

Special Issue on **Antioxidant and Immunomodulatory Compounds in Cardiovascular Repair**

CALL FOR PAPERS

Heart failure is a serious cardiovascular disease (CVD) characterized by progressive ventricular dilation and functional impairment of the myocardium in the presence of a permanent ischemic microenvironment. Inflammation and oxidative stress play an important role in the pathology of CVD and are considered triggers that contribute to the progression of heart failure. The inflammatory responses lead to fibrous tissue formation and production of oxidative stress species that generate a nonpermissive environment for cell migration and proliferation/differentiation, reducing the possibility of stem cell progenitors as well as circulating stem cells, to properly repair myocardium function. In the injured heart, immune system activation is beneficial in the short-term, by upregulating cytoprotective mechanisms and by facilitating tissue repair. However, sustained immune system activation is maladaptive, leading to the upregulation of proinflammatory cytokines and cell adhesion molecules, which lead to activation and recruitment of the “peripheral” neutrophils, monocytes, and dendritic cells to the myocardium, thus resulting in myocardial damage and adverse cardiac remodeling.

The emerging research in epigenetics has opened up new opportunities in the field of the cardiovascular repair. The *in vivo* cell conditioning with naturally or synthetic molecules before the intramyocardial delivery may improve myocardial plasticity. Additionally, antioxidant and immunomodulatory agents may play an epigenetic role contributing to create an adaptive response to microenvironment by reducing immune cell activation and by modulating function of resident cardiac cells.

The main aim of this special issue is to provide a platform for the discussion of the major research challenges and achievements on the modulatory effects of naturally or synthetic antioxidant and immunomodulatory compounds on cross-talk between immune and cardiac cells in order to create a permissive microenvironment and enhance the self-regenerating properties of the adult heart. Another attractive attempt might be the repositioning of the established cardiovascular drugs with pleiotropic anti-inflammatory and antioxidant effects that could represent important additional criteria for the development of innovative proregenerative drugs.

We are inviting investigators to submit original research papers and review articles that will stimulate the continuing efforts in following areas.

Potential topics include but are not limited to the following:

- ▶ Advances in the physiology and pathophysiology of cardiac cell-to-microenvironment cross-talk
- ▶ Targets of inflammatory and immune response signals that trigger cardiac tissue damage and repair
- ▶ Novel antioxidant and immunomodulatory strategies to prevent cardiovascular damage and remodeling
- ▶ Advances in the epigenetic role played by antioxidants and immunomodulatory compounds on the immune-mediated modulation of self-renewal ability of adult myocardium

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

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