



**Ricerca ed Innovazione Responsabile delle Nanotecnologie:**  
valutazione della sicurezza ed  
adeguamento normativo, a supporto dello sviluppo industriale, e realizzazione di una  
piattaforma informativa sulle nanotecnologie finalizzata all'accesso ed alla diffusione delle  
conoscenze

**RInnovaReNano**

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- ✓ Nanotechnology is one of the six Key Enabling Technologies considered essential for European industrial development in short to medium term
- ✓ Different areas relevant to regional manufacturing enterprises (i.e. chemical, cosmetic, biomedical, food and drug) can reap great benefits and increase competitiveness through the use of nanotechnology
- ✓ Production and use of nanomaterials are, however, closely related to the proper analysis of their safety and risk assessment for humans and the environment
- ✓ Integration of different scientific knowledge and regulatory expertise is essential for the achievement of this goal
- ✓ Nanotechnology and their safe and responsible development is an ideal field for cooperation between research institutions and companies, where the research institutions can provide tools and resources that sometimes companies are not able to develop in-house



# ISS working group - January 2011

AMPP

TES

## **“Nanomaterials and Health”**

to share skills and technologies in the field  
of nanomedicine and nanotoxicology,  
with a multidisciplinary approach

MIPI

FARM

SPSVA

CSC



# ISS Research Activities

## *International Research Projects:*

- ✓ Toxic effects induced by polyamine metabolites on melanoma cells: a new therapeutic approach" Italy-USA collaboration program for lipid nanocarriers application for the development of a new therapy against melanoma
- ✓ Joint Action "NANOGENOTOX Towards a method for detecting the potential genotoxicity of nanomaterials", [www.nanogenotox.eu/](http://www.nanogenotox.eu/), for investigating *in vivo and in vitro* genotoxic potential of 15 nanomaterials used in industrial application
- ✓ Joint Actions 2013-15 for the effective implementation of the Directive on the use of Consumer Product Safety 2001/95/EC (GPSD) JA 'PROSAFE: Nanotechnology and cosmetics' (GPSD-JA 2013)
- ✓ FP7 "NANoREG, A common European approach to the regulatory testing of nanomaterials", [www.nanoreg.eu](http://www.nanoreg.eu), to deliver the answers needed by regulators and legislators on EHS by linking them to a scientific evaluation of data and test methods
- ✓ "European Network on Microvesicles and Exosomes in Health and Disease (ME-HAD)", COST project for creating an European research network of knowledge on exosomes and microvesicles
- ✓ Horizon2020 "ProSafe - Promoting the implementation of Safe by Design" [www.h2020-prosafe.eu/](http://www.h2020-prosafe.eu/) to have a central, supporting and coordinating position in the chain of EU, member states and international relationships

## ISS - Institutional Activities

- ✓ Coordination of Italian delegation to OECD WP on Manufactured Nanomaterials
- ✓ Participation to Competent Authorities for REACH and CLP (CARACAL), in the “SubGroup on nanomaterials” (CASG Nano)
- ✓ Participation to Working Group on Nanomaterials (ECHA\_NMWG)
- ✓ Participation to Technical Committee for Coordination of REACH activities in the “SubGroup on nanomaterials” (Ministry of Health)
- ✓ European Commission Platform of European Market Surveillance Authorities in Cosmetics (PEMSAC) WG: Analytical methods
- ✓ Participation to Network for Risk Assessment of Nanotechnologies in food and feed (EFSA)

## International Agreement for collaboration on Nanomaterials and Health

- ✓ Collaboration Agreement between European Community and Istituto Superiore di Sanità in Nanobiosciences applications
- ✓ Collaboration Agreement between National Heart and Lung Institute of Imperial College London and Istituto Superiore di Sanità on interaction of nanoparticles and surfactant pulmonary proteins

## *Funded by Lazio region to:*

- ✓ Identify nanomaterials relevant for regional and national companies in the different sectors, in collaboration with professional associations, to maintain a close relationship between the project activities and the company interests
- ✓ build tools and support activities to transfer methodologies for nanomaterial risk assessment to the industry, through training initiatives such as workshops and conferences.
- ✓ build up and manage a website platform to facilitate the access of users (industry and scientific community) to the knowledge on subject.

**Some of these objectives will be realized in collaboration with the Italian Association for Industrial Research (AIRI)**

## ACTIVITIES

<b>PHASE 1</b>	Analysis of technologies and the needs of the regional entrepreneurial system
<b>PHASE 2</b> Hazard identification	Physico-chemical, structural, ultrastructural e biomechanic characterization
	In vitro characterization of the toxicological potential
	In vivo characterization of the toxicological potential
	In silico characterization of NMs
<b>PHASE 3</b> Risk assessment	Safety analysis of NMs for a proper risk assessment for humans and the environment
<b>PHASE 4</b>	web platform
<b>PHASE 5</b> Technology transfer	Protocols and methodologies
	Meetings with companies, workshops and conferences