Journal of Diabetes Research

Hindawi

Special Issue on

Targeting Oxidative Stress in Diabetic Complications: New Insights

CALL FOR PAPERS

The dramatic increase in prevalence makes the World Health Organization predict diabetes as the 7th leading cause of death in 2030. Diabetes causes high morbidity and mortality predominantly through its complications. Unfortunately, even though blood glucose and blood pressure are under control, diabetic patients are still at risk of developing diabetic complications, such as cardiovascular disease, nephropathy, retinopathy, neuropathy, skin disorders, and male infertility. Therefore, there is an urgent need to develop more effective therapies to prevent or slow down the progression of diabetic complications.

Oxidative stress plays a critical role in the pathogenesis of diabetic complications. Diabetes-induced overproduction of mitochondrial superoxide leads to a series of detrimental cellular events, including increased formation of advanced glycation end products (AGEs), increased expression of the receptor for AGEs (RAGE), and activation of protein kinase C isoforms, the polyol pathway, and the hexosamine pathway. These effects consequently result in pathological remodeling of the end-organs and their dysfunction. Hence, targeting diabetes-induced oxidative stress has attracted much research interest in recent years.

Approaches have been developed to modulate key factors that control diabetes-induced oxidative stress. Inhibition of NADPH oxidases (NOX) or RAGE blocks the source of reactive oxygen species and thereby alleviates diabetes-induced injury in end-organs. Nuclear factor- (erythroid-derived 2-) like 2 (NRF2) turns on the transcription of multiple antioxidant genes. The increased antioxidants act as scavengers for free radicals. Some of the NRF2 activators have even been tested in clinical trials. In-depth mechanisms are being explored and elucidated, the result of which leads to discovery of novel therapeutics in management of diabetic complications.

The special issue invites investigators to share their original research articles and reviews.

Potential topics include but are not limited to the following:

- Discovery of oxidative stress-related biomarkers of diabetic complications
- Novel antioxidant therapeutics in diabetic complications
- Genetic and epigenetic mechanism in formation or regulation of oxidative stress, as well as regulation of antioxidant activity in diabetic complications
- Crosstalk between oxidative stress, inflammation, mitochondrial dysfunction, endoplasmic reticulum stress, autophagy, and apoptosis in diabetic complications
- Role of mitochondria in diabetic complications
- New insights into assessment and management of diabetic complications, with an emphasis on oxidative stress and antioxidants

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

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

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