

Historic Boston plays host to the fifth Tecan Symposium



Mass spectrometry (MS) experts gathered in the historic city of Boston for the fifth annual Tecan Symposium, exploring how this technology is becoming a critical tool for a wide variety of applications.

Building on the previous year's success in China, the 2012 Tecan Symposium ventured across the Pacific to Boston, USA, where this year's topic – *Mass spectrometry: the expanding role in life sciences and diagnostics* – gave delegates an insight into some exciting opportunities and new developments in this fast-moving field.

Marc Feiglin, Chief Technology Officer for life sciences at Tecan, opened proceedings, welcoming delegates and commenting on the multitude of seemingly unrelated topics linked by MS. The day's presentations began with John Brennan from McMaster University, Canada, who described the use of electrospray and MALDI-MSMS for biological screening of small molecule mixtures, including an intriguing overview of a new assay involving magnetic 'fishing' to identify modulators of protein-protein interactions. Robert Moritz from the Institute for Systems

Biology, USA, followed, with a discussion on the development of the complete human PeptideAtlas and SRMATlas, a valuable publicly available resource. Moving on to the use of MS in medical research, Mitsutoshi Setou from the Hamamatsu University School of Medicine in Japan explained how lipids – which are traditionally quite hard to visualize – can be investigated using high resolution imaging MS, aiding studies into conditions such as atherosclerosis and Alzheimer's disease. Sabine Becker from the Juelich Research Centre in Germany drew the session to a close with a fascinating talk about BrainMet and the use of MS to investigate the role of metals in neurodegenerative diseases.

Gary Van Berkel from the Oak Ridge National Laboratory, USA, began the afternoon session, giving delegates an insight into the analytical opportunities generated by

combining the high spatial resolution of laser desorption/ablation with liquid extraction-based surface sampling probes. Judy Stone from the TPMG Kaiser Regional Laboratory – Northern California, USA, explained how MS is benefitting clinical laboratory applications, and described how an automated LC-MSMS assay for 25-hydroxy vitamin D is enabling more than 1,500 samples to be analyzed each day. The results of a Friday night chance experiment were discussed by Burak Eral from the Massachusetts Institute of Technology, USA, who described the concept of eMALDI, which uses electrowetting to suppress the 'coffee stain' effect. He was followed by Feixia Chu from the University of New Hampshire, USA, who used MS-based proteomics to investigate how proteins survive in amber samples and fossils. Paul Tempst from the Memorial Sloan-Kettering Cancer Center, USA, rounded off the day by raising the dire rate of progress in disease



Symposium speakers and chairpersons gather for a photo shoot



Robert Moritz discussed the development of the complete human PeptideAtlas and SRMATlas



Delegates discovered Boston's historic landmarks during a tour of the Freedom Trail

biomarker discovery and the need to look at the activity, and not just the presence or amount, of proteins.

Day two of the Symposium put the spotlight on the use of MS as a routine diagnostic tool, where robust, accurate assays are vital, due to the direct impact results can have on clinical decisions and peoples' lives. Nigel Clarke from Quest Diagnostics, USA, discussed how patients may undergo unnecessary treatment as a result of false positive results obtained using immunoassays when, in many cases, this could be avoided by the development and use of more specific LC-MSMS assays. The next speaker, Michael Vogeser from the University of Munich, Germany, focused on the need for full automation of the entire clinical LC-MSMS protocol, explaining the pitfalls associated with MS analysis and pre- and post-MS sample processing, and concluding that automation is essential to further improve the reliability of these applications. Andy Hoofnagle from the University of Washington, USA, went one step further, suggesting that, while immunoassays have been – and remain – a useful tool, companies needed to work in partnership to advance the development of fully automated MS-based clinical assays. MS-based neonatal screening for treatable metabolic conditions was then discussed by Xuefan Gu from China's Xin Hua Hospital, who commented that 'prevention is better than cure – better to build a fence at the top of the cliff than a hospital at the bottom'. The concluding speaker of this session, Zoltan Takats from Imperial College London, UK, had the audience on the edge of their seats as he described how REIMS (rapid evaporative ionization MS) technology

is enabling surgeons to obtain real-time information about tumors during cancer surgery, allowing much more accurate removal of malignant tissue.

The final session of the Symposium was opened by Jeff Hurst from The Hershey Company, USA, who took delegates back to 600 BC (before chocolate), describing how MS techniques have enabled the identification of chocolate residues on ceramic vessels recovered from archeological sites. Mark Libardoni from the Southwest Research Institute, USA, then took the audience on a journey into space, explaining the value of MS in space science applications, before Mehdi Moini from the Smithsonian Institution, USA, drew the Symposium back to Earth with a talk on the successful application of ultrafast capillary electrophoresis MS to dating museum samples.

Networking opportunities and social events – including a tour of the Freedom Trail and an evening dinner in Boston Public Library – allowed delegates to continue discussions in an informal atmosphere, before heading home to contemplate this vast array of MS applications and the success of the 2012 Tecan Symposium.

To find out more about the 2012 Tecan Symposium, visit www.tecan.com/symposium2012

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Left to right: Denis Coulet, Marina Lomtadze, Natalia Mudrak and Mark Hozza enjoy an informal discussion over a glass of wine