

# NANO- TECHNOLOGIES IN HEALTH

## CURRENT CHALLENGES AND FUTURE PROSPECTS

PROGRAM

COSMOCAIXA. C/ ISAAC NEWTON, 26. BARCELONA

**Wednesday, October, 9<sup>th</sup>, 2013****9:00 Registration****9:15 Welcome****9:30 SESSION 1: NANODIAGNOSTICS: CHALLENGES AND PERSPECTIVES**Chair: **Arben Merkoçi**, Institut Català de Nanociència i Nanotecnologia (ICN), Barcelona, Spain**9:40 Keynote Speaker - Nanodiagnostics: From Nanoparticle-based Amplified Bioelectronic Detection to Nanomachine-based Bioseparations**  
**Joseph Wang**, University of California (UCSD), San Diego, USA**10:30 Nano- and Quantum- Biodevices for Cancer Diagnostics, Cancer Therapy, and IPS Cell Based Regenerative Medicine****Yoshinobu Baba**, Nagoya University, Japan**11:00 Coffee break****11:30 Control of Neurotransmission with Light**  
**Pau Gorostiza**, IBEC, Barcelona, Spain**12:00 Temperature - The "Ignored" Factor at the NanoBio Interface**  
**Wolfgang Parak**, University of Marburg, Germany**12:00 Open Debate****13:00 Lunch**

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**Wednesday, October, 9<sup>th</sup>, 2013**

**14:00 SESSION 2: CHALLENGES AND OPPORTUNITIES IN NANODRUG DELIVERY SYSTEMS**

Chair: **Antonio Villaverde**, Institut de Biomedicina i Biotecnologia (IBB), Barcelona, Spain

**14:10 Keynote Speaker- Unravelling Graphene for Drug Delivery**

**Kostas Kostarelos**, School of Medicine & National Graphene Institute, University of Manchester, UK

**15:15 Biomedical Applications of Polyhydroxyalkanoates Binding Proteins**

**George Guo-Quiang-Chen**, University of Tsinghua, Beijing, China

**15:45 Coffee break**

**16:00 Polymer-Based Nanopharmaceuticals: Challenges and Opportunities**

**Maria José Alonso**, Univesidad Santiago de Compostela, Spain

**16:30 Multifunctional Nanovesicle-Bioactive Conjugates and Nanomedicines Prepared by a One-Step Scalable Method Using Expanded CO<sub>2</sub> Solvents**

**Jaume Veciana**, ICMAB-CSIC, Barcelona, Spain

**17:00 End of session**

**18:30 Visit to the Cosmocaixa**

**19:00 Cocktail at Cosmocaixa**

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**Thursday, October, 10<sup>th</sup>, 2013**

**9:30 SESSION 3: NOVEL APPLICATIONS IN HEALTH**

Chair: **Victor Puntès**, Institut Català de Nanociència i Nanotecnologia (ICN), Barcelona, Spain

**9:40 Keynote Speaker- Nanostructured Materials and Systems for Biomedical Applications**  
**Jackie Y. Ying**, Institute of Bioengineering and Nanotechnology, Singapore

**10:30 Complex Dynamic Substrate Control: Dual Tone Hydrogel Photoresists**  
**Andrea Kasko**, University of California (UCLA), Los Angeles, USA

**11:00 Coffee break**

**11:30 Cell Mechanotyping for Health and Disease**  
**Amy Rowat**, University of California (UCLA), Los Angeles, USA

**12:00 Human Engineered Enzymes for Cancer Therapy**  
**George Georgiou**, University of Texas, USA

**13:00 Lunch**

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**14:30 SESSION 4: RISKS OF NANOTECHNOLOGIES: HEALTH AND ENVIRONMENTAL ISSUES**

Chair: **Maria Jesús Buxó**, Universitat de Barcelona (UB), Barcelona, Spain

**14:40 Keynote Speaker- Challenges in Preclinical Characterization of Engineered Nanomaterials**

**Marina Dobrovolskaia**, Ph.D., USA

**15:45 Coffee break**

**16:15 Implementing Rapid *in vivo* Assessments of the Nano/Bio Interface to Advance Greener Nanotechnology**

**Robert Tanguay**, Oregon State University, USA

**16:45 A Disease-Specific Nanomedicine Platform for the Treatment of Autoimmunity**

**Pere Santamaria**, IDIBAPS, Barcelona, Spain and University of Calgary, USA

**17:15 Open Debate**

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**Friday, October, 11<sup>th</sup>, 2013**

**9:30 SESSION 5: ADDRESSING THE FUTURE: THREATS AND OPPORTUNITIES**

Chair: **Josep Corbella**, Scientific Journalist, Barcelona, Spain

**9:40 Keynote Speaker- Nanomedicine(s) the Future: Threats and Opportunities**

**Ruth Duncan**, Cardiff, United Kingdom

**10:30 Towards in Silico Nanotoxicology**

**Robert Rallo**, Universitat Rovira i Virgili, Tarragona, Spain

**11:00 Coffee break**

**11:30 Future Opportunities in Cancer Nanotechnology - Perspective National Cancer Institute, USA**

**Piotr Grodzinski**, NCI Alliance for Nanotechnology in Cancer at the National Cancer Institute, Bethesda, Maryland, USA

**12:00 Open Debate**

**13:00 Concluding remarks and end of session**

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