The oncolytic peptide LTX-315 enhances T cell clonality and induces synergy with chemotherapy

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Background

LTX-315 is a novel oncolytic peptide derived from the naturally occurring host defense peptide borrelidin[1]. LTX-315 interacts electrostatically with anionic components of negatively charged cancer cell membranes as well as intracellular targets such as mitochondria. This causes the release of proinflammatory signals which attract T cells, ensuing lysis of tumor cells and an immune response. In the study we conducted, a significant induction of a unique type of immunogenic cell death was observed.[2,3]

Mode of action

LTX-315 induces a unique type of immunogenic cell death

LTX-315 increases the number and diversity of T cell clones

Aim

Investigate the antitumor efficacy and potential synergy of LTX-315 in combination with low-dose chemotherapy in experimental mouse models.

Results

LTX-315 in combination with cyclophosphamide

LTX-315 in combination with doxorubicin

Study design

LTX-315 in combination with cyclophosphamide induces complete regression of A20 B lymphomas ([L-C]).

LTX-315 in combination with doxorubicin induces complete regression of orthotopic 4T1 mammary carcinomas.

Conclusion

LTX-315 showed an enhanced antitumor effect against A20 B lymphomas and 4T1 breast carcinomas when combined with cyclophosphamide and doxorubicin, respectively.

The LTX-315 unique "release and repopulate" properties make it a promising candidate for combination with several "types" of chemotherapy.

LTX-315 is currently in clinical phase I/IIa studies.

References

1. Haag et al. | Med Chem. 2015
5. Elke et al. Oncotarget. 2015

1,2,3,5,6,7,8,9 LTX-315 treatment in combination with chemotherapy induced a unique type of immunogenic cell death as presented in the study.

LTX-315 in combination with cyclophosphamide induces complete regression of A20 B lymphomas ([L-C])

LTX-315 in combination with doxorubicin induces complete regression of orthotopic 4T1 mammary carcinomas.