   | University of Oxford                                      | United Kingdom | 1184                     |

Source: SciVal. Data as of January 23, 2023.





In alignment with recommendations stemming from the San Francisco Declaration on Research Assessment (DORA), McGill recognizes the value of non-traditional research outputs. One qualitative indicator of research impact is the influence of research on policy and practice. Below is a brief summary of the impact of McGill research on policy from January 2017 to December 2022.

- McGill publications were cited in almost 5,000 policy documents
- Policy bodies included:
  - World Health Organization  
(policy body citing McGill publications most frequently)
  - World Bank
  - Government of Canada
  - Province of Québec
  - Organisation for Economic Co-operation and Development
  - United Nations Environment Programme

Signatory of



**DORA**

“

*The excellence of McGill's research community is matched by the dedication of those who support their endeavours.*

”

Martha Crago, Vice-Principal, Research + Innovation



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