Department of Computational Biology
University of Pittsburgh School of Medicine

Seminar Series

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Models of G-Protein Coupled Receptor Structure and Function: Past, Present, and Future

Abstract:
G protein-coupled receptors (GPCRs) constitute the most abundant family of cell-surface proteins involved in signal transduction, and are among the most heavily investigated drug targets in the pharmaceutical industry. Despite intensive research on this class of membrane proteins, a molecular understanding of the mechanisms of GPCR-mediated signal transduction is still uncertain. The traditional view that GPCRs function as monomeric proteins has recently been challenged by the discovery that ligand-dependent GPCR signaling is not necessarily transduced to the G-protein by receptor monomers, but possibly by GPCR dimers or even oligomers that function as a dynamic macromolecular assembly. Allosteric cooperative interactions within such macromolecular machines appear to play a crucial role in the propagation of an external signal across the cell membrane and to the G protein. I will provide an overview of the work we have contributed during the years towards the development of increasingly accurate dynamic molecular models of GPCRs, with the ultimate goal of producing an accurate structural context for understanding the molecular mechanisms of GPCR function, and concurrently help in drug discovery.

Tuesday, October 31, 2006
4:00 - 5:00 PM
Room 6014, BST 3

Refreshments will be provided