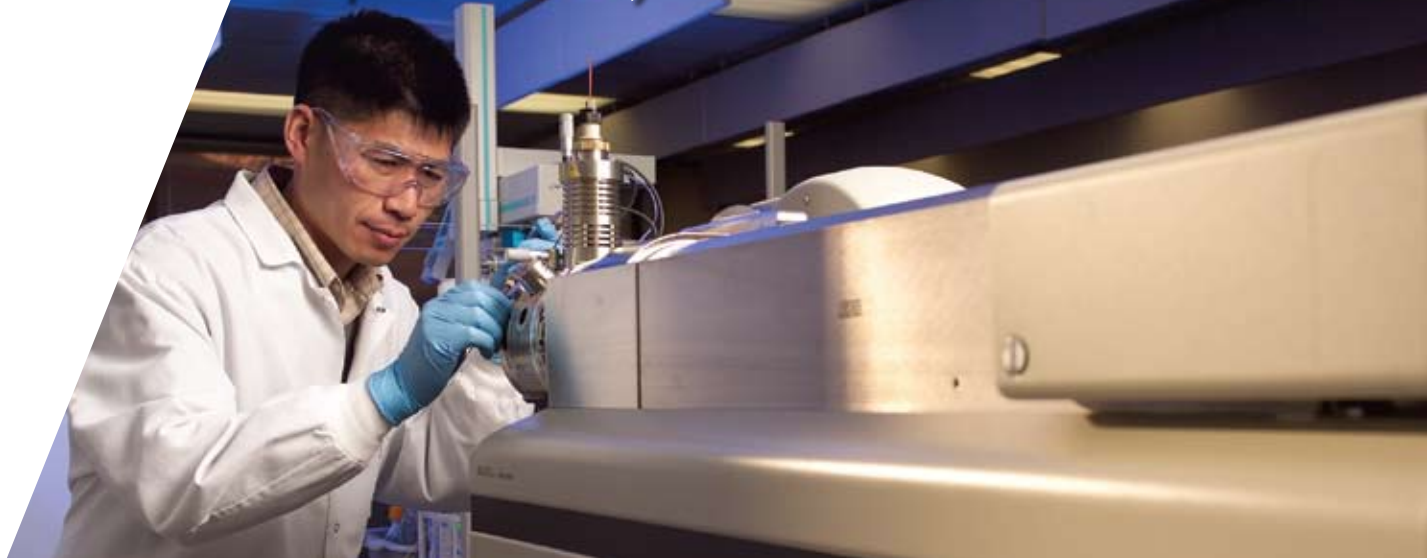


## Rapid Discovery Services



### Exactly What You Need in Discovery Services

- ▶ Effective, efficient, and quality project management
  - ▶ Results on time and on budget
  - ▶ Flexibility in experimental design to accommodate your needs
  - ▶ A CRO that exceeds your expectations
- *PK Discovery*
  - *Protein Binding Analysis*
  - *RBC Partitioning Analysis*
  - *In-Vitro & In-Vivo Metabolite Identification*
  - *Plasma Stability*
  - *Tissue Sample Analysis*
  - *Peptide Analysis*
  - *Protein Analysis*
  - *Target Biomarker Analysis*

## With You Foremost in Mind

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First, we listen to fully understand your study requirements, budget constraints, and time restrictions. Next, with flexibility built in, we develop an appropriate, rapid plan to get you to your goal. Then, we execute the plan with effective project management. The result is quality data, on time, in budget, every time.

## From Routine to Complicated Projects

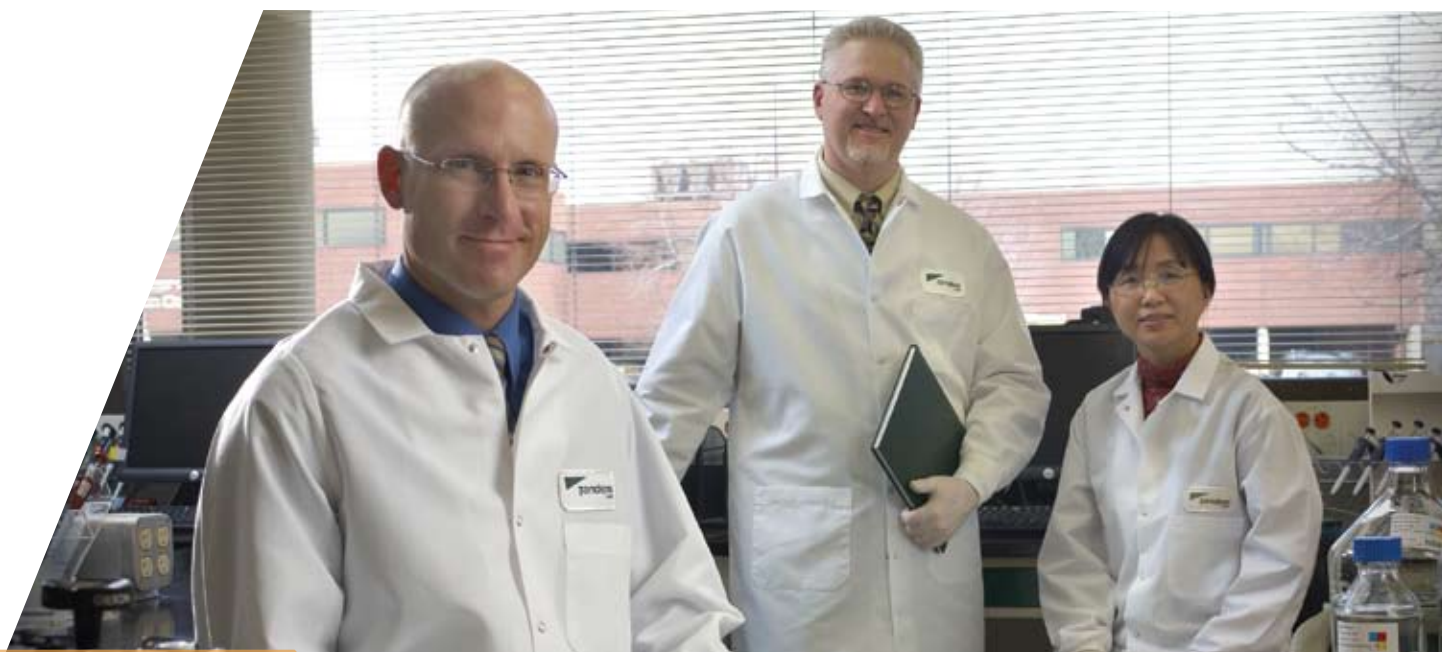
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Whether your compound is stable or unstable, small or large molecule, protein, peptide or oligonucleotide, Tandem Labs has the experience to handle them all. You'll see our capabilities and depth of scientific expertise especially shine when dealing with complicated projects.

## Experience Matters

*Feel confident knowing that Tandem Labs has extensive experience in a broad range of Discovery services. We've successfully analyzed hundreds of thousands of samples in the areas of:*

- *PK Discovery,*
- *Tissue Analysis,*
- *Peptide Analysis,*
- *Metabolite ID, and*
- *Protein Analysis.*



## PK Discovery

### Supporting early compound screening through candidate optimization and nomination

- Thousands of pharmacokinetic (PK) discovery studies performed.
- Extensive experience with small and large molecules, proteins, peptides, and oligonucleotides.
- Initial PK screening, candidate selection and optimization, through to candidate evaluation and non-safety studies supporting IND.
- Rigorous scientific performance standards utilized, even for non-GLP discovery studies.
- Analyses across all species with sample types including tissues, plasma, serum, urine, and other biological fluids
- Tailored experimental and customized approaches available.

## Protein Binding Analysis

### Early discovery work followed by definitive protein binding studies of your compound in plasma, serum, whole blood, or tissue

- Determine protein binding of test compounds in pooled biological matrix (e.g., plasma) of various species.
- Includes volume-shift measurement, nonspecific binding and recovery, range defining, dialysis equilibration time, protein binding validation, and examination of bound proteins.
- Standard study design can be amended to client needs.

Day	Conc. ( $\mu\text{M}$ )		% Free	% Bound	Mean % Bound (Intra-Day)	STDEV	% CV
	PBS	Plasma					
1	2.64	4.23	62.3	37.7	34.7	2.6	7.5
	3.01	4.68	64.4	35.6			
	3.15	4.91	64.1	35.9			
	2.74	4.11	66.8	33.2			
	3.09	4.48	69.0	31.0			
2	1.92	3.80	60.4	39.6	34.7	5.0	14.3
	2.44	4.10	59.6	40.4			
	2.52	3.68	68.5	31.5			
	2.93	4.03	70.3	29.7			
	3.17	4.66	67.9	32.1			
3	2.84	4.56	62.3	37.7	38.7	1.1	2.9
	2.96	4.88	60.7	39.3			
	2.46	4.13	59.6	40.4			
	2.76	4.42	62.3	37.7			
	2.89	4.71	61.4	38.6			
Overall Mean % Bound (Inter-Days)					36.0	3.6	10.1

### RED Device Expertise

*The Rapid Equilibrium Dialysis (RED) device has now become the industry gold-standard for determining discovery and definitive protein binding. Scientists who developed the RED device are now part of Tandem Labs' Discovery team. The RED technology is representative of Tandem's commitment to use the most advanced technologies available.*



## Peptide Analysis

### Quantification of peptides (drugs, biomarkers, or protein surrogates) in biological matrices

- Experience with over 200 peptides in different biological matrices.
- LC/MS/MS quantification with single-digit ng/mL LLOQ.
- Qualitative characterization also available.
- Support of PK/PD, toxicity, and efficacy studies.

## Plasma Stability

### Ascertain the stability of drug candidates

- Determines if a drug candidate is affected by binding or breakdown by plasma proteins.
- Assists in the selection of drug candidates to move from discovery to development phase.

## Protein Analysis

### Quantification of proteins in biological matrices

- Quantification of proteins (drug candidates or disease biomarkers) by LC/MS/MS.
- LC/MS/MS offers a wider dynamic range, plus higher precision and accuracy than ELISA.
- Protein biomarker quantification supports PK/PD, toxicity, and efficacy studies.
- Experience with glycoproteins and proteins in different matrices with molecular weights from 4 - 2,000 kD.

## Targeted Small Molecule Biomarker Analysis

### Quantification of specific biomolecules to determine endogenous levels in a biological matrix in response to a drug

- Measure specific biomolecules (e.g., amino acids, organic acids, sugars, nucleotides, etc.) as surrogate markers for quantitative analysis.
- Experience quantifying over 200 specific target biomarkers that are involved in various metabolic pathways.
- Support PK/PD, toxicity, and efficacy studies.

## Peptide Expertise

*Peptides are inherently sticky and can exhibit nonspecific binding to glass and plastic, as well as to other biomolecules. From years of experience working with hundreds of peptides, Tandem scientists are particularly adept at overcoming these challenges.*

## Advantages of Quantifying Peptides, Proteins, and Targeted Small Molecule Biomarkers by LC/MS/MS

*Although all of these biomolecules can be analyzed by other methods, LC/MS/MS is especially useful when ELISA is not an option, such as when:*

- *An antibody is not available.*
- *Obtaining an antibody is too expensive and/or time consuming.*
- *ELISA exhibits cross-reactivity.*



## Tandem Labs Services

	Target ID & Validation	Lead ID & Optimization	Candidate ID	Nonclinical	Phase I	Phase II	Phase III	Phase IV
		<b>Non-GLP Discovery</b>	PK/PD Studies, Small Molecules, Peptides, Proteins, and Oligonucleotides					
				<b>GLP Bioanalysis</b>	Small Molecule			
				<b>GLP Bioanalysis</b>	Large Molecule			
				<b>Drug Metabolism</b>	Metabolic Stability, Protein Binding, RBC Partitioning, Profiling and Identification			
	<b>Non-GLP Biomarkers</b>	Targeted Assays						
				<b>GLP Biomarkers</b>	Targeted Assays			

Extended services provided by our well-established proven affiliates are available

**Tandem Labs** is a contract research organization (CRO) providing services to support pharmaceutical and biotechnology companies with Discovery, Preclinical, and Clinical Development programs. We conduct these services with scientific expertise, responsive communications, regulatory compliance, and superior support. Tandem Labs has five facilities in the US to help you bring safe and effective medicines to market faster.

### Serving You from Discovery to NDA Submission

Once you develop a relationship with us, you won't want to leave. We will be your partner from Discovery, into GLP studies for pre-IND and IND applications, to NDA submission.

Please contact: [TLSales@labcorp.com](mailto:TLSales@labcorp.com)  
phone: 801/293.2400