2011–2012 ANNUAL REPORT

Child Health Research:
Growing With Our **Strengths**

Institut de recherche
Centre universitaire de santé McGill
Research Institute
McGill University Health Centre

Hôpital de Montréal pour enfants
Centre universitaire de santé McGill
Montreal Children's Hospital
McGill University Health Centre

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"This year, major genetic breakthroughs ... afforded a preview of what we can do when we join our traditional strengths with next-generation sequencing technologies."

Jacquetta Trasler, MD, PhD

Director, Child Health Research
RI-MUHC at the Montreal Children's Hospital (MCH)

Message

from the Director, Child Health Research, Research Institute of the McGill University Health Centre (RI-MUHC)

Two years after the groundbreaking for the new MUHC and its Research Institute, the buildings on the Glen site are near completion. Our research community, soon to be associated with the new Montreal Children's Hospital (MCH), is also looking closely at foundations, working out the best ways to grow with our strengths and transition to our future site—then keep growing.

Infrastructure has a predefined height, unlike medical discoveries. This year, major genetic breakthroughs by MCH scientists in the fields of brain tumour research and child blindness afforded a preview of what we can do when we join our traditional strengths with next-generation sequencing technologies, working with collaborators at McGill and across the globe. The resultant cutting-edge genetic research is highlighted on page 8 of this report.

To keep growing strategically, our child health research programs depend on the concerted support of our Advisory Board and funding partners, including the FRQS, CIHR, CFI, MCH Foundation and Foundation of Stars. To Dr. Harvey Guyda in particular, who retired as Associate Executive Director of the MCH in September 2012, no tribute could be overstated. In his many roles at the MCH over 43 years, Dr. Guyda provided the far-sighted leadership that aligns clinical care and research in the interests of excellence. His legacy is a framework for the wellbeing of each child who enters our Hospital.

"The MCH has garnered much attention for continued outstanding developments into devastating pediatric diseases."

Message

of the Executive Director and Chief Scientific Officer, Research Institute of the McGill University Health Centre (RI-MUHC)

Vassilios Papadopoulos, D.Pharm., PhD

Executive Director and
Chief Scientific Officer
RI-MUHC

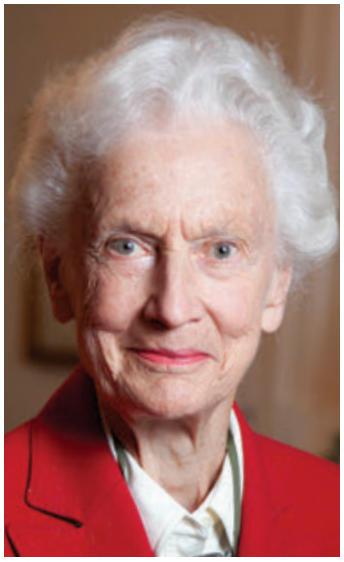
Child health research is an integral component of research across the lifespan at the RI-MUHC, and recent important breakthroughs at the Montreal Children's Hospital (MCH) remind us why this is so. This year, the MCH has garnered much attention for continued outstanding developments into devastating pediatric diseases. Uncovering the genetic secrets that affect diseases ranging from fatal brain tumours to congenital blindness in newborns, child health studies at the MCH exemplify the kind of research that ultimately aims to improve care and ensure healthier long-term outcomes for our smallest and most vulnerable patients.

Excellent research requires experts in the field, an unwavering attention to detail, state-of-the-art technology, commitment and patience. As the profiles in this report attest, researchers at the MCH are dedicated to improving young lives every single day.

Another important focus for ensuring that their research stays strong and continues to grow is the creation of new facilities that will accommodate the more complex needs of patients.

Nevertheless, the greatest assets of the MCH are its people, followed by the committed leadership of management that keeps the focus on a future that runs parallel with excellence.

"At the MCH, child health researchers take a patient-centred approach."



Gretta Taylor Chambers,
CC, OQ BA, DLitt

Chair of the Advisory Group on Research to the CSCA

Chancellor Emerita,
McGill University

Message

from the Chair of the Advisory Group on Research to the Council for Services to Children and Adolescents (CSCA)

It has been a pivotal year for research at the Montreal Children's Hospital (MCH), paving the way for a major reorganization prior to the move into new space at the Glen site. The 2012 teams of clinical and basic child health researchers at the Research Institute of the McGill University Health Centre have provided cutting-edge work, particularly in genetic research, with breakthroughs in deadly brain cancer and child blindness.

At the MCH, child health researchers take a patient-centred approach to their study and laboratory work, as may be seen in the sampling of researcher profiles in this report. Results range from the improvement of outcomes for adolescents undergoing kidney transplants to a better understanding and control of asthma. Valuable work continues on the treatment and diagnosis of inflammatory bowel disease in children. Seminal studies in attention deficit hyperactivity disorder (ADHD) influence the treatment of this prevalent condition.

A very distinctive aspect of 2012 has been the retirement of Dr. Harvey Guyda, the Associate Executive Director of the MCH. Dr Guyda's 43-year association with the hospital provided indefatigable support for research done by the clinician-scientists who take what they learn at the bedside and in the operating room into their laboratories. Dr. Guyda will be greatly missed, but he is leaving much on which to build, including a culture for learning and growth.

Message

from the Associate Executive Director of the Montreal Children's Hospital (MCH)

Harvey J. Guyda, MD, FRCPC

Associate Executive Director
Montreal Children's Hospital
of the MUHC (2008–2012)

Over the past four decades, I have observed the growth and development of child health research at McGill University that has been associated primarily with the Montreal Children's Hospital. This annual report rightly highlights the remarkable careers of several well established investigators in our community. Their work confirms my hope for the future of child health research as the move into our new research environment approaches.

We have also welcomed eager new recruits who are just establishing their careers, both in the laboratory and at the bedside. They represent a new generation of clinician-scientists with expertise in child health outcomes research, including neonatal hypoxia, patient safety, complex patient care, social pediatrics and transition to adult care.

Research using enhanced technology has advanced our care for severely ill patients with brain tumours (intraoperative MRI), organ transplantation (extracorporeal membrane oxygenation, or ECMO; Berlin Heart; dialysis), neonatal hypoxia (MRI; ECMO; Total Body Cooling), severe craniofacial abnormalities (nasoalveolar molding implants), sleep apnea (home monitors) and technology dependency (total parenteral nutrition; respirators). I congratulate the "youngsters" in our research community and wish them a successful future. Our patients and their families will be the beneficiaries.

OUR RESEARCHERS

By Axis of the Research Institute of the MUHC

Cancer Axis
Sharon Abish
David Mitchell
Janusz Rak

Cardiovascular Diseases and Critical Care Axis
Dominic Chalut
Adrian Dancea
Ronald Gottesman
Sam Shemie
Dominique Shum-Tim
Davinia Withington
Samara Zavalkoff

Endocrinology, Diabetes, Nutrition and Kidney Diseases Axis
Najma Ahmed
Lorraine Bell
Sherif Emil
Preetha Krishnamoorthy
Laurent Legault
Véronique Morinville
Constantin Polychronakos
Gloria S. Tannenbaum
Michele Zappitelli

Health Outcomes Axis
Maala Bhatt
Franco Carnevale
Evelyn Constantin
Geoffrey E. Dougherty
Sasha Dubrovsky
Mohamed El-Sherbiny
Sylviane Forget
Bethany Foster
Fatemeh Jafarian
Michael S. Kramer
Lucyna Lach
Patricia Li
Stephen Liben
Mary Ellen Macdonald
Annette Majnemer
Romain Mandel
John J. Manoukian
David McGillivray
Meranda Nakhla
Hema Patel
Robert William Platt
I. Barry Pless
Caroline Quach
Saleem Razack
Janet Elizabeth Rennick
Patricia Riley

Human Reproduction and Development Axis
Sam Joseph Daniel
Cynthia Gates Goodyer
Paul R. Goodyer
Indra Gupta
Roman Jednak
Loydie Jerome-Majewska
Jean-Martin Laberge
Aimée Ryan
Michael Shevell
Laurie Snider

Infection and Immunity Axis
Reza Alizadehfar
Moshe Ben-Shoshan
Martin Bitzan
Bruce Mazer
Christine McCusker
Jane McDonald
Dorothy L. Moore
Earl Rubin
Ernest G. Seidman

Medical Genetics and Genomics Axis
Nancy Braverman
Kathleen Glass
Nada Jabado
Feige Kaplan
Robert K. Koenekoop
John Mitchell
Rima Rozen
Charles R. Scriver
Jacquetta Trasler

Mental Illness and Addiction Axis
Eric Fombonne
Brian Greenfield
Lily Hechtman
Cécile Rousseau

Musculoskeletal Disorders Axis
Sarah Campillo
Gaëlle Chédeville
Reggie Hamdy
Maryam Oskoui
Jean A. Ouellet
Celia Rodd
Neil Saran
Rosie Scuccimarri

Neurosciences Axis
Geneviève Bernard
Marie-Emmanuelle Dilenge
Isabelle Gagnon
Shuvo Ghosh
Krista L. Hyde
Pierre Lachapelle
Bernard Rosenblatt
Teresa Valois Gomez
Pia Wintermark

Respiratory Health Axis
Robert Brouillette
Larry C. Lands
Johanne Morel
Francisco Noya
Pramod Puligandla
Charles Rohlicek
Guilherme Sant'Anna

Researchers Affiliated with the Montreal Children's Hospital

Jeffrey Atkinson
Claudette Bardin
Robert Barnes
Louis Beaumier
Marie Josée Béland
Margaret Berry
Farhan Bhanji
Karen A. Brown
Natalie Buu
John Paul Capolicchio
Aurore Côté
Joëlle Desparmet
Giosi Di Meglio
Alessandra Duncan
Ricardo Faingold
Jean-Pierre Farmer
Patricia Fontela
Chantal Frigon
Mirko Gilardino
Josée Lavoie
Serge Melançon
Klaus Minde
José Luis Montes
Lily Ha-Nam P. Nguyen
Thérèse Perreault
Maria Ramsay
Melvin Schloss
Christo I. Tchervenkov
Ted Tewfik
Blair Newell Whittemore

NEW RECRUITS

Moshe Ben-Shoshan, MD, M.Sc.
Assistant Professor (Clinical) of Pediatrics, McGill University; Pediatric Allergy and Clinical Immunology, Montreal Children's Hospital of the MUHC;
RI-MUHC Axis: Infection and Immunity

Dr. Moshe Ben-Shoshan studies the prevalence and potential determinants of food allergies and anaphylaxis (serious allergic reactions) in children. He also conducts research on the ability of children's immune systems to fight infectious disease. A graduate of the Sackler School of Medicine, Tel-Aviv University, Israel, Dr. Ben-Shoshan completed his pediatric residency at the Souraksy Medical Center in Tel-Aviv, followed by a research fellowship in allergy and clinical immunology at the Montreal Children's Hospital and a Master's degree in epidemiology at McGill University.

Geneviève Bernard, MD, M.Sc.
Assistant Professor (Clinical) of Pediatrics and of Neurology and Neurosurgery, McGill University; Division of Pediatric Neurology, Montreal Children's Hospital of the MUHC;
RI-MUHC Axis: Neurosciences

Dr. Geneviève Bernard investigates neurodegenerative disorders in children, diseases leading to problems with movement, speaking, hearing, vision, and mental and physical development. Her research focus is on leukodystrophies and on inherited disorders of white matter in the central nervous system. Dr. Bernard obtained her medical degree and a Master's degree in neurosciences from the Université de Montréal. She completed her residency in pediatric neurology at McGill University and fellowship training in neurogenetics and movement disorders at the Université de Montréal.

Patricia Fontela, MD, PhD
Assistant Professor (Clinical) of Pediatrics, McGill University; Pediatric Critical Care Medicine, Montreal Children's Hospital of the MUHC

Dr. Patricia Fontela conducts research in healthcare-associated infections and in antimicrobial use and resistance in pediatric intensive care units. Her medical degree is from the Universidade Federal do Rio Grande do Sul in Porto Allegre, Brazil. Dr. Fontela completed her training residency in general pediatrics at the same institution and a clinical fellowship in pediatric critical care together with a master's degree in medicine at the Pontifícia Universidade Católica do Rio Grande do Sul, also in Porto Alegre, Brazil. She holds a PhD in epidemiology from McGill University, where she completed a second fellowship in pediatric critical care.

Patricia Li, MD, M.Sc.
Assistant Professor (Clinical) of Pediatrics, McGill University; General Pediatrics, Montreal Children's Hospital of the MUHC; RI-MUHC Axis: Health Outcomes

Dr. Patricia Li studies the evidence behind practices for routine well-child visits to primary care providers. She also evaluates the organization and delivery of primary care services and quality of care for common childhood illnesses. Dr. Li completed her medical degree at McMaster University and residency training at the Montreal Children's Hospital. She then completed a fellowship in academic general pediatrics at the Hospital for Sick Children in Toronto along with a Master's degree in clinical epidemiology and healthcare research at the University of Toronto, followed by an additional year of research training in child health services at the Institute for Clinical Evaluative Sciences.

Maryam Oskoui, MD, M.Sc.
Assistant Professor (Clinical) of Pediatrics and of Neurology and Neurosurgery, McGill University; Child Neurology, Montreal Children's Hospital of the MUHC;
RI-MUHC Axes: Musculoskeletal Disorders and Health Outcomes

Dr. Maryam Oskoui is a neuroepidemiologist with a research focus on cerebral palsy. A co-leader of the Canadian Cerebral Palsy Registry, she holds a medical degree as well as a Master's degree in epidemiology from McGill University. Following residency training in pediatric neurology at the Montreal Children's Hospital, Dr. Oskoui completed a pediatric neuromuscular fellowship at New York Presbyterian Hospital, Columbia University, New York, and a second clinical research fellowship in amyotrophic lateral sclerosis (ALS; also known as Lou Gehrig's disease) at the Montreal Neurological Institute, McGill University.

CUTTING-EDGE GENETIC RESEARCH

Medical genetics is a major research strength at the Montreal Children's Hospital (MCH), driving discoveries about a wide range of diseases. Collaborations between MCH researchers and the McGill University and Genome Quebec Innovation Centre have led recently to new hope for diabetics through breakthroughs in **Dr. Constantin Polychronakos**' diabetes research program, and such collaborations are now shedding light on devastating forms of childhood blindness and cancer.

Dr. Nada Jabado, a pediatric hematologist-oncologist at MCH, has proven an exceptional talent for identifying major genetic modifications. Consequently, her laboratory is evolving into one of the top clinical cancer labs in Canada. In 2010, the research team that she co-led with Dr. Jacek Majewski at McGill University showed that it is possible to identify any genetic disease in record time, thanks to a powerful exome sequencing method. This year, Dr. Jabado's genetics and cancer research program was among the first to use this advanced technology to achieve a breakthrough in cancer research.

Genetic Breakthroughs in 2012

New Hope for Children with Deadly Brain Cancer

In January **Dr. Nada Jabado** made headlines as leader of the international research team behind a major genetic breakthrough for brain cancer in children. Published in the journal *Nature*, the study identified two genetic mutations involved in up to 40% of pediatric glioblastomas, a fatal cancer of the brain. Dr. Jabado's team found that the mutations were involved in DNA regulation, which could explain the resistance to traditional treatments and open a more productive approach to treating this and other cancers. The study showed that treatments for glioblastoma in children should differ from treatments for adults, given that different molecular mechanisms are involved. As Dr. Jabado explained, "We've been failing to hit the right spot."

Cause of Child Blindness Identified

With his international colleagues, pediatric ophthalmologist and clinician-scientist **Dr. Robert Koenekoop** identified a new gene responsible for Leber Congenital Amaurosis (LCA), a genetic form of blindness in newborns. The gene, called *NMNAT1*, is crucial for life, and had never before been associated with a human disease. The research team reached this surprising discovery by analyzing the entire genome of 60 infants with LCA. The findings, published in the journal *Nature Genetics* in July, have immediate therapeutic implications for blindness and may open the door to new treatments for other neurodenegerative diseases.

Dr. Nada Jabado
photo: Hélène Liénard

HONOURS AND DISTINCTIONS

2011

Dr. Nada Jabado received an inaugural Champions of Genetics: Building the Next Generation grant from the Canadian Gene Cure Foundation (CGCF) for her research on inherited genetic immune deficiencies. This new award initiative of the CGCF recognizes distinguished scientists who have played a vital role in the genetics community through their research, leadership and mentorship.

Dr. Michael S. Kramer was elected to the Royal Society of Canada in recognition of the important impact that his research on infant feeding and adverse pregnancy outcomes has had on clinical practice and public health policy.

2012

Dr. Evelyn Constantin was elected a member of the Society for Pediatric Research.

Dr. Nada Jabado was distinguished by several awards and honours:

- She received the Canadian Cancer Society William E. Rawls Award for excellence in cancer research. This honour is awarded each year by the National Council of the Canadian Cancer Society to a young investigator whose work has led to important advances in cancer control within the past decade.
- She received the Maude Abbott Prize from the Faculty of Medicine at McGill. This prize recognizes outstanding women faculty members who excel in education, research or administration, with a focus on those at the early stages of their careers.
- She was named "Researcher of the Month" by Canadians for Health Research.
- She was profiled by *Premières en affaires* magazine as one of eight women who are innovative, inspiring trailblazers on the frontlines of strategic change in health care.
- She received the Group Jean Coutu Best Care for Children Award in Research from the Montreal Children's Hospital Foundation.

Dr. Annette Majnemer was awarded membership in the American Occupational Therapy Foundation Academy of Research, the highest scholarly category of this organization and one of the highest in the occupational therapy community.

Dr. I. Barry Pless received a Doctor of Science, *honoris causa*, from his alma mater, the University of Western Ontario. He also gave the convocation address at the ceremony.

Dr. Guilherme Sant'Anna was elected a member of the Society for Pediatric Research.

INVESTIGATOR AND TRAINEE AWARDS

Investigators

Canada Research Chair

Tier 1

- Eric Fombonne
- Ernest Seidman

Fonds de recherche du Québec–Santé

Research Scholar–Senior

- Robert Platt

Clinical Research Scholar–Senior

- Indra Gupta

Clinical Research Scholar–Junior 2

- Bethany Foster
- Jean A. Ouellet
- Caroline Quach
- Michele Zappitelli

Clinical Research Scholar–Junior 1

- Evelyn Constantin
- Isabelle Gagnon
- Krista Hyde
- Mary Ellen Macdonald
- Janet Rennick

Networks of Centres of Excellence/Allergen

Emerging Clinician-Scientist

- Moshe Ben-Shoshan

Post-doctoral Fellowships

Canadian Institutes of Health Research

- Melodie Mograss

Fonds de recherche du Québec–Santé

- Hugues Beauchemin

Doctoral Research Awards

Canadian Institutes of Health Research

- Deshayne Fell
- Adam Fontebasso
- Nafisa Jadavji
- Xiaoyang Liu
- Denise Keiko Shikako Thomas

Fonds de recherche du Québec–Santé

- Marie Brossard-Racine
- Michelle Collins
- Noémi Dahan-Oliel
- Patricia Fontela
- Sina Gallo
- Nathalie Magnus
- Grzegorz Sobieraj

Natural Sciences and Engineering Research Council

- Mireille Schnitzer

Social Sciences and Humanities Research Council

- Sara Quirke

Master's Research Awards

Canadian Institutes of Health Research

- Mena Farag
- Justine Lee Garner

Fonds de recherche du Québec–Santé

- Mena Farag

Natural Sciences and Engineering Research Council of Canada

- Brennen Geller

The strength of every MCH laboratory...

is in our people!

Molecular Endocrinology Laboratory, MCH

Improving Outcomes for Young Kidney Transplant Recipients

Bethany Foster, MD, MSCE

Health Outcomes Axis
Associate Professor of Pediatrics
Associate member, Department of Epidemiology, Biostatistics and Occupational Health
McGill University

Pediatric Nephrology
Montreal Children's Hospital, MUHC

As a pediatric nephrologist, Dr. Beth Foster sees firsthand the difficulties that young people have in managing their kidney transplant medications. Missing even a few doses of anti-rejection medications can have the most serious results, namely, irreversible rejection and graft loss.

Dr. Foster's research has identified the interval between 17 and 24 years old as the highest risk period for graft loss, likely due to the poor adherence to medication observed during this period. She is currently leading a multi-centre study to test an intervention to improve medication adherence in adolescent kidney transplant recipients. Participants in the study receive either usual care or a multi-component intervention. Adolescents receiving the intervention work with a "coach" to identify their personal barriers to medication adherence and to develop specific plans to address these barriers. They are also given the option of getting text, email or phone messages to remind them to take medications.

Dr. Foster's prior work identified a greater risk of graft loss during the period following transfer of care from a pediatric to an adult care facility, and for patients transferred to adult care at younger than 21 years. Future studies aim to identify healthcare systems factors associated with better medication adherence.

Helping Children Cope with Attention Deficit Hyperactivity Disorder

Lily Hechtman, MD

Mental Illness and Addiction Axis
Professor, Psychiatry and Pediatrics and
Director of Research, Child Psychiatry,
McGill University

Pediatric Psychiatry,
Montreal Children's Hospital, MUHC

Today, effective medication treatments relieve many symptoms of attention deficit hyperactivity disorder (ADHD). Yet medication alone does not resolve the social, academic and emotional challenges that children with ADHD cope with daily and often carry into adulthood.

Dr. Lily Hechtman is involved in a joint study with the Université de Montréal to help children with ADHD who fall between the cracks in the transition from elementary school to high school. The program involves parental training as well as mentoring for the children in the organizational, social and study skills they need to succeed in high school. Dr. Hechtman finds that a combination of medication with such psychosocial interventions is often most effective in improving outcome. She has developed and is piloting a group cognitive behaviour therapy program that focuses on these areas with adolescents and adults with ADHD.

In terms of academic, social and emotional functioning, two large-scale studies in which Dr. Hechtman participated clearly showed the benefit of combining medication with psychosocial treatment for children with ADHD, as opposed to either treatment alone. However, these benefits do not last without ongoing treatment and follow-up. Dr. Hechtman is now embarking on a study that will determine the optimal follow-up needed to maintain treatment gains.

Retooling Lung Defences

Larry C. Lands, MD, PhD

Respiratory Health Axis
Professor of Pediatrics, McGill University

Director, Pediatric Respiratory Medicine
Montreal Children's Hospital, MUHC

Dr. Larry Lands's research is driven by daily contact with children who fight for air. As Director of Pediatric Respiratory Medicine at the MCH, Dr. Lands is responsible for the clinical care of young patients with cystic fibrosis (CF) and asthma. In search of better treatments for these diseases, his laboratory work is directed at understanding the pro-inflammatory pathways and mechanisms regulating lung inflammation.

CF and asthma are often worsened by an intense inflammatory response to viral infections. Serious adverse effects limit the benefits of such anti-inflammatory medications as high-dose ibuprofen or corticosteroids. It is vital to find new medications that can "tune down" excessive inflammation in the airways without compromising anti-microbial defences.

Dr. Lands has led and co-directed multi-centre trials of anti-inflammatory agents for CF. His career-long interest in nutrition led to the development of pressurized whey as a supplement that limits inflammation and improves nutritional status in CF patients. Following his work on vitamin D and CF bone disease, Dr. Lands is currently studying the ability of supplemental Vitamin D_3 to regulate inflammatory responses in airway cells. He is also investigating therapies to increase innate antiviral defences in the airways to prevent disease progression.

Controlling Asthma Through a Better Understanding of Antibodies

Bruce Mazer, MD

Infection and Immunity Axis

Professor of Pediatrics
Associate Member, Division of Experimental Medicine, Department of Medicine
McGill University

Director, Pediatric Allergy and Immunology
Montreal Children's Hospital, MUHC

Asthma, the most common chronic disease in children, is primarily a disease of lung inflammation. As the lung tries to defend itself against foreign invasion in the form of pollens, animal dander, dust mites, or simple viruses like the common cold, individuals with asthma will "over-compensate" and experience severe inflammation leading to asthmatic symptoms. At least 70% of children with asthma are also known to have allergies.

When not treating children in immunology clinics, Dr. Bruce Mazer heads a research program examining the basis for this severe inflammation. His laboratory studies B-lymphocytes, cells that produce antibodies and can contribute to increasing or decreasing inflammation. This research advances the goal of harnessing the B-cell to combat inflammation rather than enhance it.

One of the most effective treatments for severe inflammatory and autoimmune diseases is intravenous immunoglobulin (IVIG). Dr. Mazer's laboratory has discovered that IVIG appears to work by increasing T-regulatory cells. This understanding could lead to more targeted anti-inflammatory therapies that teach the immune system how to better respond to inflammation. The laboratory has also determined that a nervous system molecule, Semaphorin 4C, is found on B-cells during allergic events, and it is investigating how this molecule affects the production of allergy antibodies (IgE) by B-cells in the lung.

Ernest Seidman,
MD, FRCPC, FACG

Infection and Immunity Axis
Professor of Medicine
and Pediatrics
Canada Research Chair in
Immune-Mediated
Gastrointestinal Disorders
Bruce Kaufman Endowed
Chair in Inflammatory
Bowel Disease
McGill University

Gastroenterology Division
Montreal General Hospital,
MUHC

Gastroenterology and
Nutrition
Montreal Children's Hospital,
MUHC

Improving Treatment and Diagnosis of Inflammatory Bowel Disease

Inflammatory bowel disease (IBD), comprising Crohn's disease and ulcerative colitis, affects children and young adults in the prime of life. Despite advances in treatment, there is no cure and many affected individuals face impaired quality of life.

IBD is thought to be due to autoimmunity, as the patient's white blood cells attack the bowel, resulting in chronic inflammation. Canada has the highest rate of IBD worldwide, with the highest number of new cases in Quebec. Dr. Ernest Seidman's clinical and research career is devoted to research aimed at unravelling the causes of IBD, finding new approaches to treatment and developing novel, less invasive diagnostic methods.

When not seeing patients, Dr. Seidman and his laboratory team are hard at work discovering genetic and environmental risk factors for IBD with onset in childhood. His team has uncovered new information about the role of the immune system, specifically dendritic and regulatory T cells, in causing IBD. Other research focuses on the role of dietary factors in preventing the onset of IBD, lessening its severity, and averting complications such as colon cancer.

SELECTED PUBLICATIONS

(FROM APPROXIMATELY 300 PER YEAR)

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The Research Institute of the McGill University Health Centre (RI-MUHC) at the Montreal Children's Hospital (MCH) is composed of over 100 researchers and over 100 graduate students and post-doctoral fellows engaged in a broad spectrum of basic and clinical research. It also comprises more than 100 technicians, coordinators, nurses and administrative personnel.

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