### **Supplementary files**

# Supplementary Table 1: CD4/CD8 ratio of CART -transduced cell preparations.

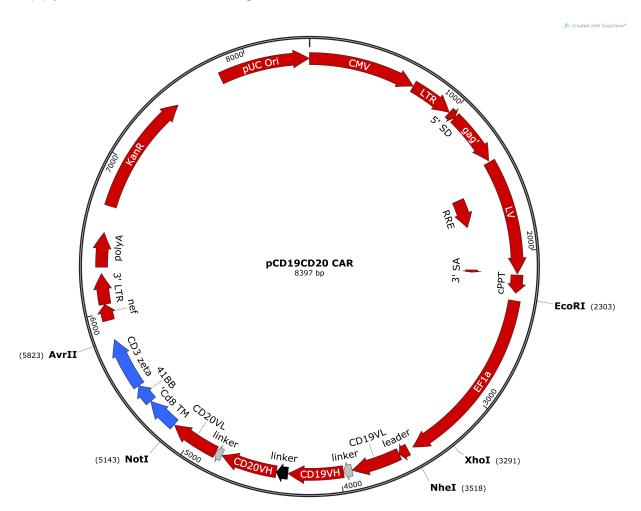
	Donor 1	Donor 2	Donor 3
CAR T	CD4/CD8	CD4/CD8	CD4/CD8
N.T.	4.4	7.4	3.2
GFP	2.6	6.3	2.4
19A	4.6	11.4	2.5
20A	3.2	12.4	2.9
19B	5.9	13.3	2.4
1920	5.2	6.2	2.2
2019	4.7	8.1	2.1

## **Legend for Supplementary Table 1**

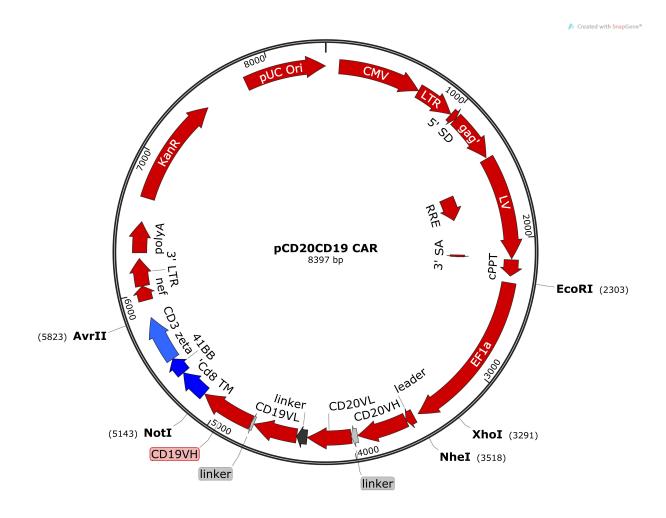
The CD4/CD8 ratio in CAR T cell preparations from three separate donors was determined by flow cytometry. The CD4<sup>+</sup> and CD8<sup>+</sup> T cells were co-purified from buffy coats, cells were activated with TransAct CD3 CD28 reagent in the presence of IL-2, transduced with LV as described in Materials and Methods, and assayed for CD4/CD8 composition on culture day 10, when immune function was assayed. The ratio of CD4/CD8 cells for each of the three donors is noted in columns, and CAR T groups noted in rows.

# **Supplementary Figure 1. CAR-encoding vectors.**

(a) pCD19CD20 CAR Vector Configuration:



(b) pCD20CD19 CAR Vector Configuration:



### **Legend for Supplementary Figure 1:**

Tandem CAR lentiviral vectors (LV) encoding the (a) CD19\_20 and the (b) CD20\_19 CARs were expressed using lentiviral backbone plasmids featuring a human EF-1alpha internal promoter (EF1a), leader sequence (leader), VH and VL sequence from FMC63 and Leu 16 antibodies (CD19VL, CD19VH, CD20 VL, CD20VH, respectively), inter-chain linker sequence (in grey), and intra-scFv sequence (in black), linked to CD8, 41BB, and CD3zeta signaling domains (in blue).