

Poster Session I
Directed Evolution of Biocatalysts

- 1. DIRECTED EVOLUTION OF ENZYME SUBSTRATE SPECIFICITY**
Ichiro Matsumura, Melissa Geddie, Taryn O'Loughlin, Lori Rowe, Emory University, USA
- 2. STRUCTURE DETERMINATION, HETEROLOGOUS EXPRESSION AND DIRECTED EVOLUTION OF FUNGAL LACCASES**
Sanna Auer, Anu Koivula, Saara Pesonen, Laura-Leena Kiiskinen, Nina Hakulinen, VTT/Biotechnology, Finland
- 3. EXPRESSION AND HIGH-THROUGHPUT SCREENING OF COMBINATORIAL MUTANT HYDROGENASES IN CHLAMYDOMONAS REINHARDT II**
Scott M. Plummer, Maria L. Ghirardi, Matthew L. Posewitz, Stephen R. Decker, Dianne M. Ahmann, Colorado School of Mines, USA
- 4. SEPARATION OF R-DEHALOGENASE USED FOR THE RESOLUTION OF ALPHA-CHLOROPROPIONIC ACID**
Jiangping Wu, Oi Nan, Lirong Yang, Zhejiang University, China
- 5. EVOLUTION OF AN ARBITRARY SEQUENCE IN SOLUBILITY**
Yoichiro Ito, Toshihiro Kawama, Itaru Urabe, Tetsuya Yomo, Osaka University, Japan
- 6. ENGINEERING OF FRUCTOSYL-AMINE OXIDASES FOR HBA1C BIOSENSING**
Stefano Ferri, Koji Sode, Tokyo University of Agriculture and Technology, Japan
- 7. DEVELOPING DIRECTED EVOLUTION STRATEGIES FOR IMPROVEMENT OF A PERMEABILIZING β -1,3-GLUCANASE**
Oriana Salazar, Paola Barba, C. Basso, Julia Molitor, Juan A. Asenjo, University of Chile/Millennium Institute for Advanced Studies in Cell Biology and Biotechnology, Chile
- 8. DIRECTED EVOLUTION OF AN ACTIVE SITE: FINDING ALTERNATIVE SOLUTIONS**
Andreea R. Schmitzer, Joelle N. Pelletier, Université de Montréal, Canada
- 9. DIRECTED EVOLUTION AND ADAPTIVE EVOLUTION OF R67 DHFR: INSIGHTS INTO ACTIVE-SITE SYMMETRY**
Andreea R. Schmitzer, Joelle N. Pelletier, Université de Montréal, Canada
- 10. HIGH-THROUGHPUT SCREENING METHODS FOR SELECTING L-THREONINE ALDOLASES WITH IMPROVED ACTIVITY**
Sang-Joon Lee, Han-Young Kang, Younghoon Lee, Korea Advanced Institute of Science and Technology, Korea
- 11. ENGINEERING AND DIRECTED EVOLUTION OF MULTI-STEP BIOCATALYTIC PATHWAYS IN BACTERIA**
C. U. Ingram, P. A. Dalby, H. Hailes, G. J. Lye, J. M. Ward, University College London, UK
- 12. IMPROVING NUCLEOSIDE PHOSPHORYLATION WITH HYBRID KINASES**
Stefan Lutz, Monica Gerth, Emory University, USA
- 13. MICROBIAL POLYAMIDE PRODUCTION BY RECOMBINANT E. COLI**
Jong Pil Park, Seok Jae Lee, Tae Jung Park, Sang Yup Lee, Korea Advanced Institute of Science and Technology, Korea

- 14. ENGINEERING NITRILASES WITH NOVEL PROPERTIES**
Victoria McCarl, Peter J. Duggan, Markus Piotrowski, Stephen P. Bottomley, Monash University, Australia
- 15. INVERTING ENANTIOSELECTIVITY OF BURKHOLDERIA CEPACIA LIPASE BY COMBINATORIAL MUTATION AND HIGH-THROUGHPUT SCREENING USING SINGLE-MOLECULE PCR AND IN VITRO EXPRESSION**
Yuichi Koga, Hiroyuki Konishi, Katsuya Kato, Hideo Nakano, Tsuneo Yamane, University of Chicago, USA
- 16. EXPLORING SEQUENCE IDENTITY FOR GENERATING FUNCTIONAL CHIMERIC ENZYMES**
Alexander R. Horswill, Stephen J. Benkovic, Pennsylvania State University, USA
- 17. NOVEL STRATEGY FOR SCREENING APTAMER INHIBITING ENZYME USING ALGORITHM MIMICKING EVOLUTION**
Kazunori Ikebukuro, Takahisa Noma, Tokyo University of Agriculture and Technology, Japan
- 18. AMYLOSUCRASE: CATALYTIC MECHANISM AND ENGINEERING**
Pierre F. Monsan, Cecile Albenne, Magali Remaud-Simeon, Michael Gajhede, Vinh Tran, Institut National des Sciences Appliquées, France
- 19. DISPLAY OF A FUNCTIONAL CATALYTIC ANTIBODY ON YEAST CELL SURFACE**
Ying Lin, Takeshi Tsumuraya, Ikuo Fujii, Akihiko Kondo, Mitsuyoshi Ueda, South China University of Technology, China
- 20. CHIMERIC GENE LIBRARY CONSTRUCTION BY A NOVEL METHOD USING RECOMBINATION-DEPENDENT EXPONENTIAL AMPLIFICATION**
Yasuaki Kawarasaki, Akinori Ikeuchi, Tomoya Shinbata, Tsuneo Yamane, Nagoya University, Japan
- 21. GENERATION OF A THERMO-SENSITIVE RIBONUCLEASE T1**
Thomas Greiner-Stöffle, University of Leipzig, Germany
- 22. COMBINATORIAL HIGH-THROUGHPUT SCREENING OF HEME PROTEIN USING A CELL-FREE EXPRESSION SYSTEM**
Chie Miyazaki-Imamura, Ritsuko Kitagawa, Hideo Nakano, Tsuneo Yamane, Haruo Takashi, Toyota Central R&D Labs, Inc., Japan
- 23. IN VITRO EVOLUTION OF HUMAN BETA-GLUCURONIDASE**
Melissa L. Geddie, Ichiro Matsumura, Emory University, USA
- 24. INVESTIGATING THE SPECIFICITY AND EVOLUTIONARY POTENTIAL OF RETROVIRUSES**
Taryn O'Loughlin, Ichiro Matsumura, Emory University, USA

Poster Session II Industrial Biocatalysts

- 25. GLYCOSYLATION OF NATURAL PRODUCTS: COMBINATORIAL BIOSYNTHESIS FOR THE GENERATION OF NOVEL BIOACTIVE MOLECULES**
Axel Trefzer, Dylan Mason, Lisa Rahbaek, Diane Stassi, Mustafa Varoglu, Brian Green, Mervin J. Bibb
Diversa Corporation, USA
- 26. INTEGRATED ENZYMATIC OLIGOSACCHARIDE PRODUCTION AND ISOLATION IN A MULTIPHASE FLUIDIZED BED REACTOR**
K Buchholz, Sonja Berensmeier, Marc Ergezinger, M. Bohnet, Institute for Technical Chemistry, Germany
- 27. KINETIC RESOLUTION OF ALPHA-CYANO-3-PHENOXYBENZYL ACETATE VIA LIPASE-CATALYZED ALCOHOLYSIS IN ORGANIC SOLVENTS**
Jixing Luo, Jianping Wu, Lirong Yang, Zhejiang University, China
- 28. BEAD-BASED SYSTEM FOR STUDYING PROTEIN-PROTEIN INTERACTIONS USING PHB MICROSPHERE WITH SUBSTRATE BINDING DOMAIN**
Jong Pil Park, Seok Jae Lee, Tae Jung Park, Sang Yup Lee, Korea Advanced Institute of Science and Technology, Korea
- 29. THE BIOCATALYST OF THE FUTURE - SCREENING-BASED DIRECTED EVOLUTION OF PROTEINS**
Ulrich Kettling, DIREVO Biotech AG, Germany
- 30. REGIOSELECTIVITIES AND ACTIVITIES OF LIPASE-CATALYZED ACYLATIONS OF FLAVONOID GLUCOSIDES**
Jean-Marc Engasser, Melika Ardhaoui, Aude Falcimaigne, Institut National Polytechnique de Lorraine, France
- 31. CHEMOENZYMATIC APPROACHES TO THE PRODUCTION OF SIMVASTATIN**
Jennifer A. Chaplin, Karen Kustedjo, Brian Morgan, Zuolin Zhu, Michael Levin, Roderick Fielding, Mark J. Burk, Diversa Corporation, USA
- 32. KINETIC STUDIES OF HYPOCREA JECORINA CEL7A (CBHI FROM TRICHODERMA REESEI)**
Edmundo Larenas, Carol Requadt, Laurie Gross, Vicky Huynh, Colin Mitchinson, Pauline Teunissen, Peter Gualfetti, Mats Sandgren, Jerry Stahlberg, Genencor International, USA
- 33. STRUCTURE-BASED RATIONAL DESIGN OF THE SUBSTRATE SPECIFICITY IN CYCLIC AMIDOHYDROLASE FAMILY ENZYME**
Hak-Sung Kim, Young-Hoon, Hee-Sung Park, Dong-Eun Lee, Korea Advanced Institute of Science and Technology, Korea
- 34. BIOCHEMICAL RETROSYNTHESIS OF 2'-DEOXYRIBONUCLEOSIDE FROM GLUCOSE, ACETALDEHYDE AND NUCLEOBASE**
Jun Ogawa, Nobuyuki Horinouchi, Takako Kawano, Takafumi Sakai, Sakayu Shimizu, Kyoto University, Japan
- 35. NOVEL SYNTHETIC ENZYME SUPPORTS AND REACTION SYSTEMS**
Steven M. Heilmann, Jerald K. Rasmussen, Jie J. Liu, Robert T. Fitzsimons, 3M Organic Materials Technology Center, USA

36. SINGLE ENZYME NANOPARTICLES

Jungbae Kim, Jay W. Grate, Pacific Northwest National Laboratory, USA

37. ENGINEERED ENZYMES FOR IMPROVED CLEANING

Michael S. Showell, The Procter & Gamble Co., USA

38. SOLID/GAS BIOCATALYSIS: FROM FUNDAMENTALS TO APPLICATIONS

Sylvain Lamare, Marie-Dominique Legoy, Université de La Rochelle, France

39. ONE-STEP ENZYMATIC CONVERSION OF CEPHALOSPORIN C TO 7-AMINOCEPHALOSPORANIC ACID

Kyung Hwa Jung, Mi Ran Park, Youngsoo Kim, John YJ Jeon, Yong Chul Shin, Amicogen, Inc., Korea

40. AN AIRLIFT BIOREACTOR FOR LACCASE PRODUCTION BY TRAMETES AND CONVERSION OF PHENOLICS

Stephanie G. Burton, Dan R. Ryan, University of Cape Town, South Africa

Poster Session III
Structure/Mechanism Approach to Enzyme Catalysis

- 41. ON THE STRUCTURAL AND FUNCTIONAL MODULARITY OF GLYCINAMIDE RIBONUCLEOTIDE FORMYLTRANSFERASES**
Seung-Goo Lee, Korea Research Institute of Bioscience and Biotechnology, Korea
Stefan Lutz, Emory University, USA, Stephen J. Benkovic, Penn State University, USA
- 42. THERMAL DEACTIVATION OF NATIVE AND MODIFIED K. LACTIS BETA-GALACTOSIDASE**
D. Combes, J. Solis Pacheco, INSA, France
- 43. DIRECTED EVOLUTION OF GLUCOAMYLASE TO IMPROVE THERMOSTABILITY**
Clark Ford, Erica Fuchs, Allison McDaniel, Yue Wang, Peter J. Reilly, Iowa State University, USA
- 44. A HOMOGENEOUS AND NONCOMPETITIVE IMMUNOASSAY BASED ON THE ENHANCED FLUORESCENCE RESONANCE ENERGY TRANSFER BY LEUCINE ZIPPER INTERACTION**
Teruyuki Nagamune, Yoshiyuki Ohiro, Ryouichi Arai, Hiroshi Ueda, University of Tokyo, Japan
- 45. SYNTHESIS OF CHIRAL ALCOHOLS WITH THE REDUCTION OF CHLOROACETOPHENONES BY YEAST CELLS**
Jiangping Wu, Zhimin Ou, Lirong Yang, Peilin Cen, Zhejiang University, China
- 46. A COOPERATIVE ACTION OF TWO ENZYMES IN KERATIN DEGRADATION**
Yasutaka Morita, Shohei Yamamura, Eiichi Tamiya, Japan Advanced Institute of Science and Technology, Japan
- 47. MAPPING THE STEREOSELECTIVITY POCKET OF CANDIDA ANTARCTICA LIPASE B VARIANTS USING SYMMETRICAL SEC-ALCOHOLS**
Karl Hult, Johanna Rotticci-Mulder, Royal Institute of Technology
- 48. THE STRUCTURAL BASIS FOR CATALYSIS AND SPECIFICITY OF THE SUBSTRATE BINDING DOMAIN OF PHB DEPOLYMERASE FROM BACTERIA**
Jong Pil Park, Seok Jae Lee, Tae Jung Park, Sang Yup Lee, Korea Advanced Institute of Science and Technology, Korea
- 49. ENTIFICATION OF GAMMA-BUTYROBETAIN-HYDROXYLASE FROM NEUROSPORA CRASSA AND FUNCTIONAL EXPRESSION IN E. COLI**
Eun-Sung Koh, Sang-Rae Kim, Bheong-Uk Lee, Whan-Koo Kang, Sung-Oh Chung, CJ Corp., Korea
- 50. ISOLATION AND ASSESSMENT OF A THERMO-ALKALI-STABLE CATALASE FOR REMOVAL OF HYDROGEN PEROXIDE FROM PROCESS STREAMS**
Kastli D. Schaller, Vicki S. Thompson, William A. Apel, Idaho National Engineering and Environmental Laboratory, USA
- 51. LACTOSE HYDROLYSIS FROM WHEY PERMEATE BY FREE AND IMMOBILISED LACTASE**
Spettoli Paolo, Lomolino Giovanna, Zannoni Stefania, Machado M. D. Rita, Povolo Silvana, Lante Anna, University of Padua, Italy

- 52. BIOCONVERSION PROCESS INTENSIFICATION FOR THE PRODUCTION OF NOVEL SUGAR ESTERS**
Jean-Marc Engasser, Melika Ardhaoui, Aude Falcimaigne, Institut National Polytechnique de Lorraine, France
- 53. THERMODYNAMICS AND KINETICS OF ENZYME CATALYZED GAS-PHASE REACTION**
Marianne Graber, Marie-Pierre Bousquet-Dubouch, Sylvain Lamare, Marie-Dominique Legoy, Université de La Rochelle, France
- 54. MOLECULAR BASIS OF THE ENANTIOSELECTIVITY OF BURKHOLDERIA CEPACIA LIPASE: NEW INSIGHTS.**
Pierre F. Monsan, David Guieysse, Magali Remaud-Simeon, Vinh Tran, Christophe Salagnad, Institut National des Sciences Appliquées, France
- 55. CREATION OF AN ALLOSTERIC ENZYME BY DOMAIN INSERTION**
Marc Ostermeier, Gurkan Guntas, Johns Hopkins University, USA
- 56. ENZYME CONNECTION OF SUPEROXIDE DISMUTASE AND CATALASE FOR ANTITHROMBOTIC PROTECTION OF THE VASCULAR WALL**
Alexander V. Maksimenko, Elena G. Tischenko, Marina L. Petrova, Alexander V. Vavaev, Vladimir L. Golubykh, Russian Cardiology Research-and-Production Center, Russia
- 57. MECHANISM OF RATE DETERMINING ACYLATION OF CANDIDA ANTARCTICA LIPASE B (CALB) BY SINGLE-ENANTIOMER CHIRAL AND ACHIRAL SUBSTITUTED ETHYL ESTERS OF ACETIC ACID**
Hideo Hirohara, Hideto Kimura, Atsushi Tanikawa, Tomoaki Yokota, Yoshinori Inoue, University of Shiga Prefecture, Japan
- 58. PRODUCTION OF DOUBLY CHIRAL COMPOUND BY TWO-STEP ENZYMATIC ASYMMETRIC REDUCTION**
Masaru Wada, Ayumi Yoshizumi, Sakayu Shimizu, Hiroshi Takagi, Shigeru Nakamori, Fukui Prefectural University, Japan
- 59. ENZYMES AS CATALYSTS FOR PHASE TRANSITIONS**
Veronique M. Larreta-Garde, University of Cergy Pontoise, France
- 60. AMINO ACID PRODUCTION BY HYDANTOINASES OF PSEUDOMONAS PUTIDA, RUKM3S AND COVALENT IMMOBILISATION IN EUPERGIT?C FOR ENHANCED BIOCATALYTIC ACTIVITY**
Stephanie G Burton, B. T. Bulawayo, University of Cape Town, South Africa
R. A. Dorrington, Rhodes University, South Africa
- 61. DIRECTED EVOLUTION OF A GLYCOSYNTASE TO ENHANCE ITS CATALYTIC ACTIVITY**
Young-Wan Kim, Stephen G. Withers, University of British Columbia, Canada
- 62. AN ATTEMPT TO ENGINEER THE MECHANISM OF A RETAINING ALPHA-1,4-GALACTOSYLTRANSFERASE FACILITATES THE IDENTIFICATION OF AN UNEXPECTED INTERMEDIATE**
Luke L. Lairson, Hoa D. Ly, Shouming He, Stephen G. Withers, University of British Columbia, Canada
Warren W. Wakarchuk, Institute of Biological Science, National Research Council of Canada