



NEWS RELEASE

Bruker Launches Novel timsMetabo™ Mass Spectrometer for Breakthrough 4D-Metabolomics and 4D-Lipidomics Sensitivity, Specificity and Annotation Confidence - at Speed, Depth, and Scale

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- Game-changing sensitivity for TIMS-enabled small molecule analysis
- 4D LC-TIMS-MS/MS separations and CCS measurements at scale for unprecedented specificity and annotation confidence
- Introducing the 'digital metabolome archive' for AI/ML scaling
- Novel TIMS Mobility Range Enhancement (MoRE) technology for m/z bandwidth
- Performance monitoring with QSee™ QC suite and cloud-based TwinScape™ for highest confidence in metabolomics - at speed and scale

BALTIMORE--(BUSINESS WIRE)-- At the 73rd Conference on Mass Spectrometry and Allied Topics (ASMS), **Bruker Corporation** (Nasdaq: BRKR) launched **timsMetabo**, a peak-performance 4D-Metabolomics™ mass spectrometer delivering unprecedented sensitivity, separation power and annotation confidence for small molecules, further enhanced by the novel TIMS 'MoRE' scan-mode. The timsMetabo system enables the generation of a 'digital metabolome archive' for every sample, providing TIMS-enabled qual-quant performance with greatly increased confidence for automated annotation, leveraging 4D separations and reproducible molecular collision cross sections (CCS) at scale for 4D-Metabolomics and 4D-Lipidomics™.

timsMetabo™ Mass Spectrometer

Breakthrough timsMetabo Performance with MoRE

The benchtop **timsMetabo** system combines unique and powerful trapped ion mobility separation (TIMS) technology and time-focussing for exceptional sensitivity. Novel Mobility Range Enhancement (**MoRE**) acquisition

leverages the enhanced ion capacity of the dual-stage TIMS-MX ion funnel, expanding its mass-to-charge and mobility ranges. Coupled with a new high-precision quadrupole and the innovative Athena Ion Processor (AIP), the timsMetabo is the next-generation 4D-Metabolomics research and validation workhorse for unprecedented confidence in small molecule analysis in complex mixtures – with sensitivity at speed and scale.

The timsMetabo excels at resolving isomers, isobars, and interferences in routine operation owing to its unique additional real-time gas phase CCS ion separation capability, delivering highly-selective MS1-based quantification – at speed and scale.

For assays requiring precision at the limit of quantitation, the AIP-equipped timsMetabo provides cleaner, less-chimeric MS/MS acquisition at rates up to 300 Hz for targeted quantitative analysis using parallel reaction monitoring. The AIP leverages mobility information encoded by TIMS in each acquisition cycle for optimal transfer of MS and MS/MS-derived ions for TOF mass analysis.

These novel features synergistically produce a rich digital metabolome archive of metabolite identity and quantity from each sample, enabling confident analysis, and enabling AI in metabolomics with machine learning from large-scale, high-quality data sets. The timsMetabo supports both HESI and CSI ion sources for coupling with analytical flow, microflow and nanoflow high-performance liquid chromatography.

Dr. Frédéric Vaz, Associate Professor and Head of the Core Facility Metabolomics (CFM) at University of Amsterdam Medical Center, said: “The timsMetabo uniquely combines sensitivity and selectivity, facilitating measurement of both, known biomarkers and the exploration of new metabolic signatures in research on inborn errors of metabolism. This performance versatility in a single instrument accelerates our research in expanding our knowledge of human metabolism from a clinical/translational perspective towards our ultimate goal to use such technologies to unravel pathologic mechanism of disease and promote new therapeutic strategies for both inherited and acquired disorders.”

Prof. Pieter Dorrestein, Professor at the University of San Diego, Skaggs School of Pharmacy and Pharmaceutical Sciences, Director, Collaborative Mass Spectrometry Innovation Center and Co-Director, Institute for Metabolomics Medicine, commented: “Bile acids are a diverse and biologically important class of molecules involved in nutrient transport, immune regulation, and are altered in response to medications, diet, and disease. Thousands of distinct bile acid structures – including newly discovered microbially modified forms – are now being revealed. Ion mobility, enhanced by reproducible CCS values at scale, alongside chromatography and MS/MS, is unlocking this hidden complexity, advancing our understanding of bile acid biology, clinical research, and therapeutic discovery. The technology within the timsMetabo will help us better understand this biologically diverse class of molecules routinely, at speed and scale, and this is an exciting combination.”

QSee™ quality control suite by Bruker

Bruker also launches the QSee quality control (QC) suite of software and reference materials for automated evaluation of instrument performance and long-term monitoring via cloud-based TwinScape™ software. In partnership with Polymer Factory Sweden AB, the leading manufacturer of stable polymer-based mass spectrometry calibrants, the SpheriCal® platform has been extended to include the new QSee 8-mix for assessment of chromatographic and mass spectrometry performance. Results are archived for comparison across time using the TwinScape cloud-based solution already available for proteomics.

Dr. Christoph Trautwein, Director of the Core Facility Metabolomics at University of Tübingen, commented: "By integrating QSee Performance Testing into our lab routine, we're conveniently benchmarking our LC-TIMS-MS system performance before each experiment. The slim and intuitive workflow makes this a straightforward check, and the results provide assurance and 'peace of mind' that we're consistently producing high quality quantitative data. Confidence in our analytical results has never been higher, thanks to this comprehensive solution. It's truly a QC game-changer for our metabolomics lab."

Additionally, TASQ®'s RealTimeQC capabilities for within-batch data quality monitoring have been enhanced with improved data visualization including LC system pressure.

Professor Thomas Moritz of the Novo Nordisk Foundation Centre for Basic Metabolic Research at the University of Copenhagen, added: "Bruker's commitment to making data quality information immediately accessible is evident with TASQ RealTimeQC. Their innovative solution to quality monitoring provides assurance when it matters most and helps us make informed decision during the analysis, before it's too late to act. With RealTimeQC, Bruker is uniquely and directly supporting lab-based metabolomics and lipidomics research."

Dr. Matthew Lewis, VP Metabolomics and Lipidomics at Bruker, concluded: "The novel timsMetabo represents a step-change in 4D-Metabolomics and 4D-Lipidomics, and a sustained commitment to innovation in these application spaces. With an unrelenting focus, we are elevating our customer's hands-on experience by listening to their needs and delivering unique features in data analysis, confidence in automated metabolite annotation, and informed quality monitoring."

About Bruker Corporation (Nasdaq: BRKR)

Bruker is enabling scientists to make breakthrough discoveries and develop new applications that improve the quality of human life. Bruker's high performance scientific instruments and high value analytical and diagnostic solutions enable scientists to explore life and materials at molecular, cellular, and microscopic levels. In close cooperation with our customers, Bruker is enabling innovation, improved productivity, and customer success in life

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