

PREP

International Symposium,
Exhibit & Workshops on

Preparative and Process Chromatography,

Ion Exchange, Adsorption Processes & Related Separation Techniques

—PREP 2018 Preliminary Scientific Program—

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(program as of 4/10/2018)

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Giorgio Carta, University of Virginia

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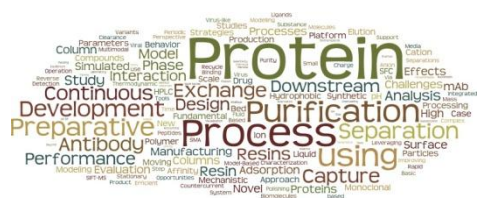
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Sunday Workshop and Tutorial Training Program

The Workshop and Tutorial Training Program provides advanced tutorials covering various aspects of preparative and process chromatography. Workshops and Tutorial are open to conference and non-conference participants. See details and pricing posted online under "Workshops & Tutorial" at PREPsymposium.org. Must pre-register to attend.

Sunday, July 8	Workshops (See registration form for cost)	Instructors
9:00 AM - 1:00 PM	Fundamentals of Preparative Chromatography for Biomolecule Purification by Batch and Continuous Processes <i>Focus on biomolecule chromatography, stationary phases, binding capacity and selectivity, mass transfer, modeling, design for capture and resolution, multicolumn and continuous chromatography processes.</i>	Giorgio Carta, University of Virginia Alois Jungbauer, BOKU, Vienna Massimo Morbidelli, ETH Zurich
2:00 PM - 6:00 PM	Fundamentals of Preparative Chromatography for Purification of Small and Intermediate Size APIs by Batch Chromatography, SMB, and SFC <i>Focus on small molecule pharmaceuticals, APIs, chiral molecules, peptides, oligonucleotides, HPLC, column packing, gradient elution, overloaded chromatography, continuous chromatography, SMB, SFC, examples and industrial applications.</i>	Olivier Dapremont, AMPAC Fine Chemicals Geoffrey Cox, PIC Solution
Monday, July 9	Tutorial (See registration form for cost)	Instructors
7:00 AM - 8:25 AM	Tips, Tricks, and Troubleshooting Analytical and Overloaded Prep Chromatography <i>Focus on analytical chromatography, overloaded chromatography, HPLC, SFC, examples of small molecules, APIs, peptides.</i>	Cecilia Mazza, AkzoNobel Tony Yan, Pfizer, Inc.
Tuesday, July 18	Tutorial (See registration form for cost)	Instructor
7:00 AM - 8:25 AM	Practical Concepts on Process Characterization and Validation of Biopharmaceuticals based on Qbd Principles <i>Focus on Quality by Design, quality risk management, overall process control strategy, process characterization, application examples.</i>	Gisela Ferreira, MedImmune



Workshop 1: Sunday, July 8, at 9:00 AM - 1:00 PM
Fundamentals of Preparative Chromatography for
Biomolecule Purification
by Batch and Continuous Chromatography

*Workshop registration is in addition to the symposium registration fee;
open to conference and non-conference participants.
Must pre-register/pay to attend*

Focus: Biomolecule chromatography, stationary phases, binding capacity and selectivity, mass transfer, modeling, design for capture and resolution, multicolumn and continuous chromatography processes.

This workshop will focus on the theory and practice of biomolecule chromatography. Since mass transfer and the structure of the stationary phase influence deeply chromatographic performance, the main emphasis is on describing adsorption/desorption kinetics in single and multicomponent systems and determining the relationship between stationary phase properties and process performance. The latest advances in stationary phase developments will be reviewed along with methods for their experimental characterization. Design and optimization strategies for capture and resolution applications will be discussed including multicolumn and continuous bio-chromatography processes.

Topics: Adsorption equilibrium and transport in single and multicomponent systems; Stationary phases for small and large biomolecules; Design and optimization of batch processes for capture and high-resolution steps; Multicolumn and continuous bio-chromatography processes; Process validation.

Expert Instructors:

Giorgio Carta received his Ph.D. in Chemical Engineering from the University of Delaware in 1984. Since then he has been a professor in the Department of Chemical Engineering at the University of Virginia, where his research focuses on transport phenomena and bioseparations. He regularly organizes professional courses on various aspects of bioseparations, including a course on protein chromatography development and scale-up together with Alois Jungbauer.

Alois Jungbauer is the head of protein technology and downstream processing at the Department of Biotechnology of the University of Natural Resources and Applied Life Sciences in Vienna (Austria). For more than 20 years, Professor Jungbauer has worked in biochemical engineering, with a focus on bioseparation, where he has published widely and holds 15 patents. For over 10 years, he has organized a biennial professional course in protein chromatography focused on mass transfer, dispersion, and scale-up.

Massimo Morbidelli received his Laurea in Chemical Engineering at the Politecnico di Milano in 1977, and his PhD in Chemical Engineering at the University of Notre Dame in 1986. After appointments as professor at the University of Cagliari (Italy) and at the Politecnico di Milano, since 1997 he is Professor of Chemical Reaction Engineering at the Institute for Chemical and Bioengineering at ETH Zurich (Switzerland). His research interests are in polymer reactions and reaction-separation processes based on continuous chromatography and in biomolecule purification with specific focus on therapeutic proteins and monoclonal antibodies. He is co-author of more than 300 papers, 11 international patents and 4 books. He serves as an associate editor of *Industrial & Engineering Chemistry Research*, and is a member of the scientific board of several international journals. He is the recipient of the 2005 R.H. Wilhelm Award in Chemical Reaction Engineering of the American Institute of Chemical Engineers, of the 2017 AIChE Award for Excellence in Process Development Research, and of the 2018 ACS Award in Separations Science & Technology.

Workshop 2: Sunday, July 8, at 2:00 PM - 6:00 PM
Fundamentals of Preparative Chromatography for
Purification of Small and Intermediate Size APIs by
Batch Chromatography, SMB, and SFC

*Workshop registration is in addition to the symposium registration fee;
open to conference and non-conference participants.
Must pre-register/pay to attend*

Focus: Small molecules, APIs, peptides, oligonucleotides, chiral molecules, HPLC, column packing, gradient elution, overloaded chromatography, SFC, SMB, examples and industrial applications.

This workshop will focus on development of methods for the preparative purification of small molecules for the pharmaceutical industry. After an introduction of the theory, optimization and practice of prep HPLC, SMB and SFC for small molecule separations, the instructors will present practical approaches to the development of preparative separation through a series of examples. The attendees will learn valuable information and techniques to apply in the laboratory and at manufacturing scale to increase throughput and performance.

Topics: Prep HPLC batch - Theory, optimization and practice; SMB - Principle and technology; SMB - Examples and applications; SFC - Theory, equipment and examples.

Expert Instructors:

Olivier Dapremont received his PhD on Chemical Engineering and Applied Chemistry from University of Paris on the development of continuous chromatography for the pharmaceutical industry. He has worked on the development of SMB technology since 1992. He is currently Executive Director of Process Technologies at AMPAC Fine Chemicals where his role encompasses the development of SMB separations using multiple SMB units ranging from 4.6 mm to 1 m in diameter as well as developing continuous processes for the manufacturing of APIs. He is coauthor of several publications and patents related to the use of SMB applications for the purification of small molecules.

Geoffrey Cox received his Phd in Organic Chemistry from the University of Sheffield, England. Since then his career has been centered around chromatography, starting with preparative gas chromatography through introduction of HPLC to the premier Government analytical laboratory in the UK, development of bonded stationary phases and moving to preparative and industrial scale chromatography first with Du Pont and then in the mid-1980s as Director R&D with Prochrom. In 1997 he moved to Chiral Technologies, first in Europe before relocating to the USA as VP Technology, working in chiral separations. In March 2011 he started the US subsidiary of PIC Solution, the French SFC manufacturer, in order to expand the company's business into North America. He is author and coauthor of several publications and patents related to the use of chromatography for the purification of small molecules using multiple techniques.

Tutorial: Monday, July 9, at 7:00 AM - 8:25 AM
Tips, Tricks, and Troubleshooting
Analytical and Overloaded Prep Chromatography

*Tutorial registration is in addition to the symposium registration fee;
open to conference and non-conference participants.
Must pre-register/pay to attend*

Focus: Analytical chromatography, overloaded chromatography, HPLC, SFC, examples of small molecules, APIs, peptides

This workshop will focus on the practical aspects of analytical and preparative chromatography, scale-up, and how to overcome the challenges that the chromatographer encounters on a daily basis by using the tips and tricks provided.

Topics: Analytical and Preparative chromatography purpose, practical scaleup, issues with peak shape, considering the whole chromatographic system (equipment, column and software) as contributors to the final chromatographic result, troubleshooting tools for improved chromatographic performance.

Expert Lecturers:

Cecilia Mazza has worked with small molecules, APIs, peptides and proteins for twenty five years, both in analytical as well as preparative chromatography. She is product manager and regional sales manager for Kromasil columns and bulk at AkzoNobel in Sweden.

Qi (Tony) Yan is currently working for Pfizer, Inc. (Groton, CT, USA) in the field of impurity isolation for structure elucidation in the department of pharmaceutical science. He has worked in pharmaceutical research and development in the area of chiral and achiral purifications, and impurity isolation for over 20 years.

Tutorial: Tuesday, July 9, at 7:00 AM - 8:25 AM
Practical Concepts on Process Characterization and Validation of
Biopharmaceuticals based on QbD Principles

*Tutorial registration is in addition to the symposium registration fee;
open to conference and non-conference participants.
Must pre-register/pay to attend*

Focus: This workshop will focus on the practical aspects of analytical and preparative chromatography, scale-up, and how to overcome the challenges that the chromatographer encounters on a daily basis by using the tips and tricks provided.

Topics: This interactive tutorial introduces principles of Quality by Design including preparation of risk assessments, design of experiments for process characterization, statistical data analysis, quality risk management and validation of biopharmaceutical processes. Topics: Quality by Design, quality risk management, overall process control strategy, process characterization, application examples.

Expert Lecturer:

Gisela Ferreira received her Ph.D. in Chemical Engineering from the University of Maryland Baltimore County in 2001 and is currently Senior Scientist in the Process Biochemistry Group at MedImmune. Prior to joining MedImmune she held positions as Senior Scientist at Medarex in the downstream department. Dr. Ferreira has broad biotechnology experience and expertise in areas including process development for large-scale cGMP manufacture of biologics, recombinant biopharmaceutical purification (early and late stage development), QbD, technology transfer and scale-up.

Best Poster Competition

Poster presentations are a very important component of the PREP Symposia. In order to acknowledge their contribution to the field and high standards of the symposium, awards will be offered to distinguish the best poster contributions at PREP 2018. Posters will be evaluated on the basis of scientific content, clarity of presentation, and layout. Posters co-authored by members of the Scientific and Industrial Advisory Committees or by judges are eligible only if the main author and presenter of the poster is not a member on the above committees. Posters authored or co-authored by members of the Organizing Committee or judges are not eligible for Best Poster Awards. However, should these posters be considered of sufficient quality to be among the top prize-winning entries, they will be given an Honorable Mention. The Poster Judging Committee will have final say in the selection of the Prize Winners. At least two committee members will read each poster and top posters will be read by at least four committee members. If a poster author does not want his/her poster considered for a poster award, they must notify the Symposium Manager at the Symposium Registration Desk before 11:00 a.m. on Tuesday, July 10.

Presentation of awards to winners of the Best Poster Competition will take place at the end of the Wednesday morning sessions. The winners are encouraged to be present, but it is not mandatory to be present to win.

PREP Symposium Conference History

1985	Washington DC	2003	San Francisco, CA
1986	Washington DC	2004	Baltimore, MD
1987	Washington DC	2005	Philadelphia, PA
1989	Washington DC	2006	Baltimore, MD
1991	Washington DC	2007	Baltimore, MD
1993	Washington DC	2008	San Jose, CA
1994	Washington DC	2009	Philadelphia, PA
1995	Washington DC	2010	Philadelphia, PA
1996	Washington DC	2011	Cambridge, MA
1997	Washington DC	2012	Cambridge, MA
1998	Washington DC	2013	Boston, MA
1999	San Francisco, CA	2014	Boston, MA
2000	Washington DC	2015	Philadelphia, PA
2000	Washington DC	2016	Philadelphia, PA
2001	Washington DC	2017	Philadelphia, PA
2002	Washington DC	2018	Baltimore, MD

Preliminary List of Sponsors, Exhibitors, Media Partners

Agilent Technologies	JNC America - Cellufine Media (Bronze sponsor)
AkzoNobel/Kromasil (Silver sponsor)	Journal of Separation Science
American Laboratory	Kaneka America's Holding
American Pharmaceutical Review	LabBulletin
AMPAC Fine Chemicals	Labcompare
Bio-Rad Laboratories (Bronze sponsor)	LCGC
Analytical Scientist	MedImmune
Bioanalysis Zone	NanoTemper Technologies
BioProcessing Journal	Novasep
Bio-Works	Pfizer
Bristol-Myers Squibb	Purolite Life Sciences (Gold sponsor)
Chromatography Today	SelectScience.net
DAISO Fine Chem USA, Inc.	separationsNOW.com
Essential Life Solutions	Separation Science
GE Healthcare Life Sciences (Gold sponsor)	Sepiatec
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Genetic Engineering & Biotechnology	SP Scientific
News	Technology Networks
Innovations in Pharmaceutical Technology	Wyatt Technology
International Labmate	YMC America (Silver sponsor)

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PREP 2018 Media Partners



Free Vendor Workshops

Monday, July 9, 2018

Must pre-register at the sponsor's booth to attend; light lunch will be provided

- 12:30-2:00 PM **Innovation Drives Changes in Antibody Purification Platforms and Efficient Transition to GMP Environment**
Sponsored by GE Healthcare Life Sciences
Must pre-register at the booth of GE Healthcare Life Sciences by Monday @ 10:50 AM
- 12:30-2:00 PM **New Tools for Chromatography Challenges**
Sponsored by Bio-Rad Laboratories
Must pre-register at the booth of Bio-Rad Laboratories by Monday @ 10:50 AM
- 12:30-2:00 PM **Light Scattering Solutions for Real-time Monitoring of Protein Purification Processes**
Sponsored by Wyatt Technology
Must pre-register at the booth of Wyatt Technology by Monday @ 10:50 AM

Free Vendor Workshops

Tuesday, July 10, 2018

Must pre-register at the sponsor's booth to attend; light lunch will be provided

- 12:30-2:00 PM **Advances in Chromatography: Novel Jetted Agarose and New Methacrylate Resins for Purification of Biomolecules, from the Best Protein A Resins to the Widest Platform of Functional Groups for Every Separation Need**
Sponsored by PuroLite Life Sciences
Must pre-register at the booth of PuroLite Life Sciences by Tuesday @ 10:40 AM
- 12:30-2:00 PM **Title TBA**
Sponsored by AkzoNobel
Must pre-register at the booth of AkzoNobel by Tuesday @ 10:40 AM
- 12:30-2:00 PM **Introducing Innovative Technologies for PREP Work Flows**
Sponsored by Agilent
Must pre-register at the booth of Agilent by Tuesday @ 10:40 AM

Sunday, July 8, 2018

- 9:00 AM - 1:00 PM **Workshop 1 on Fundamentals of Preparative Chromatography for Biomolecule Purification by Batch and Continuous Processes**
See details and pricing at PREPsymposium.org. Open to conference and non-conference participants. Must pre-register to attend.
- 2:00 PM - 6:00 PM **Workshop 2 on Fundamentals of Preparative Chromatography for Purification of Small and Intermediate Size APIs by Batch Chromatography, SMB, and SFC**
See details and pricing at PREPsymposium.org. Open to conference and non-conference participants. Must pre-register to attend.
- 1:30 PM - 5:30 PM **Exhibitor Registration Only -- badge required to set up booth**
- 6:00 PM - 7:30 PM **Symposium Registration Open for Conferees**
- 6:00 PM - 7:30 PM **Grand Opening of the Exhibition & Welcome Reception**
Open to all conference participants; conference name badge is required for entry.

Monday, July 9, 2018

- 7:00 AM - 8:25 AM **Tutorial on Tips, Tricks, and Troubleshooting Analytical and Overloaded Prep Chromatography**
See details and pricing at PREPsymposium.org. Open to conference and non-conference participants. Must pre-register to attend.
- 7:30 AM **Symposium Registration Open**
- 10:15 AM - 7:30 PM **Exhibition Open**
- 8:30 AM - 8:40 AM **WELCOME AND OPENING REMARKS**
Giorgio Carta, University of Virginia, Charlottesville, VA, USA

1. Monday Keynote: Industrial Case Studies in Protein Chromatography

Session Chairs: Alan Hunter, MedImmune and Timothy Pabst, MedImmune

- 8:40 AM **Mechanisms of IgG1 and IgG4 LMW Formation and Strategies of LMW Mitigation in Bioprocessing.** Yuanli Song, Bristol-Myers Squibb, Devens, MA, USA
- 9:00 AM **Quantitative Assessment of the Environmental Impact of Biologics Operations using Process Mass Intensity (PMI) Analysis.** Jack Gavin, Sri Madabhushi, Sen Xu, Collette Cutler, Rebecca Chmielowski, William Rayfield, Nihal Tugcu, Hao Chen, Merck, Kenilworth, NJ, USA
- 9:20 AM **Application of Mechanistic Modeling to High Throughput Methods and Multivariate Study Designs in an Industrial Setting.** Chris Williams¹, Jessica Yang¹, Till Briskot², Ferdinand Stueckler², ¹Genentech, South San Francisco, CA, USA; ²Roche, Penzberg, GERMANY

9:40 AM **Methods to Easily and Accurately Measure Total and Extraparticle Porosity of Preparative Chromatography Resins used for the Purification of Biopharmaceuticals.** Chris Gerberich, Andre Dumetz, Gerald Terloth, GlaxoSmithKline, King of Prussia, PA, USA

10:00 AM **Cathepsin L Causes Proteolytic Cleavage of CHO Expressed Proteins during Processing and Storage: Identification, Characterization, and Mitigation.** Liu Tie, Mingyan Cao, Alan Hunter, Timothy Pabst, Jiali Du, Raymond Field, Yuling Li, William Wang, Haibin Luo, Medimmune, Gaithersburg, MD, USA

10:20-10:50 AM **Mixer in Exhibit Hall**

2. Monday Session: Mechanistic Understanding

Session Chair: Lois Beaver, LAB Enterprises

10:50 AM **Conformational Changes of Antibodies upon Adsorption onto Hydrophobic Interaction Chromatography Surfaces.** Beate Beyer, Alois Jungbauer, University of Natural Resources and Life Sciences and Austrian Centre of Industrial Biotechnology, Vienna, AUSTRIA

11:10 AM **The Effect of Multimodal Ligand Chemistry and Architecture on Ligand Conformation and Presentation in Chromatographic Systems.** Camille Bilodeau, Shekhar Garde, Steve Cramer, Rensselaer Polytechnic Institute, Troy, NY, USA

11:30 AM **Effects of Resin Architecture and Isotherm in Modeling Protein Elution in Ion-Exchange Chromatography.** Vijesh Kumar¹, Karin Westerberg², Christian Kunert³, Fabrice Schlegel³, Abraham Lenhoff¹, ¹University of Delaware, Newark, DE, USA; ²Amgen Process Development, Thousand Oaks, CA, USA; ³Amgen Process Development, Cambridge, MA, USA

11:50 AM **Real-Time Monitoring of the Structure of a Monoclonal Antibody during Chromatographic Elution from a Protein A Affinity Column.** Charles Moore-Kelly¹, John Welsh², Tim Dafforn¹, Owen Thomas¹, ¹University of Birmingham, Birmingham, UK; ²Pall Corporation, Portsmouth, UK

12:10 PM **Knowledge-based Downstream Process Design to Ensure Robust HCP Clearance.** Yinying Tao, Borna Ghosh, Lihua Huang, Eli Lilly and Company, Indianapolis, IN, USA

Monday Mixer in the Exhibition Hall – includes light lunch

12:30 PM - 3:20 PM **Break, Exhibits, Mixer, Posters**

Monday Free Vendor Workshops

Must pre-register at the sponsor's booth to attend; light lunch will be provided

12:30-2:00 PM **Innovation Drives Changes in Antibody Purification Platforms and Efficient Transition to GMP Environment**
Sponsored by GE Healthcare Life Sciences
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12:30-2:00 PM **New Tools for Chromatography Challenges**
Sponsored by Bio-Rad Laboratories
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12:30-2:00 PM **Light Scattering Solutions for Real-time Monitoring of Protein Purification Processes**
Sponsored by Wyatt Technology
Must pre-register at the booth of Wyatt Technology by Monday @ 10:50 AM

MONDAY POSTER SESSION 1

Poster Session Chair: TBA

2:00 PM - 3:20 PM **POSTER SESSION 1 - Sponsored by Bristol-Myers Squibb**

3A. Monday Parallel Session: Protein-A Fundamentals

Session Chair: TBA

- 3:20 PM **A New, First Principles Isotherm Connecting Antibody Elution pH to Binding Free Energy in Protein A Chromatography.** Todd Przybycien, Carnegie Mellon University, Pittsburgh, PA, USA
- 3:40 PM **The Role of Protein A Ligand Saturation on Host Cell Protein and Antibody Interaction.** Carl Beigie, Ray Asare, Adam Meizinger, Cheng Zhang, Yi Li, Sanofi Genzyme, Framingham, MA, USA
- 4:00 PM **3D Structure of the Antibody-staphylococcal Protein A Complex on Chromatography Surface by Small Angle X-ray Scattering and Molecular Simulation.** Goncalo Silva^{1,2}, Cristina Dias-Cabral², Alois Jungbauer¹, Rupert Tscheliessnig¹, ¹ACIB – Austrian Centre of Industrial Biotechnology, Vienna, AUSTRIA; ²CICS-UBI Health Sciences Research Centre, University of Beira Interior, Covilha, PORTUGAL
- 4:20 PM **Protein A Affinity Chromatography: A Detailed Analysis of Elution Characteristics.** Desiree Womser, Matthias Kubek, Rainer Hahn, BOKU Vienna, Vienna, AUSTRIA
- 4:40 PM -5:10 PM **Mixer in Exhibit Hall**

3B. Monday Parallel Session: Stationary Phases – I

Session Chairs: TBA

- 3:20 PM **Scalable High-throughput Chromatography Resins for Ultrafast Antibody Purification.** Marcel Lorenz, Giuseppe Storti, Massimo Morbidelli, ETH Zurich, Zurich, SWITZERLAND
- 3:40 PM **Are All Chromatography Beads Created Equal?** Patrick Gilbert¹, Hans Johansson², ¹Purolite, Llantrissant, UK; ²Purolite, Uppsala, SWEDEN
- 4:00 PM **A Mixed-Mode Chromatography Strategy for the Purification of Recombinant Protein from E. coli Fermentate.** David Frisch¹, James Sulzberger², William Rushton², Hyunsic Choi¹, Xuemei He², ¹Scarab Genomics LLC, Madison, WI, USA; ²Bio-Rad Laboratories, Hercules, CA, USA
- 4:20 PM **Data Rich Experimental Methods for Industrial Immobilized Biocatalysis.** Jacob Forstater, Gabriel Graffius, Birgit Kosjek, Shane Grosser, Merck, Rahway, NJ, USA
- 4:40 PM -5:10 PM **Mixer in Exhibit Hall**

4A. Monday Parallel Session: Protein A Resins

Session Chair: TBA

- 5:10 PM **Optimization of Ligand and Base Matrix for a Novel High Capacity and Alkaline Resistant Protein A Resin.** Tomas Bjorkman, Annika Forss, Jelena Vasic, Mats Ander, GE Healthcare, Uppsala, SWEDEN
- 5:30 PM **Development of a Novel Cellulose based rProtein A Capture Resin: Discussion of Critical Success Factors Identified for a New Bead Structure Design Combined with an Advanced Base Stable Affinity rProtein A ligand.** Malcolm G. Pluskal¹, Natsuki Okaniwa², Eri Narita², Naoki Yamanaka², Masami Shiina³, Yoshihiro Matsumoto², Shigeyuki Aoyama⁴, ¹JNC America Ltd., Littleton, MA, USA; ²JNC Corporation R&D, Yokohama, JAPAN; ³JNC Corporation Manufacturing R&D, Minamata, JAPAN; ⁴JNC Corporation, Tokyo, JAPAN
- 5:50 PM **Plant-derived Fusion-protein based Affinity Ligands as an Alternative to MAb Purification using Protein A.** Clemens Ruehl¹, Matthias Knoedler¹, Johannes Buyel², ¹RWTH Aachen University, Aachen, GERMANY; ²Fraunhofer IME, Aachen, GERMANY
- 6:10 PM - 7:10 PM **Reception in Exhibit Hall**

4B. Monday Parallel Session: Stationary Phases – II

Session Chair: TBA

- 5:10 PM **Improved Peptide and Oligonucleotide Purification via Reversed Phase and Ion Exchange Mixed-Mode Chromatography.** Juergen Machielse¹, Andrea Wild¹, Timo Nuijens², Marcel Schmidt², Timothy O'Mara³, ¹Zeochem AG, Rüti, SWITZERLAND; ²EnzyPep BV, Geleen, NETHERLANDS; ³ITOCHU Chemicals America Inc., White Plains, NY, USA
- 5:30 PM **Separation and Purification of Withaferin A from Withania Somnifera (L) Dunal using Agilent InfinityLab Preparative Columns.** Lakshmi Subbarao, Sami Chanaa, Agilent Technologies, Wilmington, DE, USA
- 5:50 PM **Chromalites: A Novel Range of Methacrylic Polymers with High Performance in Chromatographic Bioseparations.** Benjamin Summers, Alessandra Basso, Simona Serban, Purolite Ltd., Llantrisant, UK
- 6:10 PM - 7:10 PM **Reception in Exhibit Hall**

Tuesday, July 10, 2018

- 7:00 AM - 8:25 AM **Practical Concepts on Process Characterization and Validation of Biopharmaceuticals based on Qbd Principles**
See details and pricing at PREPsymposium.org. Open to conference and non-conference participants. Must pre-register to attend.
- 7:30 AM **Symposium Registration Open**
- 9:00 AM - 3:30 PM **Exhibition Open**

5. Tuesday Keynote: Preparative Chromatography in Drug Discovery, Development, and Manufacture

Session Chair: Qi (Tony) Yan, Pfizer

- 8:30 AM **Isolation and Preparation of Co-eluting Impurities Present in Pharmaceutical Samples by Automated Recycling Chromatography.** Fabrice Gritti¹, Qi Yan², Sylvain Cormier¹, Michael Fogwill¹, Martin Gilar¹, Frank Riley², Thomas McDonald¹, ¹Waters Corporation, Milford, MA, USA; ²Pfizer Inc., Groton, CT, USA
- 8:50 AM **Use of Orthogonal Chromatographic Techniques to Address Early Discovery Challenging Purifications.** Tom Kazarian¹, Kyung Gahm², Wes Barnhart², Heather Eastwood², Larry Miller¹, ¹Amgen, Cambridge, MA, USA; ²Amgen, Thousand Oaks, CA, USA
- 9:10 AM **Peptide Prep Chromatography from a Small Molecule Chromatographer.** J Preston, Venkat Reddy, Phenomenex, Torrance, CA, USA
- 9:30 AM **Increasing the Robustness of SFC: Examples from Chiral and Peptide Separations.** Torgny Fornstedt¹, Martin Enmark¹, Emelie Glenne¹, Marek Lésko², Annika Weinmann³, Tomas Leek³, Krzysztof Kaczmarek², Magnus Klarqvist⁴, Jorgen Samuelsson¹, ¹Karlstad University, Karlstad, SWEDEN; ²Rzeszow University of Technology, Rzeszow, POLAND; ³AstraZeneca, Molndal, SWEDEN; ⁴AstraZeneca, Molndal, SWEDEN
- 9:50 AM **Low level Impurity Isolations for Impurity Profiling and Structure Elucidation.** Qi Yan, Frank Riley, Pfizer, Groton, CT, USA
- 10:10 AM - 10:40 AM **Mixer in Exhibit Hall**

6. Tuesday Keynote: Continuous and Integrated Processes for Biomolecules

Session Chair: Sunitha Kandula, Merck Research Labs

- 10:40 AM **Continuous Integrated Manufacture of Therapeutic Proteins.** Massimo Morbidelli, ETH Zurich, Zurich, SWITZERLAND
- 11:00 AM **From Multi-column Chromatography to Integrated Continuous Biomanufacturing.** Mark Brower, Nuno Pinto, Adrian Gospodarek, Douglas Richardson, Nihal Tugcu, Merck & Co. Inc., Kenilworth, NJ, USA
- 11:20 AM **A Rapid Process Development Strategy for Continuous Chromatography mAb Bioprocessing.** Rachel Quesenberry, Chia-Yun Sun, Aditya Utturkar, Keith Gillette, Mark Allen Pagkaliwangan, Mark Schofield, Pall Life Sciences, Westborough, MA, USA
- 11:40 AM **One-column Analog to SMB for Purification of Biomolecules.** Abimaelle Chiberio, Jose Paulo Mota, LAQV-REQUIMTE NOVA University of Lisbon, Almada, PORTUGAL
- 12:00 PM **Methods for Calculating the Productivity of Continuous Chromatography Processes based on the Repeated Cyclic Operations.** Noriko Yoshimoto, Shuichi Yamamoto, Yamaguchi University, Ube, JAPAN

Tuesday Mixer in the Exhibition Hall – includes light lunch

- 12:30 PM - 3:20 PM **Break, Exhibits, Mixer, Posters**

Tuesday Free Vendor Workshops

Must pre-register at the sponsor's booth to attend; light lunch will be provided

12:30-2:00 PM **Advances in Chromatography: Novel Jetted Agarose and New Methacrylate Resins for Purification of Biomolecules, from the Best Protein A Resins to the Widest Platform of Functional Groups for Every Separation Need**

Sponsored by PuroLite Life Sciences

Must pre-register at the booth of PuroLite Life Sciences by Tuesday @ 10:40 AM

12:30-2:00 PM **Title TBA**

Sponsored by AkzoNobel

Must pre-register at the booth of AkzoNobel by Tuesday @ 10:40 AM

12:30-2:00 PM **Tintroducing Innovative Technologies for PREP Work Flows**

Sponsored by Agilent

Must pre-register at the booth of Agilent by Tuesday @ 10:40 AM

TUESDAY POSTER SESSION 2

Poster Session Chair: TBA

2:00 PM - 3:20 PM **POSTER SESSION 2 - Sponsored by Bristol-Myers Squibb**

7A. Tuesday Parallel Session: Fundamentals and Modeling

Session Chair: TBA

3:20 PM **Quantifying the Thermodynamic Consistency of Competitive Adsorption Isotherm Models.** Julien Cousin-Saint-Remi¹, Andreas Seidel-Morgenstern², ¹Vrije Universiteit Brussel, Brussels, BELGIUM; ²Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, GERMANY

3:40 PM **Pitfalls to Avoid when Modelling and Scaling Up of Protein Chromatography.** Wojciech Marek¹, Jakub Gac², Krystian Baran¹, Wojciech Piatkowski¹, Dorota Antos¹, ¹Rzeszow University of Technology, Rzeszow, POLAND; ²Warsaw University of Technology, Rzeszow, POLAND

4:00 PM **Experimental Design for Parameter Estimation in Chromatography.** William Heymann, Eric von Lieres, Forschungszentrum Jülich, Jülich, GERMANY

4:20 PM **When Adsorption Models Fail at Describing Ion-exchange Chromatography.** David Pfister¹, Karen-Vanessa Gonzalez², Laurent David², Roger-Marc Nicoud², ¹Ypso-Facto, Cambridge, MA, USA; ²Ypso-Facto, Nancy, FRANCE

4:40 PM - 4:50 PM **Intermission**

7B. Tuesday Parallel Session: Stationary Phases - III

Session Chair: TBA

3:20 PM **Novel Protein A Chromatography Resin Enabling Purification Platforms for Bispecific Antibodies.** Afshin Mahmoudi¹, Bengt Westerlund², ¹Celgene, San Diego, CA, USA; ²GE Healthcare, Uppsala, SWEDEN

3:40 PM **Capacity and Beyond: Evaluation of a Next Generation Protein A Resin.** Felicia Sadikin, Chris Furcht, Brad Stanley, Engin Ayturk, Biogen, Cambridge, MA, USA

4:00 PM **A Novel Cation Exchange Resin for the Removal of mAb Aggregate in the Flow-through Frontal Chromatography Mode of Operation.** Matthew Stone¹, Kristen Cotoni¹, Jayson Stoner¹, Peter Menstell², ¹MilliporeSigma, Bedford, MA, USA; ²MilliporeSigma, Darmstadt, GERMANY

4:20 PM **Comparative Study of Commercially Available Protein A Chromatography Resins and Amsphere™ A3: Qualitative Analysis of Residual Host Cell Proteins by Means of 2D-LC/MS.** Tomonori Shiotani¹, Sachiko Tsuda², Takashi Tanaka³, Masaaki Hanamura², Masayoshi Nagaya¹, ¹JSR Life Sciences, Sunnyvale, CA, USA; ²JSR Life Sciences, Tsukuba, JAPAN; ³JSR Corporation, Tsukuba, JAPAN

4:40 PM - 4:50 PM **Intermission**

8A. Tuesday Session: Alternative Chromatographic Processes

Session Chair: TBA

4:50 PM **Purification of Antibodies using Chromatofocusing Method with the Help of a 3D Process Development Tool.** Yang Liu¹, Sevda Deldari¹, Hui Guo¹, Chittoor Narahari Rao², Ronald Bates³, Jay West², Kathleen Trejo², Ryan Swanson², Sanchayita Ghose², Zheng Jian Li², Douglas Frey¹, ¹University of Maryland Baltimore County, Baltimore, MD, USA; ²Bristol-Myers Squibb, Devens, MA, USA; ³Bristol-Myers Squibb, East Syracuse, NY, USA

5:10 PM **Reaction-mediated Desorption of Macromolecules: Novel Phenomenon Enabling Simultaneous Reaction and Separation.** Ales Podgornik¹, Shuichi Yamamoto², Yu Isakari², Noriko Yoshimoto², Yuhi Kishi², ¹University of Ljubljana, Ljubljana, SLOVENIA; ²Bio-Process Engineering Laboratory Yamaguchi University, Ube, JAPAN

5:30 PM **Displacement Chromatography for mAb Charge Separation.** Bengt Westerlund, Lena Karf, Eva Heldin, Tomas Bjorkman, GE Healthcare, Uppsala, SWEDEN

5:50 PM **Inexiotech Disruptive Technology Allows for the Resolution of Multicomponent Mixtures in a Serial Continuous Process.** Alexandre Maciuk¹, Nicolas Fauquet², Frederic Cheviron², ¹University of Paris, Chatenay-Malabry, FRANCE; ²Fauquet Innovation, Montmagny, FRANCE

6:10 pm **Pause**

8B. Tuesday Parallel Session: Processes and Applied Process Modeling

Session Chair: TBA

4:50 PM **Separation of Monoclonal Antibody Variants: Comparison of Mixed-mode Cation Exchange and Weak/Strong Cation Exchange Chromatography.** Jan Hedrich¹, Felix Seelinger¹, Romas Skudas², Michael M. Schulte², Christian Frech¹, ¹University of Applied Sciences, Mannheim, GERMANY; ²Merck KGaA, Darmstadt, GERMANY

5:10 PM **Model-based Quality by Design in Downstream Process Development.** Thiemo Huuk¹, Maria Casals-Peralvarez¹, Tobias Hahn¹, Juergen Hubbuch², ¹GoSilico GmbH, Karlsruhe, GERMANY; ²Karlsruhe Institute of Technology, Karlsruhe, GERMANY

5:30 PM **Utilizing Mechanistic Modeling of Chromatography for Process Optimization.** Tim Fattor, Steve Hunt, Jonathan Rocher, Bob Todd, KBI Biopharma, Boulder, CO, USA

5:50 PM **Purification of Monovalent Bispecific Antibodies.** Matthew Aspelund, Dhanesh Gadre, MedImmune, Gaithersburg, MD, USA

6:10 pm **Pause**

Wednesday, July 11, 2018

7:45 AM **Symposium Registration Open**

9. Wednesday Keynote: Continuous and Integrated Processing for Small Molecules

Session Chair: Olivier Dapremont, AMPAC Fine Chemicals

8:30 AM **Implementing Supercritical Extraction (SFE) and Supercritical Chromatography (SFC) in Sustainable, Production-scale Purification Processes of Natural Products.** Hans-Joachim Johl¹, Kathleen Mihlbachler², ¹LEWA GmbH, Leonberg, GERMANY; ²LEWA Nikkiso America Inc., Devens, MA, USA

8:50 AM **Preparative Purification of Terpenes from E. coli Fermentation Broth by Multi-column Chromatography.** Ljubomir Grozdev, Sonja Berensmeier, Technical University of Munich, Garching, GERMANY

9:10 AM **Model Predictive Control of 4-Zone Simulated Moving Bed Chromatography for the Separation of Bicalutamide Enantiomers: Experimental Validation.** Ju Weon Lee, Andreas Seidel-Morgenstern, Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, GERMANY

9:30 AM **How to Tackle Chemistry and Chromatography Combined Processes for Challenging API Manufacturing.** Jin Seok Hur, Novasep LLC, Boothwyn, PA, USA

9:50 AM **Considerations for Solvent Contaminants in SMB Process Development: When Traces can become a Problem.** Ryan Woods, Adam Hatch, Olivier Dapremont, AMPAC Fine Chemicals, Rancho Cordova, CA, USA

10:10 AM **Presentation of Awards to Winners of the Best Poster Competition**

10:20 AM - 10:40 AM **Break**

10. Wednesday Keynote: Monoliths, Membrane Chromatography, and Column Characterization

Session Chair: TBA

10:40 AM **Separation of High-value Biomolecules using Monoliths as an Alternative to Conventional Chromatographic Resins.** Mirna Gonzalez-Gonzalez, Jose Gonzalez-Valdez, Karla Mayolo-Deloisa, Marco Rito-Palomares, Tecnologico de Monterrey, Monterrey, MEXICO

11:00 AM **Microscopic Visualization and Quantification of Protein Bind and Elute Processes to the Ion Exchange Hydrogel of a Membrane Adsorber.** Adrian Ley^{1,2}, Dominik Stein^{1,2}, Dana Budde^{1,3}, Florian Taft¹, Juergen Hubbuch², Philipp Vana⁴, Volkmar Thom¹, ¹Sartorius Stedim Biotech GmbH, Goettingen, GERMANY; ²Karlsruhe Institute of Technology, Karlsruhe, GERMANY; ³University Goettingen, Goettingen, GERMANY; ⁴University of Bielefeld, Goettingen, GERMANY; ⁴Georg-August University, Goettingen, GERMANY

11:20 AM **Determining Binding Capacity and Displacement Effects for Aggregate Removal in Flow-through Membrane Chromatography in a HTS Robotic Set-up.** Dominik Stein^{1,2}, Juergen Hubbuch², Volkmar Thom¹, ¹Sartorius Stedim Biotech GmbH, Goettingen, GERMANY; ²Karlsruhe Institute of Technology, Goettingen, GERMANY

11:40 AM **In-situ, Non-destructive Enhancement of the X-ray Contrast of Chromatographic Particles using Micro-computed Tomography.** Andres Martinez, Heiko Briesen, Dariusch Hekmat, Technical University of Munich, Munich, GERMANY

12:00 PM **A Seamless Scale-up from 1 ml Laboratory to 57 L Manufacturing Scale.** Susanne Schweiger¹, Eva Berger¹, Alan Chan², James Peyser², Christine GebSKI², Tim Schroeder², Alois Jungbauer³, ¹Austrian Centre of Industrial Biotechnology, Vienna, AUSTRIA; ²Repligen Corporation, Waltham, MA, USA; ³University of Natural Resources and Life Sciences Vienna, Vienna, AUSTRIA

12:30 PM - 1:30 PM **Break**

11. Wednesday Session: Using Knowledge and Process Modeling for Design and Optimization

Session Chair: TBA

1:30 PM **Using Knowledge for Downstream Process Design.** Rushd Khalaf, Alexander Hanke, Lars Pampel, Novartis, Basel, SWITZERLAND

1:50 PM **Evolution of an Early Stage Downstream Platform towards Efficient HCP Clearance.** Elke Prade, Luisa von Wolffersdorff, Erik Arango Gutierrez, Stefan Oelmeier, Ingo Gorr, Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach an der Riß, GERMANY

2:10 PM **Streamline Downstream Steps for Bioprocess Intensification using New Strategies and Aligned Single-use Technologies.** Anja Trapp, Alexander Faude, Thilo Grob, Marlene Holder, Verena Kössler, Sabine Faust, Sven Schubert, Rentschler Biopharma SE, Laupheim, GERMANY

2:30 PM **Modeling Chromatographic Separation of Host Cell Proteins to Accelerate Downstream Process Development.** Catherine Rose Mueschen¹, Ronald Colin Jaepel¹, Johannes Felix Buyel¹, Eric von Lieres², ¹Fraunhofer IME, Aachen, GERMANY; ²Forschungszentrum Juelich, Juelich, GERMANY

2:50 PM **Optimization of a Production Process for Pharma Grade Amino Acids using Preparative Chromatography with Product Recycle.** Nils Warmeling, Stephan Scholl, TU Braunschweig, Braunschweig, GERMANY

3:10 PM - 3:40 PM **Break**

12. Wednesday Session: Applications to Virus, VLPs, and Vaccine Purification

Session Chair: TBA

- 3:40 PM **Virus Particle Surface Characterization for Improved Sorption Processes.** Caryn Heldt, Xue Mi, Michigan Tech, Houghton, MI, USA
- 4:00 PM **Adsorption and Transport of Enveloped Virus-like Particles on Polymer Grafted Ion Exchangers.** Patricia Pereira Aguilar¹, Alois Jungbauer^{1,2}, ¹University of Natural Resources and Life Sciences, Vienna, AUSTRIA; ²Austrian Centre of Industrial Biotechnology, Vienna, AUSTRIA
- 4:20 PM **Continuous Chromatographic Purification of Therapeutic Extracellular Vesicles.** Mafalda Moleirinho¹, Ricardo Silva¹, Paula Alves², Manuel Carrondo¹, Cristina Peixoto², ¹iBET, Oeiras, PORTUGAL; ²iBET/ITQB-UNL, Oeiras, PORTUGAL
- 4:40 PM **Intensified Processing to Increase Production Yields of an Aggregation Prone Inactivated Polio Vaccine Candidate.** Aart G. van 't Oever, Arjen Spiekstra, Maarten J. de Vries, Yvonne E. Thomassen, Wilfried A.M. Bakker, Intravacc, Bilthoven, NETHERLANDS
- 5:00 PM **Fractionation of Large Proteins and Virus-like Particles in the Centrifugal Precipitation Chromatograph.** Martha Knight¹, Cuiping Chen², Rodrigo Lazo-Portugal¹, Dongyu Guo³, Yoichiro Ito³, ¹CC Biotech LLC, Rockville, MD, USA; ²Vigene Bioscience, Gaithersburg, MD, USA; ³National Institutes of Health, Bethesda, MD, USA
- 5:20 PM **CLOSING REMARKS**, Giorgio Carta, University of Virginia, Charlottesville, VA, USA
- 5:30-6:30 pm **FAREWELL RECEPTION**

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Development of Electro-Chromatography Methods and Application to Purification of Polymerized IgM. Xun Zuo, Gregory Sabtino, Morphotek Inc., Exton, PA, USA

HPMA-protein Conjugates: An Alternative to Conventional PEG-protein Conjugates as Drug Carrier. Calef Sanchez-Trasvina, Karla Mayolo-Deloisa, Marco Rito-Palomares, Tecnologico de Monterrey, Monterrey, MEXICO

Fragment Control for Fc and Bispecific Fusion Proteins. Kamiyar Rezvani, Matthew Aspelund, Mutsa McFarlane, Alan Hunter, MedImmune, Gaithersburg, MD, USA

Stationary Phases for the Process Scale Purification of Peptides and Insulin. Lars Torstensson, Tivadar Farkas, Marc Jacob, Phenomenex, Torrance, CA, USA

An End to End Focus to Control Aggregation for a Monoclonal Antibody (mAb) Process. Greg Evangelist¹, Sonal Saluja², Chris Kwiatowski², Chongfeng Xu², ¹Biogen, RTP, NC, USA; ²Biogen, Cambridge, MA, USA

Effect of Anion Exchange Chromatography Process on the Permeability of Virus Filter. Hironobu Shirataki¹, Shota Funakubo², Shigeyuki Aoyama³, Yoshihiro Matsumoto⁴, ¹Asahi Kasei Medical, Tokyo, JAPAN; ²Asahi Kasei Medical, Fuji, JAPAN; ³JNC Corporation, Tokyo, JAPAN; ⁴JNC Corporation, Yokohama, JAPAN

Significant Hungarian Contributions, Opportunities, and Challenges in Cannabinoid Research and Development. Laszlo Lorantfy, Dora Rutterschmid, Marton Czirok, David Nagy, RotaChrom, Dabas, HUNGARY

Experimental Design for Parameter Estimation in Chromatography. William Heymann, Eric von Lieres, Forschungszentrum Jülich, Jülich, GERMANY

Influenza Virus Capture using Membrane Chromatography: Improving Selectivity by Matrix Design and Pseudo-affinity Ligand Interactions. Florian Taft¹, Sebastian van Teeffelen², Ana Raquel Fortuna², Michael Wolff³, Udo Reichl⁴, Volkmar Thom¹, ¹Sartorius Stedim Biotech GmbH, Goettingen, GERMANY; ²Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, GERMANY; ³Institute of Bioprocess Engineering and Pharmaceutical Technology University of Applied Sciences Mittelhessen Gießen and Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, GERMANY; ⁴Max Planck Institute for Dynamics of Complex Technical Systems and Chair of Bioprocessing Engineering Otto-von-Guericke University Magdeburg, Magdeburg, GERMANY

Using Process Modeling and Simulation to Design Robust Chromatography Operations. Michael Coolbaugh, Thomas Wasylenko, Jason Walther, Sanofi, Framingham, MA, USA

Purification of Large Biomolecules with Tailored Anion Exchangers. Jamie Greenwood¹, William Rushton², Hana Kim², Carsten Voss¹, ¹Bio-Rad Laboratories GmbH, Munich, GERMANY; ²Bio-Rad Laboratories Inc., Hercules, CA, USA

Industrial Preparative Chromatography: For a Rapid Process Development Achieving Shorter Process Times and Faster Time to Market. Christophe Berini, Daniel Dron, Thierry Dubuffet, SERVIER-ORIL industrie, Bolbec, FRANCE

Separation of BSA Multimers on Anion Exchange Media: Equilibrium Parameters and Column Performance at Different Scales. Juergen Beck¹, Juliane Diedrich², Eric Von Lieres², Rainer Hahn¹, ¹BOKU, Vienna, AUSTRIA; ²Forschungszentrum, Juelich, GERMANY

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Separation of Praziquantel Enantiomers by a Simulated Moving Bed Unit: Towards Optimization through Model Predictive Control. Felipe Cunha¹, Argimiro Secchi¹, Maurício Souza Jr.², Amaro Gomes Jr.², ¹PEQ/COPPE/UFRJ, Rio de Janeiro, BRAZIL; ²Universidade Federal do Rio de Janeiro, Rio de Janeiro, BRAZIL

Mono-PEGylated Lysozyme Purification from PEGylation Reactions using Heparin Affinity Monolithic Chromatography. Luis Alberto Mejia-Manzano, Jose Gonzalez-Valdez, ITESM, Monterrey, MEXICO

Removal of Cyanobacterial Toxins using Polymeric Nanoparticles. Sidharth Razdan, Sutapa Barua, Missouri University of Science and Technology, Rolla, MO, USA

Commercial-scale Chromatography Column Sanitization Enhancement through Practical Outgassing Prevention Strategies. David Nellis, Joseph Brewer, Erik Read, AstraZeneca, Frederick, MD, USA

Integrating Continuous Process Steps by Desalting with Microporous Chromatographic Media. Nicole Walch¹, Wolfram Fruehauf¹, Alois Jungbauer², ¹Acib GmbH, Vienna, AUSTRIA; ²University of Natural Resources and Life Sciences, Vienna, AUSTRIA

Size Effects on DNA Retention on Depth Filters. Ohnmar Khanal¹, Nripen Singh², Steven Traylor², Xuankuo Xu², Sanchayita Ghose², Abraham Lenhoff¹, ¹University of Delaware, Newark, DE, USA; ²Bristol-Myers Squibb, Devens, MA, USA

A Simulation Method for Size-Exclusion SMB by ASPEN. Chih-Hsiung Lin¹, Xiao-Qing Bao¹, Ru-Chen Liang², Ming-Tsai Liang¹, ¹I-Shou University, Kaohsiung, TAIWAN; ²Jope technology, Kaohsiung, TAIWAN

Utilizing Mixed-mode Cation Exchanger in Streamlined Polishing Step for mAb Purification. Aditya Utturkar, Keith Gillette, Chia-Yun Sun, Mark Schofield, Pall Corporation, Westborough, MA, USA

Semi Continuous Virus Inactivation using a Multi Vessel Stirred Tank Reactor. Aditya Utturkar, Mark Schofield, Pall Life Sciences, Westborough, MA, USA

Branched form PEGylates of Exenatide Variant Monomer and Homodimer: Conjugation, Separation, and In-vivo Stability and Efficacy. E. K. Lee, Thi Ngoc Thanh Nguyen, Soi Yoon, Hanyang University-ERICA, Ansan, SOUTH KOREA

Tuning Pore Size of Monolithic Chromatography for Large Biomolecule Separations. Noriko Yoshimoto¹, Shuichi Yamamoto¹, Ales Podgornik², ¹Yamaguchi University, Ube, JAPAN; ²University of Ljubljana, Ljubljana, SLOVENIA

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Advanced Modeling and Optimization of Preparative and Process Chromatography using a High-level, High-performance Dynamic Programming Language. Tiago Santos, [Jose Mota](#), LAQV/REQUIMTE FCT-UNL, Caparica, PORTUGAL

Ideal Light-absorbing Solution Theory as a Tool for Selective Inline Quantification of Co-eluting Solutes in Liquid Chromatography. Abimaelle Chiberio, Tiago Santos, Goncalo Policarpo, [Jose Mota](#), LAQV/REQUIMTE FCT-UNL, Caparica, PORTUGAL

Evaluation of Cation Exchange Chromatography Capability for Impurity Clearance. [Haiying Bao](#), Sarah Laino, Jiping Zhou, Zhichao Fang, Michelle Wang, Neil Jaffe, Yan Chen, Anurag Khetan, Bristol-Myers Squibb, Pennington, NJ, USA

Capacity and Beyond: Evaluation of a Next Generation ProteinA Resin. [Felicia Sadikin](#), Chris Furcht, Brad Stanley, Engin Ayturk, Biogen, Cambridge, MA, USA

Practical Strategies for Successful Scaling from UPC2 to Preparative SFC. [Jacquelyn Runco](#)¹, Andy Aubin², Jo-Ann Jablonski², ¹Waters Corporation, Pittsburgh, PA, USA; ²Waters Corporation, Milford, MA, USA