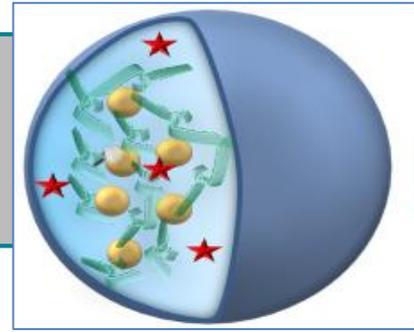


Nanoparticles for combination therapy (radio and chemotherapy) guided by imaging

cancer / nanoparticle / chemotherapy / radiotherapy / targeting / controlled triggering / MRI tracking



CONTEXT

Despite improved therapies, some cancers still have 5-year survival rates of less than 20% (head and neck, pancreas, lungs, etc.). As such, the particularities of each patient's situation should be assessed when designing treatments to efficiently treat these resistant and deep cancers.

DESCRIPTION

The innovation is an injectable treatment comprised of encapsulated nanoparticles allowing simultaneously treatment through radio and chemotherapy. Once injected, these particles (followed by MRI) target cancer cells. Treatment is initiated by radiotherapy when the quantity of nanoparticles revealed by MRI is both large enough in the tumor and low in the surrounding healthy tissues. The radiation (applied precisely on the nanoparticles) degrades their surrounding capsule, thus releasing the chemotherapeutic agents.

COMPETITIVE ADVANTAGES

- Synergy of treatment efficacy by combining several imaging-guided therapies
- Individualized treatment: intravenously injectable particles followed by MRI target cancer cells. The distribution of treatment is adapted specifically to each patient's needs
- Minimized side effects due to encapsulation and triggered release of treatment at the target site
- The particles are biodegradable and eliminated by the kidneys in a few days thanks to their small diameter (10nm)



Market & Application

Treatment and diagnosis of deep, resistant cancers (brain, lungs ...)

- Treatment by combination of chemo and radiotherapy
- Biodistribution and treatment followed by MRI
- Targeted radiotherapy treatment



Stage of development

Technology validated at laboratory scale (TRL 4)



Research Team

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Intellectual property

Patent filing : FR 1908368



Partnership

Co-development to orient the technology according to the needs of manufacturers

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