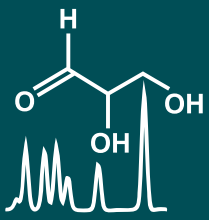

Metabolites

an Open Access Journal by MDPI

CiteScore: 6.9
Indexed in PubMed
Impact Factor: 3.7

Special Issue Reprint

Sample Preparation in Metabolomics

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Metabolomics is increasingly being used to explore the dynamic responses of living systems in biochemical research. The complexity of the metabolome is outstanding, requiring the use of complementary analytical platforms and methods for its quantitative or qualitative profiling. In alignment with the selected analytical approach and the study aim, sample collection and preparation are critical steps that must be carefully selected and optimized to generate high-quality metabolomic data. This book showcases some of the most recent developments in the field of sample preparation for metabolomics studies. Novel technologies presented include electromembrane extraction of polar metabolites from plasma samples and guidelines for the preparation of biospecimens for the analysis with high-resolution μ magic-angle spinning nuclear magnetic resonance (HR-μMAS NMR). In the following chapters, the spotlight is on sample preparation approaches that have been optimized for diverse bioanalytical applications, including the analysis of cell lines, bacteria, single spheroids, extracellular vesicles, human milk, plant natural products and forest trees.

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