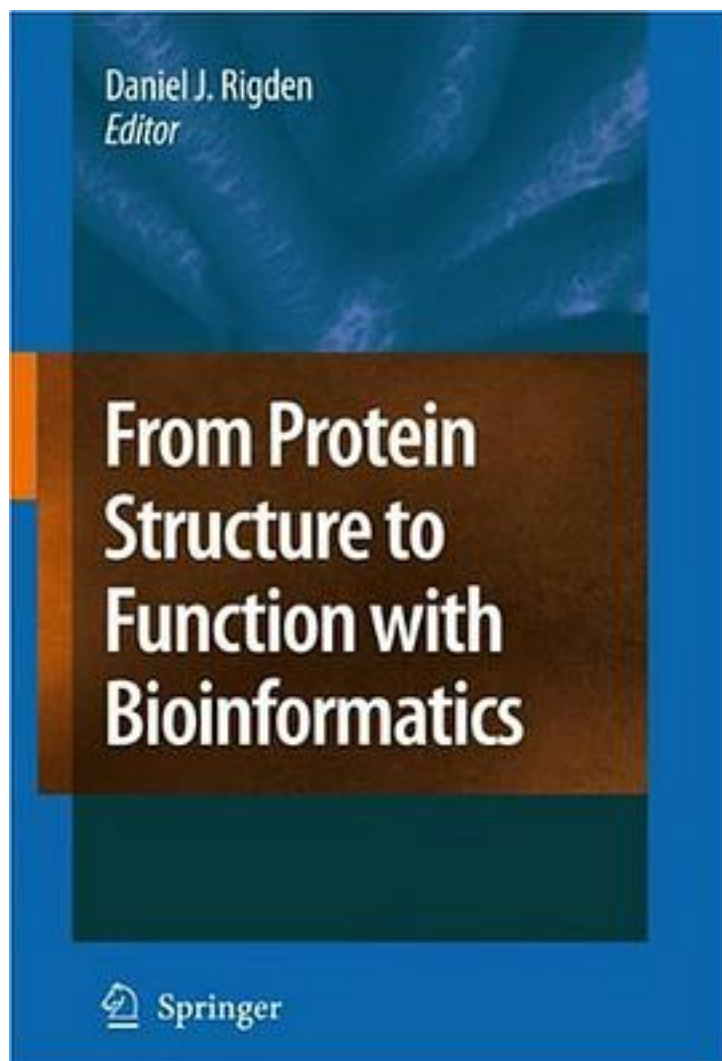# From Protein Structure to Function with Bioinformatics

From Protein Structure to Function with Bioinformatics_下载链接1_

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Proteins lie at the heart of almost all biological processes and have an incredibly wide range of activities. Central to the function of all proteins is their ability to adopt, stably or sometimes transiently, structures that allow for interaction with other molecules. An understanding of a protein's structure can therefore lead us to a much improved picture of its molecular function(s). This realisation has been a prime motivation of recent Structural Genomics projects, involving large-scale experimental determination of protein structures, often those of proteins about which little is known of function. These initiatives have, in turn, stimulated the massive development of novel methods for prediction of protein function from structure.Since model structures may also take advantage of new function prediction algorithms, the first part of the book deals with the various ways in which protein structures may be predicted or inferred, including specific treatment of membrane and intrinsically disordered proteins. A detailed consideration of all current structure-based function prediction methodologies forms the second part of this book, which concludes with two chapters, focusing specifically on case studies, designed to illustrate the real-world application of these methods. With bang up-to-date texts from world experts, and abundant links to publicly available resources, this book will be invaluable to anyone who studies proteins and the endlessly fascinating relationship between their structure and function.

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