

NEW PEPTIDE-DRUG CONJUGATE PLATFORM FOR PERSONALIZED AND TARGETED TREATMENT OF CANCER

Partner institution : UNIVERSITÉ DU QUÉBEC À MONTRÉAL

BACKGROUND

Among current modern challenges, the development and the validation of strategies which allow selective and increased transport of bioactive agents into targeted cancer cells is pivotal to increase their efficacy and limit their potential serious side effects. Resistance mechanisms, such as P-gp efflux pump, must also be circumvented to increase the efficacy of current therapies.

TECHNOLOGY

Vectorization platform, allowing the active transport of multiple drugs into target cancer cells, based on new peptide sequences targeting a key scavenging receptor, Sortilin, which is highly expressed in numerous cancer cells, including ovarian and breast cancers. Targeting of this receptor can therefore lead to a selective delivery approach as well as to a higher internalization of an active drug.

COMPETITIVE ADVANTAGES

- New personalized medicine for patients with tumors overexpressing Sortilin
- New peptide-drug conjugates are new chemical entities (NCEs) with specific composition of matter
- Increased efficacy by higher accumulation in cancer cells expressing the receptor
- By-pass efflux pump by active Sortilin-mediated internalization
- Decreased side effects by conjugation to the peptide and by specific distribution in target cells
- Strong alternative to antibodies as drug carriers, providing tumor-specific cleavable and stable circulating linkers and stronger internalization capacity.
- Easy to manufacture at lower cost than competitive technology

PATENT STATUS

Pending provisional application

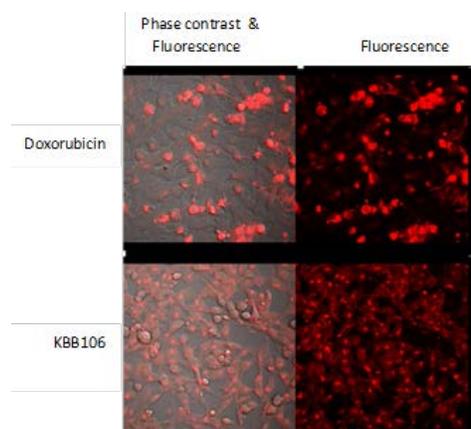


Fig.1. Peptide-Doxorubicin conjugate (KBB106) demonstrates an increased uptake in ovarian cancer cells

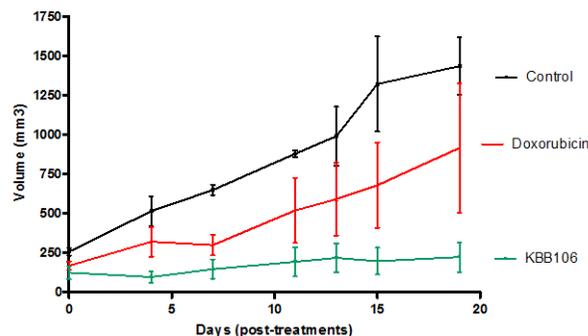


Fig.2. Peptide-Doxorubicin conjugate (KBB106) strongly inhibits ovarian (ES-2) tumor growth as compared to parent compound

APPLICATIONS

Several potential applications for this novel personalized platform in the oncology fields include conjugation to a variety of active drugs, natural products as well as diagnostic and imaging agents.

TECHNOLOGY DEVELOPMENTAL STAGE

Lead peptide sequences have been identified and several conjugates generated showing improved internalization *in vitro*. First *in vivo* results demonstrated improved growth inhibition when compared to the parent drug.

BUSINESS OPPORTUNITY

Research collaboration for development of new drug conjugates. Also looking for early-stage investors.

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