

Program
(April 24, 2024)

Nanotechnology in Medicine IV: Physical Triggers and Advanced Materials for Translation

May 12-16, 2024
Tomar, Portugal

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Duke University, USA

Stefaan De Smedt

Ghent University, Belgium

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May 15-20, 2022

Grand Hotel San Michele, Cetraro (Calabria), Italy

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 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: 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

NOTES

- Audio, still photo and video recording by any device (e.g., cameras, cell phones, laptops, watches) is strictly prohibited during the technical sessions, unless the author and ECI have granted prior permission.
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- Speakers – Please leave at least 3 minutes for questions.
- Please do not smoke at any conference functions.
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- 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.

Sunday, May 12, 2024

16:00 – 17:45 Conference check-in

17:45 – 18:00 Conference Introduction
Chair: Prof. Kaushal Rege

TRANSLATIONAL NANOTECHNOLOGIES

18:00 – 18:30 **KEYNOTE**
Translating biomedical nanotechnologies across the NIH
David Rampulla, NIBIB, NIH, USA

18:30 – 19:00 **KEYNOTE**
Bench to Bedside in Nanoworld: A roadmap to breakthroughs that change patients' lives"
Ramin Darvir, Pfizer, Inc., USA

19:00 – 19:50 **OPENING PLENARY**
Optically-activated nano constructs provide microenvironment priming, imaging and therapy
Tayyaba Hasan, Harvard Medical School, USA

20:00 – 21:30 Dinner

21:30 Social period

Monday, May 13, 2024

07:30 – 08:30 **Breakfast Buffet**

SESSION 1: ADVANCED DRUG DELIVERY

08:45 – 08:50 Introduction by **Session Chair: Prof. Rohan Fernandes**

08:50 – 09:20 **KEYNOTE**
Unlocking the potential: molecular fine-tuning of (live) biotherapeutics for enhanced oral and systemic drug delivery
Juliane Nguyen, University of North Carolina, USA

09:20 – 09:45 **Invited Talk**
Brain-targeted nanoparticles for treating Parkinsons Disease: From MAbs to synthetic cells
Avi Schroeder, Technion, Haifa, Israel

09:45 – 10:15 **KEYNOTE**
Photoporation for drug delivery
Kevin Braeckmans, University of Ghent, Belgium

10:15 – 10:40 Coffee break

10:40 – 11:10 **KEYNOTE**
Turning intracellular localization of nano- and micro-particles in phagocytic Immune cells
Siddharth Jhunjhunwala, Indian Institute of Science, India

11:10 – 11:35 **Invited Talk**
Nanoinformatics: Using AI to optimize cancer nanomedicines
Yossi Shamay, Technion, Haifa, Israel

11:35 – 11:50 **Selected Talk**
Logic-gated uptake of protein nano-assemblies to triple negative breast cancer cells using colocalization-dependent latching orthogonal cage-key proteins (Co-LOCKR)
Antonio Goncalves, University of Delaware, USA

12:00 – 13:30 **Lunch**

SESSION 2: ADVANCED IMAGING

13:30 – 13:40 Introduction by **Session Chair: Prof. Milica Radisic**

13:40 – 14:10 **KEYNOTE**
Micromechanical imaging of the tumor landscape
Seemantini Nadkarni, Harvard Medical School, USA

14:10 – 14:35 **Invited Talk**
Fluorinated nanoparticles as powerful bioimaging tools and delivery agents
Francesca Baldelli Bombelli, Politecnico di Milano, Italy

Monday, May 13, 2024 (continued)

- 14:35 – 15:00 **Selected Talk**
Switchable multimodal imaging and synergistic therapy with sequential PTT/PDT using J-aggregated porphyrin nanoparticles
Nahyun Kwon, University Health Network, Canada
- 15:00 – 15:30 Coffee break
- 15:30 – 15:55 **Invited Talk**
Implications of nuclear pore complexes for cancer
Victor Shahin, University of Münster, Germany
- 15:55 - 16:20 **Invited Talk**
Fluorescence-imaged guided drug delivery and photoimmunotherapy for Peritoneal metastasis in vivo
Huang-Chiao (Joe) Huang, University of Maryland, USA
- 16:20 - 16:35 **Selected Talk**
Aggregation induced emission based method to evaluate drug penetration and delivery in 3D tumor spheroids
Maytal Avrashami, Technion, Haifa, Israel
- 17:00 – 19:00 Poster Session / Social Hour
- 19:30 – 21:30 **Dinner**

Wednesday, May 15, 2024

07:30 – 08:30

Breakfast

SESSION 5: TISSUE REPAIR & REGENERATION

08:30 – 08:35

Introduction by Session **Chair: Prof. Juliane Nguyen**

08:40 – 09:10

KEYNOTE

Stimuli-responsive nanofibers for tissue regeneration

Treana Arenzei, Columbia University, USA

09:10 – 09:35

Invited Talk

Laser-induced nanobubbles for advanced therapies in the eye

Felix Sauvage, University of Ghent, Belgium

09:35 – 09:50

Antioxidant potential assessment of biosynthesized AgNPs and characterization of hepatoprotective phytoconstituents from vitis vinifera extract using LC-MS/MS

Mazhar Abbas, University of Veterinary and Animal Sciences Lahore, Pakistan

09:55 – 10:30

Coffee Break

10:30 – 11:00

KEYNOTE

Collagen repair-driven gene therapy for treatment of chronic wounds

Millicent Sullivan, University of Delaware, USA

11:00 – 11:25

Invited Talk

Enzyme powered nanobots with photothermal and magnetic properties for biomedical applications

Juan Fraire, Institute for Bioengineering of Catalonia, Spain

11:25 – 11:50

Invited talk

Eco-friendly bioinks for 3D bioprinting of soft tissues

Vijayavenkataraman Sanjairaj, NYU Abu Dhabi, Saadiyat Campus, Abu Dhabi

12:00 – 13:30

Lunch

SESSION 6: IMMUNOENGINEERING

13:30 – 13:35

Introduction by **Session Chair: Victor Shahin**

13:35 – 14:05

KEYNOTE

Supramolecular peptide immunotherapies for inflammatory diseases

Joel Collier, Duke University, USA

14:05 – 14:30

Invited Talk

Photothermal nanoparticles immune engineer potent tumor-specific T cells for adoptive cell therapy

Rohan Fernandes, George Washington University, USA

14:30 – 14:55

Invited Talk

Targeted delivery of antigen for enhancing humoral immunity

Aereas Aung, University of Toronto, Canada

15:00 – 15:40

Coffee Break

Wednesday, May 15, 2024 (continued)

- 15:40 - 16:05 **Invited Talk**
Identifying targets for engineering self-tolerance after traumatic injury
Kaitlyn Sadtler, NIBIB/NIH, USA
- 16:05 - 16:20 Selected Talk from Submissions
- 17:00 – 18:45 Poster Session / Social Hour
- 19:00 – 19:50 **Closing Summary and Plenary**
Chair: Prof. Stefaan De Smedt
- CLOSING PLENARY**
Overcoming barriers in tumor targeted drug delivery
Fabian Kiessling, RWTH Aachen University, Germany
- 20:00 – 22:00 Conference Banquet and Presentation Awards

Thursday, May 16, 2024

- 07.30 Breakfast and Departures