

Call for Papers

EURONANOMEDICINE 2009

September 28-30, 2009, Bled, Slovenia



www.dechema.de/euronanomedicine2009



NANOEAR



◆ INVITATION

Mankind is still fighting against a high number of serious and complex illnesses like cancer, cardiovascular diseases, multiple sclerosis, Alzheimer's and Parkinson's disease, and diabetes as well as different kinds of serious inflammatory or infectious diseases (e.g. HIV). Nanomedicine, the application of nanotechnology to health, raises high expectations for millions of patients for better, more efficient and affordable healthcare and has the potential of delivering promising solutions to many illnesses.

Several areas of medical care are already benefiting from the advantages that nanotechnology can offer. I.e., the first nanotechnology-based targeted drug delivery systems are already on the market, others are in clinical trials or, by far the largest part, are under development. The promising possibilities that nanomedicine might offer in the future have to be counterweighted against possible risks of this new technology. It is of utmost importance to examine upfront with care and responsibility its possible side effects to human beings and the environment.

The programme of this conference will cover current topics and recent progress in this highly challenging field. In detail all aspects of targeted nanomedicine and therapeutic concepts, overcoming biological barriers, medical diagnostics and sensor devices, nanomedicine and regenerative medicine, nanomedicines for gene delivery, and safety aspects of nanomaterials for medical applications will be addressed.

◆ VENUE

Golf Hotel
Cankarjeva 4, 4260 Bled, Slovenia
www.gp-hoteli-bled.com



◆ SCIENTIFIC COMMITTEE

The scientific committee comprises outstanding experts from the area of nanomedicines:

- **Silvio Aime**, University of Torino/I
- **Paul J.A. Borm**, MagnaMedics GmbH, Aachen/D
- **Holger Grüll**, Philips Research Laboratories, Eindhoven/NL
- **Wim Hennink**, Utrecht University/NL
- **Costas Kiparissides**, Aristotele University of Thessaloniki/GR
- **Claus-Michael Lehr**, Saarland University, Saarbrücken/D
- **Elias A. Lianos**, University of Athens/GR
- **Martin Möller**, Deutsches Wollforschungsinstitut an der RWTH Aachen e.V./D
- **Mamoun Muhammed**, Royal Institute of Technology (KTH), Stockholm/S
- **Ilmari Pyykkö**, University of Tampere/FIN
- **Gert Storm**, Utrecht University/NL
- **Ernst Wagner**, University of Munich/D

The scientific committee will ensure maximum benefit of scientific communication and opportunity for cooperation among the participants.

◆ SESSION TOPICS

- Targeted Nanomedicine: Therapeutic Concepts
- Overcoming Biological Barriers: Mechanisms and Delivery Technologies
- New Nanoparticle-based Approaches for In-Vivo Diagnostics and Therapy
- Nanomedicine and Regenerative Medicine
- Nanomedicines for Gene Delivery
- The Safety of Nanomaterials for Medical Applications

◆ INVITED SPEAKERS

▪ **OPENING Janez Potocnik**, European Commission, Brussels/B
We are pleased to welcome the following speakers for a plenary talk:

- **Maria J. Alonso**, University of Santiago de Compostela/ES
- **Elias Fattal**, University of Paris-Sud 11, Chatenay-Malabry/F
- **Alexander T. Florence**, Angus/UK
- **Ingeborg Hochmair**, MED-EL Elektromedizinische Geräte GmbH, Innsbruck/A
- **Nick Mills**, The University of Edinburgh/UK
- **Chrit Moonen**, University Victor Segalen, Bordeaux/F (to be confirmed)
- **Ernst Wagner**, University of Munich/D

◆ DATES TO NOTE

March 15, 2009	Deadline for submission of papers
End of April 2009	Authors notification of acceptance
Beginning of June 2009	Distribution of the printed programme

◆ SUBMISSION OF ABSTRACTS

The selection of the presentations (orals and posters) will be based on the review of 1-page abstracts (incl. figures) by the Scientific Committee. The congress language will be English. The abstract should be submitted via file upload at the website effective **until March 15, 2009 at**

www.dechema.de/euronanomedicine2009.

The abstracts should explicitly mention objectives, new results, and conclusions or significance of the work.

◆ REGISTRATION FEE (no VAT requested acc. to § 4.22 UStG)

Members of the three FP6 European Integrated Projects NanoBioPharmaceutics, NanoEar or MediTrans	EUR 305
Non-Members	EUR 485
Students (only with student identity card)	EUR 70

◆ CONFERENCE OFFICE

DECHEMA e.V.
Attn.: Ms Claudia Martz
Theodor-Heuss-Allee 25
60486 Frankfurt am Main/Germany



Phone: +49 (0)69 7564 129
Fax: +49 (0)69 7564 176
E-mail: martz@dechema.de

◆ ORGANISERS

The conference will jointly be organised by three FP6 European Integrated Projects

→ NanoBioPharmaceutics	www.nanobiopharmaceutics.org
→ NanoEar and	www.nanoear.org
→ MediTrans	www.meditrans-ip.net

DESCRIPTION OF THE SESSION TOPICS

Session 1: Targeted Nanomedicine: Therapeutic Concepts

Chair / Co-chair: Gert Storm / Costas Kiparissides

Subtopics:

- Cancer
- Cardiovascular diseases
- Musculoskeletal disorders
- Bacterial and viral infections

Description:

Targeted nanomedicines of a particulate or macromolecular nature are being designed to improve the therapeutic behaviour of candidate and established drugs. Major goals in this field are to maximise the bioavailability of the drug at the target site and therefore drug efficacy, and to control the pharmacokinetics, tissue distribution, non-specific toxicity, immunogenicity and target recognition. In order to achieve these goals, many pharmaceutical and biological issues (e.g. low drug solubility, degradation, fast clearance, and relatively short-lasting biological activity) need to be addressed.

Targeted nanomedicine is a research field aiming to apply nanotechnology for the prevention and treatment of widespread chronic and/or life-threatening diseases, which are burdening our society (e.g., cardiovascular diseases, cancer, musculoskeletal disorders, bacterial and viral infections). The development of effective, safe and innovative targeted nanomedicines is a complicated multi-step process. The current status and future developments will be highlighted and discussed in this session.

Session 2: Overcoming Biological Barriers: Mechanisms and Delivery Technologies

Chair / Co-chair: Claus-Michael Lehr / Martin Möller

Subtopics:

- Oral drug delivery and targeting
- Nasal and pulmonary drug delivery
- Skin barrier and drug delivery
- Blood Brain Barrier (BBB) and CNS delivery

Description:

Biological barriers, such as epithelia, endothelia and cell membranes, are on the one hand a pivotal prerequisite for life. On the other hand they also represent a significant obstacle which often makes the efficient and safe delivery of a given drug from the site of administration to the intended side of action a big scientific and technological challenge.

In this context nanomedicines hold a lot of promise, but their development is complex and requires a multidisciplinary approach. Besides the technologies to prepare and to characterise appropriate nanoscale drug carriers, the cell biological and (patho)physiological peculiarities of each barrier and delivery route must be adequately addressed, including possible changes in the state of disease. Additionally, pharmaceutical formulation aspects must be taken into account.

Session 3: New Nanoparticle-based Approaches for In-Vivo Diagnostics and Therapy

Chair / Co-chair: Silvio Aime / Holger Gröll

Subtopics:

- Nanoparticle-based approaches for medical imaging
- New imaging methods and approaches using nanoparticles as contrast agents
- Nanoparticles for multimodal imaging and combination of imaging and therapy
- Smart nanoparticles reactive to external or internal stimulus (pH, temperature, enzymes etc.)
- Nanoparticles for local triggered drug delivery

Description:

New developments in nanomedicine may allow to tackle challenges in future healthcare and address more efficiently medical needs in areas like cardiovascular diseases, oncology or regenerative medicine. Innovation in nanomedicine is driven by the development of newly tailored nanomaterials and nanoparticles providing new functionalities for in-vivo use as well as simultaneous co-developed devices that exploit these nanomaterials to improve diagnostic and therapeutic approaches. Examples range from nanoparticles used as targeted multimodal contrast agents enabling new diagnostic imaging methods, eventually combined with drug delivery or nanoparticles sensitive to internal and external stimuli like temperature or pH. The focus of this session are topics that require innovative combinations of nanoparticles with devices for in-vivo diagnostic and/or therapeutic applications.

Session 4: Nanomedicine and Regenerative Medicine

Chair / Co-chair: Ilmari Pyykkö / Mamoun Muhammed

Subtopics:

- Tissue regenerations with nanotechnology (e.g. neural tissue and sensory organs, pancreatic tissue, connective and supporting tissue, heart and cardiovascular system)
- Novel technologies in designing nanocarriers
- Tracing the regeneration
- Integration of tissue on stimulation and recording electrodes
- Nanomaterial and tissue interaction
- Cell-adhesive ligands

Description:

This session looks at the topics of clinical regenerative entities and electrode handling from a clinical point of view. The cell-adhesive ligands can enable the cell-internalization of extracellular matrix ligands thereby amplifying the intracellular activation process. This could enhance several key cellular functions, including cell motility, which may be critical to achieve accelerated tissue regeneration, re-epithelialization, etc.. Wound repair and, in general, tissue engineering are potential fields of application of such nanoscale technologies.

The nano-coated electrode or surface to tissue interaction will become more and more important as artificial stimulators or detectors come into the market. This session houses for example the challenging field of silicone coating. Application in different disciplines of medicine (cardiology, cancer, diabetes, inflammation, sensory and nervous system) will be covered.

Session 5: Nanomedicines for Gene Delivery

Chair / Co-chair: Ernst Wagner / Wim Hennink

Subtopics:

- Physical and chemical vectors for DNA and siRNA delivery
- Viral vectors and novel hybrid systems
- Therapeutic approaches

Description:

Nanomedicines delivering therapeutic transgenes or knocking down endogenous disease-associated genes will be reviewed. Challenges and therapeutic opportunities for chemical, physical or viral vectors will be outlined, as well as novel dynamic

vectors design for targeted delivery using synthetic carriers and novel viral vector formulations.

Session 6: The Safety of Nanomaterials for Medical Applications

Chair / Co-chair: Paul Borm / Elias Lianos

Subtopics:

- Kinetics of nanoparticles; different kinetics after inhalation or intravenous application
- Short term tests for rapid screening of nanomaterials
- (U)SPIONS and other nanoparticles being applied for clinical imaging
- Biodegradability of nanoparticles
- Neurological effects of nanoparticles: an emerging field
- Drug delivery: decreasing toxicity of target drugs
- Biocompatibility: blood and immune system

Description:

Engineered nanoparticles are an important tool for nanomedicine to deliver and target drugs or bring imaging agents to the targets where they need to be. Since the original application of liposomes in the 1970s a wealth of carrier and imaging systems has been developed, including dendrimers, fullerenes and polymer carriers. To fully use its potential, attention to toxicological issues is needed. Findings on combustion-derived nanoparticles (CDNP) as well as engineered nanomaterials (carbon nanotubes, quantum dots) have fed this discussion. So far we know that adverse effects are mediated by oxidative stress, partly due to inflammation, and possibly by different mechanisms of internalization and translocation of nanoparticles into cells. Little is known about the pharmacokinetics, and biodistribution of nanoparticles.

During this session invited speakers as well as selected abstracts will present common concepts in action of nanoparticles in different fields of application, and discuss their relevance for medical applications.