

## Special Issue on **Gut Microbiota and Oxidative Stress: Implications in Cardiovascular Disease**

# CALL FOR PAPERS

Oxidative stress is recognized as one of the main mechanisms involved in the pathogenesis of cardiovascular diseases. In physiological conditions, the production of reactive oxygen species (ROS) and intracellular antioxidant response are balanced. The alterations of this equilibrium lead to cellular damage, both in case of enhanced production of ROS, and/or impaired antioxidant status. In these conditions, ROS damage cells and its components; they alter their functions and, acting as signalling molecules, generate different pathologies. In this regard, a clinical correlation between increased production of ROS and risk factors for the development of vascular diseases such as hypertension, diabetes, aging, and endothelial dysfunction is now well documented.

In recent years, gut microbiota-host interaction has gained significant interest. Accumulating evidence has revealed that intestinal microbiota is responsible for systemic inflammation and contributes to different pathologies such as diabetes mellitus, obesity, hypertension, and chronic inflammatory gut disease. Changes in the composition of gut microbiota, referred to as dysbiosis, have been associated with increased oxidative stress, a condition common to many diseases such as atherosclerosis, hypertension, heart failure, obesity, and type 2 diabetes. In addition to alterations in gut microbiota composition, the metabolic potential of gut microbiota has been identified as a contributing factor in the development of cardiovascular diseases. To date, therefore, the gut microbiota is considered as an endocrine organ that is able to produce bioactive metabolites.

A recent key discovery was the demonstration that several species of human commensal gut bacteria induce rapid, “deliberate” generation of ROS. Moreover, gut microbiota could regulate the antioxidant status of the cells such as glutathione metabolism.

Since gut microbiota is readily modifiable through a variety of interventions, it can be targeted to modulate the host signalling pathways involved in cardiovascular diseases.

Based on these data, we invite investigators to contribute original research as well as review articles on the role of gut microbiota, in particular of its bioactive metabolite, in several metabolic and nonmetabolic diseases correlated to cardiovascular risk. Moreover, we encourage investigators to submit studies evaluating the role of different pharmacological and nonpharmacological approaches to prevent gut dysfunction and that could fight the increased risk of developing cardiovascular diseases.

We are focused on articles describing new mechanisms, new molecules, and new approaches to regulate gut microbiota in cardiovascular diseases.

Potential topics include but are not limited to the following:

- ▶ In vitro and in vivo studies on the role of gut microbiota, related to oxidative stress or inflammation, in cardiovascular disease
- ▶ The role of NADPH oxidase in gut dysfunction
- ▶ Pharmacological and nonpharmacological approaches to modulate gut dysfunction including dietary interventions
- ▶ Characterization of signalling pathways through which the active metabolites of gut microbiota contribute to the balance between oxidative stress and antioxidant status

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

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

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