

**Isothermal Titration Calorimetry (ITC)** is a technique that provides a complete thermodynamic profile of a wide variety of molecular interactions in solution.

- ITC measures the heat absorbed or generated when molecules interact.
- Measuring heat transfer during binding enables accurate determination of binding constants ( $K_d$ ), reaction stoichiometry ( $n$ ) and enthalpy ( $\Delta H$ ) in a single experiment. From these data, Gibb's free energy ( $\Delta G$ ) and entropy ( $\Delta S$ ) can be calculated.
- Thermodynamic measurements also provide insight into the nature of the non-covalent forces responsible of the mechanisms underlying molecular interactions.
- It has the advantage of not requiring modification of binding partners, either with fluorescent tags or through immobilization, ITC measures the affinity of binding partners in their native states.