

1 日目（9 月 24 日（水））／Day 1（Sep. 24 Wed.）

1EA 核酸：結合タンパク質，ナノテクノロジー
Nucleic acid: binding protein, nanotechnology

座長：西尾 天志（産総研・モレキュラーバイオシステム），Archer Richard James（東京科学大）

Session Chairs: Takashi Nishio (MolBis, AIST), Richard James Archer (Inst. Sci. Tokyo)

18:50~20:30

A 会場（会議室 101+102）／Room A（Meeting Room 101+102）

- [1EA001](#) 細胞サイズ液滴内における DNA 高次構造変化と局在・液滴物性の相関
Higher-order structure of DNA confined in cell-size droplets modulates its localization and droplet material properties
○西尾 天志（産総研・モレキュラーバイオシステム）
Takashi Nishio (*MolBis, AIST*)
- [1EA002](#) Nuclease-induced stepwise photodrooping (NISP) to investigate single-stranded DNA degradation behaviors of exonucleases and endonucleases
Hsiufang Fan (*National Sun Yat-sen University, Kaohsiung, Taiwan*)
- [1EA003](#) Modulation of RNA transcription through DNA condensates reactions' encapsulation as a model for Chromatin micro rheology studies
Nathan Evangelista¹, Takahiko Chimura², Masahiro Takinoue^{1,2,3} (¹*Dept. of Life Sci. and Tech., Inst. of Science Tokyo*, ²*Dept. of Comp. Sci., Inst. of Science Tokyo*, ³*Research Center for Autonomous Systems Materialogy (ASMat), Inst. of Integrated Research (IIR), Inst. of Science Tokyo*)
- [1EA004](#) Dynamic assembly of complex hierarchical DNA polymer networks by biomolecular active agents
Farhana Afroze¹, **Richard James Archer**^{2,6}, Mahammad Mustakim³, Rakesh Das⁴,
Arif Md. Rashedul Kabir¹, Yuuto Miura¹, Rubaya Rashid⁵, Tetsuya Hiraiwa³, Shin-ichiro M. Nomura²,
Shogo Hamada^{6,7}, Akira Kakugo^{1,5} (¹*Department of Chemistry, Hokkaido University, Sapporo, Japan.*,
²*Department of Robotics, Tohoku University, Sendai, Japan.*, ³*Institute of Physics, Academia Sinica, Taipei, Taiwan.*, ⁴*Max Planck, Institute for the Physics of Complex Systems, Dresden, Germany.*,
⁵*Department of Physics and Astronomy, Kyoto University, Kyoto, Japan.*, ⁶*Department of Computer Science, Institute of Science Tokyo, Yokohama, Japan.*, ⁷*Biomolecular Design Institute, CBI Research Institute, Tokyo, Japan.*)

1EB バイオイメーキング，計測
Bioimaging, Measurement

座長：山崎 健（金沢大・ナノ生命科学研究所），楊 倬皓（東大・先端研）

Session Chairs: Takeru Yamazaki (WPI Nano Life Science Institute (WPI-NanoLSI), Kanazawa Univ.),
Zhuohao Yang (RCAT, Univ. Tokyo)

18:50~20:30

B 会場（会議室 103+104）／Room B（Meeting Room 103+104）

- [1EB001](#) FLIM による温度測定のために粘度応答を抑制した赤色蛍光温度計
Red Fluorescent Thermometer with Suppressed Viscosity Response for FLIM-based Thermometry
○山崎 健¹, 山澤 徳志子², 平田 修造³, 新井 敏¹ (¹金沢大・ナノ生命科学研究所, ²東京慈恵医大・基盤研究施設, ³東京電通大・院情報理工)
- Takeru Yamazaki¹**, Toshiko Yamazawa², Syuzo Hirata³, Satoshi Arai¹ (¹*WPI Nano Life Science Institute (WPI-NanoLSI), Kanazawa Univ.*, ²*Core Research Facilities, The Jikei Univ. Sch. of Med.*, ³*Dept. of Eng. Sci., Univ. of Electro-Commun.*)
- [1EB002](#) The maturation state of dengue virus particles affects their structural dynamics and nanomechanical properties
Steven John McArthur, Kenichi Umeda, Noriyuki Kodera (*Nano Life Science Inst., Kanazawa Univ.*)
- [1EB003](#) Comprehensive profiling of single-cell proteome based on 3D single-molecule imaging
Latiefia Kamarulzaman^{1,2}, Sooyeon Kim¹, Takuya Hidaka⁴, Yuichi Taniguchi^{1,2,3} (¹*Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University*, ²*Graduate School of Frontier Biosciences, The University of Osaka*, ³*Graduate School of Biostudies, Kyoto University*, ⁴*Institute of Molecular Biotechnology of the Austrian Academy of Sciences (IMBA), Vienna BioCenter (VBC)*)
- [1EB004](#) Single aptamer-modified DNA origami nanopore for specific chemical detection
Hiromu Akai, Kan Shoji (*Nagaoka University of Technology*)
- [1EB005](#) Pixel-Wise Deconvolution of Antibody Binding Kinetics Enables Visualization of Instantaneous Secretion Dynamics
Zhuohao Yang¹, Takashi Kamatani², Mai Yamagishi³, Nobutake Suzuki¹, Yuto Kurisu⁴, Takashi Funatsu^{1,5}, Yasuyuki Ozeki¹, Yoshitaka Shirasaki¹ (¹*RCAST, Univ. Tokyo*, ²*Inst. Integrated Res., Inst. Sci. Tokyo*, ³*Live Cell Diagnosis, Ltd.*, ⁴*Grad. Sch. Pharm. Sci., Univ. Tokyo*, ⁵*Grad. Sch. Integrated Sci. for Life, Hiroshima Univ.*)

1EC 細胞生物学的課題, 分子モーター, 非平衡
Cell biology, Molecular motor, Nonequilibrium

座長: 藤瀬 賢志郎 (金沢大・医薬保健研究域・医), 新谷 正嶺 (中部大学 生命健康科学部 生命医科学科)
Session Chairs: Kenshiro Fujise (Dept. FSIR, Faculty of Medicine, Kanazawa Univ.),
Seine A. Shintani (Department of Biomedical Sciences, College of Life and Health Sciences, Chubu University)

18:50~20:30

C 会場 (会議室 105+106) / Room C (Meeting Room 105+106)

- [1EC001](#) 細胞内再構成アプローチによるドーパミンシナプス小胞の形成機構の解析
Distinct synaptic vesicle populations in dopaminergic neurons: insights into organization and sorting by *in cellulo* reconstitution assay
○藤瀬 賢志郎¹, ニーシャ モハド ラフィク², ピエトロ デカミリ³, 齋藤 敦¹ (¹金沢大・医薬保健研究域・医, ²チュービンゲン大・学際的生化学, ³イエール大・医・神経科学)
- Kenshiro Fujise¹**, Nisha Mohd Rafiq², Pietro De Camilli³, Atsushi Saito¹ (¹*Dept. FSIR, Faculty of Medicine, Kanazawa Univ.*, ²*IFIB, Univ Tübingen, Germany*, ³*Dept Neurosci, YSM, Yale Univ, USA*)
- [1EC002](#) 「遅い」キネシンから「速い」キネシンへのギアチェンジにより実現される高速・高効率な軸索輸送メカニズム
Gear change to go through: Cooperation of two different kinesins enables fast and efficient axonal transport
○岩崎 奏子^{1,2}, 岩城 光宏^{2,3}, 岡田 康志^{1,2} (¹東京大・院医学, ²理研 生命機能科学研究センター, ³情報通信研究機構)
- Kanako Iwasaki^{1,2}**, Mitsuhiro Iwaki^{2,3}, Yasushi Okada^{1,2} (¹*Grad. Sch. Med., Univ. Tokyo*, ²*BDR, Riken*, ³*NICT*)

- 1EC003** がん細胞の増殖と免疫逃避を担う、液状ナノ信号プラットフォームの発見
Nano-liquid signaling platform responsible for both cancer cell growth and immune evasion
Taka-aki Tsunoyama¹, Christian Hoffmann², Daiki Sasaki¹, Bo Tang¹, Koichiro M Hirose³,
Yuri L Nemoto⁴, Rinshi S Kasai⁵, Takahiro K Fujiwara⁶, Kenichi GN Suzuki^{3,5,6}, Reinhard Fässler⁷,
Hiroki Ishikawa¹, Dragomir Milovanovic², Akihiro Kusumi^{1,6} (¹*OIST*, ²*DZNE*, ³*iGCORE, Gifu Univ.*,
⁴*Biosig. Res. Cent., Kobe Univ.*, ⁵*Div. Adv. Bioimag., Natl. Cancer Cent. Res. Inst.*, ⁶*WPI-iCeMS, Kyoto Univ.*, ⁷*Max Planck Inst. Biochem.*)
- 1EC004** 拍動心筋サルコメアに潜む秩序とカオスの動的恒常性
Localized Chaos within Periodic Beating of Cardiomyocyte Sarcomeres: Evidence for Chaordic Homeodynamics
○新谷 正嶺^{1,2,3} (¹中部大学 生命健康科学部 生命医科学科, ²中部大学 AI 数理データサイエンスセンター, ³名古屋大学 高等研究院)
Seine A. Shintani^{1,2,3} (*Department of Biomedical Sciences, College of Life and Health Sciences, Chubu University*, ²*Center for Mathematical Science and Artificial Intelligence, Chubu University*, ³*Institute for Advanced Research, Nagoya University*)
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1ED 生体膜, 合成生物学, 理論生物学
Biological membrane, Synthetic biology, Theoretical biology

座長: 栗栖 実 (東北大・院理物理), 木幡 愛 (科学大・生命理工)

Session Chairs: Minoru Kurisu (Dept. Physics, Grad. Sch. Sci., Tohoku Univ.),
Ai Kohata (Sch. Life Science and Technology, Science Tokyo)

18:50~20:30

D 会場 (会議室 107+108) / Room D (Meeting Room 107+108)

- 1ED001** 浸透圧を利用して出芽型分裂するベシクル系の開発
Osmotic spawning vesicle
○栗栖 実, 今井 正幸 (東北大・院理物理)
Minoru Kurisu, Masayuki Imai (*Dept. Physics, Grad. Sch. Sci., Tohoku Univ.*)
- 1ED002** PDA-Based Microfluidic Sensor for pathogenic bacteria Detection
Bratati Das, Kaori Sugihara (*Institute of Industrial Science, The university of Tokyo*)
- 1ED003** グラフによる生態系の定常分布と応答の表現
Diagrammatic expressions for steady-state distribution and static responses in population dynamics
○片山 康矢, 永山 龍那, 伊藤 創祐 (東大理)
Koya Katayama, Ryuna Nagayama, Sosuke Ito (*Dept. of Phys., U Tokyo*)
- 1ED004** 界面活性剤の自己集合化による水面に浮かぶ油滴の自律的な振動
Spontaneous oscillation of oil droplets on water surface by self-assembly of surfactants
○木幡 愛¹, 山田 雄平², 前田 真吾^{2,3}, 金原 数^{1,2} (¹科学大・生命理工, ²科学大・総合・自律システム材料科学研究センター, ³科学大・工)
Ai Kohata¹, Yuhei Yamada², Shingo Maeda^{2,3}, Kazushi Kinbara^{1,2} (¹*Sch. Life Science and Technology, Science Tokyo*, ²*ASMat, IIR, Science Tokyo*, ³*Sch. Mechanical Engineering, Science Tokyo*)

1EE 計算生物学: 分子シミュレーション, モデリング
Computational biology: Molecular simulation and modeling

座長: ジェラン ムハマド ディルガンタラ (医薬基盤・健康・栄養研究所 AI 健康・医薬研究センター),
Fan Shujie (Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences)

Session Chairs: **Jelang Muhammad Dirgantara** (Laboratory of In Silico Design, Artificial Intelligence Center for Health and Biomedical Research, National Institutes of Biomedical Innovation, Health and Nutrition, Osaka, Japan),
Shujie Fan (Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences)

18:50~20:30

E 会場 (会議室 201) / Room E (Meeting Room 201)

- [1EE001](#) 親和性を越えて: ペプチドの親和性と生物学的機能との関係性の解明
To Affinity and Beyond: Investigating the Relationship Between Peptide Affinity and Biological Functions
Jelang Muhammad Dirgantara¹, Takuto Nogimori², Kazuma Kiyotani³, Takuya Yamamoto², Suyong Re¹ (¹Laboratory of In Silico Design, Artificial Intelligence Center for Health and Biomedical Research, National Institutes of Biomedical Innovation, Health and Nutrition, Osaka, Japan, ²Laboratory of Precision Immunology, Center for Intractable Diseases and ImmunoGenomics, National Institutes of Biomedical Innovation, Health and Nutrition, Osaka, Japan, ³Laboratory of Immunogenomics, Center for Intractable Diseases and ImmunoGenomics, National Institute of Biomedical Innovation, Health and Nutrition, Osaka, Japan)
- [1EE002](#) Bayesian Inference of the Transport Mechanism of the Zn²⁺/H⁺ Antiporter YiiP from Microscale Thermophoresis and Simulations
Shujie Fan¹, David L. Stokes³, Oliver Beckstein² (¹Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences, ²Dept. of Physics, Arizona State University, ³Dept. of Cell Biology, NYU School of Medicine)
- [1EE003](#) An Integrative Computational Framework Using Sequence, Structural, and Functional Analyses to Predict Novel Pathogenic Troponin C Mutants
Pooja Pradipta Bandyopadhyay (School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi- 110067)
- [1EE004](#) 演題取り下げ Withdrawn
- [1EE005](#) Learning Transcription Machinery from Minimal Model, Molecular Dynamics, Genome Profiling, and Directed Evolution
Carmen Masri¹, Biao Wan², Liqiang Dai², Chao E³, **Jin Yu**¹ (¹Department of Physics and Astronomy, University of California-Irvine, USA, ²Wenzhou Institute, UCAS, Wenzhou, Zhejiang, China, ³Beijing Computational Science Research Center, Beijing, China)