Stem Cell Network | Réseau de Cellules Souches

Powering Regenerative Medicine

ANNUAL REPORT 2021 | 2022

SCN BY THE NUMBERS: 2001-2022

$139 million
direct investment in research, training and outreach

$148 million
in research partnerships

225+ research projects supported
231 research groups funded

1,077 patent applications
173 patents issued
116 licenses granted

5,000 trainees and highly qualified personnel trained

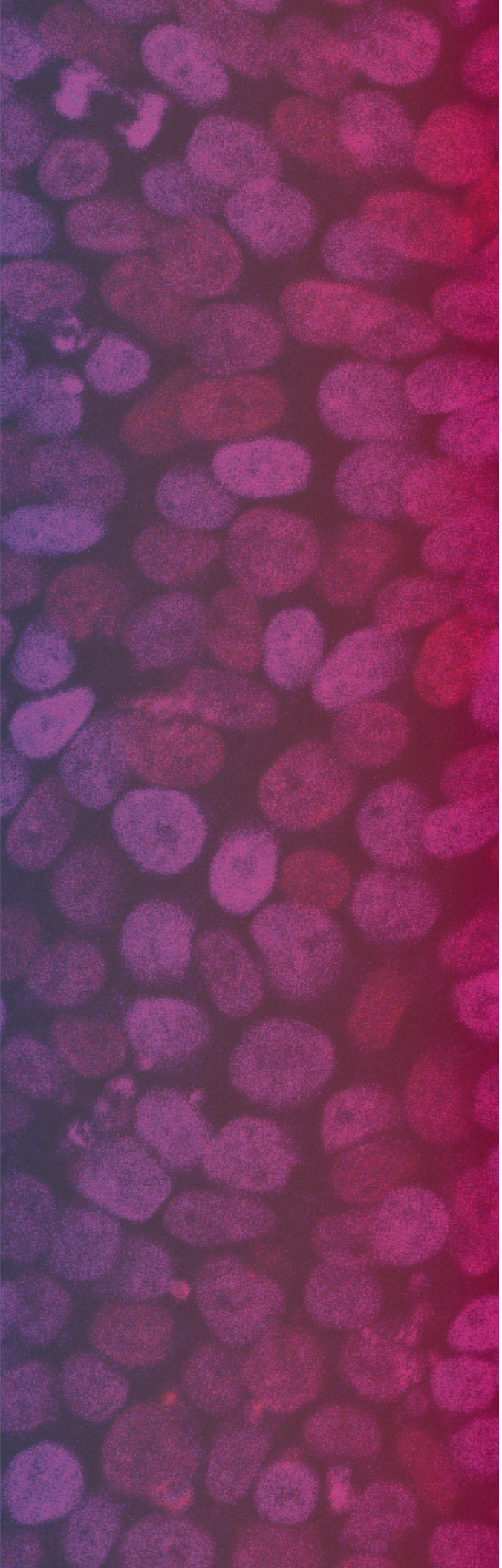
27 clinical trials funded
23 regenerative medicine biotech companies catalyzed

ABOUT THE STEM CELL NETWORK

The Stem Cell Network (SCN) is a national, not-for-profit organization that supports three main objectives: stem cell and regenerative medicine research; training the next generation of highly qualified personnel; and supporting the knowledge mobilization and transfer of stem cell and regenerative medicine research. From the lab to the clinic, SCN's goal is to power life-saving therapies and technologies through regenerative medicine research for the benefit of all. With support from the Government of Canada, the Network has grown from a few dozen labs to more than 200 world-class research groups, supporting 200-plus research projects and more than 25 clinical trials. Since its inception, over 20 biotech companies have been catalyzed or enhanced and more than 5,000 highly qualified personnel have been trained.

SCN'S EDI STATEMENT

The best science is inclusive science. The Stem Cell Network is committed to cultivating and preserving a culture of inclusion, diversity, equity and accessibility. We value the individual differences, lived experiences, expertise and knowledge of those in our community. We welcome the unique contributions of partners, employees and community members regardless of age, ancestry, culture, gender identity, physical ability, race, religion and sexual orientation. Together, we are powering regenerative medicine for the benefit of all.



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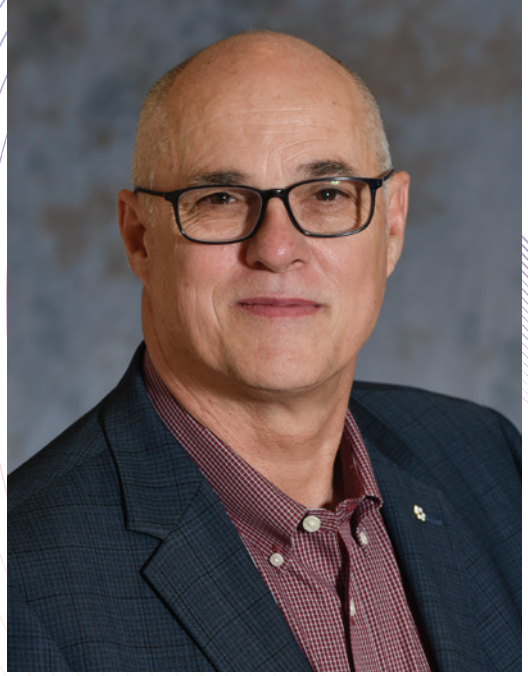


Declan Hamill
INTERIM CHAIR OF THE BOARD OF DIRECTORS

Michael Rudnicki
SCIENTIFIC DIRECTOR

Cate Murray
PRESIDENT & CEO

A MESSAGE FROM SCN LEADERSHIP

Dear Friends:

It has been another incredible year at the Stem Cell Network, by all definitions of the word. Despite the continued and unprecedented challenges due to the COVID-19 pandemic, we were thrilled to start the new fiscal year with a renewed commitment of $45 million from the Government of Canada to support and drive forward stem cell and regenerative medicine research activities and clinical trials over the next three years. This funding more than doubles the annual budget of the Network and will allow us to further build out our training, research, and outreach programs. It will undoubtably help advance innovative technologies and therapies that will contribute to the economic recovery of Canada and ultimately result in better health for all.

The 2021 calendar year was also an important one for SCN. It marked the 60th anniversary of the discovery of stem cells by Drs. James Till and Ernest McCulloch and the 20th anniversary of the Network – not to mention the 90th birthday of James Till himself! During this year, SCN investigators from coast to coast continued making important advancements in areas such as diabetes, multiple sclerosis, and Parkinson's disease, and have helped to drive innovation in the areas of lung, liver, and tissue repair, as well as cardiac disease and damage.

We would be remiss, of course, if we did not mention the work of the trainees within the Network – the scientists of today and tomorrow. As part of the Network, they have the opportunity to learn from the best, to take risks, to network and share their ideas, and to hone their scientific and technical skills. Our talented trainees work in universities, in research hospitals and

institutions, and in industry for companies such as STEMCELL Technologies, BlueRock Therapeutics, and Notch Therapeutics. Employers have told us that those who come from our Network have better success and are better prepared for the roles they are filling. SCN takes great pride in supporting the next generation of talent, as demand for a skilled and leading-edge workforce will only grow in the years to come.

As the fiscal year came to an end, SCN turned the page to a new chapter, launching a three-year strategic plan, *IGNITE*, which was paired with a new vision and a refreshed brand focused on realizing the potential of regenerative medicine. We have made significant strides in the past 20 years, and we look forward to many more years to come.

Perhaps most notably this past year, SCN launched its largest funding competition to date, resulting in $19.5 million for 32 stem cell and regenerative medicine research projects and clinical trials. This investment is SCN's largest funding injection into the sector in its 20-year history and involves over 400 researchers, clinicians, and trainees. Fifty-nine percent of the projects are being led by women, with 12 projects led by early career researchers. We could not be more excited about these projects and the important work that lies ahead, and encourage you to read about these projects and some of the lead investigators in the section entitled SCN's Research Program.

Finally, in closing, we would like to extend our deepest thanks to the SCN staff, Board of Directors, Research Management Committee, International Peer Review Committees, our Training and Education Committee, and our Trainee Communication Committee for their tremendous efforts over the past year. We're honoured to be able to bring together over 90 people who volunteer their time and expertise to support SCN and to help build a robust regenerative medicine sector for Canada. We simply could not do what we do without you!

Sincerely,

Declan Hamill
Interim Chair of the
Board of Directors

Michael Rudnicki, O.C., Ph.D., FRS, FRSC
Scientific Director

Cate Murray
President and CEO

REMEMBERING JOHN ANDREW McKEE

In March 2022, it was with great sadness that we learned of the unexpected passing of our dear friend **Andrew McKee**. Andrew was Chair of SCN's Board of Directors and a long-time friend and champion of the Network. He believed deeply in the important role of science for making our country stronger, and the world a better place for all. As Chair of SCN's Board he brought his business acumen, leadership and strategy skills to the table for each meeting, and his passion, kindness and thoughtfulness to each interaction. He continues to be deeply missed. Andrew played a significant role in developing SCN's future, and we at SCN will always be indebted to him for his volunteer service and commitment. Andrew will always be remembered as a bright light in the lives of many.

HIGHLIGHTS FROM THE YEAR 2021/2022

APRIL

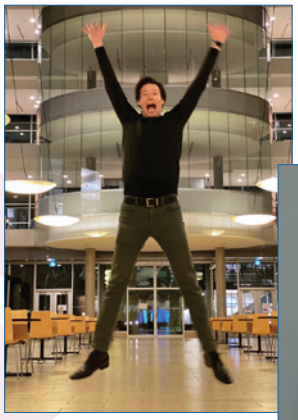
> SCN welcomes a new federal investment of $45 million over three years

NEWS RELEASE:

OTTAWA (April 19, 2021)
Canada's Stem Cell Network (SCN) welcomes Budget 2021 entitled "A Recovery Plan for Jobs, Growth, and Resilience" and its continued commitment to supporting high quality health research.

> SCN continues to celebrate its 20th anniversary, with 20 Questions with Stem Cell Scientists (20Q20), featuring Josh Dierolf and Janet Rossant

> SCN kicks off its first Instagram Takeover *Lab Life* with Josh Dierolf



MAY

> Connie Eaves elected to the Royal Society

> SCN and Centre for Commercialization of Regenerative Medicine (CCRM) launch commercialization toolkit for stem cell and regenerative medicine researchers

> Bartha M. Knoppers receives Lifetime Achievement Award from the Canadian Bioethics Society

> 20Q20 interviews with Jessica Esseltine and Timothy Kieffer

JUNE

> Gordon Keller named co-recipient of the Scientific Grand Prize from the Lefoulon-Delalande Foundation, Institut de France

> Launch of **Mesintel Therapeutics**, a new SCN supported company

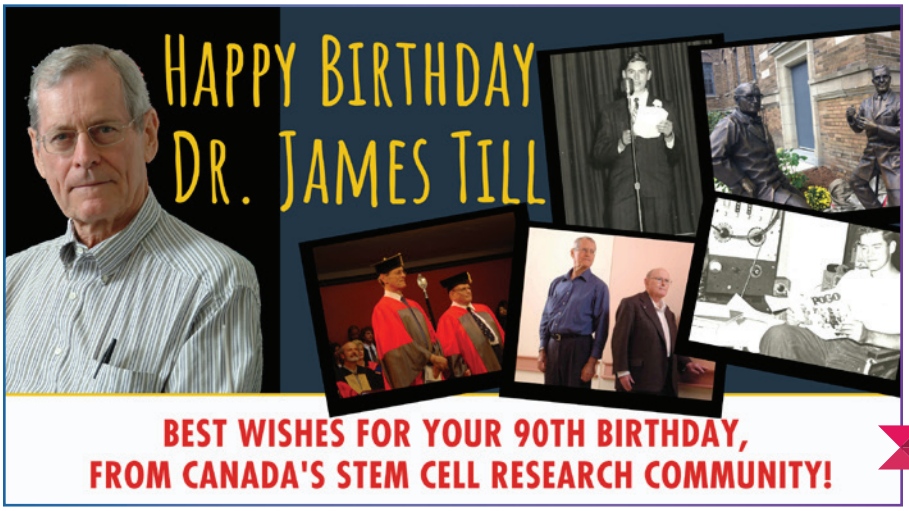
> Instagram Takeover *Lab Life* with Laura Stankiewicz

> 20Q20 interviews with Freda Miller and Tim Caulfield

JULY

> ExCellThera, an SCN partner company, licenses the use of **UM171**, which was developed with funding support by SCN

> 20Q20 interview with Bartha M. Knoppers



AUGUST

> Happy 90th Birthday celebration online for Dr. James Till

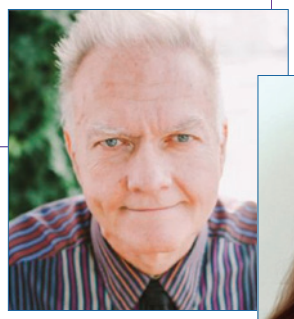
> 20Q20 and Instagram Takeover *Lab Life* with Marissa Lithopoulos

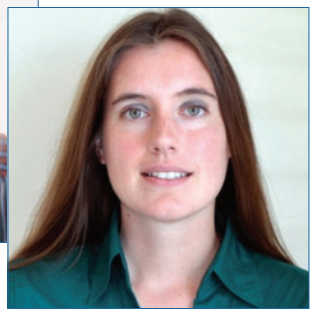
SEPTEMBER

> SCN launches 2022-2025 Round 1 Research Funding Competition

> Derek van der Kooy and Stephanie Willerth named to the Royal Society of Canada for their discoveries in stem cell research

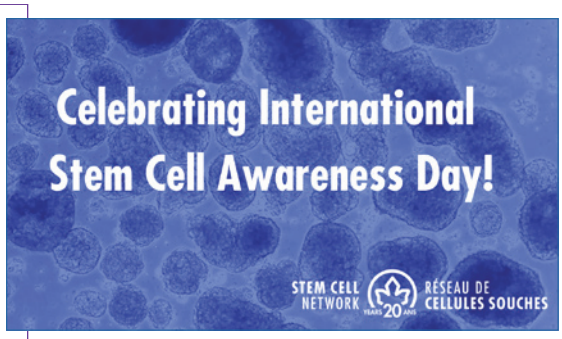
> 20Q20 interview with Lucie Germain

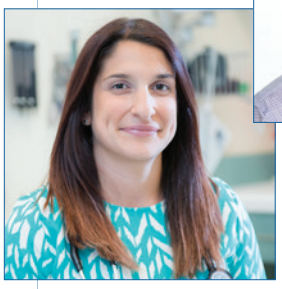


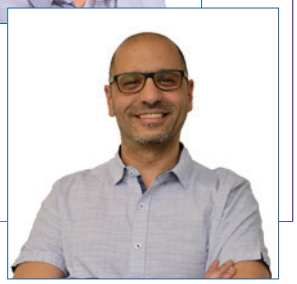


OCTOBER

- SCN launches video, ***Celebrating International Stem Cell Awareness Day!*** in which researchers describe what the Stem Cell Network means to them
- 20Q20 interview with Guy Sauvageau
- SCN welcomes Amie Phinney, Debra Mathews, Wing Chang, Natasha Kekre and Samer Hussein to its Research Management Committee



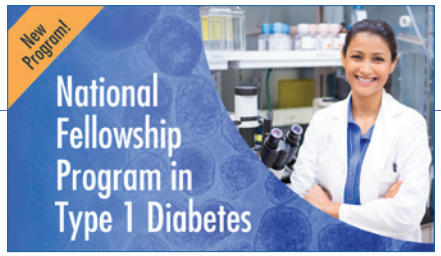




NOVEMBER

- 400+ attendees gather virtually for the Network's 2021 Till & McCulloch Meetings (TMM)

- SCN's Cate Murray speaks at *The Globe and Mail* Presents: Regenerative Medicine, a webinar on the future of the sector
- SCN partner company and SCN investigator team up in the fight against liver disease
- SCN-JDRF National Fellowship Program in Type 1 Diabetes launches



DECEMBER

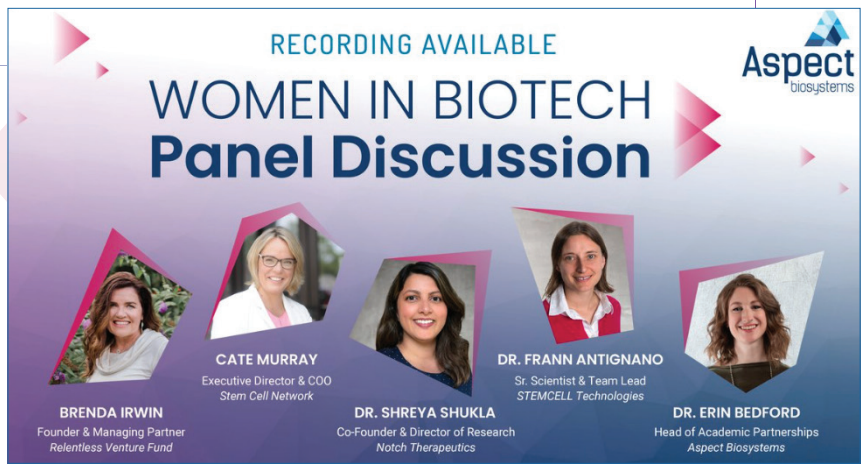
- Connie Eaves, Peter Zandstra, and Rod McInnes named appointees to the Order of Canada
- SCN posts final 20Q20 interview with Connie Eaves

JANUARY 2022

- SCN-Mitacs Industry-Based Internship Partnership launches

FEBRUARY

- Selected SCN biotech companies present at the annual OBIO Investment Summit
- SCN's Cate Murray speaks on two panels: *Women in Biotech Panel Discussion*, hosted by Aspect BioSystems, and *What it Takes to Scale a Successful Regenerative Medicine Company*, at OBIO Investment Summit



MARCH

- SCN signs a new three-year funding agreement with the Government of Canada
- SCN celebrates International Women's Day
- SCN's Board of Directors meets to confirm $19.5 M in research funding support for 2022-2025

NEW MANDATE, NEW ERA

Throughout 2021, the Stem Cell Network began to lay the groundwork for a new and exciting chapter, which culminated in the launch of a $19.5-million national research funding competition, and the release of its three-year Strategic Plan, *IGNITE*, alongside a refreshed logo and brand in Spring 2022.

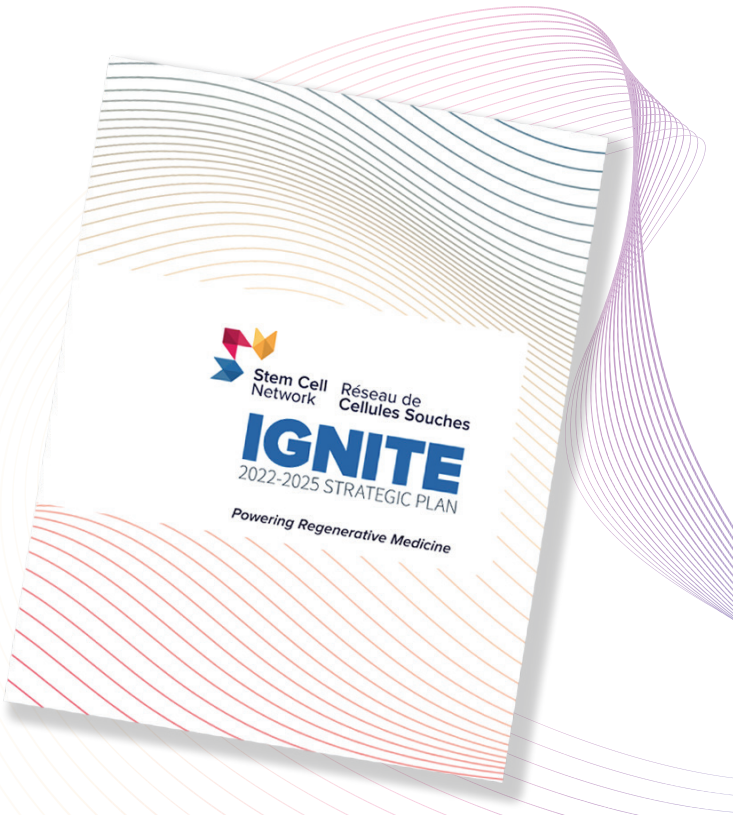
In just two decades, SCN has built stem cell research strength in Canada and established an outstanding international reputation. As Canada's only national network supporting stem cell and regenerative medicine research, SCN has led the way in developing a vibrant sector that is yielding scientific advancements, fuelling clinical trials, delivering health solutions for patients and enabling company creation and growth. Just as the sector is growing, so too is the Stem Cell Network. Going forward, SCN will be guided by a new vision:

VISION

To power life-saving therapies and technologies through regenerative medicine research for the benefit of all.

This new vision focuses on realizing the potential of regenerative medicine, which marks the future of better health and personalized medicine. This vision is the foundation for SCN's new three-year Strategic Plan, *IGNITE*.

IGNITE serves to lay out a clear road map for Canadian research success and articulates a diverse set of funding programs across the research pipeline. *IGNITE* also includes comprehensive training and knowledge-mobilization plans that will lead to the development of a talented and innovative labour force able to deliver novel therapies and technologies, both to the clinic and to the marketplace.



To reflect this expanded vision and complement our new Strategic Plan, SCN undertook a rebranding project, which included a refreshed logo and new corporate video. The refreshed logo is a colourful abstract maple leaf, created using various shaded triangles to convey the breadth of expertise and diversity of people who comprise the Network – researchers, trainees, partners, and patients. The maple leaf also draws from SCN's roots as a national organization and serves as a reminder that stem cell research and regenerative medicine truly are Canada's science.

SCN is proud to start this exciting new chapter — a time of promise and opportunity for Canada.

Stem Cell Network
Powering Regenerative Medicine

Réseau de Cellules Souches
Propulsons la médecine régénératrice

"SCN is setting in place the programs, partnerships and initiatives needed to ensure Canadian success in regenerative medicine well into the next decade."

– CATE MURRAY,
PRESIDENT AND CEO, STEM CELL NETWORK

SCN'S RESEARCH PROGRAM

It has been an extraordinary year for the Stem Cell Network, as the community continued to adapt to conducting research during a pandemic, and SCN launched its largest national research funding competition in its 20-year history.

It is through our comprehensive research funding programs that SCN aims to foster made-in-Canada regenerative medicine therapies and technologies that will catalyze global advancements in science, as well as therapeutic and technological innovations. Equally, we aim to build Canada's strength in translational research excellence and expertise that will continue driving regenerative medicine into the clinic — *creating access to state-of-the-art therapies for tomorrow's patients*.

Since 2001, the Network has grown from a few dozen labs to more than 200 world-class research groups, supporting 200-plus research projects and more than 25 clinical trials.

Update: Cycle 3 - 2019-2022 Research Funding Program

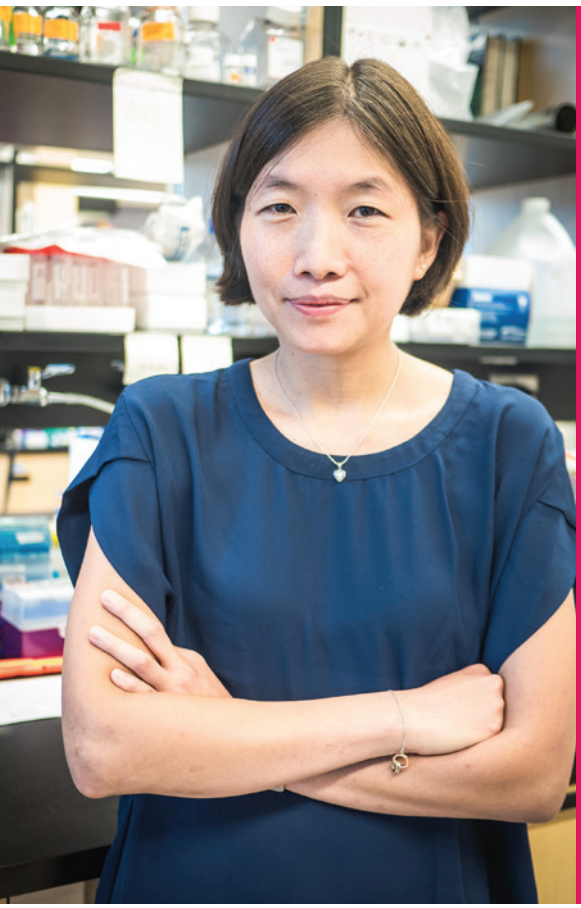
Fiscal Year 2021/2022 marks the final year for SCN's Cycle 3 funding period (2019-2022). During Cycle 3, SCN ran two research funding competitions, which resulted in $12M being invested in 32 projects and clinical trials. Funded investigators from both competitions were impacted by the COVID-19 pandemic. In response, SCN offered all investigators a one-year, no-cost extension to complete their research projects and clinical trials. The new end date for all Cycle 3 projects is January 31, 2023. SCN will be reporting on the outcomes of these projects in 2023 after final reports have been submitted. It is important to note that, as part of SCN's commitment to follow research projects over their funding period, SCN researchers were required to provide an additional progress report in February 2022. These reports revealed that projects had been impacted by staffing shortages, supply chain delays and increased costs. That said, most projects were moving forward and meeting key milestones, such as those described below.

VÉRONIQUE MOULIN, Université Laval

Project: Self-assembly skin substitutes (SASS) for the treatment of Canadian burn patients

Program: Advancing Clinical Trials

Extensive burn wounds can often take a long time to close and are difficult to heal completely, which can result in an increase of mortality and morbidity. Dr. Moulin and her team are using patient cells and a tissue-engineering method to create self-assembly skin substitutes (SASS), to accelerate the closure of wounds and help burn patients return to normal life more quickly. Dr. Moulin's project is tracking well with nine patients from five different burn units across Canada. The team has successfully performed skin biopsies on each patient and isolated cells to produce 1000 cm^2 of self-assembly skin substitutes. The team notes that surgeons who have used SASS are very excited about the outcomes, reporting faster wound closure, resulting in shorter hospital stays and better scar quality compared to more traditional autografts.



NATASHA CHANG, McGill University

Project: Enhancing muscle repair to treat Duchenne muscular dystrophy

Program: Innovative Research Program for Early Career Investigators

Duchenne muscular dystrophy (DMD) is a devastating and debilitating muscle degenerative disease affecting 1 in every 3,500 male births worldwide. DMD is progressive and fatal because over time it causes the accumulated weakening of the muscle tissue, which leads to an inability to walk and eventual loss of life due to respiratory and cardiac failure. There is no effective cure for DMD. Dr. Chang and her team are working on a novel approach of targeting mRNA translation mechanisms to enhance stem cell function. Her research is providing proof-of-concept validation in targeting muscle stem cells and enhancing muscle regeneration for the treatment of muscle degenerative diseases, like DMD. Dr. Chang's project is progressing well and to date significant progress has been made in understanding the mechanism by which specific inhibitors of translation initiation can promote myogenic differentiation.

STEPHANIE PROTZE, McEwen Stem Cell Institute, University Health Network

Project: Developing stem cell-based biological pacemakers for patients with pacemaker diseases

Program: Innovative Research Program for Early Career Investigators

The human heartbeat is controlled by the primary pacemaker known as the sinoatrial node (SAN). Failure of the SAN, due to disease or aging, causes the heartbeat to slow which then requires the implantation of an electronic pacemaker. While approximately 21,000 Canadians receive an electronic pacemaker every year, they have disadvantages such as the need for surgical battery replacements and the risk of infection. In this project, Dr. Protze and her team are working to develop a stem cell-derived biological pacemaker that could overcome these disadvantages by replacing the damaged SAN with new functional pacemaker cells – eliminating the need for an electronic pacemaker entirely. Having recently discovered a novel surface marker that is expressed on the SAN-like pacemaker cells, Dr. Protze's team is making important advancements including demonstrating that this surface marker can be used to isolate large numbers of SAN-like pacemaker cells from stem cell differentiation cultures. Their work has been the foundation for filing a patent alongside industry partner BlueRock Therapeutics.

PETER ZANDSTRA, University of British Columbia

Project: Modular immunotherapeutics from stem cells

Program: Fuelling Biotechnology Partnerships

Cellular therapies with genetically engineered cytotoxic T-cells – such as CAR T-cells – designed to attack cancer cells, have shown tremendous promise in cancer therapies. To make T-cell therapies more scalable, cost-effective, and rapidly available to Canadians, Dr. Zandstra and his team have developed the world's first completely defined system for the generation of T-cells from pluripotent stem cells (PSCs), an unlimited cell source. Together with industry partner, Notch Therapeutics, Zandstra's team is using their PSC to T-cell platform to develop proof-of-concept T-cell therapeutics that will lay the foundation for clinical trials to treat cancer and other diseases. Building on achievements gained from this project, Dr. Zandstra's team has also forged new national and international collaborations. By expanding the reach and implementation of their PSC to immune cell differentiation platform, Zandstra's team envisions a future with multiple cell therapeutic and disease treatment applications.

Cycle 4 - 2022-2025 Research Funding Program

In April 2021, the Government of Canada announced $45 million over three years for SCN to continue funding high-quality stem cell and regenerative medicine (RM) research. With this continued support, SCN developed a research program for the 2022-2025 period with the following objectives:

- **To fuel world-class stem cell and RM research across the research continuum, and enable its translation for the benefit of Canada**
- **To build world-leading expertise in the translation of RM and stem cell therapies and technologies**

In September 2021, SCN launched the first of two funding competitions for the 2022-2025 period. The Network received 92 high-quality stem cell and RM research applications from across Canada. The two-stage peer review process to evaluate both the scientific excellence of an application and its strategic fit with SCN's mandate was completed in March 2022.

In total, 32 projects and clinical trials received funding, valued at $19.5 million. This investment is SCN's largest funding injection in its 20-year history. With in-kind and cash support from 34 partner organizations valued at $22.4 million, this investment will allow Canada's stem cell and RM research community to harness a total of $42 million for research activities and clinical trials over the next three years.

Of note, 59% of the projects are led by women, with 12 projects led by early-career investigators. In total, the projects cover 20 different disease areas, such as stroke, cardiovascular disease, type 1 diabetes, Parkinson's Disease, muscular dystrophy, blood cancers, multiple sclerosis, wound repair and sepsis. The regional breakdown for these projects is as follows: Ontario, 17 projects; British Columbia, 7 projects; Quebec, 6 projects; Prairie provinces, 2 projects.

SCN'S PEER REVIEW PROCESS

SCN funding applications are evaluated to identify scientifically excellent research that will further the field, is novel, and will ensure Canada continues to have international impact within the area of regenerative medicine. The evaluation of the scientific merit of an application is performed by SCN's international peer review committees, comprising international subject matter experts drawn from academia and industry. For the 2022 funding competition, four international peer review committees were used: the Translational Research Committee, the Policy Review Committee, the International Scientific Advisory Board and the Early Career Research Committee. Totalling 41 reviewers, the members of these committees gave graciously of their time and expertise and provided thorough and efficient reviews. Following the work of these committees, a strategic evaluation of highly ranked, peer-reviewed applications is then conducted by SCN's Research Management Committee (RMC).

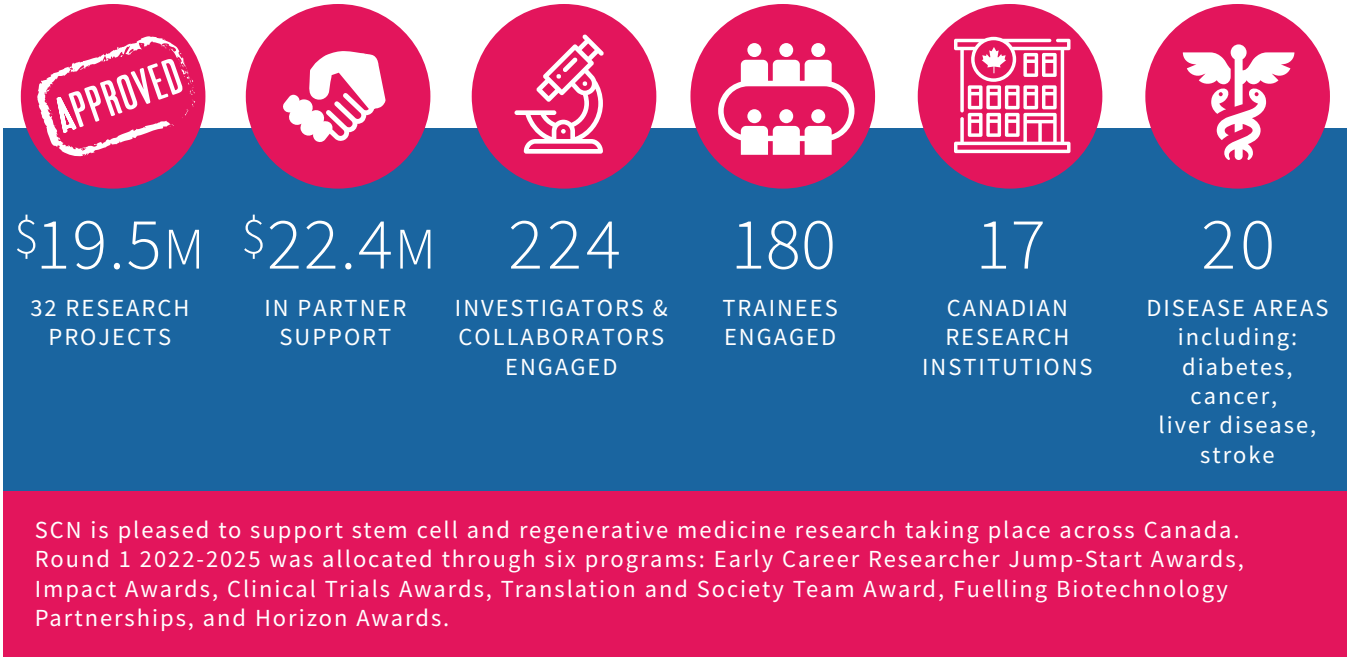


FIGURE 1: SCN Round 1 2022-2025 Funding Results

HORIZON AWARDS

Three multi-disciplinary national teams, led by Drs. Sara Vasconcelos, Guy Sauvageau, and James Shapiro, have been granted Horizon Awards to conduct research on next-generation therapies for treating blood cancers, advancing cardiac regeneration, and scaling up and biomanufacturing personalized therapies for type 1 diabetes.

This brand-new program, with awards valued at $3 million each, is the largest award SCN has offered in the past decade. The goal of the Horizon program is to support multi-disciplinary teams conducting innovative research and developing transformative technology solutions for RM challenges that will result in both health and economic benefits in the coming decade. Horizon Awards also aim to seed research and build made-in-Canada intellectual property that will yield translational or commercialization activity.

DR. SARA VASCONCELOS

RECYCLING FAT BLOOD VESSELS TO HEAL HEARTS

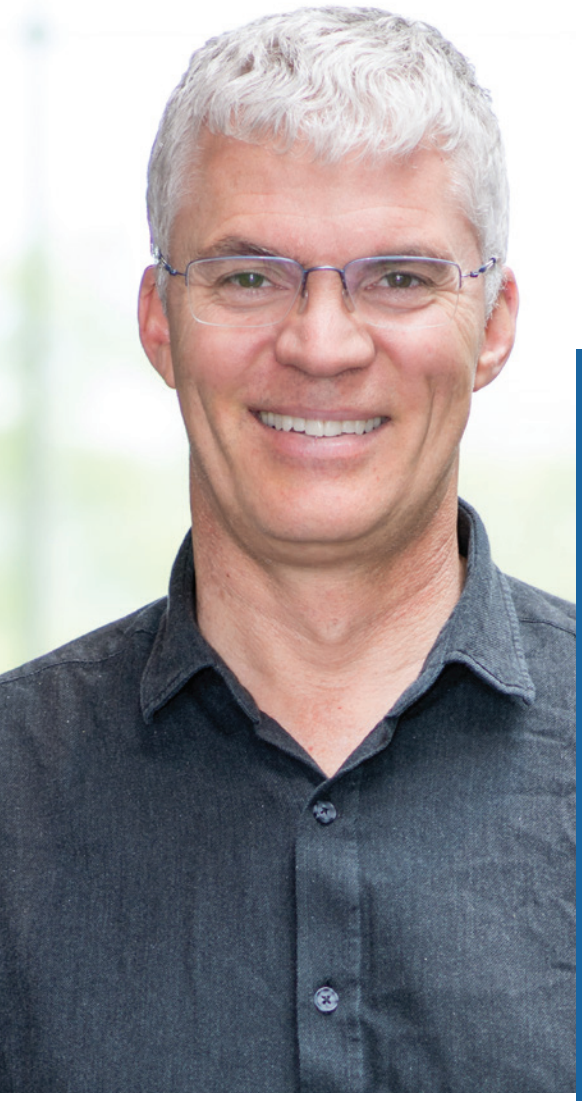
Cell transplantation has the potential to regenerate organs after damage caused by various diseases and acute health events, such as heart attacks. However, for cells to survive transplantation and effectively regenerate organs, they need immediate access to oxygen and nutrients from blood vessels. Many past attempts at making new blood vessels for organ regeneration have failed.

Dr. Sara Vasconcelos, a scientist at the University Health Network in Toronto, has been researching ways to overcome this roadblock, with a focus on generating alternative therapeutic avenues to treat cardiovascular diseases. Heart disease affects 1.3 million Canadians, and the Heart and Stroke Foundation reports it is the costliest disease in Canada, totaling $21.2B in health care expenses and lost earnings. This is why the work of Dr. Vasconcelos and her team is so important.

She and her team are already making significant strides in their work, which has exciting implications for cell-replacement therapies. For the first time, they have shown an effective means to support cell survival and improved organ function in small animal models, such as rats, by recycling blood vessels from fat to support the survival of transplanted cells.

The next steps in Dr. Vasconcelos' research are to advance this work using a large animal model and to generate the necessary efficacy and safety data to eventually move this therapy into clinical trials. If successful, this research will be a game-changer for millions of people.

PHOTOS CREDIT: courtesy of UHN's StRIDe team



DR. GUY SAUVAGEAU

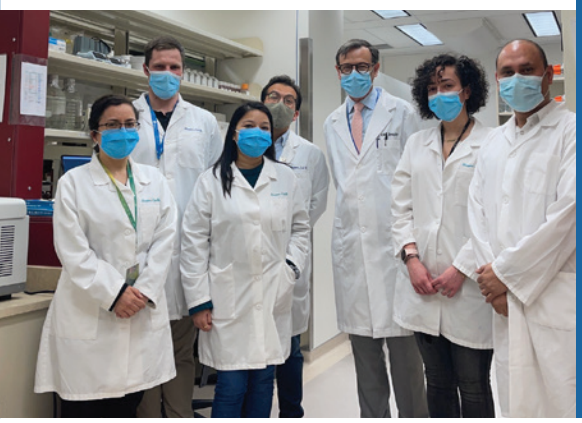
ENGINEERING BLOOD STEM CELLS FOR TOMORROW'S MEDICINE

The world of stem cell engineering provides us with opportunities for solving some of the most complex medical problems. That is the focus of Dr. Guy Sauvageau's work at the Université de Montréal.

Dr. Sauvageau is the principal investigator at the Institute for Research in Immunology and Cancer (IRIC), where he focuses on using stem cells to produce innovative treatments for blood cancers. Such cancers impact the lives of more than 155,000 Canadians annually, and cost an average of $156,000 per patient in the first year following diagnosis, with upwards of $800,000 in costs to the health care system over a three-year period.

Modern cancer therapies increasingly rely on antibody-based drugs or genetically engineered immune cells that are programmed to recognize specific proteins on the surface of cancerous cells, while not attacking their healthy counterparts. The trouble is that, for many aggressive blood cancers, the leukemic and healthy blood cells express very similar proteins on their surface.

Dr. Sauvageau's team is working to identify proteins with robust expression on leukemia cells and to engineer blood stem-cell grafts as a next-generation therapy for treating aggressive blood cancers. The goal of this project is to better target leukemia cells, while sparing the normal blood system regenerated from engineered stem cell transplants. In addition, Dr. Sauvageau's team is looking to establish an improved method to deliver genetically engineered anti-leukemia immune cells into leukemia patients by completely modifying blood stem cells, which would allow for the regeneration of engineered immune cells for life. Overall, this research has the capability to vastly improve therapeutic prospects for leukemia patients.



DR. JAMES SHAPIRO

PATIENT-DERIVED STEM CELLS (SELF-ISLETS) AS A POTENTIAL CURE FOR DIABETES

Diabetes is one of the most common conditions, affecting more than 300,000 Canadians. The Public Health Agency of Canada reports that over the past 10 years, new cases of diabetes have cost Canada's health care system $15.36B. Diabetes is caused by the lack of insulin, a hormone produced by the islet beta cells in the pancreas that is responsible for regulating blood sugar. Efforts to transplant islet beta cells have been successful in regulating blood-sugar levels in some patients with type 1 diabetes, but doing so means patients have to deal with lifelong anti-rejection drugs, and a shortage of donor organs hampers a wider rollout.

For patients facing a lifelong journey of blood sugar monitoring, insulin injections, and careful meal planning, what if there were a treatment and eventually a cure? Dr. James Shapiro, Professor of Surgery at the University of Alberta and Canada Research Chair in Transplantation Surgery and Regenerative Medicine, is looking to cutting-edge stem cell research for the answer.

Dr. Shapiro is using his 21 years of experience in islet transplantation (including his ground-breaking Edmonton Protocol for islet cell transplants) to replace the damaged beta cells in people with various forms of diabetes. His team's strategy is to use beta cells grown from a patient's stem cells to replace the damaged beta cells in people with various forms of diabetes, including type 1, type 2, and surgical diabetes caused by the partial removal of the pancreas. Using a patient's own stem cells to make "self-islets" would help the transplanted cells to be accepted by the patient's immune system and remove the need for anti-rejection drugs.

The team will also address a pressing Canadian biomanufacturing gap, and work to scale up the production of sufficient self-islets for transplantation into patients; the self-islets will then be evaluated in a clinical trial. Ultimately, Dr. Shapiro and his team hope to develop a scalable solution to advance therapies for millions of people living with diabetes across the globe.

The pages and tables that follow provide an overview of the Round 1 funding results for 2022-2025 research projects and clinical trials, including SCN's Horizon Awards.

HORIZON AWARDS

Fuelling national multi-disciplinary teams focused on developing transformative technology solutions for significant challenges in regenerative medicine.

TABLE 1: SCN 2022-2025 Round 1 Funding Results | Horizon Awards

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
GUY SAUVAGEAU, Université de Montréal Engineered hematopoietic stem cells (eHSCs) as vehicles for next-generation therapies **$3,000,000**	Bernhard Gentner (San Raffaele Hospital), Bernhard Lehnertz (ExCellThera Inc.), Brad Nelson (BC Cancer), Étienne Gagnon (Université de Montréal), Gabriel Tremblay (Geneconomics Inc.), Jean-Sébastien Delisle (Hôpital Maisonneuve-Rosemont), Josée Hébert (Hôpital Maisoneuve-Rosemont), Keith Humphries (British Columbia Cancer Agency Branch), Ma'n Zawati (McGill University), Nika Shakiba (University of British Columbia), Peter Zandstra (University of British Columbia), Philippe Roux (Université de Montréal), Vincent-Philippe Lavallée (Centre Hospitalier Universitaire Sainte-Justine)
JAMES SHAPIRO, University of Alberta Autologous iPSC-islets for personalized diabetes therapy: a first-in-human implantation and scale-up manufacturing **$2,993,396**	Andrew Pepper (University of Alberta), Anna Lam (University of Alberta), Blaire Anderson (University of Alberta), Gregory Korbutt (University of Alberta), Khaled Dajani (University of Alberta), Michael Kallos (University of Calgary), Peter Senior (Alberta Diabetes Institute), Timothy Kieffer (University of British Columbia)
SARA VASCONCELOS, University Health Network Advancing microvessel-based cardiac regeneration into a large pre-clinical animal model **$3,000,000**	Gregory Korbutt (University of Alberta), Michael Laflamme (University Health Network), Nilesh Ghugre (Sunnybrook Research Institute)

EARLY CAREER RESEARCHER JUMP-START AWARDS

Supporting early career researchers (those within the first five years of an initial academic appointment) to develop a research program with a regenerative medicine focus.

TABLE 2: SCN 2022-2025 Round 1 Funding Results | Early Career Researcher Jump-Start Awards

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
ANASTASIA TIKHONOVA, University Health Network Targeting the bone marrow microenvironment to promote hematopoietic regeneration **$300,000**	Courtney Jones (University Health Network), Dennis Kim (University Health Network), Gary Bader (University of Toronto)
NATASHA CHANG, McGill University Targeting muscle stem cell dysfunction **$300,000**	Benedicte Chazaud (Claude Bernard University Lyon 1), Nicolas Dumont (Centre Hospitalier Universitaire Sainte-Justine), Pura Munoz-Canoves (Pompeu Fabra University)
NIKA SHAKIBA, University of British Columbia Elucidating the competitive advantage of aberrant pluripotent stem cells in suspension bioprocesses **$300,000**	Ivana Barbaric (University of Sheffield), Sidhartha Goyal (University of Toronto)
JULIEN MUFFAT, The Hospital for Sick Children Engineering microglia to support oligodendrocyte transplants, and improve remyelination after white matter injury **$300,000**	George Ibrahim (The Hospital for Sick Children), Yun Li (The Hospital for Sick Children)
LY VU, University of British Columbia Modulating activity of RNA-regulating proteins to preserve long-term regenerative potential of hematopoietic stem cells **$300,000**	Connie Eaves (BC Cancer Research)

TABLE 2: SCN 2022-2025 Round 1 Funding Results | Early Career Researcher Jump-Start Awards continued

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
DANIEL COUTU, Ottawa Hospital Research Institute Pharmacological rejuvenation of skeletal stem cells for use in regenerative orthopedic surgery **$300,000**	F. Jeffrey Dilworth (Ottawa Hospital Research Institute), George Grammatopoulos (Ottawa Hospital), Mark Campbell (Ottawa Hospital), Sasha Carsen (University of Ottawa)
CARL DE BOER, University of British Columbia Decoding human cis-regulatory logic in development to treat disease **$300,000**	
MARYAM FAIZ, University of Toronto Direct lineage reprogramming of astrocytes to new oligodendrocytes for the treatment of demyelinating disease **$300,000**	Patrick Kuery (Heinrich Heine University, Düsseldorf), Samer Hussein (Université Laval), Scott Yuzwa (University of Toronto), Shannon Dunn (St Michael's Hospital)
SAMANTHA PAYNE, University of Guelph Investigating neuron-dependent cues to promote tissue regeneration **$273,775**	Boyang Zhang (McMaster University), Matthew Vickaryous (University of Guelph)
MAMATHA BHAT, University Health Network A nanoparticle-based strategy to therapeutically restore regenerative capacity in cirrhotic livers **$300,000**	Gang Zheng (University of Toronto - University Health Network), Jeff Wrana (Sinai Health System (Mount Sinai Hospital)
SHEILA TEVES, University of British Columbia Transcription regulation of hiPSC-derived cardiomyocytes during maturation and hypertrophic cardiomyopathy **$300,000**	Glen Tibbits (Simon Fraser University)
AMY WONG, The Hospital for Sick Children Deciphering cell competition during iPSC differentiation towards lung epithelia **$300,000**	Bo Wang (University of Toronto - University Health Network), Nika Shakiba (University of British Columbia)

IMPACT AWARDS

Supporting proof-of-principle experiments, including the development of novel therapeutic or technical approaches that will drive regenerative medicine therapies forward.

TABLE 3: SCN 2022-2025 Round 1 Funding Results | Impact Awards

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
GORDON KELLER, University Health Network Novel human pluripotent stem cell-derived hematopoietic cell therapy **$249,820**	Juan Carlos Zúñiga-Pflücker (Sunnybrook Health Sciences Centre)
MARTIN LÉVESQUE, Université Laval Repairing the dopaminergic circuits in Parkinson's disease using synucleinopathy resistant neurons grafting **$250,000**	Mattia Volta (Institute for Biomedicine, Eurac research), Samer Hussein (Université Laval)
MILICA RADISIC, University Health Network Stem cell-derived resident cardiac macrophages in designer polymers for cardiac repair and regeneration **$250,000**	Gordana Vunjak-Novakovic (The Trustees of Columbia University in the City of New York), Gordon Keller (University of Toronto - University Health Network), Michael Laflamme (University Health Network), Slava Epelman (University Health Network)
LUCIE GERMAIN, Université Laval Combining tissue-engineered skin with ex vivo gene therapy correction to develop a treatment for epidermolysis bullosa **$250,000**	Bartha Knoppers (The Research Institute of the McGill University Health Centre), Elena Pope (The Hospital for Sick Children), Guillaume St-Jean (Université de Montréal), Jason Guertin (Université Laval), Manuel Caruso (Université Laval), Véronique Moulin (Université Laval)
BERNARD THÉBAUD, Ottawa Hospital Research Institute Ironman – Improved Respiratory Outcome of Newborns with Modified Angiogenic Nanovesicles **$249,976**	Daphne Merkus (Erasmus University Medical Center, Rotterdam), Dylan Burger (Ottawa Hospital Research Institute), John Bell (Ottawa Hospital Research Institute), Mervin Yoder (Indiana University, Indianapolis)

TABLE 3: SCN 2022-2025 Round 1 Funding Results | Impact Awards continued

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
LAUREN FLYNN, Western University Delivery of adipose-derived stromal cells within novel cell-assembled bioscaffolds for the treatment of chronic wounds **$250,000**	Douglas Hamilton (Western University), Emily Truscott (Western University), John Ronald (Western University), Jonathan Thiessen (London Health Sciences Centre Research Inc.), Justin Hicks (London Health Sciences Centre Research Inc. - Lawson Health Research Institute), Maria Drangova (Western University)
MOLLY SHOICHET, University of Toronto Regenerating the stroke-injured brain by modulating the glial scar and enhancing neuroplasticity **$250,000**	Andras Nagy (Lunenfeld-Tanenbaum Research Institute), Cindi Morshead (University of Toronto - Faculty of Medicine), Nir Lipsman (Sunnybrook Health Sciences Centre), Rick Swartz (Sunnybrook Health Sciences Centre)
PAMELA HOODLESS, University of British Columbia Pathways of cell identity in human liver organoids **$250,000**	Francis Lynn (University of British Columbia), Gareth Sullivan (University of Oslo), Geoffrey Schiebinger (University of British Columbia), Nozomu Yachie (University of British Columbia)
KARUN SINGH, University Health Network Gene therapy to restore neural connectivity in neurodevelopmental disorders associated with a CNV microdeletion **$250,000**	Sarah Wootton (University of Guelph)

CLINICAL TRIAL AWARDS

Supporting early-stage clinical trial projects with high translational potential.

TABLE 4: SCN 2022-2025 ROUND 1 FUNDING RESULTS | CLINICAL TRIALS AWARDS

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
VÉRONIQUE MOULIN, Université Laval Tissue engineering to treat Canadian burn patients: the self-assembled skin substitutes (SASS) **$581,700**	Andrée-Anne Roy (Centre Hospitalier Universitaire Sainte-Justine), Bartha Knoppers (The Research Institute of the McGill University Health Centre), Chanel Beaudoin-Cloutier (Université Laval), Claudia Malik (Children's Hospital of Eastern Ontario), Duncan Nickerson (University of Alberta), Edward Tredget (University of Alberta), François Auger (CHU de Québec - Université Laval), Joel Fish (The Hospital for Sick Children), Josh Wong (University of Alberta), Lucie Germain (Université Laval), Marc Jeschke (Sunnybrook Health Sciences Centre), Patricia Bortolucci (Centre Hospitalier Universitaire Sainte-Justine), Peter Kwan (University of Alberta), Sally Hynes (British Columbia's Children's Hospital), Sarvesh Logsetty (University of Manitoba), Vince Gabriel (University of Alberta)
DAVID THOMPSON, University of British Columbia Clinical trial of the first gene-edited cell replacement therapy for type 1 diabetes **$1,000,000**	Graydon Meneilly (University of British Columbia), James Lan (University of British Columbia), Megan Levings (University of British Columbia), Peter Kim (University of British Columbia), Tania Bubela (Simon Fraser University), Timothy Kieffer (University of British Columbia)

TABLE 4: SCN 2022-2025 Round 1 Funding Results | Clinical Trials Awards continued

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
LAURALYN MCINTYRE, **Ottawa Hospital Research Institute** Umbilical mesenchymal stem cells as cellular immunotherapy for septic shock (UC-CISS): A phase II RCT **$999,850**	Alexis Turgeon (CHU de Québec - Université Laval), Alison Fox-Robichaud (Hamilton Health Sciences), Bernard Thébaud (Ottawa Hospital Research Institute), Brent Winston (University of Calgary), Christine Caron (Sepsis Network), Claudia Dos Santos (St. Michael's Hospital), Dean Fergusson (Ottawa Hospital Research Institute), Duncan Stewart (Ottawa Health Research Institute), Geeta Mehta (Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital), Gregory Korbutt (University of Alberta), John Granton (Sinai Health System - Mount Sinai Hospital), John Marshall (St. Michael's Hospital), Kednapa Thavorn (Ottawa Hospital Research Institute), Keith Walley (University of British Columbia), Margaret Herridge (University of Toronto - University Health Network), Mario Ruediger (Universitätsklinikum Carl Gustav Carus, Dresden), Michael Chasse (Centre Hospitalier de l'Université de Montréal), Michael Matthay (University of California, San Francisco - Reagents UCSF Contracts and Grants), Shane English (Ottawa Hospital Research Institute), Shirley Mei (Ottawa Hospital Research Institute), Tim Ramsay (Ottawa Hospital Research Institute)

TRANSLATION AND SOCIETY TEAM AWARD

Supporting high-calibre Ethical, Legal, Social Implications (ELSI) research teams to undertake innovative, high-impact research that facilitates regenerative medicine for the benefit of society.

TABLE 5: SCN 2022-2025 Round 1 Funding Results | Translation and Society Team Award

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
VARDIT RAVITSKY, Université de Montréal Responsible pathways for pediatric cell therapies **$300,000**	Bartha Knoppers (The Research Institute of the McGill University Health Centre), Bryn Williams-Jones (Université de Montréal), Eli Adashi (Brown University), Glenn Cohen (Harvard Medical School), Jeremy Snyder (Simon Fraser University), Jonathan Kimmelman (McGill University), Ma'n Zawati (McGill University), Natalie Kofler (Yale University)
AMY ZARZECZNY, University of Regina Law, public policy and social licence for next-generation regenerative medicine **$704,985**	Aurélie Mahalatchimy (Aix-Marseille Université), Bege Dauda (Perelman School of Medicine, University of Pennsylvania), Cara Bradley (University of Regina), Dan Florizone (University of Saskatchewan), Donrich Thaldar (University of KwaZulu-Natal, Durban), Jeremy Snyder (Simon Fraser University), Leigh Turner (The Regents of the University of California, Irvine), Megan Munsie (University of Melbourne), Mohamed Abou-el-Enein (University of Southern California), Patricia Zettler (Ohio State University), Paul Knoepfler (The Regents of the University of California - University of California, Davis), Peter Phillips (University of Saskatchewan), Rosario Isasi (University of Miami Miller School of Medicine), Sowmya Viswanathan (University of Toronto - University Health Network), Timothy Caulfield (University of Alberta), Ubaka Ogbogu (University of Alberta), Yang Yang (University of Saskatchewan), Zubin Master (Mayo Clinic)

TABLE 5: SCN 2022-2025 Round 1 Funding Results | Translation and Society Team Award continued

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
MANOJ LALU, **Ottawa Hospital Research Institute** Engaging patients in laboratory-based cell therapy research: Co-production and field testing of a framework **$300,000**	Dean Fergusson (Ottawa Hospital Research Institute), Dawn Richards (Consultant), Ambreen Sayani (Women's College Hospital), Amy Wong (The Hospital for Sick Children), Anastassia Voronova (University of Alberta), Angela Crawley (Ottawa Hospital Research Institute), Asher Mendelson (University of Manitoba), Bernard Thébaud (Ottawa Hospital Research Institute), Cheryle Seguin (Western University), Eve Tsai (Ottawa Hospital Research Institute), Gavin Oudit (University of Alberta), Ian Rogers (Lunenfeld-Tanenbaum Research Institute, Mount Sinai Hospital), Jessica Esseltine (Memorial University of Newfoundland), Juan Carlos Zúñiga-Pflücker (Sunnybrook Health Sciences Centre), Justin Presseau (Ottawa Hospital Research Institute), Kathryn Hendrick (Caregiver Partner), Kelly McNagny (University of British Columbia), Kimberly Macala (University of Alberta), Kirsten Fiest (University of Calgary), Liam Brunham (University of British Columbia), M. Cristina Nostro (University Health Network), Mark Ungrin (University of Calgary), Massimiliano Paganelli (Université de Montréal), Megan Levings (University of British Columbia), Michael Laflamme (University Health Network), Mickie Bhatia (McMaster University), Mireille Khacho (University of Ottawa), Natasha Chang (McGill University), Pat Messner (Patient Partner), Patrick Sullivan (Caregiver Partner), Stephanie Protze (University Health Network), Stephanie Willerth (University of Victoria), Stuart Nicholls (Ottawa Hospital Research Institute), William Stanford (Ottawa Hospital Research Institute), Yun Li (The Hospital for Sick Children)

FUELLING BIOTECHNOLOGY PARTNERSHIPS

Supporting academic partnerships with emerging Canadian regenerative medicine biotechnology companies to bring innovative technologies or therapies to the clinic or market.

TABLE 6: SCN 2022-2025 Round 1 Funding Results | Fuelling Biotechnology Partnerships

PRINCIPAL INVESTIGATOR PROJECT TITLE with SCN FUNDS ALLOCATED	CO-INVESTIGATORS and COLLABORATORS
SHINICHIRO OGAWA, University Health Network Developing functional 3D bioprinted liver tissues with sustained immune evasion **$400,000**	Biotech Partner: Aspect Biosystems Gordon Keller (University of Toronto - University Health Network), Ian McGilvray (University of Toronto - University Health Network), Rafal Witek (Aspect Biosystems), Sam Wadsworth (Aspect Biosystems), Sonya MacParland (University Health Network)
MICHAEL UNDERHILL, University of British Columbia Novel therapeutic strategies to promote liver regeneration **$399,200**	Biotech Partner: Mesintel Therapeutics Inc. Pamela Hoodless (BC Cancer Research)

SCN'S TRAINING PROGRAM

Better health and future prosperity depend on the skills, expertise and innovative mindset of the next generation. Since 2001, SCN has provided nearly 10,000 specialized training opportunities to more than 5,000 highly qualified personnel to ensure trainees are well placed to compete in Canada's knowledge-based economy and equipped with the skills required to work in the RM labs and biotech companies of today and tomorrow.

During Fiscal Year 2021/2022, SCN worked with various partners to offer 12 training events (including workshops, courses and webinars) in addition to providing training through the Till & McCulloch Meetings (oral and poster presentations and workshops). Combined, this training benefitted a total of 445 trainees. Also in 2021-2022, 233 trainees received hands-on lab experience through SCN-funded stem cell and regenerative medicine research projects. These training opportunities are at the heart of SCN and will provide a well-rounded experience for the next generation, further igniting growth in Canada's stem cell and regenerative medicine sector.

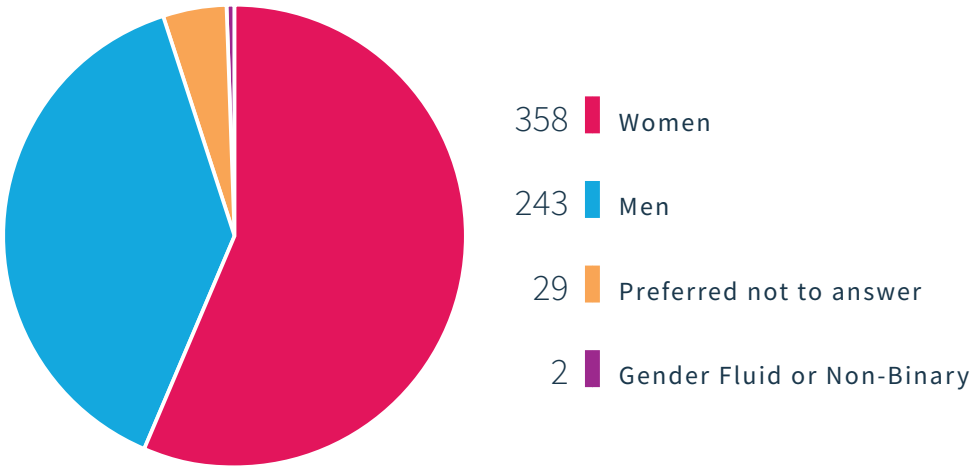
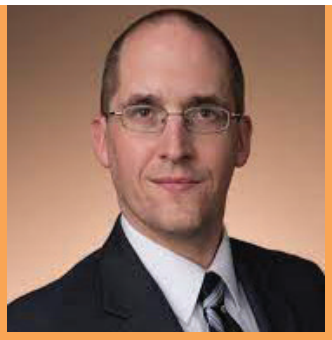


FIGURE 2: 2021-2022 SCN Trainees by Gender

632 trainees participated in a project or attended a training event in 2021/2022. Some trainees attended training and also received hands-on lab experience. Double-counting has been removed.

Jessica Bou Nassar
SCIENCE & POLICY EXCHANGE

Teresa Evans
TEXAS BIOMEDICAL RESEARCH INSTITUTE



Nathan Vanderford
UNIVERSITY OF KENTUCKY

Judith Laposa
CAMH AND UNIVERSITY OF TORONTO

WELLNESS IN ACADEMIA: A MENTAL HEALTH DISCUSSION WEBINAR

DATE: April 21, 2021

At the height of the pandemic, SCN and BioCanRx hosted a **virtual session** about mental health and wellness in academia. Experts discussed mental health challenges that academic researchers face at all stages of their career and armed participants with best practices and resources that help to maintain mental wellness in the academic research environment. The session featured a panel discussion and interactive tools that allowed audience members to participate freely and anonymously.

MAY

CRYOPRESERVATION FOR REGENERATIVE MEDICINE WORKSHOP

DATE: May 5 and June 2, 2021 LOCATION: Online

PARTNER: Society for Low Temperature Biology (SLTB)

ATTENDEES: 72

Cryopreservation is a routine, but complex, process used in the development and delivery of cell therapies. Although sometimes overlooked, effective cryopreservation is a key consideration that contributes to the reproducibility and utility of cell products in regenerative medicine applications. SCN, in conjunction with SLTB, hosted two new educational workshops on the principles, best practices and latest advances in cryopreservation.

"I appreciated learning the fundamentals and theoretical bases of cryopreservation."

– BRIAN PEREIRA, CRISPR Therapeutics

TRAINING FOR SUCCESS IN CANADA'S REGENERATIVE MEDICINE SECTOR

DATE: May 31 – June 23, 2021 (5 sessions) LOCATION: Online

PARTNER: BioTalent Canada

ATTENDEES: 18

SCN partnered with BioTalent Canada to offer a series of "Technical Skills Fundamentals" courses online. These courses provided SCN trainees with an introduction to the best practices and quality monitoring standards that are required for the clinical and commercial translation of cell and gene therapies. Trainees also took part in an online interactive session featuring industry and academic experts, who described the skillsets required for careers within the regenerative medicine sector.

"Gaining a better understanding of Good Clinical Practice (GCP) and Good Manufacturing Practice (GMP) will be helpful for my future career, as I plan to work in the biotech industry in cell therapies. The expert panel provided an excellent opportunity to have my questions answered and to hear from various industry leaders on their career paths and recommendations for trainees who plan to go into their fields."

– LOUISE MOYLE,
University of Toronto

ADVANCING IPSC-DERIVED CARDIOMYOCYTE TRANSLATION WORKSHOP

DATE: May 27-28, 2021 LOCATION: Online

ATTENDEES: 95

This online event explored the tools and standards that are required for successful translation, knowledge exchange, networking and collaboration in this rapidly moving research area, as well as seeking to engage and inspire the next generation of young researchers in this field. The workshop included a special networking component that introduced and connected Canadian and international research teams working with iPSC-derived cardiomyocytes, as well as providing a platform for interactive poster presentations.

"Absolutely loved this workshop, and the tremendous quality of the speakers! Will be keeping an eye out for more."

– IDA DERISH,
McGill University

JUNE

RNA-SEQ ANALYSIS WORKSHOP

DATE: June 9 – October 29, 2021 (3 sessions) LOCATION: Online

PARTNERS: Ottawa Bioinformatics Core Facility, Ottawa Hospital Research Institute

ATTENDEES: 45

Unraveling the molecular mechanisms driving stem cell fate decisions remains one of the major quests in stem cell biology. However, technical and other practical challenges often limit the ability of stem cell biologists to maximize the amount of information that can be harnessed from large data sets. Through a mixture of interactive lectures and computer lab excercises, participants were exposed to a state-of-the-art pipeline for RNA-seq data acquisition and analysis and gained hands-on training in network and pathway analysis of OMICS data.

"This workshop definitely made me more confident in understanding RNA seq and the code used to do it. I believe I now have the foundational skills required to plan, conduct and analyze an RNA seq experiment."

– SEAN VANDERSLUIS,
McMaster University

REGENERATIVE MEDICINE AND CYSTIC FIBROSIS WORKSHOP

DATE: June 28-29, 2021 LOCATION: Online

PARTNER: Cystic Fibrosis Canada

ATTENDEES: 20

This workshop was designed to connect researchers working across a range of disciplines, with the goal of exploring the key issues and challenges that remain in delivering regenerative medicine-based therapies for cystic fibrosis (CF). The workshop included talks by experts outlining CF disease modeling, the potential for cell and gene therapy solutions, as well as considerations for the clinical translation of new therapies.

SEPTEMBER

FUNDAMENTALS OF R FOR BIOLOGICAL SCIENTISTS

DATE: September 22, 29, October 6 and 13, 2021 LOCATION: Online

PARTNERS: BioCanRX, Ottawa Bioinformatics Core Facility, Ottawa Hospital Research Institute

ATTENDEES: 20

R is a popular scripting language that has become a common tool for managing biological datasets; however, the flexibility and power of R can be difficult to navigate for new users. SCN and BioCanRx partnered to provide a multi-session introductory workshop that will equip scientists with the fundamental knowledge to use R in their research.

OCTOBER

AN INTRODUCTION TO EARLY-STAGE COMMERCIALIZATION IN REGENERATIVE MEDICINE

DATE: October 19, 2021 LOCATION: Online

PARTNERS: CCRM and Ottawa Hospital Research Institute

ATTENDEES: 27

SCN and CCRM partnered to host a webinar that provided trainees with an introduction to:

1. the fundamentals of the commercialization process for regenerative medicine discoveries; and,
2. the role that academic technology transfer offices play in helping researchers to navigate the complexities and obstacles they may encounter when seeking to translate a discovery to the market

AN INTRODUCTION TO ONLINE DATASET RESOURCES FOR BIOLOGICAL SCIENTISTS

DATE: October 20, 2021 LOCATION: Online

PARTNER: BioCanRX

ATTENDEES: 23

SCN and BioCanRx co-hosted a webinar to introduce researchers to a range of online data resources, including the Cancer Genome Atlas (TCGA), the Gene Expression Omnibus (GEO), and others that may be used to support biomedical research. The webinar described the strengths and limitations of these sources, explained how to find appropriate data, outlined methods for reviewing dataset quality, and provided use cases for such an analysis.

NOVEMBER | TILL & McCULLOCH MEETINGS

INDUSTRIAL HORIZONS: FROM ACADEMIA TO INDUSTRY

DATE: **November 13, 2021** LOCATION: **Online**

ATTENDEES: **47**

This workshop explored the extensive world of non-academic careers, including how to find a career that inspires, what to expect during the transition to industry, and how jobs are structured in different companies. Experts from various non-academic sectors provided trainees with first-hand information about their day-to-day work and spoke about their personal journeys transitioning out of academia.

"This workshop showed me paths outside of academia that I had not considered. It will not only help me determine which path I will take in the future, but will allow me to discuss these options more openly and knowledgeably with my peers and mentees."

– TMM DELEGATE

GOOD IDEAS MADE BETTER: FOUNDATIONS FOR IMPROVING YOUR RESEARCH PROPOSALS AND GRANT WRITING

DATE: **November 14, 2021** LOCATION: **Online**

ATTENDEES: **31**

This workshop focused on improving research questions and translating them into better grant proposals. The speakers guided attendees through grant components and described how to conceptualize grant applications, prepare and pitch proposals, and incorporate principles of Ethical, Legal, and Social Implications to take proposals to the next level.

"Valuable information about how to write a grant in Canada that will directly affect my grant-writing process."

– TMM DELEGATE

POSTER PRESENTATIONS

DATE: **November 15-17, 2021** LOCATION: **Online**

ATTENDEES: **135 Poster Presentations**

Trainees delivered virtual poster presentations of their stem cell and regenerative medicine research, which were evaluated by the TMM2021 Poster Judging Panel. Prizes were awarded for the top six presentations.

JANUARY

THE FUNDAMENTALS OF OPTICAL MICROSCOPY

DATE: **January 20 – March 10, 2022 (8 sessions)** LOCATION: **Online**

PARTNER: **Live Cell Imaging Laboratory, University of Calgary** ATTENDEES: **16**

This course was targeted to students and staff who were new to microscopy or wanted to brush up on their optical microscopy skills. The course covered the essential concepts required to design and carry out fluorescence experiments, including: image formation, the selection of appropriate filters and objectives, and best practices for image acquisition.

"Course was great and the instructors were fantastic. Great content, well delivered and instructors were very friendly, knowledgeable, willing to answer any questions, and made sure it was a supported learning environment where no one was concerned about asking questions."

– ERIN ROBERTS,
University of Calgary

MARCH

UBC FLOW

DATE: **March 1-4, 2022** LOCATION: **University of British Columbia**

PARTNER: **Life Sciences Institute, University of British Columbia**

ATTENDEES: **11**

This intense four-day course took participants' flow cytometry skills to the next level. Attendees left the course feeling comfortable with flow cytometry samples, and with a full understanding of the problems, fixes and trouble-shooting strategies to enable the production of high-quality flow data ready for publication.

ANIMAL MODELS FOR REGENERATIVE MEDICINE

DATE: **March 8, 29 and April 12, 2022** LOCATION: **Online** ATTENDEES: **27**

This workshop informed regenerative medicine researchers who are performing pre-clinical testing of cell or gene therapy products about best practices for rigour and reproducibility in animal experimentation, as well as the benefits and considerations associated with specific animal models of disease. The workshop also provided guidance for the planning and preparation of pre-clinical study data for inclusion in regulatory submissions related to cell and gene therapy.

"This was an amazing workshop. Very well organized. Thank you SCN for organizing this event. I hope there will be more of these in the future."

– MOHSEN AKBARI,
University of Victoria

PARTNERSHIP ENGAGEMENT

An important focus for the Stem Cell Network, partnerships are essential for the continued success and growth of both the Network and the regenerative medicine sector overall. SCN partners include industry, research institutions and hospitals, not-for-profit organizations, and foundations.

In the past fiscal year, SCN has maintained or begun new partnerships with organizations to help enhance our core research, training and outreach programs. Highlights from some of these partnerships – and the resulting programs and resources – are outlined below.

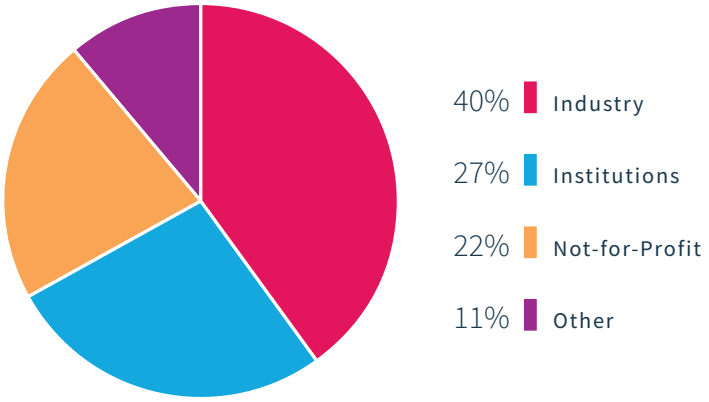


FIGURE 3: Over the 2019-2022 period, SCN's research projects included over 65 partners.

CREATING A NATIONAL FELLOWSHIP PROGRAM IN TYPE 1 DIABETES WITH JDRF CANADA

With the year 2021 marking the 100th anniversary of the discovery of insulin and the 60th anniversary of the discovery of stem cells, SCN partnered with JDRF Canada to launch a National Fellowship Program in Type 1 Diabetes in November. This new

SCN Board Members, Tamer Mohamed and Sharon Louis, attend unveiling of the JDRF Centre of Excellence

program provides an opportunity for high-calibre postdocs from across Canada with expertise in stem cells, regenerative medicine, immunology, or related fields to join the new JDRF Centre of Excellence at the University of British Columbia to pursue research on treating and curing type 1 diabetes. The Fellowship Program will award one year-long fellowship annually through 2026, with a value of $60,000 CAD per fellowship.

ENHANCING TECHNOLOGY COMMERCIALIZATION READINESS WITH CCRM

In spring of 2021, SCN collaborated with longtime partner, the Centre for Commercialization of Regenerative Medicine (CCRM) to develop a Technology Commercialization Readiness Guide. The guide aims to provide resource materials for Canada's regenerative medicine community, and is intended specifically to familiarize academic investigators and highly qualified personnel (HQP) with some of the key considerations in commercializing and translating regenerative medicine-based technologies into cell and gene therapies. As part of this initiative, a YouTube video was prepared and continues to be shared widely via SCN's and CCRM's platforms.

DEVELOPING INTERNATIONAL STANDARDS FOR STEM CELL RESEARCH WITH ISSCR

In late 2021, SCN was pleased to respond to a request to provide expertise to the International Society for Stem Cell Research's Standards Initiative for Pluripotent Stem Cell Research. This initiative seeks to improve the rigour in stem cell research by developing standards and recommendations for best practices that will improve the reproducibility of research in four key areas: basic stem cell characterization, identifying undifferentiated stem cells and assaying pluripotency, genomic characterization, and stem cell-derived model systems. The initiative is supported by a taskforce of four working groups, comprising 25 experts drawn from 14 countries, including Canada, USA, UK, Japan and Germany. The work of the taskforce will continue through 2024.

ACCELERATING CANADIAN RESEARCH WITH COMMERCIAL POTENTIAL WITH ADMARE BIOINNOVATIONS

Toward the end of 2021, SCN partnered with adMare BioInnovations to help assess the commercial potential of SCN's research funding applications for its 2022-2025 funding period. Through the appointment of an expert to SCN's Research Management Committee, the aim of the partnership is to help identify academic research proposals submitted to SCN with commercial value that merits funding by the Network, as well as to identify those promising proposals that may benefit from commercial, research or other support offered through adMare BioInnovations.

LAUNCHING AN INDUSTRY-BASED INTERNSHIP IN REGENERATIVE MEDICINE WITH MITACS

In January 2022, SCN partnered with **Mitacs** to launch the SCN-Mitacs Industry-Based Internship, which aims to pair the brightest graduate students and postdoctoral fellows with RM-focused biotech companies that are moving innovative therapies and technologies into the marketplace. Offered through the popular Mitacs Accelerate program, this new partnership will match up to five candidates per year with Canadian companies to complete an eight-month internship. Successful candidates will gain work experience in industry and develop fundamental technical and business skills by undertaking a project related to stem-cell or regenerative medicine. The program will run annually from 2022 to 2025.

INVESTING IN THE BIOTECH COMPANIES OF TODAY AND TOMORROW WITH OBIO

For the third year in a row, SCN partnered with **OBIO** – the Ontario Bioscience Innovation Organization – for its national Investment Summit. Held virtually on February 9-11, 2022, the Summit provides biotech representatives from the health sciences sector with a chance to meet with investors and angel funders to discuss opportunities for collaboration and investment. SCN was proud to have two companies from the Network take part in the pitch competition – Inteligex and Immugenia – where representatives had the opportunity to showcase their companies and products to investors. SCN President and CEO Cate Murray participated in a panel session during the Summit, alongside Tamer Mohamed, an SCN Board member and CEO of Aspect Biosystem, discussing how to scale successful regenerative medicine companies in Canada.

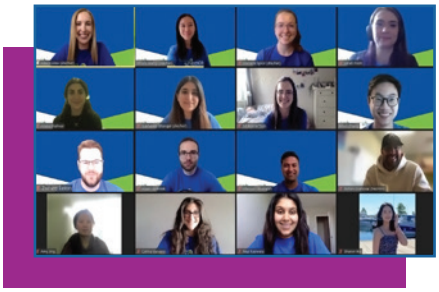
BOLSTERING SCIENCE LITERACY WITH LET'S TALK SCIENCE

As part of an ongoing partnership with **Let's Talk Science**, a registered Canadian charitable organization focused on STEM education for children and youth in Canada, SCN had the opportunity to contribute a series of articles to *The Globe and Mail*. The first article, developed toward the end of the fiscal year and published in **May 2022**, explored stem cell science as a Canadian strength, highlighted notable discoveries by Canadian scientists, and gave an overview of the StemCellTalks program, a national outreach initiative that promotes stem cell discovery and dialogue in high school classrooms across Canada. The second article focused on stem cell therapies for diabetes; it was published in **June 2022**.

At the end of Fiscal Year 2021/2022, SCN was exploring new and exciting partnership opportunities with the **UK Regenerative Medicine Platform** and **Medicine by Design**, which will come to fruition in 2022/2023. Moving forward, SCN will continue to foster its existing partnerships and build new ones in an effort to continue offering important value to the stem cell and regenerative medicine community.

COMMUNITY OUTREACH

Community outreach and knowledge mobilization are essential components of the Stem Cell Network's mandate. SCN actively engages in and supports community outreach and education activities by communicating with the research community, raising the profiles of those within the Network, and sharing more broadly with Canadians the latest advances in stem cell and regenerative medicine research.



EDUCATING THE NEXT GENERATION OF STEM CELL SCIENTISTS THROUGH STEMCELLTALKS

Several StemCellTalks virtual symposia were held in the past fiscal year, bringing stem cell science to well over 900 high school students at eight sites across the country. StemCellTalks is a national outreach initiative that promotes stem cell discovery and dialogue in high school classrooms across Canada. Made possible through a partnership between Canada's Stem Cell Network and Let's Talk Science, StemCellTalks takes the form of a full-day (half-day when virtual), highly interactive symposium that provides youth with the unique opportunity to connect with experts in the stem cell community and to explore fundamental questions such as: What is a stem cell? How are stem cells used? What constitutes safe, effective and ethical stem cell therapies? This year, the StemCellTalks program got a reboot, with a fresh new logo and set of brand colours, along with new supports and structures for the volunteers who execute the program.

TABLE 7: 2021/2022 Virtual StemCellTalks Symposiums

DATE	SITE	THEME	PARTICIPANTS
March 2021	GTA (Toronto, Guelph, Hamilton)	Stem Cell Mediated Repair in Organ System	594
May 2021	London	Trophoblast Stem Cells	70
	Ottawa	Stem Cells 101	116
	Montreal	Muscle Stem Cells	64
	Western Canada (Calgary and Vancouver)	Stem Cells and the Respiratory System	65
March 2022	Guelph	Stem Cells Research and Applications for Diabetes	15
	Toronto and Hamilton	Stem Cells in Development	55
			TOTAL: 979

CELEBRATING 20 YEARS WITH 20 QUESTIONS TO 20 RESEARCHERS

The year 2021 marked the 20th anniversary of the Stem Cell Network, and to celebrate this important milestone, SCN launched a special series of articles entitled *20Q20 – 20 Questions with 20 Researchers*. Over the course of the year, SCN interviewed investigators and trainees to provide insight into the people who make up our Network and highlight their achievements and contributions to the field, but also to get to know each of them on a more personal level. These stories are available in English and French on SCN's website and serve to showcase the diversity of thought, experience, and expertise across our national Network.

WHAT DID YOU WANT TO BE WHEN YOU GREW UP?

One day in high school, I was listening to a Scottish obstetrician on a "careers day." I was enraptured by his talk and excited by his perspective of the rewards of a profession in medicine. Then and there, I decided I wanted to become a physician — but I also wanted to do research and make discoveries about biological processes that could be important to solving medical problems.

CONNIE EAVES, Distinguished Scientist, Terry Fox Laboratory, BC Cancer Research Institute Professor, Medical Genetics, University of British Columbia

WHAT ARE YOU RESEARCHING RIGHT NOW?

Right now, I'm looking at brain stem cells, which is a new field within stem cell research. Because brain stem cells within mammals were discovered in the '90s, there are still many research questions to address. What are these cells? What are they really contributing to within our brains? Can they help regenerate brain tissue after an injury?

MARISSA LITHOPOULOS, Postdoctoral Research Fellow, The Hospital for Sick Children

WHAT ARE YOUR PREDICTIONS FOR STEM CELL ADVANCES IN THE NEXT 5, 10, 20 YEARS?

I am a little cautious. I think we are going to see iterative advances. I am hopeful that things like iPS cells are going to result in therapies in areas like diabetes. I am quite hopeful that we are really starting to signal in that direction. I don't know if it is five years; I think we are talking probably 10 years and out.

TIM CAULFIELD, Professor, Faculty of Law and School of Public Health; Research Director, Health Law Institute, University of Alberta

REALIZING CANADA'S LIFE SCIENCES OPPORTUNITY – A DISCUSSION PANEL AT THE CANADIAN SCIENCE POLICY CONFERENCE

COVID-19 has shone a spotlight on the need for a strong domestic life sciences industry – both to address and secure the health of Canadians, and to drive economic recovery and growth going forward. On November 22, 2021, at the virtual Canadian Science Policy Conference, adMare BioInnovations convened a panel of leaders from some of Canada's publicly funded organizations who are paving the way to help ensure Canada remains a global leader in the life sciences sector. SCN's Cate Murray was a speaker and participant on the panel, alongside Gordon McCauley from adMare BioInnovations, Rob Annan from Genome Canada, and Nadine Beauger from IRICoR.

REGENERATIVE MEDICINE – WHERE WILL STEM CELLS TAKE US? A SPECIAL WEBCAST WITH *THE GLOBE AND MAIL*

On November 30, 2021, *The Globe and Mail* brought together a series of experts for a special webinar on the future of regenerative medicine, examining the potential of the field, ethical issues, misinformation, and the importance of rigorous evaluation in bringing new treatments to market. Panelists included SCN's President and CEO Cate Murray; Gordon Keller, Scientific Co-Founder with BlueRock Therapeutics and Director of the McEwen Stem Cell Institute with University Health Network; Karen Lee, CEO of Parkinson Canada; and Jonathan Kimmelman, James McGill Professor in the Biomedical Ethics Unit at McGill University. The event was moderated by prominent health journalist André Picard and remains available to the public for viewing on *The Globe and Mail* website.

"There's going to be a very thriving industry in this country, and it's already started," says Ms. Murray, one of a panel of experts brought together for The Globe and Mail's Regenerative Medicine webcast on Nov. 30. "Regenerative medicine is the frontier for health care."

INTERNATIONAL DAY OF WOMEN AND GIRLS IN SCIENCE – A PANEL DISCUSSION ON WOMEN IN BIOTECH

Each year on February 11, the world celebrates the International Day of Women and Girls in Science. To mark the occasion this past year, SCN's Cate Murray joined a panel discussion on the opportunities and challenges for women in science, how to develop a successful career in biotech, and the overall experiences of women in the sector. Hosted by Aspect Biosystems, the panel was moderated by Brenda Irwin, Managing Partner of Relentless Venture Fund. Other panellists were Shreya Shukla, Co-Founder and Director of Research, Notch Therapeutics; Frann Antignano, Senior Scientist and Team Lead, STEMCELL Technologies; and Erin Bedford, Head of Academic Partnerships, Aspect Biosystems.

TILL & McCULLOCH MEETINGS

The Till & McCulloch Meetings (TMM), hosted by SCN, is Canada's premier research conference on stem cell and regenerative medicine. Each year TMM gathers leading scientists, clinicians, bioengineers and ethicists, as well as representatives from industry, government, health, and non-profit sectors from across Canada and abroad to discuss the latest advances in stem cell and regenerative medicine.

In 2021, TMM was held online from November 15-17, with 402 delegates in attendance and 25 sponsors.

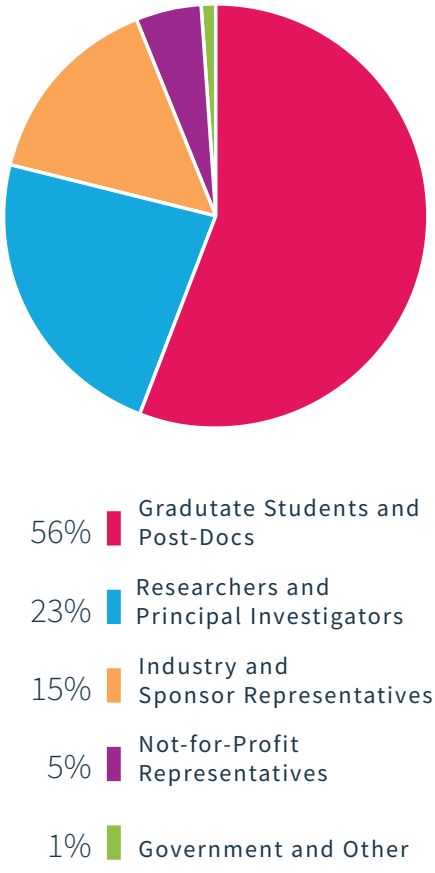


FIGURE 4: 2021 Delegates

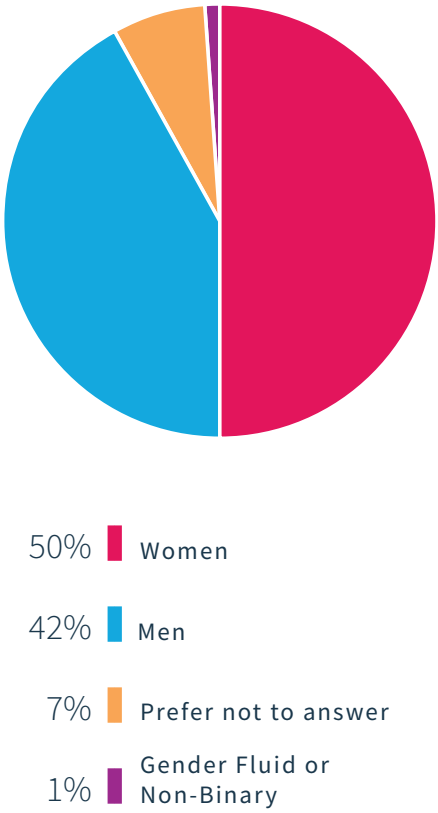
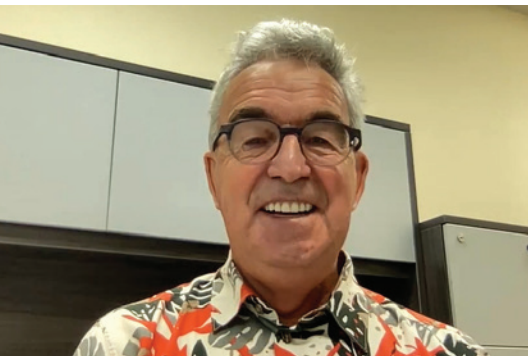


FIGURE 5: Gender Breakdown

The program included scientific talks, networking opportunities, an awards ceremony, a patient presentation with Damien Bernard, a special session on Equity, Diversity, and Inclusion (EDI) with Dr. Lisa Willis, and a keynote speaker presentation by Dr. Derrick Rossi, CEO at Convelo Therapeutics and Co-founder of Moderna.



PATIENT SPEAKER

Damien Bernard from Quebec underwent a stem cell transplant that used his own stem cells to restore his sight. Damien shared his experience and his advice for others thinking about participating in a clinical trial. **View the full interview** with Damien, joined in conversation with Drs. Julie Fradette, Lucie Germain, and Richard Bazin of Université Laval.

EQUITY, DIVERSITY, AND INCLUSION SPECIAL SESSION

In the EDI special session, the University of Alberta's Dr. Lisa Willis focused on strategies to combat bias and discrimination in science, technology, engineering and math.

KEYNOTE SPEAKER

Dr. Derrick Rossi, who co-founded Moderna, well known for its Spikevax COVID-19 vaccine, spoke about *Stem cell science and the genesis of new therapeutic strategies for patients*.

Two prestigious awards are presented each year at TMM – the Till & McCulloch Award and the Drew Lyall Award of Excellence. The Till & McCulloch Award, created in honour of Drs. James Till and Ernest McCulloch, is presented annually to a Canadian-based researcher who has made an exceptional contribution to global stem cell research in that year. The Drew Lyall Award of Excellence is presented annually to the author of the best abstract submitted by a graduate student.

GUEST OF HONOUR, DR. JAMES TILL

The 2021 awards ceremony included Dr. James Till, the Canadian stem cell research pioneer who proved the existence of stem cells in 1961 with Dr. Ernest McCulloch. Dr. Till joined the event to celebrate 10 years of TMM and to present the Till & McCulloch Award and Drew Lyall Award of Excellence.

TILL & McCULLOCH AWARD WINNER

Dr. Jeff Biernaskie, Assistant Professor in stem cell biology at the University of Calgary, won the 2021 Till & McCulloch Award for his outstanding paper, *Distinct regulatory programs control the latent regenerative potential of dermal fibroblasts during wound healing, which was published in Cell Stem Cell*. In this paper, Dr. Biernaskie and his team demonstrated that a progenitor cell type located outside of the hair follicle makes the largest contribution to wound regeneration. Importantly, the team showed that drugs targeting these progenitor cells could alter wound regeneration, opening the way for new therapeutic approaches to improve wound healing.

DREW LYALL AWARD OF EXCELLENCE WINNER

Darren Blackburn from McGill University received the Drew Lyall Award for his abstract, *Untangling the functional interactions between muscle stem cells and their niche environment*. In this abstract, Mr. Blackburn describes the major contributions he is making in understanding the communication between muscle stem cells and the components of their niche environment. The highly sensitive tools and technologies that Mr. Blackburn has implemented are overcoming the challenges associated with studying muscle stem cells in their niche context, and have enabled him to demonstrate important differences that distinguish between healthy and diseased muscle.

The 2021 10-year milestone conference was another successful iteration of the Till & McCulloch Meetings. TMM2022 planning began shortly afterwards and in early 2022, SCN created a new TMM logo that better aligns with the conference and complements the refreshed SCN logo. The 2022 Till & McCulloch Meetings will be held in Vancouver, BC, from October 3-5, 2022.

A LOOK AHEAD

This year's annual report highlights the significant amount of activity that took place throughout 2021, and the incredible advancements, research, and partnerships that occurred across the Network. Over the years, SCN has worked tirelessly to build a robust national network through programs that have stressed collaboration and a multi-disciplinary approach for moving stem cell science forward. Armed with our new three-year strategic plan, bolstered by renewed funding and new projects, and building on 20 years of success, we look ahead to the future with great excitement.

We will continue building the Network based on principles that have served us well — including a commitment to fostering community and collaboration, advancing research and engaging with partners. Along the entire research continuum, at all stages of the research pipeline, from innovation to translation, from policy to commercialization, we will mobilize the knowledge, ideas, and people that make research happen.

Across the Network, we truly and steadfastly believe in the promise of stem cells and regenerative medicine. Whether you are a scientist, a university student contemplating a career in stem cell science, a patient taking part in a clinical trial funded by SCN, or a member of the public interested in learning about the future of health care, we invite you to join us on this exciting journey – there is much more to come.

SCN'S BOARDS AND COMMITTEES[1]

Board of Directors

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Scientific Director, Stem Cell Network; Senior Scientist and Director, Regenerative Medicine Program and Sprott Centre for Stem Cell Research, Ottawa Hospital Research Institute

SHARON COLLE
Former President and CEO, Fighting Blindness Canada

JULIE FRADETTE
Professor, Université Laval, Researcher, Centre de recherche en organogénèse expérimentale (LOEX), at the CHU de Québec-Université Laval

GAIL GARLAND
Former Chief Executive Officer, Ontario Bioscience Innovation Organization (OBIO®)

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SHARON LOUIS
Senior Vice President, Research and Development, STEMCELL Technologies

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GORDON C. MCCAULEY
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STÉPHANIE MICHAUD
President and CEO, BioCanRx

TAMER MOHAMED
President and CEO, Aspect Biosystems Ltd.

JANET ROSSANT
President and Scientific Director, Gairdner Foundation; Chief of Research Emeritus, Hospital for Sick Children

[1] Board and Committees list as of March 31st, 2022

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Scientific Director, Stem Cell Network; Senior Scientist and Director, Regenerative Medicine Program and Sprott Centre for Stem Cell Research, Ottawa Hospital Research Institute

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Associate Scientific Director, Stem Cell Network; Senior Scientist, Regenerative Medicine, Ottawa Hospital Research Institute and CHEO Research Institute Neonatologist, Division of Neonatology, The Ottawa Hospital and CHEO; Professor of Pediatrics, University of Ottawa; University of Ottawa Partnership Research Chair in Regenerative Medicine

WING CHANG
Director of Tissue Stem Cell Biology, STEMCELL Technologies Inc.

DEAN FERGUSSON
Senior Scientist and Director, Clinical Epidemiology Program, Ottawa Hospital Research Institute; Full Professor, Departments of Medicine, Surgery, and School of Epidemiology and Public Health, University of Ottawa; OHRI/uOttawa Clinical Epidemiology Program Endowed Chair

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Vice-President, Research, Regeneron Pharmaceuticals; Senior Lecturer, Department of Cell Biology, Harvard Medical School; Adjunct Professor, Department of Genetics and Development, Columbia University Vagelos School of Medicine

SAMER HUSSEIN
Associate Professor, Université Laval; Researcher, Oncology Division, Centre Hospitalier Universitaire (CHU) de Québec-Université; Laval Research Center

NATASHA KEKRE
Scientist, Clinical Epidemiology Program, Ottawa Hospital Research Institute; Hematologist, Transplant and Cellular Therapy Program, The Ottawa Hospital; Associate Professor, Faculty of Medicine, University of Ottawa

GREGORY KORBUTT
Professor, Department of Surgery, University of Alberta; Scientific Director, Alberta Cell Therapy Manufacturing Facility; Director, Alberta Diabetes Institute's Histology Core Lab

DEBRA MATHEWS
Assistant Director for Science Programs, Johns Hopkins Berman Institute of Bioethics; Associate Professor, Department of Genetic Medicine, Johns Hopkins University School of Medicine

M. CRISTINA NOSTRO
Senior Scientist, McEwen Stem Cell Institute, University Health Network; Associate Professor, University of Toronto

[2] Bernard Thébaud became Vice-Chair as of April 1st, 2022

CHANTALE PAMBRUN
Senior Medical Director, Innovation and Portfolio Management, Canadian Blood Services; Adjunct Professor, Department of Pathology and Laboratory Medicine, University of Ottawa

MICHAEL PARR
Director of Formulations and Process Development, Evonik Vancouver Laboratories

AMIE PHINNEY
Senior Director, Program Development and Partnership team, adMare BioInnovations

DENIS-CLAUDE ROY
Director, Cellular Therapy Laboratory and Scientific Director, Centre de recherche Hôpital Maisonneuve-Rosemont; Professor, Université de Montréal

CHERYLE SÉGUIN
Associate Professor, Department of Physiology and Pharmacology, Western University

LEIGH TURNER
Associate Professor, Center for Bioethics, School of Public Health, and College of Pharmacy, University of Minnesota

MICHAEL UNDERHILL
Professor, Department of Cellular and Physiological Sciences, University of British Columbia

Peer Review Committee Members

PETR BARANOV
Assistant Professor, Ophthalmology, Harvard Medical School

IVANA BARBARIC
Senior Lecturer, Stem Cell Biology, University of Sheffield, UK

FRANK BARRY
Professor, Cellular Therapy, National University of Ireland, Galway

ROBERT DEANS
Chief Scientific Officer, Synthego

BRIAN DIEKMAN
Assistant Professor, Biomedical Engineering, University of North Carolina at Chapel Hill

STUART FORBES
Director, Institute for Regeneration and Repair and Centre for Regenerative Medicine; Director, UKRMP The Engineered Cell Environment Hub; Professor, Transplantation and Regenerative Medicine, University of Edinburgh

EMMA FROW
Assistant Professor, Arizona State University

BRIGITTE GOMPERTS
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JAY GOPALAKRISHNAN
University Professor, Heinrich-Heine-University, Düsseldorf

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Associate Professor, Pediatrics, Harvard Medical School

JOSHUA HARE
Professor, Medicine, University of Miami

OLA HERMANSON
Professor, Neuroscience, Karolinska Institutet, Stockholm

BRIGID HOGAN
Professor, Cell Biology, Duke University

KRISTIN HOPE
Senior Scientist, University Health Network; Associate Professor, Department of Medical Biophysics, University of Toronto

NGAN HUANG
Associate Professor, Department of Cardiothoracic Surgery, Stanford University

MICHAEL KALLOS
Professor, Department of Chemical and Petroleum Engineering, University of Calgary

JANE LEBKOWSKI
President, Research and Development, Regenerative Patch Technologies

AARON LEVINE
Associate Professor, School of Public Policy, Georgia Tech

MEGAN LEVINGS
Professor, Department of Surgery, University of British Columbia

XUNRONG LUO
Professor, Medicine, Immunology, Pathology, and Surgery, Duke University

KIRSTIN MATTHEWS
Fellow in Science and Technology Policy, Rice University's Baker Institute for Public Policy

HANNA MIKKOLA
Professor, Molecular, Cell and Developmental Biology, Broad Stem Cell Research Center

GUO-LI MING
Professor, Neuroscience, Perelman School of Medicine, University of Pennsylvania

KELLY ORMOND
Professor, ETH Zürich

MIKE PAULDEN
Assistant Professor, School of Public Health, University of Alberta

MARTIN PERA
Professor, The Jackson Laboratory

MAKSIM PLIKUS
Professor, Developmental and Cell Biology, University of California, Irvine

STEVEN POLLARD
Professor, Stem Cell and Cancer Biology, University of Edinburgh

THOMAS POVSIC
Professor, Medicine, Duke University

PAMELA ROBEY
Branch Chief, National Institutes of Health

PANTELIS ROMPOLAS
Assistant Professor, Dermatology, Perelman School of Medicine, University of Pennsylvania

LEE RUBIN
Professor, Stem Cell and Regenerative Biology, Harvard Stem Cell Institute

VITTORIO SARTORELLI
Laboratory Chief, National Institutes of Health

LORI SUSSEL
Director of Research, University of Colorado Anschutz Medical Campus

VIVIANE TABAR
Chair, Department of Neurosurgery, Memorial Sloan Kettering Cancer Center

LUDOVIC VALLIER
Professor, University of Cambridge

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Professor, Pediatrics, Keck School of Medicine, University of Southern California

GORDON WEIR
Professor, Medicine, Harvard Medical School

MARIUS WERNIG
Professor, Departments of Pathology and Chemical and Systems Biology, Stanford University

TRACY YOUNG-PEARSE
Associate Professor, Ann Romney Center for Neurologic Diseases, Brigham and Women's Hospital

WOLFRAM ZIMMERMANN
Professor, Institute of Pharmacology and Toxicology, University Medical Center Göttingen

Trainee Communications Committee

JOSHUA DIEROLF, CHAIR
PhD candidate, Western University

MARISSA LITHOPOULOS, VICE-CHAIR
Postdoctoral Research Fellow, The Hospital for Sick Children

RASHA AL-ATTAR
Postdoctoral Research Fellow, McEwen Stem Cell Institute – University Health Network

SEPIDEH ABBASI
Postdoctoral fellow, Institut de recherches cliniques de Montréal (IRCM) and McGill University

KABITA BARAL
PhD candidate, University of Calgary

DAVID DATZKIW
PhD candidate, Ottawa Hospital Research Institute

COLIN HAMMOND
Postdoctoral fellow, University of British Columbia

DIANA CANALS HERNAEZ
Postdoctoral fellow, University of British Columbia

PRIYE IWORIMA
PhD candidate, University of British Columbia

ALEX KOZLOV
PhD candidate, Western University

KIERAN MAHEDEN
MASc student, University of British Columbia

KEVIN ROBB
PhD candidate, University of Toronto

MORTEN RITSO
Postdoctoral Research Fellow, University of British Columbia

LAURA STANKIEWICZ
PhD candidate, University of British Columbia

Training and Education Committee

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HAROLD ATKINS, MD
Physician, The Ottawa Hospital Transplant and Cell Therapy Program; Associate Professor of Medicine, University of Ottawa; Scientist in the Center for Innovative Cancer Research

JOSHUA DIEROLF
PhD candidate, Western University

JESSICA ESSELTINE
Assistant Professor, Memorial University of Newfoundland

MATTHEW HILDEBRANDT
Product Manager, STEMCELL Technologies

SAMER HUSSEIN
Associate Professor, Université Laval; Researcher, Oncology Division, Centre Hospitalier Universitaire (CHU) de Québec-Université Laval Research Center

MARISSA LITHOPOULOS
Postdoctoral Research Fellow, The Hospital for Sick Children

NIKA SHAKIBA
Assistant Professor, University of British Columbia

Staff[3]

ELLIE ARNOLD
Training Coordinator

REBECCA CADWALADER
Manager, Corporate Events and Governance

JEN CHAPPELL
Digital Communications Specialist

JON DRAPER
Vice-President, Research and Training

SEOHYUN IN
Accounting Specialist

ELENI KANAVAS
Communications and Events Coordinator

CATE MURRAY
President and CEO

SAMANTHA RAE AYOUB
Vice-President, Communications and Knowledge Mobilization

SHANNON SETHURAM
Vice-President, Corporate Services

JENNIFER WEESE
Director, Special Projects

[3] Staff Listing as of April 1st, 2022

FINANCIAL STATEMENTS

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CHARTERED PROFESSIONAL ACCOUNTANTS
COMPTABLES PROFESSIONNELS AGRÉÉS

INDEPENDENT AUDITORS' REPORT

To the Members of Stem Cell Network:

Opinion
We have audited the financial statements of Stem Cell Network ("SCN"), which comprise the statement of financial position as at March 31, 2022, and the statements of revenues and expenditures, changes in net assets and cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the SCN as at March 31, 2022, and its results of operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations (ASNFPO).

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

Responsibilities of Management and Those Charged with Governance for the Financial Statements
Management is responsible for the preparation and fair presentation of these financial statements in accordance with ASNFPO, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

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

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

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

LOGANKATZ

CHARTERED PROFESSIONAL ACCOUNTANTS | COMPTABLES PROFESSIONNELS AGRÉÉS

INDEPENDENT AUDITORS' REPORT (continued)

Auditors' Responsibilities for the Audit of the Financial Statements (continued)
As part of an audit in accordance with Canadian generally accepted auditing standards, we exercise professional judgment and maintain professional skepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the SCN's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.

- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the SCN's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditors' report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditors' report. However, future events or conditions may cause the SCN to cease to continue as a going concern.

- Evaluate the overall presentation, structure, and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

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

Chartered Professional Accountants
Licensed Public Accountants

Logan Katz LLP

Ottawa, Canada
June 21, 2022

STEM CELL NETWORK

STATEMENT OF FINANCIAL POSITION

AS AT MARCH 31, 2022

	2022	2021
ASSETS		
CURRENT ASSETS		
Cash	$ 947,790	$ 1,044,770
Accounts receivable	178	1,738
Contributions receivable (Note 5)	-	5,243
Harmonized sales taxes recoverable	41,264	18,535
Prepaid expenditures	249,706	177,913
	1,238,938	1,248,199
RESTRICTED CASH EQUIVALENTS (Note 2)	50,000	50,000
CAPITAL ASSETS (Note 3)	18,935	21,712
	$ 1,307,873	$ 1,319,911
LIABILITIES AND NET ASSETS		
CURRENT LIABILITIES		
Accounts payable and accrued liabilities (Note 4)	$ 120,593	$ 223,952
DEFERRED CONTRIBUTIONS (Note 5)	140,489	-
NET ASSETS		
Invested in capital assets	18,935	21,712
Unrestricted	977,856	1,024,247
Externally restricted (Note 2)	50,000	50,000
	1,046,791	1,095,959
	$ 1,307,873	$ 1,319,911

Commitments (Note 6)
Economic dependence (Note 9)
Financial instruments (Note 10)
COVID-19 (Note 11)

ON BEHALF OF THE BOARD:

STEM CELL NETWORK

STATEMENT OF REVENUES AND EXPENDITURES

YEAR ENDED MARCH 31, 2022

	2022	2021
REVENUES		
Innovation, Science and Economic Development Canada Grant (Note 5)	$ 5,854,268	$ 6,082,770
Annual conference sponsorship and registration	162,750	184,700
Contributed services in-kind (Note 8)	71,280	71,280
Interest	3,555	7,271
Other	3,100	1,500
	6,094,953	6,347,521
EXPENDITURES		
Administration and general support (Notes 7 and 8)	571,222	471,845
Amortization	13,878	10,927
Annual conference (Note 7)	235,248	254,479
Business development	7,764	3,239
Communication and outreach (Note 7)	660,696	599,431
Research programs (Note 7)	4,423,889	4,903,145
SCN board and committees	-	173
Training program (Note 7)	231,424	144,193
	6,144,121	6,387,432
EXCESS OF EXPENDITURES OVER REVENUES	$ (49,168)	$ (39,911)

STEM CELL NETWORK

STATEMENT OF CHANGES IN NET ASSETS

YEAR ENDED MARCH 31, 2022

	2022				2021
	Invested in capital assets	Unrestricted	Externally restricted	Total	Total
BALANCES AT BEGINNING OF YEAR	$ 21,712	$ 1,024,247	$ 50,000	$ 1,095,959	$ 1,135,870
Excess of expenditures over revenues	-	(49,168)	-	(49,168)	(39,911)
Amortization of capital assets	(13,878)	13,878	-	-	-
Acquisition of capital assets	11,101	(11,101)	-	-	-
BALANCES AT END OF YEAR	$ 18,935	$ 977,856	$ 50,000	$ 1,046,791	$ 1,095,959

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STEM CELL NETWORK

STATEMENT OF CASH FLOWS

YEAR ENDED MARCH 31, 2022

	2022	2021
OPERATING ACTIVITIES		
Excess of expenditures over revenues	$ (49,168)	$ (39,911)
Adjustments for:		
Amortization	13,878	10,927
Recognition of deferred contributions	(5,854,268)	(6,082,770)
Net change in non-cash working capital:		
Accounts receivable	1,560	33,634
Harmonized sales taxes recoverable	(22,729)	5,457
Prepaid expenditures	(71,793)	(99,324)
Accounts payable and accrued liabilities	(103,359)	181,082
Deferred revenue	-	(5,000)
	(6,085,879)	(5,995,905)
FINANCING ACTIVITIES		
Proceeds from deferred contributions	6,000,000	6,000,000
INVESTING ACTIVITIES		
Acquisition of capital assets	(11,101)	(15,038)
DECREASE IN CASH	(96,980)	(10,943)
Cash position at beginning of year	1,044,770	1,055,713
CASH POSITION AT END OF YEAR	$ 947,790	$ 1,044,770

GENERAL

The Stem Cell Network ("SCN") was established on November 19, 2001 as an independent not-for-profit corporation and accordingly, is exempt from income taxes. The mission of SCN is to be a catalyst for enabling translation of stem cell research into clinical applications, commercial products or public policy.

In March 2019, SCN was approved for Innovation, Science and Economic Development Canada ("ISEDC") funding of $18,000,000 for fiscal years 2020 to 2022 inclusive. In March 2022, SCN signed an agreeement with ISEDC effective April 1, 2022 for funding of $45,000,000 for fiscal years 2023 to 2025 inclusive.

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

These financial statements have been prepared in accordance with Canadian accounting standards for not-for-profit organizations ("ASNFPO") and include the following significant accounting policies:

Revenue Recognition

SCN follows the deferral method of accounting for contributions. Restricted contributions are recognized as revenue in the year in which related expenditures are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Grants
Grant revenue represents funds received from the federal government for specific initiatives administered by SCN. Grant revenue is recognized as revenue when costs are incurred in relation to the specific initiatives. Grant funds that have not been fully spent at year end are reported as deferred contributions.

Annual conference sponsorship and registration
Registration fees and sponsorships to events and conferences, are recognized as revenue in the year the event is held.

Interest and other revenue
Amounts received for interest income and other revenue are recognized as revenue when received or receivable if the amount can be reasonably estimated and collection is reasonably assured.

Contributed Services In-Kind
Because of the difficulty of determining their fair value, contributed services are not recognized in the financial statements unless a fair value can be reasonably estimated. These services are used in the normal course of operations and the provider of the services has explicitly defined the value of the services to SCN.

Research Programs Expenditures

Costs relating to research programs are recorded as expenditures when the expenditure is incurred.

1. **SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** (continued)

Research Programs Expenditures (continued)

The research grants are determined to become payable at the time when the board of directors approves the grant and the grant recipient investigator has submitted a signed acceptance of award and related documentation formally acknowledging the grant. Research grants that have been identified as payments in future periods are disclosed as commitments.

Should the recipients of the grants not fulfill their obligations, the funding will need to be returned to SCN. The return of funding is accounted for as a reduction to the research grant expenditure when it is determined by the board to become repayable.

Allocation of Expenditures

SCN allocates subcontractors and salaries and benefits to applicable programs based on an estimate of the percentage of time spent on the program.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, cash held on deposit with a Canadian chartered bank and highly liquid investments with original maturities of twelve months or less, including cashable guaranteed investment certificates. The fair value of cash equivalents approximates the amounts shown in the financial statements.

Foreign Currency Transactions

SCN uses the temporal method to translate its foreign currency transactions.

Monetary assets and liabilities are translated at the rate of exchange in effect at year end. Other assets and liabilities are translated at their historic rates. Items appearing in the statement of revenues and expenditures are translated at annual average exchange rate. Exchange gains and losses are included in the statement of revenues and expenditures.

Capital assets

Capital assets are recorded at cost. Amortization is provided using the straight-line basis over the following periods:

Computer equipment	3 years
Furniture and fixtures	3 years
Leasehold improvements	3 years

Amortization of an asset commences in the month of acquisition. No amortization is recorded in the month of disposal.

1. **SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES** (continued)

Capital assets (continued)

When the SCN observes conditions that indicate that a capital asset is impaired, the net carrying amount of the capital asset is written down to the asset's fair value or replacement cost.

Financial Instruments

Measurement of financial instruments
SCN initially measures its financial assets and liabilities at fair value. SCN subsequently measures all its financial assets and financial liabilities at amortized cost.

Financial assets measured at amortized cost include cash, accounts receivable, prepaid expenditures, and restricted cash equivalents.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities.

Impairment
Financial assets measured at amortized cost are tested for impairment when there are indicators of impairment. The amount of the write-down is recognized in the statement of revenues and expenditures. The previously recognized impairment loss may be reversed to the extent of the improvement, directly or by adjusting the allowance account, provided it is no greater than the amount that would have been reported at the date of the reversal had the impairment not been recognized previously. The amount of the reversal is recognized in the statement of revenues and expenditures. The accounts receivable is netted by an allowance for doubtful accounts of $Nil (2021 - $Nil).

Transaction Costs
Transaction costs are financing fees or costs that are directly attributable to the financial assets or financial liabilities origination, acquisition, issuance or assumption. Transaction costs relating to financial assets or financial liabilities that are carried at amortized cost or cost are netted against the carrying value of the assets or liabilities and then recognized over the expected life of the instrument using the effective interest method. All other transaction costs are recognized in the statement of revenues and expenditures in the period incurred.

Use of Estimates

These financial statements have been prepared by management in accordance with ASNFPO and accordingly, require management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amount of revenues and expenditures during the reporting period. Actual results could differ from these estimates. Significant estimates in the financial statements include the estimated useful lives of capital assets, the potential recovery of research grants awarded, the amount of certain accrued liabilities and the allocation of salaries and benefits to applicable programs. These estimates are reviewed periodically and adjustments are made, as appropriate, in the statement of revenues and expenditures in the year they become known.

2. RESTRICTED CASH EQUIVALENTS

Restricted cash equivalents are amounts invested in a non-redeemable guaranteed investment certificate (GIC) which is held by SCN's bank as collateral for their credit card facility. The non-redeemable GIC bears interest at 0.5% and matures in March 2023.

3. CAPITAL ASSETS

	2022			2021
	Cost	Accumulated Amortization	Net	Net
Computer equipment	$ 70,990	$ 52,524	$ 18,466	$ 15,340
Furniture and fixtures	10,356	10,356	-	3,071
Leasehold improvements	8,497	8,028	469	3,301
	$ 89,843	$ 70,908	$ 18,935	$ 21,712

4. ACCOUNTS PAYABLE AND ACCRUED LIABILITIES

SCN does not have any government remittances owing at year end.

5. DEFERRED CONTRIBUTIONS (CONTRIBUTIONS RECEIVABLE)

Innovation, Science and Economic Development Canada ("ISEDC")

SCN was approved for ISEDC funding for $6,000,000 per year under the terms of the ISEDC program, for a three year term ending March 31, 2022. ISEDC funds are managed in accordance with the funding guidelines contained in the funding agreement between ISEDC and SCN, whereby the funding transits directly to SCN.

Changes in the deferred contributions (contributions receivable) balance for the year are as follows:

	2022	2021
Balance at beginning of year	$ (5,243)	$ 77,527
Restricted contributions received	6,000,000	6,000,000
Amount recognized as revenue	(5,854,268)	(6,082,770)
Balance at end of year	$ 140,489	$ (5,243)

6. COMMITMENTS

SCN has agreed to provide funding for research and grants related to various programs, trials and studies that are not accrued in SCN's financial statements as they are not yet payable. SCN future commitments related to these research grants amount to $19,502,698, are associated with the new contribution agreement for fiscal years ending March 31, 2023 to March 31, 2025, and are scheduled as follows:

2023	$9,564,914
2024	$5,015,890
2025	$4,921,894

7. ALLOCATION OF EXPENDITURES

Subcontractors and salaries and benefits of $1,041,604 (2021 - $953,415) have been allocated as follows:

	2022			2021
	Subcontractors	Salaries and benefits	Total	Total
Administration and general support	$ -	$ 332,051	$ 332,051	$ 303,007
Annual conference	-	48,584	48,584	45,451
Communication and outreach	5,389	371,502	376,891	346,684
Research programs	-	146,663	146,663	130,825
Training program	-	137,415	137,415	127,448
	$ 5,389	$ 1,036,215	$ 1,041,604	$ 953,415

8. IN-KIND CONTRIBUTIONS

Under an agreement, the Ottawa Hospital Research Institute ("OHRI") provides administrative support services as well as office space, storage space and furniture without charging SCN. The value of the in-kind contributions received for services is estimated to be $71,280 (2021 - $71,280) and is included in administration and general support expenditures.

9. ECONOMIC DEPENDENCE

SCN received ISEDC funds under a three year funding agreement. Revenues pertaining to this grant account for 96% (2021 - 96%) of SCN's revenues. This funding agreement ended on March 31, 2022.

SCN has secured funding through an agreement with the ISEDC for the fiscal years ending March 31, 2023 to 2025, inclusive, totalling $45,000,000.

10. FINANCIAL INSTRUMENTS

Risks

It is management's opinion that SCN is not exposed to significant credit risk, interest rate risk or concentrations of risk through its financial instruments. The following analysis provides a measure of SCN's risk exposure as at the statement of financial position date:

Currency Risk
Currency risk is the risk that the fair value of future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates. SCN holds activities in and incurs expenditures with foreign countries. Consequently, some assets and current liabilities are exposed to foreign exchange fluctuations. As at March 31, 2022 prepaid expenditures and accounts payable and accrued liabilities of $20,582 (2021 - $108,780) are carried in US dollars and converted into Canadian dollars. Any foreign exchange gains and losses on such transactions are recorded with the corresponding expenditure in the statement of revenues and expenditures.

Liquidity Risk
Liquidity risk is the risk that an entity will encounter difficulty in meeting obligations associated with financial liabilities. SCN is exposed to this risk mainly in respect to accounts payable and accrued liabilities. SCN manages its liquidity risk by monitoring its requirements through use of budgets and cash forecasts.

Credit Facility

SCN has access to $50,000 secured credit on a credit card (note 2), bearing interest at 19.99% per annum, for which the balance is required to be fully paid on a monthly basis. The credit used at March 31, 2022 amounts to $17,948 (2021 - $1,290) and is included in the balance of accounts payable and accrued liabilities.

11. COVID-19

In March 2020, the World Health Organization declared the coronavirus (COVID-19) outbreak to constitute a pandemic, with rapid developments thereafter. Measures taken by various governments to contain the virus have affected economic activity. Management has taken measures to monitor and mitigate the effects of COVID-19, and continues to follow the various government policies and guidelines, to ensure the safety and health of its vendors, attendees, and employees.

Business operations and results have not been significantly impacted by COVID-19 for SCN. Staffing levels have increased, with all staff continuing to work remotely to ensure safe working conditions.

These financial statements, prepared as of and for the year ended March 31, 2022, reflect the impacts resulting from COVID-19 to the extent known at the reporting date. The exact impact on SCN's activities thereafter cannot be predicted.

12. COMPARATIVE FIGURES

Certain comparative figures have been reclassified to conform with the current year presentation.

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