

AB SCIEX
QTRAP® 5500 System

Above and
beyond the
extraordinary

AB Applied Biosystems | MDS Analytical Technologies



Above and beyond the competition—speed and sensitivity that solve problems other systems cannot

Powerful synergy results when the world's most sensitive triple quadrupole unites with innovative Linear Accelerator™ trap technology, the world's most sensitive and fastest scanning linear ion trap. The whole really is more than the sum of its parts. The unique hybrid architecture, unparalleled sensitivity, and impressive speed enable solution-based workflows that solve problems other mass spectrometry systems cannot. The QTRAP 5500 system is truly above and beyond the extraordinary, with no sacrifice in qualitative or quantitative performance, whether targeting specific compounds or compound classes to generate accurate quantitation, or performing sensitive compound identification and confirmation in a single run. Get more performance, better results, better efficiency, and be more productive.

AB SCIEX QTRAP® 5500

**Introducing the
AB SCIEX QTRAP® 5500 System**

Above and beyond the competition—the AB SCIEX QTRAP® 5500 System delivers more than any other LC/MS/MS technology

Above and beyond the extraordinary

The AB SCIEX QTRAP® 5500 system is next-generation technology from the leaders in mass spectrometry with over 12,000 systems installed worldwide. Redesigned from the ground up, but bred from our industry standard triple quadrupole line of mass spectrometers, the QTRAP 5500 system brings in a new era of performance. Ultra-fast triple quadrupole scan speeds improve precursor ion and neutral loss scan performance, ideal for fast chromatography. Fast LC also demands incredibly short dwell times for MRM experiments. Let the innovative *Scheduled* MRM™ algorithm automatically optimize your dwell times and maximize your capacity to deliver gold-standard quantitation. Now monitor even more MRM transitions than ever

thought possible and still get the quantitative performance you have come to expect from Applied Biosystems/MDS Analytical Technologies—day after day, year after year.

Driven by all-new Linear Accelerator™ trap technology

It doesn't stop there. The QTRAP® 5500 system also houses the most sensitive ion trap in the world—the all new, patented Linear Accelerator™ trap. With ultra-fast scan speeds, up to 100-fold increase in trap scan MS/MS sensitivity, and full MS³ capabilities, there is no compromise in the qualitative data that are generated—or the confidence you will have in those data.

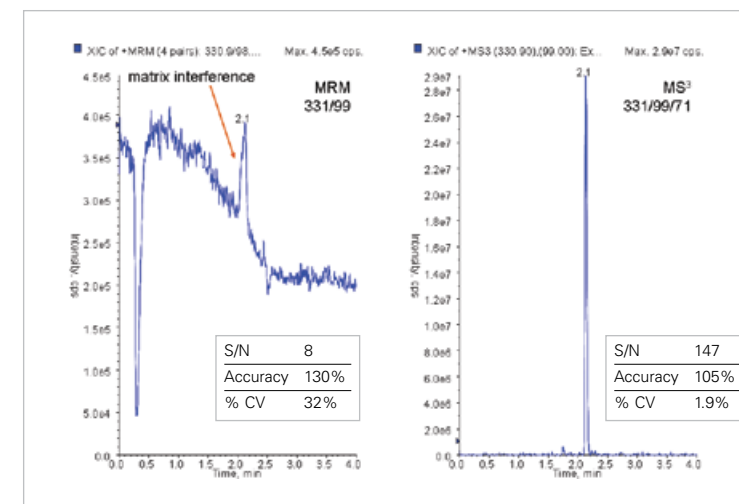


Figure 3. MS³ quantification provides better selectivity to improve the detection limits and also improve the quality of the quantification data of analytes. Above is a comparison of MRM versus MS³ selectivity for detecting 10 ppb Malathion in a 50x diluted QuEChERS extract of apple. The transition 331/99 in the XIC on the left had an elevated background level and also matrix interference; in contrast, the MS³ transition, 331/99/71 in the XIC on the right, showed superior selectivity, a better signal-to-noise ratio, improved accuracy and tighter %CV.

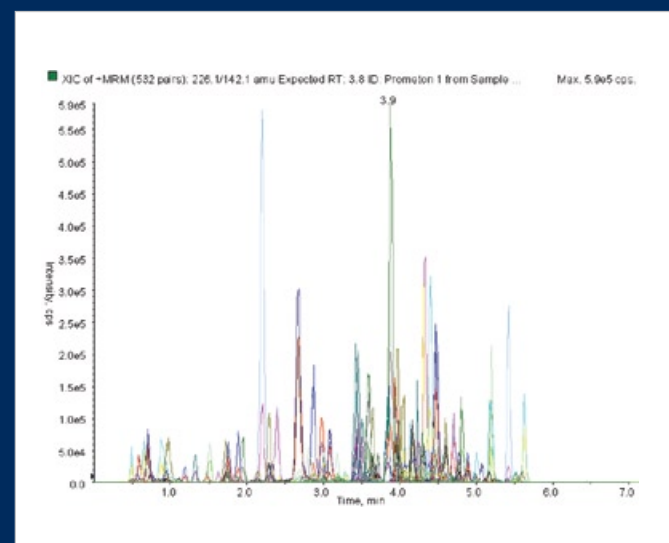


Figure 1. Ultra-fast and selective MRM scans mean you can target and quantify hundreds to thousands of compounds in a single analysis without compromise in data quality.

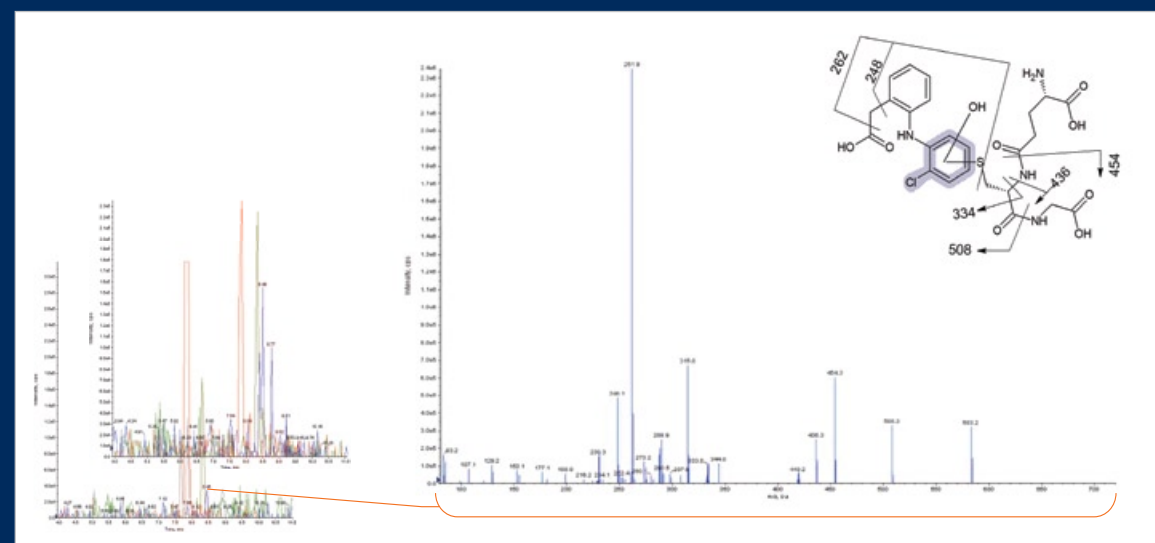


Figure 2. The power of TripleTrap™ scanning is illustrated in the above metabolite ID example. In this UHPLC experiment, two survey scans for characteristic GSH fragments, a positive ion neutral loss of m/z 129 and a negative ion precursor ion scan of m/z 272, automatically trigger enhanced product ion scans to screen for potential reactive metabolites. Including the polarity switch between survey scans, the total cycle time is 2.4 seconds.

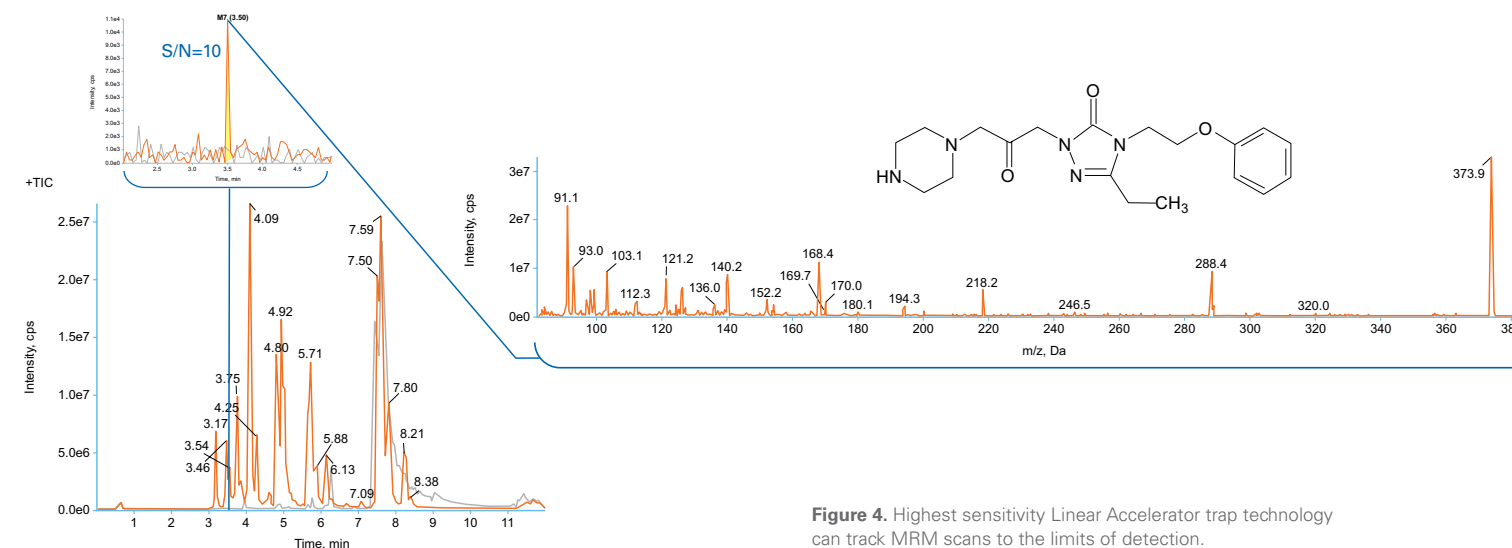


Figure 4. Highest sensitivity Linear Accelerator trap technology can track MRM scans to the limits of detection.

In a class by itself

Many mass spectrometry systems offer either quantitative or qualitative structural analysis. But the unique hybrid architecture of the QTRAP® system means that you can get both exceptional qualitative and quantitative information from the same instrument and in the same analytical run. The unparalleled scan speeds and sensitivity of the QTRAP 5500 system are made possible by advanced eQ™ electronics. Next-generation eQ electronics in turn drive the unique TripleTrap™ scanning technology to move from triple quadrupole mode to Linear Accelerator™ trap mode in the blink of an eye, enabling workflow-driven data acquisition that cannot be done on any other mass spectrometer. Intelligent linking of the system's capabilities with TripleTrap™ scanning opens up powerful and unique workflows that accelerate your research and bring new levels of productivity and reproducibility. For example, predictive MRM (pMRM) identifies and characterizes a comprehensive set of metabolites including extremely low level metabolites in one time-saving analysis; screening for Pesticides and Pharmaceutical and Personal Care Products (PPCP) is achieved with ultimate confidence; and MRM assay development of peptides and proteins using the MIDAS™ workflow results in more robust MRM assays and saves money and time by removing the need for synthetic or purified peptide or protein standards.

Cutting edge technology and reliable too

Due to our long legacy as the industry leader, our customers expect maximum uptime and a system that can handle even the most difficult matrices with ease. Our Turbo V™ source and Curtain Gas™ interface are the benchmark for reliability. The new QJet® 2 ion guide, eQ™ electronics, Curved LINAC® collision cell, and AcQuRate™ pulse counting detector found in the QTRAP® 5500 system have been designed to improve on our already industry-leading robustness. With reliability designed into the system, new levels of dependability and consistency are certain.

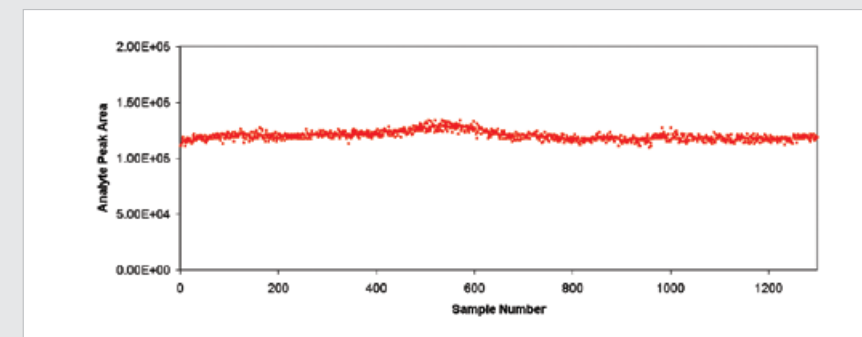


Figure 5. The very low % CV of 3.3 for the analyte peak area of 1300 injections of spiked Diazepam in protein-precipitated human plasma demonstrates the industry-leading ruggedness, reproducibility and reliability of the QTRAP® 5500 system.

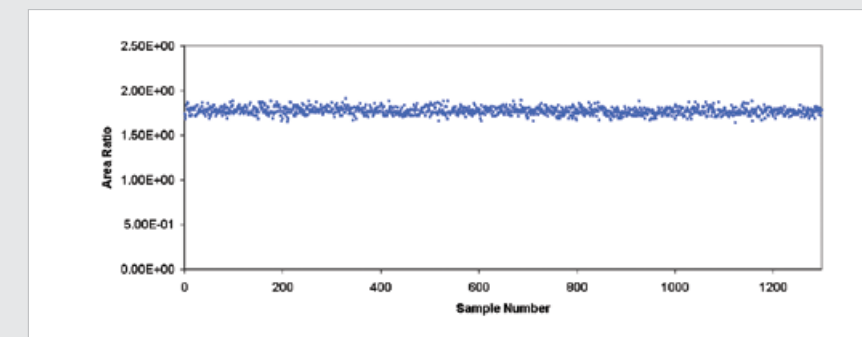


Figure 6. The excellent % CV of 2.3 for the area ratio of Diazepam and deuterated internal standard in protein-precipitated human plasma shows the reproducibility and stability of the AcQuRate™ pulse counting detector for consistent quantification results day in day out, week after week, month after month.



Turbo V™ ion source

The Turbo V source provides the highest-sensitivity analysis over a wide range of flow rates with quick-change APCI and TurbolonSpray® probes. From 50 µL/min to 5 mL/min, the Turbo V source is the perfect match for narrow bore, standard bore and UHPLC flow rates, delivering unprecedented desolvation and stability for even the toughest high-flow applications utilized to drive productivity.



Patented QJet® 2 ion guide

Optimized design yields improved ion containment and operates at higher pressures, providing better collisional focusing to enhance ion transmission for ultimate sensitivity. The new design also reduces the gas load, allowing the turbopump to run cooler in its ideal operating range. All this leads to our most reliable system yet and with tool-free maintenance, clean-up is simple and straightforward.



NanoSpray® III source

This easy to assemble and disassemble nanoflow source makes working with nanoflow chromatography easy while providing the highest sensitivity and stability. The NanoSpray III source supports regular and column-packed emitter tips for ultimate chromatographic flexibility, and the new camera design allows clear spray visualization that simplifies optimization. Fingertight fittings enable you to change tips quickly so you are up and running in no time.

The future path of QTRAP® technology

The AB SCIEX QTRAP® 5500 system brings together the latest hardware from the world's best selling triple quadrupole family, and adds next-generation, ultra-fast and sensitive Linear Accelerator™ trap functionality. Delivering unmatched qualitative and quantitative analysis—the QTRAP 5500 system enables productive, time-saving workflows that simply cannot be done with other mass spectrometry systems.

AcQuRate™ Pulse Counting Detector

The AcQuRate™ pulse counting detector is the latest in detector technology combined with a patented pulse overlap correction algorithm, enabling more accurate and precise ion detection over a wide dynamic range. Operating at maximum gain all the time drives the detector into the digital domain, simplifying the elimination of electronic noise and guaranteeing maximum sensitivity with unparalleled accuracy and precision. The best gets even better.

Patented QJet® 2 Ion Guide

Optimized design yields better ion containment and operates at higher pressures, providing better collisional focusing to enhance ion transmission for ultimate sensitivity. The new design also lets the turbopump run cooler and in its ideal operating range.

Patented Linear Accelerator™ Trap

Bringing LINAC® technology to the Q3 linear ion trap greatly improves the extraction efficiency to yield up to a 100 x gain in sensitivity in ion trap scan modes. Now take full advantage of the 20,000 Da/sec scan speeds without worrying if enough sensitivity is on board to generate incomparable results. Improved excitation efficiencies and reduced ion cooling and fragmentation times produce superior MS³ qualitative results and provide unprecedented selectivity for the most challenging analytical assays.

Curved LINAC® Collision Cell

The newly designed Curved LINAC™ high-pressure collision cell accelerates ions through the collision cell, increases speed of analysis and eliminates cross-talk. Improving on the performance of the legendary LINAC collision cell results in shorter transit times across the collision cell, making the Curved LINAC cell an ideal match for UHPLC and high throughput analysis focused on hundreds of compounds. With true collision-induced fragmentation, the new Curved LINAC collision cell generates reliable, information-rich, library-searchable MS/MS spectra time after time.

Fast eQ™ Electronics for Fast LC

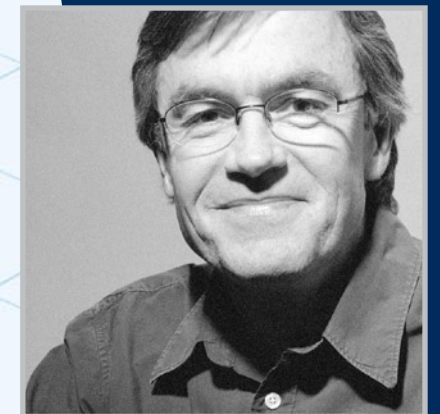
Next-generation eQ™ electronics means polarity switching in 50 ms and scan speeds of 20,000 Da/Sec. Now, compounds with vastly different functional groups can be measured in a single pass. The new electronics also provide improved ion containment for better sensitivity and superior detector performance. Ultra-fast and ultra-stable instrumentation means you get the most out of your standard or fast LC to save time and accelerate your research.

Patented Q0 High-Pressure Cell

Q0 collisional focusing. Patented high pressure collisional focusing technology maximizes transmission of ions for superior sensitivity.

Q0 trapping. Ions can be accumulated in the Q0 region while the Linear Accelerator™ trap is performing MS/MS and MS³ scans. This yields superior sensitivity in ion trap mode, which can be extremely important for fast UHPLC applications where time and duty cycle are condensed.

"We designed the QTRAP® 5500 System from the ground up in response to customer feedback on ideal attributes from a quantitative and qualitative point of view. Researchers wanted to combine these two elements to solve problems and save time and money."



Dr. Jim Hager
Principal Research Scientist
MDS Analytical Technologies

One Touch Productivity

Powerful, workflow-driven software ties everything together to deliver a new benchmark in efficiency, throughput, and productivity to let you take full advantage of all the speed and power that the QTRAP® 5500 system puts at your fingertips. And the latest version of industry-standard Analyst® software utilizes the intelligent *Scheduled* MRM™ algorithm to make the method setup of over 1000 analytes in a single LC analysis straightforward and simple while still generating exceptional quantitative results and brilliant qualitative results.



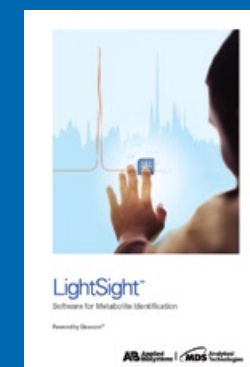
Analyst® Software



As the world's most commonly used LC/MS/MS instrument control software platform, Analyst® Software provides state of the art functionality for instrument control, data analysis and reporting. The latest version builds on this legacy by providing new features that enhance both performance and ease of use.

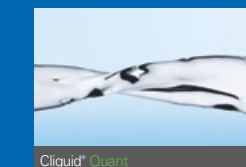
One Touch Productivity Solutions

LightSight® Software



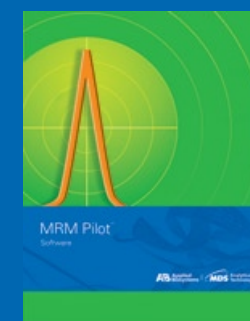
LightSight® Software simplifies analysis of complete metabolite coverage. Create expert-level acquisition methods in just a few simple steps using the automated method development tool or take advantage of the customized Glutathione screening ability that quickly identifies potential reactive metabolites and significantly increases metabolite detection with pMRM methods.

Cliquid® Software



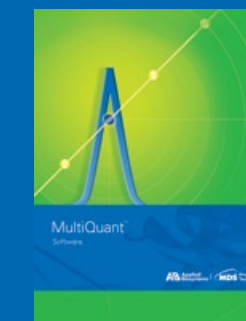
Cliquid® Software's pre-configured iMethod™ tests and simplified user interface make it easier to perform routine Food, Environmental, Forensics and Clinical Research testing. With a simple four-step workflow, pre-configured methods, built-in system suitability tests, and automatic reports generated according to regulatory requirements, Cliquid software both simplifies the use and accelerates the adoption of LC/MS/MS for routine testing. The available MRM catalogues, containing the optimized instrument parameters for thousands of compounds, can also be used to save the time and cost associated with method development.

MRMPilot™ Software



MRMPilot™ Software automates the iterative process of developing a robust MRM assay for peptides and proteins. By using the MIDAS™ workflow that takes full advantage of the QTRAP® system capabilities, developing MRM assays takes only days, not weeks, and no peptide or protein standards are needed.

MultiQuant™ Software



MultiQuant™ Software is a powerful and easy-to-use quantitation package that processes MRM data for quantitative information. The software easily handles large data sets consisting of both large numbers of MRM transitions and patient samples, with an emphasis on the requirements for processing protein/peptide quantitative workflows. Results can easily be exported to other software packages, or use the software's flexible reporting features to generate custom reports.

You invest in our technology—we invest in making you successful

When you choose Applied Biosystems/MDS Analytical Technologies as your partner, you're choosing to work with the leading supplier and developer of mass spectrometry-based technologies. We are committed to staying at the forefront of life science research by providing you with the instrumentation, software and workflows that you need to succeed.

Application support you can depend on

Our mass spectrometry solutions are backed up by the world's most extensive application support organization. With over 150 application scientists worldwide, we are dedicated to answering your technical needs and developing advanced training courses so you get the most out of your systems.

Maximize uptime with a service plan that's right for your organization

Choose from three flexible service plans and a variety of à la carte services for the right level of support for your laboratory's needs and budget. With nearly 2,000 trained service professionals worldwide, Applied Biosystems/MDS Analytical Technologies Global Services provides the highest quality support available for our products and technologies and maintains the staffing levels necessary to provide a rapid and guaranteed response.

Whether you access our service and support team by phone, email, on-site visits or through our innovative remote instrument monitoring technology, Applied Biosystems service organization supports you 24 hours a day, 7 days a week.

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