

Reactive Oxygen Species (ROS), Nanoparticles, and Endoplasmic Reticulum (ER) Stress-Induced Cell Death Mechanisms

Loutfy H. Madkour

Oxidative stress is considered causal of aging and pathological cell death, triggering many diseases that can be corrected by antioxidant therapy. *Reactive Oxygen Species (ROS), Nanoparticles, and Endoplasmic Reticulum (ER) Stress-Induced Cell Death Mechanisms* presents our current understanding about the roles and mechanisms of reactive oxygen and nitrogen species (RONS)-mediated pathways, cellular signaling stress, ER stress, oxidative stress, oxidative damage, nanomaterials, and the mechanisms by which metalloids or heavy metals (particularly arsenic, lead, cadmium, and mercury) and nanoparticles (NPs) induce their toxic effects. The book comprises 24 chapters of recent technological advances in nanomedicine, detailing the effects of NPs on oxidative stress, RONS, and ER stress. Clinical applications to improve testing strategies that correlate nanomaterial safety assessments and oxidative stress responses, as well as the effects of antioxidant defense therapies and ROS interactions, are also explored. The book is a resource for researchers and professional scientists in toxicology, environmental chemistry, environmental science, nanomaterials, and pharmaceutical sciences.

Key Features

- Discusses biological, pathophysiological, toxicological, immunoregulatory, and cellular signaling pathway mechanisms of RONS, ER, heavy metals, and NPs
- Contains a comprehensive comparison of oxidative stress, oxidative damage, modulation of ER, heavy metals, free radical-induced cell death mechanisms, and metabolic diseases
- Presents the effects of interactions between antioxidant defense therapy and ROS and clinical applications for safety assessment and diagnosis



About the Author

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9780128224816 生物科学 分类码: Q2 英文 Science Global 1 库 C0601



ACADEMIC PRESS

An imprint of Elsevier
elsevier.com/books-and-journals

ISBN 978-0-12-822481-6



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