

**Title of the Activity:** How micro-nano-bio systems coupled with ICTs could improve biomedical research and healthcare assistance?

**Nature:** Networking Activity

This interdisciplinary networking session will bring together nano-micro and ICT experts together with biomedical researches for discussing new approaches brought by the advents of nano-micro technologies and what would be their impact on biomedical research.

The guiding question is: How micro-nano-bio systems coupled with ICTs could improve biomedical research and healthcare assistance?

To provide an interactive environment among the multidisciplinary attendance, the Café Conversation format will be used: in 2 rounds, small groups will discuss the guiding question.

The expected outcome of this networking session will be:

1. Establish a multidisciplinary group of experts from ICT and the health sector, who are interested in collaborating for exploring innovative solutions in biomedical research and healthcare assistance.
2. An initial set of important research topics for the next calls of the FP7 in the area of ICT and healthcare.

**Duration:** 90 minutes.

- 10 minutes for introduction and explanations of the networking session
- 5 minutes for setting groups and groups' chairs
- 20 minutes for personal presentations and discussions.
- 5 minutes for setting new groups (chairmen remain)
- 20 minutes for personal presentations and discussions.
- 15 minutes for conclusions by the chairpersons
- 15 minutes for final conclusions.

### **Proposal Description**

The organization of a Networking session during the ICT Lyon 2008 offers the possibility of creating synergy among the different involved disciplines in biomedical research. The present Networking aims to gather ICTs and bio-nano-technological researches for putting together the necessities and solutions needed for improving biomedical research by means of using the most revolutionizing approaches in nanotechnologies applied to biomedical research cored by ICT solutions. LOCCANDIA partners have a great expertise in international collaborative project in ICT but also in Nano-medicine and Health. The project consortium will take advantage of its extend networking of current and former

partners as well as other collaborators from NanoMedicine and Nessi platforms for spreading the awareness of this session in order to catch a top quality attendance that would make the session highly interesting, fruitful and dynamic. This session will be focused on analyzing ICT opportunities that would impact biomedical research by exchanging information and best practices.

### **Brief Introduction to the state-of-the-art**

The use and development of NEMS and Lab-on-chip devices are more and more used every day in biomedical research although has not achieved yet to develop their whole potential. The advantages that nano-technologies represent for biomedical research have been very well recognized among the biomedical community although they have not been fully adopted, moreover healthcare practitioners are even unaware about the benefits of these potential approaches. Therefore, the recognized advantages of working at molecular scale have not fulfilled impacted on clinical diagnosis, drug delivery or patient monitoring, as it would have expected. European society demands new and improved healthcare system that tackles the new challenges that are arising in Europe. New pandemics are emerging across western countries, not only derived from the aging of the population as Alzheimer, Parkinson but also derived from the new medical challenges due to the sedentary stile of live as diabetes, cardiovascular diseases or due to the advancement of certain illnesses such as cancer or drug-resist microbial infections. Better diagnostic tools and new improved treatments imply and ever-increasing complexity in biomedical research. Top quality research requires the collaboration of many areas of knowledge. Therefore, biomedical community is becoming more and more sensitive with respect to the multidisciplinary approaches. Merging biological, nano-technological and ICTs advances are changing the paradigm of biomedical research.

The Networking session main goal to be achieved will be to define the advantages and opportunities of using ICTs for biomedical research improvement and innovation based on provide support and integration to bio-applied nanotechnologies and new biotechnological advances.

### **Potential synergies between projects based on nanotechnologies and ICT**

- **LOCCANDIA** (Lab-on-chip protein profiling for Cancer Diagnosis )
- **microActive()**
- **sensation-all**
- **SmartHealth**
- **Microfluid**
- **Cochise**

### **Moderated discussion**

The networking aims to be very interactive and involve actively the attendees in fruitful discussions based on the question proposed by the session's organizers. The question to be launched for open discussion is "How micro-nano-bio systems coupled with ICTs could improve biomedical research and healthcare assistance?". This question will be discussed in small groups of 8-10 persons in two rounds of 20 minutes afterwards conclusions will be

summarized by the chairpersons of each group and discussed by all the attendees during other 15 minutes. The last 15 minutes will be devoted to summarize the conclusions.

## **Conclusion**

Innovative nanotechnologies coupled with ICT holds the promise of revolutionising biomedical research and shape future developments in healthcare, as it demanded by European health systems. Multidisciplinary approach cored by ICTs are contributing to strengthen Europe's medical research base and ensuring its global leadership in ICT as well in biomedical research and nanotechnologies. ICT will help drive and stimulate multidiscipline approach for biomedical research, improving and supporting research activities that ensure multidisciplinary progress in order to transform basic research into benefits for Europe's citizens, health industry and health systems. These activities will also help reduce the health inequalities among countries and among society. This session aims to put in contact research of different disciplines in order to have a close interacting among them that could lead in further partnerships, proposal and collaborative projects. The session aims to cover in part several themes within the Cooperation area of FP7, as Health, Nanosciences and ICT. Moreover, within the ICT theme, challenges 5 and 2 will be targeted in this networking session. Therefore, this networking will serve as a forward-thinking collaborative forum that will support the development of initiatives and projects for increasing a multidisciplinary pan-European cooperation.