



DNA Helicases and DNA Motor Proteins [

Spies, Maria,
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Monografía

In recent years, a number of groundbreaking structural and mechanistic studies deepened our understanding of helicase mechanisms and established new approaches for their analyses. Many fundamental mechanistic questions ranging from the mechanism of force generation, mechanochemical coupling to distinct mechanisms by which the same enzyme translocates on DNA removing obstacles, unwinds DNA and/or remodels nucleoprotein complexes, however, remain to be answered. It is even less understood how the helicase motors are incorporated into a wide range of genome maintenance and repair machines. The field has reached a stage when the studies of molecular mechanisms and basic biology of helicases can and shall be integrated with the studies of development, cancer and longevity. The objective of this book is to provide the first systematic overview of structure, function and regulation of DNA helicases and related molecular motors. By integrating the knowledge obtained through the diverse technical approaches ranging from single-molecule biophysics to cellular and molecular biological studies the editors aim to provide a unified view on how helicases function in the cell, are regulated in response to different cellular stresses and are integrated into large macromolecular assemblies to form a complex and adaptive living system

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primase complex as a target for effective herpesvirus antivirals -- RecQ helicases - conserved guardians of genetic integrity -- Roles of DNA helicases in the mediation and rRegulation of homologous recombination -- DNA helicases in NER, BER andMMR -- Roles for helicases as ATP-dependent molecular switches -- The FtsK family of DNA pumps -- ATP dependent chromatin remodelers -- Index

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Baratz Innovación Documental

- Gran Vía, 59 28013 Madrid
- (+34) 91 456 03 60
- informa@baratz.es