



Success Stories

Ontario life sciences companies are producing astounding innovations across our sector. Read about how their businesses are fuelling our economy – and how we can help them reach their full potential to accelerate life sciences into a major economic powerhouse.

Success Stories

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Allarta Life Science

Allarta Life Science Inc.

www.allarta.com

Markets:

North America, Europe, South America, Asia

Allarta is a pre-clinical life science company developing proprietary cell encapsulation technology to enable a range of cell-based therapies. Allarta's Lifespheres™ protect transplanted allogeneic cells from immune recognition, thereby avoiding the need for immunosuppressive drugs and their side effects. Our initial focus is on delivery of insulin-producing cells for type 1 diabetes, and of cells expressing anti-inflammatory cytokines. We aim to help transform how diabetes is treated so that patients worldwide, including children diagnosed with Juvenile Diabetes, will never need another injection of insulin.

We aim to make our proprietary materials stronger, more immuno-privileged, more cell compatible, and more retrievable than other current pre-clinical cell delivery systems. In addition, our materials can be produced in multiple form factors for various uses.

A key barrier to the adoption and scaling of global cell-based allogeneic therapies is the host immune response. This is currently addressed by placing patients on immunosuppressive drugs. For the very sick and the very young (in the case of Juvenile Diabetes), this is not a sustainable solution. Cell providers and large pharma are seeking immuno-protective delivery solutions that enable their cells to survive and thrive without detection by the patient's immune system.

Major Investment/Acquisitions: \$2.6m seed round closed.

Barriers to Success: We kept our lab open during the pandemic, working on vaccine technology in our research pipeline and towards treatments for COVID by encapsulation of MSCs. However, the pandemic still required us to re-allocate team resources and manage lab access on a shift basis. Fortunately, we were able to maintain productivity while keeping our team safe.

Key Wins: Pre-clinical data shows efficacy out to almost three months. The company has raised \$2.6m in seed funding and has been awarded non-dilutive grants from MITACS, OBIO, Fed Dev and Innovation Factory's SOPHIE programme. Our science is built on over 25 years of foundational chemistry research that was exclusively licensed from McMaster University. We have expanded the company technology and IP with an expert team of researchers. Our investors are leaders with strong governance and life science expertise.

Looking Forward: In the coming six to twelve months, we will:

- Raise Series A
- Obtain pre-clinical data in large animals on a path to FDA Phase I/II submission
- Continue to build out our expert regenerative medicine team to expand into human stem cells. In the next 3-5 years, we see ourselves with an FDA-approved therapy to treat diabetics, with several other therapies on track for FDA Phase I/II trials.





AmacaThera

www.amacathera.ca

Markets:

Canada, United States, Europe,
China

AmacaThera is developing therapeutics that go where and when they are needed leveraging its unique, proprietary, injectable hydrogel platform (AmacaGel). AmacaGel provides localized, sustained drug delivery to improve patient outcomes. AmacaGel has the utility to be combined with small molecules and/or biologic agents such as antibodies and stem cells.

CEO Dr. Mike Cooke and Chief Scientific Officer Dr. Molly Shoichet co-founded AmacaThera as a spin-out from Dr. Shoichet's lab at the University of Toronto.

Our lead product, which will enter Phase I clinical trials in early 2022, is a sustained-release treatment for post-operative pain management designed to reduce or eliminate the need for opioid therapy.

Barriers to Success: AmacaThera's biggest challenges to date have been scaling up the manufacturing process needed to produce GMP-quality drug products, and identifying our next pipeline opportunities.

Manufacturing via third-party contractors poses significant challenges for drug and biotech product development, and for AmacaGel based products must be conducted outside of Canada at this point in time. Achieving manufacturing excellence locally is critical for our pipeline products to get into clinical studies and through regulatory approval without the burden of unnecessary manufacturing delays.

Selecting follow-on assets is more exciting than it is a barrier to success, as we have many potential product development opportunities, and need to focus our efforts choose the best options for commercial success. We are currently exploring various therapeutic area, including oncology, neurology and musculoskeletal diseases.



Key Wins: AmacaThera's significant recent successes include completing a pre-IND meeting with the FDA (May 2019), receiving a No Objection Letter from Health Canada to start our phase 1 trials (July 2020), raising a \$10.3M Series A round (Feb 2021), and completing manufacturing design and testing to support phase 1 testing (June 2021). We have also completed three R&D partnerships since January 2020 to evaluate the performance of new drugs in our hydrogel. Our next major milestone is to begin Phase 1 testing in early 2022.

What's Ahead? AmacaThera's goals over the next five years include getting our first product to market, developing our product pipeline, and establishing an in-house manufacturing facility. In five years, we expect to have increased our team size to 50 employees, be profitable, have a pipeline of at least five to seven products in various stages of pre-clinical and clinical development, and manufacture our products here in Canada, creating many biomanufacturing jobs. With a strong team and a suite of products, AmacaThera will quickly become a strategic partner for many pharmaceutical companies around the world.



Amgen

www.amgen.ca

Markets:

Global

Amgen applies science and innovation to help fight serious illness and dramatically improve people's lives. With Canadian headquarters located in Mississauga's vibrant biomedical cluster, and a research facility in Burnaby, British Columbia, Amgen's Canadian affiliate has been an important contributor to Canada's biotechnology sector since 1991. Amgen serves patients throughout Canada by delivering vital medicines to them. In addition, Amgen contributes to the development of new therapies or new uses for existing medicines in partnership with many of Canada's leading healthcare, academic, research, government and patient organizations. Today, tens of thousands of Canadians use Amgen medicines every year, and thousands more are enrolling in Amgen clinical studies that deliver the next generation of innovation.

An Integral Part of the Canadian Economy

Amgen understands the importance of its operations to the continuing growth and success of the bioscience industries in Canada. The company's efforts in clinical operations, sales and marketing and other areas play a part in strengthening the Greater Toronto Area biotechnology cluster of companies, government and educational institutions and in growing Canada's leadership in biotechnology. As the region's biosciences sector has grown, Amgen has grown its own business in Canada, creating over 400 new jobs and introducing innovative medicines to Canadian healthcare providers and patients.



Key Wins: New regenerative medicine discoveries, including cell and gene therapies, will never reach patients without access to the funding, expertise and other specialized support that are required to move along the commercialization pathway. To address this need, Amgen, as a global leader in the biotechnology industry, and CCRM, a leader in developing and commercializing regenerative medicine-based technologies and cell and gene therapies, created a multi-year fund for early-stage regenerative medicine-based technologies and therapies to benefit patients and the healthcare system.

Also, Amgen is committed to raising the value of science literacy in the community; attracting bright young minds into the field of science by helping educators to teach more effectively; and improving access to science resources for teachers,

students and the community at large. **Amgen Scholars Canada** was established in 2018. Each summer, Canadian undergraduate students conduct hands-on research alongside top faculty, participate in seminars and networking events, and take part in symposia with their peers and leading scientists. The **Amgen Biotech Experience** is an innovative science education program that provides teachers with professional development, curriculum materials, supplies and research-grade equipment on loan to secondary schools.

Looking Forward: Canada needs more resilient healthcare systems built around patient outcomes and enhanced adoption of health innovations. Resilient healthcare systems are those best positioned to "predict and prevent" disease by proactively intervening early and delivering solutions that provide the highest value to patients and to society. Biologic medicines have the ability to change the practice of medicine like never before, and Amgen welcomes the opportunity to work together with governments and other stakeholders to develop practical, cost-effective and long-term ways to sustain and improve Canada's healthcare system and to find healthcare solutions that are in the best interests of all Canadians.



Bitnobi, Inc.

www.bitnobi.com

Markets:

Canada, United States

Bitnobi, Inc. is a technology startup focused on the need to safely and securely share data. The patented privacy-protected, data sharing platform does this by keeping the raw data at the source and only sending the aggregate data to the end-user. Instead of creating copies of data, Bitnobi eliminates that need by placing the onus for launching data jobs on the end-user. This is done by ensuring that the end-user meets the data provider's "rules of engagement".

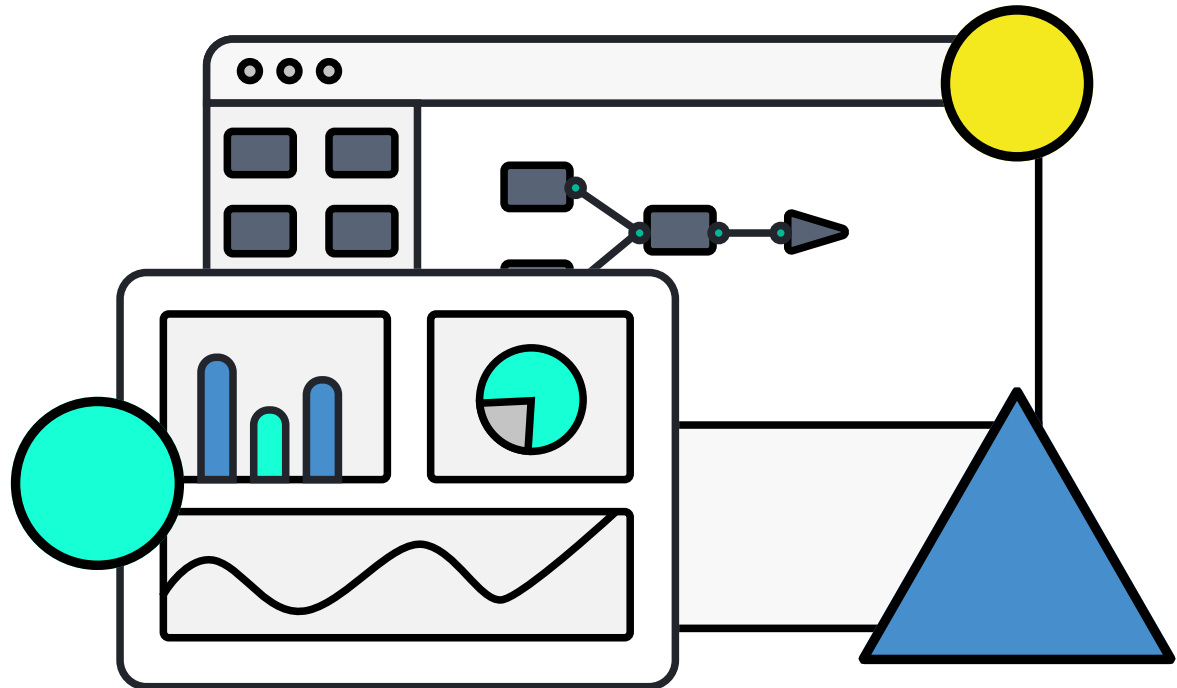
Bitnobi's patented data sharing system allows end users to interact with only a preview of data so that data queries can be created in order to answer data questions. This solution puts the data owner in control of who can access what without having to transmit a copy of raw data which can increase the chance of a data breach.

Barriers to Success: The biggest challenge to date has been scaling the software application to achieve recurring users and revenue. Moreover, operating in the healthcare space means that there are long sales cycles when interacting with hospital networks.

Key Wins:

- Sole, data sharing technology provider for the Canadian Personalized Health Innovation Network ([CPHIN](#)).
- Qualified vendor for Roche Canada & Roche Global
- A robust patent portfolio with 5 issued patents and 4 patents pending.
- Successfully executed a Canadian healthcare data sharing pilot project with

Diabetes Action Canada (<https://www.newswire.ca/news-releases/diabetes-action-canada-partners-with-canadian-startup-bitnobi-inc-to-enable-secure-and-trusted-data-sharing-823069758.html>).



Looking Forward: The primary goal is to develop Bitnobi into a web-based, marketplace that end users leverage in order to access proprietary data sources as well as proprietary algorithms while maintaining privacy and security. In 5 years, Bitnobi will become the premier choice of data owners and algorithm creators in order to interact with end users.



eQcell

www.eqcell.com

Markets:

Europe, United States, Canada

eQcell is a clinical stage company embracing One Health principles to accelerate development of therapeutics in osteoarthritis (OA), preliminarily, and uniquely in Canada, utilizing stem cells in an equine model intended to direct and support the extension of the platform into human therapeutics.

The company is the first, and only, authorized by Health Canada for clinical trials with stem cells in the indication. The cells are produced at University of Guelph, #5-ranked veterinary university in the world, and the trials are being conducted at Ontario Veterinary College, together with the # 1-ranked UC Davis VIRC.

Targeting human therapeutic development by initiating in genetically diverse, large animals produces both early-stage data on efficacy and the prospect of marketing approval in the veterinary indication within ~three years. The horse is recognized as providing relevant preclinical data for human applications preferentially over laboratory purpose-bred rodents holding the promise of reducing late-stage human trial failures, reportedly ~30% at Phase II and ~58% at Phase III. Value proposition unique.

Barriers to Success: Notwithstanding decades of evidence in North American and international Translational Medicine institutes supporting companion large animals as ideal pre-clinical models for therapeutic development, ignorance of One Health remains ubiquitous. Anticipate rapid recognition and adoption in bio therapeutic drug development

Key Wins: First and only Health Canada authorization for veterinary trials with stem cells in osteoarthritis. First ever cooperation between the two top five veterinary universities in world. First therapeutic trial in Canada designed to be based on One Health principles. Board & Advisory Board outstanding list of internationally-recognized leaders in Translational Medicine and equine and human health. Founder, Past President North American Veterinary Regenerative Medicine Association.

Looking Forward: To be the first company in Canada (and possibly internationally) succeeding in One Health progression from veterinary through human therapeutics. OA pervasive in humans equally as in horses, dogs and cats representing an unmet medical need with major societal as well as personal financial and emotional costs. Vast market in all species. To be exemplar of uptake of One Health principles in drug development. *"A physician is a veterinarian who only knows how to treat a single species."*



**Environmental Systems
Corporation (ESC)**

www.e-s-c.com

Markets:

North America

An integrated approach to Cleanrooms that helps your business grow into the future. Whether you need a full-service team or an integrated partner, ESC can provide the solution for your Critical Environment. We understand the significant investment you're making for the future of your company.

We specialize in:

Cleanrooms: Equipped with an entire team of architectural and process expertise, we develop process-specific layouts for your Critical Environment and bring them to life using the ALUMA1 wall and ceiling systems. Custom Designed

HVAC: Our team of experienced technicians and mechanical engineers design custom HVAC systems to meet your Critical Environment requirements.

Integration: Our team integrates SMART technology to ensure that you are always in control of your Critical Environment with clear historical reporting.

Our mission is to create critical environments for success for our clients. We guide you through every step of the way to guarantee it works the first time. We use our enhanced conceptual design methodology to produce consistent successful projects for our clients.

- 1) **DISCOVERY** We will get to know you, your process, the existing facility, and your future dreams.
- 2) **DIAGNOSE** We ask the right questions in the right order to ensure you achieve the right facility to meet your process and future growth.
- 3) **DESIGN** Using our enhanced CONCEPTUAL DESIGN (eCD)TM process, we create a tailored solution to meet your deliverables for budget, time and system performance.
- 4) **DELIVER** Now it's time to BUILD! Our integrated TEAM approach will bring your dream to life through startup and qualification.

Major Investment/Acquisitions: nGEN Canada - 4.5 Million joint project with another partner based in Waterloo, Ontario (Evercloak)

Barriers to Success: Our challenges will become talent and supply chain as we continue our growth and scaling.

- 1) **Talent:** we are continuously recruiting and training new cleanroom design engineers.
- 2) **Supply chain:** We are moving ahead with building relationships with Canadian suppliers and working with them to get our quality standards that our clients require.

Key Wins:

- 1) **Innovation** - We have consistently spent 20% of our revenues on R&D over the past 5 years.
- 2) **nGEN Canada Project Grant** - This validated our cleanroom and critical HVAC technology and R&D spending.
- 3) **Scaling up** - We have invested in leadership and operational processes to support our growth and ensure a consistent customer experience.
- 4) **ISO Standards** - we believe in consistent standards, quality assurance and customer experience.

Looking Forward:

- 1) **Achieve a major reduction in energy usage** in our cleanroom HVAC units by using new technology to reduce the energy needed for humidity reduction.
- 2) **To achieve consistent annual sales:** \$30 Million in annual sales and growing towards our \$80 million goal in 5-7 years.
- 3) **Commercializing our smartCRITICAL innovation.** This will allow us to ship cleanrooms that are IoT4.0 integrated with sensors, controls and reporting for FDA, Health Canada approved compliance reporting.





Hyivy Health Inc.

www.hyivy.com

Markets:

North America, Europe

Hyivy Health creates a patent pending, intelligent pelvic rehabilitation device for the 1 in 3 women worldwide who will experience a pelvic health complication in their lifetime. Our device provides the first quantifiable data set on the pelvic floor and 3 different therapies from multiple sensors and mechanical functions to help keep track of progress, adapt treatment plans and provide more effective, comfortable rehab experiences from home.

The long-term vision for Hyivy Health is to ultimately become the go-to standard of care for gynecological health while providing the first quantifiable data set on pelvic floor and women experiencing complications with their pelvic health. We are the first to collect, track and quantify progress on multiple data points on the pelvic floor. We are the first to alleviate a number of symptoms at once while providing the proper educational materials and including doctors in the treatment planning process to increase successful patient outcomes.



Major Investment/Acquisitions: \$767K in non dilutive funding, \$1.1M in pre-seed investment recently closed

Barriers to Success: Our challenges include getting our hardware product ready for ISO, Health Canada, FDA and our Clinical Trials and global shortages in the hardware supply chain. Our significant hurdles include getting to market with a safe and effective product while continue to innovate and grow, while breaking down the stigma in healthcare for womens health.

Key Wins: We are 1.5 years into operations and we already have a growing waiting list of over 400 women and 60 pelvic clinics in active focus groups. We have raised over \$767k in non dilutive funding, have filed our utility patent and trademark registration, and have secured multiple technical and pharma partnerships for growth opportunities with product and our data. We also just closed our over subscribed \$1.1M pre-seed round and were listed as the global trend setter in pelvic health out of 1550 global Femtech companies. Our team has 100% contributed to these wins!

Looking Forward: We are actively conducting R&D as well as framing future clinical trials on the use of our data to make diagnosis as well as in-clinic use devices with advanced medical features such as ultrasound, RGB tissue sensors, radiation sensors and drug delivery. This will allow us to not only sell higher priced versions of the product to hospital systems but also use our data for research purposes, education and in all OBGYN settings when diagnosing patients. The long-term vision for Hyivy Health is to become the go-to standard of care for gynecological health while providing the first quantifiable data set on

pelvic floor and women experiencing complications with their pelvic health. The more women and doctors we have using the device and collecting data, the more correlations we can make to start solving bigger gynecological health issues and trends around the world. Being able to track this data custom to each women's specific diagnosis, age, sexual history, ethnic background and the symptoms they experience before, after and during treatment will give us a better understanding of the pelvic floors function and how to treat it more effectively and efficiently



London Economic Development Corporation

www.ledc.com

Markets:

Europe, United States, Asia

London Economic Development Corporation (LEDC) provides economic development services to the City of London, Ontario, including support for job-creating investment and job creating industry growth.

Key Wins: In 2021, London welcomed investments from Vietnam based ANVO Pharma Group and BIOSA Technologies from Toronto. ANVO Pharma Group is building a 40,000 sq.ft pharmaceutical production facility as the first phase of 100,000 sq.ft of planned space. BIOSA Technologies is building a 4,000 sq.ft production facility for advanced PPE materials production. LaunchIT Ventures has joined the ecosystem to invest in London life sciences start-ups.

Looking Forward: London is investing in supports for the Life Sciences ecosystem with the recruitment of additional experienced and knowledgeable sector expertise. Monthly ecosystem meetings have started and initiatives to support companies through infrastructure developments are progressing.





Mitsubishi Tanabe Pharma Canada, Inc. (MTP-CA) parent company, Mitsubishi Tanabe Pharma Corporation (MTPC), has pursued medical breakthroughs for more than 300 years.

**Mitsubishi Tanabe Pharma
Canada, Inc.**

www.mt-pharma-ca.com

Markets:

Canada

Since establishing our Canadian operation in 2018, our Canadian team has been dedicated to bringing innovative treatments to people facing serious and life-threatening diseases, specifically ALS. MTP-CA has worked closely with federal and provincial governments to ensure access to, and reimbursement of, our ALS therapy. We have developed deep partnerships with patient organizations, such as ALS Canada with whom we offer sponsorship support, including the MTP-CA Fellowship Program, which recently supported training for the next generation of ALS clinicians in Canada.

Our unwavering patient-first philosophy is central to MTP-CA's mission. Adhering to this philosophy means measuring success, not by revenue and sales, but by how many patients our therapies help. It means building a team that is committed to doing the right thing by patients, upholding our integrity, and building trust with patients so we can continue doing work aimed at tackling complex health problems.

Barriers to Success: It simply takes too long for a drug to move through the Canadian drug approval process, from regulatory approval to commercial availability through to public reimbursement.

Although our therapy received a 6 month Priority Review from Health Canada, it then took 18 months to achieve provincial reimbursement. ALS patients, and many other rare disease patients, do not have the luxury of time. Lastly, the pending changes to the Patented Medicine Prices Review Board (PMPRB) regulations could have a further serious and negative impact on access to new drugs, especially for those living with rare diseases.

Key Wins: Since our therapy's approval in 2018, MTP-CA has worked closely with governments and ALS stakeholders to ensure continued access to treatment. In addition to advocating for provincial reimbursement, MTP-CA has also made our therapy available through the Health Canada Special Access Program (SAP), and our patient support program (PSP) has provided critical support for Canadian ALS patients.

Our therapy is listed on nine provincial formularies and reimbursed by Veterans Affairs Canada and Indigenous Services Canada. Public reimbursement has been achieved in provinces that are home to 98% of Canadian patients. We estimate that more than 94% of private insurance plans have added our therapy to their formularies.

Looking Forward: As we look to the future, MTP-CA is committed to working with our stakeholder partners to advocate for the best care for patients, while maintaining an open line of communication with government agencies to ensure equitable access to care. With patient groups, MTP-CA will continue to advocate for the implementation of services to encourage early diagnosis across the country. We remain dedicated to driving scientific discovery to meet the needs of people suffering from serious and often life-threatening illnesses.





NERv Technology Inc.

www.nervtechnology.com

Markets:

Canada, Saudi Arabia, United States

One of the greatest fears for a surgeon is that their patient is amongst the 1 in 6 who suffer from a postoperative complication. In general, following the development of a complication treatment is delayed as symptoms need to present themselves before examination can begin, which is finally followed by treatment. This renders current detection techniques, which rely on infrequent monitoring by a medical professional and unreliable diagnostic tests, costly and ineffective. These practices, which often result in late detection and delayed patient care, heavily contribute to the hospital-borne cost of \$28M USD per 1000 high-risk abdominal surgery patients.

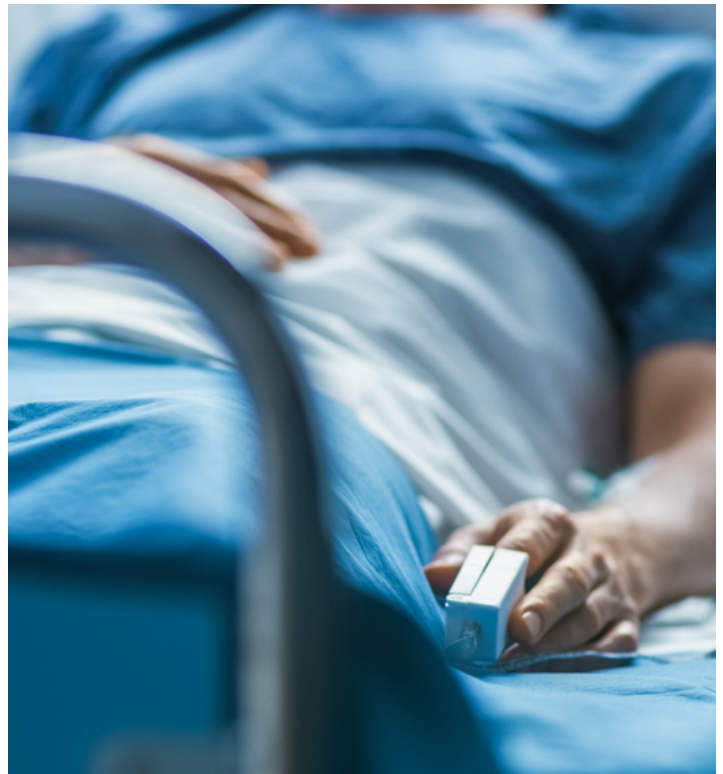
NERv Technology Inc. aims to create a paradigm shift in post-operative care, utilizing the plethora of data within the body, to help in the detection of post-operative complications at their onset. NERv's platform sensing technology augments existing wound drains and catheters, providing healthcare providers with a smart monitoring tool that can enhance the delivery of care. NERv's technology is being built with the goal of decreasing surgeon's response time to potential complications, making patient recovery easier, and hopefully saving lives. At its core, the technology provides clinical teams with timely prognostic and diagnostic data, as well as guidance on how to act upon such data. The system can predict and notify the healthcare provider if early signs of complications are detected by the sensors and monitor the development of the complication in real-time.

Major Investment/Acquisitions: \$2.65M USD Seed Round

Barriers to Success: NERv's biggest challenges to date included initiating a clinical study and closing a seed round during COVID. NERv successfully emerged from these two challenges with world-renowned institutions participating in a clinical study and more than \$2.5M USD raised. NERv still anticipates future challenges revolving around getting the device regulated in 3 different jurisdictions, raising a Series A round of funding, and initiating commercial activities.

Key Wins: NERv has initiated a multi-center clinical study across institutions in Toronto (St. Michael's and St. Joseph's Hospitals), Hamilton (Juravinski Cancer Centre), and Cleveland, OH (Cleveland Clinic). Early directional data from the study shows NERv's ability to identify leaks ahead of the standard of care. The device has been tested on more than 90 patients to date.

Looking Forward: NERv aims to successfully complete its ongoing clinical study before getting the device regulated and initiating sales late 2022. In 5 years, NERv aims to have its device utilized by surgeons in the US, Canada, and Saudi Arabia and be on its way to ramping up sales.





Novo Nordisk

novonordisk.ca

Markets:

Global

We are a global healthcare company, founded in 1923 and headquartered just outside Copenhagen, Denmark. Our purpose is to drive change to defeat diabetes and other serious chronic diseases such as obesity, and rare blood and endocrine diseases. We do so by pioneering scientific breakthroughs, expanding access to our medicines and working to prevent and ultimately cure the diseases we treat. We employ about 45,800 people in 80 offices around the world, and market our products in 170 countries. Our Canadian head office is in Mississauga, Ontario.

Major Investment/Acquisitions: C\$20M contribution to the University of Toronto to establish the Novo Nordisk Network for Healthy Populations at U of T.

Barriers to Success: One of our current challenges is helping the Province of Ontario recognize the impact of the diabetes epidemic on Ontario's population and healthcare system and the value of establishing a provincial program to oversee the management of diabetes. Each year, approximately 90,000 Ontarians

receive a diagnosis of diabetes. Currently, diabetes (type 1 diabetes, diagnosed type 2 diabetes, undiagnosed type 2 diabetes) and prediabetes affects 4.6 million Ontarians and is projected to increase to approximately 5.6 million in 2031. Diabetes is a leading cause of blindness, and it contributes to 30% of strokes, 40% of heart attacks, 50% of kidney failure requiring dialysis, and 70% of all non-traumatic lower limb amputations. We are hopeful that Ontario will seize the opportunity to develop a provincial diabetes program under the purview of Ontario Health that ensures adherence to clinical guidelines, development of quality standards, and data-



RHONA BAPTISTE
Rhona has type 2 diabetes
UK



ANWAR BOUTAHAR
Anwar has type 1 diabetes
Canada

driven and evidence-based approaches to stem the tide of the diabetes epidemic, drive down healthcare costs and improve outcomes for people with diabetes.

Key Wins: In February 2021 – a year that marks the 100th anniversary of the discovery of insulin in Toronto – Novo Nordisk and the University of Toronto (U of T) announced a C\$40-million investment to establish the Novo Nordisk Network for Healthy Populations. Based at U of T Mississauga, the new network is a partnership between the Dalla Lana School of Public Health, Temerty Faculty of Medicine and University of Toronto Mississauga. The network will focus on new ways to support healthier urban populations, and draw on U of T's expertise in public health research and education programs to impact the global fight against diabetes and other serious chronic diseases. Novo Nordisk's \$20M donation was matched by U of T with a further \$20M in financial and in-kind contributions.

Looking Forward: Building on the discovery of insulin 100 years ago, all aspects of diabetes care with and without insulin have advanced significantly, but the journey is not over. People with diabetes continue to have significant unmet needs. The Canadian Novo Nordisk team will continue to focus our advocacy to integrate the management of diabetes into a provincial program to ensure high-quality and equitable care for all people living with diabetes. We will also work with our many partners to advance policies and solutions that serve people living with diabetes, obesity and other serious chronic illnesses.



Hoffmann-La Roche Ltd.

www.rochecanada.com

Markets:

Global

Roche is a global pioneer in pharmaceuticals and diagnostics focused on advancing science to improve people's lives. Roche is the world's largest biotech company, with truly differentiated medicines in oncology, immunology, infectious diseases, ophthalmology and diseases of the central nervous system. Roche is also the world leader in in vitro diagnostics and tissue-based cancer diagnostics, and a frontrunner in diabetes management. In recent years, Roche has invested in genomic profiling and real-world data partnerships, has become an industry-leading partner for medical insights, and has collaborated in artificial intelligence (AI) data-mining to fuel healthcare insights. Roche

aims to improve patient access to medical innovations by working with stakeholders across the entire healthcare sector to provide the best care for each person. To further enable the realization of personalized healthcare, Roche is harnessing the power of artificial intelligence, data and insights to bolster our expertise in the areas of medicine, diagnostics and digital health solutions. Roche is confident that innovation and efficiency can both be achieved if we work toward a healthcare system that treats earlier, enables preventative care, avoids unnecessary therapies and eliminates medical waste.

Barriers to Success: Enabling the flow of information between private and public entities, across provinces is key to enable and catalyze new collaborative advances in the life sciences sector. Patient outcomes can be optimized through the freest possible flow of health and health relevant data. This will enable a strong infrastructure for digital opportunities, identifying and supporting innovation technology and contributing to furthering the successful delivery of personalized health care. Aligned with the LSO support for innovation, there needs to be a reduction of duplication, aligned procurement and establishing shared health data repositories.

Key Wins: As an integral part of the healthcare ecosystem, we are closely monitoring the global SARS-CoV-2 (COVID-19) pandemic. We recognize our vital role in delivering critical products, including diagnostics and medicines, to Canadian patients and customers. Roche has always been at the forefront of emerging global threats from pathogens, such as SARS-CoV-2. When the pandemic escalated, Roche responded by:

- Offering numerous diagnostic solutions including molecular PCR tests and rapid antigen tests to detect the virus, serological tests to determine the immune response as well as digital agnostic solutions to help share, manage and report health data.
- Pursuing research to understand the potential of our existing medicines.
- Partnering with other pharmaceutical companies to explore investigational treatment options.
- Launching a COVID-19 Open Innovation Challenge and created the Data Science Coalition to advance COVID-19 solutions.
- In October 2020, Roche established a Global Pharma Technical Operations site at our Canadian pharmaceutical headquarters in Mississauga, bringing up to 500 highly skilled and specialized full-time positions.

Looking Forward: Leveraging our unique strengths in pharmaceuticals and diagnostics, we have an opportunity to be a strong partner for healthcare systems to tackle shared challenges. Our vision in healthcare is to provide health solutions tailored to the individual. The future is one where diagnosis, care plans, treatments and outcomes are integrated and monitored seamlessly with the aim of getting the right solutions to the right patient at the right time. In this context, we want to transcend the traditional role of pharmaceutical companies as mere providers of therapies to become a true scientific ally of the health system, in line with the changes that are taking place in the health environment, scientific and technological evolution. We want to be truly perceived by healthcare systems as a strategic partner that provides integrated solutions, helping to understand how to apply data, interpret diagnoses and understand treatments to achieve the best results in more patients and faster.





Sanofi

sanofi.ca

Markets:

Global

Sanofi is one of Canada's leading investors in life sciences, manufacturing and research and development. We discover new and better ways to address unmet medical needs and we create life-changing and lifesaving products that empower self-care, prevent and treat diseases and help people living with illnesses to live better. Our 2,000 people do this across four key business units: primary care, consumer healthcare, vaccines and specialty care.

Our work is based on science that Canadians can trust and a commitment to meeting new challenges head-on through innovation and partnership. The only way we can fulfill our mission is by keeping inclusion, diversity and equity at the core of our culture. This is reflected in how we work, in support of the next generation of scientists, through our partnerships and how we give back to the community.

Backed by a legacy spanning over 100 years in Canada and a global network reaching across 170 countries, we are proud to fight for millions of lives every day.

Major Investment/Acquisitions: In March 2021, supported in partnership with the Federal Government, Province of Ontario and City of Toronto, Sanofi announced a new \$925M (CAD) vaccine manufacturing facility. This new facility will produce a high dose quadrivalent influenza vaccine for adults 65 years and older, as well as contribute to future pandemic readiness efforts in Canada.

Barriers to Success: Sanofi continues to work with the Federal Government and the Province of Ontario, along with private payers, to ensure Canadians have timely access to new innovative medicines and vaccines and that Canada has a globally competitive health technology assessment process which recognizes the value of innovation across the healthcare system and economy.

Key Wins: With approximately \$2 billion (CAD) invested in our Toronto site over the last 5 years, including significant public sector funding contributions, we are expanding our manufacturing footprint to make more lifesaving vaccines available to Canadians and people worldwide.



Our history in Canada goes back to 1914. We were the first company to develop and distribute insulin on a mass scale. We also played key roles in the fight against diphtheria, and the eradication of polio in North America and smallpox globally. As a pioneer of the early biotechnology movement in the 1980s, we also advanced early therapies in rare diseases and specialty care.

Today, we are continuing to advance healthcare, employment and our economy across our four business units. We are passionate about making life in Canada healthier and more prosperous.

Looking Forward: Sanofi plans to build on its leadership role in Canadian life sciences through continued investment in research and development and vaccine manufacturing. In addition to bringing online its new state-of-the-art vaccine manufacturing facility, announced in 2018, and the recently announced influenza vaccine manufacturing facility, announced in March 2021, Sanofi has committed to investing \$79 million annually in research and development through 2029.



Synapse Life Science Consortium
www.synapseconsortium.com

Markets:
Canada

Synapse Consortium is a partnership of Hamilton's anchor life science organizations in Hamilton, representing +25,000 employees. The goal of Synapse is to accelerate and catalyze the commercialization of health innovation in the region.

Synapse acts as strategic broker, helping to facilitate networks between for-profit companies and the infrastructure, facilities, expertise and data they need to grow and scale their business. Synapse is an advocate for the health ecosystem, enabling connection and collaboration for the success of life science innovations in Ontario and beyond.



Key Wins: In partnership with FedDev Ontario Synapse launched SOPHIE in 2021, a program that will invest \$4.5M in commercialization across +45 projects between companies and Synapse's academic and hospital partners in Hamilton (i.e., Hamilton Health Sciences, McMaster University, Mohawk College, and St. Joseph's Healthcare). These projects will allow companies to access data and facilities critical to the successful development and deployment of novel health innovation - helping to grow their business and provide improved health outcomes for patients.

Looking Forward: Looking forward, Synapse will continue to seek partnerships with stakeholders in the community to deploy facilities and capabilities needed to help companies across the region to grow and scale their business.



Takeda

www.takeda.com/en-ca/

Markets:

Global

Takeda's Strategic Imperatives

Patient | Responsibly translate science into highly innovative, lifechanging medicines and vaccines

Accelerate access to improve lives worldwide

People | Create an exceptional people experience

Planet | Protect our planet

Takeda Canada's Footprint

- 180 Active Studies
- 148 Principal Investigators
- 10, 175 Enrolled Patients

Meaningful Partnerships and Collaborations

We are committed to ongoing clinical research through collaborations and partnerships that focus on patient needs.

Takeda is a global, values-based, R&D-driven biopharmaceutical leader headquartered in Japan, serving the needs of our patients since 1781.

Takeda Canada is one of the fastest-growing pharmaceutical companies in Canada. Our way to better health is by advancing science to develop leading innovations in gastroenterology, oncology, neuroscience, and rare diseases to meet the needs of Canadians.



- **Turnstone Biologics:** December 2019 - Strategic collaboration between Takeda and Ottawa-based Turnstone Biologics to develop a disruptive class of engineered viral immunotherapies through discovery collaboration.
- **CARMA-BROS study:** 2020 - Takeda Canada invested \$2.4 million into a University Health Network study that aims to evaluate real world outcomes in lung cancer patients
 - The CARMA-BROS study (CANadian CAncers with Rare Molecular Alterations (CARMA) - Basket Real-world Observational Study (BROS) is run out of the Princess Margaret Cancer Centre



University of Toronto

U of T Institutional

Strategic Initiatives:

research.utoronto.ca/isi

Innovations & Partnerships

Office: research.utoronto.ca/partnerships/partnerships

Government Relations

Office: gro.utoronto.ca

Founded in 1827, the University of Toronto (U of T) is Canada's leading institution of learning, discovery and knowledge creation. It is home to Canada's largest and top-ranked faculty of medicine, as well as a full range of leading-edge health sciences faculties including Nursing, Pharmacy, Public Health, and more. The University's accomplishments have been achieved by bringing together leading experts, industry, government, and hospitals to create never-before-seen health solutions and developing the right talent, able to power the GTA's world-class life sciences ecosystem.

Mission statement: The University of Toronto is dedicated to fostering an academic community in which the learning and scholarship of every member may flourish, with vigilant protection for individual human rights, and a resolute commitment to the principles of equal opportunity, equity and justice.

Key Wins: The University of Toronto (U of T) anchors one of the most vibrant life sciences, human health sciences, and biotechnology ecosystems in the world. With a proven track record of collaborating with over 600 industry partners and launching more than 230 biomedical start-ups in the past decade, U of T has supported the development and translation of biotechnologies that have made transformative contributions to Ontario and Canada's economic, health and social prosperity. Since the onset of the pandemic, U of T has continued to draw on top scholars, develop a robust talent pipeline, and engage in partnerships with industry, government and local communities to act quickly to support the COVID-19 response and recovery efforts. Some recent successes include, supporting over 110 federally funded research teams and its affiliated hospitals focused on stopping the virus and, being ranked as the only Canadian university among the top 10 research institutions internationally.





Ventripoint Diagnostics Ltd.

www.ventripoint.com

Markets:

Canada, United States, Europe

Ventripoint Diagnostics headquartered in Toronto, Canada, is a medical device company engaged in the development and commercialization of a breakthrough non-invasive diagnostic tool to monitor patients with heart disease and congenital heart problems. The VMS+ is the first cost effective and accurate system for measuring the function of all 4 chambers of the heart and provides volumetric cardiac assessment with accuracy equivalent to MRI, the gold standard. The system can be used for both pediatrics and adults.

Multiple peer reviewed papers in top journals have been published in support of the accuracy of the VMS+ methods. There are over 60 publications using the VMS+ system, with installations and use case from Key Opinion Leaders in Canada and globally.

Although the 2D echocardiogram is the most commonly used cardiac diagnostic tool used world-wide, it does not consistently obtain accurate and reliable volumes for the different heart chambers, nor a standard metric for all cardiac patients. Due to the acute effects of COVID-19 on underlying and pre-existing cardiovascular disease, there is an increasing demand for tools that are rapid, accurate and reliable. Whenever an echo is indicated, the VMS+ system provides essential information that can aid the clinician in diagnosis and treatment of patients with the accuracy equivalent to MRI in less time and with sparse data. Cardiac MRI is not widely used given its limited accessibility in most communities, is significantly more costly than ultrasound, is time consuming (i.e. takes ca. 1 hour), it may require contrast media and often sedation of patients, and patients do not like undergoing the procedure. Having a tool that can handle poor quality scans and still generate accurate cardiac measurements with the utmost efficiency is desirable for improved healthcare outcomes.

Barriers to Success: Our strategy for growth of the company hinges on our ability to place a certain number of our devices in hospitals worldwide so as to demonstrate the market clinical value and acceptance. Having greater access to medical facilities will assist in opening up those networks, providing onsite demonstrations and placing more units in clinical settings. Over the past 18 months due to COVID 19 we have not had access to clinicians through site visits and conferences, that dramatically hindered our progress. The biggest challenge is brand awareness and along those lines to get Key Opinion Leaders to appreciate the value of the product and spread the word to the larger cardiac community.

Looking Forward: Ventripoint was founded on finding a better way to provide care to children suffering from congenital heart disease. It is this mission for change and compassion that led to the idea of our flagship products and the creation of Ventripoint and this continues to be our mission. Ventripoint is dedicated to developing quality, smart tools that help solve the immediate needs of our healthcare clinicians, and most importantly enhance the patient experience and improve the lives for our youngest to oldest patient. Our primary goal is to advance clinical outcomes and to continue to improve our products. We are striving to form partnerships with major OEMs of ultrasound machines to ultimately have our technology embedded/integrated into theirs. In reaching this goal, Ventripoint has been recently added as an innovator under GE Healthcare's Edison Developer Program, which helps






**LEVERAGE MORE
FROM YOUR ECHO**

MRI equivalent volumetrics
from echo for all 4 chambers of
the heart

Results you can trust

Applications include:

-  Initial diagnosis
-  Post treatment follow-up
-  Monitoring of disease progression

www.ventripoint.com

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