1. Record Nr. UNINA9910629285803321

Titolo	DNA Methyltransferases - Role and Function / / edited by Albert Jeltsch, Renata Z. Jurkowska
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-031-11454-X
Edizione	[2nd ed. 2022.]
Descrizione fisica	1 online resource (562 pages)
Collana	Advances in Experimental Medicine and Biology, , 2214-8019 ; ; 1389
Disciplina	572.86 572.792
Soggetti	Cytology Epigenetics Medical genetics Enzymology Cell Biology Medical Genetics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Chapter 1. Mechanisms and biological roles of DNA methyltransferases and DNA methylation – from past achievements to future challenges -- Chapter 2.Bacterial DNA Methylation and Methylomes -- Chapter 3. ChapterDomain Structure of the Dnmt1, Dnmt3a, and Dnmt3b DNA Methyltransferases -- Chapter 4. Enzymology of Mammalian DNA Methyltransferases -- Chapter 5. Genetic Studies on Mammalian DNA Methyltransferase -- Chapter 6. Structure and Mechanism of Plant DNA Methyltransferases -- Chapter 7. DNA Methylation in Honey Bees and the Unresolved Questions in Insect Methylomics -- Chapter 8. N6-Methyladenine: A Conserved and Dynamic DNA Mark -- Chapter 9. Pathways of DNA Demethylation -- Chapter 10. Structure and Function of TET Enzymes -- Chapter 11.Proteins That Read DNA Methylation -- Chapter 12. Recent advances on DNA base flipping – a general mechanism for writing, reading, and erasing DNA modifications.- Chapter 13. The Role of DNA Methylation in Cancer -- Chapter 14. DNMTs and DNA damage -- Chapter 15. Role of DNMTs in brain --

Chapter 16. Current and Emerging Technologies for the Analysis of the Genome-Wide and Locus-Specific DNA Methylation Patterns.-Chapter 17. Inhibitors of DNA methylation -- Chapter 18. Rewriting DNA Methylation Signatures at Will: The Curable Genome Within Reach? -- Chapter 19. DNA Labeling Using DNA Methyltransferases.

Sommario/riassunto

This 2nd edition of the book on DNA methyltransferases has been comprehensively updated to reflect many novel research findings regarding the structure, function, and technology of these enzymes that have emerged over the past 6 years. As the previous edition, this 2nd edition explains the biochemical properties of DNA methyltransferases, describing their structures, mechanisms and biological roles in bacteria, humans and plants. It also discusses the biological processes of reading DNA methylation and the mechanisms of DNA demethylation. This volume highlights the newest findings on DNA methyltransferase inhibitors and their use in cancer therapy as well as the latest epigenome editing systems based on these enzymes. Overall, this 2nd edition comprehensively summarizes the current state of research in the field of DNA methylation and DNA methyltransferase and is essential reading for early career and advanced researchers in this exciting field.