

The 54th Japanese Peptide Symposium

November 20 (Monday)

9:30-9:35 Opening Remarks (Ikuo Fujii)

9:35-10:35 Young Investigator's Oral Presentations (9 min talk, 3 min discussion & exchange)

Session 1 (chairs: Akira Shigenaga, Tetsuo Narumi)

Y-01 N-S-acyl-transfer-mediated on-resin formation of thioester with practical application to peptide synthesis

Naoto Naruse, Kento Ohkawachi, Tsubasa Inokuma, Akira Shigenaga, Akira Otaka (Institute of Biomedical Sciences and Graduate School of Pharmaceutical Sciences, Tokushima University)

Y-02 Synthetic study of the selenocysteine-substituted ferredoxin

Toshiki Takei¹, Michio Iwaoka², Hironobu Hojo¹ (¹Institute for Protein Research, Osaka University, ²Department of Chemistry, School of Science, Tokai University)

Y-03 Novel visible light photoactivatable caged glutamate based on a N-methyl quinolinium chromophore

Akitaka Nii¹, Akinobu Suzuki², Kohei Sato¹, Nobuyuki Mase¹, Toshiaki Furuta², Yumiko Yoshimura³, Tetsuo Narumi¹ (¹Graduate School of Engineering, Shizuoka University, ²Department of Biomolecular Science, Toho University, ³National Institute for Physiological Sciences, National Institutes of Natural Sciences)

Y-04 Helicity modulation of cationic amphipathic peptoids on antimicrobial activity

Ho Yeon Nam, Jiwon Seo (Department of Chemistry, Gwangju Institute of Science and Technology)

Y-05 Identification of antimicrobial peptides from the *Liocheles australasiae* scorpion venom using de novo sequencing and transcriptomic analyses

Ryota Okabe¹, Atsushi Kitanaka¹, Hironobu Uchiyama², Masayuki Sue², Masahiro Miyashita¹, Yoshiaki Nakagawa¹, Hisashi Miyagawa¹ (¹Graduate School of Agriculture, Kyoto University, ²Tokyo University of Agriculture)

10:35-10:50 Break

10:50-11:50 Young Investigator's Oral Presentations (9 min talk, 3 min discussion & exchange)

Session 2 (chairs: Keiichi Yamada, Yosuke Demizu)

Y-06 Catalytic oligopeptide synthesis

Zijian Liu, Hidetoshi Noda, Masakatsu Shibasaki, Naoya Kumagai (Institute of Microbial Chemistry)

Y-07 Peptide ligation on DNA scaffold toward total protein chemical synthesis

Masafumi Yanase¹, Gosuke Hayashi¹, Akimitsu Okamoto^{1,2} (¹The University of Tokyo, School of Engineering, ²The University of Tokyo, RCAST)

Y-08 Histidines in L17E endosome-destabilizing peptide

Kentarou Sakamoto, Misao Akishiba, Kenichi Kawano, Shiroh Futaki (Institute for Chemical Research, Kyoto University)

Y-09 Structure-activity relationship of 5-mer peptides derived from JAL-TA9

Rina Nakamura¹, Yusuke Hatakawa², Motomi Konishi², Masanari Taniguchi², Toshifumi Akizawa^{1,2}
(¹O-force Co. Ltd., ²Laboratory of Clinical Analytical Chemistry, Faculty of Pharmaceutical Sciences, Setsunan University)

Y-10 Improvement of the therapeutic index of antimicrobial peptides based on magainin 2

Erika Azuma, Yoshiaki Yano, Katsumi Matsuzaki (Graduate School of Pharmaceutical Sciences, Kyoto University)

11:50-13:05 Lunch Break & Luncheon Seminar (Bldg. B2 Rm. 102)

13:05-14:05 Young Investigator's Oral Presentations (9 min talk, 3 min discussion & exchange)

Session 3 (chairs: Yoshiaki Yano, Ikuhiko Nakase)

Y-11 Detection of saliva by a peptide microarray, peptenchip®, using protein fingerprints and multivalent analyses focusing on oral health care

Yuki Tominaga¹, Kenji Usui², Akiyoshi Hirata¹, Hiro-O Ito³, Kiyoshi Nokihara¹ (¹HiPep Laboratories, ²Faculty of Frontiers of Innovative Research in Science and Technology, Konan University, ³Department of Preventive Dentistry Institute of Biomedical Sciences Graduate School)

Y-12 Wheylin-1, a bioactive peptide isolated from bovine milk, increases insulin sensitivity in Akt phosphorylation-dependent manner

Maiko Ogiwara¹, Wakana Ota¹, Takafumi Mizushige^{1,2}, Ryuhei Kanamoto¹, Kousaku Ohinata¹
(¹Division of Food Science and Biotechnology, Graduate School of Agriculture, Kyoto University, ²Research Unit for Physiological Chemistry, C-PIER, Kyoto University)

Y-13 A novel orally active hypotensive peptide found based on the enteroendocrine cell response to a dipeptide library

Masaki Sasai, Xinghui Sun, Chinatsu Okuda, Ryuhei Kanamoto, Kousaku Ohinata (Division of Food Science and Biotechnology, Graduate School of Agriculture, Kyoto University)

Y-14 Asn-Ala, a new vasorelaxing dipeptide exhibiting hypotensive activity

Xinghui Sun, Masaki Sasai, Ryuhei Kanamoto, Kousaku Ohinata (Division of Food Science and Biotechnology, Graduate School of Agriculture, Kyoto University)

Y-15 Covalent inhibitor for glutathione S-transferase

Fumiaki Tomoike¹, Yuko Shishido², Haruka Fujikawa³, Yasuaki Kimura³, Keiko Kuwata⁴, Takato Yano⁵, Kenji Fukui⁵, Yoshitaka Sekido⁶, Yuko Murakami-Tonami⁶, Tomoshi Kameda⁷, Satoshi Shuto², Hiroshi Abe³ (¹Research Center for Material Science, Nagoya University, ²Faculty of Pharmaceutical Science, Hokkaido University, ³Graduate School of Science, Nagoya University, ⁴WPI-ITbM, Nagoya University, ⁵Osaka Medical College, ⁶Division of Molecular Oncology, Aichi Cancer Center Research Institute, ⁷Artificial Intelligence Research Center, National Institute of Advanced Industrial Science and Technology)

14:05-14:20 Break

14:20-15:20 Young Investigator's Oral Presentations (9 min talk, 3 min discussion & exchange)

Session 4 (chairs: Tsuyoshi Takahashi, Hiroshi Tsutsumi)

Y-16 Design and synthesis of potent myostatin inhibitory peptides

Cédric Rentier¹, Kentaro Takayama¹, Akari Nakamura¹, Mariko Saitoh¹, Sanae Sashida², Yoichi Negishi², Yoshio Hayashi¹ (¹Department of Medicinal Chemistry, Tokyo University of Pharmacy and Life Sciences, ²Department of Drug Delivery and Molecular Therapeutics, Tokyo University of Pharmacy and Life Sciences)

Y-17 Revealing the physiological responses to a totally synthesized cyclic peptide, mahafacyclin B

Yuko Fujita¹, Panpaki Seekaki², Norichika Ogata³, Kazuhiro Chiba¹ (¹Tokyo University of Agriculture and Technology, ²Nihon BioData Corporation, ³Chitose Bio Evolution Pte. Ltd.)

Y-18 Application of cyclic peptides derived from the EGF receptor dimerization arm sequences to intracellular delivery

Kei Toyama, Wataru Nomura, Hirokazu Tamamura (Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University)

Y-19 Cyclic peptides for efficient detection of collagen

Koh K. Takita, Kazunori K. Fujii, Takaki Koide (Department of Chemistry and Biochemistry, School of Advanced Science and Engineering, Waseda University)

Y-20 *In vitro* synthesis of peptides containing carbon-backbone via post-translational acyl transfer reaction

Tomohiro Kuroda, Yuki Goto, Hiroaki Suga (Department of Chemistry, Graduate School of Science, The University of Tokyo)

15:20-15:35 Break

15:35-16:23 Young Investigator's Oral Presentations (9 min talk, 3 min discussion & exchange)

Session 5 (chairs: Ayami Matsushima, Kentaro Hozumi)

Y-21 Phenolphthalein binding peptide aptamers by *in vitro* selection using complementary DNA display

Hiroki Anzai, Takuya Terai, Naoto Nemoto (Graduate School of Science and Engineering, Saitama University)

Y-22 Synthesis and functional studies of self-adjuvanting cancer vaccine containing B cell epitope derived from HER2

Qi Feng¹, Kazuya Kabayama¹, Yoshiyuki Manabe¹, Asuka Miyamoto², Yoshie Kametani², Koichi Fukase¹ (¹Graduate School of Science, Osaka University, ²School of Medicine, Tokai University)

Y-23 Design of microtubule-binding peptides toward molecular alignment inside microtubules

Hiroshi Inaba¹, Takahisa Yamamoto¹, Arif Md. Rashedul Kabir², Akira Kakugo², Kazuki Sada², Kazunori Matsuura¹ (¹Graduate School of Engineering, Tottori University, ²Graduate School of Science, Hokkaido University)

Y-24 Functionalization of calcium ion responsive self-assembling peptide materials

Kazuto Fukunaga¹, Hiroshi Tsutsumi², Hisakazu Mihara² (¹Department of Bioengineering, Graduate School of Bioscience and Biotechnology, Tokyo Institute of Technology, ²School of Life Science and Technology, Tokyo Institute of Technology)

16:23-16:30 Break

16:30-18:00 Poster Presentations (Odd Numbers)

November 21 (Tuesday)

9:30-10:30 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 1 (chairs: Hirokazu Tamamura, Yuji Hidaka)

O-01 Dissociation of peptide fibrils by using mid-infrared free electron laser

Takayasu Kawasaki¹, Phuong H. Nguyen², Koichi Tsukiyama¹, Kazuhiro Nakamura³ (¹IR-FEL Research Center, Tokyo University of Science, ²Laboratory of Theoretical Biochemistry, CNRS, ³Department of Laboratory Sciences, Gunma University Graduate School of Health Sciences)

O-02 Histone ubiquitination via an isopeptide mimetic structure by using a thiirane linker

Toru Kawakami¹, Yuichi Mishima¹, Hironobu Hojo¹, Isao Suetake² (¹Institute for Protein Research, Osaka University, ²AMED-CREST)

O-03 Delayed gradient heating substantially increases the purity of crude liraglutide

Mandar Maduskar, Hossain Saneii, Mostafa Hatam, Farshad Karimi, Robert Obermann, William Bennett (AAPPTec, LLC)

10:30-10:45 Break

10:45-11:45 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 2 (chairs: Hiroyuki Konno, Kin-ya Tomizaki)

O-04 Chemical synthesis of N-acetylglucosaminylated histone H2A by the one-pot four-segment ligation method

Yuya Asahina, Toru Kawakami, Hironobu Hojo (Institute for Protein Research, Osaka University)

O-05 Discovery of selective hexapeptide agonists toward human NMUR1

Kentaro Takayama¹, Kenji Mori², Erina Nomura¹, Yuko Sohma¹, Akiko Tanaka³, Akihiro Taguchi¹, Atsuhiko Taniguchi¹, Toshiyasu Sakane⁴, Akira Yamamoto³, Naoto Minamino⁵, Mikiya Miyazato², Kenji Kangawa², Yoshio Hayashi¹ (¹Department of Medicinal Chemistry, Tokyo University of Pharmacy and Life Sciences, ²Department of Biochemistry, National Cerebral and Cardiovascular Center Research Institute, ³Department of Biopharmaceutics, Kyoto Pharmaceutical University, ⁴Laboratory of Pharmaceutical Technology, Kobe Pharmaceutical University, ⁵Omics Research Center, National Cerebral and Cardiovascular Center)

O-06 A dual-motif peptide to enhance secretion of specific ECM proteins by stem cells: modelling and functional studies

Navaneethakrishnan Krishnamoorthy^{1,2}, Poornima Gajendrarao², Yuan-Tsan Tseng², Adrian Chester², Magdi Yacoub² (¹Sidra Medical and Research Centre, ²Heart Science Centre, National Heart and Lung Institute, Imperial College London)

11:45-13:00 Lunch Break & Luncheon Seminar (Bldg. B2 Rm. 102)

13:00-13:40 Japan Peptide Society General Meeting

13:40-15:10 Poster Presentations (Even Numbers)

15:10-16:10 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 3 (chairs: Motoyoshi Nomizu, Keiko Hojo)

O-07 Effects of p53 tetramerization domain mutations found in Li-Fraumeni syndrome on the hetero/homo-oligomerization

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

O-08 Structure-activity studies of a macrocyclic peptide inhibitor of histone lysine demethylase 4a

Toby Passioura¹, Bhaskar Bhushan^{2,3}, Anthony Tumber^{2,4}, Akane Kawamura^{2,3}, Hiroaki Suga^{1,5}
(¹Department of Chemistry, Graduate School of Science, The University of Tokyo, ²Department of Chemistry, University of Oxford, Chemistry Research Laboratory, ³Division of Cardiovascular Medicine, Radcliffe Department of Medicine, University of Oxford, Wellcome Trust Centre for Human Genetics, ⁴Structural Genomics Consortium and Target Discovery Institute, Nuffield Department of Medicine, University of Oxford, ⁵Japan Science and Technology Agency (JST), Core Research for Evolutionary Science and Technology (CREST))

O-09 Oligomer formation of dimeric bundle peptide leads to cell penetration

Soonsil Hyun¹, Keysun Kim², Jaehoon Yu¹ (¹Department of Chemistry & Education, Seoul National University, ²Korea Institute of Science and Technology)

16:10-16:25 Break

16:25-17:15 Invited Lectures (20 min talk, 5 min discussion & exchange)

(chairs: Hisakazu Mihara, Yoshio Hayashi)

K-01 Exploitation of the bacterial iron assimilation mechanism based on siderophores for development of targeted antibiotic delivery system

Hak Joong Kim, Woon Young Song, Min Wook Lee, Yea Song Park, Haeun Lee (Department of Chemistry, Korea University)

K-02 Structural basis of sodium/citrate symporter as a secondary transporter

Ji Won Kim¹, Subin Kim², Haerim Lee¹, Songwon Kim², Jie-Oh Lee¹, Mi Sun Jin² (¹Department of Chemistry, KAIST, ²School of Life Sciences, GIST)

17:15-17:30 Break

17:30-18:30 Special Lecture

(chair: Yoshiaki Kiso)

Catalytic peptide synthesis

Hisashi Yamamoto (Molecular Catalyst Research Center, Chubu University)

19:30-21:30 Banquet (Hotel Agora Regency Sakai)

November 22 (Wednesday)

9:30-10:30 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 4 (chairs: Yuji Ito, Hidehito Mukai)

O-10 Vaccine adjuvant effects of dendritic cell-targeting peptides

Kazuki Misato¹, Yuki Kanai^{1,2}, Taiki Aoshi^{1,3}, Motohiro Nonaka⁴, Michiko Fukuda⁴, Yasuo Yoshioka^{1,2,3}
(¹Research Institute for Microbial Diseases, Osaka University, ²Graduate School of Pharmaceutical Sciences, Osaka University, ³The Research Foundation for Microbial Diseases, Osaka University, ⁴National Institute of Advanced Industrial Science and Technology)

O-11 Structure optimization of a peptide-based hydroxyethylamine-type BACE1 inhibitor

Kazuya Kobayashi, Takuya Otani, Saki Ijiri, Katsuyasu Ishizawa, Risa Izeki, Taishi Kitazima, Naoka Shindo, Kota Okawa, Yasunao Hattori, Kenichi Akaji (Department of Medicinal Chemistry, Kyoto Pharmaceutical University)

O-12 Dendrimers conjugating tumor-homing peptide, antitumor peptide and fluorescent probe for cancer treatment

Chie Kojima¹, Shu Nagashima¹, Ken Saito², Eisaku Kondo² (¹Department of Applied Chemistry, Graduate School of Engineering, Osaka Prefecture University, ²Graduate School Medical and Dental Sciences, Niigata University)

10:30-10:45 Break

10:45-11:45 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 5 (chairs: Takaki Koide, Yoshiro Chuman)

O-13 Effective combinatorial approach using arginine-rich cell-penetrating peptide and pyrenebutyrate for mitochondria-targeted intracellular delivery

Miku Katayama^{1,2}, Tomoka Takatani-Nakase³, Yoshihide Hattori⁴, Mitsunori Kirihata⁴, Ikuo Fujii², Shiroh Futaki⁵, Ikuhiko Nakase¹ (¹NanoSquare Research Institution, Osaka Prefecture University, ²Graduate School of Science, Osaka Prefecture University, ³School of Pharmacy and Pharmaceutical Sciences, Mukogawa Women's University, ⁴Research Center of Boron Neutron Capture Therapy, Osaka Prefecture University, ⁵Institute for Chemical Research, Kyoto University)

O-14 Detection of peptide-protein interactions using interaction-dependent native chemical ligation

Tsuyoshi Takahashi (Division of Molecular Science, Graduate School of Science and Technology, Gunma University)

O-15 Semisynthetic approach for ligand screening using chemically modified peptide phage libraries

Hiroshi Tsutsumi¹, Iou Ven Chang², Teerapat Anananuchatkul¹, Hisakazu Mihara¹ (¹Department of Bioengineering, School of Life Science and Technology, Tokyo Institute of Technology, ²Graduate School of Bioscience and Biotechnology, Tokyo Institute of Technology)

11:45-13:15 Lunch Break

13:15-14:15 Oral Presentations (15 min talk, 5 min discussion & exchange)

Session 6 (chairs: Kazuki Saito, Kazuya Kobayashi)

O-16 Synthesis of novel ruthenium-peptide complexes toward artificial metalloenzymes for photochemical CO₂ reduction

Hitoshi Ishida¹, Chiaki Kojima¹, Atsushi Ohtsuka¹, Jun Itabashi¹, Masaya Kamiya¹, Yusuke Kuramochi^{1,2} (¹Graduate School of Science, Kitasato University, ²Faculty of Science Division II, Tokyo University of Science)

O-17 Development of curcumin analogues: Detection of A β fibrils and its aggregation inhibition

Taki Sato, Mayumi Hotsumi, Hiroyuki Konno (Department of Biochemical Engineering, Graduate School of Science and Engineering, Yamagata University)

O-18 High-throughput selection of pore-forming peptides assembling in liposome membranes by combining complementary dna display method with cell sorter system

Hiroki Miyajima, Naoto Nemoto (Graduate School of Science and Technology, Saitama University)

14:15-14:30 Break

14:30-15:20 Lectures of the Young Investigator Award

(chairs: Hironobu Hojo, Akira Otaka)

Controlled aggregation of amyloid peptides using artificial chemical conversion

Atsuhiko Taniguchi (Department of Medicinal Chemistry, School of Pharmacy, Tokyo University of Pharmacy and Life Sciences)

Exploring the amide-to-alkene isosteric switch strategy in peptide science

Tetsuo Narumi^{1,2,3} (¹Department of Engineering, Graduate School of Integrated Science and Technology, ²Research Institute of Green Science and Technology, ³Graduate School of Science and Technology, Shizuoka University)

15:20-15:35 Break

15:35-16:15 Lecture of the Japanese Peptide Society Award

(chair: Saburo Aimoto)

Development of functional molecules based on peptide chemistry

Kenichi Akaji (Department of Medicinal Chemistry, Kyoto Pharmaceutical University)

16:15-16:25 Closing Remarks (Ikuo Fujii)