Adenoviruses armed with TNFα and IL-2 increase efficacy of adoptive cell therapy in the absence of lymphodepleting preconditioning

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Background

- Lymphodepleting chemotherapy improves adoptive cell transfer (ACT) but is very toxic
- TILT-123, an oncolytic adenovirus expressing Interleukin-2 (IL-2) and Tumor Necrosis Factor α (TNFα) improves the efficacy of adoptive cell transfer (ACT) in animal models
- Oncolytic adenoviruses have a better safety profile
- Here we determine the safety and efficacy of TILT-123 with ACT in the absence of lymphodepleting preconditioning

Methods

Adenovirus Improves the Efficacy of ACT in the Absence of Preconditioning

Results

Adenovirus therapy does not induce significant toxicity in hamsters and mice

Conclusions

- Our oncolytic adenovirus platform successfully replaces high dose preconditioning chemotherapy regimens;
- Adenovirus and preconditioning therapeutic regimens induce a similar changes in the microenvironment status and immune populations of tumors from animals treated with adoptive cell therapy;
- Decreased toxicity and similar efficacy justify the replacement of preconditioning chemotherapy by adenovirus therapy to support ACT;
- A phase I clinical trial is underway to validate this hypothesis.