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Descrizione fisica	1 online resource (564 p.)
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Soggetti	Eukaryotic cells Cytology DNA replication Molecular biology DNA Replication - physiology Eukaryotic Cells - physiology Cell Biology Molecular Biology
Lingua di pubblicazione	Inglese
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Note generali	Includes index.
Nota di contenuto	1. Introduction to DNA replication initiation in eukaryotes -- 2. Choice of origins and replication timing control in yeast -- 3. Replication timing and initiation in metazoans.- 4. Replication timing gradients and origin activation -- 5. Genome wide localization of replication initiation factors -- 6. Genome scale analysis of metaozoan replication origins -- 7. Role of dormant origins in replication initiation -- 8. Centromeres and DNA replication initiation -- 9. Rif1 regulation of replication timing -- 10. Role of ORC in replication initiation. - 11. Licensing of replication origins- loading Mcm2-7 -- 12. Role of chromatin in replication initiation -- 13. Role of Mcm2-7 in replication initiation -- 14. Role of CDK in replication initiation -- 15. Role of DDK in replication initiation -- 16. Roles of Sld2, Sld3, and Dpb11 in replication initiation -- 17. Role of Mcm10 in replication initiation -- 18. Role of post-translational modifications in replication initiation -- 19. Assembly of the Cdc45-Mcm2-7-GINS complex, the replication

helicase.- 20. Activity of the Cdc45-Mcm2-7-GINS complex, the replication helicase -- 21. Structure function studies of replication initiation factors -- 22. Pol-alpha activation and coupling with helicase unwinding -- 23. Replication initiation and DNA damage -- 24. Protein phosphatases and replication initiation -- 25. Spindle checkpoints and replication initiation.- 26. Protein degradation and replication initiation -- 27. Break-induced replication.- 27. Meier Gorlin syndrome -- 28. Replication Stress and Cancer.

Sommario/riassunto

Every time a cell divides, a copy of its genomic DNA has to be faithfully copied to generate new genomic DNA for the daughter cells. The process of DNA replication needs to be precisely regulated to ensure that replication of the genome is complete and accurate, but that re-replication does not occur. Errors in DNA replication can lead to genome instability and cancer. The process of replication initiation is of paramount importance, because once the cell is committed to replicate DNA, it must finish this process. A great deal of progress has been made in understanding how DNA replication is initiated in eukaryotic cells in the past ten years, but this is the first one-source book on these findings. The Initiation of DNA Replication in Eukaryotes will focus on how DNA replication is initiated in eukaryotic cells. While the concept of replication initiation is simple, its elaborate regulation and integration with other cell processes results in a high level of complexity. This book will cover how the position of replication initiation is chosen, how replication initiation is integrated with the phases of the cell cycle, and how it is regulated in the case of damage to DNA. It is the cellular protein machinery that enables replication initiation to be activated and regulated. We now have an in-depth understanding of how cellular proteins work together to start DNA replication, and this new resource will reveal a mechanistic description of DNA replication initiation as well.