

Oral Program

Sunday, August 25, 2019

12:00–14:00 Registration | Sunset Foyer

14:00–14:15 Opening Remarks: Anh Nguyen, Sri Narasimhan & Sheila Chari, *Cell Press* | Sunset Ballroom

14:15–17:30 Session 1: Organ Engineering | Sunset Ballroom

Session Chair: Tracy Grikscheit, *Keck School of Medicine of USC, USA*

14:15–14:50 **[INV01] Generation of tissue, organ and embryo constructs from cultured somatic cells**
Juan Carlos Izpisua Belmonte, *Salk Institute, USA*

14:50–15:20 **[INV02] Approaches to engineering connective tissues and solid organs**
Laura Niklason, *Yale University, USA*

15:20–15:35 **[ST01] 3D Bioprinting for engineering multi-vascularized tissues**
J. Miller, *Rice University, USA*

15:35–16:00 Refreshment Break | Sunset Pavilion

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16:00–16:30 **[INV03] Generation of functional organs via interspecies blastocyst complementation**
Hiromitsu Nakauchi, *Stanford School of Medicine, USA*

16:30–17:00 **[INV04] Modeling of neural crest diseases in mouse - human chimeras**
Rudolf Jaenisch, *Whitehead Institute, MIT, USA*

17:00–17:15 **[ST02] Synthetic biology at tissue-level: Microengineered human lung-on-a-chip for personalized therapeutics**
K. Benam, *University of Colorado, USA*

17:15–17:30 **[ST03] Engineering artificial liver**
S. Saxton¹, A. Ross², L. Vallier², K. Stevens*¹, ¹*University of Washington, USA*, ²*University of Cambridge, UK*

17:30–18:30 Welcome Drinks Reception | Sunset Pavilion

18:30–20:00 Trolley Sightseeing Tour (Optional Ticketed Event)

Monday, August 26, 2019

08:00–08:30 Light Breakfast | Sunset Deck

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Workshop: Seeing into the New Frontier: Microscopic Imaging of Organoids and Organ Chips | Sunset Ballroom
Jeffery Bylund, *Nikon Instruments Inc., USA*

09:15–12:30 Session 2: Engineering Complexity | Sunset Ballroom

Session Chair: Penney Gilbert, *University of Toronto, Canada*

09:15–09:50 **[INV05] Human multi-tissue platforms with perfusable vasculature**
Gordana Vunjak-Novakovic, *Columbia University, USA*

09:50–10:20 **[INV06] Engineering Organoid Development**
Matthias Lutolf, *École Polytechnique Fédérale de Lausanne, Switzerland*

10:20–10:35 **[ST04] Microglia-sufficient brain organoid**
F. Ginhoux, *Singapore Immunology Network, A*STAR, Singapore*

10:35–10:45 Poster Teaser Session 1 (refer to separate program)

10:45–11:15 Refreshment Break | Sunset Pavilion

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11:15–11:45 **[INV07] From element to compound: Tissue-engineering the gastrointestinal tract from human cells**
Tracy Grikscheit, *Keck School of Medicine of USC, USA*

11:45–12:15 **[INV08] Application of organoid technology to human gastrointestinal diseases**
Toshiro Sato, *Keio University, Japan*

12:15–12:30 **[ST05] Bioengineered 3-dimensional lung organoid: A clinically relevant *in vitro* model for small cell lung cancer**
C. Sen*, D. Wilkinson, L. Meneses, D. Shia, P. Vijayaraj, A. Purakayastha, T. Rickabaugh, B. Dunn, B. Gomperts, *University of California, Los Angeles, USA*

12:30–13:00 Lunch & Meet the Cell Press Editors Q&A Session | Sunset Ballroom

13:00–14:30 Lunch (cont.) & Poster Session 1 | Sunset Pavilion

14:30–18:00 Session 3: Exploring Biology with Organoids | Sunset Ballroom
Session Chair: Julie Stacey, *The Lancet – EbioMedicine, USA*

14:30–15:00 **[INV09] Advances in brain organoid technologies and their application to human biology**
Madeline Lancaster, *University of Cambridge, UK*

15:00–15:30 **[INV10] Modeling human brain development and brain disorders using 3D organoids**
Guo-Li Ming, *University of Pennsylvania, USA*

15:30–15:45 **[ST06] Ketone body signaling in intestinal stem cells modulates stemness and the response to diet**
O.H. Yilmaz, *MIT, USA*

15:45–16:00 **[ST07] Organoid cultures reveal distinct genetic profile of early-onset colorectal cancer enriched for the serrated neoplasia pathway**
H.H.N. Yan*¹, H.C. Siu¹, S.L. Ho¹, S.S.K. Yue¹, W.Y. Tsui¹, D. Chan¹, S.T. Yuen¹, H. Clevers^{2,3}, W.L. Law¹, S.Y. Leung¹, ¹*The University of Hong Kong, Hong Kong*, ²*University Medical Centre Utrecht, The Netherlands*, ³*Princess Maxima Center for Pediatric Oncology, The Netherlands*

16:00–16:30 Refreshment Break | Sunset Pavilion

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16:30–17:00 **[INV11] Moving kidney organoids towards application**
Melissa Little, *University of Melbourne, Australia*

17:00–17:30 **[INV12] Cerebral organoids: Modelling human brain development and tumorigenesis in stem cell derived 3D culture**
Jürgen Knoblich, *Institute of Molecular Biotechnology, Austrian Academy of Science, Austria*

17:30–17:45 **[ST08] Generation of lactocyte-rich alveolar organoids from human breast milk**
B. Goods*, B. Mead, S. Nyquist, K. Kolb, A. Shalek, *Massachusetts Institute of Technology, USA*

17:45–18:00 **[ST09] Stem cell derived human pancreatic organoids for studying early lesions of pancreatic cancer**
L. Huang*, R. Desai, D. Melton, S. Muthuswamy, *Harvard University, USA*

19:00–22:00 Meet the Speakers Dinner (Optional Ticketed Event) | Bali Hai Restaurant

Tuesday, August 27, 2019

07:00–07:45 Guided Beach Walk

07:45–08:15 Light Breakfast | Sunset Deck

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08:15–08:45 **Workshop: Assay Ready Human Colon Organoids for Drug Screening Applications** | Sunset Ballroom
Vi Chu, *MilliporeSigma (The Life Science Company of Merck KGaA, Darmstadt, Germany, USA)*

09:00–12:00 Session 4: Technology Frontiers | Sunset Ballroom
Session Chair: Kelly Stevens, *University of Washington, USA*

09:00–09:30 **[INV13] Biowire models of healthy and diseased myocardium**
Milica Radisic, *University of Toronto, Canada*

09:30–10:00 **[INV14] Programming the formation of synthetic tissues**
Wendell Lim, *University of California, San Francisco, USA*

10:00–10:15 **[ST10] Tissue-engineered mini-guts establish a homeostatic organoid culture system resembling native intestinal tissue**
M. Nikolaev*, O. Mitrofanova, M. Lutolf, *Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland*

10:15–10:45 Refreshment Break | Sunset Pavilion

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10:45–11:15 **[INV15] Single-cell genomic atlas of great ape cerebral organoids**

Barbara Treutlein, *ETH Zürich, Switzerland*

11:15–11:30 **[ST11] Intestinal organoids in a multi-omics, systems biology framework to investigate gut health and host-microbe interactions**

M. Poletti^{*1,2}, A. Treveil^{1,2}, P. Sudhakar¹, L. Gul¹, E. Jones^{1,2}, L. Hall², I. Hautefort¹, W. Haerty¹, T. Wileman^{2,3}, T. Korcsmaros^{1,2}, ¹*Earlham Institute, Norwich Research Park, UK*, ²*Quadram Institute, Norwich Research Park, UK*, ³*Norwich Medical School, University of East Anglia, UK*

11:30–11:45 **[ST12] Organoids to predict anti-EGFR therapy responses in colorectal cancer**

O. Gbenedio¹, D. Grun², C. Bonnans¹, C. Wang¹, A. Hatch³, D. Barras², Y. Miao³, C. Garcia³, P. Depeille¹, J. Roose^{*1}, ¹*UCSF, USA*, ²*Swiss Institute of Bioinformatics, Switzerland*, ³*Stanford University School of Medicine, USA*

11:45–11:55 Poster Teaser Session 2 (refer to separate program)

11:55–13:30 Lunch & Poster Session 2 | Sunset Pavilion

13:30–16:20 Session 5: Disease Modeling and Therapeutic Discovery | Sunset Ballroom

Session Chair: Madeline Lancaster, *MRC Laboratory of Molecular Biology, UK*

13:30–14:00 **[INV16] Modeling human brain development with iPSC derived Brain Organoids**

Fred Gage, *Salk Institute, USA*

14:00–14:30 **[INV17] Engineering human skeletal muscle microtissues: Defining critical factors**

Penney Gilbert, *University of Toronto, Canada*

14:30–14:45 **[ST13] An organoid-based preclinical model for the targeted therapy of HER2/PD-L1-expressing gastric cancers**

Chakrabarti^{*1}, V. Koh², S.L. Chan^{2,3}, J. Wang⁴, S. Ahmed⁵, Y. Ito^{2,3}, J.B.Y. So^{2,3}, W.P. Yong^{2,3}, Y. Zavros¹, ¹*University of Cincinnati, USA*, ²*National University Health System, Singapore*, ³*National University of Singapore, Singapore*, ⁴*University of Cincinnati College of Medicine, USA*, ⁵*University of Cincinnati Cancer Institute, USA*

14:45–15:15 Refreshment Break | Sunset Pavilion

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15:15–15:45 **[INV18] Interrogating brain tumor biology through the prism of organoids**

Jeremy Rich, *University of California, San Diego, USA*

15:45–16:20 **[INV19] Stem cell-based organoids in human disease**

Hans Clevers, *Hubrecht Institute for Developmental Biology and Stem Cell Research, The Netherlands*

16:20–16:30 Closing Remarks: Anh Nguyen, Sri Narasimhan & Sheila Chari, *Cell Press*