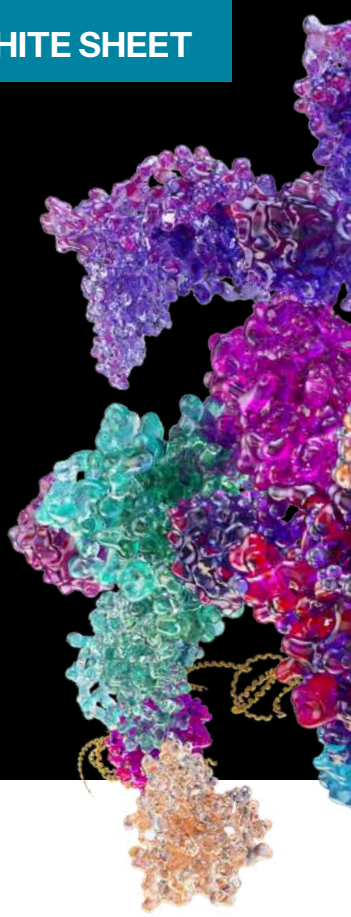
WHITE SHEET

SAPIENT

Targeted Protein Assays

Measuring specific proteins **directly, with absolute quantitation and without antibodies,** from early discovery through regulated clinical studies.



Measuring the Proteins That Decide a Program

Drug programs increasingly succeed or fail based on a single measurement. Teams must be able to accurately measure proteins of interest: the target itself, a marker of mechanism, or a pharmacodynamic readout that shows the drug is working. For novel modalities such as antisense oligonucleotides, siRNA, gene therapies, antibody-drug conjugates (ADCs), T-cell engagers, and radioligand therapies, that measurement is often the only direct evidence of target engagement a team has.

The obstacle is that the measurement frequently does not exist, or cannot be trusted. Antibody-based assays are the default, yet they leave scientists stuck in familiar ways:

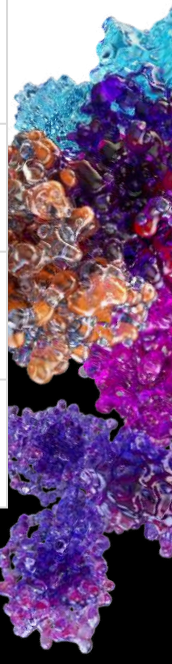
- **No validated antibody assay exists** for the target, and building one takes months with no guarantee of success.
- Antibodies **cannot separate the isoform, variant, or transgene product** that matters from the background of closely related proteins.
- A method validated in one species **does not transfer to the next,** so assays are rebuilt at preclinical and clinical stages.
- **Cross-reactivity and non-specific binding** erode confidence in the numbers, and few antibody assays report a true absolute concentration.

Sapient's targeted protein assays remove these obstacles. We measure specific proteins directly by mass spectrometry (MS), with no antibody or binding reagent, delivering absolute quantitation in virtually any sample matrix and species.

Where Antibody-Based Targeted Assays Fall Short

Most targeted protein measurement still depends on a validated antibody or binding reagent. When one does not exist, or cannot resolve the protein form that matters, programs advance on incomplete data.

Common Approach	Key Limitation
ELISA and ligand binding assays	Require a validated antibody pair that often does not exist for novel or newly drugged targets. Development is slow and can fail outright.
Multiplex immunoassays (MSD, Simoa)	Restricted to catalog analytes. Cross-reactivity and non-specific binding compromise specificity.
Immunohistochemistry	Not quantitative. Cannot resolve isoforms or report absolute concentrations.
Antibody assays in general	Average isoforms, variants, and PTMs together. Rarely transfer cleanly across species.



The Sapient Targeted Assay Approach

Sapient measures proteotypic peptides that are unique to the protein or proteoform of interest by advanced mass spectrometry, using stable isotope-labeled internal standards for direct, absolute quantitation. **Because the readout is the protein sequence itself, no antibody is required, and the assay reports exactly what is measured.**

Additionally, owing to innovations in sample processing and mass spectrometry instrumentation, sensitivity is no longer the tradeoff it once was. **Label-free quantitation in plasma reaches ~20 pg/mL,** within the range immunoassays have long owned, and **optional enrichment extends this to single-digit pg/mL,** all without an antibody in the core workflow.

Measure target proteins without the need for antibodies.

When no validated reagent exists, Sapient builds a sequence-specific assay directly against the target. For many programs this is the only way to prove target expression or engagement.

MS-Based Targeted Assays: **Four Key Capabilities**

- Measure target proteins **without the need for antibodies**
- Resolve the **exact proteoform**
- Carry **one method across species**
- Report **absolute, standardized** concentrations

Resolve the exact proteoform.

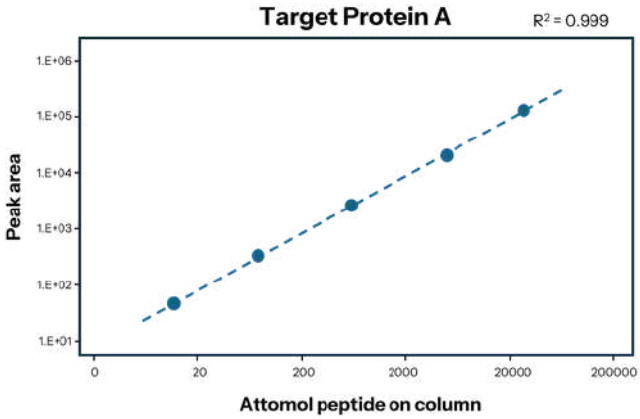
Working at the peptide level, Sapient quantifies a specific isoform, sequence variant, cleavage product, PTM, or transgene product, and distinguishes it from the endogenous protein it resembles.

Carry one method across species.

The same assay transfers from mouse and non-human primate into human models, so a single validated method follows the program from preclinical toxicology through the clinic.

Report absolute, standardized concentrations.

Labeled-peptide quantitation yields true concentrations that stay reproducible across sites, timepoints, and study phases.



Built for Every Phase and Sample Type

Sapient's Targeted Protein Assay Menu already covers more than 12,000 proteins, searchable by protein name or gene symbol, and each can be qualified to a study's specific sample type and context of use.

For targets outside the menu, including non-canonical and difficult-to-measure proteins, **custom assays are developed with rapid turnaround** and delivered as multiplexed panels when needed. Workflows also **quantify viral proteins, bacterial proteins, and drug levels.** High-throughput systems process hundreds of samples per day, supporting large population studies and clinical trials, and assays can be **taken to GCLP validation for regulated use.**

*Sapient's targeted assays are **matrix agnostic.** The same sequence-specific measurement can be made across solid tissue and every common biofluid, in both human and preclinical samples, so a program keeps one method as it moves from cells to tissue to circulating markers.*

Sample Category	Sample Types
Solid tissue	Fresh-frozen / FFPE tissues and tumors, PDx samples
Biofluids	Plasma and serum, CSF, urine, saliva, and eye fluids
Cells and media	Cell pellets, cell lysates, organoids, and spent culture media

Targeted Assays: **De-Risking Every Phase of Development**

Historically, teams either waited months on antibody development or accepted a proxy measurement to quantify their proteins of interest.

Sapient reframes targeted protein measurement from what an antibody happens to detect to a **direct, absolute readout of the exact protein that matters.**

The result is accurate, quantitative protein data at every stage, from target identification through PK, PD, and target engagement studies to clinical biomarker monitoring.

Search our Targeted Protein Assay Menu at sapient.bio/menu or request a targeted protein assay or panel via discover@sapient.bio.

Key Questions Answered by Targeted Protein Assays

R&D Need	Sapient Solution
How can we validate our target if no antibody assay exists?	A sequence-specific MS assay built directly against the target, no antibody required.
Which isoform or variant is actually present, and how much?	Peptide-level resolution that quantifies the exact proteoform.
Can we run one method from preclinical studies through the clinic?	One method that transfers across species and sample matrices.
Are our protein concentrations accurate enough for regulated decisions?	Labeled-peptide absolute quantitation, GCLP-ready.
Can we confirm target engagement or knockdown for a novel modality?	Direct pharmacodynamic and target engagement measurement where no alternative exists.

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Discover more today.

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