

1. Record Nr.	UNINA9910877678703321
Titolo	Systems biology and synthetic biology // edited by Pengcheng Fu, Sven Panke
Pubbl/distr/stampa	Hoboken, N.J., : John Wiley & Sons, c2009
ISBN	1-282-28012-0 9786612280122 0-470-43798-7 0-470-43797-9
Descrizione fisica	1 online resource (674 p.)
Classificazione	BIO 180f CIT 972f WD 9200 WH 2000
Altri autori (Persone)	FuPengcheng PankeSven
Disciplina	660.6
Soggetti	Biotechnology Genetic engineering Biological systems
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 and index.
Nota di contenuto	SYSTEMS BIOLOGY AND SYNTHETIC BIOLOGY; CONTENTS; Foreword; Contributors; 1 Introduction; 2 Basics of Molecular Biology, Genetic Engineering, and Metabolic Engineering; 3 High-Throughput Technologies and Functional Genomics; 4 Genomic Signal Processing of DNA Microarray Data for the Enhanced Prediction of Axillary Lymph Node Status of Breast Cancer Tumors; 5 Recombinant Genomes: Novel Resources for Systems Biology and Synthetic Biology; 6 In silico Genome-Scale Metabolic Models: The Constraint-Based Approach and its Applications 7 Mathematical Modeling of Genetic Regulatory Networks: Stress Responses in Escherichia coli 8 Synthetic Life: Ethobricks for a New Biology; 9 Yeast as a Prototype for Systems Biology; 10 Construction and Applications of Genome-Scale in silico Metabolic Models for Strain Improvement; 11 Synthetic Biology: Putting Engineering into

Bioengineering; 12 Rationales of Gene Design and de novo Gene Construction; 13 Self-Replication in Chemistry and Biology; 14 The Synthetic Approach for Regulatory and Metabolic Circuits; 15 Synthetic Gene Networks
16 The Theory of Biological Robustness and its Implication to Cancer
17 Nucleic Acid Engineering; 18 Potential Applications of Synthetic Biology in Marine Microbial Functional Ecology and Biotechnology; 19 On Fundamental Implications of Systems and Synthetic Biology; 20 Outstanding Issues in Systems and Synthetic Biology; Index

Sommario/riassunto

The genomic revolution has opened up systematic investigations and engineering designs for various life forms. Systems biology and synthetic biology are emerging as two complementary approaches, which embody the breakthrough in biology and invite application of engineering principles. Systems Biology and Synthetic Biology emphasizes the similarity between biology and engineering at the system level, which is important for applying systems and engineering theories to biology problems. This book demonstrates to students, researchers, and industry that systems biology relies on synthetic biology
