

Biochemical Engineering XIV

Poster Session #1

1. Annotation and curation of the biochemical engineering literature
Daniel McShan, University of Colorado School of Medicine
2. Characterization of the cell growth and the distribution of end-products in a batch cultivation of *Mannheimia succiniciproducens*
Hyohak Song, KAIST
3. Clustering analyses of complete genomes based on the KEGG orthology for the elucidation of evolutionary relationships among the organisms
Jin Sik Kim, KAIST
4. Combining experimental data and *in silico* analysis to model the metabolic network of *Lactobacillus plantarum*
Jeroen Hugenholtz, Kluyver Centre for Genomics of Industrial Fermentations
5. Comparative proteomic analysis of GS-NS0 murine myeloma cell lines producing a recombinant monoclonal antibody at varying specific production rate
David C. James, The University of Queensland
6. Computational flux balance analysis of photoautotrophic metabolism
John A. Morgan, Purdue University
7. Construction of valine-producing strain and its transcriptome analysis
Jin Hwan Park, KAIST
8. Genome-wide analysis of the transcriptional response of murine hybridomas to osmotic shock
Duan Shen, Rensselaer Polytechnic Institute
9. Global transcriptional analysis of phosphate starvation response in *Escherichia coli*
Jong Hwan Baek, KAIST
10. Hyaluronic acid production by recombinant *Bacillus subtilis* strains
Stephen Brown, Novozymes, Inc.
11. Influence of culture environment on the production of mouse embryonic stem cells
Muhammad Arshad S. Chaudhry, University of British Columbia
12. Metabolic engineering of *Escherichia coli* for the improved production of L-threonine based on metabolic flux analysis
Kwangho Lee, KAIST
13. Proteomic and genomic studies of mammalian cell physiology to optimize production of therapeutic and diagnostic proteins
Susan Sharfstein, Rensselaer Polytechnic Institute
14. An integrative and probabilistic approach for discovering regulatory modules in molecular interaction networks
Ana Paula S. Oliveira, Center for Microbial Biotechnology, BioCentrum-DTU

15. Analysis of thermodynamic feasibility in a genome scale metabolic model
Matthew Jankowski, Northwestern University
16. Bayesian model discrimination analysis for identification of most probable biological network
Ranjan Srivastava, University of Connecticut
17. Dynamic flux balance analysis of cell-free protein synthesis
Jeffrey D. Varner, Genencor International Inc.
18. Identifying reaction activation/inhibition strategies for strain engineering
Priti Pharkya, Pennsylvania State University
19. Integration of transcriptomic, proteomic, and metabolic flux information for Metabolic Control Analysis in *E. coli*
Vassily Hatzimanikatis, Northwestern University
20. Metabolic control analysis on the industrial cultivations of *Saccharomyces cerevisiae*– the interplay between metabolism and growth environment
Liqing Wang, Northwestern University
21. Metabolic engineering of two pathways, the indole and terpenoid pathways, in *Catharanthus roseus* hairy roots
Christie A. M. Peebles, Rice University
22. Metabolic network construction for cell growth and glutathione formation in batch culture of *Saccharomyces cerevisiae*
Shaohong Wen, College of Life Science and Technology
23. Model-driven designs of an oscillating gene network
Howard Salis, University of Minnesota
24. Optimization of pentose fermentation in *Zymomonas mobilis* through kinetic modeling and experimental analysis
Dhinakar S. Kompala, University of Colorado
25. Parameter optimization method for a whole cell model
Mariajosé Castellanos, University of Maryland Baltimore County
26. Quantifying protein expression using amine specific isobaric tags
Kelvin H. Lee, Cornell University
27. The impact of diffusion on the design and use of DNA microarrays
Jacob Borden, Northwestern University
28. The large-scale transcriptional program in human megakaryocytic differentiation
Peter G. Fuhrken, Northwestern University
29. Transcriptional responses of recombinant *Escherichia coli* to spatial DOT gradients simulated in a two-compartment scale-down system
Alvaro R. Lara, Universidad Nacional Autónoma de México
30. Uncovering transcriptional regulation of metabolism by using metabolic network topology
Kiran Raosaheb Patil, Technical University of Denmark
31. Application of metabolic flux analysis to identify the pathways of free fatty acid toxicity to liver cells
Shireesh Srivastava, Michigan State University

32. Enhanced production of bioactive compounds in plant cell cultures by signal transduction
Jian-Jiang Zhong, East China University of Science and Technology
33. Generation of alloreactive T cell in-vitro for subsequent depletions before transplantations
Mei Shao, The Ohio State University
34. Inactivation of p44/42 MAPK reduces HEK 293 cell aggregation
Wai Lam W. Ling, Schering-Plough Research Institute
35. Network analysis and redesign of signal transduction networks
Costas D Maranas, Pennsylvania State University
36. Signal transduction systems for adult neural stem cell proliferation
David Schaffer, University of California at Berkeley
37. Trafficking, signaling, and cell responses of a mutant form of the epidermal growth factor receptor, EGFRvIII
Catherine M Cresson, Massachusetts Institute of Technology
38. Detection of circulating tumor cells in human peripheral blood using RT-PCR technology
Xiaodong Tong, The Ohio State University
39. Effect of anticancer drugs on human lymphoma cell growth with different expression of Hsp70
Tatiana Korolenko, Institute of Physiology RAMS
40. Endogenous inhibitors of cysteine proteases as prognostic markers of tumor development
Tatiana Korolenko, Institute of Physiology RAMS
41. Ganoderic acid from bioreactor-cultivated mycelia of medicinal mushroom *Ganoderma lucidum* and study on its anti-tumor mechanism
Jian-Jiang Zhong, East China University of Science and Technology
42. Targeting the unique metabolic environments of tumors
Neil Forbes, University of Massachusetts
43. Biodegradable hollow fibre scaffolds for minimising mass transfer limitations in tissue engineering
Julian B Chaudhuri, University of Bath
44. Embryonic stem cell-derived endothelial cells as a cell source in the development of pre-vascularized materials
Kara E McCloskey, Georgia Institute of Technology
45. A systems biology approach for metabolic engineering of *E. coli* sugar-utilization regulatory systems
Ramon Gonzalez, Iowa State University
46. Analysis and modeling of the unfolded protein response during heterologous protein expression
Anne Skaja Robinson, University of Delaware
47. Effect of the methanol utilization (Mut) phenotype on recombinant protein production and cultivation strategies in *Pichia pastoris* fed-batch cultures
Pau Ferrer, Universitat Autònoma de Barcelona

48. Engineering *Escherichia coli* to improve culture performance and overcome by-product formation during recombinant protein production under oscillating DOT conditions
Alvaro R. Lara, Universidad Nacional Autónoma de México
49. Expression of functional mussel adhesive protein in *Escherichia coli*
Hyung Joon Cha, Pohang University of Science and Technology
50. Expression of the gene coding for the rabies virus glycoprotein (GPV) in *Drosophila melanogaster* (S2) cells
Carlos Augusto Pereira, Instituto Butantan, Laboratorio de Imunologia Viral
51. Influence of down-regulated cold-inducible RNA-binding protein on hypothermic growth of Chinese Hamster Ovary cells producing erythropoietin
Gyun Min Lee, KAIST
52. Large scale fermentation and purification of human leptin expressed in periplasmic space of *Escherichia coli*
Chao-Min Liu, Roche Discovery Technologies Dept., Hoffmann-La Roche Inc.
53. Unbiased exploration of the protein folding landscape in bacteria
Adam C. Fisher, Cornell University
54. Cholesterol supplementation during production increases the infectivity of retroviral and lentiviral vectors pseudotyped with VSV-G
William M. Miller, Northwestern University
55. Engineering Chinese Hamster Ovary cells to improve sialylation
Frederyk Ngantung, Massachusetts Institute of Technology
56. Improved strategies for the simultaneous production of various proteins by insect cells: a flow cytometry study
Laura A. Palomares, Universidad Nacional Autónoma de México
57. Molecular characterisation of the Unfolded Protein Response in NS0 myeloma cells
Alan J Dickson, University of Manchester
58. Optimizing heavy and light chain gene dose for efficient antibody production by CHO cells
David C. James, The University of Queensland
59. Optimizing the sialic acid metabolic pathway for producing humanized glycoproteins in insect cells
Someet Narang, Johns Hopkins University
60. Protein engineering to understand specificity versus cross-reactivity in cellular immune recognition
Jennifer A. Maynard, University of Minnesota

Poster Session #2

61. A prototype process for rotavirus-like particles purification from insect cell-baculovirus expression system
Marco Rito-Palomares, Biotechnology Center, Tec de Monterrey
62. Accelerating biocatalyst stability through rigorous predictions of stability
Andreas S. Bommarius, Georgia Institute of Technology
63. Analysis of temperature in monoclonal antibody producing CHO cell lines: strategies for shifting temperature to improve cell viability and protein production
Kirin Malik Jamison, Genentech, Inc.
64. Efficient isolation of high producing cells using fluorescence activated cell sorting
Nicholas R. Abu-Absi, Chiron
65. Fermentation development of a recombinant botulinum vaccine candidate, Serotype C expressed in *Pichia pastoris*
Jayanta Sinha, University of Nebraska-Lincoln
66. From laboratory to manufacturing facility: development and scale-up of a multi-valent vaccine fermentation process
Tsu-shun Lee, Wyeth Research
67. Lessons learned from technology transfer to contract manufacturer
Keri Mills, Genentech, Inc.
68. Manufacturing perspective on large scale centrifugation of mammalian cell cultures
Ken Green, Lonza Biologics
69. Modeling and control of fed-batch processes for proteolytically sensitive recombinant proteins: a case-study with recombinant streptokinase
M. Velu, Indian Institute of Technology Madras
70. Optimization of fed batch parameters and harvest time of CHO cell cultures for a glycosylated product with multiple mechanisms of inactivation
M. Nazmul Karim, Texas Tech University
71. Optimization of human serum albumin production in methylotrophic yeast *Pichia pastoris* by repeated fed-batch fermentation
Tomoshi Ohya, Mitsubishi Pharma Corporation
72. Timesaving approach for multi-valent vaccine fermentation process development
Brian Bahler, Wyeth Research
73. Application of a novel oscillatory flow screening micro-reactor to a biotransformation in a two-phase medium
Nuno Reis, University of Minho, Dept. Biological Engineering
74. Comparative effects of reaction kinetics and mass transfer limitation in micro enzyme fuel cell bioreactors
Michael Cooney, Hawaii Natural Energy Institute

75. High throughput cell culture experimentation with BioProcessors SimCell platform
Ache Stokelman, Amgen, Inc.
76. Microscale process evaluation of recombinant biocatalysts libraries: application to baeyer-villiger monooxygenase catalysed lactone synthesis
Claudia Ferreira-Torres, University College London
77. Parallel bioreactors on a mL-scale for high-throughput bioprocess design
Dirk Weuster-Botz, Technical University of Munich
78. The characterisation and application of a novel miniature stirred bioreactor for the scale down of industrially relevant microbial fermentations
Jonathan I. Betts, University College London
79. Biofabrication techniques for probing cellular physiology
Colin Herbert, University of Maryland
80. Design and delivery of oligonucleotides for antisense and rna interference in mammalian cells
Charles M. Roth, Rutgers University
81. Directed metallization of single enzyme molecules with preserved enzymatic activity
Amihay Freeman, Tel Aviv University
82. Engineering the biology at a device interface: towards micromolecular biomanufacturing
Angela Lewandowski, University of Maryland
83. Fractionation of immunomagnetically labeled human cord blood hematopoietic progenitor cells using a novel dipole magnetic flow cell sorter
Jeffrey J Chalmers, The Ohio State University
84. Microtissue culture for high throughput screening applications
Lars Keld Nielsen, The University of Queensland
85. Novel nanofiber structure by electrospinning and its use in microvascular tissue engineering
Dong Han, State University of New York
86. pH and expansin action on single suspension-cultured tomato cells
CR Thomas, University of Birmingham
87. The effect of magnetic nanoparticles on the binding affinities of Ab's
Jeffrey Chalmers, The Ohio State University
88. Bioengineering of microbial enzymes and regulator proteins to enhance carbon sequestration
F. Robert Tabita, The Ohio State University
89. Computational approaches for optimally allocating diversity in directed evolution studies
Costas D. Maranas, Pennsylvania State University
90. Directed evolution of human estrogen receptor
Huimin Zhao, University of Illinois

91. Directed evolution of novel adeno-associated virus gene therapy vehicles
David Schaffer, University of California at Berkeley
92. Engineered *in vivo* biosensors for nuclear hormone receptor ligands
David W. Wood, Princeton University
93. Engineering of a Tat-dependent filamentous phage display platform
Danielle Tullman-Ercek, University of Texas at Austin
94. Engineering of highly soluble Fab fragments in the periplasm of *Escherichia coli* by anchored periplasmic expression (APEX)
Min Jeong Seo, University of Texas at Austin
95. Fragmentation and reassembly of aminoglycoside phosphotransferase (3')-IIa transforms the relationship between sequence and function
Marc Ostermeier, Johns Hopkins University
96. High-throughput protease screening using optimized fluorescent protein
fret
Annalee W. Nguyen, University of California Santa Barbara
97. Optimising industrial bioprocesses: developing and screening specificity-
enhanced proteases by directed evolution of bovine trypsin
Janahan Paramesvaran, University College London
98. Photochemical selection of positive metagenomic library
Joon Kim, KAIST
99. Protease substrate specificity profiling using bacterial substrate display
Patrick Daugherty, University of California Santa Barbara
100. Random strand transfer recombination (RSTM): a similarity-independent
method for molecular recombination of nucleotide sequences
Birgit Reiter, Applied Biocatalysis Research Centre
101. Rational strategies for randomized directed evolution using L-Shuffling
Jean-Marie SONENT, Protéus
102. Towards a combinatorial approach for the analysis of membrane protein
expression at the blood-brain barrier
Eric V. Shusta, University of Wisconsin
103. A high throughput method for screening enzyme libraries
Mag. Pohn Brigitte, Applied Biocatalysis Research Centre
104. Biocatalytic synthesis of amino-alcohols using an engineered transketolase
and b-alanine:pyruvate transaminase pathway in *Escherichia coli*
C.U.Ingram, University College London
105. Expression, screening and mutagenesis of nitrile hydratases
Christoph Reisinger, Applied Biocatalysis Research Centre
106. Metabolic engineering of the phenylpropanoid pathway for the synthesis
of flavonoids
John A. Morgan, Purdue University
107. Nanobiocatalysts: enabling multienzyme biotransformations involving
cofactor regeneration
Ping Wang, The University of Akron

108. Production of thermostable protease from *Bacillus licheniformis* LBBL-II isolated from traditionally fermented locust beans (*Parkia biglobosa*) in south western nigeria
Folasade M. Olajuyigbe, Federal University of Technology, Akure, Nigeria
109. Development of efficient *Escherichia coli* succinate production systems
Ka-Yiu San, Rice University
110. Engineering *E. coli* to maximize the flux of reducing equivalents available for cofactor-dependent transformations
Patrick C. Cirino, Pennsylvania State University
111. Statistically designed optimization for monoclonal antibody production in CHO fed-batch culture
Eric J. Hayduk, CuraGen Corporation
112. Use of transcriptome analysis to identify factors that define clonal productivity in recombinant mammalian cell lines
Louise M Barnes, University of Manchester
113. Ionic liquids as solvents for whole cell biocatalysis with *in situ* product removal
Dirk Weuster-Botz, Technical University of Munich
114. Isolation of angiotensin-I converting enzyme inhibitory peptide by using antipeptide antibody column
Md. Fida Hasan, Kobe University
115. New bioseparations techniques using self-cleaving affinity tags
David W. Wood, Princeton University
116. Production of the natural aroma compounds 2-phenylethanol and 2-phenylethylacetate from L-phenylalanine by coupling whole-cell biocatalysis with organophilic pervaporation
Jens Schrader, DECHEMA e.V., Karl-Winnacker-Institut, Biochemical Engineering Group
117. Protein recovery from high biomass recombinant systems
Ian Sellick, Pall Life Sciences
118. Cell culture scale-down model development through impeller agitation rate optimization
Yasunori Hashimura, Amgen, Inc.
119. Relationship between protein stability and biological activity of beta amyloid, a disease causing protein
Theresa Good, UMBC
120. Biochemical engineering laboratory: undergraduate laboratory course for chemical engineering students
Claire Komives, San Jose State University