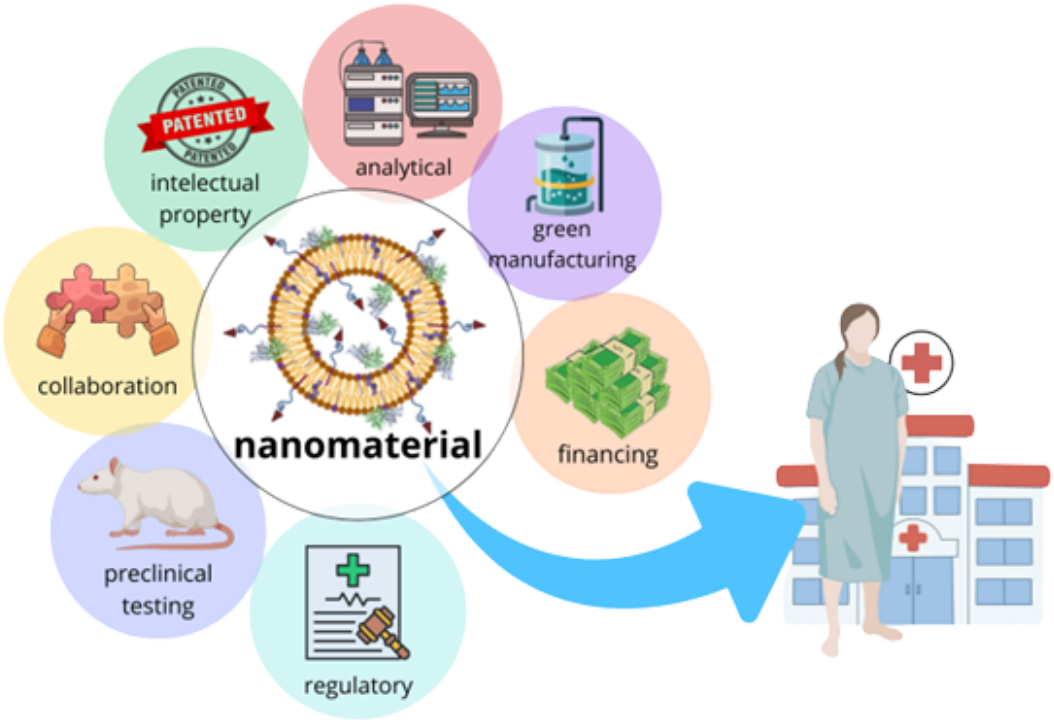
FRANCQUI CHAIR 2026
PROFESSOR NORA VENTOSA

INSTITUTE OF MATERIALS SCIENCE OF BARCELONA

PUBLIC LECTURE

ENGINEERING NANOMATERIALS FOR BIOMEDICAL APPLICATIONS: RESEARCH AND INNOVATION



WEDNESDAY 11/03 at 6PM
Brussels Institute for Advanced Studies
Bv General Jacques 210, 1050 Ixelles
Polina Mendeleev Seminar Hall

The lecture will be followed by a reception
Please register by March 06th

Registration

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Nora Ventosa is a research professor at the Institute of Materials Science of Barcelona (ICMAB), which is part of the Spanish National Research Council (CSIC). She works within the Nanomol research unit, which specializes in green chemistry, soft materials, and nano-biochemistry. Her work focuses on developing innovative methodologies aimed at creating functional nanomaterials for biomedical applications. She is also president of Nanomol Technologies SL and the co-founder and CEO of Delbios Pharmaceuticals SL.

ABSTRACT OF PUBLIC LECTURE

Nanomaterials, such as nanovesicles, solid lipid nanoparticles, and polymeric micelles, are promising advanced materials for the development of several types of biomedical products like therapeutics, contrast agents, analytical probes, and vaccines. For instance, advanced nanoparticles are playing a crucial role in the transformation of active biological molecules, such as proteins, peptides, and nucleic acids, into efficient drugs and vaccines. The main role of the nanoparticles is to protect, transport and deliver the active substance to the targeted damaged cells or tissues in a controlled and more efficient manner.

The efficacy and safety of these nanoparticle-based medicines not only depend on their chemical composition; they are also strongly related to their engineered nanostructure: how the different types of molecules that compose them are organized and respond to external stimuli.

The arrival of these advanced medicines with complex nanostructures to the clinic depends on the possibility of manufacturing them at a large scale with the control and quality required by medicines regulatory agencies to guarantee the safety of patients.

During my lecture I will highlight the importance of interdisciplinarity, collaboration between research and business communities, intellectual protection, start-ups role, early contact with regulators, and public and private financing to bring nanomaterial-based biomedical products from the lab to the clinic.

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FULL PROGRAM

THURSDAY 05/03:
16-18H
S.K3.210

Nanotechnology to improve drug delivery.
Nanovesicles for nanomedicine.

WEDNESDAY 11/03:
PUBLIC LECTURE 18H
USQUARE BRIAS ROOM

Public lecture: "Engineering nanomaterials for biomedical applications: research and innovation".

THURSDAY 12/03:
14H-17H
S.UB2.147

- Pharmaceutical quality in nanomedicine. Challenges in their preparation
- Engineering non-viral nanoparticles for nucleic acid delivery. Requirements for their use in gene therapy.

THURSDAY 09/04:
14H-17H
S.UD6.203

- The key role of compressed CO_2 based technologies in the production of metal free micro- and nanoparticles for biomedical applications.
- Engineering luminescent and fluorescent metal free nanoparticles. Application in Image Guided Surgery.

FRIDAY 10/04:
14H-17H
S.DC2.206

- Development of a nanomedicine from lab idea to clinical trial application and its monitoring through the KTH Innovation Readiness Level™.
- Knowledge transfer and interchange between research and business. Personal experience on the creation of technology-based spin-offs.

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