

## List of Posters

**Maria Rosa Aguilar**

- 1 Antiangiogenic Polymeric Drugs. Synthesis, Characterization and "In Vitro" Evaluation

**Wafa' Tayseir Al-Jamal**

- 2 Hybrid Quantum Dot-Liposome Nanoparticles

**Khuloud Al-Jamal**

- 3 Dendrimer Nanocontainers Complex Doxorubicin and Enhance its Tumor Spheroid Penetration and Cytotoxicity

**Lara Carolina Alvarez de Lacerda**

- 4 Pharmacology and Toxicology of Carbon Nanotubes "In Vivo": Pristine vs Functionalised (poster to be presented by Kostas Kostarelos)

**Jenny Aveyard**

- 5 Improving the Sensitivity of Diagnostic Tests by Modulating the Number of Biomolecules per Gold Nanoparticle

**Ahmed Besheer**

- 6 ESR Investigations of the Microenvironment of Nanostructured Drug Delivery Systems using Spin Probes and Spin Labels

**Francesca Cavaliere**

- 7 Designing Thin-walled Polymeric Microbubbles for Medical Ultrasound

**Ariane Chappier**

- 8 Novel Stat1 Alleles in otherwise Healthy Patients with Mycobacterial Disease

**Kerry Chester**

- 9 Antibody-nanoparticle for Targeted Hyperthermic Cancer Therapy

**Louis Chonco Jiménez**

- 10 Water-soluble Carbosilane Dendrimers as Delivery Agents in Antisense Gene Therapy

**Maria Isabel Clemente Mayoral**

- 11 Dendrimer Vectors as Vehicles for Antisense Oligonucleotide Delivery to HIV Infected Cells in the Central Nervous System

**Steve Conlan / Steve Wilks**

- 12 Nanomedicine Research and Development in the Areas of Biosensors, Imaging, Simulation and Modelling, and Regenerative Medicine

**Memed Duman**

- 13 A Nucleic Acid-sensor based on Surface Plasmon Resonance for the Detection of Mycobacterium Tuberculosis

**Hélène Dumortier**

- 14 Impact of Functionalized Carbon Nanotubes on Primary Immune Cells

**Elisabeth Engel**

- 15 Highly Porous Composite Scaffolds for Tissue Engineering Applications

**Hugo A. Ferreira**

- 16 Magnetic Blochips for Point-of-Care Microbiological Testing

**Jelena Filipovic-Grcic**

- 17 Thiomers-modified QD Surfaces Enhance Quantum Dot Biocompatibility

**Gomila Gabriel**

- 18 AC and DC Electrical Imaging of Biosamples at the Nanoscale by Atomic Force Microscopy

**Peter C. Griffiths**

- 19 Probing the Mechanism of Polymer Therapeutic - Membrane Interaction

**Ozgun Gul**

- 20 Antibody Microarray for Cardiovascular Risk Markers

**Toril A.N. Hernes**

- 21 Medical Imaging with Focus on Advanced Ultrasound and MR Imaging for Improved Diagnostics and Therapy Monitoring and Guidance

**December S.K. Ikeh**

- 22 Monodispersed Colloidal Gold Nanoparticles: Toxicity, Cellular Uptake and Biomedical Application

**Rodica-Mariana Ion**

- 23 Recent Developments at the Interface between Nanomaterials and Medicine

**Ioana Rodica Ispas**

- 24 Designing the "Nano"Ethics: from Genes to Atoms

**Anton Ivanov**

- 25 The Attempt of Obtaining the Sorbents Selective with Respect to Biologically Active Components of Essential Oil Eucalyptus Dives

**Kostas Kostarelos**

- 26 Engineering Artificial Envelopes for Non-enveloped Viral Nanoparticles

**Peter Langguth**

- 27 Enhancing Systemic Availability with Nanoparticle Formulations

**Anna Laromaine Sagué**

- 28 Rapid Zeptomolar Protease Detection using Peptide-functionalised Gold Nanoparticles

**Maria Luisa Lopez Donaie**

- 29 Polymeric Drugs with Anti Tumoral Properties: Pharmacologically Active Molecules and Drug Delivery Systems

**M.-Pilar Marco**

- 30 A Immunosensor for Androgenic Hormone Analysis based on the Localized Plasmon Resonance Effect of Gold Nanoparticles

**Pastora Martinez**

- 31 Olfactory Biosensors based on the Response of Immobilized Olfactory Receptors

**Elena Martinez**

- 32 Nanobiotechnology applied to Cell Differentiation and Tissue Engineering: the CellPROM European Integrated Project

**Garagorri Nerea**

- 33 Carbon Nanotubes for Nanomedicine Applications: Bone Tissue Engineering

**Raymond Oliver**

- 34 Innovating for a Better Future - From Making Life Healthier, Simpler and Easier to 'Things that Think'

**Fernando Palacio**

- 35 Molecularly Controlled Synthesis of Magnetic Fluids for Hyperthermia

**Ariadna Pepiol Martí**

- 36 High Iodinated Ortho-carboranes Compounds for X-ray Contrast Agents Application

**Ioannis Rabias**

- 37 Evaluation and Characterization of Biocompatible Ferromagnetic Fluids for Site-specific Radiofrequency-induced Hyperthermia by Nuclear Magnetic Relaxation Measurements

**Ruth Schmid**

- 38 Nanosized Particles and Capsules prepared from Emulsions, Optionally Surface Modified for Targeting

**Josh Schroeder**

- 39 Folate-mediated Tumor Cell Selective Uptake of Quantum Dots Entrapped in Lipid Nanoparticles

**Daan Schuurbijs**

- 40 Nanobio-RAISE: Assessing Societal and Ethical Implications of Nanobiotechnologies

**Janos Szebeni**

- 41 Hypersensitivity to Nanodrugs and Carriers: Role of Complement

**Li Tian**

- 42 MMPs Regulate ICAM-5 (Telencephalin)-Mediated Dendritic Development

**Yegor Tourleigh**

- 43 Nanosyringe for Targeted Delivery to the Cell

**Larysa Tsedzik**

- 44 Grounds of the Possibility of using of the Combination of Nanostructured Porous Ceramic Materials with Biological Ones in Clinical Practice of Ophthalmosurgery

**Natalia Tsirkunova**

- 45 Different Approaches for Leukemic Cells Characterization

**Karel Ulbrich**

- 46 Potentials of Hydrophilic Polymers in Design and Synthesis of Novel Vectors for Drug and Gene Delivery

**Nora Ventosa**

- 47 Compressed Fluid Based Processes for the Preparation of Micro- and Nanoparticulate Materials with Potential Application in Drug-delivery and Clinical Diagnosis

**Maria Vicent**

- 48 PGA-peptoid Conjugate: An Antiapoptotic Polymeric Nanomedicine

**Mateus Webba da Silva**

- 49 Quadruplexes in the Human Genome

**Nicholas Weber**

- 50 Novel Water-soluble Carbosilane Dendrimers in Anti-HIV siRNA Delivery for the Treatment of HIV-Infected Lymphocytes

**Shangjie Xu**

- 51 pH-Responsive Core-shell Nanocarriers for Drugs Delivery

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UNIVERSITAT DE BARCELONA



## RESEARCH CONFERENCES

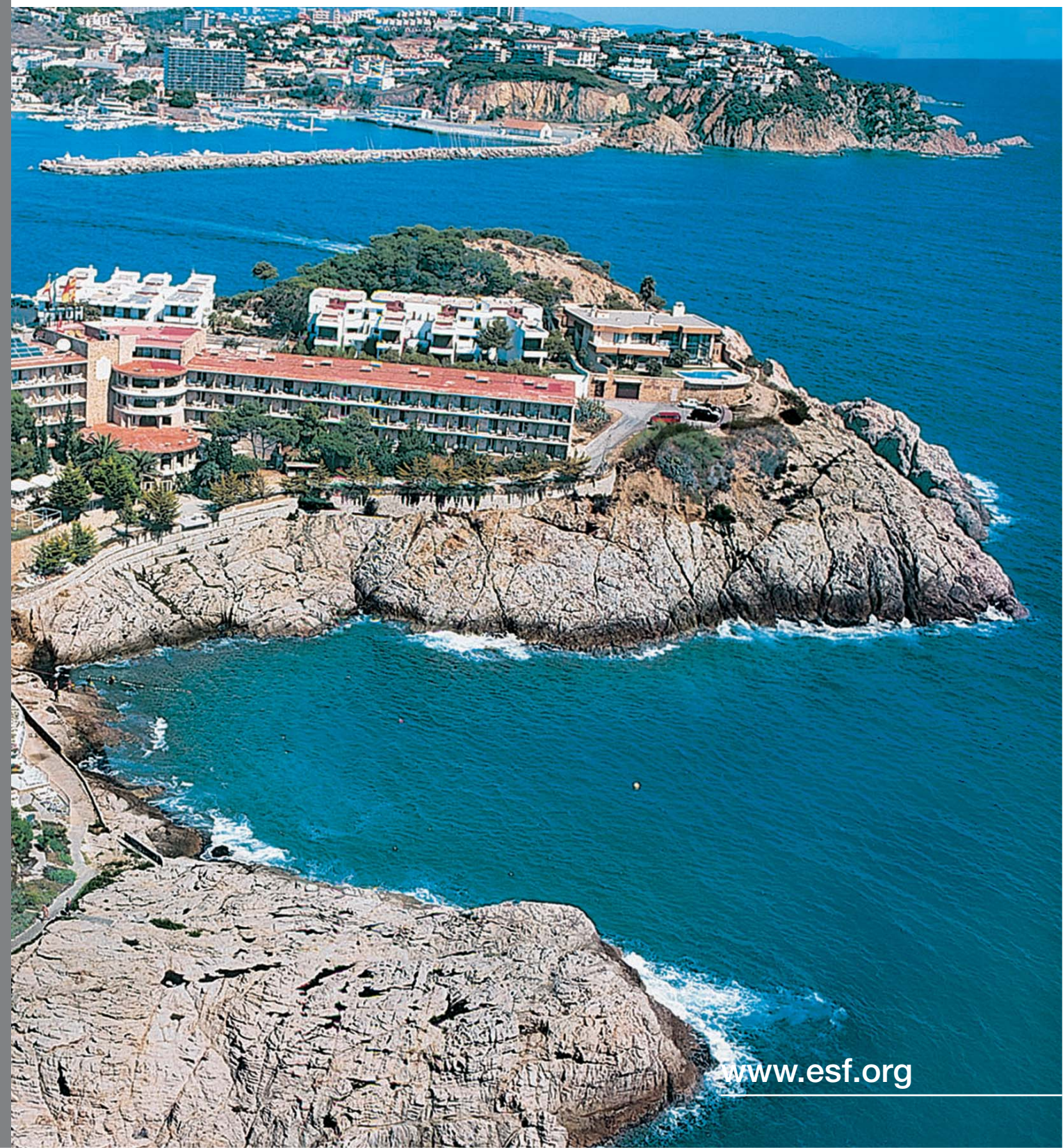
ESF - UB Conference

# Nanomedicine 2006

A NEW OPPORTUNITY FOR IMPROVING  
DIAGNOSIS, PREVENTION AND TREATMENT  
FOR DISEASE

Sant Feliu de Guixols • Spain

15-20 September 2006





The European Science Foundation (ESF) recently undertook a **Forward Look on Nanomedicine**, defining the current status and future prospects in this new and important emerging field (report published in December 2005, available from [www.esf.org](http://www.esf.org)).

The **Nanomedicine 2006 Conference** is the first in a series of biannual in-depth meetings that will bring together academic and industrial scientists, regulators and policy makers to foster cross-fertilisation in this emerging multi-disciplinary field. Sessions will cover the following topics:

- Molecular & Patient Imaging
- Regulation of Medicines, Diagnostics & Devices
- Innovation in Materials Science
- Nanotoxicology & Cellular Fate
- Characterisation of Nanostructures & Surfaces
- Nanopharmaceuticals in Research & Development
- Diagnostics, Biosensors & Surgical Tools
- Ethical Issues
- Clinical Applications.

This meeting series has been established to encourage interdisciplinary exchange at the leading edge of all aspects of **nanomedicine research** and its development into clinical practice. Participants include academics and industrialists working in, or wishing to, enter this new and exciting field, those interested in the regulation of nanomedicine development and use, and related ethical and societal issues.

To ensure lively discussion cross-discipline all delegates and speakers are requested to attend the whole meeting. There will be **no publication of abstracts** to enable exchange of the very latest data.

The plenary and main lecture sessions will be held in the mornings and evenings. This will leave afternoons free for **networking and poster sessions**. In addition there will be a workshop to discuss the launch of an **"Interdisciplinary School for Nanomedicine"** to take place every other year.

#### Organising Committee:

Ruth Duncan, Cardiff Univ., UK  
Julie Deacon, UK Micro & Nanotechnology Network, UK  
Alberto Gabizon, Hebrew Univ., IL  
Rogério Gaspar, Lisbon Univ., PT  
Wolfgang Kreyling, GSF Neuherberg, DE  
Josep Samitier, Barcelona Univ., ES

#### ESF Coordinators:

Carole Moquin-Pathey, EMRC  
Nathalie Geyer, EMRC  
Corinne Winingier, Research Conferences

**[www.esf.org/conferences/mc06218](http://www.esf.org/conferences/mc06218)**

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#### With support from

Secretaria d'Universitats i Recerca (SUR) of the Departament d'Educació i Universitats (DEIU), Ministry of Education and Universities, Catalan Autonomous Government



Institut de Bioenginyeria de Catalunya (IBEC)



## Final Programme

### Friday 15 September

**16:00 onwards:** Registration at ESF-RC desk

**18:00-19:30** Welcome Drink & Dinner

**19:30-20:00** Opening Remarks

**Josep Samitier**

University of Barcelona, ES

**Carole Moquin-Pathey**

European Science Foundation, Strasbourg, FR

**Ruth Duncan**

Cardiff University, UK

### Setting the Scene

Chair: **Ruth Duncan**

Cardiff University, UK

**20:00-20:30** Ruth Duncan

Cardiff University, UK

Realising the Potential of

Nanomedicine: Setting the Scene

**20:30-21:30** Alfred Nordmann

Technische Universität Darmstadt, DE

Plenary Lecture — Ensuring Public

Engagement-Ethical Issues Relating

to the Use of New Technologies

**21:30 onwards:** Poster Viewing

### Saturday 16 September

### Molecular & Patient Imaging

Chair: **Mauro Giacca**

ICGEB, Trieste, IT

**08:30-09:15** Hans Oberleitner

University of Münster, DE

Imaging Molecular Function —

Towards New Therapies

**09:15-10:00** Dusica Maysinger

McGill University, CA

Nanoparticle: Quo Vadis in the Cell?

**10:00-10:45** Paul Smit

Philips Medical Systems, NL

To the Future — Patient Imaging

**10:45-11:15** Coffee Break

### Regulation of Medicines, Diagnostics & Devices

Chair: **Rogério Gaspar**

Universidade de Lisboa, PT

**11:15-12:00** Rogério Gaspar

Universidade de Lisboa, PT

European Scenario on the Regulation

of New Technologies

**12:00-12:45** Beatriz Lima

Universidade de Lisboa / CHMP-SWP, PT

Regulatory Evaluation of Pre-clinical

Studies for Nanopharmaceuticals

**12:45** Lunch

### 15:00-16:30

### Workshop to discuss the ETP-SRA

Chair: **Michael Eaton**

UCB Group, UK

**16:30-18:00** Poster Session & Coffee Break

**18:00** Dinner

### Innovation in Materials Science

Chair: **José Rivas**

University of Santiago de Compostela, ES

**19:30-20:15** Alberto Bianco

CNRS, Strasbourg, FR

Designing Nanotubes as New

Delivery System for Therapeutics

**20:15-21:00** Egbert W. Meijer

Eindhoven University of Technology, NL

Dendrimers a Toolkit for

Development as Drugs,

Carriers and Imaging Agents

**21:00-21:45** Jeffrey Alan Hubbell

EPFL Lausanne, CH

Bioresponsive Materials for Tissue

Engineering

**21:45 onwards:** Poster Viewing & Free Drinks

## Final Programme

### Sunday 17 September

### Nanotoxicology & Cellular Fate

Chair: **Wolfgang Kreyling**

GSF Neuherberg, DE

**08:30-09:15** Blanka Rihova

ASCR Prague, CZ

Immunological Properties

of Polymers

**09:15-10:00** Vicki Stone

Napier University, Edinburgh, UK

Potential Hazards of Nanoparticles

— Lessons learnt from Environmental

Exposure

**10:00-10:45** Mark Gumbleton

Cardiff University, UK

Models for Monitoring Nanoparticle

Transport across Biological Barriers

**10:45-11:15** Coffee Break

### Characterisation of Nanostructures & Surfaces

Chair: **Martyn Davies**

University of Nottingham, UK

**11:15-12:00** Karsten Mäder

Martin-Luther-University of Halle, DE

Innovative Techniques able to Monitor

Nanoparticle Behaviour and Fate

**12:00-12:45** Martyn Davies

University of Nottingham, UK

Understanding Molecular Events

at Surfaces

**13:00** Lunch

**16:00-17:30** Poster Session & Coffee Break

**18:00** Dinner

### Nanopharmaceuticals in Research and Development

Chairs: **Andrew McCaskie**

University of Newcastle, UK

**Maria José Alonso**

University of Santiago de Compostela, ES

**19:30-20:15** Ernst Wagner

Ludwig - Maximilians-Universität München, DE

Gene Therapy using Non-Viral

Vectors — A Practical Reality?

**20:15-21:00** Thomas H. Kissel

Philipps-Universität, Marburg, DE

Nano-carriers for Drug and Gene

Delivery based on Biodegradable

Polyesters

**21:00-21:45** Linda Hakes

Schwarz Biosciences GmbH, Monheim, DE

Using Nanoformulations to Improve

Oral Drug Delivery

**21:45 onwards:** Poster Viewing

### Monday 18 September

### Clinical Applications of Nanopharmaceuticals I

Chairs: **Alberto Gabizon**

Hebrew University, Jerusalem, IL

**Michael Eaton**

UCB Group, UK

**08:30-09:15** Jack Singer

Cell Therapeutics Inc., Seattle, US

Polymer Anticancer Conjugates

as a New Therapy for NSCLC

**09:15-10:00** Tom McCarthy

Starpharma, Melbourne, AU

Dendrimers as Anti HIV Agents

**10:00-10:45** Andreas Jordan

MagForce Nanotechnologies AG, CBN,

Berlin, DE

Nanomedicine in Clinical Application:

Thermotherapy with Tumor-specific

Nanoparticles

**10:45-11:15** Coffee Break

### Ethical Issues

Chairs: **Alfred Nordmann**

Technische Universität Darmstadt, DE

**John Law**

Lancaster University, UK

**11:15-12:00** Donald Bruce

Church of Scotland, Edinburgh, UK

Nanomedicine — Shaping the Future

of European Society. A Risk Analysis

**12:00-12:45** Mary Baker

EPDA, Sevenoaks, UK

A Patient's Perspective

## Final Programme

- 12:45-13:30** **Maurizio Salvi**  
European Commission, EGE/BEPA,  
Brussels, BE  
Ethical Implications of Nanomedicine
- 13:30** Lunch
- 15:00-16:30** **Workshop Towards Improved Nanomedicine Training & Strategic Programmes**  
Chairs: **Wolfgang Kreyling**  
GSF Neuherberg, DE  
**Rogério Gaspar**  
Universidade de Lisboa, PT  
**Dusica Maysinger**  
McGill University, Montréal, CA
- 16:30-17:00** Coffee Break
- 17:00-18:30** **Poster Communications**  
followed by General Discussion  
Chairs: **Julie Deacon**  
UK Micro & Nanotechnology Network, Cookham, UK  
**Josep Samitier**  
University of Barcelona, ES
- 17:00-17:05** **Jenny Aveyard**  
University of Liverpool, UK  
5 Improving the Sensitivity of Diagnostic Tests by Modulating the Number of Biomolecules per Gold Nanoparticle
- 17:05-17:10** **Francesca Cavalieri**  
University of Rome "Tor Vergata", IT  
7 Designing Thin-walled Polymeric Microbubbles for Medical Ultrasound
- 17:10-17:15** **Hélène Dumortier**  
CNRS Strasbourg, FR  
14 Impact of Functionalized Carbon Nanotubes on Primary Immune Cells
- 17:15-17:20** **Elisabeth Engel**  
TU Catalonia, Barcelona, ES  
15 Highly Porous Composite Scaffolds for Tissue Engineering Applications
- 17:20-17:25** **Hugo A. Ferreira**  
Haloris Nanotechnologies, Cantanhede, PT  
16 Magnetic Biochips for Point-of-Care Microbiological Testing
- 17:25-17:30** **Peter C. Griffiths**  
Cardiff University, UK  
19 Probing the Mechanism of Polymer Therapeutic — Membrane Interaction

- 17:30-17:35** **Kostas Kostarelos**  
University of London, UK  
26 Engineering Artificial Envelopes for Non-enveloped Viral Nanoparticles
- 17:35-17:40** **Peter Langguth**  
Johannes Gutenberg-University, Mainz, DE  
27 Enhancing Systemic Availability with Nanoparticle Formulations
- 17:40-17:45** **Elena Martinez**  
Nanotechnology Platform, Barcelona, ES  
32 Nanobiotechnology Applied to Cell Differentiation and Tissue Engineering: the CellPROM European Integrated Project
- 17:45-17:50** **Ruth Schmid**  
SINTEF, Trondheim, NO  
38 Nanosized Particles and Capsules prepared from Emulsions, Optionally Surface Modified for Targeting
- 17:50-17:55** **Josh Schroeder**  
Sharei Tzedek Hospital, Jerusalem, IL  
39 Folate-mediated Tumor Cell Selective Uptake of Quantum Dots entrapped in Lipid Nanoparticles
- 17:55-18:00** **Daan Schuurbijs**  
Delft University of Technology, NL  
40 Nanobio-RAISE: Assessing Societal and Ethical Implications of Nanobiotechnologies
- 18:00-18:05** **Yegor Tourleigh**  
Moscow State University, RU  
43 Nanosyringe for Targeted Delivery to the Cell
- 18:05-18:10** **Larysa Tsedzik**  
Powder Metallurgy Institution, Minsk, BY  
44 Grounds of the Possibility of using of the Combination of Nanostructured Porous Ceramic Materials with Biological Ones in Clinical Practice of Ophthalmosurgery
- 18:10-18:15** **Karel Ulbrich**  
Czech Academy of Sciences, Prague, CZ  
46 Potentials of Hydrophilic Polymers in Design and Synthesis of Novel Vectors for Drug and Gene Delivery
- 18:15-18:20** **Nora Ventosa**  
CSIC, Barcelona, ES  
47 Compressed Fluid Based Processes for the Preparation of Micro- and Nanoparticulate Materials with Potential Application in Drug-delivery and Clinical Diagnosis

## Final Programme

- 18:20-18:25** **María Vicent**  
Centro de Inv. Príncipe Felipe, Valencia, ES  
48 PGA-peptoid Conjugate: An Antiapoptotic Polymeric Nanomedicine
- 18:25-18:30** **Shangjie Xu**  
Free University of Berlin, DE  
51 pH-Responsive Core-shell Nanocarriers for Drugs Delivery
- 18:30-20:30** **Get-together & Conference Dinner**
- Diagnostics, Biosensors & Surgical tools**  
Chairs: **Julie Deacon**  
UK Micro & Nanotechnology Network, Cookham, UK  
**Jaume Piulats**  
Merck Farma y Quimica, ES
- 20:30-21:15** **Andy Hargreaves**  
AstraZeneca R&D Charnwood, UK  
Analytical Tools – New Technology Developments

- 21:15-22:00** **Leonard Fass**  
GE Healthcare, Slough, UK  
Nanotechnology for Medical Devices and Diagnostics

## Tuesday 19 September

### Clinical Applications of Nanopharmaceuticals II

- Chair: **Alberto Gabizon**  
Hebrew University, Jerusalem, IL
- 08:30-09:15** **Patrick Winter**  
Washington University, St. Louis, US  
Targeted Therapeutics and Molecular Imaging in Cardiovascular Disease
- 09:15-10:00** **John W. Park**  
UCSF, San Francisco, US  
Targeted Liposomes as Novel Anticancer Medicines
- 10:00-10:45** **Josep A. Planell**  
IBEC, Barcelona, ES  
Applying Nanotechnologies to Regenerative Medicine
- 10:45-11:15** Coffee Break & Election of Incoming Chairs

### 11:15-13:00 Current Status & Forward Look

- Chairs: **Ruth Duncan**  
Cardiff University, UK  
**Julie Deacon**  
UK Micro & Nanotechnology Network, Cookham, UK  
**Alberto Gabizon**  
Hebrew University, Jerusalem, IL  
**Rogério Gaspar**  
Universidade de Lisboa, PT  
**Wolfgang Kreyling**  
GSF Neuherberg, DE  
**Josep Samitier**  
University of Barcelona, ES

Concluding Remarks and Towards Nanomedicine 2008

**Bertil Andersson**  
European Science Foundation, Strasbourg, FR  
Conclusions

Signature of the Memorandum of Understanding between the University of Barcelona & the European Science Foundation

- 13:00** Lunch  
**14:30** Excursion to the Dali Museum  
**20:00** Dinner

## Wednesday 20 September

Breakfast and departure