

Proven. Rapid. Complete.

Agilent RapidFire 400 high-throughput
mass spectrometry system





Leverage over 14 Years of User-Driven Product Innovation and Proven Application Success

Do you want to open new avenues for pursuing small- and large-molecule targets—without using surrogates, radioactivity, coupled assays, or indirect measurements? The Agilent RapidFire 400 high-throughput mass spectrometry system delivers tested and trusted productivity.

The RapidFire 400 integrates with triple quadrupole or time-of-flight mass spectrometers, enabling

- Faster identification of drug candidates, reducing time to market
- New approaches for profiling targets in metabolomics research
- Accelerated testing for forensic compounds where speed is essential
- And more

No matter what area of research you are engaged in, you will benefit from shorter time to results—plus more efficient use of staff time and financial resources.

Cool things in small places

RapidFire 400 offers temperature-controlled sample storage, assuring samples are stored properly and increasing confidence in results. Samples remain accessible with a user-friendly pull-out drawer capable of holding up to 64 standard height sample plates. With support for up to 90 1,536-well plates, that means space for up to 138,240 samples. Furthermore, RapidFire 400 can house an Agilent Ultivo triple quadrupole MS within the same footprint, saving valuable lab space.



The RapidFire 400 can be connected to TOF, Q-TOF, or triple quadrupole MS.

A Complete Approach to High-Throughput MS



Temperature-controlled sample storage

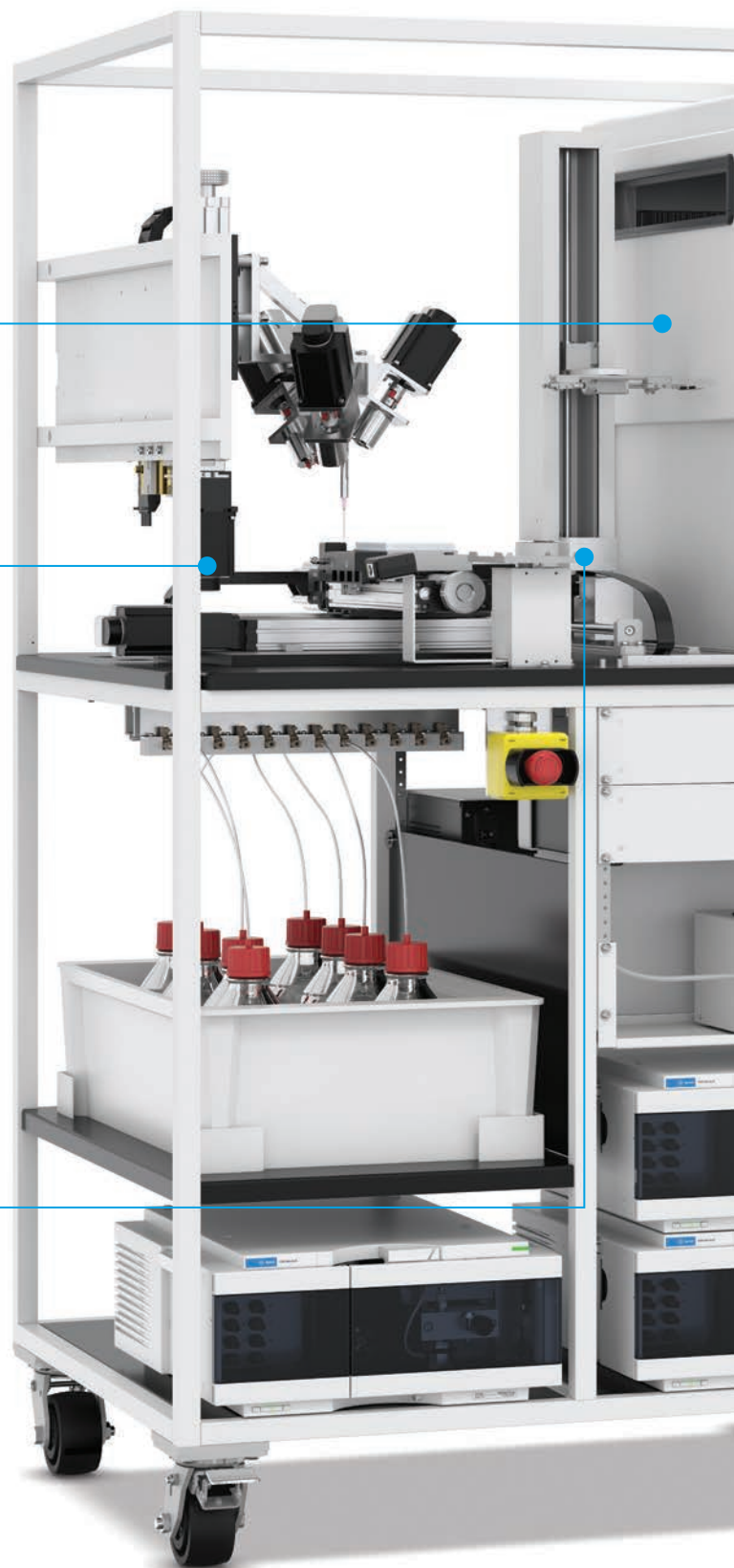
Store samples longer without compromising integrity.

Integrated plate handler robot and barcode reader

Simplify batch configuration and sample tracking.

Rapid data acquisition

Reduce data acquisition from minutes to seconds by eliminating chromatography.





Large sample capacity

Perform longer unattended runs with storage for up to 138,240 samples.

Fully integrated system

Control the RapidFire system and MS with a single computer.

Optimized footprint

Save valuable lab space by coupling an Agilent Ultivo triple quadrupole MS with the RapidFire 400 system.

Rapid Results, Capacity for Weekend-Long Runs

Bring five generations of user-driven product innovation and customer success to your lab. The RapidFire is a fully integrated solution combining automated method development, high sample capacity, auto-sampling, rapid sample injection, sample management, and data analysis. Facilitate rapid analysis of thousands of samples.

Unlock challenging targets

The RapidFire system, coupled to your MS instrument, delivers high throughput, accurate, and reliable measurements. Now you can qualify drug targets, assess compound binding, elucidate metabolic processes, discover novel metabolomics targets, and more, even faster.

Maximize productivity and efficiency

Identify compounds faster and speed up your product development. The RapidFire system features a 12-cartridge carousel, 64 standard height sample plates and automated plate handling via an integrated robot. That means researchers can perform unattended weekend runs that exceed thousands of injections. You can also automate method development and solvent switching for assays in a single batch using innovative fluidics with three Agilent 1260 Infinity II quaternary pumps.

For a closer look, read our application note:

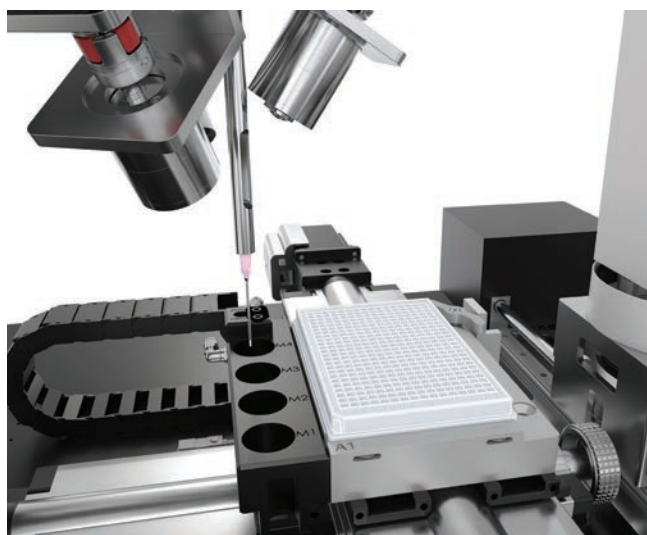
[Automated Method Development Using the Agilent RapidFire High-Throughput Mass Spectrometry System \(5991-5222EN\)](#)

Reduce costs

The RapidFire system requires less than 0.5 mL of solvent per sample, and each SPE cartridge is reusable for thousands of samples. That means you can substantially reduce solvent and consumable use, not to mention waste generation, lowering your cost per well.

Shorten time-to-results

Accelerate critical decisions with cycle times measured in seconds per sample. Plus, eliminating upfront sample preparation or chromatography requirements makes getting to your answers simple and direct.



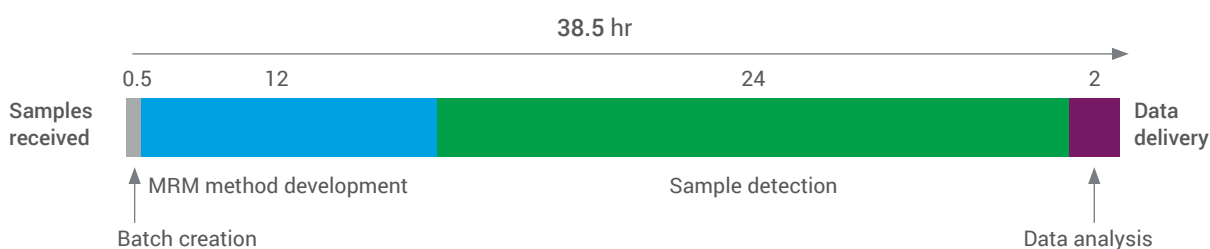
How Does RapidFire Save You Time?

RapidFire technology reduces data acquisition time 10-fold. How? By replacing HPLC with online SPE sample cleanup while producing equivalent results to LC/MS. That means you can:

- Achieve the fastest possible results, with cycle times of seconds per sample.
- Eliminate MRM method development using TOF or Q-TOF mass spectrometers.
- Maintain assay quality without requiring offline sample preparation before analysis.

Ten-Fold Reduction in Data Acquisition Time

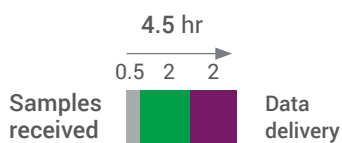
Traditional LC/MS workflow



RapidFire TQ workflow



RapidFire TOF workflow



Significantly reduce time to results

Traditional chromatographic separations take several minutes per sample, which reduces lab productivity and increases cost per analysis. The RapidFire 400, on the other hand, can reduce cycle times down to seconds by leveraging online SPE. Instead of 38.5 hours, the same analysis can be performed in 16.5 hours, without compromising analytical fidelity. If RapidFire is combined with TOF or Q-TOF, this time can even be reduced to 4.5 hours, by eliminating MRM method development.

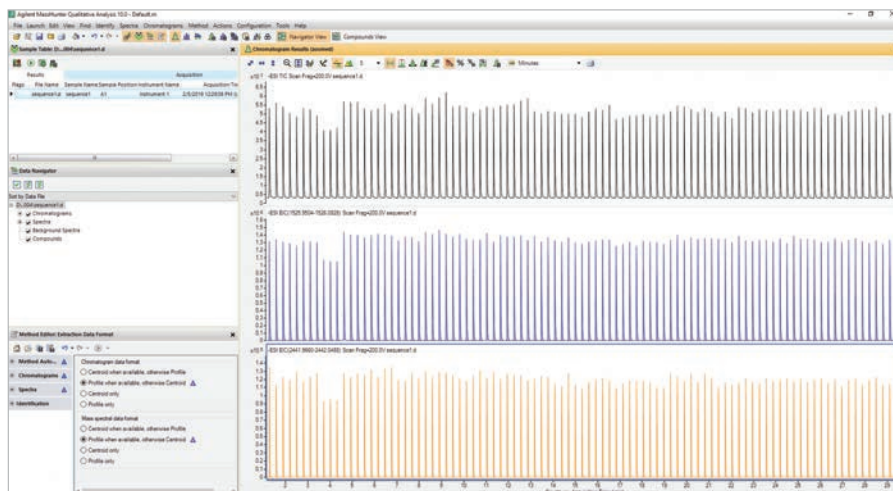
Intuitive, Flexible Software Tools Take You from Results to Insights

Comprehensive and easy to use, Agilent MassHunter software delivers powerful data acquisition and analysis. RapidFire Integrator software lets you visualize your data, helping you identify data integrity issues at the experiment level, across thousands of injections.

Enhanced productivity for triple quadrupole MRM data

Agilent RapidFire Analyzer software efficiently processes MRM data acquired on RapidFire systems coupled to TQ instruments. The software allows you to rapidly process, review, and report thousands of results in seconds for any semiquantitative workflow. Other advantages include:

- Excellent data quality through a novel peak detection algorithm
- Customizable views and desired calculations
- Fast reporting and data review using Review-by-Exception
- Elegant error handling using self-assessment of sampling errors



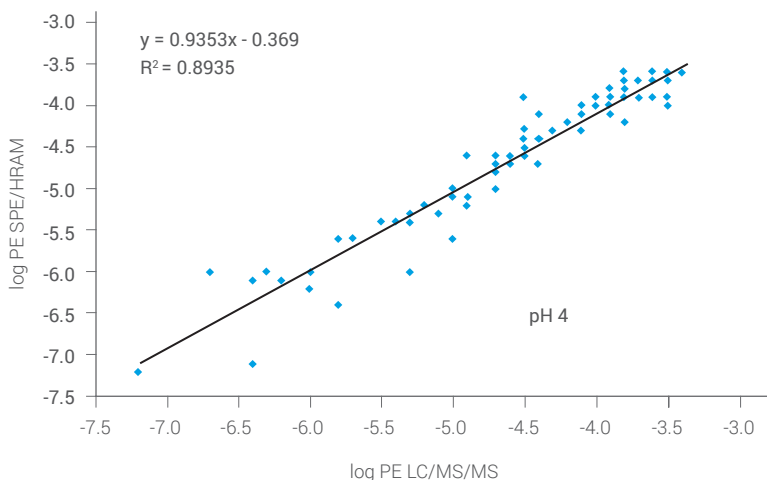
Agilent MassHunter software provides powerful analysis tools for handling large data sets.



RapidFire Analyzer interface enables plate view and fast data review.

Tailored Solution Suitable for Diverse Applications

Leverage over a decade of peer reviewed publications. Compatible with many sample matrices the RapidFire can be coupled with different detectors enabling a broad range of assays. Combining mass spectrometry with the speed of Rapidfire provides rapid, label-free detection of native substrates for diverse applications.

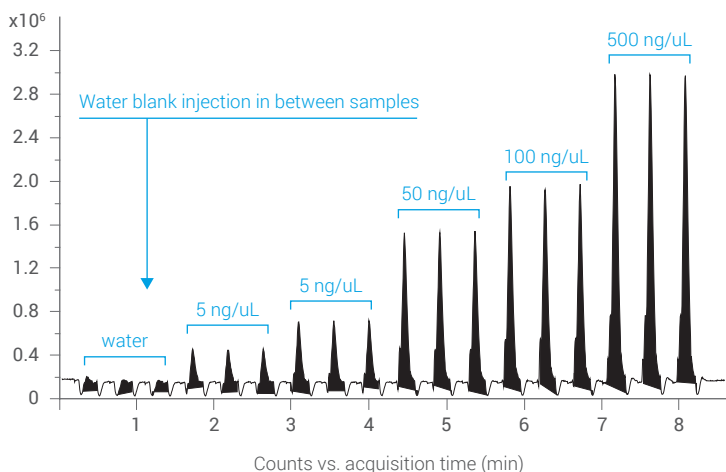


Correlation of permeability values from PAMPA assays of 81 drug discovery candidates. The data from RapidFire/TOF correlated well with standard LC/MS/MS analysis.

During drug discovery, for example, parallel artificial membrane permeation assays can mimic the absorption of potential drug candidates by the cells. The candidate's potential efficacy is then ranked according to its permeability characteristics. Since the drug discovery process involves large sample sets, a high-throughput approach is desirable.

For more details, read our application note: [High-Throughput In Vitro ADME Analysis with Agilent RapidFire/MS Systems: Permeability Assays \(5990-9081EN\)](#)

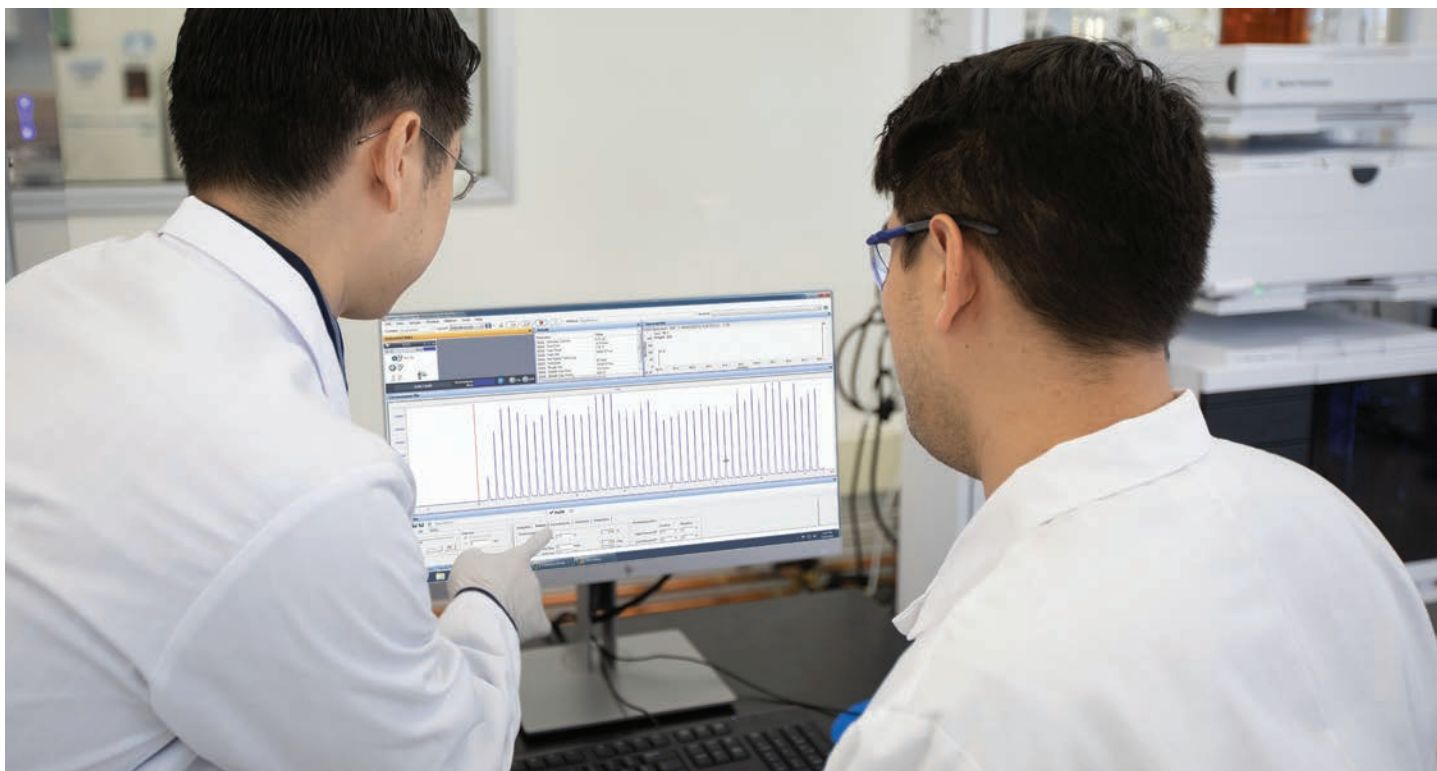
Intact NIST Monoclonal Antibody: Triplicate Injections 5 to 500 ng/μL



Outstanding sensitivity and reproducibility. Intact NIST monoclonal antibodies at varying concentrations were injected as triplicates using a RapidFire system.

Coupling the RapidFire system with a time-of-flight instrument enables a wider range of applications. These applications include characterizing proteins/antibodies/oligonucleotides, studying covalent protein-inhibitor binding, assessing plasma protein binding, and quantifying proteins in biological matrices.

To learn more, read our poster: [Ultra-Fast Analysis of Intact Proteins Using SPE-TOF](#)



Expand Your Reach with RapidFire SPE Cartridges

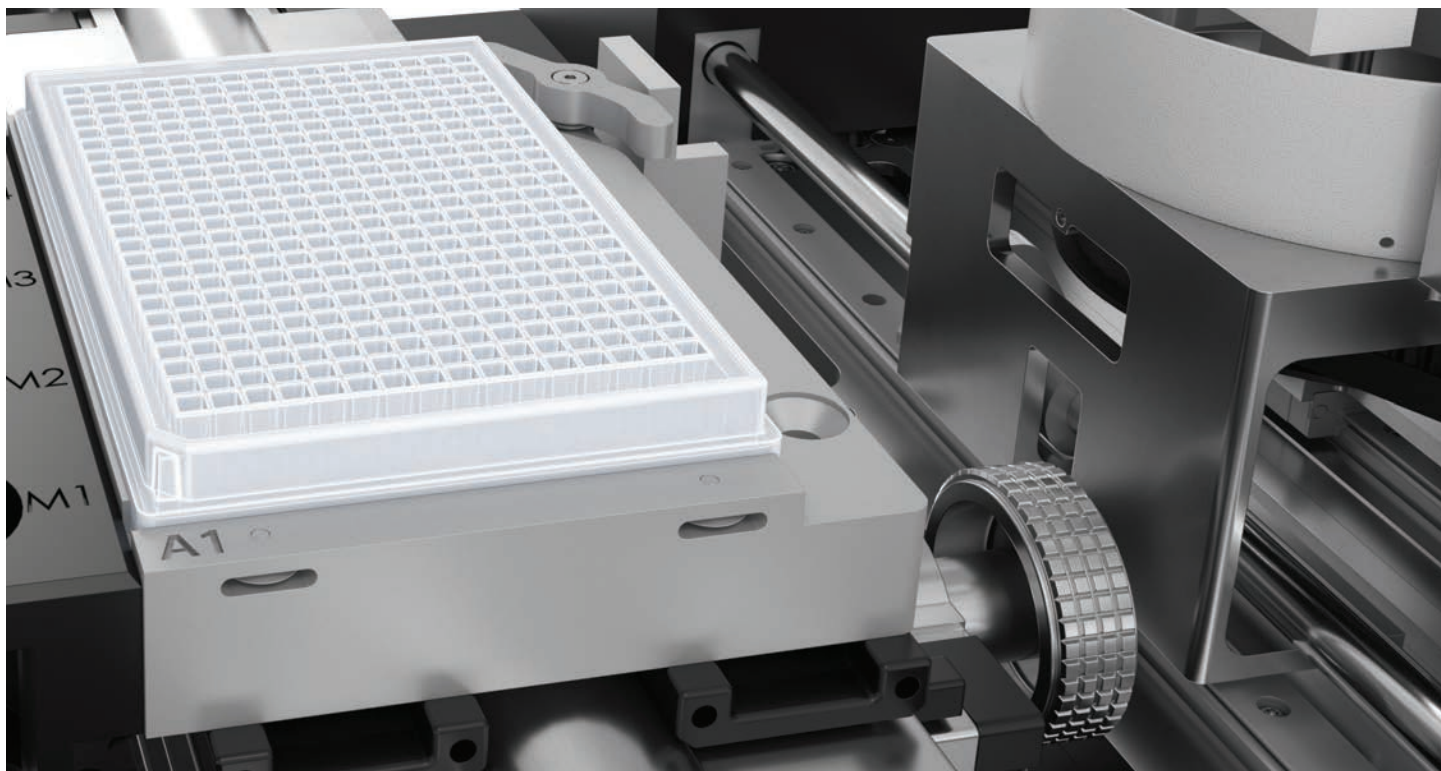
Agilent RapidFire SPE cartridges are available in many chemistries for a wide range of screening, drug discovery, and clinical research applications. Plus, they offer these advantages:

- Reusable for thousands of injections
- Custom bed volumes of 4 to 20 μL
- Reduce or eliminate offline sample preparation

Choose from one of our standard cartridges, or have custom cartridges created in any chemistry.

Ten years of value, guaranteed

Our value promise maximizes your return on investment by making sure that your purchase is safe. From the date you buy select Agilent chromatography, spectrometry, and spectroscopy instruments, we *guarantee* you at least 10 years of use. Otherwise, we will credit you with the residual value of the system toward an upgraded model.



Cartridge ordering Information

No matter what analytes you are interested in, our wide selection of cartridge chemistries can help you achieve your best results.

Type	Packing	Typical Applications
A	C4	Small molecules, peptides, oligos
B	Cyano	Hydrophilic compounds
C	C18 (4 μ L)	Reversed phase, 100 Å pore size
D	Graphitized carbon	Hydrophilic compounds, small molecules
E	C8	Proteins, peptides, small molecules
F	Phenyl	Aromatic compounds
H6	HILIC	Hydrophilic compounds, small molecules
C12 μ L	C18 (12 μ L)	RapidFire cartridge, C18, 12 μ L type C12 μ L
O	Blank	RapidFire cartridge, blank
4, 12 μ L	Custom	RapidFire cartridge; custom packing

Agilent CrossLab services

CrossLab is an Agilent capability that integrates services and consumables to support workflow success and important outcomes like improved productivity and operational efficiency. Through CrossLab, Agilent strives to provide insight in every interaction to help you achieve your goals. CrossLab offers method optimization, flexible service plans, and training for all skill levels. We have many other products and services to help you manage your instruments and your lab for best performance.

Learn more about Agilent CrossLab, and see examples of insight that leads to great outcomes, at www.agilent.com/crosslab



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