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Oxidative Stress in Cardiovascular Diseases and Vascular Pathophysiology

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Message from the Guest Editor

Reactive oxygen species (ROS), particularly superoxide anion and hydrogen peroxide, play an essential role in numerous cellular physiological processes by modulating several signaling pathways. In contrast, the overproduction of ROS and/or the impairment of endogenous antioxidant defenses induces an imbalance that ultimately leads to a situation of oxidative stress that is implicated in vascular and metabolic diseases. Among other effects, oxidative stress alters gene expression, causes endothelial dysfunction, promotes the remodeling of the extracellular matrix, and exacerbates inflammatory and senescent vascular processes. Vascular oxidant-generating enzymes include NADPH oxidases, xanthine oxidases, lipoxygenases, mitochondrial oxidases, and nitric oxide synthases. This Special Issue will focus on the novel mechanisms of oxidative stress, its impact on vascular inflammation and dysfunction, the identification of principal ROS-generating enzymes, with a special focus on the NADPH oxidase family and mitochondria, and the potential benefit of targeting these specific sources of oxidative stress to improve vascular function.

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Message from the Editor-in-Chief

It has been recognized in medical sciences that in order to prevent adverse effects of "oxidative stress" a balance exists between prooxidants and antioxidants in living systems. Imbalances are found in a variety of diseases and chronic health situations. Our journal *Antioxidants* serves as an authoritative source of information on current topics of research in the area of oxidative stress and antioxidant defense systems. The future is bright for antioxidant research and since 2012, *Antioxidants* has become a key forum for researchers to bring their findings to the forefront.

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