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## PROGRAM

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### Oral Presentation

1st day, September 13th (Wed)

#### Morning

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9:10~10:00 Chair: Yusuke Ogura (The University of Tokyo)

**1 Total Synthesis of Puberuline C**

(Graduate School of Pharmaceutical Sciences, The University of Tokyo)

Tsukasa Shimakawa, Shu Nakamura, Hibiki Asai, Koichi Hagiwara, Masayuki Inoue

**2 Unified Total Syntheses of Longibornane Natural Products**

(<sup>1</sup> UC Berkeley, <sup>2</sup> Ōmura Satoshi Memorial Institute, <sup>3</sup> Graduate School of Infection Control Sciences, Kitasato University)

Goh Sennari<sup>1,2,3</sup>, Robert F. Lusi<sup>1</sup>, Richmond Sarpong<sup>1</sup>

10:00~11:15 Chair: Toshiyuki Wakimoto (Hokkaido University)

**3 Structure-Function Analysis of Pyridoxal 5'-Phosphate Dependent Enzymes in the Biosynthesis of Lincosamides**

(<sup>1</sup> Graduate School of Pharmaceutical Sciences, The University of Tokyo,

<sup>2</sup> Graduate School of Agricultural and Life Sciences, The University of Tokyo,

<sup>3</sup> Institute of Microbiology, The Czech Academy of Sciences)

Takahiro Mori<sup>1</sup>, Kosuke Sakurada<sup>1</sup>, Yoshitaka Moriwaki<sup>2</sup>, Stanislav Kadlcik<sup>3</sup>,  
Tohru Terada<sup>2</sup>, Jiri Janata<sup>3</sup>, Ikuro Abe<sup>1</sup>

**4 Unified Biogenesis of Fungal Dimeric Anhydrides: Proposal of Cyclization Mechanism Affording Characteristic Nine-Membered Ring**

(<sup>1</sup> Faculty of Science, Hokkaido University, <sup>2</sup> Graduate School of Pharmaceutical Sciences, The University of Tokyo, <sup>3</sup> Agriculture and Life Science, Hirosaki University, <sup>4</sup> Wuyi University)

Atsushi Minami<sup>1</sup>, Taro Ozaki<sup>1</sup>, Shintaro Yamamoto<sup>1</sup>, Taro Matsuyama<sup>2</sup>,  
Tetsuya Shiina<sup>1</sup>, Ryuya Fujii<sup>1</sup>, Yusuke Matsu<sup>1</sup>, Junya Takino<sup>1</sup>, Masaru Hashimoto<sup>3</sup>,  
Hajime Sato<sup>2</sup>, Masanobu Uchiyama<sup>2</sup>, Hideaki Oikawa<sup>1,4</sup>

**5 Structural Basis for a Marine Bacterial Drimenol Synthase**

(RIKEN CSRS)

Keisuke Fujiyama, Hiroshi Takagi, Nhu Ngoc Quynh Vo, Shunji Takahashi

11:20~12:20 Chair: Ryo Tanifuji (The University of Tokyo)

Short Presentation 1

12:20~13:10 Lunch Break

## Afternoon

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13:10~14:40           Poster Discussion (P1-1 ~ P1-23)

14:45~15:35           Chair: Kazuma Murakami (Kyoto University)

**6 Synthesis of Manzamine Alkaloid-Type Macrocyclic Scaffold via Biomimetic Transannular Cyclization**

(<sup>1</sup> Graduate School of Science, The University of Tokyo, <sup>2</sup> Graduate School of Engineering, Tokyo University of Agriculture and Technology)

Toshiaki Wayama<sup>1</sup>, Yuta Arai<sup>2</sup>, Hiroki Oguri<sup>1</sup>

**7 Synthetic Study of Lycopodium Alkaloids with Decahydroquinoline Scaffold**

(<sup>1</sup> Graduate School of Pharmaceutical Sciences, Chiba University, <sup>2</sup> Graduate School of Science and Technology, Kumamoto University)

Yuta Nakashima<sup>1</sup>, Taichi Inoshita<sup>2</sup>, Mariko Kitajima<sup>1</sup>, Hayato Ishikawa<sup>1</sup>

15:35~16:25           Chair: Ken Ohmori (Tokyo Institute of Technology)

**8 Asymmetric Total Synthesis of Discorhabdin B, H, K and Aluetianamine**

(Graduate School of Pharmaceutical Sciences, Tohoku University)

Masashi Shimomura, Kohta Ide, Juri Sakata, Hidetoshi Tokuyama

**9 Total Synthesis of Indole Alkaloids by Lactam Strategy**

(Faculty of Science and Technology, Keio University)

Yasukazu Sugiyama, Daiki Kaneko, Yuichirou Shirakata, Seiya Katahara, Mina Yamane, Yukinori Komiya, Noritaka Chida, Toshitaka Okamura, Takaaki Sato

16:25~17:15           Chair: Go Hirai (Kyushu University)

**10 Synthetic Studies on Muraymycin A1 and Discovery of Antimetastatic Agents**

(College of Pharmacy Pharmaceutical Science, University of Tennessee Health Science Center)

Katsuhiko Mitachi, Michio Kurosu

**11 Synthetic Studies on Himalensine A Based on an Improved BCD-Ring Construction Strategy**

(Graduate School of Pharmaceutical Sciences, Tohoku University)

Koki Shikama, Junpei Koyama, Hiroyuki Yamakoshi, Yusuke Sasano, Yoshiharu Iwabuchi

17:15~18:05

Chair: Satoshi Yokoshima (Nagoya University)

**12 Rapid Structural Optimization of Antibacterial Natural Products Based on Build-Up Library Synthesis**

(<sup>1</sup> Faculty of Pharmaceutical Sciences, Hokkaido University, <sup>2</sup> School/Faculty of Veterinary Medicine Hokkaido University, <sup>3</sup> Wakunaga Pharmaceutical Co., Ltd., <sup>4</sup> Sapporo Medical University, <sup>5</sup> Global Institution for Collaborative Research and Education (GI-CoRE))

Kazuki Yamamoto<sup>1</sup>, Toyotaka Sato<sup>2</sup>, Kenta Asao<sup>1</sup>, Rintaro Kaguchi<sup>1</sup>, Shintaro Kusaka<sup>1</sup>, Ruddarraju Radhakrishnam Raju<sup>1</sup>, Daichi Kazamori<sup>3</sup>, Kiki Seo<sup>3</sup>, Satoshi Takahashi<sup>4</sup>, Motohiro Horiuchi<sup>2</sup>, Shin-ichi Yokota<sup>4</sup>, Satoshi Ichikawa<sup>1,5</sup>

**13 Asymmetric Total Synthesis of Histrionicotoxins Utilizing One-Step Construction of an Azaspirocyclic and Their Inhibition Activity of the Nicotinic Acetylcholine Receptors**

(<sup>1</sup> Graduate School of Science, Osaka Metropolitan University, <sup>2</sup> Graduate School of Agriculture, Kindai University)

Yosuke Ono<sup>1</sup>, Keisuke Nishikawa<sup>1</sup>, Kunihiro Matsumura<sup>1</sup>, Sumito Mori<sup>2</sup>, Koichi Takayama<sup>2</sup>, Makoto Ihara<sup>2</sup>, Kazuhiko Matsuda<sup>2</sup>, Yoshiki Morimoto<sup>1</sup>

18:05~18:55

Chair: Kiyotake Suenaga (Keio University)

**14 Searching for Novel Natural Product from Rare Actinomycetes Using Analysis of Secondary Metabolite Biosynthetic Potential and Molecular Networking**

(<sup>1</sup> Graduate School of Infection Control Sciences, Kitasato University, <sup>2</sup> Ōmura Satoshi Memorial Institute, <sup>3</sup> Rigaku Co., Ltd.)

Yuta Kikuchi<sup>1</sup>, Yoshihiro Watanabe<sup>1,2</sup>, Hayama Tsutsumi<sup>1,2</sup>, Sho Ito<sup>3</sup>, Masato Iwatsuki<sup>1,2</sup>, Yuki Inahashi<sup>1,2</sup>

**15 Isolation, Structure Elucidation and Synthesis of Calyxosides**

(Graduate School of Agricultural and Life Sciences, The University of Tokyo)

Kenji Sugawara, Hironori Okamura, Yusuke Ogura, Shigeki Matsunaga, Hirosato Takikawa

## 2nd day, September 14th (Thu)

### Morning

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9:10~10:00 Chair: Satoshi Ichikawa (Hokkaido University)

**16 Total Syntheses of Malettinins**

(Graduate School of Pharmaceutical Sciences, Nagoya University)

Nariyoshi Umekubo, Satoshi Yokoshima

**17 Organcatalyst-Mediated, 6 Pots Synthesis of Latanoprost**

(Graduate School of Science, Tohoku University)

Genki Kawachi, Yurina Suga, Shunsuke Toda, Yujiro Hayashi

10:00~11:15 Chair: Hiroki Oguri (The University of Tokyo)

**18 Total Synthesis of  $\beta$ -Naphthocyclinone**

(Department of Chemistry, Tokyo Institute of Technology)

Yoshio Ando, Nozomi Tanaka, Mark Marcello Maturi, Ken Ohmori, Keisuke Suzuki

**19 Total Synthesis of Aplysiasecosterols A and B, Two Marine 9,11-Secosteroids**

(Graduate School of Pure and Applied Sciences, University of Tsukuba)

Takayuki Ohyoshi, Hidetada Iizumi, Shu Hosono, Hikaru Tano, Hideo Kigoshi

**20 Natural Glycan Conjugates Trafficking In Vivo by Chemical Reaction**

(<sup>1</sup> School of Materials and Chemical Technology, Tokyo Institute of Technology,

<sup>2</sup> Biofunctional Synthetic Chemistry Laboratory, RIKEN)

Kenshiro Yamada<sup>1</sup>, Tatsuya Kobayashi<sup>1</sup>, Akari Mukaimine<sup>2</sup>, Akiko Nakamura<sup>2</sup>,  
Yuriko Kusakari<sup>2</sup>, Ambara Rachmat Pradipta<sup>1</sup>, Katsunori Tanaka<sup>1,2</sup>

11:15~12:15 Chair: Taro Shiraishi (The University of Tokyo)

Short Presentation 2

12:15~13:35 Lunch Break

## Afternoon

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13:35~15:05 Poster Discussion (P2-1 ~ P2-25)  
15:05~15:10 Advance Notice: Yoshiji Takemoto (Kyoto University)

15:15~16:05 Chair: Kenichi Matsuda (Hokkaido University)

**21 Discovery and Characterization of Fungal Depside Synthases**

(Department of Chemistry, City University of Hong Kong)

Lin Chen, Xingxing Wei, Qiaolin Ji, Yudai Matsuda

**22 Biosynthesis of the Immunosuppressant (–)-FR901483 and Self-Resistant Mechanism in Producing Fungi**

(<sup>1</sup> Department of Pharmaceutical Sciences, University of Shizuoka, <sup>2</sup> Department of Chemical and Biomolecular Engineering and Department of Chemistry and Biochemistry, University of California)

Sakurako Sakano<sup>1</sup>, Michio Sato<sup>1</sup>, Miku Nakahara<sup>1</sup>, Yui Tamura<sup>1</sup>, Kodai Hara<sup>1</sup>, Hiroshi Hashimoto<sup>1</sup>, Yi Tang<sup>2</sup>, Kenji Watanabe<sup>1</sup>

16:05~16:55 Chair: Takayoshi Awakawa (RIKEN CSRS)

**23 Expanding the Repertoire of Prenylation Reactions by Structure-Based Engineering of Cyanobactin PTases**

(<sup>1</sup> Graduate School of Science, The University of Tokyo, <sup>2</sup> Graduate School of Medicine, Yokohama City University)

Yuchen Zhang<sup>1</sup>, Keisuke Hamada<sup>2</sup>, Masayuki Satake<sup>1</sup>, Toru Sengoku<sup>2</sup>, Yuki Goto<sup>1</sup>, Hiroaki Suga<sup>1</sup>

**24 Engineering Natural Products by Chem-Bio Hybrid Synthesis for Drug Discovery of Dysentery Amoebiasis**

(<sup>1</sup> School of Agricultural Sciences, Nagoya University, <sup>2</sup> Department of Pharmaceutical Sciences, University of Shizuoka, <sup>3</sup> Graduate School of Bioagricultural Sciences, Nagoya University, <sup>4</sup> Department of Nanopharmaceutical Sciences, Nagoya Institute of Technology, <sup>5</sup> Graduate School of Medicine, The University of Tokyo, <sup>6</sup> NIID, <sup>7</sup> IAR., Nagoya University)

Yuki Okura<sup>1</sup>, Namiko Ogata<sup>2</sup>, Masaki Kita<sup>3</sup>, Kenji Watanabe<sup>2</sup>, Koichi Yoshinari<sup>2</sup>, Norio Shibata<sup>4</sup>, Ryota Shizu<sup>2</sup>, Mihoko Mori<sup>5</sup>, Yuji Sumii<sup>4</sup>, Yumiko Nakano<sup>6</sup>, Tomoyoshi Nozaki<sup>5</sup>, Yuta Tsunematsu<sup>3,7</sup>

16:55~17:45      Chair: Teigo Asai (Tohoku University)

**25 Biosynthetic Studies on Natural Product Containing  $\alpha,\alpha$ -Disubstituted Amino Acid**

(<sup>1</sup> Graduate School of Engineering, Hokkaido University, <sup>2</sup> Graduate School of Chemical Sciences and Engineering, Hokkaido University)

Takeshi Tsunoda<sup>1</sup>, Shunkichi Furumura<sup>2</sup>, Haruka Yamazaki<sup>2</sup>, Yasushi Ogasawara<sup>1</sup>,  
Tohru Dairi<sup>1</sup>

**26 Streamlined Chemoenzymatic Synthesis of Cyclic Peptides by Non-Ribosomal Peptide Cyclases**

(Faculty of Pharmaceutical Sciences, Hokkaido University)

Masakazu Kobayashi, Rintaro Ichihara, Naho Onozawa, Kenichi Matsuda,  
Toshiyuki Wakimoto

19:00~21:00      Award Ceremony & Symposium Mixer

## 3rd day, September 15th (Fri)

### Morning

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9:10~10:00 Chair: Yuki Goto (The University of Tokyo)

**27 Identification of Ancestral Plant Hormones in *M. polymorpha* and Isomerization Reaction as a Key to Hormonal Evolution**

(<sup>1</sup> Graduate School of Sciences, Tohoku University, <sup>2</sup> School of Pharmacy, Yantai University, <sup>3</sup> CNBCSIC, <sup>4</sup> Graduate School of Life Sciences, Tohoku University)

Takuya Kaji<sup>1</sup>, Hidenori Yoshimatsu<sup>1</sup>, Nobuki Kato<sup>1</sup>, Haruka Sakurai<sup>1</sup>, Gangqiang Yang<sup>2</sup>, Guillermo H. Jimenez-Aleman<sup>3</sup>, Roberto Solano<sup>3</sup>, Minoru Ueda<sup>1,4</sup>

**28 Viral Glycan Binding and Anti-SARS-CoV-2 Activity of Pradimicin A**

(<sup>1</sup> Graduate School of Bioagricultural Sciences, Nagoya University, <sup>2</sup> iGCORE,

<sup>3</sup> Hiroshima University HG, <sup>4</sup> Hiroshima University AI, <sup>5</sup> CCPID, Nagasaki University,

<sup>6</sup> Biotechnology Research Center and Department of Biotechnology, Toyama Prefectural University, <sup>7</sup> Graduate School of Science, Osaka University)

Yu Nakagawa<sup>1,2</sup>, Masato Fujii<sup>1</sup>, Nanaka Ito<sup>1</sup>, Makoto Ojika<sup>1</sup>, Dai Akase<sup>3</sup>, Misako Aida<sup>4</sup>, Takaaki Kinoshita<sup>5</sup>, Yasuteru Sakurai<sup>5</sup>, Jiro Yasuda<sup>5</sup>, Yasuhiro Igarashi<sup>6</sup>, Yukishige Ito<sup>7</sup>

10:00~11:15 Chair: Hayato Ishikawa (Chiba University)

**29 Efficient Synthesis of Pseudo-Glycan with C-Glycosidic Linkage for the Creation of Novel Bioactive Compound**

(<sup>1</sup> Graduate School of Pharmaceutical Sciences, Kyushu University, <sup>2</sup> Faculty of Agriculture, Setsunan University, <sup>3</sup> NIBIO, <sup>4</sup> RIMD, Osaka University, <sup>5</sup> RIKEN CSRS)

Takahiro Moriyama<sup>1</sup>, Makoto Yoritani<sup>1</sup>, Syunsuke Ono<sup>1</sup>, Naoki Kato<sup>2</sup>, Azusa Saika<sup>3</sup>, Wakasa Kusuhara<sup>4</sup>, Natsuho Moritsuho<sup>1</sup>, Riko Tanabe<sup>1</sup>, Minoru Numamoto<sup>2</sup>, Eri Ishikawa<sup>4</sup>, Takahiro Nagatake<sup>3</sup>, Noriaki Kiya<sup>1</sup>, Hiroaki Matoba<sup>1</sup>, Shunji Takahashi<sup>5</sup>, Jun Kinisawa<sup>3</sup>, Sho Yamasaki<sup>4</sup>, Go Hirai<sup>1</sup>

**30 Semi-Synthesis of Homogeneous Glycoprotein via Novel Expressed Peptide Thioesterification Methods**

(<sup>1</sup> Graduate School of Sciences, Osaka University, <sup>2</sup> Graduate School of Science, Osaka University)

Yanbo Liu<sup>1</sup>, Kento Iritani<sup>1</sup>, Ryo Okamoto<sup>1,2</sup>, Yuta Maki<sup>1,2</sup>, Yasuhiro Kajihara<sup>1,2</sup>

**31 Chemical Synthesis and Function of Acetic Acid Bacteria *Acetobacter pasteurianus* Lipid A**

(Graduate School of Science, Osaka University)

Haruki Yamaura, Atsushi Shimoyama, Koichi Fukase

11:20~12:20 Chair: Richiro Ushimaru (The University of Tokyo)

Short Presentation 3

12:20~13:10 Lunch Break

## Afternoon

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13:10~14:40           Poster Discussion (P3-1 ~ P3-26)

14:45~16:00           Chair: Masanori Nagatomo (The University of Tokyo)

**32 Total Synthesis of (–)-Cotylenol**

(The Scripps Research Institute)

Ryota Sato, Tucker R. Huffman, Akihiro Kuroo, Ryan A. Shenvi

**33 Protecting-Group-Free Total Synthesis of Boscartins A, F, and H**

(Synthetic Medicinal Chemistry, Hoshi University)

Shogo Kamo, Hiroto Aihara, Daisuke Konai, Akihiko Kasamatsu, Junya Shiraiwa, Akinobu Matsuzawa, Kazuyuki Sugita

**34 Asymmetric Total Synthesis of Picrotoxinin**

(<sup>1</sup> Graduate School of Bioagricultural Sciences, Nagoya University, <sup>2</sup> Faculty of Science and Engineering, Iwate University)

Taishi Matsumura<sup>1</sup>, Toshio Nishikawa<sup>1</sup>, Atsuo Nakazaki<sup>1,2</sup>

16:00~16:50           Chair: Masaki Kita (Nagoya University)

**35 Structures of New Polyketide Paraphaeolactones: Revisions of the Absolute Configurations of the Relevant Derivatives and Their Biosynthesis**

(<sup>1</sup> Agriculture and Life Science, Hirosaki University, <sup>2</sup> Institute of Natural Medicine, University of Toyama)

Ryuhi Kanehara<sup>1</sup>, Yuki Oinuma<sup>1</sup>, Hayato Maeda<sup>1</sup>, Katsuhiro Konno<sup>2</sup>, Kazuaki Tanaka<sup>1</sup>, Masaru Hashimoto<sup>1</sup>

**36 Adaptable Hydrogen Bonding Networks Inside a Metal-Organic Framework for Atomic-Resolution Structure Elucidation of Bioactive Compounds**

(Department of Chemistry, Tokyo Institute of Technology)

Yuki Wada, Pavel Usov, Yu Tagami, Yiyang Zhu, Masaki Kawano



16:50~17:40

Chair: Hiroyuki Morita (University of Toyama)

**37 Mycale Sponges Inherit Cytotoxin Producers through Vertical Microbial Transfer**

(<sup>1</sup> School of Marine Biosciences, Kitasato University, <sup>2</sup> The Kuroshio Biological Research Institute, <sup>3</sup> Graduate School of Science, Nagoya University, <sup>4</sup> National Institute of Advanced Industrial Science and Technology, <sup>5</sup> Graduate School of Agricultural and Life Sciences, The University of Tokyo, <sup>6</sup> Graduate School of Fisheries Sciences, Hokkaido University)

Kentaro Takada<sup>1</sup>, Yuji Ise<sup>2</sup>, Masashi Fukuoka<sup>3</sup>, Nobutada Kimura<sup>4</sup>, Kazutoshi Yoshitake<sup>5</sup>, Akihiro Ninomiya<sup>5</sup>, Shigeki Matsunaga<sup>5</sup>, Ryuichi Sakai<sup>6</sup>, Masaki Fujita<sup>6</sup>

**38 Exploring Arsenic Secondary Metabolic Pathway in Actinomycetes Based on Novel C-As Bond Formation Reaction**

(Faculty of Science, Gakushuin University)

Shotaro Hoshino, Shumpei Asamizu, Hiroyasu Onaka

17:40~18:30

Chair: Kenji Watanabe (University of Shizuoka)

**39 Functional Analysis and Engineering of a Polyketide Synthase in the Biosynthesis of Macrolide Antibiotics Produced by *Streptomyces graminofaciens* A-8890**

(<sup>1</sup> Department of Chemistry, Tokyo Institute of Technology, <sup>2</sup> Department of Life Science and Technology, Tokyo Institute of Technology, <sup>3</sup> Graduate School of Life and Environmental Sciences, University of Tsukuba, <sup>4</sup> Japan Biological Informatics Consortium, <sup>5</sup> National Institute of Advanced Industrial Science and Technology)

Taichi Chisuga<sup>1</sup>, Kosuke Kishikawa<sup>1</sup>, Akira Nagai<sup>1</sup>, Kazuma Tsuboi<sup>1</sup>, Satoshi Murakami<sup>2</sup>, Takeo Usui<sup>3</sup>, Junko Hashimoto<sup>4</sup>, Kazuo Shin-ya<sup>5</sup>, Akimasa Miyanaga<sup>1</sup>, Fumitaka Kudo<sup>1</sup>, Tadashi Eguchi<sup>1</sup>

**40 Complete Biosynthesis of the Non-Proteinogenic Amino Acid Cispentacin in Actinomycetes**

(<sup>1</sup> Graduate School of Agricultural and Life Sciences, The University of Tokyo, <sup>2</sup> CRIIM, The University of Tokyo)

Genki Hibi<sup>1</sup>, Taro Shiraishi<sup>1,2</sup>, Tatsuki Umemura<sup>1</sup>, Makoto Nishiyama<sup>1,2</sup>, Tomohisa Kuzuyama<sup>1,2</sup>