

HEALTH EXTENDED ALLIANCE FOR INNOVATIVE THERAPIES, ADVANCED LAB RESEARCH, AND INTEGRATED APPROACH OF PRECISION MEDICINE



SPOKE N. 6: Technological platforms for the synthesis and characterization of nanostructured materials

LUNG-TARGET: Advanced targeting of Nivolumab for lung cancer using nanocarriers

Principal investigator

Dr. Domenico Cozzolino

Proponent: Consorzio Sannio Tech

Period: 12 mesi

Aim: Advanced targeting of Nivolumab for lung cancer using nanocarriers



SANNIO TECH
the innovation cluster

The **Sanniotech Consortium** is configured as an advanced research center dedicated to technology transfer for SMEs in the fields of **biotechnology** and **health sciences**, with a particular focus on technological development in the Campania region. Thanks to established collaborations with research institutions and universities, Sanniotech operates as an **incubator of scientific and technological innovation**, with activities ranging from the production of **bioproducts** to the development of **advanced biotechnological processes** and the creation of **innovative research platforms**.



CORE ACTIVITIES



Collaborators

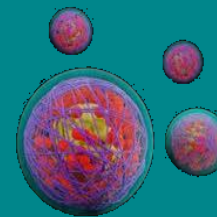


Principal investigator
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Introduction

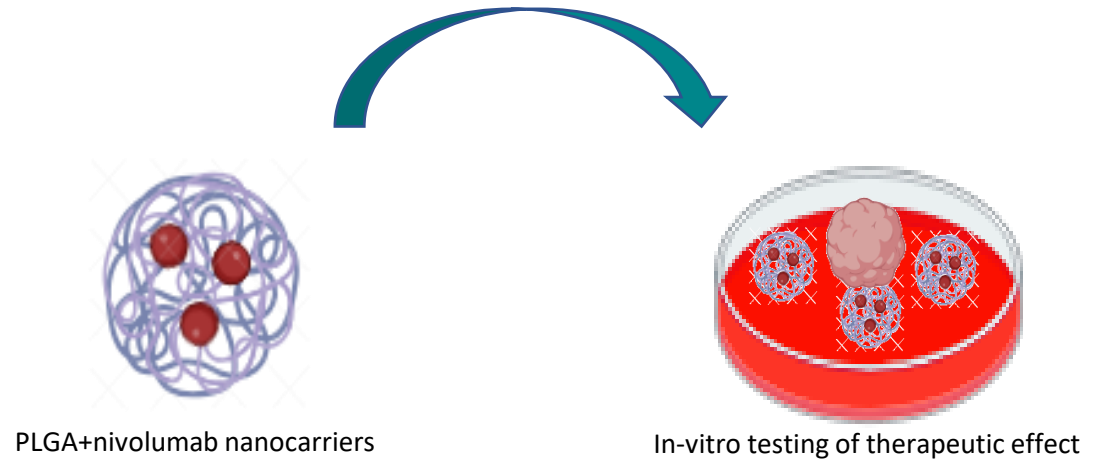
- Lung-Target Project aim to develop and optimize a method to produce PLGA nanocarriers loaded with nivolumab.
- PLGA+nivolumab nanocarriers will be tested on cellular complex models such as NSCLC organoids



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Main Aim

- Set up and optimize PLGA nanocarriers loaded with nivolumab
- Testing PLGA-Nivolumab nanocarrier on NSCLC organoids



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Project structure and key phases

WP1
Months 1-6

**PLGA+nivolumab
nanocarrier synthesis**

Objective: Synthesis and characterization of PLGA nanocarriers delivering the PDL1 immunotherapeutic. The chosen synthesis method is nanoprecipitation, which will be optimized during this phase.

WP2
MESI 7-11

**Citocompatibility and
therapeutic effect
evaluation**

Objective: Studies on cytocompatibility and cytotoxicity through assays and evaluation of pro-inflammatory biomarker expression. Interaction studies (docking) to assess the binding of nivolumab to PDL1 (PD1) receptors.

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Set up and optimize PLGA + nivolumab nanocarriers for the treatment of NSCLC patients.

- **TASK 1.1 – Set up of PLGA nanocarriers**

Description: PLGA nanocarriers synthesis with nanoprecipitation method(Month 1-2)

- **TASK 1.2 – Nanocarriers characterisation**

Descrizione: Chemical and physical characterisation of nanocarriers

- **TASK 1.3 –Method optimisation**

Description: Regulation of synthesis conditions and study of nivolumab delivery.



WP2
Months 7-11

Obiettivo: PLGA + nivolumab nanocarriers testing

- **TASK 2.1 – Set up of organoids models**

Description :Set up of NSCLC organoids with tumoral cells isolated from patients. (Months 7)

- **TASK 2.2 –Citocompatibility and cytotoxicity evaluation**

Description: Evaluation of nanoparticle efficacy in organoid models, with analysis of penetration and targeting.(Months 8-10)

- **TASK 2.3 –Data Analysis**

Description: Evaluation and interpretation of results obtained from tests on tumor organoids and definition of strategies for the subsequent development of the technology. (Month 11)

Thank for your attention

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