Special Issue

Advances in Mitochondrial Redox Biology—Second Edition

Message from the Guest Editor

The dynamic interplay between mitochondrial reactive oxygen species (ROS) production, antioxidant defenses, and redox-sensitive signaling pathways governs processes ranging from energy metabolism and inflammation to apoptosis and cellular regeneration. In recent years, mitochondrial redox biology has emerged as a critical field with broad implications for cardiovascular disease, cancer, neurodegeneration, aging, and immunity. Building upon the success of the first edition, this second edition of the Special Issue aims to highlight the latest breakthroughs in mitochondrial redox signaling, oxidative stress regulation, and mitochondrial–nuclear communication. We welcome original research and comprehensive reviews that explore novel mechanisms of redox regulation in mitochondria, the role of mitochondrial dynamics and quality control in redox homeostasis, innovative redox imaging and proteomic approaches, and therapeutic strategies targeting mitochondrial ROS. By gathering cutting-edge research across disciplines, this Special Issue will provide a platform for advancing our understanding of how mitochondrial redox biology drives health and disease.

Guest Editor

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Deadline for manuscript submissions

30 November 2025

Antioxidants

an Open Access Journal by MDPI

Impact Factor 6.6
CiteScore 12.4
Indexed in PubMed

mdpi.com/si/240872

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About the Journal

Message from the Editor-in-Chief

It has been recognized in medical sciences that in order to prevent adverse effects of "oxidative stress" a balance exists between prooxidants and antioxidants in living systems. Imbalances are found in a variety of diseases and chronic health situations. Our journal *Antioxidants* serves as an authoritative source of information on current topics of research in the area of oxidative stress and antioxidant defense systems. The future is bright for antioxidant research and since 2012, *Antioxidants* has become a key forum for researchers to bring their findings to the forefront.

Editor-in-Chief

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