

October 14, Monday

8:30-9:30 **Registration**

9:30-10:00 **Opening**

10:00-10:45 **Symposium Chair Address**

Chair: Chieh-Chen Huang (National Chung Hsing University)

Microfluidic-Based Living Culture Models for Mammalian Synthetic Biology

Yoh-ichi Tagawa^{1,2}

¹ Institute of Science Tokyo, Kanagawa, Japan,

² Tokyo Institute of Technology, Kanagawa, Japan

10:45-11:15 **Coffee Break**

Session 1

Chairs: Hiroki Ishikawa (Yasuda Women's University)

Miho Tamai (Yasuda Women's University)

11:15-11:35 **A dTAG-induced protein degradation system for studying JunB's functions in mature effector T cell subsets**

Hiroki Ishikawa

Yasuda Women's University, Department of Pharmacy

11:35-11:45 **Anti-tumor response to adoptive T cell therapy with aged CD8 T cells**

Miho Tamai^{1,2}, Gulfiya Kadyrzhanova², Hiroki Ishikawa^{1,2}

¹ Department of Pharmacy, Yasuda Women's University

² Immune Signal Unit, Okinawa Institute of Science and Technology, Graduate University

11:45-12:00 **Clinical Application of Autologous Cultured Skin in Vitiligo Treatment and Automation of the Culturing Process**

Kenichi Harimoto

Shanghai Roroze Remed Biotechnology Co.,Ltd

12:00-12:30

Keynote Lecture

Induction of cartilage-like cells from monocytes for treating knee osteoarthritis and low back pain: phase II studies and real-world data in Taiwan Authors

Hong-Lin Su

Department of Life Sciences, National Chung Hsing University, Taiwan

DuoGenic StemCells Corporation, Taiwan

Lunch Special Seminar sponsored by Synplogen

Chair: Kenji Tsuge (Kobe University)

12:30-13:00

Engineering a yeast to produce natural compounds and enzyme complex

Lance, Jui-Jen, Chang^{ab}, Chieh-Chen Huang^c, Wen-Hsiung Li^d

^aDepartment of Medical Research, China Medical University Hospital, China Medical University, No. 91 Hsueh-Shih Road, Taichung 402, Taiwan

^bGraduate Institute of Integrated Medicine, China Medical University, Taichung, 40447, Taiwan

^c Department of Life Sciences, National Chung Hsing University, No. 250, Kuo Kuang Rd, Taichung 402, Taiwan

^d Biodiversity Research Center, Academia Sinica, No. 128 Academia Road, Sec. 2, Nankang, Taipei 115, Taiwan

13:00-13:30

Deploying DNA synthesis technology to Gene Therapy Biofoundry™ services

Kenji Tsuge

Kobe University and Synplogen

Session 2

Chair: Tetsuro Suzuki (Hamamatsu University School of Medicine)

13:30-14:00

How hepatitis C virus genomic RNA is selectively incorporated into the viral particles

Tetsuro Suzuki

Hamamatsu University School of Medicine

14:00-14:20

Identification and epidemiological study of an uncultured flavivirus from ticks using viral metagenomics and pseudo-infectious viral particles

Daisuke Kobayashi, Yusuke Inoue, Ryosuke Suzuki, Ken Maeda, and Haruhiko Isawa

National Institute of Infectious Diseases, Tokyo, Japan

14:20-14:40 **Establishment of a BK polyomavirus (BKPyV)-infected cell culture system to elucidate the mechanism of gene rearrangement in the noncoding control region of BKPyV**
Shinya Satoh¹, Souichi Nukuzuma², Tetsuro Suzuki¹
¹Department of Microbiology and Immunology, Hamamatsu University School of Medicine
²Research Laboratory, KinoPharma Inc.

14:40-15:00 (S) **From Archetype to PML-type: Insights into JC Virus Infections Using Human iPS Cell Models**
Zhiping Chen¹, Noriyuki Nagaoka², Souichi Nukuzuma³, Yoh-ichi Tagawa¹
¹ Institute of Science Tokyo, Kanagawa, Japan
² Okayama University, Okayama, Japan
³ KinoPharma, Inc., Tokyo, Japan

15:00-15:30 **Coffee Break**

Session 3

**Chairs: Tetsuhiro Ogawa (University of Tokyo) and
Masayuki Hashimoto (National Cheng Kung University)**

15:30-16:00 **Keynote Lecture**
Inhibitors for Shiga toxin production in enterohemorrhagic *Escherichia coli*.
Masayuki Hashimoto, Oiti Kar, Wan-Jing Chen.
Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Taiwan.

16:00-16:30 **Keynote Lecture**
Identification and characterization of the substrates of the *Escherichia coli* protease Prc
Ching-Hao Teng
Institute of Molecular Medicine, College of Medicine, National Cheng Kung University, Taiwan

16:30-16:40 (S) **Construction of a co-culture system of intestinal bacteria and cells**
Shiori Tamura¹, Yoichi Fujiyama², and Yoh-ichi Tagawa¹
¹Institute of Science Tokyo
²Shimadzu Corporation

16:40-17:00

Improved colonization of *Escherichia coli* laboratory strain in the intestine mediated by single gene deletion

Atsushi Minami¹, Takehiro Asai², Tsuyoshi Tachibana², Yu Tanaka², Mitsuyuki Nakajima², Shiori Tamura³, Morihiro Nakazawa³, Yoshiharu Tsuru⁴, Yoichi Fujiyama⁵, Yoh-ichi Tagawa³, Tomohisa Kuzuyama^{1,6}, Shigeru Kakuta^{2,6}, Tetsuhiro Ogawa^{1,6}.

¹Dept of Biotech, Univ of Tokyo. ²Dept of Vet Med Sci, Univ of Tokyo. ³Sch Life Sci Tech, Tokyo Tech. ⁴Primetech Corp. ⁵Shimadzu Corp. ⁶Criim.o

3-min Talk for Poster Presentation

Chair: Kenichi Nishiyama (Iwate University)

17:00 – 17 : 45

P-1 From Archetype to PML-type: Insights into JC Virus Infections Using Human iPS Cell Models

Zhiping Chen¹, Noriyuki Nagaoka², Souichi Nukuzuma³, Yoh-ichi Tagawa¹

¹ Institute of Science Tokyo, Tokyo, Japan

² Okayama University, Okayama, Japan

³ KinoPharma, Inc., Tokyo, Japan

P-2 Identification of *Escherichia coli* Genes Contributing to the Pathogenesis of Respiratory Tract Infections

Ni Made Teriyani¹, Wen Jun-Huang¹, Ching Hao-Teng^{1*}

¹Institute of Molecular Medicine, National Cheng Kung University – Taiwan

P-3 Minimization of the origin of transfer for conjugation from *Escherichia coli* to *Bacillus subtilis*

Taiki Kanzaki, Shunsuke Inomata, Yuta Fukada, Masakazu Kataoka

BioMed. Eng. Grad. Sch. Shinshu Univ. Japan

P-4 Construction of a co-culture system of intestinal bacteria and cells

Shiori Tamura¹, Yoichi Fujiyama², and Yoh-ichi Tagawa¹

¹School of life science and technology, Institute of Science Tokyo

²Shimadzu Corporation

P-5 Infection and replication of JC polyomavirus in human iPS cell-derived neurons

Ryoko Enomoto¹, Zhiping Chen¹, Souichi Nukuzuma², Yoh-ichi Tagawa¹

¹Institute of Science Tokyo, Kanagawa, Japan,

²KinoPharma, Inc., Tokyo, Japan

- P-6 Analysis of innate immune system in human blastocyst**
Ryota Fukuda¹, Miki Obata¹, Yoh-ichi Tagawa¹
¹Institute of Science Tokyo, Kanagawa, Japan
- P-7 Study on the Construction of functional liver Organ Disease Model and the Application of screening the Pharmacodynamic effect of SA**
Riao Dao¹, Badamjav Tegshjargal², Narid Namur³, Wurijim Xu⁴, Bayar Hexig *
School of Life Science Inner Mongolia University
State Key Laboratory of Reproductive & Breeding of Grassland Livestock, China
- P-8 Characterization of Antiphage Protein Associated with Plasmid Removal in E. coli**
Chia-Yi Lin, Kamryn Escalante, Masayuki Hashimoto
Institute of molecular medicine, College of Medicine, National Cheng Kung University, Taiwan
- P-9 IDAP (Isolation of DNA Associated Proteins) is a suitable tool for AP-MS. DNA pull down based “Identification of DNA Associated Proteins”, ID²AP**
Asako Isogawa
¹Cancer Research Center of Marseille, CNRS, UMR7258, France
². société bioHalosis, France
- P-10 MPIase is essential for formation of membrane complexes and their function.**
Nachi Yamamoto¹, Fuka Fujimura², Hanako Nishikawa², Pattama Wiriyasermkul², 3, Shushi Nagamori³, Ken-ichi Nishiyama^{1,2}
¹Division of Agriculture, Graduate School of Arts and Sciences, Iwate University.,
²Department of Biological Chemistry and Food Science, Faculty of Agriculture, Iwate University.,
³Center for SI Medical Research, The Jikei University School of Medicine.
- P-11 Differential Utilization of Serine, Glycine, and Choline in Muscle One-Carbon Metabolism During Aerobic and Resistance Exercise: what we learned from stable isotope studies**
Chien-Chun Hung^{*1}, Tung-Ju Yang^{*1}, En-Pei Isabel Chiang^{*1,2,3}
¹Food Science and Biotechnology,
²Advanced Plant and Food Crop Biotechnology Center (APFCB),
³Innovation and Development Center of Sustainable Agriculture (IDCSA),
National Chung Hsing University (NCHU), Taichung, 402, Taiwan

- P-12** **Functional liver organoid constructed by tri-co-culture ESC-derived hepatic endoderm with primary endothelial and mesenchymal stem cells**
Urijims Xu¹, Namur Narid¹, Tegshjargal Badamjav¹, Shuangliang Sun¹, Daoriao¹, Tagawa Yoh-ichi³, Bayar Hexig¹
¹School of Life Science Inner Mongolia University, China
²State Key Laboratory of Reproductive& Breeding of Grassland Livestock, China
³Institute of Science Tokyo
- P-13** **Comprehensive Single-Cell Transcriptomic Atlas Reveals the Relationship Between Early Haematopoiesis and Hepatogenesis in Murine Foetal Liver**
Namur Narid[#], Pinjie Bao, Tegshjargal Badamjav, Bayar Hexig
School of Life Science Inner Mongolia University, China
State Key Laboratory of Reproductive& Breeding of Grassland Livestock, China
- P-14** **Differentiation of Neural Stem Cells into Oligodendrocytes Induced at Monolayer Level**
Ling Ling, Xi Lun, Narid Namur, Wang Cai Ren, Hexig Bayar
School of Life Science Inner Mongolia University, China
State Key Laboratory of Reproductive& Breeding of Grassland Livestock, China
- P-15** **Designing Nano-Carbon DDS Loaded with 5-Fluorouracil**
Anju Furukawa¹, Yuka Hori¹, Masahiro Toyoda¹, Satoshi Kitaoka², Kaoru Nobuoka¹
¹Graduated School of Engineering, Oita University,
²Faculty of Science and Technology, Oita University,
³Faculty of Engineering, Kindai University
- P-16** **Purification of Hydrophilic Ionic Liquids for Materials Application and Biocompatibility**
Yukino Isshiki¹ · Tatsuya Kaya² · Satoshi Kitaoka³ · Kaoru Nobuoka⁴
¹Oita University Graduated School of Engineering,
²Kindai University Graduated School of Engineering,
³Kindai University Faculty of Engineering,
⁴Oita University Faculty of Science and Technology

18:30-19:45

Reception for Everyone

Moderated by Nakasone

October 15, Tuesday

Session 4

Chair: Masayuki Yamamura (Institute of Science Tokyo)

9:10-9:25

Developing BioDOS for the next generation Synthetic Biology

M. Yamamura¹, K. Miyazaki², D. Kiga³

¹ Institute of Science Tokyo

² National Institution for Academic Degrees and Quality Enhancement of Higher Education

³ Waseda University

9:25-9:45

Production mechanisms at molecular level of phytotoxin tropolone in rice-seedling blight, *Burkholderia plantarii*

Kaoru Nakasone¹ and Ryutaro Utsumi²

¹Faculty of Engineering, Kindai University, Hiroshima, JAPAN,

²The Institute of Scientific and Industrial Research (ISIR), Osaka University, Osaka, JAPAN

9:45--10:15

Coffee Break

Session 5

Chairs: Seiichi Taguchi (Kobe University)

Kaoru Nobuoka (Oita University)

10:15-10:50

Special Lecture I

Genetic alphabet expansion for novel living systems

Ichiro Hirao

Xenolis Pte. Ltd., Singapore

10:50-11:05

IDAP (Isolation of DNA Associated Proteins) is a suitable tool for AP-MS. DNA pull down based “Identification of DNA Associated Proteins”, ID²AP

Asako Isogawa

¹Cancer Research Center of Marseille, CNRS, UMR7258, France

² société bioHalosis, France

- 11:05-11:20 **Building DNA in Ionic Media**
Kaoru Nobuoka¹, Satoshi Kitaoka²
¹Department of Science and Technology, Faculty of Science and Technology, Oita University
²Department of Biotechnology and Chemistry, Faculty of Engineering, Kindai University
- 11:20-11:35 **Synthesis and properties of GABA-based ionic liquids**
Satoshi Kitaoka¹, Kaoru Nobuoka²
¹Department of Biotechnology and Chemistry, Faculty of Engineering, Kindai University.
²Department of Science and Technology, Faculty of Science and Technology, Oita University
- 11:35-12:00 **Microbial Plastic Factory: designable systems and product performances**
Seiichi Taguchi
Graduate School of Sciences, Technology and Innovation
& Engineering Biology Research Center, Kobe University, Japan
- 12:00-12:30 **Keynote Lecture**
Longevity *Vitamins?* Potentials of Biostimulant PQQ for one health
Chieh-Chen Huang
Department of Life Sciences, National Chung Hsing University, Taiwan
- 12:30 **Excursion for Everyone with the ‘*Symposium Tenugui*’**
Guided by Kaoru Nakasone (Kindai University)
- 17:30 **Get Together Meeting at ‘Yushien’**
Moderated by Kaoru Nakasone (Kindai University)

October 16, Wednesday

Workshop

by the Renaissance Center for Applied Microbiology, Shinshu University

- 9:00 - 9:05 **Introduction of *E. coli* K-12 experimental resources and their importance**
Hirotsada Mori, hirotada.mori@gmail.com
¹Guandong Academy of Agricultural Sciences, Guandong, China
²Visiting Prof. Research Center for Thermotolerant Microbial Resources, Yamaguchi University

- 9:05 - 9:15** **Introduction of the new resource distribution site**
Hiroyuki Azakami, azakami@yamaguchi-u.ac.jp
Graduate School of Science and Technology for innovation, Yamaguchi University, Yamaguchi, Japan
- 9:15 - 9:33** **Fabrication and application of *E. coli* proteome microarray chips**
Chen Jason Chien-Sheng, cschen@gs.ncku.edu.tw
Department of Food Safety, National Cheng-Kung University, Tainan, Taiwan
- 9:33 - 9:51** **Identification of Escherichia coli Genes Contributing to the Pathogenesis of Respiratory Tract Infections by Using a Barcoded *E. coli* Mutant Library**
Ni Made Teriyani, Wen Jun-Huang, and Ching Hao-Teng, chteng@mail.ncku.edu.tw
Institute of Molecular Medicine, National Cheng Kung University, Taiwan
- 9:51 - 10:09** **Population dynamics monitoring by the Barcode deletion collection**
Shigeyuki Kakizawa, s.kakizawa@aist.go.jp
Bioproduction Research Institute, The National Institute of Advanced Science and Technology, Tsukuba, Japan
- 10:09 - 10:27** **A strategy to identify synergistic antimicrobial drug targets using the Keio collection**
Yusuke Minato
Center for Infectious Disease Research, Fujita Health University
- 10:27 - 10:45** **What will you do, if you fail to find your target genes' resources of *E. coli*?**
Kohei Kishida, kouhei.kishida.a7@tohoku.ac.jp
Molecular and Chemical Life Science, Tohoku University, Sendai, Japan
- 10:45 - 10:55** **Discussion**
- 10:55 - 11:00** **Closing remark**
Masakazu Kataoka, mars@shinshu-u.ac.jp
- 11:00-12:00** **Poster Presentation with Tea, Coffee and Sweets**
'See 3-min Talk for Poster presentation, October 14.'

Lunch Special Lecture sponsored by Shimadzu Corporation

Chair: Jun Watanabe (Shimadzu Corporation)

12:10-13:10 **Autonomous Optimization of Life Science Experiments**

Yosuke Ozawa

Epistra Inc., Japan

Session 6

Chairs: Daisuke Kiga (Waseda University)

Masakazu Kataoka (Shinshu University)

13:15-13:35

Keynote lecture

The Importance of Comprehensive Analysis Without Bias

Hirotsada Mori

¹Institute of Animal Sciences, Guangdong Academy of Agricultural Science, Guangdong, China,

²Dep. Environmental Science and Technology, Faculty of Engineering, Shinshu Univ., Nagano,

³Research center for Thermotolerant Microbial Resources, Yamaguchi University, Yamaguchi

13:35-13:55

Exhaustive screening of the genes involved in pH homeostasis on *Escherichia coli*

Masakazu Kataoka^{1,*}, Hiroko Fukuda¹, Mikio Nakajima², Hirotsada Mori³

¹RCAM, Shinshu University, Japan

²Freelance, Japan

³Guangdong Academy of Agricultural Sciences, China

13:55-14:10(S)

Differential Utilization of Serine, Glycine, and Choline in Muscle One-Carbon Metabolism During Aerobic and Resistance Exercise: what we learned from stable isotope studies

Chien-Chun Hung^{*1}, Tung-Ju Yang^{*1}, En-Pei Isabel Chiang^{*1,2,3}

¹Food Science and Biotechnology,

²Advanced Plant and Food Crop Biotechnology Center (APFCB),

³Innovation and Development Center of Sustainable Agriculture (IDCSA), National Chung Hsing University (NCHU), Taichung, 402, Taiwan

14:10-14:25

AI-based Design of Transcriptional Activator Proteins with New DNA-binding Specificity

Sota Okuda, Michio Aiko, Daisuke Kiga

Waseda University

14:25-14:40

Designable Secretion Machinery of Microbial Membrane Vesicle (MV)

Sangho Koh¹ & Seiichi Taguchi^{1,2}

¹ Graduate School of Sciences, Technology and Innovation, Kobe University

² Engineering Biology Research Center, Kobe University

- 14:40-15:05 **Structure and function of MPIase that is involved in protein localization and its application to living systems design**
Kenichi Nishiyama
Iwate University, Japan
- 15:05-15:30 **Coffee Break**
- 15:30-16:30 **Closing**
- 16:30-17:00 **Board meeting**