

Biochemical Engineering XV Poster Session A

SESSION 1: POST TRANSLATION PROCESSING AND MOLECULAR ASSEMBLIES

- 1.1 **Expression of tagged human epidermal growth factor in mammalian cells**
Cyril Boucher, Biotechnology Research Institute (NRC)/ École Polytechnique de Montréal, Canada

SESSION 2: BIOMOLECULAR EVOLUTIONS AND REVOLUTIONS: DNA, RNA, AND PROTEINS

- 2.1 **Development of thermostable pectin methylesterase**
Margaret J. Lyons, Hood College, Maryland, USA
- 2.2 **Engineering of protease variants exhibiting high catalytic activity and exquisite substrate selectivity**
Navin Varadarajan, The University of Texas at Austin, USA
- 2.3 **Designing Arac effector specificity through modeling and dual selection**
Patrick C. Cirino, The Pennsylvania State University, USA
- 2.4 **Directed evolution of conformational changes in peptides**
Scott Banta, Columbia University, USA
- 2.5 **Directed evolution of targeted cell penetrating peptides for trans-bbb**
Scott Banta, Columbia University, USA

SESSION 3: MATHEMATICAL AND SYSTEMS BIOLOGY ANALYSIS: FROM MOLECULES TO COMPLEX NETWORKS

- 3.1 **Some strategies in managing the synergism in complex biological systems**
Chu-shiang Chen, National Tsing Hua University, Taiwan
- 3.2 **Recovery of potassium clavulanate from ion-exchanged solution by diafiltration and its modeling**
Hyun Han Kim, Korea Advanced Institute of Science and Technology, Korea
- 3.3 **Dynamic metabolic modeling of plant cells bioreactor cultures**
Mathieu Cloutier, École Polytechnique de Montréal, Canada
- 3.4 **Enhancing protein secretion using a systems biology approach**
Prateek Gupta, Cornell University, USA
- 3.5 **A quantitative kinetic analysis of centrifugation-based delivery of retroviral vectors into mammalian cells**
James M. Piret, University of British Columbia, Canada
- 3.6 **Metabolic network reconstruction: the intersection of data-driven and knowledge based approaches**
Peter J.T. Verheijen, Technical University Delft, The Netherlands

- 3.7 **Systems-level analysis and mathematical modeling of intercellular signaling networks regulating hematopoietic stem cell expansion in vitro**
Daniel Kirouac, University of Toronto, Canada
- 3.8 **OCCI: A framework for identifying flux capacity constraints within metabolic network models based on experimental fitness profiling data**
Laurence Yang, University of Toronto, Canada
- 3.9 **Experimental verification of a metabolic flux based model for HEWL production by recombinant *Aspergillus niger***
Reza Gheshlaghi, University of Waterloo, Canada
- 3.10 **Understanding the chemistry of biodegradation**
Stacey D. Finley, Northwestern University, USA
- 3.11 **Metabolic impact of MS2 bacteriophage infection on *Escherichia coli***
Ranjan Srivastava, University of Connecticut, USA
- 3.12 **Revealing components of the glucose sensing and repression pathways in *Aspergillus niger***
Margarita Salazar, Center for Microbial Biotechnology, BioCentrum, Technical University of Denmark, Denmark
- 3.13 **Quantitative, temporal and spatial features of exogenous signaling direct embryonic stem cell fate**
Peter W Zandstra, University of Toronto, Canada
- 3.14 **Structured stochastic model of influenza A virus in a host cell**
Mariajose Castellanos, The University of Maryland, Baltimore County USA
- 3.15 **Potential of early NF- κ B activation in macrophages treated with dichloropropionaniline**
David J. Klinke II, West Virginia University, USA
- 3.16 **Effects of codon distributions and tRNA competition on protein production: A genome-scale analysis of the translational efficiencies of *E. coli***
Hermioni Zouridis, Northwestern University, USA
- 3.17 **Computational simulations for strain improvement in *Escherichia coli***
Jong Myoung Park, KAIST, Korea
- 3.18 **Metabolic engineering of *Escherichia coli* for the production of L-valine based on combined transcriptome analysis and in silico gene knock-out simulation**
Jin Hwan Park, KAIST, Korea
- 3.19 ***Escherichia coli* transcriptional and metabolic responses in high-cell density cultures during temperature up-shifts for induction of recombinant protein**
Luis Caspeta, UNAM, Mexico
- 3.20 **Quantitative analysis of changes in protein expression levels during the adaptation of myeloma cell line to protein-free medium**
Kathya R. de la Luz, Center of Molecular Immunology, Cuba

SESSION 4: SYNTHETIC BIOLOGY AND METABOLIC ENGINEERING

- 4.1 **Development of an efficient *Saccharomyces cerevisiae* strain for the production of 1,2-propanediol by gene mutation**
Jinwon Lee, Sogang University, Korea
- 4.2 **Metabolic flux analysis of *Streptomyces lividans* producing recombinant human interleukin 3**
Keyvan Nowruzi, University of Waterloo, Canada
- 4.3 **Towards microbial synthesis of glucaric acid**
Kristala Jones Prather, Massachusetts Institute of Technology, USA
- 4.4 **Intensification of the ethanol production in a membrane two stage bioreactor by yeast activity management**
Yuriana Sanchez Gonzalez, Institut National des Sciences Appliquées, France.
- 4.5 **Ph shock induces overexpression of regulatory and biosynthetic genes for actinorhodin production and enhances central metabolism in *Streptomyces coelicolor* A3(2)**
Yong Keun Chang, Korea Advanced Institute of Science and Technology, Korea
- 4.6 **Applying genomics understanding to enable strain selections (GUESS)**
Ryan T. Gill, University of Colorado, USA
- 4.7 **Computer-aided design of a bio-Logical and gate**
Kavita Iyer Ramalingham, University of Minnesota, USA
- 4.8 **A synthetic biology approach for regulating glucose levels in diabetics**
John March, Cornell University, USA
- 4.9 **Metabolic engineering of *Saccharomyces cerevisiae* for production of plant sesquiterpenes**
Mohammad Ali Asadollahi, Center for Microbial Biotechnology (CMB), Denmark
- 4.10 **Analysis of gene dosage effects for metabolic engineering in *Escherichia coli***
Neidi Negron Rodriguez, Massachusetts Institute of Technology, USA
- 4.11 **Metabolic engineering of *Bacillus subtilis* for generating ethanol as main fermentation product**
Susana Romero, Universidad Nacional Autónoma de México, Mexico
- 4.12 **Metabolic regulation analysis of ethanologenic *Escherichia coli* based on RT-PCR and enzymatic activities**
Montserrat Orencio-Trejo, Universidad Nacional Autónoma de México, Mexico

SESSION 5: EXPRESSION PLATFORMS AND ACCELERATING PROCESS DEVELOPMENT

- 5.1 ***Trichoderma reesei* as a fungal expression platform to accelerate process development**
Gopal Chotani, Genencor, A Dansico Division, USA
- 5.2 **Hyper expression system in *Streptomyces***
Michihiko Kobayashi, The University of Tsukuba, Japan
- 5.3 **Engineering and molecular approaches to study and contend with problems inherent to scale-up of r-*Escherichia coli* cultures**
Octavio T Ramírez, Instituto de Biotecnología; Universidad Nacional Autónoma de México, Mexico
- 5.4 **Transient viral infection of plant tissue cultures for production of foreign proteins**
Pauline M. Doran, University of New South Wales, Australia
- 5.5 **Influence of ubiquitous chromatin opening elements towards stable expression of therapeutic proteins in recombinant CHO cell platforms**
Alexandra S Croxford, University of Manchester, UK
- 5.6 **The metabolic engineering of *Escherichia coli* for enhanced production of astaxanthin, utilizing the genetic diversity of cyanobacteria**
M. A. Scaife, The University of Sheffield, UK
- 5.7 **Batch culture of engineered *Escherichia coli* at elevated glucose concentrations: An alternative to fed batch mode for recombinant protein production at high cell densities.**
Lara R. Alvaro, Instituto de Biotecnología, UNAM, Mexico
- 5.8 **Engineering *Saccharomyces cerevisiae* for the expression, purification, and characterization of G-protein coupled receptors**
Michelle A. O'Malley, University of Delaware, USA
- 5.9 **Improving the efficiency of technology transfer to CMO's: A case study for biological products**
Sushil Abraham, Amgen Inc, USA
- 5.10 **Development of high cell density fed-batch processes for protein expression using Sf9-baculovirus insect cell system.**
Cynthia Elias, NRC-Biotechnology Research Institute, Canada
- 5.11 **A novel disposable platform for bacterial fermentation**
Richard Ferraro, Wave Biotech, LLC, USA
- 5.12 **Development of lactate dehydrogenase depleted mammalian host cell lines for improvement of recombinant protein production**
Yun Seung Kyung, Centocor R&D, Inc. USA
- 5.13 **Accelerated fed-batch cell culture process development via feedback control**
Itzcoatl A Pla, Abbott Bioresearch Center, USA

- 5.14 **Molecular characterization and engineering of *Pichia pastoris* as a platform for antibody (fragment) production**
Diethard Mattanovich, University of Natural Resources and Applied Life Sciences, Austria

SESSION 6: CELL ENGINEERING

- 6.1 **Engineering of bottlenecks in *Rhizopus oryzae* lipase production in *Pichia pastoris* using the nitrogen source-regulated *formaldehyde dehydrogenase* promoter (Pfld1).**
Pau Ferrer, Universitat Autònoma de Barcelona, Spain
- 6.2 **Intracellular ribosome display for selection of synthetic antibodies in the bacterial cytoplasm**
Lydia Contreras Martinez, Cornell University, USA
- 6.3 **RNA interference as a metabolic engineering tool: Increasing recombinant protein production using the baculovirus expression vector system**
Colin G. Hebert, University of Maryland, USA
- 6.4 **Application of destabilizing sequences on selection marker for improved recombinant protein productivity in CHO-DG44**
Say Kong, Ng, Singapore-MIT Alliance, Singapore
- 6.5 **A novel RNA silencing vector to improve recombinant protein expression and stability in Chinese hamster ovary cells**
Suh-Chin (Samuel) Wu, Institute of Biotechnology, National Tsing Hua University, Taiwan
- 6.6 **Inhibiting the apoptosis pathway using MDM2 in mammalian cell cultures**
Brian S. Majors, Johns Hopkins University, USA
- 6.7 **Development of temperature sensitive replicon for markerless gene deletion of *Mannheimia succiniciproducens***
Ji Mahn Kim, Korea Advanced Institute of Science and Technology, Korea
- 6.8 **Deciphering the mechanism for tolerance to high osmolality**
Florence Wu, PD-Direct, Invitrogen Bioservices, USA
- 6.9 **Breaking the symmetry of a homodimeric enzyme: Engineering and characterization of monomeric disulfide isomerases**
Silvia Arredondo, University of Texas at Austin, USA
- 6.10 **Design of an efficient serum-free medium to expand muscle precursor cells**
Victor Parent, Laval University, Canada
- 6.11 **Application of microarray technology to alter the properties of mammalian cell culture**
Joseph Shiloach, NIDDK, National Institutes of Health, USA

- 6.12 **Development of high-expressor cell lines for production of humanized, neutralizing monoclonal antibody directed against the West Nile virus envelope protein**
Valentina Ciccarone, MacroGenics, Inc, USA
- 6.13 **MAB enhancement: Identifying the key steps in the biochemical network for specific productivity**
Tiffany D. Rau, Vanderbilt University, USA

SESSION 7: DATA BASE MODELING, PROCESS CONTROL ANALYSIS

- 7.1 **Monitoring of mammalian cell cultures using on-line capacitance measurements**
Sven Ansorge, Biotechnology Research Institute, Canada
- 7.2 **Novel hybrids prepared by protein mediated nano-scale biotemplating**
Amihay Freeman, Tel Aviv University, Israel
- 7.3 **Online-monitoring and control of bioprocesses in the light of FDA's PAT initiative**
Andreas Lübbert, Martin-Luther-University, Germany
- 7.4 **Dielectric spectroscopy: Monitoring and control of viable biomass density and its physiological state**
Geoffrey Esteban, FOGALE Nanotech, France
- 7.5 **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, USA
- 7.6 **Problems and opportunities in starch and lignocellulose-based ethanol production**
M. Nazmul Karim, Texas Tech University, USA
- 7.7 **SimCell high throughput technology for cell culture process development: Reproducibility assessment**
Ashraf Amanullah, Merck & Co. Inc, USA