

HPLC 2018

47th International Symposium on
High Performance Liquid Phase Separations
and Related Techniques

July 29 - August 2, 2018 • Marriott Wardman Park • Washington, DC, USA

Preliminary Scientific Program

(as of 6/12/2018)

[Click Here to Submit Poster Abstracts to HPLC2018.org](http://HPLC2018.org)

Advances and Emerging Trends in Separations Technologies

Are you interested in mass spectrometry, chromatography, or electrophoresis? Are you solving complex analytical problems? Are you looking for a conference with strong scientific content, a robust program, presentations by world renowned experts, lectures by young scientists, courses offering great training opportunities, tutorials, vendor technical workshops, best poster competition, and a major exposition showcasing new product launches and innovative products? Mark your calendar to attend HPLC 2018 Washington, DC, the largest, most recognized international conference in the world devoted to advances in separations technologies!

The program comprises 55+ oral sessions of invited and contributed talks, presentations by exciting young scientists, vendor-sponsored technical workshops, practical educational short courses, tutorials that will provide outstanding opportunities for newcomers to obtain a solid foundation in the field and for veterans to update their knowledge, and an abundance of networking opportunities. Meanwhile, the major exposition will showcase the latest and greatest in instrumentation, software, tools, accessories, and consumables. Throughout the exhibition hall you will find hundreds of high quality scientific posters competing for awards in the best poster competition, new and innovative products, major launches of new products, ground-breaking technologies, and experts in the booths who will be available to discuss challenges and offer solutions that you will be able to take back to your lab.

Sunday, July 29, 2018

Great Training Opportunities at HPLC 2018

Optional Short Course Offerings - Must pre-register online to attend

Educational Short Courses will be offered the Sunday preceding the conference. There are nine practical short courses taught by leading academic and industrial scientists covering both fundamentals as well as real-world application examples. The presentations will provide the valuable technical knowledge you need to implement techniques and solutions to improve job productivity, to solve today's separation problems as well as to understand tomorrow's technology. Short course notes will be emailed to each course participant who should download and bring a copy of the short course notes with them to the short course. There will be no printed copies available. HPLC 2018 reserves the right, without notice, to modify the short course material or schedules, as well as to amend the roster of short course presenters. **Short course registration is either within a bundled registration fee package or may be purchased separately by conference participants with a paid/purchased conference meeting registration. Space is limited, and details regarding fees are posted at HPLC2018.org.**

Sunday, July 29, 2018
Great Training Opportunities at HPLC 2018
Optional Short Course Offerings - Must pre-register online to attend

SUNDAY, JULY 29	Course #	List of Short Courses
9:00 am – 4:00 pm	Course 1	Two-dimensional Liquid Chromatography: Principles, Instrumentation, Method Development, and Applications
9:00 am – 4:00 pm	Course 2	Chromatography in the Analysis and Characterization of Protein Therapeutic Drugs
9:00 am – 4:00 pm	Course 3	LC-MS and LC-MS/MS of Small Molecules
9:00 am – 12:00 pm	Course 4	HPLC/UHPLC Method Development
9:00 am – 12:00 pm	Course 5	Contributions of LC and LC/MS to Characterize Protein Glycosylation
9:00 am – 12:00 pm	Course 6	Introduction to Capillary Liquid Chromatography
1:00 pm – 4:00 pm	Course 7	HPLC Operation, Maintenance and Troubleshooting
1:00 pm – 4:00 pm	Course 8	The Essential Roles of Separation Science in Mass Spectrometry-Based Metabolomics for Biomarker Discovery in Clinical Research
1:00 pm – 4:00 pm	Course 9	Cannabis Analysis

Best Poster Awards Competition
(sponsored by Agilent)

Poster abstracts that were submitted by April 30 and accepted for poster presentation are under consideration for best poster awards. The posters presented at HPLC 2018 will be reviewed by an international panel of scientists. The presented posters will be evaluated based on:

- Scientific contribution and originality of work.
- Completeness of work and quality of experimental or theoretical execution.
- Presentation and readability of the poster.

Presentations by Finalists for Consideration of Best Poster Awards

- By early Thursday morning, there will be special signs on the boards of the posters under consideration.
- Finalists for consideration of best poster awards will present during Thursday morning's poster session.
- Poster presenters who make it into the final round to present during Thursday morning's poster session are asked to stay until the Agilent Technologies Best Poster Awards ceremony that takes place on Thursday after the Closing Plenary session.

Cash Prizes will be awarded and presented at the Closing Ceremony on Thursday



Monday Free Vendor Technical Workshops *pre-register at sponsor's booth to attend*

Monday, July 30, 2018 @ 12:25-1:25 PM

Extend Your Application Reach with the New PrimeLC and SFC Solutions

Sponsored by Agilent Technologies

Speakers: Martin Greiner, Marketing Manager Core LC and Daniel Kutscher, R&D, Agilent Technologies
The Agilent 1260 Infinity II PrimeLC is the newest family member of the InfinityLab LC series. High-pressure-mixing binary pump-like performance, automated solvent blending and seamless method transfer capability (ISET), representing the most capable LC. Discover the obvious choice paired with the Agilent Ultivo Triple Quadrupole. The Agilent InfinityLab SFC Solution provides the most powerful instrumentation available extending your application reach in multiple analysis types. This novel tool combines- feed injection for larger injection volumes with ultra -fast separation for answers to challenging chiral and achiral separations. The Agilent InfinityLab SFC solution reduces toxic solvent use, making your lab greener.

Monday, July 30, 2018 @ 12:25-1:25 PM

Effectively Supporting Synthetic Chemistry for Pharmaceutical and Academic Research

Sponsored by Thermo Fisher Scientific

Speaker: Dr. Frank Steiner, Senior Manager, Application Development & Scientific Advisor, Thermo Fisher Scientific, Germering, Germany

Monitoring the synthesis of small or larger molecules is a key activity in pharmaceutical but also academic research. The investigation of new structural entities and compounds often requires re-creation of the characterized novel structures to conduct further general research or identify therapeutic properties. This workshop will showcase our comprehensive new workflow solution discussing not only fast mass confirmation, but also how to produce better mass balances of unknown impurities and non-chromophores. In addition, we discuss advanced system configurations multiplying detection options as well as productivity of multi-detector UHPLC setups.

Monday, July 30, 2018 @ 12:25-1:25 PM

Perfect Fit in Pharmaceutical Drug Development – Best Solutions for Small and Large Molecules

Sponsored by MilliporeSigma

Speakers: Jason Wrigley, MilliporeSigma, and Petra Lewits, Merck KGaA

HPLC is the preferred method for determination of pharmaceutical drugs, degradations, impurity profiling, and for analytical characterization during drug development. HPLC allows for the development of robust and reliable analytical methods with desired sensitivity and selectivity while also meeting cost effective requirements in a laboratory. It is therefore important to use the right column for small and large molecules depending on individual needs. Different column technologies and selectivities are available for impurity profiling and QC of APIs. This seminar will cover the best solutions for separation of small and large molecules in the pharmaceutical workflow.

Tuesday Free Vendor Technical Workshops *pre-register at sponsor's booth to attend*

Tuesday, July 31, 2018 @ 12:25-1:25 PM

Simple Approaches to Charge Variant Analysis

Sponsored by Thermo Fisher Scientific

Speaker: Jonathan Bones, Principal Investigator, NIBRT Characterization and Comparability Laboratory, NIBRT

The characterization of monoclonal antibodies (mAbs) during biopharmaceutical development involves the identification, monitoring, and analysis of charge variants. Antibodies can exhibit changes in charge heterogeneity during production and purification caused by amino acid substitutions, glycosylation, and other post-translational or chemical modifications. Not only can these changes impact stability and activity, they can also cause adverse immunological reactions. Identification of charge variants in development, and their monitoring throughout manufacturing is therefore critical. In this presentation the use of ion exchange and reverse phase approaches is discussed along with enabling technologies that simplify analysis.

Tuesday, July 31, 2018 @ 12:25-1:25 PM

Maximizing Sensitivity without Jeopardizing Ruggedness and Reliability

Sponsored by Shimadzu Scientific Instruments

In the ever-changing field of liquid chromatography, micro-LC could bring many desired advantages such as sensitivity boost, sample and solvents saving, expanded dynamic range of quantitation, and minimized matrix effects. Then why is it not widely used in routine laboratories? In this workshop, we will investigate the creation of a product that is developed around the unique physics of the micro-LC/MSMS technique. In addition, we will share how the product can resolve the challenges in foods and nutraceutical/pharmaceutical chemistry, without jeopardizing productivity and robustness.

Tuesday, July 31, 2018 @ 12:25-1:25 PM

2DLC - A "Swiss Army Knife" to Solve Chromatographic Challenges?

Sponsored by Agilent Technologies

Speakers: Ulrich Eberhardinger, Product Manager Agilent Technologies and an invited speaker
Do you have doubts on the purity of your analytes, even after performing modern HPLC? Lack of chromatographic resolution, preventing stable and robust quantitative results for your analytes? Still doing manual sample preparation prior to your chromatography to obtain reasonable peak shapes? These chromatographic challenges can be addressed by applying state-of-the art multidimensional HPLC without the necessity of being an expert in the technique. Join us for a discussion of the latest solutions for 2DLC in combination with real-life industrial applications highlighting the benefits 2DLC can contribute to the efficiency of your analytical laboratory.

Wednesday Free Vendor Technical Workshops
pre-register at sponsor's booth to attend

Wednesday, August 1, 2018 @ 12:25-1:25 PM

The New Benchmark for Preparative LC Workflows - Pathways to Achieve Exceptional Accuracy and Flexibility

Sponsored by Agilent Technologies

Speaker: Stefan Ullrich, Product Manager PREP Solutions, Agilent Technologies

Agilent offers high-efficiency InfinityLab LC and LC/MSD solutions ranging from analytical scale up to preparative scale for purification of multiple grams. Explore the portfolio of state-of-the-art LC purification instruments with scalable solutions that grow with your needs. Don't miss a single compound through a wide range of fraction collectors and detectors including mass-selective detection. Join the discussion and configure a comprehensive platform that meets your laboratory's current and future needs.

Wednesday, August 1, 2018 @ 12:25-1:25 PM

A Complete Solution for Streamlined LC Method Development

Sponsored by Waters Corporation

Margaret Maziarz, Principal Scientist, Waters Corporation

Method development is often a time-consuming process that is repeated many times throughout the lifecycle of a method. In order to maximize the understanding of a method's capabilities and robustness, a systematic screening protocol that employs a number of selectivity factors provides a thorough approach that ensures a greater chance of successful method validation and transfer in downstream processes.

This workshop describes a synergistic approach towards method development that leverages the ACQUITY UPLC H-Class PLUS, sub-2- μ m column chemistry, mass detection and Empower 3 Software to quickly develop robust methods.

Wednesday, August 1, 2018 @ 12:25-1:25 PM

Orthogonal LC and LC-MS Methods for the Characterization of Size, Charge Variants and Glycoforms in Therapeutic Proteins

Sponsored by Phenomenex

Speaker: A. Carl Sanchez, Senior Research Scientist, Phenomenex

Determination of relative abundance of glycoforms is a critical quality attribute for monoclonal antibodies, since different glycosylation patterns affect important characteristics including effector function, pharmacokinetics, clearance, and immunogenicity. There are several methods to characterize and quantitate relative abundance of glycoforms. In this presentation, we will give an overview of LC related methods, including intact mass by LC-MS with high resolution Q-TOF, HILIC LC-MS of glycopeptides, and HILIC of N-linked glycans. We will discuss the strengths and limitations of each technique. Also, novel HPLC columns based on advanced particle morphology and surface modification developed specifically for such analyses will be highlighted.

**Finalists for Consideration of the 2018 Csaba Horváth Young Scientist Award
Presentation of the award takes place on Thursday after the Closing Plenary**

Finalist	Oral Session	Presentation Title
Martina Catani University of Ferrara Ferrara, Italy	Monday Session New Stationary Phases-I	Investigation of Mass Transfer Phenomena and Thermodynamic Properties of New Generation Porous Particles for Ultrafast High-Efficient Enantioseparations
Alexander Zestos American University Washington, DC, USA	Monday Session New Stationary Phases-I	LC-MS/MS Method to Detect Neurotransmitters during Period of Drug Abuse
Zhenbin Zhang University of Notre Dame Notre Dame, IN, USA	Tuesday Session Process Analytical - Continuous Manufacturing-II	Preparation of Coated Capillary with Reversible Addition-Fragmentation Chain Transfer Polymerization Method and Its Application in Capillary Zone Electrophoresis-Electrospray-Tandem Mass Spectrometry for Bottom-Up Proteomics
Lissa Anderson NHMFL ICR Program Tallahassee, FL, USA	Tuesday Session Process Analytical - Continuous Manufacturing-II	Analyses of Intact Proteins by On-line LC-FT-ICR Mass Spectrometry at 21 Tesla
Ravindra Hegade University of Gent Ghent, Belgium	Tuesday Session SFC and Multidimensional Separations	Enhanced Resolution of Stereoisomers through Stationary Phase Optimized Selectivity Liquid and Supercritical Fluid Chromatography (SOS-LC and SOS-SFC)
Theodora Adamopoulou University of Amsterdam Amsterdam Netherlands	Tuesday Session SFC and Multidimensional Separations	Creating Devices for Multidimensional Separations based on Computational Insights
Hisashi Shimizu University of Tokyo Tokyo, Japan	Wednesday Session Microfabricated Devices-I	Separation of Proteins at Femtoliter Scale using Extended-Nano Channel for Single Cell Proteomics
Camille Lombard-Banek University of Maryland College Park, MD, USA	Wednesday Session Microfabricated Devices-I	Microprobe CE-ESI-HRMS for In-situ Analysis of Proteins and Metabolites in Single Embryonic Cells

Sunday, July 29, 2018

1. Sunday Opening Ceremony and Opening Plenary Session

Co-chairs: Norman Dovichi, University of Notre Dame, USA; and
Kelly Zhang, Genentech, USA

- 4:30-5:00 pm **Opening Ceremony**
- 5:00-5:40 pm (L-001) **Analytical Technologies in Biopharmaceutical Industry.** Stacey Ma, Genentech/Roche, South San Francisco, CA, USA [PLENARY LECTURE]
- 5:40-6:20 pm (L-002) **New Paths for Ultra-High Resolution Ion Mobility Separations with Mass Spectrometry based upon Structures for Lossless Ion Manipulations.** Richard D. Smith, Pacific Northwest National Laboratory, Richland, WA, USA [PLENARY LECTURE]
- 6:20-6:50 pm **Awards Presentation**
- 6:50-8:20 pm **Welcome Reception & Toast**
Ready to meet a few new faces at this year's meeting? Or just reconnect with your colleagues? The Welcome Reception is the perfect opportunity to do so! This networking event takes place immediately following the Opening Ceremony and Plenary Lectures, where the conference chair will kick off the event with a group toast. Conference attendees will enjoy a welcome reception of wine and light hors d'oeuvres. Open to all conference participants; conference name badge is required for entry.

Monday, July 30, 2018

2A. Monday Parallel Session: Sample Preparation - I

Chair: Janusz Pawliszyn, University of Waterloo, CANADA

- 8:30-8:55 am (L-003) **Mass Spectrometry: With Chromatography and Without.** R. Graham Cooks, Christina Ferreira, Karen Yannell, Valentina Pirro, Patrick Fedick, David Logsdon, Purdue University, West Lafayette, IN, USA [KEYNOTE LECTURE]
- 8:55-9:20 am (L-004) **Ambient Ionization Mass Spectrometry - Can We Really Live without Sample Preparation?** Zoltan Takats, Imperial College of London, UK [KEYNOTE LECTURE]
- 9:20-9:40 am (L-005) **Field-assisted Online Sample Preparation Methods for Solid Sample Analysis.** Xiaohua Xiao, Yuanyuan He, Jiawen Zheng, Gongke Li, Sun Yat-sen University, Guangzhou, CHINA [INVITED LECTURE]
- 9:40-10:00 am (L-006) **New Sample Preparation Method for Exosome Proteome Analysis.** Zhigang Sui, Huiming Yuan, Lihua Zhang, Yukui Zhang, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, CHINA [INVITED LECTURE]

2B. Monday Parallel Session: New Stationary Phases - I

Chair: Fred Regnier, Purdue University, USA

- 8:30-8:55 am (L-007) **A Novel Phenyl-based RPLC Stationary Phase for High Throughput, High Resolution Characterization of Protein Therapeutics.** Matthew Lauber, Jennifer Nguyen, Susan Rzewuski, Daniel Walsh, Jim Cook, Maureen DeLoffi, Gary Izzo, Yuehong Xu, Waters Corporation, Milford, MA, USA [KEYNOTE LECTURE]
- 8:55-9:20 am (L-008) **One-Fits-All HPLC Column: Synthesis of Superficially Porous Particles with Dual Pore Structure.** Ta-Chen Wei, Agilent Technologies, Wilmington, DE, USA [KEYNOTE LECTURE]
- 9:20-9:40 am (L-009) **Investigation of Mass Transfer Phenomena and Thermodynamic Properties of New Generation Porous Particles for Ultrafast High-Efficient Enantioseparations.** Martina Catani¹, Omar H. Ismail², Simona Felletti¹, Chiara De Luca¹, Massimo Morbidelli³, Francesco Gasparri², Alberto Cavazzini¹, ¹University of Ferrara, Ferrara, ITALY; ²"Sapienza" University of Rome, Rome, ITALY; ³ETH Zurich, Zurich, SWITZERLAND [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]
- 9:40-10:00 am (L-010) **LC-MS/MS Method to Detect Neurotransmitters during Period of Drug Abuse.** Alexander Zestos¹, Robert Kennedy², Margaret Gnegy², ¹American University, Washington, DC, USA; ²University of Michigan, Ann Arbor, MI, USA [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]

2C. Monday Parallel Session: Environmental - I

Chair: X. Chris Le, University of Alberta, CANADA

- 8:30-8:55 am (L-011) **Emerging Environmental Contaminants: State of the Art in Chromatography and Mass Spectrometry.** Susan Richardson, University of South Carolina, Columbia, SC, USA [KEYNOTE LECTURE]
- 8:55-9:20 am (L-012) **Integrated Chromatography with Mass Separation Power for Discovery of Peptides and Halogenated Peptides in Water.** Ping Jiang, Guang Huang, Dayong Tian, Lindsay Jmaiff Blackstock, Xing-Fang Li, University of Alberta, Edmonton, CANADA [KEYNOTE LECTURE]
- 9:20-9:40 am (L-013) **Mass Spectrometry-based Metabolomics and Imaging Analysis in Research of Environmental Toxicology.** Chao Zhao, Zongwei Cai, Hong Kong Baptist University, Kowloon, HONG KONG [INVITED LECTURE]
- 9:40-10:00 am (L-014) **Identification of New Environmental Contaminants by HPLC Coupled with Mass Spectrometry.** Guibin Jiang, Chinese Academy of Sciences, Beijing, CHINA [INVITED LECTURE]

2D. Monday Free Tutorial (Open to all conferees, first-come seating)

The tutorial track is part of the educational mission of HPLC 2018. Experts are asked to give presentations on a topic with more background than might be found in a typical 15-minute talk. The goal is to make the topic more accessible to those less expert in the area. In some cases, discussion and other interactive activities may be used.

- 8:55-9:40 am (L-015) **Molecular Characterization of Biotherapeutic Proteins: Concepts and Challenges for Separation Science and Mass Spectrometry.** Christian G. Huber, Therese Wohlschlager, Christof Regl, Marius Segl, Wolfgang Skala, University of Salzburg, Salzburg, AUSTRIA

Monday Poster Session-1 and Mixer in the Exhibition Hall

10:00-11:15 am Break, Exhibits, Posters

3A. Monday Parallel Session: Sample Preparation - II

Chair: Guowang Xu, Dalian Institute of Chemical Physics, CAS, CHINA

11:15-11:30 am (L-016) **In-Capillary Ionic Liquids-based Dispersive Liquid-Liquid Microextraction Coupled with Sonic-Spray Ionization Mass Spectrometry for Direct Analysis of Perfluorinated Compounds.** Yueguang Lv, Qiang Ma, Chinese Academy of Inspection and Quarantine, Beijing, China (presented by Minli Yang)

11:30-11:45 am (L-017) **Proteomics from Low-nanogram to Single-cell Analyses by Ultrasensitive HPLC-MS and NanoPOTS (Nanowell-based Preparation in One-pot for Trace Samples).** Rui Zhao¹, Ying Zhu¹, Pual Piehowski¹, Ronld Moore¹, Yufeng Shen², Anil Shukla², Qian Weijun², Richard Smith², Ljiljana Pasa-Tolic², Ryan Kelly², ¹Pacific Northwest National Lab., Richland, WA, USA; ²Pacific Northwest National Laboratory, Richland, WA, USA

11:45-12:00 pm (L-018) **Quantitative Understanding of Nanoconfinement Effects on Molecular Transport and Chemical Reaction with a Core-shell Mesoporous Particle.** Ning Fang, Bin Dong, Georgia State University, Atlanta, GA, USA

12:00-12:15 pm (L-019) **Feed Injection – A New Way of Sample Introduction.** Xiaoli Wang, Thomas Ortmann, Daniel Thielsch, Edgar Naegele, Agilent Technologies, Waldbronn, GERMANY

3B. Monday Parallel Session: New Stationary Phases - II

Chair: Attila Felinger, University of Pecs, HUNGARY

11:15-11:30 am (L-020) **Aminophenyl-derived Phases on Superficially Porous Silica Particles.** Luis Colon, Amaris Borges-Munoz, Joseph Ezzo, State University of New York at Buffalo, Buffalo, NY, USA

11:30-11:45 am (L-021) **Evaluation of a Biocompatible UHPLC System for Method Transfer of Biopharmaceutical Assays.** Zhimin Li, Paula Hong, Patricia McConville, Waters Corporation, Milford, MA, USA

11:45-12:00 pm (L-022) **Manipulating Protein Variant Separations using High Performance Large Pore Superficially Porous Particles.** Barry Boyes¹, Ben Libert¹, Stephanie Schuster¹, Brian Wagner¹, Connor McHale¹, William Miles¹, Mark Schure², Jason Lawhorn¹, ¹Advanced Materials Technologies Inc., Wilmington, DE, USA; ²Kroungold Analytical Inc., Blue Bell, PA, USA

12:00-12:15 pm (L-023) **π -Interactions in Liquid Chromatography.** Takuya Kubo, Eisuke Kanao, Takuya Morinaga, Toyohiro Naito, Koji Otsuka, Kyoto University, Kyoto, JAPAN

3C. Monday Parallel Session: Environmental - II

Chair: Sergey Krylov, York University, CANADA

- 11:15-11:30 am (L-024) **Characterization of Arsenic Metabolites using Liquid Chromatography and Mass Spectrometry.** Qingqing Liu, Xiufen Lu, Hanyong Peng, Aleksandra Popowich, Jeffrey Tao, Jagdeesh Uppal, Xiaowen Yan, X. Chris Le, University of Alberta, Edmonton, CANADA
- 11:30-11:45 am (L-025) **Capillary Electrophoretic Pre-fractionation of Microbiomes to Isolate Species.** Bonnie J. Huge, Matthew M. Champion, Norman J. Dovichi, University of Notre Dame, Notre Dame, IN, USA
- 11:45-12:00 pm (L-026) **Analysis of Partially Nitrated By-products in Home-made Explosive ETN for Forensic Intelligence using UPLC-APCI-HRMS.** Karlijn Bezemer^{1,2}, Lara van Duin¹, Chris-Jan Kuijpers², Mattijs Koeberg², Jan Dalmolen², Jos van den Elshout³, Antoine van der Heijden³, Lindsay McLennan⁴, Taylor Busby⁴, Alex Yeudakimau⁴, Peter Schoenmakers¹, James Smith⁴, Jimmie Oxley⁴, Arian van Asten¹, ¹University of Amsterdam, Amsterdam, NETHERLANDS; ²Netherlands Forensic Institute, Den Haag, NETHERLANDS; ³TNO Technical Sciences, Rijswijk, NETHERLANDS; ⁴University of Rhode Island, Kingston, RI, USA
- 12:00-12:15 pm (L-027) **Novel Aqueous-based Two-phase Media for Sample Extraction and Enrichment: Applications in Proteomics, Lipidomics, and Environmental Analysis.** Amir Koolivand, Azizi Mohammadmehdi, Weisner Nathan, Rion Halie, Oloumi Armin, Morteza Khaledi, University of Texas-Arlington, Arlington, TX, USA

3D. Monday Free Tutorial (Open to all conferees, first-come seating)

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- 11:15-12:00 pm (L-028) **Analytical Challenges in the Development and Implementation of Continuous Manufacturing Processes.** Todd Maloney, Eli Lilly and Company, Indianapolis, IN, USA

Monday Free Vendor Technical Workshops

- 12:25-1:25 pm **Extend Your Application Reach with the New PrimeLC and SFC Solutions**
Sponsored by Agilent Technologies
Speakers: Martin Greiner, Marketing Manager Core LC, Agilent Technologies, and Daniel Kutscher, R&D, Agilent Technologies
- 12:25-1:25 pm **Effectively Supporting Synthetic Chemistry for Pharmaceutical and Academic Research**
Sponsored by Thermo Fisher Scientific
Speaker: Dr. Frank Steiner, Senior Manager, Application Development & Scientific Advisor, Thermo Fisher Scientific, Germering, Germany
- 12:25-1:25 pm **Perfect Fit in Pharmaceutical Drug Development – Best Solutions for Small and Large Molecules**
Sponsored by MilliporeSigma
Speakers: Jason Wrigley, MilliporeSigma, and Petra Lewits, Merck KGaA

Mixer in the Exhibition Hall

12:15-1:30 pm Break, Exhibits, Posters

4A. Monday Parallel Session: Sample Preparation - III

Chair:

- 1:30-1:55 pm (L-029) **In-vivo SPME with Matrix Compatible Coatings Coupled to LC/MS and Directly to MS.** Janusz Pawliszyn, University of Waterloo, Waterloo, CANADA [KEYNOTE LECTURE]
- 1:55-2:20 pm (L-030) **Nanoscale Sampling Coupled to LC-MS/MS for High Resolution Exploration of Brain Chemistry.** Robert Kennedy, University of Michigan, Ann Arbor, MI, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm (L-031) **A Polymeric Monolithic Material: For the Extraction of Plasma from Whole Blood.** James Chan¹, Wei Boon Hon², Andrew Gooley², Rick Barber², Dario Arrua¹, Michael Breadmore³, Emily Hilder¹, ¹University of South Australia, Mawson Lakes, AUSTRALIA; ²Trajan Scientific and Medical, Ringwood, AUSTRALIA; ³University of Tasmania, Hobart, AUSTRALIA
- 2:35-2:50 pm (L-032) **Design of Sequential Extraction Method for Global Metabolomics.** Dmitri Sitnikov, Dajana Vuckovic, Concordia University, Montreal, CANADA

4B. Monday Parallel Session: Process Analytical - Continuous Manufacturing - I

Chair:

- 1:30-1:55 pm (L-033) **The Successes and Challenges of Implementing Chromatography-based PAT in Enhanced Process Control in Biotherapeutics.** Bassam Nakhle, Biogen, Research Triangle Park, NC, USA [KEYNOTE LECTURE]
- 1:55-2:20 pm (L-034) **PAT for Continuous Manufacturing of Biologics: Advances with On-Line LC.** Douglas Richardson, Bhumit Patel, Jayesh Desai, Merck & Co., Kenilworth, NJ, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm (L-035) **Know Your Instrument, Know Your Column, Know Peace—for Method Development and Transfer.** Stephanie Schuster¹, Conner McHale¹, Thomas J. Waeghe², ¹Advanced Materials Technology, Wilmington, DE, USA; ²MAC-MOD Analytical, Chadds Ford, PA, USA
- 2:35-2:50 pm (L-036) **Investigation of Increased Chromatographic Resolution through Mobile Phase Gradients Coupled with Stationary Phase Gradients.** Caitlin Cain, Anna Forzano, Sarah Rutan, Maryanne Collinson, Virginia Commonwealth University, Richmond, VA, USA

4C. Monday Parallel Session: Environmental - III

Chair: Xing-Fang Li, University of Alberta, CANADA

- 1:30-1:55 pm (L-037) **Longitudinal Separation by Transverse Diffusion in Laminar Pipe Flow (LSTDLPF): An Accurate Approach for Finding Equilibrium Constants of Protein-Small Molecule Binding.** Jean Luc Rukundo¹, Alexander S. Stasheuski¹, J.C. Yves Le Blank², Sergey N. Krylov¹, ¹York University, Toronto, CANADA; ²SCIEX, Concord, CANADA [KEYNOTE LECTURE]
- 1:55-2:20 pm (L-038) **Sensitive DNA Demethylation Analysis and Its Applications in Environmental Toxicology.** Hailin Wang, Cuiping Li, Shangwei Zhong, Research Center for Eco-Environmental Sciences Chinese Academy of Sciences, Beijing, CHINA [KEYNOTE LECTURE]
- 2:20-2:35 pm (L-039) **Analysis of Pesticide and Mycotoxin Residues in Cannabis Flower Regulated by California State using LC-MS/MS.** Avinash Dalmia¹, Erasmus Cudjoe², Jacob Jalali², Josh Ye², Feng Qin², Jingcun Wu², Jamie Foss¹, ¹PerkinElmer, Shelton, CT, USA; ²PerkinElmer, Woodbridge ON, CANADA
- 2:35-2:50 pm (L-040) **Chromatographic Separation of 4-hydroxypraziquantel Metabolites and Their Residual Determination in Perch by LC-MS/MS.** Yingxia Zhang¹, Yadi Wang², JT Lee², Daniel W. Armstrong², Limin He¹, ¹South China Agricultural University, Guangzhou, CHINA; ²University of Texas at Arlington, Arlington, TX, USA

4D. Monday Free Tutorial (Open to all conferees, first-come seating)

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1:55-2:40 pm pending

Monday Poster Session-2 and Mixer in the Exhibition Hall

2:50-4:30 pm Break, Exhibits, Posters

**5A. Monday Parallel Session:
Proteomics and Metabolomics - I**

Chair: Richard Smith, Pacific Northwest National Lab., USA

- 4:30-4:55 pm **Molecular Painting of the Proteome.** John Yates, Casimir Basmerger, Sandra Pankow, Salvador Martinez de Bartolome Izquierdo, The Scripps Research Institute, LaJolla, CA, USA [KEYNOTE LECTURE]
- 4:55-5:10 pm **Metaproteomics for Human Microbiome Analysis.** Daniel Figeys, University of Ottawa, Ottawa, CANADA
- 5:10-5:25 pm **Highly Selective and Sensitive Analysis of the Polar Acidic Metabolome by Sheathless Capillary Electrophoresis-Mass Spectrometry.** Rawi Ramautar, Leiden University, Leiden, NETHERLANDS
- 5:25-5:40 pm **Towards “Omics” Analysis: A High Throughput Method with Comprehensive Metabolites Coverage.** Xianzhe Shi, Shuangyuan Wang, Lina Zhou, Guowang Xu, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, CHINA
- 5:40-5:55 pm **Proteome and Phosphoproteome Analyses of Thymic Epithelial Tumors using 2D LC-MS/MS.** Xu Zhang, Fatos Kirkali, Yue Qi, Tapan Maity, Khoa Dang Nguyen, Arun Rajan, Udayan Guha, NIH/NCI, Bethesda, MD, USA

**5B. Monday Parallel Session:
Advances in Liquid Chromatography - I**

Chair: Matthew Lauber, Waters Corporation, USA

- 4:30-4:55 pm **Reversed-Flow Liquid Chromatography.** Attila Felinger, University of Pecs, Pecs, HUNGARY [KEYNOTE LECTURE]
- 4:55-5:10 pm **What Can We Learn from Chromatographic Simulations?** Martin Gilar, Jason Hill, Abhijit Tarafder, Fabrice Gritti, Waters Corporation, Milford, MA, USA
- 5:10-5:25 pm **Peptide Retention Time Prediction in Strong Anion Exchange (SAX) HPLC: 2D (SAX-RP) LC-MS/MS Applications.** Oleg Krokhin, Victor Spicer, University of Manitoba, Winnipeg, CANADA
- 5:25-5:40 pm **In-Silico Tools for Method Development and Robustness Assessment of LC Methods.** Pankaj Aggarwal, James Morgado, David Fortin, Kimber Barnett, Pfizer Inc., Groton, CT, USA
- 5:40-5:55 pm **High, Very-high, Ultra-high or Extremely-high Pressure: What is the Limit of Operating Pressure in Analytical Scale Liquid Chromatography?** Ken Broeckhoven, Sander Deridder, Gert Desmet, Vrije Universiteit Brussel, Brussels, BELGIUM

**5C. Monday Parallel Session:
Affinity Chromatography and Proteomics**
Chair: Robert Kennedy, University of Michigan, USA

- 4:30-4:55 pm **Kinetic Immunoaffinity Chromatography of Proteoforms.** Fred Regnier¹, Youxin Li¹, JinHee Kim², ¹Purdue University, West Lafayette, IN, USA; ²Novilytic, West Lafayette, IN, USA [KEYNOTE LECTURE]
- 4:55-5:10 pm **Analysis of Drug-Protein Interactions in Solution by High-Performance Affinity Microcolumns: New Developments and Biomedical Applications.** David Hage, University of Nebraska, Lincoln, NE, USA
- 5:10-5:25 pm **Receptor-Binding-based RP-HPLC Approach for the Rapid and Selective Determination of Immunologically-Relevant Hemagglutinin Content in Influenza Vaccine.** Barry Lorbetskie¹, Michelle Lemieux¹, Nathalie Fortin¹, Laura Durno¹, Aaron Farnsworth¹, Junzhi Wang², Changgui Li², Xuguang Li¹, Michel Gilbert³, Michel Girard⁴, Simon Sauve⁴, ¹Health Canada, Ottawa, CANADA; ²National Institute for Food and Drug Control of China, Beijing, CHINA; ³National Research Council Canada, Ottawa ON, CANADA; ⁴Health Canada, Ottawa ON, CANADA
- 5:25-5:40 pm **O-GlcNAc Proteomics Reveals Widespread Protein O-GlcNAcylation Regulating Mitochondrial Function.** Junfeng Ma¹, Brian O'Rourke², Donald Hunt³, Gerald Hart², ¹Georgetown University Medical Center, Washington, DC, USA; ²Johns Hopkins University School of Medicine, Baltimore, MD, USA; ³University of Virginia, Charlottesville, VA, USA
- 5:40-5:55 pm **Building Standards for Proteomics: A Targeted Mass Spectrometry Approach for Quantification of Cardiovascular Disease Biomarker in Human Blood.** Sebastian Malchow, Christina Loosse, Albert Sickmann, Christin Lorenz, ISAS e.V., Dortmund, Germany

5D. Monday Free Tutorial (Open to all conferees, first-come seating)
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- 4:55-5:40 pm **Prospects of Monolithic Columns for LC in the Era of Sub 2-Micrometer Particles.** Frantisek Svec, Charles University, Hradec Kralove, CZECH REPUBLIC
- 5:55 pm Pause

**6A. Tuesday Parallel Session:
Proteomics and Metabolomics - II**

Chair:

- 8:30-8:55 am **Single Cell Multi-omics: Measuring the Peptides, Metabolites and Transcripts from the Same Cell.** Jonathan Sweedler, University of Illinois at Urbana-Champaign, Urbana, IL, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Molecular Structure Directed LC-MS Method Development for the Depth Coverage of Metabolome.** Di Yu, Zaifang Li, Disheng Feng, Lina Zhou, Xianzhe Shi, Xin Lu, Guowang Xu, CAS Key Laboratory of Separation Science for Analytical Chemistry Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, CHINA [KEYNOTE LECTURE]
- 9:20-9:40 am **Clinic Applications of Capillary Electrophoresis.** Yi Chen, Institute of Chemistry, Chinese Academy of Sciences, Beijing, CHINA [INVITED LECTURE]
- 9:40-10:00 am **Development a Microfluidic Device for Cell Capture, Sorting and Metabolite Analysis with Mass Spectrometry.** Jin-Ming Lin, Tsinghua University, Beijing, CHINA [INVITED LECTURE]

**6B. Tuesday Parallel Session:
Process Analytical - Continuous Manufacturing - II**

Chair:

- 8:30-8:55 am **Real Time Online Chromatography Monitoring of Product Quality Attributes for Biologics Continuous Manufacturing Process.** Gang Xue¹, Richard Wu², Alicia Zeng¹, Becky Chan², Gary Li², Jason Richardson², Jette Wypych², ¹Amgen, Cambridge, MA, USA; ²Amgen, Thousand Oaks, CA, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Monitoring Drug Substance in Continuous Manufacturing Processes at GSK with Online UPLC.** Elyse Towns¹, Robert Bondi¹, Irene Areri², Peter Hamilton², Christian Airiau¹, ¹GlaxoSmithKline, King of Prussia, PA, USA; ²GlaxoSmithKline, Stevenage, UK [KEYNOTE LECTURE]
- 9:20-9:40 am **Preparation of Coated Capillary with Reversible Addition-Fragmentation Chain Transfer Polymerization Method and Its Application in Capillary Zone Electrophoresis-Electrospray-Tandem Mass Spectrometry for Bottom-Up Proteomics.** Zhenbin Zhang, Norman Dovichi, University of Notre Dame, Notre Dame, IN, USA [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]
- 9:40-10:00 am **Analyses of Intact Proteins by On-line LC-FT-ICR Mass Spectrometry at 21 Tesla.** Lissa Anderson, Chad Weisbrod, Donald Smith, Greg Blakney, Christopher Hendrickson, NHMFL ICR Program, Tallahassee, FL, USA [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]

**6C. Tuesday Parallel Session:
Advances in Liquid Chromatography - II**
Chair: Daniel Armstrong, University of Texas at Arlington, USA

- 8:30-8:55 am **Silica Hydride HPLC Columns: A Modern Approach to Sample Analysis.** Maria Matyska, Joseph Pesek, San Jose State University, San Jose, CA, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Nanoflow LC using Serial Columns and Detectors.** Xiaofeng Xie, Leena Patil, Luke Tolley, Paul Farnsworth, Dennis Tolley, Milton Lee, Brigham Young University, Provo, UT, USA [KEYNOTE LECTURE]
- 9:20-9:40 am **New Methods for Deep Coverage Proteome Analysis.** Qun Zhao, Huiming Yuan, Lihua Zhang, Yukui Zhang, Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, CHINA [INVITED LECTURE]
- 9:40-10:00 am **New Chromatographic Methods for the Analysis of Methylproteome.** Qi Wang, Keyun Wang, Mingliang Ye, CAS Key Lab of Separation Sciences for Analytical Chemistry Dalian Institute of Chemical Physics Chinese Academy of Sciences, Dalian, CHINA [INVITED LECTURE]

6D. Tuesday Free Tutorial (Open to all conferees, first-come seating)
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- 8:55-9:40 am **Capillary Electrophoresis Coupled with Mass Spectrometry for the Analysis of Biomolecules and Biopharmaceuticals.** David Chen, University of British Columbia, Vancouver, CANADA

Tuesday Poster Session-3 and Mixer in the Exhibition Hall

- 10:00-11:15 am Break, Exhibits, Posters

7A. Tuesday Parallel Session: Capillary Electrophoresis
Chair: Liangliang Sun, Michigan State University, USA

- 11:15-11:30 am **Enhancing the Binding Strength of Anti-Human Alpha Thrombin 15-mer DNA Aptamer by PolyT Extension in Aptamer Affinity Capillary Electrophoresis Analysis.** Qiang Zhao, State Key Laboratory of Environmental Chemistry and Ecotoxicology Research Center for Eco-Environmental Sciences Chinese Academy of Sciences, Beijing, CHINA
- 11:30-11:45 am **Differentiating Lysine Methylation on Peptides with Selective Synthetic Host Additives in Capillary Electrophoresis.** Jiwon Lee, Wenwan Zhong, University of California - Riverside, Riverside, CA, USA
- 11:45-12:00 pm **Improvement of Robustness and Enzymatic Activity of Glutaraldehyde-crosslinked Proteolytic Enzymes for Peptide Mapping by Capillary Electrophoresis.** Marie-Pier Ouellet, Karen Waldron, Martin Girard, University of Montreal, Montreal, CANADA
- 12:00-12:15 pm **High Throughput Isolation and Purification of Exosomes from Diverse Media via an HIC Mechanism on Capillary-channeled Polymer Fibers.** R. Kenenth Marcus, Terri Bruce, Rhonda Powell, Tyler Slonecki, Sisi Huang, Lei Wang, Clemson University, Clemson, SC, USA

**7B. Tuesday Parallel Session:
Top-Down Analysis / Bottom Up Protein Profiling**

Chair: Mingliang Ye, Dalian Institute of Chemical Physics, CAS, CHINA

- 11:15-11:30 am **Quality Profiling of Biopharmaceuticals as Intact Entities using High Resolution Native LC-MS.** Florian Fuessl¹, Anne Trappe¹, Ken Cook², Kai Scheffler³, Jonathan Bones¹, ¹National Institute for Bioprocessing Research and Training, Dublin, IRELAND; ²Thermo Fisher Scientific, Hemel Hempstead, UK; ³Thermo Fisher Scientific, Gemering, GERMANY
- 11:30-11:45 am **Altered Selectivity in Mass Spectrometry-Compatible Reversed Phase Separations of Intact Proteins.** Kevin Schug, Yehia Baghdady, University of Texas, Arlington, TX, USA
- 11:45-12:00 pm **Breaking Up Is Not So Hard To Do: Recent Advances in Peptide Mapping of Biotherapeutics.** Cory Muraco, Gary Oden, MilliporeSigma, Bellefonte, PA, USA
- 12:00-12:15 pm **Simple and Integrated Spintip-based Technology for Deep and High-throughput Proteome Profiling.** Ruijun Tian, Southern University of Science and Technology, Shenzhen, CHINA

**7C. Tuesday Parallel Session:
Multidimensional Separations - I**

Chair: Oleg Krokhin, University of Manitoba, CANADA

- 11:15-11:30 am **Evaluation of Active Solvent Modulation to Enhance Two-dimensional Liquid Chromatography for Target Analysis in Polymeric Matrices.** Matthias Pursch¹, Antje Wegener¹, Stephan Buckenmaier², ¹Dow, Stade, GERMANY; ²Agilent Technologies, Waldbronn, GERMANY
- 11:30-11:45 am **Decreasing the Uncertainty of Peak Assignments using Two-Dimensional Ultra-High Performance Liquid Chromatography.** Ira Lurie¹, Cecilia Ochoa¹, Peter Schoenmakers², Claude Mallet³, ¹George Washington University, Washington, DC, USA; ²University of Amsterdam, Amsterdam, NETHERLANDS; ³Waters, Milford, MA, USA
- 11:45-12:00 pm **A Chemical-Mathematical Model to Maximize Protein Sequence Coverage for Shotgun Proteomics in On-Line Comprehensive LCxLC-MS/MS.** Weliton P. Batiston, Álvaro J. Santos-Neto, Emanuel Carrilho, University of Sao Paulo, Sao Carlos, BRAZIL
- 12:00-12:15 pm **Comprehensive Two Dimensional Liquid Chromatography with Active Solvent Modulation as a Versatile Tool for Characterization of Synthetic Polymers.** Peilin Yang¹, Wei Gao¹, Lu Bai¹, Wenqin Wang¹, Yunshen Chen¹, Jim Luong², ¹The Dow Chemical Company, Collegeville, PA, USA; ²Dow Chemical Canada ULC, Fort Saskatchewan, CANADA

7D. Tuesday Free Tutorial (Open to all conferees, first-come seating)

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11:15-12:00 pm **Designing Efficient Workflows to Support an HPLC Procedural Lifecycle.** Jinjian Zheng, Feng Tan, Margaret Figus, Imad Ahmad, David Lavrich, Robert Hartman, Merck & Co. Inc., Rahway, NJ, USA

Tuesday Free Vendor Technical Workshops

12:25-1:25 pm **Simple Approaches to Charge Variant Analysis**
Sponsored by Thermo Fisher Scientific
Speaker: Jonathan Bones, Principal Investigator, NIBRT Characterization and Comparability Laboratory, NIBRT

12:25-1:25 pm **Maximizing Sensitivity without Jeopardizing Ruggedness and Reliability**
Sponsored by Shimadzu Scientific Instruments

12:25-1:25 pm **2DLC - A "Swiss Army Knife" to Solve Chromatographic Challenges?**
Sponsored by Agilent Technologies
Speakers: Ulrich Eberhardinger, Product Manager Agilent Technologies and an invited speaker

Mixer in the Exhibition Hall

12:15-1:30 pm Break, Exhibits, Posters

**8A. Tuesday Parallel Session:
Capillary Electrophoresis - Proteomics and Glycomics**

Chair: David Chen, University of British Columbia, CANADA

1:30-1:55 pm **Recent Advances in Capillary Electrophoresis Enabling Single-cell Mass Spectrometry.** Peter Nemes¹, Rosemary Onjiko¹, Camille Lombard¹, Erika Portero¹, Sally Moody², ¹University of Maryland, College Park, MD, USA; ²George Washington University, Washington, DC, USA [KEYNOTE LECTURE] [recipient of the 2018 Georges Guiochon Faculty Fellowship]

1:55-2:20 pm **Deep and High Sensitive Top-down Proteomics using Capillary Zone Electrophoresis-Tandem Mass Spectrometry.** Elijah Mccool, Rachele Lubeckyj, Xiaojing Shen, Liangliang Sun, Michigan State University, East Lansing, MI, USA [KEYNOTE LECTURE]

2:20-2:35 pm **A New Paradigm in Glycan Analyses: Integrating Enzymes and Lectins with Capillary Electrophoresis.** Lisa Holland, Srikanth Gattu, Grace Lu, West Virginia University, Morgantown, WV, USA

2:35-2:50 pm **Characterization of the Placental Metabolome for Elucidating the Impacts of Maternal High Fat Diet on Fetal Development.** Michelle Saoi, Wajiha Gohir, Jessica Wallace, Katherine Kennedy, Deborah Sloboda, Philip Britz-McKibbin, McMaster University, Hamilton, CANADA

8B. Tuesday Parallel Session: Quality by DesignChair: Margareth Marques, U.S. Pharmacopeia, USA

- 1:30-1:55 pm **Improving HPLC Performance with DOE Methodology.** John Kauffman, 3M, Columbia, MO, USA [KEYNOTE LECTURE]
- 1:55-2:20 pm **Adapting QbD Best Practices to LC Method Development.** Richard Verseput, S-Matrix Corporation, Eureka, CA, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm **Application of DoE for Development of a High Throughput Size Exclusion Chromatography.** Sophia V. Levitskaya-Seaman¹, Hangu Nam², Michael Born¹, Alec Liu¹, Adrian Man¹, Sheau-Chiann Wang¹, ¹MedImmune, Gaithersburg, MD, USA; ²Virginia Technology University, Blacksburg, VA, USA
- 2:35-2:50 pm **Method Development and Validation Considerations for Modernization of USP Monographs.** Susan Moini, John Simpson, Jennifer Belsky, US Pharmacopeia, Rockville, MD, USA

8C. Tuesday Parallel Session: Glycomics - I

Chair:

- 1:30-1:55 pm **High pH Anion Exchange Separation of Carbohydrates: Past, Present and Future.** Christopher Pohl, Thermo Fisher Scientific, Sunnyvale, CA, USA [KEYNOTE LECTURE] [recipient of the 2018 Uwe D. Neue Award in Separation Science]
- 1:55-2:20 pm **Effective Chemical and Enzymatic Methods to Separate Glycoproteins for MS Analysis.** Ronghu Wu, Georgia Institute of Technology, Atlanta, GA, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm **Analysis of Carbohydrates in Dairy Matrices by Different Liquid Chromatography Techniques.** Leon Coulier, Marieke Vijverberg, Wibo van Scheppingen, Lucien Duchateau, DSM Biotechnology Center, Delft, NETHERLANDS
- 2:35-2:50 pm **Evaluation of High Throughput Glycan Assays to Support Large Bioprocess Sample Sets.** Carly Daniels¹, Anastasiya Manuilov², Wenqin Ni², Himakshi Patel², Alexander Piening³, Joshua Woods¹, ¹Pfizer, Chesterfield, MO, USA; ²Pfizer, Andover, MA, USA; ³Rockhurst University, Kansas City, MO, USA

8D. Tuesday Free Tutorial (Open to all conferees, first-come seating)

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- 1:55-2:40 pm **Preparing Your Manuscript and Publishing it from an Editor's Perspective.** Jonathan Sweedler, University of Illinois at Urbana-Champaign, Urbana, IL, USA

Tuesday Poster Session-4 and Mixer in the Exhibition Hall

- 2:50-4:30 pm Break, Exhibits, Posters

9A. Tuesday Parallel Session: Metabolite Analysis

Chair:

- 4:30-4:55 pm **Automated Chemical Derivatization Approaches Combined to Liquid Chromatography and High Resolution Mass Spectrometry to Enhance Metabolite Coverage.** Gerard Hopfgartner, University of Geneva, Geneva, SWITZERLAND [KEYNOTE LECTURE]
- 4:55-5:10 pm **Metabolic Profiling of Single Cells in the *Xenopus laevis* (Frog) Embryo using CE-ESI-MS.** Erika Portero¹, Sally Moody², Peter Nemes¹, ¹University of Maryland, College Park, MD, USA; ²The George Washington University, Washington, DC, USA
- 5:10-5:25 pm **Development of a Novel Tracer-based Proteometabolomics Technology.** Shen Hu, University of California, Los Angeles, CA, USA
- 5:25-5:40 pm **Controlling Selectivity of Polymer-based Monolithic Stationary Phases for Analysis of Dopamine Metabolites.** Jiri Urban¹, Martina Komendova¹, Suhas Nawada², Radovan Metelka³, Peter Schoenmakers², ¹Masaryk University, Brno, CZECH REPUBLIC; ²University of Amsterdam, Amsterdam, THE NETHERLANDS; ³University of Pardubice, Pardubice, CZECH REPUBLIC
- 5:40-5:55 pm **Integrated Parallel Two-dimensional Liquid Chromatography Mass Spectrometry and Comprehensive Two-dimensional Gas Chromatography Mass Spectrometry for Metabolomics.** Aminul Prodhan, Biyun Shi, Xinmin Yin, Wenke Feng, Craig McClain, Xiang Zhang, University of Louisville, Louisville, KY, USA

9B. Tuesday Parallel Session: Supercritical Fluid Chromatography and Multidimensional Separations

Chair: Lucie Novakova, Charles University, CZECH REPUBLIC

- 4:30-4:50 pm **Enhanced Resolution of Stereoisomers through Stationary Phase Optimized Selectivity Liquid and Supercritical Fluid Chromatography (SOS-LC and SOS-SFC).** Ravindra Hegade¹, Maarten De Beer², Frederic Lynen¹, University of Gent, Ghent, BELGIUM; ²AmatsiSEPS Pharma, Gent, BELGIUM [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]
- 4:50-5:10 pm **Creating Devices for Multidimensional Separations based on Computational Insights.** Theodora Adamopoulou¹, Sander Deridder², Suhas Nawada¹, Gert Desmet², Peter J. Schoenmakers¹, ¹Van 't Hoff Institute for Molecular Science (HIMS), University of Amsterdam, Amsterdam, NETHERLANDS; ²Vrije Universiteit Brussel, Brussels, BELGIUM [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]
- 5:10-5:25 pm **The Effect of Pressures up to 600 Bar, and Modifier Concentration on the Optimum Flow Rate in Supercritical Fluid Chromatography.** Terry Berger, SFC Solutions Inc., Englewood, FL, USA
- 5:25-5:40 pm **Separation and Quantitation of Seven Cannabinoids using Supercritical Fluid Chromatography-Tandem Mass Spectrometry (SFC-MS/MS).** Lisa Zang, Guannan Li, Agilent Technologies, Santa Clara, CA, USA
- 5:40-5:55 pm **LC-MS versus SFC-MS: Advantages and Challenges.** Gesa Schad¹, Yuka Fujito², Alan Barnes³, Mel Euerby⁴, Neil Loftus³, ¹Shimadzu Europa GmbH, Duisburg, GERMANY; ²Shimadzu Corporation, Kyoto, JAPAN; ³Shimadzu MSO, Manchester, UK; ⁴University of Strathclyde, Glasgow, UK

9C. Tuesday Parallel Session: Glycomics - II

Chair: Ronghu Wu, Georgia Institute of Technology, USA

- 4:30-4:55 pm **Co-analysis of Glycoproteomics, Phosphoproteomics, and Global Proteomics from the Same Sample.** Hui Zhang, Johns Hopkins University, Baltimore, MD, USA [KEYNOTE LECTURE]
- 4:55-5:10 pm **Direct Analysis in Real Time Mass Spectrometry for Characterization of Large Saccharides.** Huiying Ma¹, Qing Jiang¹, Hongli Li¹, Wentao Bi¹, David Chen²,¹Nanjing Normal University, Nanjing, CHINA; ²University of British Columbia, Vancouver, CANADA
- 5:10-5:25 pm **Selective Separation of Cell Surface N-Glycoproteins for Their Identification with Mass Spectrometry.** Suttipong Suttapitugsakul, Lindsey Ulmer, Ronghu Wu, Georgia Institute of Technology, Atlanta, GA, USA
- 5:25-5:40 pm **A Major Increase in Selectivity for Phosphopeptides and Glycopeptides in ERLIC and HILIC Conferred by the Salt Selection.** Andrew Alpert, PolyLC Inc., Columbia, MD, USA
- 5:40-5:55 pm **Multiplexed Capillary Zone Electrophoresis-Mass Spectrometry Revealed N-glycome Developmental Plan during Embryogenesis.** Yanyan Qu¹, Elizabeth H. Peuchen¹, Zhenbin Zhang¹, Alex S. Hebert², Sarah N. Lum¹, Joshua J. Coon², Matthew M. Champion¹, Paul W. Huber¹, Norman J. Dovichi¹, ¹University of Notre Dame, Notre Dame, IN, USA; ²University of Wisconsin, Madison, WI, USA

9D. Tuesday Free Tutorial (Open to all conferees, first-come seating)

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- 4:55-5:40 pm **Modeling Peptide Separations in Proteomics Era: HPLC (RP, HILIC, SCX) and CZE.** Oleg Krokhin, University of Manitoba, Winnipeg, CANADA
- 6:00-7:30 pm **VENDORS RECEPTION & MIXER**
Enjoy an open bar and delicious bites while cruising the exhibit hall to network and build new connections. The exhibition offers opportunities to view new product launches, check out innovative products, explore ground-breaking technologies, and discuss challenges and solutions with experts in the booths. Open to all conference participants; conference name badge is required for entry.

Wednesday, August 1, 2018

10A. Wednesday Parallel Session: High Speed Liquid Chromatography - I

Chair: Milton Lee, Brigham Young University, USA

- 8:30-8:55 am **Practice and Ramifications of Ultrafast LC and SFC.** Daniel W. Armstrong, University of Texas at Arlington, Arlington, TX, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Increasing Throughput for Pharmacopeial Monographs using UHPLC.** James Grinias, Rowan University, Glassboro, NJ, USA [KEYNOTE LECTURE]
- 9:20-9:40 am **Subcellular Proteome Analysis using Selective Protein Isolation and Nano LC-MS Identification.** Xiangmin Zhang, Sheng Guan, Hailong Yu, Yiyang Liu, Guoquan Yan, Mingxia Gao, Fudan University, Shanghai, CHINA [INVITED LECTURE]
- 9:40-10:00 am **Lipidomics Analysis of Clinical Samples by 2D LC-MS/MS.** Huwei Liu, Honggang Nie, Yu Bai, Peking University, Beijing, CHINA [INVITED LECTURE]

10B. Wednesday Parallel Session: Microfabricated Devices - I

Chair: Susan Lunte, University of Kansas, USA

- 8:30-8:55 am **Micro-Separations for Single-Cell Diagnostics in Clinical Medicine.** Nancy Allbritton, University of North Carolina and North Carolina State University, Chapel Hill, NC, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Single Cell Analysis with Droplet-based Microfluidic Technique.** Qun Fang¹, Zi-Yi Li¹, Xiao-Li Guo², Min Huang³, Xiu-Kun Wang⁴, Ying Zhu⁵, Jin-Song Li⁶, Catherine C. L. Wong⁷, ¹Zhejiang University, Hangzhou, CHINA; ²Zhejiang University, Hangzhou, CHINA; ³National Center for Protein Science (Shanghai), Shanghai, CHINA; ⁴Zhejiang University, Shanghai, CHINA; ⁵Institute of Biochemistry and Cell Biology, Hangzhou, CHINA; ⁶Institute of Biochemistry and Cell Biology, Shanghai, CHINA; ⁷Peking University, Beijing, CHINA [KEYNOTE LECTURE]
- 9:20-9:40 am **Separation of Proteins at Femtoliter Scale using Extended-Nano Channel for Single Cell Proteomics.** Hisashi Shimizu, Kouto Toyoda, Kazuma Mawatari, Takehiko Kitamori, University of Tokyo, Tokyo, JAPAN [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]
- 9:40-10:00 am **Microprobe CE-ESI-HRMS for In-situ Analysis of Proteins and Metabolites in Single Embryonic Cells.** Camille Lombard-Banek¹, Rosemary, M. Onjiko¹, Sally, A. Moody², Peter Nemes¹, ¹University of Maryland, College Park, MD, USA; ²George Washington University, Washington, DC, USA [finalist for consideration of 2018 Csaba Horváth Young Scientist Award]

**10C. Wednesday Parallel Session:
Forward Looking Pharmaceutical Analysis - I**

Chair: Kelly Zhang, Genentech, USA

- 8:30-8:55 am **Emerging Needs in Pharmaceutical Research, Development and Commercialization – the Challenges, and Opportunities to Analytical Chemistry.** Xiaoyi Gong, Merck and Co., Inc., Rahway, NJ, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Microchip Electrophoresis Methods for Monitoring Biomarkers of Oxidative Stress In vivo and In vitro.** Susan Lunte, University of Kansas, Lawrence, KS, USA [KEYNOTE LECTURE]
- 9:20-9:40 am **Oxidative Degradation in Pharmaceuticals: Mechanism and Stabilization of Spray Dried Amorphous Drug - A Case Study.** Archana Kumar, Genentech, S. San Francisco, CA, USA [INVITED TALK]
- 9:40-10:00 am **A Novel, Universal Interface for Automated Process Sampling, Sample Preparation, and Online Chromatography.** Gordon Lambertus, Martin Johnson, Todd Maloney, Wei-Ming Sun, Luke Webster, Eli Lilly and Company, Indianapolis, IN, USA

10D. Wednesday Free Tutorial

(Open to all conferees, first-come seating) The tutorial track is part of the educational mission of HPLC 2018. Experts are asked to give presentations on a topic with more background than might be found in a typical 15-minute talk. The goal is to make the topic more accessible to those less expert in the area. In some cases, discussion and other interactive activities may be used.

- 8:55-9:40 am **Striking the Right Balance between Preparative RP-HPLC and Supercritical Fluid Chromatography to Support Drug Discovery.** Mengling Wong, Amber Guillen, Won Choi, Joseph Pease, Genentech, South San Francisco, CA, USA

Wednesday Poster Session-5 and Mixer in the Exhibition Hall

- 10:00-11:15 am Break, Exhibits, Posters

11A. Wednesday Parallel Session: HILIC

Chair: Gerard Hopfgartner, University of Geneva, SWITZERLAND

- 11:15-11:30 am **The Use of a HILIC Peptide Retention Prediction to Identify Sequence Variants and Peptides with Modified Amino Acids.** Majors Badgett¹, Barry Boyes², Ron Orlando¹, ¹University of Georgia, Athens, GA, USA; ²Advanced Materials Technology, Wilmington, DE, USA
- 11:30-11:45 am **HILIC to the Rescue: Pharmaceutical Development Case Examples.** Jonathan Shackman, Bristol-Myers Squibb, New Brunswick, NJ, USA
- 11:45-12:00 pm **The Increasing Role of HILIC in Routine Analyses.** Tivadar Farkas, Jianli Zhao, Cicely Zhu, Lawrence Loo, Jason Anspach, Jeffrey Layne, Phenomenex Inc., Torrance, CA, USA
- 12:00-12:15 pm **Assessing the Level of Mis-pairing in Asymmetric Bispecific Antibody by Hydrophobic Interaction Chromatography.** Bhargavi Vemulapalli, Chunlei Wang, Mingyan Cao, Xiangyang Wang, Dengfeng Liu, MedImmune, Gaithersburg, MD, USA

**11B. Wednesday Parallel Session:
Advances in Liquid Chromatography - III**
Chair: Peter Schoenmakers, University of Amsterdam, NETHERLANDS

- 11:15-11:30 am **Characterization of the Peptide Separation System: Development of a Column Characterization Protocol based on Peptide Probes.** Jennifer Field¹, Patrik Petersson², Mel Euerby^{1,3}, ¹University of Strathclyde, Glasgow, UK; ²Novo Nordisk, Copenhagen, DENMARK; ³Shimadzu, Milton Keynes, UK
- 11:30-11:45 am **Interaction of Toluene with Polar Stationary Phases under Conditions Typical for Hydrophilic Interaction Chromatography Probed by Saturation Transfer Difference Nuclear Magnetic Resonance Spectroscopy.** Adelijiang Xiamuxiding¹, Phuoc Dinh², Tobias Jonsson², Tobias Sparrman¹, Knut Irgum¹, ¹Umea University, Umea, SWEDEN; ²Diduco AB, Umea, SWEDEN
- 11:45-12:00 pm **Complementary Parallel LC as a Convenient Alternative to Multi Heart-Cut LC for Samples of Medium Complexity.** Maria Gruebner, Mauro De Pra, Frank Steiner, Thermo Fisher Scientific, Germering, GERMANY
- 12:00-12:15 pm **Empowering Superficially Porous Chiral Stationary Phases for the Separation of Pharmaceutical Chiral Amines.** Diego Lopez¹, J.T. Lee¹, Garrett Hellinghausen², Daniel W. Armstrong², ¹AZYP LLC, Arlington, TX, USA; ²University of Texas at Arlington, Arlington, TX, USA

**11C. Wednesday Parallel Session:
Cannabis and Drugs of Abuse**
Chair: Mark Schure, Kroungold Analytical Inc., USA

- 11:15-11:30 am **Enantiomeric Separations of Illicit Drugs with HPLC and SFC using Novel Core-Shell CSPs.** Garrett Hellinghausen¹, Daipayan Roy¹, JT Lee², Diego Lopez², Daniel W. Armstrong^{1,2}, ¹University of Texas at Arlington, Arlington, TX, USA; ²AZYP LLC, Arlington, TX, USA
- 11:30-11:45 am **Analysis of Pesticide Residues in Cannabis Regulated by California and Oregon State using LC/MS/MS with Electrospray and APCI Source.** Avinash Dalmia, PerkinElmer, Shelton, CT, USA
- 11:45-12:00 pm **Enantiomeric Separations of Nicotine and Its Various Nitrosamine Analogues by Novel HPLC Stationary Phases on Core-shell Particles.** J.T. Lee¹, Garrett Hellinghausen², Diego Lopez¹, Yadi Wang², Daniel W. Armstrong^{1,2}, ¹AZYP LLC, Arlington, TX, USA; ²University of Texas at Arlington, Arlington, TX, USA
- 12:00-12:15 pm **Systematic Drug Surveillance by Multisegment Injection-Capillary Electrophoresis-Mass Spectrometry: A High Throughput Method for Comprehensive Screening of Drugs of Abuse.** Philip Britz-McKibbin¹, Alicia DiBattista², Zach Kroezen³, Sabrina Macklai¹, Dianne Rampersaud², Howard Lee⁴, Marcus Kim⁵, ¹McMaster University, Hamilton, CANADA; ²Seroclinix Corporation, Mississauga, CANADA; ³McMaster University, Hamilton, CANADA; ⁴Seroclinix Corporation, Mississauga, CANADA; ⁵Agilent Technologies, Mississauga, CANADA

11D. Wednesday Free Tutorial

(Open to all conferees, first-come seating) The tutorial track is part of the educational mission of HPLC 2018. Experts are asked to give presentations on a topic with more background than might be found in a typical 15-minute talk. The goal is to make the topic more accessible to those less expert in the area. In some cases, discussion and other interactive activities may be used.

11:15-12:00 pm **3D Printing in the Separation Science.** Simone Dimartino, University of Edinburgh, Edinburgh, UK

Wednesday Free Vendor Technical Workshops

12:25-1:25 pm **The New Benchmark for Preparative LC Workflows - Pathways to Achieve Exceptional Accuracy and Flexibility**
Sponsored by Agilent Technologies
Speaker: Stefan Ullrich, Product Manager PREP Solutions, Agilent Technologies

12:25-1:25 pm **A Complete Solution for Streamlined LC Method Development**
Sponsored by Waters Corporation
Speaker: Margaret Maziarz, Principal Scientist, Waters Corporation

12:25-1:25 pm **Orthogonal LC and LC-MS Methods for the Characterization of Size, Charge Variants and Glycoforms in Therapeutic Proteins**
Sponsored by Phenomenex
Speaker: A. Carl Sanchez, Senior Research Scientist, Phenomenex

Mixer in the Exhibition Hall

12:15-1:30 pm Break, Exhibits, Posters

12A. Wednesday Parallel Session: High Speed Liquid Chromatography - II

Chair: James Grinias, Rowan University, USA

1:30-1:55 pm **Performance Optimization of High Speed Gradient Liquid Chromatography: How to Cope with Frit and Post-column Dispersion?** Fabrice Gritti, Thomas McDonald, Martin Gilar, Waters Corporation, Milford, MA, USA [KEYNOTE LECTURE]

1:55-2:20 pm **The Emergence of Fit-for-Purpose and Universal Chromatographic Methods in Pharmaceutical Research and Development.** Frank Bernardoni, Alexey Makarov, Erik L. Regalado, Merck & Co. Inc., Rahway, NJ, USA [KEYNOTE LECTURE]

2:20-2:35 pm **Aqueous Normal Phase HPLC – Single Column Fast Approach to Total Peptide Analysis.** Maria Matyska, Joseph Pesek, San Jose State University, San Jose, CA, USA

2:35-2:50 pm **Fast and Automated Characterization of Antibody Variants with 4D HPLC/MS.** Christoph Gstoettner¹, Denis Klemm², Markus Habeger³, Anja Bathke², Harald Wegele³, Christian Bell², Robert Kopf², ¹University Leiden, Leiden, NETHERLANDS; ²Hoffmann - La Roche, Basel, SWITZERLAND; ³Hoffmann - La Roche, Penzberg, GERMANY

12B. Wednesday Parallel Session: Oligomers

Chair: Edward Yeung, Iowa State University, USA

- 1:30-1:55 pm **Displacement Electrophoresis for Large Volume DNA Concentration.** Frantisek Foret¹, Vladimira Datinska¹, Ivona Voracova¹, Jan Berka², Yann Astier², ¹Czech Academy of Sciences Institute of Analytical Chemistry, Brno, CZECH REPUBLIC; ²Roche Sequencing Solutions, Pleasanton, CA, USA [KEYNOTE LECTURE]
- 1:55-2:20 pm **Simultaneous Separation of Small Interfering RNA and Lipids by Ion-pair Reversed-phase Liquid Chromatography.** Joe Foley¹, Li Li², Mirlinda Biba³, Roy Helmy², ¹Drexel University, Philadelphia, PA, USA; ²Merck & Co., West Point, PA, USA; ³Merck Research Laboratories, Rahway, NJ, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm **On the Issue of Separating Diastereomers of Phosphorothioated Oligonucleotides.** Martin Enmark¹, Jörgen Samuelsson¹, Maria Rova¹, Eivor Örnkvist², Anders Karlsson², Torgny Fornstedt¹, ¹Karlstad University, Karlstad, SWEDEN; ²AstraZeneca, Gothenburg, SWEDEN
- 2:35-2:50 pm **Enzyme-free Quantification of Exosomal MicroRNA and Surface Protein by the Target-triggered Assembly of Polymer DNAzyme Nanostructure.** Dinggeng He, Hung Wing Li, Hong Kong Baptist University, Kowloon, HONG KONG

**12C. Wednesday Parallel Session:
Forward Looking Pharmaceutical Analysis - II**

Chair: Xiaoyi Gong, Merck & Co., Inc., USA

- 1:30-2:20 pm **Characterizing Next Generation Therapeutic Modalities: Enabling High Complexity Drug Development using Modern Analytical Approaches.** Peter Yehl, Kelly Zhang, Colin Medley, Mohammad Al-Sayah, Jason Gruenhagen, Sam Yang, Genentech, South San Francisco, CA, USA [KEYNOTE LECTURE]
- 1:55-2:20 pm **Innovation, Advanced Analytics and Regulatory Science.** Patrick Faustino, U.S. Food and Drug Administration, Silver Spring, MD, USA [KEYNOTE LECTURE]
- 2:20-2:35 pm **Application of Chromatography Hyphenated HDX-MS Techniques for Studying Global Conformational Structures of Proteins/Peptides and Their Aggregates In Solution.** Alexey Makarov, Nicole Schiavone, Gregory Pirrone, Nicholas Pierson, Ian Mangion, Merck & Co. Inc. MRL, Rahway, NJ, USA
- 2:35-2:50 pm **Characterization of Bispecific and Mis-paired Antibodies by Charge-Variant Mass Spectrometry.** Guanghui Han¹, Wilson Phung¹, Aaron Bailey², Bingchuan Wei¹, Yonghua Zhang¹, Michael Dillon¹, Christoph Spiess¹, Paul Carter¹, Wendy Sandoval¹, ¹Genentech Inc., South San Francisco, CA, USA; ²Thermo Fisher Scientific, San Jose, CA, USA

12D. Wednesday Free Tutorial

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- 1:55-2:40 pm **Current Supercritical Fluid Chromatography.** Lucie Novakova, Charles University, Hradec Kralove, CZECH REPUBLIC

Wednesday Poster Session-6 and Mixer in the Exhibition Hall

2:50-4:30 pm Break, Exhibits, Posters

13A. Wednesday Parallel Session: Innovative Liquid Chromatography

Chair: Dwight Stoll, Gustavus Adolphus College, USA

4:30-4:55 pm **The MANIAC Way: Realizing "Impossible" Two-dimensional LC Combinations.** Bob W.J. Pirok¹, Noor Abdulhussain¹, Tom Aalbers¹, Bert Wouters¹, Ron A.H. Peters², Peter J. Schoenmakers¹, ¹University of Amsterdam, Amsterdam, NETHERLANDS; ²DSM Coating Resins, Waalwijk, NETHERLANDS [KEYNOTE LECTURE] [recipient of the 2017 Csaba Horváth Young Scientist Award]

4:55-5:10 pm **Please Stop Moving!! Techniques for Consistent Retention Times for "Difficult" Samples.** Adam Socia, Yong Liu, Andreas Abend, Merck Research Labs, West Point, PA, USA

5:10-5:25 pm **Emerging Chromatographic Technologies for Investigating Disulfide Bonds Variants in Therapeutic Protein Structure and Function: Case Studies.** Bingchuan Wei, Guanghui Han, Diana Liu, Charlene Li, Wendy Sandoval, Yan Chen, Yonghua Taylor Zhang, Genentech Inc., South San Francisco, CA, USA

5:25-5:40 pm **A Rapid Approach for Separation of Chiral Isomers and Structurally Similar Compounds by Multiple Heart-cutting Two-dimensional HPLC.** Charlotte Tsang, Jessica Lin, Kelly Zhang, Genentech, South San Francisco, CA, USA

5:40-5:55 pm **Selection by Shape: Stationary Phase Architecture and Molecular Shape Discrimination in Liquid Chromatography.** Lane Sander, National Institute of Standards and Technology, Gaithersburg, MD, USA

13B. Wednesday Parallel Session: Microfabricated Devices - II

Chair: Nancy Allbritton, University of North Carolina at Chapel Hill, USA

4:30-4:55 pm **Non-intuitive Separation Schemes for Nanometer-sized Particles and Subcellular Organelles.** Daihyun Kim¹, Edgar Arriaga², Alexandra Ros¹, ¹Arizona State University, Tempe, AZ, USA; ²University of Minnesota, Minneapolis, MN, USA [KEYNOTE LECTURE]

4:55-5:10 pm **Achieving a Peak Capacity of 1800 using an 8m Long Pillar Array Column.** Martyna Baca, Gert Desmet, Heidi Ottevaere, Wim De Malsche, Vrije Universiteit Brussel, Brussels, BELGIUM

5:10-5:25 pm **SFC and High-temperature HPLC-MS in Glass Chips using Sub-2 µm and Core/Shell Technology.** Josef Johann Heiland, Detlev Belder, Leipzig University, Leipzig, GERMANY

5:25-5:40 pm **Prototyping of Novel Microfluidic Chips for Comprehensive Two- and Three-Dimension Liquid Chromatographic Separations.** Jelle De Vos¹, Sebastiaan Eeltink², ¹Vrije Universiteit Brussel, Brussel, BELGIUM; ²Vrije Universiteit Brussel, Brussels, BELGIUM

5:40-5:55 pm **Chip-based Magnetic Solid Phase Extraction Online Coupled with Micro High Performance Liquid Chromatography-Inductive Coupled Plasma Mass Spectrometry for Elemental Speciation in Cells.** Bin Hu, Beibei Chen, Man He, Han Wang, Wuhan University, Wuhan, CHINA

**13C. Wednesday Parallel Session:
Forward Looking Pharmaceutical Analysis - III**

Chair: Patrick Faustino, U.S. Food and Drug Administration, USA

- 4:30-4:55 pm **Characterization of Complex Pharmaceutical Polymers by 2D-LC/MS.**
Kelly Zhang¹, Samuel Yang¹, Jenny Wang¹, Bifan Chen², Pete Yeh¹, ¹Genentech, South San Francisco, CA, USA; ²University of Wisconsin–Madison, Madison, WI, USA [KEYNOTE LECTURE]
- 4:55-5:10 pm **Novel HIC Capture Phase for Improved Two-Dimensional Protein A/SEC Separation of Monoclonal Antibodies.** Lei Wang¹, Douglas Richardson², Jay Desai², Bhumi Patel², R. Kenneth Marcus¹, ¹Clemson University, Clemson, SC, USA; ²Merck & Co. Inc., Kenilworth, NJ, USA
- 5:10-5:25 pm **Glycoprotein Monosaccharide Compositional Analysis by UPLC-FLD.**
Matt Schombs, Hung Tieu, Armando Romero, Lidia Wojnowski, Bayer, Berkeley, CA, USA
- 5:25-5:40 pm **Detection of Point Mutations in Marker Proteins via LC-MS Technologies.**
Iulia M. Lazar, Shreya Ahuja, Virginia Tech, Blacksburg, VA, USA
- 5:40-5:55 pm **CITE-Id as a Novel Chemoproteomic Method to Characterize Covalent Inhibitors.** Jarrod Marto, Dana-Farber Cancer Institute, Boston, MA, USA

13D. Wednesday Free Tutorial

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- 4:55-5:40 pm **Development of HPLC Methods for the Release and Characterization Testing of Antibody-Drug Conjugates.** Michael Fleming, ImmunoGen Inc., Waltham, MA, USA

Wednesday Conference Cocktail Reception and Gala Dinner Cruise

7:30-10:30 pm Join us for an evening of sightseeing, food, music and fun while cruising along the Potomac River where you will enjoy fascinating views of America's great landmarks and Washington DC's historic waterfront. The number of tickets is limited for this memorable event. We strongly suggest you purchase the dinner cruise at the time you register for the meeting as this event will sell out prior to the conference.

The number of tickets is limited for this memorable event, and we cannot be certain there may a ticket available if you wait to try to purchase onsite. Tickets are offered for as little as \$90 (a \$140 value) for an evening of networking opportunities with fellow colleagues, sightseeing, food, and entertainment. We strongly suggest you pre-purchase your ticket. You may purchase at the time you complete your online registration, or you may return to your online registration and add the conference dinner. The dinner cruise, operated by Spirit Cruises, is located at 600 Water Street SW, Washington, DC, a 5-10 minute walk from the Waterfront Metro Subway Station. Boarding time on the boat is between 6:30 and 7:30 PM. The boat departs promptly at 7:30 PM. Must present ticket in order to go onboard–no exceptions. Misplaced or lost tickets will not be replaced.

**14A. Thursday Parallel Session:
Multidimensional Separations - II**

Chair: Koji Otsuka, Kyoto University, JAPAN

- 8:30-8:55 am **High-resolution Multi-dimensional Liquid Chromatography.** Peter Schoenmakers, University of Amsterdam, Amsterdam, NETHERLANDS [KEYNOTE LECTURE]
- 8:55-9:20 am **New Directions in the use of Two-Dimensional Liquid Chromatography for Deep and Efficient Characterization of Therapeutic Proteins.** Dwight Stoll, Gustavus Adolphus College, St. Peter, MN, USA [KEYNOTE LECTURE] [recipient of the 2017 Georges Guiochon Faculty Fellowship]
- 9:20-9:40 am **Three-Dimensional Chiral HPLC Analysis of Amino Acids and Related Compounds in Complex Biological Matrices including Human Clinical Samples.** Kenji Hamase¹, Reiko Koga², Aogu Furusho¹, Chin-Ling Hsieh^{1,3}, Nutchaya Sereekittikul^{1,4}, Takeyuki Akita¹, Masashi Mita⁵, Tomomi Ide¹, Jen-Ai Lee³, Wolfgang Lindner⁶, ¹Kyushu University, Fukuoka, JAPAN; ²Fukuoka University, Fukuoka, JAPAN; ³Taipei Medical University, Taipei, TAIWAN; ⁴Mahidol University, Bangkok, THAILAND; ⁵Shiseido, Tokyo, JAPAN; ⁶University of Vienna, Vienna, AUSTRIA [INVITED LECTURE]
- 9:40-10:00 am **Maximizing Comprehensive Two-dimensional LC Peak Capacity for Complex Aromatic Amines Oligomer Analysis.** Koudi Zhu¹, Gert Desmet², Sebastiaan Eeltink², Matthias Pursch³, ¹Dow Chemical Company, Midland, MI, USA; ²Vrije Universiteit Brussel, Brussel, BELGIUM; ³Dow Stade Produkt, Stade, GERMANY

**14B. Thursday Parallel Session:
Innovative HPLC Column Technology**

Chair: Mary Wirth, Purdue University, USA

- 8:30-8:55 am **3D Print Your Own Chromatography Column.** Simone Dimartino, Ursula Simon, University of Edinburgh, Edinburgh, UK [KEYNOTE LECTURE] [recipient of the 2016 Csaba Horváth Young Scientist Award]
- 8:55-9:20 am **Recent Advances in the Fabrication and Use of Perfectly Ordered Chromatographic Media.** Gert Desmet, Vrije Universiteit Brussel, Brussels, BELGIUM [KEYNOTE LECTURE]
- 9:20-9:40 am **Separation of Chiral Drugs with Multi-Chiral Centers by Capillary Electrophoresis and Two Dimensional Liquid Chromatography.** Jingwu Kang¹, Ranran Meng¹, Feng Xu², ¹Shanghai Institute of Organic Chemistry CAS, Shanghai, CHINA; ²Shanghai Institute of Organic Chemistry, Shanghai, CHINA [INVITED LECTURE]
- 9:40-10:00 am **Microfluidic Chip towards Exosomes Analysis and Applications in Biomedicine.** Bifeng Liu, Huazhong University of Science and Technology, Wuhan, CHINA [INVITED LECTURE]

**14C. Thursday Parallel Session:
Antibody Drug Conjugates - I**

Chair:

- 8:30-8:55 am **Capillary Electrophoresis with Mass Spectrometry: A Powerful Tool for Characterization of Antibody-Drug Conjugates.** Oluwatosin Dada, Seattle Genetics Inc., Bothell, WA, USA [KEYNOTE LECTURE]
- 8:55-9:20 am **Approaches to Characterization of Antibody Drug Conjugates from Different Conjugation Platforms.** April Xu, Pfizer, Pearl River, NY, USA [KEYNOTE LECTURE]
- 9:20-9:40 am **Probing Signaling Pathway Proteins of Apoptosis at the Single Cell Level via Plasmonic Immunosandwich Assay.** Yanrong Wen, Jia Liu, Zhen Liu, Nanjing University, Nanjing, CHINA [INVITED LECTURE]
- 9:40-10:00 am **HIC-MS of Intact Monoclonal Antibodies and Antibody-Drug Conjugates.** Andrew Alpert¹, Ying Ge², Bifan Chen², Ziqing Lin², ¹PolyLC Inc., Columbia, MD, USA; ²University of Wisconsin-Madison, Madison, WI, USA

Thursday Poster Session-7 and Mixer in the Exhibition Hall

- 10:00-11:15 am **Break, Poster presentations by finalists for consideration of best poster awards**

**15A. Thursday Parallel Session:
Multidimensional Separations - III**

Chair: Bob Pirok, University of Amsterdam, NETHERLANDS

- 11:15-11:30 am **Multidimensional Separation and HRMS Enhance Protein Identification from Limited Neuron Populations.** Sam B. Choi¹, Camille Lombard-Banek¹, Pablo Munoz-LLancao², M. Chiara Manzini², Peter Nemes¹, ¹University of Maryland, College Park, MD, USA; ²The George Washington University, Washington, DC, USA
- 11:30-11:45 am **Chiral Stationary Phase Developments in HPLC Enantiomer Separation and Implementation in Enantioselective 2D-HPLC.** Michael Laemmerhofer, Ulrich Woiwode, Stefan Neubauer, Christian Geibel, University of Tuebingen, Tuebingen, GERMANY
- 11:45-12:00 pm **Multi-dimensional Spatial Separations - From Concepts to Prototypes.** Suhas Nawada, Theodora Adamopoulou, Noor Abdulhussain, Marta Passamonti, Pascal Bruer, Peter Schoenmakers, University of Amsterdam, Amsterdam, NETHERLANDS
- 12:00-12:15 pm **Fully-automated Purification Method of Substances in Analytical and Preparative Scales by Multiple Dimensional Liquid Chromatography.** Xindu Geng, Northwest University, Xi'an, CHINA and Suzhou Primacy Science & Technology Co., Suzhou, CHINA

15B. Thursday Parallel Session: Innovative Separation Technology
Chair: Gert Desmet, Vrije Universiteit Brussel, BELGIUM

- 11:15-11:30 am **Rapid Analyses in Portable Nanoflow Liquid Chromatography.** Luke Tolley¹, Xiaofeng Xie¹, Thy Truong², Leena Patil², Paul Farnsworth², H. Dennis Tolley², Milton Lee², ¹Axcend, Salt Lake City, UT, USA; ²Brigham Young University, Provo, UT, USA
- 11:30-11:45 am **Evaluation of a Novel Bimodal Stationary Phase based on Cholic Acid Oligomers that form Self-invertible Molecular Pockets.** Karen C. Waldron, Vincent Dionne-Dumont, Meng Zhang, Nicolas Levaray, Julian Zhu, University of Montreal, Montreal, CANADA
- 11:45-12:00 pm **Bio-Inert versus Bio-Compatible: The Benefits of Different Column Materials in Liquid Chromatography Separations.** Jason Anspach, Brian Rivera, Srinivasa Rao, Tivadar Farkas, Phenomenex, Torrance, CA, USA
- 12:00-12:15 pm pending

15C. Thursday Parallel Session: Lipids
Chair: Huwei Liu, Peking University, CHINA

- 11:15-11:30 am **Comprehensive Two-Dimensional Liquid Chromatography with Quadruple Mass Spectrometry, LC2MS4, for Analysis of Triacylglycerols.** William Byrdwell, U.S. Department of Agriculture, Beltsville, MD, USA
- 11:30-11:45 am pending
- 11:45-12:00 pm **Development of UPLC-MSMS Methods for the Analysis of Complex, Sparsely Soluble Compounds in Environmental Toxicology.** Jelena Jokovic (Ciric), Charles River Laboratories Den Bosch BV, 's-Hertogenbosch, NETHERLANDS
- 12:00-12:15 pm pending
- 12:15-1:30 pm Lunch Break

16A. Thursday Parallel Session: Biomarkers
Chair: Lisa Holland, West Virginia University, USA

- 1:30-1:55 pm **Looking for Biomarkers with Finite Detection Limits using a Statistical Approach.** Mark Schure¹, Nicole Devitt², Joe Davis³, ¹Kroungold Analytical Inc., Blue Bell, PA, USA; ²University of Delaware, Newark, DE, USA; ³Southern Illinois University, Carbondale, IL, USA [KEYNOTE LECTURE]
- 1:55-2:10 pm **Comparative Proteomic Analysis of Microvesicles and Exosomes in Human Saliva for the Detection of Lung Cancer.** Hua Xiao, Shanghai Jiao Tong University, Shanghai, CHINA
- 2:10-2:25 pm **Multiplexed Targeted Quantitation of Membrane-Integrated Receptors.** Simion Kreimer, Peter Abadir, Robert Cole, Johns Hopkins University, Baltimore, MD, USA

16B. Thursday Parallel Session: Novel Detectors

Chair: Karen Waldron, University of Montreal, CANADA

- 1:30-1:55 pm **Online SERS Detection for Chemical Separations.** Zachary Schultz¹, Anh Nguyen², Emily Peters², Rafael Masitas¹, Lifu Xiao¹, ¹Ohio State University, Columbus, OH, USA; ²University of Notre Dame, Notre Dame, IN, USA [KEYNOTE LECTURE]
- 1:55-2:10 pm **Battling the Backlog: Novel CZE System for Forensic Separations.** Sarah Lum, Norman Dovichi, University of Notre Dame, Notre Dame, IN, USA
- 2:10-2:25 pm **Simultaneous Online Fluorescence and ESI-MS Detection for 1D and 2D HPLC in Microfluidic Glass Chips.** Sebastian Piendl, Josef Heiland, Detlev Belder, Leipzig University, Leipzig, GERMANY

16C. Thursday Parallel Session: Antibody Drug Conjugates - II

Chair: Oluwatosin Dada, Seattle Genetics, USA

- 1:30-1:55 pm **Advances in the Analysis of Monoclonal Antibodies, Antibody-Drug Conjugates and Therapeutic Proteins.** Koen Sandra, Jonathan Vandenbussche, Isabel Vandenheede, Mieke Steenbeke, Emmie Dumont, Gerd Vanhoenacker, Pat Sandra, Research Institute for Chromatography, Kortrijk, BELGIUM [KEYNOTE LECTURE]
- 1:55-2:10 pm **Drug-to-antibody Determination for an Antibody-drug-conjugate Utilizing Cathepsin B Digestion Coupled with Reversed-Phase High-Pressure Liquid Chromatography Analysis.** Guoyong Sun, Michael Adamo, Amit Katiyar, Tapan Das, Bristol-Myers Squibb, Pennington, NJ, USA
- 2:10-2:25 pm **Novel Application of 2D-LC-MS in Assessing Enantiomeric Purity of Complex Linker Drug Intermediates with Multiple Chiral Centers used in Antibody Drug Conjugates (ADCs).** CJ Venkatramani¹, Anne Kraft², ¹Genentech, South San Francisco, CA, USA; ²Roche, Basel, SWITZERLAND

17. Thursday Closing Plenary Session

Chair:

- 2:30-3:00 pm **State of the Art and Future Perspectives of Ultrafast Chiral Separations by Liquid Chromatography.** Alberto Cavazzini¹, Martina Catani¹, Omar H. Ismail², Francesco Gasparri², ¹University of Ferrara, Ferrara, ITALY; ²La Sapienza University of Rome, Rome, ITALY [PLENARY LECTURE] *2019 HPLC Milan Chair*
- 3:00-3:30 pm **Specific Interactions in Liquid Phase Microscale Separations.** Koji Otsuka, Kyoto University, Kyoto, JAPAN [PLENARY LECTURE] *2019 HPLC Kyoto Chair*
- 3:30-4:00 pm **Avoiding the Compromise: New Bonded Phases for Coupling Protein LC with MS.** Yiyang Zhou, Rachel Jacobson, Aaron Chen, Yun Yang, Mary Wirth, Purdue University, West Lafayette, IN, USA [PLENARY LECTURE] *2020 HPLC San Diego Chair*

18. Thursday Award Presentations and Closing Ceremony

- 4:00-4:15 pm **Presentation of Best Poster Awards**
- 4:15-4:30 pm **Presentation of 2018 Csaba Horváth Young Scientist Award**
- 4:30-4:40 pm **Invitation to HPLC 2020 San Diego, USA**
Mary Wirth, Chair
- 4:40-4:50 pm **Invitation to HPLC 2019 Japan**
Koji Otsuka, Chair
- 4:50-5:00 pm **Invitation to HPLC 2019 Milan**
Alberto Cavazzini, Co-Chair
- 5:00-5:05 pm **Closing Ceremony**
- 5:05-6:05 pm **Farewell Reception**
The Farewell Reception takes place immediately following the Closing Ceremony on Thursday afternoon. Before heading out, join us to bid farewell to fellow conference attendees.

HPLC 2018 Preliminary List of Poster Presentations

Poster Board size 42 inches high by 42 inches wide (107cm x 107cm)
See link to poster guidelines under Author Instructions at HPLC2018.org
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- **Sensitive Determination of Perfluorinated Compounds in Water Samples by Carboxylated Carbon Nanospheres-based Solid-Phase Extraction-Liquid Chromatography–Tandem Mass Spectrometry.** [Ru-Song Zhao](#), Shandong Academy of Science, Jinan, CHINA
- **Stability Indicating RP-HPLC Method for Vancomycin Eye Drops.** [Parvathy Victor](#), Robin Lee, QLD Health, Brisbane, AUSTRALIA
- **Isolation, Structural Elucidation, and Bioactivity Studies of Leaf Extract of Vernonia Amygdalina.** [Muluye Melak Zenebe](#), Academia Sinica, Taipei, TAIWAN
- **Analysis of Vitamin D and Previtamin D in Food Products.** [Jinchuan Yang](#), Waters Corporation, Milford, MA, USA
- **Routine Botanical Authentication using a Miniature Mass Spectrometry.** [Jinchuan Yang](#), Jimmy Yuk, Paul Rainville, Waters Corporation, Milford, MA, USA
- **Determination of Isoflavones in Dietary Supplements: Method Transfer to UPLC.** [Jinchuan Yang](#), Gareth Cleland, Waters Corporation, Milford, MA, USA
- **Broad Screening of 100 Illicit Ingredients in Cosmetics using Ultra-High-Performance Liquid Chromatography-Hybrid Quadrupole-Orbitrap Mass Spectrometry with Customized Accurate-Mass Database and Mass Spectral Library.** Xianshuang Meng, [Qiang Ma](#), Chinese Academy of Inspection and Quarantine, Beijing, CHINA
- **Proposed Validated HPLC Method for Analysis of Chlorpheniramine Maleate and its Organic Impurities in Tablets Formulations using Silica Hydride Columns.** Joshua Young¹, William Ciccone¹, Suzanne Ciccone¹, Lisa Bamford¹, Richard Nguyen², [Joseph Pesek](#)³, Maria Matyska³, ¹MicroSolv Technology Corporation, Wilmington, NC, USA; ²U.S. Pharmacopeial Convention, Rockville, MD, USA; ³San Jose State University, San Jose, CA, USA
- **Analysis of Multiple Active Ingredients in Cough, Cold, and Allergy Over-the-Counter Medicines using Silica Hydride HPLC Columns.** Joshua Young¹, William Ciccone¹, Suzanne Ciccone¹, Lisa Bamford¹, [Joseph Pesek](#)², Maria Matyska², ¹MicroSolv Technology Corporation, Wilmington, NC, USA; ²San José State University, San Jose, CA, USA
- **Applying QbD in Process and Impurity Control Strategy Development.** Joe DiMartino, Andrew Anderson, Sanjivanjit Bhal, [Irina Oshchepkova](#), ACD/Labs, Toronto, CANADA
- **(Nano)-Lc Coupled to Ion Mobility Q-TOF for an Improved Sensitivity and Proteome Coverage.** [Gwenael Nys](#), Gael Cobraiville, Anne-Catherine Servais, Marianne Fillet, University of Liege, Liege, BELGIUM
- **HILIC-HR-MS for (Untargeted) Metabolomics in Microorganisms – (Finally) Getting Rid of Ion-pair LC-MS Methods.** Wouter Coppes, Raymond Ramaker, Sandra Pous-Torres, Reza Maleki-Seifar, [Leon Coulier](#), DSM Biotechnology Center, Delft, NETHERLANDS
- **Comprehensive Two-dimensional Ion Chromatography (2D-IC) Coupled to Post-column Photochemical Fluorescence Detection System for Determination of Neonicotinoids (Imidacloprida and Clothianidin) in Food Samples.** [Nadeem Muhammad](#), Hairong Cui, Wuchang University of Technology, Wuhan, CHINA

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- **On-line Comprehensive Two-dimensional Liquid Separations for Impurity Analysis in Nitric Acid-rich Industrial Reaction Mixtures.** [Karine Faure](#)¹, Florent Rouviere¹, Eric Tuva², Candice Grivel², Sabine Heinisch¹, ¹Institut des Sciences Analytiques CNRS, Universite Lyon 1, Villeurbanne, FRANCE; ²Solvay Recherches & Innovation, Saint Fons, FRANCE
- **Detection of Xylazine and Ketamine in Rodent Bones, Fur and Insects by 2D-LC Technology.** Neesha Karanth¹, Sabra Botch Jones¹, [Claude Mallet](#)², ¹Boston University School of Medicine, Boston, MA, USA; ²Waters Corporation, Milford, MA, USA
- **New Wide Pore Monolithic Silica of Various Functionalization: Protein A, Epoxy, C18, C8 and C4, in HPLC for Large Molecule Separations.** [Egidijus Machtejevas](#), Benjamin Peters, Merck KGaA, Darmstadt, GERMANY
- **Liquid Chromatography and Chemometrics in the Characterization, Classification and Authentication of Spanish Paprika by Means of Polyphenolic and Metabolomic Fingerprinting.** [Oscar Nunez](#), Cristina Sanchez-Garcia, Guillem Campmajo, Sergio Barbosa, Xavier Ceto, Nuria Serrano, Javier Saurina, Jose Manuel Diaz-Cruz, Cristina Arino, Miquel Esteban, University of Barcelona, Barcelona, SPAIN
- **Preparation of Partially Sub-1 µm Inorganic-organic Hybrid Silica Monolith Materials as Highly Efficient Stationary Phases in Reverse Phase Liquid Chromatography.** [Faiz Ali](#)¹, Cheong Won Jo², ¹University of Poonch Rawlakot, Rawlakot, PAKISTAN; ²INHA University, Incheon, SOUTH KOREA
- **Real-time PQ Analysis via 2D UPLC.** Anoushka Durve, [Dharani Vora](#), Jeff Goby, Eike Zimmermann, Kenji Furuya, Boehringer Ingelheim, Fremont, CA, USA
- **Incorporating Solid Phase Extraction into a Compendial Method for the Determination of Dexamethasone and its Impurities in Low-dose Drug Products.** [Qun Xu](#), U.S. Pharmacopeia, Rockville, MD, USA
- **Preparative Comprehensive Two-dimensional Chromatography: Comparison of CPCxLC and prepLCxLC for the Isolation of Multiple Targets from Edelweiss.** Lea Marlot, Magali Batteau, [Karine Faure](#), Institut des Sciences Analytiques CNRS, Universite Lyon 1, Villeurbanne, FRANCE
- **Intensification of Intracellular Enzyme Recovery.** [Jayeshkumar Mevada](#), Aniruddha Pandit, Institute of Chemical Technology, Mumbai, INDIA
- **The Use of Metabonomic Profiling with Liquid Chromatography Time-of-Flight Mass Spectrometry for the Detection of Complex Food Fraud.** [Kate Sidwick](#)¹, Amy Johnson¹, Craig Adam¹, Luisa Pereira², David Thompson¹, ¹Keele University, Newcastle-under-Lyme, UK; ²Thermo Fisher Scientific, Runcorn, UK
- **Can Capillary Electrophoresis Coupled to ICP-MS Serve as a Platform to Investigate the Speciation Changes of Gold Nanoparticles in Human Cytosol?** [Magdalena Matczuk](#)¹, Joanna Legat¹, Andrei Timerbaev², Maciej Jarosz, ¹Warsaw University of Technology, Warsaw, POLAND; ²Vernadsky Institute of Geochemistry and Analytical Chemistry, Russian Academy of Sciences, Moscow, RUSSIAN FEDERATION

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- **Development of a Universal LC/MS Method for Product Integrity Analysis in Agriculture Formulations.** [Koudi Zhu](#), Michael Kerry, Dow Chemical Company, Midland, MI, USA
- **The Use of Circular Dichroism Detection in HPLC to Determine Enantiomeric Ratios without Peak Resolution.** [DJ Tognarelli](#), John Burchell, Tom DePhillipo, JASCO Inc., Easton, MD, USA
- **An Efficient Method for the Determination of Trace Excipient Impurities in Biotherapeutic Drug Products Containing Polysorbate.** Robert Birdsall, [Brooke Koshel](#), Scott Berger, Ying Qing Yu, Weibin Chen, Waters Corporation, Milford, MA, USA
- **Multiplexed, High Throughput LCMS Methods for Non-polar and Polar Lipid Quantification in Size Separated Lipoproteins.** [Antony Lehtikoski](#), Zsuzsanna Kuklennyik, Michael Gardner, Centers for Disease Control and Prevention, Atlanta, GA, USA
- **Measuring Primary Aromatic Amines in Kitchenware by Liquid Chromatography-tandem Mass Spectrometry.** [Mary Angela Favaro Perez](#)^{1,2}, Marisa Padula¹, Carla Beatriz Grespan Bottoli², ¹Packaging Technology Center (CETEA), Food Technology Institute, ITALY; ²Institute of Chemistry, University of Campinas (UNICAMP), Campinas, BRAZIL
- **Charge Variant Analysis of Therapeutic Proteins using a Novel Weak Cation Exchange Stationary Phase.** [Shanhua Lin](#), Shane Bechler, Julia Baek, Yin Hu, Yoginder Singh, Xiaodong Liu, Thermo Fisher Scientific, Sunnyvale, CA, USA
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- **Shimadzu LVi-LCMSMS System for Trace Analysis of Multi-class Pharmaceuticals in Water Samples.** [Qisheng Zhong](#)¹, Ting Zhou², Jiaqi Liu¹, Yanshan Liang², Dianbao Yu¹, Jinting Yao¹, Taohong Huang³, ¹Shimadzu (China) Co. LTD., Guangzhou, CHINA; ²South China University of Technology, Guangzhou, CHINA; ³Shimadzu (China) Co. LTD., Shanghai, CHINA
- **Shorter Columns, Faster Gradients, Better Bioanalysis?** [David Mallett](#), Ryan Morgan, GlaxoSmithKline R&D, Stevenage, UK
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- **Bioaccumulation of Perfluoroalkyl Acids by Three Species of Earthworms Exposed to Contaminated Soils.** [Bei Wen](#), State Key Laboratory of Environmental Chemistry and Ecotoxicology Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, CHINA
- **Application of Novel HILIC Column Configurations to Improve Polar Analyte Analyses.** [Anne Mack](#), William Long, Mia Summers, Adam Bivens, Agilent Technologies, Wilmington, DE, USA

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- **Revealing the Ways of Manipulating Selectivity of Covalently-bonded Anion Exchangers for Ion Chromatography Toward Mono- and Polyvalent Organic Acids.** Aleksandra Zatirakha, Anna Uzhel, Anastasia Borodina, Igor Kvachenok, Alexander Smolenkov, Oleg Shpigun, Lomonosov Moscow State University, Moscow, RUSSIA
- **Determination of Neonicotinoids (Nitenpyram and 6-chloronicotinic acid) in Environmental Samples by Ion Chromatography Coupled with Online Photochemically Induced Fluorescence Detector.** Nadeem Muhammad¹, Qamar Subhani², Farooq Ahmad³, Zhu Yan¹, ¹Zhejiang University, Hangzhou, CHINA; ²Higher Education Department, Lahore, PAKISTAN; ³COMSATS Institute of Information Technology, Lahore, PAKISTAN
- **Robot-assisted Dynamic Large Drop Microextraction.** Luis Felipe Rodriguez Cabal, Deyber Arley Vargas Medina, Santos Neto Álvaro Jose, Universidade de Sao Paulo, Sao Carlos, BRAZIL
- **Fabrication and Characterization of Phenyl Stationary Phase Gradients on Particle Packed Columns for Liquid Chromatography.** Anna Forzano, Maryanne Collinson, Sarah Rutan, Virginia Commonwealth University, Richmond, VA, USA
- **Toward Universal Calibration: Factors Affecting the Response Uniformity of Charged Aerosol Detection.** Paul Gamache¹, Michael Menz², Katherine Lovejoy², ¹Thermo Fisher Scientific, Chelmsford, MA, USA; ²Thermo Fisher Scientific, Germering, GERMANY
- **Investigating the Retention Mechanisms and Types of Secondary Interactions Determining the Influence of Structural Fragments of Novel HILIC Materials on Their Selectivity.** Alla Chernobrovkina, Aleksandra Zatirakha, Alexander Popov, Ilya Kovalenko, Alexander Smolenkov, Oleg Shpigun, Lomonosov Moscow State University, Moscow, RUSSIA
- **Peptide Mapping: Best Practices for Generating Reliable and Robust Liquid Chromatography Methods.** Jennifer Simeone, Paula Hong, Waters Corporation, Milford, MA, USA
- **Evaluation of Two Hydrophilic Interaction Liquid Chromatography Stationary Phases for Global Metabolomics Analysis of Human Plasma.** Rosalynde Sonnenberg, Dajana Vuckovic, Concordia University, Montreal, CANADA
- **Application of Polydopamine-coated Capillary-Channeled Polymer (C-CP) Nylon Fiber for Phosphopeptide Analysis.** Hung Trang, Clemson University, Clemson, SC, USA
- **Dielectric Barrier Electrospray Ionization (DB-ESI) for Next Generation Protein Mass Spectrometry.** Albert Sickmann¹, Stefan Loro¹, Sebastian Brandt¹, Irina Reginskaya¹, Michael Schilling¹, Rene P. Zahedi², Joachim Franzke¹, ¹ISAS, Dortmund, GERMANY; ²Lady Davis Institute, Montreal, CANADA
- **Development of an LC-HRMS Assay for Putative Biomarkers of Anaphylaxis: 11 β -Prostaglandin F₂ α (11 β -PGF₂ α) and Leukotriene E₄ (LTE₄).** Ankita Gupta, Aliaksandr Napylau, Dajana Vuckovic, Concordia University, Montreal, CANADA

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- **High Performance Separations using 100% Aqueous Mobile Phase Compatible Superficially Porous Particle Columns Coupled with Mass Spectrometry.** Chuping Luo, Justin Godinho, Benjamin Libert, Stephanie Schuster, Barry Boyes, Advanced Materials Technology, Wilmington, DE, USA
- **Improved Chiral MS Analysis with Superficially Porous Chiral Columns.** Anne Mack, Mia Summers, William Long, Agilent Technologies, Wilmington, DE, USA
- **Gas Chromatography-Mass Spectrometry (GC-MS) Analysis of the Chloroform Extract of Sansevieria Liberica (Gerome & Labroy) Dracaenaceae.** Omowunmi Amao, Margaret Sofidiya, University of Lagos, Surulere, NIGERIA
- **Method Development for the Analysis of Antiretroviral Drugs with its Related Drugs in Wastewater using High-pressure Liquid Chromatography.** Mmanoko Berlina Seroto, Simiso Dube, Mathew Muzi Nindi, University of South Africa, Florida Park Roodepoort, SOUTH AFRICA
- **Rapid and Accurate Analysis of Trace Dopamine in Mouse Striatum by Ultrasonic Extraction Coupling with HPLC-fluorescence Detection.** Ziyong Huang, Luyan Jiao, Zhuomin Zhang, Xian Lin, Sun Yat-sen University, Guangzhou, PR CHINA
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- **Integrating Gold Nanoparticle-based Colorimetry with Capillary Electrophoresis for Determination of Heavy-Metal Ions.** Junmin Bi, Tong Li, Hang Ren, Rui Ling, Weidong Qin, Beijing Normal University, Beijing, CHINA
- **A Critical Investigation into the Effects of Operating Temperature on Protein Retention in Hydrophobic Interaction Chromatography.** Michael Menz, Sebastiaan Eeltink, Vrije Universiteit Brussel, Brussels, BELGIUM
- **First HPLC-FL Method for Quantification of Milrinone Plasma Levels in Cardiac Surgery Patients.** Peter Tang, Cincinnati Children's Hospital Medical Center, Cincinnati, OH, USA
- **Physicochemical and Chemical Characterization of Three Categories Surface Waters of Jacqueline City (Côte d'Ivoire).** N'cho Christophe Amin¹, Koffi Sylvain Dibi², Sawa Andre Philippe Kpaibe³, Kla Anglade Malan⁴, Luc Kouadio¹, ¹Institut National d'Hygiene Publique, Abidjan, COTE D'IVOIRE; ²Direction du Laboratoire Central de la Police, Abidjan, COTE D'IVOIRE; ³Département de Chimie Analytique Chimie Minerale et Generale, Abidjan, COTE D'IVOIRE; ⁴Laboratoire National de Sante Publique, Abidjan, COTE D'IVOIRE

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- **Simultaneous Determination of Five Aristolochic Acid Analogues by Ultra High Performance Liquid Chromatography-triple Quadrupole Mass Spectrometry.** [Liang Sun](#)¹, Yueqi Li¹, Changkun Li¹, Biao Ren¹, Lizhi Chen¹, Taohong Huang², ¹Shimadzu (China) Co., Beijing, CHINA; ²Shimadzu (China) Co., Shanghai, CHINA
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- **Fabrication of Graphene Oxide on Cellulose Paper for Micro-solid Phase Extraction of Aromatic Compounds.** Yanawut Manmana, Boonta Chutvirasakul, Leena Suntornsuk, [Nantana Nuchtavorn](#), Mahidol University, Bangkok, THAILAND
- **HILIC Method Development in Pharmaceutical Analysis.** [Dennis Asberg](#), Novo Nordisk A/S, Malov, DENMARK
- **An Evaluation of the Robustness of a Peptide Based Column Characterization Protocol.** [Jennifer Field](#)¹, Melvin Euerby^{1,2}, Patrik Petersson³, ¹University of Strathclyde, Glasgow, UK; ²Shimadzu, Milton Keynes, UK; ³Novo Nordisk, Copenhagen, DENMARK
- **Development of a Simple Chromatographic Characterization Protocol for Strong Cation Exchange (SCX) Columns.** [Jennifer Field](#)¹, Ashleigh Bell¹, Melvin Euerby^{1,2}, Patrik Petersson³, ¹University of Strathclyde, Glasgow, UK; ²Shimadzu, Milton Keynes, UK; ³Novo Nordisk, Copenhagen, DENMARK
- **Transfer and Scaling of a USP Assay for Quetiapine Fumarate Across Liquid Chromatographic Systems.** Jennifer Simeone, Patricia McConville, [Amanda Dlugasch](#), Waters Corporation, Milford, MA, USA

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- **Synthesis of a Hybrid Monolithic Capillary Column based on Polyhedral Oligomeric Silsesquioxane Methacryl Substituted and 1-Vinyl-3-Hexylimidazolium Chloride Ionic Liquid.** Fabiane Pires, Leandro Wang Hantao, [Carla Beatriz Grespan Bottoli](#), University of Campinas, Campinas, BRAZIL
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- **Magnetic Solid Phase Extraction of Trace Phenolic Pollutants using Polyaniline-modified Zerovalent Iron-silica Magnetic Particle as Sorbent.** Jirasak Kamonchuang, [Rodjana Burakham](#), Khon Kaen University, Khon Kaen, THAILAND
- **Adding Mass Detection to a USP Method for Lidocaine and Prilocaine Cream Using Multi-dimensional Liquid Chromatography.** [Margaret Maziarz](#), Claude Mallet, Paul Rainville, Mark Wrona, Waters Corporation, Milford, MA, USA
- **Assessing Chelate Cooperativity in Liquid Chromatography with Bifunctional Stationary Phases.** Xiaohuan Wang, Lei Chen, Tianjin [Qian-Hong Wan](#), Tianjin University, Tianjin, CHINA
- **Benefits of 2D-LC-MS/MS in Analysis of Biological Samples: Avoiding Matrix Effects - Increasing Detection Sensitivity.** [Jonas Dinser](#)¹, Veronika Rozehnal¹, Sonja Krieger², ¹Daiichi Sankyo Europe GmbH, Martinsried, GERMANY; ²Agilent Technologies, Waldbronn, GERMANY
- **Analysis of Drug and Vehicle in DBS and Plasma for Determination of Nanocarrier Stability and Drug Release in Pharmacokinetic Study.** [Matej Simek](#)¹, Martina Hermannova¹, Tereza Foglova¹, Vladimir Velebny¹, Karel Soucek², ¹Contipro, Dolni Dobrouc, CZECH REPUBLIC; ²Academy of Sciences of the Czech Republic, Brno, CZECH REPUBLIC
- **Analyzing Phosphorylated N-glycans with Full Recovery.** Sonja Schneider¹, Sonja Krieger¹, [Heike Waechtler](#)¹, Udo Huber¹, Pat Sandra², Koen Sandra², Jonathan Vandenbussche², Gerd Vanhoenacker², ¹Agilent Technologies, Waldbronn, GERMANY; ²Research Institute for Chromatography, Kortrijk, BELGIUM
- **Two-Dimensional Liquid Chromatography with Orthogonal Reversed Phase Liquid Chromatographic Conditions for Peak Purity Evaluation in Pharmaceutical Analysis.** [Qinggang Wang](#), Kaitlyn Frankenfield, George Wang, Brian He, Jonathan Shackman, Brent Kleintop, Bristol-Myers Squibb, New Brunswick, NJ, USA
- **Molecular Diagnostic of Zika Fever by Reverse Transcription-loop mediated Isothermal Amplification (RT-LAMP) in Disposable Polyester-toner Microdevices.** Paulo Estrela¹, Renata Batista¹, Alexandre Bailao¹, Nilson Assuncao², Juliane Borba¹, Emanuel Carrilho¹, [Gabriela Duarte](#)¹, ¹Universidade Federal de Goias, Goiania, BRAZIL; ²Unifesp, Sao Paulo, BRAZIL

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- **Determination of Lincosamide and Macrolide Antibiotic Residues in Milk by UHPLC-MS/MS.** [Dan Luo](#), Jianli Chen, Hongyuan Hao, Youbao Sun, Jinting Yao, Taohong Huang, Shimadzu (China) Co., LTD., Shanghai, CHINA
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- **Fragmentation Pathway of Harmful Chemicals in Soft Ionization Mode and its Application in Novel Analogue Screening.** [Feng-Ming Chen](#), Institute of Food Safety, Chinese Academy of Inspection and Quarantine, Beijing, CHINA
- **Two-Dimensional Separation for Surfactants using SFC-LC-MS.** [Yoshiyuki Watabe](#)¹, Yuka Fujito¹, Masato Ohmine², Hiroyasu Umemura², Takuya Tsutsui², Akinori Igarashi², Shinichi Kawano¹, Yoshihiro Hayakawa¹, ¹Shimadzu Corporation, Kyoto, JAPAN; ²Lion Corporation, Tokyo, JAPAN
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- **Ultra-high Performance Liquid Chromatography Triple Quadrupole Mass Spectrometry Method for Determination of Ibuprofen in Rat Plasma.** [Siming Li](#)¹, Jiting Yao¹, Lingling Shen¹, Qisheng Zhong¹, Jiaqi Liu¹, Dianbao Yu¹, Zhiru Li¹, Xin Deng¹, Taohong Huang², ¹Shimadzu (China) Co., Ltd., Guangzhou, CHINA; ²Shimadzu (China) Co., Ltd., Shanghai, CHINA
- **Importance of Hydrogen Bonding and CH- π Interaction on Deuterium Isotope Effect in Liquid Chromatographic Separations.** [Eisuke Kanao](#), Toyohiro Naito, Takuya Kubo, Koji Otsuka, Kyoto University, Kyoto, JAPAN
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- **Quantification of Warfarin in Human Plasma using Nexera MX Parallel Ultra High Pressure Liquid Chromatography-Mass Spectrometry.** [Jiang Bo](#), HongYuan Hao, TaoHong Huang, Shimadzu (China) Co.,Ltd., Shanghai, CHINA

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- **Determination of Small Polar Molecules in Complex Biological Matrix using UHPLC-MS/MS and Application for Clinical Research.** [Lenka Javorska](#)¹, Lenka Kujovska Krcmova¹, Nike Hazukova¹, Lubos Sobotka², Petr Solich¹, ¹Charles University, CZECH REPUBLIC; ²3rd Internal Gerontometabolic Clinic, University Hospital, CZECH REPUBLIC
- **HPLC-UV Fingerprinting in the Characterization and Classification of Arabica and Robusta Coffees by Chemometric Methods.** Xavi Collado, Nerea Nunez, [Oscar Nunez](#), Javier Saurina, University of Barcelona, Barcelona, SPAIN
- **Characterization and Classification of Extra Virgin Olive Oils with Protected Designation of Origin by Capillary Electrophoresis, Liquid Chromatography and Chemometrics.** Nerea Nunez, [Oscar Nunez](#), Javier Saurina, University of Barcelona, Barcelona, SPAIN
- **Analytical Method Development for the Detection of Phytocannabinoids using the Silica Hydride-based Prototype Phases.** Seiichiro Watanabe, Theresa Santos, Joseph Pesek, [Maria Matyska-Pesek](#), San Jose State University, San Jose, CA, USA

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- **Metabolomics Characterization of Grape (*Vitis vinifera*) Skin Extracts by LC-TOF-MS using Silica Hydride-based Stationary Phases.** Seiichiro Watanabe¹, Gary Takeoka², Joseph Pesek¹, Maria Matyska-Pesek, Craig Ledbetter³, ¹San Jose State University, San Jose, CA, USA; ²U.S. Department of Agriculture, Albany, CA, USA; ³U.S. Department of Agriculture, Parlier, CA, USA
- **Developing Phage Endolysins as Novel Therapeutics for Multi-drug Resistant Bacterial Infections.** Sarah Gao, Sara Linden, Daniel Nelson, IBBR, Rockville, MD, USA
- **Characterization of Four Type-C Silica Columns using Resveratrol Analogues.** Joshua Topete¹, Maria Matyska-Pesek¹, Milton Hearn², Reinhard Boysen², Joseph Pesek¹, ¹San Jose State University, San Jose, CA, USA; ²Monash University, Melbourne, AUSTRALIA
- **A Bio-inert, Durable, and Reliable Surface for HPLC and UHPLC Columns and Components used in the Analysis of Proteins and other Difficult Molecules.** Gary Barone, David Smith, Luke Patterson, Jesse Bischof, SilcoTek Corporation, Bellefonte, PA, USA
- **Three-dimensional HPLC Analysis of Chiral Amino Acids in the Plasma of Patients with Chronic Kidney Disease.** Aogu Furusho¹, Reiko Koga¹, Takeyuki Akita¹, Masashi Mita², Tomonori Kimura³, Kenji Hamase¹, ¹Kyushu University, Fukuoka, JAPAN; ²Shiseido Co. Ltd., Tokyo, JAPAN; ³National Institute of Biomedical Innovation Health and Nutrition, Osaka, JAPAN
- **A Fully Automated and Modular Multi-dimensional HPLC/MS System for Expedited Characterization of Monoclonal Antibodies.** Michael Leiss¹, Raphael Ruppert¹, Christoph Gstöttner², Tobias Graf¹, Ingrid Schmid¹, Katrin Heinrich¹, Denis Klemm³, Robert Kopf³, ¹Roche Pharma Development Analytics, Penzberg, GERMANY; ²Center for Proteomics and Metabolomics, Leiden, NETHERLANDS; ³Roche Pharma Development Analytics, Basel, SWITZERLAND
- **Simpler, Cleaner, Faster: Solid Phase Extraction Methods for Basic Analyte Extraction with Phospholipid Removal.** Donna Osterman, Thomas Swann, Kenneth Berthelette, Thomas Walter, Bonnie Alden, Waters Corporation, Milford, MA, USA
- **Ascorbic Acid Assisted High Performance Liquid Chromatography Mass Spectrometry Differentiation of Isomeric C-chloro- and N-chloro- Tyrosyl Peptides.** Ping Jiang, Guang Huang, Lindsay Blackstock, Jianye Zhang, Xing-Fang Li, University of Alberta, Edmonton, CANADA
- **Charge Variant and Glycoform Analysis of Human Alpha1-acid Glycoprotein by Capillary Electrophoresis with Electrophoretic Injection.** Chenhua Zhang¹, Cong Bi¹, William Clarke², David Hage¹, ¹University of Nebraska-Lincoln, Lincoln, NE, USA; ²Johns Hopkins University School of Medicine, Baltimore, MD, USA
- **Monoliths in Determination of Immune System Activation Markers and Vitamins in Various Biological Fluids: Ten Years Long Experience in Clinical Research.** Lenka Javorska^{1,2}, Dagmar Solichova², Bohuslav Melichar³, Lubos Sobotka^{1,2}, Petr Solich¹, Lenka Kujovska Krcmova^{1,2}, ¹Charles University, Hradec Kralove, CZECH REPUBLIC; ²University Hospital, Hradec Kralove, CZECH REPUBLIC; ³Palacky University Medical School, Olomouc, CZECH REPUBLIC

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- **Fully Automated Online Coupling of Robot-assisted Single Drop Microextraction with HPLC.** Deyber Arley Vargas Medina, Luis Felipe Rodriguez Cabal, Alvaro Jose Santos Neto, University of Sao Paulo, Sao Carlos, BRAZIL
- **The Use of Ultra-high Pressure Liquid Chromatography in Pharmacopeial Monograph Modernization.** Glenn Kresge¹, Jenny-Marie Wong², Mauro De Pra³, Frank Steiner³, James Grinias¹, ¹Rowan University, Glassboro, NJ, USA; ²Thermo Fisher Scientific, Waltham, MA, USA; ³Thermo Fisher Scientific, Germering, GERMANY
- **Analysis of Drug-protein Interactions During Diabetes using High-performance Affinity Chromatography and Affinity Microcolumns.** Pingyang Tao, Zhao Li, Ryan Mastuda, David Hage, University of Nebraska-Lincoln, Lincoln, NE, USA
- **Development of a Method for Trace-level Quantification of Nitrosamines in Wastewater.** Anthony Lapointe, Stephanie Gallant, Karen C. Waldron, Alexandra Furtos, University of Montreal, Montreal, CANADA
- **The Ligand Does Matter: Development of a Robust and Reliable Titer Measurement Assay for a Fragment Antigen-binding (Fab) Product.** Anoushka Durve, Jeff Goby, Eike Zimmermann, Kenji Furuya, Dharani Vora, Boehringer Ingelheim, Fremont, CA, USA
- **Formation of Halobenzoquinones from Chlorination of Aromatic Amino Acids: Investigating Bromide and Iodide Impact.** Lindsay K. Jmaiff Blackstock¹, Ping Jiang¹, Wei Wang², Xing-Fang Li¹, ¹University of Alberta, Edmonton, CANADA; ²Zhejiang University, Hangzhou, CHINA
- **Field Flow Fractionation for Separating Materials that Chromatography Cannot.** Robert Reed, Soheyl Tadjiki, Postnova Analytics, Salt Lake City, UT, USA
- **Rapid Drug-binding Studies with Modified Transport Proteins using Immunoextraction and Affinity Microcolumns.** Elliott Rodriguez, David Hage, University of Nebraska, Lincoln, NE, USA
- **Development of Immunoextraction System for On-line Entrapment of Serum Proteins.** Elliott Rodriguez, Saumen Poddar, Shiden Azaria, John Vargas-Badilla, David Hage, University of Nebraska, Lincoln, NE, USA
- **Separation and Decomposition Kinetics of Xanthate Compounds in Mining Waters by Capillary Electrophoresis and Headspace Gas Chromatography-Mass Spectrometry.** Kingsley Donkor¹, Adrian Batista¹, Tyson Bodor¹, John Andrew², ¹Thompson Rivers University, Kamloops, CANADA; ²New Afton Mine New Gold Inc., Kamloops, CANADA
- **Parallel Analysis of a Single Sample on Several Monolithic Capillary Columns or 3D Printed Device with an Integrated Electrochemical Detection.** Martina Komendova¹, Suhas Nawada², Radovan Metelka³, Peter Schoenmakers², Jiri Urban¹, ¹Masaryk University, Brno, CZECH REPUBLIC; ²University of Amsterdam, Amsterdam, NETHERLANDS; ³University of Pardubice, Pardubice, CZECH REPUBLIC

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- **HILIC-MS for Rapid Middle-down Assay of IgG1 Fc Glycosylation.** Rachel Jacobson¹, Yiyang Zhou¹, Bingchuan Wei², Guanghui Han², Yonghua Zhang³, Wendy Sandoval², Mary Wirth¹, ¹Purdue University, West Lafayette, IN, USA; ²Genentech Inc., South San Francisco, CA, USA; ³Juno Therapeutics, Seattle, WA, USA
- **Characterization of the Human Plasma Lipidome using LC-IM-qTof-MS.** Timo Koehler, Oliver Schmitz, Sven Meckelmann, University of Duisburg, Essen, GERMANY
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- **Rapid Screening of Drug-protein Interactions by High-performance Affinity Chromatography.** Ashley Woolfork, Pingyang Tao, Zuchen Sun, University of Nebraska, Lincoln, NE, USA
- **Investigation of 42 Chiral Amino Acids Produced by Intestinal Microbiota in Biological Samples by High-throughput Comprehensive LC-MS/MS.** Akihiro Kunisawa¹, Takanari Hattori², Shuichi Kawana², Shinichi Kawano², Yoshihiro Hayakawa², Junko Iida², Eiichiro Fukusaki¹, Mitsuharu Matsumoto³, ¹Osaka University, Osaka, JAPAN; ²Shimadzu Corporation, Kyoto, JAPAN; ³Kyodo Milk Industry Co. Ltd, Tokyo, JAPAN
- **Separation of Lipophilic Dyes Utilizing Ultra-thin Layer Chromatography and SiO₂ Nanopillars.** Allegra Pekarek, Elliot Rodriguez, Erynn Johnson, Sandya Beeram, Darin Peev, University of Nebraska, Lincoln, NE, USA
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- **Determination of Steroids at Nanomolar Levels using Capillary Electrophoresis-UV-visible Absorbance Detection.** Safa Ahad, Lisa Holland, West Virginia University, Morgantown, WV, USA
- **New Bioanalytical Capillary Separations to Determine N- Glycan Structures.** Srikanth Gattu, Cassandra Crihfield, Lloyd Bwanali, Grace Lu, Lisa Holland, West Virginia University, Morgantown, WV, USA
- **Quantification of Per- and Polyfluoroalkyl Substances and Fluorinated Alternatives in Urine and Serum by Online Solid Phase Extraction-liquid Chromatography-tandem Mass Spectrometry.** Kayoko Kato, Antonia Calafat, Centers for Disease Control and Prevention, Atlanta, GA, USA
- **New Capillary Electrophoresis Separations to Evaluate IgG Antibody Glycosylation.** Lloyd Bwanali, Grace Lu, Lisa Holland, West Virginia University, Morgantown, WV, USA
- **Ecofriendly Mechanochemical Extraction of Bioactive Compounds from Plants with Deep Eutectic Solvents.** Man Wang¹, Wentao Bi¹, David Chen^{1,2}, ¹Nanjing Normal University, Nanjing, CHINA; ²University of British Columbia, Vancouver, CANADA

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- **UHPLC-HRMS Metabolomic Profiling of Patients with Chronic Vulvovaginal Discomfort – A Pilot Study.** [Pavel Jakubec](#)¹, Jakub Eduard Syrinek¹, Hana Kocova Vlckova¹, Veronika Pilarova¹, Vladimír Buchta², Lucie Novakova¹, ¹Charles University, Hradec Kralove, CZECH REPUBLIC; ²University Hospital and Faculty of Medicine, Hradec Kralove, CZECH REPUBLIC
- **Capillary Electrophoresis based Glycosylation Characterization with Phospholipid Nanogels.** [Cassandra Carihfield](#), Lloyd Bwanali, Srikanth Gattu, Lisa Holland, West Virginia University, Morgantown, WV, USA
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- **Efficient Development of a High Throughput Analytical SEC Method for Bispecific mAbs.** Sophia V. Levitskaya-Seaman¹, [Hangu Nam](#)², Adrian Man³, Sheau-Chiann Wang³, ¹Salubris Biotherapeutics, Gaithersburg, MA, USA; ²Virginia Tech, Blacksburg, VA, USA; ³MedImmune, Gaithersburg, MA, USA
- **Understanding Analytical Method Variability for Continuous Improvement.** Naheed Sayeed-Desta¹, [Ajay Babu Pazhayattil](#)², ¹Apotex Inc., Toronto, CANADA; ²AvacaPharma Inc., Welland, CANADA
- **Effect of Additives on Capillary Nanogel Electrophoresis.** [Courtney Kristoff](#)¹, Cassandra Carihfield², Lisa Holland², ¹Waynesburg University, Waynesburg, PA, USA; ²West Virginia University, Morgantown, WV, USA
- **Chiral Separation Ability of a New Type of Polysaccharide based Immobilized Columns (CHIRALPAK® IH).** Kenichi Yoshida¹, Tatsuo Kishimoto¹, Ryota Hamasaki¹, Atsushi Ohnishi¹, [Stephen Swartz](#)², ¹DAICEL Corporation, Niigata, JAPAN; ²Chiral Technologies, Inc., West Chester, PA, USA
- **Developed On-line Pre-treatment System with SFE and LC/MS for Food Analysis.** Naoki Hamada¹, Satoshi Yamaki¹, [Jingjing Xue](#)², Yuki Hashi², ¹Shimadzu (China) Co., Ltd., Beijing, CHINA; ²Shimadzu (China) Co., Ltd., Shanghai, CHINA
- **Evaluating 3-hydroxy-n-butyl Paraben as a Biomarker of Butyl Paraben Exposure in a Convenience Sample of U.S. Adults (2000 to 2017).** [Prabha Dwivedi](#)¹, Xiaoliu Zhou¹, Tolar Powell², Kyle Smith¹, Antonia Calafat¹, ¹Centers for Disease Control and Prevention, Atlanta, GA, USA; ²CDC Foundation, Atlanta, GA, USA
- **Identification of Chlorinated and Hydrogenated Polyfluoroalkyl Ether Sulfonates by High Resolution Mass Spectrometry.** [Ting Ruan](#), Yongfeng Lin, Guibin Jiang, Research Center for Eco-Environmental Sciences Chinese Academy of Sciences, Beijing, P.R. CHINA
- **Measurement of Sphingosine Kinase Activity via Chemical Cytometry.** [David Abraham](#), Weigang Huang, Angela Proctor, Qisheng Zhang, Nancy Allbritton, University of North Carolina, Chapel Hill, NC, USA
- **Yes. Increasing LC-MS Sensitivity Can be That Simple.** [Stephan Altmaier](#), Anita Piper, Michael Schulz, Merck KGaA, Darmstadt, GERMANY

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- **Abridging Pharmaceutical Analysis and Drug Discovery via LC-MS-TOF, NMR, In-Silico Toxicity - Bioactivity Profiling for Therapeutic Purposing Zileuton Impurities: Need of Hour.** Saurabh Ganorkar, Atul Shirkhedkar, R. C. Patel Institute of Pharmaceutical Education and Research, Shirpur, INDIA
- **Chip-based Capillary Electrophoresis Mass Spectrometry for Rapid Intact Mass Analysis, Structure Analysis, and Quantitation for Large and Small Molecules.** Laura Blue¹, Tawnya Flick¹, Andrew Dykstra¹, Helen Yan¹, Jiemin Bao¹, Burton Lee¹, Scott Mellors², Erin Redman², ¹Amgen Inc., Thousand Oaks, CA, USA; ²908 Devices Inc., Cambridge, MA, USA
- **Simultaneous Determination of Seven Lignan Components from Schisandra Chinensis (Turcz.) Baill by Ultra-performance Liquid Chromatography.** Tiejie Wang, Yan Wang, Kun Jiang, Yang Huang, Xinmeng Song, Guo Yin, Jue Wang, Lihe Xiao, Shenzhen Institute for Drug Control, Shenzhen CHINA
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- **Method Development for the Certification Of A Ginsenoside Calibration Solution Via Liquid Chromatography with Ultraviolet/Visible Absorbance and Mass Spectrometry Detection.** Walter Wilson, Lane Sander, National Institute of Standards and Technology, Gaithersburg, MD, USA
- **Development of New Size Exclusion Chromatography and Normal-Phase Liquid Chromatography Fractionation Procedures for the Determination of Polycyclic Aromatic Hydrocarbons in Edible Oils and Combustion-Related Samples.** Walter Wilson¹, Jacolin Murray¹, Hugh Hayes², Andres Campiglia², Stephen Wise¹, Lane Sander¹, National Institute for Standards and Technology, Gaithersburg, MD, USA; ²University of Central Florida, Orlando, FL, USA
- **Algorithmic Approach to LC-MS and IC-MS Method Development and Optimization of the ESI Ion Source Settings.** Alexander Semyonov, Thermo Fisher Scientific, Sunnyvale, CA, USA
- **Chiral Separation and Determination of Enantiomeric Purity of Some Pharmaceutical Formulation on Coated and Immobilized Amylose- and Cellulose-Derived Chiral Stationary Phases.** Rebizi Mohamed Nadjib, Sekkoum Khaled, Belboukhari Nasser, University of Bechar, Bechar, ALGERIA

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- **Quality by Design based Development of a Fast and Robust Method for Impurity Profiling of Carbamazepine using SFC and Fusion QbD.** Mijo Stanic¹, Alexander Schmidt¹, Richard Verseput², ¹Chromicent, Berlin, GERMANY; ²S-Matrix Corporation, Eureka, CA, USA
- **Development and Validation of a Technique by UV/Vis HPLC for the Determination of Losartan and E-3174.** Edgar Alejandro de Leon Diaz de Leon, Antonio Augusto Gordillo Moscoso, Angel Antonio Vertiz Hernandez, Juan Manuel Lopez Quijano, Ursula Fabiola Medina Moreno, Universidad Autonoma de San Luis Potosi, San Luis Potosi, MEXICO
- **Expanding the Analytical Toolbox for Studying Global Conformational Structures of Peptides in Solution.** Nicole M. Schiavone¹, Gregory F. Pirrone², Erik D. Guetschow¹, Ian Mangion, Alexey A. Makarov¹, ¹Merck & Co., Inc., Rahway, NJ, USA; ²Merck & Co., Inc., Kenilworth, NJ, USA
- **Green Separation Analytical Technique and Application in Food Safety.** Minli Yang, Wei Guo, Feng Zhang, Chinese Academy of Inspection and Quarantine, Beijing, CHINA
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- **Characterization and Comparison of Two Torus Columns in HILIC.** Kveta Kalikova¹, Olexandr Kozlov², Zuzana Kadlecova¹, Martin Gilar³, Tatana Gondova², Eva Tesarova¹, ¹Charles University, Prague, CZECH REPUBLIC; ²P.J. Safarik University, Kosice, SLOVAK REPUBLIC; ³Waters Corporation, Milford, MA, USA
- **Comparison of Reversed-Phase, Anion-Exchange, and Hydrophilic Interaction HPLC for the Analysis of Nucleotides Involved in Biological Enzymatic Pathways.** Allison Fabino Carr¹, Diego Lopez², Darsan Patel², Victor Ryzhov¹, Daniel Armstrong², ¹Northern Illinois University, Dekalb, IL, USA; ²University of Texas at Arlington, Arlington, TX, USA
- **Evaluation of the Edman Degradation Product of Vancomycin as a New Chiral Selector with HPLC.** Garrett Hellinghausen¹, Diego A. Lopez², J.T. Lee², Daniel W. Armstrong^{1,2}, ¹University of Texas at Arlington, Arlington, TX, USA; ²AZYP, LLC, Arlington, TX, USA
- **Evaluation of Nicotine in Commercial Tobacco and Tobacco-Free Nicotine Products.** J.T. Lee¹, Garrett Hellinghausen², Choyce A. Weatherly², Diego A. Lopez¹, Daniel W. Armstrong^{1,2}, ¹AZYP, LLC, Arlington, TX, USA; ²University of Texas at Arlington, Arlington, TX, USA
- **High Chiral Separation Ability of New Polysaccharide Based Immobilized Columns "CHIRALPAK IH/IH-3".** Kenichi Yoshida, Tatsuo Kishimoto, Ryota Hamasaki, Atsushi Ohnishi, Daicel Corporation, Niigata, JAPAN

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- **Determination of Diarrhetic Shellfish Toxins in Scallops by Column Switching Liquid Chromatography-tandem Mass Spectrometry with Solid Phase Extraction.** Migaku Kawaguchi¹, Sakae Eyama¹, Shinsuke Inagaki¹, Ayano Miyamoto¹, Takashi Yarita², Taichi Yamazaki¹, Hajime Uchida³, Akiko Takatsu¹, Toshiyuki Suzuki³, ¹National Institute of Advanced Industrial Science and Technology, Tsukuba, JAPAN; ²Ibaraki University, Ibaraki, JAPAN; ³National Research Institute of Fisheries Science, Yokohama, JAPAN
- **LC/MS Analysis of Oligonucleotides using a New Polymer-based HILIC Column having a Diol Group.** Junji Sasuga¹, Yuzuru Kokido¹, Hirobumi Aoki¹, Eiji Kagawa¹, Leah Sullivan², ¹Showa Denko K.K., Kawasaki, JAPAN; ²Showa Denko America Inc., New York, NY, USA
- **Automated Dilution Using the UHPLC Autosampler for Potency Analysis for CBD in Hemp Oils for Pets.** Sue D'Antonio¹, Greg Hunlen², Karen Kaikaris³, Dat Phan⁴, ¹Agilent Technologies, Cedar Creek, TX, USA; ²Agilent Technologies, Alpharetta, GA, USA; ³CWC Laboratories, Austin, TX, USA; ⁴Agilent Technologies, Wilmington, DE, USA
- **Rapid Analysis of Low Molecular Weight to High Molecular Weight Polymers by Novel GPC Columns.** Junya Kato¹, Kondo Hideyuki¹, Naoko Maruoka¹, Eiji Kagawa¹, Ronald Benson², Leah Sullivan², ¹Showa Denko K.K., Kawasaki, JAPAN; ²Showa Denko America, New York, NY, USA
- **Development of a Reversed-phase HPLC Separation Method for Oxidation Analysis of a Therapeutic Protein through Design of Experiments.** Nicholas Woon, Cindy Quan, Genentech, South San Francisco, CA, USA
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- **Straightforward Process for the Identification and Isolation of Natural Products using Thin-layer and Preparative Chromatography.** Petra Lewits¹, Maximilian Sixt², Jochen Strube², Michaela Oberle¹, Michael Schulte¹, ¹Merck KGaA, Darmstadt, GERMANY; ²Technical University Clausthal, Clausthal-Zellerfeld, GERMANY

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- **High-precision, Automated Peptide Mapping of Proteins.** Mike Oliver, Jon Bardsley, [Kean Woodmansey](#), Thermo Fisher Scientific, Runcorn, UK (presented by Stacy Tremintin)
- **Using Modern 2D High Performance Thin Layer Chromatography Coupled with MALDI-TOF-MS for a First Screening Approach of Plant Extracts.** [Petra Lewits](#), Michaela Oberle, Merck KGaA, Darmstadt, GERMANY
- **Tips and Tricks for TLC-MS.** [Petra Lewits](#), Stephan Altmaier, Michaela Oberle, Michael Schulz, Merck KGaA, Darmstadt, GERMANY
- **Modern Bioautography - A Fast Analytical Tool to Discover Active Compounds in Plant Extracts used for Cosmetics.** [Petra Lewits](#)¹, Michaela Oberle¹, Janina Engemann¹, Ines Klingelhofer², Gertrud Morlock², ¹Merck KGaA, Darmstadt, GERMANY; ²University Giessen Institute of Nutritional Science and Interdisciplinary Research Center, Giessen, GERMANY
- **The Advantages of TLC as a Quick Screening and Crosscheck Method for Natural Products Using the Quantification of α - and β - Acids in Hop as an Example.** [Petra Lewits](#), Janina Engemann, Vanessa Pilakowski, Michaela Oberle, Markus Burholt, Michael Schulz, Merck KGaA, Darmstadt, GERMANY
- **No Doubts – How Complementary Chromatographic Methods Can Support a Full Analytical Picture in Pharmaceutical Drug Development.** [Petra Lewits](#), Holger Bauer, Merck KGaA, Darmstadt, GERMANY
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- **Separation of Oligonucleotides Using Reversed Phase Ion-pairing Chromatography.** Noriko Shoji¹, Chie Yokoyama¹, Saoko Nozawa², Takashi Sato², Noritaka Kuroda², Naohiro Kuriyama², [Jeffrey Kakaley](#)³, ¹YMC CO. LTD, Komatsu, JAPAN; ²YMC Co., Ltd., Kyoto, JAPAN; ³YMC America Inc., Allentown, PA, USA
- **Development of a Novel Immobilized-type Polysaccharide Chiral Stationary Phase for Enantiomeric Separations.** Masahide Kobayashi¹, Toshikazu Adachi¹, Takehiro Iwadate¹, Tsuyoshi Watabe¹, Noritaka Kuroda¹, [Jeffrey Kakaley](#)², ¹YMC CO. LTD, Kyoto, JAPAN; ²YMC America Inc., Allentown, PA, USA

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- **A Rapid and Sensitive Method for the Determination of Acrylamide and Related Compounds in Food and Beverages.** Alan McKeown¹, Ed Faden², Geoff Faden², ¹Advanced Chromatography Technologies Ltd., Aberdeen, UK; ²MACMOD Analytical Inc., Chadds Ford, PA, USA
- **Investigating the Effects of Chromatographic Parameters on Column Equilibration in Isocratic and Gradient HILIC Separations.** Alan McKeown¹, Ed Faden², Geoff Faden², ¹Advanced Chromatography Technologies Ltd., Aberdeen, UK; ²MACMOD Analytical Inc., Chadds Ford, PA, USA
- **A Streamlined Approach for Reversed-phase Method Development Using a Combination of Column Screening and Software Modelling.** Alan McKeown¹, Ed Faden², Geoff Faden², ¹Advanced Chromatography Technologies Ltd., Aberdeen, UK; ²MACMOD Analytical Inc., Chadds Ford, PA, USA
- **Advantages of a Hydrophilic-lipophilic Balanced Polymeric Phase Over a Standard Hydrophobic PS-DVB-phase.** Thomas Gersthagen, Manuela Paschert, Carsten Schmitz, Rainer Wollseifen, Martin Rödel, MACHEREY-NAGEL GmbH & Co. KG, Dueren, GERMANY
- **Enhancing Sensitivity of Top-down LC/MS-based Cardiac Troponin Assay.** Yanlong Zhu, Yutong Jin, Ziqing Lin, Bifan Chen, Timothy Tiambeng, Ying Ge, University of Wisconsin-Madison, Madison, WI, USA
- **Analysis of Carbohydrates in Beer using Liquid Chromatography Triple Quadrupole Mass Spectrometry.** Michael Volny¹, Stephanie Samra¹, Stacy Tremintin², ¹Thermo Fisher Scientific, San Jose, CA, USA; ²Thermo Fisher Scientific, Sunnyvale, CA, USA
- **Investigation and Application of Octadecylsilane Modified Core-shell Particles for RP-HPLC.** Daniel C. Ramb, Tim Unterschemmann, Hans Rainer Wollseifen, Martin Rödel, MACHEREY-NAGEL GmbH & Co. KG, Dueren, GERMANY
- **Development of NISTmAb-derived Homogeneous Antibody-drug Conjugate (ADC) Standards.** Shanhua Lin¹, Terry Zhang², Brian Agnew³, Trina Mouchahoir⁴, John Schiel⁴, ¹Thermo Fisher Scientific, Sunnyvale, CA, USA; ²Thermo Fisher Scientific, San Jose, CA, USA; ³Thermo Fisher Scientific, Eugene, OR, USA; ⁴NIST, Gaithersburg, MD, USA
- **High Matrix Content? Not a Problem when Analyzing Cosmetics Utilizing Monolithic Silica Columns.** Anita Piper, Stephan Altmaier, Michael Schulz, Merck KGaA, Darmstadt, GERMANY
- **A Systematic Study of the Determinants of Phospholipid Retention and Isomer Separation on Reversed-phase-type Sorbents.** Stefanie Wernisch¹, Mark Sartain², Michael Woodman³, Steve Fisher², Subramaniam Pennathur¹, ¹University of Michigan, Ann Arbor, MI, USA; ²Agilent Technologies, Santa Clara, CA, USA; ³Agilent Technologies, Wood Dale, IL, USA
- **“Snapshot” RP-UHPLC Method to Monitor Post-translational Modifications in Monoclonal Antibody Therapeutics.** Justin Jeong, Michael Kim, Bing Zhang, Genentech Inc., South San Francisco, CA, USA

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- **Determination of Gentamicin and Related Impurities in Gentamicin Sulfate.** Jingli Hu, Alex Semyonov, Joachim Weiss, Thermo Fisher Scientific, Sunnyvale, CA, USA
- **Effective Enantiomeric Separation of over 100 Pesticides using Core-shell Chiral Stationary Phases.** Diego Lopez¹, JT Lee¹, Garrett Hellinghausen², Daniel Armstrong², ¹AZYP LLC, Arlington, TX, USA; ²University of Texas, Arlington, TX, USA
- **HPLC-PAD Analysis of N-linked Oligosaccharides from Glycoproteins using Dual Eluent Generation Cartridge Mode.** Beibei Huang¹, Lillian Chen¹, Joachim Weiss², Jeffrey Rohrer¹, ¹Thermo Fisher Scientific, Sunnyvale, CA, USA; ²Thermo Fisher Scientific, Dreieich, GERMANY
- **Minimize Dimerizations during HPLC Analysis of the Instable Hydroxy Urea Intermediate of Relebactam.** Bangping Xiang, Merck & Co. Inc, Rahway, NJ, USA
- **Simultaneous Determination of Fourteen Ultraviolet Absorbents in Sunscreen Cosmetics by Ultra High Performance Liquid Chromatography-tandem Mass Spectrometry.** Xue Tang¹, Meijin Xiong², Ji Li², Le Yang¹, Hongyuan Hao³, Jun Fan³, Jinting Yao³, Taohong Huang³, ¹Shimadzu (China) Co. LTD., Chengdu, CHINA; ²Chengdu Food and Drug Inspection and Testing Center, Chengdu, CHINA; ³Shimadzu (China) Co. LTD., Shanghai, CHINA
- **Structural Characterization of Polymer-drug-linked ADCs by LC-MS.** Kenneth Avocetien, Susan M. Clardy, Barrett J. Nehilla, Dmitry Gumerov, Natalya Bodyak, David H. Lee, Mersana Therapeutics Inc., Cambridge, MA, USA
- **Multi-residue Ultra Liquid Chromatography-high Resolution Mass Spectrometric Method for the Analysis of 21 Cyanotoxins in Surface Water for Human Consumption.** Federica Nigro Di Gregorio¹, Giorgia Di Pofi¹, Emanuele Ferretti¹, Valentina Fuscoletti¹, Emanuela Viaggiu², Luca Lucentini¹, ¹Italian National Institute of Health, Rome, ITALY; ²University of Rome 'Tor Vergata', Rome, ITALY
- **Bisphenols; HPLC-TOF; Magnetic Solid-phase Extraction; Ultrasound; Sludge.** Qian Wang¹, Guanghu Lian¹, Micong Jin², Zhijun Song¹, Meiqiang Cai¹, ¹Zhejiang Gongshang University, Hangzhou, CHINA; ²Ningbo Municipal Center for Disease Control and Prevention, Ningbo, CHINA
- **Immobilization of Ligands onto Silica Monoliths.** Benjamin Peters, Tom Kupfer, Gisela Jung, Peter Knoell, Egidijus Machtejevas, Petra Lewits, MilliporeSigma, Darmstadt, GERMANY
- **Biomolecule Separation on Silica Monoliths.** Benjamin Peters, Tom Kupfer, Gisela Jung, Peter Knoell, Egidijus Machtejevas, Petra Lewits, MilliporeSigma, Darmstadt, GERMANY
- **Determination of Four Aflatoxins in Hazelnuts by Immunoaffinity-SPE with HPLC-FLD Detection without Photo Derivatization.** Sylvia Grosse, Mauro De Pra, Frank Steiner, Thermo Fisher Scientific, Germering, GERMANY

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- **Capillary-flow LC-MS Platform for Robust and Sensitive High-throughput Proteomics.** Frank Steiner¹, Alexander Boychenko¹, Martin Ruehl¹, Mike Baynham², Alexander Harder³, Remco Swart¹, ¹Thermo Fisher Scientific, Germering, GERMANY; ²Thermo Fisher Scientific, Runcorn, UK; ³Thermo Fisher Scientific, Bremen, GERMANY
- **Development of an Isotope Dilution-liquid Chromatography Tandem Mass Spectrometry for the Determination of Cyanocobalamin in Infant Formula.** Kihwan Choi, Byungjoo Kim, Korea Research Institute of Standards and Science, Daejeon, REPUBLIC OF KOREA
- **Enantioselective and Simultaneous 2D-HPLC Determination of Citrulline and Homocitrulline in Human Clinical Samples.** Reiko Koga¹, Ena Yano¹, Tomoko Shinojima¹, Masashi Mita², Tomomi Ide³, Hideyuki Yoshida¹, Hitoshi Nohta¹, Kenji Hamase³, ¹Fukuoka University, Fukuoka, JAPAN; ²Shiseido Co. Ltd., Tokyo, JAPAN; ³Kyushu University, Fukuoka, JAPAN
- **Antibody-drug Conjugate Surrogates: A Tool for Process and Method Development.** Patrick Endres, Tom Huck, Egbert Müller, Tosoh Bioscience GmbH, Griesheim, GERMANY
- **Tandem UHPLC Operation for High-throughput LC-MS Peptide Mapping Analyses.** Martin Samonig, Sabrina Patzelt, Carsten Paul, Martin Ruehl, Remco Swart, Theresa Riley, Thermo Fisher Scientific, Germering, GERMANY
- **Poly(4-vinylpyridine)based Novel Stationary Phase Investigated Under Supercritical Fluid Chromatography Condition.** Stephen Swartz¹, Joseph Barendt¹, Kanji Nagai², Satoshi Shinkura², Tohru Shibata², Atsushi Ohnishi², ¹Chiral Technologies Inc., West Chester, PA, USA; ²Daicel Corporation, Tokyo, JAPAN
- **Stability-indicating HPLC Method Development and Validation for Phenobarbital.** Mitan Gokulgandhi, Deb Biswas, Vibhuti Parikh, Natalia Kouznetsova, U.S. Pharmacopeia, Rockville, MD, USA
- **Evaluating Mass Overload on Superficially Porous Particles.** Ed Franklin, Justin Steimling, Ty Kahler, Susan Steinike, Paul Connolly, Restek, Bellefonte, PA, USA
- **Column Performance: Comparison of the Superficially Porous Particle (SPP) to the Fully Porous Particle (FPP).** Sharon Lupo, Shun-Hsin Liang, Ty Kahler, Paul Connolly, Susan Steinike, Restek, Bellefonte, PA, USA
- **At-line Bioprocess Monitoring of Multiple Quality Attributes using a Single Reversed Phase (RP)-UPLC.** Lin Huang, Udayanath Aich, Jagdish Tewari, Marina Hincapie, Sanofi, Framingham, MA, USA
- **Affecting Selectivity and HILIC Retention on a FluoroPhenyl Stationary Phase.** Sharon Lupo, Ty Kahler, Vernon Bartlett, Susan Steinike, Restek, Bellefonte, PA, USA
- **Influencing the Selectivity of Small Proteins and Peptides on the Raptor™ ARC-18.** Sharon Lupo, Shun-Hsin Liang, Frances Carroll, Ty Kahler, Susan Steinike, Restek, Bellefonte, PA, USA

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- **HILIC, Polar, and Shape Selectivity of a FluoroPhenyl Phase.** Frances Carroll, [Randy Romesberg](#), Ty Kahler, Susan Steinike, Restek, Bellefonte, PA, USA
- **A Novel Solution for EtG/EtS Analysis in Human Urine by LC-MS/MS.** Justin Steimling, [Terry Reid](#), Ty Kahler, Susan Steinike, Restek, Bellefonte, PA, USA
- **Analysis of Fentanyl and its Analogues in Human Urine by LC-MS/MS.** Shun-Hsin Liang, Ravali Alagandula, Frances Carroll, [Shane Stevens](#), Ty Kahler, Susan Steinike, Restek, Bellefonte, PA, USA
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- **Development of a Novel Accelerated Release Method for a Long Acting Peptide-PLGA Formulation.** [Meenakshi Goel](#), Zeenat Razvi, Breanna Conklin, Dennis Leung, Debby Chang, Mohammad Al-Sayah, Genentech Inc., South San Francisco, CA, USA
- **Improvement of Workflow Efficiency for Dissolution Test using Online HPLC System.** [Daiki Fujimura](#), Satoru Watanabe, Tomohiro Shagawa, Katsuaki Koterawasa, Yosuke Iwata, Kyoko Watanabe, Shimadzu Corporation, Kyoto, JAPAN
- **The LC-UV Analysis of 16 Cannabinoids of Interest in Commercially Available CBD Oils.** Justin Steimling, Ashlee Reese, [Ryan Micklitsch](#), Ty Kahler, Susan Steinike, Restek, Bellefonte, PA, USA
- **Use of a Novel UHPLC System for the Simultaneous UHPLC Analysis of Water-soluble and Fat-soluble Vitamins.** Sylvia Grosse, Matthias Krajewski, Mauro De Pra, Markus M. Martin, [Jenny-Marie T. Wong](#), Frank Steiner, Thermo Fisher Scientific, Germering, GERMANY
- **Separation and Purification of Withaferin A from Withania Somnifera (L) Dunal using Agilent InfinityLab Preparative Columns.** Sami Chanaa, [Lakshmi Subbarao](#), Agilent Technologies, Wilmington, DE, USA
- **Comparability Study of a Monoclonal Antibody (mAb).** [Yong Liu](#), Yutian Gan, Anna Mah, Lynn Gennaro, Genentech, South San Francisco, CA, USA
- **Exosomes Purification for New Biomarkers Discovery in Glioblastoma.** [Federica Anastasi](#)¹, [Marco Cecchini](#)¹, [Liam A. McDonnell](#)², ¹Laboratorio NEST, National Enterprise for nanoScience and nanoTechnology; ²Fondazione Pisana per la Scienza ONLUS, San Giuliano Terme, ITALY
- **Modernization of USP Methods using Ion Chromatography (IC) for Active Pharmaceutical Ingredient (API) Determination.** Hua Yang¹, [Joachim Weiss](#)², Jeff Rohrer¹, ¹Thermo Fisher Scientific, Sunnyvale, CA, USA; ²Thermo Fisher Scientific, Dreieich, GERMANY
- **Improvement of Separation of Monoclonal Antibodies using Core-shell Column.** [Tomoyasu Tsukamoto](#), Norikazu Nagae, Makoto Sato, Chromanik Technologies Inc., Osaka, JAPAN

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- **Comparison of Highly-polar Compound Separation Modes in HPLC.** [Hideo Matsuoka](#)¹, Hiroshi Oikawa², Yukio Ootsuka², Atsushi Sato¹, ¹GL Sciences Inc., Iruma, JAPAN; ²GL Sciences Inc., Fukushima, JAPAN
- **Exploring Achiral-chiral Separations of Betablockers with Multiple Heart-cutting 2D-LC.** [Sascha Lege](#), Stephan Buckenmaier, Agilent Technologies, Waldbronn, GERMANY
- **Bioanalytical Method Transfer from a Waters H-Class Bio UPLC to an Agilent UHPLC using ISET.** Stephan Crowley, Lydia Slattery, [Louise Mansfield](#), Eurofins BPT, Waterford, IRELAND
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- **Fatty Acid Analysis in Polysorbate 80 by UHPLC-CAD.** Klaus Schilling¹, Ruben Pawellek¹, [Katherine Lovejoy](#)², Tibor Muellner², Ulrike Holzgrabe¹, ¹University of Würzburg Institute for Pharmacy and Food Chemistry, Wuerzburg, GERMANY; ²Thermo Fisher Scientific, Germering, GERMANY
- **A Multi-detector Set-up Comprising UV/Vis, Charged Aerosol and Single Quadrupole Mass Spectrometric Detection for Comprehensive Quantitative Sample Analysis.** Stephan Meding, [Katherine Lovejoy](#), Martin Samonig, Frank Hoefler, Remco Swart, Frank Steiner, Martin Ruehl, Thermo Fisher Scientific, Germering, GERMANY
- **Characterization of a Novel Antibody-drug Conjugate Mimic by Several Modes of Chromatography.** [Cory Muraco](#), Edward Jones, Bill Maule, Michael Ye, MilliporeSigma, Bellefonte, PA, USA
- **Development of a Nano-flow FD-LC-MS/MS Method using Monolithic Silica Capillary Columns.** [Hiroshi Kobayashi](#)¹, Hiroo Wada¹, Kazuhiro Imai², ¹Shinwa Chemical Industries Ltd., Kyoto, JAPAN; ²Research Institute of Pharmaceutical Sciences Musashino University, Tokyo, JAPAN
- **Determination of PPCPs Residues in Drinking Water using Online SPE Enrichment System Coupled with Tandem Mass Spectrometry.** [Jiaqi Liu](#)¹, Yanshan Liang², Ting Zhou², Qisheng Zhong¹, Jinting Yao¹, Tanghong Huang³, ¹Shimadzu (China) Co. Ltd., Guangzhou, CHINA; ²Guangzhou, CHINA; ³Shimadzu (China) Co. Ltd., Shanghai, CHINA

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- **Chromatography Considerations for Separation and Quantitation of N-glycans by Hydrophilic Liquid Interaction Chromatography (HILIC) Followed by Fluorescence. (FLR) Detection.** Shweta Singh, Tapan Das, Amit Katiyar, Sudhakar [Voruganti](#), Bristol-Myers Squibb, Pennington, NJ, USA
- **Challenges for Establishing a Single Analytical Method to Support an IND Submission.** [Shiladitya Sen](#), Cualli Hernandez, Charles River Laboratories, Ashland, OH, USA
- **Protein Quantification in Limited Amounts of Yeast Digests using High-resolution Mass Spectrometry.** [Vi Quach](#), Camille Lombard-Banek, Peter Nemes, University of Maryland, College Park, MD, USA
- **Modernization of USP Salicylic Acid HPLC Analysis.** [William Long](#)¹, Kylene Whitaker², ¹Agilent Technologies, Wilmington, DE, USA; ²Procter and Gamble, Mason, OH, USA
- **Important Lab and HPLC Safety Guidelines.** [Renee Keth](#)¹, James A. Kaufman², ¹S.C.A.T. Europe GmbH, Moerfelden-Walldorf, GERMANY; ²The Laboratory Safety Institute (LSI), Natick, MA, USA
- **Enhanced-fluidity Liquid Chromatography-mass Spectrometry for Intact Protein Separation and Characterization.** [Yanhui Wang](#), Susan Olesik, The Ohio State University, Columbus, OH, USA
- **High-throughput Reaction Analysis with Mass Spectrometry.** [Jessica Lin](#), Colin Masui, Kelly Zhang, Genentech, South San Francisco, CA, USA
- **Purification and Characterization of ADC-surrogates with Hydrophobic Interaction Chromatography on Preparative and Analytical Scale.** Manuela Sevilla, Patrick Endres, [Werner Conze](#), Egbert Mueller, Tosoh Bioscience GmbH, Griesheim, GERMANY
- **Spent Media Analysis by HILIC LC/MS.** Anne Blackwell, [Priya Jayaraman](#), Sandeep Kondaveeti, Agilent Technologies, Wilmington, DE, USA
- **Method Development of Online Protein A Affinity Capture for Direct SEC Analysis of mAb Aggregates using Two Dimensional HPLC.** [Lisa Zang](#), Te-Wei Chu, Jordy Hsiao, Agilent, Santa Clara, CA, USA
- **Cannabinoid Monitoring in Dried Cannabis Flower and Edibles by HPLC-PDA.** [Wilhad Reuter](#), Frank Kero, PerkinElmer, Shelton, CT, USA
- **Accurate and Precise Quantification of mAb-released N-glycans with an Amide HILIC Column.** [Stacy Tremintin](#), Xin Zhang, Thermo Fisher Scientific, Sunnyvale, CA, USA
- **Evaluation of beta-Cyclodextrin based Chiral Stationary Phases on Superficially & Fully Porous Particles.** [Edward Jones](#), William Maule, Michael Ye, Cory Muraco, Alok Kumar, MilliporeSigma, Bellefonte, PA, USA

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- **Investigating a Series of Heterocyclic Stationary Phases for SFC.** Jeffrey Caldwell, Walton Caldwell, Princeton Chromatography Inc., Cranbury, NJ, USA
- **Charge Variant Method Design for Analysis of Monoclonal Antibodies.** Shanhua Lin, Julia Baek, Shane Bechler, Stacy Tremintin, Thermo Fisher Scientific, Sunnyvale, CA, USA
- **High Throughput, Flexible Chromatographic Analysis of Monoclonal Antibodies.** Nicola McGillicuddy¹, Sara Carillo¹, Martin Samonig², Amy Farrell¹, Jenny-Marie T. Wong², Jonathan Bones¹, ¹NIBRT, Dublin, IRELAND; ²Thermo Fisher Scientific, Germering, GERMANY
- **pH Gradient-based Cation Exchange Purification of IgG2 Disulfide Isoforms.** Mark Chipley, Pfizer, Chesterfield, MO, USA
- **Development and Validation of a Stability-indicating HPLC-UV Method for Triamcinolone Acetonide.** Katya Petrova, Mitan Gokulgandhi, Joshua Bhattacharya, Ren-Hwa Yeh, Daren Tran, U.S. Pharmacopeial Convention, Rockville, MD, USA
- **Chiral Separation of Pesticides using CHIRALPAK IG Under Polar Organic Mode and Reversed-phase High-performance Liquid Chromatography. Influence of Mobile Phase Composition and Temperature on Enantioselectivity.** Romina Echevarria, Matías Diaz, Ester Lubomirsky, Juan Padro, Cecilia Castells, Universidad Nacional de La Plata, La Plata, ARGENTINA
- **HRMS Identification of Transformation Products and Pathways Treatment of Aquacide in Wastewaters by Oxydol Oxidation System.** Micong Jin¹, Meiqiang Cai², ¹Ningbo Municipal Center for Disease Control and Prevention, Ningbo, CHINA; ²Zhejiang Gongshang University, Hangzhou, CHINA
- **Modernizing PCD via 1) High Throughput and 2) Narrow Bore Scale Reaction Flow Chromatography Columns.** Agustín Acquaviva¹, Andrew Jones², Gary Denis³, Andrew Shalliker³, Arianne Soliven⁴, Cecilia Castells¹, ¹Universidad Nacional de La Plata, La Plata, ARGENTINA; ²Australian Centre for Research on Separation Science (ACROSS), Western Sydney University, Sydney, AUSTRALIA; ³Western Sydney University, Sydney, AUSTRALIA; ⁴Universidad de la Republica, Montevideo, URUGUAY
- **Simultaneous Determination of 18 Plant Toxins in Beverages for Food Safety Purpose using LS-MS/MS.** Akifumi Oishi, Masayoshi Tamura, Yasushi Nagatomi, Koji Suzuki, Asahi Group Holdings Ltd., Moriya, JAPAN
- **Simultaneous Quantitation of Three Active Ingredients and Two Excipients in Receptor Media from an in Vitro Human Skin Permeation Study of Sunscreen Products.** Jiang Wang, Yang Yang, Jinhui Zhang, Muhammad Ashraf, Celia Cruz, Sau Lee, Patrick Faustino, U.S. Food and Drug Administration, Silver Spring, MD, USA
- **Quantitative Determination of Terpinen-4-OL, γ -terpinene, α -terpinene in the Organic Inputs Containing Tea Tree Oil.** Song-Hee Ryu, Suyoung Ju, Hyoin Yoon, Geun-Hyoung Choi, Sung-Jin Lim, Byung-Jun Park, National Institute of Agricultural Sciences, Wanju-gun, SOUTH KOREA

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- **Diastereomer Separation of Phosphorothioated Oligonucleotides.** Martin Enmark¹, Joergen Samuelsson¹, Maria Rova¹, Eivor Ornskov², Anders Karlsson², Torgny Fornstedt¹, ¹Karlstad University, Karlstad, SWEDEN; ²AstraZeneca, Gothenburg, SWEDEN
- **Solid Phase Extraction-Liquid Chromatography Mass Spectrometric Protocol for Determination of Cylindrospermopsin in Surface Water Sample: First Identification in Italian Lake.** Luca Lucentini¹, Giorgia Di Pofi², Emanuele Ferretti¹, Valentina Fuscoletti¹, Federica Nigro Di Gregorio¹, Emanuela Viaggiu³, ¹Instituto Superiore di Sanita, Rome, ITALY; ²Sapienza University of Rome, Rome, ITALY; ³University of Rome 'Tor Vergata', Rome, ITALY
- **Ultra Rapid Determination of Carbamazepine in Human Plasma using Ultra High Performance Liquid Chromatography Coupled with Triple Quadrupole Mass Spectrometry.** Ming Xu¹, Pin Zhang¹, Yueqi Li², Hongyuan Hao³, Jinting Yao⁴, Taohong Huang³, ¹Shimadzu (China) Co. Ltd., Shenyang, CHINA; ²Shimadzu (China) Co. Ltd., Beijing, CHINA; ³Shimadzu (China) Co. Ltd., Shanghai, CHINA; ⁴Shimadzu (China) Co. Ltd., Guangzhou, CHINA
- **pH Gradient Chromatofocusing: Proper Selection of Buffering Compounds based on Simulations using Simul 5 Complex and Experimental Validation.** Jana Steflova¹, Martina Riesova¹, Vlastimil Hruska², ¹Charles University, Prague, CZECH REPUBLIC; ²Agilent Technologies, Deutschland GmbH & Co. KG, Waldbronn, GERMANY
- **Determination of Sugars in Honey using HILIC Separation and RI Detection.** Hagen Schlicke, Kate Monks, KNAUER, Berlin, GERMANY
- **Separation of Ascorbic Acid and Vitamin B Complexes - Essentially Required Nutrients.** Stefan Weiz, Hagen Schlicke, Kate Monks, KNAUER, Berlin, GERMANY
- **Enantiomeric Separation of Chiral Scaffolds and Cores used in Drug Discovery by SFC and HPLC.** Edward Franklin, Melissa Wilcox, Gay Lowden, Scott Anderson, Ted Szczerba, Regis Technologies Inc., Morton Grove, IL, USA
- **Using Organosilane Reinforced Silica as an Orthogonal Stationary Phase in SFC.** Fredrik Lime, Joakim Höglblom, Mattias Bengtsson, Kromasil/AkzoNobel, Bohus, SWEDEN
- **Automated UHPLC Separation of 10 Pharmaceutical Compounds using Software-modeling.** Arnold Zoldhegyi, Hans-Jurgen Rieger, Imre Molnar, Molnar-Institute, Berlin, GERMANY
- **Experimental Investigation on the Interaction between Micro-particle and Plane Surface under Different Humidity.** Ming Dong, Xue Li, Sufen Li, Dalian University of Technology, Dalian, CHINA
- **Contamination by Pesticides in Southern Brazil Water Determined by LC-MS/MS.** Mariana Bortholazzi Almeida, Tiago Bervelier Madeira, Suzana Lucy Nixdorf, Londrina State University, Londrina, BRAZIL

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- **Development of an LC-DAD-MS Method for Simultaneous Determination of Flavonoid Aglycones and their Metabolites.** [Mirza Bojic](#)¹, Goran Benkovic², Andrea Antolic¹, Zeljan Males¹, ¹University of Zagreb, Zagreb, CROATIA; ²HALMED - Agency for Medicinal Products and Medical Devices, Zagreb, CROATIA
- **Tailoring Solvent Purity for Liquid Phase Separation Analysis.** [Subhra Bhattacharya](#), Stephen Roemer, Thermo Fisher Scientific, Fair Lawn, NJ, USA
- **Column Packing Strategies to Maximize Protein RPLC Separation Performance and to Achieve Robust Column Lifetimes.** [Maureen DeLoffi](#)¹, Gary Izzo¹, Jennifer Nguyen¹, Matthew Lauber¹, Pat Curtis², ¹Waters Corporation, Milford, MA, USA; ²Waters Corporation, Wexford, IRELAND
- **Insight into the Distribution of Amino Groups Along the Chain of Chemically Deacetylated Hyaluronan.** [Martina Hermannova](#), Jakub Sedlacek, Jiri Mrazek, Radovan Buffa, Contipro a.s., Dolni Dobrouc, CZECH REPUBLIC
- **Absorbed Water and Acetonitrile R1 NMRD Profiles on the Surfaces of Polar Silica Stationary Phases.** [Adelijiang Xiamuxiding](#), Tobias Sparrman, Per-Olof Westlund, Knut Irgum, Umea University, Umea, SWEDEN
- **Analytical and Stability Challenges for Development of Water Soluble Vitamin Reference Standard Solutions.** [Zongqin Ruan](#), Sarah Aijaz, Shelby Waddell, Uma Sreenivasan, MilliporeSigma, Round Rock, TX, USA
- **Increased Resolving Power and Detection Sensitivity of Two-dimensional Liquid Chromatography for Bottom-up Analysis of Therapeutic Proteins.** Hayley Lhotka¹, David Harmes¹, Benjamin Madigan¹, [Gabriel Leme](#)¹, Gregory Staples², Dwight Stoll¹, ¹Gustavus Adolphus College, Saint Peter, MN, USA; ²Agilent, Santa Clara, CA, USA
- **One Size Does not Fit All: Exploring the Relationship between Pore Size and Separation Efficiency.** [Justin Godinho](#)¹, Richard Henry², Barry Boyes¹, Joseph DeStefano¹, ¹Advanced Materials Technology Inc., Wilmington, DE, USA; ²State College, PA, USA
- **Development of a High Throughput HILIC N-glycan Quantification Method with Automated Sample Preparation.** [Bridget Sessions](#), Catherine Eakin, Eoin Cosgrave, Seattle Genetics, Bothell, WA, USA
- **LC/MS Method for the Analysis of Guanine Deaminase.** [Justin Godinho](#), Benjamin Libert, Barry Boyes, Advanced Materials Technology, Wilmington, DE, USA
- **UHPLC-PDA Method for Standardization and Quality Control of Ptychopetalum olacoides, a Traditional Amazonian "Nerve Tonic".** [Franklin Teixeira Regis](#)¹, Breno Nunes Aguiar¹, Ana Carolina Jesus Silva¹, George Leandro Ramos Ferreira², Cicero Flavio Soares Aragao², Lilian Grace Silva Solon¹, ¹UNIFAP, Macapa, BRAZIL; ²UFRN, Natal, BRAZIL

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