



# NANOBIOTECH FOR PRECISION MEDICINE SYMPOSIUM

## CLINICS MEETS NANOBIOTECH RESEARCH@LECCE

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LECCE, 1-2 LUGLIO 2025  
CNR NANOTEC – AULA RITA LEVI MONTALCINI

TUESDAY, JULY 1, 2025

08:30	REGISTRATION
09:15	OPENING & WELCOME GIUSEPPE GIGLI (Scientific Director, TecnoMed Puglia; Professor of Physics, DiMeS Unisalento)
	INSTITUTIONAL ADDRESSES FABRIZIO ILLUMINATI (Director, Cnr Nanotec); FABIO POLLICE (Rector, Unisalento); STEFANO ROSSI (General Director, ASL Lecce); ADRIANA POLI BORTONE (Mayor of the City of Lecce)
10:00	PRESENTATION OF TECNOMED TECHNOLOGICAL PLATFORMS GIUSEPPE GIGLI
10:30	TECNOMED LABORATORY TOUR
11:30	ROUND TABLE: CLINICS MEET NANOBIOTECH@LECCE Panelists: MASSIMO DE VITTORIO (Coordinator, CBN-IIT@Lecce); MARIA ANTONIETTA AIELLO (Deputy Rector, Unisalento); ALESSANDRO SANNINO (Director, DiMeS Unisalento); STEFANO PIRAINO (Director, DiSTeBA Unisalento); PRISCO PISCITELLI (Professor of Epidemiology, DiMeS Unisalento) Moderator: GIUSEPPE GIGLI
12:30	POSTER SESSION & LUNCH
14:30	SESSION 1 - DRUG & GENE DELIVERY   MOLECULA & CELLULAR MECHANISMS Chair: M. SERENA CHIRIACÒ (Researcher, Cnr Nanotec - Lecce)  CARE: Clinically-oriented nanodelivery systems for advanced immunotherapy ILARIA E. PALAMÀ (Senior Researcher, Cnr Nanotec - Lecce)  MERLIN: Multicellular spheroids model for multiparametric blood-brain barrier injury detection in microfluidics VIVIANA VERGARO (Researcher, DiMeS University of Salento)  nanoICD: Nanotechnology enabled ICD inducers and cancer nanovaccines GABRIELE MAIORANO (Technologist, Cnr Nanotec - Lecce)  STORM: Tuning the cell secretory pathway to arrest pancreatic ductal adenocarcinoma (PDAC) RICCARDO RIZZO (Researcher, Cnr Nanotec - Lecce)  HOPE - The Antisense Oligonucleotide targeting Pathogenic/s KIF1A variant/s in KAND syndrome RICCARDO RIZZO (Researcher, Cnr Nanotec - Lecce)  TEOREMA – The Role Of the NDRG-1 Gene in Regulating Mechanotransduction. Processes and Tumor Invasion in Triple-Negative Breast Cancers ANTONIO GABALLO (Researcher, Cnr Nanotec - Lecce)  Glyco-ID – Understanding the glycosylation barcode of pathogenic markers in diseases ANTONIO GALEONE (Researcher, Cnr Nanotec - Lecce)  BIOPRO-AD: New Biomarkers in neurodegenerative diseases FRANCESCA MALERBA (Researcher, Cnr Nanotec - Lecce)  Fibromeg: Defining the Role of Megakaryocyte Abnormalities in the Progression of organ fibrosis ANNA RITA MIGLIACCIO (Researcher, Cnr Nanotec - Lecce)
16:30	COFFEE BREAK
17:00	ROUND TABLE: DRUG AND GENE DELIVERY   MOLECULAR & CELLULAR MECHANISMS: CLINIC & RESEARCH Panelists: NICOLA DI RENZO (Director Unit of Hematology and Stem Cell Transplantation, P.O. 'V. Fazzi' - Lecce); GIAMPIERO ROMANO (Specialist at the Oncology Unit, P.O. 'V. Fazzi' - Lecce); Cecilia Bucci (Professor of Cell and Experimental Biology, DiMeS Unisalento); MICHELE MAFFIA (Professor of Physiology, DiMeS Unisalento); GABRIELE MAIORANO (Technologist, Cnr Nanotec - Lecce) Moderator: ANNA RITA MIGLIACCIO (Researcher, Cnr Nanotec - Lecce)
18:00	END OF DAY CLOSING

WEDNESDAY, JULY 2, 2025

09:00	SESSIONE 2.1 - 3D in Vitro Models   Advanced Biosensing Chair: ALESSIA CEDOLA (Senior Researcher, Cnr Nanotec - Lecce) SPIRAL: Smart Plasmonic Interfaces for Real-Time Applications in Life Sciences ADRIANO COLOMBELLI (Researcher, Cnr Nanotec - Lecce) HiSENSE4MED: High Resolution Smart Engineered Sensing for Precision Medicine LORETTA L. DEL MERCATO (Senior Researcher, Cnr Nanotec - Lecce) EMC3: Electro-Mechanical Cues in the Cancer 3D microenvironment BARBARA CORTESE (Researcher, Cnr Nanotec - Roma)
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MIDAS: the important of mechanical melieu for advanced in vitro models

**FRANCESCA GERVASO** (Researcher, Cnr Nanotec - Lecce)

FLUENCE: FLUIdic ENgineered Cerebral Endothelium for Vasculo/Angiogenesis Studies

**VITA GUARINO** (Researcher, DiMeS Unisalento)

10:15 **COFFEE BREAK**

10:45 **SESSION 2.2 - 3D IN VITRO MODELS | ADVANCED BIOSENSING**

Chair: **ELISABETTA PRIMICERI** (Researcher, Cnr Nanotec - Lecce)

APPLE: AI-based Phenotypic screening PLatform of intestinal barriEr function

**PAMELA MOZETIC** (Researcher, Cnr Naontec - Lecce)

OCELOT - organ-on-chip systems for modelling heterotypic cell interactions

**ALESSANDRO POLINI** (Researcher, Cnr Nanotec - Lecce)

nanoCDT - In vitro validation of nanopharmaceutical formulations for chemodynamic therapy of solid tumors

**ALBERTO RAINER** (Professor of Bioengineering, UCBM Roma; Cnr Nanotec - Lecce)

BIOFIT-PRO - Bioactive scaffolds for skin-implants integration in intraosseous transcutaneous amputation prostheses

**FRANCESCA SCALERA** (Researcher, Cnr Naontec - Lecce)

11:45 **ROUND TABLE: 3D IN VITRO MODELS | ADVANCED BIOSENSING: CLINIC & RESEARCH**

Panelists: **ALESSANDRO D'AMURI** (Director of the Pathology Unit, P.O. 'V. Fazzi' - Lecce); **MARCELLO SPAMPINATO** (Director of the General Surgery Unit, P.O. 'V. Fazzi' - Lecce); **MAURIZIO CONGEDO** (Director of the Dermatology Unit, P.O. 'V. Fazzi' - Lecce); **FRANCESCA GERVASO** (Researcher, Cnr Nanotec - Lecce); **ANGELO QUATTRINI** (Head of the Experimental Neurology Lab Unit, San Raffaele Hospital - Milano)

Moderator: **ALBERTO RAINER** (Professor of Bioengineering, UCBM-Roma; Cnr Nanotec - Lecce)

12:45 **POSTER SESSION & LUNCH**

14:00 **SESSION 3 - LIQUID BIOPSY | ADVANCED BIOIMAGING**

Chair: **ILARIA E. PALAMÀ** (Senior Researcher, Cnr Nanotec - Lecce)

EVIDENCE - Unravel EVs Diagnostic and Therapeutic Potential in Liquid Biopsy and Innovative Cell-Free Therapies

**MARIA SERENA CHIRIACÒ** (Researcher, Cnr Nanotec - Lecce)

VIBRANT – Vesicle and cell behaviour in non-standard conditions via BReakthrough IAb-oN-chip Technologies

**FRANCESCO FERRARA** (Researcher, Cnr Nanotec - Lecce)

CAMCAN – Engineered Carbon based materials for Advanced Manufacturing in Chip-bAsed Neurotechnology: From Electrochemical Sensing to Neural Stimulation

**ANTONIO TURCO** (Researcher, Cnr Nanotec - Lecce)

LIQUID: Lab on Chip and Sensing Strategies for Liquid Biopsy Diagnostics

**ELISABETTA PRIMICERI** (Researcher, Cnr Nanotec - Lecce)

AXIS-NET: From Gut-Brain Axis to Synaptic Connectome: Integrating Multimodal Imaging Platforms

**ALESSIA CEDOLA** (Senior Researcher, Cnr Nanotec - Roma)

MIND: Microphysiological modeling of Neurovascular Dysfunctions under flow: advanced microenvironmental imaging and therapeutic screening

**ELISA DE LUCA** (Researcher, Cnr Nnoatec - Lecce)

TRIGGER: Trimodal imaging of brain tumors through Gd-based nanoparticles

**ALESSANDRA QUARTA** (Researcher, Cnr Naontec - Lecce)

SmartMIND: Smart Biomedical AI Solutions. Multimodal data integration in early detection and diagnosis of Neurodegenerative diseases

**SALVATORE NIGRO** (Researcher, Cnr Nanotec - Lecce)

17:00 **ROUND TABLE: LIQUID BIOPSY | AVANCED BIOIMAGING AND AI: CLINIC & RESEARCH**

Panelists: **GUGLIELMO LUCCHESI** (Professor of Neurology, DiMeS Unisalento); **UGO DE GIORGI** (Professor of Oncology, DiMeS Unisalento); **FRANCESCO BROCCOLO** (Professor of Clinical Microbiology, DiMeS Unisalento); **TIZIANO VERRI** (Professor of Physiology, DiStEBA Unisalento); **ANTONIO FACCIORUSSO** (Professor of Gastroenterology, DiMeS Unisalento); **LORETTA L. DEL MERCATO** (Senior Researcher, Cnr Nanotec - Lecce)

Moderator: **FRANCESCO FERRARA** (Researcher, Cnr Nanotec - Lecce)

18:00 **END OF DAY CLOSING**

## RATIONALE

Precision medicine represents one of the most dynamic frontiers in biomedical research, aiming for personalized therapeutic and diagnostic interventions based on the molecular and cellular characteristics of each individual patient. In this context, nanobiotechnologies offer powerful tools to transform clinical practice, thanks to their ability to operate at the subcellular scale with high specificity.

The Nanobiotec for Precision Medicine Symposium – 1st Edition was conceived with the goal of bringing together experts from complementary disciplines to discuss the technological and scientific innovations that are redefining the way we understand, monitor, and treat complex diseases.

The symposium agenda is structured around six key thematic areas:

- **Liquid Biopsy:** platforms for the detection and analysis of circulating biomarkers, with applications in oncology and other chronic diseases;
- **Advanced Bioimaging:** advanced imaging methodologies for the dynamic study of biological processes at the subcellular and tissue levels;
- **3D In Vitro Models:** three-dimensional models that mimic human physiology and pathology for preclinical research and therapy validation;
- **Drug & Gene Delivery:** nanoengineered strategies for the targeted and controlled delivery of drugs and gene therapies;
- **Molecular & Cellular Mechanisms:** in-depth investigations into the molecular and cellular mechanisms driving disease progression and therapeutic response;
- **Advanced Biosensing:** highly sensitive and selective sensors for early diagnosis and real-time monitoring.

Through plenary sessions, oral presentations, scientific posters, and roundtable discussions, the symposium aims to foster a collaborative environment and promote dialogue among academia, industry, clinical research, and innovative startups.

### SCIENTIFIC COMMITTEE

LORETTA L. DEL MERCATO (CNR NANOTEC)

FRANCESCA GERVASO (CNR NANOTEC)

GIUSEPPE GIGLI (UNISALENTO; CNR NANOTEC)

ILARIA E. PALAMÀ (CNR NANOTEC)

GABRIELLA ZAMMILLO (CNR NANOTEC)

### SCIENTIFIC & ORGANIZATIONAL SECRETARIAT

GABRIELLA ZAMMILLO (CNR NANOTEC)

[gabriella.zammillo@cnr.it](mailto:gabriella.zammillo@cnr.it)

### ORGANIZING COMMITTEE

ELIANA D'AMONE (CNR NANOTEC)

STEFANIA D'AMONE (CNR NANOTEC)

GIANVITO DE IACO (CNR NANOTEC)

ANTONIO MARUCCIA (CNR NANOTEC)

IOLENA TARANTINI (UNISALENTO)

ALESSANDRA VALLERI (CNR IRSA, CNR NANOTEC)



### MORE INFO

<https://nanotec.cnr.it>