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Titolo	Gene Expression and its Regulation: An Evolutionary Perspective / / by Siddhartha Roy
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ISBN	9789819668236
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Descrizione fisica	1 online resource (324 pages)
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Nota di contenuto	-- Chapter 1: Genes, DNA, and Protein-DNA Interactions -- Chapter 2: Genomes in three domains of life -- Chapter 3: Transcription Initiation, Elongation and Termination -- Chapter 4: mRNA modification and processing -- Chapter 5:Translation and Post-translational Processes -- Chapter 6: Gene Expression within a Cell: An Integrative View -- Chapter 7: Regulation of Gene Expression in Prokaryotes -- Chapter 8: Regulation of Transcription in Eukaryotes -- Chapter 9: Regulation of Gene Expression By Chemical Modifications -- Chapter 10:Co- and Post-transcriptional regulation in Eukaryotes -- Chapter 11:Evolution of gene regulatory systems -- Chapter 12: Biological Consequences of Regulation and Dysregulation of Gene Expression.
Sommario/riassunto	This textbook for graduate students provides a conceptual framework for comprehending the diversity and evolutionary relationships of gene regulatory systems. It elucidates the importance and significance of the physical and chemical principles that underpin gene regulatory processes. The Chapters of the book may be conceptually divided into

six sections; the first section, consisting of Chapters 1 and 2, presents the basic organization of genes, genomes, and aspects of gene regulation in three domains of life. The second section, consisting of Chapters 3-5 describes the process of gene expression as it goes from the DNA sequence embedded in the genome to the final functional protein. The third section, consisting of Chapter 6, discusses special characteristics of gene expression within cells. The fourth section, consisting of Chapters 7-10 discusses how genes are regulated in different domains of life. The fifth section, consisting of Chapter 11, presents details of gene regulatory systems in three domains of life; archaea, eubacteria, and eukarya and their evolutionary relationship. In the final section, consisting of Chapter 12, the book underscores the potential to artificially intervene and alter gene regulation and attempts to re-engineer gene regulatory circuits.