Complete and specific regression of disseminated tumors in a novel rat mesenchymal three-tumor model after intralesional treatment with the nonapeptide LTX-315 (Oncopore™)

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Background

Intralesional administration of anticancer drugs derived from host defense peptides represents a novel innovative immunotherapeutic strategy.

Our structure-activity relationship studies on host defense peptides have culminated in the engineering of small peptides with enhanced anticancer activity (1). Ultimately, these efforts have led to the development of a chemically modified 9-mer peptide, LTX-315.

LTX-315 has shown to induce complete tumor regression and prevent relapse and metastasis in several animal models (2,3).
A phase 1 study has been completed with LTX-315 and a new clinical study is ongoing.

Aim

To investigate whether LTX-315 induces abscopal effects in a novel rat mesenchymal three-tumor model.

Results

Fig. 1 LTX-315 induces the release of DAMPs in vitro

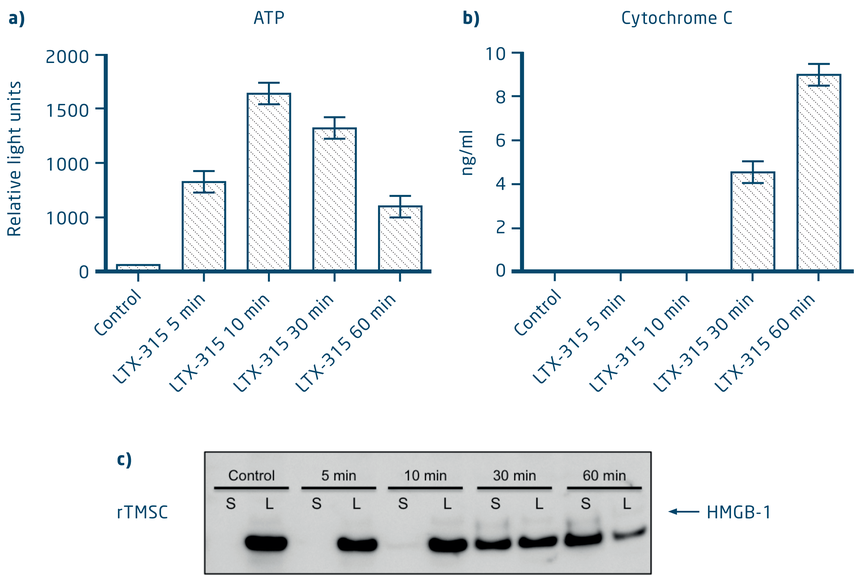


Fig. 2 LTX-315 eradicates treated and non-treated lesions in the three-tumor model

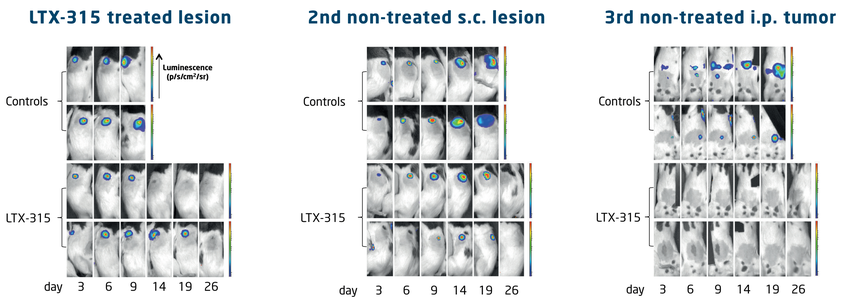


Fig. 3 LTX-315 induces long term protective immune responses

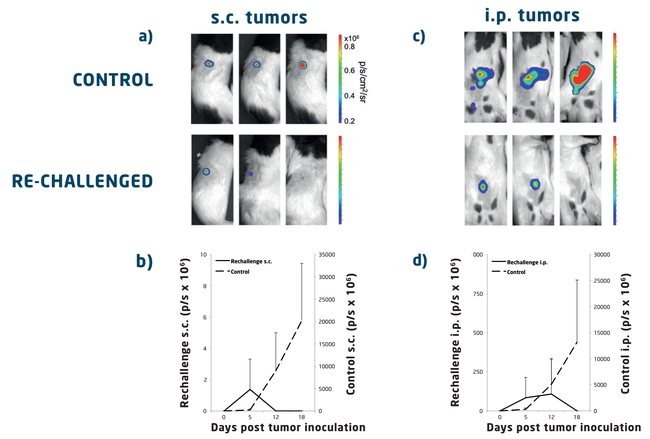
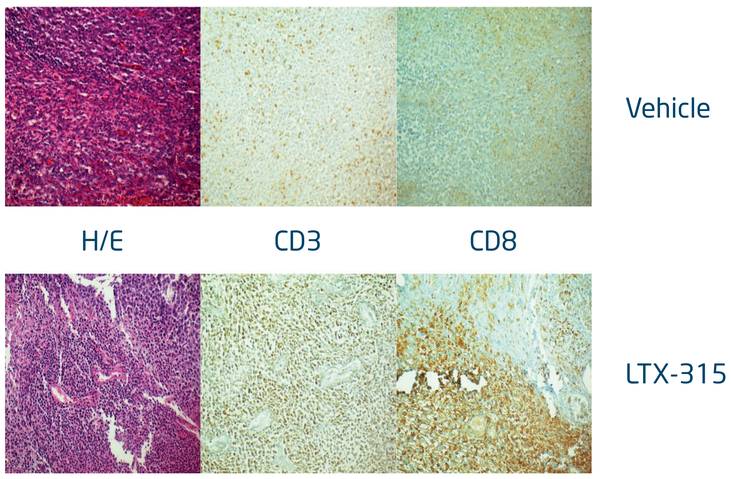


Fig. 4 Immunohistochemical analysis of LTX-315-treated tumors



Conclusions

- Here we demonstrate that intralesional treatment of one single lesion with LTX-315 (Oncopore™) is sufficient to cure animals with disseminated tumors.
- Systemic and long lasting protective immune responses were obtained in LTX-315 cured animals.
- LTX-315 induced an increased infiltration of CD3+ and CD8+T cells into the tumor.
- LTX-315 represents a novel intralesional therapeutic strategy with potential to induce clinical responses in metastatic diseases.
- A phase 1/2a study is in progress with LTX-315.

References

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