



ISSX

International Society for the Study of Xenobiotics

Volume 41

Issue 2, 2018

ISSX President's Message

By Thomas Baillie, ISSX President

This has been a busy year for ISSX, with two very successful meetings already behind us. The 6th Asia-Pacific ISSX meeting, co-sponsored by our colleagues from CSSX, was held at Zhejiang University, Hangzhou, China, in May, and attracted a sizeable audience from what has become a rapidly growing population of drug metabolism scientists in that country. Of particular note was the high quality of science that was evident in both the platform and poster presentations, as well as the lively discussions that accompanied the various talks. Clearly, xenobiotic metabolism and disposition is now a well-established discipline in China, reflecting the current growth in drug discovery and development in Asia. My thanks to the organizers, Drs. Su Zeng, Zuohan Hu, Jasminder Sahi and their colleagues, for all of their efforts in making this event such a success. The spring meeting in

Hangzhou was followed by the 22nd North American ISSX meeting in Montréal, Canada, which was the Society's major activity of 2018. The Meeting Organizing Committee, led by Dr. Jack Uetrecht of the University of Toronto, provided a stimulating program of short courses, plenary and keynote lectures, oral and poster presentations, together with a debate on the topic, "Be it Resolved that *in vitro* Assays, such as Mitochondrial Injury or BSEP Inhibition, do Not Improve Drug Candidate Safety." The latter event generated much discussion, and it is likely that future ISSX meetings will include similar debates on controversial issues in our field of interest.

Two scientific meetings remain in our calendar for this year. First is a workshop devoted to emerging applications of LC-MS/MS proteomics in translational DMPK/

PD research, co-chaired by Drs. Amin Rostami-Hodjegan and Jasvant Unadkat, that will be held at the Takeda research facilities in Cambridge, MA, on September 27–28. A major goal of this workshop is to establish a consensus on "best practices" in the area, that will form the subject of a white paper outlining preferred approaches to sample processing as well as data acquisition and interpretation. Through the medium of such workshops on new and promising technologies, it is hoped that ISSX can play a role in guiding the adoption of novel approaches to problems faced in both academic



*Thomas Baillie, Ph.D.
ISSX President.*

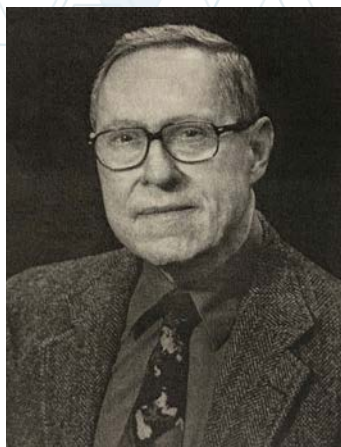
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Tribute to Minor “Jud” Coon

By David Ballou and Paul Hollenberg



Minor Jessor (Jud) Coon, the retired Victor C. Vaughan Distinguished Professor of Biological Chemistry at the University of Michigan Medical School, died on September 5, 2018 at the Glacier Hills Home. He was born on July 29, 1921 in Englewood, Colorado. He married Mary Louise Newburn in 1948, and they were married for 52 years

until her death in 2000. His son, Lawrence Richard Coon tragically died a few weeks later. He has a surviving daughter, Susan Louise Coon (Conrad Weiser), and a daughter-in-law, Linda Wilkins Coon. Linda was a very wonderful support to Jud and gave him attentive loving care, especially in his retirement years. He is also survived by four grandchildren and their spouses, and by four great-grandchildren.

Jud had a stellar career at the University of Michigan where he served from 1955 until he retired in 2002. He earned his Bachelor of Arts degree in Chemistry at the University of Colorado and his Ph.D. in Chemistry at the University of Illinois under the mentorship of the well-known biochemist, William C. Rose. While an undergraduate he carried out research in steroid biochemistry at the University of Chicago under the direction of Professor Reuben Gustavson. His graduate work at Illinois dealt with determining which are the essential amino acids for humans, and this research continued during his first academic position in the Department of Physiological Chemistry at the University of Pennsylvania. At the University of Michigan, he rose to be Professor of Biological Chemistry and was appointed Chair from 1970 until 1990, during which time he helped bring the Department to national recognition in several biochemical areas. During his career he spent two sabbaticals with Nobel Laureates, Severo Ochoa (New York University, 1952) and Vladimer Prelog (Eidgenössische Technische Hochschule, Zürich, 1961–62).

Jud served as secretary of the American Society for Biochemistry and Molecular Biology from 1981–1984, and was president from 1991–1992. He also was on

the international advisory committees for two major meetings in the field of Cytochrome P450. Among his many awards, Jud was elected to the National Academy of Sciences in 1983 as well as to the American Academy of Arts and Sciences in 1984, and to the Institute of Medicine in 1987. He received the State of Michigan Scientist of the Year Award in 1988. Jud was especially humbled by his award in 1991 by the Karolinska Institute in Stockholm of the honorary Degree of Doctor of Medicine and by the International Conference on Cytochrome P450 in France in 2001 that was held in honor of his 80th birthday. He was the Henry Russel Lecturer at the University of Michigan in 1991, which is the highest recognition of a scientist at the University of Michigan. He received the American Chemical Society Award in Enzyme Chemistry (Paul Lewis Award) in 1959, the distinguished Faculty Achievement Award from the University of Michigan in 1976, the William C. Rose Award in Biochemistry in 1978, and the Bernard B. Brodie Award in Drug Metabolism from the American Society for Pharmacology and Experimental Therapeutics in 1980. He was elected an Honorary Life Member of ISSX in 2008. He was editor-in-chief of *Biochemical Preparations*. He was on the editorial boards of numerous journals and symposia books including *Biochemistry*, *Molecular Pharmacology*, *Microsomes*, *Drug Oxidations and Chemical Carcinogenesis*, and the *Journal of Biological Chemistry*.

His scientific career was extensive but he was best known for his outstanding work in the field of cytochrome P450 systems in which he worked for more than three decades. P450s are crucial to drug and xenobiotic metabolism, drug synthesis, hormone biosynthesis, and a myriad of other systems. Jud Coon's seminal contributions in mammalian P450 systems have been remarkable and have provided the basis for studies by countless scientists worldwide. In the course of studying the oxidation of fatty acids he and his postdoctoral fellow, Anthony Lu, succeeded in 1968–69 in separating the mammalian P450 system into its components, cytochrome P450, NADPH cytochrome P450 Reductase, and phospholipid, and then in reconstituting its catalytic activity. This huge breakthrough in membrane biochemistry and in P450 studies paved the way for P450 science that is even still under active investigation. His work extended to finding multiple

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Changes on the ISSX Council

As we approach the last quarter of 2018 ISSX will see two long-serving members of Council complete their terms of service this year.



Jasminder Sahi finishes four years as a member of Council. She has been instrumental to the governance of the Society in many ways and recently served as one of the chairperson's of the 6th Asia Pacific ISSX Meeting held in Hangzhou, China. She will remain active with ISSX in her role as Chair of the still new ISSX Continuing

Education Committee. We are grateful to Jas for all of her past contributions and those to come.



Natalie Hosea also completes her second term of service on the ISSX Council at the end of this year. Natalie concurrently serves as Chair of the ISSX Membership Affairs Committee and was therefore crucial in providing timely membership related matters directly to Council. She served as a member of the Meeting Organizing

Committee for the joint ISSX/JSSX meeting in 2014, was an inaugural member of the Continuing Education Committee, and has served as a moderator for ISSX webinars.

ISSX is grateful to both Jas and Natalie for their service and commitment to ISSX. Both were awarded with their ISSX Service Award during the latest in-person meeting of Council in Montreal in July.

Welcome to Eric Chan and Jash Unadkat who begin their two-year terms of service on Council January 1, 2019. Eric and Jash are the first members of Council elected under the new system of region-based voting which was approved by the ISSX membership to ensure equitable geographic representation among the leadership.



Eric Chan is a pharmaceutical scientist and an associate professor in the Department of Pharmacy, National University of Singapore (2011–present). His research interests are (1) metabolism-driven systems biology modeling of diseases, pharmacology, toxicology and mammalian host-bacteria interactions

and (2) xenobiotic-derived reactive metabolite research with specific focus on interaction with biological proteins and physiological-based pharmacokinetics-pharmacodynamics (PBPK-PD) modeling of pharmacology and toxicology.

Eric's academic career has been developed successfully based on his active participation in meetings and workshops organized by ISSX over the years. As a Scientific Affairs Committee member of ISSX, Eric further gains experience in evaluating proposals to ensure high quality scientific meetings and workshops via the collaborations between academia, industry and regulatory agencies.



Jashvant (Jash) Unadkat, Ph.D. is the Milo Gibaldi Endowed Professor in the Department of Pharmaceutics, School of Pharmacy, University of Washington, Seattle. Jash is a dual US and British citizen. He received his Bachelor degree in Pharmacy (B.Pharm.) from the University of London (1977), his Ph.D. from the

University of Manchester (1982; advisor Prof. Malcolm Rowland) and his postdoctoral training in Clinical Pharmacology at the University of California at San Francisco (1982-85; advisor the late Dr. Lewis B. Sheiner).

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Changes on the ISSX Council

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Jash has served on numerous committees within scientific organizations including NIH review panels and as an Associate Editor for the *Journal of Pharmaceutical Sciences*. He has organized or co-organized numerous national and international conferences, the most recent being the 21st North American ISSX Meeting in Rhode Island. He is also the co-organizer of the upcoming ISSX-sponsored workshop on “Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD Research,” to be held September 27–28, 2018, Cambridge, MA.



Aleksandra Galetin (Alex) was elected to a second term on Council in the recent election. Alex is a Reader in Pharmacokinetics in the Centre for Applied Pharmacokinetic Research, School of Health Sciences at the University of Manchester in the UK. She is the recipient of the 2012 ISSX European New Investigator Award and 2015

AAPS Meritorious Manuscript Award. She received her MPharm and MSc from the University of Belgrade, Faculty of Pharmacy and her Ph.D. from the University of Manchester in 2001. Following a postdoctoral research associate position in the Centre for Applied Pharmacokinetic Research (University of Manchester), she joined the Faculty as Pfizer Assistant Professor in 2004.

Alex has been a member of ISSX since 2001. In addition to her service on Council, she was a member of the ISSX Scientific Affairs Committee (2010–2014) representing the European region. She also served as a member of organizing committees for the 2016 ISSX Workshop (‘Translating Preclinical Data to Human Clearance and Pharmacokinetics’) and the 2017 North American ISSX Meeting. Alex is currently a co-chair of the coming 12th International ISSX meeting to be held in 2019 in Portland, Oregon and hopes to see you all there.

Service on the governing body of any professional society or association carries a large responsibility of corporate stewardship. We are indebted to those who answer the call of leadership through service to ISSX.

ISSX 6th Asia Pacific Meeting a Resounding Success



The 6th Asia Pacific ISSX Meeting convened at Zhejiang University in Hangzhou, China May 11–14, 2018. This ISSX meeting was jointly organized with the School of Pharmacy of Zhejiang University.

At the opening ceremony Dr. Zeng, Su, Professor of Zhejiang University School of Pharmacy and Co-Chair of the meeting, presided. Professor Yang Bo, Dean of the College of Pharmacy and Dean of the Institute of Innovative Medicine at Zhejiang University, delivered welcome remarks along with Dr. Jasminder Sahi, Co-Chair of the meeting, Dr. Hu Zhuohan, CEO of RILD (Shanghai) Co., Ltd., and ISSX President Professor Thomas Baillie.

More than 500 experts, scholars, researchers, and students in the field of drug metabolism from universities, review institutions, research institutions, and industry participated in the meeting. The meeting attracted registrants from the United States, Sweden, Australia, Japan, Canada, South Korea, Singapore, Thailand, India, Malaysia and other countries and regions.

The meeting focused on the theme of “Drug Metabolism-based Precision Medicine and Druggability.” Prof. Tom Baillie (Targeted Covalent Drugs and the Promise of Identifiable Medicine), Prof. Hao, Haiping (Metabolic

Insights into Target Identification and Mechanistic Understanding), Prof. Yuichi Sugiyama, former director of ISSF, Japan's RIKEN Institute (Role of Transporters in Pharmacokinetics/Pharmacodynamics/Toxicodynamics) delivered keynote speeches. The meeting was set up in six sessions: two short courses, two workshops, two roundtable discussions, one career development for students and young scientists, and a sunrise forum for young scientists (four sessions).



Many experts presented at this meeting including former ISSX Presidents Prof. John Miners and Dr. Bill Smith, Prof. Jim Halpert, Prof. Magnus Ingelman Sundberg, Dr. Shiew-Mei Huang, and Dr. Alex Xu among many others—each of whom we express our gratitude to for their time and expertise. Further, the meeting was aided considerably by more than 50 graduate student volunteers from the Laboratory of the Drug Metabolism and Pharmaceutical Analysis, School of Pharmacy at Zhejiang University, who played important roles in ensuring the success of the meeting.



Professor Tetsuya Terasaki of Japan's Tohoku University accepting the ISSX Asia Pacific Scientific Achievement Award.

Professor Tetsuya Terasaki of Japan's Tohoku University was awarded the ISSX Asia Pacific Scientific Achievement Award. Professor Huichang Bi of Sun Yat-sen University was awarded

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ISSX 6th Asia Pacific Meeting

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the ISSX Asia Pacific New Investigator Award. Competing graduate students and postdoctoral fellows were awarded best abstract awards and nine young scholars received awards for Young Scientist Awards for Best Poster. Thirty postgraduates and postdoctoral attendees were provided with student travel awards.

The 6th Asia Pacific ISSX Meeting was a world-class academic exchange platform. The successful meeting enhanced the influence of China in the field of drug metabolism research abroad and the meeting provided

a platform for the free exchange and cooperation of scientists and young scholars from the Asia Pacific region. They not only can fully share the successful experience of new drug development, in-depth exploration of new academic research and development direction, lay and develop complementary scientific and technological cooperation of production, research and development, but also it is of great significance to promote the development and progress of the drug metabolism discipline in the Asia Pacific region.

Share ISSX with Your Social Network!

As a leading scientific organization for researchers, one of the fundamental goals of ISSX is to provide a platform for educators, scientists, and industry leaders interested in the metabolism of medicines and other chemicals in living systems to easily communicate with one another and share research, knowledge, and resources.

ISSX has established a social media presence that members and non-members can utilize to collaborate and share information. As scientists develop along their careers, they too can help ISSX grow and improve our ability to reach those who share our research interests. By following ISSX on any of our social media profiles, one is not only able to stay

constantly updated about Society and industry events and information, but is able to help spread our message to those we otherwise may not reach.

By following our profiles, liking and sharing posts, and engaging in discussions with peers, those aligned with ISSX are able to shed more visibility to the Society and our goals and to form a closer community. One of our long-held strategic objectives has been to facilitate the association of scientists from all geographic regions in this area of science and in its related disciplines. We encourage our members to utilize our social media tools to do that and to remain aligned with ISSX for their entire careers.

LET'S GET SOCIAL!

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Book Review

by Steve Mitchell, B.Sc., B.Phil., Ph.D., D.Sc.

PHARMACOKINETICS AND DRUG METABOLISM IN CANADA: THE CURRENT LANDSCAPE.

Editors: KM Davies and NM Wasan.

MDPI AG (Multidisciplinary Digital Publishing Institute),
Basel, Switzerland

300 pp, ISBN 978-3-03842-797-1 (Pbk);

ISBN 978-3-03842-798-8 (PDF). 2018

MDPI AG publishes many open access journals but this is a printed edition of a special issue that appeared in "Pharmaceutics." It is also available as an open access publication that may be viewed online.

Following the introductory editorial article there are 19 chapters, many of which report novel research but a few are of review style. The chapter titles are as follows and vary slightly from the journal issue in which they first appeared. 'Clinical Implications of 20-Hydroxyeicosatetraenoic Acid in the Kidney, Liver, Lung and Brain: An Emerging Therapeutic Target,' 'Revisiting the Latency of Uridine Diphosphate-Glucuronosyltransferases (UGTs)—How Does the Endoplasmic Reticulum Membrane Influence Their Function?,' 'Augmented Renal Clearance in Critical Illness: An Important Consideration in Drug Dosing,' 'Predicting Oral Drug Absorption: Mini Review on Physiologically-Based Pharmacokinetic Models,' 'Revolutionizing Therapeutic Drug Monitoring with the Use of Interstitial Fluid and Microneedles Technology,' 'Modeling of Body Weight Metrics for Effective and Cost-Efficient Conventional Factor VIII Dosing in Hemophilia A Prophylaxis,' 'Pharmacokinetic Analysis of an Oral Multicomponent Joint Dietary Supplement (Phycos®) in Dogs,' 'Disposition, Metabolism and Histone Deacetylase and Acetyltransferase Inhibition Activity of Tetrahydrocurcumin and Other Curcuminoids,' 'Altered Protein Expression of Cardiac CYP2J and Hepatic CYP2C, CYP4A, and CYP4F in a Mouse Model of Type II Diabetes—A Link in the Onset and Development of Cardiovascular Disease?,' 'Study of Statin- and Loratadine-Induced Muscle Pain Mechanisms Using Human Skeletal Muscle Cells,' 'Tissue Specific Modulation of cyp2c and cyp3a mRNA Levels and Activities by Diet-Induced Obesity in Mice: The Impact of Type 2 Diabetes on Drug Metabolizing Enzymes in Liver and Extra-Hepatic Tissues,' 'Pharmacokinetic and Toxicodynamic Characterization of a Novel Doxorubicin Derivative,' 'Theophylline-7β-D-Ribofuranoside

(Theonosine), a New Theophylline Metabolite Generated in Human and Animal Lung Tissue,' 'A High-Performance Liquid Chromatography Assay Method for the Determination of Lidocaine in Human Serum,' 'In Vitro Phase I Metabolism of CRV431, a Novel Oral Drug Candidate for Chronic Hepatitis B,' 'The Role of PXR Genotype and Transporter Expression in the Placental Transport of Lopinavir in Mice,' 'An Overview of Chitosan Nanoparticles and Its Application in Non-Parenteral Drug Delivery,' 'Regulation of Hepatic UGT2B15 by Methylation in Adults of Asian Descent,' 'Epinephrine in Anaphylaxis: Preclinical Study of Pharmacokinetics after Sublingual Administration of Taste-Masked Tablets for Potential Pediatric Use.'

There are many interesting points nestled amongst these chapters. For example, studies on the inhibition of lactic acid efflux from muscle cell exposed to statins (page 161 et seq.), conjugation of the chemotherapeutic agent doxorubicin to the antioxidant quercetin to increase bioavailability by enhancing its absorption via the lymphatic system, (page 192 et seq.), a novel metabolite of theophylline is presented as the 7β-D-ribofuranoside generated in mammalian lung tissue (page 211 et seq.) and a review of chitosan nanoparticles and their applications within drug delivery (page 252 et seq.). Each individual chapter is richly referenced giving over 1,100 citations in total and also include photographs, tables, graphs, formulae and schematics. One downside is that there is no index provided and one has to read through each individual chapter guided by the title only.

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22nd North American ISSX Meeting in Review

On Sunday, July 15, ISSX hosted scientists, students, and researchers from academia, industry, government, and biopharmaceutical companies for the 22nd North American ISSX Meeting in Montréal, Quebec, Canada. The meeting was chaired by Jack Uetrecht, M.D., Ph.D., of the University of Toronto. The Meeting Organizing Committee developed a program with a broad range of highly relevant short courses and symposia sessions. More than 600 scientists from 23 countries participated in the five-day meeting held at the ultramodern Palais des congrès de Montréal.

Nearly 200 attendees participated in short courses held on Sunday, July 15. ISSX short courses provide in-depth review of fundamental concepts. This year's short courses included the topics of model systems and methods for assessing uptake and efflux of small molecules, enzyme induction and regulatory guidance, in silico modeling of *in vitro* metabolism, transport, and toxicity data, and immunotoxicity. All courses received highly-favorable ratings from attendees.



Diane Hollenbaugh presents the keynote lecture.

of Montréal, including savory poutine and sausages, at the Opening Welcome Reception.

On Monday, July 16, a Modeling and Simulation Focus Group session was chaired by Professor Hartmut Derendorf of the University of Florida. During the session, attendees discussed opportunities for the group to develop papers, review case studies, and to reconvene their discussion online. Outside of this meeting, Dr. Derendorf chairs this ISSX Focus Group online with Professor Yusuke Tanigawara of the Keio University School of Medicine.

The 22nd North American ISSX Meeting Awards were also presented Monday by ISSX Awards Committee Chair, Ann Daly, Ph.D. The 2018 North American Scientific Achievement Award, in Honor of Ronald W. Estabrook, was presented to Joyce A. Goldstein, Ph.D. Dr. Goldstein is best known for her work on the human cytochrome P450 2C subfamily and the discovery of cytochrome P450 CYP2C19 as the cause of the previously only clinically characterized genetic polymorphism of S-mephenytoin hydroxylation. After receiving her award, she presented a lecture, Polymorphisms, Transcriptional and Translational Regulation of the CYP2C Drug Metabolizing Enzymes in Human Liver. The 2018 North American Young Investigator Award, in Honor of James R. Gillette, was presented to Bhagwat Prasad, Ph.D. Dr. Prasad's research is focused on application of liquid chromatography-mass spectrometry (LC-MS) and

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Dr. Uetrecht receives a service award from Dr. Baillie.

The meeting officially began Sunday evening with welcome remarks from ISSX President, Tom Baillie Ph.D., and Dr. Uetrecht received a gift commemorating his role in organizing the meeting. The Keynote Lecture, Immuno Oncology State-of-the-Field and How it Helps Understand the Immune System and Mechanisms for Drug Efficacy and Toxicity, was presented by Diane Hollenbaugh of AbbVie, Inc. Attendees met with friends, colleagues, and exhibitors to enjoy conversation and the traditional foods

22nd North American ISSX Meeting in Review

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Attendees and exhibitors meet at the Opening Welcome Reception.

quantitative pharmacoproteomics to understand interindividual variability in drug disposition. He presented a lecture entitled, Multiomics-based Precision Medicine Approach to Address Inter-patient Variability in Non-CYP Drug Metabolism.

On Monday evening, students and new investigators attended the New Investigators Forum. This year's forum was developed by the ISSX New Investigator Group and highlighted opportunities in different sectors of the pharmaceutical sciences (academia, biotech, government, and industry) with an emphasis on making oneself marketable to potential employers and acquiring skills for a successful career. The forum took on a new format with rotating round table discussions to encourage engagement and discussions between attendees and table leaders. The forum concluded with a networking reception at a rooftop venue overlooking the city.

On Tuesday, July 17, attendees enjoyed a vigorous debate: Be it Resolved that *in vitro* Assay, Such as Mitochondrial Injury or BSEP Inhibition, Do Not Improve Drug Candidate Safety. Dr. Uetrecht was joined by Les Benet, Ph.D. of the University of California San Francisco, Ken Brouwer, Ph.D. of BioIVT, and Kaushik Mitra, Ph.D. of Merck. This stimulating discussion engaged attendees in a new way and was one of the top-rated sessions of the meeting. Following the debate, attendees enjoyed a free afternoon to explore the sights and culture of Montréal.

TRAVEL GRANTS

ISSX continued the ISSX Travel Grant Program with this meeting. The program is funded by the Society in part through member contributions and is in place to help selected applicants participate in our meetings. This year, eight scientists from around the world were selected to receive these grants which supported their travel and accommodations at the meeting. Applications are now being accepted for the 2019 Travel Grants for the 12th International ISSX Meeting which will be held in Portland, Oregon, USA July 28–August 1, 2019.

Apply today at www.issx.org/travelgrant.

Attendees relaxed after a long day of scientific sessions on Wednesday, July 18 at the Montréal Mixer—a fun and casual social activity held in a large tent on the rooftop terrace of the Palais des congrès de Montréal.

Scientific meetings have been held for more than 400 years but often one thing remains the same—attendees gravitate to the people they know! To that end, we devised a fun game to help attendees meet new acquaintances. Attendees completed a game card that instructed them to find others who fit particular descriptions ranging from the serious and professional to the lighthearted and surprising. ISSX awarded Apple gift cards in a random drawing of submitted game cards.

ISSX MEMBERSHIP AMBASSADORS

At this meeting, a new ISSX Membership Ambassador Program was launched to help increase awareness and understanding of the value of membership in the Society and to more broadly engage new ISSX members in the various activities we offer. Learn more about this new program and how to inform your peers about how ISSX has helped you grow professionally or how your research has benefited from your membership.

Visit www.issx.org/ambassador to view the guide and sign up today.

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POSTER AWARDS

ISSX encourages high-quality research and recognizes distinguished poster presentations by young scientists in both the predoctoral and postdoctoral categories at the meeting. All posters accepted as finalists in the competition were reviewed and rated by the Poster Awards Committee on the basis of Significance of Research Problem; Experimental Approach; Soundness of Conclusions; and Clarity of Presentation.

THIS YEAR'S AWARD WINNERS WERE:

POSTDOCTORAL POSTER AWARDS

First Place: Siew Ying Wong, from National University of Singapore, for the poster entitled, "Steriodal Anti-Androgens Inhibit Lithocholic Acid Sulfonation And Increase Lithocholic Acid-Induced Toxicity In a Human Hepatocellular Carcinoma Cell Model."

Second Place: Saki Izumi, from Eisai Co., Ltd, for the poster entitled, "Relative Activity Factor (Raf)-Based Scaling Of Uptake Clearance of Oatp1b Substrates From Transfected Cell Systems To Human Hepatocytes And To *In Vivo*."

Third Place: Timothy Chow, from University of British Columbia, for the poster entitled, "A Physiologically Based Pharmacokinetic Model (Pbpk) Utilizing Specific Muscle Tissue For Intramuscular Injection Of Therapeutic Proteins."

PRE-DOCTORAL/GRADUATE POSTER AWARDS

First Place: Tiffany Cho, from University of Toronto, for the poster entitled, "The Development Of a Crispr/Cas-Mediated Pd-1 Knockout Rat Model To Study Idiosyncratic Drug Reactions Including Nevirapine-Induced Liver Injury."

Second Place: Edgor Cole Tolledo, from University of Toronto, for the poster entitled, "A Mouse Model For Investigating Human Brain Cyp2d6."

Third Place: Annie R. Peng, from University of Toronto, for the poster entitled, "Different Measures of Varenicline Adherence, Nicotine Metabolite Ratio And Smoking Abstinence."

ISSX congratulates all poster award recipients and finalists on their success.



Poster Award Winners pause for a photo with members of the Poster Awards Review Committee.

ISSX CONGRATULATES THE MONTRÉAL MIXER PRIZE WINNERS

EMILY QIAN

Biotranix • Junction, NJ, USA

FRANCES (YUE FEN) WANG

Janssen R&D, Johnson & Johnson
Pudong, Shanghai, China

ROSTAM NAMDARI

Xenon Pharmaceuticals
Burnaby, BC, Canada



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Ann Daly presents the North American New Investigator Award to Bhagwat Prasad.



Joyce Goldstein accepts the North American Scientific Achievement Award from Ann Daly.

By the conclusion of the meeting on Thursday, July 19, attendees had participated in eighteen scientific sessions including the keynote lecture, four plenary lectures, a plenary session on the role of the microbiome in drug metabolism, a new investigator-led abstract presentation session, a debate, and ten parallel symposia.

ISSX is grateful to Dr. Uetrecht, the 22nd North American Meeting Organizing Committee, the Poster Awards Committee, all session chairs and speakers, poster awards finalists, poster presenters, attendees, and our exhibitors and sponsors for their contributions to the success of this meeting.

ISSX THANKS OUR SPONSORS FOR THEIR GENEROUS SUPPORT:

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The ISSX Mentorship Program Benefits Members at All Career Levels

A complimentary benefit exclusively for members of ISSX, the ISSX Mentorship Program launched this year to provide a rich opportunity for graduate students and newer investigators to be matched with more senior scientists within and across career pathways to discuss career options, review competencies for success, consider challenges and problems, and receive practical advice from experienced scientists.

Program participants were matched in May 2018 and the mentors and mentees have been given flexibility to define their conversation topics to best suit the needs of their relationship. Participants have noted their top competencies and focus are individual and career development, collaboration, and leadership. Milestones have been set along the way for participants to review their desired outcomes of the mentorship, set goals, and provide progress updates.

ISSX Mentorship Quick-Poll: How much time is being spent mentoring and who is investing the time?



If you are interested in signing up to become a mentor or a mentee, please visit www.issx.org/ISSXMentorship to learn more. ISSX will provide resources to help you launch and sustain effective mentoring relationships.

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.



ISSX MENTORSHIP PROGRAM

This first mentorship program cycle will conclude in October 2018 and the second cycle will begin in November 2018.

Attend the ISSX Workshop this September!

On September 27–28, 2018 ISSX will present the LC-MS Proteomics Workshop entitled, “Towards Reaching a Consensus on Using Quantitative LC-MS/MS Proteomics in Translational DMPK/PD Research.” The workshop will be held in the auditorium of Takeda Pharmaceuticals, USA in Cambridge, Mass.

Workshop Program

Sunrise Session

This sunrise lecture will introduce the audience to the basics of quantitative proteomics (QPr) including terminology, current methods, and applications. This will enable attendees not experienced with QPr to follow the in-depth discussion in the main workshop.

7:00 AM–7:30 AM–Sunrise Session Registration Open

7:30 AM–8:30 AM–Pre-Workshop Sunrise Session: Ins And Outs Of Quantitative Proteomics: Beginners’ Guide To Concepts, Tools, Requirements, Applications And Challenges!

Introduction to the Session: Amin Rostami (University Manchester)

Speaker: Bhagwat Prasad (University of Washington)

8:00 AM–8:45 AM–Workshop Attendee Registration Open

8:45 AM–8:55 AM–Workshop Introduction

Jash Unadkat (University of Washington)

9:00 AM–12:10 PM–Session 1: Choice Of LC-MS/MS Proteomic Techniques: Horses For Courses!

Chairs and Moderators: Bhagwat Prasad (University of Washington) and Marcel Hop (Genetech)

9:00 AM–9:30 AM–Philip Smith (University of North Carolina): Targeted SIL-peptide based Proteomics

9:30 AM–10:00 AM–Jill Barber (University Of Manchester): Qconcat Method For Targeted Proteomics

10:00 AM–10:30 AM–Jacek Wisniewski (Max Planck Institute): Global Proteomics of ADME Proteins and Relevant Tissues and Cell Lines

THOSE WHO ATTEND THIS WORKSHOP WILL GAIN:

Knowledge on best practices in quantification of abundance of proteins using QPr and IVIVE of PK, PD and DDI during drug development

Knowledge on advantages, disadvantages and pitfalls of QPr

Knowledge on how to implement QPr in a laboratory, the cost-benefit ratio of the method, and the utility of the method in drug development

Knowledge on best practices in using QPr data for IVIVE of PK, PD and DDI during drug development

A consensus “white paper” on best practices in QPr and in using QPr data for IVIVE of PK, PD and DDI

10:30 AM–11:00 AM–Coffee Break & Poster Viewing

11:00 AM–12:10 PM–Viewpoints on Various Proteomic Methods (10 minutes each):

- Anna Vildhede (AstraZeneca): Tandem Mass Tags and Global Proteomics
- Michael Wang (University of Kansas): Targeted Proteomics of Enzymes using MRM
- Haojie Zhu (University of Michigan): PRM vs. MRM Quantification
- John Fallon (University of North Carolina): MRM Quantification of Transporters
- Fatemeh Akhlaghi (University of Rhode Island): SWATH MS for Targeted Proteomics
- Brahim Achour (University of Manchester): Head-to-head Comparison of Proteomics Methods

12:10 PM–1:00 PM–Session 1 Discussion

1:00 PM–2:00 PM–Lunch Break

Continued on next page



ISSX September Workshop

Continued from previous page

2:00 PM–5:00 PM–Session 2: Sample Preparation And Data Analysis Matter! The Concept Of ‘Fit For Purpose’

Chairs and Moderators: Brahim Achour (University of Manchester) and Yurong Lai (Gilead)

2:00 PM–2:30 PM–Per Artursson (Uppsala University): Whole Cell Lysate Sample Preparation for Global and Targeted Proteomics

2:30 PM–3:00 PM–Yasuo Uchida (Tohoku University): Membrane Enrichment and Sample Preparation for Targeted Proteomics

3:00 PM–3:30 PM–Dan Spellman (Merck): Skyline/Panorama and SWATH Analysis Approaches

3:30 PM–4:00 PM–Beverage Break

4:00 PM–5:00 PM–Viewpoints on Sample Preparation and Data Analysis

- Oliver Poetz (University of Tubingen): Peptide-group Specific Immuno-enrichment from Whole Cell Lysate Digests for Targeted Protein Analysis
- Buyun Chen (Genentech): Selecting Surrogate Peptide for Transporter Quantitation by using Authentic Protein Standards
- Evita van de Steeg (TNO): Plasma Membrane Enrichment for Targeted Proteomics
- Ryota Kikuchi (Abbvie): Use of Plasma Membrane Markers in Targeted Plasma Membrane Protein Quantification
- Martyn Howard (University of Manchester): New Approaches in Sample Preparation and Data Analysis
- Vineet Kumar (University of Washington): A Method to Quantify Plasma Membrane Abundance of Transporters
- Stefan Oswald (University of Greifswald): Whole Cell Lysate vs. Enriched Membrane Proteomics

5.00 PM–6.00 PM–Session 2 Discussion

FRIDAY, SEPTEMBER 28, 2018

DAY TWO

8:00 AM–11:30 AM–Session 3: PBPK, QSP, QST: Academic, Industrial And Regulatory Applications In Modern Drug Development–Sponsored By Certara

Chairs and Moderators: Jash Unadkat (University of Washington) and Michael Zientek (Takeda)

8:00 AM–8:40 AM–Jash Unadkat (University of Washington): Applications of Proteomics in PBPK, QSP and QST – An Academic View

8:40 AM–9:20 AM–Yurong Lai (Gilead): Applications of Proteomics in IVIVE, PBPK, QSP and QST – An Industry View

9:20 AM–10:00 AM–Amin Rostami (University of Manchester): Applications of Proteomics in PBPK, QSP and QST – Summary and Outlook

10:00 AM–10:30 AM–Beverage Break

10:30 AM–11:30 AM–Viewpoints on Applications of Quantitative Proteomics

- Frans Russell and Rick Greupink (Radboud University Medical Center): Application of Proteomics in PK/PD and Toxicity Prediction in Pregnancy and Paediatrics
- Mathena Varma (Pfizer): Transporter Protein Driven REF vs. RAF Approach to Predict Transporter-mediated Drug Clearance
- Abdul Basit (University of Washington): MRM vs. SWATH for Inter-species Profiling of DMEs and Transporters
- Sumio Ohtsuki (Kumamoto University): Membrane Enrichment for Targeted Proteomics of Enzymes and Transporters in Different Tissues and Cell Lines
- Katsuaki Ito (Teijin Pharma): Proteomics for Predicting DDIs using Sandwich-cultured Human Hepatocytes

11.30 AM–12.30 PM–Session 3 Discussion

12:30 PM–1:30 PM–Lunch Break

1:30 PM–4:00 PM–Session 4: Break-Out Parallel Round Table Discussions

Moderators and topics for discussion will be selected from the organizers, chairs and speakers in the above sessions.

Learn more and register today at www.issx.org/lcms. We look forward to greeting you in Cambridge!

President's Message

Continued from page 1

research and drug discovery and development. The second event is being organized by our colleagues in India, namely the 3rd Annual Meeting of SSX, that will be held in Bangalore from October 10–13. This meeting, under the leadership of Dr. Thanga Mariappan, represents a continuation of the meetings at the Indian Institute of Science that resulted from the creation of SSX in 2016, stimulated by the growth of DMPK science in India and other Asian countries. In that context, it is gratifying to see that ISSX has been able to make a tangible contribution to the development and support of professional organizations focused on the metabolism, disposition, and toxicology of xenobiotics in countries such as India and China.

Aside from our primary focus on the organization of scientific meetings, ISSX has been very active this year in our ongoing efforts to support the professional development of our members who are new investigators. These activities have included specific career development events at our conferences as well as the implementation of a cloud-based mentorship program, powered by MentorcliQ, both of which have proven to be highly popular membership benefits among graduate students, postdoctoral fellows, and others new to our profession. It has been a real pleasure to witness the very positive interactions between these young scientists and more senior members of ISSX, and I would like to acknowledge the efforts of all of the mentors and panelists at our meetings who are contributing to the success of these initiatives.

As always, I welcome feedback from the general membership of ISSX on how you feel the Society is doing with respect to its mission to, “advance research and education on the interplay of living systems with medicines and chemicals for the benefit of society worldwide.” Ideas on meeting programming and topics for focused workshops are particularly welcome. Also, please let us know if you are interested in participating in the organization of one of our activities—we are always looking for enthusiastic volunteers!

Tribute to Minor "Jud" Coon

Continued from page 2

forms of mammalian P450s and to studying mechanisms, genetic regulation of P450 levels, and development of heterologous expression systems for P450s in bacteria. As a chemist, he was always interested in mechanism; thus, his studies led to a much better understanding of NADPH Cytochrome P450 reductase, and his work on the mechanisms of oxygenation of substrates by cytochrome P450, especially with collaborations with John Groves (Chemistry Department) in 1978, led to the basis of our current view of P450 oxygenation reactions.

Jud Coon's influence in science goes well beyond his own investigations. He trained a great many scientists, many who have become leaders both in P450 studies, drug and xenobiotic metabolism, and in other fields. He was very supportive of women in science and a leader in true equality. He did not see gender as a factor in science and he embraced all types of discovery.

Save the Dates for the 12th International ISSX Meeting

An International ISSX Meeting is a meeting for the entire Society that offers a broad ranging program to serve the interests of all its scientific and geographical constituencies. Be sure to attend the 12th International ISSX Meeting June 28 through August 1, 2019 in Portland, Oregon, USA at the Portland Convention Center.

Take this wonderful opportunity to submit an abstract in consideration of presenting your research in the form of a poster. A select number of abstract presenters will be invited to present from the podium in one of several scientific symposia. No matter what form your presentation takes, presenting your work to other scientists joining us in Portland is an exceptional opportunity as the showcase of investigators from around the world presenting cutting-edge research on the latest advances in topics related to drug metabolism and pharmacokinetics is a highlight of every ISSX meeting. Abstracts will be accepted from October through April

so assemble your data now and get ready to submit your abstract.

Attending an ISSX meeting is an opportunity to build networks with other academics and experts working in industry or other settings from around the world and to share thoughts on recent advances and breakthroughs. It is an opportunity to expand the knowledge that one has and upgrade performance in accomplishing objectives. ISSX meetings bring together people who share a common discipline from different parts of the world, bringing different forms of ideas that build into something greater. When you participate in an ISSX meeting you build a network of people who can raise your caliber of work to greater heights as you achieve shared objectives.

Include the ISSX 12th International Meeting in your 2019 training budget and we'll see you in Portland!

ISSX AWARDS AT THE 12TH INTERNATIONAL MEETING

Three prestigious awards will be presented at the 12th International Meeting. Recognize an outstanding individual or team and submit a nomination by April 5, 2019.

R.T. Williams Distinguished Scientific Achievement Award—*Sponsored by Charles Crespi and Family.*

Presented to an ISSX member from any region who has made substantial and seminal scientific contributions to the field over a sustained period. The focus of this award is the individual's scientific accomplishments and it is intended to recognize the best in the field, internationally. The award will consist of a plaque/medal, an honorarium and travel support. The award winner will deliver a lecture during the awards session.

Frederick J. Di Carlo Distinguished Service Award

Presented to an ISSX member from any region who has a record of important service to the Society and its goals. The award will consist of a plaque or medal, honorarium and travel support. On occasion, one or two outstanding acts of service will justify the award or a long record of many acts of service without any

single outstanding act will be recognized. Preferably, however, the recipient should have a record of many accomplishments some of which are major. The award will not be given for future promise, but on the basis of past service.

Distinguished Accomplishments in Drug Discovery and Development Award

Presented to an individual or to a team employed in an organization involved in drug discovery and/or development. The award will be presented to an individual or team on the basis of:

- (1) A single high impact scientific accomplishment that dramatically changed practices in the ADME characterization of drugs or drug candidates or
- (2) A sustained body of scientific work that shows high impact on the ADME characterization of drugs.

Full information regarding the ISSX Awards program and how to nominate a deserving individual may be found on the ISSX web site.

Save the Dates

Continued from previous page

ABOUT PORTLAND

Portland, Oregon's largest city, sits on the Columbia and Willamette rivers, in the shadow of snow-capped Mount Hood. It is known for its parks, bridges and bicycle paths, as well as for its eco-friendliness, microbreweries and coffeehouses. Iconic Washington Park encompasses sites from the formal Japanese Garden to Oregon Zoo and its railway. Outstanding wineries surround Portland and the nearby Willamette Valley features a plethora of vineyards and wine producers where you can sample some of the country's finest pinot noirs and other varietals. We will have information about winery tours available soon.

Xiaoyan Chu
Merck
New York, N.Y., USA

Ann Daly
University of Newcastle
Newcastle Upon Tyne, UK

Marcel Hop
Genentech
South San Francisco, Calif., USA

Hannah Jones
Pfizer Inc.
Boston, Mass., USA

Roos Masereeuw
University of Utrecht
Amsterdam, Netherlands

Bhagwat Prasad
University of Washington
Seattle, Wash., USA

Karthik Venkatakrishnan
Takeda Pharmaceuticals USA, Inc.
Boston, Mass., USA

Kouichi Yoshinari
University of Shizuoka
Shizuoka, Japan

Lei Zhang
Silver Spring, Md., USA

Meeting Organizing Committee

Deepak Dalvie, Meeting Co-Chair
Celgene
San Diego, Calif., USA

Alexsandra Galetin, Meeting Co-Chair
University of Manchester
Manchester, UK

Hiroyuki Kusuhara, Meeting Co-Chair
University of Tokyo
Tokyo, Japan



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.

Felix Agbo, United States

Fatemeh Akhlaghi, United States

Zubida Al-majdoub, United Kingdom

Nicole Arguelles, Canada

Nilson Assuncao, Brazil

Mayssa Attar, United States

Mohd Yusmaidie Aziz, Malaysia

Deborah Barlow, United States

Dustyn Barnette, United States

Audrey Binabout, Canada

Monica Borgonovi, France

Colin Brown, United Kingdom

Tamara Cabalu, United States

Tiffany Chan, United States

Amandine Chefson, Canada

Jie Chen, United States

Buyun Chen, United States

Tiffany Cho, Canada

Xiaoyan Chu, United States

Katrina Claw, United States

Jing Dai, United States

Vinay Daryani, United States

Roelof de Wilde, Hungary

Gabriela Dovrtelova, Czech Republic

Wilasinee Dunkoksung, Thailand

Chinedu Etteh, United Kingdom

Lijuan Fu, United States

Mohd Baasir Gaisawat, Canada

Guoju Geng, United States

Dipayan Ghosh, India

Sree Gopal, United States

Amal Guesmi, Canada

Jennifer Harris, United States

Todd Harris, Canada

Jiake He

Seokhyun Hong, Korea

Yumi Jang, Korea

Alison Jee, Canada

Hong-liang Jiang

Rongrong Jiang, United States

Laura Kaldon, United States

Shyam Kamble, United States

Jane Kenny, United States

Seong Soon Kim, Korea

Semi Kim, Korea

**Mayurbhai Kathadbhai
Ladumor**, India

Sujoy Lahiri, United States

Ronald Landes, United States

Christina Larder, Canada

Cathy Lester, United States

Ting-ting Li

Jinyan Lin, United States

Xiawen Liu, China

Ogheneochukome Lolodi,
United States

Lina Luo, United States

Guo Ma, China

Ben Mayes, United States

Samantha Medwid

Krithika Mohan, United States

Vijay More, United States

Peter Mullen, Canada

Marjoleen Nijsen, United States

Keumhan Noh, Canada

Julien Ogier, France

Miriam Oost

Natasa Pajkovic, United States

Guo-yu Pan

Maxwell Pan, United States

Mitesh Patel, United States

Annie Peng, Canada

Alicia Pietrasiewicz, United States

Shuaikai Qiu, China

Ruiqing Qiu, United States

Amey Rand, Canada

John Rodgers, United States

Yan Rong

Shantanu Roychowdhury,
United States

Laura Russell, Canada

John Savaryn, United States

Henry Shin, Korea

Dian Su, United States

Feifei Sun

Lu-ning Sun

Edgor Cole Toledo, Canada

Emma Tomlinson Guns, Canada

Lauren Trepanier, United States

Chien-Lung Tu, Taiwan

Ana Vergara, United States

Bonnie Wang, United States

Jing Wang, United States

Yong-qing Wang

Frances (Yue Fen) Wang, China

Jianzhong Wen, United States

Chun-nuan Wu

Yuan Xie

Yan Xin, United States

Zhengqi Ye, United States

Suresh Yeola, United States

Sean Yu, United States

Yueping Zhang, United States

Di Zhao

Xiaochun/Sean Zhu, United States

Faizan Zubair, United States

Become an ISSX Membership Ambassador

As a member of the Society, you know your connection to peers in the industry, access to industry news and resources, and admission to educational events is a great value for you and your professional and personal development.

Perhaps you have been looking for a way to inform your peers about how ISSX has helped you grow professionally or how your research has benefited from your membership.

Now you can!

This year, ISSX is launching a Membership Ambassador Program to share information about the benefits of being part of the Society.

REFER NEW MEMBERS BY EMAIL

FIND YOUR LINK

1. Login to your ISSX Membership Account at **www.issx.org**.
2. Select the link to “My Profile”
3. Select the link to “Refer a Friend”

SEND YOUR INVITATIONS

1. Use the referral form to send invitations to up to ten colleagues or
2. Copy your referral link and send invitations directly to your network

ISSX will feature ambassadors in the *ISSX Newsletter* and in our social media outreach. To ensure you will be featured, be sure to sign up to become an ambassador between now and April 1, 2019.

Learn more online and volunteer for this program at **www.issx.org/ambassador**.

Becoming an ISSX Membership Ambassador is as simple as following these five steps:

1. Sign up for the program online at **www.issx.org/ambassador**.
2. Use this guide and the enclosed materials to inform your network of peers and colleagues about why you are a member of ISSX and why they should join.
3. Ask your colleague to list you as their ISSX member contact when they join at www.issx.org/join or send a direct link to join from your membership. This will ensure you receive credit for their new membership.
4. Follow up with your colleague after they join to ensure they are aware of the resources available to them as a newly minted member of ISSX.
5. Share your success with us! You could be a featured ISSX Membership Ambassador in an upcoming issue of the ISSX Newsletter! Tell us about your recruitment efforts and we will spotlight your accomplishments.





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