

*Program*

# **Nanotechnology in Medicine V**

**Giardini Naxos, Sicily, Italy**

**April 19 – 23, 2026**

## **Conference Chairs**

**Rohan Fernandes, University of Maryland College Park, USA**

**Juliane Nguyen, University of North Carolina, USA**



Engineering  
Conferences  
International

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## **Previous conferences in this series**

### ***Nanotechnology in Medicine: From Molecules to Humans***

**July 3-7, 2016**

**Hernstein, Austria**

*Conference Chairs:*

Lola Eniola-Adefeso (Department of Chemical Engineering, University of Michigan, USA)

Paolo Decuzzi (Italian Institute of Technology, Italy)

### ***Nanotechnology in Medicine II:***

#### ***Bridging Translational in vitro and in vivo Interfaces***

**June 5-9, 2018**

**Grande Real Santa Eulalia Hotel, Albufeira, Portugal**

*Conference Chairs:*

Millicent Sullivan

(Department of Chemical & Biomolecular Engineering, University of Delaware, USA)

Josué Sznitman

(Department of Biomedical Engineering, Technion-Israel Institute of Technology, Israel)

### ***Nanotechnology in Medicine III: Enabling Next Generation Therapies***

**May 15-20, 2022**

**Grand Hotel San Michele, Cetraro (Calabria), Italy**

*Conference Chairs:*

Milica Radisic (University of Toronto, Canada)

Victor Shahin (University of Münster, Germany)

### ***Nanotechnology in Medicine IV: Physical Triggers and Advanced Materials***

**May 12 – 16, 2024**

**Hotel dos Templários, Tomar, Portugal**

*Conference Chairs:*

Shyni Varghese (Duke University, USA)

Stefaan DeSmedt (Ghent University, Belgium)

Kaushal Rege (Arizona State University, USA)

**Conference Sponsors**

**Advanced Drug Delivery Reviews, Elsevier**

**Bioengineering & Translational Medicine**

**NanoFCM**

**RSC Pharmaceuticals**

**Science Advances**

**University of Maryland Bioengineering Department**

**University of North Carolina, Division of  
Pharmacoengineering and Molecular Pharmaceuticals**

## **Sunday, April 19, 2026**

17:00 – 18:30	Conference Check-in (Hotel lobby)
18:30 – 19:30	Opening Reception (Garden)
19:30 – 21:00	Dinner (Oasys Restaurant)

### **Locations and Notes**

- *Technical sessions will be in the Lipari Room.*
- *The poster sessions will be in the Affreschi Room.*
- *Breakfast and lunches, as well as dinners on Sunday and Monday, will be in the Oasys Restaurant.*
- *The conference banquet on Thursday will be in the Parco Restaurant.*
- *Audio, still photo and video recording by any device (e.g., cameras, cell phones, laptops, PDAs, watches) is strictly prohibited during the technical sessions, unless the author and ECI have granted prior permission.*
- *Speakers – Please have your presentation loaded onto the conference computer prior to the session start (preferably the day before).*
- *Speakers – Please leave at least 3 minutes for questions and discussion.*
- *Please do not smoke at any conference functions.*
- *Turn your mobile telephones to vibrate or off during technical sessions.*
- *After the conference, ECI will send an updated participant list to all participants. Please check your listing now and if it needs updating, you may correct it at any time by logging into your ECI account.*
- *Emergency Contact Information: Because of privacy concerns, ECI does not collect or maintain emergency contact information for conference participants. If you would like to have this information available in case of emergency, please use the reverse side of your name badge.*

## Monday, April 20, 2026

- 07:00 – 09:00 Breakfast
- 09:00 – 09:10 Conference Welcome (Conference Chairs)
- 09:10 – 10:10 **Plenary Talk**  
Session Chairs: Juliane Nguyen; Rohan Fernandes
- TFAMoplex: A modular protein based nanoparticulate system for gene delivery**  
Jean-Christophe Leroux, ETH Zurich, Switzerland
- Session 1: Nanocarriers, RNA Delivery & Vaccine Platforms**  
Session Chair: Felix Sauvage
- 10:10 – 10:35 Invited Talk  
**Advancing the Design Logic of mRNA Nanomedicines**  
Owen Fenton, University of North Carolina, Chapel Hill, USA
- 10:35 – 11:10 Coffee Break (*Sponsored by NanoFCM*)
- 11:10 – 11:35 Invited Talk  
**Triazine lipids as a platform for subunit vaccine development**  
Vincent Venditto, University of Kentucky, USA
- Session 2: Next-Generation Tools for Imaging, Tissue Engineering, and Precision Health**  
Session Chair: Owen Fenton
- 11:35 – 12:00 Invited Talk  
**Light-mediated transfection for precise and enhanced corneal endothelium engineering**  
Félix Sauvage, Ghent University, Netherlands
- 12:00 – 13:30 Lunch
- 13:30 – 14:00 **Keynote Talk**  
**Biomedical nanoscale chemical imaging with null-deflection atomic force microscopy-infrared spectroscopy**  
Rohit Bhargava, University of Illinois Urbana-Champaign, USA
- 14:00 – 14:25 Invited Talk  
**Automated AI-based Functional Characterization of Engineered Contractile Tissues for Drug Toxicology**  
Parth Chansoria. ETH Zurich, Switzerland
- 14:25 – 14:55 **Keynote Talk**  
**Medical Materials and Technology Innovation for Women's Health**  
Inge Herrmann, Ingenuitylab, Switzerland
- 14:55 – 15:15 Invited Talk  
**Advancing Nanomedicine Through NanoFCM: Precision Characterisation of Therapeutic Nanoparticles**  
Genevieve (Evie) Anghileri, NanoFCM
- 15:15 – 15:55 Coffee Break

**Monday, April 20, 2026 (continued)**

**Session 3: Scientific publishing in a time of accelerated discovery**

Session Chair: Kaushal Rege

- 15:55 – 16:15      **Scientific publishing in a time of accelerated discovery, global shifts, and AI**  
Laura Remis, AAAS, USA
- 16:15 – 16:35      **Publishing pitfalls and priorities in a changing research landscape**  
Valeria Caprettini, Nature Biomedical Engineering, UK
- 16:35 – 17:30      **Panel Discussion**  
Kaushal Rege, Arizona State University, USA  
Laura Remis, AAAS, USA  
JC Leroux, ETH Zurich  
Valeria Caprettini, Nature
- 17:30 – 19:00      **Poster Session**
- 19:30 – 21:00      Dinner

## Tuesday, April 21, 2026

- 07:00 – 08:30 Breakfast
- Session 4: Translational Nanomedicine Across Diseases**  
Session Chair: Owen Fenton
- 08:30 – 09:00 **Keynote Talk**  
**Nitric oxide-releasing liposomes as a therapeutic against Mycobacterium abscessus infections**  
Mark Schoenfisch, University of North Carolina, Chapel Hill, USA
- 09:00 – 09:25 Invited talk  
**Nanomedicine in the treatment of gastrointestinal metabolic disorders**  
Ana Beloqui, Université Catholique de Louvain, Belgium
- 09:25 – 09:50 Invited Talk  
**Battle of the Bio-Nanoconjugates: Comparison of targeted nanoparticle platforms for precision cancer therapy**  
Emily Day, University of Delaware, USA
- 09:50 – 10:35 Coffee Break (*Sponsored by University of North Carolina, Division of Pharmacoengineering and Molecular Pharmaceutics*)
- 10:35 – 10:45 Lightning talk  
**Cell-specific precision nucleic acid therapeutics via a Mirna-triggered stem-loop platform**  
Soobin Lee, KAIST, South Korea
- 10:45 – 11:15 **Keynote Talk**  
**Polypeptide-based Therapeutics with Inherent Mitochondria Tropism**  
Maria J. Vicent, CIPF, Spain
- 11:15 – 11:40 Invited Talk  
**A light-activated, carrier-free nanodrug for fighting brain cancer and unlocking the blood-brain barrier**  
Huang-Chiao Huang, University of Maryland, USA
- 11:40 – 12:10 **Keynote Talk**  
**Ultrasound-responsive bicontinuous nanospheres for localized immunomodulation of the solid tumor microenvironment**  
Evan Scott, University of Virginia, USA
- 12:10 - 13:40 Lunch
- Excursion to Taormina with dinner**
- 14:45 Meet just outside the hotel for boarding buses
- 15:00 Departure from the hotel, transfer to Taormina for guided tour followed by pizza dinner at Pizzeria Villa Zuccaro (Piazza Carmine, 5 Taormina)
- 21:30 Return to UNAHotel Naxos Beach

**Wednesday, April 22, 2026**

- 07:00 – 08:30 Breakfast  
**Session 5: Living Therapeutics & Engineered Biological Systems**  
Session Chair: Ana Beloqui
- 08:30 – 09:00 **Keynote Talk**  
**Engineering probiotics for real-world medical applications**  
Tae Seok Moon, J. Craig Venter Institute, USA
- 09:00 – 09:30 **Keynote Talk**  
**Cyborg cells for programmable medicine**  
Cheemeng Tan, University of California, Davis, USA
- 09:30 – 09:55 Invited Talk  
**Engineered living materials from bacteria**  
Sara Molinari, University of Maryland, USA
- 09:55 – 10:40 Coffee Break
- 10:40 – 11:10 **Keynote Talk**  
**High dimensional analysis of T cells responding to noncanonical antigens in malignancies**  
C. Russell Cruz, Children's National Hospital, USA
- 11:10 – 11:35 Invited Talk  
**Biofilm-inspired nanomaterials for the encapsulation and delivery of therapeutic bacteria**  
Joel Finbloom, University of British Columbia, Canada
- 11:35 – 11:45 Lightning Talk  
**Engineered *saccharomyces boulardii* for local immunotherapy delivery ameliorates colitis**  
Alita Miller, University of North Carolina, Chapel Hill, USA
- 11:45 – 12:00 Lightning Talk  
**Harnessing genome recoding to engineer novel phage vectors for in situ reprogramming of the gut microbiome**  
Peter Voorhees, University of North Carolina, Chapel Hill, USA
- 12:00 – 13:30 Lunch
- Session 6: Immunoengineering**  
*Sponsored by the University of Maryland Bioengineering Department*  
Session Chair: Vincent Venditto
- 13:30 – 14:00 **Keynote Talk**  
**Nanoparticle-driven acute immune modulation ameliorates pain and structural damage in post-traumatic osteoarthritis**  
Omolola Eniola-Adefeso, University of Illinois Chicago, USA
- 14:00 – 14:25 Invited Talk  
**Engineering Nanotechnology for Immuno-Oncology**  
John Wilson, Vanderbilt University, USA
- 14:25 – 14:55 **Keynote Talk**  
**Nanoparticulate immunoactive complex for local chemoimmunotherapy: From murine models to pilot canine study and beyond**  
Yoon Yeo, Purdue University, USA
- 14:55 – 15:40 Coffee Break

**Wednesday, April 22, 2026 (continued)**

15:40 – 16:05

Invited Talk

**Bench-to-bedside engineering of precision immunotherapy paradigms with focused ultrasound**

Natasha Sheybani, University of Virginia, USA

16:05 – 16:30

Invited Talk

**Enhancing cancer radiotherapy via metabolic reprogramming with bioreducible polymer nanoparticles**

Christopher Grigsby, Queen's University Belfast, UK

16:30 – 16:55

Invited Talk

**Biomolecular engineering of extracellular vesicles for precision therapy**

Mei He, University of Florida, USA

16:55 – 17:25

**Keynote Talk**

**Immunomodulatory biomolecular interventions for skin tissue repair and melanoma**

Kaushal Rege, Arizona State University, USA

**Free evening / Dinner on your own**

**Thursday, April 23, 2026**

07:00 – 09:00

Breakfast

**Session 7: Biophysics, Mechanics & New Approach Methodologies**

Session Chair: Joel Finbloom

09:00 – 09:30

**Keynote Talk**

**Simple kinetic modeling frameworks to predict efficacy and potency in LNPs and RNA nanocarriers**

Millicent Sullivan, University of Delaware, USA

09:30 – 09:40

Lightning Talk

**Advanced in vitro models for mechano-profiling of red blood cell-based shear-responsive carriers**

Anat Glozman, Technion-Israel Institute of Technology, Israel

09:40 – 10:05

Invited Talk

**Prenatal Nanomedicine and Bioengineered Models of Pregnancy**

Hagar Labouta, University of Toronto, Canada

10:05 – 10:45

Coffee Break

10:45 – 11:15

Invited Talk

**Focal treatment of brain aneurysms via fluid mechanics-driven strategies**

Netanel Korin, Technion-Israel Institute of Technology, Israel

11:15 – 11:45

**Keynote Talk**

**Engineering advanced drug delivery platforms for immuno-chemotherapy in brain cancer**

Paolo Decuzzi, Italian Institute of Technology in Genova, Italy

11:45 – 11:55

Lightning Talk

**An abdominal aortic aneurysm micro-physiological model for the study of localized nano-therapeutics**

Suzan Shehady, Technion, Israel

11:55 – 12:05

Lightning Talk

**Bio-based, low-swelling auxetic hydrogels for the treatment of pneumothorax**

Parmiss Khosravi, University of North Carolina, Chapel Hill, USA

12:05 – 12:15

Lightning Talk

**Electrosprayed apigenin-Soluplus spherical particles as a platform for topical delivery in applications for healthy longevity**

Anna Stasiłowicz-Krzemień, Poznań University of Medical Sciences, Poland

12:15 – 13:45

Lunch

13:45 – 14:15

**Keynote Talk**

**Brain-targeted drug delivery systems for treating Parkinson's disease: The role of AI**

Avi Schroeder, Technion-Israel Institute of Technology, Israel

14:15 – 14:45

**Keynote Talk**

**Multiscale Bioengineering Approaches for Novel Pulmonary Delivery Therapies**

Josué Sznitman, Technion-Israel Institute of Technology, Israel

**Thursday, April 23, 2026 (continued)**

- 14:45 – 15:30            **Science Advocacy: Panel discussion**  
  
Paolo Decuzzi, Italian Institute of Technology, Italy  
Lola Eniola-Adefeso, University of Illinois Chicago, USA  
Millicent Sullivan, University of Delaware, USA  
Kaushal Rege, Arizona State University, USA  
Josué Sznitman, Technion-Israel Institute of Technology, Israel
- 15:30 – 16:15            Coffee Break
- 16:15 – 18:00            **Closing Plenary Session**  
Session Chairs: Christopher Grigsby, Rohan Fernandes
- 16:15 – 17:00            **Plenary Talk 1**  
**Nanotechnology at the NIH: Transforming Biomedical Innovation Across Disciplines**  
David Rampulla, NIH/NIBIB, USA
- 17:00 – 18:00            **Plenary Talk 2**  
**Bioengineering Cell Based Therapeutics from Bench to Bedside**  
Omid Veisesh, Rice University, USA
- 18:00 – 19:00            Break
- 19:00 – 19:30            Reception
- 19:30 – 21:00            Conference Banquet and Awards

**Friday, April 24, 2026**

- 07:00 – 09:00            Breakfast and departures

## Poster List

- 1. Engineered *saccharomyces boulardii* for local immunotherapy delivery ameliorates colitis**  
Alita Miller, University of North Carolina, Chapel Hill, USA
- 2. Harnessing genome recoding to engineer novel phage vectors for in situ reprogramming of the gut microbiome**  
Peter Voorhees, University of North Carolina, Chapel Hill, USA
- 3. Advanced in vitro models for mechano-profiling of red blood cell-based shear-responsive carriers**  
Anat Glozman, Technion-Israel Institute of Technology, Israel
- 4. Bio-based, low-swelling auxetic hydrogels for the treatment of pneumothorax**  
Parmiss Khosravi, University of North Carolina, Chapel Hill, USA
- 5. Electrospayed apigenin–Soluplus spherical particles as a platform for topical delivery in applications for healthy longevity**  
Anna Stasiłowicz-Krzemień, Poznań University of Medical Sciences, Poland
- 6. Thymoquinone-loaded electrospun nanofibers – Polymer matrix design engineering**  
Judyta Cielecka-Piontek, Poznań University of Medical Sciences, Poland
- 7. An abdominal aortic aneurysm micro-physiological model for the study of localized nano-therapeutics**  
Suzan Shehady, Technion, Israel
- 8. Cell-specific precision nucleic acid therapeutics via a Mirna-triggered stem-loop platform**  
Soobin Lee, KAIST, South Korea