

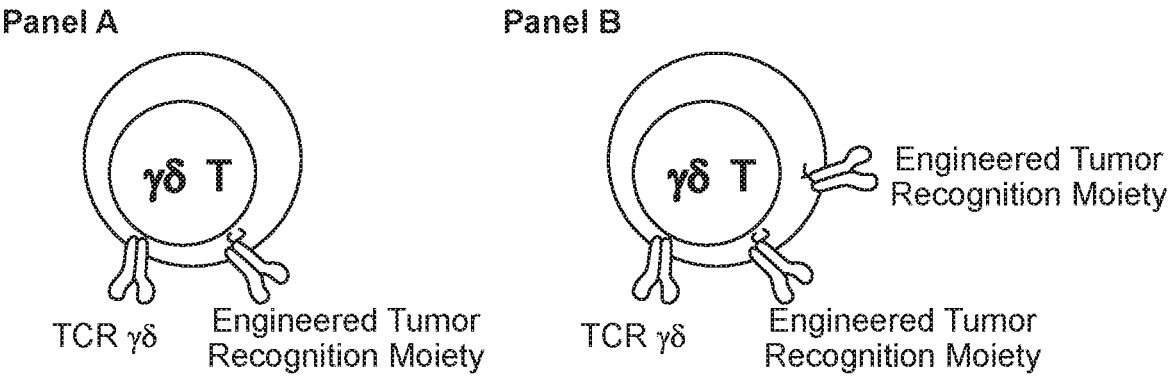


FIG. 1

2 / 55

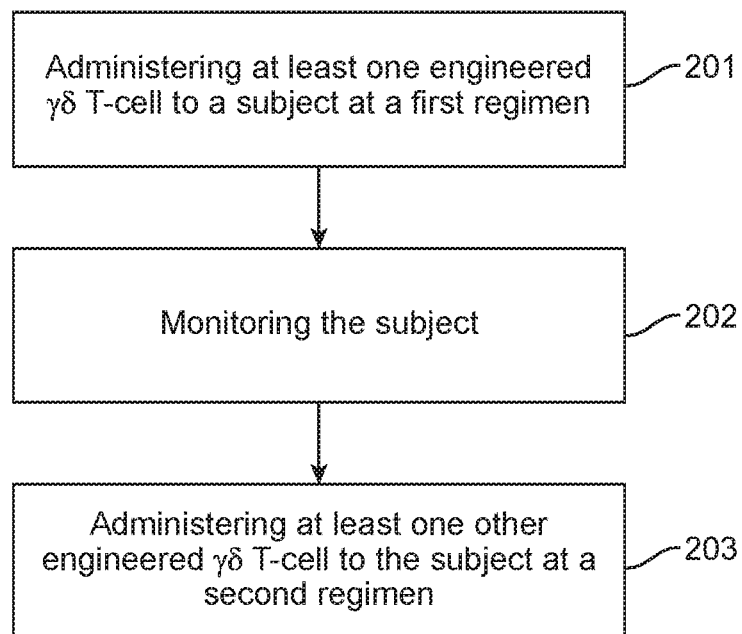


FIG. 2

3 / 55

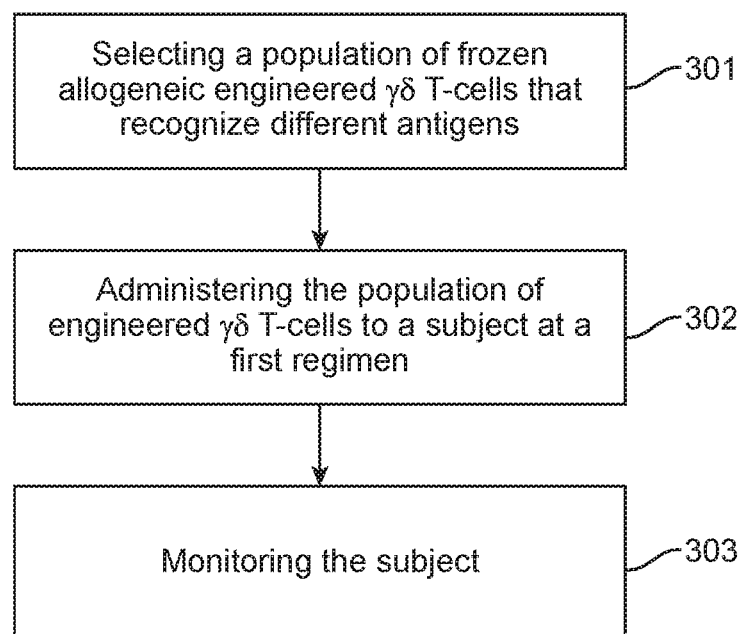


FIG. 3

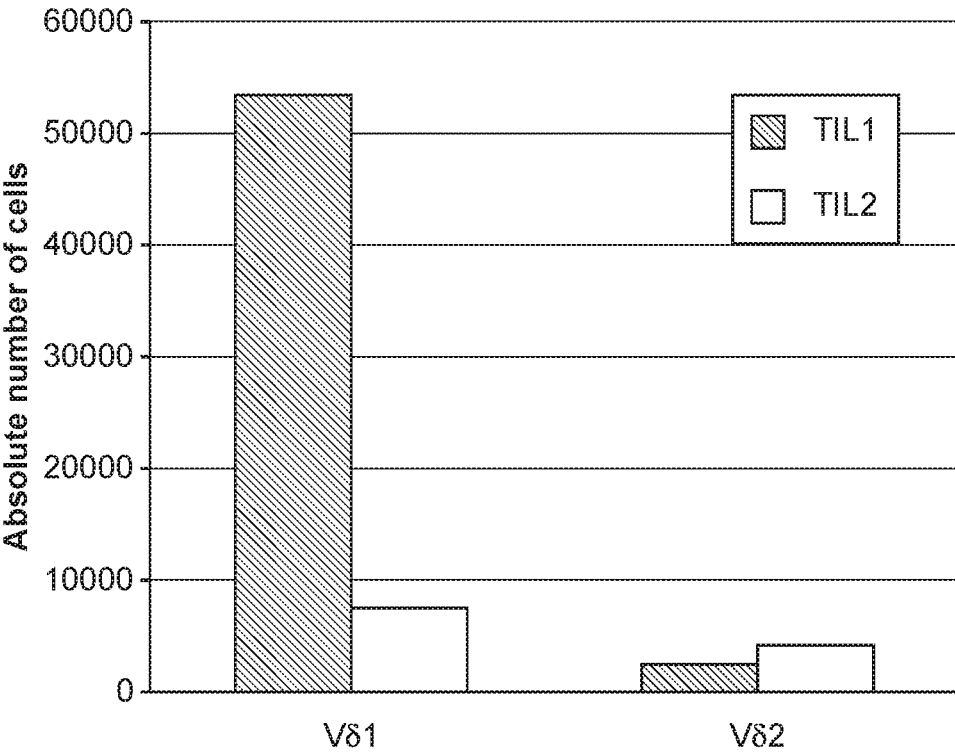


FIG. 4

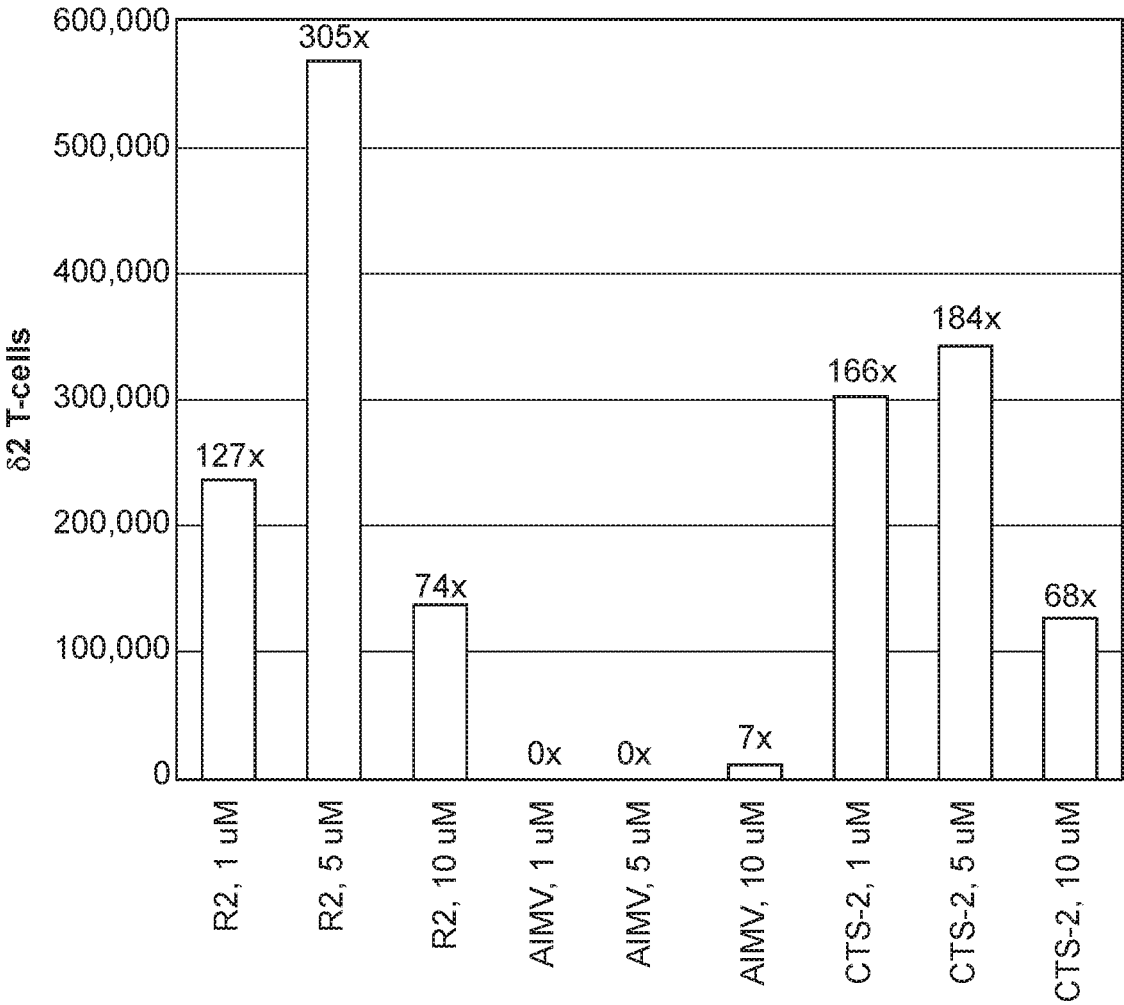


FIG. 5

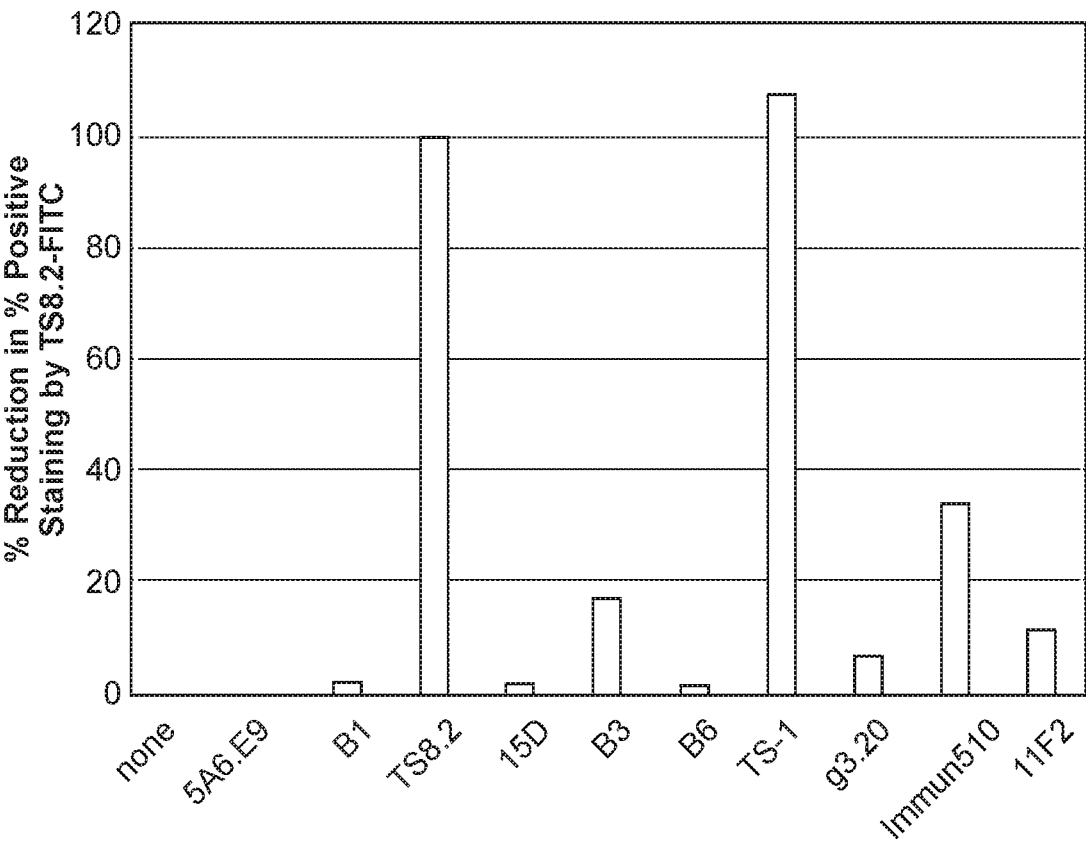


FIG. 6

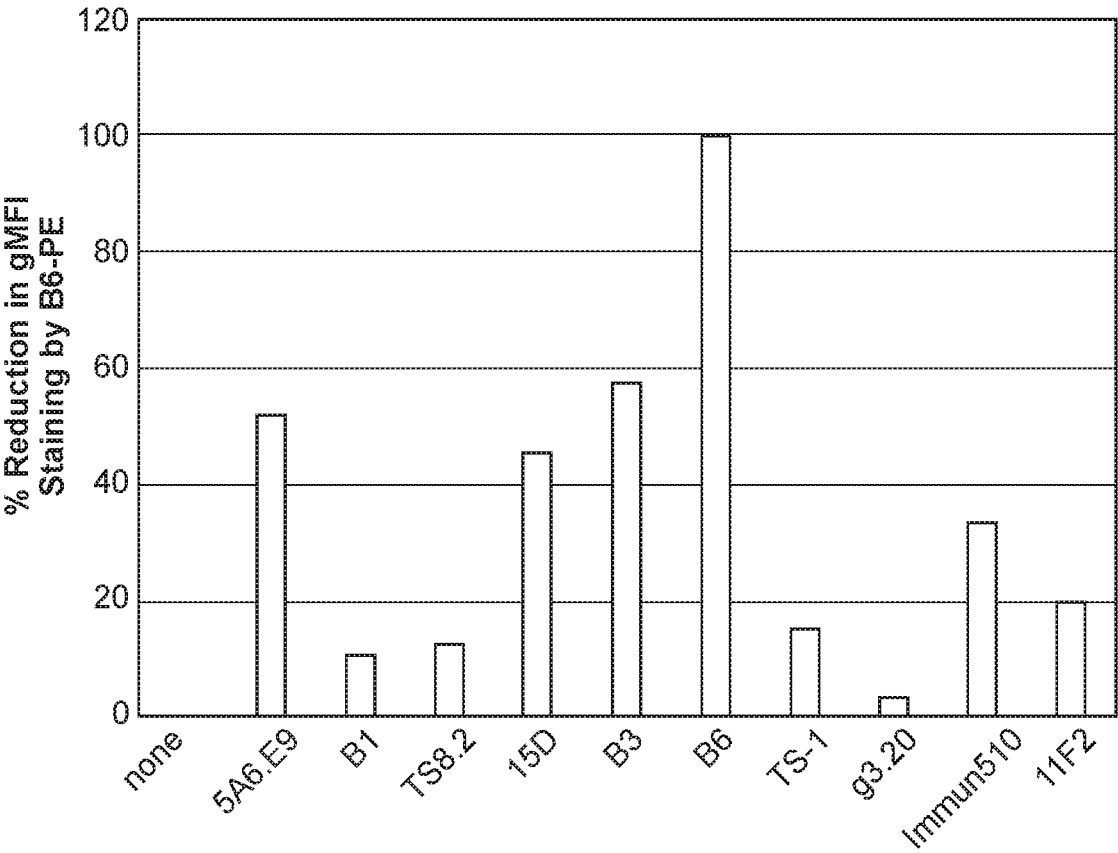


FIG. 7

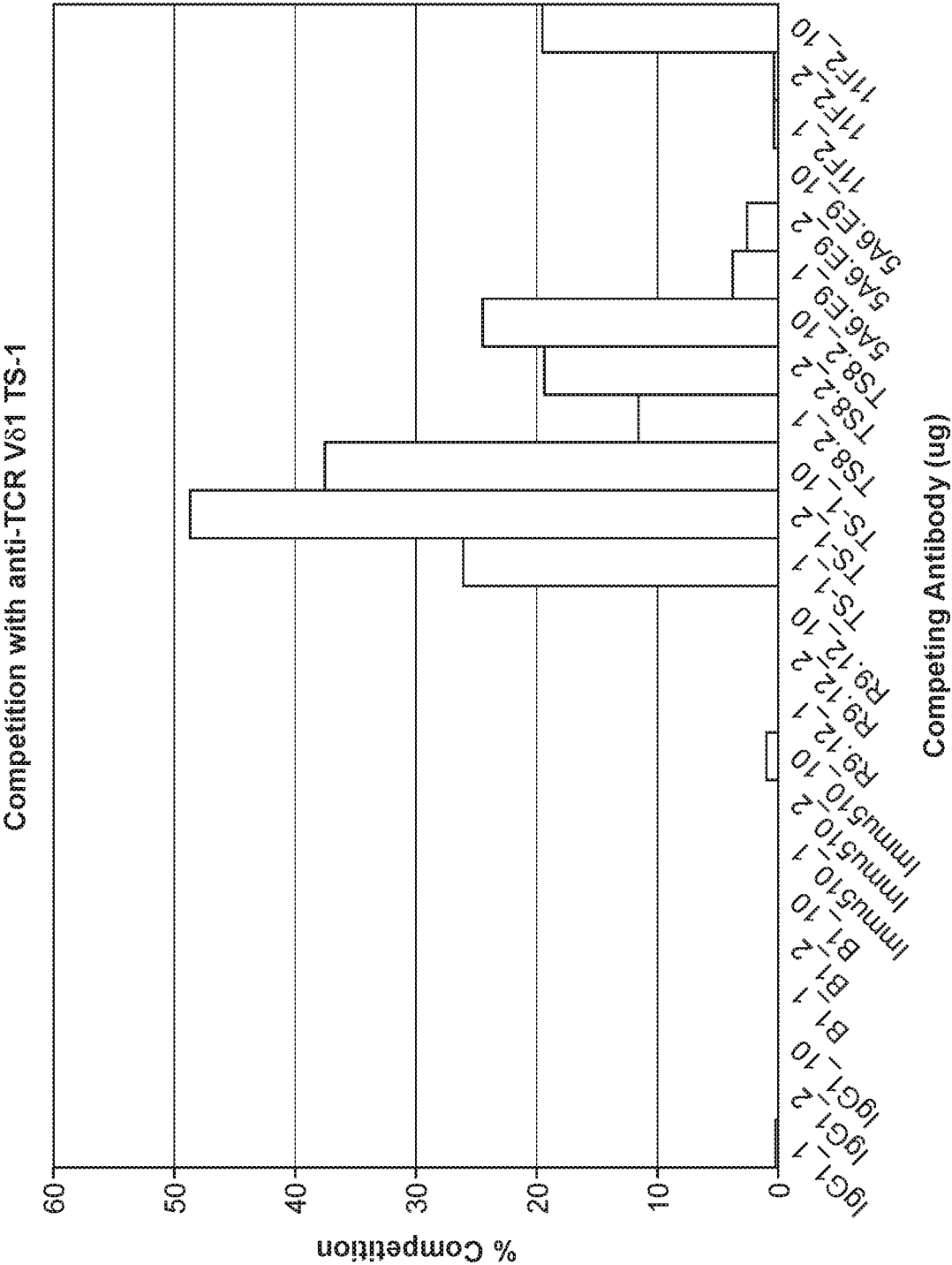
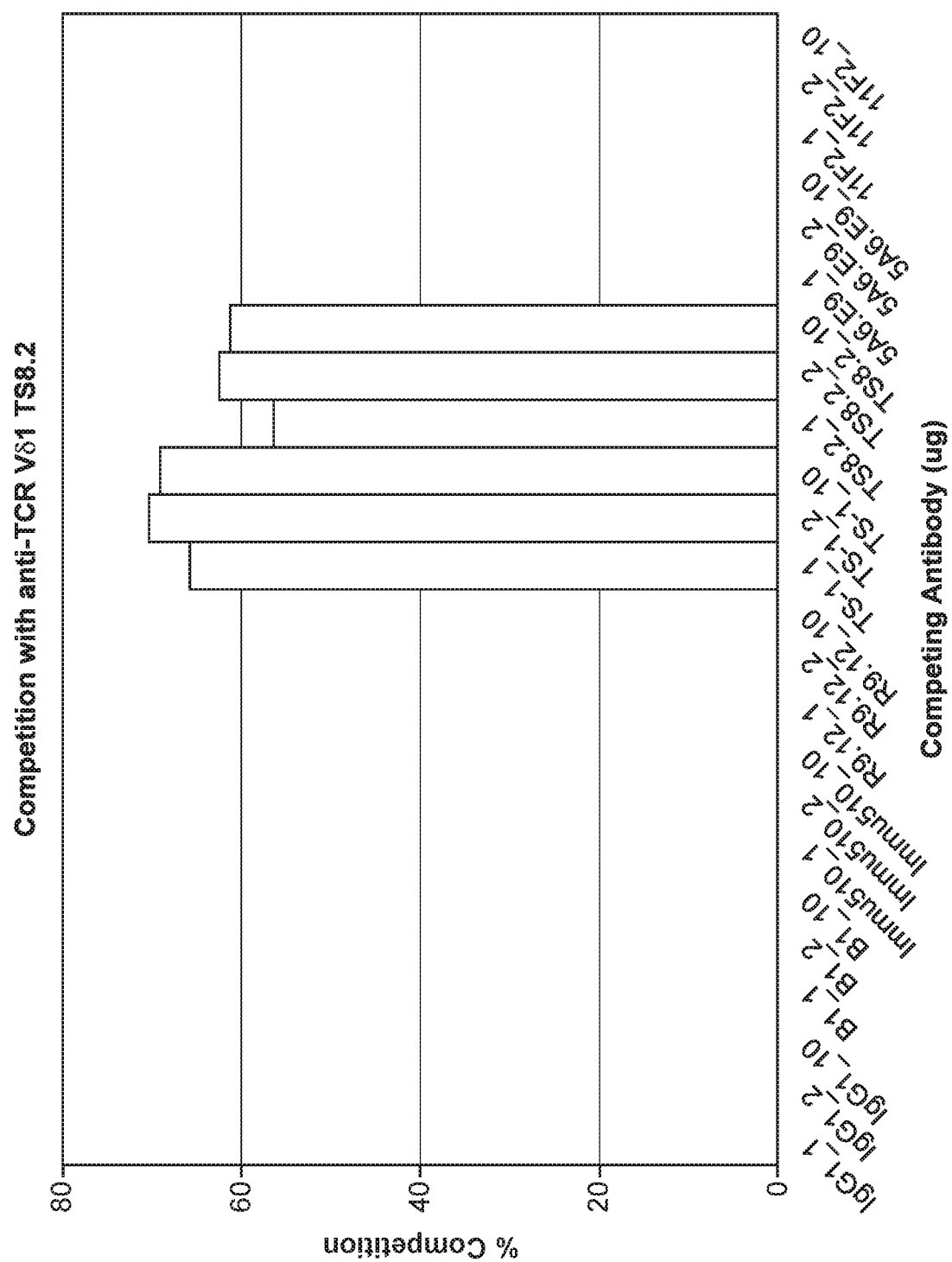
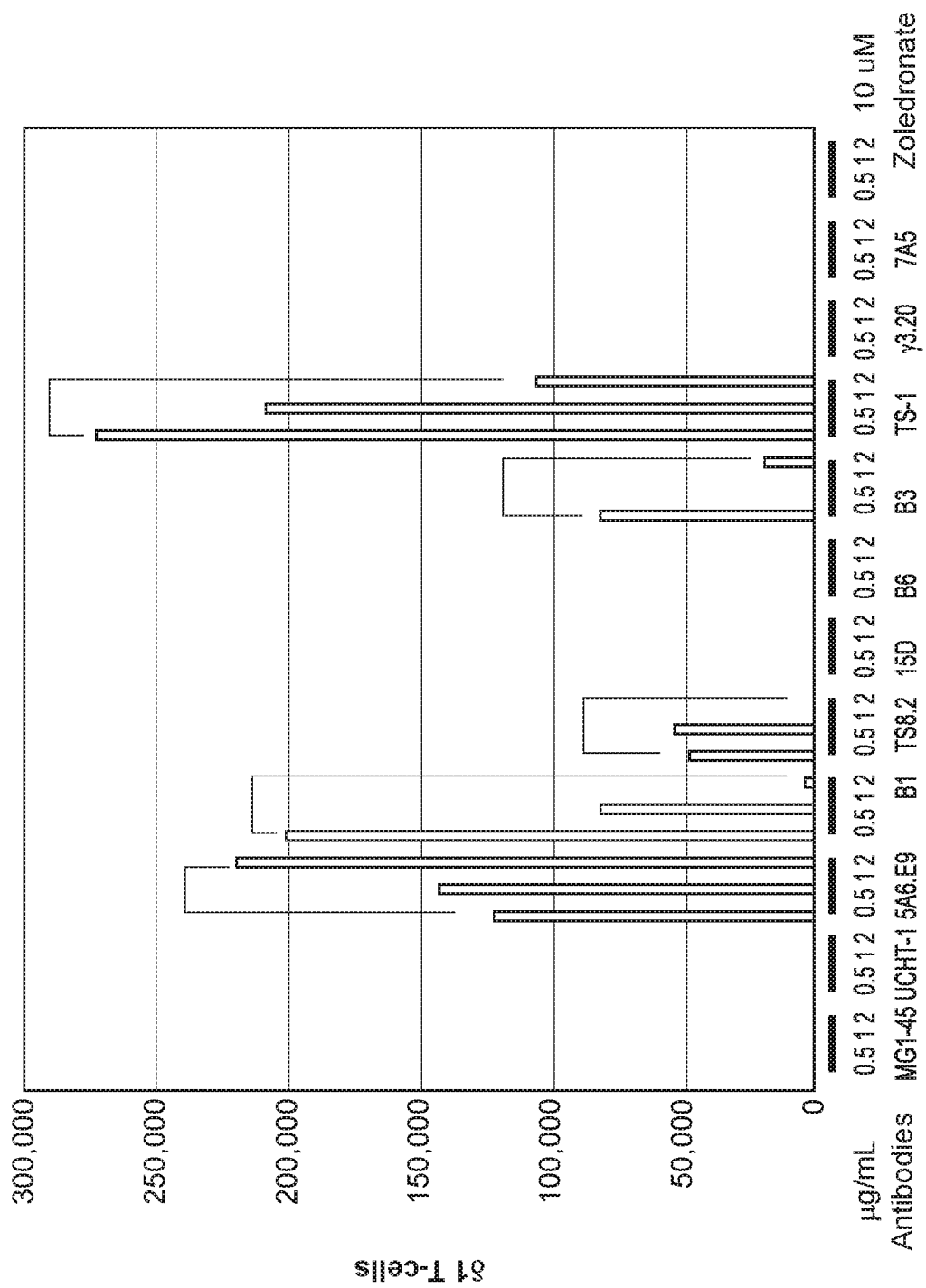


FIG. 8





10
7
G
L

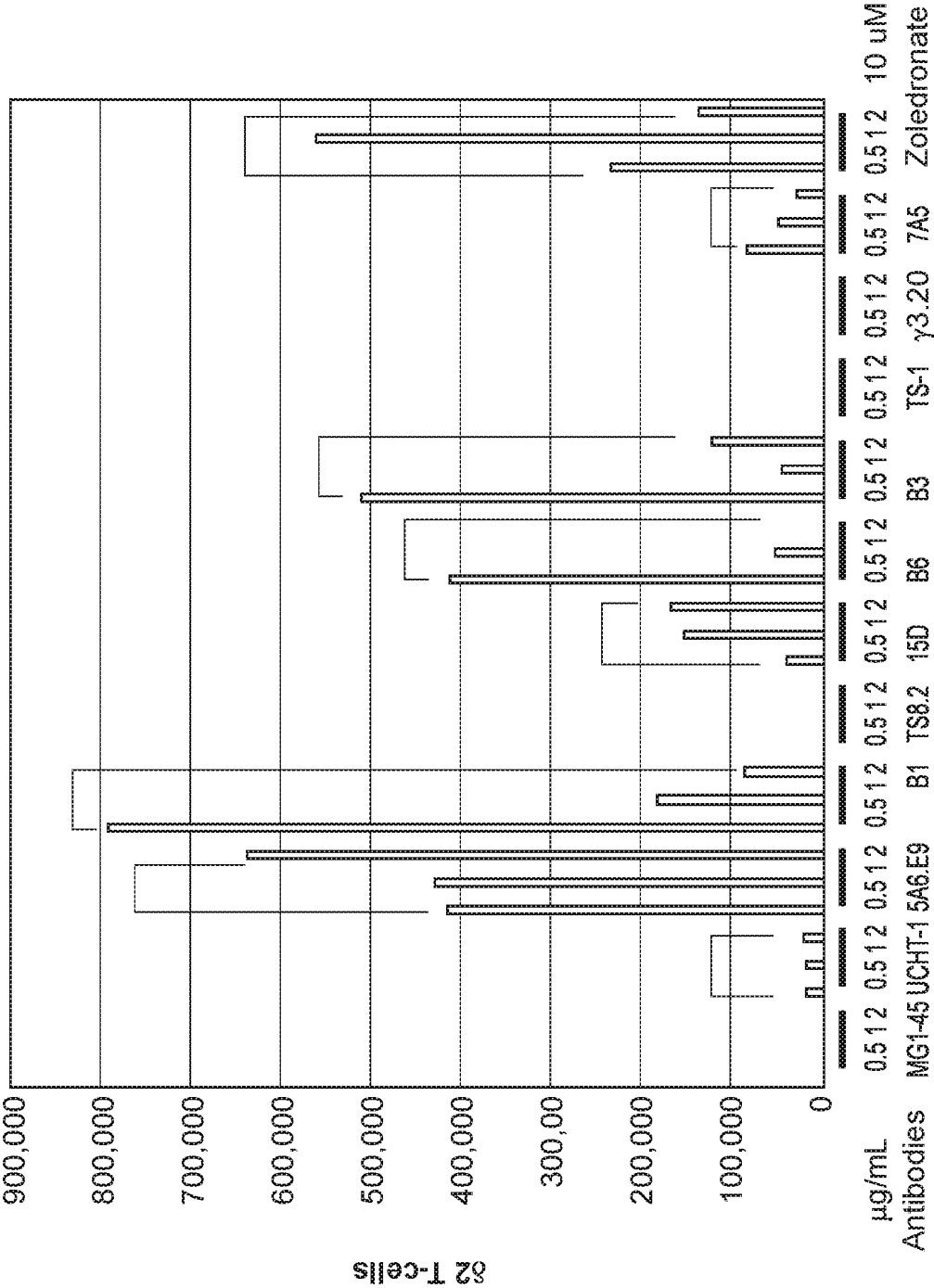


FIG. 11

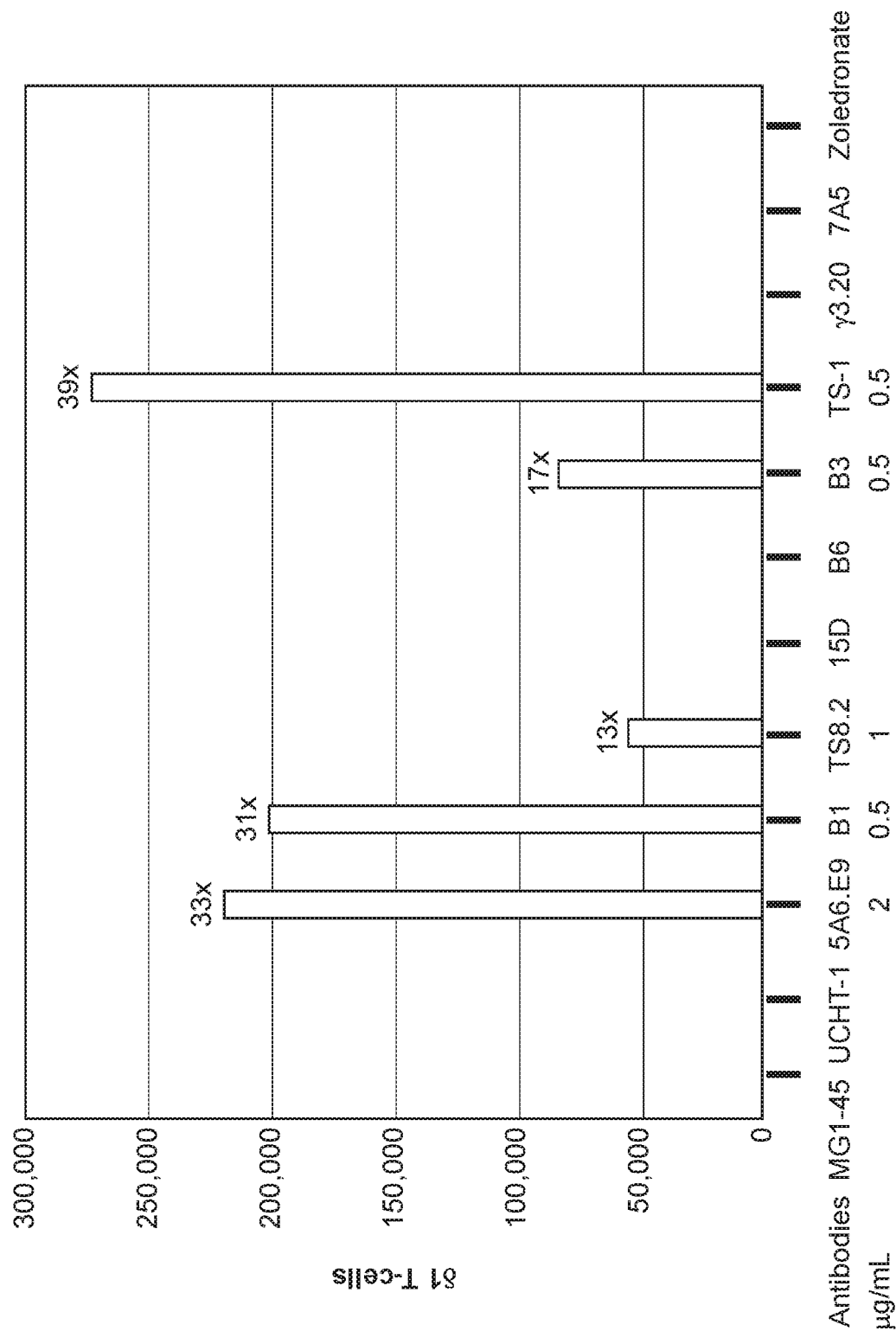


FIG. 12

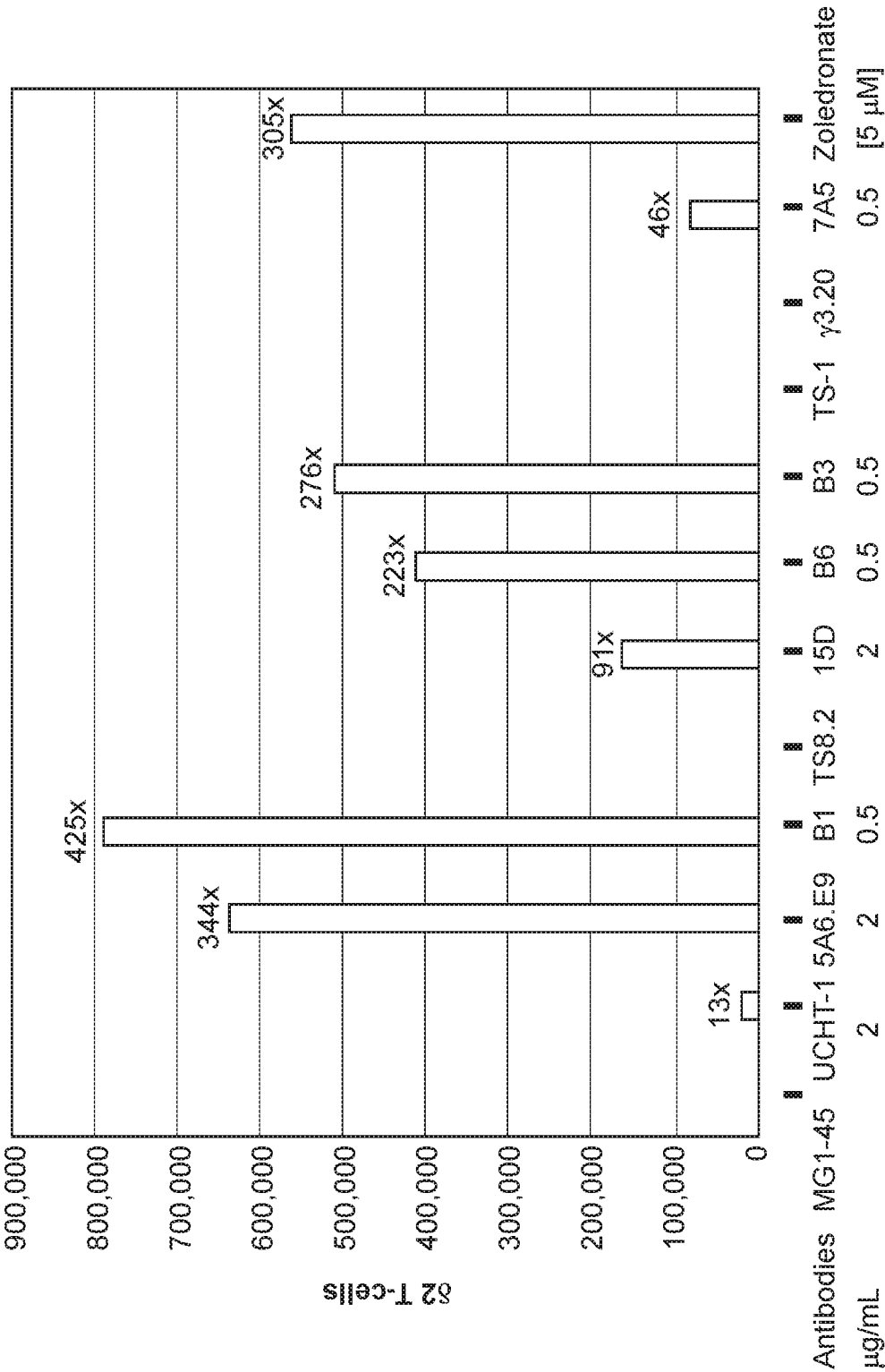


FIG. 13

V delta 1																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	Q	K	V	T	Q	A	Q	S	S	V	S	M	P	V	R	K	A	V	T
GCC CAG AAG GTT ACT CAA GCC CAG TCA TCA GTA TCC ATG CCA GTG AGG AAA GCA GTC ACC																			
CDR1-IMGT																			
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	N	C	L	Y	E	T	S	W	W	S	Y	Y						I	F
CTG AAC TGC CTG TAT GAA ACA AGT TGG TGG TCA TAT TAT																			

FIG. 14

V delta 2																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
A	I	E	L	V	P	E	H	Q	T	V	P	V	S	I	G	V	P	A	T
GCC	ATT	GAG	TTG	GTG	CCT	GAA	CAC	CAA	ACA	GTG	CCT	GTG	TCA	ATA	GGG	GTC	CCT	GCC	ACC
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	A--	A--	---	---	---
CDR1-IMGT																			
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L	R	C	S	M	K	G	E	A	I					G	N	Y	Y	I	N
CTC	AGG	TGC	TCC	ATG	AAA	GGA	GAA	GCG	ATC	...	...	...	...	GGT	AAC	TAC	TAT	ATC	AAC
CDR2-																			
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
W	Y	R	K	T	Q	G	N	T	I	T	F	I	Y	R	E	K	D		
TGG	TAC	AGG	AAG	ACC	CAA	GGT	AAC	ACA	ATC	ACT	TTC	ATA	TAC	CGA	GAA	AAG	GAC	...	...
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
IMGT																			
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
				I	Y	G	P	G	F	K			D	N	F	Q	G	D	I
...	...	...	...	...	ATC	TAT	GGC	CCT	GGT	TTC	AAA	...	GAC	AAT	TTC	CAA	GGT	GAC	ATT
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
D	I	A	K	N	L	A	V	L	K	I	L	A	P	S	E	R	D	E	G
GAT	ATT	GCA	AAG	AAC	CTG	GCT	GTA	CTT	AAG	ATA	CTT	GCA	CCA	TCA	GAG	AGA	GAT	GAA	GGG
CDR3-IMGT																			
101	102	103	104	105	106	107	108												
S	Y	Y	C	A	C	D	T												
TCT	TAC	TAC	TGT	GCC	TGT	GAC	ACC												

FIG. 15

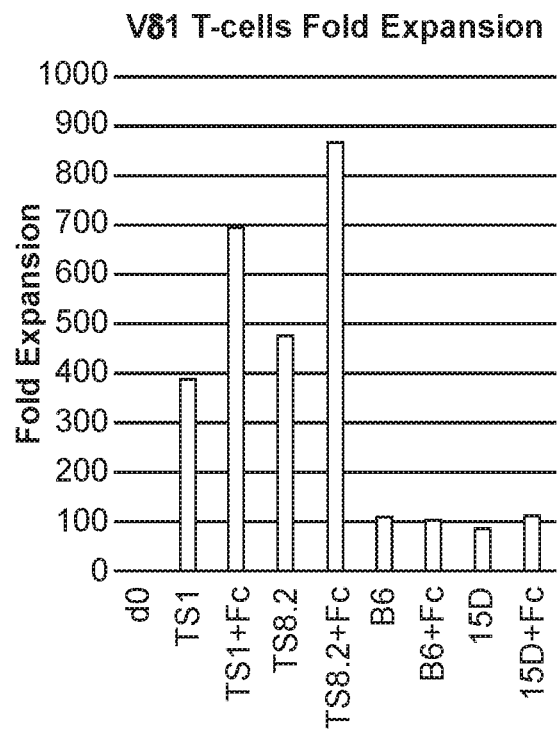


FIG. 16A

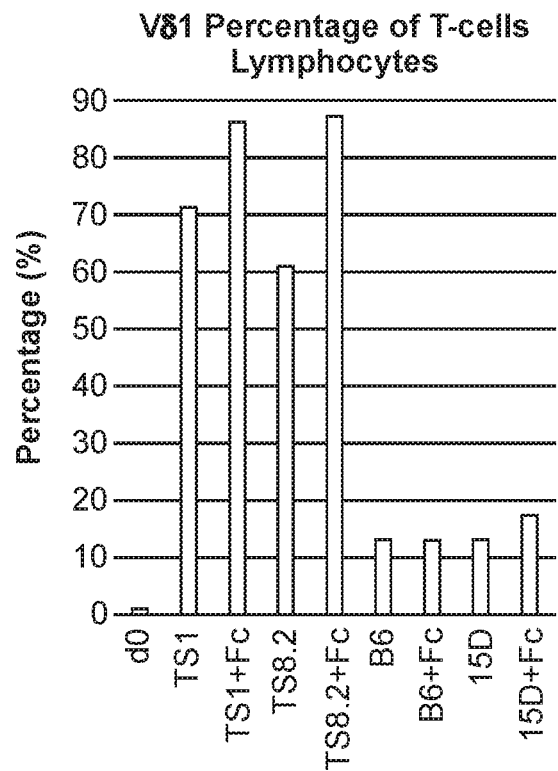


FIG. 16B

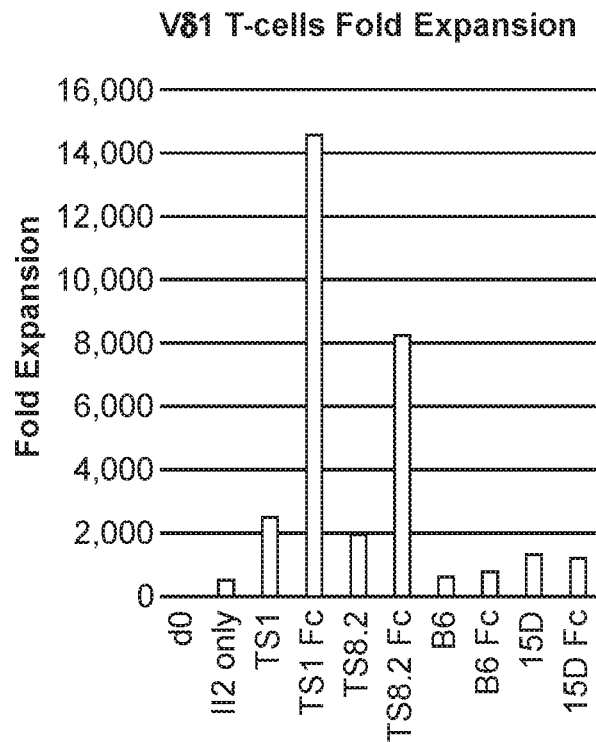


FIG. 16C

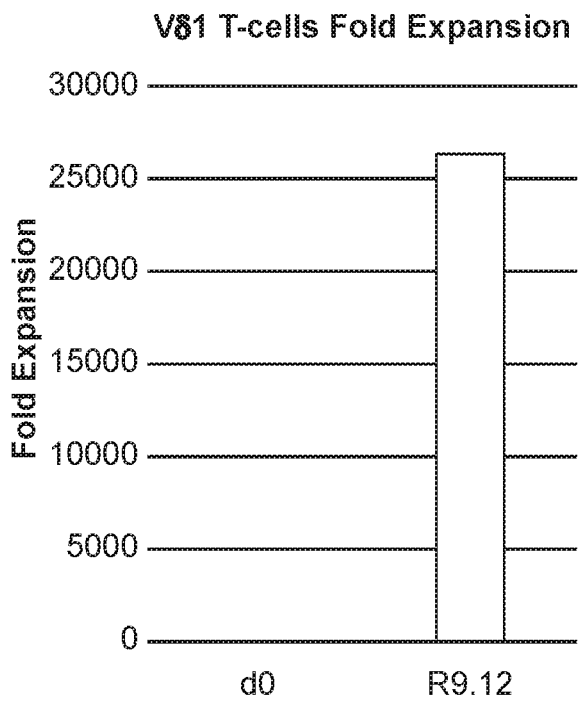


FIG. 16D

17 / 55

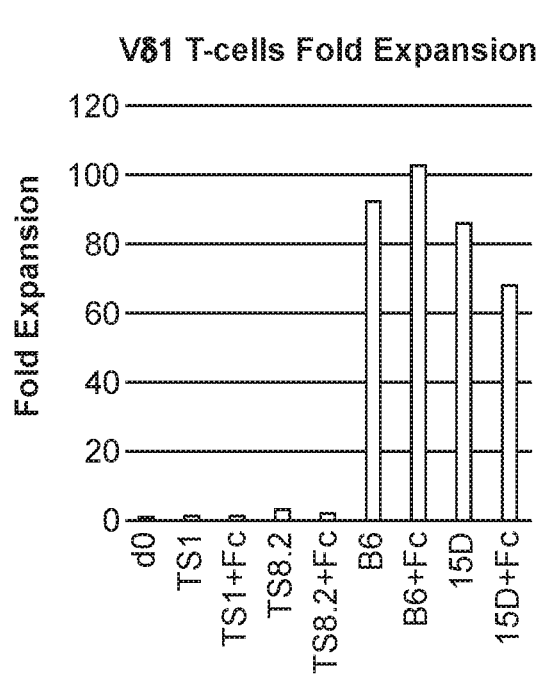


FIG. 17A

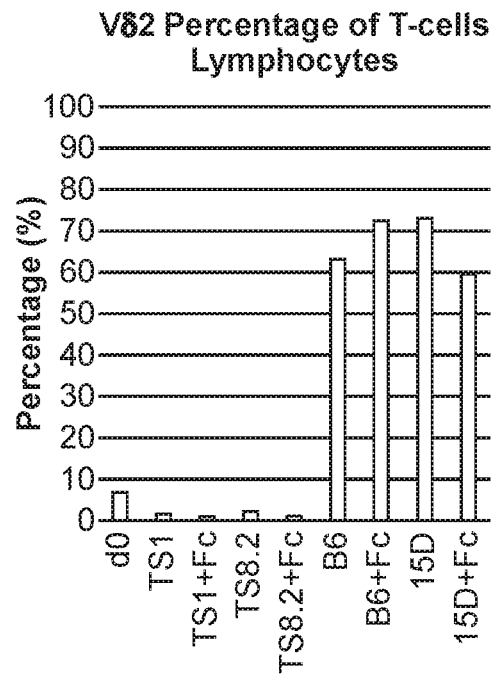


FIG. 17B

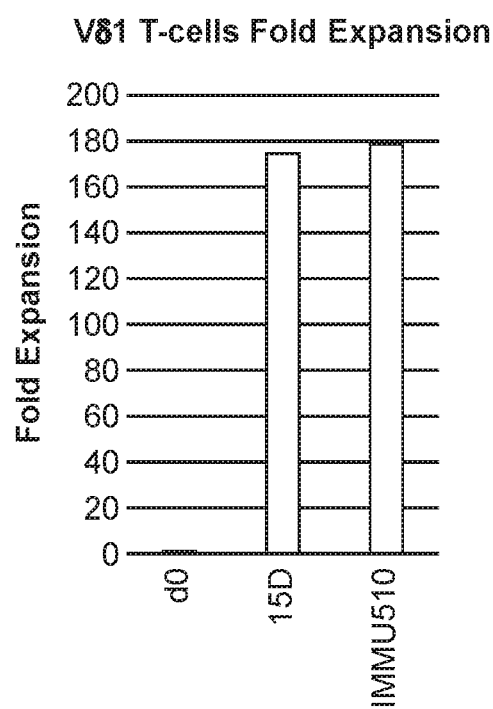


FIG. 17C

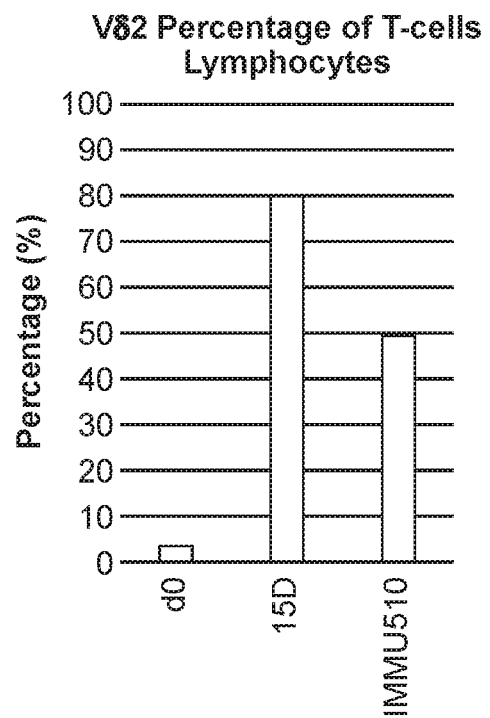


FIG. 17D

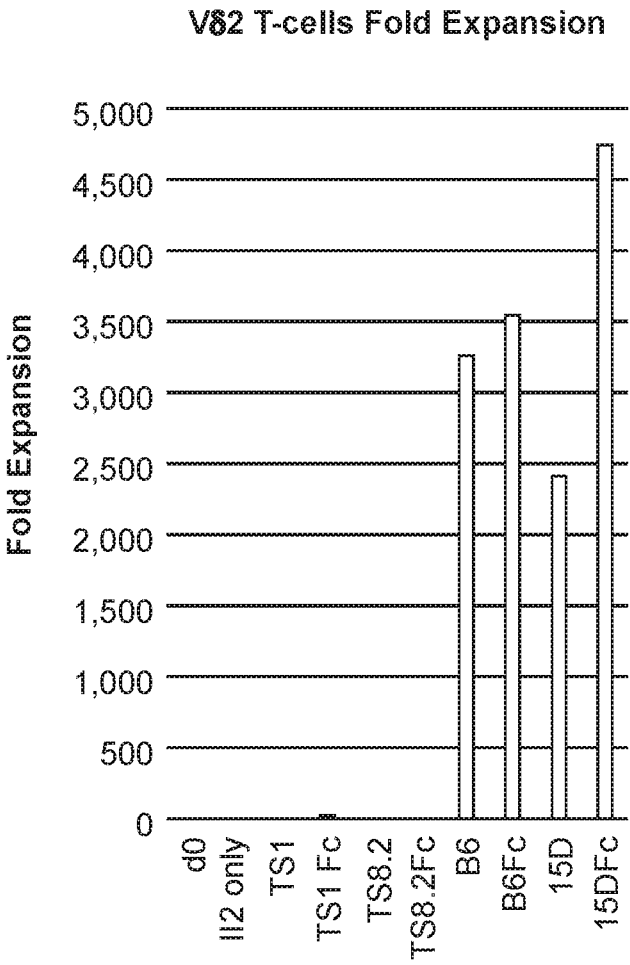


FIG. 17E

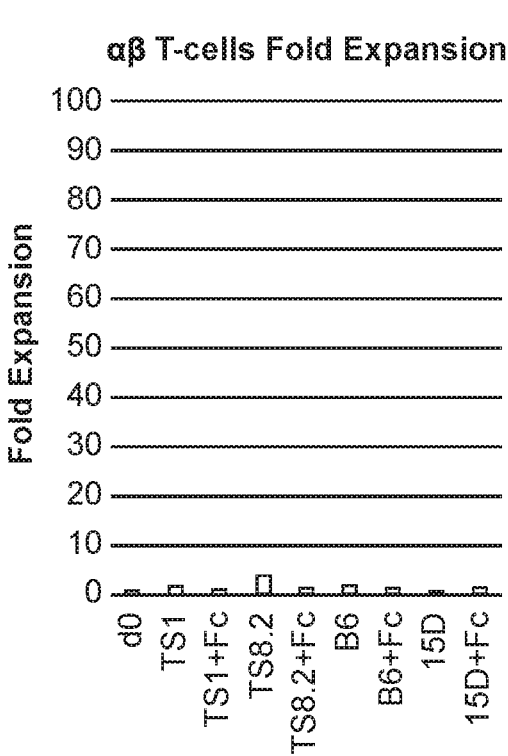


FIG. 18A

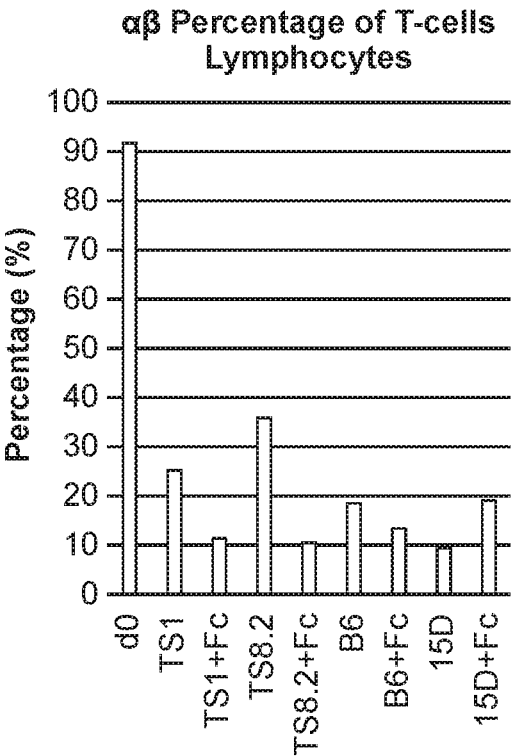
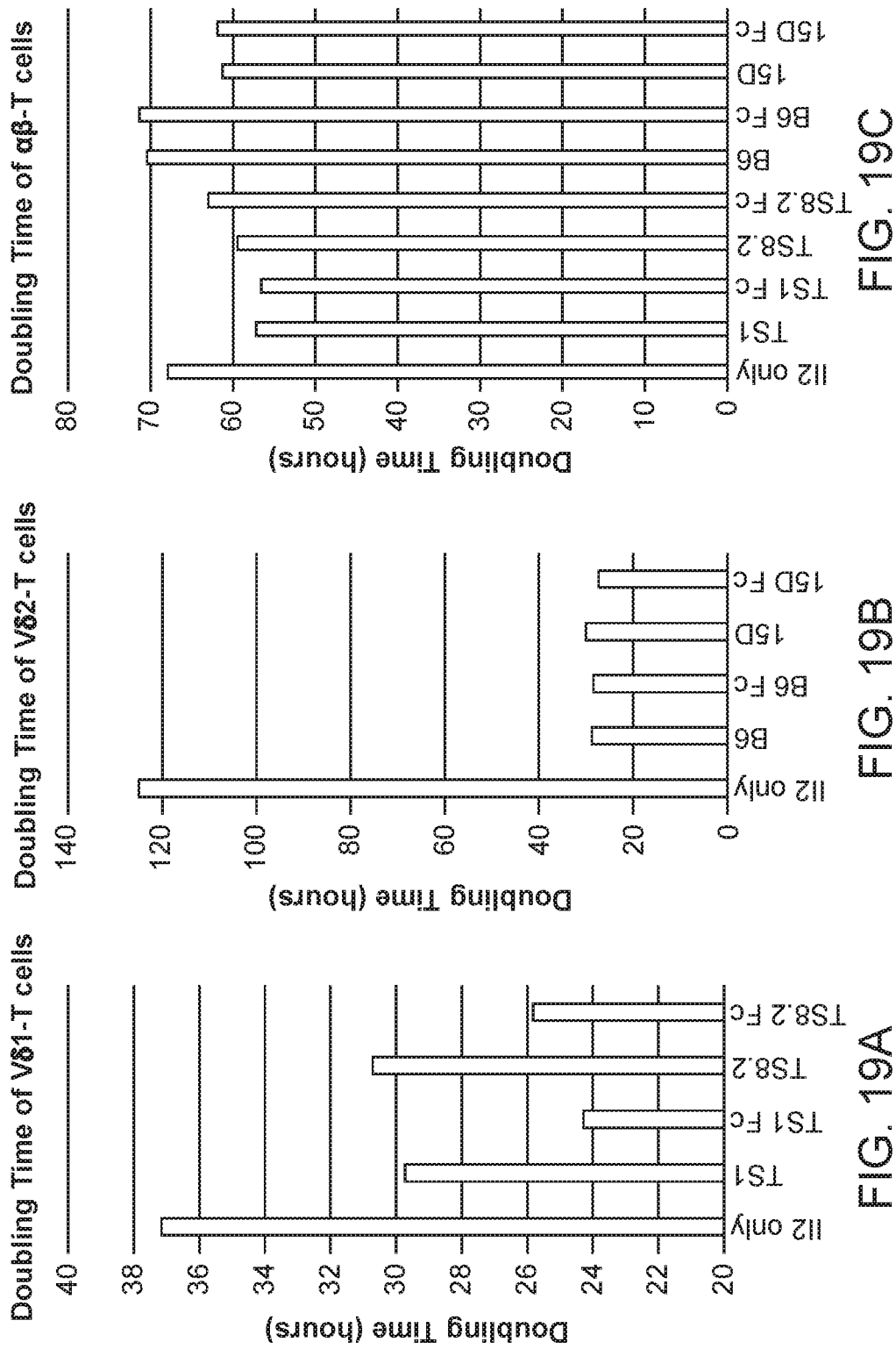


FIG. 18B



21 / 55

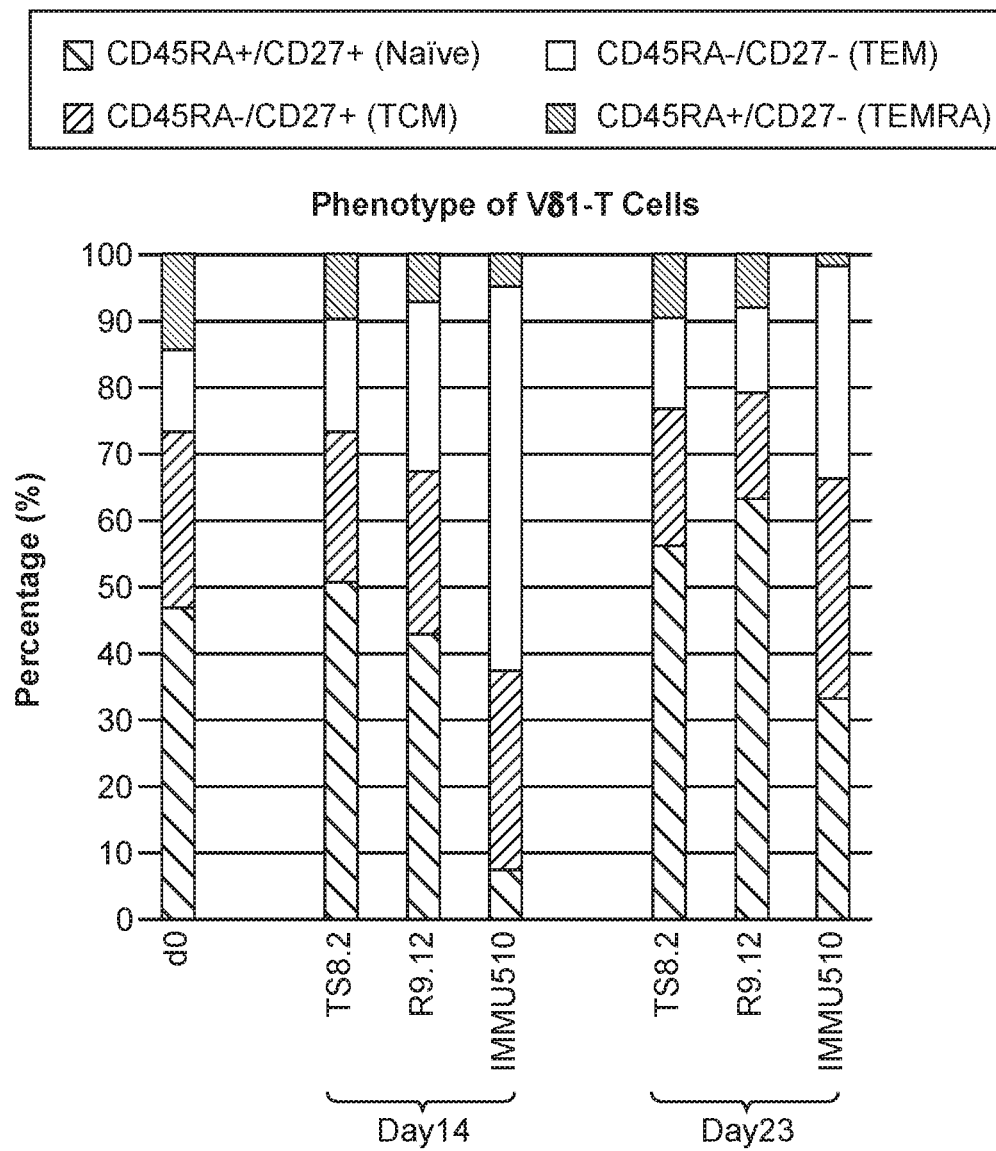


FIG. 20

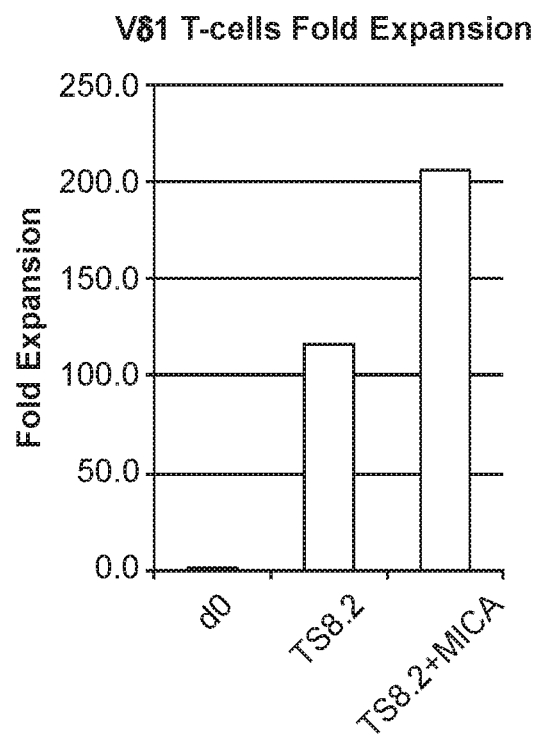


FIG. 21A

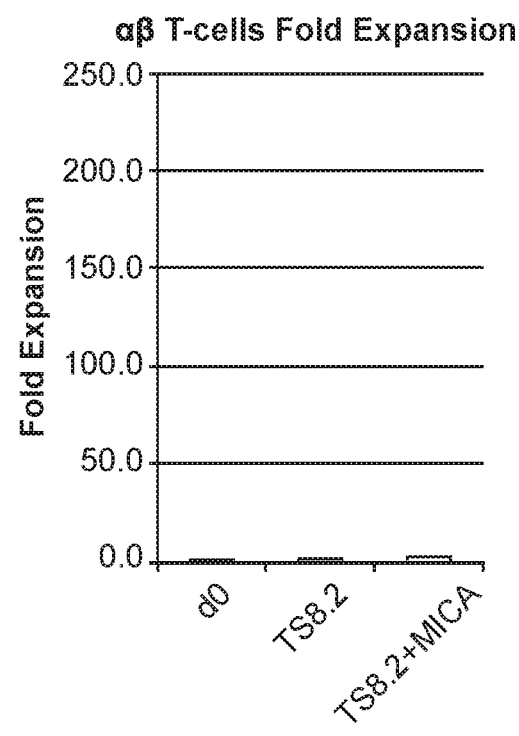


FIG. 21B

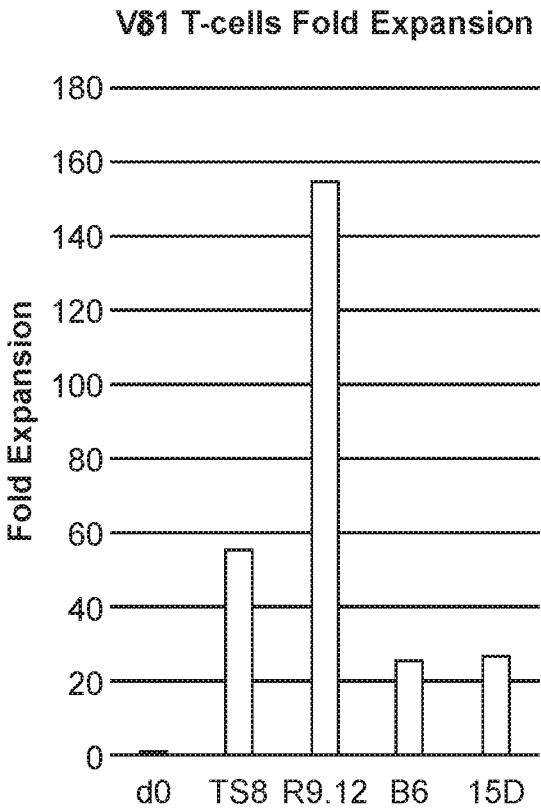


FIG. 22A

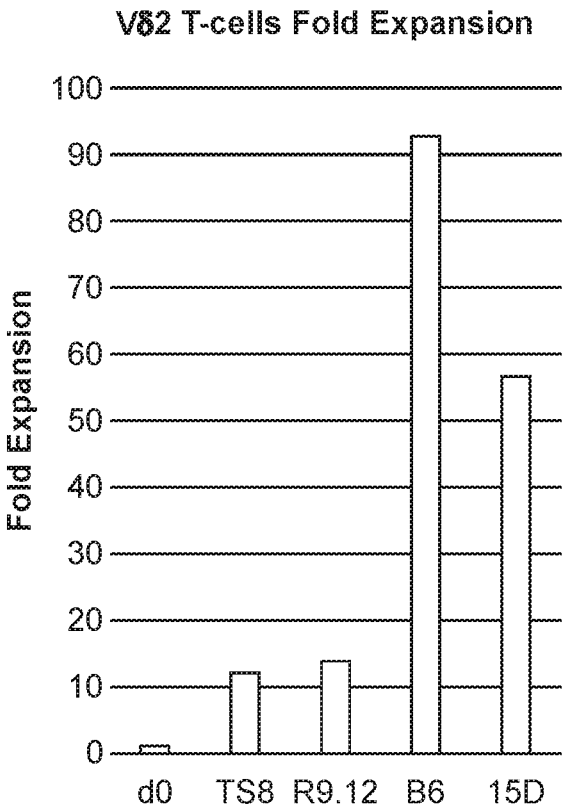


FIG. 22B

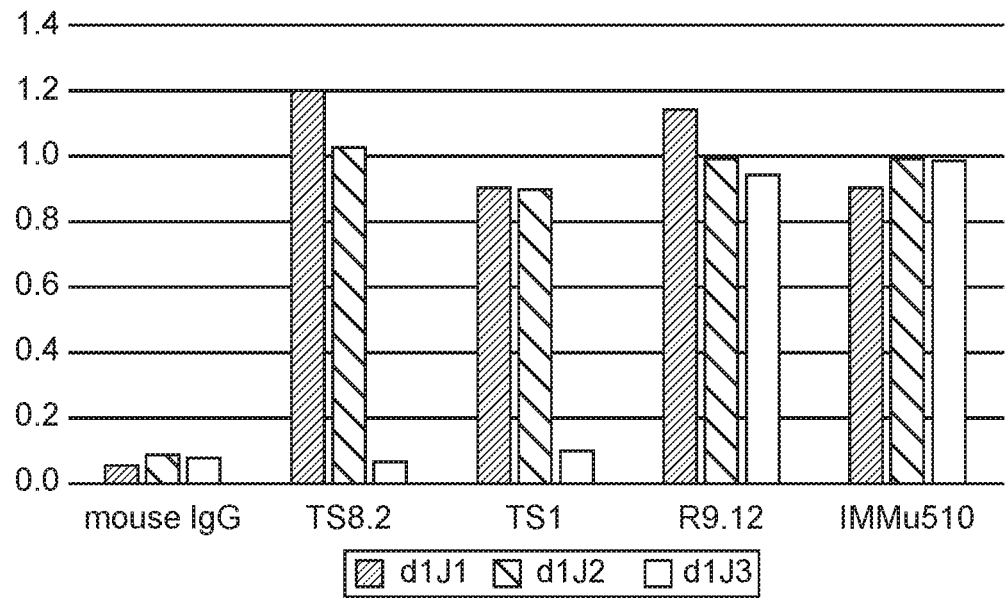


FIG. 23

V81	N-D-N	J	TS1 TS8.2 R9.12
BE-13	AKYFCALG--TGVRGLQD---TDKLI	FCGTRVTVTEPRSQPHT	+ + +
δ1J1	AKYFCALLPFLPSDWGIP--VTDKLI	FCGTRVTVTEPRSQPHT	+ + +
δ1J2	AKYFCALG-EAPSAWKGH--LTAQL	FFCGTQLIVEPRSQPHT	+ + +
δ1J3	AKYFCALG-EAPSAWKGKHSWDTRQ	MFCTGKLFVEPRSQPHT	- - +
Site Directed Mutagenesis			
BE-13	AKYFCALG--TGVRGLQD---TDKLI	FCGTRVTVTEPRSQPHT	- - +
δ1J3	AKYFCALG-EAPSAWKGKHSWDTRQ	MFCTGKLFVEPRSQPHT	+ + +

FIG. 24

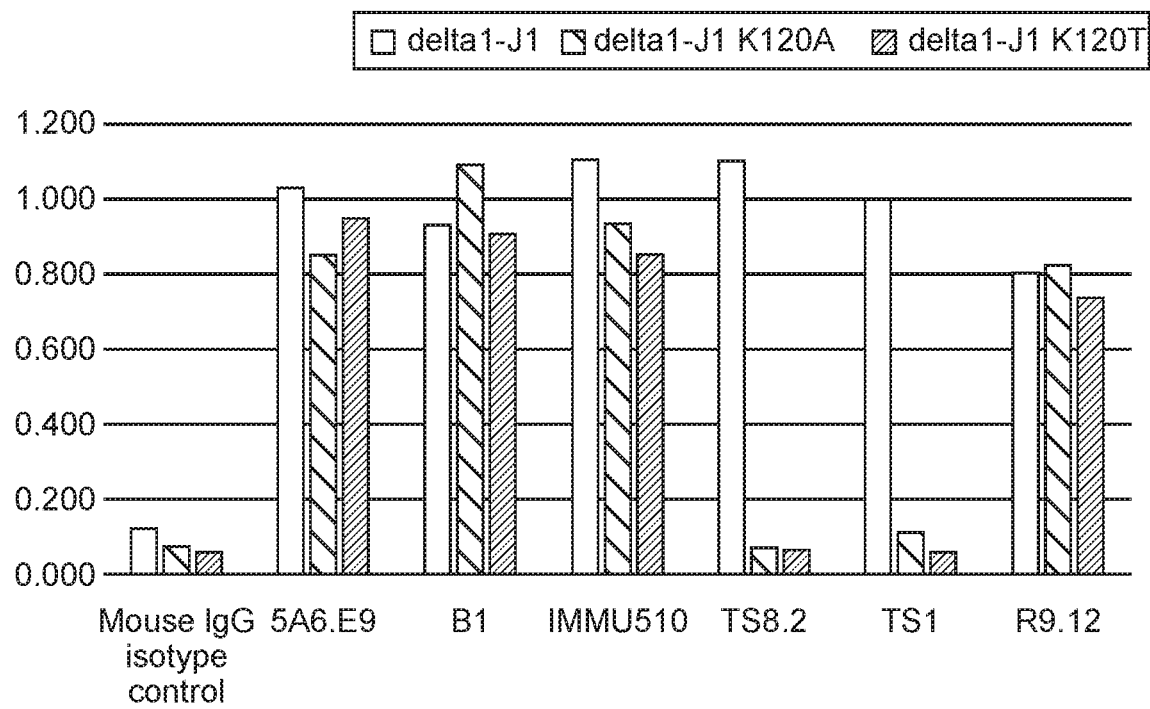


FIG. 25

Human Vδ1	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1 Mut1	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1 Mut2	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPS <u>GQMTY</u> LLIR
Human Vδ1 Mut3	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1 Mut4	AQKVTQAQ <u>PDV</u> SMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1 Mut5	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1 Mut6	AQKVTQAQSSVMPVRKAVTLNCLYETSWWSYYIFWYKQLPSKEMIFLIR
Human Vδ1	QGSDEQNAKSGRYSVNFKKAAKSVALTISALQLEDSAKYFCALGTGVRGL
Human Vδ1 Mut1	<u>QYSDDGNARD</u> GRYSVNF <u>QKAQKSIN</u> LTISALQLEDSAKYFCALGTGVRGL
Human Vδ1 Mut2	QGSDEQNAKSGRYSVNFKKAAKSVALTISALQLEDSAKYFCALGTGVRGL
Human Vδ1 Mut3	QGSDEQNAKSGRYSVNFKKAAKSVALTISAL <u>E</u> LEDSAM YFCV LTGTVRGL
Human Vδ1 Mut4	QGSDEQNAKSGRYSVNFKKAAKSVALTISALQLEDSAKYFCALGTGVRGL
Human Vδ1 Mut5	QGS <u>DDGN</u> AKSGRYSVNFKKAAKSVALTISALQLEDSAKYFCALGTGVRGL
Human Vδ1 Mut6	QGSDEQNA <u>RD</u> GRYSVNFKKAAKSVALTISALQLEDSAKYFCALGTGVRGL

FIG. 26

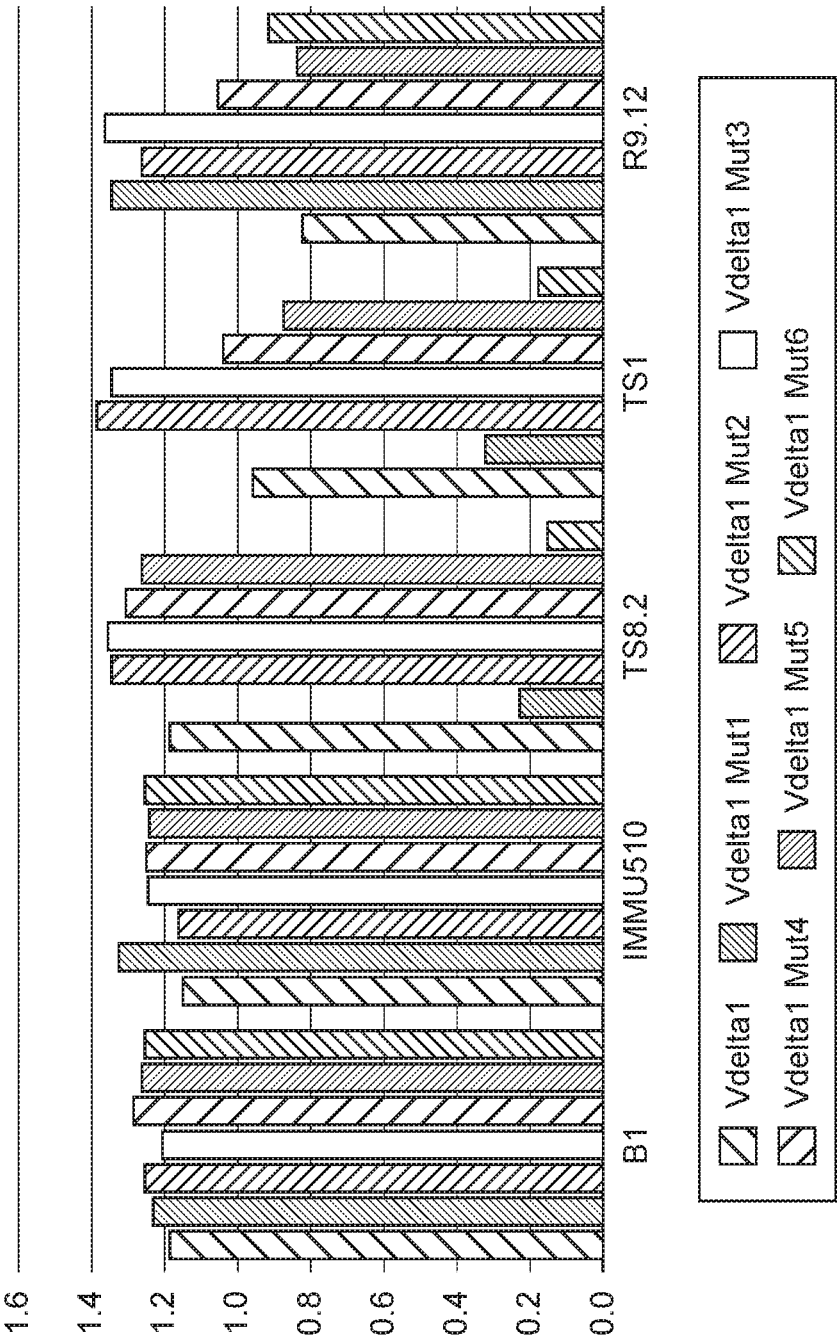


FIG. 27

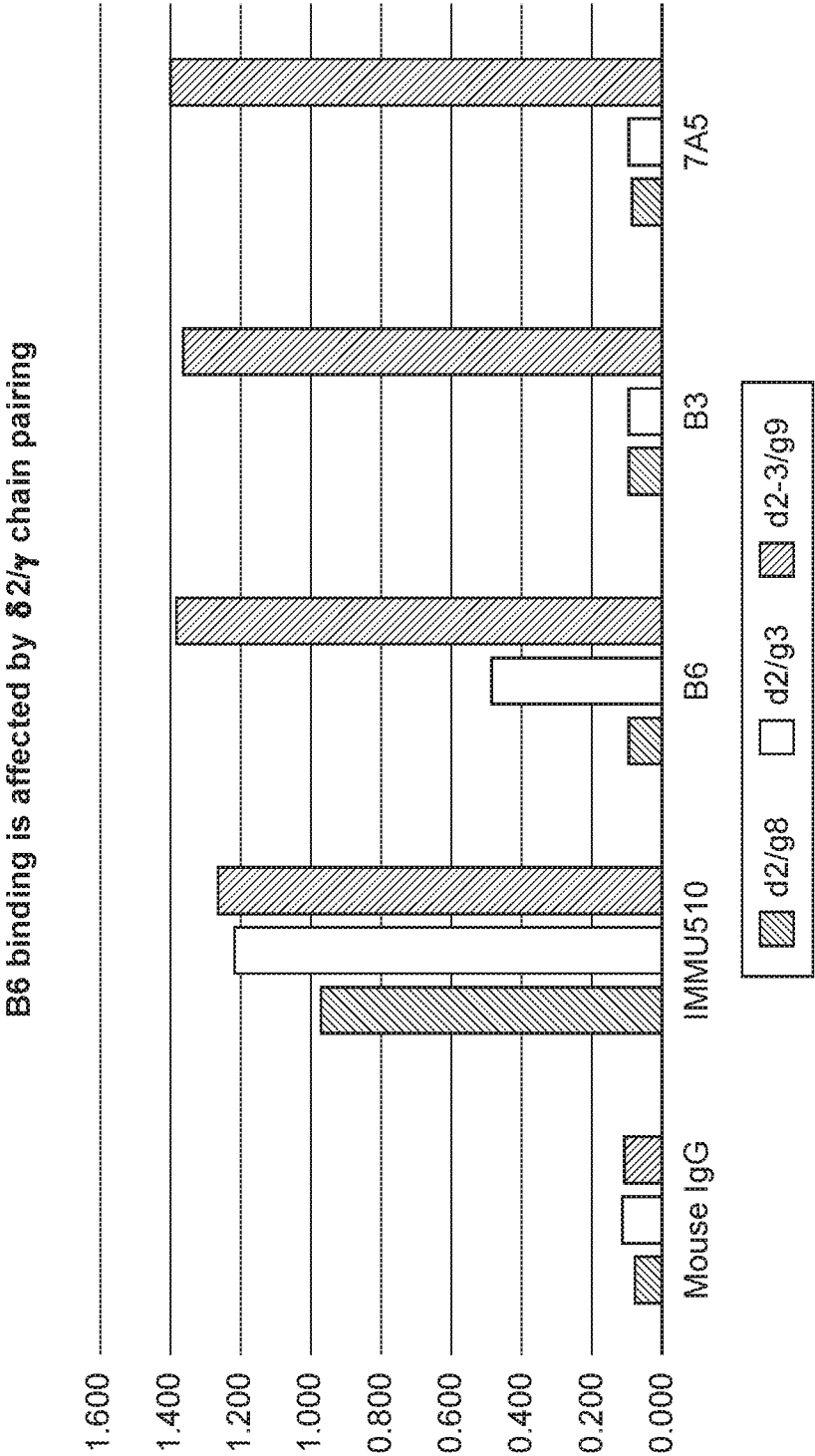


FIG. 28

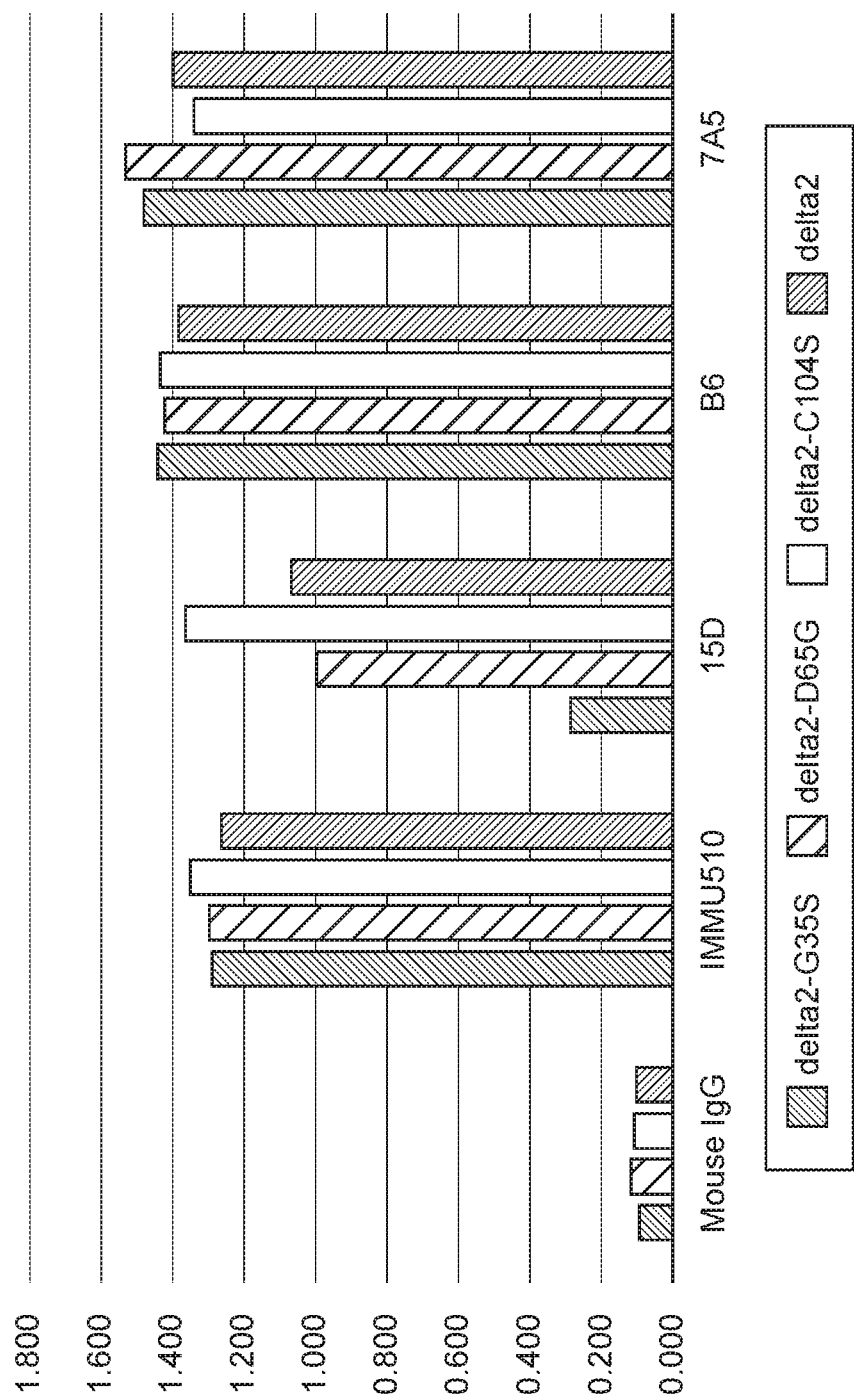


FIG. 30

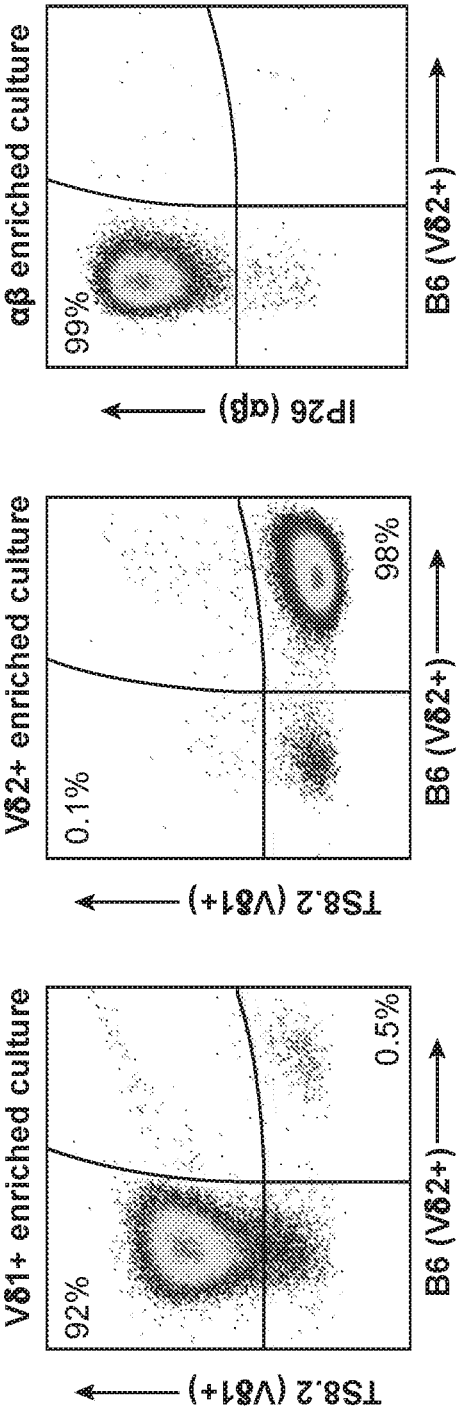


FIG. 31

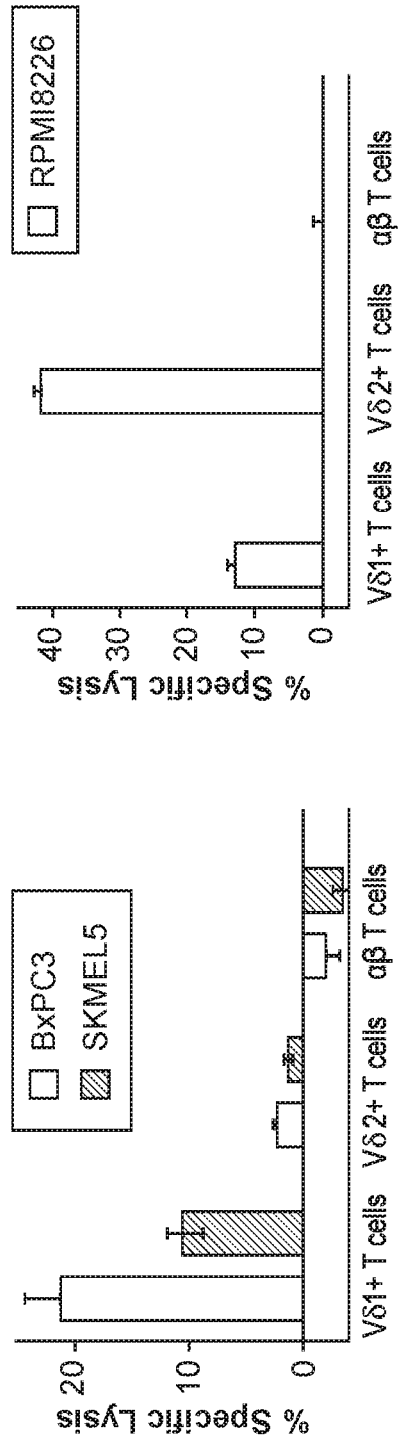


FIG. 32A

FIG. 32B

34 / 55

mAb	FW1	CDRH1	FW2	CDRH2
δ1-05	DVQLQESGPGMVKPSQSLSLTCTVTGYSIT	GGYDWH	WIRHFPGNKLEWMA	YISYSGSTDYNPSLKS
δ1-08	QVQLQQSGAELVRPGASVTLSCKASGYTFT	DYEVY	WVKQTPVHGLEWIG	AIDPETGRTAYNQKFKG
δ1-18	EVQLQQSGPELVKPGDSVKMSCKASGYTFT	DYYMD	WVKQSHGRSLEWIG	YIYPKNVGISYNQKFKG
δ1-22	QVQLQQSGPQLVKPGASVKLSCKASGYTFT	SYDIN	WVKQRPGQGLEWIG	WIYPGDCGTTDYNQKFKG
δ1-26	SDVQLQESGPGLVKPSQSLSVTCTVTGYSIT	SGYHWN	WIRQFPGNRLEWMA	YIHNSGSTNYSFLKS
δ1-35	EVQLQQSGTVLARPSSVKMSCKASGYTFT	TYWMH	WVKQRPGQGLDWIG	AIYPGNSDTNYNQKFRG
δ1-37	QVQLQQPGAELVRPGASVKLSCKAPGYTFT	SYWMN	WVKQRPEQGLEWIG	KIDPYDSETHYNQKFKD
δ1-39	QVQLQQPGADLVRPGTSVKLSCKASGYTFT	SYWMH	WVQRPGQGLEWIG	VIDPDSYTNYNQKFKG
δ1-113	EVKLEESGGGLVQPGGSMKLSCAASGFTFS	DAWMD	WVRQSPEKGLEWVA	EIRAEANNHATYYAESVKG
δ1-143	QVQLQQPGAELVRPGASVKLSCKASGYAFT	DYWMN	WVKQRPGQGLEWIG	TIDPDSYASYNQKFKG
δ1-149	QVQLQQSGAELVRPGASVKLSCKASDYKFT	DSEMY	WVKQTPVHGLEWIG	AIDPETGITAYNQKFKG
δ1-155	EVQLQQSGAELGRPGASVKLSCTTSGFNIK	DDYMH	WVKQRPEQGLEWIG	WIDPENGDYASKFQG
δ1-182	QVQLQQSGAELVRPGASVTLSCKASGYKFI	DYEMH	WVKQTPVHGLEWVG	DIDPGTGVTAYNQKFKG
δ1-183	EVQLQMSGAELVRPGASVKLSCTASGFNIK	DDYMY	WVKQRPEQGLEWIG	WIDPENGDTEYASKFQG
δ1-191	EVQLQQSGAELVRPGASVKLSCTASDFNIK	DDYMH	WVKQRPEQGLEWIG	WIDPENGETEYASKFQG
δ1-192	QIQLVQSGPELKKPGETVKISCKVSGDTFT	TYGMS	WVKQAPGKGLKWMG	WINTYSGVPTYADDFKG
δ1-195	EVKFEESGGGLVQPGGSMKLSCAASGFTFS	DAWMD	WVRQSPEKGLEWVA	EIRAEANNHATYYAESVKG
δ1-197	QVQLQQSGAELVRPGASVTLSCKASGYTFV	DYEMH	WVKQTPVHGLEWIG	AIDPETGITAYNQKFKG
δ1-199	EVQLQQSGAELVRPGASVKLSCTASGFNIK	DDYMS	WVKQRPEQGLEWIG	WIDPENGDTEYASKFQG
δ1-201	QVQLQQSGADLVRPGASVTLSCKASGYTFT	DYEMH	WVKQTPVHGLEWIG	AIDPETGITAYNQKFKG
δ1-203	SDVQLQESGPGLVKPSQSLSLTCSVTGYSIT	SGYYWN	WIRQFPGNLEWMA	YISHDGSNNYNPALKN
δ1-239	QVQLQQSGAELVRPGASVKLSCKASDYKFT	DSEMY	WVKQTPVHGLEWIG	AIDPETGITAYNQKFKG
δ1-253	EVQLQQSGPELVKPGASVKMSCKASGYTFT	DYYMN	WVKQSHGKSLEWIG	HINPYNGGTSYNQKFKG
δ1-257	QVQLQQSGAELVRPGASVTLSCKASGYRFP	DYEMH	WVKQTPVHGLEWIG	AIDPETGRTAYNQKFRG
δ1-278	SDVQLQESGPGLVKPSQSLSLTCSVTGYSIT	SDYYWN	WIRQFPGNKLEWMA	YITYDGSNNYNPSLKN
δ1-282	EVKLVESGGGLVQPGGSLKLSCATSGFTFS	DSYMY	WVRQTPEKRLWVA	YISYGGVNTYYPDTVRG
δ1-285	EVQLVESGGGLVKPGGSLKLSCAASGFTFS	DYGMH	WVRQAPEKGLEWVA	YISSGSRTIYYADTVKG

FIG. 33

35 / 55



FW3	CDRH3	FW4
RISVTHDTSKNLFFLNLTSVTTEDTATYYCAR	EGGRGFAY	WGQGTLLTVSA
KAILTTDKSSSTAYMALRSLTSEDSAVYYCAR	LKSGRIYGDLFAY	WGQGTLLTVSA
KATLTVDKSSSTAYMELHSLTSEDSAVYYCAR	SLLWDALDY	WGQGTSLTVSS
KATLTVDTSSSSAYMELHSLTSEDSAVYFCAR	MDDYDDGGAMDY	WGQGTSLTVSS
RISITRDTSKNQFFLQLNSVTTEDTATYYCVA	YYSNSREFWYAY	WGQGTLLTVSA
KAKLTAVTSASTAYMELSSLTNEDSAVYYCTY	GYVVDYYAMDY	WGQGTSLTVSS
KAILTVDKSSSTAYMQLSSLTSEDSAVYYCAR	GGDNYDPFAY	WGQGTLLTVSA
KATLTVDTSSSTAYMQLSSLTSEDSAVYYCAR	SDDYDEGYFFDQ	WGQGTLLTVSA
RFTISRDDSKSRVFLQMNSLRAEDTGIYYCTG	LDYGSIGFAY	WGQGTLLTVSA
KATLTVDTSSNSAYMHLSSLTSEDSAVYFCAR	ESNDVCWYFDV	WGAGTTLTVSS
KATLTSDKSSSTAYMELRSLTSEDSAVYYCTR	AVPPWFAY	WGQGTLLTVSA
KATITADTSSNTAYLQLSSLTSEDTAVYYCNY	YGFDY	WGQGTLLTVSS
KAILTADKSSSTAYMELRSLTSEDSAVYYCTV	WSADF	WGQGTSLTVSS
KATITADTSSNTAYLQLSSLTSEDTAVYYCTY	YAMDY	WGQGTSLTVSS
KATLTADTSSNTAYLQLSSLTSEDTAVYYCTE	LGFDY	WGQGTLLTVSS
RFAFSLETSASTAYLQINNKLKNETATYFCAR	SSYDYDDAMDY	WGQGTSLTVSS
RFTISRDDSKSRVFLQMNSLRAEDTGIYYCTG	LDYGSVGFAY	WGQGTLLTVSA
KATLTADKSSSTAYMELSSLTSEDSAVYYCIR	PRGGSHFDY	WGQGTLLTVSS
KATITADTSSNTAYLRLSSLTSEDTAVYYCTE	LGFDY	WGQGTLLTVSS
KATLTADKSSSTAYMELSSLTSEDSAVYYCTR	PRGGSHFDH	WGQGTPLTVSS
RISITRDTSKNQFFLKLNSVTTEDTGTYCAS	VYYGDYEVWYTY	WGQGTLLTVSA
KATLTSDKSSSTAYMELRSLTSEDSAVYYCTR	AVPPWFAY	WGQGTLLTVSA
KATLTVDKSSSTAYMQLNSLTSEDSAVYYCAR	NHIYYYDGGYFYAMDY	WGQGTSLTVSS
KAKLTADKSSSTVYMELRSLTSEDSAVYYCTR	GYGIQFPY	WGQGTLLTVSA
RISITRDTSKNQFFLKLNSVTTEDTATYYCAR	DDGYFDY	WGQGTLLTVSS
RFTISRDNASTLYLQMSRLKSEDTAMYYCAS	RGYY	WGQGTSLTVSS
RFTISRDNAKNTLFLQMTSLRSEDTAMYYCAR	EGAYSSFYD	WGQGTLLTVSS

FIG. 33 (Cont.)

36 / 55

mAb	FW1	CDRL1	FW2
δ1-05	NIVLTQSPASLAVSLGQRATISC	RASESVDGYGNSFMH	WYQQKPGQPPKLLIY
δ1-08	QIVLTQSPALMSASPGEKVTMTC	SASSSVSYMY	WYQQKPRSSPKPWIY
δ1-18	DIQMTQSPASLSVSVGETVTITC	RASENIYSNLA	WYQQKQKGKSPQLLVY
δ1-22	DVVMQTPTPLTSLVTVGQPASISC	KSSQSLLSHNGKTYLN	WLLQRPQGSPKLLIY
δ1-26	DIVMSQSPSSLAVSVGEKVTMSC	KSSQSLLYSSNQKNSLA	WYQQKPGQSPKLLIY
δ1-35	DIVMTQSHKFMSTSVGDRVSITC	KASQDVSIDVA	WYQQKPGQSPKLLIY
δ1-37	DIQMTQSPASLSVSVGETVTITC	RASENIYSNLA	WYQQKQKGKSPQLLVY
δ1-39	DVVMQTPTPLTSLVTVGQPASISC	KSSQSLLSHNGKTYLN	WLLQRPQGSPKLLIY
δ1-113	DVLMQTPLSLFVSLGDQASISC	RSSQSVVHRNGNTFLE	WYLQKPGQSPKLLIY
δ1-143	DIQMTQTTSSLSASLGDRVTISC	RASQDISNYLN	WYQQKPDGTVKLLIY
δ1-149	QIVLTQSPALMSASPGEKVTMTC	SASSSVSYMY	WYQQKPRSSPKPWIY
δ1-155	DVLMQTPLSLFVSLGDQASISC	RSSQSIVHSDGNTFLO	WYLQKPGQSPKLLIY
δ1-182	SDVVRPTPLSLFVSLGDQASISC	RSSQSLVHSDGNTYLH	WYLQKPGQSPKLLIY
δ1-183	DVVMQTIPVSLPVTSLGDQASISC	RSSQSLHSDGNTYLH	WYLQKPGQSPKLLIY
δ1-191	AVVMTQTPLSLFVSLGDQASISC	RSSQSLVHSDGNTYLH	WYLQKPGQSPKLLIY
δ1-192	DVQITQSPSYLAASPGETITINC	RTSKSISKYLA	WYQEKPGKTNKLLIY
δ1-195	DVIMTQTPLSLFVSLGDQASISC	RSSQSVVHRNGNTFLE	WYLQKPGQSPKLLIY
δ1-197	QIVLSQSPAILSASPGEKVTMTC	RASSSVNYMH	WYQQKPGSSPKPWIY
δ1-199	AVVMTQTPLSLFVSLGDQASISC	RSSQSLVHSDGNTYLH	WYLQKPGQSPKLLIY
δ1-201	QIVLSQSPAILSASPGEKVTMTC	RASSSVRYIH	WYQQKPGSSPKPWIY
δ1-203	DIVMSQSPSSLAVSVGEKVALNC	KSSQSLLYSINQKNYLA	WYQRNPGQSPKLLIY
δ1-239	QIVLTQSPALMSASPGEKVTMTC	SASSSVSYMY	WYQQKPRSSPKPWIY
δ1-253	NIVLTQSPASLAVSLGQRATISC	RPSESVDSYGNSFMH	WYQQKPGQPPKLLIY
δ1-257	QIVLSQSPAILSASPGEKVTMTC	RASSSVSYIH	WFQQKPGSSPKPWIY
δ1-278	QIVLSQSPAILSASPGEKVTMTC	RASSSVNYMH	WHQQKPGSSPKPRIY
δ1-282	DIVLTQSPSSLAVSLGQRATISC	KASQSVDDYDGDSYMN	WYQQKPGQPPKLLIY
δ1-285	DIVLTQSPASLAVSLGQRATISC	KASQSVDDYDGDSYMN	WYQQKPGQPPKLLIY

FIG. 34

37 / 55

CDRL2	FW3	CDRL3	FW4
LASNLES	GVPARFSGSGSRTDFTLTIDPVESDDAATYYC	QQNNEDPFT	FGSGTKLEIK
FTSNLAS	GVPARFSGSGSGTSYSLTISSMEAEDAATYYC	QQWSSNPLT	FGAGTKLELK
AATYLAD	GVPSRFSGSGSGTQYSLKINSLOSEDFGSYYC	QHFWDGIPYT	FGGGTKLEIK
LVSKLES	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYYC	LQATHEPLT	CGAGTKLELK
WASTRES	GVPDRFTGSGSGTDFTLTISSVKAEDLAVYYC	QQDYSYPL	TFGGGTKLELK
SASYRYT	GVPDRFTGSGSGTDFTFTISNVQAEDLAVYYC	QQHYSIPCT	FGSGTKLEIK
GARNLAD	GVPSRFSGSGSGTQYSLKINSLOSEDFGSYFC	QHFWDTTFT	FGSGTKVEIK
LVSKVES	GVPDRFSGSGSGTDFTLKISRVEAEDLGLYYC	LQVTHFPLT	FGAGTKLELK
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGLYYC	FOGSHVPYT	FGGGTKLEIKR
YTSRLHS	GVPSRFSGSGSGTDYSLTISNLEQEDIATYFC	QQGNTLRT	FGGGTKLEIK
LTSNLAA	GVPARFSGSGSGTSYSLTISSMEAEDAATYYC	QQWSGDPPT	FGGGTKLEIKR
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYYC	FOGSHVPYT	FGGGTKLEIKR
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFC	SGSTHVPPWT	FGGGTKLEIK
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFC	SGFTHVPPWT	FGGGTKLEIK
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFC	SHSTHVPYT	FGGGTKLEIKR
SGSTLQS	GIPSRFSGSGSGTDFTLTISLEPEDFAMYYC	QHHNEYPYT	FGGGTRLEIKR
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYYC	FOGSHVPYT	FGGGTKLEIKR
ATSNLAS	GVPARFSGSGSGTSYSLTISRVEAEDAATYYC	QQWSSHQPT	FGAGTKLELK
KVSNRFS	GVPDRFSGSGSGTDFTLKISRVEAEDLGVYFC	SHSTHVPYT	FGGGTKLEIKR
ATSNLAS	GVPARFSGSGSGTSYSLTISRVEAEDAATYHC	QQWYSDTPT	FGAGTKLELK
WASTRES	GVPDRFTGSGSGTDFTLTISSVKTEDLAVYYC	QQYYSYPWT	FGGGTKLEIK
LTSNLAA	GVPARFSGSGSGTSYSLTISSMEAEDAATYYC	QQWSGDPPT	FGGGTKLEIKR
LASNLES	GVPARFSGSGSRTDLTLTIDPVEADDAATYYC	QQNNEDPWT	FGGGTK
GTSNLAS	GVPARFTGSGSGTSYSLTISRVEAEDAATYYC	QQWSSDSPT	FGGGTKLEIK
GTSNLAS	GVPARFSGSGSGTSYSLTISRVEAEDAATYYC	QQWSSNPPT	FGAGTKLELK
GASNLES	GIPARFSGSGSGTDFTLNHPVEEEDAATYYC	QQSNEDPWT	FGGGTKLEIK
AASNLES	GIPARFSGSGSGTDFTLNHPVEEEDAATYYC	QQSNEDPWT	FGGGTKLEIK

FIG. 34 (Cont.)

38 / 55

mAb	FW1	CDRH1	FW2	CDRH2
δ2-14	EVQLQQSGPELVKPGASVKISCKASGYSFT	GYMN	WVKQSPEKSLEWIG	EINPSTGGTTYNQKFOA
δ2-17	SDVQLQESGPGLVTPSQSLSVTCTVTGYSIT	SGSYWN	WIRQFPGNKLEWMG	YIHNSGSTTYNPSLKS
δ2-30	QVQLQQSGAELVKPGASVKLSCKTSGYTFT	SYWIQ	WVKQRPGQGLGWIG	EIFPGTGTYYNEKFKG
δ2-31	QVQLLPGAELVKPGASVKLSCKASGYSFT	NFWIN	WVKLRPGQGLEWIG	NIFPGSSSPNYNEKFKS
δ2-32	EVKLVEGGGLVQPGGSLSLSCAASGFTFT	DYYMS	WVRQPPGKALEWLG	FIRNKANGYTTESSASVKG
δ2-33	EVQLQQSGPELVKPGASVKISCKASGYSFT	GYMN	WVKQSPEKSLEWIG	EINPSTGGTTYNQKFOA
δ2-35	DVKLVESGGGLVKGPGSLKLSCAASGFTFS	SYMS	WVRQTPEKRLEWVA	TISNSGGSTYYPDVSKG
δ2-36	QVQLLPGAELVKPGASVKLSCKASGYTFT	NFWIN	WVKQRPGQGLEWIG	NIYPGSSSPNYNEKFKF
δ2-37	QVQLQQPGAELVKPGASVKLSCKASGYTFT	NHWIS	WVKQRPGQGLEWIG	NIFPGSSSPNYNEKFKS

FIG. 35

39 / 55



FW3	CDRH3	FW4
KATLTVDKSSSTAYMQLKSLTSEDSAVYYCSR	GEDDGYFPYSMDF	WGQGASVTVSS
RISITRDTSKNQFFLQLNSVTTEDTATYYCAR	STGPPPTY	WGQGLVTVSA
KATLTRDTSSSTAYMQLSSLTSEDSAVYFCAR	RGVFGNYAMDY	WGQGTSTVTVSS
KATLTVDISSSTAYMQLSSLTSDGSAVYYCAR	YGSYGNWYFDV	WGAGTTVTVSS
RFTISRDNQSILYLQMNVLRAEDSATYYCAS	SKPGWPMDY	WGQGTSTVTVSS
KATLTVDKSSSTAYMQLKSLTSEDSAVYYCSR	GEDDGYFPYSMDF	WGQGASVTVSS
RFTISRDNAKNTLYLQISSLNSEDATVYYCSR	EYDFDGEFFDY	WGQGTTLTVSS
KATLTVDISSSTAYIQLSSLPSDDSAVYYCAR	YGTFGNWYFDV	WGAGTTVTVSS
KATLTVDTSSTAYMQLSSLTSDASAVYYCTR	WGNYGYYYAMDY	WGQGTSTVTVSS

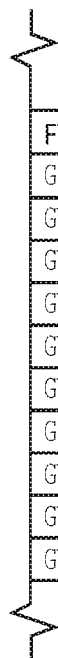
FIG. 35 (Cont.)

40 / 55

mAb	FW1	CDRL1	FW2	CDRL2
62-14	DIVLIQSPATLSVTPGDSVSLSC	RASQSINNNLH	WYQQKSHESPRLLIK	YVSQSIG
62-17	NIVLTQSPGSLAVSLGQRATISC	RASESDNYGNSEFMH	WYQQKPGQPPKLLIY	LASNLES
62-22	DIQMTQSPASLSVSVGETVTITC	RASENIYSNLA	WYQQKQKGKSPQLLVY	AATNLAG
62-30	DIQMTQSPASLSVSVGETVTITC	RASENIYSNLA	WYQQKQKGKSPQLLVY	AATNLAD
62-31	DLKMTQSPSSMYASLGERVTITC	KASQDINSFLS	WFQQIPGKSPKTLIY	RANRLVD
62-32	DIQMTQTSSFSVSLGDRVITIC	KASEDIYNRLA	WYQQKPGNAPRLIS	GATSLEA
62-33	DIVLIQSPATLSVTPGDSVSLSC	RASQSINNNLH	WYQQKSHESPRLLIK	YVSQSIG
62-35	DVVMQTPLSLPVSLGDQASISC	RSSQSLVHSNGNTYLH	WYLQKPGQSPKLLIY	KVSNRFS
62-36	DIKMTQSPSSMYASLGERVTITC	KASQDINNFLS	WFQQIPGKSPKTLIY	RANRLVVD
62-37	QIVLTQSPAISASLGEEITLTC	SASSRVNYMH	WYQQKSGTSPKLLIY	STSNLAS

FIG. 36

41 / 55



FW3	CDRL3	FW4
GIPSRFSGSGSGTDFTLINSVETEDFGMYFC	QQNSNWPLT	FGAGTKLELK
GVPARFSGSGSRTDFTLTIDPVEADDAATYYC	QQNNEDPT	FGSGTKLEMK
GVPSRFSGSGSGTQYSLKINSLQSEDFGSYYC	QHFWGTPRT	FGGGTKLEIK
GVPSRFSGSGSGTQYSLKINSLQSEDFGSYYC	QHFGDTPYT	FGGGTKLEIKR
GVPSRFSGSGSGQDYSLTIFSSLEYEDMGIYYC	LQSDEFPYT	IGGGTKLEIKR
GVPSRFSGSGSGNDYTLTITSLQTEDVATYYC	QQYWYTPWT	FGGGTKLEIK
GIPSRFSGSGSGTDFTLINSVETEDFGMYFC	QQNSNWPLT	FGAGTKLELK
GVPDFSGSGSGTDFTLKISRVEAEDLGVYFC	SQSRHVPYT	FGGGTKLEIKR
GVPSRFSGSGSGQDYSLTIFSSLEYEDMGIYYC	LQSDEFPYT	IGGGTKLEIKR
GVPSRFSGSGSGTFYSLTIISVEADAADYYC	HQWSSYPT	FGGGTKLEIK

FIG. 36 (Cont.)

42 / 55

cross reactivity

	$\delta 1\gamma 8$	$\delta 2\gamma 9$	$\delta 3\gamma 2$	$\delta 4\gamma 8$	$\delta 5\gamma 3$	$\delta 7\gamma 8$	$\delta 8\gamma 8$	
TS-1	1.754	0.080	0.061	0.064	0.059	0.067	0.066	
	2.198	0.089	0.084	0.084	0.081	0.038	0.040	
d1-08	1.790	0.044	0.045	0.049	0.046	0.042	0.044	
	2.099	0.051	0.048	0.051	0.053	0.037	0.037	
d1-18	1.081	0.048	0.051	0.983	0.043	0.043	0.044	$\delta 1, \delta 4$
	1.491	0.051	0.048	0.872	0.052	0.037	0.038	
d1-26	1.387	0.097	0.059	0.054	0.062	0.043	0.038	
	1.587	0.128	0.078	0.067	0.069	0.041	0.043	
d1-35	1.278	0.084	0.048	1.249	0.044	0.053	0.037	$\delta 1, \delta 4$
	1.741	0.062	0.052	1.005	0.052	0.043	0.044	
d1-37	1.525	0.052	0.044	0.043	0.043	0.056	0.037	
	2.013	0.052	0.050	0.051	0.057	0.039	0.038	
d1-39	1.167	0.072	0.734	0.824	0.646	0.076	0.067	$\delta 1, \delta 3, \delta 4, \delta 5$
	1.282	0.080	0.758	0.694	0.469	0.044	0.037	
B1	2.263	1.307	1.711	1.582	1.381	0.922	1.828	
$\gamma\delta$ pan	2.117	1.668	1.669	1.722	1.176	0.644	1.604	

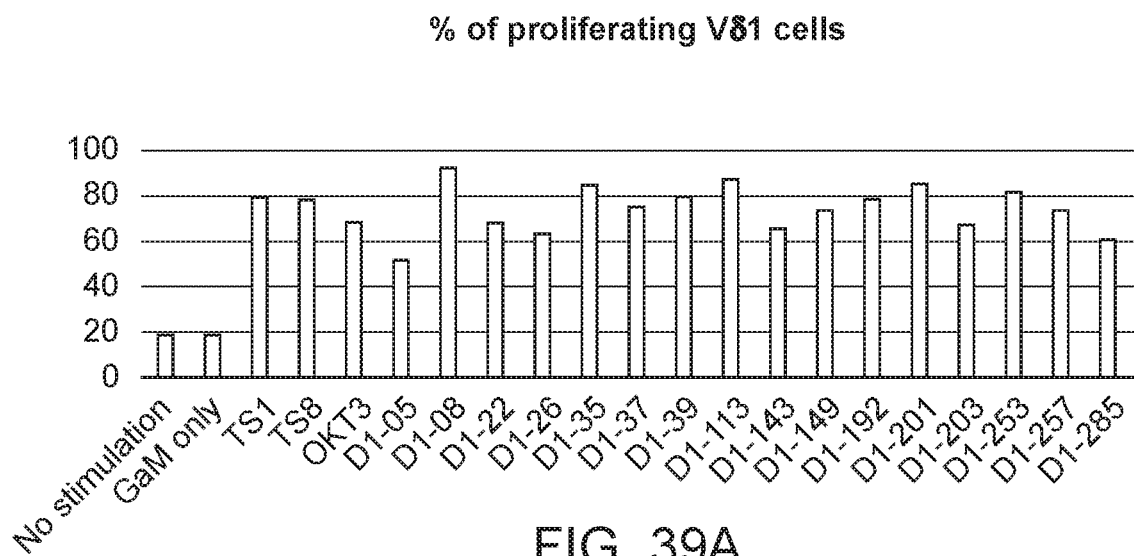
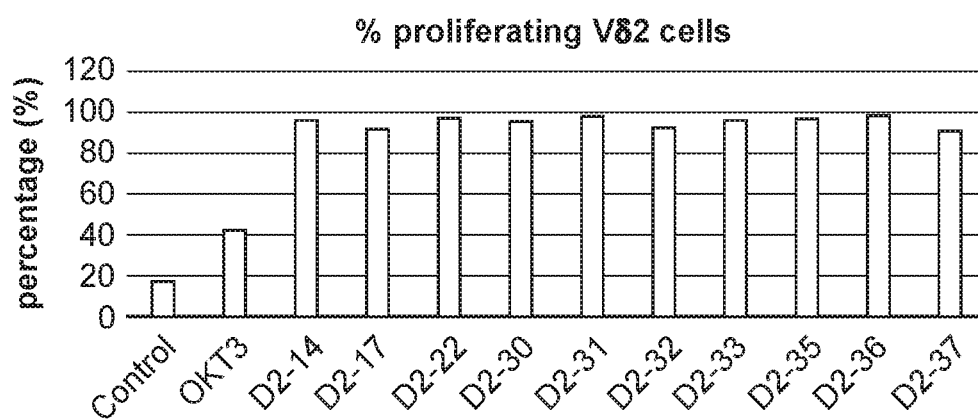
d1-18 and d1-35 were found to cross reacts with $\delta 4$ d1-39 cross reacts with $\delta 3, \delta 4$ and $\delta 5$ subsets

FIG. 37

		CDR1		
Human Vd1	AQKVTQAQSSVSM	PVRKAVTLNCLYE	TSWWSY	IFWKQLPSKEMIFLIR
Dolphin Vd1	-----V-RAM-SQLGE	-----S-Q-----LSW-D-----G--T-----H		
		CDR2		
Human Vd1	QGS	DEQNAKSGRYSVNF	KKAAKSVALTISALQLEDS	AKYFCALGE-----
Dolphin Vd1	-I-SD-----N-----	QERH-FIS-----LV-----N-----		TGVRGL

FIG. 38

44 / 55



45 / 55

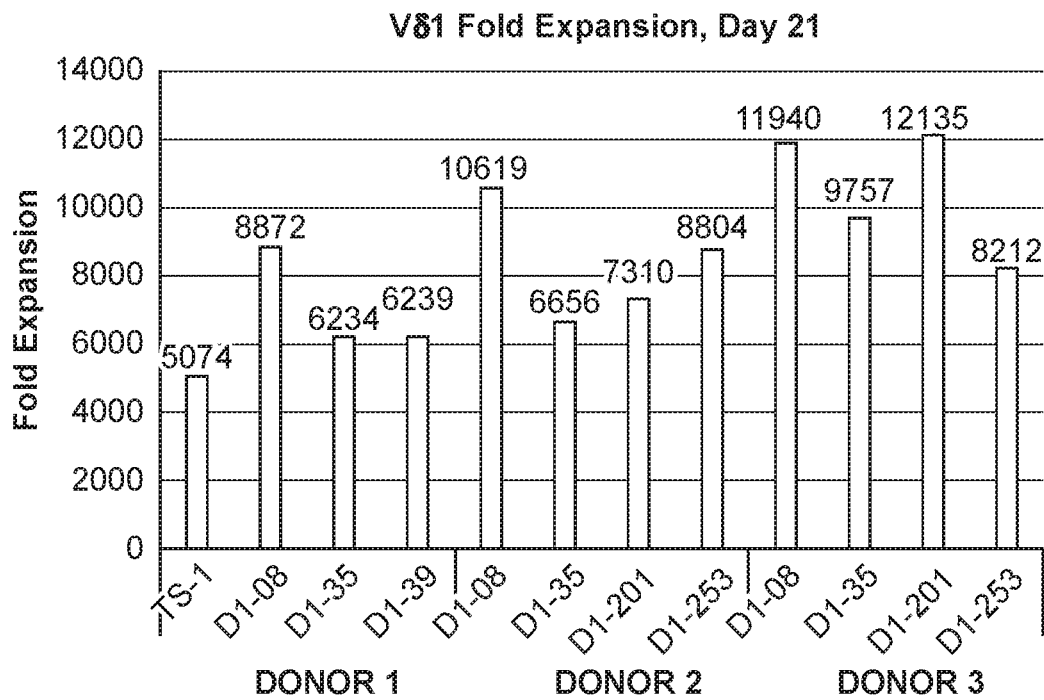


FIG. 40A

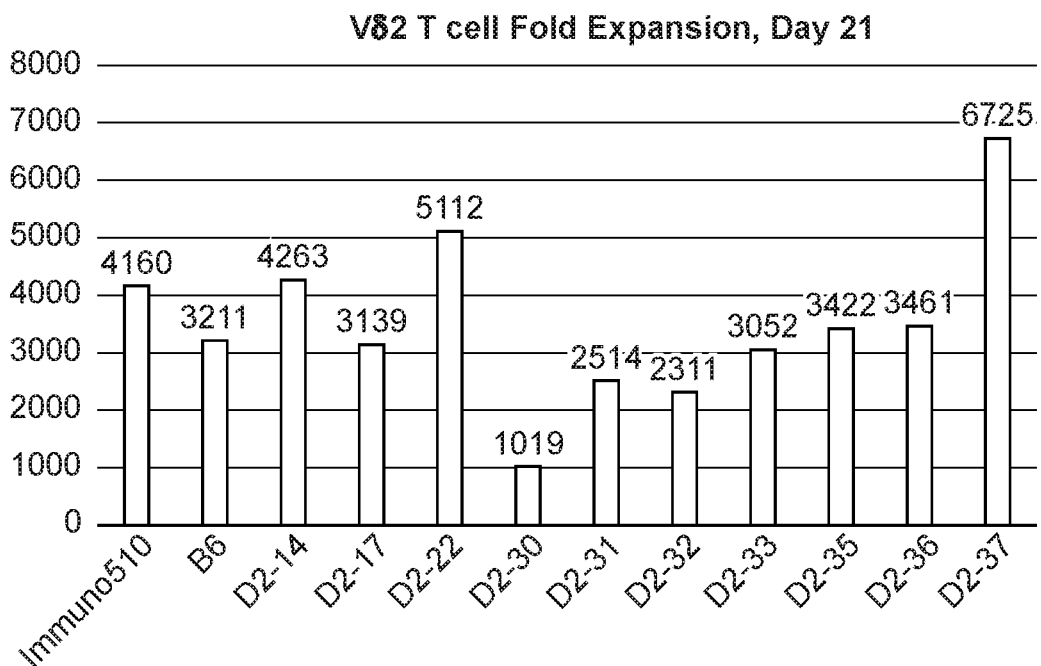


FIG. 40B

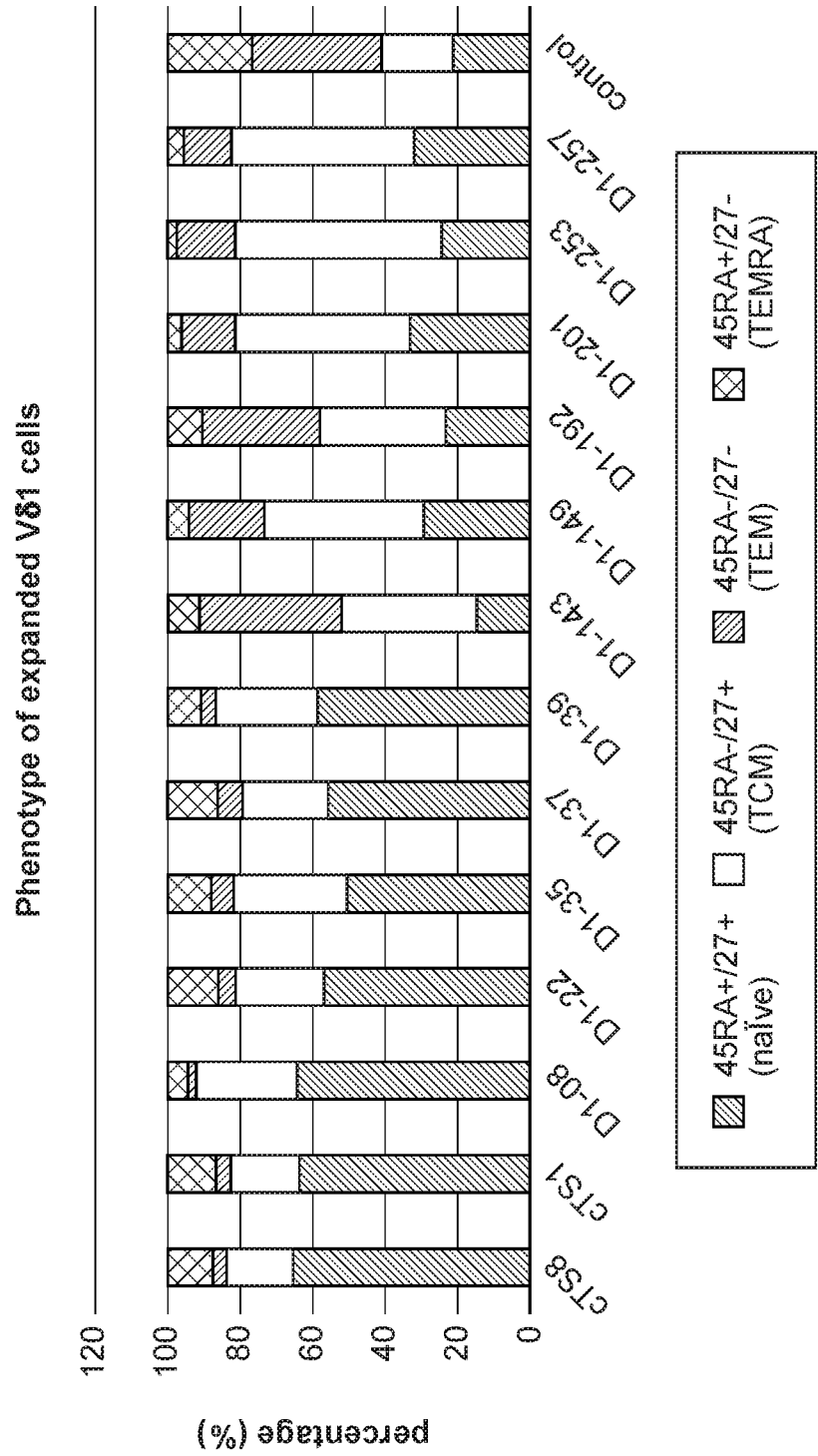


FIG. 41

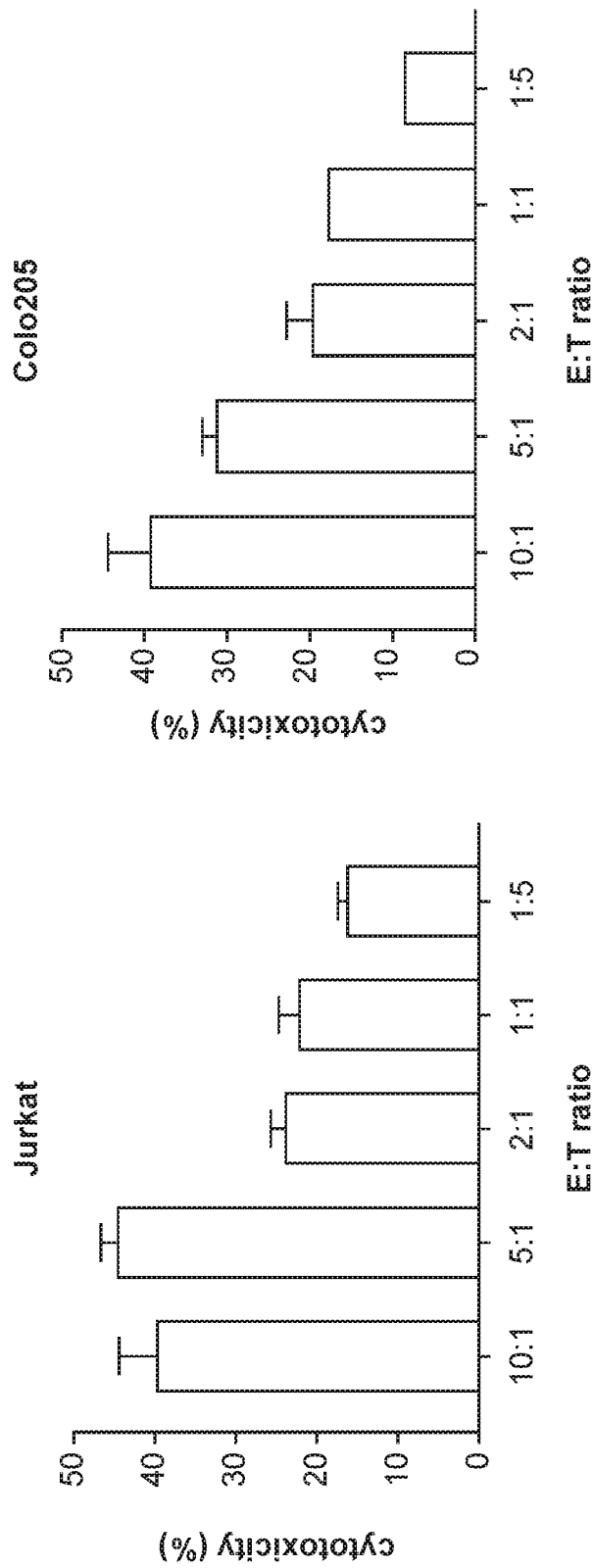


FIG. 42

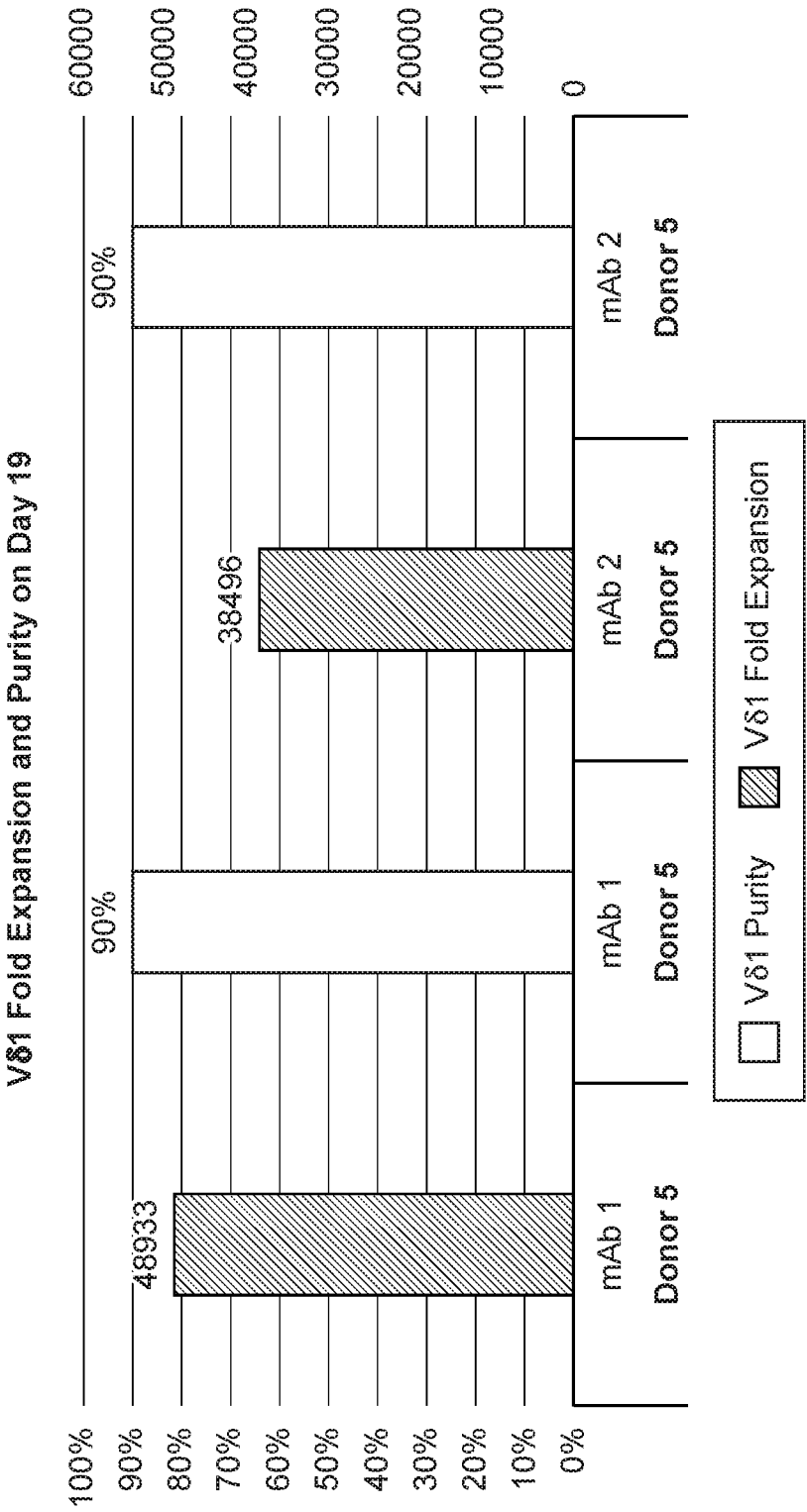


FIG. 43

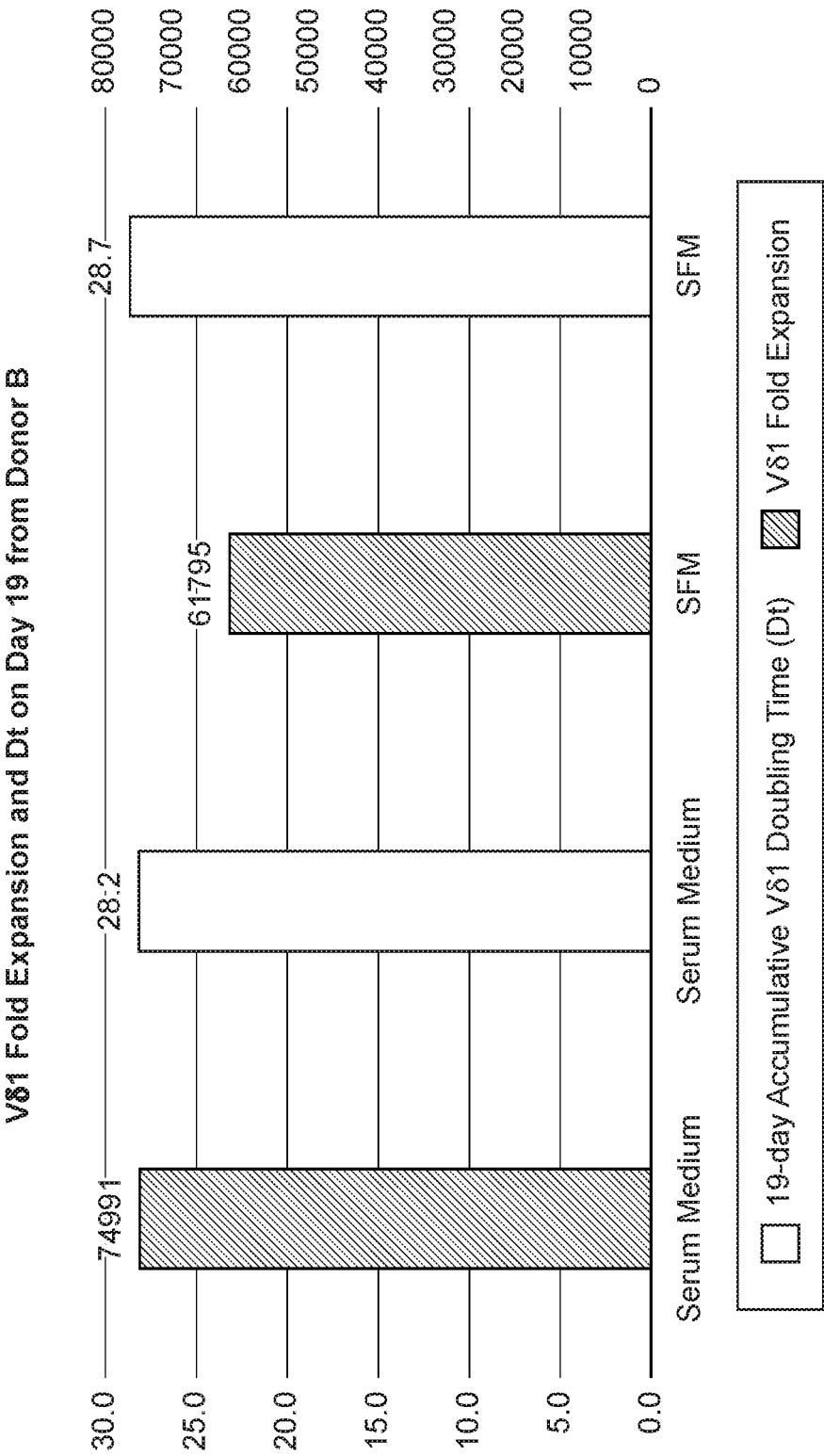


FIG. 44

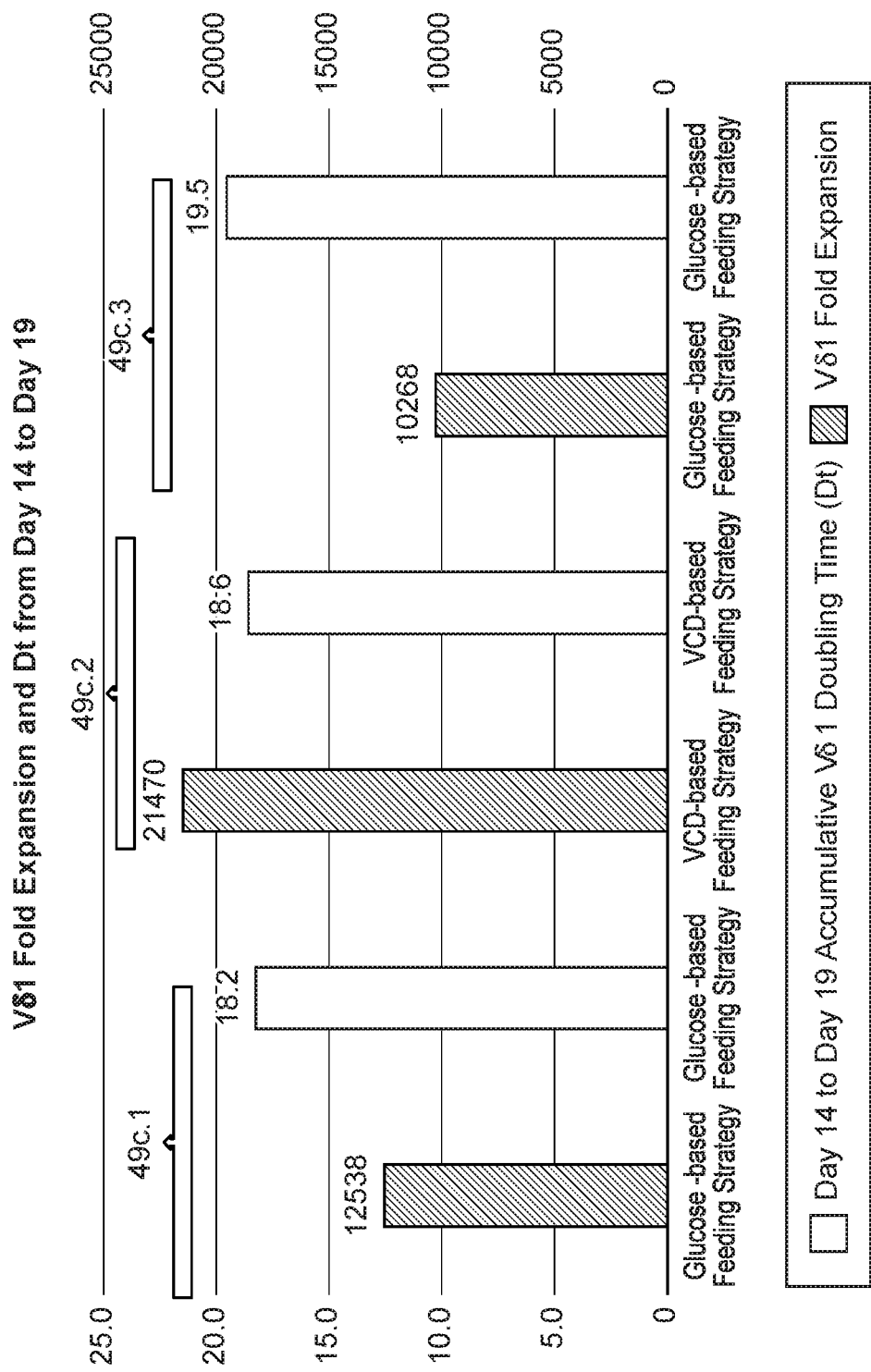


FIG. 45

51 / 55

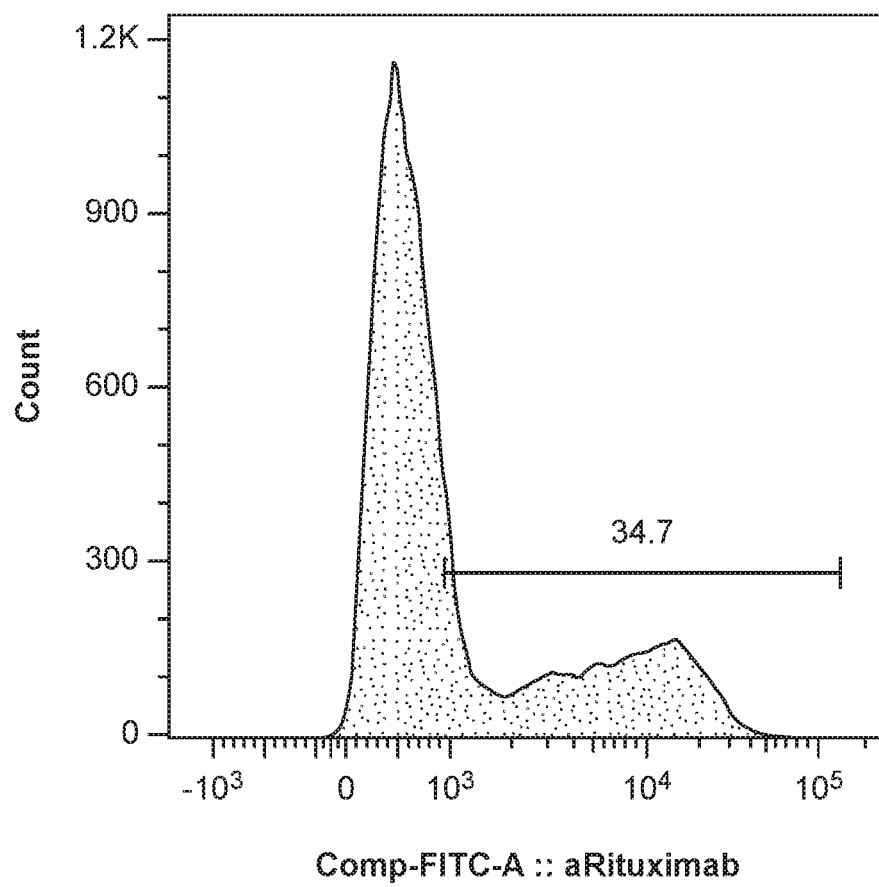


FIG. 46

52 / 55

	$\delta 1y8$	$\delta 2y9$	$\delta 3y2$	d1 Dolphin	$\delta 1-11$	$\delta 1-21$	$\delta 1-28$	$\delta 1-47$	$\delta 1-70$	$\delta 1-80$	$\delta 1-95$	J1	J2	J3	K120A	BIN
TS-1	1.46	0.07	0.07	0.09	1.27	2.17	1.88	1.77	0.54	0.64	0.50	1.14	0.77	0.05	0.07	47-70 J1, J2, K120 1
	2.27	0.09	0.09	0.14	1.74	2.29	1.95	2.06	0.95	0.91	0.82	1.08	0.74	0.05	0.06	
TS8.2	1.36	0.05	0.05	0.05	0.91	1.09	0.23	0.24	0.06	0.05	0.09	0.93	0.76	0.04	0.15	21-28 J1, J2 6
	2.04	0.04	0.04	0.06	1.02	1.92	0.39	0.33	0.10	0.07	0.17	1.00	0.77	0.04	0.20	
R9.12	1.76	0.06	0.06	0.06	1.19	0.06	0.06	0.06	0.09	0.05	0.07	0.95	0.94	0.94	0.82	11 to 21 Arg16 2b
	1.95	0.05	0.05	0.07	1.68	0.06	0.06	0.06	0.11	0.06	0.10	1.11	0.92	0.99	1.11	
d1-08	1.70	0.05	0.06	0.08	1.34	1.68	1.77	1.90	0.92	0.49	0.12	0.99	0.94	0.94	0.93	80 to 95 3
	2.08	0.05	0.06	0.07	1.65	1.91	2.03	2.05	1.63	0.72	0.15	1.20	1.18	0.95	1.23	
d1-35	1.49	0.07	0.06	0.09	0.06	0.06	0.07	0.06	0.07	0.07	0.11	0.86	0.96	0.04	0.49	1 to 11 J1, J2 4
	1.87	0.09	0.07	0.12	0.07	0.07	0.07	0.08	0.09	0.08	0.13	1.01	1.08	0.05	0.70	
d1-37	1.71	0.05	0.05	0.05	1.13	1.72	0.75	0.96	0.20	0.06	0.10	0.98	0.05	0.04	0.04	47-70 J1 K120 1b
	1.91	0.04	0.05	0.05	1.96	1.89	1.57	1.65	0.24	0.07	0.30	1.26	0.12	0.04	0.04	
d1-39	1.84	0.06	0.35	0.06	0.82	0.07	0.07	0.07	0.08	0.06	0.07	0.81	0.97	0.32	0.59	11 to 21 2c
	1.83	0.05	0.37	0.07	1.43	0.07	0.07	0.07	0.15	0.06	0.09	1.12	0.89	0.53	1.01	
d1-113	2.58	0.13	0.14	0.48	2.42	2.18	2.71	0.31	0.74	0.24	0.65	0.99	0.07	0.05	0.36	28-47 J1 5
	2.44	0.22	0.22	0.65	2.52	2.57	2.61	0.42	1.12	0.39	0.60	1.07	0.04	0.05	0.51	
d1-143	2.31	0.08	0.09	0.17	1.70	2.17	0.12	0.09	0.12	0.12	0.25	0.90	0.98	0.25	0.81	21 to 28 J1, J2 6
	2.29	0.12	0.12	0.30	2.29	2.25	0.17	0.12	0.24	0.18	0.30	1.04	1.05	0.37	0.95	
d1-149	1.84	0.06	0.07	0.08	1.57	2.14	2.08	1.28	0.16	0.06	0.07	0.59	0.64	0.10	0.51	47-70 J1, J2 7
	2.12	0.06	0.06	0.08	1.85	2.22	2.33	1.89	0.24	0.08	0.08	0.78	0.54	0.15	0.66	
d1-155	2.17	0.09	0.13	0.21	2.22	2.34	2.44	0.10	0.48	0.16	0.27	0.90	0.04	0.04	0.44	28-47 J1 5
	2.41	0.10	0.11	0.27	2.02	2.24	2.23	0.18	0.56	0.21	0.27	1.07	0.04	0.05	0.73	
d1-182	2.66	0.13	0.16	0.74	2.68	2.77	2.82	2.47	0.83	0.51	0.98	1.11	0.04	0.06	0.93	
	2.71	0.14	0.21	0.89	2.48	2.48	2.57	2.28	1.56	0.49	0.89	1.52	0.06	0.07	1.25	
d1-183	2.46	0.10	0.12	0.31	2.26	2.59	2.62	0.15	0.56	0.19	0.45	0.99	0.05	0.05	0.78	28-47 J1 5
	2.56	0.11	0.14	0.35	2.42	2.41	2.53	0.16	0.74	0.24	0.39	1.39	0.07	0.05	1.10	
d1-191	2.42	0.11	0.11	0.27	2.25	2.49	2.53	0.16	0.54	0.16	0.31	0.95	0.04	0.04	0.70	28-47 J1 5
	2.43	0.14	0.16	0.33	2.30	2.36	2.35	0.19	0.56	0.24	0.39	1.34	0.04	0.05	1.13	

FIG. 47A

53 / 55

d1-192	2.54	0.06	0.06	0.08	2.44	2.79	2.70	2.68	0.65	0.09	0.13	1.01	1.00	0.39	0.90	70-80 J1J2 + + + 8
	2.61	0.06	0.07	0.09	2.35	2.55	2.55	2.62	0.75	0.10	0.14	1.56	1.46	0.73	1.51	
d1-201	1.66	0.08	0.12	0.22	1.73	2.02	2.04	1.92	1.27	0.61	0.37	1.18	1.08	0.86	1.16	80-95 9
	2.14	0.14	0.27	0.48	1.92	1.93	2.13	2.07	1.89	1.10	0.63	1.31	1.30	1.12	1.29	
d1-203	1.80	0.04	0.04	0.19	0.05	0.06	0.06	0.06	0.05	0.05	0.05	0.58	0.33	0.04	0.18	1 to 11 J1J2 K120 4
	1.30	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.59	0.34	0.04	0.10	
d1-253	1.42	0.04	0.04	0.06	1.07	1.70	0.63	0.63	0.11	0.05	0.07	0.93	0.91	0.30	0.87	47-70 J1J2 7
	1.91	0.05	0.05	0.07	1.76	1.81	0.66	0.72	0.17	0.06	0.08	1.17	0.98	0.42	1.07	
d1-257	0.99	0.05	0.05	0.06	0.98	1.43	1.42	1.27	0.34	0.05	0.07	0.78	0.83	0.29	0.69	47-70 J1 + + + 7
	1.41	0.05	0.05	0.06	1.38	1.66	1.61	1.58	0.35	0.08	0.06	1.00	0.89	0.48	0.86	
d1-278	0.97	0.05	0.04	0.05	0.62	0.71	0.86	0.05	0.09	0.05	0.07	0.70	0.04	0.04	0.40	28-47 J1 5
	1.00	0.06	0.06	0.09	1.35	1.16	1.39	0.06	0.12	0.06	0.08	1.08	0.04	0.05	0.57	
d1-282	1.46	0.04	0.04	0.15	1.36	1.63	1.68	0.13	0.28	0.13	0.23	0.97	0.08	0.06	0.87	28-47 J1 5
	1.91	0.05	0.05	0.30	1.78	1.84	1.81	0.12	0.48	0.14	0.34	1.54	0.09	0.08	1.00	
d1-285	1.52	0.04	0.04	0.05	1.11	0.06	0.07	0.05	0.07	0.05	0.06	0.95	0.96	0.34	0.84	1 to 21 2
	1.97	0.05	0.05	0.07	1.57	0.06	0.06	0.06	0.09	0.05	0.06	1.31	0.99	0.52	1.21	
B1	1.38	1.15	0.94	0.89	1.25	1.48	1.70	1.59	0.92	0.84	0.74	0.97	0.97	0.98	0.95	
	1.88	1.75	1.55	0.81	1.64	1.66	1.70	1.57	1.42	1.21	1.18	1.51	1.28	1.02	1.42	
IMM510	1.59	1.31	1.09	0.56	1.27	1.61	1.72	1.63	0.86	0.90	0.91	1.03	0.99	0.92	0.81	
	1.53	1.43	1.41	0.69	1.59	2.00	1.80	1.87	1.00	0.96	0.88	1.30	1.15	0.88	1.32	

FIG. 47A (Cont.)

54 / 55

	Dolphin δ 1	Dolph-11	Dolph-21	Dolph-28	Dolph-47	Dolph-70	Dolph-80	Dolph-95	δ 1-Arg16	K120A	K120F	J2-M	Epitope
D1-113	0.053	1.444	1.384	1.556	0.081	0.060	0.053	0.054	1.574	1.634	0.059	0.051	28-47
D1-143	0.048	0.790	0.941	0.055	0.046	0.047	0.047	0.042	1.178	1.100	1.124	1.172	21-28
D1-155	0.053	0.933	1.201	1.282	0.051	0.050	0.050	0.049	1.107	1.093	0.053	0.050	28-47
D1-182	0.079	1.322	1.362	1.348	1.099	0.248	0.104	0.088	1.378	1.393	0.086	0.090	47-70
D1-183	0.048	1.077	1.012	1.154	0.046	0.048	0.048	0.046	1.202	1.060	0.088	0.065	28-47
D1-191	0.051	1.043	1.125	1.157	0.055	0.056	0.055	0.053	1.167	1.204	0.053	0.051	28-47
D1-192	0.049	0.926	1.195	1.020	0.973	0.199	0.092	0.047	1.173	1.207	1.157	0.995	47-70
D1-201	0.062	1.030	1.161	1.223	0.990	0.979	0.769	0.051	1.191	1.036	1.306	1.116	80-95
D1-203	0.053	0.046	0.051	0.061	0.072	0.058	0.055	0.050	0.972	0.267	0.241	0.491	1-11
D1-253	0.047	1.100	1.612	0.629	0.409	0.100	0.053	0.050	1.500	1.132	1.343	1.180	47-70
D1-257	0.053	0.871	1.359	1.181	0.812	0.115	0.075	0.055	1.252	0.928	1.179	0.882	47-70
D1-278	0.054	0.931	1.114	1.271	0.054	0.050	0.051	0.056	1.014	0.825	0.056	0.055	28-47
D1-282	0.116	1.354	1.460	1.575	0.105	0.099	0.114	0.104	1.599	1.370	0.173	0.220	28-47
D1-285	0.052	1.089	0.053	0.062	0.054	0.047	0.051	0.053	1.341	1.330	1.441	1.271	11 to 21
TS-1	0.111	1.036	1.642	0.910	0.561	0.081	0.103	0.329	1.649	0.492	0.658	1.002	

FIG. 47B

55 / 55

	Dolphin (1-94)	Dolphin (28-94)	Dolphin (44-94)	Dolphin (72-94)	Dolphin (83-94)	CDR 1(S)	CDR2(G)	CDR3(S)	Epitope	critical
Isotype	-	-	-	-	-	-	-	-		
δ 2-14	-	+	+	+	+	+	+	+	1-27	
δ 2-17	-	-	-	-	-	+	+	+	83-94	
δ 2-22	-	+	+	+	+	+	+	+	1-27	
δ 2-30	-	+	+	+	+	+	+	+	1-27	
δ 2-31	-	+	+	+	+	+	+	+	1-27	
δ 2-32	-	-	-	-	+	+	+	+	72-83	
δ 2-33	-	+	+	+	+	+	+	+	1-27	
δ 2-36	-	+	+	+	+	+	+	+	1-27	
δ 2-37	-	+	+	+	+	+	+	+	1-27	
B6	-	-	-	-	-	+	+	+	83-94	
15D	-	-	+	+	+	-	+	+	28-38	G35
7A5	+	+	+	+	+	+	+	+	γ 9 binder	
IMM510	+	+	+	+	+	+	+	+	γ 8 pan	
B1	+	+	+	+	+	+	+	+	γ 8 pan	

FIG. 48