



AN INCLUSIVE CANADIAN APPROACH TO GENOMIC-BASED RNA THERAPEUTICS, TRANSFORMING GENETIC DISCOVERY INTO NEXT GENERATION THERAPIES.

A \$165 million Canada First Research Excellence Fund initiative led by McGill University, D2R brings together Canada's leading researchers, institutions, and partners to accelerate the development of genomic medicine and RNA therapeutics from discovery to patient impact.

The time is now to lead the next wave of RNA-based precision medicine and transform health in Canada and around the world.

DNA to RNA (D2R) is a major Canadian research initiative led by McGill University that brings together leading institutions across the country to advance RNA-based medicines. As one of the few initiatives globally to integrate discovery, RNA design, delivery technologies, biomanufacturing, and clinical implementation within a single coordinated program, D2R is uniquely positioned to accelerate innovation from laboratory discovery to patient impact.

Bringing together researchers from McGill University, the University of British Columbia, Université de Sherbrooke, the Clinical Research Institute of Montreal, and the University of Ottawa, alongside partners across academia, industry, government, and communities, D2R combines world-class expertise in genomics, data science, engineering, and clinical research. Supported by advanced platforms for sequencing, RNA production, delivery systems, bioinformatics, artificial intelligence, and clinical studies, it enables a streamlined, end-to-end pipeline for therapeutic development.

Through this coordinated ecosystem, D2R is advancing RNA-based solutions to address urgent health challenges, including infectious diseases, cancer, rare genetic disorders, and chronic illness. With several programs progressing toward clinical trials and a rapidly expanding global RNA landscape, D2R is helping unlock treatments for diseases once considered beyond the reach of medicine.

Today, D2R supports more than 100 projects spanning oncology, rare diseases, infectious diseases, advanced therapeutics, bioengineering, artificial intelligence, and clinical implementation. More than 86% of projects are interdisciplinary and 78% incorporate AI or advanced data science approaches, reflecting D2R's commitment to accelerating innovation through collaboration and technological integration. Together, these efforts are strengthening Canada's leadership in genomic medicine and helping build the scientific, clinical, and innovation ecosystem needed to deliver the next generation of precision therapies.





WHY RNA THERAPIES AND GENOMIC MEDICINE MATTER NOW

RNA technologies are transforming how we understand and treat disease. Over the past decade, RNA drugs and vaccines have evolved from early concepts to clinically validated therapies, demonstrating their ability to target disease mechanisms that traditional approaches cannot reach. Their application now spans rare genetic disorders, cancer, infectious diseases, and chronic conditions, expanding what is possible across medicine.

Advances in AI-driven design, delivery systems, and gene editing are accelerating progress even further, reducing development timelines and improving precision. RNA's adaptability—its capacity to be rapidly designed, customized, and manufactured—enables a flexible response to emerging health threats while opening new possibilities for personalized and precision medicine. Together, these advances are reshaping therapeutic development, allowing faster translation of scientific insights into targeted, real-world solutions.

For more information:

mcgill.ca/D2R

Questions?

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D2R'S CONTRIBUTION TO QUEBEC AND CANADA

D2R plays a critical role in strengthening Canada's life sciences ecosystem. Supported by six interconnected research areas and nine core platforms, it provides the infrastructure and capabilities needed to scale RNA innovation—from sequencing and RNA production to delivery technologies and clinical research. At the same time, the initiative is building Canada's future workforce, financially and developmentally supporting over 200 trainees through graduate research support and industry placements, while expanding faculty capacity across partner institutions to meet growing demand in RNA science and biomanufacturing.

Aligned with Canada's multi-billion-dollar investments in biomanufacturing and life sciences, D2R contributes to the development of intellectual property, therapeutic candidates, and commercialization pathways that strengthen national competitiveness. Its international partnerships extend Canada's reach across leading research networks, reinforcing global collaboration and access to innovation. Grounded in a strong commitment to equity, diversity and inclusion, and Indigenous engagement, D2R helps ensure that advances in RNA science translate into broad societal and economic benefits—supporting resilience, sustainability, and long-term leadership in health innovation.