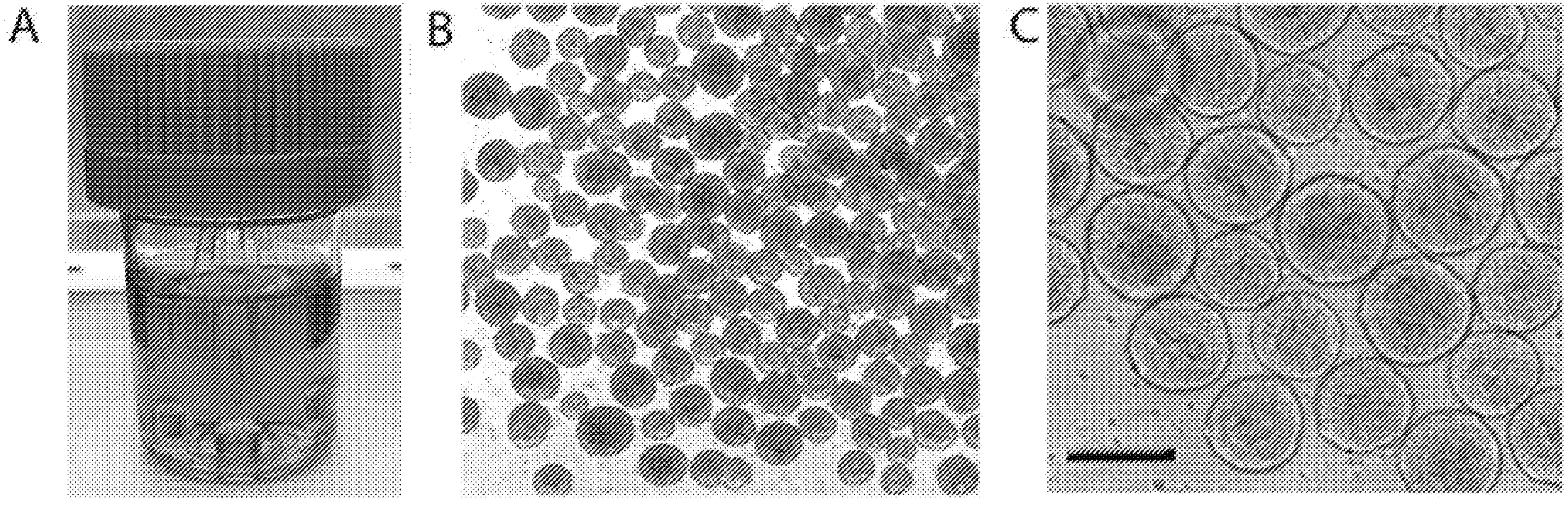


Figures 1A-1E

D0	D1	D2	D3	D4	D5	D6	D7 -12	D13 -
Pluripotent	Early mesoderm & hemogenic endothelium induction						Expansion phase 1	Expansion phase 2
M1+TGF-β, bFGF, Y27632	M2 + BMP4, VEGF, bFGF		M2 + BMP4, VEGF, bFGF, CHIR99012	M2 + BMP4, VEGF, bFGF, CHIR99012, SB431542	M2 + BMP4, VEGF, bFGF, SB431542	M2 + BMP4, VEGF, bFGF	M3 + TPO, SCF, Flt3L, IL-3, IL-6, SR1, OSM, EPO	M4 + TPO, SCF, Flt3L, IL-3, IL-6, SR1, OSM, EPO
20% Oxygen	**5% Oxygen**						**20% Oxygen**	
Oct4 > 95%						CD31 > 30% CD34 > 15% CD43> 7.5%	Harvest CD34+, CD41+CD235aCD45+/- early hematopoietic progenitors	Harvest hematopoietic progenitors with myeloid, lymphoid lineages, long-term expansion of CD34+ HSCs

Figure 2

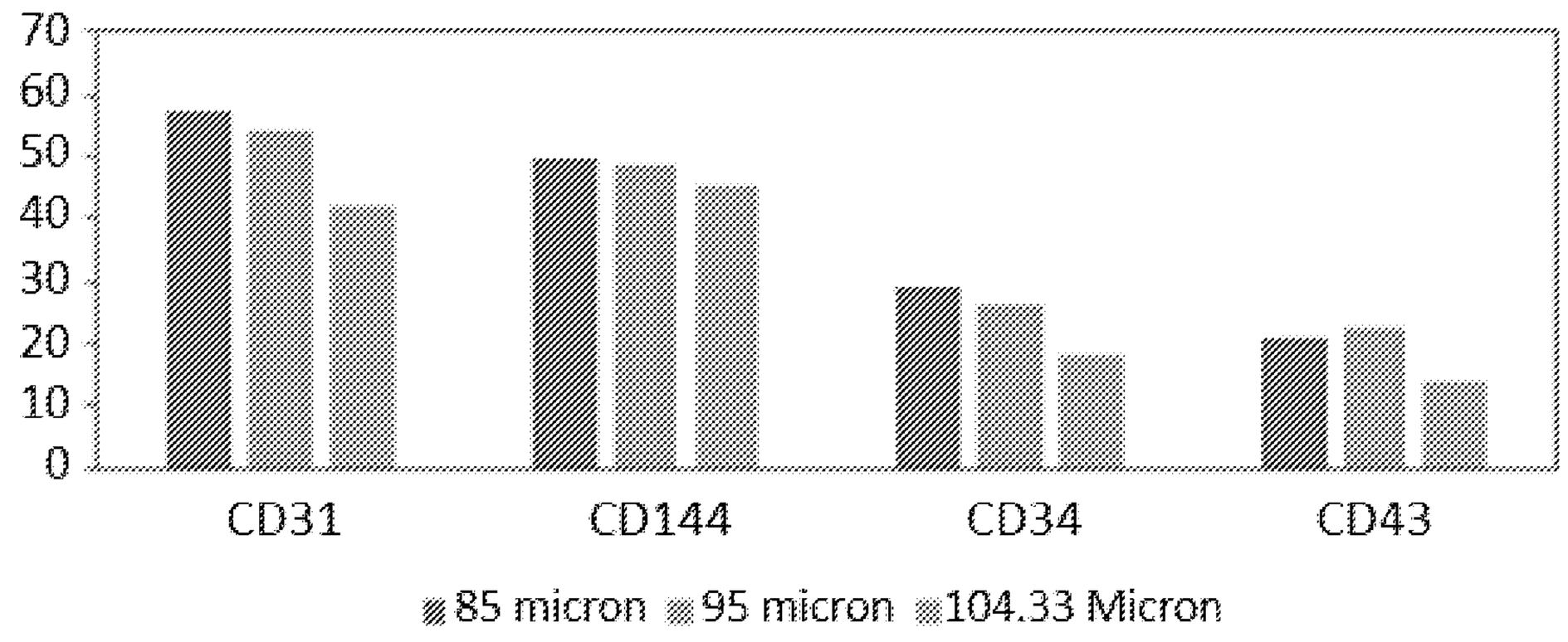


Figure 3A

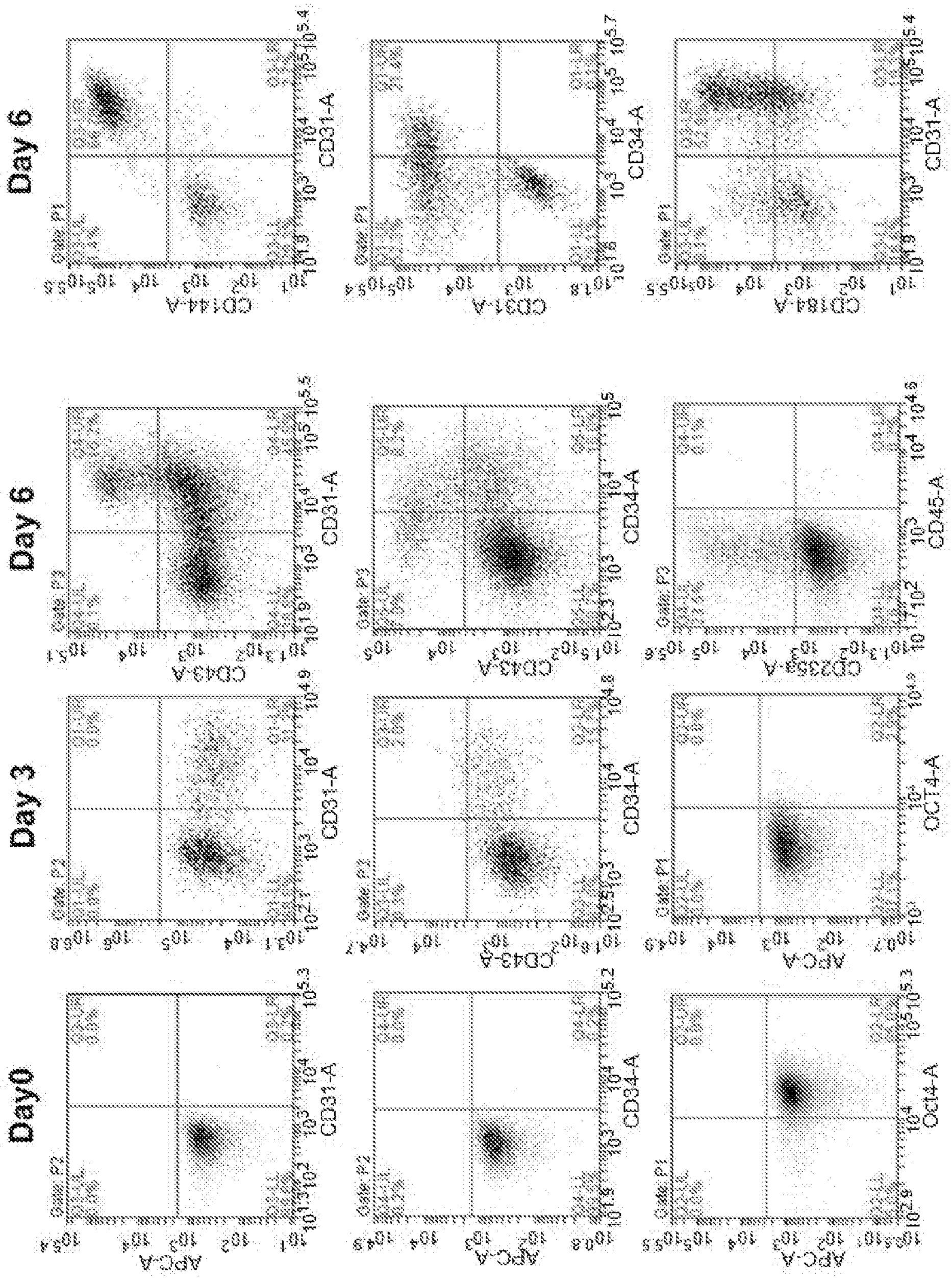

Day 6
Day 6
Day 3
Day0
CD31-A
CD34-A
CD144-A
CD31-A
CD184-A
CD43-A
CD31-A
CD43-A
CD34-A
CD235a-A
CD45-A
CD43-A
CD31-A
CD43-A
CD34-A
APC-A
OCT4-A
CD31-A
CD34-A
APC-A
Oct4-A

Figure 3B

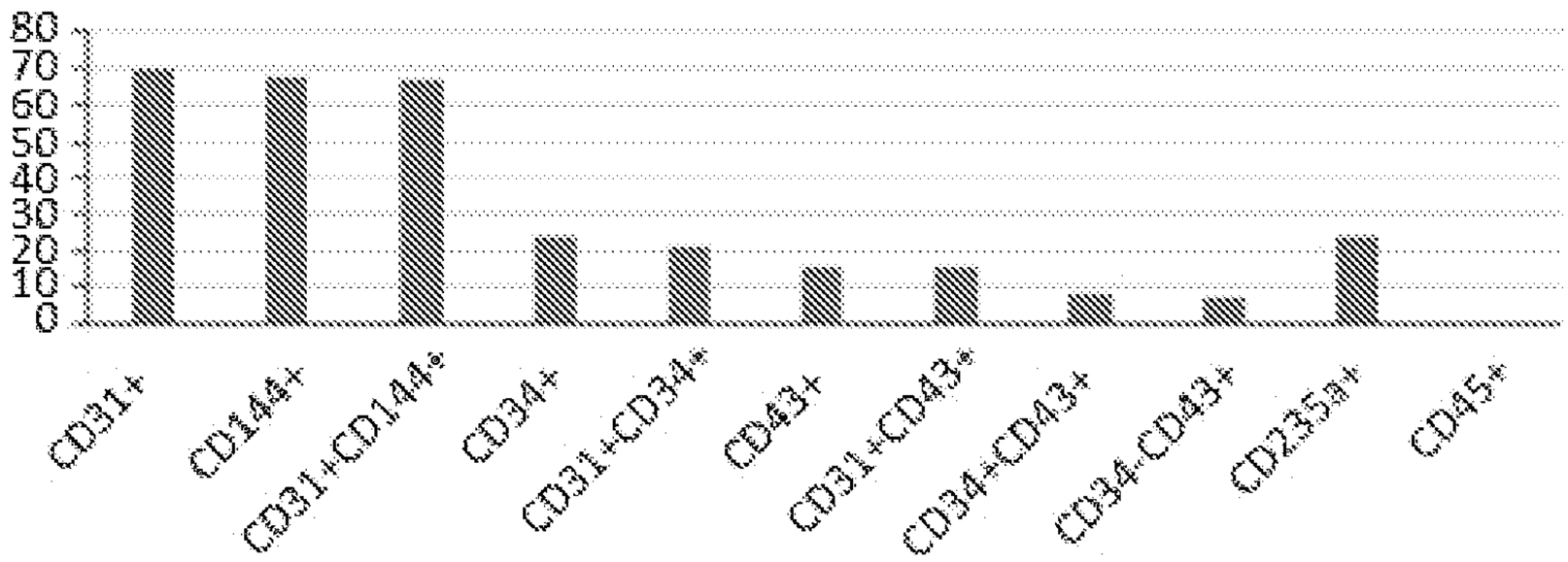
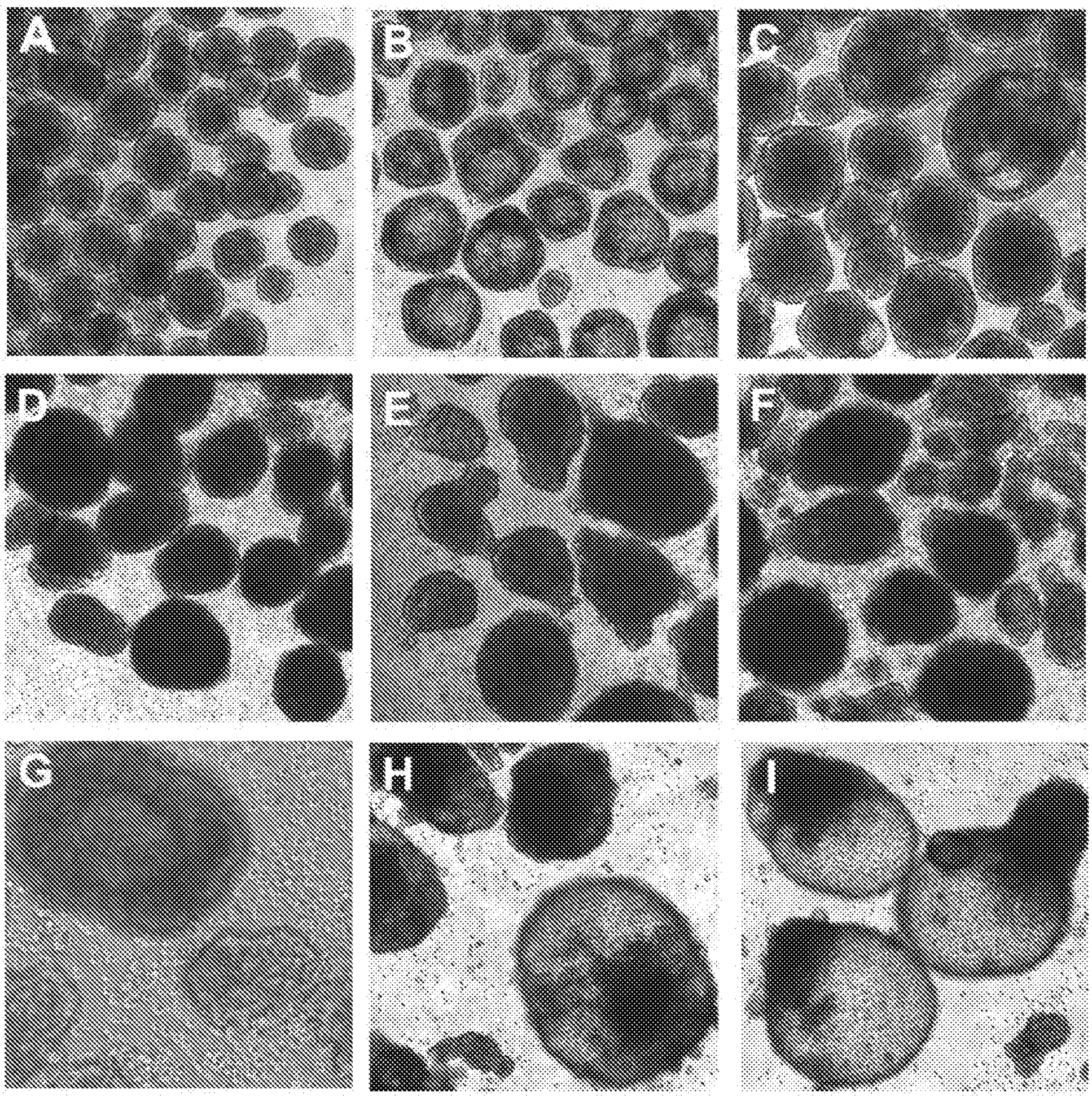


Figure 3C



Figures 4A-4I

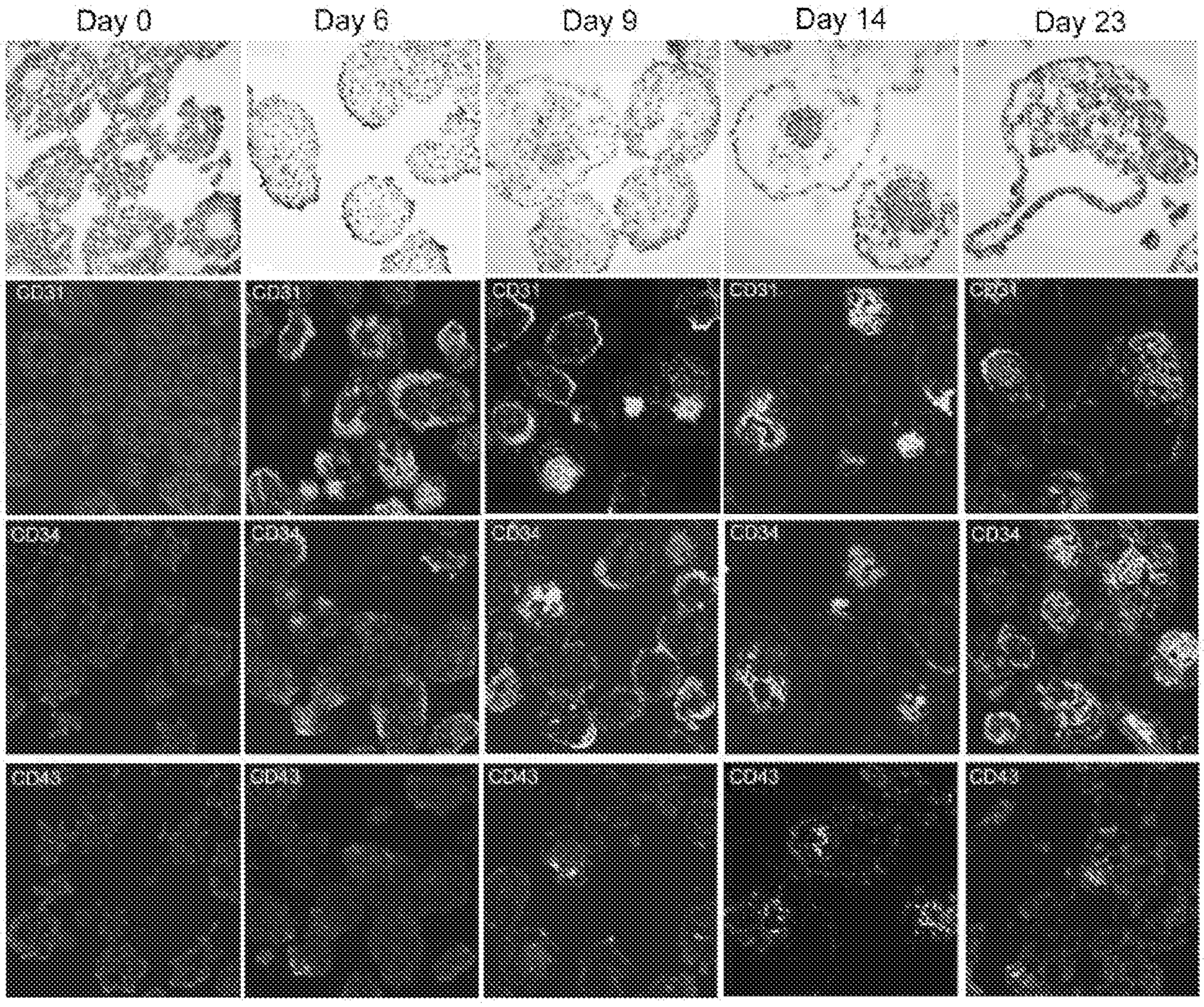
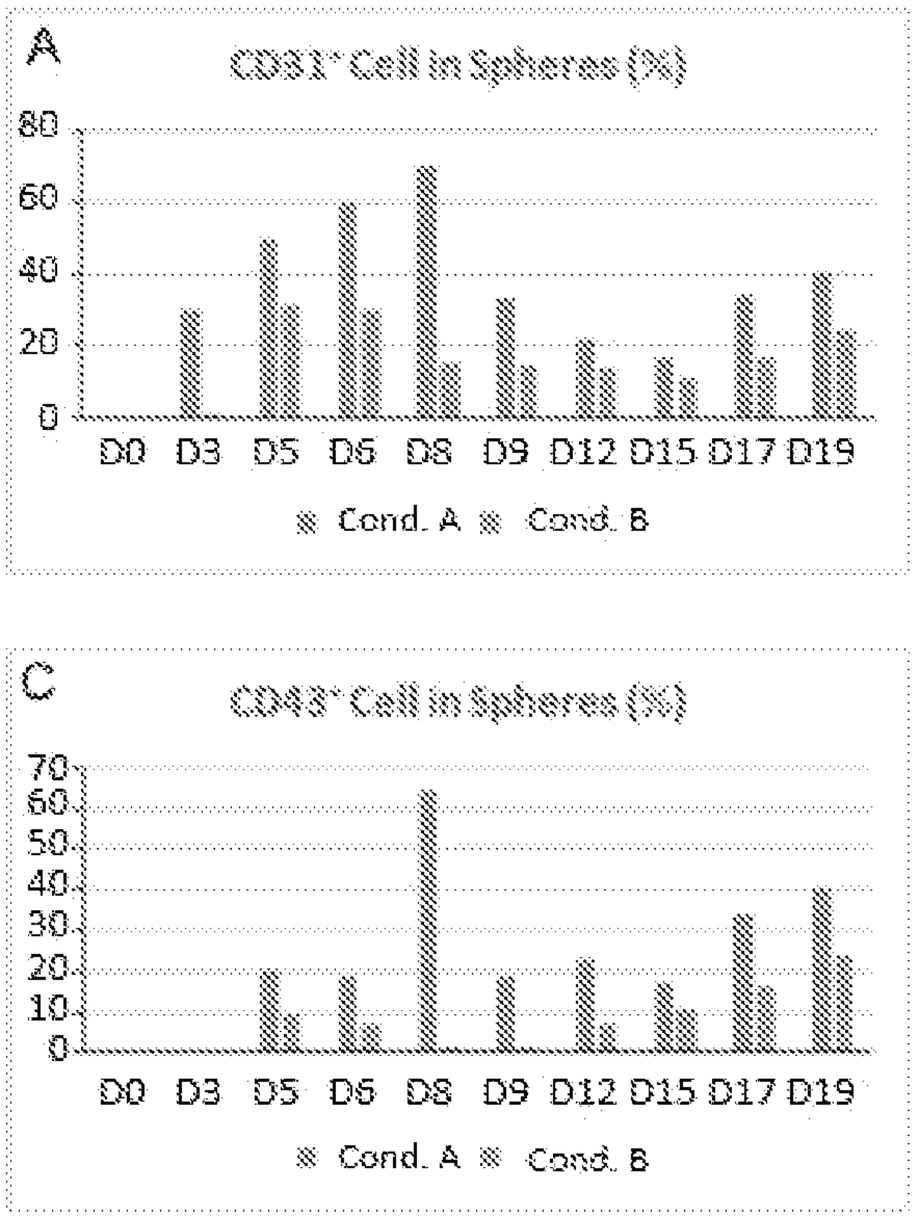
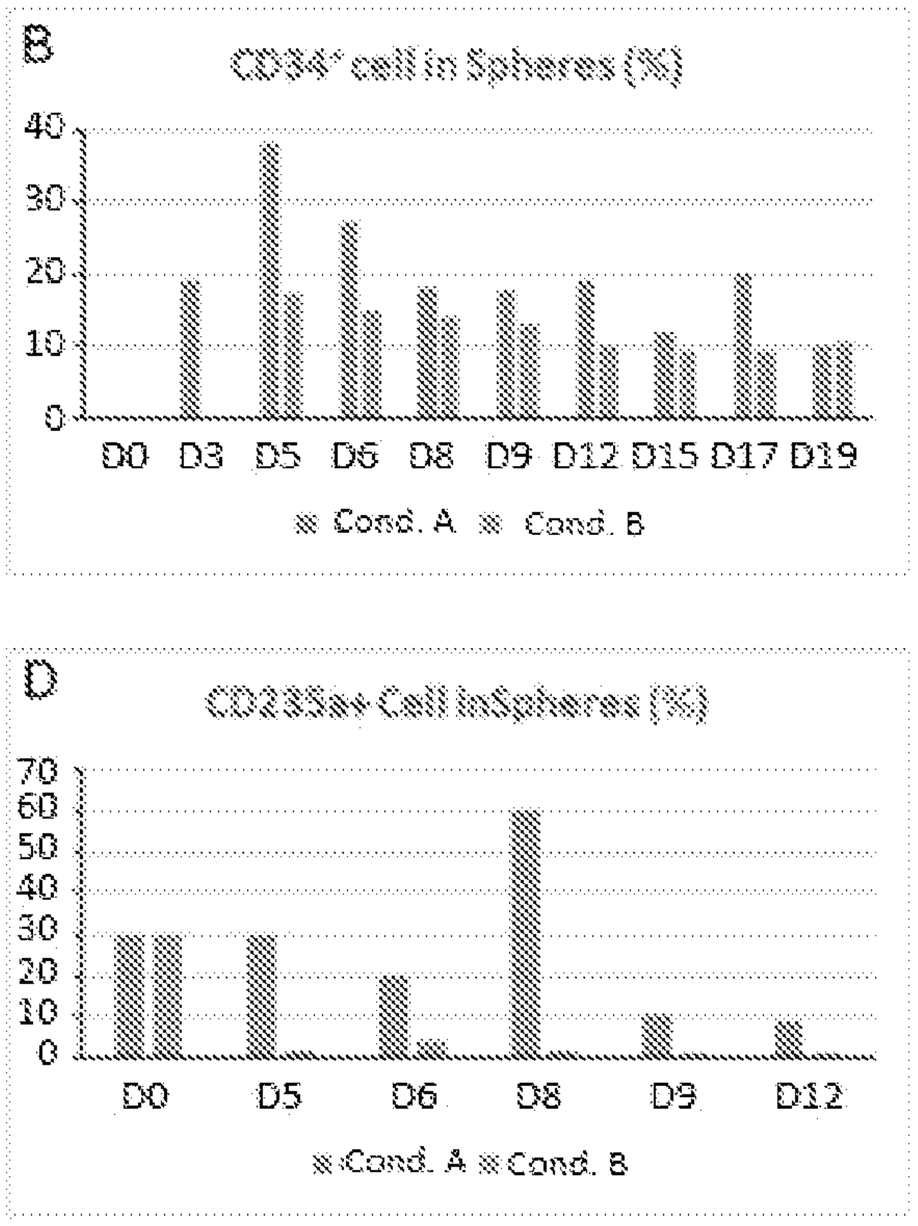
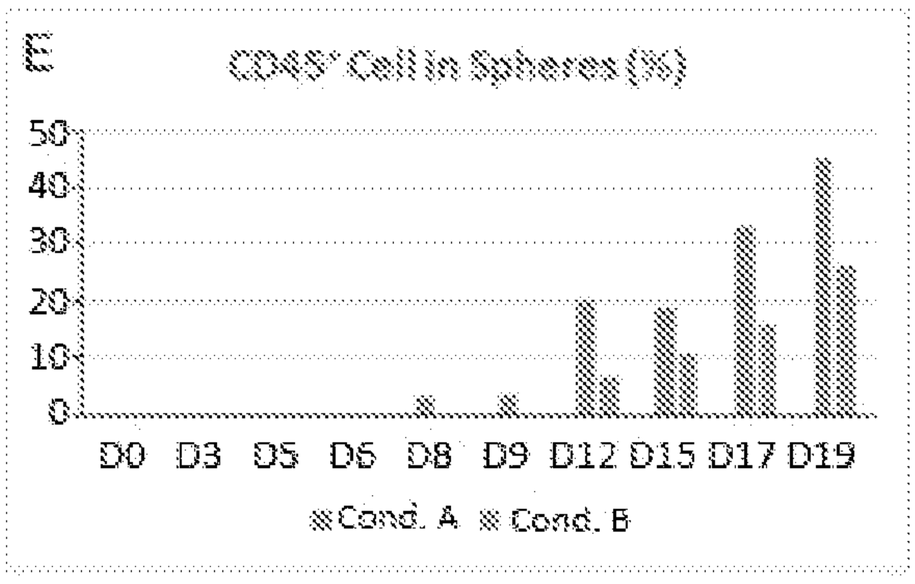


Figure 5



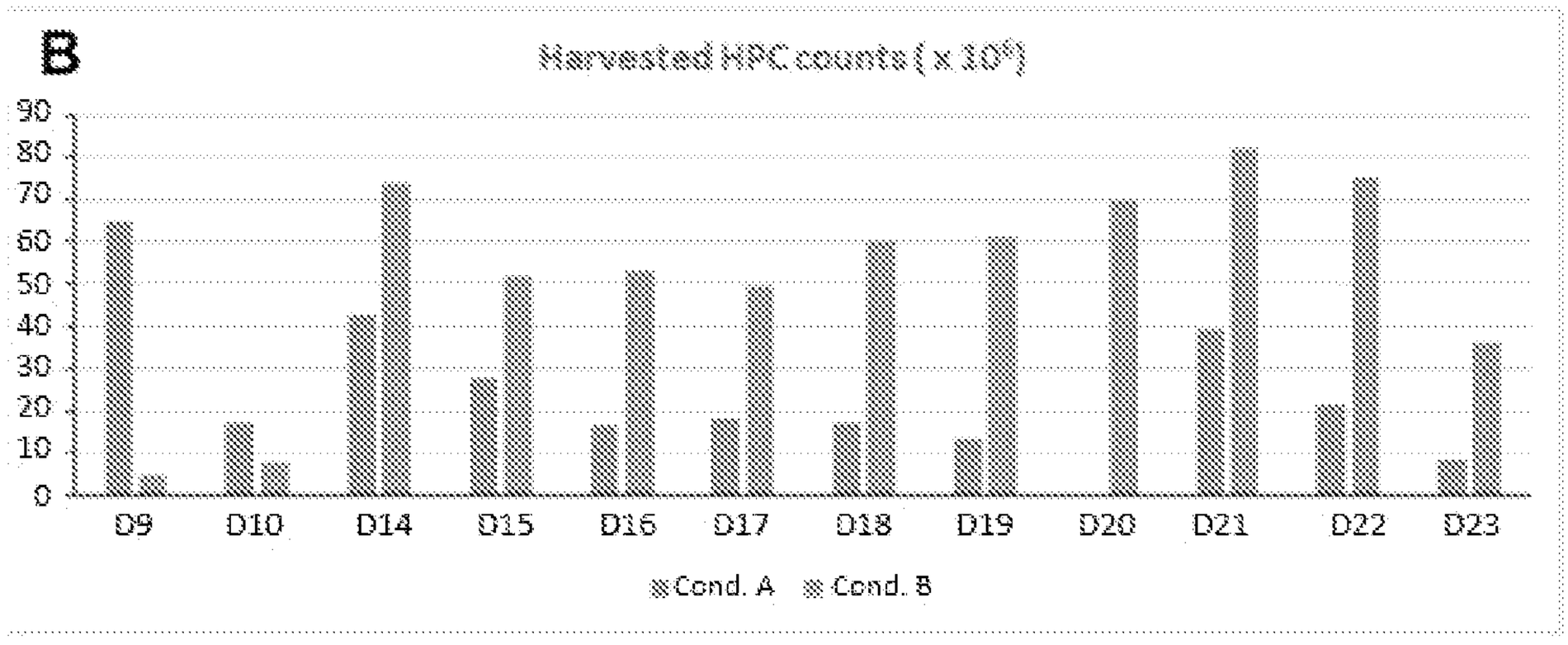




Figures 6A-6E

A Release HPC counts (x 10^6)

	Cond. A	Cond. B
D9	64.36	4.9
D10	17.24	7.94
D14	42.5	73.6
D15	28	52
D16	16.3	52.7
D17	18	49.2
D18	17	60
D19	13.2	61
D20		69.4
D21	39.2	82
D22	21.4	75.4
D23	8.4	36
Total	285.6	624.14



Figures 7A-7B

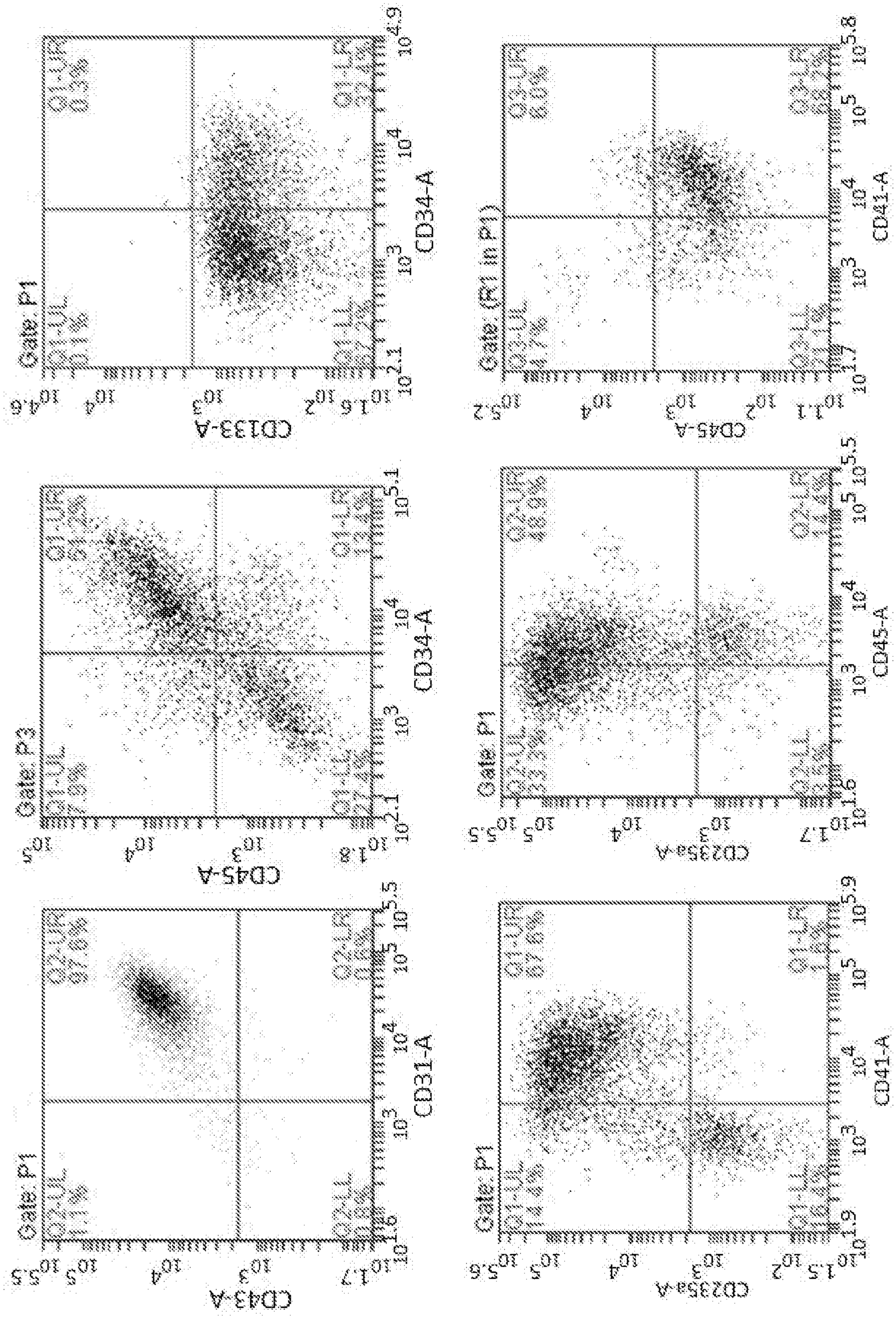
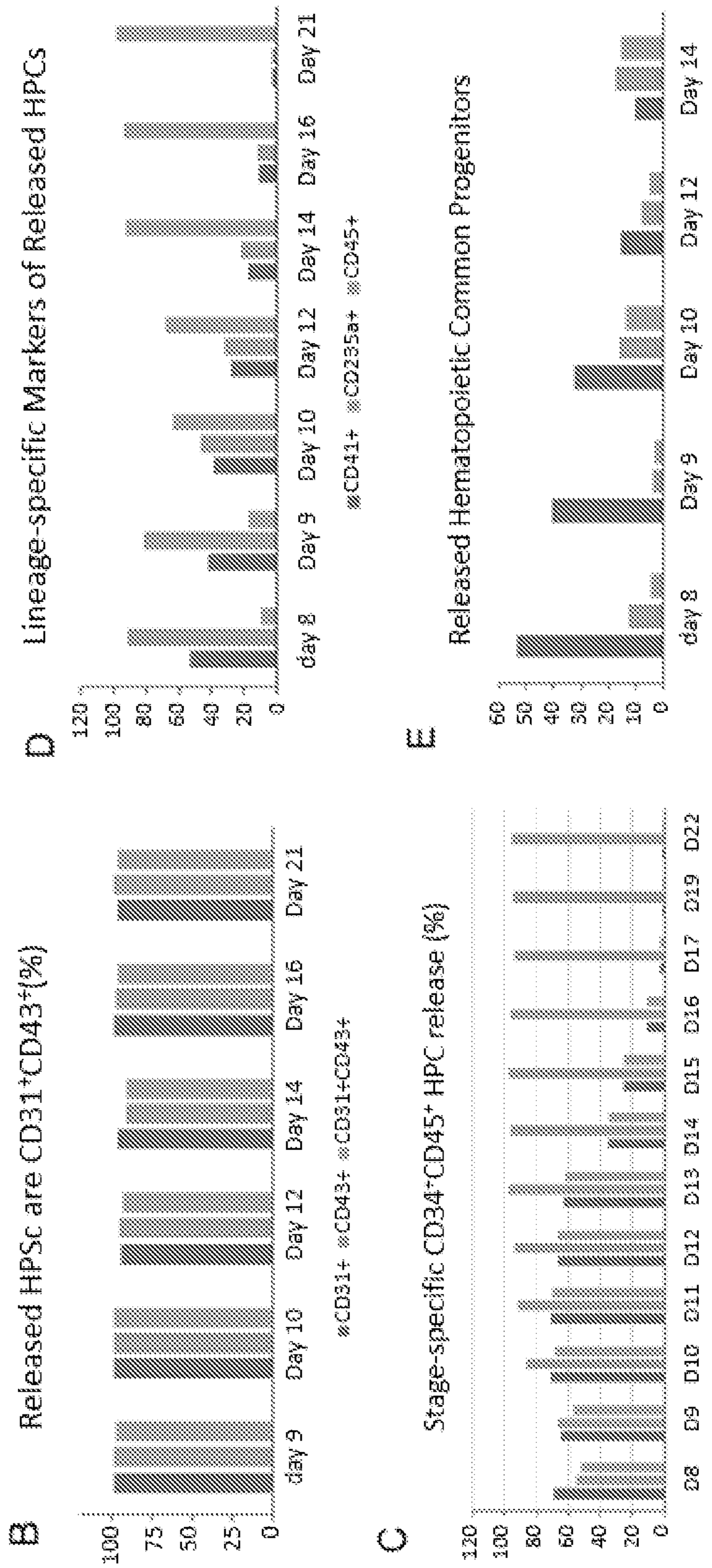
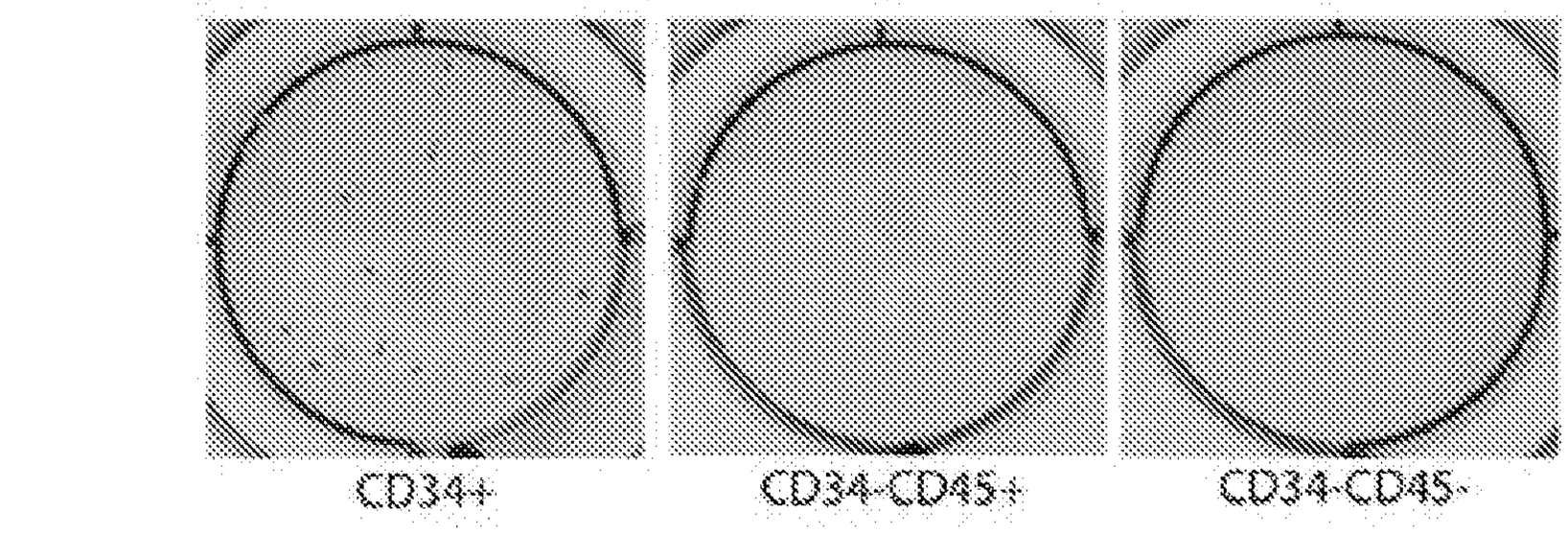
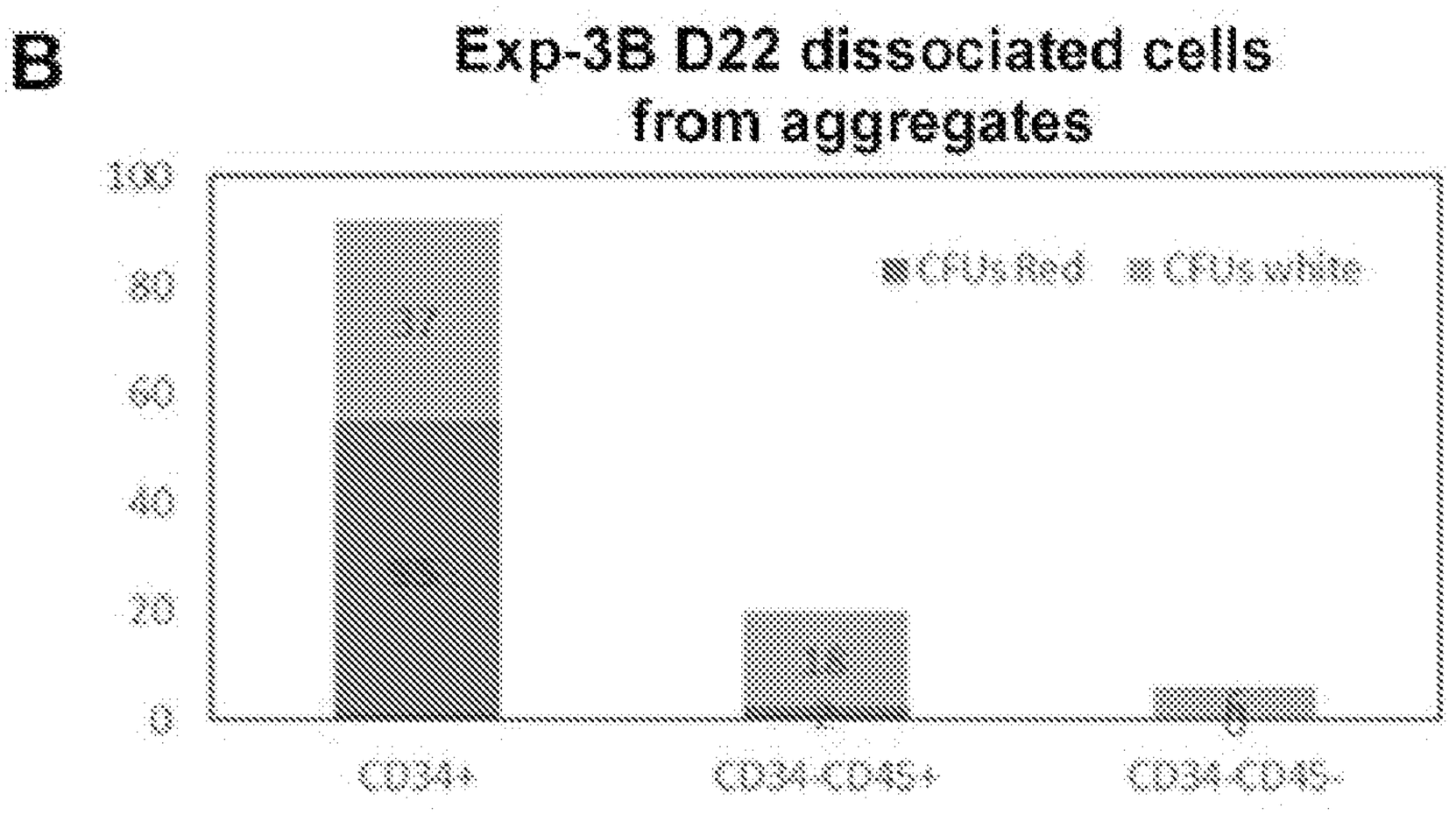

Q1-UL
Q1-UR
Q1-LL
Q1-LR
Gate: P1
CD34-A
CD41-A
CD133-A
CD45-A
Gate: P3
CD31-A
CD43-A
CD235a-A

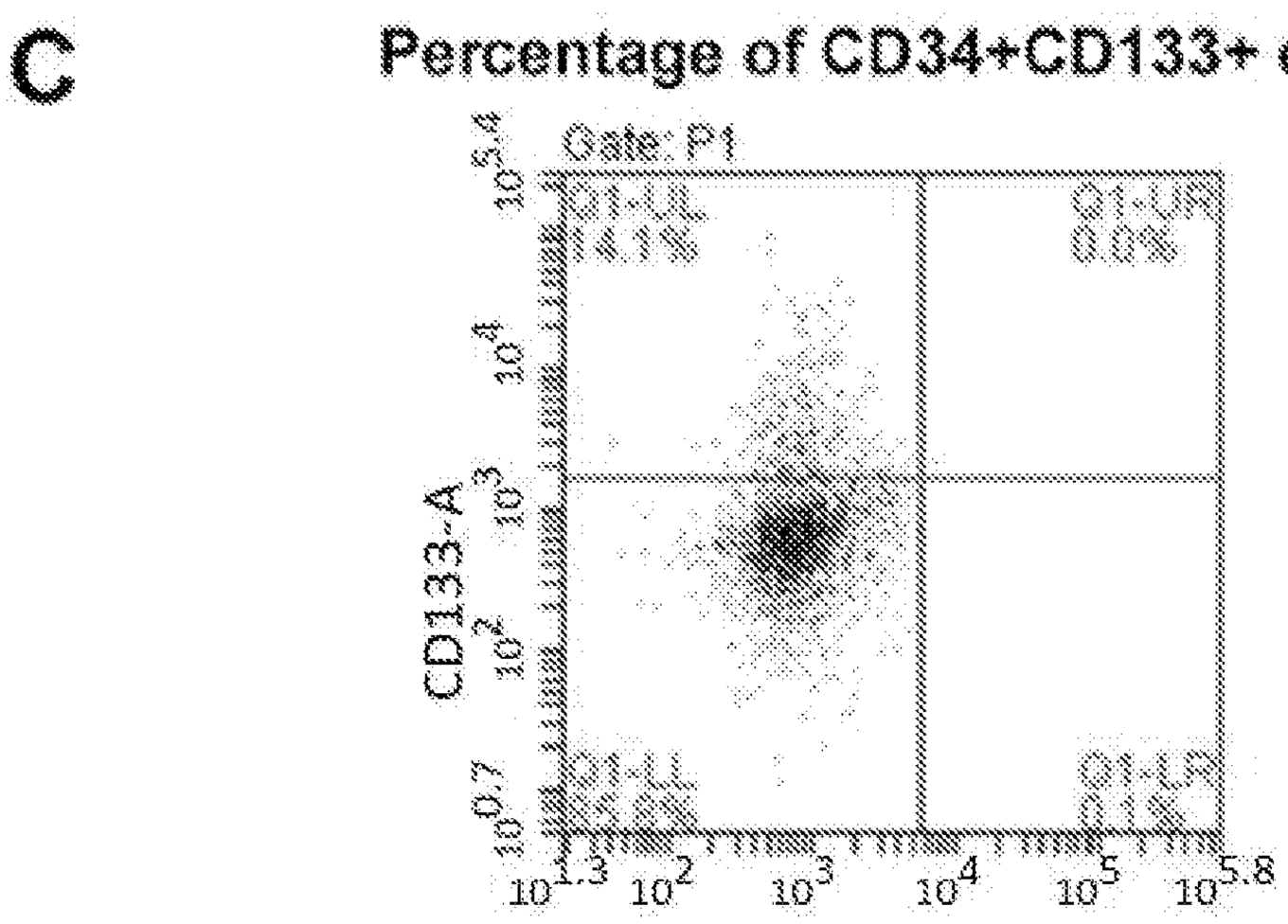
Figure 8A



Figures 8B-8E

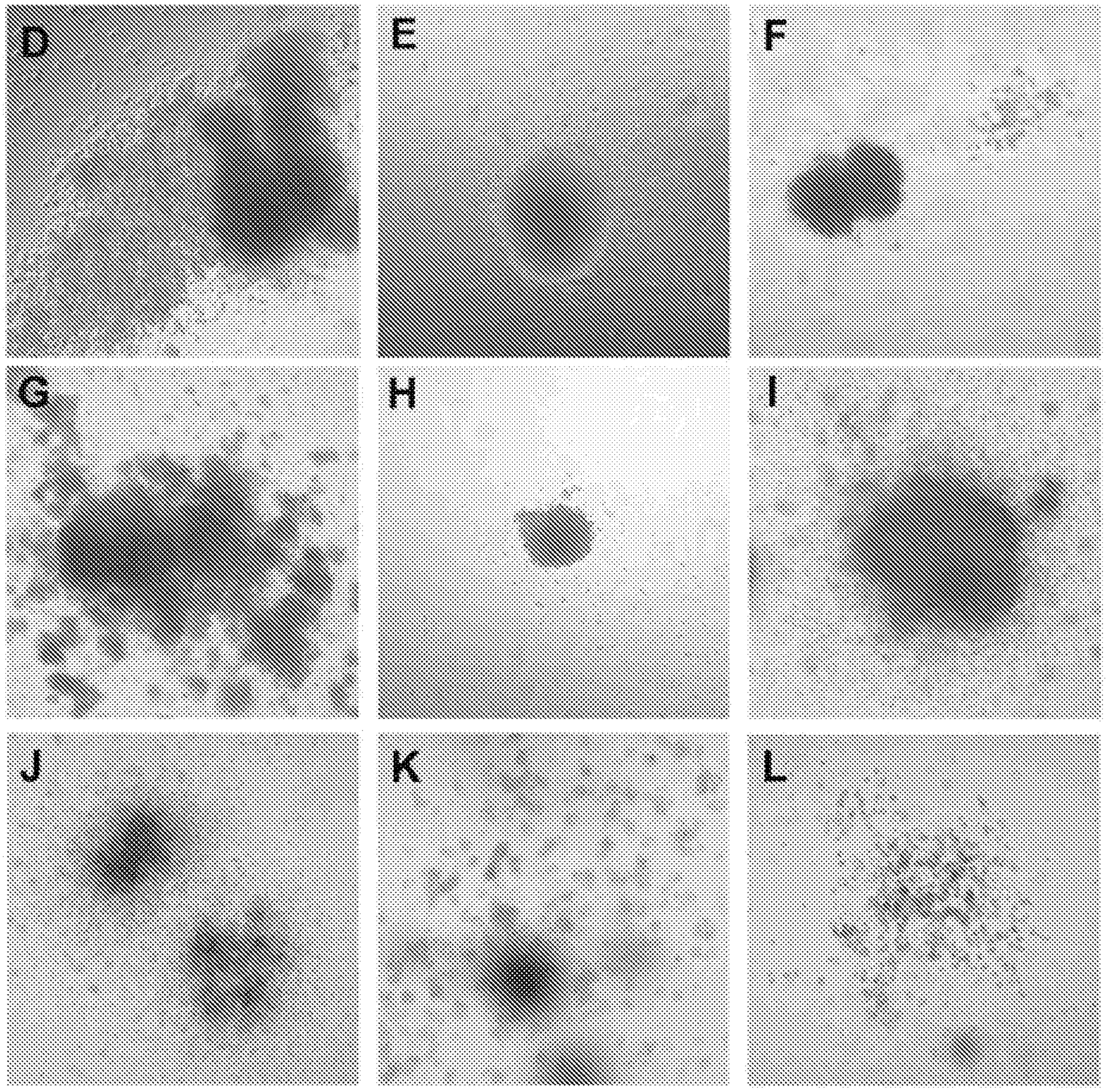






Figures 9A-9C

CFU morphology



Figures 9D-9L

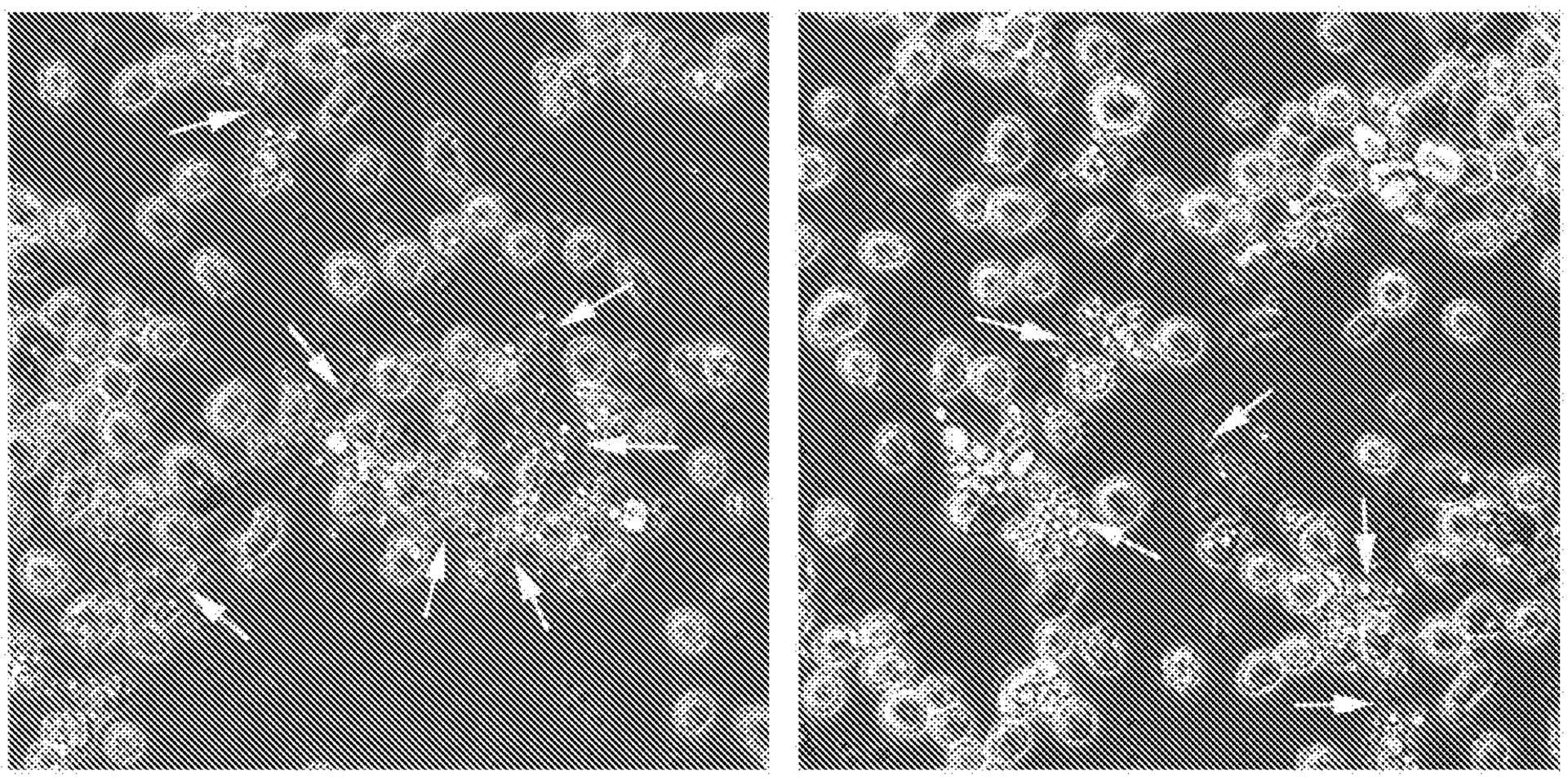


Figure 10A

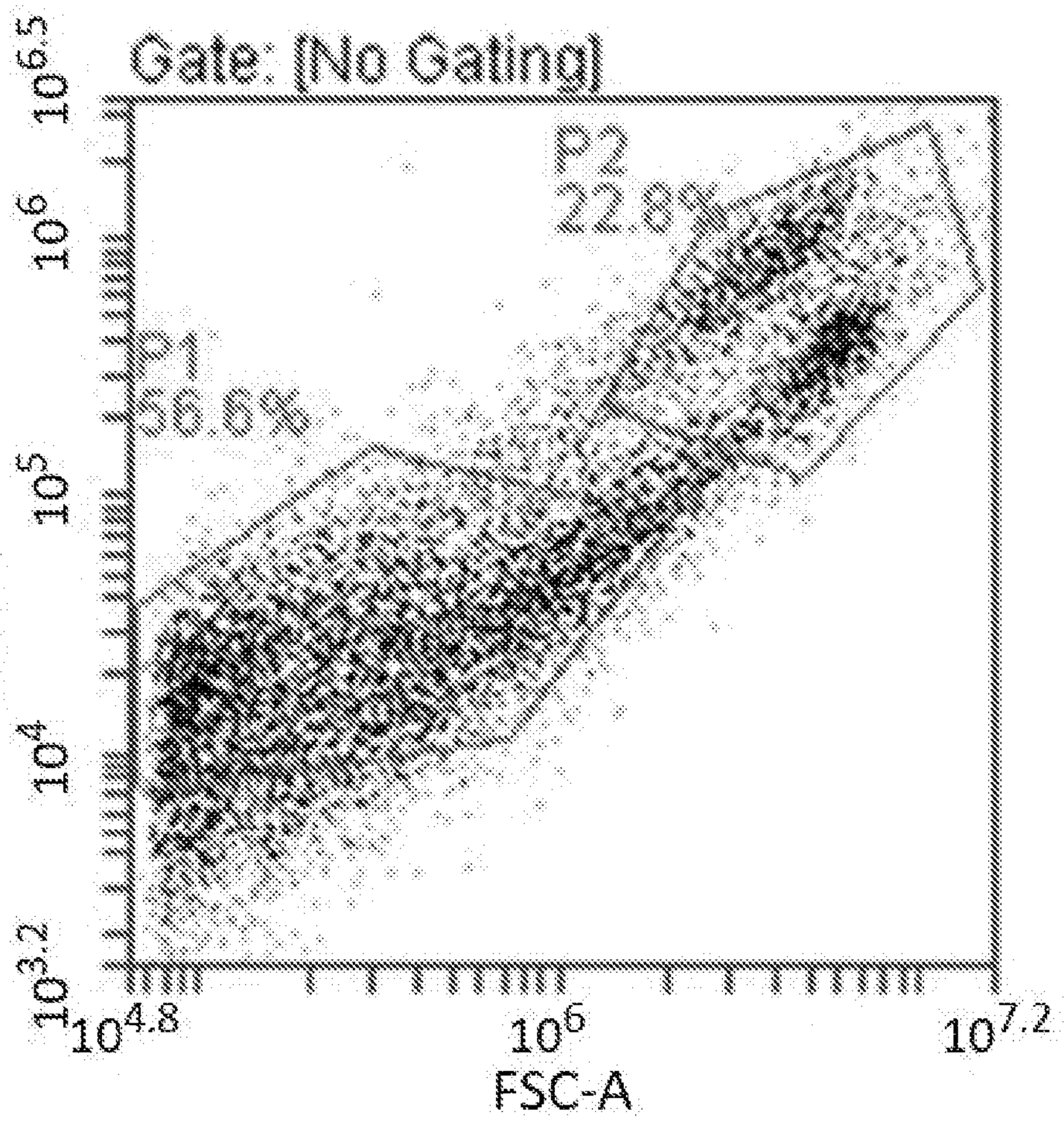


Figure 10B

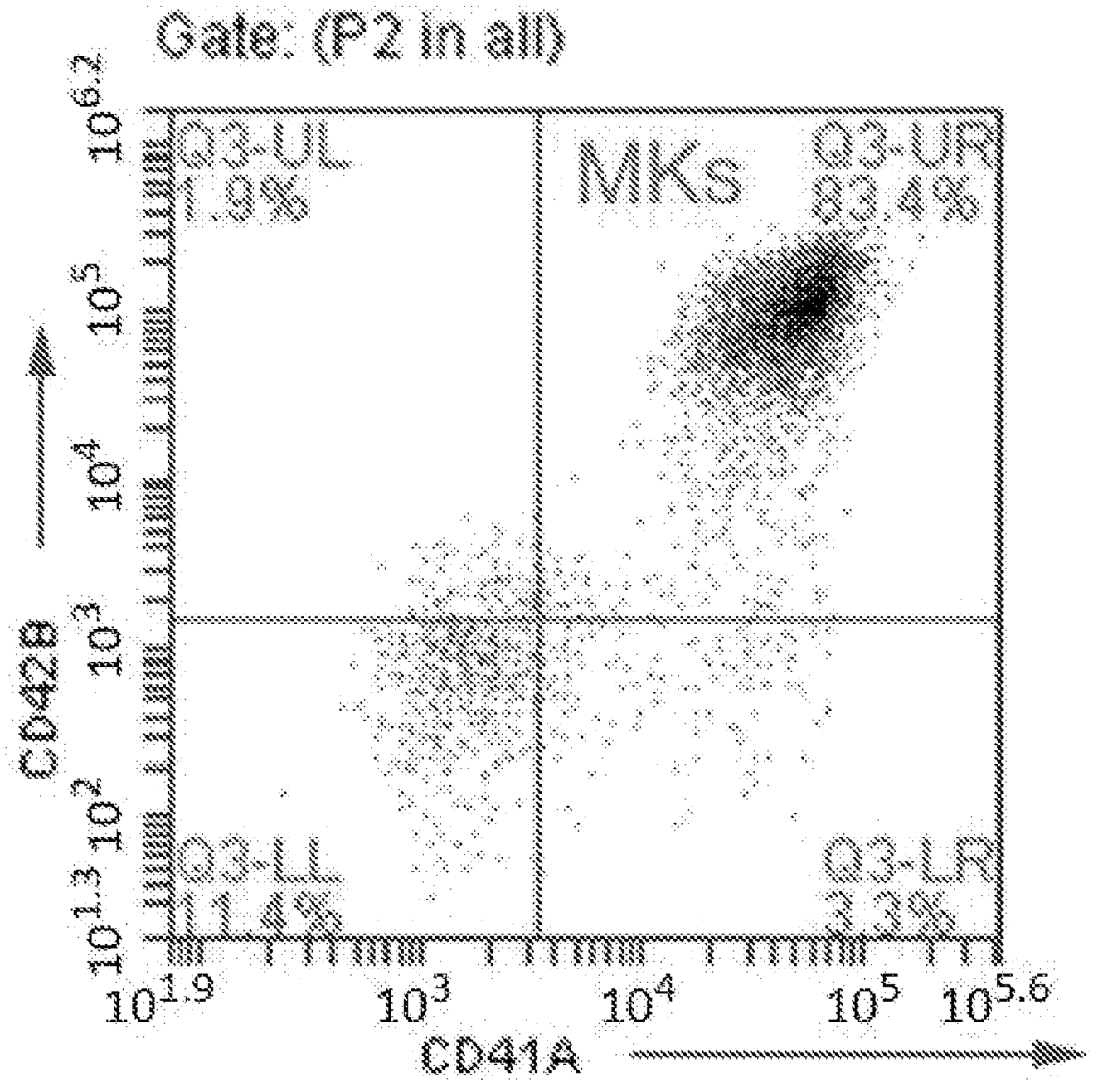


Figure 10C

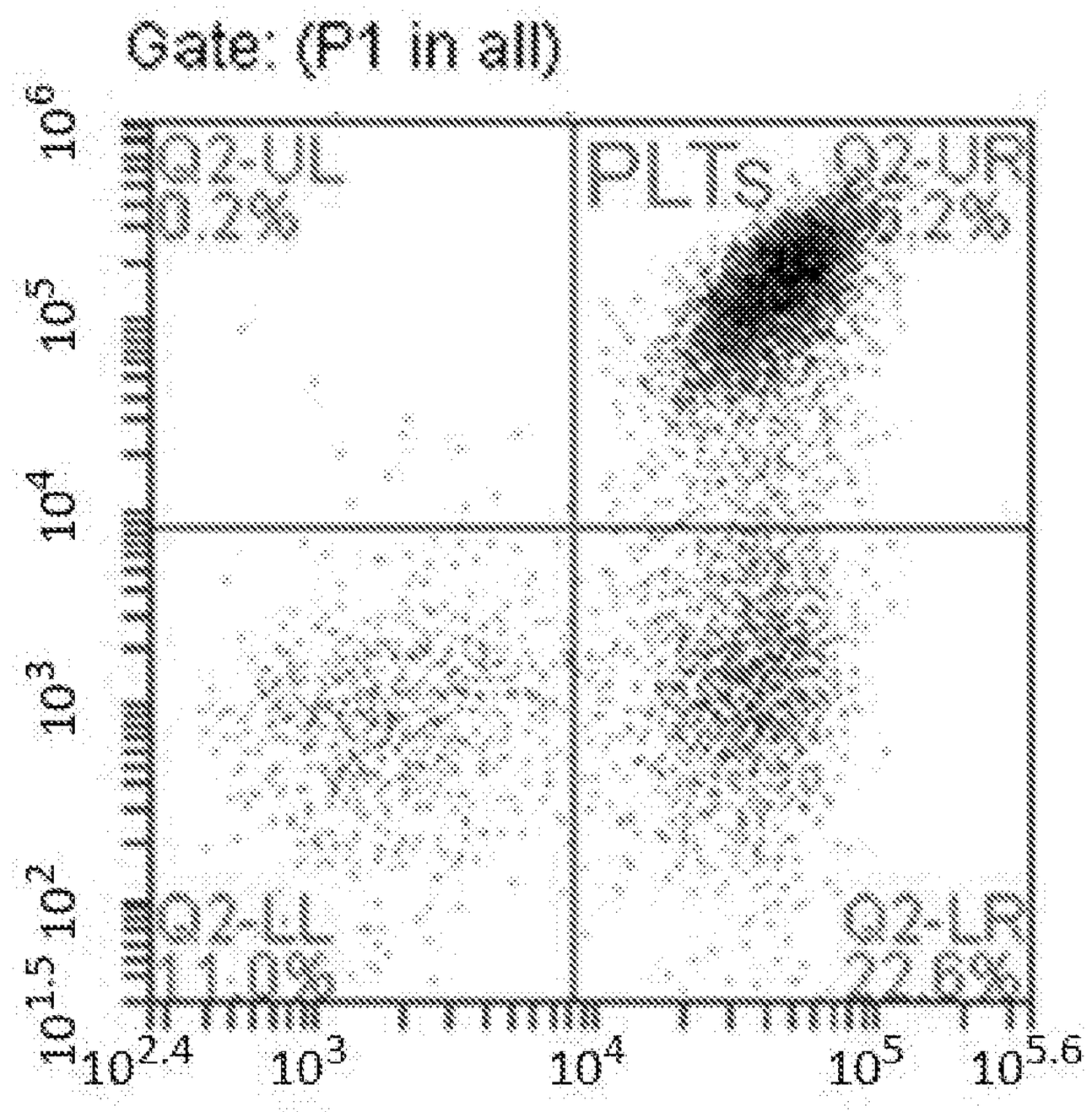


Figure 10D

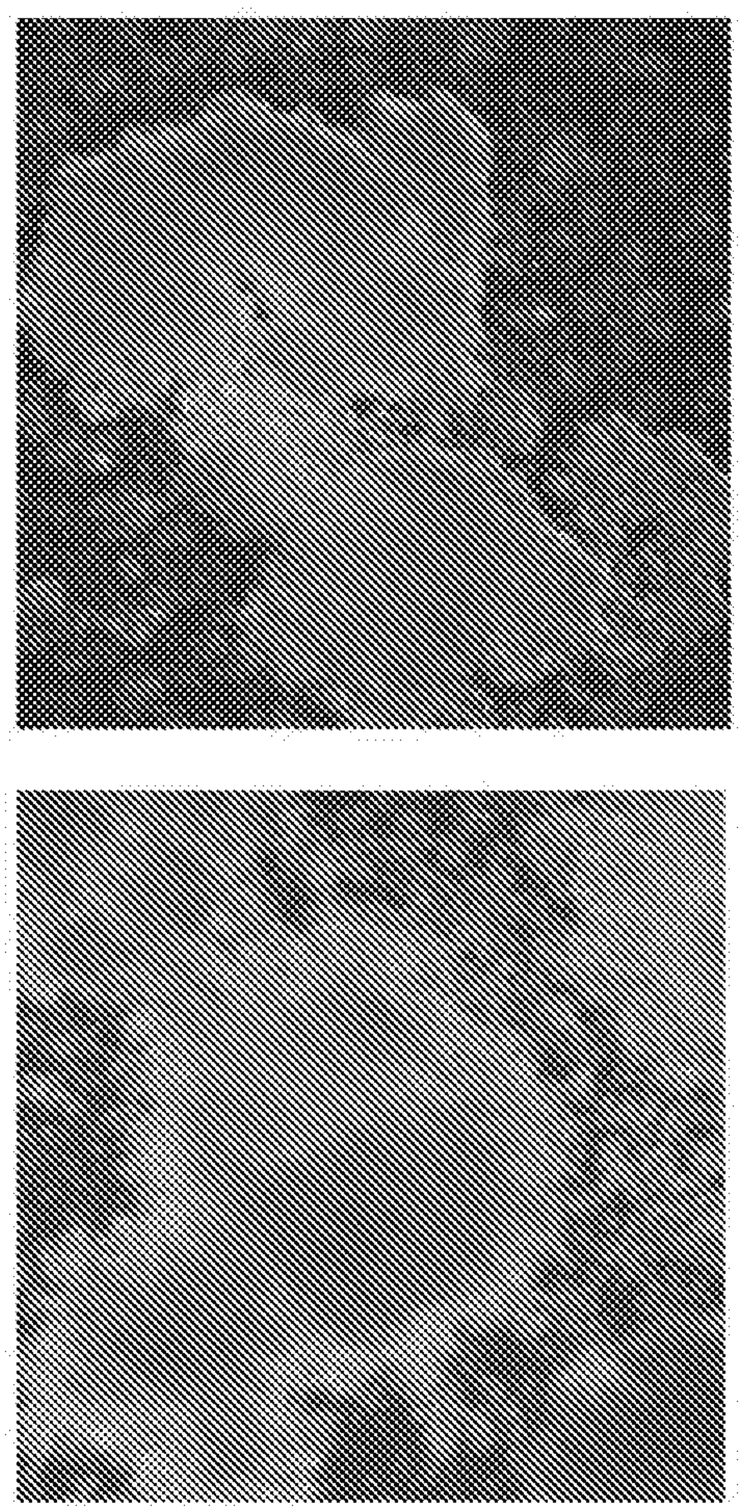


Figure 10E

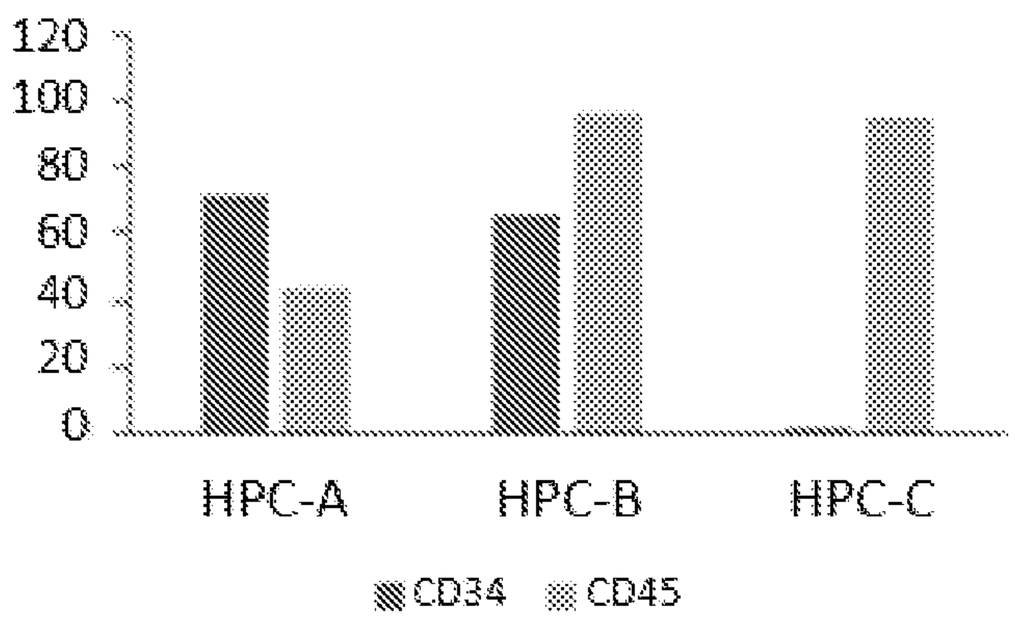


Figure 11A

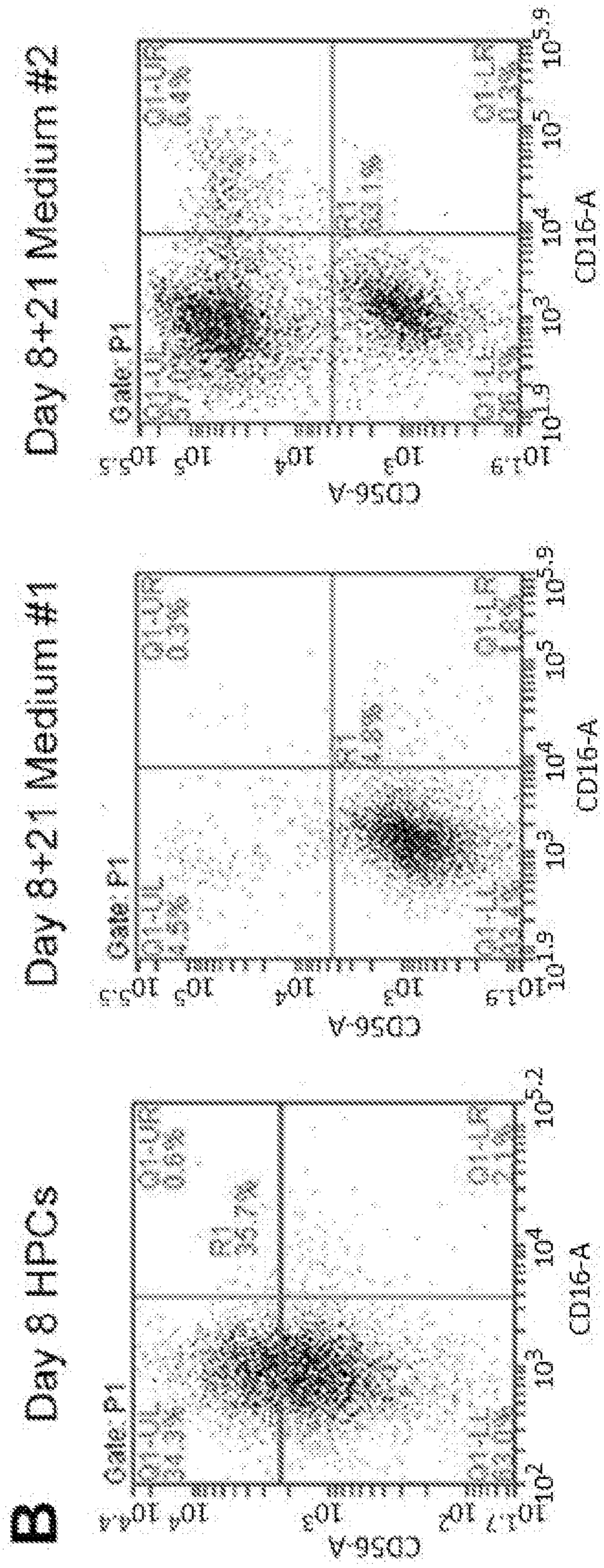

B
Day 8 HPCs
Day 8+21 Medium #1
Day 8+21 Medium #2
Gate: P1
CD56-A
CD16-A
Q1-UL
0.5%
Q1-UR
22.7%
Q1-LL
0.6%
Q1-LR
2.1%

Figure 11B

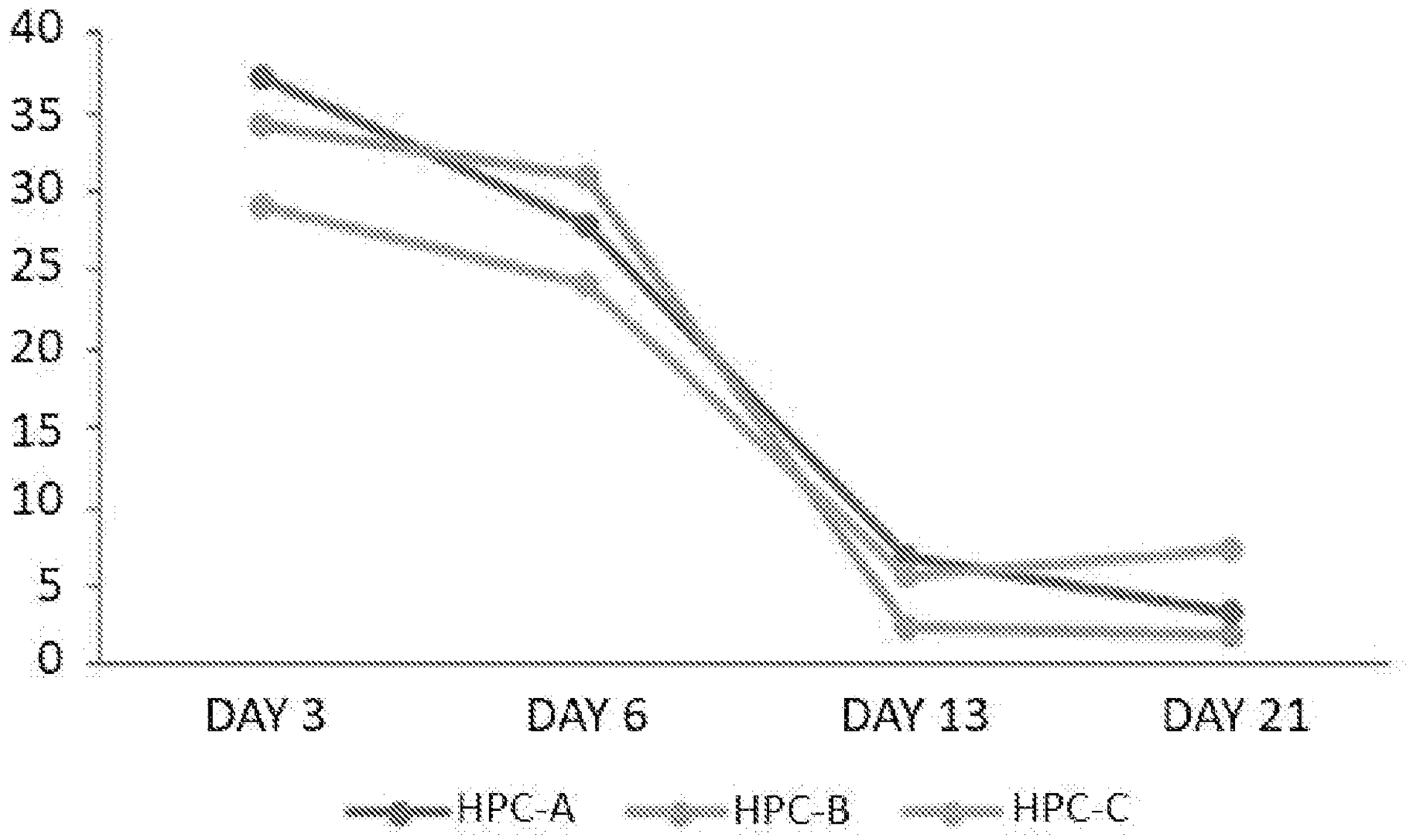


Figure 11C

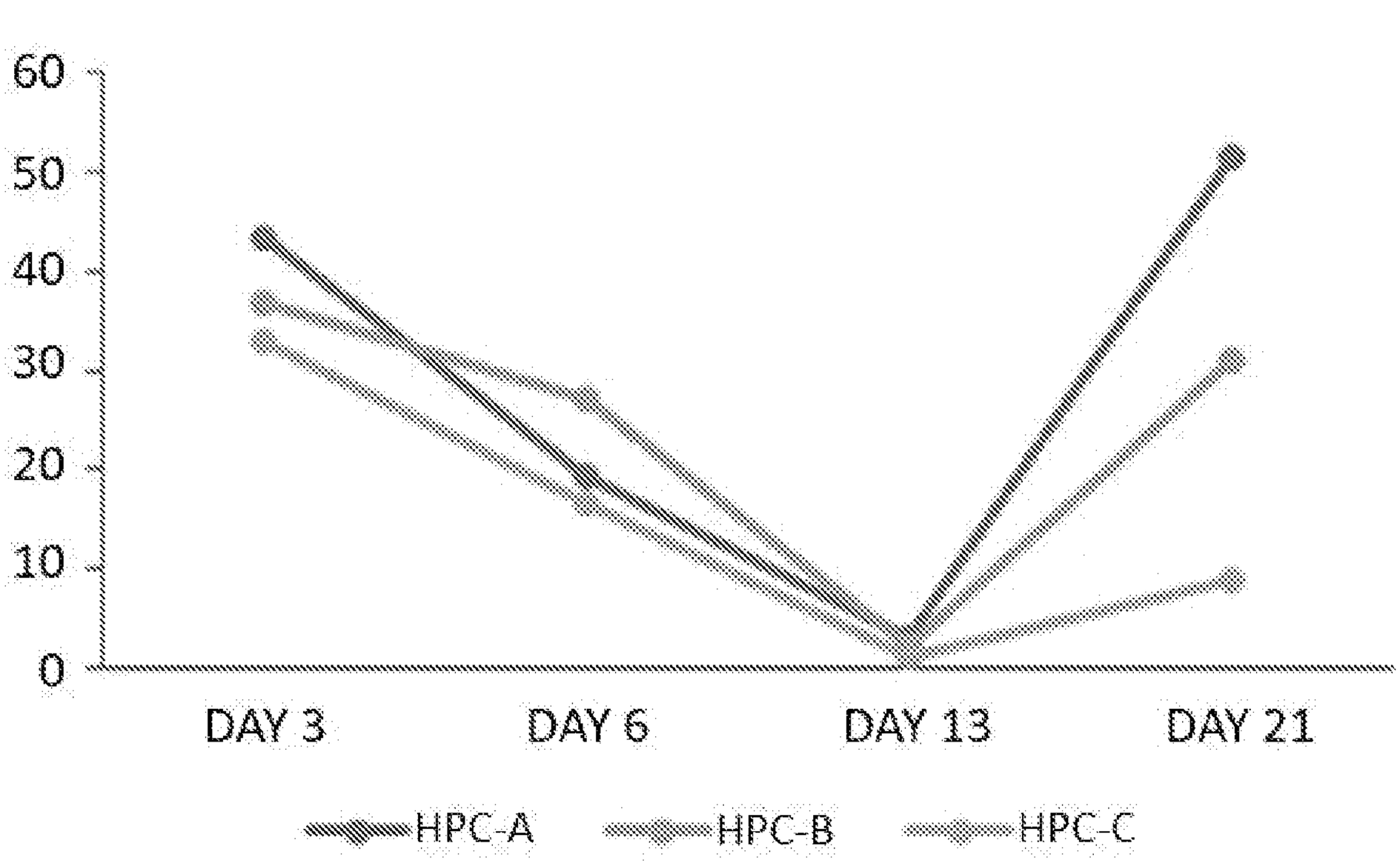
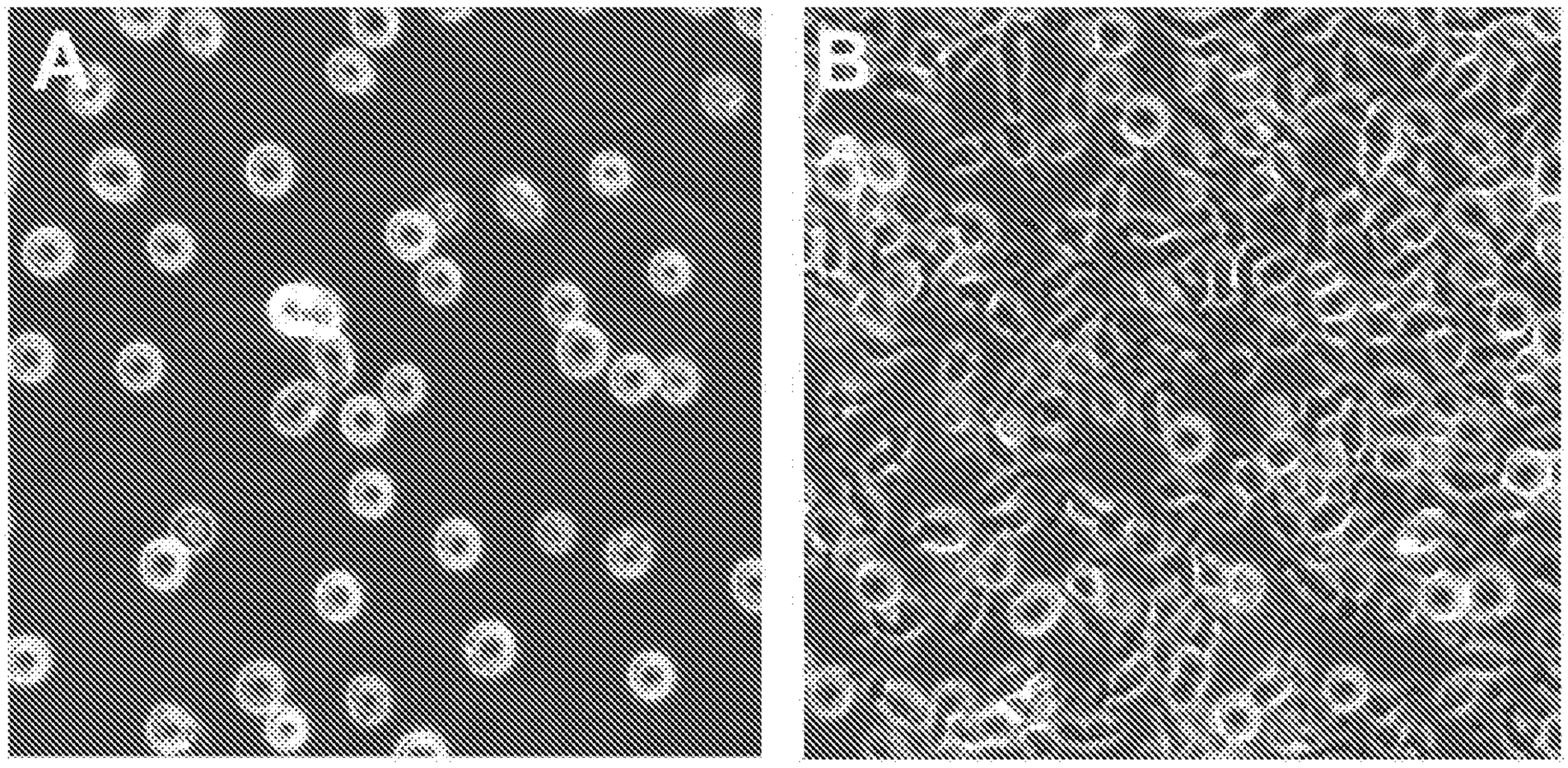


Figure 11D



Figures 12A-12B

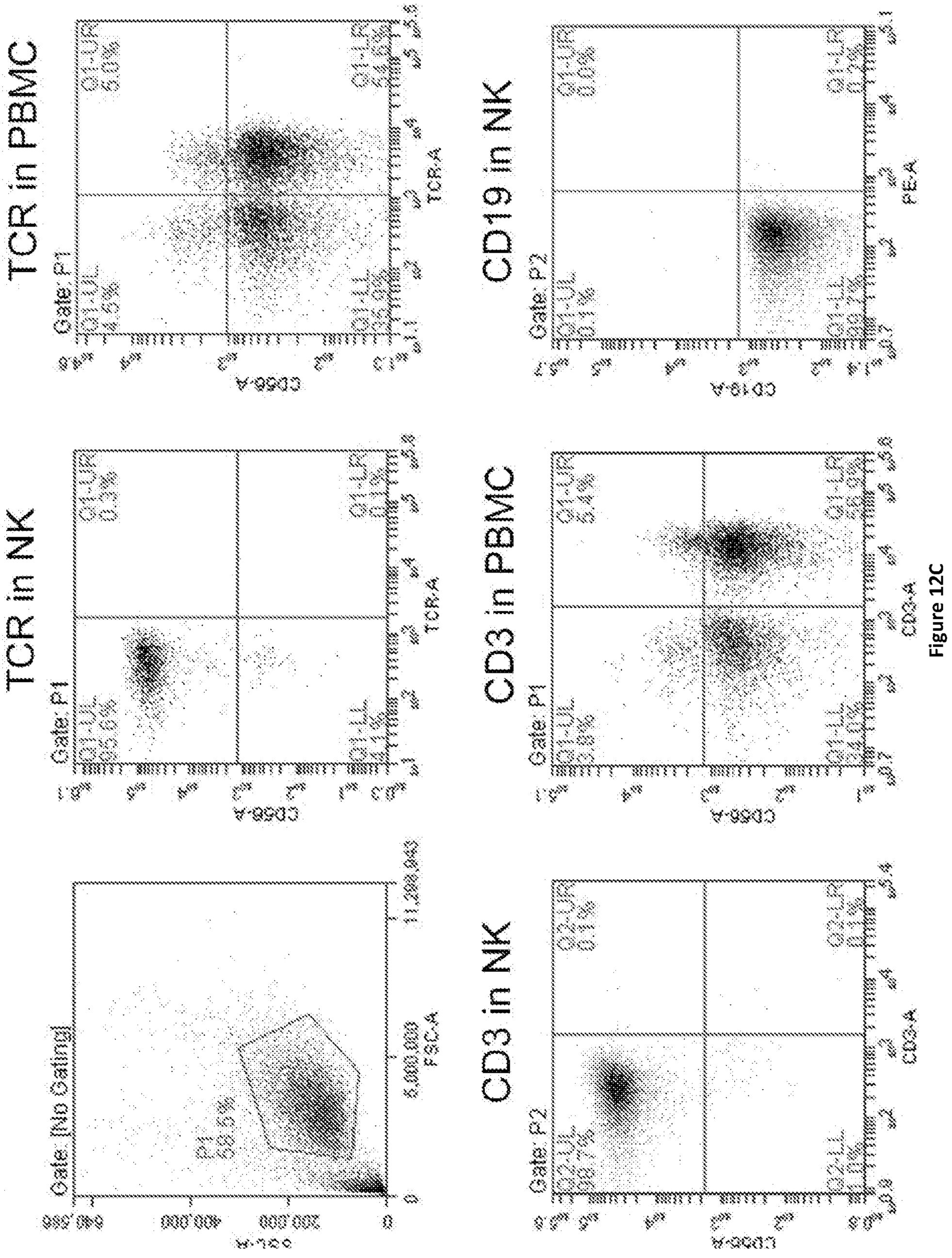

TCR in PBMC
Gate: P1
Q1-UR
Q1-UL
Q1-LR
Q1-LL
CD56-A
TCR-A
CD19 in NK
Gate: P2
PE-A
TCR in NK
Gate: P1
FSC-A
CD3 in PBMC
CD3-A
CD3 in NK
Gate: P2
Gate: [No Gating]

Figure 12C

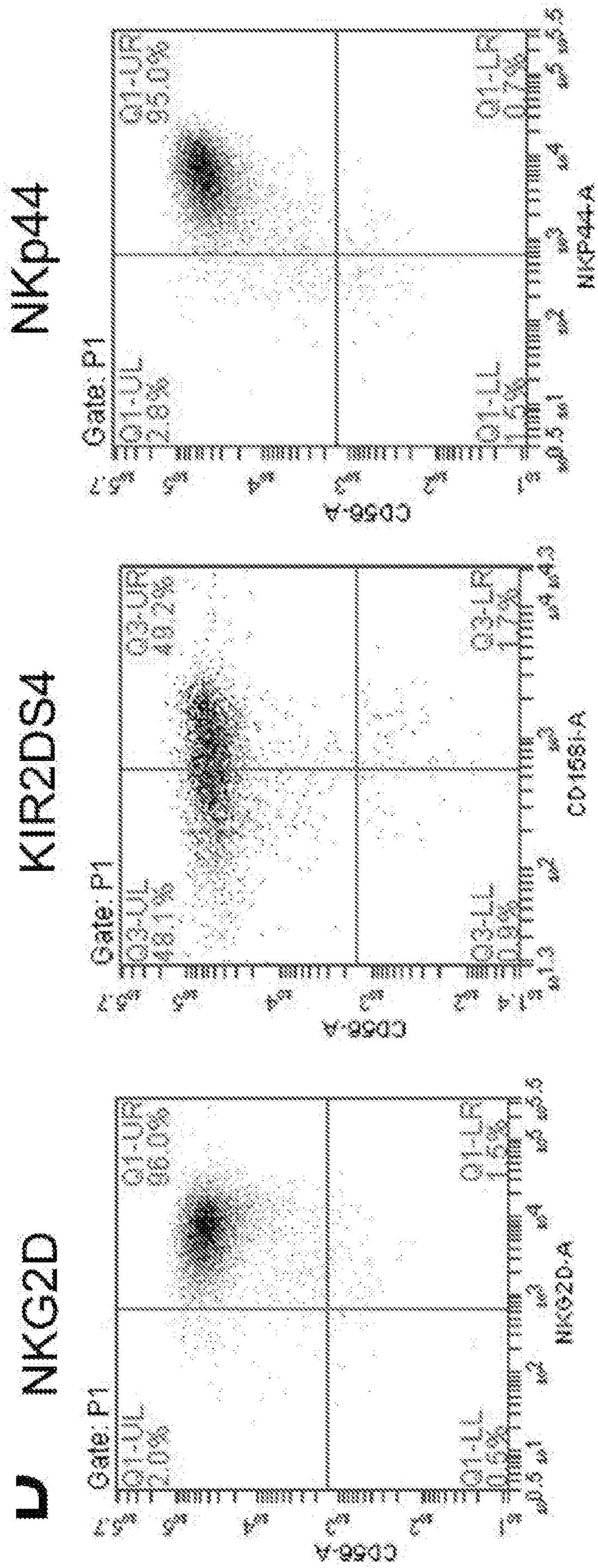

NKp44
Gate: P1
Q1-UL
2.8%
Q1-UR
85.6%
Q1-LL
11.6%
Q1-LR
0.0%
CD56-A
NKp44-A
KIR2DS4
Gate: P1
Q3-UL
3.1%
Q3-UR
48.7%
Q3-LL
48.1%
Q3-LR
0.1%
CD56-A
CD158i-A
NKG2D
Gate: P1
Q1-UL
2.7%
Q1-UR
88.9%
Q1-LL
8.4%
Q1-LR
0.0%
CD56-A
NKG2D-A

Figure 12D

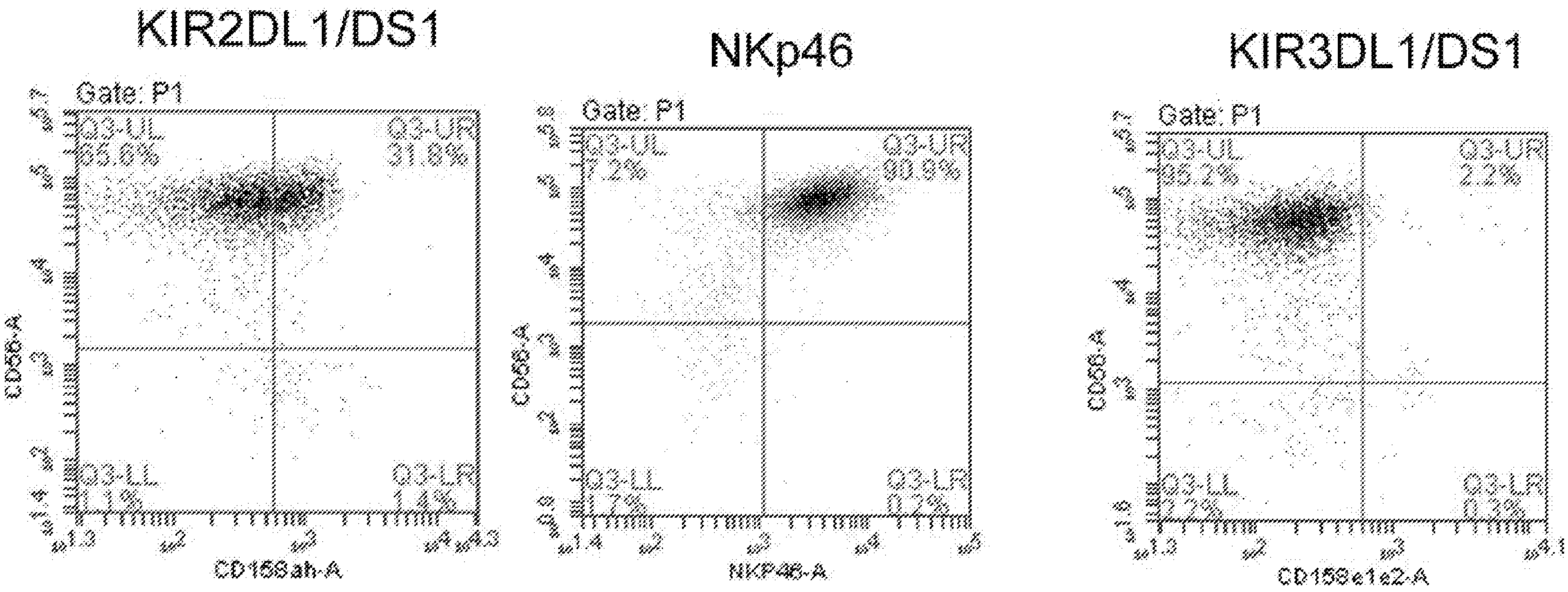


Figure 12D, continued

SUBSTITUTE SHEET (RULE 26)

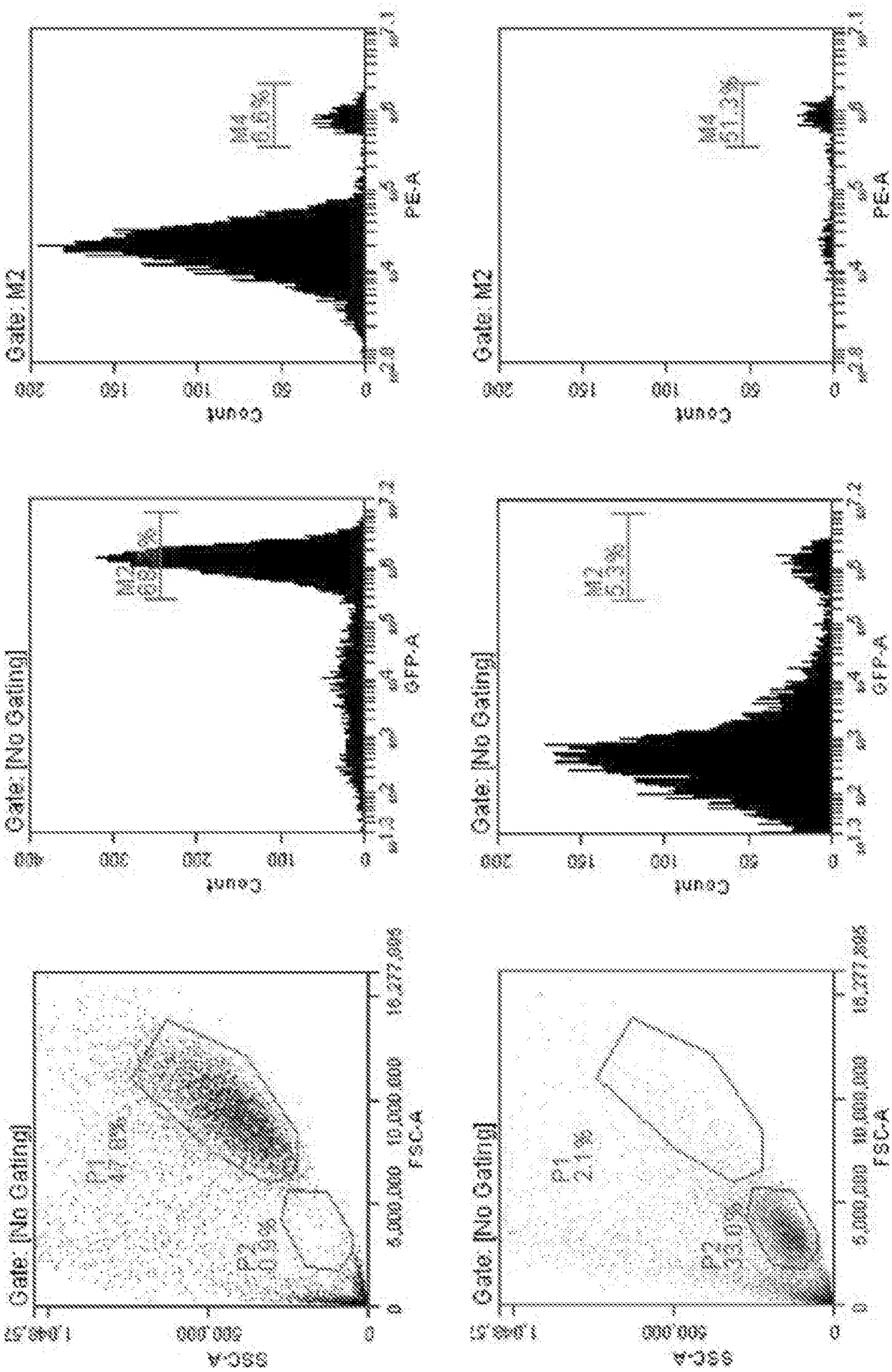

Gate: M2
PE-A
Count
Gate: No Gating
GFP-A
SSC-A
FSC-A
NK : K562
12.5 : 1
K562 only

Figure 13

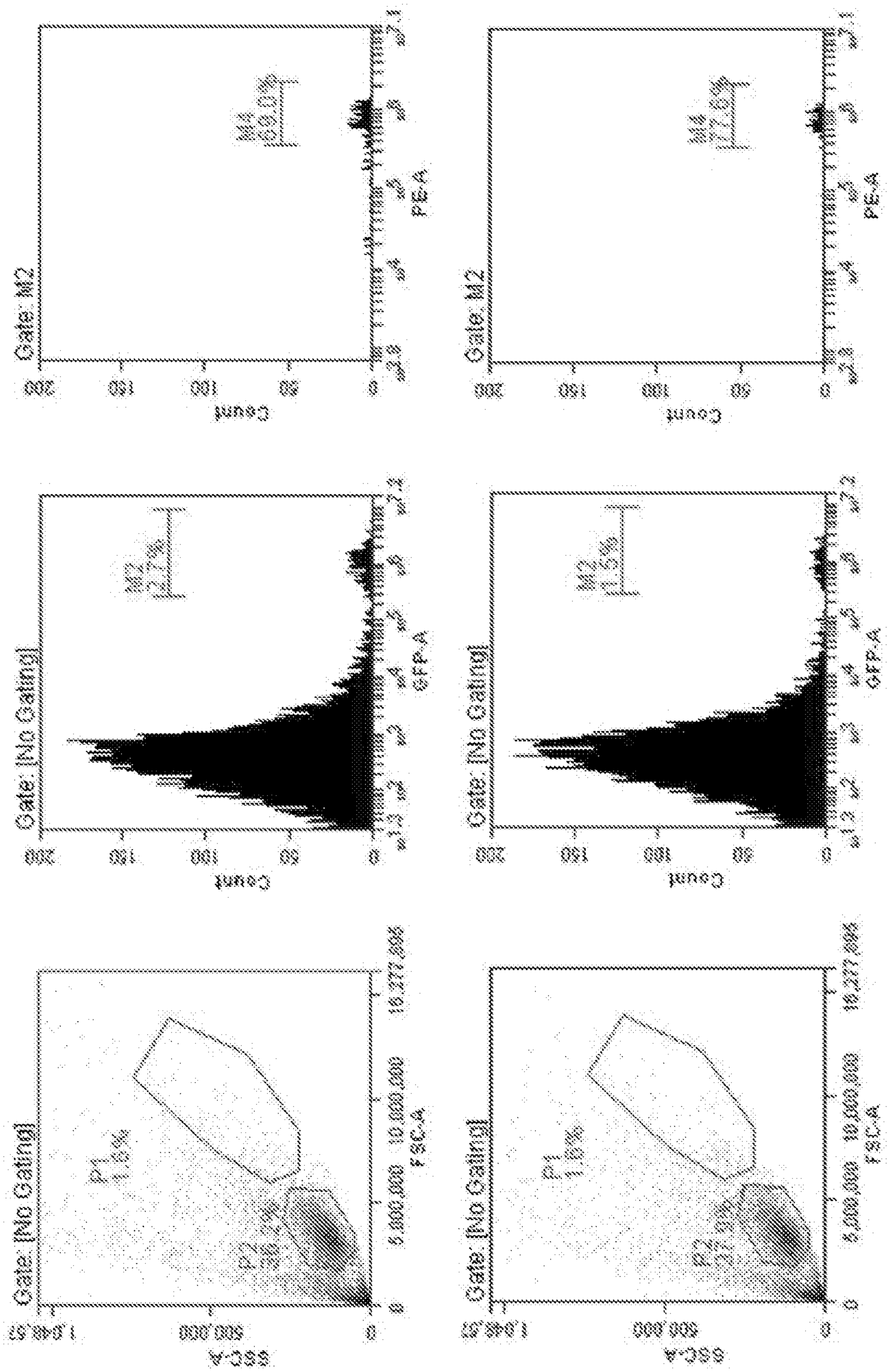


Figure 13, continued

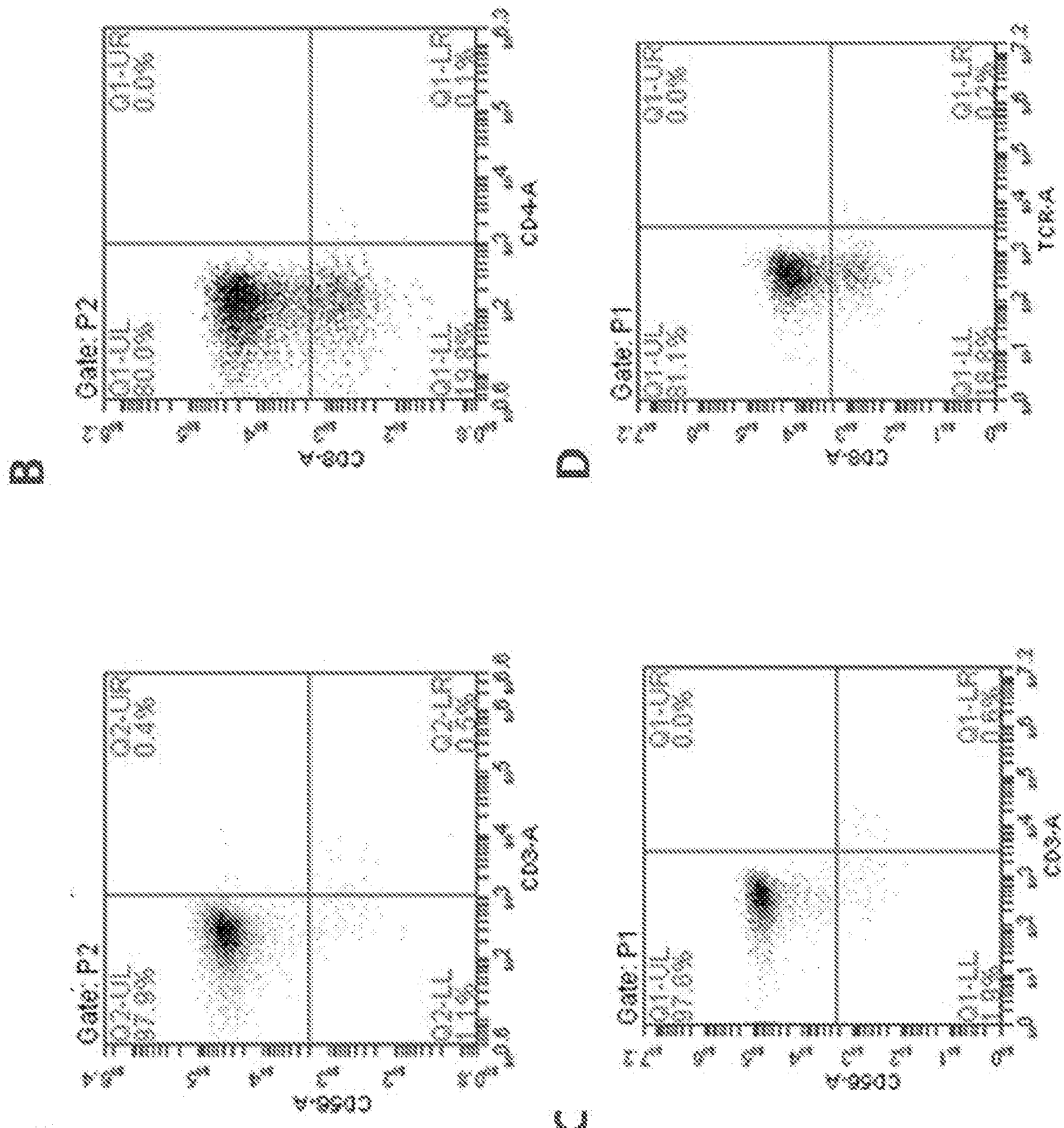
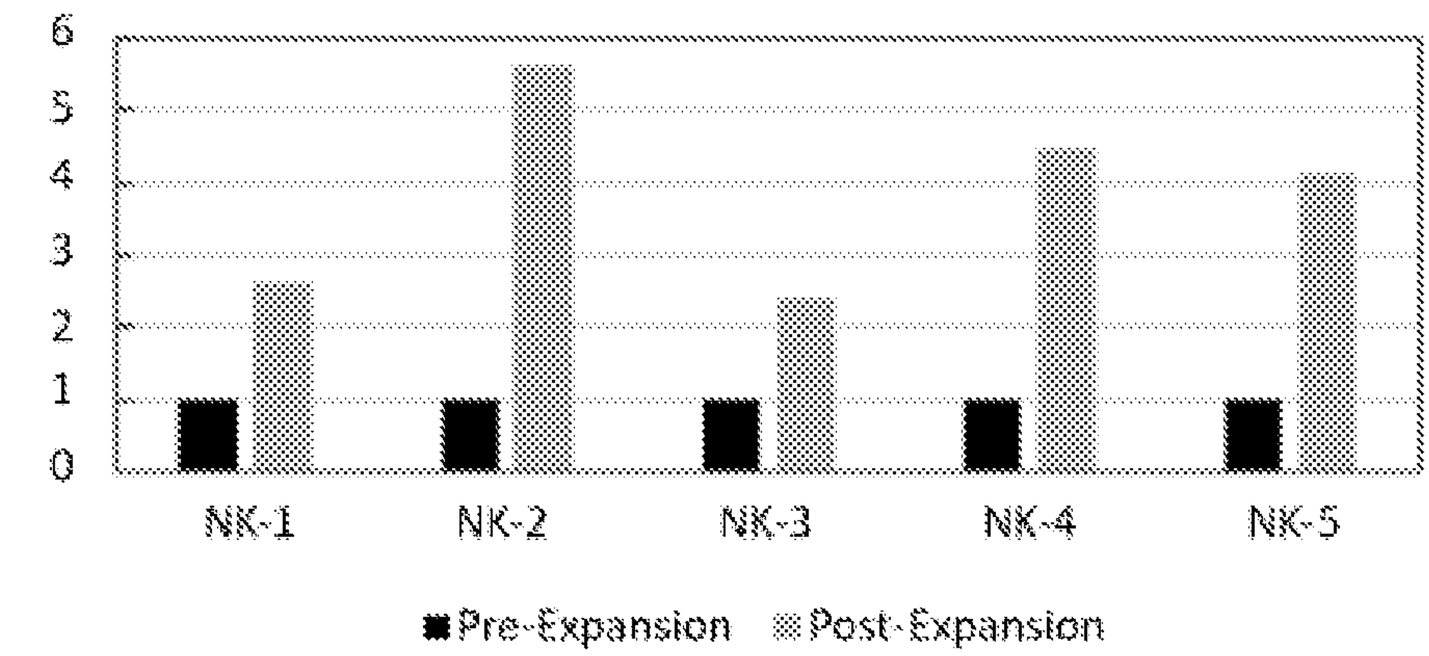
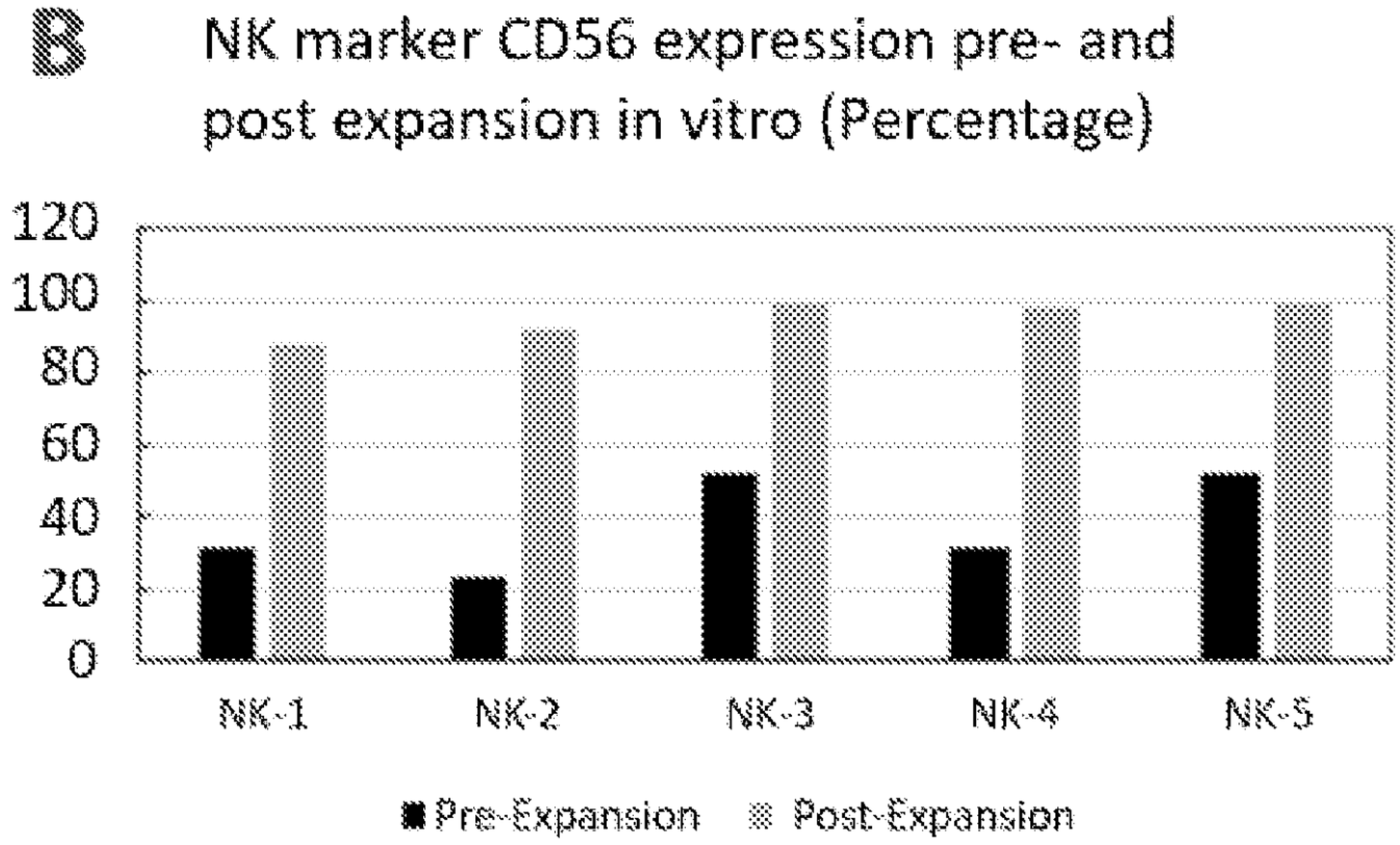

A
Gate: P2
CD8-A
CD4-A
B
Gate: P1
CD8-A
CD4-A
C
Gate: P2
CD8-A
CD3-A
D
Gate: P1
CD8-A
CD3-A

Figure 14

A



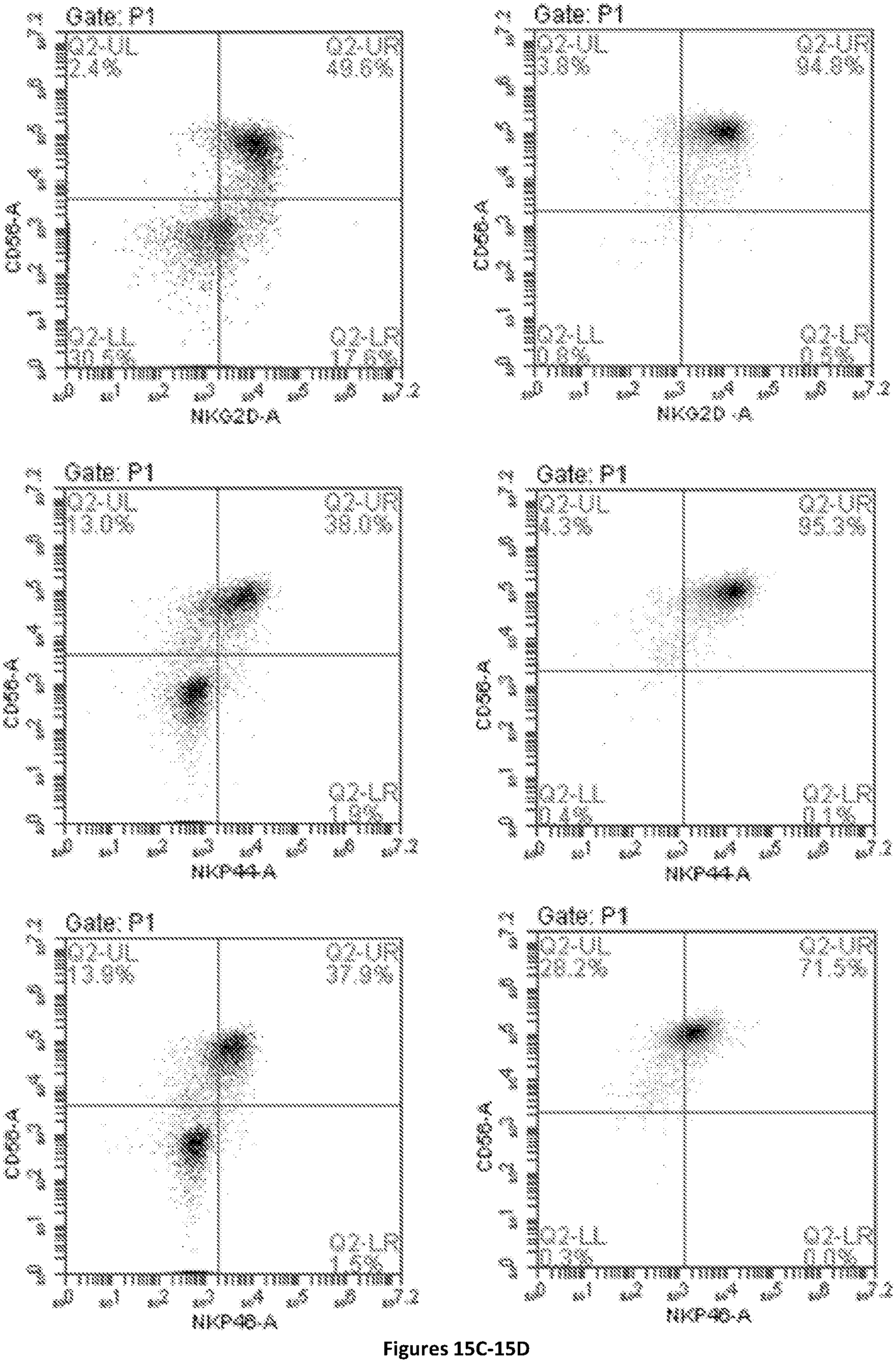
B



Figures 15A-15B

C Pre-expansion

D Post-expansion



Figures 15C-15D

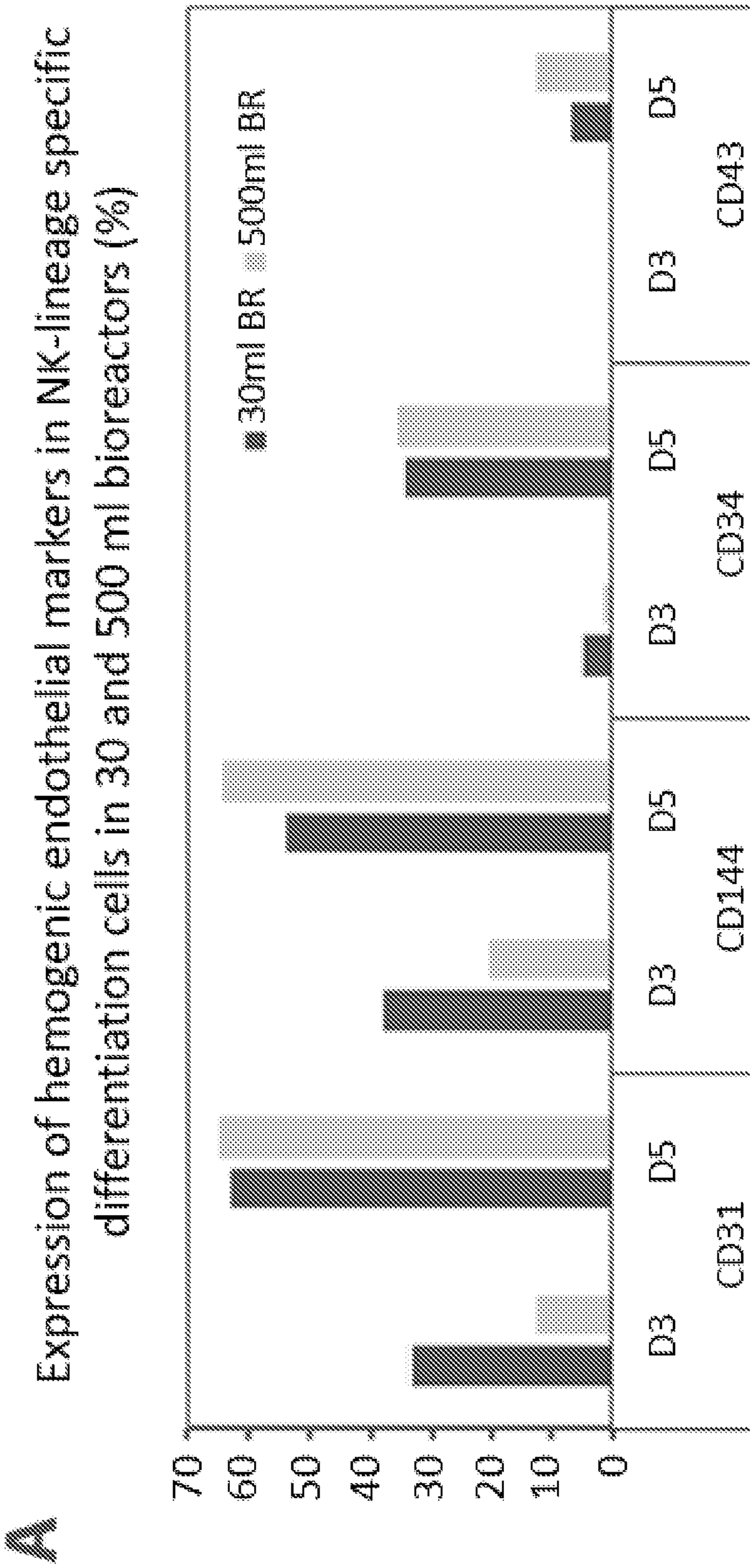

Expression of hemogenic endothelial markers in NK-lineage specific differentiation cells in 30 and 500 ml bioreactors (%)
30ml BR
500ml BR
CD31
CD144
CD34
CD43
D3
D5
70
60
50
40
30
20
10
0

Figure 16A

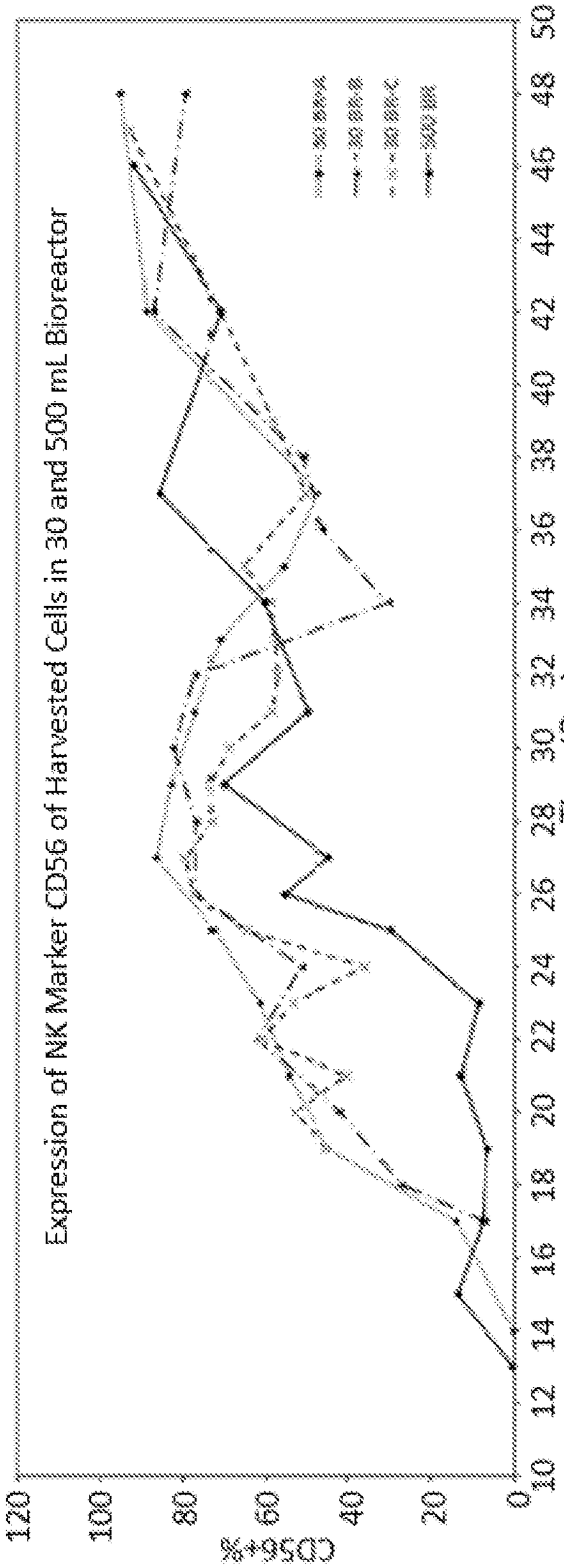
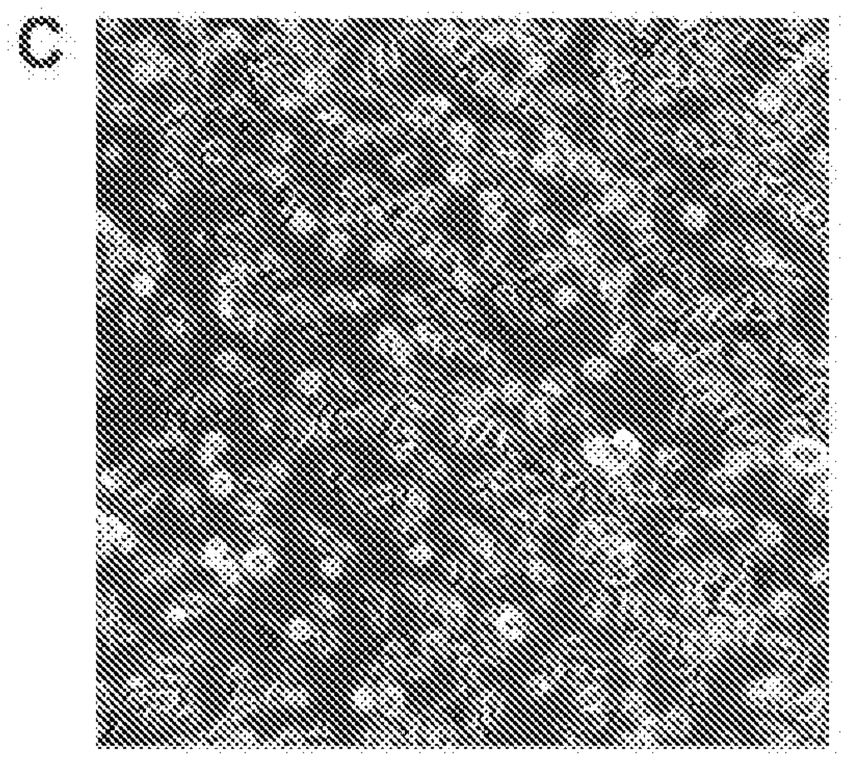
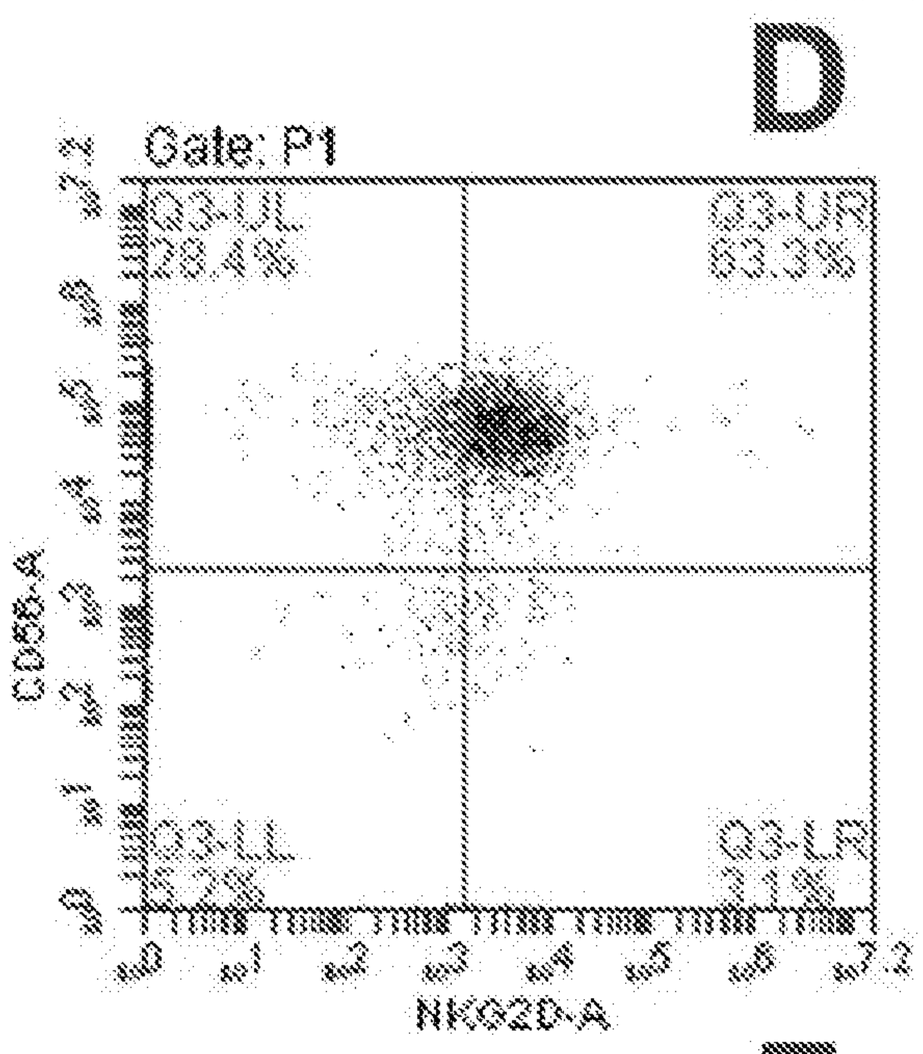
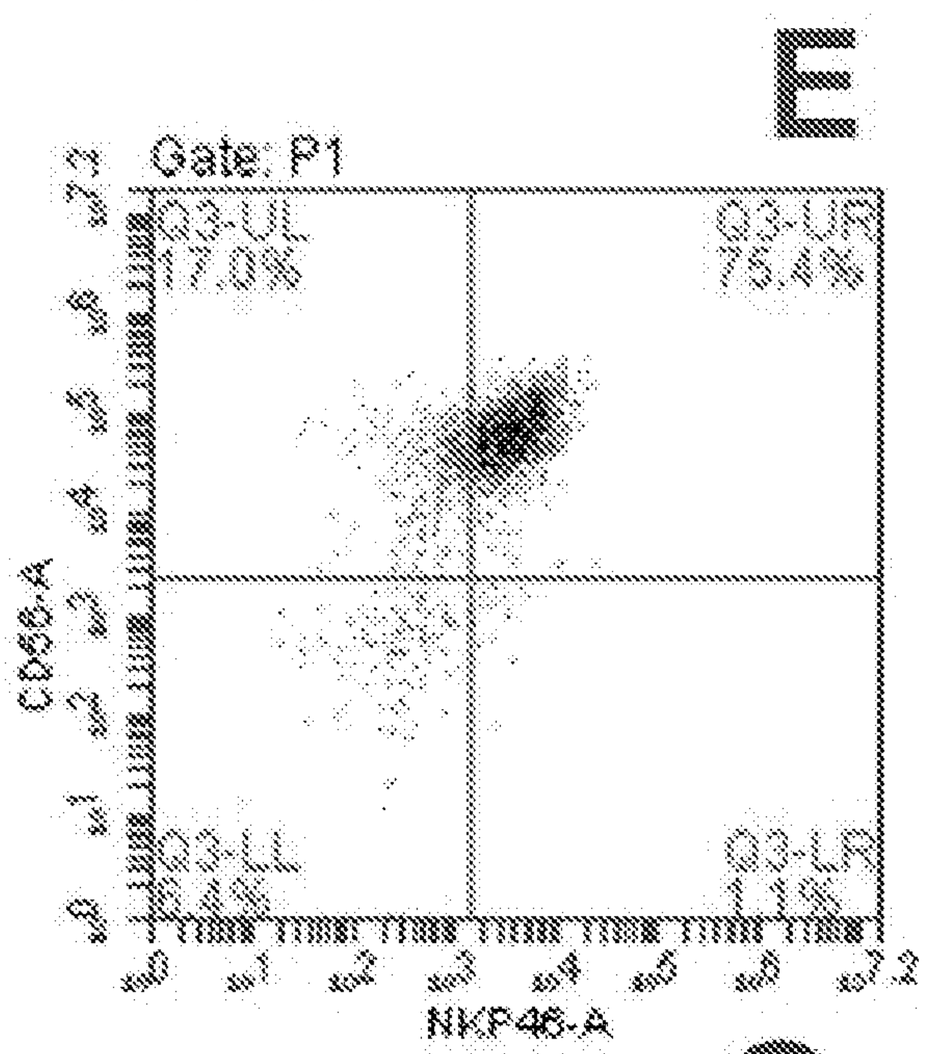
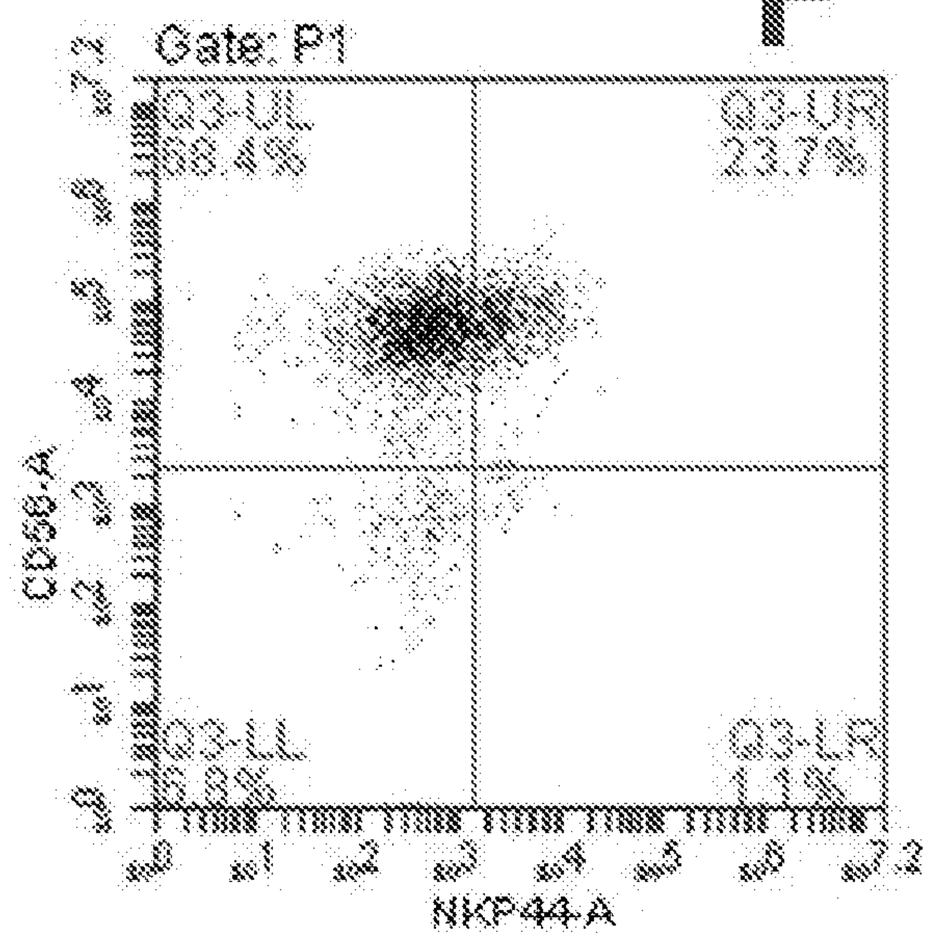

Expression of NK Marker CD56 of Harvested Cells in 30 and 500 mL Bioreactor
%+950
Time (Day)
0
20
40
60
80
100
120
10
12
14
16
18
20
22
24
26
28
30
32
34
36
38
40
42
44
46
48
50

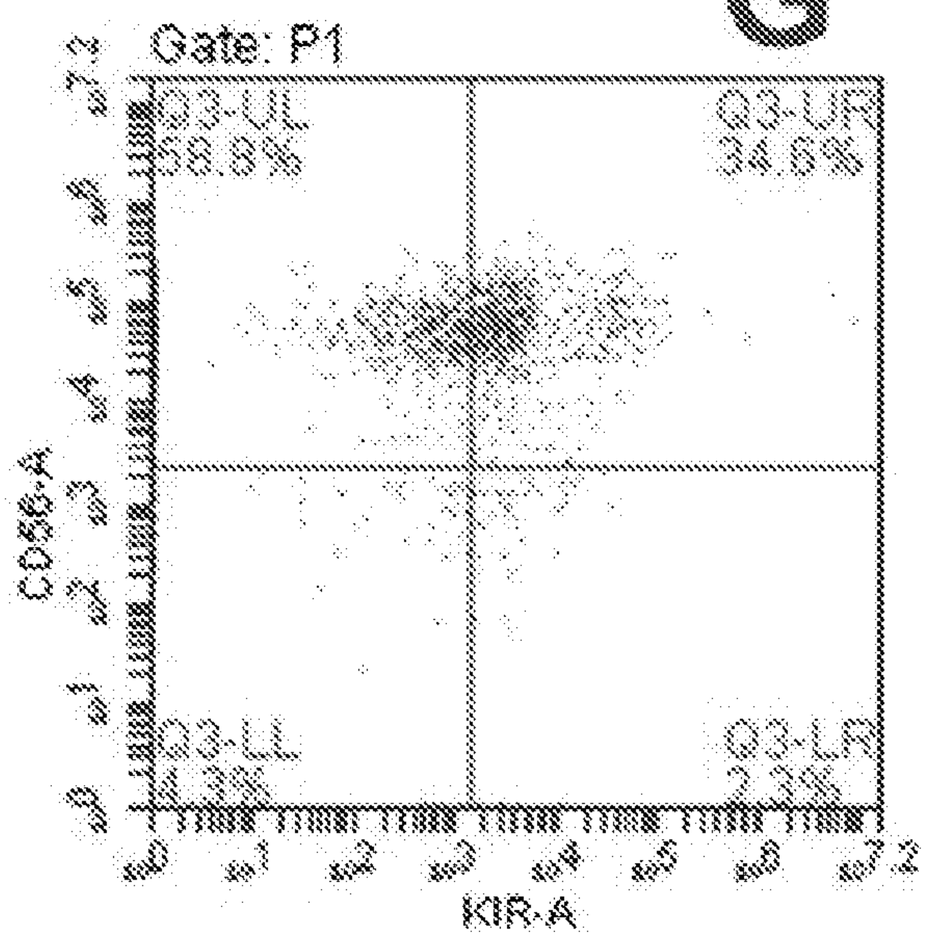
Figure 16B











Figures 16C-16G

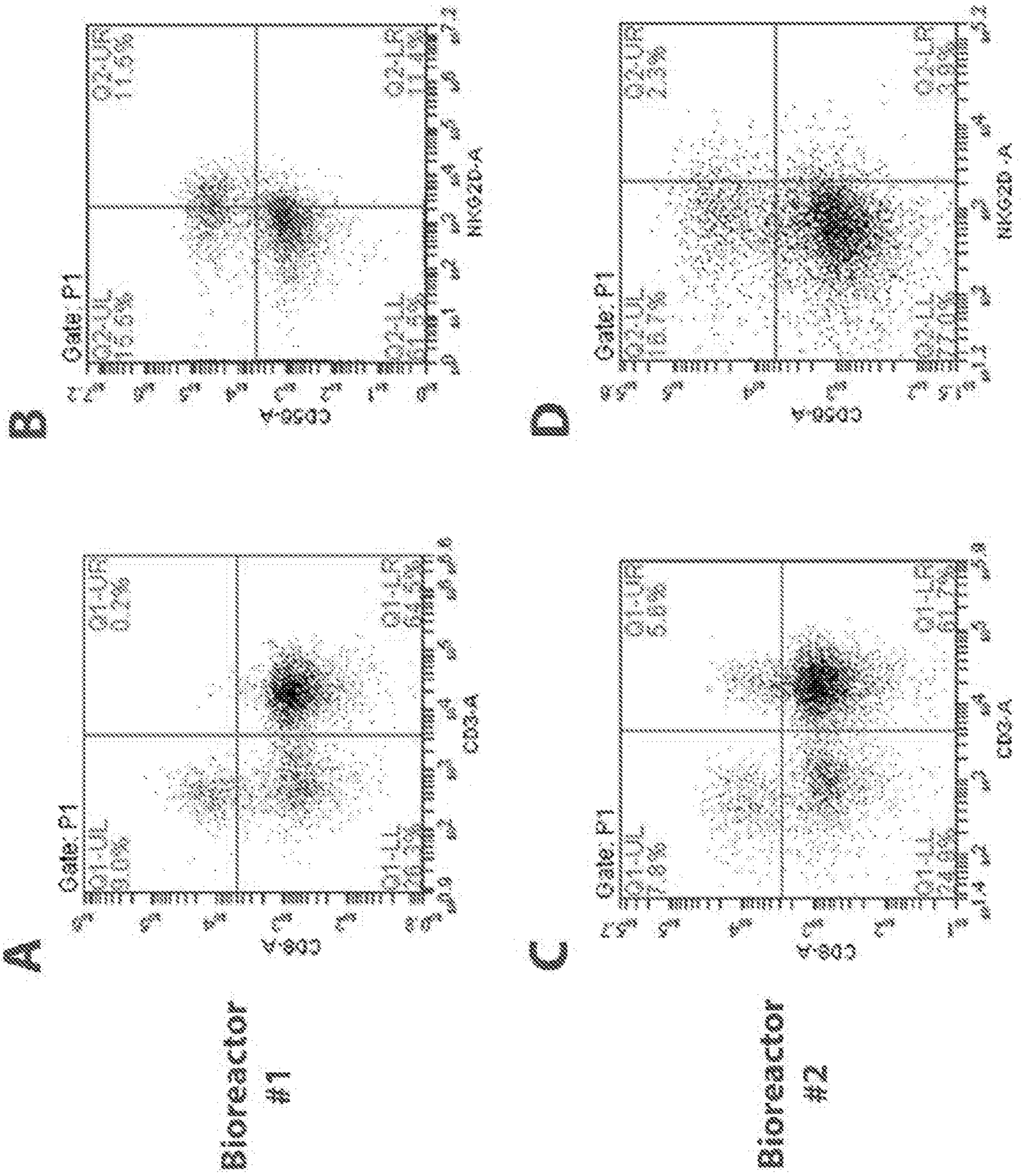

A
B
C
D
Gate: P1
Q1-UL
0.12%
Q1-UR
0.28%
Q2-UL
0.16%
Q2-UR
2.28%
Q3-LL
97.4%
Q3-LR
99.3%
Q4-LL
2.12%
Q4-LR
0.12%
CD56-A
NKG2D-A
Biorea
#1
#2

Figure 17

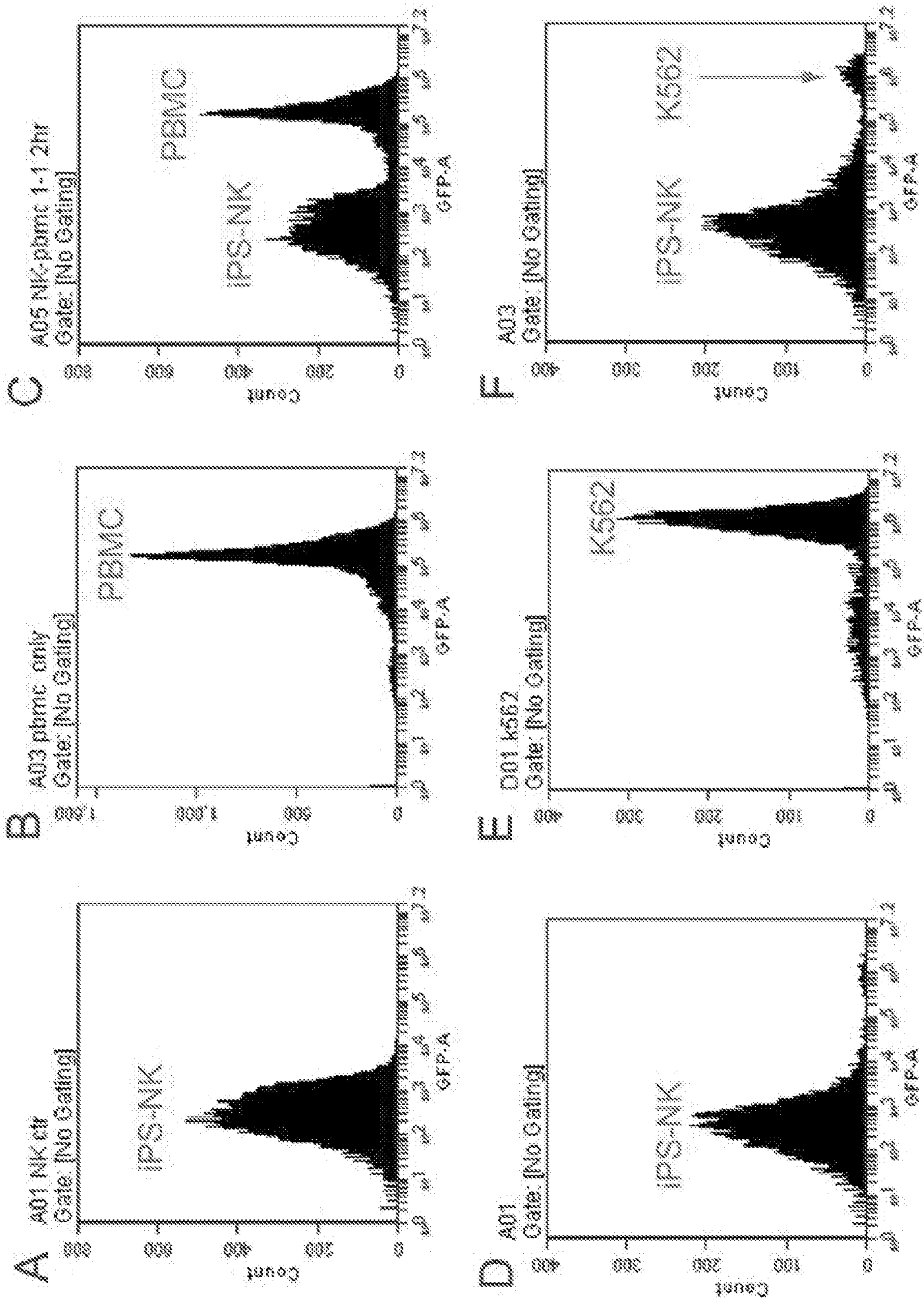

A
401 NK ctl
Gate: [No Gate]
PBMC
IPS-NK
GFP-A
Count
B
401 pbmc only
Gate: [No Gate]
PBMC
GFP-A
Count
C
405 NK-pbmc 1-1 2hr
Gate: [No Gate]
PBMC
IPS-NK
GFP-A
Count
D
401
Gate: [No Gate]
IPS-NK
GFP-A
Count
E
001 k562 only
Gate: [No Gate]
K562
GFP-A
Count
F
403
Gate: [No Gate]
IPS-NK
GFP-A
Count

Figure 18