Background

Adoptive cell transfer (ACT) has shown promising results in clinical trials for melanoma, with response rates ranging from 40% to 72%. We aimed to enhance the efficacy of ACT by coupling it with non-replicating adenoviruses coding for immunostimulatory cytokines. Antitumor efficacy of the combination approach was tested in the B16-OVA mouse model.

Results

**Armed adenoviruses express murine cytokines in vitro and in vivo**

![Graph A](image)

**Cytokine armed adenoviruses combined with adoptive T-cell transfer inhibit the growth of B16-OVA tumors**

![Graph B](image)

**mTNFa/mIL2 double combination plus T-cell transfer is superior to either single agent against B16-OVA**

![Graph C](image)

Conclusions

- Adenovirus constructs (Ad5-CMV-mTNFa, Ad5-CMV-mIL2, Ad5-CMV-mIFNg and Ad5-CMV-mIFNb) produced biologically active murine cytokines in vitro and in vivo.
- Production of adenovirus resulted in high local and low systemic levels of cytokine.
- Growth of B16-OVA melanoma tumors was inhibited with adenovirus and adoptive T-cell transfer combination.
- Double combination of mIL2 and mTNFa with ACT controlled B16-OVA tumor growth better than single agent therapies.
- Further studies are ongoing to elucidate the mechanism of action behind the improved antitumor efficacy.