



Hindawi

Parkinson's Disease

Special Issue on **Role of Environmental Exposure to Metals in Parkinson's Disease**

CALL FOR PAPERS

Parkinson's disease (PD) is the second most common neurodegenerative disorder after Alzheimer's disease and is the most common movement disorder in people over the age of 65. Although aging appears to be the greatest risk for the development of PD, pathogenesis of the disease is still incompletely understood and remains to be elucidated. Recent advancements in molecular and epidemiological studies have emphasized that many cases of the overwhelming majority of PD cases are likely caused by a complex interplay between genetic and environmental factors. There is increasing recognition that environmental exposures to or abnormal accumulations of heavy metals, such as iron, manganese, copper, and lead, are associated with increased risk of PD. Moreover, some key environmentally relevant metals including manganese and copper have been shown to interact with α -synuclein, a key protein implicated in both familial and idiopathic cases of PD, and accelerate the fibrillation of α -synuclein, exerting neurotoxicity in experimental models of PD. Furthermore, these metals have been shown to increase binding of herbicides to α -synuclein and also exhibit a synergistic effect on the rate of fibrillation of α -synuclein when coupled with pesticides. Although the molecular basis of neuronal death associated with redox active metal ions is yet unknown, there is compelling evidence suggesting that these neurotoxic metals increase free radical production and initiate a cascade of cellular reactions leading to dopaminergic cell death.

In this special issue dedicated to role of environmental exposure to metals and the etiology of PD, we invite investigators to contribute original research articles as well as review articles that will help in understanding the metal-induced oxidative damage, altered mitochondrial function, protein misfolding, neuroinflammation, and neurodegeneration. Authors are invited to focus on altered molecular mechanisms upon exposure to environmental relevant metals and highlight potential tip-offs for future research on this important topic.

Potential topics include, but are not limited to:

- ▶ Physiological role of metals in healthy aging
- ▶ Role of metals in epigenetic regulation of PD
- ▶ Occupational metal exposure and risk of Parkinsonism
- ▶ Role of metals in altered mitochondrial biogenesis and function of PD
- ▶ Role of metals in dysregulation of synaptic transmission
- ▶ Role of metals in neuroinflammation and degeneration
- ▶ Dysregulation of iron transport and storage in PD
- ▶ Biomarkers of metal-linked Parkinsonism
- ▶ Cross talk between metal and noncoding RNAs in PD
- ▶ Use of metallomics and metabolomics to understand metal-linked Parkinsonism
- ▶ Gene-metal interactions and PD
- ▶ Metal-metal interactions and PD
- ▶ Genotoxic effects of metals in PD
- ▶ Potential therapeutic approaches to chelate metal-induced neurotoxicity in PD

Authors can submit their manuscripts via the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/pd/reemp/>.

Lead Guest Editor

Huajun Jin, Iowa State University,
Ames, USA
egb761@iastate.edu

Guest Editors

Gunnar Kwakye, Oberlin College,
Oberlin, USA
gunnar.kwakye@oberlin.edu

Anamitra Ghosh, Van Andel Research
Institute, Grand Rapids, USA
ananeuro@gmail.com

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First Round of Reviews

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