

Supplementary Materials

Table S1: CTL019 product characteristics

Subject ID	Infusion Date	Weight at time of Infusion (kg)	Cells Infused			Transduction Efficiency	
			Total T cell dose	CTL019 cells dose	Met Target	% scFV flow	Met Target %scF
02413-01	07/09/14	52.0	2.16x10 ⁸	5x10 ⁷	Y	23.2%	Y
02413-02	11/18/14	91.6	4.09x10 ⁹	5x10 ⁷	Y	1.22%	N
02413-03	09/30/14	41.1	5.00x10 ⁸	5x10 ⁷	Y	10.0%	Y
02413-05	01/15/15	54.1	3.76x10 ⁸	5x10 ⁷	Y	13.3%	Y
02413-06	04/02/15	63.1	3.29x10 ⁸	5x10 ⁷	Y	15.2%	Y
02413-07	06/16/15	62.8	1.14x10 ⁹	5x10 ⁷	Y	4.4%	Y
02413-08	05/19/15	100.5	6.03x10 ⁸	5x10 ⁷	Y	8.29%	Y
02413-09	05/20/15	66.3	6.25x10 ⁸	5x10 ⁷	Y	7.67%	Y
02413-10*	07/15/15	71	4.97x10 ⁸	5x10 ⁷	Y	10.1%	Y
02413-12*	07/21/15	69.8	2.8x10 ⁸	5x10 ⁷	Y	17.9%	Y

*Treated with huCTL019.

Table S2: PFS1 vs PFS2 (days) in historical cohort

Case #	PFS1	PFS2
1	725	294
2	477	227
3	116	61
4	568	284
5	957	85
6	200	49
7	457	169
8	178	111
9	299	90
10	530	160
11	594	561
12	529	41
13	1179	201
14	633	113
15	1353	40
16	183	51
17	775	124
18	368	83

Figure S1

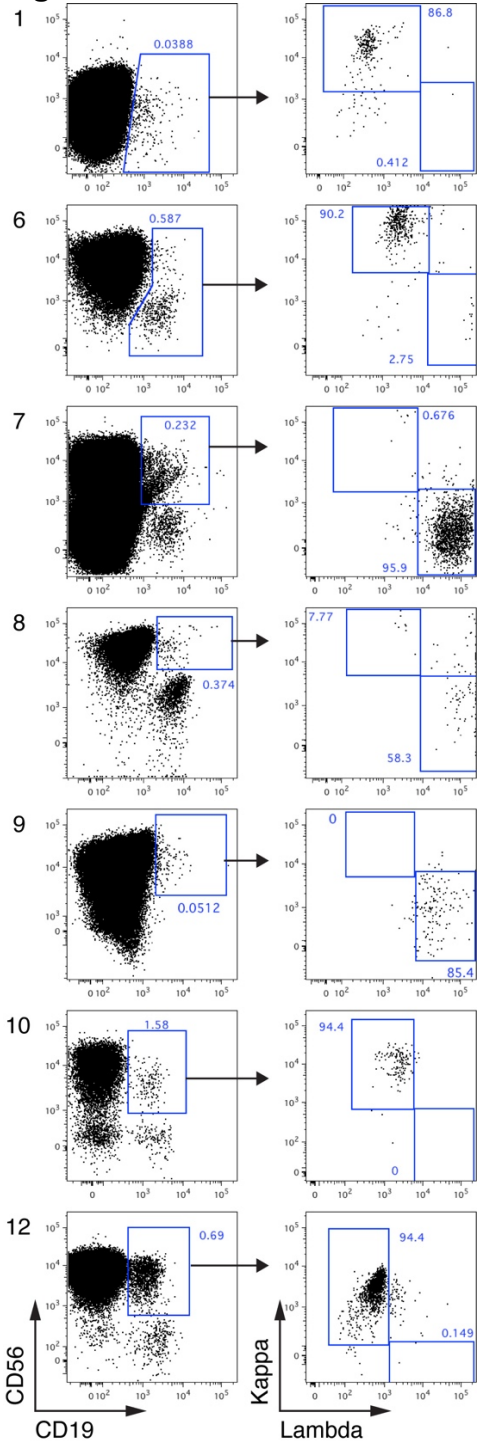
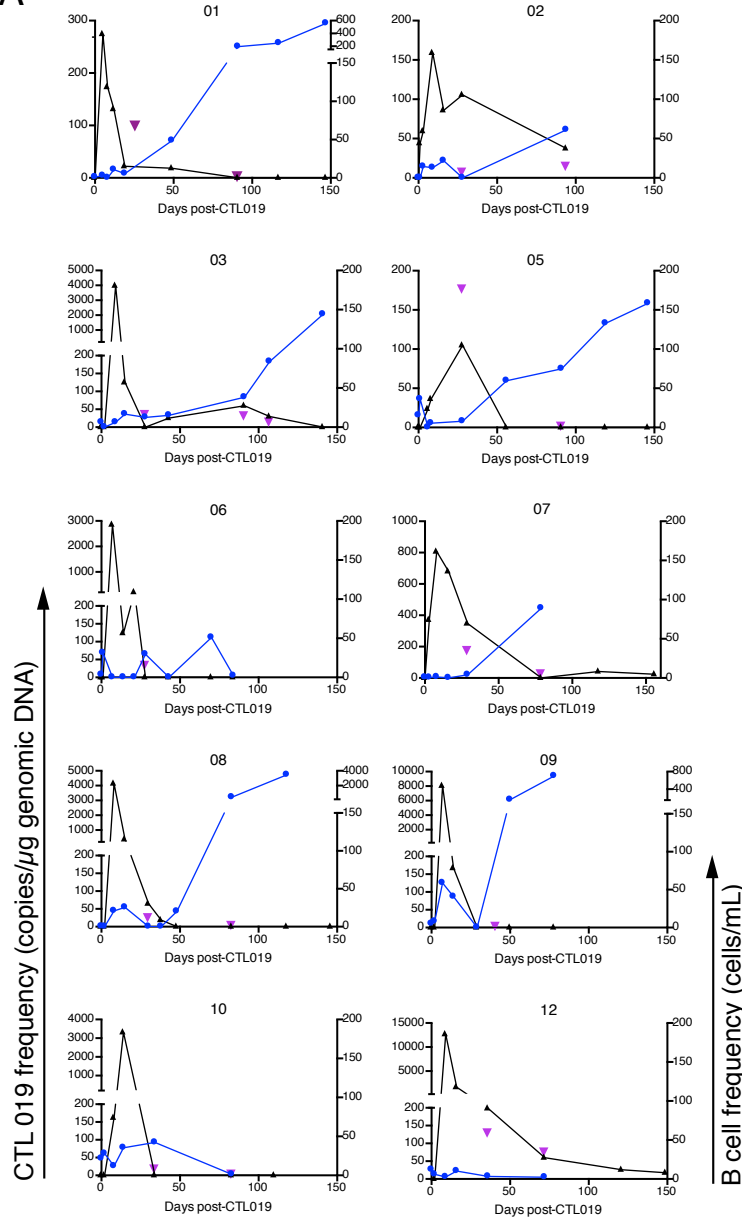


Figure S1: CD19 expression by flow cytometry on pre-ASCT bone marrow samples for subjects with CD19⁺ plasma cell subsets. Each row represents an individual subject. Left panels represent

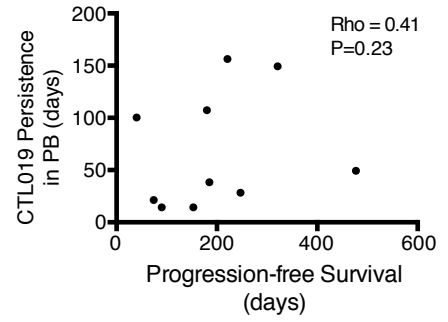
CD19 and CD56 expression after gating on CD38-high plasma cells. Right panels represent kappa and lambda immunoglobulin light-chain expression on CD19⁺ subsets.

Figure S2

A



B



C

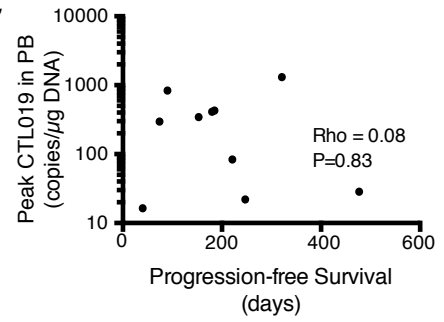


Figure S2

(A) CTL019 frequency in peripheral blood (PB; black) and bone marrow (BM; purple) and peripheral blood B cell counts (blue) for each subject. (B-D) Correlations of PFS vs. duration of CTL019 persistence in PB (B) and peak CTL019 frequency in PB (C).

Figure S3

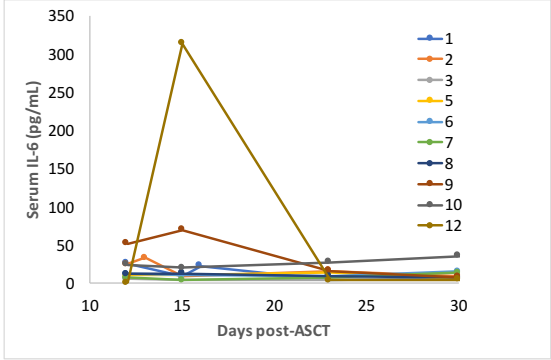


Figure S3: Serum interleukin 6 concentrations following CTL019 infusion.

Patents

Bruce L. Levine discloses patent Methods for treatment of cancer (US 8,906,682; US 8,916,381; US 9,101,584); a patent Compositions for treatment of cancer (US 8,911,993; US 9,102,761; US 9,102,760); a patent Method for treating chronic lymphocytic leukemia (CC) (US 9,161,971); a patent Compositions and methods for treatment of cancer (US 9,464,140; US 9,518,123; US 9,481,728; US 9,540,445); a patent Use of chimeric antigen receptor-modified T cells to treat cancer (US 9,328,156; US 9,499,629); and a patent Methods for assessing the suitability of transduced T cells for administration (US 9,572,836); all held by the University of Pennsylvania.

Michael C. Milone discloses US Patents 9,540,445; 9,518,123; 9,481,728; 9,464,140; 9,102,760; 9,102,761; 9,101,584; 8,975,071; 8,916,381; 8,911,993; 8,906,682; 9,499,629; 9,328,156; and Pending Patent applications WO2016014565A2 and WO2016057705A1; all held by the University of Pennsylvania.

Marcela V. Maus discloses a patent pending Treatment of cancer using anti-cd19 chimeric antigen receptor PCT/US2015/024,671.

Carl H. June discloses US Patents 9,464,140; 9,161,971; 8,975,071; 8,916,381; and 8,906,682, all held by the University of Pennsylvania.