

POSTER PRESENTATION

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LC-MS and GC-MS based metabolomics platform for cancer research

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We present here a LC-MS and GC-MS based analytical platform for the comprehensive analysis of cellular metabolites, including water-soluble metabolites, and water-insoluble fatty acids, and phospholipids. The entire workflow consists of metabolic extraction, LC-MS and GC-MS runs, data analysis and interpretation. Standard operation procedures have been developed for the metabolite extraction from cell culture, tissue and serum/plasma, which involve liquid extraction using appropriate extraction solvents. Metabolites were analyzed using multiple analytical methods on multiple dedicated instruments. Cationic water-soluble metabolites were analyzed on a triple quadrupole instrument using hydrophilic interaction chromatography [1]. Anionic water-soluble metabolites were analyzed using high resolution 'Exactive' Orbitrap mass spectrometer coupled to reversed phase ion pairing chromatography [2]. Fatty acids and phospholipids were analyzed using Agilent Q-TOF instrument coupled to reversed phase chromatography [3]. Data analyses were performed using MAVEN program which converts the raw data into a validated table of metabolite-specific signals [4]. Examples will be provided to demonstrate our capability to analyze a broad range of metabolites from real biological samples, as well as to probe the metabolic fluxes using stable isotope tracers.

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