

NOVEL THERMOSENSITIVE HYDROGEL FOR THE LOCAL DELIVERY OF ANTICANCER DRUGS

Thermosensitive hydrogel for delivering chemotherapeutics at the site of action to increase the benefit-risk ratio

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L'AVENIR EST FAIT D'AUDACE

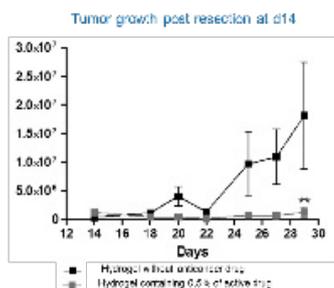
PRESENTATION

Chemotherapies treatment are limited by their systemic toxicity that reduces their use or requires interruption of the treatment before the planned end. In this context, new formulations of anticancer drugs that improve their benefit/risk ratio are needed.

The present invention relies on a thermosensitive hydrogel injected in liquid form in the tumour cavity, which jellifies *in situ* and delivers, locally and sustainably, anticancer drugs. This new drug delivery system is made of approved components and has been optimized in order to be sprayable or injectable *via* thin catheters.

In vivo experiments, in colorectal cancer mouse models, show the regression of colorectal tumours. In peritoneal carcinomatosis, the *in situ* thermosensitive hydrogel injection reduces the peritoneal carcinomatosis index.

This thermosensitive hydrogel will offer a new solution to improve the efficacy of chemotherapies delivery and reduce their systemic side effect. Its optimized physico-chemical properties (sprayability, viscosity,...) make the hydrogel fits into clinical practice. In the case of peritoneal carcinomatosis, the product represents a less invasive alternative to IPCH surgery.



Follow-up of tumour growth after adjuvant treatment in a mouse model of colorectal cancer

Thermosensitive hydrogel - Drug delivery - Chemotherapy -
Gastric cancer - Colorectal cancer - Gynaecologic cancer

COMPETITIVE ADVANTAGES

- Maximize bioavailability of drugs at their site of action
- Sprayable or injectable via thin catheters
- Ease of production (liquid at room temperature)
- Made of approved components
- Possibility to adjust the thermosensitive hydrogel composition to modulate its mechanical properties

INTELLECTUAL PROPERTY

International patent application filed on September 16, 2016 ; WO2017/046369

APPLICATIONS

Treatment of colorectal, gastric and gynaecologic cancer

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DEVELOPMENT PHASE

- ✓ Performed optimization of thermosensitive hydrogel properties
- ✓ *In vitro* POC on gynaecologic and colorectal tumour cell lines
- ✓ *In vivo* POC in a mouse model of colorectal cancer: neo-adjuvant and adjuvant therapies
- ✓ *In vivo* POC on peritoneal carcinomatosis: neo-adjuvant therapy