**INTRODUCTION**

Treatment with autologous tumor infiltrating lymphocytes (TILs) can induce remarkable clinical responses in patients with advanced solid tumors. The absolute numbers of CD8+ T cells in TIL products have been shown to correlate with clinical responses upon TIL therapy. With the current production process, the numbers of CD8+ T cells in the TIL products vary greatly between patients. By using a targeted cytokine that preferentially activates CD8+ T cells, we aimed to increase the cytotoxic potential of the TIL products.

**METHODS**

A cis-targeted CD8-IL2 molecule (Asher Biotherapeutics) was used to promote CD8+ T cell outgrowth from tumor digests. In the rapid expansion protocol (REP), TILs were subjected to polyclonal stimulation using anti-CD3 antibodies (OKT3) or anti-CD3/CD28 polymers (TransAct™) in the presence of CD8-IL2, conventional IL-2 or IL-7/IL-15. The standard ‘young TIL’ production process using high dose IL-2 and OKT3 was used as a standard comparison. TIL product composition, T cell differentiation phenotype and tumor-reactivity was assessed by flow cytometry and ELISA.

**RESULTS**

**CONCLUSION**

This study shows that CD8 cis-targeted IL-2 can be used to generate TIL products mainly comprising CD8+ T cells, thereby potentially improving cytotoxic potential and therapeutic efficacy. The use of CD3/28 TransAct™, compared to anti-CD3 stimulation (OKT-3) did not impact T cell differentiation phenotype.