

ISOTHERMAL TITRATION CALORIMETRY

MICROCAL VP-ITC

Isothermal titration calorimetry (ITC) is used for direct quantitative measurements of heat generated/absorbed within a chemical reaction or interaction of biomolecules in solution, for example binding of pharmaceuticals to proteins or DNA. Typically, ITC devices have two (reference and sample) identical cells (Hastelloy alloy or gold) with highly sensitive thermocouples detecting the temperature differences between the cells. ITC is widely applied in drug discovery providing the thermodynamic information of binding of the studied substances to proteins, which is useful for further optimization of the substances.

ACQUIRED INFORMATION

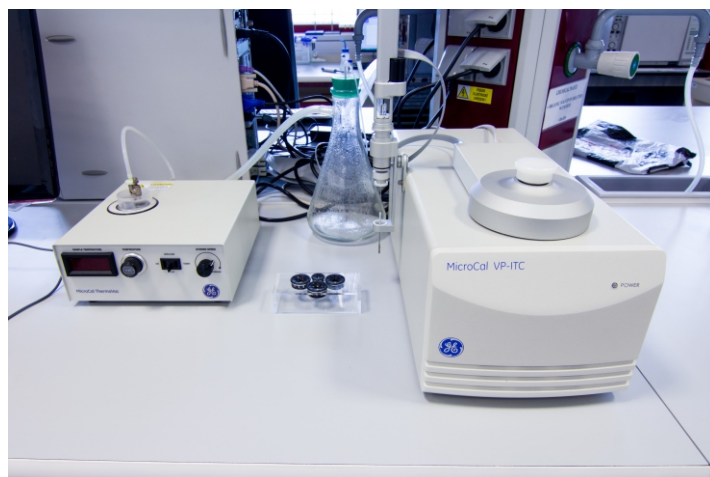
- > Thermodynamic determination of binding parameters:
 - o binding affinity (K_a)
 - o enthalpy changes (ΔH)
 - o binding stoichiometry (n)

SAMPLE TYPES

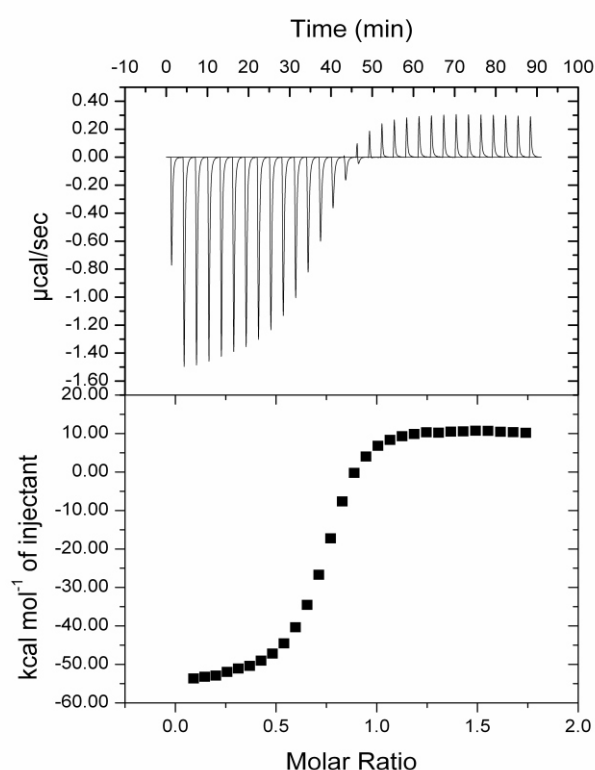
- > Solid state samples soluble in the required buffer
- > Liquid samples
- > Organic, inorganic and biological materials
- > Pharmaceuticals

MODES, CONDITIONS AND PRECISION

- > Cell: 1.4 mL (non-reactive and chemical resistant Hastelloy®)
- > Temperature range: 2–80 °C
- > Precision liquid delivery system for accurate and reproducible injections to cell
- > ThermoVac® device for sample preparation (heating, degassing, stirring)



Isothermal titration calorimeter Microcal VP-ITC



An example of the results of the ITC experiment, given for the interaction of Au(I) complex with glutathione

DETAILED INFORMATION ON REQUEST



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OF ADVANCED TECHNOLOGIES
AND MATERIALS

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