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Challenges and Opportunities in Application of Mass Spectrometry for Metabolomics and Lipidomics

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Message from the Guest Editors

Metabolomics is an interdisciplinary field that brings together experts from various disciplines such as analytical chemistry, biochemistry, statistics, biology, computational science and medicine. Among the various analytical platforms available, mass spectrometry stands out as a primary tool for exploring the metabolome due to its high sensitivity and specificity in chemical analyses. It is often used in conjunction with separation techniques such as gas or liquid chromatography—and more recently ion mobility—to improve the analysis of complex samples.

While significant progress has been made in the metabolomics and lipidomics fields, several challenges remain. These include the annotation of metabolites in discovery-based studies, the validation of proposed biomarkers, the development of user-friendly visualization methods for interpreting multivariate analysis outputs, the standardization of large data processing workflows, the achievement of consistent results in inter-laboratory comparisons and the translation of findings into clinical settings.



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Message from the Editor-in-Chief

The metabolome is the result of the combined effects of genetic and environmental influences on metabolic processes. Metabolomic studies can provide a global view of metabolism and thereby improve our understanding of the underlying biology. Advances in metabolomic technologies have shown utility for elucidating mechanisms which underlie fundamental biological processes including disease pathology. *Metabolites* is proud to be part of the development of metabolomics and we look forward to working with many of you to publish high quality metabolomic studies.

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