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Autore	Barciszewski Jan
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Nota di contenuto	Constructing an Integrated Genetic and Epigenetic Cellular Network by Systems Biology Method for Investigating Whole Cellular Mechanism Using NGS Omics Data -- Fibonacci's Blueprint in Lifespan: Integrating Mathematical Predictions with RNA Dynamics and DNA Heritability in Systems Biology -- Refinement of Single-Cell RNA-seq Gene Expression Signatures with Combiroc -- A Cognitive Study of Modeling in Systems Biology -- Emergent Entanglement in Evolution of Biological Networks -- Engineering Microbial Evolution for Biotechnological Applications -- The Non-coding Genome and Network Biology -- Mesoscopic Patterns as Interfaces for Complex Systems Analysis -- Recent Developments in Transcriptomic Technologies: Applications to Immunological Systems and Diseases -- Systemic Communication via Extracellular Vesicles in Cancer: the Body's Wireless Internet System --

Development of Individualized Therapy for Atherosclerosis from Systems Biology -- Systems Biology in the Field of Vaccine Development -- Proteomics in Transplant Medicine -- Advancing Microfluidics and Biomimetic Materials for Miniaturized Cell Screening Platforms: Unleashing Insights into Complex Disease Mechanisms and Personalized Medicine -- Systems-Wide Analyses of Immune Programming of Regulatory T Cells in Early Life Providing Lifelong Protection from Diseases.

Sommario/riassunto

Modern biology is moving away from reductionist approaches towards holistic studies that encompass whole genomes, transcriptomes, proteomes, and metabolomes. Systems biology is an approach to studying complex biological systems by looking at many biomolecules in a comprehensive way. The aim is to gain a thorough understanding of the biological functions of different classes of molecules and their interactions. Systems Biology II is an up-to-date and comprehensive guide to the latest developments in systems biology, with a particular focus on RNA-based technologies. This book is the second volume in the RNA Technologies series dedicated to this topic. It presents cutting-edge approaches and tools for modelling and analyzing complex biological systems at different levels, from molecular interactions to cellular networks and beyond. With contributions from leading experts in the field, the book covers a wide range of topics, including gene regulatory networks, epigenetics, synthetic biology, omics data analysis, network inference, and more. It explores applications in various areas of the life sciences and biomedicine, such as vaccine development, cancer research, transplantation research and pathogenic processes. This volume is an essential resource for scientists and students working in systems biology, bioinformatics, synthetic biology, and related fields, as well as anyone interested in the latest advances in RNA technologies and their applications in biology and medicine.
