

Special Issue

Mechanistic Insights into the Antioxidant Activity of Bioorganic Molecules: A Chemical Perspective

Message from the Guest Editor

Understanding the molecular mechanisms underlying antioxidant activity is crucial in developing novel therapeutic strategies and functional materials. Bioorganic molecules, including natural products, synthetic compounds, and biomimetic analogs, possess diverse structural features that contribute to their ability to neutralize reactive oxygen and nitrogen species. From electron donation to radical scavenging and metal chelation, these antioxidant actions are governed by intricate chemical principles that merit in-depth exploration. This Special Issue will highlight recent advances in elucidating the antioxidant mechanisms of bioorganic compounds, with a particular emphasis on structure–activity relationships, chemical kinetics, and mechanistic insights derived through both experimental and computational approaches. We invite contributions that explore how chemical modifications, molecular geometry, and reaction environments influence antioxidant behavior. We welcome research and comprehensive review articles that will enhance our understanding of antioxidant mechanisms from a chemical standpoint.

Guest Editor

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Deadline for manuscript submissions

30 November 2025



Current Issues in Molecular Biology

an Open Access Journal
by MDPI

Impact Factor 3.0
CiteScore 3.7
Indexed in PubMed



mdpi.com/si/243846

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