Improving World Health with Metabolomic Research Solutions

Unlock the Potential of NMR and MS in Metabolomics

Speakers at Bruker's Lunch Seminar on June 19

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Advancing Analytical and Informatic Strategies for Comprehensive Untargeted Metabolomics

Mass spectrometry-based untargeted metabolomics is constantly challenged by large-scale and unambiguous metabolite annotation in complex biological matrices, due to the enormous chemical and compositional diversity of metabolome. In my presentation, I will introduce the metabolic reaction network-based strategy, namely MetDNA, developed in my group for metabolite annotation. The recent version of MetDNA2 employed the knowledge-guided multi-layer networking, to enable global metabolite annotation from knowns to unknowns in untargeted metabolomics. Further, I will also introduce the expansion of ion mobility separation derived collision cross-section (CCS) to support multidimensional metabolite annotation. All of these technologies facilitate expanding the chemical coverage of annotation and extending the assessment of metabolic pathways and activities.

Claire Cannet
Bruker Market Manager Clinical, Bruker BioSpin GmbH

New NMR Applications in Clinical Research and Translation

NMR-based metabolomics is a pivotal omics tool in biomedical and clinical research, facilitating disease investigation with remarkable versatility. Through diverse application examples from cardiovascular disease, personalized nutrition and cancer research, we will demonstrate NMR's capability to comprehensively detect and quantify metabolites, even in untargeted approaches, elucidating crucial molecular mechanisms underlying health and disease. Emphasizing standardization, reproducibility, and accuracy, particularly in clinical research, we will explore the significance of these factors in ensuring robust findings. Additionally, we will present new developments in NMR-based metabolomics, spanning from high field NMR to benchtop solutions. These advancements unlock pathways to transformative research and translational success, promising enhanced insights and applications in disease research and therapeutic interventions. Join us for an illuminating discussion on the evolving landscape of NMR-based metabolomics and its profound impact on biomedical and clinical research.

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