

37th International Symposium and Exhibit on the SEPARATION OF PROTEINS, PEPTIDES AND POLYNUCLEOTIDES

ISPPP-2017 Scientific Program

July 19-21, 2017 in Philadelphia, PA, USA
www.isppp.org
(program as of 6-16-2017)

Separation, Purification, and Characterization of Biologically Important Molecules

Don't miss the premier meeting where scientists from around the world will deliver cutting-edge presentations that will address key developments and applications, productivity and financial challenges, and novel approaches related to biological molecule separations and analysis. In addition, presenters will showcase their work in the poster sessions, creating a vibrant, interesting, and up-to-date display of the very latest scientific advances in the areas dealing with the separation, purification, and characterization of biologically important molecules. Please submit abstracts by June 22 for inclusion in the printed program, and by June 30 for inclusion in the online program. For more information, please visit the website at isppp.org.

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Wednesday, July 19, 2017

7:30 AM **Symposium Registration Open**

10:10 AM – 7:45 PM **Exhibition Open**
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor

8:20 AM **Welcome and Opening Comments**
Location: Commonwealth Hall A, 2nd floor

Wednesday Session 1. LC Analysis for Therapeutic Proteins

Session Chair: Joseph Glajch, Momenta Pharmaceuticals, Cambridge, MA, USA
Location: Commonwealth Hall A, 2nd floor

8:30 AM L-101 **Overview of Analytical Needs for Therapeutic Proteins and Biosimilars.**
Joseph Glajch, Momenta Pharmaceuticals, Cambridge, MA, USA

8:40 AM L-102 **LC and LC/MS Analysis of mAbs Resolved using Large Pore Superficially Porous Particle Columns.** Barry Boyes, Stephanie Schuster, William Miles, Ben Libert, Brian Wagner, Joseph DeStefano, Advanced Materials Technology, Wilmington, DE, USA

9:00 AM L-103 **Separations and Quantitation of Free Thiols and Disulfide Related Variants in Therapeutic Monoclonal Antibodies.** Taylor Zhang, Genentech, Protein Analytical Chemistry, South San Francisco, CA, USA

9:25 AM L-104 **Using the Hybrid Immunoaffinity/LC-MS technique to Understand the Biotransformation of Biotherapeutics.** Eric Yang, GlaxoSmithKline, RD Platform Technology & Science, King of Prussia, PA, USA

9:50 AM L-105 **N-Glycan Analysis of Monoclonal Antibodies using RapiFluor Kit (Waters) and InstantPC Kit (Prozyme) by HILIC UPLC Method Coupled with FLR-QDa Detection.** Anulfo Valdez, Saileshkumar Patel, Bristol-Myers Squibb, Princeton, NJ, USA

10:15 AM **Break and Social in Exhibition/Poster Session Hall**
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor

Wednesday Session 2. Protein Isolation and Purity Analysis

Session Chair: Milton Hearn, Monash University, Clayton, Australia

Location: Commonwealth Hall A, 2nd floor

- 10:40 AM L-106 **Process Development for the Purification of Glycoproteins from Animal Tissue.** Sonja Berensmeier, Veronika Schömig, Technical University of Munich, Munich, GERMANY
- 11:05 AM L-107 **Multiple, Simultaneous, Independent Gradients for a Versatile Multidimensional Liquid Chromatography. Part II: Application 2: Computer Controlled pH Gradients in the Presence of Urea Provide Improved Separation of Proteins: Stability Influenced Anion and Cation Exchange Chromatography.** Allen Hirsh¹, Latchezar Tsonev², ¹Cryobiophysics Inc., Chevy Chase, MD, USA; ²Cryobiophysics Inc., Sofia, BULGARIA
- 11:30 AM L-108 **Identification of a Host Cell Protein Impurity in Potential Therapeutic Protein, P1.** Deepti Ahluwalia, Harbhajan Dhillon, Thomas Slaney, Hangtian Song, Heather Boux, Sheetal Mehta, Lei Zhang, Anulfo Valdez, Tapan Das, Bristol-Myers Squibb, Pennington, NJ, USA
- 11:55 AM **PAUSE, EXHIBITION, POSTERS** (lunch on own)
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor
- 12:00–1:15 PM **Wednesday Free Vendor Seminar Sponsored by Wyatt Technology Corporation "Analyzing Protein and Polymer Molecular Weight with SEC-MALS"**
Presenter: Eric Seymour, Applications Scientist, Wyatt Technology
Location: Adams Room, 3rd floor (*light lunch will be provided*)
Must register at the Wyatt Technology exhibit by Wednesday @10:40 AM

Wednesday Session 3. Analysis of Protein Modifications

Session Chair: Stephanie Schuster, Advanced Materials Technology, Wilmington, DE, USA

Location: Commonwealth Hall A, 2nd floor

- 1:45 PM L-109 **Advances in the Separation of Post-translational Modifications using Capillary Electrophoresis – Mass Spectrometry.** Herbert Lindner, Bettina Sarg, Klaus Faserl, Innsbruck Medical University, Innsbruck, AUSTRIA
- 2:10 PM L-110 **Analysis of Exosomes from Patient Serum Samples.** Mingrui An, Kyle Cuneo, David Lubman, University of Michigan, Ann Arbor, MI, USA
- 2:35 PM L-111 **NISTmAb Characterization: Purity, Charge Heterogeneity and Glycan Analyses on a Single Platform.** Esme Candish, Bryan Fonslow, Chitra Ratnayake, Mervin Gutierrez, Andras Guttman, SCIEX, Brea, CA, USA
- 3:00 PM L-112 **LC-MS/MS of Glycopeptides and Glycans: Breaking Isomer Barriers.** Yehia Mechref, Texas Tech University, Lubbock, TX, USA
- 3:25 PM **Break and Social in Exhibit/Poster Session Hall**
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor

Wednesday, July 19, 2017

Wednesday Session 4. Post-translational Analysis Platforms

Session Chair: Joseph DeStefano, Advanced Materials Technology, Wilmington, DE, USA
Location: Commonwealth Hall A, 2nd floor

- 3:55 PM L-113 **Towards Integrated High Resolution and Rapid Analytical Platforms for the Structural Characterization of Post-translated Recombinant and Wild-Type Proteins.** Milton T. Hearn, Reinhard I. Boysen, Khose Mitri, Agron Mataj, Yuanzhong Yang, Monash University, Clayton, AUSTRALIA
- 4:20 PM L-114 **The use of HILIC LC/MS to Describe Protein Modifications.** Ron Orlando, University of Georgia, Athens, GA, USA
- 4:45 PM L-115 **Tutorial-I. Effect of Salts on Retention of Neutral Solutes in HILIC and HIC-MS of Proteins with Volatile Solvents.** Andrew Alpert, PolyLC Inc., Columbia, MD, USA
- 5:45 PM Pause
- 6:15 – 7:45 PM **WELCOME MIXER & POSTER PRESENTATIONS in Exhibition/Poster Session Hall**
Location: Commonwealth Hall B/C, Exhibition/Poster Session Hall, 2nd floor

Thursday, July 20, 2017

- 8:00 AM **Symposium Registration Open**
Location: Commonwealth Hall, floor 2
- 10:10 AM – 4:10 PM **Exhibition Open**
Location: Commonwealth Hall B/C, Exhibition/Poster Session Hall, 2nd floor

Thursday Session 5. Analyses of Peptides and Smaller Molecules

Session Chair: Robert S. Hodges, University of Colorado, Denver, CO, USA
Location: Commonwealth Hall A, 2nd floor

- 8:30 AM L-116 **Positively Charged Amphipathic α -Helical Peptides as Standards to Evaluate Column Performance in Reversed-phase Chromatography.** Andrew Byers¹, Sean Ankarlo¹, Ziqing Jiang², Colin Mant², Robert Hodges², ¹Regis University, Denver, CO, USA; ²University of Colorado, Aurora, CO, USA
- 8:55 AM L-117 **High Efficiency Separation of Protein and Peptides using Co-polymer Immobilized Open Tubular Capillary Column.** Ali Ashraf, Inha University, Incheon, SOUTH KOREA
- 9:20 AM L-118 **Analytical Strategies and Methodologies for Purity Assessment of Macrocyclic Peptides in a Pharmaceutical Drug Discovery Setting.** Jingfang (Jenny) Cutrone¹, Xiaohua (Stella) Huang¹, Edward Kozlowski¹, Ye Bao¹, Yingzi Wang¹, Christopher Poronsky¹, Dieter Drexler¹, Adrienne Tymiak², ¹Bristol-Myers Squibb, Wallingford, CT, USA; ²Bristol-Myers Squibb, Princeton, NJ, USA
- 9:45 AM L-119 **Challenges and Strategies in Trace Analysis of Small Molecule Process Impurities using LC-MS/MS in Biotherapeutic Protein Development.** Zheyuan Luo, Kristen Nields, Shelly Ji, Jessika Feliciano, Gulnur Elove, Janssen Research and Development, Malvern, PA, USA
- 10:10 AM **Break/Social in Exhibition/Poster Session Hall**
Location: Commonwealth Hall B/C, Exhibition/Poster Session Hall, 2nd floor

Thursday Session 6. Affinity Methods

Session Chair: Alois Jungbauer, BOKU, Vienna, Austria

Location: Commonwealth Hall A, 2nd floor

- 10:40 AM L-120 **Design of Affinity Tags for Bare Surfaces.** Silvia Blank-Shim, Sebastian Schwaminger, Paula Fraga García, Sonja Berensmeier, Technical University of Munich, Munich, GERMANY
- 11:05 AM L-121 **Novel Pseudo-affinity Strategy for the Purification of Influenza Virus-like Particles.** Sofia B. Carvalho¹, A. Raquel Fortuna², Paula M. Alves¹, Michael Wolff^{2,3}, Udo Reichl^{2,4}, Manuel J.T. Carrondo^{1,5}, Cristina Peixoto¹, ¹iBET/ITQB, Oeiras, PORTUGAL; ²Max Planck Institute for Dynamics of Complex Technical Systems, Magdeburg, GERMANY; ³University of Applied Sciences, Giessen, GERMANY; ⁴Otto von Guericke University, Magdeburg, GERMANY; ⁵Universidade Nova de Lisboa, Monte da Caparica, PORTUGAL
- 11:30 AM L-122 **Site-specific Immobilization of Affinity Ligand Proteins on the Surfaces of Polymer-based Solid Supports.** Yoichi Kumada, Jun-ichi Horiuchi, Kyoto Institute of Technology, Kyoto, JAPAN
- 11:55 PM **PAUSE, EXHIBITION, POSTERS** (lunch on own)
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor
- 12:00–1:15 PM **Thursday Free Vendor Seminar Sponsored by Agilent Technologies**
"Learn the Latest Developments in Chromatography and High Performance LC/Q-TOF Eliminating Workflow Limitations"
Alex Zhu, PhD. Agilent Technologies BioPharma Applications Specialist
Location: Adams Room, 3rd floor (*light lunch will be provided*)
Must register at the Agilent Technologies exhibit by Wednesday @10:40 AM

Thursday Session 7. Higher Order Structures and Reference Materials

Session Chair: Ron Orlando, University of Georgia, Athens, GA, USA

Location: Commonwealth Hall A, 2nd floor

- 1:45 PM L-123 **HX MS: The Current State of the Art.** Walter Englander, University of Pennsylvania, Philadelphia, PA, USA
- 2:25 PM L-124 **Structural Biology in the Gas Phase: New Techniques for the Rapid Analysis of Protein Sequence, Structure and Stability.** Brandon Ruotolo, Yuwei Tian, Daniel Polasky, Daniel Vallejo, University of Michigan, Ann Arbor, MI, USA
- 2:50 PM L-125 **High Resolution Hydroxyl Radical Footprinting: Integrating Molecular Modeling with Covalent Labeling LC-MS.** Boer Xie¹, Amika Sood¹, Robert J. Woods¹, Joshua S. Sharp², ¹University of Georgia, Athens, GA, USA; ²University of Mississippi, University, MS, USA
- 3:15 PM L-126 **NISTmAb Reference Material 8671: A Research Tool to Advance Biopharmaceutical Characterization.** John Schiel, Trina Formolo, Katharina Yandrofsky, Abigail Turner, National Institute of Standards and Technology (NIST), Rockville, MD, USA
- 3:40 PM **Break, Social and Poster Presentations in Exhibition/Poster Session Hall**
Location: Commonwealth Hall B/C, Exposition/Poster Session Hall, 2nd floor

Thursday, July 20, 2017

Thursday Session 8. Aggregates and Particles in Proteins

Session Chair: Taylor Zhang, Genentech, South San Francisco, CA, USA

Location: Commonwealth Hall A, 2nd floor

- 4:10 PM L-127 **A New Anionic and Butyl Mixed Mode Resin for Removal of mAb Aggregates in a Flow through Downstream Polishing Format after Protein A Capture.** Yoshihiro Matsumoto¹, Shigeyuki Aoyama², Malcolm G. Pluskal³, Yatsuto Umeda¹, ¹JNC Japan, Yokohama, JAPAN; ²JNC Japan, Tokyo, JAPAN; ³JNC America, Littleton, MA, USA
- 4:35 PM L-128 **Quantification of Virus-like Particles by Size-exclusion Chromatography and Nanoparticle Tracking Analysis.** Alois Jungbauer, Petra Steppert, BOKU, Vienna, AUSTRIA
- 5:00 PM L-129 **Tutorial-II. De Novo Designed and Synthesized Peptide Standards for Effective Monitoring of Column Performance and Separation Protocol Development for CEX, HILIC and RP-HPLC of Peptide Mixtures.** Colin Mant, University of Colorado Denver, Aurora, CO, USA
- 6:00 PM **Pause**
- 6:30 – 8:30 PM **CONFERENCE BANQUET** (Ticket Required)
Location: Whiskey and Rye Room (*lobby floor in private dining space within the restaurant*)

Friday, July 21, 2017

8:00 AM **Symposium Registration Open**

Friday Session 9. Processes and Analytics for IgGs-I

Session Chair: James Martosella, Janssen Research & Development, Malvern, PA, USA

Location: Commonwealth Hall A, 2nd floor

- 8:30 AM L-130 **A Novel Affinity Megaporous Material Harboring a Peptide Ligand for IgG Purification.** Foad Tehrani Najafian¹, Noor Shad Bibi², Tuhidul Islam³, Marcelo Fernandez-Lahore¹, ¹Jacobs University Bremen, Bremen, GERMANY; ²Kohat University of Science and Technology, Kohat, PAKISTAN; ³CMC Biologics, Seattle, WA, USA
- 8:55 AM L-131 **High Throughput and Robust Method of Analysis of a Variety of Immunoglobulin G Derived from Multiple Sources and from Crude Feedstock using an Analytical Protein A Affinity Chromatography Column.** Keegan Gike, Atis Chakrabarti, Tosoh BioScience LLC, King of Prussia, PA, USA
- 9:20 AM L-132 **Evaluation of High Throughput Technology for Process Characterization: A Potential to Replace AKTA Lab Scale with Robocolumns.** Ashish Sharma, Catherine Grimm, Hai Hoang, Amgen Inc., Cambridge, MA, USA
- 9:55 AM L-133 **Modular Approaches for Diverse Molecules: Reinventing Smart Bioprocessing.** Stefan Schmidt, Rentschler Biotechnology, Laupheim, GERMANY
- 10:20 AM **Break**

Friday Session 10. Processes and Analytics for IgGs-II

Session Chair: Mark Schure, Kroungold Analytical, Bluebell, PA, USA

Location: Commonwealth Hall A, 2nd floor

- 10:50 AM L-134 **Online Monitoring of Quantity, Purity and Potency of an Antibody Capture Process.** Nicole Walch¹, Dominik Sauer¹, Edit Felfoldi¹, Theresa Scharl-Hirsch¹, Michael Melcher², Friedrich Leisch², Alois Jungbauer², Astrid Dürauer²; ¹Austrian Centre of Industrial Biotechnology, Vienna, AUSTRIA; ²BOKU Vienna, Vienna, AUSTRIA
- 11:25 AM L-135 **Reversed-phase Separation Strategies for the Development of Bispecific Monoclonal Antibodies.** James Martosella, Geetha Goparaju, Janssen Research & Development, Malvern, PA, USA
- 12:00 PM **Closing Remarks and Adieu**

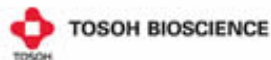
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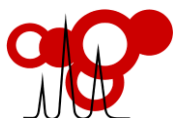
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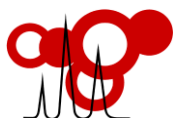
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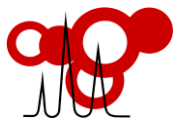
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