



**TUMOR
IMMUNOTHERAPY BY
NANOTECHNOLOGY**



TITAN - Nanotechnologies for tumor immunotherapy (Cod: ARS01_00906)

Aims and objectives:

Immunotherapy with genetically modified T cells (CAR-T) has obtained important results bringing its use to the commercialization of its therapy and its use to treat different types of tumors and diseases, etc., but is still very expensive.

The main aim of the TITAN project is to make cancer immunotherapy with CAR-T safer, cheaper and easily accessible by developing: i.) A fully automated platform for qualitative analysis of the sample throughout the production phase and ii.) innovative strategies for the transduction of primary T cells using non-viral vectors avoiding the safety problems associated with the use of conventional viral vectors. In this way TITAN will produce next generation LoCs that are easily accessible to end users and cheaper and more efficient synthetic nanocarriers in combination with mini-vectors that do not require chromosomal integration, thus eliminating the risks of insertion mutagenesis. This will benefit cancer patients by making the treatment sustainable from the health system from the point of view it will offer substantial commercial business opportunities contributing to the creation of new jobs and to the economic growth of Southern Italy.

Call: Decreto Direttoriale del 13 luglio 2017, n. 1735/Ric. "Avviso per la presentazione di progetti di Ricerca Industriale e Sviluppo Sperimentale nelle 12 aree di specializzazione individuate dal PNR 2015 - 2020"

Partners:

- Consiglio nazionale delle ricerche (**Soggetto Capofila**)
 - CNR Nanotec - Istituto di Nanotecnologia (**Soggetto attuatore**)
 - CNR IBIOM - Istituto di Biomembrane, Bioenergetica e Biotecnologie Molecolari
 - CNR IBBC - Istituto di Biochimica e Biologia Cellulare
 - CNR IFT - Istituto di Farmacologia Traslazionale
 - CNR ITB - Istituto di Tecnologie Biomediche
 - CNR IFN - Istituto di Fotonica e Nanotecnologie
 - CNR IPCF - Istituto per i Processi Chimico-Fisici
 - CNR IPCB - Istituto per i Polimeri, Compositi e Biomateriali
 - Cnr STIIMA - Istituto di Sistemi e Tecnologie Industriali Intelligenti per il Manifatturiero Avanzato
- San Raffaele Hospital
- Polytechnic of Bari
- SPARK CONSULTING S.R.L.
- STMicronics SRL
- University of ROME "La Sapienza"

Funding: PON Funds "Research and Innovation" 2014-2020 and FSC (Concession Decree prot.397_23dic2020)

Period: 01/01/2021 - 30/06/2023

TITAN project overall budget: € 9,400,000.00; overall project funding: € 4.593.144.55

Info: www.ponricerca.gov.it