

# Proven Solutions for Clinical Research Applications

Agilent clinical research solutions





# High-Throughput Quantitation for Clinical Research

Our portfolio of clinical research instruments maximizes laboratory efficiency and instrument uptime for high-throughput quantitative analysis. The new Agilent 1260 Infinity II Prime LC stacks on top of the new miniature Agilent Ultivo triple quadrupole LC/MS to open up bench space and offer the highest ease-of-use and functionality for your everyday work. Explore the products and analytical methods shown here to discover how Agilent can help you achieve your laboratory's goals for routine and robust quantitation.



Agilent Ultivo Triple Quadrupole  
LC/MS and 1260 Infinity II Prime LC



## Proven analytical methods

**The Detection and Analytical Confirmation  
of Synthetic Fentanyl Analogues in Human  
Urine & Serum** Using an Ultivo LC/TQ  
[5991-8845EN](#)

**Analytical Determination of Testosterone  
in Human Serum** Using an Ultivo LC/TQ  
[5991-8847EN](#)

**Analysis of Anti-epileptic Drugs in  
Human Serum** Using an Ultivo LC/TQ  
[5991-8848EN](#)

## Proven analytical methods, continued

### **Urinary Vanillylmandelic, Homovanillic, and 5-Hydroxyindoleacetic Acids**

by LC/MS/MS

[5991-6053EN](#)

### **Urinary Catecholamines, Metanephrines, and 3-Methoxytyramine**

in a Single LC/MS/MS Run

[5991-6194EN](#)

### **Maximizing Triple Quadrupole Mass Spectrometry Productivity**

with the Agilent StreamSelect LC/MS

[5991-2900EN](#)

### **Rapid Analysis of Cyclosporine A, Everolimus, Sirolimus, and Tacrolimus**

**Drugs in Whole Blood** Using an Agilent

Triple Quadrupole LC/MS/MS with Automated Online Sample Cleanup

[5991-3344EN](#)

### **The Best of Both Worlds: LC/Q-TOF as a Method to Detect a Targeted List of 35 Drugs and Metabolites**

in Urine with Retrospective Data Mining Capabilities

[5991-7955EN](#)

### **Rapid Analysis of Mycophenolic Acid in Human Plasma**

Using an Agilent Triple Quadrupole LC/MS/MS with Automated Online Sample Cleanup

[5991-3343EN](#)



**Sensitive Detection of Three Forms of Thyroid Hormone in Human Serum**

Using the Agilent 6490 Triple Quadrupole LC/MS

[5991-2017EN](#)

**Vitamin D Metabolite Analysis**

**in Biological Samples** Using Captiva EMR—Lipid Cleanup

[5991-7956EN](#)

**Efficiency of Biological Fluid**

**Matrix Removal** Using Captiva

EMR—Lipid Cleanup

[5991-8006EN](#)

**Quantitative LC/MS/MS Analysis of Drugs in Human Serum**

with Captiva

EMR—Lipid Cleanup

[5991-8007EN](#)

**Quantification of Testosterone in**

**Serum** by Liquid Chromatography/Tandem Mass Spectrometry

[5991-8209EN](#)

**Simultaneous LC/MS/MS Quantitation of 20 Antiepileptic Drugs in Human Serum**

[5991-8214EN](#)

**Determination of Red Blood Cell**

**Fatty Acid Profiles** by Chemical

Ionization Gas Chromatography/Tandem

Mass Spectrometry

[5991-8941EN](#)

**A Fast Analytical LC/MS/MS Method in Clinical Research for the Simultaneous**

**Analysis of Barbiturates and 11-nor-9-Carboxy- $\Delta^9$ -Tetrahydrocannabinol**

**(THC-A) in Urine** Using ESI Negative Ionization Mode and Alternating

Column Regeneration

[5991-8981EN](#)

**Chiral Separation of Methamphetamine**

**and Amphetamine** on an Agilent InfinityLab

Poroshell 120 Chiral-V column with

Detection by LC/MS

[5991-8968EN](#)

**Quantitative Determination of**

**Cisplatin in Plasma and Urine** by

Triple Quadrupole LC/MS/MS

[5991-9189EN](#)



Agilent InfinityLab Poroshell 120 columns



Agilent Captiva EMR—Lipid cleanup



Agilent 6470A triple quadrupole LC/MS

# High-Throughput Peptide Quantitation

Peptide and metabolite quantitation are areas of increasing focus for many clinical researchers who are interested in quantifying potential biomarkers, but running samples at nanoflow or microflow rates can be challenging. The Agilent Jet Stream proteomics solution facilitates accurate and sensitive peptide quantitation at analytical flow rates, to enable a faster and more robust analytical workflow. When you're ready to take your research to the next level, let us help you automate sample preparation procedures and speed up method development so you can increase accuracy and reproducibility, and with agility, realize your opportunities.



*"The flexibility of being able to run the triple quadrupole at a higher flow rate allows us to get robustness and reproducibility. By using the 1290 Infinity II LC system's higher flow rate, we've been able to determine that the precision and the reproducibility of retention times is so certain that we can almost integrate the peak areas without visually inspecting the peaks. Clearly, as we move forward to a clinical test, that's going to become increasingly important for the vast majority of the data to be extracted automatically. I think that the tools, the reproducibility, and the software around the Agilent instrumentation allows us to do that."*

– **Stephen R. Pennington**, Professor of Proteomics and Senior Fellow at the Conway Institute of Biomolecular and Biomedical Research, University College Dublin. Founder, CEO, and CSO of Atturos Ltd.

## Proven analytical methods

**Application Kits for Standardizing MRM-based Quantitative Plasma Proteomic Workflows** on the Agilent 6490 LC/MS  
**5991-3601EN**

**Workflow Automation for LC/MS: In-Solution Protein Digestion, Peptide Cleanup, and Strong Cation-Exchange Fractionation of Peptides Enabled** by AssayMAP Technology  
**5991-3602EN**



Agilent AssayMAP  
Bravo platform

**Accurate Serum Apolipoprotein A-I and B Measurement** Using the Agilent 1290 Infinity LC and 6490 Triple Quadrupole LC/MS  
**5991-2901EN**



Agilent 1290 Infinity II LC

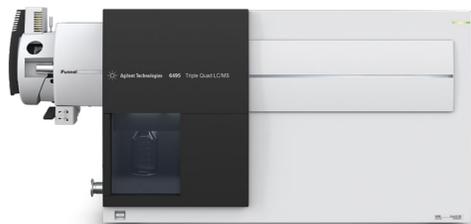
**Comprehensive Profiling of Free and Conjugated Estrogens** by Capillary Electrophoresis/Time-of-Flight Mass Spectrometry  
**5990-9669EN**

**Extended Mass Range Triple Quadrupole** for Routine Analysis of High Mass-to-Charge Peptide Ions  
**5991-7298EN**

**Simultaneous Quantitation and Confirmation of Peptides** with Triggered MRM Acquisition  
**5990-8912EN**

**Simultaneous Quantitation of Peptides and Phosphopeptides by capLC-ICP-MS** Using the Agilent 8800 Triple Quadrupole ICP-MS  
**5991-1461EN**

**Fast and Accurate Absolute-Quantification of Proteins and Antibodies** Using Isotope Dilution/Triple Quadrupole ICP-MS  
**5991-6118EN**



Agilent 6495B Triple Quadrupole LC/MS



Agilent 7100 Capillary  
Electrophoresis System



Agilent 6230B TOF LC/MS

# Biomarker Discovery

Efforts to discover biomarkers—usually present at low levels and within complex matrices—involve real challenges in terms of both sample preparation and detection. Agilent empowers an integrated approach with leading analytical products across the four major omics—genomics, transcriptomics, proteomics, and metabolomics—and we are collaborating with scientists around the world to validate systems-based approaches to understand the mechanisms and biology of disease.



## Proven analytical methods

**A Discovery Proteomics Workflow for the Elucidation of Prostate Cancer Biomarkers**

[5991-8448EN](#)

**Quantitation of Cystine and Identification of Related Metabolites**

**in White Blood Cells** Using a High-Resolution Accurate Mass LC/MS Approach

[5990-9234EN](#)

**High-Throughput, High-Efficiency Metabolome Profiling** Using the Agilent 6550 iFunnel Q-TOF LC/MS

[5990-9762EN](#)

**Agilent AssayMAP Bravo Technology Enables Reproducible Automated Phosphopeptide Enrichment from**

**Complex Mixtures** Using High-Capacity Fe(III)-NTA Cartridges

[5991-6073EN](#)

**Integrated Transcriptomics and Metabolomics Study of Retinoblastoma**

Using Agilent Microarrays and LC/MS/GC/MS Platforms

[5991-6215EN](#)

**Reducing Cycle Time for Affinity Removal of High-Abundant Proteins in Human Plasma**

[5991-4721EN](#)

**Proteomics in Multi-Omics Workflows**

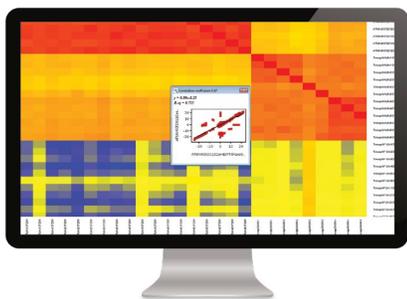
Using Yeast as a Model System

[5991-2484EN](#)

**An LC/MS Metabolomics Discovery Workflow for Malaria-Infected Red Blood Cells**

Using Mass Profiler Professional Software and LC Triple Quadrupole MRM Confirmation

[5990-6790EN](#)



Agilent Mass Profiler Professional software



Agilent 6550 Q-TOF LC/MS with iFunnel technology



Agilent 7200B Q-TOF GC/MS

# Elemental Analysis

Clinical researchers are increasingly interested in the detection and quantitative measurement of elements in biological samples. In some cases, this may be associated with the effects of metals that are involved in biological compounds and processes (such as enzymes, transport proteins, toxic or heavy metals, and metal-based drugs). However, elemental analysis can also be applied to the measurement of nonmetals such as sulfur, phosphorus, and the halogens, whose role is more intrinsic to normal biological processes. Triple quadrupole ICP-MS offers significantly lower detection limits for these elements, extending the application of ICP-MS to new clinical research areas.

## Proven analytical methods

**High-Performance Graphite Furnace Tube for Determination of Lead in Blood**  
[si-1586](#)

**Determination of Essential and Toxic Metals in Blood by ICP-MS** Using Calibration in a Synthetic Matrix  
[5991-2991EN](#)

**Sensitive, High-Throughput Analysis of Lead In Whole Blood** Using the Agilent 7500cx ICP-MS with ISIS-DS  
[5990-5416EN](#)

**Determination of Ceruloplasmin in Human Serum** by Immunoaffinity Chromatography and Size-Exclusion Chromatography-ICP-MS  
[5989-5304EN](#)

**The Use of Collision/Reaction Cell ICP-MS with Isotope Dilution to Provide Assigned Values for Zn, Cu and Se in Serum Samples** for a Proficiency Testing Scheme  
[5989-7429EN](#)

**Analysis of Selenoproteins in Rat Serum** by Triple Quadrupole ICP-MS  
[5991-2750EN](#)



Agilent 7800 ICP-MS



Agilent 7900 ICP-MS



Agilent 8900 triple quadrupole ICP-MS



# Agilent CrossLab

From Insight to Outcome

Agilent CrossLab delivers vital, actionable laboratory insights that drive superior scientific, operational, and economic outcomes.

Our all-inclusive service plans care for your entire clinical research laboratory—with rapid onsite support, cross-vendor instrument service, remote instrument diagnostics, and more.

Our expert engineers deliver immediate solutions, whether it is instrument repairs, maintenance, compliance, or laboratory relocation—improving efficiency from one instrument to the entire lab.

Our consultants strategically partner with your team to maximize application workflow and optimize output.

Our broad array of education solutions taught by subject matter experts helps improve expertise and lab productivity.

As the global innovator of laboratory technologies, Agilent CrossLab has created the ultimate, collaborative suite of world-class services, supplies, and software depended on by more than 260,000 labs around the globe—transforming the world into a better place.



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