

TOGETHER TO INNOVATE!

DNA

molecule

RI-MUHC
ANNUAL REPORT
2016–2017
ADULT AND PEDIATRIC
BIOMEDICAL RESEARCH

Centre universitaire
de santé McGill
Institut de recherche



McGill University
Health Centre
Research Institute

**INNOVATIVE HEALTH CARE
DEPENDS ON INNOVATIVE RESEARCH.**

At the Research Institute of the
McGill University Health Centre,
we're together to innovate!

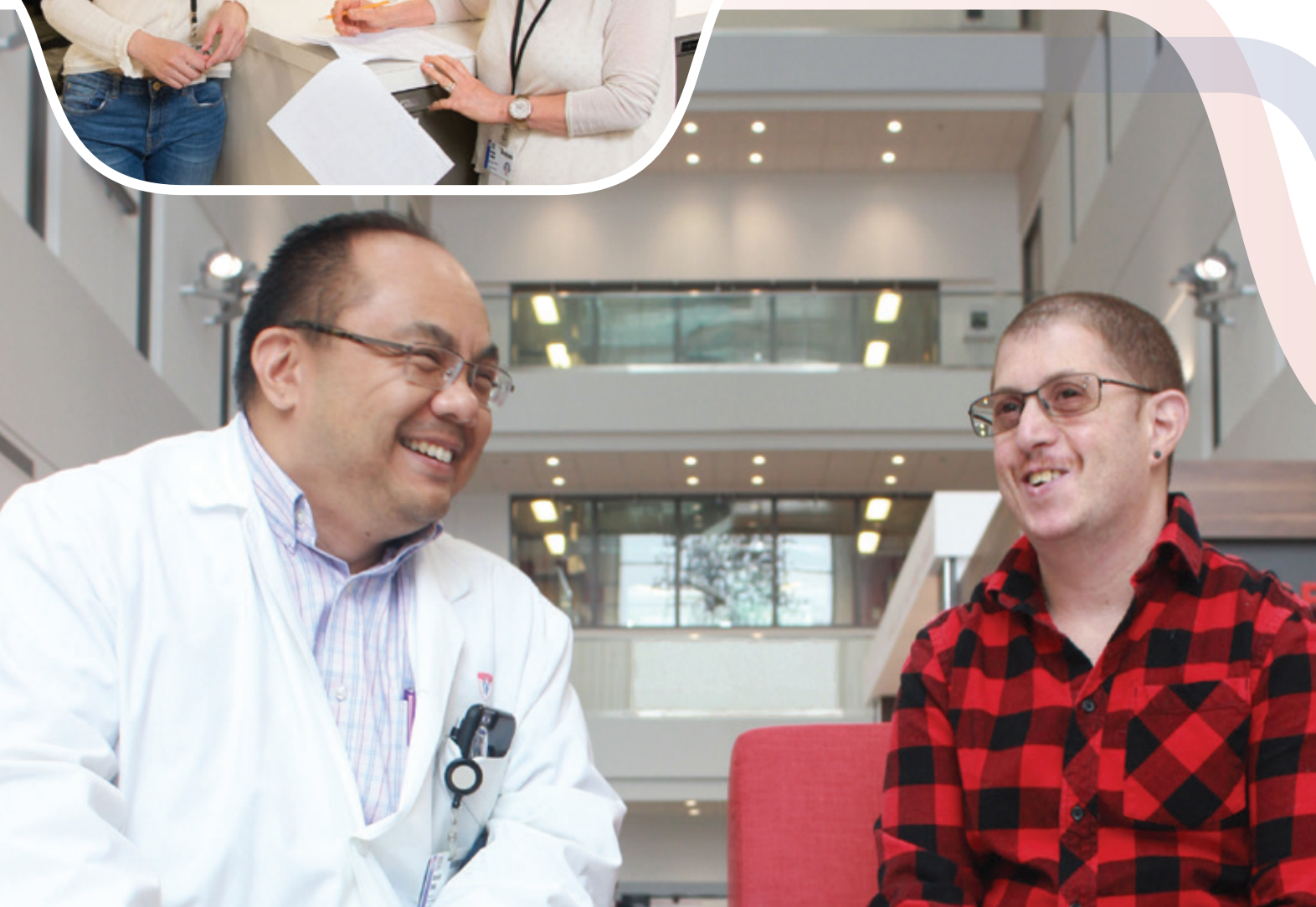


TABLE OF CONTENTS

- 3 Message from Bruce Mazer and Raymond Royer
- 4 Message from Aimee Ryan
- 5 Message from Martine Alfonso
- 5 Message from David Eidelman and Martha Crago
- 6 Year in Review
- 9 RI-MUHC Leaders and Innovators
- 15 Business Development Activities
- 16 Focus on Our Research Trainees
- 18 Awards and Recognition
- 19 Salary Awards
- 20 Publications
- 24 Funding Summary
- 26 Oversight
- 27 Your Support
- 28 Acknowledgements

**427**

active members,
including
206 fundamental,
134 clinical and
82 evaluative researchers

**1,190**

research trainees,
including **330** M.Sc. and
490 PhD candidates,
220 postdocs and **150**
clinical research fellows



Ongoing research
collaborations with
51
countries



Over **1,800**
peer-reviewed scientific
publications



Over **1,800**
ongoing research projects



Over **2,000**
scientific talks given by our
researchers worldwide



39
invention disclosures



24 patents filed
in various countries,
corresponding to
17 different inventions



10 patents issued
in various countries,
corresponding to
6 different inventions



28 technology or patent
license agreements



321 research
contracts and **640**
agreements signed

Message from BRUCE MAZER, MD, and RAYMOND ROYER

We have completed Year Two in our tremendous new facility at the Research Institute of the McGill University Health Centre (RI-MUHC). Like children in their third year, our institute is rapidly developing and growing. Focused on improving performance of our healthcare system through discoveries and innovation, we are also excited due to new faculty joining our programs.

Areas of innovation this year included finalizing an agreement with the Quebec Ministry of Economic Development, Science and Innovation to develop early-phase clinical trials in collaboration with other centres in Quebec.

A grant from the federal Post-Secondary Institutions Strategic Investment Fund, with contributions from the provincial government and Montreal General Hospital Foundation, allows for significant redevelopment of research areas at the Montreal General Hospital (MGH). Plans include new space for the Centre for Outcomes Research and Evaluation, a satellite Centre for Innovative Medicine (our unique clinical trials area), and the Surgical Innovation Platform, our centrepiece for MGH redevelopment. This dedicated incubator for cutting-edge technology will promote interaction among scientists, engineers, lawyers and industry. To these activities we add inventions and other breakthroughs facilitated by the Business Development Office, led



Bruce Mazer, MD
Executive Director and Chief
Scientific Officer (Interim), RI-MUHC



Raymond Royer
Chairman of the Board
of Directors, RI-MUHC

by Dr. Costas Karatzas. Several are highlighted in this report.

The remarkable community and facilities at the RI-MUHC have led to renewed interest on the part of young faculty; multiple interviews and new hires are pending. Our research programs have attracted top-flight talent, including investigators in neuroscience, cancer, aging, metabolism, and surgical innovation, with active searches ongoing.

This is by no means a plateau. Group efforts are underway to improve transectorial interactions, creating groups that harness the power of our programs by bringing researchers from multiple disciplines together, creating added value for the RI-MUHC.

We sincerely thank our dedicated members, partners and supporters. To complete the toddler analogy, if we spent our first two years post-move learning to walk, we are now clearly ready to run! ■

Message from AIMEE RYAN, PhD



Aimee Ryan, PhD
Deputy Executive Director and Deputy Chief Scientific Officer (Interim), Research Institute of the McGill University Health Centre (RI-MUHC)
Head of Child Health Research (Interim), MUHC

The child health research community at the RI-MUHC epitomizes the *Together to Innovate* theme of this report. Our researchers embrace social media and provide internet resources for patients and families. We use genomics to identify mutations underlying developmental disabilities, congenital anomalies and cancers. We explore innovative methods to improve quality of adult life in individuals treated for childhood diseases: restoring fertility in those treated with chemotherapeutic agents as children, or improving retention of kidney transplants in adolescents transitioning into adulthood.

Child health researchers continue to demonstrate research leadership. **Dr. Annette Majnemer** co-leads the pan-Canadian CHILD-BRIGHT network, improving life outcomes for children with brain-based developmental disabilities (see p. 6). **Dr. Larry Lands's** recommendations for newborn screening for cystic fibrosis have been adopted by the Quebec government, and **Dr. Moshe Ben-Shoshan's** research was recognized as one of ten Best Research Publications in Pediatrics for 2016 by the *New England Journal of Medicine* Publication Watch (pp. 6 and 8).

Our trainees impress with their innovative ideas and many garner national awards, like **Marie-Julie Allard** from **Dr. Guillaume Sébire's** research group, whose autism research earned her recognition by Radio-Canada this year as one of 30 inspirational people under 30. The future of child health research is in good hands as these young scientists move toward independent careers.

We thank The Montreal Children's Hospital Foundation and staff, who work with community donors and other foundations, including the Foundation of Stars, to support our new investigators and trainees and launch innovative research projects. We look forward to continued research innovation and excellence as fundamental, clinical and evaluative child health researchers at the RI-MUHC work to advance health care and the well-being of children throughout their lives. ■

Message from the MCGILL UNIVERSITY HEALTH CENTRE (MUHC)



Martine Alfonso
Interim President and Executive Director, MUHC

As an academic health centre that strives to carry out world-class clinical care, research and teaching in a networked health system, the McGill University Health Centre (MUHC) is proud that the Research Institute of the MUHC (RI-MUHC) has collaborative relationships in Canada and over 50 countries. Through these alliances and its focus on translational research and intervention across the lifespan, the RI-MUHC is having an impact on the health and well-being of people at home and around the globe, while also helping to shape the future of health care. Our commitment to collaborate in the name of progress has also allowed the RI-MUHC to advance knowledge, which in turn has ranked it consistently over the last decade among the top three hospital-based research institutes in Canada.

I am pleased to thank the RI-MUHC's Interim Executive Director and Chief Scientific Officer, Dr. Bruce Mazer, its researchers and board of directors, as well as foundations, donors and granting agencies for supporting research discoveries and innovation at the MUHC. ■

Message from MCGILL UNIVERSITY

Research in the health sciences has long been the transformative force solving some of the world's most pressing challenges, enabling us to discover treatments and cures for deadly diseases. Improving the health of our communities locally, nationally and globally requires a perfect balance among basic, translational and clinical discoveries. Throughout this report are outstanding examples made possible by work conducted at the RI-MUHC. Yet there is still much more we must do to remain at the forefront of a changing health landscape.

McGill is very proud of its longstanding partnership with the RI-MUHC, with which we share a passion for research and commitment to train the best scientists. Today's early-career researchers represent Canada's future ability to face the health challenges of the 21st century. State-of-the-art facilities and world-class mentors at the RI-MUHC provide them with an incredibly enriching opportunity to realize their potential and help keep Canada on the map as a global beacon in health science research.

We congratulate colleagues at the RI-MUHC on yet another successful year, and we look forward to continuing to innovate together for the benefit of the populations we serve. ■



David Eidelman, MD, CM, FRCPC
Vice-Principal (Health Affairs) and Dean, Faculty of Medicine

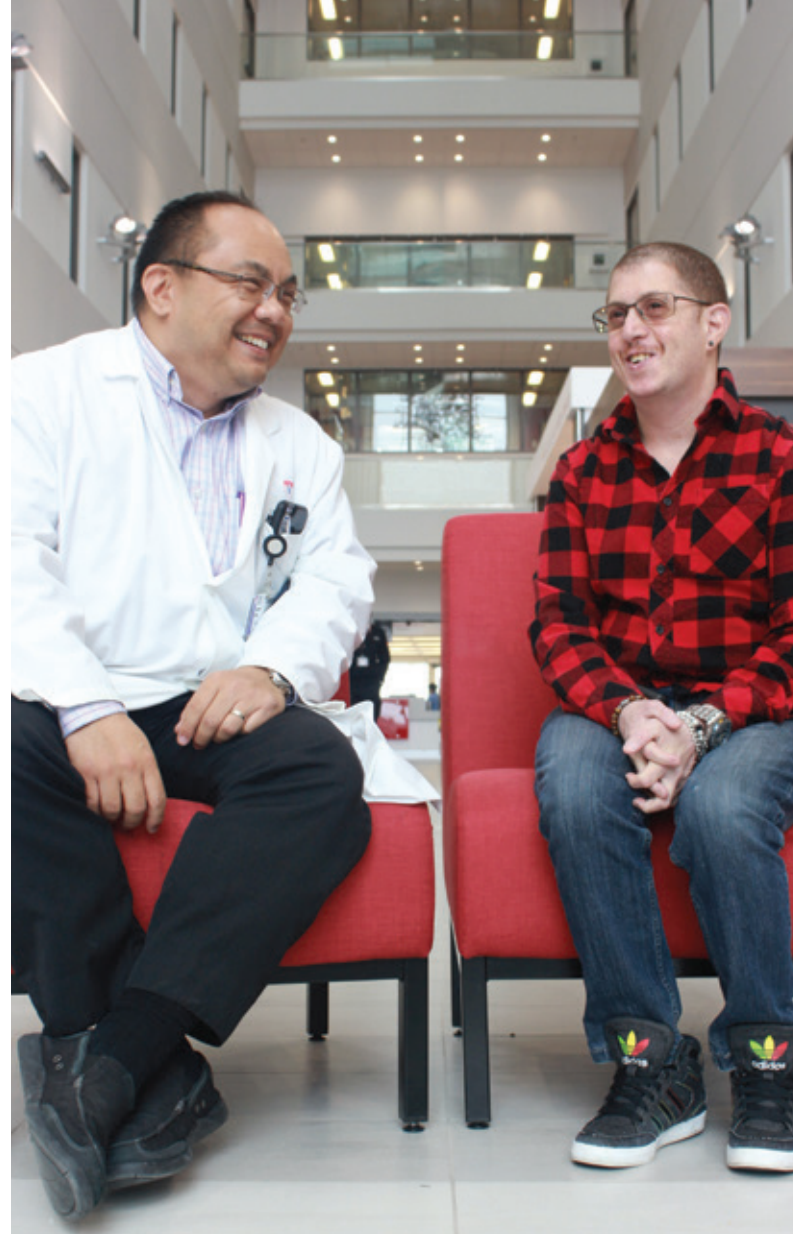


Martha Crago, PhD
Vice-Principal (Research and Innovation)

FROM DIAGNOSTIC ODYSSEY TO THERAPEUTIC HOPE

Dr. Donald Vinh (Infectious Diseases and Immunity in Global Health Program) specializes in solving medical mysteries by taking clinical observations back to the laboratory bench. His breakthrough in the case of Steven Francis, a patient whose condition had eluded diagnosis for 30 years, was recently published in the *Journal of Allergy and Clinical Immunology*.

Dr. Vinh discovered that Francis harboured a rare genetic mutation that left him immunocompromised and susceptible to recurrent infections. As no treatment for ZAP70 immune deficiency existed, Dr. Vinh's team developed a molecule that specifically blocked this mutation, restoring immune function and providing hope for future therapy. ■



Donald Vinh, MD with MUHC patient Steven Francis

A BRIGHTER FUTURE FOR CHILDREN WITH BRAIN-BASED DEVELOPMENTAL DISABILITIES



The CHILD-BRIGHT Network is a new pan-Canadian research network that aims to improve life outcomes for children with brain-based developmental disabilities and their families.

Principal investigator **Dr. Annette Majnemer** (Child Health and Human Development Program) leads the network and five-year project with co-directors at The Hospital for Sick Children (SickKids) and the BC Children's Hospital.

She is pioneering patient-oriented programs in research, knowledge translation and training, as well as a citizen engagement platform.

CHILD-BRIGHT is one of seven nationwide networks supported by the Canadian Institutes of Health Research under Canada's Strategy for Patient-Oriented Research (SPOR). More at www.child-bright.ca. ■



Annette Majnemer, OT, PhD



NEW APPROACH TO DIAGNOSING ANTIBIOTIC ALLERGIES IN CHILDREN

Dr. Moshe Ben-Shoshan (Infectious Diseases and Immunity in Global Health Program) and his team are changing the way we understand childhood antibiotic allergies. They have demonstrated that the traditional method for diagnosing these allergies, based on skin testing, lacks sensitivity.

Graded provocation tests, an alternative method of allergy testing in which children are gradually given the antibiotic, proved to be faster, cheaper and more sensitive than skin testing. Dr. Ben Shoshan's findings, published in *JAMA Pediatrics*, demonstrated that skin tests were negative for 94.1% of children who had positive provocation tests for amoxicillin, indicating that skin tests are not appropriate for diagnosing childhood amoxicillin allergies. ■



Moshe Ben-Shoshan, MD



NEWBORN SCREENING FOR CYSTIC FIBROSIS IN QUEBEC

Cystic fibrosis (CF) is a respiratory disease characterized by the production of thick mucus that blocks the airways, resulting in chronic infections. Children with CF who are diagnosed through newborn screening are healthier as they can be treated sooner, preventing complications, as **Dr. Larry Lands** (Translational Research in Respiratory Diseases Program) has demonstrated.

His study published in the *Journal of Cystic Fibrosis* helped build the case for advocacy of newborn CF screening in Quebec. Thanks to his work and that of other CF Canada members, the Quebec Ministry of Health and Social Services announced in June 2017 that screening will be implemented. ■



Larry Lands, MD, PhD



ACTIVITY PRESCRIPTIONS: ONE "STEP" CLOSER TO A HEALTHY LIFESTYLE

Dr. Kaberi Dasgupta (Metabolic Disorders and Complications Program) and her team showed that written "step prescriptions" from a physician are associated with improved health outcomes in patients with type 2 diabetes and hypertension.

Their study published in *Diabetes, Obesity and Metabolism* provided all participants with a pedometer, but only some with a written step count prescription. After one year, patients given the prescription increased their daily counts by 1,200 steps compared to patients not given one, and those with type 2 diabetes showed improved blood sugar control and reduced insulin resistance. It's a step toward reducing complications of a prevalent chronic disease. ■



Kaberi Dasgupta, MD, M.Sc.



DISCOVERY OF A NOVEL MUTATION LINKED TO HIP OSTONECROSIS

Osteonecrosis, or “bone death,” occurs when blood flow to the bone is disrupted. In the hip bone, specifically the femoral head, it eventually necessitates hip replacement.

Dr. Chantal Séguin (Injury Repair and Recovery Program) and her team discovered that a novel mutation in a gene called TRPV4 is linked with osteonecrosis. Their breakthrough could shed light on mechanisms driving disease progression, as this gene is known to play important roles in both bone cell development and blood flow regulation. Ultimately, these findings could allow doctors to identify and treat bone death before symptoms arise, and potentially avoid hip replacements. ■



Chantal Séguin, MD



LIPOPROTEIN(A): A NEW RISK FACTOR IN HEART DISEASE

Dr. George Thanassoulis (Cardiovascular Health Across the Lifespan Program) and his team have demonstrated that a relatively unknown type of cholesterol called Lipoprotein(a), or Lp(a), is associated with increased risk of heart disease.

One in 14 heart attacks and one in seven cases of aortic valve disease are due to Lp(a), as their study published in *Arteriosclerosis, Thrombosis and Vascular Biology* reveals. “We hope our work raises awareness that individuals with high Lp(a) are at high risk of heart disease, and that it stimulates the development and testing of new therapies,” says Dr. Thanassoulis. This highly specialized test is available at the MUHC. ■



George Thanassoulis, MD, M.Sc.

NEW MARKER IDENTIFIED FOR PANCREATIC CANCER

Pancreatic ductal adenocarcinoma (PDAC) is a leading cause of cancer-related deaths, largely because symptoms only become evident once the cancer has progressed to an advanced stage.

Drs. Zu-Hua Gao and George Zogopoulos (Cancer Research Program) and **Dr. Jun-Li Liu** (Metabolic Disorders and Complications Program) have discovered a new biomarker for this disease, a discovery that outlines quantifiable characteristics of the biological processes.

“We found that PDAC patients had elevated levels of regenerating (Reg) proteins, Reg1A and Reg1B, in their serum and in their cancer tissue,” explains Dr. Gao. “Our findings can help in the early diagnosis of pancreatic cancer, which may improve survival.” ■



Zu-Hua Gao, MD, PhD and Jun-Li Liu, PhD



RI-MUHC LEADERS AND INNOVATORS

How can we ensure the right radiation dosage?

Manage pain?

Use less invasive screening methods?

Optimize positive effects of drugs and reduce the negative?

At the Research Institute of the McGill University Health Centre (RI-MUHC), clinical, fundamental and health outcomes researchers come together to innovate.

With research projects advancing health care across the lifespan, here are some of our leaders who try the paths not yet taken.



FROM BENCH TO BEDSIDE: RESEARCH THAT COMPLETES THE INNOVATION CONTINUUM

Delivering the right dose of radiation for cancer patients

For **Dr. Jan Seuntjens**, a member of the Cancer Research Program at the Research Institute of the McGill University Health Centre (RI-MUHC), it all begins and ends with the patient.

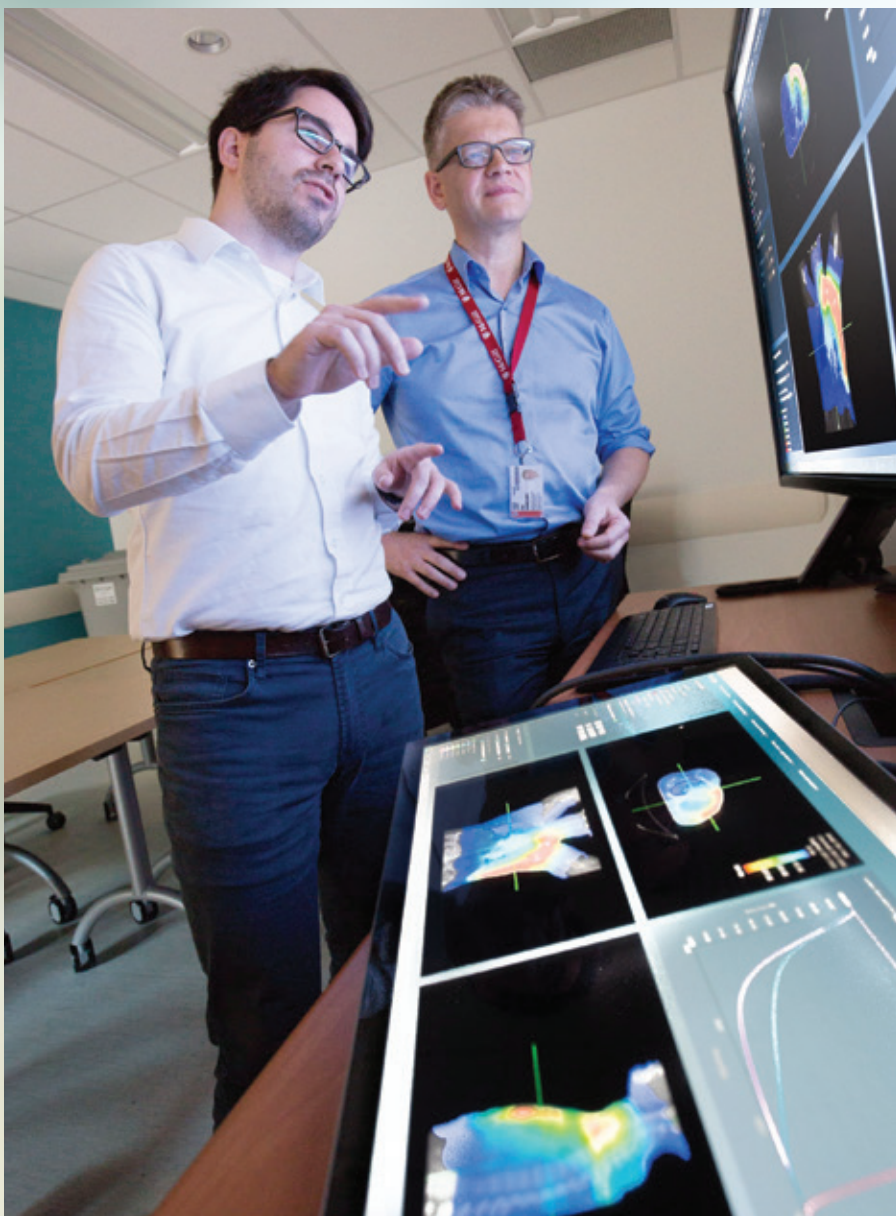
“All of my research questions come from the clinic,” explains the medical physicist, whose work revolves around techniques to ensure accurate radiation dosage in cancer therapy. Recently, postdoctoral fellow **Dr. James Renaud**, working with Dr. Seuntjens and a collaborator, **Dr. Arman Sarfehnia** (Sunnybrook, Toronto), discovered a way to miniaturize a calorimetric-based radiation detector from something the size of a fridge to a pencil-sized probe named the Aarrow. The technology has been sold to an American company now working with Dr. Seuntjens’ group and with a Quebec-based engineering firm to bring the probe to market.

This is not the only project from the physicist’s lab heading for clinical application. Dr. Seuntjens’ doctoral student, **Marc-André Renaud**, and colleague **Dr. François DeBlois** (Centre hospitalier de l’Université de Montréal) developed a software system that uses a computational algorithm based on the Monte Carlo technique to determine radiation dose. The software, Radify, uses a computed tomography scan of the patient to calculate the amount of radiation energy absorbed by the tissues. Purchased, as Aarrow was, by an American company, Radify will be used for quality assurance of radiation therapy delivery.

These contracts are a coup for the research group, but Dr. Seuntjens’ main goal is to get the technology to market where it can be used to benefit patients. ■

All of my research questions come from the clinic.

—Dr. Jan Seuntjens



Assessing radiation modelling accuracy: **Jan Seuntjens, PhD** (right), and student, **Marc-André Renaud**

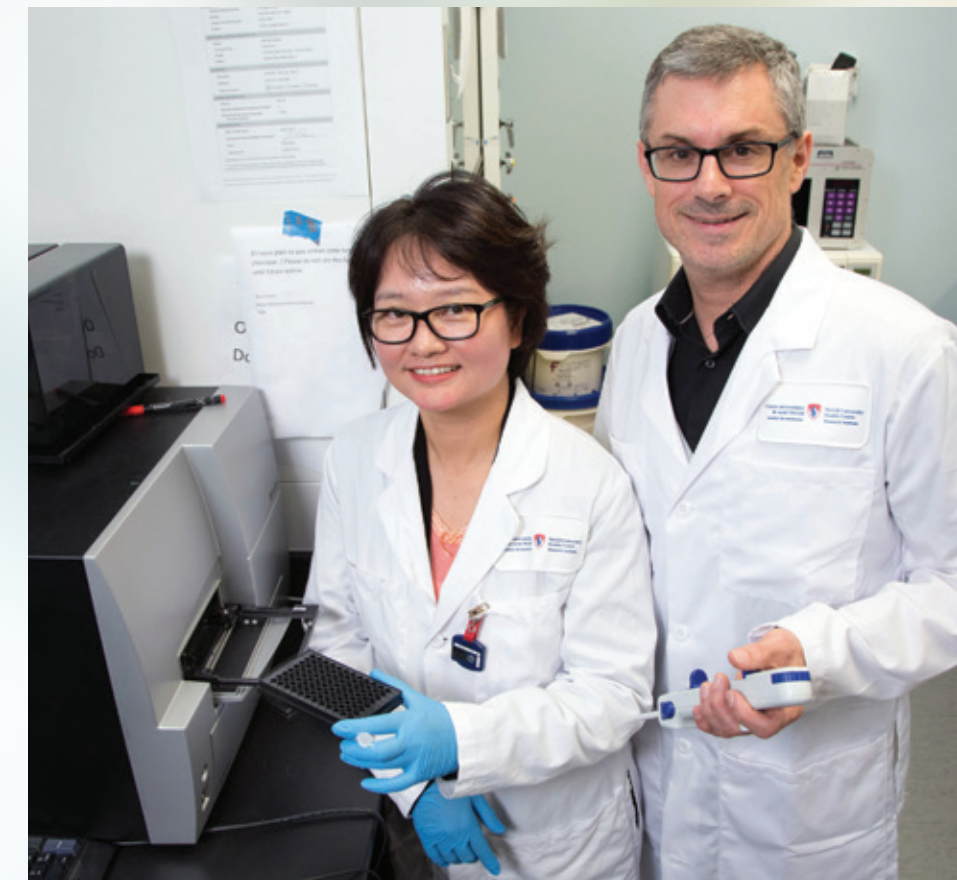
Mapping pathways in drug response

Roughly 40% of drugs currently on the market—from beta-blockers to opioids—target a class of membrane proteins found in the human genome that are known as G protein-coupled receptors (GPCRs).

More than 800 GPCRs control all kinds of processes throughout the human body, says **Dr. Stéphane Laporte**, a member of the Metabolic Complications and Disorders Program and Director of the Molecular Imaging Platform at the RI-MUHC. However, few of these GPCRs are well understood, and drugs act in diverse ways on those that are known.

Dr. Laporte and his team are working to change this by focusing on understanding the molecular and cellular mechanisms that regulate GPCRs. “The receptors act on different signalling pathways in the cell, and we can activate them, or block them, in different ways,” he says.

He and his colleagues, including **Dr. Michel Bouvier** of the Institute for Research in Immunology and Cancer, Université de Montréal, have developed biosensors that can be used to “light up” the different pathways in living cells. The hope, for drug companies, is that if they know which pathways to target, they can find a drug that produces the desired beneficial effects without the negative effects: for example, an opioid that relieves pain without causing tolerance, respiratory depression or constipation, says Dr. Laporte.



Stéphane Laporte, PhD (right), and research associate **Yoon Namkung, PhD**: Harnessing biosensor technology

The novel technology has already been licensed by several therapeutic and pharmaceutical companies, and Dr. Laporte expects that new and improved medications will be available in the next five to ten years. ■

The hope, for drug companies, is that if they know which pathways to target, they can find a drug that produces the desired beneficial effects without the negative effects.

AN INFORMED APPROACH TO MEDICAL CANNABIS USAGE

Learning from patients in pain

“I focus on trying to take an integrative and scientific approach to a product like cannabis, which is widely used and widely misunderstood,” says **Dr. Mark Ware** (Brain Repair and Integrative Neuroscience Program; Centre for Outcomes Research and Evaluation).

A family physician who works in chronic pain, Dr. Ware was initially inspired to research the use of cannabis for pain management after hearing anecdotal evidence of its potential from his patients. Although he has been doing this research for some 17 years, Dr. Ware, vice-chair of the recent Canadian federal task force on cannabis legalization and regulation, cautions that there is still a lot to learn.

“Clinical research needs patients *and* patience,” he says, and cannabis research tends to take longer because the regulatory pathways are quite new. “We are forging paths that have not been taken, and asking questions that have not been asked before,” he explains.

Dr. Ware is principal investigator of the Quebec Cannabis Registry, the world’s first research database on the use of cannabis for medical purposes, and he is excited by the potential of the database to answer some of these questions. “As of today we are about halfway to our target enrolment of 3,000 patients,” he reports. He is hopeful that by late 2017, the registry will have a dataset clean enough to ask some preliminary questions. ■



“Asking questions that have not been asked”: **Mark Ware, MD, M.Sc.**

A counterintuitive approach to COPD management

It all began with questions from patients with chronic obstructive pulmonary disease (COPD) who were participating in a clinical trial for oral morphine. A few wondered whether anyone was doing research into cannabis for the management of breathlessness. The idea seemed counterintuitive, says **Dr. Dennis Jensen** (Translational Research in

Respiratory Diseases Program; Centre for Innovative Medicine), but once he and his team looked at the literature, they realized there might be something to it.

In a series of studies done about 40 years ago, “there was some evidence that smoked cannabis actually improved acute lung function in healthy adults and in patients with asthma,” he explains.

Dr. Jensen and colleagues, including **Dr. Jean Bourbeau**, Director of the Centre for Innovative Medicine, and **Dr. Mark Ware**, reached out to the medical marijuana company Tilray and proposed a pilot randomized clinical trial to look at the effect of cannabis on pulmonary function, breathlessness and exercise tolerance in patients with COPD.

The patients in the trial all had advanced COPD and suffered from disabling breathlessness, despite receiving optimal available medication for their disease. They were given inhaled vaporized cannabis or a placebo, followed by a series of lung function tests and a cardiopulmonary cycle exercise endurance test. The trial has been completed with results pending publication.

“This is truly the first trial in the world to look at this in COPD,” says Dr. Jensen. “And this trial is just the first step.” ■

Jean Bourbeau, MD, M.Sc., and **Dennis Jensen, PhD**



Dr. Jensen explains the administration of inhaled vaporized cannabis.



A NONINVASIVE TEST FOR CHILDREN WITH KIDNEY DISEASE

“The most common cause of kidney failure in children is from a kidney connected to a malformed drainage system,” says pediatric nephrologist **Dr. Indra Gupta** (Child Health and Human Development Program; Centre for Translational Biology).

Currently, to diagnose this kind of drainage defect, physicians must insert a catheter in the child’s urethra, fill the bladder with contrast dye, and then

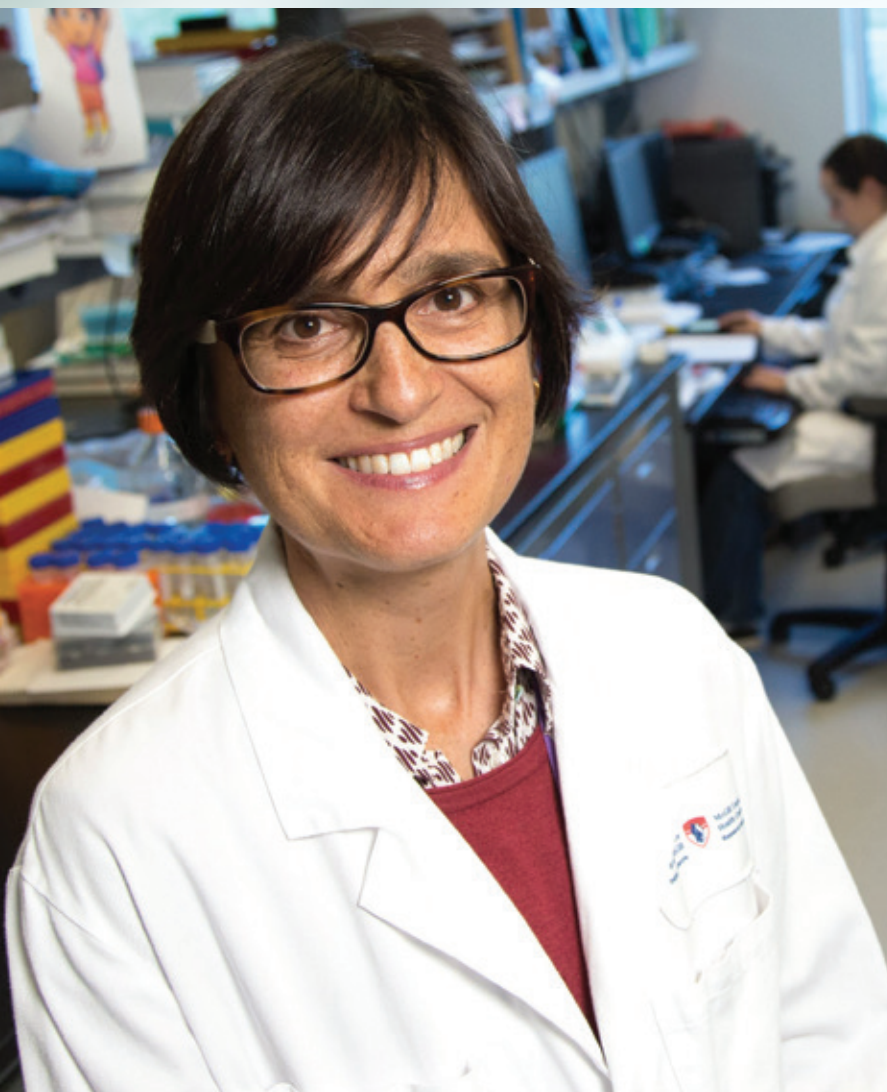
use radiation-based imaging technology. “It’s not very pleasant for the children, or for the parents,” says Dr. Gupta. She is hopeful, however, that there will eventually be a much simpler test for the children that can be performed at the bedside.

Dr. Gupta and her colleagues identified a gene—tenascin XB—associated with the development of support tissues in the drainage system as well as other areas of the body.

“Children who have mutations in this gene have a defect in their drainage system and they get frequent urine infections,” she explains. “Our work has determined that these children are also double-jointed or very flexible, probably because there are also defects in the support tissues around the joints.”

A simple test for hypermobility performed at the bedside

This led the research team to investigate a simple test for hypermobility that involves asking children to manipulate their joints, in order to further identify those at risk for drainage problems. Dr. Gupta and her colleagues are currently using this screening method to test children suspected of being at risk of drainage problems in hopes of confirming the association. “And the children actually enjoy doing it!” she says. ■



Indra Gupta, MD, a pediatric clinician-scientist, finds solutions for her young patients with kidney disease



NEW TARGET FOR CYSTIC FIBROSIS DRUG DEVELOPMENT: CERAMIDES

Cystic fibrosis (CF) is a deadly respiratory disease characterized by thick mucus in the lungs. This mucus becomes colonized by pathogens and initiates a vicious cycle of infection and inflammation. Although no effective therapeutic options for CF exist, **Dr. Danuta Radzioch** (Infectious Diseases and Immunity in Global Health Program) and her research team have made important advances with the help of industry.

The team discovered that ceramides—a specialized type of lipids found in human cells—are imbalanced in the lungs of CF patients. Ceramides are involved in triggering immune responses necessary to combat infections. Thus, severely imbalanced ceramide levels are associated with an inability to mount an effective immune response against these pathogens. The team further demonstrated that administration of the drug fenretinide can restore normal levels of protective ceramides in CF patients.

“CF patients are often treated with corticosteroids, but these drugs suppress the immune system and impede its ability to fight infection,” explains Dr. Radzioch. “What makes fenretinide so exciting is that, in contrast to corticosteroids, correcting ceramide imbalance actually *improves* the ability of the immune system to combat pathogens.”



Costas Karatzas, PhD, and Marlies Otter, PhD, of the Business Development Office, RI-MUHC

These groundbreaking findings from the Phase Ib trial were published in the *Journal of Molecular Medicine*, and Laurent Pharmaceuticals Inc. is sponsoring a Phase II clinical trial.

The development of fenretinide for the treatment of CF depended on dedicated collaborators, says Dr. Radzioch, including **Drs. Elias Matouk and Larry Lands** (Translational Research in Respiratory Diseases Program), the McGill Office of Technology Transfer, industry partners, and **Dr. Costas Karatzas**, Director of the Business Development Office at the Research Institute of the McGill University Health Centre. “This ongoing team effort enabled us to protect critical patents, secure funding opportunities and partner with a private company so that our research could transition through pre-clinical and early clinical trials, with the ultimate goal of benefiting CF patients,” she explains. ■



Danuta Radzioch, PhD: Advancing cystic fibrosis research

DID YOU KNOW?

It takes 12 to 15 years and around \$1 billion to bring a new drug from discovery in the lab to the marketplace.

Nearly 1,200 research trainees provide a wealth of new ideas at the Research Institute of the McGill University Health Centre (RI-MUHC). These are only a few.

Students



RENATA BAHOUS
DOCTORAL CANDIDATE

Supervisor: **Dr. Rima Rozen**
Child Health and Human Development Program

GENETIC DEFICIENCIES IN THE METABOLISM OF FOLIC ACID

- FRQS award
- Showed high levels of folic acid in pregnant mice leads to short-term memory impairment in offspring (*Human Molec Genet.* 2017). Suggests that pregnant women should consume modest amounts of folic acid
- Two publications; seven presentations with three awards



CLAIRE GIZOWSKI
DOCTORAL CANDIDATE

Supervisor: **Dr. Charles Bourque**, Brain Repair and Integrative Neuroscience Program

THIRST, OSMOREGULATION, CIRCADIAN RHYTHMS, NEUROTRANSMISSION

- Recipient of the first Carbonetto Award from the Centre for Research in Neuroscience
- First-author publication in *Nature*



KASHIF KHAN
M.Sc. CANDIDATE

Supervisor: **Dr. Renzo Cecere**, Cardiovascular Health Across the Lifespan Program

HEART TISSUE REGENERATION, ANGIOGENESIS, STEM CELL, HIPPO CELL FACTOR

- First prize: Annual 3-Minute Thesis (3MT) competition, McGill University
- First prize and People's Choice Award: 2017 Eastern Regional 3-Minute Thesis Competition, University of New Brunswick



EMERSON KROCK, PhD
DOCTORAL CANDIDATE IN 2016-2017

Supervisor: **Dr. Lisbet Haglund**, Injury Repair Recovery Program

BACK PAIN

- FRQS doctoral award (three years) and two additional fellowships
- Five publications to date, three as first author
- Awarded best oral presentation at World Forum for Spine Research in Xi'an, China, May 2014

Postdoctoral Fellows



DORIVAL MARTINS, PhD

Supervisor: **Dr. Dao Nguyen**, Translational Research in Respiratory Diseases Program

BIOCHEMISTRY, MOLECULAR BIOLOGY AND CHEMICAL PHYSIOLOGY OF ANTIBIOTIC TOLERANCE

- CIHR Postdoctoral Fellowship
- Awards: Gordon Research Conference, Cystic Fibrosis European Meeting, RI-MUHC Respiratory Research Day
- One first-author publication, five in preparation; one report of invention
- Featured research in media: Cystic Fibrosis Canada
- Postdoctoral Career Day organizer
- Trainee committee: FRQS visit preparations



CLAIRE NASH, PhD

Supervisor: **Dr. Axel Thomson**, Cancer Research Program

PROSTATE, STROMA, MESENCHYME, ANDROGEN RECEPTOR, PRIMARY CELLS, CANCER-ASSOCIATED FIBROBLASTS

- First and third author of two publications in *Molecular and Cellular Endocrinology* in 2017
- First prize for oral presentations: Cancer Research Program Research Day 2017, RI-MUHC; Fraser Gurd Research Day 2017, Experimental Surgery, McGill University



JESSICA WIDDIFIELD, PhD

Supervisor: **Dr. Sasha Bernatsky**, Infectious Diseases and Immunity in Global Health Program

EVALUATING PATIENT CARE AND OUTCOMES OF RHEUMATOID ARTHRITIS

- Six peer-reviewed publications (first author of four) since 2016
- Ten abstracts/presentations at local, national and international scientific meetings
- CIHR/Arthritis Alliance of Canada Postdoctoral Prize recipient
- Lead or co-lead on five successful grant applications, with four more under review



LAMA YAMANI, PhD

Supervisor: **Dr. Stéphane Laporte**, Experimental Therapeutics and Metabolism Program

DEVELOPING AND VALIDATING BIOSENSORS AS TOOLS FOR IDENTIFYING BETTER DRUGS

- Postdoctoral Training Fellowship, Mitacs Accelerate Program in partnership with Domain Therapeutics
- Third prize poster presentation, International Drug Discovery and Development Forum in Montreal, June 2017
- Authored five publications in high-impact journals, including co-authorship in *Nature Communications* in 2017

Marcel Behr, MD, M.Sc.

Fellow, Canadian Academy of Health Sciences

Moshe Ben-Shoshan, MD

One of ten Best Research Publications in Pediatrics (2016), *New England Journal of Medicine* Publication Watch

Christine McCusker, MD, M.Sc.

F. Estelle R. Simons Award for Research, Canadian Society of Allergy and Clinical Immunology

Raquel del Carpio-O'Donovan, MD

Gold Medal, Canadian Association of Radiologists

Gold Medal, Peruvian Radiology Society and InterAmerican College of Radiology

Theresa Gyorkos, PhD

Vic Neufeld Mentorship Award in Global Health Research, Canadian Coalition for Global Health Research

Jim Hanley, PhD

Statistical Society of Canada Impact Award

Bruce Mazer, MD

Jerry Dolovich Award, Canadian Society of Allergy and Clinical Immunology

Martin Olivier, PhD

Wardle Medal, Canadian Society of Zoologists

Nitika Pant Pai, MD, PhD

"Transition-to-scale" support, Grand Challenges Canada

Morag Park, PhD

Robert L. Noble Prize, Canadian Cancer Society

Louise Pilote, MD, PhD

Woman of Distinction Award, Health category, YWCA

Danuta Radzioch, PhD

Co-investigator, study selected as People's Choice, Top 10 Discoveries of 2016, *Québec Science* magazine

David Stellwagen, PhD

Discovery Accelerator Supplement, Natural Sciences and Engineering Research Council

Patricia Tonin, PhD

Karen Campbell Award for Research Excellence, Ovarian Cancer Canada

Mark Ware, MD, M.Sc.

Vice-chair, federal Task Force on Cannabis Legalization and Regulation

FELLOWS OF THE ROYAL SOCIETY OF CANADA

Charles Bourque, PhD

William Foulkes, MD, PhD

Guy Rouleau, MD, PhD

OUTSTANDING ACHIEVEMENTS RECOGNIZED BY MCGILL UNIVERSITY

Sara Ahmed, PhD

Steven Backman, MD, PhD

John Bergeron, PhD

Stella Daskalopoulou, MD, PhD

William Foulkes, MD, PhD

Marina Klein, MD, M.Sc.

Nancy Mayo, PhD

Emil Nashi, MD, PhD

Madhukar Pai, MD, PhD

Maya Saleh, PhD

FONDS DE RECHERCHE DU QUÉBEC SANTÉ (FRQS)

RESEARCH CHAIRS

Nada Jabado
Edward Ruthazer

NATIONAL RESEARCHERS

Marina Klein
Robert William Platt

RESEARCH SCHOLARS

Carolyn Baglote
Sylvain Baillet
Andrea Benedetti
Sasha Bernatsky
Jean-François Cloutier
Nandini Dendukuri
Maziar Divangahi
Elena Dragomir
Mayada Elsabbagh
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INSTITUTIONAL GRANTS	2016-2017 \$
Fonds de recherche du Québec–Santé (FRQS)	4,411,972
Research Support Fund (Government of Canada)	4,535,471
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Other revenues	5,590,671
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Canadian Cancer Society Research Institute	624,279
PROCURE—The Force Against Prostate Cancer	539,766
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Quebec Breast Cancer Foundation	430,355
Richard and Edith Strauss Canada Foundation	400,000
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Amyotrophic Lateral Sclerosis (ALS) Society of Canada	356,219
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