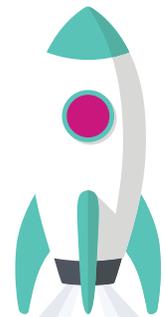


Despite the challenges the pandemic threw our way, the Ontario Institute for Regenerative Medicine and our research teams have nonetheless made important strides toward our mission to transform the treatment of incurable diseases, making Ontario a global leader in the development and dissemination of stem cell-based products and therapies. Here are 10 key highlights from 2020-2021:

1 | Kick Start Innovation Investment Program launch

Working with C3i Center Inc., OIRM launched the Kick-Start Innovation Investment Program in early 2021. It's designed to advance promising regenerative medicine (RM) technologies, attract early-stage investment and build valuable intellectual property to support the creation of vibrant RM start-ups in Ontario. We received strong interest from applicants seeking to commercialize everything from biomaterials to cell and gene therapies, small molecules and more for application in a wide variety of disease indications. High-ranking teams will pitch their technology to BioInnovation Fund, Bloom Burton & Co., Ontario Bioscience Innovation Organization and Versant Ventures. Successful applicants will be announced in September 2021.



2 | Cell therapy for treating severe COVID-19 infection

OIRM's President and Scientific Director, Dr. Duncan Stewart of the Ottawa Hospital Research Institute, completed a phase I trial and is about to embark on a phase II multi-centre trial assessing the use of mesenchymal stem/stromal cells (MSCs) for treating runaway inflammation in patients with severe COVID-19 infection. OIRM's \$2.2 million in funding played a critical role in the development of this technology, originally intended to treat sepsis (the Acute Respiratory Distress Syndrome [ARDS] seen in severe COVID-19 is, in fact, sepsis).

"The reason we are able shift gears to prioritize the study of MSCs for treating COVID-19 ARDS so rapidly is because of the investments in infrastructure we have made in the province in cell manufacturing capabilities that are critical for developing new technologies, as well as expertise to design and manage clinical trials," Dr. Stewart says. "All of the necessary components were already in place so we could move rapidly."



An ongoing trial led by **OIRM Scientific Director Dr. Duncan Stewart** is assessing the use of mesenchymal stem/stromal cells to treat the intense lung inflammation that causes Acute Respiratory Distress Syndrome in COVID-19 patients.

3 | Strategic partnership with C3i Centre Inc.



Several Canadian-made cell therapies will take a major step closer to the clinic thanks to a new collaboration between OIRM and C3i Center Inc. (formerly the Centre for Commercialization of Cancer Immunotherapy and Regenerative Medicine). Each organization will leverage their unique resources and expertise to help Canadian research teams overcome common but significant hurdles in the RM translational process, from clinical trials through to therapeutic application. C3i will be sharing office space with OIRM in MaRS once COVID restrictions are lifted, “With C3i’s deep commercialization resources and manufacturing expertise, OIRM will be able to shift our translational pipeline into high gear,” says OIRM’s Vice President and Chief Operating Officer Sandra Donaldson. “In turn, OIRM will help C3i achieve lateral growth in the RM field on par with their impact to date in the field of cancer immunotherapy.”

4 | Two new company spinoffs

OIRM’s targeted funding and translational support has now generated six spin-off companies: BlueRock Therapeutics, Satellos, PanCELLa, Synakis and, most recently, Inteligex and Notch Therapeutics.

OIRM invested \$900,000 in the development of the technology behind Inteligex, a stem cell therapy to treat traumatic spinal cord injury. Inteligex has recently raised seed funding to support start-up operations. OIRM also invested \$350,000 in Notch’s generation of white blood T-cells from stem cells for immune regeneration and immunotherapy. Notch raised US\$85 million in series A financing in 2021. We’re happy to see both Inteligex and Notch setting up shop in Toronto at MaRS!

To date, OIRM has identified, invested in and de-risked technologies that yielded \$332 million in Series A financing.



5 | Clinical trials continue to flourish in Ontario

When OIRM started in 2015, there were only five RM clinical trials under way — today, there are 22, funded by multiple partners working together to make novel therapies a reality. Through an investment of \$5.9 million over 5 years, four OIRM-funded research teams will launch clinical trials in 2021 — proving that strategic support can overcome translational barriers.

Thanks to the work of our thriving RM community, Ontarians now have access to innovative therapies for multiple sclerosis (SickKids, Toronto), bronchopulmonary dysplasia and sepsis (Ottawa Hospital Research Institute), and third-degree burns (Sunnybrook Research Institute, Toronto).



BlueRock
Therapeutics

In June 2021, BlueRock Therapeutics, launched a phase 1 trial for an engineered cell therapy designed to treat Parkinson’s disease. Toronto’s UHN is a participating study site.

6 | \$2.8 million in strategic investments in 2020



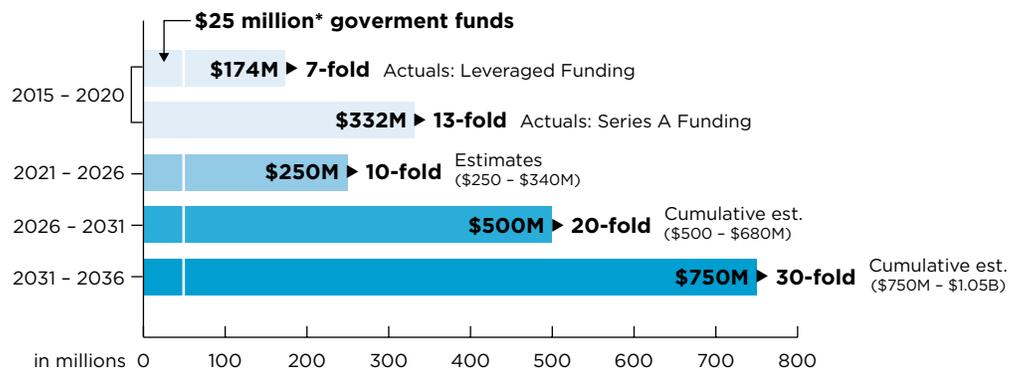
OIRM supports researchers in their quest to answer key questions that advance stem cell technologies toward improved health for patients in Ontario and around the world. We emphasize collaboration and building effective partnerships to leverage our funding and support a larger number of research projects and clinical trials.

In 2020, we funded 15 Disease Teams (larger translational research projects) and New Ideas grants (basic scientific discovery support), as well as four post-doctoral fellowships, working in:

- Regenerating cardiac tissue damaged from heart attacks
- Wound healing in severe burns
- Muscle repair in muscular dystrophy
- Treating lung injury in premature babies
- Restoring eyesight lost to retinitis pigmentosa and age-related macular degeneration
- Repairing white matter in adolescent brain injury and multiple sclerosis
- Treating septic shock/severe COVID-19 infection
- Understanding cell and disease mechanisms
- Biomaterials and other technologies for delivering and supporting cell therapies

7 | Substantial return on the government's investment

From 2015-2021, OIRM leveraged the Ontario government's \$25 million investment seven times over, with \$174 million in additional support (48% from federal funding mechanisms, 28% from the private sector and 24% from the non-profit sector) for our research and commercialization programs. None of this would have been possible without more than 90 partnerships at the municipal, provincial and federal levels.



8 | OIRM's external review confirms our impact

An independent panel of experts assessed OIRM's ability to execute our strategic plans in a government-mandated review. They concluded we delivered by:

- **Demonstrating** a high level of productivity, with the panel recommending that continuing support should be provided;
- **Developing** significant economic and health impacts within a short timeframe;
- **Establishing** and nurturing a unique ecosystem for RM in Ontario;
- **Filling gaps** in the translational landscape of RM, indicating OIRM has a distinct mission, and it fulfils a critical role; and
- **Delivering** on all aspects of its strategic plan on an efficient budget.



9 | GOOD science is GOOD for the economy

Regenerative medicine assets in Ontario are significant.

OIRM has partnered municipally, provincially and federally to tailor the critical support needed for each technology by leveraging all available resources and infrastructure.

Ontario Regenerative Medicine Ecosystem

- Over **50%** of Canada's capital investments in RM were made in Ontario (\$1.08B/\$2.13B)
- **74%** of Canada's RM companies reside in Ontario (42/57) employing 1,120 HQP
- There are **2,400** RM HQP training or working in public sector labs in Ontario

OIRM's ability to catalyze the RM ecosystem keeps HQP, IP, industry, investment and manufacturing of made-in-Ontario technologies in the province

Research & Translation Partners

Ontario Universities, Colleges & Hospitals	• Leveraged funding
BioCanRx, CellCan, MbD, SCN	• HQP training
Health Charities	• Technology pipeline
International Partners	• Infrastructure (BMC)
Funding Agencies	• Research
	• Patient engagement
	• Clinical trials
	• Policy

Commercialization Partners

C3i Centre Inc. CCRM	• Leveraged funding
Venture Capital Industry Big Pharma & Biotech	• Commercialization
CDL, Forge, JLABS, MaRS, OBIO	• Manufacturing
	• HQP job creation
	• Investment
	• Intellectual property
	• Company creation
	• Licensing

10 | The state of global investment for RM is looking up!

Despite COVID-19 wreaking economic havoc around the world, investment in the sector set a new record for 2020 at US\$19.9 billion!

Our goal is to continually attract more of that investment so that made-in-Ontario treatments get to the clinic for the benefit of Ontarians' health and our economy.



BONUS ROUND: We couldn't stop at just 10!

11 | Ramping up point-of-care manufacturing in Ontario

Did you know that the majority of cell therapies used in OIRM's academic clinical trials were manufactured at the Ottawa Hospital Research Institute?

Point-of-care manufacturing represents a paradigm shift in the way Canada studies, commercializes and delivers stem cell treatments for serious diseases. Learn more about this powerhouse of expertise, including providing cell therapies for multi-centre clinical trials across Canada, [here](#).

12 | People power!

Over the past year, OIRM has celebrated the expertise of our researchers by profiling their work on everything from innovative basic science to executing clinical trials.

We also launched a short feature called Fast Five, which asks five short questions designed to get to know our ecosystem better. Check them all out at www.oirm.ca/news.

