

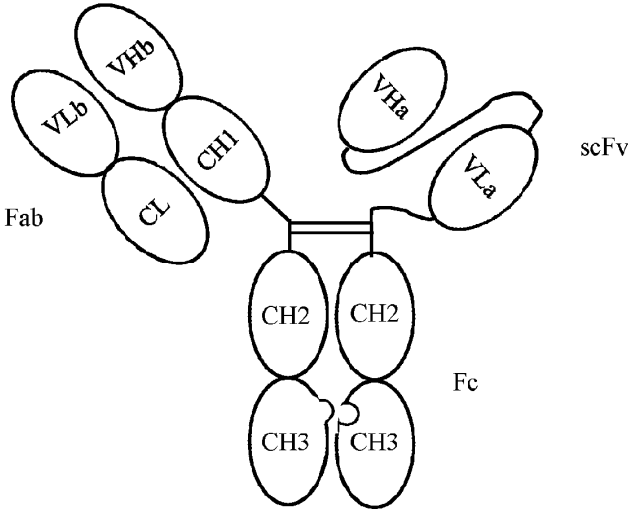


Fig. 1

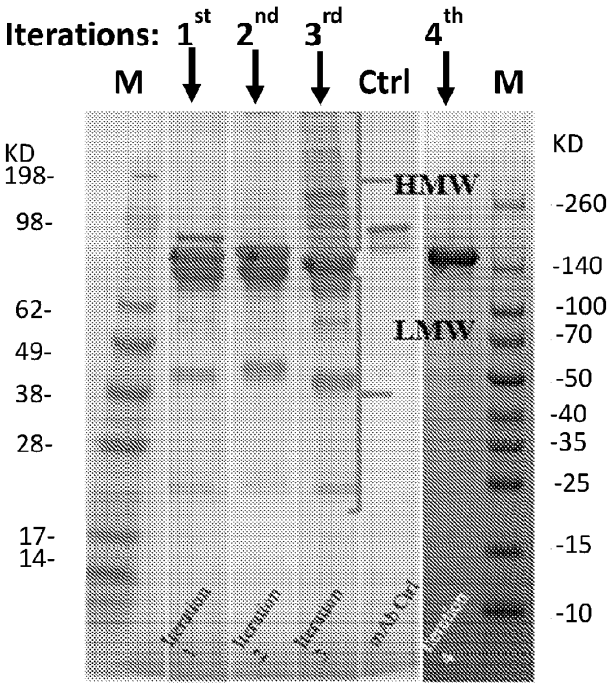


Fig. 2

ANSECLC:
NR

Post Protein A

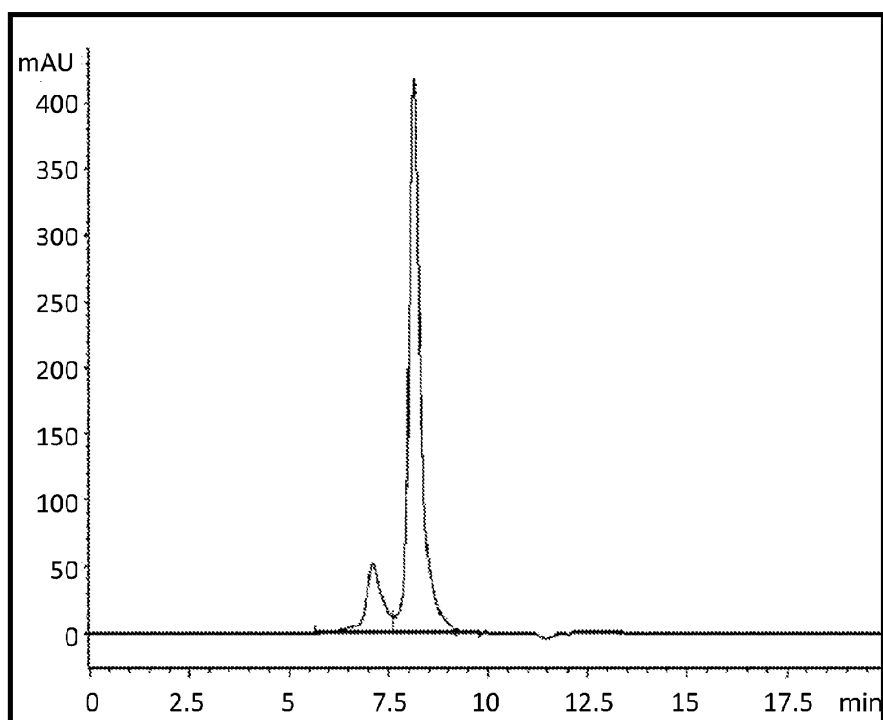
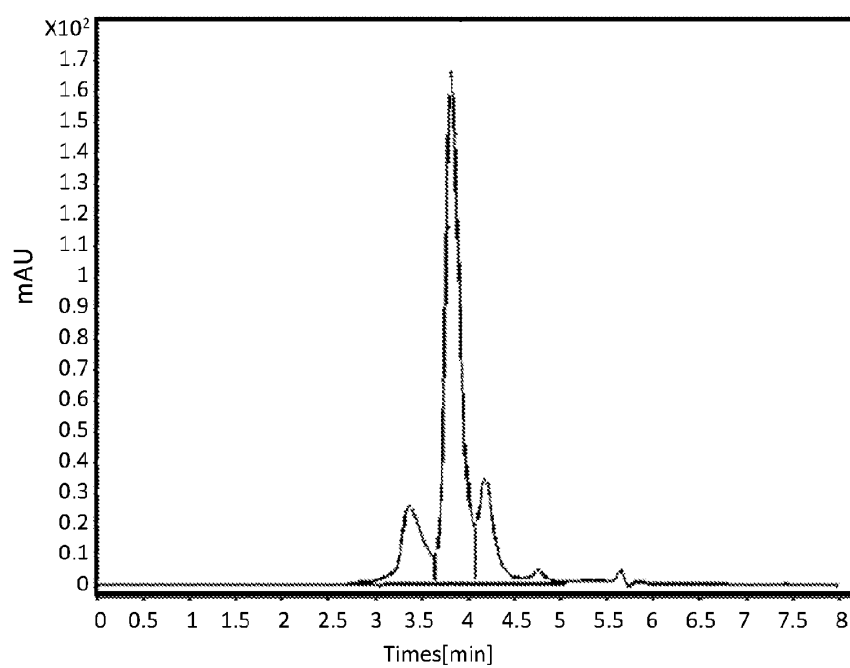


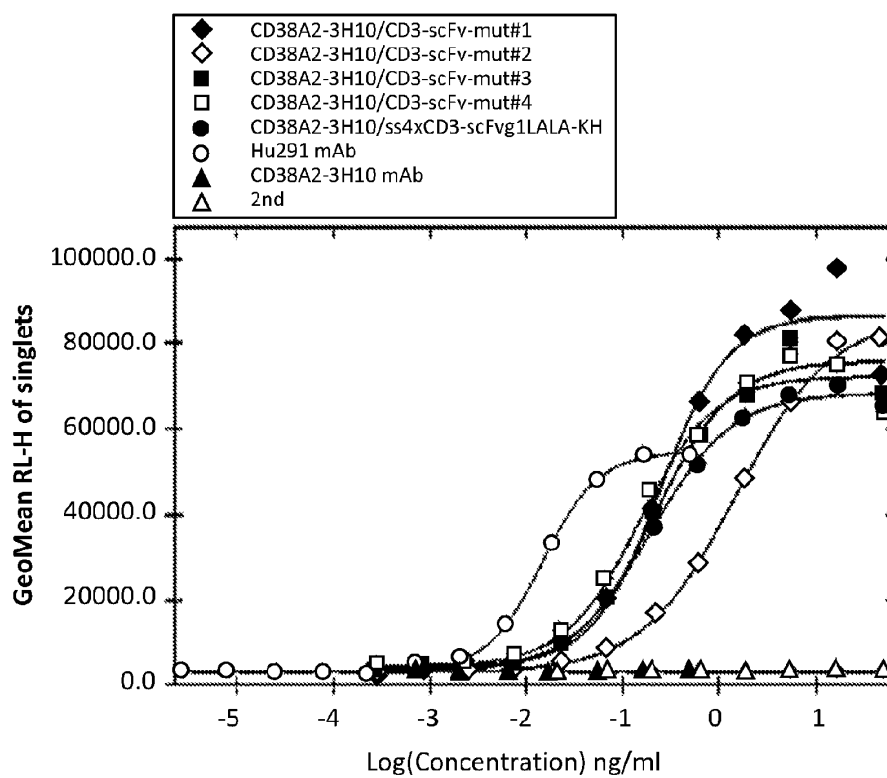
Fig. 3A

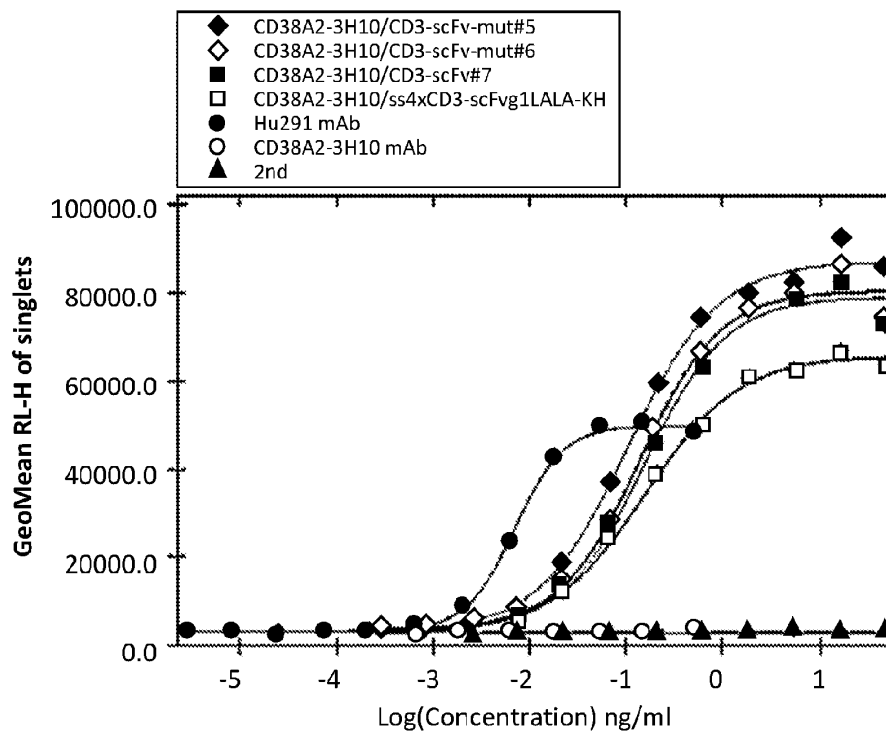
ANSECLC:

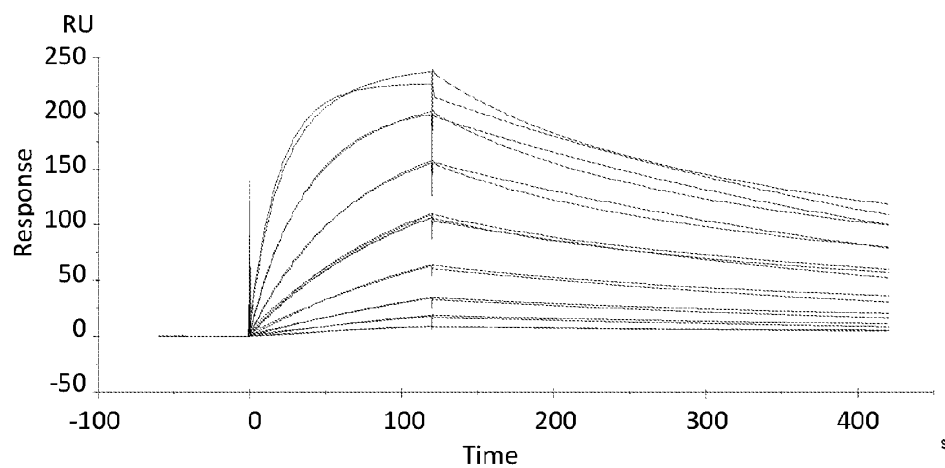
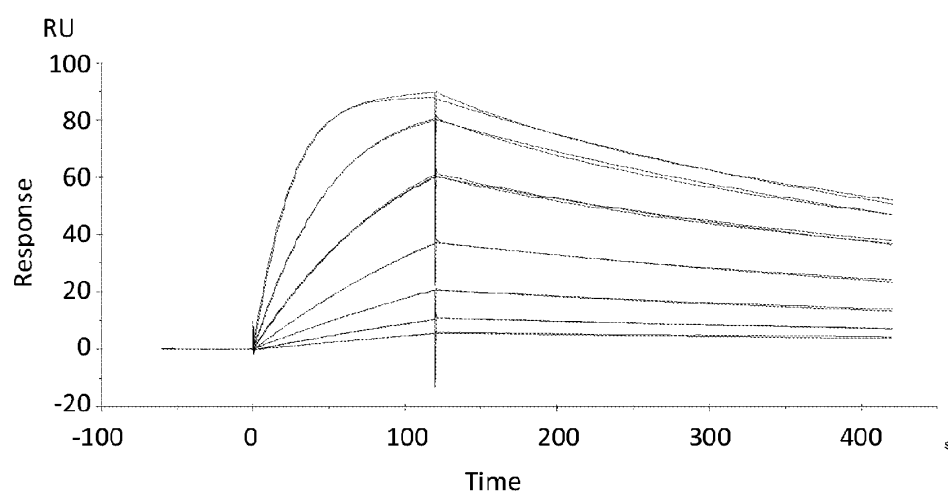
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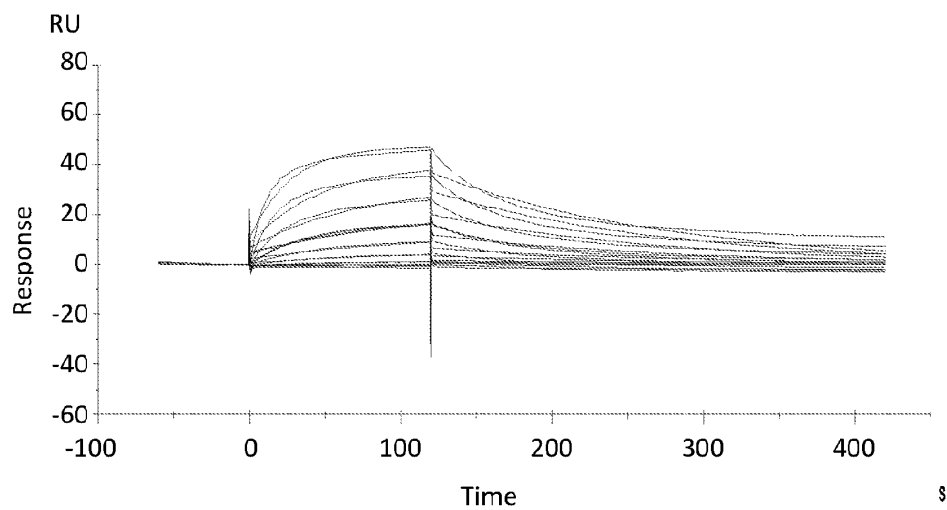
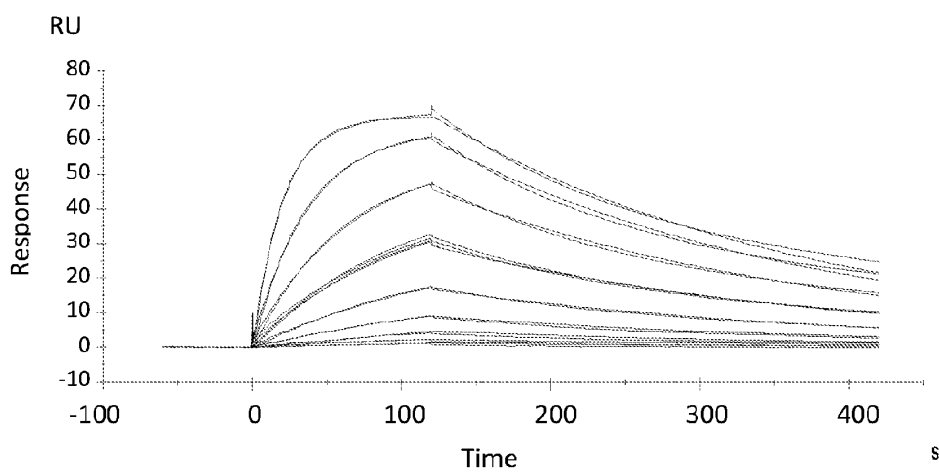
Post Protein A

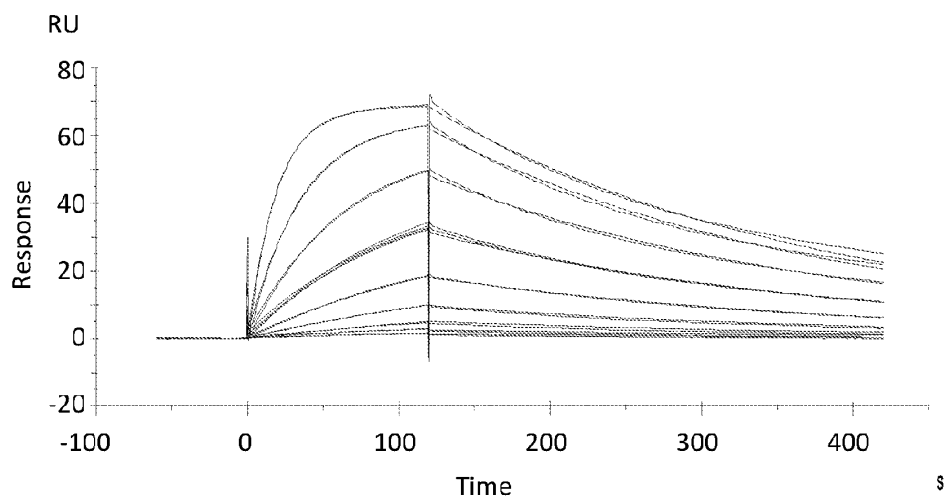
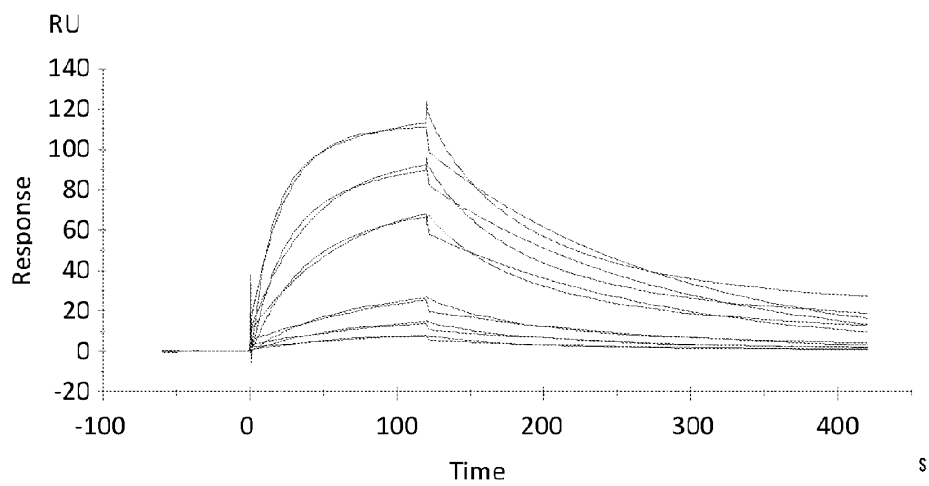
**Fig. 3B**

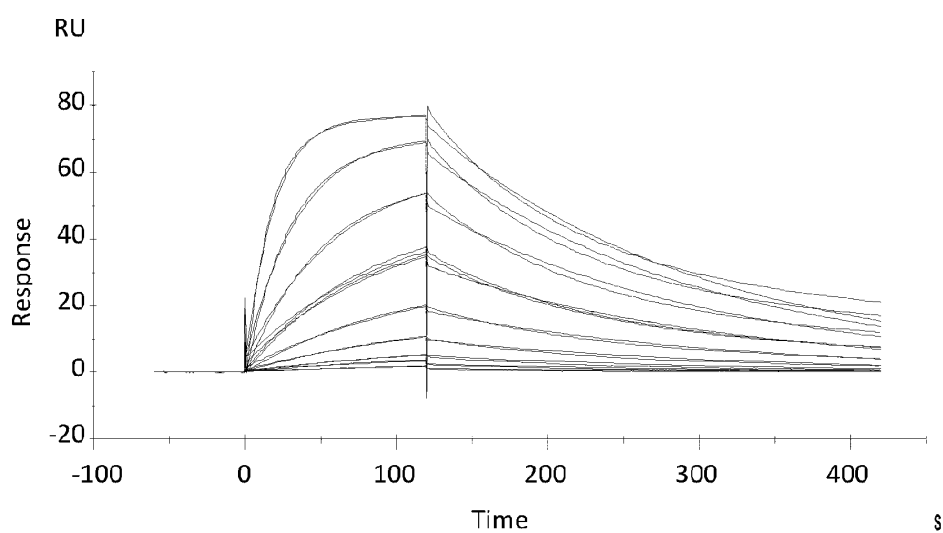
**Fig. 4A**

*Fig. 4B*

**Fig. 5A****Fig. 5B**

**Fig. 5C****Fig. 5D**

**Fig. 5E****Fig. 5F**

**Fig. 5G**

Molecules:		ka (1/Ms)	kd (1/s)	KD (M)	Rmax (RU)	Chi ² (RU ²)
Ligand:	CD38 A2/CD3 IgG-scFv	5.17E+05	6.37E-03	1.23E-08	45	3.868
Sample:	CD38					
Ligand:	CD38 A2-3H10/CD3 IgG-scFv	1.35E+06	2.03E-03	1.51E-09	92	2.937
Sample:	CD38					
Ligand:	CD38 A2-3H10m1 mAb	1.57E+06	1.60E-03	1.02E-09	169	4.554
Sample:	CD38					
Ligand:	CD38 D8/CD3 IgG-scFv	5.41E+05	1.10E-02	2.03E-08	113	3.023
Sample:	CD38					
Ligand:	CD38 D8-3A1/CD3 IgG-scFv	7.94E+05	3.93E-03	4.95E-09	73	0.434
Sample:	CD38					
Ligand:	CD38 D8-3A1/CD3 mAb	4.06E+05	3.72E-03	9.14E-09	178	15.800
Sample:	CD38					
Ligand:	CD38 D8-3E1/CD3 IgG-scFv	8.62E+05	5.65E-03	6.55E-09	82	2.135
Sample:	CD38					
Ligand:	CD38 D8-1B5/CD3 IgG-scFv	8.59E+05	3.88E-03	4.52E-09	74	1.521
Sample:	CD38					

Fig. 6

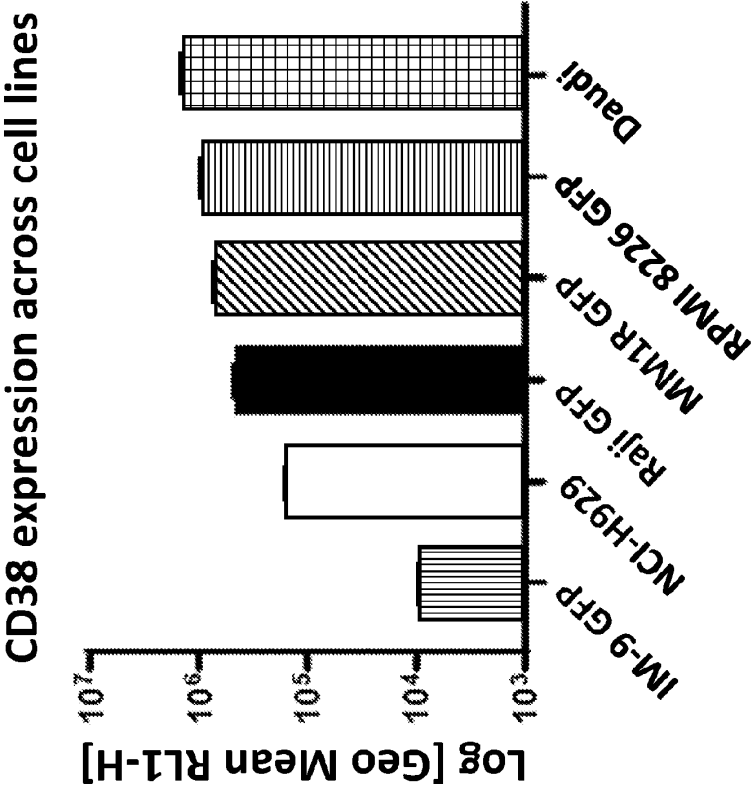


Fig. 7

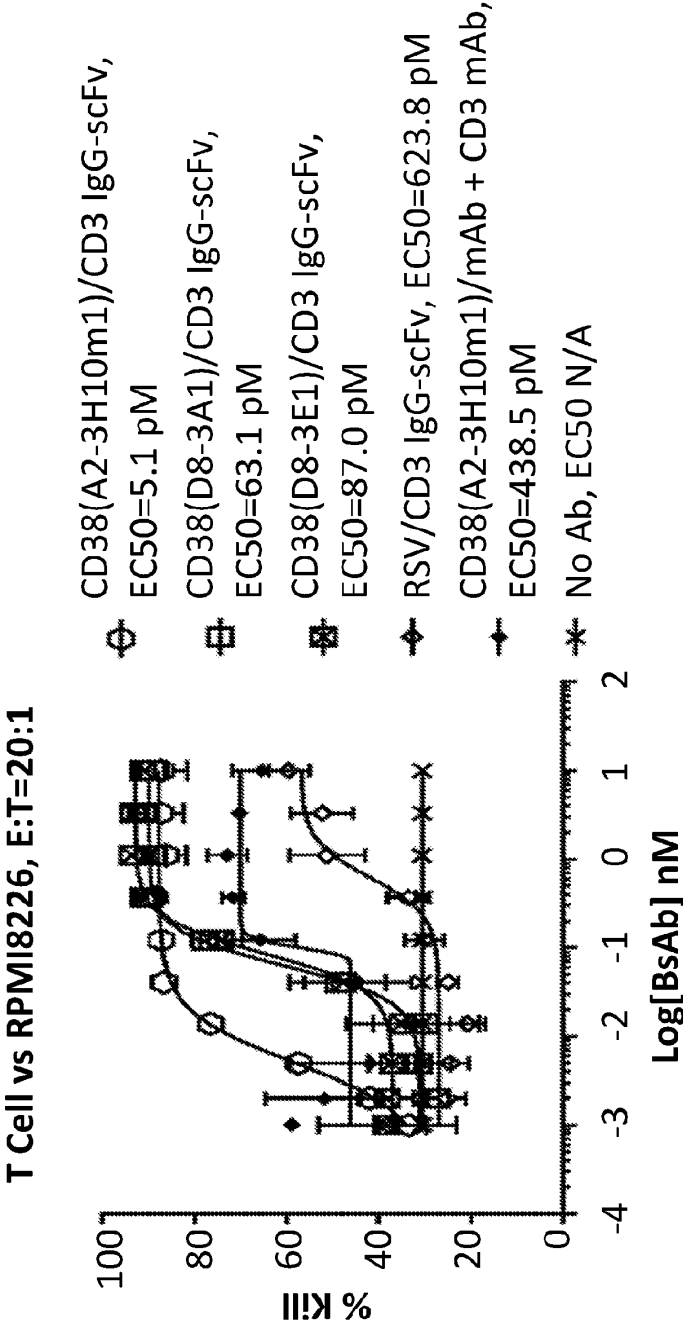


Fig. 8A

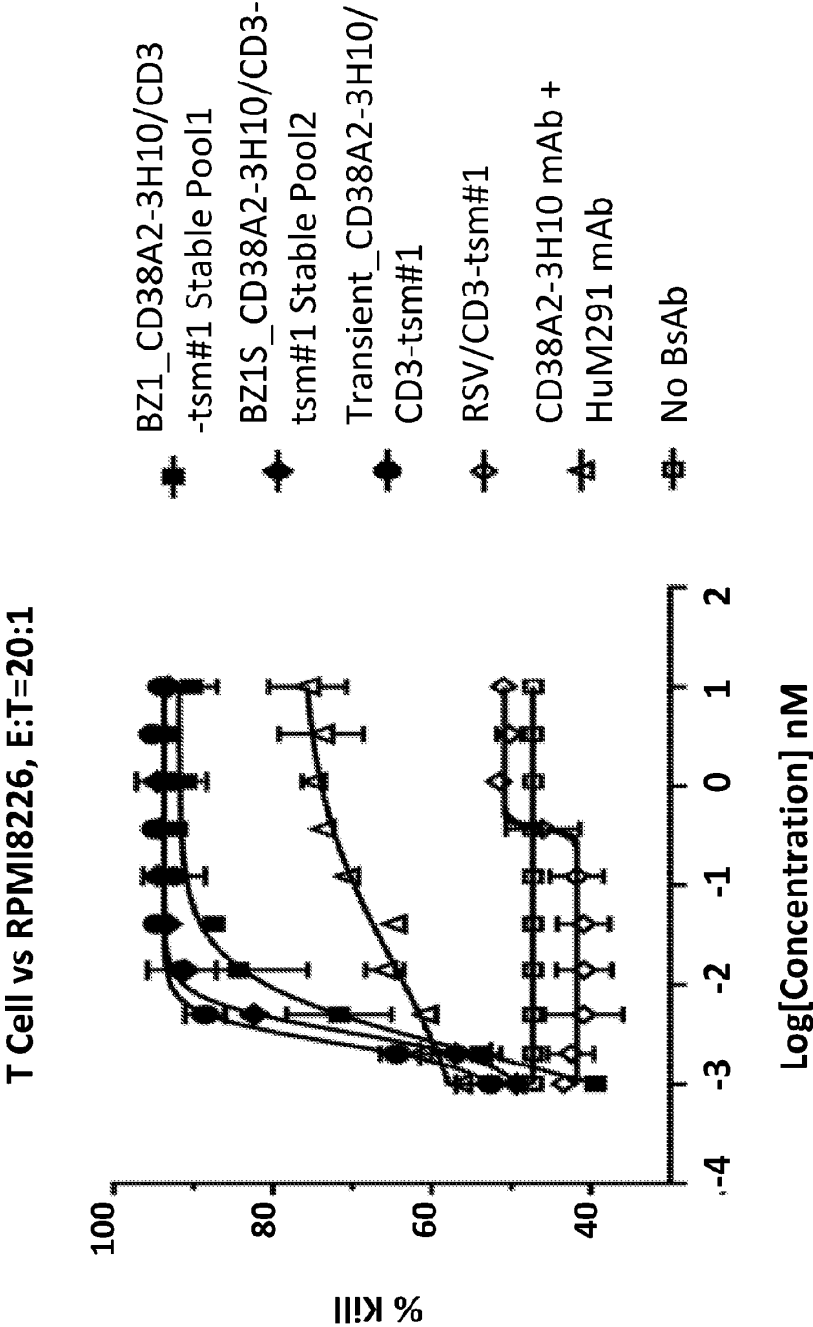


Fig. 8B

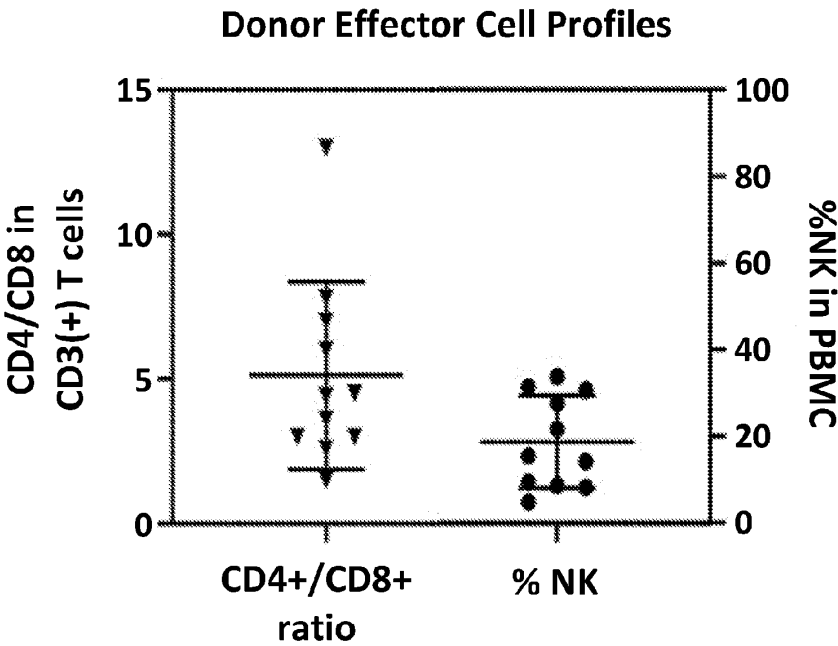


Fig. 9A

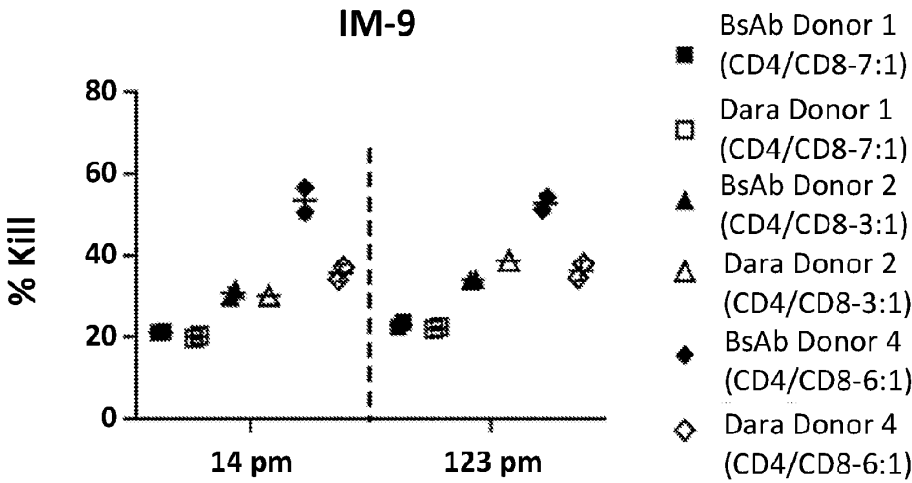


Fig. 9B

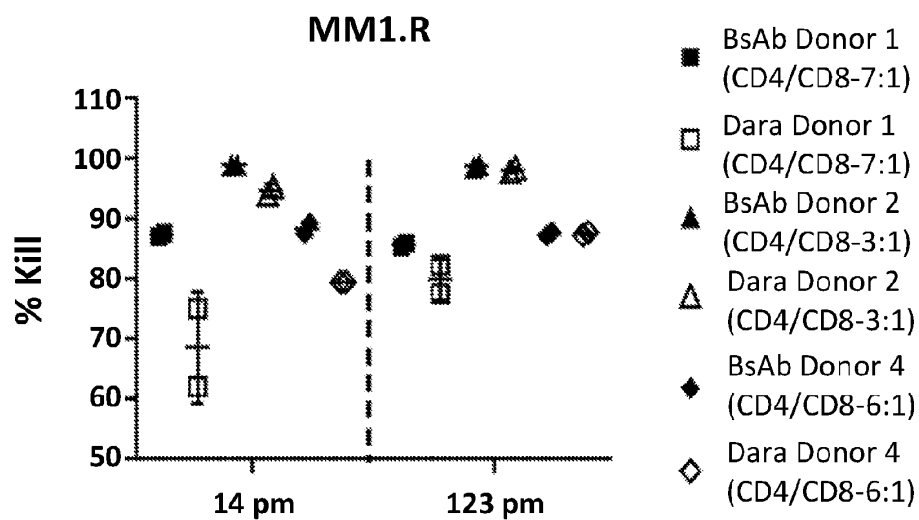


Fig. 9C

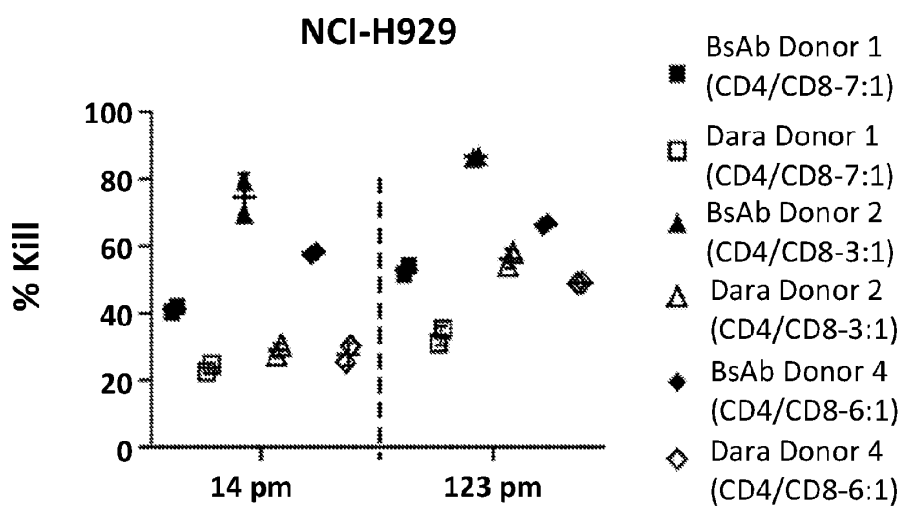


Fig. 9D

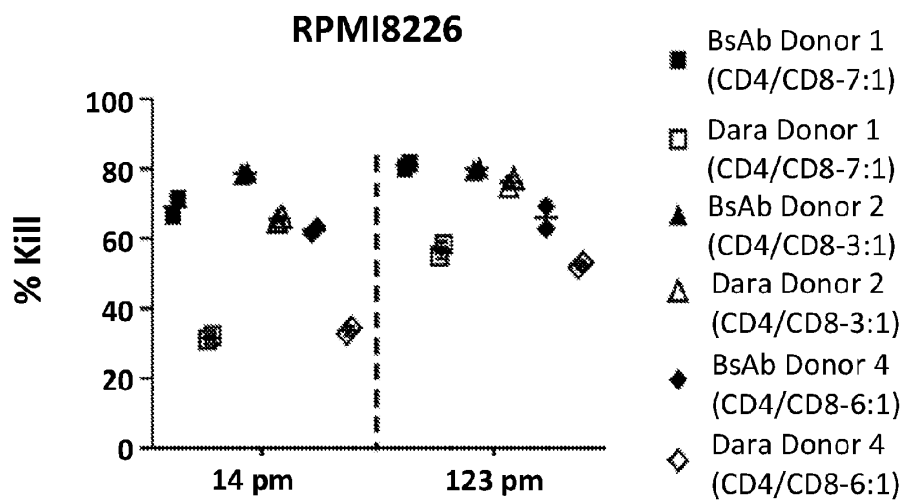


Fig. 9E

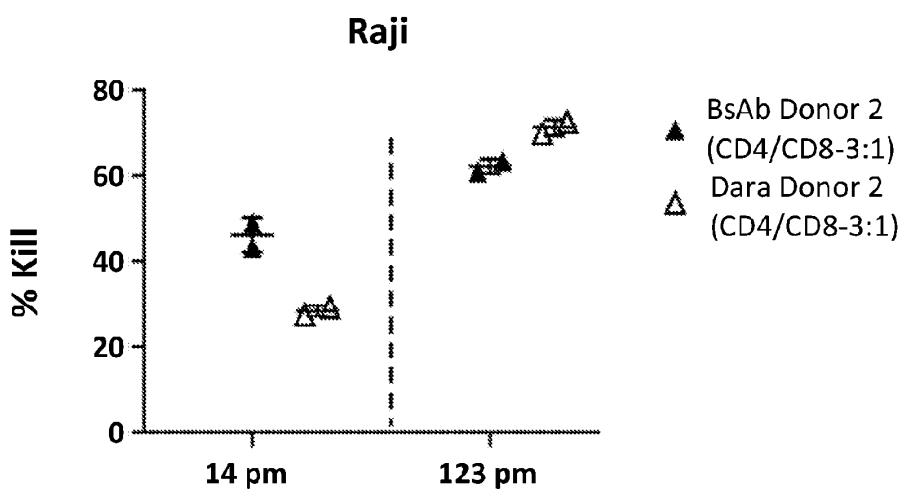


Fig. 9F

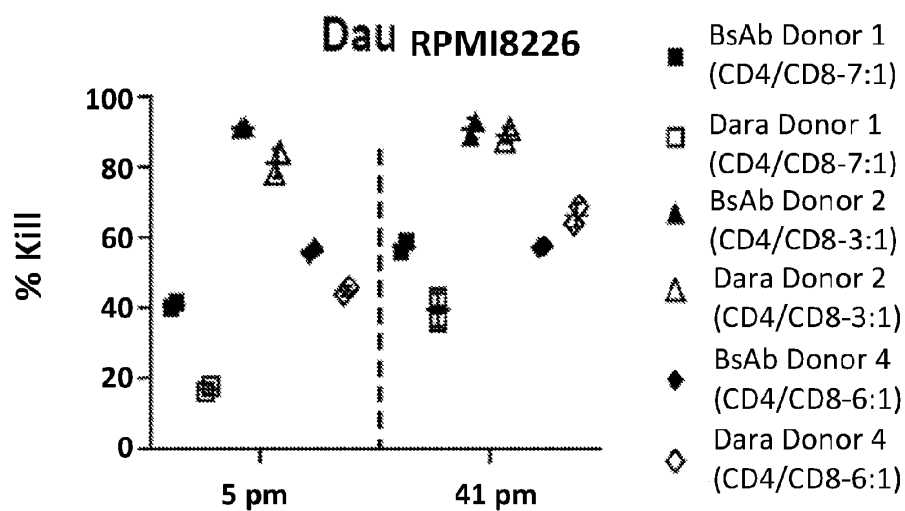


Fig. 9G

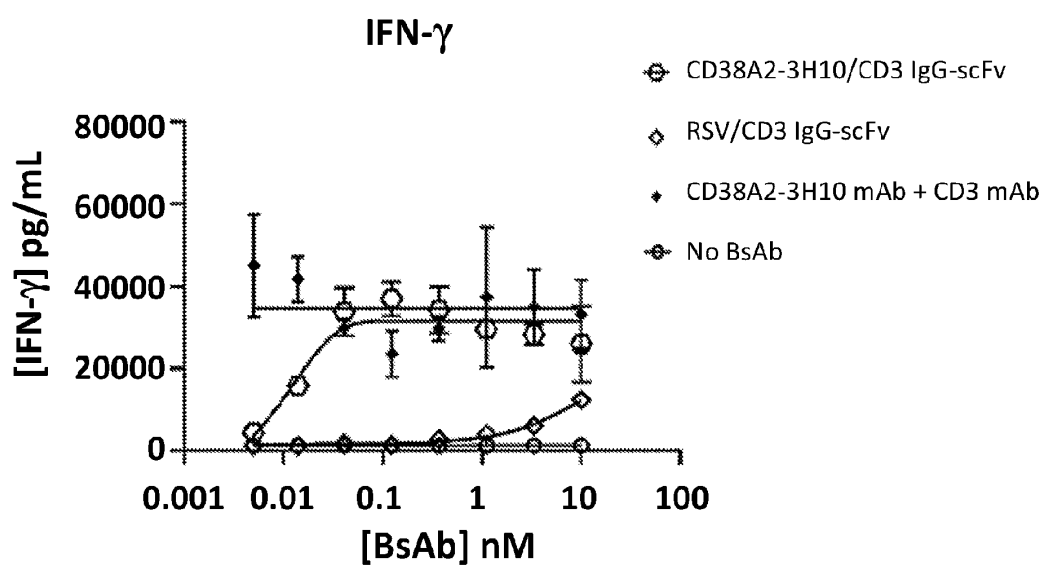


Fig. 10A

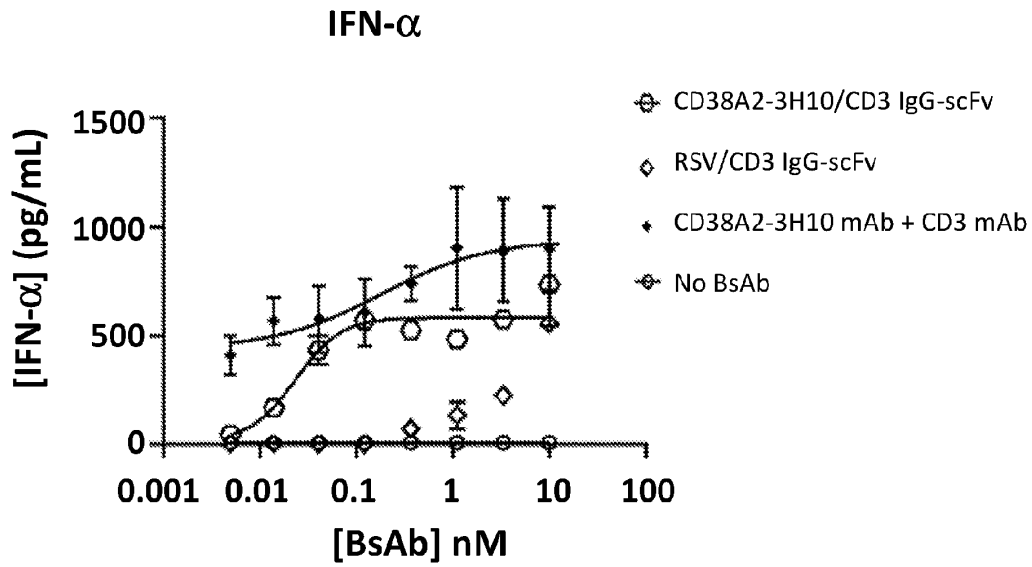


Fig. 10B

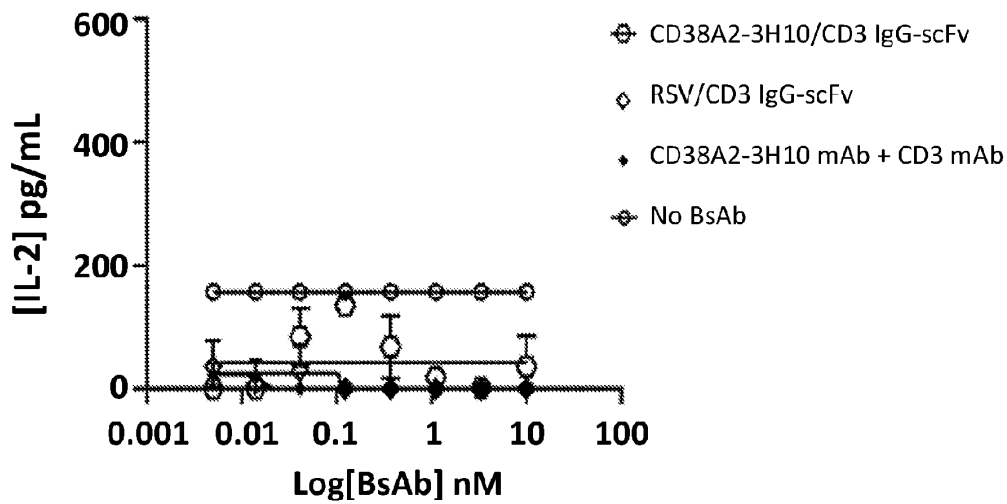


Fig. 10C

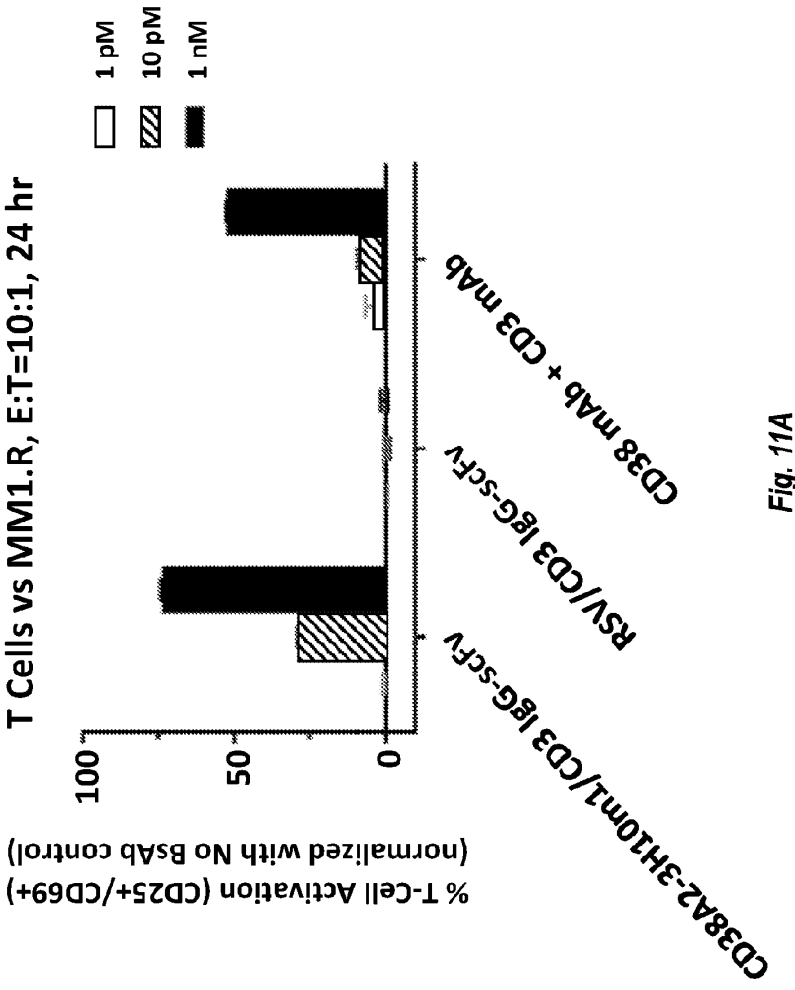


Fig. 11A

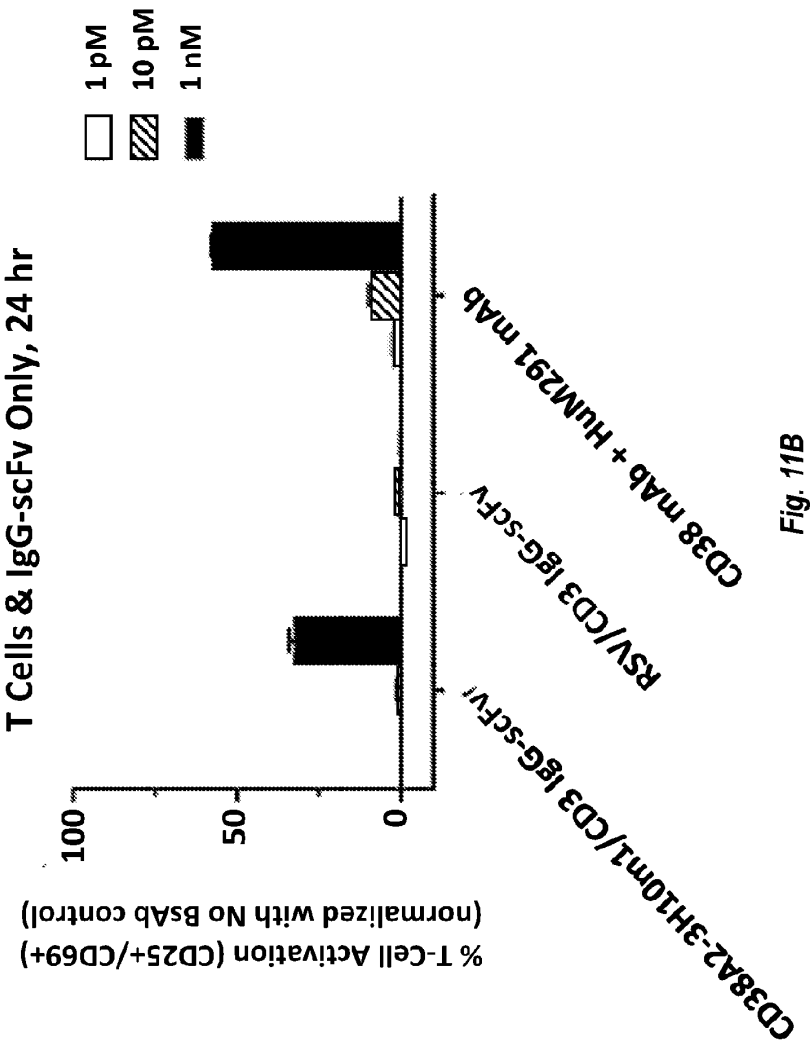


Fig. 11B

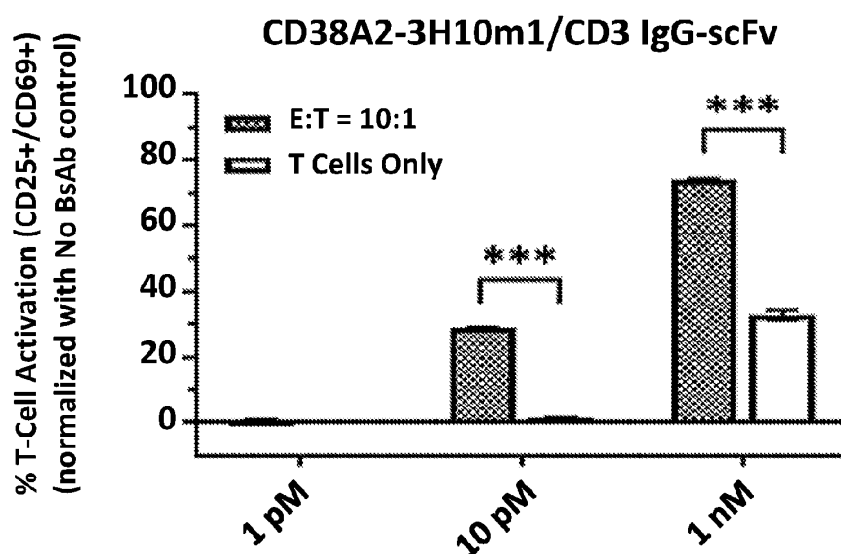


Fig. 12A

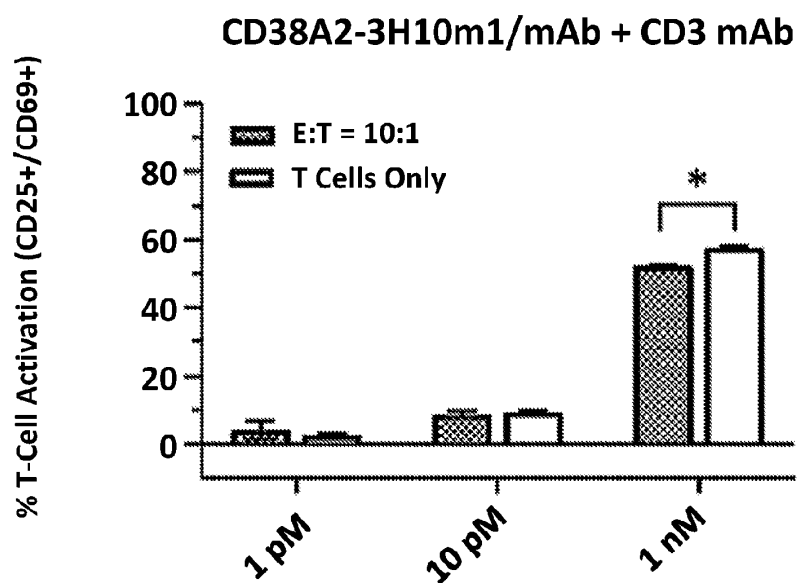


Fig. 12B

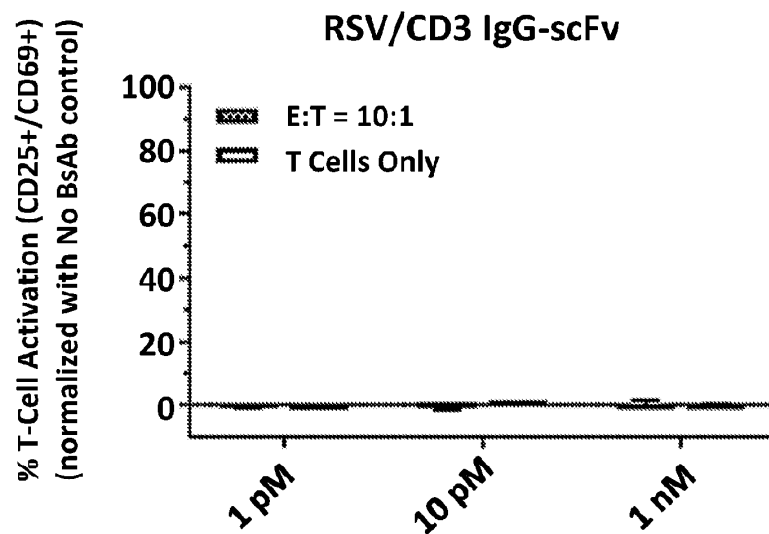
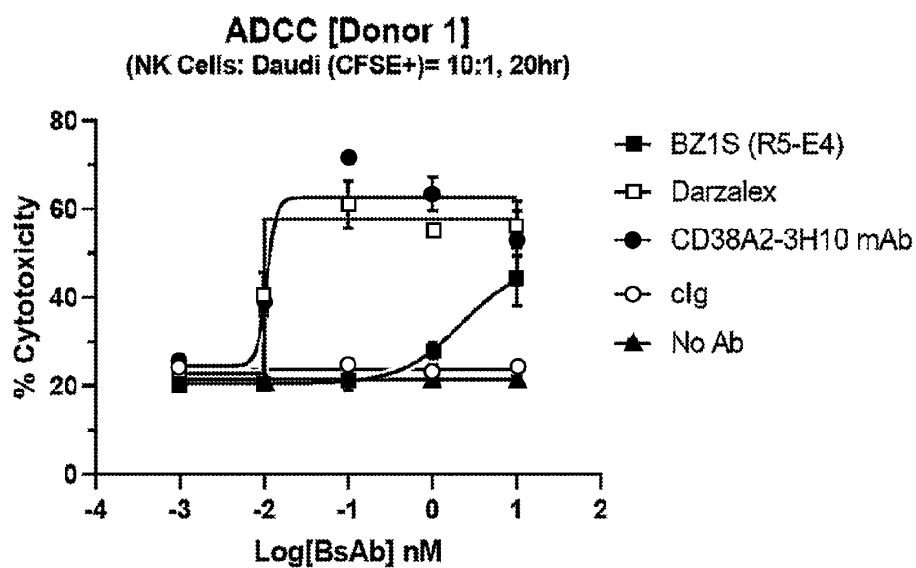
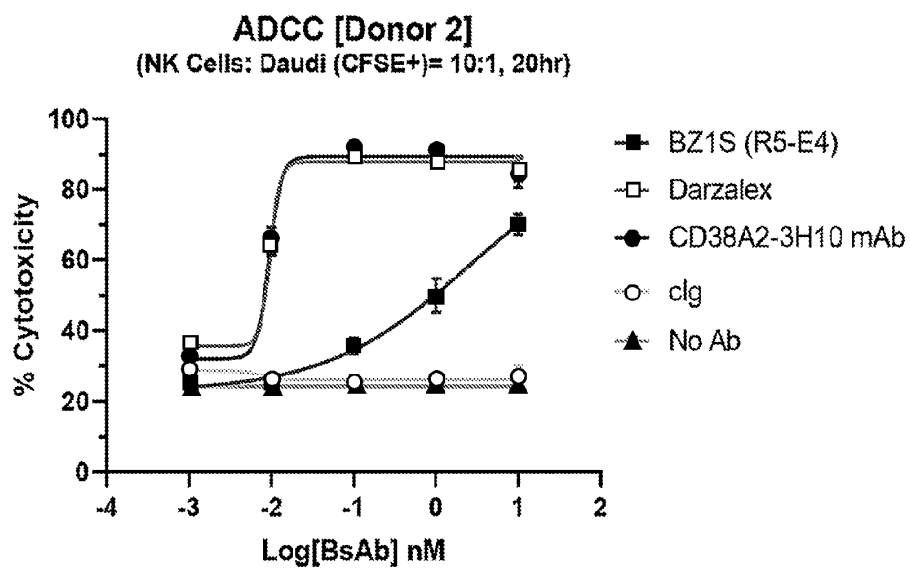


Fig. 12C



	BZ1S (R5-E4)	Daralex	CD38A2-3H10
EC50 (nM)	2.193	0.010	0.011

Fig. 13A



	BZ1S (R5-E4)	Daralex	CD38A2-3H10
EC50 (nM)	2.324	0.010	0.009

Fig. 13B

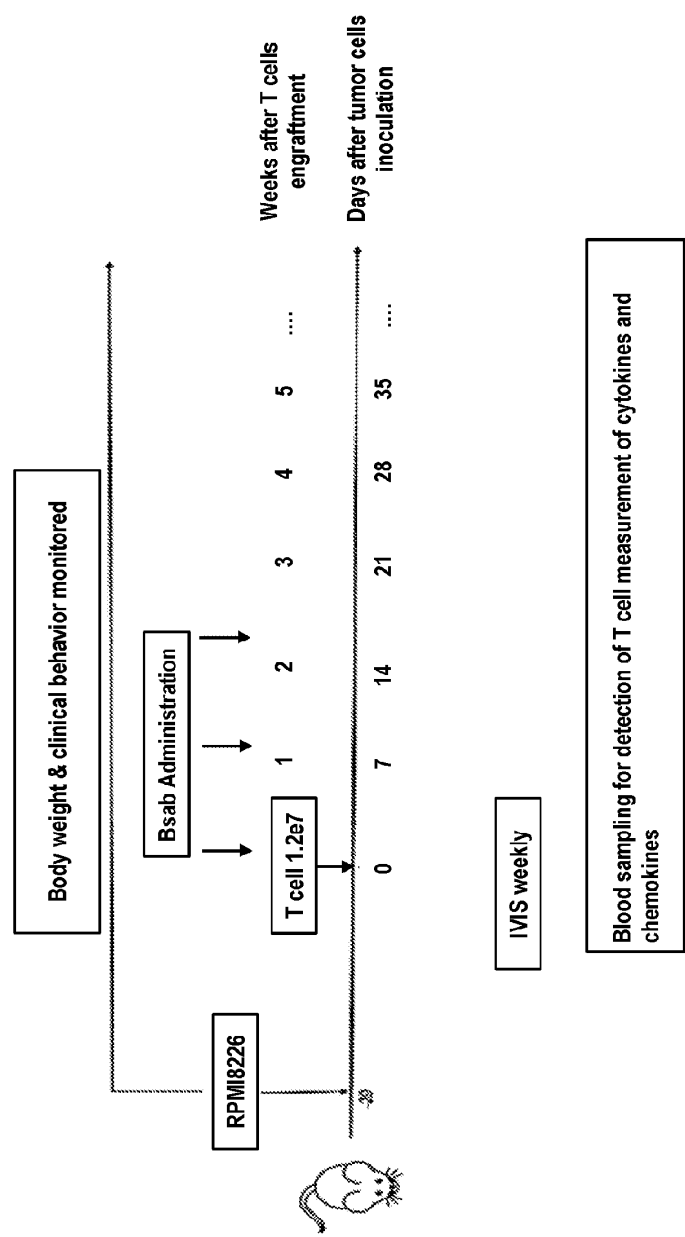


Fig. 14A

Group	Project	#	Treatment at Day 0 (29 days after tumor injection)		
			T cells amount (IV once)	Dosage of BspAb	Route & frequency
1	Untreated control	9	n/a	n/a	n/a
2	ATC	9	1.2e7	n/a	n/a
3	Control BspAb	6	1.2e7	50 ug/kg	IP, weekly x 3
4	BspAb 1	7	1.2e7	50 ug/kg	IP, weekly x 3
5	BspAb 1	7	1.2e7	5 ug/kg	IP, weekly x 3
6	BspAb 1	7	1.2e7	0.5 ug/kg	IP, weekly x 3
7	BspAb 2	7	1.2e7	50 ug/kg	IP, weekly x 3
8	BspAb 2	7	1.2e7	5 ug/kg	IP, weekly x 3
9	BspAb 2	7	1.2e7	0.5 ug/kg	IP, weekly x 3

Fig. 14B

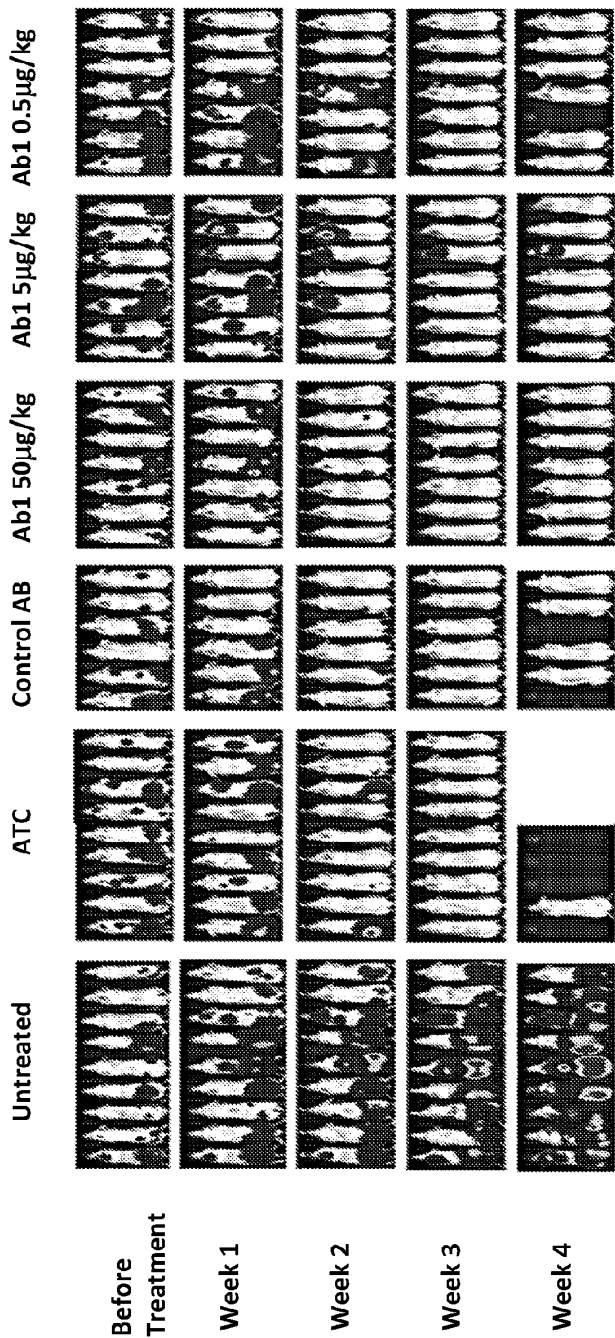
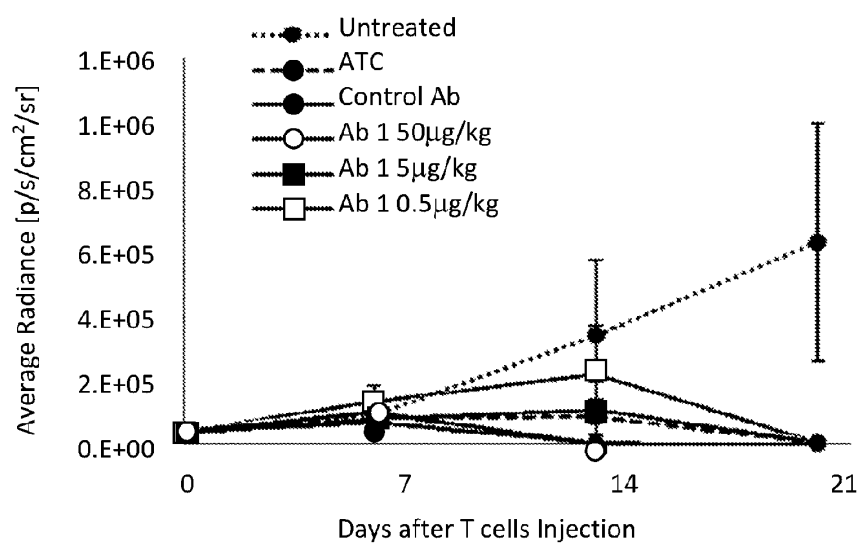
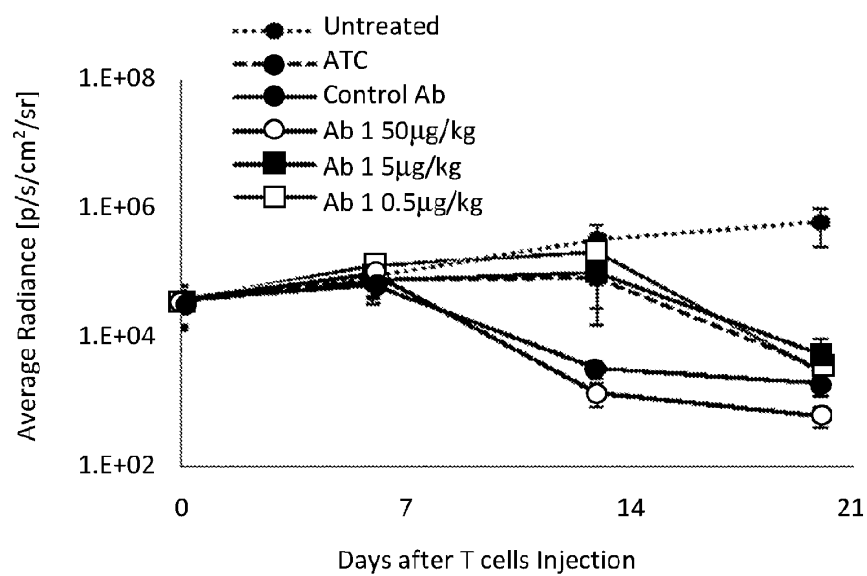


Fig. 14C

**Fig. 14D****Fig. 14E**

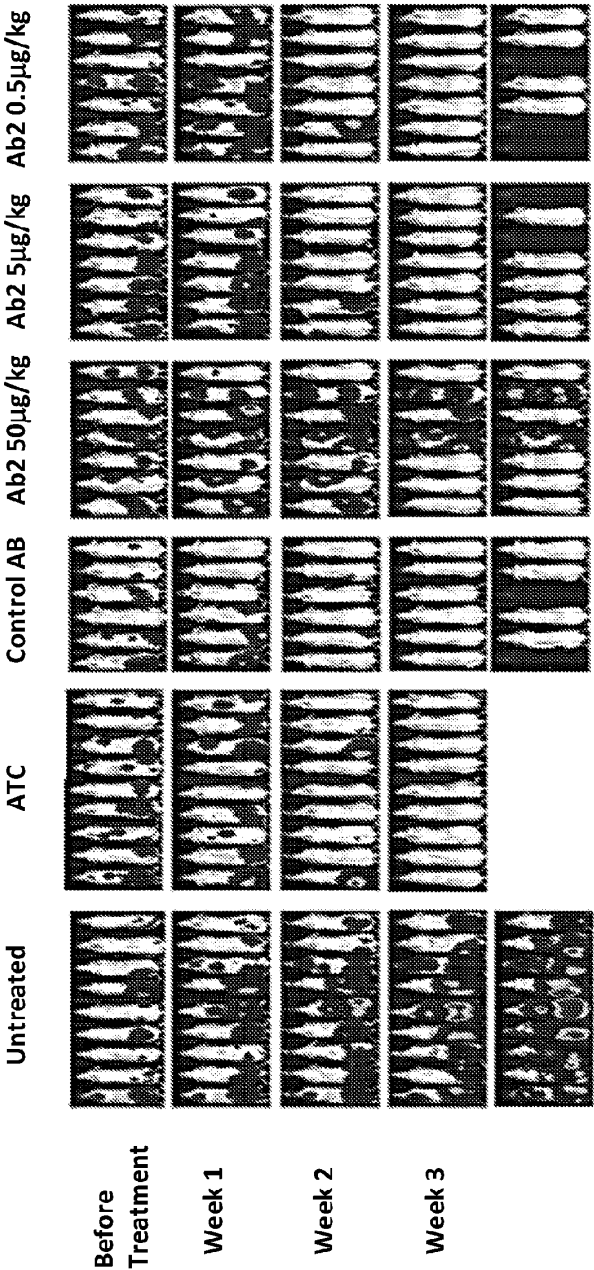


Fig. 15A

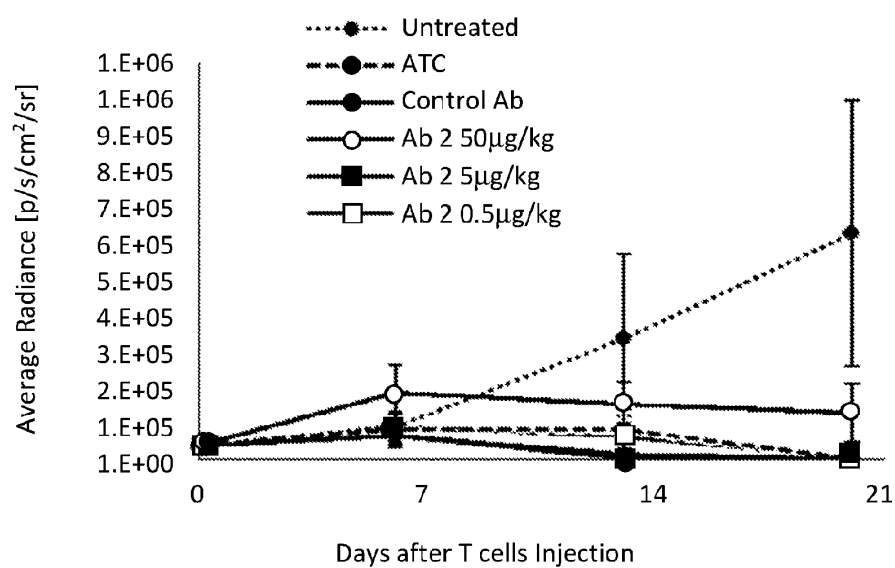


Fig. 15B

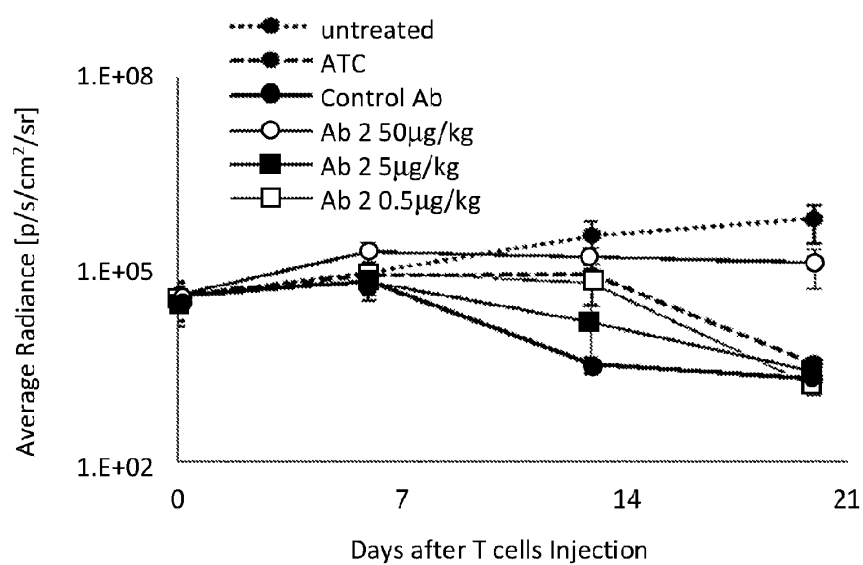


Fig. 15C

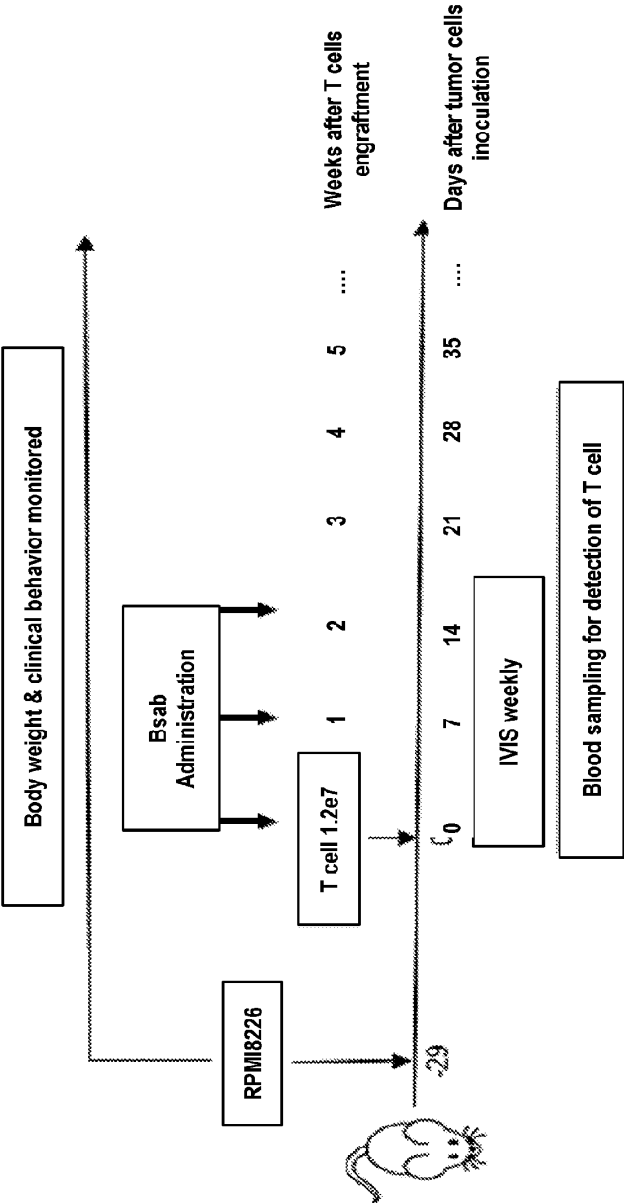


Fig. 16A

Group	Mice		1.2e7/mouse ATC @ Day 0, Iv; Bsab from Day 1		
			T cells amount (Iv once)	Dosage of Bsab	given route & frequency of Bsab
1	7	Untreated control	n/a	n/a	n/a
2	9	ATC Control	1.2e7	n/a	n/a
3	6	RSVxCD3	1.2e7	50 ug/kg	IP, weekly x 3
4	7	CD38A2xCD3 H	1.2e7	50 ug/kg	IP, weekly x 3
5	7	CD38A2xCD3 M	1.2e7	5 ug/kg	IP, weekly x 3
6	7	CD38A2xCD3 L	1.2e7	0.5 ug/kg	IP, weekly x 3
7	7	CD38D8xCD3 H	1.2e7	50 ug/kg	IP, weekly x 3
8	7	CD38D8xCD3 M	1.2e7	5 ug/kg	IP, weekly x 3
9	7	CD38D8xCD3 L	1.2e7	0.5 ug/kg	IP, weekly x 3

Fig. 16B



Fig. 16C

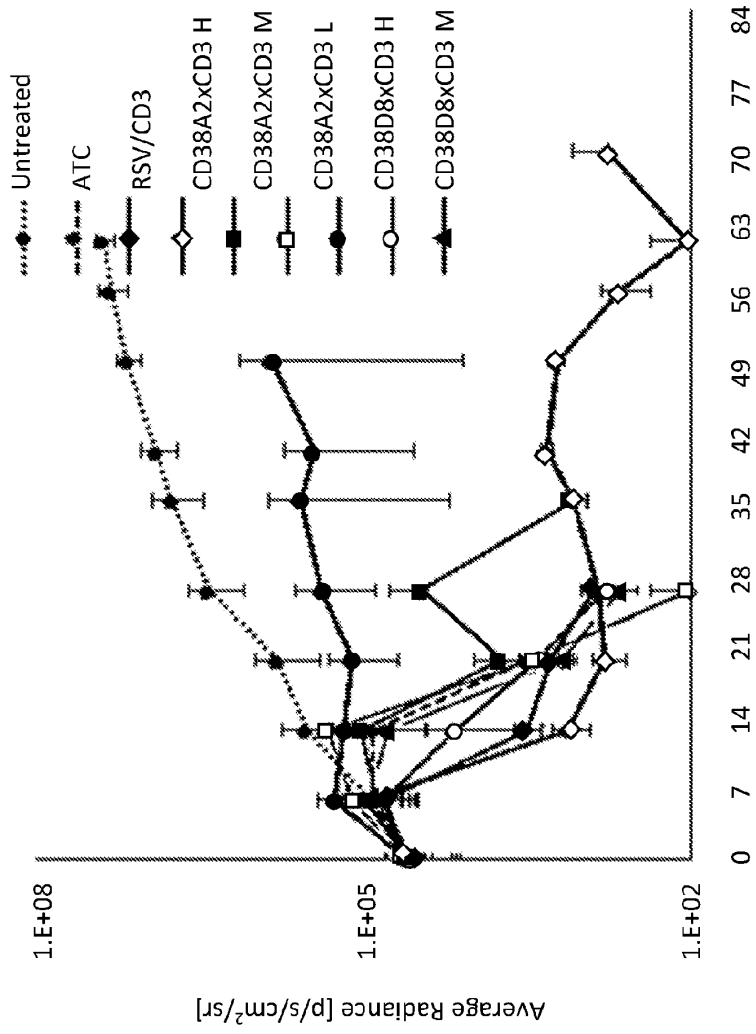


Fig. 16D

Days after treatment	Pre	1 week	2 week	3 week	4 week	5 week	6 week	7 week	8 week	9 week	10 week
Unrelated	0	6	13	20	27	36	41	50	57	62	71
ATC	3.94E+04	8.80E+04	3.36E+05	6.28E+05	2.68E+06	5.78E+06	8.15E+06	1.48E+07	2.12E+07	2.43E+07	
RSV/CD3	3.81E+04	8.25E+04	8.37E+04	3.37E+03							
CD38A2xCD3 H	3.88E+04	6.70E+04	3.29E+03	1.93E+03	7.71E+02						
CD38A2xCD3 M	3.91E+04	9.71E+04	1.37E+03	6.07E+02	7.17E+02	1.19E+03	2.13E+03	1.69E+03	4.55E+02	1.07E+02	5.89E+02
CD38A2xCD3 L	3.78E+04	7.64E+04	1.06E+03	5.45E+03	2.95E+04	1.19E+03	2.13E+03	1.69E+03			
CD38A2xCD3 H	3.94E+04	1.30E+05	2.16E+05	2.86E+03	1.00E+02						
CD38D8xCD3 H	3.92E+04	1.86E+05	1.55E+06	1.29E+05	2.48E+05	3.82E+05	2.89E+05	7.04E+05			
CD38D8xCD3 M	3.93E+04	6.64E+04	1.48E+04	2.58E+03	6.16E+02						
CD38D8xCD3 L	3.96E+04	9.04E+04	6.05E+04	1.15E+03	4.54E+02						
Std. Error of Mean											
Unrelated	2.66E+04	4.36E+04	2.35E+05	3.71E+05	1.39E+06	2.18E+06	2.85E+06	3.89E+06	6.45E+06	4.41E+06	
ATC	1.44E+04	4.32E+04	5.55E+04	4.72E+02							
RSV/CD3	2.34E+04	3.47E+04	9.21E+02	2.94E+02	2.56E+02						
CD38A2xCD3 H	2.46E+04	6.40E+04	5.37E+02	2.09E+02	9.47E+01	3.01E+02	2.41E+02	2.12E+02	2.25E+02	1.27E+02	6.23E+02
CD38A2xCD3 M	1.35E+04	4.19E+04	9.00E+04	4.20E+03	2.98E+04	2.58E+02					
CD38A2xCD3 L	1.16E+04	5.14E+04	1.51E+05	3.36E+02	1.38E+02						
CD38D8xCD3 H	9.60E+03	7.74E+04	5.99E+04	8.04E+04	1.71E+05	3.66E+05	2.53E+05	6.92E+05			
CD38D8xCD3 M	9.24E+03	1.99E+04	1.14E+04	6.90E+02	9.89E+01						
CD38D8xCD3 L	8.52E+03	2.36E+02	5.82E+04	4.05E+02	1.43E+02						

Fig. 16E

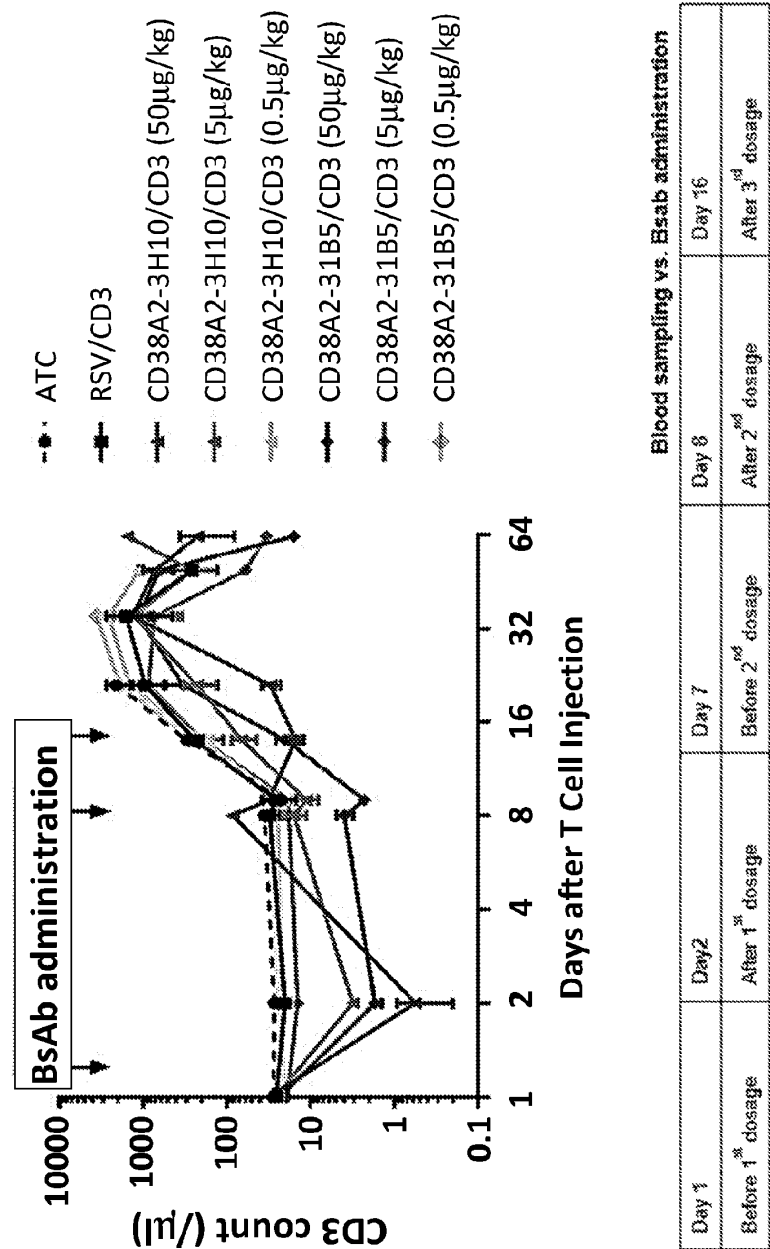


Fig. 16F

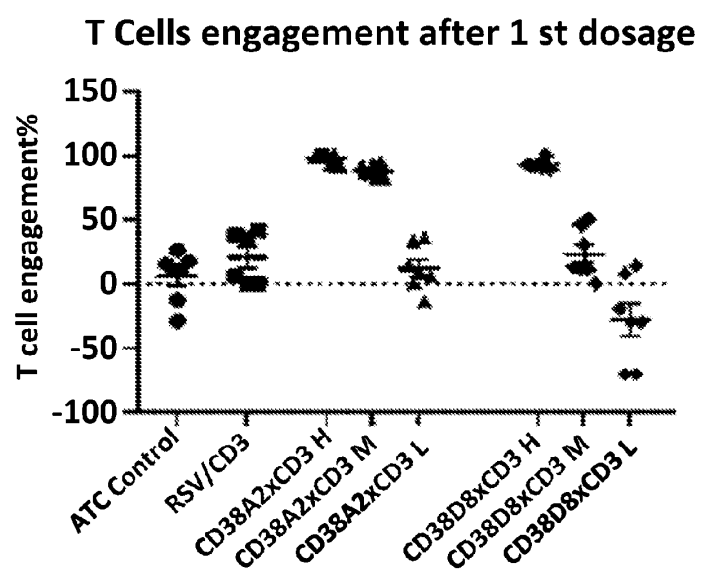


Fig. 16G

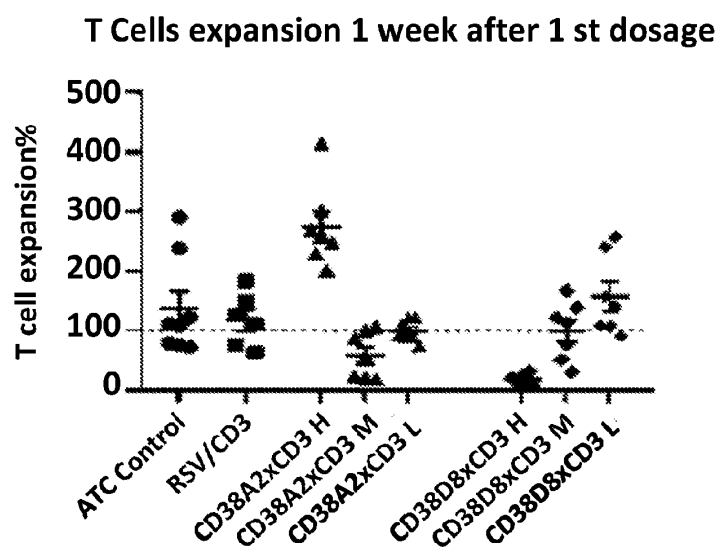


Fig. 16H

Days after T cell injection	1	2	8	9	16	21	35	49	63
Days after BsAb administration	before	1	7 (before 2 nd dosage)	8 (1 day before 2 nd dosage)	15 (after 3 rd dosage)	20	34	48	62
ATC Control	27.75	27.14	35.50	22.00	299.00	2112.26			
RSVxCD3	25.67	20.33	31.00	26.33	242.00	951.67	1610.67		
CD38A2xCD3 H	31.43	0.57	85.14	31.43	15.14	30.29	1351.14	720.00	223.33
CD38A2xCD3 M	26.57	3.14	16.00	11.43	66.29	229.14	1297.20		
CD38A2xCD3 L	24.57	22.00	24.57	21.43	200.86	1450.86	2605.33		
CD38D8xCD3 H	23.43	1.71	4.00	2.29	20.29	333.43	1126.00		
CD38D8xCD3 M	19.14	14.29	18.29	18.00	198.29	861.71	725.33		
CD38D8xCD3 L	20.00	24.29	29.71	22.57	249.17	1913.71			
Std. Error of Mean									
ATC Control	2.55	3.02	6.00	3.02	43.32	665.50			
RSVxCD3	2.75	2.99	7.41	11.34	48.90	400.10	1166.16		
CD38A2xCD3 H	1.56	0.37	7.26	2.75	2.89	7.46	493.12	284.39	141.70
CD38A2xCD3 M	1.99	0.40	4.74	3.26	21.88	94.13	956.62		
CD38A2xCD3 L	1.84	2.83	2.92	1.94	53.57	630.86	687.44		
CD38D8xCD3 H	2.13	0.29	0.87	0.29	5.61	204.63	350.42		
CD38D8xCD3 M	1.30	0.81	3.04	2.69	88.15	289.19	345.73		
CD38D8xCD3 L	1.50	0.52	3.74	2.64	63.47	818.94			

Fig. 16I

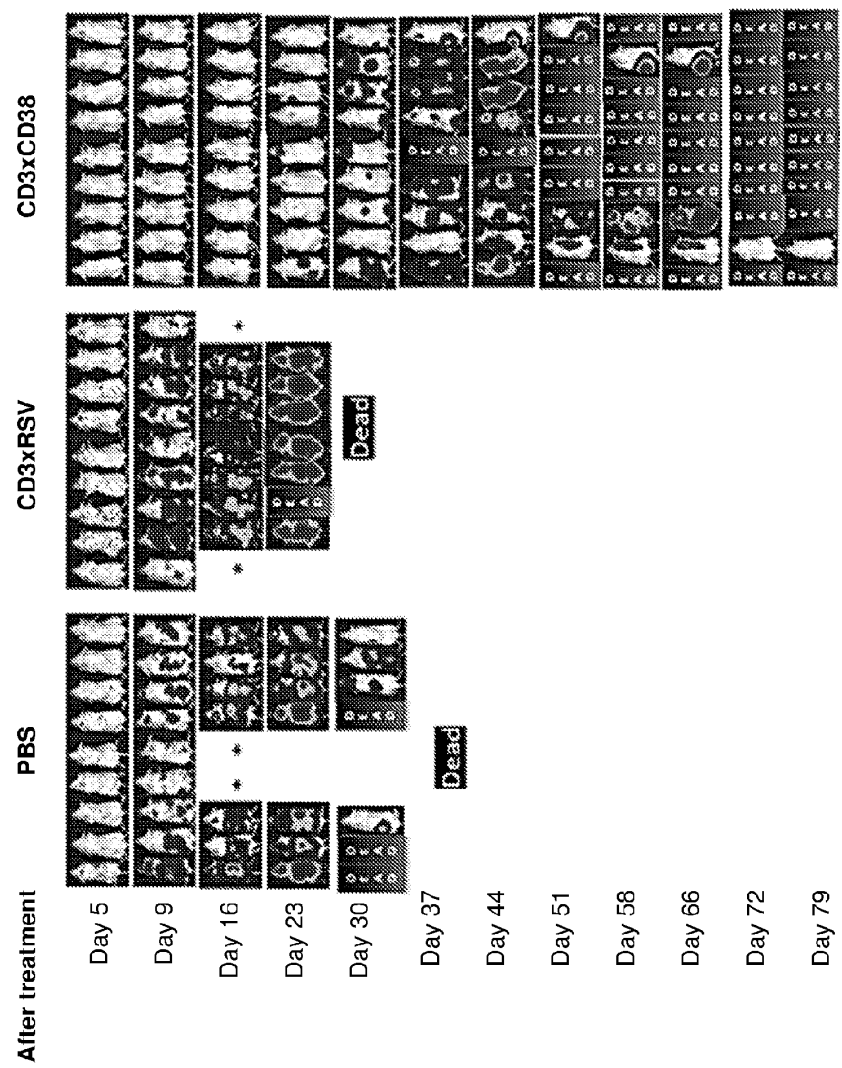


Fig. 17A

Anti Tumor Efficacy for PBMCs+Bispecific CD3XCD28
Treatment

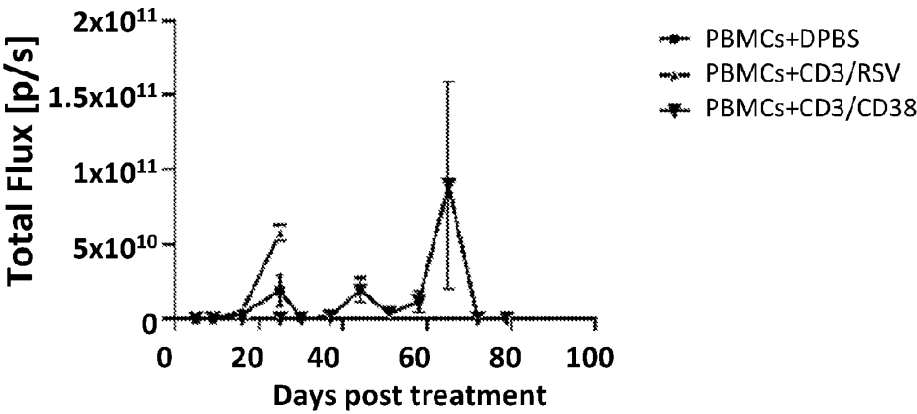


Fig. 17B

BWC (Body Weight Change)%

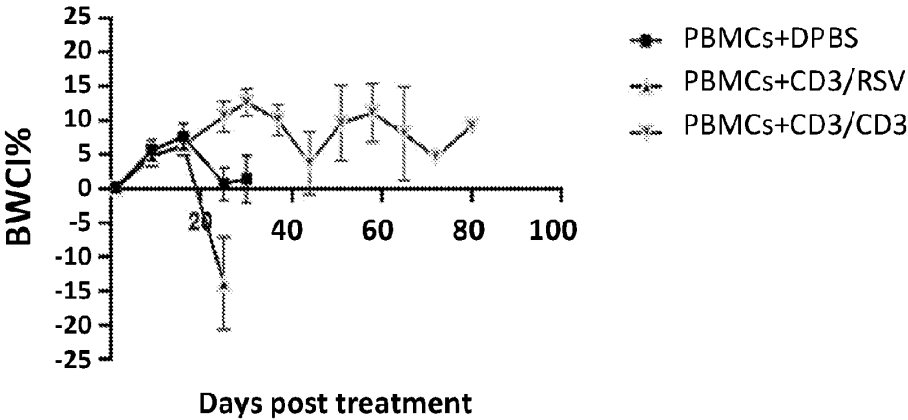
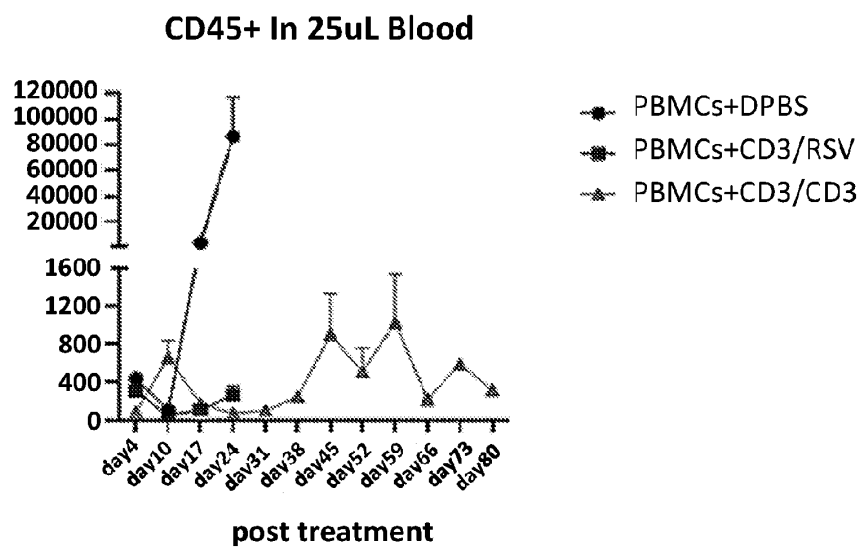
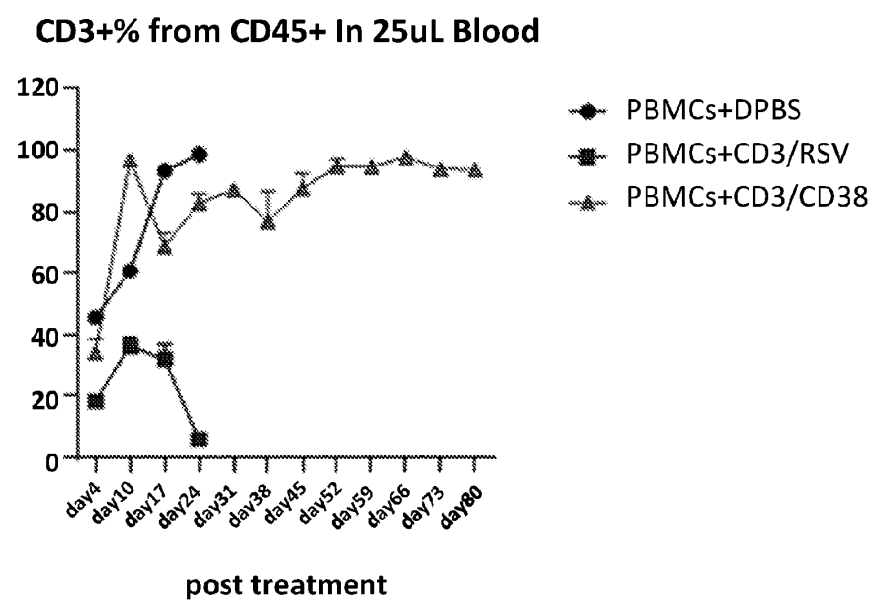
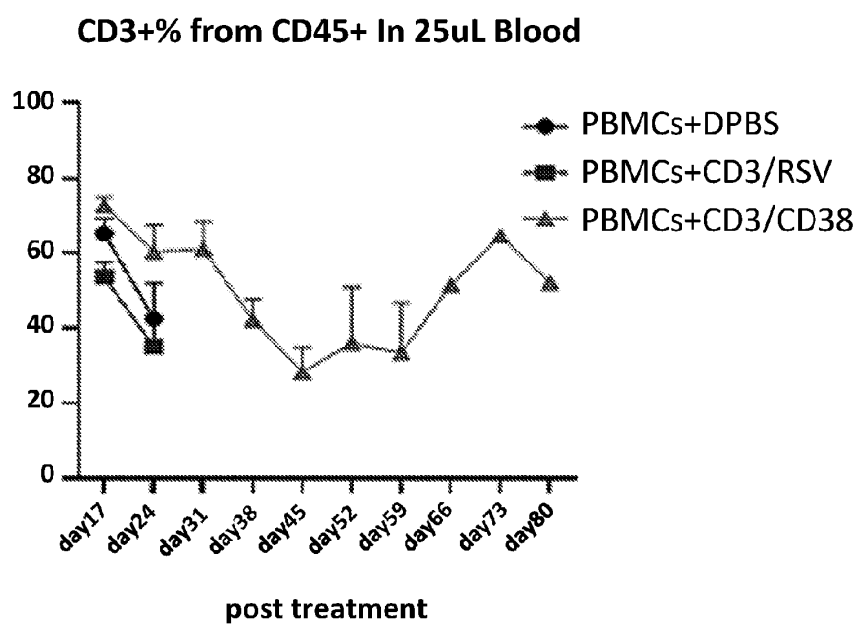
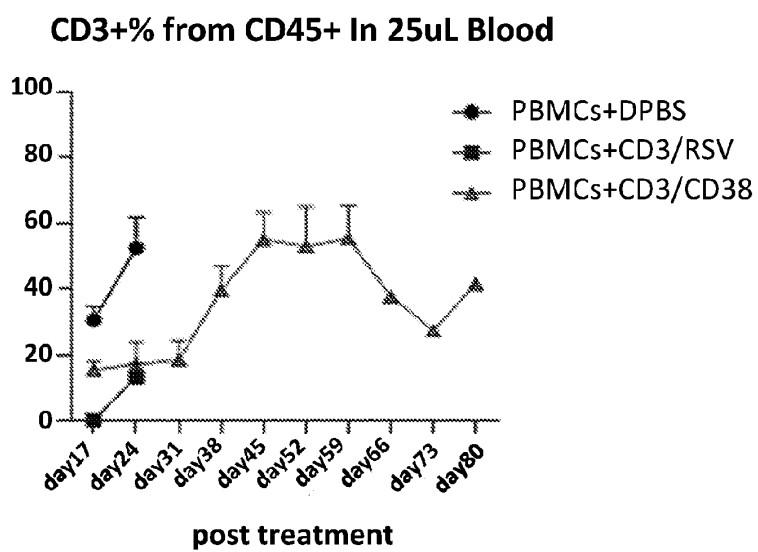


Fig. 17C

*Fig. 17D**Fig. 17E*

*Fig. 17F**Fig. 17G*

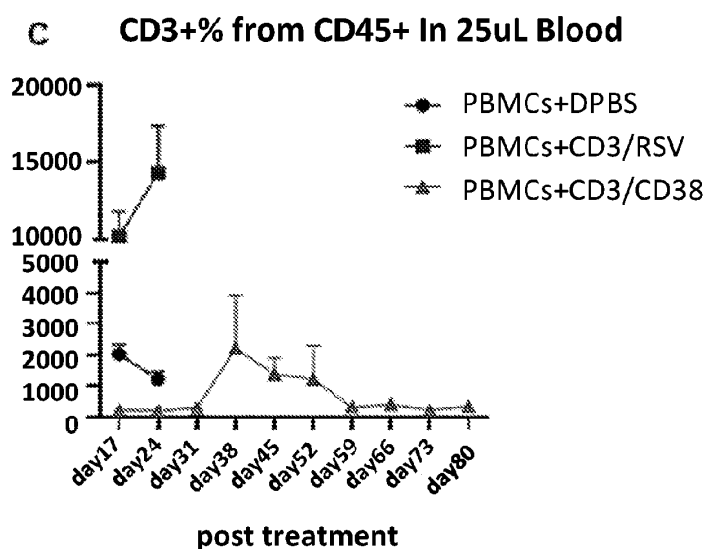


Fig. 17H

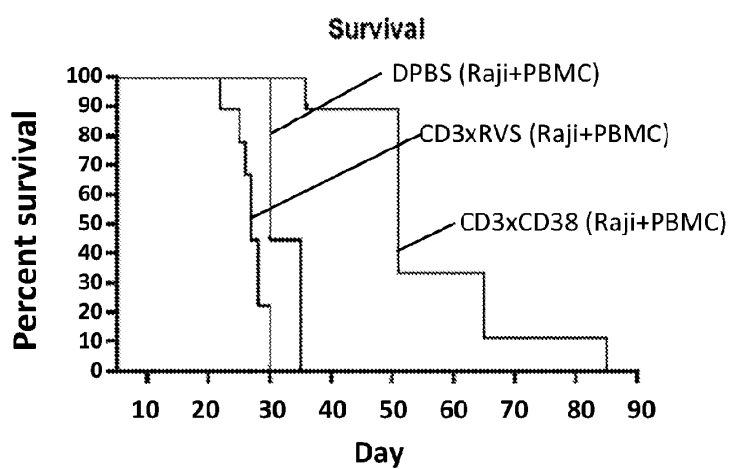


Fig. 17I

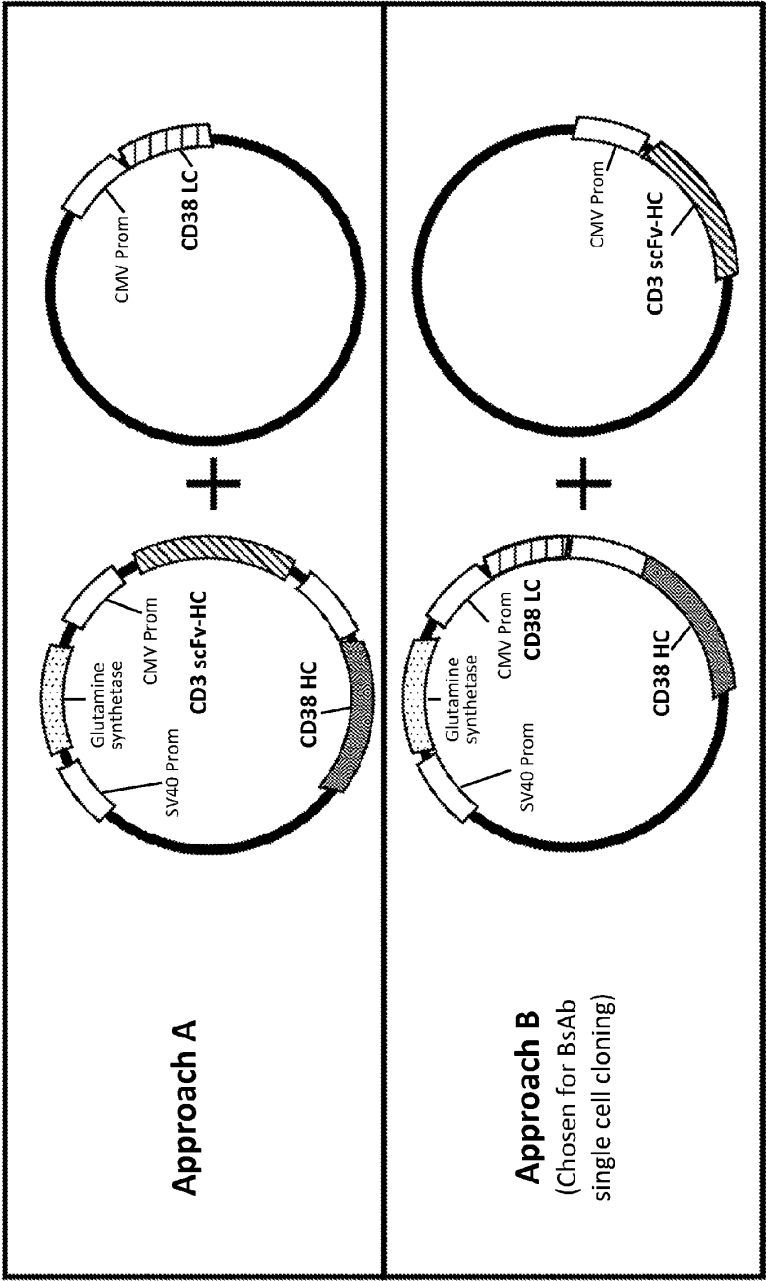
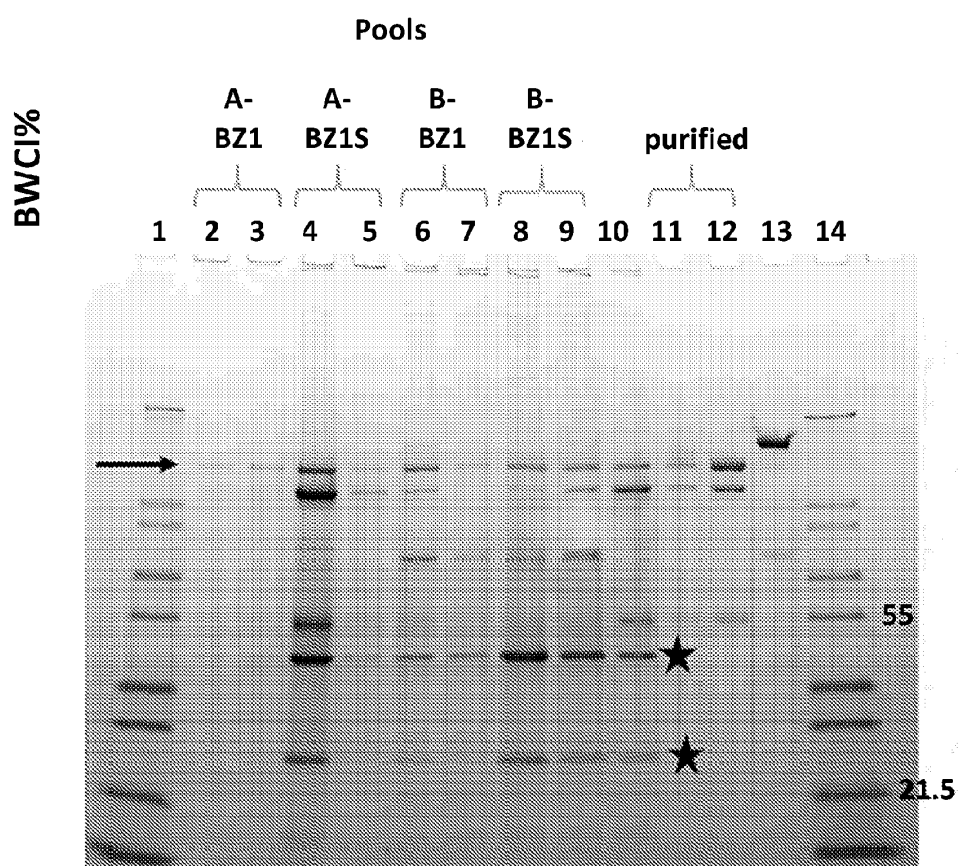


Fig. 18A

*Fig. 18B*

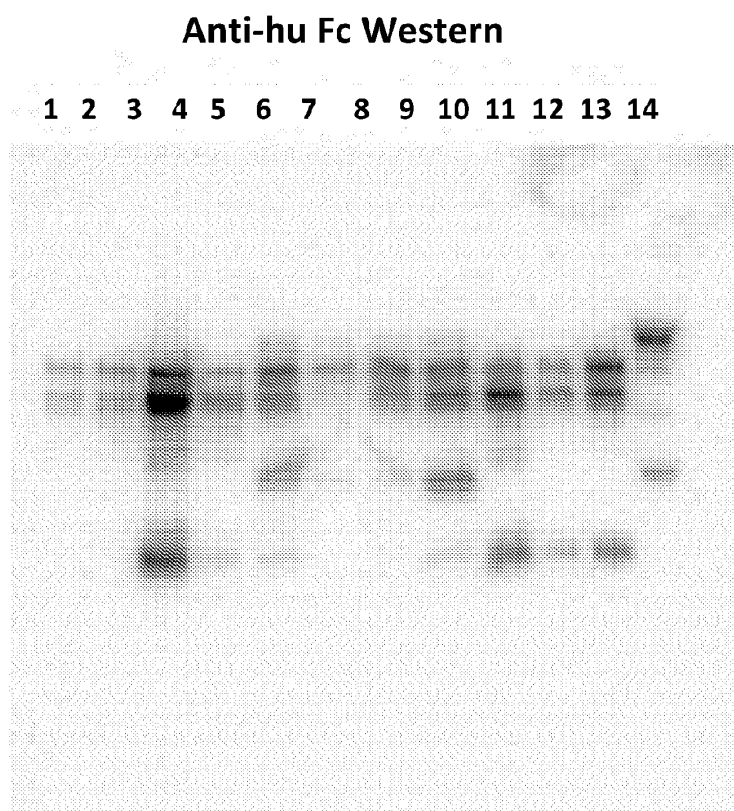
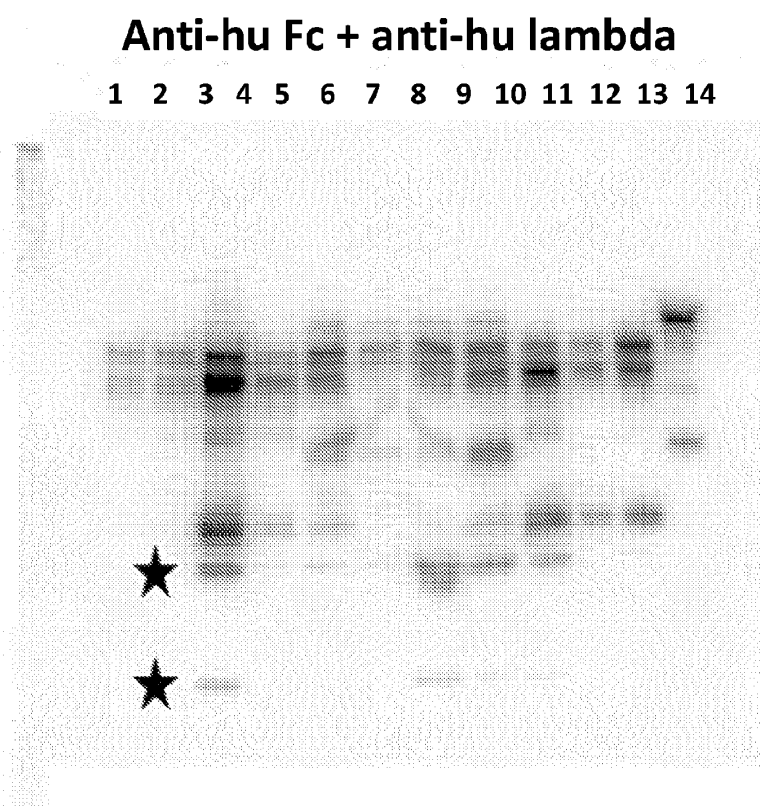


Fig. 18C

*Fig. 18D*

13MAY2019 BZ-1-Poll-PA IEX-BB-0589-086_YZ-19005581-
CaptoS 20mL 001

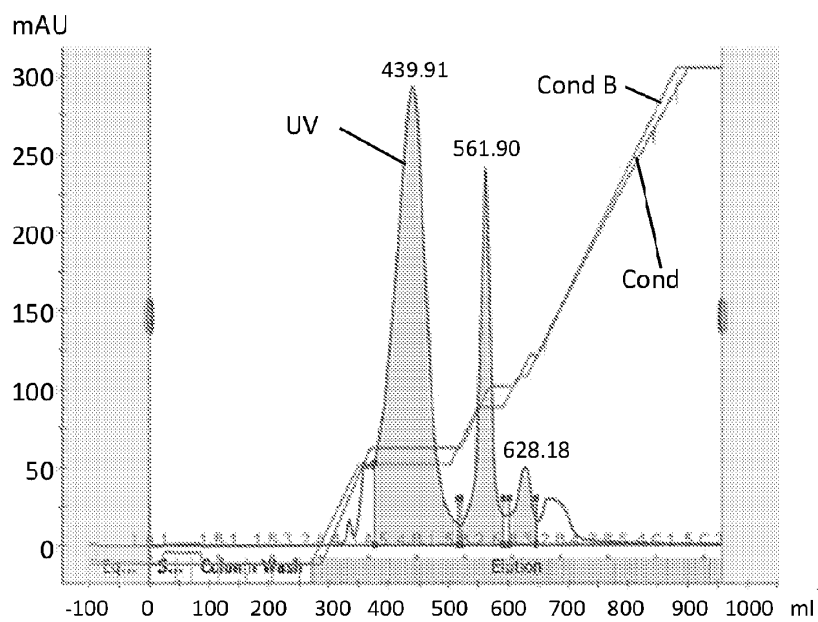


Fig. 18E

**4-4-2019 CD38-CD3 BZ1S POOL 2PK 2PA (LK-0561-078)
ON 1ML CAPTO S IMPACT PH 5.0 001**

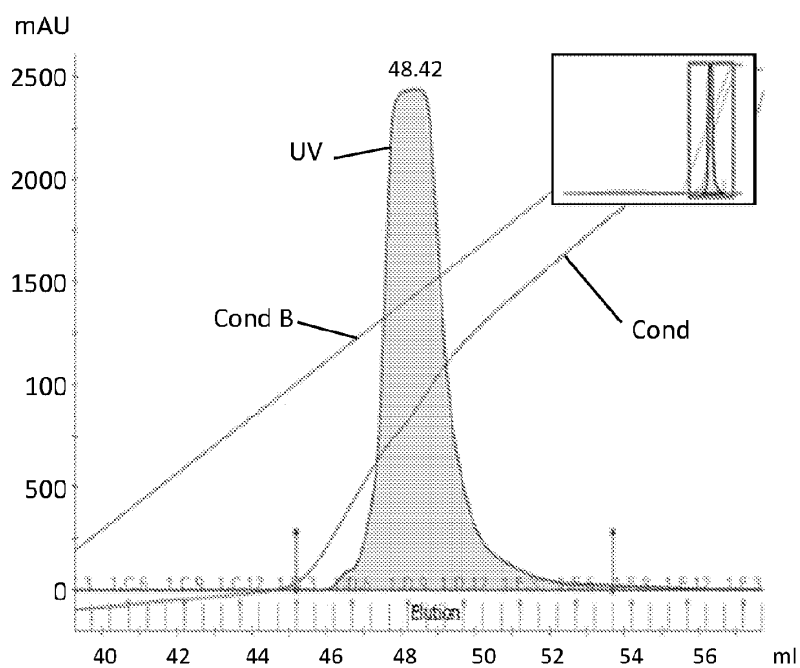


Fig. 18F

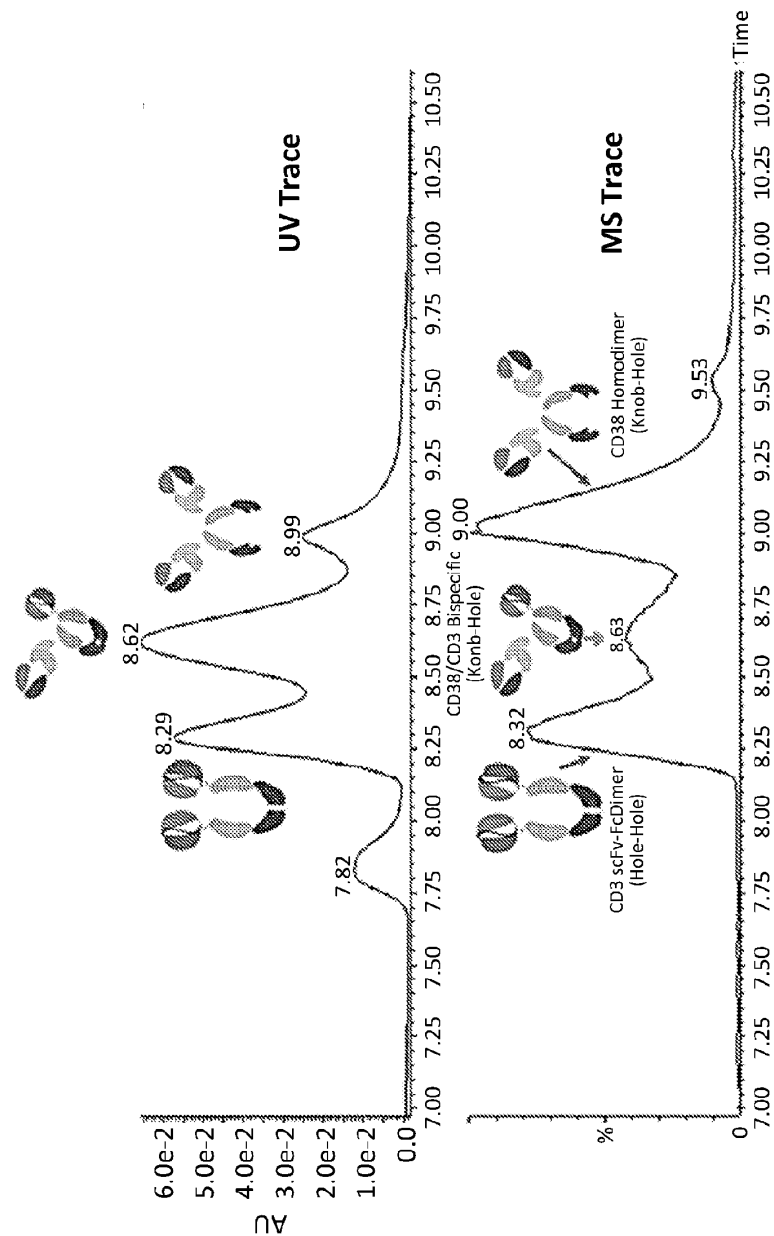


Fig. 19A

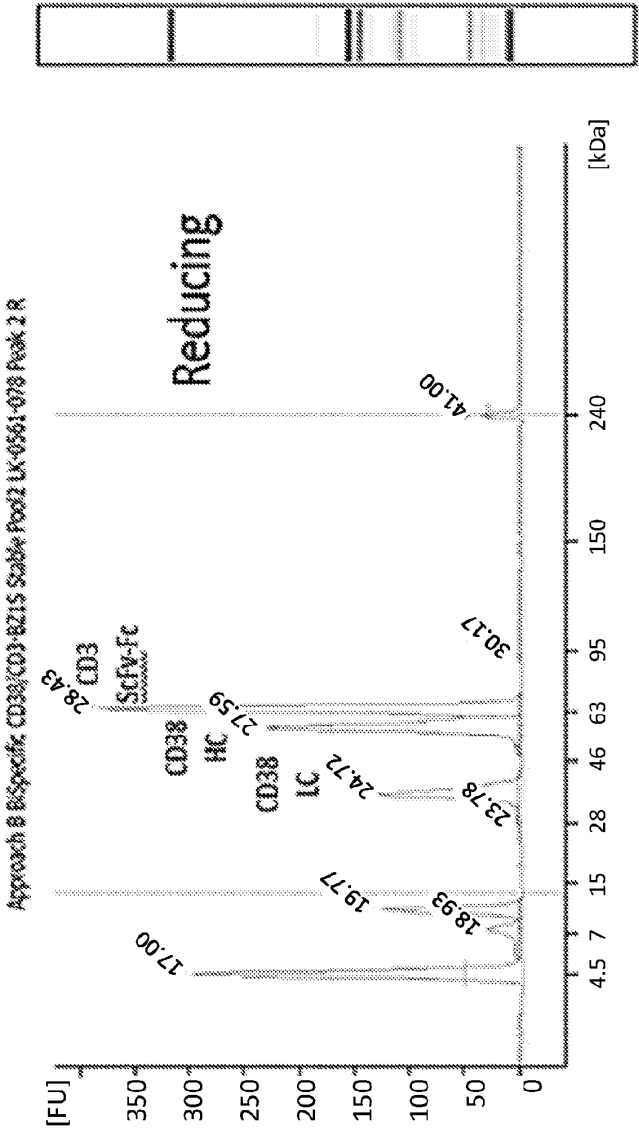


Fig. 19B

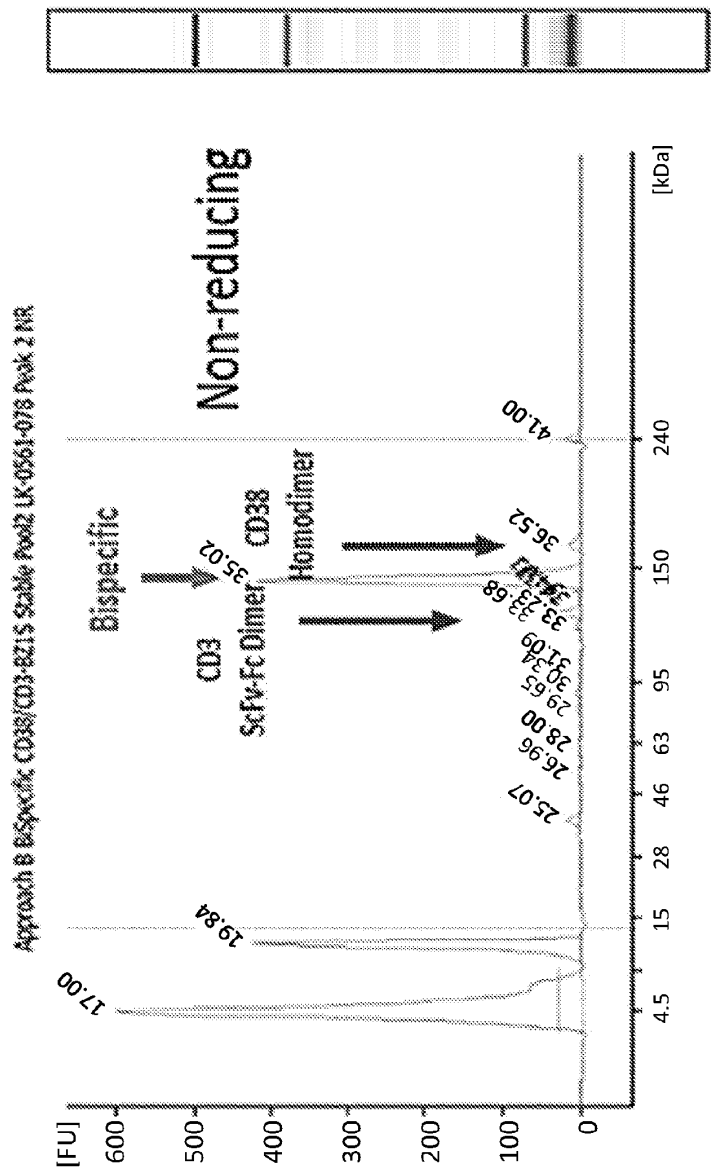


Fig. 19C

Protein Name	Reducing			Non-reducing		
	36.2 kDa CD38 LC	57.5 kDa CD38 HC	65.0 kDa CD3	0128.6 kDa CD3 dimer	144.7 kDa Bispecific	166.4 kDa CD38 homodimer
B BZ1S Stable Pool #1	23.4	32.2	38.4	3.5	67.4	0
B BZ1S Stable Pool #2	21.7	35.4	42.1	6.8	75.9	3.3
B BZ1 Stable Pool #1	18.9	38.3	38.5	5.1	64.8	0
B BZ1 Stable Pool #2	26.4	46.4	26.8	2.8	50	4.5

Fig. 19D

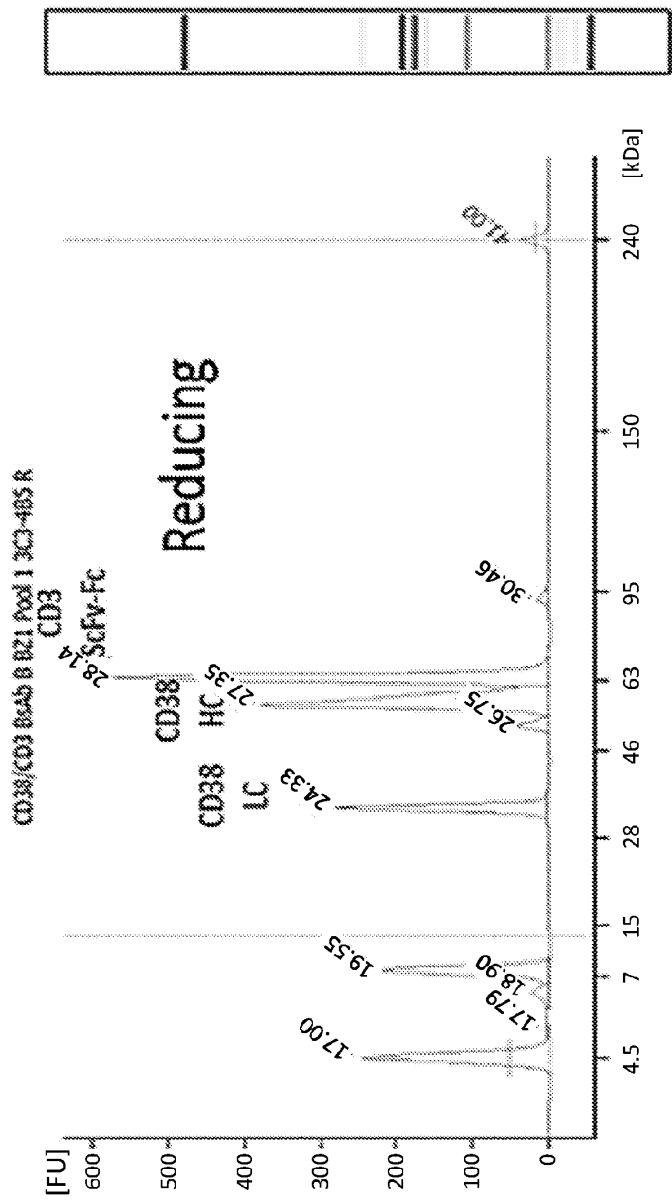


Fig. 20A

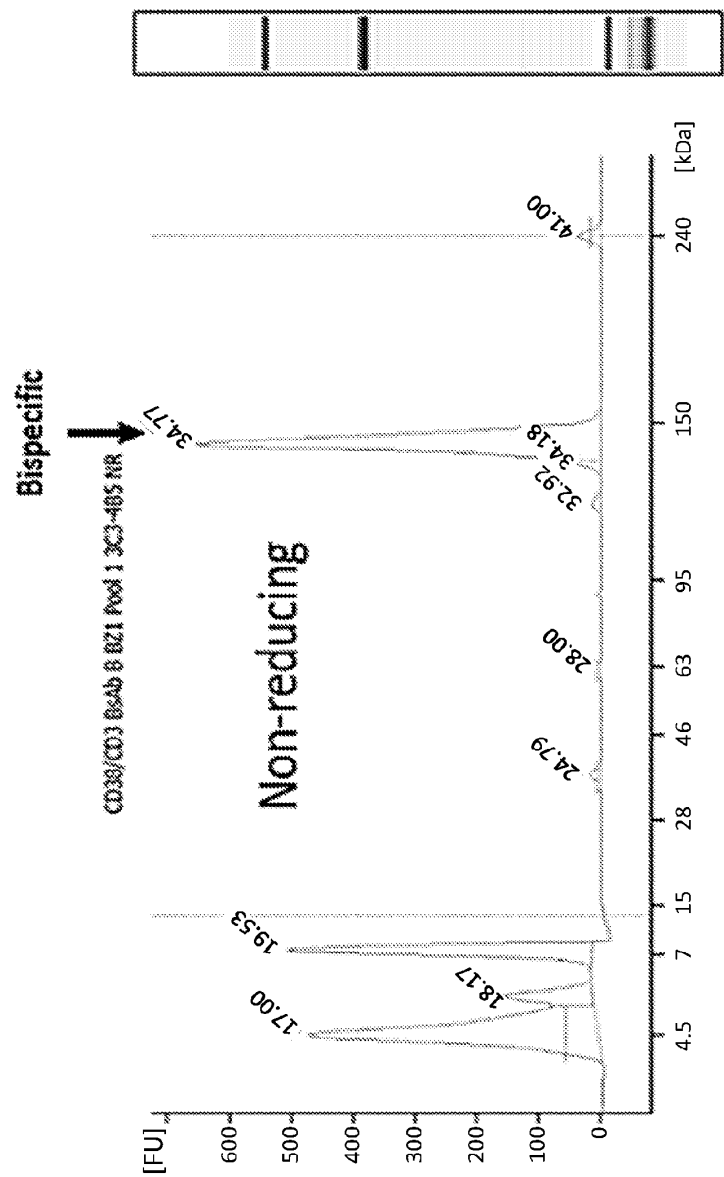


Fig. 20B

	Reducing % Purity (%HC+LC)			Non-reducing % Purity			
	34 kDa CD38 LC	57 kDa CD38 HC	63 kDa CD3	126 kDa CD3 dimer	143 kDa Bispecific	163 kDa CD38 homodimer	
B BZ1 Stable Pool #1 Fractions							
3B4-3B5	29.9	34.5	32.7	0	77.1	0	
3C3-4B5	20.1	37.9	37.6	0	93.4	0	
4C1-4C5	20.9	38.8	29.5	0	60.7	0	

Fig. 20C

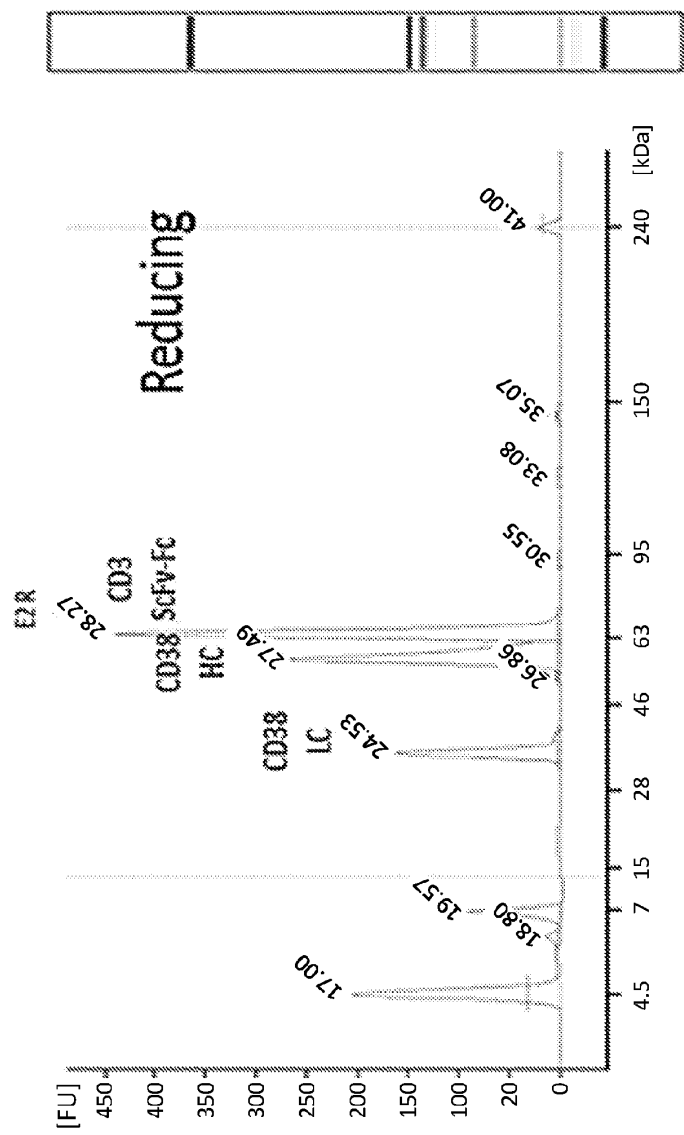


Fig. 21A

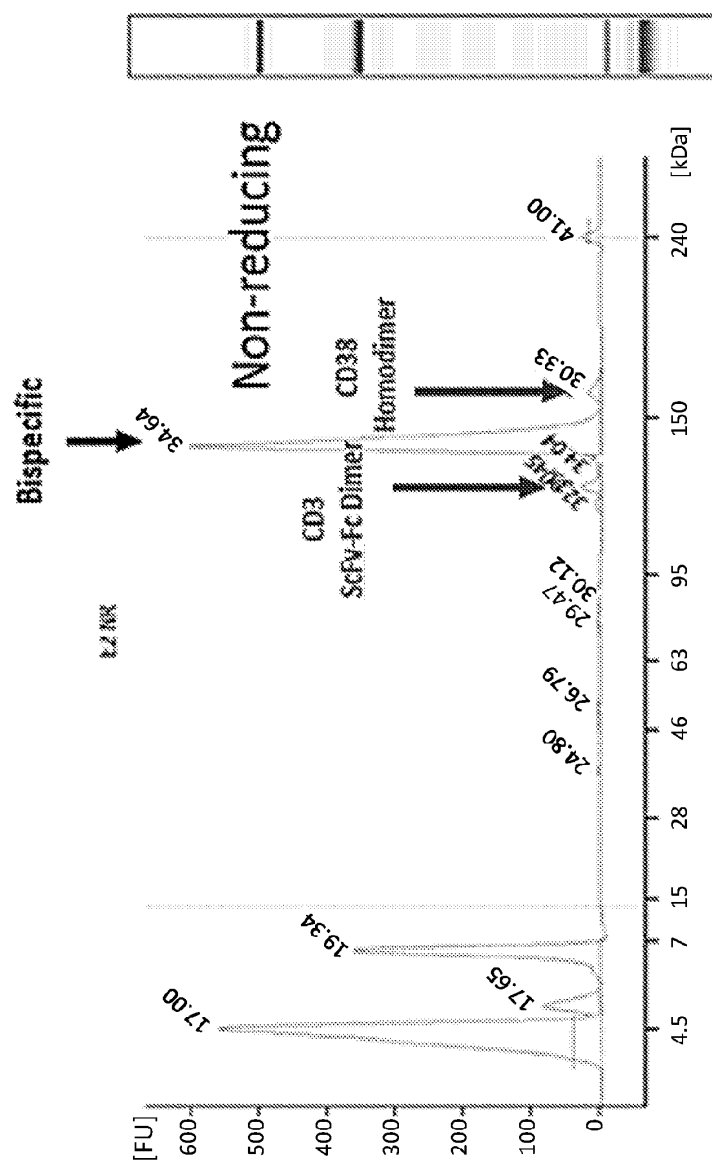


Fig. 21B

	Reducing			Non-reducing		
	35.6 kDa CD38 LC	57.5 kDa CD38 HC	65.0 kDa CD3	126 kDa CD3 dimer	140 kDa Bispecific	162 kDa CD38 homodimer
B BZ1 Stable Pool #2 Fractions						
D9-D11	3.8	3.5	92.7	85.7	0	0
E2	19.4	36.0	43.0	2.9	90.6	2.7
E3	18.7	37.4	42.4	5.5	85.2	6.4
E4-E6	19.1	36.9	43.6	11.3	75.2	12.1
F1-F8	N/A	N/A	N/A	0.0	0	0

Fig. 21C

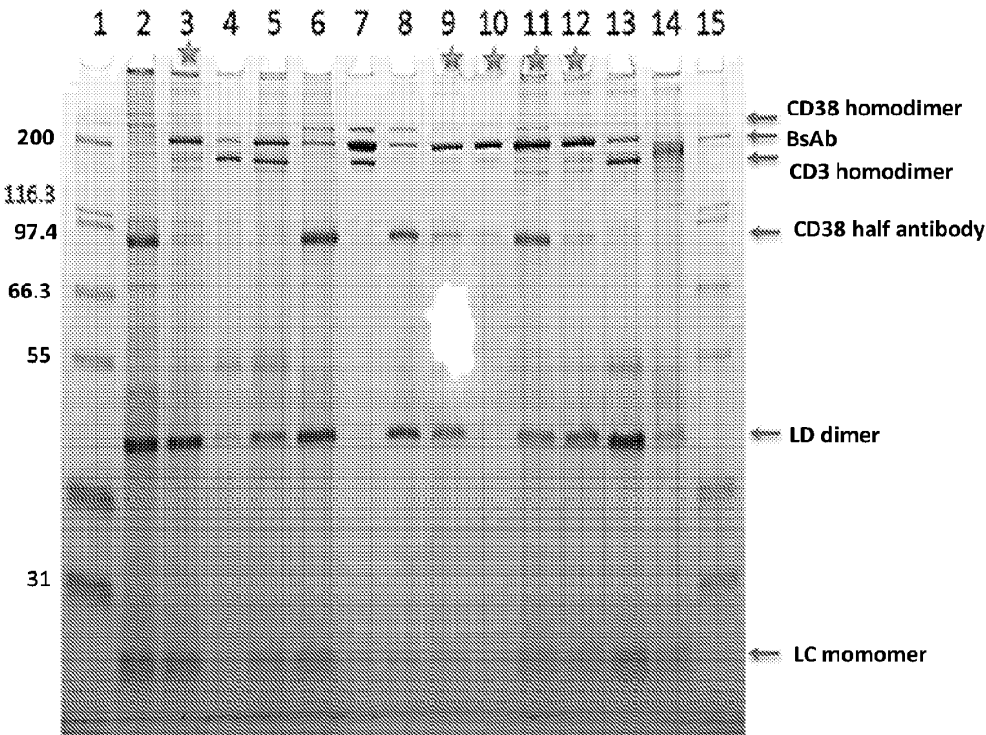
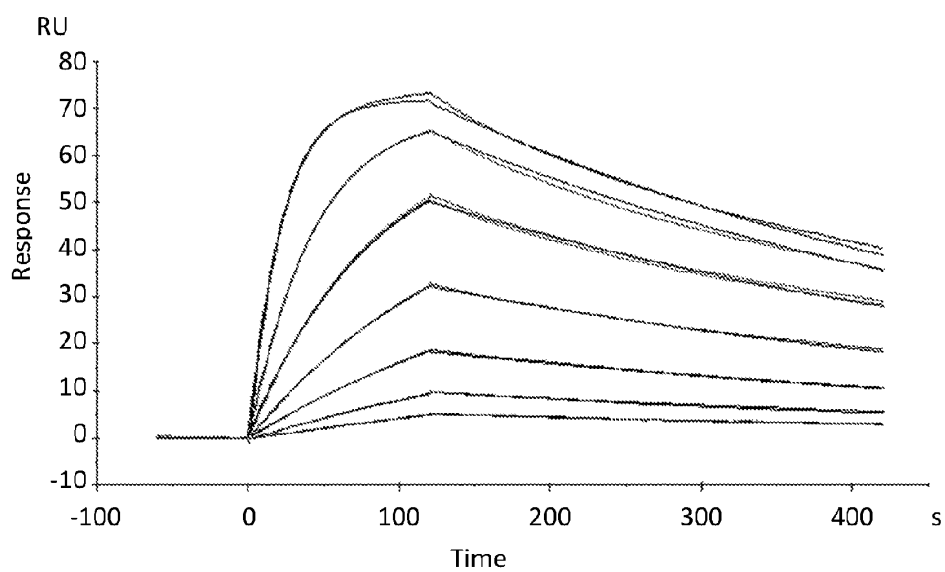
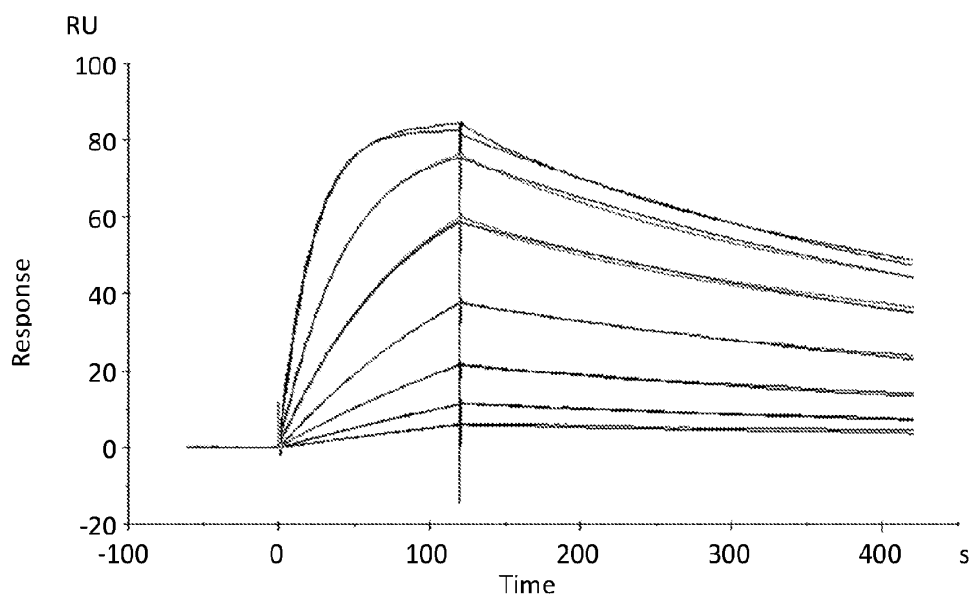
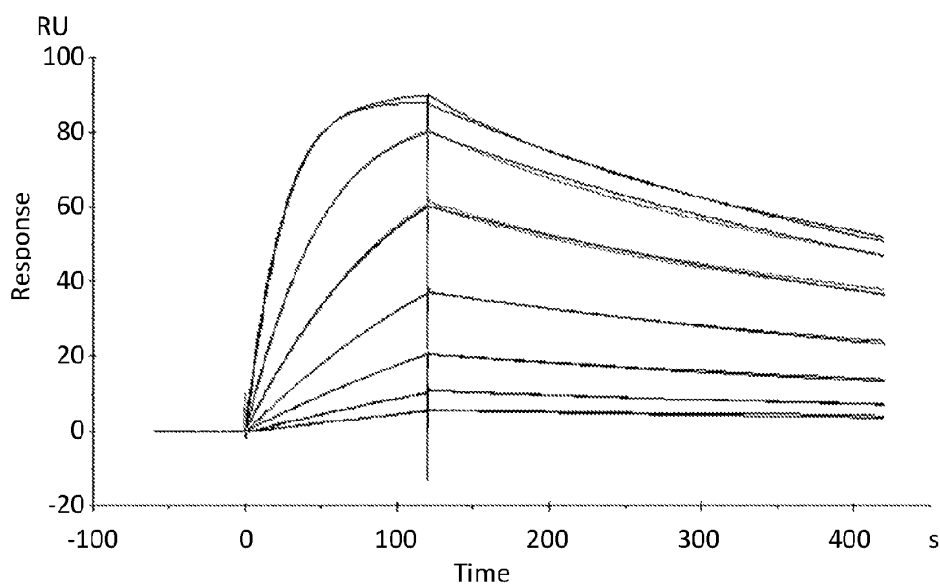


Fig. 21D

**Fig. 22A****Fig. 22B**

**Fig. 22C**

Samples	Ka (1/Ms)	Kd (1/s)	KD (M)	Rmax (RU)	Chi ² (RU ²)	CE-SDS Purity
BZ1 Pool1 PA	1.97E+06	2.13E-03	1.08E-09	74.57	0.236	65%
BZ1 Pool2 PA	2.14E+06	1.94E-03	9.09E-10	84.63	0.677	76%
BF1/GV3/BZ1 PA Oct2018	2.13E-06	2.05E-03	9.60E-10	91.09	0.651	96%

Fig. 22D