

# Program

## Day 1: October 29 (Tue)

9:55-10:00	<b>Opening Remarks</b>	
10:00-10:15	<b>Oral Presentations</b> Chair: <b>Takehiko Wada</b> Tohoku Univ.	<b>10-01 Ligand-based functional improvement of G-quadruplex-forming DNA aptamers</b> <b>Kaori Tsukakoshi<sup>1</sup>, Yuri Ikuta<sup>1</sup>, Kaoru Konda<sup>1</sup>, Ikkei Sasaki<sup>1</sup>, Kazuo Nagasawa<sup>1</sup>, Yoshio Kato<sup>2</sup>, Chikashi Nakamura<sup>1,2</sup>, Kazunori Ikebukuro<sup>1*</sup></b> <sup>1</sup> Department of Biotechnology and Life Science, Graduate School of Engineering, Tokyo University of Agriculture and Technology, <sup>2</sup> Biomedical Research Institute, National Institute of Advanced Industrial Science and Technology
10:15-10:30		<b>10-02 Cyclic ferroceneynaphthalenes diimides as new type of G4 ligand for anti-cancer application</b> <b>Shigeori Takenaka<sup>1,2*</sup>, Shuma Kaneyoshi<sup>1</sup>, Tingting Zou<sup>1,2</sup>, Shinobu Sato<sup>1,2</sup>, Satoshi Fujii<sup>3</sup>, Kazuhisa Fujimoto<sup>4</sup></b> <sup>1</sup> Department of Applied Chemistry, <sup>2</sup> Research Center for Bio-microsensing Technology, Kyushu Institute of Technology, <sup>3</sup> Department of Bioscience and Bioinformatics, Kyushu Institute of Technology, <sup>4</sup> Department of Applied Chemistry and Biochemistry, Kyushu Sangyo University
10:30-10:45		<b>10-03 Photo-control of reversible duplex formation between SNA and RNA by [2+2] photocycloaddition of 8-pyrenylvinyl adenine</b> <b>Keiji Murayama*, Yuuhei Yamano, Hiroyuki Asanuma*</b> Graduate School of Engineering, Nagoya University
10:45-11:00	<b>Oral Presentations</b> Chair: <b>Yan Xu</b> Univ. of Miyazaki	<b>10-04 Single-Molecule Level Analysis of Nucleic Acids Structure by Controlling the Blinking</b> <b>Kiyohiko Kawai<sup>1*</sup>, Takafumi Miyata<sup>2</sup>, Naohiko Shimada<sup>2</sup>, Atsushi Maruyama<sup>2</sup></b> <sup>1</sup> The Institute of Scientific and Industrial Research, Osaka University, <sup>2</sup> School of Life Science and Technology, Tokyo Institute of Technology
11:00-11:15		<b>10-05 A hybridization chain reaction (HCR)-based microRNA detection system</b> <b>Kunihiko Morihiko<sup>1,2</sup>, Daisuke Fukui<sup>1</sup>, Akimitsu Okamoto<sup>1,3*</sup></b> <sup>1</sup> Department of Chemistry and Biotechnology, Graduate School of Engineering, The University of Tokyo, <sup>2</sup> JST ACT-X, <sup>3</sup> Research Center for Advanced Science and Technology (RCAST), The University of Tokyo
11:15-11:30		<b>10-06 Reaction of enzyme cascade assembled in a 3D DNA structure</b> <b>Peng Lin, Huyen Dinh, Eiji Nakata, Takashi Morii*</b> Institute of Advanced Energy, Kyoto University
11:30-11:45	<b>Break</b>	
11:45-12:25	<b>Invited Lecture 1</b> Chair: <b>Hidetaka Torigoe</b> Tokyo Univ. of Sci.	<b>IL-01 Designing RNA Devices in Test Tubes and Cells</b> <b>Yohei Yokobayashi*</b> Nucleic Acid Chemistry and Engineering Unit, Okinawa Institute of Science and Technology Graduate University
12:25-13:35	<b>Lunch Break</b>	
13:35-15:05	<b>Poster Presentations 1P-01~1P-63</b>	

15:05-15:20	<b>Oral Presentations</b> Chair: <b>Atsushi Maruyama</b> Tokyo Inst. of Tech.	<b>10-07 The Development of Cell Membrane Permeable Oligonucleotides</b> <b>Zhaoma Shu<sup>1</sup>, Iku Tanaka<sup>1</sup>, Azumi Ota<sup>1</sup>, Daichi Fushihara<sup>1</sup>, Naoko Abe<sup>1</sup>, Yasuaki Kimura<sup>1</sup>, Fumiaki Tomoike<sup>1</sup>, Seiichi Tada<sup>2</sup>, Yoshihiro Ito<sup>2</sup>, Hiroshi Abe<sup>1,2,3*</sup></b> <sup>1</sup> The Graduate School of Science, Nagoya University, <sup>2</sup> RIKEN Center for Emergent Matter Science, <sup>3</sup> JST CREST “Large-Scale Genome Synthesis and Cell Programming”
15:20-15:35		<b>10-08 Double-duplex invasion complex formed by unmodified PNA for the recognition of double-stranded DNA</b> <b>Yuichiro Aiba<sup>*</sup>, Masanari Shibata, Masaki Hibino, Osami Shoji<sup>*</sup></b> Graduate School of Science, Nagoya University
15:35-15:50		<b>10-09 Improvement of the immunostimulatory effects of CpG ODNs by forming G-quadruplex structure</b> <b>Kazuaki Hoshi<sup>1</sup>, Anh Thi Tram TU<sup>1,2</sup>, Kaori Tsukakoshi<sup>3</sup>, Wakako Tsugawa<sup>3</sup>, Koji Sode<sup>4</sup>, Kazunori Ikebukuro<sup>3</sup>, Tomohiko Yamazaki<sup>1,2*</sup></b> <sup>1</sup> Research Center for Functional Materials (RCFM), National Institute for Materials Science(NIMS), <sup>2</sup> Division of Life Science, Hokkaido University, <sup>3</sup> Department of Biotechnology and Life Science, Tokyo University of Agriculture and Technology, <sup>4</sup> Joint Department of Biomedical Engineering, The University of North Carolina at Chapel Hill and North Carolina State University
15:50-16:05	<b>Oral Presentations</b> Chair: <b>Akimitsu Okamoto</b> Univ. of Tokyo	<b>10-10 HCV IRES Captures an Actively Translating 80S Ribosome</b> <b>Takeshi Yokoyama<sup>1</sup>, Kodai Machida<sup>2</sup>, Wakana Iwasaki<sup>1</sup>, Tomoaki Shigeta<sup>2</sup>, Madoka Nishimoto<sup>1</sup>, Mari Takahashi<sup>1</sup>, Ayako Sakamoto<sup>1</sup>, Mayumi Yonemochi<sup>1</sup>, Yoshie Harada<sup>3</sup>, Hideki Shigematsu<sup>4</sup>, Mikako Shirouzu<sup>1</sup>, Hisashi Tadakuma<sup>3</sup>, Hiroaki Imataka<sup>2</sup>, Takuhiro Ito<sup>1*</sup></b> <sup>1</sup> RIKEN Center for Biosystems Dynamics Research, <sup>2</sup> Graduate School of Engineering, University of Hyogo, <sup>3</sup> Institute for Protein Research, Osaka University, <sup>4</sup> Life Science Research Infrastructure Group, RIKEN SPring-8 Center
16:05-16:20		<b>10-11 tRNA thiolation mechanism involving [4Fe-4S] cluster</b> <b>Yoshikazu Tanaka<sup>*</sup></b> Graduate School of Life Sciences, Tohoku University
16:20-16:35		<b>10-12 2-Thiouracil nucleobase protection for pcPNA synthesis</b> <b>Robert H.E. Hudson<sup>*</sup>, Ali Heidari, Timothy Martin-Chan, Gyeongsu Park, Mason Hermann, James A. Wisner</b> Department of Chemistry, The University of Western Ontario
16:35-16:50	<b>Break</b>	
16:50-17:30	<b>Invited Lecture 2</b> Chair: <b>Daisuke Miyoshi</b> Konan Univ.	<b>IL-02 Advanced mass spectrometry approaches to decipher nucleic acid folding and binding</b> <b>Valérie Gabelica<sup>*</sup></b> University of Bordeaux, INSERM and CNRS, ARNA Laboratory, IECB site

17:30-17:45	<b>Oral Presentations</b> Chair: <b>Shigeori Takenaka</b> Kyushu Inst. of Tech.	<b>10-13 siRNA Embedded GroEL Protein Nanotube as 'Artificial Viruses' for gene therapy.</b> <b>P.K Hashim<sup>1*</sup>, Seunghyun Sim<sup>1</sup>, Kou Okuro<sup>1</sup>, Takuzo Aida<sup>1,2*</sup></b> <sup>1</sup> Department of Chemistry and Biotechnology, The University of Tokyo, <sup>2</sup> RIKEN Center for Emergent Matter Science
17:45-18:00		<b>10-14 Minidumbbell: New Insights into Genetic Instabilities of Expandable DNA Repeats</b> <b>Pei Guo<sup>1*</sup>, Sik Lok Lam<sup>2</sup></b> <sup>1</sup> School of Biology and Biological Engineering, South China University of Technology, <sup>2</sup> Department of Chemistry, The Chinese University of Hong Kong
18:00-18:15	<b>Break</b>	
18:15-18:30	<b>Oral Presentations</b> Chair: <b>Shigenori Iwai</b> Osaka Univ.	<b>10-15 Potent Inhibitors and Dual Inhibitors of 8-Oxoguanine Surveillance by DNA Repair Enzymes</b> <b>Yuki Tahara, Eric T. Kool*</b> Stanford University
18:30-18:45		<b>10-16 Development of 7,8-disubstituted 7-deazadG nucleotide derivatives as 8-oxo-dG triphosphatase inhibitors</b> <b>Hui Shi, Yizhen Yin, Shigeki Sasaki, Yosuke Taniguchi*</b> Graduate School of Pharmaceutical Sciences, Kyushu University
18:45-19:00	<b>Oral Presentations</b> Chair: <b>Toshihiro Ihara</b> Kumamoto Univ.	<b>10-17 Circularization of ssDNA - Several Approaches to Suppress Intermolecular Polymerization</b> <b>Xingguo Liang<sup>1,2*</sup>, Ran An<sup>1,2*</sup>, Yixiao Cui<sup>1</sup>, Zhe Sui<sup>1</sup>, Mengqin Liu<sup>1</sup>, Yaping Zhang<sup>1</sup>, Hui Chen<sup>1</sup>, Makoto Komiyama<sup>1</sup></b> <sup>1</sup> College of Food Science and Engineering, Ocean University of China, <sup>2</sup> Laboratory for Marine Drugs and Bioproducts of Qingdao National Laboratory for Marine Science and Technology
19:00-19:15		<b>10-18 Prediction method for DNA duplex stability in molecular crowding conditions</b> <b>Saptarshi Ghosh<sup>1</sup>, Shuntaro Takahashi<sup>1</sup>, Tatsuya Ohyama<sup>1</sup>, Tamaki Endoh<sup>1</sup>, Hisae Tateishi-Karimata<sup>1</sup>, Naoki Sugimoto<sup>1,2*</sup></b> <sup>1</sup> Frontier Institute for Biomolecular Engineering Research (FIBER), <sup>2</sup> Graduate School of Frontiers of Innovative Research in Science and Technology (FIRST), Konan University

**Day 2: October 30 (Wed)**

9:20-10:00	<b>Invited Lecture 3</b> Chair: <b>Masayuki Tera</b> Tokyo Univ. of Agric. and Tech.	<b>IL-03 G-quadruplexes in Human Telomeres and Oncogene Promoters as Anticancer Drug Targets</b> <b>Danzhou Yang<sup>1,2*</sup></b> <sup>1</sup> Medicinal Chemistry and Molecular Pharmacology, College of Pharmacy, Purdue University, <sup>2</sup> Purdue Center for Cancer Research
10:00-10:15	<b>Oral Presentations</b> Chair: <b>Noriaki Minakawa</b> Tokushima Univ.	<b>2O-01 Development of New Biohybrid Materials by Merging of DNA and Amino Acids</b> <b>Soyoung Park<sup>1*</sup>, Hiroshi Sugiyama<sup>1,2*</sup></b> <sup>1</sup> Department of Chemistry, Graduate School of Science, Kyoto University, <sup>2</sup> Institute for Integrated Cell-Material Sciences (iCeMS), Kyoto University
10:15-10:30		<b>2O-02 Novel Design Strategy of DNA-Artificial Nucleic Acid Chimeras Toward Enhancement of RNase H Cleavage Activities</b> <b>Masahito Inagaki<sup>1</sup>, Akira Yano<sup>1</sup>, Seiya Ishizawa<sup>1</sup>, Masaki Nishijima<sup>1</sup>, Yasuyuki Araki<sup>1</sup>, Satoru Ishibashi<sup>2</sup>, Asako Yamayoshi<sup>3</sup>, Kazuhiko Nakatani<sup>4</sup>, Takanori Yokota<sup>2</sup>, Takehiko Wada<sup>1*</sup></b> <sup>1</sup> IMRAM, Tohoku University, <sup>2</sup> Tokyo Medical and Dental University, <sup>3</sup> Grad. School Biomed. Sci., Nagasaki University, <sup>4</sup> ISIR, Osaka University
10:30-10:45	<b>Oral Presentations</b> Chair: <b>Masayuki Fujii</b> Kindai Univ.	<b>2O-03 Tailor-made precision nucleic acids for targeted exon-skipping therapies.</b> <b>Rakesh N. Veedu<sup>1*</sup>, Bao T. Le<sup>1</sup>, Prithi Raguraman<sup>1</sup>, Jesper Wengel<sup>2</sup></b> <sup>1</sup> Centre for Molecular Medicine and Innovative Therapeutics, Murdoch University, and Perron Institute for Neurological and Translational Science, <sup>2</sup> Department of Physics Chemistry and Pharmacy, University of Southern Denmark
10:45-11:00		<b>2O-04 Base-flip-inducing oligo DNA and photo-crosslinking on the flipping-out field</b> <b>Kazumitsu Onizuka*, Kei Ishida, Sayaka Yajima, Eriko Mano, Fumi Nagatsugi*</b> Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
11:00-11:15	<b>Break</b>	
11:15-11:55	<b>Invited Lecture 4</b> Chair: <b>Kazunori Ikebukuro</b> Tokyo Univ. of Agric. and Tech.	<b>IL-04 Graphene-oxide Assisted SELEX (GO-SELEX) for Pair of Aptamers and Its Application on Sandwich-type Biosensors</b> <b>Man Bock Gu*</b> Department of Biotechnology, Korea University
11:55-12:35	<b>Invited Lecture 5</b> Chair: <b>Naoki Sugimoto</b> Konan Univ.	<b>IL-05 Oxidative Damage in G-Quadruplexes is Epigenetic</b> <b>Cynthia J. Burrows*, Aaron M. Fleming</b> Department of Chemistry, University of Utah
12:35-13:35	<b>Lunch Break</b>	
13:35-15:05	<b>Poster Presentations 2P-01~2P-62</b>	
15:05-15:25	<b>Break</b>	
15:25-16:25	<b>JSNAC General Meeting</b>	

16:25-16:45	<b>Special Lecture 1</b> Chair: <b>Hiroshi Sugiyama</b> Kyoto Univ.	<b>SL-01</b> <b>Bioorganic Study on DNA and design of DNA Targeting molecules</b> <b>-Message to young scientists for innovative work-</b> <b><u>Isao Saito*</u></b> Institute of Advanced Energy, Kyoto University
16:45-17:15	<b>Special Lecture 2</b> Chair: <b>Satoshi Obika</b> Osaka Univ.	<b>SL-02</b> <b>Synthesis and Development of Functional Nucleic Acids, BNAs</b> <b><u>Takeshi Imanishi*</u></b> BNA Inc.
17:15-17:30	<b>Break</b>	
17:30-18:00	<b>Special Lecture 3</b> Chair: <b>Hiroyuki Asanuma</b> Nagoya Univ.	<b>SL-03</b> <b>Creation of artificial restriction enzyme for genome manipulation</b> <b><u>Makoto Komiyama*</u></b> Ocean University of China (Emeritus Professor of the University of Tokyo)
18:00-19:00	<b>Transit</b>	
19:00-21:00	<b>Exchange Meeting at Kichijoji Daiichi Hotel</b>	

**Day 3: October 31 (Thu)**

9:20-10:00	<b>Invited Lecture 6</b> Chair: <b>Fumi Nagatsugi</b> Tohoku Univ.	<b>IL-06 Acyclic SNA and <math>\alpha</math>TNA as a new class of XNA for bio- and nanotechnology</b> <b><u>Hiroyuki Asanuma*</u></b> Department of Biomolecular Engineering, Graduate School of Engineering, Nagoya Univ.
10:00-10:15	<b>Oral Presentations</b> Chair: <b>Takashi Morii</b> Kyoto Univ.	<b>3O-01 Development of anti-prion RNA aptamers and destruction of the Alzheimer's disease-related complex</b> <b>Tsukasa Mashima<sup>1,2</sup>, Mamiko Iida<sup>1,2</sup>, Joon-Hwa Lee<sup>3</sup>, Yudai Yamaoki<sup>1</sup>, Masatomo So<sup>4</sup>, Yuji O. Kamatari<sup>5</sup>, Tomohiko Hayashi<sup>1</sup>, Masahiro Kinoshita<sup>1,2</sup>, Kazuo Kuwata<sup>6</sup>, Takashi Nagata<sup>1,2</sup>, Masato Katahira<sup>1,2*</sup></b> <sup>1</sup> Institute of Advanced Energy, Kyoto University, <sup>2</sup> Graduate School of Energy Science, Kyoto University, <sup>3</sup> Department of Chemistry and Research Institute of Natural Science, Gyeongsang National University, <sup>4</sup> Institute for Protein Research, Osaka University, <sup>5</sup> Life Science Research Center, Gifu University, <sup>6</sup> United Graduate School of Drug Discovery and Medical Information Sciences, Gifu University
10:15-10:30		<b>3O-02 "In droplet" evolution of a <i>trans</i>-acting RNA-cleaving ribozyme</b> <b><u>Shigeyoshi Matsumura*</u>, Motochika Ehara, Yoshiya Ikawa</b> Graduate School of Science and Engineering, University of Toyama
10:30-10:45		<b>3O-03 Short nucleic acid which modulates the stability of RNA G-quadruplexes regulates protein expression level</b> <b><u>Yousuke Katsuda<sup>1</sup>, Takuto Kamura<sup>1</sup>, Yusuke Kitamura<sup>1</sup>, Masaki Hagihara<sup>2*</sup>, Shin-ichi Sato<sup>3*</sup>, Toshihiro Ihara<sup>1*</sup></u></b> <sup>1</sup> Faculty of Advanced Science and Technology, Kumamoto University, <sup>2</sup> Graduate School of Science and Technology, Hirosaki University, <sup>3</sup> Institute for Chemical Research, Kyoto University
10:45-11:00		<b>Break</b>
11:00-11:15	<b>Oral Presentations</b> Chair: <b>Akira Ono</b> Kanagawa Univ.	<b>3O-04 Enhancement of allosteric DNzyme selectivity and efficiency by cationic copolymer</b> <b><u>Orakan Hanpanich</u>, Naohiko Shimada, Atsushi Maruyama*</b> Department of Life Science and Technology, Tokyo Institute of Technology
11:15-11:30		<b>3O-05 DNzyme Possessing Heme</b> <b><u>Yasuhiko Yamamoto<sup>1*</sup>, Ryosuke Shinomiya<sup>1</sup>, Haruka Araki<sup>1</sup>, Tomokazu Shibata<sup>1</sup>, Atsuya Momotake<sup>1</sup>, Sachiko Yanagisawa<sup>2</sup>, Takashi Ogura<sup>2</sup>, Akihiro Suzuki<sup>3</sup>, Saburo Neya<sup>4</sup></u></b> <sup>1</sup> Dept. of Chem., Univ. of Tsukuba, <sup>2</sup> Grad. Sch. of life Sci., Univ. of Hyogo, <sup>3</sup> Dept. of Mater. Eng., Natl. Inst. of Tech., Nagaoka Coll., <sup>4</sup> Grad. Sch. of Pharm. Sci., Chiba Univ.
11:30-11:45		<b>3O-06 Crystal structure of a DNA-stabilized silver nanocluster</b> <b><u>Jiro Kondo<sup>1*</sup>, Cecilia Cerretani<sup>2</sup>, Hiroki Kanazawa<sup>1</sup>, Tom Vosch<sup>2</sup></u></b> <sup>1</sup> Department of Materials and Life Sciences, Sophia University, <sup>2</sup> Department of Chemistry and NanoScience center, University of Copenhagen

11:45-12:00	<b>Oral Presentations</b> Chair: <b>Takeshi Wada</b> Tokyo Univ. of Sci.	<b>3O-07 Raman spectra of oligonucleotides bearing acetylene-tagged cytosine derivatives</b> <b><u>Kazuhito Tanabe*</u>, Ryota Itaya, Ryosuke Kurihara</b> College of Science and Engineering, Aoyama Gakuin University
12:00-12:15		<b>3O-08 Manipulation of cellular activities using DNA aptamer-based chemical tools</b> <b><u>Ryosuke Ueki</u><sup>1*</sup>, Shota Hayashi<sup>1</sup>, Masaya Tsunoda<sup>1</sup>, Momoko Akiyama<sup>1</sup>, Hanrui Liu<sup>1</sup>, Shinsuke Sando<sup>1,2*</sup></b> <sup>1</sup> Department of Chemistry and Biotechnology, Graduate School of Engineering, The University of Tokyo, <sup>2</sup> Department of Bioengineering, Graduate School of Engineering, The University of Tokyo
12:15-12:30		<b>3O-09 Restoration of Cas9 catalytic activity for DNA cleavage by small molecules</b> <b><u>Yoshio Kato*</u>, Yuichi Furuhata</b> National Institute of Advanced Industrial Science and Technology (AIST)
12:30-	<b>Closing Remarks</b>	