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

ULISES

Nanotechnologies to help in new cancer treatment strategy

Objective: 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;

End date: June 2024;

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

Consortium: ULISES is run by a consortium of 9 partners with extensive experience in the fields 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 centres, universities, SMEs, as well as Víctor Pallaruelo Santamaría (VPS), author of the Ulises project theoretical bases and founder of the current consortium.

The ULISES Consortium

IDIBAPS

Víctor Pallarueelo Santamaría

Fundación para la Formación e Investigación Sanitarias de la Región de Murcia

UMC Utrecht

LUMC Leids Universitair Medisch Centrum

ivo FUNDACIÓN INSTITUTO VALENCIANO DE ONCOLOGÍA

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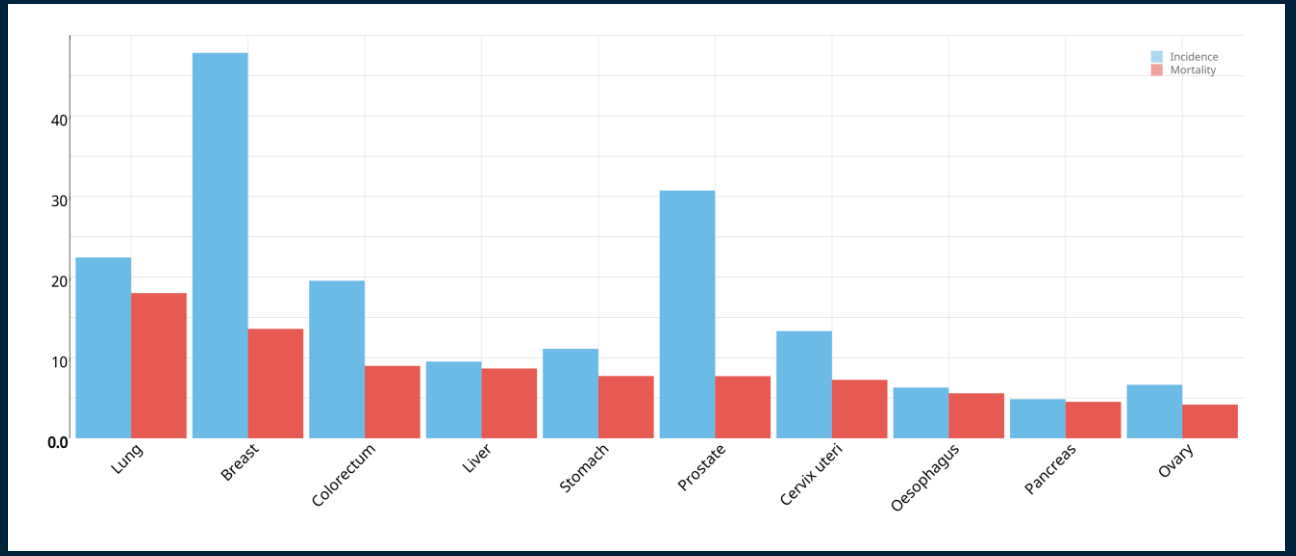
A closer look on cancer

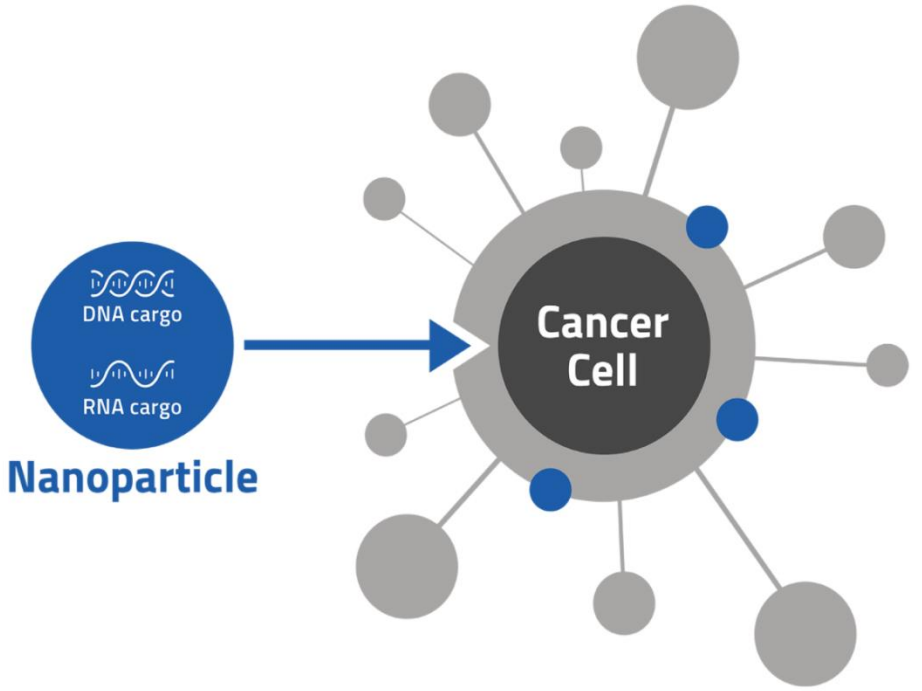
- Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020. This figure is expected to grow by 60% by 2040 due to the aging population and the overall rise in global population;
- 300.000 new cases of cancer are diagnosed each year among children between the ages of 0 and 19;
- The economic impact of cancer is significant and increasing. The annual economic cost of cancer in 2010 alone was estimated to be $1.6 trillion;
- 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 incidence and mortality ratio.
- (*Source: World Health Organization, WHO)*



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

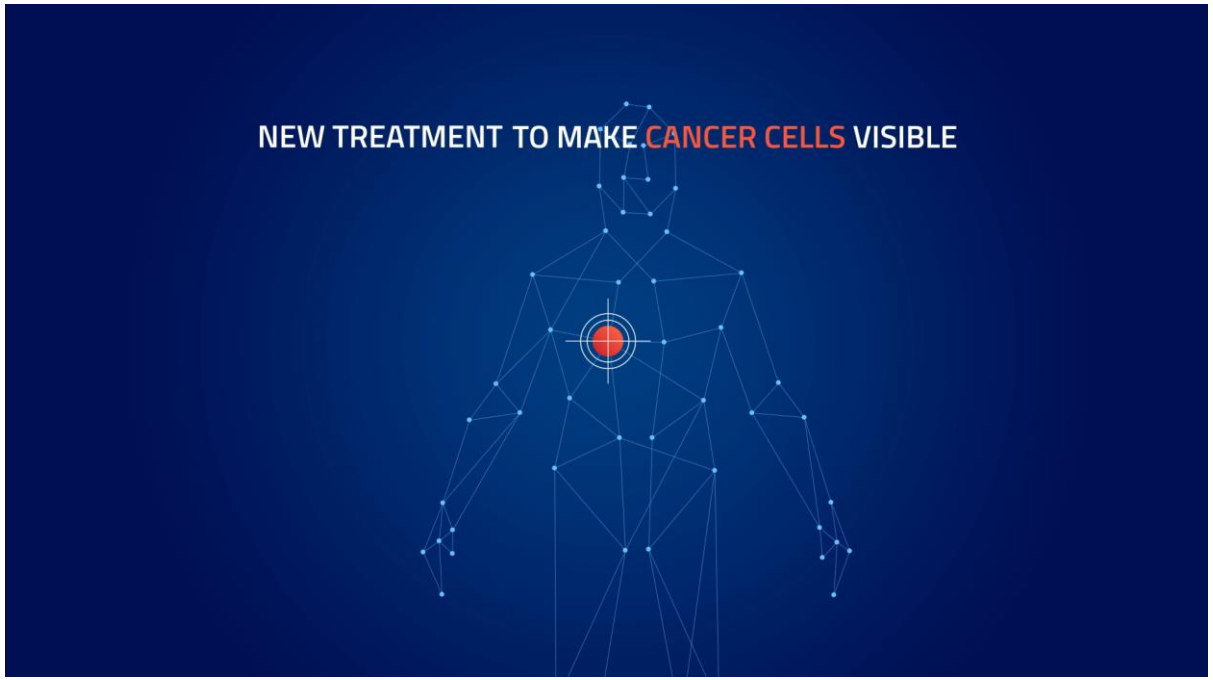
A radical vision in the field of the cancer treatment

- 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



- 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.

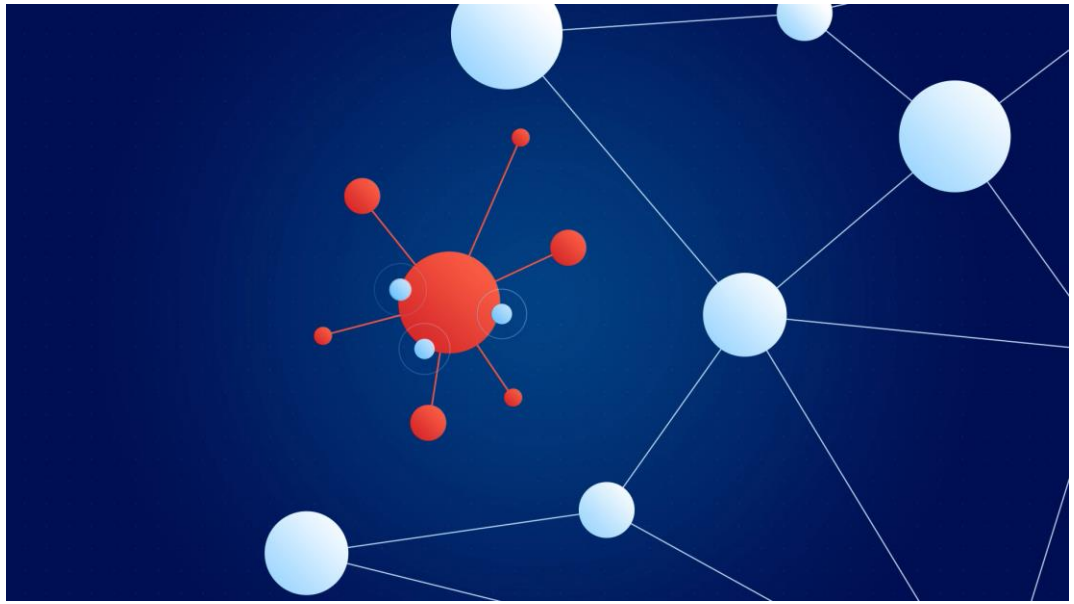
We expect that a technology with the therapeutic advantages provided by ULISES would bring a tremendous improvement in healthcare with a reduction of cancer death and a significant improvement of the patient’s life quality and expectancy.”

Cristina Fillat

ULISES Project Coordinator

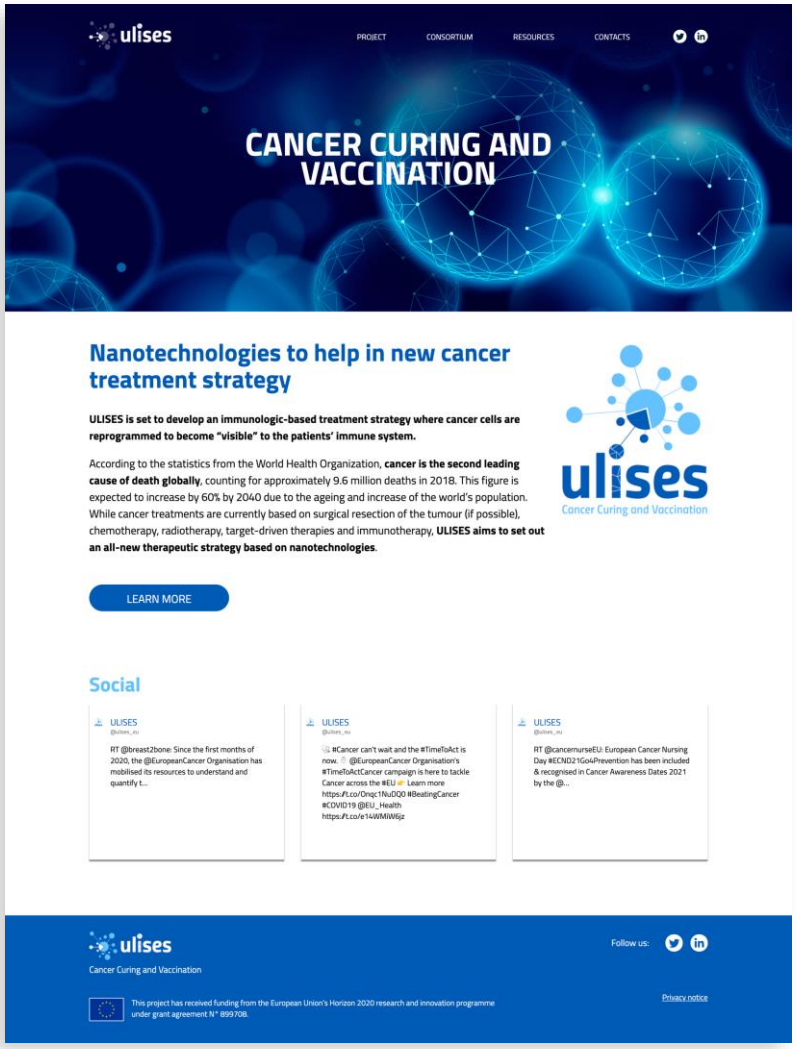
Expected Impacts

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

To find out more



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