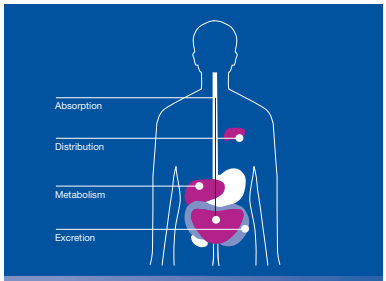
In Silico **Prediction**

Cloe PK

Multispecies pharmacokinetic prediction from *in vitro* ADME and phys-chem data



Cloe PK

A tool for integrating *in vitro* ADME data to predict plasma and organ pharmacokinetics

Cloe PK

- Predict pharmacokinetics from early ADME and physicochemical data.
- Prioritise compounds for *in vivo* studies or candidate selection.
- Save time and cost by reducing unnecessary *in vivo* PK studies.

Cloe PK Data Requirements

A simple set of early ADME and physicochemical data is required to run a Cloe PK simulation. Either measured or predicted values can be used.

Data Requirements for Intravenous Dosing

LogP (octanol/water) and pK_a
Microsomal intrinsic clearance
Fraction unbound in plasma
Blood to plasma ratio (optional)

Data Requirements for Oral Dosing

LogP (octanol/water) and pK_a
Microsomal intrinsic clearance
Fraction unbound in plasma
Blood to plasma ratio (optional)
Aqueous solubility
Caco-2 permeability

Additional Features

- 3 species, human, rat and mouse, now available.
- Interactive sensitivity analysis to investigate impact of altering one or more compound properties on the predicted PK parameters.
- Send your data to Cyprotex, and let us run predictions on your behalf.
- Provision of full consultancy service for interpretation of any predictions generated.

Cloe PK Data Delivery

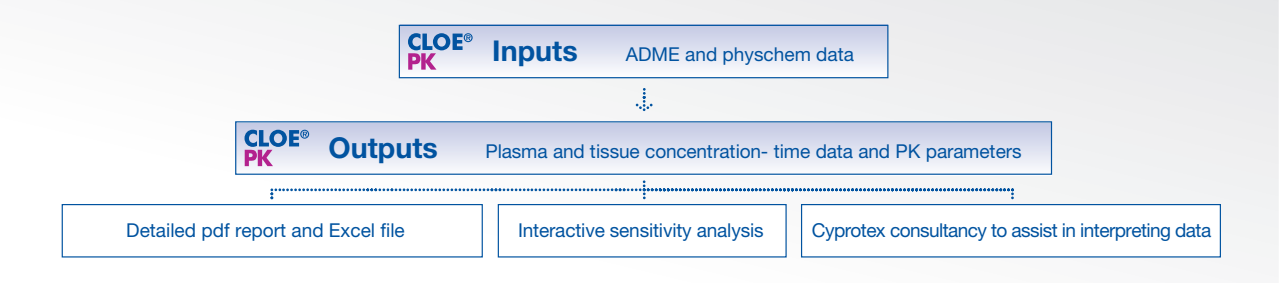
Predictions are delivered automatically in a downloadable pdf report and Excel spreadsheet with interactive sensitivity analysis capability.

The following parameters are reported:

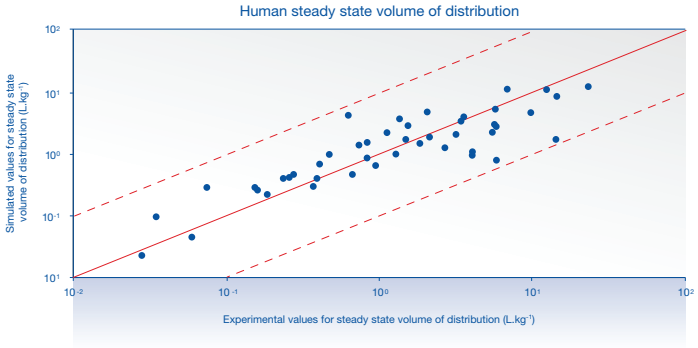
- Concentration time profiles in venous and arterial plasma.
- Concentration time profiles in 14 organs and tissues.
- Summary pharmacokinetic parameters.

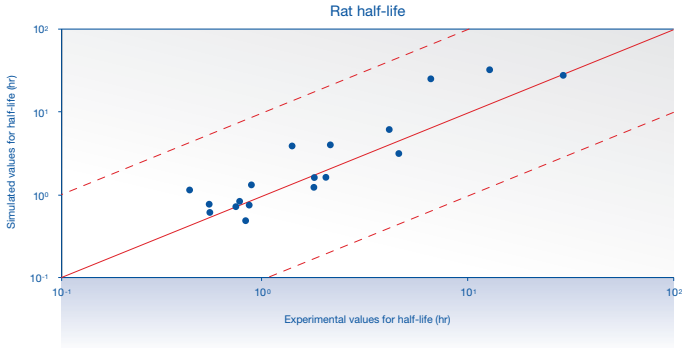
To find out more contact **enquiries@cyprotex.com**

Cloe PK integrates data derived from experimental assays or QSAR predictive models using PBPK modelling techniques. The input data are limited to ADME and physicochemical properties that are typically generated in early drug discovery programs.



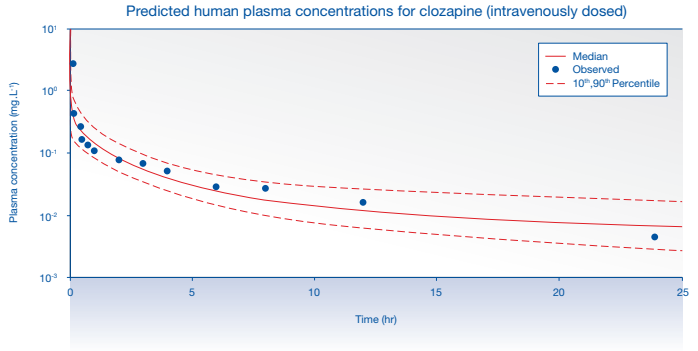
Prediction accuracy and compound ranking closely correlates with human clincal data and animal experiments.
Human steady state volume of distribution and rat half-life derived from Cloe PK (y-axis) are compared with clinical and preclinical data (x-axis) respectively.

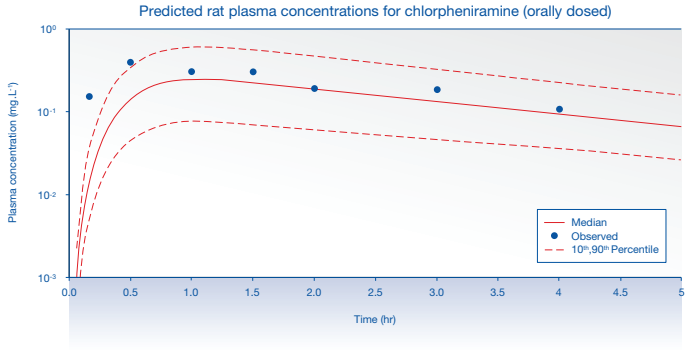




For a set of known drugs, the human steady state volume of distribution is predicted within an average of 1.9 fold of the measured values with a rank correlation of 0.83 and the rat half-life is predicted within an average of 1.6 fold of the measured values with a rank correlation coefficient of 0.88. For a set of 75 discovery compounds, the rat clearance is predicted within an average of 2.0 fold of the measured values (standard well stirred model = 4.3).

Comparison of Cloe PK predicted plasma concentration profiles with actual measurements from a human *in vivo* study for clozapine (intravenously administered) and a rat *in vivo* study for chlorpheniramine (orally administered).





Gaining access to Cloe PK

Cyprotex can run Cloe PK prediction on your behalf. You can either send us your data or we can generate data for you via our *in vitro* ADME and physchem services. Assistance in interpreting the data is included in this service.

Contact **enquiries@cyprotex.com** for more information.