

BioTAS™ Plasma Proteomics Workflow Overview

Systemic Plasma Signaling. Measured Directly.

BioTAS™ (Biofluid Total Analytic System) is a globally patented, affinity-independent plasma proteomics and phosphoproteomics infrastructure engineered for ultra-deep quantitative analysis from minimal blood volumes.

Designed to bridge discovery and clinical implementation, BioTAS™ enables parallel profiling of the plasma proteome and phosphoproteome — including exosome-associated signaling networks — with ultra-deep analytical coverage from minimal plasma input.

Platform Strengths

- Affinity-independent plasma profiling without depletion bias
- Parallel quantification of proteome and phosphoproteome
- Low-volume plasma compatibility
- Exosome-associated proteome capture without isolation artifacts
- Integrated computational modeling for kinase and pathway inference

Key Performance Metrics

Proteins Quantified: >13,000

Phosphopeptides Quantified: >25,000

Dynamic Range: >11 orders of magnitude

Coefficient of Variation (CV): $\leq 15\%$

False Discovery Rate (FDR): $q \leq 0.05$

Plasma Input Volume: 20 μL

Workflow Overview

1. Proprietary plasma stabilization chemistry preserving native protein and phosphorylation states.
2. Automated open tubular chromatography compatible with stabilized plasma extracts.
3. Proteolysis and multiplex isobaric labeling supporting longitudinal study designs.
4. Lab-on-chip phosphopeptide enrichment for mono- and poly-phosphorylation capture.
5. Ultra-high-resolution LC–MS analysis using Orbitrap-based mass spectrometry with ion mobility separation.

Translational Applications

BioTAS™ supports:

- Systems-level pharmacodynamic and mechanism-of-action resolution beyond predefined affinity panels
- Longitudinal treatment response profiling across decentralized studies
- Companion diagnostic strategy development for therapeutic programs
- Protein signature discovery and quantitative validation for diagnostic assay development

The platform is designed for scalable integration into development-stage programs, multi-site clinical studies, and regulated laboratory environments.