

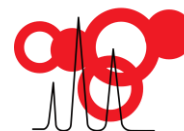


40th International Symposium on the Separation of Proteins, Peptides & Polynucleotides Porto, November 7 – 10, 2021

PRE-CONFERENCE WORKSHOPS

SUNDAY, NOVEMBER 7, 2021

09:00	Start of Registration	
9:30	Workshop 1 Cristina Peixoto (Instituto de Biologia Experimental e Tecnológica – iBET)	New insights in virus-based biopharmaceuticals purification
11:15	Workshop 2 Alois Jungbauer (BOKU Vienna) Cristina Cabral (Univ. of Beira Interior)	Mechanistic understanding of biomolecules adsorption: theory and applications
13:30	Workshop 3 Sophia Hober (KTH) Michel Eppink (Byondis BV)	Surface plasmon resonance in biotechnical development
15:15	Workshop 4 Sonja Berensmeier (TU Munich) Egbert Müller (Tosoh Bioscience) Michel Eppink (Byondis BV)	Nucleotide separation in biopharmaceutical processing and their quality requirements



ISPPP CONFERENCE

SUNDAY, NOVEMBER 7, 2021

17:00 Welcoming Remarks by Cristina Dias-Cabral

Key Note Lecture – Chair: Cristina Dias-Cabral

17:30 **Giorgio Carta**
(Univ. of Virginia) Chromatography, Adsorption Kinetics, and Purification of Conformationally-Flexible Multidomain Proteins

18:20 Welcome Reception

MONDAY, NOVEMBER 8, 2021

Key Note Lecture – Chair: Sophia Hober

08:30 **Ruedi Aebersold**
(ETH Zürich) Extracting new molecular biology knowledge from proteins and peptides

Session 1: Analytical detection technologies I - Chair: Sophia Hober

09:20 **Rainer Bischoff**
(Univ. of Groningen) Affinity LC-MS for high-sensitivity analysis of proteins in complex biological samples

09:40 **Baubek Spanov**
(Univ. of Groningen) pH gradient-based cation exchange chromatography for the separation of charge variants of monoclonal antibodies after forced degradation study

09:55 **Christoph Gstöttner**
(Leiden Univ. Medical Center) Affinity sheathless-CE-MS as a new tool for the functional assessment of antibody - Fc receptor interactions

10:10 **Elena Dominguez-Vega**
(Leiden Univ. Medical Center) Unravelling the structural and functional heterogeneity of recombinant SARS-CoV-2 RBD domains

10:30 Refreshment Break

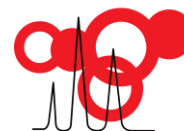
Session 2: Analytical detection technologies II - Chair: Michel Eppink

11:00 **Clara Pérez Peinado**
(Janssen Vaccines and Prevention) RT-MALS: Real-time analysis of product attributes in downstream processing

11:20 **Jelle De Vos**
(Vrije Universiteit Brussel) Advances in microfluidic technology for spatial three-dimensional liquid chromatography

11:40 **Juliane Diehm**
(Karlsruhe Inst. of Technology) Development of a 3D Printed Micro Simulated Moving Bed Device as Process Analytical Tool

11:55 **Robin Schiemer**
(Karlsruhe Inst. of Technology) Advanced machine-learning methods for the analysis of spectroscopic data in biopharmaceutical processes



Flash Session 1 – Chair: Ana Azevedo

12:10	Mariachiara Conti (Univ. of Edinburgh)	Development of glycidyl methacrylate-based platform material for 3D printing stationary phases
12:15	Gregory Dutra (BOKU Vienna)	3D Printed convective media for the separation of small and large biomolecules
12:18	Benjamin Summers (PuroLite)	Single Step Protein Purification and Immobilisation by New Chromalite M Chemistries
12:21	Jorge Barroca-Ferreira (Univ. of Beira Interior)	Separation of Histidine-Tagged Six-Transmembrane Epithelial Antigen of the Prostate 1 from Detergent-Solubilized Komagataella pastoris Extracts
12:24	Francisca Silva (Univ. of Aveiro)	Human serum pre-treatment: removal of abundant proteins aiming the concentration of lung cancer biomarkers
12:27	Discussion	

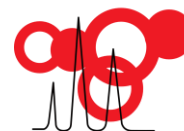
Flash Session 2 – Chair: Ana Azevedo

12:36	Ana Margarida Gonçalves (Health Sciences Research Centre)	Enhancing membrane-bound catechol-O-methyltransferase activity through an ionic liquid storage formulation
12:39	Mafalda R. Almeida (Univ. of Aveiro)	Purification of antileukemic drugs through silica-based supported ionic liquids
12:42	Augusto Pedro (Univ. of Aveiro)	Purification of interferon alpha 2b-based biopharmaceuticals using ionic liquid-based technologies
12:45	Leonor Castro (Univ. of Aveiro)	Sustainable liquids support as a media for biocatalytic reactions using aqueous biphasic systems
12:48	Christina Wegner (Karlsruhe Inst. of Technology)	UV/Vis spectroscopy and Multi-Way Chemometrics for Precipitation and Crystallization Process development from Complex Media
12:51	Discussion	

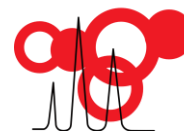
13:00 Lunch Break

Session 3: Preparative separation technologies – Chair: Aleš Podgornik

14:30	Nico Lingg (acib GmbH)	Affinity tag-based development and manufacturing platform for non-platform proteins
14:50	Michel Eppink (Byondis BV)	Nanofibers as an alternative for fast affinity separations
15:10	Alexei Voloshin (3M)	Enabling Large Particle Chromatographic Separations Using Advanced Materials
15:30	Arne Staby (Novo Nordisk)	Complex polypeptides: Regulatory and physical/chemical considerations related to manufacturing processes of follow-on products



Sponsored talk by Cytiva		
15:50	Clément Bassens (Cytiva)	Making tomorrow's therapies a reality, what to consider when developing a chromatography toolbox approach
16:20	Refreshment Break	
Flash Session 3 – Chair: Alois Jungbauer		
16:50	Michael Schobesberger (TU Munich)	Natural magnetite ore as separation agent for valuable microalgal products
16:55	Eva Krolitzki (TU Munich)	Magnetic bioseparation with bare iron oxide nanoparticles on pilot scale
16:58	Tatiana Aguiar (CEB - Centre of Biological Engineering, Univ. of Minho)	Affinity purification/immobilization of His-tagged proteins using unmodified silica
17:01	Jorge João (IST, Univ. of Lisbon)	Chromatographic purification of small heat shock protein nanocages
17:04	Tae Keun Kim (Politecnico di Milano)	Experimental Design of the Multicolumn Countercurrent Solvent Gradient Purification (MCSGP) Unit for the Separation of PEGylated Proteins
17:07	Discussion	
Flash Session 4 – Chair: Alois Jungbauer		
17:16	Daniel Komuczki (BOKU Vienna)	Media & Buffer On-Demand: Continuous Reconstitution Directly from Solids
17:19	Lisa-Marie Herlevi (Jacobs Univ. Bremen)	Continuous Fluidized Bed Riser System for Bioproduct Recovery employing a Double Network Hydrogel Cation Exchange Adsorbent
17:22	Yijia Guo (Jacobs Univ. Bremen)	Moving Adsorption Belt System for Continuous Bioproduct Recovery
17:25	Tiago Castanheira Silva (TU Delft)	Miniaturization of chromatographic process development for fast results at minimal costs
17:28	Tommaso De Santis (acib GmbH)	Economic and ecological evaluation of new processing schemes for the industrial scale production of plastic-degrading enzymes
17:31	Discussion	



Flash Session 5 – Chair: Alois Jungbauer

17:40	Ignacio Montes Serrano (acib GmbH)	Experimental and simulated determination of the volumetric power input in microtiter plates as a scale-up strategy for the development of downstream operations
17:43	Touraj Eslami (BOKU Vienna)	Capture step optimization in liquid chromatography
17:46	Bettina Motycka (BOKU Vienna)	Determination of the conformation of cellobiose dehydrogenase by small angle X-ray scattering
17:49	Arménio Barbosa (Nova Univ. of Lisbon)	Molecular Modeling on the Discovery of synthetic affinity-adsorbents
17:52	Discussion	

Poster Session

18:00 Poster session

18:45 Networking Reception

TUESDAY, NOVEMBER 9, 2021

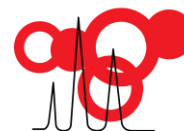
Key Note Lecture – Chair: Sonja Berensmeier

08:30	Steve Cramer (Rensselaer Polytechnic Institute)	Evaluation of Preferred Binding Orientations of Protein Therapeutics in Multimodal Chromatographic Systems using Biophysics and Simulations
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Session 4: Biopharmaceuticals I – Chair: Sonja Berensmeier

09:20	Hans Johansson (Purolute)	A new Protein A resin allowing quantitative elution of human IgG at pH 5
09:40	Julia Scheffel (KTH Royal Institute of Technology)	A calcium-dependent Protein A-derived ligand for mild purification of antibodies
09:55	Malin Jönsson (KTH Royal Institute of Technology)	A metal-dependent protein domain derived from Streptococcal Protein G enabling gentle elution of mIgG1 and human Fab
10:10	Egbert Müller (Tosoh Bioscience)	Purification of IgY by Mixed Mode Chromatography

10:30 Refreshment Break

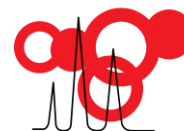


Session 5: Biopharmaceuticals II – Chair: Raquel Aires Barros

11:00	Sandra C. Bernardo (CICS-UBI)	Design of specific ligands for pre-miRNA purification
11:20	Sara Sousa Rosa (IBB - Institute for Bio-engineering and Biosciences)	A chromatography alternative for mRNA manufacturing
11:35	Ana Rita Santos (IBB - Institute for Bio-engineering and Biosciences)	DNA-origami nanostructures: exploring chromatography for the purification of single stranded DNA scaffolds
11:50	Lucía Abarca Cabrera (TU Munich)	Separation of the main macromolecules from model and biotechnological mixtures using iron oxide nanoparticles
12:05	Ana Cecília Roque (UCIBIO, FCT-NOVA)	Affinity magnetic precipitation for antibody purification

Flash Session 6 – Chair: Ana Azevedo

12:25	Jonas Wege (Tosoh Bioscience)	Characterization of AAV5 Viral Vector by Size Exclusion Chromatography-Multi-Angle Light Scattering Technology
12:30	Sónia Mendes (Instituto de Biologia Experimental e Tecnológica – iBET)	Production of high-quality SARS-CoV-2 antigens: Impact of bioprocess and storage on glycosylation, biophysical attributes, and ELISA serologic tests performance
12:33	Johanna Tawe (Bio-Works)	Increased lifetime of RPC resins in insulin production by clean-up using a cation exchange step
12:36	Cecilia Unoson (Bio-Works)	Oligonucleotide purifications using anion exchange chromatography
12:39	Manasi Gaikwad (Univ. Medical Center Hamburg Eppendorf)	Fast quantification of proteoforms in therapeutic protein using flow injection analysis coupled to mass spectrometry
12:42	Discussion	
13:00	Lunch Break	

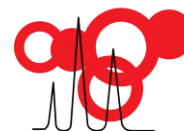


Session 6: New Products – Chair: Cristina Peixoto

14:30	Friederike Eilts (Univ. of Applied Sciences Mittelhessen)	Time- and charge-dependent purification of nanoparticles with the steric exclusion chromatography
14:45	Keven Lothert (Univ. of Applied Sciences Mittelhessen)	Development of a scalable downstream purification process for Parapoxvirus Ovis (ORFV) purification for human and veterinary application
15:00	Ana Sofia Moreira (Instituto de Biologia Experimental e Tecnológica – iBET)	Improving processes and exploiting new tools for Lentiviral vectors purification
15:15	Viktoria Mayer (acib GmbH)	Purification of enveloped Virus-Like Particles displaying different membrane proteins by Heparin affinity chromatography
15:30	Angela Valentic (Karlsruhe Inst. of Technology)	Effects of bound nucleic acids on the phase behavior and purification process of HBcAg virus-like particles for gene therapy
15:45	Nils Hillebrandt (Karlsruhe Inst. of Technology)	Process Analytical Technology for Diafiltration-based Virus-like Particle Disassembly
16:00	Refreshment Break	

Session 7: Continuous Processing – Chair: Marcel Ottens

16:30	Amin Javidanbardan (Instituto Superior Técnico)	Development of Next-generation Microchromatographic System for Miniaturization of Bioprocess Development with Some Insights from Philosophy of Science
16:45	Narges Lali (acib GmbH)	Residence Time Distribution of Chromatography Unit Operation in Continuous Processing
17:00	Diogo Faria (Instituto Superior Técnico)	Oscillatory flow reactor: a solution for continuous biomanufacturing
17:15	Mattia Sponchioni (Politecnico di Milano)	Design and Application of Twin-Column Countercurrent Solvent Gradient Chromatography (MCSGP) to the Purification of Oligonucleotides
17:35	Mariana Neves Sao Pedro (TU Delft)	Development of a Fluorescent Dye-Based Miniaturized Sensor for Aggregate Detection in Integrated Continuous Processing
17:50	Maria del Carme Pons Royo (acib GmbH)	How to design continuous devices to improve tangential flow filtration and product quality in protein precipitation
18:05	End of session	
20:00	Conference Dinner	



WEDNESDAY, NOVEMBER 10, 2021

Key Note Lecture – Chair: Raquel Aires Barros

08:30 **Arlindo Oliveira**
(Instituto Superior Técnico) Deep Learning Applications in Molecular and Cellular Biology

Session 8: Fundamentals and Modelling I – Chair: Egbert Müller

09:20 **Stefan Rauwolf**
(TU Munich) Interactions of Amino Acids and DNA at the Aqueous-Silica-Interface

09:35 **Leo Jakob**
(BOKU Vienna) Protein-protein interactions in HIC dual salt systems

09:50 **Jannette Kreusser**
(TU Kaiserslautern) Influence of Salts and pH Value on the Adsorption of Bovine Serum Albumin on a Mixed-Mode Resin

10:05 **Aleš Podgornik**
(Faculty of Chemistry and Chemical Technology, Univ. of Ljubljana) Fast non-invasive determination of ionizable functionalities via pH transient

10:25 Refreshment Break

Session 9: Fundamentals and Modelling II – Chair: Cristina Dias-Cabral

11:00 **Nikolaus Hammerschmidt**
(Boehringer Ingelheim) Centrifugal separation - A modeling approach considering feed and separator properties

11:20 **Maximilian Krippel**
(BOKU Vienna) Hybrid Modeling in Tangential Flow Filtration: Enabling digital solutions for fast process development and control

11:35 **Ana Rufino**
(University of Aveiro) Separation of monoclonal antibodies using ionic-liquid-based aqueous biphasic systems

11:50 **Jorge F. B. Pereira**
(Univ. of Coimbra) Purification of green, red and yellow fluorescent proteins using cholinium chloride-based aqueous biphasic systems

12:10 Presentation of Awards and Concluding Remarks

12:30 End of conference



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