



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

*Science meets Society*  
*“Micro- and Nanotechnology Based Tools  
for Early Detection of Diseases”*

**2<sup>nd</sup> NanoDiaRA Seminar**

**18 March 2011, at 15 h**

Centre Suisse d'Electronique et de Microtechnique (CSEM)  
Jaquet-Droz 1, 2002 Neuchâtel  
Switzerland

*Science meets Society*

## **“Micro- and Nanotechnology Based Tools for Early Detection of Diseases”**

Micro- and nanotechnology based novel diagnostic tools for easy and early detection of disease progression and for evaluating the efficacy of therapeutic interventions become more and more necessary for complex diseases like e.g. Rheumatoid Arthritis (RA) and Osteoarthritis (OA). Using modified superparamagnetic nanoparticles (SPION) detection, disease progression can be examined by using (A) bioassays (ex-vivo application) and/or (B) imaging methods like MRI (in-vivo detection). In both cases, multiple functionalized single nanoparticles have to be developed. These particles have the ability to specifically enter/attach to cells or to enzymes in serous fluids or organelles in living cells to separate and identify low-abundance biomarkers.

As existing diagnostic methods often do not permit an early definite diagnosis, novel techniques targeting to the detection of molecular events with higher sensitivity/specificity will be developed. New approaches and results, which have enabled to start the FP7-funded F&E Project NanoDiaRA in February 2010, will be presented at this seminar. The project is driven by the high clinical need to identify early arthritis and then segment RA and OA patients into progressors/responders or non-progressors/-responders to various treatment options.

NanoDiaRA, a consortium of 15 partners, 7 of them situated in Switzerland, is looking forward to welcoming interested people from research and development, industry and society and to show you new approaches of *in-vitro* and *in-vivo* technologies. The seminar is free of charge. A registration is kindly requested before **7 March 2011**.

**We would be happy to see you in Neuchâtel.**

**In the name of The NanoDiaRA Consortium**  
**Margarethe Hofmann-Antenbrink, Dr.-Ing.**  
Scientific Coordination

The seminar is free of charge, but we request for an inscription.

## Programme

**15:00** *Welcome by CSEM*

**15:10** DR.-ING. MARGARETHE HOFMANN-AMTENBRINK

MatSearch Consulting Hofmann, Pully

*Introduction to NanoDiaRA*

**15:30** PROF. DR. HEINRICH HOFMANN

Director of Powder Technology Laboratory, Institute of Materials,  
Ecole Polytechnique Fédérale de Lausanne, Lausanne

*Superparamagnetic Nanoparticles for Separation at Molecular Level*

**16:10** PROF. DR. ALKE FINK

Department of Chemistry, University of Fribourg, Fribourg

*SPIONs Immobilization, Functionalization and Recovery Using Microreactors*

**16:55** DR. HELMUT F. KNAPP

Section Head Microfluidics & Liquid Handling, CSEM Centre Suisse d'Electronique et  
de Microtechnique SA, Alpnach

*Microfluidic Methods for Filtering, Sorting and Concentrating Particles for the  
Life Sciences*

**17:30** DR. HANS SIGRIST

Arrayon Biotechnology SA, Neuchâtel, Switzerland

*Surface Bioengineering and Multiplex Bioanalytics*

**18:10** *Farewell and Apéro*

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## Contact and registration

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