

Special Issue on

## Oxidative Stress in Aging Brain: Nutritional and Pharmacological Interventions for Neurodegenerative Disorders

CALL FOR PAPERS

The interactions between lifestyle and brain health have been widely demonstrated and recent studies have demonstrated the important role of antioxidants and vitamins in the antiaging process and in neurodegenerative disorders such as Alzheimer's and Parkinson's diseases.

It has been demonstrated for a long time that aging is characterized by progressive decline in the efficiency of physiological functions many of which are the consequence of free radical-induced damage to cellular macromolecules. Moreover, the age-dependent inability to counterbalance these changes by endogenous antioxidant defenses can also contribute to the oxidative damage.

Mitochondria are the main source of ROS. It has been suggested that the mitochondrial rate of free radical production has a strong correlation with maximum longevity.

Many recent concepts of biology or medicine have underlined the importance of nutrition for the maintenance of "physiological" changes during aging or insults stemming from various degenerative diseases. The role of balanced nutrition in human health is now well documented in different fields such as neuroscience.

Epidemiological analysis of the relations between nutrient consumption and neurodegeneration is complex and it is highly unlikely that a single component might play a major role. In addition, since multiple factors across the human life span might influence the brain function in adulthood and in the elderly, multidomain interventions might be more promising in the prevention of the neurodegeneration.

Moreover, it has been demonstrated that caloric restriction can increase the functional and maximal lifespan in rodents and accumulating evidence demonstrates that the selection of appropriate whole foods or the addition of antioxidants into the diet is beneficial for increasing the functional lifespan, if not the maximal lifespan. One could then argue that caloric selection may be as important as caloric restriction.

However, the knowledge of the brain bioavailability of these compounds as well as their transport across blood-brain barrier remains still insufficient and inconsistent. Thus, designing such trials remains very challenging for researchers.

This special issue aims at creating a multidisciplinary forum for discussing nutritional interventions in neurodegenerative disorders associated with oxidative stress and the role of nutrients in the development of new preventive and therapeutic areas regarding neurodegenerative diseases.

The main objective of this special issue is to review data linking potential protective factors to neurodegeneration induced by oxidative stress, focusing particularly on the roles of caloric restriction, micro- and macronutrients, and the gut-brain axis. This issue accepts high quality articles containing original research results and review articles of exceptional merit.

Potential topics include but are not limited to the following:

- ▶ Nutritional intervention in oxidative stress and neurodegenerative diseases
- ▶ Nutritional control of the age-associated neuroinflammation
- ▶ Nutritional status, oxidative stress, and dementia
- ▶ Nutritional and pharmacological control of brain oxidative damage
- ▶ Metabolic diseases and brain oxidative stress
- ▶ The impact of the gut microbiota for brain oxidative stress

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

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

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