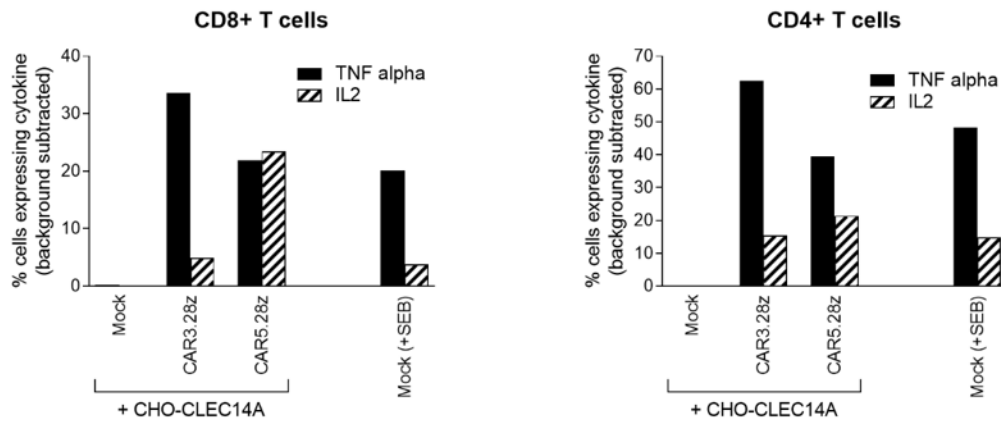


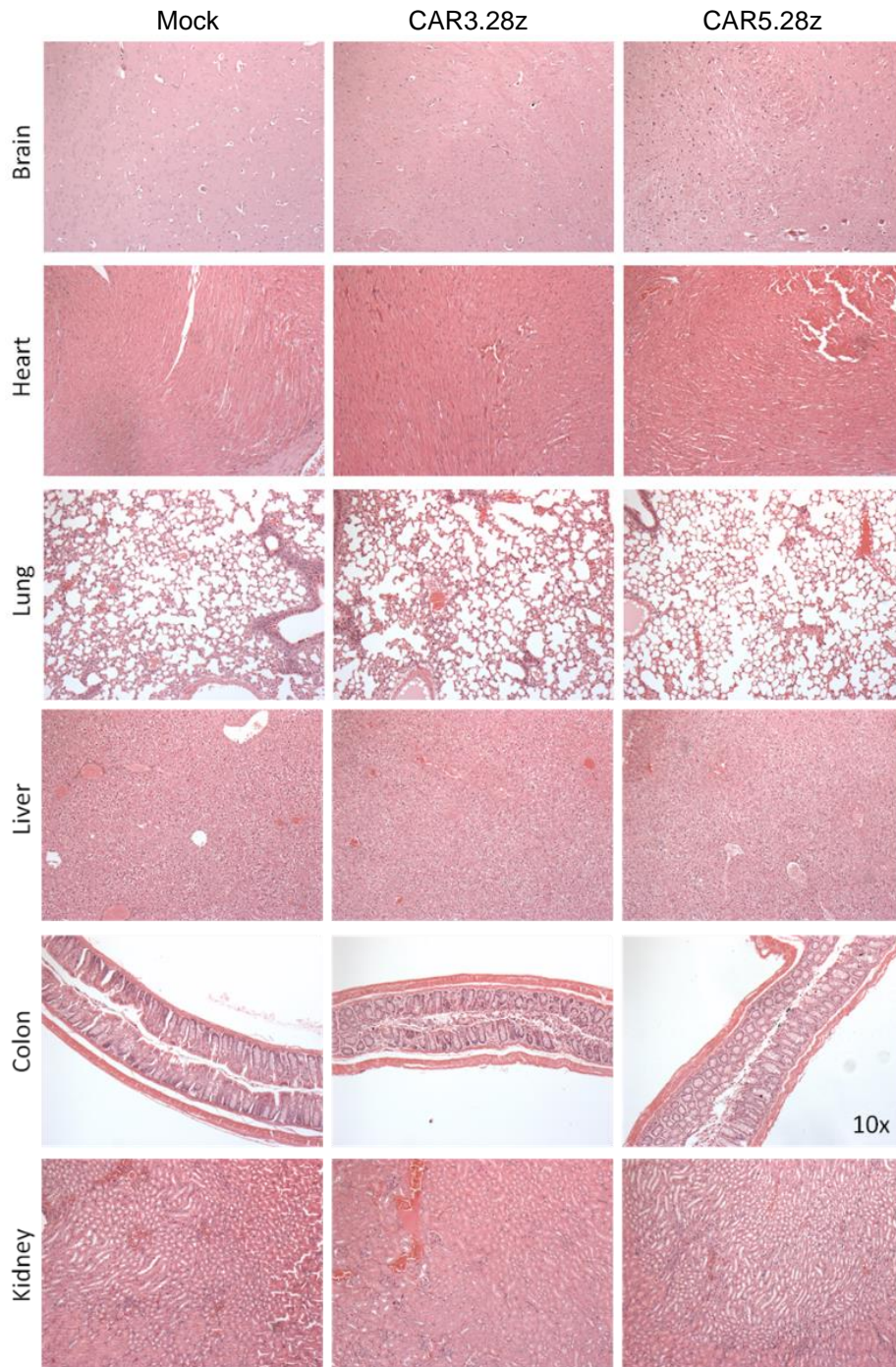
**Supplementary Figure S1: Monoclonal antibodies demonstrate specific binding to CLEC14A**

Flow cytometric analysis of HUVECs stained with monoclonal antibodies CRT3 and CRT5 where CLEC14A expression has been selectively inhibited by siRNA knockdown. Binding of these monoclonals was detected with a PE-conjugated anti-mouse secondary antibody. Heavy solid black line = CRT3 or CRT5 antibody staining of HUVECs transfected with control siRNA duplex. Solid black line = CRT3 or CRT5 antibody staining of HUVECs transfected with CLEC14a siRNA duplex. Dashed line = isotype control staining of HUVECs transfected with CLEC14a siRNA duplex. Grey shaded profile = isotype control staining of HUVECs transfected with control siRNA duplex.



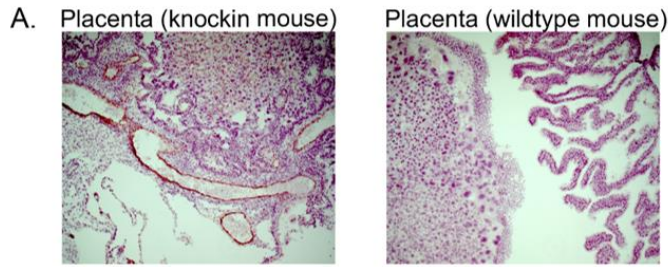
**Supplementary Figure S2: TNFalpha and IL2 production by CAR T cells.**

(A) Intracellular cytokine staining of TNF alpha and IL2 expression by CAR T cells when stimulated with CHO cells expressing CLEC14A. Data show percentage of CD8+ or CD4+ CAR T cells that expressed the cytokine having subtracted background responses to CHO cells transduced with the empty vector. Mock-transduced control T cells did not produce either cytokine when stimulated with CLEC14A but produced both when stimulated with staphylococcal enterotoxin B (positive control)

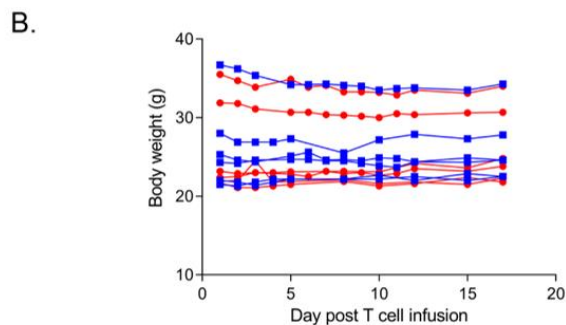
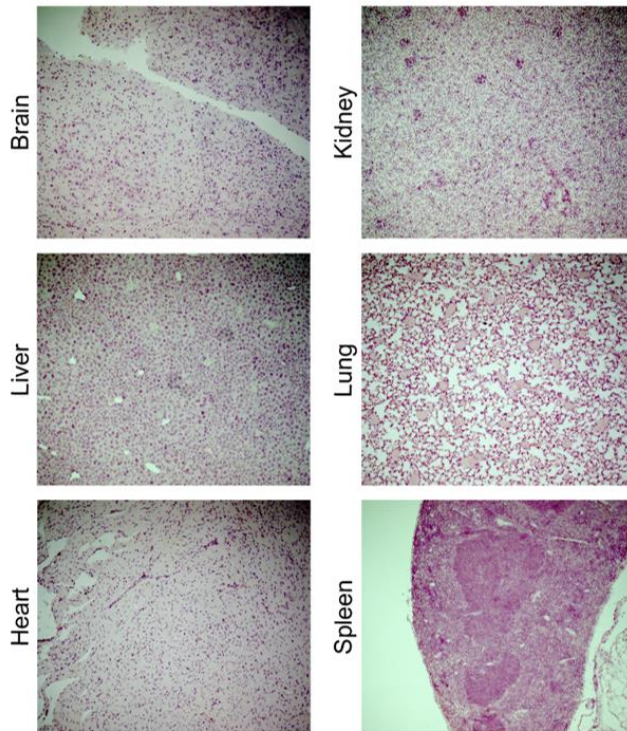


**Supplementary figure S3: Histological analysis of tissues from mice treated with CLEC14A-specific CAR T-cells**

Forty-five days after infusion of mouse T-cells expressing the CLEC14A-specific CARs CAR3.28z or CAR5.28z (or mock-transduced T-cells as a control), mice were sacrificed and vital organs collected and H&E stained for analysis.



Other tissues from knockin mouse



**Supplementary Figure S4: Toxicity testing of CLEC14A-specific CAR T-cells in human CLEC14A knockin mice**

(A) Representative images of healthy tissues from knockin mice expressing the human CLEC14A extracellular domain, stained for human CLEC14A expression. Placental tissue from a wildtype C57BL6 mouse is included as a negative control to demonstrate staining is specific for the human version of this protein. (B) Human CLEC14A knockin mice were irradiated (4Gy) on day 0 and 10 million CLEC14A-specific CAR- or Mock-transduced mouse T-cells infused on day 1. Mice displayed no signs of toxicity as illustrated by relatively stable body weights over time post infusion. Blue lines = CAR treated mice (n=6). Red lines = Mock treated mice (n=6). Independent histology review of major organs from these mice confirmed the lack of pathology.