Comparison of the phenotypes and function between autologous and allogeneic hCART19

We assessed the expression of CD4, CD8, CD45RA and CD62L on the CAR-T cell products by flow cytometry. Compare to autologous hCART19, there was a higher $CD4^+$:$CD8^+$ ratio (5.91 vs. 4.81; P=0.002) and $CD4^+CD45RA^+CD62L^+$ CAR-T cell percentages and lower percentages of $CD4^+CD45RA^+CD62L^-$ CAR-T cell and $CD4^+CD45RA^-CD62L^+$ CAR-T cells among allogeneic hCART19 (figure S1). There were no significant differences in persistence, outcomes and toxicity between the two groups (table S1 and S2).

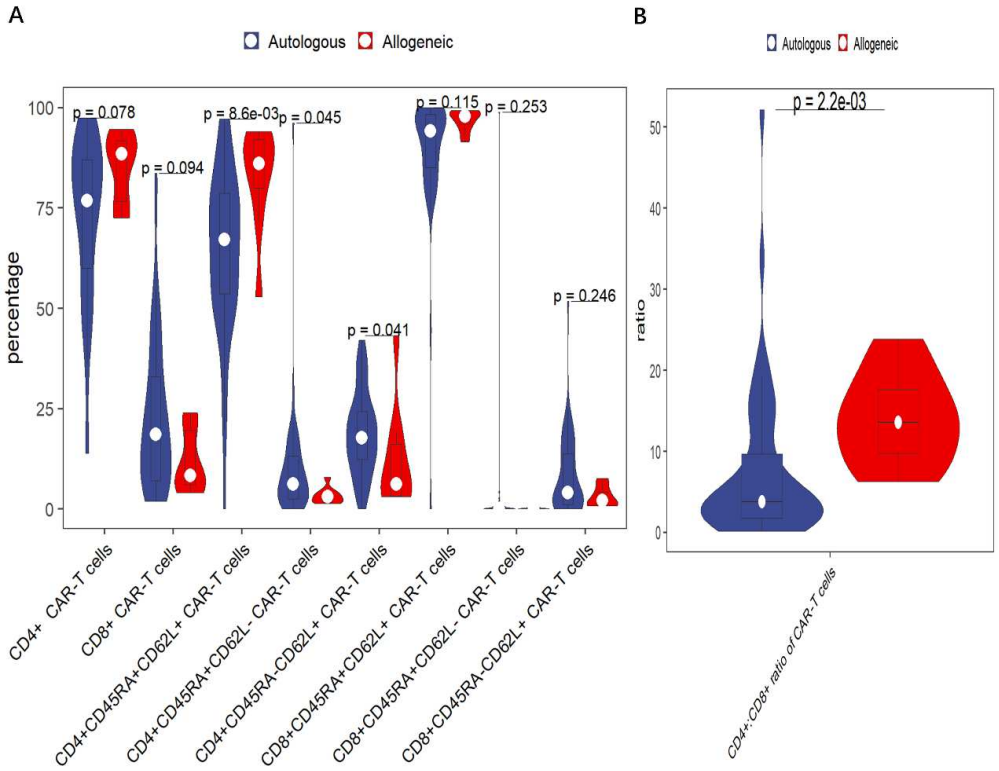

Figure S1 Phenotypes according to CAR T source

Table S1 Outcomes and persistence according to CAR-T source

Characteristics	Autologous n=49	Allogeneic n=9	P value
CRR%(95%CI)	93.9(82.1-98.4)	88.9(50.7-99.4)	0.863
OS% at 1 year (95%)	71.7(57.8-85.5)	88.9(68.4-100)	0.52
EFS% at 1 year (95%)	40(25-55)	88.9(68.4-100)	0.07
Duration of B-cell aplasia (days)	74(3-605)	117(26-616)	0.06

CRR, complete remission rate.

Table S2 Toxicity according to CAR-T source

Characteristics	Autologous n=49	Allogeneic n=9	P value
CRS of any grade			
Grade1-2	30(61.2%)	7(77.8%%)	0.567
Grade≥3	19(38.8%)	2(22.2%)	0.567
ICANS of any grade			
Grade1-2	1(2%)	0	1
Grade≥3	3(6.1%)	0	1
Neutropenia of any grade			
Grade1-2	11(22.4%)	1(11.1%)	0.746
Grade≥3	38(77.6%)	8(88.9%)	0.746
Thrombocytopenia of any grade			
Grade1-2	10(20.4%)	0	0.335
Grade≥3	34(69.4%)	9(100%)	0.094
Anemia of any grade			
Grade1-2	8(16.3%)	1(11.1%)	0.917
Grade≥3	40(81.6%)	8(88.9%)	0.96

RS, cytokine release syndrome; ICANS, Immune effector cell-associated neurotoxicity syndrome.

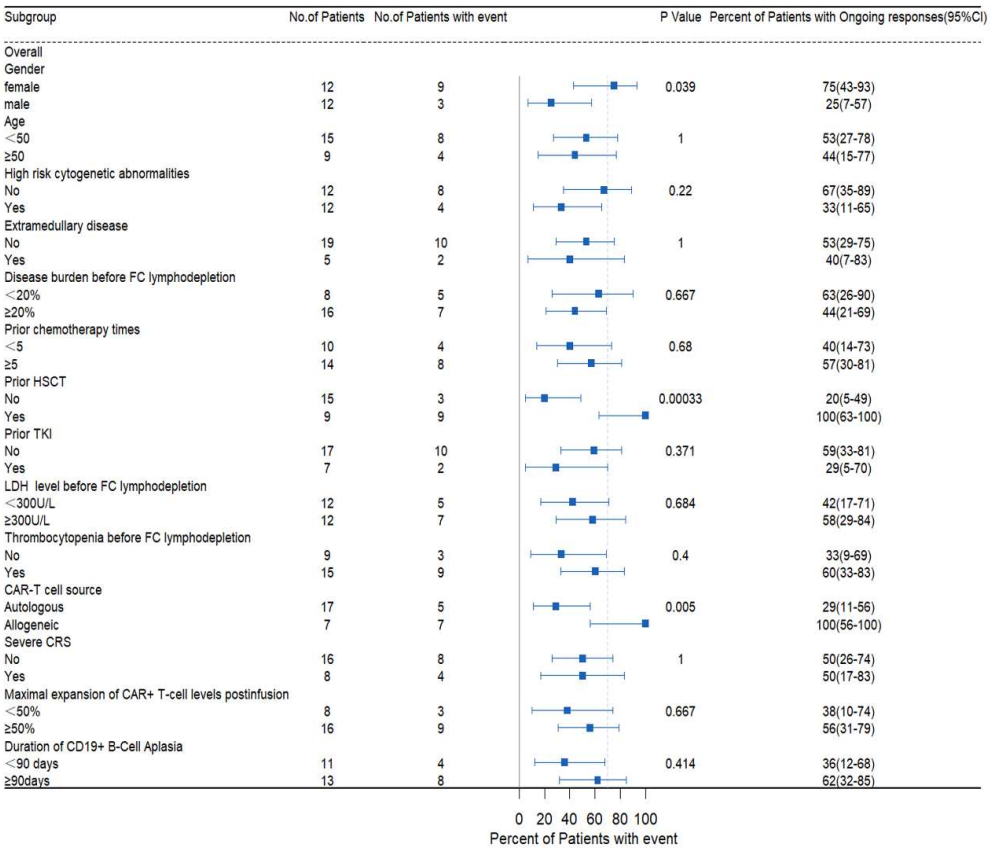

Figure S2 Subgroup analysis of ongoing response in patients who received hCART19 alone. FC, fludarabine and cyclophosphamide; HSCT, hematopoietic stem cell transplantation; TKI tyrosine kinase inhibitor; LDH, lactate dehydrogenase; CAR-T, Chimeric antigen receptor T cell; CRS, cytokine release syndrome.

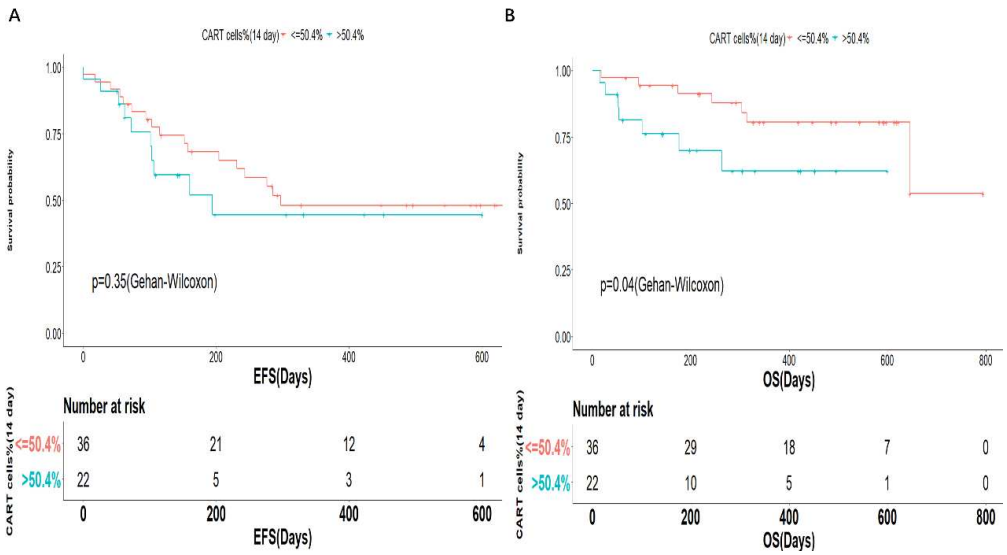

Figure S3 Event-free survival (EFS) (A) and the overall survival (OS) (B) considering the percentage of $CAR^+/CD3^+$ cells in peripheral blood (poor amplification ≤50.4%, good amplification >50.4%).

Table S3 Univariate and multivariate analysis of clinical parameters on OS

Characteristics	HR	95% CI	P value
Univariate analysis			
Gender	1.32	(0.43-4.04)	0.624
Age	1.15	(0.40-3.30)	0.795
High-risk cytogenetic abnormalities	2.36	(0.79-7.07)	0.124
BM blasts before infusion	1.01	(0.99-1.02)	0.272
Extramedullary disease	1.32	(0.40-4.29)	0.649
Prior chemotherapy times	0.88	(0.72-1.08)	0.218
Prior HSCT	0.79	(0.18-3.59)	0.765
Prior TKI	1.52	(0.51-4.54)	0.457
LDH before infusion	1.00	(1.00-1.00)	**0.001**
Thrombocytopenia before infusion	2.88	(0.89-9.24)	0.076
CAR-T cell source	0.52	(0.07-4.01)	0.531
Consolidation therapy	0.80	(0.39-1.67)	0.557
Duration of B-cell aplasia	0.98	(0.96-0.99)	**0.006**

Multivariable analysis			
Duration of B-cell aplasia	0.96	0.95-0.99	**0.005**
LDH before infusion	1.00	1.00-1.00	**0.009**
CAR-T cell percentages on day 14 (> 50.4%)	3.71	0.93-14.82	0.063

BM, bone marrow; LDH, lactate dehydrogenase; HSCT, hematopoietic stem cell transplantation; CAR-T, Chimeric antigen receptor T cell; TKI, tyrosine kinase inhibitor.

Table S4 Outcomes, toxicity and persistence according to CAR-T product

Characteristics	hCART19 n=58	mCART19 n=15	P value
CRR%(95%CI)	93.1(83.6-97.3)	80(54.8-93)	0.296
OS% at 1 year (95%)	73.6(61-86.3)	53.3(28.1-78.6)	0.094
EFS% at 1 year (95%)	46(31.7-60.3)	10.3(0-29)	**<0.001**
Duration of B-cell aplasia (days)	85(3-616)	49(0-78)	**<0.001**
CRS of any grade			
Grade1-2	37(63.8%)	12(80%)	0.377
Grade≥3	21(36.2%)	2(13.3%)	0.165
ICANS of any grade			
Grade1-2	1(1.7%)	0	1
Grade≥3	3(5.2%)	0	1
aGVHD of any grade			
Grade1-2	3(5.2%)	1(6.7%)	0.682
Grade≥3	1(1.7%)	1(6.7%)	0.874

CRR, complete remission rate; CRS, cytokine release syndrome; ICANS, Immune effector cell-associated neurotoxicity syndrome; aGVHD, acute graft-versus-host disease.