

Supercharge Your Lab's Productivity

Agilent RapidFire 365 High-Throughput Mass Spectrometry System



Bringing Plate Reader Simplicity to Mass Spectrometry

The RapidFire High-Throughput LC/MS system provides unparalleled throughput to LC/MS analysis. The system can be integrated with either a triple quadrupole or a time-of-flight mass spectrometer, enabling a wide range of applications.

It opens up new avenues for pursuing both small molecule and protein drug targets without the use of surrogates, radioactivity, coupled assays, or indirect measurements.

It provides new approaches for profiling targets in metabolomics research.

It accelerates testing for forensic compounds where speed is essential.

In fact, no matter what area of research you are engaged in, you will benefit from shorter time-to-results and vastly more efficient use of staff and financial resources.



Mass spectrometry offers the advantage of true label-free detection of native substrates and products in functional biochemical assays. The ultrafast RapidFire system delivers samples to the mass spectrometer at as fast as 8 seconds per sample. This combination of direct compound detection and high-speed sample delivery provides an unparalleled methodology for a wide range of applications.

Unlock challenging targets

No matter what compounds you are interested in, the RapidFire coupled to the LC/MS instrument provides reliable high-throughput and accurate measurements to qualify drug targets, assess compound binding, elucidate metabolic processes, discover novel metabolomics targets, and much more.

Maximize productivity and efficiency

With 12-cartridge and 63-plate capacity, and automated plate handling via an integrated robot, the RapidFire system enables researchers to perform weekend-long runs, exceeding 20,000 injections, unattended. The system also features automated method development and solvent switching for different assays in a single batch, with innovative fluidics using three Agilent 1260 Infinity II quaternary pumps.

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. This substantially reduces solvent and reagent use, not to mention waste generation, markedly lowering your cost per well.

Shorten time-to-results

Unmatched cycle times of 8 seconds per sample accelerate critical decisions. Without upfront sample preparation requirements, getting to your answers is simple and direct.



The Most Efficient MS System for All Purposes



Fast, efficient analysis

RapidFire technology reduces data acquisition time 10-fold by replacing HPLC with online SPE sample cleanup while producing equivalent results to LC/MS.

- Provides the fastest results, with cycle times of 8 seconds per sample
- Maintains assay quality, without requiring off-line sample preparation before analysis
- Eliminates MRM method development using TOF or Q-TOF mass spectrometers

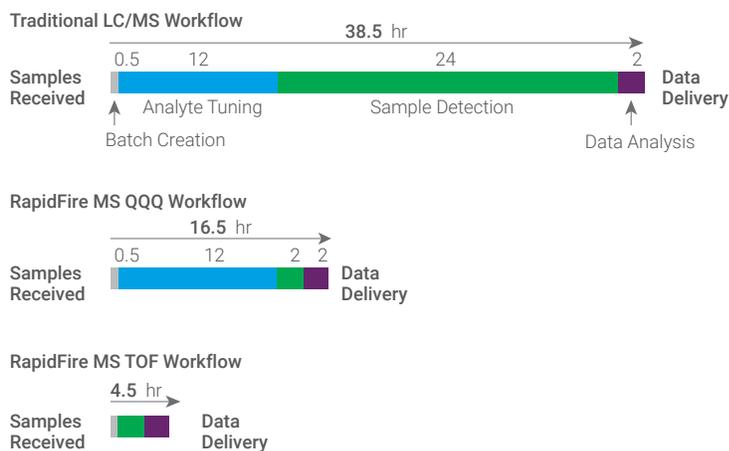


Figure 1. RapidFire provides faster, more efficient ADME analysis.

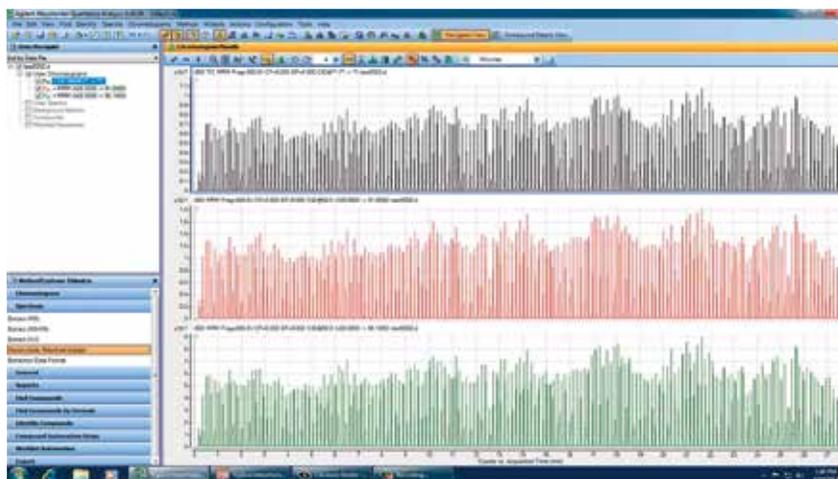
Intuitive, Flexible Software Tools

Comprehensive and easy-to-use, Agilent MassHunter software provides data acquisition and analysis for the RapidFire system. RapidFire Integrator software provides data visualization, facilitating the identification of data integrity issues at the experiment level, across thousands of injections.

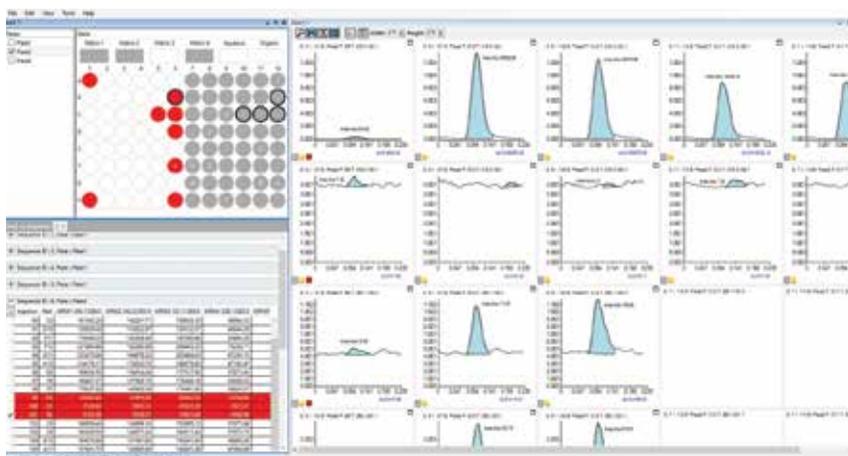
Enhanced productivity for triple quadrupole MRM data

Agilent RapidFire Analyzer software is designed to efficiently process data sets acquired on the RapidFire platform coupled to an LC/triple quadrupole MS instrument running in MRM mode. The software offers an alternative to rapidly process, review, and report thousands of results in seconds—for any semi-quantitative workflow.

- 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 enabling plate view and fast data review.

Get Meaningful Results Faster

The RapidFire system can be applied to a number of areas, and can provide results that are similar to those obtained from traditional LC/MS methods in a fraction of the time—less than 10 seconds per sample.

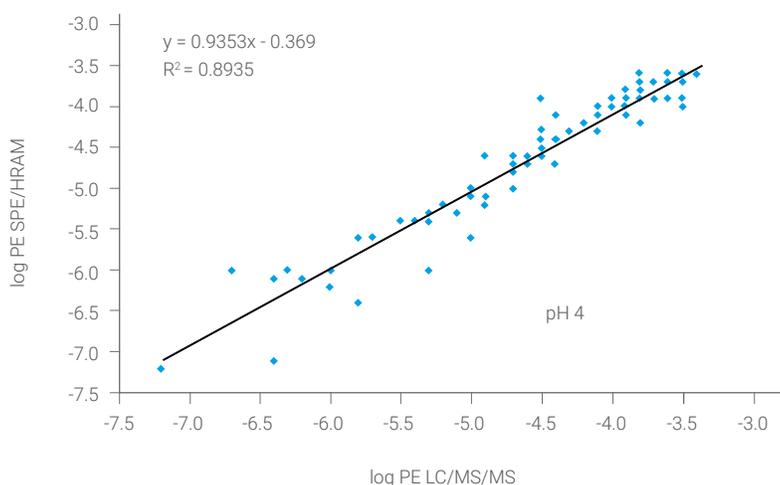


Figure 2. Correlation of permeability values from PAMPA assays of 81 drug discovery candidates. Data from RapidFire/TOF correlated well with standard LC/MS/MS analysis.

During the drug discovery process, for example, assays such as parallel artificial membrane permeation assay 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 highly desirable (Application Note: 5990-9081EN).

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

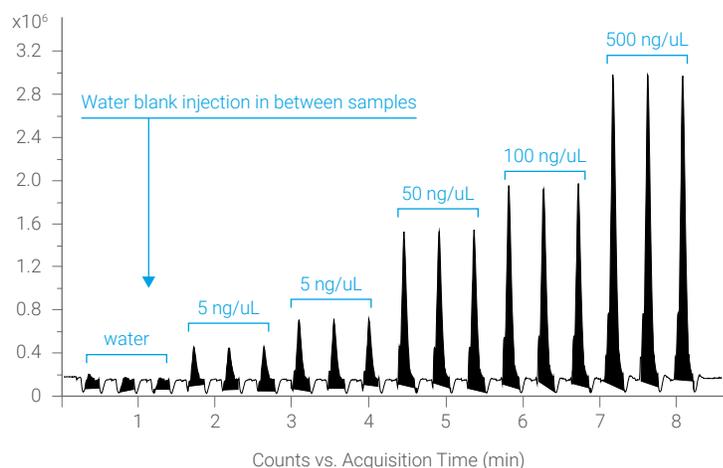


Figure 3. Intact NIST monoclonal antibody at varying concentrations were injected as triplicates using a RapidFire system. Results showed outstanding sensitivity and reproducibility.

RapidFire coupled with a time-of-flight instrument is widely used to screen and characterize proteins/antibodies, study covalent protein-inhibitor binding, assess plasma protein binding, and quantify proteins present in biological matrices.

No matter what analytes you are interested in, a variety of cartridge chemistries is at your disposal to yield the best results.



Type	Packing	Typical applications
A	C4	Small molecules, peptides, oligos
A2	C4	Small molecules, peptides, oligos (lower carryover for some forensic toxicology applications)
B	Cyano	Hydrophilic compounds
C	C18 (4uL)	Reversed phase, 100A 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
O	Blank	Troubleshooting
C 12uL	C18 (12uL)	Reversed phase, 100A pore size

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