1. Record Nr. UNINA9910855374003321

Autore	Choi Kwang-Wook
Titolo	Genetic Studies in Model Organisms : From Classical to Modern Genetics / / by Kwang-Wook Choi
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2024
ISBN	981-9708-30-3
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (475 pages)
Collana	KAIST Research Series, , 2214-255X
Disciplina	575.1
Soggetti	Biology Genetics Biological Sciences Genetics and Genomics Genotype
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Part I. Mendel, Genetic Models, and Mutations -- Chapter 1. Mendel's Principles of Inheritance and Chromosome Theory -- Chapter 2. Genetic Model Organisms -- Chapter 3. Recombination and Chromosomal Rearrangements -- Chapter 4. Loss-of-Function Mutagenesis in Forward Genetics -- Part II. Transposons, Transgenesis, Gene Editing, and Genetic Mosaics -- Chapter 5. Non-Mendelian Genetics: Transposable elements (I) -- Chapter 6. Transposable Elements II: Insertional Mutagenesis -- Chapter 7. Gain-of-Function and Gene Silencing -- Chapter 8. Genetic Interaction, Epistasis, Modifiers -- Chapter 9. Targeted Mutagenesis -- Chapter 10. Transgenesis in Clonal Analysis -- Part III. Epigenetics, Genome Organization, and piRNA -- Chapter 11. Epigenetic Control of Gene Expression -- Chapter 12. Chromosomal Interaction in Chromatin Organization -- Chapter 13. Piwi and piRNA in Germline and Epigenetic Regulation -- Part IV. Applications of Genetic Analysis -- Chapter 14. Genetic Control of Dosage Compensation -- Chapter 15. Genetics of Programmed Cell Death -- Chapter 16. Genetics of Growth Control -- Chapter 17. Genetic Studies on Behavior.
Sommario/riassunto	This book reviews key advances and new fundamentals in genetics. The

increasing importance of genetic approaches in diverse areas of biology and medical sciences constantly requires in-depth information on genetic discoveries and research strategies for advanced graduate-level students as well as current researchers. This book focuses on genetic studies of various animal model systems and their major contributions to establishing modern genetics. Information covered in this book is mostly based on original research papers that extend from classical to modern genetics and applications. The contents are organized into four parts. Part I introduces fundamental concepts and experimental strategies in classical genetics. Part II discusses molecular genetics with transposons, transgenesis, clonal analysis, and gene editing technologies. Part III emphasizes epigenetic regulation of genome organization and gene expression. Part IV integrates earlier parts with landmark genetic studies on non-coding RNAs in dosage compensation, programmed cell death, growth control related to cancer, and behavioral neurobiology. .