Avipsha Sarkar et al., Madridge J Nanotechnol Nanosci. 2019
http://dx.doi.org/10.18689/2638-2075.a4.005

Nanotoxicology: Need of the Era

Avipsha Sarkar* and **Shampa Sen**
Vellore Institute of Technology, India

Nanotoxicology is a demarcated discipline that educates about the positive and negative effects of nanomaterials in living beings. The toxicity measurement of the engineered nanodevices and nanomaterials is absolutely mandatory due to its wide range of applications from biomedical to environmental. Both *In-Vitro* and *In-Vivo* assessment techniques are reported for determining toxicity of nanoparticles. However, the consequences of nanoparticle usage in different experimental models need to be explored in details to ascertain their toxic effects. Oxidative stress, DNA damage, apoptosis, actin filament integrity, alteration of gene expression, mitochondrial damage and production of reactive oxygen species are few hazardous effects of nanoparticles expressed against living organisms. The toxicity of nanoparticles in the cellular level varies with their routes of entry. This review explains detailed overview of toxicity of nanoparticles in *In-Vivo* and *In-Vitro* systems along with the precarious aspects responsible for their toxicity which further can be of importance to researchers, scientists, manufacturers and also consumers for evaluating the pertinence of certain nanoparticles.

Biography:

Avipsha Sarkar is currently working as an Asst. Professor (Jr.) in VIT, Vellore, India. Her publications include 6 book chapters and 3 journal articles pertaining to nano-remediation, cancer biology and nutraceuticals. Her recent book chapter deals with application of data mining in nutrigenomics which was published in the book 'Machine Learning and IoT: A biological perspective', CRC press Taylor and Francis group. Her research interests include cancer biology, proteins, nanotechnology, drug design and computational biology.