NanoValid 1st Newsletter

February 2012

Welcome from the Co-ordinator

Editorial

Dear Readers,

Welcome to the first Newsletter of the EU FP7 NanoValid project! NanoValid started on 1st November 2011 and was launched at a kick-off meeting in Rome, Italy, on 16th-17th November 2011. This first meeting was coordinated with the kick-off meeting of MARINA, the other new EU FP7 nanosafety large-scale integrating project.

As a EU FP7 "flagship" project, NanoValid has mobilized the necessary expertise and resources to adequately respond to the growing production and use of engineered nanomaterials (ENM) in a multitude of technical applications and consumer products. The project will in particular address the question, if and how these new materials will increase exposure on humans and ecosystems. As our current knowledge is still weak and established test methods not appropriate to reliably assess hazard, exposure and possible risks, existing standardized measurement and test methods will be subjected to a rigorous validation program with the aim to develop new reference methods and materials applicable to ENM. Practical case studies will help to assess the feasibility of developed reference methods to improve the performance of existing exposure monitoring, risk reduction, LCA and modelling approaches.

There has been an intense discussion so far, also with MARINA, on the selection and fabrication of a first group of test materials. As a result, test samples of 2 prototypes of nano-SiO_2 synthesized by Nanologica AB Sweden (Work Package leader 2), and of Ag synthesized by MARINA partner Colorobbia Italy, and later on by the University of Birmingham UK (Work package leader 3), will be distributed to all characterization and biological testing partners. In addition, a second group of test materials will follow consisting of 2 prototypes of TiO_2 synthesized by MARINA partner Colorobbia Italy and by NanoValid partner Centre for Chemical and Molecular Biology India, in addition to MWCNT fabricated by NanoValid partner ARKEMA France.

First results achieved and the progress of work, as well as next steps to be taken, will be discussed during the next regular project meeting, which will take place on 8-9 May 2012 at the National Research Centre for the Working Environment (NRCWE) in Copenhagen, Denmark. As about half of the members of the EU FP7 NanoSustain project (www.nanosustain.eu) also participate in NanoValid (including the host NRCWE), and as the NanoValid and NanoSustain are coordinated by the same organization, there will be a half-day joint meeting between these two projects in the afternoon of 9 May 2012, to exchange experiences and discuss ways to share results and synergies.

We warmly invite you to visit and register at our website www.nanovalid.eu and to closely follow up and interact with the development of the project. We welcome also potential external laboratory partners to participate as an external reference laboratory in the planned round robins, and so extend the impact of the project.

In the next Newsletter (May 2012), we will begin to present our expert groups and their research and role within the project.

I wish you still a happy and healthy 2012 and look much forward to a fruitful and inspiring dialogue with you in the future!

Best wishes

Rudolf Reuther

Collaboration with MARINA

With closely related aims to develop reference methods for selected nanomaterials and nanoparticles it is vital that NanoValid and FP7 MARINA collaborate closely to ensure optimal output from both and cost efficiency. FP7 MARINA also started on 1st November 2011 with 47 partners and a budget of €9 million. The project is coordinated by Dr Lang Tran of the Institute of Occupational Medicine (IOM) in Edinburgh, UK and will also run for four years.

The close relationship between the projects had an excellent foundation with joint kick off meetings at Universita Cattolica del Sacre Cuore in Rome on 16th-18th November 2011. Here a six month synchronisation plan was developed to detail how the close collaboration and knowledge exchange would be achieved. The plan focused on two key themes for integration:

- The selection of materials will be shared and discussed between the relevant partners of each project; and
- A common dissemination, exploitation, and NanoSafety Cluster interaction strategy.

Already a joint press release has been prepared and there has been a sharing of materials; MARINA partner, Colorobbia, have provided silver (Ag) nanoparticles to NanoValid partners Nanologica. Further material sharing is likely and will allow for improved robustness of experimental results from both projects.

There will be quarterly online meetings between relevant partners from NanoValid and MARINA and the project coordinators will be in attendance at both project's six monthly consortium meetings. Also both projects will be presenting posters at the QNano conference 27th-29th February 2012. This strategy will allow for continued and successful collaboration.

Our role in the NanoSafety Cluster

The EU NanoSafety Cluster www.nanosafetycluster.eu is a DG RTD NMP initiative to maximise the synergies between the existing FP6 and FP7 projects addressing all aspects of nanosafety including toxicology, ecotoxicology, exposure assessment, mechanisms of interaction, risk assessment and standardisation. The next Cluster meeting will take place in Dublin on 1st March 2012 at UCD campus

NanoValid, and also MARINA, are key projects of the Cluster and therefore play an important role in the Cluster activities. NanoValid project coordinator, Dr Rudolf Reuther, will attend Nanosafety Cluster meetings on a regular basis. Additionally many project partners are members of one of the seven Cluster working groups which are listed below;

- WG1 - Materials
- WG2 - Hazard
- WG3 - Exposure
- WG4 - Database
- WG5 - RIsk
- WG6 - Modelling
- WG7 - Dissemination

In terms of dissemination we will contribute to Cluster activities including a communal newsletter, events calendar, and training record together with shared training workshops and other events.

NanoImpactNet – QNano conference

"From theory to practice - development, training and enabling nanosafety and health research"

27th February to 2nd March 2012—Dublin, Ireland

The joint NanoImpactNet-QNano conference "From Theory to Practise - development, training and enabling nanosafety and health research" in Dublin will last five days and consist of a three-day Integrating conference including a special stake-holder session (27th-29th February 2012) and two one-day Training schools (1st and 2nd March 2012). For further information and to register see www.nanoimpactnet.eu/index.php?page=nanoimpactnet-qnano-conference-dublin-2012

INDUSTRIAL TECHNOLOGIES 2012

integrating nano, materials and production

Aarhus, Denmark
19th-21st June 2012

Industrial Technologies 2012 is an excellent opportunity to disseminate your projects. At the event there will be European policy makers who decide on the NMP R&D funding, CTOs of companies conducting technology scouting and looking for R&D partnerships, and people representing EU projects. About 1000-1500 participants are expected to attend this largest NMP meeting in Europe. For information on the programme and other event details see: http://industrialtechnologies2012.eu/

NanoStruc International Conference on Structural Nano Composites

2nd-4th July 2012—Cranfield University, Bedfordshire, UK

The purpose of the 2012 International Conference on Structural Nano Composites (NanoStruc 2012) is to promote activities in various areas of materials and structures by providing a forum for exchange of ideas, presentation of technical achievements and discussion of future directions. NanoStruc brings together an international community of experts to discuss the state-of-the-art, new research results, perspectives of future developments, and innovative applications relevant to structural materials, engineering structures, nanocomposites, modelling and simulations, and their related application areas.

You can register at **http://www.nanostruc.info/** or by email to ***j.njuguna@cranfield.ac.uk***

Submit your abstract (for Paper or Poster) to: submission@nanostruc.info

Abstracts of up to 300 words should be submitted by 1st March 2011 and are subjected to double-blinded peer review; a response will be sent by 20th March 2012. If an abstract is accepted for the conference, a full draft paper should be submitted by 15th April 2012. Full paper submissions and authors will have reviewers' comments by 2nd May 2012. Camera-ready papers should be returned to the conference committee by 15th May 2012 for inclusion in the proceedings.

7th International Conference on the Environmental Effects of Nanoparticles and Nanomaterials

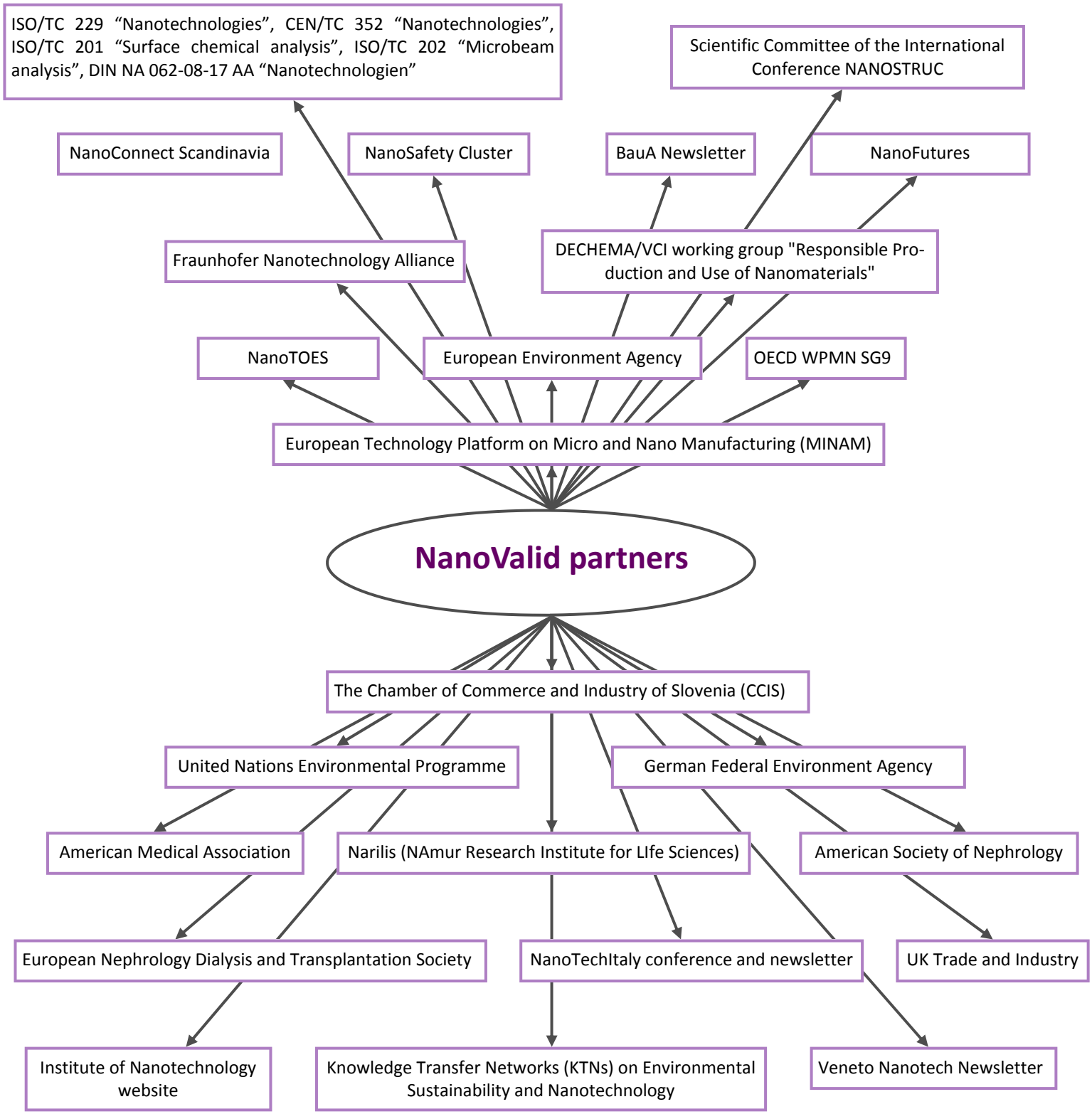
The Banff Centre, Banff, Alberta, Canada
10th-12th September 2012

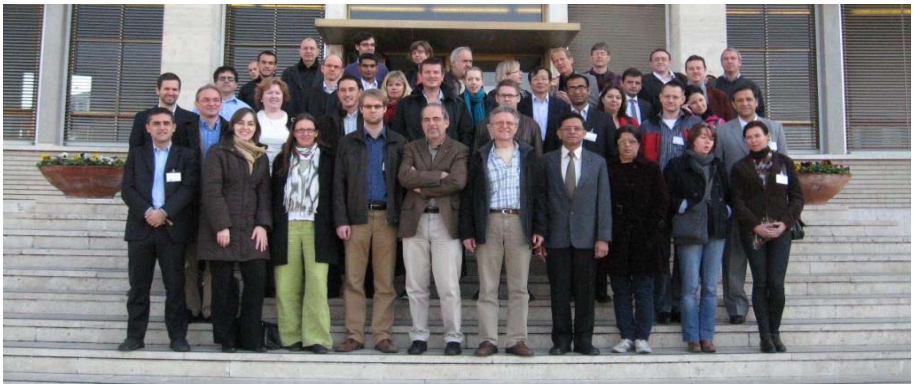
Hosted by the Office of Environmental NanoSafety, at the University of Alberta, this meeting is the 7th iteration of a highly successful international conference bringing together representatives of various levels of academia, industry, and government to assess the most recent information on the effects of nanoparticles and nanomaterials on the environment.

A call for abstracts will be issued on 5th February and should be submitted to oens@ualberta.ca prior to May 20, 2012. Abstracts are required for both oral and poster presentations. For further information please contact greg.goss@ualberta.ca

Dissemination networks

Dissemination is a vital component of every FP7 project and NanoValid's WP7 is devoted to the dissemination and exploitation of the results and output of NanoValid to a varied range of stakeholder groups. The dissemination network map below shows the various pathways, through our 29 partners, we will use to communicate the latest project results and news. If you would like to be included on the NanoValid distribution list please contact WP7 leader Lesley Tobin at Lesley.tobin@nano.org.uk





Nordmiljo (NOMI)

NordMiljö AB is the coordinating organisation of NanoValid. The company was established in 2004 and is an international research and consulting expert in the field of environmental assessment of chemicals and products. The staff have long standing experience in the planning, management and implementation of complex projects from various industrial sectors, including the chemical, metal and mining and pulp and paper industry. NordMiljö is a specialist in conducting ecotoxicological risk analysis to meet regulatory requirements and to improve the environmental performance of industrial processes.

Institute of Nanotechnology (IoN)

The Institute of Nanotechnology (ION) was established in 1997 (previously the Centre in Scotland for Nanotechnology, founded in 1994). It was one of the world's first nanotechnology information providers, and is now a world leader. It provides industry and governments with intelligence on nanotechnology and its applications and has produced several important milestone publications. Early on, the Institute supported the UK Government in the formulation of its policy in nanotechnology in a variety of ways - from undertaking benchmarking exercises to leading fact-finding Missions to major nanotechnology centres and companies across Europe and in the USA.

European Commission Joint Research Centre (JRC)

The mission of the JRC is to provide customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. As a service of the European Commission, the JRC functions as a reference centre of science and technology for the Union. Close to the policy-making process, it serves the common interest of the Member States, while being independent of special interests, whether private or national. It will contribute to the project by validation of measurement, characterization and test methods and development of more suitable methodologies applicable to nanomaterials to understand the transport and fate of engineered nanomaterials in the environment.

Tampereen Yliopisto (UTA)

University of Tampere is a State University with a medical school, teaching hospital, good research facilities, and is involved in several EU projects. It houses a modern molecular biological lab, with immunohistochemistry, confocal microscopy, Laser captured microdissection system, LightCycler unit, microarray system, sequencing unit, cell sorting machine, Cell IQ for cellular morphological study using artificial intelligence, TEM, animal laboratory with sound proof room and Tucked Davies evoked response equipments for ABR and eABR measurements. In addition, a 4.7 T MRI system for small animals is available. In the project, UTA will focus on in vitro and in vivo studies on effects of engineered nanomaterials on the inner ear as a model organ. The partner will have close collaboration with other in vivo partners in establishing neural repair model to alleviate the possible health hazards caused by accidental exposure to engineered nanomaterials.

University of Salzburg (PLUS)

The University of Salzburg is a leading institution for research and teaching in Austria, with 19.000 students and 2.300 staff. It had a budget of €130 million in 2010, including a grant income of € 22.8 Mio, of which € 6.4 Mio came from EU projects. Within NanoValid, PLUS will contribute mainly to WP3 as well as to WP6 where PLUS is WP leader. PLUS will in WP3 develop new cell-based assays for routine measurements of parameters indicating inflammation and cellular stress, two types of responses which are likely to occur as response towards a wide variety of NP if these should be toxic. Lack of response would, on the other hand, strongly suggest that cellular defence systems consider the agent in question as harmless. The methods deriving from WP3 will in WP6 be tested outside of the lab. This will include exposure of cells to collected inpure materials as well as in situ measurements at work place sites. This effort will help do define possibilities and limitations for applying biological methods to on-site monitoring.

Universidad de Zaragoza (UNIZAR)

UNIZAR has 202 research groups with a total of 2400 researchers. The Nanoporous Films and Particles, (NFP) research group has been officially recognized as a research group of excellence in Aragon. The Nanoscience Institute of Aragon, (INA), of which the NFP is one of the founding groups, is a multidisciplinary research institute devoted to Nanoscience and Nanotechnology. INA hosts the National Advanced Microscopy Laboratory (a facility with a variety of advanced instruments, including two UHRTEM Titan Microscopes with sub-angstrom resolution) and a broad variety of state-of-the-art characterization equipment for hard materials. UNIZAR has considerable experience in a number of areas related to the NanoValid project: i) risk analysis ii) Nanoparticle synthesis (wet methods, such as co-precipitation or liquid phase decomposition, dry methods such as laser pyrolysis or arc discharge), iii) nanoparticle functionalization, iv) nanomaterials characterization, v) nanoparticle dynamics (dispersion in controlled atmospheres (using the specific facilities named in the previous paragraph) and labelling.

Facultes Universitaires Notre-Dame de la Paix de Namur (FUNDP)

Founded in 1831, the University of Namur (FUNDP) consists of six faculties and research is organized in 105 research units with more than 950 researchers. The University excels in sectors such as nanotechnology and nanotoxicology, biotechnology, physics and surface chemistry. The Namur Nanosafety Center (NNC) which is an interdisciplinary research platform including chemists, physicists, biologists, and pharmacists whose joint effort allowed the development of toxicity assays for nanomaterial (NM) regulatory purposes. The Namur Nanosafety Centre brings an extensive multidisciplinary expertise in: Nanomaterial (NM) physicochemical characterisation (pristine forms, dispersions, complex matrices including food); NM fate and biodistribution studies at cellular and organ levels; Assessment of NM potential toxicity: *in vitro & in vivo* testing following OECD guidelines; Metrology, cross validation and standardization of assays for regulatory purposes (validated supplier of EC-JRC IRMM, expert for OECD WPMN, partner of the QNano infrastructure); Animal whole-body exposure to standardized airborne nanoaerosols: local and systemic impacts, biopersistence studies; and Haemocompatibility of NMs.

Univerza v Ljubljani (UNI LJ)

The University of Ljubljana is the oldest and largest complete university in Slovenia. It includes 26 member schools of humanistic, social, technical and natural science profiles. Most of them are teaching and research institutions with developed international cooperation. NanoValid participant no. 6 is the Department of Biology at the Biotechnical Faculty of University of Ljubljana. The department has a staff of 115 employees. Within a chair of zoology a very strong group is working on ecotoxicology, with a main focus on ecotoxicity of metals, pesticides and nanoparticles. The Group will assess the biological potential of different types of selected nanoparticles and those of the same type but different surfaces. This data will help to generate a database on hazard properties of selected ENPs. Also, a range of biomarkers will be used for some model organisms (invertebrates) to test nanoecotoxicity. The group will elaborate basic knowledge to suggest best dose metrics for nanoparticles and focus on linking biomarkers at different levels of biological complexity to discern nano-specific biological effects.

University of Birmingham (UB)

The University of Birmingham (UB) has approximately 26,000 students and 6,000 staff and is one of the elite UK Russell Group Universities. UB is a large, extensive and highly research active university with significant strengths in nanoscience, human health and environmental science. There is extensive experience in EU projects in these and related areas such as nano-bioscience. The School of Geography Earth and Environmental Sciences (GEES) has 60 academic staff, 28 technical and support staff and 24 research staff and achieves international excellence in teaching and research as demonstrated in the RAE that showed 95% of research in the School was internationally or globally leading. A particular expertise within GEES is environmental nanoscience, which will feed directly into this project. **Prof. Eugenia Valsami-Jones** will be coordinating research for NanoValid at UB. Prof. Valsami-Jones holds the Chair of Geosystems Nanoscience at UB; prior to this appointment, she led the Nanosciences Group at NHM; she has extensive experience of managing nanosafety projects. In NanoValid the UB team will lead WP3 and participate in WPs 2 and 5, focusing on standardisation and validation of nanoparticle synthesis and characterisation methods.

Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung (FhG)

The Fraunhofer Institute for Ceramic Technologies and Systems IKTS covers the complete field of advanced ceramics, from basic research to applications. IKTS will assist to develop and validate methods for physico-chemical analysis of ENPs in different media for toxicological and ecotoxicological investigations. We will also help to establish reference methods and standard operation procedures for dispersions of ENPs and to organize round-robin tests for validation.

Helmholtz-Zentrum fuer Umweltforschung GmbH (UFZ)

The Helmholtz Centre for Environmental Research (UFZ) has around 1,000 employees. They study the complex interactions between humans and the environment in cultivated and damaged landscapes. The group "Nanotoxicology" (Department of Bioanalytical Ecotoxicology) and deals with potential toxic effects of engineered nanoparticles towards environmental organisms. Within NanoValid, we aim to develop a method to identify and quantify uptake of nanomaterials into environmental organisms (WP3) and to develop strategies for risk assessment (Leader of WP4) and will be involved in dissemination activities.

Institutul National de Cercetaredezvoltare Pentru Microtechnologie (IMT)

IMT-Bucharest is active in research and development in micro- and nano-biotechnologies, technology transfer, education and training, dissemination, development of the national strategy in the field. The research topics in IMT-Bucharest cover the fields of microstructures and microsystems for sensing and biomedical applications; nanostructured materials, nanotechnologies and nanostructures; microsystems for monitoring the electrical activity of tissues and cells; biosensors; microstructures and MEMS for communications; testing and microphysical characterization; optical sensors, micro fluidics. The activities in nanobiotechnology field, such as microarray technology for biomolecular (proteins and DNA) patterning in microarrays, are developed mostly in the "NanoBioLab" laboratory, located in the clean-room area. IMT is partner in 6 projects financed by FP7. IMT, beside technological facilities for MEMS/NEMS device fabrication has equipments for nanomaterials characterization and preparation: nanoparticle spectrometer (DelsaNanoC), X-ray diffraction- Smart Lab, SEM-EDAX, AFM, SECM, Parstat 2273 Impedance spectrometer, Ploter microarray (GeneMachines OmniGrid Micro), Scanner microarray (GeneTAC UC4), Fluorescence spectrometre (Edinbourg instruments).

Det Nationale Forskningscenter Forarbejdsmiljo (NCRWE)

NRCWE has a strong focus on health risks related nanotechnology, the aim is to dedicate our resources, using the existing multi-disciplinary scientific expertise in the former research groups of physico-chemical characterisation and toxicology. Health risk from occupational exposure to nanoparticles is one of NRCWE's five strategic research areas. There is currently 30 staff working in the Nanotoxicology group. NRCWE role in NanoValid is in WP4 and WP6; in WP4 as task leaders in hazard identification, and in WP6 we are TL's in the case study on occupational exposure at industrial manufacturing sites.

Bundesanstalt fuer Arbeitsschutz und Arbeitsmedizin (BauA)

The Federal Institute for Occupational Safety and Health is a federal institution with tasks in research and development (Governmental research institution) in the field of occupational safety and health (OSH). BAuA is directly subordinated to the Federal Ministry of Labour and Social Affairs (BMAS) and has locations in Dortmund, Berlin, Dresden and Chemnitz. In 2011, the annual budget was €50.4 million. The annual budget for research grants initiated and managed by BAuA was approximately €4.3 million. The Federal Institute for Occupational Safety and Health has 713 employees. Within NanoValid, the BAuA activities focus on practical solutions for safe handling and use of nanomaterials at workplaces (WP6). BAuA intends to prepare a European Code of Practice for safe handling of nanomaterials based on the chemical agents directive 98/24/EC. The objective is to get consistent and practicable standards for research institutions, start-ups and small-and-medium-sized companies (SME) to ensure safe handling of nanomaterials in accordance with the EU precautionary principle. The practical solutions will be evaluated in field studies. A training manual is aimed at OSH professionals and shall support the implementation of solutions and standards.

Eidgenoessische Anstalt fur Wasserversorgung Abwasserreinigung unde Gewaesserschutz (Eawag)

Eawag, the Swiss Federal Institute of Aquatic Science and Technology, is an internationally linked aquatic research institute of about 350 staff members committed to an ecological, economical and socially responsible management of water - the primary source of all life. Eawag has identified nanomaterials and nanotoxicology as topics of strategic importance and dedicates research to ensure development and use of nanotechnology in a sustainable way. Eawag"s NanoValid responsibilities include the co-ordination of task WP3.3. Environmental health, and task WP6.3, Case study on environmental behaviour of ENMs. Research will be directed toward 1) understanding of the interactions between surface chemical properties of NPs and experimental media used in OECD and other ecotoxicological tests and 2) development of an *in vitro* testing scheme to assess the bioavailability/persistence and toxicity of NPs to fish based on a multicompartment cellular barrier model based on fish cell lines.

Keemilise ja Bioloogilise Fuusika Instituut (NICPB)

NICPB was established at 1980 and is an independent research institution tightly cooperating with Estonian universities. NICPB's diverse scientific expertise facilitates interdisciplinary studies, e.g., in nanotoxicology. NICPB will contribute to NanoValid with its expertise in medium-to-high-throughput nano(eco)toxicology testing and mechanism-based toxicological profiling of ENPs. NICPB participates in 4 WPs (WP2-5 and WP7), coordinates T2.3. and is responsible of T3.2.4.

Bundesanstalt fuer Materialforschung und Pruefung (BAM)

BAM is the Federal Institute for Materials Research and Testing in Germany. BAM has actively undertaken research in key areas of safety engineering and new analysis and test methods such as energy and environmental protection, materials engineering and safety engineering for a number of years. BAM nanotechnology scientists and engineers contribute to the safety in handling and application of nanomaterials and promote progress in the reliability of nano analytics and nano measurement technology. BAM will participate in activities on selection, development, validation and application of reference materials and methods. BAM is leader of WP5 and holds task leaderships for 5.1 and 5.4. and will participate in dissemination of project results to international standardization committees through DIN, CEN and ISO to promote nanotechnology standardization under ISO TC's 229, 201, 202 and 24. Another channel for dissemination of results is the Versailles Project on Advanced Materials and Standards (VAMAS) which coordinates pre-normative research at the G20 level. BAM scientists participate in activities of the OECD Working Party on Manufactured Materials (WPMN).

Deutsches Institut fuer Normung E.V (DIN)

DIN, the German Institute for Standardization, develops norms and standards as a service to industry, the state and society as a whole. A registered non-profit association, DIN has been based in Berlin since 1917. DIN's primary task is to work closely with its stakeholders to develop consensus-based standards that meet market requirements. Some 26,000 experts contribute their skills and experience to the standardization process. By agreement with the German Federal Government, DIN is the acknowledged national standards body that represents German interests in European and international standards organizations. Ninety percent of the standards work now carried out by DIN is international in nature. Within NanoValid DIN will be responsible for the initiation of standardization projects based on the project results preferably in CEN/TC 352 "Nanotechnologies", ISO/TC 229 "Nanotechnologies", ISO/TC 201 "Chemical surface analysis" and ISO/TC 202 "Microbeam analysis".

Instituto Nac de Metrol Norm e qual Industri (INMETRO)

The National Institute of Metrology, Quality and Technology (INMETRO) is a branch of the Brazilian Ministry of Development, Industry & Foreign Trade. Its major task is to improve the quality of human life and to grant the competitiveness of the national economy through Metrology and Quality. INMETRO is also the Brazilian Focal Point for Technical Barriers for the World Trade Organization and has mutual recognition agreements with international authorities, including the EC, Americas and Japan. INMETRO's role and main tasks in NanoValid will be the selection and validation of assays to monitor the safety of industrial production and use of nano-structured goods, focusing on the development of reference toxicological methods to study human toxicity through cell-based and tissue-based *in vitro* assays. INMETRO will also produce and characterize standard reference materials, which will be monitored for their final stability, handling, storage and distribution. INMETRO will participate in inter-laboratory comparisons of *in vitro* toxicological assays, as well as assisting in the physico-chemical characterization of engineered nanoparticles produced and distributed within NanoValid. Finally, INMETRO will participate in writing reports of data collected throughout the project in addition to guidelines for regulatory bodies

Universidade Federal de Minas Gerais (UFMG)

Federal University of Minas Gerais (UFMG) is a Brazilian public university located in Belo horizonte, Minas Gerais. It is represented by two laboratories in the NanoValid project: Immunopharmacology Lab, in the Biological Sciences Institute, headed by the professor Dr. Mauro Martins Teixeira and Raman Spectroscopy Lab, in the Physics Department, headed by the professor Dr. Marcos Pimenta. Together theses two labs have the expertise in physical characterization models and in biological models that study inflammation induced by irritants. The role of UFMG in NanoValid project is to study and develop more accurate methods to characterize nanoparticles and biological models that allow nanoparticles hazard assessment.

Council of Scientific and Industrial Research (CSIR)

The Indian Institute of Toxicology Research (CSIR-IITR) is a constituent laboratory of Council of Scientific & Industrial Research, Government of India. This multidisciplinary research institute with the motto "Safety to Environment and Health and Service to Industry" addresses problems critical to human health and environment in niche areas of – Nanomaterial Toxicology; Systems Toxicology & Health Risk Assessment; Food, Drug & Chemical Toxicology; Environmental Toxicology; and Regulatory Toxicology. The institute has a complete battery of in vitro and in vivo toxicity screening tests. CSIR-IITR, has created a facility for safety/toxicity assessment of nanoparticles (NPs) used in cosmetics as well as therapeutics and are an active partner in framing the regulatory guidelines for safety of food, drugs, chemicals and nanomaterials in India. IITR will be involved in modifying, adapting and validating hazard identification methods for nanomaterials as well as those for environmental risk assessment. In addition it will also evaluate risk management and reduction strategies and will be actively involved in dissemination, exploitation and training.

Royal Institution for the Advancement of Learning McGill University (McGill)

The Royal Institution for the Advancement of Learning McGill University is Canada's leading research-intensive university, located in Montreal, and has earned an international reputation for scholarly achievement and scientific discovery. Founded in 1821, McGill has 21 faculties and professional schools which offer more than 300 programs from the undergraduate to the doctoral level. There are approximately 23,000 undergraduate students and 7,000 graduate students. The mission of McGill University is the advancement of learning through teaching, scholarship and service to society by offering to outstanding undergraduate and graduate students the best education available, by carrying out scholarly activities judged to be excellent when measured against the highest international standards, and by providing service to society in those ways for which we are well suited by virtue of our academic strengths.

Veneto Nanotech SCPA (VN)

Veneto Nanotech (VN) coordinates the activities of the Italian Hi-Tech Cluster for Nanotechnology. VN aims at fostering and developing private investments in research and at supporting high-tech centres for the development of research projects and promotion of high-tech transfer. In this framework, VN has established three research centres, NanoFab, specialised in surface engineering, LaNN, working in plasmonics and nanofabrication, and ECSIN, for the sustainable development of nanomaterials. In NanoValid, VN would participate in WP2 for database activities, and would perform methods validation in WP3 and WP5.

Nanologica AB (NLAB)

Nanologica is a materials development company based in Stockholm, Sweden. We engineer nanoporous materials for use in a range of industries from pharmaceuticals to photovoltaics. Our patented technique enables us to create structures with novel properties and functions based on their size, shape or composition. Nanologica participates in several FP projects such as Nanoinmune, Dendrimers and Nanosustain. In Nanovalid, Nanologica will lead the activities regarding manufacture, supplying and physico-chemical characterization of ENPs.

StratiCELL Screening Technologies (STC)

StratiCELL, formed in 2005, is a leading company assisting the cosmetic, pharmaceutical and chemical industries to the safety and efficacy evaluation of their actives and products by means of *in vitro* models and methods in a GLP-compliant environment. StratiCELL is a skin model manufacturer and a project-driven services provider for *in vitro* testing, with a particular emphasis on testing of skin care actives and products. They are, or have been, involved in a total of 7 EU projects including NanoValid.

Grimm Aerosol Technik GmbH & Co (KG GAT)

Grimm Aeosol Technik GmbH&Co. KG is a medium-sized enterprise dealing with the development and production of instruments for measuring airborne particles. The products comprise both well established equipment used in networks as well as high-end research instruments for nanoparticle research. The company was founded more than 30 years ago by Dr. Hans Grimm and has now more than 60 employees at two locations in Germany. In the frame of the Nanovalid project, Grimm will develop and validate standard methods for monitoring Nanoparticle concentrations at workplaces and methods for assessing their biological effects.

Quantis Sarl (QUANTIS)

Quantis is a leading life cycle assessment (LCA) consulting firm specialized in supporting companies to measure, understand and manage the environmental impacts of their products, services and operations. Quantis is a global company with offices in the United States, Canada, Switzerland and France and employs close to 70 people, amongst which several are internationally renowned experts in the LCA field. Quantis offers cutting-edge services in environmental footprinting (multiple indicators including carbon and water), eco design, sustainable supply chains and environmental communication. Quantis also provides innovative LCA software, Quantis SUITE 2.0, which enables organizations to evaluate, analyze and manage their environmental footprint with ease. Fuelled by its close ties with the scientific community and its strategic research collaborations, Quantis has a strong track record in applying its knowledge and expertise to accompany clients in transforming LCA results into decisions and action plans.

Centro Ricerche Fiat SCPA (CRF)

CRF is an industrial organization which has the mission of promoting, developing and transferring innovation in order to provide competitiveness to its clients and partners including the different companies in the FIAT Group, automotive suppliers, companies from other sectors of industry, SMEs, and national and international research agencies. The CRF Materials Innovation Department is active in these future and emerging technologies since ten years with a permanent staff of 50 researchers having a wide-scope expertise on chemistry, physics, material science and engineering, electronics, molecular biology and computer science. CRF will collaborate in the project research activities as an industrial end-user partner. In WP2 will define the automotive applications that employ specific nanomaterials in their manufacturing. Specific nanoparticles will be synthesized. In WP3 morphological, elemental and thermal characterization tests on nanoparticles and nanomaterials will be performed. In WP4 life-cycle analysis of identified automotive nanomaterials and related products will be realized. In WP5 CRF will generate specific requirements for the nanoparticles needed in automotive applications and optimize fabrication of nanoparticles towards reference materials. Protocols for the standardization of the characterization and testing will be. CRF will participate in a case study for automotive sector. CRF will disseminate in WP7 the obtained results to the automotive sector.

Arkema France SA (ARKEMA)

ARKEMA is an industrial organization which develops and produces, on an industrial scale, nanostructured materials and multiwall carbon nanotubes (MWCNTs). Arkema R&D has the mission of promoting, developing and transferring innovation in order to provide competitiveness to its clients and partners from different sectors of industry (energy, automotive, aerospace, sport goods,…), SMEs, and national and international research agencies. Arkema is active in developing nanomaterials in emerging technologies since more than twenty years with a permanent staff of more than 1500 researchers having a wide-scope expertise on chemistry, material science and engineering. Arkema will collaborate in the project research activities as an industrial producer partner. In WP2 Arkema will define customer's applications that employ nanomaterials (MWCNTs) in their manufacturing. In WP3 morphological, chemical, physical and mechanical characterization tests on nanomaterials (MWCNTs) and nanocomposites will be performed. In WP4 life-cycle analysis of identified nanomaterials (MWCNTs) and related products (nanocomposites) will be realized. In WP5 Arkema will generate specific protocols for the standardization of characterization and testing of nanomaterialse. In WP6 Arkema will participate in a case study with nanomaterials (MWCNTs) . Arkema will disseminate in WP7 the obtained results to the chemical industry customers.

Co-operating Partners

National & Kapodistrian University of Athens (UKUA)

National and Kapodistrian University of Athens

United States Environmental Protection Agency