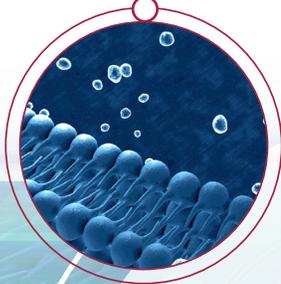


Lipidomics

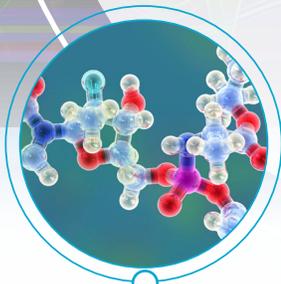


Peptide  
and Protein  
Quantitation



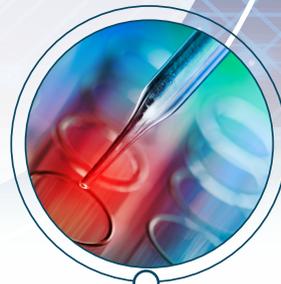
# Differential Mobility Spectrometry Applications

Small Molecule  
Bioanalysis and  
Metabolism



Food and  
Environmental  
Testing

Forensics



See How SelexION<sup>®</sup> DMS Technology  
Helps Overcome Your Biggest  
Analytical Challenges



Answers for Science.  
Knowledge for Life.™

# A New Dimension in Selectivity

As analytical challenges become more complex, MS sensitivity alone may not be enough to meet the demands of modern day quantitative performance. Differential Mobility Spectrometry (DMS) technology can improve characterization and limits of quantitation for challenging samples requiring advanced selectivity.

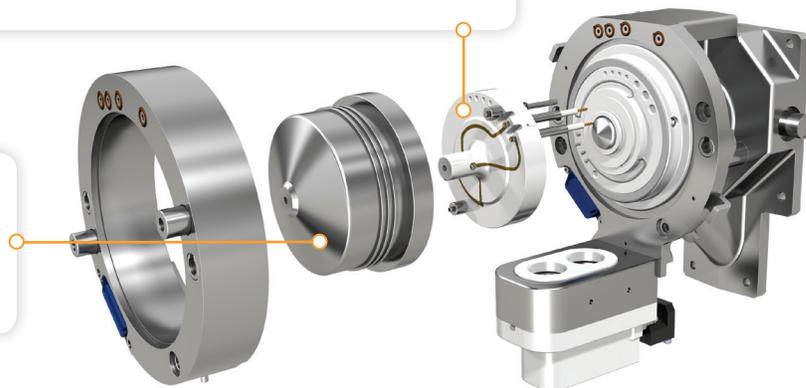
The SelexION® DMS device is the first differential ion mobility separation technology to combine sensitivity and selectivity with unmatched reproducibility and robustness. SelexION Technology delivers enhanced analytical separations on demand for isobaric species and co-eluting contaminants, all in an elegantly simple package.

## SelexION Differential Ion Mobility Cell

Compact and simple design allows the cell to be installed without the use of any tools and in less than 2 minutes.

## SelexION Curtain Plate

Updated version of the traditional curtain plate to accommodate the differential ion mobility cell. Maintains the same level of robustness and stability associated with the original design.



## Learn how SelexION DMS Technology is utilized to enhance results in these key application areas:

- Lipidomics
- Peptide and Protein Quantitation
- Small Molecule Bioanalysis and Metabolism
- Food and Environmental Testing
- Forensics

SelexION DMS Technology supports highly selective quantitative and qualitative LC-MS/MS workflows on SCIEX TripleQuad™, QTRAP®, and TripleTOF® systems



# Lipidomics

Unambiguous identification and quantitation of lipid molecular species in total lipid extracts is difficult, due to overlapping isobaric and isomeric species. SelexION DMS Technology can resolve multiple lipid classes from complex lipid matrices prior to MS analysis to enable more confident identification of lipid species and more accurate quantitation by MS/MS.

Explore how in the following technical articles:

Differential Mobility Spectrometry for Improving Lipidomic Analysis by Mass Spectrometry



Resolution of Ether- and Diacyl-Linked Phospholipids by DMS



Resolution of Sphingomyelins in Complex Lipid Extracts by DMS



Differential Ion Mobility Separation of Glycosylceramides (Cerebrosides)



Quantitative Lipid Analysis using MRM and Differential Ion Mobility Spectrometry (DMS)



Differential Ion Mobility Separation of Iso-Elemental Lipid Species



A Novel Lipid Screening Platform that Provides a Complete Solution for Lipidomics Research



Explore how the Lipidyzer™ Platform can help you to quantitate lipids with confidence at [sciex.com/lipidyzer](https://sciex.com/lipidyzer)



# Peptide and Protein Quantitation

Peptides and proteins in complex matrices can suffer from interferences, poor fragmentation, lack of quality unique peptides or transitions compared to background; all which can affect the quality of analysis. SelexION DMS Technology can be used to help remove sample interferences and separate isobaric peptide species, resulting in more sensitive and selective detection and quantitation of large molecule targets.

Explore how in the following technical articles:

Benefits of DMS for High-Sensitivity Quantitation of Peptides



Rapid Quantitation of Substance-P in Plasma using DMS and Microflow Liquid Chromatography



Quantification of Peptides with Poor MS/MS Fragmentation using Novel Jet Injector SelexION+ MIM Workflow



Enhanced Analysis of Antibody Drug Conjugate (ADC) Candidates using Ion Mobility Separation



Multiple Mass Spectrometric Strategies for High Selectivity Quantification of Protein and Peptides



Differential Mobility Separation MS for Quantification of Large Peptides in Biological Matrices



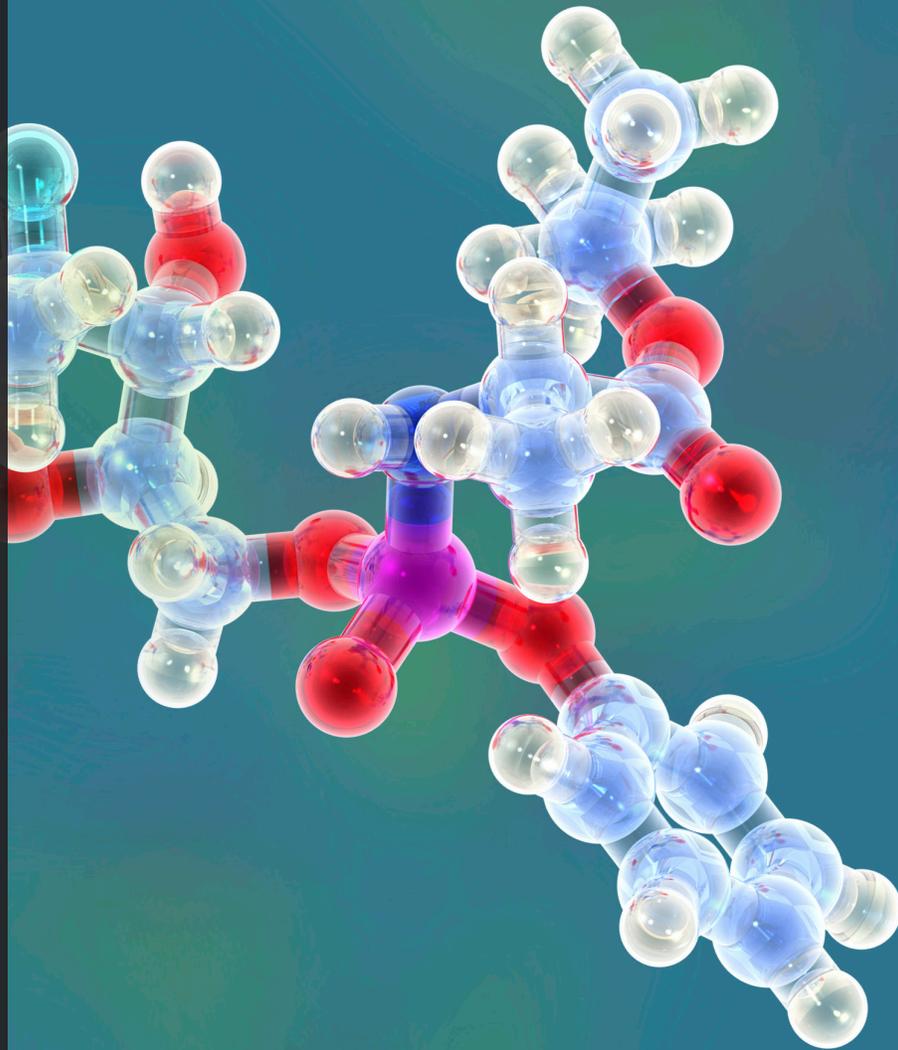
Using DMS to Separate and Localize Sites of Post-Translational Modifications on Peptides



# Small Molecule Bioanalysis and Metabolism

Accurate and robust quantitation of small molecule therapeutics and metabolites can be complicated by matrix interferences, high baseline signal, and lack of isomer resolution. The development of complex HPLC conditions or modifying sample preparation procedures is time consuming and reduces sample throughput. SeleXION DMS Technology can provide an orthogonal level of separation to reduce background noise, eliminate interferences, and separate highly similar compounds to enable robust and reproducible bioanalytical methods, without having to resort to complex HPLC conditions or sample workup procedures.

Explore how in the following technical articles:



**SeleXION Technology: A New Solution to Selectivity Challenges in Quantitative Bioanalysis**



**Separation of Diastomeric Flubatine Metabolites using SeleXION Technology**



**Improving MRM Selectivity for Mesalamine using DMS**



# Food and Environmental Testing

Food and environmental analyses are subject to comprehensive regulations all over the world. Compounds that are required to be analyzed by governing bodies may be troublesome, due to the complex matrices associated with food and environmental analysis. Furthermore, these compounds may also be isomeric; therefore, problematic to separate using conventional approaches. SelexION DMS Technology can deliver an orthogonal level of separation to reduce background noise, eliminate interferences, and separate highly similar compounds to enable robust and reproducible detection of food or environmental contaminants.

Explore how in the following technical articles:



**Increasing Selectivity and Confidence in Detection when Analyzing Phthalates by LC-MS/MS**



**Improving the LC-MS/MS Selectivity of Triazole Derivative Metabolism with SelexION Technology**



**LC-MS/MS Analysis of Emerging Food Contaminants**



**Rapid Characterization of Naphthenic Acids using High-Resolution Accurate Mass MS and MS/MS with SelexION DMS**



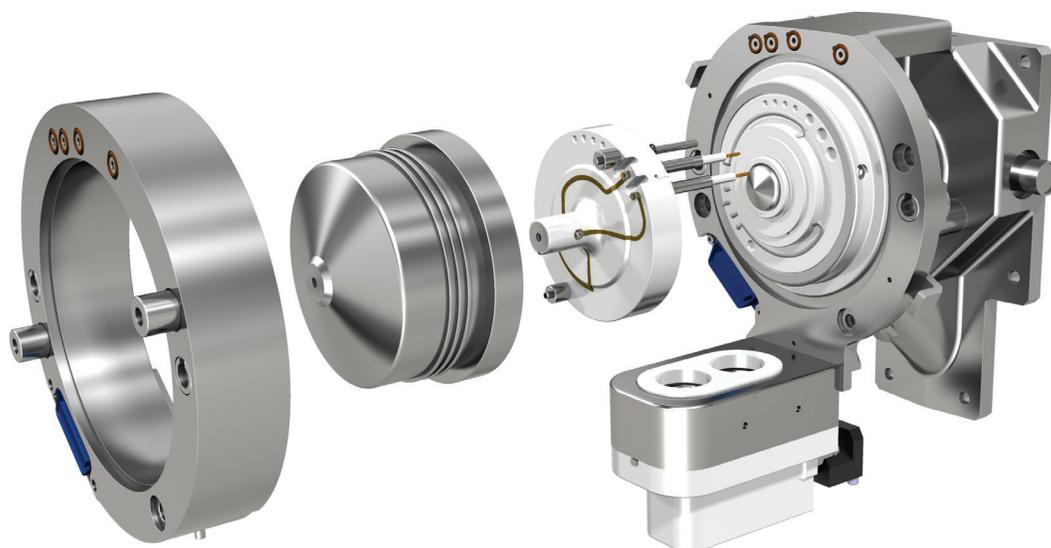
# Forensics

Getting the right answer is crucial to your forensic investigation. However, detection of your analyte of interest may be difficult, because of the matrix presented, or from the presence of chemical interferences. Furthermore your compound may be isobaric and consequentially challenging to separate with conventional separation technology. SelexION DMS Technology, coupled with QTRAP or TripleTOF LC-MS systems, can separate analytes of identical mass, reduce chemical noise, and improve quantitative accuracy, to rapidly deliver the data you need.

Explore how in the following technical article:



Investigating the Enhancement in Selectivity for the Analysis of Methyldienolone in Urine Samples by DMS



# Simplify. Clarify. Quantify

SeleXION DMS Technology delivers an orthogonal level of separation for your most challenging samples. Instead of returning to method development, SeleXION DMS technology allows you to reduce noise in your sample so you can measure the molecules that count.

Learn about the Top 5 Reasons to add SeleXION DMS to your workflow:

**Simplify. Clarify. Quantify**  
See how SeleXION® Differential Mobility Technology addresses your biggest analytical challenges

SeleXION technology delivers a sample separation that is orthogonal to mass separation for your most challenging samples. Instead of returning to method development, SeleXION DMS technology allows you to reduce noise and interference from your sample so you can measure the molecules that count.  
Learn how you can overcome these 5 common challenges by incorporating SeleXION DMS separation on your SCIEX Triple Quad™, QTRAP®, or TripleTOF® System

**1** **Detection Challenges due to Matrix Interferences?**  
DMS technology can increase your confidence in quantitative analysis free from matrix interferences. Separate analyte ions from overlapping matrix interferences within complex samples, allowing for more selective detection of your compound of interest and worry free quantitation.

**2** **Inability to Confidently Separate Isobaric and Isomeric Species?**  
DMS technology can expand your ability to identify isobaric species with confidence. Address isobaric interferences by separating your sample prior to MS analysis to improve identification, such as separating phospholipid samples into sub-classes for accurate lipid class quantitation, or identifying differentially localized modifications on the same peptide sequence.

**3** **Quantitation Limits Hindered by High Background Noise?**  
DMS technology can reduce overall background noise to enhance lower limits of detection. Reduce or remove background noise signal using the separation power of DMS, allowing your compound of interest to be detected at lower levels than previously possible.

**4** **Lengthy Sample Preparation Procedures?**  
DMS technology can save you time and energy during sample preparation. If you're required to perform lengthy and complex sample preparation procedures and HPLC conditions to separate your analyte of interest from interfering sample matrix components, simplify your prep procedures and rely on DMS orthogonal separation to reduce background and isolate your compound of interest prior to MS detection.

**5** **Looking to Increase Assay Diversity without Decreasing Throughput?**  
DMS technology can enable assay diversity without impacting instrument downtime. Unlike other differential ion mobility approaches, the SeleXION DMS device is not permanent. It takes less than 2 minutes to install without breaking vacuum on your system. This means you can use SeleXION for your challenging assays, and remove it when it's not required with minimal impact to your instrument uptime.

SeleXION mobility provides a new dimension in selectivity.



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