A perspective on the developmental toxicity of inhaled nanoparticles

This paper aimed to clarify whether maternal inhalation of engineered nanoparticles (NP) may constitute a hazard to pregnancy and fetal development, primarily based on experimental animal studies of NP and air pollution particles. Overall, it is plausible that NP may translocate from the respiratory tract to the placenta and fetus, but also that adverse effects may occur secondarily to maternal inflammatory responses. The limited database describes several organ systems in the offspring to be potentially sensitive to maternal inhalation of particles, but large uncertainties exist about the implications for embryo-fetal development and health later in life. Clearly, the potential for hazard remains to be characterized. Considering the increased production and application of nanomaterials and related consumer products a testing strategy for NP should be established. Due to large gaps in data, significant amounts of groundwork are warranted for a testing strategy to be established on a sound scientific basis.

General information
Publication status: Published
Organisations: National Food Institute, National Research Centre for the Working Environment, University of Rome Tor Vergata, INRA Institut National de La Recherche Agronomique, National Institute of Public Health and the Environment, Institute of Occupational Medicine, Napier University, University of Grenoble
Number of pages: 23
Pages: 118-140
Publication date: 2015
Peer-reviewed: Yes

Publication information
Journal: Reproductive Toxicology
Volume: 56
Issue number: SI
ISSN (Print): 0890-6238
Ratings:
BFI (2015): BFI-level 2
Scopus rating (2015): CiteScore 3.36 SJR 1.263 SNIP 1.057
Web of Science (2015): Impact factor 2.85
Web of Science (2015): Indexed yes
Original language: English
Keywords: Developmental toxicity, Inhalation, Instillation, Nanomaterial, Nanoparticles, Pregnancy, Reproductive toxicity, Ultrafine particles
Electronic versions:
perspectiveonthedevelopmentaltoxicity.pdf
DOIs:
10.1016/j.reprotox.2015.05.015

Bibliographical note
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Source: FindIt
Source-ID: 2265891932
Research output: Contribution to journal › Journal article – Annual report year: 2015 › Research › peer-review