

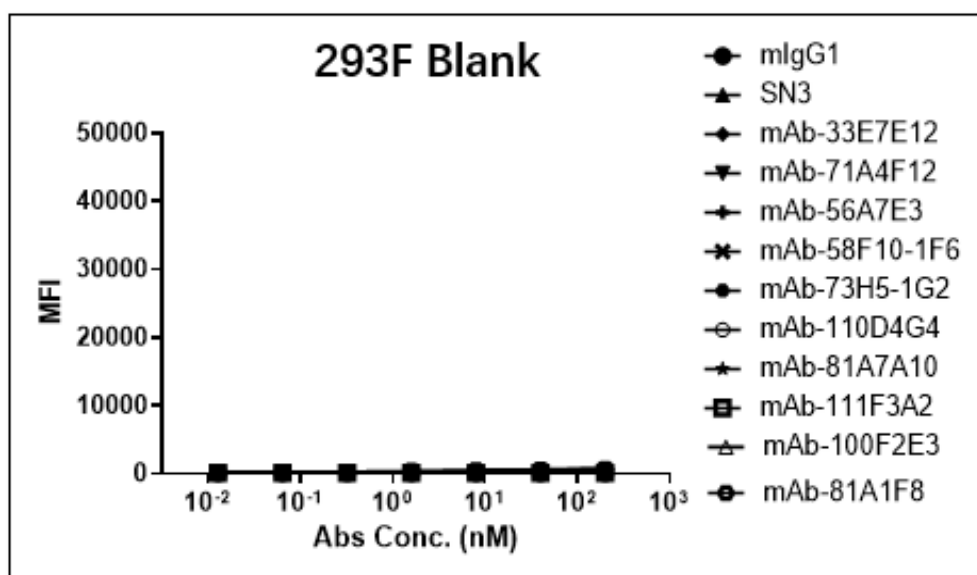


FIG. 1A

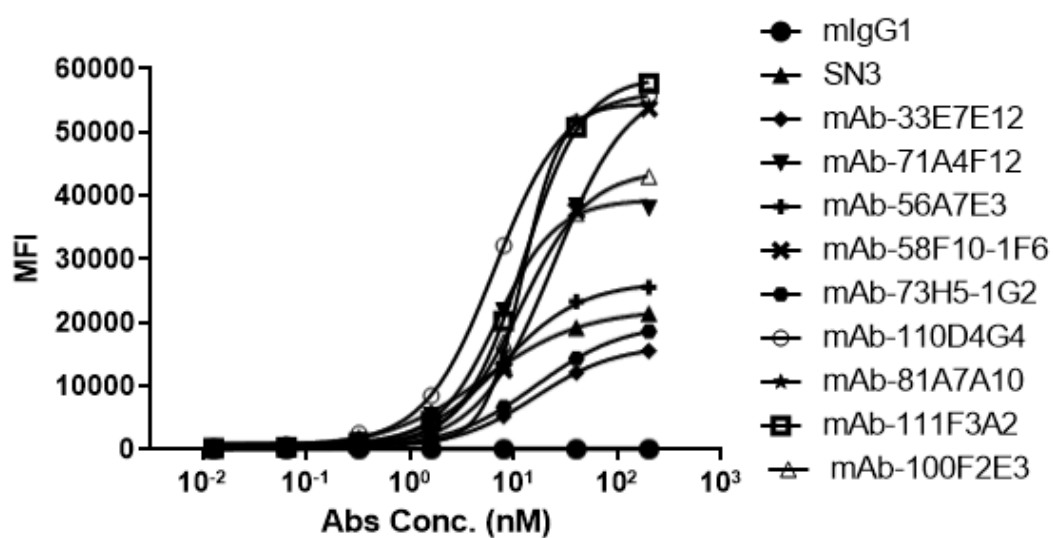


FIG. 1B

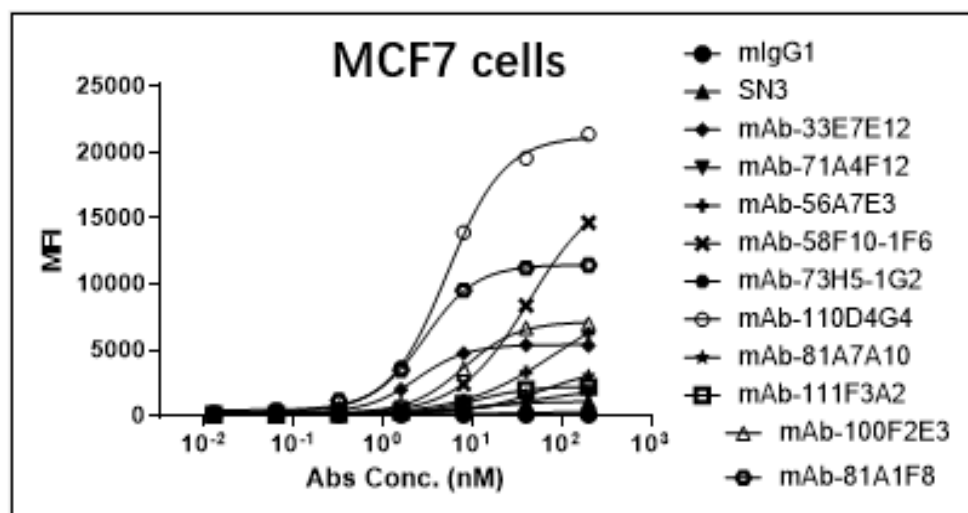


FIG. 1C

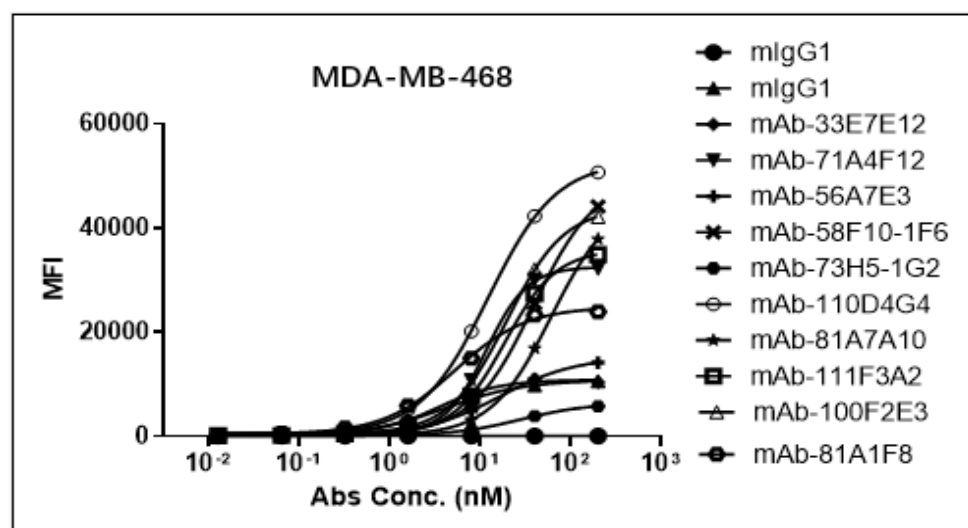


FIG. 1D

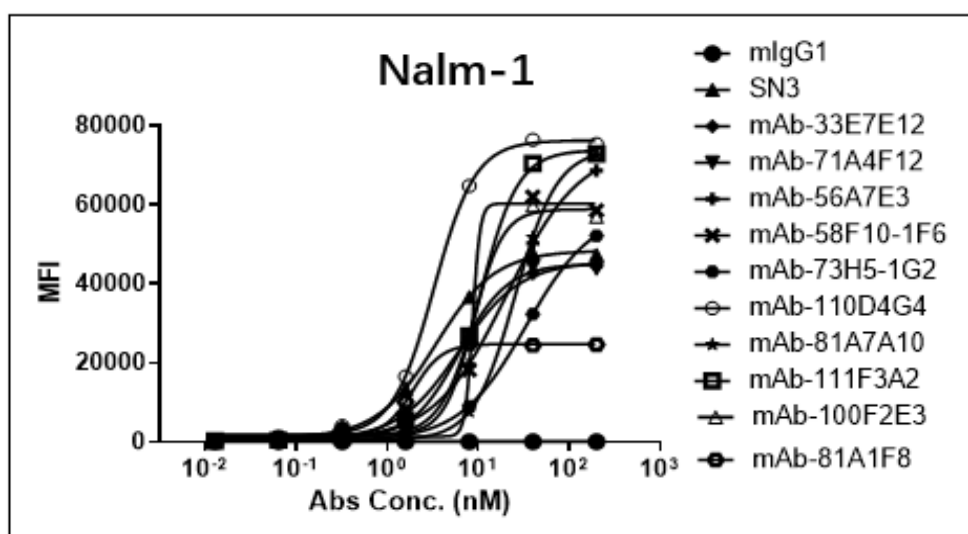


FIG. 1E

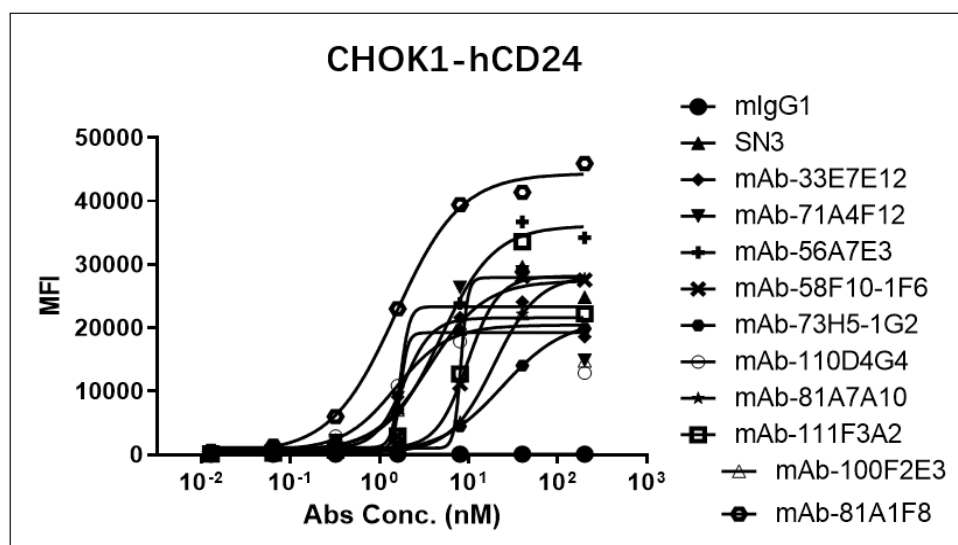


FIG. 1F

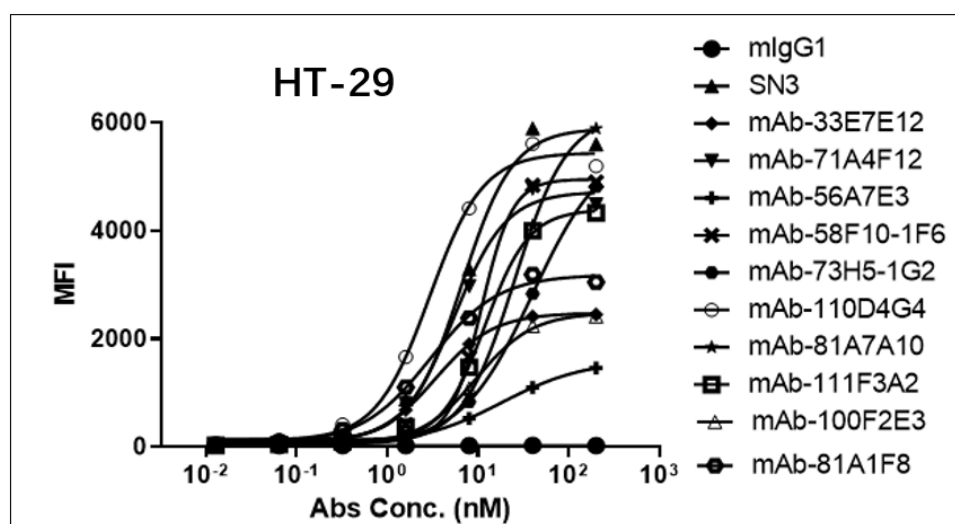


FIG. 1G

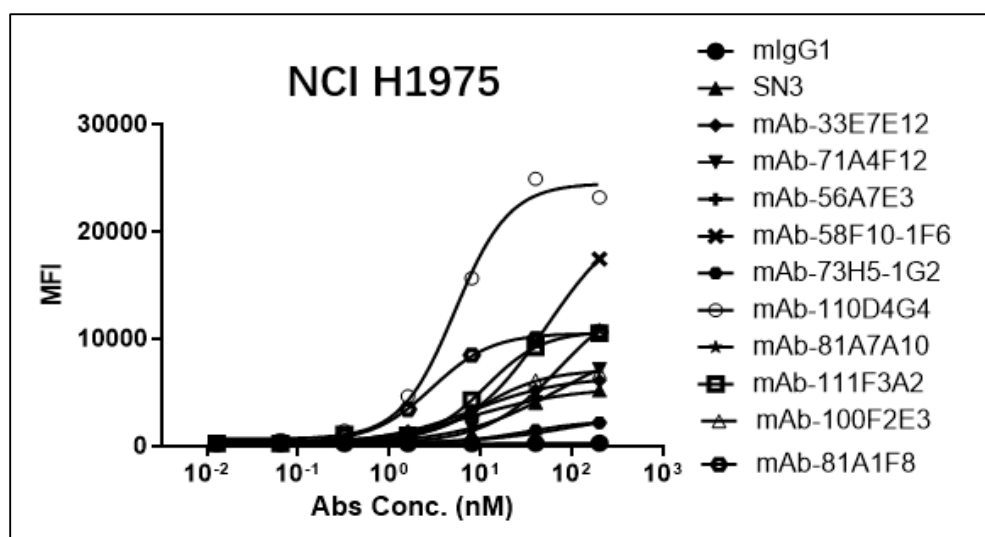


FIG. 1H

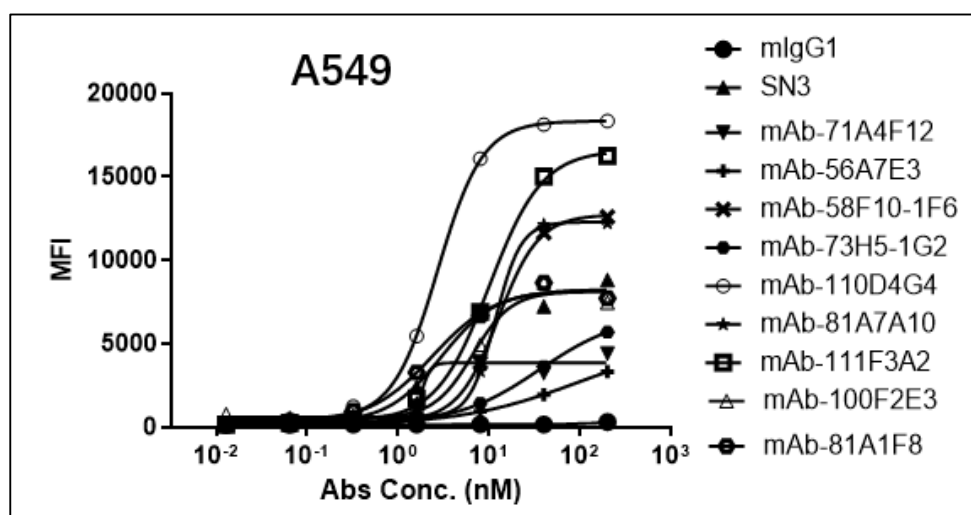
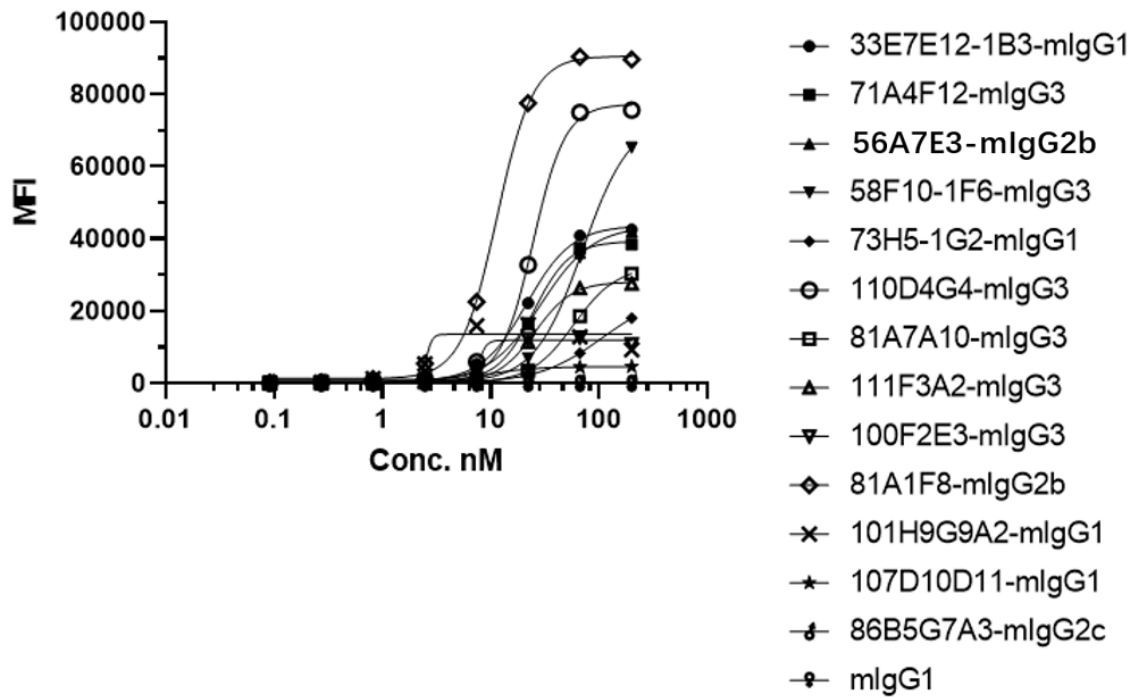


FIG. 1I

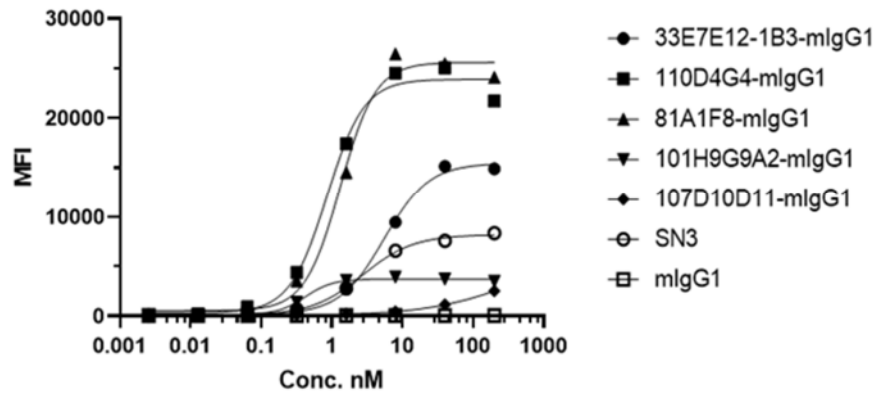
Anti-CD24 mAbs binding affinity on Nalm6



mAbs	EC50	Maximum MFI
33E7E11-mIgG1	21.5	42537
71A4F12-mIgG3	24.88	38480
56A7E3-mIgG2b	29.18	42040
58F10-1F6-mIgG3	70.58	65208
73H5-1G2-mIgG1	108.1	18012
110D4G4-mIgG3	24.65	75626
81A7A10-mIgG3	58.45	30282
111F3A2-mIgG3	25.66	27558
100F2E3-mIgG3	7.84	10849
81A1F8-mIgG2b	11.41	89612
101H9G9A2-mIgG1	2.554	9310
107D10D11-mIgG1	8.808	4585
86B5G7A3-mIgG2c	83.04	36.3
mIgG1	Unstable	26.5

FIG. 1J

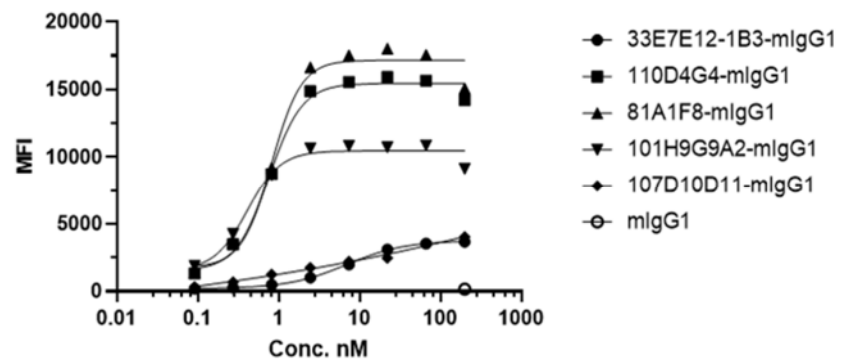
Anti-CD24 mAbs binding affinity on SU-DHL6



	33E7E12-1B3-mIgG1	110D4G4-mIgG1	81A1F8-mIgG1	101H9G9A2-mIgG1	107D10D11-mIgG1	SN3
EC50	5.552	0.8547	1.319	0.4228	383.3	2.738

FIG. 1K

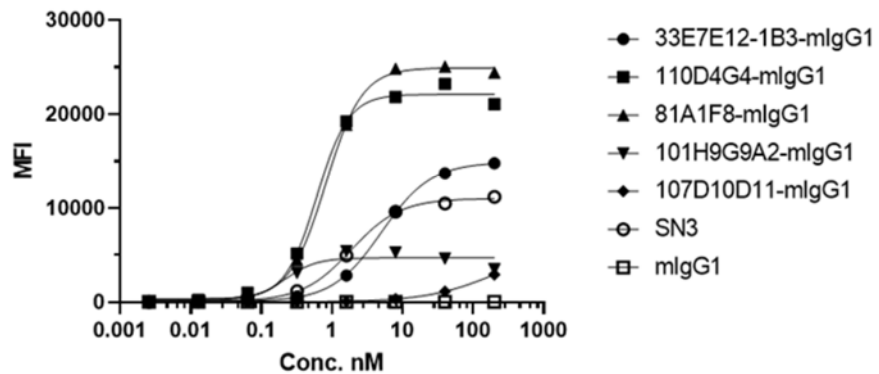
Anti-CD24 mAbs binding affinity on human B cell



	33E7E12-1B3-mIgG1	110D4G4-mIgG1	81A1F8-mIgG1	101H9G9A2-mIgG1	107D10D11-mIgG1
EC50	6.919	0.7594	0.8161	0.4125	4.547e+026

FIG. 1L

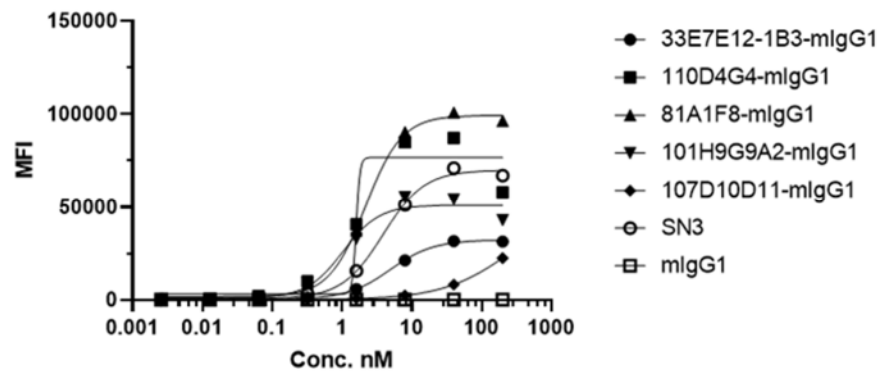
Anti-CD24 mAbs binding affinity on DoHH2



	33E7E12-1B3-mIgG1	110D4G4-mIgG1	81A1F8-mIgG1	101H9G9A2-mIgG1	107D10D11-mIgG1	SN3
EC50	5.076	0.6095	0.8186	0.2185	200.5	1.872

FIG. 1M

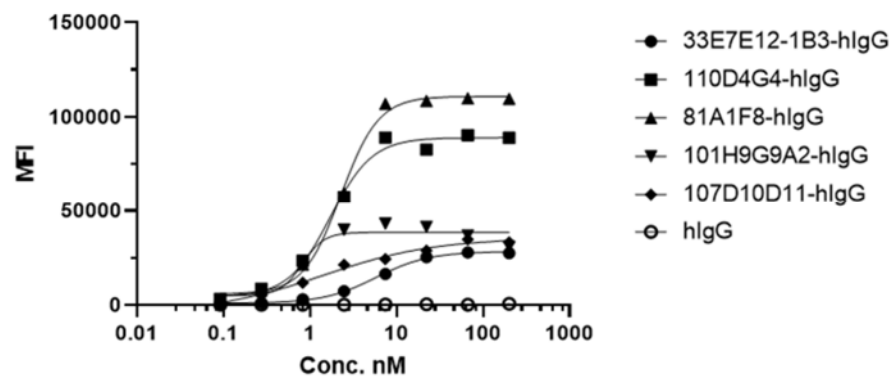
Anti-CD24 mAbs binding affinity on HT29



	33E7E12-1B3-mIgG1	110D4G4-mIgG1	81A1F8-mIgG1	101H9G9A2-mIgG1	107D10D11-mIgG1	SN3
EC50	4.927	1.596	2.170	1.036	281.0	3.886

FIG. 1N

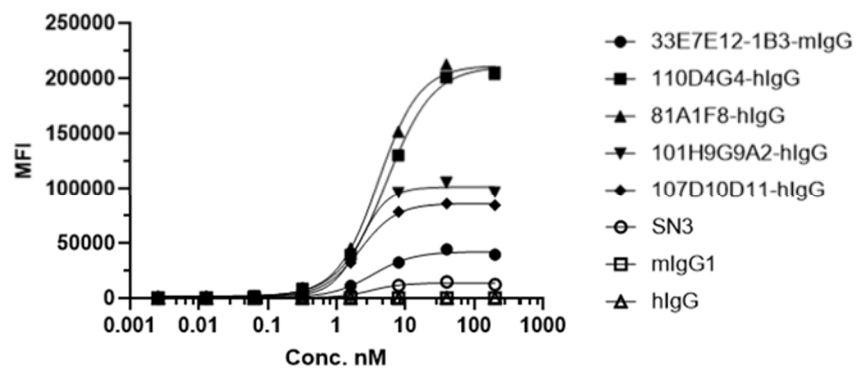
Anti-CD24 mAbs binding affinity on Huh7



	33E7E12-1B3-hIgG	110D4G4-hIgG	81A1F8-hIgG	101H9G9A2-hIgG	107D10D11-hIgG
EC50	5.799	1.718	2.270	0.8146	1.388

FIG. 1O

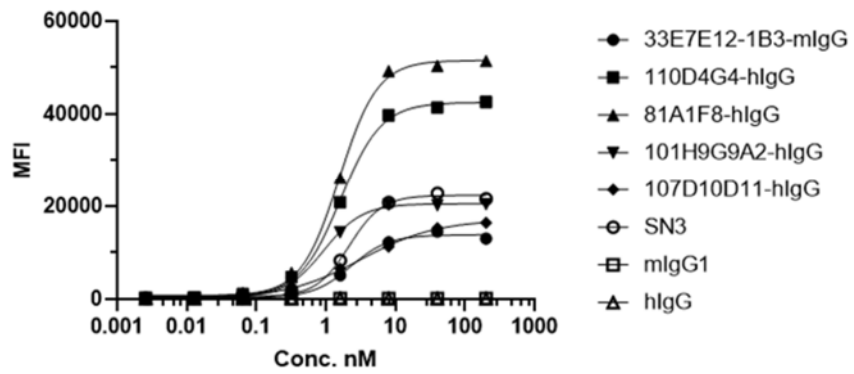
Anti-CD24 mAbs binding affinity on MCF7



	33E7E12-1B3-mIgG	110D4G4-hIgG	81A1F8-hIgG	101H9G9A2-hIgG	107D10D11-hIgG	SN3
EC50	3.332	5.380	4.095	2.197	2.192	3.178

FIG. 1P

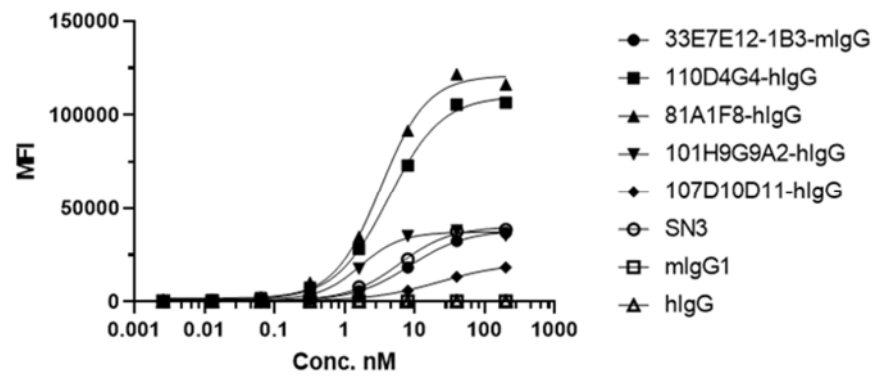
Anti-CD24 mAbs binding affinity on A549



	33E7E12-1B3-mIgG	110D4G4-hIgG	81A1F8-hIgG	101H9G9A2-hIgG	107D10D11-hIgG	SN3
EC50	2.279	1.621	1.555	0.9256	3.179	2.150

Fig. 1Q

Anti-CD24 mAbs binding affinity on NCI-H1975



	33E7E12-1B3-mIgG	110D4G4-hIgG	81A1F8-hIgG	101H9G9A2-hIgG	107D10D11-hIgG	SN3
EC50	8.559	4.250	3.279	1.673	22.96	6.056

Fig. 1R

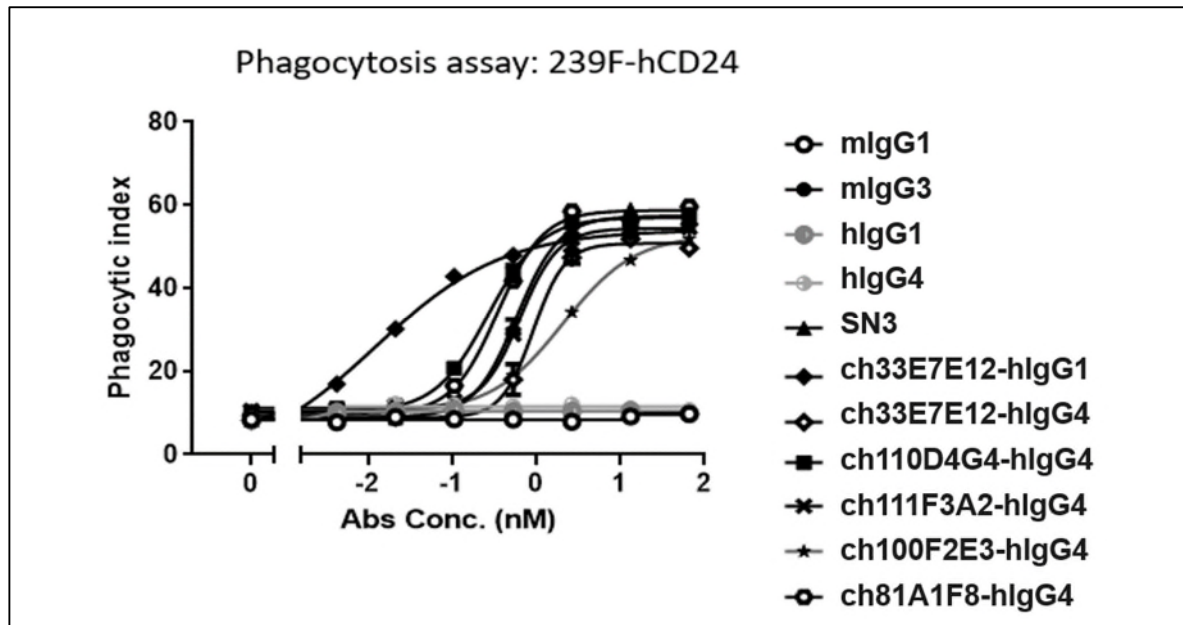


FIG. 2A

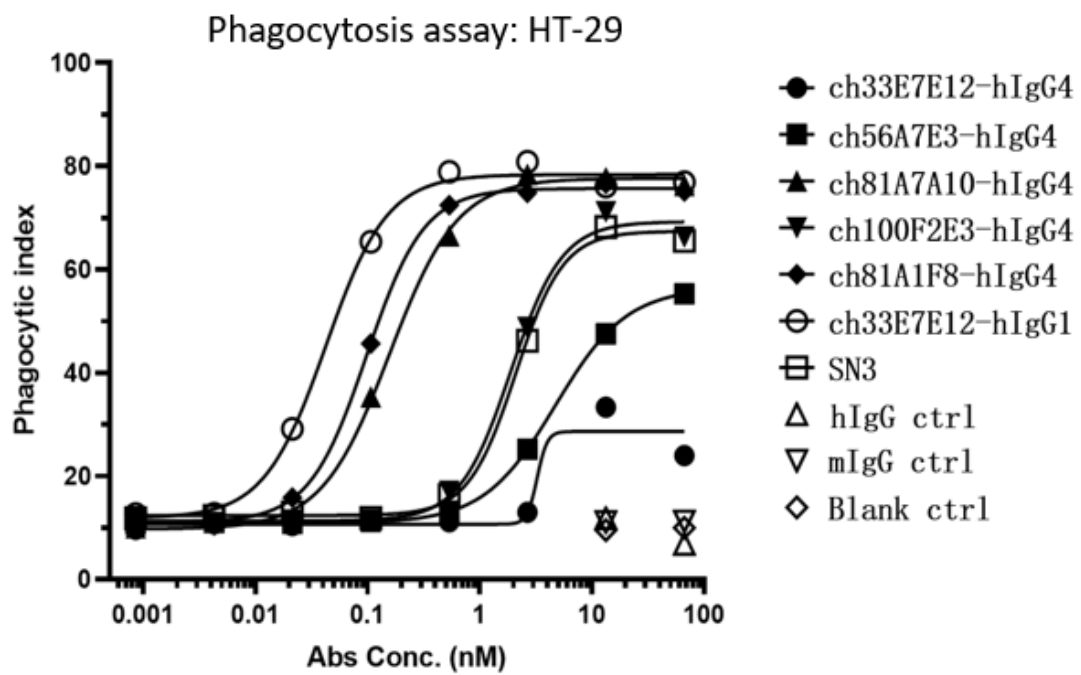


FIG. 2B

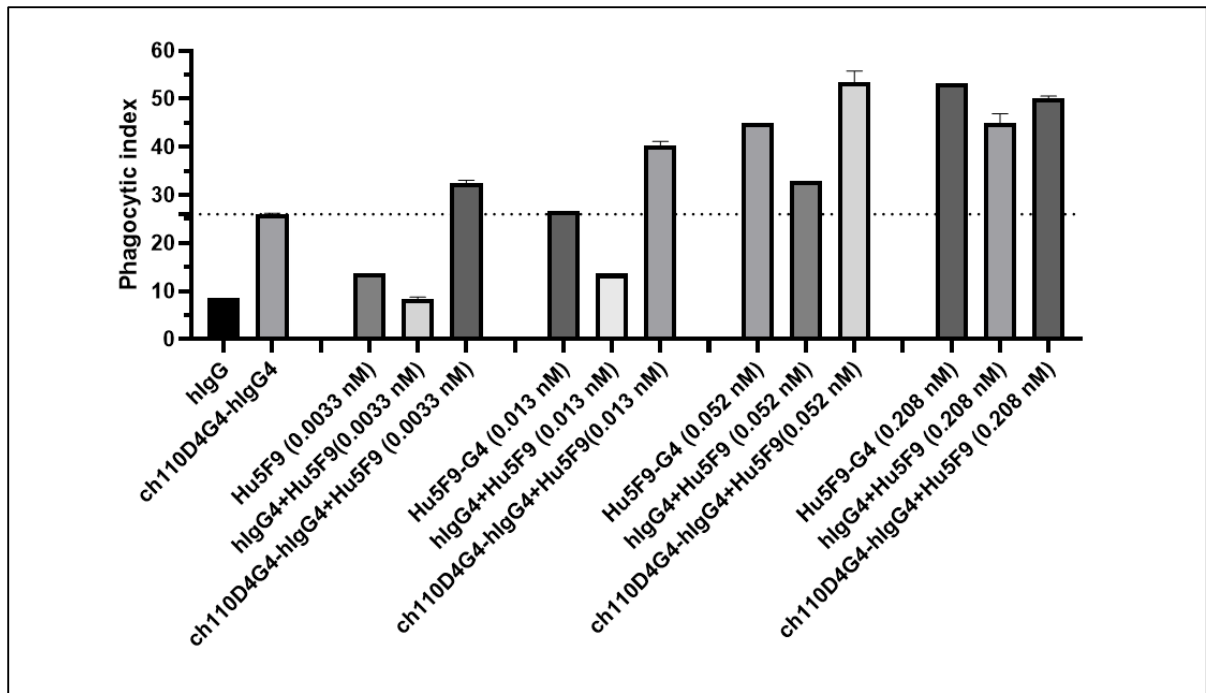


FIG. 3A

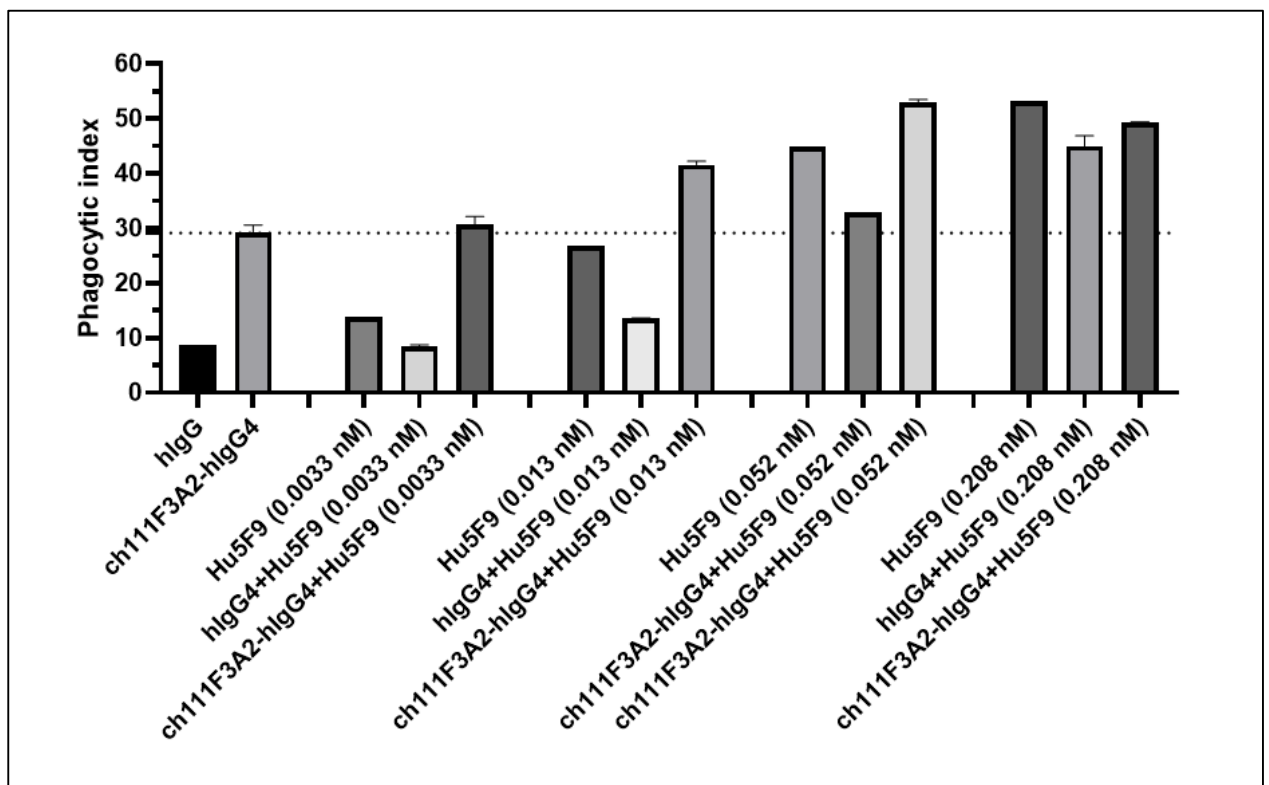


FIG. 3B

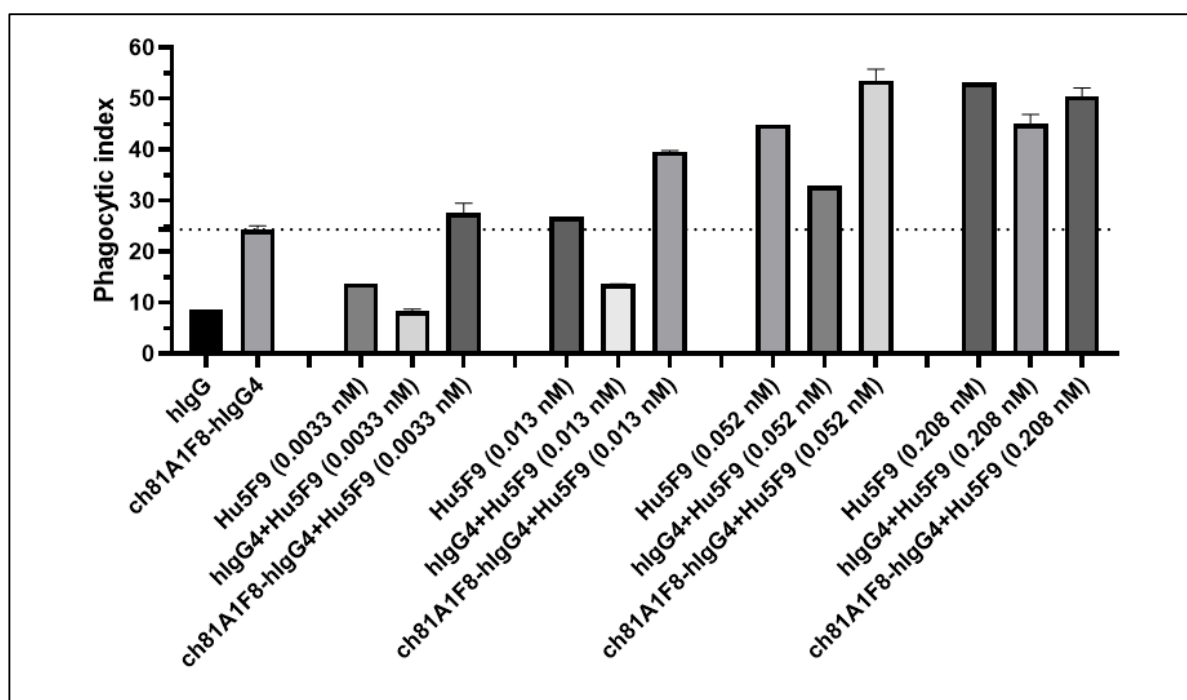


FIG. 3C

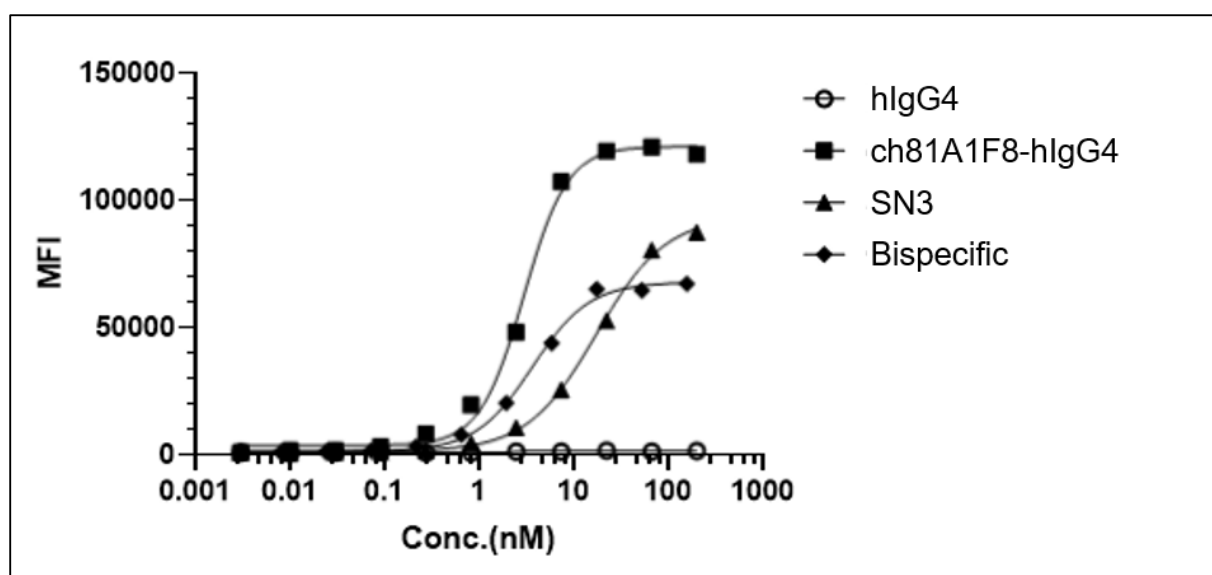


FIG. 4A

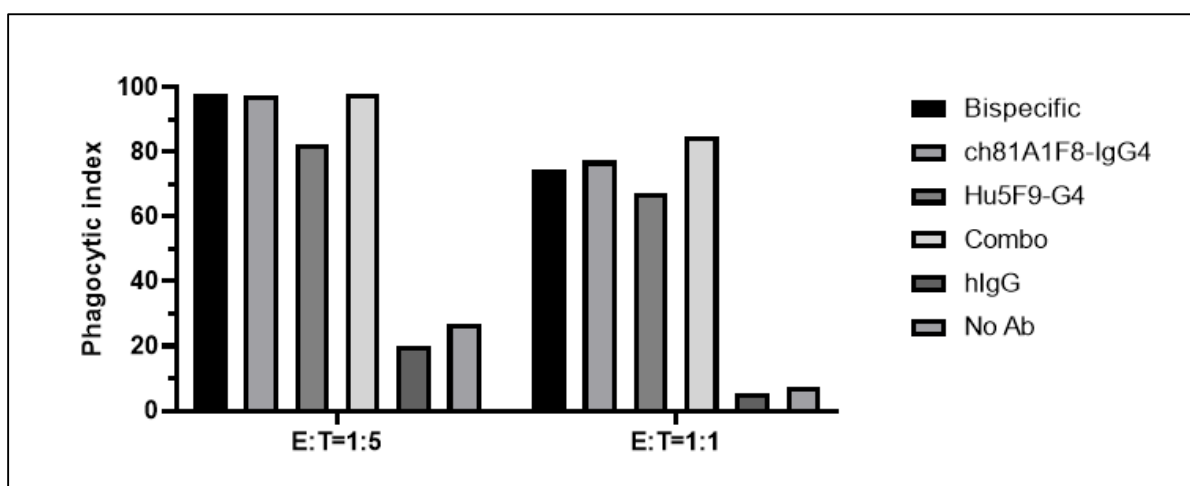


FIG. 4B

Humanized anti-CD24 mAbs binding affinity on HT29

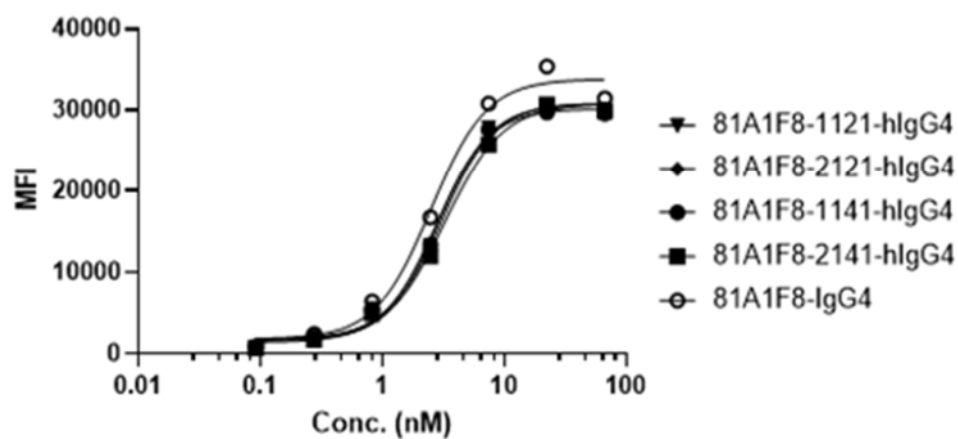


FIG. 5A

Humanized anti-CD24 mAbs binding affinity on Nalm6

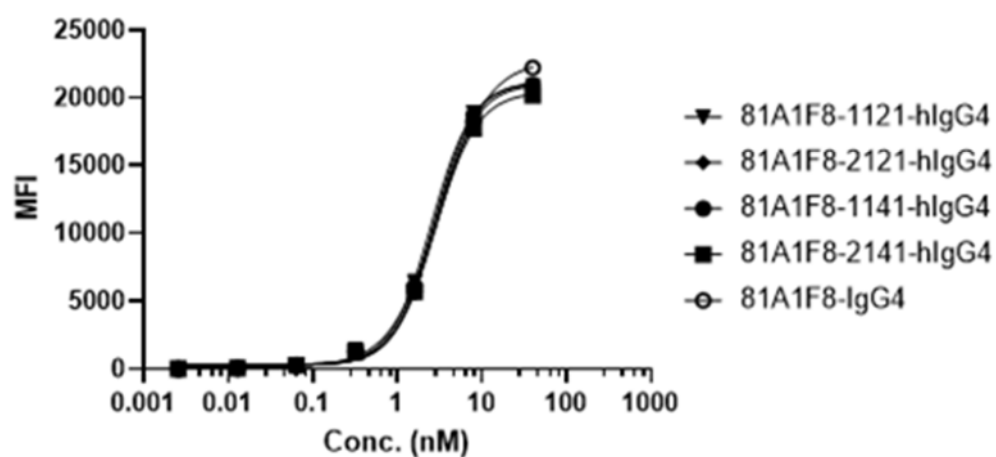
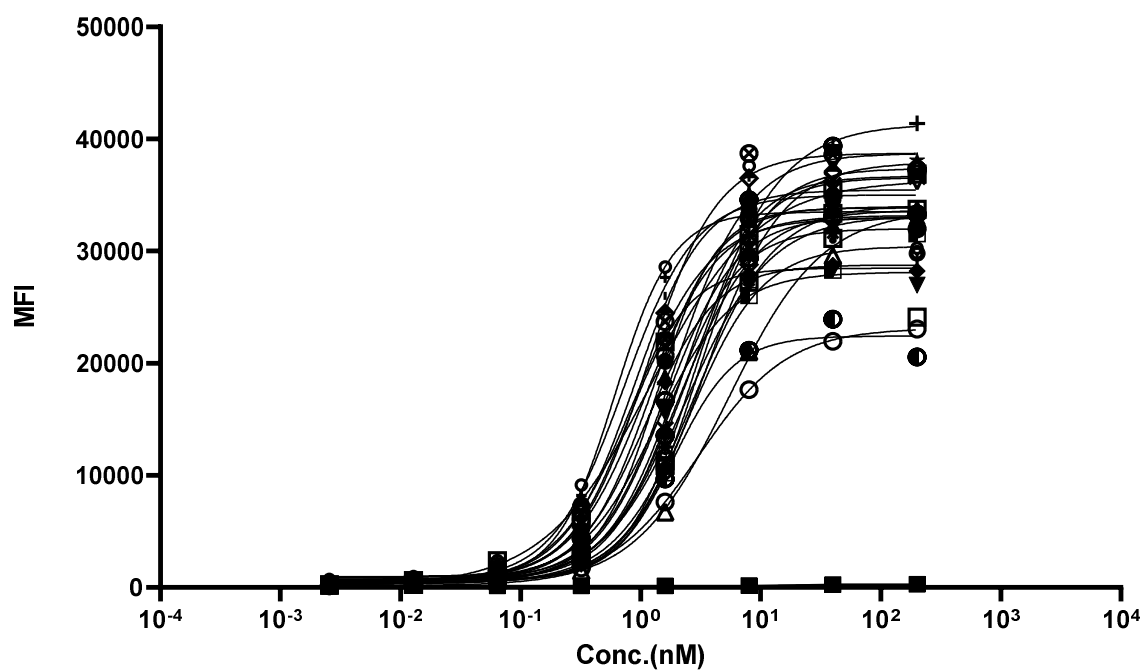


FIG. 5B

Humanized 101H9G9A2 binding affinity on HT-29



- | | |
|------------------------|-----------------------|
| ● 101H9G9A2-mVH-mVL | ⊙ 101H9G9A2-hVH3-hVL1 |
| ■ 101H9G9A2-mVH-mVL-V1 | ⊠ 101H9G9A2-hVH3-hVL2 |
| ▲ 101H9G9A2-mVH-mVL-V2 | ⊗ 101H9G9A2-hVH3-hVL3 |
| ▼ 101H9G9A2-mVH-mVL-V3 | ⊡ 101H9G9A2-hVH3-hVL4 |
| ◆ 101H9G9A2-mVH-mVL-V4 | ⊙ 101H9G9A2-hVH4-hVL1 |
| ⊖ 101H9G9A2-mVH-mVL-V5 | ⊙ 101H9G9A2-hVH4-hVL2 |
| ⊠ 101H9G9A2-hVH1-hVL1 | ♀ 101H9G9A2-hVH4-hVL3 |
| △ 101H9G9A2-hVH1-hVL2 | ⊠ 101H9G9A2-hVH4-hVL4 |
| ▽ 101H9G9A2-hVH1-hVL3 | ⊠ 101H9G9A2-hVH5-hVL1 |
| ◇ 101H9G9A2-hVH1-hVL4 | ⊙ 101H9G9A2-hVH5-hVL2 |
| * 101H9G9A2-hVH2-hVL1 | ● 101H9G9A2-hVH5-hVL3 |
| ★ 101H9G9A2-hVH2-hVL2 | ◆ 101H9G9A2-hVH5-hVL4 |
| ⊠ 101H9G9A2-hVH2-hVL3 | ⊙ 101H9G9A2-hlgG |
| ✕ 101H9G9A2-hVH2-hVL4 | ■ hlgG1 |

FIG. 5C

humanized variants	KD(M)	Folds of mouse antibody
81A1F8-VH-11/VL-11	2.04E-11	0.084647303
81A1F8-VH-21/VL-11	1.58E-11	0.065560166
81A1F8-VH-31/VL-11	2.47E-10	1.024896266
81A1F8-VH-11/VL-21	1.39E-10	0.576763485
81A1F8-VH-21/VL-21	8.19E-11	0.339834025
81A1F8-VH-31/VL-21	too Weak	/
81A1F8-GVH-11/VL-31	too Weak	/
81A1F8-VH-21/VL-31	7.12E-10	2.954356846
81A1F8-VH-31/VL-31	1.11E-09	4.605809129
81A1F8-VH-11/VL-41	6.19E-10	2.56846473
81A1F8-VH-21/VL-41	5.25E-10	2.178423237
81A1F8-VH-31/VL-41	0.0000216	89626.55602
81A1F8-G4 mouse antibody	2.41E-10	

FIG. 5D

MCF7-hCD24

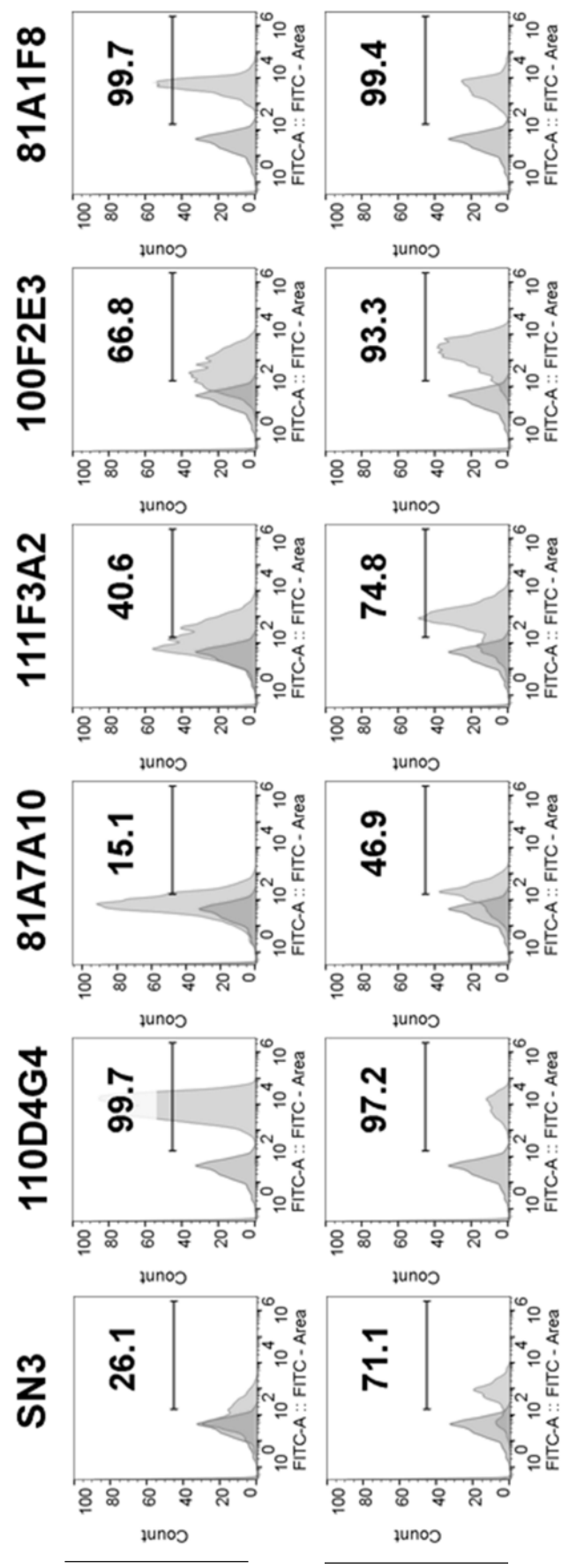


FIG. 6A

293T-hCD24

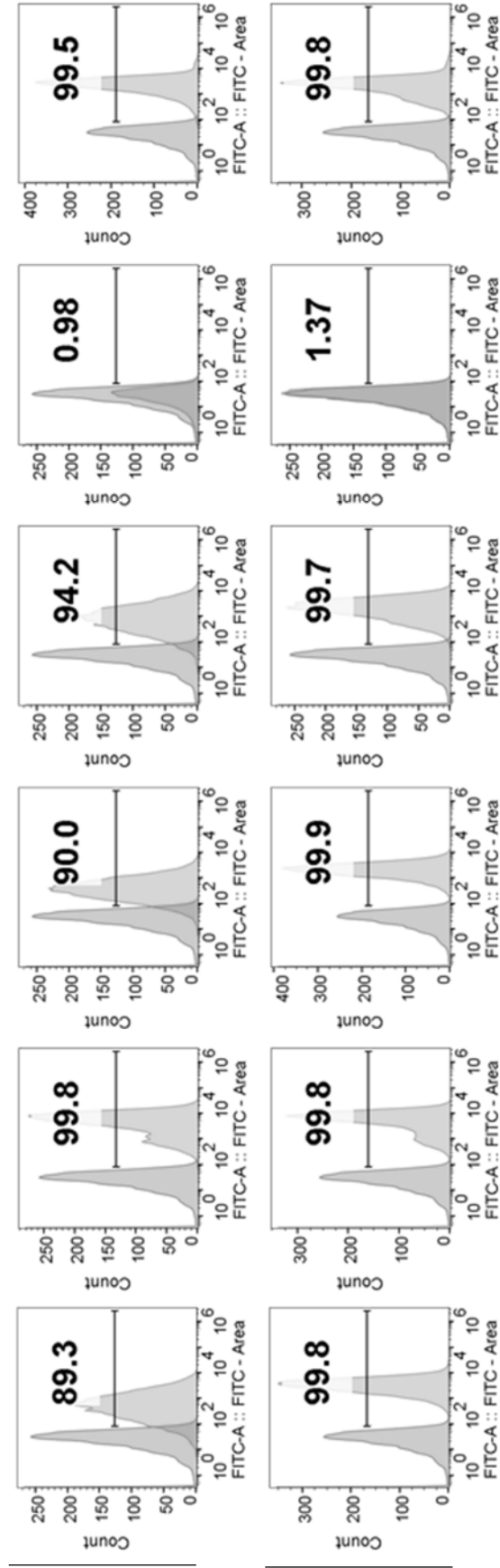


FIG. 6A (Continued)

HCT116

Digested by Neuraminidase A Ctrl

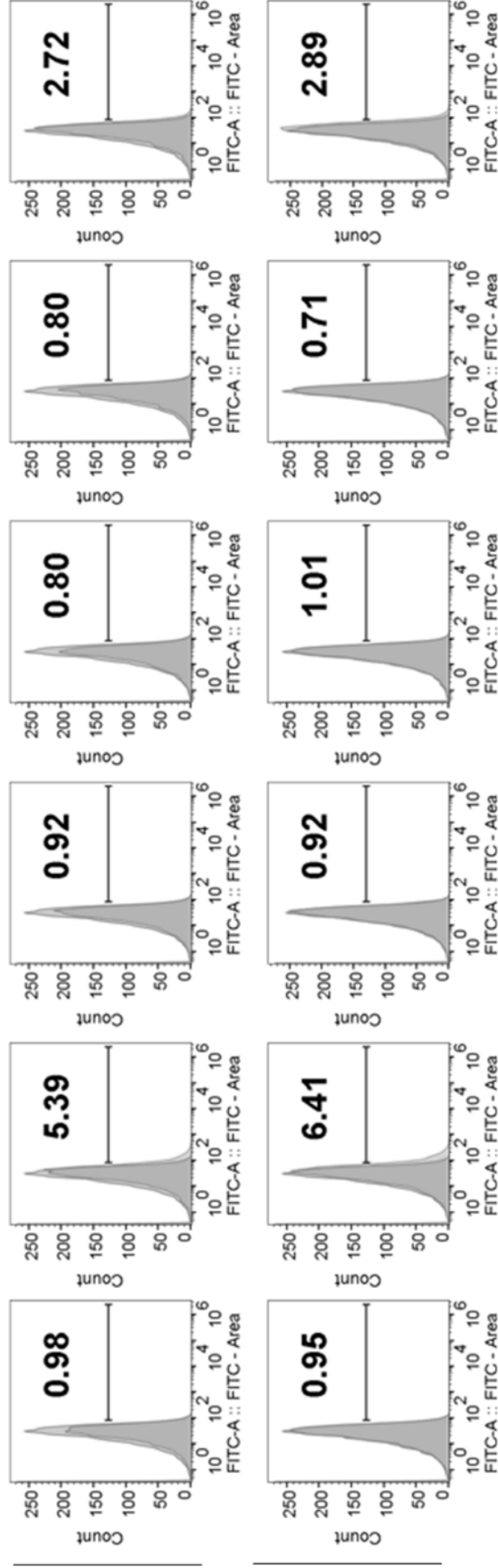


FIG. 6A (Continued)

81A1F8

101H9G9A2

107D10D11

HT-29

PBS Ctrl

De-glycosylation Mix II
(NEB, P6044S)

α 2-3,6,8,9 Neuraminidase A
(NEB, P0722L)

Nalm6

PBS Ctrl

De-glycosylation Mix II
(NEB, P6044S)

α 2-3,6,8,9 Neuraminidase A
(NEB, P0722L)

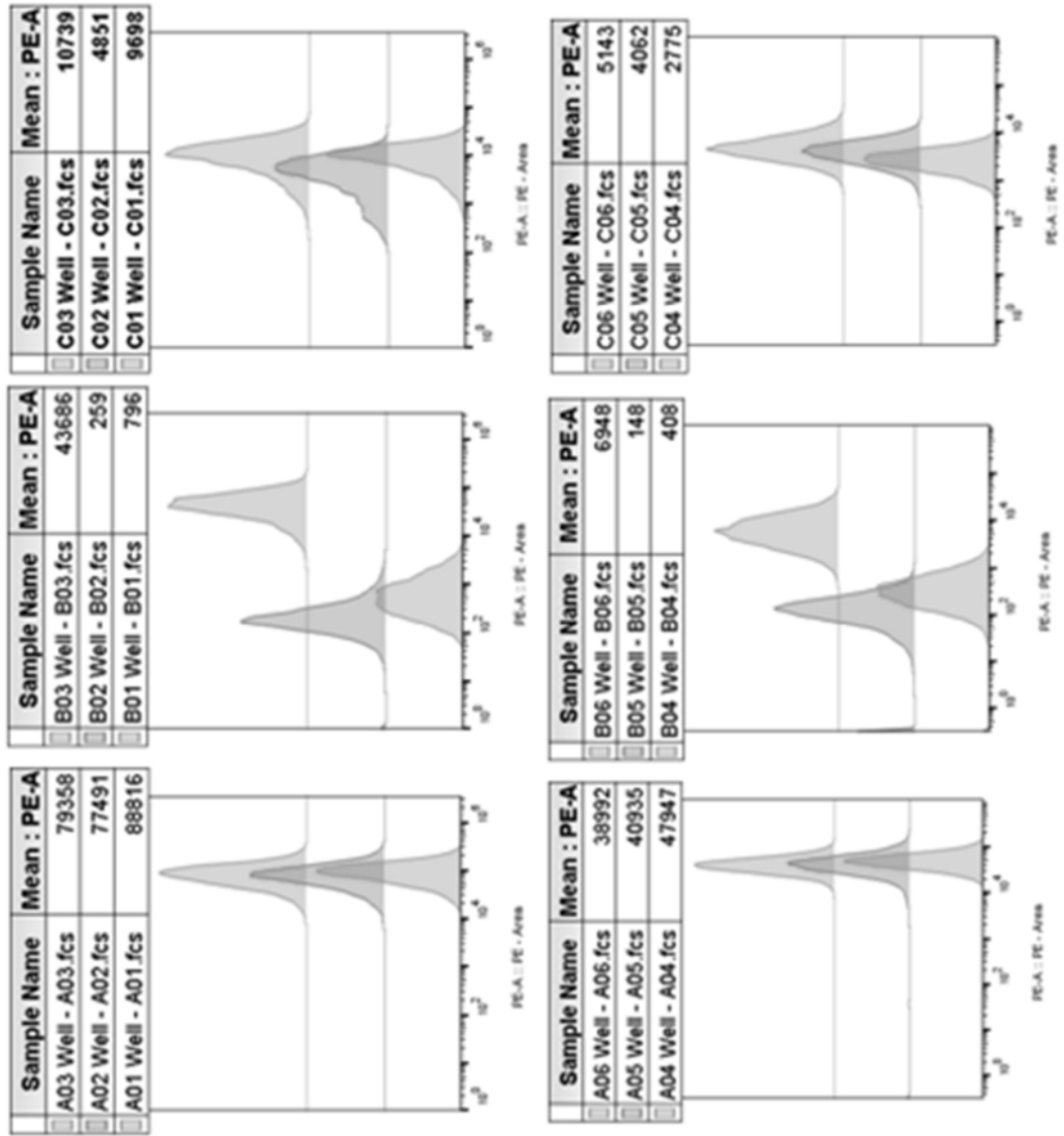
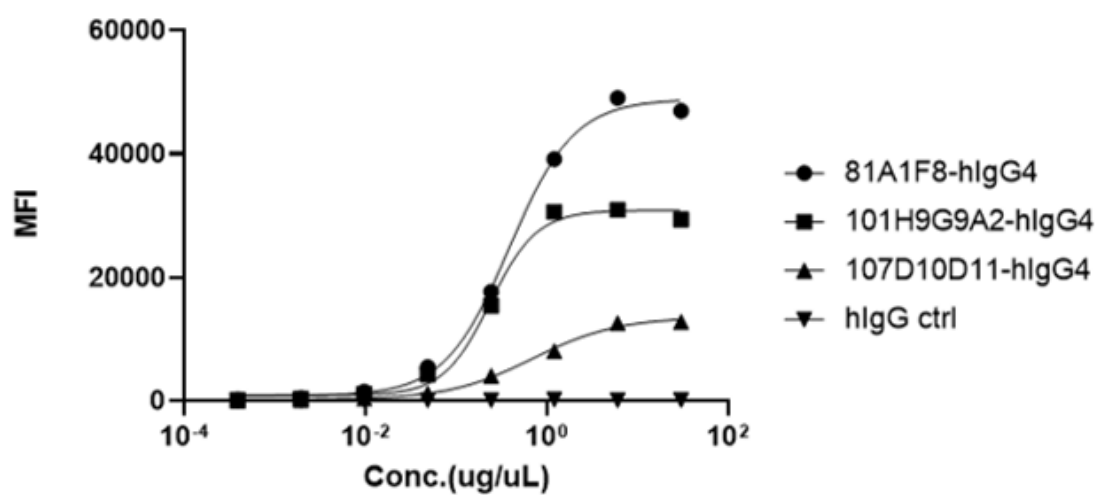


FIG. 6B

Anti-CD24 mAbs binding on HT-29 cells



Anti-CD24 mAbs binding on 293T-hCD24 cells

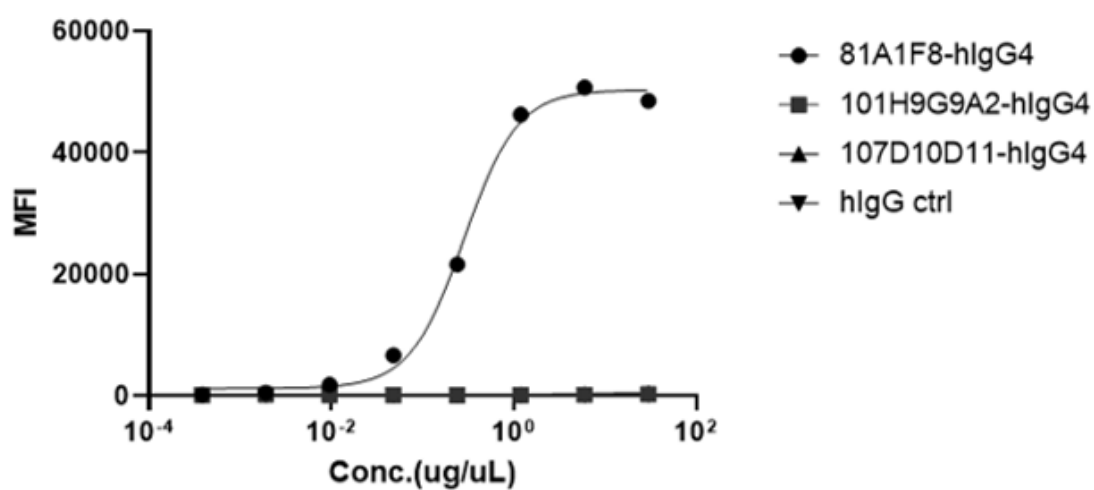


FIG. 6C

d

81A1F8

101H9G9A2

107D10D11

SN3

HT-29

HT-29-CD24KO

293T-hCD24

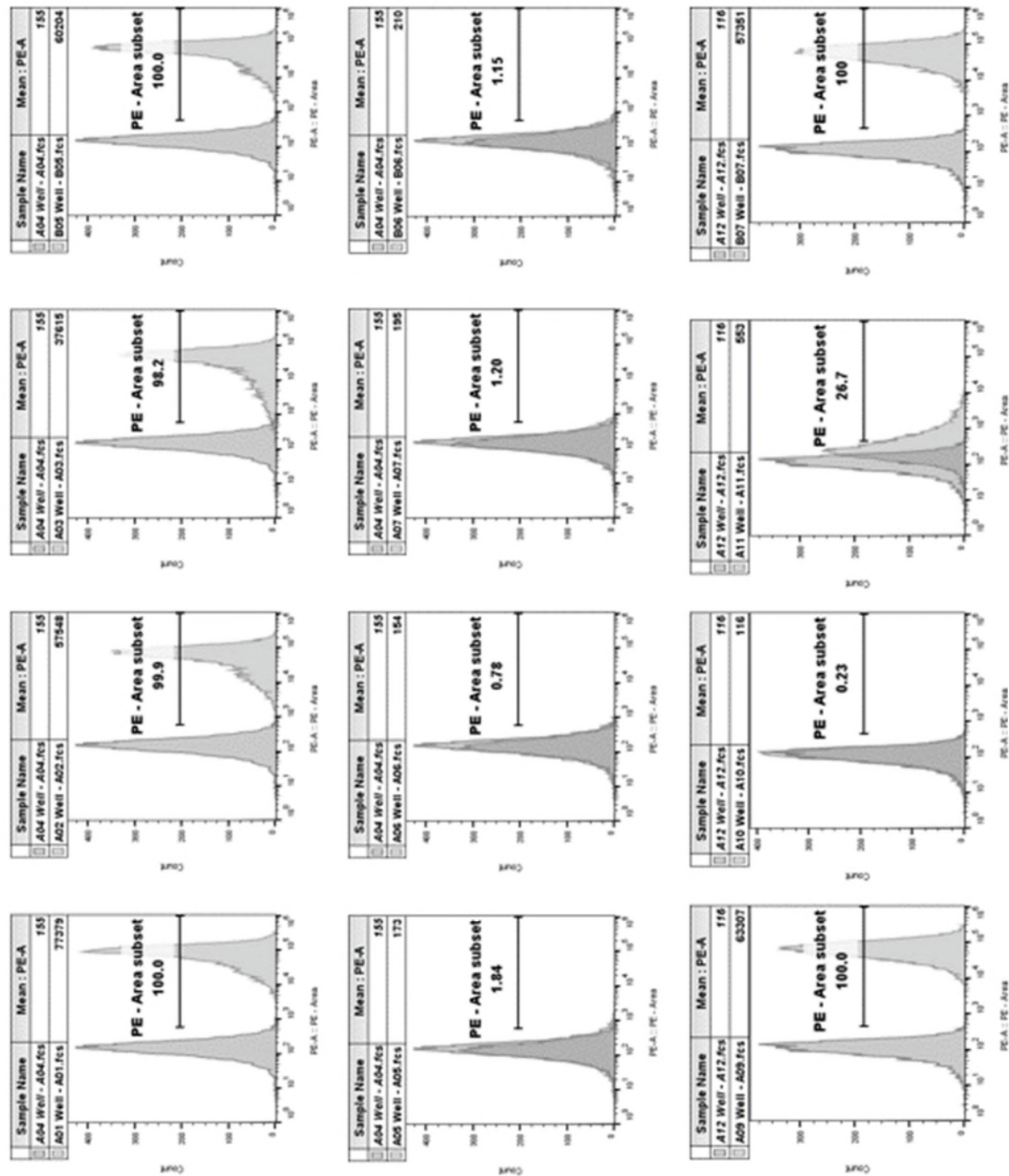


FIG. 6D

Entry	Kinetics model	Immobilized ligand	Analyte 1 Solution	Kinetics Chi ² (RU ²)	ka (1/Ms)	kd (1/s)	KD (M)
1	1:1 binding	2.5ug/ml hCD24-mFc-biotin	101H9G9A2	3.42E-02	2.57E+06	3.20E-03	1.24E-09
2	1:1 binding	0.8ug/ml hCD24-mFc-biotin	33E7E12	4.97E-02	2.40E+05	7.40E-04	3.08E-09
3	1:1 binding	0.8ug/ml hCD24-mFc-biotin	SWA11	5.35E-02	5.74E+05	1.07E-03	1.86E-09
4	1:1 binding	0.8ug/ml hCD24-mFc-biotin	110D4G4	5.77E-01	5.32E+06	6.59E-04	1.24E-10
5	1:1 binding	0.8ug/ml hCD24-mFc-biotin	81A1F8	8.90E-01	2.12E+06	2.01E-04	9.50E-11
6	1:1 binding	2.5ug/ml hCD24-mFc-biotin	107D10D11	6.23E-01	9.10E+05	6.94E-04	7.62E-10

FIG. 7A

Entry	Kinetics model	Capture 1 Solution	Analyte 1 Solution	Kinetics Chi ² (RU ²)	ka (1/Ms)	kd (1/s)	KD (M)
1	1:1 binding	1ug/ml 81A1F8-hlgG1	hCD24-mFc-Biotin	5.80E-01	1.23E+05	2.82E-04	2.29E-09
2	1:1 binding	1ug/ml 81A1F8-1141-hlgG1	hCD24-mFc-Biotin	1.15E+00	1.06E+05	5.94E-04	5.63E-09
3	1:1 binding	1ug/ml 81A1F8-2141-hlgG1	hCD24-mFc-Biotin	3.27E-01	1.22E+05	5.45E-04	4.48E-09
4	1:1 binding	1ug/ml 81A1F8-hlgG4	hCD24-mFc-Biotin	7.67E-01	1.43E+05	3.20E-04	2.23E-09
5	1:1 binding	1ug/ml 81A1F8-1141-hlgG4	hCD24-mFc-Biotin	2.51E-01	1.13E+05	6.22E-04	5.52E-09
6	1:1 binding	1ug/ml 81A1F8-2141-hlgG4	hCD24-mFc-Biotin	3.70E-01	1.38E+05	5.47E-04	3.97E-09

FIG. 7B

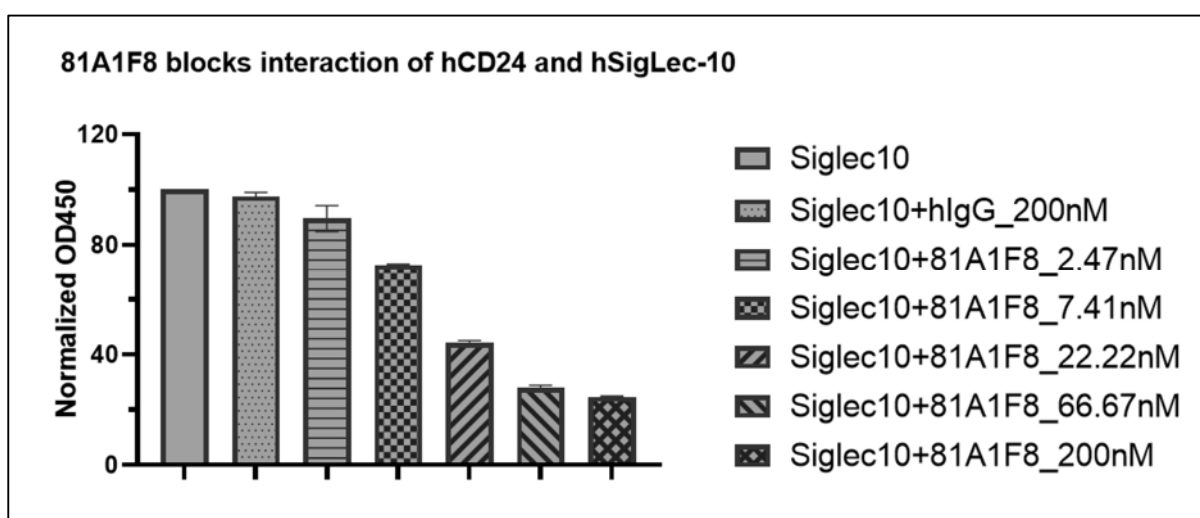
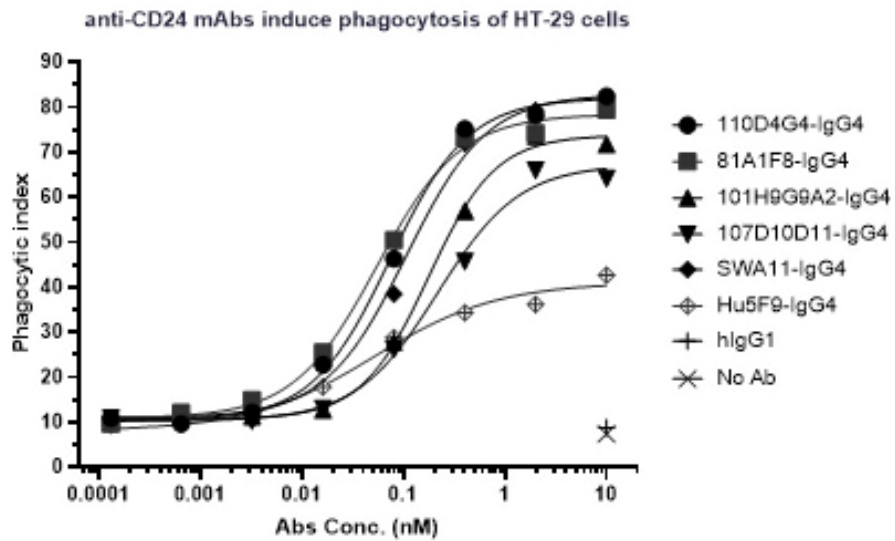
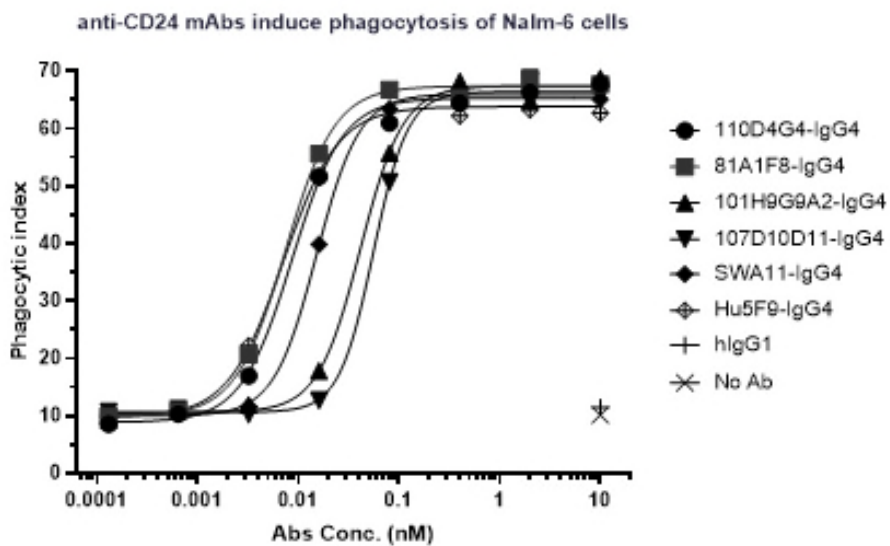


FIG. 8



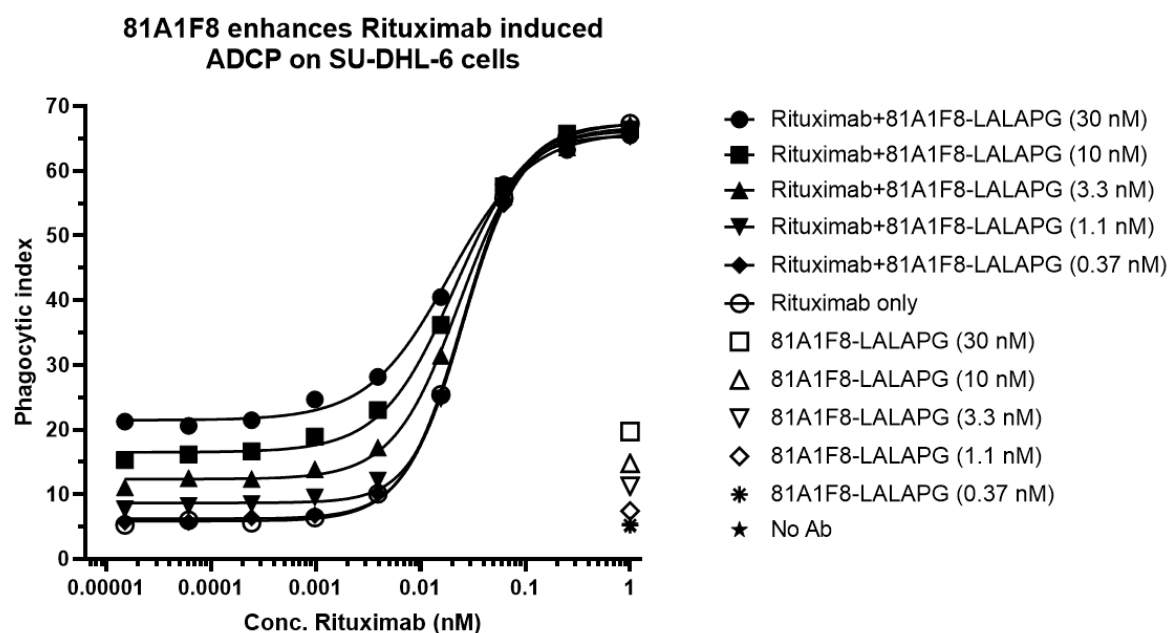
	110D4G4-IgG4	81A1F8-IgG4	101H9G9A2-IgG4	107D10D11-IgG4	SWA11-IgG4	Hu5F9-IgG4	hIgG1	No Ab
EC50	0.07330	0.05447	0.1755	0.2164	0.1057	0.05138		

FIG. 9A



	110D4G4-IgG4	81A1F8-IgG4	101H9G9A2-IgG4	107D10D11-IgG4	SWA11-IgG4	Hu5F9-IgG4	hIgG1	No Ab
EC50	0.008585	0.007403	0.04114	0.05554	0.01509	0.007031		

FIG. 9B



	Rituximab+81A1F8-LALAPG (30 nM)	Rituximab+81A1F8-LALAPG (10 nM)	Rituximab+81A1F8-LALAPG (3.3 nM)	Rituximab+81A1F8-LALAPG (1.1 nM)	Rituximab+81A1F8-LALAPG (0.37 nM)	Rituximab only
EC50	0.0188	0.0213	0.0234	0.0259	0.02515	0.025

FIG. 9C

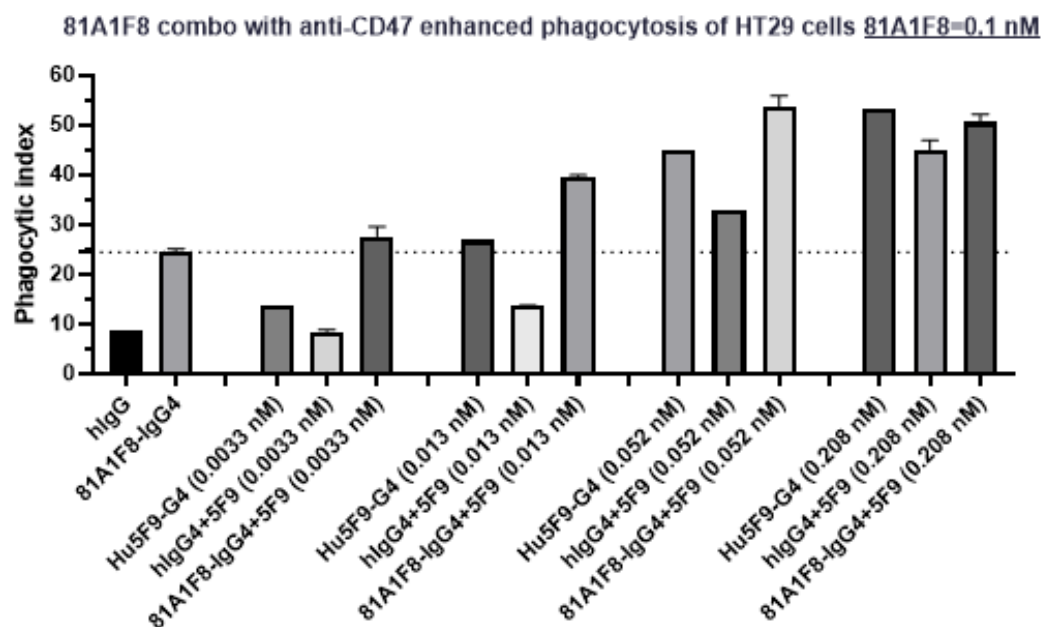


FIG. 9D

ADCC induced by humanized 81A1F8 on HT-29 cells

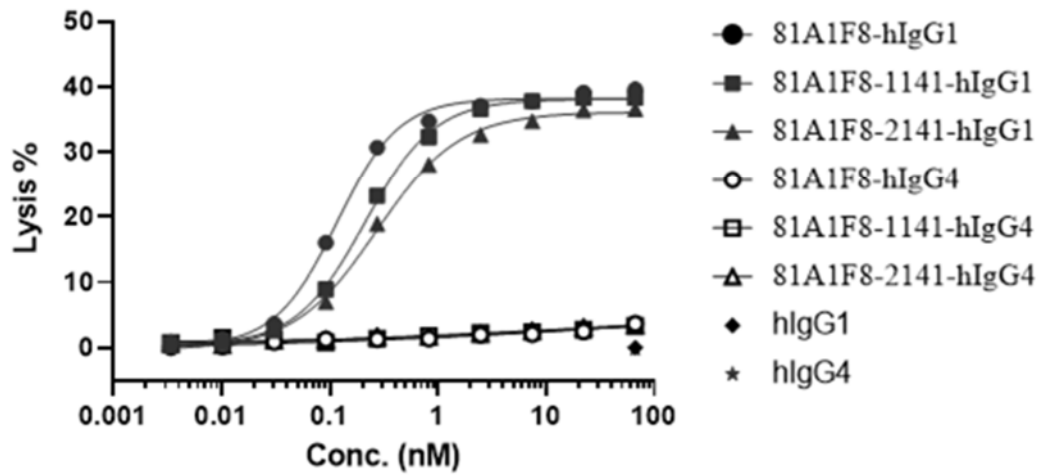


FIG. 10A

CDC induced by humanized 81A1F8 on hCD24-MCF7

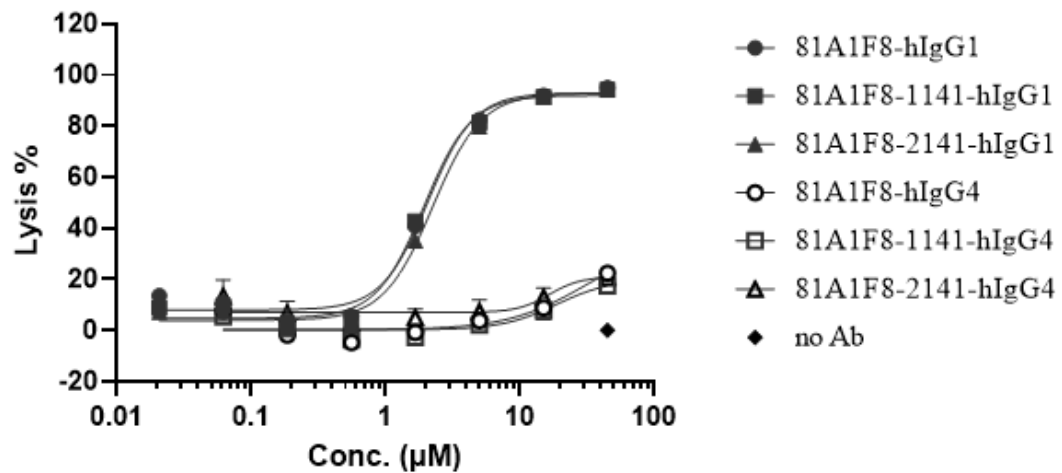


FIG. 10B

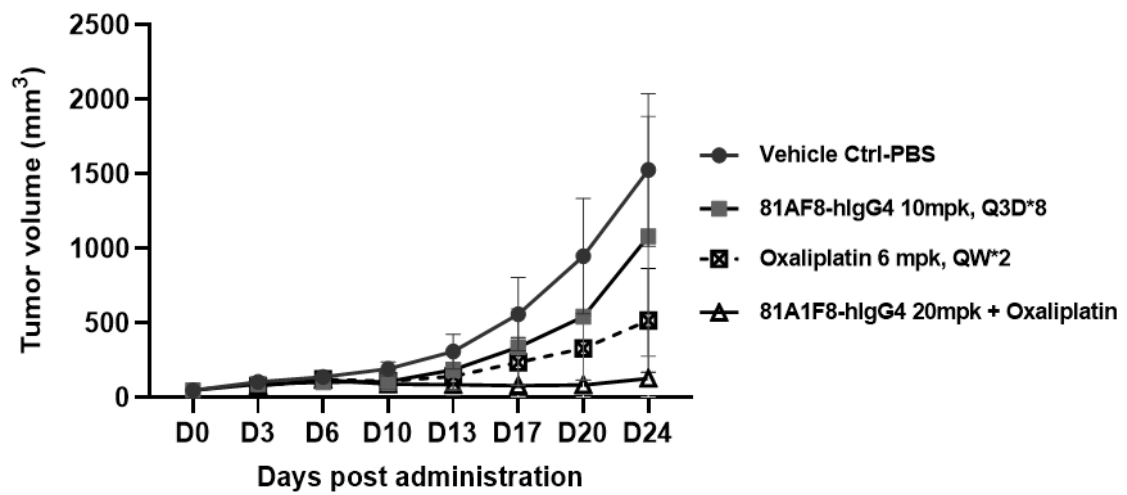


FIG. 11A

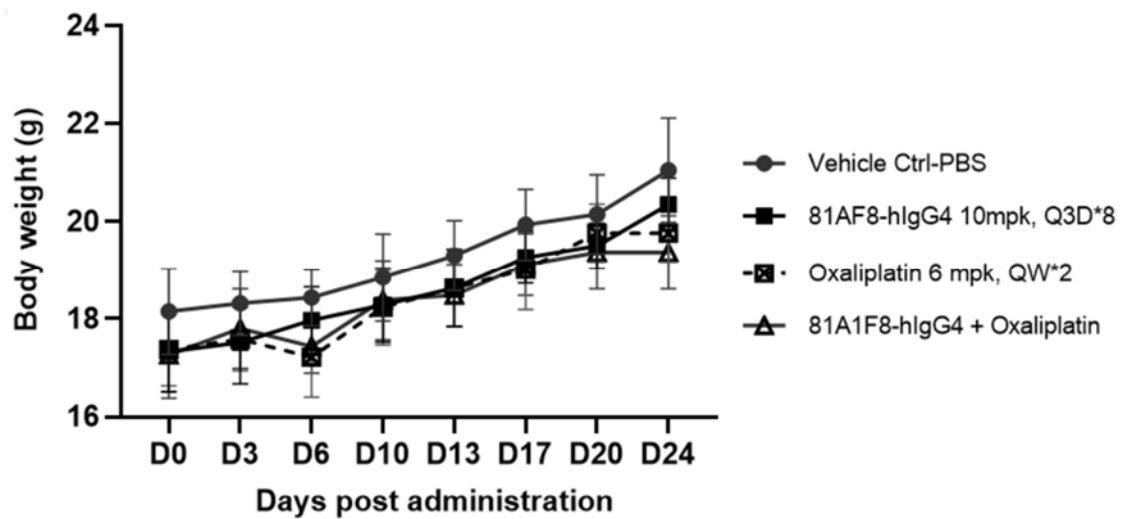


FIG. 11B

Group (6 mice per group)	TGI	Tumor free
Vehicle ctrl-PBS	/	/
81A1F8-hIgG4 10mpk Q3D	33%	0
Oxaliplatin 6mpk QW	65%	1
Oxaliplatin+81A1F8-hIgG4	92.4%	1

FIG. 11C

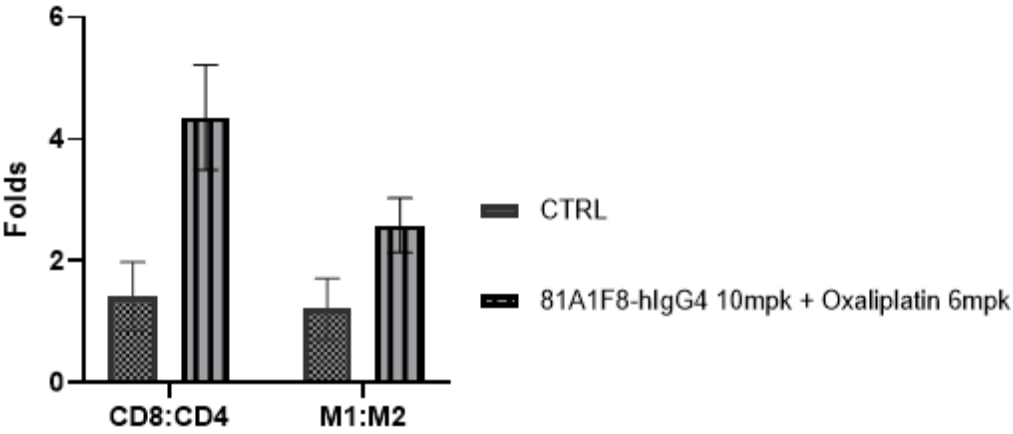


FIG. 11D

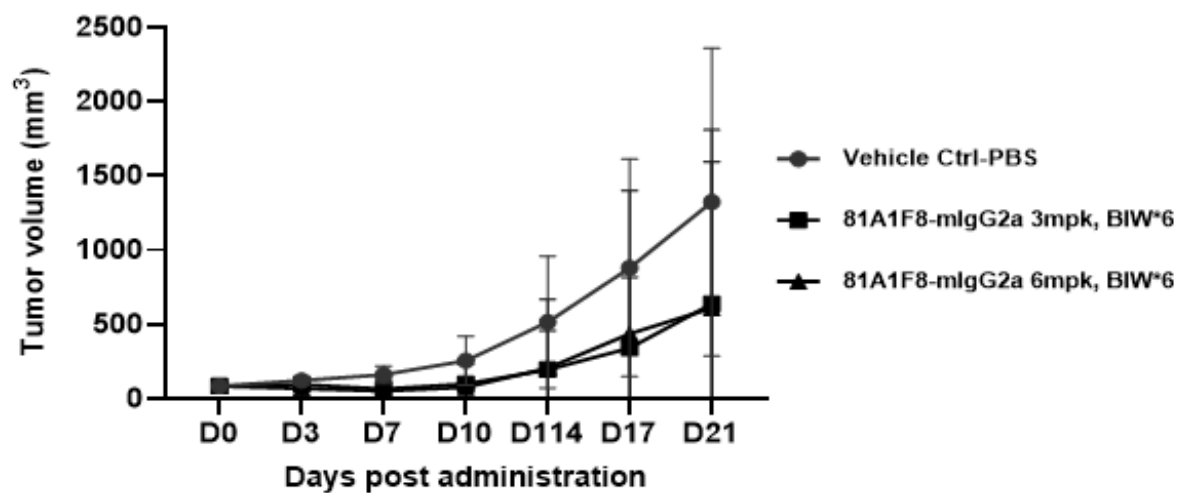


FIG. 12A

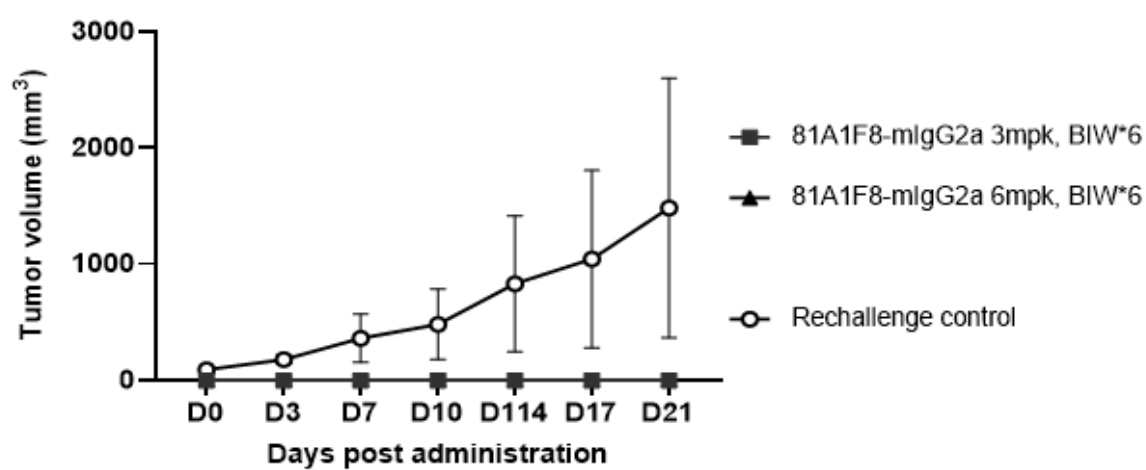


FIG. 12B

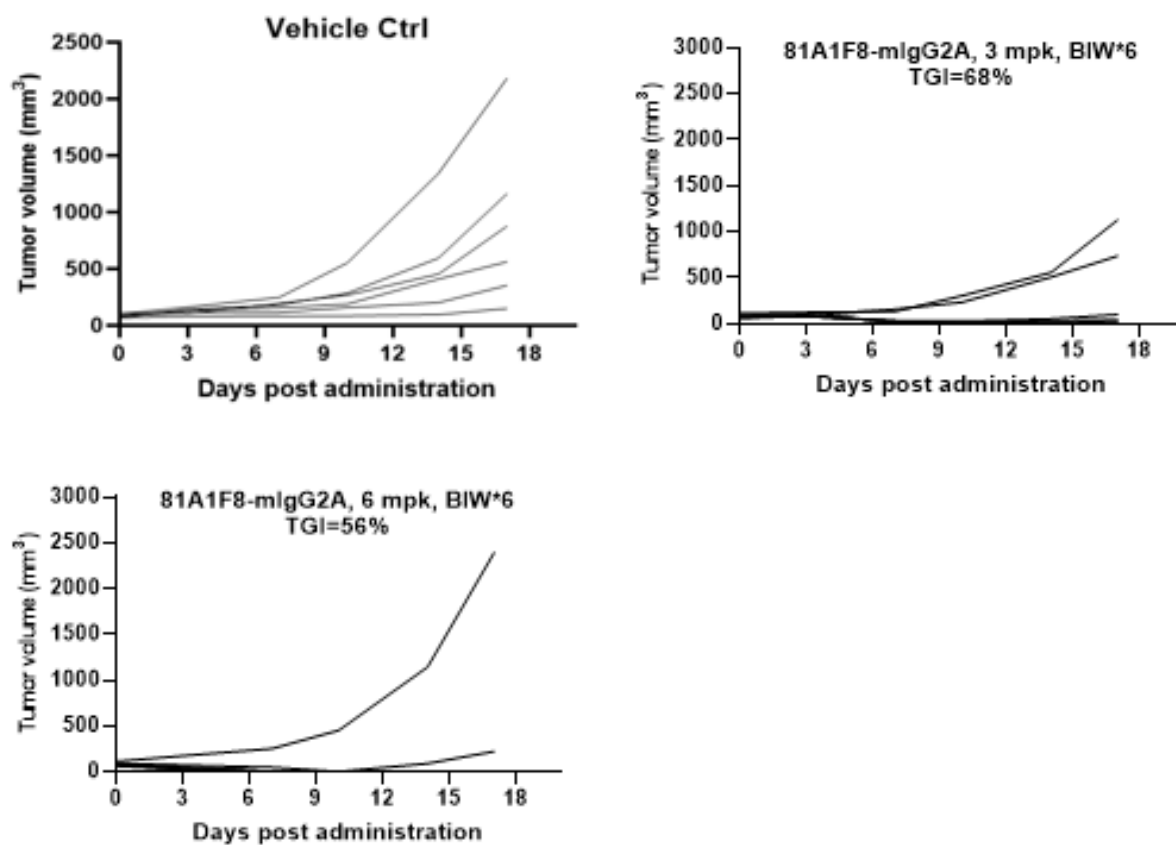


FIG. 12C

Group(6 mice per group)	TGI	Tumor free
Vehicle ctrl-PBS	/	/
81A1F8-mIgG2a 3mpk BIW	68%	1
81A1F8-mIgG2a 6mpk BIW	56%	5 to 4

FIG. 12D

a

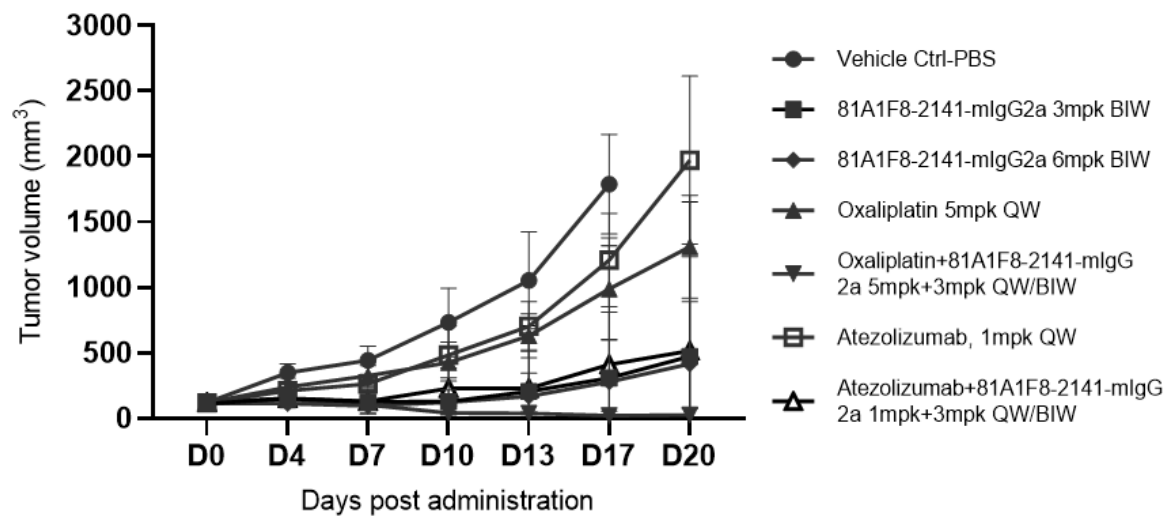


FIG. 13A

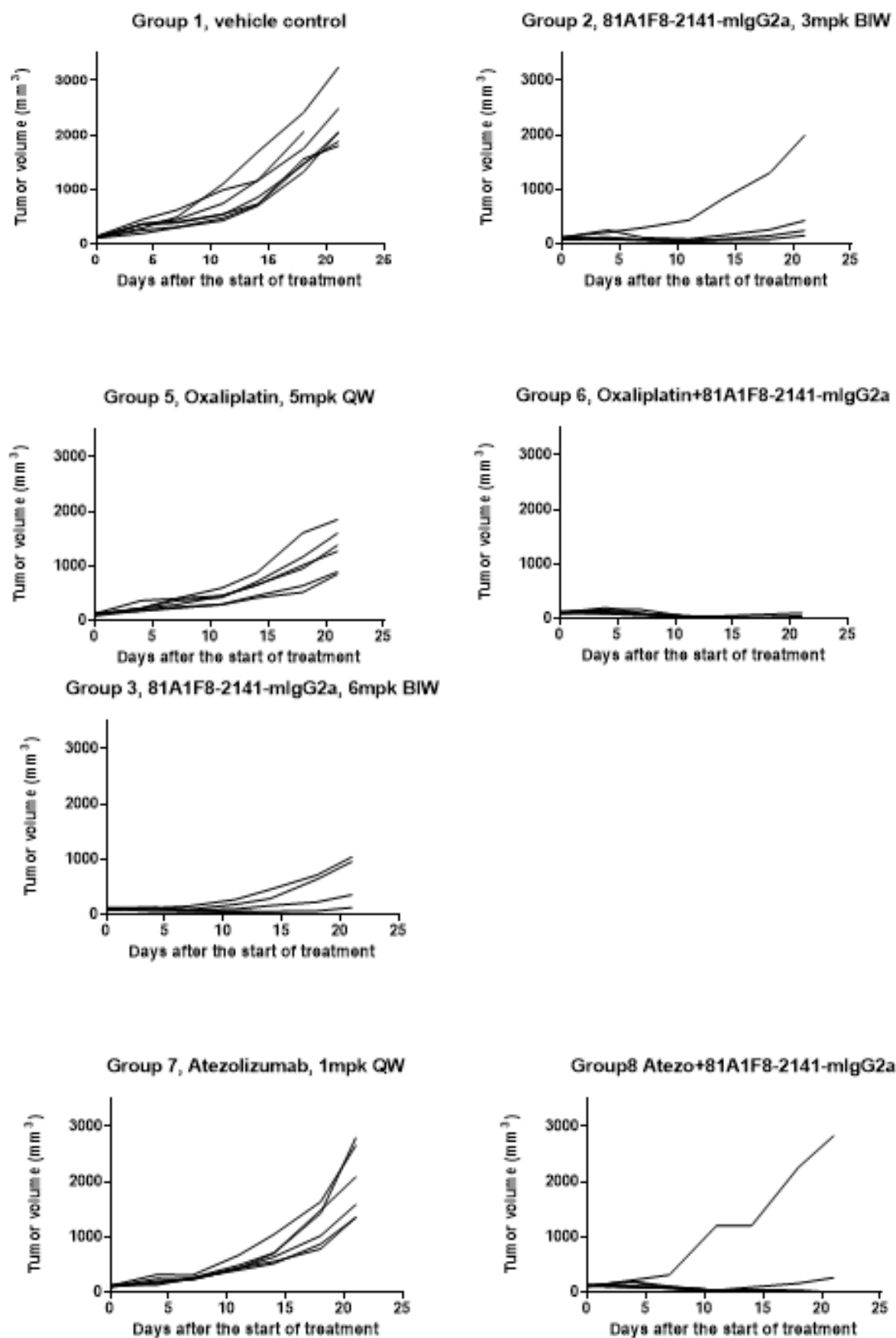


FIG. 13B

		Tumor free
Vehicle control	/	/
81A1F8-2141-mlgG2a 3mpk; BIW	95.3	2
81A1F8-2141-mlgG2a 6mpk; BIW	98.5	2
Oxaliplatin 5mpk QW	46.6	/
Oxaliplatin+81A1F8-2141-mlgG2a 5+3, QW/BIW	<i>>100</i>	4
Atezolizumab 1mpk; QW	35.7	/
Atezolizumab+81A1F8-2141-mlgG2a 1+3, QW/BIW	81.5	4

FIG. 13C

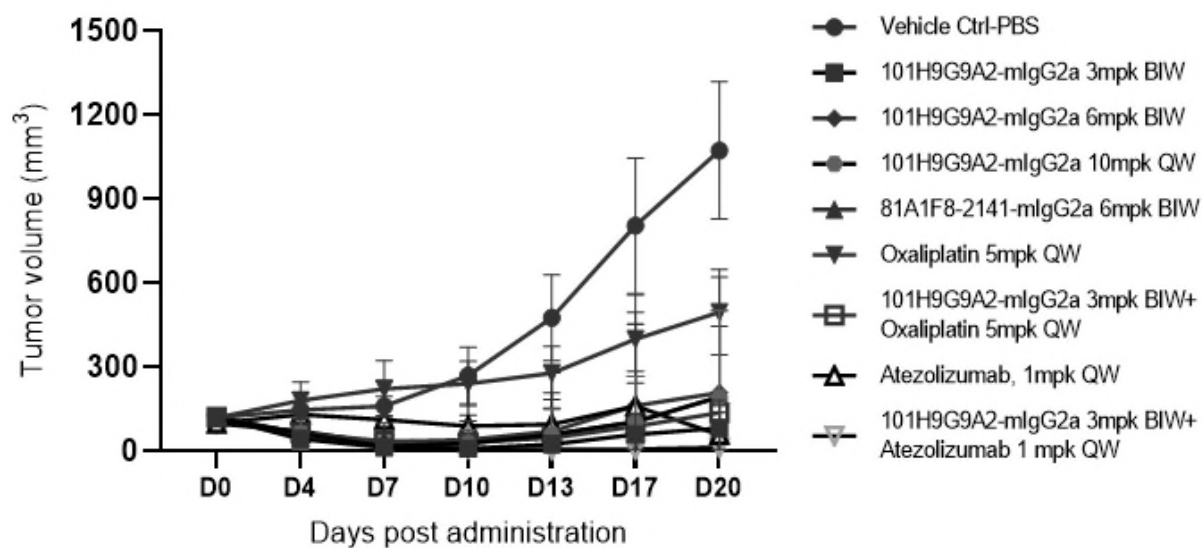


FIG. 14A

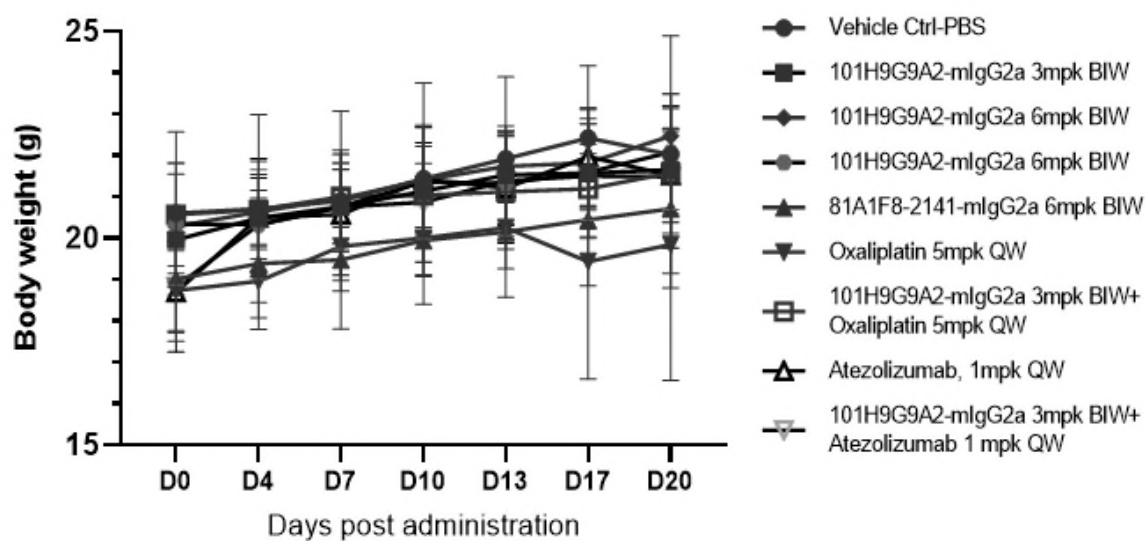


FIG. 14B

Group(6 mice/group)	TGI	Tumor Free
Vehicle Ctrl	/	
101H9G9A2-mIgG2a, 3mpk BIW	103.9%	2
101H9G9A2-mIgG2a, 6mpk BIW	90.7%	2
101H9G9A2-mIgG2a, 10mpk QW	92.26%	4
81A1F8-2141-mIgG2a, 6mpk BIW	110.2%	5
Oxaliplatin, 5mpk QW	60%	/
Oxaliplatin+101H9G9A2-mIgG2a 5mpk+3mk QW/BIW	98.24%	4
Atezolizumab, 1mpk QW	91%	2
Atezolizumab+101H9G9A2-mIgG2a 1mpk+3mpk QW/BIW	108.9%	4

FIG. 14C

Anti-cmCD24 mAb affinity ranking on cmCD24-293F

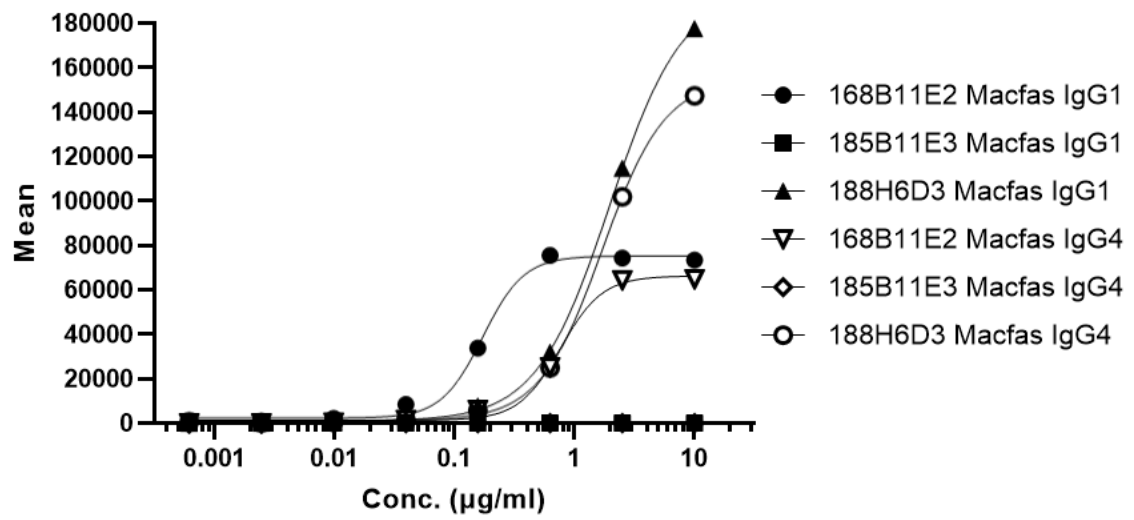


FIG. 15

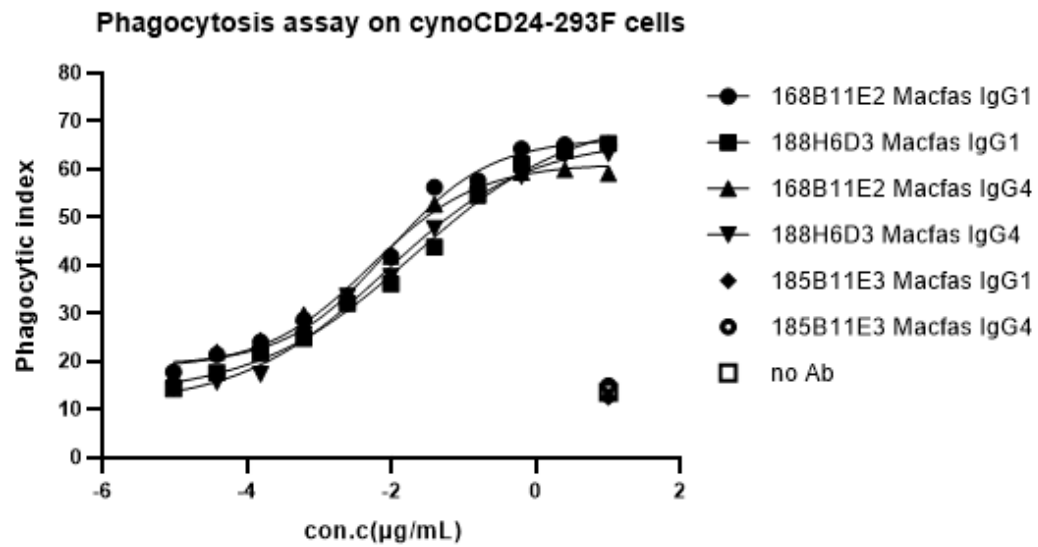


FIG. 16A

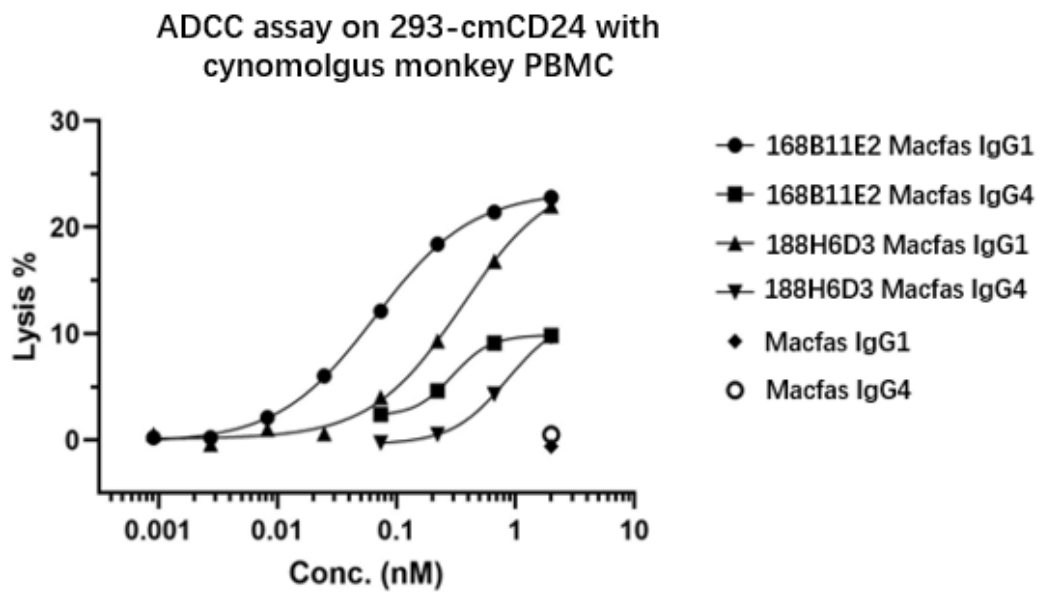


FIG. 16B

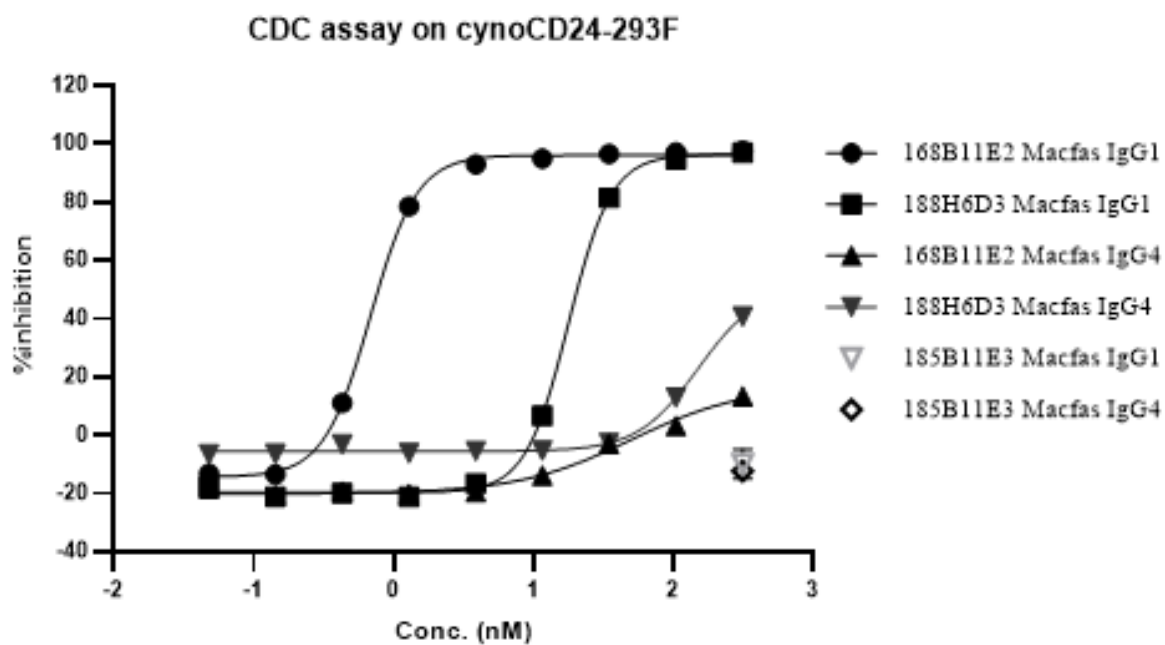


FIG. 16C