

Program

Day 1: November 13 (Wed)

8:50-9:00	Opning Remarks	
9:00-9:15	Oral Presentations Chair: Kohji Seio Tokyo Institute of Technology	10-01 Synthesis of Boron-Containing Antisense Molecules by the <i>H</i> -Boranophosphate Method <u>Sho Uehara</u> ¹⁾²⁾ , Shingo Hiura ¹⁾ , Renpei Higashida ¹⁾ , Natsuhisa Oka ⁴⁾ , Takeshi Wada ¹⁾²⁾³⁾ 1) The University of Tokyo, Department of Medical Genome Sciences, 2) JST-CREST, 3) Tokyo University of Science, Department of Medicinal and Life Science, 4) Gifu University, Department of Chemistry and Biomolecular Science
9:15-9:30		10-02 An antiproliferative effect by targeting oncogene with antigene oligonucleotides containing WNA- β T in an anti-parallel triplex formation <u>Yosuke Taniguchi</u> , Shigeki Sasaki Kyushu University, Department of Pharmaceutical Sciences
9:30-9:45	Oral Presentations Chair: Takeshi Wada Tokyo University of Science	10-03 Synthesis of Serinol Nucleic Acid (SNA) with unique properties <u>Hiromu Kashida</u> , Keiji Murayama, Hiroyuki Asanuma Nagoya University, Graduate School of Engineering
9:45-10:00		10-04 Synthesis of oligodeoxynucleotides incorporating conformational restriction at the 5'-terminus and their application to discrimination of RNA length variants <u>Yoshihiro Iijima</u> ¹⁾ , Sayako Kurohagi ¹⁾ , Erika Kodama ¹⁾ , Shun Kojima ¹⁾ , Takashi Kanamori ¹⁾²⁾ , Yoshiaki Masaki ¹⁾ , Akihiro Ohkubo ¹⁾ , Mitsuo Sekine ¹⁾ , Kohji Seio ¹⁾ 1) Tokyo Institute of Technology, Department of Life Science, 2) Tokyo Institute of Technology, Education Academy of Computational Life Science
10:00-10:15	Break	
10:15-10:55	Invited Lecture Chair: Hiroshi Abe Hokkaido University	1L-01 PNA-programmed Self Assemblies in Chemical Biology <u>Nicolas Winssinger</u> Organic chemistry department - University of Geneva 30, quai Ernest-Ansermet, CH-1211 Geneva 4 - Switzerland
10:55-11:10	Oral Presentations Chair: Kazuhiko Nakatani Osaka University	10-05 <i>In vitro</i> selection for macrocyclic peptides leading to inhibitors and cocrystallization ligands for PfMATE <u>Christopher John Hipolito</u> ¹⁾ , Yoshiki Tanaka ²⁾ , Takayuki Katoh ¹⁾ , Osamu Nureki ²⁾ , Hiroaki Suga ¹⁾ 1) The University of Tokyo, Graduate School of Science, Department of Chemistry, 2) The University of Tokyo, Graduate School of Science, Department of Biophysics and Biochemistry
11:10-11:25		10-06 DNA-based Hybrid Catalysts Using the Covalent Anchoring Strategy: Structural Understanding of DNA-based Asymmetric Catalysis <u>Soyoung Park</u> ¹⁾ , Linjie Zheng ¹⁾ , Shunsuke Kumakiri ¹⁾ , Haruka Otomo ¹⁾ , Hiroshi Sugiyama ¹⁾²⁾ 1) Kyoto University, Department of Chemistry, 2) Institute for Integrated Cell-Materials Science (iCeMS), Kyoto University
11:25-11:40	Break	

11:40-12:20	Invited Lecture Chair: Shigeori Takenaka Kyushu Institute of Technology	1L-02 Signal Amplification Strategies for Electrochemical Nucleic Acid based Sensing Platform <u>I-Ming Hsing</u> Division of Biomedical Engineering and Department of Chemical and Biomolecular Engineering, the Hong Kong University of Science and Technology, Hong Kong
12:20-12:35	Oral Presentations Chair: Yoshihito Ueno Gifu University	1O-07 Dual-quadruplex forming ribozyme distinctly switches on its activity in response to K ⁺ <u>Yudai Yamaoki</u> ¹⁾²⁾³⁾ , Tsukasa Mashima ¹⁾ , Takashi Nagata ¹⁾²⁾ , Masato Katahira ¹⁾²⁾ 1) Kyoto University, Institute of Advanced Energy, 2) Kyoto University, Graduate school of energy science, 3) JSPS Research Fellow
12:35-12:50		1O-08 RNAi induced by short RNA fragments <u>Hideto Maruyama</u> ¹⁾²⁾ , Akira Matsuda ¹⁾ , Yoshihiro Ito ²⁾ , Hiroshi Abe ¹⁾²⁾³⁾ 1) Hokkaido University, Faculty of Pharmaceutical Sciences, 2) RIKEN, 3) JST PRESTO
12:50-14:00	Lunch	
14:00-15:30	Poster Presentations (Odd Numbers)	
15:30-15:45	Oral Presentations Chair: Ichiro Hirao RIKEN	1O-09 New insights into transcription fidelity: Stability of non-canonical structures in template DNA regulates transcription arrest, pause and slippage <u>Hisae Tateishi-Karimata</u> ¹⁾ , Naoki Sugimoto ¹⁾²⁾ 1) Frontier Institute for Biomolecular Engineering Research (FIBER), Konan University, 2) Faculty of Frontiers of Innovative Research in Science and Technology (FIRST), Konan University
15:45-16:00		1O-10 Self-priming elongation of simple repetitive sequence by DNA polymerase <u>Xingguo Liang</u> ¹⁾²⁾ , Yang Wang ¹⁾ , Xianming Tao ¹⁾ , Ping Dong ¹⁾ , Tomohiro Kato ²⁾ , Hiroyuki Asanuma ²⁾ 1) College of Food Science and Engineering, Ocean University of China., 2) Department of Molecular Design and Engineering, Graduate School of Engineering, Nagoya University, Chikusa, Nagoya 464-8603, Japan
16:00-16:15		1O-11 Enzymatic incorporation of unnatural ImN ^N : NaO ⁰ base pair consisting of four hydrogen bonds. <u>Noriko Tarashima</u> , Naoshi Yamazaki, Kazuhiro Furukawa, Noriaki Minakawa The University of Tokushima, Graduate School of Pharmaceutical Sciences
16:15-16:55	Invited Lecture Chair: Kazuo Shinozuka Gunma University	1L-03 Polymerase synthesis of base-modified DNA. New methods and new applications <u>Michal Hocek</u> ¹⁾²⁾ 1) Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, Gilead Sciences & IOCB Research Center, Flemingovo nam. 2, CZ-16610 Prague 6, Czech Republic; 2) Dept of Organic Chemistry, Faculty of Science, Charles University in Prague, Hlavova 8, CZ-12843 Prague 2, Czech Republic. hocek@uochb.cas.cz
16:55-17:10	Break	

17:10-17:25	Oral Presentations Chair: Akio Kobori Kyoto Institute of Technology	10-12 Design of a universal module sequence for an aptamer sensor based on an allosteric DNzyme <u>Yasuyuki Tomita</u> ¹⁾ , Yuji Morita ¹⁾ , Taeko Akiyoshi ¹⁾ , Hiroaki Suga ²⁾ , Daisuke Fujiwara ¹⁾ 1) Central Laboratories for Key Technologies, KIRIN Company, Ltd., 2) Department of Chemistry, Graduate School of Science, The University of Tokyo
17:25-17:40		10-13 Tumor-targeted delivery of miR-499 via systemic administration for advanced cancer therapy by vascular normalization <u>Hidenori Ando</u> ¹⁾ , Tomohiro Asai ¹⁾ , Takehisa Dewa ²⁾ , Tetsuo Minamino ³⁾ , Naoto Oku ¹⁾ 1) University of Shizuoka, Department of Medical Biochemistry, 2) Nagoya Institute of Technology, Department of Life and Materials Engineering, 3) Osaka University, Department of Cardiovascular Medicine
17:40-18:20	Invited Lecture Chair: Naoki Sugimoto Konan University	1L-04 Rational design of small molecules targeting RNA from sequence <u>Matthew D. Disney</u> ¹⁾ , Sai Velagapudi ²⁾ , Jessica Childs-Disney ¹⁾ , Lirui Guan ¹⁾ , Suzanne Rzuczek ¹⁾ 1) Department of Chemistry The Scripps Research Institute Jupiter Florida 33458 USA
18:20-18:35	Oral Presentations Chair: Takehiko Wada Tohoku University	10-14 Development of the molecular probes for the selective chemical modification in an Abasic site. <u>Gen-ichiro Tsuji</u> , Norihiro Sato, Takuma Moki, Fumi Nagatsugi Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
18:35-18:50		10-15 Laser desorption supersonic jet spectroscopy of uric acid-melamine complex: Structural identification in the gas phase <u>Hiroya Asami</u> ¹⁾ , Shu-hei Urashima ²⁾ , Hiroyuki Saigusa ²⁾ , Masaaki Fujii ¹⁾ 1) Chemical Spectroscopy Division, Chemical Resources Laboratory, Tokyo Institute of Technology, 2) Graduate School of Nanobioscience, Yokohama City University

Day 2: November 14 (Thu)

9:00-9:15	Oral Presentations Chair: Kenzo Fujimoto Japan Advanced Institute of Science and Technology	20-01 Development of a homodimeric adaptor for constructing an artificial protein assembly on molecular switchboard <u>Tien Anh Ngo</u> ¹⁾ , Eiji Nakata ¹⁾²⁾ , Masayuki Saimura ¹⁾ , Tsutomu Kodaki ¹⁾ , Takashi Morii ¹⁾²⁾ 1) Kyoto University, Institute of Advanced Energy, 2) CREST, JST
9:15-9:30		20-02 Liposome Membranes Enhance Self-Cleavage of Hammerhead Ribozyme with and without Magnesium (II) <u>Keishi Suga</u> , Seishiro Tanaka, Hiroshi Umakoshi Osaka University, Graduate School of Engineering Science, Division of Chemical Engineering
9:30-9:45	Oral Presentations Chair: Yukio Kitade Gifu University	20-03 Elucidation of a novel tmRNA function at the early stage of translation <u>Kota Sakane</u> , Asuteka Nagao, Tsutomu Suzuki Department of Chemistry and Biotechnology, School of Engineering, The University of Tokyo
9:45-10:00		20-04 Biogenesis of tRNA modification utilizing bicarbonate and implication for translational regulation by sensing cellular metabolite status <u>Tai Harada</u> , Kenjyo Miyauchi, Tsutomu Suzuki The University of Tokyo, Graduate School of Engineering, Department of Chemistry and Biotechnology
10:00-10:15	Break	
10:15-10:55	Invited Lecture Chair: Mitsuo Sekine Tokyo Institute of Technology	2L-01 The active site and evolutionary origin of the spliceosome <u>Kiyoshi Nagai</u> , Wojciech P Galej, Thi Hoang Duong Nguyen, Yasushi Kondo, Chris Oubridge, Jade Li, Andrew J. Newman MRC Laboratory of Molecular Biology, Francis Crick Avenue, Cambridge Biomedical Campus, Cambridge CB2 0QH, UK.
10:55-11:10	Oral Presentations Chair: Noriaki Minakawa The University of Tokushima	20-05 Rolling Circle Amplification in translation system <u>Hiroshi Abe</u> ¹⁾²⁾³⁾ , Naoko Abe ²⁾ , Michio Hiroshima ²⁾ , Hideto Maruyama ¹⁾²⁾ , Yuko Nakashima ²⁾ , Yukiko Nakano ²⁾ , Akira Matsuda ¹⁾ , Satoshi Shuto ²⁾ , Yasushi Sako ²⁾ , Yoshihiro Ito ²⁾ 1) Hokkaido University, Faculty of Pharmaceutical Sciences, 2) Nano Medical Engineering Laboratory, RIKEN Advanced Science Institute, 3) PRESTO, Japan Science and Technology Agency
11:10-11:25		20-06 Synthesis and Interaction Behavior of Peptide Ribonucleic Acid (PRNA)-PNA-DNA Chimeras and Application to Expression Control of Genetic Information <u>Takehiko Wada</u> ¹⁾ , Ryohei Uematsu ¹⁾ , Tatsuya Mizutani ¹⁾ , Yasuyuki Araki ¹⁾ , Seiji Sakamoto ¹⁾ , Junpei Ariyoshi ²⁾ , Asako Yamayoshi ²⁾ , Akira Murakami ²⁾ 1) IMRAM, Tohoku University, 2) Kyoto Institute of Technology, Graduate School of Science and Technology
11:25-11:40	Break	
11:40-12:20	Invited Lecture Chair: Shinsuke Sando Kyushu University	2L-02 Sequence Selective Recognition of Double-Stranded RNA Using Nucleobase and Backbone-Modified PNA <u>Eriks Rozners</u> Department of Chemistry, Binghamton University, SUNY, Binghamton, NY 13902, USA

12:20-12:35	Oral Presentations Chair: Fumi Nagatugi Tohoku University	20-07 Aptamer selection based on putative G-quadruplex sequence in genome <u>Kazunori Ikebukuro</u> ¹⁾²⁾ , Taiki Saito ¹⁾ , Wataru Yoshida ¹⁾²⁾ , Tomomi Yokoyama ¹⁾ , Kentaro Teramoto ¹⁾ 1) Department of Biotechnology and Life Science, Graduate school of Engineering, Tokyo University of Agriculture and Technology, 2) JST, CREST
12:35-12:50		20-08 Targeted mutagenesis with cell-penetrating zinc-finger nuclease proteins <u>Yoshio Kato</u> ¹⁾ , Carlos F. Barbas, III ²⁾ 1) National Institute of Advanced Industrial Science and Technology (AIST), Biomedical Research Institute, 2) The Scripps Research Institute, Departments of Molecular Biology and Chemistry
12:50-14:00	Lunch	
14:00-15:30	Poster Presentations (Even Numbers)	
15:30-15:45	Oral Presentations Chair: Hiroshi Sugiyama Kyoto University	20-09 Photoinduced charge transfer dynamics of perylenediimide assembly organized in DNA duplex <u>Tadao Takada</u> ¹⁾ , Akane Ashida ¹⁾ , Mitsunobu Nakamura ¹⁾ , Kiyohiko Kawai ²⁾ , Mamoru Fujitsuka ²⁾ , Tetsuro Majima ²⁾ , Kazushige Yamana ¹⁾ 1) University of Hyogo, Department of Materials Science and Chemistry, 2) Osaka University, The Institute of Scientific and Industrial Research (SANKEN)
15:45-16:00		20-10 Detection of Single-Nucleotide Variations by Monitoring the Blinking Triggered by Charge Separation in DNA <u>Kiyohiko Kawai</u> ¹⁾ , Tetsuro Majima ¹⁾ , Atsushi Maruyama ²⁾ 1) Osaka University, The Institute of Scientific and Industrial Research, 2) Tokyo Institute of Technology, Department of Biomolecular Engineering, Graduate School of Bioscience and Biotechnology
16:00-16:15		20-11 Synthesis of cyclic naphthalene diimide derivatives aiming at tetraplex DNA selective drug <u>Shigeori Takenaka</u> ¹⁾ , Md.Izabella Czerwinska ²⁾ , Md. Monirul Islam ¹⁾ , Shinobu Sato ¹⁾²⁾ , Satoshi Fujii ³⁾ 1) Kyushu Institute of Technology, Department of Applied Chemistry, 2) Kyushu Institute of Technology, Research Center for Bio-microsensing Technology, 3) Kyushu Institute of Technology, Department of Bioscience and Bioinformatics
16:15-16:55	Invited Lecture Chair: Hiroyuki Asanuma Nagoya University	2L-03 DNA Nanotags: Bright Fluorescent Labels Based on Intercalating Dyes and DNA Nanostructures <u>Bruce A. Armitage</u> Department of Chemistry and Center for Nucleic Acids Science and Technology, Carnegie Mellon University, 4400 Fifth Avenue, Pittsburgh, PA 15213 USA
16:55-17:10	Break	

17:10-17:25	Oral Presentations Chair: Kazushige Yamana University of Hyogo	20-12 New design principal of inhibitors targeting microRNA from binding behaviors of antisense oligonucleotides with RISC (I) Evaluation of binding affinities between RISC and artificial oligonucleotides by native agarose gel system <u>Asako Yamayoshi</u> , Yohei Matsuyama, Akio Kobori, Akira Murakami Kyoto Institute of Technology, Department of Biomolecular Engineering
17:25-17:40		20-13 Precise Structure Control of Nanomechanical DNA Origami Devices <u>Akinori Kuzuya</u> ¹⁾²⁾ , Mirai Hashizume ¹⁾ , Ryosuke Watanabe ¹⁾ , Masafumi Kaino ¹⁾ , Yuichi Ohya ¹⁾ 1) Kansai University, Department of Chemistry and Materials Engineering, 2) PRESTO, JST

Day 3: November 15 (Fri)

9:00-9:15	Oral Presentations Chair: Hidetaka Torigoe Tokyo University of Science	3O-01 Theoretical Model of the Reaction Pathway Describing Formation of the T-Hg ^{II} -T Metal-Mediated DNA Base Pair <u>Vladimír Sychrovský</u> ¹ , Jakub Šebera ¹ , Jaroslav Burda ² , Michal Straka ¹ , Akira Ono ³ , Chojiro Kojima ⁴ , Yoshiyuki Tanaka ⁵ 1) Department of Molecular Spectroscopy, Institute of Organic Chemistry and Biochemistry, Academy of Sciences of the Czech Republic, 2) Department of Chemical Physics and Optics, Faculty of Mathematics and Physics, Charles University in Prague, Ke Karlovu 3, 121 16 Prague, Czech Republic, 3) Department of Material & Life Chemistry, Faculty of Engineering, Kanagawa University, 3-27-1 Rokkakubashi, Kanagawa, Yokohama, Kanagawa-ken 221-8686 Japan, 4) Institute for Protein Research, Osaka University, 3-2 Yamadaoka, Suita, Osaka 565-0871, Japan, 5) Laboratory of Molecular Transformation, Graduate School of Pharmaceutical Sciences, Tohoku University, 6-3 Aza-Aoba, Aramaki, Aoba-ku, Sendai, Miyagi 980-8578, Japan
9:15-9:30		3O-02 Metal ion-directed drastic conformational change of DNA and its application to DNAzyme activity control <u>Toshihiro Ihara</u> , Hiroyuki Ohura, Tomohiro Furuzono, Chisato Shirahama, Yusuke Kitamura Kumamoto University, Department of Applied chemistry and Biochemistry
9:30-9:45	Oral Presentations Chair: Masato Katahira Kyoto University	3O-03 Structure of Ag(I)-mediated C-C base pair determined by hetero-nuclear NMR spectroscopy <u>Yoshiyuki Tanaka</u> ¹ , Takenori Dairaku ¹ , Itaru Okamoto ² , Kyoko Furuita ³ , Jakub Šebera ⁴ , Mathias Bickelhaupt ⁵ , Shuji Oda ¹ , Daichi Yamanaka ¹ , Yoshinori Kondo ¹ , Vladimír Sychrovský ⁴ , Chojiro Kojima ³ , Akira Ono ² 1) Tohoku University, Graduate School of Pharmaceutical Sciences, 2) Kanagawa University, Department of Material and Life Chemistry, 3) Osaka University, Institute for Protein Research, 4) Academy of Sciences of the Czech Republic, Institute of Organic Chemistry and Biochemistry, 5) VU University Amsterdam, Department of Theoretical Chemistry
9:45-10:00		3O-04 Crystal structure of DNA duplex containing two consecutive T-Hg(II)-T base pairs <u>Jiro Kondo</u> ¹ , Tom Yamada ¹ , Chika Hirose ¹ , Itaru Okamoto ² , Yoshiyuki Tanaka ³ , Akira Ono ² 1) Sophia University, Department of Materials and Life Sciences, 2) Kanagawa University, Department of Material and Life Chemistry, 3) Tohoku University, Graduate School of Pharmaceutical Sciences
10:00-10:15	Break	
10:15-10:55	Invited Lecture Chair: Yoshiyuki Tanaka Tohoku University	3L-01 Metal Ions Take Charge: RNA Folding on the Single Molecule Level <u>Roland K. O. Sigel</u> Department of Chemistry, University of Zurich, Winterthurerstrasse 190, CH-8057 Zurich, Switzerland
10:55-11:10	Oral Presentations Chair: Toshihiro Ihara Kumamoto University	3O-05 Thermodynamic properties of chemically-modified duplexes under molecular crowding conditions <u>Hidetaka Torigoe</u> , Yukiko Hashizume, Hiroshi Noguchi Department of Applied Chemistry, Faculty of Science, Tokyo University of Science
11:10-11:25		3O-06 Regulation of gene expression by visible light irradiation with T7 promoter involving azobenzene derivatives <u>Yukiko Kamiya</u> ¹ , Toshiki Takagi ² , Hiroshi Ito ² , Xingguo Liang ² , Hiroyuki Asanuma ² 1) Nagoya University, EcoTopia Science Institute and Graduate School of Engineering, 2) Nagoya University, Graduate School of Engineering

11:25-11:40	Break	
11:40-12:20	Invited Lecture Chair: Akira Ono Kanagawa University	3L-02 DNA Functional Nanomaterials as Sensitive sensors and Potential Drugs <u>Huan-Tsung Chang</u> , Jennifer D. Lee, Wei-Yu Chen, Yen-Chun Shiang, Chia-Lun Hsu Department of Chemistry, National Taiwan University, Taipei 106, Taiwan
12:20-12:35	Oral Presentations Chair: Jiro Kondo Sophia University	3O-07 Details of the ultra-fast DNA photocrosslinking reaction of 3-cyanovinylcarbazole nucleoside; <i>Cis-trans</i> isomeric effect and the application for genotyping <u>Takashi Sakamoto</u> ¹⁾ , Asuka Yamada ¹⁾ , Yoshinaga Yoshimura ¹⁾ , Kenzo Fujimoto ¹⁾²⁾ 1) School of Materials Science, Japan Advanced Institute of Science and Technology, 2) Research Center for Bio-Architecture, Japan Advanced Institute of Science and Technology
12:35-12:50		3O-08 Probing DNA mismatched and bulged structures by ¹⁹ F NMR using ¹⁹ F-labeled oligonucleotides <u>Kazuhiro Tanabe</u> , Takuya Tsuda, Sei-ichi Nishimoto Kyoto University, Department of Energy and Hydrocarbon Chemistry
12:50-14:00	Lunch	
14:00-14:40	Invited Lecture Chair: Akimitsu Okamoto The University of Tokyo	3L-03 RNA m6A demethylase FTO and Obesity: Mechanisms of Association and Beyond <u>Yun-Gui Yang</u> Disease Genomics and Individualized Medicine Laboratory, Beijing Institute of Genomics, Chinese Academy of Sciences, No.1-7 Beichen West Road, Chaoyang District, Beijing 100101, P. R. China
14:40-14:55	Invited Lecture Chair: Takashi Morii Kyoto University	3O-09 Single-molecule observation and control of DNA recombination in the DNA frames <u>Masayuki Endo</u> ¹⁾³⁾ , Yuki Suzuki ²⁾³⁾ , Yousuke Katsuda ²⁾ , Keiyu Ou ²⁾ , Kumi Hidaka ¹⁾ , Hiroshi Sugiyama ¹⁾²⁾³⁾ 1) Kyoto University, Institute for Integrated Cell-Material Sciences (WPI-iCeMS), 2) Kyoto University, Graduate School of Science, 3) JST, CREST
14:55-15:10		3O-10 Modified ECHO Probes for Effective Intracellular RNA Imaging <u>Akimitsu Okamoto</u> ¹⁾ , Kaori Sugizaki ¹⁾ , Takuma Sueoka ¹⁾ , Katsuya Takeda ¹⁾ , Gosuke Hayashi ¹⁾ , Shuji Ikeda ²⁾ , Mizue Yuki ²⁾ , Dan Ohtan Wang ³⁾ 1) The University of Tokyo, RCAST, 2) RIKEN, 3) Kyoto University, iCeMS
15:10-15:20	Closing Remarks	