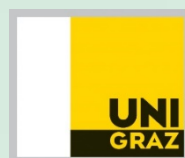




BioNanoMed 2023

PROGRAM

11th International Congress
Nanotechnology in Medicine & Biology
12 – 14 April 2023, Graz / Austria



Invitation

Nanotechnology in Biology & Medicine

12 – 14 April 2023, Graz / Austria

BioNanoMed 2023 provides a forum for researchers, engineers, students and practitioners from Natural Sciences, Medical Sciences and Engineering as well as from educational, governmental and non-governmental institutions to discuss current, emerging and future trends of the converging fields of nanotechnology, biotechnology and medicine.

Exciting lectures and invited talks given by leading international scientists as well as poster presentations offer delegates an excellent opportunity to discuss pioneering developments and to initiate cooperation projects.

Topics

- **Nanomaterials for Biomedical Applications & Regenerative Medicine**
- **Drug Delivery and Nanotherapy**
- **Nanotechnology for Imaging, Sensing and Diagnostics**
- **Pharmaceutical Nanotechnology and Drug Design**
- **Lipid Nanoparticle Gene Delivery Systems and Vaccines**
- **Biophysical Nanotechnology and Single-Molecule Technologies**

(in cooperation with Johannes Kepler University Linz)

Important Deadlines

Deadline for poster submissions: **13 March 2023**

Early registration: **17 February 2023**

End of online registration: **8 April 2023**

Poster Awards 2023 & Best Talk Award

MDPI Pharmaceuticals and **Erwin Schrödinger Society Poster Awards 2023** are intended to recognize outstanding research and are granted to the three best poster contributions (€ 500 for the first, € 300 for the second and € 200 for the third place).

NanoMedicineAustria / BioNanoNet Forschungsgesellschaft mbH will award the best talk with € 500!

The winners will be announced during the POSTER AWARD CEREMONY at the end of the conference!

Discount on packages - save up to 25% !

Discounts on Registration - new group Packages - save up to 25% off!

We offer a special discount for the participation of four or more delegates.

For groups of four (4), the first three (3) registrations have to be paid in full and **the 4th is FREE.**

Professor/Academic and Student Packages

We offer a special discount for the participation of professors or academic delegates with their students.

Package I: 1 Delegate (to be paid in full) and 1 student (save up more than 30% off)

Package II - 25%: 1 Delegate (to be paid in full) and 2 students (1 student to be paid in full and 1 student 80% off).

Keynote / Invited Speakers

Keynote – Speakers:



Alessandro Grattoni, PhD.

*The Houston Methodist Research Institute,
Department of Nanomedicine, Houston, Texas (USA)*

Presentation Title:

**Biomedical Nanofluidics for Drug and Cell
Therapeutics**



Rogério Gaspar, Professor

*World Health Organization, Regulation and Prequalification
Department (RPQ), Access to Medicines and Health Products
Division (MHP), Geneva (Switzerland)*

Presentation Title:

**Bringing Science and Regulation together: WHO Response
in COVID-19 and the Case for a Global Health Security
Agenda**

Invited Speakers:

Sunil Krishnan, MD Prof.

*The University of Texas Health Science Center (UTHealth),
The UT Brown Foundation Institute of Molecular Medicine,
Center for Translational Cancer Research (USA)*

**Overcoming Barriers to Nanoparticles reaching Tumors via the
Blood Stream and overcoming Depth Limitation of light
to trigger Tumor Events**



Sandrine Gerber, Prof.

*Ecole Polytechnique Fédérale de Lausanne,
Institute of Chemical Sciences & Engineering,
Functionalized Biomaterials (Switzerland)*

**Multifunctional Harmonic Nanoparticles for Targeted
Multimodal Imaging and Cancer Theranostic Applications**

Karsten Haupt, Prof.

*Université de Technologie de Compiègne, Enzyme and Cell
Engineering, Compiègne (France)*

**Molecularly Imprinted Polymer Nanogels: Synthetic Peptide
Antibodies for Biomedical Therapy and Diagnostics**



Invited Speakers

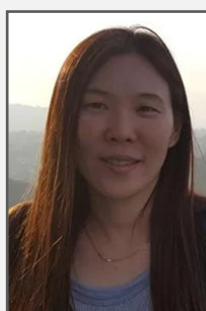
Invited Speakers:



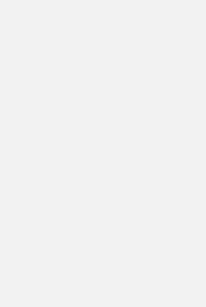
Ulrich Lächelt, Ass. Prof. Dr.
University of Vienna, Division of Pharmaceutical Technology
and Biopharmaceutics, Vienna (Austria)
Nanopharmaceuticals for Delivery of the CRISPR/Cas System



Arben Merkoçi, Prof. Dr.
Catalan Institute of Nanoscience and Nanotechnology
(ICN2), Nanobioelectronics & Biosensors Group,
Bellaterra-Barcelona (Spain)
Nanobiosensors in Diagnostics Applications



Yoojin Oh, Dr.
Johannes Kepler University Linz, Institute of Biophysics, Linz (Austria)
Lectin Binding to SARS-CoV-2 Spike Glycans Viewed on the Single Molecule Level



Jakub Dalibor Rybka, Prof. UAM dr hab. inż.
Adam Mickiewicz University, Center for Advanced Technology,
Poznan (Poland)
**Formulation and Evaluation of the Bioink Composed of Alginate,
Gelatin, and Nanocellulose for 3D Bioprinting of Human**



Olivia Merkel Prof. Dr.
Ludwig-Maximilians-Universität München,
Department of Pharmacy, Munich (Germany)
New Approaches for Therapeutic Pulmonary RNA Delivery



Miklós Kellermayer, M.D., Ph.D.
Semmelweis University, Department of Biophysics and
Radiation Biology, Budapest (Hungary)
**Deciphering Viral Structure and Function with Single-Molecule
Methods**



Ilya Reviakine, Dr.
University of Washington, Department of Bioengineering,
Seattle, WA (USA)
Platelets and their Role in Blood Response to Biomaterials



Program, 12 April 2023

9.30 Registration

10.30 Opening and Welcome

Nanomaterials for Biomedical Applications & Regenerative Medicine I

Keynote Lecture

10.50 Biomedical Nanofluidics for Drug and Cell Therapeutics (Keynote Lecture)
Alessandro Grattoni, The Houston Methodist Research Institute, Department of Nanomedicine, Houston, Texas (USA)

11.30 Molecularly Imprinted Polymer Nanogels: Synthetic Peptide Antibodies for Biomedical Therapy and Diagnostics (Invited Lecture)
Karsten Haupt, Université de Technologie de Compiègne, Enzyme and Cell Engineering, Compiègne (France)

11.45 Formulation and Evaluation of the Bioink Composed of Alginate, Gelatin, and Nanocellulose for 3D Bioprinting of Human Meniscus (Invited Lecture)
Jakub Dalibor Rybka, Adam Mickiewicz University, Center for Advanced Technology, Poznan (Poland)

12.15 Gd₂O₃:Er³⁺,Yb³⁺,Mg²⁺ Nanoparticles - Synthesis, Characterization and Biological Applications
Izabela Kamińska, Polish Academy of Sciences, Biological Physics, Warsaw (Poland)

12.30 Lunch Break

Nanomaterials for Biomedical Applications & Regenerative Medicine II

13.40 Multifunctional Harmonic Nanoparticles for Targeted Multimodal Imaging and Cancer Theranostic Applications (Invited Lecture)
Sandrine Gerber, Ecole Polytechnique Fédérale de Lausanne, Institute of Chemical Sciences & Engineering, Functionalized Biomaterials (Switzerland)

14.10 Shock Wave-Responsive Fe-Doped ZnO Nanoparticles as a Tool against Pancreatic Cancer Cells
Marco Carofiglio, Department of Applied Science and Technology, Politecnico di Torino, Turin (Italy)

14.25 High Efficiency Micro-Mixing
Majid Malboubi, The University of Birmingham Dubai, Department of Mechanical Engineering, Dubai (United Arab Emirates)

14.40 Nanomaterials for in vivo Multimodal Imaging and Photothermal Therapy
Katerina Polakova, Palacký University Olomouc, Czech Advanced Technology and Research Institute, Regional Centre of Advanced Technologies and Materials Department (Czech Republic)

14.55 Molecularly Imprinted Polymer Nanogels as Synthetic Antibodies for the Recognition of a Kidney Failure Biomarker
Noel A. Kalacas, Université de Technologie de Compiègne, Laboratoire de Génie Enzymatique et Cellulaire GEC, UMR CNRS 7025, Compiègne (France)

15.10 The NaYF₄:Yb,Tm@SiO₂ upconverting Nanoparticles for Photodynamic Therapy Application
Bozena Sikora, Polish Academy of Sciences, Institute of Physics, Warsaw (Poland)

15.25 Coffee Break



Program, 12 April 2023

Nanomaterials for Biomedical Applications & Regenerative Medicine III

15.55 Platelets and their Role in Blood Response to Biomaterials (Invited Lecture)
Ilya Reviakine, University of Washington, Department of Bioengineering, Seattle, WA (USA)

16.25

Insights Behind the Structural Morphology and Rheological Properties of a Thermosensitive Hydrogel directed to the Treatment of Atopic Dermatitis

Pamela Soto Garcia, Pontifical Catholic University of São Paulo (PUC-SP), Biomaterials Laboratory, Sorocaba-SP (Brazil)

16.40 Gram-Scale Production of Magnetic Ferrite Nanoparticles with Well-Defined Shapes and outstanding Performances for Magnetic Hyperthermia Treatment

Niccolò Silvestri, Istituto Italiano di Tecnologia, Genoa (Italy)

16.55 3D Bioelectronic Systems for Human Stem Cells Engineering

Achilleas Savva, University of Cambridge, Department of Chemical Engineering and Biotechnology, Cambridge (United Kingdom)

17.10 Company Presentations

Brave Analytics GmbH, Graz (Austria)

Particle Matrix GmbH, Inning am Ammersee (Germany)

Postnova Analytics GmbH, Landsberg (Germany)

Bruker Nano GmbH, Berlin (Germany)

Schaefer Technologie GmbH, Langen (Germany)

18.00 – 20.30

Poster Session & Exhibition with Wine & Snacks

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Program, 13 April 2023

09.00 Keynote Lecture

Bringing Science and Regulation together: WHO Response in COVID-19 and the Case for a Global Health Security Agenda

Rogério Gaspar, World Health Organization, Regulation and Prequalification Department (RPQ), Access to Medicines and Health Products Division (MHP), Geneva (Switzerland)

Drug Delivery and Nanotherapy I

09.40 Overcoming Barriers to Nanoparticles reaching Tumors via the Blood Stream and overcoming Depth Limitation of light to trigger Tumor Events (Invited Lecture)

Sunil Krishnan, The University of Texas Health Science Center (UTHealth), The UT Brown Foundation Institute of Molecular Medicine, Center for Translational Cancer Research, Houston (USA)

10.10 Extracellular Vesicles: New Frontiers for the Delivery of Oncolytic Viruses

Mariangela Garofalo, University of Padova, Department of Pharmaceutical and Pharmacological Sciences, Padova (Italy)

10.25 Sequential Adsorption of Charged Nanoobjects as a Method of Formation of Multifunctional Theranostic Systems

Marta Szczech, Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Krakow (Poland)

10.40 Coffee Break

Drug Delivery and Nanotherapy II

11.15 Local and Systemic Cancer Treatment via Localized Immune Modulation

Corrine Ying Xuan Chua, Houston Methodist Research Institute, Department of Nanomedicine, Houston (USA)

11.30 Controlled Release of Camptothecin by Light-Activation in Engineered Porous Materials

Eva M. Rivero Buceta, Universitat Politècnica de València-Consejo Superior de Investigaciones Científicas, Instituto de Tecnología Química (Spain)

11.45 Magnetoplasmonic Au-Fe₃O₄ Nanoheterodimers for X-Ray triggered Cancer Therapy

Stefanie Klein, Friedrich-Alexander Universität Erlangen-Nürnberg, Department Chemistry and Pharmacy, Institute of Physical Chemistry (Germany)

12.00 Temperature-Responsive Nanogels containing SPIONs and miRNAs for Targeted Delivery in Wound Healing and Skin Regeneration Applications. The EuroNanoMed project TENTACLES

Andrea Masotti, Bambino Gesù Children's Hospital-IRCCS, Research Laboratories, Rome (Italy)

12.15 Polymer-Gold Nanocompounds for Triggered Release of Tyrosine Kinase Inhibitor Drugs and Cytotoxic Evaluation

Sanda Boca, Babes-Bolyai University, Interdisciplinary Research Institute in Bio-Nano-Sciences, National Institute for Research and Development of Isotopic and Molecular Technologies, Molecular and Biomolecular Technologies Department, Cluj-Napoca (Romania)

12.30 DELOS Nanovesicles-based Hydrogels: An Innovative Formulation for Topical Use

Lidia Ferrer-Tasies, Nanomol Technologies S.L., Cerdanyola del Vallès (Spain)

12.45 Lunch Break

Special thanks to the sponsors:

Poster Awards



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Best Speaker Award



Speaker Sponsor



Program, 13 April 2023

Drug Delivery and Nanotherapy III

14.00 New Approaches for Therapeutic Pulmonary RNA Delivery (Invited Lecture)
Olivia Merkel, Ludwig-Maximilians-Universität München, Department of Pharmacy, Munich (Germany)

14.30 Iontronic Tools for Long-Lasting Chemotherapy and Triggered Drug Release
Linda Waldherr, Medical University of Graz, Institute of Biophysics, Graz (Austria)

14.45 Inorganic-Organic Hybrid Nanoparticles: High-Load Drug Carriers with Theranostic Features

Claus Feldmann, Karlsruhe Institute of Technology, Institute of Inorganic Chemistry, Karlsruhe (Germany)

15.00 Polymeric-Based Theranostic Nanocarriers to Central Nervous System Therapies
Krzysztof Szczepanowicz, Jerzy Haber Institute of Catalysis and Surface Chemistry, PAS, Krakow (Poland)

15.15 Coffee Break, Exhibition, Poster Session

Pharmaceutical Nanotechnology and Drug Design

16.00 Nanopharmaceuticals for Delivery of the CRISPR/Cas System (Invited Lecture)
Ulrich Lächelt, University of Vienna, Division of Pharmaceutical Technology and Biopharmaceutics, Vienna (Austria)

16.30 Metalodendrimers to enhance the Antibacterial Properties of Endolysin against Gram-Negative Bacteria

Karol Ciepluch, Jan Kochanowski University, Division of Medical Biology, Jan Kochanowski University, Kielce (Poland)

16.45 Which Role do Nanoparticles play in the Manufacturing-Related Aggregation of Glycoproteins?

Milica Stankovic-Brandl, Research Center Pharmaceutical Engineering GmbH, Graz (Austria)

17.00 Colloidal Stabilized Core-Shell Particles for Conservation of Essential Oils: Novel Strategies in Insect Repellents

Eva-Kathrin Ehmoser, University of Natural Resources and Life sciences, BOKU, Institute for Synthetic Bioarchitectures, Department for BioNanoSciences, Vienna (Austria)

17.15 Age-Dependent Analysis of Recombinant Protein Synthesis by Magnetic Separation
Marco Eigenfeld, Technical University of Munich, Chair of Brewing and Beverage Technology, Freising (Germany)

17.30 A Multi-Stage Pulmonary Drug Delivery System based on Sporopollenin
Noemi Csaba, University of Santiago de Compostela, Department of Pharmacology, Pharmacy and Pharmaceutical Technology, School of Pharmacy - Center for Research in Molecular Medicine and Chronic Diseases (CIMUS) (Spain)

17.45 Peptide-Directed Nanoemulsions

Natasa Perac, University of Graz, Institute of Pharmaceutical Sciences, Pharmaceutical Technology & Biopharmacy, Graz (Austria)

18.00 Guided Historic City Walk

(ends at Evening Event Location)

19.30 Evening Discussion



Program, 14 April 2023

Biophysical Nanotechnology and Single-Molecule Technologies

(in cooperation with Johannes Kepler University Linz)

09.00 Deciphering Viral Structure and Function with Single-Molecule Methods (Invited Lecture)

Miklós Kellermayer, Semmelweis University, Biophysics and Radiation Biology, Budapest (Hungary)

09.30 Lectin Binding to SARS-CoV-2 Spike Glycans Viewed on the Single Molecule Level (Invited Lecture)

Yoojin Oh, Johannes Kepler University Linz, Institute of Biophysics, Linz (Austria)

10.00 Force-tuned Avidity of Spike Variant-ACE2 Interactions viewed on the Single-Molecule Level

Peter Hinterdorfer, Johannes Kepler University Linz, Experimental Applied Biophysics, Linz (Austria)

10.15 Lipoprotein Particles - Transporter of Bioactive Substances and Diagnostic Information

Birgit Plochberger, University of Applied Sciences Upper Austria, Department of Medical Engineering, Linz (Austria)

10.30 Chasing Individual Extracellular Vesicles: from Purification Analysis to Co-Localization within Cells using Atomic Force- and Single-Molecule Fluorescence Microscopy

Dmitry Sivun, University of Applied Sciences Upper Austria, Department of Medical Engineering, Linz (Austria)

10.45 How multivalent Interactions trigger Immune Effector Functions

Johannes Preiner, University of Applied Sciences Upper Austria, Linz (Austria)

11.00 Coffee Break

Nanotechnology for Imaging, Sensing and Diagnostics

11.30 Nanobiosensors in Diagnostics Applications (Invited Lecture)

Arben Merkoçi, Catalan Institute of Nanoscience and Nanotechnology (ICN2), Nanobioelectronics & Biosensors Group, Bellaterra-Barcelona (Spain)

12.00 Activity of Single Insect Olfactory Receptors triggered by Airborne Compounds recorded in Self-Assembled Tethered Lipid Bilayer Nanoarchitectures

Jakob Andersson, AIT Austrian Institute of Technology, Vienna (Austria)

12.15 The Role of Short Sequence Motifs in the Anticancer and Antimicrobial Activity of Biomembrane-Targeting HB43 Peptide: a Biophysical and Biological Investigation

Claudia Herrera-Leon, Université de Technologie de Compiègne, and Université de Picardie Jules Verne, CNRS Enzyme and Cell Engineering Laboratory Amiens (France)

12.30 Magneto-Erythrocyte Membrane Vesicles as T2 MRI Contrast Agents

Nina Kostevšek, Jožef Stefan Institute, Department for Nanostructured Materials, Ljubljana (Slovenia)

12.45 Towards Human-Head-Sized Quantitative Imaging of Magnetic Nanoparticles with Magnetorelaxometry and Optically Pumped Magnetometers

Aaron Jaufenthaler, UMIT TIROL - Private University For Health Sciences and Health Technology, Institute of Electrical and Biomedical Engineering, Hall in Tirol (Austria)

13.00 Single-Domain Antibodies as Core Elements in bead-based Diagnostic Platforms for Detection of Tumor Biomarkers in Liquid Biops

Carlos Peris-Torres, ibs.GRANADA - GENYO. Centre for Genomics and Oncological Research: Pfizer / University of Granada / Andalusian Regional Government (Spain)

13.15 Poster & Best Talk Award Ceremony & Closing

13.30 Farewell

14.15 End of Conference



BioNanoMed 2023 - Committee

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BioNanoMed 2023

12 – 14 April 2023, Graz / Austria
University of Graz - Main Building - AULA (1st floor)
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