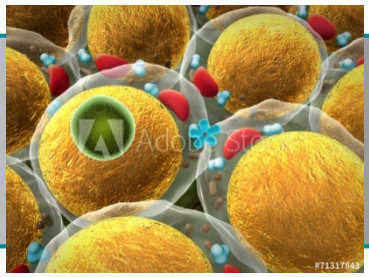
TECHNO OFFER

Cancer Lipoprotein Vectorization Drug delivery

LDL and HDL lipoproteins / drug toxicity / drug delivery / vectorization



CONTEXT

Most of chemotherapy drugs have serious toxicity side effects since they are not specifically targeting tumor cells but also normal cells. These drugs are however still widely used since they have good efficacy for cancer treatment. The vectorization of such drugs and the development of new galenic forms are therefore a major challenge for the pharmaceutical industry.

DESCRIPTION

A research team, specialized in lipoproteins, had the idea to use human lipoproteins to vectorize cytotoxic drugs while targeting specific cell types depending on the composition in lipoproteins of the vector and thus enabling better therapeutic efficacy and less toxicity.

When LDLs are used as vector for the drug, an effect is only observed on cancer cells, whereas with HDLs vectors the effect seems to be only on macrophages. In both cases, the vectorization with such specific LDL or HDL lipoproteins increases treatment efficiency by more than 50% compared to non-vectorized cisplatin, as measured in animal studies.

COMPETITIVE ADVANTAGES

- **LDL type lipoproteins are preferentially taken up by tumor cells whereas HDLs are preferentially taken up by macrophages**
- **Vectorizing anticancer agents with LDLs increases by 50% their cancer cytostatic effect**
- **Vectorizing with LDLs also decreases unwanted side effects through a better targeting of tumor cells (no body weight loss and no kidney toxicity)**
- **Lipoproteins could be used to vectorize highly lipophilic drugs usually insoluble in blood plasma**
- **Better bioavailability and no immunogenicity compared to liposomes**

Markets & applications

Pharmaceutical – oncology :

- Drug vectorization
- Targeted drug delivery
- Toxicity or insolubility solution

Development stage

Validated *in vitro* and *in vivo* with cisplatin

Research team

Laboratory Lipids, Nutrition, Cancer
University of Burgundy - INSERM

Intellectual property

French patent application (May 31st, 2016) and PCT application (WO2017207897)

Target partnership

Patent licensing or co-development

CONTACT-US

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