Analysis of Drugs in Bio-samples using LC-MS System with Effective On-line Solid-phase Extraction

○ Naoki Asakawa
(Drug development technology, Eisai Co., Ltd.)

Analysis of drugs (analytes) in bio-samples, which enables elucidation and/or verification of the mode of action on pharmacology and toxicology, plays essential roles in discovery, preclinical and clinical stage in drug development. The drug development supported by reliable analytical data with high quality is promising and warrant further success.

Successive improvements and innovations in the methodology, the popularization of LC-MS for ADME studies in drug development have led to rapid advances as a standard tool. LC-MS analysis for drugs in bio-samples requires sample preparation procedure. The interfering endogenous substances might affect sensitivity and reliability of analysis seriously and protein precipitation, liquid-liquid extraction and solid-phase extraction are usually employed in various investigations. On the other hand these procedures may lead the lowered performance of MS in the analysis. Therefore the greatest importance should be placed on the development of effective sample pretreatment procedure, which enhances the performance of MS, to improve the quality and productivity of the drug development.

The authors have developed new class of restricted-access media columns (MAYI series) and column switching LC system (Co-Sense for BA) that enable the direct injection analysis for bio-samples such as plasma. In this presentation, the authors will present quantitative direct analysis of drugs in plasma, analysis of drug and their metabolites in bile using various Co-Sense for BA systems.