

# Program

## Day 1: November 1 (Wed)

9:55-10:00	<b>Opening Remarks</b>		
10:00-10:15	<b>Oral Presentations</b> Chair: <b>Toshihiro Ihara</b> Kumamoto University	<b>10-01</b>	<b>Control of Nucleic Acid Phase Separation using Aptamers</b> <b>Samuel Hauf<sup>1</sup>, Yohei Yokobayashi<sup>1</sup></b> <sup>1</sup> Nucleic Acid Chemistry and Engineering Unit, Okinawa Institute of Science and Technology
10:15-10:30		<b>10-02</b>	<b>Chemical targeting of i-motif DNAs for cancer theranostic applications</b> <b>Sinjan Das<sup>1</sup>, Shuntaro Takahashi<sup>1</sup>, Tatsuya Ohyama<sup>1</sup>, Sudipta Bhowmik<sup>2,3</sup>, Naoki Sugimoto<sup>*1,4</sup></b> <sup>1</sup> Frontier Institute for Biomolecular Engineering Research (FIBER), Konan University, <sup>2</sup> University of Calcutta, <sup>3</sup> MGMARI, Sri Balaji Vidyapeeth, <sup>4</sup> Graduate School of Frontiers of Innovative Research in Science and Technology (FIRST), Konan University
10:30-10:45		<b>10-03</b>	<b>Heme Regulation by Mitochondrial-Generated lncRNAs via G-Quadruplex Structures</b> <b>Vinodh J. Sahayasheela<sup>1,2</sup>, Ryohei Noizumi<sup>1</sup>, Amit R. Reddi<sup>3</sup>, Hiroshi Sugiyama<sup>*1,2</sup></b> <sup>1</sup> Institute for Integrated Cell-Material Sciences (WPI-iCeMS), Kyoto University, <sup>2</sup> Department of Chemistry, Graduate School of Science, Kyoto University, <sup>3</sup> School of Chemistry and Biochemistry, Georgia Institute of Technology
10:45-11:00	<b>Oral Presentations</b> Chair: <b>Takehiko Wada</b> Tohoku University	<b>10-04</b>	<b>In-cell NMR study of the structure and interaction of an RNA aptamer targeting HIV-1 Tat within living human cells</b> <b>Omar Eladi<sup>1,2</sup>, Yudai Yamaoki<sup>1,2</sup>, Keiko Kondo<sup>1</sup>, Takashi Nagata<sup>1,2</sup>, Masato Katahira<sup>*1,2</sup></b> <sup>1</sup> Institute of Advanced Energy, and <sup>2</sup> Graduate School of Energy Science, Kyoto University
11:00-11:15		<b>10-05</b>	<b>Expanding ribozyme nanostructures through assembly of a cyclic trimer of modular ribozymes</b> <b>Yoshiya Ikawa<sup>*1,2</sup>, Mst. Ayesha Siddika<sup>1</sup>, Kumi Hidaka<sup>3</sup>, Hiroshi Sugiyama<sup>4</sup>, Masayuki Endo<sup>4,5</sup>, Shigeyoshi Matsumura<sup>1,2</sup></b> <sup>1</sup> Graduate School of Innovative Life Science, University of Toyama, <sup>2</sup> Graduate School of Science and Engineering, University of Toyama, <sup>3</sup> Graduate School of Science, Kyoto University, <sup>4</sup> Institute for Integrated Cell-Material Sciences, Kyoto University, <sup>5</sup> Organization for Research and Development of Innovative Science and Technology, Kansai University
11:15-11:30		<b>10-06</b>	<b>Human genome writing for understanding functionality of noncoding regions and disease-causing mutations</b> <b>Hikaru Kurasawa<sup>1</sup>, Tomoyuki Ohno<sup>2</sup>, Yasunori Aizawa<sup>*1,2</sup></b> <sup>1</sup> Kanagawa Institute of Industrial Science and Technology, <sup>2</sup> School of Life Science and Technology, Tokyo Institute of Technology
11:30-11:45	<b>Break</b>		

11:45-12:25	<b>Invited Lecture 1</b> Chair: <b>Naoki Sugimoto</b> Konan University	<b>IL-01</b>	<b>Non canonical tetra helices: find the differences!</b> <b>Claudia Sissi, Michele Ghezzi</b> Department of Pharmaceutical and Pharmacological Sciences, University of Padova
12:25-13:35	<b>Lunch Break</b>		
13:35-15:10	<b>Poster Presentations (1P-n)</b>		
15:10-15:25	Chair: <b>Kiyohiko Kawai</b> Tokyo Institute of Technology	<b>10-07</b>	<b>Development of PureCap Method Toward Synthesis of Fully Capped Messenger RNA by <i>In Vitro</i> Transcription</b> <b>Masahito Inagaki<sup>1</sup>, Naoko Abe<sup>1</sup>, Yuko Nakashima<sup>1,2</sup>, Li Zhenmin<sup>1</sup>, Susit Acharyya<sup>1</sup>, Kazuya Ogawa<sup>1</sup>, Daisuke Kawaguchi<sup>1</sup>, Haruka Hiraoka<sup>1</sup>, Mizuki Tada<sup>1</sup>, Zheyu Meng<sup>1</sup>, Tatsuma Ishida<sup>1</sup>, Pingxue Lyu<sup>1</sup>, Fumitaka Hashiya<sup>2</sup>, Yasuaki Kimura<sup>1</sup>, Satoshi Uchida<sup>3,4</sup>, Hiroshi Abe<sup>1,5,6</sup></b> <sup>1</sup> Graduate School of Sciences, Nagoya University, <sup>2</sup> Research center for Materials Science, Nagoya University, <sup>3</sup> Tokyo Medical and Dental University, Medical Research Institute, <sup>4</sup> Innovation Center of NanoMedicine (iCONM), <sup>5</sup> JST-CREST, <sup>6</sup> Institute for Glyco-core Research (iGCORE)
15:25-15:40		<b>10-08</b>	<b>Abasic site generation in nucleic acids by photocatalytic reaction</b> <b>Yuuhei Yamano<sup>1</sup>, Kazumitsu Onizuka<sup>1,2</sup>, Altan Okan<sup>1</sup>, Madoka Sasaki<sup>1,2</sup>, Ahmed Mostafa Abdelhady<sup>1</sup>, Fumi Nagatsugi<sup>1,2</sup></b> <sup>1</sup> Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, <sup>2</sup> Graduate School of Science, Tohoku University
15:40-15:55		<b>10-09</b>	<b>Virus detection and on-site visualization of infected spot by sequential enzymatic reaction between antibody-enzyme complex and Aptamer-DNAzyme</b> <b>Daimei Miura<sup>1</sup>, Wakana Hayashi<sup>1</sup>, Kensuke Hirano<sup>2</sup>, Kaori Tsukakoshi<sup>1</sup>, Hidehumi Kakizoe<sup>3</sup>, Satomi Asai<sup>3,4</sup>, Wakako Tsugawa<sup>1,2</sup>, Koji Sode<sup>5,6</sup>, Kazunori Ikebukuro<sup>1</sup>, Ryutaro Asano<sup>1,6</sup></b> <sup>1</sup> Department of Biotechnology and Life Science, Graduate School of Engineering, Tokyo University of Agriculture and Technology, <sup>2</sup> Department of Industrial Technology and Innovation, Graduate School of Engineering, Tokyo University of Agriculture and Technology, <sup>3</sup> Department of Laboratory Medicine, Tokai University School of Medicine, <sup>4</sup> Division of Infection Control, Tokai University Hospital, <sup>5</sup> Joint Department of Biomedical Engineering, University of North Caroline at Chapel Hill and North Carolina State University, <sup>6</sup> Institute of Global Innovation Research, Tokyo University of Agriculture and Technology
15:55-16:10	Chair: <b>Hisae Tateishi-Karimata</b> Konan University	<b>10-10</b>	<b>Advances in DNA and RNA Polymer Hybrids and Gels</b> <b>Jaepil Jeong<sup>1,2</sup>, Grzegorz Szczepaniak<sup>1,3</sup>, Krzysztof Matyjaszewski<sup>1</sup>, Subha R. Das<sup>1,2</sup></b> <sup>1</sup> Department of Chemistry and <sup>2</sup> Center for Nucleic Acids Science & Technology, Carnegie Mellon University
16:10-16:25		<b>10-11</b>	<b>DNA-commanded Morphological Transformation of Lipid Bilayer Chaperoned by PNA-cationic Copolymer Conjugates</b> <b>Wancheng Zhang, Naohiko Shimada, Atsushi Maruyama*</b> Department of Life Science and Technology, Tokyo Institute of Technology

16:25-16:40	<b>Break</b>		
16:40-17:20	<b>Invited Lecture 2</b> Chair: <b>Hisao Saneyoshi</b> University of Miyazaki	<b>IL-02</b>	<b>From Functionalized to Hypermodified Nucleic Acids</b> <b>Michal Hocek<sup>1,2</sup></b> <sup>1</sup> Institute of Organic Chemistry and Biochemistry, Czech Academy of Sciences, <sup>2</sup> Dept. of Organic Chemistry, Faculty of Science, Charles University
17:20-17:35	Chair: <b>Kohji Seio</b> Tokyo Institute of Technology	<b>10-12</b>	<b>Internucleotidic bond formation using <i>H</i>-phosphoramidate derivatives and acidic activators</b> <b>Taiki Tsurusaki, Kazuki Sato, Takeshi Wada*</b> Department of Medicinal and Life Sciences, Faculty of Pharmaceutical Sciences, Tokyo University of Science
17:35-17:50		<b>10-13</b>	<b>Amino acid-Nucleic acid Hybrids (ANHs) for Catalysis and Aptamer Applications</b> <b>Soyoung Park</b> Immunology Frontier Research Center (IFReC), Osaka University
17:50-18:05		<b>10-14</b>	<b>Enzymatic synthesis of several 2'-O-alkyl modified oligonucleotides with wide range of hydrophobicity</b> <b>Kenta Ishida<sup>1,2</sup>, Hidekazu Hoshino<sup>1</sup>, Satoshi Obika<sup>1,2,3</sup>, Yuuya Kasahara<sup>*1,2</sup></b> <sup>1</sup> National Institutes of Biomedical Innovation, Health and Nutrition, <sup>2</sup> Graduate School of Pharmaceutical Sciences, Osaka University, <sup>3</sup> Institute for Open and Transdisciplinary Research Initiatives, Osaka University
18:05-18:20	Chair: <b>Takeshi Wada</b> Tokyo University of Science	<b>10-15</b>	<b>Predicting Molecular Interactions by Graph Convolutional Neural Networks with Global Features</b> <b>Kaito Fukui<sup>*1</sup>, Qingwen Chen<sup>2</sup>, Hiroaki Santo<sup>1</sup>, Fumio Okura<sup>1</sup>, Takeshi Yamada<sup>3</sup>, Yasuyuki Matsushita<sup>1</sup>, Kazuhiko Nakatani<sup>2</sup></b> <sup>1</sup> Graduate School of Information Science and Technology, Osaka University, <sup>2</sup> SANKEN (The Institute of Scientific and Industrial Research), Osaka University, <sup>3</sup> Nucleotide and Peptide Drug Discovery Center, Tokyo Medical and Dental University
18:20-18:35		<b>10-16</b>	<b>Sensing unit tethered oligodeoxynucleotides for the multiplex biomolecular analysis</b> <b>Tatsuya Nishihara, Yuto Motohashi, Reoto Mio, Masato Sugawara, Shuhei Moritani, Kazuhito Tanabe*</b> College of Science and Engineering, Aoyama Gakuin University
18:35-18:50		<b>10-17</b>	<b>Selective Recognition of 2-Hydroxy-2'-Deoxyadenosine in DNA Using Pseudo-dC Derivatives</b> <b>Ryo Miyahara, Yosuke Taniguchi*</b> Graduate School of Pharmaceutical Sciences, Kyushu University

**Day 2: November 2 (Thu)**

10:00-10:15	<b>Oral Presentations</b>  Chair: <b>Yohei Yokobayashi</b> The Okinawa Institute of Science and Technology	<b>20-01</b>	<b>Adaptation of tryptophan aptamer into an electrochemical aptamer-based sensor for use in tryptophan metabolism studies in the rat</b> <u><b>Yuyang Wu</b></u> <sup>1</sup> , <b>Chelsea Brown</b> <sup>2</sup> , <b>Zeki Duman</b> <sup>3</sup> , <b>Tod Kippin</b> <sup>2</sup> , <b>Kevin Plaxco</b> <sup>*1</sup> <sup>1</sup> Department of Chemistry and Biochemistry, University of California Santa Barbara, <sup>2</sup> Department of Psychological and Brain Sciences, University of California Santa Barbara, Santa Barbara, <sup>3</sup> Department of Electrical and Computer Engineering, University of California Santa Barbara
10:15-10:30		<b>20-02</b>	<b>Exploration of DNA binding proteins for assembling covalently bound DNA-protein complexes and the application for biosensing system</b> <u><b>Erika Komiya</b></u> <sup>1</sup> , <b>Shouhei Takamatsu</b> <sup>1</sup> , <b>Daimei Miura</b> <sup>1</sup> , <b>Kaori Tsukakoshi</b> <sup>1</sup> , <b>Wakako Tsugawa</b> <sup>1,2</sup> , <b>Koji Sode</b> <sup>3</sup> , <b>Kazunori Ikebukuro</b> <sup>1</sup> , <b>Ryutaro Asano</b> <sup>*1,4</sup> <sup>1</sup> Department of Biotechnology and Life Science, Graduate School of Engineering, Tokyo University of Agriculture and Technology, <sup>2</sup> Department of Industrial Technology and Innovation, Graduate School of Engineering, Tokyo University of Agriculture and Technology, <sup>3</sup> Joint Department of Biomedical Engineering, University of North Carolina at Chapel Hill and North Carolina State University, <sup>4</sup> Institute of Global Innovation Research, Tokyo University of Agriculture and Technology
10:30-10:45		<b>20-03</b>	<b>From two strands to four - the interaction of ruthenium polypyridyl complexes with nucleic acid structures</b> <u><b>James P. Hall</b></u> <sup>*1</sup> , <b>Ahmad Abdullrahman</b> <sup>1</sup> , <b>Taylor David Prieto Otoy</b> <sup>2</sup> , <b>Kane McQuaid</b> <sup>2</sup> , <b>David J. Cardin</b> <sup>2</sup> , <b>Christine J Cardin</b> <sup>2</sup> <sup>1</sup> School of Pharmacy, University of Reading, <sup>2</sup> Department of Chemistry, University of Reading
10:45-11:00	<b>Oral Presentations</b>  Chair: <b>Daisuke Miyoshi</b> Konan University	<b>20-04</b>	<b>G-quadruplex ligands, G-quadruplex structure and NONO protein regulate ABCA1 expression in macrophages</b> <u><b>Chao-Da Xiao</b></u> <sup>*</sup> State Key Laboratory of Functions and Applications of Medicinal Plants, Guizhou Medical University
11:00-11:15		<b>20-05</b>	<b>New discovery of Z-form DNA-RNA hybrid structure <i>in vitro</i> and in living cells and its function in DNA replication</b> <u><b>Shiyu Wang</b></u> , <b>Yan Xu</b> <sup>*</sup> Division of Chemistry, Department of Medical Sciences, Faculty of Medicine, University of Miyazaki
11:15-11:30	<b>Break</b>		
11:30-12:10	<b>Invited Lecture 3</b>  Chair: <b>Masato Katahira</b> Kyoto University	<b>IL-03</b>	<b>Biological functions of G-quadruplexes in regulation of DNA replication</b> <u><b>Hisao Masai</b></u> Department of Basic Medical Sciences, Tokyo Metropolitan Institute of Medical Science

12:10-13:35	<b>Lunch Break Luncheon Seminar Sponsored by SynCrest</b>		
13:35-15:10	<b>Poster Presentations (2P-n)</b>		
15:10-15:25	<b>Break</b>		
15:25-16:25	<b>JASNAC General Meeting</b>		
16:25-16:55	<b>Special Lecture 1</b> Chair: <b>Akimitsu Okamoto</b> The University of Tokyo	<b>SL-01</b>	<b>New Developments in Nucleic Acid Chemistry Based on Metal-Mediated Nucleobase Pairing</b> <b><u>Mitsuhiko Shionoya</u></b> Department of Chemistry, Graduate School of Science, The University of Tokyo
16:55-17:25	<b>Special Lecture 2</b> Chair: <b>Kazuhiko Nakatani</b> Osaka University	<b>SL-02</b>	<b>Molecular recognition and functionalization of nucleic acid and protein assemblies</b> <b><u>Takashi Morii</u></b> Institute of Advanced Energy, Kyoto University
17:55-19:00	<b>Transit</b>		
19:00-21:00	<b>Exchange Meeting at MRT micc Diamond Hall</b>		

**Day 3: November 3 (Fri)**

10:00-10:40	<b>Invited Lecture 4</b> Chair: <b>Fumi Nagatsugi</b> Tohoku University	<b>IL-04</b>	<b>Synthetic RNA and RNP technologies to manipulate cells</b> <b><u>Hirohide Saito</u></b> Center for iPS cells Research and Application, Kyoto University
10:40-10:55	<b>Break</b>		
10:55-11:10	Chair: <b>Atsushi Maruyama</b> Tokyo Institute of Technology	<b>3O-01</b>	<b><i>E. Coli</i> can eat DNA and RNA as food – Nucleic acids are significant nutrition</b> <b>LiLi Huang<sup>1</sup>, Jing Hao<sup>1</sup>, Xinmei Du<sup>1</sup>, Jingyun Zhuang<sup>1</sup>, Ran An<sup>1,2</sup>, <u>Xingguo Liang</u><sup>1,2</sup></b> <sup>1</sup> College of Food Science and Engineering, Ocean University of China, <sup>2</sup> Laboratory for Marine Drugs and Bioproducts, Pilot National Laboratory for Marine Science and Technology (Qingdao)
11:10-11:25		<b>3O-02</b>	<b>Novel Design Strategy of DNA-Artificial Nucleic Acid Chimera (CANA) Toward Enhancement of RNase H Mediated Target RNA Cleavage Activities: Application for COVID-19 Therapeutics IV</b> <b><u>Takehiko Wada</u><sup>*1</sup>, Kazutoshi Fujita<sup>1</sup>, Yuto Horiuchi<sup>1</sup>, Nozomu Ishiwata<sup>1</sup>, Masahito Inagaki<sup>1,3</sup>, Hironori Hayashi<sup>2</sup>, Yasuyuki Araki<sup>1</sup>, Masaki Nishijima<sup>1</sup>, Eiichi Kodama<sup>2</sup></b> <sup>1</sup> Institute of Multidisciplinary Research for Advanced Materials (MRAM), Tohoku University, <sup>2</sup> International Research Institute of Disaster Science (IRDeS), Tohoku University, <sup>3</sup> Grad. School Science, Nagoya University
11:25-11:40		<b>3O-03</b>	<b>Targeting the G-quadruplex at the Human Vascular Endothelial Growth Factor Internal Ribosomal Entry Site: Repression of Translation by a Selective Small Ligand</b> <b><u>Xiang-Chun Sheng</u><sup>*</sup></b> State Key Laboratory of Functions and Applications of Medicinal Plants, Guizhou Medical University
11:40-11:55	Chair: <b>Yoshiya Ikawa</b> University of Toyama	<b>3O-04</b>	<b>Interaction of cyclic ferrocenylnaphthalene diimide with G-quadruplex RNA of SARS-CoV-2</b> <b><u>Shigeori Takenaka</u><sup>*</sup>, Shinobu Sato, Shuma Kaneyoshi</b> Department of Applied Chemistry, Kyushu Institute of Technology
11:55-12:10		<b>3O-05</b>	<b>Blinking as an Additional Fluorescence-Based Readout Parameter: Blinking controlled by Electron Transfer through DNA</b> <b>Shuya Fan<sup>1</sup>, Tadao Takada<sup>2</sup>, Atsushi Maruyama<sup>3</sup>, Mamoru Fujitsuka<sup>1</sup>, <u>Kiyohiko Kawai</u><sup>*3</sup></b> <sup>1</sup> SANKEN, Osaka University, <sup>2</sup> Graduate School of Engineering, University of Hyogo, <sup>3</sup> Department of Life Science and Technology, Tokyo Institute of Technology
12:10-12:25		<b>3O-06</b>	<b>Specific binding of cationic oligodiaminogalactoses to duplex RNA without binding to duplex DNA: Thermodynamic study</b> <b><u>Hidetaka Torigoe</u><sup>*1</sup>, Sumire Nakayama<sup>1</sup>, Tomomi Shiraishi<sup>2</sup>, Kazuki Sato<sup>2</sup>, Rintaro Iwata-Hara<sup>3</sup>, Takeshi Wada<sup>2</sup></b> <sup>1</sup> Department of Applied Chemistry, Faculty of Science, Tokyo University of Science, <sup>2</sup> Department of Medicinal and Life Sciences, Faculty of Pharmaceutical Sciences, Tokyo University of Science, <sup>3</sup> Department of Neurology and Neurological Science, Graduate School of Medical and Dental Sciences, Tokyo Medical and Dental University
12:25-	<b>Closing Remarks</b>		