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Autore	Gupta P. K
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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) Sugars (Carbohydrates) 3. Chemistry of the Cell . 2. Macromolecules (Nucleic Acids; Proteins and Polysaccharides) Covalent and Weak Non-covalent Bonds 4. Chemistry of the Gene : Synthesis, Modification and Repair of DNA DNA Replication: General Features 5. Organisation of Genetic Material 1. Packaging of DNA as Nucleosomes in Eukaryotes Techniques Leading to Nucleosome Discovery 6. Organization of Genetic Material 2. Repetitive and Unique DNA Sequences 7. Organization of Genetic Material : 3. Split Genes, Overlapping Genes, Pseudogenes and Cryptic Genes 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 Ribosome, Transfer RNA and Aminoacyl-tRNA Synthetases 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.

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