S05-5 Ligand Design based on Thermodynamic Information of Protein Interactions

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Protein-interaction research, in particular the study of its basic thermodynamic aspects, is approaching an exciting new era. Better genome analysis procedures, simpler acquisition of structural data, and more importantly, perfection of protein-interaction methodologies such as Isothermal Titration Calorimetry (ITC) and Surface Plasmon Resonance (SPR) have greatly contributed to the recent developments in this field, now expanding into one of the core areas of life sciences. Information obtained from thermodynamic analysis of protein-ligand interaction studies is widely regarded as a critical step in the successful application of Structure-Based Drug Design (SBDD), especially in Fragment-Based Drug Design (FBDD). Novel, more sophisticated approaches to implement this thermodynamic data in ligand design are currently under progress.

In this presentation I will discuss two major topics: 1. Recent developments on the thermodynamics of protein interaction research, especially in antibody-antigen and cytokine-receptor interactions. 2. Thermodynamic analysis in ligand design, specially for proteins involved in signal transduction cascades.