

NANO- TECHNOLOGIES IN HEALTH

CURRENT CHALLENGES AND FUTURE PROSPECTS

PROGRAM

COSMOCAIXA. C/ ISAAC NEWTON, 26. BARCELONA

Wednesday, October, 9th, 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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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-Qiang-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 CO₂ 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, 10th, 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, 11th, 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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