

1. Record Nr.	UNINA9910458687103321
Autore	Hoy Marjorie A
Titolo	Insect molecular genetics [[electronic resource]] : an introduction to principles and applications / / Marjorie A. Hoy
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Academic Press, c2003
ISBN	1-281-05336-8 9786611053369 0-08-048904-4
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (567 p.)
Disciplina	572.8/157
Soggetti	Insects - Molecular genetics Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Insect Molecular Genetics; Copyright Page; CONTENTS; Preface to the Second Edition; Preface to the First Edition; Part I: Genes and Genome Organization in Eukaryotes; Chapter 1. DNA, Gene Structure, and DNA Replication; 1.1. Overview; 1.2. Introduction to the Central Dogma; 1.3. The "RNA World" Came First?; 1.4. The Molecular Structure of DNA; 1.5. The Molecular Structure of RNA; 1.6. The Double Helix; 1.7. Complementary Base Pairing Is Fundamental; 1.8. DNA Exists in Several Forms; 1.9. Genes; 1.10. The Genetic Code Is a Triplet and Is Degenerate; 1.11. Gene Organization 1.12. Efficient DNA Replication Is Essential 1.13. DNA Replication Is Semiconservative; 1.14. Replication Begins at Replication Origins; 1.15. Replication Occurs Only in the 5' to 3' Direction; 1.16. Replication of DNA Requires an RNA Primer; 1.17. Ligation of Replicated DNA Fragments; 1.18. DNA Replication in Eukaryotes; 1.19. Telomeres at the End: A Solution to the Loss of DNA during Replication; 1.20. DNA Replication Fidelity and DNA Repair; 1.21. Mutations in the Genome; 1.22. Common Conventions in Genetic Terminology 1.23. Independent Assortment and Recombination During Sexual Reproduction General References; References Cited; Chapter 2. Transcription, Translation, and Regulation of Eukaryotic DNA; 2.1. Overview; 2.2. Introduction; 2.3. RNA Synthesis Is Gene Transcription;

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 Proteosome; 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
