

# The Agilent 6546 LC/Q-TOF

Accelerate capabilities



# A Unified Path to Greater Precision and Effectiveness

A fundamental truth that analytical labs face is that challenges never diminish—they always grow. More samples, additional targets, and new experiments apply greater pressure to lab managers and senior researchers who may already be struggling to keep up.

Whether you require a faster path to rock-solid yes/no answers, or the ability to look deeper into complex samples than ever before, the Agilent 6546 LC/Q-TOF accelerates your capabilities and helps keep your lab up to speed.

The 6546 LC/Q-TOF coupled with the 1290 Infinity II LC System is the centerpiece of multiple workflows, allowing uncompromised data quality in qualitative and quantitative analyses.

The 6546 LC/Q-TOF enables you to simultaneously obtain high speed, high resolution, and wide dynamic range without data quality sacrifices, unlike other HRMS technologies.

#### The Agilent 6546 LC/Q-TOF delivers:

- Confidence in identification, with exceptionally low false positives/negatives
- The ability to detect more compounds in a single analysis
- Stability in response over many samples
- Software to rapidly turn MS data into reliable answers
- The ability to handle large quantities of data simultaneously



# Confident Capability

By combining excellent performance in every analytical facet, the 6546 LC/Q-TOF delivers a new level of confidence in measurement. This enables broader screening, more complete profiling, and results that you can trust.



# A Robust Foundation

Trust in your workflow means the ability to get the right answer, time after time. Trust in your instrumentation means minimum downtime and simple maintenance. Built on tested, proven Agilent robustness and reliability, the 6546 LC/Q-TOF delivers both.

## A history of robustness, coupled with performance

Matured over several instrument generations, the ion-optics rail is perfectly suited for the most challenging applications. Experiments involving large numbers of injections over long time periods require extraordinary robustness to deliver the same results from the first day to the last. The 6546 LC/Q-TOF delivers the sort of mass accuracy and quantitative precision your results demand—no matter what type of analysis you perform.

The 6546 LC/Q-TOF has a capillary gate-valve, which allows cleaning the capillary without venting the instrument. This allows more uptime during routine maintenance, and more results per time.



# Accelerate Target/Suspect Screening

How many compounds do you screen for today? How many have you added in the last year? What additional demands will the next year place on your screening capabilities? The next five years?

For labs currently using triple quadrupole-based MS methods, the 6546 LC/Q-TOF allows you to advance efficiency by moving beyond targeted MRM method development and into comprehensive screening for targets and suspect compounds.

Simple method setup from existing libraries allows concurrent target and suspect screening, with an easy review for detected compounds.

## Benefits of LC/Q-TOF-based suspect screening:

- Screen for more compounds
- Improve specificity with high resolution and accurate mass
- Confirm compounds with fragment ions using Q-RAI
- Retroactively mine data



Use a PCDL as a launch point to build a routine analysis, and move into either high-throughput classic target screening (left) or target and suspect screening (right) with MassHunter Quantitative Analysis.



# Accelerate Productivity

Get running fast and have confidence in your results. Expertly curated accurate mass databases and MS/MS libraries provide a shortcut to results. Agilent offers a range of Personal Compound Database and Libraries (PCDL) including pesticides, vet drugs, water contaminants, mycotoxins, and extractables and leachables.

By leveraging Agilent CrossLab Services, you can speed and simplify your ramp to productivity. Agilent CrossLab Method and Application Consulting can help you confidently deploy the latest productivity enhancements and ensure the best outcomes—from sample preparation to final report

Agilent University offers comprehensive learning opportunities—from beginner-level courses to advanced classes—for every member of your team.

The Agilent Community is the best place to collaborate with colleagues about applications, discuss Agilent products, and find in-depth content relevant to your analysis.



Food authenticity testing has reached a new level of significance for both food producers and consumers. Are you interested in testing for authenticity and origin testing? Are you interested in accelerating your data analysis with automation?

The 6546 LC/Q-TOF with the software tools provides a complete workflow to perform automated sample classification for authenticity testing.

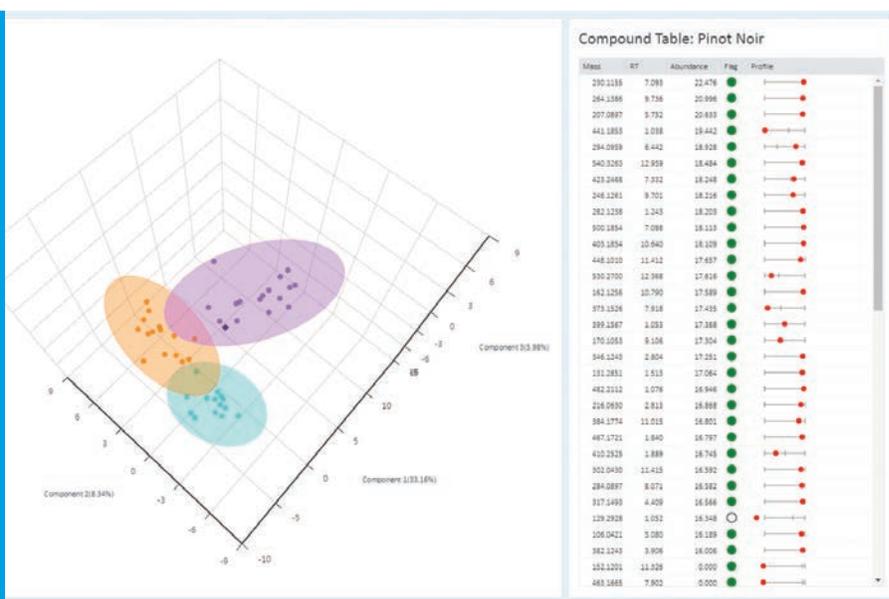
### Food authenticity testing made easy

- Sample profiling by LC/Q-TOF serves as a molecular fingerprint for high-confidence determination of authenticity or presence of adulteration.
- Method automation capability in Mass Profiler Professional enables automated data analysis.
- MassHunter Classifier is a simple tool for automated sample classification that uses the method created in Profinder and MPP.
- Principal Component Analysis in MassHunter Classifier allows users to determine if the test sample is similar to the authentic sample in the model.



### MassHunter Classifier performs sample classification using the feature extraction method and classification model.

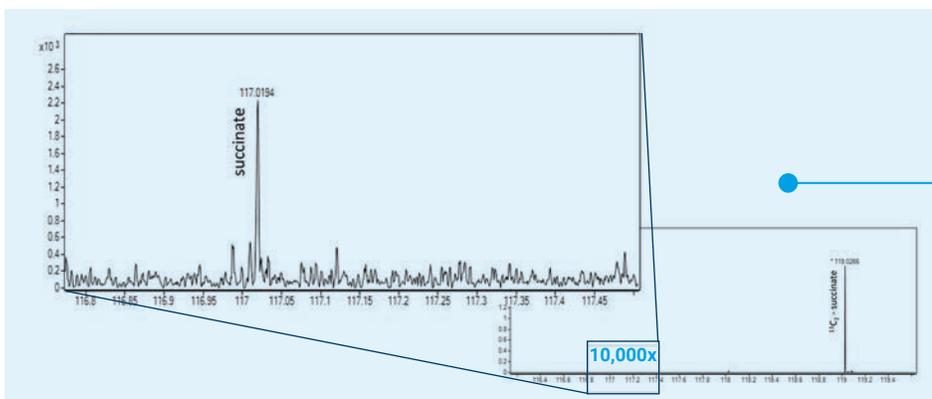
The Results View includes Principal Component Analysis plot that shows the Hotelling ellipses for the different classes in the model and the position of the test sample with respect to the similarity with the sample classes in the model.



# Accelerate

# Metabolomics Research

The 6546 LC/Q-TOF delivers the industry-best combination of resolution and dynamic range designed to meet the challenges of metabolomics research. TOF technology is an excellent choice for discovery metabolomics because it provides high resolution, high mass accuracy, and outstanding isotope ratio fidelity—and maintains this performance even as acquisition rate increases. Isotope ratio fidelity is critical in qualitative flux analysis.



1

[See More](#)

With the highest in-spectrum dynamic range coupled with leading resolution and sensitivity.

2

[Trace More](#)

With isotopic accuracy within 5% and mass accuracy routinely within 1 ppm.



3

[Discover More](#)

With iterative MS/MS to annotate more lipid features.

The 6546 LC/Q-TOF is a powerful platform in a series of technologies for metabolomics research available from Agilent. Precision and confidence are built into every step of your experiment.

When working with plasma samples, variability can be further reduced with the addition of the Agilent Bravo Metabolomics Sample Prep Platform. This platform enables you to automate and standardize your sample preparation protocol from sample quenching, to Captiva EMR-Lipid for highly selective and efficient lipid removal, to sample drying and storage, to sample reconstruction. Take greater control of your metabolomics workflow from sample prep to detection.



### Consistent, dependable, easy

Agilent Bravo Metabolomics Workbench is designed to make plasma sample preparation consistent, dependable, and easy.

- Better reproducibility – Across samples and across different users compared to manual sample preparation
- Fewer replicates – By minimizing costly errors and need for rework
- Higher quality of results – Captiva EMR-Lipid well plates provide lipid/matrix removal without unwanted analyte loss
- Reduced training – Standardized protocols make it easy for new users, and the Agilent Bravo Metabolomics Workbench software enables any user to easily start automated sample prep

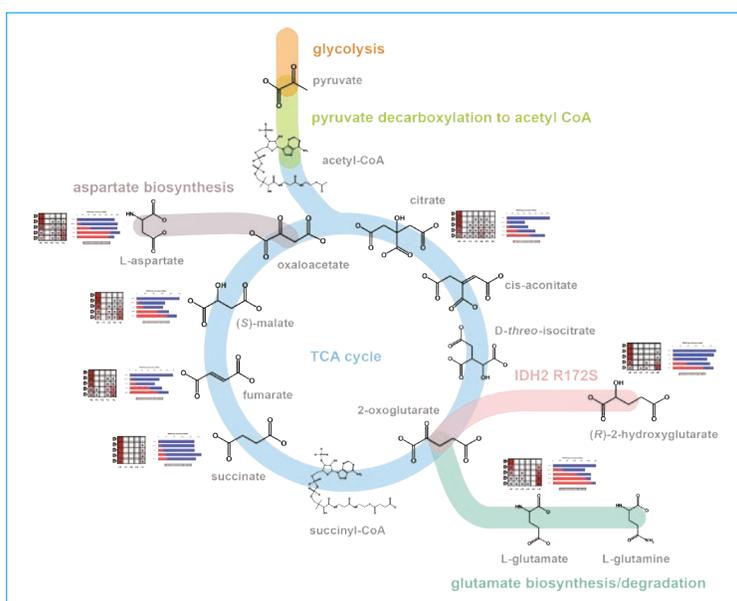
# Innovative Metabolomics Software Solutions

**Agilent provides a powerful portfolio of instruments and informatics tools to help answer challenging biological questions faster.**

- MassHunter Profinder provides targeted and untargeted batch feature extraction for mass spectrometric data.
- MassHunter Lipid Annotator tool generates fast *in silico* spectral matches to accurately annotate lipid MS/MS spectra.
- Mass Profiler Professional (MPP) uses a combination of advanced processing capabilities and powerful statistical and visualization tools to analyze complex MS data sets.
- MPP annotates features with the built-in ID Browser function using curated Agilent METLIN LC/MS database or the Agilent Fiehn GC/MS Library.
- MPP displays multi-omic results from metabolomics, proteomics, and genomics data together on pathways to get the full biological picture.
- VistaFlux easily finds and quantifies targeted metabolites containing stable isotope-labeled data, and displays results using advanced pathway visualization software.

*"The 6546 is a major advancement compared to previous TOFs, mainly because it combines dynamic range with excellent resolution in all conditions (speed, mass range, intensity). In our hands, the 6546 is going to be a great instrument for challenging applications such as  $^{13}\text{C}$  metabolic flux analysis, high-throughput mass spectrometry, and metabolite ID."*

- Nicola Zamboni, ETH Zurich, Switzerland



Omix Premium software showing the TCA cycle and related metabolites labeling.

## Agilent InfinityLab LC Family: Reliable and efficient, always innovating for your best result

Designed to work together for superior performance, the instruments, columns, and supplies of the Agilent InfinityLab LC family are rugged and reliable, and improve your workflow efficiency. InfinityLab LC components help every scientist get the most from their LC and LC/MS application, with innovations that improve uptime, minimize rework, and generally make things easier.



Agilent InfinityLab LC Series instruments are designed to be modular, giving you flexibility to ensure the best configuration for your LC and LC/MS applications.



The unique superficially porous particle technology of Agilent InfinityLab Poroshell 120 LC columns is robust and flexible, enabling you to reliably achieve highest efficiency and resolution in your LC and LC/MS separations.



The innovative design of the InfinityLab Flex Bench gives you easy mobility to connect your LC to any MS in the lab quickly and conveniently.



## Put CrossLab insight to work for you

CrossLab is an Agilent capability that integrates services, consumables, and lab-wide resource management to help laboratories improve efficiency, optimize operations, increase instrument uptime, develop user skill, and more. Our industry-leading services keep your instruments running at peak performance, and include instrument technology refresh, application consulting, repairs, preventive maintenance, compliance verification, and education.

Agilent CrossLab supports Agilent and select non-Agilent instruments and provides consultative support for workflow enablement, lab analytics, compliance, inventory management, and asset management, including relocation services.

Learn more about Agilent CrossLab and see examples of insight that leads to great outcomes at [www.agilent.com/crosslab](http://www.agilent.com/crosslab).

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**[info\\_agilent@agilent.com](mailto:info_agilent@agilent.com)**

Asia Pacific

**[inquiry\\_lsca@agilent.com](mailto:inquiry_lsca@agilent.com)**

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