Oxidative Medicine and Cellular Longevity

Hindawi

Special Issue on

Chemistry, Biology, and Pharmacology of Modulators of Oxidative Stress

CALL FOR PAPERS

Oxidative stress (OS) is involved in the pathogenesis of many disorders and modulators of OS can be of value in their treatment. The mechanisms by which OS can be modulated, including the activation or inhibition of sirtuins and nuclear factor erythroid 2-related factor 2 (Nrf2), the master regulator of endogenous antioxidant enzymes, are currently of great interest. Unfortunately, it is known that antioxidant treatments failed in many clinical trials (https://clinicaltrials.gov/) and the reasons for that have not been fully elucidated to date. Novel approaches to redox therapies are necessary and the development of reliable biomarkers capable of predicting the clinical responses is crucial.

Furthermore, OS plays a crucial role in the physiology of various bacteria. It influences bacterial DNA replication, cell division, gene expression, protein modification, and their essential processes. Virulence of many bacteria is regulated, either positively or negatively, by OS conditions. Development of bacteriophages, viruses that infect bacterial cells, is also dependent on OS conditions and antioxidants' action. This also concerns bacteriophages that determine virulence of bacterial strains by encoding strong toxins—such toxins are effectively produced only after prophage induction, a process stimulated by OS. Therefore, modulation of OS is crucial for understanding biological processes occurring in bacteria.

In this special issue, the main aspects of the modulation of OS will be examined.

Potential topics include but are not limited to the following:

- Extraction, synthesis, and derivatization of modulators of OS, in particular concerning diseases of the central nervous system
- Pharmacological applications of modulators of OS
- Activators and inhibitors of Nrf2
- Activators and inhibitors of sirtuin pathways
- The role of OS in bacterial infections (mechanisms of regulation of OS response in bacterial cells, effects of OS on bacteriophage development, OS in host-bacteria interactions, use of modulators of OS in the treatment of infections, etc.)

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

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

Lead Guest Editor
Luciano Saso, Sapienza University of Rome, Rome, Italy
luciano.saso@uniroma1.it

Guest Editors
Grzegorz Wegrzyn, University of Gdansk, Gdansk, Poland
grzegorz.wegrzyn@biol.ug.edu.pl

Marc Le Borgne, University of Lyon, Lyon, France
marc.le-borgne@univ-lyon1.fr

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