

Figure S1

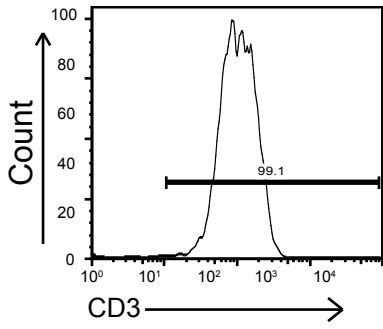


Figure S2

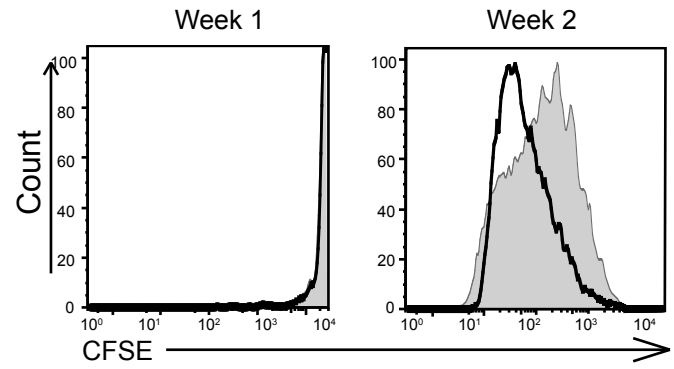


Figure S3

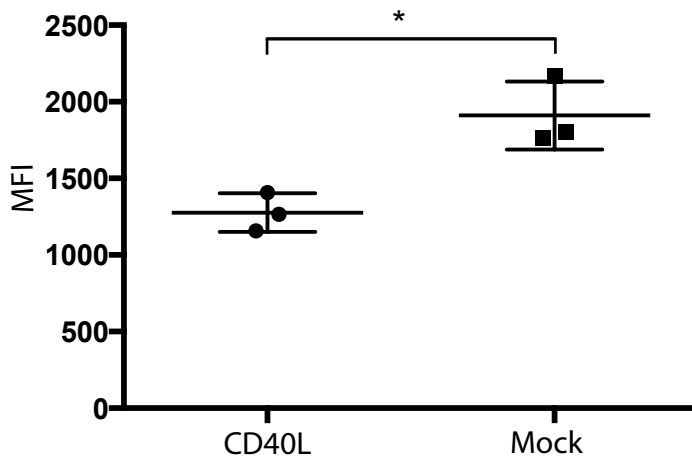


Figure S4

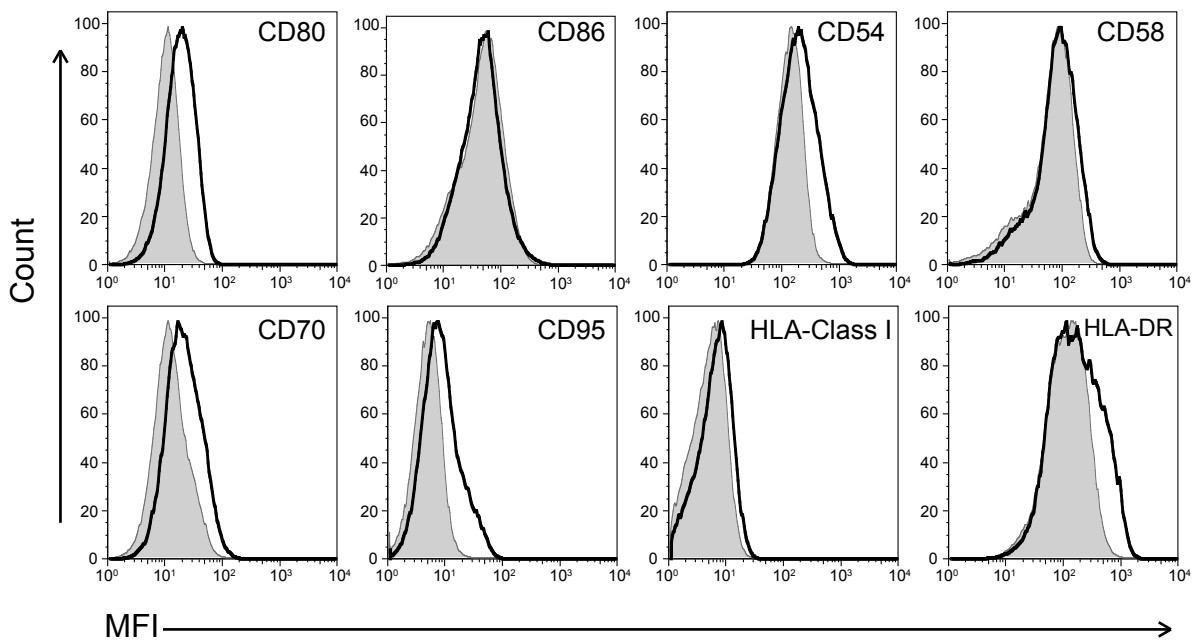


Figure S5

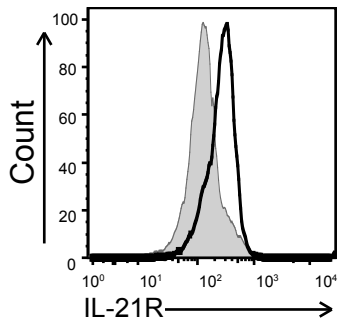


Table S1

Donor	CD40L Transduction Efficiency
1	65%
2	55%
3	61%

Figure S6

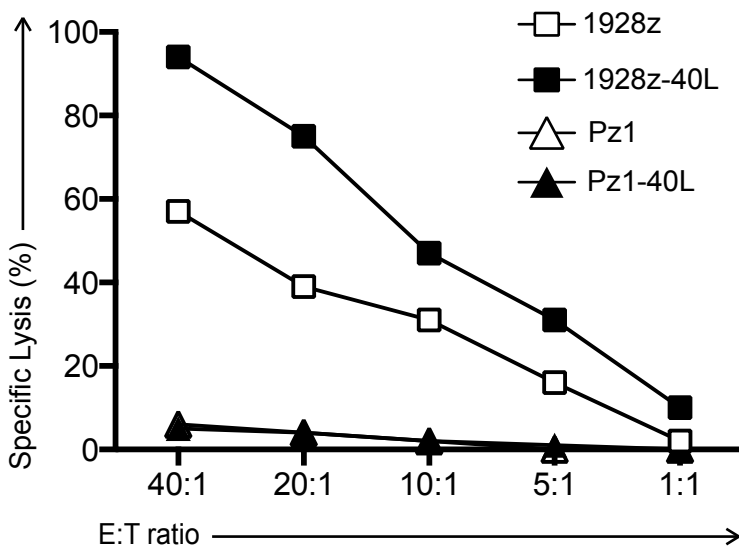


Figure S7

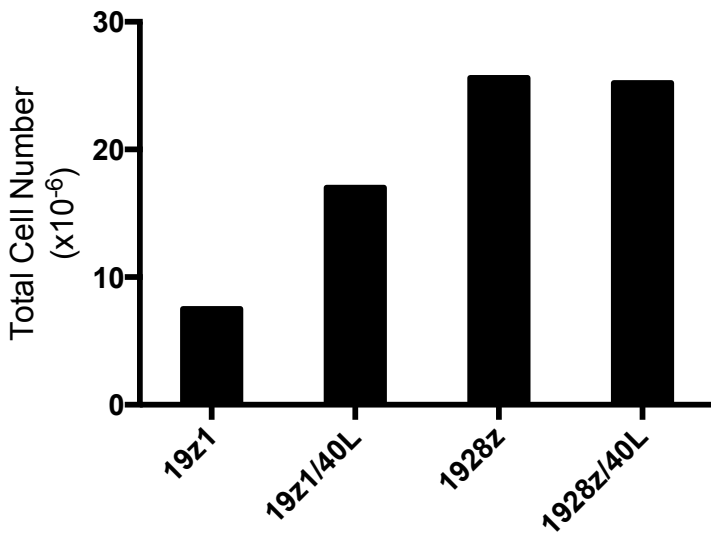
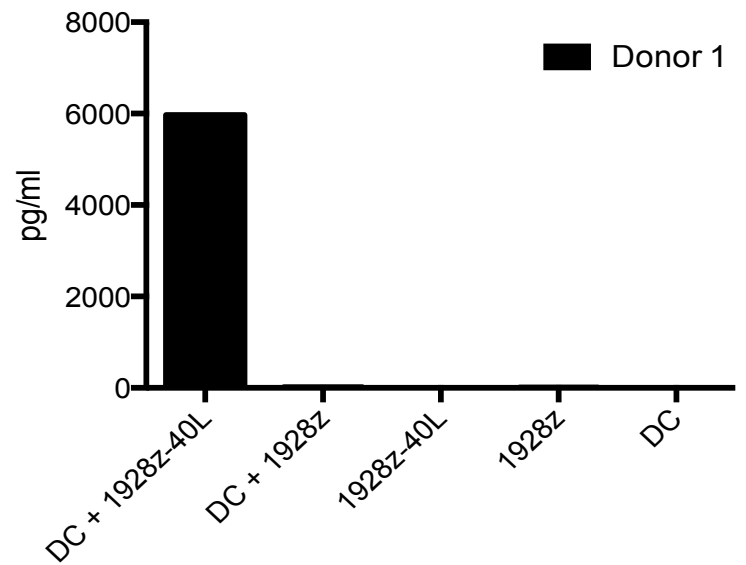


Figure S8



**Figure S1: CD3<sup>+</sup> T cell expression in CD40L-modified T cell cultures.** Representative flow cytometry of CD3<sup>+</sup> expression by CD40L-modified T cells generated from healthy donor following PHA stimulation.

**Figure S2: CD40L-modified T cells have enhanced proliferation.** Flow cytometry of CFSE-labeled CD40L-modified T cells (solid line) compared to mock-transduced T cells (gray line).

**Figure S3: CD40L-modified T cells have down regulation of PD1 on cell surface.** Mean fluorescence intensity (MFI) of PD1 expression on CD40L-modified T cells was found to be lower when compared to mock T cells for three separate donors in three independent experiments. (\*denotes statistical significance where  $P < 0.01$  using Mann-Whitney).

**Figure S4: Augmented immunogenicity of CD40<sup>+</sup> Tumor cells by sCD40L.** (A) Flow cytometry showing upregulation of co-stimulatory molecule (CD80), adhesion molecules (CD54, CD58, and CD70) HLA molecules (HLA Class I and HLA-DR), and the Fas-death receptor on DOHH2 tumor cell line following co-culture with conditioned media (CD40L-modified T cells media) containing elevated levels of sCD40L (solid line) compared to media (mock-transduced T cells media) without elevated levels of sCD40L (gray line).

**Figure S5: Increased IL-21R expression by CD40L-modified T cells.** Flow cytometry showing increased expression of IL-21R on the surface of patient derived CD40L-modified T cells (solid line) compared to mock-transduced T cells (gray line) following co-culture with autologous B-CLL.

**Table S1: Range of CD40L expression by donor CD40L-modified T cells.** Table indicating range of CD40L expression for three donors used in CD40L-modified T cells and autologous mo-DC cell culture in Figure 4.

**Figure S6: 1928z/CD40L T cell cytotoxicity.** As determined by standard <sup>51</sup>Cr release assay 19-28z/40L T cells have increased ability to lyse Raji tumor cells compared to 19-28z T cells.

**Figure S7: Proliferation of first and second generation CAR T with constitutive expression of CD40L.** Increased proliferation of 19z1/40L compared to 19z1 but not 1928z/40L compared to 1928z CAR T cells following stimulation on CD19 expressing AAPCs. Results shown are

representative of at least two independent experiments and measured using guava<sup>®</sup> EasyCyte™ cell analyzer with guava<sup>®</sup> ViaCount reagent.

**Figure S8: Secretion of IL-12 from monocyte derived Dendritic Cells (moDCs) following co-culture with 1928z/40L T cells.** (a) Cytokine analysis of culture media for co-cultures (24 hours) between moDCs and 1928z/CD40L demonstrates increased IL-12p70 secretion.