NanoDiaRA

Particles, Molecules & Cells · Diagnosis in-vitro & in-vivo · Rheumatoid Arthritis & Osteoarthritis

May 23, 2012

Nanoparticles in Medicine: Toxicity Methods and Standards

Workshop organised and financially supported by FP7 Project NanoDiaRA
Ecole Polytechnique Fédérale de Lausanne, Switzerland

The acronym NanoDiaRA stands for "Development of Novel Nanotechnology Based Diagnostic Systems for Rheumatoid Arthritis and Osteoarthritis" and represents a research project in the 7th Framework Programme of the European Commission (www.nanodiara.eu). The main objective of this large-scale integrating project is the development of modified superparamagnetic particles and biomarkers for early diagnostic and the detection and determination of disease onset.

Introduction

Nanotechnology evolves more and more in medical applications – in diagnosis and therapy for delivering drugs, and in other biological and non-biological substances to specific types of tissues or cells. Being smaller than around 100 nm, the particles are tailored and functionalized for being able to attach to, or enter in, diseased cells, and may even cross membranes like the blood-brain-barrier. These techniques are used for magnet resonance imaging as contrast agent or for targeted therapy using e.g. highly toxic cancer therapeutic drugs to enter tumor cells. Both applications may improve the way of diagnosing and treating diseases.
Although scientists and clinicians have been active in this field for more than 20 years, the development of methods and standards required for testing especially inorganic nanoparticles and their impact on human cells and tissues is still ongoing and not satisfying. Tests measuring the influence of particle size, form, charge, and protein absorption to the surrounding tissue, the influence of the uptake by the lymphatic or the blood system, etc., are not standardized and may be challenging for the translation of research to marketable products.

Target Audience

This workshop will provide a forum for experts from nanoparticle research, nanotoxicology and pharmaceutics as well as clinicians to discuss the state of the art of methods in na- nomedicine today and the requirements for improving tests describing the nanoparticles and their biomedical behavior. The outcome of the workshop will be documented as brochure and recommendations will be made.

Objective

Scientists from academia and industry dealing with synthesis of inorganic nanoparticle for medical use and interested in their in vitro and in vivo test methods.

Organisers | Supporters

MAT SEARCH CONSULTING

ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE

NanoDiaRA

SEVENTH FRAMEWORK PROGRAMME

Programme

9:30	**Welcome and short introduction to FP7 Nanomedicine & NanoDiaRA** Margarethe Hofmann, Dr.-Ing. MatSearch Consulting, Scientific Coordination NanoDiaRA
9:35	**Colloidal dosimetry: are nanoparticles molecules?** Heinrich Hofmann, Prof. Dr.-Ing. EPFL, Institute of Materials, Powder Technology Laboratory, Lausanne (CH)
9:45	**Problems and strategies in nanosafety testing** Albert Duschl, Univ.-Prof. Dr. University of Salzburg, Faculty of Molecular Biology, Salzburg (AT)
10:00	**Nanoparticle-induced protein citrullination: a pathogenetic link to autoimmune disease development** Yuri Volkov, Prof. Dr. med. Trinity College, Department of Molecular Medicine, School of Medicine, Dublin (IE)
10:15	**How safe is nanosafety research?** Peter Wick, Dr. EMPA, Department of Materials meet Life, St. Gallen (CH)
10:30	**How nanomaterials can enter the human organism; example lung** Peter Gehr, Prof. PhD Department of Histology, Institute of Anatomy, University of Bern (CH)
10:45	Break
11:15	**Workshops** Speakers, members of the Cluster "Targeted Nano-Pharmeceuticals and Early Diagnostic" and participants discuss in groups of max. 8 people the requirements for improving the outcome of in vitro tests for inorganic particle toxicity studies. Each participant will have the opportunity to join two different groups. Workshop topics: 1. Particle concentration in time and space 2. Assessment of opportunities and risks of medicinal nanoparticles 3. From application to clearing I: facts conceded as true 4. From application to clearing II: open key questions regarding the behavior of nanoparticles 5. Are existing recommendations for toxicological evaluation of nanoparticle medicinal products sufficient?
1:00 p.m.	Lunch
2:00 p.m.	**Workshop Results:** Discussion and Recommendations End of the meeting: 3:45 p.m.

General Information

The workshop "Nanoparticles in Medicine" will take place on May 23, 2012 at the Ecole Polytechnique Fédérale de Lausanne (EPFL) in Room CHB 331 - see http://plan.epfl.ch.

Registration and Fees

Please register online on the NanoDiaRA webpage (www.nanodiara.eu/toxicity-workshop-2012/). The registration fee is CHF 100.00 and will include a coffee break and lunch incl. beverage at EPFL. Students (up to Master) pay 30 CHF without lunch. You will receive an invoice with information on the methods of payment shortly after your registration. The invoice is payable upon receipt.

Cancellation policy

Cancellations must be sent by May 18, 2012 via the registration page to receive full refund (minus a CHF 15.00 processing fee), or the full registration and presenting fee will be charged. Refunds will be processed after the workshop. However, a paid registration is transferable to a replacement from your institution.

Please note that no-shows will be billed for the full registration fee.