

Special Issue on **Modulating Oxidative Stress in Drug-Induced Injury and Metabolic Disorders: The Role of Natural and Synthetic Antioxidants**

CALL FOR PAPERS

Oxidative stress is an imbalance in cellular redox reactions which plays a key role in the pathogenesis of metabolic disorders and drug-induced injury. Oxidative stress is the result of reactive oxygen species (ROS) overproduction or a decline in antioxidant defense mechanisms. Although ROS production can be beneficial in some instances as they are used by the immune system, in general, excessive generation of ROS results in deleterious effects causing damage to DNA, proteins, and lipids, ultimately leading to cell death. Several diseases, including cancer, neurodegeneration, obesity, metabolic syndrome, diabetes mellitus, liver disease, and others, are well-known to be associated with excessive ROS production. Therefore, agents counteracting excess ROS and/or boosting the antioxidant defenses represent an appealing strategy for the treatment of multiple diseases.

Antioxidant substances could be natural or synthetic. Natural antioxidants are obtained entirely from natural sources and have been used in food, cosmetics, and pharmaceutical industries for some time. On the other hand, synthetic antioxidants are substances created from chemical processes. The current understanding of the complex role of ROS in the physiological and pathological processes points to the necessity of developing multifunctional antioxidants, which can maintain oxidative homeostasis, both in health and in disease. In this context, numerous research groups focus on the characterization and application of natural antioxidant agents in different diseases. In addition, a great deal of effort is being conducted to design and synthesize free radical scavenging and antioxidant substances that can diminish excessive ROS production and improve the endogenous antioxidant defenses. Understanding and validating the biological activities of natural and synthetic antioxidant compounds and their molecular mechanisms in counteracting ROS and oxidative stress will provide solid scientific foundation to the application of antioxidants in the prevention and treatment of multiple diseases.

We invite investigators to contribute original research, as well as review articles that illustrate the usefulness of natural and synthetic antioxidants as novel therapeutic approaches to prevent and fight metabolic diseases and drug-induced disorders. The purpose of the special issue will be to focus on articles describing the mechanism underlying the modulatory effect of natural and synthetic antioxidants on oxidative stress.

Potential topics include but are not limited to the following:

- ▶ Role of ROS in metabolic and drug-induced disorders
- ▶ In vitro and in vivo studies on the role of antioxidants in controlling redox imbalance
- ▶ Modulators of the redox-sensitive transcription factors
- ▶ Characterization of the mechanism of action of natural and synthetic antioxidants
- ▶ Natural and synthetic antioxidants as modulators of cellular signaling and metabolism
- ▶ Novel approaches to identify the bioactivity of natural and synthetic antioxidants
- ▶ Therapeutic application of antioxidants in oxidative stress-related diseases

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

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

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