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TRANSIL^{XL} HSA Binding Kit

A Fast High-Throughput Assay for Albumin Binding and Prediction of Plasma Protein Binding

FEATURES AND BENEFITS

- Fast, requires only 20 minutes total assay time
- Accurate, measures the affinity of drug candidates to human serum albumin (HSA) to predict it's free fraction in plasma
- Reliable with highly reproducible results, and robust correlation to equilibrium dialysis method. Fully quality-controlled albumin binding estimates
- Rapid compound quantification due to immoblized plasma proteins
- Kit includes a spreadsheet for calculation of final results and traffic light system for data quality rating

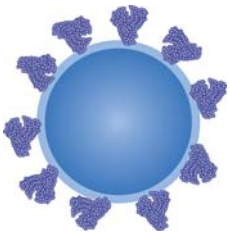

Fig. 1: Illustration of a TRANSIL HSA Binding bead with albumin immobilized in random orientation to expose all binding sites.

TECHNICAL DESCRIPTION

The TRANSIL^{XL} HSA Binding Kit estimates the binding of drugs to human serum albumin (HSA) and predicts the plasma protein binding. The assay kit measures the affinity constant (K_D) of drugs to albumin and hence allows the calculation of albumin binding even under disease and physiological states that alter the albumin content of human serum. In combination with our TRANSIL^{XL} AGP Binding Kit it is possible to obtain accurate prediction of plasma protein binding in a highly controlled and reproducible assay environment.

The kit consists of ready-to-use 96 well microtiter plates. One plate can be used for measuring HSA binding of up to 12 compounds. The assay requires only 5 steps: (i) addition of drug candidate, (ii) mixing and incubation for 12 minutes, (iii) removal of beads by centrifugation, (iv) sampling of supernatant, and (v) quantification of drug candidate.

CAPABILITIES

- Detection systems
  - LC/MS/MS
  - Scintillation counting
  - Others
- Parameters estimated and predicted
  - Affinity constant (K_D) of drugs to albumin
  - Fraction bound to albumin
  - Fraction bound to plasma

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Validation of the TRANSIL^{XL} HSA Binding Kit

Human serum albumin (HSA) and human α_1-acid glycoprotein are the most important plasma binding proteins. TRANSIL binding assays are available for both proteins. The TRANSIL^{XL} HSA Binding Kit employs immobilized HSA with a random orientation. This makes sure that all binding sites are available (fig. 2) and that the assay reproduces exactly the binding of drugs to albumin (fig. 3). Moreover, the TRANSIL^{XL} HSA Binding assay can be used as a rapid screen to predict plasma protein binding, and in conjunction with the TRANSIL^{XL} AGP Binding assay to accurately measure plasma protein binding (fig. 4) and to simulate various disease conditions. Differences in relation to plasma binding arise through variations in plasma composition, due to lipids blocking binding sites in native plasma, and occasionally due to binding to other plasma proteins with low abundance.

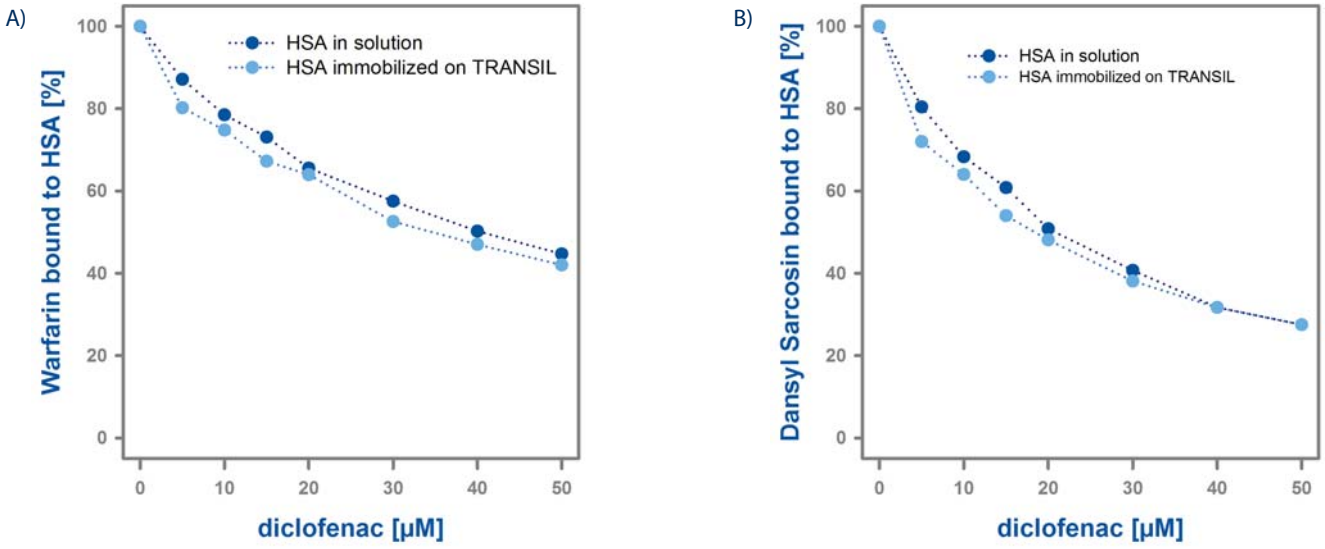


Fig. 2: Comparison of binding site availability of HSA in solution and on immobilized TRANSIL^{XL} HSA beads. Diclofenac binds to both Sudlow sites and displaces both warfarin (bound to site I) and dansyl sarcosin (bound to site II) from the HSA binding sites. Binding of warfarin and dansyl sarcosin is shown relative to binding without presence of diclofenac. A) Displacement of warfarin. B) Displacement of dansyl sarcosin.

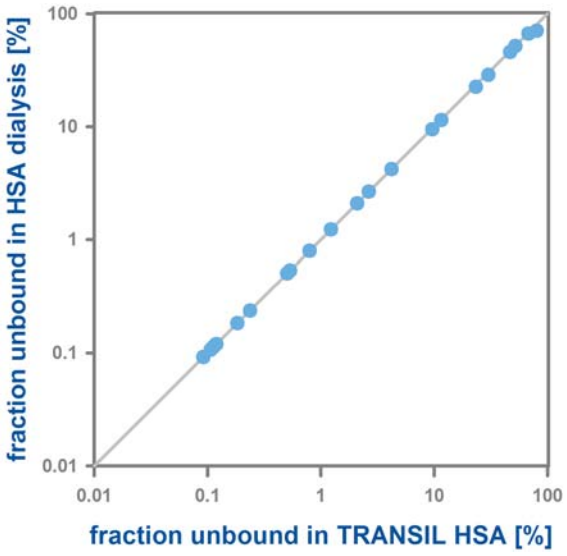


Fig. 3: Comparison of HSA binding measured by the TRANSIL^{XL} HSA Kit and by dialysis with HSA.

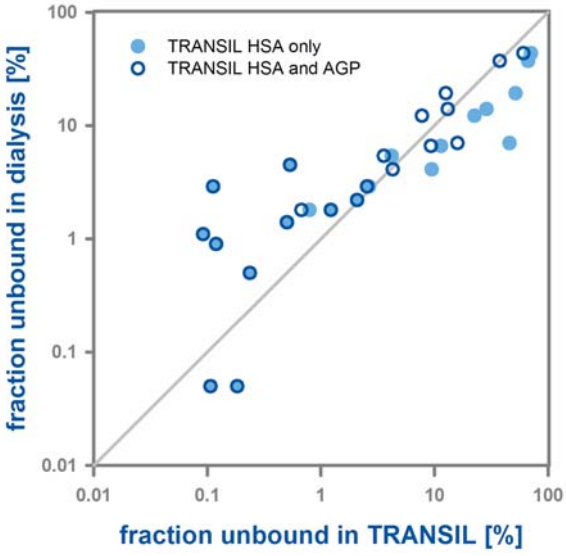
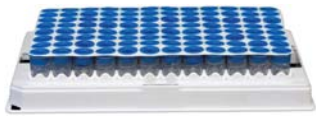


Fig. 4: Comparison of plasma protein binding predictions based on the TRANSIL^{XL} assay and serum dialysis. Full circles represent estimates based on HSA only, while open circles are based on the HSA and AGP assay.

PRODUCT INFORMATION

Order Number	Name
TPB-0210-2096	TRANSIL^{XL} HSA Binding Kit



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