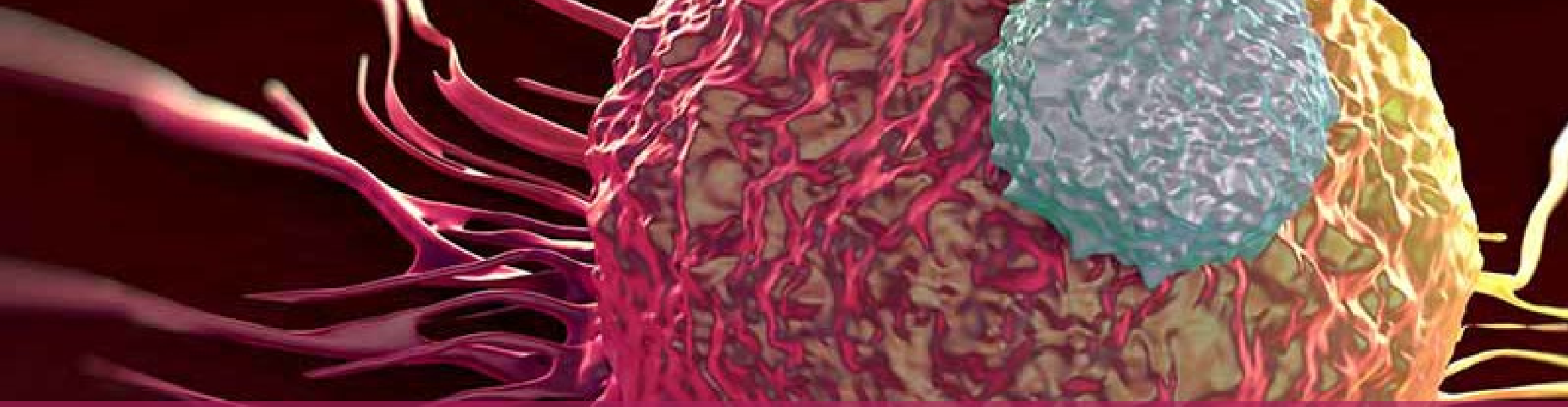

FINAL EVENT OF CATHENA PROJECT – CAncer THErapy by NAnomedicine

Hybrid Event

29th March 2022, 15:00

University of Trieste, Building C11, Aula Magna – Microsoft Teams

AGENDA

CATHENA

CAncer THErapy by NAnomedicine

15:00 **Welcome**
Prof. Lucia Pasquato, *UNITS, Chair*
Prof. Paolo Tecilla, *UNITS, Head Department of Chemical and Pharmaceutical Sciences*
Dr. Mariangela Boccalon, *Chemistry R&D PI, Bracco Imaging*
Dr. Roberta Fretta, *Bracco Research Center Director, Bracco Imaging (on-line)*

15:15 Chair: Prof. Lucia Pasquato
Prof. Luis M. Liz-Marzán, *CIC biomaGUNE, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastian, (ES)*
Nanoplasmonic Monitoring of 3D-Printed Tumor Models *(on-line)*

15:55 Chair: Dr. Mariangela Boccalon
Dr. Claudia Cabella, *Bio-Imaging R&D Manager, Bracco Imaging*
The European NanoAthero project experience: fight cardiovascular diseases using nanotechnologies *(on-line)*

Chair: Dr. Sara Zanchiello, Area Science Park
16:20 **CATHENA project** – ***Dr. Mariangela Boccalon***, Bracco Imaging
16:30 ***Prof. Lucia Pasquato,*** UNITS - DSCF
16:40 ***Dr. Mariangela Boccalon,*** Bracco Imaging
16:50 ***Prof. Vincenzo Canzonieri***, Centro Riferimento Oncologico – Aviano e UNITS
17:00 ***Dr. Stefano Prato,*** A.P.E. Research Srl
17:10 **Discussion and Final Remarks**

Participation is free of charge.
Info and registration: lpasquato@units.it

CATHENA ha ottenuto un finanziamento dalla Regione Friuli Venezia Giulia sul bando POR FESR 2014-2020 – Attività 1.3.b – Incentivi per progetti standard e strategici di R&S da realizzarsi attraverso partenariati pubblico privati - Area di Specializzazione Smart Health.
Spesa ammessa: € 1.011.084,18 Contributo concesso: € 720.486,90

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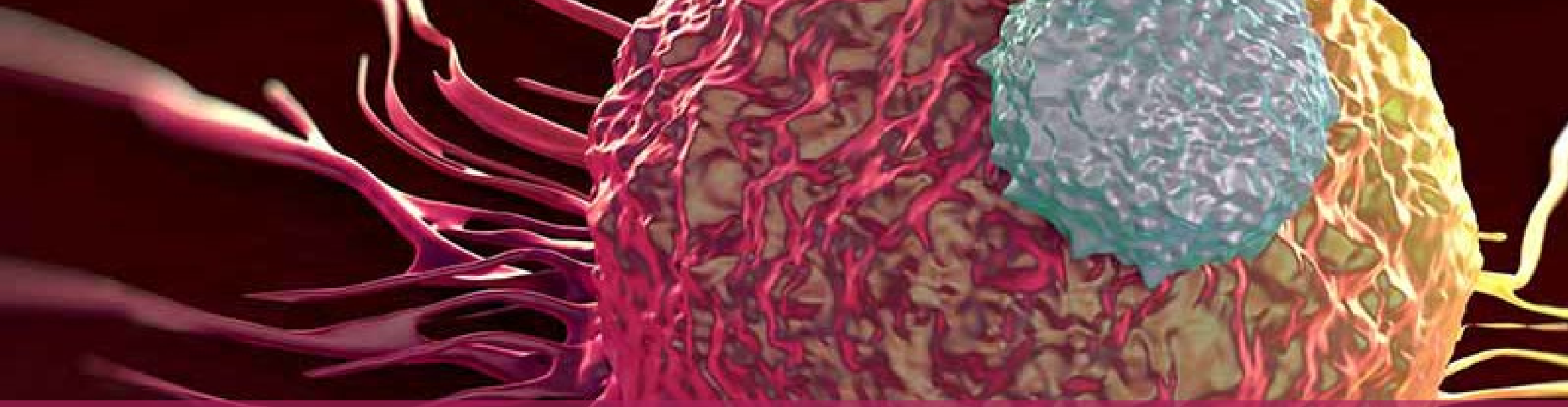
POR FESR 2014 2020 Friuli Venezia Giulia · OPPORTUNITÀ PER UNA CRESCITA SOSTENIBILE · UNIONE EUROPEA · REGIONE AUTONOMA FRIULI VENEZIA GIULIA



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Nanoplasmonic Monitoring of 3D-Printed Tumor Models

Luis M. Liz-Marzán [1,2,3]

[1]CIC biomaGUNE, Basque Research and Technology Alliance (BRTA), Donostia-San Sebastian, Spain
[2]Ikerbasque, Basque Foundation for Science, Bilbao, Spain
[3]CIBER-BBN, Donostia-San Sebastian, Spain

CATHENA
CAncer THErapy by NAnomedicine

The tumor microenvironment, where numerous cell types interact to create a distinctive physiology, is characterized by deregulated metabolic features. In the recent years, 3D cancer models have been optimized to more accurately recreate and study the complex mechanisms behind tumor metabolism which supports cancer invasion, progression, and response to treatment. Because of the growing interest in studying in situ these complex systems, the development of novel technologies is critical to overcome existing difficulties. In this context, surface enhanced Raman scattering (SERS) appears as a useful tool for label-free detection and imaging of diverse molecules of interest among the extracellular components. This lecture will feature several novel strategies to employ nanostructured materials comprising gold nanoparticles, as substrates for ultrasensitive detection and imaging of biorelevant molecules. In particular, it will focus on the application of nanostructured plasmonic substrates comprising micropatterned Au nanoparticle superlattices and 3D-printed hybrid scaffolds, to the precise SERS detection of selected tumor metabolites which shape the cancer landscape.

[1] D. Jimenez de Aberasturi, M. Henriksen-Lacey, L. Litti, J. Langer, L.M. Liz-Marzán, *Adv. Funct. Mater.* **2020**, *30*, 1909655.

[2] C. García-Astrain, E. Lenzi, D. Jimenez de Aberasturi, M. Henriksen-Lacey, M. Binelli, L.M. Liz-Marzán, *Adv. Funct. Mater.* **2020**, *30*, 2005407.

[3] J. Plou, I. García, M. Charconnet, I. Astobiza, C. García-Astrain, C. Matricardi, A. Mihi, A. Carracedo, L.M. Liz-Marzán, *Adv. Funct. Mater.* **2020**, *30*, 1910335.

[4] J. Plou, M. Charconnet, I. García, J. Calvo, L.M. Liz-Marzán, *ACS Nano* **2021**, *15*, 8984-8995.

[5] J. Plou, B. Molina-Martínez, C. García-Astrain, J. Langer, I. García, A. Ercilla, G. Perumal, A. Carracedo, L.M.Liz-Marzán, *Nano Lett.* **2021**, *21*, 8785-8793.

The European NanoAthero project experience: fight cardiovascular diseases using nanotechnologies

Claudia Cabella

Bio-Imaging R&D Manager, Bracco Imaging, Bracco Research Centre, Colleretto Giacosa, To, Italy

NanoAthero, a large-scale 5 year project funded by European Union FP7, aimed to demonstrate the benefit of the use of nanoparticle technology for early detection and treatments of cardiovascular diseases.

Many different nanoparticles have been proposed and developed by the project partners as liposomes, lipidots, iron-oxide-based particles and polymers. Design and characterization of the nanosystems, preclinical and clinical validations, toxicology, industrial development and production in GMP forms were the main activities of the project.

An overview of the main results achieved, with a particular focus on Bracco's proposal of a fluorescent albumin-binder for the atherosclerotic plaque stratification with respect to permeability will be the subject of this presentation.

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