

## 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 i blastoids**

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)

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12:00-12:10

Flash Talk by Sponsor

##### **Novel applications using organoids**

Ryan Conder (STEMCELL Technologies)

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12:10-13:00

Lunch

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\*Rising Star Talk

## Program

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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

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### **Modeling development and disease 1: circulatory systems**

Chair: Mingxia 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)

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16:45-17:05                      *Coffee Break*

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### **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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## Program

17:35-17:50	<b>S3-2*</b> <b>Developing next-generation human nervous system to study human development and disease by using stem cell technologies</b> Ziyuan Guo (Cincinnati Children's Hospital Medical Center, USA)
17:50-18:05	<b>S3-3*</b> <b>Self-organization process in human pluripotent stem cell-derived cerebral and hippocampal organoids</b> Hideya Sakaguchi (RIKEN Center for Biosystems Dynamics Research, Japan)
18:05-18:20	<b>S3-4*</b> <b>Epigenetic dysregulation by ZMYND11 mutants leads to aberrant neurodevelopment</b> 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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## Program

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)

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10:35-10:55                      *Coffee Break*

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### 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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## Program

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

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

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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

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### **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)

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16:15-16:35      *Coffee Break*

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### **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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## Program

- 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)

## Program

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 Helmrath (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)

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10:15-10:35                      *Coffee Break*

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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

\*Rising Star Talk