2 x CD3 Dual-Affinity Re-Targeting

Abstract

Introduction

IL13Rα2 is a membrane-bound protein expressed on a number of malignant tumor cell lines, including glioblastoma, melanoma, and medulloblastoma. While its expression in normal tissues is low, the density of IL13Rα2 on tumor cells is high, making it a potential target for cancer immunotherapy.

Methods

Antibodies derived from whole mouse IL13Rα2 were generated in mice through a whole-cell-based immunization protocol. IL13Rα2 expression in human normal and tumor tissues was determined using fluorescence-activated cell sorting (FACS) analysis.

Results

Redirected T-cell Killing Through DART Proteins

A lead IL13Rα2 x CD3 DART protein was designed to co-engage IL13Rα2 and CD3. The DART protein engages T cells through CD3 and IL13Rα2-expressing tumor cells, mediating target-dependent cytokine release and redirected killing.

Conclusion

Co-engagement of IL13Rα2 and CD3 for redirected T-cell killing and cytokine release provides a promising strategy for cancer immunotherapy.