PROGRAM

Sunday, September 4

Main Hall	
16:45-17:00	**Opening Address**
17:00-18:00 KL-01	**Keynote Lecture** Chair: Hideyuki Hayashi, *Osaka Medical College* **Prospecting for new flavoenzymes** Tadhg P. Begley *Texas A&M University*
18:00-20:00	**Welcome Reception & Dinner**

Monday, September 5

Main Hall	
09:00-10:30	**Plenary Session 1** **Enzymes in the production of useful chemicals** Chair: Yasuhisa Asano, *Toyama Prefectural University* Joelle Pelletier, *University of Montreal*
09:00-09:30 PL-01	**Flavoenzyme biocatalysis – Challenges and opportunities** Marko D. Mihovilovic *Vienna University of Technology, Institute of Applied Synthetic Chemistry* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
09:30-10:00 PL -02	**Ketoreductases and transaminases in pharmaceutical syntheses** Hans Iding *F. Hoffmann-La Roche Ltd.* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
10:00-10:30 PL -03	**Modern pharmacology: Magic bullet & combinatorial approaches.** Alexander Gabibov *Russian Academy of Sciences*
10:30-11:00	Coffee Break
11:00-11:30	**Plenary Session 2** **Novel technologies using enzymes and cofactors** Chair: Joelle Pelletier, *University of Montreal* Yasuhisa Asano, *Toyama Prefectural University*
11:00-11:30 PL -04	**Synthetic biology approach for the biosynthesis and diversification of natural products** Gavin Williams *North Carolina State University* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
11:30-12:00	Break
12:00-12:50 LS-01	**Luncheon Seminar 1** *Sponsored by Amano Enzyme Inc.* **Introduction of Amano Enzyme Inc., and its biotransformation enzymes focusing lipase.** Shotaro Yamaguchi *Amano Enzyme Inc.* **The application of lipase in the manufacture of fine chemicals.** Lirong Yang *Zhejiang University*
12:50-13:00	Break

13:00-15:00	**ERATO Asano Active Enzyme Molecule Project Progress Report** Facilitator: Kimiyasu Isobe *Coordinator of Asano Active Enzyme Molecule Project*
13:00-13:15 ES -01	**Introduction to the ERATO Session** Yasuhisa Asano *Biotechnology Research Center and Department of Biotechnology, Toyama Prefectural University* *Research Director, Asano Active Enzyme Molecule Project, ERATO, JST*
13:15-13:45 ES -02	**Exploration of novel biocatalysts from plants and arthropods** Takuya Yamaguchi and Mohammad Dadashipour *Bioresource Exploration Group* *Asano Active Enzyme Molecule Project, ERATO, JST*
13:45-14:10 ES -03	**Development of new enzymatic methods for efficient production of useful chemicals** Kazunori Yamamoto *Bioorganic Chemistry Group* *Asano Active Enzyme Molecule Project, ERATO, JST*
14:10-14:40 ES -04	**Structure and bioinformatics analysis of industrially-promising enzymes for protein engineering** Fumihiro Motojima and Shogo Nakano *Structure and Bioinformatics Research* *Asano Active Enzyme Molecule Project, ERATO, JST*
14:40-15:00 ES -05	**Exploration of new methods to assign aggregation hot-spots focused on secondary structure and amino acid hydrophobicity** Daisuke Matsui *Enzyme Engineering Group* *Asano Active Enzyme Molecule Project, ERATO, JST*
15:00-15:20	Coffee Break
15:20-17:20	**Plenary Session 3** **Medical, pharmaceutical and nutritional applications of cofactors and enzymes** Chair: En-Pei Chiang, *National Chung Hsing University* Katsumi Shibata, *University of Shiga Prefecture*
15:20-15:50 PL -05	**The ins and outs of bacterial cytochrome P450 monooxygenases** Joelle Pelletier *University of Montreal* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
15:50-16:20 PL -06	**Medical aspects and chiral science of amino acid metabolism: regulation of human D-amino acid oxidase gene expression and implication for translation to neuropsychiatric disorders** Kiyoshi Fukui *Tokushima University*
16:20-16:50 PL -07	**Role of NAD metabolism in disease** Takashi Nakagawa *University of Toyama*
16:50-17:20 PL -08	**Regulation of folate-mediated one-carbon metabolic kinetics by genetic variations** En-Pei Chiang *National Chung Hsing University*
17:30-19:00	**Poster Session 1 (Room A)** Core time: posters allotted even number

Tuesday, September 6

Main Hall	
09:00-10:30	**Plenary Session 4** **Structure, function and catalytic mechanisms of enzymes and cofactors** Chair: Robert S. Phillips, *University of Georgia* Tohru Yoshimura, *Nagoya University*
09:00-09:30 PL-09	**Mechanism and biocatalysis of two-component flavin-dependent monooxygenases** Pimchai Chaiyen *Mahidol University* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
09:30-10:00 PL -10	**Ground-state destabilization in pyridoxal-5'-phosphate dependent enzymes: Tyrosine phenol-lyase and tryptophan indole-lyase** Robert S. Phillips *University of Georgia*
10:00-10:30 PL -11	**Noncanonical reactions catalyzed by atypical flavoenzymes** Pablo Sobrado *Virginia Polytechnic Institute and State University*
10:30-11:00	Coffee Break
11:00-12:00	**Plenary Session 5** **Molecular biology and biosynthetic aspects of cofactors** Chair: Robert S. Phillips, *University of Georgia* Tohru Yoshimura, *Nagoya University*
11:00-11:30 PL -12	**Functional diversity of organic enzyme cofactors** Michael Richter *Fraunhofer Institute for Interfacial Engineering and Biotechnology* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
11:30-12:00 PL -13	**Investigation of the cofactors and electron transfer pathway of FAD dependent dehydrogenase complexes capable of direct electron transfer** Koji Sode *Tokyo University of Agriculture and Technology*
12:00-13:00	Lunch Break (Lunch Box)
13:00-18:30	**Excursion**
19:00-21:00	**Banquet at Hotel Aqua Kurobe**

Wednesday, September 7

Main Hall

09:00-10:20 — **Oral Session OA 01-04**
Structure, function and catalytic mechanisms of enzymes and cofactors
Chair: Jitka Frébortová, *Palacký University*
Mamoru Yamada, *Yamaguchi University*

09:00-09:20 OA-01 — **Iron-sulfur clusters in a radical *S*-adenosyl methionine enzyme PqqE**
Natsaran Saichana[1], Katsuyuki Tanizawa[1], Jiří Pechoušek[2], Petr Novák[2], Ivo Frébort[1],and Jitka Frébortová[1]
[1]Centre of the Region Haná for Biotechnological and Agricultural Research
[2]Regional Centre of Advanced Technologies and Materials, Department of Experimental Physics; Faculty of Science, Palacký University

09:20-09:40 OA-02 — **Mechanism of sequential formation of intrapeptidyl thioether cross-links by the radical SAM enzyme QhpD**
Tadashi Nakai, Katsuyuki Tanizawa, and Toshihide Okajima
Institute of Scientific and Industrial Research, Osaka University

09:40-10:00 OA-03 — **X-ray crystallographic structure of semiquinone radical intermediate formed in bacterial copper amine oxidase**
Toshihide Okajima[1], Tadashi Nakai[1], Katsuyuki Tanizawa[1], Takeshi Murakawa[2], and Hideyuki Hayashi[2]
[1]Institute of Scientific and Industrial Research, Osaka University
[2]Osaka Medical College

10:00-10:20 OA-04 — **Analysis of possible interaction site of bulk quinone in membrane-bound glucose dehydrogenase**
Mamoru Yamada[1, 2, 3], Toshitaka Funahashi[1], Rieko Yamasaki[1], Hanae Shinoda[2], and Tomoyuki Kosaka[1, 2, 3]
[1]Life Science, Graduate School of Science and Technology for Innovation
[2]Faculty of Agriculture, and [3]Research Center for Thermotolerant Microbial Resources, Yamaguchi University

10:20-11:40 — **Oral Session OA 05-08**
Structure, function and catalytic mechanisms of enzymes and cofactors
Chair: Michael Dunn, *University of California*
Toshihide Okajima, *Osaka University*

10:20-10:40 OA-05 — **Protonation states and reaction specificity in tryptophan synthase from NMR crystallography**
Bethany G. Caulkins, Robert P. Young, Michael F. Dunn, and Leonard J. Mueller
Departments of Chemistry and Biochemistry, University of California

10:40-11:00 OA-06 — **The tunnel in tryptophan synthase is a selective filter for accommodating indole and rejecting water**
Michael F. Dunn[1], Bethany G. Caulkins[2] and Leonard J. Mueller[2]
Departments of Biochemistry[1]and Chemistry[2], University of California

11:00-11:20 OA-07 — **Reaction control mechanism of 5-aminolevulinate synthase**
Yuki Shimeno[1], Hiroko Ikushiro[2], Takato Yano[2], Nobuo Kamiya[3,1], and Ikuko Miyahara[1]
[1]Graduate School of Science, Osaka City University
[2]Depertment of Biochemistry, Osaka Medical Collage
[3]OCARINA, Osaka City University

11:20-11:40 OA-08 — **Reaction mechanism of eukaryotic serine racemase catalyzing both racemization and dehydration of D-, L-serine**
Tohru Yoshimura, Tomokazu Ito, Mai Matsuoka, Hiroaki Mayumi, and Hisashi Hemmi
Department of Applied molecular Biosciences, Graduate School of Bioagricultural Sciences, Nagoya University

11:40-12:00 — Break

12:00-12:50 LS -02	**Luncheon Seminar 2** *Sponsored by Japanese Coenzyme Q Association* **Coenzyme Q10 as a useful natural antioxidant** Yorihiro Yamamoto *Tokyo University of Technology*
12:50-13:00	Break
13:00-14:20	**Oral Session OA 09-12** **Structure, function and catalytic mechanisms of enzymes and cofactors** Chair: Kenji Inagaki, *Okayama University* Steve Rokita, *Johns Hopkins University*
13:00-13:20 OA-09	**AmCP-mediated lysine biosynthesis and regulation** Makoto Nishiyama *Biotechnology Research Center, The University of Tokyo* *Supported by ERATO Asano Active Enzyme Molecule Project
13:20-13:40 OA-10	**Crystal structure of recombinant L-lysine α-oxidase in complex with its substrate** Kenji Inagaki[1], Marie Amano[1], Hiroki Kondo[2], Nanako Ito[2], Shigeru Sugiyama[3], Katsumi Imada[2], Takashi Tamura [1], and Hitoshi Kusakabe[4] *[1]Department of Biofunctional Chemistry, Graduate School of Environmental and Life Science, Okayama University* *[2]Department of Macomolecular Science, Graduate School of Science, Osaka University* *[3]Department of Chemistry, Graduate School of Science, Osaka University* *[4]Enzyme Sensor Co., Ltd.*
13:40-14:00 OA-11	**Cloning and characterization of glucoside 3-dehydrogenase operon from *Rhizobium radiobacter*** Ryota Miyazaki[1], Katsuhiro Kojima[2] , Wakako Tsugawa[1], Koji Sode[1,2] *[1]Department of Biotechnology & Life Science, Graduate School of Engineering, Tokyo University of Agriculture and Technology* *[2]Ultizyme International Ltd.*
14:00-14:20 OA-12	**Mutual activation of substrate and cofactor for reductive dehalogenation** Steven E. Rokita, Jimin Hu, Nattha Ingavat, Petrina A. Boucher, Arnab Mukherjee, Qi Su, and Abhishek Phatarphekar *Department of Chemistry, Johns Hopkins University*
14:20-15:40	**Oral Session OA 13-16** **Structure, function and catalytic mechanisms of enzymes and cofactors** Chair: Pablo Sobrado, *Virginia Polytechnic Institute and State University* Takashi Tamura, *Okayama University*
14:20-14:40 OA-13	**Crystal structure of a novel pyrophosphate-dependent kinase** Ryuhei Nagata[1, 2],Masahiro Fujihashi[1],Takaaki Sato[3],Haruyuki Atomi[3] and Kunio Miki[1] *[1]Department of Chemistry, Graduate School of Science, Kyoto University* *[2]Research Fellow of Japan Society for the Promotion of Science* *[3]Departmentof Synthetic Chemistry and Biological Chemistry, Graduate School of Engineering, Kyoto University*

14:40-15:00 OA-14	**Contribution of the substrate distortion to the reaction of orotidine 5'-monophosphate decarboxylase** Masahiro Fujihashi[1], Toyokazu Ishida[2], Lakshmi P. Kotra[3,4], Emil F. Pai[3,5], and Kunio Miki[1] *[1]Department of Chemistry, Graduate School of Science, Kyoto University* *[2]Nanosystem Research Institute (NRI), National Institute of Advanced Industrial Science and Technology (AIST)* *[3]Toronto General Research Institute/University Health Network (UHN)* *[4]Departments of Pharmaceutical Sciences and Chemistry, McLaughlin Center for Molecular Medicine, University of Toronto* *[5]Ontario Cancer Institute/UHN, and Departments of Biochemistry, Medical Biophysics, and Molecular Genetics, University of Toronto*
15:00-15:20 OA-15	**Identification, characterization, and crystal structure of catalytic mechanism of *Bombyx mori* prostaglandin E synthase** Koji Yamamoto[1], Akifumi Higashiura[2], Mamoru Suzuki[2], Atsushi Nakagawa[2] *[1]Department of Bioscience and Biotechnology, Kyushu University* *[2]Institute for Protein Research, Osaka University*
15:20-15:40 OA-16	**ZosA, a zinc-uptake P-type ATPase transporter, plays a role in copper import in *Bacillus subtilis* 168** Takashi Tamura[1], Kazuo Kobayashi[2], Naotake Ogasawara[2] and Kenji Inagaki[1] *[1]Okayama University,* *[2]Nara Institute of Science & Technology*
15:40-16:00	Coffee Break
16:00-17:30	**Plenary Session 6** **Exploration of enzymatic activities by screening and protein engineering** Chair: Michael Richter, *Fraunhofer Institute for Interfacial Engineering and Biotechnology* Michihiko Kataoka, *Osaka Prefecture University*
16:00-16:30 PL -14	**Introducing and reducing the nitrile group** Ulf Hanefeld *Delft University of Technology* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
16:30-17:00 PL -15	**A journey from an ancient finger print of Rossmann fold enzymes to cofactor engineering** Paola Laurino *Weizmann Institute of Science in Rehovot* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
17:00-17:30 PL -16	**Protein engineering as a tool to improve PLP-dependent enzymes for applications in biocatalysis** Uwe Bornscheuer *University of Greifswald* *ERATO Asano Active Enzyme Molecule Project Invited Speaker
17:40-19:10	**Poster Session 2 (Room A)** Core time: posters allotted odd number

Wednesday, September 7

Small Hall

09:00-10:20 — **Oral Session OB 01-04**
Exploration of enzymatic activities by screening and protein engineering
Chair: Stefan Lutz, *Emory University*
Tohru Dairi, *Hokkaido University*

09:00-09:20 OB-01 — **Exploring peptide ligase orthologs in actinobacteria**
Yasushi Ogasawara[1], Junpei Kawata[1], Motoyoshi Noike[1], Yasuharu Satoh[1], Kazuo Furihata[2], and Tohru Dairi[1]
[1]Graduate School of Engineering, Hokkaido University
[2]Graduate School of Agricultural and Life Sciences, The University of Tokyo

09:20-09:40 OB-02 — **Exploring and exploiting flavoenzymes through protein and cofactor engineering**
Stefan Lutz, Leann Quertinmont, Samantha Iamurri, and Roberto Orru
Department of Chemistry, Emory University
*Supported by ERATO Asano Active Enzyme Molecule Project

09:40-10:00 OB-03 — **Metal-dependent bacterial hydroxynitrile lyases can catalyse nitroaldol reaction**
Kerstin Steiner[1], Myria Bekerle-Bogner[1], Silvia Maitz[1], Sarah Trunk[1], Mandana Gruber-Khadjawi[1], Romana Wiedner[1], and Helmut Schwab[1,2]
[1]acib GmbH, c/o TU Graz
[2]Institute of Molecular Biotechnology, TU Graz
*Supported by ERATO Asano Active Enzyme Molecule Project

10:00-10:20 OB-04 — **Competitive detection of interaction between cytochrome P450 and electron transfer protein**
Masayoshi Kondo, Hidehiko Hirakawa, and Teruyuki Nagamune
Department of Chemistry and Biotechnology, The University of Tokyo

10:20-11:40 — **Oral Session OB 05-08**
Structure, function and catalytic mechanisms of enzymes and cofactors & Exploration of enzymatic activities by screening and protein engineering
Chair: Kersten Steiner, *acib GmbH*
Yutaka Kawarabayasi, *National Institute of Advanced Industrial Science and Technology*

10:20-10:40 OB-05 — **Epoxyalcohol synthases of the CYP74 clan – novel type of enzymes of lipoxygenase signaling cascade and their catalytic mechanism**
Yana Y. Toporkova, Elena K. Bessolitsyna, Elena O. Smirnova, Valeriia S. Ermilova, Svetlana S. Gorina, Lucia S. Mukhtarova, Alexander N. Grechkin
Kazan Institute of Biochemistry and Biophysics of Kazan Scientific Center of Russian Academy of Sciences

10:40-11:00 OB-06 — **Structural and functional characteristics of the atypical cytochromes P450 of the CYP74 family from different organisms**
Svetlana Gorina, Yana Toporkova, Lucia Mukhtarova, Alexander Grechkin
Kazan Institute of Biochemistry and Biophysics of Kazan Scientific Center of Russian Academy of Sciences

11:00-11:20 OB-07 — **Identification of active site residues in *Escherichia coli* derived fructosamine 6- kinase**
Keita Suzuki[1], Hiromi Yoshida[2], Wakako Tsugawa[1], Miho Kameya[1], Koji Sode[1]
[1] Dept. of Biotechnol. & Life Science, Grad. Sch. Eng., Tokyo Univ. of Agri. andTechnol.
[2] Life Science Research Center and Faculty of Medicine, Kagawa University

11:20-11:40 OB-08	**Identification of the novel sugar metabolic enzyme by using genomic and pathway information** Yutaka Kawarabayasi[1,2], and Mohammad Dadashipour[2] *[1] National Institute of Advanced Industrial Science and Technology (AIST), Bioproduction Research Institute* *[2]Faculty of Agriculture, Kyushu University*
11:40-12:00	Break
12:00-12:50	Luncheon Seminar 2 is held at the Main Hall
13:00-14:20	**Oral Session OB 09-12** **Medical, pharmaceutical and nutritional applications of cofactors and enzymes** Chair: Margaret Black, *Washington State University* Norihisa Kato, *Hiroshima University*
13:00-13:20 OB-09	**Molecular and cellular effects of interfacial mutations of human alanine:glyoxylate aminotransferase leading to primary hyperoxaluria type I and response to coenzyme administration** Mirco Dindo, Elisa Oppici, Andrea Bianchi and Barbara Cellini *Department of Neuroscience, Biomedicine and Movement Sciences, Section of Biological Chemistry, University of Verona*
13:20-13:40 OB-10	**Carnosine and anserine in skeletal muscles and heart are dependent on vitamin B6 status** Norihisa Kato[1], Sofya Suidasari[1], Shinji Uragami[1], Jan Stautemus[2], and Wim Derave[2] *[1]Graduate School of Biosphere Science, Hiroshima University* *[2]Department of Movemnt and Sports Science, Ghent University*
13:40-14:00 OB-11	**Altered expression of retinol-related proteins and retinol status in streptozotocin-induced type 1 diabetic model rats** Kimitaka Takitani, and Hiroshi Tamai *Department of Pediatrics, Osaka Medical College*
14:00-14:20 OB-12	**Targeted enzyme therapy (TET): A novel tumor-directed enzyme prodrug therapy** Margaret E. Black[1], Stacy Martin[1] and Cliff Berkman[2] *[1]School of Molecular Biosciences, Washington State University* *[2]Department of Chemistry, Washington State University*
14:20-15:40	**Oral Session OB 13-16** **Novel technologies using enzymes and cofactors & Enzymes in the production of useful chemicals** Chair: Jin Chuan Wu, *Institute of Chemical and Engineering Sciences, Singapore* Hideo Nakano, *Nagoya University*
14:20-14:40 OB-13	**Enzymatic production of a natural sweetener rubusoside using a thermostable lactase and its uses** Doman Kim, Thi Thanh Hanh Nguyen, Jung-Min Ha *Graduate School of International Agricultural Technology and Institutes of Green Bio Science & Technology, Seoul National University* *Supported by ERATO Asano Active Enzyme Molecule Project
14:40-15:00 OB-14	**Isolation and improvement of cellulase- and xylanase-producing fungi for lactic acid production from lignocellulose by *Bacillus coagulans*** Qingxin Li, Christoph Ottenheim, Veeresh Juturu, Angeline Ong, Jin Chuan Wu *Institute of Chemical and Engineering Sciences, Singapore* *Supported by ERATO Asano Active Enzyme Molecule Project
15:00-15:20 OB-15	**Discovery of a new enzymeinvolved in sesamin degradation** Takuto Kumano and Michihiko Kobayashi *Graduate School of Life and Environmental Sciences, University of Tsukuba*

15:20-15:40 OB-16	**Zipbodyzyme: a new format of antibody-enzyme complex** Hideo Nakano, Akihiro Mori, Teruyo Ojima-Kato and Takaaki Kojima *Graduate School of Bioagricultural Sciences, Nagoya University*
15:40-16:00	Coffee Break
16:00-17:30	Plenary Session 6 is held at the Main Hall

Thursday, September 8

Main Hall

09:00-10:20 — **Oral Session OA 17-20**
Structure, function and catalytic mechanisms of enzymes and cofactors
Chair: Uwe Bornscheuer, *University of Greifswald*
Ikuko Miyahara, *Osaka City University*

09:00-09:20 OA-17 — **Elucidation of catalytic mechanism in homoserine dehydrogenase based on crystal structures**
Shota Akai[1], Hiroko Ikushiro[2], Daiki Sawai[2], Hideyuki Hayashi[3], Takato Yano[2], Nobuo Kamiya[4,1], and Ikuko Miyahara[1]
[1]Depertment of Chemistry, Faculty of Science, Osaka City University
[2]Depertment of Biochemistry, Osaka Medical College
[3]Depertment of Chemistry, Osaka Medical College
[4]The OCU Advanced Research Institute for Natural Science and Technology, Osaka City University

09:20-09:40 OA-18 — **High resolution structural studies on kynurenine 3-monooxygenase**
Mark Taylor, Chris Mowat
EaStChem School of Chemistry,University of Edinburgh

09:40-10:00 OA-19 — **Salt effects on enzymatic function of dihydrofolate reductase from *Haloarcula japonica* strain TR-1**
Yurina Miyashita[1], Eiji Ohmae[1], Teikichi Ikura[2], Kaoru Nakasone[3], and Katsuo Katayanagi[1]
[1]Department of Mathematical and Life Sciences, Graduate School of Science, Hiroshima University
[2]Department of Structural Biology, Medical Research Institute, Tokyo Medical and Dental University
[3]Department of Biotechnology and Chemistry, School of Engineering, Kinki University

10:00-10:20 OA-20 — **Characterization of actin ADP-ribosyltransferase from Clostridium perfringens iota-like enterotoxin**
Waraphan Toniti[1], Toru Yoshida[1], Toshiharu Tsurumura[1], Daisuke Irikura[2], ChieMonma[3], Yoichi Kamata[4], and Hideaki Tsuge[1]
[1]Department of Bioresource and Environmental Sciences, Faculty of Life Sciences, Kyoto Sangyo University
[2]Horiba, Ltd.
[3]Department of Microbiology, Tokyo Metropolitan Institute of Public Health
[4]Department of Veterinary Medicine, Iwate University

10:20-11:40 — **Oral Session OA 21-24**
Structure, function and catalytic mechanisms of enzymes and cofactors
Chair: Alexey Topunov, *Bach Institute of Biochemistry, Research Center of Biotechnology of the Russian Academy of Sciences*
Toru Nakayama, *Tohoku University*

10:20-10:40 OA-21 — **ADP-ribosylation of RhoA by C3 exoenzyme**
Toru Yoshida, and Hideaki Tsuge
Faculty of Life Sciences, Kyoto Sangyo University

10:40-11:00 OA-22 — **Protein–protein interactions of isoflavonoid biosynthetic enzymes with 2-hydroxyisoflavanone synthase in soybean**
Toru Nakayama
Department of Biomolecular Engineering, Graduate School of Engineering, Tohoku University

11:00-11:20 OA-23 — **Reconstitution of the rubber biosynthetic enzyme on lipid vesicles**
Satoshi Yamashita[1], Haruhiko Yamaguchi[2], Toshiyuki Waki[1], Fumihiro Yanbe[1], Yukino Miyagi-Inoue[2], Kazuhisa Fushihara[2], Toru Nakayama[1], and Seiji Takahashi[1]
[1]Graduate School of Engineering, Tohoku University
[2]Sumitomo Rubber Industries, Ltd.

11:20-11:40 OA-24	**Symbiotic plant hemoglobin - Leghemoglobin as enzyme processing reactive oxygen and nitrogen species** Olga V. Kosmachevskaya[1], Elvira I. Nasybullina[1], Konstantin B. Shumaev[1], RaulArredondo-Peter[2], and Alexey F. Topunov[1] *[1]Bach Institute of Biochemistry, Research Center of Biotechnology of the Russian Academyof Sciences* *[2]Universidad Autónoma del Estado de Morelos*
11:45-12:00	**Closing Ceremony**

Small Hall	
09:00-10:20	**Oral Session OB 17-20** **Enzyme in the production of useful chemicals** Chair: Margit Winkler, *acib GmbH and Graz University of Technology* Hiroshi Kawabata, *Mitsubishi Chemical Group Science and Technology Research Center*
09:00-09:20 OB-17	**New enzymes for the selective enzymatic reduction of carboxylic acids to aldehydes** Margit Winkler *Institute of Molecular Biotechnology acib GmbH and Graz University of Technology* *Supported by ERATO Asano Active Enzyme Molecule Project
09:20-09:40 OB-18	**Enzymatic asymmetric reduction of carbon-carbon double bonds** Hiroshi Kawabata, Yasumasa Dekishima *Biotechnology Lab, Mitsubishi Chemical Group Science and Technology Research Center, Healthcare Lab, API Corporation*
09:40-10:00 OB-19	**Engineering of Baeyer-Villiger monooxygenase-based whole-cell biocatalysts for large scale biotransformation of renewable fatty acids** Joo-Hyun Seo and Jin-Byung Park *Department of Food Science and Engineering, Ewha Womans University*
10:00-10:20 OB-20	**Improving fatty acid biotransformation activity of recombinant *Escherichia coli*-based biocatalysts by enhancing mass transport efficiency** Eun-Yeong Jeon and Jin-Byung Park *Department of Food Science and Engineering, Ewha Womans University*
10:20-11:40	**Oral Session OB 21-24** **Enzyme in the production of useful chemicals** Chair: Jin-Byung Park, *Ewha Womans University* Makoto Hibi, *Kyoto University*
10:20-10:40 OB-21	**Production of dicarboxylic acids from biomass derived fatty acids by laccase-mediator system** Michiki Takeuchi, Shigenobu Kishino, Si-Bum Park, Nahoko Kitamura, Makoto Hibi, and Jun Ogawa *Division of Applied Life Science, Graduate School of Agriculture, Kyoto University*
10:40-11:00 OB-22	**Finding of imidases for the production of optically active half amides** Makoto Hibi[1], Masutoshi Nojiri[2], Yoshihiko Yasohara[2], Satomi Takahashi[1], Jun Ogawa[1] *[1]Graduate School of Agriculture, Kyoto University* *[2]Biotechnology Development Laboratories, Kaneka Corporation*
11:00-11:20 OB-23	**Recent application of biocatalysis for novel chiral drugs based on retro synthesis approach** Yoshihiko Hirose[1] and Alex Tao[2] *[1]Business development, EnzymeWorks, Inc.* *[2]CSO, EnzymeWorks, Inc.*

11:20-11:40 OB-24	**Derivatization of proteinase K with heavy atoms for chemo-enzymatic synthesis of polypeptides** Keiji Numata *Enzyme Research Team, RIKEN Center for Sustainable Resource Science*
11:45-12:00	Closing Ceremony is held at the Main Hall