

2022-2023

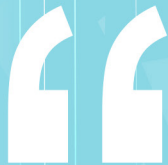
ANNUAL REPORT

INSPIRE • INNOVATE • IMPACT

Strengthening Manitoba's Research and Innovation Footprint



Research
Manitoba



Research Manitoba continues to be a source of research excellence in the province by strengthening research capacity that supports key Manitoba government priorities and investing in researchers and students in creating new technologies, medicines, and strategies that will help solve Manitoba's biggest challenges. Research Manitoba is also playing a significant role through RITHIM in the harmonization of ethics, impact, and privacy needs of researchers that will lead to significant growth in clinical trials being orchestrated in Manitoba. An investment in research is an investment in healthcare solutions, business innovation, and job creation for Manitoba, which is invaluable.

- **Dr. Peter Nickerson, Vice-Provost (Health Sciences) and Dean, Distinguished Professor of Medicine and Immunology, Flynn Family Chair in Renal Transplantation, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba**



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MESSAGE FROM THE BOARD CHAIR



ANDREA LEGARY

BOARD CHAIR

*Chief Science and Technology
Officer, The Recoup Group*

It is with great pride that I present Research Manitoba's 2022-2023 Annual Report outlining a year spent strengthening Manitoba's research and innovation footprint.

In this period, the Board of Directors approved a budget that successfully attracted a total investment of \$34.4M into Manitoba's Research community enhancing the return on investment of the \$12M of provincial funding received. Investments were made across all provincial priority sectors to support a multitude of inspiring and innovative research initiatives and critical workforce development within Manitoba's research enterprise, a sample of which are summarized here within the annual report.

The Board is pleased to have the continued support from government and stakeholders for the RITHIM initiative. This is a complex but much-needed piece of research infrastructure that is advancing toward completion as a result of the hard work by the Research Manitoba team and partners. This was the first year of operations for the Provincial Health Research Privacy Committee, which approves the use of personal health information for research purposes, that Research Manitoba supports under the Personal Health Information Act. Thank you to the first members of this committee for their dedication and contribution toward streamlining approvals for health research in Manitoba.

In 2022-23, our strong and diverse Board invested time in board and policy development to strengthen board governance to enable us to carry out our duties and responsibilities with diligence. New Board members Erin Romeo and Jason Leibert joined the team while we thanked Digvir Jayas and Cheryl Mayer for their service. We also welcomed new ex-officio Board member Ray Hoemsen (Chair of Research Advisory Committee) and thanked outgoing ex-officio member Nicole Rosen (Chair of Research Advisory Committee) for her years of support in this role.

We extend much gratitude to former Deputy Minister Kathryn Gerrard for her guidance and support and to our current Deputy Minister of Economic Development, Investment and Trade, Jerin Valel for his exceptional commitment and expertise given to Research Manitoba.

As Board Chair, I would like to thank the dedicated members of the Research Manitoba Board for their time, wisdom, and contributions toward Manitoba's research and innovation enterprise.

Finally, on behalf of the board, I would like to recognize and thank the dedicated and hard working staff at Research Manitoba, who under the strong leadership of our CEO Karen Dunlop, bring passion and commitment to their work that supports our collective efforts to strengthen Manitoba's research and innovation enterprise.

Research Manitoba looks forward to the year ahead and our continued contribution to Manitoba's future, fueled by the talent, imagination, and collaboration of Manitoba researchers and innovators.

MESSAGE FROM THE CHIEF EXECUTIVE OFFICER

Research Manitoba is committed to the future – one that strengthens the research footprint in Manitoba, and one that will ensure our researchers continue to make a difference in the lives of countless Canadians for generations to come.

As the provincial research agency, we work toward identifying ways in which Manitoba's research strengths can be brought to address issues and opportunities to support our growth and success as a province.

The following annual report shares highlights of some of the exciting ways in which Research Manitoba is working toward these goals and strengthening the research footprint in Manitoba. Our successful efforts at Research Manitoba would not be possible without our network of partners and key stakeholders that share our passion for research.

We thank the province of Manitoba, Minister of Economic Development Investment and Trade for our annual grant of \$12M. Through our grants and awards we were able to leverage an additional \$23.3M with the \$11.1M we invested in programs for a total investment of \$34.4M. These funds advance research and strengthen Manitoba's economy, foster innovation, and build infrastructure. Our programs support research and innovation in health, natural science, social sciences, the humanities, engineering, and in the provincial priority sectors of advanced manufacturing, bioscience, infrastructure, transportation, and information technology.

Research Manitoba is committed to building capacity for research, supporting workforce/talent development, fostering innovation in Manitoba, and celebrating those successes. We are proud to support trainees, early career researchers and Manitoba industry partners in their research and innovation. This includes our partnership with Mitacs that resulted in 275 internships with Manitoba companies to also support their research and development. Funding for 22 Innovation Proof of Concept grants supported innovation projects led by Manitoba industry and academic researchers.

We continued to support our world class researchers in their work, leading large research projects out of Manitoba. We also developed new partnerships through a new Research Chair in neurologic stroke, advance science in Alzheimer's research and entered a novel partnership to involve high school students across Manitoba in research involving drone technology that advances STEM education. These projects have assisted us further by leveraging collective investment, commitment, and strengths.

We continued to build the Research Improvements Through Harmonization in Manitoba (RITHIM) program with input and feedback from a variety of stakeholders who have and continue to contribute to its development. This year marked the first year of Research Manitoba supporting the Provincial Health Research Privacy Committee, which holds the authority to approve the use of personal health information for research purposes. As a learning organization, we look to the community for feedback and suggestions on how to build and improve our processes toward the goal of streamlining processes in Manitoba.

When I look back, it becomes evident that the successes described in the stories within this annual report are the result of talent, persistence, and collaboration. This includes our hardworking and talented staff who I would like to thank. It is a sincere pleasure working with this dedicated team.

Research Manitoba's role remains strong and continues to grow as we invest in the research enterprise to develop needed programs, attract, and empower talented people, and achieve impacts that build on successes to show the world what Manitoba can achieve.

We are proud of what we have accomplished and where we are headed.



A handwritten signature in black ink, appearing to read 'K. Dunlop', positioned below the portrait.

KAREN DUNLOP
CHIEF EXECUTIVE OFFICER
Research Manitoba



Research
Manitoba

OUR Mandate

Research Manitoba promotes, supports and coordinates the funding of research excellence and innovation in health, natural and social sciences, engineering and the humanities in Manitoba.

OUR History

On June 19, 2014 the Manitoba government established Research Manitoba under the Research Manitoba Act as a way to bring major provincial research funding programs together under one umbrella for the organization, making more focused and effective use of the research dollars and building on the province's strengths and strategic priorities.

This ensures that researchers and innovators can excel and follow their passion within Manitoba's research community, advancing and improving all.

OUR Mission

To promote, support, and coordinate the funding of research in: the health, natural & social sciences, engineering, and the humanities in Manitoba.

OUR Vision

Canadians and people around the world benefit from the knowledge created and applied by a world-class research and innovation enterprise in Manitoba.

OUR Values

- ① Excellence in research informs investment.
- ① Innovation is a key input and expected outcome.
- ① Collaboration with and among partners and stakeholders is vital to development, implementation and success.

Our

Strategic Goals

2019 - 2023

Goal 1:

ADVANCE RESEARCH IN MANITOBA

Goal 2:

STRENGTHEN THE ECONOMY THROUGH STRATEGIC RESEARCH AND INNOVATION INVESTMENTS IN PRIORITY INDUSTRY SECTORS

Goal 3:

CHAMPION THE MANITOBA RESEARCH COMMUNITY

Goal 4:

SUPPORT WORKFORCE AND TALENT DEVELOPMENT



Our Leadership

FOR THE YEAR ENDED MARCH 31, 2023

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I would like to congratulate Research Manitoba on a successful year of supporting research excellence in our province. We are proud to showcase world-leading research and innovation in critical areas including health sciences and medical breakthroughs, Arctic and climate change, food and water security, Indigenous research, human rights and social justice while making meaningful impacts in countless lives around the globe each year. Research Manitoba plays a significant role in achieving these collective successes, including attracting and retaining top talent to build the workforce of the future, despite operating with limited budget. It's an honour and privilege to serve as a member of the board, and on behalf of the University of Manitoba I offer my sincere appreciation to the entire Manitoba research community.

- **Dr. Mario Pinto, Vice-President (Research and International) at the University of Manitoba**



Research Manitoba

Board Members

FOR THE YEAR ENDED MARCH 31, 2023

Research Manitoba's Board of Directors includes membership from the research community, provincial government, industry, academic institutions, and health agencies. Board appointments are made by Lieutenant Governor in Council on the recommendation of the Minister. The Board will consist of at least nine but not more than 17 directors. The Board members' time and expertise are essential to our ongoing success and future direction, and we are grateful for their contributions.

2022-2023 Research Manitoba Board Members

Ms. Andrea Legary (Chair)

Chief Science and Technology Officer, The Recoup Group

Mr. Jason Leibert (Vice-Chair)

Chief Growth Officer, MSP Starch Product Inc.

Mr. James Sandison (Secretary-Treasurer)

President, SCS Inc.

Dr. Rashid Ahmed

Associate Professor, Department of Community Health Sciences, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba

Dr. Athar Ata

Chair and Professor of Chemistry, The University of Winnipeg

Dr. Hani El-Gabalawy

Professor of Medicine and Immunology, Endowed Rheumatology Research Chair, University of Manitoba

Mr. Luis Escobar

Principal, Transportation, Stantec Consulting

Mr. Earl Gardiner

Founder and Executive Chairman of Careica Health

Ms. Cheryl Mayer - (Term ended in October 2022)

Director, Policy Development at Canadian Canola Growers Association

Dr. Peter Nickerson

Vice-Provost (Health Sciences) and Dean, Distinguished Professor of Medicine and Immunology, Flynn Family Chair in Renal Transplantation, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba

Ms. Erin Romeo

Executive Vice-President, Digital Innovation, Strategy and Partnerships - Glacier FarmMedia

Ex-officio members (non-voting):

Mr. Jerin Valel - (Term active as of January 2023)

Deputy Minister of Economic Development, Investment and Trade, Province of Manitoba

Ms. Kathryn Gerrard - (Term ended in January 2023)

Deputy Minister of Economic Development, Investment and Trade, Province of Manitoba

Mr. Ray Hoemsen - (Term active as of February 2023)

President & Managing Director, Nexus Manitoba

Ms. Nicole Rosen - (Term ended in January 2023)

Professor and Canada Research Chair in Language Interactions, Department of Linguistics, University of Manitoba, Research Advisory Committee (Chair)

2022-2023 Board Members



Andrea Legary



Jason Liebert



James Sandison



Rashid Ahmed



Athar Ata



Hani El-Gabalawy



Luis Escobar



Earl Gardiner



Cheryl Mayer



Peter Nickerson



Erin Romeo

Research

Advisory Committee

FOR THE YEAR ENDED MARCH 31, 2023

Research Manitoba's Research Advisory Committee (RAC) provides strategic advice and makes recommendations to the Research Manitoba Board on research-related and peer review opportunities and activities. The membership of RAC should reflect the broad experience with research in the health, natural and social sciences, engineering, and the humanities in Manitoba. RAC is committed to creating a future that is rich with opportunities for researchers and trainees, ultimately supporting the growth of the the research ecosystem in Manitoba.

2022-2023 Research Advisory Committee:

Mr. Ray Hoemsen (Chair - Term active as of February 2023)

President & Managing Director, Nexus Manitoba

Ms. Nicole Rosen - (Chair - Term ended in January 2023)

Professor and Canada Research Chair in Language Interactions, Department of Linguistics, University of Manitoba, Research Advisory Committee (Chair)

Dr. Paul Alexandre

Professional Associate III (equivalent of Associate Professor), Department of Geology, Faculty of Science, Brandon University

Mr. Jeremy Chopek

Assistant Chair, Dept. of Physiology and Pathophysiology, University of Manitoba

Dr. Allison Dart

Assistant Professor and Pediatric Nephrologist, Department of Pediatrics and Child Health, Rady Faculty of Health Sciences, University of Manitoba

Dr. Jean-Eric Ghia

Professor, Departments of Immunology & Internal Medicine (Section of Gastroenterology), Rady Faculty of Health Sciences, University of Manitoba

Dr. Tara Giller

Manager, Engagement Science, Symend

Mr. Robert Hastings

CEO, West Canitest R&D Inc (WestCaRD)

Mr. Ayush Kumar

Associate Dean, (Strategic Initiatives), Faculty of Science, Professor, Dept. of Microbiology, University of Manitoba

Ms. Az (Ashley) Klymiuk

Associate Professor, Indigenous Scholar in Science, Dept. of Biological Sciences, University of Manitoba

Ms. Eftihia Mihelakis

Associate Professor and Chair, Dept. of Francophone Studies and Languages, Brandon University

Ms. Heather Smart

Director, Research and Development, National Research Council, Advanced Manufacturing Research Facility in Winnipeg

Dr. Katrin Stedronsky

Assistant Professor, Department of Science, Faculty of Arts, Business and Science, University College of the North

Dr. Nancy Stewart

Senior Scientific Manager, GVI Clinical Development Solutions

Mr. Kevin Walby

Associate Professor of Criminal Justice, University of Winnipeg

Ex-officio members (non-voting):

Dr. Rashid Ahmed

Research Manitoba Board Representative

Mr. Luis Escobar

Research Manitoba Board Representative

Provincial

RITHIM Committee

FOR THE YEAR ENDED MARCH 31, 2023

The Provincial RITHIM Committee (PRC) is a subcommittee of the Research Manitoba board. The PRC's primary responsibility is to ensure that the Committee for the Harmonization of Health Impact, Privacy, and Ethics Review (CHIPER) is accountable and independent. The PRC will:

-  Enhance, guide, and support the harmonization of ethics, privacy, and impact review for the RITHIM division of Research Manitoba.
-  Draw upon the experience and knowledge of the stakeholders with expertise in privacy and health research in Manitoba.
-  Be accountable to the Research Manitoba Board of Directors and provide annual reporting on CHIPER operations to the Research Manitoba Board of Directors, the Minister of Health, Seniors and Active Living, and the stakeholders in the health research community in Manitoba.
-  Report through to the CEO of Research Manitoba in accordance with the RITHIM evaluation plan.

2022-2023 Provincial RITHIM Committee

Dr. Hani El-Gabalawy (Chair)

Professor of Medicine and Immunology, Endowed Rheumatology Research Chair, University of Manitoba

Dr. Paul Beaudin

Director, Research and Innovation, Shared Health

Mr. Jason Berry

Director, Cancer Informatics and Innovation, CancerCare Manitoba

Mr. Farid Foroud

Associate Vice President, Health and Life Sciences, Western Canada at Global Public Affairs

Dr. Joel Gingerich

Medical Director, Clinical Trials Unit, CancerCare Manitoba

Ms. Kristine Hannah

Regional Director - Quality, Patient Safety & Risk, Southern Health-Santé Sud

Dr. Alan Katz

Director of Manitoba of Centre for Health Policy and Professor, Max Rady College of Medicine, Community Health Sciences and Family Medicine, University of Manitoba

Dr. Terry Klassen

Professor, Canada Research Chair, Max Rady College of Medicine, Pediatrics and Child Health, University of Manitoba

Dr. Nathan Nickel

Director of the Manitoba Centre for Health Policy, Associate Professor, Rady Faculty of Health Sciences, University of Manitoba

Dr. Peter Nickerson

Vice-Provost (Health Sciences) and Dean, Distinguished Professor of Medicine and Immunology, Flynn Family Chair in Renal Transplantation, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba

Mr. Dawson Reimer

Life Sciences Consultant, Commercial and Business Development, BioCircuit Technologies

Ms. Terry Sawicz-Hanesiak

Quality and Regulatory Affairs Coordinator, Research Support Unit, The Children's Hospital Research Institute of Manitoba (CHRIM)

Mr. Dan Skwarchuk

Regional Lead & Chief Financial Officer, Corporate Services, Winnipeg Regional Health Authority

Dr. Ryan Zarychanski

Professor of Medicine (hematology and critical care) and Community Health Sciences, Max Rady College of Medicine and College of Pharmacy, University of Manitoba

Ex-officio members (non-voting):

Dr. John Arnett

CHIPER Chair, Professor, Clinical Health Psychology and Ethics, University of Manitoba

Ms. Sharon Klos

PHRPC Chair, Health Information Specialist, Interlake Regional Health Authority

Ms. Andrea Legary

RM Board Chair, Chief Science and Technology Officer, The Recoup Group

Dr. Lindsay Nicolle

CHIPER Chair, Professor, Internal Medicine and Infectious Diseases, University of Manitoba

Research Manitoba

Staff Members

FOR THE YEAR ENDED MARCH 31, 2023

Research Manitoba's staff are dedicated to advancing innovation and research and creating viable connections with a vast variety of key stakeholders and partners in the province of Manitoba. Each staff member brings their own unique experience and expertise, which creates collaborative energy and allows our provincial agency to continue to foster research excellence in the province, the research community, and beyond.

2022-2023 Research Manitoba Staff Members

Ms. Karen Dunlop
Chief Executive Officer

Ms. Pam Harrison
Director, Finance and Administration

Mr. Ryan Catte
Manager, Evaluation and Impact

Ms. Tammy Hildebrand
Manager, Communications

Ms. Kerry Harris
Manager, Programs and Partnerships

Ms. Mikayla Hunter
Program Officer

Ms. Cheryl Francisco
Administrative Assistant

Ms. Freyja Arnason
Director, RITHIM

Ms. Liz Lylyk
Manager, RITHIM

Ms. Elaine Burland
RITHIM Program Officer (PHRPC)

Ms. Anna Glybina
RITHIM Program Officer (CHIPER)

Mr. Mark Pinder
RITHIM Program Officer (PRAS & TRAINING)

2022-2023 Staff Members



Karen Dunlop



Freyja Arnason



Pam Harrison



Liz Lylyk



Ryan Catte



Elaine Burland



Tammy Hildebrand



Anna Glybina



Kerry Harris



Mark Pinder



Mikayla Hunter



Cheryl Francisco

2022-2023: A Year In Review



Research
Manitoba

445 students and researchers supported as a result of projects funded

184 research projects and/or grants awarded directly by Research Manitoba

159 organizations received either direct or indirect support from Research Manitoba from the academic, not-for-profit, private and public sectors

8 pre-commercialization outcomes:

- ③ **5** patents filed
- ③ **2** start-up companies formed
- ③ **1** licensing agreement finalized

3 new strategic partnerships:

- ③ Research Manitoba, Heart & Stroke Foundation, and the University of Manitoba partnered to **fund Dr. Nishita Singh as the new research chair in neurological stroke**. This was the first chair in clinical stroke research to be established in Manitoba.
- ③ Research Manitoba partnered with Volatus Aerospace to support the **'Science Experiential Aerial Research Program'** that is designed to engage students in future career technologies, working in partnership on sustainable community initiatives with industry, academia, and government.
- ③ Research Manitoba partnered with the **'Alzheimer Society Research Program'** to support grant and award opportunities for eligible Manitoba recipients conducting dementia research. These types of grants help the best and brightest minds in the field spark their work from ideas to impact.

Posts

Our engagement across digital platforms

(Twitter, Facebook, LinkedIn and YouTube)

+5078

Followers

+16,540

Profile
Visits

+8222

Engagements

+322,721

Impressions

+325

Posts

+250

Video
Subscribers

Funding

and Leveraged Funds

FOR THE YEAR ENDED MARCH 31, 2023

Provincial Matching Funds

Funding: \$4,869,835

Leveraged: \$13,660,919

Partnered Research Chairs

Funding: \$1,540,271

Leveraged: \$2,010,300

Mitacs

Funding: \$1,100,000

Leveraged: \$3,551,090

Innovation Proof-of-Concept Grant

Funding: \$1,264,316

Leveraged: \$2,217,462

Strategic Partnerships Program

Funding: \$220,770

Leveraged: \$1,481,094

Trainee Awards

Funding: \$312,000

Leveraged: \$372,400

New Investigator Operating Grants

Funding: \$784,539

RITHIM

Funding: \$1,030,668

\$11,122,399

Program
Funding

\$23,293,265

Funding
Leveraged

\$34,415,664

Total
Investment

Funding

Programs

FOR THE YEAR ENDED MARCH 31, 2023

Research Manitoba's funding programs are designed to develop, support, and elevate the research community in Manitoba.

Programs and projects funded are in academia and provincial priority areas within industry.

Many of Manitoba's researchers get their start through one of our programs and go on to become leaders in their field bringing knowledge, innovation and investment to our province.

Funding Programs

THE LISTING INCLUDES 2022-2023 PROGRAMS AS WELL AS PROGRAMS THAT ENDED PRIOR TO THE 2022-2023 FISCAL YEAR, BUT STILL HAVE ONGOING PAYMENTS.

STRATEGIC GOAL #1: ADVANCE RESEARCH IN MANITOBA

Research Manitoba advances our provincial research community by creating responsive programming, increasing investments in research, strengthening research capacity, decreasing administrative burden, and supporting an environment for clinical trials and data-intensive research in Manitoba.

PROVINCIAL MATCHING FUNDING PROGRAMS

A critical factor in advancing research in Manitoba is attracting research investments to the province. Our provincial matching funds programs support this goal by maximizing the impact of Research Manitoba investments through partnering with other organizations (federal, provincial, regional, and industry) to leverage funds. The matching funds programs help build major research infrastructure, create exciting hubs of research and innovation, and have a very high return on investment.

CANADA FOUNDATION FOR INNOVATION (CFI) - \$4,212,835 14 Infrastructure Projects Funded

CFI is the federal government agency for funding research infrastructure within universities and colleges. Research infrastructure includes state-of-the-art equipment, laboratories, databases, specimens, scientific collections, computer hardware and software, communications linkages, and buildings necessary to conduct leading-edge research. Research Manitoba's CFI Matching Funds program provides matching funds (20-40% of the project total) for proposals that have been awarded grants through one of CFI's competitions. The federal CFI program only supports 40% of total project costs. The additional 60% must be acquired from sources such as our provincial matching funds program.

In 2022-2023 Research Manitoba supported a variety of projects from the CFI John R. Evans Leaders Fund, Innovation Fund, the College-Industry Innovation Fund, and the Major Sciences Initiative programs. Examples of areas of research funded include precision genomics, cognitive neuroscience, healthy grain-based food, cellular and molecular mechanisms, battery materials, and disease heterogeneity.

For more information on CFI and feature stories, see page 56.

Funding Programs

CANADIAN INSTITUTES OF HEALTH RESEARCH (CIHR) PROVINCIAL MATCHING PROJECTS - \$657,000

As part of our goals to advance research in Manitoba and attract research investments to the province, Research Manitoba can provide a provincial contribution to successful CIHR projects taking place in Manitoba, with strategic relevance to Manitoba priorities. Projects supported in 2022-23 include;

1. Dr. Ryan Zarychanski; Anti-thrombotic Therapy to Ameliorate Clinical Complications in Community-Acquired Pneumonia (ATTACC-CAP) trial:

Research Manitoba is supporting this Manitoba-led international project that includes clinical trials in approximately 60 sites from 3 countries. This investment is expected pay dividends to Manitoba by igniting research and capacity-building opportunities.

2. Dr. Jason Kindrachuk; Monkeypox Virus (MPXV) Surveillance Initiative:

In conjunction with CIHR, Research Manitoba is supporting the MPXV surveillance initiative to undertake targeted surveillance in groups with elevated risks for infection during the current outbreak in both Canada and in Africa to provide critical information regarding MPXV circulation in non-endemic regions and help inform mitigation strategies.

3. Canadian Institute of Health Research Strategy for Patient-Oriented Research 2.0 (SPOR)

Patient-oriented research is focused on engaging patients, their caregivers, and families as partners in all aspects of the research process. This engagement helps to ensure that research studies focus on patient-identified priorities, which ultimately leads to better patient outcomes. Funding in support of CIHR SPOR is used to strengthen support for clinical trials and intervention studies, as well as research that compares the effectiveness, benefits, and harms of existing treatment options. SPOR projects provide the evidence needed to inform the development of health policies and improve the health care system. The goal of these projects is to move scientific discoveries to the bedside and produce the information that decision-makers and healthcare providers need to improve care for patients.

Research Manitoba supported five (5) Manitoba SPOR networks with funding dispersed over 2-4 years.

1. Can-SOLVE CKD Network: Canadians Seeking Solutions and Innovations to Overcome Chronic Kidney Disease: Listening, Learning, Leading
2. CHILD - BRIGHT Network: Child Health Initiatives Limiting Disability - Brain Research Improving Growth and Health Trajectories
3. Diabetes Action Canada: Indigenous Peoples Health Program
4. IMAGINE: Inflammation, Microbiome, and Alimentation - Gastro-Intestinal and Neuropsychiatric Effects
5. The Manitoba Primary and Integrated Healthcare Innovation Network



“

Funding from Research Manitoba for our work on the monkeypox virus has been pivotally important for helping us further determine the factors that are related to more severe disease, identifying at-risk populations, and working with communities to determine best methods for risk communication, both in Canada and abroad.

– Dr. Jason Kindrachuk, Associate Professor in Medical Microbiology & Infectious Diseases, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba, and Canada Research Chair in Molecular Pathogenesis of Emerging Viruses

Funding Programs

PARTNERED RESEARCH CHAIRS - \$1,540,271

Canada Excellence Research Chairs (CERC) Program

The Canada Excellence Research Chairs (CERC) program attracts top international scientists and scholars to Canada. In partnership with the federal CERC program, Research Manitoba is providing \$10 million over seven years (2018-2025) to support a world-renowned researcher, Dr. Dorthe Dahl-Jensen, and the team at the University of Manitoba in Arctic Ice, Freshwater Marine Coupling, and Climate Change.

Arthroplasty Research Chair at Concordia's Hip and Knee Replacement Institute

In partnership with the Concordia Foundation, Research Manitoba is co-funding an Arthroplasty Research Chair, Dr. Thomas Turgeon, who is leading research projects that will directly impact those suffering from arthritis and other musculoskeletal diseases.

Canadian Institutes of Health Research (CIHR) Indigenous Research Chair in Nursing

In partnership with the Canadian Institutes of Health Research and the Canadian Nurses Foundation, Research Manitoba is co-funding an Indigenous Nursing Research Chair. Dr. Wanda Phillips-Beck, who is based out of the First Nations Health and Social Secretariat of Manitoba works to influence patient care, patient continuity, and health outcomes among Indigenous peoples. Her work has resulted in the College of Nursing and Rady Faculty of Health Sciences offering a new course titled, "Indigenous People, Health, and Research: Doing Research in a Good Way". The course explores health care and research from Indigenous worldviews and experiences. The course is open to all UM graduate students.

Heart & Stroke & Research Manitoba Chair in Clinical Stroke Research

In partnership with the University of Manitoba and the Heart & Stroke Foundation, Research Manitoba is funding a Research Chair in neurological stroke. Dr. Nishita Singh will provide leadership in innovative clinical research to develop, and support advances and innovation to increase and improve treatment of neurological stroke care in Manitoba.

“

I am deeply honored and excited to assume the inaugural Clinical Stroke Research Chair at the University of Manitoba, in collaboration with Research Manitoba, Heart & Stroke, and the University of Manitoba. This partnership exemplifies our community's exceptional dedication, and I extend heartfelt gratitude to our partners and supporters for their unwavering commitment. My focus centers on advancing stroke care across Canada and particularly in Manitoba, driven by patient-centered research. This funding will enable us to establish a leading stroke research program in the nation. Through addressing carotid artery-related conditions, a significant contributor to strokes, and involving patients as crucial collaborators, my goal is to tailor treatments to their specific needs. This partnership marks an unprecedented phase in Manitoba's stroke care journey, fortified by our vision for advanced stroke care. I am confident that our collaborative endeavors will yield improved outcomes and a more promising future for those affected by strokes. Embarking on this venture is a privilege, and I eagerly unite with Research Manitoba. Your support and active participation are integral to the triumph of our shared mission. Together, we are reshaping the landscape of stroke care.

- **Dr. Nishita Singh, Stroke Neurologist and Assistant Professor of Medicine, Neurology Division, Heart & Stroke & Research Manitoba Chair in Clinical Stroke Research, Max Rady College of Medicine, Rady Faculty of Health Sciences, University of Manitoba**

“

Funding research excellence is key to our work to beat heart disease and stroke. Our valued partnership with Research Manitoba and the University of Manitoba resulted in the recent announcement of the Heart & Stroke and Research Manitoba Chair in Clinical Stroke Research, made possible by a generous Heart & Stroke donor. This significant investment in our stroke system will advance innovative clinical research, enhance stroke care and treatment and lead to better outcomes for people who have a stroke in our province.

- **Christine Houde, Director of Health Policy and Systems in Manitoba, Heart & Stroke**

Funding Programs

STRATEGIC GOAL #2: STRENGTHEN THE ECONOMY THROUGH STRATEGIC RESEARCH AND INNOVATION INVESTMENTS IN PRIORITY INDUSTRY SECTORS

Research Manitoba is strengthening the economy through strategic research and innovation investments in key provincial priority sectors including advanced manufacturing, biosciences, information and communication technologies, infrastructure, and transportation. Through this program, Research Manitoba facilitates partnerships with industry, academia, and not-for-profit organizations to develop the use of new technologies and increases the commercialization of research in Manitoba.

INNOVATION PROOF-OF-CONCEPT GRANT - \$1,264,316 14 projects funded

The Innovation Proof-of-Concept Grant strengthens Manitoba-based research and innovation by filling a funding gap in the Manitoba innovation ecosystem, to test innovative products that have the potential to push an industry or market forward. This funding program fills that gap and supports companies' drive for innovation, a competitive advantage, and job growth. Funding is targeted toward bioscience, information, and communication technology, advanced manufacturing and infrastructure, and transportation industries and technologies.

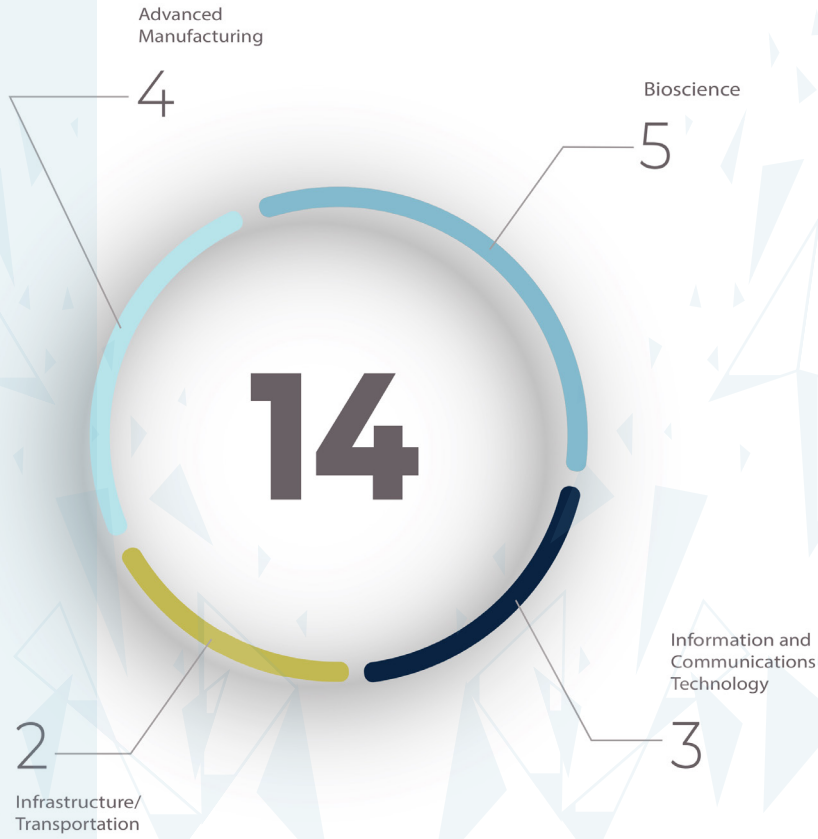
MITACS - \$1,100,000 275 internship units supported

Mitacs is a national, not-for-profit organization that works with post-secondary institutions, companies, and not-for-profit organizations to build partnerships that support industrial and social innovation in Canada. Through this program, Research Manitoba supports local talent development and the training of Manitoba's highly qualified personnel toward careers in academia or local industry.

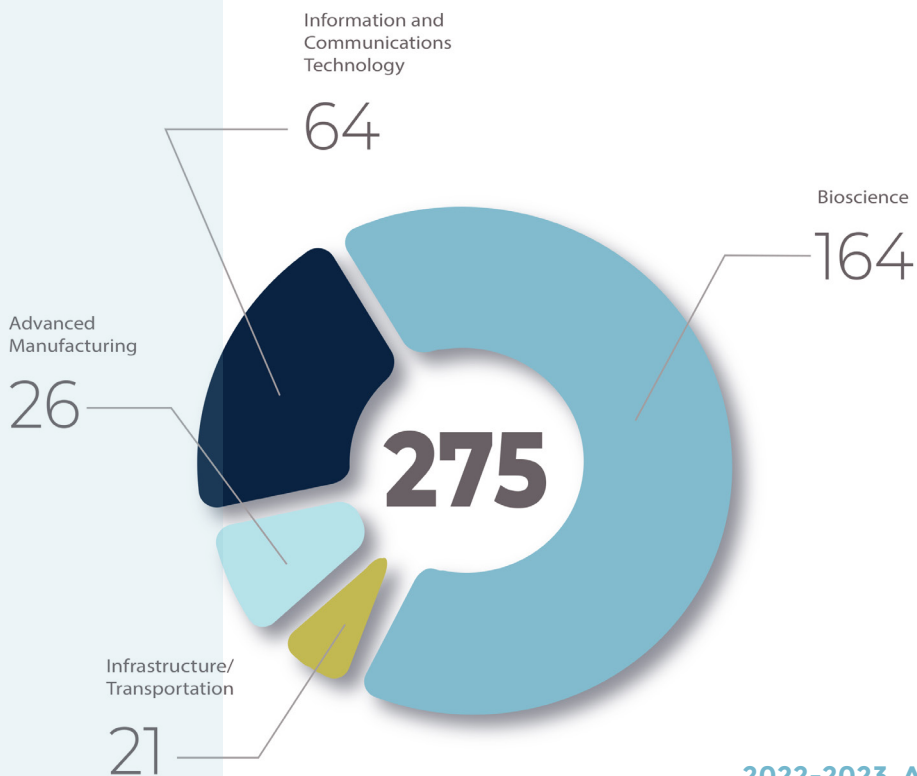
Through Research Manitoba's formal partnership with the Mitacs program, Manitoba trainees at all levels can continue their academic training while also working with local companies on industry research and development. Research Manitoba's funding of Mitacs in Manitoba allows provincial trainees the opportunity to gain valuable work experience and engage with local companies, while also supporting businesses to hire new talent that advances the company's research and development, and growth. Research Manitoba's Mitacs funding is vital to supporting the recruitment and retention of Highly Qualified Personnel to the province.

Innovation Proof-Of-Concept

Grants by Priority Sector



Mitacs Internships by Priority Sector



Strategic

Partnership Program

FOR THE YEAR ENDED MARCH 31, 2023

Research Manitoba's Strategic Partnerships initiative establishes partnerships with industry, the public sector, and philanthropic organizations to advance and translate Manitoba's innovations into solutions that impact the health and well-being of Manitobans and enhance the economy of the province.

These collaborations enhance funding, resources, and expertise, increasing the amount of research conducted in the province.

Funding Programs

STRATEGIC PARTNERSHIPS PROGRAM: \$220,770

Alzheimer's Society Canada

Research Manitoba has partnered with the Alzheimer's Society of Canada to support two Manitoba-based new investigator researchers in the advancement of dementia research.

Her Heart Her Way Project (with Victoria Hospital Foundation and Reh-Fit Centre)

This project utilizes patient-oriented research approaches to engage women with personal experience living with elevated cardiovascular disease risk through consultation for the purpose of refining the Her Heart Women's Health program delivery approach.

Novartis Canada and the Chronic Disease Innovation Centre

Research Manitoba has partnered with Novartis Canada and the Chronic Disease Innovation Centre to operationalize a study on the evaluation of low-density lipoprotein (LDL) cholesterol treatment, cardiovascular events, and healthcare costs among individuals with atherosclerotic cardiovascular disease (ASCVD) in Manitoba. The project objective is to identify the most effective strategy for lowering LDL-C and describe the potential impact of that strategy in terms of patient health outcomes and healthcare costs. This project will bridge the gaps in economic evidence for the treatment of ASCVD with hypercholesterolemia, and Familial Hypercholesterolemia in the Canadian population.

Pre-Clinical Testing of Novel Combinations of Natural Anti-Cancer and Anti-Metastatic Proteins (with the University of Manitoba and ImmunoFyx)

The primary goal of the project is to test the best candidate molecules and confirm its mechanism of action in a mouse model of cancer. This project involves a Manitoba company undertaking research at a preclinical level. The candidate molecule that shows the best combination of properties will be advanced to the clinic.

Science Experiential Aerial Research Program (with Volatus Aerospace Group)

The partnership investment supports research projects for industry and skills training for high school students; aligning with Manitoba's Skills, Talent, and Knowledge Strategy. This is a new type of partnership for Research Manitoba that aims to invest in workforce development at an earlier phase. The nature of the partnership involves parties that have the capacity to make this a truly successful project for high school students in science math and engineering.



Community

Engagement

FOR THE YEAR ENDED MARCH 31, 2023

Community Engagement

BUILDING A ROBUST RESEARCH ENTERPRISE IN OUR PROVINCE IS A TOP PRIORITY FOR RESEARCH MANITOBA.

STRATEGIC GOAL #3: CHAMPION THE MANITOBA RESEARCH COMMUNITY

The focus of Research Manitoba's communications strategy is to promote Manitoba's research excellence as a key economic strength for the province. This includes increasing awareness of the research, its impact, and the return on the investment in research that is achieved within the province.

Looking back on 2022-2023, it is evident that the ties with the research community remained strong as COVID-19 has abated. Our team continues to foster and build strong relationships with key stakeholders and partners.

We collaborated with partners in the research community by attending and sponsoring events that elevated the research enterprise in Manitoba and enabled us to connect with many recipients of our grants and awards.

These connections made all the difference to our team. We were delighted to be able to continue to celebrate innovation and research with the Canadian and Manitoba research community.

COMMUNITY ENGAGEMENT ACTIVITIES

ANNOUNCEMENTS MADE

Research Manitoba News Releases Circulated	13
Research Manitoba Announcements	5
Research Manitoba Active Participant in Releases	4
Research Manitoba Eblasts Circulated to Key Stakeholders	11

MEDIA FEATURED

News Articles with Research Manitoba Featured	7
Number of Earned Media Mentions for Research Manitoba	7

EVENTS ORCHESTRATED

Research Manitoba Webinars/Information Sessions	15
Research Manitoba Active Participant in Events	9
Research Manitoba Conference Presentations	3

2022-2023 Highlights





Advancing Clinical Trials Across Canada

 <p>Moderator John Wallenburg Chief Scientific Officer, Cystic Fibrosis Canada</p>	 <p>Susan Marlin President and CEO, Clinical Trials Ontario</p>
 <p>Karen Dunlop Chief Executive Officer, Research Manitoba</p>	 <p>Alison Orth Unit Director, Clinical Trials BC, Michael Smith Health Research BC</p>
 <p>Olivier Jérôme Director, Public and Patient Engagement, CATALIS Québec</p>	 <p>Janette Panhuis Board Member, Network of Networks (N2); Former Chief Operating Officer, Population Health Research Institute</p>
 <p>Dr. Tammy Mah-Fraser Executive Director, Health Platforms, Alberta Innovates</p>	 <p>Dr. Jordan Warford Senior Director of Research, Nova Scotia Health</p>

2022-2023 Highlights (cont.)





CONGRATULATIONS!

Dr. Nishita Singh

**APPOINTED NEW UM 'HEART & STROKE & RESEARCH
MANITOBA CHAIR IN CLINICAL STROKE RESEARCH'**



RESEARCH MANITOBA STAFF (L-R): Anna Glybina-RITHM Program Officer (CHPER), Liz Lytle-Manager, RITHM, Pam Harrison-Director Finance & Administration, Freija Aronson-Director, RITHM, Karen Dunlop-CEO, Cheryl Frapolito-Administrative Assistant, Mark Pinder-RITHM Post & Training Officer, Mayella Hunter-Program Officer
PHOTOGRAPHER: Tammy Hildebrand-Manager, Communications, MISSING; Elaine Burford-RITHM Program Officer (PHRPC), and Ryan Latta-Manager, Impact & Evaluation.



Karen Dunlop, CEO, Research Manitoba and Dr. Nishita Singh (new UM Research Chair in Neurological Stroke) - PHOTO: Left to Right



(L-R) Dr. Peter Nickerson (Dean of the Rady Health Sciences Centre, and Research Manitoba Board Member), Mario Pinto (UM Vice-President, Research and International), Dr. Nishita Singh (new UM Research Chair in Neurological Stroke), Dale Oughton (Vice President, Philanthropy, Western Region, Heart & Stroke), Christine Houde (Director, Health Policy and Systems, Heart & Stroke) and Karen Dunlop, CEO, Research Manitoba

Grants

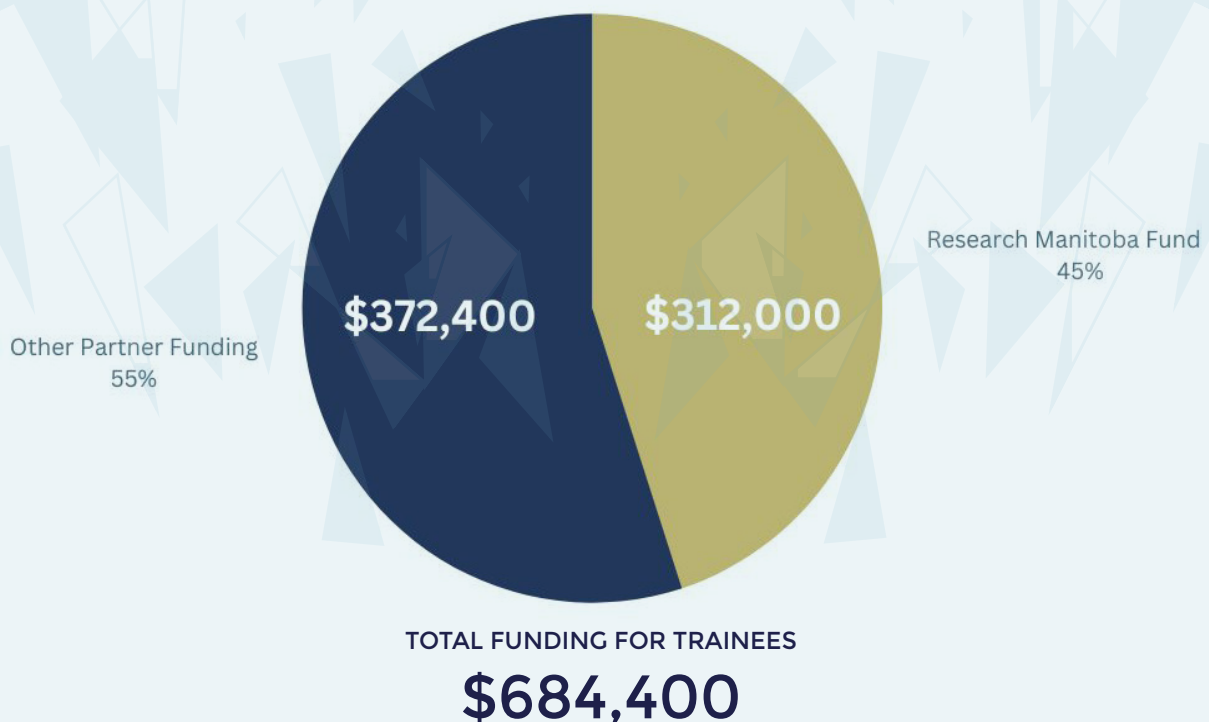
and Awards Competition

FOR THE YEAR ENDED MARCH 31, 2023

Funding Programs

STRATEGIC GOAL #4: SUPPORT WORKFORCE AND TALENT DEVELOPMENT

Research Manitoba supports workforce and talent development by providing funding support to early career researchers and graduate students to increase their knowledge and skills in Manitoba workspaces. Regardless of their future role in industry, academia, government or philanthropic organizations, recipients take with them a stronger understanding of how to resolve technological and scientific challenges through the application of research and experimentation. Our programs enable students and early career researchers to get their start in research and innovation.



MASTER'S STUDENTSHIP AWARDS

35 Master's students supported totaling \$312,000 in Research Manitoba Funding and \$160,650 in Partner Funding

Masters Studentship Awards consist of an annual stipend of \$12,000 with partnered studentships receiving up to \$17,850. Stipends support highly qualified Master's students to prepare for careers as independent researchers in industry within the healthcare system and in other environments, thus attracting and retaining the best students within Manitoba. The following funding partners enable more Studentship awards to be issued as well as increasing the total annual stipend for some students in particular fields.

Partner organizations include:

- CancerCare Manitoba Foundation
- Children's Hospital Research Institute of Manitoba (CHRIM)
- George & Fay Yee Centre for Healthcare Innovation (CHI)
- Health Sciences Centre Foundation
- Lung Association of Manitoba

Funding Programs

PhD HEALTH STUDENTSHIP AWARDS

5 PhD trainees supported totaling \$123,550

PhD Health Studentships support highly qualified PhD trainees in health to prepare for careers as independent researchers in industry or within Manitoba's research enterprise. These exceptional students significantly increase the productivity of the research programs with which they are affiliated. All awards have been funded by the following partnering organizations and consist of an annual stipend of either \$17,850 or \$35,000 for CHI affiliated students for up to a maximum of one year.

Partner organizations include:

- CancerCare Manitoba
- CHRIM
- CHI
- Health Sciences Centre Foundation

HEALTH RESEARCH POST DOCTORAL FELLOWSHIPS

2 PostDocs supported totaling \$88,200

Health Research Postdoctoral Fellowships support highly qualified postdoctoral trainees to prepare for careers as independent researchers. These exceptional trainees significantly increase the productivity of the research programs with which they are affiliated. All awards have been exclusively funded by CHRIM and consist of an annual stipend of \$36,750 (plus benefits) for up to a maximum of one year.

NEW INVESTIGATOR OPERATING GRANT

12 projects funded totaling \$784,539

The New Investigator Operating Grant program supports independent research programs for new faculty in Manitoba. These grants support the direct costs of research, helping early career researchers achieve the research productivity and track record necessary for obtaining longer-term, more substantial funding. This investment in early career researchers is integral to supporting local talent development and a strong Manitoba research ecosystem.



Review Process

RESEARCH MANITOBA'S RESEARCH REVIEW PROCESSES WERE SUPPORTED BY EXPERTS IN ACADEMIA AND INDUSTRY FROM ACROSS THE PROVINCE AND THE COUNTRY.

Each year, our organization uses a competitive peer/merit review process to assess and select research funding proposals for the Board's approval. This process is undertaken by a committee of active experts with the appropriate background and knowledge of the application topics under review. For our trainee and New Investigator Operating Grant competitions, committee members review applications in advance of the committee meeting and then discuss, assess, and score the applications during a live meeting. Each committee is chaired by a respected researcher from a relevant field and is sometimes accompanied by a skilled Scientific Officer.

The Innovation Proof-of-Concept (IPoC) College of Reviewers consists of research innovation and commercialization experts from across Western Canada. Each IPoC full proposal is reviewed by two members of the College of Reviewers who are matched with applications based on their experience and expertise. In addition to these two reviews, each full proposal is reviewed by two scientific experts in the field. Scientific reviewers are from across the globe.

Review Committees - 10 Review Committees

- 1) Basic-Biomedical Health Research - Master's/PhD Studentship Review Committee
- 2) Natural Sciences and Engineering - Master's Studentship Review Committee
- 3) Social and Population Health Research - Master's/PhD Studentship Review Committee
- 4) Social Sciences and Humanities - Master's Studentship Review Committee
- 5) Health Research - Postdoctoral Fellowship Review Committee
- 6) Basic-Biomedical Health Research - New Investigator Operating Grant Review Committee
- 7) Natural Sciences and Engineering - New Investigator Operating Grant Review Committee
- 8) Social and Population Health Research - New Investigator Operating Grant Review Committee
- 9) Social Sciences and Humanities - New Investigator Operating Grant Review Committee
- 10) Innovation Proof-of-Concept Grant - College of Reviewers

Review Committee Members - 88 Reviewers

Reviewers are associated with a wide variety of organizations such as: Brandon University, Children's Hospital Research Institute of Manitoba, CancerCare Manitoba, St. Boniface Research Centre, Public Health Agency of Canada, University of Manitoba, The University of Winnipeg, Nexus Manitoba, National Research Council of Canada, North Forge Technology Exchange, Manitoba Institute of Trades & Technology, Medtronic, and Global Public Affairs.

Working in Partnership

PARTNERSHIP IS A CRITICAL COMPONENT OF MAXIMIZING MANITOBA'S RESEARCH POTENTIAL AND CAN RANGE IN NATURE FROM CO-FUNDING TO COLLABORATION AND CONSULTATION. RESEARCH MANITOBA IS PROUD TO PARTNER WITH THE FOLLOWING 41 ORGANIZATIONS AND INSTITUTIONS:

Alzheimer's Society Canada
Boehringer Ingelheim (Canada) Ltd
Brandon University
Canada Excellence Research Chairs
Canada Foundation for Innovation
Canadian Institutes of Health Research
CancerCare Manitoba Research Institute
Canadian Mennonite University
Canadian Nurses Foundation
Children's Hospital Research Institute of Manitoba
Chronic Disease Innovation Center
Concordia Foundation
First Nations Health and Social Secretariat of Manitoba
George & Fay Yee Centre for Healthcare Innovation
Health Sciences Centre Foundation
Heart & Stroke Foundation
Interlake-Eastern Regional Health Authority
Lung Association, Manitoba
Manitoba Center for Health Policy
Mitacs
National Research Council

Natural Sciences and Engineering Council of Canada
Novartis
Prairie Mountain Health
Province of Manitoba
Red River College Polytechnic
Reh-Fit Centre
Shared Health
Social Sciences and Humanities Research Council
Southern Health-Santé Sud
The College of Pharmacists in Manitoba
The College of Physicians and Surgeons of Manitoba
The College of Nurses in Manitoba
The Manitoba and Nunavut Chapter of the Canadian-Health Information Management Association
The University of Winnipeg
University College of the North
University of Manitoba
Victoria General Hospital Foundation
Volatus Aerospace
Winnipeg Regional Health Authority

"Through our partnership with Research Manitoba, we've been able to explore new ways to advance our knowledge and understanding of dementia. The financial assistance they provide for our Alzheimer Society Research Program allows us to help the best and brightest minds in the field accelerate their work. It's by working together and prioritizing dementia that we are truly able to make a difference, nationwide."

- Erin Crawford, CEO, Alzheimer Society of Manitoba

"Investing in our youth through the SEAR Program, in partnership with Research Manitoba, not only empowers students to engage in real-world problem-solving, like early detection of Dutch Elm disease and crop diseases but also fosters a positive impact on our environment and food security, proving that collaborative education initiatives can truly make a difference."

- Matthew Johnson, Regional Vice President, Prairies & Director, Education, Volatus Aerospace

Research

Today

STORIES OF INSPIRATION, INNOVATION AND IMPACT



Search

http://

Analysis



Data



RESEARCH

WWW.

- test
- customer



Researcher:

Olanrewaju Ojo

Program: 2020 Innovation Proof-Of Concept Grant

Funding Amount: \$ 149,900, over 2 years

Project Title: Development of Additive Manufacturing for the Manitoba Aerospace Industry

Olanrewaju Ojo is working to develop new lightweight materials that can be used in aircraft engines to increase efficiency and reduce emissions.

University of Manitoba researcher teams up with local company to advance 3D manufacturing

Written by: Brian Cole

Back in 1999, Olanrewaju Ojo was a young scholar in Nigeria trying to plot out the next steps of his still nascent career in engineering.

That's when he came across an online profile of Mahesh Chaturvedi, a professor in the Department of Mechanical Engineering at the University of Manitoba.

"I wanted to come to Canada to work on my master's degree," says Ojo, who had graduated from his Bachelor of Science program with First-Class Honours. "I noticed he (Chaturvedi) was working on aerospace materials, and I was very interested. I told him I would like to come and do my master's degree with (him), and he said he was interested."

That chance meeting online turned out well for Ojo, not to mention the U of M and the province of Manitoba. Soon after arriving at the U of M in 2000, Ojo started to work on his master's degree in mechanical engineering. He completed

his PhD in 2005, winning the University of Manitoba's Distinguished PhD Dissertation Award for ground-breaking academic contributions, and took a position as an assistant professor in the Department of Mechanical Engineering in 2006.

He became an associate and full professor in 2009 and 2013, respectively, and was named Head of the Department in 2022.

In addition to his academic duties, Ojo has also spent the last 23 years carrying out research and collaborating on various engineering projects with a number of local companies, including StandardAero, Magellan Aerospace, the Royal Canadian Mint and Manitoba Hydro.

All that experience will come in handy as Ojo embarks on his latest research initiative.

This involves using metal additive manufacturing to create new lightweight materials

that can be used in aircraft engines to increase efficiency and reduce emissions.

Metal additive manufacturing is a relatively new field of industrial production that uses 3D printers to manufacture high-end parts for everything from hip and knee transplant devices to aircraft engine parts.

Using a printer to make aircraft engine parts may seem a little futuristic to some, and the technology is certainly advanced.

But in simple terms, metal additive manufacturing works this way: A part is designed using a computer model, which is then used to guide the manufacturing process.

Powder made from various metals like nickel, copper or aluminum is then blended together in various formulas and placed into the 3D printer, which can be as large as a fridge.

A laser is then used to melt the powder into liquid and create the three dimensional, computer-aided design of the part in question.

In some ways, the process is not unlike the one your printer at home follows.

The difference, of course, is that the metal printer is making a three-dimensional object while your printer is just printing words on a page.

The new technology has already had an impact on manufacturing, here in Winnipeg and around the world.

For example, metal 3D printers are used to make customized medical implants like orthopedic implants (e.g., hip and knee replacements), dental implants, and cranial implants.

However, as Ojo explains in a summary of his research proposal, there are issues with the new technology that must be resolved before it can fully achieve its promise.

The main problem, he says, is that parts prone to having lower mechanical strength due to internal defects and formation of deleterious micro-constituents within the material.

This where Ojo's expertise comes into play.

Working with Winnipeg-based Precision ADM, one of Canada's leading metal additive manufacturing companies, Ojo plans to spend the next two years developing and testing new metal alloys that will be stronger and lighter than what is available on the market now.

This will enhance Precision ADM's manufacturing capabilities, serve local aerospace companies, and help maintain Manitoba's position at the forefront of the metal additive manufacturing field.

In addition to supporting Manitoba's aerospace industry, lessons learned through this research initiative will also benefit the larger economy, as well as the environment.

“Developing (additive manufacturing) capabilities in Manitoba will potentially lead to major growth in the local aerospace, transportation, biomedical, and energy industries, which directly translates to new high-paying jobs and revenue sources in Manitoba,” Ojo says in his summary.

“Aside from the economic benefits, (additive manufacturing) can significantly help mitigate environmental impacts by reducing hazardous wastes,” he says.

Research Manitoba is contributing \$149,000 over two years through an Innovation Proof of Concept Grant towards the project, which is called Development of Additive Manufacturing for the Manitoba Aerospace Industry. Precision ADM is also contributing \$94,000 over two years towards the project.



Researcher:

Tony Szturm

Program: 2020 Innovation Proof-Of Concept Grant

Funding Amount: \$99,575, over 2 years

Project Title: Rehab@Home: Bringing Interactive Rehabilitation Devices to Homes

Tony Szturm says he and his colleagues have come up with a new platform that makes rehabilitation more fun.

New platform turns video games into tool for rehabilitation

Written by: Brian Cole

As a physiotherapist by training, Tony Szturm knows that children and adults who lose function of their hands, fingers and wrists through neurodevelopment disorders or strokes often have difficulty recovering.

One reason for that, says Szturm, is that there is no quick and easy way to regain hand function. Simply put, recovery depends on the patient putting in a lot of work over a period of time, sometimes as long as six or eight months.

That's not an easy sell for patients who aren't seeing the benefits right away.

"Hand function takes a long time to recover," says Szturm. "So, we can provide people with good (exercises) to do. The question is, how do we motivate people to do these exercises? Well, one way to do it is to make (the exercises) fun, engaging, interactive and easy to run."

As Szturm explains, the key is in the game controller.

Generally speaking, video games are played by using a mouse or gaming counsel to move the cursor on the screen to achieve certain objectives.

So, Szturm and collaborator Nariman Sepehri, a professor in the Department of Mechanical Engineering, set out to create a new type of controller, one that would turn any video game into a rehabilitative tool.

Working with a team that included Anuprita Kanitkar, a postdoctoral fellow in the College of Rehabilitative Sciences, and a number of rehabilitation and engineering students, they developed a game controller, or "manipulandum," that requires the user to make specific finger, wrist or arm movements to move the game cursor. In doing so, they have effectively turned the work of rehabilitation into fun.

"Computer games are great," says Szturm. "So, we coupled really good exercises with computer games. They have a lot of value to them."

The manipulandum is a lightweight portable box about the size of a regular telephone. It is equipped with a rotary shaft, an optical encoder, electric motor, motion mice, and a variety of attachments of different shapes and sizes. Once the device is connected to a computer via a USB plug, it acts as a substitute for a regular mouse. By attaching one of the components to the rotary shaft of the manipulandum, the user can create a controller that requires different hand or finger movements to move the cursor.

“The multi-purpose device will allow a patient to practice a broad range of finger and wrist movements while playing engaging computer games that will motivate patients to exercise,” Szturm says in a brief summary of his project proposal.

“This approach will focus on manual dexterity for children with neurodevelopmental disorders, and adults with acquired brain injuries. The device will allow patients of all ages and levels of impairment to perform, game-based hand function exercises.”

Szturm says the manipulandum has a number of important attributes as a rehabilitation tool. For example, it is affordable, costing less than \$200 to build (although once it is commercialized and brought to market, the actual price will likely be higher), and it can be used in a clinical or home setting.

“My goal was to increase accessibility to high-quality physiotherapy and occupational therapy,” says Szturm. **“If we don’t transition short-term clinical rehab to function in the home or in the community centres, they (patients) will never get it.”**

Another benefit of using a computer game as a rehab tool is that it requires players to make quick, precise movements with the cursor in order to play.

“A big value of the computer game is we are not just asking (patients) to wave their hands” says Szturm. **“We’re actually asking (patients) to do a precision movement. So computer games add this element of precision to your exercise. So, in 30 minutes, you’re doing hundreds and hundreds of exercises - hundreds and hundreds of movements, in random direction, speed and precision.”**

Patients using the device at home can also be monitored and recorded remotely.

“When you are performing your exercises at home, we can monitor and record what you are doing so we can see if you are improving, we can see if you are doing (your exercises) right or wrong.”

Szturm first came up with the idea for the manipulandum about 15 years ago, but it has only become viable as a commercial product, since he started to collaborate with Sepehri and as the technology used in the device has become less expensive. The project picked up momentum in 2021 when Szturm and Sepehri received an Innovation Proof of Concept Grant worth \$99,575 over two years from Research Manitoba to help develop a working model of the manipulandum and demonstrate its effectiveness and commercial viability.

So far, three studies have been done using the product. One involves children with cerebral palsy in India, while the other two focused on patients with stroke or spinal cord injury who are attending rehabilitation programs at First Steps Wellness Centre facilities in Winnipeg and Regina. Initial assessments have all been very positive, says Szturm.

Next steps include testing the manipulandum with patients in a home setting in Canada and a randomized clinical trial in India involving 100 to 120 stroke patients.

“There is still a little bit of research work to do,” he says.

Meanwhile, he and Sepehri are exploring the production and marketing the manipulandum on a large scale.

“Taking it to market and doing the trade shows, that costs a little bit of money,” he says. **“But we’ll get there.”**

Make sure to also check out Tony’s Youtube video: <https://www.youtube.com/watch?v=gxFPGM5S-0w>



Researcher:

Jason Kindrachuk

Program: Strategic Partnerships Initiative

Funding Amount: \$57,000, over 1 year

Project Title: Monkeypox Virus Surveillance Initiative

Jason Kindrachuk is heading up a \$2.8 million research project known as the Mpox Virus Surveillance Initiative.

University of Manitoba Researcher seeks to better understand Mpox virus

Written by: Brian Cole

For five decades, the Monkey Pox (Mpox) virus circulated throughout parts of Africa, almost unnoticed by the rest of the world.

But that changed in the spring and summer of 2022.

Suddenly, there was a surge in cases throughout Europe and North America. By July 2022, the World Health Organization (WHO) had declared the Mpox outbreak to be a “public health emergency of international concern.”

People still recovering from the impact of Covid-19 were wondering if the disease, which is characterized by skin lesions and is fatal less than one per cent of the time, would trigger another world-wide pandemic.

And then, almost as suddenly, transmission of the virus seemed to plateau and decline. Case numbers started dropping by the fall of 2022, and by May 2023, the WHO declared the public

health emergency to be officially over. To date, it is estimated the Mpox virus infected about 80,000 to 90,000 people around the globe, including about 1,500 in Canada, mostly in the LGB2Q community.

But while the public health emergency may be over, scientists are still trying to understand exactly what happened. Why did the virus surge and then seemingly lose momentum?

Does it have the potential to evolve into something more virulent? What can be done to keep it in check going forward?

These are just some of the questions Manitoba researcher Jason Kindrachuk hopes to answer.

A professor in the Department of Medical Microbiology & Infectious Diseases in the Faculty of Health Sciences at the University of Manitoba, the 46-year-old scientist is heading up a \$2.8 million research project known as

the Mpox Virus Surveillance Initiative. As part of the effort, Kindrachuk has joined forces with Placide Mbala, a medical biologist in the Democratic Republic of Congo, as well as researchers at universities in Canada, the United States and Europe. In addition, Kindrachuk and Mbala are establishing a network of frontline health workers in Africa who will play a key role in monitoring the virus on the ground.

The goal of the project is to learn more about the disease and how it can be prevented from spreading around the globe. The research team also wants to develop a framework for addressing the ongoing impact of the virus in the parts of Africa where it is endemic.

As Kindrachuk explains, the rapid expansion of Mpox in 2022 was unprecedented for a virus that is spread by skin-to-skin contact.

“We hadn’t seen the kind of trajectory that it took that year in any of the previous five decades. So now there is the big question: what changed? That’s a big piece of what we are trying to address.”

Research on the ground will look different, depending on the region, says Kindrachuk.

In Canada, researchers will study how the virus spread as well as the impact vaccines and public health messaging had on containing the number of infections. Samples of the virus collected in Canada will also be compared to those from Africa to see if and how they differ.

In Africa, meanwhile, researchers will take a different approach, depending on the region. In West Africa, the focus will be on trying to determine the prevalence of the virus in various communities. In Central Africa, where the virus is well-established, the work will focus more on active assessments of patients diagnosed with the disease to determine just how prevalent the virus is and whether it impacts some demographic groups more than others. In East Africa, where confirmed cases of Mpox are relatively rare, researchers will seek understand why.

It’s not the first time Kindrachuk has carried out research in Africa or on Mpox.

Prior to arriving at the University of Manitoba in 2017, the Saskatchewan native carried out research on emerging viruses, including Mpox, for eight years while working at the National Institutes of Health in the United States. He was also on the ground providing diagnostic support during the 2014 Ebola virus outbreak in Liberia.

Research Manitoba is contributing \$57,000 over one year towards his latest project, which leverages funding by a number of federal agencies, including the Health Centre for Research on Pandemic Preparedness at the Canadian Institutes of Health Research and the International Development Research Centre.

The surveillance project is one of two major studies announced earlier this year by the federal government as part of a \$16 million response to the Mpox virus emergency.

Kindrachuk’s efforts are in keeping with the Department of Medical Microbiology & Infectious Diseases’s record of health research in Africa.

“Covid was a wakeup call of sorts,” says Kindrachuk. “The next pandemic is not going to start in Canada. It’s not going to start in Manitoba. “We’re going to be at risk for other viruses if we don’t start to combat them in the regions in which they are circulating.”



Researcher:

Ellen Watson

Program: 2022 New Investigator Operating Grant

Funding Amount: \$57,000, over 1 year

Project Title: Exploring Factors and Experiences that Teachers Attribute to the Development of Epistemic Beliefs about Science Knowledge

Ellen Watson's research project will involve interviewing about 200 science teachers.

Researcher seeks to promote scientific literacy

Written by: Brian Cole

Misinformation has always been an issue in society.

But the problem has become more persistent and difficult to deal with in recent years, particularly in the field of science.

There are, of course, many reasons for this. For example, the Internet and various social media platforms now make it easier than ever to spread misinformation.

But another reason that sometimes gets overlooked is the lack of tools out there that can be used to help cultivate a scientifically literate citizenry that is better equipped to recognize misinformation when they see it.

Which is where Ellen Watson enters the picture. A former high school physics teacher turned assistant professor of education at Brandon University, Watson has long taken an interest in how the subject is taught in Canadian schools.

"If you are going to teach students to identify misinformation, they have to know how science works and they have to know how scientists think," she says.

To that end, she recently received a New Investigator Operating Grant worth \$30,107 over two years from Research Manitoba to head up a study entitled Exploring Factors and Experiences that Teachers Attribute to the Development of Epistemic Beliefs about Science Knowledge.

As part of her study, Watson is interviewing about 200 high school science teachers to discover how they have arrived at their beliefs about scientific knowledge.

"My research really comes down to what is the purpose of science education and how do we create citizens who can operate with scientific thinking."

As she explains in a summary of her study

proposal, research shows that students often embrace beliefs about science that are endorsed by their teachers.

However, she says teachers' beliefs about scientific knowledge do not always align with the nature of science.

For example, Watson says some teachers may emphasize an empiricist view of science at the expense of explaining that science is a human endeavour that seeks to explain the natural world.

“That’s okay,” she says. “But it’s also a problem because if you don’t recognize that science is created by humans, it is easy to fall into the space of science is infallible, when really it is completely fallible and it is always changing. So having teachers recognize that scientific knowledge is something that is a human endeavour and created by humans could help navigate some of those misconceptions for students,” she says.

How does this play out in real life? The recent Covid-19 pandemic offers just one example.

At various points during the pandemic, medical professionals and scientists offered specific advice about the nature of the disease or how to avoid becoming infected.

However, often overlooked was the fact that the advice being given was based on the information available at the time and was open to revision as more information about the virus became available.

Unfortunately, many people seemed to not understand that the situation with Covid-19 was fluid, and that advice concerning the wearing of masks, infection rates, and vaccines would change.

That lack of understanding contributed to some people becoming susceptible to misinformation and losing trust in what they were being told by the medical community, with the result that more people became infected and died than might have been expected.

How could the approach to teaching science be changed to ensure a more scientifically literate population in the future?

To answer that question, Watson hopes to use her teacher interviews to gain new insight into what informs their beliefs about science knowledge.

“Knowing those experiences and factors that inform teachers’ beliefs about science knowledge could support the creation of teacher education for both in-service and pre-service teachers,” she says in a summary of her research proposal.

“This teacher education could be designed specifically to help science teachers in Manitoba and beyond orient their beliefs to agree with the nature of science. In turn, teachers whose beliefs about science knowledge correlate with those described by the nature of science can better support the development of scientifically literate citizens,” she says.

CFI

Canada Foundation for Innovation

STORIES OF INSPIRATION, INNOVATION AND IMPACT

Canada Foundation for Innovation (CFI) is the federal government agency for funding research infrastructure within universities and colleges. The research infrastructure includes state-of-the-art equipment, laboratories, databases specimens, scientific collections, computer hardware and software, communications linkages, and buildings necessary to conduct leading-edge research.

Research Manitoba's CFI Matching Fund program provides matching funds (20-40% of project total) for proposals that have been awarded grants through one of CFI's competitions.



Graduate student, Reid Opperman investigates the morphology of breast tumour cells with the Nikon Ti2 Inverted microscope.

PHOTO CREDIT: Antoni Klonowski



The research team at the new Brandon University Breast Cancer Cell & Molecular Research Laboratory that is set to officially open this fall, from left to right: Vaishnavi Gopaul, Sayed Ammar Mehdi, Braydon Nault, Reid Opperman, Jorge Chavez, Sujit Maiti, Muhammad Maaz Shabbir, Mousumi Majumder, Antoni Klonowski, Shamima Anonna and Beatrice Gatien. (Missing from photo: Carter Williamson)

PHOTO CREDIT: Olivia Erikson





CFI teams up with Research Manitoba to provide scientists with financial support

Written by: Brian Cole

Mousumi Majumder offers a quick response to anyone who asks about the importance of the Canada Foundation for Innovation (CFI) in supporting research in this country.

“I can develop a hypotheses,” says Majumder, a professor and researcher at Brandon University.

“But that hypothesis needs to be tested. And that’s where CFI comes in. They support you to purchase the equipment - basic or cutting edge - or buy the services (that may be needed) so you can test the hypotheses you may have,” she says.

In other words, CFI funding is essential for research.

Majumder’s story illustrates how CFI, working in partnership with Research Manitoba, can make a difference, not just to a local scientist in need of funding, but to a whole community.

Just a few years ago, the researcher had an idea to develop a method for using a blood test to detect breast cancer.

Of course, to pursue her goal, she needed a lab.

Majumder started to realize her vision in 2021, when she was named a Tier 2 Canada Research Chair in Genotoxicology at Brandon University, an appointment that carried a \$600,000 award over five years.

CFI then provided her with an infrastructure grant of \$457,197, a sum that was matched by Research Manitoba.

That funding was used to help build and equip the new 1,000 sq. ft. Brandon University Breast Cancer Cell & Molecular Research Laboratory.

Now completed and set to open this fall, the lab will house as many as 20 researchers and student trainees who will continue working to develop a blood test for breast cancer.

Moreover, the lab will establish the university as a centre of research into genotoxicology, an emerging field of study that investigates potential links between diseases such as breast cancer and various environmental factors, such as pesticides and other chemicals.

In addition to space, the CFI and Research Manitoba grants also helped pay for about \$830,000 worth of equipment Majumder and her team will use to carry out their research.

Among other things, the lab will include a high-performance computing workstation for biomarker discovery, a multiplex qRT PCR machine, a micro fluorometer to quantify DNA/RNA/protein, a bio-analyzer which can measure protein in single cell to a whole rodent model, a temperature- controlled ultracentrifuge, a fluorescent inverted

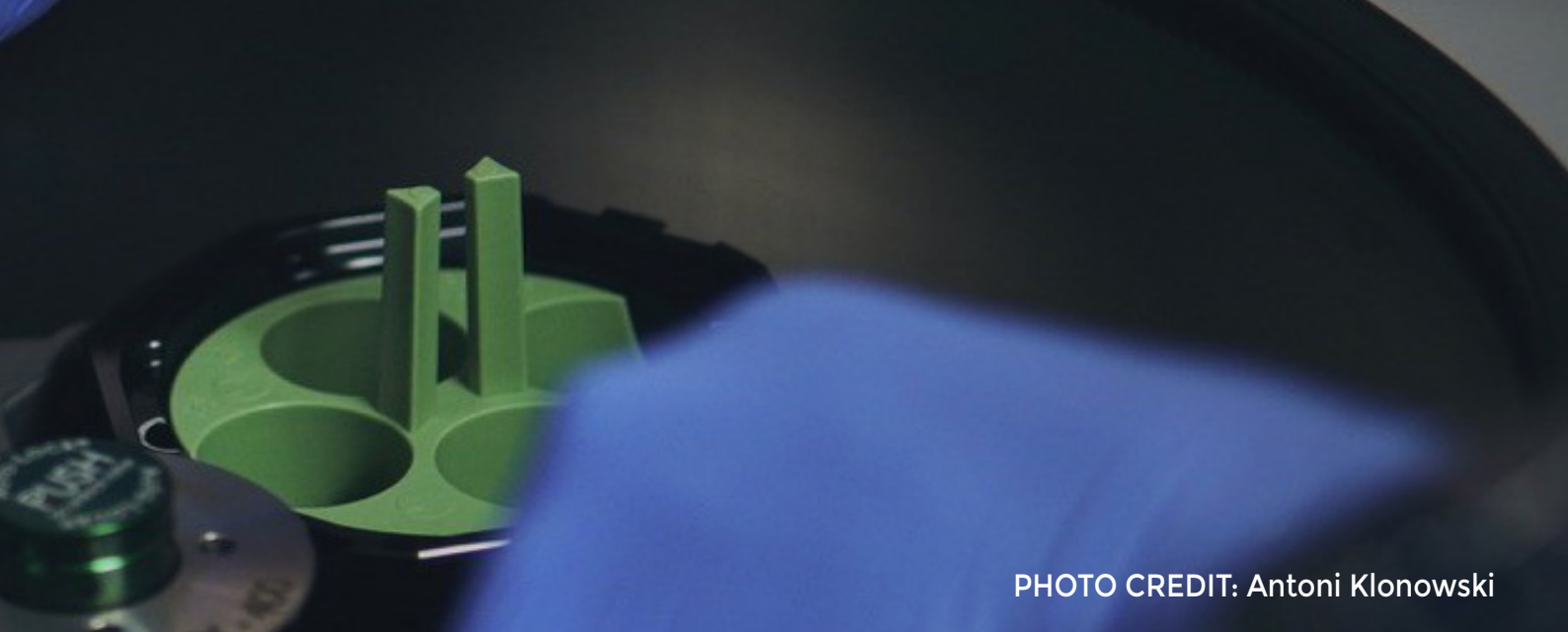


PHOTO CREDIT: Antoni Klonowski

microscope (worth about \$200,000 alone), and two ultra low-temperature freezers capable of preserving bio-specimens at -20 C and -80 C.

“It’s a big leap,” Majumder said in an interview at the time.

Freyja Arnason, Director of Strategy and Programs for Research Manitoba, says CFI plays a crucial role in supporting Manitoba researchers.

As noted on the CFI’s website, the federal agency’s mandate is to “increase the capability of Canada’s universities, colleges, research hospitals and non-profit research organizations to carry out high quality research by investing in research infrastructure.”

“Research Manitoba matches CFI approved funding between 20 to 40 per cent,” says Arnason.

“We see the value in providing CFI matching funds because the leverage is so high. The remainder of the funding for a given project usually comes from industry partners and other sources,” she says.

“The relationship [with Research Manitoba] has proven beneficial to all involved,” says Roseann O’Reilly Runte, President and CEO of the CFI.

“The trusted and effective relationship between Research Manitoba and the CFI supports our common goal of achieving the highest standards of excellence as we work together to support research that is agile and ready to respond both to local and global challenges,” she says.

Of course, Majumder is just one of the many scientists and researchers who have benefitted from the efforts of Research Manitoba and CFI.

Last year, Research Manitoba invested \$4,212,835 in matching infrastructure funding for CFI projects in Manitoba, leveraging and additional \$7,158,419 in funding from the CFI and other sources such as industry partners.



Researcher Mousumi Majumder inside the new Brandon University Breast Cancer Cell & Molecular Research Laboratory. Together, CFI and Research Manitoba contributed about \$900,000 towards the construction and equipping of the new facility, with another \$300,000 in in-kind contributions coming from various vendors.

PHOTO CREDIT: Antoni Klonowski



International graduate student, Shamima Anonna develops western blot images for protein analysis using an Azure Sapphire Biomolecular imager.

PHOTO CREDIT: Antoni Klonowski

“

The trusted and effective relationship between Research Manitoba and the CFI supports our common goal of achieving the highest standards of excellence as we work together to support research that is agile and ready to respond both to local and global challenges.

- Roseann O'Reilly Runte, President and CEO, Canada Foundation for Innovation





Sayed Ammar Mehdi (front) and Reid Opperman at work in the new Brandon University Breast Cancer Cell & Molecular Research Laboratory.

PHOTO CREDIT: Sujit Maiti

Research

Tomorrow

STORIES OF INSPIRATION, INNOVATION AND IMPACT





Researcher:

Tasmia Hai

Program: 2022 Health Research Postdoctoral Fellowship

Funding Amount: \$44,100

Project Title: Predictors of Self-Regulation Skills and Externalizing Behaviours in Children participating in the BEAM Program

Tasmia Hai's research project involves a study on ways to support young children in Manitoba to help improve their mental health through an easy-to-use treatment program.

New parenting app may help parents improve their anxiety and depressive symptoms

Written by: Brian Cole

As a child psychologist, Tasmia Hai understands how a child's difficulty with self-regulating their emotions could lead to future behavioural problems, including mental illness.

So, when the chance came up to be part of a research project that provided easily accessible parenting and mental health support via an app, she jumped at the opportunity.

The research project involves an app called Building Emotional Awareness and Mental Health, or BEAM for short. Its development is being spearheaded by Leslie E. Roos, an assistant professor in the Department of Psychology at the University of Manitoba, and involves students and researchers from the Universities of Manitoba, Calgary and British Columbia. Hai is part of the team responsible for analyzing the effectiveness of the app. As she explains, the app is designed to support parents of young children (18-36 months old) who may be dealing with depression and anxiety challenges.

"The idea is that if you empower and support parents, then they are able to better understand their changes in moods, worries, and stressors. This in turn, facilitates more effective parenting, thereby potentially benefiting children's emotional regulation," says Hai.

This is important because children who struggle to regulate their emotions and behaviours may experience emotional and mental health issues if these concerns are left unaddressed.

"It is vital to intervene early on and stop future risks," she says in a brief summary of a project proposal for the app. **"Teaching young children self-regulation skills can be one way to increase their well-being and stop the development of future difficulties."**

Hai says the key to the BEAM app is that it teaches parents how to support their children's self-regulation skills through emotion-focused parenting, which essentially involves

supporting the development of skills that can help them assist their children in regulating emotions and behaviour. The concept for the app first emerged during the Covid-19 pandemic, which started in 2020 and ended last winter.

At the height of the pandemic, there was evidence to suggest that it had contributed to an increase in maternal mental health challenges and family stress, which are linked to lower quality parenting.

Since then, the app has grown and evolved, with the current version providing access to educational videos on a wide variety of topics, including parenting strategies, sleep, postpartum depression and anxiety.

“There are also opportunities for a weekly connect with peer coaches – fellow parents who are trained to provide them with resources and supports,” says Hai. “There are also virtual sessions via Zoom for Healthcare that parents could join to talk with clinicians... who could provide more group-based and tailored support.”

Hai says that in the sessions she has observed, parents often find fellow parents having similar challenges keeping up with the day-to-day demands of parenting. They collaboratively exchange strategies, brainstorm solutions, and provide mutual encouragement.

“When parents were low on sleep and felt unsupported, it was important to remind them of the importance of sleeping and eating well. When they are tired, and their kids would say (they don’t want to do something), it may lead to both parents and their children getting upset. This would often lead to heated arguments between parent and child, which would often lead to parents modelling behaviours to their child that were not helpful,” she says.

Hai says in cases like this, parents found it helpful to review some of the advice contained on the BEAM app, particularly selections dealing with sleep and mental health maintenance.

“Awareness is so important,” she says. “The app can also be useful in providing moms and dads with suggestions on how to avoid

unnecessary frustrations when talking to their kids.”

“For example, it’s recognizing that when your child is having a meltdown, it is not the time you want to problem-solve with them. That’s the time you want to give them hugs and get them to calm down before you discuss problem-solving strategies.”

As part of her post-doctoral fellowship project, entitled Predictors of Self-Regulation skills and Externalizing Behaviours in Children participating in the BEAM Program, Hai reviewed data from an estimated 140 moms and their children who enrolled in the research study testing the app.

Hai and other researchers analyzed data to determine the usefulness of the content as well as whether it had any effect on reducing the mood and behaviours of moms and their kids.

Hai, who is facilitating some of the analyses of the child-based outcomes, says results so far have been positive.

“The data shows it has been effective in reducing anxiety and depressive symptoms in moms,” says Hai.

Initial data analysis also suggests some measurable improvement in the behaviour of their children, although some of that might also be due to the fact that kids are just naturally growing and maturing.

Results on the effectiveness of the app in helping parents and their kids will be published in various journals when they are finalized.

Research Manitoba helped support the BEAM project by providing Hai with a Postdoctoral Fellowship worth \$44,100 over one year.

The awards are given to highly qualified postdoctoral trainees to prepare them for careers as independent researchers in the field of health.

In Hai’s case, the award covered her work with the BEAM project as well as several other studies investigating the implementation of e-health interventions.



Researcher:

Rosemary Minns

Program: 2022 Master's Studentship Award

Funding Amount: \$12,000, 1 year

Project Title: Effects of elevating carbon dioxide levels on alarm cue response.

Rosemary Minns is looking into the impact CO₂ pollution is having on freshwater fish, particularly the Japanese medaka.

Fishing for answers on CO₂ pollution

Written by: Brian Cole

Scientists have long predicted that rising carbon dioxide levels will have a detrimental impact on ecosystems within Canada's lakes and rivers.

The question is how much damage will it cause?

Rosemary Minns, a 24-year-old master's student in the Department of Biology at the University of Winnipeg, is hoping to help answer that question by investigating how CO₂ affects the predatory sensory systems of fish, specifically the Japanese medaka.

The research project, entitled Effects of Elevated Carbon Dioxide Levels on Alarm Cue Response, is being carried out with the support of a Master's Studentship Award worth \$12,000 over one year from Research Manitoba.

As Minns explains, prey fish like the medaka emit a chemical whenever they have been attacked or injured by a predator fish.

"Other prey fish can smell that (chemical) and that triggers a certain behaviour," says Minns, adding that the warning signal allows other prey fish to escape the predator in question.

Unfortunately, there is reason to believe that the rise in CO₂ levels may undermine the effectiveness of this natural early warning system.

"Basically, because of the constant rise in CO₂ annually, we're trying to figure out what behaviours are changed by that," she says, adding that there already is evidence that some receptors in brains of various fish are negatively affected by rising pollution levels.

Minns says she is particularly interested in the impact of CO₂ on the predatory sensory system because of its importance in helping fish survive. She also wants to learn whether some fish are more vulnerable to CO₂ pollution than others.

“The Japanese medaka that I am looking at live in (shallow bodies of water) in Asia, so (the impact of CO₂ on them) might be different than it is on a lake sturgeon in Canada that isn’t as susceptible to changes in CO₂,” she says.

Nonetheless, the medaka is a good model fish for scientific research.

“You can rear them pretty quickly, it only takes about three months to get them from juvenile to adult, which means you can do a lot of different tests on them and compare them to different species here, like minnows, which are part of the food chain,” she says.

Minns plans to analyze how increases in CO₂ affect behavioural predatory response and neurophysiological changes in the medaka by observing their behavioural responses to three types of predatory cues when exposed to different concentrations of CO₂.

“By determining these changes, future conditions of freshwater fish species will be predicted in response to increasing CO₂ levels, which will allow for informed decisions of ecosystem protection to be developed,” she says in a summary of her research proposal.

Originally from Trenton, Ontario, Minns attended Trent University before transferring to the University of Winnipeg to work on her master’s degree.

While she has long been interested in studying the impact of pollution on the environment, she decided to focus on aquatic ecosystems after spending a summer working for Fisheries and Oceans Canada a few years ago.

“Immediately after I started my job, I said, ‘This is for me.’”

Minns is one of eight students to receive the Master’s Studentship Award in 2022. Funded by Research Manitoba and its partners, the award is designed to help support students preparing for careers as independent researchers in the fields of health, natural sciences and engineering, and social sciences and humanities.

Minns says she started the project in the fall of 2022, and hopes to have it completed by 2024.



Researcher:

Nicole Brunton

Program: 2022 PhD in Health Research Studentship

Funding Amount: \$17,850, 1 year

Project Title: Is exposure to diabetes in utero causally associated with hypertension in offspring? A triangulation approach.

Nicole Brunton says getting a clearer picture of the cause or causes of hypertension among young people will set the tone for future prevention efforts.

Researcher uses novel approach to investigate hypertension among young people

Written by: Brian Cole

It's been clear for some time now that the number of young Canadians with hypertension is on the rise.

What isn't as clear is why?

Some studies carried out in Manitoba over the last 30 years suggest that children exposed to diabetes while in the womb are at higher risk for hypertension (high blood pressure).

Other studies suggest the problem could be linked to a child's birthweight, which could be influenced by a mom's diet or socio-economic status.

The result is that while there is obviously some overlap in risk factors.

Researchers are still trying to get a better understanding the underlying causes of

pediatric hypertension in a bid to develop more effective clinical practices to treat or prevent the condition.

Which is what makes Nicole Brunton's new research project so important.

A PhD student in the Department of Pediatrics and Child Health at the University of Manitoba, Brunton is heading up a project entitled "Is exposure to diabetes in utero causally associated with hypertension in offspring? A triangulation approach."

As the title suggests, what makes the project interesting is that Brunton is not just conducting one study.

Rather, she is carrying out three studies simultaneously to see if the results match. As she explains, the project is designed

to better separate the signal from the noise.

“The idea is you basically ask the same question using three different methods that are unrelated in terms of bias and limitations,” she says, noting the studies will tend to balance each other out and provide a more accurate picture of the underlying causes of pediatric hypertension.

According to her research proposal, the first study will compare youth who were born to mothers with diabetes to youth who were not, but who are otherwise the same.

The second study will compare siblings where one experienced diabetes in pregnancy and the other did not.

“Since siblings grow up in a similar environment, if only the sibling who is exposed to diabetes develops high blood pressure, we can be more certain the differences in blood pressure are a result of being exposed to diabetes in pregnancy,” she says in the summary.

The third study will use the genes of the mother to determine if a higher genetic risk for diabetes is associated with a higher risk for high blood pressure in the child.

“Since our genes are randomly inherited there is no other factor that will connect the mother’s genetic risk for diabetes and the child’s blood pressure,” says Brunton.

“This means that if children whose mothers had a higher genetic risk for diabetes also have higher blood pressure, we can assume that exposure to diabetes in pregnancy is the cause. If the findings from all three studies agree, then we will have strong evidence of a cause-and-effect relationship between exposure to diabetes in pregnancy and high blood pressure,” Brunton says. “Getting a clearer picture of the cause or causes of

hypertension among young people will set the tone for future prevention efforts,” says Brunton.

“If we do see that the evidence supports that being exposed to diabetes in utero is increasing the risk of hypertension (in young people), then we can look at that causal pathway a little more in depth and look at other things that may occur between the time (a child) is exposed in utero to diabetes and when you develop high blood pressure and determine whether there are mediators (measures to prevent or alleviate hypertension) along that path that could be taken,” she says.

Of course, if the evidence shows there is not a strong link, then that would open a whole new line of inquiry as to what is causing hypertension in young people.

In carrying out the study, Brunton will access the anonymous health records of as many as 200,000 children collected by the Manitoba Centre for Health Policy. She is also reaching out to the organizers of major cohort studies to gather additional health information.

Originally from Sioux Lookout, Ont., the 32-year-old researcher received a kinesiology degree from The University of British Columbia (Okanagan Campus) before arriving at the U of M to pursue her studies in epidemiology.

Research Manitoba is supporting her research by providing her with a PhD in Health Research Studentship award worth \$17,850 over one year.

The award is given out to highly qualified postdoctoral fellows to prepare for careers as independent researchers in the field of health.

RITHIM

Research Improvements Through Harmonization in Manitoba

FOR THE YEAR ENDED MARCH 31, 2023

“ | RITHIM is not just about simplifying administrative tasks, it is about transforming healthcare in Manitoba, as healthcare and research are inseparable you need one to support the other. The purpose of RITHIM is to create an environment that will support Manitobans, and will support Manitoba patients, all of which are current and future patients. Growth, opportunity, new endeavors, and innovations, all stem from research. We can always generalize some evidence from other jurisdictions, other countries even, but the only way to get a true idea and representation of what is best for Manitobans is to do research here in Manitoba.

- Dr. Paul Beaudin, Director of Research and Innovation,
Shared Health Manitoba



Bridging the gap to improve the efficiency of health research in Manitoba.

RITHIM is a provincial initiative involving multiple stakeholders with the goal of building a best-in-class provincial program for health research in Manitoba.

RITHIM is unique across Canada in that it will harmonize ethics, privacy, and institutional impact review processes to streamline health research approvals in Manitoba.

The new Provincial Research Administration System (RITHIM-PRAS) will build further efficiencies in the process by creating one coordinated electronic application process with a user-friendly experience.

RITHIM is led by Research Manitoba, in partnership with key stakeholders which include the Manitoba government, provincial and regional health authorities, universities, hospitals and healthcare facilities, researchers, and corporate industry.

RITHIM will help to attract and retain world-class researchers and enhance Manitoba's potential for industry investment and research partnerships.

Major Milestones



Supported PHRPC, who completed a very successful first full year of operations, meeting all its review metric targets.



Supported CHIPER's transitional state of operations, ensuring ethics approval is in place prior to PHRPC approval.



Designed the committee review processes and communications components for the electronic research administration system.



Built business processes to support the future state of RITHIM, including the integration of institutional impact reviews and the establishment of harmonization processes.



Developed a new RITHIM website to be launched ahead of RITHIM-PRAS to facilitate user training.



Recruited and trained staff to support full RITHIM operations.



Continued engagement and close collaboration with key stakeholders across the health system and post-secondary institutions.

PHRPC Operations 2022-2023

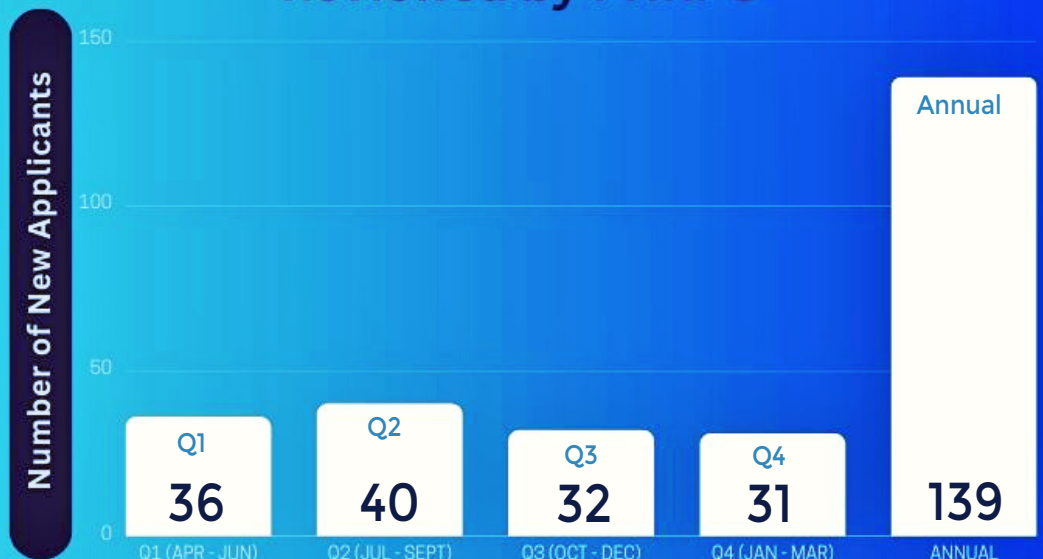


90%

INCREASE IN VOLUME

PHRPC saw a 90% increase in new submission volume in its first full year of operations over the annual average seen by the former Manitoba government Health Information Privacy Committee (HIPC). The increase is attributed to PHRPC's broader scope reviewing use of personal health information from all Manitoba trustees. Despite the large increase in volume, all review cycle metrics met set targets.

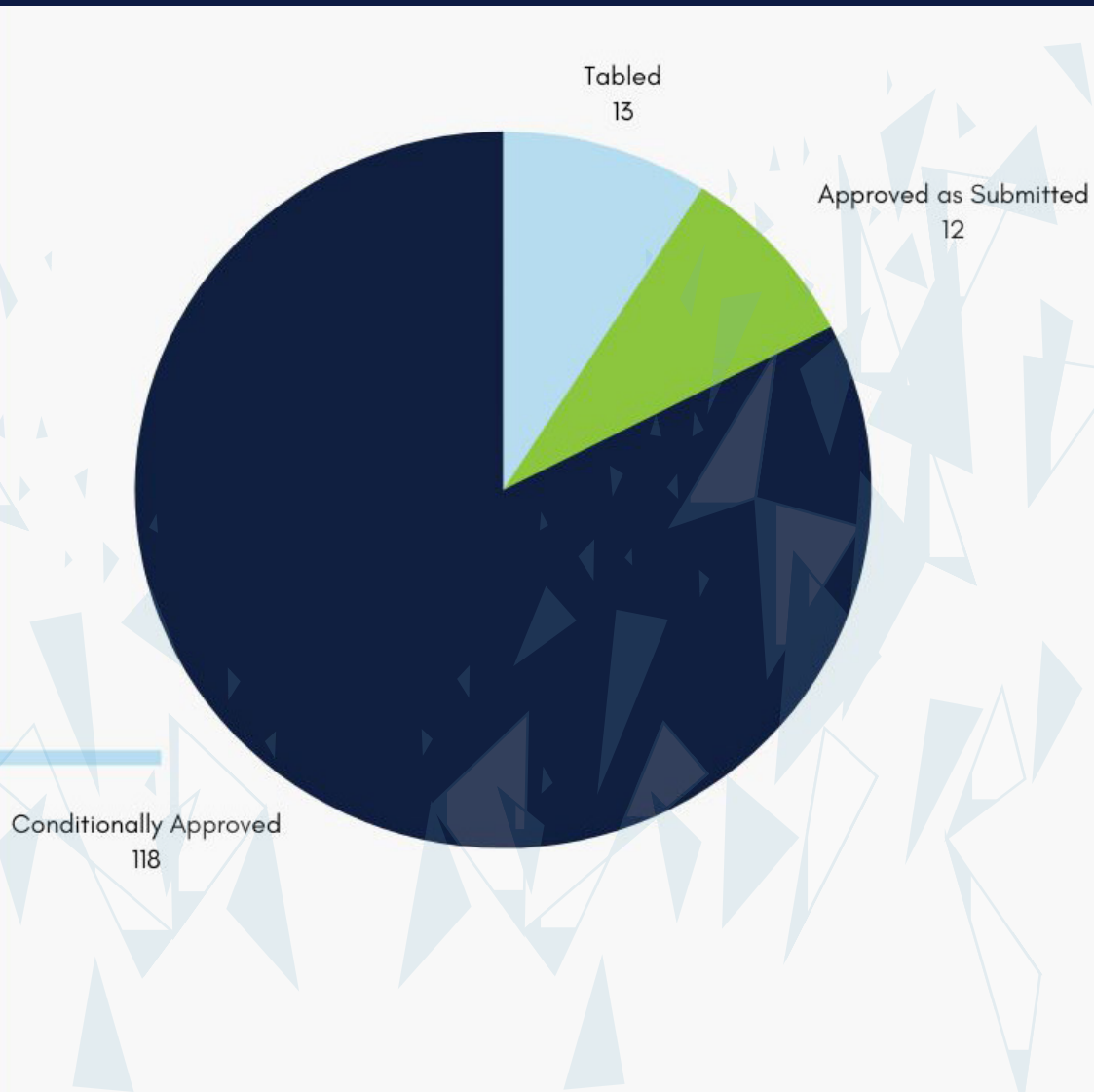
Total Number of New Applications Reviewed by PHRPC



RITHIM
Impact Privacy Ethics



NEW APPLICATION DECISION BREAKDOWN



Proportion of Applications Reviewed by PHRPC within 30 days of submission deadline.



Median days from submission deadline to review for new applications.





PHRPC Operations 2022-2023 - Quick Facts

-  The committee meets **monthly** in panels to review new applications.
-  **14** panel meetings held.
-  **1** full committee meeting held to elect a Chair and approve PHRPC policies.
-  **139** new applications reviewed.
-  **123** amendments reviewed.
-  **100%** of amendments approved within 30 days of submission.
-  Over **65%** of amendments included changes in project personnel.

2022-2023 Provincial Health Research Privacy Committee (PHRPC)

Ms. Sharon Klos (Chair)

Health Information Specialist, Health Information Services, Interlake-Eastern Regional Health Authority

Dr. Ingrid Botting

Corporate Secretary, Winnipeg Regional Health Authority (WRHA)

Mr. Oliver Bucher

Team Lead, Epidemiology, CancerCare Manitoba

Mr. Daniel Gagné

Dean, School of Nursing and Health Studies, Université de Saint Boniface

Ms. Sherlene Heise

Privacy Officer & Coordinator, Shared Health Manitoba

Dr. Christopher Louizos

Assistant Registrar - Field Operations, College of Pharmacists of Manitoba

Dr. Marcelo Urquia

Research Scientist, Manitoba Centre for Health Policy, University of Manitoba

Dr. Jude Uzonna

Professor & Associate Dean (Research), Max Rady College of Medicine, University of Manitoba

Dr. Anna Ziomek

Registrar & CEO, College of Physicians and Surgeons of Manitoba

Financial

Statements

FOR THE YEAR ENDED MARCH 31, 2023

Management's Responsibility Letter

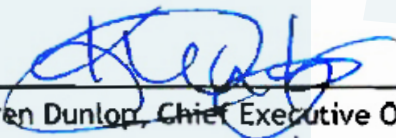
Management's Responsibility for Financial Reporting

The accompanying financial statements are the responsibility of the management of **Research Manitoba** and have been prepared in accordance with Canadian public sector accounting standards. In management's opinion, the financial statements have been properly prepared within reasonable limits of materiality, incorporating management's best judgment regarding all necessary estimates and all other data available to the audit report date.

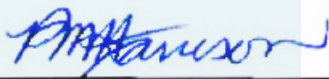
Management maintains internal controls to properly safeguard the assets and to provide reasonable assurance that the books and records from which the financial statements are derived accurately reflect all transactions and that established policies and procedures are followed.

The responsibility of the external audit is to express an independent opinion on whether the financial statements of **Research Manitoba** are fairly represented in accordance with Canadian public sector accounting standards. The Independent Auditor's Report outlines the scope of the audit examination and provides the audit opinion.

On behalf of Management of **Research Manitoba**:



Karen Dunlop, Chief Executive Officer



Pamela Harrison, CPA, CGA, Director of Finance and Administration

Date:

May 15, 2023

Independent Auditor's Report

To the Board of Directors of Research Manitoba

Opinion

We have audited the financial statements of Research Manitoba (the "Organization") which comprise the statement of financial position as at March 31, 2023, and the statement of operations and accumulated surplus, change in net financial assets, and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

In our opinion, the financial statements present fairly, in all material respects, the financial position of the Organization as at March 31, 2023 and the results of its operations, its change in net financial assets, and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Basis for Opinion

We conducted our audit in accordance with Canadian generally accepted auditing standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Statements* section of our report. We are independent of the Organization in accordance with the ethical requirements that are relevant to our audit of the financial statements in Canada, and we have fulfilled our other ethical responsibilities in accordance with these requirements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Organization's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Organization or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Organization's financial reporting process.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Canadian generally accepted auditing standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

Independent Auditor's Report

As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Organization's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Organization's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Organization to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

BDO Canada LLP


Chartered Professional Accountants


Winnipeg, Manitoba
June 19, 2023

Statement of Financial Position

March 31	2023	2022
Financial Assets		
Cash and bank	\$ 353,914	\$ 2,231,668
Portfolio investment (Note 3)	1,491,028	1,456,512
Accounts receivable (Note 4)	28,492	21,303
Accrued interest receivable	13,431	4,781
	<u>1,886,865</u>	<u>3,714,264</u>
Liabilities		
Accounts payable and accrued liabilities	250,216	2,042,682
Deferred revenue	-	40,770
	<u>250,216</u>	<u>2,083,452</u>
Net financial assets	<u>1,636,649</u>	<u>1,630,812</u>
Non-financial Assets		
Tangible capital assets (Note 5)	6,507	8,338
Prepaid expenses	13,990	17,672
	<u>20,497</u>	<u>26,010</u>
Accumulated surplus	<u>\$ 1,657,146</u>	<u>\$ 1,656,822</u>

Approved on behalf of the Board:

DocuSigned by:

 Director

DocuSigned by:

 Director

The accompanying notes are an integral part of these financial statements.

Statement of Operations and Accumulated Surplus

For the year ended March 31	2023	2023	2022
	Budget	Total	Total
Revenue			
Province of Manitoba Economic Development Investment and Trade (Note 8)	\$ 12,044,000	\$ 12,044,000	\$ 12,044,000
Externally restricted revenue	-	40,770	150,000
Grants returned/rescinded	20,000	18,465	16,739
Investment income	25,000	44,889	21,350
RITHIM Industry Paid Projects	140,000	-	-
	<u>12,229,000</u>	<u>12,148,124</u>	<u>12,232,089</u>
Expenditures			
Administration (Page 15)	1,108,920	1,025,400	952,846
Infrastructure grants - matching	3,442,971	4,212,835	4,899,106
RITHIM division	1,308,997	1,030,668	639,920
Operating grants - matching	4,065,017	3,570,658	3,660,995
Operating grants	779,395	784,539	680,805
Personnel awards	423,700	423,700	288,000
Personnel awards - matching	1,100,000	1,100,000	1,101,700
	<u>12,229,000</u>	<u>12,147,800</u>	<u>12,223,372</u>
Annual surplus	<u>\$ -</u>	324	8,717
Accumulated surplus, beginning of year		<u>1,656,822</u>	1,648,105
Accumulated surplus, end of year		<u>\$ 1,657,146</u>	<u>\$ 1,656,822</u>

The accompanying notes are an integral part of these financial statements.

Statement of Changes In Net Financial Assets

For the year ended March 31	2023		2022
	Budget	Total	Total
Annual surplus	\$ -	\$ 324	\$ 8,717
Amortization of tangible capital assets	-	1,831	2,390
Increase in prepaid expense	-	3,682	135
Changes in net financial assets	<u>\$ -</u>	5,837	11,242
Net financial assets, beginning of year		<u>1,630,812</u>	<u>1,619,570</u>
Net financial assets, end of year		<u>\$ 1,636,649</u>	<u>\$ 1,630,812</u>

The accompanying notes are an integral part of these financial statements.

Statement of Cash Flows

For the year ended March 31	2023	2022
Cash Flows from Operating Activities		
Annual surplus for the year	\$ 324	\$ 8,717
Adjustments for		
Amortization of capital assets	1,831	2,390
	2,155	11,107
Changes in non-cash working capital balances		
Accounts receivable	(7,189)	6,936
Accrued interest receivable	(8,650)	555
Prepaid expenses	3,682	135
Accounts payable and accrued liabilities	(1,792,466)	1,928,098
Deferred revenue	(40,770)	(150,000)
	(1,843,238)	1,796,831
Cash flows from capital transactions	-	-
Cash flows from investing activities	-	-
Cash flows from financing activities	-	-
Increase (decrease) in cash and cash equivalents during the year	(1,843,238)	1,796,831
Cash and cash equivalents, beginning of year	3,688,180	1,891,349
Cash and cash equivalents, end of year	\$ 1,844,942	\$ 3,688,180
Represented by		
Cash and bank	\$ 353,914	\$ 2,231,668
Portfolio investment	1,491,028	1,456,512
	\$ 1,844,942	\$ 3,688,180

The accompanying notes are an integral part of these financial statements.

Notes to Financial Statements

For the year ended March 31, 2023

1. Nature of the Organization

Research Manitoba (the "Organization") was originally established by The Manitoba Health Research Council Act to promote and assist basic, clinical and applied research in the health sciences in Manitoba. It was continued under The Research Manitoba Act in 2014 to promote, support and coordinate funding of, research in the health, natural and social sciences, engineering and the humanities in Manitoba. Research Manitoba is a registered charity and is exempt from tax under the Income Tax Act.

2. Summary of Significant Accounting Policies

Basis of Accounting

The financial statements have been prepared using the Canadian public sector accounting standards as established by the Public Sector Accounting Board.

Revenue Recognition

The Organization is primarily funded by the Province of Manitoba and operates per the mandates set out in the Research Manitoba Act. These financial statements reflect agreed funding arrangements with respect to the year ended March 31, 2023.

Provincial government transfers for operating purposes are recognized as revenue in the period in which all eligibility criteria and/or stipulations have been met and the amounts are authorized. Any funding received prior to satisfying these conditions are considered unearned until conditions have been met. When revenue is received without eligibility criteria or stipulations, it is recognized when the transfer from the Province of Manitoba is authorized, except when and to the extent the transfer gives rise to an obligation that meets the definition of a liability for the Organization.

Externally restricted revenue consists of revenues from strategic partnership agreements recognized in the period in which the resources are used for the purposes specified. If the funds are not disbursed for the specified purposes, it is recognized as deferred revenue.

The General Research Funds - General research grants are charged to expenditures in the year the funding is committed for, by the Board. Research grants returned to or rescinded by the organization is recorded as revenue when received or rescinded.

Investment income is recognized as revenue in the year in which it is earned.

RITHIM industry paid projects consists of fees for industry projects requiring reviews that are recognized in the period in which the service is provided.

Notes to Financial Statements

For the year ended March 31, 2023

2. Summary of Significant Accounting Policies (continued)

Financial Assets

Portfolio investments are investments that are capable of reasonably prompt liquidation and are recognized at cost.

Liabilities

Liabilities are present obligations as a result of transactions and events occurring prior to the end of the fiscal year. The settlement of the liabilities will result in the future transfer or use of assets or other form of settlement. Liabilities are recorded at the estimated amount ultimately payable.

Non-financial Assets

- (a) Prepaid expenses are payments for goods or services that will provide economic benefit in future periods. The prepaid amount is recognized as an expense in the year the goods or services are consumed.
- (b) Tangible capital assets are stated at cost less accumulated amortization. Amortization, based on the estimated useful life of the asset. Any changes to this policy will be Board approved. The amortization for purchases prior to this fiscal year will continue to be calculated as follows:

Office and computer equipment	20% diminishing balance basis
Computer equipment for review committees	33.3% diminishing balance basis

Financial Instruments

Financial instruments are recorded at fair value when acquired or issued. Cash has been designated to be in the fair value category. All other financial instruments are reported at cost or amortized cost less impairment, if applicable. Financial assets are tested for impairment when changes in circumstances indicate the asset could be impaired. Transaction costs on the acquisition, sale or issue of financial instruments are expensed for those items remeasured at fair value at each balance sheet date and charged to the financial instrument for those measured at amortized cost. Due to the nature of the financial instruments held by the Organization, there are no unrealized gains or losses, and therefore a statement of remeasurement gains and losses is not required for these financial statements.

Cash and Cash Equivalents

For the purpose of the statement of cash flows, cash includes cash and bank, a short-term investment in a cash savings account that can be redeemed at the organization's request.

Notes to Financial Statements

For the year ended March 31, 2023

2. Summary of Significant Accounting Policies (continued)

Grants and Awards

All grants and awards and their renewals are recorded as an expenditure in the year they are committed for.

Measurement Uncertainty

The preparation of financial statements in accordance with Canadian public sector accounting standards requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from management's best estimates as additional information becomes available in the future.

3. Portfolio Investment

Steinbach Credit Union, charity regular savings account, 3.70% (1.40% in 2022), no maturity date and is reduced by the deficit in the chequing account.

	<u>2023</u>	<u>2022</u>
	\$ 1,491,028	\$ 1,456,512

4. Accounts Receivable

University of Manitoba
Goods and Services Tax receivable

	<u>2023</u>	<u>2022</u>
	\$ 9,285	\$ 9,285
	19,207	12,018
	\$ 28,492	\$ 21,303

Notes to Financial Statements

For the year ended March 31, 2023

5. Tangible Capital Assets

	2023			
	Opening Balance	Additions	Disposals	Closing Balance
Cost				
Office equipment	\$ 34,151	\$ -	\$ -	\$ 34,151
Computer equipment	62,913	-	-	62,913
	97,064	-	-	97,064
Accumulated Amortization				
Office equipment	30,177	795	-	30,972
Computer equipment	58,549	1,036	-	59,585
	88,726	1,831	-	90,557
Net book value	\$ 8,338	\$ (1,831)	\$ -	\$ 6,507
				2022
	Opening Balance	Additions	Disposals	Closing Balance
Cost				
Office equipment	\$ 34,151	\$ -	\$ -	\$ 34,151
Computer equipment	62,913	-	-	62,913
	97,064	-	-	97,064
Accumulated Amortization				
Office equipment	29,184	993	-	30,177
Computer equipment	57,152	1,397	-	58,549
	86,336	2,390	-	88,726
Net book value	\$ 10,728	\$ (2,390)	\$ -	\$ 8,338

Notes to Financial Statements

For the year ended March 31, 2023

6. Pension Benefits

Employees of Research Manitoba are eligible for pension benefits in accordance with the provisions of the Civil Service Superannuation Act (CSSA), administered by the Civil Service Superannuation Board (CSSB). The CSSA established a defined benefit plan to provide benefits to employees of the Manitoba Civil Service and to participating agencies of the Government, including Research Manitoba, through the Civil Service Superannuation Fund (CSSF). Effective April 1, 2012, pursuant to an agreement with the Province of Manitoba, Research Manitoba transferred to the Province the pension liability for its employees.

Commencing April 1, 2012, Research Manitoba was required to pay to the Province the employees' current pension contributions. The plan is funded by the Organization's employees at rates of 8.0% to 9.0% of the employees' salary. The Organization is required to match at rates of 7.1% to 9.0% of the employees' salary. The amount contributed by Research Manitoba in the calendar year 2023 was \$76,372 (\$65,344 in calendar year 2022) and the employees' share was \$82,676 (\$71,174 in calendar year 2022). Under this agreement, the Organization has no further pension liability.

7. Commitments

Grants

Research Manitoba has committed grants and awards under the General Research Fund, Canada Foundation for Innovation (CFI) Fund, Strategy for Patient Oriented Research (SPOR) Fund and Strategic Partnership Fund as follows:

Year	General Research Fund	CFI Fund	SPOR Fund	Matching Grants	Total
2024	\$ 1,214,375	\$ -	\$ 225,000	\$ 1,980,271	\$ 3,419,646
2025	-	-	175,000	1,844,421	2,019,421
2026	-	-	175,000	1,783,571	1,958,571
2027	-	-	-	160,000	160,000
Total	\$ 1,214,375	\$ -	\$ 575,000	\$ 5,768,263	\$ 7,557,638

Premises

The Organization has entered into an agreement to lease its premises for \$76,920 annually until the agreement expires in August 2030.

Notes to Financial Statements

For the year ended March 31, 2023

8. Related Party Transactions

Research Manitoba is related to all Province of Manitoba departments and agencies. During the year, Research Manitoba had the following transactions with related organizations:

	2023	2022
Grant revenue	\$ 12,044,000	\$ 12,044,000

These transactions are in the normal course of operations and are measured at the exchange amount, which is the amount of consideration established and agreed to by the related parties.

9. Financial Instrument Risk Management

General Objectives, Policies, and Processes

The Board of Directors has overall responsibility for the determination of the Organization's risk management objectives and policies and, whilst retaining ultimate responsibility for them, it has delegated the authority for designing and operating processes that ensure effective implementation of the objectives and policies to the Organization's Chief Executive Officer (CEO). The Board of Directors receives quarterly reports from the Organization's CEO through which it reviews the effectiveness of the processes put in place and the appropriateness of the objectives and policies it sets.

The Organization's financial instruments are exposed to certain financial risks, including credit risk, interest rate risk and liquidity risk.

There have been no significant changes from the previous year in the exposure to risk, policies or procedures used to manage financial instrument risks.

Interest Rate Risk

The Organization is exposed to interest rate risk arising from the possibility that changes in interest rates will affect the cash flows related to its investments. The Organization's objective is to minimize interest rate risk by locking in fixed rates on its investments when possible.

At March 31, 2023, a 1% move in interest rates, with all other variables held constant, could impact the interest revenue of the investments by \$14,910 (\$14,565 in 2022). These changes would be recognized in the statement of operations.

Notes to Financial Statements

For the year ended March 31, 2023

9. Financial Instrument Risk Management (continued)

Credit Risk

The Organization is exposed to credit risk through the possibility of non-collection of its accounts receivable. The majority of the Organization's receivables are from government entities which minimizes the risk of non-collection. The Organization also makes sure it meets all the eligibility criteria for the amounts to ensure they will collect the amounts outstanding.

Liquidity Risk

Liquidity risk is the risk that the Organization will not be able to meet its financial obligations as they fall due. The Organization has a planning and budgeting process in place to help determine the funds required to support the Organization's normal operating requirements on an ongoing basis. The Organization ensures that there are sufficient funds to meet its short-term requirements, taking into account its anticipated cash flows from operations and its holdings of cash and cash equivalents.

Schedule of Administrative Expenses By Object

For the year ended March 31	2023		2022
	Budget	Total	Total
Amortization of tangible capital assets	\$ 3,000	\$ 1,831	\$ 2,390
Bank fees	420	385	483
Board and committee	3,250	2,773	-
Communications	46,500	22,283	20,670
Conference and transportation	24,950	16,854	1,378
Courier and postage	500	-	158
Insurance	4,000	3,218	4,698
IT/Telecommunications	98,848	49,694	50,926
Office space	77,423	76,923	76,923
Office supplies	8,800	13,164	4,154
Professional development and memberships	14,877	11,053	1,203
Professional fees	28,000	40,834	68,224
Salaries and benefits	798,352	786,388	721,639
	\$ 1,108,920	\$ 1,025,400	\$ 952,846



INSPIRE • INNOVATE • IMPACT:

Strengthening Manitoba's Research and Innovation Footprint



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THANK YOU TO OUR PROVINCIAL PARTNERS!

We extend our continued gratitude and appreciation for the ongoing collaborative support from our provincial partners in government, health, academia, and industry.

Manitoba 