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<http://www.dtic.mil/cgi-bin/GetTRDoc?Location=U2&doc=GetTRDoc.pdf&AD=ADA446266>

Accession Number : ADA446266

Title : In Vitro Toxicity of Aluminum Nanoparticles in Rat Alveolar Macrophages

Descriptive Note : Master's thesis

Corporate Author : AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH
SCHOOL OF ENGINEERING AND MANAGEMENT

Personal Author(s) : Wagner, Andrew J.

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Abstract : The purpose of this research is to characterize the in vitro cellular effects of rat lung macrophages to exposure to aluminum oxide nanoparticles (Al₂O₃-NP) (30 and 40nm) compared to aluminum nanoparticles (Al-NP) (50, 80, and 120nm). This study concentrates on cell viability, mitochondrial function, phagocytosis ability, and cytokine response. Results indicate no to minimal toxicological effects on macrophages exposed as high as 500 µg/ml for 24 hours with Al₂O₃-NP. However, there was a significant delayed toxicity that occurred at 96 and 144 h post exposure. Al-NP shows slight to moderate toxicity after 24 h exposure at 100 and 250 µg/ml. The phagocytic ability of these cells was significantly hindered by exposure to each size of the Al-NP at 25 µg/ml for 24 hours, but not by the Al₂O₃-NP. A series of cytokine and nitric oxide assays performed show none of these aluminum nanoparticles are inducing an inflammatory response.

Descriptors : *TOXICITY, *IN VITRO ANALYSIS, *MACROPHAGES, *ALUMINUM OXIDES, FUNCTIONS, ALUMINUM, DELAY, RESPONSE(BIOLOGY), INFLAMMATION, NITRIC OXIDE, CYTOKINES, MITOCHONDRIA, PHAGOCYTES,

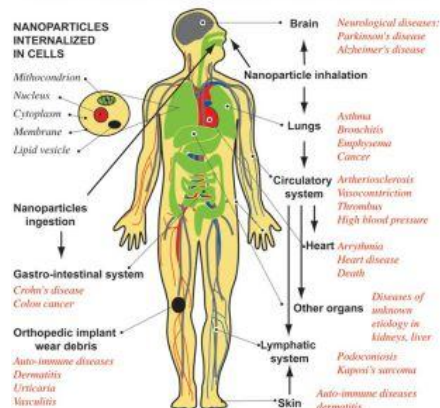
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Subject Categories : ANATOMY AND PHYSIOLOGY
TOXICOLOGY
INORGANIC CHEMISTRY

Distribution Statement : APPROVED FOR PUBLIC RELEASE

DISEASES ASSOCIATED TO NANOPARTICLE EXPOSURE

C. Ricci, I. Pichon, & K. Rabib, Nanomaterials and nanoparticles: Sources and toxicity, Biotechnology 2 (2007) 189-197



on the following USAF page click the "Handle / proxy Url : " link to view the pdf... report. Be sure to search the word "Human" because we are the lab rats now.

Be sure to read the Abstract re "aluminum oxide nanoparticles (Al₂O₃-NP)" aka AL-NP, we're being exposed to these in an ever smaller particle as the USAF has worked to make them ever smaller which enables them to cross the blood-brain barrier.

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