

KEY Forum: The 5th International Symposium
&
The 39th International Kumamoto Medical Bioscience Symposium

Frontiers in Epigenetics
- Health Path and Disease Path & Reproduction Dynamics -

November 20-22, 2024

Kumamoto City International Center, Kumamoto, Japan

Wednesday, November 20, 2024

13:00-13:05 Brief announcement Kei-ichiro Ishiguro

Opening Remarks

Akira Nakamura (Kumamoto University)

KEY FORUM part 1

Session 1: Early development

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

- 13:05-13:35 O1 **Alexander Meissner** (Max Planck Institute)
Non-canonical epigenetic regulation in development
- 13:35-14:00 O2 **Tomohiko Akiyama** (Yokohama City University)
The Roles of Sex Chromosome-Encoded Genes in Maintenance and
Differentiation of Human Embryonic Stem Cells
- 14:00-14:25 O3 **Azusa Inoue** (RIKEN)
Polycomb regulation in early development
- 14:25-14:50 O4 **Akihiko Sakashita** (Keio University)
Retrotransposon-driven regulatory landscapes shape early developmental
program in mammals
- 14:50-15:10 O5 **Mitsuhiro Endoh** (Kumamoto University)
The role of Polycomb in maintenance and differentiation of mouse
embryonic stem cells
- 15:10-15:25 **Break**

Session 2: Reproduction & Germline

Chair: Kei-ichiro Ishiguro (Institute of Molecular Embryology and Genetics, Kumamoto University)

- 15:25-15:55 O6 **Xin Chen** (Johns Hopkins University)
Unlocking the “Sweet Spot” to Boost Cellular Plasticity
- 15:55-16:15 O7 **Hironori Abe** (Kumamoto University)
Sex chromosome-specific epigenetic regulation in male meiosis
- 16:15-16:35 O8 **George J. Watase** (Kumamoto University)
Ribosomal DNA copy number maintenance and germline immortality

- 16:35-17:00 O9 **Yuki Okada** (The University of Tokyo)
Tracking the dynamic chromatin changes in spermiogenesis:
Implications for Male Infertility Diagnosis
- 17:00-17:25 O10 **Yuta Takahashi** (Kumamoto University)
Transgenerational inheritance of epigenetic signatures in mammals

18:00-20:00 **Banquet for speakers and staff attendees**

Thursday, November 21, 2024

KEY FORUM part 2

Session 3: Chromatin Regulation

Chair: Ryuki Shimada (Institute of Molecular Embryology and Genetics, Kumamoto University)

- 09:00-09:25 O11 **Atsuya Nishiyama** (The University of Tokyo)
CDCA7 is an evolutionarily conserved hemimethylated DNA sensor in eukaryotes
- 09:25-09:50 O12 **Yoichi Shinkai** (RIKEN)
DNA methylation regulated by the HELLS-CDCA7 chromatin-remodeling complex
- 09:50-10:15 O13 **Junichi Nakayama** (National Institute for Basic Biology)
Molecular mechanisms of heterochromatin spreading
- 10:15-10:40 O14 **Kyohei Arita** (Yokohama City University)
Structural basis for inhibition of UHRF1 function by DPPA3
- 10:40-10:55 **Break**

Session 4: Development

Chair: Shinjiro Hino (Institute of Molecular Embryology and Genetics, Kumamoto University)

- 10:55-11:20 O15 **Makoto Tachibana** (Osaka University)
Role of iron metabolism in epigenetic regulation
- 11:20-11:40 O16 **Hiroaki Okae** (Kumamoto University)
Direct induction of human trophoblast stem cells from late-gestation placentas
- 11:40-12:10 O17 **Hongmei Wang** (Chinese Academy of Sciences)
Unraveling mammalian placentation across species.
- 12:10-13:10 **Group photo shooting
Lunch & Discussion**

Symposium on medical and life science 2024

Session 5: New Technology

Chair: Miki Bundo (Kumamoto University)

- 13:10-13:30 O18 **Kan Etoh** (Kumamoto University)
Role of ACLY-mediated citrate metabolism in cellular senescence

13:30-13:50 O19 **Yutaka Nakachi** (Kumamoto University)
MORE-RNAseq: a pipeline of quantifying the retrotransposition-capable L1 expression

Session 6: Inflammation

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

13:50-14:20 O20 **Musa Mhlanga** (Radboud University)
Epigenetics: at the apex of innate immune memory

14:20-14:40 O21 **Daisuke Kurotaki** (Kumamoto University)
Cis-regulatory code of myeloid cell differentiation during infection

14:40-15:00 O22 **Tomoaki Koga** (Kumamoto University)
Epigenetic regulation of macrophage polarization

15:00-15:15 **Break**

Session 7: Cancer& Aging

Chair: Joji Watase (Institute of Molecular Embryology and Genetics, Kumamoto University)

15:15-15:40 O23 **Noriko Saitoh** (The Cancer Institute of JFCR)
Nuclear long non-coding RNAs in 3D genome structure and tumor dormancy

15:40-16:00 O24 **Hiroto Ohguchi** (Kumamoto University)
Roles of epigenetic regulation in multiple myeloma

16:00-16:25 O25 **Takayuki Hoshii** (Chiba University)
The SETD1B catalytic domain regulates H3K4me3 breadth and MYC expression in MLL-rearranged leukemia

16:25-16:50 O26 **Motoshi Hayano** (Keio University)
The changes in epigenetic information by DNA damage induces aging

16:50-17:10 O27 **Jun-ichirou Yasunaga** (Kumamoto University)
Multimodal function of human T-cell leukemia virus type 1; Its implications for oncogenesis of adult T-cell leukemia

17:10 – 20:00 **Poster session & Reception (4th Floor)**

Friday, November 22, 2024

Session 8: Lifestyle disease

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

09:00-09:30 O28 **J. Andrew Pospisilik** (Van Andel Institute)
Variegating mechanisms as drivers of ‘hidden’ disease risks

09:30-09:50 O29 **Yuichiro Arima** (Kumamoto University)
Epigenomic Regulation Mediated by Ketone Bodies in Cardiomyocytes

09:50-10:10 O30 **Shinjiro Hino** (Kumamoto University)

The roles of riboflavin-dependent enzymes in adipose tissue development and plasticity

10:10-10:25 **Break**

Session 9: Neuropsychiatry • Transposon

Chair: Kazuya Iwamoto (Kumamoto University)

10:25-10:55 O31 **Geoff Faulkner** (University of Queensland)
L1 retrotransposons, somatic mosaicism and gene regulation in the mammalian brain

10:55-11:20 O32 **Kenji Ichiyanagi** (Nagoya University)
Epigenetic regulation of retrotransposons during male germ cell development in the mouse

11:20-11:45 O33 **Kinichi Nakashima** (Kyushu University)
Pathogenic mechanisms driven by endogenous DNA ligands shared across models of autism spectrum disorders

11:45-12:10 O34 **Yusuke Kishi** (The University of Tokyo)
Epigenetic regulation during neuronal aging

12:10-12:30 O35 **Miki Bundo** (Kumamoto University)
Detection of novel somatic LINE-1 insertions at single neurons of patients with schizophrenia

12:30-12:35 **Closing Remarks**
Yuichi Oike (Kumamoto University)