Enzyme Engineering XXII:
Emerging Topics in Enzyme Engineering

An ECI Conference Series

September 22-26, 2013
Toyama, Japan

Chair
Yasuhisa Asano (Toyama Prefectural University, Japan)

Vice Chairs
Jun Ogawa (Kyoto University, Japan)
Yoshihiko Yasohara (Kaneka Corporation, Japan)

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Sunday, September 22, 2013

14:00-17:00 Conference Check-in

17:00-18:00 Welcome Drinks & Opening Remarks

18:00-19:00 Keynote Address
David Rice (The University of Sheffield, UK)
Title TBA

19:00-21:00 Dinner

Monday, September 23, 2013

08:45-10:10 **ERATO Session**
(Exploratory Research for Advanced Technology, (Japan Science and Technology Agency).
Yasuhisa Asano (Toyama Prefectural University, Japan)
Introduction of ERATO by Project Leader Prof. Asano
Confirmed Speakers:
Uwe Bornscheuer (University of Greifswald, Germany)
Production of C9 to C13 ω-hydroxycarboxylic and α,ω-dicarboxylic acids from renewable fatty acids
Tianwei Tan (Beijing University of Chemical Technology, China)
Improvements of lipase Lip2 from *Yarrowia lipolytica* in its thermostability, immobilization and biosynthesis applications

10:10-10:40 Coffee/Tea Break

10:40-12:10 **Harald Groeger** (University of Bielefeld, Germany)
Combination of chemo- and biocatalytic reactions towards efficient chemoenzymatic one-pot processes in water
Hak-Sung Kim (KAIST, Korea)
Transcription activator-based high-throughput screening systems for directed evolution of enzymes
Romas Kazlauskas (University of Minnesota, USA)
Reconstruction of ancestral enzymes as starting points for engineering new enzymes

12:10-13:10 Lunch

13:10-14:50 **Jonathan Dordick** (Rensselaer Polytechnic Institute, USA)

Biocatalytic nanocomposites: engineering form, function, and protection from disease
Lori Giver (Codexis Corporation, USA)
Using the CodeEvolver®) directed evolution platform to create novel enzymes for commercial applications
Andreas Bommarius (Georgia Institute of Technology, USA)
Evolution of properties and process engineering of amine dehydrogenases

14:50-15:20 Coffee/Tea Break

15:20-17:30 **Kai Baldenius** (BASF, Germany)
Industrial Biocatalysis - how to widen the scope of enzymatic catalysis for chemical production
Joelle Pelletier (Université de Montréal, Canada)
Engineering enzyme function: From new substrates to protein dynamics
Wataru Mizunashi (Mitsubishi Rayon Co., Ltd., Japan)
Industrial application of nitrile hydratase ~ successive innovations for acrylamide production
Jian-He Xu (East China University of Science and Technology, China)
Economic production of chiral chemicals using engineered enzymes

17:30-19:00 Dinner

19:00-21:00 Poster Session A / Social Hour

Tuesday, September 24, 2013

08:45-10:15 **Session 1: Cascade Chemo-Enzymatic Processes and Metabolic Engineering**
Kristala Jones Prather (Massachusetts Institute of Technology, USA)
Design, assembly and evaluation of a novel pathway for 3-hydroxyalkanoic acid production in *E. coli*
Daisuke Umeno (Chiba University, Japan)
Construction of the highly-specific pathways using promiscuous activity of engineered enzymes
Volker Sieber (Technical University of Munich, Germany)
Synthetic cascade biomanufacturing production of chemicals via minimized reaction cascades

10:15-10:45 Coffee/Tea Break

10:45-12:15 **Session 1: Cascade Chemo-Enzymatic Processes and Metabolic Engineering** (continued)

Confirmed Speakers:

Claudia Schmidt-Dannert (University of Minnesota, USA)

Building microbes for biosynthesis

Lishan Zhao (Amyris, USA)

Enzyme engineering for high level production of isoprenoids

Ikuro Abe (The University of Tokyo, Japan)

Expanding the catalytic repertoires of biosynthetic enzymes

12:15-13:15 Lunch

Parallel session (Room A)

13:15-15:10 **Session 2: Chemistry, Protein Engineering and Application of Oxidoreductases**

Stefan Lutz (Emory University, USA)

New tricks with old yellow - multidimensional engineering of enoate reductases

Michihiko Kataoka (Osaka Prefecture University, Japan)

Screening and protein engineering of old yellow enzymes

Vlada B. Urlacher (Universität Düsseldorf, Germany)

The challenge of designing p450-based biocatalysts: from electron transfer to enzyme selectivity

Huimin Zhao (University of Illinois, USA)

Enzyme engineering as an enabling tool for synthetic biology and chemistry

15:10-15:40 Coffee/Tea Break

15:40-17:35 **Session 1: Cascade Chemo-Enzymatic Processes and Metabolic Engineering** (continued)

Sergio Riva (Italian National Council of Research, Italy)

Fishing good substrates with hydroxysteroid dehydrogenases

Teruyuki Nagamune (The University of Tokyo, Japan)

Nano-architecture of bacterial P450 system with PCNA as a scaffold

Pimchai Chaiyen (Mahidol University, Thailand)

Engineering of flavin-dependent oxygenase and oxidase

Nobuya Itoh (Toyama Prefectural University, Japan)

Efficient synthesis of optically pure (S)-epoxides using Rhodococcus styrene monooxygenase (SMO) and Leifsonia alcohol dehydrogenase (LSADH) system

Parallel session (Room B)

13:15-15:10 **Session 3: New Aspects of Enzyme Engineering I**

Jon Stewart (University of Florida, USA)
Structure-function studies of alkene reductases
Nobuhiko Tokuriki (University of British Columbia, Canada)
Exploring catalytic promiscuity and evolutionary linkage in the metallo-beta-lactamase superfamily
Jun Hiratake (Kyoto University, Japan)
γ-glutamyl transpeptidase and its inhibition for cellular redox modulation
Pierre Monsan (INSA de Toulouse, France)
Molecular engineering of GH-70 family glucansucrases
Mitsuo Umetsu (Tohoku University, Japan)
Smart bio-design for hybrid nanocellulosomes on nanoscaffolds

15:10-15:40 Coffee/Tea Break

15:40-17:35 **Session 3: New Aspects of Enzyme Engineering I** (continued)

Magali Remaud-Simeon (University of Toulouse, France)
Glyco-innovation with GH family 13 amylosucrases Combining natural diversity and engineering technology for novel products
Elmar Heinzle (Saarland University, Germany)
Multi-Step biocatalysis using tailored permeabilized cells
Hideo Nakano (Nagoya University, Japan)
Display of macromolecules on microbeads: a new platform for various screening methods
Tomoaki Matsuura (Osaka University, Japan)
In vitro evolution of α-hemolysin using a liposome display

17:35-18:00 **Summary of today's session from Chairs**

18:00-19:30 Poster Session B / Social Hour

19:30-21:00 Dinner

Wednesday, September 25, 2013

Parallel session (Room A)

8:45-10:40 **Session 4: Bioinfomatics and Systems Biology**

Ribo Huang (Guangxi Academy of Science, China)
Finding glycerol dehydratase variants resistant to mechanism-based enzyme inactivation

Bernard Offmann (Université de Nantes, France)
A novel computational strategy towards engineering of enzymes
Juan A. Asenjo (University of Chile, Chile)
Mutagenesis Objective Search and Selection Tool (MOSST): An algorithm to predict structure-function related mutations in proteins
Frederic Cadet (University of la Reunion, France)
Enzyme and process engineering based on *in-silico* modeling for improving H2 production by synthetic metabolic pathway

10:40-11:10 Coffee/Tea Break

11:10-12:40 **Session 5: Process Engineering Aspects of Biocatalysis**
John Woodley (Technical University of Denmark, Denmark)
Toward the integration of enzyme engineering and process engineering
Udo Kragl (University of Rostock, Germany)
Eco-efficiency analysis as a tool for process design of enzymatic biotransformations
Andreas Liese (Hamburg University of Technology TUHH, Germany)
Benefit of reaction engineering for non-conventional biotransformations

Parallel session (Room B)

8:45-10:30 **Session 6: New Tricks in Biosynthesis I**
Makoto Nishiyama (The University of Tokyo, Japan)
Origin of lysine and arginine biosynthesis
Byung-Gee Kim (Seoul National University, Korea)
Ortho-dihydroxylation of (iso)flavonoids using oxygenases: Bacterial P450 vs.Tyrosinase
Yasuo Ohnishi (The University of Tokyo, Japan)
Coupled binuclear copper enzymes involved in the secondary metabolite biosynthesis in Streptomyces
David F. Ackerley (Victoria University of Wellington, New Zealand)
Discovery, engineering and applications of non-ribosomal peptide synthetase and phosphopantetheinyl transferase enzymes

10:30-11:00 Coffee/Tea Break

11:00-12:40 **Session 7: Screening for Enzymes and Directed Evolution**
Juergen Eck (B.R.A.I.N, Germany)
Engineering biology: Learning from nature
Jun Ogawa (Kyoto University, Japan)

Development of platform technologies and screening of module enzymes for multi-component enzyme systems requiring energy supply

Yan Feng (Shanghai Jiao Tong University, China)

Molecular evolution of a thermostable lactonase towards high degrading activity for organophosphate pesticides

Yoshihiko Hirose (Amano Enzyme Inc., Japan)

Improvement of properties of B.cepacia Lipase (BCL) by protein engineering

12:40-13:00 **Summary of Today's Session from Chairs**

13:00-20:00 Boxed Lunch/Excursion/Dinner

Thursday, September 26, 2013

Parallel session (Room A)

8:45-10:40 **Session 8: Biorefinery and Energy Production**

Akihiko Kondo (Kobe University, Japan)

Development of microbial cell factories for biorefineries

Jian Jiang Zhong (Shanghai Jiao Tong University, China)

Bioenergy production by using a robust whole-cell biocatalyst or an *in-vitro* cascade enzymatic process

Ryosuke Kadoya (Hokkaido University, Japan)

Single-step production of polyesters from starch in corynebacterium glutamicum by using α-amylase cell-surface displaying system

Jin Chuan Wu (Institute of Chemical & Engineering Sciences, Singapore)

Innovative production of optically pure lactic acids from lignocellulose

10:40-11:10 Coffee/Tea Break

11:10-12:40 **Session 9: Discovery and Application of Thermostable Enzymes**

Haruyuki Atomi (Kyoto University, Japan)

Novel enzyme discovery in the Archaea

Xin-Hui Xing (Tsinghua University, China)

Novel thermostable alcohol dehydrogenase and NAD(P)H oxidase from *Thermococcus kodakarensis* KOD1 for effective enantioselective bioconversion of secondary alcohols via NAD(P)H regeneration

Toshihisa Ohshima (Osaka Institute of Technology, Japan)

Thermostable NADP-dependent D-amino acid dehydrogenase: Creation from meso-diaminopimelate dehydrogenase by site-directed mutagenesis and application

Parallel session (Room B)

8:45-10:40 **Session 10: Application of Enzymes in Medical Uses**

Koji Sode (Tokyo University of Agriculture & Technology, Japan)
How many letters should you change to convert the name of enzymes, oxidase into dehydrogenase ?

Mara Boenitz-Dulat (Roche Diagnostics GmbH, Germany)
The strategic engineering of PQQ glucose dehydrogenase -the flagship enzyme for the self-monitoring of blood glucose-

Kenji Kano (Kyoto University, Japan)
Enzyme activity change-independent electrochemical detections for ultimate biosensors

Janine Naomi Copp (Victoria University of Wellington, New Zealand)
Engineered nitroreductases as cancer therapeutics

10:40-11:10 Coffee/Tea Break

11:10-12:40 **Session 11: Engineering New Activities of Enzymes**

Saulius Klimasauskas (Vilnius University, Lithuania)
Innate and designed catalytic versatility of SAM-dependent methyltransferases

Rachel S. Heath (University of Manchester, United Kingdom)
Engineering enzymes for chiral amine synthesis via high-throughput screening

Bian Wu (University of Groningen, The Netherlands)
Computational engineering of an amidase for versatile peptide C-terminal modification

Birgit Wiltschi (Austrian Centre of Industrial Biotechnology ACIB GmbH, Austria)
Enzyme engineering with non-canonical amino acids

12:40-13:40 Boxed Lunch

13:40-15:00 **Session 12: New Tricks in Biosynthesis II**

Michihiro Araki (Kobe University, Japan)
A knowledge-based approach for metabolic pathway design

Y-HPercival Zhang (Virginia Tech, USA)
Cell-free cascade enzymatic processes: Synthetic metabolons and cofactor engineering

Kento Koketsu (Kyowa Hakko Bio Co., Ltd., Japan)
Microbial production of homophenylalanine using the biosynthetic genes identified from the genome of cyanobacterium nostoc punctiforme PCC73102

Yoshimitsu Hamano (Fukui Prefectural University, Japa)
Harnessing the streptothricin biosynthetic machinery

15:00-15:30 Coffee/Tea Break

15:30-16:30 **Toshiaki Fukui** (Tokyo Institute of Technology, Japan)

Microbial synthesis of biodegradable copolyesters from biomass
Makoto Hibi (Kyoto University, Japan)
Bioconversion of amino acids with whole-cell biocatalysts
Ikuo Kira (Ajinomoto Co., Inc., Japan)
Enzymatic production of L-Alanyl-L-Glutamine

Parallel session (Room C)

13:40-15:00 **Session 13: New Aspects of Enzyme Engineering II**
Kathrin Castiglione (Technische Universität München, Germany)
Novel N-Acyl-D-glucosamine 2-epimerases from cyanobacteria with low dependence on ATP and low inhibition by pyruvate
Takeshi Tsumuraya (Osaka Prefecture University, Japan)
Catalytic antibodies with luciferase activity
Hidehiko Hirakawa (The University of Tokyo, Japan)
A heterotrimeric ring-shape protein can immobilize multienzyme complex
Pravin Kumar (Polycone Bioservices, India)
A receptor dependent-4D QSAR approach to predict the activity of modified enzymes

15:00-15:30 Coffee/Tea Break

15:30-16:30 **Shigeru Deguchi** (Japan Agency for Marine-Earth Science and Technology, Japan)
Ultra-sensitive functional screening of cellulolytic microorganisms using surface pitting on nanofiber matrix
Jan Marienhagen (Institute of Bio- and Geosciences, Germany)
Genetically encoded biosensors for enzyme engineering in single cells
Hiroshi Ishikita (Kyoto University/JST PRESTO, Japan)
Short hydrogen bonds in O2-evolving photosystem II

Parallel session (Room D)

13:40-15:00 **Session 14: New Aspects of Enzyme Engineering III**
Habibullah Nadeem (National Institute for Biotechnology and Genetic Engineering (NIBGE), Pakistan)
Engineering of surface carboxyl groups of invertases from Aspergillus niger: Effect on thermostability and thermopholicity
Henk Jan Joosten (Bio-Prodict, The Netherlands)
Protein superfamily data and enzyme engineering

	Presentations from submitted papers – To be announced
15:00-15:30	Coffee/Tea Break
15:30-16:30	**Kohsuke Honda** (Osaka University, Japan) Butanol production through in vitro synthetic metabolic pathway **Anu Koivula** (VTT Technical Research Centre of Finland, Finland) Identification and characterization of enzymes involved in the oxidative D-galacturonic acid pathway **Ryota Fujii** (Mistui Chemicals Singapore R & D Centre, Singapore) Increasing fermentation yield by CO_2 fixation
16:30-17:30	**Summary of today's session from Chairs**
17:30-18:30	**Go to banquet venue (Hotel Grand Terrace Toyama)** (10 minute walk or 5 minute tram ride)
18:30-19:15	**Poster Awards** **Selected Oral Poster Presentations**
19:15-20:15	**Presentation of Enzyme Engineering Award** **Enzyme Engineering Award Lecture**
20:15-20:30	Conference Closure
20:30-22:30	Conference Banquet

NO ABSTRACT ON WEBSITE

Poster List

(July 05, 2013)

1. **Direct L-lysine production from cellobiose by corynebacterium glutamicum displaying beta-glucosidase on its cell surface**
   Noriko Adachi, Kobe University

2. **Structural and functional analyses of binary pattern-designed de novo proteins WA20 and Dnhps1**
   Ryoichi Arai, Shinshu University

3. **Influence of enhanced invertase activity on ethanol fermentation of molasses at industrial scale**
   Muhammad Arshad, University of Veterinary and Animal Sciences Lahore (Sub-campus Jhang)

4. **Engineering a protease for cleaning in cold water laundry conditions**
   Katherine E. Augustyn, DuPont Industrial Biosciences

5. **Immobilization of NAD on an electrode to drive dehydrogenase-based catalysis**
   Justin Beauchamp, Michigan State University

6. **Simple and efficient route for the production of terpenes by enzymatic means**
   Sascha Beutel, Leibniz University of Hannover

7. **Studies of immobilized protease inhibitors**
   Erika Billinger, Uppsala Univeristy

8. **Stereoselective oxidation of arylsubstituted diols into chiral alpha-hydroxyl aldehydes by re-engineered propanediol oxidureductase**
   Cecilia Blikstad, Uppsala University

9. **Polymerase chain chimaerization: A new recombination method for obtaining circular mutated and/or chimaeric polynucleotides**
   Mara Boenitz-Dulat, Roche Diagnostics GmbH

10. **Improving an enzyme's process performance by enzyme engineering: Fructose 6-phosphate aldolase for the synthesis of iminocyclitols**
    Birgit Brucher, c-LEcta GmbH

11. **Molecular engineering of rubisco for improved CO_2-fixation efficiency**
    Zhen Cai, Institution of Microbiology, Chinese Academy of Sciences

12. **Co-immobilization of glucose oxidase and catalase on magnetic particals**
    Wen Chen, Beijing University of Chemical Technology

13. **Identification and characterization of a mycobacterial S-Acetoin reductase**
    Xue Chen, Yokohama National University

14. **Rational design of ornithine decarboxylase for production of putrescine**
    Hyang Choi, KAIST

15. **Directed evolution of protein stability using a generic activity-independent strategy**
    Ignacio Asial, Nanyang Technological University

16. **A new method for immobilizing yarrowia lipolytica lipase lip2 on blending-modified poly**

(glycidylmethacrylate- triallyisocyanurate- ethyleneglycoldimethacrylate) beads to improve the activity
Caixia Cui, Beijing University of Chemical Technology

17. **Mechanism of drastic protein solubility enhancement by protein engineering strategies-biophysical and biochemical studies of wild-type and mutant s-hydroxynitrile lyase from manihot esculenta expressed in Escherichia coli**
Mohammad Dadashipour, Toyama Prefectural University

18. **Substrate binding residues in streptomyces phospholipase D insights from crystal structures, substrate docking and experimental data**
Jasmina Damnjanovic, Nagoya University

19. **Circular permutation of old yellow enzyme: Characterization of a complete synthetic library**
Ashley B. Daugherty, Emory University

20. **Reaction of the oxygenase component of P-hydroxyphenylacetate hydroxylase (C2) with substrate analogues**
Taweesak Dhammaraj, Mahidol University

21. **A multilevel stochastic and optimization approach of clean energy plants chain operation**
Faten Fahmy, Electronics Research Institute

22. **Engineering fructosyl peptide oxidase for HBA1C measurement**
Stefano Ferri, Tokyo University of Agriculture and Technology

23. **Engineering oxidative enzymes with improved activity towards polymeric substrtes using carbohydrate binding modules**
Maryam Foumani, University of Toronto

24. **Cloning of neutral phytase gene from B.licheniformis ZJ-6 and expression in *Escherichia coli***
Shijun Fu, Shandong Binzhou Animal Science and Veterinary Medicine Academy

25. **A highly specific synthetic metabolic pathway assembled from promiscuous enzymes**
Maiko Furubayashi, Chiba University

26. **Characterization of bacillus subtilis aminopeptidase and structure-based approach to alter the substrate specificity**
Xinxing Gao, Jiangnan University

27. **Enzyme-catalyzed asymmetric hydration of C=C bonds**
Silvia M. Glueck, ACIB GmbH

28. **Engineering of pyranose dehydrogenase for improved performance in enzymatic biofuel cells**
Christoph Gonaus, University of Natural Resources and Life Sciences Vienna

29. **Novel enzymes and synthetic pathways for bio-based chemicals**
Daniela Grabs, Arzeda Corp

30. **Artificial enzyme complex of cytochrome P450 and redox proteins with multiple electron transfer routes**
Tomoaki Haga, The University of Tokyo

31. **Biochemical and structural characterisation of a novel manganese-dependent hydroxynitrile lyase from bacteria**
Ivan Hajnal, ACIB GmbH

32. **Structure-based rational design of chorismate-pyruvate lyase for decreased product inhibition**
SangSoo Han, KAIST

33. **Thioredoxin glutathione reductase as a novel drug target: Evidence from schistosoma japonicum**
Zichun Hua, Nanjing University

34. **Tumor-targeting salmonella typhimurium, a natural tool for activation of prodrug 6mepdr and their combination therapy in murine melanoma model**
Zichun Hua, Nanjing University

35. **Improvement of substrate specificity of fructosyl peptide oxidase by structure-based mutagenesis**
Atsushi Ichiyanagi, Kikkoman Corporation

36. **Direct putrescine production from cellobiose using *Escherichia coli* displaying cellulase**
Naoki Ikeda, Kobe University

37. **Creation of synthetically useful mutant enzymes on the basis of mechanistic studies**
Hiroki Inoue, Okayama University

38. **Immobilized lipases with inter-particle mesoporous silica**
Satoru Ishihara, Amano Enzyme Inc.

39. **Discovery of novel omega-transaminases and their application to the synthesis of chiral amines**
Noriyuki Ito, Kaneka Corporation

40. **Pcna from metallosphaera sedula-mediated stable multienzyme complex formation**
Fumiya Iwata, University of Tokyo

41. **Increasing optical purity for product diols - contributions from changes in both enantio- and regioselectivity**
Åsa Janfalk Carlsson, Uppsala University

42. **Bioprocess engineering for the production of ω-hydroxyundec-9-enoic acid from ricinoleic acid**
Hyun-Young Jang, Ewha Womans University

43. **Characteristics of acetyl-coa acetyltransferase (acat) from megasphaera sp. Bs-4 for the carbon elongation**
Byoung Seung Jeon, Hanyang University

44. **Production of C9, C11, C13 α,ω-dicarboxylic acids from renewable fatty acids**
Eun-Yeong Jeon, Ewha Womans University

45. **Systematic optimization for efficient heterologous expression of proline-4-hydroxylase in *E.coli* for catalytic production of trans-4-hydroxy-l-proline**
Yang Ji, Tsinghua University

46. **Reversibility of an enzymatic activity switch by laboratory evolution**
Miriam Kaltenbach, University of British Columbia

47. **Enzymatic determination of amino acids by coupling aminoacyl-TRNA synthetase and pyrophosphate detection system**
Masafumi Kameya, Toyama Prefectural University

48. **Substrate engineering for enzymatic site-specific and covalent modification of functional proteins**
Noriho Kamiya, Kyushu University

49. **Environment-conscious process for the preparation of antimicrobial tulipalin b from tulip biomass**
Yasuo Kato, Toyama Prefectural University

50. **Characterization of archaeal enzymes with thermostability for enzymatic production of nucleotide-sugar molecules**
Yutaka Kawarabayasi, Kyushu University

51. **Synthesis of phytosterol and triterpene alcohol esters through lipase-catalyzed esterification**
Takashi Kobayashi, Kyoto University

52. **Enzymes involved in pentose metabolism in zygomycetous fungus mucor circinelloides**
Hidenobu Komeda, Toyama Prefectural University

53. **Genetic engineering of the budding yeast kluyveromyces marxianus for effective production of the rose-like odor 2-phenylethanol**
Takashi Koyanagi, Ishikawa Prefectural University

54. **Enzyme activity regulation system based on the formation of enzyme/polymer complex**
Takaaki Kurinomaru, University of Tsukuba

55. **Enzymatic blood antigen removal: Directed evolution of a blood antigen-cleaving enzyme**
David H. Kwan, University of British Columbia

56. **Development of new bacterial cellulases by directed evolution and assembly of catalytic domain, binding domain, and linker moiety**
Kil Koang Kwon, Korea Research Institute of Bioscience & Biotechnology (KRIBB)

57. **Characterization of esterases active toward long chain aliphatic esters**
Young-A Lee, Ewha Womans University

58. **Towards rational engineering of iterative polyketide synthase: Insight into the programmed keto-reduction and chain length determination**
Zhao-Xun Liang, Nanyang Technological University

59. **Fungal indole diterpene prenyltransferases have potency to alter position and regular/reverse specificities for prenylation**
Chengwei Liu, Hokkaido University

60. **The aflatoxin oxidase, mechanism and application studies**
Da-Ling Liu, Ji Nan University

61. **Generality of self-subunit swapping**
Yi Liu, Jiangnan University

62. **Expand the substrate scope of 2-deoxyribose-5-phosphate aldolase by directed evolution**
Huan Ma, Uppsala University

63. **Biochemical properties and kinetics of glycerol 3-phosphate oxidase**
Somchart Maenpuen, Burapha University

64. **Influence of additional binding and catalytic domains on expression and characteristics of xylanase Z of clostridium thermocellum**
M. Imran Mahmood Khan, University of the Punjab

65. **Superoxide dismutase and catalase conjugated via chondroitin sulphate for targeted protection of vascular wall**
Alexander V. Maksimenko, Russian Cardiology Research-and-Production Complex

66. **Metabolic engineering for ricinoleic acid production in the oleaginous yeast yarrowia lipolytica**
Alain Marty, LISBP/INSA, CNRS, INRA

67. **Preparation and characterization of chimeric transducers of HTR8 and hemat from extremely halophilic archaeon haloarcula japonica**
Toshitaka Matsubara, Tokyo Institute of Technology

68. **Enhancement of the stability and catalytic activity of l-tryptophan dehydrogense by directed evolution for l-tryptophan determination**
Daisuke Matsui, Toyama Prefectural University

69. **Stabilization of phytase by disulfide crosslinks**
Tomoko Matsui, Novozymes

70. **Engineered polyhydroxyalkanoate synthase from ralstonia eutropha for acquired lactate polymerizing activity**
Ken'ichiro Matsumoto, Hokkaido University

71. **Oriented immobilization of cellulosomal enzyme using sortagging**
Takuya Matsumoto, Kobe University

72. **Streptomyces phospholipase d recognizes substrate micelle surface**
Yusaku Matsumoto, Fukushima University

73. **Microbial production of phenylacetonitrile utilizing enzymes from the aldoxime-nitrile pathway**
Yuta Miki, Toyama Prefectural University

74. **Protein function enhancement by the horseradish peroxidase mediated protein cross-linking reaction**
Kosuke Minamihata, The University of Tokyo

75. **Purification, characterization, and gene cloning of a glycerophosphoethanolamine ethanolaminephosphodiesterase from streptomyces sanglieri A14**
Shingo Mineta, Fukushima University

76. **Application of enantioselective imine reductases for the synthesis of optically active amines**
Koichi Mitsukura, Gifu University

77. **Enzymatic synthesis of L-pipecolic acid and related cyclic amino acids**
Ryoma Miyake, Mitsubishi Chemical Group Science and Technology Research Center, Inc

78. **Escherichia coli host engineering for efficient enzyme discovery from the metagenome**
Kentaro Miyazaki, AIST

79. **Overexpression and characterization of clostridial C=C double bond reductases**
Pawel Mordaka, University of Nottingham

80. **Novel design of an artificial cellulosome using dna as a scaffold molecule**
Yutaro Mori, Kyushu University

81. **New insight into substrate promiscuity and catalytic versatility of a fungal indole prenyltransferase**
Hiroyuki Morita, University of Toyama

82. **Construction of artificial metabolic pathway to bio-1,3-butanediol from glucose**
Takanori Nakajima, Daicel Corporation

83. **Development of multiple sequence alignment method to support design of site-directed mutants: Intmsalign**
Shogo Nakano, Toyama Prefectural University

84. **Switching open and closed conformation of L-threonine dehydrogenase from cupriavidus necator**
Shogo Nakano, Toyama Prefectural University

85. **Nanocellulosome designed from module library on nanomaterials**
Hikaru Nakazawa, Tohoku University

86. **Advantageous of supercritical carbon dioxide for lipid modification by immobilized lipase**
Masakazu Naya, Nihon University

87. **Biosynthesis of poly(lactate-CO-3-hydroxybutyrate) polyesters with controlled lactate fraction via engineered metabolic pathways in Escherichia coli**
John Masani Nduko, Hokkaido University

88. **The lignocellulose degradation in fungus-growing termite macrotermes barneyi**
Jinfeng Ni, Shandong University

89. **Enzymatic synthesis of protein-gold nanoparticle conjugates: Stable immobilization by artificial peptide-tag for gold surface**
Teppei Niide, Kyushu University

90. **Development of continuous bioconversion system using thermophilic whole-cell biocatalyst**
Pham Huynh Ninh, Osaka University

91. **Evolutionary relationships among fungal histone deacetylases CLR6, HOS2, RPD3, and their homologs**
Hiromi Nishida, Toyama Prefectural University

92. **Microbial desymmetrization of 3-substituted glutaric acid diamides**
Masutoshi Nojiri, Kaneka corporation

93. **Unique heme-containing enzyme involved in formation of carbon-nitrogen triple bond: Expression, structural and mechanistic understanding and the potential for nitrile synthesis**
Junpei Nomura, University of Tsukuba

94. **Activity and stability of hewl adsorbed onto plant biomass charcoal**
Hidetaka Noritomi, Tokyo Metropolitan University

95. **Two arginine residues in the substrate pocket predominantly control the substrate selectivity of thiocyanate hydrolase**
Masafumi Odaka, Tokyo University of Agriculture and Technology

96. **Enhanced activity and stability of an organic solvent stable lipase**
Hiroyasu Ogino, Osaka Prefecture University

97. **Purification, characterization, gene cloning, and extracellular production of a novel glycerophosphocholine cholinephosphodiesterase from streptmyces sanglieri A14**
Koki Okuda, Fukushima University

98. **Chemo-enzymatic synthesis of efficient chiral building blocks using D-allose derivartives**
Miho Onishi, Kagawa University

99. **Efficient microbial production of (R)-3-hydroxybutyrate using acetyl-coa regenerating pathway**
Toshihiko Ooi, Hokkaido University

100. **External signal responsiveness by enzyme engineering**
Yuhei Oshiba, Tokyo Institute of Technology

101. **Enhancing thermostability of candida antarctica lipase b by enhancing intraprotein interaction and lowering overall RMSD**
Hyun June Park, Seoul National University

102. **Production of C9 to C13 ω-hydroxycarboxylic and α,ω-dicarboxylic acids from renewable fatty acids**
Jin-Byung Park, Ewha Womans University

103. **Development of a plasmid display system based an OCT-1 DNA-binding domain suitable for in vitro screening of engineered proteins in Escherichia coli**
Jong Hyun Park, KAIST

104. **Expression, purification, and product identification of chlorophenol-4-hydroxylase from ralstonia pickettii**
Panu Pimviriyakul, Mahidol University

105. **Investigation the enzymatic properties of human serine hydroxymethyltransferase with THF-independent reaction**
Chatchadaporn Pinthong, Mahidol University

106. **Glyco-innovation with GH family 13 amylosucrases combining natural diversity and engineering technology for novel products**
Magali Remaud-Simeon, LISBP/INSA University Toulouse

107. **Evolution of glucose oxidase to improve thermal stability**
Nicole Roupain, IATA-CSIC

108. **Rational design of glucose dehydrogenase from glucose oxidase**
Shoko Saito, Tokyo university of agriculture and technology

109. **Screening and engineering of fructosamine-6-kinases for glycated protein measurement**
Akane Sakaguchi-Mikami, Tokyo University of Technology

110. **Improvement of thermal stability of fungi-derived fad-dependent glucose dehydrogenase by introducing disulfide bond**
Genki Sakai, Tokyo University of Agriculture and Technology

111. **1,3-1,4-A-L-fucosidase: A tool for the synthesis of lewis a and x antigens**
Haruko Sakurama, Ishikawa Prefectural University

112. **Computationally driven deimmunization of therapeutic proteins**
Regina S. Salvat, Dartmouth College

113. **Production of C11 to C13 ω-aminocarboxylic acids from renewable fatty acids**
Jin-Won Song, Ewha Womans University

114. **Functional expression of a lysosomal enzyme glucocerebrosidase in stably transformed insect cells**
Hiroyuki Sonoda, JCR Pharmaceuticals

115. **Novel enone-reductases identified by database mining for catalytic promiscuity**
Georg Steinkellner, Austrian Centre of Industrial Biotechnology

116. **The construction of recombinant heparinase ii efficient expression system in *E.coli* and analysis of related mechanism**
Nan Su, Tsinghua University

117. **The isolation and identification of a light-induced protein in ALFALFA sprouts and the cloning of its specific promoter**
Xin Su, Shenyang Pharmaceutical University

118. **Kinetic mechanism of 3-hydroxybenzoate 6-hydroxylase from rhodococcus jostii RHA1**
Jeerus Sucharitakul, Chulalongkorn University

119. **A novel amine oxidase from syncephalastrum racemosum**
Daisuke Sugimori, Fukushima University

120. **Development of a novel enzymatic method for D-amino acids synthesis by using D-succinylase and N-succinylamino acids racemase**
Yosuke Sumida, Toyobo Co., Ltd.

121. **Biosynthesis and enzymatic degradation of isotactic (r)-2-hydroxybutyrate-based polyesters**
Jian Sun, Hokkaido University

122. **Bioconversion of D-galactose to D-tagatose using heterologous expression of L-arabinose isomerases**
Yuanxia Sun, Tianjin Institute of Industrial Biotechnology, Chinese Academy of Sciences

123. **Production of long chain hydroxy-fatty acids from glucose by genetic engineered Escherichia coli**
Changmin Sung, Seoul National University

124. **Heterotrimeric protein-mediated reconstitution of cytochrome p450 bm3**
Risa Suzuki, The University of Tokyo

125. **Rational design of penicillin acylase based on bioinformatic analysis and molecular modeling to improve enzyme catalytic performance in alkaline medium**
Vytas Svedas, Lomonosov Moscow State University

126. **Quantitative determination of threonine in human plasma using l-threonine 3-dehydrogenase from cupriavidus necator**
Yosuke Tabei, Toyama Prefectural University

127. **Crystal structure of phosphoketolase from bifidobacterium longum**
Kazutoshi Takahashi, Ajinomoto Co., Inc.

128. **Expression, purification and characterization of two enanthioselective beta phehylanaline aminoacylases derived from variovolax sp. and burkhorderia sp.**
Toshihiro Takezawa, Tokyo Denki University

129. **Catalytically active gel particles containing a bacterial cytochrome p450 and its redox protein partners**
Cheau Yuaan Tan, The University of Tokyo

130. **Omics analysis of spirulina platensis mutants generated by artp mutation system**
Yin Yee Tan, Tsinghua University

131. **Co-assimilation of cellobiose and xylooligosaccharides using *E. coli* displaying both beta-glucosidase and beta-xylosidase on its cell surface**
Tsutomu Tanaka, Kobe University

132. **Improving of the enzymatic activity of 3,4-dihydroxyphenylacetate dioxygenase from pseudomonas aeruginosa by random mutagenesis**
Kittisak Thotsaporn, Chulalongkorn University

133. **Fusion bacterial luciferase for eukaryotic reporter and thermostability improvement by random mutagenesis**
Ruchanok Tinikul, Mahidol University

134. **The first reaction intermediate complex of glutamate dehydrogenase from corynebacterium glutamicum**
Takeo Tomita, The University of Tokyo

135. **Glucose sensing employing direct electron transfer principle**
Wakako Tsugawa, Tokyo University of Agriculture and Technology

136. **Immobilization of thermostable β-galactosidase to cellulosic support**
Roberto Tumolo, IATA- CSIC

137. **Robust protein-protein interaction detection by the complementation of luciferase half-reactions**
Yuki Ohmuro-Matsuyama, Tokyo Institute of Technology

138. **Metabolic engineering of Escherichia coli for fermentative production of 1-propanol**
Nobuyuki Urano, Osaka Prefecture University

139. **Heterologous production of horseradish peroxidase C1A with codon and transport signal optimization in basidiomyces yeast cryptococcus sp. strain s-2**
Yu Utashima, Toyobo Co., LTD, Hiroshima University

140. **Synthesis of luminmides using permeabilized cells**
Christian Weyler, Saarland University

141. **Computational engineering of an amidase for versatile peptide c-terminal modification**
Bian Wu, University of Groningen

142. **Cloning and characterization of a thermostable alkaltolerant β-glucosidase from bacillus pumilus KF1**
Ke Wu, Hefei University

143. **Regio-selective enzymatic carboxylation of aromatic substrates: A green variant of the kolbe-schmitt reaction**
Christiane Wuensch, University of Graz

144. **Reactor selection for multi-step enzymatic reactions**
Rui Xue, Technical University of Denmark

145. **One-pot l-2-aminobutyric acid production from L-threonine by L-threonine deaminase, L-leucine dehydrogenase and formate dehydrogenase based nadh regeneration system**
Sheng Yang, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences

146. **Cross-linked enzyme aggregates and their applications**
Zhen Yang, Shenzhen University

147. **Microbial production of hydroxylated forms of vitamin D**
Kaori Yasuda, Toyama Prefectural University

148. **Production of (s)-methylbenzylamine by deracemization of its racemic mixture using newly evolved amine oxidase from porcine kidney d-amino acid oxidase**
Kazuyuki Yasukawa, Toyama Prefectural University

149. **Characterization of catalytic protein aggregates induced by cellulose binding domain fusion: Improved catalysis and thermal stability**
Soo-Jin Yeom, KRIBB

150. **Understanding α-helix and application to enzyme activity design**
Young Je Yoo, Seoul National University

151. **Lysine and arginine biosynthesis in thermococcus kodakarensis**
Ayako Yoshida, The University of Tokyo

152. **Aptameric enzyme subunit ~ aptamers regulating enzyme activity by binding with specific target~**
Wataru Yoshida, Tokyo University of Agriculture and Technology

153. **Stereoselectivity of ketoreductases-catalyzed reduction of acetophenones**
Xin Zhang, Shenyang Pharmaceutical University

154. **Controlling redox potential in the production of bio-based chemicals: From strategies designing to global understanding**
Yanping Zhang, Institute of Microbioloby, Chinese Academy of Sciences

155. **Construction of ancestral enzymes for unnatural reaction**
Zhijun Zhang, East China University of Science and Technology

156. **Construction of efficient oxidoreduction system consisting of TKADH and TKNOX by synthetic protein scaffolds**
Xiang Zheng, Tsinghua University

157. **Stereoselective epoxidation of curcumol and curdione by cunninghamella elegans as 3.2028**
Lina Zhou, Shenyang Pharmaceutical University