

Plasma Protein Binding Assay

In drug discovery, accurately predicting how a drug will behave in the human body is based on several parameters. Two key datasets are accurate plasma protein binding (PPB) and microsomal protein binding (MPB). This information provides a clearer picture of new drug pharmacokinetics and can be used to:

- Understand drug bioavailability and drug behavior in vivo
- Build physiologically-based pharmacokinetic (PBPK) models and assess drug toxicity
- Provide more accurate predictions of drug efficacy, safety, and drug-drug interactions (DDI)

Your Partner in Protein Binding Studies

Our highly experienced *in vitro* assay services team offers a standardized protocol for assessing both PPB and MPB. This ensures high-quality data with the speed and accuracy needed for early drug discovery. We provide study designs suitable for investigational new drug (IND) submissions and collaborate with you to tailor the study to your specific research needs.

Benefits of Our Services:

Accurate and reliable data for informed decision-making

Fast turnaround times to keep your drug development on track

IND-compatible studies to meet regulatory requirements

Collaborative approach to ensure the study addresses your research questions

Additional LifeNet Health LifeSciences Services

- In vitro assay services
- DMPK/ADMET assays
- OECD safety studies
- Cytotoxicity assays



Pre-Study Evaluation Study Design

ASSAY PARAMETER	PROTOCOL
Equilibrium dialysis	RED system from ThermoFisher
Microsomal protein	0.5 mg/mL
Plasma Protein	One species (mouse, rat, dog, NHP, human)
Times	2, 4, 6, 24 hr
Drug concentration	1μΜ
Replicates	1
Analytical methods	LC/MS/MS
Endpoints	Stability ≥75%, Recovery ≥ 50%
Deliverables	Plasma stability and microsomal stability, non-specific binding, and time to equilibrium

Sample Plate Layout



Potential Reference Compounds

Acetaminophen

S-Warfarin

Metoprolol

Amiodarone

Diclofenac

Verapamil

Full PPB or MPB Study Design

ASSAY PARAMETER	PROTOCOL
Equilibrium dialysis	RED system from ThermoFisher
Vehicle	DMSO
Stock solution	10 mM in DMSO
Test compounds	14/plate
Reference compounds	2
Microsomal protein	0.5 mg/mL
Plasma protein	1 species (mouse, rat, dog, NHP, human)
Times	1 based on equilibrium
Drug conc	1μM (others can be used)
Replicates	3
Analytical methods	LC/MS/MS
Endpoints	Fu (free) vs bound fraction
Deliverables	Free fraction, bound fraction, recovery

How can we help?

Talk with one of our experts for help with general inquiries, protocol details, or becoming a new client.

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