

Engineering Protein-Protein Interactions for Drug Discovery

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Abstract. Protein-protein interactions are pivotal in cellular processes and present significant opportunities for therapeutic interventions. This paper investigates current strategies in engineering protein interactions to facilitate drug discovery. By analyzing case studies, we highlight innovative approaches employed in designing small molecules and peptides that inhibit or stabilize protein interactions. The findings underscore the potential of exploiting protein interfaces for therapeutic benefits, offering insights into future research directions.

Keywords: protein, interaction, drug, discovery, therapeutics

Introduction: Understanding protein-protein interactions (PPIs) is crucial for elucidating cellular mechanisms and developing novel therapeutic strategies. Recent advancements in molecular biology have enabled scientists to engineer PPIs with high precision, paving the way for significant breakthroughs in drug discovery. This paper explores the current methodologies employed in engineering PPIs, emphasizing the design of small molecules and peptides to modulate these interactions. We discuss the challenges faced in targeting PPIs, including specificity and stability, and propose innovative solutions to overcome these hurdles. The aim is to inspire further research and collaboration in targeting protein interfaces for therapeutic development.
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