Scientific Organizers:
Nathalie Delzenne, Université Catholique de Louvain, Belgium
Liping Zhao, Shanghai Jiao Tong University, China

Joint with the conference on Microbiome, Host Resistance and Disease

The main objective of this Keystone Symposia conference is to evaluate the contribution of the gut microbiota to diseases characterized by alterations of host energy metabolism, and to highlight development of new therapeutic and nutritional approaches. Innovative models allow us to better elaborate the link between gut microbiota, the environment (including nutrition and xenobiotics – drugs, contaminants, additives) and host physiology, namely by focusing on specific metabolites produced by the gut microbes. As compared to previous meetings organized in the same field, additional metabolic disorders will be covered, including undernutrition and cachexia, disturbances of gut-muscle axis and cardiovascular dysfunction. Special attention will be brought to innovative tools to manipulate the gut microbiota, implicating both academic and industry research. The symposium will bring together a multidisciplinary audience to explore the vast amount of existing data (metagenomics and metabolomics dataset) that can be leveraged to elaborate novel tools to modulate the gut microbiota for host health.

Session Topics:
- Microbiota and Cardiovascular-Metabolic Health (Joint)
- The Gut Microbiome in the Control of Fat Metabolism (Joint)
- Microbiota and Metabolic Disorders in Undernutrition
- Gut Barrier Alterations and Host Metabolic Disorders
- Feeding the Gut Microbiota for Health
- Xenobiotics-Microbiota Interactions in Metabolic Diseases
- Dealing with Microbiome Complexity
- Faculty and Industry Working Together for Innovation

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.

Meeting Hashtag: #KSGut
www.keystonesymposia.org/18X3
**KEYSTONE SYMPOSIA**  
on Molecular and Cellular Biology

**Manipulation of the Gut Microbiota for Metabolic Health (X3)**

**Scientific Organizers:** Nathalie Delzenne and Liping Zhao  
**Sponsored by Merck & Co., Inc. and Takeda Pharmaceutical Company Limited**

**Microbiome, Host Resistance and Disease (X4)**

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

**March 4-8, 2018 • Fairmont Banff Springs • Banff, Alberta, Canada**  
**Sponsored by Merck & Co., Inc.**

Abstract & Scholarship Deadline: November 1, 2017 / Abstract Deadline: December 1, 2017 / Discounted Registration Deadline: January 9, 2018

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**Sunday, March 4**

Arrival and Registration

**Monday, March 5**

Welcome and Keynote Address (Joint)

*Yasmine Belkaid, NIAID, National Institutes of Health, USA*  
*Janelle S. Ayres, The Salk Institute for Biological Studies, USA*  
*Nathalie Delzenne, Université Catholique de Louvain, Belgium*  
*Liping Zhao, Shanghai Jiao Tong University, China and Rutgers University, USA*  
*Andreas J. Bäumler, University of California, Davis, USA*

**Microbiota and Cardio-vascular-Metabolic Health (Joint)**

*Lora V. Hooper, University of Texas Southwestern Medical Center, USA*  
*Fredrik Bäckhed, University of Gothenburg, Sweden*

Mechanistic Studies of the Impact of the Gut Microbiome on Obesity and Type 2 Diabetes

*Liping Zhao, Shanghai Jiao Tong University, China and Rutgers University, USA*

Ecological Understanding of the Causative Role of Gut Microbiota in Human Metabolic Health

*Julia H. Kreznar, University of Wisconsin-Madison, USA*

Short Talk: Identifying the Genetic Determinants of Gut Microbiome Composition on a Western Diet

*Amy McMillan, Cleveland Clinic, USA*

Short Talk: The Gut Microbe-Dependent Metabolite Trimethylamine N-oxide (TMAO) Is Associated with Multiple Measures of Periodontal Disease and Cardiovascular Disease Risk

**Workshop:** Metagenomic, Metatranscriptomic and Multi’Omic Microbiome Analyses (Joint)

*Curtis Huttenhower, Harvard School of Public Health, USA*

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

*Fredrik Bäckhed, University of Gothenburg, Sweden*

*Anna Mae Diehl, Duke University, 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, UCLouvain, Belgium*

Intestinal Endocannabinoids, Gut Microbes and Adiposity: Novel Mechanisms

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*S Session Chair † Invited but not yet accepted Program current as of July 2, 2019. Program subject to change. Meal formats are based on meeting venue. For the most up-to-date details, visit www.keystonesymposia.org/18X3 and www.keystonesymposia.org/18X4.*
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Michael G. Constantinitides, NIAID, National Institutes of Health, USA
Short Talk: Mucosal-Associated Invariant T Cells Respond to Cutaneous Microbiota

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

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

Henry J. Haiser, Novartis Institutes for BioMedical Research, USA
Facing the Challenges and Opportunities of Microbiome Research—a Big Pharma Perspective

*Thomas Gajewski, University of Chicago, USA
Prospect of Manipulating the Microbiota as a Cancer Immunotherapeutic

Maria G. Dominguez-Bello, Rutgers University, USA
Challenges in Translation of Microbiome Research

Gut Barrier Alterations and Host Metabolic Disorders (X3)

*Robert W. Karp, National Institutes of Health, USA

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

Jun Sun, University of Illinois at Chicago, USA
Short Talk: Vitamin D Receptor Regulation of Microbiome in Inflammation and Obesity

Mechanistics Microbiome Function in Physiology and Aging (X4)

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

Meghan A. Koch, University of California, Berkeley, USA
Maternal Antibodies Regulate Neonatal Health

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

Nicholas Bessman, Weill Cornell Medicine, USA
Short Talk: A Dendritic Cell-Derived Hormone Regulates Microbiome Colonization and Repair in the Intestine

Rachel R. Caspi, NEI, National Institutes of Health, USA
Short Talk: The Good and The Bad: Two Faces of an Ocular Surface Commensal

Poster Session 2

WEDNESDAY, MARCH 7

Feeding the Gut Microbiota for Health (X3)

*Liping Zhao, Shanghai Jiao Tong University, China and Rutgers University, USA

Jens Walter, University of Alberta, Canada
Modulation of the Human Gut Microbiota with Non-Digestible Carbohydrates – 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

Long H. Nguyen, Massachusetts General Hospital, USA
Short Talk: The Influence of Dietary Patterns and Intake of Sulfur on Sulfate-Reducing Bacteria Abundance and Function

Jared D. Hoffman, University of Kentucky, USA
Short Talk: Prebiotics for the Gut Microbiota as an Intervention for Alzheimer’s Disease Prevention in APOE4 Carriers

The Microbiota and Resistance to Infectious Diseases (X4)

*Sara R. Cherry, University of Pennsylvania, USA
Defining the Inter-Kingdom Interactions that Impact Enteric Viral Infections

Howard C. Hang, Rockefeller University, USA
Chemical Dissection of Gut Bacteria Protection Mechanisms

Kerwyn Casey Huang, Stanford University, USA
Resilience of the Gut Microbiota to Perturbations

Ken H. Cadwell, New York University School of Medicine, USA
Transkingdom Interactions and Colonization Resistance

Jeffrey R. Singer, University of Alabama at Birmingham, USA
Short Talk: Intestinal Oxygen Regulates Primary Succession and Opportunistic Overgrowth in a Murine Model of Late-Onset Sepsis

Shai Bel, Bar-Ilan University, Israel
Short Talk: Paneth Cells Secrete Lysozyme via Secretory Autophagy during Bacterial Infection of the Intestine

Xenobiotics-Microbiota Interactions in Metabolic Diseases (X3)

*Nathalie Delzenne, Université Catholique de Louvain, Belgium
Manipulation of the Gut Microbiota for Metabolic Health (X3)

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Thomas Gajewski, University of Chicago, USA  
Anti-Tumor Immune Responses and the Commensal Microbiota

Patricia Diaz, University of Connecticut Health Center, USA  
Short Talk: Disruption of Oral Homeostasis by Chemotherapeutic Cancer Treatment

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

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

FRIDAY, MARCH 9

Departure