An antibody-drug conjugate (ADC) targeting the collagen receptor uPARAP
novel treatment of cancers of bone, brain and certain leukemias

**In vivo proof of concept: 100% cure of mice bearing uPARAP-positive tumors upon treatment with a uPARAP-directed ADC**

![Graph showing in vivo proof of concept](image)

**Value proposition / USP**

Development of a novel drug for personalized therapy directed against sarcoma, glioblastoma and certain leukemias. These diseases are in urgent need for novel means of targeted treatment, and in many cases no curative option currently exists. In particular, among these diseases, this therapy is directed against primary bone cancer (osteosarcoma, a prominent cancer in young patients), and glioblastoma multiforme (the most malignant brain tumor). Additional, larger possible indications for treatment are e.g. breast cancer, prostate cancer and head- and neck cancer, where the target receptor has been demonstrated to be expressed by cells of the tumor stroma.

**Business Opportunity**

Since in many of these diseases no satisfactory alternative exists, there will be an obvious medical need for the product of the current invention. ADCs are already in clinical use, and a large number of novel ADCs targeting various forms of cancer are currently being tested in clinical trials, documenting the commercial perspective in this strategy.

However, there is no current activity regarding the ADC target presented here.

**Technology description**

The product is an antibody-drug conjugate directed against the receptor uPARAP (also designated Emdo1880, C0280 or MRC2 gene product). This receptor is highly upregulated on primary bone cancer (osteosarcoma), soft tissue sarcomas, glioblastomas and certain leukemias. The product binds to the cell surface via the target receptor, enter the cell interior, and kills the cancer cells by release of an attached cytotoxic compound. No kill occurs in cells that do not express the receptor. The concept of antibody-drug conjugates is well established, and has proven successful in different cancers using other receptors for targeting.

**Current development state**

- Proof of concept for target receptor specificity and efficacy of the ADC product against a panel of cancer cell lines of sarcoma, glioblastoma and leukemia has been obtained in vitro.
- In vivo proof of concept has been obtained by demonstrating a 100 % cure rate in a mouse model of solid cancer employing leukemic cells, using our novel ADC product for treatment of mice with established tumors, with no evident side-effects following ADC treatment.
- Ongoing work includes optimization of next-generation ADCs with improved efficacy against more advanced in vivo cancer models, and preparation of patient-derived xenograft (PDX) models.

**Inventors**

Christoffer F. Nielsen, post doc, PhD, Lars H. Engelholm, group leader, PhD, Niels Behrendt, Section head, DS.

The Cancer Invasion Section of the Finsen Laboratory have world-leading expertise in the current receptor system, and a strong basis in cancer targeting and ADC development.

**Contact information**

Niels Behrendt, Section head, D.Sc.
The Finsen Laboratory.
Rigshospitalet / BRIC, Univ. Cph., Denmark
Tel.: (+45) 3545 6030
E-mail: niels.behrendt@finsenlab.dk

Priority founding patent application filed 5 February 2016 as PA 2016 70063. Novel data added October 2016 (PA 2016 70834) and in PCT application on February 03, 2017 (P4124P00).