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New trends in high-resolution mass spectrometry use for drug metabolism & pharmacokinetics

High-Resolution Mass Spectrometry (HRMS) is already for many years, the analytical technique of choice for metabolite profiling and identification. While HRMS systems used to be utilized only by a few highly experienced mass spectrometrists, the performance improvements, as well as reduction in price and foot print and improving user friendliness made in the last decade, resulted in an ever-growing popularity of this technique in different application areas. The new generation high-resolution mass spectrometry (HRMS) systems, now also, offer the right performance for quantitative analyses, i.e., sensitivity, dynamic range, resolution, accuracy and scan-to-scan reproducibility, making them a worthwhile alternative for the 'golden standard' triple quadrupole MS systems. This provides a huge potential since quantitative and qualitative (quan-qual) information can be obtained from one analysis but also requires a different mindset and expertise to make the right choices and compromises to obtain the best results. The advantages and challenges of quantitative HRMS and quan-qual analyses will be discussed. While more and more smaller, cheaper and user friendly HRMS systems are available for quantitative and quan/qual analyses, the high end HRMS instruments are further advancing in MS resolution or providing additional capabilities; thanks to combinations with other analytical techniques such as ion mobility separation and infrared spectroscopy.

Biography

Filip Cuyckens is a Scientific Director & Fellow at Janssen R&D in Beerse, Belgium. He is responsible for Analytical Sciences in the Pharmacokinetics, Dynamics & Metabolism (PDM) Department. Analytical Sciences PDM consists of Bio-transformations, focusing on metabolite profiling and identification of discovery to late development compounds, and Discovery & Exploratory Bioanalysis, focusing on quantification of drug candidates, metabolites and biomarkers in biological matrices. He earned a Pharmacist Degree in 1998, a degree in Industrial Pharmacy in 2002 and a PhD in Pharmaceutical Sciences in 2003. He has (co-) authored more than 60 publications, is a Member of the Associate Editorial Board of *Rapid Communications in Mass Spectrometry* and Board Member of the Belgian Society for Mass Spectrometry.

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