



Protein Binding Studies

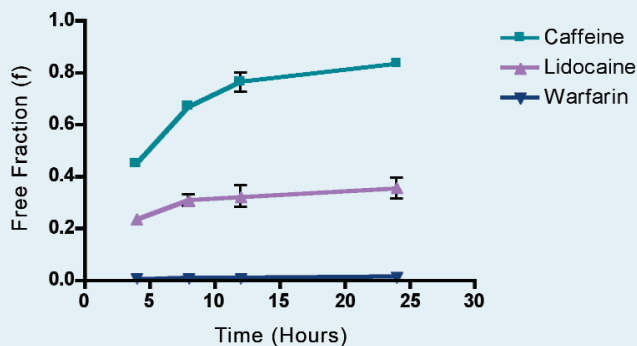
Binding of a drug candidate to plasma proteins can affect its distribution and consequently its clearance *in vivo*¹. Free fraction of a drug in plasma is an important parameter in determining the pharmacokinetics of a drug and has been widely used in *in vitro-in vivo* extrapolations (IVIVE) of clearance.

Celsius Development Services uses a plate-based equilibrium dialysis method to measure plasma protein binding. Appropriate positive controls are included for comparison of test compound with compounds with known low, medium, and high binding properties. We offer these studies using animal and human plasma or specific plasma proteins.

Increasing discovery. Advancing development.

Protein Binding Studies

Sample Protein Binding Data



Free Fraction (f) of Control Compounds in Receiving (Buffer) Chamber in Rat Plasma. Control compounds have known low, medium, and high protein binding properties.

Experimental Features

- Test model: animal or human whole plasma or specific plasma protein
- A 96-well plate equilibrium dialysis assay system is used
- Test compounds are evaluated at multiple concentrations and incubation timepoints
- Binding of test compound is compared with low-, medium-, and high-binding control compounds
- Plasma from various animals may be used to evaluate species differences

Protocol

Equilibrium dialysis is used to understand the binding of the drug molecule to plasma proteins and to quantify the amount of free drug. A 96-well plate assay system is used, in which each well contains a dialysis membrane. Plasma mixed with test or control compound is loaded into one side of each membrane, and buffer is loaded into the other side. Following incubation, aliquots from both chambers (on either side of the dialysis membrane) are harvested and analyzed by LC/MS/MS or liquid scintillation counting to determine unbound concentration of compound.

We customize the protocol to meet your specific needs.

Reference

- 1 Lin, J.H.; Lu, A.Y.H. Role of pharmacokinetics and metabolism in drug discovery and development. *Pharmacol. Rev.* **1997**, *49*, 403–449.