

FIGURE 1

Specificity of 231-32-15 Western Blot Non-reducing condition

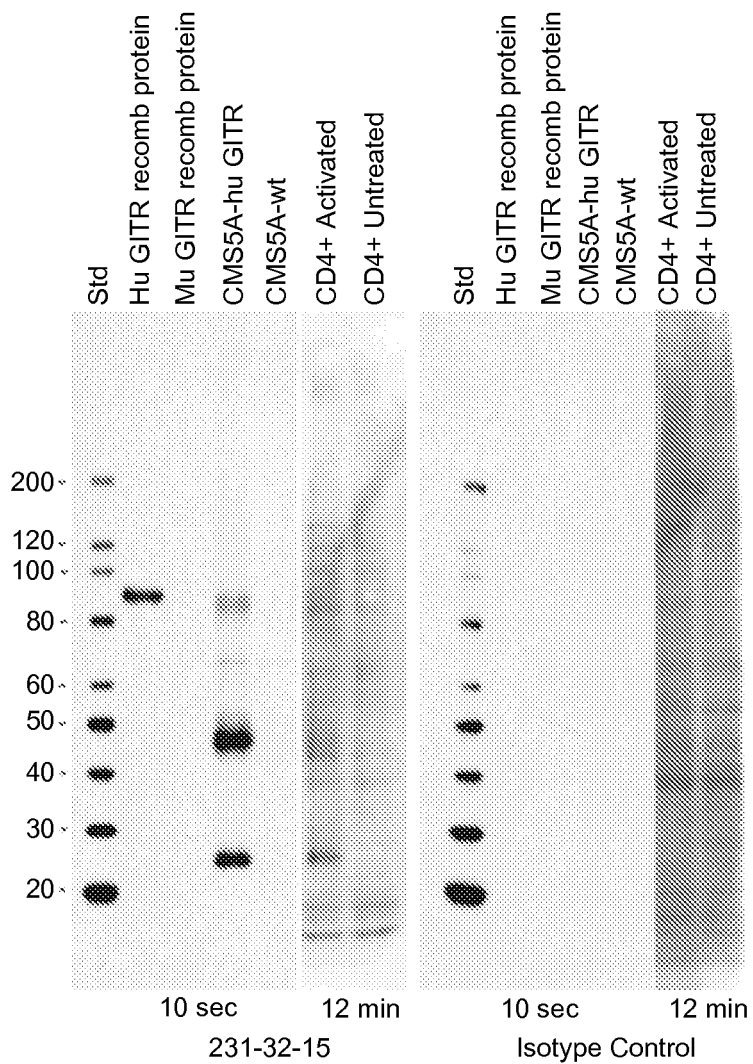


FIGURE 2A

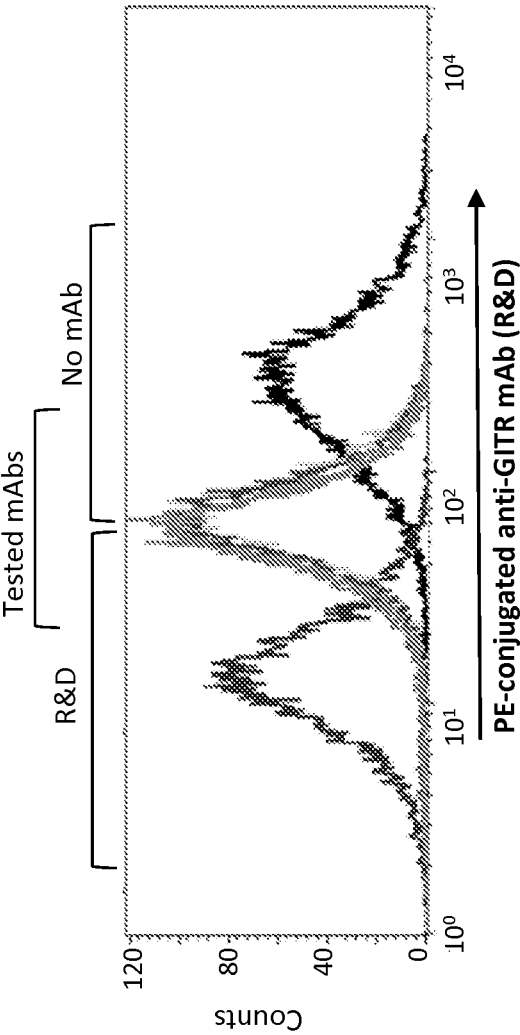


FIGURE 2B

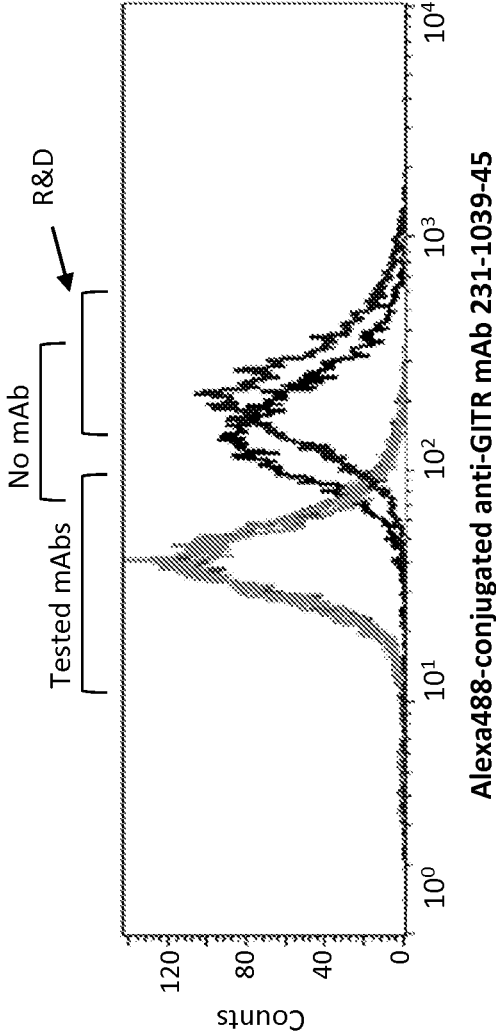


FIGURE 3A

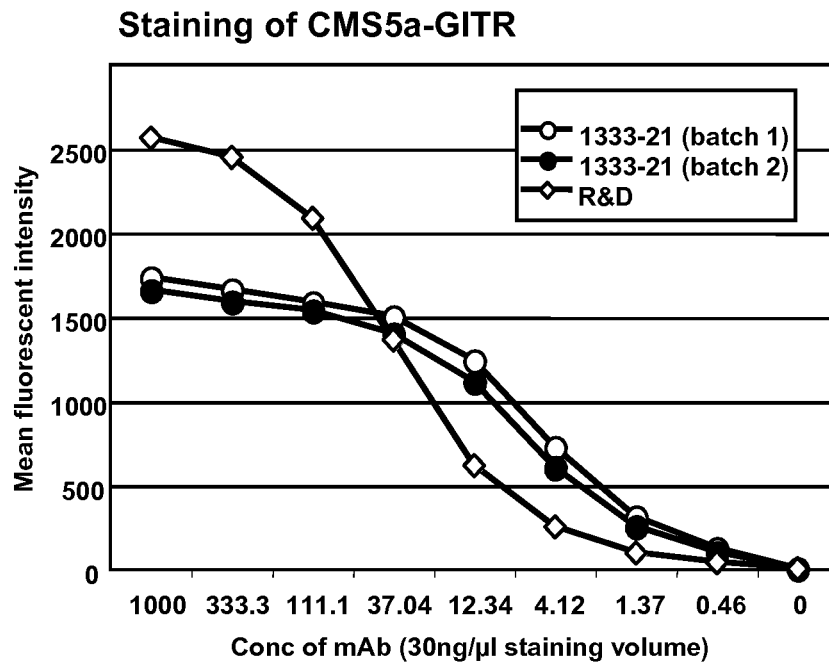


FIGURE 3B

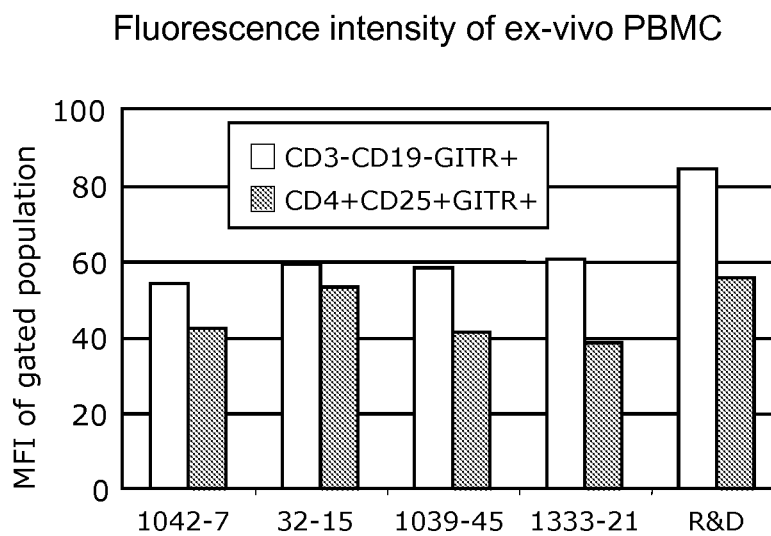


FIGURE 3C

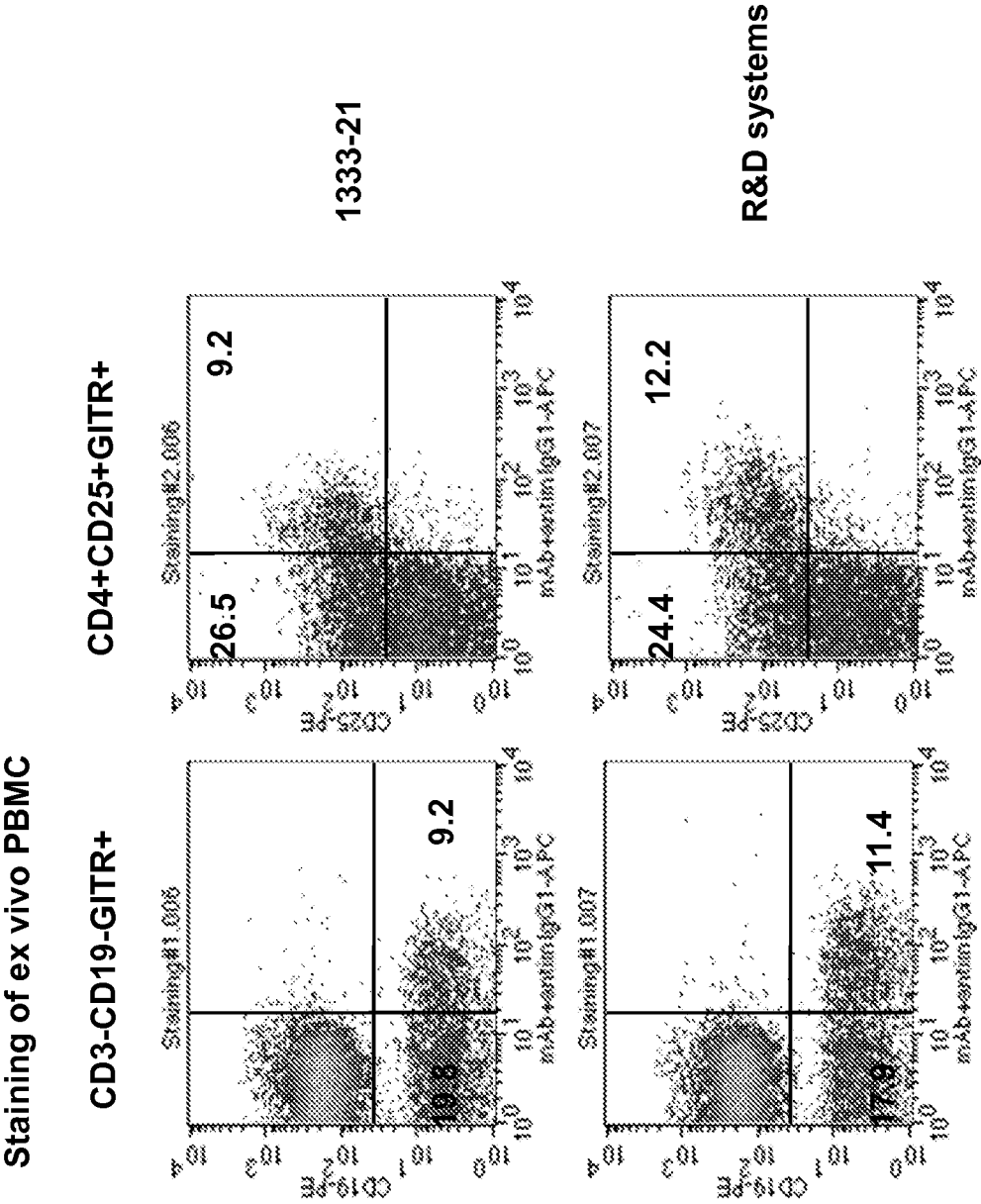


FIGURE 4

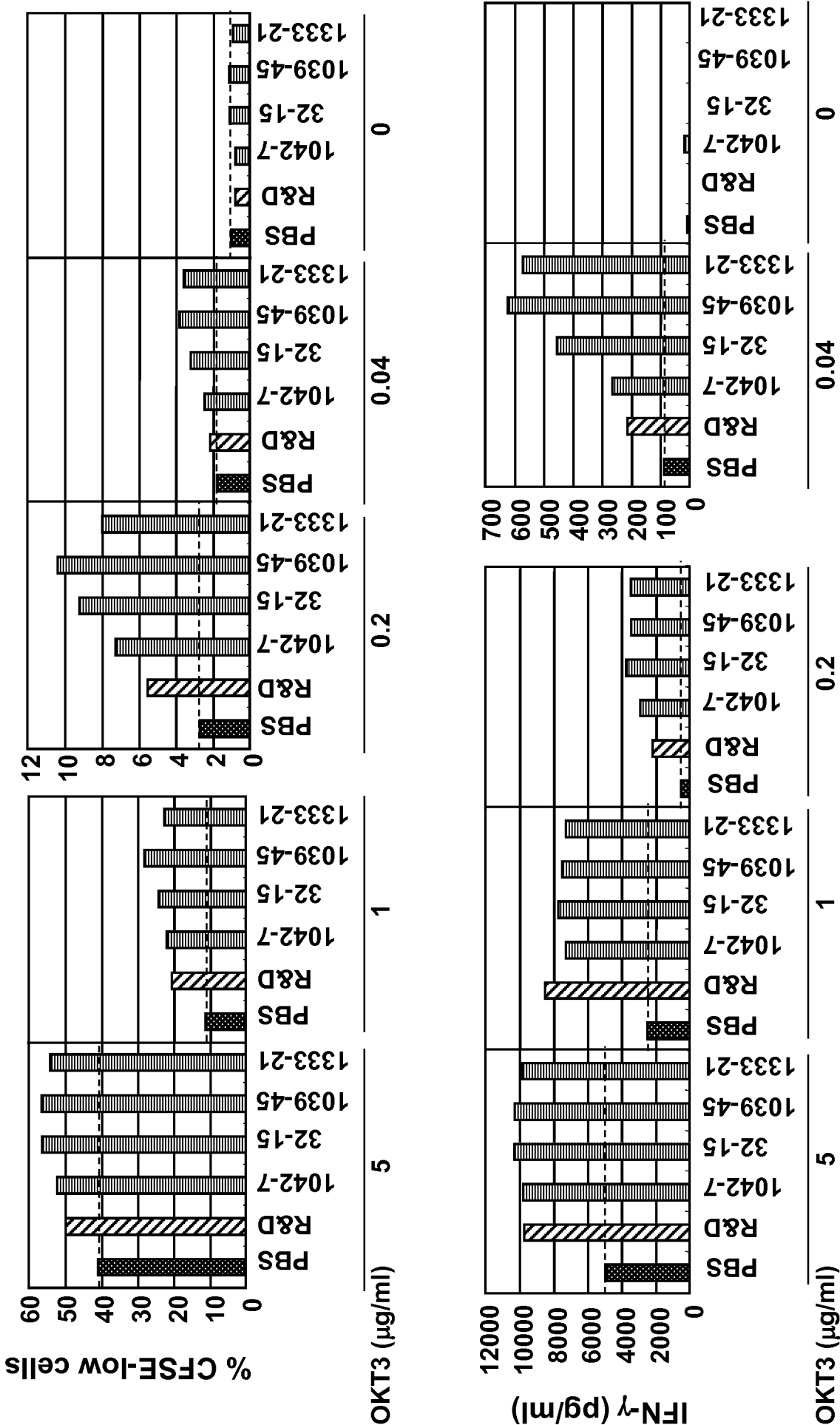


FIGURE 5

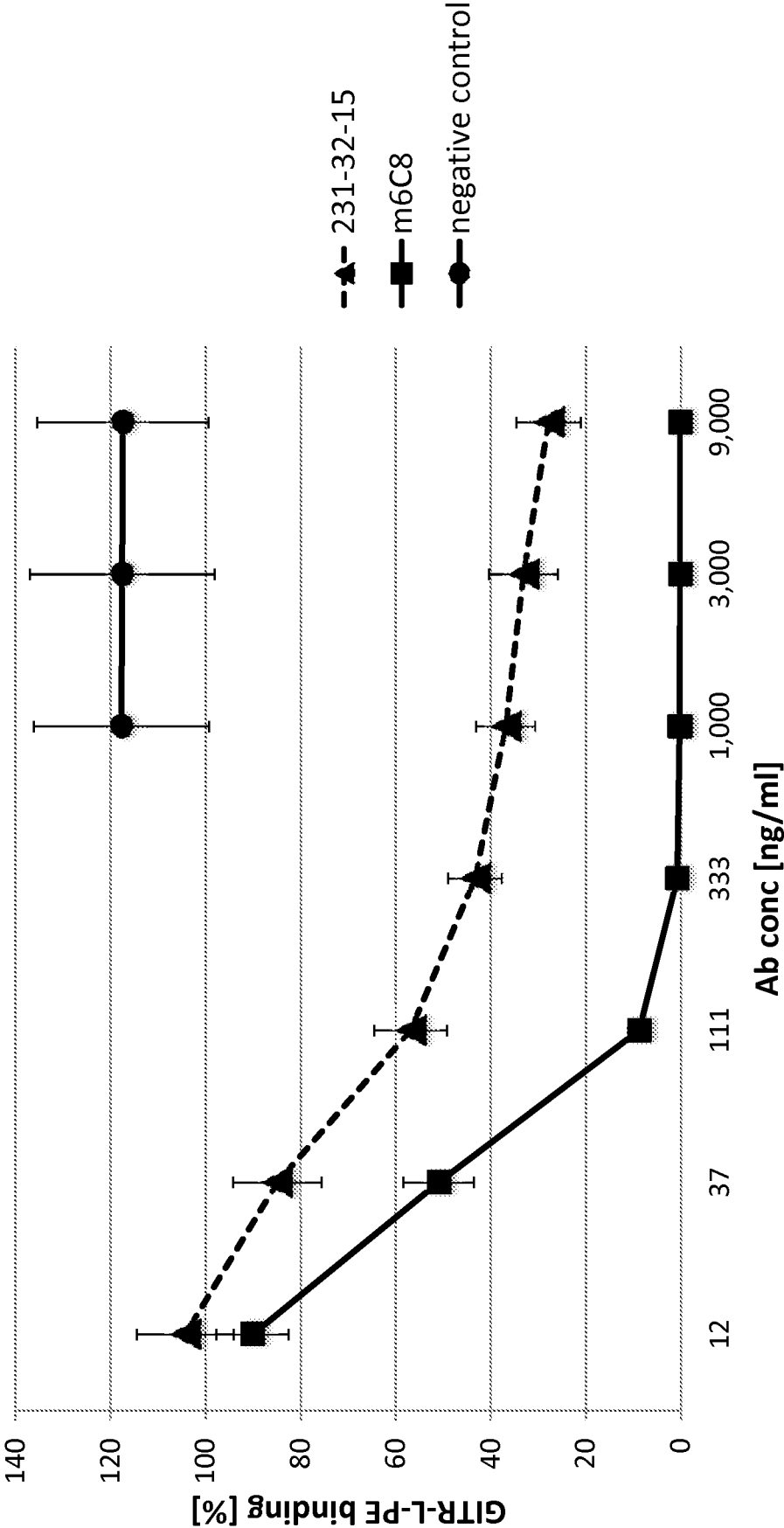


FIGURE 6

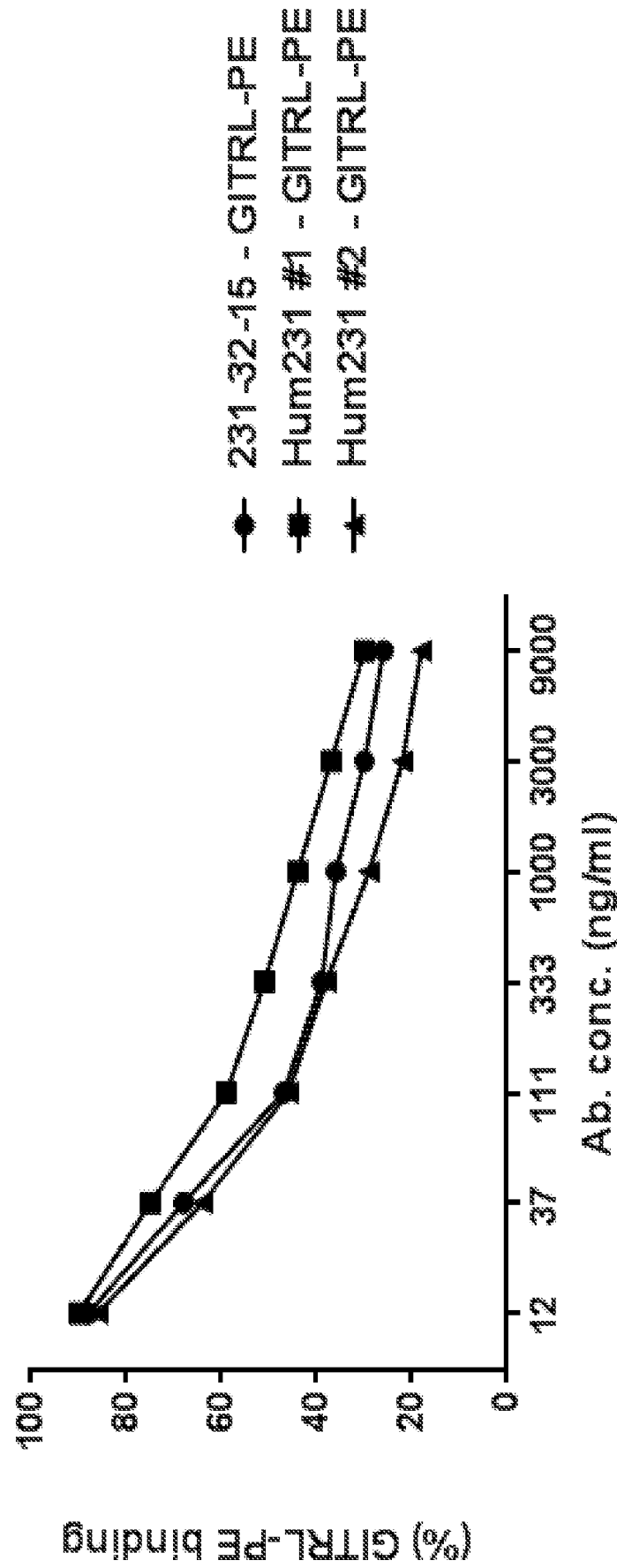
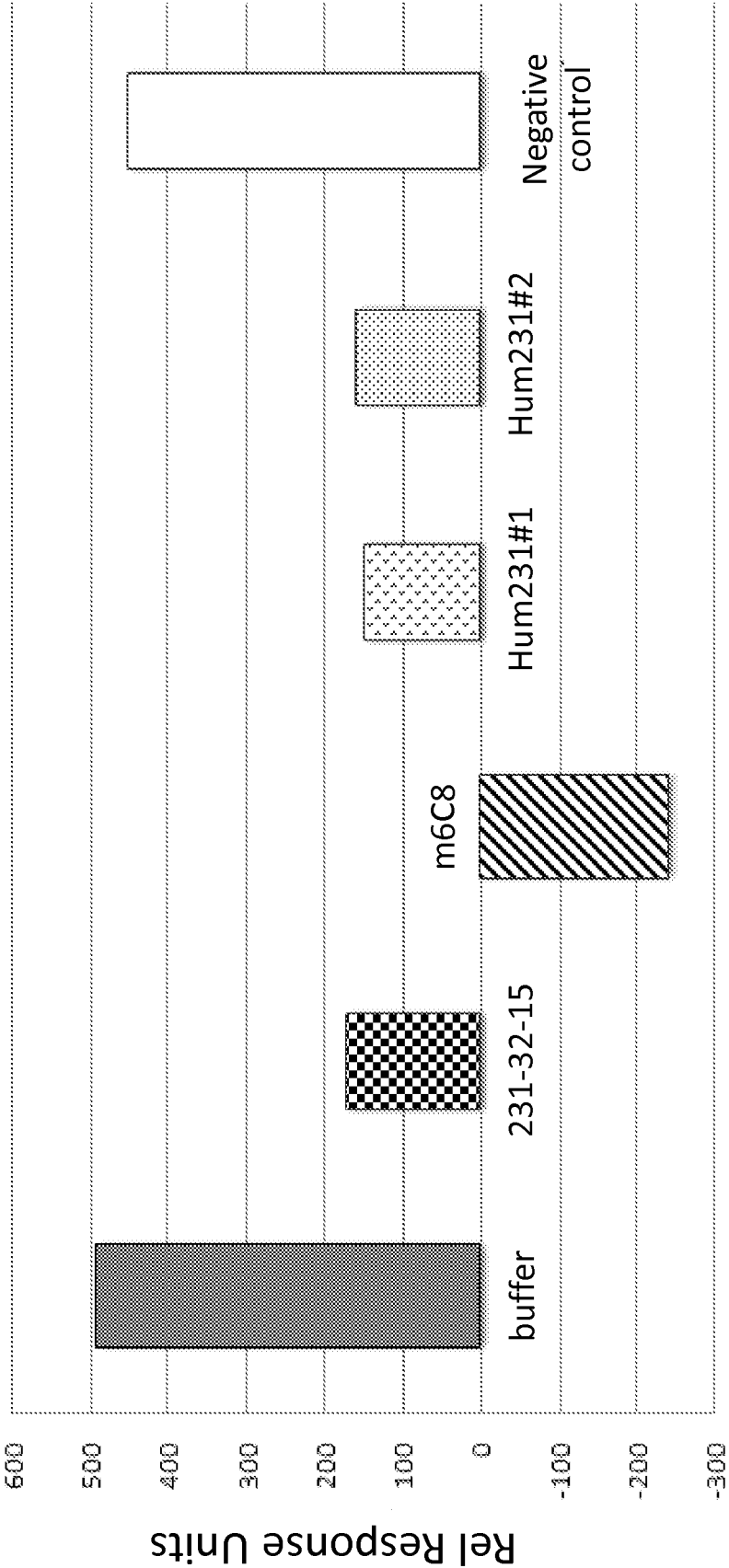
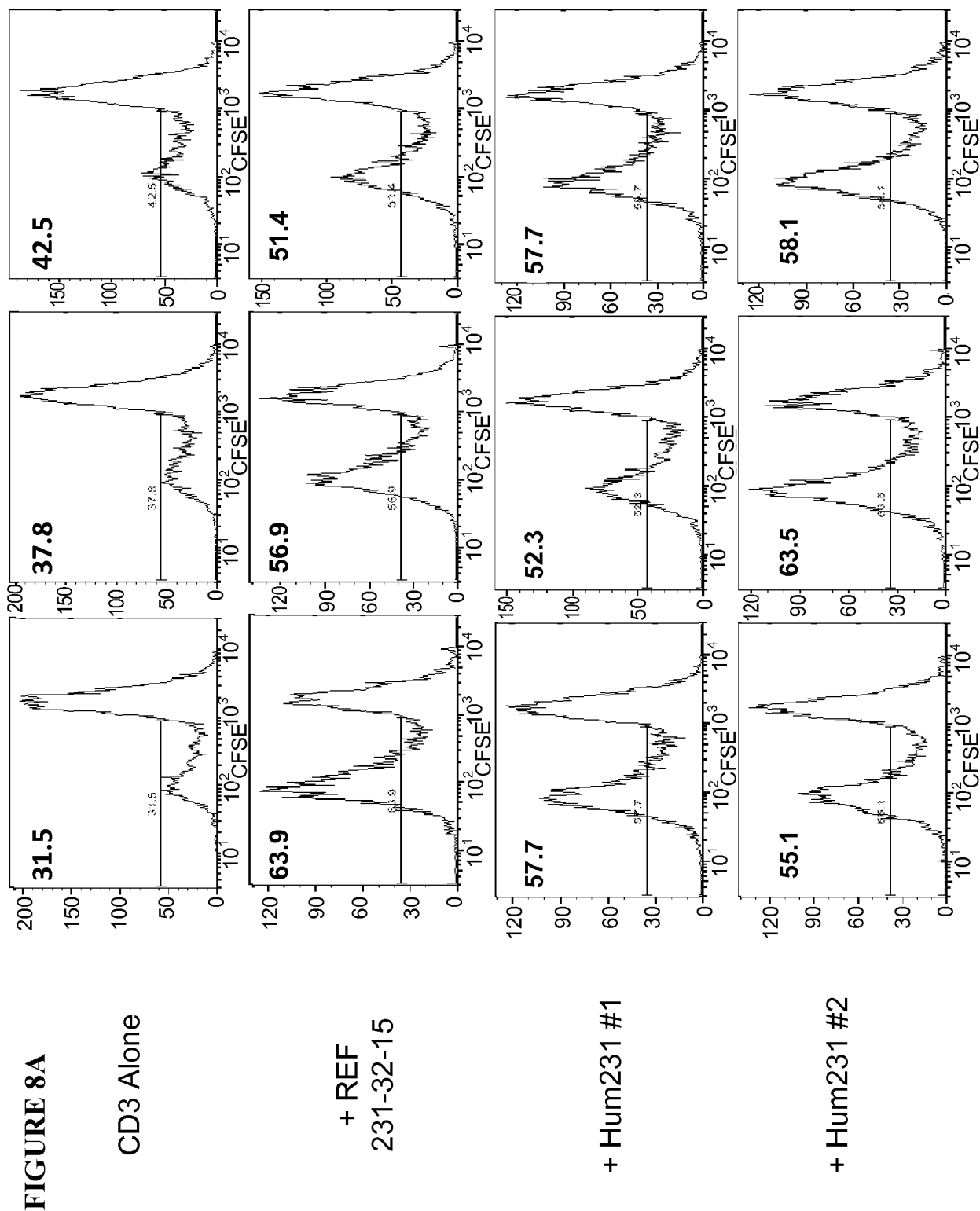
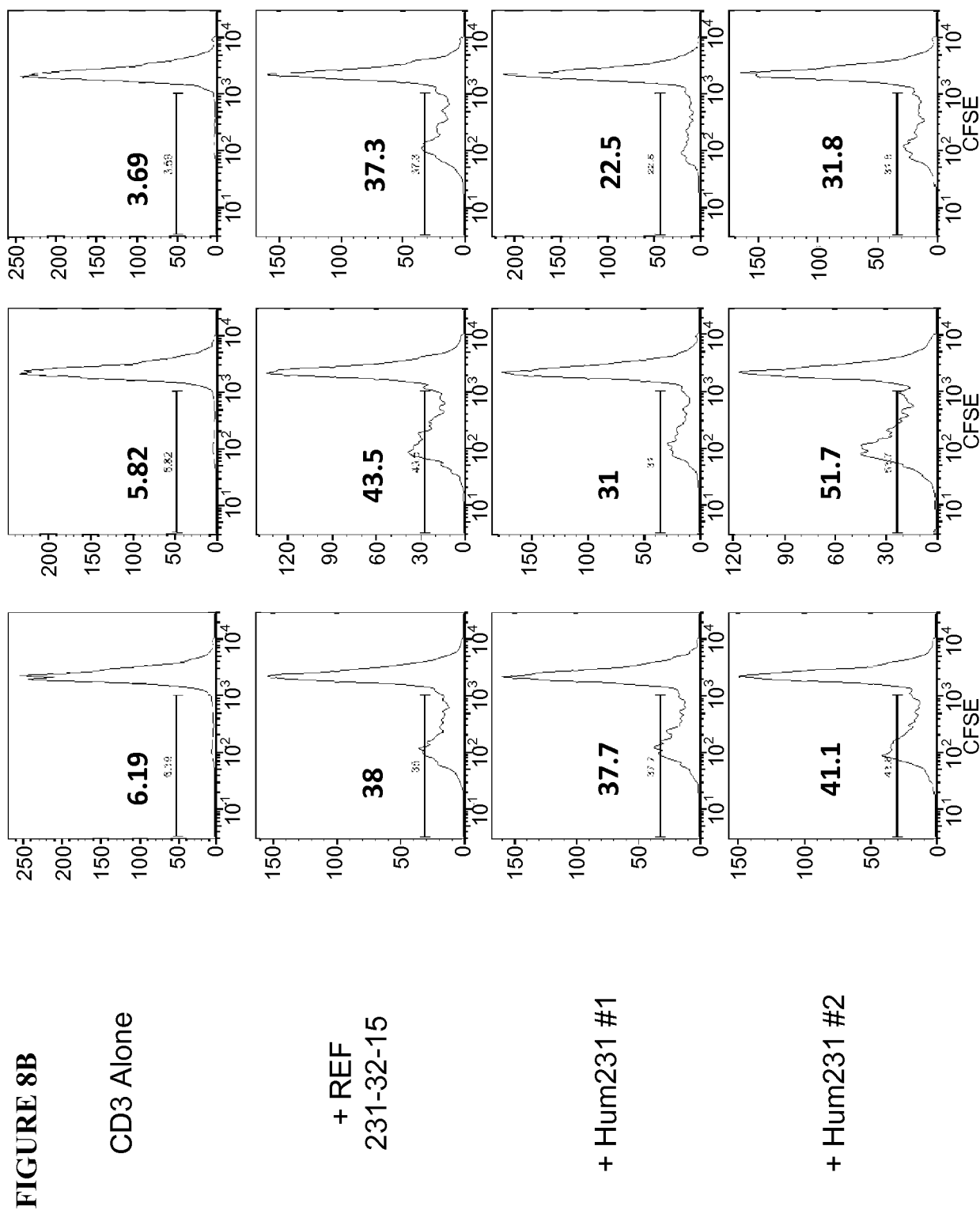


FIGURE 7

GlTR ligand binding in the presence of mAbs



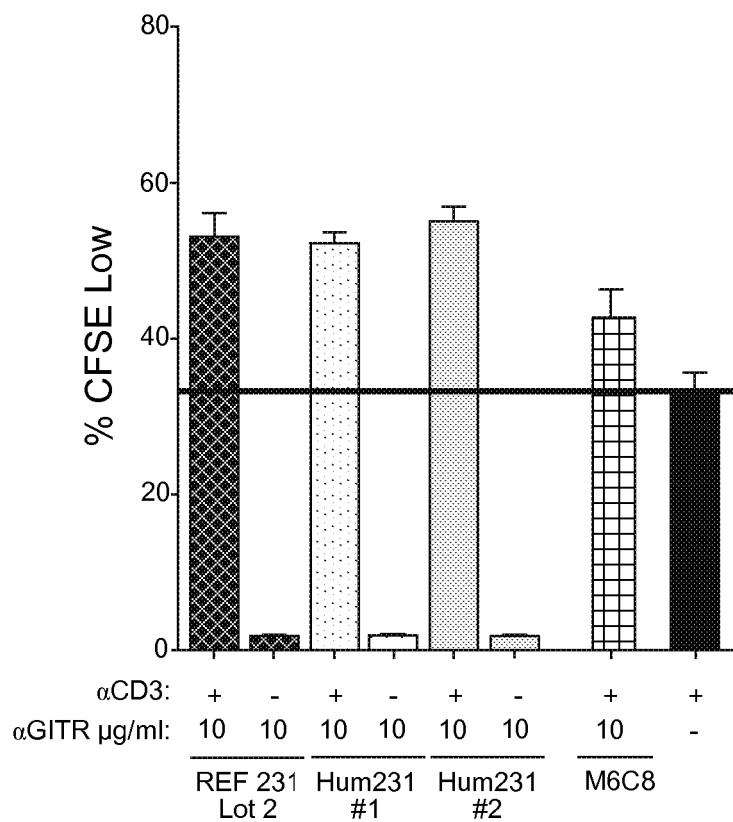




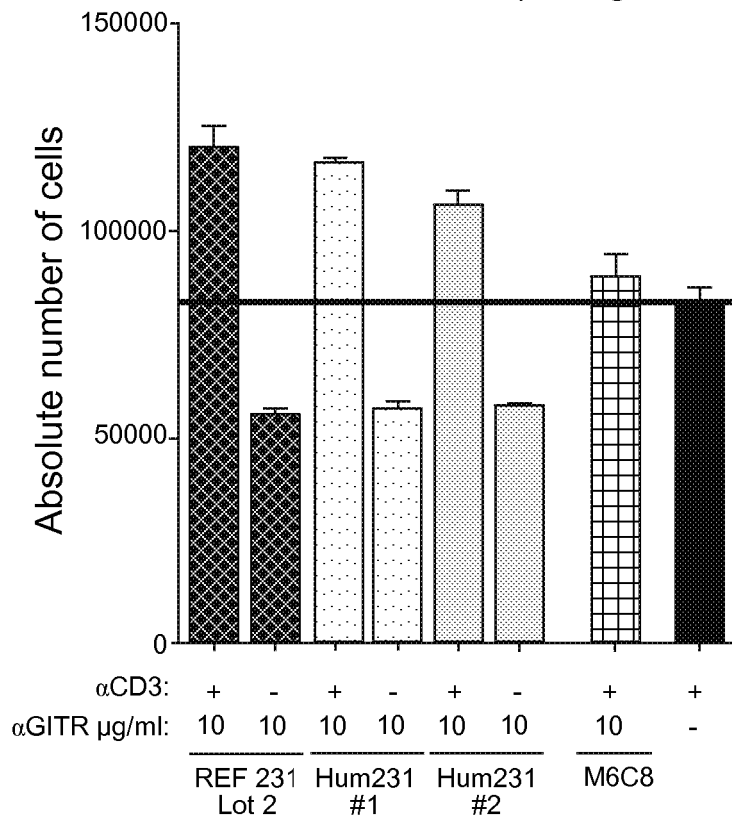
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FIGURE 9A

Enriched CD4 T Cell Proliferation (125ng/ml CD3)

**FIGURE 9B**

Enriched CD4 T Cell Proliferation (125ng/ml CD3)



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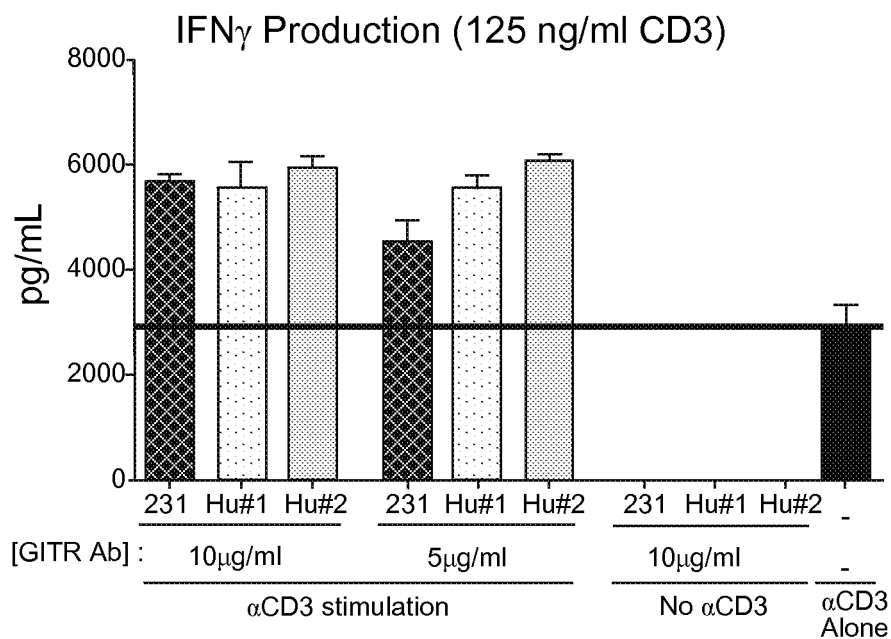
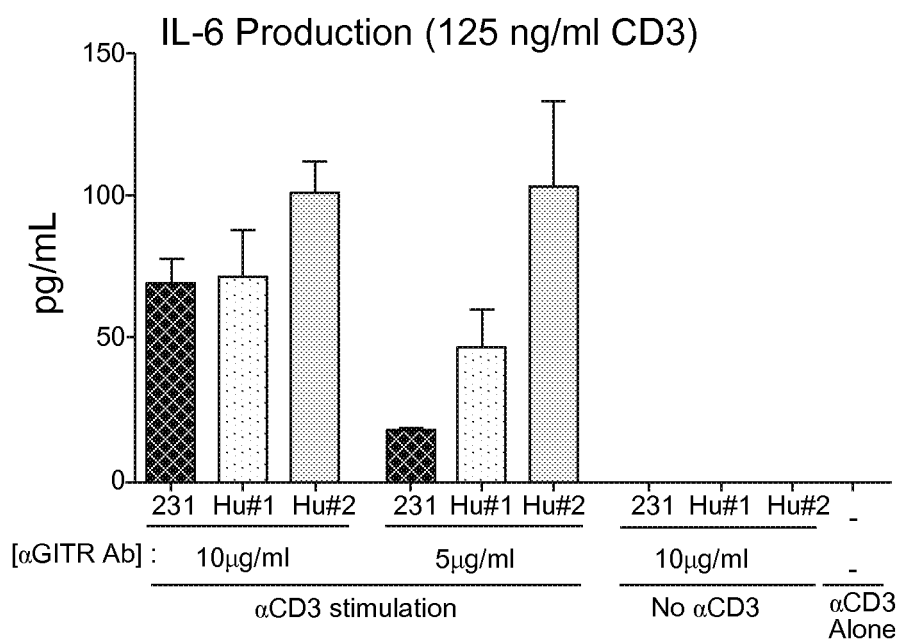
FIGURE 10A**FIGURE 10B**

FIGURE 10C

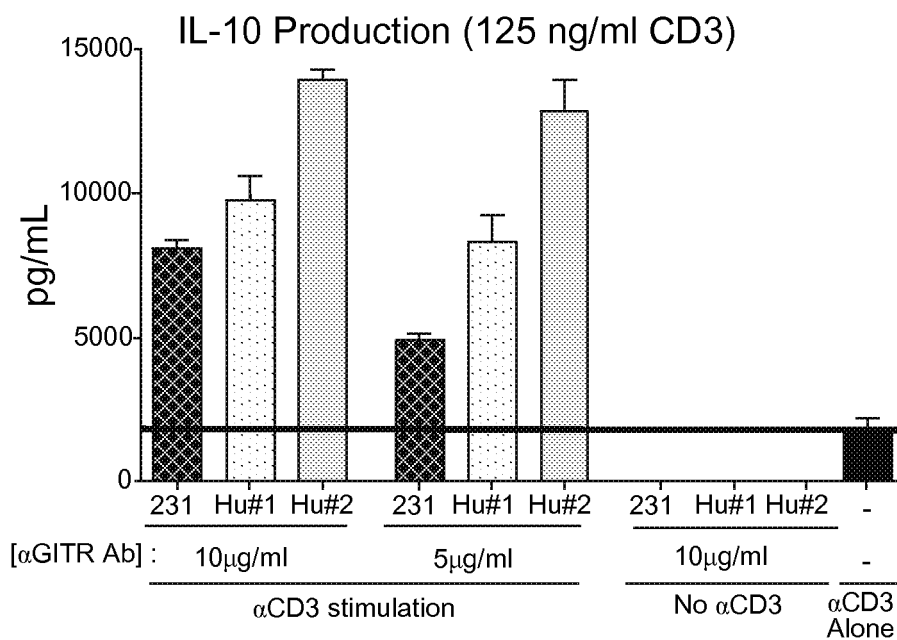


FIGURE 10D

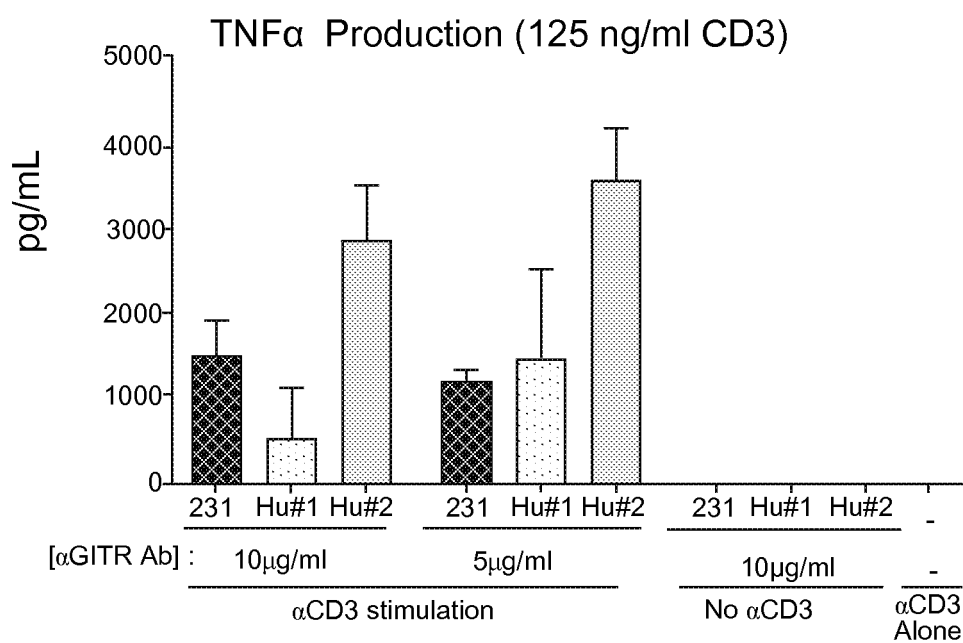


FIGURE 11

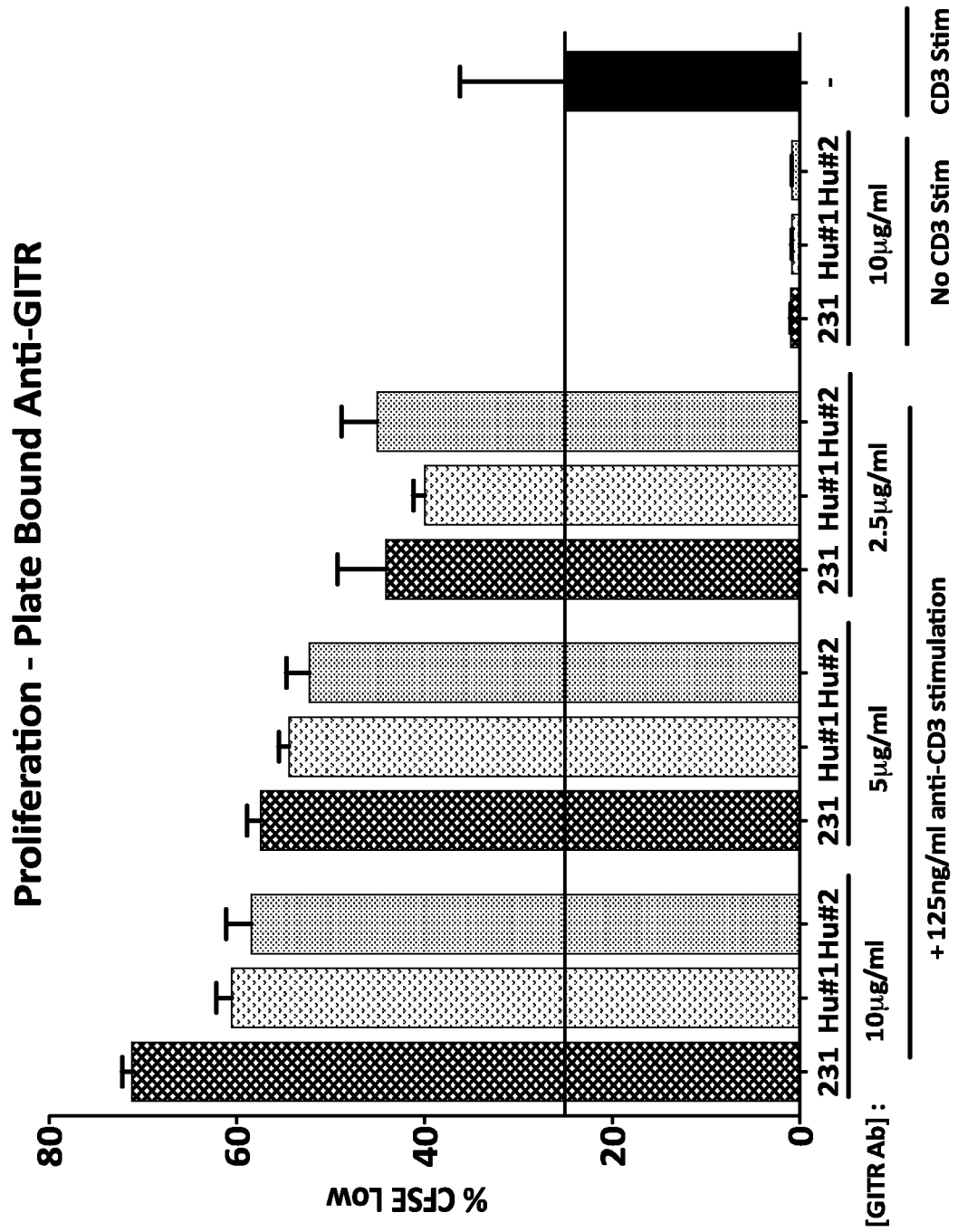


FIGURE 12A

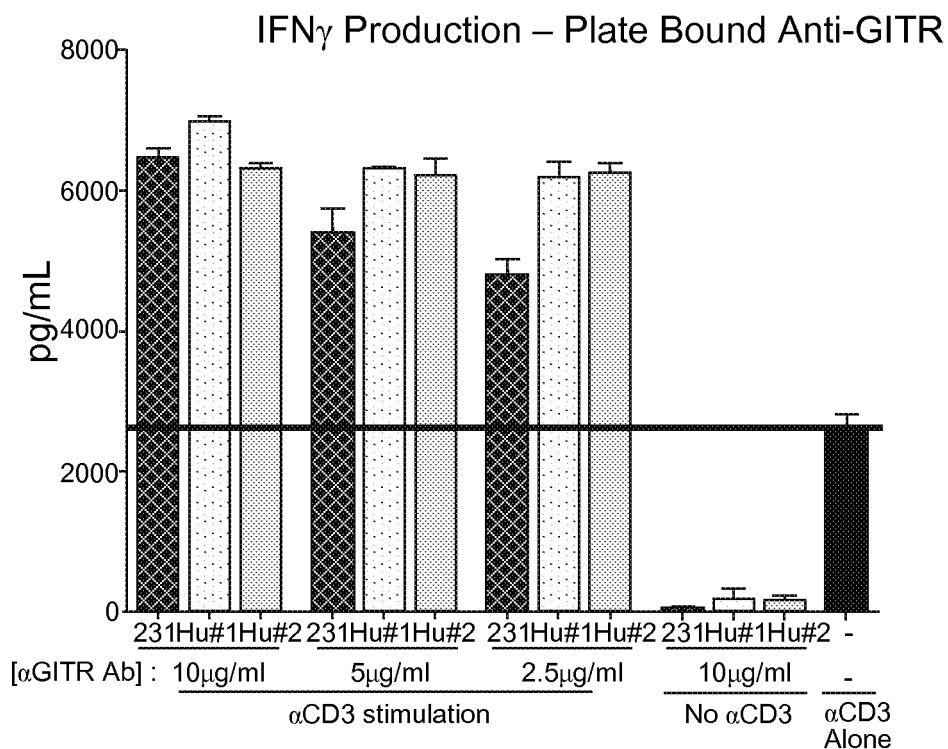


FIGURE 12B

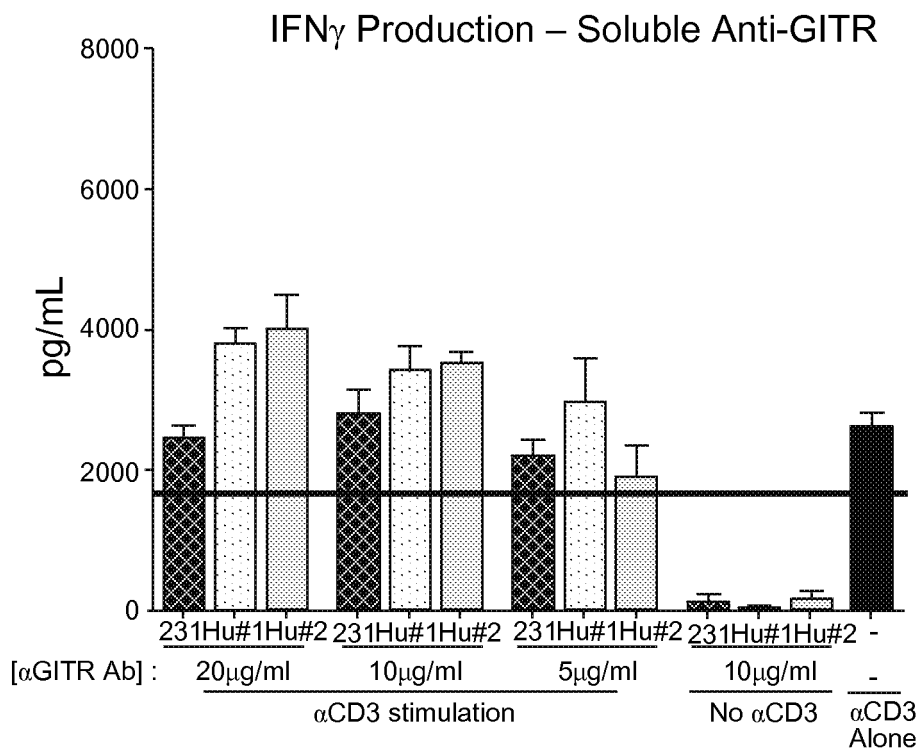


FIGURE 13

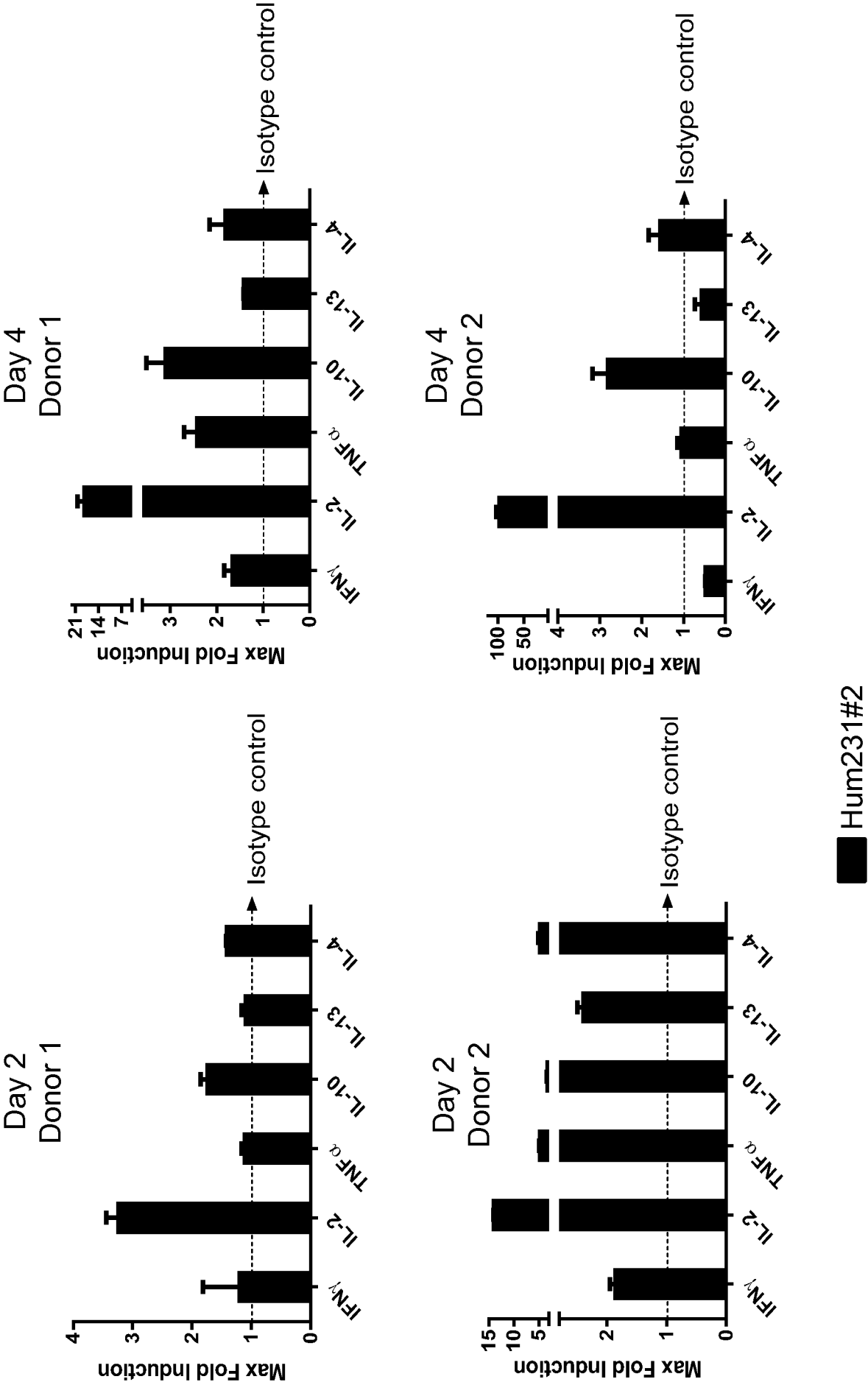
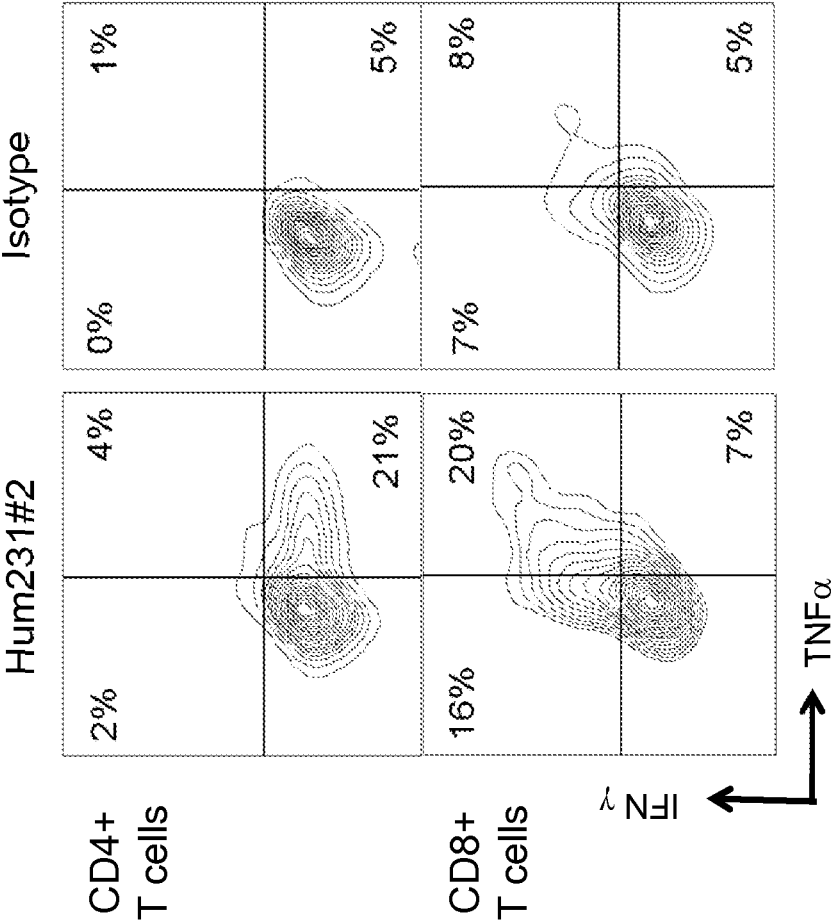
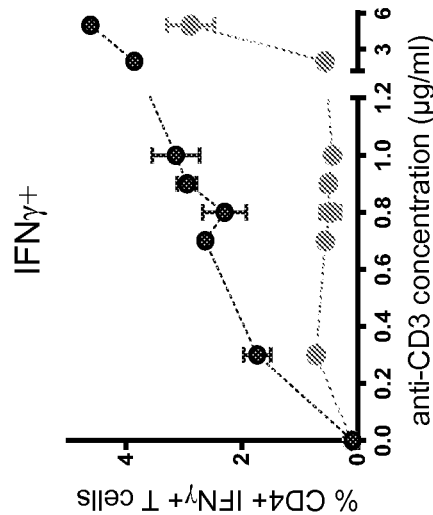
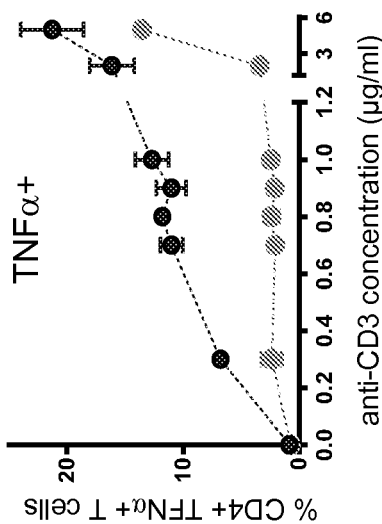
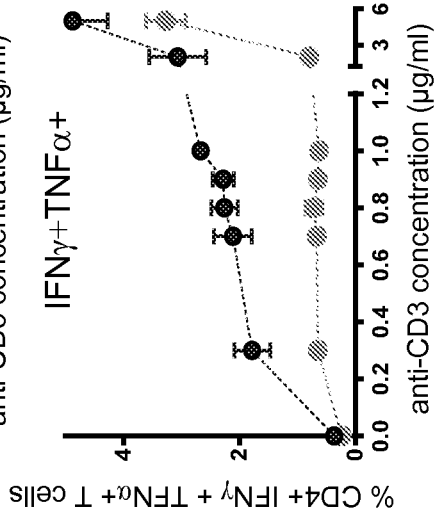


FIGURE 14A



● Hum231#2
● Isotype

CD4+ T cells



CD8+ T cells

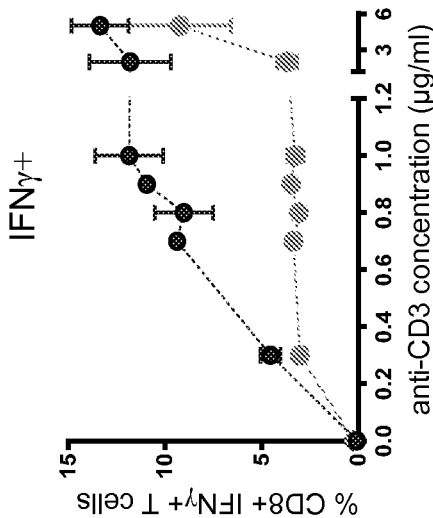
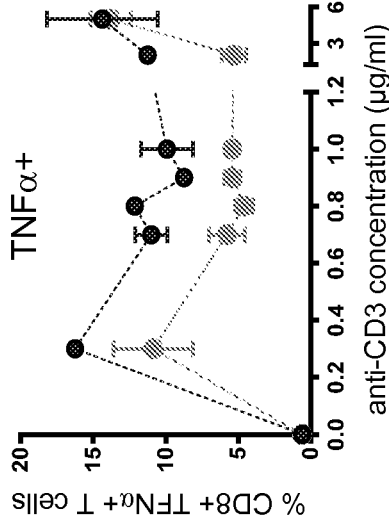
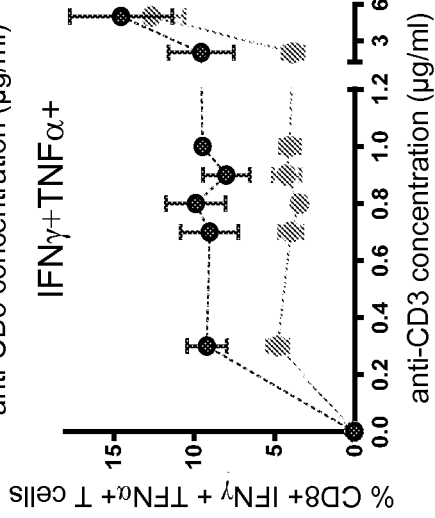


FIGURE 14B

FIGURE 14C

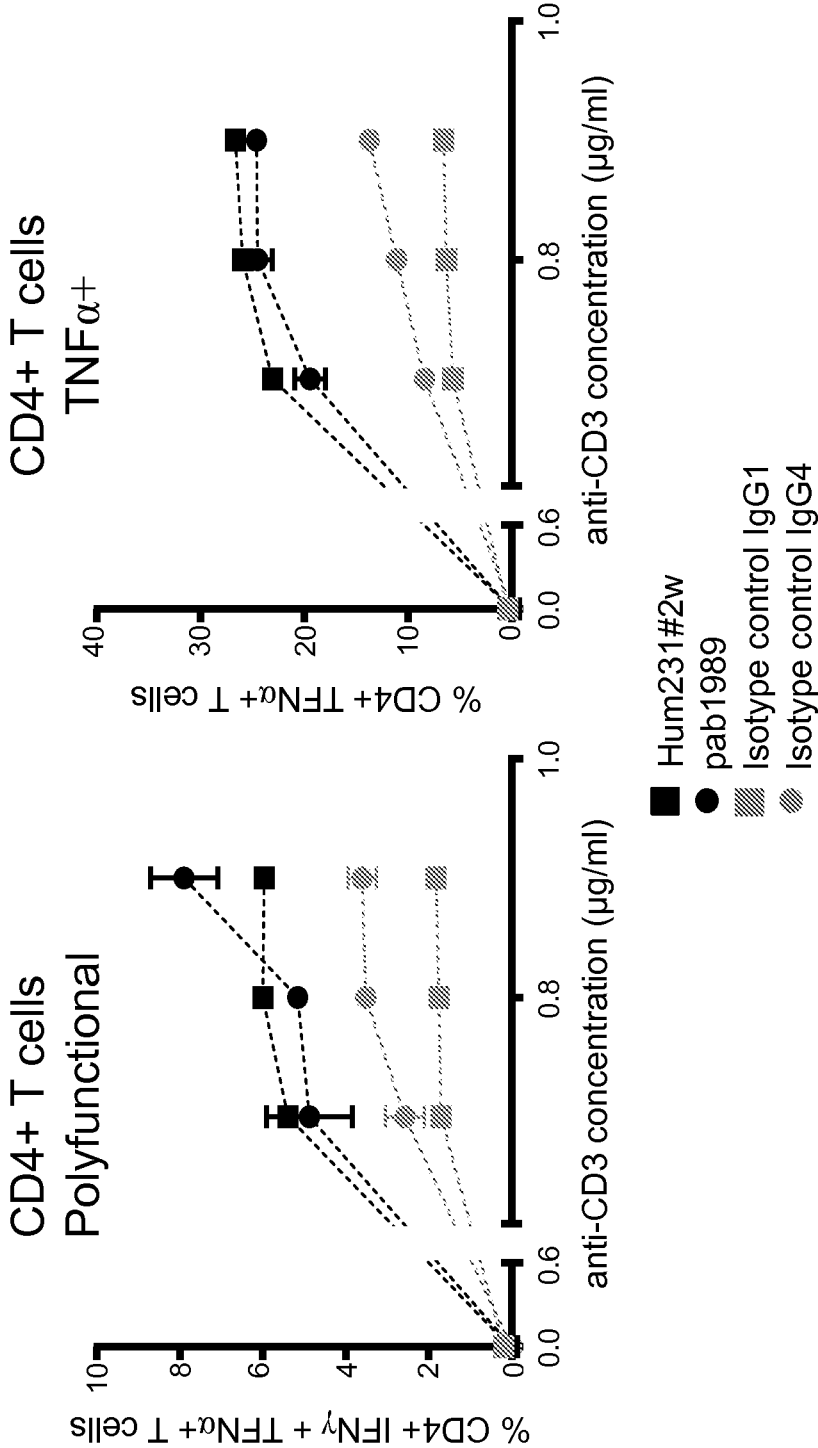


FIGURE 15B

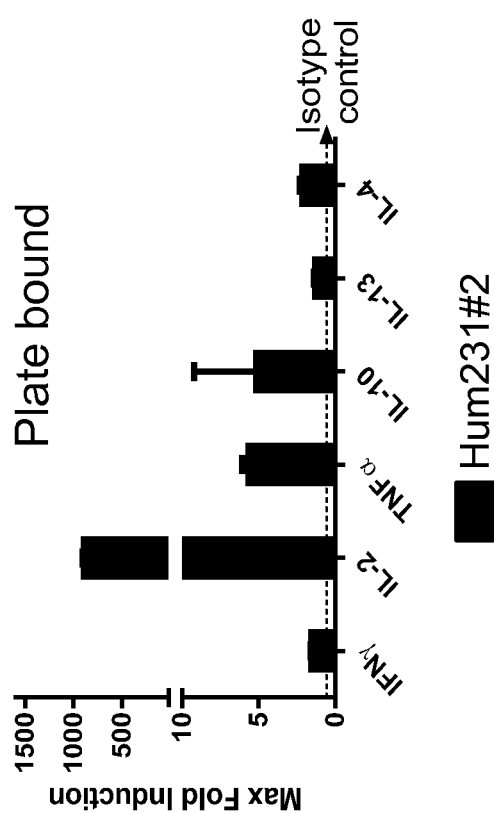


FIGURE 15C

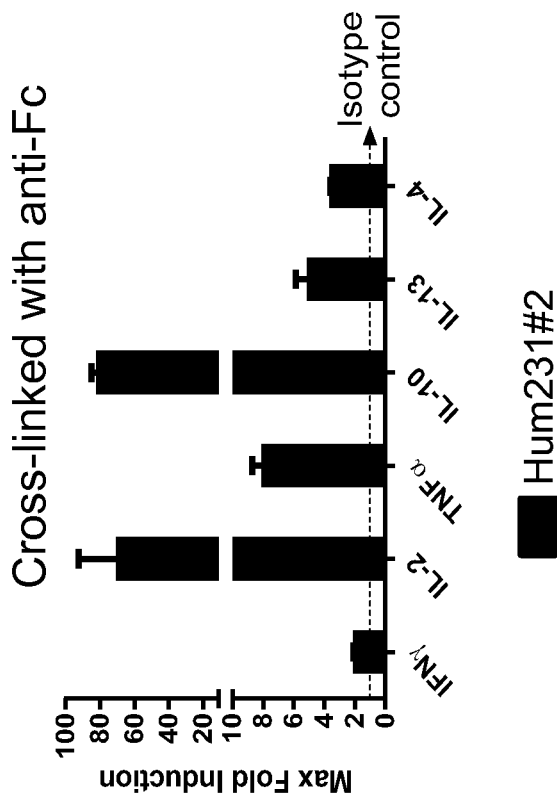


FIGURE 15A

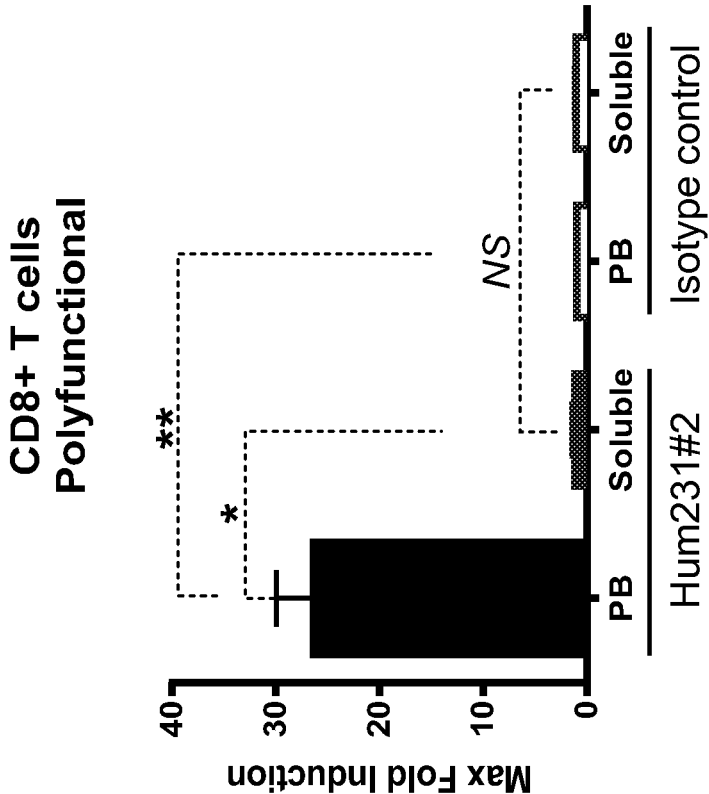


FIGURE 16A

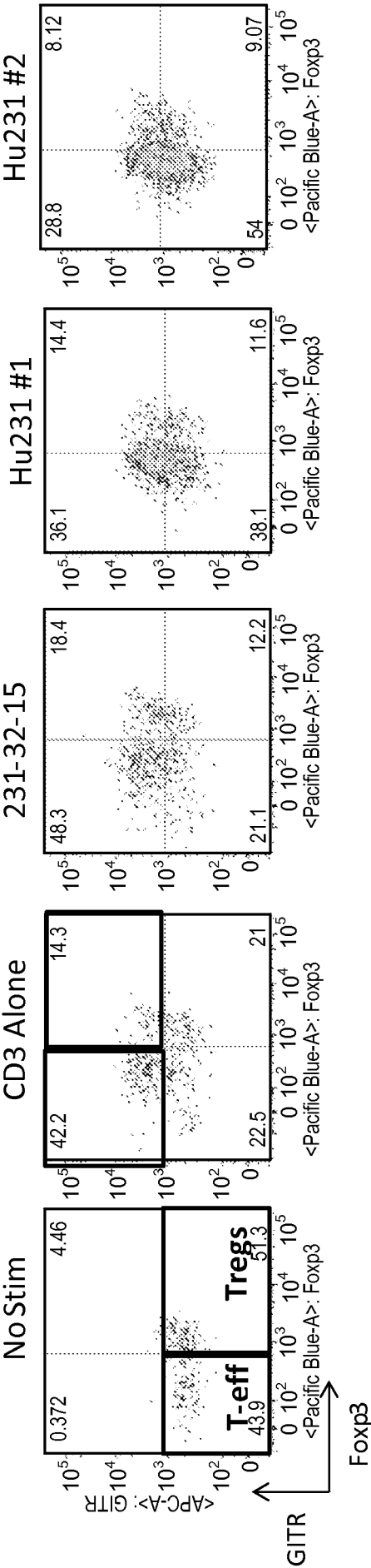


FIGURE 16B

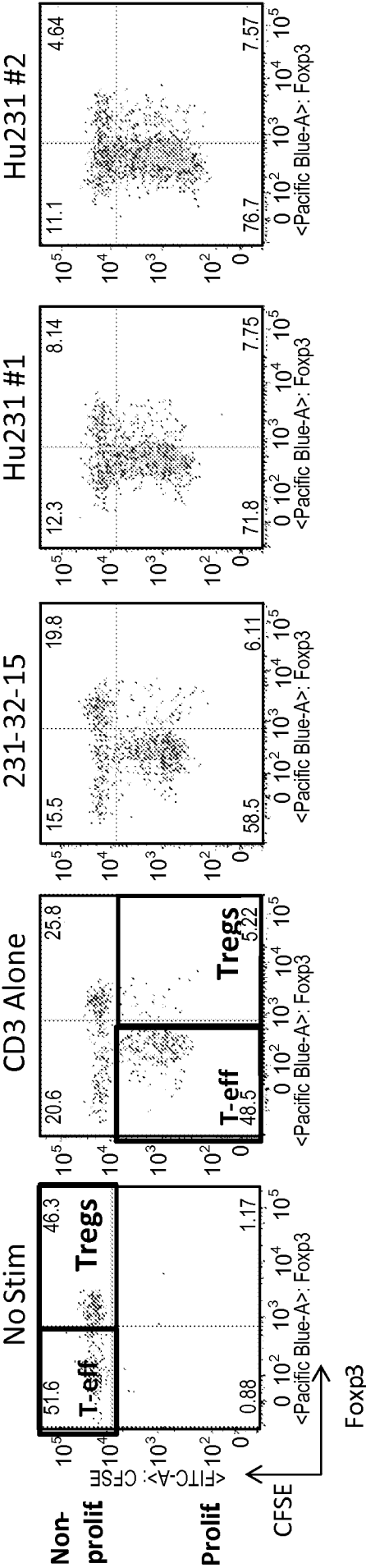


FIGURE 17A

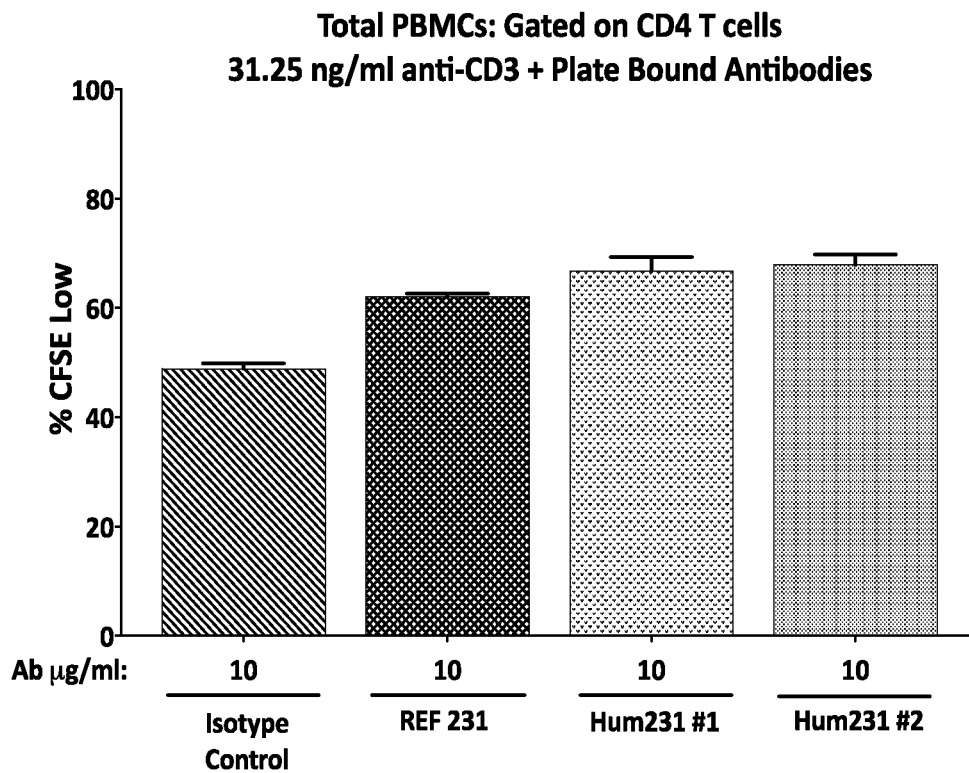
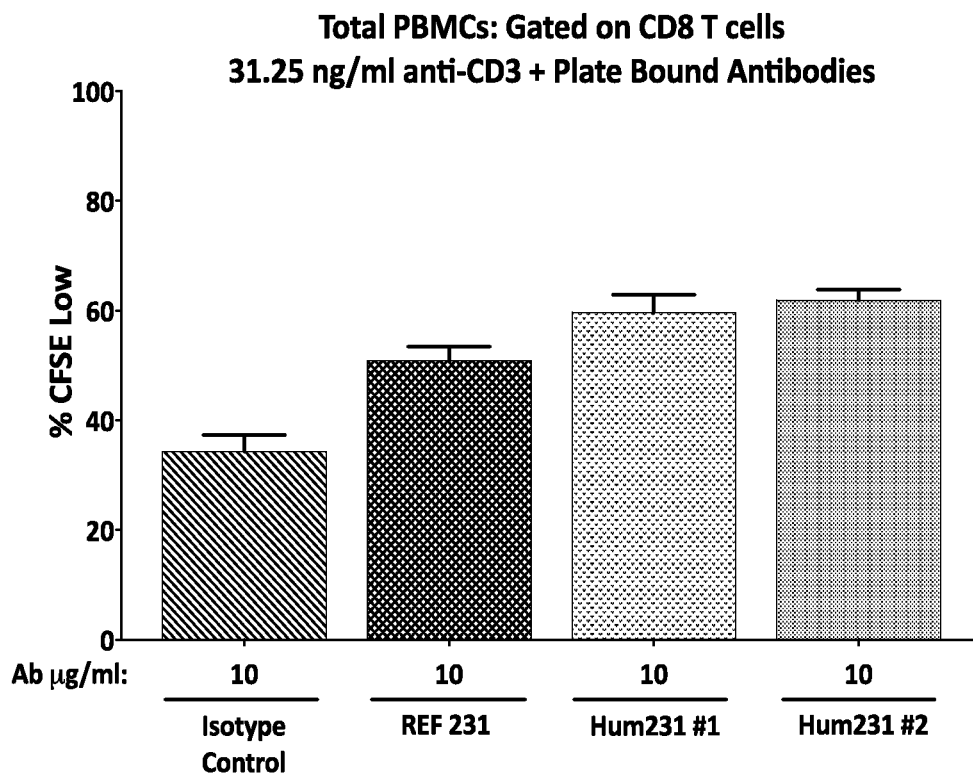


FIGURE 17B



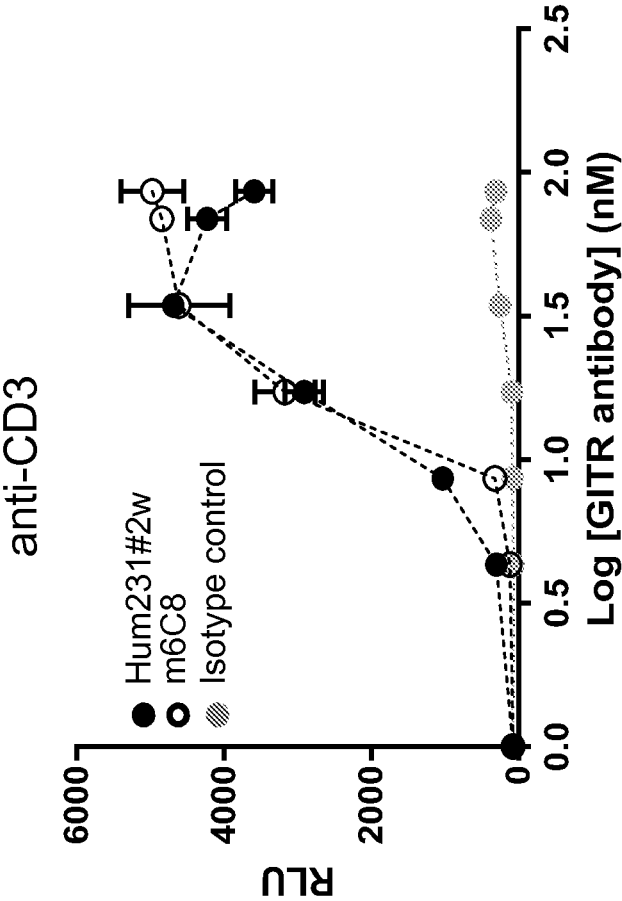


FIGURE 18A

FIGURE 18B

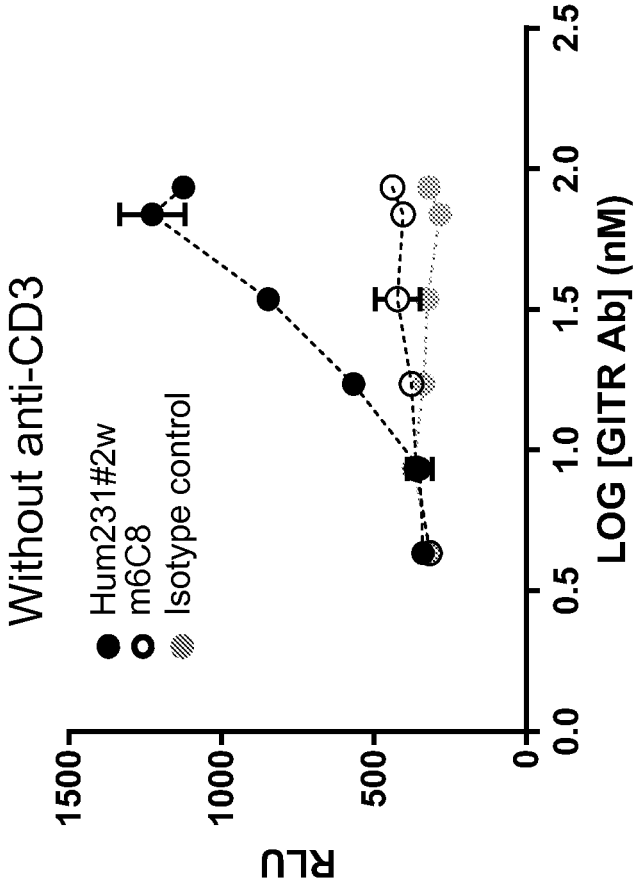


FIGURE 18C

Without anti-CD3

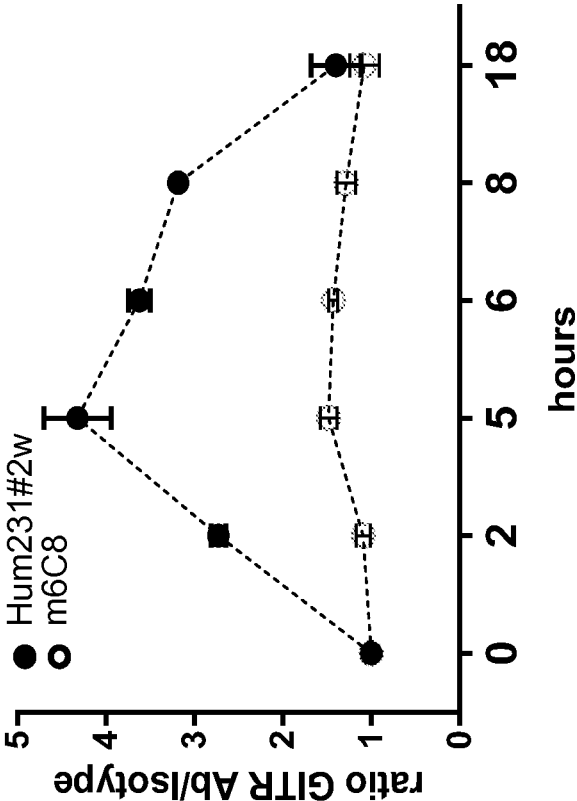


FIGURE 19A

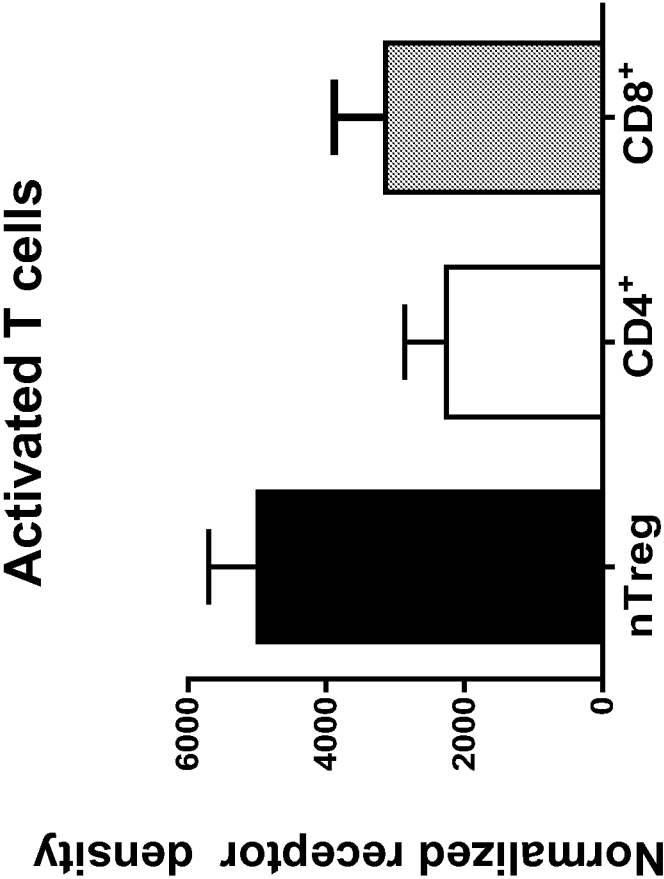


FIGURE 19B

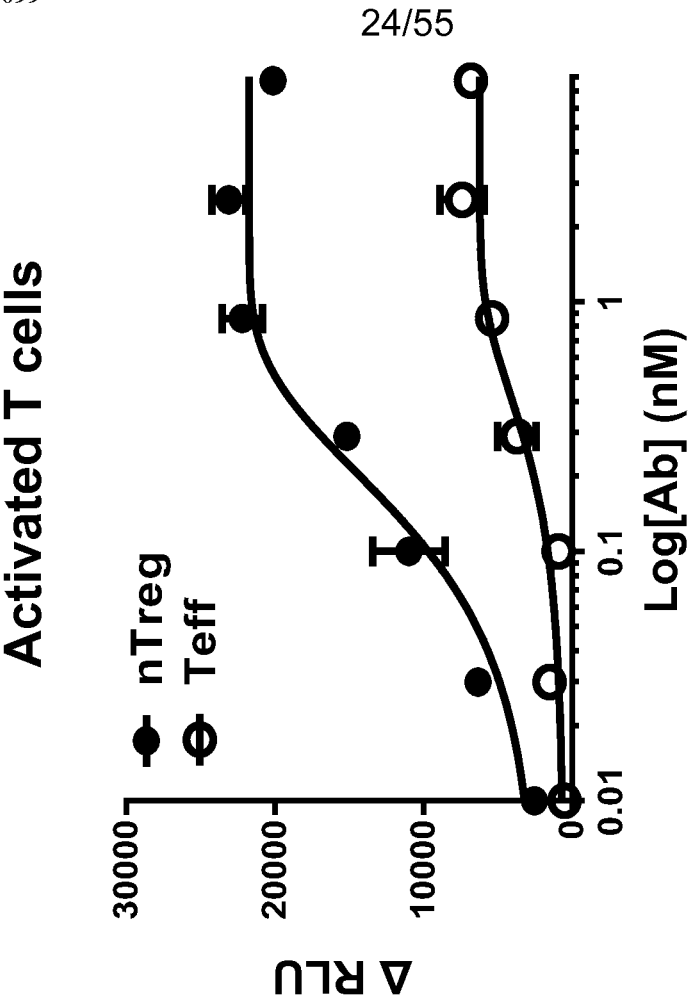


FIGURE 19C

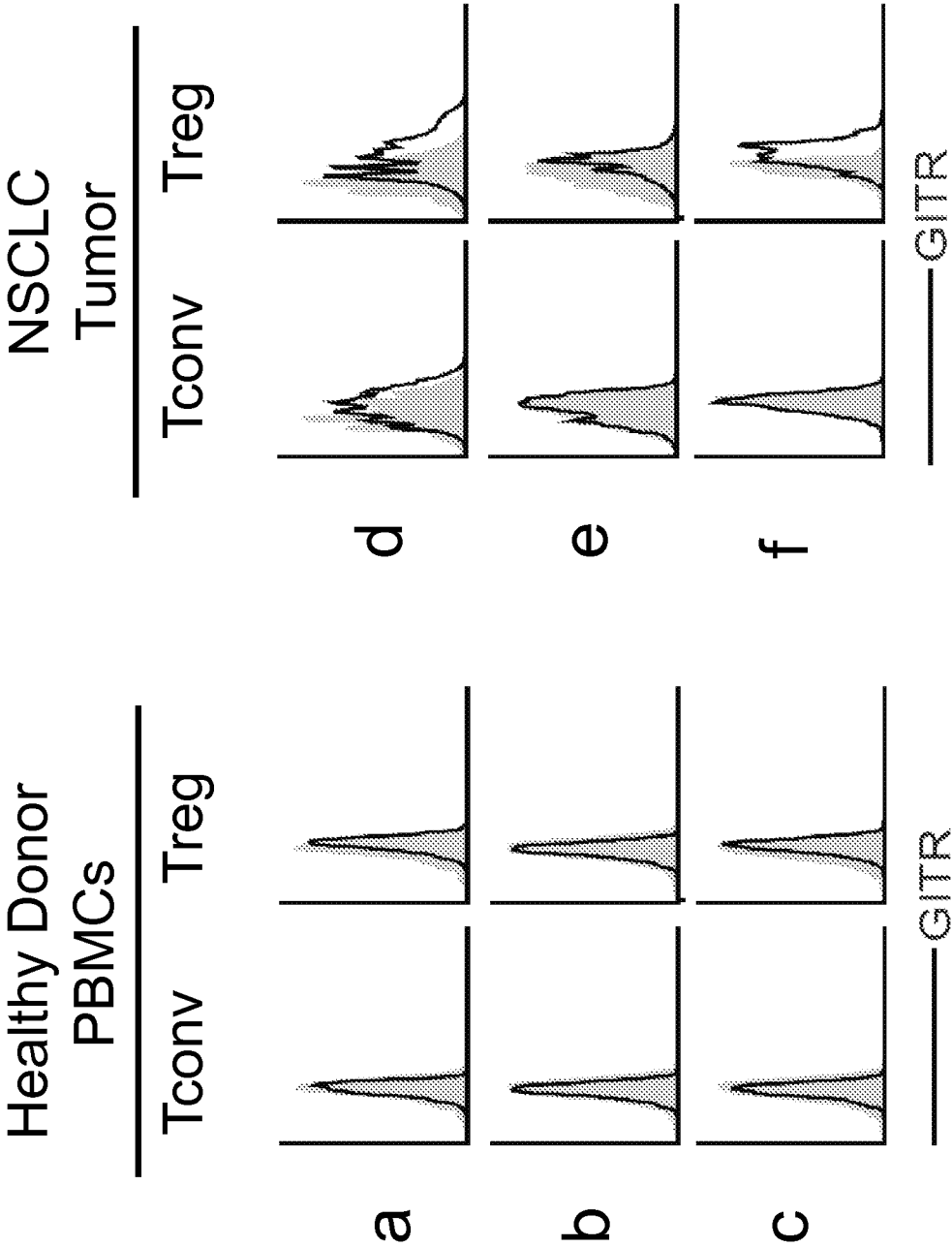


FIGURE 20A

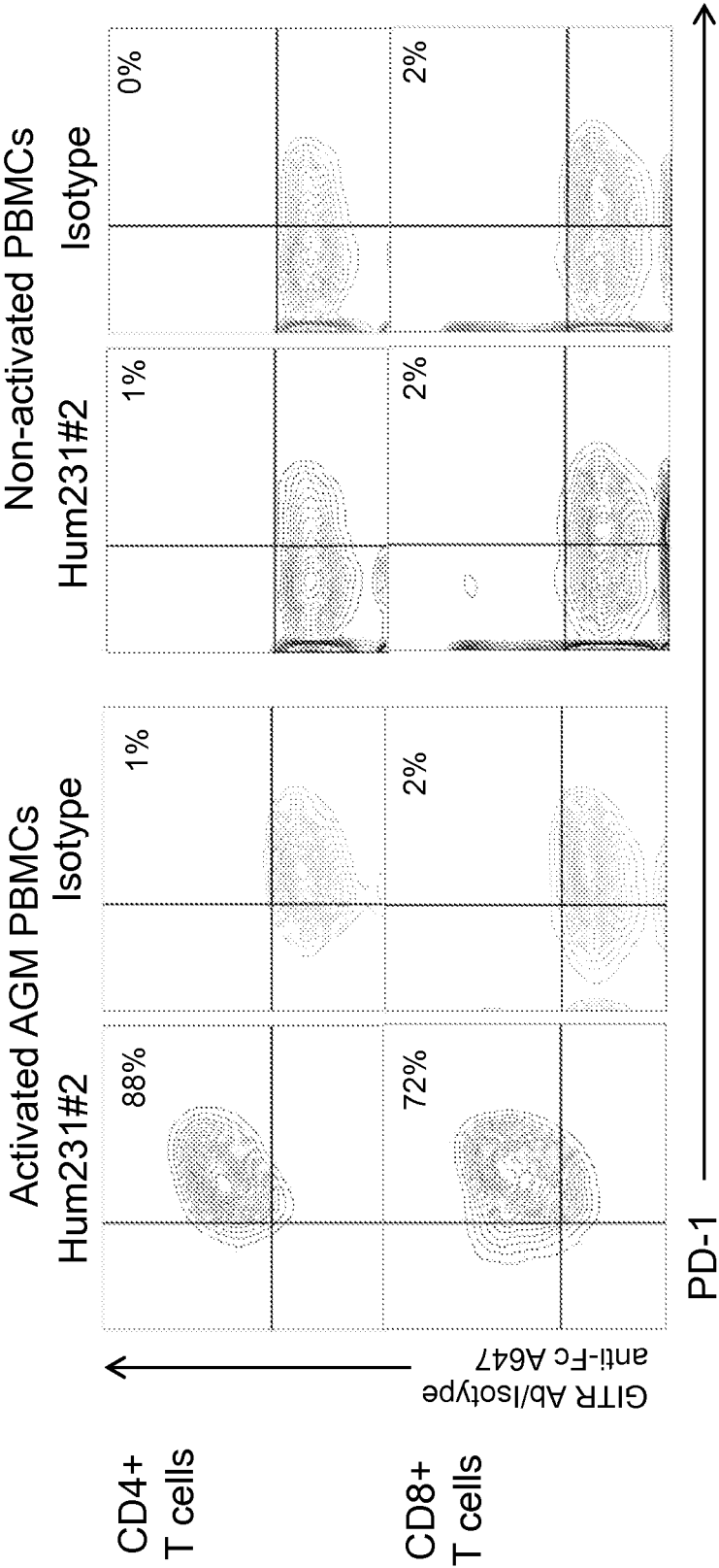


FIGURE 20B

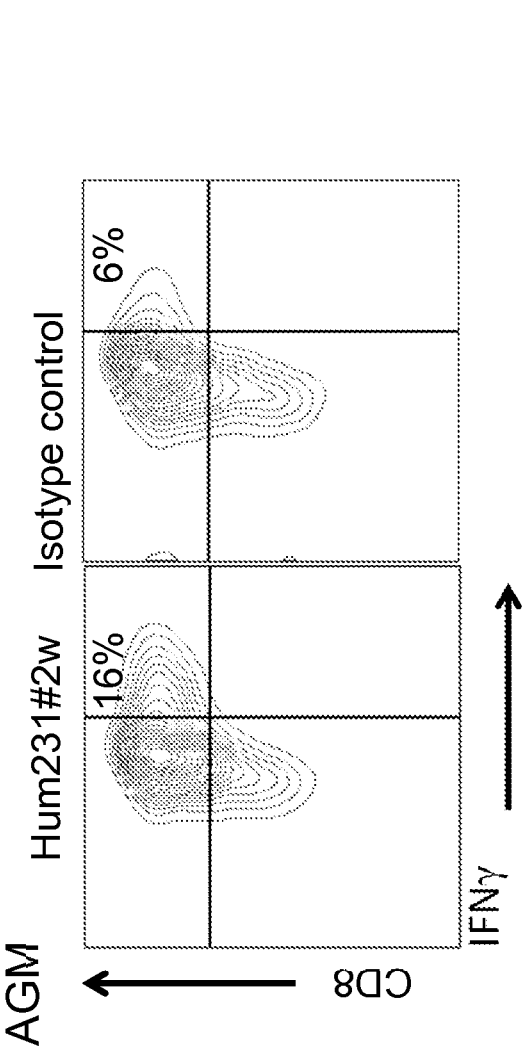


FIGURE 20C

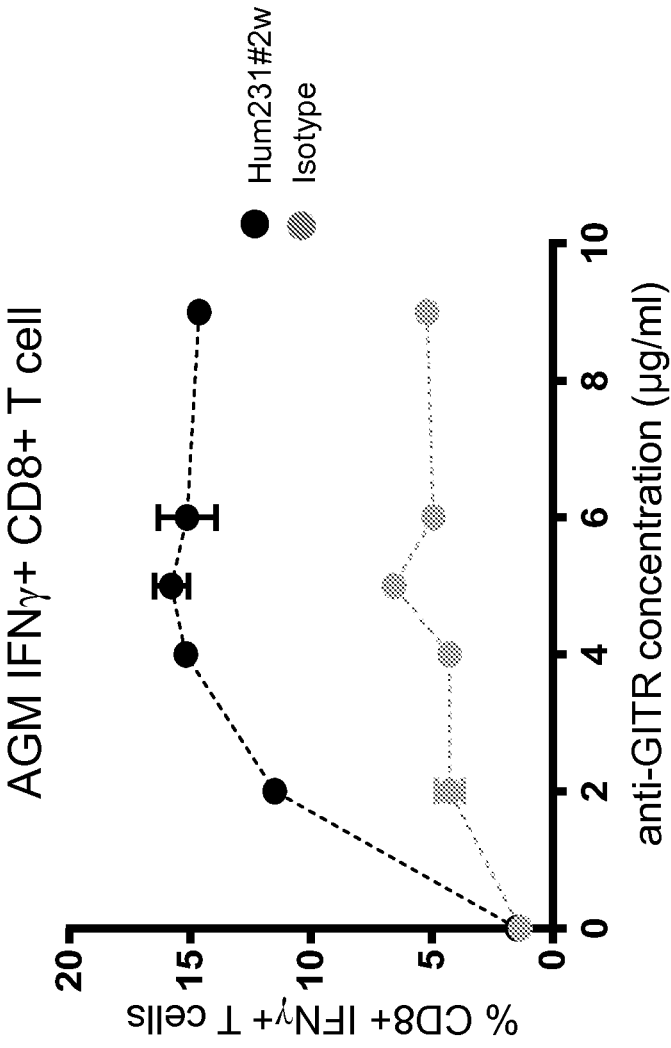


FIGURE 21A

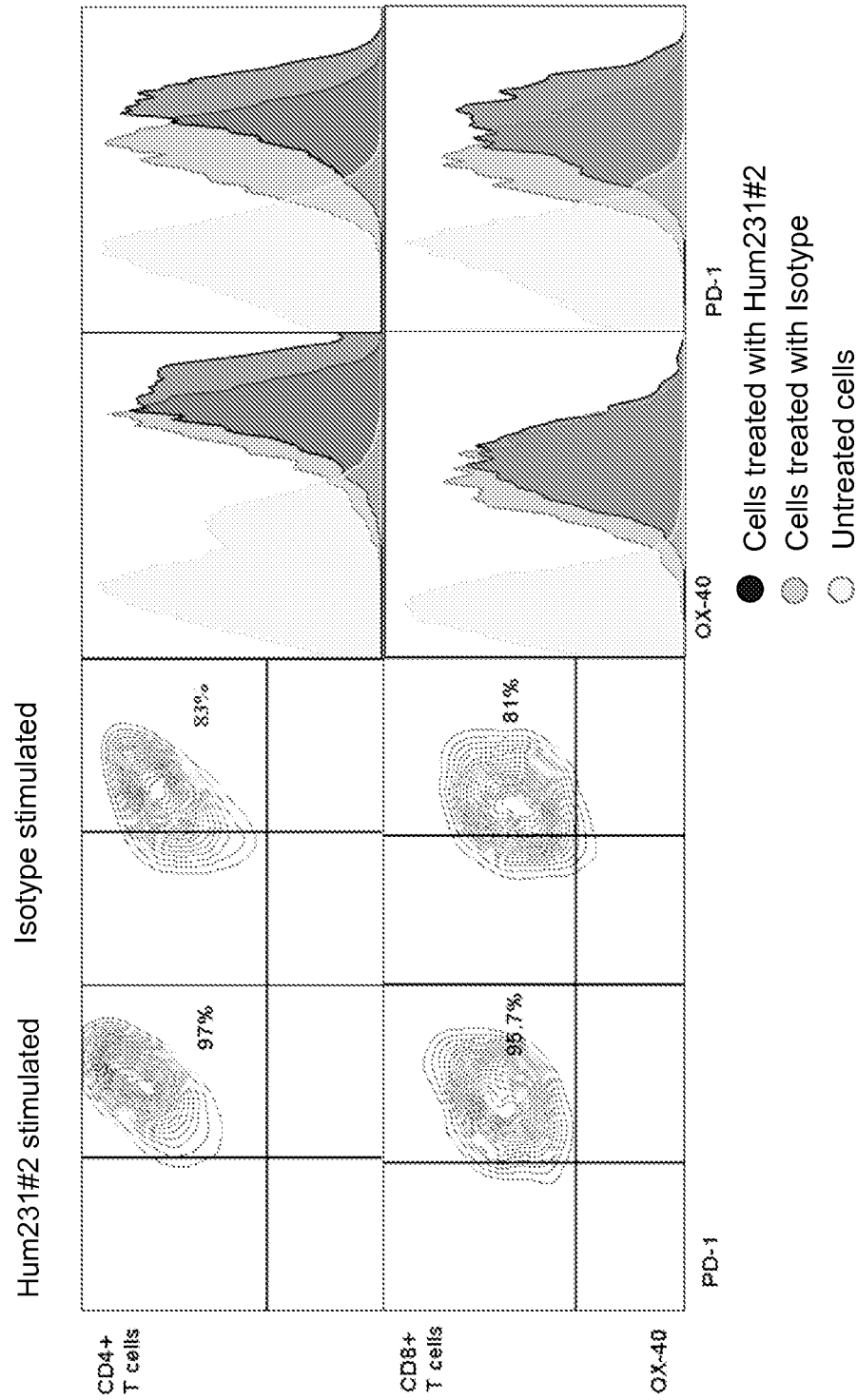


FIGURE 21B

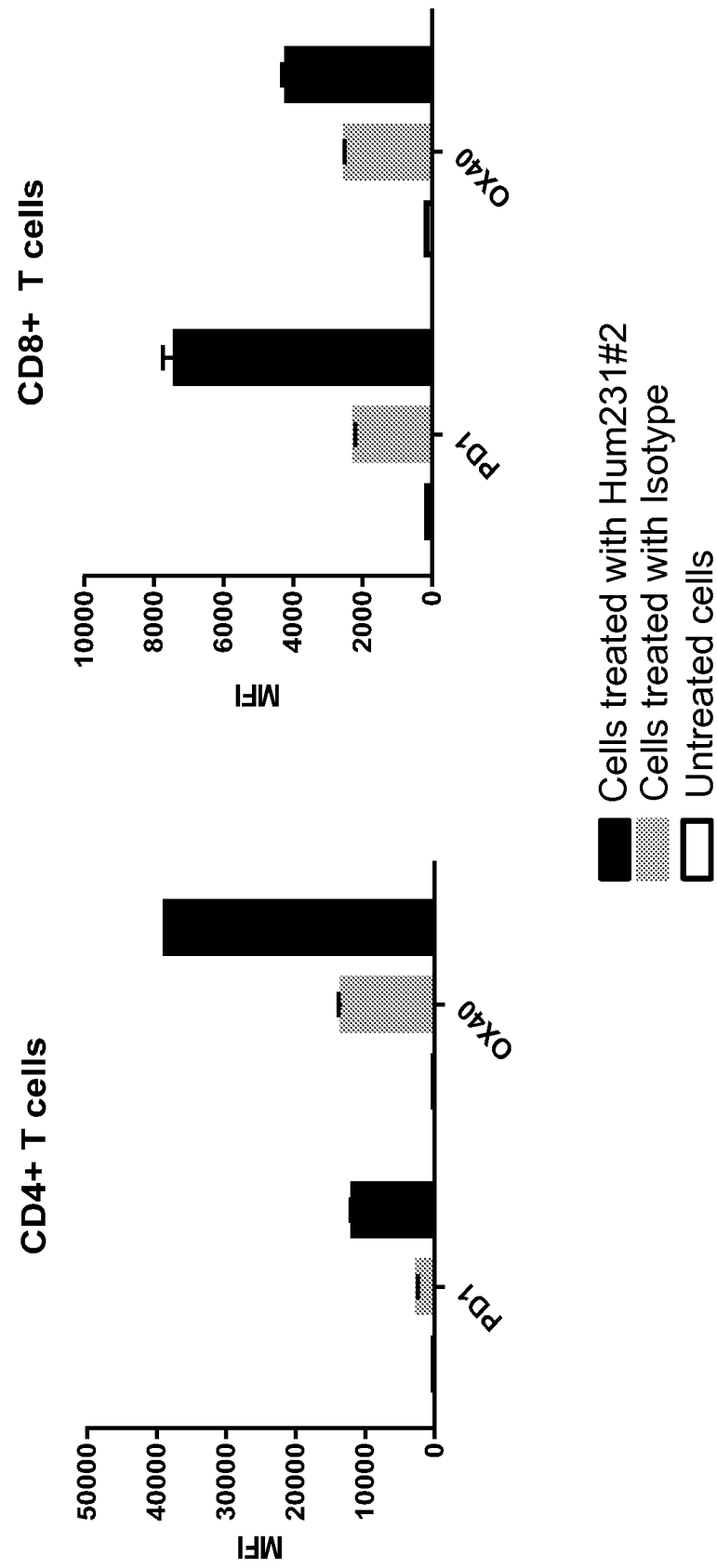


FIGURE 22A

		FR1			CDR1					FR2			CDR2														FR3			SEQ ID NO:
IMGT	Numbering Scheme	9	25	32	33	34	39	40	50	53	55	56	57	58	59	60	61	62	63	66	67	68	69	70	71	72	74	76	82	
		H9	H2	H3	H3	H3	H3	H3	H4	H4	H5	H5	H5	H	H	H5	H5	H	H	H	H5	H6	H6	H6	H	H	H	H	H	
Kabat			4	1	2	3	4	5	5	8	0	1	H52	52A	3	4	H55	56	57	58	9	0	1	2	H63	64	65	67	73	
hum231-32-15VH		A	G	D	Y	A	M	Y	L	I	V	I	R	T	Y	S	G	D	V	T	Y	N	Q	K	F	K	D	A	K	37
		X1		X2		X3	X4	X5	X6		X7	X8	X9		X10		X11		X12	X13	X14				X15	X16		X17		
Design of ML38		A	G	D	Y	A	M	Y	L	I	V	I	R	T	Y	S	G	D	V	T	Y	N	Q	K	F	K	D	A	K	38
		T	A	E	V	H	M	M	L	K	Q	E	L	S	G	R	E										V	T		
				G																										
	Variant	D03	A	A	G	Y	A	M	Y	M	I	L	I	R	T	Y	S	G	G	V	T	Y	N	Q	K	F	Q	G	V	T
D05		A	G	G	Y	A	M	Y	M	I	V	I	R	T	F	S	G	D	V	T	Y	N	Q	K	F	R	G	V	T	40
D07		T	G	E	Y	A	M	Y	M	I	L	I	R	T	F	S	G	E	V	T	Y	N	Q	K	F	K	D	V	T	41
D08		T	G	G	Y	A	M	Y	L	I	V	I	K	T	Y	S	G	G	V	T	Y	N	Q	K	F	R	G	V	K	42
D09		A	G	G	Y	A	M	H	L	M	L	I	R	T	Y	S	G	G	V	S	Y	N	Q	K	F	R	E	A	T	43
E01		T	A	D	Y	A	M	Y	L	I	V	I	R	T	F	S	G	D	L	T	Y	N	Q	K	F	Q	D	V	T	44
F09		A	A	E	Y	A	M	H	L	M	L	I	R	T	Y	S	G	G	V	S	Y	N	Q	K	F	Q	G	A	T	45
F10		T	A	D	Y	A	M	Y	L	I	L	I	R	T	Y	S	G	G	V	T	Y	N	Q	K	F	Q	G	V	T	46
G01		T	G	D	Y	A	M	Y	M	M	V	I	R	T	Y	S	G	D	V	S	Y	N	Q	K	F	R	G	V	T	47
G05		A	A	E	Y	A	M	Y	L	M	L	I	R	T	Y	S	G	G	V	S	Y	N	Q	K	F	R	D	V	K	48
B07		A	A	G	Y	A	M	Y	M	M	V	I	R	T	F	S	G	G	V	T	Y	N	Q	K	F	R	G	A	T	49
C03		T	G	D	Y	A	M	Y	M	I	V	I	K	T	Y	S	G	G	V	T	Y	N	Q	K	F	K	D	A	T	50
F07		T	G	D	Y	A	M	Y	L	I	V	I	R	T	F	S	G	E	V	T	Y	N	Q	K	F	Q	E	V	A	51
D11		T	A	E	Y	A	M	Y	M	I	V	I	R	T	F	S	G	G	V	T	Y	N	Q	K	F	Q	E	V	K	52
F08		A	A	E	Y	A	M	H	L	M	V	I	R	T	Y	S	G	G	V	S	Y	N	Q	K	F	Q	E	V	T	53

[illegible]

FIGURE 23

Antibody ID	Heavy chain variable region	SEQ ID NO:	Light chain variable region	SEQ ID NO:	Number of extra germline amino acids	Mean relative affinity vs. 231-32-15 (%)
pab1964	BADD427-2616	249	BADD427-2631	435	4	95
pab1965	BADD427-2617	251	BADD427-2632	437	0	93
pab1966	BADD427-2619	254	BADD427-2634	440	4	91
pab1967	BADD427-2620	255	BADD427-2635	441	4	90
pab1968	BADD427-2621	259	BADD427-2636	444	4	84
pab1969	BADD427-2622	276	BADD427-2637	458	6	79
pab1970	BADD427-2623	277	BADD427-2638	459	4	77
pab1971	BADD427-2624	280	BADD427-2639	453	3	73
pab1972	BADD427-2625	284	BADD427-2640	463	3	72
pab1973	BADD427-2626	304	BADD427-2641	519	3	72
pab1975	BADD427-2622	276	BADD427-2634	440	8	68
pab1976	BADD427-2622	276	BADD427-2636	444	8	67
pab1977	BADD427-2622	276	BADD427-2644	453	8	66
pab1979	BADD427-2630	345	BADD427-2634	440	8	63
pab1980	BADD427-2630	345	BADD427-2636	444	8	62
pab1981	BADD427-2630	345	BADD427-2644	453	8	58
pab1983	BADD427-2616	249	BADD427-2634	440	7	16

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FIGURE 24A

Antibody ID	Heavy chain variable region	SEQ ID NO:	Light chain variable region	SEQ ID NO:
1	H1916A01	215	K1916A01	400
2	H1916A03	217	K1916A03	401
3	H1916A04	218	K1916A04	402
4	H1916A05	219	K1916A05	403
5	H1916A06	220	K1916A06	404
6	H1916A07	221	K1916A07	405
7	H1916A08	222	K1916A08	406
8	H1916A09	223	K1916A09	407
9	H1916A10	224	K1916A10	408
10	H1916A11	225	K1916A11	409
11	H1916A12	226	K1916A12	410
12	H1916B01	227	K1916B01	411
13	H1916B03	228	K1916B03	413
14	H1916B04	229	K1916B04	414
15	H1916B05	230	K1916B05	415
16	H1916B06	231	K1916B06	416
17	H1916B08	232	K1916B08	418
18	H1916B09	233	K1916B09	419
19	H1916B10	234	K1916B10	420
20	H1916B12	236	K1916B12	421
21	H1916C03	237	K1916C03	423
22	H1916C04	238	K1916C04	424
23	H1916C05	239	K1916C05	425
24	H1916C06	240	K1916C06	426
25	H1916C07	241	K1916C07	427
26	H1916C08	242	K1916C08	428
27	H1916C09	243	K1916C09	429
28	H1916C10	244	K1916C10	430
29	H1916C11	245	K1916C11	431
30	H1916C12	246	K1916C12	432
31	H1916D01	247	K1916D01	433
32	H1916D02	248	K1916D02	434
33	H1916D03	249	K1916D03	435
34	H1916D04	250	K1916D04	436
35	H1916D05	251	K1916D05	437
36	H1916D06	252	K1916D06	438
37	H1916D07	253	K1916D07	439
38	H1916D08	254	K1916D08	440
39	H1916D09	255	K1916D09	441
40	H1916D10	256	K1916D10	442

FIGURE 24B

Antibody ID	Heavy chain variable region	SEQ ID NO:	Light chain variable region	SEQ ID NO:
41	H1916D12	258	K1916D12	443
42	H1916E01	259	K1916E01	444
43	H1916E03	261	K1916E03	445
44	H1916E04	262	K1916E04	446
45	H1916E05	263	K1916E05	447
46	H1916E06	264	K1916E06	448
47	H1916E08	265	K1916E08	450
48	H1916E10	267	K1916E10	451
49	H1916E11	268	K1916E11	452
50	H1916F03	270	K1916F03	454
51	H1916F04	271	K1916F04	455
52	H1916F05	272	K1916F05	456
53	H1916F06	273	K1916F06	457
54	H1916F09	276	K1916F09	458
55	H1916F10	277	K1916F10	459
56	H1916G01	280	K1916G01	460
57	H1916G02	281	K1916G02	461
58	H1916G04	283	K1916G04	462
59	H1916G05	284	K1916G05	463
60	H1916G06	285	K1916G06	464
61	H1917A02	287	K1917A02	467
62	H1917A03	288	K1917A03	468
63	H1917A05	290	K1917A05	469
64	H1917A06	291	K1917A06	470
65	H1917A09	294	K1917A09	471
66	H1917A11	296	K1917A11	472
67	H1917A12	297	K1917A12	473
68	H1917B01	298	K1917B01	474
69	H1917B02	299	K1917B02	475
70	H1917B04	301	K1917B04	476
71	H1917B07	304	K1917B07	477
72	H1917B12	305	K1917B12	481
73	H1917C01	306	K1917C01	482
74	H1917C03	308	K1917C03	483
75	H1917C09	313	K1917C09	484
76	H1917C10	314	K1917C10	485
77	H1917C11	315	K1917C11	486
78	H1917D01	316	K1917D01	488
79	H1917D04	319	K1917D04	489
80	H1917D07	320	K1917D07	490

FIGURE 24C

Antibody ID	Heavy chain variable region	SEQ ID NO:	Light chain variable region	SEQ ID NO:
81	H1917D09	322	K1917D09	491
82	H1917D10	323	K1917D10	492
83	H1917D11	324	K1917D11	493
84	H1917D12	325	K1917D12	494
85	H1917E02	327	K1917E02	495
86	H1917E03	328	K1917E03	496
87	H1917E08	333	K1917E08	497
88	H1917E11	336	K1917E11	498
89	H1917F01	338	K1917F01	499
90	H1917F02	339	K1917F02	500
91	H1917F03	340	K1917F03	501
92	H1917F05	342	K1917F05	502
93	H1917F06	343	K1917F06	503
94	H1917G01	350	K1917G01	504
95	H1917G05	354	K1917G05	505
96	H1917G06	355	K1917G06	506
97	H1917G07	356	K1917G07	507
98	H1917G09	358	K1917G09	508
99	H1917G10	359	K1917G10	509
100	H1917G11	360	K1917G11	510
101	H1917H01	362	K1917H01	511
102	H1917H02	363	K1917H02	512
103	H1917H04	364	K1917H04	513
104	H1917H06	365	K1917H06	515
105	H1917H07	366	K1917H07	516
106	H1917H08	367	K1917H08	517
107	H1917H09	368	K1917H09	518

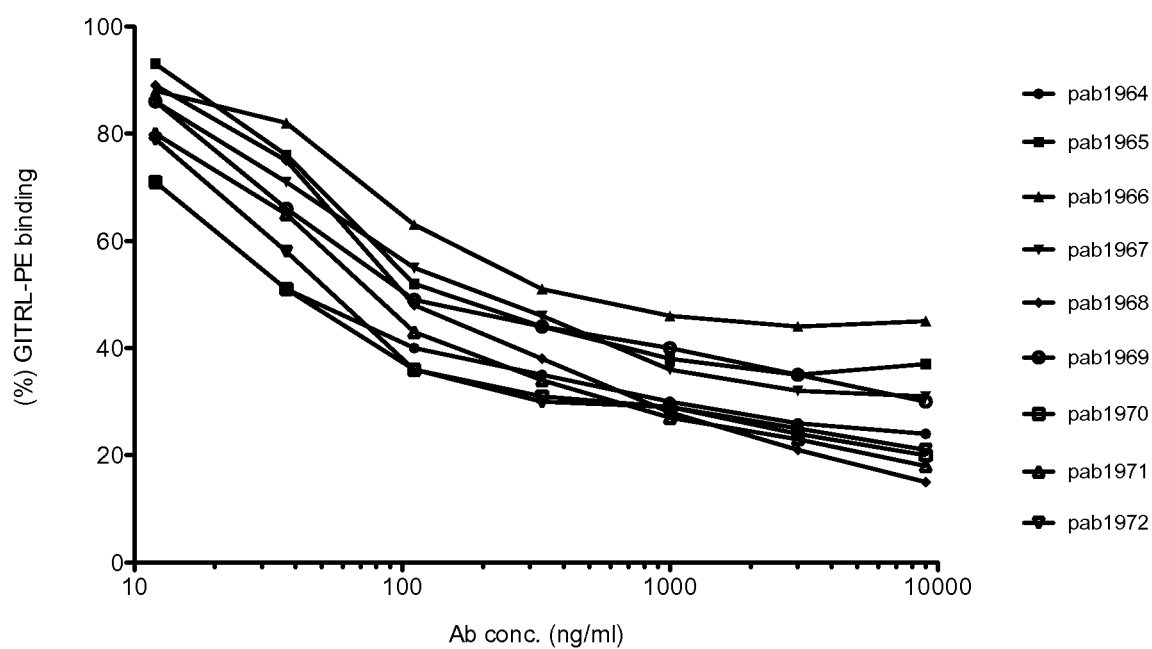
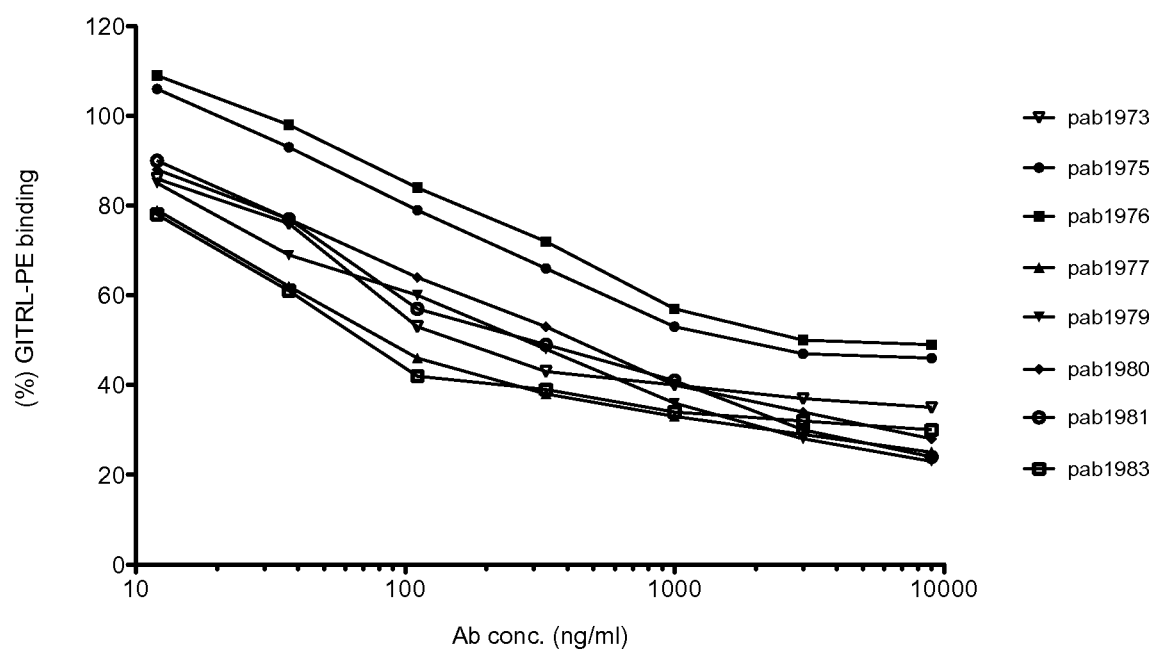


FIGURE 26A

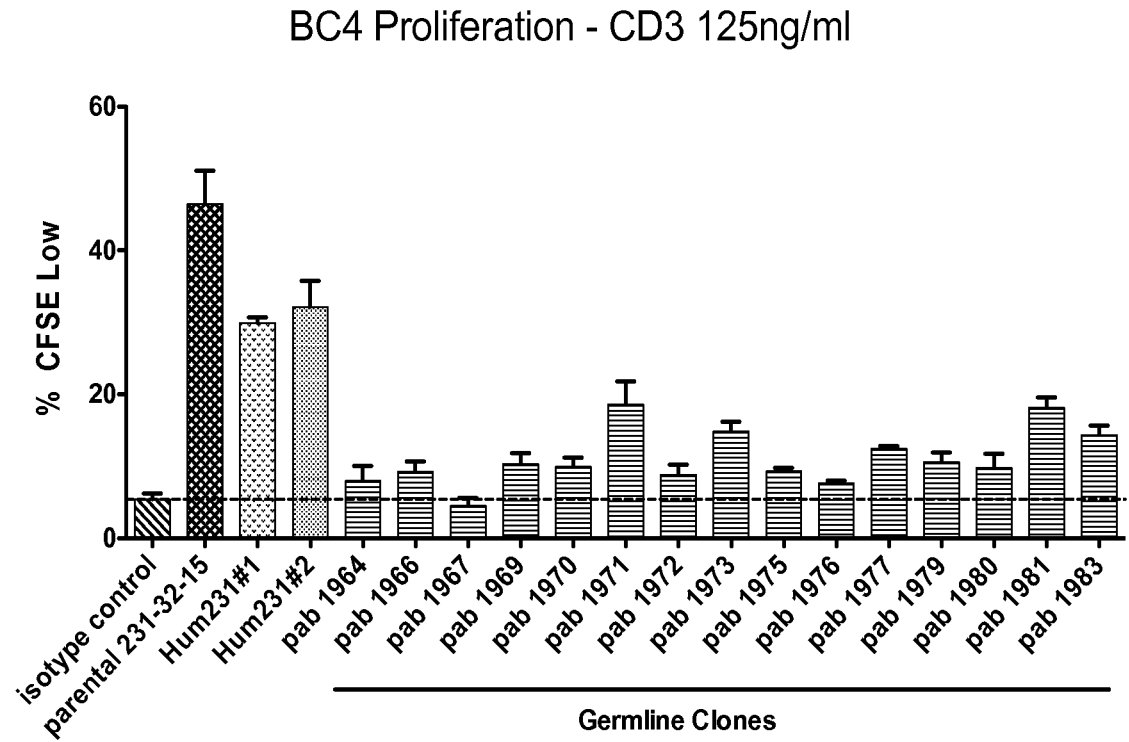


FIGURE 26B

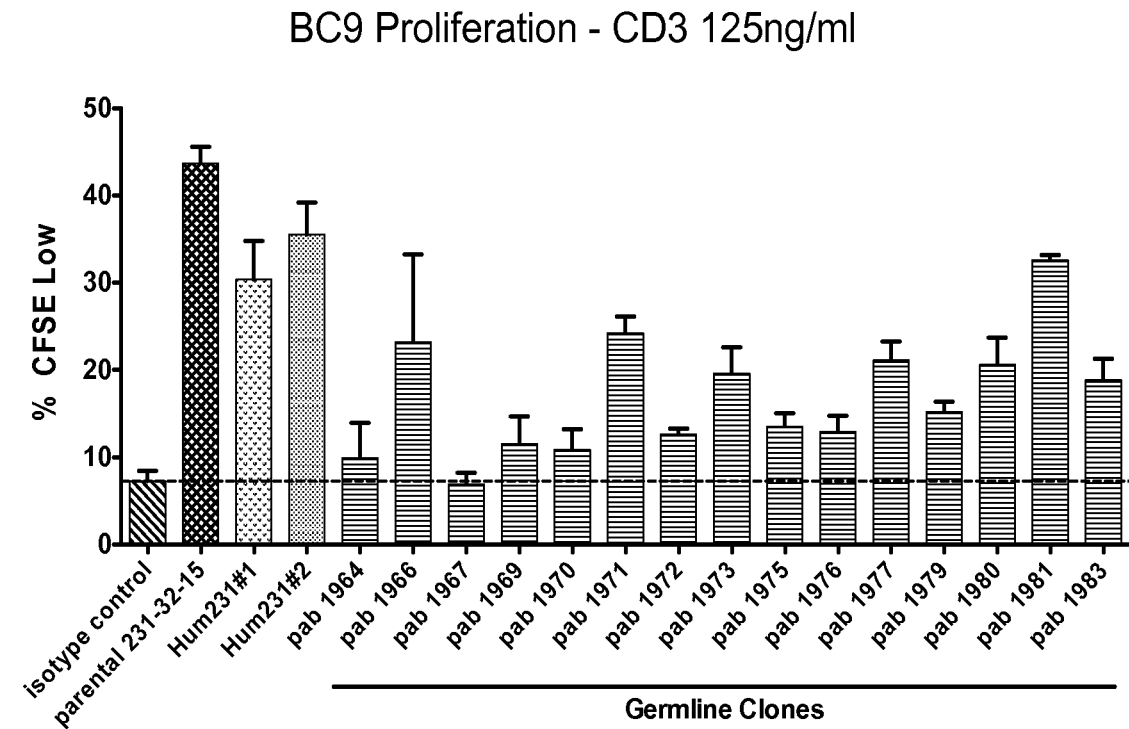


FIGURE 27A

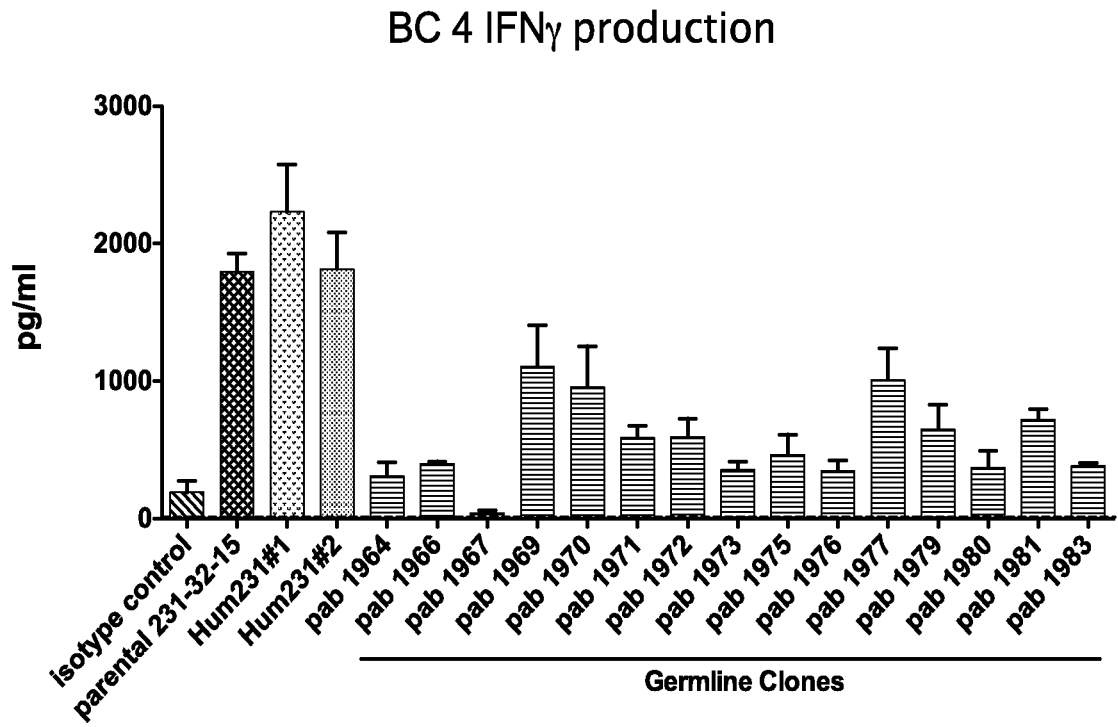


FIGURE 27B

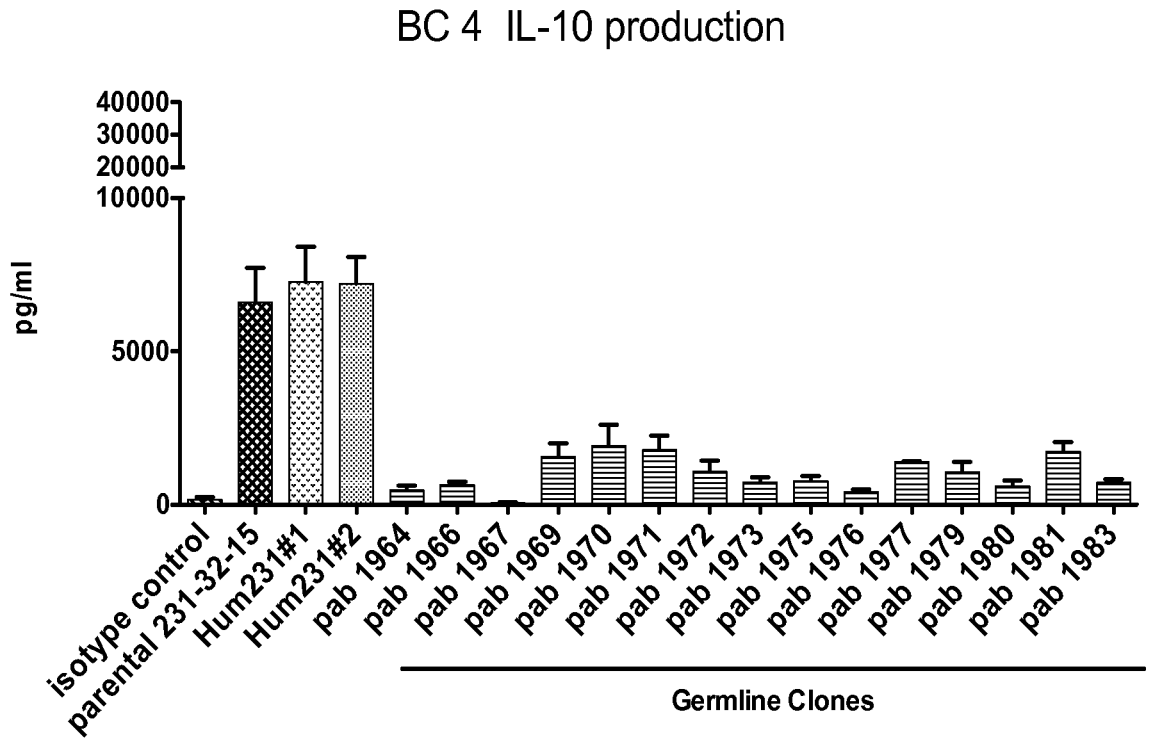


FIGURE 28A

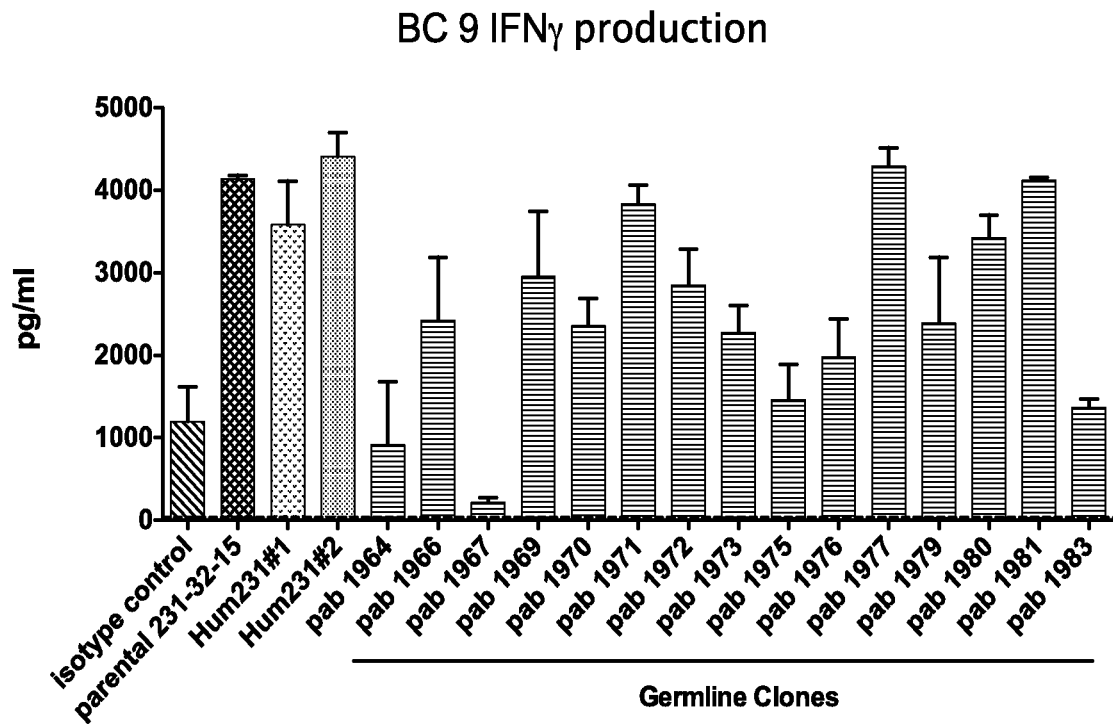


FIGURE 28B

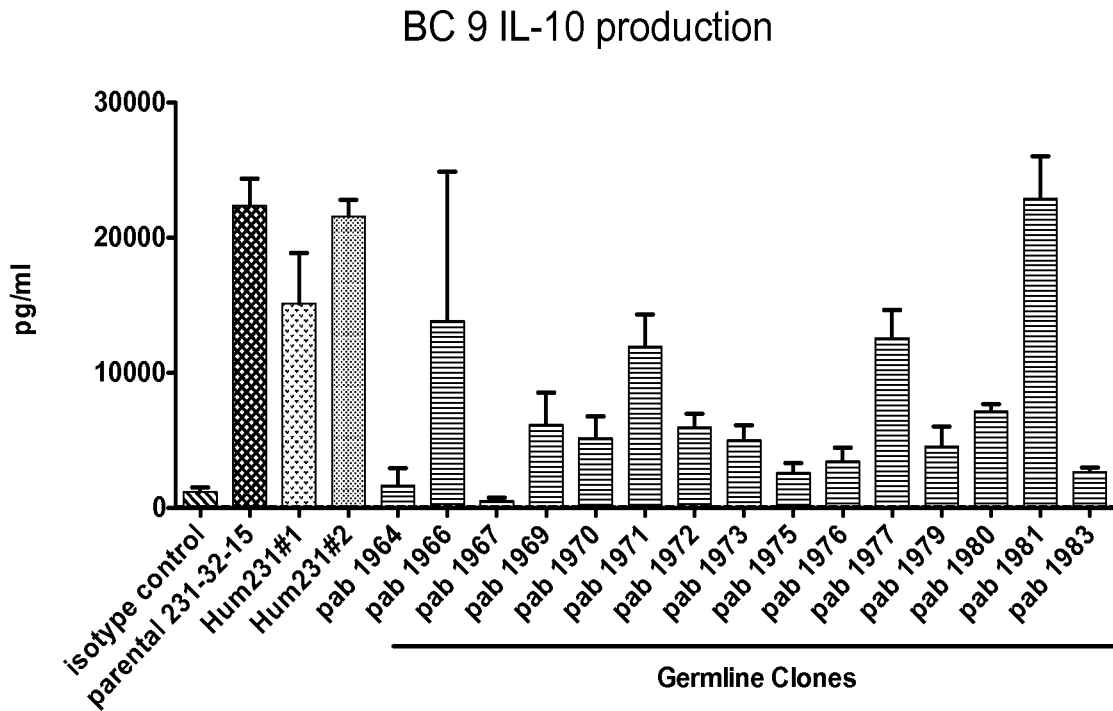


FIGURE 29A

BC 13 IFN γ production

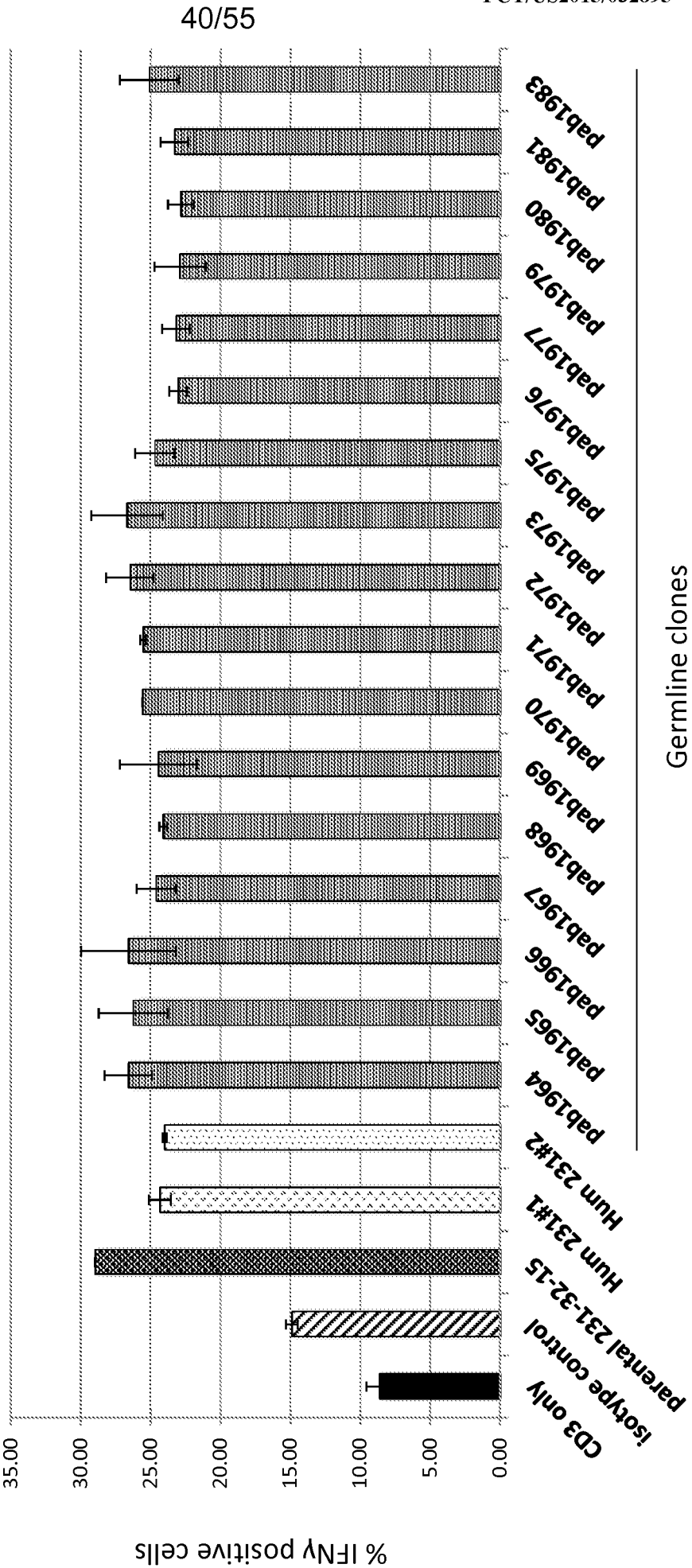


FIGURE 29B

BC 18 IFN γ production

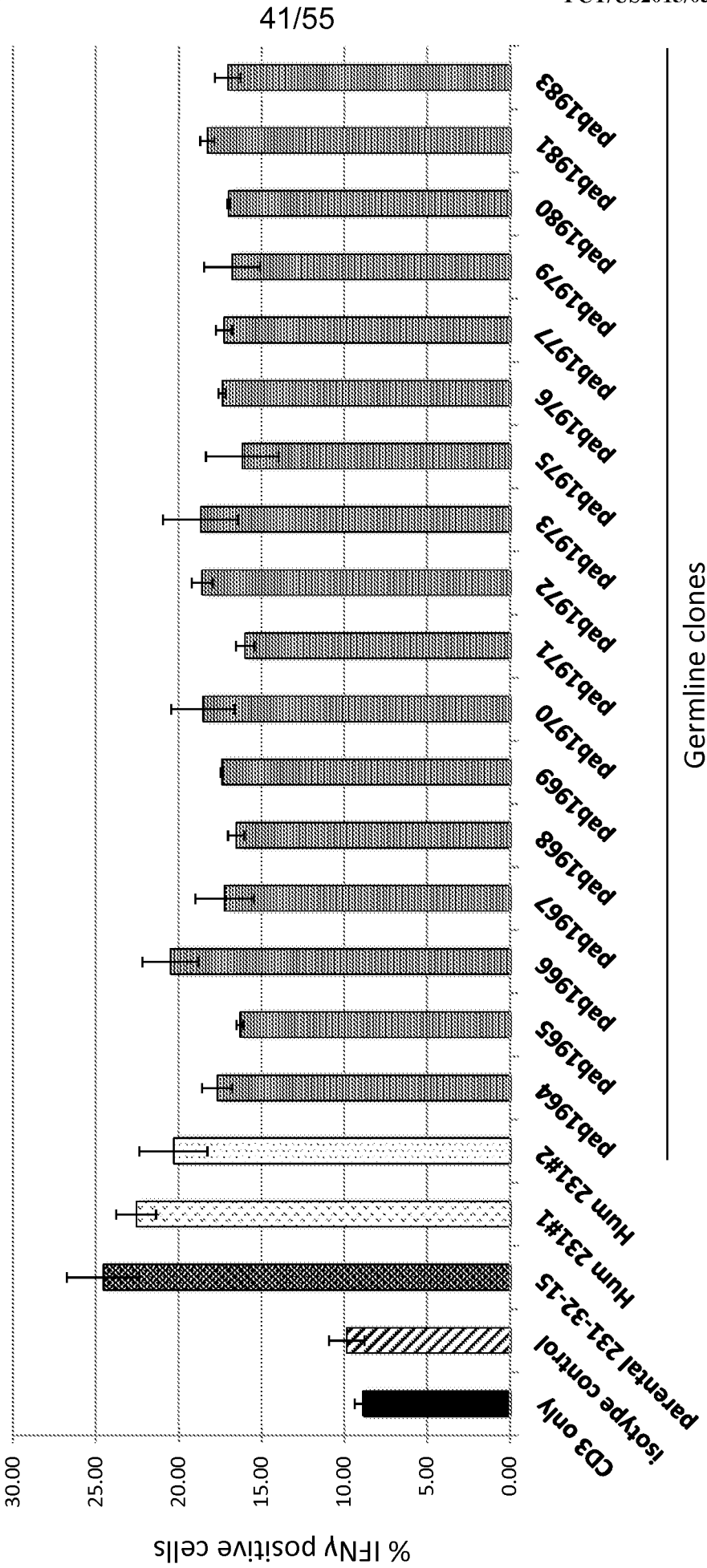


FIGURE 30A

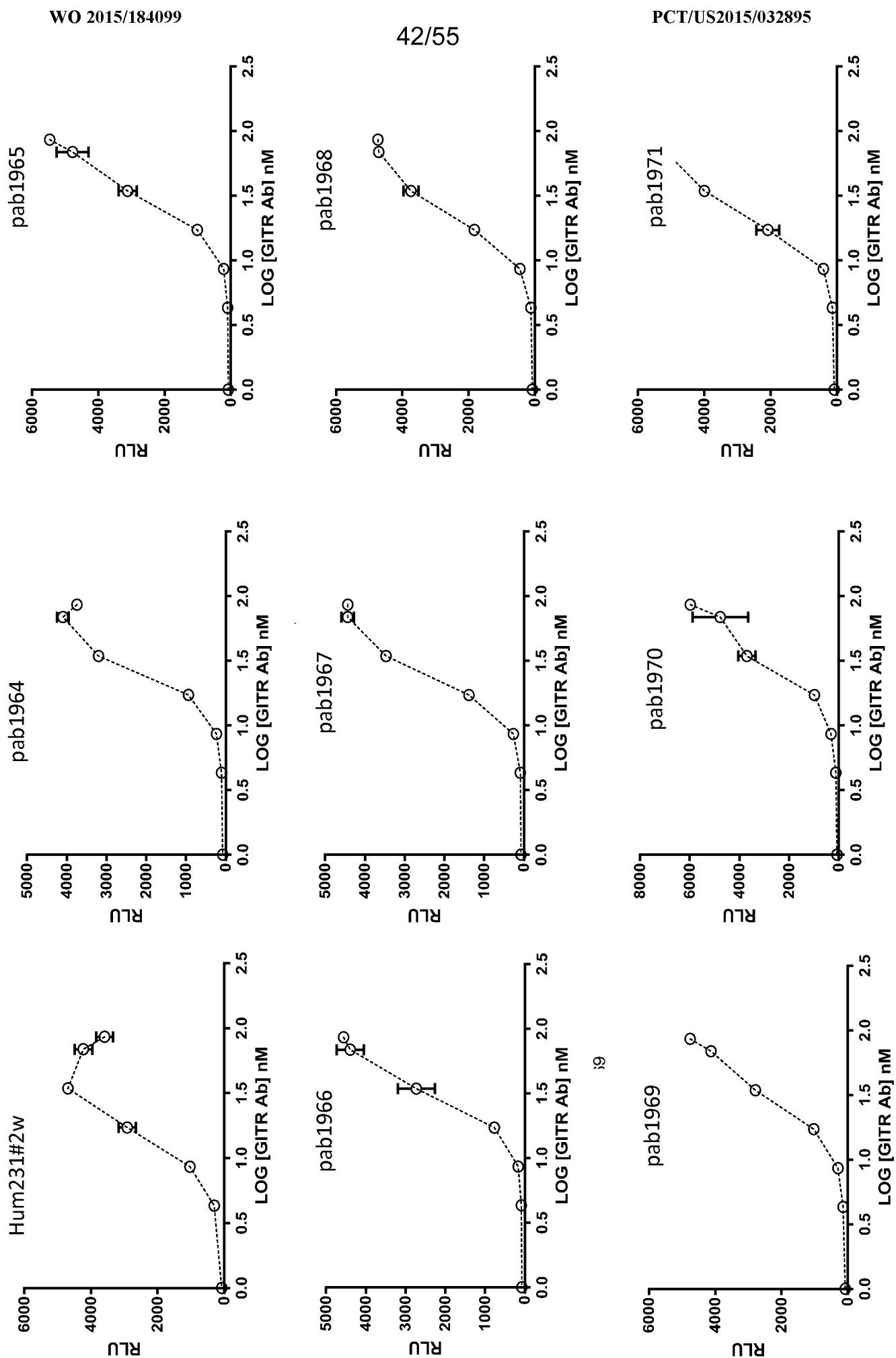


FIGURE 30B

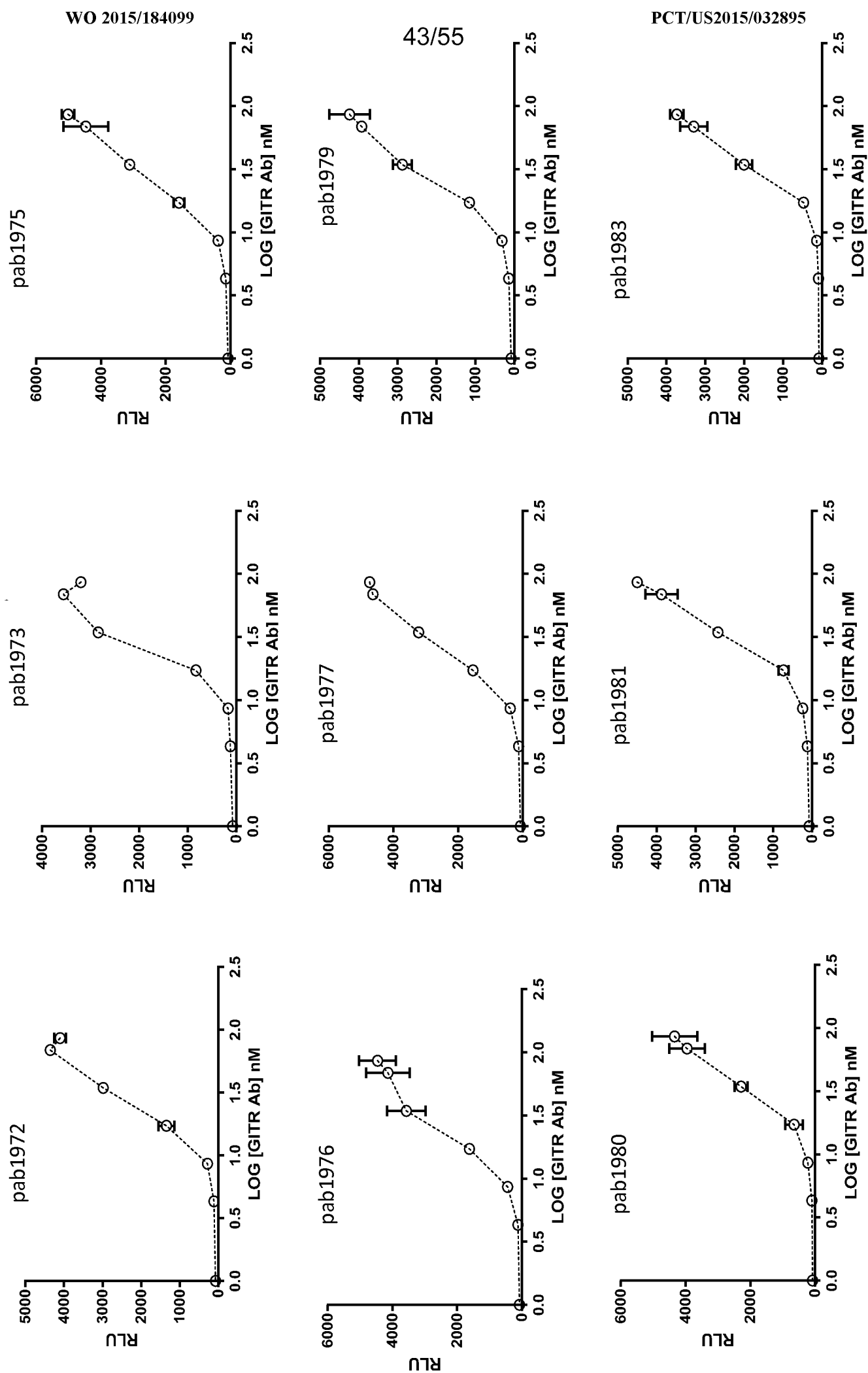


FIGURE 30C

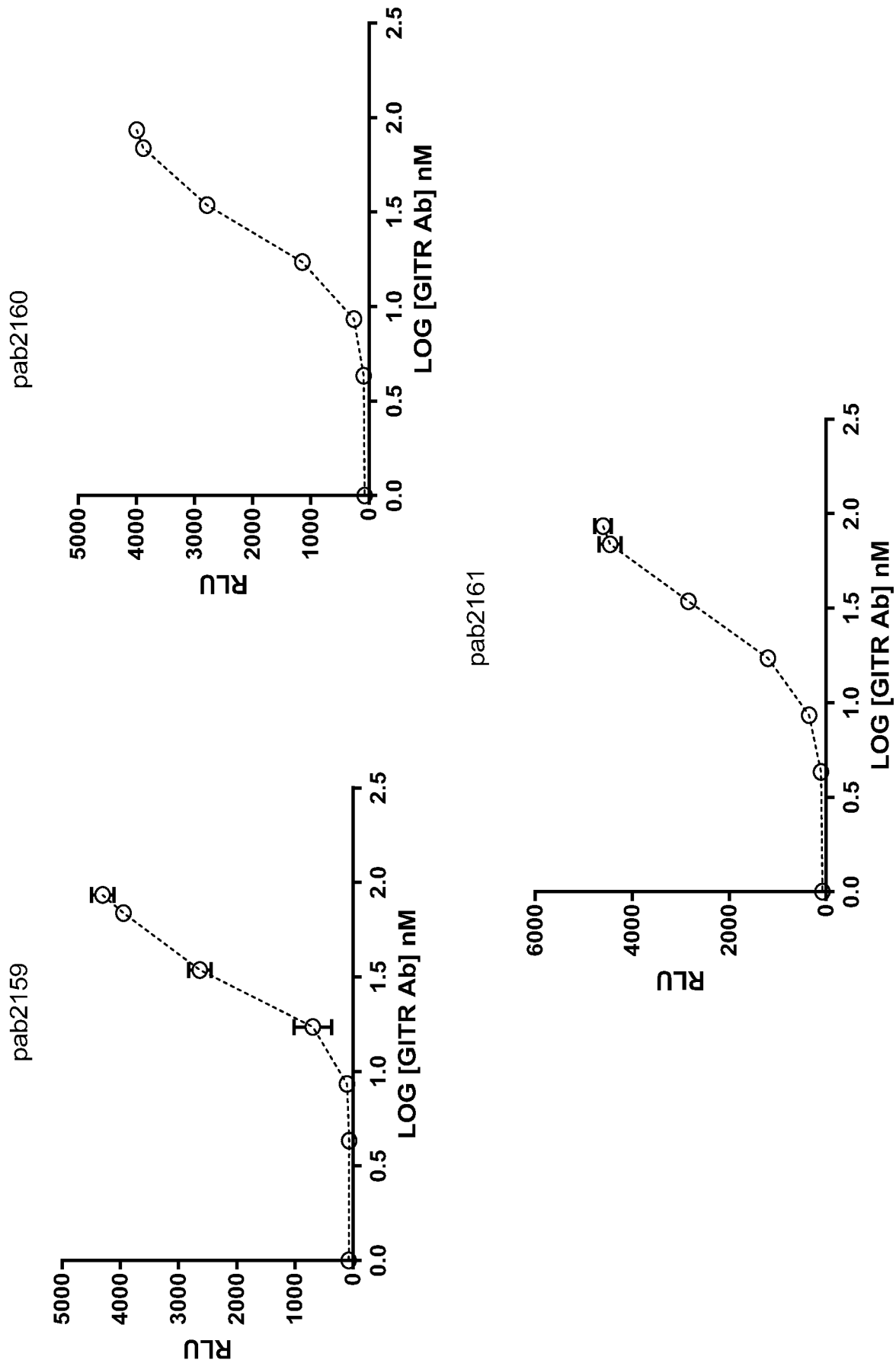
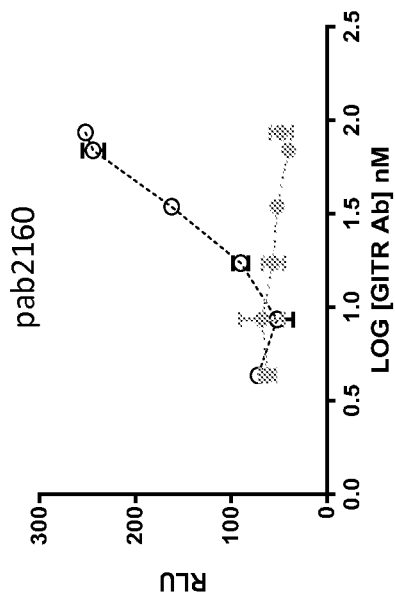
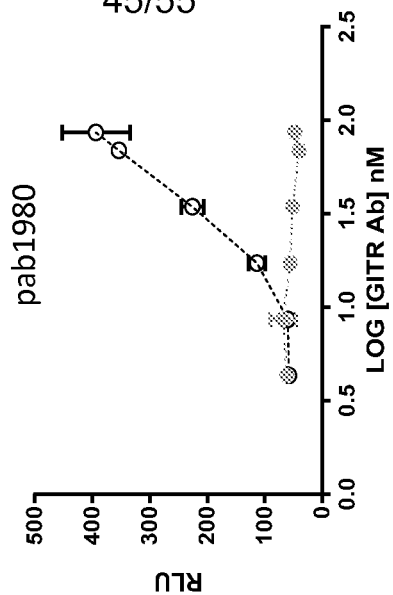


FIGURE 30D

WO 2015/184099



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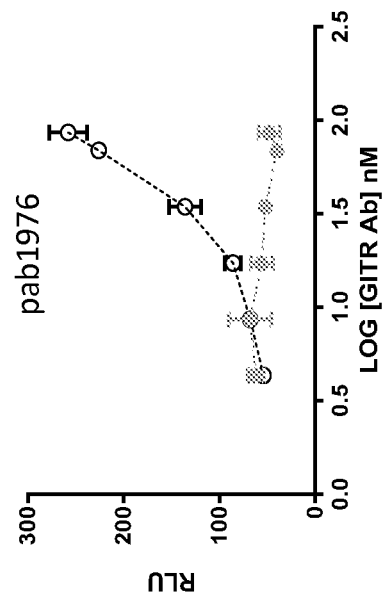
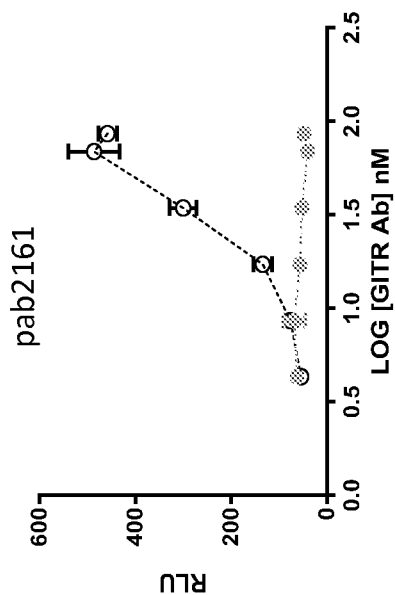
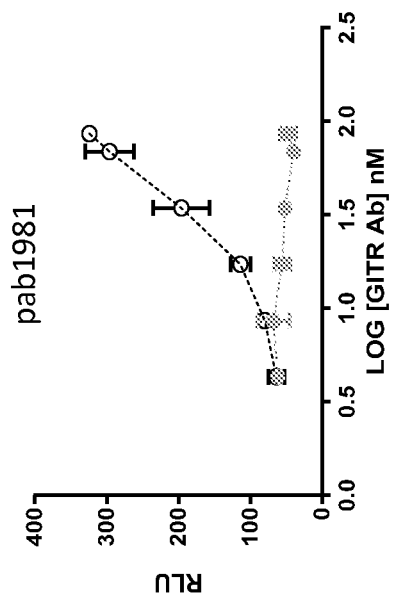
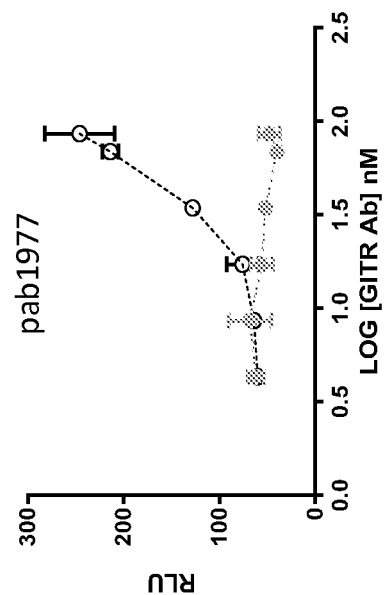
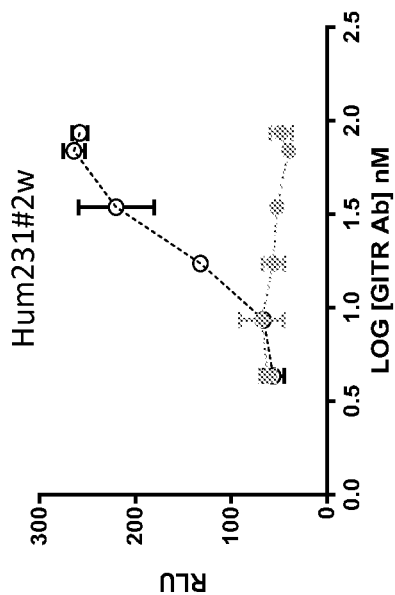
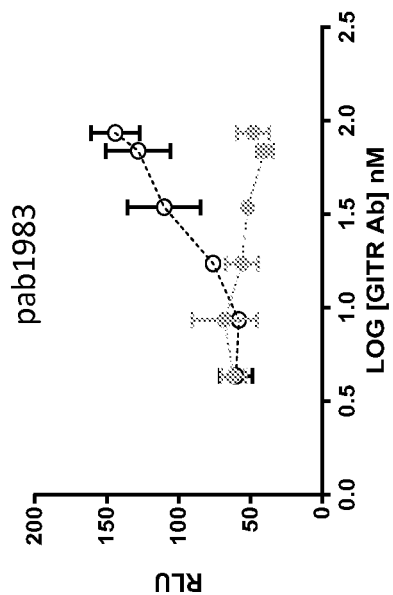
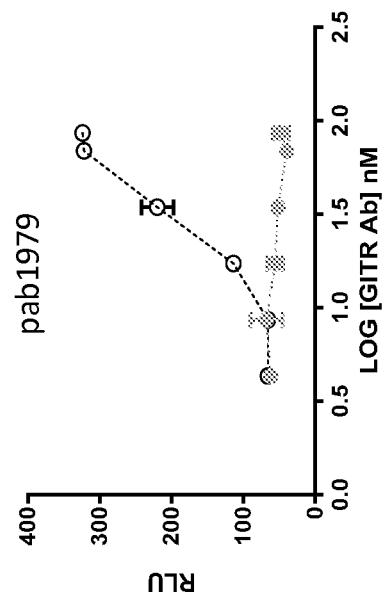


FIGURE 30E

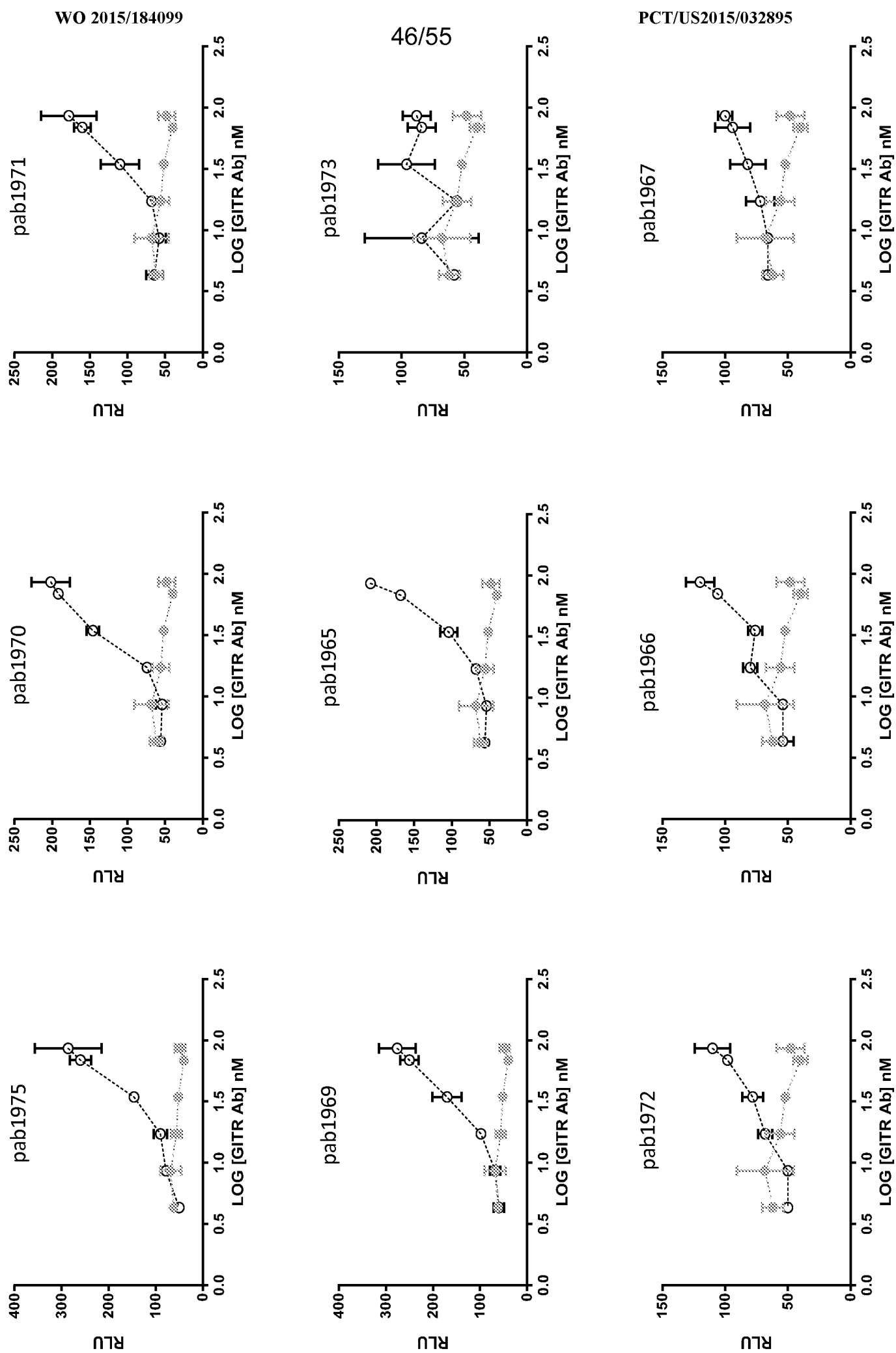


FIGURE 30F

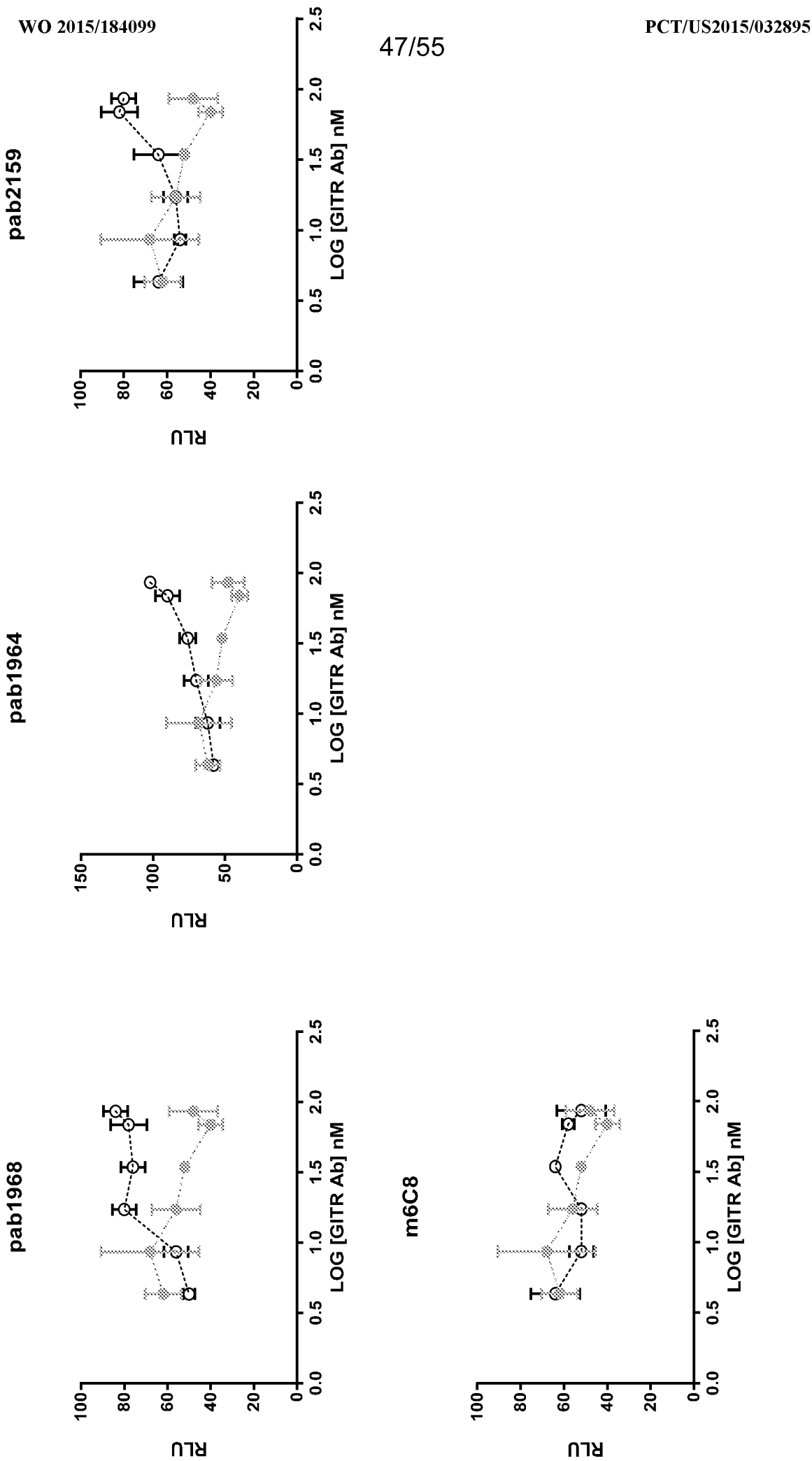


FIGURE 31

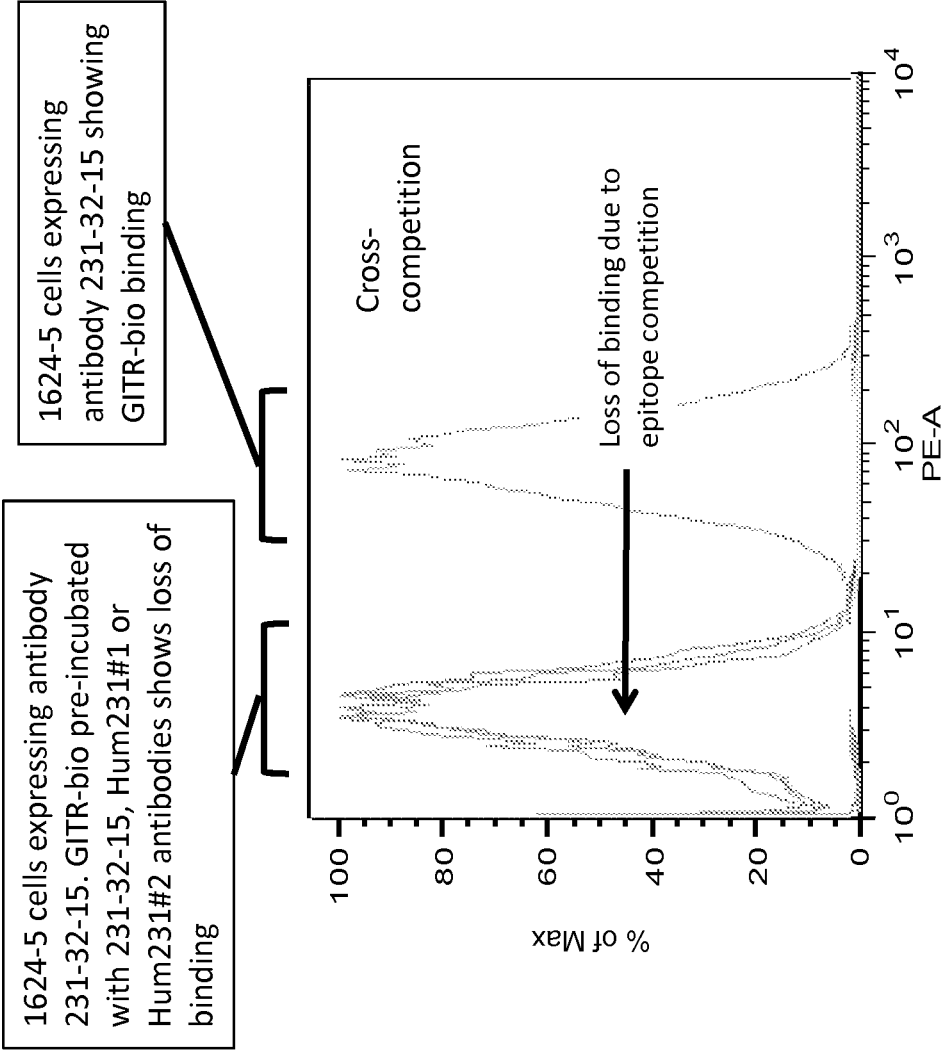


FIGURE 32

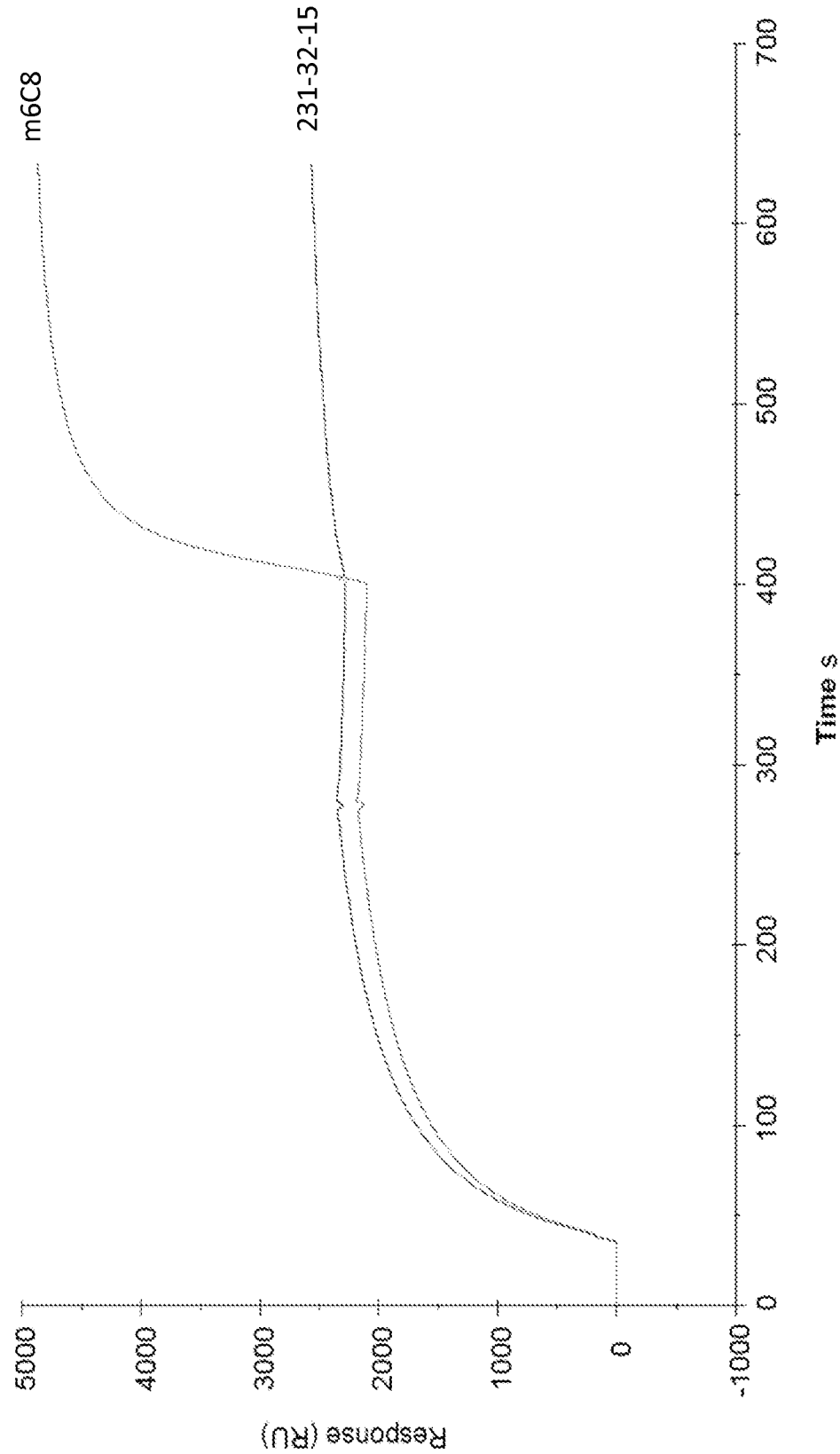


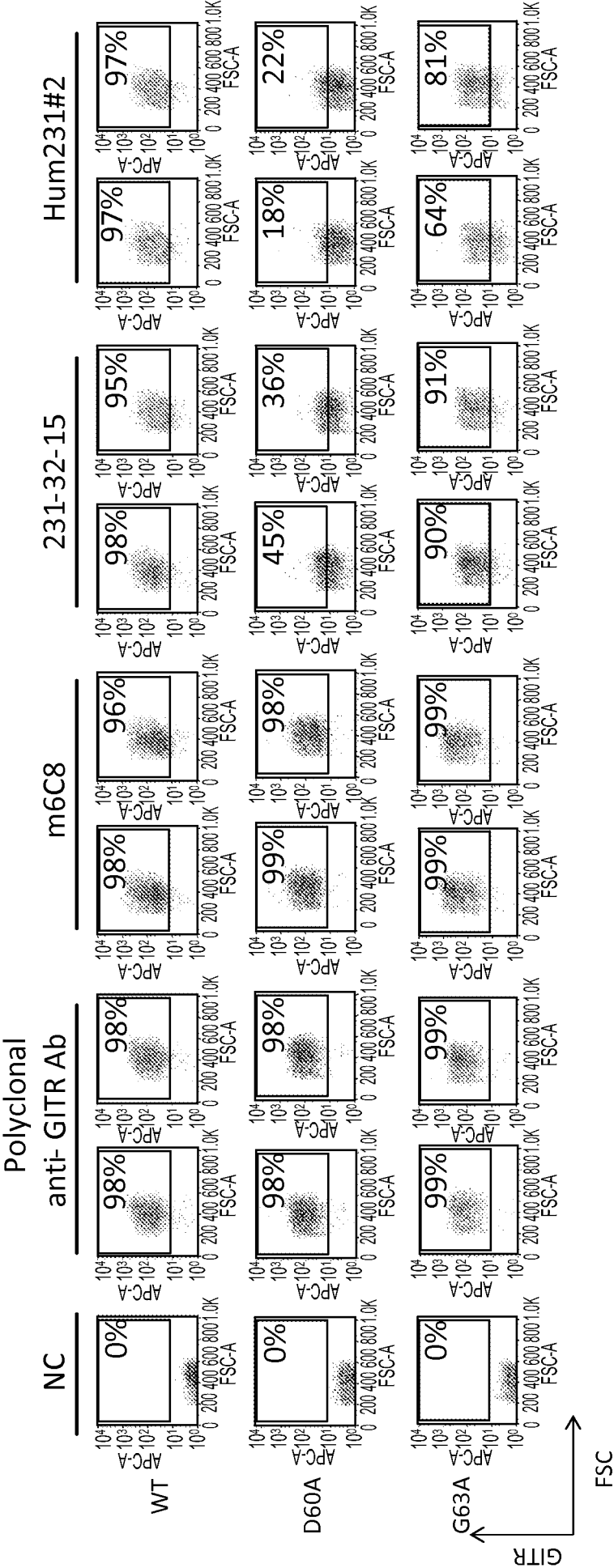
FIGURE 33A

	10	20	30	40	50	60	70	80
MAQHGMGAFAALCGIALICALSLGQRPTGGPGGPGRILLGTGTDAACCRVHTTRCCRDYPDEECCSEWDCMCVQPEFHCG	+	+	+	+	+	+	+	+
MAQHGMGAFAALCGIALICALSLGQRPTGGPGGPGRILLGTGTDAACCRVHTTRCCRDYPDEECCSEWDCMCVQPEFHCG	+	+	+	+	+	+	+	+
2124B07_1155-Je curated.seq					S			
2124C01_1155-Je curated.seq				Q		S.N		
2124C02_1155-Je curated.seq						S		
2124D03_1155-Je curated.seq			A			S		
2124A01_1155-Je curated.seq						D		
2124A03_1155-Je curated.seq		L				D		
2124A05_1155-Je curated.seq						D		
2124A11_1155-Je curated.seq						D		
2124A12_1155-Je curated.seq						D		
2124B01_1155-Je curated.seq	V					D		Y
2124B04_1155-Je curated.seq						D		
2124B12_1155-Je curated.seq						D	V	
2124C03_1155-Je curated.seq						D		
2124C08_1155-Je curated.seq			S			D		
2124C12_1155-Je curated.seq						D		
2124A02_1155-Je curated.seq				D		R		
2124A09_1155-Je curated.seq				D		R		
2124A10_1155-Je curated.seq						R		
2124B08_1155-Je curated.seq						R		
2124A04_1155-Je curated.seq						C		
2124A07_1155-Je curated.seq				T		C		
2124B05_1155-Je curated.seq	T					C		
2124B06_1155-Je curated.seq					A	C		
2124B09_1155-Je curated.seq	S					C		
2124D04_1155-Je curated.seq	I					R	C	
2124C10_1155-Je curated.seq						C	Q	
2124A08_1155-Je curated.seq					S	S	V	
2124B02_1155-Je curated.seq		K				S	V	G
2124B03_1155-Je curated.seq							V	
2124A06_1155-Je curated.seq						L		
2124C04_1155-Je curated.seq						L		
2124C09_1155-Je curated.seq						L		

FIGURE 34A

Mutant	construct number	Hum231#2	pab1967	pab1975	pab1979	m6C8
T54A	4526	+	+	+	+	+
T55A	4527	+	+	+	+	+
R56A	4528	+	+	+	+	+
C57A	4529	+	+	+	+	+
C58A	4530	+/-	+/-	+/-	+/-	+/-
R59A	4531	+	+	+	+	+
D60A	4532	-	+/-	+/-	+/-	+
Y61A	4533	+	+	+	+	+
P62A	4534	+	+	+	+	+
G63A	4535	+/-	+/-	+/-	+/-	+
E64A	4536	+	+	+	+	+
E65A	4537	+	+	+	+	+
C66A	4538	+	+	+	+	+
C67A	4539	+	+	+	+	+
S68A	4540	+	+	+	+	+
E69A	4541	+	+	+	+	+
W70A	4542	+	+	+	+	+
D71A	4543	+	+	+	+	+
C72A	4544	+	+	+	+	+
M73A	4545	+	+	+	+	+
C74A	4546					
V75A	4547	+	+	+	+	+
Q76A	4548	+	+	+	+	+
P28A	4595	+	+	+	+	+
T29A	4596	+	+	+	+	+
G30A	4597	+	+	+	+	+
G31A	4598	+	+	+	+	+
P32A	4599	+	+	+	+	+

FIGURE 34B



human G1TR
V1M/Q62P/S63G cyno G1TR
V1M cyno G1TR

MARHGAMCAGTLCCLALLCAASLGQRPTGGPGCGPRLLLTGKDARCCRVHPTRCCRDYPGECCSEWDVCVCVQPEFH	10	20	30	40	50	60	70	80
MAQHGMGAFRALCGLALLCALS LGQRPTGGPGCGPRLLLTGT DARCCRVHTTRCCRDYPGECCSEWDVCVCVQPEFH	80							
.R....C.CGT.C....A....K....P....V....	80							
.R....C.CGT.C....A....K....P....Q\$....*	80							
CGNPPCCTTCQHHPGPSGGVQPGKESFGFRVDCALGTFSRGHDGCHKPWT DCTQFGFLTVFPGNKTHNAVCPGSPPA	90	100	110	120	130	140	150	160
CGDPPCCTTCRHHPCPPGGVQSQGKFSFGFQCIDCASGTFSGGHEGHCKPWT DCTQFGFLTVFPGNKTHNAVCPGSPPA	160							
N....Q....S....P....R.V...L...R..D....	160							
N....Q....S....P....R.V...L...R..D....	160							
EPPGWLTI VLLAVAACVLLTSAQLGLHIWQLG-----KTQLLLEVPSTEDASSCQFPPEERGERLAEKKGRLGLDW	170	180	190	200	210	220	230	240
EPLGWLTVLLAVAACVLLTSAQLGLHIWQLRSQCMWPRETQLLLEVPSTEDARSCQFPPEERGERSAEEKGRLGLDW	240							
.P....I....G-----K....S....L....	233							
.P....I....G-----K....S....L....	233							
V-								
V.								
..								

