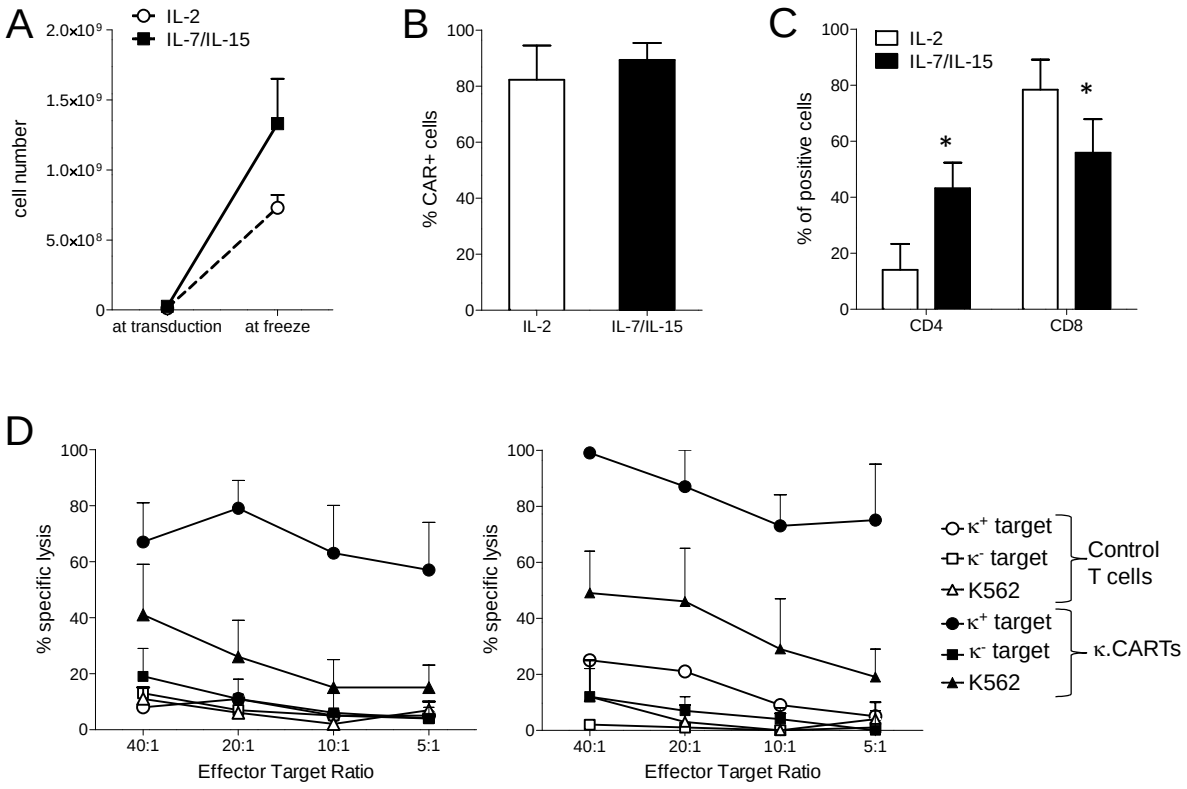
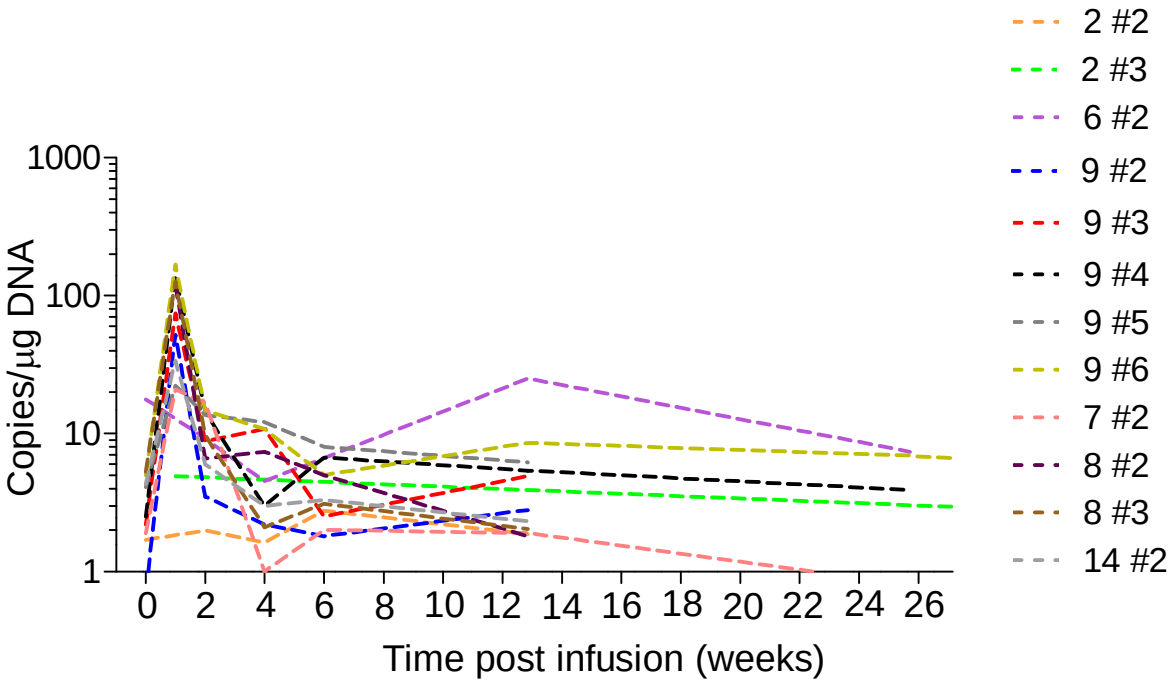
Supplemental Table 1. Characteristics of the generated κ.CART lines

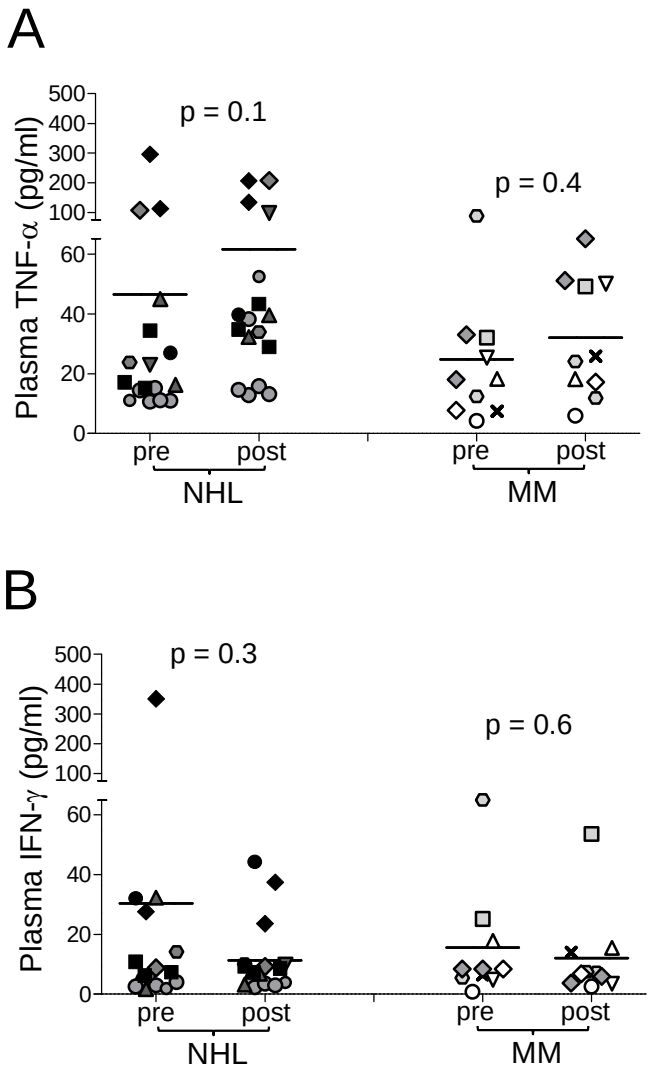
	IL-2 (N = 13)	IL-7 and IL-15 (N = 11)
Days in culture	18 ± 4	15 ± 2
Cell numbers at time of clinical freeze	7.3 ± 3.4×10^8	13 ± 1.0×10^8
Transduction (% CAR$^+$ cells)	82 ± 12	89 ± 6
CD3$^+$ CD8$^+$ cells (%)	78 ± 11	56 ± 12
CD3$^+$ CD45RO$^+$ cells (%)	94.5 ± 4.5	91 ± 6
CD3$^+$ CD127$^+$ (%)	8.1 ± 5.6	6.5 ± 5
CD8$^+$ CD45RO$^+$ CD62L$^+$ (%)	17.1 ± 9.7	14.2 ± 7.2
CD8$^+$ CD45RA$^+$ CCR7$^+$ cells (%)	4.9 ± 4.1	10.7 ± 7.1
CD8$^+$ CD45RA$^+$ CD28$^+$ CD27$^+$ cells (%)	3.2 ± 2.3	5.1 ± 4.2
CD3$^-$ CD56$^+$ (%)	0.4 ± 0.6	0.5 ± 0.4



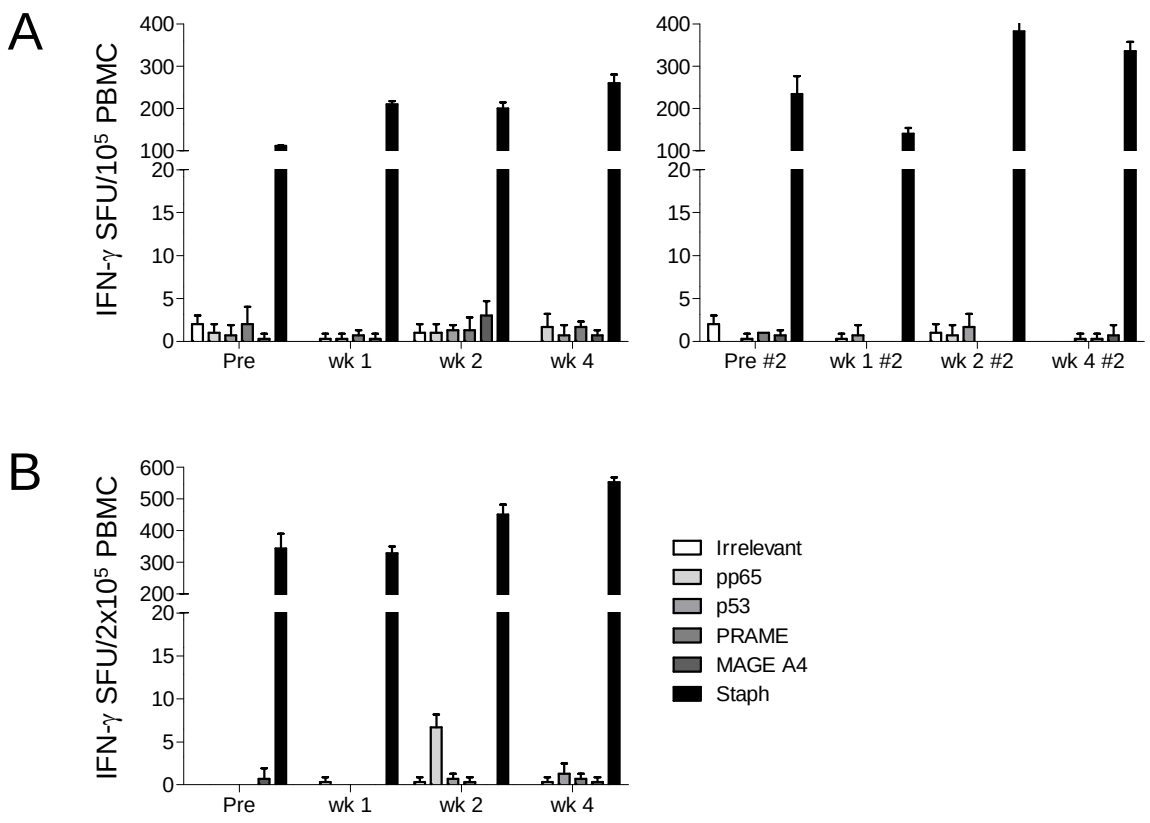
Supplemental Figure 1. Comparison of κ.CARTs expanded in IL-2 or IL-7/IL-15. Panel A shows the total cells number at the time of transduction and clinical freeze between κ.CARTs grown in IL-2 (open circle) or in IL-7/IL-15 (closed square). Panel B shows the percentage of CAR-expressing T cells upon removal from retronectin-coated plates, grown in IL-2 (white bar) or in IL-7/IL-15 (black bars). Panel C shows the percentage of T cells expressing CD4 or CD8 when grown in IL-2 (white bar) or in IL-7/IL-15 (black bars), at the time of clinical freeze. Panel D shows the cytotoxic activity of κ.CARTs (closed symbols) or control, non-transduced T cells (open symbols) expanded in IL-2 (left graph) or in IL-7/IL-15 (right graph). Targets were κ^+ tumor cells (Daudi, circle), κ^- tumor cells (HDLM-2, square) or an NK-sensitive cell line (K562, triangle). Data are shown as mean ± SD (*$p<0.05$, unpaired *t* test).



Supplemental Figure 2. In vivo expansion and persistence of infused κ.CARTs after subsequent infusions as assessed by Q-PCR in peripheral blood. Data points represent critical post-infusion intervals after the first infusion of κ.CARTs. There was no significant difference in the area under the curve (AUC) for additional infusions in the same patient (Wilcoxon signed-rank test). Dotted lines denote each patient (legend shows universal patient identifier numbers, UPINs) and infusion number.



Supplemental Figure 3. Cytokine levels in PB pre and post κ.CART infusion. Plasma levels of TNFα (A) and IFNγ (B) before and after κ.CART infusion in NHL (N=17 infusions) and MM (N=10 infusions) patients (paired *t* test). No clinical evidence of cytokine release syndrome was seen. Each symbol denotes one infusion.



Supplemental Figure 4. Frequency of T-cell precursors in peripheral blood responding to viral and tumor-associated antigens. The graphs show results of IFNγ ELISPot assays using PBMCs and targeting the indicated pepmixes, at different time points before and after κ.CART infusion for UPIN #9 (A) and UPIN #14 (B) (SFU: Spot Forming Unit).