

The 15th International Symposium of the Institute Network for Biomedical Sciences
The 6th IMCR Symposium on Endocrine and Metabolism

Cutting Edge of Biomedical and Metabolic Sciences

Institute for Molecular and Cellular Regulation, Gunma University

November 5 - 6, 2020

To be held online

Thursday, November 5, 2020

09:00-09:05 Opening Remarks
Ken Sato (Director of Institute for Molecular and Cellular Regulation,
Gunma University)

Keynote Lecture 1

Chairs: *Ken Sato* (Institute for Molecular and Cellular Regulation, Gunma University)

09:05-09:45 **Fumio Motegi** (National University of Singapore, Singapore)
Design principles of self-organizing cell polarity

Session 1: Epigenetic and Transcriptional Regulations

Chair: *Izuho Hatada* (Institute for Molecular and Cellular Regulation, Gunma University)

09:45-10:10 S-01: **Shiroh Iwanaga** (Research Institute for Microbial Diseases, Osaka
University)
Transcriptional regulation of Plasmodium parasite

10:10-10:35 S-02: **Fan-Yan Wei** (Institute of Development, Aging and Cancer, Tohoku
University)
Emerging crosstalk between RNA epitranscriptome and extracellular
signaling

10:35-11:00 S-03: **Ken-ichi Noma** (Institute for Genetic Medicine, Hokkaido University)
3D genomic basis of cellular senescence

11:00-11:15 O-01: **Motohiko Oshima** (The Institute of Medical Science, The University
of Tokyo)
Profiling of chromatin accessibility of aged hematopoietic stem cells

11:15-11:30 **Break**

Short-talk Session for Young Researchers 1

Chairs: *Yuhkoh Satouh* (Institute for Molecular and Cellular Regulation, Gunma University)
Takuro Horii (Institute for Molecular and Cellular Regulation, Gunma University)

11:30-11:38 Y-01: **Manabu Kodama** (Medical Institute of Bioregulation, Kyushu
University)
A shift in glutamine nitrogen metabolism contributes to the malignant
progression of cancer

- 11:38-11:46 Y-02: **Akihito Sakoguchi** (Research Institute for Microbial Diseases, Osaka University)
Immune activating receptors specific to *Plasmodium falciparum*-infected red blood cells
- 11:46-11:54 Y-03: **Yusuke Takagi** (The Institute of Medical Science, The University of Tokyo)
Identification and functional analysis of a novel gene that is induced by hyperactivation of the ERK pathway
- 11:54-12:02 Y-04: **Kazumasa Takemoto** (Institute of Molecular Embryology and Genetics, Kumamoto University)
Meiotic factor 4930432K21Rik/C19ORF57/BRME1 modulates localization of recombinase RAD51 and DMC1 to meiotic recombination sites
- 12:02-12:10 Y-05: **Shunsuke Chuma** (Institute for Protein Research, Osaka University)
Involvement of intracellular temperature in neuronal differentiation
- 12:10-12:18 Y-06: **Rie Hasebe** (Institute for Genetic Medicine, Hokkaido University)
Contralateral inflammation is developed by a sensory axis between joints in a rheumatoid arthritis model
- 12:18-13:15 **Lunch / Steering Committee Meeting of Institute Network for Biomedical Sciences** (members only)

Session 2: Cell Biology on Stress Response and Inflammation

Chair: Miyuki Sato (Institute for Molecular and Cellular Regulation, Gunma University)

- 13:15-13:40 S-04: **Seiichi Oyadomari** (Institute of Advanced Medical Sciences, Tokushima University)
Physiological and pathological role of the integrated stress response
- 13:40-14:05 S-05: **Takashi Suda** (Kanazawa University Cancer Research Institute)
Switches between apoptosis and pyroptosis
- 14:05-14:30 S-06: **Fumiyo Ikeda** (Medical Institute of Bioregulation, Kyushu University)
Regulation of inflammatory responses by the ubiquitin system
- 14:30-14:45 O-02: **Satoru Torii** (Medical Research Institute, Tokyo Medical and Dental University)
Regulation of phosphorylation of Ulk1 in alternative autophagy
- 14:45-15:00 O-03: **Takuma Kishimoto** (Institute for Genetic Medicine, Hokkaido University)
Activation and polarity formation of plasma membrane sterols
- 15:00-15:15 **Break**

Short-talk Session for Young Researchers 2

Chair: Tohru Ishitani (Research Institute for Microbial Diseases, Osaka University/ Institute for Molecular and Cellular regulation, Gunma University)

- 15:15-15:23 Y-07: **Yoshimasa Hamada** (Institute of Advanced Medical Sciences, Tokushima University)

Regulation of Th17 cell differentiation by the integrated stress response modulator

- 15:23-15:31 Y-08: **Yukinari Haraoka** (Research Institute for Microbial Diseases, Osaka University)
Zebrafish imaging reveals additional TP53 mutation switches oncogene-induced senescence from suppressor to driver in primary tumorigenesis
- 15:31-15:39 Y-09: **Yuichi Hiraoka** (Medical Research Institute, Tokyo Medical and Dental University)
A mouse model of episodic ataxia type 6
- 15:39-16:47 Y-10: **Takahiro Fukaishi** (Institute for Molecular and Cellular Regulation, Gunma University)
Ppy-lineage β cells as a minor subpopulation from different origin
- 15:47-15:55 Y-11: **Izumi Matsudaira** (Institute of Development, Aging and Cancer, Tohoku University)
rs1360780 of the FKBP5 gene modulates the association between maternal acceptance and brain structure in children and adolescents
- 15:55-16:03 Y-12: **Atsuya Morita** (Kanazawa University Cancer Research Institute)
The functional role of Tm4sf1 in colon cancer metastasis
- 16:03-16:11 Y-13: **Daisuke Morita** (Institute for Frontier Life and Medical Sciences, Kyoto University)
T-cell recognition of the lipopeptide-bound MHC class I complex: evidence from the crystal structure

16:11-16:25 **Break**

Session 3: Organogenesis, Reproduction, and Human Disease

Chair: Yoshio Fujitani (Institute for Molecular and Cellular Regulation, Gunma University)

- 16:25-16:50 S-07: **Jun Shirakawa** (Institute for Molecular and Cellular Regulation, Gunma University)
Heterogeneity of pancreatic islets
- 16:50-17:15 S-08: **Akira Nakamura** (Institute of Molecular Embryology and Genetics, Kumamoto University)
Assembly and phase transition of germ granules in the *Drosophila* ovary
- 17:15-17:30 O-04: **Daiji Kiyozumi** (Research Institute for Microbial Diseases, Osaka University)
NELL2 is necessary for epididymal differentiation and male fertility
- 17:30-17:45 O-05: **Yuki Yoshino** (Institute of Development, Aging and Cancer, Tohoku University)
Investigation and preclinical development on BRCA1 molecular function
- 17:45-18:00 O-06: **Akio Kobayashi** (Institute of Molecular Embryology and Genetics, Kumamoto University)
Regulation of cellular lineages during kidney development

Friday, November 6, 2020

Keynote Lecture 2

Chair: Tadahiro Kitamura (Institute for Molecular and Cellular Regulation, Gunma University)
Daisuke Kohno (Institute for Molecular and Cellular Regulation, Gunma University)

09:00-09:40 **Joel K. Elmquist** (The University of Texas Southwestern Medical Center, USA)
Using mouse genetics to unravel the CNS pathways regulating energy balance and glucose homeostasis

Session 4: Immunology and Microbiology

Chair: Tetsuro Izumi (Institute for Molecular and Cellular Regulation, Gunma University)

09:40-10:05 S-09: **Takayuki Kato** (Institute for Protein Research, Osaka University)
Structural analysis of flagella motor by cryo-EM

10:05-10:30 S-10: **Yuta Kochi** (Medical Research Institute, Tokyo Medical and Dental University)
Genetic dissection of complex diseases by splicing QTL analysis

10:30-10:45 O-07: **Katsuhide Okunishi** (Institute for Molecular and Cellular Regulation, Gunma University)
Exophilin-5 regulates IL-33-mediated Th2 responses

10:45-11:00 O-08: **Shinya Tanaka** (Medical Institute of Bioregulation, Kyushu University)
Role of Ten-eleven translocation (Tet) in B cell self-tolerance

11:00-11:15 O-09: **Yuki Furuse** (Institute for Frontier Life and Medical Sciences, Kyoto University)
Novel algorithm to identify beneficial genetic mutations in viral genome: Ebola, Influenza, and SARS-CoV-2

11:15-11:30 **Break**

Keynote Lecture 3

Chair: Takeshi Inagaki (Institute for Molecular and Cellular Regulation, Gunma University)

11:30-12:10 **Yi-Ching Lee** (Academia Sinica, Taiwan)
Studying from a rare disease to common diseases

12:10-13:10 **Lunch**

Session 5: Innovative Life Science and Technology

Chair: Jun Shirakawa (Institute for Molecular and Cellular Regulation, Gunma University)

13:10-13:25 O-10: **Akio Kuroda** (Institute of Advanced Medical Sciences, Tokushima University)
Circulating cell free DNA and its clinical application

13:25-13:40 O-11: **Qiuyi Wang** (Institute for Protein Research, Osaka University)
Lithium ion adduction-based UPLC-MS/MS analysis of multi-class ketolic steroid hormones containing a 3-hydroxyl group

13:40-13:55 O-12: **Katsuya Sakai** (Kanazawa University Cancer Research Institute)
Artificial Met agonists based on macrocyclic peptides and protein engineering

13:55-14:20 S-11: **Tomoji Mashimo** (The Institute of Medical Science, The University of Tokyo)
CRISPR-Cas3: a new tool for genome editing and nucleic acid detection

14:20-14:45 S-12: **Mototsugu Eiraku** (Institute for Frontier Life and Medical Sciences, Kyoto University)
Functional 3D tissue formation by in vitro manipulation and cell autonomy

14:50-14:55 **Short Talk Awards Ceremony and Closing Remarks**
Takeshi Inagaki (Institute for Molecular and Cellular Regulation, Gunma University)