Recombinant Protein Production Conference Programme

Wednesday, March 6, 2013

Special PreConference Session

Biomolecular Technology of Proteins (BioToP)

Chairs: Reingard Grabherr & Johannes Grillari (BOKU University of Natural Resources and Life Sciences)

11:00 - 11:10 Welcome address and introduction of BioToP
Diethard Mattanovich (BOKU, Vienna, Austria)

11:10 - 12:00 Plenary Lecture: High throughput sequencing and bioinformatics for genome analysis of the Chinese hamster and CHO cell lines
Alfred Pühler (University of Bielefeld, Germany)

12:00 - 12:15 Characterization of model recombinant monoclonal IgM antibodies produced in CHO-DG44 cell lines
Veronika Chromikova (Boku, Wien, Austria)

12:15 - 12:30 Comparative analysis of virus-like particle (VLP) production in three different insect cell lines – SF9, High Five and Tnao38
Miriam Klausberger (Boku, Wien, Austria)

12:30 - 12:45 Metabolic model-based prediction of engineering targets for increased production of heterologous proteins
Justyna Nocon (Boku, Wien, Austria)

12:45 - 13:00 Recombinant production and characterization of four N. cassa lytic polysaccharide monoxygenases
Daniel Kracher (Boku, Wien, Austria)

RPP 7 Conference

14:30 - 14:50 Welcome addresses and introduction
Peter Neubauer (TU Berlin, Germany), Dethardt Müller (Rentschler, Germany)

Chair: Peter Neubauer (TU Berlin, Germany)

14:50 - 15:50 Opening Plenary Lecture: Pre-expression of a sulfhydryl oxidase significantly increases the yields of eukaryotic disulfide bond containing proteins expressed in the cytoplasm of E. coli
Lloyd Ruddock (University of Oulu, Finland)

Session 1: Process and product quality control

Chairs: Dethardt Müller (Rentschler, Germany), Diethard Mattanovich (BOKU, Vienna, Austria)

15:00 - 16:30 Invited lecture: Directing cell line design towards built-in process quality
Claas Wodarczyk (Rentschler Biotechnologie GmbH, Laupheim, Germany)

16:30 - 17:10 Short presentation: Metabolic characterization of MAb producing CHO cells for predictive bioprocess
Ana P. Teixeira (IBET, Oeiras, Portugal)

17:25 - 17:55 Coffee Break

Session 2: From Strain to Process design

Chairs: Peter Neubauer (TU Berlin, Germany), Joseph Shiloach (NIDDK, NIH, U.S.A.)

17:55 - 18:35 Invited lecture: Microbial production of novel biologics using secretory E. coli strains
Guido Seidel (Wacker Biotechnologie, Jena, Germany)

18:35 - 18:55 Short presentation: High cell density E. coli fed-batch fermentation in a single-use rocking bioreactor
Nico M.G. Oosterhuis (Cellution, The Netherlands)

18:55 - 19:15 Short presentation: Aspergillus niger: a cell factory with unlimited prospects
Vera Meyer (TU Berlin, Germany)

19:15 - 19:30 Short presentation: Maximising levels of secreted recombinant proteins in P. pastoris by introducing transcriptional flexibility in a high-throughput manner
Roland Weiß (VTU, Austria)

19:30 - 22:00 Poster session, exhibition and welcome reception
Further Session 2: From Strain to Process design

Chairs: Peter Neubauer (TU Berlin, Germany), Joseph Shiloach (NIDDK, NIH, U.S.A.)

09:00 - 09:40 Invited lecture: Peptide expression in Bacillus halodurans - strain and secretion system engineering
Michael Crampton (CSIR, Pretoria, South Africa) L10

09:40 - 09:55 Short presentation: Humanized yeast N-glycans
Alexander Daniel Frey (Aalto Univ. Espoo, Finland) L11

Session 3: Production of Difficult to Express Proteins

Chairs: Christine Lang (Organobalance GmbH, Berlin, Germany), Jeff A. Cole (University of Birmingham, UK)

09:55 - 10:35 Invited lecture: Advanced technologies for multiprotein complex production and multigene transfer, for both prokaryotic and eukaryotic hosts
Imre Berger (EMBL, France) L12

10:35 - 10:50 Short presentation: Total biosynthesis of the nonribosomal peptide antibiotic valinomycin in E. coli : from gene to product
Jian Li (TU Berlin, Germany) L13

10:50 - 11:20 Coffee Break

11:20 - 12:00 Invited lecture: Cell-free expression systems and NMR for the analysis of membrane proteins
Bernhard Neupert (University Frankfurt, Germany) L14

12:00 - 12:15 Short presentation: A directed evolution method for optimized production of recombinant membrane proteins
Fabrizia Fusetti (University of Groningen, The Netherlands) L15

12:15 - 12:30 Short presentation: Recombinant production of bacterial quinone/quinol-reactive metalloprotein complexes
Melanie Kern (TU Darmstadt, Germany) L16

12:30 - 12:45 Short presentation: Expression and characterisation of the capsule polymerase of Neisseria meningitidis serogroup X
Tim Fiebig (Medizinische Hochschule Hannover, Germany) L17

12:45 - 15:00 Lunch break, poster session and exhibition

Session 4: Analysis and Control of Cell Metabolism

Chairs: Ursula Rinas (University of Hannover, Germany), Pau Ferrer (Universitat Autònoma de Barcelona, Spain)

15:00 - 15:40 Invited lecture: Studies on protein production physiology in the filamentous fungus Trichoderma reesei : effects of growth rate
Markku Saloheimo (VTT Technical Research Centre, Finland) L18

15:40 - 15:55 Short presentation: Deciphering heterogeneity: proteomics on the sub-population level
Michael Jahn (UFZ Leipzig, Germany) L19

15:55 - 16:10 Short presentation: Quantitative metabolomics and instationary 13C-Metabolic Flux Analysis reveals impact of recombinant protein production on central carbon metabolism of P. pastoris
Joel Jordà (Universitat Autònoma de Barcelona, Spain) L20

16:10 - 16:40 Coffee break

16:40 - 16:55 Short presentation: Acetate overflow and metabolic balance during protein production with recombinant Escherichia coli BL21
Zhaopeng Li (Leibniz University of Hannover, Germany) L21

16:55 - 17:10 Short presentation: Outer-membrane composition of Escherichia coli does significantly decrease overflow-metabolism and consequently acetate secretion
Jürgen Mairhofer (Boku, Wien, Austria) L22

17:10 - 17:25 Short presentation: Enzymatically driven glucose release for fed batch like cultivation of Escherichia coli in microtiterplates
Csilla Török (BOKU and ACIB GmbH, Vienna, Austria) L23

17:25 - 17:40 Short presentation: Twin-Strep-tag®: The high affinity Strep-tag® for protein purification
Thomas Schmidt (IBA GmbH, Goettingen, Germany) L24

18:10 - 19:00 Microbial Physiology Section meeting
Free evening

Thursday, March 7, 2013
### Session 5: Engineering Gene Expression and Regulation

**Chairs: Arthur Ram (Leiden University, The Netherlands), Ana P. Teixeira (IBET, Oeiras, Portugal)**

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<tr>
<th>Time</th>
<th>Presentation</th>
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<tr>
<td>09:00 - 09:40</td>
<td>Invited lecture: Understanding the yeast host response to recombinant (membrane) protein production Roslyn M Bill (School of Life and Health Sciences - Aston University, United Kingdom)</td>
<td>L25</td>
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<td>09:40 - 10:00</td>
<td>Short presentation: Recombinant protein expression using <em>L. lactis</em> and <em>E. coli</em> expression systems Casper Møller Jørgensen (Bioneer A/S, Hørsholm, Denmark)</td>
<td>L26</td>
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<td>10:00 - 10:15</td>
<td>Short presentation: Evolution of ‘hyper-producing’ bacterial strains for RPP; a toolbox for industry and a platform for vaccine delivery Amanda E. Rossiter (University of Birmingham, United Kingdom)</td>
<td>L27</td>
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<td>10:15 - 10:30</td>
<td>Short presentation: miRNAs – pathway engineering of CHO cell factories that avoids translational burdening Johannes Grillari (Boku, Wien, Austria)</td>
<td>L28</td>
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<td>10:30 - 11:00</td>
<td>Coffee break with poster session and exhibition</td>
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<td>11:00 - 11:15</td>
<td>Short presentation: Induction without methanol: novel regulated promoters enable high-level expression in <em>Pichia pastoris</em> Roland Prieholfer (Boku, Wien, Austria)</td>
<td>L29</td>
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<td>11:15 - 11:30</td>
<td>Short presentation: A new insect cell platform to express complex proteins through targeted integration Fabiana Fernandes (Universidade Nova de Lisboa, Portugal)</td>
<td>L30</td>
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<td>11:30 - 11:50</td>
<td>Short presentation: A versatile antigen vector toolbox and expression platforms to support therapeutic antibody development Karin Felderer (Morphosys, Munich, Germany)</td>
<td>L31</td>
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<td>11:50 - 14:00</td>
<td>Lunch break, poster session and exhibition</td>
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### Session 6: Enhancing Protein Folding, Transport and Secretion

**Chairs: Brigitte Gasser (BOKU, Vienna, Austria), Alexander Jung (Boehringer Ingelheim AG, Austria)**

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<tr>
<td>14:00 - 14:40</td>
<td>Invited lecture: Mechanism and application of the bacterial Autotransporter secretion system Joen Luirink (Free University Amsterdam, NL)</td>
<td>L32</td>
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<td>14:40 - 14:55</td>
<td>Short presentation: Cellular response to secretory insulin precursor production in <em>P. pastoris</em> Ana Leticia Vanz (Leibniz University of Hannover, Germany)</td>
<td>L33</td>
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<td>14:55 - 15:15</td>
<td>Short presentation: The challenge of improved secretory production of active pharmaceutical ingredients in <em>S. cerevisiae</em>: a case study on human insulin analogues Eva A. Palmqvist (NovoNordisk, Denmark)</td>
<td>L34</td>
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<td>15:15 - 15:30</td>
<td>Short presentation: Proteome analysis in <em>Schizosaccharomyces pombe</em>: amino acid biothynthesis and membrane composition as targets for improved protein secretion Konstantin Schneider (Saarland University, Saarbrücken, Germany)</td>
<td>L35</td>
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<td>15:30 - 15:45</td>
<td>Short presentation: Studies on protein production by a <em>sipY</em> mutant strain of <em>Streptomyces lividans</em> Marcel la Vidal Gabarró (UAB, Barcelona, Spain)</td>
<td>L36</td>
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<td>15:45 - 16:00</td>
<td>Short presentation: Induced and non-induced secretion of recombinant proteins into the cultivation media with <em>E. coli</em> Karl Friehs (University of Bielefeld, Germany)</td>
<td>L37</td>
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<td>16:00 - 16:40</td>
<td>Break</td>
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**Chair: Diethard Mattanovich (BOKU, Vienna, Austria)**

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<tr>
<td>16:40 - 17:40</td>
<td>Plenary lecture: Lignocellulose problematics and omics studies in Neurospora Louise Glass (University of California, United States)</td>
<td>L38</td>
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<tr>
<td>17:40 - 18.00</td>
<td>Concluding remarks</td>
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<td>19:00</td>
<td>Gala dinner with poster prizes</td>
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### Saturday, March 9, 2013

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<tr>
<td>09:00</td>
<td>Breakfast &amp; Departure</td>
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