LMP

INVESTIGATING
DISEASE.
IMPACTING
HEALTH.

GO WITH YOUR GUT

A conference exploring the microbiome

Register at http://bit.ly/GoGut

January 11, 2020
9am - 5pm

MacLeod Auditorium (MS 2158)
1 KING'S COLLEGE CIR, TORONTO, ON. M5S 3K1

Credit: Image by Grace Burgin, Nova Rogel, and Moshe Biton, courtesy of the Broad Institute

Laboratory Medicine & Pathobiology
UNIVERSITY OF TORONTO

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A Conference Exploring the Gut Microbiome

CONFERENCE SCHEDULE

08:45 **Registration and Refreshments**

09:30 **Introduction and Opening Ceremony**
Professor Rita Kandel, M.D., F.R.C.P.C.
Chair of the Department of Laboratory Medicine & Pathobiology

09:40 **Regulation of Nod-like Receptor Signaling: Implications for Colon Cancer**
Professor Dana Philpott, Ph.D.
Department of Immunology

10:30 **Detection of Microbes in the Intestine: Impact on the Epithelial Barrier**
Professor Stephen Girardin, Ph.D. and Nathaniel Winsor, Ph.D. Candidate
Departments of Immunology and Laboratory Medicine & Pathobiology

11:20 **Break**

11:40 **Gut Microbiota and Colon Cancer**
Professor Alberto Martin, Ph.D.
Department of Immunology

12:30 **Lunch and Poster Presentations**

13:30 **Who's There? And What Are They Doing? Investigating the Dark Matter of the Microbiome**
Professor John Parkinson, Ph.D.
Departments of Biochemistry and Molecular Genetics

14:20 **Fecal Microbiota Transplantation - Can We Treat Disease by Manipulating Gut Microbiota?**
Professor Susan Poutanen, M.D., M.P.H., F.R.C.P.C.
Department of Laboratory Medicine & Pathobiology

15:10 **Break**

15:30 **Probiotics to the Rescue? Defining a Role for Probiotics in the Prevention and Treatment of Experimental Necrotizing Enterocolitis**
Dr. Shaiya Robinson, Ph.D.
Post-Doctoral Researcher, Sherman Lab, Hospital for Sick Children

16:15 **Closing Ceremony**
Michael Lee and Laura Tang
Co-Presidents of the Laboratory Medicine & Pathobiology Student Union

16:25 **Conference Closing**

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LMP INVESTIGATING DISEASE. IMPACTING HEALTH.

Go With Your Gut: A Conference on the Microbiota

Professor Dana Philpott

"Regulation of Nod-like receptor signaling: implications for colon cancer"

Dana Philpott is a Professor in the Department of Immunology at the University of Toronto and co-director of the Host-Microbiome Research Network, where she has established the first gnotobiotic (i.e. germ-free) mouse facility in Toronto. Dr. Philpott's research employs animal models of inflammatory bowel disease (IBD) and considers how innate immunity and the microbiome shape immune homeostasis within the intestine. Specifically, her group studies three genes implicated in the pathogenesis of the IBD, Crohn's disease: NOD2, ATG16L1 and LRRK2. Crohn's disease can affect the entire gastrointestinal tract and the chronic inflammation that ensues can put individuals at risk for developing colon cancer. Current treatment strategies, which include steroids, immunomodulatory drugs, and anti-TNFalpha biologics, calm the inflammatory response but do not cure CD. Continued basic research is needed to define disease mechanisms to uncover new targets for therapy and find a cure for this increasingly prevalent chronic disorder.

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Go With Your Gut: A Conference on the Microbiota

Professor Stephen Girardin

"Detection of Microbes in the Intestine: Impact on the Epithelial Barrier"

Dr. Stephen Girardin is a Professor in the Department of Laboratory Medicine and Pathobiology (LMP). After a Ph.D. in France and post-doctoral studies at the Pasteur Institute (Paris, France), Dr. Girardin joined the University of Toronto in 2006. His lab studies the host responses to bacterial pathogens and intestinal inflammation. Dr. Girardin uses cellular models, intestinal organoid systems as well as *in vivo* animal models to delineate how microbial detection by the intestinal epithelium regulates inflammatory pathways, intestinal stem cell renewal and host defense against infection. His work has direct implications on human diseases including inflammatory bowel disease (IBD) and colorectal cancer.

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Professor Alberto Martin

"Gut Microbiota and Colon Cancer"

Dr. Martin is a Professor in the Department of Immunology at the University of Toronto. He completed his undergraduate degree at McGill University (1990), a Ph.D. degree in the Department of Immunology at the University of Toronto (1999), and a post-doctoral fellowship at the Albert Einstein College of Medicine with Dr. Matthew D. Scharff. Dr. Martin's research is focused in three main areas. His main interest is on antibody production, on how high-affinity antibodies are generated, and how antibodies of different classes are produced. Both of these processes are necessary for an efficient antibody response. In addition, he has also been investigating how these processes are linked to lymphoma generation due to the now recognized link between antibody production and cancer development. Dr. Martin is also investigating the role of the gut microbiota in the etiology of colon cancer.

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Professor John Parkinson

"Who's There? And What Are They Doing? Investigating the Dark Matter of the Microbiome"

John Parkinson is a Senior Scientist at the Hospital for Sick Children and a Professor in the Departments of Biochemistry and Molecular Genetics at the University of Toronto. Dr Parkinson and his team apply computational and genomic approaches to study the role of microbes in health and disease. Of particular interest are parasites: single celled eukaryotes or multicellular worms that cause devastation and misery on a global scale. In recent work focused on child malnutrition, his team is establishing new tools to dissect the interactions between parasites, their host and their host's microbiome to understand how they interfere with host nutrition. However, it should be appreciated that parasitic infections are not restricted to developing countries. Applying our tools to samples from Canadian families is revealing a diverse landscape of eukaryotic microbes with implications for the pathogenesis of inflammatory disorders such as inflammatory bowel disease (IBD). Understanding the basic mechanisms by which these organisms contribute to diseases such as malnutrition and IBD is expected to yield new opportunities for therapeutic interventions. In related work we employ animal models, specifically mice and chickens, that allow us to more precisely understand how microbes function in the gut.

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Professor Susan Poutanen

"Fecal Microbiota Transplantation (FMT) - Can We Treat Disease by Manipulating Gut Microbiota?"

Dr. Poutanen is a Medical Microbiologist and Infectious Diseases Physician at Mount Sinai Hospital & University Health Network in Toronto, Canada and an associate professor in the Department of Laboratory Medicine and Pathobiology and Department of Medicine at the University of Toronto. Dr. Poutanen received her Medical Degree from the University of Toronto in 1996 and completed Internal Medicine and Medical Microbiology Residencies at the University of Toronto and an Infectious Diseases Fellowship at Stanford University, California. She received her Masters of Public Health with a focus on Epidemiology from the University of California, Berkeley in 2002. Her broad research interests include: the epidemiology and detection of antimicrobial resistance; the optimization of microbiology laboratory practices using point-of-care tests, rapid diagnostics, automation, and artificial intelligence; and the use of fecal microbiota transplantation in patients with gastrointestinal dysbiosis.

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Dr. Shaiya Robinson

"Probiotics to the rescue? Defining a role for probiotics in the prevention and treatment of experimental necrotizing enterocolitis"

Dr. Shaiya Robinson is a U of T alum, where she completed an honours bachelor of science specializing in developmental biology and a minor in French as a Second Language. Her passion for cell signalling followed her to McMaster University, where she earned her PhD in cell biology studying how a transcription factor called Kaiso influenced chronic intestinal inflammation. Currently, Dr. Robinson is a Mitacs Accelerate Postdoctoral Researcher with Dr. Philip Sherman at the Hospital for Sick Children, where she studies how probiotics prevent experimental necrotizing enterocolitis in mice. Specifically, she's interested in studying how probiotics engage with intestinal stem and epithelial cells and whether this impacts intestinal regeneration processes in the inflamed intestine.

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