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Utility of mass spectrometry in drug metabolism and pharmacokinetics (DMPK): Discovery of small molecule drugs

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In modern drug discovery, mass spectrometry (MS) plays a central role in determination of drug-like properties of small molecules. In an effort to manage compound attrition and to improve the odds of discovering viable development candidates, medicinal chemistry departments have increased their productivity and produce an ever increasing number of compounds. Most compounds are evaluated in a battery of *in vitro* and *in vivo* assays in drug metabolism and pharmacokinetics (DMPK) departments. These are labor intensive and time consuming assays and almost always utilize qualitative or quantitative mass spectrometric methods. DMPK groups have to mirror the increased productivity exhibited by the medicinal chemistry to prevent bottlenecks. In addition to assembling a highly qualified team and automation, a DMPK department must be creative in the use of its resources and the utility of MS in order to enable generation of high quality data in an efficient, timely, and cost effective manner. Qualitative and quantitative MS approaches and their specific utility in discovery DMPK will be discussed in this presentation.

Biography

Mehran Moghaddam, PhD, MBA, is the head of Discovery DMPK at Celgene, a global biopharmaceutical company with products in oncology and immune-inflammatory related diseases. He obtained his PhD in medicinal chemistry at Oregon State University-School of Pharmacy and studied endogenous lipid metabolism at University of California-Davis for his postdoctoral work. He also completed an Executive MBA program in University of Southern California-Marshall School of Business. He has over 20 years of industrial experience which includes employment at DuPont, Pfizer, and Celgene. His expertise include animal experimentation, pharmacokinetics and modeling, metabolism, metabolite/catabolite identification, and bioanalysis of small and macro-molecules.

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