

Metabolic Engineering 2006 Poster Presentations

SESSION A

Subject Category: Strategies for Host Design and Optimization

1. **USE OF RATIONAL DESIGN AND IN VIVO MOLECULAR EVOLUTION FOR THE DEVELOPMENT OF B12 INDEPENDENT BIOCATALYST CONVERTING GLUCOSE TO 1.3 PROPANEDIOL AND ACETATE AT HIGH YIELD**
Isabelle Meynial-Salles
Laboratoire Biotechnologie Bioprocédés (LBB), France
2. **CONTINUOUS CHEMOSTAT CULTIVATIONS OF TAGGED *SACCHAROMYCES CEREVISIAE* YEAST STRAINS IN A NOVEL MULTI-BIOREACTOR WITH A SHIFT FROM AEROBIOSIS TO ANAEROBIOSIS**
Juha-Pekka Pitkanen
Medicel Ltd, Finland
3. **ENGINEERING A SUCCINATE OVERPRODUCING STRAIN OF *ACTINOBACILLUS SUCCINOGENES***
Claire Vieille
Michigan State University, USA
4. **DEVELOPMENT OF 13C METABOLIC FLUX ANALYSIS FOR PHOTOAUTOTROPHIC METABOLISM**
John A. Morgan
Purdue University, USA
5. **METABOLIC ENGINEERING OF THE THERMOPHILIC BACTERIUM *THERMOANAEROBACTERIUM SACCHAROLYTICUM* JW/SL-YS485 FOR ETHANOL PRODUCTION**
Arthur Joe Shaw
Thayer School of Engineering, Dartmouth College, USA
6. **ENGINEERING PROMOTER REGULATION – GENERATION OF A YEAST PROMOTER INDUCED BY OXYGEN DEPLETION**
Elke Nevoigt
Department of Microbiology and Genetics, Berlin University of Technology, Germany
7. **REGULATORY EFFECT OF AMMONIUM ION ON THE BIOSYNTHESIS OF MEILINGMYCIN**
Yingping Zhuang
State Key Laboratory of Bioreactor Engineering, ECUST, P R China
8. **PHYSIOLOGICAL AND GENETIC ENGINEERING OF CYTOSOLIC REDOX METABOLISM IN *SACCHAROMYCES CEREVISIAE* FOR IMPROVED GLYCEROL PRODUCTION.**
Antonius J.A. van Maris
Delft University of Technology, Department of Biotechnology, The Netherlands
9. **IDENTIFICATION OF METABOLIC ENGINEERING TARGETS FROM METABOLITE AND ENZYME ANALYSIS IN *ASPERGILLUS NIGER***
S.L. Meijer
Center of Microbial Biotechnology, Biocentrum-DTU, Denmark

- 10. DYNAMIC CHANGES IN METABOLIC FLUX DISTRIBUTION AND IDENTIFICATION OF THE CONTROL NETWORK DURING STRINGENT RESPONSE IN *ESCHERICHIA COLI***
Timo Hardiman
Institute of Biochemical Engineering, University of Stuttgart, Germany
- 11. ENGINEERING OF ORGANIC ACID TOLERANCE GENES IN *ESCHERICHIA COLI* FOR BIOREFINERY APPLICATIONS**
Tanya E. Warnecke
University of Colorado, USA
- 12. DEVELOPING HIGH THROUGHPUT SCREENING METHODS FOR MULTIPLE PHENOTYPE EVALUATION**
Benjamin L. Wang
Massachusetts Institute of Technology, USA
- 13. DEVELOPMENT OF A SYSTEMS BIOLOGY PLATFORM FOR THE ASSESSMENT OF THE IN-VIVO REGULATION OF MICROBIAL METABOLISM; APPLICATION TO *SACCHAROMYCES CEREVISIAE* AND *PENICILLIUM CHRYSOGENUM***
Walter M. van Gulik
Delft University of Technology, Department of Biotechnology, The Netherlands
- 14. *ESCHERICHIA COLI* DOES FERMENT GLYCEROL IN THE ABSENCE OF EXTERNAL ELECTRON ACCEPTORS: A NEW PLATFORM FOR METABOLIC ENGINEERING**
Ramon Gonzalez
Department of Chemical and Biomolecular Engineering, Rice University, USA
- 15. A NOVEL DATA MINING METHOD TO IDENTIFY ASSAY-SPECIFIC SIGNATURES IN FUNCTIONAL GENOMIC STUDIES**
Ramon Gonzalez
Department of Chemical and Biomolecular Engineering, Rice University, USA
- 16. UNDERSTANDING *PICHIA PASTORIS* CENTRAL CARBON METABOLISM RESPONSES TO ENVIRONMENTAL MODIFICATIONS BY METABOLIC FLUX BALANCING AND ELEMENTARY MODE ANALYSES**
Joan Albiol
Universitat Autònoma de Barcelona, Spain
- 17. OPTIMIZATION OF THE SOLVENT TOLERANT *PSEUDOMONAS PUTIDA* S12 AS HOST FOR THE PRODUCTION OF AROMATICS FROM RENEWABLE FEEDSTOCKS**
Jan Wery
TNO Quality of Life, The Netherlands
- 18. METABOLIC ENGINEERING FOR IMPROVEMENT OF GLYCOPEPTIDE PRODUCTION IN *AMYCOLATOPSIS BALHIMYCINA***
Anna Eliasson Lantz, Jette Thykær, Wanwipa Vongsangnak, Goutham Vemuri, Jens Nielsen
Center for Microbial Biotechnology, Denmark
Jochen Förster, Fluxome Sciences, Denmark
- 19. A DYNAMIC METABOLIC MODEL FOR PLANT CELLS**
Mario Jolicoeur, Mathieu Cloutier, Michel Perrier
Ecole Polytechnique de Montréal, Canada

- 20. IMPROVEMENT OF GLYCOSYLATION OF RECOMBINANT MONOCLONAL ANTIBODIES EXPRESSED IN CHO-K1 CELLS BY ENGINEERING INTRACELLULAR NUCLEOTIDE-SUGARS**
Frank S. Wang, Abdul Wajid
XOMA (US) LLC, USA
- 21. TRANSCRIPTIONAL PROFILING OF LYCOPENE-OVERPRODUCING *ESCHERICHIA COLI* STRAINS**
Brian Mickus, Hal Alper, Joel Moxley, Gregory Stephanopoulos, and Charles Cooney
Massachusetts Institute of Technology, USA
- 22. THERMODYNAMICALLY FEASIBLE CONCENTRATION PROFILES FOR A GENOME-SCALE METABOLIC MODEL OF *ESCHERICHIA COLI***
Christopher Henry
Northwestern University USA
Linda Broadbelt and Vassily Hatzimanikatis, Northwestern University, USA
- 23. ENGINEERING *ESCHERICHIA COLI* TO INCREASE FLUX OF REDUCING EQUIVALENTS AVAILABLE FOR NAD(P)H-DEPENDENT TRANSFORMATIONS**
Patrick C. Cirino, Jonathan W. Chin, Reza Khankal, Costas D. Maranas
The Pennsylvania State University, USA

Subject Category: Metabolic Engineering of Production Organisms

- 24. METABOLIC FLUX ANALYSIS OF MDCK CELLS IN GLUTAMINE-CONTAINING AND GLUTAMINE-FREE CULTURE MEDIA**
Y. Sidorenko
Max Planck Institute for Dynamics of Complex Technical Systems, Germany
- 25. A NOVEL SYSTEM FOR THE FINE TUNING OF GENES**
De Mey M.
Ghent University, Belgium
- 26. TRANSCRIPT AND PROTEIN LEVEL ANALYSIS OF CROSS-REGULATION IN PHOSPHATE STARVATION RESPONSE IN *ESCHERICHIA COLI***
Sang Yup Lee
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Department of Biosystems and Bioinformatics Research Center, Korea
- 27. TRANSCRIPTOME ANALYSIS OF AN INDUSTRIAL L-LYSINE PRODUCER AND ITS APPLICATION TO "GENOME BREEDING"**
Mikiro Hayashi
Biofrontier Laboratories, Kyowa Hakko Kogyo Co., Ltd., Japan
- 28. IDENTIFICATION OF AN ATP-NADH KINASE AND ITS CONTRIBUTION TO SUPPLY NADPH IN *FUSARIUM OXYSPORUM* AND *ASPERGILLUS NIDULANS***
Gianni Panagiotou
Center for Microbial Biotechnology-Denmark Technical University, Denmark

- 29. METABOLIC CONTROL ANALYSIS FOR ENHANCED LYCOPENE PRODUCTION IN *ESCHERICHIA COLI***
Sang Yup Lee
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Department of Biosystems and Bioinformatics Research Center, Korea Advanced Institute of Science and Technology, Korea
- 30. FLUX SCANNING BASED ON ENFORCED OBJECTIVE FLUX AS NEW STRATEGY FOR ENHANCED METABOLITE PRODUCTION**
Hyung Seok Choi, Tae Yong Kim
Metabolic and Biomolecular Engineering National Laboratory, Department of Chemical and Biomolecular, and BioProcess Engineering Research Center, Korea Advanced Institute of Science and Technology, Republic of Korea
- 31. ENGINEERING A BETA-CAROTENE KETOLASE FOR ASTAXANTHIN PRODUCTION**
Qiong Cheng, Luan Tao, Jolanta Wilczek, and Martin Odom
DuPont, USA
- 32. REGENERATION OF NADH BY MULTIENZYME DISPLAY OF FORMATE DEHYDROGENASE AND LACTATE DEHYDROGENASE ON THE SURFACE OF *ESCHERICHIA COLI***
Sang Yup Lee
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Department of Biosystems and Bioinformatics Research Center, Korea Advanced Institute of Science and Technology, Korea
- 33. METAFUXNET2: INTEGRATED IN SILICO MODELING AND SIMULATION ENVIRONMENT FOR METABOLIC NETWORK MODEL**
Hongseok Yun
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Korea Advanced Institute of Science and Technology, 2Macrogen Inc., Korea
- 34. MAGNETIC NANOFABRIQUES: LOCALIZED SYNTHESIS AND DELIVERY OF QUORUM SENSING SIGNALING MOLECULE AUTOINDUCER-2 TO BACTERIAL CELL SURFACES**
Rohan Fernandes, Angela Lewandowski
Bioengineering Graduate Program, University of Maryland, U.S.A.
- 35. IMPROVEMENT OF GLYCOSYLATION OF RECOMBINANT MONOCLONAL ANTIBODIES EXPRESSED IN CHO-K1 CELLS BY ENGINEERING INTRACELLULAR NUCLEOTIDE-SUGARS**
Frank Wang
XOMA (US) LLC, USA
- 36. METABOLIC FLUX ANALYSIS OF THE ASTAXANTHIN-PRODUCING GREEN ALGA *HAEMATOCOCCUS PLUVIALIS* GROWING UNDER NITROGEN STRESS CONDITION**
Xue-Ming ZHAO,
Department of Biochemical Engineering, School of Chemical Engineering & Technology, China
- 37. MICROBIAL NADPH METABOLISM**
Tobias Fuhrer
Institute for Molecular Systems Biology, Switzerland

- 38. THE CRABTREE EFFECT WITH GLUTAMATE AS A NITROGEN SOURCE**
Lars Keld Nielsen
The University of Queensland, Australia
- 39. AN EXPERIMENTAL MINIATURE BIOREACTOR FOR CELLULAR PERTURBATION STUDIES**
Aboka Fredrick Otieno
Technical University of Delft, The Netherlands
- 40. GROWTH RECOVERY ON GLUCOSE BY DIFFERENTIAL EXPRESSION OF CENTRAL CARBON METABOLISM, AND GAL REGULON GENES AND BY OVEREXPRESSING GLK AND GALP IN AN ARCA- MUTANT *ESCHERICHIA COLI* STRAIN LACKING THE PHOSPHOENOLPYRUVATE: CARBOHYDRATE PHOSPHOTRANSFERASE SYSTEM.**
Noemí Flores
Departamento de Ingeniería Celular y Biocatálisis, Instituto de Biotecnología, Universidad Nacional Autónoma de México, Mexico
- 41. ACCELERO-STAT CHARACTERISATION OF CHO CELL GROWTH, METABOLISM AND MONOCLONAL ANTIBODY PRODUCTION**
Helen Newton
GlaxoSmithKline, UK
- 42. TRANSCRIPTOME AND PROTEIN LEVEL ANALYSES OF PHOR-PHOB TWO-COMPONENT REGULATORY SYSTEM IN *ESCHERICHIA COLI***
Jong Hwan Baek, Yeon Jae Kang, Sang Yup Lee, Yu Kyung Jung, Kyung Min Lee
Korea Advanced Institute of Science and Technology
- 43. DEVELOPMENT OF HOST-VECTOR EXPRESSION SYSTEM FOR *LEUCONOSTOC SP.***
Nam Soo Han
Research Center for Bioresource and Health(RCBH), Dept. of Food Science & Technology, Chungbuk National University, Korea
Hyun-Ju Eom, Myeong-Soo Park, Research Center, BIFIDO Co., Korea
Geun Eog Ji
Department of Food Science and Nutrition, Seoul National University, Korea
- 44. IDENTIFYING GENE TARGETS FOR OVEREXPRESSION AND KNOCKOUT VIA *IN SILICO* BIOLOGY: APPLICATION TO TYROSINE PRODUCTION IN *ESCHERICHIA COLI***
Curt Fischer, Jamey Young, Gregory Stephanopoulos
MIT, USA
- 45. OPTIMIZATION OF SUCCINIC ACID PRODUCTION AND YIELD IMPROVEMENT BY *MANNHEIMIA SUCCINIPRODUCENS* LPK7 IN CONTINUOUS FERMENTATION PROCESSES**
Jinwon Lee, Sogang University, Korea

Subject Category: Industrial Applications of Metabolic Engineering

- 46. FLUIDITY OF CELL ENVELOPE OF *CORYNEBACTERIUM GLUTAMICUM* DURING THE TEMPERATURE-TRIGGERED GLUTAMATE PRODUCING PROCESS**
Jean-Louis Goergen
Laboratoire des Sciences du Génie Chimique, France

- 47. PURIFICATION AND CHARACTERIZATION OF GLYCEROL DEHYDROGENASE FROM *HANSENULA OFUNAENSIS*, AND ITS EXPRESSION OF THE CORRESPONDING GENE IN *ESCHERICHIA COLI* HB101 FOR THE PRODUCTION OF OPTICALLY ACTIVE 1,2-OCTANEDIOL**
Keiko Yamada-Onodera
Nara Institute of Science and Technology, Japan
- 48. L-LACTATE UTILIZATION BY AMINO ACID-PRODUCING *CORYNEBACTERIUM GLUTAMICUM*: GENES, PATHWAYS, TRANSCRIPTOMICS AND REGULATION**
Volker F. Wendisch
Institute of Molecular Microbiology and Biotechnology, Westfalian Wilhelms University Muenster, Germany
- 49. ENGINEERING PROMOTER REGULATION – GENERATION OF A YEAST PROMOTER INDUCED BY OXYGEN DEPLETION**
Elke Nevoigt
Department of Microbiology and Genetics, Berlin University of Technology, Germany
- 50. PRODUCTION OF CYANOPHYCIN IN METABOLIC ENGINEERED *ESCHERICHIA COLI***
Tae Jung Park
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering, BioProcess Engineering Research Center , and Center for Ultramicrochemical Process Systems, Korea Advanced Institute of Science and Technology, Korea
- 51. GENOME-SCALE RECONSTRUCTION, VALIDATION AND ANALYSIS OF THE METABOLIC NETWORK OF *MANNHEIMIA SUCCINICIPRODUCENS* MBEL55E**
Tae Yong Kim
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Korea Advanced Institute of Science and Technology, Korea
- 52. METABOLIC ENGINEERING OF *CLOSTRIDIUM ACETOBUTYLICUM* FOR THE CONVERSION OF GLYCEROL TO 1, 3 PROPANEDIOL**
Philippe Soucaille
Metabolic Explorer, France
- 53. METABOLIC ENGINEERING STRATEGIES TO REDUCE BY-PRODUCT SYNTHESIS AND IMPROVE PROCESS PERFORMANCE OF *ESCHERICHIA COLI* DURING RECOMBINANT PROTEIN PRODUCTION UNDER AEROBIC AND TRANSIENT ANAEROBIC CONDITIONS**
Alvaro R. Lara
Instituto de Biotecnologia, Universidad Nacional Autonoma de Mexico, Mexico
- 54. PATHWAY CONSTRUCTION ON MICROFABRICATED DEVICES FOR *IN VITRO* METABOLIC ENGINEERING**
Angela T. Lewandowski
University of Maryland at College Park, USA
- 55. GENE-DOSAGE STRATEGY FOR ARABINOSE UTILIZATION IN INDUSTRIAL *SACCHAROMYCES CEREVISIAE***
Maurizio Bettiga
Department of Applied Microbiology, Lund University, Sweden

- 56. USING FLUXOMIC BASED ANALYSIS TO PROBE THE GLOBAL RESPONSE OF A LOCAL MODULATION WITHIN THE *ESCHERICHIA* METABOLIC NETWORK**
Fabien Létisse, Jean-Charles Portais
Laboratory of Biotechnology and Bioprocess Engineering, France
- 57. TRANSCRIPTOME DYNAMICS-BASED GENOME-WIDE PREDICTION AND VERIFICATION OF OPERONS IN *STREPTOMYCES COELICOLOR***
Salim Charaniya, George Karypis, Wei-Shou Hu
University of Minnesota, USA
Sarika Mehra
Indian Institute of Technology, India
- 58. PREFERENTIAL UPTAKE OF AMINO ACIDS IN RIFAMYCIN B FERMENTATION: PREDICTIVE MODEL AND EXPERIMENTAL VALIDATION**
Prashant Madhusudan Bapat, Debashis Das, Pramod Prabhakar Wangikar
Indian Institute of Technology, India
- 59. INTEGRATING METABOLIC AND PROCESS ENGINEERING IN STRAIN DEVELOPMENT FOR LIGNOCELLULOSIC BIOETHANOL PRODUCTION**
Marie F. Gorwa-Grauslund
Applied Microbiology, Lund University, Sweden

Subject Category: Miscellaneous

- 60. CHEMOSTAT CULTIVATION OF PORCINE INSULIN PRECURSOR AND ANALYSIS OF METABOLIC FLUX DURING THE INDUCTION PHASE BY RECOMBINANT *PICHTIA PASTORIS***
Ju Chu
State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology, P R China
- 61. A METABOLIC MODEL FOR THE OPTIMIZATION OF ADENOVIRAL VECTOR PRODUCTION**
B.A. Andrews, Juan Asenjo
University of Chile, Chile
- 62. IMPORTANT ASPECTS OF *ACTINOBACILLUS SUCCINOGENES* METABOLISM REVEALED IN A CHEMICALLY DEFINED GROWTH MEDIUM WITH AND WITHOUT [1-13C]GLUCOSE**
James 'Jake' McKinlay
Michigan State University, USA
- 63. REGULATION OF CELLULAR APOPTOSIS BY PALMITIC ACID: INVOLVEMENT OF SIGNAL TRANSDUCTION PATHWAYS FROM PKR TO BCL-2**
Xuerui Yang
Michigan State University, USA
- 64. AN ELEMENTARY METABOLIC UNIT (EMU) BASED METHOD FOR INSTATIONARY FLUX ANALYSIS**
Jason Walther
Massachusetts Institute of Technology, United States
- 65. 13C ISOTOPIC TRACER ANALYSIS OF HEPATIC AZELATE METABOLISM**
J. D. Young
Department of Chemical Engineering, Massachusetts Institute of Technology, USA

SESSION B

Subject Category: Mathematical Modeling for Metabolic Engineering

66. **BIOTECHNOLOGICAL PROCESSES FOR PETROLEUM REFINING OPPORTUNITIES FOR DEVELOPING COUNTRIES**
Iram Mahmood
Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China
67. **GENERATION AND CHARACTERIZATION OF FEEDBACK-INSENSITIVE MUTANTS OF CHORISMATE MUTASE-PREPHENATE DEHYDROGENASE FROM *ESCHERICHIA COLI*.**
María Inés Chávez-Béjar
Instituto de Biotecnología, UNAM, México
68. **METABOLOME DYNAMIC RESPONSES OF *SACCHAROMYCES CEREVISIAE* ON SIMULTANEOUS RAPID PERTURBATIONS IN EXTERNAL ELECTRON ACCEPTOR AND ELECTRON DONORS**
Mlawule R. Mashego
Department of Biotechnology, Technical University of Delft , The Netherlands
69. **METABOLIC AND ISOTOPIC INSTATIONARY EXPERIMENTS: AN EXPLORATORY SIMULATION STUDY**
Aljoscha Wahl
Department of Simulation, University of Siegen , Germany
70. **GLOBAL METABOLITE AND FLUX ANALYSIS IN PRIMARY HUMAN HEPATOCYTES**
Klaus Maier
Institute of Biochemical Engineering, University of Stuttgart, Germany
71. **NEW EXPERIMENTAL TECHNIQUES ON WHOLE CELLULAR SYSTEMS**
Dirk Weuster-Botz
Technical University of Munich, Germany
72. **MODELING A GENETIC SWITCH FOR ANTIBIOTIC DEFENSE: STOCHASTICITY AND ROBUSTNESS OF DYNAMICS**
Sarika Mehra
Department of Chemical Engineering, India
73. **METABOLIC ENGINEERING OF *MANNHEIMIA SUCCINICIPRODUCENS* FOR SUCCINIC ACID PRODUCTION**
Hyohak Song
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Korea Advanced Institute of Science and Technology, Korea
74. **METABOLIC ENGINEERING OF *ESCHERICHIA COLI* FOR THE PRODUCTION OF L-VALINE**
Jin Hwan Park, Yu Kyung Jung
Metabolic and Biomolecular Engineering National Research Laboratory, Department of Chemical and Biomolecular Engineering and BioProcess Engineering Research Center, Korea Advanced Institute of Science and Technology, Korea

- 75. STUDY ON MULTI-SCALE PROBLEMS AND SYSTEMS BIOLOGY IN BIOREACTORS**
Siliang Zhang
State Key Laboratory of Bioreactor Engineering, East China University of Science and Technology, P R China
- 76. METABOLIC RESPONSES TO REDOX PERTURBATIONS IN *SACCHAROMYCES CEREVISIAE***
G.N. Vemuri
CMB, BioCentrum-DTU, Denmark
- 77. VERTICAL GENOMICS: SHORT-TERM DYNAMICS OF GLYCOLYSIS IN *SACCAROMYCES CEREVISIAE***
André de C. B. D. Canelas
Department of Biotechnology, T.U. Delft, The Netherlands
- 78. METABOLIC NETWORK MODEL REDUCTION USING THE LINLOG KINETIC FORMAT AND TIME SCALE ANALYSIS**
I.E. Nikerel
Department of Biotechnology, Technical University of Delft, The Netherlands
- 79. METABOLIC ENGINEERING OF *ESCHERICHIA COLI* AND *AGROBACTERIUM SP.***
Rachel Chen
Georgia Institute of Technology, USA
- 80. EXPERIMENTAL AND ANALYTICAL TOOLS FOR ¹³C-METABOLOME ANALYSIS: SIMULTANEOUS METABOLOME AND FLUXOME DATA ACQUISITION**
M. Oldiges
Institute of Biotechnology, Research Centre Jülich, Germany
- 81. IN VIVO RESPIROMETRIC ¹³C METABOLIC FLUX ANALYSIS-CO₂ THE UBIQUITOUS METABOLIC INDICATOR**
Elmar Heinzle
Biochemical Engineering Institute, Germany
- 82. NOVEL PATHWAY DESIGN FOR MICROBIAL PRODUCTION OF ORGANIC COMPOUNDS**
Kristala Jones Prather
Massachusetts Institute of Technology, USA
- 83. COMBINING FORWARD AND REVERSE METABOLIC ENGINEERING TO IMPROVE MICROBIAL FUNCTION**
Ryan T. Gil
University of Colorado, USA
- 84. METABOLOMICS MEETS POLYSACCHARIDE DEGRADATION: THE CHARACTERIZATION OF TRANSPOSON-INSERTION MUTANTS OF A RUMEN FIBROLYTIC BACTERIUM**
Silas G. Villas-Bôas
AgResearch Limited, New Zealand
- 85. SYSTEMS GLYCOMODELING FOR ACHIEVING THE DESIRED GLYCOFORM PROFILE IN CHO CELLS**
Dong-Yup Lee
Bioprocessing Technology Institute, Agency for Science and Technology Research (A*STAR); Department of Chemical and Biomolecular Engineering, National University of Singapore, Singapore

- 86. MITIMES: A FRAMEWORK FOR TIME-SERIES SIGNIFICANCE ANALYSIS OF TRANSCRIPTOMIC DATA**
Bhaskar Dutta
University of Maryland, USA
- 87. GENE EXPRESSION PROFILING IN ENGINEERED *ESCHERICHIA COLI* STRAINS THAT OVERPRODUCE L-PHENYLALANINE BY USING REAL-TIME PCR TECHNIQUE.**
José Luis Báez-Viveros
Departamento de Ingeniería Celular y Biocatálisis, Instituto de Biotecnología, Universidad Nacional Autónoma de México (UNAM), México.
- 88. MULTIOBJECTIVE LINEAR PROGRAMMING APPLIED TO RECOMBINANT HUMAN PROTEIN PRODUCTION OPTIMIZATION IN YEAST**
Pia Rodriguez N.
Department of Chemical Engineering and Biotechnology, University of Chile, Chile
- 89. METABOLOMIC ANALYSIS OF GALACTOSEMIA USING YEAST AS THE MODEL SYSTEM**
C. H. Syriopoulos
Metabolic Engineering and Systems Biology Laboratory, Institute of Chemical Engineering and High Temperature Chemical Processes (ICEHT), Greece
- 90. GENETIC PROGRAMMING BASED KINETIC IDENTIFICATION OF A SMALL METABOLIC NETWORK**
Bhagwat, A.M.
BIOMATH - Department of Applied Mathematics, Biometrics and Process Control, University of Gent, Belgium
- 91. MONTE CARLO SAMPLING, DATA INTERPRETATION, AND CONTROL ANALYSIS OF YEAST METABOLIC PATHWAYS**
Liqing Wang
Northwestern University, USA
Vassily Hatzimanikatis
Northwestern University, USA
- 92. A MATHEMATICAL FRAMEWORK FOR THE PROTEIN TRANSLATION MECHANISM – THE INTERPLAY BETWEEN POLYSOME SELF ORGANIZATION AND THE MAXIMIZATION OF PROTEIN TRANSLATION RATE**
Hermioni Zouridis
Northwestern University, USA
Vassily Hatzimanikatis
Northwestern University, USA

Subject Category: Experimental Techniques on X-omics (from gene to flux)

- 93. METABOLIC FLUX ANALYSIS IN MAMMALIAN SYSTEMS BASED ON GC/MS ANALYSIS OF INTRACELLULAR AND EXTRACELLULAR METABOLITES**
Maciek R. Antoniewicz
Massachusetts Institute of Technology, USA
- 94. METABOLIC FLUX ANALYSIS OF SINGLE-GENE KNOCKOUT MUTANTS OF CENTRAL CARBON METABOLISM IN *ESCHERICHIA COLI***
Takashi Hirasawa
Institute for Advanced Biosciences, Keio University, Japan

- 95. APPLICATION OF CE-TOFMS TO METABOLIC FLUX ANALYSIS BASED ON 13C-LABELING EXPERIMENT**
Yoshihiro Toya
Institute for Advanced Biosciences, Keio University, Japan
- 96. METABOLIC ENGINEERING OF *CORYNEBACTERIUM GLUTAMICUM* FOR L-SERINE PRODUCTION**
Hermann Sahn
Forschungszentrum Jülich GmbH, Institute of Biotechnology, Germany
- 97. UNRAVELING THE REGULATORY NETWORK OF DRUG DETOXIFICATION IN HUMAN LIVER – REVERSE ENGINEERING UNDER THE BOOLEAN/PROBABILISTIC BOOLEAN FRAMEWORK**
Prem Kumar Murugan
Institute of Biochemical Engineering, University of Stuttgart, Germany
- 98. CENTRAL CARBON METABOLISM IN *SACCHAROMYCES CEREVISIAE*: SUCCINIC ACID PRODUCTION**
José Manuel Otero
Center for Microbial Biotechnology, BioCentrum, Technical University of Denmark, Lyngby, Denmark
- 99. OPTIMAL DESIGN OF ISOTOPICALLY INSTATIONARY 13C LABELING EXPERIMENTS: COMPUTATIONAL TOOLS AND OPTIMAL EXPERIMENTAL DESIGN STRATEGIES**
K. Nöh
Department of Simulation, University of Siegen, Germany
- 100. THE TRANSIENT EFFECT OF OVEREXPRESSING ORCA3 PLUS JASMONIC ACID FEEDING IN *CATHARANTHUS ROSEUS* HAIRY ROOTS**
Christie A. M. Peebles
Rice University, USA
- 101. PRODUCTION OF XYLITOL FROM D-XYLOSE BY XYLITOL DEHYDROGENASE-DISRUPTED MUTANT OF *CANDIDA TROPICALIS***
Byoung Sam Ko
Korea Advanced Institute of Science and Technology, Republic of Korea
- 102. ELEMENTARY MODE ANALYSIS FOR DESIGNING SELECTION HOSTS**
Cong T. Trinh
University of Minnesota, U.S.A
- 103. COMPARATIVE FLUXOME ANALYSIS OF CONTINUOUS CULTURES OF RECOMBINANT *BACILLUS MEGATERIUM* STRAINS**
Tobias Fuerch
Technical University Braunschweig, Germany
- 104. PROFILING FLUXOME SHIFTS IN HIGHER CELLS**
Nicola Zamboni
Institute for Molecular Systems Biology - ETH Zürich, Switzerland
- 105. GROWTH RATE IMPROVEMENT OF PLASMID BEARING *ESCHERICHIA COLI* BY DISRUPTION OF A GLOBAL REGULATOR GENE AFFECTING CENTRAL METABOLISM**
Dave Siak-Wei Ow
Bioprocessing Technology Institute, Singapore

- 106. FROM GENOMES TO INCREASED PRODUCT FLUX: THE LINKAGE OF PRIMARY PRECURSORS TO SECONDARY METABOLITES**
Krabben, P.
Department of Biochemical Engineering, University College London, UK
- 107. AN IMPROVED EVOLUTIONARY ALGORITHM-BASED FRAMEWORK FOR IDENTIFYING *IN SILICO* METABOLIC ENGINEERING TARGETS**
Isabel Rocha
Centro de Engenharia Biológica, Universidade do Minho, Portugal
- 108. UNRAVELING REGULATORY MECHANISMS GOVERNING THE PRIMARY METABOLISM OF *ARABIDOPSIS THALIANA* LIQUID CULTURE SYSTEM THROUGH TIME-SERIES METABOLOMIC ANALYSIS OF ITS SHORT-TERM RESPONSE TO SYSTEMATIC PERTURBATIONS**
Harin Kanani
University of Maryland, College Park, USA

Subject Category: New Frontiers in Metabolic Engineering

- 109. *IN VITRO/IN SILICO* MODELING TOOLS FOR METABOLIC ENGINEERING ANALYSIS OF ADIPOSE TISSUE FUNCTION**
Kyongbum Lee
Chemical and Biological Engineering, Tufts University, USA
- 110. SIGNAL TRANSDUCTION MODEL FOR THE OPTIMIZATION OF THE L(-)-CARNITINE BIOSYNTHESIS BY *ESCHERICHIA COLI***
Sevilla, A.
Department of Biochemistry and Molecular Biology B. University of Murcia, Spain
Manuel Canovas Diaz
- 111. ENHANCED BIOMASS-BIOENERGY CONVERSION THROUGH ENZYME ENGINEERING**
Rajat Sapra
Sandia National Laboratories, USA
- 112. DEVELOPMENT OF A METABOLITE-RESPONSIVE ASSAY FOR THE *IN VIVO* SCREENING OF INTRACELLULAR TYROSINE CONTENT IN *ESCHERICHIA COLI***
Christine Santos
Massachusetts Institute of Technology, USA
- 113. PREDICTING AND QUANTIFYING METABOLIC FLUX REDISTRIBUTION IN RESPONSE TO GENETIC AND ENVIRONMENTAL STIMULI**
Madhukar S Dasika
Pennsylvania State University, USA
- 114. CHARACTERISATION OF TWO *PENICILLIUM CHRYSOGENUM* STRAINS DISRUPTED IN THE NADPH-DEPENDENT GLUTAMATE DEHYDROGENASE**
Jette Thykaer
Center for Microbial Biotechnology, Biocentrum-DTU, Denmark
Henk Noorman
DSM Anti-Infectives
Jens Nielsen
Center for Microbial Biotechnology, Biocentrum-DTU
- 115. TOWARD RATIONAL METABOLIC ENGINEERING OF PLANT SEEDS**
Doug Allen
Michigan State University

116. PREDICTION AND THERMODYNAMIC ANALYSIS OF XENOBIOTIC BIODEGRADATION REACTIONS

Stacey D. Pace

Northwestern University, USA

Linda J. Broadbelt, and Vassily Hatzimanikatis

Northwestern University, USA

117. METABOLIC FLUX ANALYSIS APPLIED TO HUMAN COLONIC BACTERIAL METABOLISM

Albert A. de Graaf, Wageningen Center of Food Sciences

118. GLOBAL TRANSCRIPTION MACHINERY ENGINEERING (Gtme): A NEW APPROACH FOR IMPROVING CELLULAR PHENOTYPE

Hal Alper, Massachusetts Institute of Technology, USA

Gregory Stephanopoulos, Massachusetts Institute of Technology, USA

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119. IDENTIFICATION OF RIBOFLAVIN PRODUCTION GENES BY SCREENING TRANSPOSON MUTANTS

S. Taennler

Institute for Molecular Systems Biology, ETH Zurich, Switzerland

120. SYSTEMS BIOLOGY FOCUSING ON AMINO ACID PRODUCERS

Ralf Takors

Degussa AG, Feed Additives, Germany

121. EVALUATION OF EXPERIMENTAL PROTOCOLS FOR METABOLOME ANALYSIS IN *ESCHERICHIA COLI* K-12 MG 1655

Hilal Taymaz

Department of Biotechnology; Faculty of Applied Sciences; Technical University of Delft, The Netherlands

122. METABOLIC ENGINEERING OF *ESCHERICHIA COLI* FOR L-TYROSINE OVERPRODUCTION

Tina Lütke-Eversloh

Massachusetts Institute of Technology, USA

123. GLUCONEOGENIC METABOLISM IN *ESCHERICHIA COLI* PTS- AND PTS-GLC+ DERIVATIVES

Juan Carlos Sigala Alanis

Departamento de Ingeniería Celular y Biocatálisis. Instituto de Biología, Universidad Nacional Autónoma de México, México

124. RECOMBINEERING WITH RED®/ET®-MODIFICATION OF THE BACTERIAL GENOME

Tim Zeppenfeld

GeneBridges GmbH, Germany

125. FROM GENOMES TO INCREASED PRODUCT FLUX: THE LINKAGE OF PRIMARY PRECURSORS TO SECONDARY METABOLITES

Krabben, P.

Department of Biochemical Engineering, UK

- 126. OPTIMIZATION BASED AUTOMATED CURATION OF METABOLIC RECONSTRUCTIONS**
Madhukar S Dasika
Pennsylvania State University, USA
- 127. MIXED SUBSTRATE METABOLISM OF *PENICILLIUM CHRYSOGENUM***
Zheng Zhao, Walter M. van Gulik, Joseph J. Heijnen
Department of Biotechnology, Delft University of Technology, Netherlands
- 128. METABOLIC CAPACITY OF BIOCATALYTIC ACTIVE MICROBES**
Lars M. Blank, Andreas Schmid
University of Dortmund and The Institute for Analytical Sciences (ISAS), Germany
Birgitta Ebert, Bruno Buehler
University of Dortmund, Germany
- 129. GROWTH AND PROFILING DURING FERMENTATION IN A MICROSCALE BIOREACTOR**
Hans van den Berg, Martijn Kreukniet
Applikon Biotechnology B.V., Netherlands
Steven Boyer Micro Reactor Technology, Inc., USA
- 130. CERAMIC SPARGER: MICROSPARGING AERATION FOR CELL CULTURES**
Peter Czermak
University of Applied Sciences Giessen-Friedberg, Institute of Biopharmaceutical Technology, Germany
Mathias Jung, Hans van den Berg, Applikon Biotechnology B.V., Schiedam, Netherlands
- 131. ROLE OF CYTOCHROME *BD* OXIDASE FROM *CORYNEBACTERIUM GLUTAMICUM* FOR GROWTH AND LYSINE PRODUCTION**
Armin Kabus, Axel Niebisch and Michael Bott