

Special Issue

Free Radical, Oxidative Stress, and Antioxidant Impact on Human Health

Message from the Guest Editor

Oxidative stress arises from an imbalance between reactive oxygen species (ROS) production and the body's antioxidant defense systems, leading to lipid peroxidation, protein oxidation, DNA damage, inflammatory responses, and mitochondrial dysfunction. Excess ROS contribute to cellular and molecular damage implicated in neurodegenerative disorders, cardiovascular diseases, cancer, diabetes, and autoimmune conditions. Antioxidants, both enzymatic (e.g., superoxide dismutase, catalase, glutathione peroxidase) and non-enzymatic (e.g., vitamins C and E, polyphenols, flavonoids), neutralize ROS and maintain redox homeostasis. We welcome original research and review articles exploring oxidative stress mechanisms, novel antioxidant strategies, redox-targeted therapeutics, and clinical applications. We encourage the submission of papers utilizing advanced methodologies, including omics technologies, bioinformatics, and translational research models. This Special Issue aims to foster the development of novel therapeutic strategies for oxidative stress-related diseases by advancing our understanding of oxidative stress and antioxidant defense systems.

Guest Editor

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Message from the Editor-in-Chief

As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

Editor-in-Chief

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