ESBES + ISPPP 2012 Lecture Program (Status 20 September 2012)

Sunday, 23 September 2012

9:00 - 16:00	**Registration & Other Event Activities**
14:00 - 16:00	**Workshop "Downstream processing and chromatography"** *organized by the ESBES Working Group on Downstream Processing* 1) Target-directed development - regulatory expectations Klaus Graumann, Sandoz GmbH, Kundl/A 2) HT process design for chromatography and APTS Marcel Ottens, Delft University of Technology/NL 3) APTS in bioprocesses Raquel Aires-Barros, Technical University of Lisbon/P 4) Chromatography in bioprocesses (monoliths vs. conventional matrixes) Ales Podgornik, COBIK - Center of Excellence for Biosensors, Instrumentation and Process Control, Solkan/SLO 5) Use of acoustic wave sensors to monitor protein adsorption, kinetics and conformation change Guilherme Ferreira, University of Algarve, Faro/P **Workshop cancelled**
15:30 - 16:00	Opening Ceremony
16:00 - 17:00	Opening Lecture: George Whitesides
17:30 - 18:30	Welcome Cocktail

Monday, 24 September 2012

09:00-10:00	**ECB Plenary: Ruedi Aebershold**			
	ESBES 1	**ESBES 2**	**ESBES 3**	**ISPPP**
Session:	**Novel chemicals, enzymes and processes**	**Recombinant protein production**	**Systems biology and metabolic engineering**	**Fundamentals**
Chairs:	**B. Nidetzky, University of Graz/A**	**M. Rito-Palomares, Centro de Biotecnologia - FEMSA, Monterrey/MEX**	**P. Jacques, University of Lille/F; M.P. DeLisa, Cornell University, Ithaca, NY/USA**	**R. Ditz, Merck KGaA, Darmstadt/D**
10:10 - 10:25	KEYNOTE LECTURE **Oxidation of lignin model compounds by a laccase-mediator system in ionic liquids: a kinetic description** N. Chen, S. Roth, H. Liu, U. Schwaneberg, A. Spiess, RWTH Aachen University/D	KEYNOTE LECTURE **Recombinant protein production with *E. coli* host and process design already be done or still under progress?** M. Luchner, ACIB GmbH, Vienna/A; M. Cserjan, ACIB GmbH and University of Natural Resources and Life Sciences, Vienna/A; J. Mairhofer, University of Natural Resources and Life Sciences, Vienna/A; K. Bayer, ACIB GmbH, Vienna/A; G. Striedner, ACIB GmbH and University of Natural Resources and Life Sciences, Vienna/A	KEYNOTE LECTURE **Building better microbes for biotechnology** C. Schmidt-Dannert, University of Minnesota, St. Paul, MN/USA	KEYNOTE LECTURE **PEGylated protein separations by chromatography: liquid phase vs. solid phase PEGylation** Y. Isakari, N. Yoshimoto, S. Yamamoto, Yamaguchi University, Ube/J
10:25 - 10:40				
10:40 - 10:55	**Terminal oxy- and aminofunctionalization of fatty acid methyl esters via heterologous pathway engineering** B. Bühler, N. Ladkau, M. Schrewe, M.K. Julsing, A. Schmid, TU Dortmund/D	**Development of capture and intermediate chromatography steps in an insulin purification process** K. Eriksson, E. Hallgren, J. Shanagar, S. Grönlund, E. Heldin, GE Healthcare Bio-Sciences AB, Uppsala/S; H. Tunes, M. Xavier, L. Vilela, BIOMM S.A., Belo Horizonte/BR	**Metabolic flux analysis by transcriptome-data supported genome-scale model for human protein producing *Bacillus subtilis*** P. Kocabas, G. Calik, T.H. Özdamar, Ankara University/TR	**Mechanistic and semi-empirical approaches for modeling inhomogeneous flow in membrane chromatography capsules** P. Ghosh, E. von Lieres, Research Center Juelich/D
10:55 - 11:10	**Enzymes catalyzing asymmetric carboligation: directed evolution of substrate scope for industrial applications** W. Fessner, TU Darmstadt/D	**From microliter to labscale - prediction of protein renaturation processes** C. Walther, S. Mayer, A. Trevilov, M. Wellhöfer, Austrian Centre of Industrial Biotechnology ACIB, Vienna/A; P. Messner, University of Natural Resources and Life Sciences Vienna/A; D. Antos, TU Rzeszow/PL; R. Hahn, A. Jungbauer, A. Dürauer, Austrian Centre of Industrial Biotechnology ACIB, Vienna/A and University of Natural Resources and Life Sciences Vienna/A	**Engineered regulatory proteins as customized endogenous molecular reporters** P. Cirino, S.-Y. Tang, C. Frei, J. Gredell, University of Houston, TX/USA	**The Gillespie stochastic algorithm in protein adsorption isotherm modeling** J.D. Michael, J.M. Epstein, C.M. Mandona, Miami University, Oxford, FL/USA; A.C. Dias-Cabral, University of Beira Interior, Covilha/P; M.E. Thrash, Miami University, Oxford, FL/USA
11:10-11:40	**Coffee Break**			
Session:	**Novel chemicals, enzymes and processes**	**Recombinant protein production**	**Systems biology and metabolic engineering**	**Fundamentals**
Chairs:	**J.M.S. Cabral, TU Lisbon/P**	**B. Bühler, TU Dortmund/D**	**M. Cánovas, University of Murcia/E; P. Jacques, University of Lille/F**	**A. Jungbauer, University of Natural Resources and Life Sciences Vienna/A**
11:40 - 11:55	**Old yellow enzymes: tools for the asymmetric bioreduction of activated alkenes** G. Tasnadi, ACIB GmbH c/o University of Graz/A; C.K. Winkler, D. Clay, M. Hall, K. Faber, University of Graz/A	**Development of feeding strategy for the production of recombinant human growth hormone by *Pichia pastoris*** B. Bozkurt, P. Calik, Middle East Technical University, Ankara/TR	**Role of cAMP on the regulation of bacterial metabolism by protein acetylation** S. Castaño-Cerezo, V. Bernal, T. Röhrig, J. Blanco-Catalá, J.L. Iborra, M. Cánovas, University of Murcia/E	KEYNOTE LECTURE **pH transients in protein A affinity chromatography** R. Hahn, University of Natural Resources and Life Sciences Vienna/A; G. Carta, University of Virginia, Charlottesville, VA/USA
11:55 - 12:10	**Biocatalytic approaches to novel alkaloids** E. Siirola, E.-M. Fischereder, A. Rajagopalan, University of Graz/A; H. Lechner, University of Graz/A; F.G. Mutti, University of Graz/A; C.S. Fuchs, D. Pressnitz, R.C. Simon, ACIB, Graz/A; J.H. Schrittwieser, V. Resch, J.H. Sattler, K. Gruber, University of Graz/A; P. Macheroux, TU Graz/A; W. Kroutil, University of Graz/A	**Investigation in expression dynamics during sequential recombinant production with *Pichia pastoris*** S. Marliens, J.-P. Voss, D. Thiesing, Hamburg University of Applied Sciences/D; B.W. Faber, Biomedical Primate Research Centre, Rijswijk/NL; G. Cornelissen, Hamburg University of Applied Sciences/D	**Metabolic perturbation experiments with recombinant *Escherichia coli* from a L-phenylalanine production process** M. Weiner, TU München/D; C. Albermann, G. Sprenger, University of Stuttgart/D; D. Weuster-Botz, TU München/D	
12:10 - 12:25	**Investigation of concentration gradient in the electrofiltration chamber by means of in-situ fluorescence technique** G. Gözke, C. Posten, Karlsruhe Institute of Technology (KIT)/D	KEYNOTE LECTURE **Bioreactor performance: new developments** A. Lübbert, University Halle-Wittenberg, Halle (Saale)/D; R. Simutis, Kaunas Technical University/LT; M. Jenzsch, Roche Diagnostics, Penzberg/D; S. Schaepe, A. Kuprijanov, University Halle-Wittenberg, Halle (Saale)/D	**Designer nanobioreactors: determining the effects of compartmentalisation on enzyme kinetics and substrate sequestration** D. Tullman-Ercek, J. Glasgow, E. Kim, University of California, Berkeley, CA/USA	**Understanding the molecular recognition between antibody fragments and an artificial protein A** A.M.G.C. Dias, R.J.F. Branco, A.C.A. Roque, New University of Lisbon/P
12:25 - 12:40			**Synthetic engineering of *Bacillus subtilis* to overproduce lipopeptide biosurfactants** F. Coutte, M. John, M. Bechet, M. Nebut, J. Niehren, V. Leclere, P. Jacques, University of Lille 1, Villeneuve d'Ascq/F	**Study of the mechanism of linear plasmid DNA adsorption onto an ion exchange support by flow microcalorimetry** A. Twarda, P. Aguilar, F. Sousa, University of Beira Interior, Covilha/P; M.E. Thrash, Miami University, Oxford, FL/USA; A.C. Dias-Cabral, University of Beira Interior, Covilha/P
12:40-14:00	**Lunchtime and Posters**	**DSP Working Group Meeting (13:00 - 14:00)**	**M3C Working Group Meeting (13:00 - 14:00)**	
	ESBES 1	**ESBES 2**	**ESBES 3**	**ISPPP**
Session:	**Novel chemicals, enzymes and processes**	**Frontiers in biopharmaceuticals development and manufacturing**	**On-line monitoring of cultivations / Monitoring of population heterogeneity**	**Fundamentals**
Chairs:	**R. Aires-Barros, Instituto Superior Tecnico, Lisbon/P**	**A. Staby, Novo Nordisk A/S, Gentofte/DK**	**C.-F. Mandenius, Linköping University/S**	**M.T.W. Hearn, Monash University, Victoria/AUS**
14:00 - 14:15	KEYNOTE LECTURE **Improvement of yield and selectivity in lipopeptide production process by oxygen transfer rate control** P. Jacques, S. Fahim, F. Coutte, J.S. Guez, D. Lecouturier, P. Dhulster, F. Gancel, P. Vauchel, K. Dimitrov, I. Nikov, University of Lille 1, Villeneuve d'Ascq/F	KEYNOTE LECTURE **Integration, intensification and optimisation of recombinant pharmaceutical protein production** R. Luttmann, Hamburg University of Applied Sciences/D	KEYNOTE LECTURE **On-line prediction of soluble and insoluble recombinant protein and further key variables as quality criteria in *E. coli* bioprocesses** M. Luchner, ACIB GmbH, Vienna/A; M. Cserjan, ACIB GmbH and University of Natural Resources and Life Sciences, Vienna/A; F. Strobl, K. Bayer, ACIB GmbH, Vienna/A; G. Striedner, ACIB GmbH and University of Natural Resources and Life Sciences, Vienna/A	KEYNOTE LECTURE **Modeling of ion exchange chromatography: from salt to pH gradient elution** M. Schmidt, C. Frech, University of Applied Sciences, Mannheim/D
14:15 - 14:30				
14:30 - 14:45	**Over production of biofilm dispersal nuclease, NucB in high cell density fermentation of recombinant *Bacillus subtilis*** N. Rajarajan, R. O'Kennedy, A.C. Ward, J.G. Burgess, J. Glassey, Newcastle University/UK	**Approaches of refolding at industrial scale** G. Stoller, M. Schweigler, L. Trojer, Sandoz GmbH, Kundl/A	**On-line monitoring of plasmid production in an *Escherichia coli* bioprocess by near infrared spectroscopy** M.B Lopes, D. Silva, A. Couto, Catholic University of Portugal, Rio de Mouro/P; V.V. Lopes, National Laboratory for Energy and Geology, Lisbon/P; C.R.C. Calado, Catholic University of Portugal, Rio de Mouro/P	**Evaluation of chromatographic resins with protein coated nanoparticles** E. Müller, J. Vajda, TOSOH Bioscience GmbH, Stuttgart/D
14:45 - 15:00	**Optimisation of PUFA production from marine bacteria** A. Abd Elrazak, Mansoura University/ET and Newcastle University/UK; A.C. Ward, J. Glassey, Newcastle University/UK	**Generation of the conformational propensities in phage peptide libraries** F. Uchiyama, M. Ogata, T. Jikyo, Nakamura Gakuen University, Fukuoka/J	**Bioprocess monitoring via multivariate sensor prediction** D. Krause, M.A. Hussein, T. Becker, TU München, Freising/D	**Chromatographic columns: a novel GR model based numerical solution of multicomponent separation under non-linear adsorption isotherms** G. Saglam, E. Mindek, A.R. Özdural, Hacettepe University, Ankara/TR
15:00 - 15:30	**Coffee Break**			
Session:	**Novel chemicals, enzymes and processes**	**Frontiers in biopharmaceuticals development and manufacturing**	**On-line monitoring of cultivations / Monitoring of population heterogeneity**	**Column technologies and non-conventional chromatography modes**
Chairs:	**C. Posten, Karlsruhe Institute of Technology - KIT/D**	**K. Graumann, Sandoz GmbH, Kundl/A**	**C.J. Hewitt, University of Loughborough/UK**	**E. Müller, Tosoh Bioscience GmbH, Stuttgart/D**
15:30 - 15:45	**Enzymatic modification of microbial glycolipids** V.K. Recke, TU Braunschweig/D; M. Gerlitzki, R. Hausmann, C. Syldatk, Karlsruhe Institute of Technology (KIT)/D; V. Wray, Helmholtz Centre of Infection Research/D; H. Tokuda, University of Kanazawa/J; S. Lang, TU Braunschweig/D	**Vaccine manufacturing for the developing world: bioprocess opportunities and challenges** H. Pujar, Merck & Co., Inc., West Point, PA/USA	**Acoustic wave detection of drug-induced cell morphological alterations** A.C. Da-Silva, B. Tomé, G.N.M Ferreira, Institute for Biotechnolgy and Bioengineering - IBB, Faro/P	KEYNOTE LECTURE **Temperature controlled protein separation by means of continuous single-column chromatography** T.K.H. Müller, Karlsruhe Institute of Technology (KIT)/D; P. Cao, University of Birmingham/UK; M. Franzreb, Karlsruhe Institute of Technology (KIT)/D; O.R.T. Thomas, University of Birmingham/UK
15:45 - 16:00	**Whole-cell reduction of hydrophobic ketones: host selection and engineering tools to overcome substrate and product toxicity** R. Kratzer, C. Gruber, T. Eixelsberger, B. Nidetzky, TU Graz/A	**Biosimilars: excitement in pharmaceutical industry, uncertainties in regulatory environment, strong competition, and promise of cost effect treatment for most of us** S. Ozturk, Centocor Diagnostics Division, Malvern, PA/USA	**Mass transfer in stirred tank bioreactors monitored online during high performance microbial protein production processes** S. Schaepe, A. Kuprijanov, University Halle-Wittenberg, Halle (Saale)/D; C. Sieblist, M. Jenzsch, Roche Diagnostics, Penzberg/D; R. Simutis, Technical University Kaunas/LT; A. Lübbert, University Halle-Wittenberg, Halle (Saale)/D	
16:00 - 16.15	**Production of N-acetylneuraminic acid using novel N-acylglucosamine 2-epimerases from cyanobacteria** K. Hoelsch, TU München, Garching/D	**Revisiting aqueous two-phase extraction for antibodies purification: from a mixer settler battery to microfluidic devices** A.M. Azevedo, M.R. Aires-Barros, TU Lisbon/P	**Soft sensor applications for bioprocess monitoring, optimisation and control** R. Gustavsson, C. Lukasser, D. Paulsson, C.-F. Mandenius, University of Linköping/S	**Periodic counter current packed bed chromatography for continuous capture step** K.M. Lacki, H. Skoglar, E. Grund, GE Healthcare Biosciences AB, Uppsala/S
16.15 - 16.30	**An integrative process for the production of ACE inhibitory peptides from whey** P. Jauregi, F. Welderufael, K. P'aee, G. Trevor, The University of Reading/UK	**Improving academic education in biochemical engineering using training simulators** V.C. Hass, Hochschule Bremen/D; K.-M. Schoop, s&h Ingenieursgesellschaft mbH, Bremen/D; R. Pörtner, TU Hamburg-Harburg/D; C.-F. Mandenius, University of Linköpings/S	**Process control and systematic analysis of microaerobic phenomena** L. Carius, MPI for Dynamics of Complex Technical Systems, Magdeburg/D; P. Rumschinski, University of Magdeburg/D; H. Grammel, MPI for Dynamics of Complex Technical Systems, Magdeburg/D	**Natural product purification using inverted chromatographic process design** D. Bergs, TU Dortmund/D; A. Delp, M. Joehnck, Merck KGaA, Darmstadt/D; G. Martin, Lanxess GmbH, Leverkusen/D; G. Schembecker, TU Dortmund/D
16:30 - 17:30	**Poster Session**			
17:30 - 18:30	***ECB Plenary: Werner Arber***	ISPPP PLENARY LECTURE **pH Gradient-based protein separations using mixed resin beds** G. Carta, University of Virginia, Charlottesville, VA/USA Chair: S. Hober, Royal Institute of Technology, Stockholm/S		

Monday

Tuesday, 25 September 2012

Tuesday

09:00-10:00	**ECB Plenary: Huanming Yang**			
	ESBES 1	**ESBES 2**	**ESBES 3**	**ISPPP**
Session:	**Microbioreactors, microfluidics, lab-on-a-chip, high throughput**	**Frontiers in biopharmaceuticals development and manufacturing**	**On-line monitoring of cultivations / Monitoring of population heterogenity**	**Bioanalysis / Biomarkers**
Chairs:	**J. Büchs, RWTH Aachen/D**	**W.J. Kelly, Villanova University, PA/USA; W. Zhou, Genzyme Corp. Framingham, MA/USA**	**A. Lübbert, University of Halle-Wittenberg/D**	**S. Hober, Royal Institute of Technology, Stockholm/S**
10:10 - 10:25	**Development of novel cell microencapsulation systems (micro-bioreactors) to intensify animal cell growth and recombinant protein production** M. Whelehan, S. Dorothy, K. Byrne, H. Cole, I. Marison, Dublin City University/IRL	KEYNOTE LECTURE **Biopharmaceutical process technology and biochemical engineering science** W.-S. Hu, University of Minnesota, Minneapolis, MN/USA	KEYNOTE LECTURE **Real-time monitoring and control of the specific growth rate in microbial fed-batch cultivations** M. Schuler, I. Marison, Dublin City University/IRL	KEYNOTE LECTURE **Optimisation of enzyme immobilisation on magnetic particles using ATR FTIR analysis** C. Morhardt, M. Franzreb, Karlsruhe Institute of Technology (KIT)/D
10:25 - 10:40	**HTP mini-bioreactor system: screening platform for industrial recombinant protein production processes in *E. coli*** M. Cserjan, C. Török, M. Luchner, J. Mairhofer, G. Striedner, ACIB Austrian Centre of Industrial Biotechnology, Vienna/A			
10:40 - 10:55	**How an automated screening system can support the enzyme evolution, selection and production process for cellulose degradation** M. Kunze, T. Schmidt, U. Commadeur, RWTH Aachen University/D; R. Fischer, Fraunhofer Institute of Molecular Biotechnology and Applied Ecology, Aachen/D; J. Büchs, RWTH Aachen University/D	**Rational and fast protein purification process development - a hybrid experimental and modeling approach** B.K. Nfor, L.A.M. van der Wielen, P.D.E.M. Verhaert, M. Ottens, Delft University of Technology/NL	**Modeling morphological population heterogeneity and physiological process behaviour of filamentous fungi** A.E. Posch, M. Helmel, C. Koch, M. Marchetti-Deschmann, B. Lendl, G. Allmaier, C. Herwig, TU Vienna/A	**Lectin immunoassay for detection of glyco-chain structure of biomarkers using PS-tag-fused scFvs and HRP-labeled lectins** Y. Kumada, Kyoto Institute of Technology/J
10:55 - 11:10	**Segmented flow biofilm microreactors** R. Karande, A. Schmid, K. Buehler, TU Dortmund/D	**Using multivariate data analysis tool to develop a scale-down model for mammalian cell culture process** R. Bhatia, P. Singh, Janssen Research & Development, LLC, Malvern, PA/USA	**Process optimisation of recombinant protein production with *Pichia pastoris* by modulation of the cell deviation cycle** M. Maurer, P. Merino, University of Applied Sciences Campus, Vienna/A; C. Rebnegger, D. Mattanovich, University of Applied Life Sciences and Natural Resources, Vienna/A	**Impact of plasmid quality on lipoplex mediated transfection** J. de la Vega, G.A. Monteiro, D.M.F. Prazeres, TU Lisbon/P
11:10-11:40	**Coffee Break**			
Session:	**ESBES Poster Award Presentations**	**Nanotechnology in bioprocessing**	**Biothermodynamics**	**Analysis and characterization of protein biopharmaceuticals**
Chairs:	**A. Staby, Novo Nordisk A/S, Gentofte/DK**	**G. Ferreira, University of Algarve, Faro/P**	**M. Ottens, Delft University of Technology/NL**	**A. Jungbauer, University of Natural Resources and Life Sciences Vienna/A**
11:40 - 11:55		KEYNOTE LECTURE **Watching and controlling chromatographic interactions at the nano scale** W.-H. Chen, University of Houston, TX/USA; C.R. Daniels, L. Kisley, Rice University, Houston, TX/USA; M.-V. Poongavanam, University of Houston, TX/USA; C. Reznik, Rice University, Houston, TX/USA; K. Kourentzi, University of Houston, TX/USA; C.F. Landes, Rice University, Houston, TX/USA; R.C. Willson, University of Houston, TX/USA	**Benefit of modeling and high throughput screening in industrial purification process development** S. Ebert, Rentschler Biotechnologie GmbH, Laupheim/D	KEYNOTE LECTURE **pH-gradient ion exchange chromatography: in silico development of suitable buffer systems and their applications** F. Kroener, J. Hubbuch, Karlsruhe Institute for Technology (KIT)/D
11:55 - 12:10			**Interrelation between heat of adsorption, conformational change of proteins and surface energy of the chromatography media** A. Jungbauer, Austrian Centre of Industrial Biotechnology, Vienna/A; I. Bednar, A. Rodler, R. Tscheliessnig, University of Natural Resources and Life Sciences, Vienna/A	
12:10 - 12:25		**Continous magnetic extraction - a novel method for the large-scale separation of functional magnetic nanosorbents** I. Fischer, M. Franzreb, Karlsruhe Institute of Technology (KIT)/D	**Influence of ammonium sulfate and sodium chloride on adsorption of PEGylated lysozyme on a hydrophobic resin** A. Werner, T. Blaschke, H. Hasse, University of Kaiserslautern/D	**Practical experiences in the separation of PEGylated proteins using aqueous two-phase systems** J. Gonzalez-Valdez, J. Benavides, M. Rito-Palomares, Centro de Biotecnologia - FEMSA, Monterrey/MEX
12:25 - 12:40		**Transcription factor-DNA interactions monitored by QCM: transmission line model to extract physical properties from biological films** R.M.M. Rodrigues, B. Tomé, J. de-Carvalho, University of Algarve, Faro/P; S.F. Henriques, N.P. Mira, I. Sá-Correia, Technical University of Lisbon/P; G.N.M. Ferreira, University of Algarve, Faro/P	**Thermodynamic investigation of the applicability of N-isopropylacrylamide hydrogels** D. Althaus, S. Enders, TU Berlin/D	**Evaluation of human membrane-bound catechol-O-methyltransferase purification by hydrophobic interaction chromatography** F.M. Santos, A.Q. Pedro, R. Martins, C.J. Maia, University of Beira Interior, Covilha/P; M.J. Bonifácio, BIAL, Sao Mamede do Coronado/P; J.A. Queiroz, L.A. Passarinha, University of Beira Interior, Covilha/P
12:40 - 12:55				**Development and application of low molecular weight, mixed mode ligand systems for the chromatographic purification of monoclonal antibodies and other recombinant proteins** M. Hearn, D. Fredricks, C. Zhang, E. Campi, L. Lim, M. Petzold, P. Florio, S.J. Mountford, R. Daly, A.J. Robinson, W.R. Jackson, K. Saito, Monash University, Clayton/AUS
12:55-18:30	**Social Activities**			
Evening	**Gala Dinner**			

Wednesday, 26 September 2012

Wednesday

09:00-10:00	**ECB Plenary: Jonathan Knowles**	**ESBES PLENARY LECTURE** **Lights, camera, action! ...inside a bioreactor: the behavior of air bubbles and oil drops as it really happens - in 3D and high speed** E. Galindo, UNAM - Universidad Nacional Autónoma de México, Cuernavaca/MX Chair: J. Büchs, RWTH Aachen/D		
	ESBES 1	**ESBES 2**	**ESBES 3**	**ISPPP**
Session:	**Biofuels and bioenergy, biobased chemicals**	**Stem cell bioengineering, cell therapy and tissue engineering**	**Process integration and primary recovery**	**Materials: affinity and chiral separations**
Chairs:	**C. Posten, Karlsruhe Institute of Technology - KIT/D**	**J.M.S. Cabral, TU Lisbon/P**	**R. Ditz, Merck KGaA, Darmstadt/D**	**A. Podgornik, COBIK - Center of Excellence for Biosensors, Instrumentation and Process Control, Solkan/SLO**
10:10-10:25	**Waste glycerol up-grade to P(3HB-4HB) and P(3HB-4HB-3HV)** C. Almeida, J. Cavalheiro, R. Raposo, M. Cesário, TU Lisbon/P; E. Pollet, University of Strasbourg/F; H. Diogo, M. Fonseca, TU Lisbon/P	**KEYNOTE LECTURE** **Challenges for stem cell bioprocessing - scale-up or scale-out?** C.J. Hewitt, Loughborough University/UK	**KEYNOTE LECTURE** **Reversing bioprocess design for the large scale production of diesel-like biofuels** M.C. Cuellar, J.J. Heijnen, L.A.M. Van der Wielen, TU Delft/NL	**KEYNOTE LECTURE** **Production, application and separation of selective magnetic aptamer particles** N. Tippkötter, R. Stadtmüller, S. Wollny, University of Kaiserslautern/D; P. Kampeis, University of Applied Sciences Trier, Neubrücke (Nahe)/D; H. Schneider, ABBIS - Vulkan Technic Maschinen-Konstruktions GmbH, Wiesbaum/D; J. Oster, PerkinElmer chemagen Technologie GmbH, Baesweiler/D; R. Ulber, University of Kaiserslautern/D
10:25-10:40	**From lignocellulosic residues to polyhydroxyalkanoates** T. Cesário, Instituto Superior Técnico, Lisbon/P			
10:40-10:55	**Influence of gas/liquid mass transfer on the volumetric production rate and product quality during biological methanogenesis** A.H. Seifert, C. Herwig, TU Vienna/A	**Process development and scale-up of an allogenic cell therapy products for clinical production** R. Bhatia, Janssen Research & Development, LLC, Spring House, PA/USA	**Stable emulsions in biphasic whole-cell biocatalysis: the mechanism of $scCO_2$ assisted phase separation** C. Brandenbusch, J. Collins, B. Buehler, A. Schmid, G. Sadowski, TU Dortmund/D	**Arginine-based affinity chromatography as a new approach for RNA isolation** R. Martins, C. Maia, J.A. Queiroz, F. Sousa, University of Beira Interior, Covilha/P
10:55-11:10	**Hydrogenotrophic production of acetic acid with *Acetobacterium woodii* in stirred-tank bioreactors** D. Weuster-Botz, TU München/D	**Three-dimensional neural stem cell culture microarray for high-throughput studies of neuronal differentiation and toxicology** H.S.C. Barbosa, TU Lisbon/P; L. Meli, Rensselaer Polytechnic Institute, Troy, NY/USA; M.M. Diogo, TU Lisbon/P; R.J. Linhardt, Rensselaer Polytechnic Institute, Troy, NY/USA; J.M.S. Cabral, TU Lisbon/P; J.S. Dordick, Rensselaer Polytechnic Institute, Troy, NY/USA	**Process integration for the high-yield production of fine chemicals applying isomerases and aldolases** M. Bechtold, M. Fuereder, C. Femmer, N. Wagner, A. Bosshart, S. Panke, ETH Zurich/CH	**Intercalator DAPP as a new affinity ligand for supercoiled pDNA chromatographic separation** C. Nunes, P. Almeida, University of Beira Interior, Covilha/P; J.C. Marcos, University of Minho, Braga/P; C.T. Tomaz, University of Beira Interior, Covilha/P
11:10-11:40	**Coffee Break**			
Session:	**Biofuels and bioenergy, biobased chemicals**	**Stem cell bioengineering, cell therapy and tissue engineering**	**Process integration and primary recovery**	**Materials: miniaturisation and monoliths**
Chairs:	**D. Weuster-Botz, TU München/D**	**J. Grillari, University of Natural Resources and Applied Life Sciences Vienna/A**	**K.M. Lacki, GE Healthcare Biosciences AB, Uppsala/S**	**R. Aires-Barros, Instituto Superior Tecnico, Lisboa/P**
11:40 - 11:55	**KEYNOTE LECTURE** **Production of dicarboxylic acids and butanol from wooden cellulose** N. Tippkötter, T. Sieker, S. Wiesen, A. Duwe, University of Kaiserslautern/D; B. Saake, University of Hamburg/D; R. Ulber, University of Kaiserslautern/D	**KEYNOTE LECTURE** **Scalable expansion of human mesenchymal stem cells using a microcarrier-based system under serum-free and xeno-free conditions** F. dos Santos, P.Z. Andrade, C. Lobato da Silva, TU Lisbon/P; M.M. Abecasis, IPOFG-Instituto Português de Oncologia Francisco Gentil, Lisboa/P; J. Gimble, Pennington Biomedical Research Center, Louisiana State University System, Baton Rouge, LA/USA; A. Campbell, S. Boucher, E. Roos, S. Kuligowski, Life Technologies, Corp., Carlsbad, CA/USA; L. Chase, Cellular Dynamics International, Madison, WI/USA; M. Vemuri, Life Technologies, Corp., Carlsbad, CA/USA; J.M.S. Cabral, TU Lisbon/P	**Selective isolation of enantiopure short chain alcohols from the product stream through adsorption on alumina oxide** P. Bubenheim, Süd-Chemie AG, Moosburg/D; L. Dähne, Surflay Nanotec GmbH, Berlin/D; A. Liese, TU Hamburg-Harburg/D; F. Ruf, U. Sohling, Süd-Chemie AG, Moosburg/D	**KEYNOTE LECTURE** **Bioinspired affinity monoliths: a fast and efficient alternative system for antibody purification** T. Barroso, A.C.A. Roque, A. Aguiar-Ricardo, New University of Lisbon/P
11:55 - 12:10			**A novel prokaryotic expression system for biosynthesis of recombinant human membrane-bound catechol-O-methyltransferase** A.Q. Pedro, C.J. Maia, University of Beira Interior, Covilha/P; F. Sousa, M.J. Bonifácio, L. Wright, P. Soares-da-Silva, BIAL, Sao Mamede do Coronado/P; J.A. Queiroz, L.A. Passarinha, University of Beira Interior, Covilha/P	
12:10 - 12:25	**Enhanced production of 2,3-butanediol in fed-batch cultures of *Bacillus licheniformis*** I. Jurchescu, X. Zhou, J. Hamann, TU Braunschweig/D; A. Kuenz, U. Prüße, vTI Braunschweig/D; F. Schütt, J. Puls, vTI Hamburg/D; M. Klingeberg, Südzucker AG, Obrigheim/Pfalz/D; S. Lang, TU Braunschweig/D	**Expansion of human mesenchymal stem cells on microcarriers in a 2.5 L bioreactor** O.A. Rafiq, K. Coopman, Loughborough University/UK; A.W. Nienow, University of Birmingham/UK; C.J. Hewitt, Loughborough University/UK	**Simultaneous optimisation of fermentation and periplasmic release conditions for effective recombinant protein production** C.C. Hsu, C. Mueller, R. Jalalirad, K. Zourna, University of Birmingham/UK; E. Theodosiou, Loughborough University, Leicestershire/UK; O.R.T. Thomas, T.W. Overton, University of Birmingham/UK	**Application of the chromatographic monoliths to estimation of adsorbed layer thickness** A. Podgornik, COBIK, Solkan/SLO; M. Etzel, University of Wisconsin, Madison, WI/USA; T. Sutar, COBIK, Solkan/SLO; N. Lendero Krajnc, A. Strancar, BIA Separations, Ajdovscina/SLO
12:25 - 12:40	**Production of energy with bacterial cells** C.C.C.R. de Carvalho, TU Lisbon/P	**Regulation of tricarboxylic acid metabolism by the stem cell microenvironment** C. Metallo, University of California, San Diego, La Jolla, CA/USA	**Efficiency of transient transfection in a mammalian cell model influenced by pDNA purification with membrane-HIC** L. Raiado Pereira, J. de la Vega, M. Mateus, G.A. Monteiro, D.M.F. Prazeres, Instituto Superior Técnico, Lisboa/P	**High-throughput proteomic analysis of urine and blood plasma of patients undergoing image-guided tumor ablation** L.D. Breen, F. Huang, L. Cao, L.M. Camara, Rhode Island Hospital, Providence, RI/USA; D.E. Dupuy, Brown Medical School, Providence, RI/USA; D. Josic, University of Rijeka/HR
12:40-14:00	**Lunchtime and Posters**			
	ESBES 1	**ESBES 2**	**ESBES 3**	**ISPPP**
Session:	**Malcolm Lilly Award Presentations**	**Stem cell bioengineering, cell therapy and tissue engineering**	**Process integration and primary recovery**	**Multimodal chromatography**
Chairs:	**J.M.S. Cabral, TU Lisbon/P**	**C.J. Hewitt, University of Loughborough/UK**	**I. Marison, Dublin City University/IRL**	**A.C. Dias-Cabral, University of Beira Interior, Covilha/P**
14:00 - 14:15		**KEYNOTE LECTURE** **Engineering cardiac and vascular cells from human pluripotent stem cells** X. Lian, S.M. Azarin, E. Lippmann, L. Hazeltine, C. Hsiao, G.F. Wilson, J. Zhang, T.J. Kamp, E.V. Shusta, S.P. Palecek, University of Wisconsin - Madison, WI/USA	**KEYNOTE LECTURE** **Thermo-responsive magnetic particles in antibody separation** L. Bortido, L. Moura, A.M. Azevedo, TU Lisbon/P; A.C.A. Roque, New University of Lisbon/P; J.P.S. Farinha, M.R. Aires-Barros, TU Lisbon/P	**KEYNOTE LECTURE** **Understanding thermodynamics of mixed-mode adsorption using peptides as model components** S. Chilamkurthi, L. Albers, L.A.M. Wielen, M. Ottens, TU Delft/NL
14:15 - 14:30				
14:30 - 14:45		**Urine as a non-invasive source of kidney epithelial cells that can be reprogrammed to induced pluripotent stem cells** R. Grillari-Voglauer, VIBT/BOKU, Wien/A; T. Zhou, C. Benda, Chinese Academy of Sciences, Guangzhou/PRC; S. Duzinger, University of Natural Resources and Life Sciences, Vienna/A; Y. Huang, X. Li, Y. Li, G. Cao, S. Chen, Chinese Academy of Sciences, Guangzhou/PRC; L. Hao, Chinese Academy of Sciences, Beijing/PRC; Y. Chan, K. Ng, J. Ho, University of Hong Kong/PRC; M. Wieser, Austrian Center for Industrial Biotechnology (ACIB)/A; J. Wu, Chinese Academy of Sciences, Beijing/PRC; H. Redl, Austrian Cluster for Tissue Regeneration, Vienna/A; Hung-Fat Tse, University of Hong Kong/PRC; J. Grillari, University of Natural Resources and Life Sciences, Vienna/A, D. Pei, M. Esteban, Chinese Academy of Sciences, Guangzhou/PRC	**Application of magnetic ion-exchange particles for in-situ product removal of functional extracellular proteins** A. Scholz, C. Posten, Karlsruhe Institute of Technology (KIT)/D	**Phenyl boronic acid as ligand for a multimodal chromatography** R.Jr. Carvalho, Instituto Superior Técnico, Lisbon/P and Rensselaer Polytechnic Institute, Troy, NY/USA; J. Woo, Rensselaer Polytechnic Institute, Troy, NY/USA; A.M. Azevedo, Instituto Superior Técnico, Lisbon/P; S.M. Cramer, Rensselaer Polytechnic Institute, Troy, NY/USA; M.R. Aires-Barros, Instituto Superior Técnico, Lisbon/P
14:45 - 15:00		**Bioengineering approaches for the optimisation of the ex-vivo expansion of hematopoietic stem/progenitor cell for cell therapy** P.Z. Andrade, F. Dos Santos, TU Lisbon/P; G. Almeida-Porada, Wake Forest Institute of Regenerative Medicine, Winston-Salem, NC/USA; C. Lobato da Silva, J.M.S. Cabral, TU Lisbon/P	**Magnetically enhanced centrifugation in protein purification** J. Lindner, K. Menzel, H. Nirschl, Karlsruhe Institute of Technology (KIT)/D	
15:00 - 15:30	**Coffee Break**			
Session:		**Stem cell bioengineering, cell therapy and tissue engineering**		**Multidimensional separations**
Chairs:		**W.J. Kelly, Villanova University, PA/USA**		**M. Ottens, Delft University of Technology/NL**
15:30 - 15:45		**KEYNOTE LECTURE** **Modeling and analysis of the core architecture regulating TGFβ induced epithelial to mesenchymal transition (EMT)** J. Varner, R. Gould, A. Chakrabarti, J. Butcher, Cornell University, Ithaca, NY/USA		**KEYNOTE LECTURE** **High-throughput crude feedstock profiling for model-based bioseparation process development** A. Hanke, B.K. Nfor, TU Delft/NL; F. Kröner, Karlsruhe Institute of Technology (KIT)/D; M.W.H. Pinkse, L.A.M. van der Wielen, TU Delft/NL; J. Hubbuch, Karlsruhe Institute of Technology (KIT)/D; M. Ottens, TU Delft/NL
15:45 - 16:00				
16:00 - 16.15		**MiRNA-31 is secreted by senescent endothelial cells and inhibits osteogenic differentiation of MSCs – a therapeutic target for bone disorders** J. Grillari, E. Schraml, University of Natural Resources and Applied Life Sciences Vienna/A; S. Weilner, K. Wassermann, AUVA Research Center, Vienna/A; M. Wieser, ACIB, Vienna/A; P. Messner, University of Natural Resources and Life Sciences Vienna/A; L. Micutkova, Austrian Academy of Sciences, Vienna/A; K. Fortschegger, Children's Cancer Research Institute (CCRI), St. Anna Kinderkrebsforschung, Vienna/A; A.B. Maier, Leiden University Medical Center/NL; H. Redl, AUVA Research Center, Vienna/A; P. Jansen-Dürr, Austrian Academy of Sciences, Vienna/A; P. Pietschmann, Medical University of Vienna/A; R. Grillari-Voglauer, University of Natural Resources and Applied Life Sciences Vienna/A		**Prediction of protein partitioning in aqueous two-phase system using a semi-empirical approach** D.P.C. de Barros, TU Lisbon/P; S.R.R. Campos, New University of Lisbon/P; P.P. Madeira, University of Porto/P; A.M. Azevedo, TU Lisbon/P; A.M. Baptista, New University of Lisbon/P; M.R. Aires-Barros, TU Lisbon/P
16:15 - 16:30		**Design and operation of a bioreactor system for the expansion of mouse embryonic stem cell-derived neural stem cells on microcarriers** C.A.V. Rodrigues, M.M. Diogo, C. Lobato da Silva, J.M.S. Cabral, TU Lisbon/P		**Efficient purification of a recombinant plant peroxidase by a mixed-mode resin** O. Spadiut, L. Rossetti, C. Dietzsch, C. Herwig, TU Vienna/A
16:30 - 17:30	**ECB Plenary: Christian Patermann**			
17:30 - 18:30	**Closing Ceremony - Awards**			