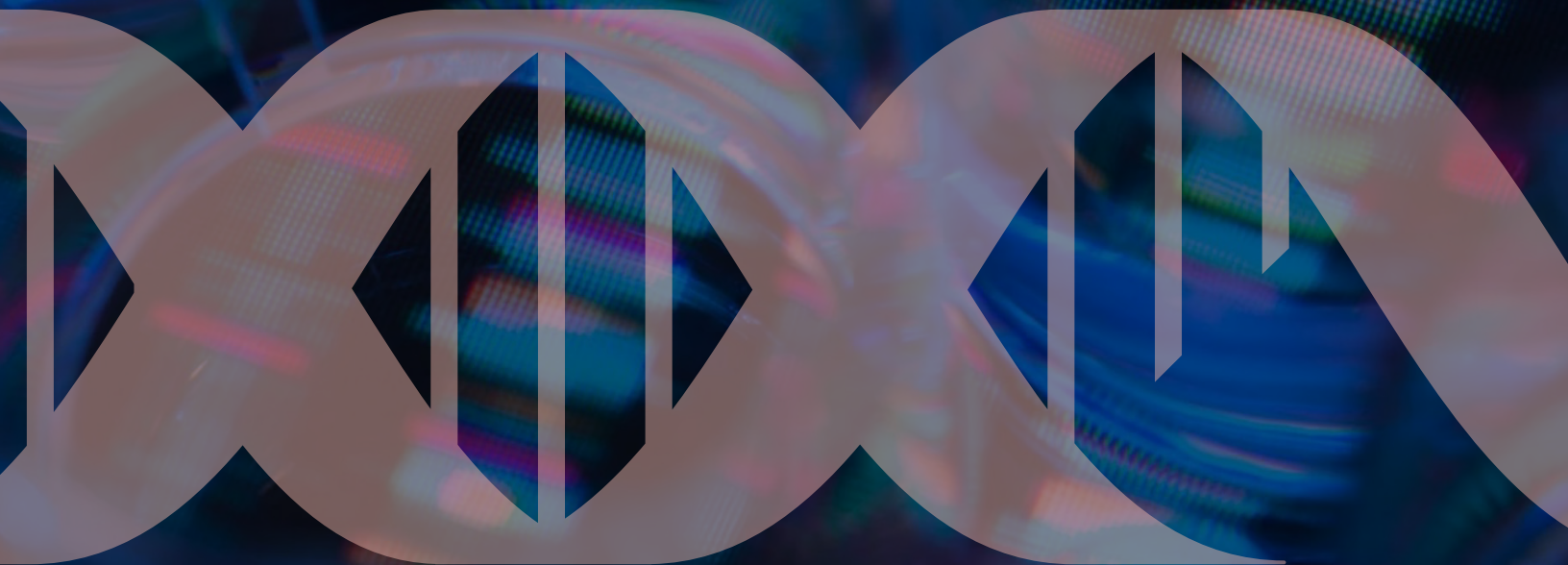


D2R IMPACT REPORT

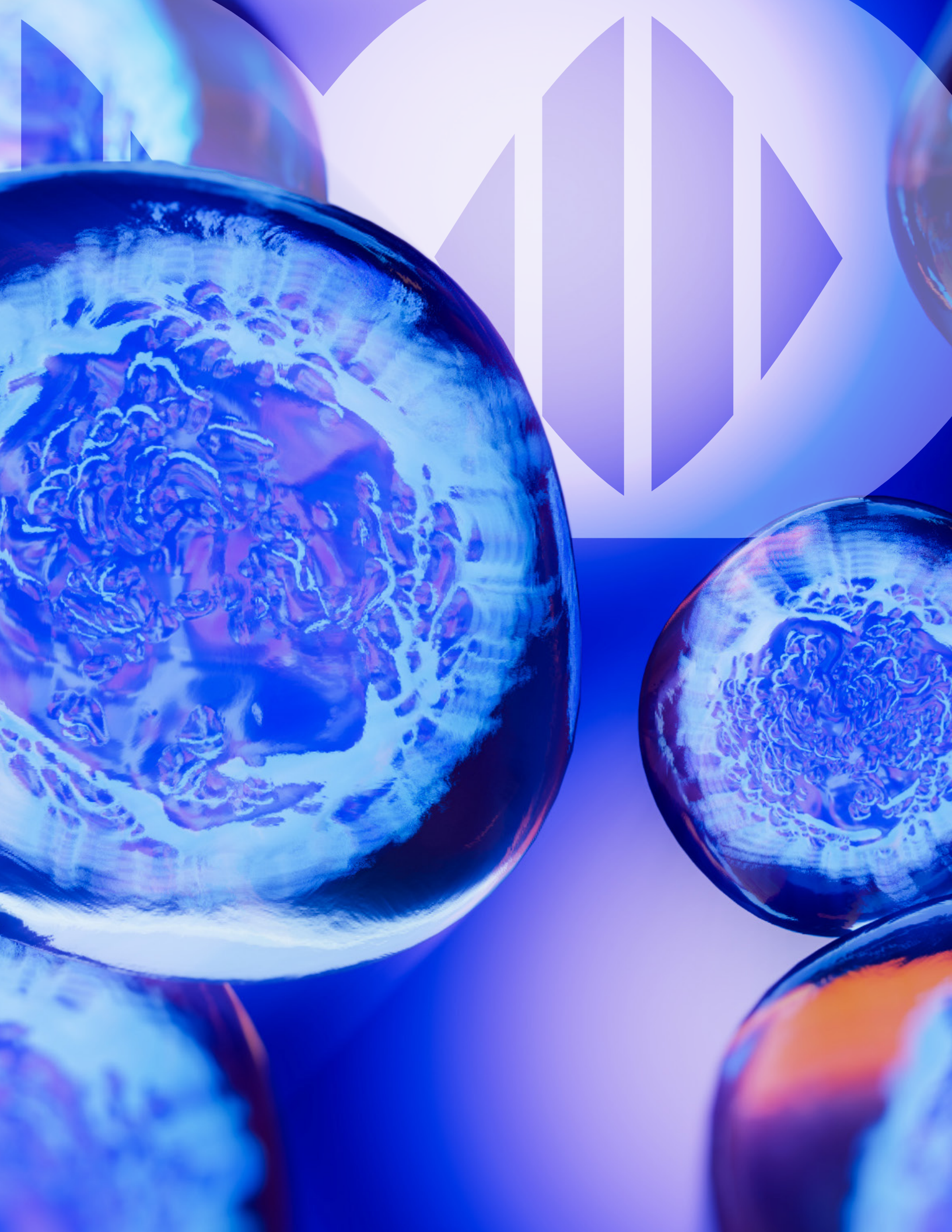
APRIL 2023 - MARCH 2025



McGill



D2R DNA
TO RNA



ACKNOWLEDGEMENTS

D2R | DNA to RNA is a research initiative led by McGill University, focused on delivering genomic-based RNA therapies to benefit the health of different populations affected by infectious diseases, rare and neglected diseases, as well as common chronic conditions such as cancer, and cardiovascular and cardiometabolic diseases. The initiative brings together researchers from McGill University, University of British Columbia, Université de Sherbrooke, McMaster University, Clinical Research Institute of Montreal, and the University of Ottawa to explore innovative solutions in personalized medicine. D2R is made possible by a \$165 million investment from the Canada First Research Excellence Fund (CFREF) with additional support from the Quebec Government and other philanthropic, not-for-profit and industry partners.

This report covers activities implemented from April 2023 until March 2025.



LETTER FROM D2R CHIEF SCIENTIFIC OFFICER

Dear colleagues and members of the D2R community, the D2R initiative has now entered its third year—a significant milestone. Looking back at the past two years, we have made great strides in setting up a robust governance framework, building an efficient and dedicated administrative team, developing our strategic priorities, and implementing wide ranging EDI and data science plans.

We have launched 11 open, competitive, and externally peer-reviewed funding programs that span fundamental research, training, translational and clinical research, commercialization, Indigenous health, team science, platforms, and more. Our communications team has developed a vibrant web presence, and many workshop and symposia to foster a sense of community amongst us and to establish our presence locally, nationally and internationally. The program has fostered the development of numerous new collaborations and partnerships between different disciplines and engaging different stakeholders (academia, industry, government, philanthropy) leading to novel and creative research interfaces. D2R researchers have developed and tested new ideas, and have moved them along translational paths, toward clinical outcomes and commercialization. We are deeply grateful to all of you who have contributed to making this initial phase of D2R a success.

As the Chief Scientific Officer of the program, alongside the scientific directors and the chair of the board, I remain

committed to collaborating with you to drive the initiative forward and achieve meaningful impact. We encourage you to approach your research with creativity, curiosity, and boldness in designing and testing research questions, with a view to translate knowledge into improving the health of Canadians, including underserved communities such as our indigenous partners. These are exciting times for Genomic Medicine and RNA Therapies and the D2R team is here to support you. We are all looking forward to working with you in the coming year.

Sincerely,



Philippe Gros
Distinguished James McGill
Professor, Department of
Biochemistry, McGill University

LETTER FROM D2R SCIENTIFIC DIRECTOR

Dear colleagues and partners, at the heart of the D2R initiative is a bold strategic vision: to position Canada as a leader in the discovery and development of a new generation of RNA-based vaccines and therapies, uniting genomic, RNA science, clinical translation, computational innovation, and equitable partnerships to achieve this.

This vision is ambitious by design, recognizing both the transformative potential of genomic-based RNA medicine and the responsibility to ensure its benefits are widely shared.

Realizing such a vision depends on collaboration. The challenges —scientific, technological, clinical, and societal—are too complex for any one discipline or institution to solve alone. Over the coming year, D2R will continue to strive to strengthen its partnerships and forge new synergies with national and international leaders. By building bridges across fields and engaging with partners globally, D2R creates the conditions where ideas can converge, and breakthroughs can emerge.

Looking forward, our commitment is to promote this collaborative ecosystem so that the science we support is not only innovative, but also impactful, inclusive, and responsive to the needs of our global society. Together, we could shape the future of genomic medicine in ways that will resonate far.

Sincerely,



Mark Lathrop
Professor, Department of Human
Genetics, McGill University
Scientific Director, Victor Phillip
Dahdaleh Institute of Genomic
Medicine

MESSAGE FROM DOMINIQUE BÉRUBÉ, CHAIR OF D2R BOARD OF DIRECTORS

Thanks to the foundational support of the CFERF grant, D2R is emerging as a global leader in RNA sciences, and this report captures the energy and ambition driving our work.

Inside, you'll discover the new programs we've launched, the exceptional talent we've brought on board, and the cutting-edge platforms we've built. Together, these milestones are creating unstoppable momentum.

D2R has been a powerful catalyst for RNA research and innovation, igniting momentum across Quebec and throughout Canada. Looking ahead, D2R is committed to ensuring that new therapies move from lab to clinic with scientific excellence, translational speed, and a deep sense of social responsibility.

Sincerely,



Dominique Bérubé
Vice-President
(Research and Innovation)
at McGill University



1. EXECUTIVE SUMMARY: TOP 5 THINGS TO KNOW ABOUT D2R

WHAT IS D2R?

D2R | DNA to RNA is a research initiative based at McGill University, positioning Canada as a global leader in RNA-based therapies. Backed by a \$165 million investment from the Government of Canada, and supported by the Quebec Government, industry, not-for-profit and philanthropic partners, D2R is building a collaborative, inclusive, and forward-looking ecosystem to advance RNA-based therapies for infectious diseases, rare and neglected diseases, as well as common chronic conditions such as cancer, and cardiovascular and cardiometabolic diseases.

HOW IS D2R ADVANCING EQUITY, DIVERSITY, AND INCLUSION?

D2R is embedding equity, diversity and inclusion (EDI) principles across its research, funding, and governance. Its 2023–2030 EDI Action Plan, set for public release in Fall 2025, guides efforts to support equity-deserving groups, integrate EDI into research design and practices, and foster inclusive training and mentorship. Diverse voices, including trainees, patients, and community leaders, help shape D2R's direction and ensure equitable access to RNA-based innovations.

WHAT IMPACT HAS D2R MADE SO FAR?

D2R launched 11 funding programs, as originally planned for research, training and platforms, receiving 116 applications reviewed by 89 scientific experts. D2R funding is allocated to projects based on competitive merit based review. Over 50 research projects were funded, supporting 100+ researchers, 90 collaborators, and 60+ trainees. Key highlights include:

- Expanded RNA research capacity by recruitment of three new faculty members.
- A rapid response program for Mpox research, in collaboration with McGill Interdisciplinary Initiative in Infection and Immunity (MI4).
- Established a partnership with Genome Quebec, who will co-fund commercialization projects.
- Launched a \$1.2 million project to develop CRISPR-Cas12a gene therapies with Eli Lilly.
- Launch of Training Awards and internship programs to support the next generation of RNA researchers.
- Strengthening of D2R's Indigenous Health Research strategy through new governance, international engagement and student support.
- Invested \$7.2 million in foundational and interdisciplinary research projects
- Invested over \$5 million in core platforms that are essential to support D2R research in RNA and Genomics

HOW IS D2R GROWING ITS NETWORK AND IMPACT?

D2R is building a dynamic research ecosystem through events, commercialization, and community engagement. In its first year, D2R hosted 12 events, including its inaugural Research Symposium with over 150 participants, seminars, industry visits, and EDI-focused programming. It also strengthened ties with Indigenous partners, supported commercialization through industry partnerships, and advanced data science with new tools to promote responsible, FAIR data principles.

WHAT IS NEXT FOR D2R?

In 2025-2026, D2R will:

- Launch Cycle 2 of funding programs, including new calls for Translational Impact Research, International Partnerships, and more.
- Expand training and mentorship through the D2R Scholar Awards and Training Program.
- Host the 2026 D2R Research Symposium.
- Publish a public-facing EDI Action Plan.
- Advance Indigenous Health Research through new team recruitment and co-developed initiatives.
- Prepare D2R’s Midterm Report for the Government of Canada in March 2026 and summarize the outcomes and impacts to date.
- Host a Data Science Forum, launch new training, and begin designing the D2R Data Catalogue.
- Deepen industry engagement, including hosting delegations from leading biotech and pharma companies and participating in global RNA conferences.



2.

ABOUT D2R |
DNA TO RNA

BACKGROUND & CONTEXT

D2R | DNA to RNA is a research initiative at McGill University positioning Canada as a global leader in RNA-based therapies, advancing treatments for infectious diseases, rare and neglected diseases, as well as common chronic conditions such as cancer, and cardiovascular and cardiometabolic diseases.

With a landmark \$165 million investment from the Government of Canada and additional support from the Quebec Government and other philanthropic and industry partners, D2R is advancing cutting-edge science and building powerful collaborations across academia, industry, and Indigenous communities to ensure that life-saving therapies are accessible to all.

STRATEGIC OBJECTIVES

- **Enable discovery:** D2R will overcome scientific and technical obstacles to realize the potential of genome-guided precision medicine and RNA therapies.
- **Make an impact:** To realize the potential of genomic discovery and capitalize on the flexibility of RNA therapeutics, D2R will implement an interdisciplinary research strategy to tackle priority disease areas.
- **Engage partners:** D2R will be a hub for world-leading “next-generation” drug development in Canada, bringing together Pharma and Biotech to accelerate regulatory approval of life-saving drugs.
- **Drive equitable practice:** D2R will engage with patient associations and equity-deserving groups to guide research and policy recommendations.
- **Champion Indigenous-led research initiatives:** D2R will prioritize the integration of Indigenous knowledge by actively promoting co-creation and ensuring that all engagements are culturally safe and respectful.

FUNDING PROGRAMS

D2R offers a variety of funding programs that fosters an ecosystem nurturing diverse ideas. The funding programs address gaps and needs ranging from foundational research, public health emergencies, commercialization efforts, and clinical research and development.

Priority disease areas and Foundational axes

D2R’s priority disease areas and foundational axes guide its pursuit of scientific breakthroughs and reflect a strong commitment to inclusivity and addressing diverse needs.

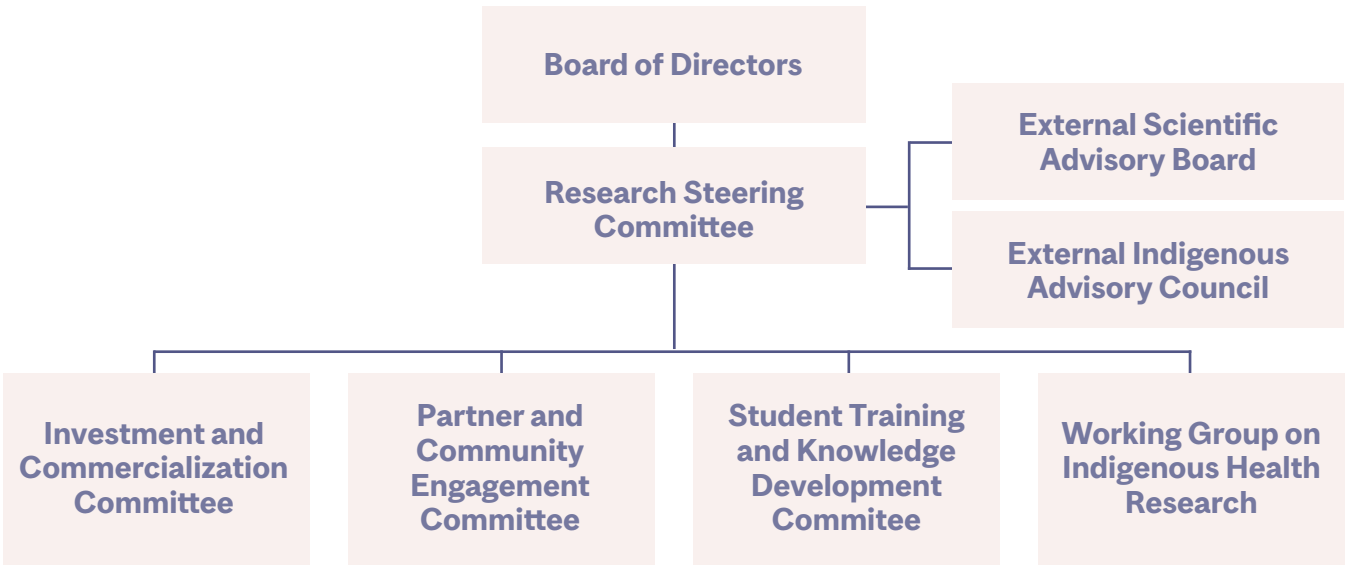
Priority disease areas

1. Rare diseases
2. Infectious diseases
3. Cancer
4. Cardiovascular and Cardiometabolic Diseases

Foundational axes

1. Population Studies and Genomic Medicine
2. RNA Therapeutics
3. Bioprocessing, Biomanufacturing, and Nanotechnology
4. Clinical Research, Acceleration, and Implementation
5. Data Science, Bioinformatics, and Computing in Personalized Medicine
6. Ethical, Socioeconomic, and Cultural Dimensions in Genomic Research

GOVERNANCE



D2R’s governance framework ensures strategic leadership, scientific excellence, and inclusive decision-making. Its **Scientific Leadership** consists of a Chief Scientific Officer, a Scientific Director and two Associate Scientific Directors, who serve as a link between the D2R Support Office and its governance bodies, ensuring strategic and operational alignment.

The **Board of Directors** provides high-level oversight, ensuring alignment with performance goals, finances, and EDI integration. The **Research Steering Committee (RSC)** leads the development and implementation of the scientific strategy and guides funding allocation. Its decisions are informed by expert input from specialized subcommittees, as well as the **External Scientific Advisory Board (ESAB)** and the **External Indigenous Advisory Council (EIAC)**. Working groups established under the **RSC** help guide research across disciplines and priority disease areas as well as guide training, capacity building, and research related to D2R’s Indigenous health research programs.

The three specialized subcommittees that report to the RSC, ensure coordinated and informed decision-making across the initiative:

- The **Partner and Community Engagement Committee (PCE)** oversees D2R policies and processes to ensure that equity, diversity, and inclusion are central to decision-making.

- The **Student Training and Knowledge Development Committee (STaKD)** guides funding and programming for graduate students and postdoctoral fellows.
- The **Investment and Commercialization Committee (ICC)** oversees all aspects of commercialization, innovation in the commercial space, entrepreneurship, and investment.

Additionally, there is a **Strategic Alignment Review Committee (SARC)** that advises the RSC on funding decisions by evaluating how proposed research aligns with D2R’s strategic priorities. These priorities are continually refined through input from the RSC and the initiative’s discipline and disease-based working groups.

To ensure diverse perspectives are embedded throughout D2R’s governance, committee membership includes a broad range of voices. For instance, trainees are actively involved in both the PCE and STaKD committees.

COMMUNITY

D2R brings together leading expertise, talent, and state-of-the-art infrastructure to advance RNA-based medicines in Canada and beyond, through partnerships with over 50 academic institutions, industry leaders, public sector organizations, and Indigenous partners.

A full list of D2R partners can be found at mcgill.ca/D2R.

3.
BIG
NUMBERS

D2R FUNDING BREAKDOWN

CFREF: \$165M	FRQ: \$2.8M	MEIE: \$3.5M	GENOME QUEBEC: \$500K
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Total Funding Allocated to D2R Researchers in FY25 (including CFREF Direct, Indirect, and FRQ): \$26.3M
Centres and Institutes Support: \$1.05M
Core Platforms Sustainability: \$6.5M
Foundational Projects: \$3.15M
New Faculty Start Up: \$750K
Rapid Response for Mpox research (in partnership with MI4): \$450K
Research in Motion: \$1M
Translational Impact Research: \$8.59M
Training Awards*: \$4.835M
<i>*This includes training budget linked to D2R’s Foundational Projects, Research in Motion, Translational Impact Research funding programs.</i>

Funded projects:
Centres and Institutes Support: 5 centres and institutes
Commercialization Priming (in partnership with Genome Quebec) and Major Partnerships: 5 projects
Core Platforms Sustainability: 9 platforms
Foundational Projects: 17 projects
New Faculty Start Up: 4 recruits
Rapid Response for Mpox research: 5 projects
Research in Motion: 5 projects
Translational Impact Research: 3 projects

Research teams:
Principal Investigators: 48
Co-Investigators: 60
Collaborators: 86
Highly Qualified Personnel: 47
Trainees: 87



**WE HAVE
COLLABORATORS
ALL AROUND
THE WORLD!**

COLLABORATORS

Name of Institution	Country	# of Collaborators	Name of Institution	Country	# of Collaborators
Justus-Liebig University of Giessen	Germany	1	Mount Sinai Hospital	Canada	1
Canadian Organization for Rare Disorders	Canada	1	McGill University Health Centre (MUHC)	Canada	1
Carleton University	Canada	1	Polytechnique Montréal	Canada	1
Centre hospitalier de l'Université de Montréal (CHUM)	Canada	1	Radboud University	Netherlands	1
Centre Hospitalier Universitaire de Québec (CHUQ)	Canada	2	University of British Columbia (UBC)	Canada	13
Centre Hospitalier Universitaire de Sherbrooke (CHUS)	Canada	2	Université de Montréal	Canada	6
Institut de recherches cliniques de Montréal (IRCM)	Canada	1	Université de Sherbrooke	Canada	1
Massively Multiplayer Online Science	Switzerland	1	University of Alberta	Canada	1
McGill University	Canada	22	University of California - San Diego	USA	1
McGill University (Jewish General Hospital, Lady Davis Institute)	Canada	1	University of California - San Francisco	USA	1
Moderna	USA	1	University of Texas	USA	1
			University of Toronto	Canada	1
			University of Warsaw	Poland	1
			University of Waterloo	Canada	1
			Versiti Blood Research Institute	USA	1
			Yale University	USA	1

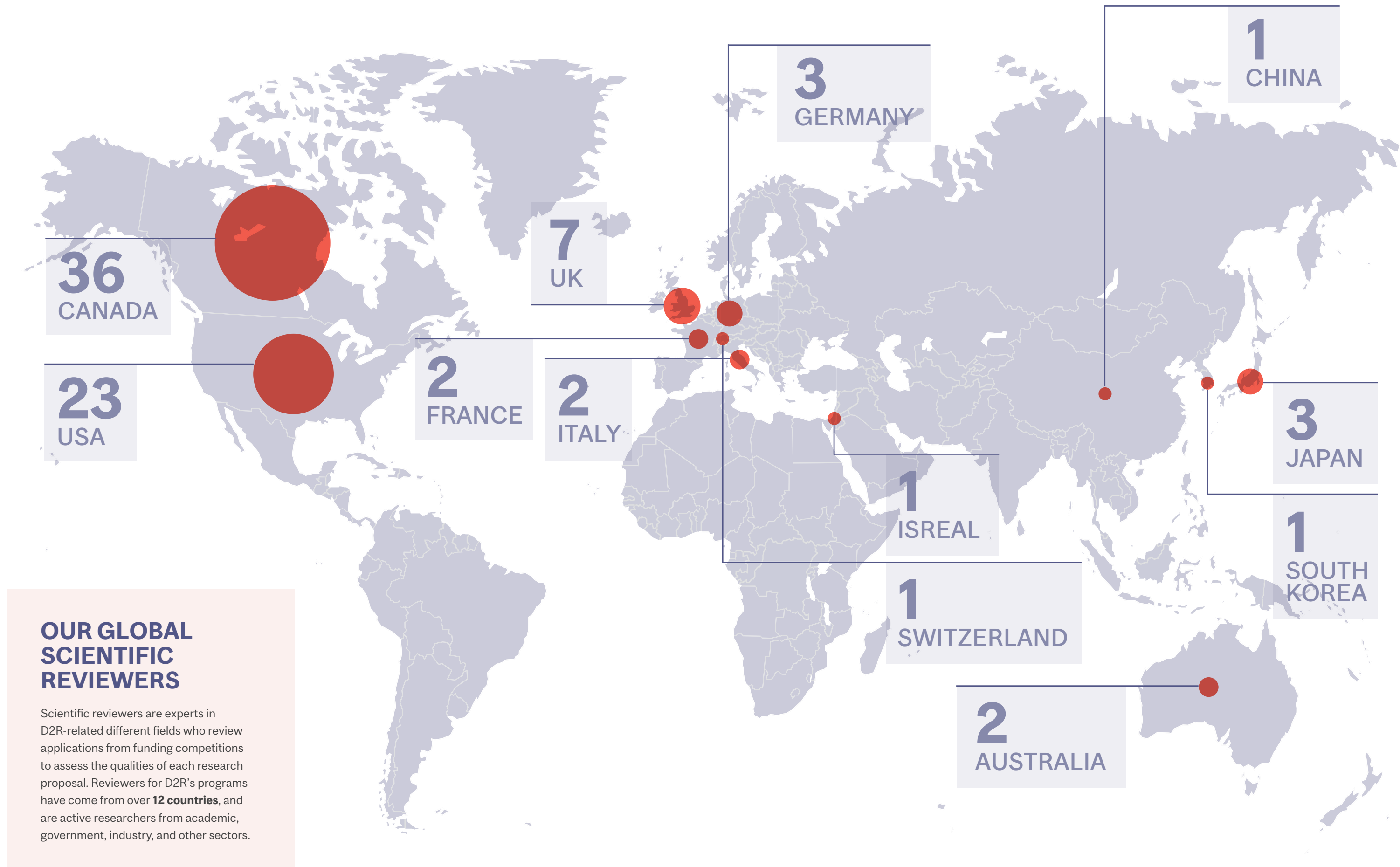


116
APPLICATIONS
RECEIVED

89
EXTERNAL
SCIENTIFIC
REVIEWERS

SCIENTIFIC REVIEWERS

Institution	Country	# of Reviewers	Institution	Country	# of Reviewers
Brock University	Canada	1	University of California, Los Angeles (UCLA)	USA	1
Cambridge	UK	1	University of Massachusetts RNA Therapeutics Institute	USA	1
Canada's National Platform for Genome Sequencing and Analysis (CGEn)	Israel	1	Universität des Saarlandes	Germany	2
City of Hope, Beckman Research Institute	USA	1	Université Bordeaux	France	1
Colorado State University	USA	1	Université de Montréal	Canada	3
Concordia University	Canada	1	Université de Sherbrooke	Canada	1
CRUK Scotland	UK	1	Université De Strasbourg	France	1
Emory University	USA	1	Université Laval	Canada	3
Guelph University	Canada	1	University College London	UK	1
Hokkaido University	Japan	1	University of Bern	Switzerland	2
Hospital for Sick Children	Canada	1	University of California Riverside	USA	1
Institut de recherche en immunologie et en cancérologie (IRIC)	Canada	1	University of California, Davis	USA	1
Kings College London	UK	1	University of Cambridge	UK	1
Mayo Clinic	USA	1	University of Chicago	USA	1
McGill University	Canada	1	University of Colorado	USA	1
Montreal Genome Centre	Canada	1	University of Guelph	Canada	1
National Institute of Information and Communications Technology	Japan	1	University of Lethbridge	Canada	2
Northeastern University	USA	1	University of Michigan	USA	2
New York University (NYU)	USA	1	University of Milan	Italy	1
Oxford University	UK	2	University of Nebraska	USA	1
Purdue University	USA	1	University of Ottawa	Canada	2
Queens University	Canada	1	University of Rome "Foro Italico"	Italy	1
RIKEN Center for Integrative Medical Sciences Tokyo	Japan	1	University of Saskatchewan	Canada	3
RWTH Aachen University	Germany	1	University of Sydney	Australia	1
SAANOSA, Melbourne	Australia	1	University of Texas	USA	2
San Diego State University	USA	1	University of Toronto	Canada	3
Seoul National University Hospital	South Korea	1	University of Waterloo	Canada	1
Texas A&M University	USA	1	University of Wisconsin-Madison	USA	1
Tongji University	China	1	University of Pennsylvania	USA	1
Toronto Metropolitan University	Canada	1	UT Southwestern	USA	1
U. California San Diego	USA	1	Western University	Canada	1
University of British Columbia (UBC)	Canada	6	York University	Canada	1



**OUR GLOBAL
SCIENTIFIC
REVIEWERS**

Scientific reviewers are experts in D2R-related different fields who review applications from funding competitions to assess the qualities of each research proposal. Reviewers for D2R's programs have come from over **12 countries**, and are active researchers from academic, government, industry, and other sectors.

4.

EQUITY DIVERSITY AND INCLUSION



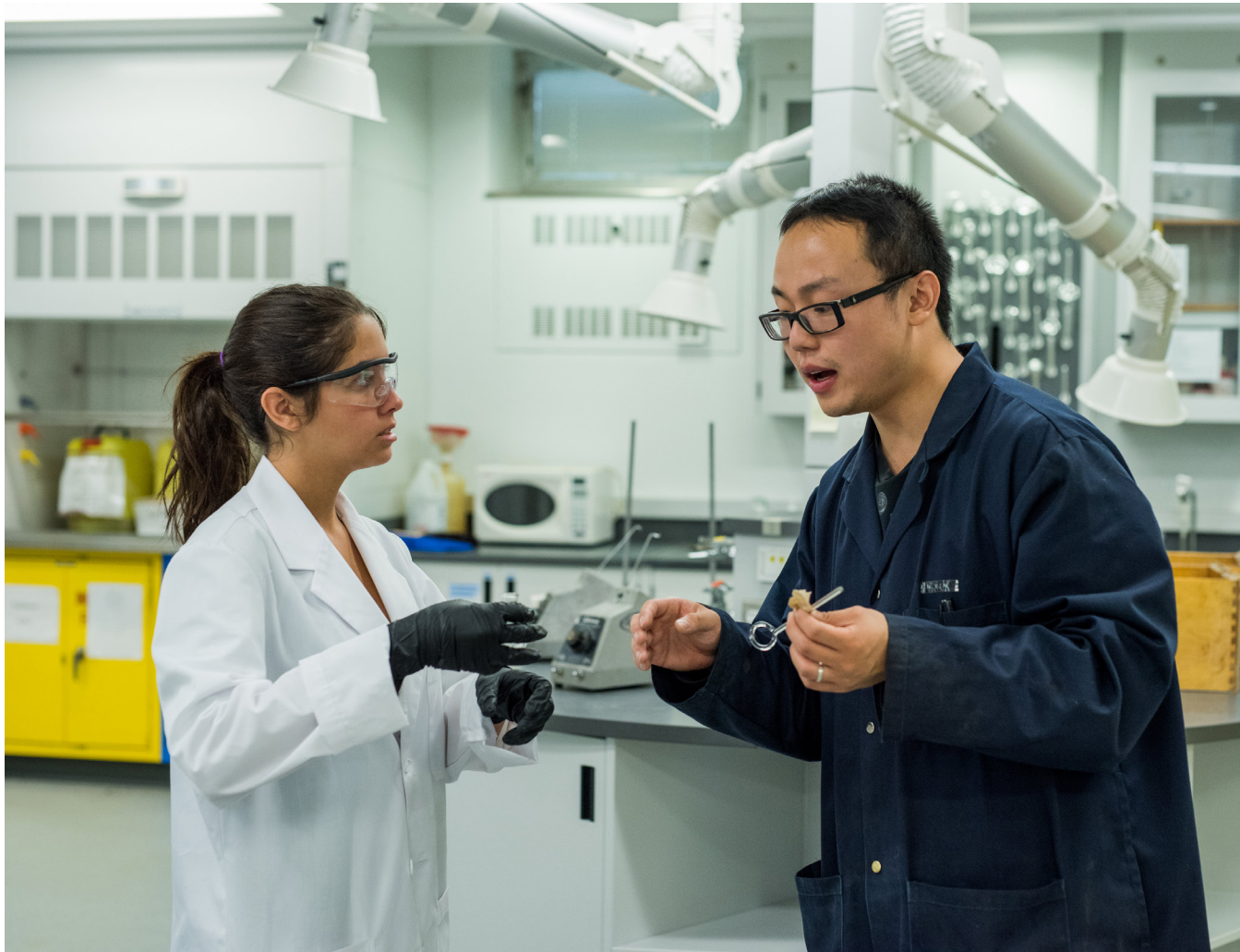
Equity, Diversity and Inclusion (EDI) are elements of excellence in research. From the outset, D2R has been built on EDI principles - not only to advance scientific discovery, but to ensure these life-saving therapies are accessible to everyone, especially those who have historically been left behind.

D2R is also committed to supporting the recruitment and advancement of RNA researchers from equity-deserving groups (EDGs).

D2R's EDI Action Plan for 2023-2030 was formally approved by the Tri-agency Institutional Programs Secretariat (TIPS), the body responsible for administering the Canada First Research Excellence Fund (CFREF). The review committee commended the significant work and strengths of the plan. TIPS also provided constructive feedback to further strengthen the plan, including enhancing engagement with intersectionality, refining objectives into SMART goals, leveraging participant demographic data to inform future research priorities, clarifying communication strategies with partners, and ensuring equitable distribution of EDI-related responsibilities. These recommendations are being integrated into D2R's public-facing EDI Action Plan which will be launched in Fall 2025.

The Action Plan has three focus areas to embed EDI across all activities:

- 1. Supporting the progression of equity-deserving groups in the field of genomic-based RNA research.
- 2. Understanding EDI challenges and opportunities in genomic-based RNA research.
- 3. Applying EDI in research funding practices and research topic selection in genomic-based RNA therapeutics.



FOCUS AREA 1:

Supporting the progression of equity-deserving groups in genomic-based RNA research

What has been done so far?

D2R has established an EDI Community of Practice for professors, research staff, and administrative personnel. The purpose of this community is to facilitate the sharing of experiences, insights, and ideas, while co-developing initiatives that promote EDI in research design and practice.

What is coming up?

In Fall 2025, D2R will launch a community of practice specifically for trainees. Additionally, D2R will roll out internships and mentorship programs, supported by tools and guidelines, to support the progression of EDGs in genomic-based RNA therapeutics.



FOCUS AREA 2:

Understanding EDI challenges and opportunities in genomic-based RNA research

What has been done so far?

D2R has developed and organized EDI-focused communications and events to raise awareness about the unique challenges and opportunities faced by EDGs in RNA research. Highlights include:

- An EDI session at the D2R Research Symposium
- A Q&A article with D2R-funded researcher Lucienne Tritten and postdoctoral student Sabina Beilstein, in celebration of the International Day of Women and Girls in Science
- A Black History Month webinar exploring the experiences of Black researchers in RNA science

In addition, D2R conducted a series of engagement sessions (in the form of focus groups) with 29 participants, including trainees, research staff, and faculty. These sessions informed the co-development of specific, measurable, achievable, relevant, and timely (SMART) goals for the EDI Action Plan.

What is coming up?

D2R will launch an EDI training program and conduct a climate survey to assess the needs of the D2R community.



FOCUS AREA 3:

Applying EDI in research funding practices and research topic selection in genomic-based RNA therapeutics

What has been done so far?

D2R has developed a robust process to integrate EDI into research design and practice across its funding programs. This includes:

- Providing guidance to applicants on incorporating EDI plans into their research projects
- Implementing an EDI review process
- Introducing an EDI commitment form for D2R-funded researchers
- Offering ongoing support from D2R's Senior EDI Advisor

In addition, D2R developed the *Research Data Management Guidelines and Best Practices* to promote equitable, transparent, and responsible access to research outputs. This document helps researchers align with national and international standards, while encouraging data-sharing practices that respect ethical, legal, and cultural considerations.

What is coming up?

In 2025, D2R will implement and promote its open research data management guidelines.

5.

FUNDING PROGRAM HIGHLIGHTS

5.1 NEW FACULTY START-UP

This funding program offers competitive start-up packages, complementing those provided by faculties, to attract researchers of the highest caliber for tenure-track positions. As part of this program, McGill University and Université de Sherbrooke will establish new tenure-track positions reserved for newly hired faculty whose primary research focus aligns with D2R.

3
NEW FACULTY
RECRUITED



TAHA AZAD Assistant Professor, Microbiology and Infectious Diseases, Université de Sherbrooke

Title of research program: Using synthetic biology approaches to develop novel RNA anti-cancer therapeutics

About: The research aims to revolutionize cancer treatment using self-amplifying RNA (saRNA) therapeutics. These unique RNA molecules replicate within cells, enhancing the expression of therapeutic proteins and potentially reducing treatment costs and frequency. The team has curated a diverse library of saRNAs from nature and engineered them to target cancers. By characterizing saRNA behavior in various cancer cells and optimizing their interaction with immune pathways, the team aims to develop highly effective and personalized saRNA-based treatments. This innovative approach promises to advance RNA therapeutics, providing new hope for cancer patients.

"This work will not only expand our understanding of RNA mechanisms but also pave the way for more effective and personalized healthcare approaches." – Taha Azad



KARINE CHOQUET Assistant Professor, Biochemistry and Functional Genomics, Université de Sherbrooke

Title of research program: Improving disease prognosis and treatment by elucidating pre-mRNA splicing dynamics

About: Premature messenger RNAs (pre-mRNA) must undergo a process called splicing to become the mature messenger RNAs that are used to produce proteins, which are the building blocks of the cell. Splicing defects contribute to many human diseases. Splicing can also be modified to treat genetic diseases. Human pre-mRNAs are very long, but splicing has only been studied for one short section of a pre-mRNA at a time. My program will investigate how splicing of different parts of a pre-mRNA is connected and how this impacts the consequences of genetic mutations and the efficiency of splicing-based therapies for rare muscle diseases.

"Splicing modulation is a promising therapeutic approach for many diseases, but its efficacy is usually studied in a very targeted way, rather like reading only one chapter of a book. Studying splicing at the scale of whole RNAs, i.e. the whole book, will enable us to discover new aspects of splicing control that will help us to better understand and treat rare genetic diseases." – Karine Choquet



MATHIEU QUESNEL- VALLIÈRES Assistant Professor, Immunology and Cell Biology, Université de Sherbrooke

Title of research program: RNA splicing as an oncogenic factor and as a therapeutic target

About: Immunotherapy is new form of therapy that consists of activating the patient's own immune system against their cancer. The tremendous potential of this new type of cancer therapy has recently been demonstrated in the clinic, but not all patients respond, and some cancer types lack good targets to develop new immunotherapies. This research uses DNA and RNA sequencing methods with computational and experimental analyses to identify the molecular differences that exist between cancer and normal cells and leverage these differences to teach immune cells how to recognize and kill cancer.

"Building on the framework laid out by genome research discoveries, we believe that we can develop and deliver the next generation of precision cancer medicine by integrating genomic and transcriptomic approaches, thereby offering a new hope to patients affected by high-risk cancers." – Mathieu Quesnel Vallières

5.2 FOUNDATIONAL PROJECTS

This funding program supports high-risk, early-stage projects with the potential to be game-changers in the fields of D2R’s areas of interest.

\$5.6M

IN AWARDED FUNDS

(including research and training budget)

17

PROJECTS

38

RESEARCH

42

TRAINEES

Principal Investigator	Project title
Raquel Cuella Martin	Deep mutagenesis approaches to decode T cell receptor-antigen recognition
Pieter Cullis	pHREEDOM: A pH-Responsive probe to study endosomal escape for RNA delivery optimization and monitoring
Masad Damha	Engineering a circular RNA platform for cap-dependent translation
Celia Greenwood	Modelling individual differences in patterns of epigenetic regulation
Yann Joly	A first inclusive study on the ELSI aspects of RNA technologies and therapeutics
Nathan Luedtke	McGill brand mRNA production
Bruce Mazer	B-cell derived extracellular vesicles with enriched miRNA contents that mitigate Th2 inflammation
Heather Melichar	Enabling low-cost, massive-scale sequencing of antigen receptors for personalized immunotherapy
Nicolas Moitessier	RNA-targeting therapeutics to address antimicrobial resistance
William Muller	Targeting an alternative oncogenic human epidermal growth factor receptor 2 splice isoform
Stéphane Richard	Defining the role of arginine methyltransferases in the regulation of intronic circular non-coding RNAs in diseases.
Hamed Shateri Najafabadi	Single-cell and spatial profiling of RNA splicing to understand tumour heterogeneity
Hanadi Sleiman	DNA nanoparticles for targeted therapy against acute myeloid leukemia
Nahum Sonenberg	Live imaging of mRNA 5' cap Interaction with translation initiation factors
Maryam Tabrizian	Iron/siRNA-based dynamic delivery system boosting ferroptototic cell death in metastatic melanoma
David Thomas	Dominant negative RNA: A novel approach to CFTR gene therapy
Lucienne Tritten	Using native gut bacteria to release RNA therapeutics against intestinal nematode infections

HIGHLIGHTED PROJECTS



Principal investigator

**HAMED SHATERI
NAJAFABADI**
(MCGILL UNIVERSITY)

Single-cell and spatial profiling of RNA splicing to understand tumour heterogeneity

About the research: Abnormalities in how genes are processed, particularly through a process called splicing, play a key role in many diseases, including cancer. This project aims to develop new tools to study gene splicing at the single-cell level, which will help us better understand how it varies between individual cells in a tumor. By combining advanced sequencing technologies with novel computational algorithms, this project will create a detailed map of splicing in kidney cancer cells. This approach will provide new insights into how splicing influences cell behavior in cancer and could lead to better understanding and treatments for this disease.

2024-2025 project highlight: *Although the project is still in its early stages, it was recently selected to present at Intelligent Systems for Molecular Biology (ISMB)—the world’s largest conference in bioinformatics and computational biology. This highlights the significance of the technical innovations at its core.*



Principal investigator

HANADI SLEIMAN
(MCGILL UNIVERSITY)

DNA nanoparticles for targeted therapy against acute myeloid leukemia

About the research: Acute myeloid leukemia (AML) is an aggressive blood cancer affecting around 1300 Canadians annually, with current therapies only curing 30% of patients. We have developed safe, controllable delivery vehicles for nucleic acid therapeutics, showing enhanced activity in many animal cancer models. We propose to develop nucleic acid therapies to target AML stem cells, which contribute to drug resistance and relapse. These structures will carry cancer therapeutics specifically to AML cells, sparing healthy cells and reducing toxic side effects, improving treatment efficacy and minimizing relapse.



Principal investigator
NATHAN LUEDTKE
(MCGILL UNIVERSITY)

McGill brand mRNA production

About the research: This project includes mRNA production technologies and student training aimed at establishing a Quebec-based production platform. The goal is to provide researchers from diverse communities across Canada the ability to generate novel mRNA compositions and associated intellectual property for vaccines and protein replacement therapies.

2024-2025 project highlight: A unique collaboration between McGill researchers, Masad Damha, Nathan Luedtke, and Maureen McKeague, led to the invention of a new approach for detecting infectious diseases using a synthetic, three-way ‘X’ linker. This small piece of modular chemistry solves a big problem in RNA science. The glycerol-based linker enables flexible, site-specific attachment of chemical labels to nucleic acids, which is critical for detecting, tracking, and manipulating RNA.

5.3
RESEARCH
IN MOTION

This funding program supports interdisciplinary collaboration and new approaches to research along D2R’s discovery-to-implementation chain.

\$1.75M
IN AWARDED
FUNDS

(including research and training budget)

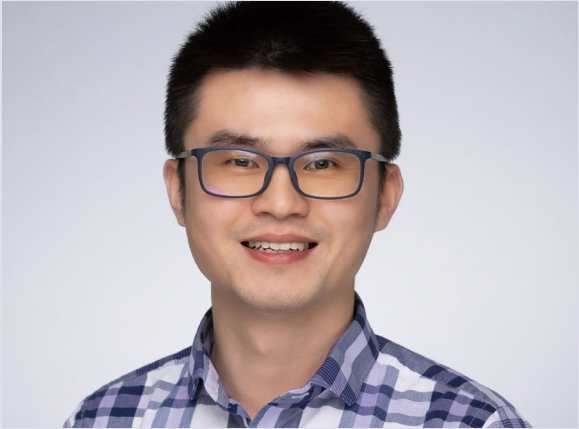
5
PROJECTS

10
RESEARCHERS

8
TRAINEES

Principal Investigator	Project title
Guojun Chen	Lung-targeted lipid nanoparticles to deliver anti-viral RNA against respiratory viral infection
David Juncker	Intelligent screening for next generation LNP design and manufacturing
Guy Rouleau	CRISPR-guided trans-splicing for RNA treatment of Oculopharyngeal Muscular Dystrophy
Jérôme Waldispühl	A citizen science platform for accelerating metagenomic studies in urban built environment
Ma'n Zawati	Development of responsible AI for genomic biomarker identification in the context of the D2R Initiative

HIGHLIGHTED
PROJECTS



Principal investigator
GUOJUN CHEN
(MCGILL UNIVERSITY)

Lung-targeted lipid nanoparticles to deliver anti-viral RNA against respiratory viral infection

About the research: Respiratory viral infections, such as the flu and COVID-19, can pose serious health risks. Although vaccines and antiviral treatments are available, they do not always work effectively. This research focuses on developing a new treatment that can better protect against these viruses. To do this, the team is creating lipid nanoparticles (LNPs) that can deliver anti-viral RNAs directly to the lungs where viral infections occur. These LNPs are designed to be more stable and effective at targeting lung tissues.



Principal investigator
GUY ROULEAU
(MCGILL UNIVERSITY)

CRISPR-guided trans-splicing for RNA treatment of oculopharyngeal muscular dystrophy

About the research: Oculopharyngeal muscular dystrophy (OPMD) is a rare genetic disease affecting skeletal muscles. The highest prevalence of OPMD is in the French-Canadian population. Since there is no treatment available for OPMD, this project seeks to develop a new treatment using CRISPR and lipid nanoparticles to correct the genetic mutation at the RNA level in patient cells and mice.

“Generations of my family have suffered with OPMD, including my mother, who died of this disease. My sister, Linda, and I both have it, with symptoms appearing around age 50. We worry not only for ourselves as we cope with this disease, we worry for our children, who may have inherited it too.”
– OPMD patient

5.4
TRANSLATIONAL
IMPACT RESEARCH

This funding program supports large-scale translational research projects in RNA-based therapeutics, which address D2R’s strategic priorities, and have a measurable translational impact on the health of Canadians.

\$10.15 M IN AWARDED FUNDS (including research and training budget)	3 PROJECTS	24 RESEARCHERS	14 TRAINEES
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HIGHLIGHTED PROJECTS



Principal investigator
CARL ERNST
(MCGILL UNIVERSITY)

RNA therapy for a severe and ultra-rare disease

About: Schinzel-Giedion Syndrome (SGS) is a rare genetic disease leading to multi-system deficits and neurological deterioration. Most people with SGS die in the first decade of life and there is no treatment that targets the underlying cause of disease. This project will develop and manufacture an RNA therapy for SGS, with the purpose of reducing seizure burden to alleviate suffering in children living with the disease. This precision medicine approach will pioneer RNA therapy in a child with SGS at the Montreal Children’s Hospital using a new Health Canada approach for severe and ultra rare disease called the Single Patient Clinical Trial.

“For families affected by Schinzel-Giedion Syndrome (SGS), hope is rare—but this research offers just that. The SGS Foundation is proud to support Dr. Carl Ernst’s vital work, bringing us closer to a treatment that could ease suffering and change children’s lives.” – Nuala Summerfield and Dana Bradley, Trustees of the Schinzel-Giedion Syndrome Foundation



Principal investigator

GENEVIEVE BERNARD
(RI-MUHC - RESEARCH INSTITUTE
OF THE MCGILL UNIVERSITY
HEALTH CENTRE)

**Innovative RNA therapies
offer new hope for patients
affected by POLR3-related
leukodystrophy**

Principal investigator: Geneviève
Bernard (Research Institute of the McGill
University Health Centre)

About: POLR3-related hypomyelinating
leukodystrophy (POLR3-HLD) is a rare genetic
neurodegenerative disorder that predominantly
affects children and is characterized by reduced
white matter (myelin) production in the brain. This
project aims to develop RNA-based therapies for
POLR3-HLD. Preclinical testing in cell and mouse
models will ensure the safety and efficacy of the
treatments and will set the stage for clinical testing
in humans.

*“This funding will accelerate the development of
novel RNA-based therapies, bringing us closer to
life-changing treatments for patients and families
affected by this devastating disease.”*
– Geneviève Bernard



Principal investigators

**MARK LATHROP
AND MORAG PARK**
(MCGILL UNIVERSITY)

**The Jerry Pelletier initiative:
Diagnostic and therapeutic
innovations for rare cancers**

About: This project focuses on rare cancer
subtypes that are not well-served by existing
personalized treatments. The project will use
advanced genomics to better understand the
biology of these rare cancers. By identifying key
markers and potential treatment targets, the
research will help identify possible RNA-based
therapies and other treatments tailored to each
patient. The research will also create valuable
resources for the research community to find
new ways to treat these difficult cancers.

*“We are very pleased that D2R is supporting this
program which unites McGill’s forces in genomics
and oncology to provide patients with rare cancers
new hope for treatments.”* – Mark Lathrop

**5.5
TRAINING AWARDS**

A foundational goal of D2R is to help cultivate the next generation of researchers. The *Training Award* funding programs achieve this through supporting trainees working on D2R-aligned research projects and facilitating internships, lab rotation and travel opportunities. Financial support for trainees is built into many of D2R’s funding programs, including *Foundational Projects*, *Research in Motion*, and *Translational Impact Research*.



HIGHLIGHTED PROJECT



Principal investigator

AMINE KAMEN
(MCGILL UNIVERSITY)

Internship program in biomanufacturing

About: As part of McGill University’s Master’s in Engineering with a concentration in Biomanufacturing, offered through the Biological and Biomedical Engineering Interfaculty, students complete eight-month industry internships to gain hands-on experience in biomanufacturing. This past year, the program was supported by D2R’s Training Awards funding program, where eight students to participate in industry internships at Moderna and Biovectra. The work spanned key areas such as plasmid DNA, mRNA manufacturing, and RNA-based biologics.

“We work closely with our students and are very active in mentoring them during their internships. My key advice is to build your experience. There is enormous potential that you will succeed if you are sufficiently motivated to achieve something.” – Amine Kamen

D2R SCHOLAR’S AWARDS

Launching in Summer 2025, the D2R Scholar Awards represent the highest recognition for D2R trainees. These awards recognize outstanding and active trainees performing research across all D2R’s Foundational Axes. In addition to financial support, D2R Scholars will benefit from interdisciplinary and intersectoral training through the *D2R Training Program*.

Award levels:

- **Master’s Scholar Award:** \$27,000 for 1 year (non-renewable)
- **Doctoral Scholar Award:** \$40,000/year for 2 years (+ possible 1-year renewal)
- **Postdoctoral Scholar Award:** \$70,000 (+ benefits) per year for 2 years

D2R TRAINING PROGRAM

The *D2R Training Program* will consist of a series of workshops and training opportunities featuring topics central to D2R’s mission, such as research collaboration, data science, integration of EDI principles, and science in industry. This Program will complement course work and research training to help D2R Scholars improve as graduate research students, become active members of the collaborative D2R community, and build future careers in RNA therapeutics and genomic medicine.



“D2R training activities will greatly enhance the scientific and professional development of D2R trainees, building a strong community of well-rounded, knowledgeable scientists. I am excited to see how the future of precision medicine - specifically RNA therapeutics - will benefit greatly from these efforts within D2R!”

MONIKA KOJIC,
D2R Trainee, Member of D2R’s Student Training and Knowledge Development (STaKD) Committee

“I look forward to training activities that encourage connections among trainees through research, networking, leadership development, and inclusivity. The first D2R Symposium has already opened valuable opportunities, and I believe upcoming programs will continue to support trainees.”

RAISSA MUNDERERE,
D2R Trainee, Member of D2R’s Student Training and Knowledge Development (STaKD) Committee



5.6 CORE PLATFORM SUSTAINABILITY

This funding program supports state-of-the-art platforms that are essential for advancing research and development, as well as facilitating technology uptake and transfer in fields relevant to RNA therapeutics.

\$6.5 M

IN AWARDED FUNDS

9

PLATFORMS

Scientific director	Core Platform
Janusz Rak	Centre for Applied Nanomedicine (CAN)
Guillaume Bourque	D2R - Health Data Science (D2R-HeDS) platform
Ioannis Ragoussis	End to end sequencing platform for RNA therapeutics quality control
Jorg Fritz	Integrated Cytometry and Enhanced Learning Laboratories (iCELL)
Silvia Vidal	Integrated McGill Infectious Disease Platforms (iMIPDs)
Mark Lathrop	McGill Clinical Sequencing Service (MCSS)
Yojiro Yamanaka	McGill Integrated Core for Animal Modeling and McGill Platform for Cellular Perturbation
Thomas Duchaine	McGill messenger RNA therapeutic platform
Pieter Cullis (UBC)	NanoCore

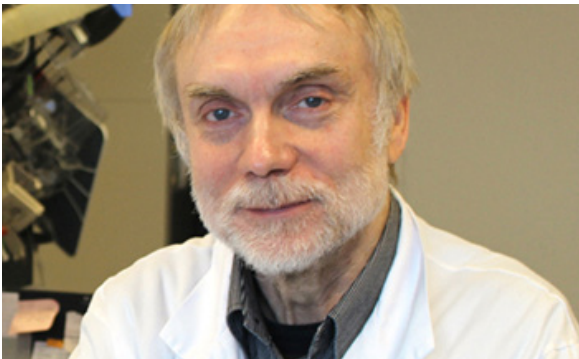
HIGHLIGHTED PLATFORMS



Scientific director
THOMAS DUCHAINE
(MCGILL UNIVERSITY)

McGill messenger RNA therapeutic platform

About: This mRNA therapeutics platform housed at McGill will offer vital services, including the production of mRNA and lipid nanoparticles synthesis to create and test new vaccines and therapies. The platform is part of the Network for the Development and Production of RNA Therapies (DePTAQ Network), a collaborative initiative jointly led by McGill University, the Montreal Clinical Research Institute, and Université de Sherbrooke. As part of AReNA (Quebec’s RNA hub), the DePTAQ Network aims to support growth in the RNA sector. It offers a unique access point for industry and academic researchers seeking expertise in developing and producing of RNA therapies. The platform was acquired from Quantoom Biosciences and was made possible through funding from the Ministère de l’Économie, de l’Innovation et de l’Énergie (MEIE) and D2R, which also supported the establishment of the platform’s expert team.



Scientific director
JANUSZ RAK
(MCGILL UNIVERSITY)

Centre for Applied Nanomedicine

About: Centre for Applied Nanomedicine (CAN) is a platform where specialized instruments measure, observe, and characterize myriads of small objects known as nanoparticles (NPs). NPs can occur naturally, as secreted (extra)cellular vesicles that play a role in cell-cell communication, or they could be man-made. In either case they protect and deliver potent, but fragile molecules, such as RNA to different organs. NPs can be harnessed for therapy, to deliver healing RNA, or in diagnostics to detect disease. Because NPs are small and invisible under the microscope CAN instruments are essential to detect and analyse them for various research and medical applications.



Scientific director
PIETER CULLIS
(UNIVERSITY OF BRITISH COLUMBIA)

NanoCore

About: The Translational NanoMedicines Formulation and Characterization Core Facility (NanoCore) facilitates the translating of nanomedicines to the clinic by providing state-of-the-art nanoparticle formulations and a standardized nanomedicines characterization service to enable potent therapies that can be readily manufactured.

2024-2025 highlight: NanoCore’s collaboration with Dr. Toshifumi Yokota’s Lab at the University of Alberta showcased their progress on developing an effective therapy for a debilitating muscle-wasting illness, fascioscapulohumeral muscular dystrophy (FSHD), and highlights the potential impact the project towards improving patient health in Canada and worldwide.

5.7 CENTRES AND INSTITUTES SUPPORT

This funding program is designed to enhance McGill research Centres or Institutes impact by supporting their activities that are aligned with D2R’s goals.

\$1.05 M
IN AWARDED
FUNDS

5
CENTRES AND INSTITUTES
SUPPORTED

Scientific director	Centre or Institute
Gerald Batist	McGill Centre for Translational Research in Cancer
Yann Joly	Centre of Genomics and Policy
Jörg Fritz	The McGill Research Center on Complex Traits
Chen Liang	McGill Centre for Viral Diseases
Morag Park	Rosalind and Morris Goodman Cancer Institute

HIGHLIGHTED
PROJECTS



Scientific director

MORAG PARK
(MCGILL UNIVERSITY)

Rosalind and Morris
Goodman Cancer Institute

About: The Rosalind and Morris Goodman Cancer Institute (GCI) is committed to alleviating the burden of cancer through pioneering fundamental research and advancing discoveries toward clinical translation. A central hub of the cancer research community at McGill and beyond, the GCI unites the biomedical sciences with computational biology, AI, engineering, chemistry, and clinical oncology, providing advanced technologies and a collaborative, interdisciplinary environment.

2024-2025 highlight: Dr. Ian Watson at GCI is exploring how a specific gene mutation linked to melanoma (NF1) might also impact other cancers. Partnering with the Association de la Neurofibromatose du Québec, the project aims to raise awareness and share knowledge with patients and the public. Using advanced technologies, the team is working toward personalized immunotherapies, including RNA-based treatments, to improve outcomes for people with NF1-related cancers.



Scientific director

JÖRG FRITZ
(MCGILL UNIVERSITY)

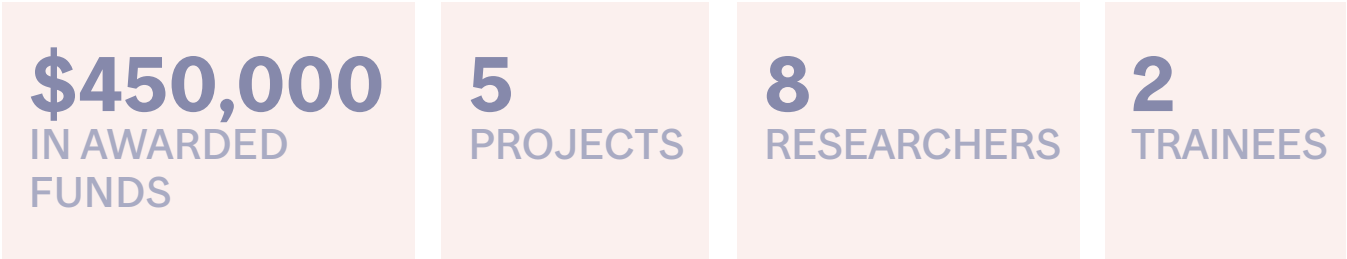
The McGill Research
Center on Complex Traits

About: The McGill Research Center on Complex Traits (MRCCT) is a multidisciplinary research and education hub that combines genetic and genomic approaches with immunological studies to uncover mechanisms of pathogenesis in infectious and inflammatory diseases, with the societal goal of developing novel innovative treatments and alleviating their global health burden.

The Centers research spans genetic, genomic, and deep immunological analyses of samples from rare disease patients, large cohorts, and biobanks, alongside experimental studies in rodent models of human disease, to enhance mechanistic understanding of disease, identify novel therapeutic targets, and evaluate the efficacy and function of new RNA-based treatments.

5.8
RAPID RESPONSE FOR
MPOX RESEARCH

With infectious diseases and RNA therapeutics as strategic priorities, and in partnership with the McGill Interdisciplinary Initiative in Infection and Immunity (MI4), this funding program catalyzed research on Mpox, an urgent public health threat in 2024.



Principal Investigator	Project title
Jörg H. Fritz	Analysis of Mpox-specific antibody responses
Jörg H. Fritz	Identification of pathogen targets for Mpox vaccine development
Leo Liu	A novel self-amplifying mRNA platform for Mpox vaccines
Erwin Schurr	Exploring innate pulmonary resistance to poxvirus
Silvia Vidal	Pre-clinical mouse models of poxvirus infection to study novel RNA vaccines

HIGHLIGHTED
PROJECTS



Principal investigator
SILVIA VIDAL
(MCGILL UNIVERSITY)

Pre-clinical mouse models of
poxvirus infection to study
novel RNA vaccines

About the research: As innovative approaches to poxvirus vaccination emerge, robust animal models are required for pre-clinical evaluation of vaccine immunogenicity and protection against poxvirus disease. This project aims to import well-described models of poxvirus infection in mice to evaluate new RNA modalities to produce vaccines. The study will establish a number of assays to monitor both humoral and cellular antigen-specific responses and will evaluate the capacity of the vaccine to establish B cell memory. The study has the potential to generate IP for a new RNA vaccine platform; the study will strengthen the link with industry collaborators (RNA T&T), the study will establish an analytical pipeline which can be expanded upon with new assays and can be applied to other emerging pathogens.



Principal investigator
LEO LIU
(MCGILL UNIVERSITY)

A novel self-amplifying
mRNA platform for Mpox
vaccines

About the research: Mpox, a zoonotic disease with up to 10% mortality in vulnerable populations, is the only orthopoxvirus to establish continuous human transmission since smallpox eradication, with ongoing outbreaks in Central and Eastern Africa. This study aims to develop a bivalent Mpox vaccine using an alphavirus-based self-amplifying mRNA (sa-mRNA) platform, which allows lower vaccine doses to achieve effective immunogenicity. The platform also holds promise for developing vaccines against future ‘pathogen X’.

5.9
COMMERCIALIZATION
PRIMING



In partnership with **G  nome Qu  bec**, this funding program provided short-term financial support for early-stage efforts that test or validate the commercial potential of well-defined concepts, technologies, or inventions tied to the D2R’s priority areas.



4
PROJECTS

5
RESEARCHERS
HIGHLIGHTED PROJECTS

HIGHLIGHTED
PROJECTS



Principal investigator
JO ANNE STRATTON
(MCGILL UNIVERSITY)

RNA therapies for the
treatment of a rare
leukodystrophy

About: Adult Leukoencephalopathy with axonal Spheroids and Pigmented glia (ALSP) is a genetic disorder caused by mutations in a gene important for the function of microglia—immune cells in the brain. When this gene is not working properly patients have motor and cognitive dysfunction leading to death within 6-7 years of diagnosis. The therapeutic options for patients remain scarce and are primarily focused on the management of symptoms. This project aims to understand how state-of-the art RNA therapies can be optimized to reverse cytotoxicity of human microglia in ALSP patients and provide a novel and disease-modifying treatment strategy.



Principal investigator
PAUL GOODYER
(MCGILL UNIVERSITY)

An mRNA strategy to
restore CTNS expression
in Cystinosis

About: Cystinosis is a rare disease caused by mutations of the CTNS gene. Without this gene, infants experience poor growth, progressive kidney failure, and damage to other organs over time.

This project aims to show that a stabilized CTNS mRNA in a new lipid nanoparticle (LNP) formulation can prevent deterioration of the kidneys, when delivered early in life to CTNS-mutant mice and can reverse kidney damage if given later in life. The research will also answer key questions about the design of therapeutic CTNS mRNAs and the novel LNP formulations that target the kidneys.



Principal investigator
SILVIA VIDAL
(MCGILL UNIVERSITY)

Poly-NS saRNA dengue
vaccine: A novel platform
for T cell-driven protection
against severe dengue

About: In collaboration with researchers from Vaccines for Communities (V4C) and the Institut Pasteur, this project will adapt V4C’s RNA dengue vaccine antigen to a self-amplifying RNA (saRNA) platform. The team will conduct preclinical testing of the saRNA-based candidate while also advancing the platform for broader applications in next-generation vaccine development.



Principal investigator
BENOIT GENTIL
(MCGILL UNIVERSITY)

Conversion of a gene
therapy into an RNA therapy
using a novel nanoparticle
system

About: In collaboration with researchers at QurCan Therapeutics, this project is developing a new RNA-based treatment for a rare neurodegenerative disorder, using nanoparticles to deliver the treatment directly to nerve cells.

5.10 MAJOR PARTNERSHIPS

This funding program supports co-funding of D2R researchers and their projects with industry partners, offering 1:1 or greater matching leverage.

HIGHLIGHTED PROJECT



Principal investigator
MASAD DAMHA
(MCGILL UNIVERSITY)

Therapeutic development of the CRISPR-Cas12a gene editing system

Partner: Eli Lilly & Company

About: This collaborative project with Eli Lilly and Wake Forest University involves nucleic acid chemistry, biology and student training aimed at enhancing the drug-like properties of RNA therapeutics. This project will build on chemical design principles, establish an RNA modification platform, and accelerate the development of CRISPR-Cas12a as a human gene therapy for curing genetic disorders.

5.11 INDIGENOUS HEALTH RESEARCH

D2R is committed to fostering equitable research practices through meaningful and inclusive engagement with Indigenous communities. While the *Indigenous Health Research* funding program is still under development, several foundational steps have been taken to build long-term relationships and co-develop initiatives with Indigenous partners. These include:

Governance: Indigenous perspectives into D2R’s governance framework through the creation of two Indigenous Health Research working groups and the formation of an External Indigenous Advisory Council (EIAC).

- The EIAC, currently being finalized, will advise the Research Steering Committee (RSC), scientific leadership, and D2R staff on Indigenous health priorities and ensure alignment with national and international standards.
- The working groups focus on:
 - Building capacity for Indigenous community engagement in culturally safe and respectful ways.
 - Co-developing research priorities and strategic initiatives in genomic medicine and RNA therapeutics with Indigenous communities.

Guidance from key partners and advisors: D2R’s Indigenous health research strategy is shaped by the leadership and insights of:

- Minnie Grey, Former Executive Director, Nunavik Regional Board of Health and Social Services
- The Tahatikonhsontóntie Quebec Network Environment for Indigenous Health Research (QcNEIHR)
- The First Nations of Quebec and Labrador Health and Social Services Commission (FNQLHSSC)



Foundational workshop: D2R hosted *Coming Together: Introductory Workshop on Partnering in Medical Genomics and Indigenous Health Research*, a hybrid event that brought together participants to explore the intersection of genomic medicine and Indigenous health. Speakers from D2R, QcNEIHR, FNQLHSSC, University of British Columbia, and the Steno Diabetes Center Greenland shared insights on Indigenous-led initiatives and community-based research approval processes.

Team recruitment: Recruitment for an Indigenous Health Research team is underway, beginning with the hiring of an Associate Director of Indigenous Health.

Student engagement and mentorship: D2R participated in McGill’s IMPRESS (Indigenous Mentorship and Paid Research Experience for Summer Students) program, which offers Indigenous undergraduate students hands-on research opportunities. In 2025, one student was matched Professor Yann Joly to contribute to his D2R-funded project, *A first inclusive study on the ELSI aspects of RNA technologies and therapeutics*.



Strategic partnerships: D2R is collaborating with Génome Québec on the *Rising Star Prize*, with a dedicated focus on Indigenous health research.

Together, these early efforts lay a strong foundation for D2R’s long-term commitment to respectful collaboration, capacity building, and co-leadership with Indigenous communities in advancing health research.

6. GROWING THE D2R NETWORK AND IMPACT

While research remains central to D2R’s mission, the initiative is committed to creating a collaborative and impactful research ecosystem. D2R expanded its reach through activities that supported knowledge exchange, commercialization, community engagement, and strategic growth.

6.1 EVENTS

12

D2R ORGANIZED
EVENTS

952

REGISTRATIONS
FOR D2R EVENTS

BUILDING A COMMUNITY THROUGH EVENTS AND KNOWLEDGE EXCHANGE

D2R Research Symposium

The inaugural D2R Research Symposium 2025 marked a major milestone in D2R’s mission to advance genomic-based RNA therapies. Held over two days, the event brought together 150 participants from across the D2R community—including researchers from McGill and D2R partner institutions, public and private sector partners, and students—for an inspiring exchange of ideas and discoveries.

The symposium showcased the breadth and depth of D2R’s research, with over 30 oral presentations and 16 poster presentations led by trainees. These sessions highlighted progress across D2R’s six foundational axes.

Participants engaged in discussions, explored collaborative opportunities, and gained valuable insights into the diverse projects and platforms supported by D2R. The event also provided a platform for trainees to present the D2R-funded project they are working on and experience the dynamics of a scientific meeting.

Funding program information sessions

To support the launch of its funding programs, D2R hosted online information sessions for potential applicants to provide details about available opportunities and guidance on the application process.

Research seminars

In partnership with the Victor Phillip Dahdaleh Institute of Genomic Medicine, D2R organized a series of hybrid research seminars in which guest speakers shared their research with the D2R community. Notable speakers included Richard Haynes (University of Oxford), Ivo Gut (Centro Nacional de Análisis Genómico), and Duccio Medini (Wellcome Leap).

EDI events

From educational webinars during Black History Month to expert panels on ethics and equity in RNA science, D2R’s EDI events have fostered dialogue and inclusive engagement around pressing issues in the field.

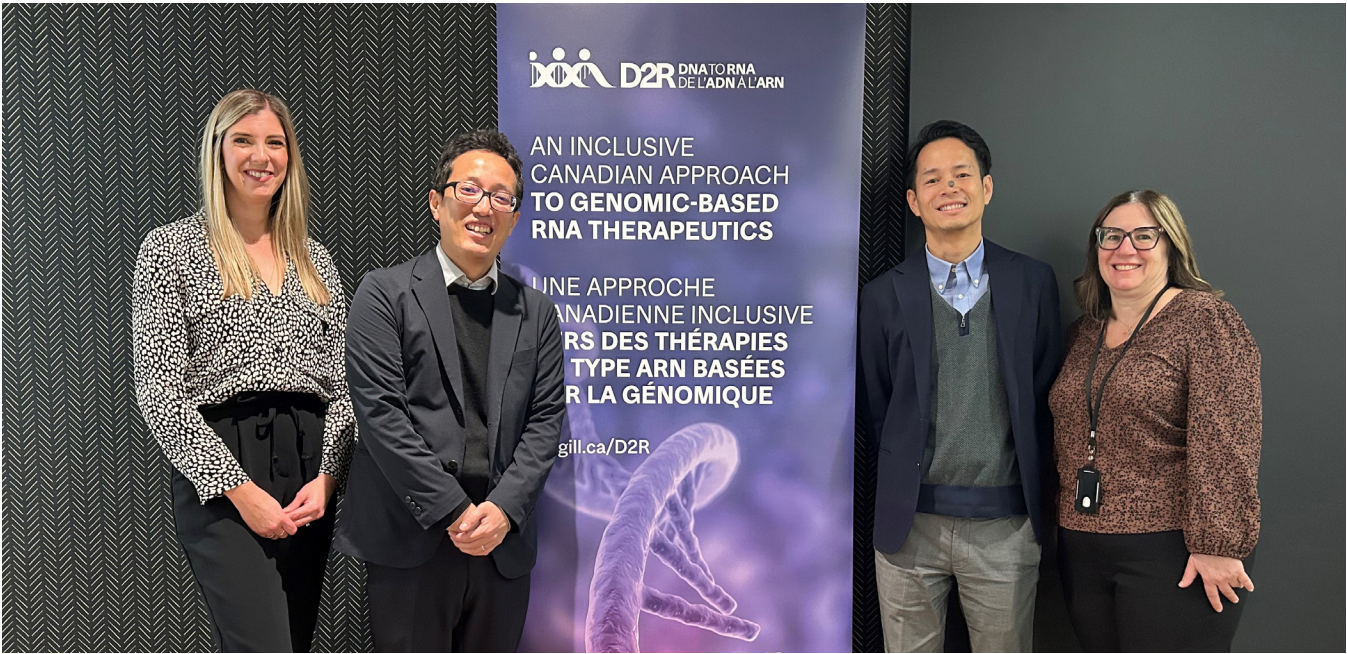


D2R RESEARCH SYMPOSIUM

The D2R Research Symposium 2025 not only celebrated the achievements of the first year but also reinforced the shared commitment to innovation, collaboration, and training the next generation of leaders in RNA therapeutics and genomic medicine.



6.2 COMMERCIALIZATION



DRIVING COMMERCIALIZATION AND STRATEGIC PARTNERSHIPS

D2R’s focus on translational science is reflected in its business development and industry engagement efforts. By supporting projects with commercialization potential and creating spaces for industry interaction, D2R is helping bridge the gap between discovery and application.

Hybrid industry events

D2R hosted a series of hybrid events (such as Industry Insight webinars and Lunch & Learns) in collaboration with industry partners, creating opportunities for researchers and industry to connect and exchange insights. Partners included Illumina, PacBio, Sanofi, etherna, and Axelys.

Industry visits

To strengthen relationships with the private sector, D2R organized more than 15 on-campus visits where companies met with researchers to explore potential collaborations. Participating companies included Eli Lilly, Deep Genomics, TriLink BioTechnologies, Sanofi, Genesys Capital, Ono Pharma, QurCan, Hongene Biotech, Intellia Therapeutics, and Alnylam Pharmaceuticals.

Industry conferences

D2R maintained a presence at major industry conferences to promote its research, connect with partners, and stay informed on developments in RNA science and commercialization. Conferences attended included (but are not limited to): BIO International, Effervescence, RNA Leaders USA, RNA Leaders Europe, the mRNA Conference.

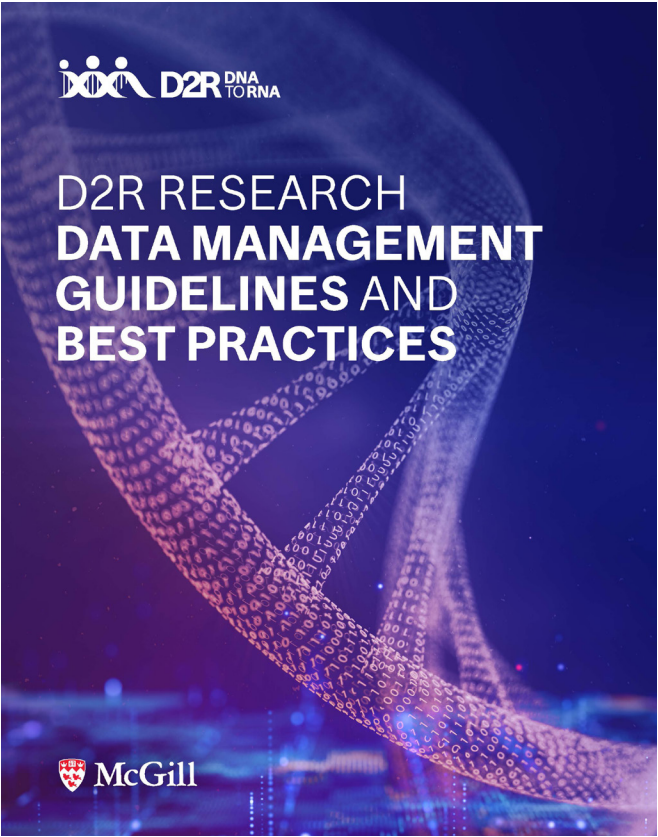
6.3 DATA SCIENCE

ADVANCING DATA SCIENCE FOR HEALTH

At D2R, data science serves as a foundational pillar that underpins excellence across all funded research initiatives. By promoting rigorous data practices and enabling advanced analytics, D2R’s Data Science Strategy accelerates discovery, fosters reproducibility, and facilitates evidence-based decision-making. This strategy empowers researchers to transform intricate biological data into actionable insights while encouraging interdisciplinary collaboration and innovation.

A cornerstone of this strategy is the endorsement of FAIR (Findable, Accessible, Interoperable, and Reusable) data principles and responsible data practices. To support these principles, D2R has developed a comprehensive *Research Data Management Guidelines and Best Practices* guiding document, along with a tailored *Data Management Plan* Template to uphold high standards of data stewardship, in alignment with McGill University and Tri-Agency policies.

D2R’s data science team has provided hands-on support to researchers through consultations, training sessions, and infrastructure guidance. These services are designed to assist teams in overcoming challenges related to data analysis and design, data management, and the integration of AI, thereby enhancing the reproducibility and translational potential of D2R-funded projects.



6.4 LOOKING AHEAD: 2025-2026

As D2R builds on the momentum of its early years, the 2025–2026 period promises to be one of continued growth, innovation, and collaboration. With new funding opportunities, expanded training programs, and strategic initiatives, D2R aims to deepen its impact across the research ecosystem.

A key milestone in the coming year will be the submission of D2R’s Midterm Report to CFREF, due in March 2026. This report will assess D2R’s progress and outline its continued strategic relevance.

In Spring 2025, D2R launched its second funding cycle with a call for proposals for the *Foundational & Research in Motion* funding program. Additional funding opportunities in the second funding cycle will include *Translational Impact Research, International Partnerships, Core Platform Sustainability, and Centres and Institutes Support*. At the same time, D2R will continue to offer support through its rolling programs, such as *Commercialization Priming, Major Partnerships, Clinical Research and Development, and New Faculty Start-Up*.

Training and capacity building remain central to D2R’s mission. The *D2R Scholar Awards*, launched in Summer 2025, represent the highest recognition for D2R trainees. These awards will support a new cohort of outstanding Master’s and Doctoral students and Postdoctoral researchers. Complementing these awards the *D2R Training Program* will begin in Fall 2025 and will consist of a series of workshops and training opportunities featuring topics central to D2R’s mission, such as research collaboration, data science, integration of EDI principles, and science in industry. This Program will complement course work and research training to help D2R Scholars improve as graduate research students, become active

members of the collaborative D2R community, and build future careers in RNA therapeutics and genomic medicine.

D2R is also advancing its commitment to Indigenous health research. Recruitment for Indigenous Health Research team is underway, beginning with the hiring of an Associate Director of Indigenous Health. Community-engagement initiatives co-created with Indigenous partners will also take place in the coming year.

Planning is underway for the 2026 D2R Research Symposium, which will bring together the D2R community to share research, foster collaboration, and celebrate progress. Other events and outreach activities are also being organized to engage both existing and new communities, with special attention to those that have had limited involvement with D2R to date, such as the social sciences sector. Through webinars and workshops, D2R aims to foster broader and deeper participation across its expanding community.

In Fall 2025, D2R’s will publish its public-facing *Equity, Diversity, and Inclusion Action Plan*. This document outlines concrete steps to embed EDI principles across all aspects of D2R.

The coming year will also mark a new phase in D2R’s data science strategy. Key initiatives include hosting the first Data Science Forum, organizing training sessions and



developing a standard operating procedure. Priorities will focus on implementing D2R’s data management guidelines, providing analytical support to D2R-funded researchers, and establishing new collaborations. The design phase of the D2R Data Catalogue will also begin, laying the groundwork for a robust and accessible data infrastructure.

Finally, D2R’s innovation and business development activities will focus on deepening industry partnerships and expanding D2R’s presence in the RNA therapeutics ecosystem. Plans are underway to host delegations from over ten leading pharmaceutical and biotech companies, showcasing D2R’s research strengths and exploring new collaborative opportunities. These efforts will be complemented by continued engagement and strategic discussions with current and prospective industry partners, as well as participation in major international conferences such as RNA Leaders USA in Boston and mRNA Health in Berlin to further position D2R at the forefront of RNA innovation.

Challenges and Next Steps

As D2R continues to grow, it is also learning from the challenges that come with rapid expansion. Efforts to engage underrepresented sectors, such as the social sciences, have highlighted the need for more inclusive outreach and integration strategies. Platform usage and cross-site collaboration remain areas for improvement, and addressing these will be key to maximizing D2R’s impact. While many initiatives are still in early stages, their ripple effects are already visible. D2R’s success in securing CFREF funding has catalyzed momentum in Quebec’s RNA strategy, notably through AReNA, and is helping raise the profile of RNA research across Canada at a time when US funding is declining*. This visibility is boosting morale and attracting new researchers to the field, accelerating progress. Looking ahead, D2R will explore opportunities to collaborate with other CFREF programs and continue refining its strategies to ensure flexibility, relevance and long-term impact.

TO LEARN MORE ABOUT D2R, CONNECT WITH US:

- Email: D2R@mcgill.ca
- Website: mcgill.ca/dna-to-rna
- LinkedIn: [linkedin.com/company/d2r-dna-to-rna](https://www.linkedin.com/company/d2r-dna-to-rna)
- Twitter: [x.com/D2RMcGill](https://twitter.com/D2RMcGill)
- BlueSky: bsky.app/profile/d2rmcgill.bsky.social
- Facebook: facebook.com/D2RMcGill
- YouTube: youtube.com/@D2RMcGill

