

The 18th international Symposium of the institute Network for Biomedical Science
The 2nd symposium of Medical Reserch Center Initiative for High Depth Omics
The 21st Surugadai International Symposium

Molecular Homeostasis and Intractable Diseases

Medical Reserch Institute, Tokyo Medical and Dental University
October 5-6,2023
Tokyo Medical and Dental University, Japan

Thursday, October 5, 2023

12:30-13:00 **Registration**

13:00-13:05 **Opening Remarks**
Hiroshi Nishina (Director Medical Research Institute of TMDU)

Session 1 (Chair: Tetsuya Taga)

13:05-13:25 S-01: **Noriko Gotoh** (Division of Cancer Cell Biology, Cancer Research Institute, Kanazawa University)
FXVD3 functionally demarcates an ancestral breast cancer stem cell subpopulation with features of drug tolerant-persisters

13:25-13:45 S-02: **Naoko Kamiya** (Division of Microbial Oncology, Institute for Genetic Medicine, Hokkaido University)
Helicobacter pylori induces genome instability to promote gastric carcinogenesis

13:45-14:05 S-03: **Natsuko Chiba** (Department of Cancer Biology, Institute of Development, Aging and Cancer, Tohoku University)
Centrosome regulation by cancer-associated proteins

14:05-14:17 Y-01: **Kojiro Ishibashi** (Division of Tumor Cell Biology and Bioimaging, Cancer Research Institute, Kanazawa University)
Investigation of novel therapeutic targets for brain metastasis using MGS method

14:17-14:29 Y-02: **Ryutaro Shirakawa** (Department of Molecular and Cellular Biology, Institute of Development, Aging and Cancer, Tohoku University)
Identification of a novel protein prenyltransferase

14:29-14:45 **Break**

Surugadai International Symposium (Chair: Katsumori Segawa)

14:45-15:15 I-01: **Yasunori Saheki** (Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore)
Control of intracellular cholesterol distribution via non-vesicular lipid transport at membrane contact sites

15:15-15:45 I-02: **Nick Barker** (A*STAR Institute of Molecular and Cell Biology, YLL School of Medicine, NUS)
Deciphering stem cell roles in driving onset and progression of gi tracy cancers

15:45-16:15 I-03: **Shigekazu Nagata** (Immunology Frontier Research Center, Osaka University)
Regulation of phospholipid distribution in the lipid bilayer by flippases and scramblases

16:15-16:30 **Break**

In-depth Omics Symposium (Chair: Itoshi Nikaido)

16:30-16:50 O-01: **Akiyoshi Uezumi** (Division of Cell Heterogeneity, Medical Institute of Bioregulation, Kyushu University)
Heterogeneity of mesenchymal stromal cells underlying skeletal muscle integrity

16:50-17:10 O-02: **Satoshi Uchida** (Department of Advanced Nanomedical Engineering, Medical Research Institute, Tokyo Medical and Dental University)
mRNA vaccine development for infectious disease prevention and cancer treatment

17:10-17:30 O-03: **Kei-ichiro Ishiguro** (Institute of Molecular Embryology and Genetics, Kumamoto University)
The mechanisms of cell cycle switch from mitosis to meiosis in mammalian germ cells

17:30-17:50 O-04: **Tatsuya Takemoto** (Institute of Advanced Medical Sciences, Tokushima University)
Transcriptional regulation of Tbx6 gene to elucidate mesodermal cell development

Session 2 (Chair: Toshiaki Oteki)

- 17:50-18:10 S-04: **Yoshinaga Ito** (Laboratory of Immunopathogenesis, Institute for Life and Medical Sciences, Kyoto University)
Addressing Tumor Heterogeneity by Sensitizing Resistant Cancer Cells to T cell-Secreted Cytokines
- 18:10-18:30 S-05: **Ai Kotani** (Department of Advanced Medical Science, Tokai University School of Medicine)
Critical new function of extracellular vesicles modified by sPLA2
- 18:30-18:42 Y-03: **Shimpei Kawamoto** (Department of Molecular Microbiology, Research Institute for Microbial Diseases (RIMD), Osaka University)
Age-related disruption of the crosstalk between host and gut microbiota through Immunoglobulin A
- 18:42-18:54 Y-04: **Yukihiko Sugita** (Laboratory of Ultrastructural Virology, Institute for Life and Medical Sciences, Kyoto University)
Structural insights into the assembly of the filovirus nucleocapsids

Friday, October 6, 2023

Session 3 (Chair: Noriyuki Matsuda)

- 9:00-9:20 S-06: **Satoru Torii** (Medical Research Institute, TMDU)
Involvement of casein kinase 1 epsilon/delta (Csnk1e/d) in the pathogenesis of familial Parkinson's disease caused by CHCHD2
- 9:20-9:40 S-07: **Hiroaki Okae** (Institute of Molecular Embryology and Genetics, Kumamoto University)
Trophoblast stem cells as a model for studying human placental development
- 9:40-10:00 S-08: **Takuma Shibata** (The Institute of Medical Science, The University of Tokyo)
TLR7/8 stress response drives histiocytosis in SLC29A3 disorders
- 10:00-10:12 Y-05: **Shun Sawatsubashi** (Institute of Advanced Medical Sciences, Tokushima University)
VDR is an essential regulator of hair follicle regression through the progression of cell death
- 10:12-10:24 Y-06: **Hikari Tanaka** (Department of Neuropathology, Medical Research Institute, Tokyo Medical and Dental University)
HMGB1 signaling phosphorylates Ku70 and impairs DNA damage repair in Alzheimer's disease pathology
- 10:24-10:40 **Break**

Session 4 (Chair: Yuta Kochi)

- 10:40-11:00 S-09: **Toshifumi Takao** (Institute for Protein Research, Osaka University)
Protein Mass Spectrometry: A Tool to Explore the Nature
- 11:00-11:20 S-10: **Yasuo Shinohara** (Institute for Advanced Medical Sciences, Tokushima University)
Possible creation of inhibitor resistant protein by combination of mutations identified by revertant studies
- 11:20-11:32 Y-07: **Masaki Kobayashi** (Metabolic Signal Research Center, Institute for Molecular and Cellular Regulation, Gunma University)
Development of highly reliable glucagon sandwich ELISA and potential contribution to clinical diagnosis
- 11:32-11:44 Y-08: **Yohei Miyanoiri** (Institute for Protein Research, Osaka University)
Elucidation of fibril formation mechanism of alpha-synuclein using isotope-aided NMR method
- 11:44-11:56 Y-09: **Robert Daniel Barish** (The Institute of Medical Science, The University of Tokyo)
Packing and covering problems for induced subgraphs of de Bruijn graphs
- 12:00-13:00 **Lunch**
Steering Committee Meeting (Members Only)

Poster Session & Coffee Break

- 13:00-14:14 P-01: **Youlee Son** (Division of Stem Cell Biology, Institute for Genetic Medicine, Hokkaido University)
A novel regulator of obesity-induced adipose tissue dysfunction
- P-02: **Akihiro Mori** (Division of Immunobiology, Institute for Genetic Medicine, Hokkaido University)
Immunoregulatory Capacity of iPSC-derived Blood Cells in Transplantation
- P-03: **Zhenzhou Fang** (Department of Cancer Biology, Institute of Development, Aging and Cancer, Tohoku University)
BRCA1-interacting protein BARD1 suppresses the OLA1 polyubiquitination by Aurora A for centrosome maturation
- P-04: **Kota Goto** (Department of Molecular and Cellular Biology, Institute of Development, Aging and Cancer, Tohoku University)
Double Prenylation of Ykt6 Is Essential for Maintaining Golgi Morphology and Function
- P-05: **Taeko Sasaki** (IMCR, Gunma University)
Regulation of paternal mitochondria autophagy via ALLO-1 and IKKE-1 in *Caenorhabditis elegans*
- P-06: **Kouichi Matsunaga** (Laboratory of Molecular Endocrinology and Metabolism, Department of Molecular medicine, IMCR, Gunma university)
Exophilin-5 regulates multiple cell adhesion molecules trafficking in keratinocyte
- P-07: **Ryota Sato** (The Institute of Medical Science, The University of Tokyo)
The role of RNase T2 in macrophage homeostasis
- P-08: **Xin Zeng** (The Institute of Medical Science, The University of Tokyo)
Comparative Gene Regulatory Network Analysis in Vertebrate Retinal Cell by Single-cell RNA-seq Data
- P-09: **Joji Nakayama** (Cancer Research Institute, Kanazawa University)
Zebrafish Embryo Screen Utilizing Gastrulation Identifies Anti-metastasis Drugs

- P-10: **Yasuhiro Nakano** (Division of Cancer and Senescence Biology, Cancer Research Institute, Kanazawa University)
In Vivo Lineage Tracing of p16-expressing Senescent Cells in Acute Liver Injury
- P-11: **Masato Ishikawa** (Institute for Life and Medical Sciences, Kyoto University)
Inference of gene regulatory networks based on expression dynamics induced by gene perturbations
- P-12: **Yuka Yokoyama** (Department of Micro Engineering, Graduate School of Engineering, Kyoto University)
Multicellular mechanical modeling for investigating bone morphogenesis
- P-13: **Yukihiro Hiramatsu** (Department of Molecular Bacteriology, RIMD, Osaka University)
Flagellum-triggered sensory system contributes to *Bordetella pertussis* infection
- P-14: **Shiroh Iwanaga** (Department of molecular protozoology, Research Institute for Microbial Diseases, Osaka University)
Suppression of NK cell function by RIFIN of malaria parasite
- P-15: **Tsuyoshi Sato** (Laboratory for Protein Synthesis and Expression, Institute for Protein Research, Osaka University)
AAV capsid engineering to infect brain using lasso-grafting technology
- P-16: **Leah Rie Varner** (Laboratory for Molecular and Developmental Biology, Institute for Protein Research, Osaka University)
Functional analysis of the deubiquitylating enzyme Otud7b in the retina
- P-17: **Sayumi Fujimori** (Division of Experimental Immunology, Institute of Advanced Medical Sciences, Tokushima University)
Role of β -catenin in mouse thymic epithelial cells for postnatal thymic development
- P-18: **Soh Hazaki** (IAMS, Tokushima Univ)
Transcriptional regulation of Tbx6 gene to elucidate mesodermal cell development
- P-19: **Kazufumi Kunimura** (Division of Immunogenetics, Medical Institute of Bioregulation, Kyushu University)
DOCK2 regulates MRGPRX2/B2-mediated mast cell degranulation and drug-induced anaphylaxis
- P-20: **Ryota Higuchi** (Division of Immunology and Genome Biology, Medical Institute of Bioregulation, Kyushu University)
Type I interferon determines the fate of TLR9-stimulated follicular B cells to plasma cell differentiation
- P-21: **Saori Morino-Koga** (Department of Cell Differentiation, Institute of Molecular Embryology and Genetics, Kumamoto University)
Minimum signal requirements for HSC maturation from HECs
- P-22: **Joji Watase** (Department of Germline Development, Institute of Molecular Embryology and Genetics, Kumamoto University)
Nonrandom sister chromatid segregation and germline immortality
- P-23: **Yugo Miyata** (Department of Medical Chemistry, Medical Research Institute, Tokyo Medical and Dental University)
Phospholipid asymmetry in the plasma membrane and its disruption
- P-24: **Shogo Yanai** (Departments of 1Biochemical Pathophysiology, Medical Research Institute, Tokyo Medical and Dental University)
The Role of Phospholipid Metabolism in Gonadal Maintenance
- P-25: **Satoshi Kofuji** (Developmental and Regenerative Biology, Medical Research Institute, Tokyo Medical and Dental University)
Identification of metabolic pathways regulating early mouse embryogenesis
- P-26: **Masahiro Shimizu** (Department of Molecular Cell Biology, Medical Research Institute, Tokyo Medical and Dental University)
WNK1/HSN2 mediates neurite outgrowth and differentiation via a OSR1/GSK3 β -LHX8 pathway
- P-27: **Tarapongpun Tanakorn** (Department of Stem Cell Regulation, Medical Research Institute, Tokyo Medical and Dental University)
Combinatorial Use of EGF and FGFs to Prime Human Adipose-derived Mesenchymal Stem Cells for Pre-adipocyte Commitment
- P-28: **Shizuka Ogiwara** (Department of Biomolecular Pathogenesis, Medical Research Institute, Tokyo Medical and Dental University)
Biochemical Characteristics of Pentosidine Synthesis
- P-29: **Masashi Kanayama** (Department of Biodefense Research, Medical Research Institute, Tokyo Medical and Dental University)
Myeloid-like B cells boost emergency myelopoiesis through IL-10 production during infection
- P-30: **Wang Di** (Department of Personalized Genomic Medicine for Health, Graduate School, Tokyo Medical and Dental University)
Analysis of localization of SCA6 polyQ inclusions in SCA6 knock-in mouse model
- P-31: **Akari Nakamura** (Department of Neuroinflammation and Repair, Medical Research Institute, Tokyo Medical and Dental University)
Novel lipid metabolites trigger brain-autonomous neural repair after ischemic stroke
- P-32: **Yuya Hanazono** (Medical Research Institute, Tokyo Medical and Dental University)
Fine structure analysis of protein: Unraveling molecular details through ultrahigh-resolution X-ray and neutron crystallography

P-33: **Mariko Yamane** (Department of Functional Genome Informatics , Medical Research Institute Tokyo Medical and Dental University)
Atlas-class transcriptome analysis of human iPS cell differentiation by using bulk-Quartz-seq2 in a single small research team

P-34: **Mahoko Ueda** (Department of Genomic Function and Diversity, Medical Research Institute, TMDU)
Dynamic profiling of RNA isoforms reveals essential roles of alternative splicing in interferon response

P-35: **Satoshi Uchida** (Department of Advanced Nanomedical Engineering, Medical Research Institute, Tokyo Medical and Dental University)
Protein replacement therapy and genome editing using messenger RNA polymeric micelles

Session 5 (Chair: Koichi Tanaka)

14:14-14:26 Y-10: **Hideki Tanizawa** (Division of Genome Biology, Institute for Genetic Medicine, Hokkaido University)
Three-dimensional genomic organization in senescent cells

14:26-14:38 Y-11: **Hironori Abe** (MEG, Kumamoto University)
Male specific gene silencing on sex chromosome during meiosis is coordinated by DNA damage

14:38-14:50 Y-12: **Masaki Kawamata** (Division of Organogenesis and Regeneration, Medical Institute of Bioregulation, Kyushu University)
Genome Editing Optimization by Tuning CRISPR-Cas9 Activity

14:50-15:10 S-11: **Hiroshi Ochiai** (Division of Gene Expression Dynamics, Medical Institute of Bioregulation, Kyushu University)
Unveiling the dynamics of transcriptional regulation through spatial multimodal molecular imaging

15:10-15:30 S-12: **Izuho Hatada** (Laboratory of Genome Science, Biosignal Genome Resource Center, Institute for Molecular and Cellular Regulation, Gunma University)
Generation of animal models for epigenetic diseases

Closing Session (Chair: Hiroshi Nishina)

15:30-15:45 **Awarding Prizes**
Concluding Remarks

Coordinator: **Takehiko Sasaki** (Medical Research Institute, TMDU)
Katsumori Segawa (Medical Research Institute, TMDU)
Noriyuki Matsuda (Medical Research Institute, TMDU)