

Clinical Mass Spectrometry

# Simplifying accuracy every day

Use our expertise to  
expand your capabilities





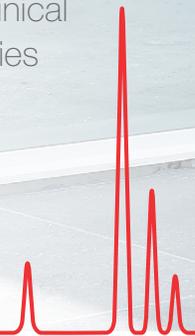
# One company Multiple solutions Decades of expertise

## Leading the way in clinical mass spectrometry

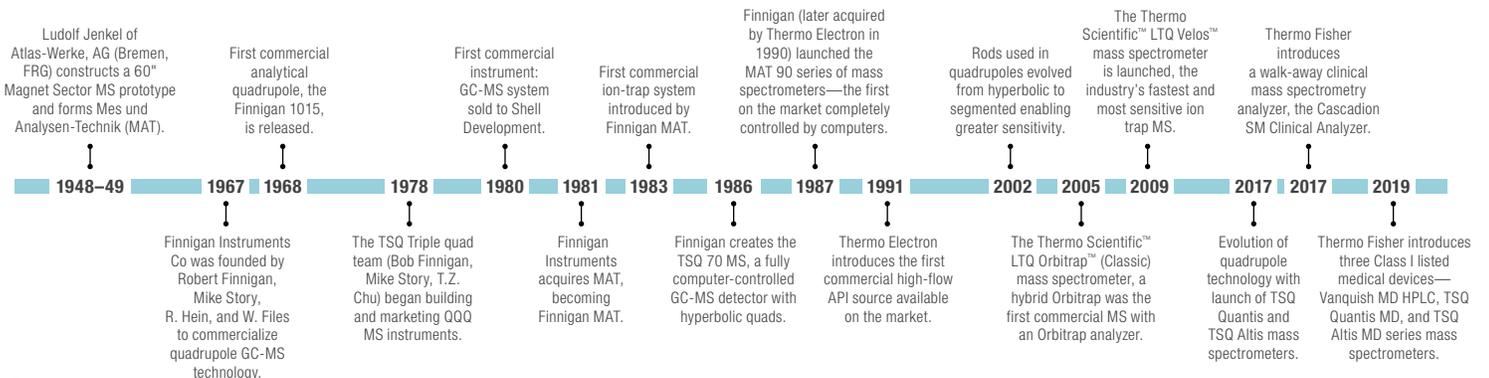
Mass spectrometry is an analytical technique to determine elemental composition of samples, measure masses of particles and molecules, and elucidate chemical properties and structure of molecules. In use for nearly 100 years, it has evolved significantly in fields such as newborn screening, therapeutic drug monitoring (TDM), toxicology, and endocrinology to take its current place in today's clinical diagnostic laboratory.

Thermo Fisher Scientific has played a major role in the development of mass spectrometry. Our research, knowledge and experience working with clinical diagnostic scientists has enabled us to facilitate the evolution of mass spectrometry—its techniques, its processes and its results.

From the development of the first triple quadrupole system to the advent of our newer fully automated platform, the Thermo Scientific™ Cascadion™ SM Clinical Analyzer, Thermo Fisher Scientific has been at the forefront of Clinical Mass Spectrometry—and we continue to pave the way for new efficiencies in clinical mass spectrometry.



### Our heritage—over 70+ years of MS innovation



# One vision

## Clinical accuracy, accessibility and simplicity

### Enabling effective testing

Equipped with our clinical mass spectrometry diagnostic solutions, today's clinical laboratories have more analytical power support clinical decision-making and patient care. We are committed to making the accuracy of mass spectrometry accessible through flexible and fully automated LC-MS/MS platforms that address your everyday needs in simple, easy-to-use formats. There's a lot depending on your laboratory's work. Every sample analyzed carries the weight of expectation from clinicians, who rely on the accuracy of your results to guide their decision-making.

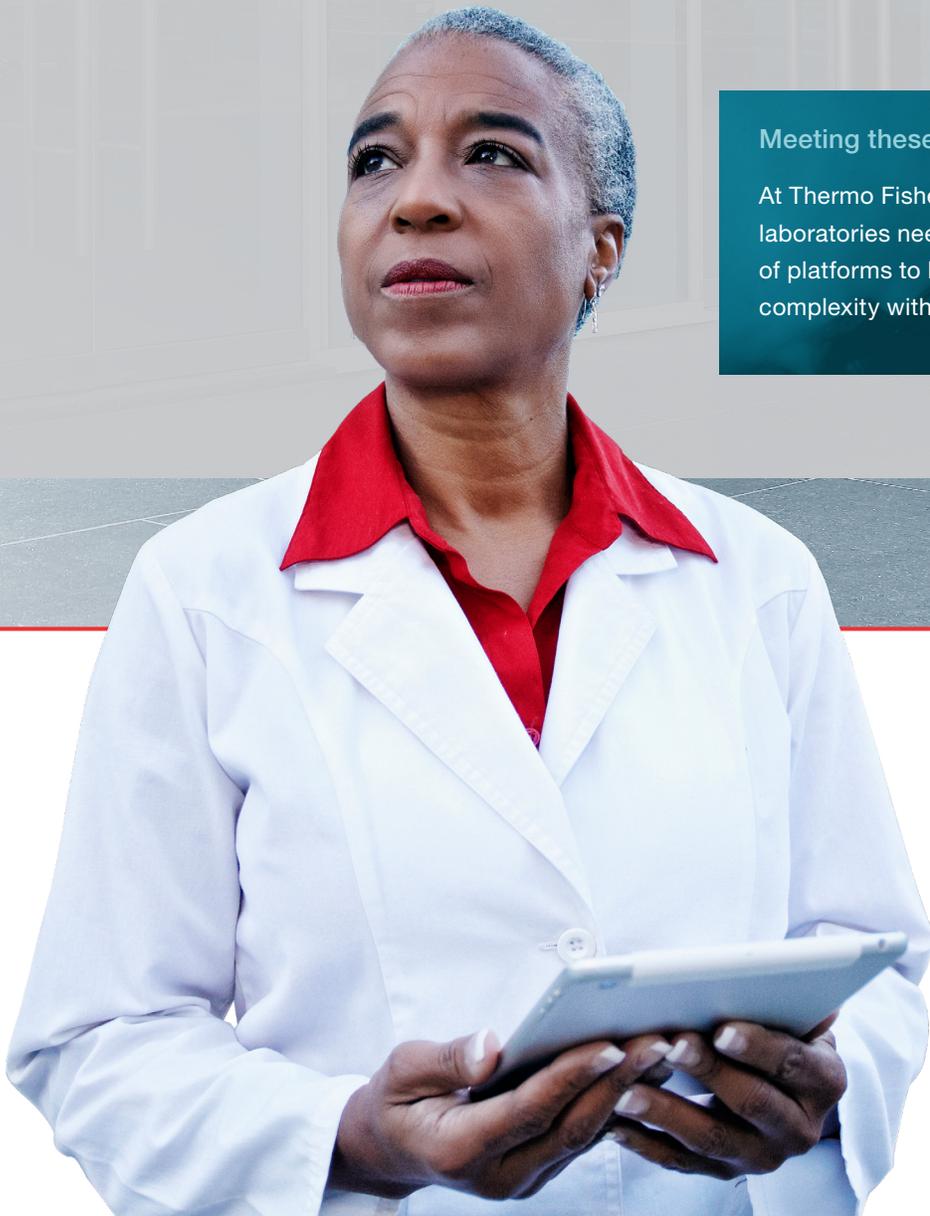
### Meeting the needs of today's clinical laboratory

Whether your lab seeks an extensive assay capability or rapid transmission of data from analyzer to patient record, you have certain core needs that are non-negotiable:

- Quality of results with assurance of regulatory compliance
- Fast analytical turnaround time without compromising sensitivity or specificity
- Continuity of analysis and optimal uptime
- Robustness of system and materials
- Confidence in support
- Connectivity of software and systems
- Leading edge technology to expand laboratory capabilities

### Meeting these needs is not a request—it's a requirement

At Thermo Fisher Scientific, we understand what clinical laboratories need. That's why we're proud to offer a combination of platforms to help you address any molecule type or matrix complexity with absolute confidence.



# Today's investment for tomorrow's testing

Fully-automated Clinical Mass  
Spectrometry

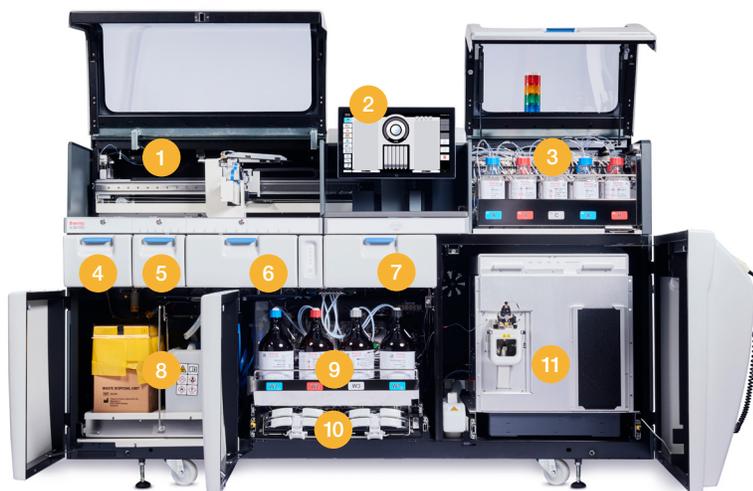
The Thermo Scientific Cascadion SM Clinical Analyzer is a fully automated liquid chromatography–tandem mass spectrometry (LC-MS/MS) analyzer designed for optimal ease of use in the clinical laboratory. As a powerful analytical tool, LC-MS/MS technology is the gold standard in clinical testing—offering high accuracy, precision, sensitivity and specificity.

The Cascadion Analyzer is a complete integrated solution that combines assays, software, accessories, consumables and support/service in a standalone system. It provides everything you need to drive specialized clinical testing forward:

- Gold standard mass spectrometry technology
- Fully automated sample preparation features
- Complete dedicated assay kits for standardized results
- Traceability of results to reagent kits
- Automated sample preparation and LIS connectivity to maximize productivity



## Cascadion SM Clinical Analyzer



- |                                 |                                       |
|---------------------------------|---------------------------------------|
| 1. Sample preparation area      | 7. Extraction vessels loader          |
| 2. Graphical user interface     | 8. Waste cabinet                      |
| 3. Solvent cabinet              | 9. Liquid chromatography (LC) cabinet |
| 4. Mixing tips loader           | 10. Quick-connect cartridges          |
| 5. Sample and calibrator loader | 11. Mass spectrometry (MS) cabinet    |
| 6. Reagent and control loader   |                                       |

# LC-MS/MS system flexibility

Flexible options—based on your sensitivity and productivity needs

Designed for versatility and accuracy, the comprehensive portfolio of Thermo Scientific™ LC-MS medical devices for *in vitro* diagnostic (IVD) tests offers clinical diagnostic laboratories a unique choice to address sensitivity needs. Our portfolio consists of a high-pressure liquid chromatography (HPLC) system and two mass spectrometers (MS) differentiated by sensitivity.

Our LC-MS platform solutions offer flexibility, facilitate cost savings, and enable you to achieve productivity goals, while ensuring confident IVD results:

- Protect investments by addressing *in vitro* diagnostic requirements
- Eliminate the need to purchase additional software by including Thermo Scientific™ TraceFinder™ platform software which is used to run samples, acquire data as well as generate reports
- Overcome limitations of manual data entry with an optional bidirectional LIS connection

## LC-MS/MS Systems



### Vanquish MD HPLC System

The Thermo Scientific™ Vanquish™ MD HPLC system is a powerful, robust LC system, with a smaller footprint, that offers excellent reproducibility to meet analytical needs, as well as space and budget limitations.



### TSQ Altis MD Series Mass Spectrometer

The Thermo Scientific™ TSQ Altis™ MD mass spectrometer is used to address challenging analyte requirements for IVD tests and delivers the ultimate sensitivity for demanding quantitative analyses with remarkable speed.



### TSQ Quantis MD Series Mass Spectrometer

The Thermo Scientific™ TSQ Quantis™ MD mass spectrometer addresses everyday routine analyses of IVD tests, delivering confident quantitation that achieves sensitivity with speed and robustness.

# Adapting to your individual workflow needs

Every laboratory is different and workload patterns vary from day to day. Add to this the variety of testing needs and the range of technologies in use; the last thing you need is complexity. Having choice in the way you want to run your workflow is essential.

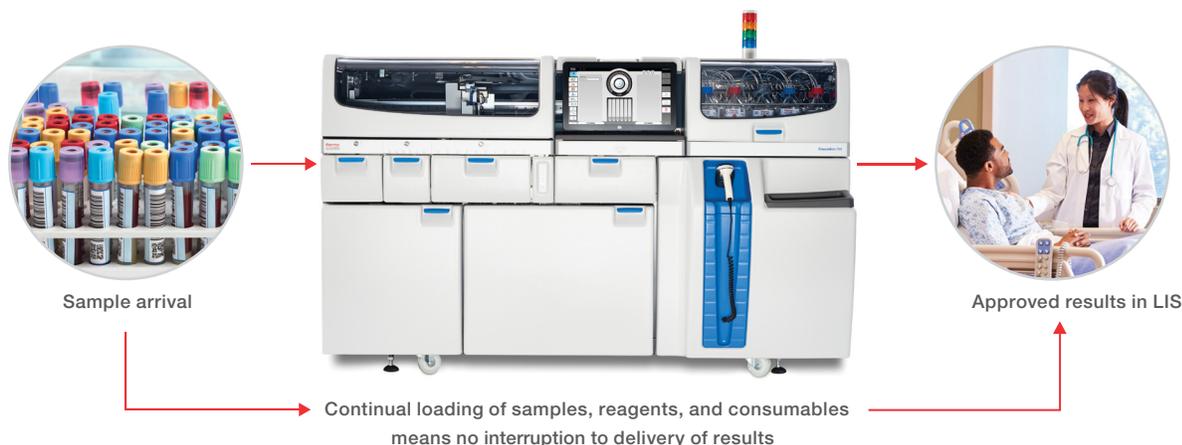
By addressing the challenge of higher workload tests such as Vitamin D through the Cascadion Analyzer, and the more challenging and variable workload through the TSQ Quantis MD and TSQ Altis MD Series mass spectrometers, we offer choices that make sense and that help you manage your individual laboratory needs.

## Improving throughput

### Standardized workflow for high-volume tests

For high-volume routine tests, including those that require higher levels of accuracy (e.g., immunosuppressive drugs), the Cascadion Analyzer provides an automated walkaway solution. Simply load your samples and let the system conduct its standardized analysis. It's automated, efficient, and provides the everyday productivity you need.

Flexible operation and rapid turnaround time bring LC-MS/MS into routine workflow



### Flexible workflow for customized analysis

When flexibility is required, the Vanquish MD HPLC System, along with TSQ Quantis MD and TSQ Altis Series mass spectrometers, enable sensitive quantitative data for everyday analysis of clinically relevant analytes—enabling your laboratory to validate performance of any assay using your own customized parameters.

# Simplifying through software and connectivity



Both Cascadion Analyzer and B-Link software enable the exchange of compliant LIS system files used for test requests and reports.

At the heart of our mission to simplify the use and accessibility of our mass spectrometry systems is our software.

## Cascadion Analyzer software operations

- Barcoded tubes presented to Cascadion are automatically read and the system queries the LIS to identify tests to be run. The operator simply hits “start.”
- Assay parameters associated with each CE IVD test are pre-defined and already coded into the system software.
- Once results are available, the system holds or releases according to user-defined criteria. Data can transfer through a middleware platform or directly to the LIS.
- It’s simple to implement, and easy to operate—no special skills required.



The Cascadion SM Clinical Analyzer’s intuitive software accessed via touch screen.

## Quantis MD and Altis MD operation and connectivity TraceFinder platform software

Integral TraceFinder platform software, provides a seamless approach to robust, reliable, high throughput quantitation. The platform automates and accelerates the process to create methods, load samples, generate data, manually review and edit results as well as finalize the data review and reporting process.

## B-Link software

Optional B-Link software is a Universal LIS/LIMS Connector validated for TraceFinder platform software. B-Link LIS/LIMS Connector software is installed on the TSQ Altis MD Series data system or TSQ Quantis MD Series data system. There’s no need for any additional hardware.



## Our proven platforms Enabling your work

The clinical scope enabled by our unique range of analyzers and LC-MS/MS medical devices means your laboratory can confidently expand your capabilities together with Thermo Fisher Scientific.

Analytical instrument performance data can be demonstrated for a range of compounds in the following application/industry fields:

- Endocrinology
- Transplantation
- Clinical toxicology
- Therapeutic drug monitoring
- Special vitamins
- Steroids
- Newborn screening
- Clinical biomarkers
- Bone metabolism
- Clinical metabolomics

## Quality plus confidence Delivering your results

Our family of liquid chromatography mass spectrometry instruments for *in vitro* diagnostic use provides clinical labs and clinicians with the quality results needed to aid patient assessment and management.

Through comprehensive data management, connectivity and support, you can be confident in our expertise and experience to support your clinical laboratory.



Thermo Fisher Scientific products are distributed globally so uses, applications, and availability of product in each country depend on local regulatory marketing authorization status.

Find out more at [thermofisher.com/simplifycms](https://thermofisher.com/simplifycms)

**IVD** In Vitro Diagnostic Medical Device

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