



# UNAT

Ultra-small Nanohybrides for Advanced Theranostics

Newsletter 5 – July 2024

## Consortium



Lyon 1

### Coordinator

Université Claude  
Bernard Lyon 1  
*France*



Science Park  
Taras Shevchenko University of Kyiv

Corporation  
Science Park  
Taras  
Shevchenko  
University Of Kyiv  
*Ukraine*



National Research Council of Italy

Consiglio  
Nazionale Delle  
Ricerche  
*Italy*



BIOEMTECH

Bioemission  
Technology  
Solutions IKE  
*Greece*



GLINCS

Glincs  
*France*

## The project

Nanoscale materials have gained a place in the spotlight as enablers of combination diagnostic-therapeutic technologies due to their tiny penetrating sizes and their unique functional properties.

**Nanohybrids** that contain both organic and inorganic components, including metallic ones, offer tremendous opportunity for the functionalisation of biological or bioactive molecules.

The EU-funded UNAT project will explore the capabilities of metal-carbon nanohybrids for multimodal in vivo imaging and therapy of tumours via electromagnetic radiation.

The diagnosis and therapy of cancer will be evaluated through an ambitious campaign of preclinical in vitro and in vivo experiments.

### Key figures

5 years (2021-2026)

5 partners

4 countries

832 k€

More information on [www.unat-project.eu](http://www.unat-project.eu)



Figure 1 : Presentation of MANCINI Federica



From July 8 to 10, 2024, Federica Mancini, a PhD student at ISSMC-CNR and seconded of the UNAT project, attended the congress of the Italian Biomaterials Society, which was held in Faenza. She won one of the prizes for the best oral presentation. She presented an oral communication entitled "Fluorescent Carbon Dots from Food Industry By-Products," where she discussed data collected in the framework of the UNAT project, particularly those collected during her secondment to Glincs in Lyon in 2023.

## Annual conference "Nanohybrids-XX", 2024



Figure 2 : Nanohybrids XX 2024 - Participants

The annual conference Nanohybrids XX-2024 took place from May 12-16, 2024 in Bastia –France.

UNAT members attended the conference and it was the opportunity for some of them to present their work.

## PROGRAMME :

### **13rd May: Industrial applications**

11:30 – Intervention of **MARAIS Arthur** (*Glincs*)

*"Lanthanide-based luminescent tracers for geological fluids : application to the storage of CO<sub>2</sub> and H<sub>2</sub> in groundwater reservoirs"*

### **15th May – Application of nanohybrids & Biomedical applications**

09 :00 – Intervention of **KUZNIETSOVA Halyna** (*Science Park*)

*"Dressing containing citric acid and urea-derived carbon dots as a treatment for chemically induced cutaneous burns"*

10:40 – Intervention of **BORISOVA Tatiana** (Science Park)

*“Neuroactivity of carbon engineered and natural environmental nanohybrids”*



Figure 3 : Presentation of KUZNIETSOVA Halyna



Figure 4 : Presentation of BORISOVA Tatiana

## Mutual publication from UCBL and Science Park

Revue : BioNanoScience

Title: **“Application of Carbon Dots as Antibacterial Agents: A Mini Review”**

Authors: Vladimir Lysenko, Halyna Kuznietsova, Nataliia Dziubenko, Iryna Byelinska, Alexander Zaderko, Tetiana Lysenko, Valeriy Skryshevsky

DOI: 10.1007/s12668-024-01415-y- [Open access link on Zenodo](#)

## Defense of thesis of M. PALIENKO Kostiantyn (Science Park)

On April 4, 2024, M. PALIENKO Kostiantyn, staff member from Science Park who carried out several secondments to UCBL, successfully defended his thesis titled "Carbon dots from coffee waste: synthesis and physico-chemical properties" at the Lyon Nanotechnology Institute, Université Claude Bernard Lyon 1.

Link to his thesis : <https://www.univ-lyon1.fr/recherche/formation-doctorale/soutenance/soutenance-de-these-de-m-palienenko-kostiantyn-materiaux>

## UNAT Implemented secondments

Research and Innovation Staff Exchange (RISE) projects fund short-term exchanges (“secondments”) for staff to develop careers combining scientific excellence with exposure to other countries and sectors. RISE enables more interaction between academia and non-academic organisations within Europe and worldwide.

The following secondments were implemented between September 2023 and July 2024:

ZADERKO Alexander	SCIENCE PARK	UCBL	11/09/2023 – 22/12/2023
SARPAKI Sophia	BIOEMTECH	CNR	18/09/2023 – 20/10/2023
NTARI Lydia	BIOEMTECH	CNR	18/09/2023 – 20/11/2023
KHENE Nadjib	GLINCS	CNR	09/10/2023 – 08/12/2023
TERMENTZIDIS Konstantinos	UCBL	BIOEMTECH	11/12/2023 – 14/01/2024
BORISOVA Tatiana	SCIENCE PARK	UCBL	05/02/2024 – 10/04/2024
NYCHYPORUK Tetyana	UCBL	BIOEMTECH	11/04/2024 – 05/05/2024
DZIUBENKO Nataliia	SCIENCE PARK	UCBL	17/05/2024 – 25/06/2024
KUZNIETSOVA Halyna	SCIENCE PARK	UCBL	17/05/2024 – 25/06/2024
PYLYPOVA Olha	SCIENCE PARK	UCBL	01/06/2024 – 30/06/2024



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