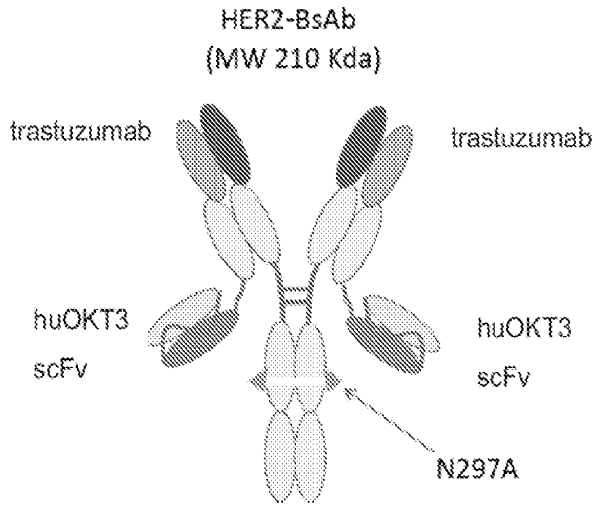


Fig. 1A

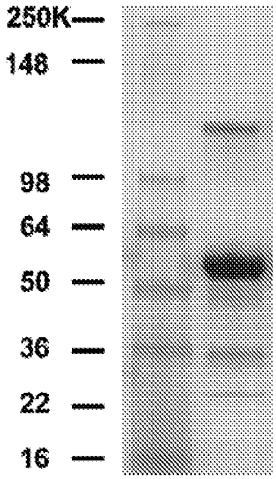


Fig. 1B

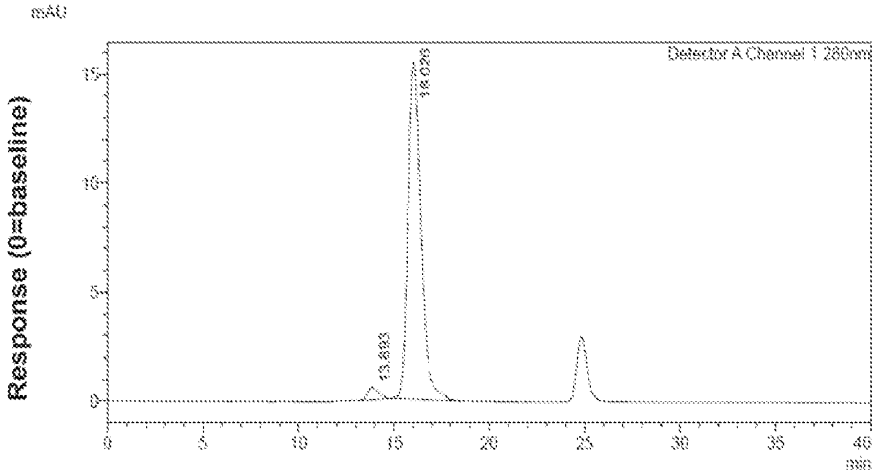


Fig. 1C

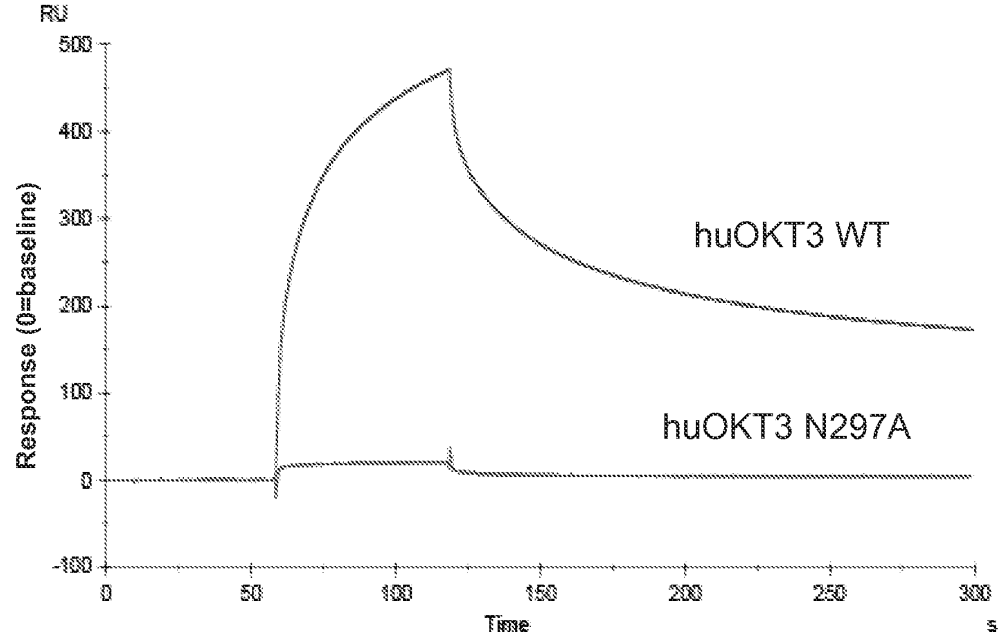

RU
500
400
300
200
100
0
-100
Response (0=baseline)
huOKT3 WT
huOKT3 N297A
0
50
100
150
200
250
300
Time
s

Fig. 1D

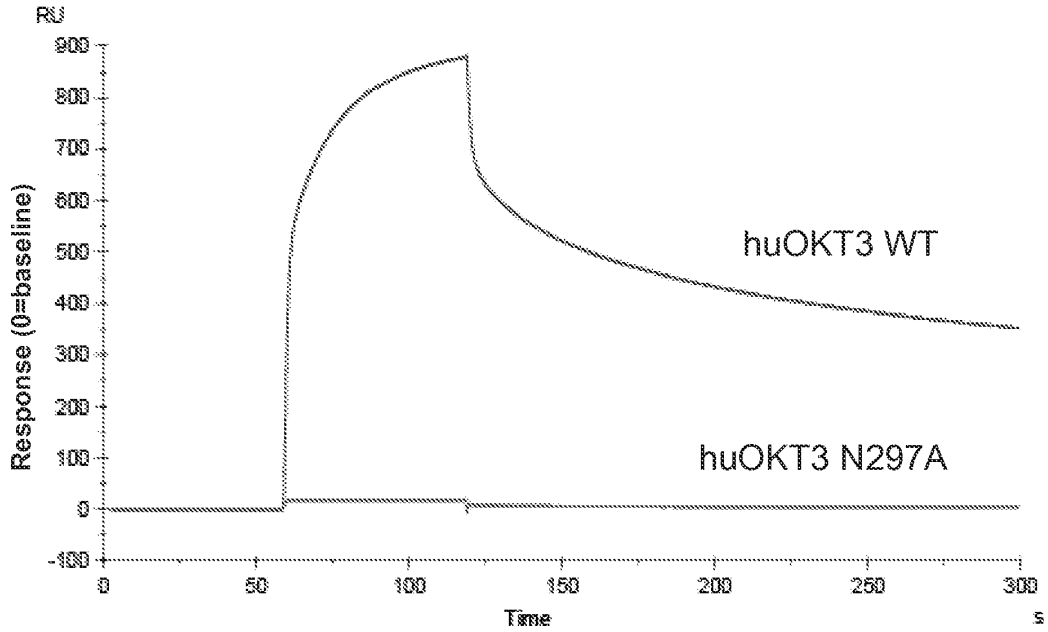

RU
900
800
700
600
500
400
300
200
100
0
-100
Response (0=baseline)
huOKT3 WT
huOKT3 N297A
0
50
100
150
200
250
300
Time
s

Fig. 1E

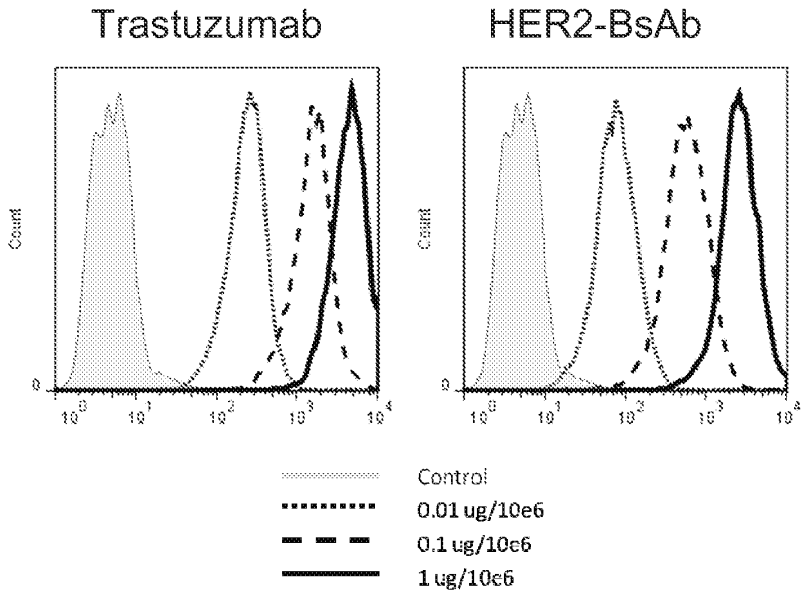

Trastuzumab
HER2-BsAb
Count
Control
0.01 ug/10e6
0.1 ug/10e6
1 ug/10e6

Fig. 2A

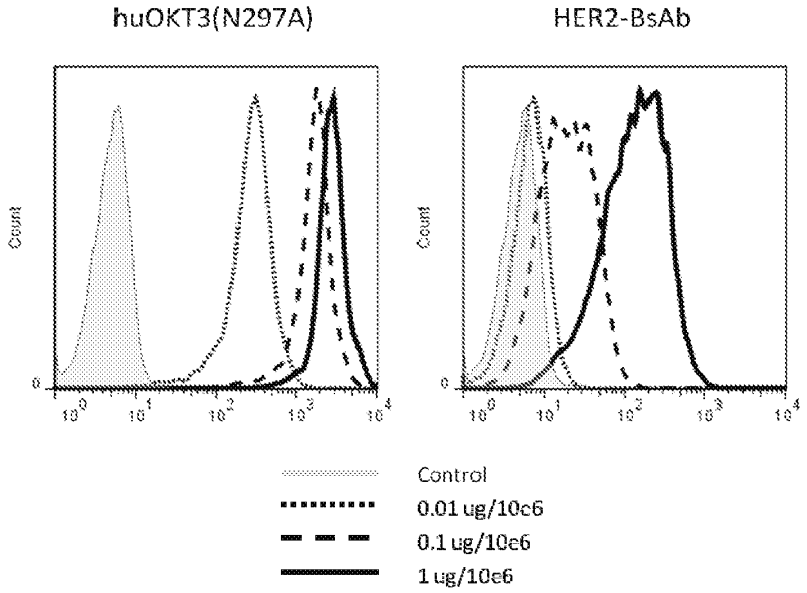

huOKT3(N297A)
HER2-BsAb
Count
Control
0.01 ug/10e6
0.1 ug/10e6
1 ug/10e6

Fig. 2B

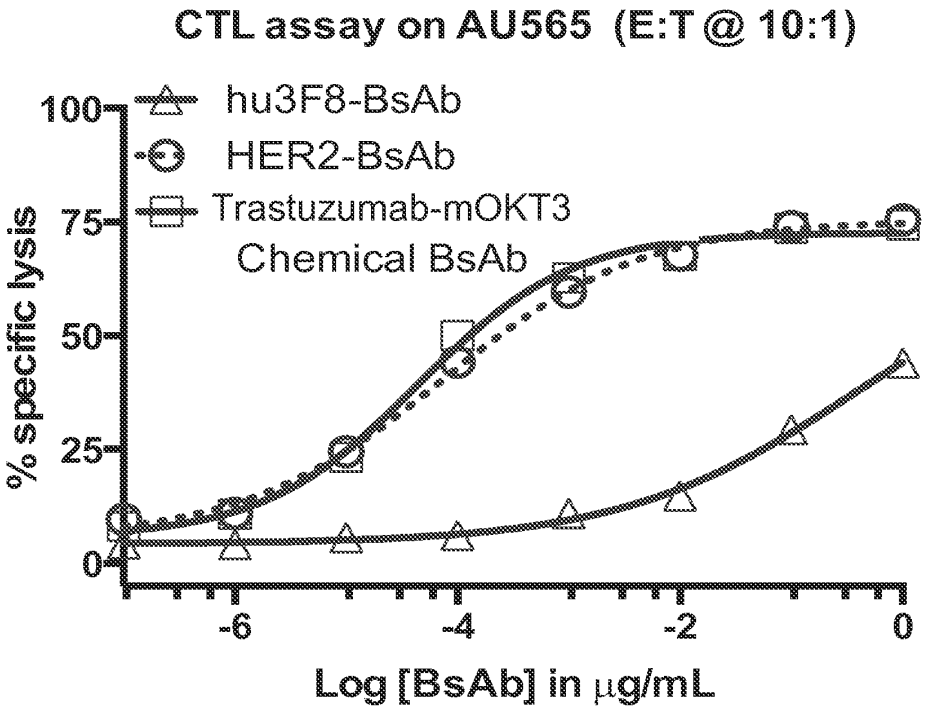

CTL assay on AU565 (E:T @ 10:1)
hu3F8-BsAb
HER2-BsAb
Trastuzumab-mOKT3
Chemical BsAb
% specific lysis
100
75
50
25
0
-6
-4
-2
0
Log [BsAb] in μg/mL

Fig. 3

Tumor Type	Cell Line Name	HER2 Expression (MFI)	EC50 (ng/ml)	EC50 (pM)
Breast Carcinoma	AU565	1175	0.06	0.3
Breast Carcinoma	SKBR3	760	0.2	1
Breast Carcinoma	MCF7	296	0.32	1.6
Ovarian Carcinoma	OVCAR3	183	0.36	1.8
Breast Carcinoma	MDA-MB-361 (HTB27)	777	0.5	2.5
Melanoma	SKMEL28	190	0.6	3
Osteosarcoma	CRL1427	108	2	10
Ewings	SKEAW	246	2	10
Rhabdomyosarcoma	HTB82	204	2	10
Melanoma	HT-144 (HTB63)	156	3	15
Neuroblastoma	NB5	66	3.1	15.5
Breast Carcinoma	MDA-MB-231 (HTB26)	68	4	20
Osteosarcoma	U2OS	90	4.5	22.5
Ewings	SKES-1	146	10	50
Melanoma	M14	57	26	130
Neuroblastoma	NMB7	12	>1000	>5000
Neuroblastoma	IMR32	6	>1000	>5000
Small Cell lung Cancer	NCI-H524	14	>1000	>5000
Neuroblastoma	SKNBE(1)N	3	>1000	>5000
Neuroblastoma	SKNBE(2)C	8	>1000	>5000
Small Cell lung Cancer	NCI-H69	10	>1000	>5000
Neuroblastoma	SKNBE(2)S	4	>1000	>5000
Small Cell lung Cancer	NCI-H345	6	>1000	>5000
Breast Carcinoma	MDA-MB-468 (HTB132)	6	>1000	>5000

Fig. 4

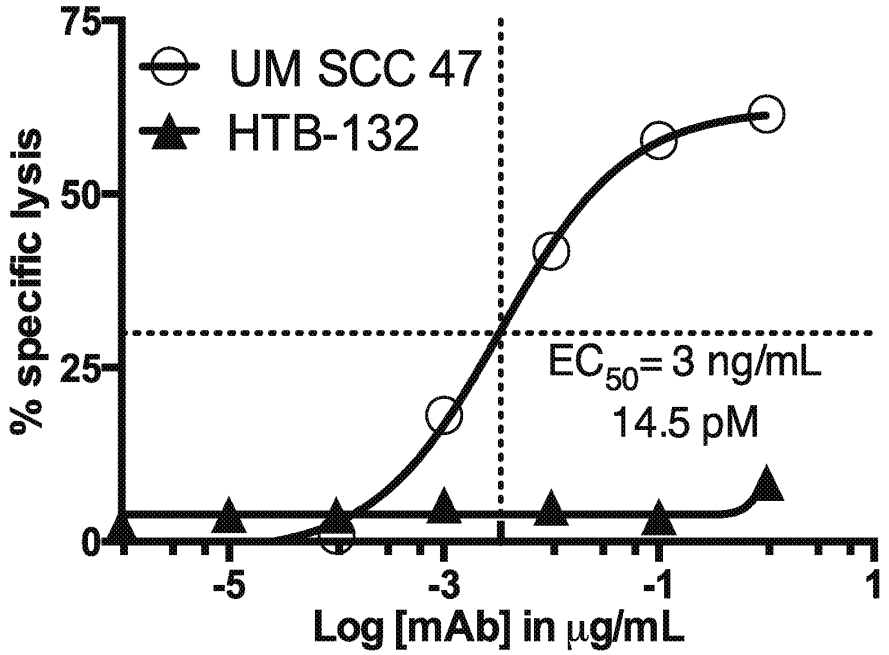

75
50
25
0
% specific lysis
UM SCC 47
HTB-132
EC50= 3 ng/mL
14.5 pM
-5
-3
-1
1
Log [mAb] in μg/mL

Fig. 5A

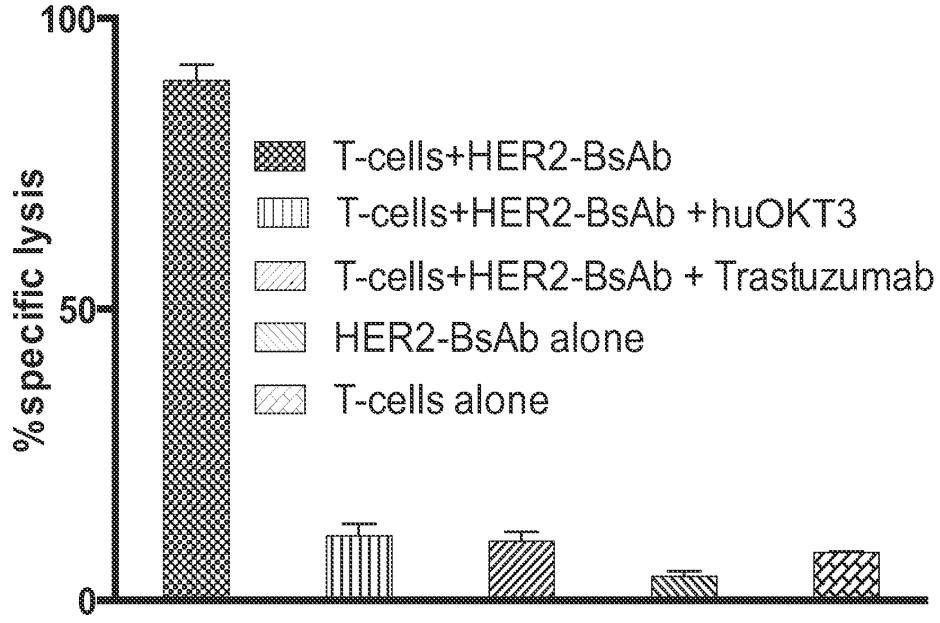

100
50
0
%specific lysis
T-cells+HER2-BsAb
T-cells+HER2-BsAb +huOKT3
T-cells+HER2-BsAb + Trastuzumab
HER2-BsAb alone
T-cells alone

Fig. 5B

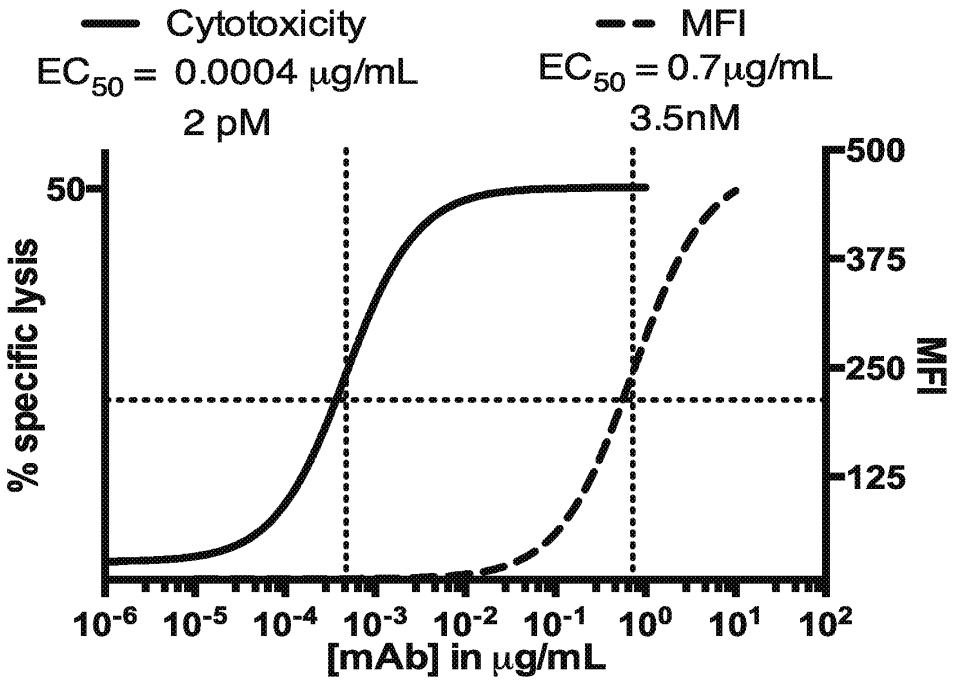

Cytotoxicity
MFI
EC50 = 0.0004 µg/mL
2 pM
EC50 = 0.7µg/mL
3.5nM
50
% specific lysis
500
375
250
125
MFI
10-6 10-5 10-4 10-3 10-2 10-1 100 101 102
[mAb] in µg/mL

Fig. 6

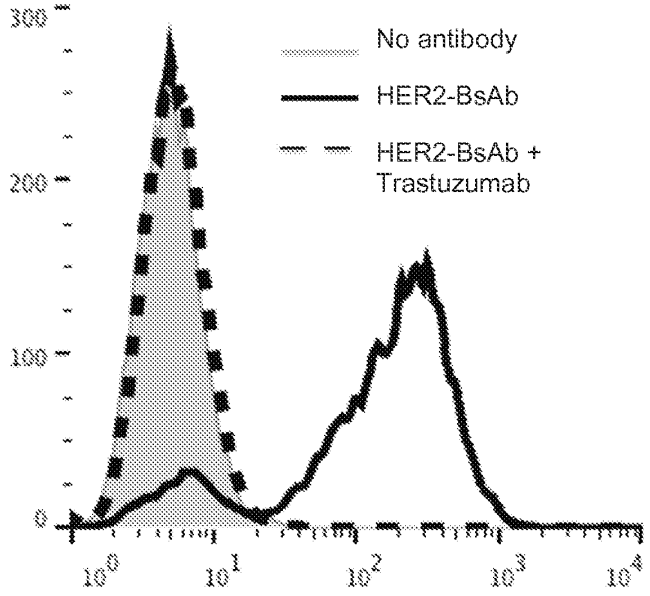


Fig. 7A

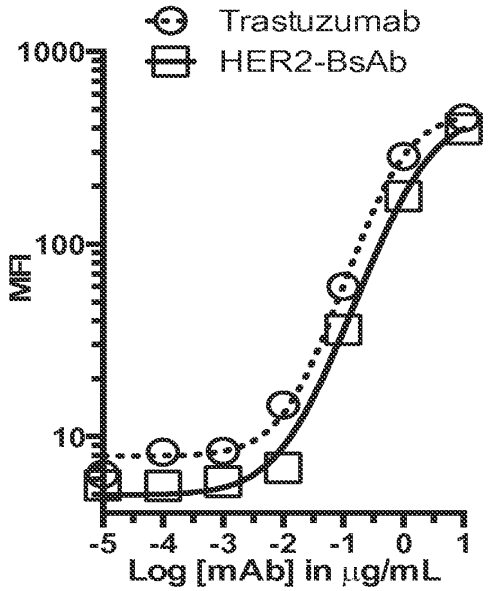


Fig. 7B

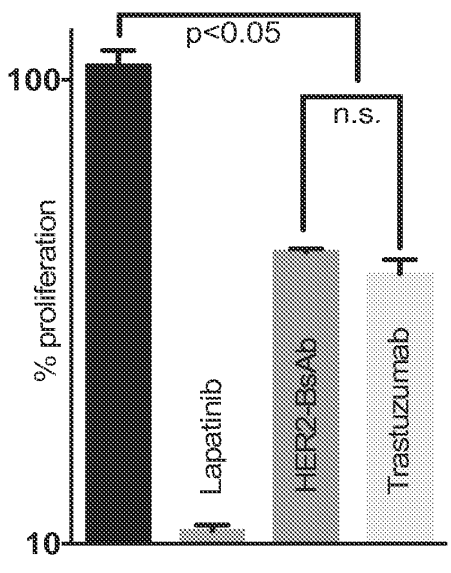


Fig. 7C

SCCHN cell lines	% Max Lysis	Flow HER2 (MFI)	qPCR (relative to MCF7)	Number of Experiments	EC50 ng/mL	EC50 pM
15B	47	305	121	2	13	63
93VU147T	45	127	151	3	6	32
PCI-30	53	359	237	3	2	12
SCC90	46	274	578	3	1	6
UDSCC2	42	178	139	5	5	27
UMSCC47	57	302	49	3	4	20

Fig. 8

Fig. 9A

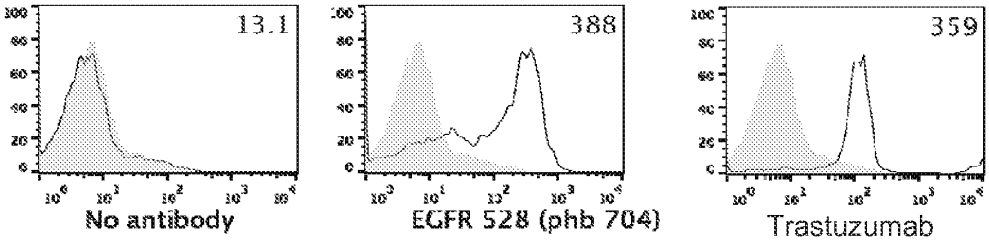


Fig. 9B

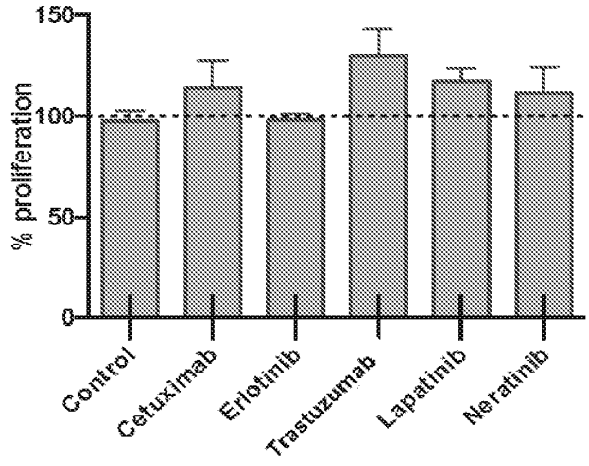
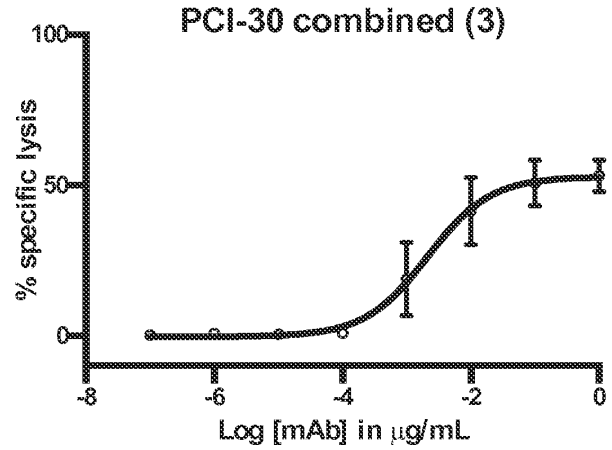


Fig. 9C



Osteosarcoma cell lines	% Max Lysis	Flow HER2 (MFI)	qtPCR (relative to MCF7)	Number of Experiments	EC50 ng/mL (average)	EC50 pM
U2OS	49	53	713	3	5	25
RG 160	62	563	1881	3	2	11
RG 164	68	439	5510	4	4	18
CRL 1427	46	81	52	2	3	16

Fig. 10

Fig. 11A

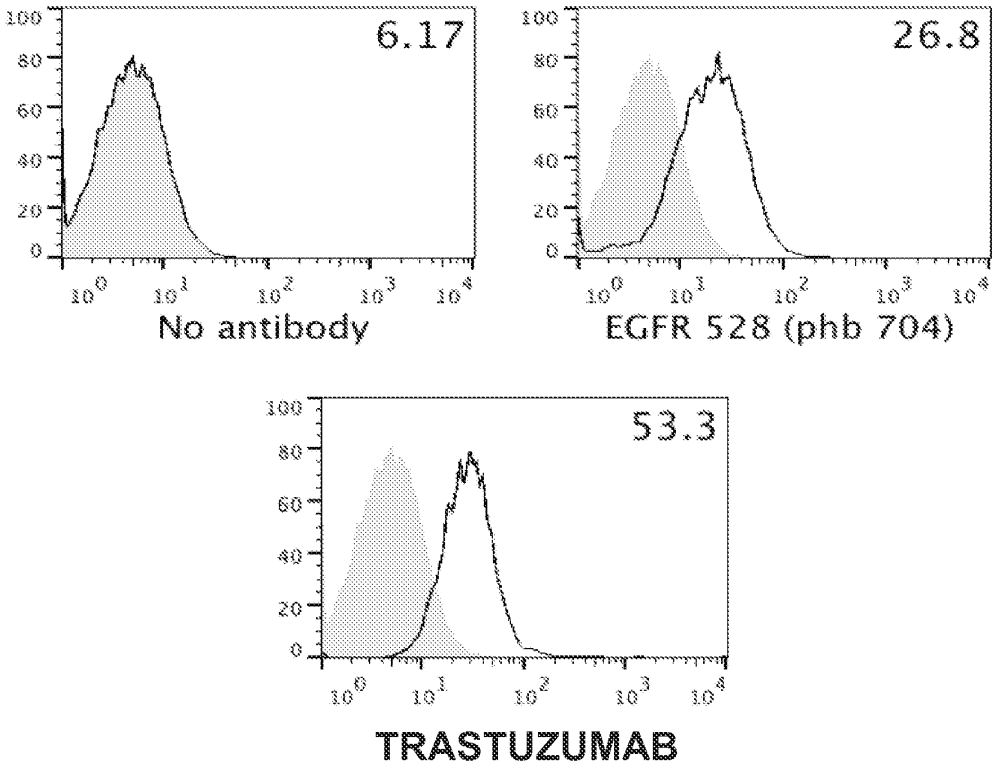


Fig. 11B

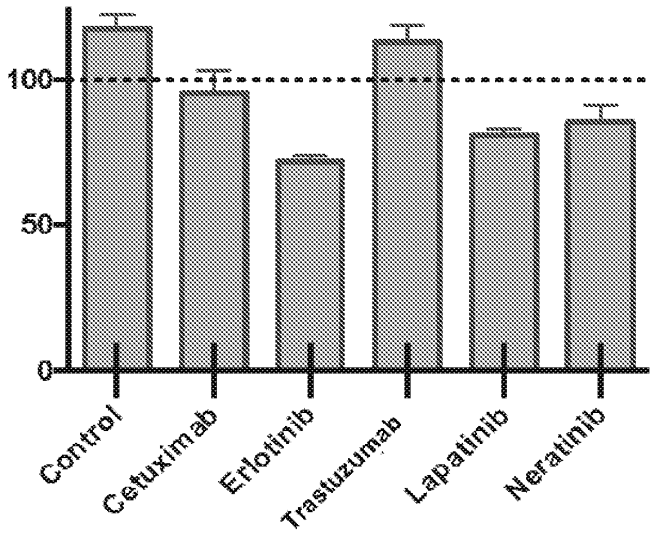
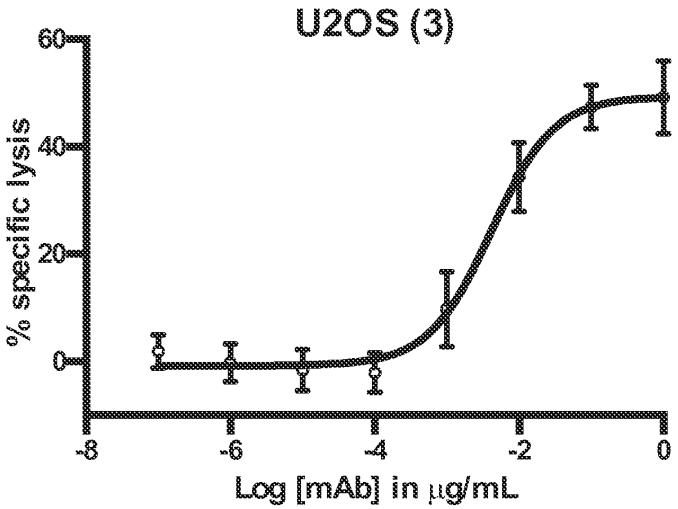


Fig. 11C



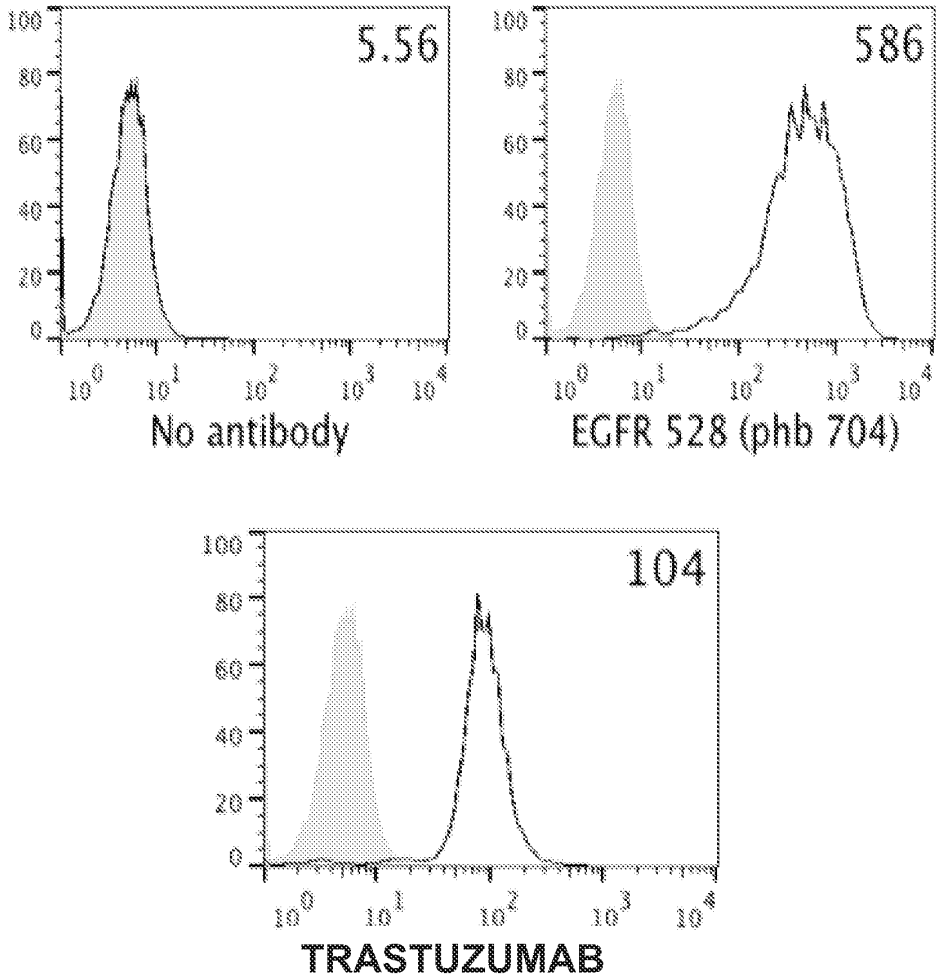


Fig. 12A

Fig. 12B

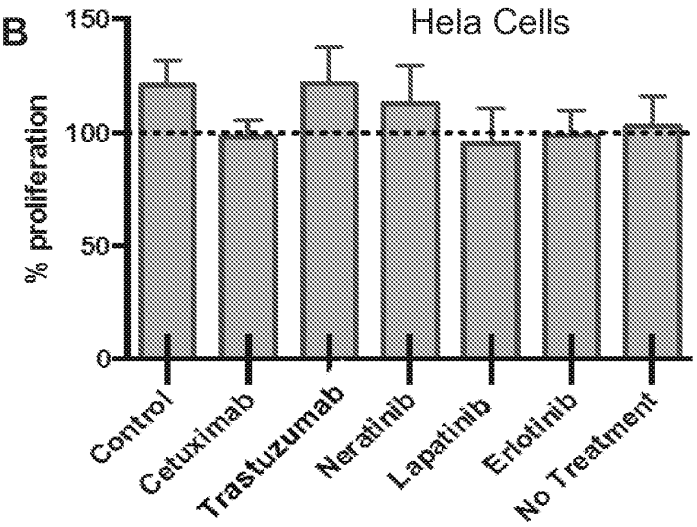


Fig. 12C

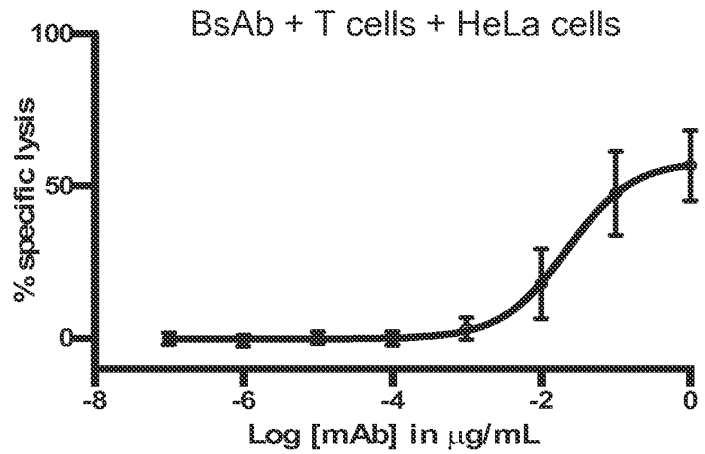
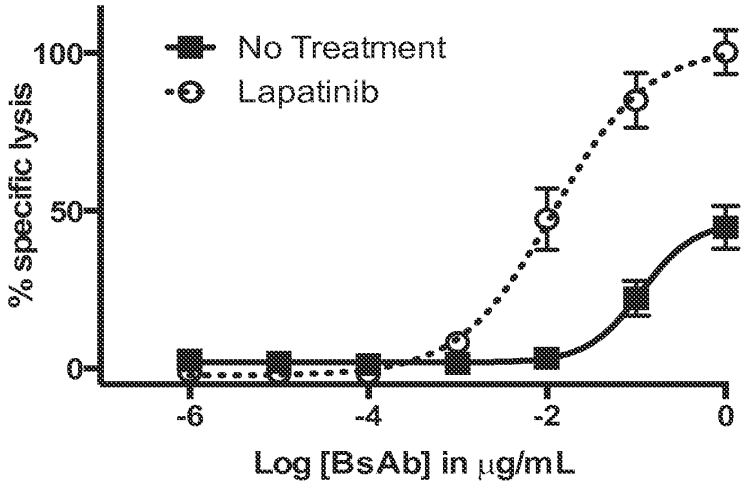


Fig. 12D



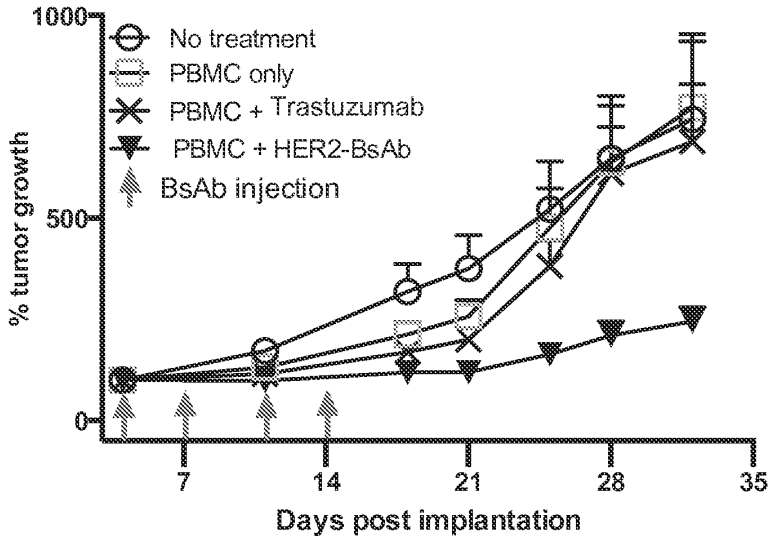

1000
500
0
% tumor growth
No treatment
PBMC only
PBMC + Trastuzumab
PBMC + HER2-BsAb
BsAb injection
7
14
21
28
35
Days post implantation

Fig. 13

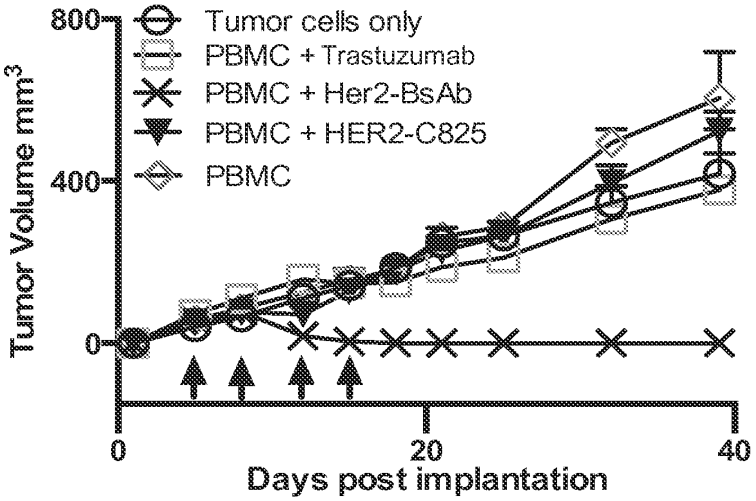

800
400
0
Tumor Volume mm3
Tumor cells only
PBMC + Trastuzumab
PBMC + Her2-BsAb
PBMC + HER2-C825
PBMC
0
20
40
Days post implantation

Fig. 14

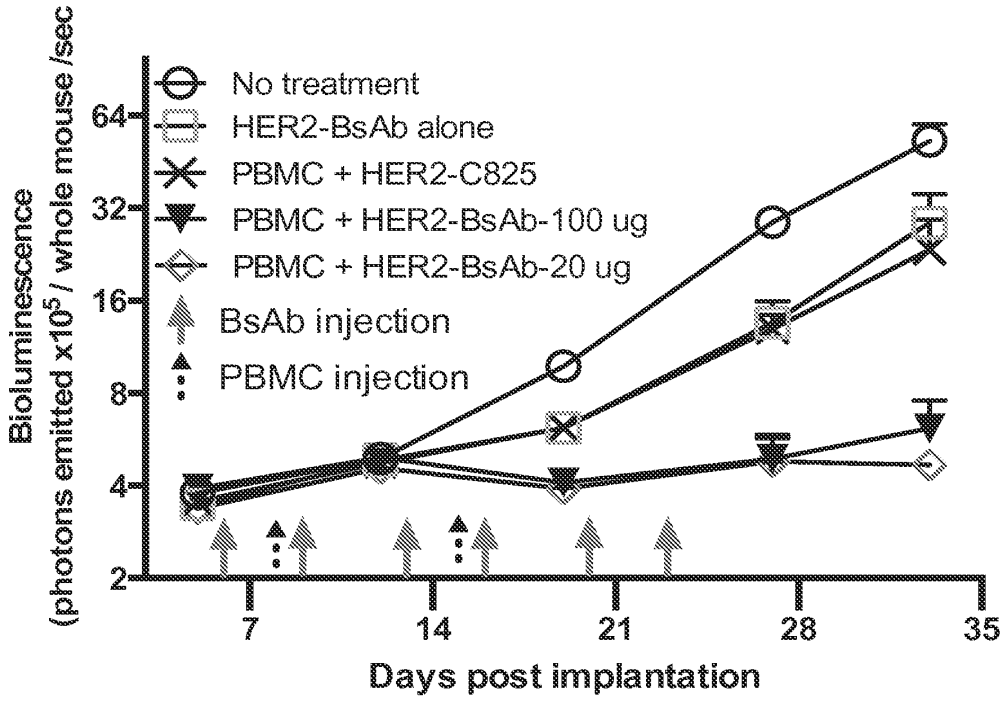

Bioluminescence
(photons emitted x10^5 / whole mouse /sec
64
32
16
8
4
2
No treatment
HER2-BsAb alone
PBMC + HER2-C825
PBMC + HER2-BsAb-100 ug
PBMC + HER2-BsAb-20 ug
BsAb injection
PBMC injection
7
14
21
28
35
Days post implantation

Fig. 15

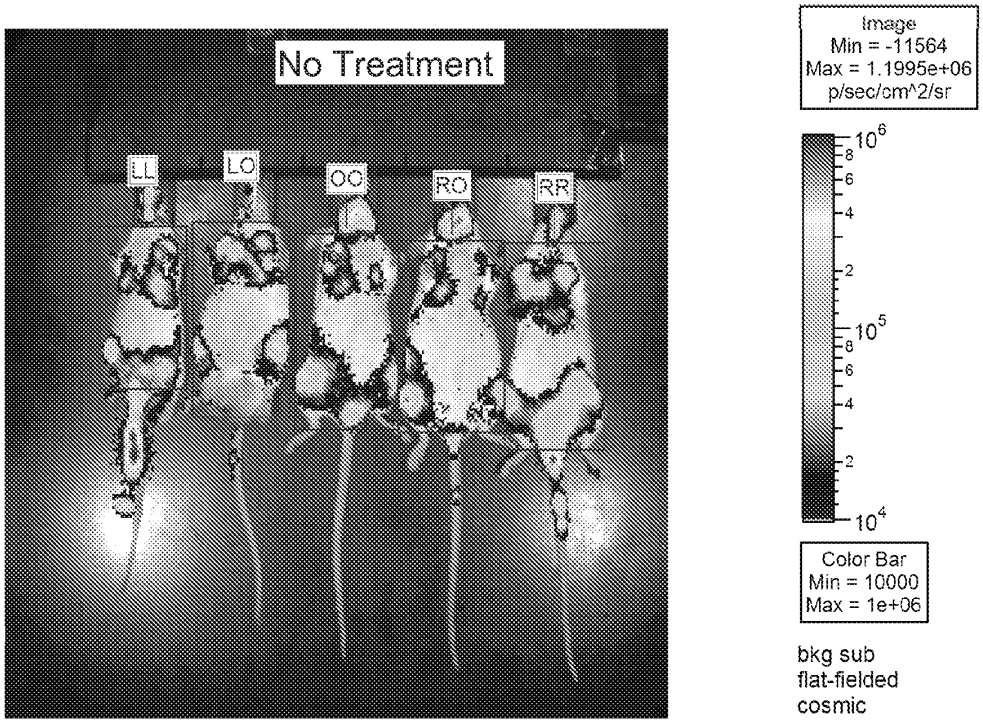


Fig. 16A

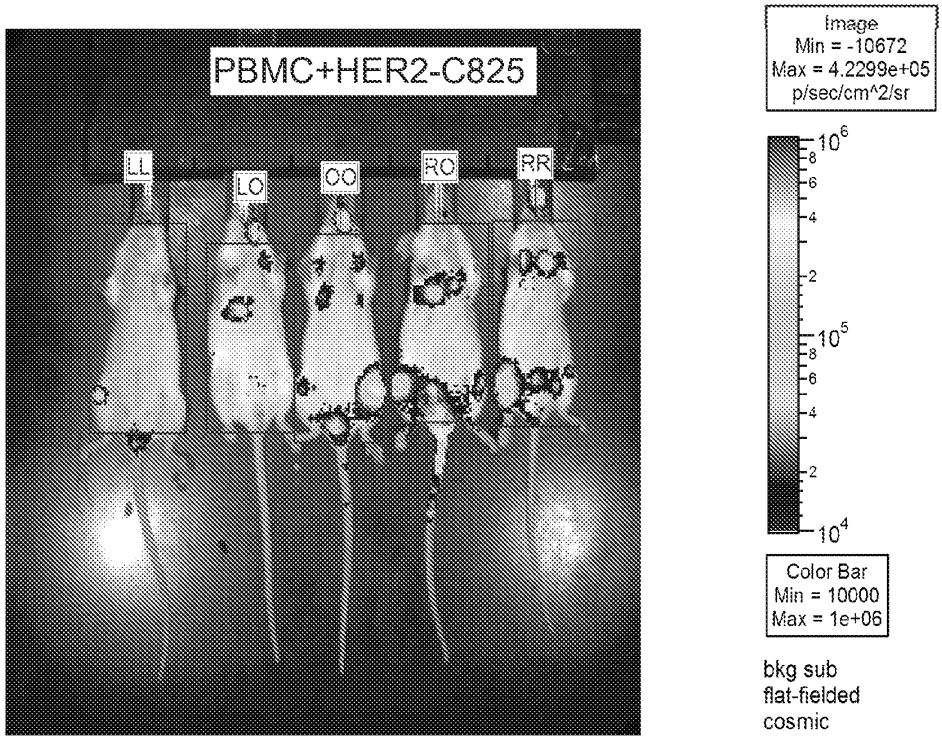


Fig. 16B

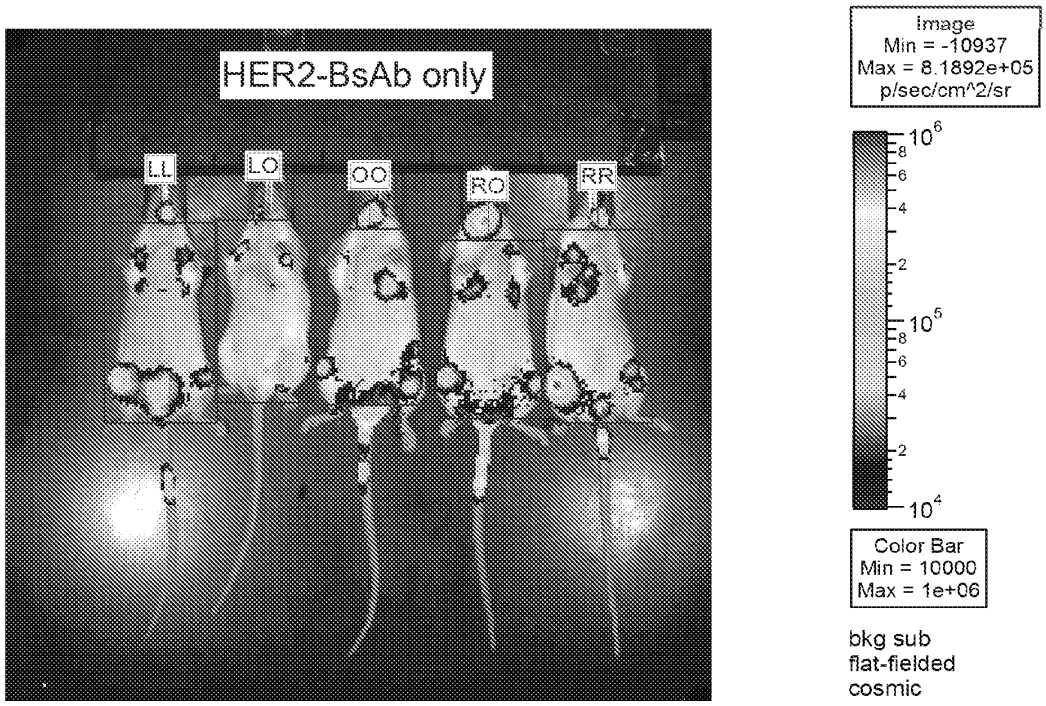


Fig. 16C

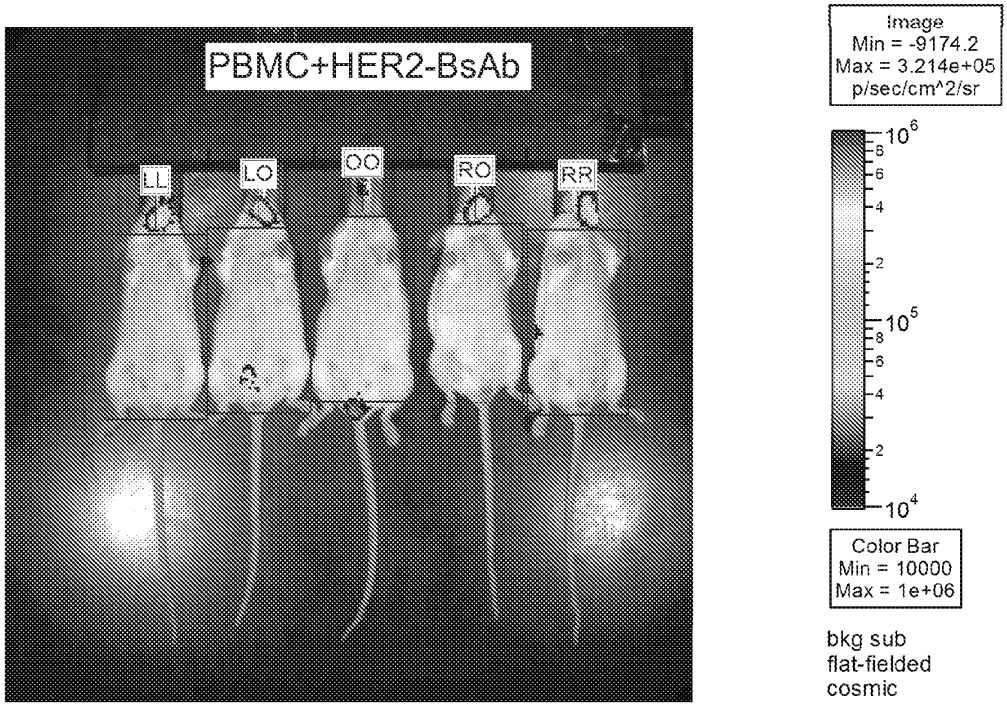


Fig. 16D

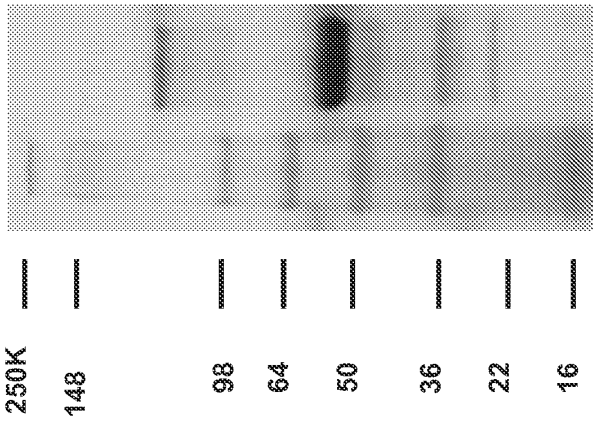


Fig. 17B

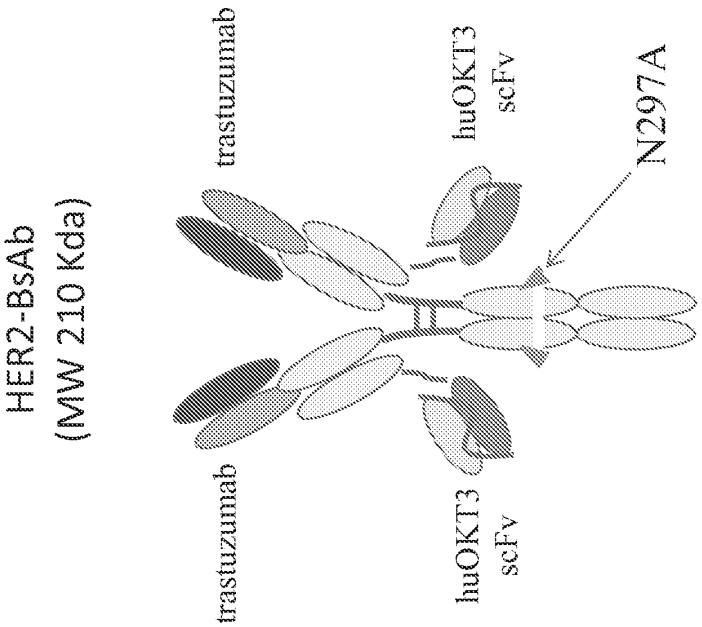


Fig. 17A

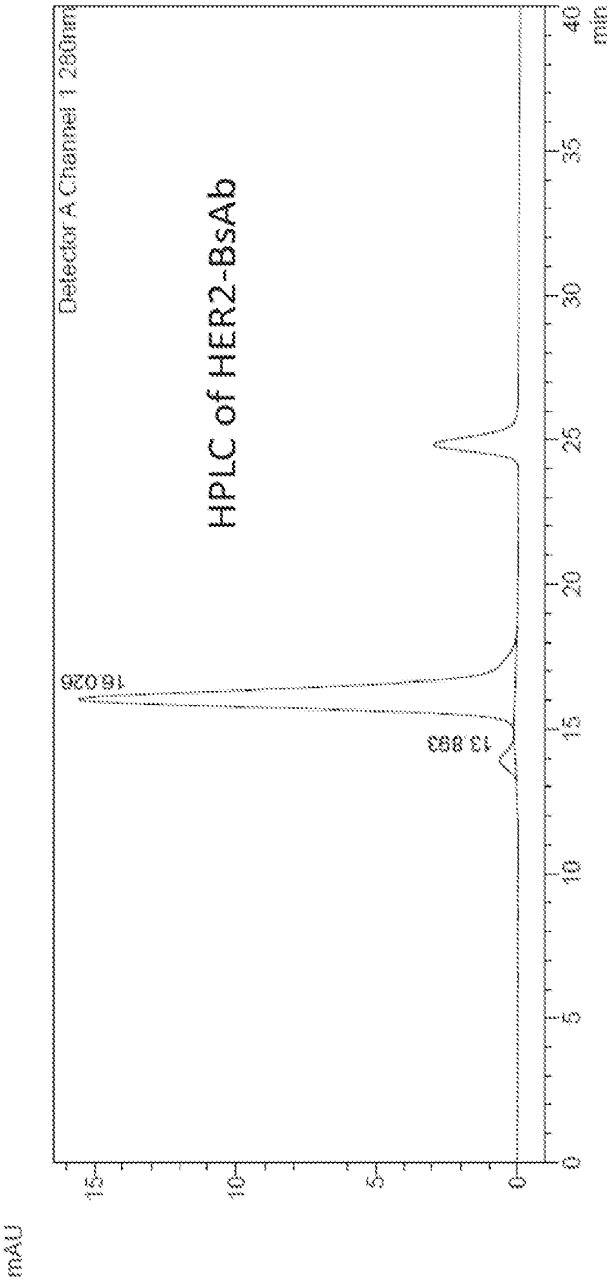

HPLC of HER2-BsAb
Detector A Channel 1 280nm
16.026
13.893
mAU
min
0
5
10
15
20
25
30
35
40

Fig. 17C

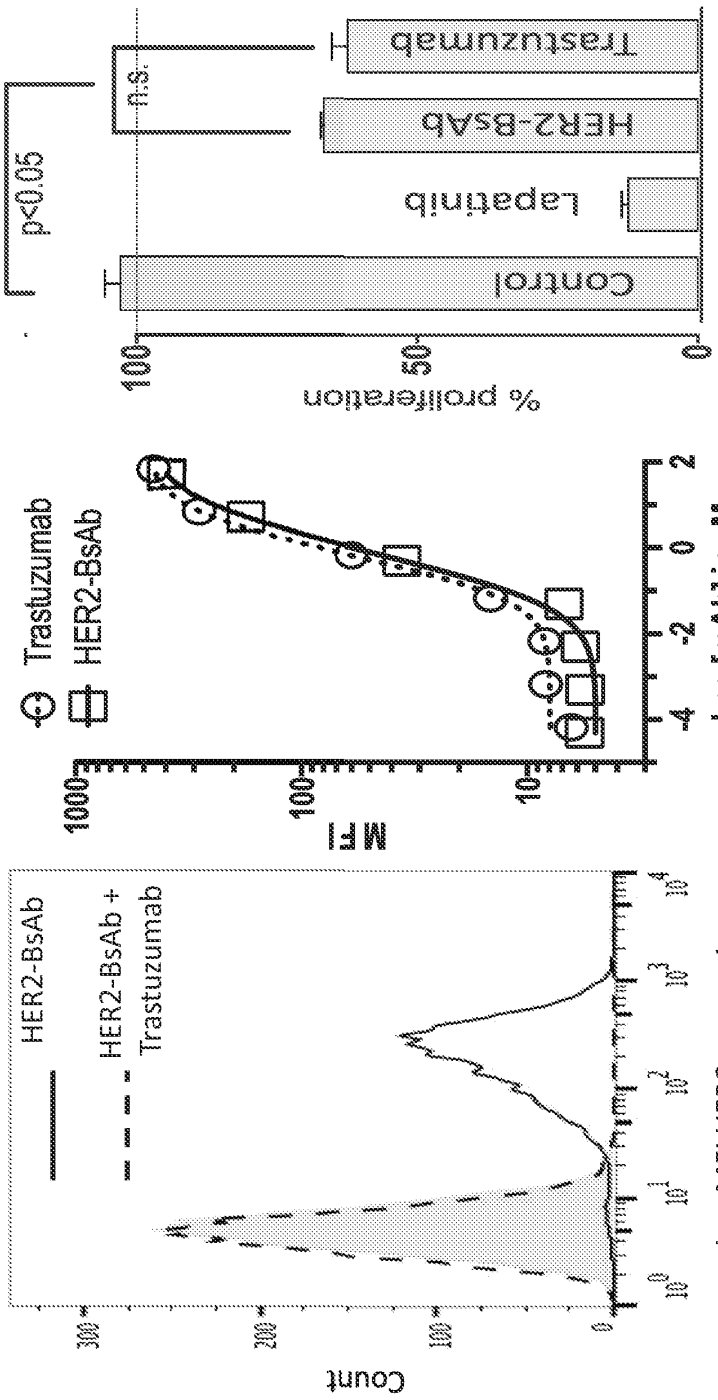


Fig. 18A

Fig. 18B

Fig. 18C

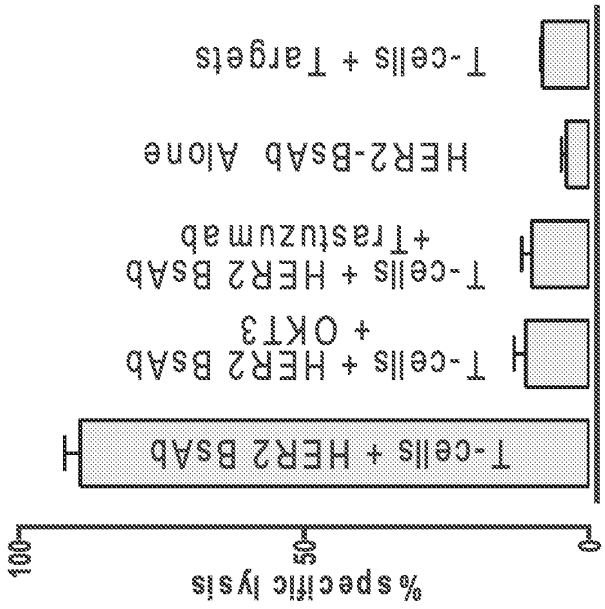


Fig. 19B

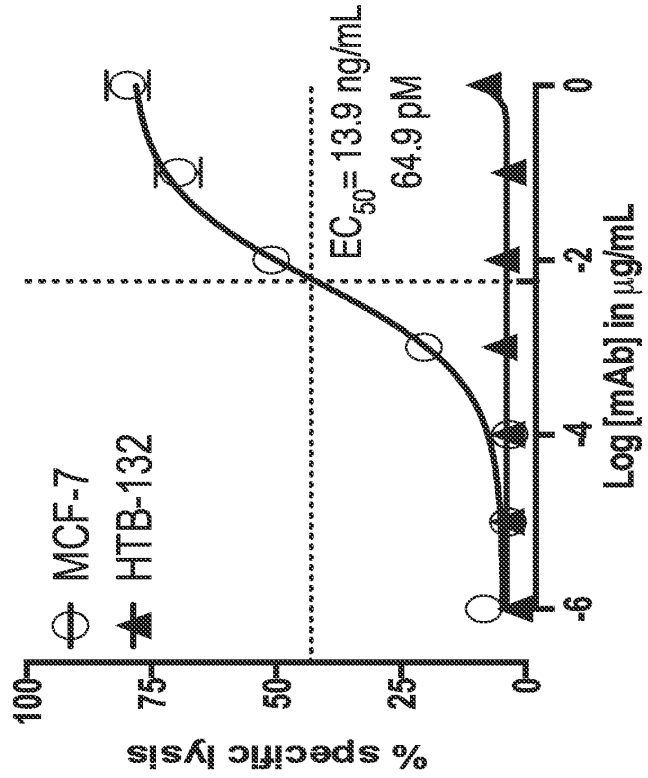


Fig. 19A

Tumor Type	Cell Line	HER2 Expression (MFI)	EC50 (pM)
Breast Carcinoma	AU565	1175	0.3
Ovarian Carcinoma	OVCAR3	183	1.8
Breast Carcinoma	MDA-MB-361	777	2.5
Ovarian Carcinoma	SKOV3	1577	2.8
Melanoma	SKMEL28	190	3
Breast Carcinoma	SKBR3	2506	4.1
Breast Carcinoma	HCC1954	1597	5.5
Head and Neck Cancer	SCC90	274	5.7
Ewings	SKEAW	246	10
Osteosarcoma	CRL1427	108	10
Rhabdomyosarcoma	HTB82	204	10
Osteosarcoma	RG 160	563	11
Head and Neck Cancer	PCI-30	359	12.2
Melanoma	HT-144	156	15
Neuroblastoma	NB5	66	15.5
Osteosarcoma	RG 164	439	17.7
Head and Neck Cancer	UM SCC47	302	19.8
Osteosarcoma	U2OS	90	22.5
Head and Neck Cancer	UDSCC2	178	26.9
Head and Neck Cancer	93VU147T	127	32.4
Ewings	SKES-1	146	50
Breast Carcinoma	HTB-26	76	50.2
Head and Neck Cancer	15B	305	62.8
Breast Carcinoma	MCF7	398	64.9
Cervical Cancer	HeLA	104	120.7
Melanoma	M14	57	130
Breast Carcinoma	MDA-MB-468	6	>5000
Neuroblastoma	NMB7	12	>5000
Neuroblastoma	SKNBE(2)C	8	>5000
Neuroblastoma	IMR32	6	>5000
Neuroblastoma	SKNBE(2)S	4	>5000
Neuroblastoma	SKNBE(1)N	3	>5000
Small Cell lung Cancer	NCI-H524	14	>5000
Small Cell lung Cancer	NCI-H69	10	>5000
Small Cell lung Cancer	NCI-H345	6	>5000

Fig. 20

Fig. 21A

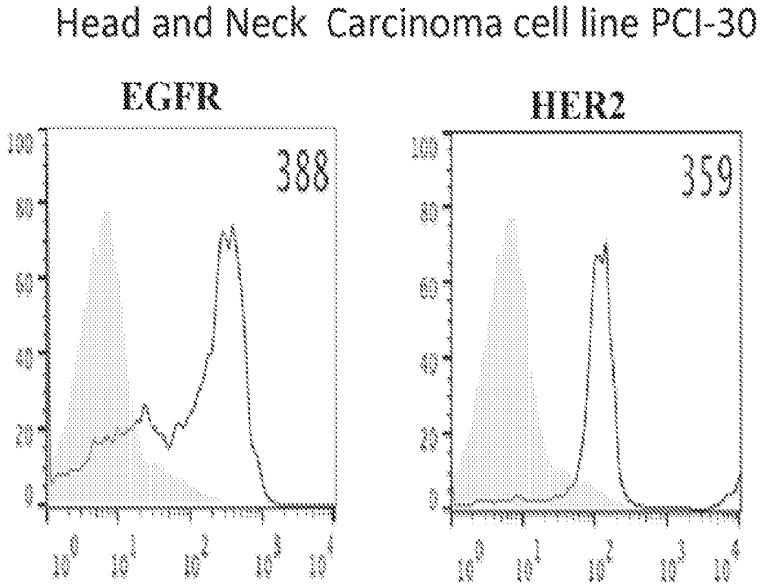


Fig. 21B

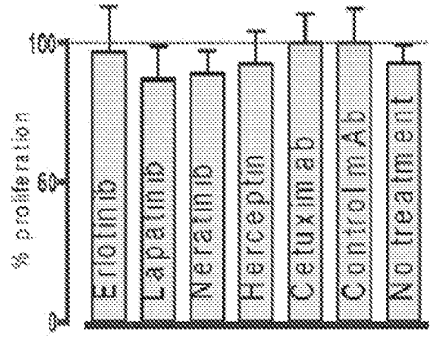


Fig. 21C

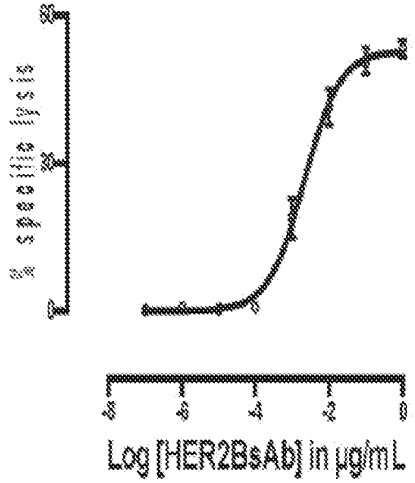


Fig. 21D

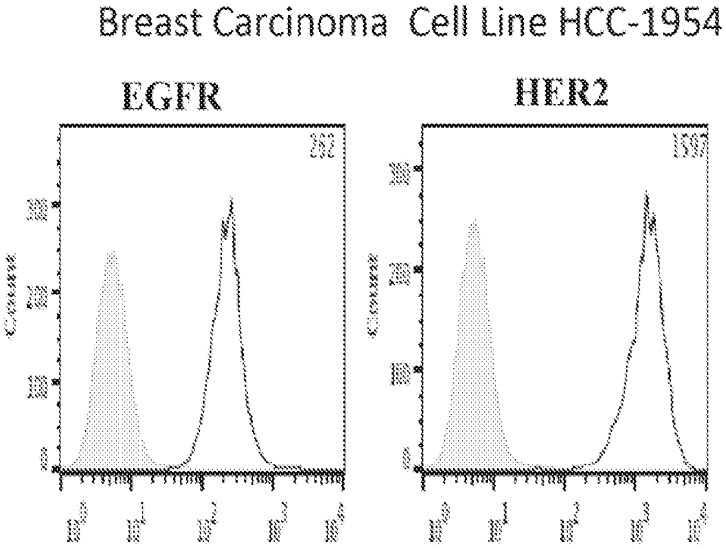


Fig. 21E

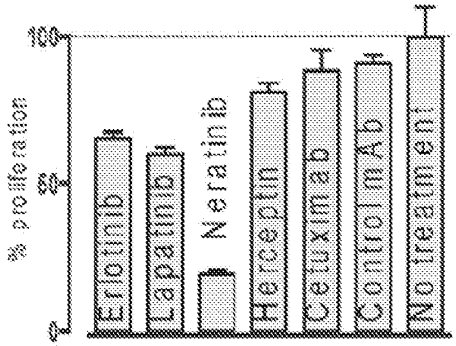


Fig. 21F

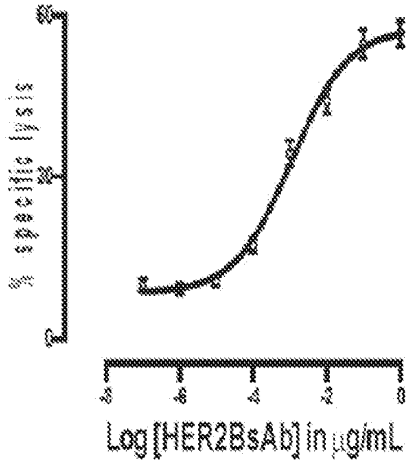


Fig. 21G

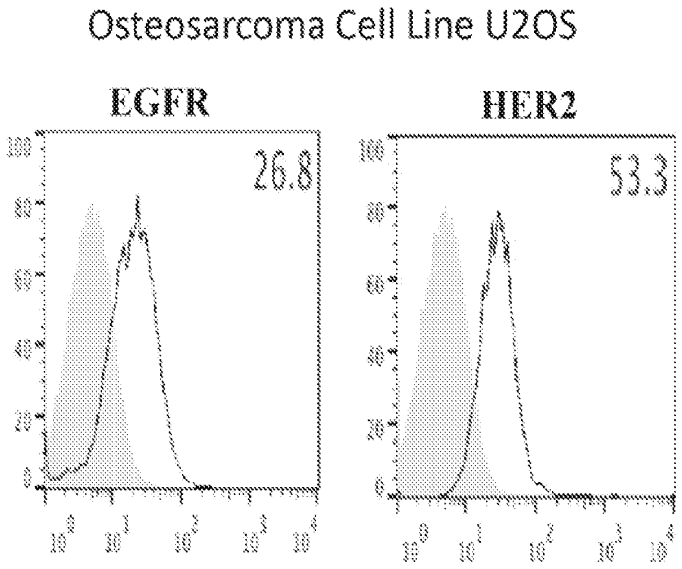


Fig. 21H

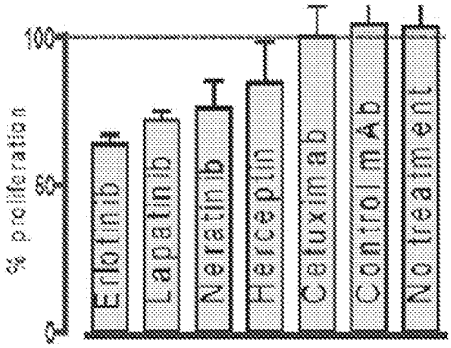
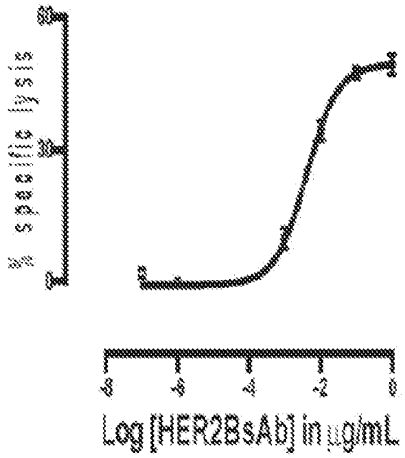


Fig. 21I



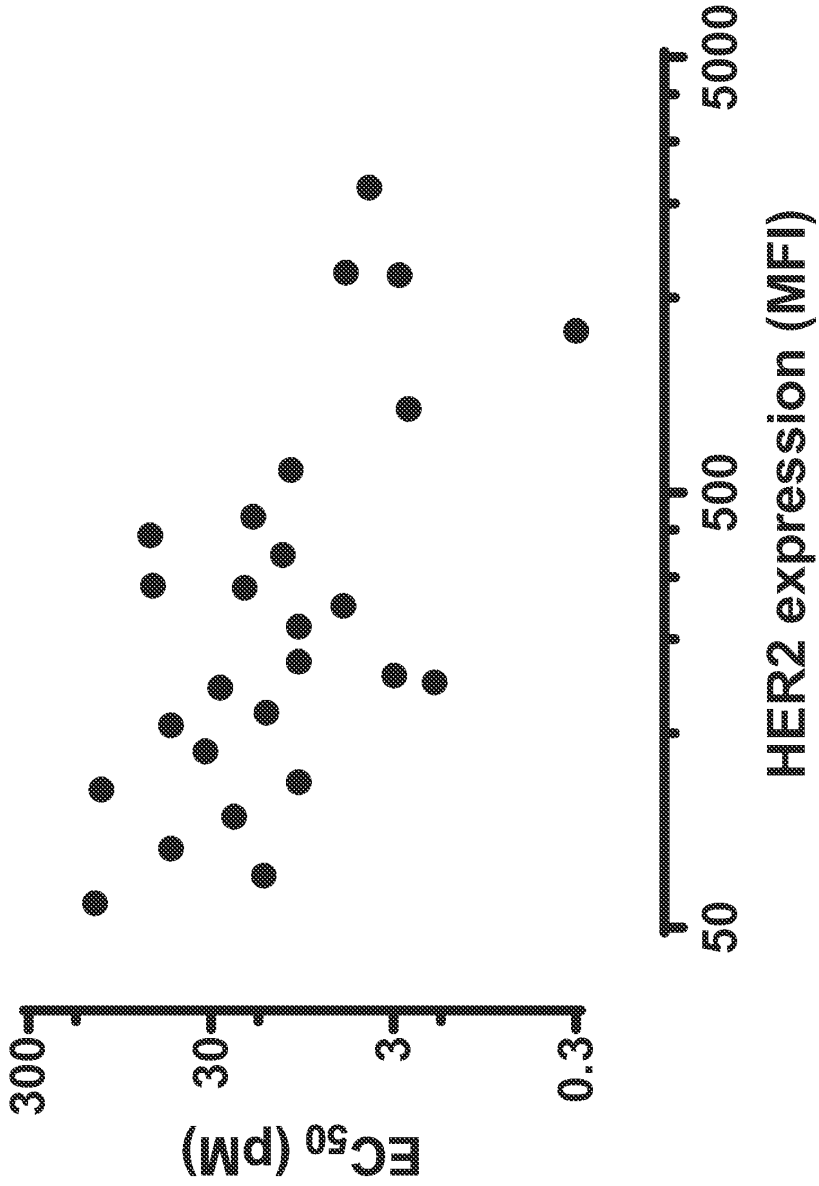


Fig. 22

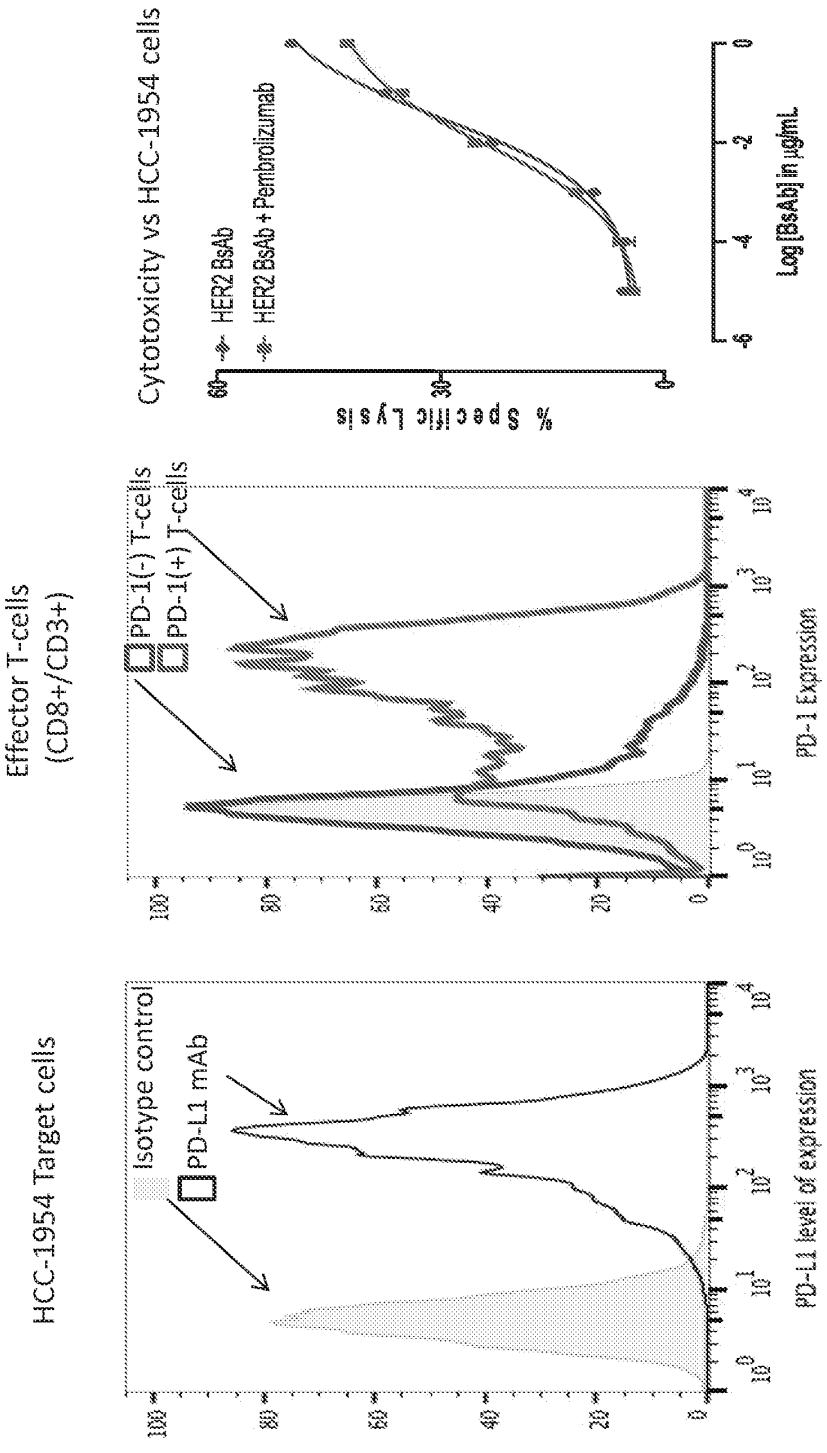


Fig. 23A

Fig. 23B

Fig. 23C

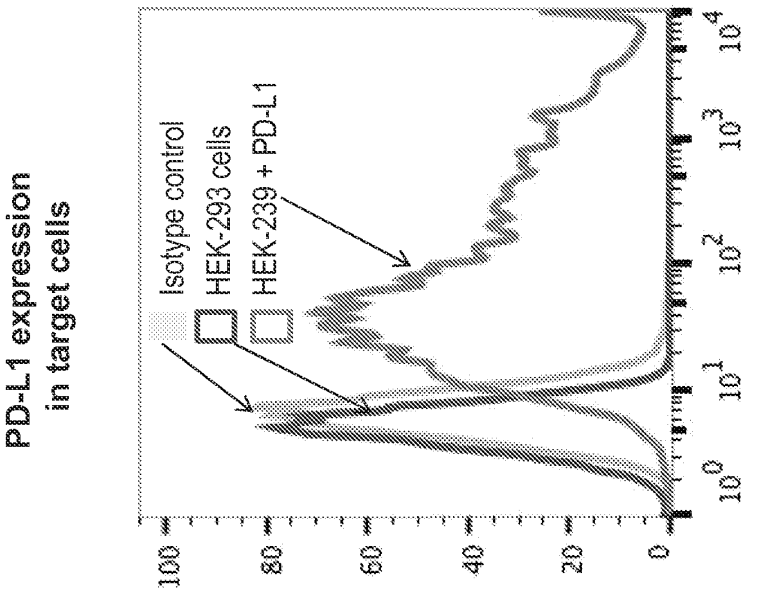


Fig. 24B

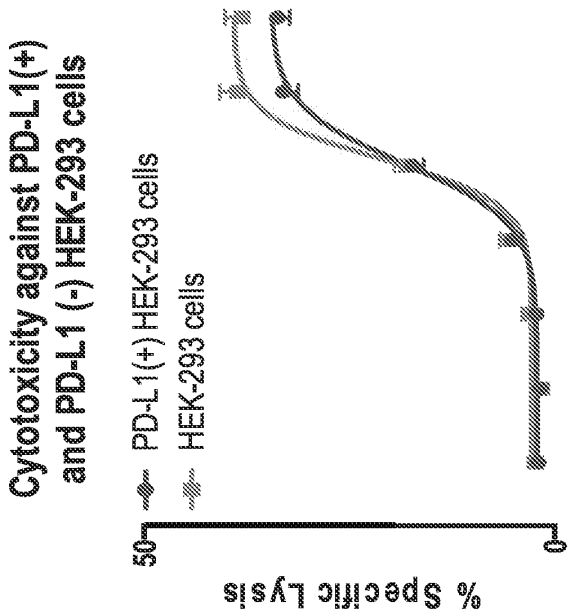


Fig. 24A

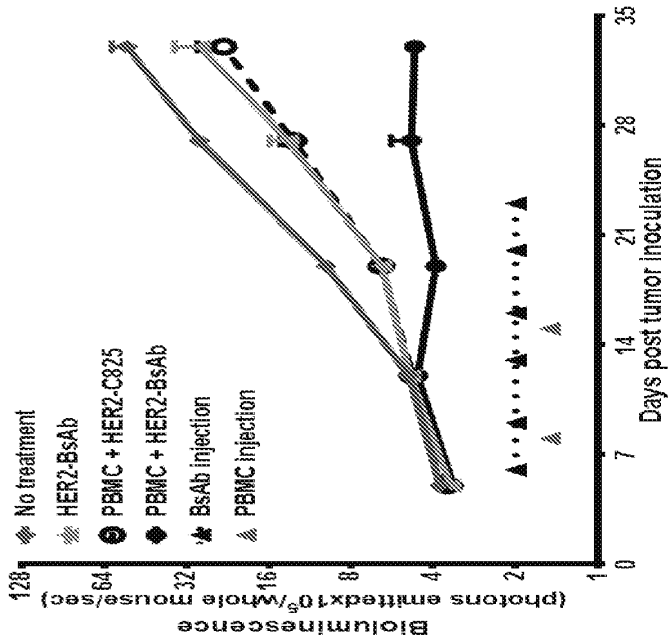


Fig. 25B

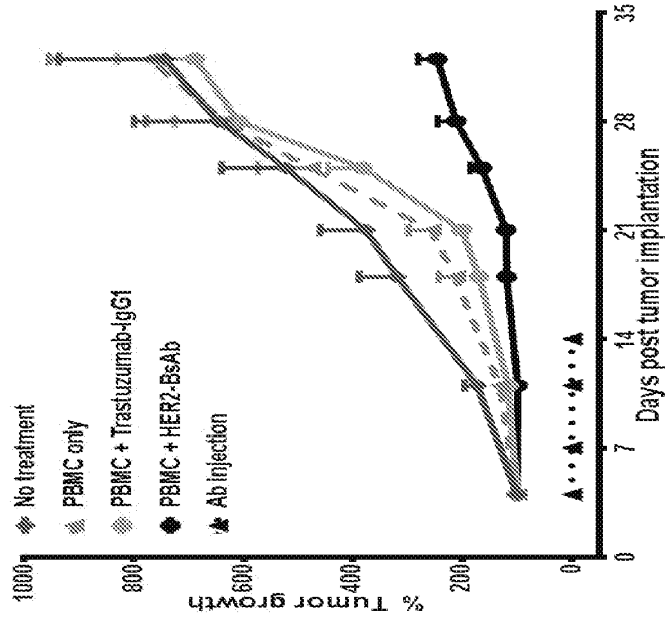


Fig. 25A

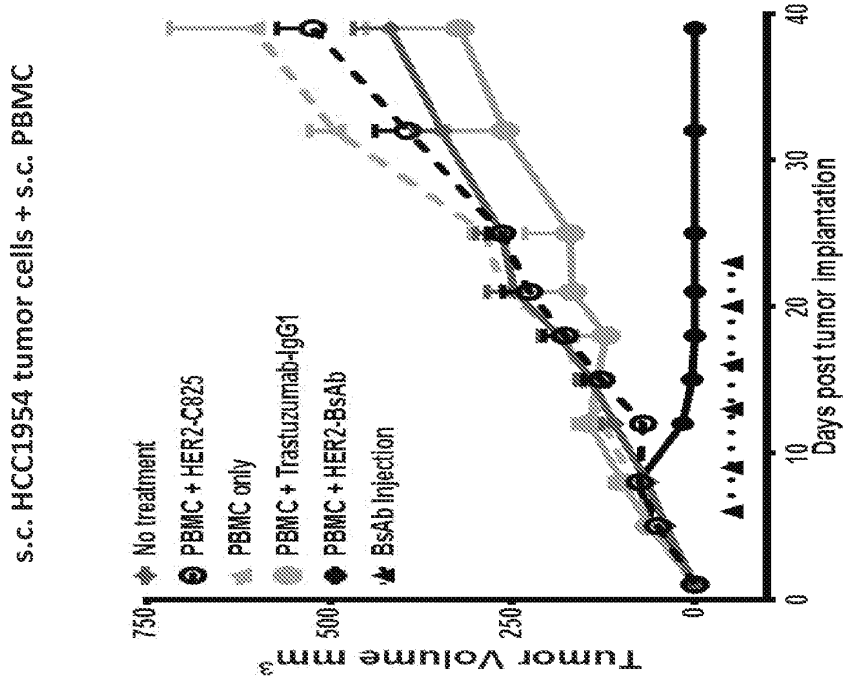


Fig. 25C

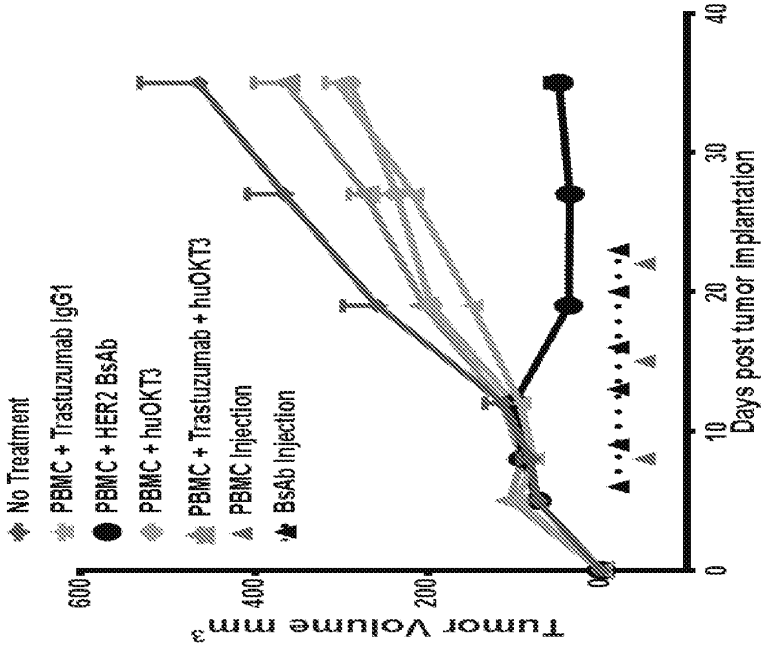


Fig. 25D