

Becker Transactions Presents Global Patent Portfolio for Next-Generation Dual-Ionization Mass Spectrometry

NEW YORK, NY, UNITED STATES, April 7, 2026 /EINPresswire.com/ -- [Becker Transactions](#) Presents Global Patent Portfolio for Next-Generation Dual-Ionization Mass Spectrometry. Meridion LLC, a company developing advanced mass spectrometry instrumentation, today announced the availability of its patented dual-ionization mass spectrometry platform, a next-generation analytical system protected by U.S. and international patents and patents pending. The portfolio is being exclusively represented by Becker Transactions, the world's leading patent brokerage firm, for acquisition or licensing.

The Meridion mass spectrometer addresses a fundamental limitation in conventional gas chromatography–mass spectrometry (GC/MS). The molecular ion is the single most important signal for identifying an unknown compound, yet approximately 30% of compounds lose this characteristic ion under the standard conditions required for electron-impact ionization—greatly reducing identification confidence. Meanwhile, tandem GC/MS/MS systems are optimized for known target compounds and less suited for untargeted analysis.

The Meridion platform bridges this gap by generating two complementary mass spectra from every chromatographic peak within a single sample introduction: a conventional positive-ion fragmentation spectrum fully compatible with existing reference library databases, and a negative-ion electron-capture spectrum that preserves the molecular ion. The result is doubled analytical information per compound without sacrificing compatibility with the industry's most widely used identification tools.



“Meridion mass spectrometry’s central innovation isn’t just that we fundamentally improve GC/MS selectivity by generating two mass spectra per compound; it’s that we make this improvement without sacrificing one of GC/MS’ most powerful tools: reference library identification,” said Nicholas Wilton, Ph.D., Founder of Meridion LLC.

Portfolio Overview and Technical Capabilities

The Meridion patent portfolio protects a unified architecture for simultaneous dual-polarity mass analysis, encompassing:

- **Dual Ion Source Architecture:** A novel instrument design combining a conventional 70 eV electron-impact source for positive-ion fragmentation with a trochoidal electron monochromator operating at variable energy for negative-ion electron capture—generating two independent datasets from every analyte.
- **Multiple Mass Analyzer Configurations:** Protected configurations include a polarity-switching quadrupole for cost-effective alternating detection and a quadrupole electrostatic deflector system enabling true simultaneous separation and detection of both ion polarities at the fastest available scan rates.
- **Enhanced Compound Differentiation:** The platform resolves a well-documented challenge in forensic and pharmaceutical analysis: structurally similar compounds that produce near-identical fragmentation patterns despite having different molecular weights are readily distinguished by their negative-ion signatures.

Target Markets and Applications



The Meridion platform's dual-data-stream approach is particularly valuable in sectors requiring high-confidence compound identification in complex mixtures:

- **Forensics and Narcotics:** Differentiation of structurally similar controlled substances—such as methamphetamine and MDMA—that are indistinguishable by conventional fragmentation analysis alone. The platform also addresses the growing challenge of identifying novel psychoactive substances (NPS).
- **Drug Discovery:** By tuning the secondary electron-capture source, novel chemicals and reaction byproducts can be identified through their intact molecular ion—accelerating characterization of unknown compounds in early-stage research.
- **Untargeted Metabolomics:** The dual-spectrum approach provides richer datasets for discovery-phase analysis without sacrificing compatibility with existing spectral reference databases.
- **Flavor, Fragrance, and Essential Oils:** Whole-product chemical profiling with improved characterization of unknown compounds and greater certainty of identification.
- **Cannabis:** Comprehensive terpene and cannabinoid profiling for quality control and regulatory compliance.

“Mass spectrometry is one of the most foundational analytical platforms in the life sciences, and compound identification confidence is its central value proposition,” said Dean Becker, Chairman of Becker Transactions. “This portfolio gives acquirers a differentiated hardware IP position in a market where incremental improvements in selectivity translate directly to commercial advantage across forensics, pharma, and consumer products.”

About Meridion LLC

Meridion LLC was founded by Nicholas Wilton, Ph.D., an analytical chemist and mass spectroscopist with a diverse professional background spanning the environmental, pharmaceutical, petrochemical, food, flavor, and fragrance industries. Dr. Wilton holds a Ph.D. in Analytical Chemistry from Tufts University. His career has focused on new technology development and analytical instrumentation.

About Becker Transactions

Becker Transactions is a leading patent brokerage firm, expertly led by the father-daughter team Dean Becker and Olivia Becker, who bring a rich family legacy of navigating complex intellectual property transactions. Our team has collectively facilitated over \$11 billion USD in intellectual property transactions. With decades of experience collaborating with inventors, government agencies, top research institutes, universities, and major corporations, we specialize in technology monetization. We excel at identifying essential intellectual property assets and

connecting them with strategic buyers seeking competitive advantages.

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