

**The 20th International Symposium of the Institute Network
for Biomedical Sciences
JSPS Core-to-Core Program Virology Symposium**

L: Long talk 18 min (15 min + 3 min)

S: Short talk 12 min (10min + 2 min)

Keynote lecture: 40 min (30 min + 10 min)

October 2nd (Thu)

13:00 **Opening Remarks**

Hiroshi Kawamoto (Director of LiMe, Kyoto Univ.)

13:05 – 14:16 **Session 1 Infection and Immunology**

Chairperson Takeshi Noda (LiMe, Kyoto Univ.)

13:05 **S-1**

Searching for regulators of IgG4-related disease using spatial transcriptomics of the submandibular gland

Masaaki Uehara (IMS, UTokyo)

13:17 **S-2**

Breaking Immune Tolerance: Self and Neoself Discrimination by T cells in Autoimmune Diseases

Shunsuke Mori (RIMD, UOsaka)

13:29 **S-3**

Structural basis for membrane fusion triggered by morbillivirus hemagglutinin

Tateki Suzuki (LiMe, Kyoto Univ.)

13:41 **L-4**

Understanding Host-*Plasmodium* Interactions Towards Better Vaccines

Cevayir Coban (IMS, UTokyo)

13:59 **L-5**

Thymic epithelial Calcoco1 delays age-associated thymic involution

Izumi Ohigashi (IAMS, Tokushima Univ.)

14:20 – 14:40 **Coffee break**

14:40 – 15:20 **Keynote lecture 1**

Chairperson Keizo Tomonaga (LiMe, Kyoto Univ.)

From Bat to Bedside: Reconstructing Antiviral Immunity with Organoids

Dr. Max J. Kellner

Junior Research Group Leader, Helmholtz Centre for Infection Research, Germany

15:20 – 15:30 **Break**

15:30 – 16:10 **Keynote lecture 2**

Chairperson Yoshinaga Ito (LiMe, Kyoto Univ.)

Treatment of immunological diseases by converting disease-mediating T cells into Tregs

Dr. Shimon Sakaguchi

Professor, Immunology Frontier Research Center, The University of Osaka, Japan

16:10 – 16:30 **Coffee break**

16:30 – 17:48 **Session 2 Metabolism and Aging**

Chairperson Atsushi Mochizuki (LiMe, Kyoto Univ.)

16:30 **S-6**

Eva1 as a Key Regulator of Obesity-Induced Adipose Inflammation

You Lee Son (IGM, Hokkaido Univ.)

16:42 **S-7**

ATF6 in hepatocytes maintains ER proteostasis and controls whole-body metabolism

Masato Miyake (IAMS, Tokushima Univ.)

16:54 **L-8**

Critical roles of metabolic and immune responses in stem cell homeostasis

Atsushi Hirao (CRI, Kanazawa Univ.)

17:12 **L-9**

Gut microbiota research using *C. elegans* as an alternative host model

Eriko Nakadai (LiMe, Kyoto Univ.)

17:30 **L-10**

Age-related disruption of the crosstalk between host and commensal microbiota through cellular senescence

Shimpei Kawamoto (IDAC, Tohoku Univ.)

17:48 – 17:58 **Photo session**

18:00 – 20:00 **Reception**

October 3rd (Fri)

9:00 – 10:06 **Session 3 Cellular Regulation**

Chairperson Hirofumi Shintaku (LiMe, Kyoto Univ.)

9:00 **S-11**

Development of mouse models carrying mutant mtDNA for mitochondrial disease research

Haruna Tani (IDAC, Tohoku Univ.)

9:12 **L-12**

Molecular mechanism of lipid supply for autophagosome formation

Nobuo Noda (IGM, Hokkaido Univ.)

9:30 **L-13**

Mechanism of selective autophagy of paternal mitochondria in *C. elegans* embryos

Miyuki Sato (IMCR, Gunma Univ.)

9:48 **L-14**

Molecular mechanism of oxalate uptake by an oxalate-degrading gut bacterium

Atsuko Yamashita (IPR, UOsaka)

10:03 – 10:10 **Short break**

10:10 – 10:50 **Keynote lecture 3**

Chairperson Kosuke Yusa (LiMe, Kyoto Univ.)

Engineering the human genome for understanding and control

Dr. Leopold Parts

Group Leader, Wellcome Sanger Institute, UK

10:50 – 11:05 **Coffee break**

11:05 – 12:17 **Session 4 Diseases**

Chairperson Keiko Nonomura (LiMe, Kyoto Univ.)

11:05 **S-15**

Overcoming KRAS inhibitor resistance in lung cancer by targeting anaplerotic pathways

Susumu Kohno (CRI, Kanazawa Univ.)

11:17 **S-16**

Mechanisms linking maternal asthma and stress to childhood asthma development

Minako Ito (MIB, Kyushu Univ.)

11:29 **S-17**

Autoinflammatory Diseases: Insights from Disease-Specific iPSC Models for Pathogenesis Elucidation and Therapeutic Development

Fumiko Ozaki (MRL, IIR, Science Tokyo)

11:41 **L-18**

DJ-1 functions as a gatekeeper against reactive glycolytic intermediates to mitigate Parkinson's disease.

Noriyuki Matsuda (MRL, IIR, Science Tokyo)

11:59 **L-19**

Elucidation of the heterogeneity system of mesenchymal stromal cells essential for maintaining skeletal muscle integrity

Akiyoshi Uezumi (MIB, Kyushu Univ.)

12:20 – 13:30 **Lunch / Organizing Committee**

P-01

Vaccine antigen design of SARS-CoV-2 spike protein with concealed receptor-binding motif to enhance cross-reactivity against variants

Takuya Hemmi (LiMe, Kyoto Univ.)

P-02

Virological characteristics of SARS-CoV-2-related coronaviruses dynamically circulating in Southeast Asia

Ziyi Guo (IMS, UTokyo)

P-03

Study of SARS-CoV-2 replication using human nasal organoids comprising olfactory and respiratory epithelia

Yukiko Muramoto (LiMe, Kyoto Univ.)

P-04

Single-cell transcriptomic profiling of Borna disease virus infection in rat testicular tissue

Madoka Sakai (LiMe, Kyoto Univ.)

P-05

Human skin model for analyzing HPV replication and the applications.

Hiroyuki Sakai (LiMe, Kyoto Univ.)

P-06

Development of hepatitis B virus infection in immunocompromised transgenic mice expressing human NTCP

Fumihiko Takeuchi (LiMe, Kyoto Univ.)

P-07

Progress and Prospects in HIV/AIDS Pathogenicity Research Using Rhesus Macaque Models: From SHIV Model Development to Neutralizing Antibody Induction

Tomoyuki Miura (LiMe, Kyoto Univ.)

P-08

EMC1 enforces an ER-integrated checkpoint in B cell activation

Kazuhiko Kawata (MIB, Kyushu Univ.)

P-09

TAP-independent induction of N-myristoylated lipopeptide-specific CTLs in transgenic mice expressing rhesus lipopeptide-presenting MHC class I.

Hiromu Suzuki (LiMe, Kyoto Univ.)

P-10

An Atypical Keratinocyte Subset Serves as the Main Source of IL-23 in Psoriatic Skin Inflammation Model

Yoonha Lee (LiMe, Kyoto Univ.)

P-11

Predominantly Treg-derived soluble CTLA-4 restrains type-1 immunity while sparing type-2 responses, favoring inflammation resolution

Motonao Osaki (LiMe, Kyoto Univ.)

P-12

TNF-signaling facilitates a non-canonical pathway for thymic Treg cell development

Ryoji Kawakami (LiMe, Kyoto Univ.)

P-13

Development of a *Caenorhabditis elegans* model for evaluating the suppression of inflammatory responses by *Escherichia coli*.

Hikaru Sasaki (LiMe, Kyoto Univ.)

P-14

Mesenchymal Stromal Cell-Activated Neutrophils Suppress Alloreactive Lymphocytes to Mitigate Acute Graft-versus-Host Disease

Tomokazu Seki (IMS, UTokyo)

P-15

PF4 secreted by tumor-associated macrophages promotes Th1-Treg accumulation in the tumor microenvironment

Ayumi Kuratani (RIMD, UOsaka)

P-16

Donor-specific immune tolerance induced by allogeneic iPSC engraftment without immunosuppression

Tomoki Kamatani (IGM, Hokkaido Univ.)

P-17

Regulation of pancreatic α -cell function via ER stress-related molecules

Takahiro Tsuno (IMCR, Gunma Univ.)

P-18

Establishment of measurement of mitochondrial ADP uptake that can distinguish sidedness of mitochondrial ADP/ATP carrier

Kazuto Takegawa (IAMS, Tokushima Univ.)

P-19

Development of Ion-Pair Reagent-Free ppGpp Quantification Method and Functional Analysis of Mesh1 in Animal

Doshun Ito (IMCR, Gunma Univ.)

P-20

Human fibroblasts from aged individuals exhibit chromosomal instability through replication stress caused by oxidative stress

Kailin Zhu (IDAC, Tohoku Univ.)

P-21

Age-associated thymic involution and regulation of cortical thymic epithelial cells via Wnt/ β -catenin signaling

Sayumi Fujimori (IAMS, Tokushima Univ.)

P-22

DeepSpaceDB: an interactive spatial transcriptomics database covering a wide variety of tissues and conditions

Vandenbon Alexis (LiMe, Kyoto Univ.)

P-23

Network topology creates independent control of G₂-M from G₁-S checkpoints in the fission yeast cell cycle system

Yuhei Yamauchi (LiMe, Kyoto Univ.)

P-24

Identifying the phenotype indicator species in chemical reaction networks

Yong-Jin Huang (LiMe, Kyoto Univ.)

P-25

Structural analysis of thermal stability of ferredoxins from three evolutionally distant algal species living in different temperature

Nana Yamamoto (IPR, UOsaka)

P-26

Substrate docking mechanism of the intramembrane protease RseP revealed by the substrate-bound cryo-EM structure and an *in vivo* photo-crosslinking analysis

Yohei Hizukuri (LiMe, Kyoto Univ.)

P-27

Development of Cell Membrane-Coated Nanoparticles with Targeting Ability and Controlled Drug Release

Mitsuru Ando (LiMe, Kyoto Univ.)

P-28

BRCA1-interacting protein OLA1 promotes DNA damage-induced centrosome amplification

Hsiao Tsechin (IDAC, Tohoku Univ.)

P-29

Permeable lung vasculature provides chemo-resistant endothelial niche by producing SERPINE1 at the metastasis of breast cancer

Shandan (CRI, Kanazawa Univ.)

P-30

Dual inhibition of GPx4 and MEK suppresses pancreatic ductal adenocarcinoma by inducing ferroptosis

Ryodai Yamamura (IGM, Hokkaido Univ.)

P-31

Low albumin-driven systemic immunosuppression in breast cancer

Yuki Nakamura (LiMe, Kyoto Univ.)

P-32

CRISPR-based inducible knockout system in human blood cancer xenograft models

Yuki Itatani (LiMe, Kyoto Univ.)

P-33

BCAA transaminase as a critical regulator of human chondrosarcoma progression and differentiation through enzymatic and non-enzymatic mechanisms

Ayuna Hattori (LiMe, Kyoto Univ.)

P-34

Expanding the capacity of opto-combinatorial indexing for multimodal single-cell analysis on heterogeneous drug response

Taikopaul Kaneko (LiMe, Kyoto Univ.)

P-35

Establishment of a method for simultaneous measurement of cerebellar complex spikes and electroencephalogram

Rio Shinohara (LiMe, Kyoto Univ.)

P-36

Establishment of experimental methods for large-scale spinal cord neuron imaging

Mei Ishikawa (LiMe, Kyoto Univ.)

P-37

Pathogenic mutations in DJ-1 disrupt cPGA clearance, implying cPGA as a potential risk factor for Parkinson's disease.

Shizuka Ogiwara (MRL, IIR, Science Tokyo)

P-38

Control of organ function via peripheral mechanosensation-brain axis

Teppei Goto (LiMe, Kyoto Univ.)

P-39

Establishment and functional analysis of phagocytic microglia

Norika Doi (CRI, Kanazawa Univ.)

P-40

Novel cell therapy for liver fibrosis using human iHepPCs

Yoshiaki Sakaguchi (MIB, Kyushu Univ.)

P-41

Generation of Antigen-Specific Cytotoxic T Lymphocytes from iPSCs and Their Potential for Clinical Translation

Seiji Nagano (LiMe, Kyoto Univ.)

P-42

In vitro model of germline mutations in mouse spermatogonial stem cells and their transmission to the next generation

Ami Katanaya (LiMe, Kyoto Univ.)

P-43

NN15-017 Promotes Human Pluripotent Stem Cell Proliferation and Generation

Shizuka Fujigaki-Yamazaki (LiMe, Kyoto Univ.)

P-44

Current Status of the Derivation and Banking of Clinical-Grade Human Embryonic Stem Cell Lines in Accordance with Japanese Regulations at Kyoto University

Kei Takada (LiMe, Kyoto Univ.)

P-45

Bmp4 drives hematopoietic stem cell development from hemogenic endothelial cells

Mariko Tsuruda (IMEG, Kumamoto Univ.)

P-46

Physiological cell competition ensures robust tissue patterning

Kanako Matsumoto (RIMD, UOsaka)

P-47

The molecular mechanism of meiotic gene activation by MEIOSIN and STRA8

Ryuki Shimada (IMEG, Kumamoto Univ.)

P-48

Engineered communication-driven cell death guides multicellular self-organization

Kosuke Mizuno (IPR, UOsaka)

P-49

Osteoclast Precursor Apoptosis Induction as a Strategy to Mitigate Rebound Bone Loss after Denosumab Discontinuation: An In Silico Modeling Study

Young Kwan Kim (LiMe, Kyoto Univ.)

P-50

Development of Sweat Glands Using Skin Organoids from Mouse ES Cells

Rina Takagi (LiMe, Kyoto Univ.)

15:00 – 16:12 **Session 5 Development and Differentiation**

Chairperson Mototsugu Eiraku (LiMe, Kyoto Univ.)

15:00 **S-20**

Iron-dependent epigenetic rewriting regulates adipocyte differentiation

Tetsuro Komatsu (IMCR, Gunma Univ.)

15:12 **S-21**

The involvement of FAD-dependent enzymes in adipose tissue development and function

Shinjiro Hino (IMEG, Kumamoto Univ.)

15:24 **S-22**

Preventing non-productive binding of RAD51 recombinase to DNA ensures chromosome condensation and segregation in mouse oocytes

Masaru Ito (IPR, UOsaka)

15:36 **L-23**

Abundant piRNA production mediated by the *Drosophila* GTSF1 homolog Tpp ensures Aubergine localization and germ plasm assembly

Akira Nakamura (IMEG, Kumamoto Univ.)

15:54 **L-24**

Decode, predict, and control biological systems through single-cell omics and modeling approaches.

Kenji Kamimoto (RIMD, UOsaka)

16:12 – 16:30 **Awards Ceremony & Closing Remarks**

Hiroshi Kawamoto (Director of LiMe, Kyoto Univ.)

One presentation from the short talks will be selected for the Best Oral Presentation Award. The selection will be made by the organizing committee of this symposium.

Three presentations from the poster sessions will be selected for the Poster Award. The selection will be based on the votes of the oral presenters.