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Collana	Advances in Experimental Medicine and Biology, , 0065-2598 ; ; 1241
Disciplina	575.1
Soggetti	Human genetics Cell biology Biochemistry Molecular biology Cancer research Human Genetics Cell Biology Biochemistry, general Molecular Medicine Cancer Research Reparació de l'ADN Genètica humana Llibres electrònics
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Preface -- Kinetic Milestones of Damage Recognition by DNA Glycosylases of the Helix–Hairpin–Helix Structural Superfamily -- Protein Engineering of DNA-Dependent Enzymes -- A Multifunctional Protein PolDIP2 in DNA Translesion Synthesis -- Impact of PARP1, PARP2 and PARP3 on the Base Excision Repair of Nucleosomal DNA -- Base Excision Repair in Chromatin and the Requirement for Chromatin Remodelling -- DNA Repair and Mutagenesis in Vertebrate Mitochondria: Evidence for Asymmetric DNA Strand Inheritance -- Mystery of Expansion: DNA Metabolism and Unstable Repeats -- The

Detection of 8-Oxo-7,8-Dihydro-2-Deoxyguanosine in Circulating Cell-Free DNA: A Step Towards Longitudinal Monitoring of Health -- Biotransformation and Toxicities of Aristolochic Acids -- Mechanisms of Sugar Beet Response to Biotic and Abiotic Stresses -- Studying ALS: Current Approaches, Effect on Potential Treatment Strategy.

Sommario/riassunto

This volume is about DNA damage and repair. It covers recent advances in several important research areas of this rapidly expanding field, and does so at several levels, from individual molecules to organisms. The topics include mechanisms of damage recognition by DNA repair enzymes, chromatin response to DNA damage, special ways of mutagenesis, biomarkers of genotoxicity, and the integrated organism response to genotoxic and other kinds of stress. The book starts with two chapters about structural and mechanistic features of protein–DNA interactions that ensure fast and reliable discrimination between targets – be it DNA modifications or specific sequences – and non-targets. Examples of particular proteins and their function in repair regulation, translesion synthesis and chromatin remodeling are discussed in the following three chapters. Next, more attention is given to the mutagenic consequences of failed or aberrant DNA repair, particularly in mitochondria and in runs of trinucleotide repeats. Moving to a human health-oriented view, the book presents data on two kinds of lesions, the widely found 8-oxoguanine and the dietary genotoxic adducts with aristolochic acids, as biomarkers of general oxidative stress and specific exposure, respectively. Two final chapters are devoted to the interplay of multiple factors, including genotoxic stress, in the complex phenotypes in humans (amyotrophic lateral sclerosis) and plants (abiotic stress response). This volume will be of significant interest for scientists working in the field of DNA repair as well as for the general biochemistry and molecular biology audience.
