Room 404AB: Sunday, February 16

11:30 AM – 1:00 PM
Malvern Panalytical

Rapid Screening for Binding Kinetics and Orthogonal Validation: The Use of GCI and ITC
Understanding molecular interactions is fundamental to drug discovery and biomolecular research. Key parameters such as affinity, kinetic rates, and thermodynamic profiles provide essential insights into binding mechanisms. This talk presents an approach utilizing Grating-Coupled Interferometry (GCI) for rapid kinetic screening and Isothermal Titration Calorimetry (ITC) for orthogonal validation of selected hits.

GCI offers a high-throughput, label-free solution for real-time kinetic analysis, enabling rapid screening of binding events with minimal sample consumption. GCI is a surface-based technique providing binding rate constants and affinity data with high sensitivity. Notably, GCI delivers both association and dissociation rate constants at the initial screening stage using only one concentration.

ITC can serve as a solution-based, label-free method for validating hits, adding a comprehensive thermodynamic perspective. The measured parameters include binding affinity (Kd), enthalpy (ΔH), entropy (ΔS), stoichiometry, as well as the activity of binding components, providing a robust orthogonal validation of the kinetic data.

An approach combining GCI screening with ITC validation enhances the confidence and reliability of binding characterizations, supporting more informed decision-making in drug development pipelines.

Speaker
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