As I assume the role of ISSX President for 2018–19, I would like to begin by thanking my predecessor, Dr. Geoff Tucker, for his outstanding leadership of the Society over the past two years. Thanks are also due to members of ISSX Council for their hard work in developing the Society’s strategic direction, and to those members who serve on the numerous committees charged with executing that strategy and with organizing our various scientific meetings. Particular thanks go to the staff of the ISSX Administrative Office, led by Executive Director Steve Kemp, with Zoë Fuller, and Zach Brown, who work diligently behind the scenes to make everything happen in an essentially seamless fashion!

I am happy to report that the Society ended 2017 in a strong position, with 1,166 members from around the globe and total net assets of around US$ 1.5M, equivalent to the operating expenses for a typical year in which we hold two major meetings, one in the North American continent and the other in either Europe or the Asia-Pacific region.

This year promises to be very busy in terms of upcoming events, beginning with the 6th Asia-Pacific ISSX Meeting to be held at Zhejiang University, Hangzhou, China, from May 11–14. This will be a joint meeting with our colleagues from CSSX and the organization of the meeting is being led by Drs. Su Zeng, Zhuohan Hu, and Jasminder Sahi. This will be followed by the 22nd North American ISSX Meeting that will take place in Montréal, Canada, at the Palais des Congrès from July 15–19, chaired by Dr. Jack Uetrecht. The scientific programs of these two major ISSX meetings, together with registration and other details, can be found on the Society’s website (www.issx.org).

In addition, our Indian affiliate, SSX, is holding their 3rd annual meeting in Bangalore, India, from October 10–13, under the leadership of Dr. Thanga Mariappan, while plans are being finalized for an exciting new workshop on the application of quantitative LC-MS/MS proteomics in translational DMPK research, co-chaired by Drs. Amin Rostami-Hodjegan and Jashvant Unadkat; this event is slated to take place in Cambridge, Mass., in late September 27–28, 2018—stay tuned for details!

Continued on next page
Continued from previous page

In addition to our schedule of scientific meetings, which have been the mainstay of ISSX since its inception some 37 years ago, we continue to pursue a range of initiatives that provide tangible benefits to our membership. For example, we continue to focus on ways to support new investigators—the future of our Society—by including dedicated forums at ISSX meetings covering topics related to career development. A new initiative being launched this year is the ISSX Mentorship Program, powered by MentorclIQ, a cloud-based mentoring platform that is a complimentary benefit exclusively for members through which graduate students and newer investigators will be matched with more senior scientists who can provide practical advice on career options and guidance for advancement. The successful ISSX webinar program, first implemented in 2016 under the direction of an ad hoc committee led by Dr. Jasminder Sahi, will continue this year as an additional member benefit (details of the 2018 program to be announced). In recognition of the importance of education to the Society’s overall mission, Council voted recently to confer standing committee status to this group which will be known as the Continuing Education Committee. The composition of this, and other, ISSX committees also may be found on the Society’s website. Should you be interested in joining one of our standing committees and contributing to the scientific and educational goals of ISSX, we would be pleased to hear from you. Indeed, we welcome your thoughts and suggestions at any time on ways to enhance the benefits of ISSX membership, and to maintaining the high standards in meeting programming that have always been the cornerstone of ISSX events.

I look forward to meeting many of you at the events planned throughout the year!

---

**PLAN TO SUBMIT YOUR RESEARCH AND PRESENT A POSTER AT THESE FUTURE ISSX MEETINGS**

**6th Asia Pacific ISSX Meeting**
Zhejiang University
Hangzhou, China
May 11–14, 2018
Meeting Chairs: Su Zeng, Ph.D.,
Jasminder Sahi, Ph.D.,
and Zhuohan Hu, Ph.D.

**22nd North American ISSX Meeting**
Palais des congrès de Montréal
Montréal, Canada
July 15–19, 2018
Meeting Chair: Jack Uetrecht,
M.D., Ph.D.

**ISSX Workshop:**
Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD Research
Takeda Pharmaceuticals U.S.A., Inc. Auditorium
Cambridge, Massachusetts, USA
September 27 & 28, 2018
Chairs: Amin Rostami, Ph.D.,
Jashvant Unadkat, Ph.D.,
Brahim Achour, Ph.D., Bhagwat Prasad, Ph.D.

**12th International ISSX Meeting**
Portland Convention Center
Portland, Oregon, USA
July 28–August 1, 2019
Meeting Chairs: Aleksandra Galetin,
Ph.D., Hiroyuki Kusuhara, Ph.D.,
and Deepak Dalvi, Ph.D.

**15th European ISSX Meeting and the 14th EACPT Congress**
(European Association for Clinical Pharmacology and Therapeutics)
Centre International de Conférences Genève
Geneva, Switzerland
June 7–11, 2020
Meeting Chair: Jules Desmeules, Ph.D.

**23rd ISSX North American and 35th JSSX Meeting**
Hilton Waikoloa Village
Waikoloa, Hawaii, USA
October 4–8, 2020
Meeting Chairs: Allan Rettie, Ph.D.
and Hiroshi Yamazaki, Ph.D.
ISSX Launches Mentorship Program as Newest Member Benefit

ISSX scientific meetings provide unique opportunities for those interested in the interplay of living systems with medicines and chemicals to share and to gain new knowledge; however, these opportunities are not generally structured to promote profound interactions between new investigators and senior scientists. Access to strong mentors is critical for early career support and for gaining the necessary skills and support to move towards one’s next career stage.

A complimentary benefit exclusively for members of ISSX, the ISSX Mentorship Program will pair early career xenobiotic investigators—graduate students and recent post-graduates (within five years of obtaining their degree)—with senior scientists within and across career pathways to discuss career options, review competencies for success, consider challenges and problems, and share practical advice. Each mentorship class will be scheduled for a period of six months.

The process for getting started is fast and easy. Both prospective mentors and mentees will create a custom profile in the ISSX MentorcliQ portal. When registration closes on April 30, the system will evaluate all possible matches and optimize matches across the entire pool.

After matching is complete, the system will notify registrants who their partner will be for the mentorship term. Mentees and mentors will then establish contact to begin working together to achieve mentoring goals. Mentees and mentors will agree on logistical items such as:

- Who will be responsible for setting meetings?
- Preferred method of meeting (telephone, video call [Skype, FaceTime, etc.], in-person).
- How frequently will you meet (six meetings recommended)?
- How long should the meetings last?
- What are your goals? Are they SMART (Specific, Measurable, Attainable, Relevant, and Trackable)?
- Will you both attend the 22nd North American Meeting in Montréal to meet in person?

“[I am] thrilled that the ISSX mentorship platform will facilitate the interaction of graduate students, new investigators, and others with those among our membership who have experiences to share and valuable counsel to offer. I have already registered to serve as a mentor and urge my peers to do the same. It is a commitment but not an unreasonable one and is a wonderful way to support the next generations of researchers in the field”.

—Tom Baillie, Ph.D., ISSX President

ISSX will provide resources to help you launch and sustain effective mentoring relationships. Useful videos, icebreaker questions, and tips to guide participants through the program will be sent to participants routinely. Participants will also receive a program closure plan to help assess whether goals were met and what to do next.

Mentoring is a personal and professional development experience that challenges one to reflect on their own actions and behaviors over time. For those who have benefited from a helpful mentor in their lives or careers, there is often a strong drive to pay this forward to others by serving in the same role.

Finding a true mentor is not always easy. The ISSX Mentorship Program can help and we are proud to offer this new valuable resource and opportunity for new relationships to develop. Let the journey begin.

Registration Deadline for First Mentorship Class of 2018 is April 30. Apply today at www.issx.org/mentorship.
It is our great honor to invite you to attend the 6th Asia Pacific Meeting of International Society for the Study of Xenobiotics at Zhejiang University, Hangzhou, Zhejiang, China.

This meeting offers an important educational opportunity for individuals in the fields of toxicology, pharmacology, molecular biology, and other related research areas where they will hear leading experts present their latest scientific research.

This meeting carries on a tradition of high quality education on drug metabolism and pharmacokinetics and related areas.

**Short Courses:**
- Mechanistic PK/PD Modeling and Simulation: Steps to become a PBPK/QSP Modeler
- Application of PBPK Modeling in Drug Discovery and Development: Case Studies

**Workshops:**
- DME/DMPK Evaluation for Supporting Therapeutic Innovation
- Understanding 2017 DDI Guidance—Case Studies
- Biologics and Transporters

**Keynote Lectures:**
- Targeted Covalent Drugs and the Promise of Personalized Medicine
- Cellular Pharmacokinetics

**Symposia:**
- In vivo Function and Regulation of Drug Transporters
- ADMET of Drugs and Chemicals
- Personalized Medicine - Roles of Omics and Disease States
- Drug Interactions and Liver Injury
- Drug Interactions and Regulatory Guidance
- ADMET of Herbal Medicine
- Evolving Topics in Drug Metabolism
- Drug Metabolism Mediated Efficacy and Adverse Effects
- Application of Advanced Drug Metabolism Models
- Analytical Technology for ADME Studies of New Drug Platforms

**Round Table Discussions:**
- Bioanalysis of Biologics - Challenges and Triumphs
- How to leverage Modeling to Bridge Asian PK Studies
- New FDA DDI Guidance
- Impact of recent CFDA Guidances on Drug Development

Industry-sponsored sessions, career development sessions, poster presentations and more await you at the 6th Asia Pacific Meeting. View the detailed program here: [http://issx-cssx-meeting.com](http://issx-cssx-meeting.com).

Continued on next page
To register, visit the meeting web page at http://issx-cssx-meeting.com.

**Lodging:**

**Zijingang International Hotel Hangzhou**
www.hangzhouzijinganghotel.com

**Zijinggang Hotel**
www.zjghotel.com.cn/English/English-zijingang.html
The Must-Attend Scientific Meeting of 2018

Join us at the 22nd North American ISSX Meeting July 15–19, 2018 in beautiful Montréal, Canada!

Meeting Organizing Committee Chairman Jack Uetrecht, M.D., Ph.D., and his committee have planned the scientific must-attend event of 2018, with a broad range of short courses, symposia, plenaries, poster presentations, social events, and time for you to explore the magnificent city of Montréal.

Those involved at any level in researching the metabolism and disposition of drugs and other chemicals will benefit from attending the 22nd North American ISSX Meeting. The relaxed and friendly environment will offer both a professionally and personally rewarding experience, allowing for dialogue and exchange of scientific expertise among the world’s leading experts in drug/xenobiotic research.

The venue for the meeting is the Palais des congrès de Montréal—a stunning ultramodern facility in the heart of the city within walking distance from each of the hotels where we have rooms waiting for you. Montréal is delightful in July with great weather, festivals and events, and literally dozens of free events, activities, concerts, and performances for visitors to enjoy. Make Montréal and the province of Quebec your family’s vacation destination following the ISSX meeting.

Come learn about the latest discoveries and advancements, interact with leading scientists from around the world, and explore and enjoy the city of Montréal.

PRESENT YOUR RESEARCH AT THE MEETING!


MEETING ORGANIZING COMMITTEE

Ahmed Almousa
University of Saskatchewan

William (Griff) Humphreys
Bristol-Myers Squibb

Scott Obach
Pfizer Inc.

Tom Baillie
University of Washington

Shinya Ito
Hospital for Sick Children

Rommel Tirona
University of Toronto

Leanne Bedard
Bedard ADME-Tox Solutions

Tom Massey
Queen’s University

Rachel Tyndale
University of Toronto

Chantalle Guillemette
Laval University

Sonia de Morais
Sdm Biopharma

Jack Uetrecht, Chairman
University of Toronto

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Continued on next page
Program

Sunday, July 15, 2018

09:00–12:15 | Short Courses I and II

Short Course I: Model Systems and Methods for Assessing Uptake and Efflux of Small Molecules
Co-chairs: Yurong Lai, Gilead Sciences; and Sonia de Morais, SdM Biopharma

09:00–09:45 Novel in vitro Models to Study Transporters
Yurong Lai, Gilead Sciences

09:45–10:30 Animal Models for Drug Transporters
Dan Bow, AbbVie, Inc.

10:45–11:30 PET Imaging to Understand Hepatobiliary Transporters
Yuichi Sugiyama, RIKEN

11:30–12:15 Probe Drugs for Transporter Phenotyping
Speaker TBD

Short Course II: Enzyme Induction and Regulatory Guidance
Co-chairs: Niresh Hariparsad, Vertex Pharmaceuticals, and Donald Tweedie, Merck and Co.

09:00–09:50 Introduction to the Fundamentals of Induction
Michael Sinz, Bristol-Myers Squibb

09:50–10:40 Fasting-induced Transcription and Cross Talk with Drugs
Masahiko Negishi, National Institute of Environmental Health Sciences, NIH

10:55–11:35 Technical Aspects Related to in vitro Induction Assessment
Steve Ferguson, National Institute of Environmental Health Sciences

13:30–16:45 | Short Courses III and IV

Short Course III: In silico Modeling of in vitro Metabolism, Transport, and Toxicity Data
Chair: Iain Gardner, Certara

13:30–13:50 Why is Modeling of in vitro Data Important?
Iain Gardner, Certara

13:50–14:10 Experimental Approaches to Understand Intracellular Based Drug Bioavailability
Per Artursson, Uppsala University

14:10–14:30 In silico Approaches to Modeling Transporter Data
Manthena Varma, Pfizer Inc.

14:30–14:50 Mechanistic Modeling of in vitro Assays to Improve in vitro/in vivo Extrapolation
Viera Lukacova, Simulations Plus

15:05–15:25 Simultaneous Modeling of Metabolism, Competitive and Mechanism Based Inhibition
Howard Burt, Certara

15:25–15:55 Hands on Exercise Modeling in vitro Metabolism Data

15:55–16:45 Virtual Cell Models to Predict Binding and Distribution of Chemicals in in vitro Toxicity Assays
Ciaran Fisher, Certara

Short Course IV: Immunotoxicology
Chair: Jinze (Robert) Li, Genentech

13:30–14:10 Developmental Immunotoxicology
Mark Collinge, Pfizer Inc.

SHORT COURSE ATTENDEE REGISTRATION INCLUDES:

Online access to speaker presentations for review before, during, and after the course

Short Course Attendee Lunch

Continued on next page
**22nd North American ISSX Meeting**

Continued from previous page

**Monday, July 16, 2018**

**08:30–09:30 | Parallel ISSX Focus Group (FG) Sessions**

**FG 1: Biotransformation Mechanisms & Pathways**
Co-chairs: Amit S. Kalgutkar, Pfizer, and Barry Jones, AstraZeneca

**FG 2: Modeling & Simulations**
Co-chairs: Hartmut Derendorf, University of Florida, and Yusuke Tanigawara, Keio University

**09:45 - 10:30 | Plenary Lecture 1**
*Intracellular Drug Concentrations: Theory, Practice, and Promise*
Dennis Smith, University of Capetown

**Symposium 1: Transporters as Determinants of Target Organ Toxicities**
Chair: Rommel Tirona, University of Western Ontario

**14:00–14:30** Kidney Transporters and Nephrotoxicity
Rosalinde Masereeuw, Utrecht Institute for Pharmaceutical Sciences

**14:30–15:00** Transporters and Drug-Induced Liver Injury
Kim Brouwer, University of North Carolina Eshelman School of Pharmacy

**15:00–15:30** Transporters and Arsenic Toxicity
Elaine Leslie, University of Alberta

**15:30–16:00** ABC Efflux Transporters and Drug Toxicity
John Schuetz, St. Jude Children’s Research Hospital

**Symposium 2: Development of Guidelines to Implement Pharmacogenomics-based Clinical Decision**
Chair: Rachel Tyndale, University of Toronto

**14:00–14:30** Pharmacogenomics in Drug Response and Safety Assessment
Ann Daly, Newcastle University

**14:30–15:00** Academic and Industry Perspectives on Pharmacogenomics: Drug Optimization
Alan Shuldiner, University of Maryland School of Medicine and Geisinger

**15:00–15:30** Using Electronic Medical Records to Advance Genomic Medicine—Novel Approaches for Finding Actionable Pharmacogenomics
Joshua Denny, Vanderbilt University

**16:30–18:30 | Presentation of Selected Abstracts from New Investigators**

**18:30–20:00 | New Investigator's Session and Reception**

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## Tuesday, July 17, 2018

<table>
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<tr>
<th>Time</th>
<th>Session/Topic</th>
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<tr>
<td>08:45–09:30</td>
<td>Plenary Lecture 2: Novel Synthetic and Computational Approaches to the</td>
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<td>Discovery of Drugs Targeting Nonalcoholic Fatty Liver Disease</td>
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<td>William Westlin, Nimbus Therapeutics</td>
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<td>10:00–12:00</td>
<td>Parallel Symposia 3 and 4: Impact of Pregnancy on Xenobiotic Disposition</td>
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<td>Chair: Shinya Ito, Hospital for Sick Children</td>
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<td>10:00–10:30</td>
<td>Pharmacokinetics Changes in Pregnancy: Clinical Implications</td>
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<td>Shinya Ito, Hospital for Sick Children</td>
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<td>10:30–11:00</td>
<td>Dysregulation of Transporters in Maternal Disease; Potential Impact</td>
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<td>on Fetal Drug Exposure</td>
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<td>Micheline Piquette-Miller, University of Toronto</td>
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<td>11:00–11:30</td>
<td>Predicting and Verifying Maternal-Fetal Exposure to Drugs during Pregnancy</td>
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<td>Jashvant Unadkat, University of Washington</td>
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<td>11:30–12:00</td>
<td>Use of Antiepileptics During Pregnancy: Clinician’s View</td>
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<td>Tadeu A. Fantaneanu, University of Ottawa, The Ottawa Hospital</td>
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### Symposium 4: Genomic Approaches for Revealing Mechanisms of Cancer Drug Efficacy and Toxicity

Co-chairs: Chantal Guillemette, Université Laval; and Tom Massey, Queen's University

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<th>Time</th>
<th>Session/Topic</th>
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<tr>
<td>10:00–10:30</td>
<td>Genetic Predictors and Underlying Mechanism of Treatment-related Complications</td>
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<td>in Childhood Acute Lymphoblastic Leukemia</td>
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<td>Maja Krajnovic, University of Montreal</td>
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<td>10:30–11:00</td>
<td>Genome-guided Medications for Safer and More Effective Treatment of Disease</td>
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<td>Colin Ross, University of British Columbia</td>
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<td>11:00–11:30</td>
<td>Toxicogenomics and Systems Toxicology Approaches to Understanding Adverse</td>
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<td>Outcomes</td>
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<td>Jeffrey Willy, Eli Lilly and Company</td>
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<td>11:30–12:00</td>
<td>Selected Abstract Presentations</td>
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<td>14:30–18:00</td>
<td>Free Afternoon in Montréal</td>
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## Wednesday, July 18, 2018

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<tr>
<th>Time</th>
<th>Session/Topic</th>
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<tr>
<td>08:45 - 09:30</td>
<td>Plenary Lecture 3: Site-specific Deuterium Labeling: A Viable Approach in</td>
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<td>Drug Discovery and Development</td>
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<td>Margaret Bradbury, Prana Biotechnology</td>
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<td>10:00–12:00</td>
<td>Parallel Symposia 5 and 6: Antibody Drug Conjugates (ADCs) Disposition and</td>
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<td>Modeling</td>
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<td>Chair: Ilaria Badagnani, Theravance Biopharma US, Inc.</td>
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<td>10:00–10:30</td>
<td>Systems Pharmacokinetic Modeling of ADCs</td>
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<td>Dhaval Shah, SUNY Buffalo</td>
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<td>10:30–11:00</td>
<td>Intra-tissue Catabolite Characterization is a Missing Link in Discovery of</td>
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<td>ADCs</td>
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<td>Donglu Zhang, Genentech</td>
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<td>11:00–11:30</td>
<td>In vitro and in vivo Mechanisms of ADC Disposition and Activity</td>
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<td>Colin Phipps, AbbVie, Inc.</td>
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<td>11:30–12:00</td>
<td>Characterization and ADME Properties of a Novel Auristatin Payload-based ADC</td>
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<td>Mauricio Leal, Pfizer Inc.</td>
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<td>13:30–18:00</td>
<td>Microphysiological Systems/Organs on a Chip</td>
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<td>Co-chairs: Jinping Gan, Bristol-Myers Squibb, and Sonia de Morais, SdM</td>
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<td>Biopharma</td>
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<td>10:00–10:30</td>
<td>A Human Liver Microphysiology System for Drug Discovery and Development</td>
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<td>Lansing Taylor, University of Pittsburgh</td>
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<td>10:30–11:00</td>
<td>Linked Organs-on-Chips for Probing Xenobiotic Activation, Transport and</td>
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<td>Toxicity</td>
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<td>Ed Kelly, University of Washington</td>
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Continued on next page
11:00–11:30  The Utility of Liver Spheroids in Addressing Current Issues in Drug Metabolism and Liver Toxicity Evaluations
Jinping Gan, Bristol-Myers Squibb

11:30–12:00 Microphysiological Systems in Pharma: Evolving a Paradigm
William Proctor, Genentech

13:30–15:30 | Plenary Session
The Role of the Microbiome in Drug Metabolism and How this Influences Drug Toxicity
Chair: Peter Turnbaugh, University of California San Francisco
Speakers: Nichole Klatt, University of Washington and Andrew Goodman, Yale University

16:00–18:00 | Parallel Symposia 7 and 8
Symposium 7: Revisiting the Regulatory Guidelines (EMA, FDA and PMDA) for Induction Studies and Regulatory DMPK
Co-Chairs: Niresh Hariparsad, Vertex and Eva Gil Berglund, European Medicines Agency

16:00–16:30  In vitro to in vivo Extrapolation
Ken Grime, Astra Zeneca

16:30–17:00  Regulatory Requirements to Assess Induction
Eva Gil Berglund, European Medicines Agency

17:00–17:30  Considerations from the IQ Induction Working Group in Response to Drug-Drug Interaction Guidances from Regulatory Agencies
Niresh Hariparsad, Vertex Pharmaceuticals

17:30–18:00  Future Prospects for Assessing Enzyme Induction: Are we there yet?
Ed LeCluyse, LifeNet Health

18:00–18:30  PBPK Modeling of Induction
Ping Zhao, Bill & Melinda Gates Foundation

Thursday, July 19, 2018

08:45–09:30 | Plenary Lecture 4
Opportunities and Challenges in the Discovery of Novel Agents for the Treatment of Malaria
Jeremy Burrows, Medicines for Malaria Venture

09:30–10:00 | ISSX Poster Awards Session

10:15–12:15 | Parallel Symposia 9 and 10
Symposium 9: Analytical Technology Session Based Around New Methods for Bioanalysis Metabolite Identification, etc.
Co-chairs: Mingshe Zhu, Bristol-Myers Squibb, and Kevin Bateman, Merck

11:00–11:30  Development of Endogenous Biomarkers for CYP3A to be Used in Drug Interaction Studies
Tommy B. Andersson, Astra Zeneca

16:00–16:30  Endogenous Biomarkers for Drug Metabolism and Transporter Activity
Kathy Giacomini, University of California San Francisco

17:00–17:30  Quantitative Investigation of OATP1B-mediated Drug-drug Interactions Using Endogenous Substrates
Hiroyuki Kusuhara, University of Tokyo

17:30–18:00  Clinical Validation and Utility of Coproporphyrins as Endogenous Probes to Predict OATP1B-mediated Drug-drug Interactions
Hong Shen, Bristol-Myers Squibb

Symposium 8: Endogenous Biomarkers for Drug Metabolism and Transporter Activity. Predicting Drug Interactions in Clinical Development and for Application in Precision Medicine
Chair: Griff Humphreys, Bristol-Myers Squibb

Continued on next page
## Welcome New Members

The International Society for the Study of Xenobiotics proudly welcomes the following new members. We greatly appreciate their support and hope that each remains aligned and affiliated with ISSX for many years to come.

<table>
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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>Nada Abla Geiser</td>
<td>Switzerland</td>
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<td>Eric Allain</td>
<td>United States</td>
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<td>Yannick Audet-Delage</td>
<td>Canada</td>
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<td>Wayne Backes</td>
<td>United States</td>
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<td>Sumit Bansal</td>
<td>Singapore</td>
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<td>Iveta Bartonkova</td>
<td>Czech Republic</td>
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<td>Steve Bowlin</td>
<td>United States</td>
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<td>Christine Bowman</td>
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<td>Shirley Chang</td>
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<td>Genfu Chen</td>
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<td>April Chen</td>
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<td>Huimin Chen</td>
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<td>Seon Hee Choi</td>
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<td>Federico Colombo</td>
<td>United States</td>
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<td>Dan Cui</td>
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<td>Yu Dai</td>
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<td>Sudip Datta</td>
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<td>Karen Dingley</td>
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<td>Chunshan Gui</td>
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ISSX Announces Fall Workshop on Quantitative Proteomics

Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD Research

September 27–28, 2018 • Takeda Pharmaceuticals U.S.A., Inc. Auditorium • Cambridge, Massachusetts

Over the past ten years, there has been a surge in the use of LC-MS/MS proteomics for selective and multiplexed quantification and characterization of ADME proteins in different systems relevant to drug translational pharmacology and toxicology. Particularly, quantitative proteomics has promising applications in the characterization of in vitro models, interspecies differences, differential tissue abundance, IVIVE, inter-individual variability, protein induction/suppression, and biomarker discovery/quantification.

The increased use of such techniques was driven mainly by advances in LC-MS/MS technology and development of novel quantitative methods capable of accurate and reproducible assessment of protein amounts in different systems. Despite the advantages of such methods and the wealth of the generated data, discrepancies in end-point abundance measurement have recently been reported [1], leading to calls for standardization and optimization of methodologies and further training of analysts for rigorous quantification to be achieved [2].

Workshop Chairs

Amin Rostami  
University Manchester

Bhagwat Prasad  
University of Washington

Jashvant Unadkat  
University of Washington

Brahim Achour  
University of Manchester

Through the generous in-kind support of Takeda Pharmaceuticals, ISSX will run this two-day workshop at the company’s Cambridge, MA auditorium. The workshop will begin with a sunrise symposium intended to bring attendees who might be enthusiasts, rather than hands-on users, up-to-date with the fast moving pace of the current methodologies and applications through a gentle introduction to the concepts and terminologies.

This workshop is for biologists and pharmaceutical scientists interested in quantitative proteomics, modelers and clinicians interested in quantitative pharmacokinetic and disease modeling, senior scientists interested in appropriate approaches for setting up or expanding analytical laboratories, regulatory professionals interested in assessing the validity of proteomic measurements and relevant applications, and students and junior researchers aiming to build and expand their knowledge on proteomics and its applications in DMPK.

Registration is limited. Reserve your space today. Visit www.issx.org/proteomics.

Tentative Program

Speakers are to be invited and final speakers will be confirmed this spring.

Day One

Pre-Workshop Sunrise Session:


Introduction to the Session: Amin Rostami (University Manchester)

Speaker: Bhagwat Prasad (University of Washington)

Session 1 Choice of LC-MS/MS Proteomic Techniques: Horses for Courses!

Short Talks on Various Proteomic Methods

1. Anna Vildhede (Pfizer): Tandem Mass Tags/Global Proteomics

Continued on next page

2. Michael Wang (University of Kansas): Targeted Proteomics of Enzymes using MRM

3. Haojie Zhu (University of Michigan): PRM vs. MRM Quantification

4. John Fallon (University of North Carolina): MRM Quantification of Transporters

5. Rohitash Jamwal or Fatemeh Akhlaghi (University of Rhode Island): SWATH MS for Targeted Proteomics

6. Brahim Achour (University of Manchester): Head-to-head Comparison of Proteomics Methods

Session 2: Sample Preparation and Data Analysis

Matter! The Concept of ‘Fit for Purpose’
Chair: Brahim Achour (University of Manchester)
Moderator: Yurong Lai (Gilead)

Speakers:

• Per Artursson (Uppsala University): Whole Cell Lysate Sample Preparation for Global and Targeted Proteomics

• Yasuo Uchida (Tohoku University): Membrane Enrichment and Sample Preparation for Targeted Proteomics of Enzymes and Transporters

• Dan Spellman (Merck): Skyline and SWATH Analysis Approaches and Platforms

Short Talks on Sample Preparation and Data Analysis

1. Oliver Poetz (University of Tubingen): Immuno-enrichment of Whole Cell Lysates for Targeted Proteomics

2. Evita van de Steeg or Heleen Wortelboer (TNO): Plasma Membrane Enrichment for Targeted Proteomics

3. Ryota Kikuchi (Abbvie): Use of Plasma Membrane Markers in Targeted Plasma Membrane Protein Quantification

4. Martyn Howard (University of Manchester): Practical Considerations for Sample Preparation and Data Analysis

5. Vineet Kumar (University of Washington): Practical Methods for the Assessment of Plasma Membrane Proteins in Different Systems

6. Stefan Oswald (University of Greifswald): Whole Cell Lysate vs. Enriched Membrane Proteomics

Day Two

Session 3: PBPK, QSP, QST: Academic, Industrial and Regulatory Application in Modern Drug Development
Chair: Jash Unadkat (University of Washington)
Moderator: Michael Zientek (Takeda)

Speakers:

• Jash Unadkat (University of Washington): Applications of Proteomics in PBPK, QSP and QST—Academic View

• Yurong Lai (Gilead): Applications of Proteomics in IVIVE, PBPK, QSP and QST—Industry View

• Applications of Proteomics in PBPK, QSP and QST—Regulatory View

• Amin Rostami (University of Manchester): Applications of Proteomics in PBPK, QSP and QST—Summary and Outlook

Short Talks on Applications:

1. Application of Proteomics in PK/PD and Toxicity Prediction in Pediatrics

2. Mathena Varma (Pfizer): Transporter Proteins Driven REF vs. RAF Approach for Transporter Clearance Prediction

3. Matthew Harwood (Certara): The Use of Proteomics Data in the Prediction of Drug Absorption and DDIs

4. Abdul Basit (University of Washington): MRM vs. SWATH for Inter-species Profiling of DMEs and Transporters

5. Sumio Ohtsuki (Kumamoto University): Membrane Enrichment for Targeted Proteomics of Enzymes and Transporters in Different Systems

Continued on next page
ISSX Fall Workshop
Continued from previous page

Session 4: Break-out Parallel Round Table Discussions

- Round Table 1: Bhagwat Prasad and Phillip Smith (University of Washington): Fit-for-Purpose use of AQUA, QcanCAT, Global Proteomics
- Round Table 2: Brahim Achour and Per Artursson (University of Manchester): Sample Preparation and Data Analysis
- Round Table 3: Jash Unadkat (University of Washington) and Michael Zientek (Takeda): IVIVE or Prediction of Interindividual Variability
- Round Table 4: Amin Rostami-Hodjegan (University of Manchester) and Manthena Varma (Pfizer): IVIVE or Prediction of Interindividual Variability

Local Hotels:

ISSX is does not have a room block but suggests the following hotels for attendees’ consideration. You may elect to reserve accommodations at any hotel in Cambridge and Boston and walk, taxi, Uber/Lyft to the auditorium.

**Le Meridien Cambridge-MIT**
3 minutes / 0.2 mile walk to venue
20 Sidney St, Cambridge, MA
+1 617 577-0200

**Hyatt Regency Cambridge:**
15 minutes / .7 mile walk to venue
575 Memorial Dr, Cambridge, MA
+1 617 492-1234

**Boston Marriott Cambridge**
18 minutes / .9 mile walk to venue
50 Broadway, Cambridge, MA
+1 617 494-6600

**Residence Inn Boston Cambridge**
16 minutes / 0.8 mile walk to venue
120 Broadway, Six Cambridge Center, Cambridge, MA
+1 617 349-0700

We hope you join us in Cambridge in September for this exciting workshop.

Geoffrey T. Tucker, Ph.D.
Named Honorary ISSX Member

The ISSX Council recently recognized Immediate Past President Geoff Tucker with Honorary Membership in the Society. Distinguished scientists who are members of ISSX and have made outstanding contributions to the advancement of xenobiotic research or have provided high-level service to ISSX are eligible for Honorary Membership. Honorary membership provides all of the privileges of membership in ISSX without an assessment of dues.

Professor Tucker replied upon learning of this honor “a big thank you to ISSX for adding my name to its roll of honorary members. This recognition is really appreciated. I will continue to try to do my best for ISSX when called upon, and I wish its members and staff all the very best for the future”.

Any member of ISSX may nominate an individual, with a letter justifying the nomination, accompanied by a current, full curriculum vitae of the nominee. To nominate an individual for Honorary Membership in ISSX complete the nomination form: www.issx.org/page/honoraryissxmembers.
As would be expected, the Royal Society of Chemistry (London, UK) publishes many books which venture into the fields of biochemistry, medicinal chemistry and drug metabolism. Their website and book catalogue is well worth browsing through as many of these volumes address interesting and sometimes esoteric topics. Below is notification of two volumes that have been published recently.

NMR-BASED METABOLOMICS
Editor: H. C. Keun.
Royal Society of Chemistry, London, UK

This book is one in the series called, ‘New Developments in NMR’. It serves as a compendium of background knowledge providing information on instrumental platforms, software and data handling. The latest web-based resources are also introduced and, as stated, will, ‘appeal to NMR spectroscopists, analytical chemists and biochemists especially those with an interest in medical applications’.


THERANOSTICS AND IMAGE GUIDED DRUG DELIVERY
Editor: M. Thanou
Royal Society of Chemistry, London, UK
238pp., ISBN: 978-1-78262-466-0. 2018


‘Theranostics’ is a relatively new word coined as a portmanteau of therapeutics and diagnostics, and is a form of diagnostic therapy that tests a patient’s reaction to medication in the hope of developing a personalised health care system. As stated in the information given, ‘This book introduces the topic of image guided drug delivery and covers the latest imaging techniques and developments in theranostics, highlighting the interdisciplinary nature of this field as well as its translational ability. These technologies and techniques hold potential for individualised safer therapies’. Trying to understand the spatiotemporal distribution of drugs by ‘following’ their journey around the body towards target sites and uncovering strategies to improve this targeting is a laudable and hoped-for goal in clinical practice and therapeutics.

Steve Mitchell, Faculty of Medicine
Imperial College London
London SW7 2AZ, UK

Book Ordering Information:
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The BSTP’s 33rd Annual Scientific Meeting (including the AGM) will cover the topic of mouse pathology. Based on the approach of previous mouse pathology meetings organised by the Wellcome Trust, this meeting will aim to have a mix of talks to enable those in the early stages of their career to learn about pathology basics including terminology and necropsy; the basics of necropsy approach and sample collection; collecting and handling samples and recording pathology data; commonly used mouse strains and common phenotypes; infectious diseases that can affect phenotypes; planning for the unexpected—ASPA.

For more experienced pathologists, the aim is to enable you to refresh your knowledge on the basics, whilst including talks on CRISPR/Cas9 technology; immuno-oncology and biologic effects; and tissue based genetic studies.

Registration for this symposium will open in April 2018.

Check the website for more information:
http://www.bstp.org.uk/events/bstp-pathology-of-mouse-models-of-disease-annual-scientific-meeting

Contact:
BSTP
PO Box 819
Harrogate HG1 9XF
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Tel: + 44 (0)7894 123 533
Email: bstpoffice@aol.com • Website: www.bstp.org.uk
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