

## Time table at a glance

Dec. 14 (Thr.)	Dec. 15 (Fri.)	Dec. 16 (Sat.)
<b>Registration</b> (9:00~)	<b>Registration</b> (9:00~)	<b>Registration</b> (9:00~)
<b>Opening remarks</b> (9:30~9:35)		
<b>Session 1</b> <b>New aspects of biomolecules</b>  Jian-Ren Shen Todd O. Yeates Eiji Nakata* Roland K. O. Sigel Xing Chen  (9:35~12:45)	<b>Session 3</b> <b>Artificial molecular systems beyond biological functions</b>  Rein V. Ulijn Hiroyuki Asanuma Yoshiyuki Kageyama* Jonathan Clayden Vivian W. W. Yam  (9:10~12:20)	<b>Session 5</b> <b>New structure and function of biomolecular systems</b>  F. Akif Tezcan Takashi Hayashi Tasuku Hirayama* Sijbren Otto Kazunari Akiyoshi  (9:10~12:20)
<b>Lunch</b> (12:45~13:30)	<b>Lunch</b> (12:20~13:10)	<b>Lunch</b> (12:20~13:30)
<b>Poster session</b>  Odd numbered (13:30~14:15) Even numbered (14:15~15:00)	<b>Poster session</b>  Even numbered (13:10~13:55) Odd numbered (13:55~14:40)	<b>Session 6</b> <b>Physical and quantitative understanding of cells at molecular level</b>  Evan W. Miller Jie Yan Tamaki Endoh* Hidehito Tochio Gray J. Pielak  (13:30~16:40)
<b>Session 2</b> <b>Organic chemistry in cells</b>  Motomu Kanai Peng Chen Shinya Hagihara* Yimon Aye Benjamin G. Davis  (15:00~18:10)	<b>Session 4</b> <b>Chemistry for cell analysis and regulation</b>  Michael Z. Lin Moritoshi Sato Yuichiro Hori* Hyun-Woo Rhee Jason W. Chin  (14:40~17:50)	<b>Closing remarks</b> (16:40~16:45)
	<b>Banquet</b> <b>@Restaurant KIHADA</b> (18:00~19:30)	Invited lectures: 40 min *: 20 min

# Time schedule

## Day 1 (Dec 14th)

9:00 ~ Registration

9:30 ~ 9:35 Opening remarks

9:35 ~ 12:45

### **Session 1: New Aspects of Biomolecules**

Chair: Shun Hirota (Nara Institute of Science and Technology), Toshitaka Matsui (Tohoku University)

**9:35 ~ 10:15**

#### **O-1 Mechanism of photosynthetic water oxidation based on the structural analysis of photosystem II**

Jian-Ren Shen

*Okayama University, Japan*

**10:15 ~ 10:55**

#### **O-2 Giant protein assemblies in nature and by design**

Todd O. Yeates

*UCLA, USA*

10:55 ~ 11:05 Break

Chair: Osami Shoji (Nagoya University), Takashi Otsuki (Okayama University)

**11:05 ~ 11:25**

#### **O-3 DNA binding adaptors to locate multiple enzymes on DNA scaffold**

Eiji Nakata

*Kyoto University, Japan (Young investigator)*

**11:25 ~ 12:05**

#### **O-4 Folding and splicing of single group II intron ribozymes**

Roland K. O. Sigel

*University of Zurich, Switzerland*

**12:05 ~ 12:45**

#### **O-5 Chemical labeling and quantitative analysis of protein O-GlcNAcylation**

Xing Chen

*Peking University, China*

12:45 ~ 13:30 Lunch

**13:30 ~ 15:00 Poster session**

13:30 ~ 14:15 Odd numbered

14:15 ~ 15:00 Even numbered

15:00 ~ 18:10

**Session 2: Organic Chemistry in Cells**

Chair: Akio Ojida (Kyushu University), Shin Mizukami (Tohoku University)

**15:00 ~ 15:40**

**O-6 A method for site-selective histone lysine N-acylation**

Motomu Kanai

*The University of Tokyo, Japan*

**15:40 ~ 16:20**

**O-7 Exogenous chemistry for intracellular protein manipulations**

Peng Chen

*Peking University, China*

16:20 ~ 16:30 Break

Chair: Junko Ohkanda (Shinshu University), Shigeki Kiyonaka (Kyoto University)

**16:30 ~ 16:50**

**O-8 Small molecules that regulate plant hormone signaling**

Shinya Hagihara

*Nagoya University, Japan (Young investigator)*

**16:50 ~ 17:30**

**O-9 Translating the precision electrophile signaling code**

Yimon Aye

*Cornell University, USA*

**17:30 ~ 18:10**

**O-10 Sugars & proteins: towards a synthetic biology**

Benjamin G. Davis

*University of Oxford, UK*

## Day 2 (Dec 15th)

9:00 ~ Registration

9:10 ~ 12:20

### **Session 3: Artificial Molecular Systems beyond Biological Functions**

Chair: Masayasu Kuwahara (Gunma University), Kazunori Matsuura (Tottori University)

**9:10 ~ 9:50**

#### **O-11 Peptide nanotechnology: Finding new functions in the peptide sequence space**

Rein V. Ulijn

*CUNY ASRC, USA*

**9:50 ~ 10:30**

#### **O-12 Design of totally acyclic XNAs for medical applications**

Hiroyuki Asanuma

*Nagoya University, Japan*

10:30 ~ 10:40 Break

Chair: Kazushi Kinbara (Tokyo Institute of Technology), Akihiro Kishimura (Kyushu University)

**10:40 ~ 11:00**

#### **O-13 Self-oscillatory motion of molecular assembly with self-organization in a non-equilibrium steady state**

Yoshiyuki Kageyama

*Hokkaido University, Japan (Young investigator)*

**11:00 ~ 11:40**

#### **O-14 Designing and building conformationally responsive membrane-bound biomimetic receptors**

Jonathan Clayden

*University of Bristol, UK*

**11:40 ~ 12:20**

#### **O-15 Versatile metal-ligand chromophoric building blocks - From simple discrete metal complexes to ensembles, conjugates and nano-assemblies for sensing, molecular imaging and bioassays**

Vivian W.W. Yam

*The University of Hong Kong, China*

12:20 ~ 13:10 Lunch

**13:10 ~ 14:40 Poster session**

13:10 ~ 13:55 Even numbered

13:55 ~ 14:40 Odd numbered

14:40 ~ 17:50

**Session 4: Chemistry for Cell Analysis and Regulation**

Chair: Hirohide Saito (Kyoto University), Shinsuke Sando (The University of Tokyo)

**14:40 ~ 15:20**

**O-16 Modular protein architectures for optical and chemical control of cell biology**

Michael Z. Lin

*Stanford University, USA*

**15:20 ~ 16:00**

**O-17 Optical control of the genome**

Moritoshi Sato

*The University of Tokyo, Japan*

16:00 ~ 16:10 Break

Chair: Hiroshi Murakami (Nagoya University), Shinya Tsukiji (Nagoya Institute of Technology)

**16:10 ~ 16:30**

**O-18 Chemical probes with fluorogenic switch for imaging modified protein and DNA**

Yuichiro Hori

*Osaka University, Japan (Young investigator)*

**16:30 ~ 17:10**

**O-19 Proteomic architecture mapping by Spot-ID in live cells**

Hyun-Woo Rhee

*UNIST, Korea*

**17:10 ~ 17:50**

**O-20 Reprogramming the genetic code**

Jason W. Chin

*MRC Laboratory of Molecular Biology, UK*

18:00 ~ 19:30 Banquet at Restaurant KIHADA

## Day 3 (Dec 16th)

9:00 ~ Registration

9:10 ~ 12:20

### **Session 5: New Structure and Function of Biomolecular Systems**

Chair: Mitsuo Umetsu (Tohoku University), Takafumi Ueno (Tokyo Institute of Technology)

**9:10 ~ 9:50**

#### **O-21 Protein self-assembly by chemical design**

F. Akif Tezcan

*UCSD, USA*

**9:50 ~ 10:30**

#### **O-22 Artificial metalloenzyme: A hybrid between an active metal complex and a protein having a unique cavity**

Takashi Hayashi

*Osaka University, Japan*

10:30 ~ 10:40 Break

Chair: Nobutaka Fujieda (Osaka Prefecture University), Kenichi Niikura (Nippon Institute of Technology)

**10:40 ~ 11:00**

#### **O-23 A color series of Fe(II)-selective fluorescent sensor based on *N*-oxide chemistry**

Tasuku Hirayama

*Gifu Pharmaceutical University, Japan (Young investigator)*

**11:00 ~ 11:40**

#### **O-24 Can we synthesize life in the lab?**

Sijbren Otto

*University of Groningen, the Netherlands*

**11:40 ~ 12:20**

#### **O-25 Bio-inspired nanotransporters for biomedical application**

Kazunari Akiyoshi

*Kyoto University, Japan*

12:20 ~ 13:30 Lunch

13:30 ~ 16:40

**Session 6: Physical and Quantitative Understanding of Cells at Molecular Level**

Chair: Masayasu Taki (Nagoya University), Kenjiro Hanaoka (The University of Tokyo)

**13:30 ~ 14:10**

**O-26 Electrophysiology, unplugged: Watching neurons in action**

Evan W. Miller

*UC Berkeley, USA*

**14:10 ~ 14:50**

**O-27 Mechanical lifetime of biomolecules**

Jie Yan

*National University of Singapore, Singapore*

14:50 ~ 15:00 Break

Chair: Satoru Nagatoishi (The University of Tokyo), Daisuke Miyoshi (Konan University)

**15:00 ~ 15:20**

**O-28 Understanding of intracellular multimolecular crowding from interaction between RNA and small molecule**

Tamaki Endoh

*Konan University, Japan (Young investigator)*

**15:20 ~ 16:00**

**O-29 Analysis of proteins in living mammalian cells with NMR spectroscopy**

Hidehito Tochio

*Kyoto University, Japan*

**16:00 ~ 16:40**

**O-30 Protein biophysics in living cells**

Gary J. Pielak

*University of North Carolina, Chapel Hill, USA*

16:40 ~ 16:45 Closing remarks

## Poster program

December 14:

13:30 ~ 14:15 Odd numbered

14:15 ~ 15:00 Even numbered

December 15:

13:10 ~ 13:55 Even numbered

13:55 ~ 14:40 Odd numbered

**P-1 Ligand-direct chemistry for visualizing native AMPA-type glutamate receptors in live neurons**

Shigeki Kiyonaka<sup>1</sup>, Sho Wakayama<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>

<sup>1</sup>*Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University,* <sup>2</sup>*CREST, JST*

**P-2 Naphthalene diimide carrying  $\beta$ -cyclodextrin aiming at a parallel tetraplex ligand**

Shigeori Takenaka<sup>1,2</sup>, Yuka Sato<sup>1</sup>, Shinobu Sato<sup>1,2</sup>

<sup>1</sup>*Department of Applied Chemistry,* <sup>2</sup>*Research Center for Bio-microsensing Technology*

**P-3 Protection from off-target ADCC by using peptide inhibitors**

Takeshi Mori<sup>1,2</sup>, Koichi Sasaki<sup>1</sup>, Yoshiki Miyashita<sup>2</sup>, Daisuke Asai<sup>3</sup>, Minoru Harada<sup>2</sup>, Akihiro Kishimura<sup>1,2</sup>, Yoshiki Katayama<sup>1,2</sup>

<sup>1</sup>*Department of Applied Chemistry,* <sup>2</sup>*Graduate School of Systems Life Sciences, Kyushu University.*

**P-4 Electrochemical detection of methylation frequency based on electrochemical chip coupled with ferrocenylnaphthalene diimide**

Shinobu Sato<sup>1,2</sup>, Kazuya Haraguchi<sup>3</sup>, Kazuhiro Tominaga<sup>3</sup>, Shigeori Takenaka<sup>1,2</sup>

<sup>1</sup>*Department of Applied Chemistry,* <sup>2</sup>*Research Center for Bio-microsensing Technology,* <sup>3</sup>*Department of Science of Physical Functions, Division of Oral and Maxillofacial Surgery, Kyushu Dental University*

**P-5 Control over differentiation of a metastable supramolecular assembly**

Kazunori Sugiyasu, Tomoya Fukui, Masayuki Takeuchi

*Molecular Design & Function Group, National Institute for Materials Science*

**P-6 Macrocycles with hydrogen bonding sites in the cavity: Molecular recognition and catalysis**

Tadashi Ema<sup>1</sup>, Maki Yokoyama<sup>1</sup>, Sagiri Watanabe<sup>1</sup>, Sota Sasaki<sup>1</sup>, Hiromi Ota<sup>2</sup>, Kazuto Takaishi<sup>1</sup>, Chihiro Maeda<sup>1</sup>

<sup>1</sup>*Graduate School of Natural Science and Technology, Okayama University,* <sup>2</sup>*Advanced Science Research Center, Okayama University*



- P-7 Supramolecular complexes of transition metal complexes with monoclonal antibodies as asymmetric catalysts**  
Hiroyasu Yamaguchi, Keisuke Murata  
*Department of Macromolecular Science, Graduate School of Science, Osaka University*
- P-8 Chiral recognition of monoclonal antibodies for binaphthyl derivatives**  
Hiroyasu Yamaguchi<sup>1</sup>, Takuma Adachi<sup>1</sup>, Tomoki Odaka<sup>1</sup>, Akira Harada<sup>2,3</sup>  
<sup>1</sup>*Department of Macromolecular Science, Graduate School of Science, Osaka University,*  
<sup>2</sup>*Project Research Center for Fundamental Sciences, Graduate School of Science, Osaka University,* <sup>3</sup>*JST-ImPACT*
- P-9 Spontaneous pseudorotaxane formation targeting RNA**  
Kazumitsu Onizuka<sup>1</sup>, Jumpei Matsuyama<sup>1</sup>, Takuya Miyashita<sup>1</sup>, Yuuya Kawasaki<sup>2</sup>, Kazunobu Igawa<sup>2</sup>, Katsuhiko Tomooka<sup>2</sup>, Fumi Nagatsugi<sup>1</sup>  
<sup>1</sup>*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University,*  
<sup>2</sup>*Institute for Materials Chemistry and Engineering and Department of Material and Molecular Sciences, Kyushu University*
- P-10 Study on functional biomolecule incorporation in complex coacervates using PEG-based block copolymers**  
Mikio Terauchi<sup>1</sup>, Biplab KC<sup>1</sup>, Takeshi Mori<sup>2,3</sup>, Yoshiki Katayama<sup>2-5</sup>, Akihiro Kishimura<sup>2,4</sup>  
<sup>1</sup>*Graduate School of System Life Sciences,* <sup>2</sup>*Department of Applied Chemistry, Faculty of Engineering,* <sup>3</sup>*Center for Future Chemistry,* <sup>4</sup>*Center for Molecular Systems,* <sup>5</sup>*Center for Advanced Medical Innovation, Kyushu University*
- P-11 Fluorescent colorimetric sensors for the diagnosis of methylmalonic aciduria with bis(amidopyridine)- substituted anthracenes**  
Junko Fujimoto, Riho Mabuchi, Moeno Okumura, Shoichiro Goto, Youtaro Honda, Hidekazu Miyaji  
*Department of Chemistry and Biomolecular Science, Faculty of Engineering, Gifu University*
- P-12 Development of novel G-quadruplex alkylating agents**  
Madoka Eurika Hazemi, Kazumitsu Onizuka, Tomohito Kobayashi, Akira Usami, Norihiro Sato, Fumi Nagatsugi  
*Institute of multidisciplinary research for Advanced Materials, Tohoku University*
- P-13 Retracted**

- P-14 Photo-controllable DNA strand displacement facilitated by chaperon polymer**  
Bohao Cheng<sup>1</sup>, Hiromu Kashida<sup>1</sup>, Naohiko Shimada<sup>2</sup>, Atsushi Maruyama<sup>2</sup>, Hiroyuki Asanuma<sup>1</sup>  
<sup>1</sup>*Department of Biomolecular Engineering, Graduate School of Engineering, Nagoya University,* <sup>2</sup>*School of Life Science and Technology, Tokyo Institute of Technology*
- P-15 Allosteric regulation of DNzyme activity by the formation of a Cu(II)-mediated artificial base pair**  
Takahiro Nakama, Yusuke Takezawa, Mitsuhiko Shionoya  
*Department of Chemistry, Graduate School of Science, The University of Tokyo*
- P-16 H<sub>2</sub>O<sub>2</sub>-responsive protein labeling for conditional proteomics**  
Hao Zhu<sup>1</sup>, Tomonori Tamura<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Engineering, Department of Synthetic Chemistry and Biological Chemistry, Kyoto University* <sup>2</sup>*Core Research for Evolutional Science and Technology (CREST), Japan Science and Technology Agency*
- P-17 Development of subtype-selective agonist for jasmonate co-receptor**  
Yousuke Takaoka<sup>1,2</sup>, Mana Iwahashi<sup>1</sup>, Hiroaki Saito<sup>3</sup>, Yasuhiro Ishimaru<sup>1</sup>, Syusuke Egoshi<sup>1</sup>, Nobuki Kato<sup>1</sup>, Minoru Ueda<sup>1</sup>  
<sup>1</sup>*Department of Chemistry, Tohoku University,* <sup>2</sup>*JST-PREST,* <sup>3</sup>*RIKEN*
- P-18 Supramolecular protein assemblies constructed by engineering of protein crystal lattices**  
Tien Khanh Nguyen, Hashiru Negishi, Satoshi Abe, Takafumi Ueno  
*Department of Life Science and Technology, Tokyo Institute of Technology*
- P-19 Acyclic artificial nucleic acid circuit for sensitive detection of RNA**  
Keiji Murayama, Ryuya Nagao, Hiroyuki Asanuma  
*Graduate School of Engineering, Nagoya University*
- P-20 Reduction-responsive guanine incorporated into oligonucleotides**  
Yukiko Hayakawa<sup>1</sup>, Masahiro Kamimura<sup>1</sup>, Aya Shibata<sup>1,2</sup>, Yukio Kitade<sup>2</sup>, Masato Ikeda<sup>1,2,3,4</sup>  
<sup>1</sup>*Department of Life Science and Chemistry, Graduate School of Natural Science and Technology, Gifu University,* <sup>2</sup>*Department of Chemistry and Biomolecular Science, Faculty of Engineering, Gifu University,* <sup>3</sup>*United Graduate School of Drug Discovery and Medical Information Sciences, Gifu University,* <sup>4</sup>*Center for Highly Advanced Integration of Nano and Life Sciences, Gifu University (G-CHAIN)*

- P-21 Development of novel method for reconstitution of P450BM3 in its full-length form**  
Keita Omura<sup>1</sup>, Yuichiro Aiba<sup>1</sup>, Osami Shoji<sup>1,2</sup>, Hiroshi Sugimoto<sup>2,3</sup>, Yoshitsugu Shiro<sup>4</sup>, Yoshihito Watanabe<sup>5</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Nagoya University,* <sup>2</sup>*Core Research for Evolutional Science and Technology, Japan Science and Technology Agency,* <sup>3</sup>*RIKEN SPring-8 Center,* <sup>4</sup>*Graduate School of Life Science, University of Hyogo,* <sup>5</sup>*Research Center for Materials Science, Nagoya University*
- P-22 Proteins responsive supramolecular hydrogels containing an enzyme activity switch**  
Hajime Shigemitsu<sup>1</sup>, Keisuke Nakamura<sup>2</sup>, Tomonobu Matsuzaki<sup>2</sup>, Ryou Kubota<sup>2</sup>, Itaru Hamachi<sup>2</sup>  
<sup>1</sup>*Department of Applied Chemistry, Graduate School of Engineering, Osaka University*  
<sup>2</sup>*Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University*
- P-23 X-ray crystallographic observation of gold sub-nanocluster nucleation within a crystalline protein cage**  
Basudev Maity, Satoshi Abe, Takafumi Ueno  
*School of Life Science and Technology, Tokyo Institute of Technology*
- P-24 Ligand-directed N-acyl-N-alkyl sulfonamide chemistry: Characterization of reaction kinetics and its application to a covalent inhibitor**  
Tsuyoshi Ueda<sup>1</sup>, Taiki Goto<sup>1</sup>, Tomonori Tamura<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>*Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University.* <sup>2</sup>*CREST (Core Research for Evolutional Science and Technology), JST.*
- P-25 Elucidating the highly enantiodifferentiating site of human serum albumin for bio-supramolecular photo-cyclodimerization of 2-anthracenecarboxylate by using xenon as a site-specific inhibitor/quencher**  
Masaki Nishijima<sup>1</sup>, Tamara Pace<sup>2</sup>, Tadashi Mori<sup>3</sup>, Cornelia Bohne<sup>2</sup>, Takehiko Wada<sup>4</sup>, Yoshihisa Inoue<sup>3</sup>  
<sup>1</sup>*Office for Industry-University Co-creation and* <sup>3</sup>*Department of Applied Chemistry, Osaka University,* <sup>2</sup>*University of Victoria,* <sup>4</sup>*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University*
- P-26 Self-assembled artificial viral capsids decorated with proteins**  
Kazunori Matsuura, Takahide Honjo, Junpei Ota, Hiroshi Inaba  
*Department of Chemistry and Biotechnology, Graduate School of Engineering, Tottori University*
- P-27 Synthesis and metalation of bromine-terminated acyclic oligo-pyrrolic ligands**  
Masato Imafuku, Yutaka Nishigaichi, Masaaki Suzuki  
*Interdisciplinary Graduate School of Science and Engineering, Shimane University*

- P-28 Development of quantitative detection method for acrolein based on [4+4] cycloaddition reaction of conjugated imine**  
Hiroya Tsuchida<sup>1</sup>, Atsushi Shimoyama<sup>1</sup>, Kazuya Kabayama<sup>1</sup>, Katsunori Tanaka<sup>2</sup>, Koichi Fukase<sup>1</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Osaka University,* <sup>2</sup>*RIKEN*
- P-29 Metal-mediated stabilization and structural induction of bipyridine-modified DNA three-way junction structures**  
Yusuke Takezawa<sup>1</sup>, Shuhei Yoneda<sup>1</sup>, Shiori Sakakibara<sup>1</sup>, Takahiro Nakama<sup>1</sup>, Jean-Louis Duprey<sup>1</sup>, Mitsuhiko Shionoya<sup>1</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, The University of Tokyo*
- P-30 NMR characterization of cytochrome c membrane-binding site using cardiolipin-containing bicelles**  
Satoshi Nagao, Hisashi Kobayashi, Shun Hirota  
*Graduate School of Materials Science, Nara Institute of Science and Technology*
- P-31 Synthesis and functional study of self-adjuvanting anti-HER2 cancer vaccines**  
Qi Feng<sup>1</sup>, Kazuya Kabayama<sup>1</sup>, Yoshiyuki Manabe<sup>1</sup>, Asuka Miyamoto<sup>2</sup>, Yoshie Kametani<sup>2</sup>, Koichi Fukase<sup>1</sup>  
<sup>1</sup>*Graduate School of Science, Osaka University,* <sup>2</sup>*School of Medicine, Tokai University*
- P-32 The development of small molecules binding to the hairpin RNA structure**  
Hiroataka Murase, Fumi Nagatsugi  
*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University*
- P-33 Construction of heme protein oligomers by 3D domain swapping**  
Shun Hirota<sup>1</sup>, Satoshi Nagao<sup>1</sup>, Masaru Yamanaka<sup>1</sup>, Yoshiki Higuchi<sup>2</sup>  
<sup>1</sup>*Graduate School of Materials Science, Nara Institute of Science and Technology,* <sup>2</sup>*Department of Picobiology, Graduate School of Life Science, University of Hyogo*
- P-34 Peptide ligation of 5 fragments in one pot using palladium complex**  
Naoki Kamo<sup>1</sup>, Gosuke Hayashi<sup>1</sup>, Akimitsu Okamoto<sup>1,2</sup>  
<sup>1</sup>*Department of Chemistry and Biotechnology, The University of Tokyo,* <sup>2</sup>*Research Center for Advanced Science and Technology, The University of Tokyo*
- P-35 Discovery of inhibitors targeting homophilic dimerization of P-cadherin by a biophysical approach**  
Akinobu Senoo<sup>1</sup>, Takumi Tashima<sup>1</sup>, Shota Kudo<sup>1</sup>, Satoru Nagatoishi<sup>1,2</sup>, Kouhei Tsumoto<sup>1,2</sup>  
<sup>1</sup>*School of Engineering, The University of Tokyo,* <sup>2</sup>*The Institute of Medical Science, The University of Tokyo*

- P-36 P450BM3-catalyzing whole-cell biotransformation of benzene to phenol enhanced by decoy molecules**  
Masayuki Karasawa<sup>1</sup>, Sota Yanagisawa<sup>1</sup>, Osami Shoji<sup>1,2</sup>, Yoshihito Watanabe<sup>3</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Nagoya University,* <sup>2</sup>*CREST, Japan Science and Technology,* <sup>3</sup>*Research Center for Materials Science, Nagoya University*
- P-37 Design of in vivo protein crystals for the development of biohybrid materials**  
Satoshi Abe, Takafumi Ueno  
*School of Life Science and Technology, Tokyo Institute of Technology*
- P-38 Affinity-guided oxime chemistry for selective protein labeling in brain slices**  
Kazuma Amaike<sup>1</sup>, Zhining Song<sup>1</sup>, Shin Lee<sup>1</sup>, Tomonori Tamura<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Engineering, Kyoto University,* <sup>2</sup>*JST CREST*
- P-39 Super-photostable fluorescent probes for lipid droplets imaging**  
Keiji Kajiwara<sup>1</sup>, Masayasu Taki<sup>2,3</sup>, Yoshikatsu Sato<sup>2</sup>, Shigehiro Yamaguchi<sup>1,2</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Nagoya University,* <sup>2</sup>*Institute of Transformative Bio-Molecules (WPI-ITbM), Nagoya University,* <sup>3</sup>*JST PRESTO*
- P-40 Ligand directed acyl imidazole chemistry for drug assay of AMPA-type glutamate receptor**  
Seiji Sakamoto<sup>1</sup>, Sho Wakayama<sup>1</sup>, Shigeki Kiyonaka<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Engineering, Kyoto University,* <sup>2</sup>*JST CREST*
- P-41 Novel macropinocytosis-inducing intracellular delivery peptide and its cell-surface interaction**  
Jan Vincent V. Arafiles, Kenichi Kawano, Shiroh Futaki  
*Institute for Chemical Research, Kyoto University*
- P-42 Alzheimer's disease: Oxidized derivatives of cholesterol and glycosyl chains as risk factors**  
Neha Sharma, KeangOk Baek, Naofumi Shimokawa, Masahiro Takagi  
*School of Materials Science, Japan Advanced Institute of Science and Technology*
- P-43 Physicochemical analysis of antigen-antibody interaction associated with charge exchange of amino acids**  
Kouhei Yoshida<sup>1</sup>, Masato Kiyoshi<sup>2</sup>, Daisuke Kuroda<sup>1</sup>, Makoto Nakakido<sup>1</sup>, Satoru Nagatoishi<sup>2</sup>, Shinji Soga<sup>3</sup>, Hiroki Shirai<sup>3</sup>, Kouhei Tsumoto<sup>1,2</sup>  
<sup>1</sup>*School of Engineering, The University of Tokyo,* <sup>2</sup>*Institute of Medical Science, The University of Tokyo,* <sup>3</sup>*Modality Research Labs. Astellas Pharma Inc.*

- P-44 Chemical synthesis of digalactosyl diacylglycerols for investigation of biological functions**  
Junichiro Kishi<sup>1</sup>, Emi Kashiwabara<sup>1</sup>, Toshihiko Aiba<sup>1,2</sup>, Shinsuke Inuki<sup>1,3</sup>, Yukari Fujimoto<sup>1</sup>  
<sup>1</sup>*Graduate School of Science and Technology, Keio University,* <sup>2</sup>*Graduate School of Science, Osaka University,* <sup>3</sup>*Graduate School of Pharmaceutical Sciences, Kyoto University*
- P-45 Development of functionalized PEGylated polymer vesicles for overcoming the mucosal barrier**  
Atsushi Ogawa<sup>1</sup>, Hengmin Tang<sup>1</sup>, Takeshi Mori<sup>1,2</sup>, Yoshiki Katayama<sup>1,2,3,4</sup>, Akihiro Kishimura<sup>1,3</sup>  
<sup>1</sup>*Department of Applied Chemistry, Faculty of Engineering, Kyushu University,* <sup>2</sup>*Center for Future Chemistry, Kyushu University,* <sup>3</sup>*Center for Molecular System, Kyushu University,* <sup>4</sup>*Center for Advanced Medical Innovation, Kyushu University*
- P-46 Functional studies on the heme uptake protein complex PhuUV-T from *Pseudomonas aeruginosa***  
Erika Sakakibara<sup>1</sup>, Yuma Shisaka<sup>1</sup>, Osami Shoji<sup>1</sup>, Hiroshi Sugimoto<sup>2</sup>, Yoshihito Watanabe<sup>3</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Nagoya University,* <sup>2</sup>*RIKEN Spring-8 Center Harima Institute,* <sup>3</sup>*Research Center for Materials Science, Nagoya University*
- P-47 Non-canonical DNA structures control DNA replication by topology-dependent manner**  
Shuntaro Takahashi<sup>1</sup>, John A. Brazier<sup>2</sup>, Naoki Sugimoto<sup>1,3</sup>  
<sup>1</sup>*Frontier Institute for Biomolecular Engineering Research (FIBER), Konan University,* <sup>2</sup>*Department of Pharmacy, Reading University,* <sup>3</sup>*Graduate School of Frontier Innovative Research in Science and Technology (FIRST), Konan University*
- P-48 Photo-regulation of SNA duplex stability by introducing modified nucleobases**  
Yuuhei Yamano, Keiji Murayama, Hiroyuki Asanuma  
*Department of Biomolecular Engineering, Graduate School of Engineering, Nagoya University*
- P-49 Development of a simple strategy to detect activities of *N*<sup>6</sup>-methyladenosine regulatory enzymes**  
Miki Imanishi, Akiyo Suda, Shiroh Futaki  
*Institute for Chemical Research, Kyoto University*

- P-50 Synthetically useful variants of industrial lipases from *Burkholderia cepacia* and *Pseudomonas fluorescens***  
Kazunori Yoshida<sup>1,2</sup>, Masakazu Ono<sup>2</sup>, Takahiro Yamamoto<sup>2</sup>, Takashi Utsumi<sup>2</sup>, Satoshi Koikeda<sup>1</sup>, Tadashi Ema<sup>2</sup>  
<sup>1</sup>Frontier Research Department, Gifu R & D Center, Amano Enzyme Inc., <sup>2</sup>Division of Applied Chemistry, Graduate School of Natural Science and Technology, Okayama University
- P-51 Synthesis of novel glycerolipids and their evaluation of the signaling through C-type lectin receptor Mincle**  
Takanori Matsumaru<sup>1,2</sup>, Risa Ikeno<sup>2</sup>, Yusuke Shuchi<sup>2</sup>, Atsushi Furukawa<sup>2</sup>, Yukari Fujimoto<sup>1</sup>, Katsumi Maenaka<sup>2</sup>  
<sup>1</sup>Faculty of Science and Technology, Keio University, <sup>2</sup>Faculty of Pharmaceutical Sciences, Hokkaido University
- P-52 Creation of ischemia-selective oligonucleotide therapeutics systems with intracellular condition-responsive Peptide Ribonucleic Acids (PRNAs): *Hemi-gapmer type chimeric PRNA derivatives for the effective and catalytic oligonucleotide therapeutics***  
Masahito Inagaki<sup>1</sup>, Daisuke Unabara<sup>1</sup>, Yuri Fukuyo<sup>1</sup>, Ryohei Uematsu<sup>1</sup>, Yasuyuki Araki<sup>1</sup>, Satoru Ishibashi<sup>2</sup>, Takanori Yokota<sup>2</sup>, Takehiko Wada<sup>1</sup>  
<sup>1</sup>Institute of Multidisciplinary Research for Advanced Material (IMRAM), Tohoku University, <sup>2</sup>Department of Neurology and Neurological Science, Tokyo Medical and Dental University
- P-53 Chemogenetic control of class A GPCRs using metal complex-agonist conjugates**  
Ryou Kubota<sup>1</sup>, Takuma Iwasaka<sup>1</sup>, Wataru Nomura<sup>1</sup>, Kento Ojima<sup>1</sup>, Shigeki Kiyonaka<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University. <sup>2</sup>JST CREST
- P-54 Probing auxin signaling with synthetic auxin-engineered receptor pair**  
Ryotaro Yamada<sup>1</sup>, Naoyuki Uchida<sup>2</sup>, Koji Takahashi<sup>1</sup>, Rie Iwasaki<sup>2</sup>, Masahiko Yoshimura<sup>1</sup>, Hua Zhang<sup>2</sup>, Toshinori Kinoshita<sup>1,2</sup>, Kenichiro Itami<sup>1,2</sup>, Keiko U. Torii<sup>2</sup>, Shinya Hagihara<sup>1,3</sup>  
<sup>1</sup>Grad. Sch. Sci., Nagoya Univ., <sup>2</sup>WPI-ITbM, Nagoya Univ., <sup>3</sup>JST-PRESTO
- P-55 Supramolecular hydrogel made of self-sorting double network with bidirectional tunable rheological property**  
Wataru Tanaka<sup>1</sup>, Hajime Shigemitsu<sup>1</sup>, Takahiro Fujisaku<sup>1</sup>, Ryou Kubota<sup>1</sup>, Saori Minami<sup>2</sup>, Kenji Urayama<sup>2</sup>, Itaru Hamachi<sup>1,3</sup>  
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- P-56 Design, synthesis and anticancer activity of cyclometalated iridium(III) complexes containing cationic peptides on the 2-phenylpyridine ligands**  
Kenta Yokoi<sup>1</sup>, Yosuke Hisamatsu<sup>1</sup>, Kana Naito<sup>1</sup>, Shin Aoki<sup>1,2,3</sup>  
<sup>1</sup>*Faculty of Pharmaceutical Sciences, Tokyo University of Science,* <sup>2</sup>*Division of Medical-Science-Engineering Cooperation, Research Institute for Science and Technology, Tokyo University of Science,* <sup>3</sup>*Imaging Frontier Center, Research Institute for Science and Technology, Tokyo University of Science*
- P-57 Hybridization of amphiphilic zinc chlorophyll derivatives with light-harvesting complexes chlorosomes in green sulfur photosynthetic bacteria**  
Hayato Yamashita<sup>1</sup>, Naoya Takahashi<sup>1</sup>, Jiro Harada<sup>2</sup>, Hitoshi Tamiaki<sup>3</sup>, Yoshitaka Saga<sup>1,4</sup>  
<sup>1</sup>*Department of Chemistry, Kindai University,* <sup>2</sup>*Kurume University School of Medicine,* <sup>3</sup>*Graduate School of Life Sciences, Ritsumeikan University,* <sup>4</sup>*PRESTO, Japan Science and Technology Agency*
- P-58 Characterization of complexes between heme and G-quadruplex DNAs formed from human telomere-related sequences**  
Tomokazu Shibata<sup>1</sup>, Kentaro Ochi<sup>1</sup>, Haruka Araki<sup>1</sup>, Yusaku Nakayama<sup>1</sup>, Ryosuke Shinomiya<sup>1</sup>, Sachiko Yanagisawa<sup>2</sup>, Takashi Ogura<sup>2</sup>, Hikaru Hemmi<sup>3</sup>, Dipankar Sen<sup>4</sup>, Yasuhiko Yamamoto<sup>1</sup>  
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- P-59 Characterization of peroxidase activities and structures of complexes between chemically modified hemes and all parallel G-quadruplex DNA formed from d(TTAGGG)**  
Ryosuke Shinomiya<sup>1</sup>, Tomokazu Shibata<sup>1</sup>, Sachiko Yanagisawa<sup>2</sup>, Takashi Ogura<sup>2</sup>, Akihiro Suzuki<sup>3</sup>, Saburo Neya<sup>4</sup>, Dipankar Sen<sup>5</sup>, Yasuhiko Yamamoto<sup>1</sup>  
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- P-60 Engineering of nested PUF proteins with 16 RNA-binding repeats for regulation of endogenous RNA**  
Kouki Shinoda, Miki Imanishi, Shiroh Futaki  
*Institute for Chemical Research, Kyoto University*



- P-61 Synthesis of disaccharide nucleosides utilizing the temporary protection of the 2',3'-cis-diol of ribonucleosides by a boronic ester**  
Hidehisa Someya<sup>1</sup>, Taiki Itoh<sup>1</sup>, Shin Aoki<sup>1,2</sup>  
<sup>1</sup>*Faculty of Pharmaceutical Sciences, Tokyo University of Science,* <sup>2</sup>*Imaging Frontier Center, Tokyo University of Science*
- P-62 Redesign of hemolytic peptides to antibody delivery agent by single glutamate substitution**  
Misao Akishiba<sup>1</sup>, Toshihide Takeuchi<sup>1</sup>, Yoshimasa Kawaguchi<sup>1</sup>, Kentarou Sakamoto<sup>1</sup>, Ikuhiko Nakase<sup>2</sup>, Shiroh Futaki<sup>1</sup>  
<sup>1</sup>*Institute for Chemical Research, Kyoto University,* <sup>2</sup>*NanoSquare Reserch Institution, Osaka Prefecture University*
- P-63 Allosteric activation of metabotropic glutamate receptors by coordination-chemogenetics**  
Kento Ojima<sup>1</sup>, Yukiko Michibata<sup>1</sup>, Ryou Kubota<sup>1</sup>, Shigeki Kiyonaka<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>  
<sup>1</sup>*Department of Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University,* <sup>2</sup>*CREST,JST*
- P-64 Chlorophyll-a derivatives bearing carboxy groups stabilize DNA G-quadruplex structures**  
Yasunobu Nagano<sup>1</sup>, Tamaki Endoh<sup>2</sup>, Shin Ogasawara<sup>1</sup>, Naoki Sugimoto<sup>2,3</sup>, Hitoshi Tamiaki<sup>1</sup>  
<sup>1</sup>*Graduate School of Life Sciences, Ritsumeikan University,* <sup>2</sup>*FIBER and* <sup>3</sup>*FIRST, Konan University*
- P-65 Macropinocytosis induction and intracellular drug delivery using exosomes modified with arginine-rich peptides**  
Kosuke Noguchi<sup>1,2</sup>, Ayako Aoki<sup>1,2</sup>, Tomoka Takatani-Nakase<sup>3</sup>, Ikuo Fujii<sup>2</sup>, Shiroh Futaki<sup>4</sup>, Ikuhiko Nakase<sup>1</sup>  
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- P-66 Lipid packing loosening plays a key role in the direct membrane translocation of octaarginine**  
Tomo Murayama, Kenichi Kawano, Shiroh Futaki  
*Institute for Chemical Research, Kyoto University*
- P-67 A far-red emitting fluorescent probe for cytosolic Ca<sup>2+</sup> ion based on phospho-fluorescein scaffold**  
Hiroaki Ogasawara<sup>1</sup>, Masayasu Taki<sup>2,3</sup>, Yoshikatsu Sato<sup>2</sup>, Shigehiro Yamaguchi<sup>2</sup>  
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- P-68 Synthesis and immunological evaluation of self-adjuvanting *N*-acetyl and *N*-propionyl clustered Sialyl-Tn conjugate as anticancer vaccine candidates**  
Tsung-che Chang<sup>1</sup>, Yoshiyuki Manabe<sup>1</sup>, Yukari Fujimoto<sup>2</sup>, Shino Ohshima<sup>3</sup>, Yoshie Kametani<sup>3</sup>, Kazuya Kabayama<sup>1</sup>, Yuka Nimura<sup>1</sup>, Chun-Cheng Lin<sup>4</sup>, Koichi Fukase<sup>1</sup>  
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- P-69 Importance of net hydrophobicity in cellular uptake of all-hydrocarbon stapled peptides**  
Koki Sakagami, Kenichi Kawano, Shiroh Futaki  
*Institute for Chemical Research, Kyoto University*
- P-70 Bond distances in the intact Mn<sub>4</sub>CaO<sub>5</sub>-cluster of oxygen-evolving photosystem II at 1.62 Å resolution**  
Keisuke Kawakami<sup>1</sup>, Naoto Inohara<sup>2</sup>, Nobuo Kamiya<sup>1,2</sup>  
<sup>1</sup>The OCU Advanced Research Institute for Natural Science & Technology (OCARINA), Osaka City University, <sup>2</sup>Graduate School of Science, Osaka City University.
- P-71 Elucidation of the activation/inactivation mechanism between the Ni-SI<sub>r</sub> and Ni-SI<sub>a</sub> states of [NiFe] hydrogenase utilizing Ni-SI<sub>r</sub>-to-Ni-SI<sub>a</sub> photoactivation**  
Hulin Tai<sup>1,2</sup>, Liyang Xu<sup>1</sup>, Koji Nishikawa<sup>3</sup>, Yoshiki Higuchi<sup>2,3</sup>, and Shun Hirota<sup>1,2</sup>  
<sup>1</sup>Grad. Sch. Mater. Sci., NAIST, <sup>2</sup>CREST, JST, <sup>3</sup>Grad. Sch. Life Sci., Univ. Hyogo
- P-72 Multi-block fibrous assembly of peptide amphiphiles based on intrinsic immiscibility**  
Rie Wakabayashi<sup>1</sup>, Mutsuhiro Katsuya<sup>1</sup>, Noriho Kamiya<sup>1,2</sup>, Masahiro Goto<sup>1,2</sup>  
<sup>1</sup>Department of Applied Chemistry, Kyushu University, <sup>2</sup>Center for Future Chemistry, Kyushu University
- P-73 Discovery of germination inhibitor for parasitic plant *Striga***  
Masahiko Yoshimura<sup>1</sup>, Yuichiro Tsuchiya<sup>2</sup>, Ayato Sato<sup>2</sup>, Yoshikatsu Sato<sup>2</sup>, Keiko Kuwata<sup>2</sup>, Toshinori Kinoshita<sup>1,2</sup>, Kenichiro Itami<sup>1,2</sup>, Shinya Hagihara<sup>1,3</sup>  
<sup>1</sup>Grad. Sch. Sci., Nagoya Univ. <sup>2</sup>WPI-ITbM, Nagoya Univ. <sup>3</sup>JST-PRESTO
- P-74 Development of an activatable photoacoustic probe for hypochlorous acid**  
Takayuki Ikeno<sup>1</sup>, Kenjiro Hanaoka<sup>1</sup>, Yoshiaki Murayama<sup>2</sup>, Hisashi Ode<sup>2</sup>, Yasuteru Urano<sup>1,3,4</sup>  
<sup>1</sup>Graduate School of Pharmaceutical Sciences, The University of Tokyo, <sup>2</sup>Olympus Corporation, <sup>3</sup>Graduate School of Medicine, The University of Tokyo, <sup>4</sup>AMED CREST.

**P-75 Development of activatable fluorescent probes for carboxypeptidase and their application**

Yugo Kuriki<sup>1</sup>, Mako Kamiya<sup>2,3</sup>, Hidemasa Kubo<sup>1,4</sup>, Toru Komatsu<sup>1</sup>, Tasuku Ueno<sup>1</sup>, Suguru Yamashita<sup>2</sup>, Norihiro Kokudo<sup>2</sup>, Yasuteru Urano<sup>1,2,5</sup>

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**P-76 Effect of chemical environment change by malignant alteration in cancer cells on transcript productions from G-rich template DNAs**

Hisae Tateishi-Karimata<sup>1</sup>, Keiko Kawauchi<sup>2</sup>, Tatsuya Ohyama<sup>1</sup>, Naoki Sugimoto<sup>1,2</sup>

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**P-77 A well-defined osmium-cupin complex: Hyperstable artificial Os-peroxygenase**

Nobutaka Fujieda<sup>1</sup>, Takumi Nakano<sup>2</sup>, Haruna Ichihashi<sup>2</sup>, Shinobu Itoh<sup>2</sup>

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**P-78 Nano-chemical tools for controlling dynamic assembly of cell membrane receptors**

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**P-79 A set of organelle-localizable reactive molecules for mitochondria and ER chemical proteomics**

Alma Fujisawa<sup>1</sup>, Tomonori Tamura<sup>1</sup>, Yuki Yasueda<sup>1</sup>, Shigeki Kiyonaka<sup>1</sup>, Itaru Hamachi<sup>1,2</sup>

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**P-80 Redox-responsive activation of lysine-specific demethylase 1 inhibitor peptide**

Naoki Umezawa<sup>1</sup>, Yuichi Amano<sup>1</sup>, Shin Sato<sup>2</sup>, Masaki Kikuchi<sup>2</sup>, Hisami Watanabe<sup>2</sup>, Takashi Umehara<sup>2</sup>, Tsunehiko Higuchi<sup>1</sup>

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**P-81 Solid-phase synthesis of oligo-N-substituted peptides with chiral backbone substituents using reductive amination**

Yasuhiro Fukuda, Jumpei Morimoto, Shinsuke Sando

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- P-82 Self-assembling supramolecular nanostructure complexes constructed from protein nanobuilding blocks**  
Naoya Kobayashi<sup>1</sup>, Naoya Kimura<sup>1</sup>, Michael H. Hecht<sup>2</sup>, Ryoichi Arai<sup>1,3</sup>  
<sup>1</sup>*Department of Applied Biology, Faculty of Textile Science and Technology, Shinshu University,* <sup>2</sup>*Department of Chemistry, Princeton University,* <sup>3</sup>*Department of Supramolecular Complexes, Research Center for Fungal and Microbial Dynamism, Shinshu University*
- P-83 DNA rotaxane and catenane inside a DNA nanostructure**  
Arivazhagan Rajendran<sup>1</sup>, Seo-jeong Park<sup>2</sup>, Eiji Nakata<sup>1</sup>, Youngjoo Kwon<sup>2</sup>, Takashi Morii<sup>1</sup>  
<sup>1</sup>*Institute of Advanced Energy, Kyoto University,* <sup>2</sup>*College of Pharmacy, Ewha Womans University*
- P-84 Assembly of multiple enzymes on a DNA scaffold**  
Thang Minh Nguyen, Eiji Nakata, Masayuki Saimura, Huyen Dinh, Takashi Morii  
*Institute of Advanced Energy, Kyoto University*
- P-85 Evaluating the mechanism of growth inhibition using hemoprotein HasA with artificial metal complexes**  
Yuma Shisaka<sup>1</sup>, Osami Shoji<sup>1</sup>, Hiromu Uehara<sup>1</sup>, Ayaka Nakashima<sup>1</sup>, Yusuke Iwai<sup>1</sup>, Yoshihito Watanabe<sup>2</sup>  
<sup>1</sup>*Department of Chemistry, Graduate School of Science, Nagoya University (Japan),* <sup>2</sup>*Research Center for Materials Science, Nagoya University (Japan)*
- P-86 Development of activatable photophore for selective labeling of proteins in  $\beta$ -Galactosidase expressing cells**  
Taiki Inoue<sup>1</sup>, Tasuku Ueno<sup>1</sup>, Yasuteru Urano<sup>1,2,3</sup>  
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- P-87 Ribosomal synthesis of a thioamide bond**  
Rumit Maini, Ryo Takatsuji, Yuki Goto, Hiroaki Suga  
*Department of Chemistry, Graduate School of Science, The University of Tokyo*
- P-88 In vitro biosynthesis system for peptides with diverse modified backbones**  
Yuki Goto, Yasuharu Kato, Hiroaki Suga  
*Department of Chemistry, Graduate School of Science, The University of Tokyo*

**P-89 Controlling protein localization in living cells with synthetic self-localizing ligand: The SLIPT system**

Shinya Tsukiji<sup>1,2,3</sup>, Akinobu Nakamura<sup>4</sup>, Shunsuke Sawada<sup>5</sup>, Choji Oki<sup>3</sup>, Tatsuyuki Yoshii<sup>2,6</sup>

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**P-90 Engineering orthogonal SLIPT systems for dual control of signaling pathways in living cells**

Tatsuyuki Yoshii<sup>1,2</sup>, Akinobu Nakamura<sup>3</sup>, Choji Oki<sup>4</sup>, Satoko Fujinuma<sup>5</sup>, Gembu Maryu<sup>6</sup>, Michiyuki Matsuda<sup>6</sup>, Kazuhiro Aoki<sup>7</sup>, Shinya Tsukiji<sup>1,4,8</sup>

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**P-91 Development of cell nucleus mimicking system based on molecular crowding effects on DNA structures**

Yu-ki Zouzumi<sup>1</sup>, Takafumi Miyata<sup>2</sup>, Naohiko Shimada<sup>2</sup>, Atushi Maruyama<sup>2</sup>, Naoki Sugimoto<sup>1,3</sup>, Daisuke Miyoshi<sup>1</sup>

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**P-92 Development of fluorogenic hybrid probes utilizing TALE/ZF and PYP-labelling technology for detection of genome sequence**

Maho Umeno<sup>1</sup>, Yuichiro Hori<sup>1,2</sup>, Ayuko Nishida<sup>1</sup>, Shogo Tsuji<sup>3</sup>, Miki Imanishi<sup>3</sup>, Shiroh Futaki<sup>3</sup>, Kazuya Kikuchi<sup>1,2</sup>

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**P-93 Development of enzymomics approach to search for disease-related alternation of enzymatic functions**

Toru Komatsu<sup>1</sup>, Jun Onagi<sup>1</sup>, Yuki Ichihashi<sup>1</sup>, Tetsuo Nagano<sup>3</sup>, Yasuteru Urano<sup>1,2,4</sup>

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**P-94 Intracellular protein-labeling probes for multicolor single-molecule imaging in living cells**

Yukio Sakai<sup>1</sup>, Ryota Sato<sup>1</sup>, Jun Kozuka<sup>2</sup>, Yutaro Kumagai<sup>3</sup>, Akimasa Yoshimura<sup>1</sup>, Masafumi Minoshima<sup>1</sup>, Shin Mizukami<sup>4</sup>, Kazuya Kikuchi<sup>1,3</sup>

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**P-95 Oral administration of reactive adaptor ligands for *in vivo* reprogramming of endogenous antibodies**

Masanobu Nagano<sup>1</sup>, Nancy Callirro<sup>2</sup>, Nobumasa Otsubo<sup>2</sup>, Wataru Hakamata<sup>2</sup>, Hitoshi Ban<sup>2</sup>, Roberta P. Fuller<sup>2</sup>, Nasir Bashiruddin<sup>1</sup>, Carlos F. Barbas, III<sup>2</sup>

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**P-96 Microfluidic preparation of cell membrane sheets for *in vitro* analyses of the cytoplasmic face**

Satoshi Yamaguchi<sup>1</sup>, Shin Izuta<sup>2</sup>, Ryuji Misawa<sup>2</sup>, Akimitsu Okamoto<sup>1,2</sup>

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**P-97 Photo-cleavable PEG-lipids for light-guided cell release from single-cell array in a microfluidic system**

Natalia T. Jarzębska<sup>1</sup>, Satoshi Yamaguchi<sup>2</sup>, Shin Izuta<sup>1</sup>, Akimitsu Okamoto<sup>1,2</sup>

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**P-98 Photo-responsive microwells for image-based single-cell sorting**

Tsuyoshi Hosogane<sup>1</sup>, Satoshi Yamaguchi<sup>2</sup>, Risa Takagi<sup>1</sup>, Shouichi Sakakibara<sup>3</sup>, Kazuhito Tabata<sup>1</sup>, Hiroyuki Noji<sup>1</sup>, Akimitsu Okamoto<sup>1,2</sup>

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**P-99 Development of OFF-ON-OFF fluorescent probes for detecting protein degradation**

Chiawei Yu<sup>1</sup>, Yuichiro Hori<sup>1,2</sup>, Kohei Yamasaki<sup>1</sup>, Kazuya Kikuchi<sup>1,2</sup>

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**P-100 Development of pathway-oriented screening system and discovering glycolysis enzyme inhibitors**

Kouichi Yanagi<sup>1</sup>, Toru Komatsu<sup>1</sup>, Hirotatsu Kojima<sup>4</sup>, Takayoshi Okabe<sup>4</sup>, Tetsuo Nagano<sup>4</sup>  
Yasuteru Urano<sup>1,2,3</sup>

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**P-101 Ribosomal synthesis of peptides containing various  $\beta$ -amino acids**

Tomoshige Fujino<sup>1</sup>, Yuki Goto<sup>2</sup>, Hiroaki Suga<sup>2</sup>, Hiroshi Murakami<sup>1</sup>

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**P-102 Improved TRAP display for high-speed selection of antibodies from trillions of candidates**

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**P-103 Nucleic acid electrochemical sensor amplified with DNA circuit**

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**P-104 Tubulation of liposomes *via* the interaction of supramolecular nanofibers**

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**P-105 miRNA-responsive ON switch using non-canonical mRNA structure**

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