

Special Issue on **Modulation of Membrane Transport Proteins by Oxidative Stress**

CALL FOR PAPERS

Cells allow passage of either ions or specific molecules such as sugars or amino acids across the plasma membrane through specialized proteins known as membrane transport proteins. These proteins guide important cellular processes that are vital to the life and death of a cell. Malfunctioning of transport proteins can lead to severe pathophysiological consequences such as cancer and neurological and inflammatory diseases. There are two major classes of membrane transport proteins: channel proteins and transporter or carrier proteins. Channel proteins allow specific ions of appropriate charge and size to pass through them and are responsible for homeostasis of ions across the cells. Transporter or carrier proteins transfer solute molecule across the membrane by undergoing reversible conformational changes that resembles enzyme-substrate reaction.

Membrane transport proteins were known to be influenced by reactive oxygen species (ROS) or reactive nitrogen species (RNS) generated during oxidative stress. ROS and RNS are highly reactive molecules that alter or modulate the structure and function of the transport proteins. ROS or RNS challenge is a double-edged sword. On the one hand excessive ROS or RNS damages the structures and functions of the membrane transport proteins which is reflected in pathophysiological disorders such as cancer and cardiovascular and neurodegenerative diseases and, on the other hand, oxidative modification of transport proteins results in increased activity and, hence, a potentially beneficial or protective influence. Thus, we seek to explore better understanding of the physiology and pathophysiology modulation of membrane transport proteins by oxidative stress.

We cordially invite authors to submit original research as well as review articles to explore current knowledge on the impact of oxidative stress on membrane transport proteins which will be of interest to basic researchers and clinicians as well as to advanced students undertaking degrees in biomedical sciences and medicine.

Potential topics include but are not limited to the following:

- ▶ Ion channels: redox regulation of ion channels which include both ligand and voltage gated channels
- ▶ Transporters: impact of oxidative stress on carrier or transporters
- ▶ Physiology: beneficial effect of ROS on membrane transport proteins
- ▶ Pathophysiology: connecting link between ROS and membrane transport protein in aging as well as in diseases including cardiovascular diseases, diabetes, inflammation, cancer, and neurodegenerations
- ▶ Structural and functional implication of ROS-dependent modulation of membrane transport proteins
- ▶ Potential therapeutic implication of transport proteins modulation by oxidative stress
- ▶ Structural insights of pore forming antimicrobial peptide and oxidative stress: current view

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

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Manuscript Due

Friday, 7 October 2016

First Round of Reviews

Friday, 30 December 2016

Publication Date

Friday, 24 February 2017