

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Tissue Organoids as Models of Host Physiology and Pathophysiology of Disease (J1)

January 19-23, 2020 • Fairmont Hotel Vancouver • Vancouver, BC, Canada

Scientific Organizers: Thaddeus S. Stappenbeck and Linda G. Griffith

Sponsored by Roche and Thermo Fisher Scientific Inc.

Discounted Abstract & Scholarship Deadline: September 25, 2019 / Abstract Deadline: October 17, 2019 / Discounted Registration Deadline: November 20, 2019

SUNDAY, JANUARY 19

Arrival and Registration

MONDAY, JANUARY 20

Welcome and Keynote Address

Rudolf Jaenisch, Whitehead Institute for Biomedical Research, USA
Zika Virus Infection of Brain Organoids

Modeling Pathogen Interactions with Organoids

Mary K. Estes, Baylor College of Medicine, USA
Human Intestinal Organoids: Transformative Tools to Study Gastrointestinal Infections

L. David Sibley, Washington University School of Medicine, USA
New Models of Cryptosporidium Culture in Primary Intestinal Epithelial Cells

Melanie M. Ott, University of California, San Francisco, USA
Hepatitis C Virus (HCV) Infects and Perturbs Liver Stem Cells

Short Talks Chosen from Abstracts

Poster Session 1

Workshop 1

Short Talk(s) Chosen from Abstracts

Modeling Immunity into Organoid Systems

Andres J. Garcia, Georgia Institute of Technology, USA
Synthetic Hydrogels as Engineered Niches for Organoids

Senthil K. Muthuswamy, Harvard Medical School, USA
T Cell/Organoid Therapy

Fred H. Gage, The Salk Institute for Biological Studies, USA
Enhanced Glial Corporation and Vascularization of Brain Organoids

Short Talks Chosen from Abstracts

TUESDAY, JANUARY 21

Developmental Programs of Organoid Stem Cells for Therapy

Michael A. Helmrath, Cincinnati Children's Hospital, USA
Integrating Models of Human Intestinal Development

Takanori Takebe, Yokohama City University / Cincinnati Children's Hospital Medical Center, Japan
Modeling Hepato-Biliary-Pancreatic Organogenesis towards Therapy

Todd C. McDevitt, Gladstone Institutes, USA
Axial Elongation of Caudalized Human PSC Organoids Mimics Neural Tube Development

Celeste M. Nelson, Princeton University, USA
Recapitulating Morphogenesis of the Lung

Short Talks Chosen from Abstracts

Metabolic Crosstalk with Organoids and the Environment

Ömer Hidir Yilmaz, Massachusetts Institute of Technology, USA
Endogenous Metabolites as Regulators of Intestinal Stem Cell Fate

Boudewijn MT Burgering, Utrecht University, Netherlands
Interplay between Metabolic Identities in the Intestinal Crypt

Speaker to be Announced

Short Talks Chosen from Abstracts

Poster Session 2

WEDNESDAY, JANUARY 22

Cancer Cell Organoids

Herve Tiriach, University of California, San Diego, USA
Pancreas Cancer Organoids

Nicola Valeri, Institute of Cancer Research, UK
Patient-Derived Organoids: Promises, Hurdles and Potential Clinical Applications

Claus Jorgensen, Cancer Research UK Manchester Institute, UK
Modelling Tumour Stromal Interactions in Pancreatic Cancer Organoids

Speaker to be Announced

Short Talks Chosen from Abstracts

Modeling Tissue Repair with Organoids

Margherita Yayoi Turco, University of Cambridge, UK
Endometrial Organoids as Models of Reproductive Disease

Thaddeus S. Stappenbeck, Washington University School of Medicine, USA
Modeling the Mechanisms That Control Injury Cycles of Intestinal Epithelial Stem Cells

Randolph Scott Ashton, University of Wisconsin, USA
Bioengineering Early CNS Morphogenesis for Scalable Assessment of Neural Tube Defect Risk

Short Talks Chosen from Abstracts

Poster Session 3

THURSDAY, JANUARY 23

Engineering Solutions to Improve Organoid Growth

Linda G. Griffith, Massachusetts Institute of Technology, USA
Integrating Synthetic Biomaterials and Perfusion to Enhance Organoid Function

Sarah Heilshorn, Stanford University, USA
Protein-Engineered Materials as Synthetic Niches for Organoids

Zev Gartner, University of California, San Francisco, USA
Harnessing Mechanobiology to Direct Complex Organoid Development

Jennifer A. Lewis, Harvard University, SEAS, USA
Engineering Vascular Networks in Organoid-Based Building Blocks and 3D Tissues

Short Talks Chosen from Abstracts

Workshop II

Short Talk(s) Chosen from Abstracts

Integrating Vasculature, Nerve Networks, and Dynamic Behaviors into Organoids

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Jürgen A. Knoblich, IMBA, Institute of Molecular Biotechnology,
Austria

*Cerebral Organoids: Modelling Human Brain Development and
Tumorigenesis in Stem Cell Derived 3D Culture*

Roger D. Kamm, Massachusetts Institute of Technology, USA
Microphysiological Models of Neurological Disease

Peter W. Zandstra, University of British Columbia, Canada
Breaking Symmetry - Engineering Models

Short Talk Chosen from Abstracts

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

FRIDAY, JANUARY 24

Departure