

Conference Theme

"MONODUKURI" Strategy by Synthetic Organic Chemistry is an academic group endorsed by The Chemical Society of Japan. This group consists of synthetic organic chemists of the young generation up to around 40 years old, whose research interests are bioorganic chemistry, natural products, chemical biology, functional materials, and novel methodology for organic synthesis. By gathering these researchers, we aim to develop a new interdisciplinary area that explores "next-generation manufacturing strategy".

This International Conference is organized by the "MONODUKURI" Group to discuss among young active researchers from Asian countries the concept of "next-generation manufacturing strategy" and its applications, in order to transmit this concept to many research fields and share the scientific information.

The conference will bring together the scientists from various fields to discuss the following main topics:

1. Innovative Molecular Transformation
2. High-performance Functional Materials
3. Efficient Synthesis of Natural Products
4. New Aspects in Chemical Biology

Symposium Dates & Venue

Dates

July 17 (Wed) - 19 (Fri), 2013.

Venue

Southern Beach Hotel & Resort OKINAWA
1-6-1 Nishizaki-cho, Itoman, Okinawa 901-0305, Japan.

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<http://www.southernbeach-okinawa.com/english>

Organizing Committee

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Katsunori Tanaka (RIKEN)

Committee members

Kazunobu Igawa (Kyushu University)

Shinya Oishi (Kyoto University)

Hayato Tsuji (The University of Tokyo)

Yoshiaki Nakao (Kyoto University)

Kosuke Namba (The University of Tokushima)

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Organizer and Supports

Organized by:

- The “MONODUKURI” Strategy by Organic Synthesis

日本化学会新領域研究グループ

有機合成化学を起点とするものづくり戦略

Supported by:

- The Chemical Society of Japan
- Suntory Foundation for Life Sciences
- Mizutani Foundation for Glycoscience



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General Information

Lectures

- Invited Lecture: 25 min including discussion
- Short Oral Presentation: 5 min presentation (no discussion)

Invited Lectures & Short Oral Presentations:

LCD projector is the standard medium for lectures. Power point presentations by using your own computers are recommended. We appreciate if you could bring your PC and connect to the switcher during the break before your session. We would ask you to preview and check your presentations in advance.

Poster Session

Poster presentation is scheduled from 12:15 to 13:50 on July 18. The presenters should be present during the time for discussion. All posters should be posted before 10:30 on July 18, and moved until 16:00 on July 18. A 90 cm width and 180 cm height board will be prepared for each poster. Materials for attaching posters to the boards will also be provided at the conference site.

Conference Language

The conference language, written and spoken, will be in English.

Banquet

The conference banquet will be held at 19:15 on July 17 (Wed) at the “Coral West Ball Room” in Southern Beach Hotel & Resort OKINAWA.

Program

July 17 (Wednesday)

13:30 - 13:40 **Welcome Address**
Prof. Katsunori Tanaka (RIKEN)

Session 1

<Chairperson: Prof. Takamitsu Hosoya>

13:40 – 14:05 **Prof. Katsunori Tanaka** (RIKEN)
IL-1 “Aza-Electrocyclic Reaction for Visualizing Biomolecules in Live Animals”

14:05 - 14:30 **Prof. Sunwoo Lee** (Chonnam National University)
IL-2 “Transition metal-Catalyzed Coupling Reactions of Propiolic Acids: Decarboxylative, Carbonylative & Sonogashira Couplings”

14:30 - 14:55 **Prof. Yao-Ting Wu** (National Cheng Kung University)
IL-3 “Bowl-shaped Subunits of C₆₀, C₇₀ and Higher Fullerenes”

<Chairperson: Prof. Go Hirai>

14:55 - 15:20 **Prof. Yoko Saikawa** (Keio University)
IL-4 “Synthesis of Ansa-type Natural Antibiotic Kendomycin using Intramolecular Doetz Benzannulation”

15:20 - 15:45 **Prof. Man Kin Wong** (The Hong Kong Polytechnic University)
IL-5 “Synthetic Chemistry for Bioconjugation”

15:45 - 16:10 **Prof. Wing-Yiu Yu** (The Hong Kong Polytechnic University)
IL-6 “Catalytic C-H Bond Cross Coupling Reactions for C-C and C-N Bond Formations”

16:10 - 16:25 *Coffee Break*

Session 2

<Chairperson: Prof. Hayato Tsuji>

16:25 - 16:50 **Prof. Toshiyuki Hamura** (Kwansei Gakuin University)
IL-7 “Efficient Access to Novel π -Conjugated Compounds Using Reactive Molecules”

- 16:50 - 17:15 **Prof. Huaping Xu** (Tsinghua University)
IL-8 *"Selenium-containing Polymers: Promising Biomaterials for Controlled Release"*
- <Chairperson: Prof. Shinya Oishi>
- 17:15 - 17:40 **Prof. Sungwoo Hong** (Korea Advanced Institute of Science and Technology)
IL-9 *"Rational Design and Efficient Synthesis of Kinase Inhibitors"*
- 17:40 - 18:05 **Prof. Kazunobu Igawa** (Kyushu University)
IL-10 *"Reaction Control Using Silyl-substituent Effects: Synthesis of Silylalkenes and Their Ozone Oxidation"*
- <Chairperson: Prof. Shuhei Higashibayashi>
- 18:05 - 18:30 **Prof. An-Hui Lu** (Dailan University of Technology)
IL-11 *"Synthesis of Porous Materials with Defined Structure and Morphology for Adsorption and Catalysis"*
- 18:30 - 18:55 **Prof. Satoshi Yokoshima** (Nagoya University)
IL-12 *"Synthesis of Lyconadins A-C"*
- 19:15 - 21:00 **Banquet**

July 18 (Thursday)

Session 3

<Chairperson: Prof. Kazunobu Igawa>

- 9:00 - 9:25 **Prof. Philip Wai Hong Chan** (Nanyang Technological University)
IL-13 *"Harnessing the Potential of Gold-Catalyzed Alkyne Cycloisomerizations for Sustainable Complex Molecule Synthesis"*
- 9:25 - 9:50 **Prof. Yoshiaki Nakao** (Kyoto University)
IL-14 *"Intramolecular Oxy- and Aminocyanation of Alkenes by Cooperative Palladium/Boron Catalysis"*
- 9:50 - 10:15 **Prof. Hsiao-hua (Bruce) Yu** (RIKEN)
IL-15 *"Molecularly Designed π -Conjugated Polymers as Biomaterials"*
- 10:15 - 10:25 *Coffee Break*

<Chairperson: Prof. Katsunori Tanaka>

10:25 - 10:50 **Prof. Hayato Ishikawa** (Kumamoto University)
IL-16 “Three -Step Synthesis of WIN 64821, Ditryptophenaline and Nasesezazine B via Bio-inspired Reaction in Water”

10:50 - 11:15 **Prof. Xuechen Li** (The University of Hong Kong)
IL-17 “Protein Chemical Synthesis with Ser/Thr Ligation (STL)”

<Chairperson: Prof. Toshiaki Teruya>

11:15 - 12:15 **Short Presentation** (5 min for each presentation)

P-2 **Prof. Keisuke Asano** (Kyoto University)
“Organocatalytic asymmetric oxy-Michael addition to γ -hydroxy- α,β -unsaturated thioester via hemiacetal intermediates”

P-9 **Ms. Kumiko Yamamoto** (The University of Tokyo)
“Development of Rh-Catalyzed Cross-Aldol-Type Reaction and its Application to Double-Aldol Reaction”

P-11 **Prof. Laurean Ilies** (The University of Tokyo)
“Iron-Catalyzed C(sp³)-H Bond Activation for Arylation of Aliphatic Carboxamides”

P-14 **Prof. Shuhei Higashibayashi** (Institute for Molecular Science)
“First Stereoelectronic Effect of Curved Aromatic Structure: Conformationl Stability of Buckybowl, Substituted Sumanene”

P-17 **Prof. Yousuke Yamaoka** (Kyoto University)
“Efficient Syntheses of Polycyclic Quinolines Using Ynamides Toward the Total Synthesis of Aplidiopsamine A”

P-20 **Prof. Hiroshi Tsuchikawa** (Osaka University)
“Stereocontrolled synthesis of the 5,5,6-bisspiroacetal ring moiety of spiroside C”

P-23 **Prof. Yoshiyuki Manabe** (Osaka University)
“Synthetic Study of N-glycans Using Efficient Glycosylation”

P-25 **Prof. Yousuke Takaoka** (Kyoto University)
“Self-assembling turn-on nanoprobes for specific protein detection and imaging”

P-30 **Prof. Takamitsu Hosoya** (Tokyo Medical and Dental University)
“Sequential Triple-Click Reaction by Three Azido-Type Selective Cycloadditions”

P-33 **Dr. Masayuki Tera** (Bioorganic Research Institute, Suntory Foundation for Life Sciences)
*"Purification of the sesame lignans binding proteins at the germination stage of *Sesamum indicum*"*

P-36 **Dr. Yu Nakagawa** (RIKEN)
"Solid-state NMR analysis of mannose binding of pradimicin A"

P-41 **Prof. Toshiaki Teruya** (University of the Ryukyus)
"Effects of 14-dien-19-oic acid on the proliferation and differentiation of osteoblastic MC3T3-E1 cells"

12:15 - 13:50 **Lunch & Poster Session**

Session 4

<Chairperson: Prof. Toshiyuki Hamura >

13:50 - 14:15 **Prof. Toru Amaya** (Osaka University)
IL-18 *"Catalytic Systems Consisting of Polyanilines and Metal Nanoparticles"*

14:15 - 14:40 **Prof. Yabing Qi** (Okinawa Institute of Science and Technology Graduate University)
IL-19 *"Influences of Substrate Temperature on Organic Film Growth "*

<Chairperson: Prof. Yoko Saikawa>

14:40 - 15:05 **Prof. Kosuke Namba** (The University of Tokushima)
IL-20 *"Organic Chemistry Research on Iron Acquisition in Gramineous Plants"*

15:05 - 15:30 **Prof. Xiaoguang Lei** (National Institute of Biological Sciences)
IL-21 *"Complex Natural Products as a Driving Force for Discovery in Organic Synthesis and Chemical Biology"*

15:30 - 15:50 *Coffee Break*

<Chairperson: Prof. Kosuke Namba>

15:50 - 16:15 **Prof. Wenwei Lin** (National Taiwan Normal University)
IL-22 *"Synthesis of Functional Heteroarenes via Intramolecular Wittig Reactions"*

- 16:15 - 16:40 **Prof. Yutaka Ie** (Osaka University)
IL-23 “*Synthesis, Properties, and n-Type Performances of Electronegative π -Conjugated Systems*”
- 16:40 - 17:05 **Prof. Shinya Oishi** (Kyoto University)
IL-24 “*Development of Novel Kinesin Spindle Protein (KSP) Inhibitors*”
- 17:15 - 19:00 **Beach Barbecue (Discussion Time)**

July 19 (Friday)

Session 5

<Chairperson: Prof. Yoshiaki Nakao>

- 09:00 - 09:25 **Prof. Hsyueh-Liang Wu** (National Taiwan Normal University)
IL-25 “*Bicyclo[2.2.1] Chiral Dienes in the Rh-Catalyzed 1,4-Addition Reactions*”
- 09:25 - 09:50 **Prof. Hayato Tsuji** (The University of Tokyo)
IL-26 “*Carbon-Bridged Oligo(Phenylenevinylene)s: Their Unique Properties and Application to Dye-sensitized Solar Cells*”
- 09:50 - 10:05 *Coffee Break*

<Chairperson: Prof. Satoshi Yokoshima>

- 10:05 - 10:30 **Prof. Guangxin Liang** (Nankai University)
IL-27 “*New Entry into the Fischer Indole Synthesis and Its Applications in the Total Synthesis of Indole Alkaloids*”
- 10:30 - 10:55 **Prof. Go Hirai** (RIKEN)
IL-28 “*Fluorine Containing C-linked Gangliosides Analogue*”
- 10:55 - 11:20 **Prof. Richard P. Cheng** (National Taiwan University)
IL-29 “*Effect of Arginine Side Chain Length: Structure and Function*”
- 11:20 - 11:30 **Closing Remarks**
- 11:30 - **(Optional Tour)**

- Poster Session -

- P-1 **Masahiro Yoshida, Miki Shibata, Kosuke Namba** (The University of Tokushima)
"Palladium-catalyzed unusual cascade cyclization of 4-hydroxy-2-pyrones with allylic bisacetates"
- P-2 **Keisuke Asano, Takaaki Okamura, Seijiro Matsubara** (Kyoto University)
"Organocatalytic asymmetric oxy-Michael addition to γ -hydroxy- α,β -unsaturated thioester via hemiacetal intermediates"
- P-3 **Suguru Matsuoka¹, Toshiyuki Hamura¹, Kazunobu Igawa², Katsuhiko Tomooka²** (Kwansei Gakuin University¹, Kyushu University²)
"Study on the Synthesis of Planar Chiral (1,10)Anthracenophane Derivatives"
- P-4 **Kazunobu Igawa, Daisuke Yoshihiro, Nobumasa Ichikawa, Naoto Kokan, Katsuhiko Tomooka** (Kyushu University)
"Enantioselective Synthesis of Alkenylhydrosilane: Desymmetric Hydrosilylation of Dihydrosilane"
- P-5 **Tomoe Kato, Yuto Sumida, Takamitsu Hosoya** (Tokyo Medical and Dental University)
"Generation of Arynes via Ate Complexes of Arylboronic Esters with an ortho-Leaving Group"
- P-6 **Yuto Sumida, Ryu Harada, Takamitsu Hosoya** (Tokyo Medical and Dental University)
"An Efficient Synthetic Method of Dibenzoxaborins and Application to the Concise Synthesis of Defucogilvocarcin M"
- P-7 **Shinya Shiomi, Daisuke Ushijima, Rie Nakashima, Satsuki Hanamura, Hayato Ishikawa** (Kumamoto University)
"Synthetic Study of Geissoschizal and Geissoschizine"
- P-8 **Takayuki Iwata^{1,2}, Koichi Fukase², Katsunori Tanaka¹** (RIKEN¹, Osaka University²)
"One-Pot Synthesis of 2-Aminoimidazole Natural Products: Inspired by Arginine Post-Translational Modification"
- P-9 **Kumiko Yamamoto, Luqing Lin, Shigeki Matsunaga, Motomu Kanai** (The University of Tokyo)
"Development of Rh-Catalyzed Cross-Aldol-Type Reaction and its Application to Double-Aldol Reaction"

- P-10 **Kazuhisa Hirabayashi¹, Yuko Toki¹, Toshio Takayanagi², Tetsuo Nagano³, Kenjiro Hanaoka¹** (The University of Tokyo, Graduate School of Pharmaceutical Sciences¹; The University of Tokushima²; The University of Tokyo, Open Innovation Center for Drug Discovery³)
“Chemical Equilibrium of Si-substituted Fluorescein and its Application to Red Fluorescent Probes”
- P-11 **Laurean Ilies** (The University of Tokyo)
“Iron-Catalyzed C(sp³)-H Bond Activation for Arylation of Aliphatic Carboxamides”
- P-12 **Ambara R. Pradipta, Katsunori Tanaka** (RIKEN)
“Discovery of [4+4] & [4+2] Reactions of Unsaturated Imines and Application to Alkaloids Synthesis”
- P-13 **Shodai Takahashi¹, Tetsuo Nagano², Kenjiro Hanaoka¹** (The University of Tokyo, Graduate School of Pharmaceutical Sciences¹; The University of Tokyo, Open Innovation Center for Drug Discovery²)
“Development of a Reversible Off-on Fluorescence Probe for Hypoxia and Imaging of Hypoxia-Normoxia Cycles in live cells”
- P-14 **Shuhei Higashibayashi** (Institute for Molecular Science)
“First Stereoelectronic Effect of Curved Aromatic Structure: Conformational Stability of Buckybowl, Substituted Sumanene”
- P-15 **Kenji Sugimoto, Kazuki Toyoshima, Shiori Nonaka, Kenta Kotaki, Hirofumi Ueda, Hidetoshi Tokuyama** (Tohoku University)
“Protecting-Group-Free Total Synthesis of (-)-Rhazinilam and (-)-Rhazinicine using Gold-Catalyzed Cascade Cyclization”
- P-16 **Hitoshi Tamiaki¹, Nobutaka Arika^{1,2}, Tomohiro Miyatake²** (Ritsumeikan University¹, Ryukoku University²)
“Physical and Chemical Properties of Synthetic Chlorophyll Derivatives Possessing Various 3- and 20-Substituents”
- P-17 **Yousuke Yamaoka, Takahiro Yoshida, Ken-ichi Yamada, Kiyosei Takasu** (Kyoto University)
“Efficient Syntheses of Polycyclic Quinolines Using Ynamides Toward the Total Synthesis of Aplidiopsamine A”
- P-18 **Masahiro Yoshida, Shota Yodokawa, Hironobu Takai, Kozo Shishido, Kosuke Namba** (The University of Tokushima)
“Regio- and Diastereoselective Oxidative Radical Cyclization of Cyclic β -Keto Ester with Alkenes”
- P-19 **Wen Piao¹, Tetsuo Nagano², Kenjiro Hanaoka¹** (The University of Tokyo, Graduate School of Pharmaceutical Sciences¹; The University of Tokyo, Open Innovation Center for Drug Discovery²)
“Development of Azo-based Fluorescence Probes to Detect Hypoxia”

- P-20 **Hiroshi Tsuchikawa, Tomohiro Wakisaka, Yoshifumi Yasukawa, Michio Murata** (Osaka University)
“Stereocontrolled synthesis of the 5,5,6-bispiroacetal ring moiety of spiroside C”
- P-21 **Kohei Takeuchi, Yukari Kaihara, Kosuke Namba, Keiji Tanino** (Hokkaido University)
“Synthetic Studies on Palau’amine”
- P-22 **Shohei Eda, Hiroshi Haneda, Masato Aratani, Toshiyuki Hamura** (Kwansei Gakuin University)
“Efficient Access to Substituted Pentacene Derivatives by Successive Cycloaddition of Isobenzofurans”
- P-23 **Yoshiyuki Manabe¹, Jiazhoui Zhou¹, Masahiro Nagasaki¹, Naoya Minamoto¹, Katsunori Tanaka^{1,2}, Koichi Fukase¹** (Osaka University¹, RIKEN²)
“Synthetic Study of N-glycans Using Efficient Glycosylation”
- P-24 **Masahiro Yoshida, Tomotaka Mizuguchi, Kosuke Namba** (The University of Tokushima)
“Synthesis of substituted pyridines by a ring opening–cyclization reaction of propargylic aziridines”
- P-25 **Yousuke Takaoka, Itaru Hamachi** (Kyoto University)
“Self-assembling turn-on nanoprobe for specific protein detection and imaging”
- P-26 **Masahiro Yoshida, Tomoyo Kasai, Kosuke Namba** (The University of Tokushima)
“Enantioselective Total Synthesis of HM-3”
- P-27 **Ching-Yuan Liu^{1,2}, Hui Chong¹, Hsing-An Lin^{1,3}, Yoshiro Yamashita³, Hsiao-hua Yu¹** (RIKEN¹, National Central University², Tokyo Institute of Technology³)
“Pd-Catalyzed Direct C-H Arylations of Dioxythiophenes Bearing Reactive Functional Groups: A Step-Economical Approach for Functional π -Conjugated Oligoarenes”
- P-28 **Masahiro Yoshida, Shoko Ohno, Kosuke Namba** (The University of Tokushima)
“Palladium-catalyzed cascade nucleophilic substitution–[2+2] cyclization of propargylic esters with 2-vinylphenols”
- P-29 **Ryota Nabika, Shinya Oishi, Hiroaki Ohno, Nobutaka Fujii** (Kyoto University)
“Synthetic Studies on Coibamide A”

- P-30 **Takamitsu Hosoya, Suguru Yoshida, Kimiyuki Kanno, Isao Kii, Takeshi Matsushita, Masatoshi Hagiwara** (Tokyo Medical and Dental University)
“Sequential Triple-Click Reaction by Three Azido-Type Selective Cycloadditions”
- P-31 **Eisuke Ota^{1,2}, Marie Kato¹, Kana Oonuma^{1,3}, Go Hirai^{1,3}, Shigeru Nishiyama², Mikiko Sodeoka^{1,3,4}** (RIKEN, Synthetic Organic Chemistry Laboratory¹, Keio University², RIKEN Center for Sustainable Resource Science³, ERATO-JST⁴)
“Development of Molecular Probes Based on a Sialidase-resistant Ganglioside GM3 Analogue”
- P-32 **Hidenori Okamura, Yosuke Taniguchi, Shigeki Sasaki** (Kyushu University)
“N-(Guanidinoethyl)-2'-deoxy-5-methylisocytidine exhibits selective recognition of the CG inversion site for the formation of anti-parallel triplex DNA”
- P-33 **Masayuki Tera¹, Jun Murata¹, Yasuaki Kabe², Manabu Horikawa¹** (Bioorganic Research Institute, Suntory Foundation for Life Sciences¹, Keio University²)
*“Purification of the sesame lignans binding proteins at the germination stage of *Sesamum indicum*”*
- P-34 **Yosuke Taniguchi, Shigeki Sasaki** (Kyushu University)
“Inhibition of the Cell Proliferation Using Triplex Forming Oligonucleotides Containing a W-shaped Nucleoside Analogues (WNA-βT)”
- P-35 **Akihiro Ogura¹, Satoshi Yokoshima², Tohru Fukuyama²** (RIKEN¹, Nagoya University²)
“Synthetic Studies on Yuzurimine”
- P-36 **Yu Nakagawa¹, Takashi Doi², Takara Taketani¹, Kiyonori Takegoshi², Yasuhiro Igarashi³, Yukishige Ito^{1,4}** (¹RIKEN, ²Kyoto University, ³Toyama Prefectural University, ⁴JST-ERATO)
“Solid-state NMR analysis of mannose binding of pradimicin A”
- P-37 **Yu Kushida¹, Tetsuo Nagano², Kenjiro Hanaoka¹** (The University of Tokyo, Graduate School of Pharmaceutical Sciences¹; The University of Tokyo, Open Innovation Center for Drug Discovery²)
“Development of a Red Fluorescence Probe for Protease Activity Based on Changes in Spectral Properties”
- P-38 **Ayumi Tsutsui, Rie Imaki, Shinobu Kitazume, Naoyuki Taniguchi, Katsunori Tanaka** (RIKEN)
“[4+4] Cycloaddition of Polyamine-Derived Unsaturated Imines and Their Biological Functions”

- P-39 **Kazunobu Igawa, Kouhei Machida, Kazuhiro Uehara, Katsuhiko Tomooka** (Kyushu University)
"Synthesis and Stereochemistry of [7]Orthocyclophane"
- P-40 **Aiki Hiza** (University of Shizuoka)
"Practical Synthesis of Nobiletin and its PET Imaging Study"
- P-41 **Toshiaki Teruya, Miki Yamada, Kosuke Sueyoshi** (University of the Ryukyus)
"Effects of 14-dien-19-oic acid on the proliferation and differentiation of osteoblastic MC3T3-E1 cells"