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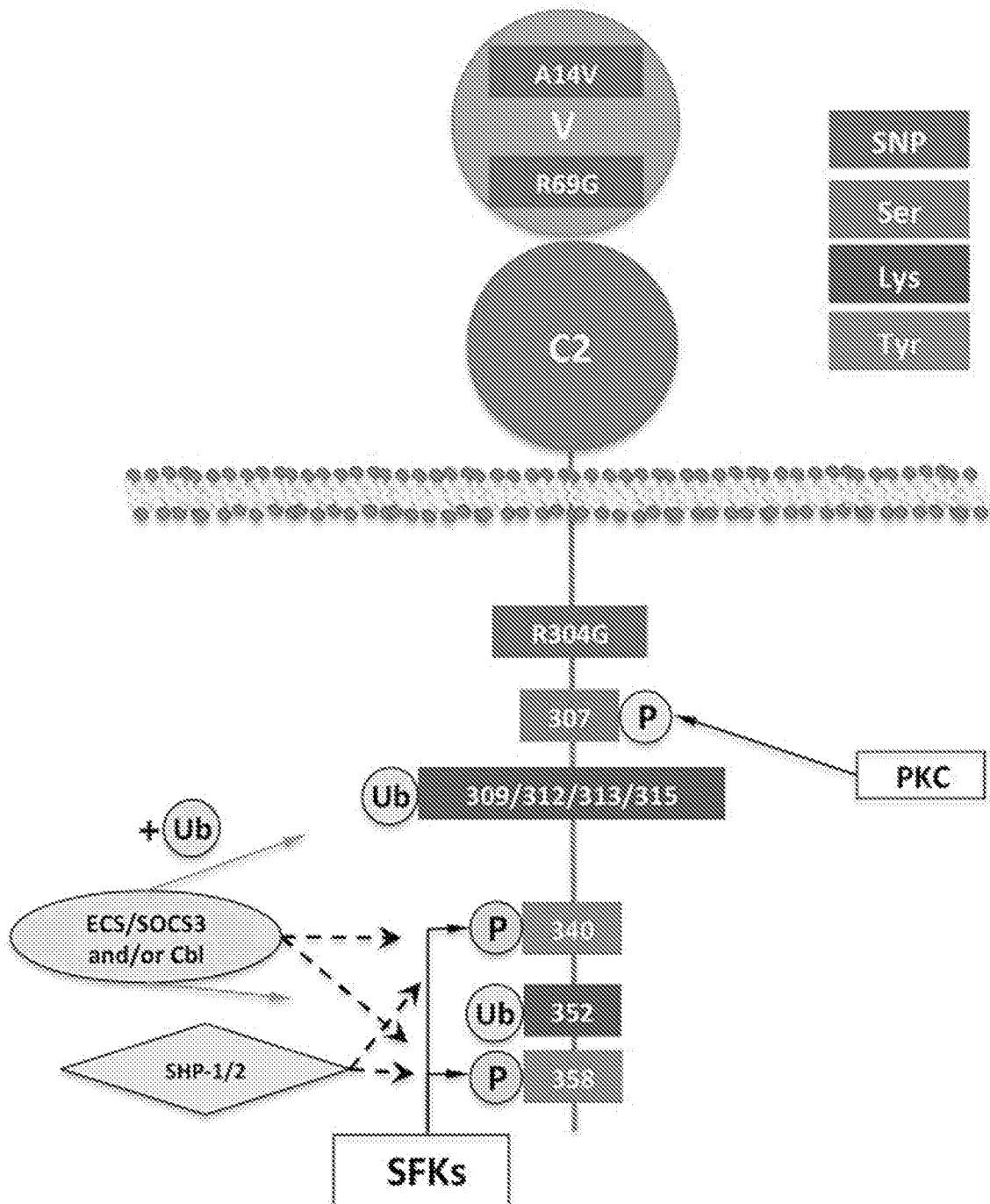


FIG. 1

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HUMAN CD33	---MPLLLLLLPLLWAG-----ALAMPNFWLQVQESVTVQEGLCVL
MOUSE CD33	---MLWPLPLFLLCAG-----SLAQDLEFQLVAPESVTVEEGLCVH
RAT CD33	---MLWIVLLLLLLCTD-----SLVQDLEFQLVAPKSVTVEEALCVH
CHIMPANZEE CD33	---MPLLLLLLPLLWAG-----ALAMPKIRLQVQESVTVQEGLCVL
RHESUS CD33	-----
DOG CD33	----MLLLLLLPILWAVEWAQGKVKLGASADAGVPRSLAQDPIYWLQIQESLTVQEGLCIS
COW CD33	MLPLLLPLLLPLLWAA-----TLAQDPNYWLKAPWSVSVQEGLCVR
ZEBRAFISH CD33	---MLQTLFLFILAVNKMTN-----CEDS---QPGGLNDFFI SVKENVTGEEGLCIR
 HUMAN CD33	 VPCTFFHPIPIYDKNSPVHG YWFREGAII SRDSPVATNKLDQEVQEE TQGRFRL LGDP SR
MOUSE CD33	VPCSVFYPSI-KLT LGPVTGSWLRKGVSLHEDSPVATSDPRQLVQKATQGRFQL LGDPQK
RAT CD33	VPCSVSYPSI-RPTFGPVTGYWLLKGTSLHEDSPVATNDPRQLVQKATQGRFQL LGDPQK
CHIMPANZEE CD33	VPCTFFHPIPIYDKNSPVHG YWFREGPIVSGDSPVATNKPDQEVQEE TQGRFRL LGDLSR
RHESUS CD33	-----
DOG CD33	VPCYFSYPMEYWIKTYSALGYWFRNGTNVHWGAPVATNNPDRKVQEE TQGQFLL LGDPQA
COW CD33	VPCSVYYPSDFRSGSTPVHGFWFREGAEVLKDAPVATNKLDREAQKETQGRFHLL LGDPRD
ZEBRAFISH CD33	EQCAFRVPQN---LSEPIKKS WFKEDSENA-----TAKVQF-----YHСКАESPIW
 HUMAN CD33	 NNCSLSIVDAR-RRDNGSYFFRMERGS-TKYSYKSPQLSVHVTDLTHRPKILIPGTLEPG
MOUSE CD33	HDCSLFIRDAQ-KNDTGM YFFRVVREPFRVRSYKKSQLSLHVTSLSRTPDIIIPGTLEAG
RAT CD33	HDCSLIRDAQ-KNDTG VYFFRVVREPFRVRSYRANQLLLHVTPLSRTPDIIIPETLRAG
CHIMPANZEE CD33	NNCSLSIVDAR-RRDNGSYFFRMERGS-TKYSYKSPQLSVHVTDLTHRPKILIPGALDPG
RHESUS CD33	-----MPLLLLLLPLLWADLTHRPQILIPGALDPD
DOG CD33	NNCSLEIRDAQ-RRDSGT YFFRVERGPYLYSYLQNL SVHVTALTHTPDILIPGTLESG
COW CD33	NNCSLEIRDAR-KSDRGSYFFRMEKGS-MKWSYLSLELFFLNVTAFTHQPHLLSPGDLEPG
ZEBRAFISH CD33	KECSFMLNPLVLGESDGEYRLKLEWGQGN-VHIFPQTVKITVKELTQKPKINVR-LTIG
	. : : : * : *
 HUMAN CD33	 HSKNLTCSVSWACEQGT PPIFSWLSA--APTSLGPR-----TTHSSVLIITPRPDHGTN
MOUSE CD33	YPSNLTCVSWACEQGT PPTFSWMST--ALTSLSSR-----TTDSSVLTFTPPQPDHGTK
RAT CD33	HPSNLSCVSWACEQGT PPTFSWMSD--ALTSLSSR-----TTNSSVLTLTTPRPQDHGTK
CHIMPANZEE CD33	HSKNLTCSVSWACEQGT PPIFSWLSA--APTSLGPR-----TTHSSVLIITPRPDHGTN
RHESUS CD33	HSKNLTCSVSWACEQGT PPIFSWMSA--APTSLGLR-----TTHSSVLIITPRPDHGTN
DOG CD33	HPRNLTCVSWACEQGI PPIFSWMSA--ALTSLGPR-----THLSSVLTLTTPRPQDHGTN
COW CD33	HPGNMTCSVSWACERAMPPIFSWTS--APSSLGPR-----TPFSSVLTLTTPRPQDHGTR
ZEBRAFISH CD33	QKAEISCI FTIKCLVP-KLRF AWTGIEGKESTLGPRGVPGWNEFTSIFRFH PKPKDHNTK
	:::* . * :*: . :*: . . :*: : * :*:** *
 HUMAN CD33	 LTCQVKFAGAGVTTERTIQLNVTYVPQNPTTGIFPGDGS GK--QETRAGVVHG AIGGAGV
MOUSE CD33	LTCLVTFSGAGVTVERTIQLNVTRKSGQMR-----ELVLVAVGEAT-
RAT CD33	LTCLVTFSGAGVTVERTIRLNVTKSDQMR-----QVVLVAVGEAA-
CHIMPANZEE CD33	LTCQVKFAGAGVTTERTIQLNVTYVPQNPTTGIFPGDGS GK--QETRAGVVHGAVGGAGI
RHESUS CD33	LTCQVKFPAGAGVTTERTIQLNVSYASQNPRTDIFLGDGS GK--Q----GVVQGAIGGAGV
DOG CD33	LTCQVQFPAGVVMVERTIQLNVCTCTQNPTNGVCLEHSTGK--PGTRSGVTVG AIGGAGV
COW CD33	LTCQVKFPRSGVMVERTILLNVTYASRNPG-NICTGDGTGE--SGTGAGVTEGA IAGAGV
ZEBRAFISH CD33	LTCKIIVQD-RIQTEAAVTL E VRYAPEILNSSRCVMWGDELSCMCISSGVPLPLIQWPTL
	*** : . : .* : : * : *

FIG. 2

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HUMAN CD33	TALLALCLCLIFFIVKTHRRKAART---AVGRNDTHPTTGSASPKH-QKK---SKLHGP-
MOUSE CD33	VKLLILGLCLVFLIVMFCRRKTTKL---SVHMGCEMPIKRQEAITSYNHC---LSPTASD
RAT CD33	VKLLILGLCLTLLSVVICRRKATKL---SVHMNCENPTQAH PQDSKVHSHAENS RPLRKD
CHIMPANZEE CD33	TALLALCLCLIFFIVKTHRRKAART---AVGRNDTHPTTGPASPKH-QKK---SKLHGP-
RHESUS CD33	TVLLALCLCLIFFTVKTHRRKAART---AVGRIDTHPATGPTSSKH-QKK---SKLHGA-
DOG CD33	TMLLTLCCLIFFRVKTCRK TASRT---AVGMDNIHPVVEPAPLDY-QES---DLPDDP-
COW CD33	TMLLVLCFGLIFFVVKIYRKKVAKT---AVDMEDIYSAAEPASLDH-QQE---SKSEES-
ZEBRAFISH CD33	DDPTNYCSTYRKNTIIICNISISGIRNVKDTIECIAENVIATTSMQIQVHNQTETPKAN-
	: . . :
HUMAN CD33	TETSSCSGA-----APTVMDEELH--YASLNFGHMN----P-----SKDT
MOUSE CD33	AVTPGCSIHRLISRTPRCTAILRIQDPYR--RTHLRNRAVS----T-----L---
RAT CD33	LPXEQSSIXTXI-----PLN-----FMGAK----S-----Q---
CHIMPANZEE CD33	TETSSYSGA-----APTVMDEELH--YASLNFGHMN----P-----SKDT
RHESUS CD33	TETSGCSGT-----TLTVEMDEELH--YASLNFGHMN----P-----SEDT
DOG CD33	---TSSAEV-----PSTSEMEQELY--YASISFHRRT-----EST
COW CD33	SDPTNYAGT-----TPSLELEQELH--YSSIIFRGEK----P-----QESP
ZEBRAFISH CD33	---LGLSMS-----WIFCTLSVVLNIIFGSCTVVLCFNRRKNREKPKDVDHVYMTSLKRE
	:
HUMAN CD33	STEYSEVRTQ-----
MOUSE CD33	--RFPWISWEGSLRSTQRSKCTKLCSPVKNLCPLWLPVDNSCIPLIPEWVMLLCVSLTLS
RAT CD33	--EYPEI-----
CHIMPANZEE CD33	STEYSEVRTQ-----
RHESUS CD33	STEYSEVRTQ-----
DOG CD33	CAEYSEIRTQ-----
COW CD33	HSEYAEIRIK-----
ZEBRAFISH CD33	ESVYETIKV-----
	: :

FIG. 2 (Cont.)

Oligosaccharide	R1	R2	R3	Relative Recognition by Human Siglec										
				1	2	3	4	5	6	7	8	9	10	11
N-Glycan O-Glycan Glycolipid	+		+	-	++	++	-	-	-	-	-	+	+	-
	+			++	-	+	+	++	-	-	+	++	++	+
	+	+	+	+	-	+	-	-	-	++	+	+	-	++
◆ α 6○ β 4■ β -R1				++	-	+	+	-	-	-	+	+	+	-
◆ α 3○ β 4■ β -R1				+	-	+	-	-	-	++	+	+	-	++
◆ α 8◆ α 3○ β 4■ β -R1				+	-	+	-	-	-	-	+	+	+	-
◆ α 3○ β 3■ β -R1				+	-	+	+	-	-	-	+	+	+	-
◆ α 3○ β 4■ β -R1				+	-	+	-	-	-	-	+	+	-	-
◆ α 3○ β 3■ β -R1				+	-	+	-	-	-	-	+	+	-	-
◆ α 3○ β 3□ β -R2/ α -R3				+	-	+	+	-	-	-	+	+	-	-
◆ α 3○ β 3□ β -R2/ α -R3				?	?	?	++	-	-	+	-	+	?	?
◆ α 6◆ α 6				+	+	+	-	-	-	-	+	+	+	-
◆ α 6				+	+	+	-	-	-	-	+	+	+	-

FIG. 3

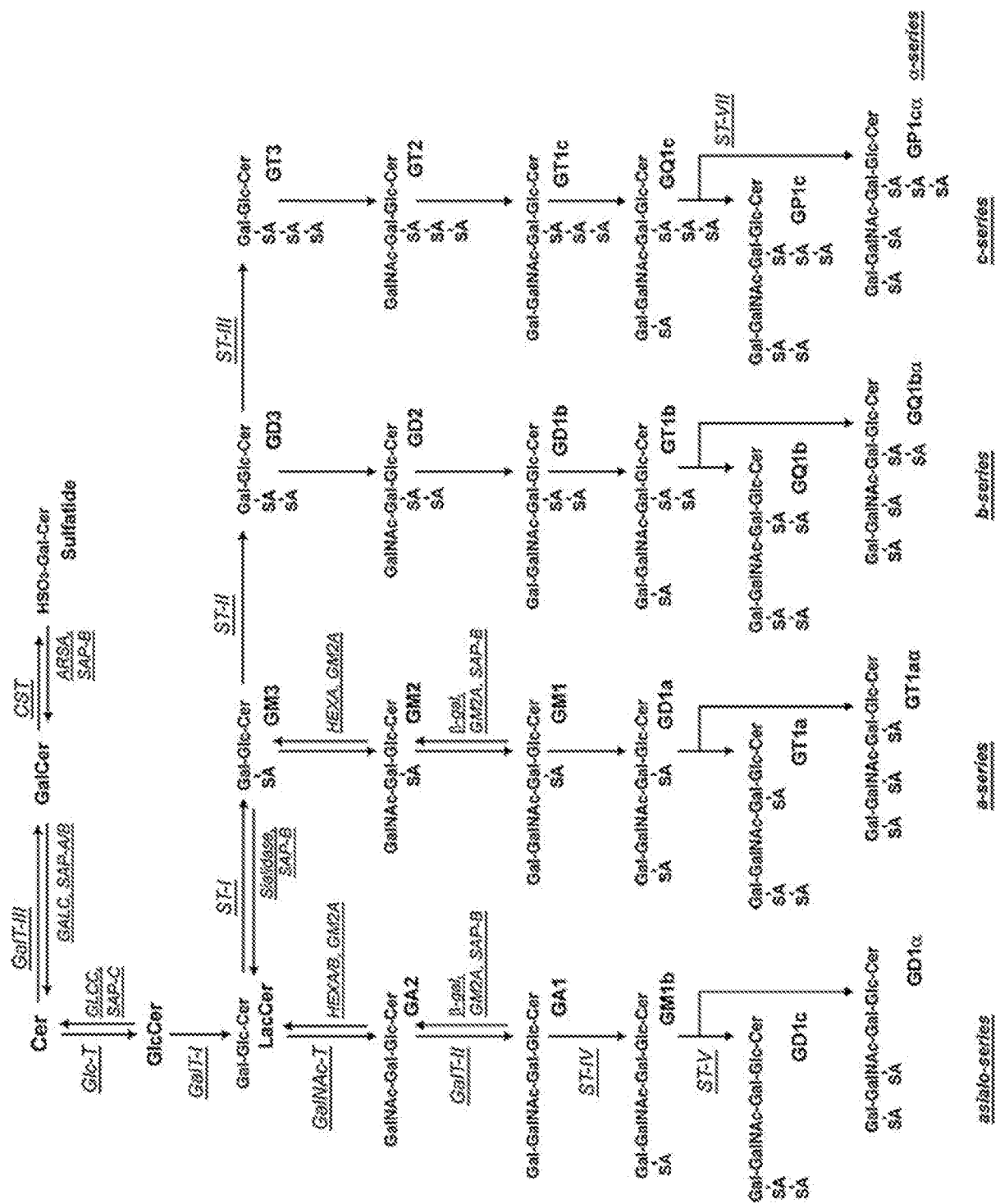


FIG. 4

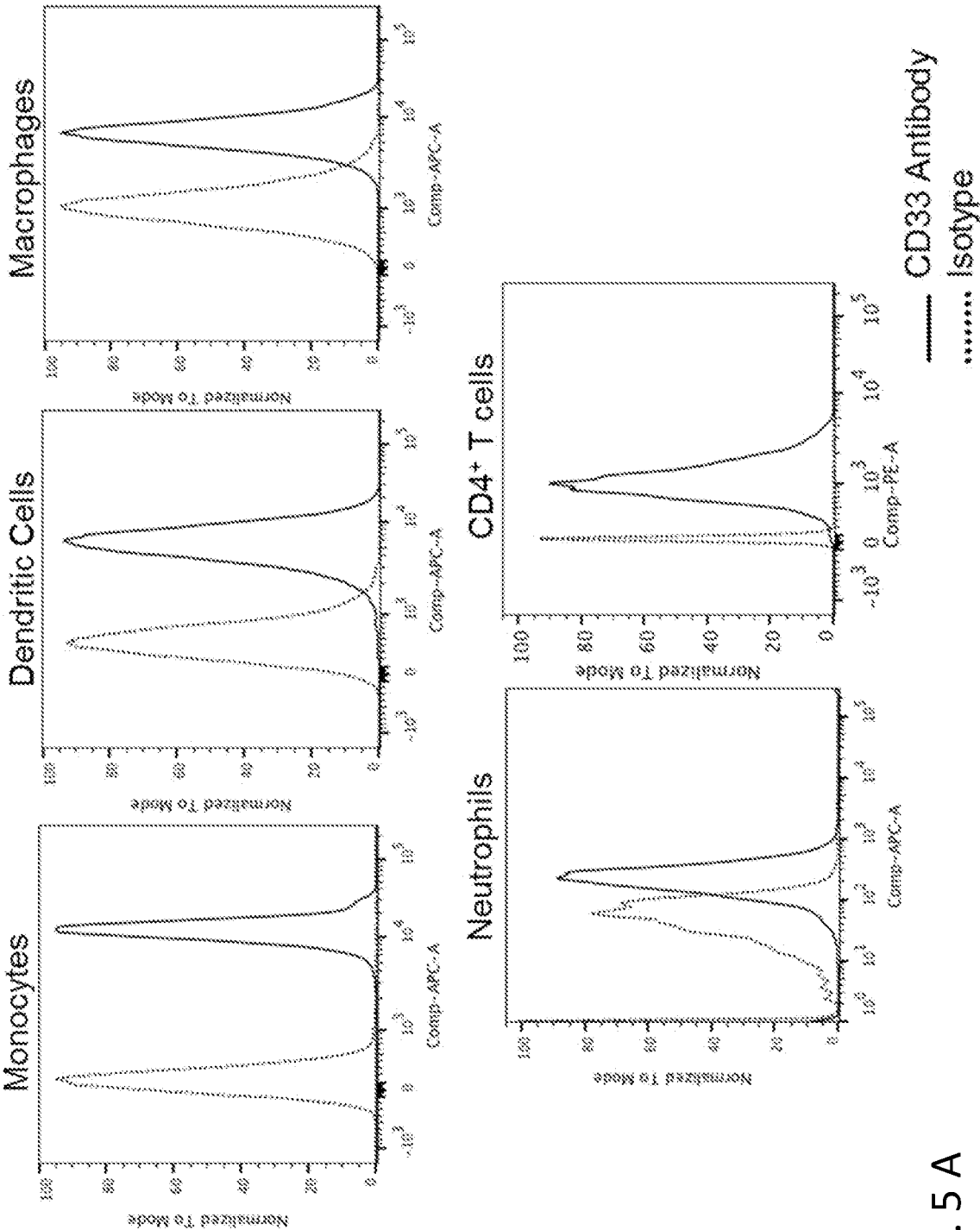


FIG. 5 A

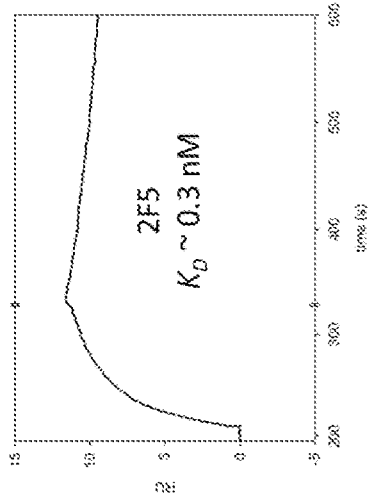


FIG. 5D

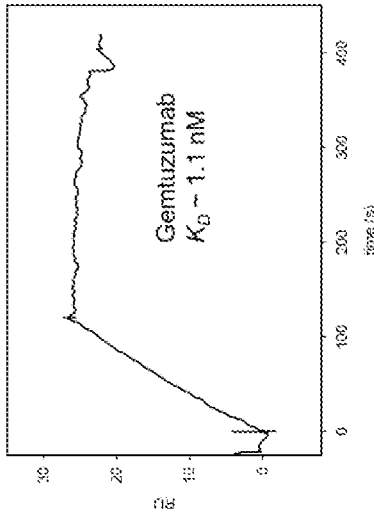


FIG. 5G

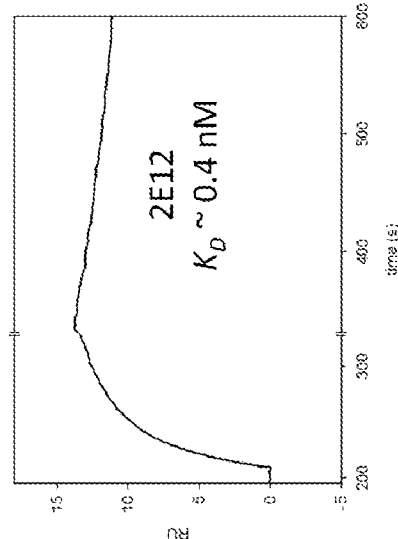


FIG. 5C

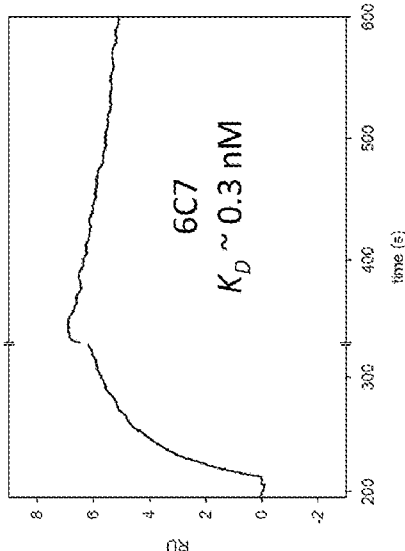


FIG. 5F

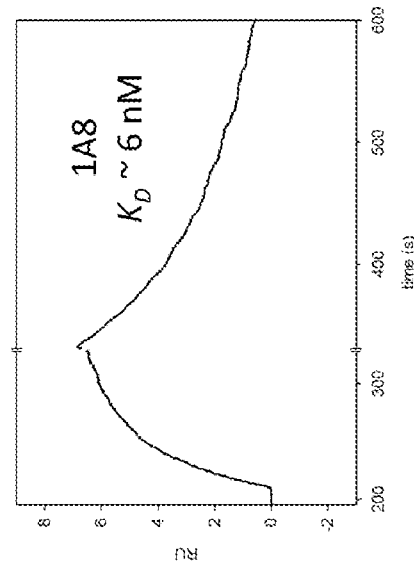


FIG. 5B

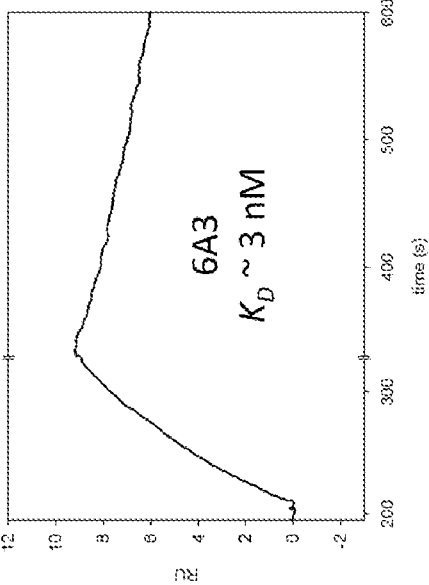


FIG. 5E

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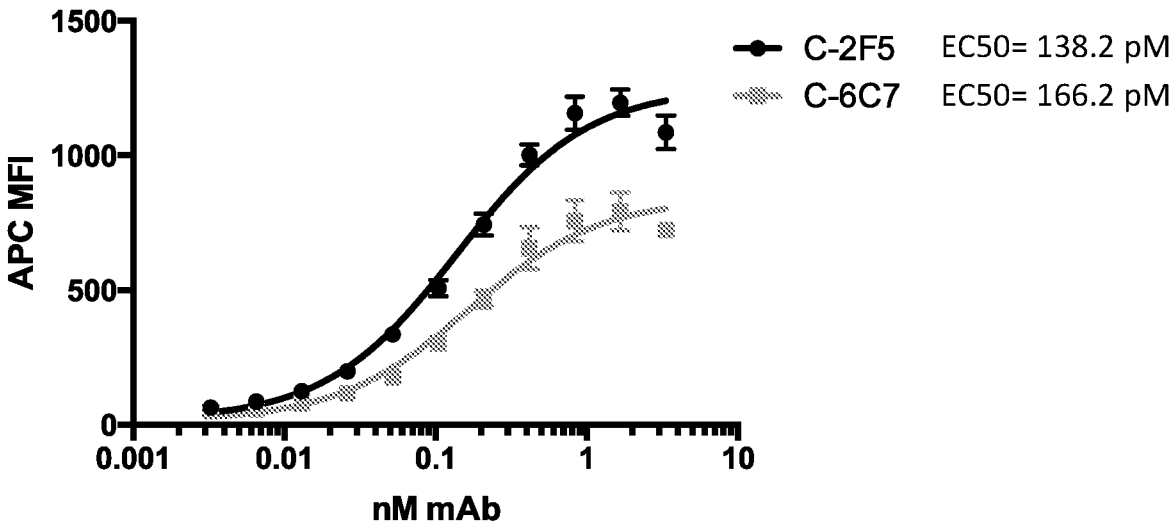


FIG. 5H

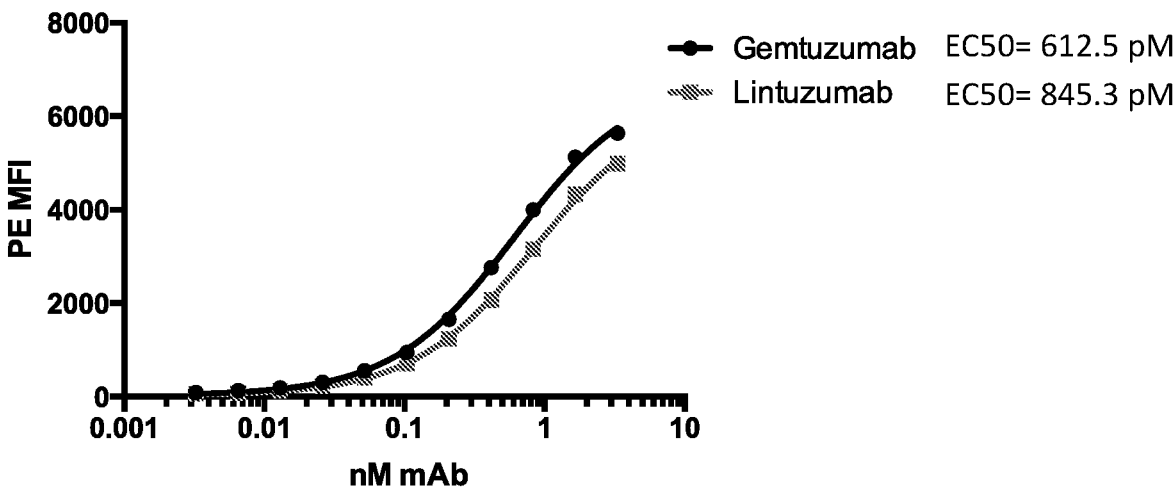
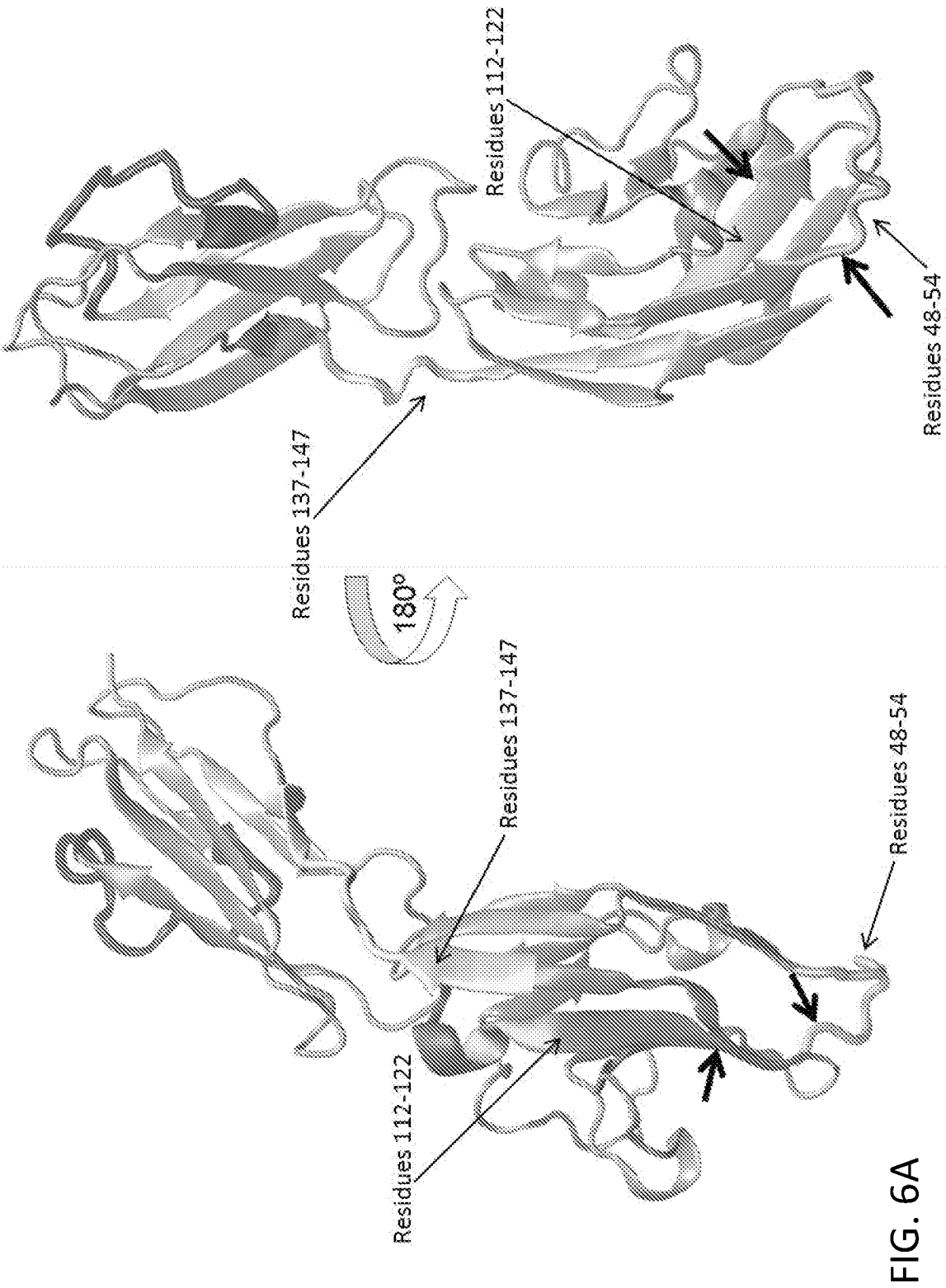


FIG. 5I



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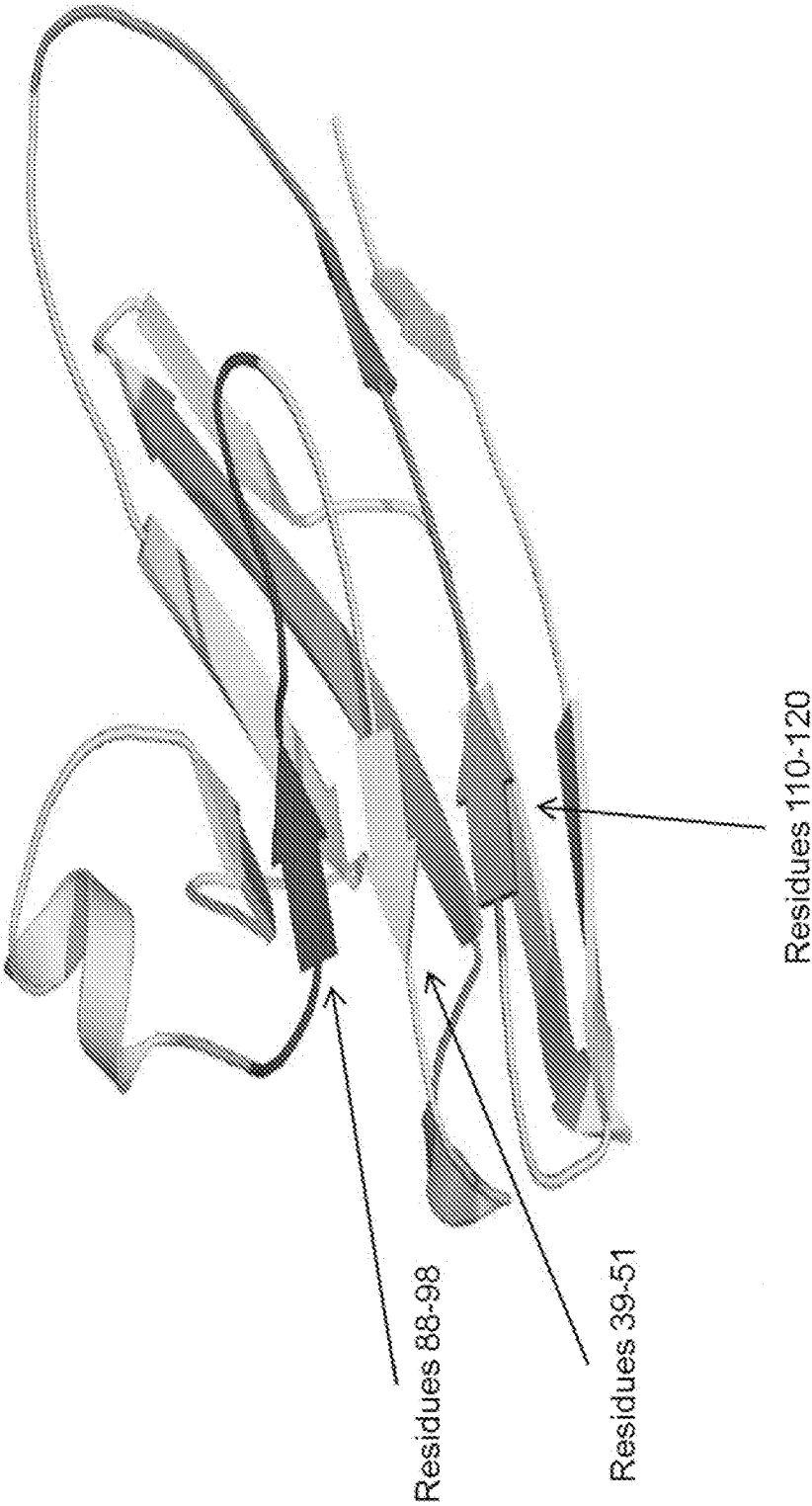


FIG. 6B

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Mutation	Binding Reactivity (% WT)				
	C-2E12 Fab pH9	C-2F5 Fab	C-6A3 Fab	C-6C7 Fab	WM53 MAb
D18A	103.3 (3)	79.5 (1)	2.6 (5)	96.1 (24)	98.0 (6)
P19A	95.8 (5)	102.4 (52)	46.9 (22)	105.3 (3)	116.1 (7)
N20A	95.1 (14)	111.4 (23)	2.1 (1)	115.0 (17)	166.2 (88)
F21A	70.1 (8)	122.0 (37)	1.5 (0)	97.2 (32)	137.1 (3)
F44A	93.8 (19)	102.1 (11)	51.4 (3)	112.3 (4)	76.5 (12)
P46A	78.2 (2)	104.8 (8)	19.9 (4)	120.5 (17)	152.2 (35)
Y49A	23.6 (5)	20.6 (2)	113.3 (4)	16.5 (24)	1.7 (8)
Y50A	45.4 (11)	32.7 (0)	105.7 (13)	41.6 (29)	75.1 (0)
K52A	11.4 (4)	8.9 (2)	100.4 (24)	33.6 (3)	12.4 (6)
N53A	79.5 (22)	78.2 (44)	136.8 (11)	12.2 (3)	164.5 (9)

FIG. 6C

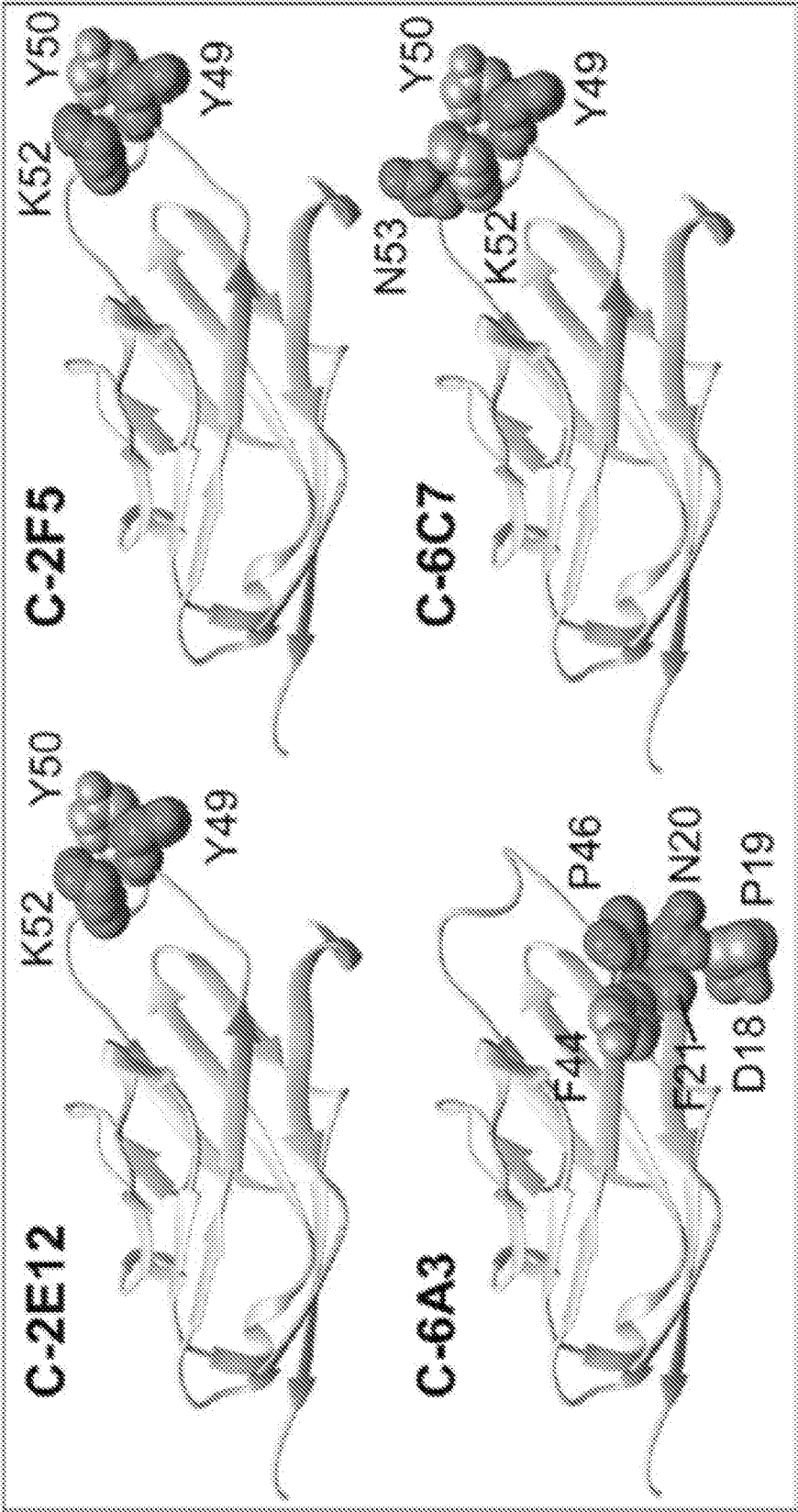


FIG. 6D

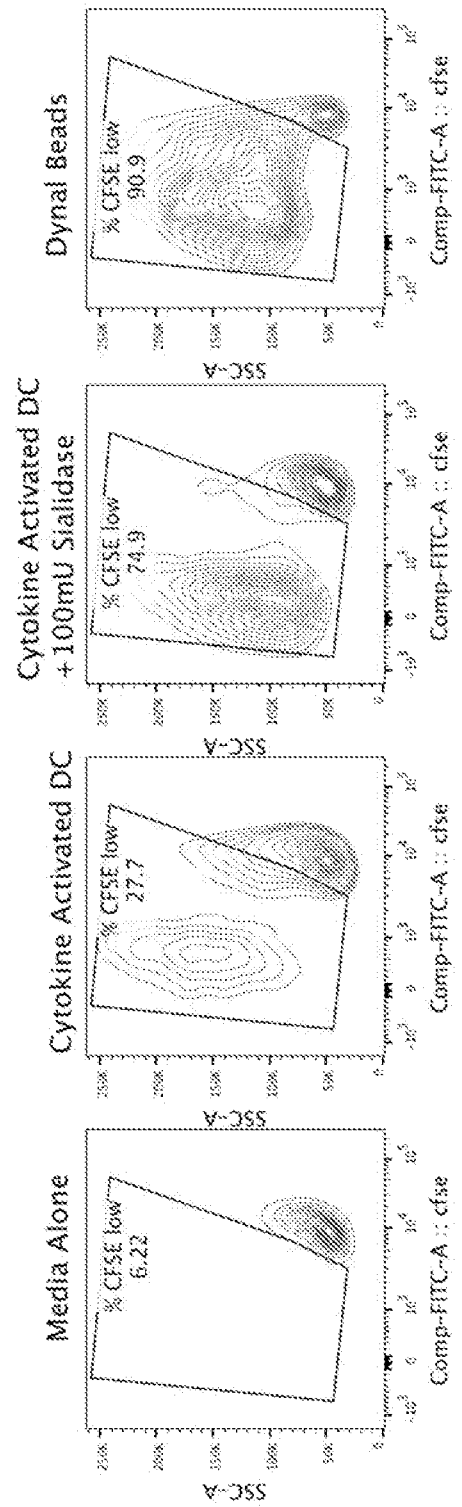


FIG. 7

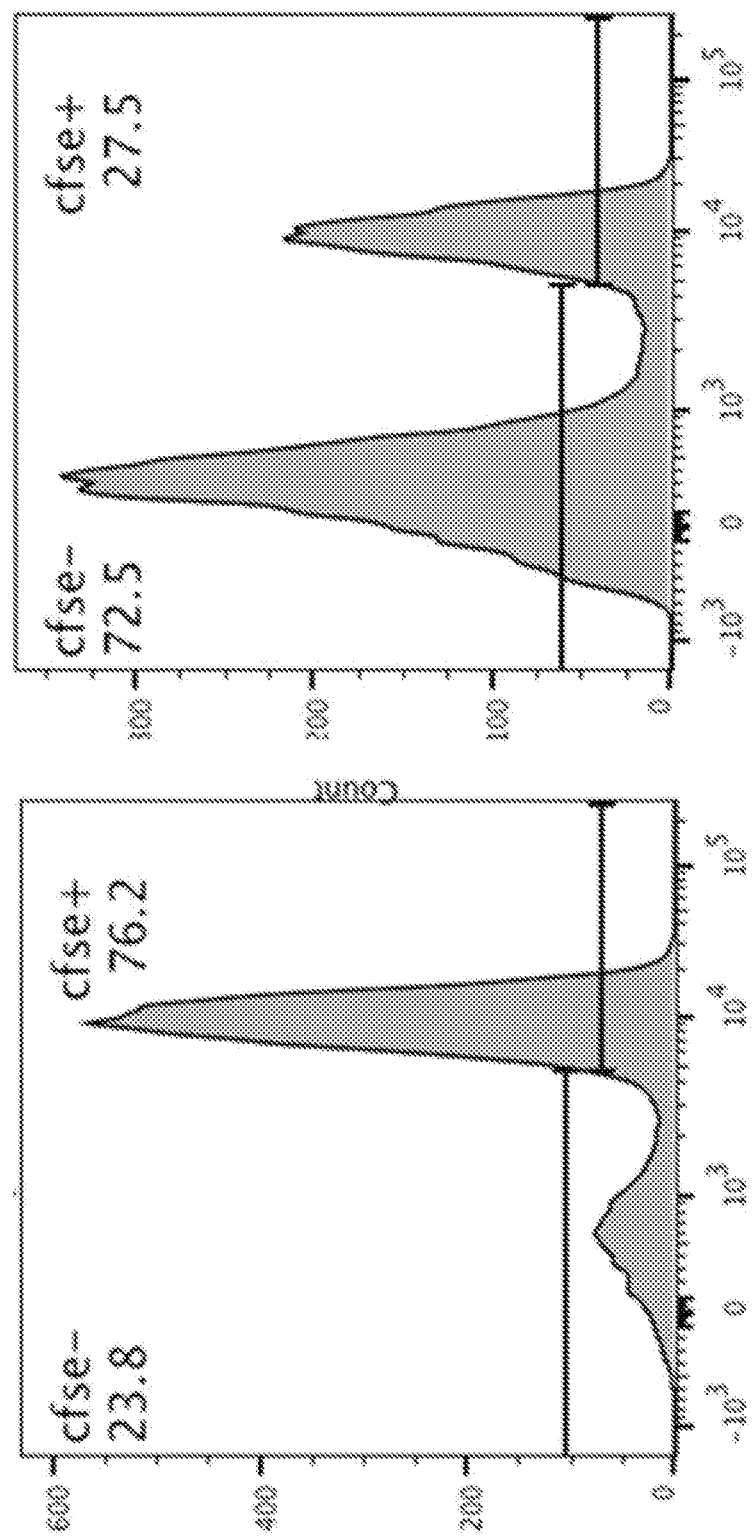


FIG. 8

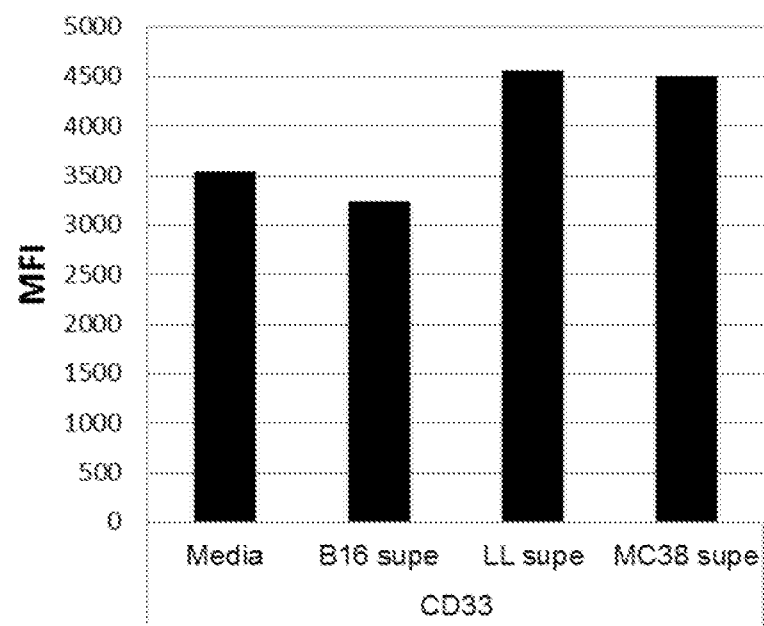


FIG. 9A

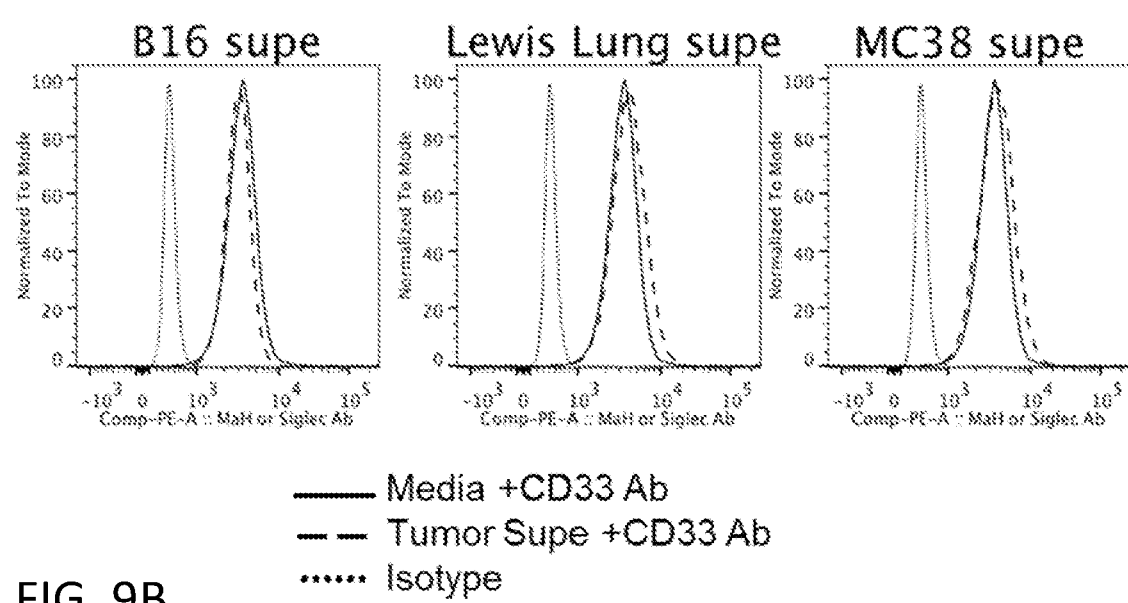


FIG. 9B

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FIG. 9C

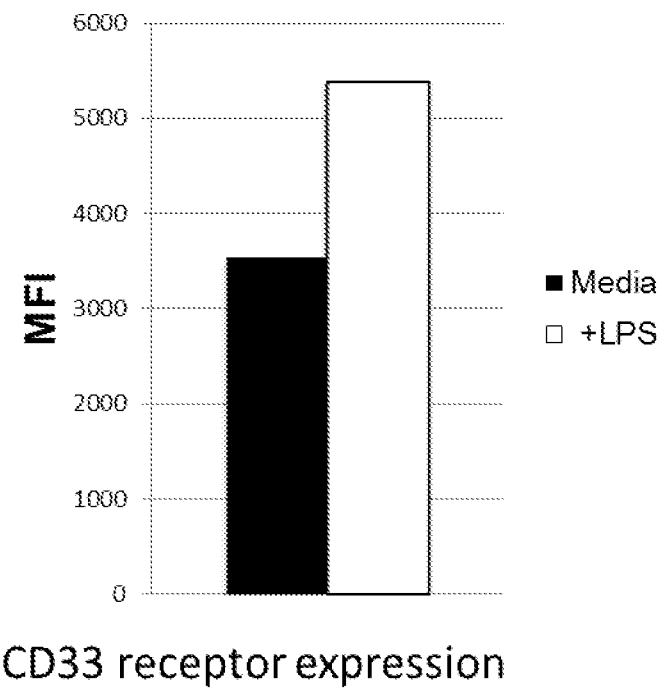
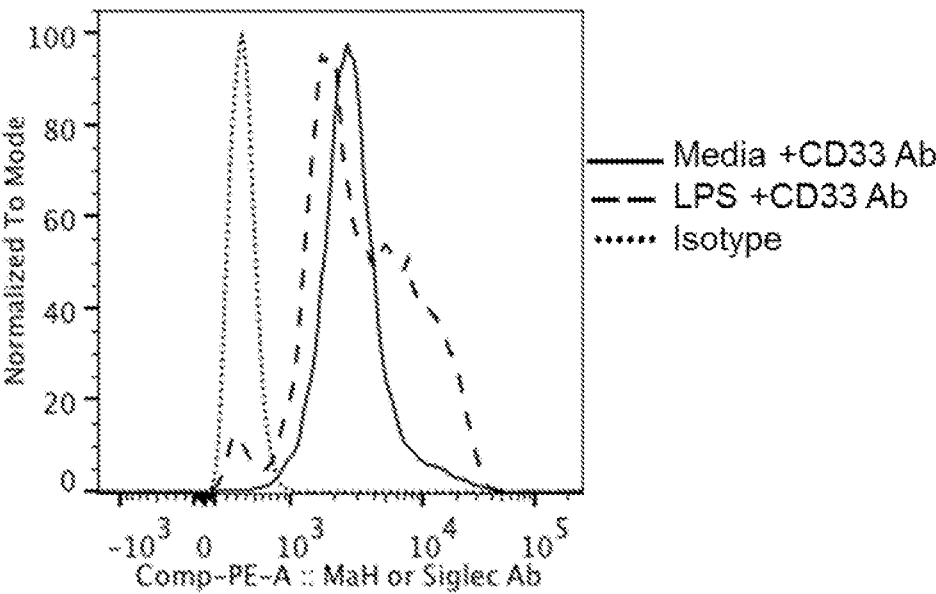


FIG. 9D

CD33 receptor expression

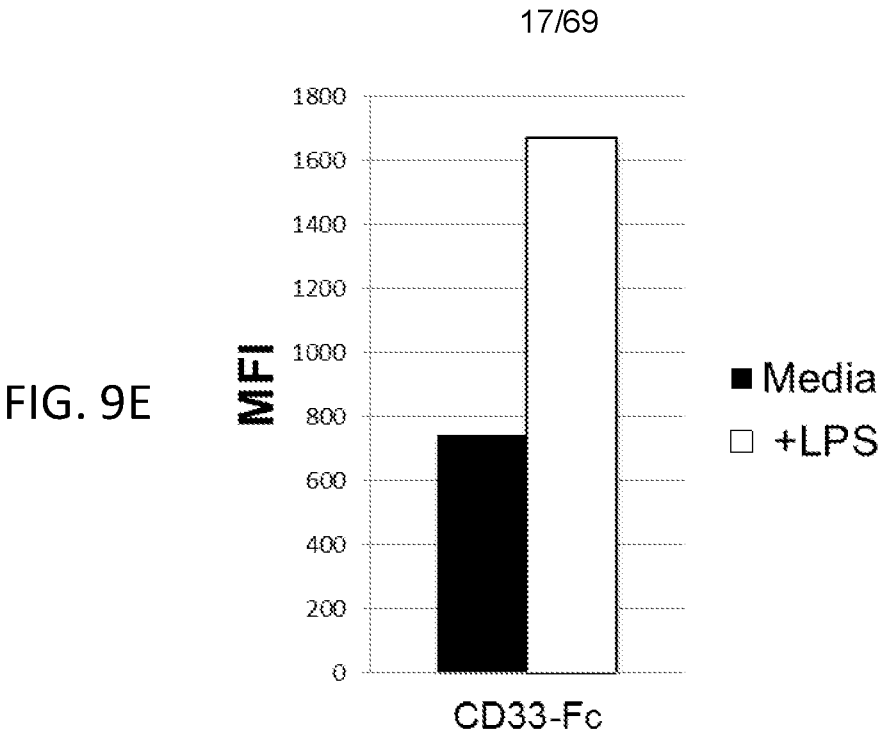
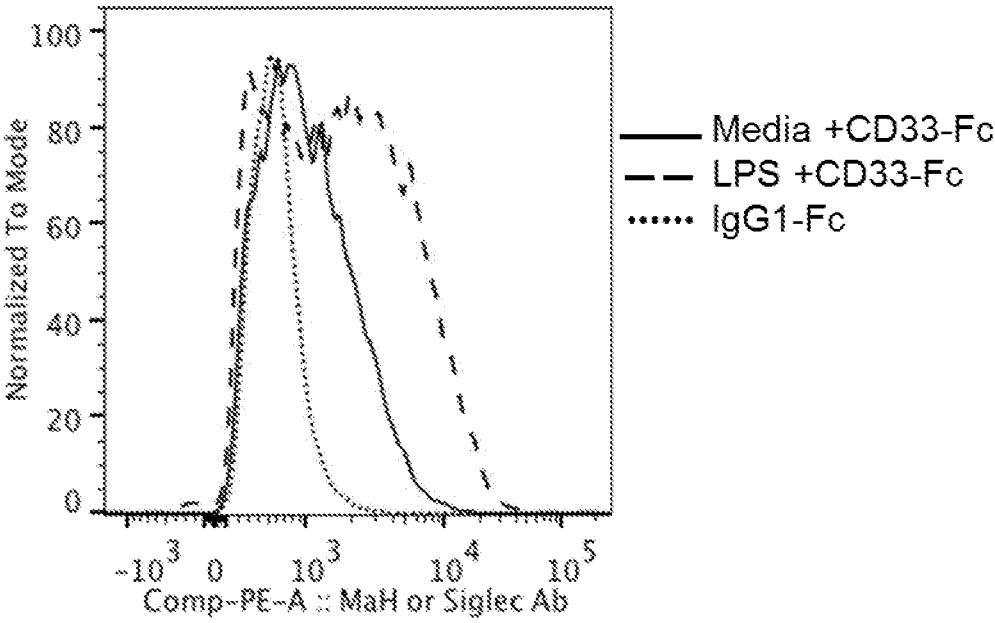


FIG. 9F

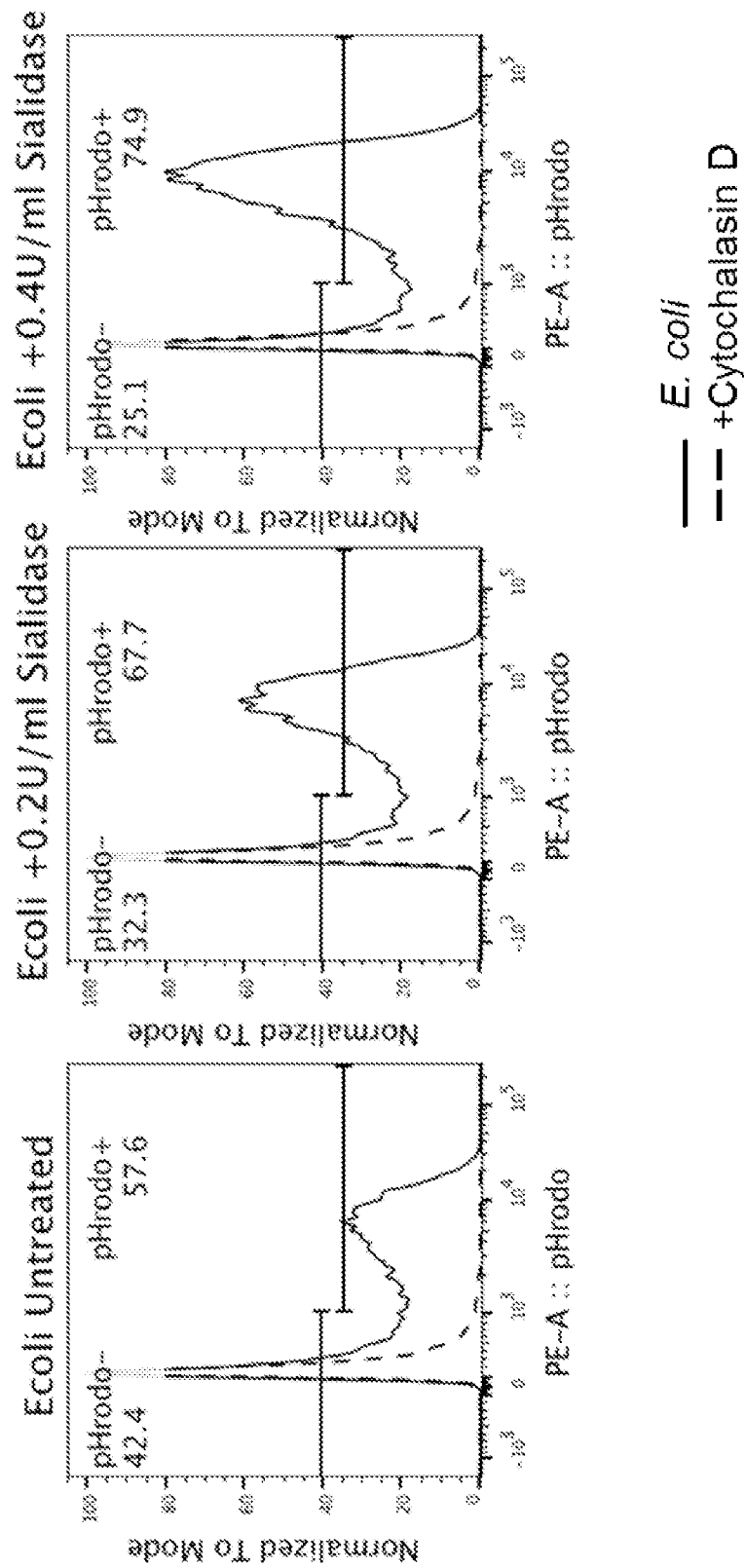


FIG. 10

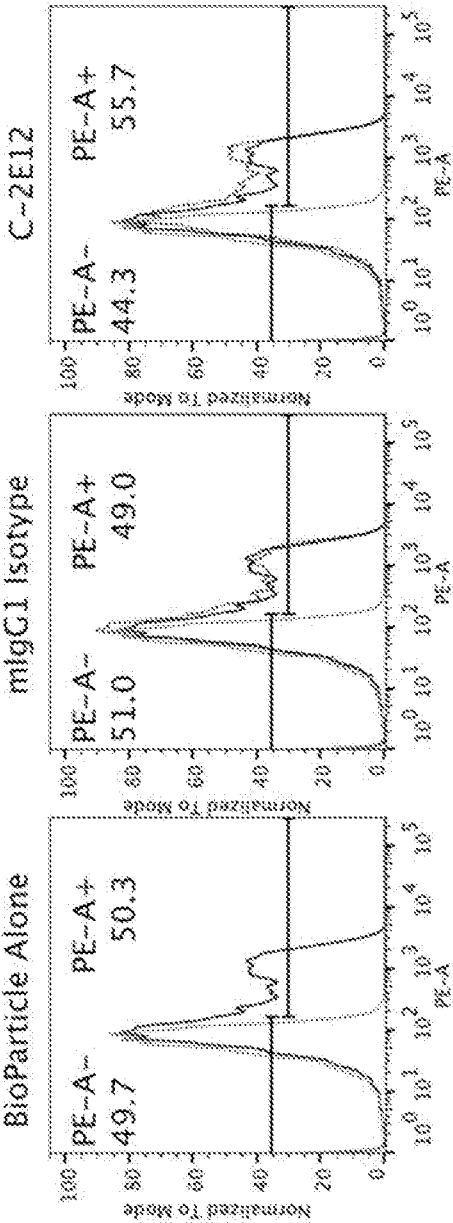


FIG. 11A

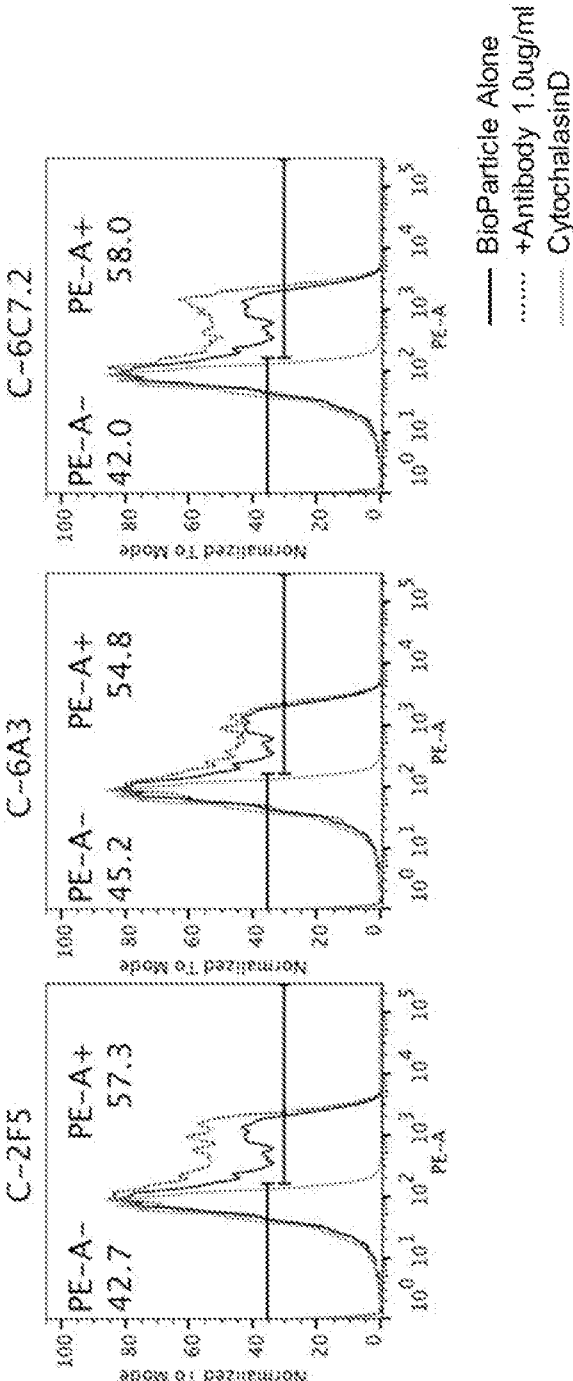


FIG. 11B

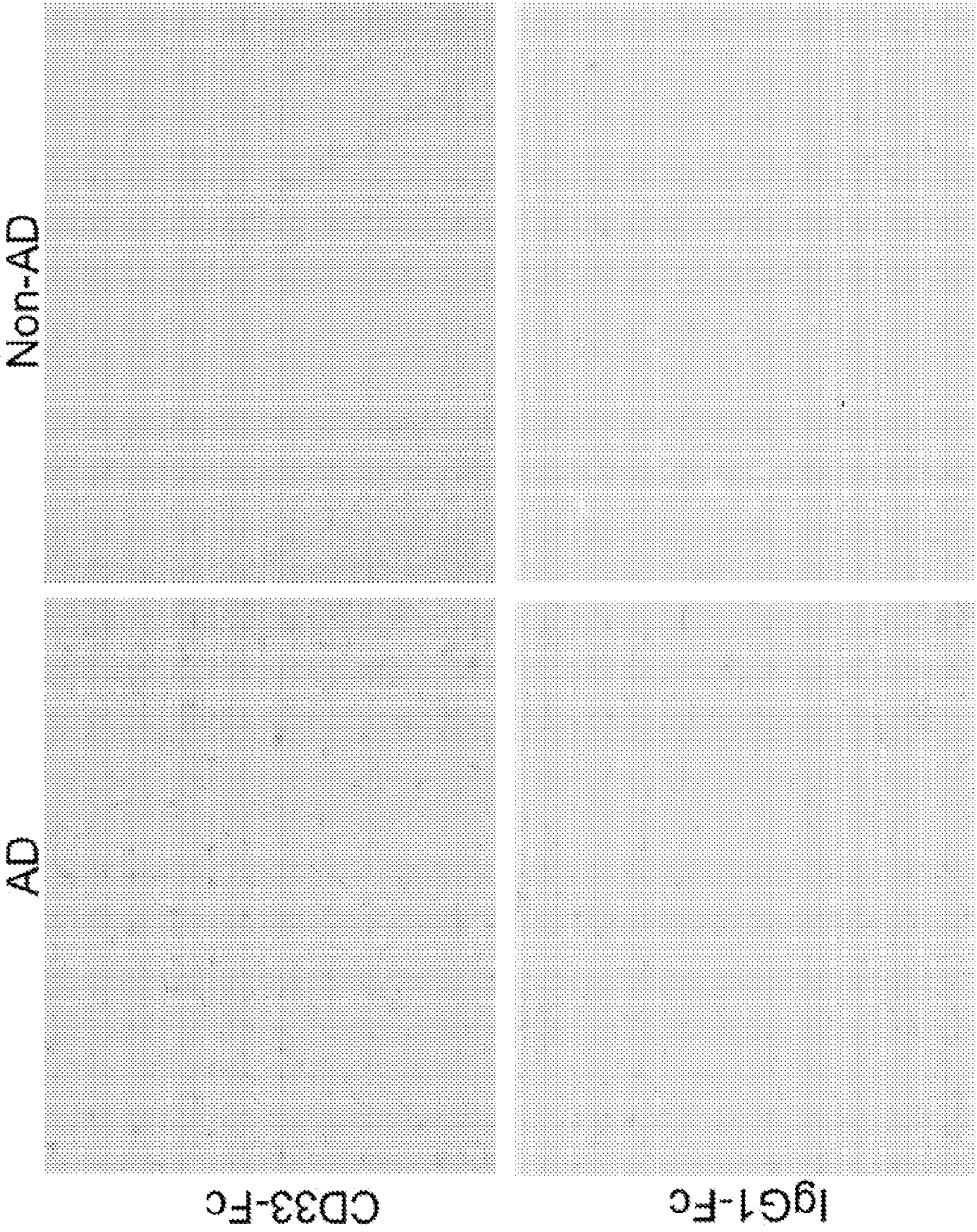


FIG. 12A

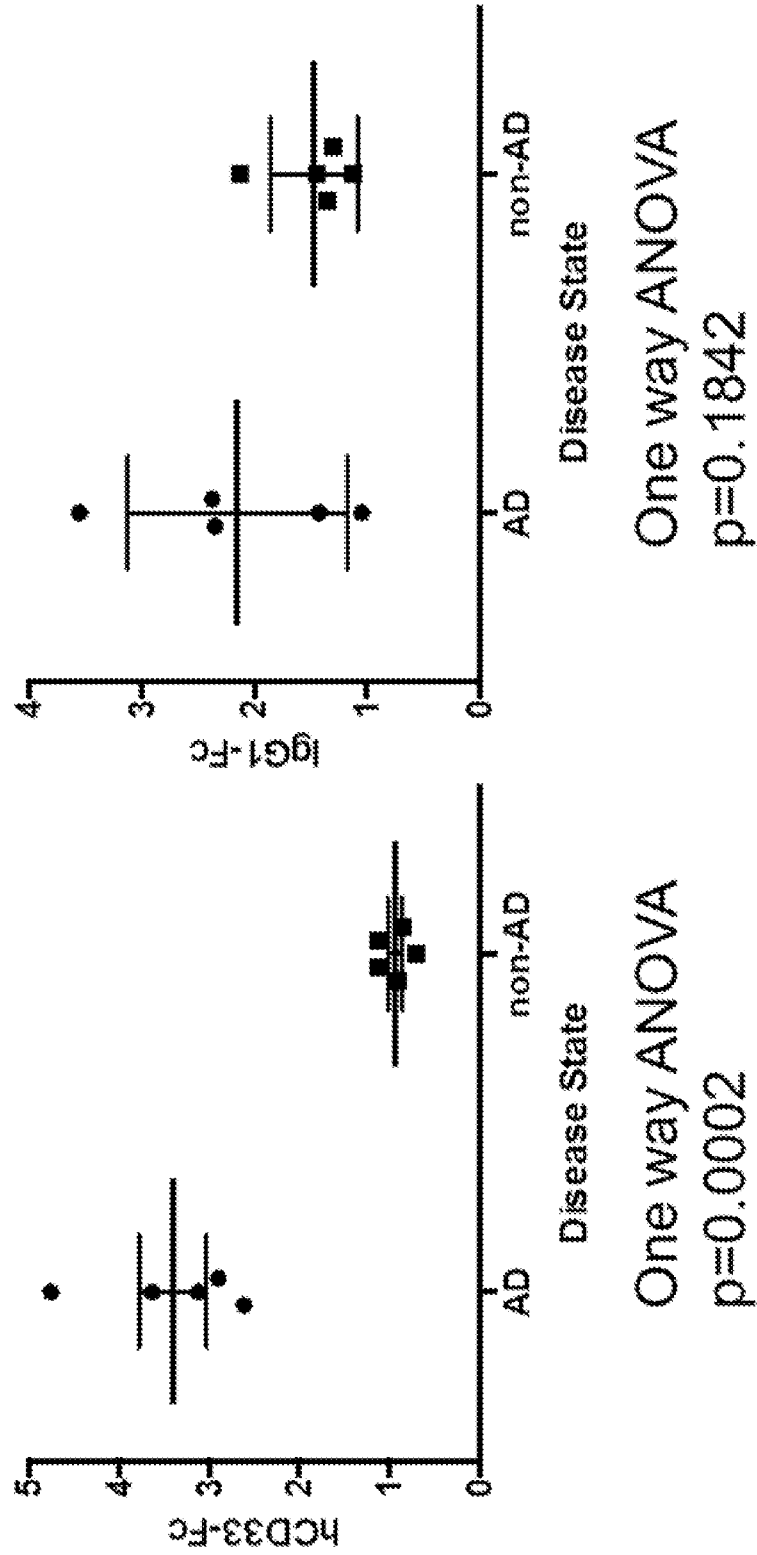


FIG. 12B

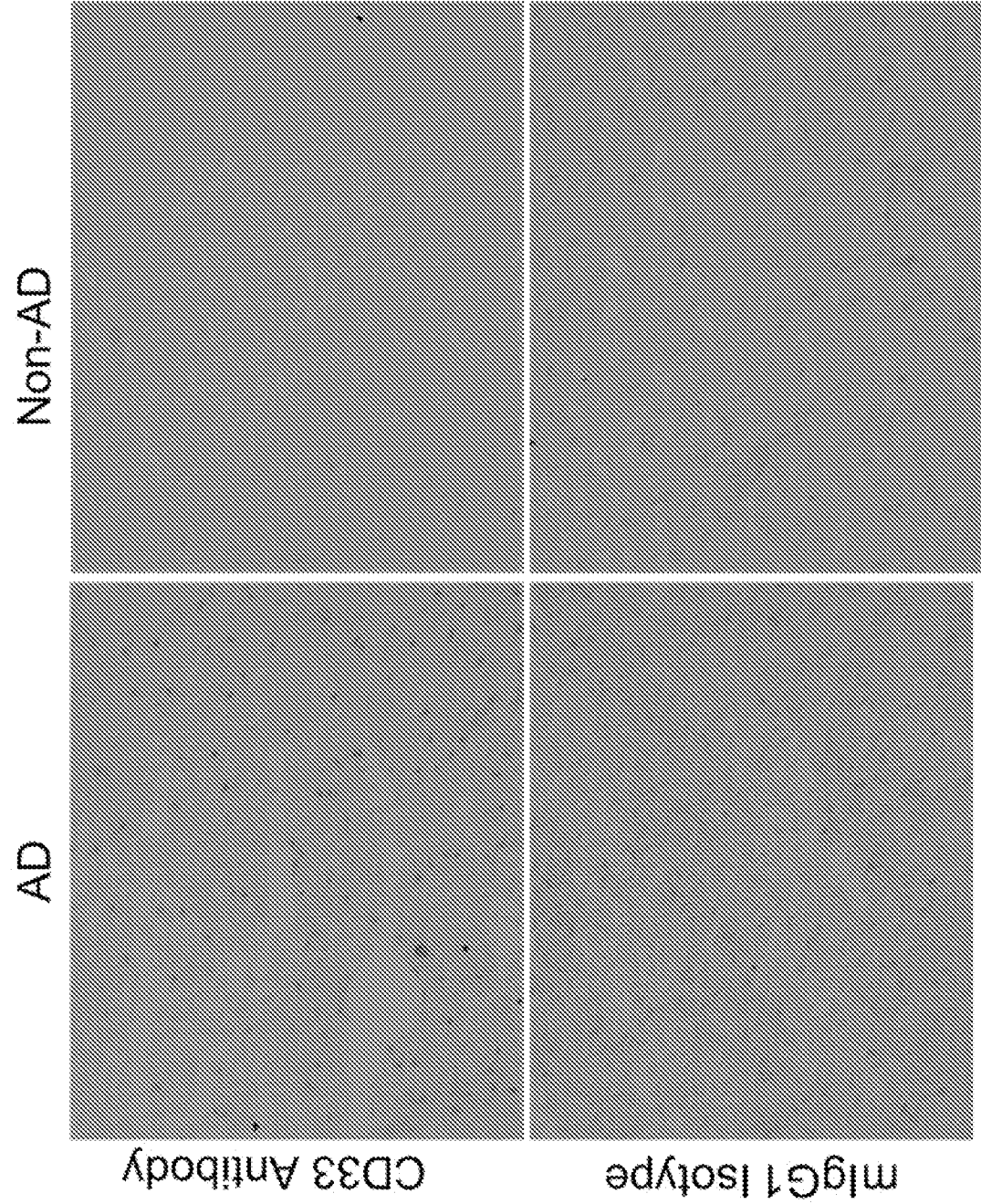


FIG. 13A

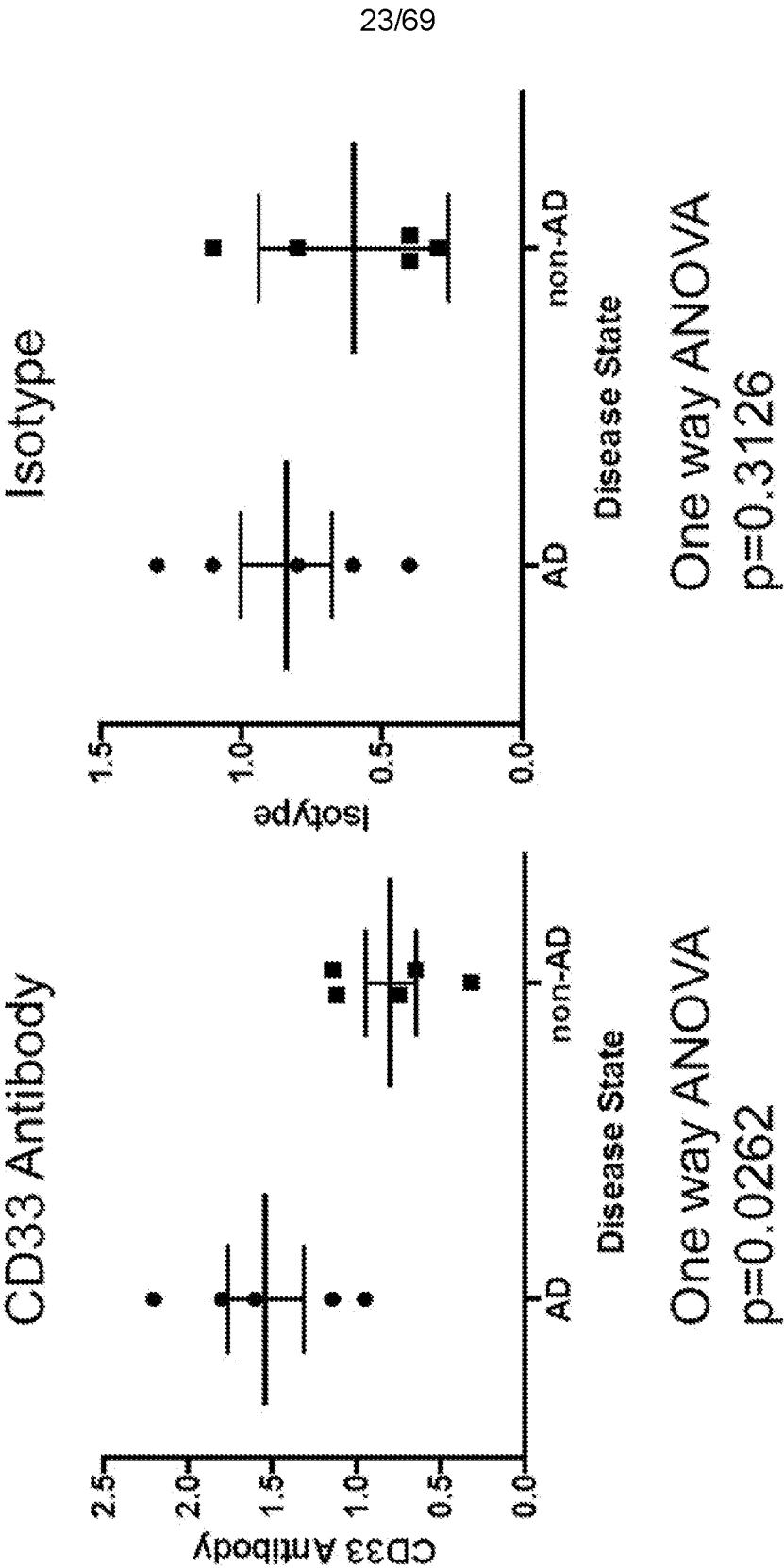


FIG. 13B

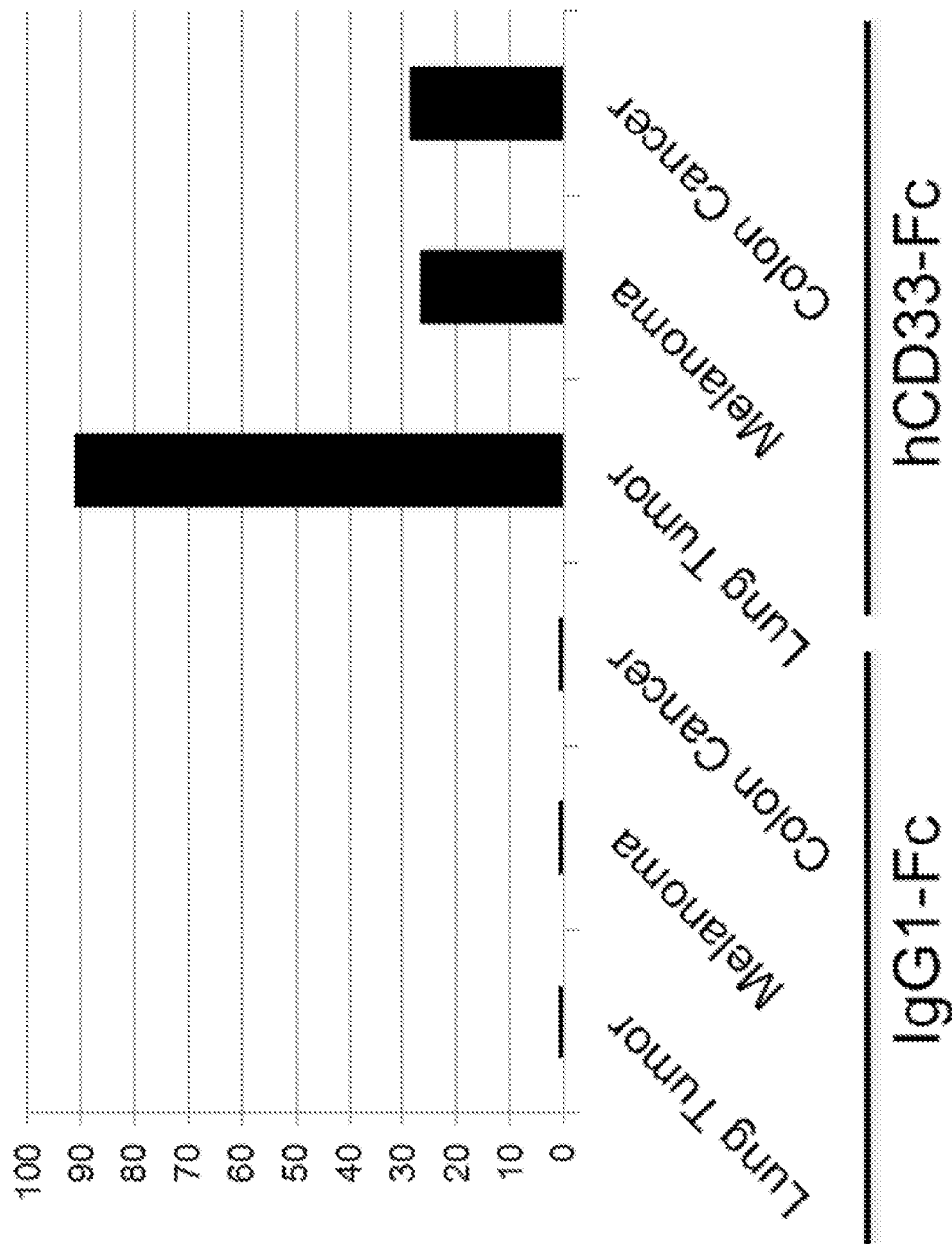


FIG. 14A

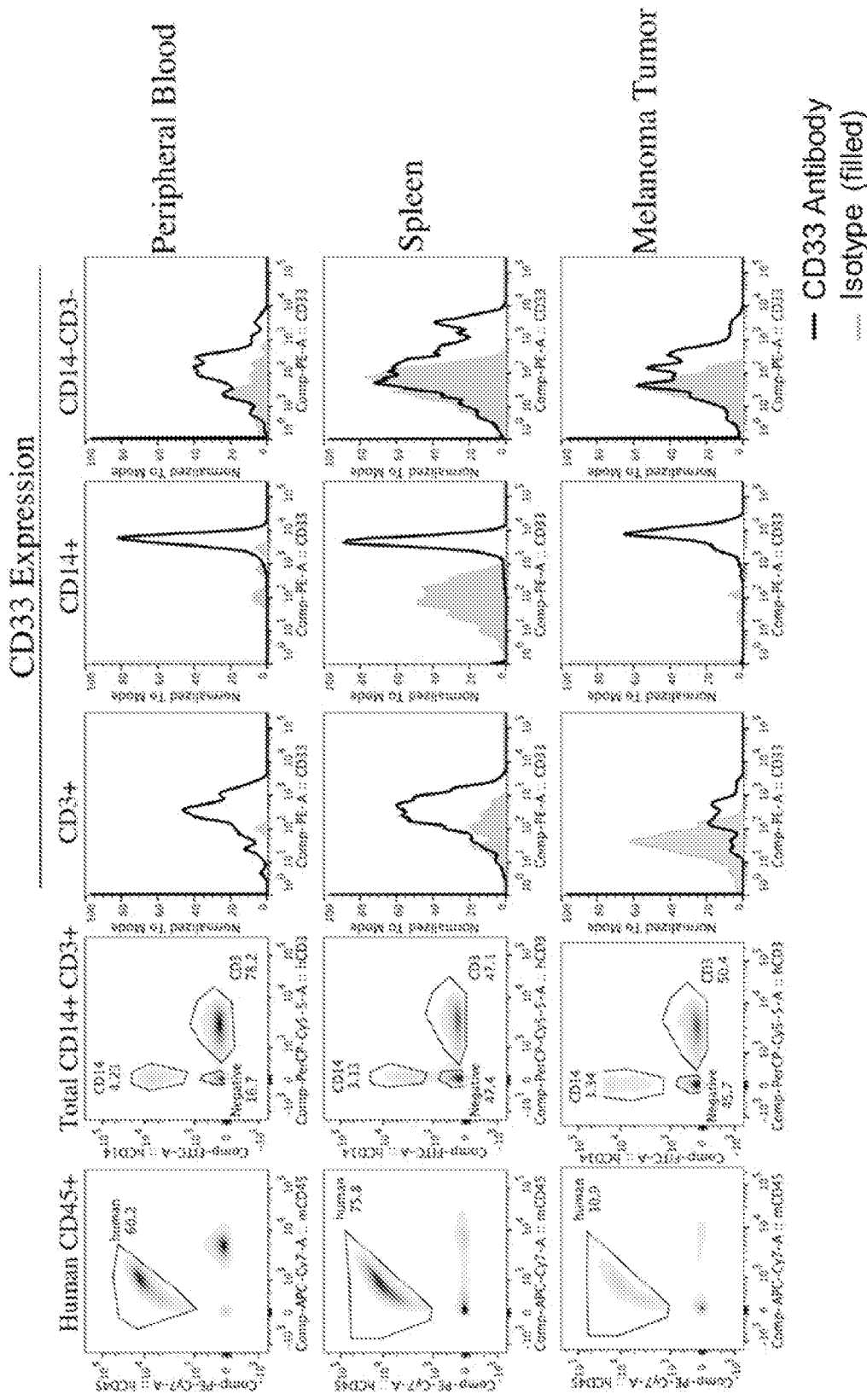


FIG. 14B

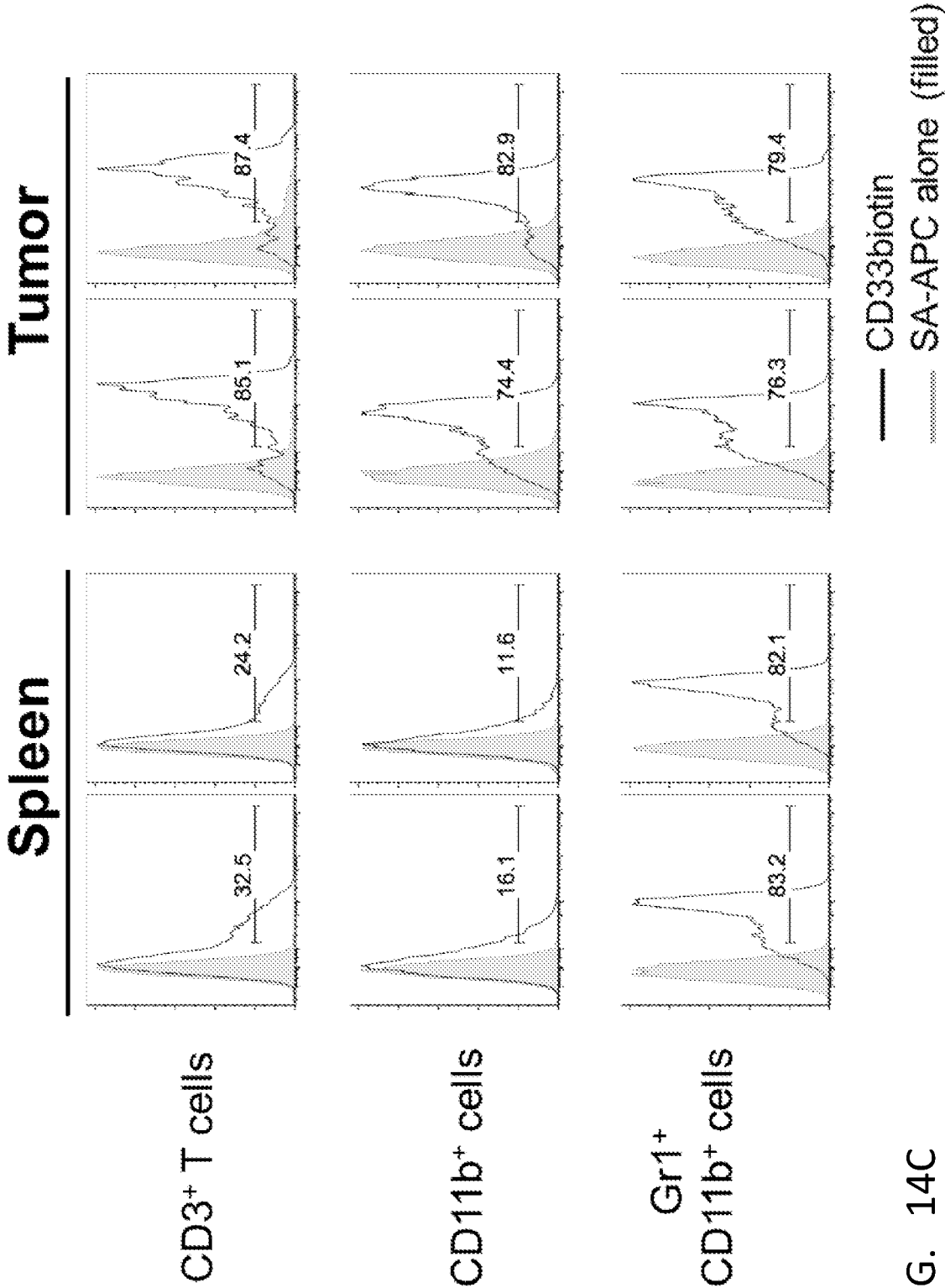


FIG. 14C

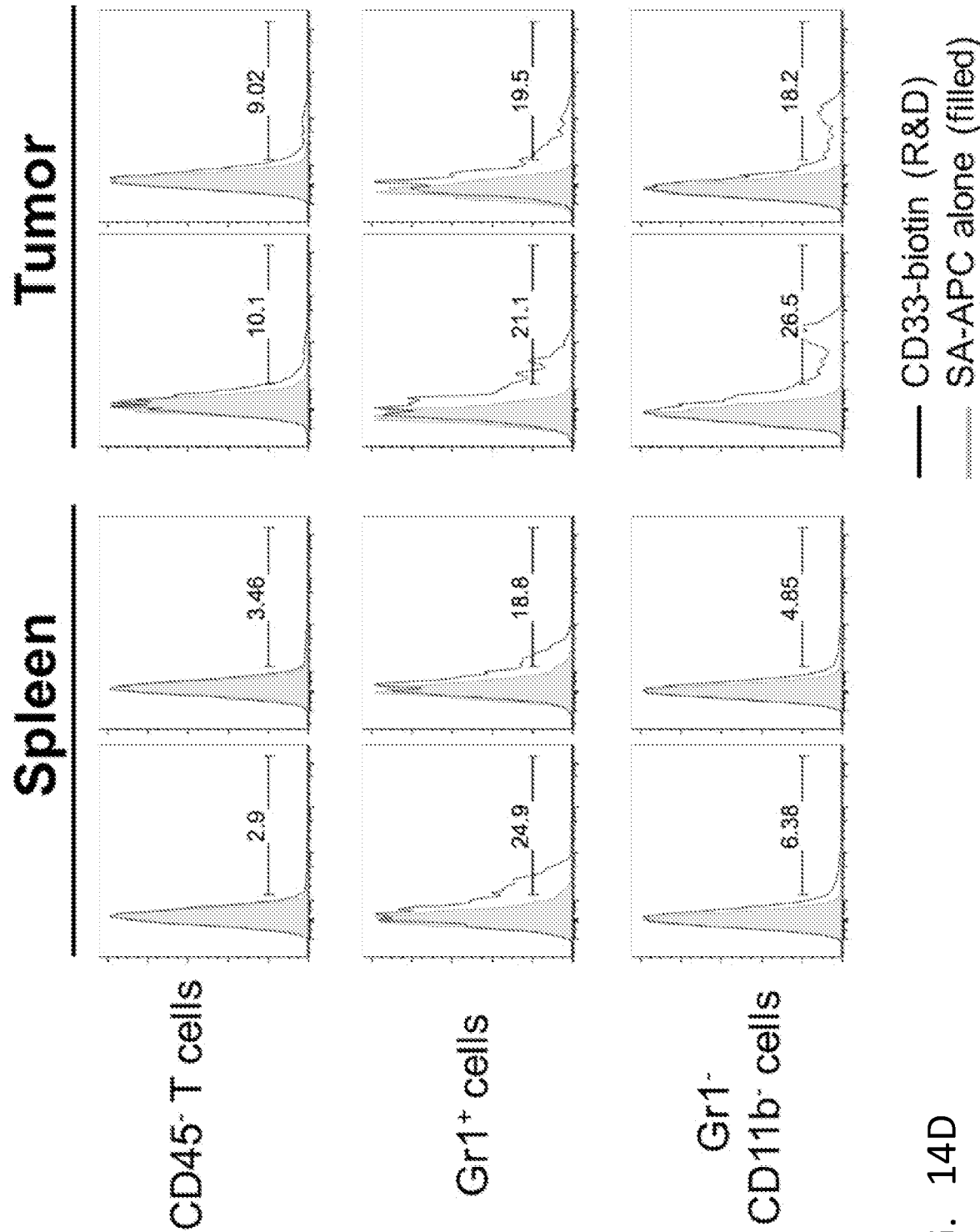
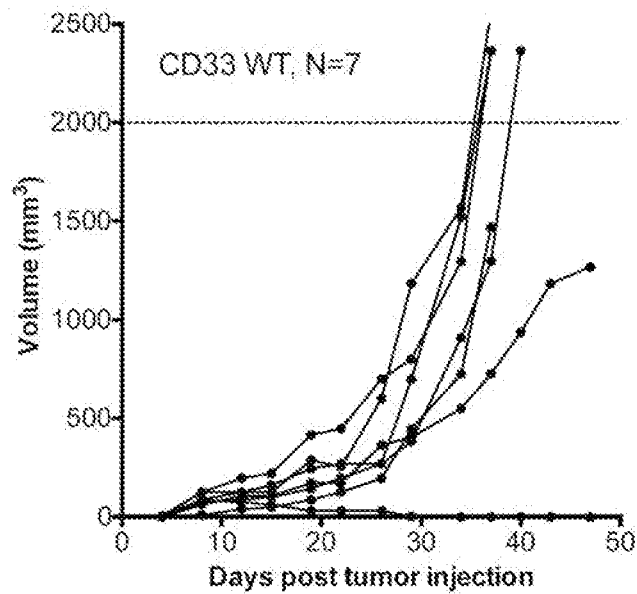


FIG. 14D

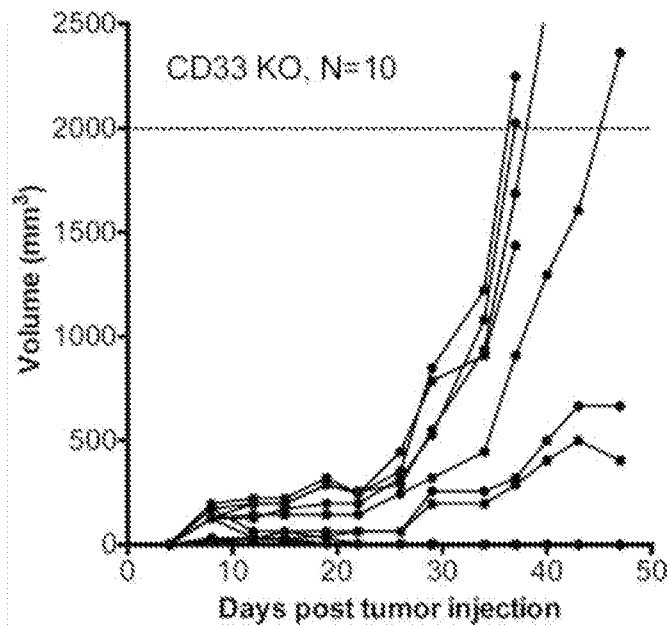
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FIG. 15A

**WT**

PR/CR/Stable: 1/7, 14%

FIG. 15B

**CD33 KO**

PR/CR/Stable: 5/10, 50%

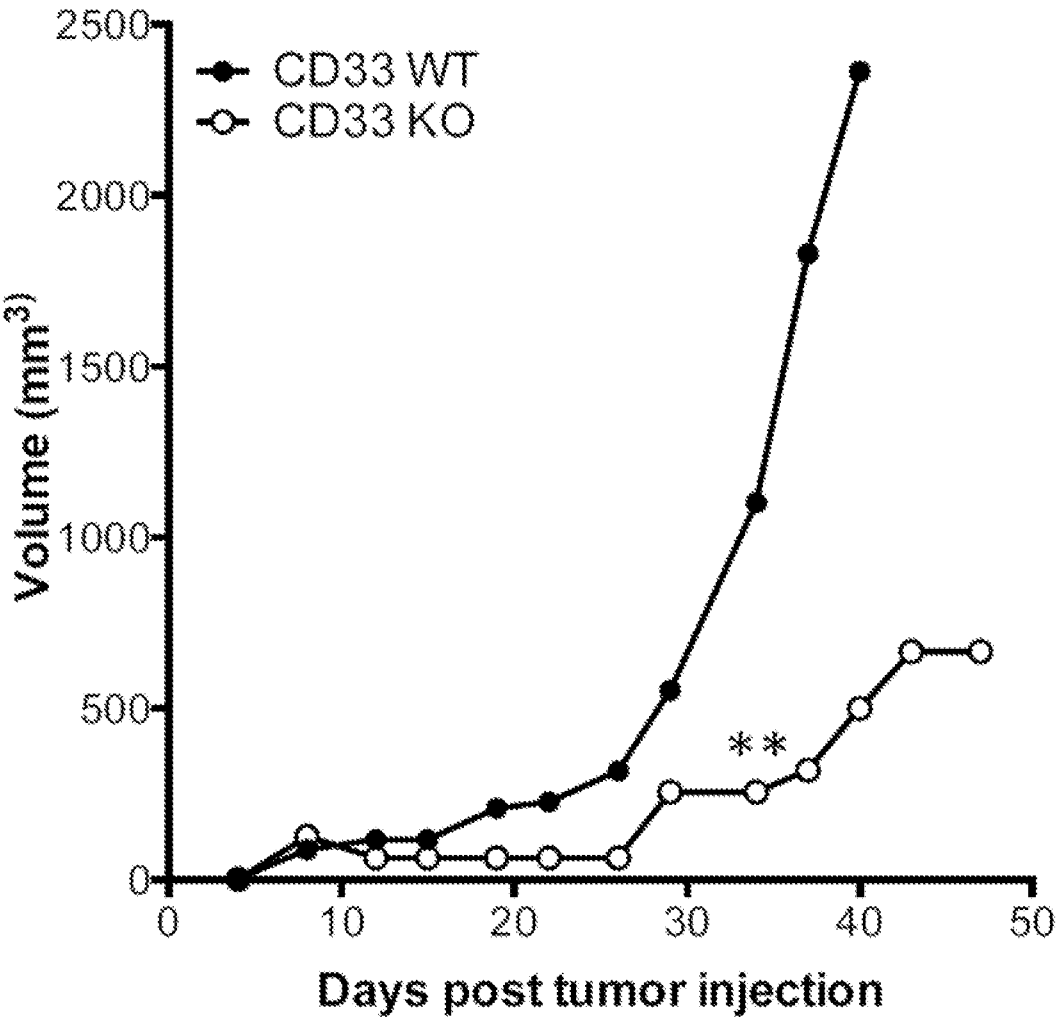


FIG. 15C

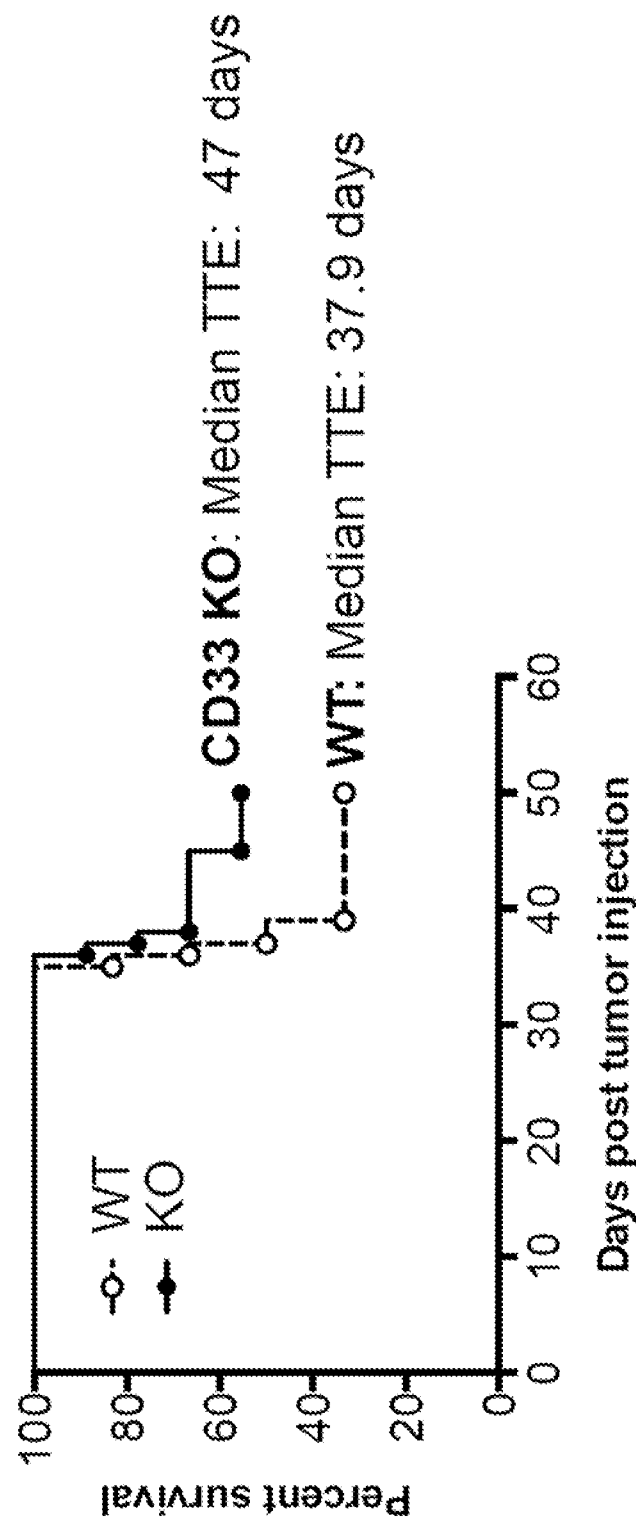


FIG. 15D

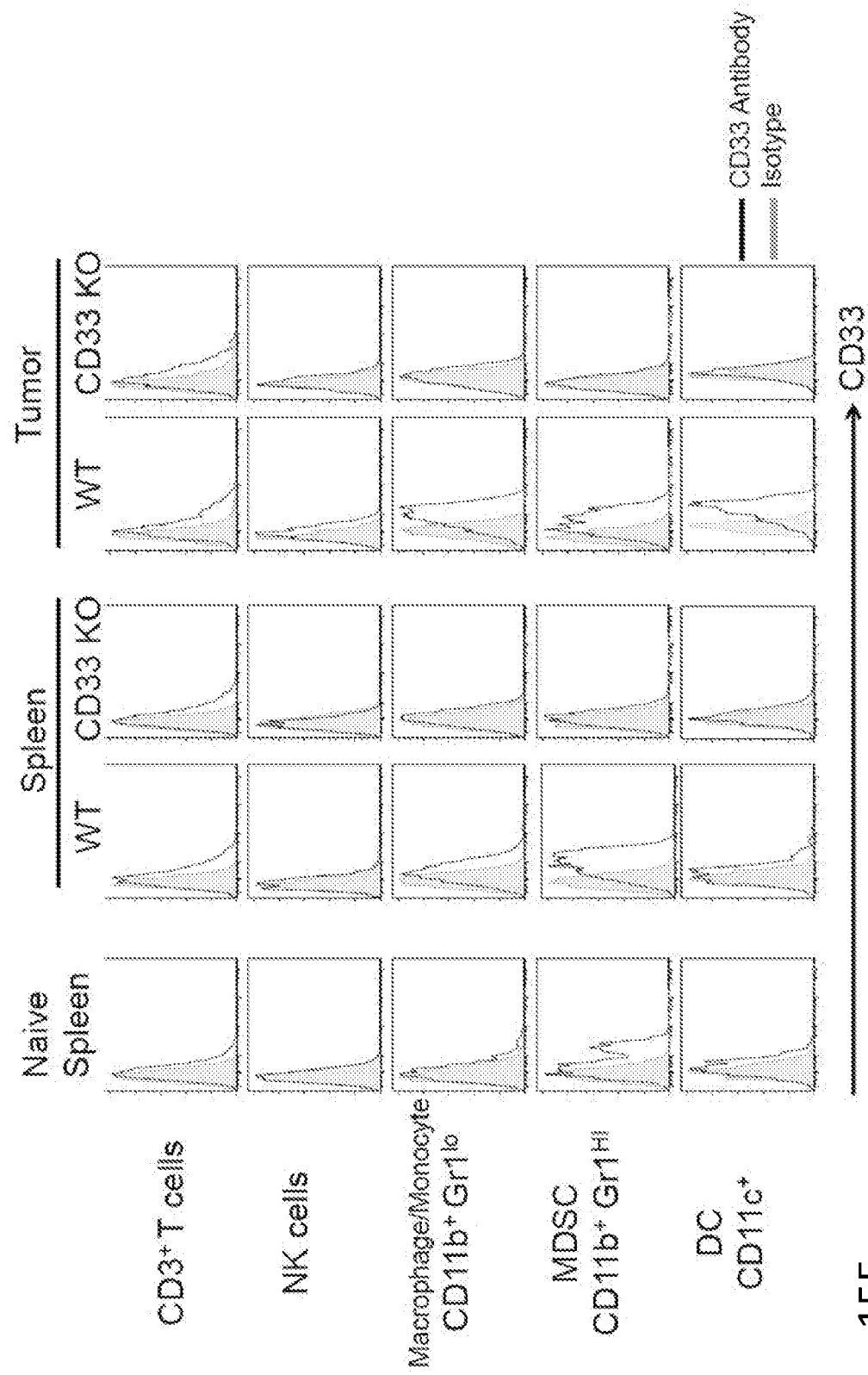


FIG. 15E

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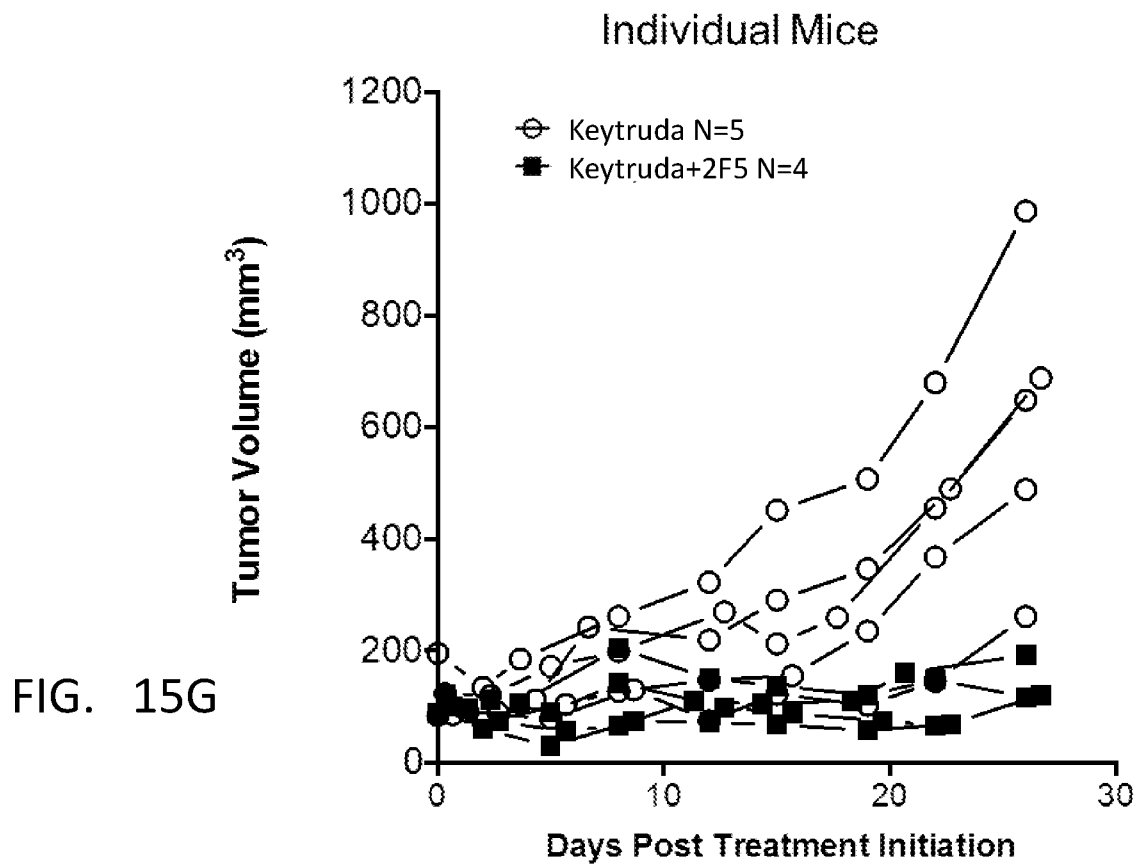


FIG. 15G

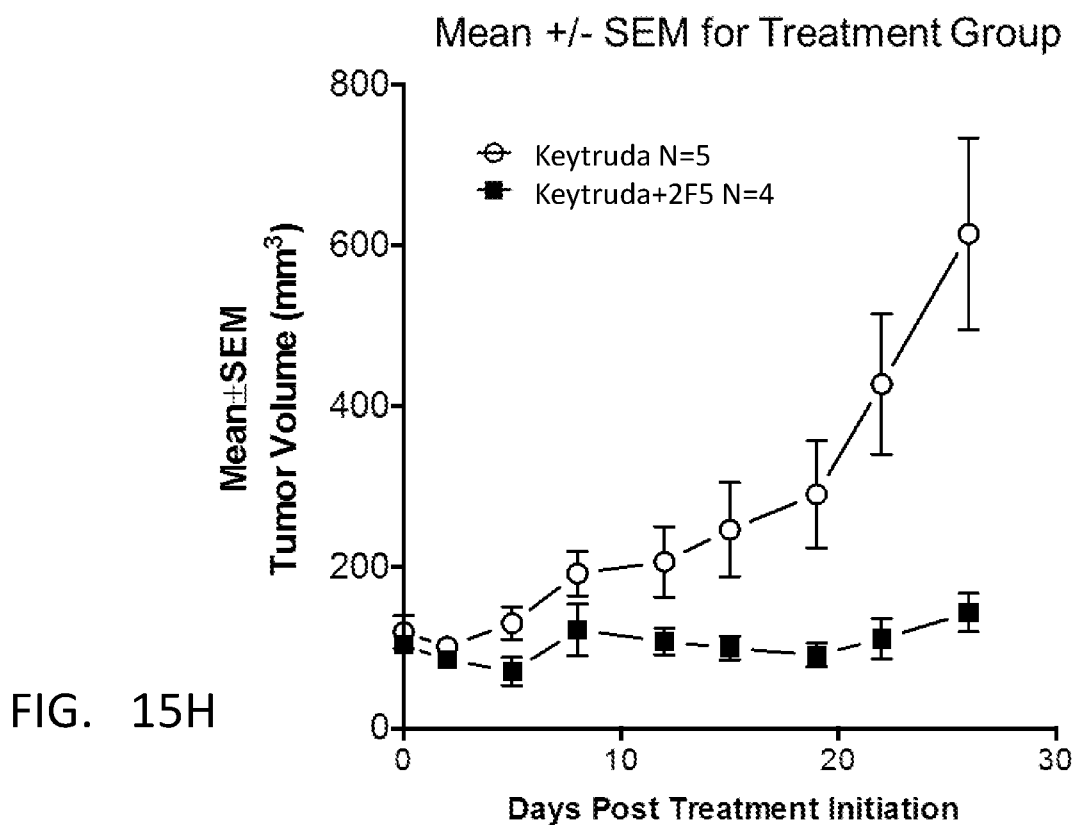


FIG. 15H

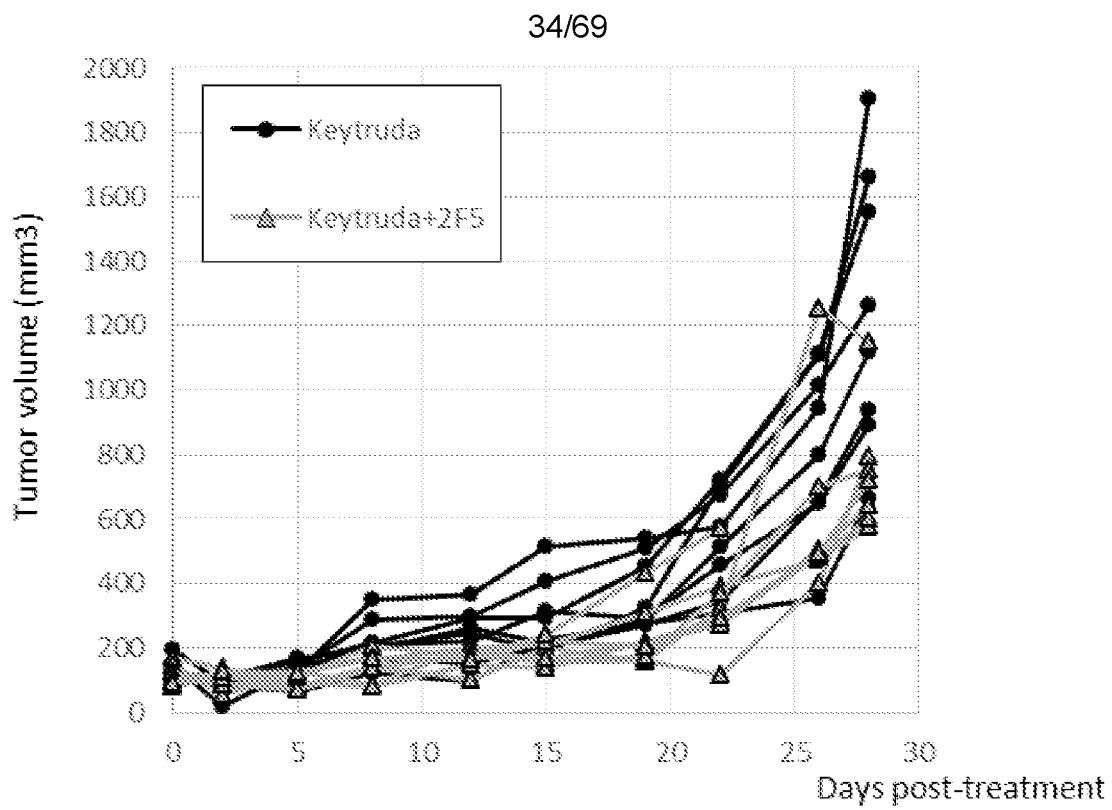


FIG. 15I

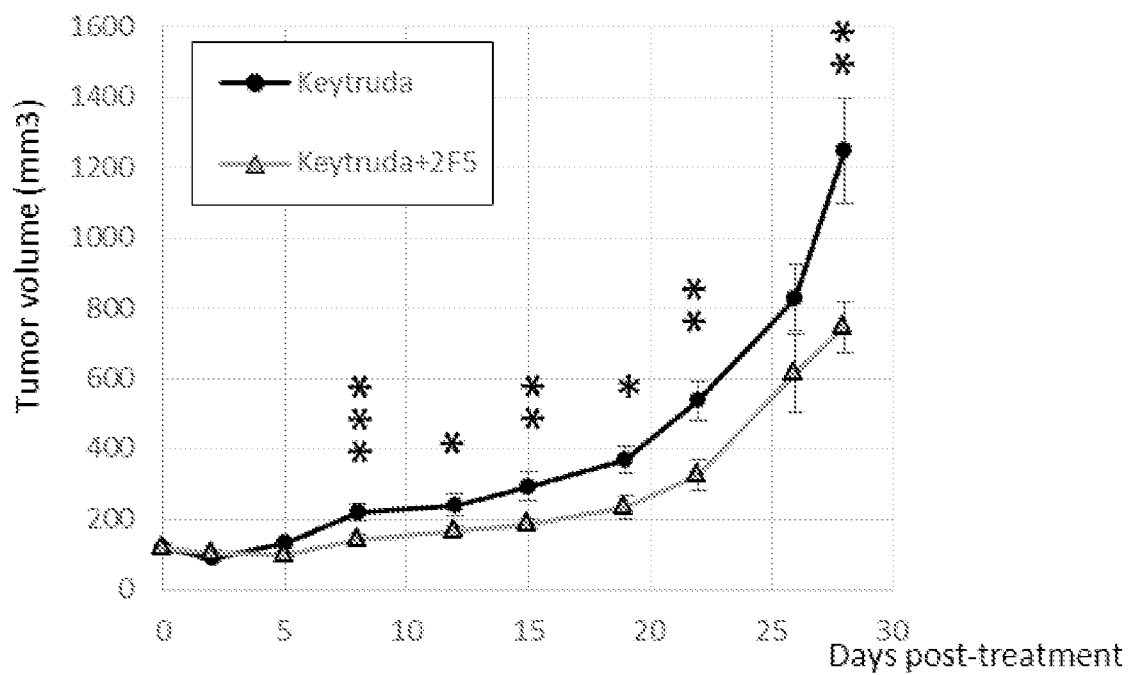


FIG. 15J

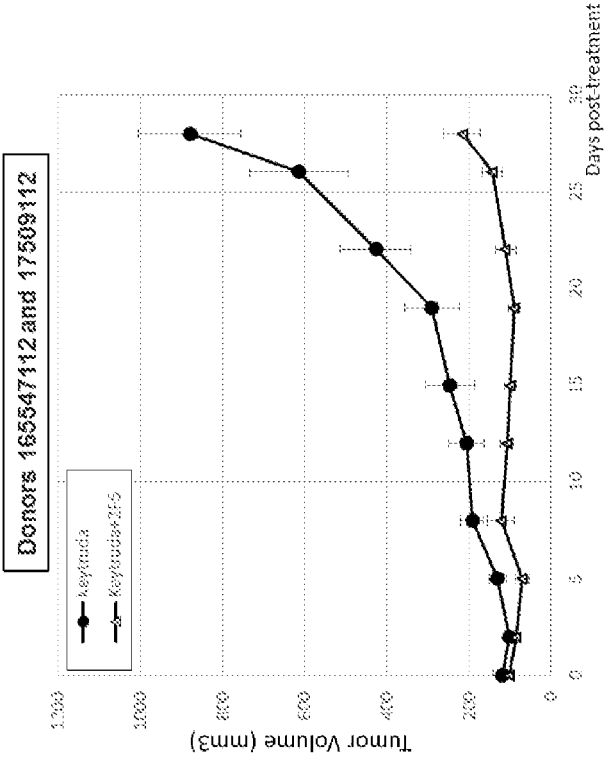


FIG. 15L

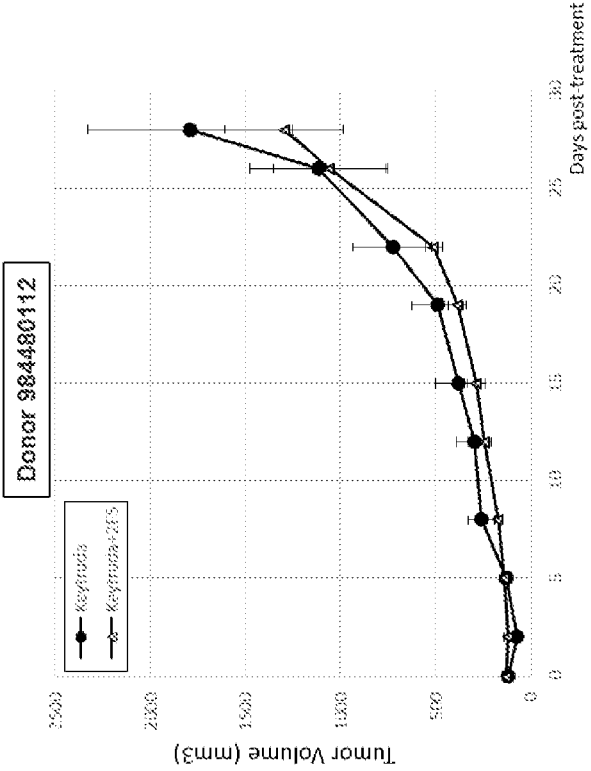


FIG. 15K

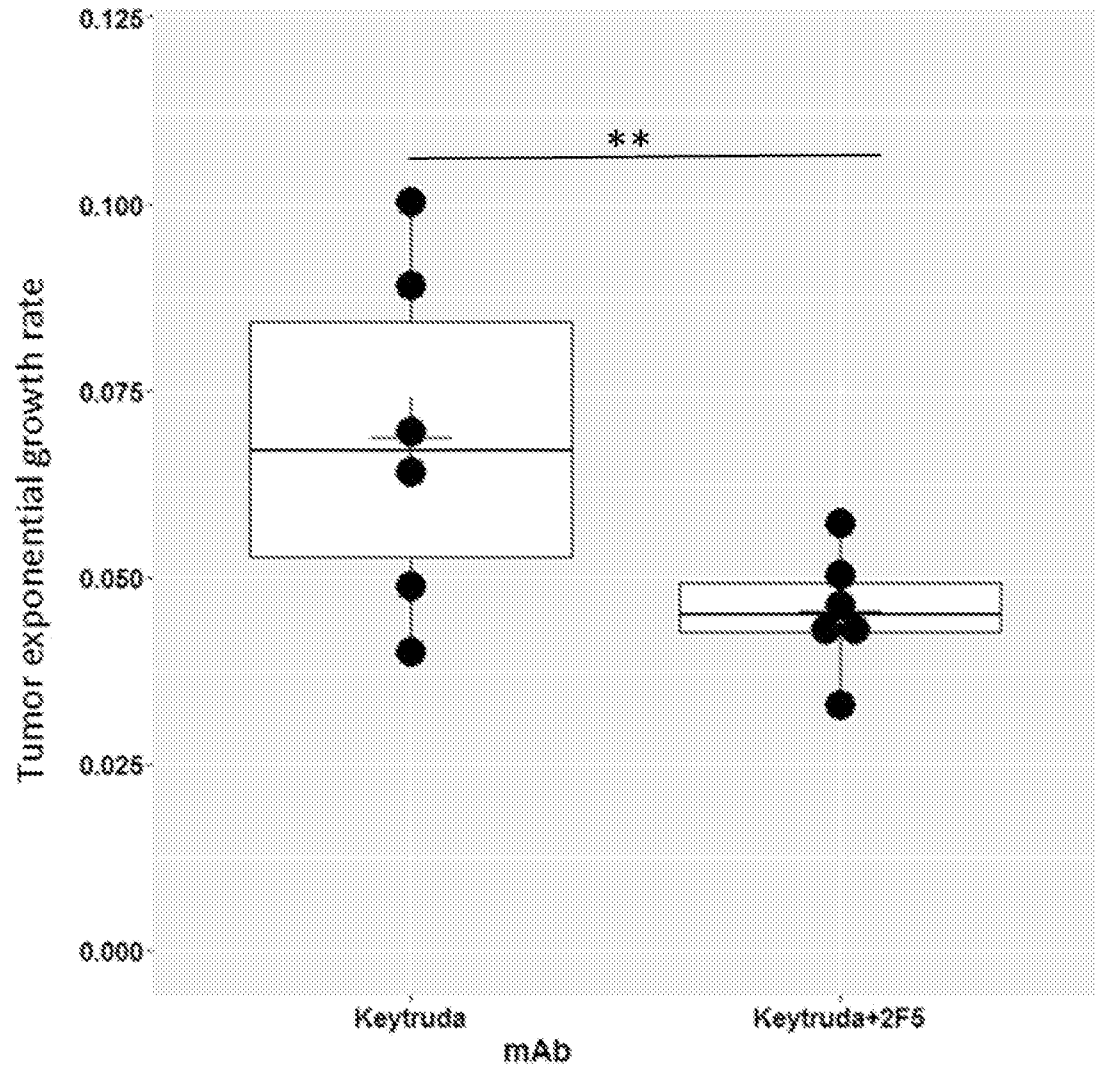


FIG. 15M

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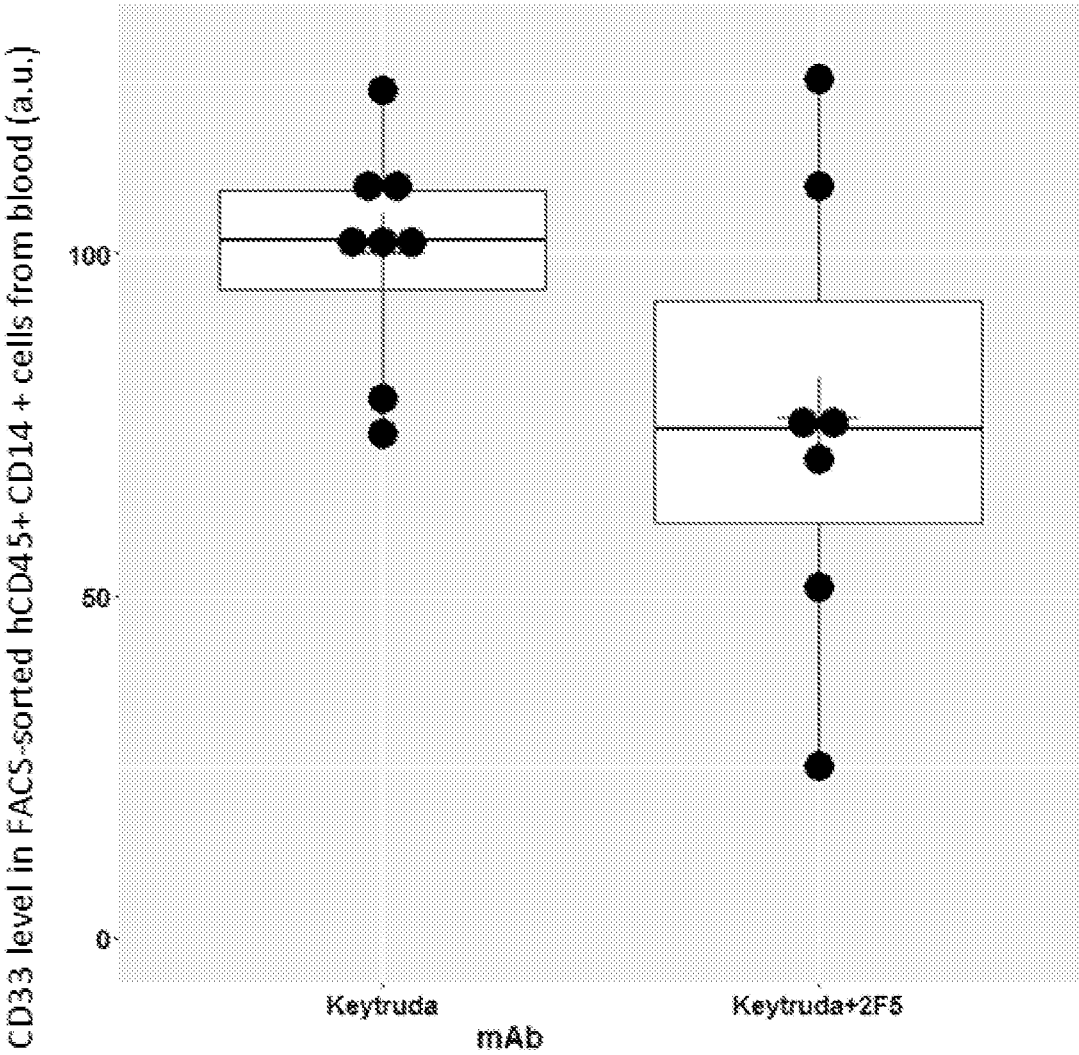


FIG. 15N

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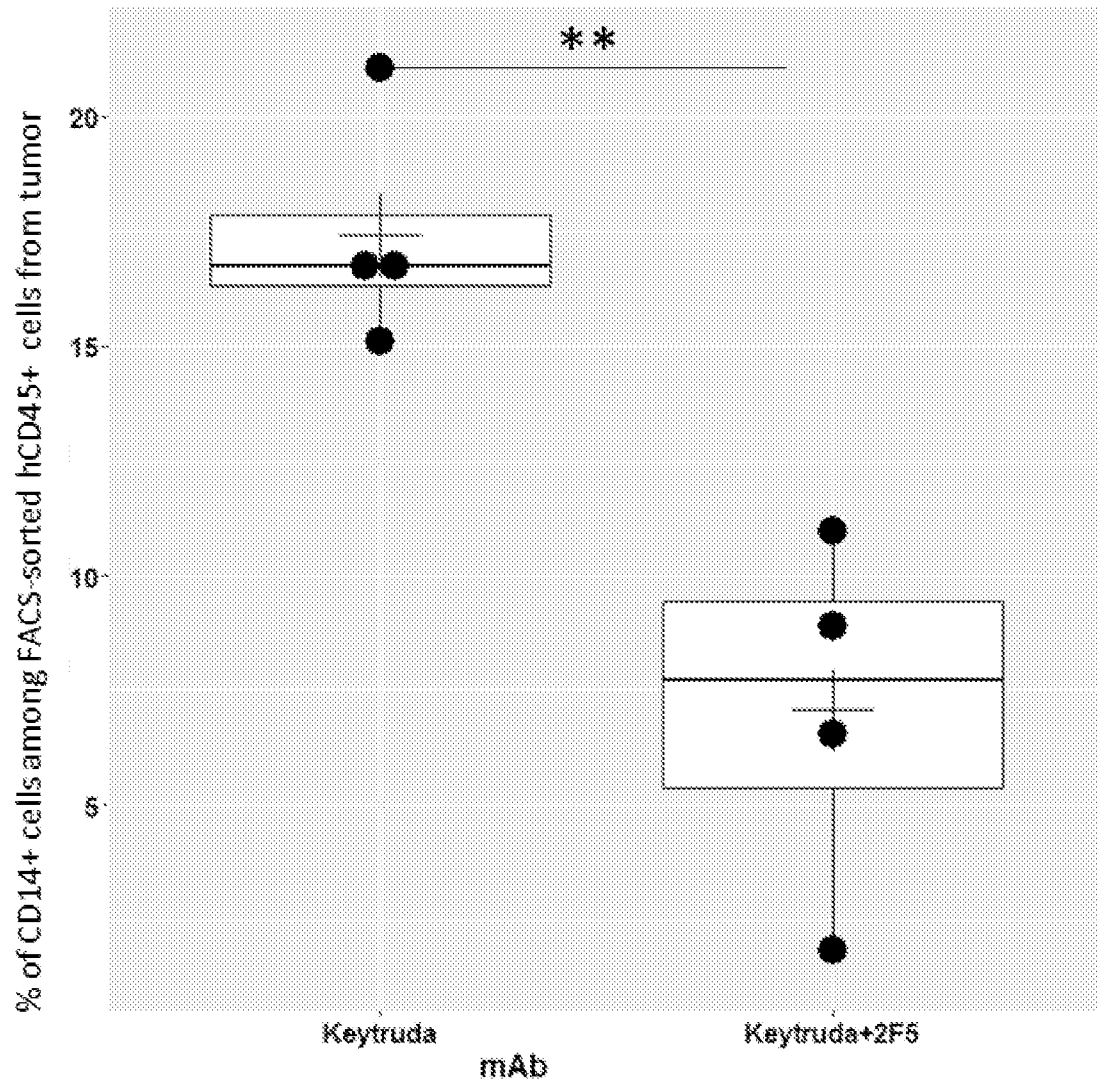


FIG. 150

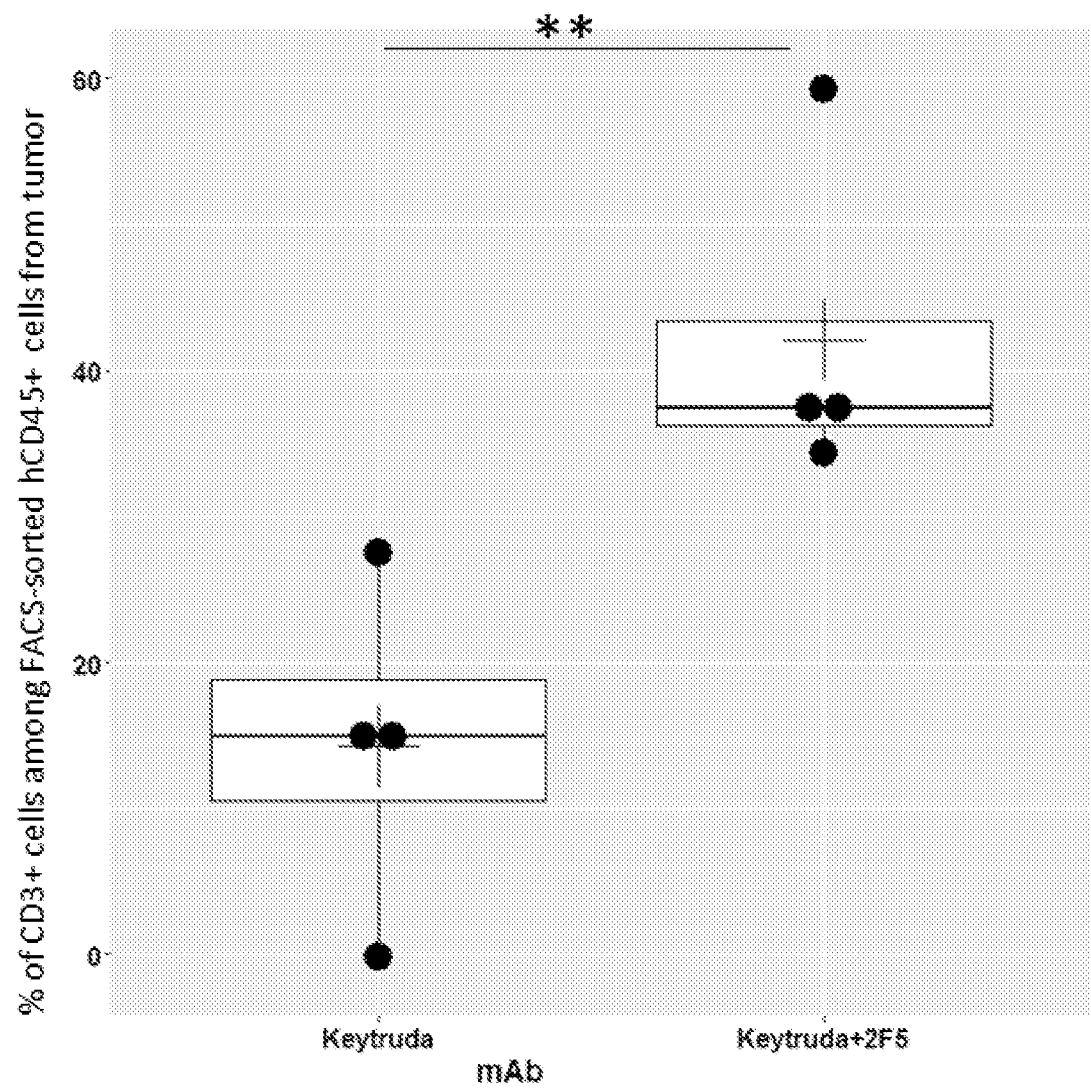


FIG. 15P

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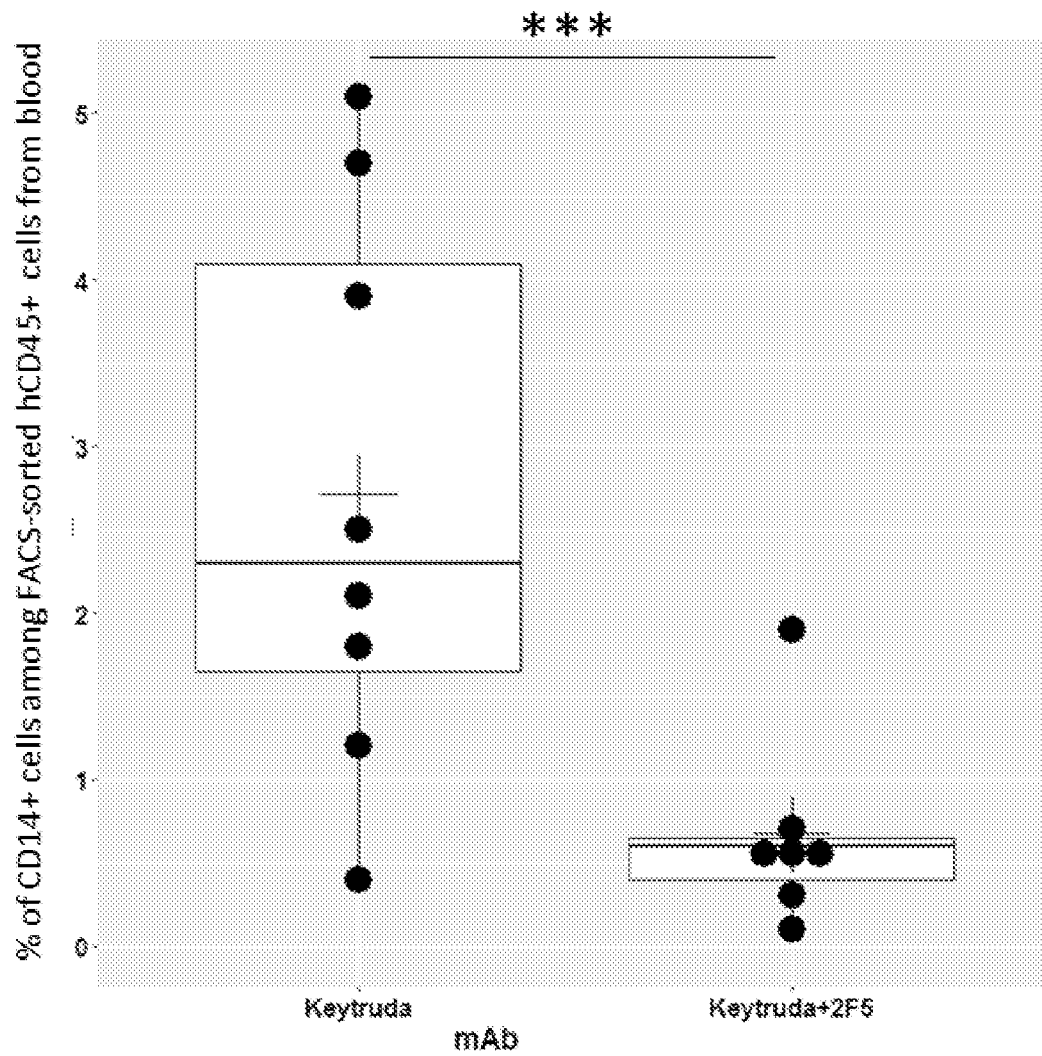


FIG. 15Q

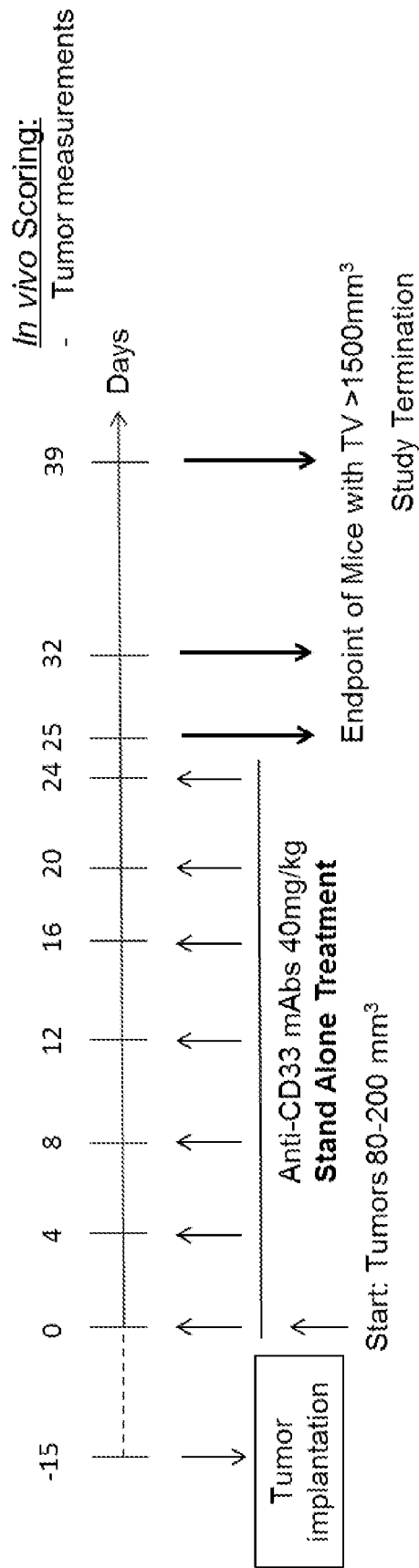


FIG. 15R

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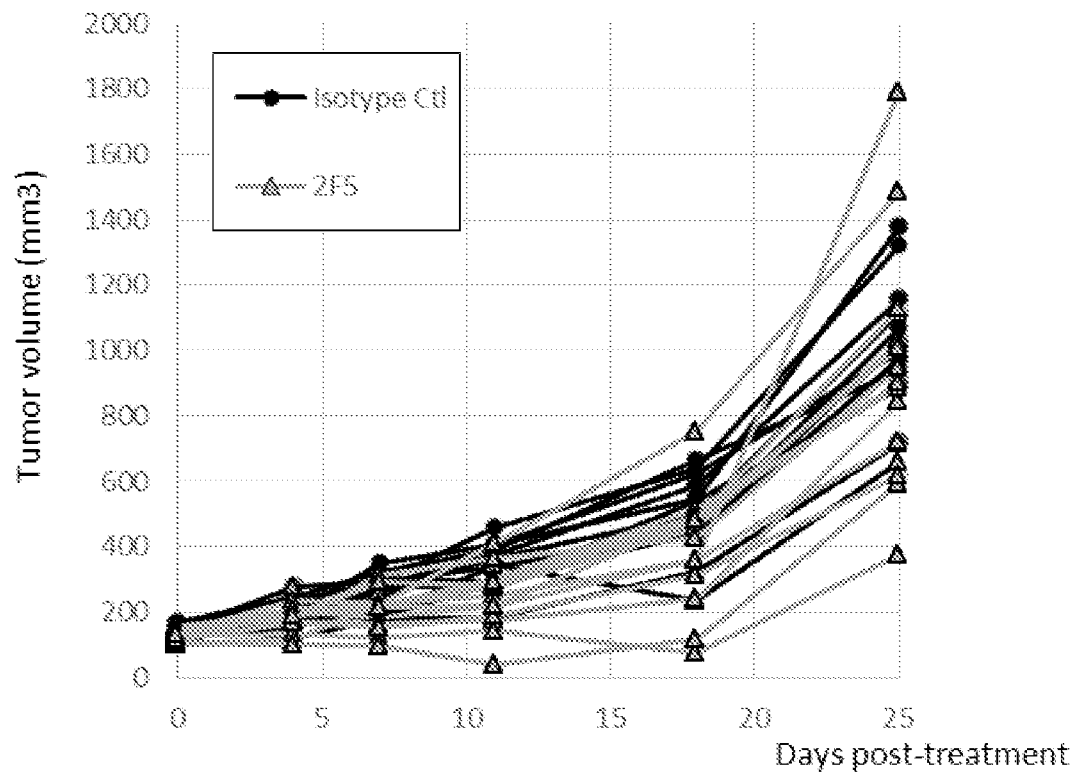


FIG. 15S

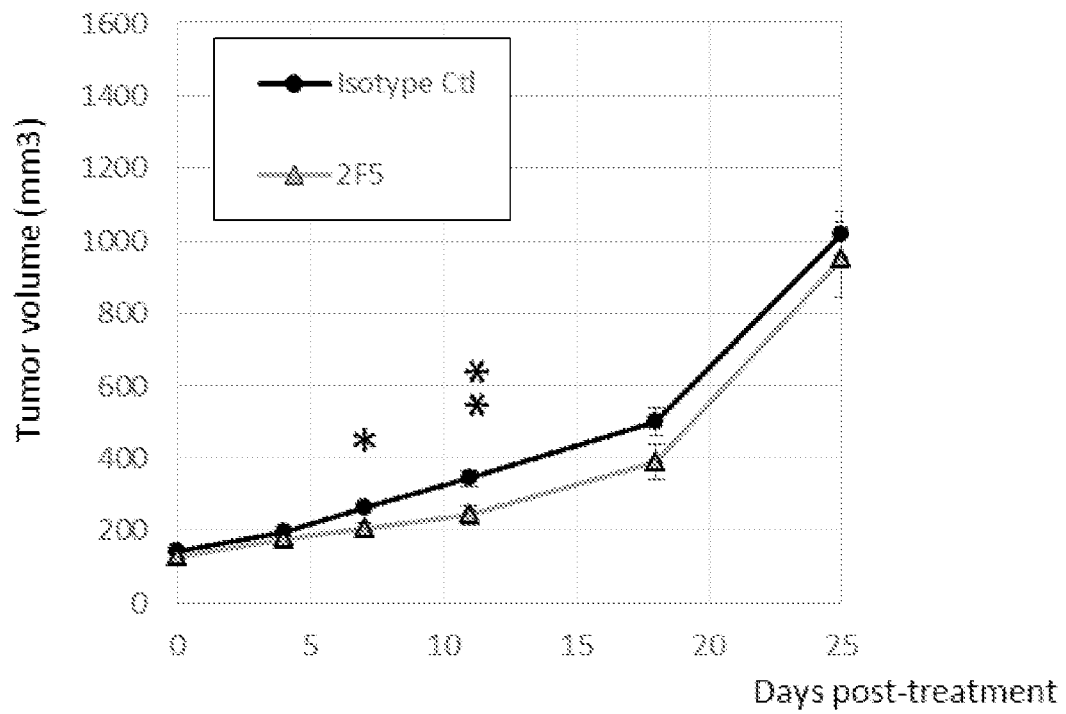


FIG. 15T

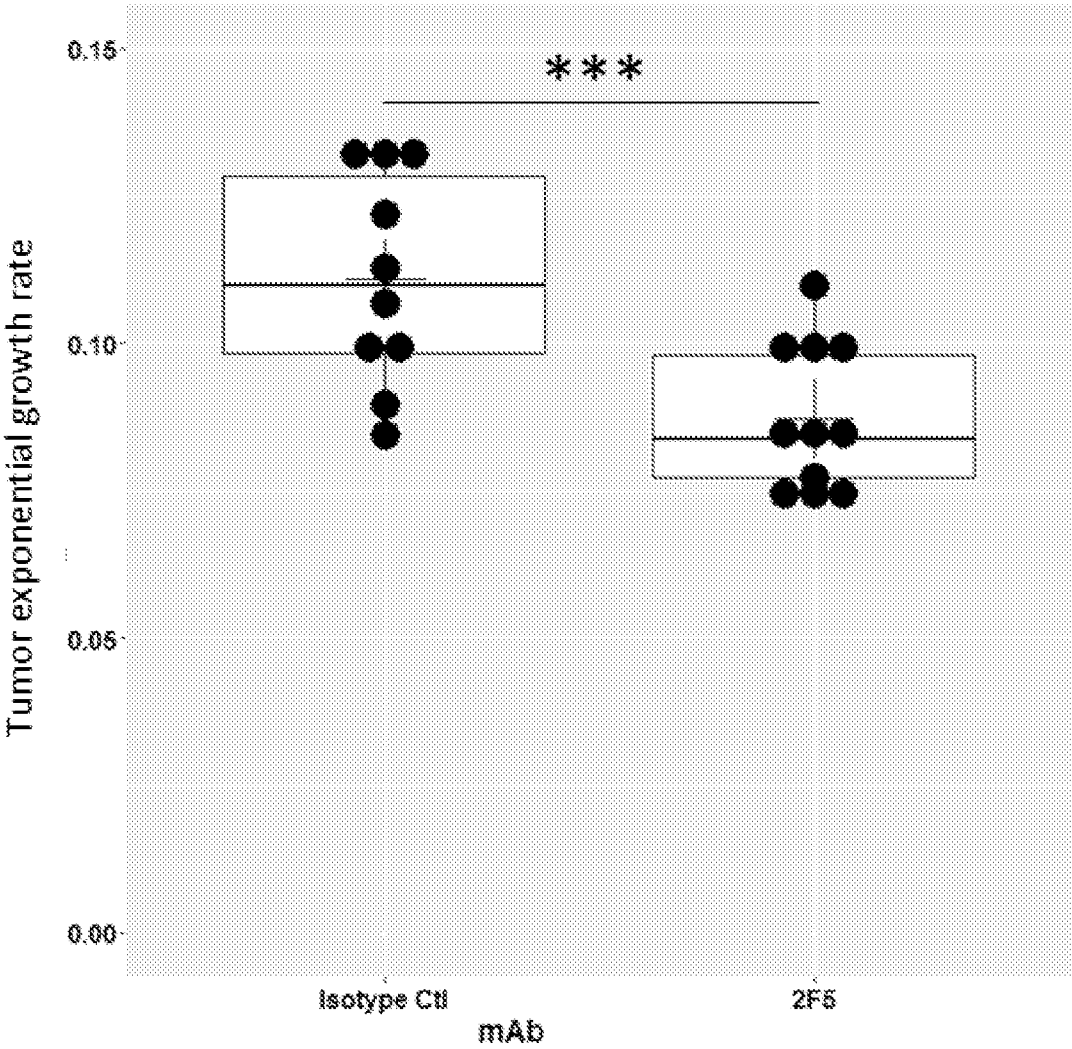


FIG. 15U

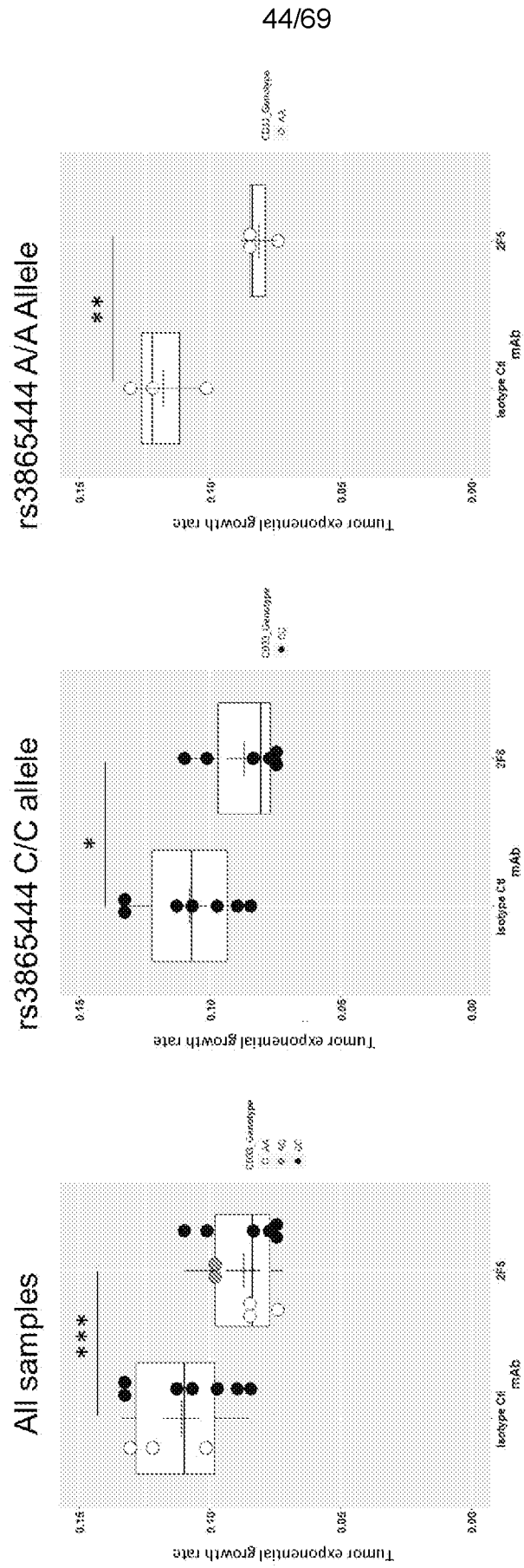


FIG. 15X

FIG. 15W

FIG. 15V

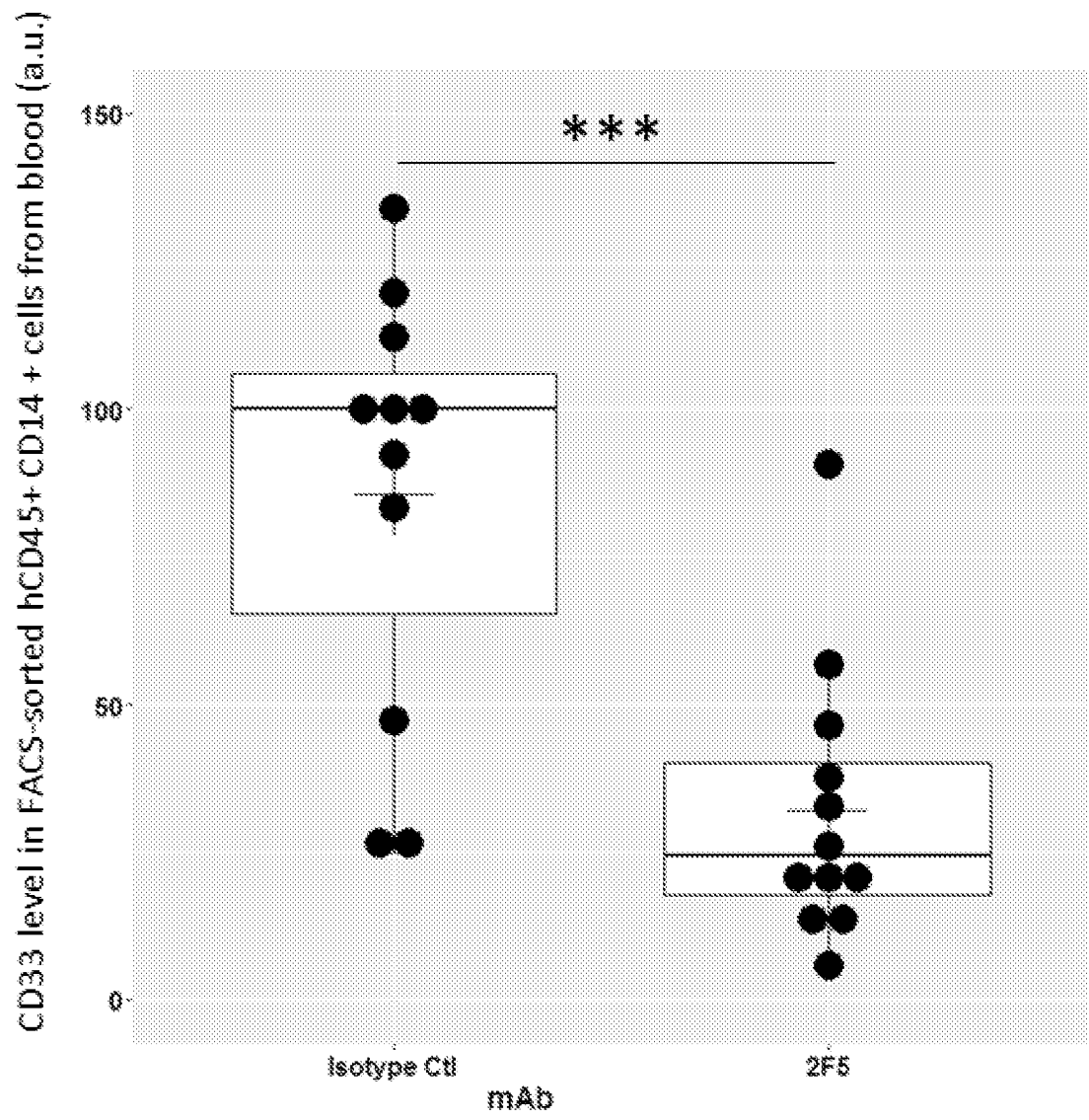


FIG. 15Y

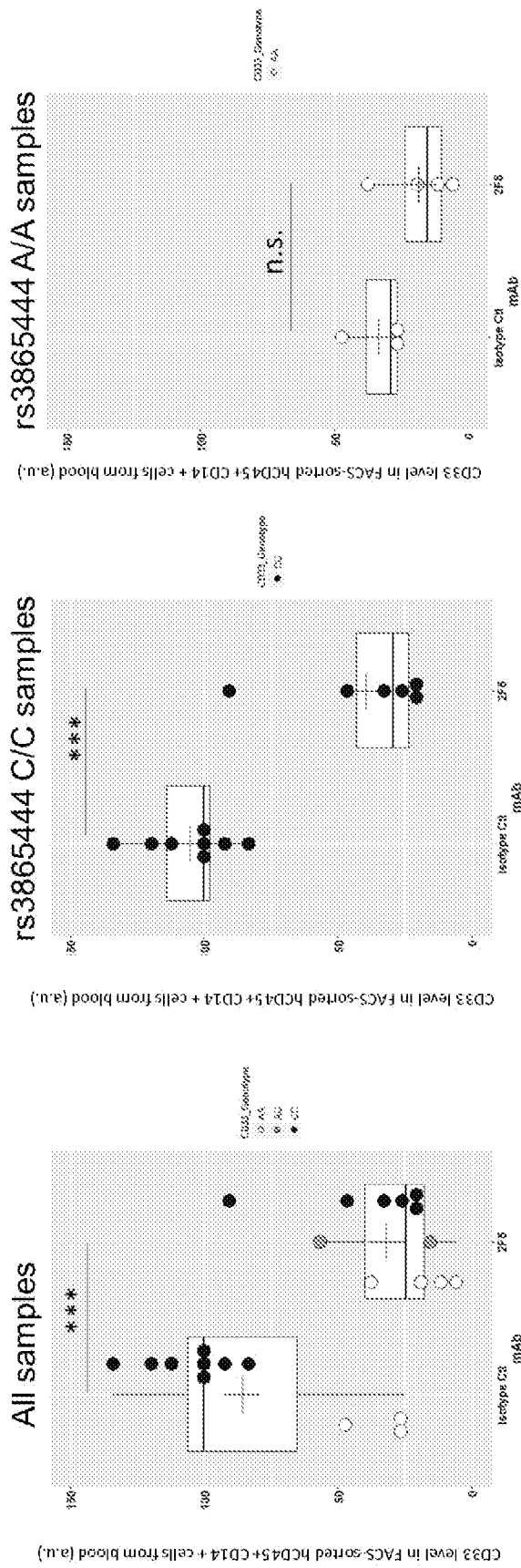


FIG. 15Z

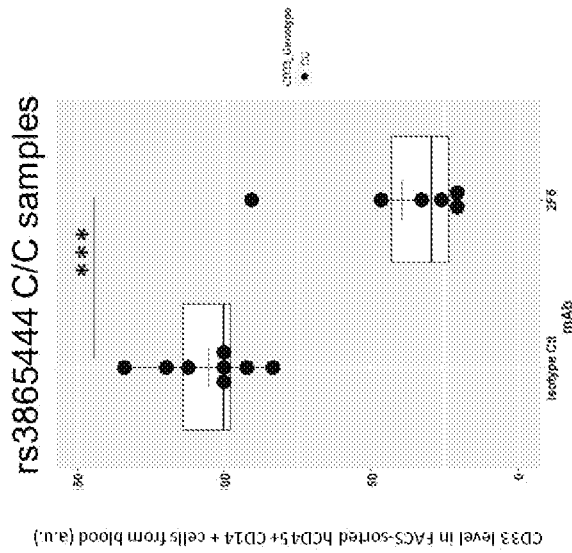


FIG. 15AA

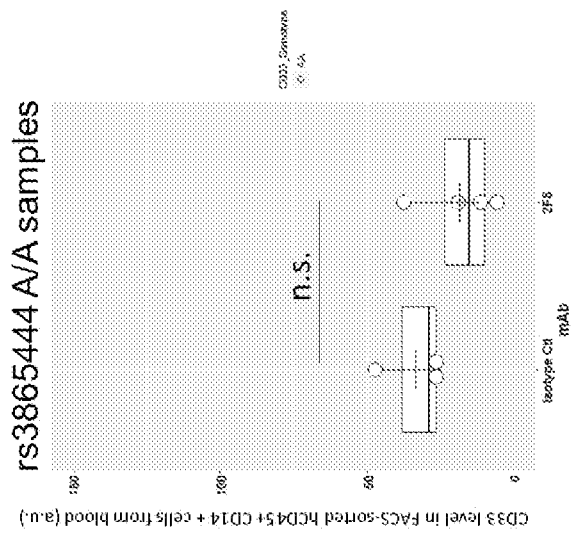


FIG. 15BB

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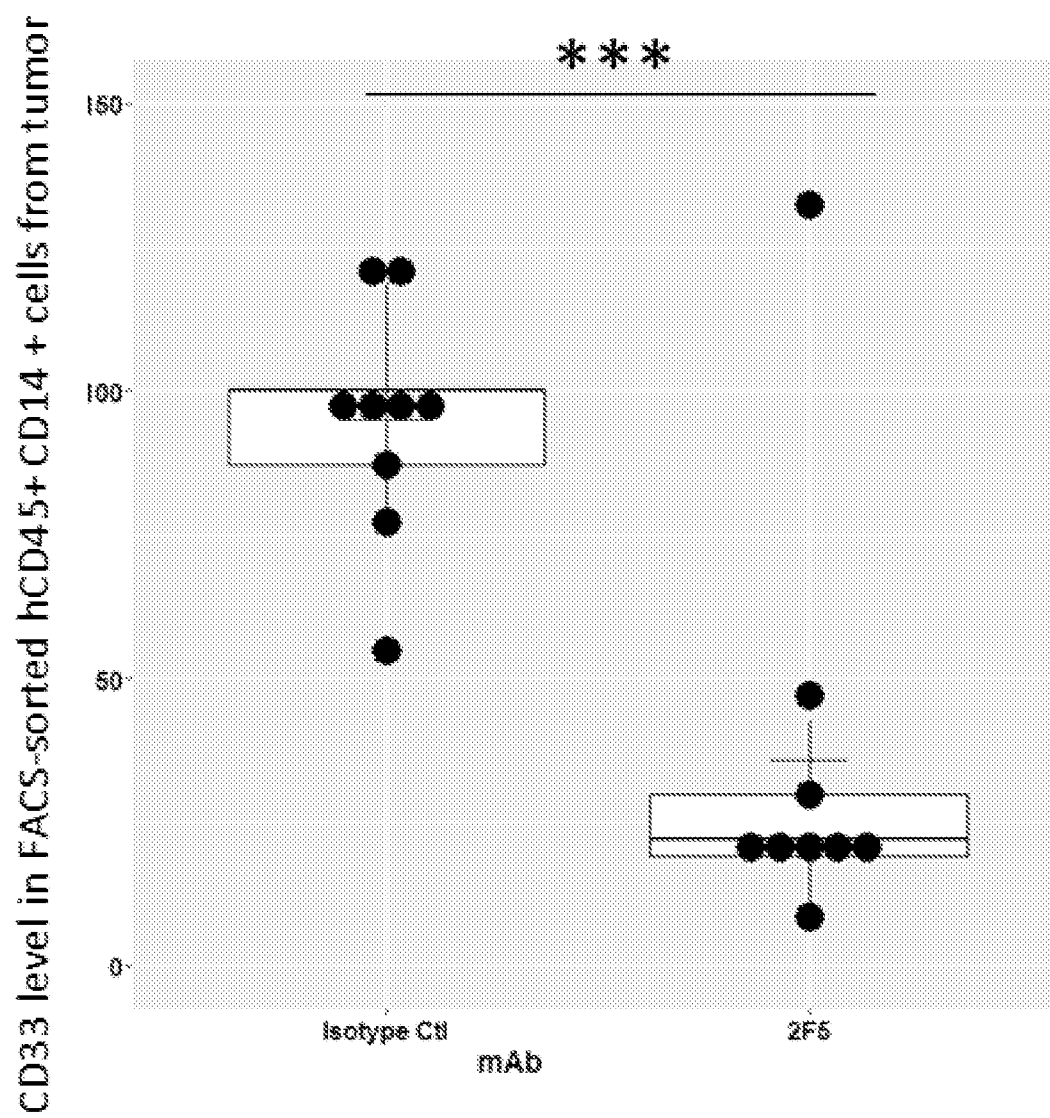
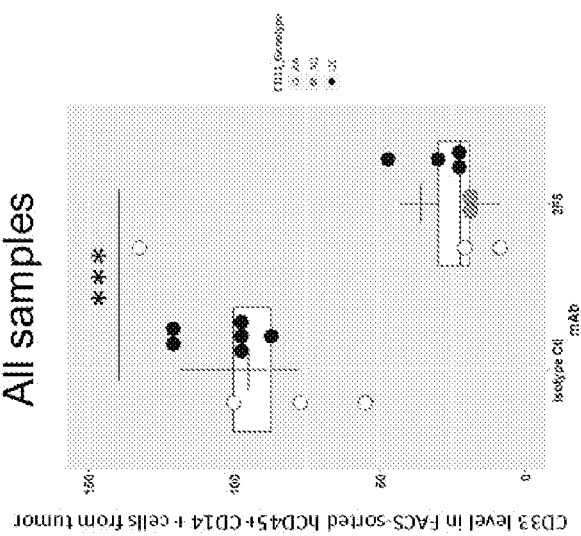
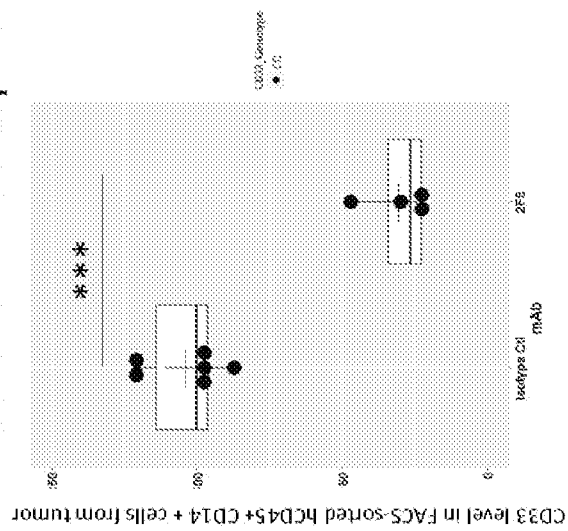


FIG. 15CC

All samples



rs3865444 C/C samples



rs3865444 A/A samples

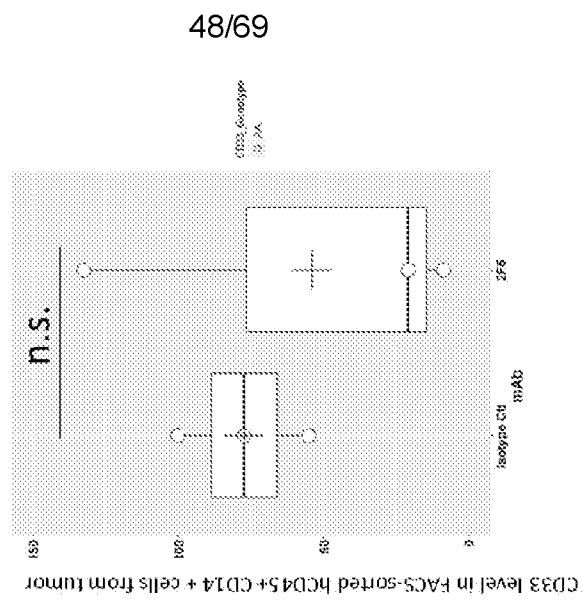


FIG. 15DD

FIG. 15EE

FIG. 15FF

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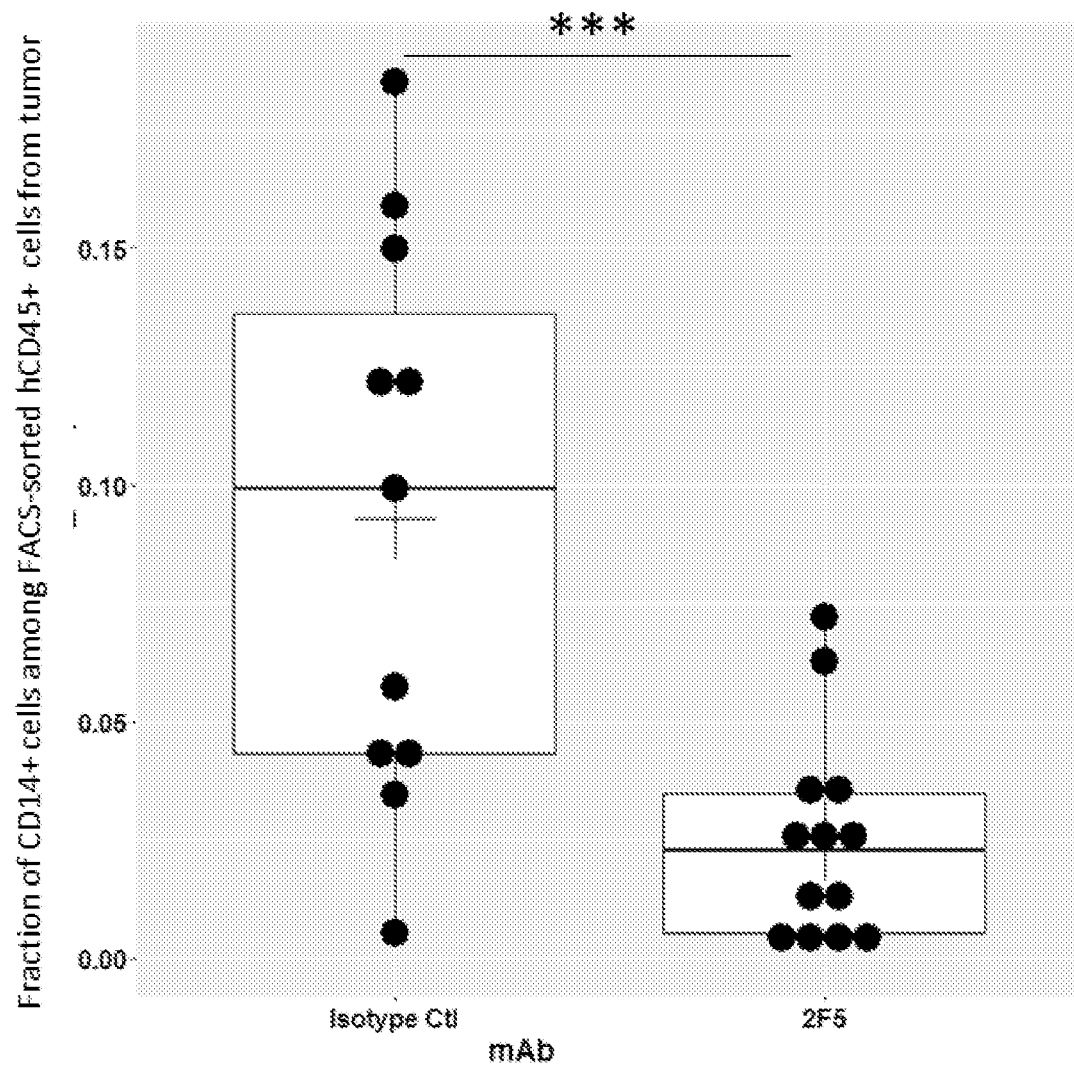


FIG. 15GG

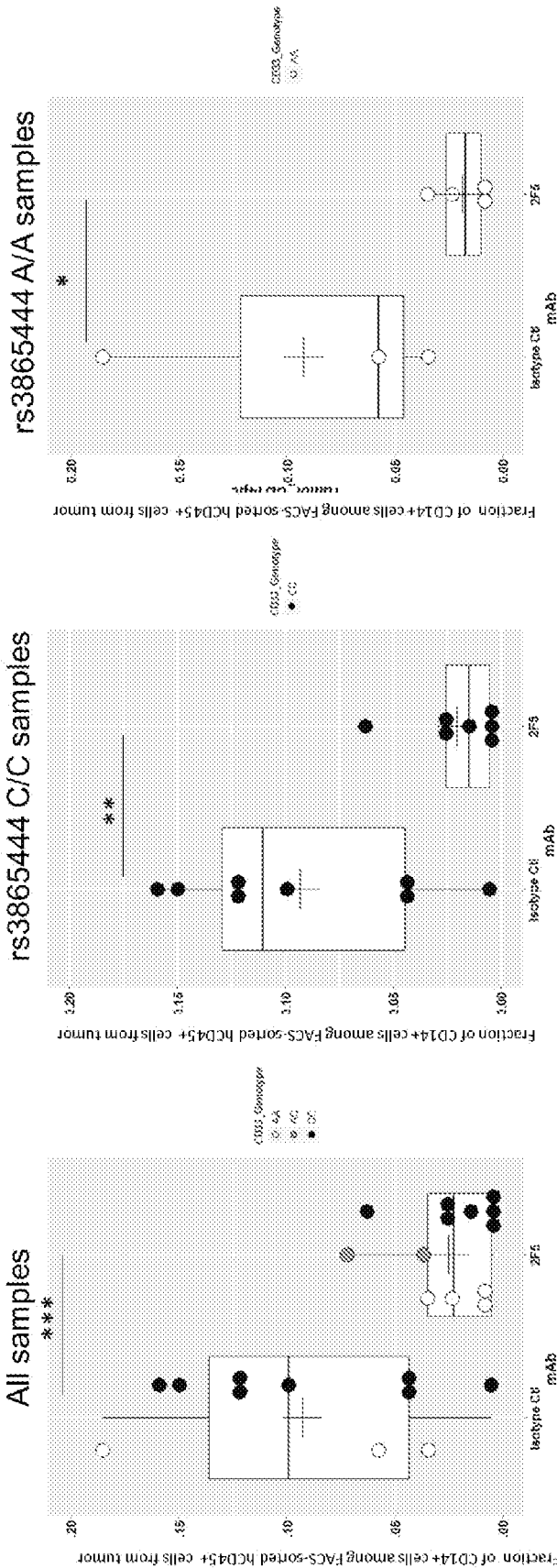


FIG. 15HH

FIG. 15II

FIG. 15JJ

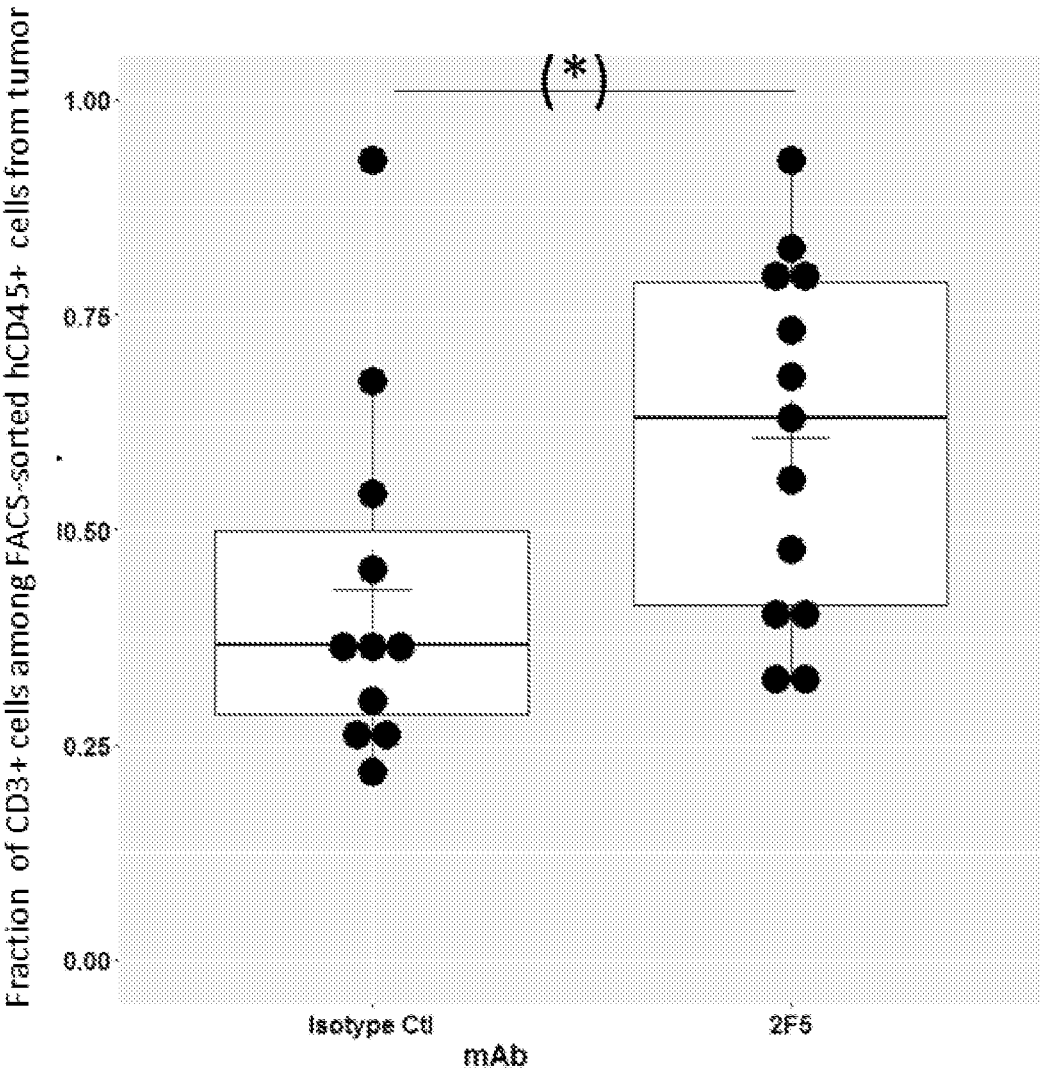


FIG. 15KK

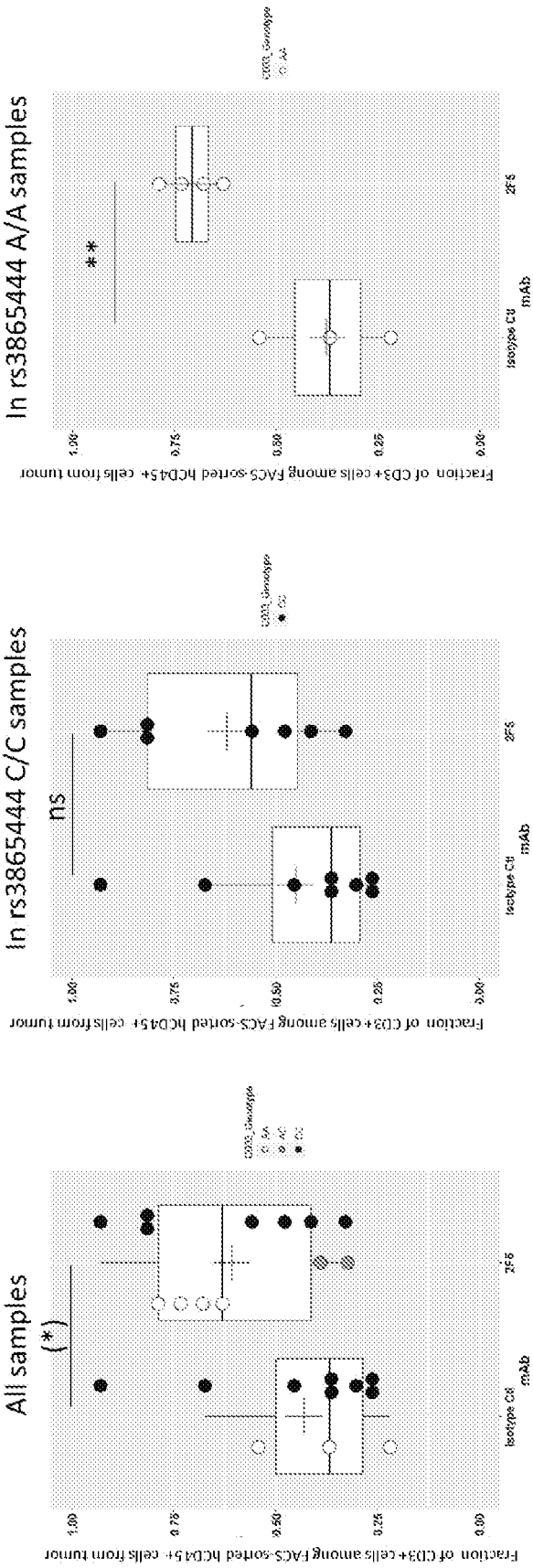


FIG. 15LL

FIG. 15MM

FIG. 15NN

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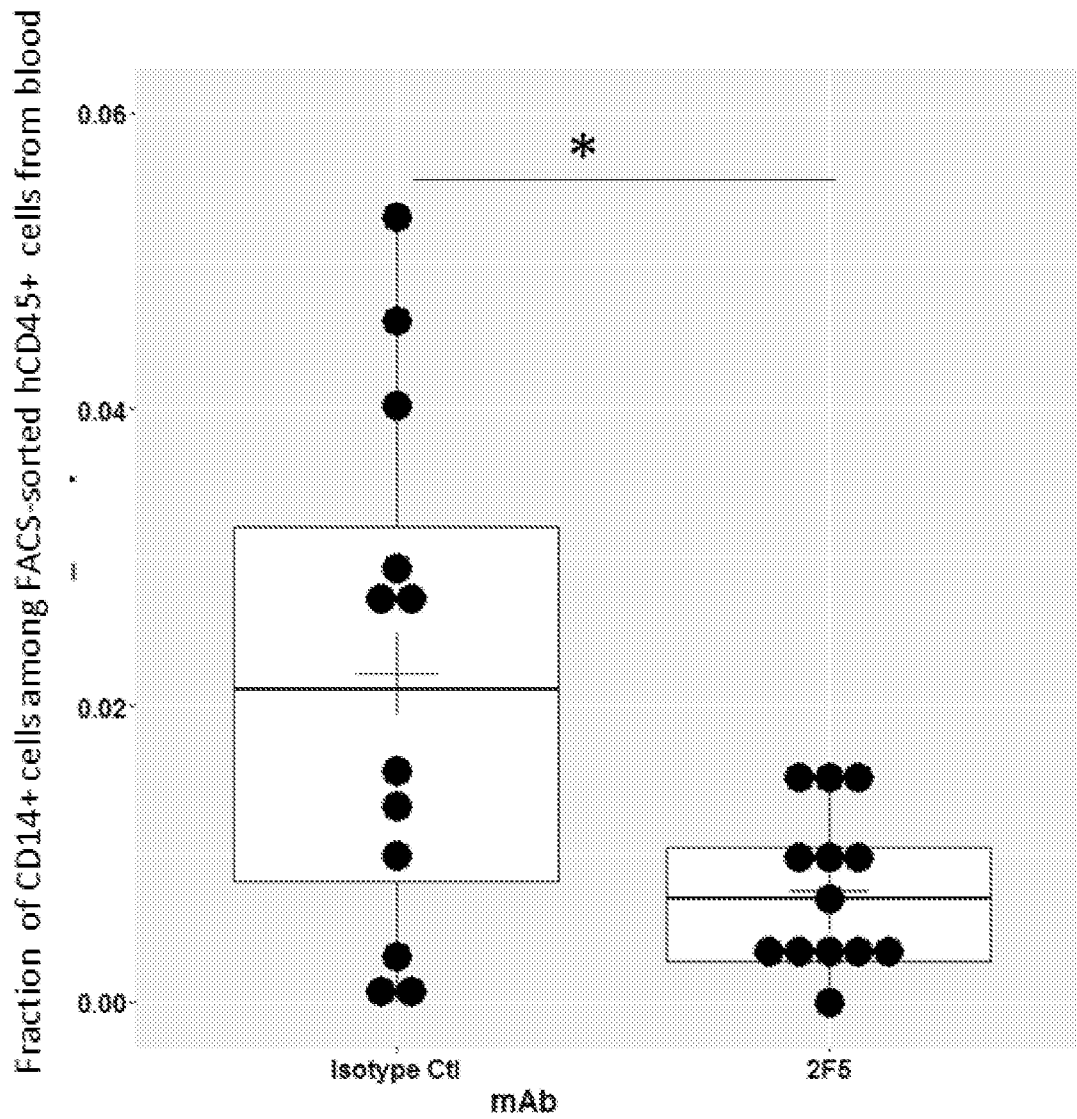


FIG. 1500

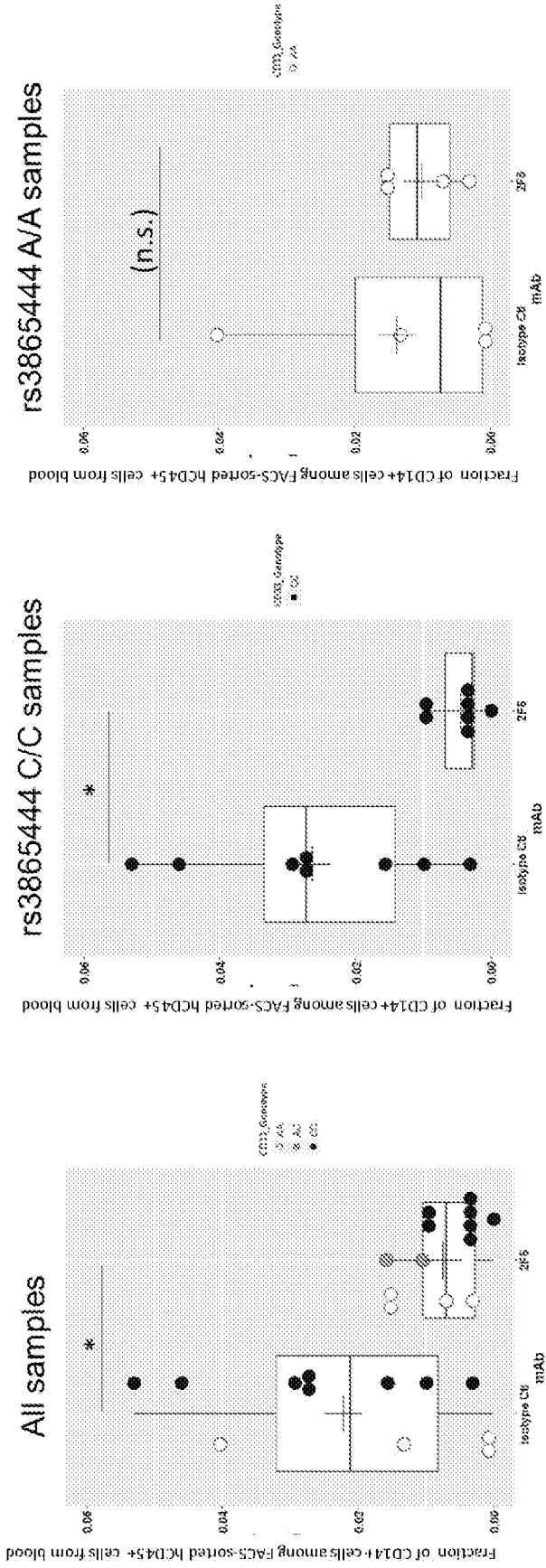


FIG. 15RR

FIG. 15QQ

FIG. 15PP

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FIG. 16A

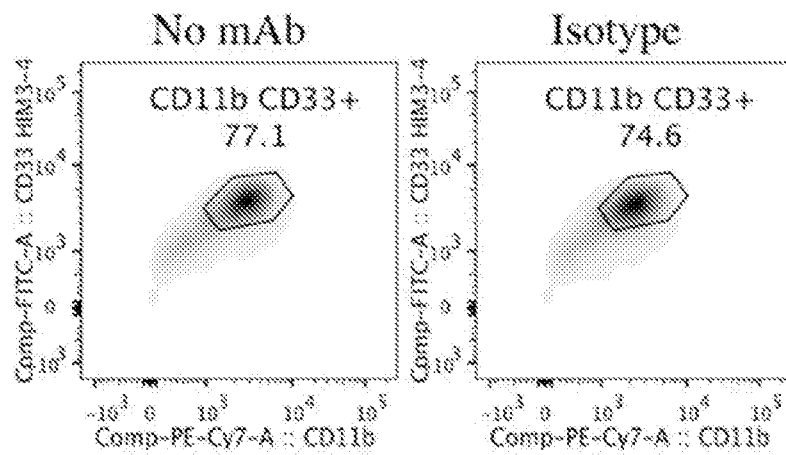
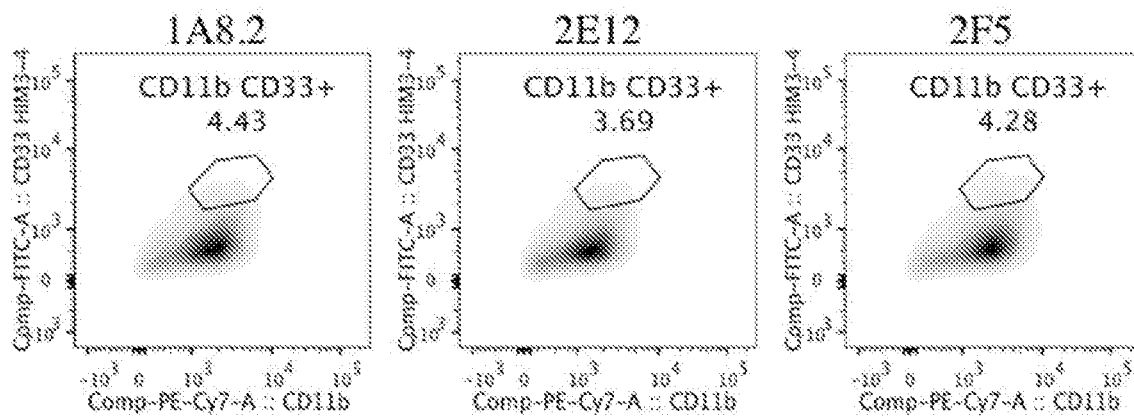
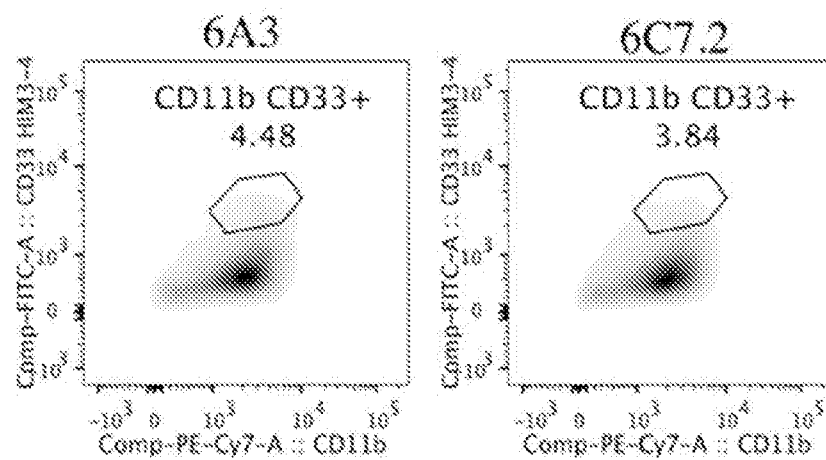


FIG. 16B

FIG. 16C



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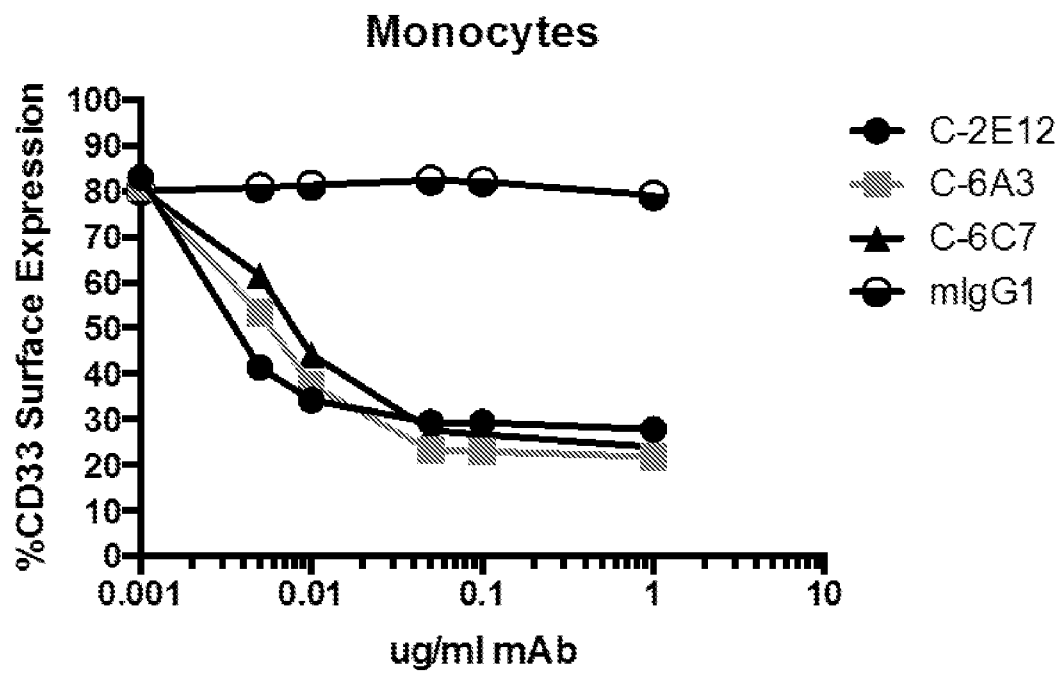


FIG. 16D

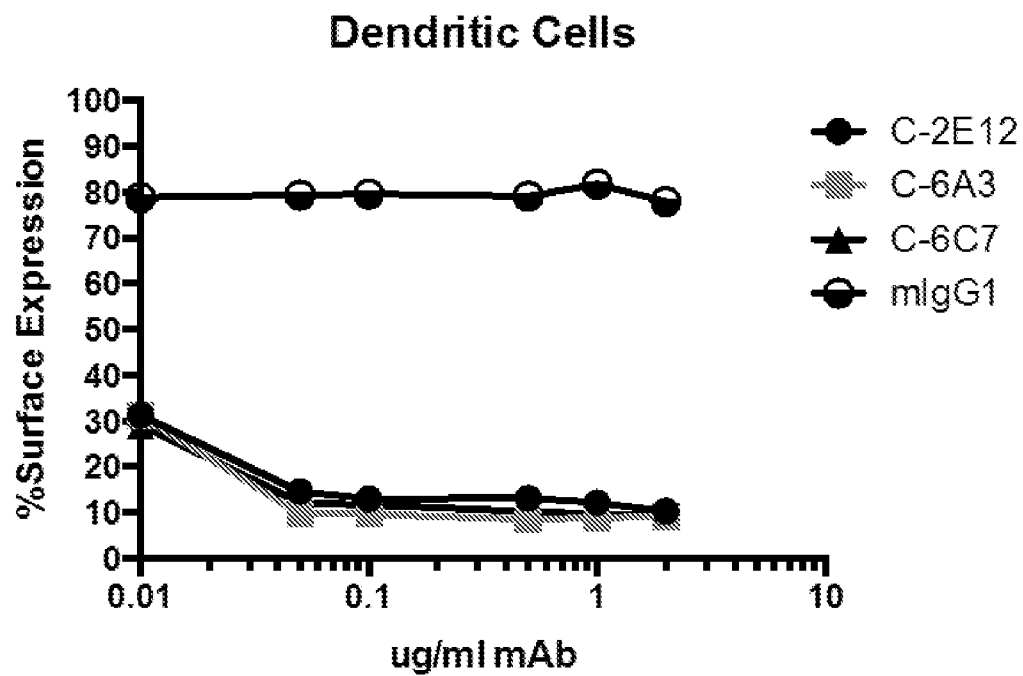


FIG. 16E

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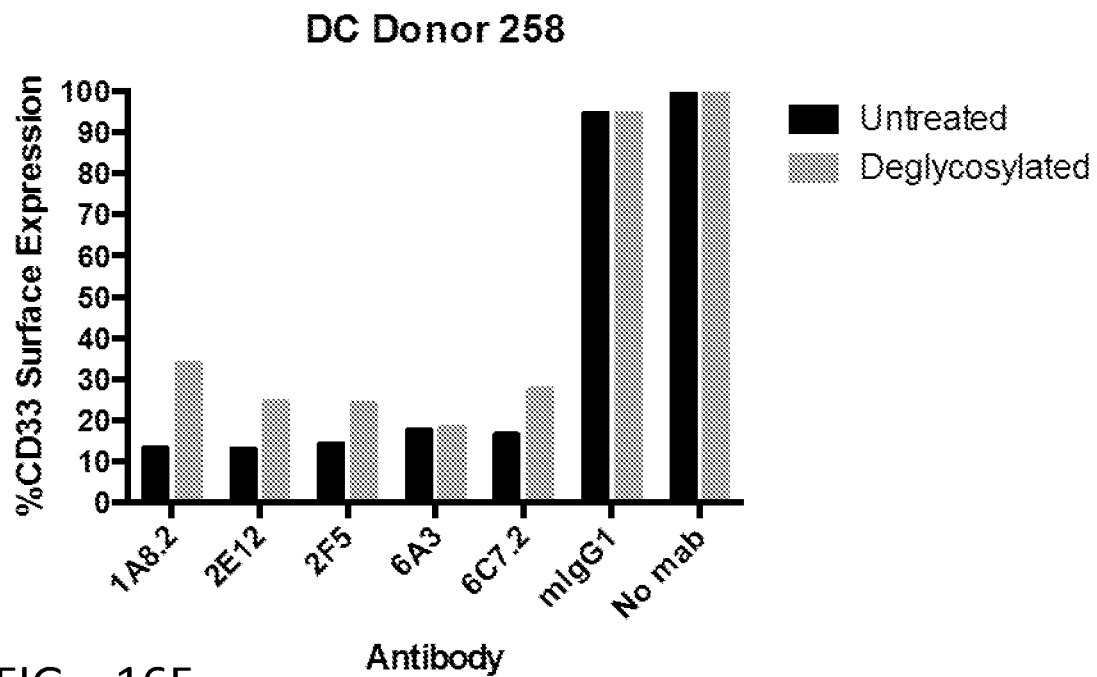


FIG. 16F

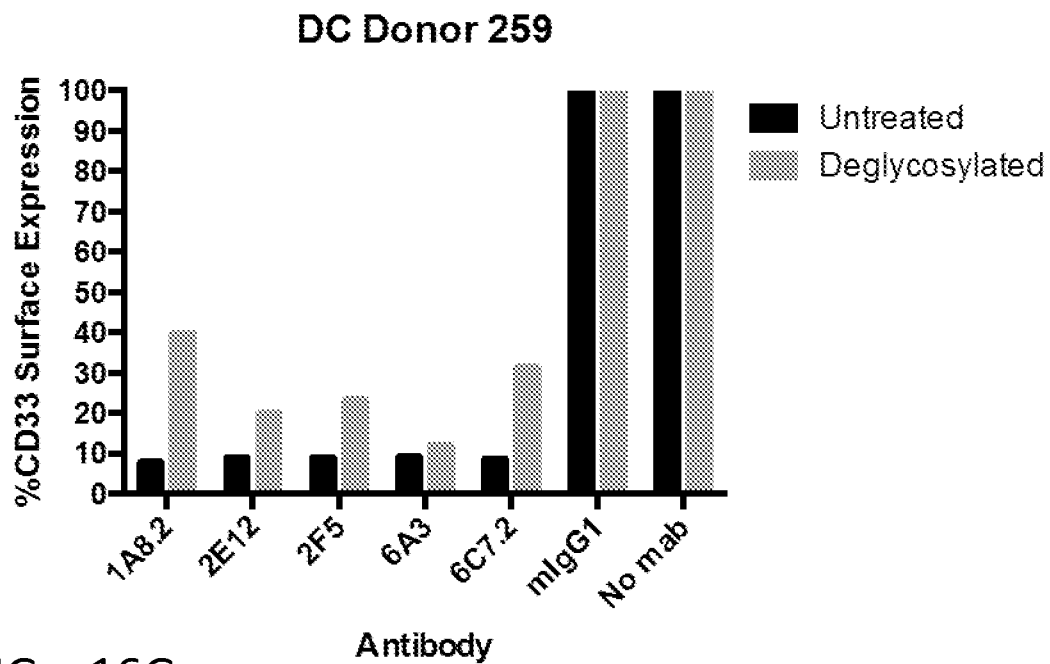


FIG. 16G

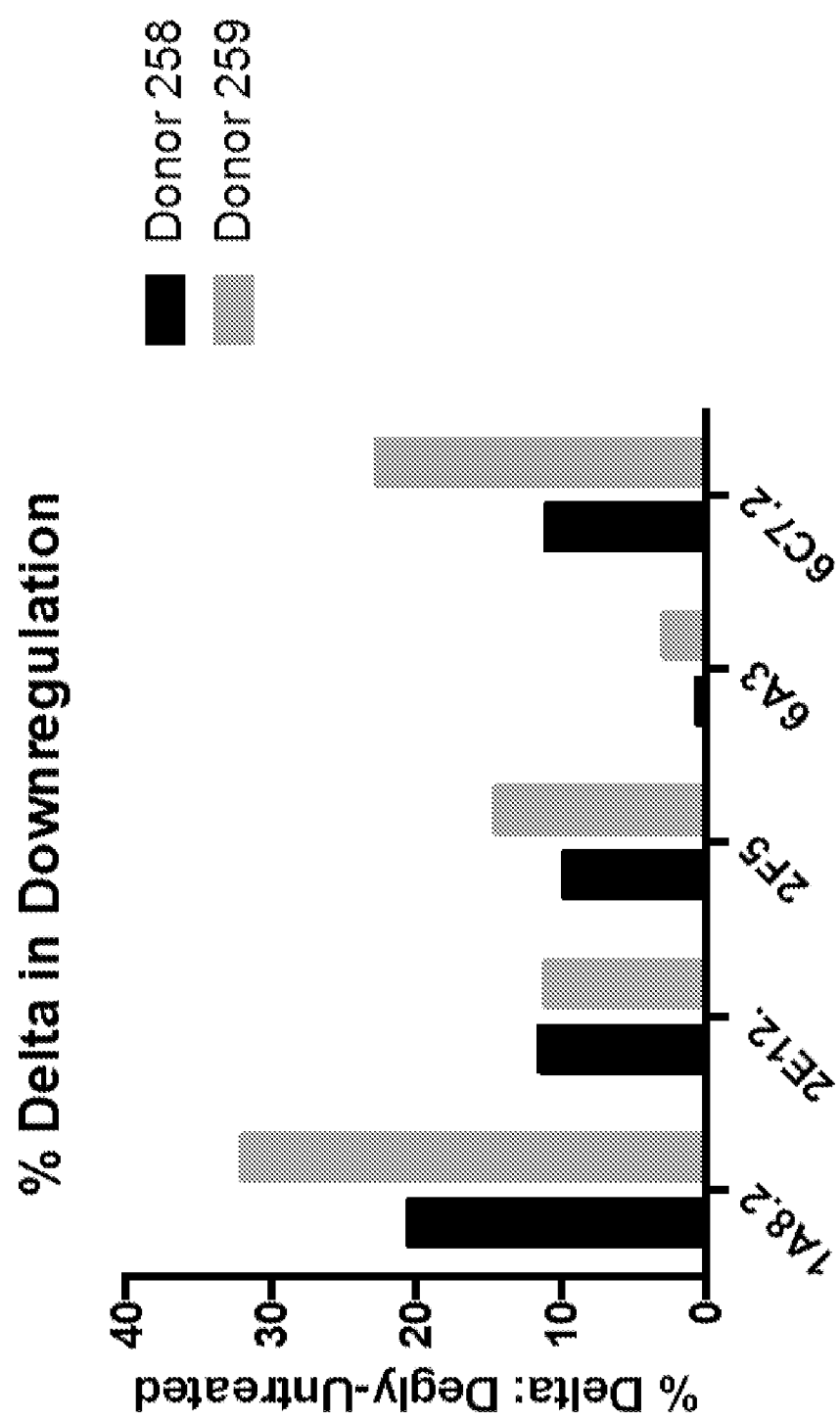


FIG. 16H

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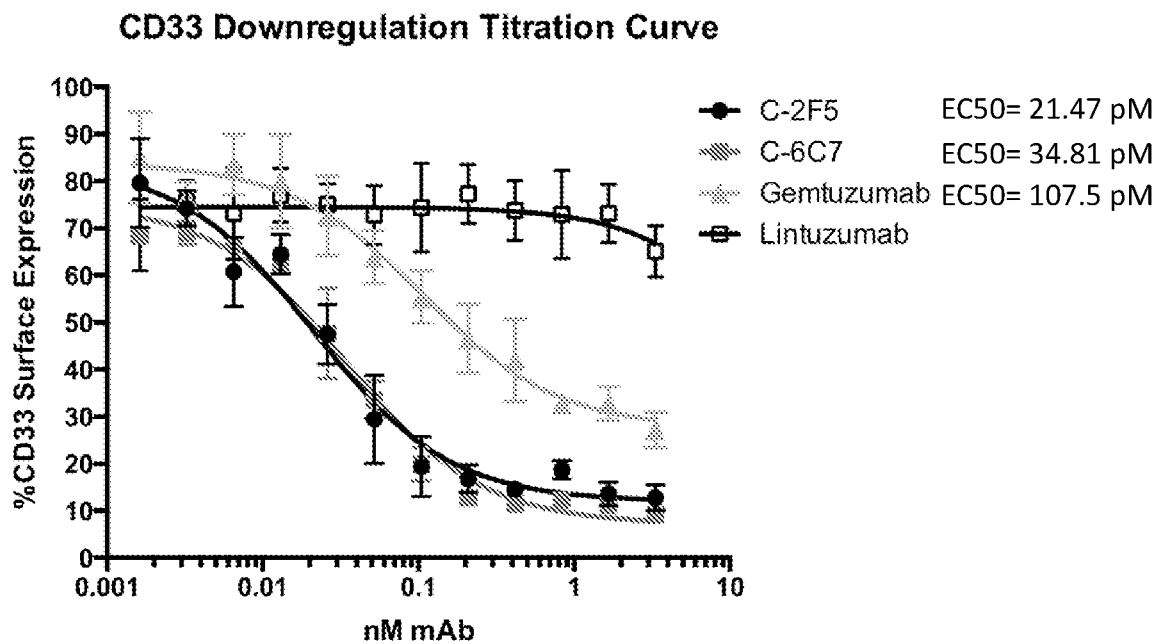


FIG. 16I

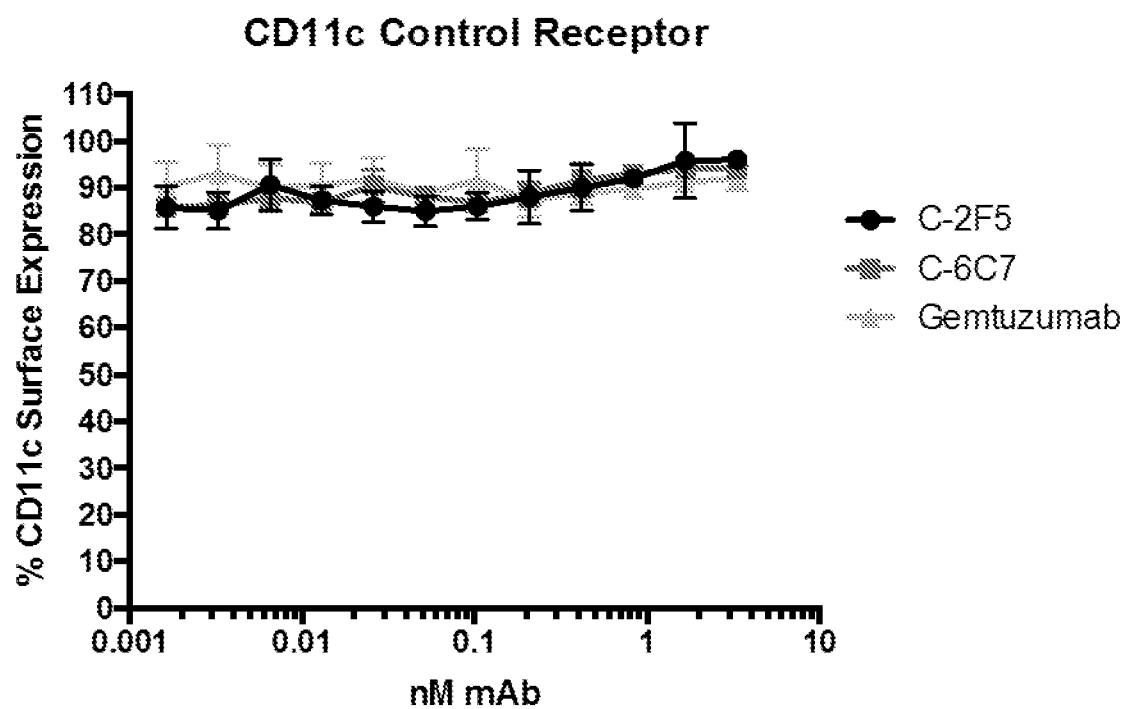


FIG. 16J

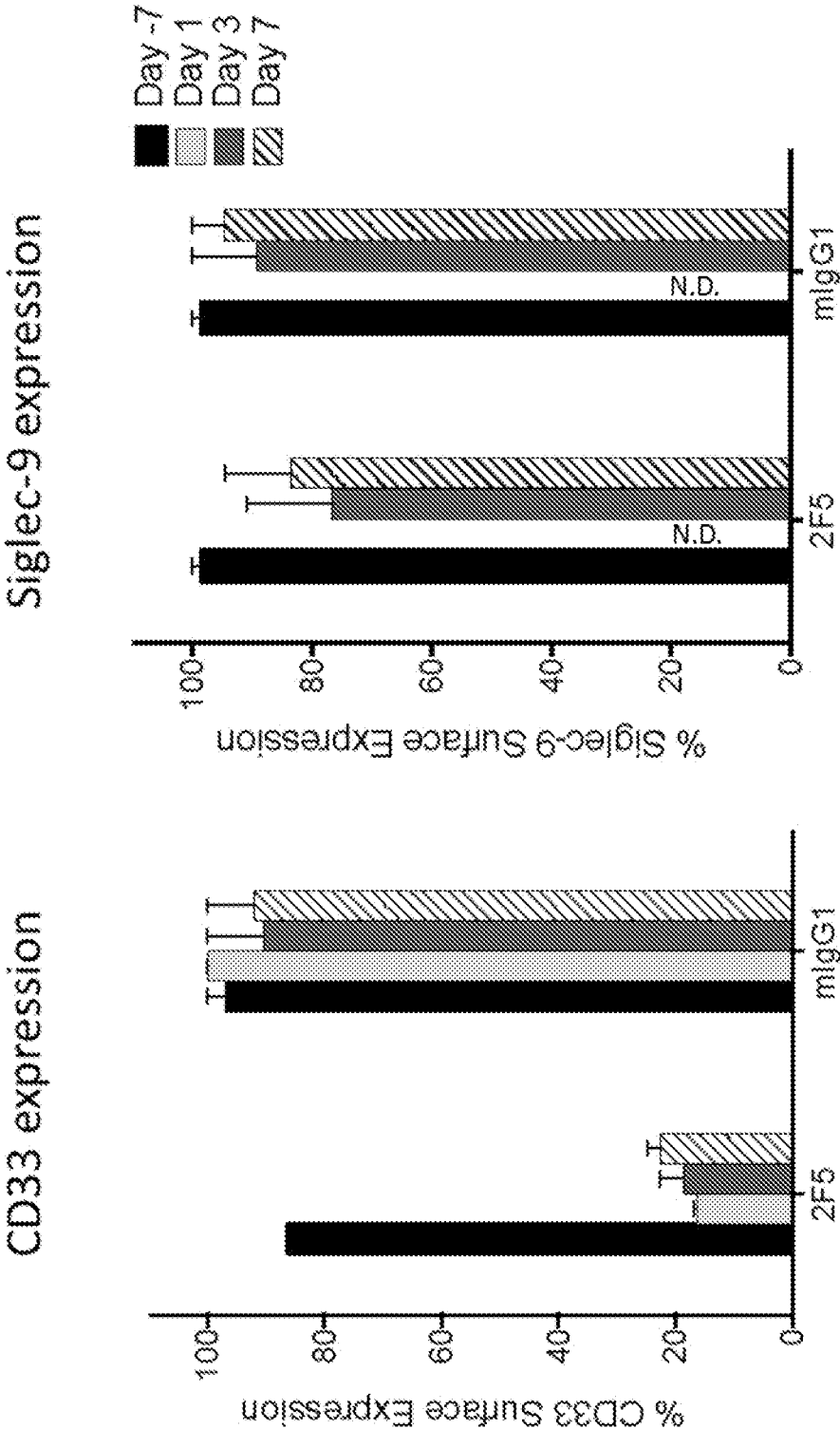


FIG. 16L

FIG. 16K

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Cell Surface Level of CD33

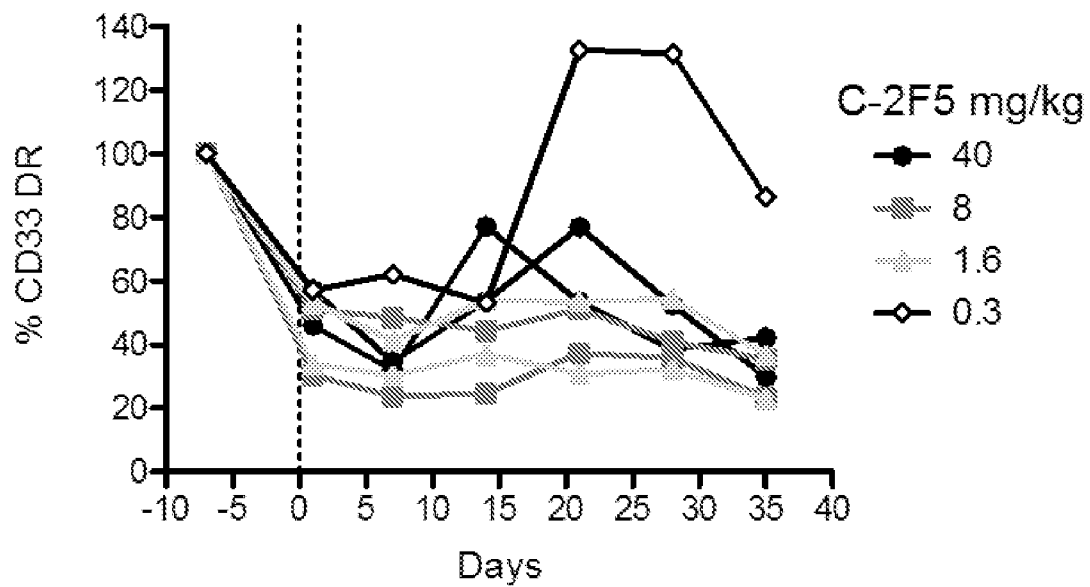


FIG. 16M

Cell Surface Level of Control Receptor

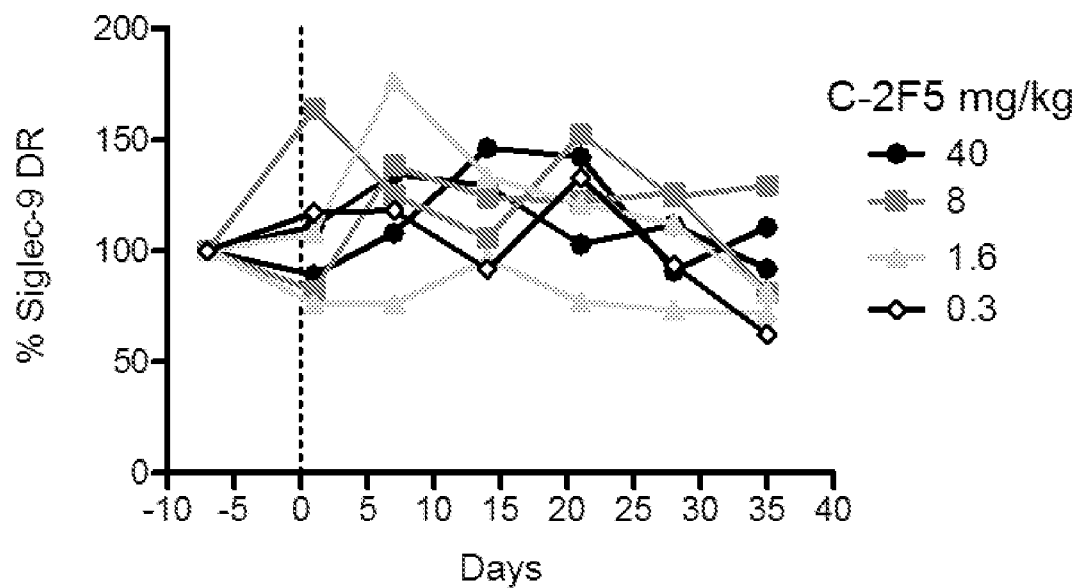


FIG. 16N

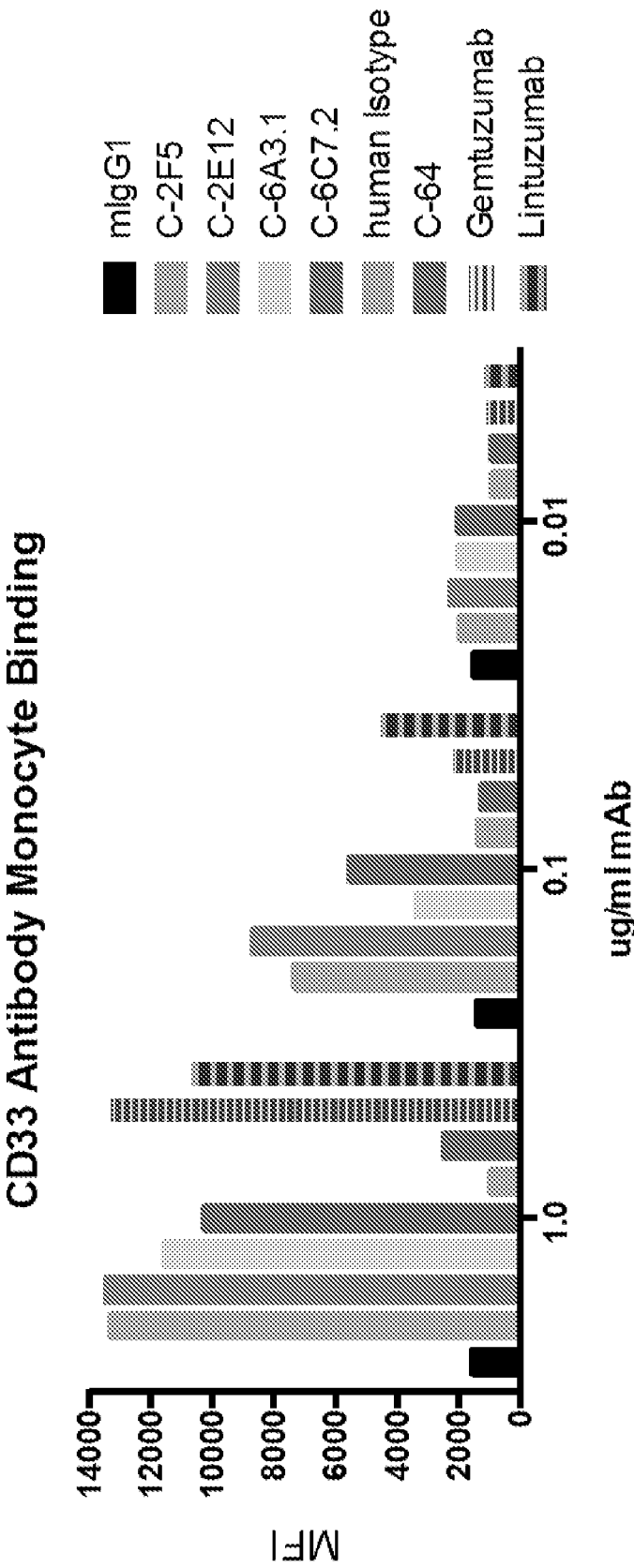


FIG. 17A

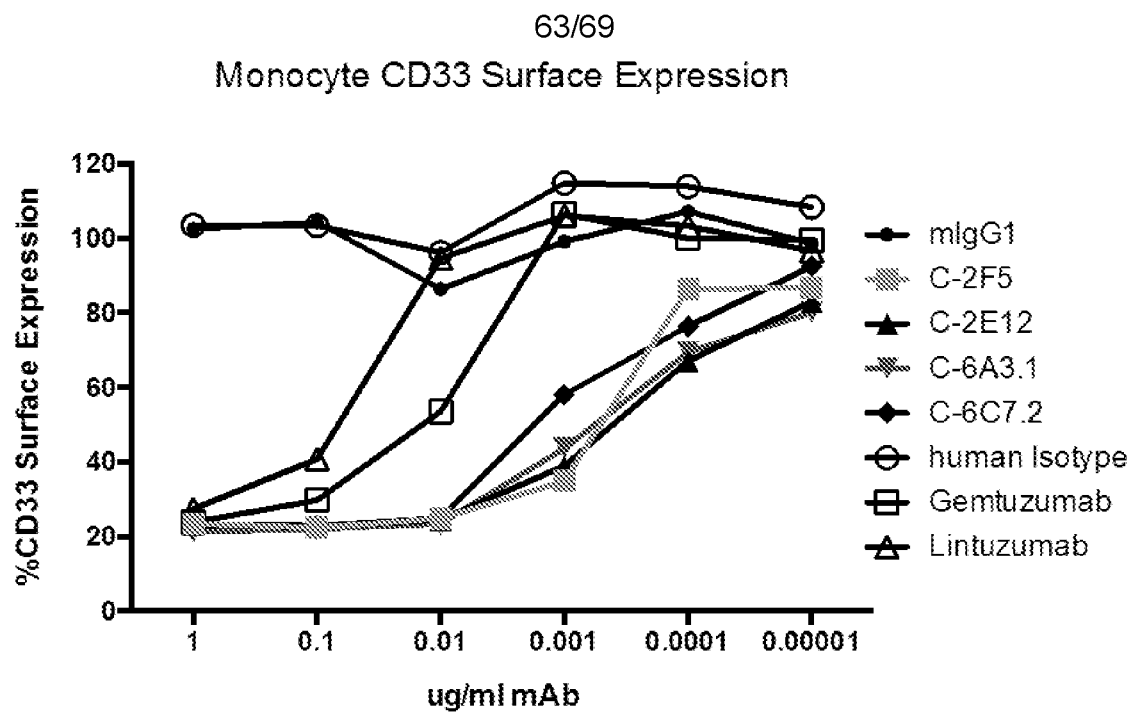


FIG. 17B

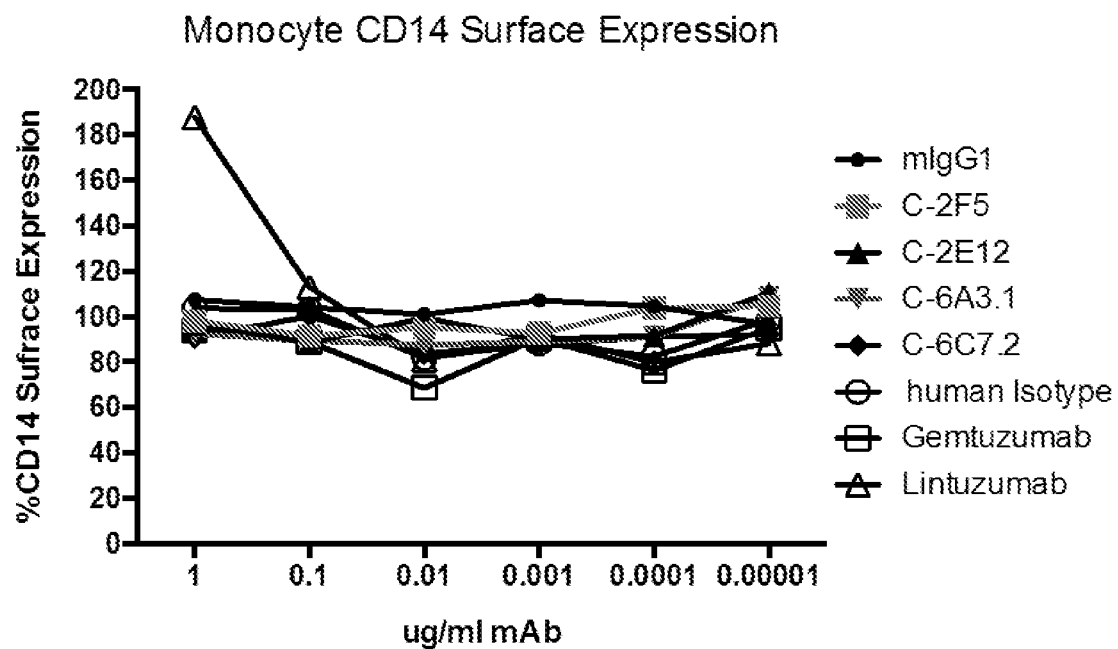


FIG. 17C

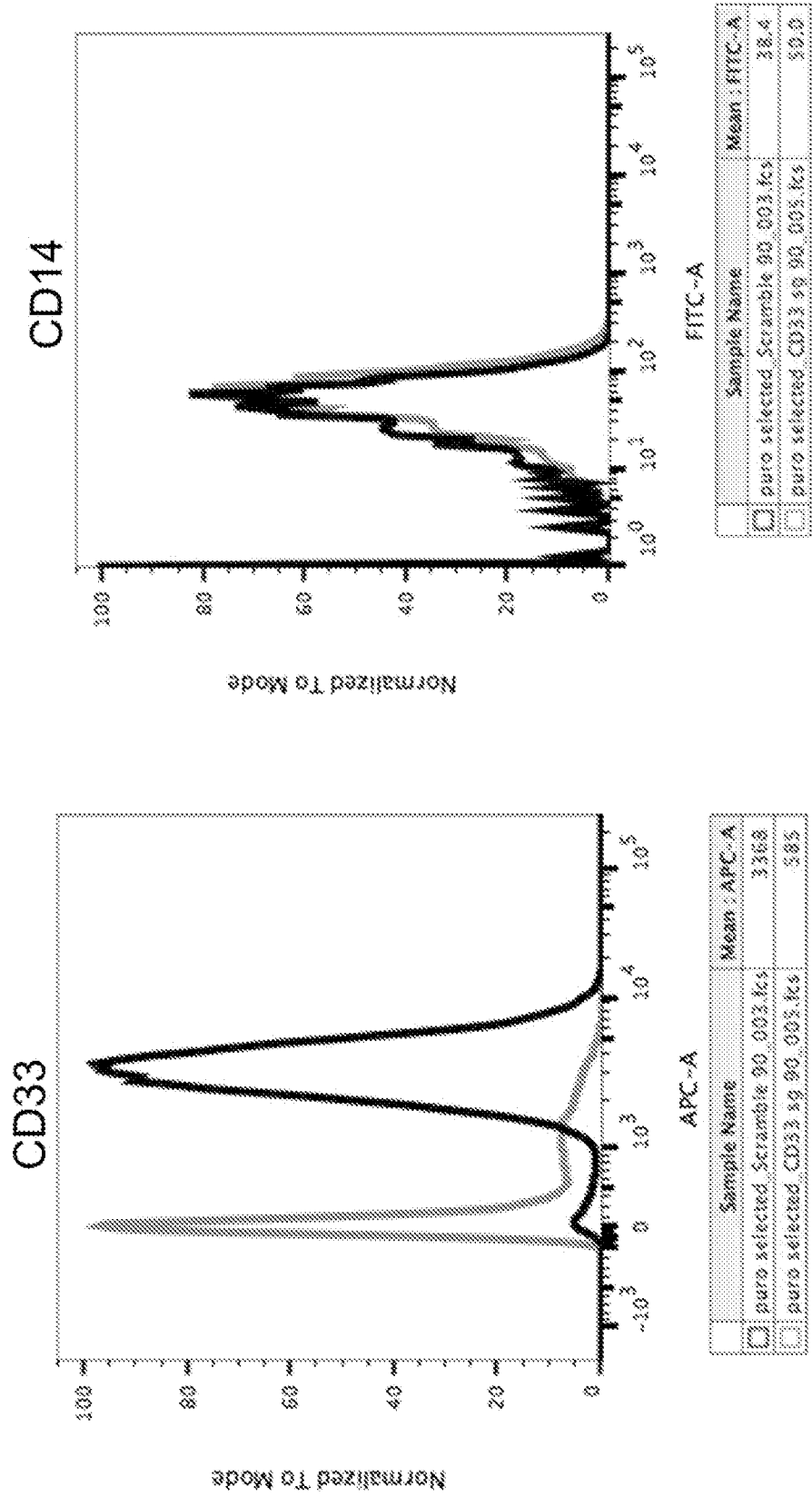


FIG. 18A

FIG. 18B

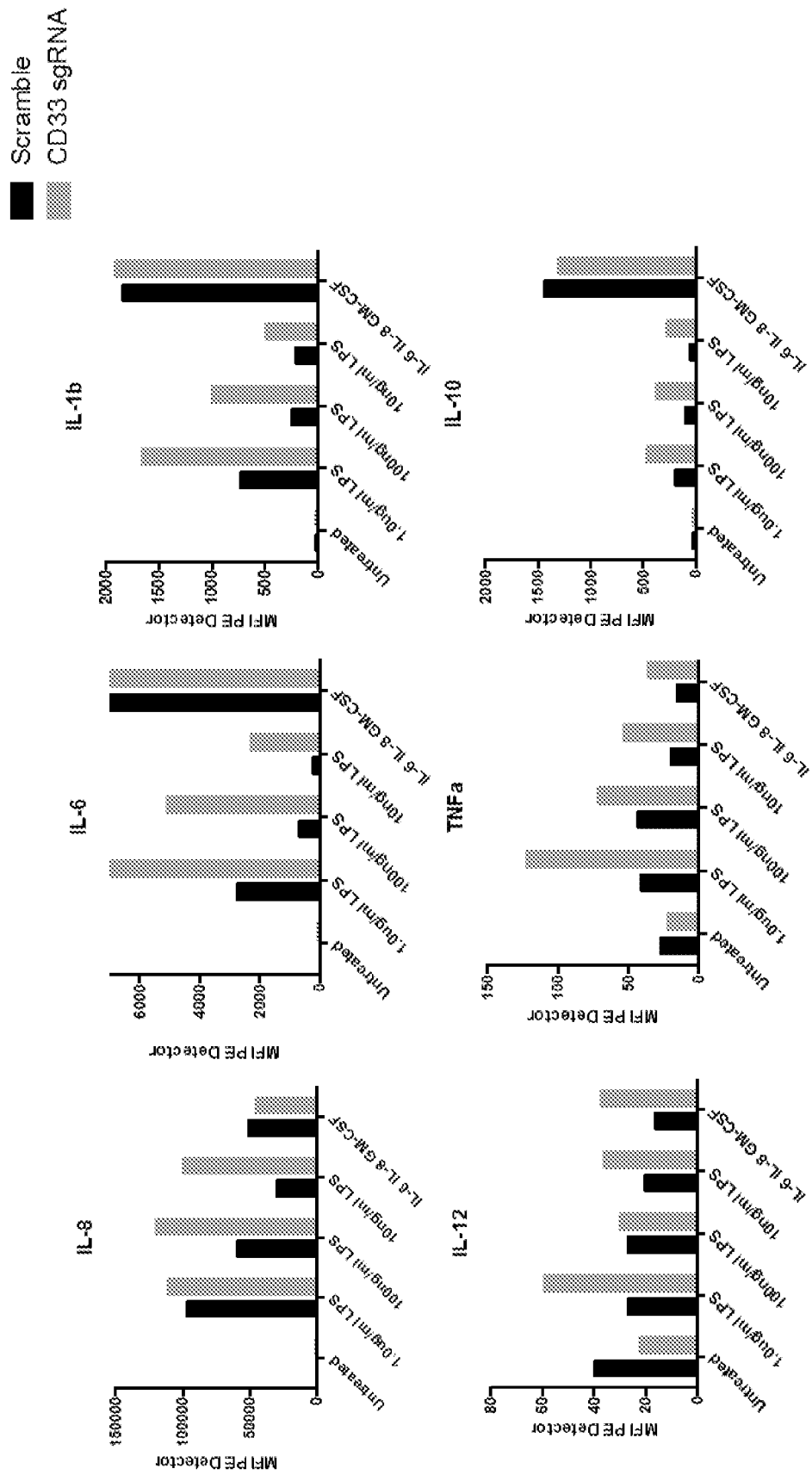


FIG. 18C

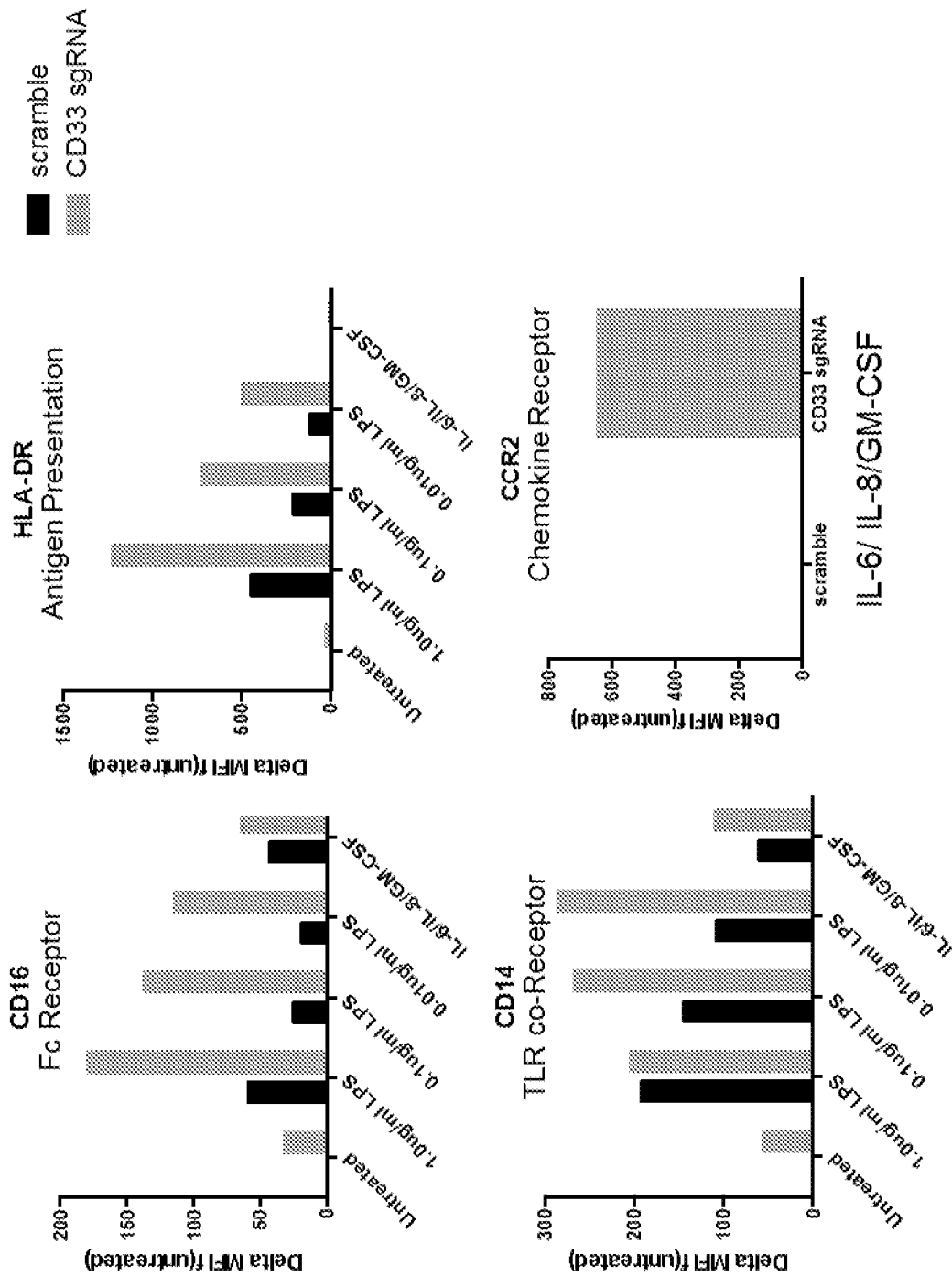


FIG. 18D

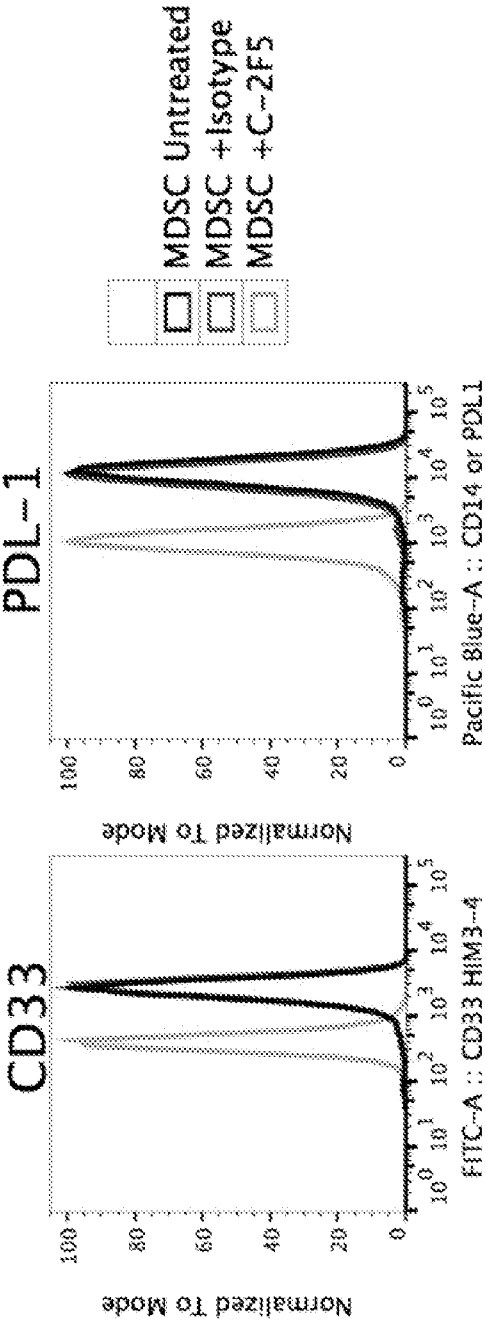


FIG. 19A

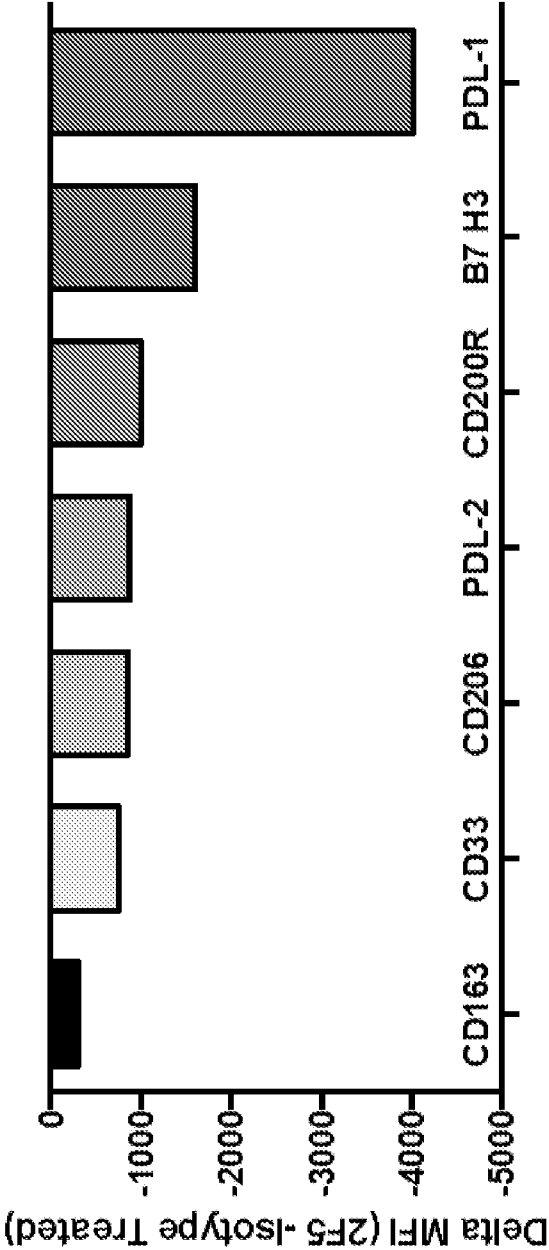


FIG. 19B

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Cervical Cancer Cell Conditioned Media

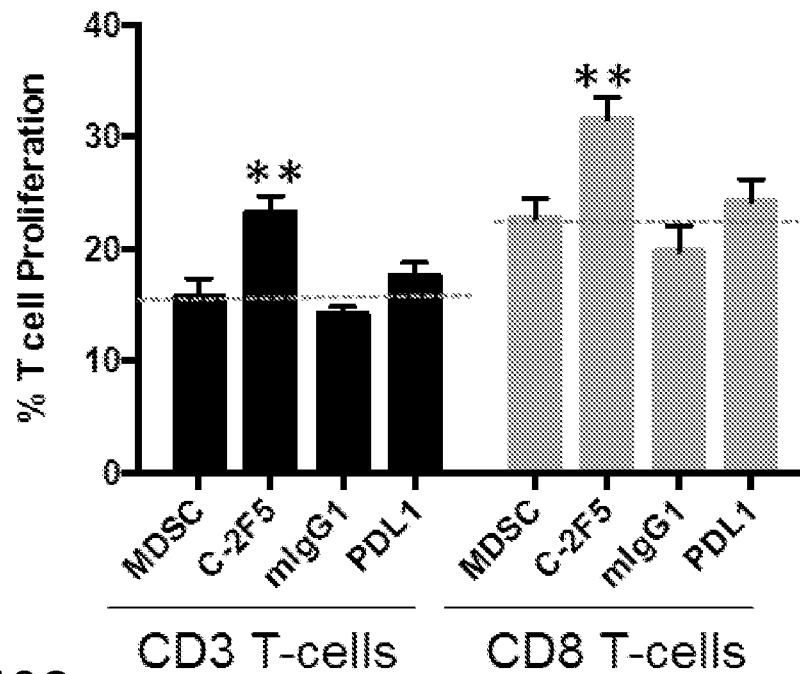


FIG. 19C

Glioblastoma Cell Conditioned Media

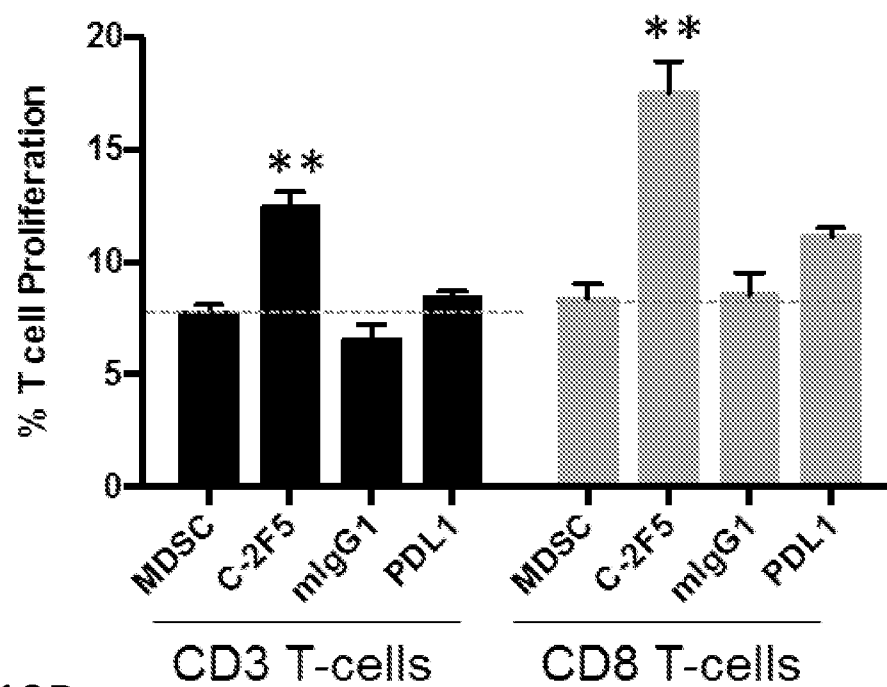


FIG. 19D

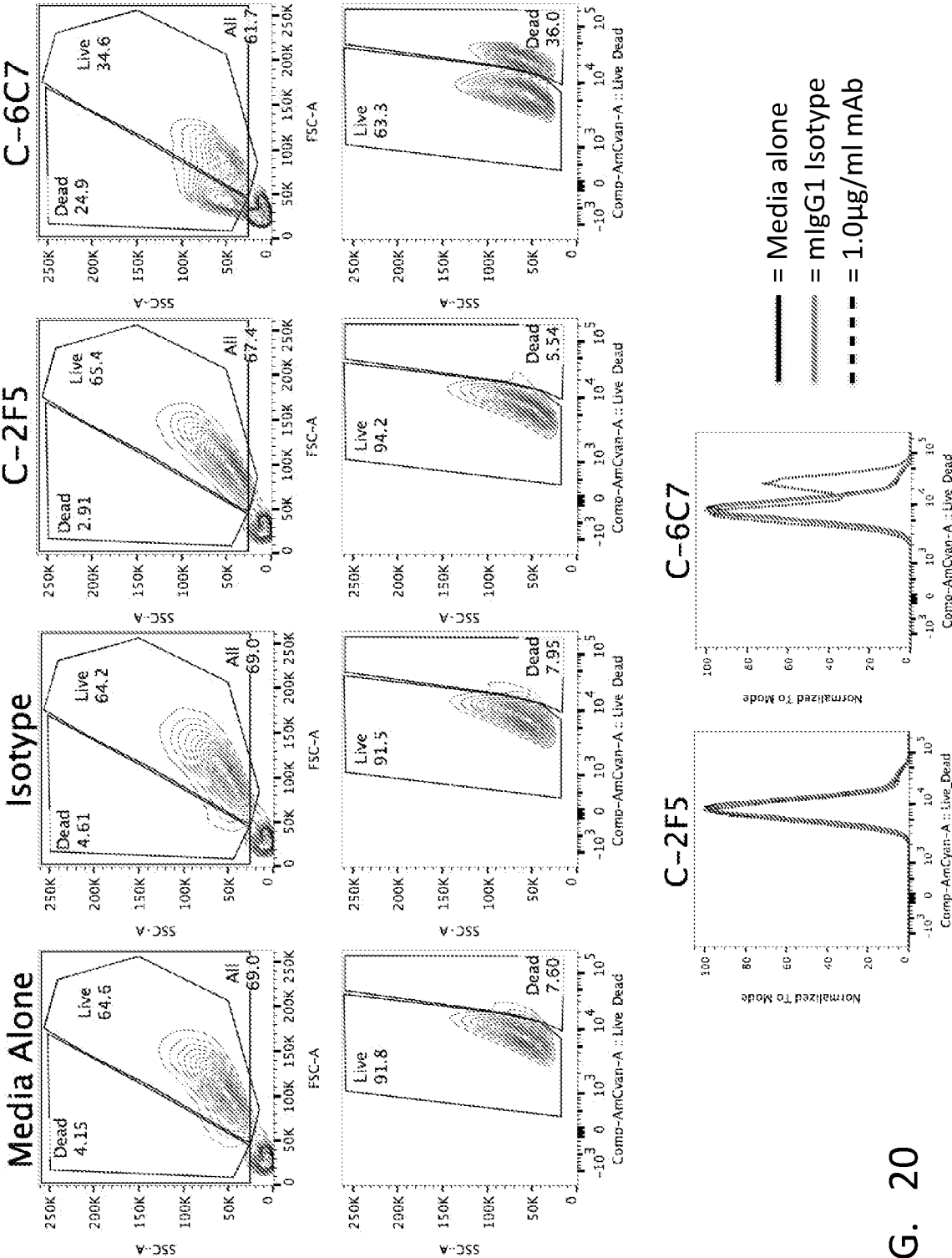


FIG. 20