

1. Record Nr.	UNINA9910459551103321
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Titolo	Molecular biology and genetic engineering [[electronic resource] /] / P. K. Gupta
Pubbl/distr/stampa	Meerut, India, : Rastogi Publications, 2008
ISBN	1-64287-613-5 1-283-22699-5 9786613226990 1-4416-7214-1 600-00-4429-1
Descrizione fisica	1 online resource (613 p.)
Disciplina	572.8
Soggetti	Molecular biology Genetic engineering Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	pt.1. Molecular biology -- pt. 2. Genetic engineering.
Sommario/riassunto	PART I Molecular Biology 1. Molecular Biology and Genetic Engineering Definition, History and Scope 2. Chemistry of the Cell : 1. Micromolecules (Sugars, Fatty Acids, Amino Acids, Nucleotides and Lipids) 2. Sugars (Carbohydrates) 3. Chemistry of the Cell : 1. Macromolecules (Nucleic Acids; Proteins and Polysaccharides) 2. Covalent and Weak Non-covalent Bonds 4. Chemistry of the Gene : 1. Synthesis, Modification and Repair of DNA 2. DNA Replication: General Features 5. Organisation of Genetic Material 1. Packaging of DNA as Nucleosomes in Eukaryotes 2. Techniques Leading to Nucleosome Discovery 6. Organization of Genetic Material 1. Repetitive and Unique DNA Sequences 7. Organization of Genetic Material : 1. Split Genes, Overlapping Genes, Pseudogenes and Cryptic Genes 2. Split Genes or . Interrupted Genes 8. Multigene Families in Eukaryotes 9. Organization of Mitochondrial and Chloroplast Genomes 10. The Genetic Code 11. Protein Synthesis Apparatus 1. Ribosome, Transfer RNA and Aminoacyl-tRNA Synthetases 2. Ribosome 12. Expression of Gene . Protein Synthesis 1.

Transcription in Prokaryotes and Eukaryotes
13. Expression of Gene : Protein Synthesis : 2. RNA Processing (RNA Splicing, RNA Editing and Ribozymes)
Polyadenylation of mRNA in Prokaryotes
Addition of Cap (m7G) and Tail (Poly A) for mRNA in Eukaryotes
14. Expression of Gene : Protein Synthesis : 3. Synthesis and Transport of Proteins (Prokaryotes and Eukaryotes)
Formation of Aminoacyl tRNA
15. Regulation of Gene Expression:
1. Operon Circuits in Bacteria and Other Prokaryotes
16. Regulation of Gene Expression .2. Circuits for Lytic Cycle and Lysogeny in Bacteriophages
17. Regulation of Gene Expression
3. A Variety of Mechanisms in Eukaryotes (Including Cell Receptors and Cell Signalling)
PART II Genetic Engineering
18. Recombinant DNA and Gene Cloning
1. Cloning and Expression Vectors
19. Recombinant DNA and Gene Cloning
2. Chimeric DNA, Molecular Probes and Gene Libraries
20. Polymerase Chain Reaction (PCR) and Gene Amplification
21. Isolation, Sequencing and Synthesis of Genes
22. Proteins : Separation, Purification and Identification
23. Immunotechnology
1. B-Cells, Antibodies, Interferons and Vaccines
24. Immunotechnology
2. T-Cell Receptors and MHC Restriction
25. Immunotechnology
3. Hybridoma and Monoclonal Antibodies (mAbs)
Hybridoma Technology and the Production of Monoclonal Antibodies
26. Transfection Methods and Transgenic Animals
27. Animal and Human Genomics : Molecular Maps and Genome Sequences
Molecular Markers
28. Biotechnology in Medicine :
1. Vaccines, Diagnostics and Forensics
Animal and Human Health Care
29. Biotechnology in Medicine
2. Gene Therapy
Human Diseases Targeted for Gene Therapy
Vectors and Other Delivery Systems for Gene Therapy
30. Biotechnology in Medicine :
3. Pharmacogenetics / Pharmacogenomics and Personalized Medicine
Pharmacogenetics and Personalized
31. Plant Cell and Tissue Culture
Production and Uses of Haploids
32. Gene Transfer Methods in Plants
33. Transgenic Plants . Genetically Modified (GM) Crops and Floricultural Plants
34. Plant Genomics :
35. Genetically Engineered Microbes (GEMs) and Microbial Genomics
References.
