

Program

Monday, December 2nd, 2024

9:00 Opening Remarks
 Makoto Obata (President of Nagoya Institute of Technology)
 Takehisa Dewa (Nagoya Institute of Technology)

Chair: Yasuhisa FUJITA (Shimane Univ., Japan)

9:10 PL1-01 **Kevin C.-W. WU** (National Taiwan Univ.)
 Water-based Synthesis of Metal-Organic Frameworks
 (MOFs) For Biomedical Applications: Enzyme
 Immobilization, Dopamine Sensing, and Drug Delivery
 Systems

9:40 IL1-01 **Yuko ICHIYANAGI** (Yokohama Nat. Univ.)
 Magnetic Relaxation Behavior of Ferrite Nanoparticles
 For Theranostic Applications

10:00 IL1-02 **Peilin CHEN** (Academia Sinca)
 Targeted Cancer Therapy and Metastasis Inhibition
 Using Mesoporous Silica Nanoparticles

10:20 **Coffee Break**

Chair: Yuko ICHIYANAGI (Yokohama Nat. Univ., Japan)

10:30 IL1-03 **Chen-Sheng YEH** (National Cheng Kung Univ.)
 Coupling Electroactive Liposome Membranes
 with Nanoparticles

10:50 IL1-04 **Yasuhisa FUJITA** (Shimane Univ.)
 Photocatalytic Effects of Zinc Oxide Nanoparticles
 And Their Application to Nanomedicine

11:10 **Coffee Break**

Chair: Michihiro NAKAMURA (Yamaguchi Univ., Japan)

11:20 IL1-05 **Taiga TAKAHASHI** (Tokyo Univ. Sci.)
In vivo Deep and Large-Scale Imaging in a Mouse Brain
Utilizing Nanomaterial and Light-Curable Resin

11:40 IL1-06 **Masanori NAKAMURA** (Nagoya Inst. Tech.)
Assessment of Hemolysis at a Single Cellular Scale

12:00 **Lunch**

Chair: Kohsuke GONDA (Tohoku Univ., Japan)

13:00 PL1-02 **Shu-Yi LIN** (National Health Res. Inst.)
Deciphering the Link between Configuration and
Bioactivity of Gold Nanoclusters: From Unseen Scales
to Hidden Subtle Interactions

13:30 IL1-07 **Tomohiro KONNO** (Tohoku Univ.)
Phospholipid Polymer Micro-Gel Matrix for Sustained
Release of Bioactive Molecules

13:50 IL1-08 **Akihiro KISHIMURA** (Kyushu Univ.)
Block-Copolymer-Based Coacervates with
Programmed Functions

14:10 **Coffee Break**

Chair: Takakazu NAKABAYASHI (Tohoku Univ., Japan)

- 14:20 SL-01 **Chian-Hui LAI** (National Chung Hsing Univ.)
Mannose-modified Interfaces in the Application
of Anti-cancer Drug Loading or Bio-Sensing
- 14:40 SL-02 **Hiroyuki KOIDE** (Shizuoka Univ.)
Efficient Intracellular Protein Delivery with
Multifunctionalized Lipid Nanoparticles
- 15:00 IL1-09 **Haruka TAKATA** (Tokushima Univ.)
Impact of Antibodies Against PEG on LNP-mediated
m-RNA Translation via I.M. Injection Route
- 15:20 **Coffee Break**

Chair: Tatsuhiro ISHIDA (Tokushima Univ., Japan)

- 15:30 IL1-10 **Takakazu NAKABAYASHI** (Tohoku Univ.)
Label-free Detection of Supersulfides and
Their Metabolic Reactions in a Cell Using
Raman Imaging
- 15:50 IL1-11 **Allen Wei-Lun HUANG** (National Cheng Kung Univ)
A Concise Cancer Nanotherapeutic Modality Using
the Versatile Graphene Oxide Dots in Coordination
with Ascorbic Acid
- 16:10 **Coffee Break**

Chair: Tatsuhiro ISHIDA (Tokushima Univ., Japan)

16:20 SL-03 **Jirarut WONGKONGKATEP** (Mahidol Univ.)
Gouty Arthritis: Differentiation and Enzyme Assays

16:40 IL1-12 **Kohsuke GONDA** (Tohoku Univ.)
Application of Tumor Vascular Normalization
to Radiation Therapy

17:00 **Coffee Break**

17:10 **Poster Presentation**
Odd Number: 17:10 – 17:50
Even Number: 17:50 - 18:30

19:30 **Dinner Party**
Garden Terrace Tokugawa-en
(Invitation-only Event, 19:30 – 21:30)

Tuesday, December 3rd, 2024

Chair: Toshihisa MIZUNO (Nagoya Inst. Tech., Japan)

- 9:00 PL2-01 **Robert E. CAMPBELL** (Univ. Tokyo)
Engineering Protein-based Biosensors
to Spy on Cell Biology
- 9:30 SL-04 **Shinya TSUKIJI** (Nagoya Inst. Tech.)
Chemogenetic Control of Protein Localization
with Synthetic Self-Localizing Ligands
- 9:50 IL2-01 **Takeshi MORI** (Kyushu Univ.)
How Anti-PEG Antibodies are Produced
- 10:10 **Coffee Break**

Chair: Naoki UMEZAWA (Nagoya City Univ., Japan)

- 10:20 IL2-02 **Takayuki MIKI** (Univ. Tokyo)
Self-Assembling Peptide Tags for Constructing
Protein Condensates in Living Cells
- 10:40 IL2-03 **Eiji NAKATA** (Kyoto Univ.)
Multiple Functional Molecules Assembled
Nanostructure for Bioimaging Application
- 11:00 IL2-04 **Daisuke MIYOSHI** (Konan Univ.)
Structure- and Sequence-Selective Ligands
Targeting G-Quadruplex Nucleic Acids
- 11:20 **Coffee Break**

Chair: Tomohiro KONNO (Tohoku Univ., Japan)

11:30 IL2-05 **Hiromu KASHIDA** (Nagoya Univ.)
Color Changing Fluorescence Barcodes
for Multiplexed Imaging of Biomolecules

11:50 IL2-06 **Michihiro NAKAMURA** (Yamaguchi Univ.)
Endosomal Typing of Macrophages toward
Cell Nano-theranostics

12:10 **Lunch**

Chair: Takehisa Dewa (Nagoya Inst. Tech., Japan)

13:10 PL2-02 **Hideki KANDORI** ((Nagoya Inst. Tech.)
Activation and Optogenetic Application of Rhodopsins

13:40 IL2-07 **Chie HOSOKAWA** (Osaka Metro. Univ.)
Laser-induced Stimulation of Single Neurons
in Cultured Neural Networks

14:00 **Coffee Break**

Chair: Yusuke ARIMA (Kyushu Univ., Japan)

- 14:10 IL2-08 **Tetsushi SAKUMA** (Kyoto Univ.)
Nuclear Base Editing with a Novel Nicking Enzyme and
a Single-Strand DNA-Specific Deaminase Fused with
TAL Effectors
- 14:30 IL2-09 **Motoshi KAYA** (Univ. Tokyo)
Cooperative Functions of Skeletal Muscle Myosin
as Revealed by Information Theory
- 14:50 IL2-10 **Dehui WAN** (National Tsing Hua Univ.)
Microneedle Patch Assisted Minimally Invasive Sensing
System for Clinical Applications
- 15:10 **Coffee Break**

Chair: Tatsuhiro ISHIDA (Tokushima Univ., Japan)

- 15:20 PL2-3 **Yu-Chun LIN** (National Tsing Hua Univ.)
Chemogenetic and Optogenetic Manipulation of
Microtubule Structure and Intracellular Trafficking
in Living Cells and Behaving Animals
- 15:50 IL2-11 **Ryota IINO** (National Inst. Natural Sci.)
Rational Engineering of DNA-Nanoparticle Artificial
Motor with High Speed and Processivity Comparable
to Motor Proteins
- 16:10 IL2-12 **Ryugo TERO** (Toyohashi Univ. Tech.)
Fluorescence Single Molecule Observation in Lipid
Bilayers and Its Application to Surface Science
- 16:30 **Coffee Break**

Chair: Yusuke ARIMA (Kyushu Univ., Japan)

16:40 IL2-13 **Hideaki YOSHIMURA** (Univ. Tokyo)
Large-scale Live-cell Single-molecule Imaging of
Receptors to Monitor Spatially Inhomogeneous
Molecular Motilities

17:00 SL-05 **Hidehiko NAKAGAWA** (Nagoya City Univ.)
Photocontrol of NO Release from Caged Nos
and Biological Applications

Chair: Yusuke ARIMA (Kyushu Univ., Japan)

17:20 IL2-14 **Yusuke ARIMA** (Kyushu Univ.)
High Spatiotemporal Imaging of Cell-Attached Interface
Using Plasmonic Metasurface

17:40 IL2-15 **Takeshi ITABASHI** (Yamaguchi Univ.)
Cholesterol Trafficking in and to The Primary
Cilium to Prevent Polycystic Kidney Disease

18:00 OP-01 **Kazuo Yagi** (Tohto Univ.)
MRI Contrast Agent Research - 45 years of Engaged in
the Basics, Animal Experiments and Development

18:20 **Banquet**
at the university coop cafeteria

Wednesday, December 4th, 2024

Chair: Takehisa DEWA (Nagoya Inst. Tech., Japan)

9:00 IL3-01 **Yuko UENO** (Chuo Univ.)
Interaction of Giant Vesicles Containing
Pyrene-Modified Lipids with Graphene Substrates

9:20 IL3-02 **Yukihiro OKAMOTO** (Osaka Univ.)
Cell Therapy Based on the Interaction Between
Lipid Based Nano Particles and Cell Membranes

9:40 IL3-03 **Kazuma YASUHARA** (Nara Inst. Sci. Tech.)
Polymer-Based Lipid Nanodiscs as Nanocarriers
for the Molecular Delivery to Intact Cells

10:00 **Coffee Break**

Chair: Naoki UMEZAWA (Nagoya City Univ., Japan)

10:10 IL3-04 **Kanta TSUMOTO** (Mie Univ.)
Micro LLPS with ATPS for Protein Particle
Preparation

10:30 SL-06 **Naoki UMEZAWA** (Nagoya City Univ.)
Temporary Cyclization to Control Peptide Functions

10:50 SL-07 **Yuji SUMII** (Nagoya Inst. Tech.)
Development of Antiamebic Fumagillin Derivatives
Based on The Strategic Incorporation of Fluorine

11:10 **Coffee Break**

Chair: Kanta TSUMOTO (Mie Univ., Japan)

- 11:30 IL3-05 **Kyohhei FUJITA** (Univ. Tokyo)
Development of Small-Molecule Anticancer Prodrugs
Based on the Discovery of Biomarker Glycosidase
Activities
- 11:50 IL3-06 **Takayuki UCHIHASHI** (Nagoya Univ.)
Single-Molecule Dynamics Revealed by High-Speed
Atomic Force Microscopy
- 12:10 IL3-07 **Koichi KATO** (Hiroshima Univ.)
Structure Prediction in Chimeric Protein Design
- 12:30 **Introduction of Next Symposium**
Koichi KATO (Hiroshima Univ.)
- 12:40 **Concluding Remarks**
Takehisa Dewa (Nagoya Institute of Technology)

Poster Session

Odd Number: 17:10 – 17:50

Even Number: 17:50 - 18:30

P-01 Quantitative Evaluation of Cell Damage by Diffusion of Intracellular Objects

Hideaki Ota¹, Hideo Higuchi^{1,2} (¹ School of Science, the University of Tokyo, ²New Industry Creation Hatchery Center, Tohoku university)

P-02 Creation of Multi-layered PEG Composite Carriers and the Effect of Magnetic Properties on the Core Material

K. Yagi,^{1,2} T. Shinoda,² S. Nakanishi,² S. Sugimoto,^{2,3} M. Kubo,² T. Inaba² (¹Department of Clinical Engineering, Faculty of Human Care at Makuhari, Tohto University, 1-1, Hibino, Mihama-ku, Chiba city, Chiba, Japan, ²Department of Mechanical Engineering, Graduate School of Engineering, Mie University, 8-6-4, kurimamachiyacyo, Tsu city, Mie, Japan, ³Monozukuri Engineering, Tokyo metropolitan college of Industrial Technology, 8-17-11, Minamisenju, Arakawa city, Tokyo, Japan)

P-03 Regenerative Potential Nanomedicine of Adipocyte Stem Cell-derived Exosomes in Senescent Skin Tissue

Hui-Min David Wang^{1,2} (¹Graduate Institute of Biomedical Engineering, National Chung Hsing University, Taiwan, ²Center of Applied Nanomedicine, National Cheng Kung University, Taiwan)

P-04 Development of Precision Nano-Radioimmunotherapy Using a Novel Nanocomplex in a Comparative Animal Study

Helen HW Chen,^{1,2} Hsiu-Yun Wang,¹ Pao-Sheng Hou,³ Wu-Chou Su,^{1,3*} and Tsung-Lin Tsai^{1,3*} (¹Department of Oncology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan 70457, Taiwan, ²Department of Radiation Oncology, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan 70454, Taiwan, ³Center of Applied

Nanomedicine, National Cheng Kung University, Tainan 704023, Taiwan)

- P-05 **Engineering of Degradable Hollow Mesoporous Silica Nanoparticles for Triggered Exponential Drug Release**
Chia Jui Yen (National Cheng Kung University)
- P-06 **An Inhalable Nanomedicine Delivery System for Therapeutic Evaluation in an Animal Model of Acute Lung Injury**
Huei-Han Zhang,¹ Chien-Chung Lin,² Ping-Ching Wu^{1,3,4*} (¹Department of Biomedical Engineering, National Cheng Kung University, Tainan 701, Taiwan, ²Department of Internal Medicine, College of medicine, National Cheng Kung University, Tainan 704 Taiwan, ³Center of Applied Nanomedicine, National Cheng Kung University, Tainan 701, Taiwan, ⁴Medical Device Innovation Center, Taiwan Innovation Center of Medical Devices and Technology, National Cheng Kung University Hospital, National Cheng Kung University, Tainan 704, Taiwan)
- P-07 **Magnetic Imaging & Control for Precision Nanomedicine Using Magnetic Particle Imaging**
Zhiwei Tay¹ and Steven M. Conolly² (¹National Institute of Advanced Industrial Science and Technology (AIST), Japan, ²Department of Bioengineering and EECS, University of California Berkeley, USA)
- P-08 **Boosting Upconversion Efficiency in Optically Inert Shelled Structures with Electroactive Membrane through Electron Donation**
Liu-Chun, Wang,¹ Hong-Kai Chen,¹ Wen-Jyun Wang,² Fang-Yi Hsu,² Hong-Zhang Huang,¹ Rui-Tong Kuo,¹ Wei-Peng Li,^{2,*} Hong-Kang Tian,^{1,*} Chen-Sheng Yeh,^{1,*} (¹National Cheng Kung University, ²Kaohsiung Medical University)
- P-09 **Innovative Redox Disruption Therapy Using Electron-Capturing Gold Nanoparticles with Electroactive Liposome Membranes for Targeted Cancer Treatment**
Ying-Chi Chen,^{1,#} Li-Chan Chang,[#] Yan-Ling Liu,^{1,#} Ming-Che Chang,¹ Yin-Fen Liu, Po-Ya Chang, Divinah Manoharan,¹ Wen-Jyun Wang, Jia-Sin Chen, Hsueh-Chun Wang, Wen-Tai Chiu,^{*} Wei-Peng Li^{*}, Hwo-Shuenn

Sheu,* Wen-Pin Su,* and Chen-Sheng Yeh^{1,2*} (¹Department of Chemistry, National Cheng Kung University, Tainan, Taiwan, ²Center of Applied Nanomedicine, National Cheng Kung University, Tainan 701, Taiwan)

P-10 Controlling the Surface Density of Antibody on a Single siRNA-loaded Liposome to T Cell Activation in Lung Metastasis

Fang-Hsuean Liao, Chin-Fong Su, Yen Yu Chen, Te-Haw Wu, Chun-Nien Yao, and Shu-Yi Lin (Institute of Biomedical Engineering and Nanomedicine, National Health Research Institutes, Taiwan)

P-11 A Correlation of Polymorphic G-quadruplex Formation *in vitro* and in the Lysosomes of Live Cancer Cells

Ting-Yuan Tseng,¹ Ta-Chau Chang,² and Ji-Yen Cheng³ (¹Research Center for Applied Sciences, Academia Sinica, Taipei 11529, Taiwan, ²Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 10617, Taiwan, ³Research Center for Applied Sciences, Academia Sinica, Taipei 11529, Taiwan)

P-12 Automated Classification of Minor Cell Damage Using Deep Learning, Phase-Contrast Imaging and Raman Spectroscopy

Yi-Ting Lai,¹ Yi-Chen Li,^{1,2} and Ji-Yen Cheng^{1,2*} (¹Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan, ²Institute of Biophotonics, National Yang Ming Chao Tung University, Taipei, Taiwan)

P-13 Carbon Quantum Dots for Biological Applications

Chinnathambi Shanmugavel,¹ Mahima Kumar,¹ and Ganesh N. Pandian¹ (¹Institute for Integrated Cell-Material Science (WPI-iCeMS), Kyoto University, Japan)

P-14 Real-Time Subcellular Imaging in Disease Models Using Two-Photon Microscopy: From Cardiac Dysfunction to Cancer Metastasis

Chiung Wen Kuo, Peilin Chen* (Research Center for Applied Sciences, Academia Sinica)

P-15 Supported Lipid Bilayer of Soybean-derived Phospholipids for Molecular Imaging of Ion Channels

J. Bando,¹ H. Okumura,² Y Tozawa,² R Tero¹ (¹Toyohashi University of Technology, ²Saitama University)

P-16 **Utilization of the cell-penetrating PG-surfactant for the cytosolic delivery of a peptide targeting smad2, thereby inhibiting the TGF- β signal transduction**

Ryunosuke Suzuki, Momoka Yamada, and Toshihisa Mizuno (Life and Material Chemistry Program, Graduate School of Engineering, Nagoya Institute of Technology)

P-17 **Visualization of Decomposition for Biodegradable Nano-Polymer Micelle by Using Near-Infrared Fluorescence Imaging**

Takumi Yasukochi,¹ Taiga Takahashi,^{1,2} Masakazu Umezawa,^{1,2} Masao Kamimura,^{1,2} Kohei Soga^{1,2} (¹Dept. Mater. Sci. and Tech., Tokyo Univ. of Sci., ²Dept. Med. Robotic. Eng's Design, Tokyo Univ. of Sci.)

P-18 **Fabrication of Microfluidic Devices for Reconstituting Brain Region Connectivity with Cultured Neurons**

S. Endo,^{1,2} H. Yamamoto,^{1,2} K. Nishimura,⁵ M. Sakaibara,^{2,3} N. Monma,^{1,2} Y. Masamizu,⁵ A. Hirano-Iwata,¹⁻⁴ S. Sato^{1,2} (¹Grad. Sch. Eng., ²RIEC, ³Grad. Sch. Biomed. Eng., ⁴AIMR, Tohoku Univ., ⁵Grad. Sch. Brain Sci., Doshisha Univ.)

P-19 **Membrane Fusion Rate of Lipid Bilayers Containing Polyunsaturated Lipids**

A. Goto, Y. Hirose, and R. Tero (Toyohashi University of Technology)

P-20 **Spectroscopic and Genetic Analysis to Clarify the Function of Streptomyces Heliorhodopsin**

Koyo Yamada,¹ Rei Abe-Yoshizumi,¹ Toshiki Nakamura,¹ Yuji Furutani,^{1,2} Tatsuro Nishikino,^{1,2} Hideki Kandori^{1,2} (¹Graduate School of Engineering, Nagoya Institute of Technology, Aichi, Japan, ²Optobiotechnology Research Center, Nagoya Institute of Technology, Aichi, Japan)

P-21 **Targeted Delivery of Small Molecules and Peptides to the Inner Plasma Membrane Using a Novel Lipopeptidomimetic Motif**

X. Wang,¹ S. Sawada,² M. Yoshikawa,² T. Iijima,¹ K. Tsutsui² and S. Tsukiji^{1,2}
(¹Department of Life Science and Applied Chemistry, Nagoya Institute of Technology, ²Department of Nanopharmaceutical Sciences, Nagoya Institute of Technology)

P-22 **Structural Analysis of Light-induced Interaction Changes between ρ SRll and its Transducer Protein ρ Htrll from *Natronomonas Pharaonis***

Tatsuya Sakamoto,¹ Jingyi Tang,¹ Soichiro Kato,¹ Tatsuro Nishikino,^{1,2} Yuji Furutani^{1,2} (¹Graduate School of Engineering, Nagoya Institute of Technology, Aichi, Japan, ²OptoBioTechnology Research Center, Nagoya Institute of Technology, Japan)

P-23 **Design, Synthesis, and Evaluation of Membrane-localizable Gefitinib Derivatives Targeting an EGFR Mutant**

Keishi Mitamura,¹ Keita Tsutsui,² Yoko Fukaya,² and Shinya Tsukiji^{1,2}
(¹Department of Life Science and Applied Chemistry, Graduate School of Engineering, Nagoya Institute of Technology, ²Department of Nanopharmaceutical Sciences, Graduate School of Engineering, Nagoya Institute of Technology)

P-24 **Evaluation of Ion Coordination to Lipid Bilayers by X-Ray Absorption Spectroscopy in Water**

Yu Kinjo,¹ Masanari Nagasaka,² Koji Okuwaki,³ Yuji Mochizuki,³ Ryugo Tero¹ (¹Department of Applied Chemistry and Life Science, Toyohashi University of Technology, 1-1 Hibarigaoka, Tempaku-cho, Toyohashi, Aichi 441-8580, Japan, ²Department of Photo-Molecular Science, Institute for Molecular Science, 38 NishigoNaka, Myodaiji, Okazaki, Aichi 444-8585, Japan, ³Department of Chemistry, Rikkyo University, 3-34-1 Nishi-Ikebukuro, Toshima-ku, Tokyo 171-8501, Japan)

P-25 **Effectiveness of Biosynthesized Gold Nanoparticles Using Microalgae and Cyanobacteria toward Photothermal Therapy to Eliminate Cervical Cancer Cells**

Reham Samir Hamida¹, Shingo Sotoma², Yoshie Harada^{1,3,4}, Madoka Suzuki¹ (¹Institute for Protein Research, Osaka University, Osaka, Japan, ²Faculty of Molecular Chemistry and Engineering, Kyoto Institute of

Technology, Kyoto, Japan, ³Center for Quantum Information and Quantum Biology, Osaka University, Osaka, Japan, ⁴Premium Research Institute for Human Metaverse Medicine (WPI-PRIME), Osaka University, Osaka, Japan)

P-26 Components to Affect the Fluorescence Maintenance of Micellar NIR Fluorescent Probes During Biliary Excretion

Souma Sugawara,¹ Taiga Takahashi,^{1,2} Masakazu Umezawa,^{1,2} Kohei Soga^{1,2} (¹Dept. Mater. Sci. and Tech., Tokyo Univ. of Sci., ²Dept. Med. Robotic. Eng's Design, Tokyo Univ. of Sci.)

P-27 Determining Elastic Properties of Vascular Tissue Using Acoustic Impedance Measurements

S. Morodomi, K. Ito, S. Maegawa, Y. Ujihara, S. Sugita, and M. Nakamura (Department of Electrical and Mechanical Engineering, Graduate School of Engineering, Nagoya Institute of Technology, Aichi, Japan)

P-28 Visualization of the Lipid Characteristics of Tumor Areas in the Mouse Livers

Mizuki Iwasaki,¹ Tomonori Kamiya,² Taiga Takahashi,^{1,3} Masakazu Umezawa,^{1,3} Naoko Otani,² Kohei Soga^{1,3} (¹Dept. Mater. Sci. and Tech., Tokyo Univ. of Sci., ²Graduate School of Medicine, Osaka Metropolitan Univ., ³Dept. Med. Robotic. Eng's Design, Tokyo Univ. of Sci.)

P-29 Ionic Liquids Improve Intestinal Absorption of Macromolecules (< 20 Kda): Their Effects on Gastrointestinal Cellular Tight Junctions and Absorption Sites

Shoichiro Fukuda,¹ Haruka Takata,^{1,2} Takashi Nakae,³ Noboru Tatsumi,³ Hidetoshi Hamamoto,³ Hidenori Ando,^{1,2} Tatsuhiko Ishida^{1,2} (¹Department of Pharmacokinetics and Biopharmaceutics, Institute of Biomedical Sciences, Tokushima University, ²Innovative Research Center for Drug Delivery System, Institute of Biomedical Sciences, Tokushima University, ³MEDRx Co., Ltd.)

P-30 Magnetic Relaxation of Gd Doped MnFe₂O₄ Nanoparticles for MR Effect and Heat Dissipation

Kataoka, Noboru,^{1,4} Aoki, Kota,¹ Usui, Akihito,³ Sakamoto, Takeshi,¹ Amano, Hiroki,¹ Kusumoto, Yuu,¹ Ichianagi, Yuko^{1,2} (¹Department of Physics, Yokohama National University Yokohama 240-8501 JAPAN, ² Graduate School of Engineering Science, Osaka University Toyonaka 560-0043 JAPAN, ³School of Medicine, Tohoku University Sendai 980-8575 JAPAN, ⁴Sojitz Corporation Tokyo 100-8691 JAPAN)

P-31 Effects of Circumferential Stretching on MMP-2 and MMP-9 Expression in the Aorta

M. Terada,¹ Y. Ujihara,¹ M. Nakamura,¹ and S. Sugita¹ (¹Biomechanics Laboratory, Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology)

P-32 Predicting Thrombus Formation in Stanford Type B Aortic Dissection: A Simulation-Based Study on the Effect of Shear Rate Thresholds on False Lumen Thrombosis

S. Imada, K. Komiya, Y. Ujihara, S. Sugita, M. Nakamura (Department of Electrical and Mechanical Engineering, Nagoya Institute of Technology, Japan)

P-33 Two-photon *in vivo* Imaging Reveals Dendritic Spine Changes in the Hippocampal CA1 Region during Hibernation-like State in Mice

Karin Tsutsumi,¹ Ryosuke Enoki,^{2,3} Yu Makino,¹ Kohei Soga,^{1,4} Tomomi Nemoto,^{2,3} Taiga Takahashi^{1,2,4} (¹Department of Materials Science and Technology, Graduate School of Advanced Engineering, Tokyo University of Science, ²Biophotonics Research Group, Exploratory Research Center on Life and Living Systems (ExCELLS), National Institutes of Natural Sciences, ³Division of Biophotonics, National Institute for Physiological Sciences, National Institutes of Natural Sciences, ⁴Department of Medical and Robotic Engineering Design, Faculty of Advanced Engineering, Tokyo University of Science)

P-34 Development of a Peptide that Captures and Neutralizes Target Toxins as Biodegradable Antidotes

Kaito Saito, Hiroyuki Koide, Haruka Yamada, Haruka Maruhashi, Tomohiro Asai (Dep. of Med biochem., Univ of Shizuoka Sch. Pharm. Sci.)

- P-35 **Development of mRNA-loaded LNPs with pH-responsive Dipeptide-conjugated Lipids for mRNA Vaccine**
Katsuki Matayoshi,¹ Sayaka Takahashi,² Sohei Ryu,¹ Sei yonezawa,¹ Nahoko Ozaki,² Makiko Kurata,² and Tomohiro Asai¹ (¹Department of medical Biochemistry, School of Pharmaceutical Science, University of Shizuoka, Shizuoka 422-8526, Japan., ²Development & Technical Group, Sogo Pharmaceutical Co., Ltd, Fukuoka 809-0003 Japan)
- P-36 **Light-induced structural changes of a rhodopsin domain in a rhodopsin-bestrophin giant ion channel complex studied by time-resolved infrared spectroscopy**
Natsuki Honda,¹ Rei Abe-Yoshizumi,^{1,2} Hideki Kandori,^{1,2} and Yuji Furutani^{1,2} (¹Graduate School of Engineering, Nagoya Institute of Technology, Aichi, Japan, ²Optobiotechnology Research Center, Nagoya Institute of Technology, Aichi, Japan)
- P-37 **Undistorted Retinal Chromophore after the Photoisomerization in *VsXeR* and its Implication for the Inward Proton Pump Function**
Yuma Ito,¹ Tatsuro Nishikino,^{1,2} Hideki Kandori,^{1,2} and Yuji Furutani^{1,2} (¹Department of Life Science and Applied Chemistry, Nagoya institute of technology, ²OptoBioTechnology Research Center, Nagoya institute of Technology)
- P-38 **In Vitro Selection of a Small Molecule-binding Tag Protein for Fluorescence Imaging**
Tomoki Miyazaki,¹ Shun Umemoto,² Koushirou Endo,⁵ Masaaki Tsuduki,² Natsumi Fukaya,¹ Kim Nguyen Chung,² Tatsuyuki Yoshii,¹ Yoshikatsu Sato,⁴ Tomoshige Fujino,² Gosuke Hayashi,² Tomoya Hino,⁵ Hiroshi Murakami,^{2,3} and Shinya Tsukiji¹ (¹Graduate School of Engineering, Nagoya Institute of Technology, ²Graduate School of Engineering, ³Institute of Nano-Life-Systems, Institute of Innovation for Future Society, ⁴Institute of Transformative Bio-Molecules (ITbM), Nagoya University, ⁵Graduate School of Engineering, Tottori University)
- P-39 **Development of Precise and Highly Efficient Gene Knock-in Technology Using FirmCut Platinum TALE Nickases**

Marina Akase,^{1,2} Tadahiko Yoshima³ and Tetsushi Sakuma² (¹Graduate School of Integrated Sciences for Life, Hiroshima University, ²Graduate School of Agriculture, Kyoto University, ³Bioscience Research Laboratory, Sumitomo Chemical Co., Ltd)

P-40 **Studies for Room-Temperature Mineralization of PTFE**

Hibiki Ota,¹ Taichi Araki,¹ Yusuke Murata,¹ Jin Hamaura,² Hiroaki Adachi,³ Takumi Kagawa,³ Hisao Hori,² Norio Shibata^{1,4} (¹Department of Engineering, Graduate School of Engineering, Nagoya Institute of Technology, ²Department of Chemistry, Faculty of Science, Kanagawa University, ³Tosoh Finechem Corporation, ⁴Department of Nanopharmaceutical Sciences, Nagoya Institute of Technology)

P-41 **Temperature Imaging in Mouse Brain through Skull by Using Fluorescence Lifetime of NaYF₄**

Yuki Tamagawa,¹ Taiga Takahashi,^{1,2} and Kohei Soga^{1,2} (¹Dept. Mater. Sci. and Tech., Tokyo Univ. of Sci., ²Dept. Med. and Robotic Engineering Design, Tokyo Univ. of Sci.)

P-42 **Glucose Modification of Fe₃O₄ Nanoparticles for Cancer Cell Selectivity**

H. Amano,¹ S. Watanabe,¹ R. Abe,² R. Yano,¹ Y. Kusumoto,¹ M Hasegawa¹ and Y. Ichianagi^{1,3} (¹Dept. of Phys., Grad. Sch. of Sci. and Eng., Yokohama Nat. Univ., ²Dept. of Phys., Fac. Sch. of Sci. and Eng., Yokohama Nat. Univ., ³Grad. Sch. of Eng. Sci., Osaka Univ.)