# 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.

#### Guest Editors

#### Dr. Caterina Morabito

- 1. Department of Neuroscience, Imaging and Clinical Sciences, University "G. d'Annunzio" Chieti-Pescara, Via dei Vestini, 31, 66100 Chieti, Italy
- 2. Center for Advanced Studies and Technology (CAST), University "G. d'Annunzio" Chieti-Pescara, Via dei Vestini, 31, 66100 Chieti, Italy

## Dr. Simone Guarnieri

- 1. Department of Neuroscience, Imaging and Clinical Sciences, University "G. d'Annunzio" Chieti-Pescara, Via dei Vestini, 31, 66100 Chieti. Italy
- 2. Center for Advanced Studies and Technology (CAST), University "G. d'Annunzio" Chieti-Pescara, Via dei Vestini, 31, 66100 Chieti, Italy



# International Journal of Molecular Sciences

an Open Access Journal by MDPI

Impact Factor 4.9 CiteScore 9.0 Indexed in PubMed



mdpi.com/si/220491

International Journal of Molecular Sciences Editorial Office MDPI, Grosspeteranlage 5 4052 Basel, Switzerland Tel: +41 61 683 77 34 ijms@mdpi.com

mdpi.com/journal/ ijms





# International Journal of Molecular Sciences

an Open Access Journal by MDPI

Impact Factor 4.9 CiteScore 9.0 Indexed in PubMed





# Message from the Editor-in-Chief

The International Journal of Molecular Sciences (*IJMS*, ISSN 1422-0067) 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, molecular biophysics, molecular medicine, and all aspects of molecular research in chemistry. *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.

# **Editor-in-Chief**

## Prof. Dr. Maurizio Battino

Department of Odontostomatologic and Specialized Clinical Sciences, Sez-Biochimica, Faculty of Medicine, Università Politecnica delle Marche, Via Ranieri 65, 60100 Ancona, Italy

# **Author Benefits**

# **Open Access:**

free for readers, with article processing charges (APC) paid by authors or their institutions.

# **High Visibility:**

indexed within Scopus, SCIE (Web of Science), PubMed, PMC, MEDLINE, Embase, CAPlus / SciFinder, and other databases.

## Journal Rank:

JCR - Q1 (Biochemistry and Molecular Biology) / CiteScore - Q1 (Organic Chemistry)

