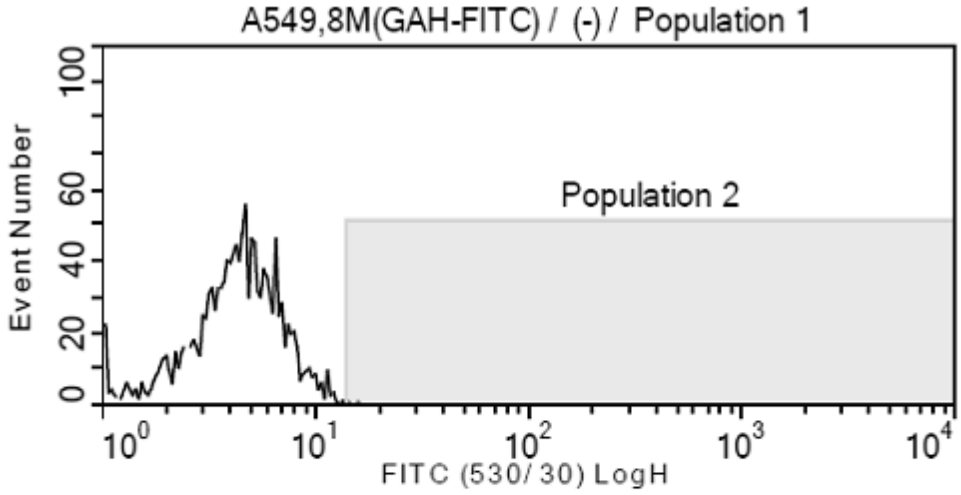
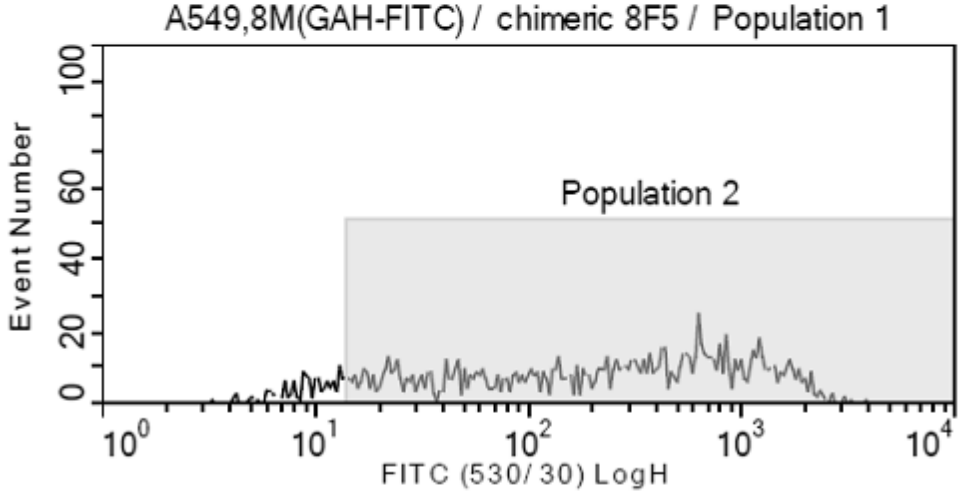
【Fig. 1】

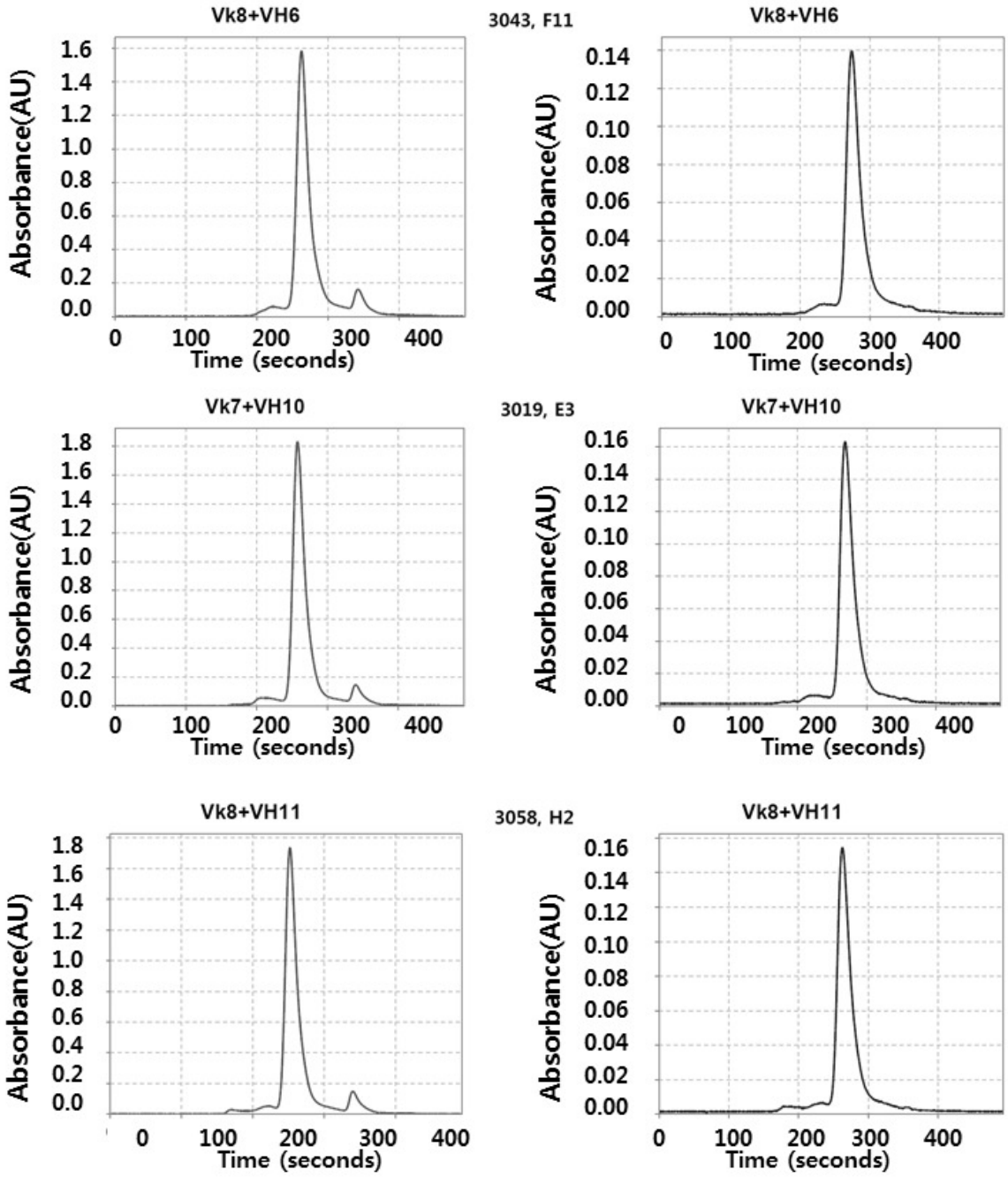


Population	% of Parent	Mean X
All of Plot	100.00	4.66
Population 2	0.15	14.85

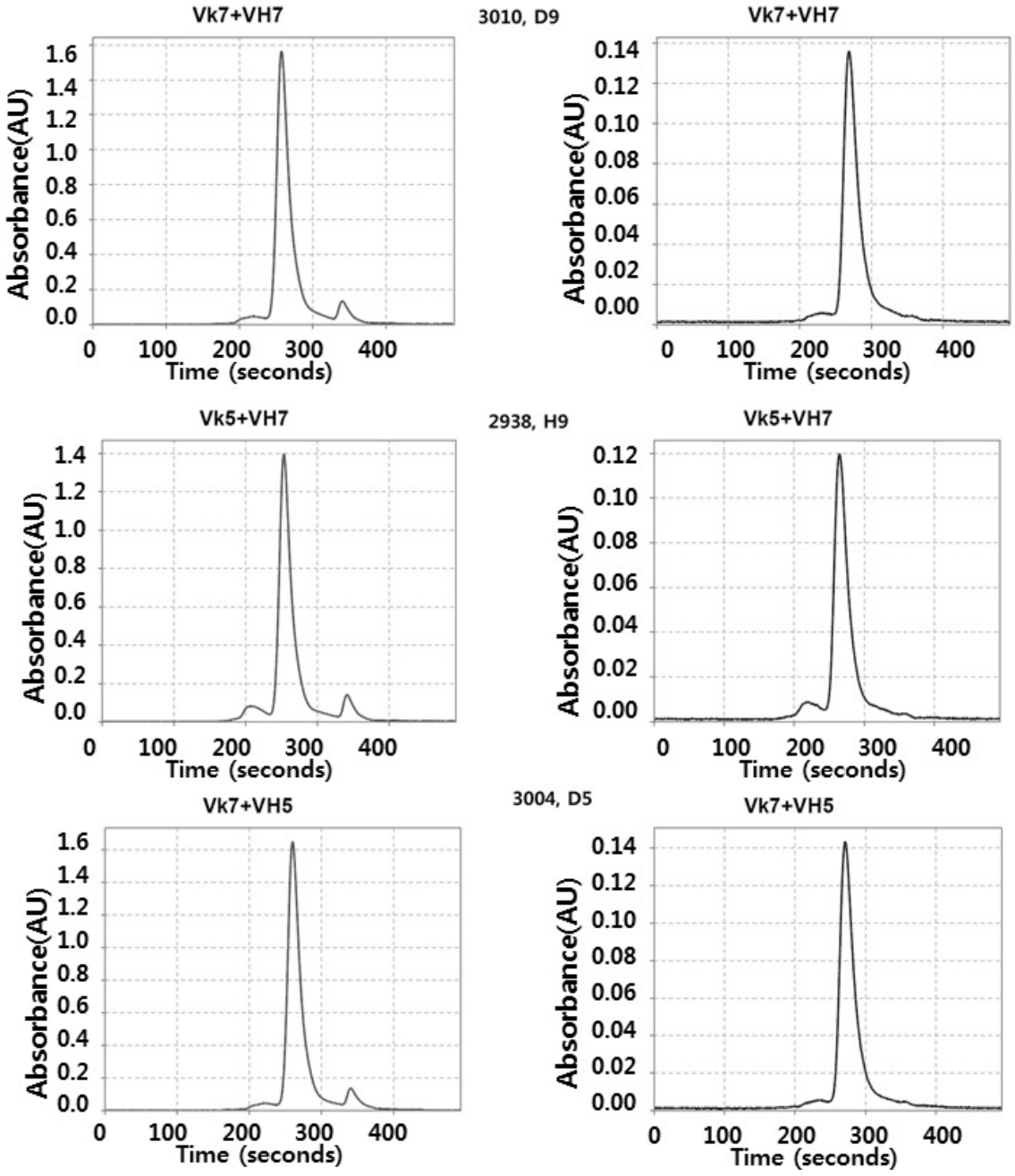


Population	% of Parent	Mean X
All of Plot	100.00	473.72
Population 2	91.29	518.00

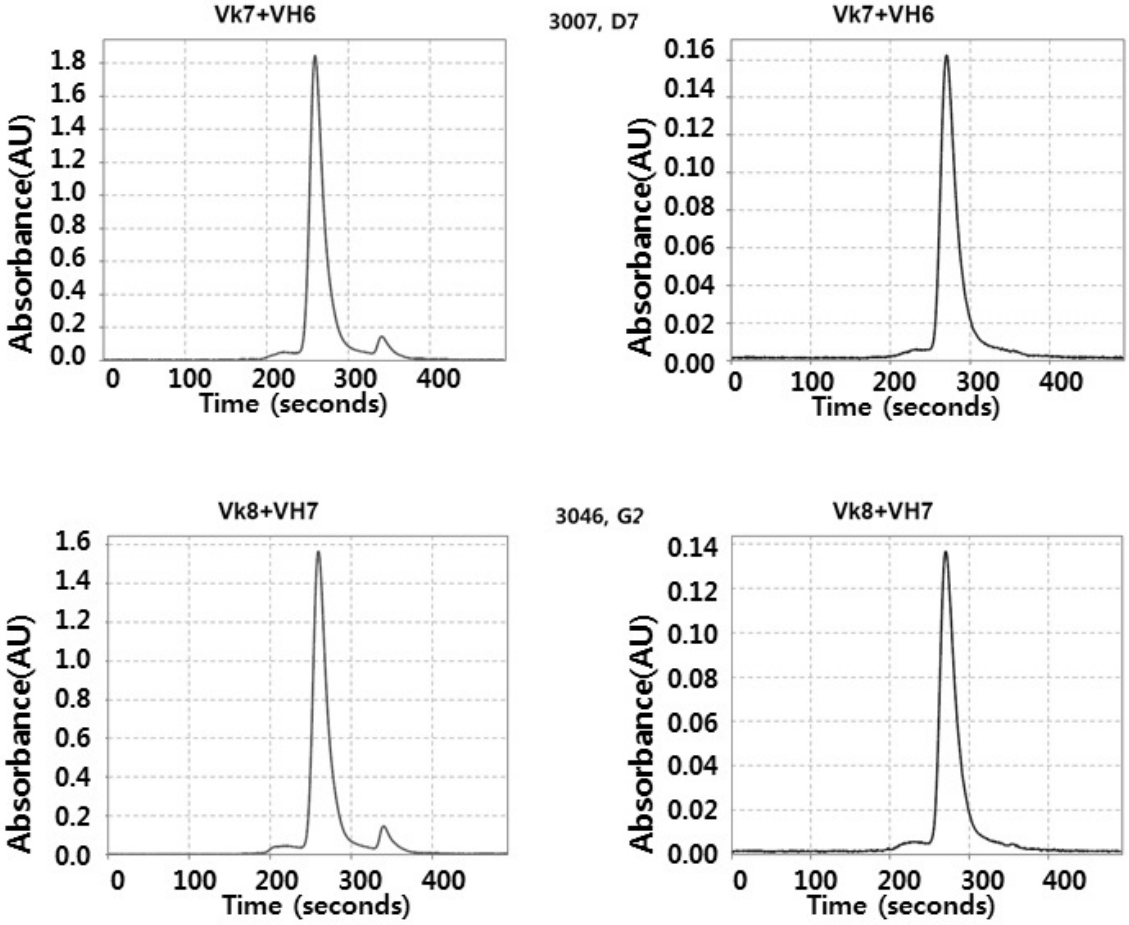
【Fig. 2a】


Vk8+VH6
3043, F11
Vk8+VH6
Absorbance(AU)
Time (seconds)
Vk7+VH10
3019, E3
Vk7+VH10
Vk8+VH11
3058, H2
Vk8+VH11

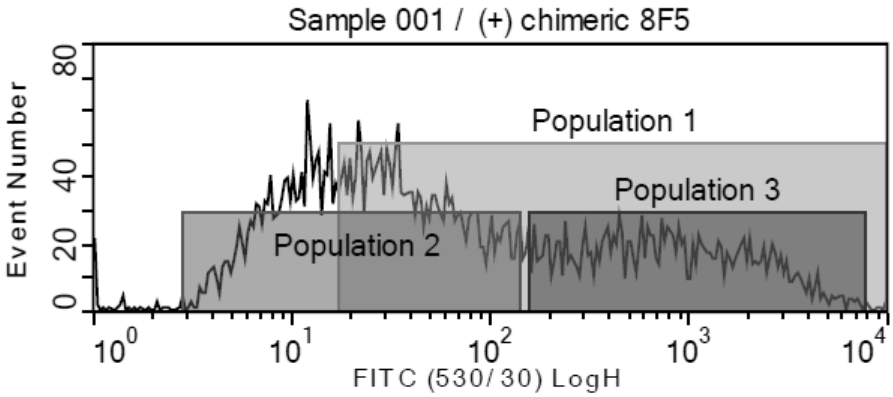
【Fig. 2b】


Vk7+VH7
3010, D9
Vk7+VH7
Absorbance(AU)
Time (seconds)
Vk5+VH7
2938, H9
Vk5+VH7
Vk7+VH5
3004, D5
Vk7+VH5

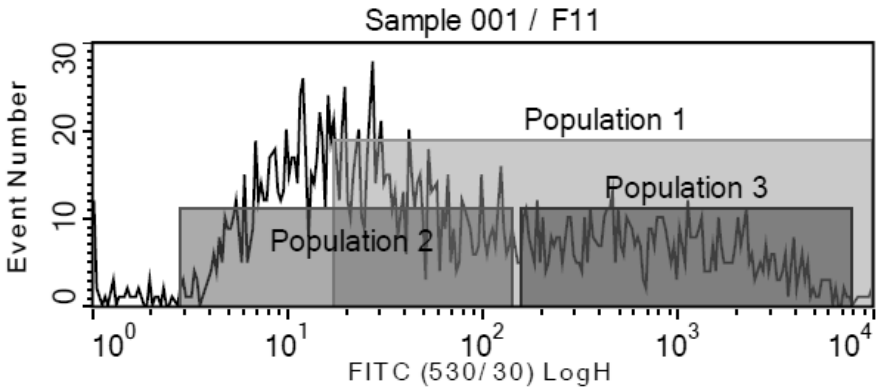
【Fig. 2c】


Vk7+VH6
Absorbance(AU)
Time (seconds)
3007, D7
Vk7+VH6
Absorbance(AU)
Time (seconds)
Vk8+VH7
Absorbance(AU)
Time (seconds)
3046, G2
Vk8+VH7
Absorbance(AU)
Time (seconds)

【Fig. 3a】

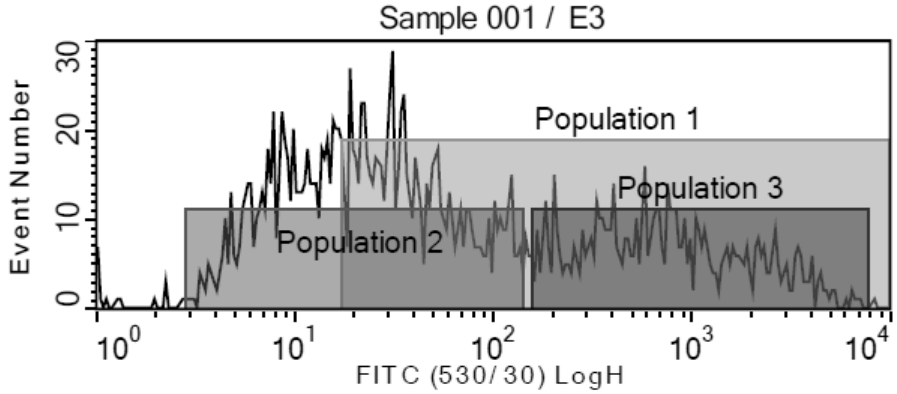


Population	% of Par...	Mean X	Med X
All of Plot	100.00	455.64	48.74
Population 1	73.10	619.74	120.16
Population 2	64.42	34.31	22.39
Population 3	33.48	1256.91	752.11

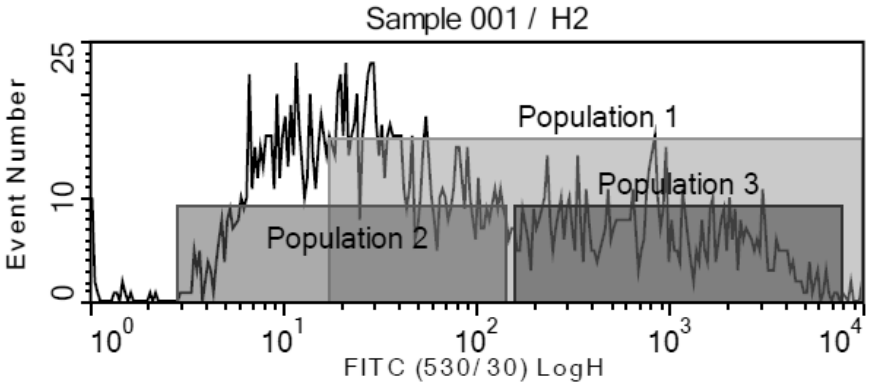


Population	% of Par...	Mean X	Med X
All of Plot	100.00	481.96	43.95
Population 1	69.80	686.41	140.91
Population 2	63.30	32.46	19.69
Population 3	33.65	1272.50	747.37

【Fig. 3b】

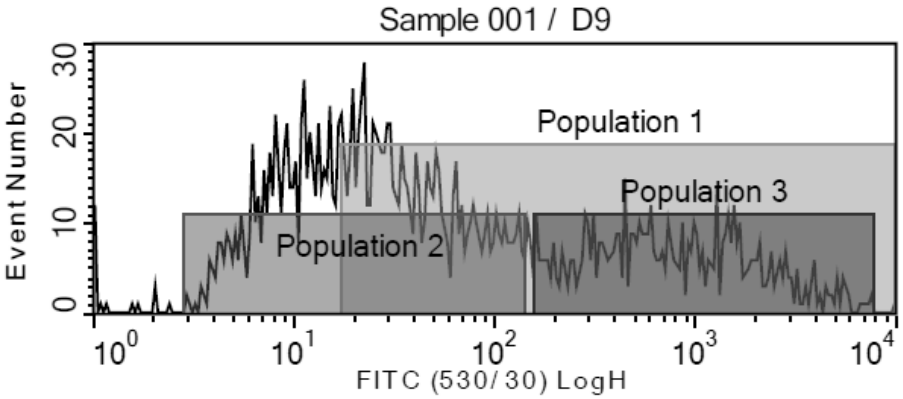


Population	% of Par...	Mean X	Med X
All of Plot	100.00	400.68	40.58
Population 1	70.80	561.98	113.44
Population 2	66.15	32.18	21.12
Population 3	32.10	1164.73	690.03

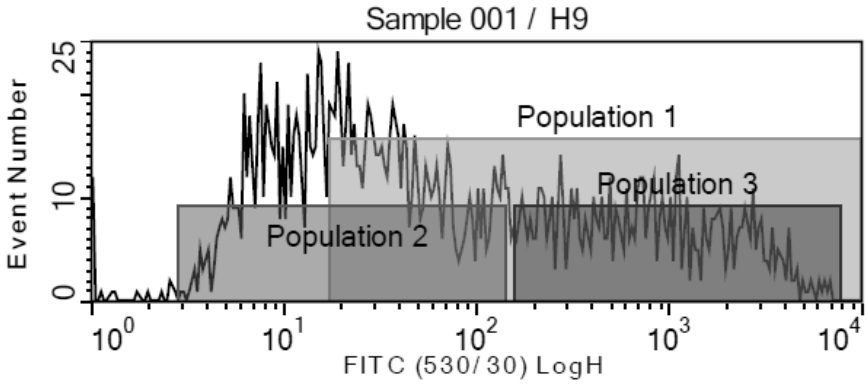


Population	% of Par...	Mean X	Med X
All of Plot	100.00	471.78	46.89
Population 1	72.65	645.83	125.53
Population 2	64.15	34.17	21.73
Population 3	33.55	1269.36	787.37

【Fig. 3c】

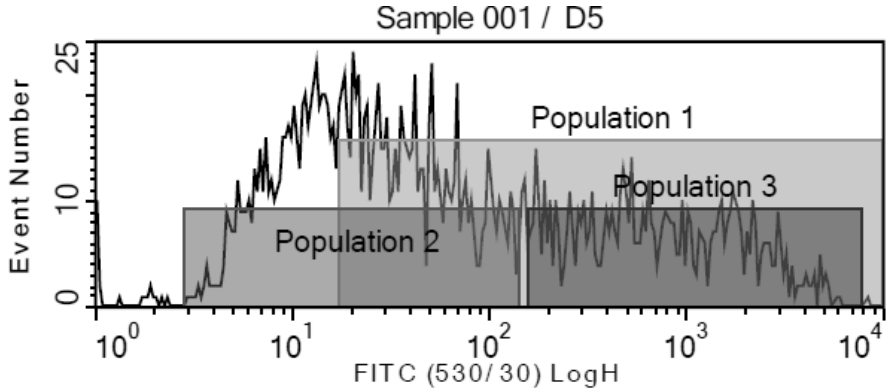


Population	% of Par...	Mean X	Med X
All of Plot	100.00	393.87	39.86
Population 1	70.55	554.33	103.74
Population 2	67.25	32.63	20.98
Population 3	30.45	1198.89	733.32

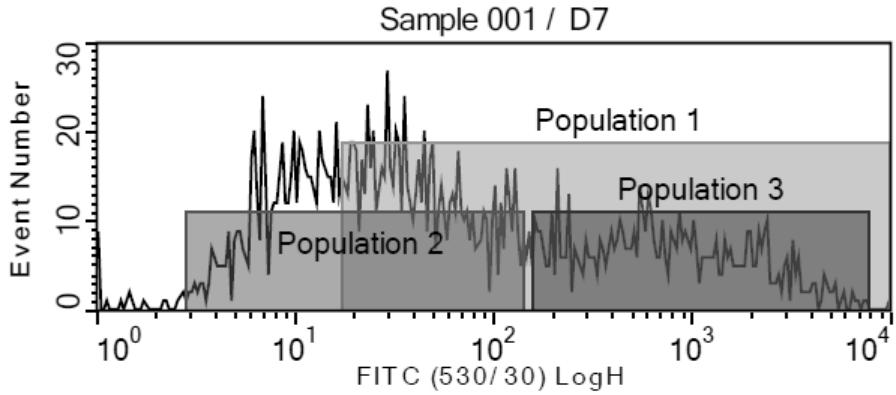


Population	% of Par...	Mean X	Med X
All of Plot	100.00	439.73	47.18
Population 1	71.45	611.67	138.96
Population 2	63.65	33.50	20.44
Population 3	34.15	1220.18	731.98

【Fig. 3d】

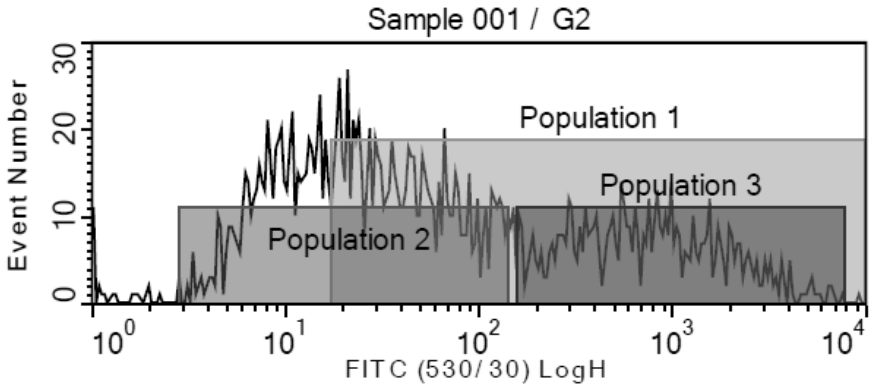


Population	% of Par...	Mean X	Med X
All of Plot	100.00	388.43	44.83
Population 1	71.20	541.61	115.45
Population 2	65.40	33.00	20.80
Population 3	32.15	1122.02	666.86



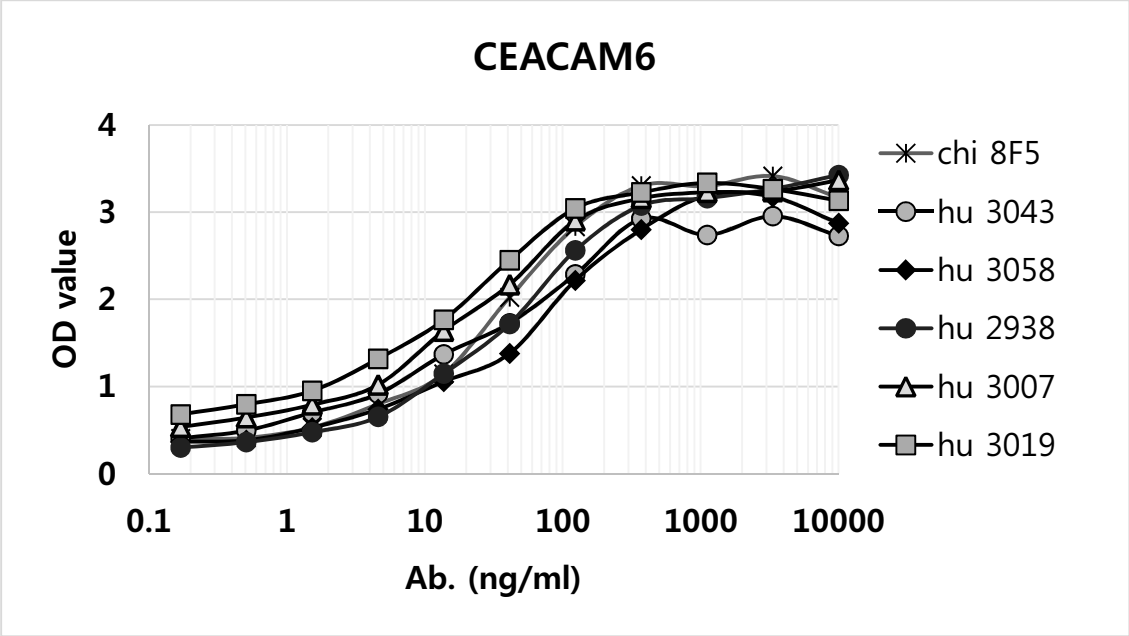
Population	% of Par...	Mean X	Med X
All of Plot	100.00	407.53	44.69
Population 1	71.55	565.88	116.80
Population 2	66.10	34.35	22.60
Population 3	31.90	1186.45	707.71

【Fig. 3e】

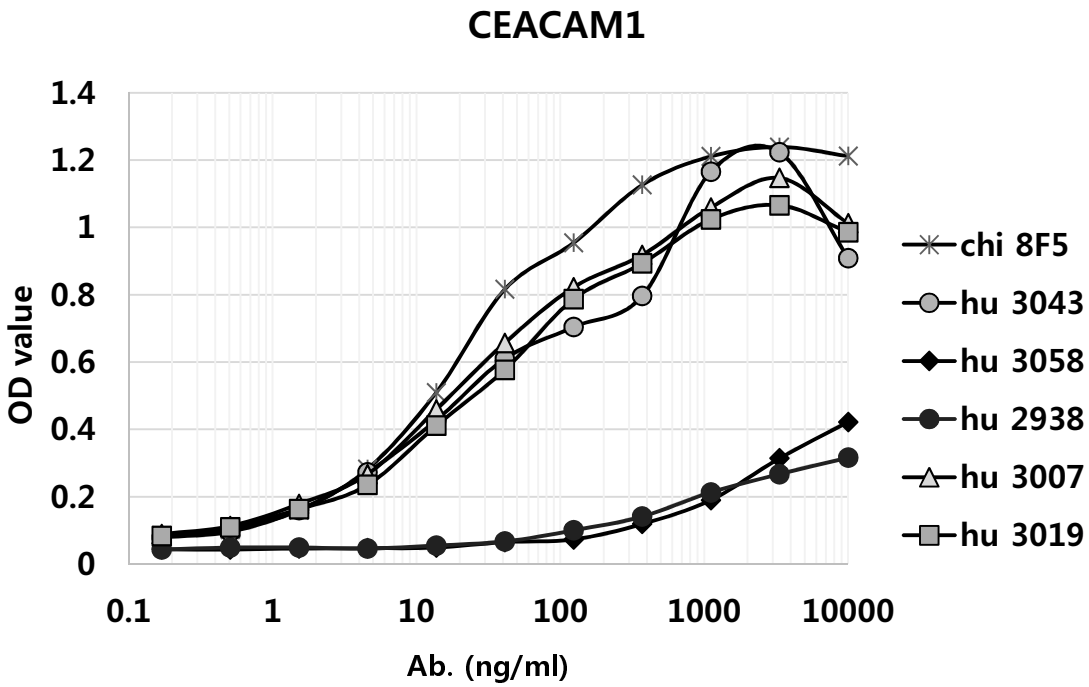


Population	% of Par...	Mean X	Med X
All of Plot	100.00	375.04	43.92
Population 1	71.10	523.64	110.33
Population 2	66.70	34.37	21.21
Population 3	30.90	1119.24	730.14

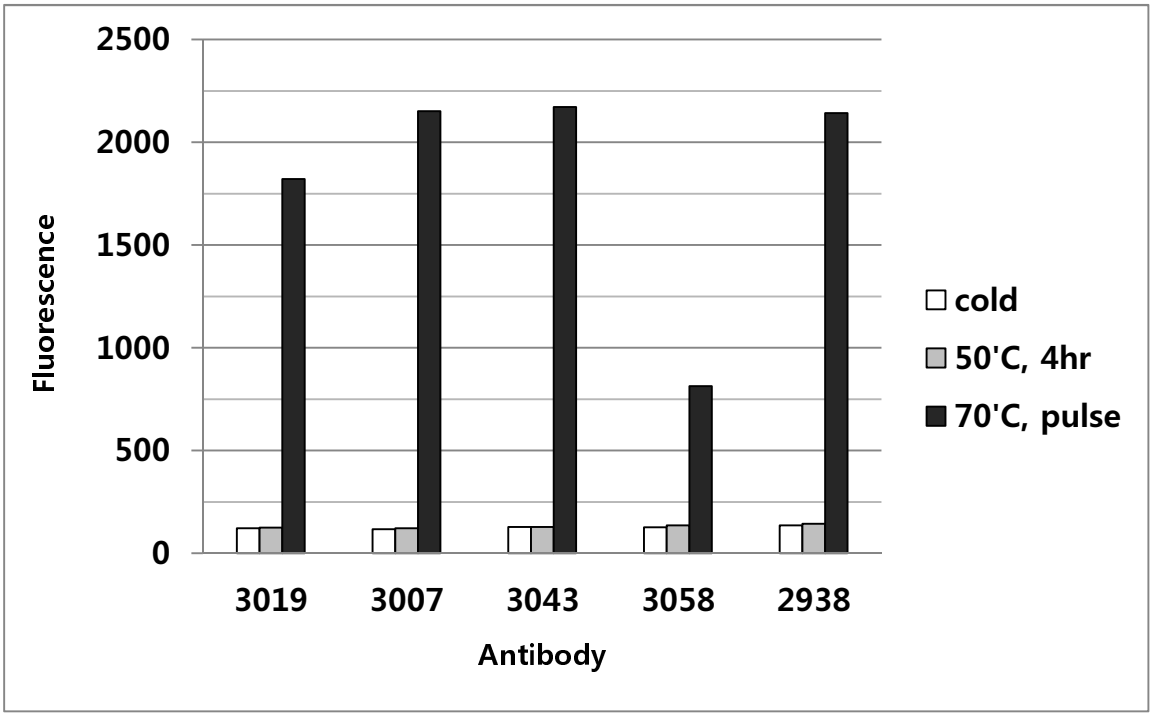
【Fig. 4a】


CEACAM6
OD value
4
3
2
1
0
0.1
1
10
100
1000
10000
Ab. (ng/ml)
chi 8F5
hu 3043
hu 3058
hu 2938
hu 3007
hu 3019

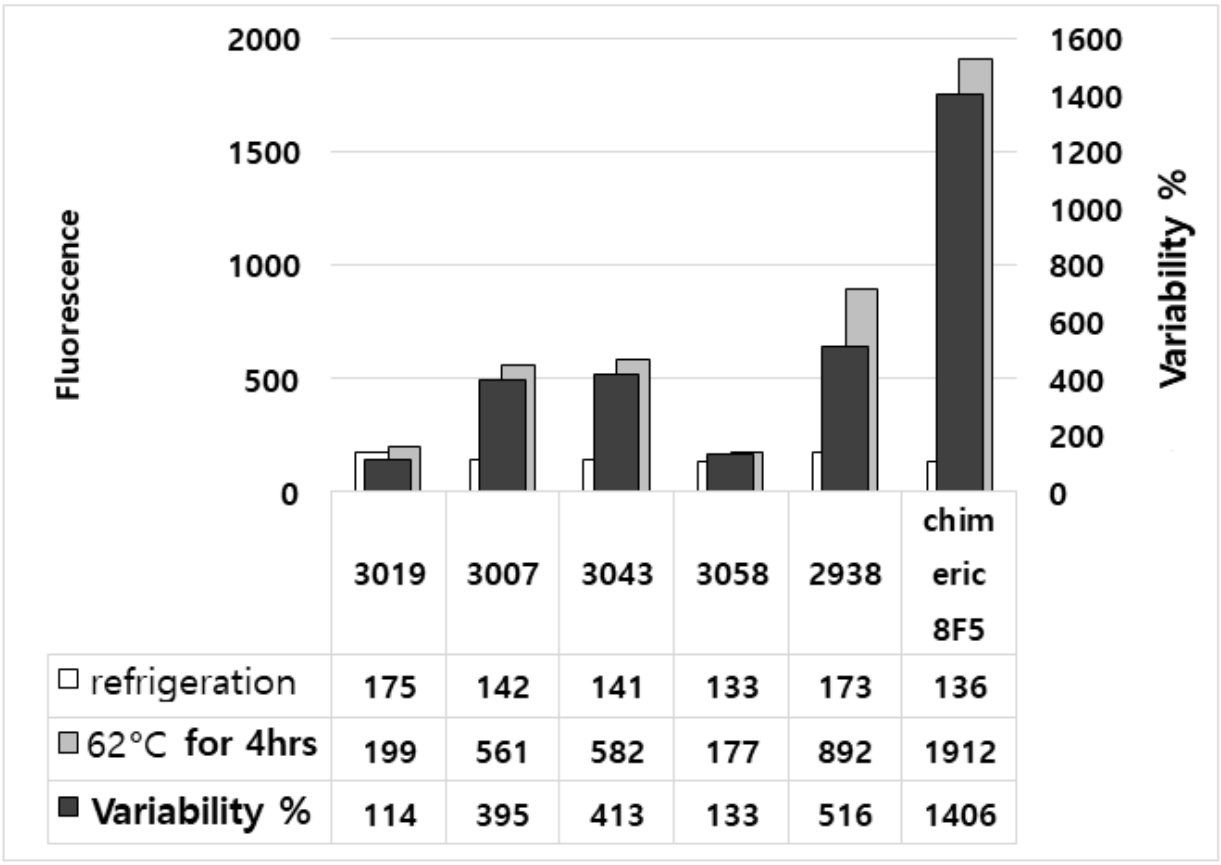
【Fig. 4b】


CEACAM1
OD value
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0.1
1
10
100
1000
10000
Ab. (ng/ml)
chi 8F5
hu 3043
hu 3058
hu 2938
hu 3007
hu 3019

【Fig. 5a】

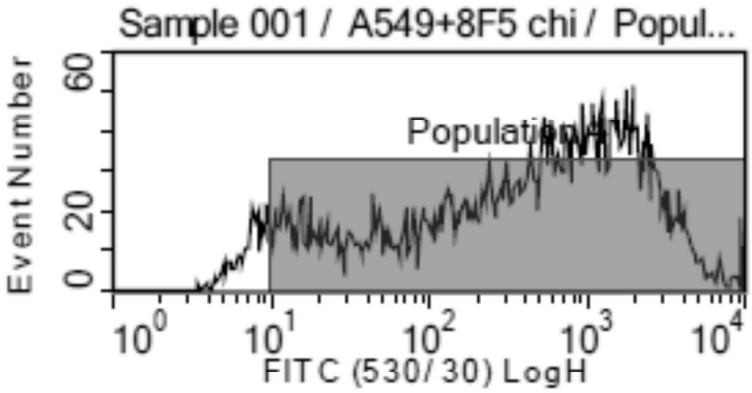

2500
2000
1500
1000
500
0
Fluorescence
3019
3007
3043
3058
2938
Antibody
cold
50'C, 4hr
70'C, pulse

【Fig. 5b】



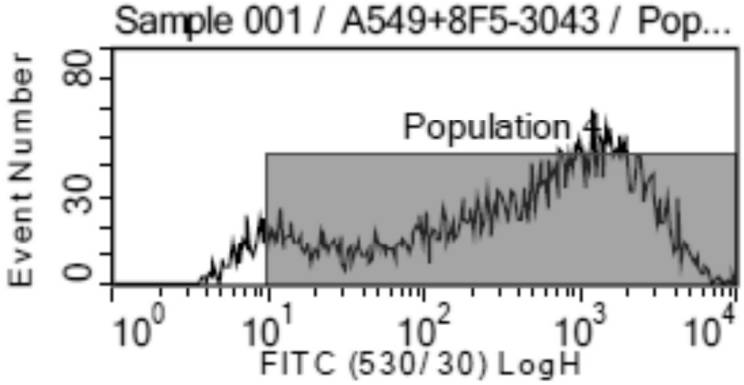
	3019	3007	3043	3058	2938	chimeric 8F5
refrigeration	175	142	141	133	173	136
62°C for 4hrs	199	561	582	177	892	1912
Variability %	114	395	413	133	516	1406

【Fig. 6a】



Tube name: A549+8F5 chi
Total Events: 4387

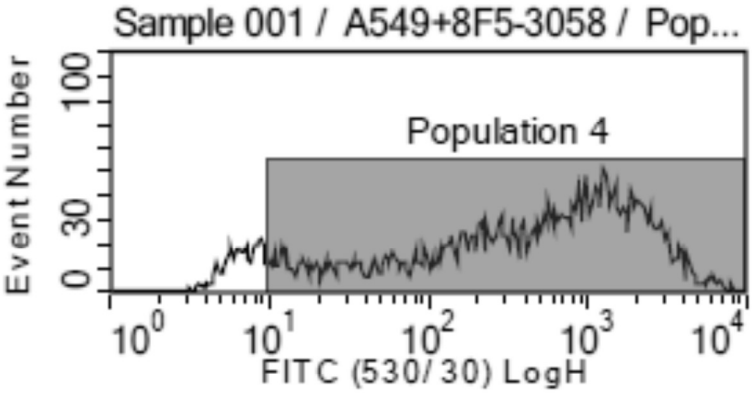
Population	% of Par...	Mean X
All of Plot	100.00	1003.20
Population 4	95.03	1055.29



Tube name: A549+8F5-3043
Total Events: 4606

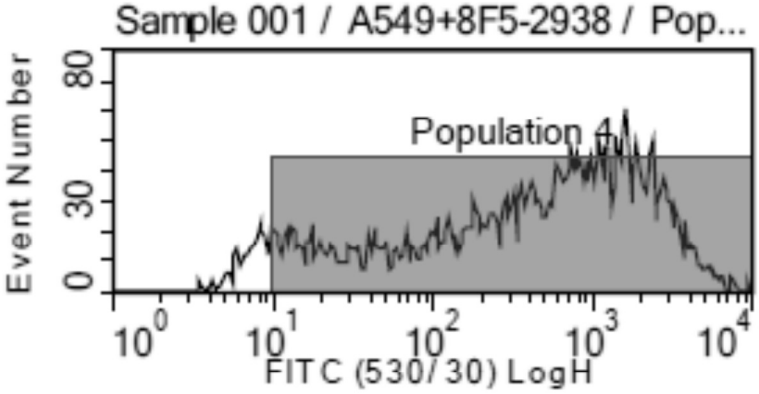
Population	% of Par...	Mean X
All of Plot	100.00	1010.37
Population 4	94.49	1068.94

【Fig. 6b】



Tube name: A549+8F5-3058
Total Events: 4108

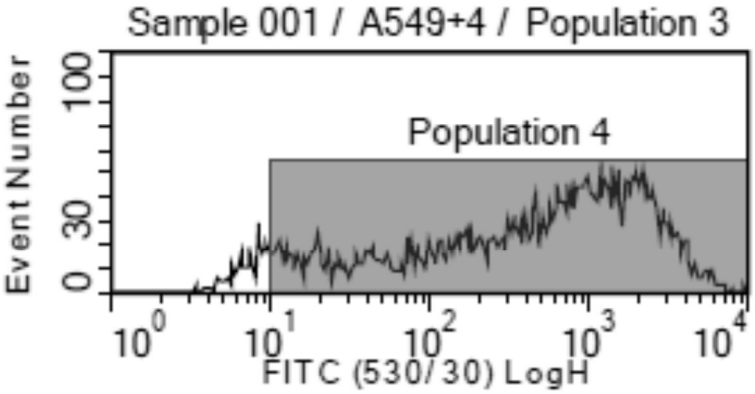
Population	% of Par...	Mean X
All of Plot	100.00	936.15
Population 4	91.38	1023.80



Tube name: A549+8F5-2938
Total Events: 4610

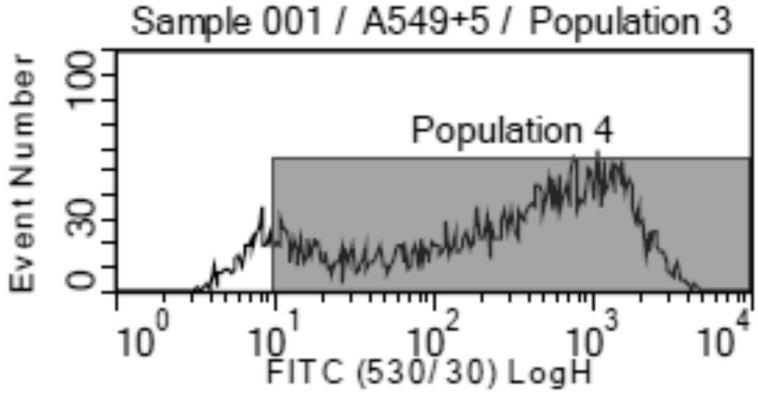
Population	% of Par...	Mean X
All of Plot	100.00	969.18
Population 4	94.40	1026.23

【Fig. 6c】



Tube name: A549+4
Ab: 3007
Total Events: 4597

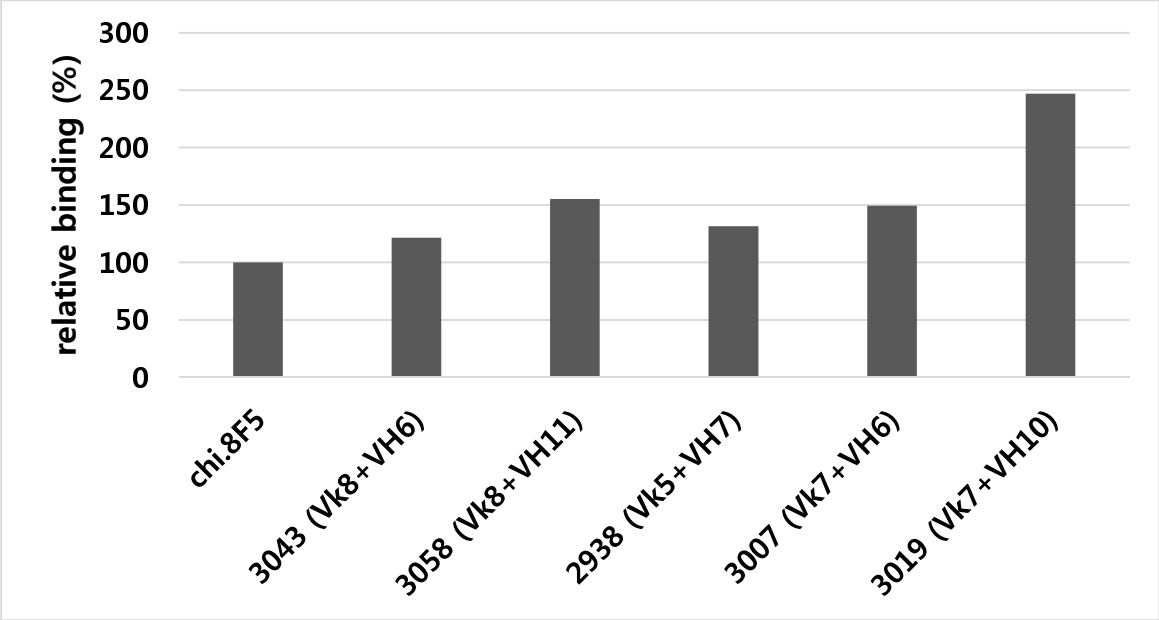
Population	% of Par...	Mean X
All of Plot	100.00	1000.71
Population 4	94.37	1060.04



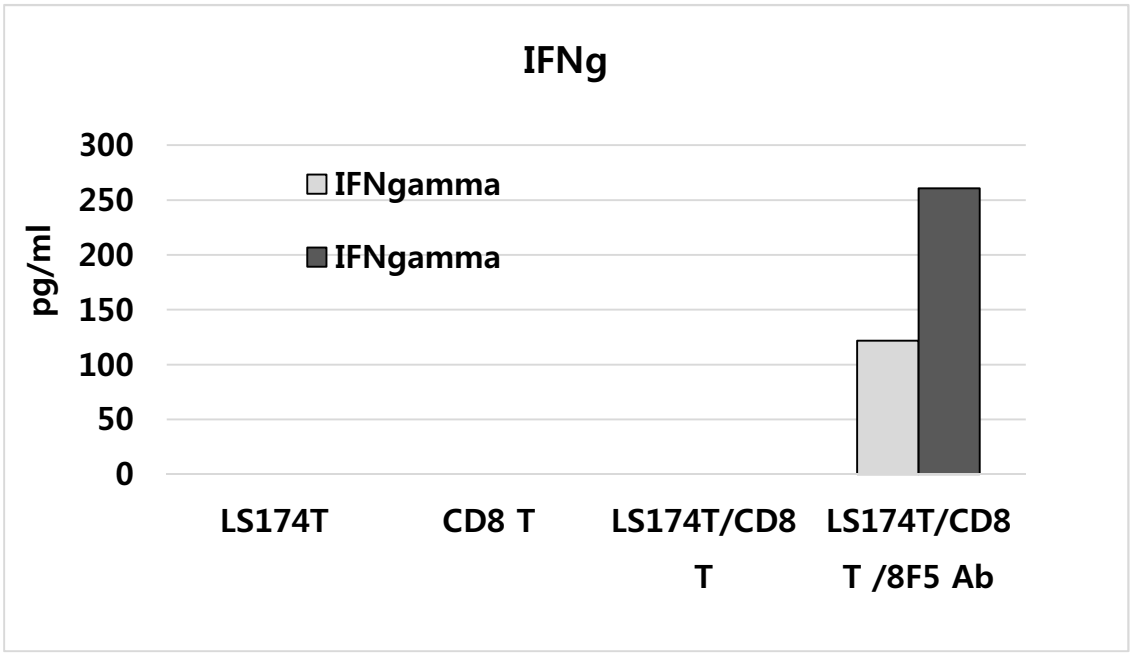
Tube name: A549+5
Ab: 3019
Total Events: 4576

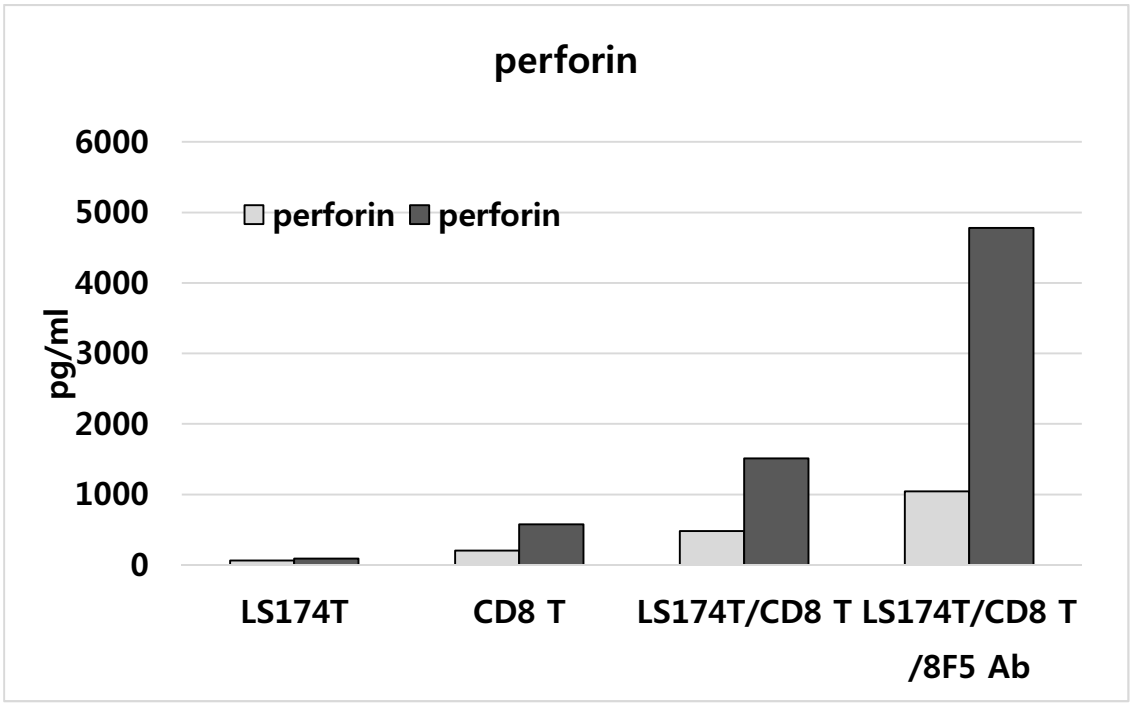
Population	% of Par...	Mean X
All of Plot	100.00	657.05
Population 4	91.70	715.93

【Fig. 6d】

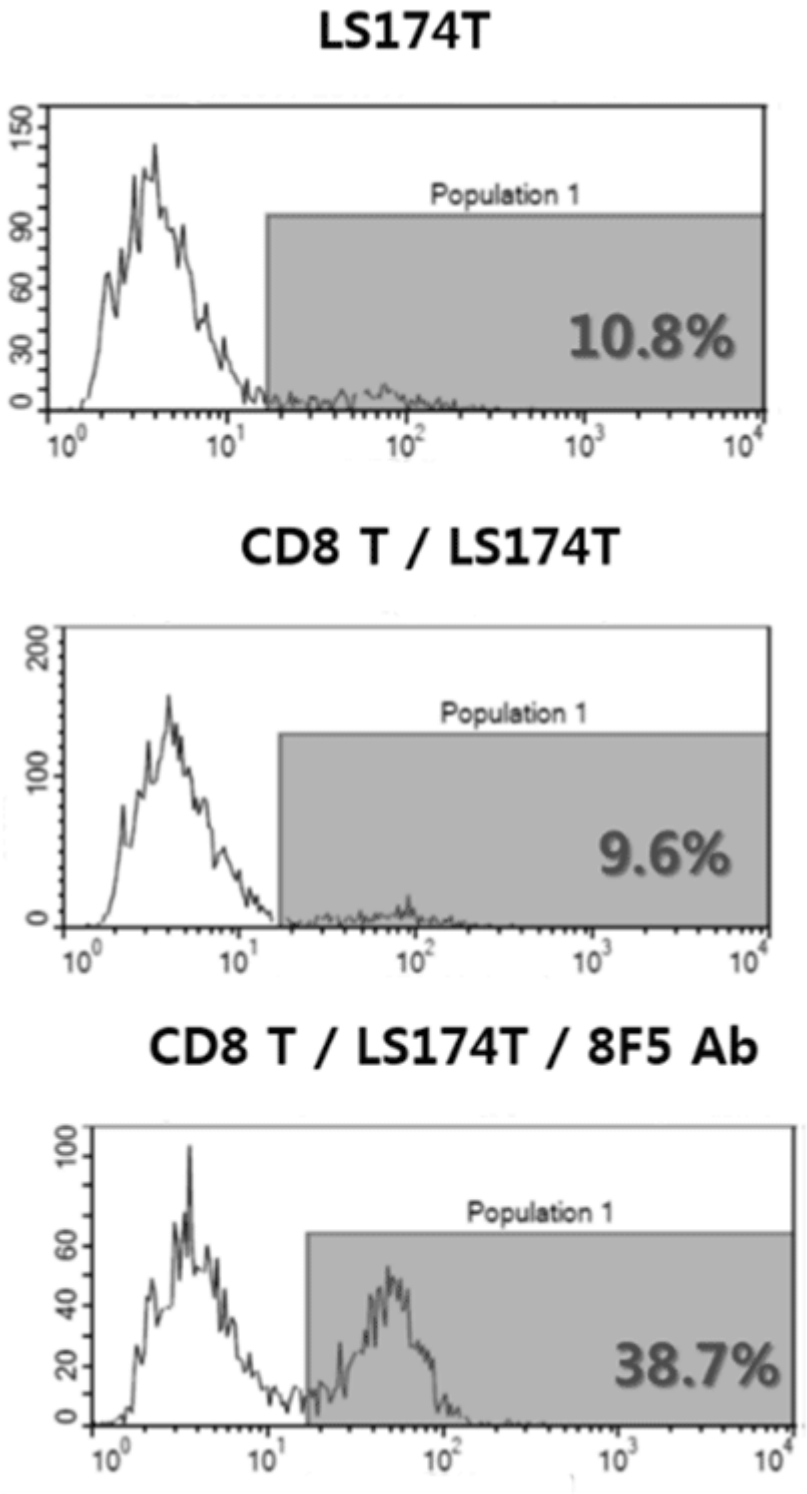

relative binding (%)
300
250
200
150
100
50
0
chi.8F5
3043 (Vk8+VH6)
3058 (Vk8+VH11)
2938 (Vk5+VH7)
3007 (Vk7+VH6)
3019 (Vk7+VH10)

【Fig. 7a】

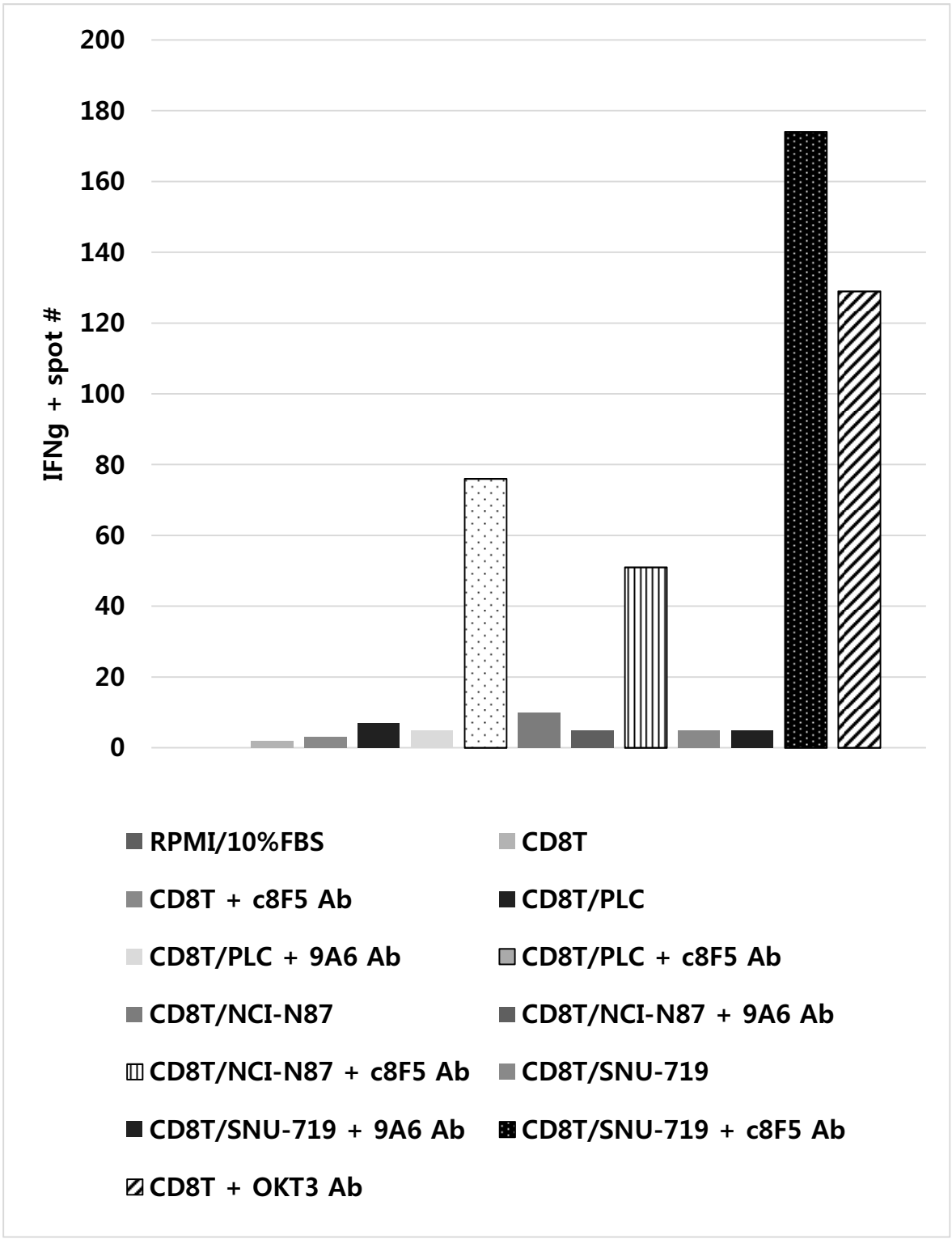

IFNg
300
250
200
150
100
50
0
pg/ml
IFNgamma
IFNgamma
LS174T
CD8 T
LS174T/CD8 T
LS174T/CD8 T /8F5 Ab


perforin
6000
5000
4000
3000
2000
1000
0
pg/ml
perforin
perforin
LS174T
CD8 T
LS174T/CD8 T
LS174T/CD8 T /8F5 Ab

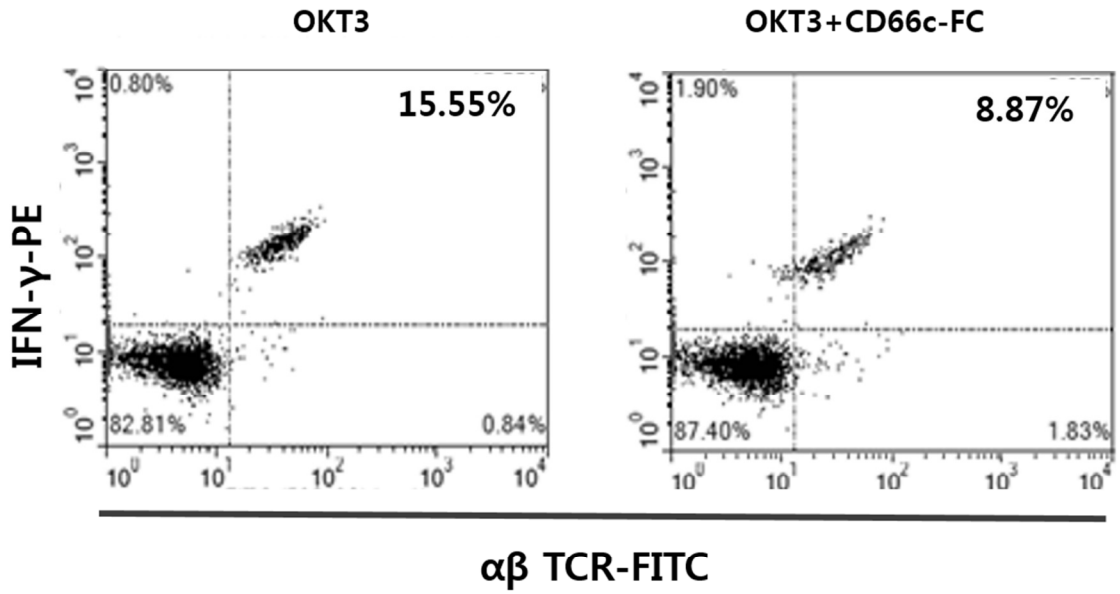
【Fig. 7b】


LS174T
Population 1
10.8%
CD8 T / LS174T
Population 1
9.6%
CD8 T / LS174T / 8F5 Ab
Population 1
38.7%

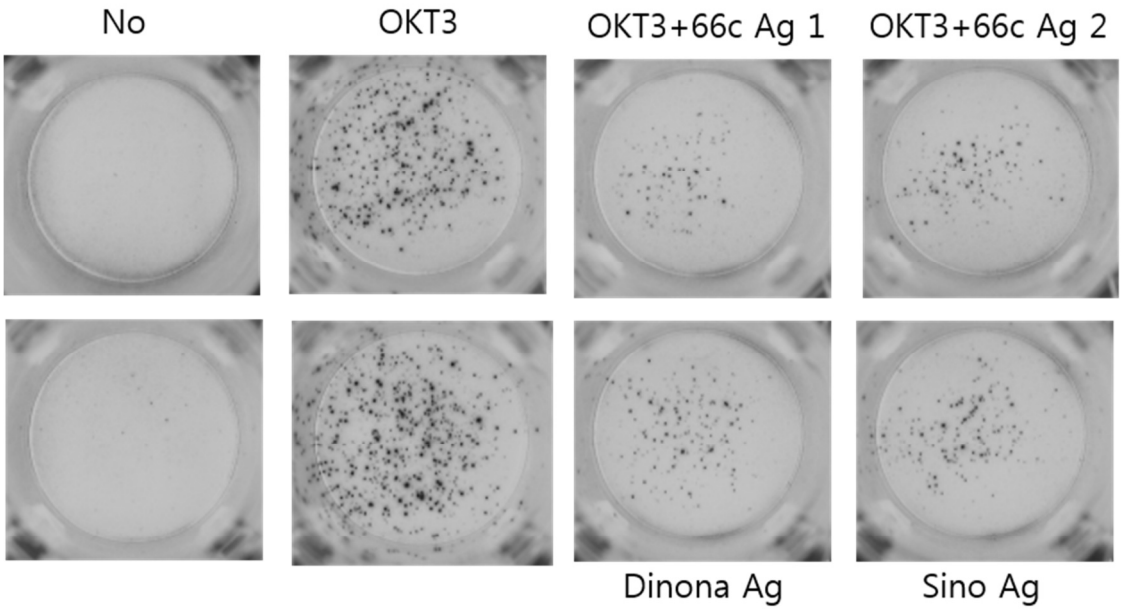
【Fig. 8】


200
180
160
140
120
100
80
60
40
20
0
IFNg + spot #
RPMI/10%FBS
CD8T
CD8T + c8F5 Ab
CD8T/PLC
CD8T/PLC + 9A6 Ab
CD8T/PLC + c8F5 Ab
CD8T/NCI-N87
CD8T/NCI-N87 + 9A6 Ab
CD8T/NCI-N87 + c8F5 Ab
CD8T/SNU-719
CD8T/SNU-719 + 9A6 Ab
CD8T/SNU-719 + c8F5 Ab
CD8T + OKT3 Ab

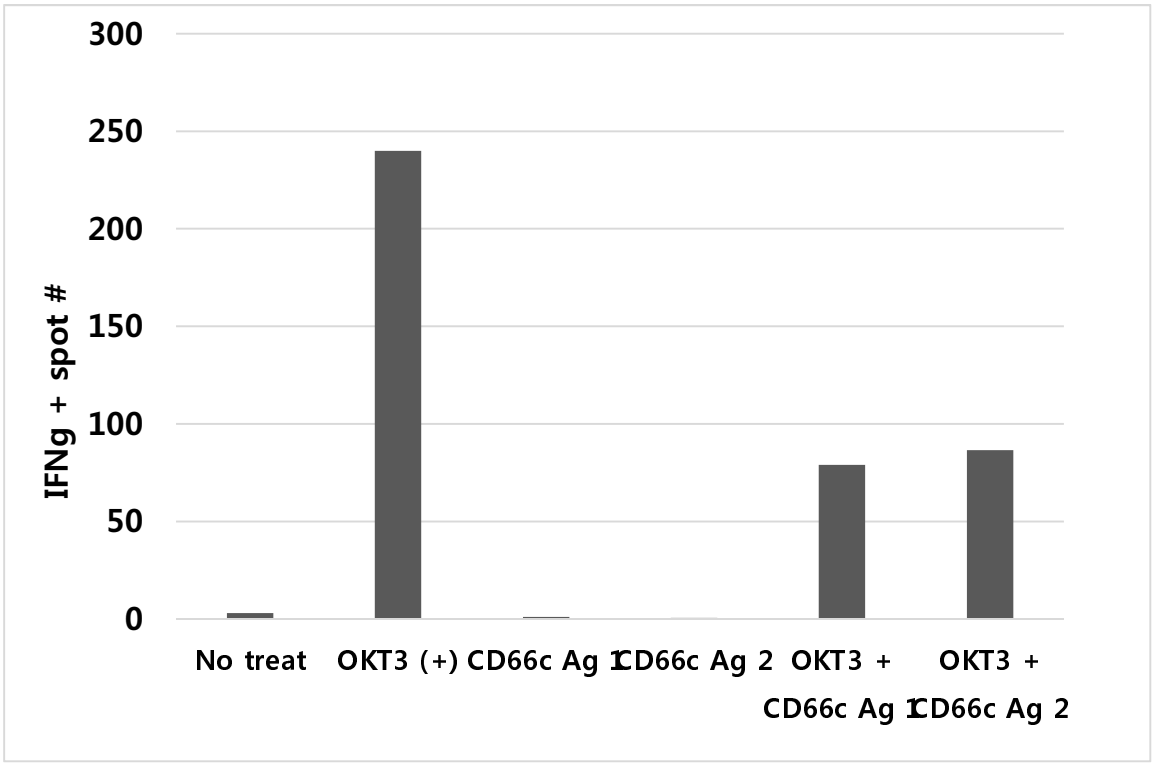
【Fig. 9a】


OKT3
OKT3+CD66c-FC
IFN-γ-PE
0.80%
15.55%
82.81%
0.84%
1.90%
8.87%
87.40%
1.83%
αβ TCR-FITC

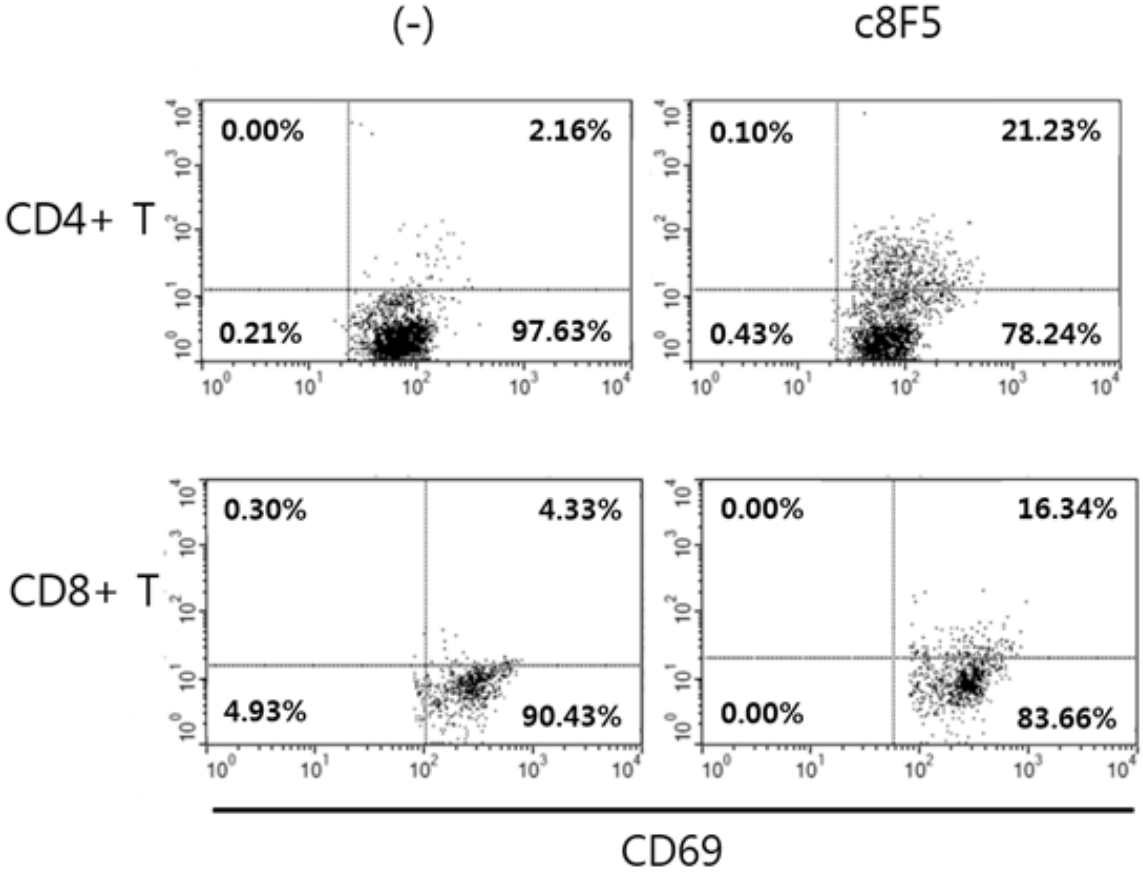
【Fig. 9b】


No
OKT3
OKT3+66c Ag 1
OKT3+66c Ag 2
Dinona Ag
Sino Ag

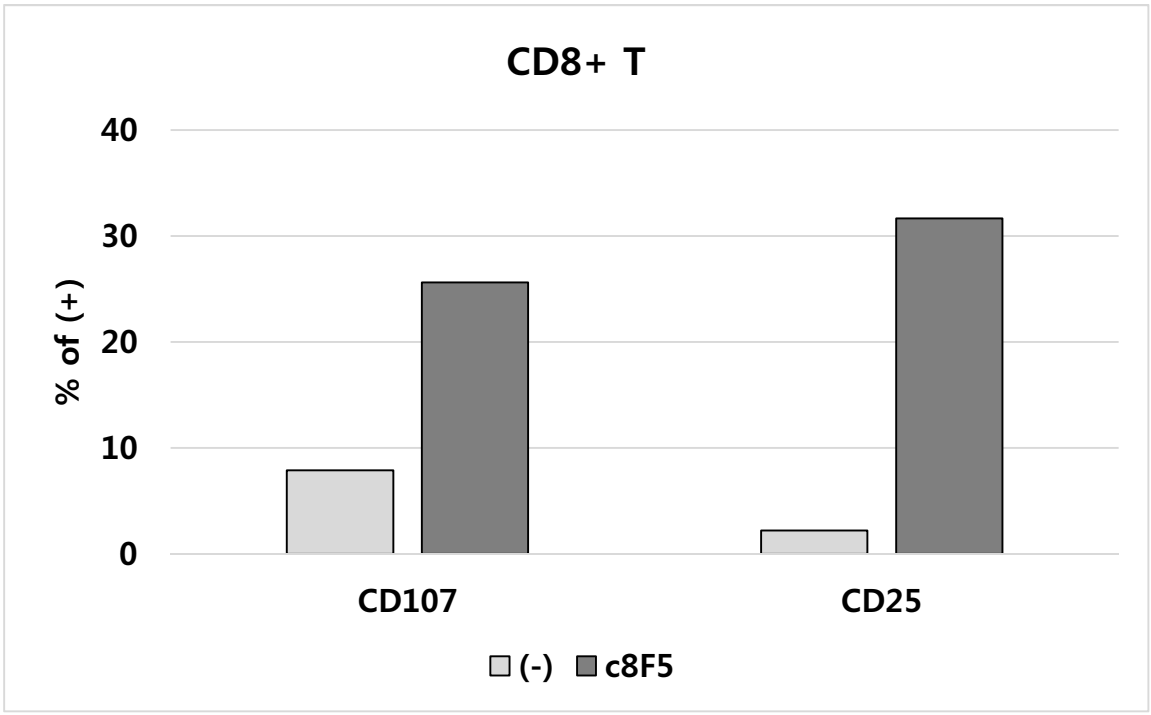
【Fig. 9c】


300
250
200
150
100
50
0
IFNg + spot #
No treat
OKT3 (+)
CD66c Ag 1
CD66c Ag 2
OKT3 + CD66c Ag 1
OKT3 + CD66c Ag 2

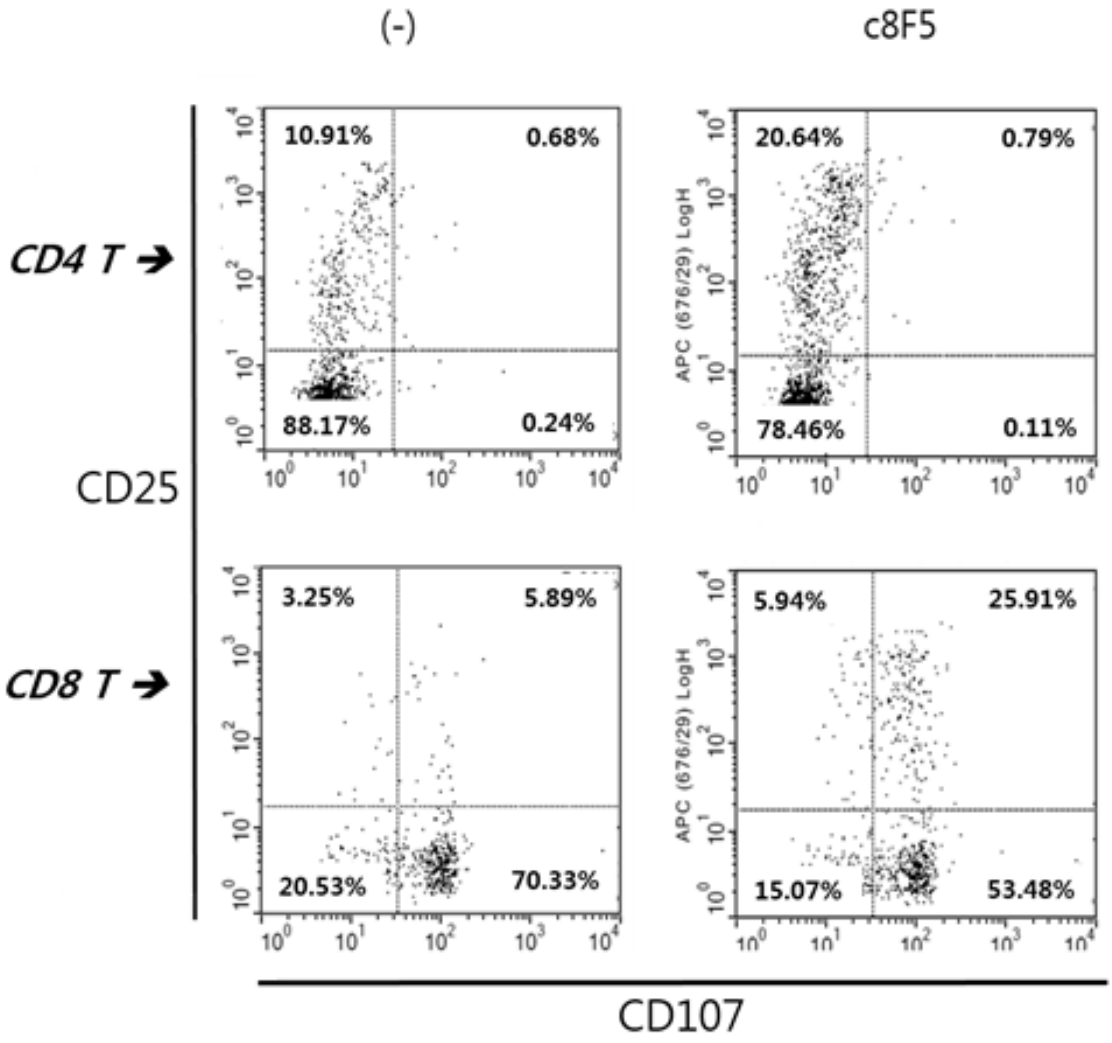
【Fig. 10a】


(-)
c8F5
CD4+ T
CD8+ T
0.00%
2.16%
0.21%
97.63%
0.10%
21.23%
0.43%
78.24%
0.30%
4.33%
4.93%
90.43%
0.00%
16.34%
0.00%
83.66%
CD69

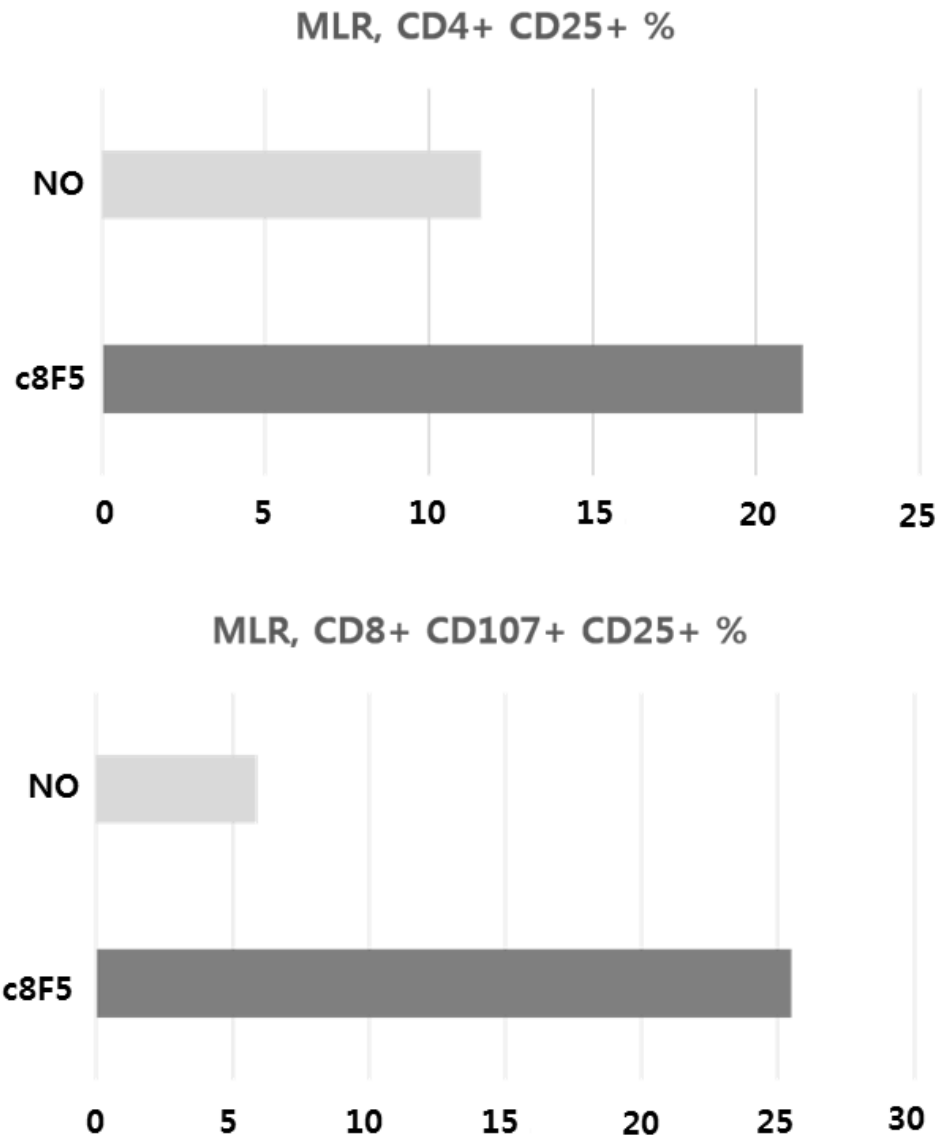
【Fig. 10b】



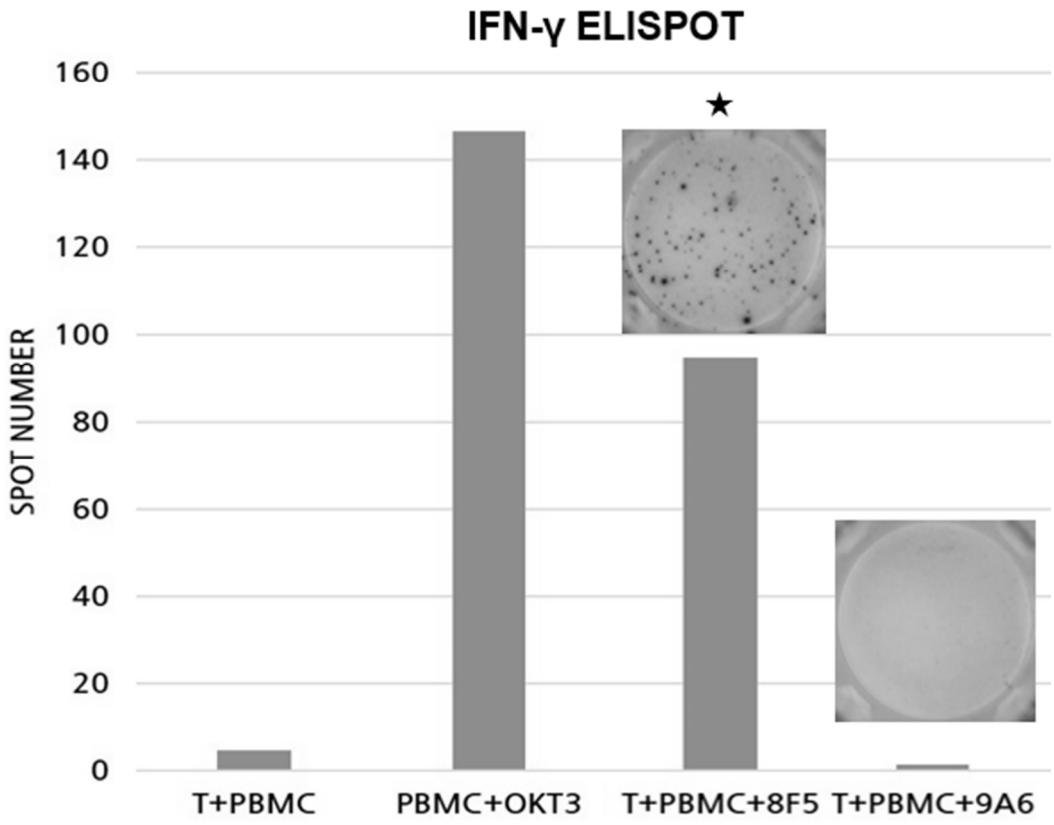
【Fig. 11a】


(-)
c8F5
CD4 T
CD8 T
CD25
CD107
APC (676/29) LogH
10.91%
0.68%
88.17%
0.24%
20.64%
0.79%
78.46%
0.11%
3.25%
5.89%
20.53%
70.33%
5.94%
25.91%
15.07%
53.48%

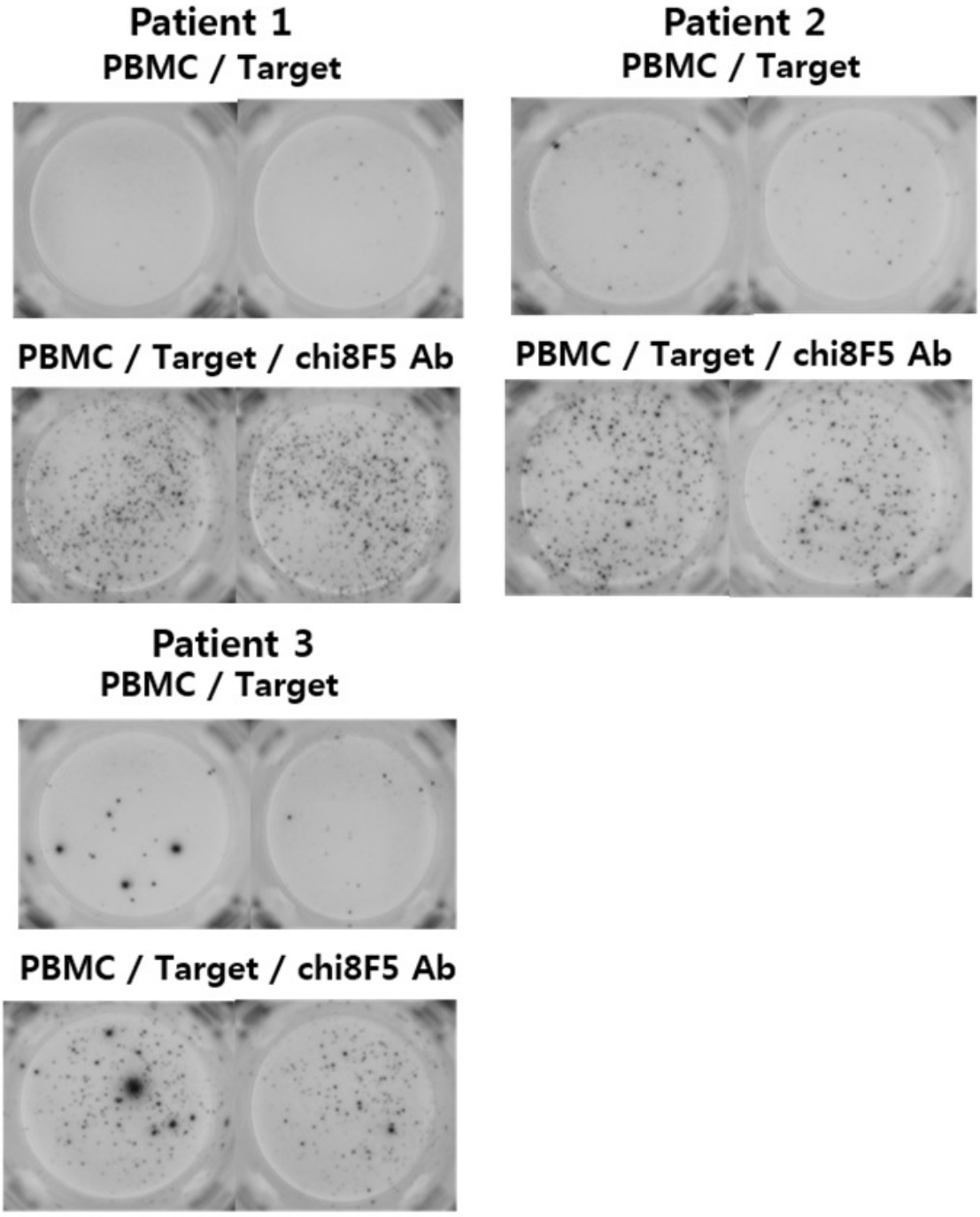
【Fig. 11b】


MLR, CD4+ CD25+ %
NO
c8F5
0
5
10
15
20
25
MLR, CD8+ CD107+ CD25+ %
NO
c8F5
0
5
10
15
20
25
30

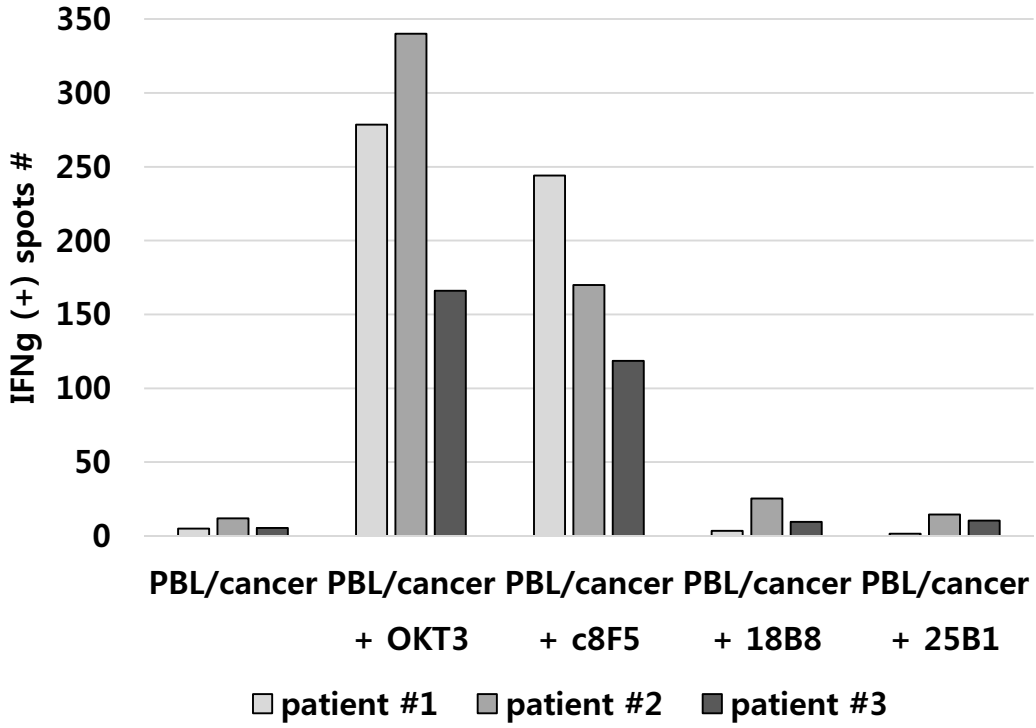
【Fig. 12a】


IFN-γ ELISPOT
SPOT NUMBER
160
140
120
100
80
60
40
20
0
★
T+PBMC
PBMC+OKT3
T+PBMC+8F5
T+PBMC+9A6

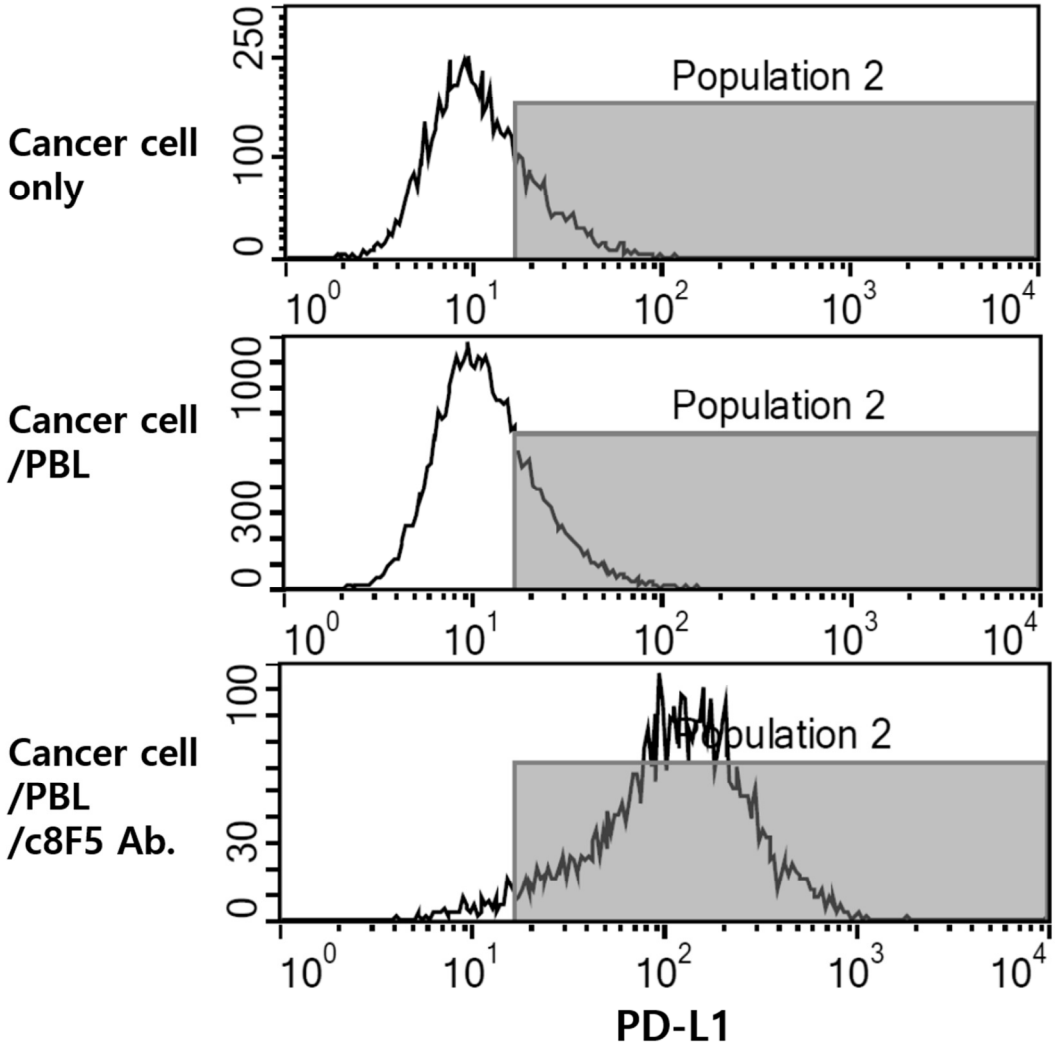
【Fig. 12b】


Patient 1
PBMC / Target
PBMC / Target / chi8F5 Ab
Patient 2
PBMC / Target
PBMC / Target / chi8F5 Ab
Patient 3
PBMC / Target
PBMC / Target / chi8F5 Ab

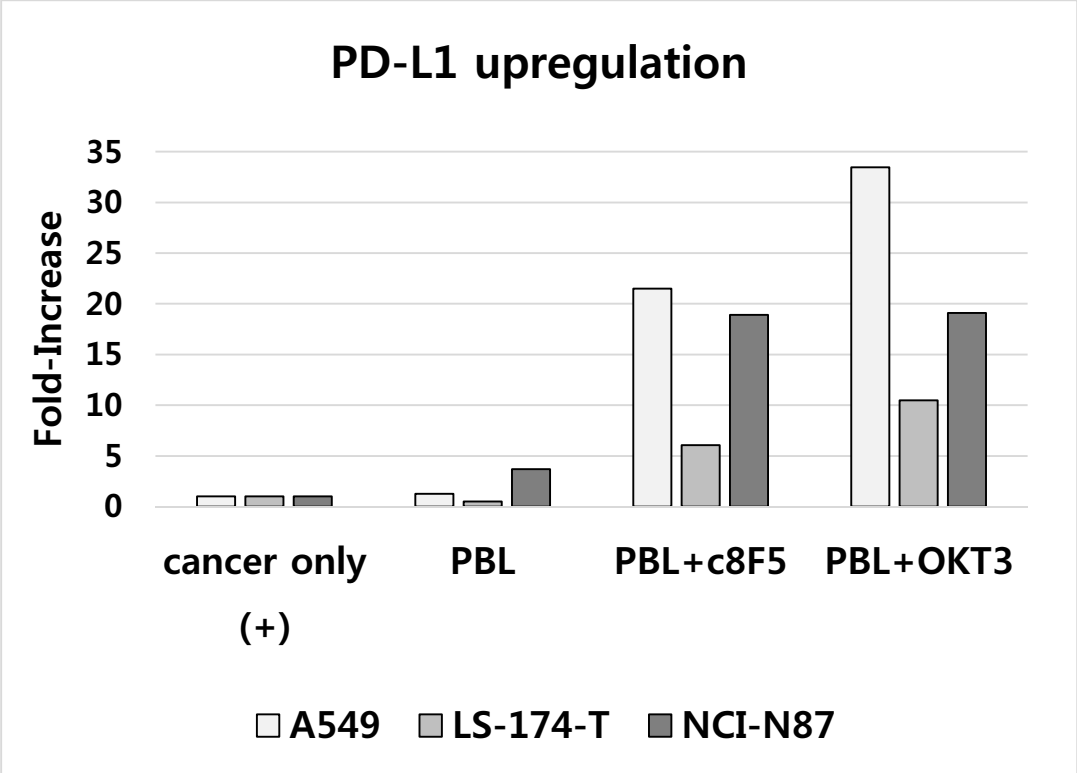
【Fig. 12c】


350
300
250
200
150
100
50
0
IFNg (+) spots #
PBL/cancer
PBL/cancer + OKT3
PBL/cancer + c8F5
PBL/cancer + 18B8
PBL/cancer + 25B1
patient #1
patient #2
patient #3

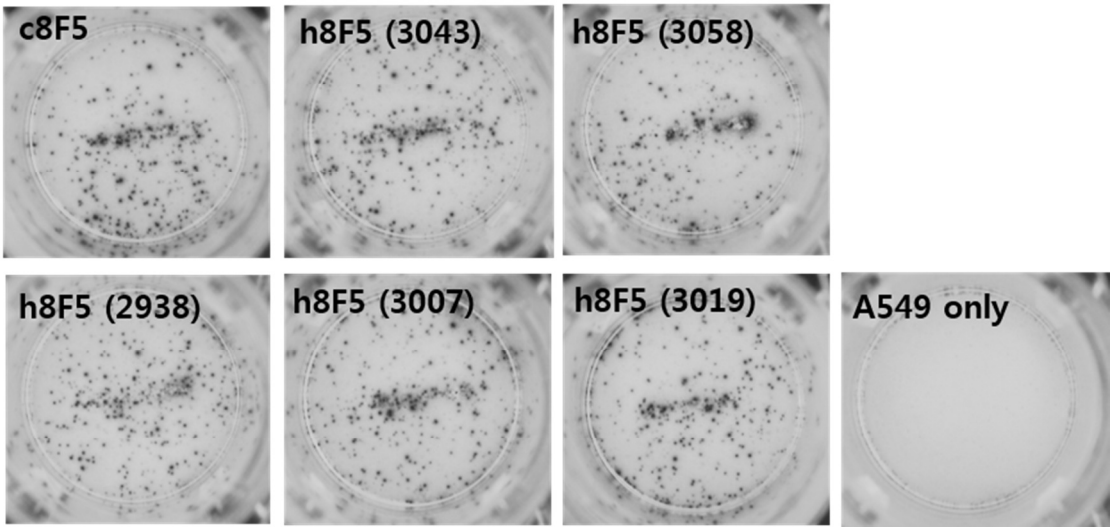
【Fig. 13a】


Cancer cell only
Cancer cell /PBL
Cancer cell /PBL /c8F5 Ab.
Population 2
Population 2
Population 2
0
100
250
0
300
1000
0
30
100
10^0
10^1
10^2
10^3
10^4
PD-L1

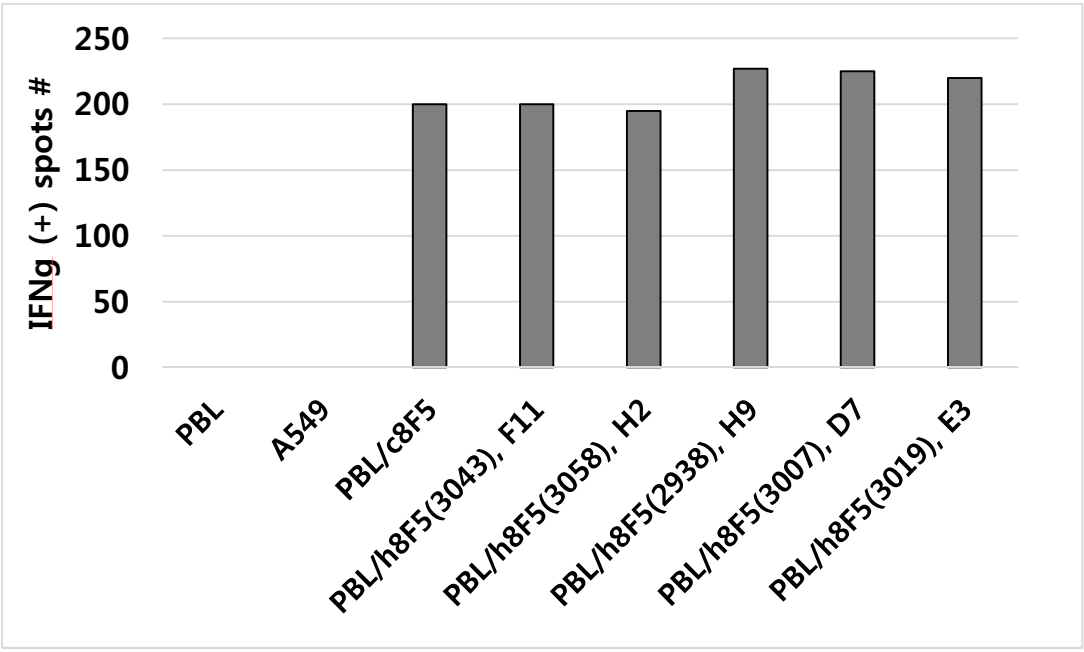
【Fig. 13b】


PD-L1 upregulation
Fold-Increase
35
30
25
20
15
10
5
0
cancer only (+)
PBL
PBL+c8F5
PBL+OKT3
A549
LS-174-T
NCI-N87

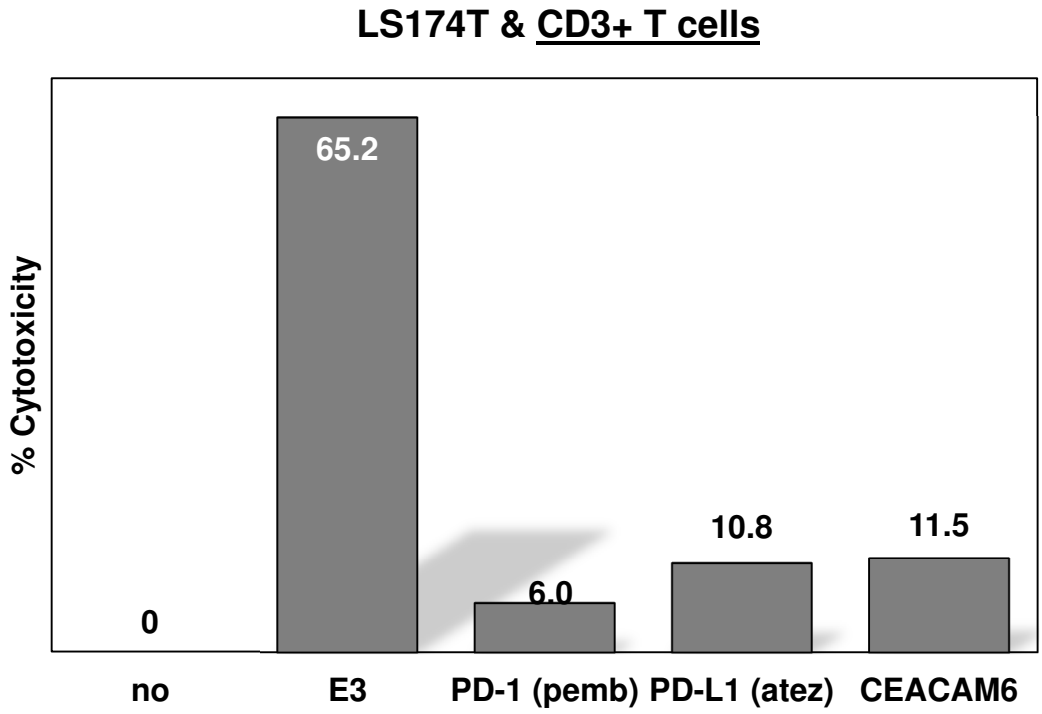
【Fig. 14a】



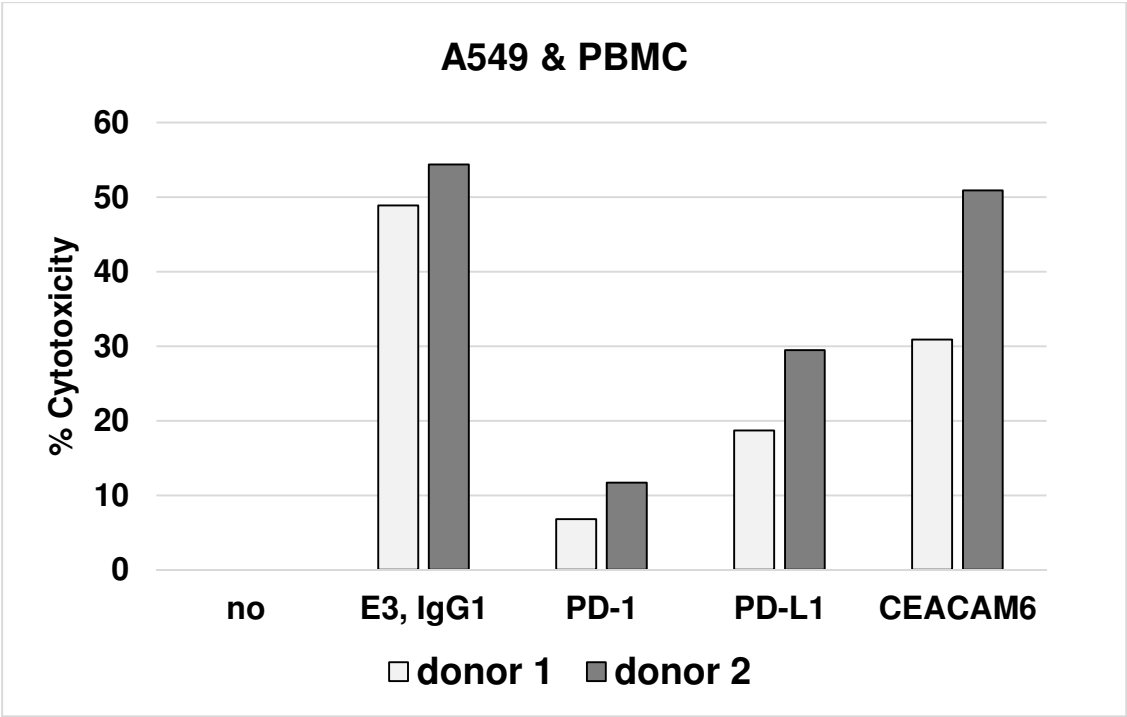
【Fig. 14b】



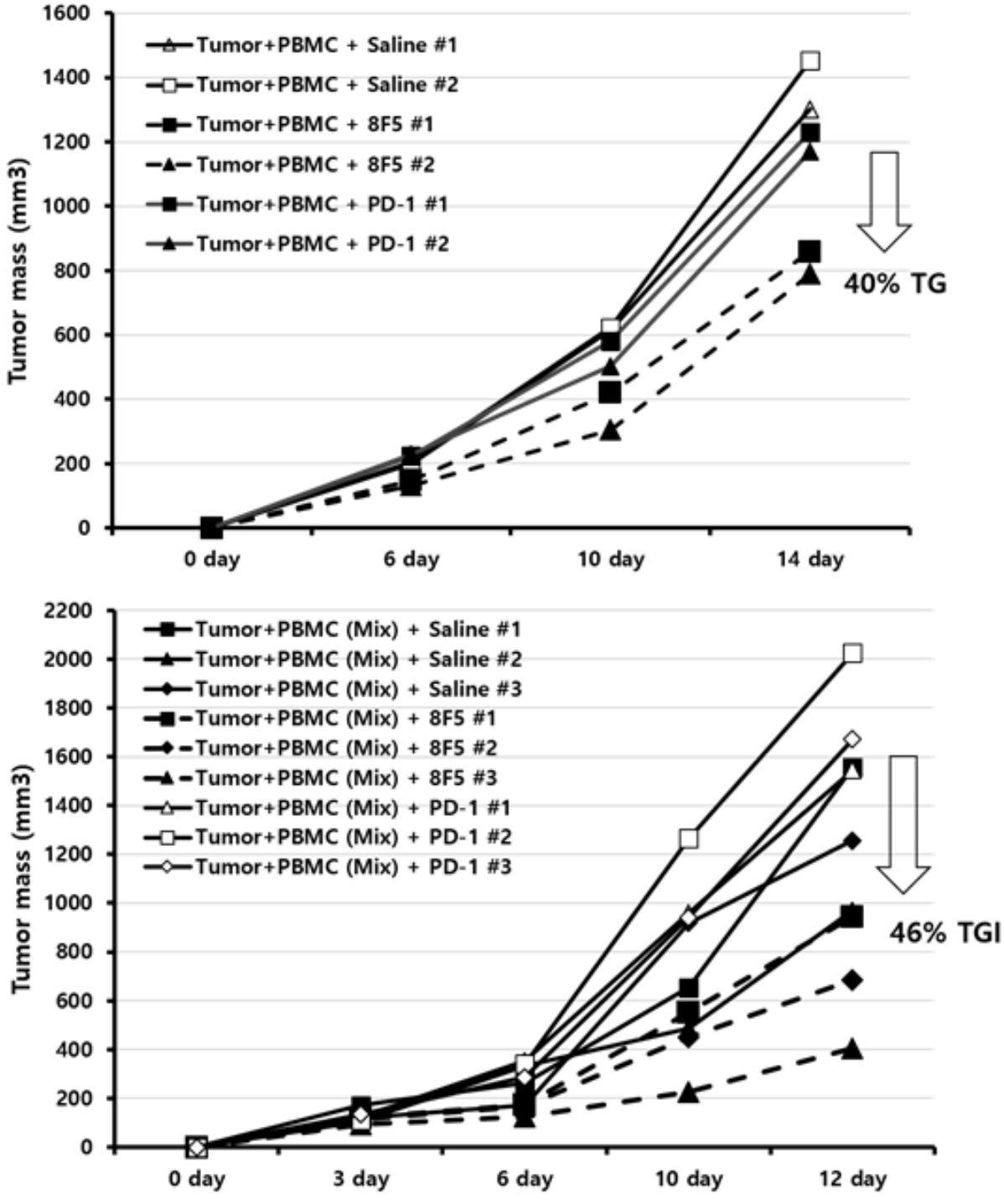
【Fig. 15a】



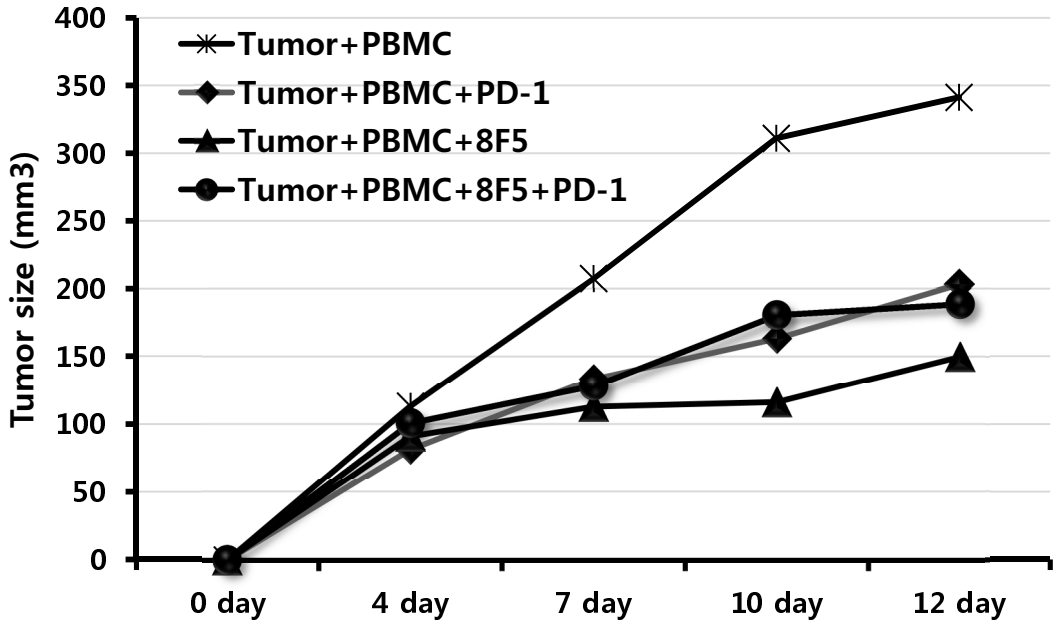
【Fig. 15b】



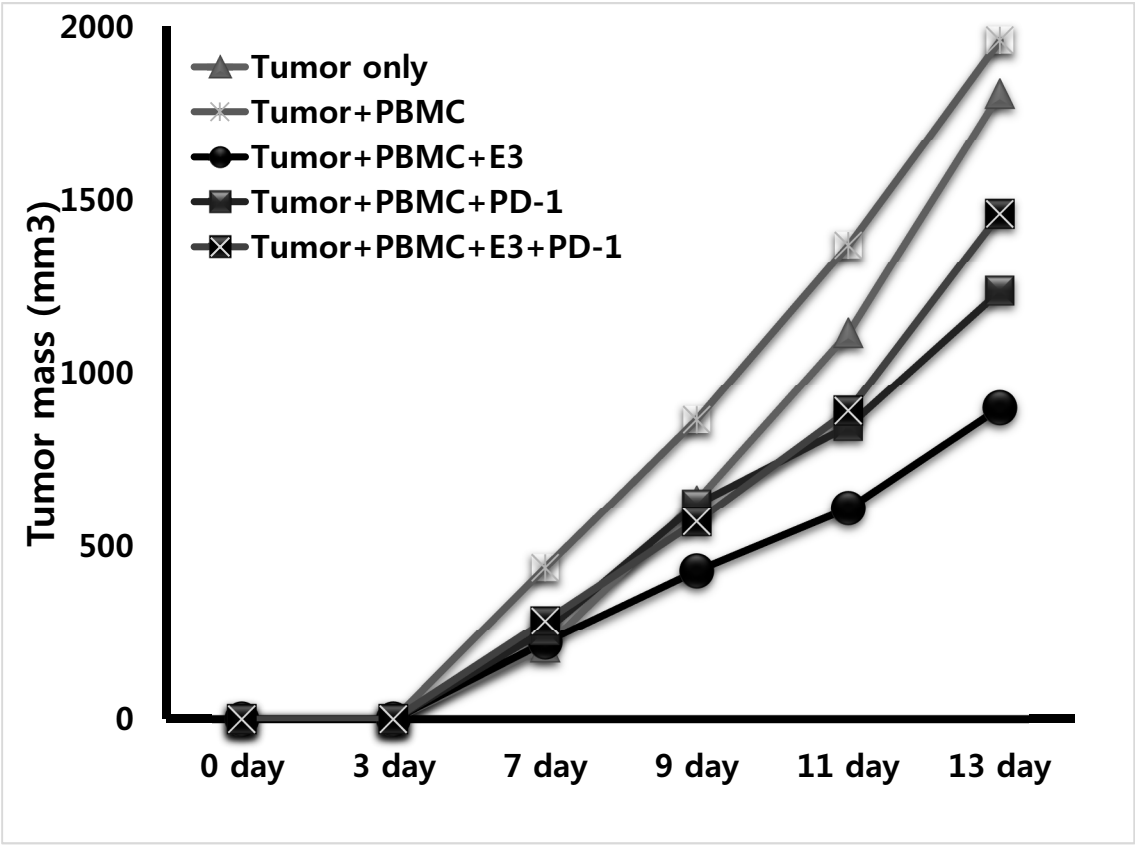
【Fig. 16a】


Tumor mass (mm3)
1600
1400
1200
1000
800
600
400
200
0
Tumor+PBMC + Saline #1
Tumor+PBMC + Saline #2
Tumor+PBMC + 8F5 #1
Tumor+PBMC + 8F5 #2
Tumor+PBMC + PD-1 #1
Tumor+PBMC + PD-1 #2
40% TG
0 day
6 day
10 day
14 day
Tumor mass (mm3)
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
Tumor+PBMC (Mix) + Saline #1
Tumor+PBMC (Mix) + Saline #2
Tumor+PBMC (Mix) + Saline #3
Tumor+PBMC (Mix) + 8F5 #1
Tumor+PBMC (Mix) + 8F5 #2
Tumor+PBMC (Mix) + 8F5 #3
Tumor+PBMC (Mix) + PD-1 #1
Tumor+PBMC (Mix) + PD-1 #2
Tumor+PBMC (Mix) + PD-1 #3
46% TGI
0 day
3 day
6 day
10 day
12 day

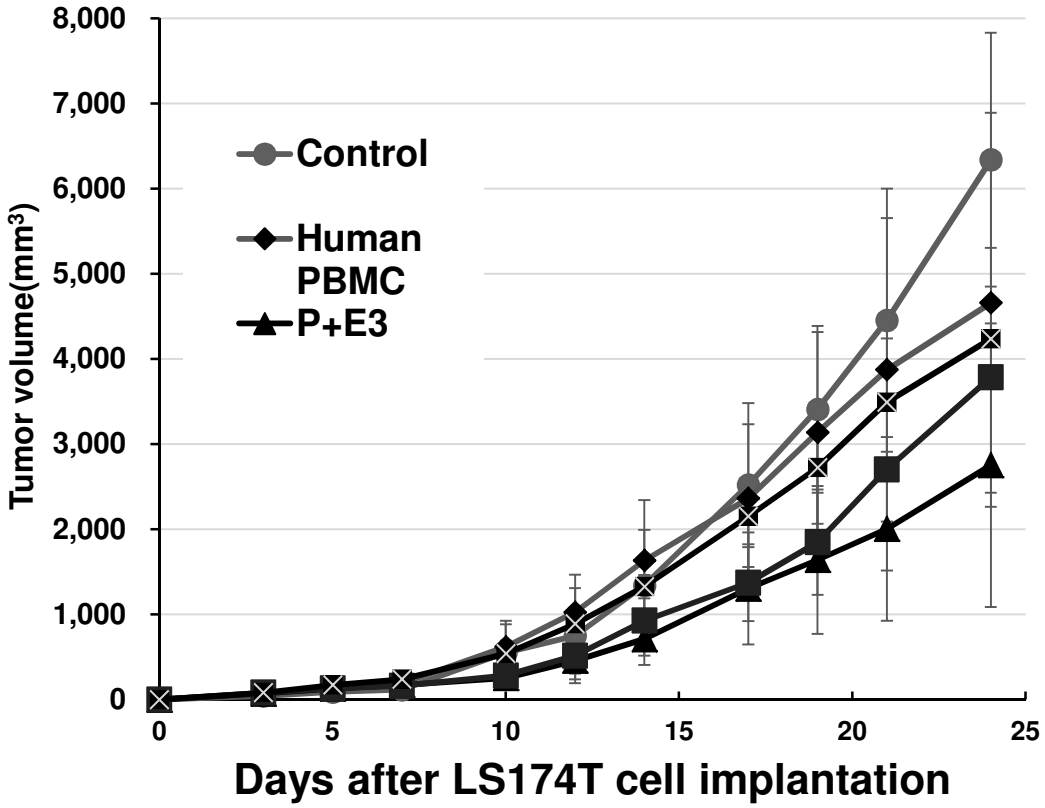
【Fig. 16b】


Tumor+PBMC
Tumor+PBMC+PD-1
Tumor+PBMC+8F5
Tumor+PBMC+8F5+PD-1
Tumor size (mm3)
400
350
300
250
200
150
100
50
0
0 day
4 day
7 day
10 day
12 day

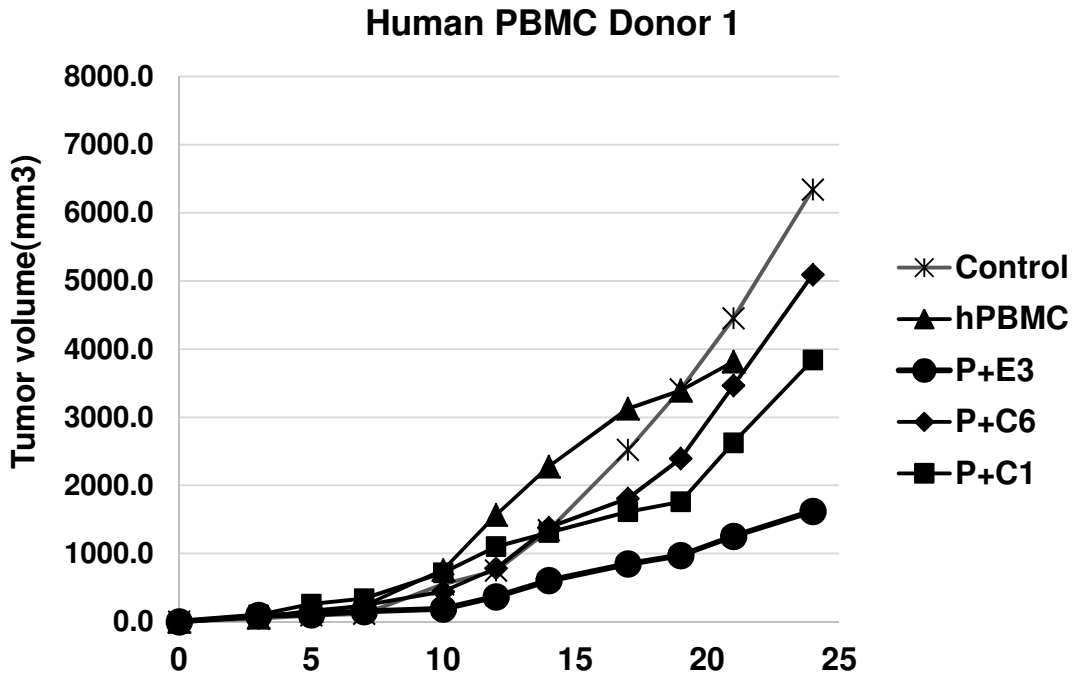
【Fig. 16c】


2000
1500
1000
500
0
Tumor mass (mm3)
Tumor only
Tumor+PBMC
Tumor+PBMC+E3
Tumor+PBMC+PD-1
Tumor+PBMC+E3+PD-1
0 day
3 day
7 day
9 day
11 day
13 day

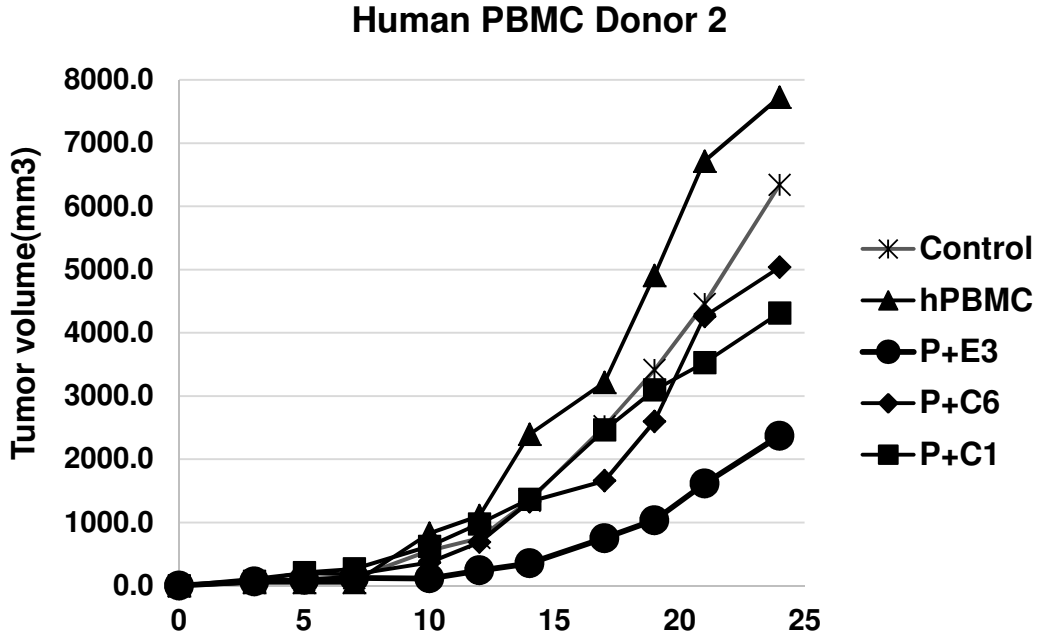
【Fig. 16d】


8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Tumor volume(mm3)
Control
Human PBMC
P+E3
0
5
10
15
20
25
Days after LS174T cell implantation

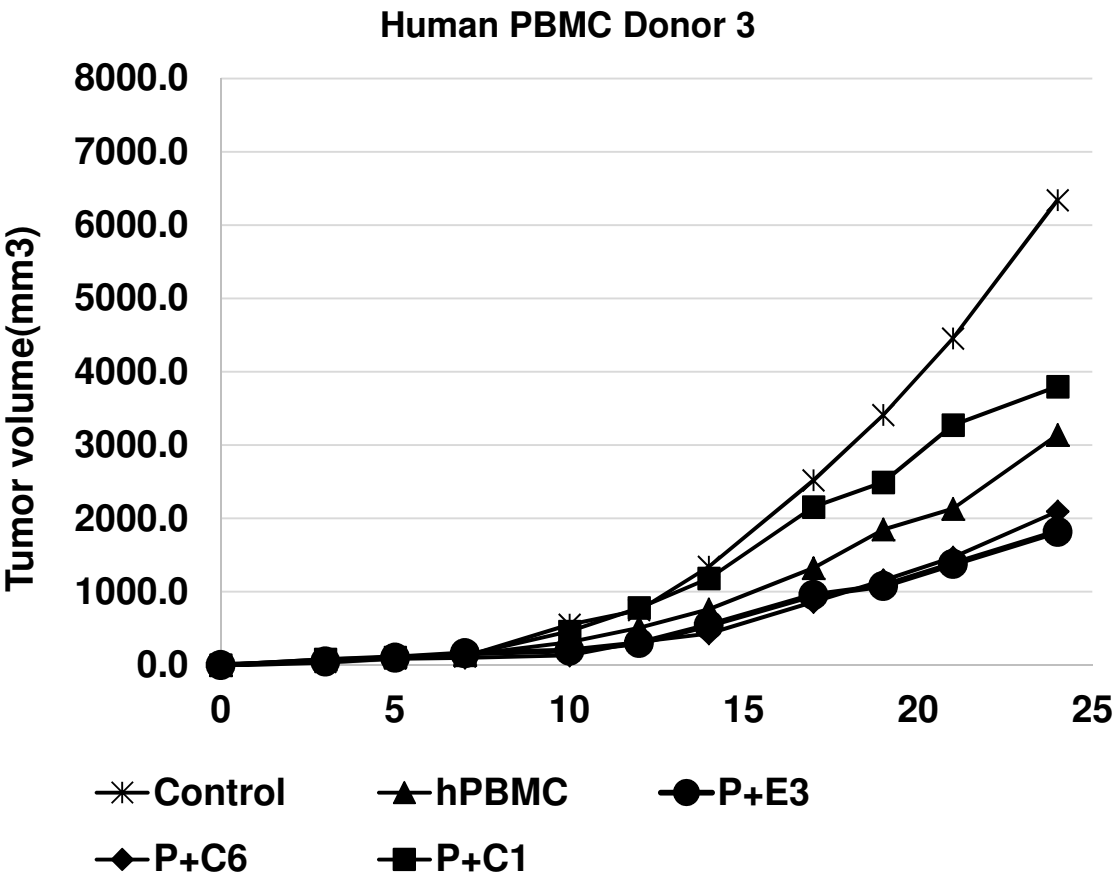
【Fig. 16e】



【Fig. 16f】



【Fig. 16g】


Human PBMC Donor 3
Tumor volume(mm3)
8000.0
7000.0
6000.0
5000.0
4000.0
3000.0
2000.0
1000.0
0.0
0
5
10
15
20
25
Control
hPBMC
P+E3
P+C6
P+C1