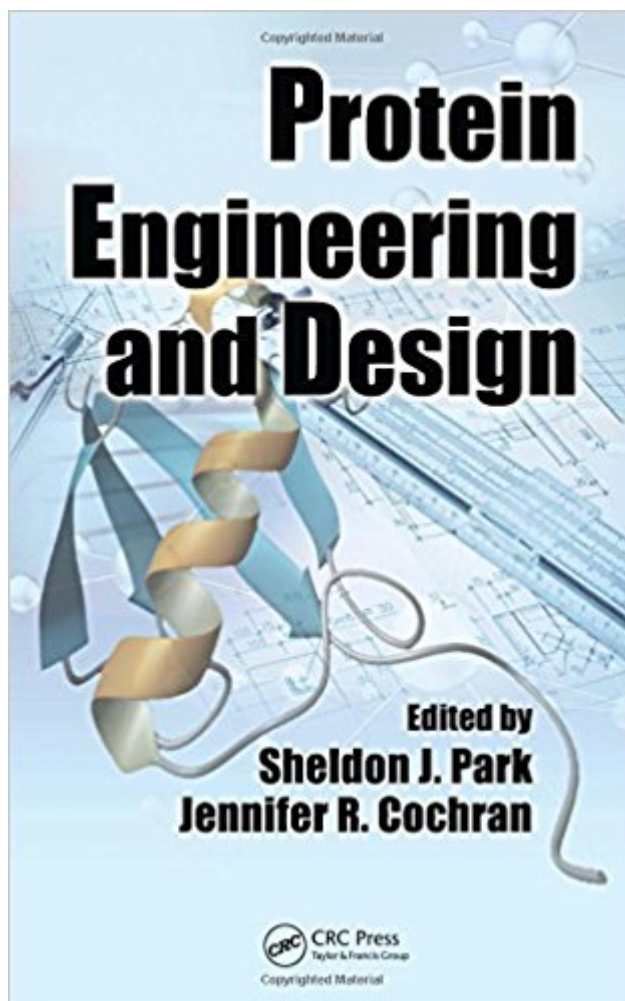




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Protein Engineering And Design



Synopsis

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.

Book Information

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Customer Reviews

Sheldon 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. Cochran's laboratory uses interdisciplinary approaches in chemistry, engineering, and biophysics to study 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.

Great text book with information.

I 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.

The 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.

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Ideal Protein Diet Cookbook: Your Ideal Protein Nutrition Plan for Perfect Fitness and Wellness (Ideal Protein Diet, High Protein Diet, Perfect Protein Diet, Lose Weight, Protein Diet Plan) DIY Protein Bars: 30 Delicious and Healthy DIY Protein Bars (diy protein bars, protein bars, high protein snacks) Ideal Protein Cookbook - The Ultimate Guide in Protein for Fitness Health and Wellness: The Ultimate Guide in Protein for Fitness Health and Wellness Structure and Mechanism in Protein Science: A Guide to Enzyme Catalysis and Protein Folding Protein Power: The High-Protein/Low Carbohydrate Way to Lose Weight, Feel Fit, and Boost Your Health-in Just Weeks! Low Carb: Low Carb High Fat Diet - How to Lose 7 Pounds in 7 Days with Low Carb and High Protein Diet Without Starving! (low carbohydrate, high protein, ... carb cookbook, ketogenic diet, paleo diet) Low Carb: Low Calorie Cookbook: 200 High Protein Recipes for Weight Loss, Muscle Building, Healthy Eating and Increased Energy Levels (Low Carb High Protein ... Low Carb Cookbook, Low Carb Diet Book 1) Protein Power: The High-Protein/Low-Carbohydrate Way to Lose Weight, Feel Fit, and Boost Your Health-in Just Weeks! Plant-Protein Recipes That You'll Love: Enjoy the goodness and deliciousness of 150+ healthy plant-protein recipes! High Protein Vegan Cookbook: Delicious And Healthy High Protein Vegan Recipes Stability of Protein Pharmaceuticals: Part B: In Vivo Pathways of Degradation and Strategies for Protein Stabilization (Pharmaceutical Biotechnology) Protein From Plants: A full nutritional guide to vegan protein + recipes, quick-grab snacks & meal plans Vegan: High Protein Cookbook: 50 Delicious High Protein Vegan Recipes (Dairy Free, Gluten Free, Low Cholesterol, Vegan Diet, Vegan for Weight loss, vegetarian, vegan bodybuilding, Cast Iron,) Protein Ninja: Power through Your Day with 100 Hearty Plant-Based Recipes that Pack a Protein Punch DIY Protein Bars Cookbook [2nd Edition]: Easy, Healthy, Homemade No-Bake Treats That Taste Like Dessert, But Just Happen To Be Packed With Protein! Vegan High Protein Cookbook: 50 Delicious High Protein Vegan Recipes High Protein Low Carb Cookbook: Delicious High Protein Low Carb Recipes For Helping You Burn Fat Protein-Protein Interactions in Drug Discovery Protein Engineering and Design Gravity Sanitary Sewer Design and Construction (ASCE Manuals and Reports on Engineering Practice No. 60) (Asce Manuals and Reports on Engineering ... Manual and Reports on Engineering Practice)

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