

Special Issue on

## Oxidative Stress in Microbial Diseases: Pathogen, Host, and Therapeutics

# CALL FOR PAPERS

Antioxidant defenses in pathogenic microorganisms (bacteria, fungi, protozoan, and virus) are mediated by molecular mechanisms with variable complexity. In general, redox metabolism in microorganisms are based on rudimentary enzymatic process compared with the complex and multiscale enzymatic (e.g., superoxide dismutase, catalase, glutathione reductase, and glutathione S-transferase) and nonenzymatic (e.g., C and E vitamin, -carotene, and uric acid) effectors broadly distributed in fluids and tissues of vertebrate hosts. As several antioxidant enzymes of pathogenic microorganisms are not expressed in eukaryotic hosts, these enzymes represent specific molecular targets potentially useful in rational drug design.

Regarding the pivotal role played by antioxidant system in maintaining the morphological and functional integrity of all microorganisms, disruptors of redox balance (e.g., inductors of oxidative stress or inhibitors of antioxidant molecules) have been proposed as candidates to new antimicrobial drugs. “Ideal” modulators of redox systems should be able to act on microbial metabolism with no or minimal interference on the host antioxidant defenses.

Interestingly, there is evidence that several drugs (e.g., anti-inflammatory, anti-neoplastic, antidepressant, anxiolytic, and antipsychotic) developed for diverse conditions also exhibit antimicrobial properties. These properties are supposedly based on the disruption of microbial redox metabolism. Accordingly, evidence from preclinical (*in vitro* and *in vivo*) and clinical studies opens new venues for drug repurposing and/or development of pharmacological strategies for the treatment of infectious diseases.

This special issue aims at creating an interdisciplinary platform to discuss the subcellular, cellular, and molecular basis of the metabolism redox associated with all levels of host-pathogen interaction and therapeutics. This issue accepts articles containing primary research results (*in silico*, *in vitro*, and *in vivo*) as well as studies based on secondary data, such as comprehensive and systematic review articles, which will illustrate and stimulate the continuing effort to understand the redox systems from the microbial metabolism, host-pathogen interaction, and treatment of infectious diseases.

Potential topics include but are not limited to the following:

- ▶ Metabolism redox in pathogenic microorganisms
- ▶ Oxidative stress and antioxidant defenses in infectious diseases
- ▶ Prooxidant and antioxidant antimicrobial drugs
- ▶ Analytical methods and instrumentation applied to the analysis of redox metabolism in pathogenic microorganisms, infectious diseases, and antimicrobial drugs

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/omcl/osmdi/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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