

Program

Wednesday, February 15 (Day 1)

9:00-10:00 Registration

10:00-10:05 Welcoming remarks by Eisuke Nishida

Keynote talk

Chair: Mitsuru Morimoto

10:05-10:45 **KT1-1**
Mechanism and *In Vitro* Reconstitution of Mammalian Germ-Cell Development
Mitinori Saitou (Institute for the Advanced Study of Human Biology, Kyoto University, Japan)

Basic mechanism of pluripotency and self-organization

Chair: Kyle Loh

10:45-11:15 **S1-1**
Understanding human reprogramming: A journey from epiblast to trophoblast and into iblastoids
Jose M. Polo (The University of Adelaide, Australia)

11:15-11:45 **S1-2**
Establishment of mouse stem cells that can recapitulate the developmental potential of primitive endoderm
Yasuhide Ohinata (Chiba University, Japan)

11:45-12:00 **S1-3***
Complete suspension culture conditions of human induced pluripotent stem cells with suppressors of spontaneous differentiation
Yohei Hayashi (RIKEN BioResource Research Center, Japan)

12:00-12:10 Flash Talk by Sponsor
Novel applications using organoids
Ryan Conder (STEMCELL Technologies)

12:10-13:00 Lunch

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13:00-15:00 **Poster Session 1**
13:00-14:00 Odd numbered posters
14:00-15:00 Even numbered posters

Modeling development and disease 1: circulatory systems

Chair: Migxia Gu

15:00-15:30 **S2-1**
Multi-chamber cardioids unravel human heart development and cardiac defects
Sasha Mendjan (Institute of Molecular Biotechnology, Austria)

15:30-16:00 **S2-2**
Generating human artery and vein cells to study biosafety level 4 viruses
Kyle M. Loh (Stanford University, USA)

16:00-16:30 **S2-3**
Generation of bladder organoids from human pluripotent stem cells
Minoru Takasato (RIKEN Center for Biosystems Dynamics Research, Japan)

16:30-16:45 **S2-4***
Modeling development and physiology of the human urinary collecting system using ureteric bud organoids
Kyle W. McCracken (Cincinnati Children's Hospital Medical Center, USA)

16:45-17:05 *Coffee Break*

Brain organoids

Chair: Kazunari Miyamichi

17:05-17:35 **S3-1**
Construction of brain tissues from human pluripotent stem cells for investigation of neurological disease and brain development
Keiko Muguruma (Kansai Medical University, Japan)

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- 17:35-17:50 **S3-2***
Developing next-generation human nervous system to study human development and disease by using stem cell technologies
Ziyuan Guo (Cincinnati Children's Hospital Medical Center, USA)
- 17:50-18:05 **S3-3***
Self-organization process in human pluripotent stem cell-derived cerebral and hippocampal organoids
Hideya Sakaguchi (RIKEN Center for Biosystems Dynamics Research, Japan)
- 18:05-18:20 **S3-4***
Epigenetic dysregulation by ZMYND11 mutants leads to aberrant neurodevelopment
Jason Tchieu (Cincinnati Children's Hospital Medical Center, USA)
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- 18:30-20:30 Banquet at BDR Lounge
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Thursday, February 16 (Day 2)

Modeling development and disease 2: foregut derived organs

Chair: Sasha Mendjan

- 9:00-9:30 **S4-1**
Building the human lung: lessons from organoids
Emma L. Rawlins (Gurdon Institute, University of Cambridge, UK)
- 9:30-10:20 **S4-2**
Understanding and recapitulating trachea-esophageal development
Mitsuru Morimoto, Aaron Zorn and Keishi Kishimoto (RIKEN BDR -
CCHM CuSTOM Joint Laboratory, USA)
- 10:20-10:35 **S4-3***
Reconstructing organotypic endothelium and mesenchyme from iPSCs to study pulmonary diseases
Mingxia Gu (Cincinnati Children's Hospital Medical Center, USA)

10:35-10:55 *Coffee Break*

Engineering approaches in organoid culture

Chair: Takanori Takebe

- 10:55-11:25 **S5-1**
Accelerating life sciences by robotic biology
Koichi Takahashi (RIKEN Center for Biosystems Dynamics Research,
Japan)
- 11:25-11:40 **S5-2***
Organoid platform: Design and control of microenvironments to achieve organ architecture
Masaya Hagiwara (RIKEN Cluster for Pioneering Research, Japan)
- 11:40-11:55 **S5-3***
Application of pseudo proximal tubule cells extracted from hiPSC-derived kidney organoids in modeling the organ in a microphysiological system
Ramin Banan Sadeghian (Kyoto University, Japan)

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11:55-12:25 **S5-4**
3D tissue engineering for Food and Robotics
Shoji Takeuchi (The University of Tokyo, Japan)

12:25-13:30 *Group Photo & Lunch*

13:30-15:00 **Poster Session 2**
13:30-14:15 Presenters of poster category A
14:15-15:00 Presenters of poster category B

Tissue stem cells derived organoids

Chair: Aaron Zorn

15:00-15:30 **S6-1**
Understanding of self-renewal mechanism of adult tissue stem cells in homeostasis and diseases
Toshiro Sato (Keio University School of Medicine, Japan)

15:30-16:00 **S6-2**
LIVER ORGANOID TO STUDY REGENERATION AND CANCER ACROSS BIOLOGICAL SCALES
Meritxell Huch (Max Planck Institute of Molecular Cell Biology and Genetics, Germany)

16:00-16:15 **S6-3***
Alveolar Epithelial Progenitor Cells Drive Lung Regeneration via Dynamic Transcriptional Regulation and Chromatin Topology Modulated by Lineage-Specific Nkx2-1 Activity
Andrea Toth (Cincinnati Children's Hospital Medical Center, USA)

16:15-16:35 *Coffee Break*

Understanding and regulating self-organization

Chair: Masaya Hagiwara

16:35-17:05 **S7-1**
Synthetic RNA-driven cell reprogramming and purification
Hirohide Saito (Center for iPS Cell Research and Application, Kyoto University, Japan)

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- 17:05-17:35 **S7-2**
Programming multicellular pattern formation with synthetic cell-cell signaling
Satoshi Toda (Nano Life Science Institute, Kanazawa University, Japan)
- 17:35-17:50 **S7-3***
Engineering of an Expandable Synthetic Membrane Protein Platform for the Control of Cellular Interaction and Assembly
George Chao (Harvard Medical School, USA)
- 17:50-18:05 **S7-4***
Self-organization in epithelial morphogenesis
Yoshihiro Morishita (RIKEN Center for Biosystems Dynamics Research, Japan)

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Friday, February 17 (Day 3)

Modeling development and disease 3: digestive organs and skin

Chair: Minoru Takasato

- 9:00-9:30 **S8-1**
Engineering complexity into PSC-derived gastrointestinal organoids
James Wells (Center for Stem Cell and Organoid Medicine, Cincinnati Children's Hospital Medical Center, USA)
- 9:30-10:00 **S8-2**
Translating Human Intestinal Organoids
Michael Helmuth (Center for Stem Cell and Organoid Medicine, Cincinnati Children's Hospital Medical Center, USA)
- 10:00-10:15 **S8-3***
A suspension method for efficient induction and maturation of human intestinal organoids using a rotational bioreactor
Junichi Takahashi (Tokyo Medical and Dental University, Tokyo, Japan)

10:15-10:35 *Coffee Break*

Chair: James Wells

- 10:35-10:50 **S8-4***
Synthetic hydrogels reveal a role for type I innate lymphoid cells in intestinal epithelial and matrix remodeling
Eileen Gentleman (King's College London, UK)
- 10:50-11:05 **S8-5***
Bioengineered skin equivalent with hair follicles and adipocytes generated by in vitro 3D culture
Makoto Takeo (RIKEN Center for Biosystems Dynamics Research, Japan)
- 11:05-11:35 **S8-6**
Organoids for Precision Hepatology
Takanori Takebe (Center for Stem Cell and Organoid Medicine, Cincinnati Children's Hospital Medical Center, USA)
- 11:35-11:40 Closing remarks by Aaron Zorn

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