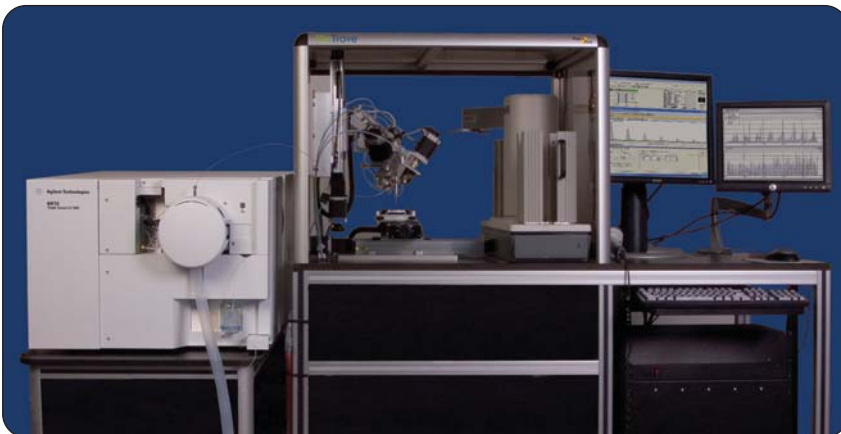


High-throughput preparation and analysis of *in vitro* biological assays in pharmaceutical research

Agilent 6410 triple quadrupole mass spectrometer with BioTrove's RapidFire system

A partner solution* from Agilent Technologies and BioTrove

The Agilent 6410 triple quadrupole mass spectrometer combines with BioTrove's RapidFire system to provide an integrated solution for high-throughput preparation and analysis of *in vitro* biological assays in pharmaceutical drug research. The BioTrove RapidFire high-throughput mass spectrometry hardware system (RF-MS) is a native detection technology for high-throughput screening of Cytochrome P450 (CYP) interactions. RF-MS hardware allows researchers to obtain relevant, mass spectrometry based data in a fraction of the time needed for traditional LC-MS based techniques.



Features

- **High Throughput.** Analyze over 3,500 samples/instrument/shift.
- **Flexible Format.** Compatible with SBS standard 96 or 384-well plates.
- **Integrated Sample Purification.** On-line clean-up permits direct sampling from assay plates containing microsomal protein; no pre-processing or extraction required.
- **Compatibility.** Full integration with the Agilent 6410 triple quadrupole MS. ESI, APCI and multimode ionization available.
- **Native Molecule Detection.** True drug probes screened, eliminating need for fluorogenic substrates.
- **Easy to Use.** BioTrove RapidFire data analysis software eliminates bottlenecks in data processing.

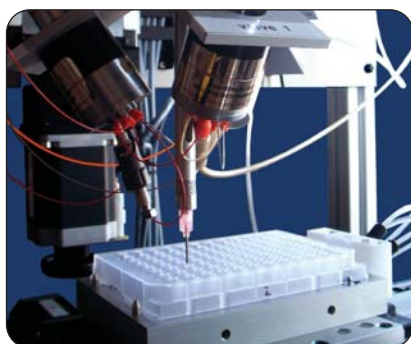
Pre-validated CYP assays

The RF-MS system comes installed with twelve pre-validated analytical methods.

- P450-1A2 (melatonin, tacrine)
- P450-2C8 (amodiaquine, taxol)
- P450-2C9 (tolbutamide, diclofenac)
- P450-2C19 (mephenytoin, omeprazole)
- P450-2D6 (dextromethorphan, bufuralol)
- P450-3A4 (midazolam, testosterone, erythromycin, nifedipine)

Custom assay development is available from BioTrove.





The RF-MS system performs rapid, serial on-line sample purification to provide mass spectrometry based CYP450 data at an overall throughput of < 8 seconds/sample.

Implementation

Plate Format: SBS standard

Capacity: 96/384 well plates

Compatibility: Up to eighteen 96/384 well plates

Barcoding: Full integration with Agilent 6410.

Weight: Compatible with all standard formats

Footprint: 170 kg (375 lbs)

(W x H x D) 152 x 183 x 76 cm

(60 x 72 x 30 in)

Electrical: 115 V, 60 Hz, 15 AMP

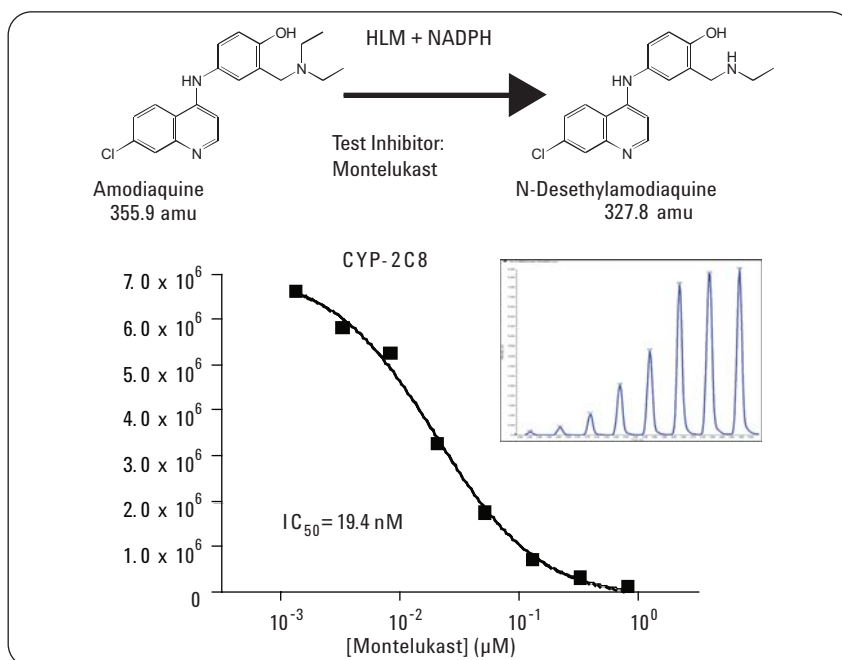
Warranty: 1-year parts, labor and travel (mass spectrometer, microplate handler & barcode scanner covered under manufacturer specific warranties).

Included with the RF-MS System

- Universal microplate handler
- Barcode scanner
- Motion control computer
- BioTrove RapidFire Integrator (v 2.0) Data Analysis Software
- Complementary training course for up to two scientists.

Requirements

- House vacuum
- Two 115 V, 10 AMP circuits or one 115 V, 20 AMP circuit
- Helium (if using a sparge system)



RapidFire mass spectrometry analysis of an eight-point IC_{50} curve in approximately one minute. The IC_{50} value determined by the RF-MS system, 19.4 nM, is in excellent agreement with literature values (19.6 nM). [Walsky, R.L. Gaman, E.A. and Obach, R.S. (2005) *J. Clin. Pharmacol.* 45, 68-78.]

Summary

BioTrove's RapidFire mass spectrometry (RF-MS) system allows the use of drug-probes with liver microsomes in CYP450 screening in a fraction of the time (< 8 seconds per sample) required for traditional LC-MS techniques. Utilizing standard ESI/APCI MS instrumentation, the RF-MS system samples directly from quenched assay plates without the need for solid-phase extraction or any other sample desalting/pre-processing. The increased capacity created by the throughput of the RF-MS system affords customers the ability to perform CYP450 screening on more compounds at an earlier stage of drug development.

*Agilent Technologies and BioTrove Inc. have a formal agreement to co-market BioTrove's RapidFire Instrument and Agilent's mass spectrometers. The two systems together provide an integrated solution for ultra-high-throughput preparation and analysis of *in vitro* biological assays in pharmaceutical drug research. BioTrove's expertise in sample preparation for high-throughput screening and early ADME is a natural complement to Agilent's strength in analytical mass spectrometry. Together, the two products are enabling walk-away analysis of lead compounds against valuable targets that would be otherwise impossible to screen, helping pharmaceutical clients meet the challenge of accelerating drug discovery research.

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