Agilent

Trusted Answers

Why Stop at Detection?
Start Identifying

Agilent 6230 time-of-flight LC/MS system

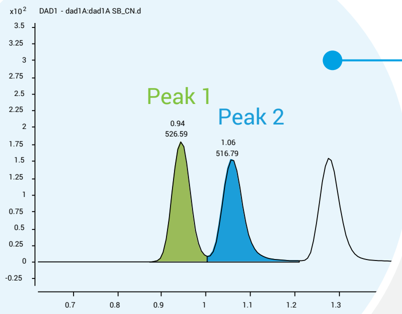

Agilent Technologies
PP 02

It’s Time for More Specific Detection
It’s Time for Time-of-Flight LC/MS

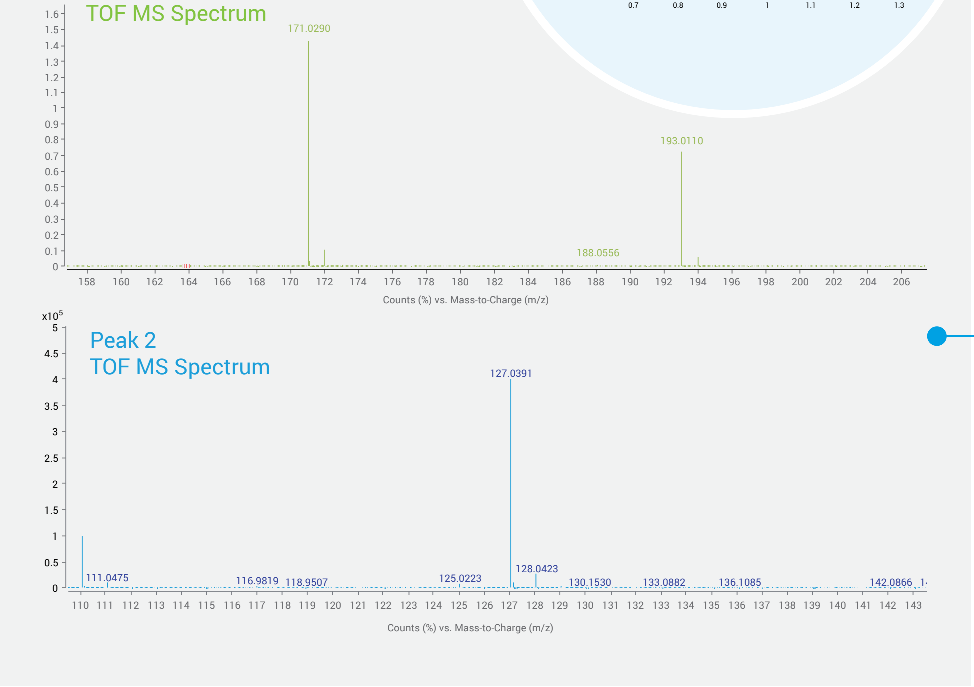
Screening samples by HPLC enables rapid compound detection. With UV and quadrupole MS detection, great insights on mixture compositions can be achieved. When the need arises for even more selectivity, accessible accurate mass measurement delivers enhanced identification confidence.

Your screening workflows don’t end with signal detection. With Agilent time-of-flight LC/MS, neither does your analytical platform.

The Agilent 6230 time-of-flight LC/MS system provides accurate mass measurement with high mass resolution for confident compound identification beyond conventional HPLC detection. Reveal the full picture of the compounds present in your samples with the Agilent 6230 LC/TOF.



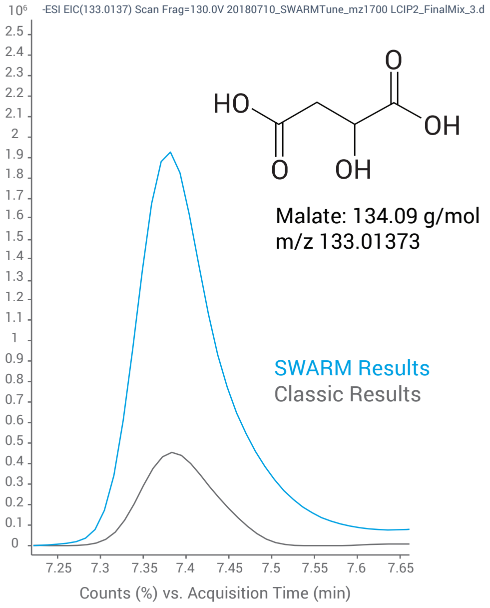
UV, nominal MS detection, and other analytical techniques might alert you to only the presence, class or nominal mass of a compound.



LC/TOF goes one step further: It provides accurate mass information to help you identify the compounds you detect.

Now Anyone Can Achieve Reliable Results—Regardless of Skill Level

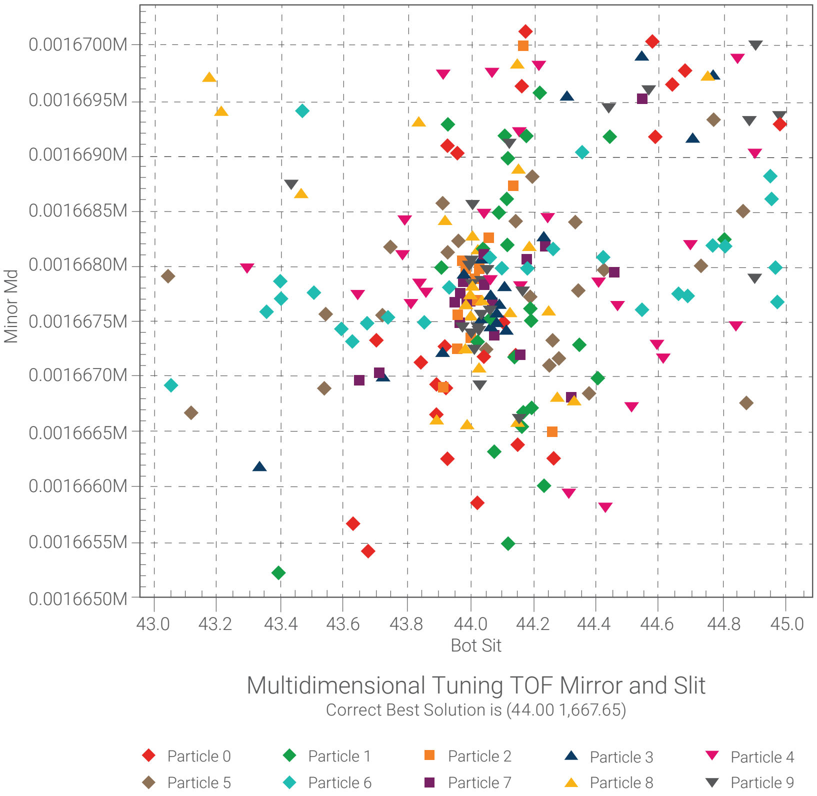
A comparison between classic and SWARM tuning results for the low mass metabolite malate.



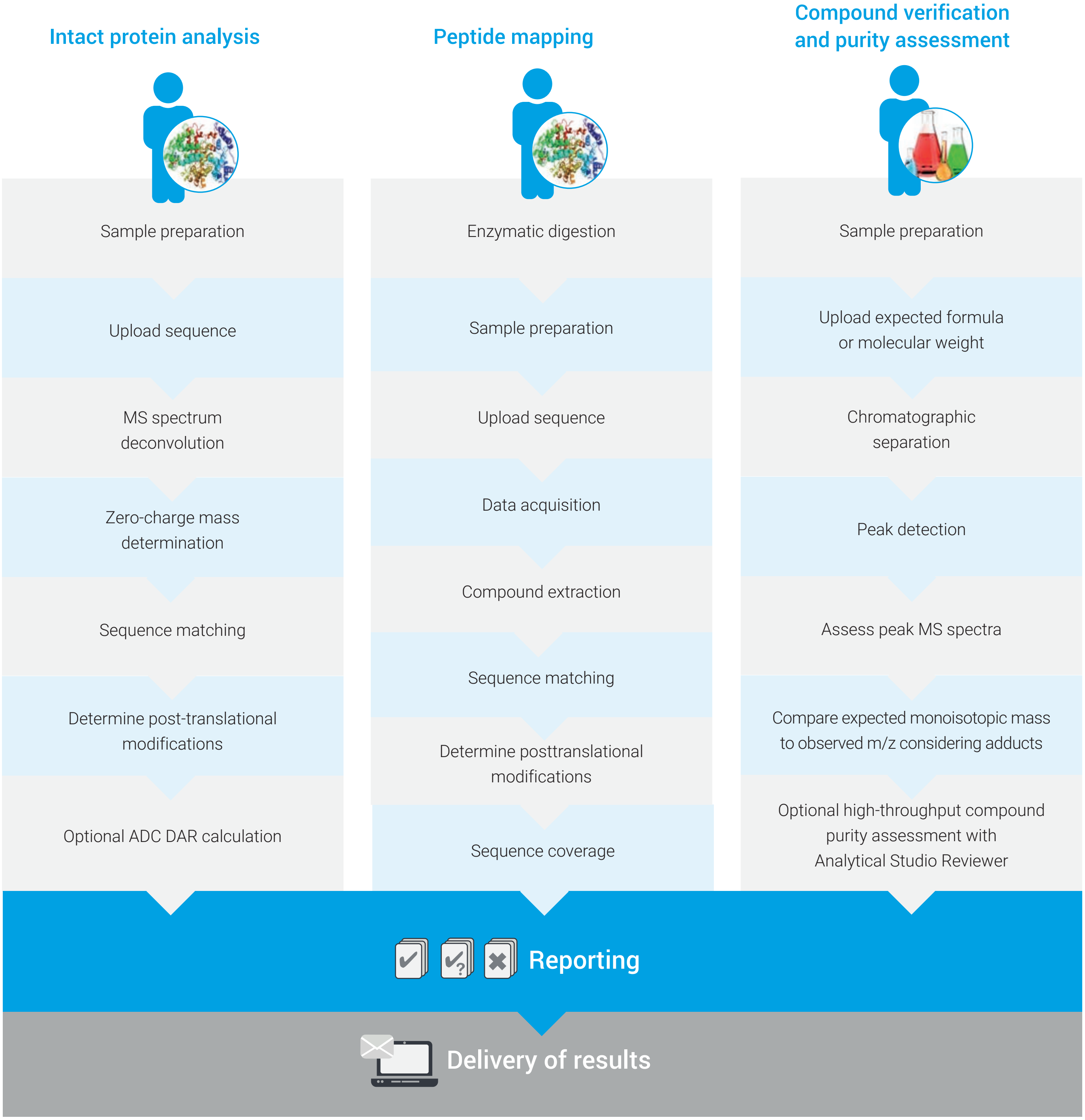
Producing expert-level results shouldn't require expert-level training. With the Agilent 6230 LC/TOF system, it won't.

- Experience the best possible mass spectrometer performance with a single click through innovative, user-friendly SWARM autotune.
- Give everyone in your lab easy access to compound identification with MassHunter Walkup software.
- Go beyond UV or quadrupole MS detection with full-spectrum, high-resolution TOF data.

Agilent SWARM autotune quickly searches across a wide parameter space, converging on the optimal settings to ensure your best results.



Managing your LC/MS applications with MassHunter Walkup software increases efficiency, consistency, and throughput. You'll also minimize errors associated with maintaining multiple diverse workflows.



Intact protein analysis

- Sample preparation
- Upload sequence
- MS spectrum deconvolution
- Zero-charge mass determination
- Sequence matching
- Determine post-translational modifications
- Optional ADC DAR calculation

Peptide mapping

- Enzymatic digestion
- Sample preparation
- Upload sequence
- Data acquisition
- Compound extraction
- Sequence matching
- Determine posttranslational modifications
- Sequence coverage

Compound verification and purity assessment

- Sample preparation
- Upload expected formula or molecular weight
- Chromatographic separation
- Peak detection
- Assess peak MS spectra
- Compare expected monoisotopic mass to observed m/z considering adducts
- Optional high-throughput compound purity assessment with Analytical Studio Reviewer

Reporting

Delivery of results

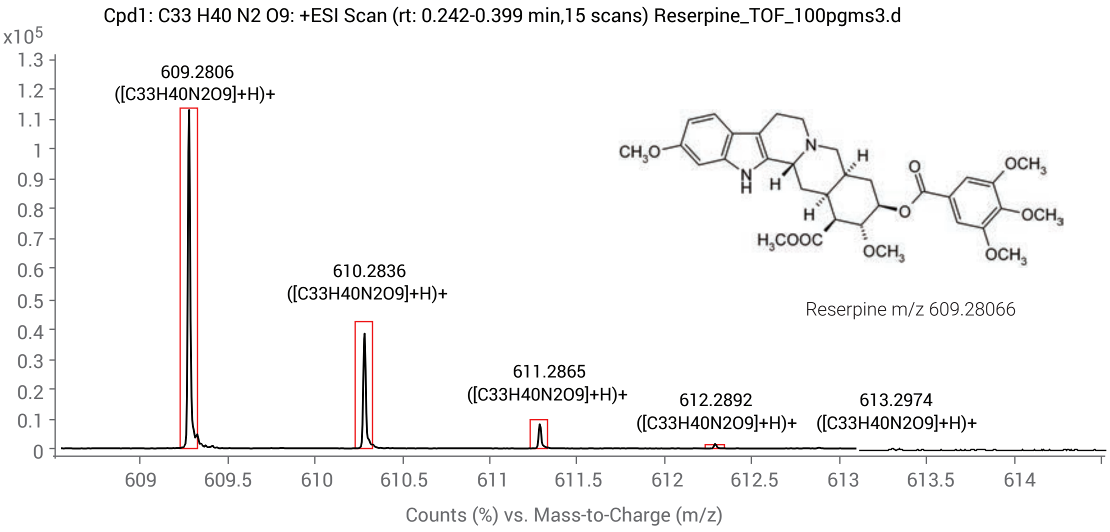
Confidence Beyond UV Detection

The All Ions approach enables easier method setup, more sophisticated data processing, and—ultimately—higher confidence in target compound identifications.

- Reduce identification uncertainty with exacting isotopic fidelity and high-resolution, accurate-mass spectra.
- Improve compound selectivity. Data-independent acquisition enables spectral library matching of precursor and product ion spectra.
- Detect analytes down to trace levels with available Agilent Jet Stream technology.

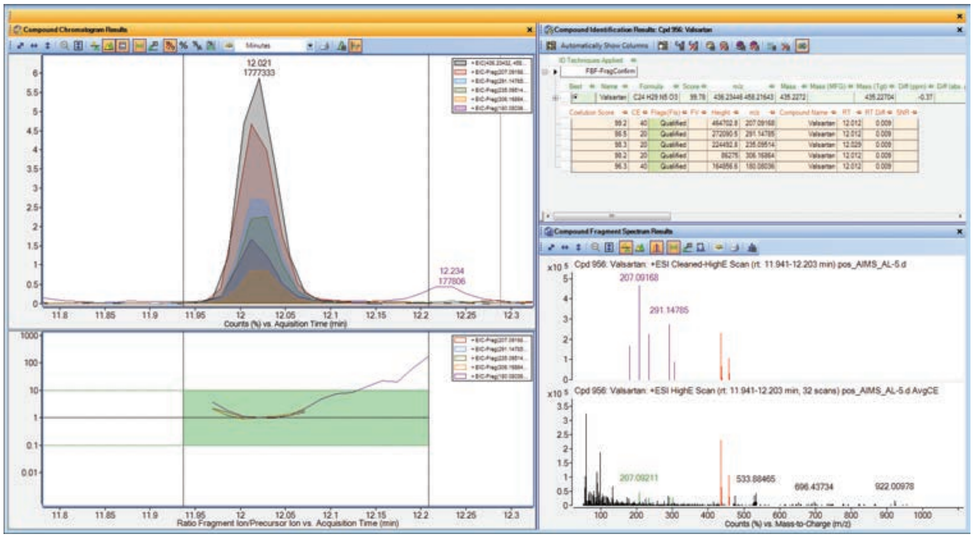
Number of theoretical formulas for a compound composed of C, H, N, and O with a molecular weight of 609.28066 m/z

Mass Accuracy (mDa)	Mass Accuracy (ppm)	Number of Matching Formulas	MS Technique
0.1005	165	209	Nominal mass (e.g., quadrupole)
0.0061	10	13	...
0.0030	5	7	...
0.0018	3	4	...
0.0012	**2**	**2**	**Accurate mass (e.g., 6230 LC/TOF)**



Isotopic matching of reserpine (C33H40N2O9). The red boxes show theoretical isotope abundance and position.

Qualitative Analysis software enables confident compound identification by comparing measured mass accuracy, chromatographic co-elution, and retention time to high-resolution spectral libraries with precursor and product ion spectra.



Best	Name	Formula	Score	m/z	Mass	Mass (MFG)	Mass (Tgt)	Diff (ppm)
☑	Valsartan	C24 H29 N5 O3	99.78	436.23446 458.21643	435.2272		435.22704	-0.37

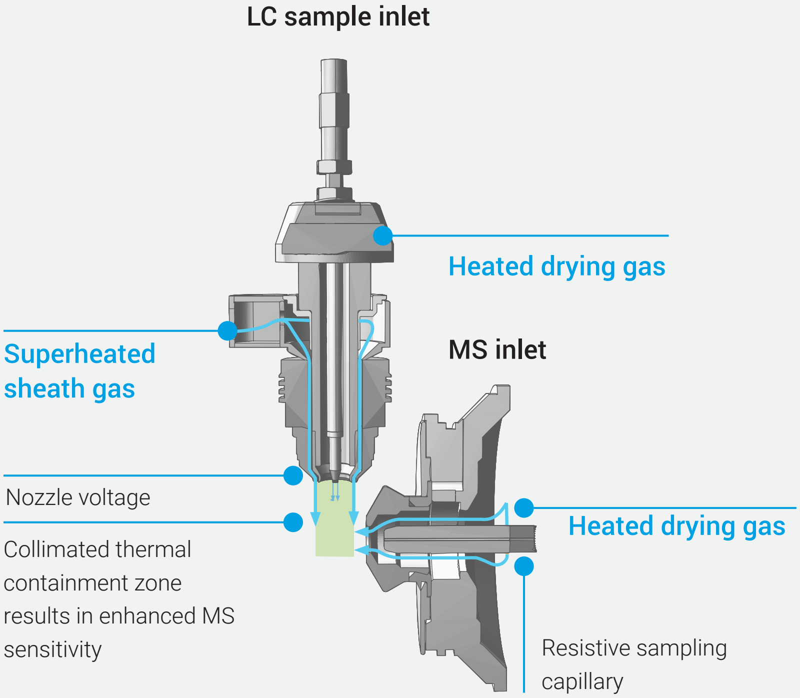
Coelution Score	CE	Qualified	FV	Height	m/z	Compound Name	RT	RT Diff	SNR
99.2	40	Qualified		464702.8	207.09168	Valsartan	12.012	0.009	
98.5	20	Qualified		272090.5	291.14785	Valsartan	12.012	0.009	
98.3	20	Qualified		224492.8	235.09514	Valsartan	12.029	0.009	
99.2	20	Qualified		86275	306.16864	Valsartan	12.012	0.009	
96.3	40	Qualified		164856.6	180.08036	Valsartan	12.012	0.009	

x10 5 Cpd 956: Valsartan: +ESI Cleaned-HighE Scan (rt: 11.941-12.203 min) pos_AIMS_AL-5.d

x10 5 Cpd 956: Valsartan: +ESI HighE Scan (rt: 11.941-12.203 min, 32 scans) pos_AIMS_AL-5.d AvgCE

Enhance LC/MS sensitivity 5-fold

Agilent Jet Stream thermal focusing technology significantly increases LC/MS sensitivity by improving the spatial focusing of electrospray droplets. The subsequent ion density and desolvation enhancements result in higher MS signal intensities and improved signal-to-noise ratios.



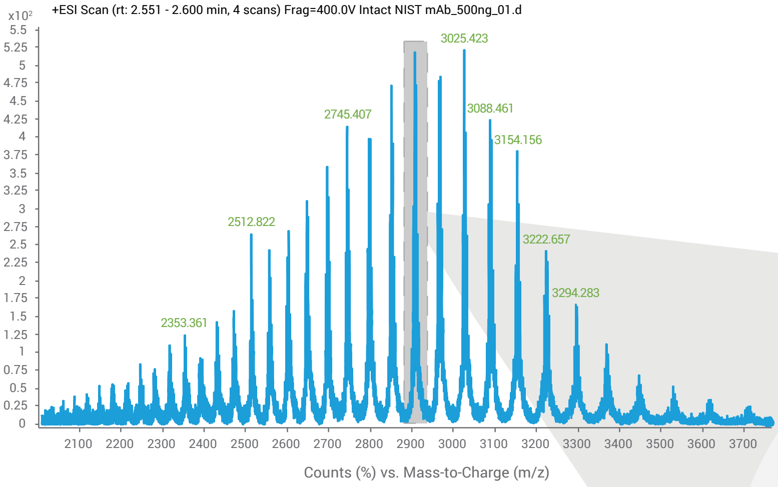
Collimated thermal containment zone results in enhanced MS sensitivity

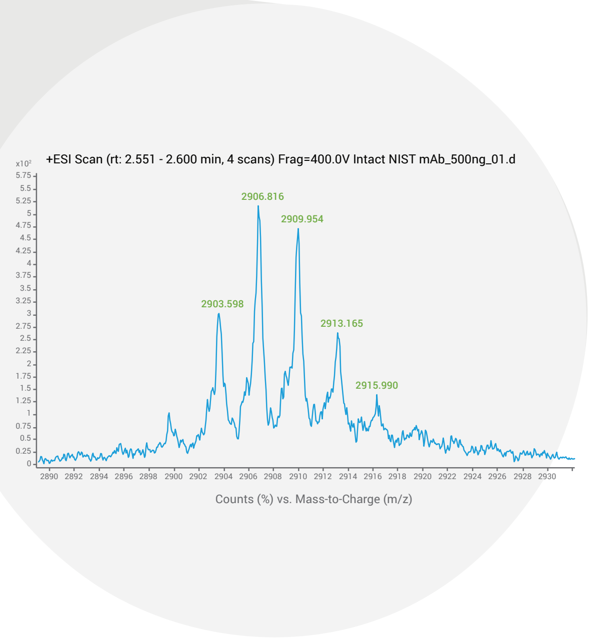
Tailor Your System to Both Large and Small Molecules

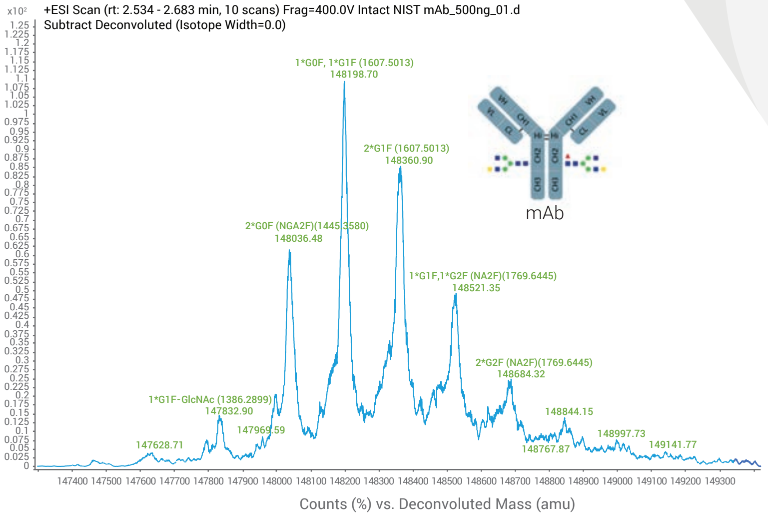
With the Agilent 6230 LC/TOF system, you can identify both small molecules and large biological compounds with high-resolution, accurate-mass data.

- Confidently analyze intact proteins and other large molecules with high TOF vacuum levels and a wide mass range using MassHunter BioConfirm software.
- Optimize small-molecule sensitivity by choosing from a wide range of ion sources.
- Detect trace-level compounds in the presence of coelution with a wide in-spectrum dynamic range.

These three spectra show a progressive analysis of intact NIST mAb. The high TOF vacuum level efficiently transmits large molecules that are beyond the practical range of other mass spectrometer platforms. The magnified spectrum shows excellent separation between proteoforms, with the deconvoluted spectrum retaining this enhanced selectivity.



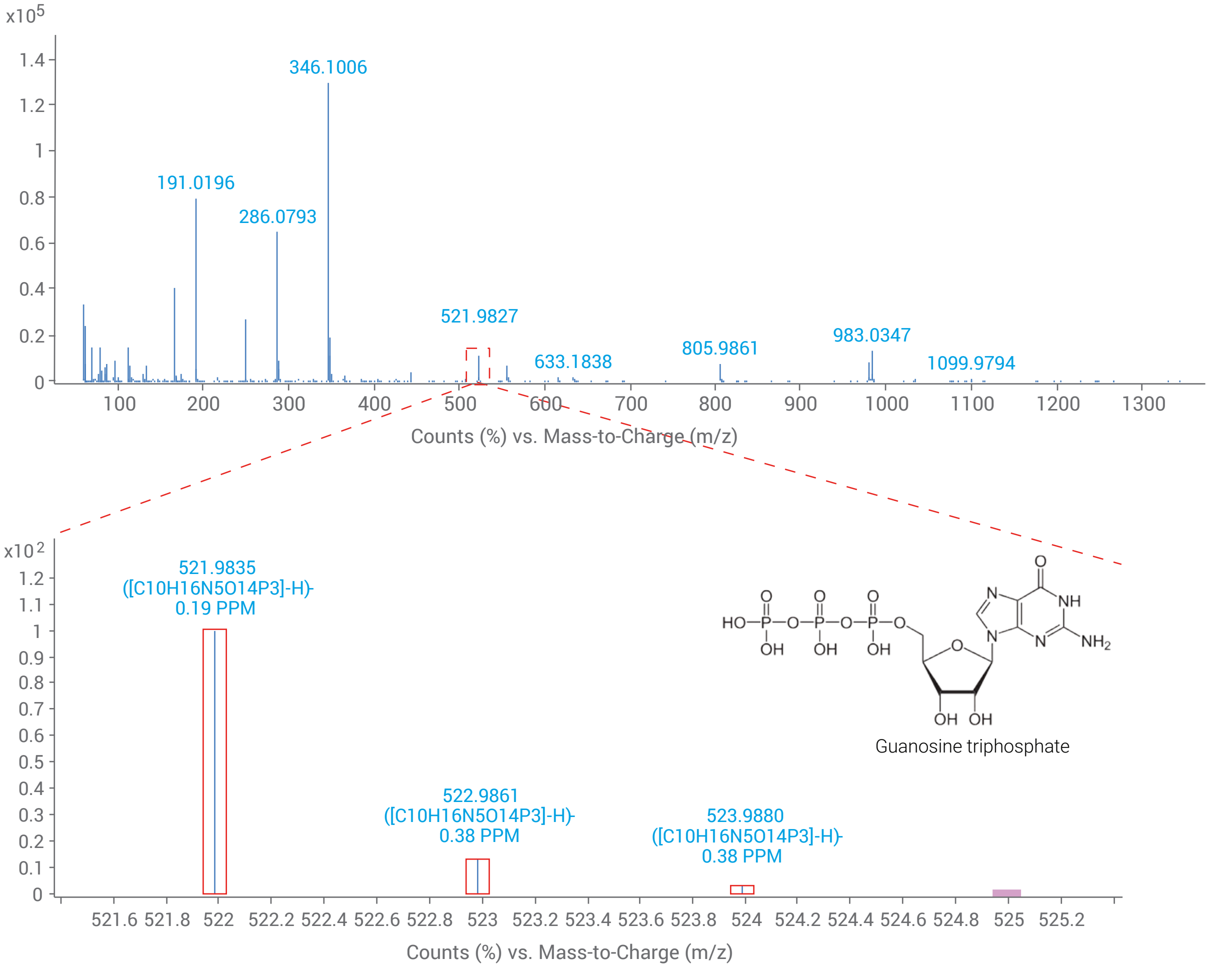




Detect the Unexpected—Even at Trace Levels

With a variety of available ion sources to analyze compounds of differing polarities and weights, the 6230 LC/TOF offers the full-spectrum sensitivity needed for challenging detection limits.

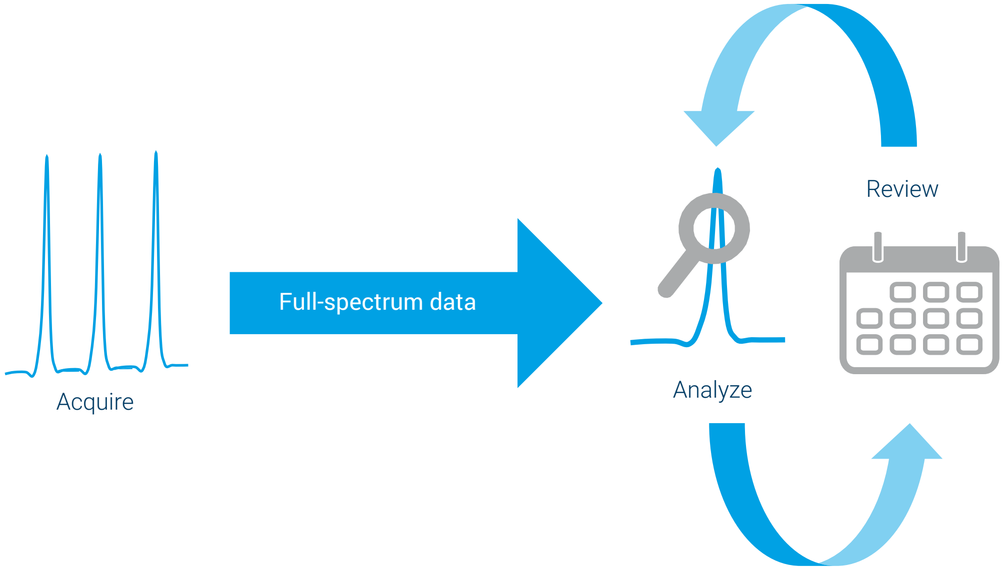
A broad in-spectrum dynamic range means trace-level analyte molecules and their isotopes are accurately detected even in the presence of abundant coelution.



Future-Proof Your Analyses

As with any Agilent instrument, you can expect consistent, reliable data over the lifetime of the 6230 LC/TOF system.

- Enable retrospective analysis—without reinjection—through full-time, full-spectrum acquisition.
- Prepare for evolving analytical requirements with a capable, flexible platform.
- Combine world-class detection and separation with leading Agilent chromatographic systems, including HPLC/UHPLC, SFC, CE, and GC.
- Protect your investment with a guaranteed 10 years of useable instrument life—including 7 years of guaranteed support.



Inject once and reanalyze as needed with full-spectrum data for complete retrospective analysis. The Agilent 6230 LC/TOF system lets you refer back to your data anytime, without rerunning, to investigate samples further.

Agilent InfinityLab LC Series Systems: The Perfect Partners for the Agilent 6230 LC/TOF System

1220 Infinity II LC

Affordable efficiency

This high-quality, integrated system puts you on the fast track to efficiency—for maximum return on investment.

1260 Infinity II LC

Everyday efficiency

A trusted platform with the broadest choice of instrumentation, this system gives you the best operational efficiency for maximum confidence, day after day.

1290 Infinity II LC

The benchmark in efficiency

This next generation of liquid chromatography instrumentation sets the standard for ultrahigh performance and efficiency.

Simplified LC/MS for everyone

With **Agilent MassHunter Walkup software**, users of different skill levels can perform their own automated LC and LC/MS analyses. They simply input basic information, choose a method, and insert samples as directed. What's more, results automatically appear in the user's inbox.

Enable routine protein characterization

Using accurate-mass LC/MS or LC/MS/MS data, **Agilent MassHunter BioConfirm software** helps you confirm identities and identify variants before you start expensive testing. It also features a drug-to-antibody ratio calculator for characterizing biopharmaceutical products, such as monoclonal antibodies.

Learn more:
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U.S. and Canada
1-800-227-9770
agilent_inquiries@agilent.com

Europe
info_agilent@agilent.com

Asia Pacific
inquiry_lsca@agilent.com

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