Protein-Protein Complexes: Analysis, Modeling and Drug Design

Given the immense progress achieved in elucidating protein–protein complex structures and in the field of protein interaction modeling, there is great demand for a book that gives interested researchers/students a comprehensive overview of the field and this book does just that.

The text focuses on what can be learned about protein–protein interactions from the analysis of protein–protein complex structures and interfaces. What are the driving forces for protein–protein association? How can we extract the mechanism of specific recognition from studying protein–protein interfaces? How can this knowledge be used to predict and design protein–protein interactions (interaction regions and complex structures)? What methods are currently employed to design protein–protein interactions, and how can we influence protein–protein interactions by mutagenesis and small-molecule drugs or peptide mimetics?

The book consists of about 15 review chapters, written by experts, on the characterization of protein–protein interfaces, structure determination of protein complexes (by NMR and X-ray), theory of protein–protein binding, dynamics of protein interfaces, bioinformatics methods to predict interaction regions, and prediction of protein–protein complex structures (docking and homology modeling of complexes, etc.) and design of protein–protein interactions. It serves as a bridge between studying/analyzing protein–protein complex structures (interfaces), predicting interactions, and influencing/designing interactions.

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