OMICS Group Conferences
Accelerating Scientific Discovery

3rd World Congress on
Bioavailability & Bioequivalence

March 26-28, 2012 Marriott Hotel & Convention Centre, Hyderabad, India

Enhancing bioanlytical selectivity beyond conventional LC/MS/MS

Hesham Ghobarah
AB SCIEX, Canada

Bioanalytical assays for biosimilars, peptides, and small molecules can often exhibit interferences which limit sensitivity and/or throughput. Unresolved chromatogrphic peaks or high baseline pose challenges in method development requiring more elaborate and lengthy sample preparation and chromatography. Interferences are more likely to be encountered in high sensitivity assays especially with peptides and analogs of natural products. Additional analytical selectivity beyond standard MS/MS is required.

Differential mobility is a powerful orthagonal techniqe to LC/MS/MS. Until recently, it has lacked the required performance for rugged and sensitive bioanalysis. SelexION™ Technology from AB Sciex is the first differential mobility interface with the sensitivity, speed, ruggedness, and stability for regulated bioanalysis. It can be used on existing Triple Quadrupole and QTRAP®5500 systems. High Resolution MS (HRMS) is another technique capable of providing enhanced selectivity. It has traditionally been limited to qualitative analysis due to limitations in dynamic range, speed, and sensitivity. It is now gaining acceptance for bioanalytical quantitation since the introduction of the TripleTOF™ 5600 system from AB Sciex, which enables novel HRMS and MS/MS techniques for quantitative analysis, while maintaining compatability with UHPLC. Finally, MS3 is the third option available to achieve additional selectivity. Hybrid QTRAP® systems enable the use of MS3 for quantitation by combining a triple quadrupole and a linear ion trap in one instrument.

An introduction to these techniques will be presented along with several real life data examples of how they have been used to overcome selectivitychallenges in the bioanalysis of both peptides and small molecules in order to achieve higher throughput and lower limits of quantitation.

Biography

Hesham Ghobarah is a SeniorApplications Scientist with AB SCIEX in Toronto, Canada. He specializes in pharmaceutical applications of mass spectrometry using triple quadrupole, ion trap, and TOF LC/MS/MS systems. Prior to joining AB SCIEX, Hesham developed extensive experience in the pharmaceutical industry working as a bioanalytical DMPK scientist at Amgen (California, USA). There he was involved in multiple discovery and clinical development projects, including Sensipar which was Amgen's first small molecule drug to gain FDA approval.

Hesham also performed research in human athletic anti-doping at the University of California at Los Angeles Olympic Laboratory. His current research interests include metabolite profiling and new approaches to quantitative bioanalysis. He is the author and co-author of more than forty papers, application notes, conference presentations and invited lectures.

Hesham.Ghobarah@absciex.com