

**Drug Metabolism and Pharmacokinetics Interest Group Report of the Interest Group Workshop
62nd ASMS Conference, June 15th to June 19th, 2014, Baltimore, MD**

Mechanisms to Process Data Given Software Restrictions Across Vendors

The Drug Metabolism and Pharmacokinetics (DMPK) Interest Group Workshop was held on Wednesday June 16th from 5:45 to 7:00 pm. Co-Chair Mustafa Varoglu and Ragu Ramanathan led the meeting by introducing the session. Approximately 75 scientists attended the workshop demonstrating interest in drug metabolism and pharmacokinetics. The active discussion on the workshop topic and the solid attendance provide a good endorsement for continuing the DMPK-IG in future years.

A brief business meeting was held at the end of the workshop to review the status of the current Oral Sessions, solicit ideas for future DMPK Oral Sessions and Workshops, as well as a call for nominees and volunteers for future DMPK-IG sessions.

1. Review of the DMPK IG Goals

The DMPK Interest Group goals of providing a discussion forum to MS practitioners in drug metabolism, pharmacokinetics, qualitative and quantitative, non-regulated bioanalysis include sharing:

- Recent advances in techniques and methodologies for metabolite identification and pharmacokinetic bioanalysis
- Interpretation of, and application of related guidance documents (i.e. MIST, ICH M3, DDI, expl. IND)
- Sharing of best practices across industry and academia
- Provide input on ASMS conference program of interest to scientists working in DMPK
- Reach out and coordinate with related groups to complement scope and broaden outreach to scientific community

2. Solicitation for nominations for 2015 and 2016 DMPK IG Coordinators

2014: Mustafa Varoglu (Co-Chair), Don McKenzie (Chair)
(DM was unable to attend ASMS, Ragu Ramanathan provided ad hoc help this year)

List of proposed DMPK-IG coordinators for 2015 to 2017:

Outgoing 2014: Don McKenzie

2015: Mustafa Varoglu and Kevin Bateman

2016: Kevin Bateman and Phil Tiller and alternate Mingshe Zhu (2014 nominee for 2017)

2017: Phil Tiller and Mingshe Zhu

3. Update on the DMPK Interest Group's Impact on the 2014 ASMS Program

While there were several Oral Sessions in the general DMPK area, feedback from DMPK IG attendees was that there was a need for a more consistent focus on the presentations to address issues faced by pharmaceutical industry practitioners of small molecule LC-MS. Several of the sessions had no relationship to drug metabolism, leaving many in attendance disappointed with the presented talks. The DMPK IG hopes to work more expeditiously with ASMS leadership to propose a wider range of topics for 2015 Oral Sessions as well as Oral Session chairs to encourage creation of a Conference Program that can be a greater resource for DMPK Scientists at the 2015 ASMS Meeting.

Monday AM: Antibody and Antibody Drug Conjugates

Monday PM: Quantitative Analysis in Drug Discovery and Development

Tuesday AM: Qualitative and Quantitative LC-MS for Small Molecule Analysis

Wednesday AM: Pharmacoproteomics and Toxicoproteomics for Drug Development

Thursday AM: Biomarkers in Drug Discovery, Development and Diagnosis

4. Suggestions on ASMS 2015 Oral Session Topics from DMPK-IG Attendees

The attendees agreed that the current topics were still of high interest and supported expanding on them on the 2015 program.

Attendees expressed the number of Oral sessions applicable to DMPK had dropped and that several of the talks in the drug metabolism sessions were not directly related to the topic. As an interest group we wish to work with the ASMS Vice President of Programs to identify potential Oral Session topics and Oral Session Chairs. In order to support a strong DMPK focus in future ASMS meetings the DMPK IG encourages people to submit DMPK focused abstracts for oral sessions to the 2015 ASMS.

Based on feedback from Attendees and DMPK IG Members, the DMPK-IG requests scheduling the DMPK-IG Workshop on Monday night 5:45 to 7 pm as has been the tradition for many years in the past.

To identify potential Oral Session DMPK topics, attendees offered the following areas of interest and proposed schedule:

Session Title/ Topic	Day/ Time
"Changing the Quantitation Paradigm: Quantitation without Standards" OR "Quantitative Analysis in Drug Discovery for Small Molecules"	Mon AM
Applying New LC-MS Techniques to Solve Challenging Drug Metabolism Problems	Mon PM
Advances in Integrating Software and Hardware to Increase In Vivo and In Vitro DMPK Workflows	Tues AM
LC-MS Approaches to Combine Translational PK/ PD Biomarkers with Small Molecule ADME Workflows	Tues PM
Discovery Applications: Accelerator Mass Spectrometry, Stable Isotope Labeling and Isotope Filtering for Qualitative and Quantitative Analysis	Wed AM
DMPK Applications of Pharmaceutical Compound MS Imaging	Wed PM
Biotransformation and Disposition of Biotherapeutics and the Antibody Drug Conjugate Payload	Thu AM
Ion Mobility Applications in DMPK	Thu PM

Alternate or Additional Topics

In Vitro and In Vivo models for Human Metabolite Prediction

Elucidating the Metabolism of Peptide and Protein Therapeutics by LC-MS

Protein Quantitation for Drug Discovery and Development

Utility of Microflow and Nanoflow LC-MS for Small Molecule Quantitation

5. Discussion Topic: "Mechanisms to Process Data Given Software Restrictions Across Vendors"

The discussion was initiated with a twenty minute panel presentation from four Pharmaceutical industry speakers who addressed their current status and future expectations of working with multiple instrument and software platforms. They summarized their desire to acquire and process data in a manner that would provide them the greatest efficiency and flexibility.

Andreas Luippold, Boehringer-Ingelheim presented on "Cross Platform Data Acquisition and Data Processing, What does it take to get there?" examining the factors required to obtain and process ADME screening data from LC-MS instruments from different vendors, while Natasha Penner, Biogen Idec discussed the same challenges with regards to Metabolite ID studies in a presentation entitled: "Metabolite ID: Acquisition and Processing Challenges".

John Janizewski addressed the increasing role LC-MS may be able to play in obtaining data for HTS, phenotypic, and enzyme activity screens in parallel with classic DMPK efforts and the challenges in developing specialized processing software for these new areas in his presentation: "Mass Spectrometry Technologies in Early Stage Drug Discovery". Kevin Bateman shared some of the distributed workflows present in larger pharmaceutical companies with the presentation: "Mass Spectrometry as a Black Box". Working from this viewpoint, he presented the challenges and opportunities of managing the inputs and outputs of mass spectrometers across globally distributed laboratories. In addition he summarized advances in cloud based storage and processing systems as well as the future development of universal data types.

Following the presentations, the audience and Panel Members engaged in an extended discussion with additional viewpoints from the audience provided by instrument vendor attendees knowledgeable in software development, third party LC-MS software developers, and other industrial scientist looking for options to increase their efficiency in data acquisition and processing. The discussion was very extensive between the audience and the Panel and ended well after 7 pm. Some of the points and questions raised in the discussion were:

- That the LC-MS vendors were already working closely with the 3rd party software developers by providing application programming interfaces (APIs) and other arrangements.
- Why aren't software end users asking more explicitly for universal data formats to enable customized processing with alternate software?
- The challenges of employing a universal data standard when new instrument advances may not be able to be accommodated in a universal standard.
- A question of the importance of software as a driver for creating LC-MS instrument sales and the overall role software plays in an instrument vendors' strategy.
- The apparent double standard of customers being more willing to invest in instrument hardware vs. paying similar amounts when the software may bring greater value to the customer's productivity.
- One comment from an instrument vendor was that end users don't realize how much the instrument vendors are investing in new software advances.
- What happens if instrument vendors move away from providing processing software and users become dependent on a single 3rd party software provider.
- A comment after the session – A request to include both instrument vendors or 3rd party software vendors on future panels of this type.

Presentations from the workshop will be uploaded to the DMPK-IG page on the ASMS web-site.

Current Officers for the ASMS DMPK Interest Group:

Don McKenzie, Ph. D. (Outgoing coordinator for 2014)
 Covance Laboratories
 3301 Kinsman Boulevard
 Madison, WI 53704-2523
 e-mail: don.mckenzie@covance.com

Mustafa Varoglu, Ph.D. (Proposed Coordinator for 2015)
 Cubist Pharmaceuticals
 Lexington, MA 02421
 Phone: 781-860-8347
 e-mail: mustafa.varoglu@cubist.com