



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 899708

Nanotechnologies to help in new cancer treatment strategy

Objective: To develop a new nanotechnology-based treatment strategy where cancer cells that are invisible to the patient's immune system are reprogrammed to become "visible";

Start date: October 2020;

Duration: 3 years;

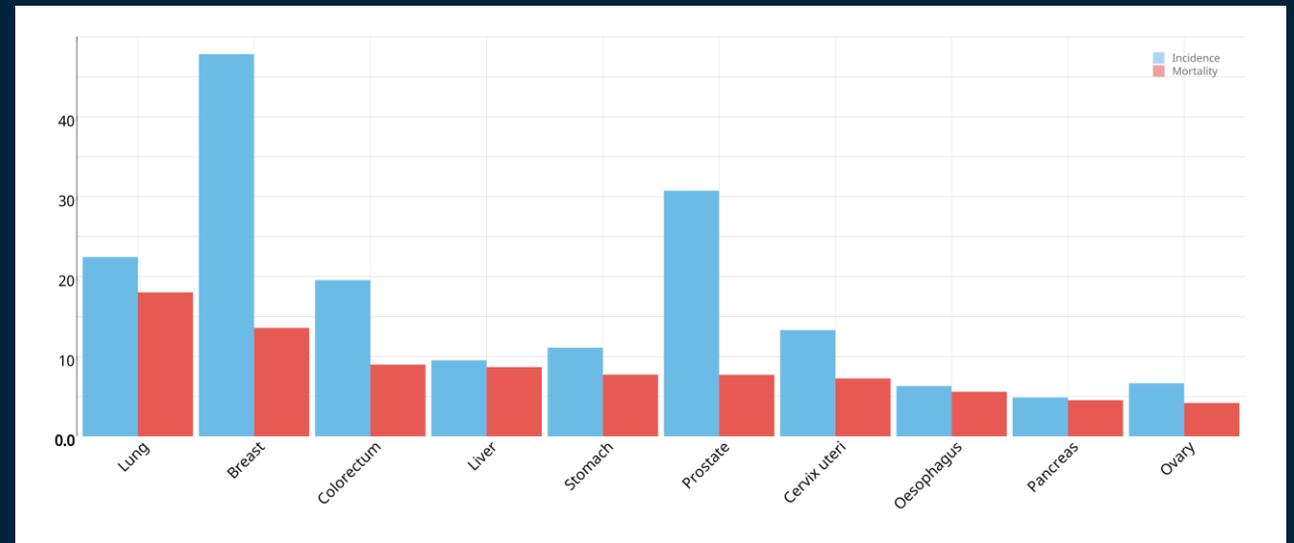
Funding: ULISES has been funded under the H2020 FET-Open programme as part of the EIC Pathfinder pilot;

Consortium: ULISES Run by a consortium of 10 partners with extensive experience in the field of immunology, oncology, biochemistry, genetics, biotechnology, nanoparticles, research and clinical innovation. The consortium is led by the Spanish Institute for Biomedical Research August Pi i Sunyer (IDIBAPS) and includes research centers, universities, SMEs, as well as Víctor Pallaruelo Santamaría (VPS), author of the Ulises project theoretical bases and founder of the current consortium.



A closer look on cancer

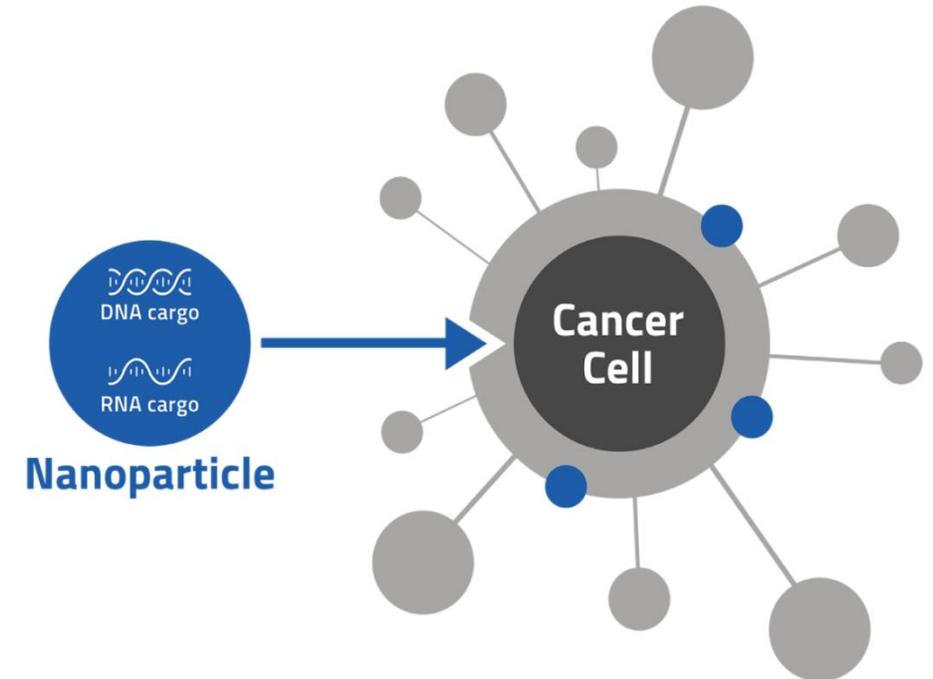
- Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020. This figure is expected to increase by 60% by 2040 due to the ageing and increase of the world's population;
- 300.000 new cases of cancer are diagnosed each year among children aged between 0 and 19 years;
- The economic impact of cancer is significant and increasing. The annual economic cost of cancer in 2010 was estimated in 1.6 trillion dollars;
- Approximately, 70% of deaths from cancer occur in low-and – middle – income countries.
- Pancreatic cancer is among the ten most common cancers in the world, with the highest ratio between incidence and mortality.
- (Source: World Health Organization, WHO)



*Estimated incidence and mortality rates in 2020, both sexes, worldwide
(Data Source: GLOBOCAN 2020)*

A radical vision in the field of the cancer treatment

- While cancer treatments are currently based on surgical resection of the tumour, chemotherapy, radiotherapy, target-driven therapies and immunotherapy, **ULISES aims to set out an all-new therapeutic strategy based on nanotechnologies.**
- ULISES researchers propose use **nanotechnologies to deliver plasmid DNA into tumorous cells**, which will reprogram them into immunologically incompatible cells.



Such disruptive treatment will enable the immune system to see what has, until now, been invisible.



Benefits brought by the ULISES approach

NEW TREATMENT TO MAKE **CANCER CELLS** VISIBLE



- A **strong antitumor response**;
- a 'natural' treatment **reducing the side effects of current therapies** (drugs, chemotherapy, radiotherapy, transplants, etc.), as the patient's own immune system will be stimulated to attack cancer cells;
- **fewer relapses**, since the ULISES therapy will provide an acquired immunity or immunological-memory, leading to a "vaccine effect";
- a treatment which can be **easily adapted to any type of cancer**.



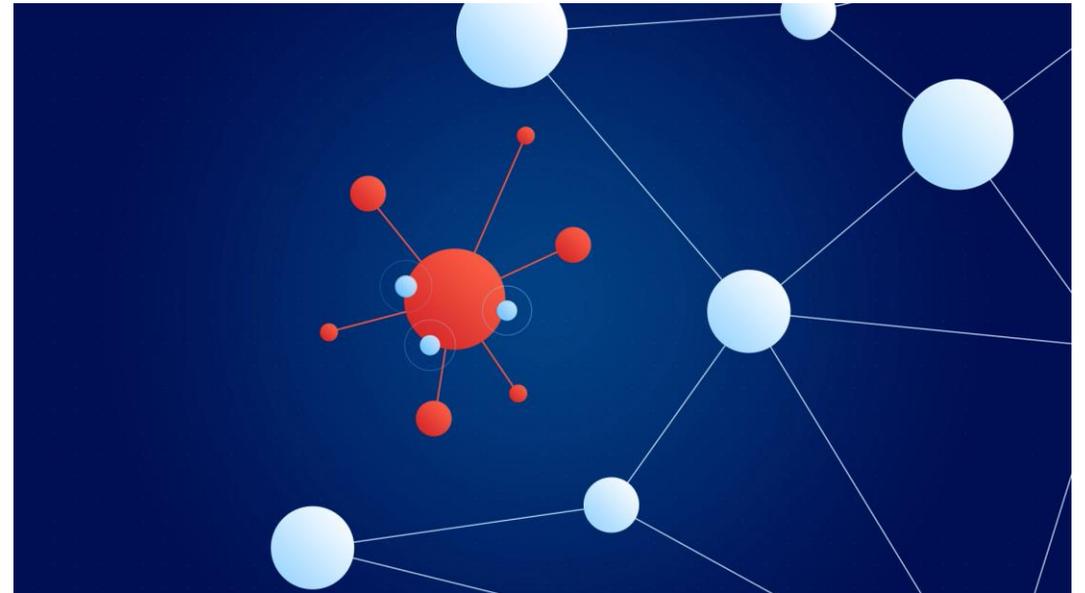


“With the ULISES project we are embarking on a journey with many challenges. We expect that a technology with the therapeutic advantages provided by ULISES would bring a tremendous improvement in healthcare with a reduction of cancer death and a significant improvement of the patient’s life quality and expectancy.”

Cristina Fillat
ULISES Project Coordinator

Expected Impacts

- **A “natural” treatment** - the patient’s own immune system will attack the cancer cells, without the use of drugs, chemotherapy, radiotherapy, transplants, which will avoid the side effects of current strategies.
- **“Vaccine effect”** - future relapses will be avoided, since TIL (Tumour Infiltrating Lymphocytes) generated around the tumour microenvironments by the patient’s own immune system will provide an acquired immunity or immunological – memory.



- **Flexibility** – ULISES treatment can be easily and rapidly adapted to any type of cancer with minimal modification.



The ULISES Consortium

- ULISES is run by a consortium of 10 partners from 5 European countries;
- The parties involved have extensive experience in the field of immunology, oncology, biochemistry, genetics, biotechnology and nanoparticles, research and clinical innovation.



To find out more



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