Funded by the European Union
NextGenerationEU

National Recovery and Resilience Plan

Project announcement

„NRRP: Funding for a modern and reformed Romania!“

As the project Beneficiary, the “**Petru Poni” Institute of Macromolecular Chemistry** in Iași is implementing the project ***“Intelligent Systems for Cancer Diagnosis and Treatment (IntelDots)”***, under contract no. 760081/23.05.2023, CF 291/30.11.2022. The project is funded through Romania’s National Recovery and Resilience Plan (NRRP), Component C9 – Support for the private sector, research, development, and innovation, under Investment I8 – *Development of a program to attract highly specialised human resources from abroad in research, development and innovation activities*. Financing is provided by the European Union through the NextGenerationEU initiative.

The **IntelDots** project sets out to establish a new research direction and form a high-level research group focused on intelligent systems based on carbon dots for cancer diagnosis and treatment. Its **main objective** is to attract top international experts with advanced scientific expertise. A key component of the project is the collaboration between renowned Spanish researcher Dr. Maria Concepcion Ovin Ania and a Romanian team from academia and the Petru Poni Institute of Macromolecular Chemistry. By combining their interdisciplinary and complementary strengths, the team aims to develop cutting-edge theranostic systems – addressing one of the European Union’s key research priorities: the early diagnosis and effective treatment of cancer.

The nanometric theranostic system to be developed within IntelDots is based on the so-called **“carbon dot”** entities, which are nanoscale structures that can act both as imaging agents and drug carriers. **IntelDots** project will use advanced molecular modeling, synthesis, and laboratory testing, including in vitro and in vivo studies, to evaluate their effectiveness against cancer.

IntelDots pursues several **key goals**:

- **Building strong RDI capabilities** by forming a new research group under elite supervision.
- **Training a new generation of researchers** through interdisciplinary collaboration.
- **Boosting international visibility** via high-impact publications and participation in EU-funded research.

The project also defines **specific research objectives**:

- **Development of intelligent nanoplatforms** using peptide-functionalized manganese-doped carbon dots (Mn@CNDs) for targeted cancer therapy and diagnosis.
- **Development of liposomal systems** incorporating hemp oil nanoemulsions and Mn@CNDs, tested through imaging and biological assays.
- **Multiscale modeling** to simulate drug behavior and enhance therapeutic strategies.

The **project implementation period** is 36 months, from **July 1, 2023**, to **June 30, 2026**.

The **total eligible value** of the funding contract, **provided through the NRRP**, is **7,000,000.00 RON** (excluding VAT), with an additional VAT amount of **494,329.84 RON**.

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