



CROHN'S AND COLITIS CANADA
**RESEARCH
REPORT**

16

Make it stop. For life.



Crohn's and
Colitis Canada
Crohn et
Colite Canada

ADVANCING RESEARCH

As one of the top funders of inflammatory bowel disease (IBD) research in the world, Crohn's and Colitis Canada is leading the way in finding cures for Crohn's disease and ulcerative colitis as well as improving quality of life for the 250,000 Canadians living with these chronic diseases.

Our commitment to the promise of finding cures and improving quality of life is demonstrated through investments in research. Over the past year, we invested \$6.7 million in research, bringing our total investment to over \$115 million since our founding in 1974.

Crohn's and Colitis Canada supported groundbreaking research efforts by highly-trained scientists such as Dr. Reena Khanna, the recipient of our 2017 Rising Star Award. These world-renowned scientists achieved excellence in IBD research, leading the way in identifying causes and triggers of IBD and in the discovery of novel treatments. To help improve the lives of those affected by Crohn's or colitis, we supported research focused on improving symptom management, the delivery of health care and ensuring healthcare professionals have access to the most up-to-date research.

Collaboration by scientists, healthcare professionals and patients enabled targeted, patient-focused initiatives such as Promoting Access and Care through Centres of Excellence (PACE), a program focused on improving quality of care. Furthermore, we are pleased to announce the Genetic, Environmental, Microbial (GEM) project reached a critical milestone as for the first time we have aggregated patient history data (pre- and post-diagnosis). Data gathered from this international research study will aid in understanding Crohn's disease and support the development of new treatments and possibly a cure. In addition to supporting patient-focused programs, we ensured scientists achieved excellence in the field of IBD research as we supported access to training and funded more than 50 scientific projects.

We are proud to share in this report details about the groundbreaking research that took place this year throughout Canada. Crohn's and Colitis Canada remains a global leader in IBD research due to the dedication of researchers, healthcare professionals, donors, partners, sponsors and volunteers. As always, thank you for your unwavering support as we work towards making our promise of finding cures a reality.

CROHN'S AND COLITIS CANADA

Harvey Doerr,
Board Chair

Mina Mawani,
President and CEO

Marli MacNeil,
Chair of the Research Committee,
Board Director

Kate Lee,
VP Research and Patient Programs

SCIENTIFIC AND MEDICAL ADVISORY COUNCIL

CHAIR

Dr. Mark Silverberg,
University of Toronto, Mount Sinai Hospital

MEMBERS

Dr. Eric Benchimol,
University of Ottawa, Children's
Hospital of Eastern Ontario

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University of British Columbia,
St. Paul's Hospital

Dr. Nicola Jones,
University of Toronto, The Hospital for
Sick Children

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of Calgary

Dr. John Marshall,
McMaster University Medical Centre

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Dr. John Rioux,
Université de Montréal & Montreal
Heart Institute

Dr. Laura Sly,
University of British Columbia,
BC Children's Hospital






Dr. Stephen Vanner,
Queen's University

2020 VISION

Crohn's and Colitis Canada is a global force advancing transformational research and activating our community to improve the lives of people affected by Crohn's and colitis in Canada.



LEGEND

-  Generate new science, knowledge and treatments for Crohn's and colitis through a diverse research portfolio
-  Create an open conversation about Crohn's and colitis and grow our profile as leaders
-  Diversify and grow our fundraising
-  Improve the quality of life and day to day experience of people living with or affected by Crohn's or colitis
-  Support high performance and strategic action across the organization

FUELING RESEARCH BY

ADVANCING DISCOVERY

Powering the research discovery process that is driving new treatments and cures.



RECRUITING HIGHLY QUALIFIED PERSONNEL

Supporting the careers of the best and brightest Crohn's and colitis researchers across Canada.

- STUDENTSHIPS
- FELLOWSHIPS
- SALARY AWARDS
- CHAIRSHIPS



FINDING CAUSES AND TRIGGERS

Uncovering the multiple triggers that predict or lead to the onset of the disease.

- DISCOVERING ENVIRONMENTAL TRIGGERS
- DISCOVERING GENETIC MARKERS



DISCOVERING NOVEL TREATMENTS

Discovering new ways to block inflammation, treat complications, improve therapy, and create a healthy gut.

- BLOCKING INFLAMMATION
- CREATING HEALTHY GUT ECOSYSTEMS

IMPROVING LIVES

Getting the best care and symptom management in the hands of Crohn's and colitis patients.



HELPING MANAGE SYMPTOMS

Finding the best ways to get novel treatments in the hands of patients.

- TREATING COMPLICATIONS
- PREDICTING DISEASE COURSE



GETTING THE BEST CARE

Exploring new ways to provide the best treatments and multidisciplinary care model to patients.

- CREATING HEALTH SERVICE MODELS
- PROMOTING EVIDENCE-BASED PRACTICE



EDUCATING PROFESSIONALS

Ensuring that healthcare professionals have access to the very latest and best information

- HOSTING MEDICAL CONFERENCES
- SUPPORTING IBD NURSES

FUNDED RESEARCH



FINDING CAUSES AND TRIGGERS

What causes Crohn's and colitis? What are the triggers that worsen their symptoms? These questions drive our researchers, as they examine environmental triggers and genetic markers responsible for IBD.

ENVIRONMENTAL EFFECTS

Dr. Claude Asselin | University of Sherbrooke

\$125,000
■■□ (Year 1 of 3)

Dr. Asselin is examining the effect of the environment on genes by altering proteins: two of which are HDAC

MICROBE EFFECTS

Dr. Elena Verdu | McMaster University

\$125,000
■■□ (Year 1 of 3)

Dr. Verdu is studying the microbes in the gut (microbiota) to see how alterations in the microbiota affect inflammation specifically in UC

REGULATING INFLAMMATION

Dr. Mark Silverberg | Mount Sinai Hospital

\$124,000
■■□ (Year 1 of 3)

Dr. Silverberg is studying patients who have undergone pouch surgery to look at changes in intestinal microbiome to determine the role they play in inflammation

METABOLISM CHANGES

Dr. Martin Pelletier
Centre de recherche du CHU de Québec - Université Laval

\$50,000
■ (Year 1 of 1)

Dr. Pelletier is characterizing how changes in energy metabolism in immune cells affect disease progression in colitis

GENETIC MUTATIONS

Dr. Stephen Girardin | University of Toronto

\$124,000
■■■ (Year 2 of 3)

Dr. Girardin is studying the impact of the most common genetic mutation in IBD, NOD2, on the function of the small intestine

CELL DEATH

Dr. Wallace MacNaughton | University of Calgary

\$124,000
■■■ (Year 3 of 3)

Dr. MacNaughton is studying how the protein PAR2 regulates the death of the cells which turn off inflammation

TRANSPLANTATION

Dr. Derek McKay | University of Calgary

\$125,000
■■■ (Year 3 of 3)

Dr. McKay is using cells with anti-inflammatory qualities as a personalized approach to treating IBD

VITAMIN D

Dr. Nicola Jones | Hospital for Sick Children

\$125,000
■■■ (Year 3 of 3)

Dr. Jones is studying how vitamin D may influence IBD

INFECTIOUS E. COLI

Dr. Brian Coombes | McMaster University

\$73,000
■■■ (Year 3 of 3)

Dr. Coombes is investigating how infection caused by E. coli is linked to IBD

LEAKY GUT

Dr. Aleixo Muisse | Hospital for Sick Children

\$124,000
■■■ (Year 3 of 3)

Dr. Muisse is investigating how certain genes help control the leakiness of the gut found in IBD

GEM PROJECT

Genetic, Environmental, Microbial project reached a critical milestone – for the first time, we have aggregated patient history before and after diagnosis providing a repository of keys to better understand the triggers and causes of Crohn's disease.

FUNDED RESEARCH



GETTING THE BEST CARE

It's so important to ensure that people living with Crohn's or colitis get the best treatments. These grants are looking to create evidence-based health service models to ensure the best patient care.

SAFER PREGNANCIES Dr. Geoffrey Nguyen | University of Toronto

\$125,000
■■□ (Year 1 of 3)

Dr. Nguyen will study interventions that affect compliance with medication during pregnancy to improve overall outcomes

DRUG EFFECTIVENESS Dr. Laura Targownik | University of Manitoba

\$125,000
■■□ (Year 1 of 3)

Dr. Targownik will study the effectiveness of the drugs currently prescribed to patients to look for connections between the use of specific drugs and whether their use is linked to reduced IBD-related hospitalizations, operations, and corticosteroid use

SYSTEMATIC REVIEWS Dr. Brian Feagan | Cochrane IBD Group

\$175,000
■■■ (Year 2 of 3)

The Cochrane IBD Group is part of the prestigious Cochrane Group, the world leader in producing systematic reviews of scientific literature. Crohn's and Colitis Canada has partnered with the Cochrane IBD Group to support our mutual interest in providing high-quality information to help healthcare professionals, policymakers, and researchers make well-informed decisions for IBD patients

KID CARE Dr. Eric Benchimol | Children's Hospital of Eastern Ontario

\$123,000
■■■ (Year 3 of 3)

Dr. Benchimol and his colleagues are looking into how clinical care is being provided to children with IBD across the country

PACE

The Promoting Access and Care through Centres of Excellence (PACE) network represents the largest Canadian collaboration for adults living with Crohn's disease or ulcerative colitis. PACE unites leading Canadian researchers in order to combine areas of expertise. Together, the centres of excellence can improve patient outcomes and standardize delivery of care for Canadians living with IBD.

FUNDED RESEARCH



DISCOVERING NOVEL TREATMENTS

Figuring out how to block inflammation and create healthy gut ecosystems is at the forefront of this research.

PREVENTING SYMPTOMS Drs. Jane Shearer & Derek McKay | University of Calgary **\$50,000** ■ (Year 1 of 1)

Drs. Shearer and McKay are studying a new drug that prevents mitochondria – the powerhouse of a living cell – from splitting into smaller, less functional units that could improve IBD symptoms

LEAKY GUT Dr. Bruce Vallance | University of British Columbia **\$125,000** ■■■ (Year 1 of 3)

Dr. Vallance is studying inflammasomes, which are proteins that are important in preventing leaky gut and defending against invading bacteria

NANOPARTICLES Dr. Stuart Turvey | British Columbia Children's Hospital **\$125,000** ■■■ (Year 1 of 3)

Dr. Turvey is studying a new treatment by developing a nanoparticle that will reduce gut inflammation

CONTROLLING INFLAMMATION Dr. Theodore Steiner | University of British Columbia **\$125,000** ■■■ (Year 1 of 3)

Dr. Steiner will study the difference between types of inflammatory responses to bacteria in the gut. The goal is to harness the power of certain regulatory white blood cells (Tregs) to control inflammation

REGULATING INFLAMMATION Dr. Jean-Eric Ghia | University of Manitoba **\$125,000** ■■■ (Year 2 of 3)

Dr. Ghia is studying the role of semaphorin (proteins involved in communications between cells in the nervous system) in regulating intestinal inflammation

BACTERIA TRAP Dr. Eytan Wine | University of Alberta **\$15,000** ■■■ (Year 2 of 3)

Dr. Wine is using new technologies to locate and 'trap' bacteria that are recognized by the patient's own immune system

FECAL TRANSPLANT Dr. Michael Surette | McMaster University **\$108,000** ■■■ (Year 3 of 3)

Dr. Surette is trying to determine the mechanisms by which fecal transplantation works

FUNDED RESEARCH



HELPING MANAGE SYMPTOMS

These grants focus on treating complications and predicting the disease course of IBD.

STRESS+OPIOIDS = PAIN? Dr. Stephen Vanner | Queen's University

\$125,000
■■■ (Year 1 of 3)

Dr. Vanner is investigating how stress and prescribed opioids can increase pain in the IBD patient

BIOFILM FLARES Dr. Andre Buret | University of Calgary

\$124,000
■■■ (Year 3 of 3)

Dr. Buret is studying how a group of microorganisms called biofilms can cause flares in IBD

PAIN Dr. Dean Tripp | Queen's University

\$97,000
■■■ (Year 3 of 3)

Dr. Tripp is looking into the psychosocial risk factors of pain and poor quality of life in IBD

MUCUS Dr. Kris Chadee | University of Calgary

\$124,000
■■■ (Year 3 of 3)

Dr. Chadee is studying the role of MUC2 mucin in maintaining a healthy microbiome

TIGHT GUT Dr. Simon Hirota | University of Calgary

\$124,000
■■■ (Year 3 of 3)

Dr. Hirota is looking at how the protein PXR keeps the lining of the gut tight and protects against inflammation

SEQUENCING THE FUTURE Dr. Mark Lathrop | McGill University

\$124,000
■■■ (Year 3 of 3)

Dr. Lathrop is using high-tech sequencing to uncover new genetic factors that put people at risk of developing IBD



EDUCATING PROFESSIONALS

We host medical conferences and support IBD nurses because we believe that true expertise requires an understanding of how knowledge is evolving.

MEETING OF THE MINDS

In November 2016 Crohn's and Colitis Canada hosted its 6th annual Canadian Future Directions in IBD Conference.

CANIBD MEETING

Held jointly with the Meeting of the Minds conference, this meeting brought together IBD nurses from around the country for education and networking.

RESEARCH TOPICS IN GASTROINTESTINAL DISEASE MEETING

During Canadian Digestive Diseases Week, we supported the next generation of highly qualified IBD scientists by giving them an opportunity to present their research findings and engage in career development.

FUNDED RESEARCH



RECRUITING HIGHLY TRAINED PROFESSIONALS

Crohn's and Colitis Canada finances researchers through all stages of their careers. We support the entire spectrum of IBD scholarship from undergraduate students all the way through to seasoned investigators.

CROHN'S AND COLITIS CANADA/ UNIVERSITY OF OTTAWA POST-DOCTORAL TRAINEE

AMANDA STARR

University of Ottawa

CROHN'S AND COLITIS CANADA/ SASKATCHEWAN HEALTH RESEARCH FELLOWSHIPS

JUAN-NICOLAS PENA-SANCHEZ

University of Saskatchewan

WHITNEY DUFF

University of Saskatchewan

CROHN'S AND COLITIS CANADA/ (Undergraduate summer studentships) CANADIAN ASSOCIATION OF GASTROENTEROLOGY

SABRINA SECORD

Dalhousie University

EMMA ZWAIGENBAUM

University of Alberta

SONIA MARTINS

University of Calgary

AMBIKA AGRAWAL

University of Alberta

KWESTAN SAFARI

Simon Fraser University

MEGAN MAITLAND

Queen's University

CROHN'S AND COLITIS CANADA/ CANADIAN INSTITUTES OF HEALTH RESEARCH/ CANADIAN ASSOCIATION OF GASTROENTEROLOGY SALARY AWARDS

DR. GEORGIA PERONA-WRIGHT

University of British Columbia

DR. ERIC BENCHIMOL

Children's Hospital of Eastern Ontario

DR. GEOFFREY NGUYEN

University of Toronto

DR. JOHAN VAN LIMBERGEN

Dalhousie University

CROHN'S AND COLITIS CANADA/ CANADIAN INSTITUTES OF HEALTH RESEARCH/ CANADIAN ASSOCIATION OF GASTROENTEROLOGY FELLOWSHIPS

DR. JOANNIE ALLAIRE

University of British Columbia

DR. GABRIELLA LEUNG

The Hospital for Sick Children

DR. CHRISTOPHER MA

Western University & University of Calgary



GOVERNMENT PARTNERSHIPS

In collaboration with the Canadian Institutes of Health Research (CIHR) and Genome Canada, Crohn's and Colitis Canada has leveraged its funds to support cutting-edge team grants related to critical IBD issues.

DR. ALAIN STINTZI University of Ottawa

\$10,000
■■■■■ (Year 1 of 5)

The diet-microbiome-gut axis in pediatric IBD

DR. JENNIFER GOMMERMAN
DR. KEN CROITORU University of Toronto

\$10,000
■■■■■ (Year 1 of 5)

Elucidating the gene-environment interactions that drive autoimmune disease among South Asian Canadians (The GEMINI Program)

DR. BERTUS EKSTEEN University of Calgary

\$2,800
■■■■■ (Year 3 of 5)

Targeting chronic inflammation of the gut, liver and joints

DR. RUTH ANN MARRIE University of Manitoba

\$2,800
■■■■■ (Year 3 of 5)

Critical illness in IBD, multiple sclerosis and rheumatoid arthritis

DR. JOHN ESDAILE University of British Columbia

\$2,800
■■■■■ (Year 3 of 5)

Preventing complications from inflammatory skin, joint and bowel conditions

DR. DAVID PARK University of Ottawa

\$2,800
■■■■■ (Year 3 of 5)

Insights into Parkinson's disease, Crohn's disease, and leprosy

DR. MARK SWAIN University of Calgary

\$2,900
■■■■■ (Year 3 of 5)

Brain dysfunction in chronic inflammatory disease

DR. JOHN BRUMELL Hospital for Sick Children

\$2,900
■■■■■ (Year 3 of 5)

NADPH oxidase function in the pathogenesis of pediatric IBD and Juvenile Idiopathic Arthritis

DR. DANA PHILPOTT University of Toronto

\$2,900
■■■■■ (Year 3 of 5)

Linking innate immunity and inflammation to chronic disease

DR. ALAIN STINTZI
DR. DAVID MACK University of Ottawa

\$7,500
■■■■■ (Year 4 of 4)

The microbiota at the intestinal mucosa-immune interface: a gateway for personalized health

DR. JOHN RIOUX Université de Montréal

\$25,000
■■■■■ (Year 4 of 4)

IBD Genomic Medicine Consortium (iGenoMed): translating genetic discoveries into a personalized approach to treating IBD

IN 2016/17:

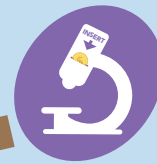
16

Hospitals
and Universities
Supported



2139

Articles and
book chapters
published by
our researchers



50+

Research
Projects and
Initiatives Funded

For every \$1
we invested,
\$8 were
leveraged from
government
and industry



Over
92%

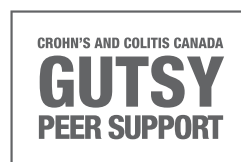
of grants featured
collaborations among
leading scientists and
partners across Canada

\$6.7M DOLLARS
SPENT
ON RESEARCH

CROHN'S AND COLITIS CANADA

The only national, volunteer-based charity focused on finding the cures for Crohn's disease and ulcerative colitis and improving the lives of children and adults affected by these diseases. We are one of the top two health charity funders of Crohn's and colitis research in the world, investing over \$115 million in research since 1974, leading to important breakthroughs in genetics, gut microbes, inflammation and cell repair research as well as laying the groundwork for new and better treatments. We are transforming the lives of people affected by Crohn's and colitis (the two main forms of inflammatory bowel disease) through research, patient programs, advocacy, and awareness. Our **Crohn's & Colitis – Make it stop. For life.** campaign has achieved \$57 million (or 57%) at year 4 of the seven year campaign and funds raised are already advancing our mission. Visit crohnsandcolitis.ca for more information.

Crohn's and Colitis Canada funds research projects and patient programs that fight inflammatory bowel disease today, while working towards a future free of these diseases. Your donations fuel our efforts.



Crohn's and Colitis Canada
Crohn et Colite Canada

To donate now please call
1-800-387-1479 or visit

crohnsandcolitis.ca

Follow us @getgutsycanada on [f](#) [t](#) [v](#) [i](#)

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The Standards Program Trustmark is a mark of Imagine Canada used under licence by Crohn's and Colitis Canada.