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| Nota di contenuto | Cover; Title page; Copyright page; Contents; Preface; About the Contributors; Contributors; 1: Chemistry of Reactive Species; 1.1 Redox Chemistry; 1.2 Classification of Reactive Species; 1.2.1 Type of Orbitals; 1.2.2 Stability of Radicals; 1.2.3 ROS; 1.2.4 Reactive Nitrogen Species; 1.2.5 Reactive Sulfur and Chlorine Species; 1.3 Reactivity; 1.3.1 Thermodynamic Considerations; 1.3.2 Kinetic Considerations; 1.4 Origins of Reactive Species; 1.4.1 Biological Sources; 1.4.2 Nonbiochemical Sources; 1.5 Methods of Detection; 1.5.1 In Vitro; 1.5.2 In Vivo; References<br>2: Lipid Peroxidation and NitrationOverview; 2.1 Peroxidation of PUFAs; 2.1.1 Hydroperoxy Fatty Acid Isomers (HpETEs and HpODEs); 2.1.2 Hydroxy Fatty Acids (HETEs and HODEs); 2.1.3 Isoleukotrienes; 2.1.4 Epoxy Alcohols; 2.2 Cyclic Endoperoxides and Their Products; 2.2.1 Isoprostanes; 2.2.2 Diepoxide Pathway Products; 2.2.3 Serial Cyclic Endoperoxides; 2.3 Fragmented Products of Lipid Peroxidation; 2.3.1 Short-Chain Alkanes, Aldehydes, and Acids; 2.3.2 Oxidatively Fragmented Phospholipids; 2.3.3 PAF Acetylhydrolase; 2.3.4 Hydroxyalkenals; 2.3.5 Malondialdehyde; 2.3.6 Acrolein<br>2.4 Epoxy Fatty Acids2.5 Lipid Nitrosylation; 2.5.1 Formation of |

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4.3.3 Novel Types of Ribose and Guanine Oxidative Lesions and Future OutlookFuture Outlook of DNA Oxidative Lesions; References; 5: Downregulation of Antioxidants and Phase 2 Proteins; Overview; 5.1 Definitions of Antioxidants and Phase 2 Proteins; 5.1.1 Antioxidants; 5.1.2 Phase 2 Proteins; 5.2 Roles in Oxidative Stress; 5.2.1 Superoxide Dismutase; 5.2.2 Catalase; 5.2.3 GSH and GSH-Related Enzymes; 5.2.4 NAD(P)H:Quinone Oxidoreductase; 5.2.5 Heme Oxygenase; 5.2.6 Ferritin; 5.2.7 UDP-Glucuronosyltransferase; 5.3 Molecular Regulation; 5.3.1 General Consideration; 5.3.2 Nrf2 Signaling
5.3.3 Other Regulators

Sommario/riassunto

Sets the stage for the development of better diagnostic techniques and therapeutics  Featuring contributions from an international team of leading clinicians and biomedical researchers, Molecular Basis of Oxidative Stress reviews the molecular and chemical bases of oxidative stress, describing how oxidative stress can lead to the development of cancer and cardiovascular and neurodegenerative diseases. Moreover, it explains the potential role of free radicals in both the diagnosis and the development of therapeutics to treat disease. Molecular Basis of Oxidative Stres