



# Toxicology and Health Effects



Issues of concern related to biological responses to nanoparticle exposure:

## A. Pulmonary Exposure

1. High deposition fraction
2. High surface area
3. Potential to escape phagocytosis
4. Potential to enter the interstitium
5. Potential to translocate to systemic sites
6. Possible systemic effects –
  - Cardiovascular
  - Central Nervous System



# Issues of concern related to biological responses to nanoparticle exposure:

## B. Dermal exposure

1. Potential to enter the skin
2. Potential to cause dermal irritation
3. Potential to have immune effects
4. Potential to translocate to systemic sites



## Program

1. Pulmonary toxicity of single-walled carbon nanotubes *in vivo*: relevance to occupational exposures.

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## 2. Dermal effects of nanomaterials

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### 3. Nanotoxicology – cardiovascular effects

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### 4. Nanoparticles (NP) and the brain: Pathways of translocation and effects.

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