

Sensitivity. Selectivity. Specificity. One Medical Device for every challenge

SCIEX Citrine[®] MS/MS for clinical diagnostics



Our Fastest, Most Sensitive IVD Mass Spectrometer

The SCIEX Citrine® MS/MS, an in vitro diagnostic medical device, provides you with the ultimate performance and reliability to tackle today's difficult assays, and the versatility to address tomorrow's challenges.

Delivering the legendary robustness and reliability of a SCIEX mass spectrometry solution, the Citrine MS/MS system is specifically designed to meet the demands of clinical labs that require maximum sensitivity, high throughput, a wide dynamic range, and simplified sample preparation.

- Leverage the ultimate sensitivity of the Citrine MS/MS system to reliably measure at picomole levels for clinically relevant biomarkers and metabolites
- Monitor 100's of MRM transitions per analysis with uncompromised accuracy, precision and sensitivity
- Experience faster than ever data acquisition with 5 msec polarity switching
- Perform qualitative and quantitative analysis in a single injection with QTRAP® technology
- Enjoy the confidence of a medical device that meets the high quality and safety standards required by FDA regulations

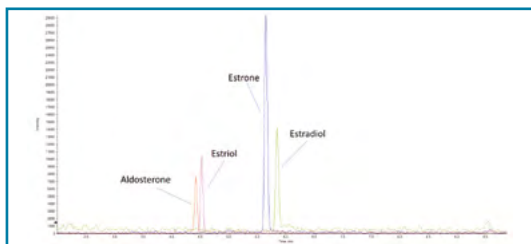
The superior speed and wide dynamic range of the Citrine MS/MS system will allow you to increase laboratory efficiency by developing large multi-analyte panels.

The incredible sensitivity of the system will enable you to take advantage of simplified sample preparation, and will empower you to measure low-level biomarkers and metabolites.

The extended mass range of the system, up to m/z 2000, affords you the versatility to measure both small and large molecules alike. The Citrine MS/MS system is the Medical Device for your every challenge.

Citrine MS/MS – One Medical Device for Your Every Challenge

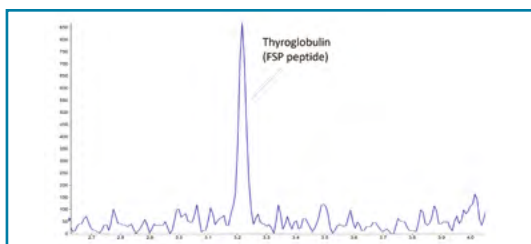
What couldn't be seen. Until now. What couldn't be done. Until now.



Trace Level Compounds

The Citrine MS/MS - our most sensitive tandem mass spectrometer ever - provides the lowest possible limits of quantification, enabling the measurement of trace levels of biomarkers and metabolites at sub-pg/mL concentrations.

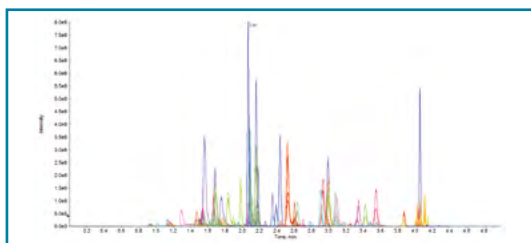
Sensitive detection of estrogens and aldosterone in BSA extract, at 1 pg/mL, using negative electrospray ionization (ESI).



Proteins and Peptides

Citrine MS/MS system provides accurate, sensitive quantitation of compounds with masses up to m/z 2000, allowing the measurement of large molecules such as peptides, protein digests and multiply-charged proteins.

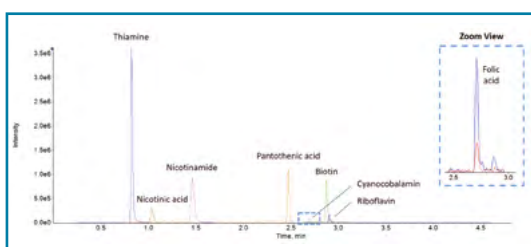
Quantitation of thyroglobulin at a concentration of 0.06 ng/mL. Sample preparation consisted of trypsin digestion followed by SISCAPA immunopurification of the FSP peptide, prior to LC-MS/MS analysis.



Comprehensive Multi Analyte Panels

Fast MRM scanning (1 msec dwell times) and fast polarity switching (5 msec) between positive and negative ionization modes on the Citrine MS/MS system enable the measurement of very large panels of compounds, across multiple compound classes.

Quantitative analysis of 93 compounds (212 MRMs) in a run-time of 5 minutes, using rapid polarity switching between positive and negative electrospray ionization (ESI) modes.



Small Molecule Quantitation

The versatile Citrine MS/MS system offers ESI and APCI ionization options, an extended mass range up to m/z 2000, and a large linear dynamic range, making this the perfect tool for the measurement of a large variety of polar and non-polar biomarkers and metabolites in biological fluids, over a large range of concentrations.

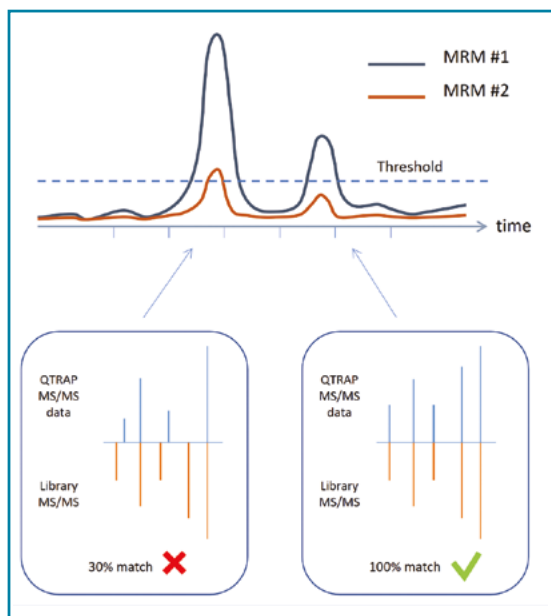
Measurement of the water-soluble vitamins thiamine, riboflavin, nicotinic acid, nicotinamide, pantothenic acid, biotin, cyanocobalamin and folic acid, in serum.

Citrine[®] QTRAP[®] MS/MS – Two Instruments in One

The Citrine QTRAP MS/MS is a hybrid triple quadrupole/linear ion trap mass spectrometer - a unique, flexible MS/MS system that can accommodate a wide variety of both quantitative and qualitative LC-MS/MS workflows. It is the ability to use both triple quadrupole and linear ion trap scan functions on a single platform – and even within a single LC-MS/MS run – that makes the QTRAP system adaptable to a wide variety of both screening and quantitative tests.

Unambiguous Compound ID Using SCIEX QTRAP Technology

Leverage the scanning speed and sensitivity of the QTRAP system to automatically acquire full-scan MS/MS spectra for every detected compound during a targeted MRM experiment – quant and qual in a single injection!



Which of these peaks is the target compound?

In a typical LC-MS/MS chromatogram, there may be numerous peaks observed. If several peaks elute at a similar retention time, it can be difficult to correctly identify the target compound.

Compound ID using MS/MS library searching

The QTRAP system can be used to rapidly acquire MS/MS spectra for every detected peak that exceeds a threshold. Library searching of MS/MS spectra allows the unambiguous identification of chromatographic peaks.

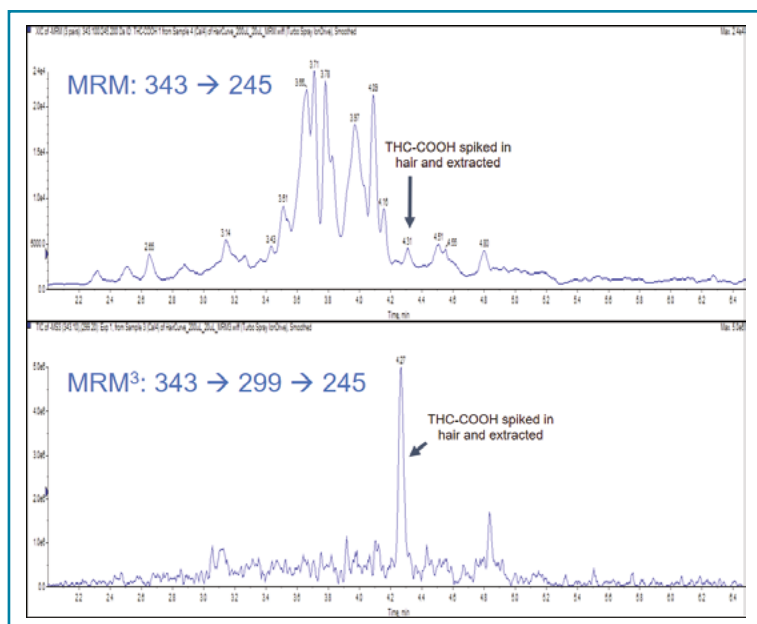
While screening by LC-MS/MS for 100's of target compounds in a single method, numerous peaks may be observed for every target mass, owing to the presence of interference ions having common fragment ions and MRM transitions. Using the Citrine QTRAP MS/MS, LC peaks can be unambiguously identified based on library searching of the full-scan MS/MS spectra that are automatically acquired for every peak that exceeds a pre-determined threshold.

Improve your Limit of Detection using MRM3 Scanning on the Citrine QTRAP MS/MS

In some cases isobaric interferences cannot be differentiated using high-resolution mass spectrometry, since the interferences may have the same exact mass as the target compound.

In these cases, the ability to use second-order fragmentation (MS/MS/MS) provides highly specific measurements, and can remove chromatographic interferences caused by isomers and background ions.

Use MRM3 scanning on the Citrine QTRAP MS/MS to enhance selectivity, and to improve Limits of Detection in complex sample matrices.



For the measurement of THC-COOH in hair samples, the sample matrix produces numerous interferences that cannot be resolved using traditional MRM (top pane).

With MRM³ (bottom pane), the interferences are removed and the THC-COOH metabolite is clearly differentiated from background ions.

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