

# 36<sup>th</sup> Annual Meeting of the Society for Actinomycetes Japan

Dates: September 14 (Wed) - 16 (Fri), 2022

Venue: Fukui Prefecture International Exchange Hall

## September 14 (Wed)

9 : 30 **Opening Remarks**

9 : 35 **Oral Presentation**

9 : 35 O-1 Development of an interfacial co-culture system between *Streptomyces cyslabdanicus* and filamentous fungi for the efficient production of secondary metabolites

○Ryan Vicencio, Ruiya Nami, Shinobu Oda

(Genome Biotechnol. Lab., Kanazawa Inst. Technol.)

9 : 50 O-2 Investigation of secondary metabolism in unexplored/underexplored actinomycete genera

○Yasuhiro Igarashi<sup>1</sup>, Shun Saito<sup>2</sup>, Enjuro Harunari<sup>1</sup>, Naoya Oku<sup>1</sup>

(<sup>1</sup> Dept. Biotec., Toyama Pref. Univ., <sup>2</sup> Dept. Biosci. Infor., Keio Univ.)

10 : 05 O-3 Structural analysis of a UV-active compound accumulated in an overexpression recombinant of an SARP-type activator SRO\_3163

○Yuya Misaki<sup>1</sup>, Yosi Nindita<sup>1</sup>, Kota Fujita<sup>1</sup>, Amirudin Akhmad Fauzi<sup>2</sup>, Kenji Arakawa<sup>1,2</sup>

(<sup>1</sup> Grad. Sch. Integr. Sci. Life., Hiroshima Univ., <sup>2</sup> Grad. Sch. AdSM, Hiroshima Univ.)

10 : 20 O-4 Biosynthesis of actinopyridazinone A, a natural dihydropyridazinone

○Kuga Arima, Satoko Akiyama, Kenichi Matsuda, Toshiyuki Wakimoto

(Facult. Pharm. Sci., Hokkaido Univ.)

10 : 35 O-5 Identification of key interacting residues of complex enzymes involved in reveromycin A biosynthesis

○Eiji OKAMURA<sup>1</sup>, Yumi SHIOZAKI-SATO<sup>1</sup>, Hideo OKUMURA<sup>2</sup>,

Takashi KUMASAKA<sup>2</sup>, Hiroyuki OSADA<sup>1</sup>, Shunji TAKAHASHI<sup>1</sup>

(<sup>1</sup> RIKEN CSRS, <sup>2</sup> JASRI)

10 : 50 **Break** (10 min)

11 : 00 **Invited Lecture 1**

A real thrill in Bioplastic study: Microorganisms as a key player

Seiichi Taguchi (Graduate School of Science, Technology and Innovation, Kobe University)

12 : 00 **Break** (90 min, Lunch)

13 : 30 **The SAJ Plenary Meeting**

14 : 00 **Award Ceremony**

- 14 : 30 **Award Lecture (Ōmura Award)**  
Studies on the activation of secondary metabolism via microbial communication, and RiPPs and microbial alkaloid biosynthesis  
Hiroyasu Onaka (Graduate School of Agricultural and Life Sciences, The University of Tokyo)
- 15 : 10 **Break** (20 min, Coffee)
- 15 : 30 **SAJ Award for Corporation**  
Contribute to SDGs society through bioproduction using Streptomyces Technology  
NAGASE & CO., LTD. and Nagase ChemteX Corporation
- 15 : 50 **Award Lectures (Hamada Award)**  
Study on multistep and multifunctional cytochrome P450 enzymes from actinomycetes  
Youhei Iisaka (Faculty of Pharmaceutical Sciences, Toho University)
- 16 : 10 **Award Lectures (Hamada Award)**  
Characterization of unique enzymes involved in the pathways of the secondary metabolite biosynthesis and the natural compound degradation in actinomycetes  
Takuto Kumano (Faculty of Life and Environmental Sciences, University of Tsukuba)
- 16 : 30 **Break** (10 min)
- 16 : 40 **Oral Presentation**
- 16 : 40 O-6 Reclassification of a nyuzenamamide-producer and its phylogenetically close strains  
○Hisayuki Komaki <sup>1</sup>, Yasuhiro Igarashi <sup>2</sup>, Tomohiko Tamura <sup>1</sup>  
(<sup>1</sup> NITE, <sup>2</sup> Toyama Pref. Univ.)
- 16 : 55 O-7 Molecular analysis of the stabilization mechanisms of streptomycete ribosomes in the presence of antibiotic lincomycin  
○Keiichiro Mukai <sup>1</sup>, Tomoko Shibayama <sup>2</sup>, Yu Imai <sup>3</sup>, Takeshi Hosaka <sup>1,2,3</sup>  
(<sup>1</sup> Grad. Sch. of Med. Sci. and Technol., Shinshu Univ., <sup>2</sup> Fac. of Agric. Shinshu Univ. <sup>3</sup> IBS-ICCER, Shinshu Univ.)
- 17 : 10 O-8 Discovery of actinobacteria drug efflux mechanism mediated by second messenger c-di-GMP  
○Yukun Lei <sup>1</sup>, Shumpei Asamizu <sup>1,2</sup>, Hiroyasu Onaka <sup>1,2</sup>  
(<sup>1</sup> Univ. of Tokyo, <sup>2</sup> CRIIM)
- 17 : 25 **Break** (35 min, Move to the banquet venue)
- 18 : 00 **Banquet** (18 : 00 - 20 : 00)

## September 15 (Thu)

### 9 : 30 **Oral Presentation**

9 : 30 O-9 Heterologous production of new lanthipeptide of rare actinomycete *Sinosporangium siamense*

○Keita Saito <sup>1</sup>, Hiroyuki Nakagawa <sup>2</sup>, Shinya Kodani <sup>1</sup>

(<sup>1</sup> Grad. Sch. Agr. Shizuoka Univ., <sup>2</sup> NAAC)

9 : 45 O-10 Involvement of peptide epimerization in the biosynthesis of the linaridin class ribosomally synthesized and post-translationally modified peptides

○Wanlu Xiao <sup>1</sup>, Yasushi Ogasawara <sup>2</sup>, Yasuharu Satoh <sup>2</sup>, and Tohru Dairi <sup>2</sup>

(<sup>1</sup> Grad. Sch. Chem. Sci. Eng., <sup>2</sup> Grad. Sch. Eng., Hokkaido Univ.)

10 : 00 O-11 Catalytic mechanism of MslH catalyzing epimerization of C-terminal L-Trp of ribosomal lasso peptide, MS-271

○Atsushi Kawakami <sup>1</sup>, Yu Nakashima <sup>2</sup>, Hiroyuki Morita <sup>2</sup>,

Yasushi Ogasawara <sup>3</sup>, Tohru Dairi <sup>3</sup>

(<sup>1</sup> Grad. Sch. Chem. Sci. Eng., Hokkaido Univ., <sup>2</sup> Inst. Nat. Med., Toyama Univ.

<sup>3</sup> Grad. Sch. Eng., Hokkaido Univ.)

10 : 15 O-12  $\beta$ -NAD as a Building Block in Natural Product Biosynthesis

○Takayoshi Awakawa <sup>1,2</sup>, Lena Barra <sup>1</sup>, Kohei Shirai <sup>1</sup>, Takahiro Mori <sup>1,2,3</sup>, Ikuro Abe <sup>1,2</sup>

(<sup>1</sup> Grad. Sch. Pharm. Sci., The Univ. of Tokyo, <sup>2</sup> CRIIM, The Univ. of Tokyo

<sup>3</sup> PRESTO, Japan Science and Technology Agency)

10 : 30 O-13 Structure-function analysis of condensation enzyme CcbD in the biosynthesis of lincosamides

○Takahiro Mori <sup>1,2</sup>, Stanislav Kadlcik <sup>1,3</sup>, Shuang Lyu <sup>1</sup>, Kosuke Sakurada <sup>1</sup>, and Ikuro Abe <sup>1,2</sup>

(<sup>1</sup> Grad. Sch. Pharm. Sci., The Univ. Tokyo, <sup>2</sup> CRIIM, The Univ. Tokyo, <sup>3</sup> Inst. Microbiol., CAS)

10 : 45 **Break** (15 min, Coffee)

### 11 : 00 **Poster Session**

11 : 00 - 12 : 00 (**Group-A posters**)

12 : 00 **Break** (60 min, Lunch)

13 : 00 **Invited Lecture 2**; joint with Forecasting Biosynthesis in Grant-in-Aid for Transformative Research Areas(A)

P450-driven Isolation of Cryptic Polyene Biosynthetic Gene Cluster in Rare Actinomycetes

Eung-Soo Kim (Inha University, Incheon, Korea)

14 : 00 **Break** (10 min)

14 : 10 **Oral Presentation**

- 14 : 10 O-14 Isolation, structure elucidation and bioactivity of heat shock metabolite (HSM) maniwamycins produced by thermotolerant *Streptomyces* sp. JA74  
○Nanoha Izawa<sup>1</sup>, Shun Saito<sup>1</sup>, Kayo Funayama<sup>1</sup>, Wataru Kato<sup>1</sup>, Kazutoshi Shindo<sup>2</sup>, Midori A. Arai<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Sci. Tech., Keio Univ., <sup>2</sup> Grad. Sch. Household Management, Japan Women's Univ.)
- 14 : 25 O-15 Analysis toward Chemical Ecological Role of Antidiabetic Drug Acarbose  
○Takeshi Tsunoda, Samuel Tanoeyadi, Benjamin Philmus, Taifo Mahmud  
(Dept. of Pharm. Sci., Oregon State University)
- 14 : 40 O-16 Search for the acyltransferase required for the biosynthesis of triacylglycerol in the outer coat of sporangium in *Actinoplanes missouriensis*  
○Shixuan Hu<sup>1</sup>, Satoshi Maeda<sup>1</sup>, Takeaki Tezuka<sup>1,2</sup>, Yasuo Ohnishi<sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., Univ. of Tokyo, <sup>2</sup> CRIIM, Univ. of Tokyo)
- 14 : 55 O-17 Identification of three proteins essential for the aromatic ring amination using nitrous acid in actinobacterial secondary metabolism  
○Ko Kuwabara<sup>1</sup>, Yohei Katsuyama<sup>1,2</sup>, Yasuo Ohnishi<sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., The Univ. of Tokyo, <sup>2</sup> CRIIM, The Univ. of Tokyo)

15 : 10 **Break** (10 min)

15 : 20 **Oral Presentation**

- 15 : 20 O-18 Enzymatic studies on the lactonization step involved in benzoisochromanquinone antibiotic biosynthesis (2nd report)  
○Makoto Hashimoto<sup>1,2</sup>, Toshihiro Kaki<sup>1</sup>, Takaaki Taguchi<sup>2,3</sup>, Kazuki Ishikawa<sup>1,2</sup>, Koji Ichinose<sup>1,2</sup>  
(<sup>1</sup> Fac. Pharm. Musashino Univ., <sup>2</sup> Research Institute of Pharm. Sci., Musashino Univ. <sup>3</sup> National Institute of Health Sciences)
- 15 : 35 O-19 Functional analysis of radical SAM methylase in the biosynthesis of 1-amino-2-methylcyclopropanecarboxylic acid in actinomycetes  
Atsushi Minato<sup>1</sup>, Shusuke Sato<sup>1</sup>, Chitose Marutama<sup>2</sup>, Yoshimitsu Hamano<sup>2</sup>, Kazuo Shin-ya<sup>3</sup>, ○Fumitaka Kudo<sup>1</sup>, Tadashi Eguchi<sup>1</sup>  
(<sup>1</sup> Dept. Chem., Tokyo Tech., <sup>2</sup> Grad. Sch. Biosci. Biotech., Fukui Pref. Univ., <sup>3</sup> AIST)
- 15 : 50 O-20 Biosynthesis of the non-proteinogenic amino acid cispenitacin in actinomycetes  
○Genki Hibi<sup>1</sup>, Taro Shiraishi<sup>1</sup>, Tomohisa Kuzuyama<sup>1,2</sup>  
(<sup>1</sup> GSALS, UTokyo, <sup>2</sup> CRIIM, UTokyo)

16 : 05 O-21 Biosynthesis of phosphonothrixin produced by *Saccharothrix* sp. ST-888

○Yuxun Zhu <sup>1</sup>, Tomohisa Kuzuyama <sup>1,2</sup>

(<sup>1</sup> Grad. Sch. Agri. Life Sci., <sup>2</sup> CRIIM, Univ. of Tokyo)

16 : 20 **Break** (10 min)

16 : 30 **Poster Session**

16 : 30 - 17 : 30 (**Group-B posters**)

17 : 30 - 18 : 30 (**Group-C posters**)

### **September 16 (Fri)**

10 : 00 **Invited Lecture 3**

Dr. Hiroshi Nishi

(Institute of Dinosaur Research, Fukui Prefectural University)

11 : 00 **Break** (10 min)

11 : 10 **Poster Award Ceremony**

11 : 30 **SAJ37<sup>th</sup> Announcement**

11 : 35 **Closing Remarks**

### **Conference Excursion**

**September 16 (Fri) 12 : 00 - 17 : 00**

Lunch, Tour the ESHIKOTO (Kokuryu sake brewery), followed by a trip to Fukui Prefectural Dinosaur Museum.

## Poster Presentation

- P-1A Isolation of actinomycetes from human fecal specimens and analyses of their metabolites  
○Akira Také<sup>1,2</sup>, Yoshihiko Sakaguchi<sup>1</sup>, Yuta Kikuchi<sup>3</sup>, Yuki Inahashi<sup>2,3</sup>, Kazuyoshi Gotoh<sup>4</sup>, Mitsuo Sakamoto<sup>5</sup>, Shunji Hayashi<sup>1</sup>  
(<sup>1</sup> Sch. Med., Kitasato Univ., <sup>2</sup> Ōmura Satoshi Mem. Inst., Kitasato Univ., <sup>3</sup> Grad. Sch. Infection Control Sci., Kitasato Univ., <sup>4</sup> Med. Dent. Pharm. Sci., Inst. Acad. Res., Okayama Univ., <sup>5</sup> Microbe Div., RIKEN BRC)
- P-2B Isolation of actinobacteria from seashore environments on Yaeyama Islands and proposal of a new species of the genus *Arthrobacter*  
○Moriyuki Hamada, Satomi Saitou, Narumi Enomoto, Tomohiko Tamura  
(NITE · NBRC)
- P-3C Taxonomic study of *Actinocatenispora comari* NUM-2625<sup>T</sup> isolated from a medical plant living in Mongolia  
○Yohei Iizaka<sup>1</sup>, Natsagdorj Oyunbileg<sup>2</sup>, Moriyuki Hamada<sup>3</sup>, Bekh-Ochir Davaapurev<sup>2</sup>, Atsushi Fukumoto<sup>1</sup>, Fumio Kato<sup>1</sup>, Tomohiko Tamura<sup>3</sup>, Javzan Batkhuu<sup>2</sup>, Yojiro Anzai<sup>1</sup>  
(<sup>1</sup> Fac. Pharmaceutical Sci. Toho Univ., <sup>2</sup> Nat. Univ. Mongolia, <sup>3</sup> NBRC)
- P-4A Comprehensive analysis of actinomycetes isolated by agar medium containing lysozyme  
○Yuta Awano<sup>1</sup>, Hiroki Kanto<sup>1</sup>, Akira Take<sup>2</sup>, Hayama Tutumi<sup>1,3</sup>, Yuki Inahashi<sup>1,3</sup>  
(<sup>1</sup> Grad. Sch. Infection Control Sci., Kitasato Univ., <sup>2</sup> Sch. Med., Kitasato Univ., <sup>3</sup> Ōmura. Inst., Kitasato Univ.)
- P-5B Validation of a method for isolating actinomycetes from a single soil particle  
○Mizuki Abe<sup>1</sup>, Daiki Hayashi<sup>2</sup>, Eri Kaida<sup>1</sup>, Ryoko Hamauzu<sup>3</sup>, Yu Imai<sup>3</sup>, Takeshi Hosaka<sup>1,2,3</sup>  
(<sup>1</sup> Fac. of Agric., Shinshu Univ. <sup>2</sup> Grad. Sch. of Sci. and Technol. Shinshu Univ. <sup>3</sup> IBS-ICCER., Shinshu Univ.)
- P-6C BIKAKEN's actinomycete library  
○Hideyuki Muramatsu, Tamami Yoshida, Rina Ando, Nobuko Nagao, Sayaka Takahashi, Satomi Unno, Masayuki Igarashi  
(BIKAKEN)
- P-7A Intimate relationship among actinomycetes and mycolic acid-containing bacteria  
○Manami Kato<sup>1</sup>, Shumpei Asamizu<sup>1,2</sup>, Hiroyasu Onaka<sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Agri. Biosci., The Univ. of Tokyo, <sup>2</sup> CRIIM)
- P-8B A new transfection approach using PIECE-modified doxorubicin  
○Masaki Yamanaka, Tomoya Ogura, Yamato Takeuchi, Fumihito Hasebe, Chitose Maruyama, Yoshimitsu Hamano  
(Grad. Sch. Biosci. Biotech., Fukui Pref. Univ.)

- P-9C Analysis of salt-tolerance mechanism in *Nocardiopsis alba* strain TUA-HK2GM isolated from high-salinity fermented fish gravy  
 ○Yu Komiyama <sup>1</sup>, Sachiko Masaki <sup>1</sup>, Takahiro Osada <sup>2</sup>, Kenji Arakawa <sup>3</sup>, Morio Ishikawa <sup>1</sup>, Toshihiro Suzuki <sup>1</sup>  
 (<sup>1</sup> Grad. Sch. Dept. Ferment. Sci., Tokyo Univ. of Agric., <sup>2</sup> Osada Shouten, <sup>3</sup> Integ. Sci. life., Hiroshima Univ)
- P-10A Molecular analysis of resistance mechanisms to erythromycin in *Streptomyces coelicolor* A3(2)  
 ○Yuta Nakashima <sup>1</sup>, Kosuke Tanioka <sup>2</sup>, Kanata Hoshino <sup>3</sup>, Yu Imai <sup>4</sup>, Takeshi Hosaka <sup>1,2,4</sup>  
 (<sup>1</sup> Grad. Sch. of Sci. and Technol., Shinshu Univ., <sup>2</sup> Fac. of Agric., Shinshu Univ., <sup>3</sup> Fac. of Agric., Shizuoka Univ., <sup>4</sup> IBS-ICCER, Shinshu Univ.)
- P-11B Nitric oxide signaling for aerial mycelium formation in *Streptomyces coelicolor* A3(2) M145  
 ○Sota Honma, Shinsaku Ito, Shunsuke Yajima, Yasuyuki Sasaki  
 (Tokyo Univ Agric · Bio)
- P-12C The mechanism for the maintenance of nitric oxide homeostasis through Mycothiol in *Streptomyces coelicolor* A3(2) M145  
 ○Tomoki Yoshizumi <sup>1</sup>, Sota Honma <sup>2</sup>, Yukiko Shibui <sup>2</sup>, Shota Ogawa <sup>2</sup>, Shinsaku Ito <sup>1,2</sup>, Shunsuke Yajima <sup>1,2</sup>, Yasuyuki Sasaki <sup>1,2</sup>  
 (<sup>1</sup> Grad. Sch. Life Sci., Tokyo Univ. of Agri., <sup>2</sup> Grad. Sch. Agri., Tokyo Univ. of Agri.)
- P-13A Iron uptake with siderophores is involved in NO homeostasis in *Streptomyces coelicolor* A3(2) M145  
 ○Satoshi Sugimoto <sup>1</sup>, Sota Honma <sup>2</sup>, Shinsaku Ito <sup>1</sup>, Shunsuke Yajima <sup>1</sup>, Yasuyuki Sasaki <sup>1</sup>  
 (<sup>1</sup> Biosci. Life Sci. Tokyo Univ. of Agric., <sup>2</sup> Biosci. Agric. Tokyo Univ. of Agric.)
- P-14B Effect of acetophenone on intracellular NO concentration in *Streptomyces coelicolor* A3(2) M145  
 ○Nanami Nakajima <sup>1</sup>, Kana Ishii <sup>1</sup>, Sota Honma <sup>1</sup>, Shinsaku Ito <sup>1</sup>, Shunsuke Yajima <sup>1</sup>, Yasuyuki Sasaki <sup>1</sup>  
 (<sup>1</sup> Tokyo Univ · bio)
- P-15C Antibacterial activity by hydrogen peroxide produced by organocatalyst  
 Mechanism of bactericidal effect of natural organocatalysts  
 Takahide Miyamoto, ○Tatsuya Nishiyama, Kenji Ueda  
 (College of Bioresource Sciences, Nihon University)
- P-16A Crystallization and structural determination of the secreted protein that binds to actinorhodin  
 ○Mirai Hino <sup>1</sup>, Mana Fukazawa <sup>1</sup>, Reina Nagayasu <sup>1</sup>, Tatsuya Nishiyama <sup>1</sup>, Takeo Tomita <sup>2,3</sup>, Makoto Nishiyama <sup>2,3</sup>, Kenji Ueda <sup>1</sup>  
 (<sup>1</sup> College of Bioresource Sciences, Nihon Univ., <sup>2</sup> Graduate School of agriculture and life sciences, The Univ. of Tokyo, <sup>3</sup> CRIIM, The Univ. of Tokyo)

- P-17B Aminotransferase for a phenylalanine quantification kit  
○Takahide Miyamoto, Tatsuya Nishiyama, Kenji Ueda  
(<sup>1</sup> Grad. Sch. Biosci. Biotec., Nihon Univ.)
- P-18C Construction of R460X-saturation mutated *rpoB* by 22C-Trick mutation  
○Hiromu Hasegawa <sup>1</sup>, Tadayoshi Kaneo <sup>1</sup>, Michiko Nemoto <sup>1</sup>, Takashi Tamura <sup>1</sup>  
(<sup>1</sup> Grad. Sch. Env. Life Sci., Okayama Univ.)
- P-19A Analysis of sigma factor SigC involved in transcriptional regulation of chalkophore-like biosynthesis genes in *Streptomyces* spp.  
Masahiro Fujimoto <sup>1</sup>, Cosentino Salvatore <sup>2</sup>, Mizue Anda <sup>2</sup>, Mitsuhiko Sato <sup>3</sup>,  
Keiji Nakamura <sup>3</sup>, Yoshitoshi Ogura <sup>3</sup>, Tetsuya Hayashi <sup>3</sup>, Wataru Iwasaki <sup>2</sup>, Kenji Ueda <sup>1</sup>,  
○Hideaki Takano <sup>1</sup>  
(<sup>1</sup> Coll. of Bioresour. Sci., Nihon Univ., <sup>2</sup> Dept. of Biol. Sci., Grad. Sch. of Sci., The Univ. of Tokyo, <sup>3</sup> Dept. of Bacteriol, Fac. of Med. Sci., Kyushu Univ.)
- P-20B Identification and analysis of target protein of FtgA, a protein essential for the motility arrest of zoospores in *Actinoplanes missouriensis*.  
○Hiromu Kato <sup>1</sup>, Takeaki Tezuka <sup>1,2</sup>, Yasuo Ohnishi <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci. Univ. of Tokyo, <sup>2</sup> CRIIM, Univ. of Tokyo)
- P-21C Functional analysis of the cell wall lytic enzyme AsmA involved in sporangiospore maturation in *Actinoplanes missouriensis*  
○Zhuwen Tan <sup>1</sup>, Takeaki Tezuka <sup>1,2</sup>, Yasuo Ohnishi <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., The Univ. of Tokyo, <sup>2</sup> CRIIM, The Univ. of Tokyo)
- P-22A Analysis of phage-related genes of *Streptomyces* under coculture conditions  
○Toshiki Nagakubo <sup>1,2</sup>, Tatsuya Yamamoto <sup>1</sup>, Shumpei Asamizu <sup>3,4</sup>, Masanori Toyofuku <sup>1,2</sup>,  
Nobuhiko Nomura <sup>1,2</sup>, Hiroyasu Onaka <sup>3,4</sup>  
(<sup>1</sup> Univ. Tsukuba, <sup>2</sup> MiCS, <sup>3</sup> Univ. Tokyo, <sup>4</sup> CRIIM)
- P-23B Isotope-guided metabolomics reveals polar-functionalized fatty-acylated ribosomally synthesized and posttranslationally modified peptides  
○Shumpei Asamizu, Shotaro Hoshino, Shinta Ijichi, Hanseam Jo, Hiroyasu Onaka  
(Grad. Sch. Agri. Life Sci., Univ. of Tokyo)
- P-24C Studies on organo-arsenic secondary metabolites produced by actinobacteria  
○Shotaro Hoshino <sup>1</sup>, Shumpei Asamizu <sup>1,2</sup>, Hiroyasu Onaka <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Agric. Biosci., The Univ. of Tokyo, <sup>2</sup> CRIIM)
- P-25A Analysis of secondary metabolites from a library of tidal flat actinomycetes  
○Teppei Kawahara  
(Grad. Sch. Pharm. Sci., Kumamoto University)
- P-26B Exploring of bioactive secondary metabolites in *Streptomyces rochei* 7434AN4  
○Mingge Zhang <sup>1</sup>, Rikito Nishiura <sup>2</sup> and Kenji Arakawa <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Integr. Sci. Life, Hiroshima Univ., <sup>2</sup> Grad. Sch. AdSM, Hiroshima Univ.)



- P-27C Genome mining of secondary metabolites using butenolide-type signaling molecules  
 ○Asahi Hirata <sup>1</sup>, Aiko Teshima <sup>1</sup>, Yuto Eguchi <sup>1</sup>, Miho Sumiyoshi <sup>2</sup>, Kenji Arakawa <sup>1</sup>  
 (<sup>1</sup> Grad. Sch. Integr. Sci. Life, Hiroshima Univ., <sup>2</sup> Grad. Sch. AdSM, Hiroshima Univ.)
- P-28A Isolation and structure determination of new linear azole-containing peptide spongiicolazolicins A and B from *Streptomyces* sp. CWH03  
 ○Issara Kaweewan <sup>1</sup>, Mana Suzuki <sup>1</sup>, Hisayuki Komaki <sup>2</sup>, Hideo Dohra <sup>1</sup>, Hikaru Hemmi <sup>3</sup>, Hiroyuki Nakagawa <sup>3</sup>, Hideki Yamamura <sup>4</sup>, Masayuki Hayakawa <sup>4</sup> and Shinya Kodani <sup>1</sup>  
 (<sup>1</sup> Shizuoka Univ., <sup>2</sup> NITE, <sup>3</sup> NARO, <sup>4</sup> Univ. Yamanashi)
- P-29B Chemical and genetic analyses of peptides produced by *Streptomyces* sp. OYST14 isolated from Suruga Bay  
 ○Kanata Hoshino <sup>1</sup>, Ryota Moriuchi <sup>2</sup>, Hideo Dohra <sup>2</sup>, Shinya Kodani <sup>1</sup>  
 (<sup>1</sup> Fac. Agric., Shizuoka Univ., <sup>2</sup> Green Inst., Shizuoka Univ.)
- P-30C The effect of site-directed mutagenesis of ribosomal RNA gene on *Streptomyces* secondary metabolism  
 ○Ryo Otsuka <sup>1</sup>, Yu Sato <sup>2</sup>, Kentaro Miyazaki <sup>1</sup>, Kohsuke Honda <sup>1,3</sup>, Shigeru Kitani <sup>1,4</sup>  
 (<sup>1</sup> ICBiotech, Osaka Univ., <sup>2</sup> Grad. Sch. Sci. Tech. Innov. Agric., Yamaguchi Univ., <sup>3</sup> OTRI, Osaka Univ., <sup>4</sup> Dept. Chem. Biol. Sci., Aoyama Gakuin Univ.)
- P-31A Genome sequence-guided finding of lucensomycin production by a *Streptomyces* strain NBRC14001  
 Sho Nishimura<sup>1</sup>, Kazune Nakamura<sup>2</sup>, Miyako Yamamoto<sup>2</sup>, Daichi Morita<sup>2</sup>, Teruo Kuroda<sup>2</sup>,  
 ○Takanori Kumagai<sup>2</sup>  
 (<sup>1</sup>Sch. Pharm. Sci., Hiroshima Univ., <sup>2</sup>Grad. Sch. Biomed. Health Sci., Hiroshima Univ.)
- P-32B Krasilnikolides A–C, cytotoxic 20-membered macrolides from a rare actinomycete of the genus *Krasilnikovia*  
 ○Shiyang Lu <sup>1</sup>, Tao Zhou <sup>1</sup>, Keisuke Fukaya <sup>1</sup>, Enjuro Harunari <sup>1</sup>, Naoya Oku <sup>1</sup>,  
 Daisuke Urabe <sup>1</sup> and Yasuhiro Igarashi <sup>1</sup>  
 (<sup>1</sup> Toyama Pref. Univ.)
- P-33C Kumemycinones A–G, cytotoxic angucyclinones from a deep sea-derived actinomycete of the genus *Actinomadura*  
 ○Zhiwei Zhang <sup>1</sup>, Yasuko In <sup>2</sup>, Keisuke Fukaya <sup>1</sup>, Taehui Yang <sup>3</sup>, Enjuro Harunari <sup>1</sup>,  
 Daisuke Urabe <sup>1</sup>, Chiaki Imada <sup>3</sup>, Naoya Oku <sup>1</sup>, Yasuhiro Igarashi <sup>1</sup>  
 (<sup>1</sup> Toyama Pref. Univ., <sup>2</sup> Osaka Med. Pharm. Univ., <sup>3</sup> Tokyo Univ. of Mar. Sci. Technol.)
- P-34A Study on taxonomy of an unidentified actinomycete and its new metabolites: cyclic enamionones and a quinazolinone  
 ○Desy Wulan Triningsih <sup>1</sup>, Tao Zhou <sup>1</sup>, Keisuke Fukaya <sup>1</sup>, Enjuro Harunari <sup>1</sup>,  
 Narumi Enomoto <sup>2</sup>, Moriyuki Hamada <sup>2</sup>, Naoya Oku <sup>1</sup>, Daisuke Urabe <sup>1</sup>, Yasuhiro Igarashi <sup>1</sup>  
 (<sup>1</sup> Toyama Pref. Univ., <sup>2</sup> Biological Resource Center, National Institute of Technology and Evaluation)

- P-35B Three ansamacrolactams and two chlorinated pyrroles with plant growth-promoting activity from two *Catellatospora* strains  
○Chang Liu <sup>1</sup>, Zhiwei Zhang <sup>1</sup>, Keisuke Fukaya <sup>1</sup>, Daisuke Urabe <sup>1</sup>, Hideki Yamamura <sup>2</sup>, Masayuki Hayakawa <sup>2,3</sup>, Naoya Oku <sup>1</sup>, Enjuro Harunari <sup>1</sup>, and Yasuhiro Igarashi <sup>1</sup>  
(<sup>1</sup> Toyama. Pref. Univ., <sup>2</sup> Yamanashi Univ., <sup>3</sup> Yamanashi Pref. Univ.)
- P-36C Identification of elasnin derivatives by expression of regulatory gene  
○Islam A. Abdelhakim <sup>1,2,3</sup>, Naoko Kito <sup>1</sup>, Sachiko Masuda <sup>4</sup>, Ken Shirasu <sup>4</sup>, Jun Ishikawa <sup>5</sup>, and Shunji Takahashi <sup>1,2</sup>  
(<sup>1</sup> Nat. Prod. Biosynth. Res. Unit, RIKEN CSRS, <sup>2</sup> Grad. Sch. Sci. Eng., Saitama Univ., <sup>3</sup> Fac. Pharm., Assiut Univ., <sup>4</sup> Plant Immunity Research Group, RIKEN CSRS, <sup>5</sup> NIID)
- P-37A Antibiotic production in *Streptomyces* induced by bacterial membrane vesicles  
○Takumi Honda, Aya Yoshimura, Ryusuke Nakada, Kenichi Matsuda, Toshiyuki Wakimoto (Faculty of Pharmaceutical Sciences, Hokkaido University)
- P-38B Identification of antimicrobial active compounds against to *Xanthomonas arboricola* pv. *pruni* produced by *Streptomyces* sp. strain TKZ-01  
○Toshihide Saito <sup>1</sup>, Susumu Kokubo <sup>1</sup>, Youji Nakagawa <sup>1</sup>, Mitsuyoshi Soya <sup>2</sup>, Tomoya Izumi <sup>2</sup>, Masayuki Hayakawa <sup>3</sup>, Hideki Yamamura <sup>1</sup>  
(<sup>1</sup> Fac. Life Environ. Sci., Univ. Yamanashi, <sup>2</sup> Suzuken Kogyo Co., Ltd, <sup>3</sup> Yamanashi Pref. Univ.)
- P-39C Isolation, structure determination, and evaluation of thermostability-promoting activity of heat shock metabolite (HSM) produced by thermotolerant actinomycetes HN66 and JA74  
○Yurika Okumura <sup>1</sup>, Shun Saito <sup>1</sup>, Kayo Funayama <sup>1</sup>, Midori A. Arai <sup>1</sup>  
(<sup>1</sup> Grad. Sch. Sci. Tech., Keio Univ.)
- P-40A Study on new tetromycins from *Streptomyces* sp. MK67-CF9  
○Kohei Sakamoto <sup>1,2</sup>, Ochiai Atushi <sup>1,2</sup>, Rie Arisaka <sup>1</sup>, Yumiko Kubota <sup>1</sup>, Masaki Hatano <sup>1</sup>, Tomoyuki Kimura <sup>1</sup>, Hidetoshi Noda <sup>1</sup>, Ryuichi Sawa <sup>1</sup>, Yoshiaki Takahashi <sup>1</sup>, Masayuki Igarashi <sup>1</sup>  
(<sup>1</sup> Institute of Microbial Chemistry, BIKAKEN, <sup>2</sup> Grad. Sch. Sci. & Eng., Keio Univ.)
- P-41B Search for novel natural products from *Nonomuraea* sp. K20-0273 and *Longispora* sp. K20-0274  
○Masanobu Kasuga <sup>1</sup>, Hayama Tsutsumi <sup>1,2</sup>, Hiroki Kanto <sup>1</sup>, Yuta Awano <sup>1</sup>, Yohei Katsuyama <sup>3,4</sup>, Yasuo Ohnishi <sup>3,4</sup>, Yuki Inahashi <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Infection Cont. Sci., Kitasato Univ., <sup>2</sup> Ōmura Inst. Kitasato Univ., <sup>3</sup> Grad. Sch. of Agric. and Life Sci. Univ. of Tokyo, <sup>4</sup> CRIIM, Univ. of Tokyo)

- P-42C Study of thiopeptides heterologous production platform focused on transcriptional terminators  
○Shinta Ijichi<sup>1</sup>, Emiko Nagai<sup>1</sup>, Shotaro Hoshino<sup>1</sup>, Shumpei Asamizu<sup>1,2</sup>, Hiroyasu Onaka<sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Agri. Biosci., The Univ. of Tokyo, <sup>2</sup> CRIIM)
- P-43A Identification and functional analysis of the resormycin biosynthetic gene cluster.  
○Saha Otsuka<sup>1</sup>, Kazuya Yamanaka<sup>2</sup>, Masayuki Igarashi<sup>3</sup>, Yoshimitsu Hamano<sup>1</sup>, Chitose Maruyama<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Biosci. Biotec., Fukui Pref. Univ., <sup>2</sup> Fac. Chem. Mater. Bioeng., Kansai Univ., <sup>3</sup> Institute of Microbial Chemistry, BIKAKEN)
- P-44B Functional analysis of Phenylalanine modification enzymes in the resormycin biosynthetic gene cluster  
○Chihiro Kishi<sup>1</sup>, Yasushi Ogasawara<sup>2</sup>, Kazuya Yamanaka<sup>3</sup>, Masayuki Igarashi<sup>4</sup>, Tohru Dairi<sup>2</sup>, Yoshimitsu Hamano<sup>1</sup>, Chitose Maruyama<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Biosci. Biotec., Fukui Pref. Univ., <sup>2</sup> Grad. Sch. Eng., Hokkaido Univ., <sup>3</sup> Fac. Chem. Mater. Bioeng., Kansai Univ., <sup>4</sup> Institute of Microbial Chemistry, BIKAKEN)
- P-45C Study on the biosynthetic mechanism of  $\beta$ -homolysine found in resormycin  
○Chisaki Imahori<sup>1</sup>, Yasushi Ogasawara<sup>2</sup>, Kazuya Yamanaka<sup>3</sup>, Masayuki Igarashi<sup>4</sup>, Tohru Dairi<sup>2</sup>, Yoshimitsu Hamano<sup>1</sup>, Chitose Maruyama<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Biosci. Biotec., Fukui Pref. Univ., <sup>2</sup> Grad. Sch. Eng., Hokkaido Univ., <sup>3</sup> Fac. Chem. Mater. Bioeng., Kansai Univ., <sup>4</sup> Institute of Microbial Chemistry, BIKAKEN)
- P-46A Investigation of the novel methionine biosynthetic pathway in *Streptomyces albulus*  
○Kazuya Adachi, Chitose Maruyama, Yoshimitsu Hamano, Fumihito Hasebe (Grad. Sch. Biosci. Biotec., Fukui Pref. Univ.)
- P-47B Biosynthetic study of ST analogue possessing *O*-acylpeptide side chain  
○Shun Uchiyama<sup>1</sup>, Chitose Maruyama<sup>1</sup>, Junko Hashimoto<sup>2</sup>, Naomi Sumida<sup>3</sup>, Minoru Yonezawa<sup>3</sup>, Kazuo Shin-ya<sup>4</sup>, Yoshimitsu Hamano<sup>1</sup>  
(<sup>1</sup> Fukui. Pref. Univ., <sup>2</sup> JBIC, <sup>3</sup> MeijiSeika Pharma, <sup>4</sup> AIST)
- P-48C Functional analysis of feedback inhibition insensitive aspartate kinases involved in the biosynthesis of mirror symmetric 2,4-diaminobutyric acid homopolymers  
○Daisuke Yoneoka<sup>1</sup>, Yoshiya Miyake<sup>2</sup>, Yoshimitsu Hamano<sup>3</sup>, Tadao Oikawa<sup>1</sup>, Kazuya Yamanaka<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Sci. Eng. Kansai Univ., <sup>2</sup> Kansai Univ., <sup>3</sup> Fukui Prefectural Univ.)
- P-49A Development of an expression system for membrane bound poly-amino acid synthetases  
○Keita Ueshima<sup>1</sup>, Munenori Takehara<sup>2</sup>, Yoshimitsu Hamano<sup>3</sup>, Tadao Oikawa<sup>1</sup>, Kazuya Yamanaka<sup>1</sup>  
(<sup>1</sup> Grad. Sch. Sci. Eng. Kansai Univ., <sup>2</sup> Univ. of Shiga Prefecture, <sup>3</sup> Fukui Prefectural Univ.)

- P-50B Functional analysis of an unprecedented NRPS-like machinery that assembles amino acid building blocks into two dimensions  
○Kazuki Kirihara <sup>1</sup>, Munenori Takehara <sup>2</sup>, Chitose Maruyama <sup>3</sup>, Yoshimitsu Hamano <sup>3</sup>, Tadao Oikawa <sup>1</sup>, Kazuya Yamanaka <sup>1</sup>  
(<sup>1</sup> Grad. Sch. Sci. Eng. Kansai Univ., <sup>2</sup> Univ. of Shiga Prefecture, <sup>3</sup> Fukui Prefectural Univ.)
- P-51C Searching for specific inhibitors targeting the novel peptidoglycan biosynthesis  
○Shuheii Umetsu <sup>1</sup>, Yasushi Ogasawara <sup>2</sup>, Yuki Inahashi <sup>3</sup>, Kenichi Nonaka <sup>3</sup>, Tohru Dairi <sup>2</sup>  
(<sup>1</sup> Grad. Sch. Chem. Sci. Eng., Hokkaido Univ., <sup>2</sup> Grad. Sch. Eng., Hokkaido Univ., <sup>3</sup> Kitasato Univ.)
- P-52A Exploring Fe/ $\alpha$ -ketoglutarate-dependent enzymes for cyclopropanation  
○Ryo Shimaya <sup>1</sup>, Tohru Dairi <sup>2</sup>, Yasushi Ogasawara <sup>2</sup>  
(<sup>1</sup> Grad. Sch. Chem. Sci. Eng., Hokkaido Univ., <sup>2</sup> Grad. Sch. Eng., Hokkaido Univ.)
- P-53B Structural and biosynthetic investigation of novel N-N containing compounds produced in a mutant KA57 of *Streptomyces rochei*  
○Haruka Nagano <sup>1</sup>, Yu Tanaka <sup>1</sup>, Takuya Kishimoto <sup>2</sup>, Ayaka Tatsukawa <sup>2</sup>, Hirofumi Kunitake <sup>2</sup>, Atsushi Fukumoto <sup>3</sup>, Yojiro Anzai <sup>3</sup>, Kenji Arakawa <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Integr. Sci. Life, Hiroshima Univ., <sup>2</sup> Grad. Sch. AdSM, Hiroshima Univ., <sup>3</sup> Faculty of Pharmacy, Toho Univ.)
- P-54C Biosynthetic pathway of the nonribosomal peptide cirratiomycin in *Streptomyces cirratus*  
○Shunki Sakata <sup>1</sup>, Li Kahou <sup>1</sup>, Kazuo Shinya <sup>2</sup>, Tetsuro Shinada <sup>3</sup>, Yohei Katsuyama <sup>1,4</sup>, Yasuo Ohnishi <sup>1,4</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., The Univ. of Tokyo, <sup>2</sup> AIST, <sup>3</sup> Grad. Sch. of Sci., Omu, <sup>4</sup> CRIIM, The Univ. of Tokyo)
- P-55A Analysis of the substrate specificity of the acyltransferase domain of ImiA1, a type I polyketide synthase involved in iminimycin biosynthesis  
○Suzuna Kiyofuji <sup>1</sup>, Hayama Tsutsumi <sup>1</sup>, Yohei Katsuyama <sup>1,2</sup>, Yasuo Ohnishi <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., The Univ. of Tokyo, <sup>2</sup> CRIIM, The Univ. of Tokyo)
- P-56B Biosynthesis of the diazo-containing amino acid azaserine in *Streptomyces fragilis*  
○Yusuke Shikai <sup>1</sup>, Seiji Kawai <sup>1</sup>, Yohei Katsuyama <sup>1,2</sup>, Yasuo Ohnishi <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. of Agric. and Life Sci., The Univ. of Tokyo, <sup>2</sup> CRIIM, The Univ. of Tokyo)
- P-57C Biosynthesis of the acyl side chain of the nucleotide antibiotic A-94964 produced by *Streptomyces* sp. SANK 60404  
○Hao Xu <sup>1</sup>, Taro Shiraishi <sup>1</sup>, Tomohisa Kuzuyama <sup>1,2</sup>  
(<sup>1</sup> Grad. Sch. Agri. Life Sci., <sup>2</sup> CRIIM, UTokyo)
- P-58A Functional analysis of KslB, a microbial  $\beta$ -carboline biosynthetic enzyme  
○Katsuya Sato <sup>1</sup>, Honda Kohsuke <sup>1,2</sup>, Shigeru Kitani <sup>1,3</sup>  
(<sup>1</sup> ICBiotech, Osaka Univ., <sup>2</sup> OTRI, Osaka Univ., <sup>3</sup> Dept. Chem. Biol. Sci., Aoyama Gakuin Univ.)

- P-59B Regulatory mechanism of heat shock metabolite (HSM) production in thermotolerant *Streptomyces* sp. AY2  
 ○Shun Saito <sup>1</sup>, Yohei Katsuyama <sup>2</sup>, Yasuo Ohnishi <sup>2</sup>, Masaya Imoto <sup>3</sup>, Midori A. Arai <sup>1</sup>  
 (<sup>1</sup> Grad. Sch. of Sci. Tech., Keio Univ., <sup>2</sup> Grad. Sch. of Agric. and Life Sci., and CRIIM, UTokyo, <sup>3</sup> Grad. Sch. of Med., Juntendo Univ.)
- P-60C The microbial metabolism of black pepper alkaloid  
 ○PU JIAN <sup>1</sup>, Takuto Kumano <sup>2</sup>, Mio Kimura <sup>3</sup>, Makoto Kurisaki <sup>3</sup>, Yoshiteru Hashimoto <sup>2</sup>, and Michihiko Kobayashi <sup>2</sup>  
 (<sup>1</sup> Agro-biological resource sciences, University of Tsukuba, <sup>2</sup> MiCS, University of Tsukuba, <sup>3</sup> Graduate School of Life and Environmental Sciences, University of Tsukuba)
- P-61A Microbial intracellular delivery of protein modified with  $\epsilon$ -poly-L-lysine  
 ○Yamato Takeuchi, Fumihito Hasebe, Chitose Maruyama, Yoshimitsu Hamano  
 (Grad. Sch. Biosci. Biotec., Fukui Pref. Univ.)
- P-62B An enrichment method for the plant metabolites attracting actinomycetes  
 ○Yudai Kojima <sup>1</sup>, Manateru Akiyama <sup>1</sup>, Natsumi Saito <sup>2</sup>  
 (<sup>1</sup> Dept. Adv. Eng., NIT, Tsuruoka College, <sup>2</sup> Dept. Creative Eng., NIT, Tsuruoka College)
- P-63C Characterization of allelopathic substance vanillin converting actinomycetes  
 ○Manateru Akiyama <sup>1</sup>, Koshin Kimoto <sup>2</sup>, Yudai Kozima <sup>1</sup>, Yoshiharu Okuno <sup>3</sup>, Natsumi Saito <sup>4</sup>  
 (<sup>1</sup> Dept. Adv. Eng., NIT, Tsuruoka College, <sup>2</sup> Adv. Eng. Fac., NIT, Wakayama College, <sup>3</sup> Dept. Appl. Chem and Biochem., NIT, Wakayama College, <sup>4</sup> Dept. Creative Eng., NIT, Tsuruoka College)
- P-64A Analyzing the ability to produce secondary metabolites of actinomycetes using genome information  
 ○Yuta Kikuchi <sup>1</sup>, Hayama Tsutsumi <sup>1,2</sup>, Yuki Inahashi <sup>1,2</sup>  
 (<sup>1</sup> Grad. Sch. Infection Cont. Sci., Kitasato Univ., <sup>2</sup> Ōmura Inst., Kitasato Univ.)
- P-65B Evaluation of bacterial population in hydroponic cultivation of strawberry under the application condition of fine bubbles with actinomycete.  
 ○Keito Okazaki <sup>1</sup>, Katsumasa Aikawa <sup>2</sup>, Yukiya Asakawa <sup>2</sup>, Youji Nakagawa <sup>1</sup>, Susumu Kokubo <sup>1</sup>, Masayuki Hayakawa <sup>3</sup>, Hideki Yamamura <sup>1</sup>  
 (<sup>1</sup> Fac. Life Environ. Sci., Univ. Yamanashi, <sup>2</sup> Wafuuru Co., Ltd, <sup>3</sup> Yamanashi Pref. Univ.)
- P-66C Induction of *dnaK/J* and *groES/EL* genes by heat/acid stress and the effect of production enhancement of nucleoside antibiotic sinefungin  
 H. Yamagata, M. Kubo, Y. Nakajima, T. Kanao, M Nemoto, ○T. Tamura  
 (Grad. Sch. Environ. Life Sci., Okayama Univ.)

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