

Special Issue on **Genetic and Chemical Effects on Somatic and Germline Aging**

CALL FOR PAPERS

Somatic aging is a complex process characterized by gradual deterioration of physiological function that is observed at the genetic, molecular, and cellular levels. The role of genetic and chemical factors in the aging phenomenon extends to various research fields, including stem cell biology, diabetes, and cancer. Although the fundamental mechanisms behind the aging process are still poorly understood, increasing evidence shows that a progressive and irreversible accumulation of oxidative injury, caused by reactive oxygen species (ROS), impacts negatively on the aging process and contributes to impaired physiological function, increased incidence of age-related disease, and shortened lifespan.

In addition to somatic aging, several studies have shown that reproductive capabilities similarly decline with age (also termed germline aging). Germline tissue is the only tissue designed to support the development of an entire organism, and therefore it may be the ultimate source of stem cells for tissue replacement in diseased or injured individuals. Specifically, germline aging manifests as diminished germline stem cell (GSC) capacity and reduced germ cell numbers. Several reports have demonstrated that signals from the reproductive system influence somatic aging and vice versa. However, mechanisms governing this intricate process remain ill defined.

Therefore, this special issue will focus on the impact of genetic (e.g., Nrf2, Sirt1, and FOXO3a) and chemical factors (e.g., Resveratrol, T-BHQ, and other substances) on antioxidant defense mechanisms and age-induced somatic and germline aging, using both invertebrate and vertebrate model organisms, which may address fundamental biological questions regarding aging and development.

In this special issue, we invite investigators to contribute original research and review articles that will stimulate the continuing efforts to understand the molecular, cellular, and physiological mechanisms of how genetic and chemical factors influence somatic and germline aging.

Potential topics include but are not limited to the following:

- ▶ Cellular defense mechanisms involved in somatic or germline aging
- ▶ Interplay of oxidative stress and longevity pathways in somatic or germline aging
- ▶ Novel readouts of oxidative stress and cellular and subcellular-scale morphological responses to oxidative damage
- ▶ Somatic or germline mutations associated with aging
- ▶ Ovary and testis as models for aging studies
- ▶ Metabolic effects on somatic or germline aging
- ▶ Genetic and chemical effects on somatic stem cell aging
- ▶ Effects of growth signaling on aging

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

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

Lead Guest Editor

Myon-Hee Lee, Brody School of Medicine at East Carolina University, Greenville, USA
leemy@ecu.edu

Guest Editors

Huai-Rong Luo, Southwest Medical University, Luzhou, China
lhr@swmu.edu.cn

Soo Han Bae, Yonsei University College of Medicine, Seoul, Republic of Korea
soohanbae@yuhs.ac

Adriana San-Miguel, North Carolina State University, Raleigh, USA
asanmiguel@ncsu.edu

Submission Deadline

Friday, 5 April 2019

Publication Date

August 2019