

Nanotoxicology: novel tools for the study of cell-nanoparticle interactions

Technical content/scope: There is a stringent need for techniques that can provide a correct assessment of the biological effects of nanoparticles. Current approaches do not take into account the many unique aspects related to nanoparticles, such as the fact that quantum effects become dominant when the nanometer size range is reached. It is expected that new techniques or modified versions of older methods will provide a more realistic evaluation of the cellular modification elicited by nanoparticles.

Projects under this topic should focus on:

- Development of innovative instruments for monitoring the effects of nanoparticles at cellular level in real time, in situ, and with minimal interference
- Development and validation of appropriate, cost effective and efficient methods of investigation
- Development of models for predicting the biological impact of nanoparticles

Funding Scheme: Small or medium-scale focused research projects.

Expected impact: The novel techniques should *identify key factors* that would allow

- i. targeted screening
- ii. identification of high risk materials
- iii. prediction of toxicity
- iv. controlled generation of safer nanoparticles

For maximising their impact, the funded consortia will be expected to establish synergy with the EU nano-safety Infrastructure and to contribute to the advancement of the EU nano-safety cluster goals and agenda, to facilitate research cohesion and integration in this area.