

A 3D visualization of a complex, branching network of red and cyan structures, resembling a biological or microbial network, set against a dark blue background.

Microbiome, Host Resistance and Diseases

March 4–8, 2018 | Fairmont Banff Springs | Banff, Alberta | Canada

Scientific Organizers:

Wendy S. Garrett, Harvard School of Public Health, USA
Yasmine Belkaid, NIAID, National Institutes of Health, USA
Janelle S. Ayres, The Salk Institute for Biological Studies, USA

Joint with the conference on *Manipulation of the Gut Microbiota for Metabolic Health*

The concept that the microbiome shapes health and susceptibility to disease has taken the biomedical sciences by storm. The microbiota is emerging as a fundamental force influencing diverse aspects of physiology reflected in the sessions of this conference. Microbiome studies are at a critical juncture and facing a challenging transition from descriptive studies of association towards mechanistic studies tackling causality. Essential for this transition is a diversity of thinking (chemical and systems biology, metabolism, microbiology, physiology and immunology) and approaches (assays and models). As the basic tools for characterizing microbiomes are now widely accessible, this conference seeks to broaden the base of what defines membership in microbiome studies by inviting investigators to share their vision, approach and results to enhance understanding and mechanistic approaches. Holding the meeting concurrently with the conference on “Manipulation of the Gut Microbiome for Metabolic Health” will bring a range of investigators more fully into the microbiome studies field. Overall, the goals for the conference are to: 1) Introduce a breadth of challenges and biological systems for microbiome studies; 2) Showcase young and senior investigators relevant to advancing next-gen microbiome studies; and 3) Foster collaborative, multi-disciplinary microbiome science that enhances both basic and translational understanding.

Session Topics:

- Microbiota and Cardiovascular-Metabolic Health (Joint)
- The Gut Microbiome in the Control of Fat Metabolism (Joint)
- The Microbiota of Early Life and Developmental Immunology
- Workshop: Discovery, Translation and Commercialization in Microbiome Research and Development: Opportunities and Challenges
- Mechanistic Microbiome Function in Physiology and Aging
- The Microbiota and Resistance to Infectious Diseases
- Disease Tolerance, Pathology and the Microbiome
- Cancer, Metabolism, and the Microbiome
- The Microbiota in Cancer Treatment Toxicities and Immune Response

Scholarship Application & Discounted Abstract Deadline: November 1, 2017

Abstract Deadline: December 1, 2017

Discounted Registration Deadline: January 9, 2018



Note: Registering for one conference in a joint pair enables attendance at sessions of the other, pending space availability. Additionally, all poster sessions and food and beverage receptions are joint, providing enhanced opportunities for meeting new colleagues in related fields.

Upper image of mouse colon gut bacteria courtesy of S. Melanie Lee, Caltech; Zbigniew Mikulski and Klaus Ley, La Jolla Institute for Allergy and Immunology

Meeting Hashtag: #KSmicrobiome

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KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Microbiome, Host Resistance and Disease (X4)

Scientific Organizers: Wendy S. Garrett, Yasmine Belkaid and Janelle S. Ayres

Supported by the Directors' Fund

Manipulation of the Gut Microbiota for Metabolic Health (X3)

Scientific Organizers: Nathalie Delzenne and Liping Zhao

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SUNDAY, MARCH 4

Arrival and Registration

MONDAY, MARCH 5

Welcome and Keynote Address (Joint)

Andreas J. Bäuml, University of California, Davis, USA
Healthy Guts Exclude Oxygen

Microbiota and Cardio-vascular-Metabolic Health (Joint)

Fredrik Bäckhed, University of Gothenburg, Sweden
Mechanistic Studies of the Impact of the Gut Microbiome on Obesity and Type 2 Diabetes

Susan A. Joyce, University College Cork, Ireland
Bacteria, Bile Acids and Metabolism: Exploring the Host Microbe Interface

Liping Zhao, Shanghai Jiao Tong University, China
Dietary Interventions, Microbiota Metabolism and Metabolic Syndrome

Short Talk(s) Chosen from Abstracts

The Gut Microbiome in the Control of Fat Metabolism (Joint)

Anna Mae Diehl, Duke University Medical Center, USA
The Gut Microbiome and NAFLD Pathogenesis

Mirko Trajkovski, University of Geneva - CMU, Switzerland
The Microbiota and the Browning of Adipose Tissue

Patrice D. Cani, Université Catholique de Louvain, Belgium
Intestinal Endocannabinoids, Gut Microbes and Adiposity: Novel Mechanisms

Short Talk Chosen from Abstracts

Poster Session 1

TUESDAY, MARCH 6

The Microbiota of Early Life and Developmental Immunology (X4)

Maria G. Dominguez-Bello, New York University, USA
Effect of C-Section on the Microbiota and Host Phenotype

Andrew J.S. Macpherson, University of Bern, Switzerland
The Maternal Microbiota and Early Postnatal Innate Immune Development

Gregory M. Barton, University of California, Berkeley, USA
The Microbiota, Immune Development and T Cell Responses in Early Life

Michael D. Rosenblum, University of California, San Francisco, USA
Neonatal Regulatory T Cells and Immune Tolerance to Skin Commensals

Short Talk(s) Chosen from Abstracts

Microbiota and Metabolic Disorders (X3)

François Leulier, Institut de Génétique Fonctionnelle de Lyon, France
Host-Microbiota Mutualism upon Chronic Undernutrition: Lessons from Gnotobiotic Animal Models

Emily P. Balskus, Harvard University, USA
Chemical Transformation of Xenobiotics by the Human Gut Microbiota

Herbert Tilg, Medical University Innsbruck, Austria
Microbiome and Liver Diseases

Eran Elinav, Weizmann Institute of Science, Israel
Host Microbiome Interactions in Health and Disease

Short Talk(s) Chosen from Abstracts

Workshop and Panel: Discovery, Translation and Commercialization in Microbiome Research and Development: Opportunities and Challenges (X4)

David N. Cook, Seres Therapeutics, Inc., USA
Treating Human Disease with Multi-Species Bacterial Consortia

Henry J. Haiser, Novartis Institute for Biomedical Research, USA

Thomas Gajewski, University of Chicago, USA
Translating Mouse Microbiota Findings to a Clinical Cancer Immunotherapeutic

Maria G. Dominguez-Bello, New York University, USA

Mechanistic Microbiome Function in Physiology and Aging (X4)

Speaker to be Announced

Vishwa Deep Dixit, Yale University, USA
Dietary Restriction, Immunity and Aging

Sarkis K. Mazmanian, California Institute of Technology, USA
Gut Microbiomes from Human Autism Spectrum Disorder Alter Behaviors in Mice

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Short Talk Chosen from Abstracts

Gut Barrier Alterations and Host Metabolic Disorders (X3)

Lora V. Hooper, University of Texas Southwestern Medical Center, USA

How the Microbiota, the Immune System, and the Circadian Clock Interact to Regulate Metabolism

Philippe Langella, Institut National de la Recherche Agronomique, France

Microbial Bioactive Metabolites and Gut Function

Michiel Kleerebezem, Wageningen University, Netherlands

Small Intestine Microbiota and Host Metabolism

Short Talk Chosen from Abstracts

Poster Session 2

WEDNESDAY, MARCH 7

The Microbiota and Resistance to Infectious Diseases (X4)

Sara R. Cherry, University of Pennsylvania School of Medicine, USA

The Microbiota and Viral Resistance in Drosophila

Howard C. Hang, Rockefeller University, USA

Chemical Dissection of Gut Bacteria Protection Mechanisms

Speaker to be Announced

Ken H. Cadwell, New York University School of Medicine, USA

Transkingdom Interactions and Colonization Resistance

Short Talk(s) Chosen from Abstracts

Feeding the Gut Microbiota for Health (X3)

Jens Walter, University of Alberta, Canada

Modulation of the Gut Microbiota: An Ecological Perspective

Nathalie Delzenne, Université Catholique de Louvain, Belgium

Feeding the Gut Microbiota with Prebiotics: Which Consequence for Host Health?

André Marette, Laval University Hospital Research Center, Canada

Exploring the Interaction between Dietary Polyphenols and the Gut Microbiota to Alleviate Obesity-Linked Diseases

Maria Carmen Collado, Institute of Agrochemistry and Food Technology-Spanish National Research Council, Spain

Maternal Microbiome and its Role in Infant Health

Short Talk(s) Chosen from Abstracts

Disease Tolerance, Pathology, and the Microbiome (X4)

Yasmine Belkaid, NIAID, National Institutes of Health, USA

Bacterial Infectious, Scarring and Adipose Pathology

Janelle S. Ayres, The Salk Institute for Biological Studies, USA

Muscle Wasting, the Microbiota and Defense Against Bacterial Infections

Denise M. Monack, Stanford University, USA

Microbiota Regulation of Salmonella Persistent and Disease Tolerance

Short Talk Chosen from Abstracts

Xenobiotics-Microbiota Interactions in Metabolic Diseases (X3)

Frederik-Jan Van Schooten, Maastricht University, Netherlands

Gas Production by Microbiota: Biomarkers or Actors?

Mark R. Charbonneau, Synlogic, USA

Engineered E. coli Nissle Strains and the Treatment of Inborn Errors of Metabolism

Speaker to be Announced

Short Talk Chosen from Abstracts

Poster Session 3

THURSDAY, MARCH 8

Cancer, Metabolism, and the Microbiome (X4)

Laure Bindels, Université Catholique de Louvain, Belgium

The Gut Microbiota in Cancer Cachexia

Wendy S. Garrett, Harvard School of Public Health, USA

Microbial Metabolism and Colorectal Carcinogenesis

Melek Canan Arkan, Goethe University Medical School, Germany

Metabolic Derangements, the Microbiome and Cancer

Ravid Strausman, Weizmann Institute of Science, Israel

The Tumor Microbiome and its Effect on Chemoresistance

Short Talk(s) Chosen from Abstracts

Dealing with Microbiome Complexity (X3)

Ruth E. Ley, Max Planck Institute for Developmental Biology, Germany

Sphingolipid Production by Gut Microbes Impacts Host Metabolism

Natalia Shulzhenko, Oregon State University, USA

Transkingdom Networks Uncovering Host-Microbiota Interactions

Peter J. Turnbaugh, University of California, San Francisco, USA

Editing the Microbiome for Precision Medicine

Colin Hill, University College Cork, Ireland

Phage - Drivers of Microbiome Structure

Short Talk(s) Chosen from Abstracts

The Microbiota in Cancer Treatment Toxicities and Immune Response (X4)

Matthew R. Redinbo, University of North Carolina at Chapel Hill, USA

Targeted Inhibitors for the Gut Microbiome

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Thomas Gajewski, University of Chicago, USA

Anticancer Immune Responses and the Microbiome

Panel: Faculty and Industry Working Together for Innovation (X3)

***Nathalie Delzenne**, Université Catholique de Louvain, Belgium

David N. Cook, Seres Therapeutics, Inc., USA

Bugs as Drugs

Henry J. Haiser, Novartis Institute for BioMedical Research, USA

Talk Title to be Announced

Joël Doré, INRA / MetaGenoPolis, France

Preserving and Restoring Man-Microbes Symbiosis

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X4)

Meeting Wrap-Up: Outcomes and Future Directions (Organizers) (X3)

FRIDAY, MARCH 9

Departure