Oxidative Medicine and Cellular Longevity

Hindawi

Special Issue on

Oxidative Stress, DNA Damage, and Mitochondrial Dysfunction in Age-Related Degeneration of Sensory Systems

CALL FOR PAPERS

The senses receive information from the environment. This information can be in the form of sound, light, smells, tastes, and touch. Sensory information is converted into nerve signals that are carried to the brain. There, the signals are turned into meaningful sensations. A decline in the main sensory modalities is well reported to occur with aging. Addressing sensory impairment in the elderly is essential, as it exerts harmful effects on their functional status, independence, and health conditions (diseases, *disorders*, injuries, and trauma). Aging can affect all of the senses, but usually hearing and vision are most affected. Many recent studies have suggested that the accumulation of MtDNA and nuclear DNA damage, the production of reactive oxygen species, the mitochondrial dysfunction, and decreased antioxidant function are all associated with subsequent impairment of the sensory function associated with aging. However the mechanisms mediating redox imbalance, accumulation of damaged DNA, and mitochondria during aging of the senses are not completely understood.

The main objective of this special issue is to improve the knowledge on overall age-related degeneration of sensory systems, focusing particularly on the roles of oxidative stress, DNA damage and repair, and mitochondrial dysfunction in the pathophysiology of age-related impairments of sensory function. We are particularly interested in articles describing new insights into the pathophysiological mechanisms underlying the responses of sensory organs to aging. Special emphasis will be placed on findings that could lead to new diagnostic and therapeutic approaches. We cordially invite researchers to contribute their original articles and reviews to our special issue.

Potential topics include but are not limited to the following:

- The model systems used to study the age-related neurological and neurosensory degenerative diseases
- Using stem cells to model diseases of age-related sensory disorders
- Environmental and genetic factors contributing to premature age-related sensory impairment
- The effects of sensory neuronal stress-sensing pathways on sense aging
- The role of mitochondrial dysfunctions in the pathophysiology of sense aging
- Role of reactive oxygen species in cell death and senescence of sensory cells
- MtDNA and nuclear DNA damage and DNA repair in age-related sensory nervous cell degeneration
- Biomarkers of sense aging
- Pharmacological approaches such as antioxidant and mitochondrial metabolic reprogramming to restore sensory functions
- Regenerative medicine for restoring the sensory inputs
- Clinic applications

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

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

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