

Special Issue

Oxidative Stress, Mitochondrial Dysfunction, and A β Pathology: Converging Pathways in Aging and Neurodegeneration

Message from the Guest Editors

Oxidative stress arises from imbalanced levels of **reactive oxygen and nitrogen species (RONS)**, which serve as key modulators of physiological processes such as host defense, apoptosis, and cellular senescence. Both **endogenous and exogenous sources** contribute to reactive and non-reactive oxidative stress. **Mitochondria** are central to RONS generation, functioning within the **electron transport chain (ETC)** to drive ATP production via **oxidative phosphorylation (OXPHOS)**. While RONS are essential signaling molecules, their dysregulation leads to inflammatory damage, apoptosis, and tissue degeneration. These disruptions accelerate aging, contribute to **A β accumulation and aggregation**, and promote the progression of **neurodegenerative diseases** including Alzheimer's disease. This Special Issue welcomes **original research and review articles** that explore oxidative stress mitigation, mitochondrial function, and molecular mechanisms in the context of aging, neurodegeneration, and regulated cell death pathways.

Guest Editors

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Message from the Editor-in-Chief

Biomedicines (ISSN 2227-9059) is an open access journal devoted to all aspects of research on human health and disease, the discovery and characterization of new therapeutic targets, therapeutic strategies, and research of naturally driven biomedicines, pharmaceuticals, and biopharmaceutical products. Topics include pathogenesis mechanisms of diseases, translational medical research, biomaterial in biomedical research, natural bioactive molecules, biologics, vaccines, gene therapies, cell-based therapies, targeted specific antibodies, recombinant therapeutic proteins, nanobiotechnology driven products, targeted therapy, bioimaging, biosensors, biomarkers, and biosimilars. The journal is open for publication of studies conducted at the basic science and preclinical research levels. We invite you to consider submitting your work to *Biomedicines*, be it original research, review articles, or developing Special Issues of current key topics.

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