

The IMEG International Symposium of the Research Center for High Depth Omics
&
The 4D System Development and Regeneration Science Initiative

4D Omics in Development & Disease

September 29-30, 2025

Kusunoki Terrace at Kumamoto University Hospital, Kumamoto, Japan

Monday, September 29, 2025

12:50-13:00

Opening Remarks

Akira Nakamura (Kumamoto University)

Oral session 1

Chair: Tomoaki Koga (Institute of Molecular Embryology and Genetics, Kumamoto University)

13:00-13:20	O1	Kazuya Matsuo (Kumamoto University) Epigenetic regulation of oligodendrocyte development by histone-like myelin basic protein
13:20-13:40	O2	Takeru Fujii (Kyushu University) Reconstructing epigenomic dynamics through a single-cell multi-epigenome data integration framework
13:40-14:00	O3	Ken-ichi T Suzuki (National Institute for Basic Biology) Deciphering the molecular principles of amphibian limb regeneration by integrating temporal, spatial, and single-cell transcriptomics

14:00-14:10

Break

Oral session 2

Chair: Mitsuhiro Endoh (Institute of Molecular Embryology and Genetics, Kumamoto University)

14:10-14:30	O4	Katsuyoshi Takaoka (Tokushima University) Embryonic diapause in mice: molecular insights into the preimplantation stage
14:30-14:50	O5	Yuka Kobayashi (Kyoto University) Construction and applications of human-type artificial lymphoid tissues
14:50-15:10	O6	Teppei Shimamura (Institute of Science Tokyo) Modeling single-cell transcriptional dynamics

15:10-16:10

Poster session 1 (Odd number)

Guest lecture

Chair: Norifumi Shioda (Institute of Molecular Embryology and Genetics, Kumamoto University)

16:10-16:40	G1	Timo Kohler (University of Cambridge) Cell adhesion dynamics during early embryonic development
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Special lecture 1

Chair: Yusuke Ono (Institute of Molecular Embryology and Genetics, Kumamoto University)

16:40-17:30	S1	Masaru Ishii (Osaka University) Spatiotemporal heterogeneity of in vivo immune systems
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17:30-19:00 **Banquet**

Tuesday, September 30, 2025

8:55-9:00 Brief announcement

Oral session 3

Chair: Yasushi Yabuki (Institute of Molecular Embryology and Genetics, Kumamoto University)

9:00-9:20	O7	Akira Oike (Kumamoto University) Signaling center-based human gastruloid model
9:20-9:40	O8	Hajime Fukui (Tokushima University) Elucidating the mechanisms underlying cardiac lumen morphogenesis by blood flow-thermal dynamics
9:40-10:00	O9	Masatoshi Ohgushi (Kyoto University) Identification of a master transcription factor governing amniotic ectoderm differentiation

10:00-10:10 **Break**

Special lecture 2

Chair: Hiroaki Okae (Institute of Molecular Embryology and Genetics, Kumamoto University)

10:10-11:00	S2	Joshua Mark Brickman (University of Copenhagen) Title TBA
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Group photo shooting

11:10-12:10 **Poster session 2 (Even number)**

12:10-13:00 **Lunch & Discussion**

Oral session 4

Chair: Shin Fujimaki (Institute of Molecular Embryology and Genetics, Kumamoto University)

13:00-13:20	O10	Kazumitsu Maehara (Kyushu University) Analyzing temporal geometry of cell-state dynamics using ddHodge
13:20-13:40	O11	Tomomi Tsubouchi (National Institute for Basic Biology) Understanding pluripotency through omics studies
13:40-14:00	O12	Genki Kanda (Institute of Science Tokyo) Harnessing laboratory automation for the next wave in life science

14:00-14:10 **Break**

Special lecture 3

Chair: Hitoshi Niwa (Institute of Molecular Embryology and Genetics, Kumamoto University)

14:10-15:00	S3	Thorsten Edwin Boroviak (University of Cambridge) Title TBA
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15:00-15:05 **Closing Remarks**
Hitoshi Niwa (Kumamoto University)