**Background**

- Interleukin (IL)-2 and tumor necrosis factor alpha (TNFa) are promising for enhancing antitumor effects of adenoviruses.
- Virotherapy can be further boosted with Tumor-Infiltrating Lymphocyte (TIL) therapy.
- With armed viruses, effective and safe cytokine expression can be achieved locally instead of high systemic level administration.

**Aims**

- To study abscopal effect: Is localized treatment of a tumor with non-oncolytic adenoviruses carrying murine cytokines (Ad5-CMV-mTNFa/mIL2) able to affect also distant tumor?
- To construct and characterize oncolytic adenoviruses coding for human IL-2 and TNFa (Ad5/3-E2F-d24-hTNFa-IRES-hIL2)

**Results**

**Viral treatment induces growth suppression not only at the injection site but also at distant tumor.**

**The virus does not spread to distant tumors.**

**Oncolytic adenoviruses with human IL-2 and TNFa kill tumor cells and produce active cytokines in vitro.**

**Conclusions**

- The abscopal effect was seen: Treatment of a tumor with adenoviruses also reduced the growth of untreated tumors.
- Treatment influences distant tumors by activating immune responses and not by spreading the virus. Virus treatment recruits at least Natural Killer cells to both tumors and reduces the presence of immunosuppressive M2 macrophages.
- Oncolytic adenoviruses with human cytokines are effective in vitro.