Special Issue

Exploring the Molecular Basis of Cellular Responses to Microgravity-Induced Oxidative Stress

Message from the Guest Editors

Microgravity induces significant oxidative stress that profoundly affects cellular function and survival, leading to altered gene expression, metabolic dysfunction, and cellular damage. Understanding the molecular pathways that modulate cellular responses to this stress is crucial, particularly in the context of long-term space missions.

The goal of this Special Issue is to present the most recent research focused on elucidating the cellular and molecular mechanisms triggered by oxidative stress under both real and simulated microgravity conditions. We welcome studies focused on all biological kingdoms —prokaryotes, eukaryotes, animals, and plants— investigating how these cells repair oxidative damage or maintain redox homeostasis in such peculiar environments.

Additionally, this Special Issue aims to highlight innovative strategies to mitigate oxidative damage and propose potential protective approaches that could benefit both space missions and terrestrial applications. Research utilizing advanced technologies, such as genomics, transcriptomics, and proteomics, is highly encouraged.

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The *International Journal of Molecular Sciences* (*IJMS*) is an open access journal, which was established in 2000. The journal aims to provide a forum for scholarly research on a range of topics, including biochemistry, molecular and cell biology, and molecular biophysics. *IJMS* publishes both original research and review articles, and regularly publishes special issues to highlight advances at the cutting edge of research. We invite you to read recent articles published in *IJMS* and consider publishing your next paper with us.

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