

UOVcdig'3

Patients characteristics		
Age, years	Median	40
	Range	3 - 74
Gender	Male	40%
	Female	60%
ELN risk stratification	Favorable/Intermediate	53%
	Adverse	47%
Other AML characteristics	Secondary or treatment-related	27%
T _{TCRC4} virus-specificity	CMV	33%
	EBV	67%
Number of allo-HCT before T _{TCRC4} infusion	1	60%
	2	40%
Disease status at 1st T _{TCRC4} infusion	CR _{MRD-}	53%
	CR _{MRD+}	33%
	Refractory	13%
Lymphodepletion	y	20%
	n	80%
GVHD after T _{TCRC4} infusion	aGVHD	13%
	cGVHD	20%

U0Vcdng'4

NCI CTCAE v4.0*		Definitely/probably associated with TTCR-C4		Unrelated/unlikely** associated with TTCR-C4		
		Grade 3	Grade 4	Grade 3	Grade 4	Grade 5
Cytokine-mediated	Cytokine Release Syndrome (fevers, chills, rigors, nausea)	2		1		
Blood and lymphatic system disorders	Lymphopenia	5	2	3	3	
	Thrombocytopenia	5	2	7	6	
	Neutrophil count decreased	8	1	12	9	
	Anemia	2		15		
GVHD-associated	Anorexia			1		
	Diarrhea			1		
	Maculo-papular rash	1		3		
	Hypoxia	1		1		
	Reduced joint range of motion			1		
	Skin sclerosis			1		
Metabolic/renal disorders	Hypokalemia			2	1	
	Hyponatremia			10		
	Hypophosphatemia			4		
	Proteinuria			1		
	Hypocalcemia			2		
	Hypoalbuminemia			1		
	Hyperglycemia			7		
	Chronic Kidney Disease			1		
Miscellaneous	Infection			6	1	
	Hypotension	2		1		
	Hypertension	2				
	Peripheral motor neuropathy			1		
	Fatigue			2		
	Duodenal Obstruction			1		
	Abdominal pain			1		
	Rectal Pain	1				
	Nausea			1		
	Aspartate Aminotransferase increased	1			1	
	Mucositis oral			2		
	Dry Mouth			1		
	Pulmonary Edema				1	
	Multi-organ Failure					1
	Alopecia				1	
	Thromboembolic event				1	
	Activated partial thromboplastin time prolonged			1		
	Sinus tachycardia			1		

, PcdqpcnEcepgt 'Kpukwg'Eqo o qp'Vgt o lppqi { 'Et lgt k'ht 'Cf xgt ug'Gxgpwixgt ukqp'60-', Cf xgt ug'xgpwif geqt f gf 'cu] cxlpi 'f ghplg'' qt 'rt qdcng'cuqekvqp'y kj 'VVET/E6'y gt g'eqpuk'gt gf 'tgrvfg'

UVcdig'5

Spectral Flow-cytometry panel		
Marker	Clone	Fluorescent Tag
TIGIT	A15153G	BV421
CD197 (CCR7)	3D12	BB700
Ki-67	B56	BV480
CD57	NK-1	BUV395
CD45RA	HI100	BV570
CD27	O323	BV605
CD95 (FAS)	DX29	BV650
CD127 (IL-7Ra)	A019D5	BV711
CD28	CD28.2	BV785
T-Bet	4B10	KIRAVIA Blue 520
CD8	RPA-T8	BUV737
TCF1 (TCF7)	C63D9	PE
CD279 (PD-1)	EH12.2H7	PE-Dazzle 594
CD69	FN50	PE-Cy5
Granulysin	DH2	PE-Cy7
KLRG1	Z7-205.rMAb	PerCP-eFluor 710
Granzyme K	G3H69	RB780
Tetramer		APC
Granzyme B	GB11	Alexa Fluor 700
CD38	HIT2	APC-Fire 810
CD3	UCHT1	APC-Fire 750
CD366 (TIM3)	F38-2E2	PE-Fire 810
Viability		LD Blue
CD33 (DUMP)	WM53	BV510
CD14 (DUMP)	63D3	BV510

UVcdrg'6

	Days after TTCRC4 infusion			
IDs	T1	T2	T3	T4
126	1	7	28	117
90	1	7	28	110
683	3	8	28	149

UOVcdrg'7

IDs	Days after first infusion					Arm
10	D320					Prophylactic
18	D253					Prophylactic
4	D100	D581				Treatment
8	D49	D265	D405	D1322	D1343	Treatment
15	D97					Treatment
26	D7	D28				Treatment
27	D21	D58	D178			Treatment

UVcdg'8

naïve-like	activation, memory	TTCR-C4	interferon signaling genes	proliferation, memory	NK-like
CCR7	CD69	TCRC4	ISG15	MKI67	KLRF1
SELL	TIGIT		ISG20	MCM5	KIR3DL1
TCF7	GZMK		IRF7	MCM7	NKG7
LEF1	IL7R		IFI6	CD27	FCGR3A
IL7R	CXCR4				GZMB
					KLRD1
					PRF1

U0Vcdng'9

Naïve-like	Tem	ISG	Tmem-prolif	NKL/TEMRA
CCR7	GZMK	IFI6	MKI67	GNLY
LEF1	CD69	IRF7	PCNA	PRF1
LTB	CCL4	ISG20	MCM2	GZMB
BACH2	CCL5	ISG15		NKG7
IL7R	XCL1			ZEB2
TCF7	XCL2			S1PR5
				CXrCR1
				KLRD1
				KLRF1
				ZNF683
				CD226

UOVedig'!

ID	Days after 1st infusion	Status	Blasts
10	320	AML-	No blasts
18	253	AML-	No blasts
4	100	AML-	No blasts
	581	AML+	
8	49	AML+	
	265	AML-	No blasts
	405	AML+	12.50%
	1322	AML+	0.30%
	1343	AML+	0.20%
15	97	AML+	9.80%
26	D7	AML+	
	D28	AML+	9%
27	21	AML-	No blasts
	58	AML-	No blasts
	178	AML+	11%

Blasts identified via scRNAseq
(Supplemental Figure 16)

Described in Lahman, M.C., et al. Targeting an alternate Wilms' tumor antigen 1 peptide bypasses immunoproteasome dependency. Science translational medicine 14, eabg8070-eabg8070 (2022).

UVcdng'!

Naïve-Like	Tem	TTCRC4	ISG	Tmem/prolif	NKL/Temra	exhaustion
LTB	GZMK	TCRC4	MX1	HMOX1	GZMH	PDCD1
SELL	DUSP2	GNLY	ISG15	GAPDH	ZEB2	LAG3
NOSIP	ZNF331	PTMS	IFI6	STMN1	NKG7	HAVCR2
LEF1	NR4A2	YBX3	STAT1	ACTG1	TTC38	CTLA4
LEPROTL1	FOS	TRBV14	IRF7	CARHSP1	S1PR5	TIM3
IL7R	CSRNP1	CMC1	EIF2AK2	MCM5	GZMB	LAG3
TCF7	ZFP36L2	HOPX	PARP9	H2AFV	CST7	CD160
CCR7	JUNB	TIGIT	IFITM1	CACYBP	RAP1B	BTLA
PIK3IP1	CXCR4	RNF19A	MX2	ANP32B	SYNGR1	ENTPD1
LDHB	RGS1	LAG3	BST2	HMGB2	HLA-DRB5	
TMEM123	DNAJB1	UCP2	LGALS9	COX5A	DIP2A	
SERINC5	PTGER4	CCL5	TRIM22	S1PR4	S100A4	
NELL2	IFNGR1	FGFBP2	CD28	NUDT21	FLNA	
PIM1	CD27	FDFT1	UBE2L6	HLA-DQB1	KLRD1	
FOXP1	DUSP1	PDE4D	EPSTI1	HMGN2	HLA-DRB1	
CAMK4	PIK3R1	ALOX5AP	LY6E	HLA-DMA	EMP3	
PABPC1	RHOH	CD6	IFI35	RAD21	HLA-DPB1	
PASK	BTG1	S100A10	CHMP5	CNN2	YWHAQ	
BCL2	SLC2A3	H2AFZ	OAS1	TFDP1	CLIC3	
RCAN3	TSPYL2	KLF3	SAMD9L	TUBA1B	ANXA1	
OXNAD1	CREM	CLDND1	SAT1	HLA-DRA	C12orf75	
SARAF	ZFP36	PPP1R18	XAF1	SAE1	GSTP1	
FLT3LG	PPP1R15A	MARCKSL1	TAP1	SIRPG	BATF	
DGKA	PDE4B	ADGRG1	CARD16	TUBB	CCL4	
TRABD2A	MAP3K8	CD5	ZBP1	UQCRC1	ABI3	
TXK	IDI1	ZNF683	CD38	ANXA5	ARPC5L	
SOCS3	CD74	PRF1	PLSCR1	SLBP	APOBEC3G	
CD55	JUN	EFHD2	JAK2	CDCA7	LPCAT1	
SATB1	GABARAPL1	ITGB1	GBP1	FABP5	FCRL6	
EEF1B2	PMAIP1	PLEK	OAS3	DENND2D	DSTN	
PCED1B	TNFAIP3	SPON2	TYMP	PRDX3	PTPN18	
PIM2	EML4	FCGR3A	SAMD9	SMC3	CALR	
SESN3	PPP2R5C	PRSS23	SUB1	DUT	FGR	
TPT1	ISG20		LYST	NASP	CD3G	
MYC	SPOCK2		OAS2	ANP32E	ADRB2	
FHIT	ARL4C		LDHA	CD81	C1orf21	
ABLIM1	RSL24D1		SLFN5	MKI67		
TNFSF8	FYN		PPM1K	MCM7		
SNX9	MCL1		IFIT3	TOX		
SPINT2	KLRB1		HSH2D	CXCR3		
EEF1A1	COTL1		OASL	PCNA		
PLP2			GBP4	MCM3		
NFKBIZ						
INPP4B						
EIF3E						
NPM1						
SNHG8						
CD69						
VIM						
EIF3L						

S. Table 10

Naïve-like	Tem	NKL/Temra	Exhaustion
CCR7	CCL2	GNLY	PDCD1
LEF1	CCL5	ADGRG1	LAG3
IL7R	XCL2	KLRD1	HAVCR2
LTB	XCL1	KLRB1	CTLA4
SELL	CD69	KIR2DL4	HAVCR2
TCF7	GZMK	PRF1	LAG3
	IFNG	KLRC1	CD160
		KLRG1	BTLA
		B3GAT1	ENTPD1
		S1PR5	
		ZEB2	
		NKG7	
		FCRL6	
		KLRC2	
		NCAM1	