

## Oct 11 (Wed)

---

14:00-14:15 Welcome Address

---

Masanori Hatakeyama, Shigeo Ohno and Toshiro Sato

---

14:15-15:39 Session 1. Cell Biology

---

Chair: Y. Fujita

**S1-1 Role of cellular senescence in aging and cancer: relationship with microorganisms ..28**

**Eiji Hara**

Department of Molecular Microbiology, Research Institute for Microbial Diseases, Osaka University, Osaka, Japan

**S1-2 Nuclear periphery as a gatekeeper of genome integrity and cancer onset .....30**

**Yekaterina Miroshnikova**

NIDDK, National Institutes of Health, Bethesda, USA

**S1-3 Epigenetic alteration of senescent stroma cells in the cancer microenvironment .....32**

**Akiko Takahashi**

Division of Cellular Senescence, Cancer Institute, Japanese Foundation for Cancer Research, Tokyo, Japan  
Cancer Cell Communication Project, NEXT-Ganken Program, Japanese Foundation for Cancer Research, Tokyo, Japan

---

15:54-16:21 Session 2. Technology-1 Intravital Imaging

---

Chair: Y. Minami

**S2 Live imaging of intracellular signaling activity of cancer cells .....34**

Hiroshi Ichise<sup>1</sup>, Yoshinobu Konishi<sup>2</sup>, Kenta Terai<sup>2</sup>, and **Michiyuki Matsuda**<sup>1,2</sup>

<sup>1</sup> Laboratory of Bioimaging and Cell Signaling, Graduate School of Biostudies, Kyoto University

<sup>2</sup> Department of Pathology and Biology of Diseases, Graduate School of Medicine, Kyoto University

---

16:21-16:48 Session 3. Technology-2 Developmental Biology

---

Chair: Y. Minami

**S3 Expansion of ventral foregut primes enhancer landscape for organ-specific differentiation .....36**

**Yan Fung Wong**<sup>1</sup>, Yatendra Kumar<sup>2</sup>, Martin Proks<sup>1</sup>, Jose R Herrera<sup>3</sup>, Michaela M Rothová<sup>1</sup>, Rita S Monteiro<sup>1</sup>, Sara Pozzi<sup>1</sup>, Rachel E Jennings<sup>4</sup>, Neil A Hanley<sup>4</sup>, Wendy A Bickmore<sup>2</sup>, Joshua M Brickman<sup>1</sup>

<sup>1</sup> Univ. of Copenhagen, NNF Center for Stem Cell Medicine (reNEW), Denmark

<sup>2</sup> Univ. of Edinburgh, MRC Human Genetics Unit, United Kingdom

<sup>3</sup> Univ. of Copenhagen, Center for Health Data Science, Denmark

<sup>4</sup> Univ. of Manchester, Faculty of Biology, Medicine & Health, United Kingdom

---

16:48-17:43 Keynote Lecture

---

Chair: T. Sato

**K1 Organoids to model human disease .....20**

**Hans Clevers**

Professor in Molecular Genetics, University of Utrecht, The Netherlands

## Oct 12 (Thu)

---

9:30-10:49 Session4. Stomach Cancer

---

Chair: SY. Leung

**S4-1 Epigenetic heterogeneity in cancer .....38**  
**Hiroyuki Aburatani**

Genome Science and Medicine Laboratory, Research Center for Advanced Science and Technology,  
The University of Tokyo, Tokyo, Japan

**S4-2 Genetically engineered tumor-derived organoid models to examine the metastasis  
mechanism of gastrointestinal cancer .....40**

Hiroko Oshima<sup>1,2</sup>, Sau Yee Kok<sup>1</sup>, Mizuho Nakayama<sup>1,2</sup>, Yukinori Ikeda<sup>3</sup>, Yukiko T. Matsunaga<sup>3</sup>,  
**Masanobu Oshima**<sup>1,2</sup>

<sup>1</sup> Division of Genetics, Cancer Research Institute, Kanazawa University, Japan

<sup>2</sup> WPI-Nano Life Science Institute (NanoLSI), Kanazawa University, Japan

<sup>3</sup> Institute of Industrial Science, The University of Tokyo, Japan

**S4-3 Escape from cell-cell and cell matrix adhesion dependence underscores disease  
progression in gastric cancer organoid models .....42**

Yin Tong<sup>1</sup>, Priscilla SW Cheng<sup>1</sup>, Chung Sze Or<sup>1</sup>, Sarah SK Yue<sup>1</sup>, Hoi Cheong Siu<sup>1</sup>, Siu Lun Ho<sup>1</sup>,  
Simon Law<sup>2</sup>, Wai Yin Tsui<sup>1</sup>, Dessy Chan<sup>1</sup>, Stephanie KY Ma<sup>3</sup>, Siu Po Lee<sup>1</sup>, Annie SY Chan<sup>1</sup>,  
April S Chan<sup>1</sup>, Shui Wa Yun<sup>1</sup>, Ho Sang Hui<sup>1</sup>, Siu Tsan Yuen<sup>1,4</sup>, Suet Yi Leung<sup>1,5</sup>, and **Helen HN Yan**<sup>1,6</sup>

<sup>1</sup> Department of Pathology, School of Clinical Medicine, The University of Hong Kong, Queen Mary Hospital, Pokfulam,  
Hong Kong SAR, China

<sup>2</sup> Department of Surgery, School of Clinical Medicine, The University of Hong Kong, Queen Mary Hospital, Pokfulam,  
Hong Kong SAR, China

<sup>3</sup> School of Biomedical Sciences, The University of Hong Kong, Pokfulam, Hong Kong SAR, China

<sup>4</sup> Department of Pathology, St. Paul's Hospital, No. 2, Eastern Hospital Road, Causeway Bay, Hong Kong SAR, China

<sup>5</sup> The Jockey Club Centre for Clinical Innovation and Discovery, LKS Faculty of Medicine, The University of Hong  
Kong, Pokfulam, Hong Kong SAR, China

<sup>6</sup> Centre for Oncology and Immunology, Hong Kong Science Park, Hong Kong SAR, China

---

11:04-11:56 Session 5. Developmental Biology/Urology

---

Chair: M. Morimoto

**S5-1 Recapitulating ventral hindgut development in hiPSCs generates bladder  
organoids .....44**

Kazuhiro Ofuji, Filip J Wymeersch, **Minoru Takasato**

RIKEN BDR, Kobe, Japan

**S5-2 Human assembloids for understanding tissue regeneration and cancer .....46**  
**Eunjee Kim**<sup>1</sup>, Kunyoo Shin<sup>1,2</sup>

<sup>1</sup> Institute of Molecular Biology and Genetics, Seoul National University, Seoul, Republic of Korea

<sup>2</sup> School of Biological Sciences, Seoul National University, Seoul, Republic of Korea

---

11:56-12:56 Luncheon Seminar 1

---

Chair: T. Sato

Co-Sponsored: VERITAS Corporation

**LS1 In Vitro Tissue Modeling Innovations: Hepatic, Alveolar and Intestinal Organoids ....118**  
**Ryan K. Conder**

STEMCELL Technologies, Vancouver, Canada

Simon Fraser University, Department of Molecular Biology and Biochemistry, Burnaby, BC V5A 1S6, Canada

- P1 Cellular stress induces non-canonical activation of EphA2 through the p38-MK2-RSK signaling pathway** .....94  
**Yue Zhou**, Ryota Oki, Akihiro Tanaka, Leixin Song, Atsushi Takashima, Naru Hamada, Satoru Yokoyama, Hiroaki Sakurai  
 Department of Cancer Cell Biology, Faculty of Pharmaceutical Sciences, University of Toyama, Toyama, Japan
- P2 The non-canonical activation of receptor tyrosine kinase EphA2 promotes cell motility in TGF- $\beta$ -treated mesenchymal cancer cells** .....95  
**Leixin Song**, Yue Zhou, Tomohiro Yamamura, Satoru Yokoyama, Hiroaki Sakurai  
 Department of Cancer Cell Biology, Faculty of Pharmaceutical Sciences, University of Toyama, Toyama, Japan
- P3 MYEOV overexpression induced by its promoter demethylation contributes to pancreatic cancer progression via the activation of folate cycle/c-Myc/mTORC1 pathway** .....96  
**Shoichiro Tange**<sup>1</sup>, Tomomi Hirano<sup>1</sup>, Masashi Idogawa<sup>1,2</sup>, Eishu Hirata<sup>3</sup>, Issei Imoto<sup>4</sup>, Takashi Tokino<sup>1</sup>  
<sup>1</sup> Department of Medical Genome Sciences, Research Institute for Frontier Medicine, Sapporo Medical University School of Medicine, Japan  
<sup>2</sup> Department of Gastroenterology and Hepatology, Sapporo Medical University School of Medicine, Japan  
<sup>3</sup> Division of Tumor Cell Biology and Bioimaging, Cancer Research Institute, Kanazawa University, Japan  
<sup>4</sup> Aichi Cancer Center Research Institute, Japan
- P4 Molecular pathology of uterine leiomyosarcoma for development of diagnostic method and clinical treatment** .....97  
**Takuma Hayashi**<sup>1,2</sup>, Kenji Sano<sup>3</sup>, Susumu Tonegawa<sup>4</sup>, Nobuo Yaegashi<sup>2,5</sup>, Ikuo Konishi<sup>1,2,6</sup>  
<sup>1</sup> Cancer Medicine, National Hospital Organization Kyoto Medical Center, Kyoto, Japan  
<sup>2</sup> Medical R&D Promotion Project, The Japan Agency for Medical Research and Development (AMED), Tokyo, Japan  
<sup>3</sup> Dept. of Pathology, Shinshu University Hospital, Nagano, Japan  
<sup>4</sup> Massachusetts Institute of Technology, Picower Institution, MA, USA  
<sup>5</sup> Gynecology, Sendai Red Cross Hospital, Miyagi, Japan  
<sup>6</sup> Kyoto University School of Medicine, Kyoto, Japan
- P5 Hierarchical lung squamous cell carcinoma organoid model for investigating cellular heterogeneity** .....98  
**Kiyotaka Nakano**<sup>1</sup>, Shigeto Kawai<sup>1</sup>, Takanori Fujita<sup>2</sup>, Mimori Yamada<sup>1</sup>, Genta Nagae<sup>2</sup>, Etsuko Fujii<sup>1</sup>, Hiroyuki Aburatani<sup>2</sup>  
<sup>1</sup> Translational Research Division, Chugai Pharmaceutical Co., Ltd., Tokyo, Japan  
<sup>2</sup> Genome Science Division, Research Center for Advanced Science and Technology, The University of Tokyo, Tokyo, Japan
- P6 A patient-derived lung cancer organoid library reveals targetable Wnt dependency in lung adenocarcinoma** .....99  
**Junko Hamamoto**<sup>1</sup>, Toshiki Ebisudani<sup>2</sup>, Kazuhiro Togasaki<sup>2,3</sup>, Akifumi Mitsuishi<sup>1</sup>, Kai Sugihara<sup>1</sup>, Taro Shinozaki<sup>1</sup>, Takahiro Fukushima<sup>1</sup>, Kenta Kawasaki<sup>1</sup>, Takashi Seino<sup>1</sup>, Mayumi Oda<sup>1</sup>, Hikaru Hanyu<sup>1</sup>, Kohta Toshimitsu<sup>1</sup>, Katsura Emoto<sup>4</sup>, Yuichiro Hayashi<sup>4</sup>, Keisuke Asakura<sup>5</sup>, Todd A Johnson<sup>6</sup>, Hideki Terai<sup>1</sup>, Shinnosuke Ikemur<sup>1</sup>, Ichiro Kawada<sup>1</sup>, Makoto Ishii<sup>1</sup>, Tomoyuki Hishida<sup>5</sup>, Hisao Asamura<sup>5</sup>, Kenzo Soejima<sup>1</sup>, Hidewaki Nakagawa<sup>6</sup>, Masayuki Fujii<sup>2</sup>, Koichi Fukunaga<sup>1</sup>, Hiroyuki Yasuda<sup>7</sup>, Toshiro Sato<sup>8</sup>  
<sup>1</sup> Department of Pulmonary Medicine, Keio University, School of Medicine, Tokyo, Japan  
<sup>2</sup> Department of Integrative Medicine and Biochemistry, Keio University School of Medicine, Tokyo, Japan  
<sup>3</sup> Department of Gastroenterology, Keio University, School of Medicine, Tokyo, Japan  
<sup>4</sup> Division of Diagnostic Pathology, Keio University School of Medicine, Tokyo, Japan  
<sup>5</sup> Division of Thoracic Surgery, Keio University School of Medicine, Tokyo, Japan  
<sup>6</sup> Laboratory for Cancer Genomics, RIKEN Center for Integrative Medical Sciences, Yokohama, Japan  
<sup>7</sup> Department of Pulmonary Medicine, Keio University School of Medicine, Tokyo, Japan  
<sup>8</sup> Department of Integrative Medicine and Biochemistry, Keio University School of Medicine, Tokyo, Japan
- P7 Bidirectional differentiation mechanism of AFP-producing gastric carcinoma using single cell analysis** .....100  
**Aya Nonaka**<sup>1</sup>, Genta Nagae<sup>1</sup>, Kazuhiro Osawa<sup>1</sup>, Kosaku Nanki<sup>2,3</sup>, Toshiro Sato<sup>2</sup>, Hiroyuki Aburatani<sup>1</sup>  
<sup>1</sup> Division of Genome Science & Medicine, RCAST, The University of Tokyo, Japan  
<sup>2</sup> Department of Organoid Medicine, Sakaguchi Laboratory, Keio University School of Medicine, Tokyo, Japan  
<sup>3</sup> Department of Gastroenterology, Keio University School of Medicine, Tokyo, Japan

- P8 Patient-derived organoids of pancreatic ductal adenocarcinoma for subtype determination and clinical outcome prediction**.....101  
**Kazuhide Matsumoto**, Nao Fujimori, Masatoshi Murakami, Akihisa Ohno, Shotaro Kakehashi, Katsuhito Teramatsu, Keiji Ueda, Yoshihiro Ogawa  
 Department of Medicine and Bioregulatory Science, Graduate School of Medical Sciences, Kyushu University, Fukuoka, Japan
- P9 The functional role of Kras, p53, Wnt and Notch pathways in the tumorigenesis of extrahepatic biliary system** .....102  
**Munemasa Nagao**<sup>1</sup>, Mio Namikawa<sup>2</sup>, Yoko Masui<sup>1</sup>, Chen Jiayu<sup>1</sup>, Munehiro Ikeda<sup>1</sup>, Sho Matsuyama<sup>1</sup>, Kei Iimori<sup>1</sup>, Shinnosuke Nakayama<sup>1</sup>, Naoki Aoyama<sup>1</sup>, Kenta Mizukoshi<sup>1</sup>, Go Yamakawa<sup>1</sup>, Keiske Iwane<sup>1</sup>, Munenori Kawai<sup>1</sup>, Mayuki Omatsu<sup>1</sup>, Tomonori Masuda<sup>1</sup>, Makoto Sono<sup>1</sup>, Yukiko Hiramatsu<sup>1</sup>, Takahisa Maruno<sup>1</sup>, Yuki Nakanishi<sup>1</sup>, Akihisa Fukuda<sup>1</sup>, Hiroshi Seno<sup>1</sup>  
<sup>1</sup> Department of Gastroenterology and Hepatology, Kyoto University Graduate School of Medicine, Kyoto, Japan  
<sup>2</sup> Department of Gastroenterology and Hepatology, Japan Baptist Hospital, Kyoto, Japan
- P10 Polyploidy determines a characteristic subset of hepatocellular with aggressive features**.....103  
**Tomonori Matsumoto**<sup>1</sup>, Takanori Matsuura<sup>1,2</sup>, Yoshiyuki Harada<sup>1,2</sup>, Astuhiro Masuda<sup>2</sup>, Yuzo Kodama<sup>2</sup>, Yoshihide Ueda<sup>2</sup>, Eiji Hara<sup>1</sup>  
<sup>1</sup> Department of Molecular Microbiology, Research Institute for Microbial Diseases, Osaka University, Osaka, Japan  
<sup>2</sup> Division of gastroenterology, Department of Internal Medicine, Kobe University Graduate School of Medicine, Kobe, Japan
- P11 Characterization of heterogenous cancer-associated fibroblasts in human pancreatic cancers** .....104  
**Tomonori Matsumoto**<sup>1</sup>, Yoshiyuki Harada<sup>1,2</sup>, Takanori Matsuura<sup>1,2</sup>, Astuhiro Masuda<sup>2</sup>, Yuzo Kodama<sup>2</sup>, Eiji Hara<sup>1</sup>  
<sup>1</sup> Department of Molecular Microbiology, Research Institute for Microbial Diseases, Osaka University, Osaka, Japan  
<sup>2</sup> Division of gastroenterology, Department of Internal Medicine, Kobe University Graduate School of Medicine, Kobe, Japan
- P12 Identification and characterization of genes associated with chemoresistance- in refractory pancreatic cancers**.....105  
**Yosuke Matsushita**<sup>1,2</sup>, Tetsuro Yoshimaru<sup>2</sup>, Toyomasa Katagiri<sup>1,2</sup>  
<sup>1</sup> Laboratory of Biofunctional Molecular Medicine, Center for Drug Design Research, National Institutes of Biomedical Innovation, Health and Nutrition, Osaka, Japan  
<sup>2</sup> Division of Genome Medicine, Institute of Advanced Medical Science, Tokushima University, Tokushima, Japan
- P13 A novel molecular mechanism of evasion of apoptotic cell death regulated by S1P-atypical PKC signaling** .....106  
**Taketoshi Kajimoto**<sup>1,2</sup>, Alisha D. Caliman<sup>1</sup>, Irene S. Tobias<sup>1</sup>, Taro Okada<sup>2</sup>, Caila A. Pilo<sup>1</sup>, An-Angela Van<sup>1</sup>, J. Andrew McCammon<sup>1</sup>, Shun-ichi Nakamura<sup>2</sup>, Alexandra C. Newton<sup>1</sup>  
<sup>1</sup> Department of Biochemistry and Molecular Biology, Kobe University Graduate School of Medicine, Kobe, Japan  
<sup>2</sup> Department of Pharmacology, School of Medicine, University of California at San Diego, La Jolla, USA
- P14 Elucidation of the molecular mechanism of a tumor-suppressive cell competition triggered by a “kick-me-out” signal, FGF21** .....107  
**Motoyuki Ogawa**, Mina Yano, Isao Naguro, Hidenori Ichijo  
 Cell Signaling, Graduate School of Pharmaceutical Sciences, The University of Tokyo, Tokyo, Japan
- P15 Rif promotes progression of lung adenocarcinoma by regulating Wnt5a-Ror1 signaling** .....108  
**Koki Kamizaki**<sup>1</sup>, Michiru Nishita<sup>2</sup>, Yasuhiro Minami<sup>1</sup>  
<sup>1</sup> Division of Cell Physiology, Department of Physiology and Cell Biology, Kobe University, Graduate School of Medicine, Kobe, Japan  
<sup>2</sup> Department of Biochemistry, Fukushima Medical University School of Medicine, Fukushima, Japan
- P16 CD44v6 as a marker for the early stages of pancreatic cancer**.....109  
**Miho Sekai**<sup>1,2</sup>, Yasuyuki Fujita<sup>1</sup>  
<sup>1</sup> Department of Molecular Oncology, Graduate School of Medicine, Kyoto University, Kyoto, Japan  
<sup>2</sup> Eisai Co., Ltd., Kobe, Japan

- P17 Ror2-Nrf2 signaling confers ferroptosis resistance in glioblastoma cells**.....110  
**Mitsuharu Endo**<sup>1</sup>, Hayata Suzuki<sup>1</sup>, Aya Sekido<sup>1</sup>, Hiroaki Nagashima<sup>2</sup>, Kazuhiro Tanaka<sup>2</sup>, Takashi Sasayama<sup>2</sup>, and Yasuhiro Minami<sup>1</sup>  
<sup>1</sup> Department of Physiology and Cell Biology, Graduate School of Medicine, Kobe University, Kobe, Japan  
<sup>2</sup> Department of Neurosurgery, Graduate School of Medicine, Kobe University, Kobe, Japan
- P18 Deciphering PDX and Organoids in pancreatic cancer research arena** .....111  
**Akihito Machinaga**<sup>1,2</sup>, Tomohiro Hirano<sup>3</sup>, Nobuyuki Kakiuchi<sup>3</sup>, Kota Toshimitsu<sup>2</sup>, Ken Sasai<sup>1,2</sup>, Ryuko Tsukamoto<sup>4</sup>, Tomoo Itoh<sup>4</sup>, Yuzo Kodama<sup>5</sup>, Toshio Imai<sup>1,5</sup>, Hiroshi Seno<sup>6</sup>, Seishi Ogawa<sup>3</sup>  
<sup>1</sup> KAN Research Institute, Kobe, Japan  
<sup>2</sup> Oncology Tsukuba Research Department, Discovery, Medicine Creation, DHBL, Eisai Co., Ltd, Tsukuba, Ibaraki, Japan  
<sup>3</sup> Department of Pathology and Tumour Biology, Graduate School of Medicine, Kyoto University, Kyoto, Japan  
<sup>4</sup> Department of Diagnostic Pathology, Kobe University Graduate School of Medicine, Kobe, Japan  
<sup>5</sup> Division of Gastroenterology, Department of Internal Medicine, Graduate School of Medicine, Kobe University, Kobe, Hyogo, Japan  
<sup>6</sup> Department of Gastroenterology and Hepatology, Kyoto University Graduate School of Medicine, Kyoto, Japan
- P19 Amino acid metabolic reprogramming and malignant transformation in chondrosarcoma** .....112  
**Yoshiaki Yamamoto**<sup>1</sup>, Makoto Nakagawa<sup>2,3</sup>, John Glushka<sup>4</sup>, Ayako Maeno<sup>5</sup>, Masayuki Fukuda<sup>6</sup>, Hironori Kaji<sup>5</sup>, Junya Toguchida<sup>5</sup>, Arthur S. Edison<sup>4</sup>, Fumihiko Nakatani<sup>7</sup>, Benjamin Alman<sup>3</sup>, Takahiro Ito<sup>1</sup>, Ayuna Hattori<sup>1</sup>  
<sup>1</sup> Inst. for Life and Med. Sci., Kyoto Univ., Kyoto, Japan  
<sup>2</sup> Dept. of Orthopaedic Surg., Grad. Sch. of Med. Sci., Kyushu Univ., Fukuoka, Japan  
<sup>3</sup> Dept. of Orthopaedic Surg., Duke Univ., NC, U.S.  
<sup>4</sup> Complex Carbohydrate Res. Ctr., UGA, Georgia, U.S.  
<sup>5</sup> Inst. for Chem. Res., Kyoto Univ., Kyoto, Japan  
<sup>6</sup> Center for iPS Cell Research and Application, Kyoto Univ., Kyoto, Japan  
<sup>7</sup> Dept. of Musculoskeletal Oncology and Rehabilitation, NCCHC, Kashiwa, Japan
- P20 PKC $\lambda$  involves to the regulation for asymmetric cell division of pancreatic cancer stem cells** .....113  
**Takahiro Kasai**<sup>1</sup>, Shoma Tamori<sup>1</sup>, Yuta Takasaki<sup>1</sup>, Kazuori Sasaki<sup>2</sup>, Shigeo Ohno<sup>2</sup> and Kazunori Akimoto<sup>1</sup>  
<sup>1</sup> Department of Medicinal and Life Sciences, Faculty of Pharmaceutical Sciences, Tokyo University of Science, Chiba, Japan  
<sup>2</sup> Laboratory of Cancer Biology, Institute for Diseases of Old Age, Juntendo University School of Medicine, Tokyo, Japan
- P21 Single-cell patterning of multiple types of cells using photo-activatable PEG-lipid for high-throughput analysis of cell-cell interaction**.....114  
**Shinya Yamahira**<sup>1</sup>, Yuji Heike<sup>2</sup>, Michiyuki Matsuda<sup>1,3</sup>, Satoshi Yamaguchi<sup>4</sup>  
<sup>1</sup> Graduate School of Biostudies, Laboratory of Bioimaging and Cell Signaling, Kyoto University, Kyoto, Japan  
<sup>2</sup> Center for Medical Sciences, St. Luke's International University, Tokyo, Japan  
<sup>3</sup> Graduate School of Medicine, Department of Pathology and Biology of Diseases, Kyoto University, Kyoto, Japan  
<sup>4</sup> Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo, Tokyo, Japan
- P22 Simultaneous measurement of nascent transcriptome and translome using 4-thiouridine metabolic RNA labeling and translating ribosome affinity purification** ..115  
Hirotsugu Imai<sup>1</sup>, Daisuke Utsumi<sup>2</sup>, Hidetsugu Torihara<sup>3</sup>, Kenzo Takahashi<sup>2</sup>, Hidehito Kuroyanagi<sup>3</sup>, **Akio Yamashita**<sup>1</sup>  
<sup>1</sup> Department of Investigative Medicine, The University of the Ryukyus Graduate School of Medicine, Okinawa, Japan  
<sup>2</sup> Department of Dermatology, The University of the Ryukyus Graduate School of Medicine, Okinawa, Japan  
<sup>3</sup> Department of Biochemistry, The University of the Ryukyus Graduate School of Medicine, Okinawa, Japan
- P23 Organoid modeling of tumor associated macrophage and the checkpoint** .....116  
**Michitaka Nakano**  
Calvin Kuo Laboratory, Stanford University School of Medicine

---

13:56-15:52 Session 6. Airway-Lung Organoids

---

Chair: D. Gao

- S6-1 Scrap and reconstruction of lung fibrosis using alveolar organoid**.....48  
Yasunori Enomoto, **Mitsuru Morimoto**  
Laboratory for Lung Development and Regeneration, RIKEN Center for Biosystems Dynamics Research, Kobe, Japan
- S6-2 Understanding lung cancer heterogeneity using patient-derived organoids** .....50  
**Hiroyuki Yasuda**<sup>1</sup>, Taro Shinozaki<sup>1</sup>, Toshiki Ebisudani<sup>1,2</sup>, Takahiro Fukushima<sup>1</sup>,  
Junko Hamamoto<sup>1</sup>, Masayuki Fujii<sup>2</sup>, Toshiro Sato<sup>2</sup>  
<sup>1</sup> Department of Pulmonary Medicine, Keio University School of Medicine, Tokyo, Japan  
<sup>2</sup> Department of Integrative Medicine and Biochemistry, Keio University School of Medicine, Tokyo, Japan
- S6-3 Inflammatory signals link cellular reprogramming to adeno-to-squamous transdifferentiation and therapeutic resistance in *LKB1*-deficient *KRAS*-mutant lung cancer** .....52  
Xinyuan Tong<sup>1</sup>, Hongjun Li<sup>2</sup>, Yueqing Chen<sup>1</sup>, Michael Q. Zhang<sup>2</sup>, **Hongbin Ji**<sup>1</sup>  
<sup>1</sup> State Key Laboratory of Cell Biology, Shanghai Institute of Biochemistry and Cell Biology, Center for Excellence in Molecular Cell Science, Chinese Academy of Sciences, Shanghai 200031, China  
<sup>2</sup> MOE Key Laboratory of Bioinformatics, Bioinformatics Division and Center for Synthetic and Systems Biology, BNRist, Department of Automation, Tsinghua University, Beijing 100084, China
- S6-4 Development of microfluidic blood exchange as a next-generation parabiosis for tumor/microbiota immunology**.....54  
**Rabi Upadhyay**<sup>1,2</sup>, Felicia Rodriguez<sup>3</sup>, Scott R. Manalis<sup>3</sup>, Dan R. Littman<sup>1,2,4</sup>  
<sup>1</sup> Department of Cell Biology, NYU School of Medicine, New York, NY, USA  
<sup>2</sup> Perlmutter Cancer Center, NYU Langone Health, New York, NY, USA  
<sup>3</sup> Department of Bioengineering, Massachusetts Institute of Technology, Cambridge, MA, USA  
<sup>4</sup> Howard Hughes Medical Institute, New York, NY, USA

---

16:07-16:59 Session 7. Organoid Biobank

---

Chair: M. Oshima

- S7-1 Integrative analysis of multiple genomic data from intrahepatic cholangiocarcinoma organoids enables tumor subtyping**.....56  
**Hee Seung Lee**<sup>1,2</sup>, Dai Hoon Han<sup>2,3</sup>, Kyungjoo Cho<sup>1</sup>, Soo Been Park<sup>1</sup>, Chanyang Kim<sup>1</sup>,  
Galam Leem<sup>1</sup>, Dawoon E. Jung<sup>1,2</sup>, Soon Sung Kwon<sup>4</sup>, Chul Hoon Kim<sup>4</sup>, Jung Hyun Jo<sup>1,2</sup>,  
Hye Won Lee<sup>1,2</sup>, Si Young Song<sup>1,2</sup> and Jun Yong Park<sup>1,2</sup>  
<sup>1</sup> Division of Gastroenterology, Department of Internal Medicine, Yonsei University College of Medicine, Seoul, Korea  
<sup>2</sup> Institute of Gastroenterology, Yonsei University College of Medicine, Seoul, Korea  
<sup>3</sup> Division of Hepatobiliary and Pancreatic Surgery, Department of Surgery, Yonsei University College of Medicine, Seoul, Korea  
<sup>4</sup> Department of Pharmacology, Yonsei University College of Medicine, Seoul, Republic of Korea
- S7-2 Lessons from patient-derived tumor organoid biobanks** .....58  
**Masayuki Fujii**  
Department of Integrative Medicine and Biochemistry, Keio University School of Medicine, Tokyo, Japan

---

16:59-17:45 Special Lecture 1

---

Chair: M. Oshima

- SP1 Exploring the Genetic and Molecular Basis of Differences in Multiple Myeloma of Individuals of African and European Descent**.....22  
**Arnold J. Levine**<sup>1</sup>, John D. Carpten, Maureen Murphy, and Pierre Hainaut  
<sup>1</sup> Professor Emeritus, Institute for Advanced Study School of Natural Sciences

## Oct 13 (Fri)

9:30-9:40 Group Photo (All Participants)

---

9:40-10:42 Session 8. SU2C

---

Chair: C. J. Kuo

**S8-1 Harness connections between the microbiome and disease to improve human health** .....60

**Kenya Honda**

Department of Microbiology and Immunology, Keio University School of Medicine, Tokyo, Japan  
Laboratory for Gut Homeostasis, RIKEN Center for Integrative Medical Sciences (IMS), Yokohama, Japan

**S8-2 Progressive plasticity during colorectal cancer metastasis**.....62

Andrew Moorman\*, Francesco Cambuli, Elizabeth Benitez, Qingwen Jiang, Yubin Xie, Ahmed Mahmoud, Melissa Lumish, Saskia Hartner, Sasha Balkaran, Jonathan Bermeo, Simran Asawa, Canan Firat, Asha Saxena, Anisha Luthra, Valeria Sgambati, Kathleen Luckett, Yi Fan, Yanyun Li, Zhifan Yi, Ignas Masilionis, Kevin Soares, Emmanouil Pappou, Rona Yaeger, Peter Kingham, William Jarnagin, Philip Paty, Martin Weiser, Linas Mazutis, Michael D'Angelica, Jinru Shia, Julio Garcia-Aguilar, Tal Nawy, Travis Hollmann, Ronan Chaligné, Francisco Sanchez-Vega, Roshan Sharma, Dana Pe'er, **Karuna Ganesh**

Memorial Sloan Kettering Cancer Center

---

10:57-11:49 Session 9. SU2C

---

Chair: E. Hara

**S9-1 Modeling gut-microbiota interactions in colorectal cancer using organoid-bacteria co-cultures** .....64

**Cayetano Pleguezuelos-Manzano**<sup>1</sup>, Hans Clevers<sup>1,2</sup>

<sup>1</sup> Hubrecht Institute, Utrecht, The Netherlands

<sup>2</sup> Pharma, Research and Early Development of F. Hoffmann-La Roche Ltd, Basel, Switzerland

**S9-2 Understanding of gastrointestinal cancers using patient-derived organoids**.....66

**Toshiro Sato**

Department of Integrative Medicine and Biochemistry, Keio University School of Medicine, Tokyo, Japan

---

11:49-12:49 Luncheon Seminar 2

---

Chair: M. Fujii

Co-Sponsored: Medical & Biological Laboratories Co., Ltd.

**LS2 Fetal-like reprogramming is the key to understand the heterogeneity of colorectal cancer** .....120

**Shiro Yui**

Center for Stem Cell and Regenerative Medicine, Tokyo Medical and Dental University (TMDU)

---

12:49-13:15 Session 10. Technology-3 Chemical Biology

---

Chair: H. Ichijo

**S10 Development of enzyme-activatable fluorescence probes for intraoperative rapid cancer imaging** .....68

**Yasuteru Urano**<sup>1,2</sup>

<sup>1</sup> Graduate School of Pharmaceutical Sciences, and <sup>2</sup> Graduate School of Medicine, The University of Tokyo, Tokyo, Japan

---

13:15-14:12 Session 11. Technology-4 Mathmatic Biology

---

Chair: H. Ichijo

**S11-1 Language models of regulation for cancer genetics .....70**  
**Raul Rabadan**

Departments of Systems Biology and Biomedical Informatics, Mathematical Genomics Program, Columbia University

**S11-2 Revealing of time- and layer-dependent metabolic regulatory mechanisms by the trans-omic analysis .....72**

**Hiroyuki Kubota**

Division of Integrated Omics, Medical Research Center for High Depth Omics, Medical Institute of Bioregulation, Kyushu University, Fukuoka, Japan

---

14:12-15:08 Session 12. Pancreas Cancer 1

---

Chair: BK Koo

**S12-1 Establishment of patient-derived organoids from early pancreatic cancer and future prospects .....74**

Masahiro Tsujimae, Atsuhiko Masuda, **Yuzo Kodama**

Division of Gastroenterology, Department of Internal Medicine, Kobe University Graduate School of Medicine, Hyogo, Japan

**S12-2 Integrated profiling of human pancreatic cancer organoid biobank .....76**

Yunguang Li<sup>1</sup>, Shijie Tang<sup>1</sup>, Huan Wang<sup>2</sup>, Hongwen Zhu<sup>3</sup>, Yurun Lu<sup>4</sup>, Yehan Zhang<sup>1</sup>, Yong Wang<sup>4</sup>, Luonan Chen<sup>1</sup>, Hu Zhou<sup>3</sup>, Gang Jin<sup>2</sup>, **Dong Gao**<sup>1</sup>

<sup>1</sup> State Key Laboratory of Cell Biology, Center for Excellence in Molecular Cell Science,

Shanghai Institute of Biochemistry and Cell Biology, Chinese Academy of Sciences, Shanghai 200031, China

<sup>2</sup> Department of Hepatobiliary Pancreatic Surgery, Changhai Hospital, Second Military Medical University, Shanghai, China

<sup>3</sup> Department of Analytical Chemistry, Shanghai Institute of Materia Medica, Chinese Academy of Sciences, Shanghai 201203, China

<sup>4</sup> National Center for Mathematics and Interdisciplinary Sciences, Chinese Academy of Sciences, Beijing 100080, China

---

15:23-17:12 Session 13. Pancreas Cancer 2

---

Chair: T. Imai

**S13-1 Models for digestive organ tumors: from precursor to intractable cancer .....78**

Akihisa Fukuda, Yuki Nakanishi, **Hiroshi Seno**

Department of Gastroenterology and Hepatology, Kyoto University Graduate School of Medicine, Kyoto, Japan

**S13-2 Three-dimensional genomic mapping of human pancreatic tissue reveals striking multifocality and genetic heterogeneity in precancerous lesions .....80**

Alicia M Braxton<sup>1,2</sup>, Ashley L Kiemen<sup>1,3,4</sup>, Mia P Grahn<sup>3</sup>, André Forjaz<sup>3</sup>, Jeeun Parksong<sup>1</sup>, Toby C Cornish<sup>5</sup>, Yuchen Jiao<sup>6</sup>, Rachel Karchin<sup>4,7</sup>, Ralph H Hruban<sup>1,4</sup>, Pei-Hsun Wu<sup>3</sup>, Denis Wirtz<sup>1,3,4</sup>, **Laura D. Wood**<sup>1,4</sup>

<sup>1</sup> Department of Pathology, Sol Goldman Pancreatic Cancer Research Center, Johns Hopkins University School of Medicine, Baltimore, MD

<sup>2</sup> Department of Comparative Medicine, Medical University of South Carolina, Charleston, SC

<sup>3</sup> Department of Chemical and Biomolecular Engineering, Johns Hopkins University, Baltimore, MD

<sup>4</sup> Sidney Kimmel Comprehensive Cancer Center, Johns Hopkins University School of Medicine, Baltimore, MD

<sup>5</sup> Department of Pathology, University of Colorado School of Medicine, Aurora, CO

<sup>6</sup> State Key Lab of Molecular Oncology, National Cancer Center/National Clinical Research Center for Cancer/ Cancer Hospital, Chinese Academy of Medical Sciences, and Peking Union Medical College, Beijing, China

<sup>7</sup> Institute for Computational Medicine, Johns Hopkins University, Baltimore, MD



**S13-3 Genetic analysis of pancreatic ductal epithelium.....82**

Tomonori Hirano<sup>1</sup>, **Nobuyuki Kakiuchi**<sup>2</sup>, Seishi Ogawa<sup>1</sup>

<sup>1</sup> Department of Pathology and Tumor Biology, Graduate School of Medicine, Kyoto University, Kyoto, Japan

<sup>2</sup> The Hakubi Center for Advanced Research, Kyoto University

**S13-4 Identification of a marker for ADM (acinar-ductal metaplasia): diagnostic implication for early detection.....84**

Miho Sekai, **Yasuyuki Fujita**

Department of Molecular Oncology, Kyoto University, Graduate School of Medicine, Kyoto, Japan

---

17:22-18:02 Special Lecture 2

Chair: H. Seno

**SP2 Stem and tumor cell-derived organoids and T-cell co-culture models for discovery and translational cancer research.....24**

**Senthil K. Muthuswamy**

Laboratory of Cancer Biology and Genetics, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD, USA

## Oct 14 (Sat)

---

9:00-9:59 Session14. Technology-5 Gene-engineering

---

Chair: Y. Miroshnikova

**S14-1 Acquired epithelial WNT secretion drives niche independence of developing gastric cancer** .....86

Isaree Teriyapirom<sup>1,2\*</sup>, Jihoon Kim<sup>1\*</sup>, Heetak Lee<sup>1\*</sup>, Sebastian R. Merker<sup>3\*</sup>,  
Amanda Andersson-Rolf<sup>1</sup>, Stephan R. Jahn<sup>3</sup>, Anne-Marlen Ada<sup>3</sup>, Sang-Min Kim<sup>4</sup>, Joo Yeon Lim<sup>5</sup>,  
Tim Schmäche<sup>3</sup>, Nancy Wetterling<sup>3</sup>, Saskia Stegert<sup>3</sup>, Ji-Yeon Park<sup>6</sup>, Jae-Ho Cheong<sup>5</sup>,  
Hyunki Kim<sup>4</sup>, Daniel E. Stange<sup>3,7</sup>, **Bon-Kyoung Koo**<sup>1,8</sup>

<sup>1</sup> Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), Vienna BioCenter (VBC), A-1030, Vienna, Austria

<sup>2</sup> Vienna BioCenter PhD Program, Doctoral School of the University of Vienna and Medical University of Vienna, A-1030, Vienna Austria

<sup>3</sup> Department of Visceral, Thoracic and Vascular Surgery, University Hospital Carl Gustav Carus, Medical Faculty, Technische Universität Dresden, Dresden, Germany

<sup>4</sup> Department of Pathology, Yonsei University College of Medicine, Seoul, Republic of Korea

<sup>5</sup> Department of Surgery, Yonsei University College of Medicine, Seoul, Republic of Korea

<sup>6</sup> Gradient Bioconvergence Inc., Seoul, Republic of Korea

<sup>7</sup> National Center for Tumor Diseases (NCT), Dresden, Germany; German Cancer Research Center (DKFZ), Heidelberg, Germany; Faculty of Medicine and University Hospital Carl Gustav Carus, Technische Universität Dresden, Dresden, Germany; Helmholtz-Zentrum Dres

<sup>8</sup> Center for Genome Engineering, Institute of Basic Sciences, Daejeon, Republic of Korea

**S14-2 Tracing intestinal p57<sup>+</sup> cells uncovers spatiotemporal reprogramming of regenerating epithelium and the identity of cancer stem cells** .....88

**Tsunaki Higa**, Takeru Oka, Keiichi I. Nakayama

Department of Molecular and Cellular Biology, Medical Institute of Bioregulation, Kyushu University, Fukuoka, Japan

---

9:59-10:24 Session 15. Breast Cancer

---

Chair: Y. Miroshnikova

**S15 Heterogenous breast cancer stem cells sustain in primary and metastatic cancer stem cell niches** .....90

**Noriko Gotoh**

Division of Cancer Cell Biology, Cancer Research Institute, Kanazawa University, Kanazawa city, Japan

---

10:39-11:06 Session 16. Technology-6 Micro-engineering

---

Chair: K. Ganesh

**S16 Microphysiological systems (MPS) with perfusable vascular network for tumor microenvironment** .....92

**Ryuji Yokokawa**

Department of Micro Engineering, Kyoto University, Kyoto, Japan

---

11:06-11:46 Special Lecture 3

---

Chair: K. Ganesh

**SP3 Using organoids to model tumor and tissue microenvironments** .....26

**Calvin J. Kuo**

Department of Medicine, Stanford University School of Medicine, USA

---

11:46-11:56 Closing Remarks

---

Masanobu Oshima