

## The 61st Japanese Peptide Symposium

October 29 (Tuesday)

- 9:30–9:35      **Opening Remarks (Hiroshi Murakami)**
- 9:35–10:40      **Young Investigator's Oral Presentations** (10 min talk, 2 min discussion, 1 min speaker exchange)  
                    **Session 1** (chairs: Kentaro Takayama, Masaya Denda)
- Y-01      Development of chloroalkene-type dipeptide isosteres for amyloid-beta aggregation inhibitors**  
  
Kenichi Yamamoto, Takuya Kobayakawa, Kohei Tsuji, Hirokazu Tamamura (Institute of Biomaterials and Bioengineering, Institute of Science Tokyo)
- Y-02      Development of novel thioether-mediated sulfenylation of Trp residue for chemical modification of peptides**  
  
Hayate Shida<sup>1</sup>, Akihiro Taguchi<sup>1</sup>, Yuma Tokita<sup>1</sup>, Haruki Miyashita<sup>1</sup>, Shinpei Kasama<sup>1</sup>, Sho Konno<sup>1</sup>, Atsuhiko Taniguchi<sup>1</sup>, Hiroshi Kaneko<sup>2</sup>, Hidemasa Nakaminami<sup>2</sup>, Yoshio Hayashi<sup>1</sup> (<sup>1</sup>Department of Medicinal Chemistry, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences, <sup>2</sup>Department of Microbiology, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences)
- Y-03      Development of the new synthetic method for  $\beta$ -mercaptohistidine derivatives for protein synthesis**  
  
Yumi Fujioka<sup>1</sup>, Yumi Matsui<sup>1</sup>, Junpei Abe<sup>1</sup>, Yuta Maki<sup>1,2</sup>, Ryo Okamoto<sup>1,2</sup>, Yasuhiro Kajihara<sup>1,2</sup> (<sup>1</sup>Department of Chemistry, Graduate School of Science, Osaka University, <sup>2</sup>FRC, Graduate School of Science, Osaka University)
- Y-04      Diselenide metathesis in selenocysteine-substituted biologically active peptides**  
  
Ying He, Toshiki Takei, Hironobu Hojo (Institute for Protein Research, Osaka University)
- Y-05      Determination of D-Dab residue linkage site of occidiofungins A-D and evaluation of their antifungals**  
  
Rin Kainuma, Shigekazu Yano, Hiroyuki Konno (Graduate School of Science and Engineering, Yamagata university)
- 10:40–10:55      **Break**
- 10:55–12:00      **Young Investigator's Oral Presentations** (10 min talk, 2 min discussion, 1 min speaker exchange)  
                    **Session 2** (chairs: Atsuhiko Taniguchi, Kohei Sato)
- Y-06      Highly sensitive label-free electrochemical biosensor for C-reactive protein detection using a high affinity peptide**

Hyo Jeong Yang, Jong Pil Park (Department of Food Science and Technology, and GreenTech-based Food Safety Research Group, BK21 Four, Chung-Ang University)

**Y-07 Efficient synthesis of peptide thioesters via solid-phase diketopiperazine formation**

Yuya Nakajima<sup>1</sup>, Koki Nakatsu<sup>2</sup>, Gosuke Hayashi<sup>1</sup>, Hiroshi Murakami<sup>1,3</sup> (<sup>1</sup>Department of Biomolecular Engineering, Graduate School of Engineering, Nagoya University, <sup>2</sup>Department of Chemistry, University of Cambridge, <sup>3</sup>Institute of Nano-Life-Systems, Institutes of Innovation for Future Society, Nagoya University)

**Y-08 Selenazolidine as a dually functioning aggregation disrupting unit**

Kota Hidaka, Daishiro Kobayashi, Junya Hayashi, Masaya Denda, Akira Otaka (Institute of Biomedical Sciences and Graduate School of Pharmaceutical Sciences, Tokushima University)

**Y-09 Solid-phase total synthesis and functional analysis of loihichelin C and its artificial analogues**

Mizuki Sawada, Hiromu Kakizawa, Aoi Takeuchi, Hiroaki Itoh, Masayuki Inoue (Graduate School of Pharmaceutical Sciences, The University of Tokyo)

**Y-10 Synthetic plan of *N*-acetyl-*N*-hydroxyornithine containing cyclic peptide siderophores: ASP2397 as an example**

Mohamed Osama<sup>1</sup>, Atsushi Tahara<sup>1,2</sup>, Kosuke Ohsawa<sup>1,3</sup>, Takayuki Doi<sup>1</sup> (<sup>1</sup>Graduate School of Pharmaceutical Sciences, Tohoku University, <sup>2</sup>Frontier Research Institute for Interdisciplinary Sciences (FRIS), Tohoku University, <sup>3</sup>Faculty of pharmacy, Juntendo University)

12:00–12:15 **Break**

12:15–13:15 **Lunch Break & Luncheon Seminar (3F)**

13:15–13:30 **Break**

13:30–14:35 **Young Investigator's Oral Presentations** (10 min talk, 2 min discussion, 1 min speaker exchange)

**Session 3** (chairs: Mizuki Watanabe, Kenichi Kawano)

**Y-11 Structural and physicochemical analysis of how a rigid peptoid binds to MDM2**

Marin Yokomine<sup>1</sup>, Takumi Ueda<sup>2,3</sup>, Koh Takeuchi<sup>3</sup>, Koji Umezawa<sup>4</sup>, Hideo Ago<sup>5</sup>, Hiroaki Matsuura<sup>5</sup>, Go Ueno<sup>5</sup>, Satoru Nagatoishi<sup>1</sup>, Kouhei Tsumoto<sup>1,6</sup>, Shinsuke Sando<sup>1</sup>, Jumpei Morimoto<sup>1</sup> (<sup>1</sup>Graduate School of Engineering, The University of Tokyo, <sup>2</sup>Graduate School of Pharmaceutical Sciences, Osaka University, <sup>3</sup>Graduate School of Pharmaceutical Sciences, The University of Tokyo, <sup>4</sup>Graduate School of

Science and Technology, Shinshu University, <sup>5</sup>RIKEN SPring-8 Center, <sup>6</sup>Institute of Medical Science, The University of Tokyo)

**Y-12 Mitocryptide-1: elucidation of its physiological roles and regulatory mechanisms on non-infectious innate immune responses induced by acetaminophen in mice**

Hayato Katabuchi, Ayumi Kojima, Hakuu Fujiwara, Yoshito Takamuro, Hiroki Morikawa, Tatsuya Hattori, Yoshiaki Kiso, Shintaro Nomura, Hidehito Mukai (Graduate School of Bio-Science, Nagahama Institute of Bio-Science and Technology)

**Y-13 Self-adjuvanting peptide based subunit vaccine formulated by (poly)glutamic acid-modified antigen with amphiphilic peptides and decapeptides**

Jingyi Fan<sup>1</sup>, Liaoshuang Ye<sup>1</sup>, Istvan Toth<sup>1,2</sup>, Rachel Stephenson<sup>1</sup> (<sup>1</sup>The University of Queensland, School of Chemistry and Molecular Biosciences, <sup>2</sup>The University of Queensland, Pharmacy Australia Centre of Excellence)

**Y-14 Decoding the protein network responsible for thiol-mediated uptake**

Saidbakhrom Saidjalolov, Filipe Coelho, Naomi Sakai, Stefan Matile (Department of Organic Chemistry, University of Geneva)

**Y-15 Polysaccharides modified with attenuated cationic lytic peptides: formation of microparticles and their use in cytosolic antibody delivery**

Junya Michibata<sup>1</sup>, Yoshihiro Sasaki<sup>2</sup>, Kazunari Akiyoshi<sup>2</sup>, Shiroh Futaki<sup>1</sup> (<sup>1</sup>Institute for Chemical Research, Kyoto University, <sup>2</sup>Graduate School of Engineering, Kyoto University)

14:35–14:50 **Break**

14:50–15:55 **Young Investigator's Oral Presentations** (10 min talk, 2 min discussion, 1 min speaker exchange)

**Session 4** (chairs: Rui Kamada, Takashi Misawa)

**Y-16 Light-induced selective histidine modification enabled by immobilized photocatalysts**

Zhengyi Liu<sup>1</sup>, Keita Nakane<sup>1,2</sup>, Yuki Hoshino<sup>3</sup>, Kosuke Dodo<sup>4</sup>, Shusuke Tomoshige<sup>2</sup>, Minoru Ishikawa<sup>2</sup>, Taniyuki Furuyama<sup>3</sup>, Shinichi Sato<sup>1,2</sup> (<sup>1</sup>Frontier Research Institute for Interdisciplinary Sciences, Tohoku University, <sup>2</sup>Graduate School of Life Sciences, Tohoku University, <sup>3</sup>Graduate School of Natural Science and Technology, Kanazawa University, <sup>4</sup>RIKEN Center for Sustainable Resource Science)

**Y-17 Selection based discovery of peptides with amide bond cleavage activity and their characterization**

Soichiro Nishio<sup>1</sup>, Hiroaki Suga<sup>2</sup>, Yuki Goto<sup>1</sup> (<sup>1</sup>Graduate School of Science, Kyoto University, <sup>2</sup>Graduate School of Science, The University of Tokyo)

**Y-18 Development of a peptide sensor technology platform for nanoplastics identification**

Shion Hasegawa<sup>1</sup>, Toshiki Sawada<sup>1</sup>, Yuzo Kitazawa<sup>2</sup>, Takuya Kaneda<sup>2</sup>, Takeshi Serizawa<sup>1</sup> (<sup>1</sup>Department of Chemical Science and Engineering, Institute of Science Tokyo, <sup>2</sup>Zeon Corporation)

**Y-19 Porous metal-helix frameworks with dynamic pentapeptide foldamers**

Ingyu Han, Soo Hyuk Choi (Department of Chemistry, Yonsei University)

**Y-20 Precise construction of discrete four-stranded  $\beta$ -sheets by catenated metal-peptide rings**

Eisuke Tsunekawa<sup>1</sup>, Makoto Fujita<sup>1,2,3</sup>, Tomohisa Sawada<sup>4,5</sup> (<sup>1</sup>Graduate School of Engineering, The University of Tokyo, <sup>2</sup>Tokyo College, Institutes for Advanced Study, The University of Tokyo, <sup>3</sup>Institute for Molecular Science, National Institutes of Natural Sciences, <sup>4</sup>Laboratory for Chemistry and Life Science, Institute of Innovative Research, Tokyo Institute of Technology, <sup>5</sup>JST-PRESTO)

15:55–16:10 **Break**

16:10–16:49 **Young Investigator's Oral Presentations** (10 min talk, 2 min discussion, 1 min speaker exchange)

**Session 5** (chairs: Jumpei Morimoto, Yoshimasa Kawaguchi)

**Y-21 Structure-guided bacteria-specificity and wide activity spectrum of endotoxin-responsive peptide nanonets**

Nhan Dai Thien Tram<sup>1</sup>, Jan Kazimierz Marzinek<sup>2</sup>, Louis Perrin<sup>2</sup>, Peter John Bond<sup>2,3</sup>, Pui Lai Rachel Ee<sup>1</sup> (<sup>1</sup>Department of Pharmacy, National University of Singapore, <sup>2</sup>Bioinformatics Institute (BII), Agency for Science, Technology and Research (A\*STAR), <sup>3</sup>Department of Biological Sciences, National University of Singapore)

**Y-22 A non-natural triple-helical peptide ligand selectively activates integrin  $\alpha 2\beta 1$  via non-canonical molecular pathway**

Shinsuke S. Shibata<sup>1</sup>, Hiroya Oki<sup>2</sup>, Kazuki Kawahara<sup>3</sup>, Kazunori K. Fujii<sup>1</sup>, Takaki Koide<sup>1,4</sup> (<sup>1</sup>Department of Chemistry and Biochemistry, School of Advanced Science and Engineering, Waseda University, <sup>2</sup>Department of Infection Metagenomics, Genome Information Research Center, Research Institute for Microbial Diseases, Osaka University, <sup>3</sup>Graduate School of Pharmaceutical Sciences, Osaka University, <sup>4</sup>Waseda Research Institute for Science and Engineering, Waseda University)

**Y-23 Discovery of ultrahigh-affinity macrocyclic peptide heterodimers using RaPID system-based library vs. library selections**

Yuto Ohno, Alexander Vinogradov, Hiroaki Suga (Graduate School of Science, The University of Tokyo)

17:00–18:30 **Poster Presentations Session 1**

Odd numbers: 17:00–17:45

Even numbers: 17:45–18:30

**October 30 (Wednesday)**

9:00–10:15 **Invited Lectures**

(chair: Yuki Goto, Gosuke Hayashi)

**K-1 De novo designed cell-penetrating peptide self-assembly featuring distinctive tertiary structure**

Soonsil Hyun (College of Pharmacy, Chungbuk National University)

**K-2 Unnatural amphiphilic cationic peptides for efficient gene editing via mRNA delivery**

Hyun Jin Kim<sup>1</sup>, Eva M. Martin del Valle<sup>2</sup>, Kanjiro Miyata<sup>3</sup> (<sup>1</sup>Department of Biological Engineering, Inha University, <sup>2</sup>Chemical Engineering Department, University of Salamanca, <sup>3</sup>Department of Materials Engineering, The University of Tokyo)

**I-1  $\beta$ -hairpin peptides as effective bacterial clustering biomaterials for treating infections**

Rachel P.L. Ee (Department of Pharmacy and Pharmaceutical Sciences, National University of Singapore)

10:15–10:30 **Break**

10:30–11:45 **Invited Lectures**

(chair: Hirokazu Tamamura, Hiroshi Murakami)

**I-2 Peptide-based pan-CoV fusion inhibitors**

Shibo Jiang, Shuai Xia, Lu Lu (College of Basic Medical Science, Fudan University)

**I-3 Peptide synthesis using unprotected amino acids**

Junfeng Zhao (School of Pharmaceutical Sciences, Guangzhou Medical University)

**I-4 Development of mirror-image monobodies to target oncogenic signaling**

Oliver Hantschel<sup>1</sup>, Nina Schmidt<sup>1</sup>, Amit Kumar<sup>1</sup>, Frank Abendroth<sup>2</sup>, Magdalena Rakwalska-Bange<sup>1</sup>, Lars-Oliver Essen<sup>3</sup>, Shohei Koide<sup>4</sup>, Olalla Vázquez<sup>2</sup> (<sup>1</sup>Institute of Physiological Chemistry, Faculty of Medicine, Philipps University of Marburg, <sup>2</sup>Faculty of Chemistry and Unit for Chemical Biology, Philipps University of Marburg, <sup>3</sup>Faculty of Chemistry and Unit for Structural Biology, Philipps University of Marburg, <sup>4</sup>New York University Langone Health)

11:45–12:00 **Break**

12:00–13:00 **Lunch Break & Luncheon Seminar (3F)**

13:00–13:15 **Break**

13:15–14:15 **Japanese Peptide Society General Meeting**

14:15–14:30 **Break**

14:30–15:30 Oral Presentations (15 min talk, 4 min discussion, 1 min speaker exchange)

Session 1 (chairs: Ayami Matsushima, Keitaro Suyama)

**O-01 Suppressive effects of an intranasally administered neuromedin U receptor 2-selective agonist to appetite and prolactin secretion in mice**

Asuka Nomoto, Yui Suzuki, Katsuya Morito, Kazuki Nagasawa, Kentaro Takayama (Laboratory of Environmental Biochemistry, Kyoto Pharmaceutical University)

**O-02 Heterozygous p53 mutations of the tetramerization domain in Li-fraumeni syndrome exhibit dominant-negative effects on the wild-type protein**

Rui Kamada, Madoka Kanno, Shuya Sakaguchi, Yu Toguchi, Toshiaki Imagawa, Kazuyasu Sakaguchi (Laboratory of Biological Chemistry, Department of Chemistry, Faculty of Science, Hokkaido University)

**O-03 Mitochondrial targeting  $\alpha$ -helical amphipathic peptides as a drug candidate for sarcopenia**

Jaehoon Yu<sup>1,2</sup> (<sup>1</sup>Department of Chemistry & Education, Seoul National University, <sup>2</sup>CAMP Therapeutics)

15:30–15:40 **Break**

15:40–17:10 **Poster Presentations Session 2**

Odd numbers: 15:40–16:25

Even numbers: 16:25–17:10

17:10–17:30 **Move to the banquet place**

17:30–19:30 **Banquet**

**October 31 (Thursday)**

9:00–10:20 **Oral Presentations** (15 min talk, 4 min discussion, 1 min speaker exchange)

**Session 2** (chairs: Shinichi Sato, Kazuya Kobayashi)

**O-04 N-terminal-specific dual modification of peptides through Cu-catalyzed one-pot [3+2] cycloaddition**

Kazuya Kanemoto<sup>1,2</sup>, Haruka Machida<sup>2</sup>, Naohiko Yoshikai<sup>1</sup> (<sup>1</sup>Graduate School of Pharmaceutical Sciences, Tohoku University, <sup>2</sup>Faculty of Science and Engineering, Chuo University)

**O-05 Synthesis of problematic peptide sequences using aspartic acid hydrazides**

Kohei Sato<sup>1,2</sup>, Haruna Uemura<sup>1</sup>, Moeno Sakurai<sup>1</sup>, Tetsuo Narumi<sup>1,2</sup>, Nobuyuki Mase<sup>1,2</sup> (<sup>1</sup>Graduate School of Integrated Science and Technology, Shizuoka University, <sup>2</sup>Research Institute of Green Science and Technology, Shizuoka University)

**O-06 Development of cyclopropane-based foldamers mimicking protein secondary structures**

Makoto Nagata<sup>1</sup>, Nanase Ochiai<sup>1</sup>, Marin Yokomine<sup>2</sup>, Akiko Yoshida<sup>1</sup>, Shunsuke Kita<sup>1</sup>, Megumi Watanabe<sup>1</sup>, Nobuki Okuyama<sup>1</sup>, Katsumi Maenaka<sup>1</sup>, Shinsuke Sando<sup>2</sup>, Jumpei Morimoto<sup>2</sup>, Hiroyuki Kumeta<sup>3</sup>, Koh Takeuchi<sup>4</sup>, Satoshi Shuto<sup>1</sup>, Mizuki Watanabe<sup>1</sup> (<sup>1</sup>Faculty of Pharmaceutical Sciences, Hokkaido University, <sup>2</sup>Graduate School of Engineering, The University of Tokyo, <sup>3</sup>Faculty of Advanced Life Science, Hokkaido University, <sup>4</sup>Graduate School of Pharmaceutical Sciences, The University of Tokyo)

**O-07 Synthesis based on affinity separation (SAS) for fully automated preparation of fluorogenic probes for enzymomics study**

Toru Komatsu<sup>1</sup>, Mayano Minoda<sup>1</sup>, Yasuteru Urano<sup>1,2</sup> (<sup>1</sup>Graduate School of Pharmaceutical Sciences, The University of Tokyo, <sup>2</sup>Graduate School of Medicine, The University of Tokyo)

10:20–10:35 **Break**

10:35–11:55 **Oral Presentations** (15 min talk, 4 min discussion, 1 min speaker exchange)

**Session 3** (chairs: Taku Yoshiya, Fumihiro Ishikawa)

**O-08 Classification of neuronal diseases using spinal fluids by the novel peptide microarrays**

Yuki Tominaga<sup>1</sup>, Takayuki Kondo<sup>2,3</sup>, Shinji Ashida<sup>3</sup>, Chihiro Fujii<sup>2</sup>, Kenji Usui<sup>4</sup>, Kiyoshi Nokihara<sup>1</sup> (<sup>1</sup>HiPep Laboratories, <sup>2</sup>Department of Neurology, Kansai Medical University Medical Center, <sup>3</sup>Department of Neurology, Kyoto Prefectural University of Medicine, <sup>4</sup>Faculty of Frontiers of Innovative Research in Science and Technology, Konan University)

**O-09 Deep mutational scanning-guided design of a high-affinity helix–loop–helix peptide targeting G-CSF receptor**

Masataka Michigami<sup>1</sup>, Yuka Kanata<sup>1</sup>, Chang Iou Ven<sup>1</sup>, Ayana Oshima<sup>1</sup>, Asako Yamaguchi-Nomoto<sup>1</sup>, Takayoshi Kinoshita<sup>1</sup>, Takatsugu Hirokawa<sup>2,3,4</sup>, Ikuo Fujii<sup>1</sup> (<sup>1</sup>Department of Biological Chemistry, Graduate School of Science, Osaka Metropolitan University, <sup>2</sup>National Institute of Advanced Industrial Science and Technology (AIST), <sup>3</sup>Division of Biomedical Science, University of Tsukuba, <sup>4</sup>Transborder Medical Research Center, University of Tsukuba)

**O-10 Cellular uptake of cell-penetrating peptides and encapsulation in extracellular vesicles**

Shinya Nakai, Nami Matsuhiro, Ikuhiko Nakase (Graduate School of Science, Osaka Metropolitan University)

**O-11 Biosynthetic studies on 7-hydroxytryptophan containing lasso peptide RES701-2**

Yuka Yamaya<sup>1</sup>, Takeshi Tsunoda<sup>2</sup>, Yu Nakashima<sup>3</sup>, Chitose Maruyama<sup>4</sup>, Yoshimitsu Hamano<sup>4</sup>, Hiroyuki Morita<sup>3</sup>, Yasushi Ogasawara<sup>2</sup>, Tohru Dairi<sup>2</sup> (<sup>1</sup>Graduate School of Chemical Science and Engineering, Hokkaido University, <sup>2</sup>Graduate School of Engineering, Hokkaido University, <sup>3</sup>Institution of Natural Medicine, University of Toyama, <sup>4</sup>Graduate School of Bioscience and Biotechnology, Fukui Prefectural University)

11:55–12:10 **Break**

12:10–13:25 **Lunch Break**

13:25–14:25 **Oral Presentations** (15 min talk, 4 min discussion, 1 min speaker exchange)

**Session 4** (chairs: Ikuhiko Nakase, Toru Komatsu)

**O-12 Local deformation of phase-separated giant liposome by photo-responsive peptide nanofiber**

Yingbing Liang, Hiroshi Inaba, Kazunori Matsuura (Graduate School of Engineering, Tottori University)

**O-13 Preparation of thermoresponsive biomaterials by conjugating short elastin-like peptides to proteins**

Keitaro Suyama<sup>1</sup>, Reina So<sup>2</sup>, Iori Maeda<sup>3</sup>, Takeru Nose<sup>1,2</sup> (<sup>1</sup>Faculty of Arts and Science, Kyushu University, <sup>2</sup>Department of Chemistry, Faculty and Graduate School of Science, Kyushu University, <sup>3</sup>Department of Physics and Information Technology, Kyushu Institute of Technology)

**O-14 Semi-synthesis of TDP-43 modified in N-terminal domain revealed effects of post-translational phosphorylation on self-association**

Daisuke Sasaki, Mao Tenda, Youhei Sohma (Department of Medicinal Chemistry, School of Pharmaceutical Sciences, Wakayama Medical University)

14:25–14:40 **Break**

14:40–15:20 **Lectures of the Young Investigator Award**

(chair: Kazunori Matsuura)

**Peptide design for modulating structures and functions of microtubules**

Hiroshi Inaba (Graduate School of Engineering, Tottori University)

(chair: Katsumi Matsuzaki)

**Biomembrane research utilizing functional peptides**

Kenichi Kawano (Graduate School of Pharmaceutical Sciences, Kyoto University)

15:20–16:00 **Lecture of the Japanese Peptide Society Award**

(chair: Takeru Nose)

**Functional regulation mechanisms in biological processes via oligomerization and complex formation**

Kazuyasu Sakaguchi (Laboratory of Biological Chemistry, Department of Chemistry, Faculty of Science, Hokkaido University)

16:00–16:20 **Award Ceremony**

16:20–16:25 **Closing Remarks** (Hiroshi Murakami)