Understanding relative polymorph stability through structure and thermodynamics

Talbir Austin
Early Development, PAR&D
AstraZeneca R&D Charnwood, Bakewell Road, Loughborough, Leicestershire LE11 5RH

The characterisation of new candidates drugs encompasses, amongst other things, a comprehensive study and selection of polymorphic forms. The selection procedure is facilitated by characterisation using a wide range of techniques probing molecular and bulk behaviour, particular in relation to relative thermodynamic stability. The ultimate goal is to select and develop a pure and robust form that will not compromise its further use in drug product due to physical and chemical stability. In order to make a rationalised selection a polymorph screen followed by an assessment on stability hierarchy is necessary.

This presentation shows the process of polymorph selection based on a combination of structural assessment and thermodynamics using solution mediated processes and phase diagrams.