

ESOF2008

Nanotechnology: European Commission scientists reveal promises and risks for our health

In Barcelona today as part of the Euroscience Open Forum (ESOF2008), scientists from the European Commission's Joint Research Centre (JRC) will explain recent advances made in the scientific and technological field of nanotechnology, focusing on the implications for human health in terms of potential benefits as well as associated risks. Regulatory issues raised by nanotechnology will also be addressed, along with the challenges posed by the responsible communication of potential health risks to the public and the need for decision making based on robust science.

Nanotechnology, like other new technological developments, raises complex safety, regulatory, socio-economic and ethics-related issues. The interaction of nanotech products with living organisms may entail new hazards for human health or the environment. Analyses of the potential risks posed by nanotechnology – in which the EU is leading the field – are currently focused on the unknown toxicity of manufactured nanoparticles.

Nanotechnology has the potential to solve problems in environmental protection, affordable energy, waste treatment, IT and security issues, to name but a few examples. There are particularly high expectations in the field of human health, as applications in medicine could improve the standard of healthcare across the population through earlier and better diagnosis of disease or the development of new therapies for diseases that cause the most suffering for patients.

The potential benefits and risks for human health derive from the same characteristics of nanomaterials. For example, the unique properties of nanoparticles in living tissue allow the development of novel pharmaceutical treatments such as targeted drug delivery. But there is concern over potentially adverse health effects linked to greater toxicity of the materials used at a nano-scale.

Public authorities have an important role to play in addressing risks and societal concerns. It is their task to implement transparent and robust regulations to address these issues and, if necessary, to adapt the regulatory framework to new technologies. Frameworks currently in applied in the EU and US would appear to be sufficiently broad and flexible to handle most safety issues related to developments. However, the implementation of legislation still requires a considerable research effort to close the current knowledge gaps regarding the safety of nanotechnology and to develop appropriate technical guidance.

Today's scientific symposium on the above issues relating to Nanotechnology and Health will be opened with a presentation by **Dr Hermann Stamm** of the **European Commission's Joint Research Centre** – *Institute for Health and Consumer Protection* (<http://ihcp.jrc.ec.europa.eu/>) in the Fira de Barcelona as part of ESOF2008.

Background information

'**Nanotechnology**' is a buzzword for R&D at the nanometre scale in numerous technology fields. It concerns dimensions from about one nanometre (one billionth of a meter) to about 100 nanometres and the manipulation of materials in order to exploit physical and chemical phenomena peculiar to matter at this scale.

Breaking down the borders between established disciplines such as physics, chemistry biology, medicine, and material sciences, Nanotechnology aims to produce new materials and systems with unique properties and high performance functions, offering an extraordinary range of opportunities in many technological fields and industrial sectors.

The Euroscience Open Forum (ESOF) is an occasion for leading scientists, young researchers, policy makers, business people and journalists, providing an open platform for debate and communication on research trends in the sciences, humanities and social sciences. This is its third edition, with previous conferences held in Stockholm (2004) and Munich (2006).

Further information

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