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Special Issue on

Delaying Metabolic Aging Extends Health Span

CALL FOR PAPERS

Metabolic aging, characterized by increased insulin resistance in the aging process, is a key frailty associated with many health conditions in elderly people. Human population studies have found that improved insulin sensitivity strongly associates with extended health span and longevity. Due to the increasing prevalence of obesity and diabetes and the emerging challenge of an aging population in most developed countries, understanding the underlying mechanisms of metabolic aging has become a primary goal for gerontologists in order to accelerate the development of feasible and efficient interventions to delay this process.

At the cellular level, decreased insulin sensitivity is related to a decline in mitochondrial function, reduced glucose and lipid uptake and usage, and elevated secretion of proinflammatory cytokines, as well as accelerated cellular senescence. Pathologically, decreased insulin sensitivity is one of the major risk factors for many aging-related diseases, including atherosclerosis, kidney and liver diseases, chronic inflammation, Alzheimer's disease, and autoimmune diseases. Recently, the role of reduced insulin sensitivity in tumorigenesis in aging people has attracted increasing attention of researchers studying both aging and cancer.

In the past years, diet interventions and genetic modifications affecting regulatory pathways, such as mammalian target of rapamycin (mTOR) and growth hormone /insulin/insulin like growth factor have shown promising effects with regard to improving metabolic aging and health span. Importantly, emerging evidence, supported by the long-standing evolutionary theory of aging, suggests that female reproduction and aging are tightly coregulated partially through the onset and progression of metabolic disorders and cancers. However, the underlying molecular mechanisms need to be further elucidated to develop feasible therapeutic interventions.

Potential topics include but are not limited to the following:

- Genetic regulation of metabolic aging, health span, and longevity
- Interventions that delay metabolic aging and longevity
- Developing new animal models for metabolism and aging studies
- Developing new bioinformatics tools for studying metabolic and aging related diseases
- Molecular and cell biology of metabolic disorders in the aging process
- Interactions among metabolic disorders, aging, and tumorigenesis
- Transcriptional links to metabolic disorders and tumorigenesis
- Metabolic dysregulation and impact on reproduction

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/ije/dmae/.

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