FIGURE 1

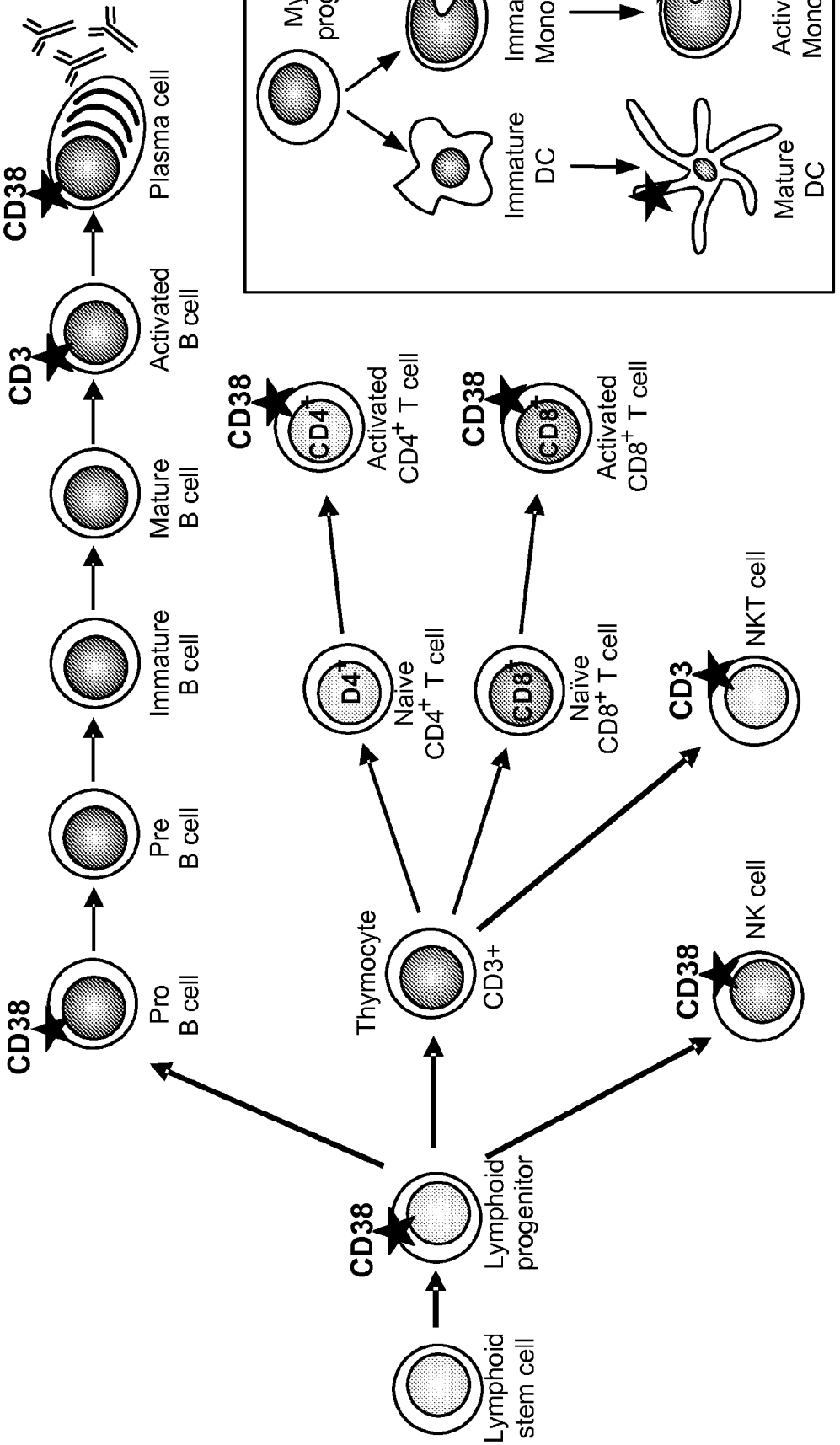

Myeloid progenitor
Immature Monocyte
Activated Monocyte
Immature DC
Mature DC
CD38
Plasma cell
CD3
Activated B cell
Mature B cell
Immature B cell
Pre B cell
Pro B cell
CD38
Activated CD4+ T cell
CD38
Activated CD8+ T cell
Naïve CD4+ T cell
Naïve CD8+ T cell
Thymocyte
CD3+
CD3
NKT cell
CD38
NK cell
CD38
Lymphoid progenitor
Lymphoid stem cell

FIGURE 2A

Ab79 Heavy Chain (SEQ ID NO:21)

EVQLLESGGGLVQPGGSLRLSCAASGFTFDDYGMSWVRQAPGKGLEWVSDIS
WNGGKTHYVDSVKGQFTISRDNSKNTLYLQMNSLRAEDTAVYYCARGSLFH
DSSGFYFGHWGQGTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYF
PEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVN
HKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTP
EVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTV
LHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTK
NQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVD
KSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

Ab79 Light Chain (SEQ ID NO:22)

QSVLTQPPSASGTPGQRVTISCSGSSSNIGDNYVSWYQQLPGTAPKLLIYRDSQ
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCQSYDSSLSGSVFGGGTKLT
VLGQPKANPTVTLFPPSSEELQANKATLVCLISDFYPGAVTVAWKADGSPVK
AGVETTKPSKQSNNKYAASSYLSLTPEQWKSHRSYSCQVTHEGSTVEKTVAP
TECS

Ab19 Heavy Chain (SEQ ID NO:11)

EVQLLESGGGLVQPGGSLRLSCAASGFTFNNYDMTWVRQAPGKGLEWVAVI
SYDGSDKDYADSVKGRFTISRDNSKNTLYLQMNSLRAEDTAVYYCARVYYY
GFSGPSMDVWGQGTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDY
FPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVN
HKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLGGPSVFLFPPKPKDTLMISRTP
EVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTYRVVSVLTV
LHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTK
NQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVD
KSRWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

FIGURE 2B

Ab19 Light Chain (SEQ ID NO:12)

QSVLTQPPSASGTPGQRVTISCSGSNSNIGSNTVNWYQQLPGTAPKLLIYSDSN
RPSGVPDRFSGSKSGTSASLAISGLRSEDEADYYCQSYDSSLSGSRVFGGGTKL
TVLGQPKANPTVTLFPPSSEELQANKATLVCLISDFYPGAVTVAWKADGSPV
KAGVETTKPSKQSNNKYAASSYLSLTPEQWKSHRSYSCQVTHEGSTVEKTVA
PTECS

FIGURE 3

CD38 *Homo sapiens* (Accession NP_001766.2; SEQ ID NO:1)

MANCEFSPVSGDKPCCRLSRRAQLCLGVSILVLILVVVLAVVVPRWRQQWSGPGTTKR
FPETVLARCVKYTEIHPEMRHVDCQSVWDAFKGAFISKHPCNITEEDYQPLMKLGTQT
VPCNKILLWSRIKDLAHQFTQVQRDMFTLEDTLLGYLADDLTWCGEFNTSKINYQSCP
DWRKDCSNNPVSVFWKTVSRRFAEAACDVVHVMLNGSRSKIFDKNSTFGSVEVHNLQ
PEKVQTLEAWVIHGGREDSRDLCQDPTIKELESIISKRNIQFSCKNIYRPDKFLQCVKNPE
DSSCTSEI

CD38 *Macaca fascicularis/Cynomolgus/Crab eating macaque* (Accession AAT36330.1; SEQ ID NO:2)

MANCEFSPVSGDKPCCRLSRRAQVCLGVCLLVLLILVVVVAVVLPRWRQQWSGSGTTS
RFPETVLARCVKYTEVHPEMRHVDCQSVWDAFKGAFISKYPCNITEEDYQPLVKLGTQ
TVPCNKTLLWSRIKDLAHQFTQVQRDMFTLEDMLLGYLADDLTWCGEFNTFEINYQSC
PDWRKDCSNNPVSVFWKTVSRRFAETACGVVHVMLNGSRSKIFDKNSTFGSVEVHNL
QPEKVQALEAWVIHGGREDSRDLCQDPTIKELESIISKRNIRFFCKNIYRPDKFLQCVKN
PEDSSCLSGI

FIGURE 4

BM2		BM1		TSF19		TSF79	
E	76	N	120	G	91	K	121
H	79	K	121	E	103	F	135
E	104	F	135	E	104	Q	139
Q	107	Q	139	D	105	D	141
M	110	D	141	Q	107	M	142
K	111	D	202	M	110	E	239
L	112	V	203	K	111	W	241
G	113	H	205	T	114	S	274
T	114	Q	236	Q	115	C	275
Q	115	T	237	T	148	K	276
T	116	E	239	V	192	F	284
V	117	W	241	R	194	V	288
C	119	Q	272	R	195	K	289
T	148	F	273	F	196	N	290
L	150	S	274	E	198	P	291
T	191	C	275	A	199	E	292
V	192	K	276	H	228	D	293
R	194	F	284	N	229	S	294
R	195	P	291	Q	231		
F	196	E	292	E	233		
E	198	T	297	K	234		
A	199	S	298				
Q	231						
E	233						
K	234						

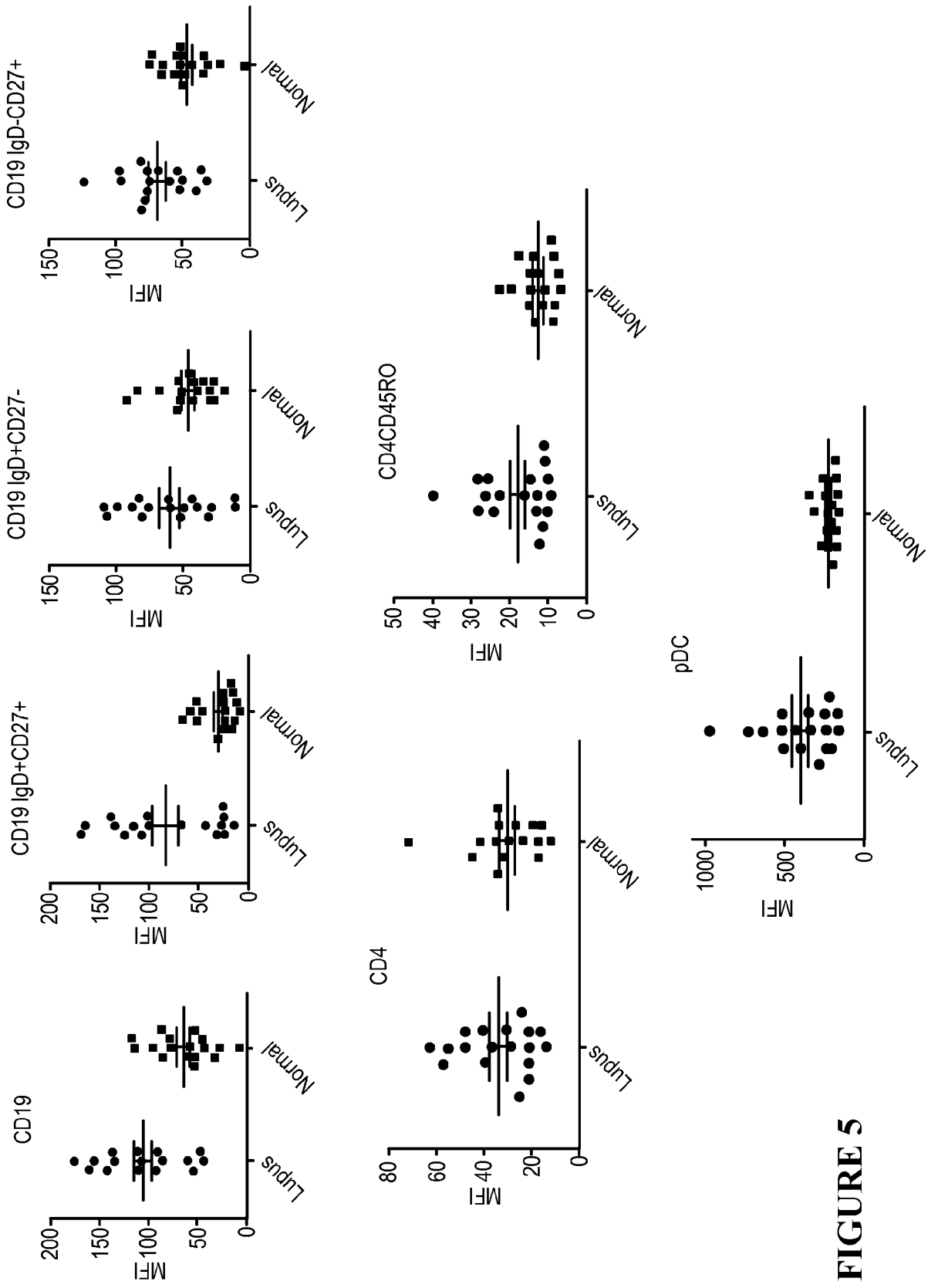

CD19
CD19 IgD+CD27+
CD19 IgD+CD27-
CD19 IgD-CD27+
CD4
CD4CD45RO
pDC
MFI
Lupus
Normal

FIGURE 5

FIGURE 6

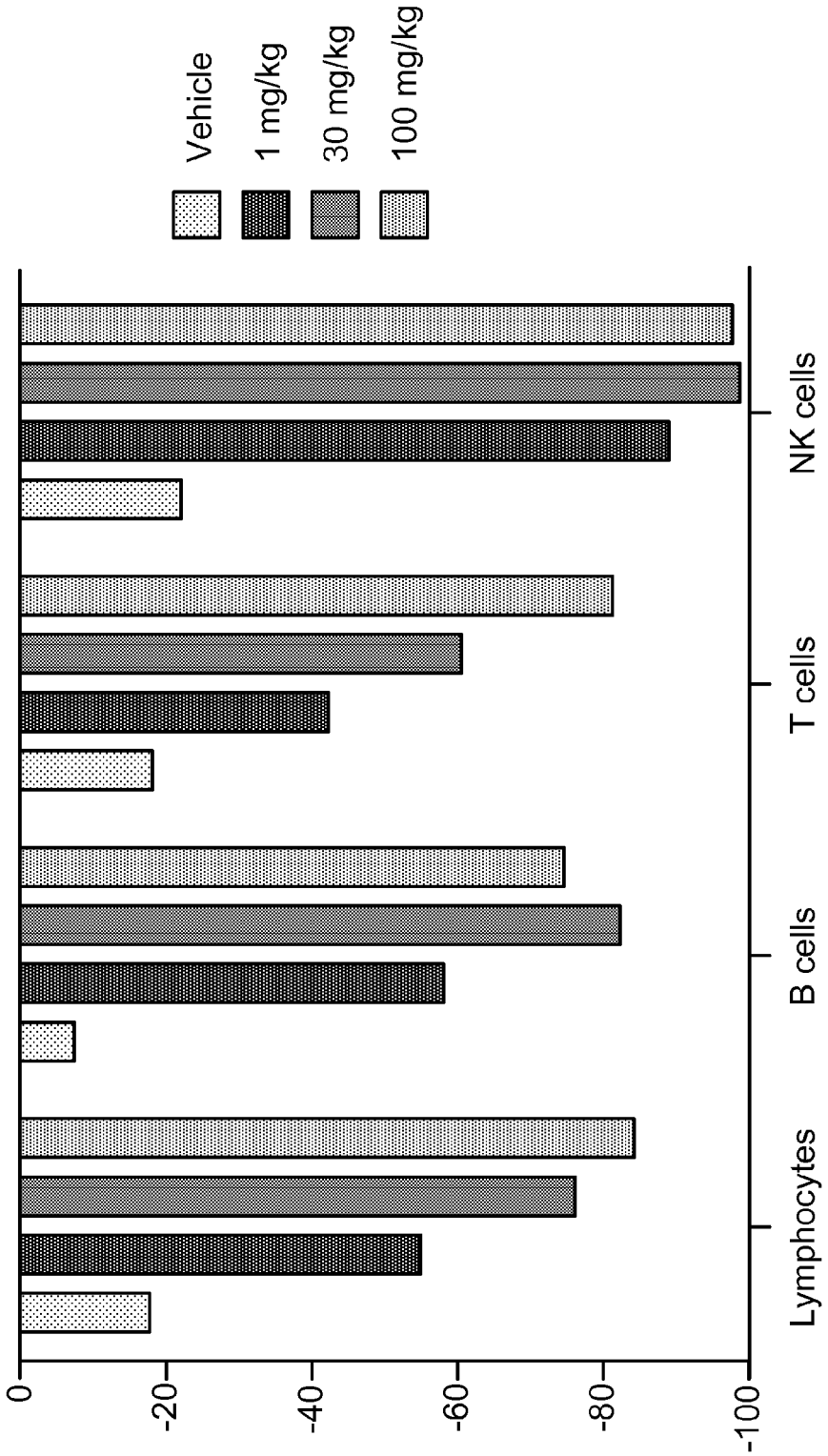

Vehicle
1 mg/kg
30 mg/kg
100 mg/kg
0
-20
-40
-60
-80
-100
Lymphocytes
B cells
T cells
NK cells

FIGURE 7

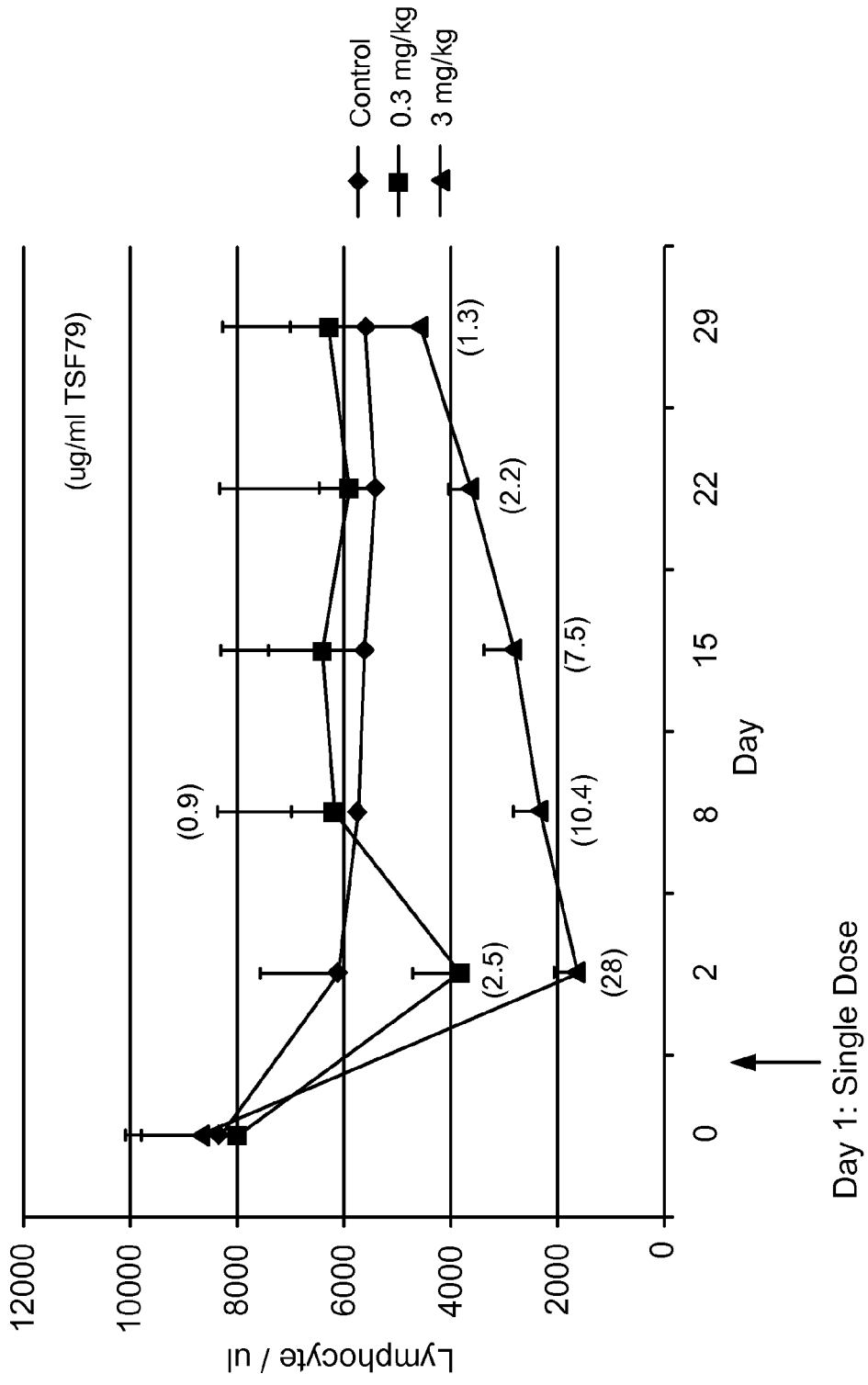

Single Dose TSF79
(ug/ml TSF79)
Control
0.3 mg/kg
3 mg/kg
Lymphocyte / ul
12000
10000
8000
6000
4000
2000
0
(0.9)
(2.5)
(28)
(10.4)
(7.5)
(2.2)
(1.3)
0
2
8
15
22
29
Day
Day 1: Single Dose

FIGURE 8

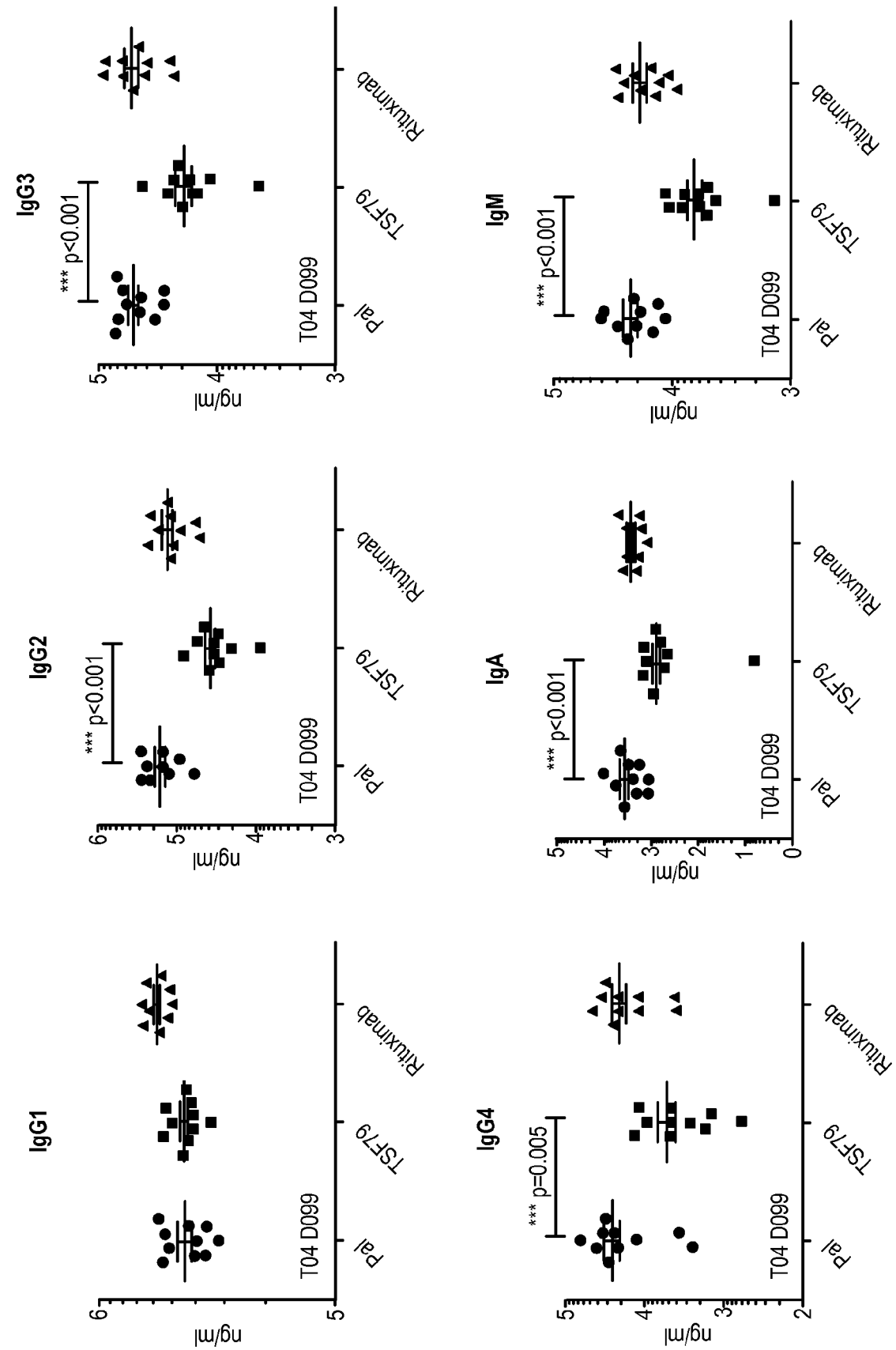

IgG1
IgG2
IgG3
IgG4
IgA
IgM
ng/ml
*** p<0.001
*** p=0.005
T04 D099
Pal
TSF79
Rituximab

FIGURE 9

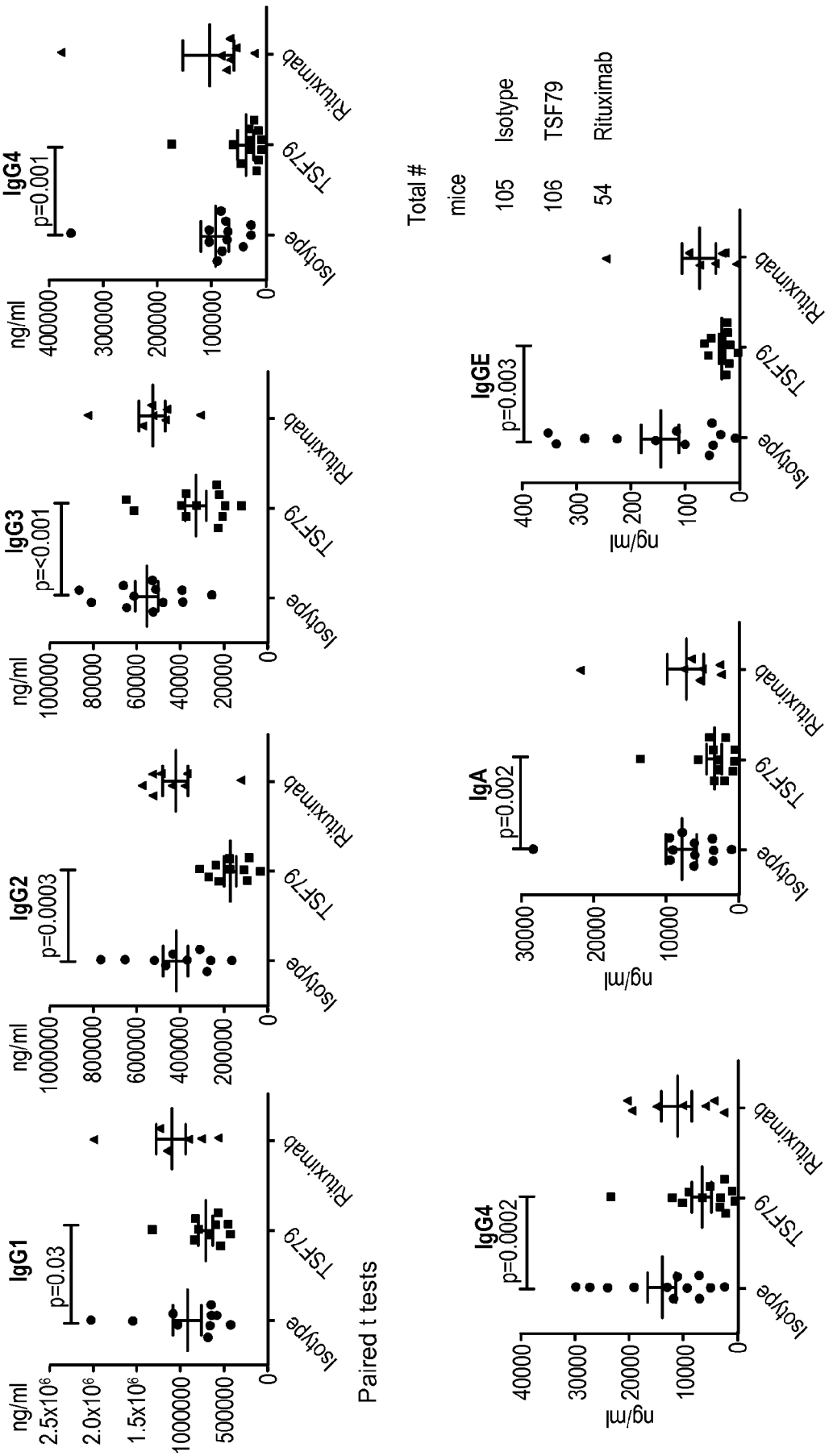

IgG1
p=0.03
IgG2
p=0.0003
IgG3
p=<0.001
IgG4
p=0.001
IgG4
p=0.0002
IgA
p=0.002
IgGE
p=0.003
ng/ml
Isotype
TSF79
Rituximab
Paired t tests
Total # mice
105 Isotype
106 TSF79
54 Rituximab

FIGURE 10

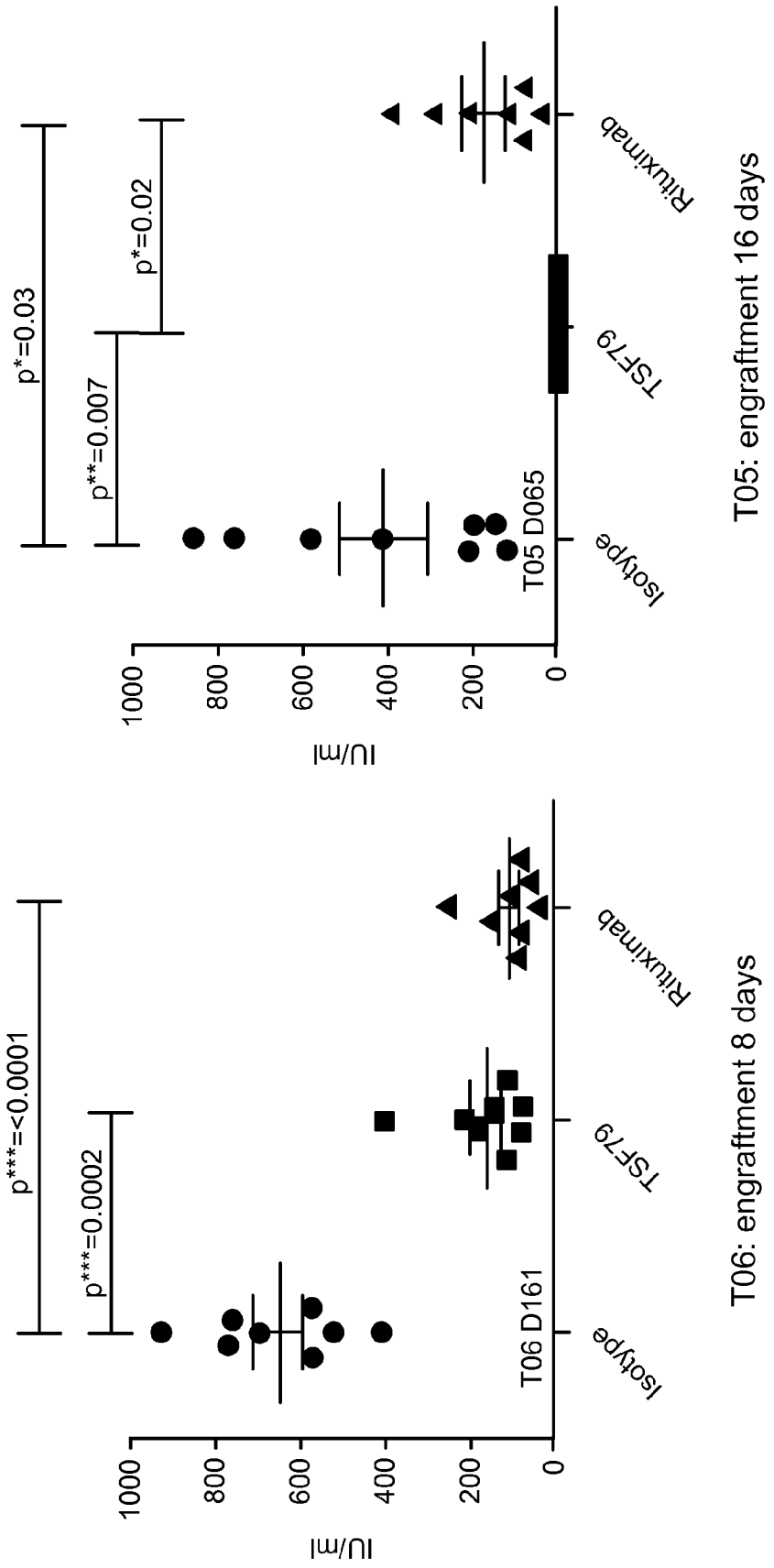

T05: engraftment 16 days
T06: engraftment 8 days
IU/ml
1000
800
600
400
200
0
p*=0.03
p**=0.007
p*=0.02
p***=<0.0001
p***=0.0002
Isotype
TSF79
Rituximab
T05 D065
T06 D161

FIGURE 11

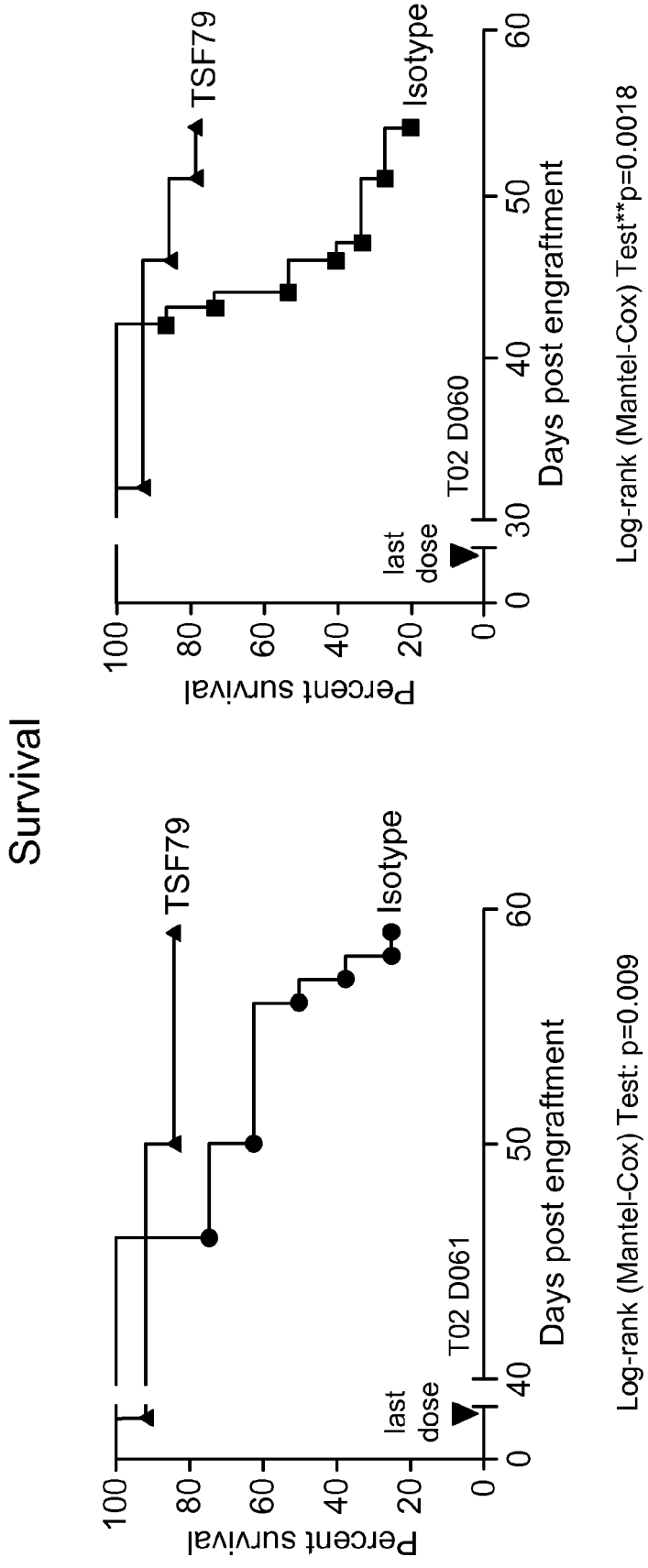

Survival
Percent survival
100
80
60
40
20
0
last dose
T02 D061
0
40
50
60
Days post engraftment
TSF79
Isotype
Log-rank (Mantel-Cox) Test: p=0.009
Percent survival
100
80
60
40
20
0
last dose
T02 D060
0
30
40
50
60
Days post engraftment
TSF79
Isotype
Log-rank (Mantel-Cox) Test**p=0.0018

FIGURE 12

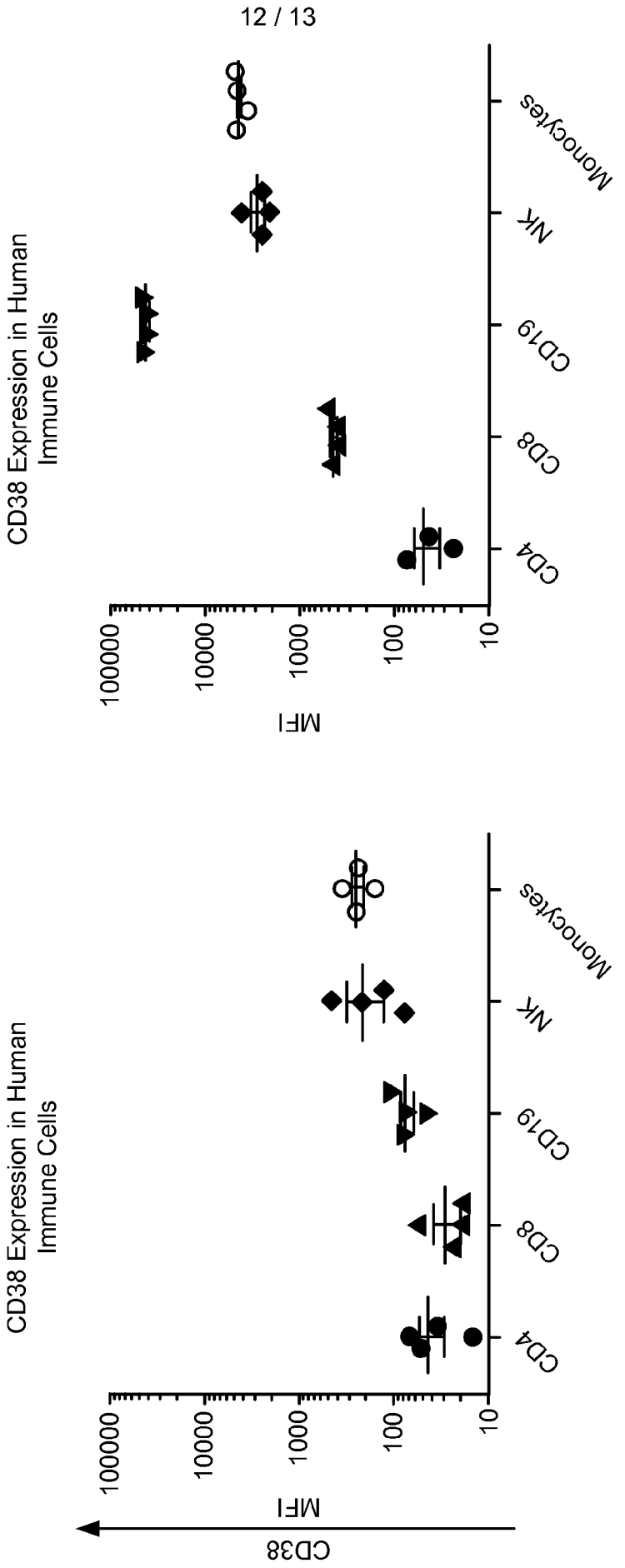
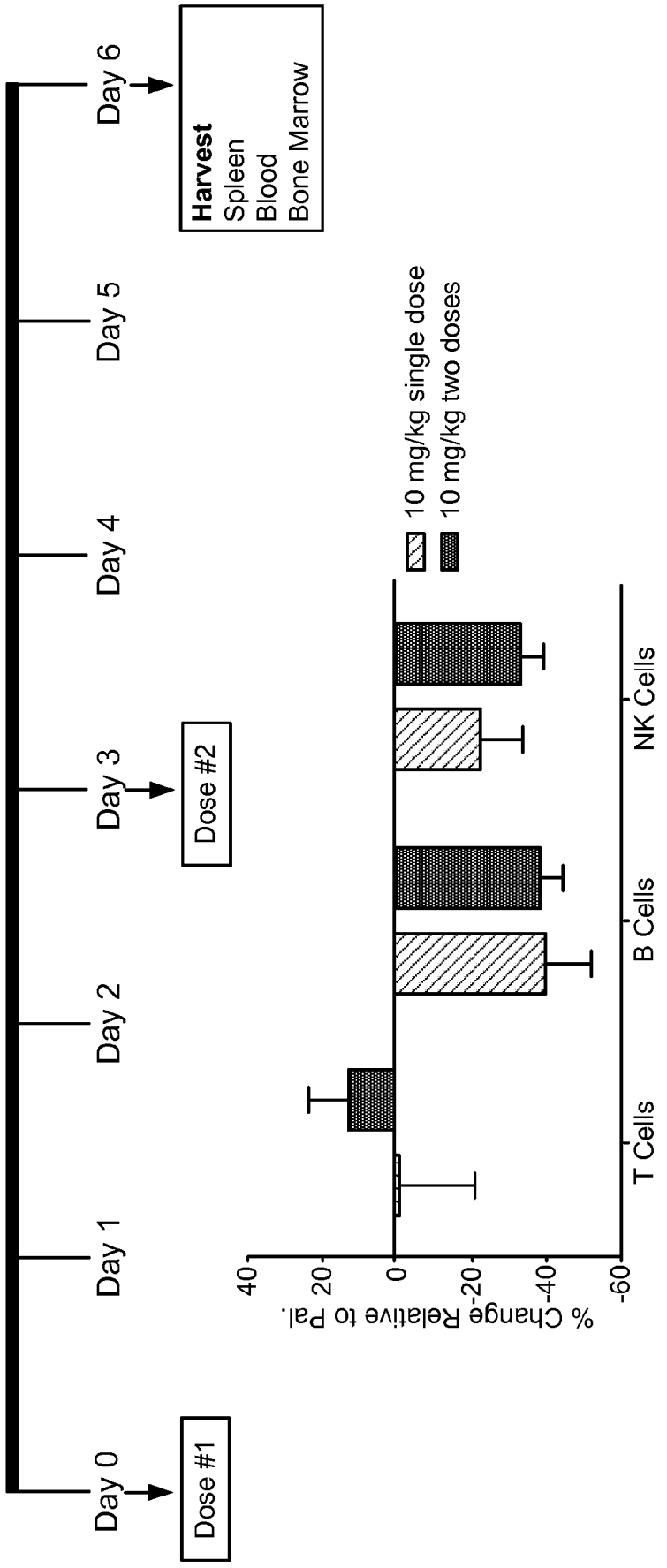

CD38 Expression in Human Immune Cells
CD38
MFI
100000
10000
1000
100
10
CD4
CD8
CD19
NK
Monocytes
CD38 Expression in Human Immune Cells
MFI
100000
10000
1000
100
10
CD4
CD8
CD19
NK
Monocytes

FIGURE 13


Day 0
Day 1
Day 2
Day 3
Day 4
Day 5
Day 6
Dose #1
Dose #2
Harvest
Spleen
Blood
Bone Marrow
10 mg/kg single dose
10 mg/kg two doses
% Change Relative to Pal.
40
20
0
-20
-40
-60
T Cells
B Cells
NK Cells