# Protein Engineering and Design

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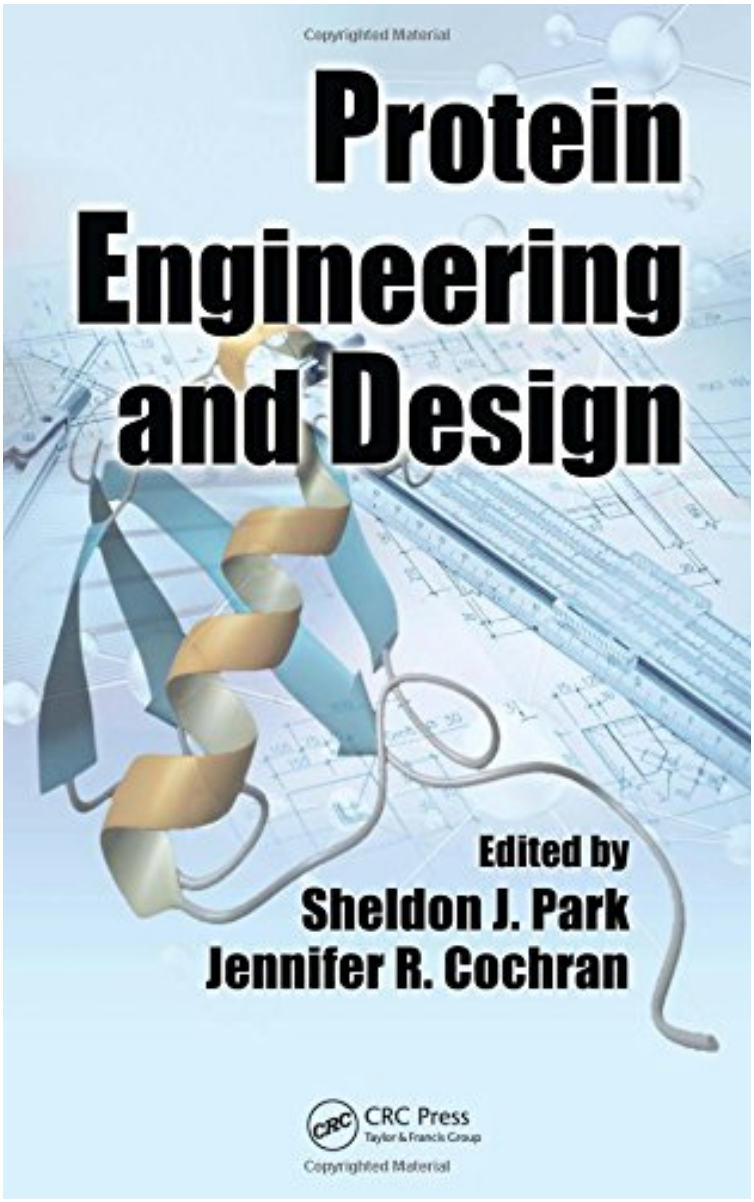




#1962028 in Books CRC Press 2009-09-25Original language:EnglishPDF # 1 9.62 x 1.01 x 6.52l, 1.63 #File Name: 1420076582416 pages | File size: 72.Mb

**From Brand: CRC Press : Protein Engineering and Design** before purchasing it in order to gage whether or not it would be worth my time, and all praised Protein Engineering and Design:

0 of 0 people found the following review helpful. Five StarsBy TomGreat text book with information.0 of 0 people found the following review helpful. thorough yet succinctBy penguinI am a software engineer in research, new to

computational biochemistry and surely protein design prediction. I have no background in chemistry or biology. A good analogy to this my recent encounter would be learning a new language that has no resemblance to your native language; like an English speaker learning Chinese. As a matter of fact, I am a native Japanese speaker who learned English as adult... I shuffled through numerous peer reviewed articles, online articles and textbooks in the past 6 months - note that you can't learn from asking biochemists because you don't know the language! - but this book together with "Intro to Protein Structure by Carl Branden" nailed it. Information in the book is acceptably up to date: written in 2009. A lot of references at the end of each chapter, so you can go dig further as you wish.1 of 1 people found the following review helpful. Excellent exposure to the protein engineering and designBy PenHouThe editors have done a great job compiling the most relevant research in protein engineering and design. This book is not only great for students who want to learn about the critical areas research, but also for practitioners who seek to expand their knowledge. I highly recommend this book.

Experimental protein engineering and computational protein design are broad but complementary strategies for developing proteins with altered or novel structural properties and biological functions. By describing cutting-edge advances in both of these fields, Protein Engineering and Design aims to cultivate a synergistic approach to protein science. Experimental Protein Engineering The first half of the book discusses experimental approaches to protein engineering and starts by describing several high-throughput screening platforms for protein engineering. Key techniques used for diversity generation are also discussed. The next few chapters present examples of therapeutics, enzymes, biomaterials, and other proteins that have been engineered by rational or combinatorial approaches. The section finishes with a chapter on the use of non-natural amino acids in protein engineering. Computational Protein Design The second half of the book introduces computational protein design, beginning with a chapter on computational and informatics algorithms used in protein engineering. Core components of computational protein design are then discussed in detail, and examples of heuristic protein design are provided. Subsequent chapters present examples of how computational design has played a critical role in advancing the field of protein engineering. Concluding with a chapter outlining current challenges in the field, this book makes computational protein design and diversity-oriented protein engineering widely accessible to a broad audience in academia and industry alike.

About the AuthorSheldon Park holds a B.A. in math and physics from the University of California (Berkeley), an M.S. in physics from Massachusetts Institute of Technology, and a Ph.D. in biophysics from Harvard University. He studied protein engineering and design while working as a postdoc for Dr. Jeffery Saven and Dr. Eric Boder at the University of Pennsylvania. Since 2006, he has been a professor of chemical and biological engineering at University at Buffalo. In his research, Dr. Park uses modeling and simulation to analyze protein molecules and uses high-throughput screening to engineer protein molecules of various structure and function. He is particularly interested in developing efficient methods of engineering complex protein molecules with potential biotechnological and biomedical applications. Jennifer Cochran holds a B.S. in biochemistry from the University of Delaware and a Ph.D. in biological chemistry from Massachusetts Institute of Technology (MIT). She studied and developed combinatorial protein engineering methods while a postdoctoral fellow in the lab of K. Dane Wittrup in the Department of Biological Engineering at MIT. Since 2005, she has been a professor of bioengineering at Stanford University. Dr. Cochrans laboratory uses interdisciplinary approaches in chemistry, engineering, and biophysics tostudy complex biological systems and to create designer protein therapeutics and diagnostic agents for biomedical applications. She is interested in elucidating molecular details of receptor-mediated cell signaling events and at the same time developing protein and polymer-based tools that will allow manipulation of cell processes on a molecular level.