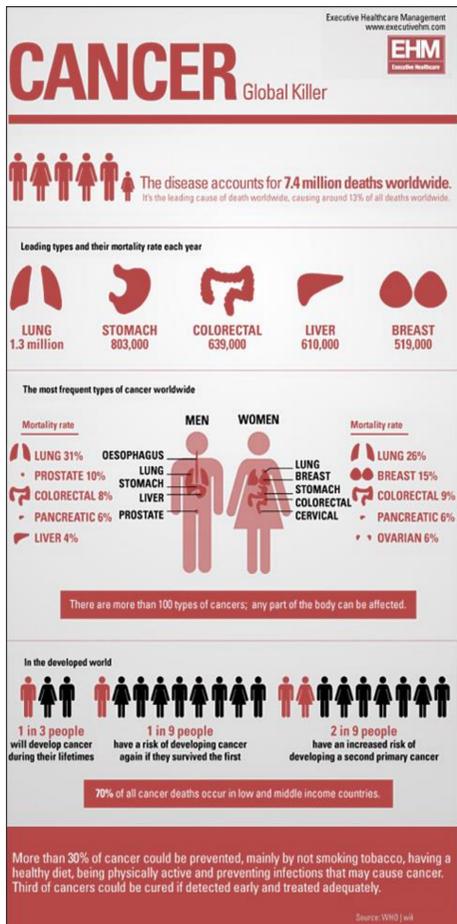


The Problem



Cancers figure among the **leading causes of mortality worldwide**, with approximately 14 million new cases and 8.2 million cancer related deaths in 2012. The number of new cases is **expected to rise** by about 70% (from 14 million to 22 million) over the next 2 decades.

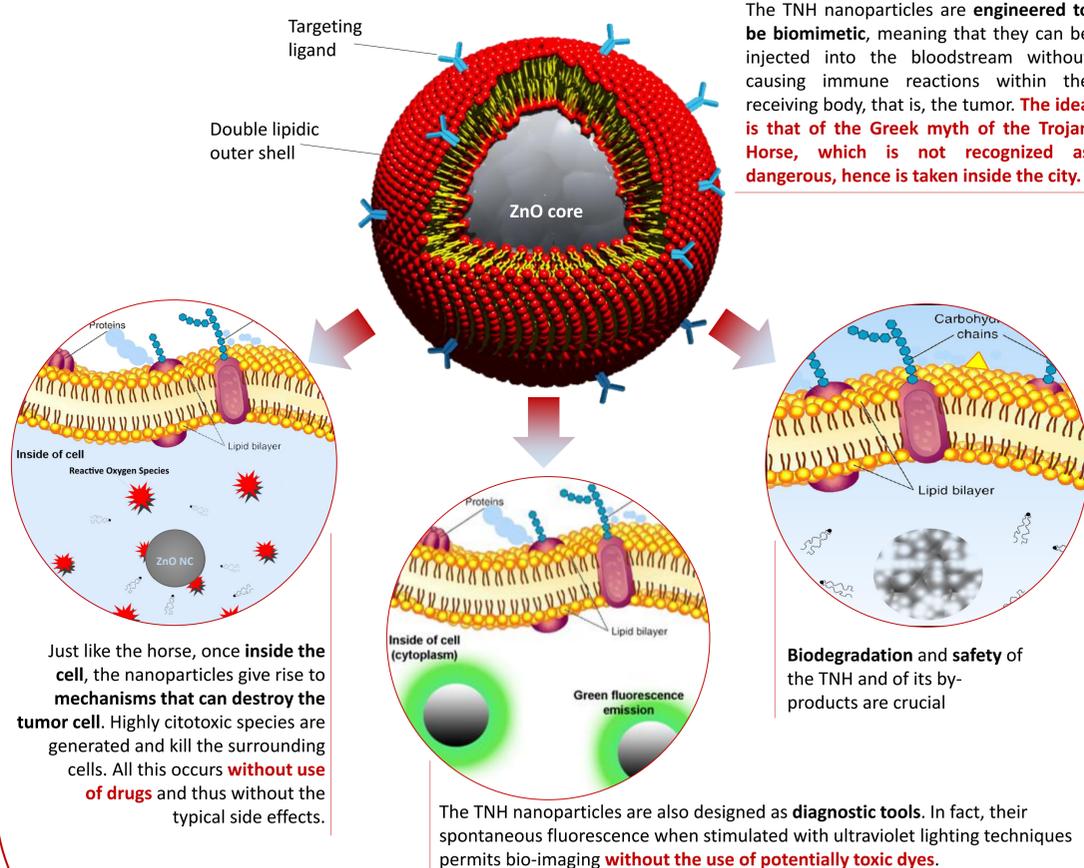
Huge efforts are dedicated to this severe disease, both in medicine research and in new smart and nanosized materials to be used as therapeutic platforms. Indeed several solutions have been developed so far, but none is still able to address the **important challenges of being non-immunogenic** and **showing absolutely zero-delivery in unwanted places**. Similarly, very little attention is paid at present to the **final degradation of the nanomaterials** at the end of their functions. All these key challenges make the nanosized systems already developed for theranostics in nanomedicine incomplete.

The final objective of this technology is to cover the gap between the present nanomedicine tools and the clinical requirements, developing a **nanosystem** able to:

- reach the target tumor cells without being recognized
- kill the tumor cells without the use of potentially toxic drugs
- have diagnostic capabilities without the need of potentially toxic dyes
- have safe behavior during and after therapy

The Solution: The TrojaNanoHorse

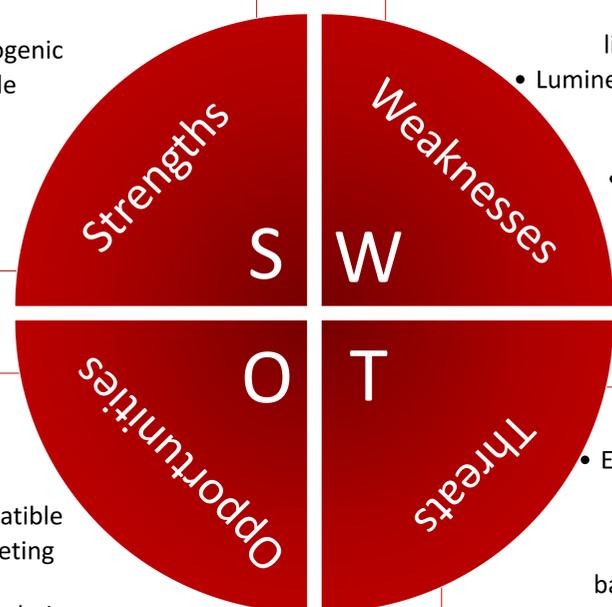
The goal of our research is to develop a **new generation of multifunctional** therapeutic and diagnostic - thus **theranostic** - **nanosystems** displaying non-immunogenicity, improved cancer treatment, cell imaging, and high safety for the hosting organism. The innovative concept behind this approach relies on a core-shell nanosystem with a therapeutically active core, the so-called **TrojaNanoHorse (TNH)**.



PATENT N° 102017000129243 deposited on 13th Nov 2017: «Nanoconstructo Biomimetico Non Immunogenico per la Terapia Antitumorale» ("Biomimetic and Non-immunogenic Nanoconstruct for Anticancer Therapy")

The Business Opportunity

- Cancer therapy without use of drugs
- Non-immunogenic
- Biodegradable
- Personalized medicine
- Patent filed
- Highly safe



The Team

We are a group of **enthusiastic** and **young** researchers, research fellows, PhD students and Master degree students lead by Professor **Valentina Cauda**. We all have different expertise, creating a **highly multidisciplinary research group**, settled in the Department of Applied Science and Technologies (DISAT) of the Politecnico di Torino.



Group members:

PI: Prof. Valentina Cauda
4 Researchers & Post-Docs: Nadia Garino, Tania Limongi, Giancarlo Canavese, Marco Laurenti
4 PhD Students: Andrea Ancona, Marta Canta, Luisa Racca, Bianca Dumontel
5 Fellows & MD Students: Carmine Lops, Walter Fazzini, Francesca Susa, Milena Marino, Federico Zagallo
Admin & Projects: Silvia Appendino
External Expert: Prof. Giovanni Melioli (Clinical Immunologist)

Current collaborations:



Prof. Federico Bussolino
 Prof. Massimo Aglietta
 Dr. Ymera Pignochino



Prof. Maria Vallet-Regi
 Prof. Miguel Manzano



Prof. Thomas Bein
 Dr. Hanna Engelke



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