

METADATA

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Abstract

The first chapters (Chapters 1 and 2) present the basic concepts related to free radicals and analyze the specific chemical properties that characterize the most important of these molecules. Chapter 3 provides information on reactive free radicals containing nitrogen (N) and their relationship to those containing only O2 (Reactive Oxygen and Nitrogen Species, ROS/RNS). Chapter 4 focuses on the mechanisms of free radical formation in cells and describes the molecular mechanisms responsible (enzymatic and non-enzymatic). Chapter 5 describes the molecular mechanisms of damage to all basic cellular components and their effects. Chapters 6 and 7 examine

the defense mechanisms that have developed during evolution to counteract the damaging effects of oxidative stress on cells and organisms. A special chapter, Chapter 8, is devoted to the biological significance of iron in the body, due to the central role this metal plays in catalysing reactions that result in the formation of reactive free radicals. Chapter 9 then describes the molecular mechanisms by which reactive oxygen species are involved in physiological processes in the body, mainly as second messengers in cell signaling. Finally, Chapter 10 thoroughly analyzes the role of nutrition in combating oxidative stress in cells and the body.









