1. Record Nr. UNINA9910298282103321

| | |
|---|---|
| Titolo | Systems and Synthetic Biology / / edited by Vikram Singh, Pawan K. Dhar |
| Pubbl/distr/stampa | Dordrecht : , : Springer Netherlands : , : Imprint : Springer, , 2015 |
| ISBN | 94-017-9514-2 |
| Edizione | [1st ed. 2015.] |
| Descrizione fisica | 1 online resource (383 p.) |
| Disciplina | 570<br>570.285<br>570285<br>571.4 |
| Soggetti | Systems biology<br>Biomedical engineering<br>Biological systems<br>Biochemical engineering<br>Biomathematics<br>Bioinformatics<br>Systems Biology<br>Biomedical Engineering and Bioengineering<br>Biochemical Engineering<br>Mathematical and Computational Biology<br>Computational Biology/Bioinformatics |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references at the end of each chapters and index. |
| Nota di contenuto | Introduction to Systems Biology -- Why Systems Biology Can Promote a New Way of Thinking -- Modelling Methodologies for Systems Biology -- In silico Identification of Eukaryotic Promoters -- Hill Equation in Modeling Transcriptional Regulation -- Molecular Modeling -- Complex Networks and Systems Biology -- Systems Biology of Infectious Diseases -- Systems Pharmacology and Pharmacogenomics for Drug Discovery and Development -- Switching Mechanism in the p53 Regulatory Network -- Systems Biology of Micro RNA -- A Brief |

Introduction to Synthetic Biology -- DNA Structure and Promoter Engineering -- Synchronous Sequential Computations with Biomolecular Reactions -- Designing Zinc Finger Proteins for Applications in Synthetic Biology -- Synthetic Biology for the Development of Biodrugs & Designer Crops and the Emerging Governance Issues -- Recent Advancement of Emerging Tools in Synthetic Biology for the Designing and Characterization of Genetic Circuits -- Metabolic Engineering of Microorganisms for Biosynthesis of Antibiotics -- DNA Origami: What, How and Where -- Making Synthetic Proteins from Non-coding DNA -- Engineering Biological Systems: A Brief Overview.

Sommario/riassunto

This textbook has been conceptualized to provide a detailed description of the various aspects of Systems and Synthetic Biology, keeping the requirements of M.Sc. and Ph.D. students in mind. Also, it is hoped that this book will mentor young scientists who are willing to contribute to this area but do not know from where to begin. The book has been divided into two sections. The first section deals with the systems biology – in terms of the foundational understanding, highlighting issues in biological complexity, methods of analysis and various aspects of modelling. The second section describes the engineering concepts and design strategies of biological systems ranging from simple DNA/RNA fragments, switches and oscillators, molecular pathways to a complete synthetic cell. Finally, the book offers expert opinions in legal, safety, security and social issues to present a well-balanced information both for students and scientists.