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2.4. Transcription Involves Binding, Initiation, Elongation, and Termination; 2.5. RNA Transcripts Are Longer Than the Protein-Coding Gene; 2.6. RNA of Protein-Coding Genes Must Be Modified and Processed in Eukaryotes; 2.7. Splicing Out the Introns; 2.8. Translation Involves Protein Synthesis; 2.9. mRNA Surveillance: Damage Control 2.10. Import and Export from the Nucleus 2.11. Transport of Proteins within the Cytoplasm; 2.12. mRNA Stability; 2.13. Chaperones and the Proteasome; 2.14. RNA Silencing or Interference; 2.15. Gene Regulation in Eukaryotes; 2.16. Insulators and Boundaries; 2.17. Chromosome or Gene Imprinting by Methylation in Insects?; 2.18. Eukaryotic Genomes and Evolution; General References; References Cited; Chapter 3. Nuclear and Extranuclear DNA in Insects; 3.1. Overview; 3.2. Introduction; 3.3. C Value Paradox; 3.4. Repetitive DNA Is Common in Insects; 3.5. Composition of Insect DNA 3.6. Chromosomes Are DNA plus Proteins 3.7. Packaging Long, Thin DNA Molecules into Tiny Spaces; 3.8. Structure of the Nucleus; 3.9. Euchromatin and Heterochromatin; 3.10. Centromeres; 3.11. Telomeres; 3.12. Chromosomes during Mitosis and Meiosis; 3.13. Chromosome Damage; 3.14. Polyteny; 3.15. Chromosomal Puffing; 3.16. B Chromosomes; 3.17. Sex Chromosomes; 3.18. Extranuclear Inheritance in Mitochondrial Genes; 3.19. Transposable Elements Are Ubiquitous Agents That Alter Genomes; References Cited Chapter 4. Genetic Systems, Genome Evolution, and Genetic Control of Embryonic Development in Insects

Sommario/riassunto

Insect Molecular Genetics, 2nd edition, is a succinct book that briefly introduces graduate and undergraduate students to molecular genetics and the techniques used in this well established and important discipline. The book is written for two converging audiences: those familiar with insects that need to learn about molecular genetics, and those that are familiar with molecular genetics but not familiar with insects. Thus, this book is intended to fill the gap between two audiences that share a common middle ground.* Up-to-date references to important review articles, websites, and
