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BOOK REVIEW

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## **Protein Structure. Determination, Analysis, and Applications for Drug Discovery**

**(Chasman, D. I. (ed.), Marcel Dekker, New York-Basel, 2003, 606 p., \$195)**

This book consists of four sections that include 20 chapters written by internationally distinguished authors. The first section, basically an introduction, consists of one chapter. Here the authors discuss the interrelationship between structure of proteins and genome organization. They point to our incomplete knowledge of the diversity of protein structures in living systems. However, one of the modern global projects, which is now being realized, will help to make a catalogue of all natural protein structures. Such protein structure inventory can be achieved based on international cooperation and development of national and international centers for study, systematization, and publication of data on the structure of various proteins.

The second section consists of 8 chapters, where approaches to production of proteins, crystallization of membrane proteins, study of protein structures by means of X-ray analysis and NMR-spectroscopy are discussed. Some chapters describe methods for modification of protein structures, including the secondary structure.

The third section containing 6 chapters considers methods of identification of possible errors during design of models of protein tertiary structure. This section also includes description of principles of evolutionary classification of protein structures and the use of data on protein structure for drug design based on structure of biologically active proteins such as serine proteases, kinases, phosphatases, and their inhibitors. A special chapter of this section introduces the European Institute of Bioinformatics (UK, web-site <http://www.ebi.ac.uk>), founded in 1995. This institute has a huge database of protein structures.

The fourth section deals with some problems related to use of structural data for drug design. Particularly, it considers dependence of interferon activity on its structure and mechanisms of action of G-protein coupled receptor family and their structural relationship with rhodopsin.

This book will be useful for biochemists and specialists in bioorganic chemistry and protein structure and also for biotechnologists and pharmacologists involved in protein-structure-based drug design.

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