Journal of Toxicology

# Special Issue on
# **Toxicity of Nanoparticles**

Hindawi

# CALL FOR PAPERS

Nanoparticles (NPs) have a wide variety of applications such as electronic components, sports equipment, sun creams, and biomedical applications. Since their initial discovery, nanoscience has undergone transition from bench science to applied science. Nanoparticles are being increasingly used in consumer products, manufacturing processes, and medical products. It is therefore important that both workers in the manufacturing units and end-users should be protected from inhalation of potentially toxic NPs. There may be a need to sequester NPs into products to prevent the NPs from being released into the atmosphere during the product's life or during recycling. Further, noninhalation routes of NP absorption, like dermal and medical injectables, must be studied to understand their possible toxic effects. Studies are also needed to study the possible buildup of NP into the tissues and organs and the consequent damage. Most of the toxicity caused by NPs is through the generation of reactive oxygen species.

Commonly used in vitro methods of NPs toxicity include the LDH assay of cell membrane integrity, the MTT assay of mitochondrial function, and immunochemistry markers for apoptosis and necrosis. In vivo animal models are used to study aspects such as toxicokinetics in the body, that is, absorption, distribution, metabolism, and elimination. In vivo tests however are time-consuming and expensive and and invoke ethical issues (Sharifi et al. 2012).

A fundamental understanding of the biological interactions of NPs with cells, proteins, and tissues is essential to safe use of NPs. Before being inducted into everyday products, NPs and NP-products must be ascertained to have a high degree of biocompatibility, with minimal negative effects on the biological system. The proposed special issue will cover various aspects of NPs toxicity.

Potential topics include but are not limited to the following:

- NP metabolism and toxicology
- Molecular mechanisms of NP toxicity
- NP toxicology through reactive oxygen/reactive nitrogen species, DNA damage, mutagenesis, DNA repair, mechanisms of cell death, mitochondrial dysfunction, metals, reproductive toxicology, and developmental toxicology
- Aquatic toxicology/environmental toxicology of NP
- Protective strategies in mitigating NP toxicity

Authors can submit their manuscripts through the Manuscript Tracking System at https://mts.hindawi.com/submit/journals/jt/ton/.

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