FIG. 1A

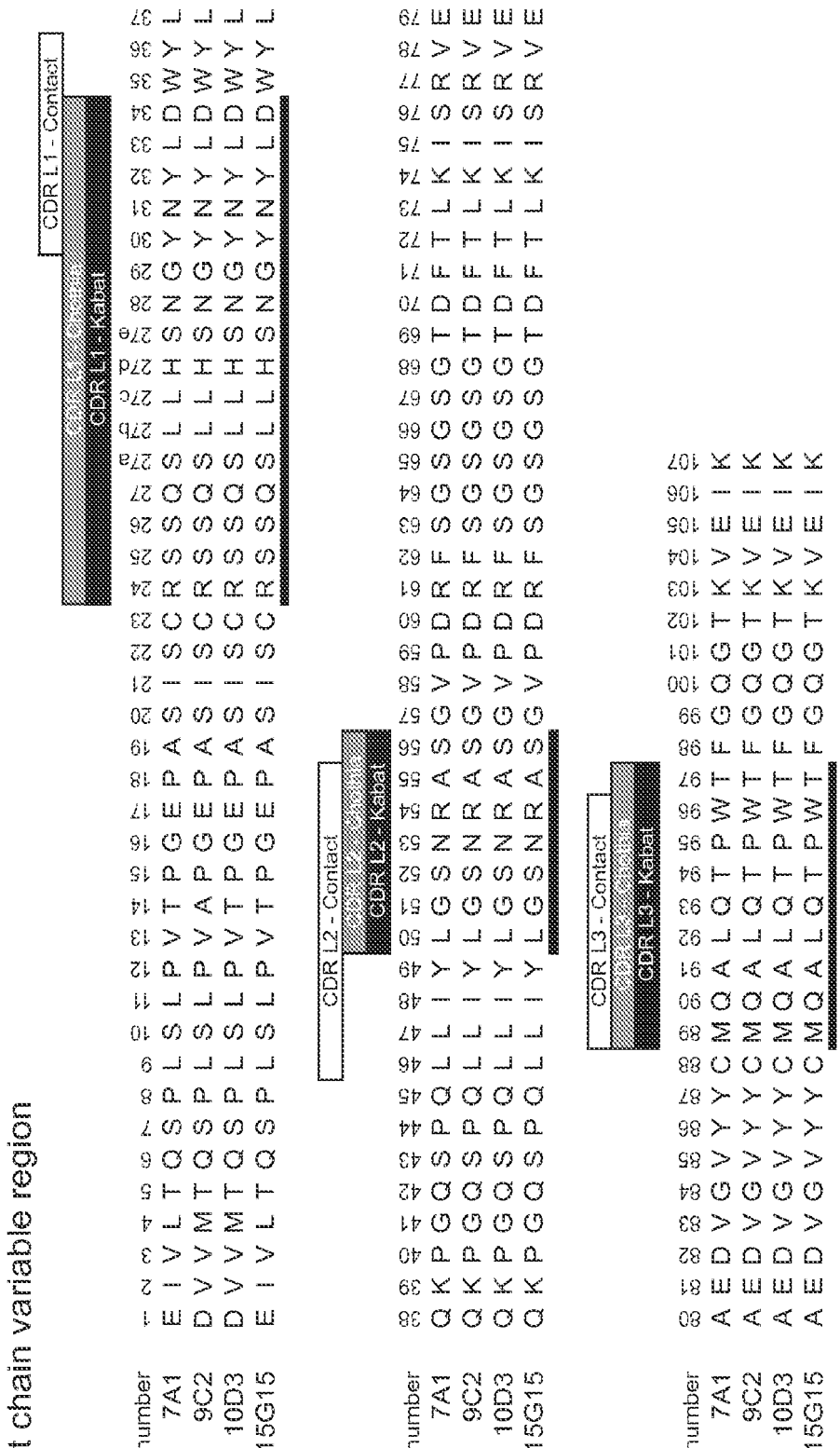

Light chain variable region
CDR L1 - Contact
CDR L1 - Kabat
CDR L2 - Contact
CDR L2 - Kabat
CDR L3 - Contact
CDR L3 - Kabat
Kabat number
7A1
9C2
10D3
15G15

FIG. 1B

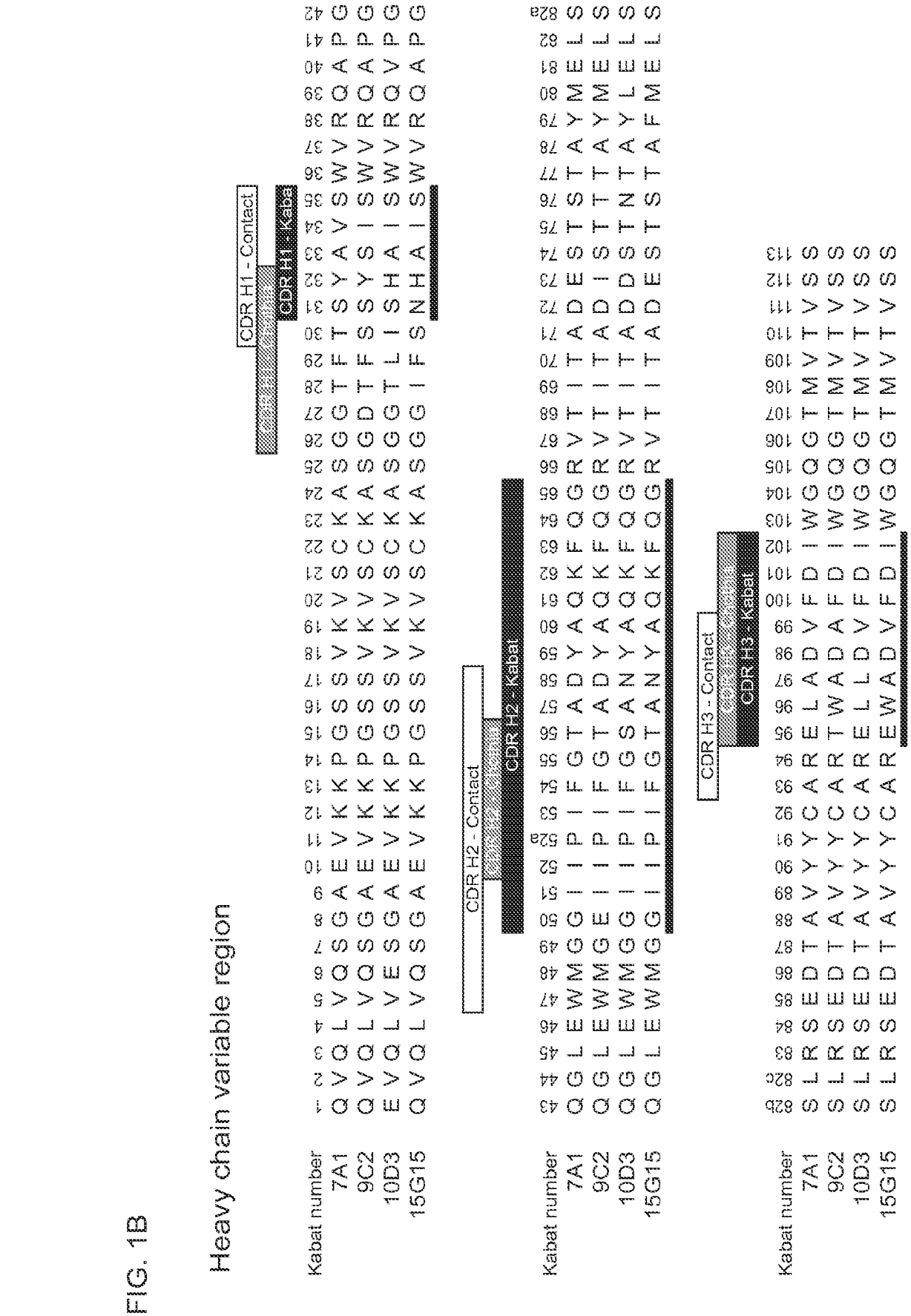
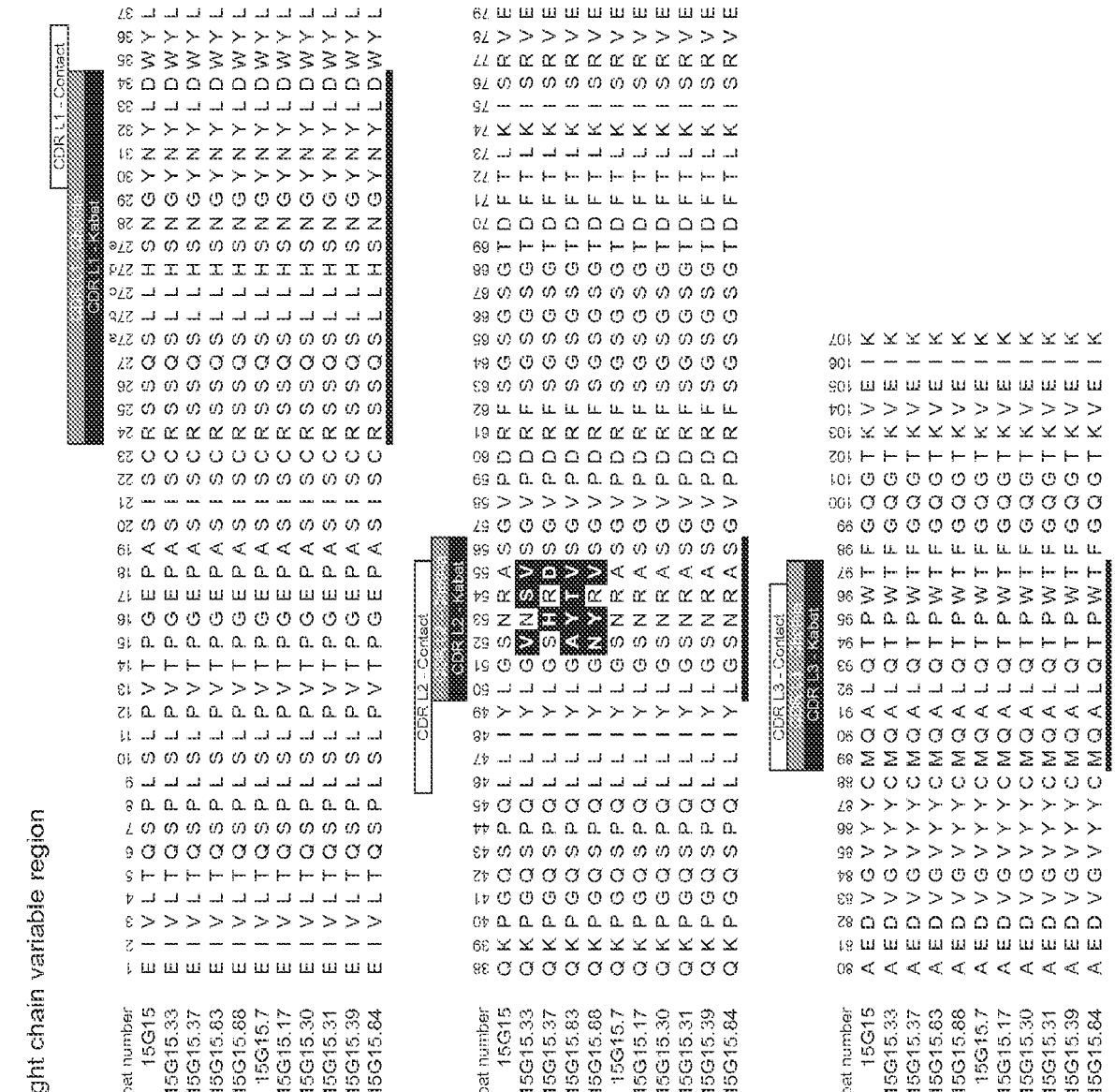

Heavy chain variable region
CDR H1 - Contact
CDR H1 - Kabat
CDR H2 - Contact
CDR H2 - Kabat
CDR H3 - Contact
CDR H3 - Kabat
Kabat number
7A1
9C2
10D3
15G15

FIG. 2A


Light chain variable region
CDR L1 - Contact
CDR L1 - Kabat
CDR L2 - Contact
CDR L2 - Kabat
CDR L3 - Contact
CDR L3 - Kabat
Kabat number
15G15
15G15.33
15G15.37
15G15.83
15G15.88
15G15.7
15G15.17
15G15.30
15G15.31
15G15.39
15G15.84

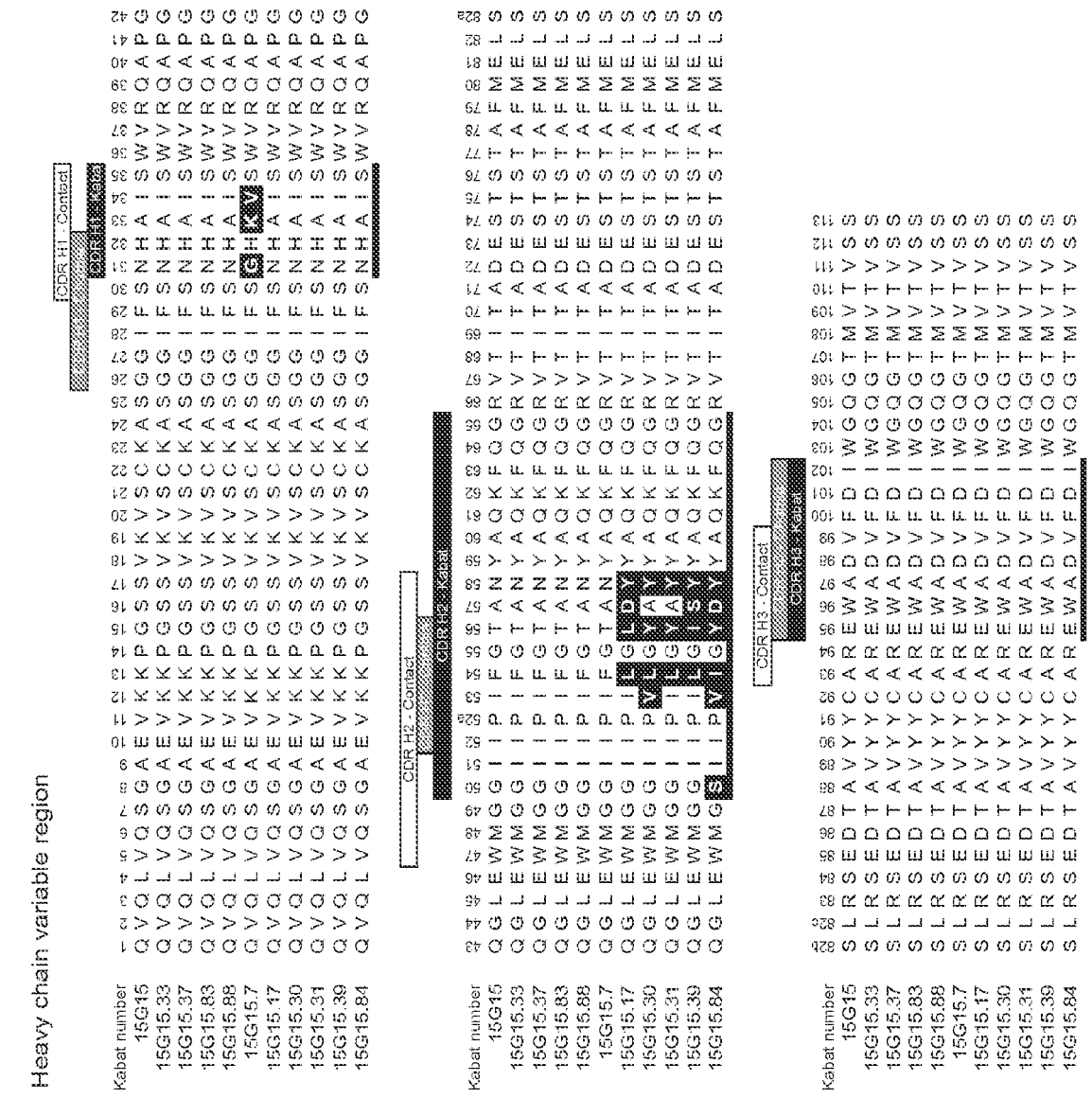

Heavy chain variable region
CDR H1 - Contact
CDR H1 - Kabat
CDR H2 - Contact
CDR H2 - Kabat
CDR H3 - Contact
CDR H3 - Kabat
Kabat number
15G15
15G15.33
15G15.37
15G15.83
15G15.88
15G15.7
15G15.17
15G15.30
15G15.31
15G15.39
15G15.84

FIG. 2B

FIG. 3A

Light chain variable region

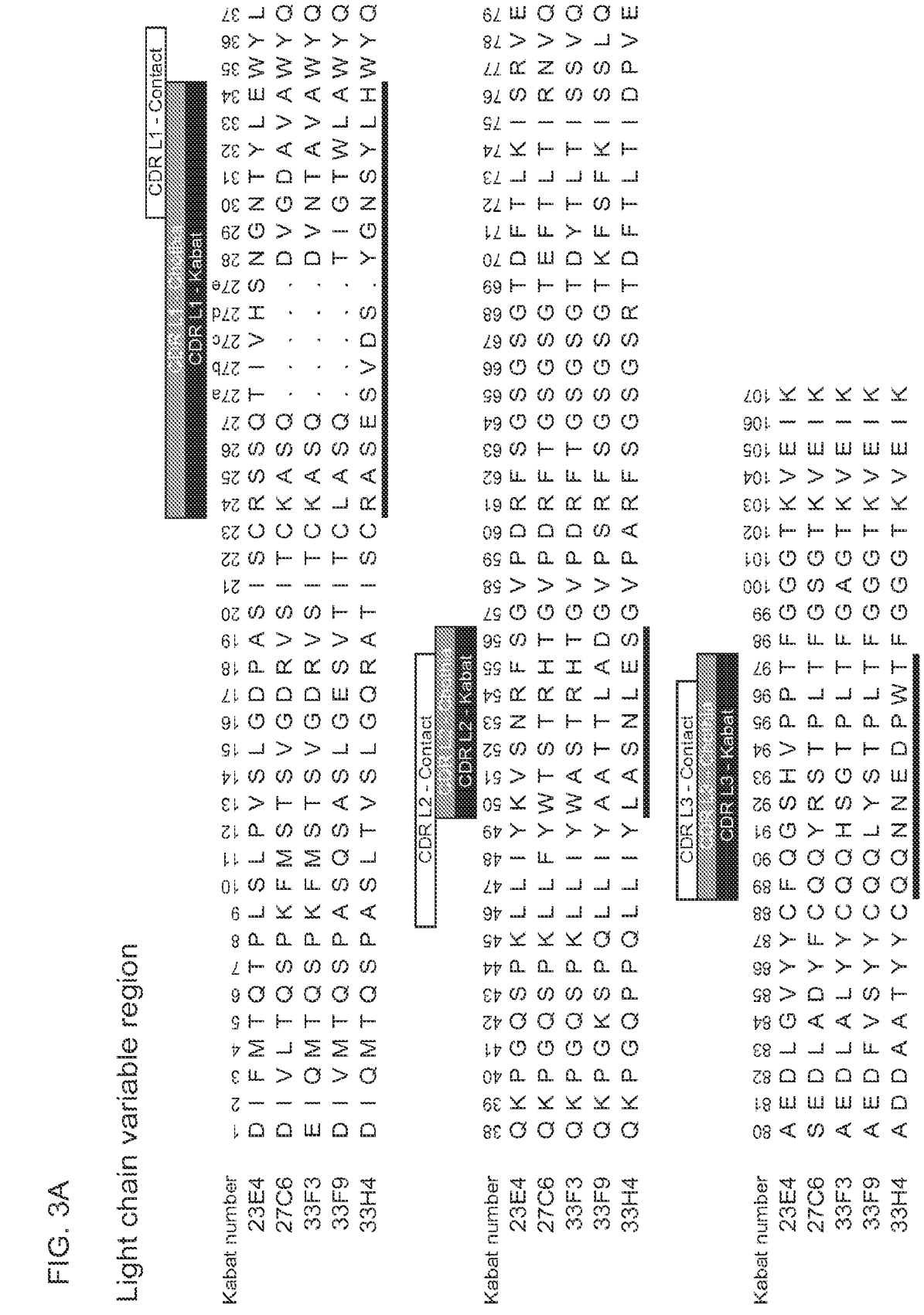


FIG. 3B

Heavy chain variable region

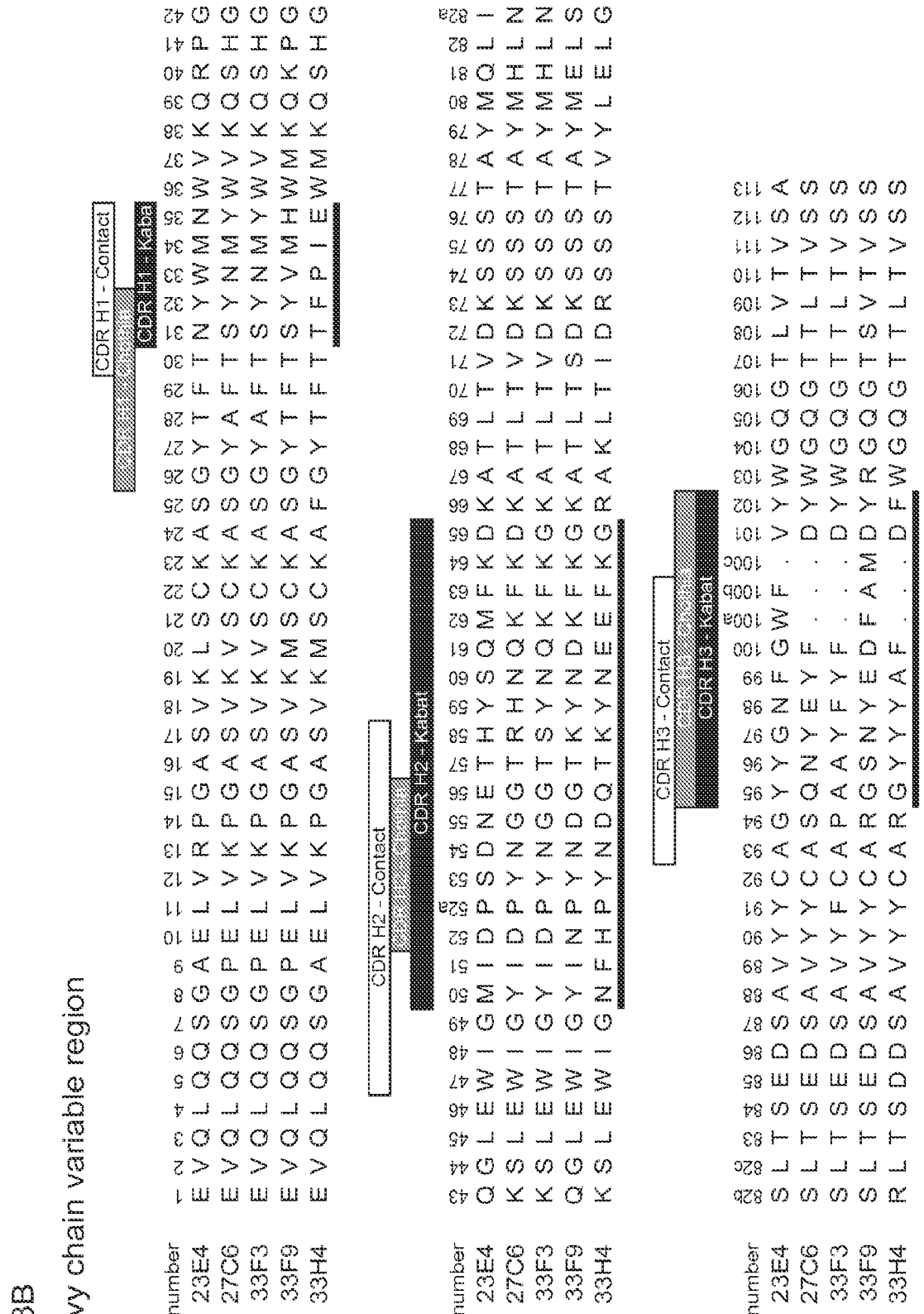


FIG. 4A

Light chain variable region

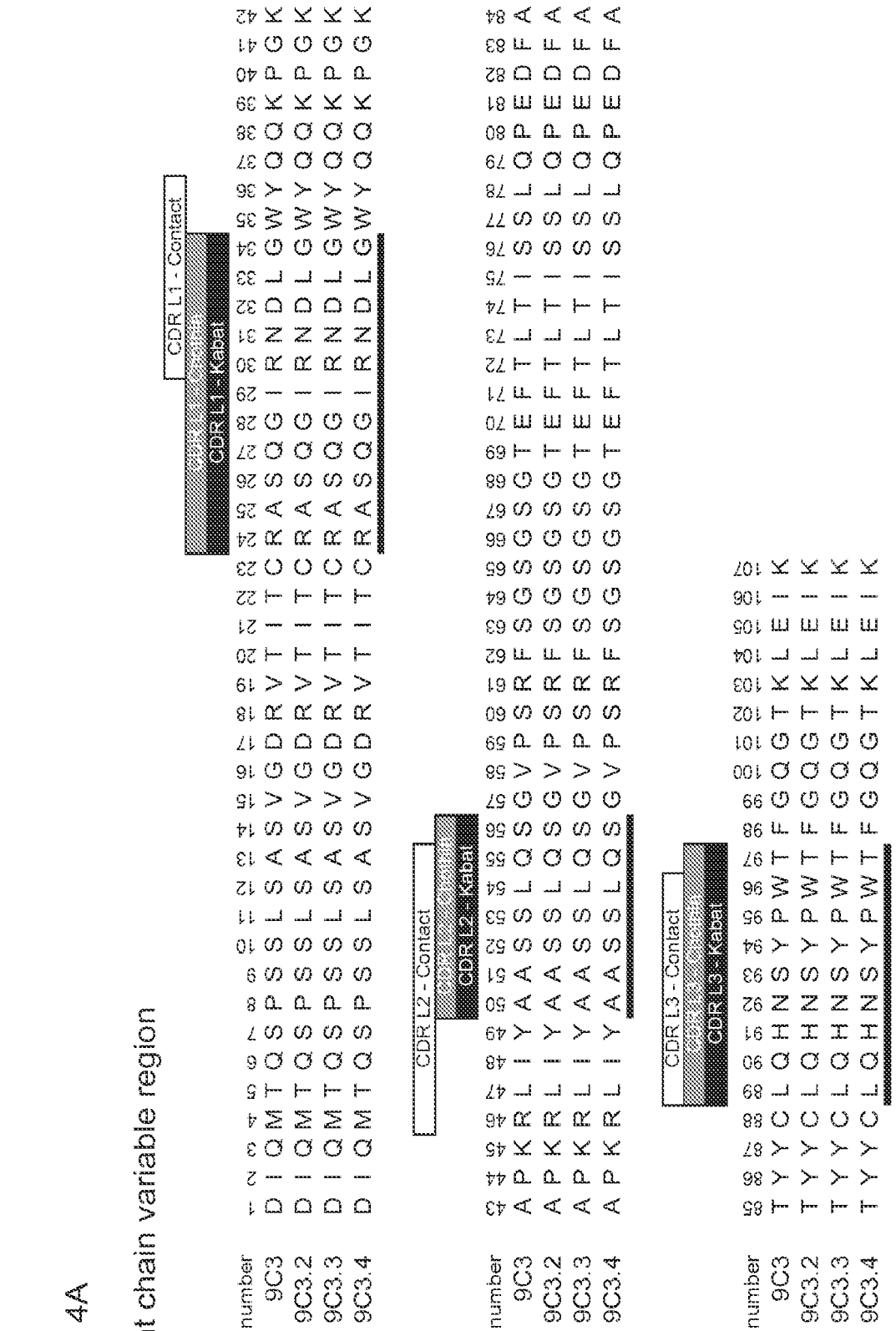


FIG. 4B

Heavy chain variable region

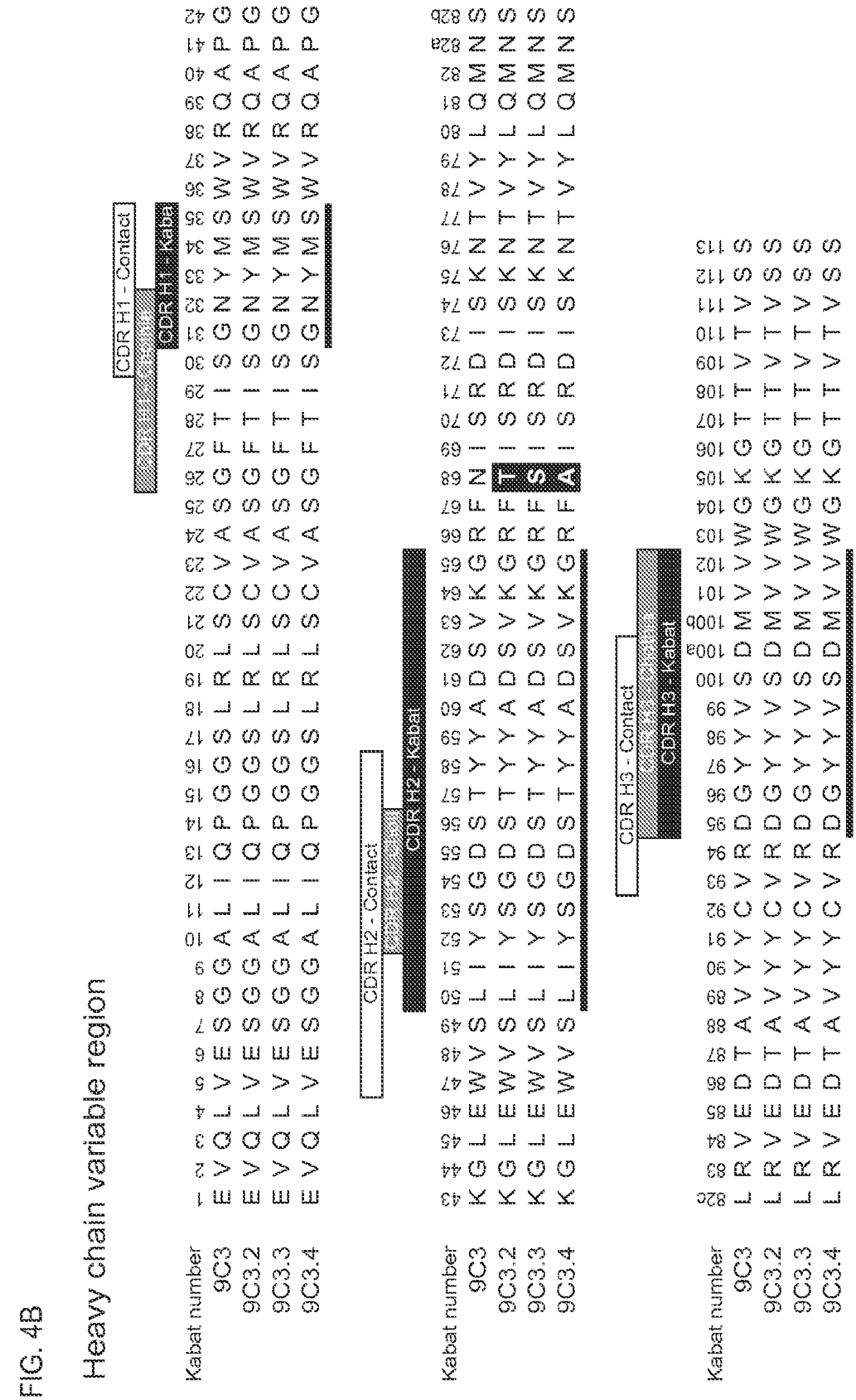


FIG. 5

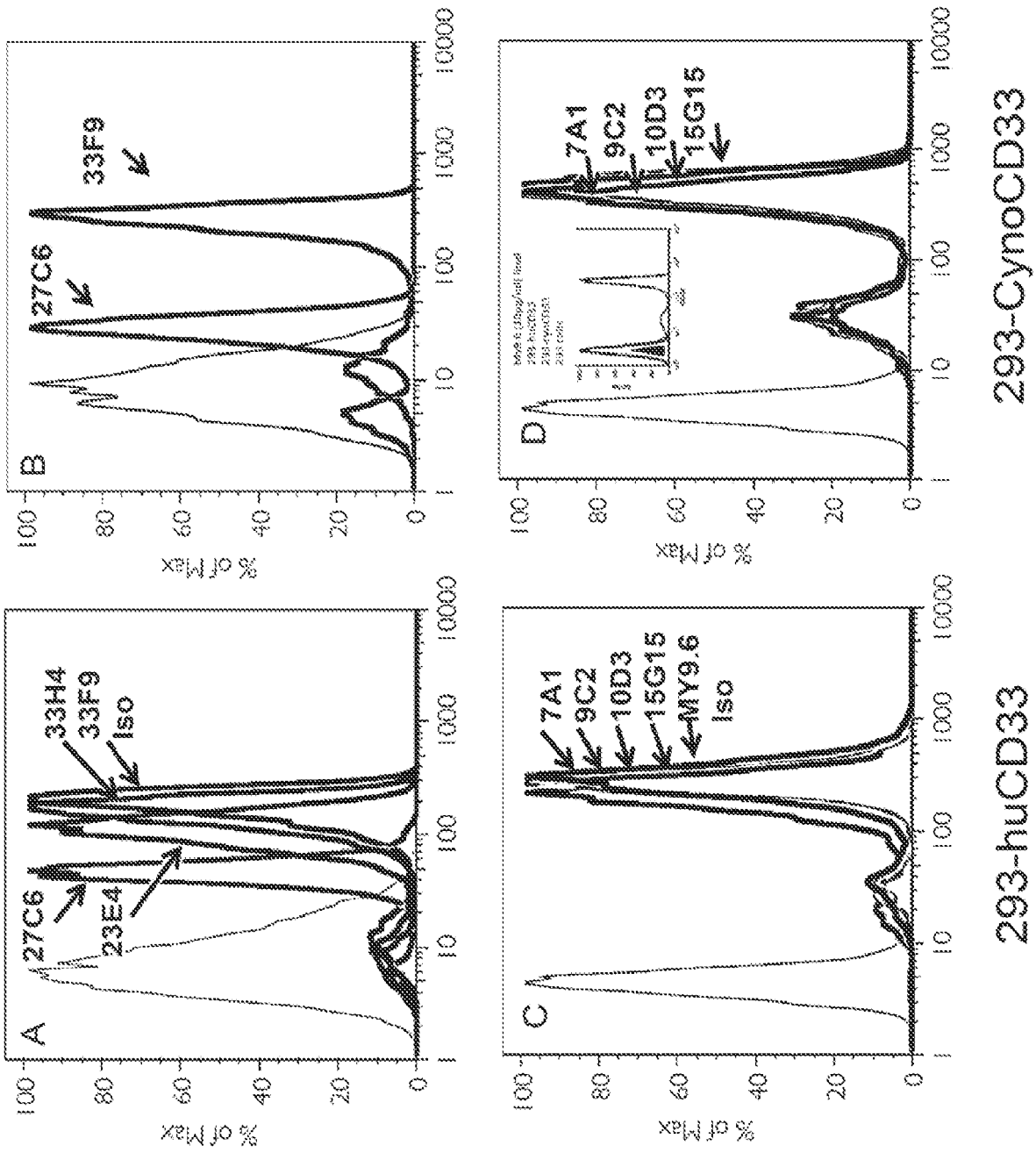

A
B
C
D
27C6
23E4
33H4
33F9
Iso
27C6
33F9
7A1
9C2
10D3
15G15
MY9.6
Iso
% of Max
293-huCD33
293-CynoCD33

FIG. 6

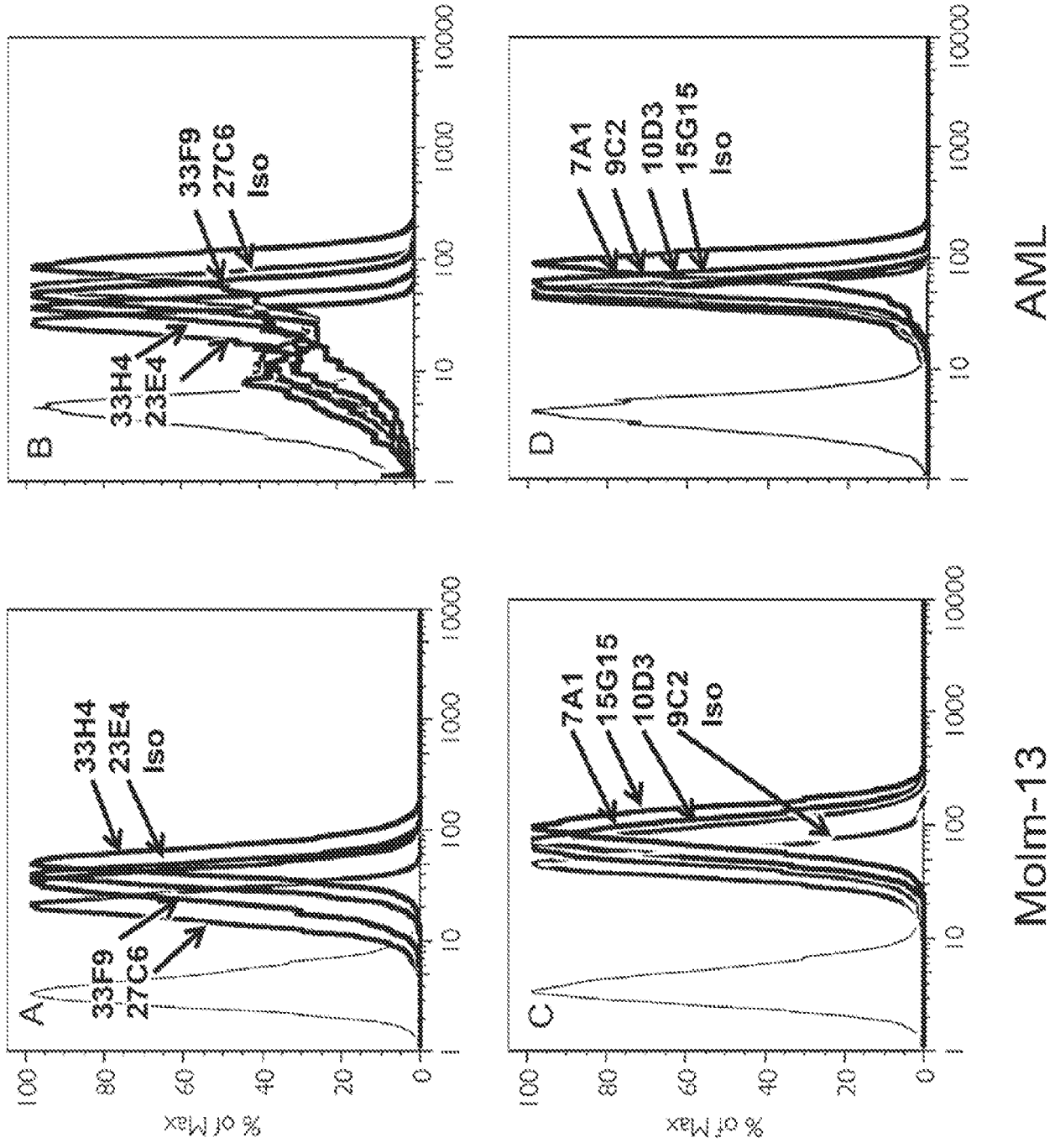

A
33H4
23E4
Iso
33F9
27C6
B
33F9
27C6
Iso
33H4
23E4
C
7A1
15G15
10D3
9C2
Iso
D
7A1
9C2
10D3
15G15
Iso
% of Max
100
80
60
40
20
0
1
10
100
1000
10000
Molm-13
AML

FIG. 7

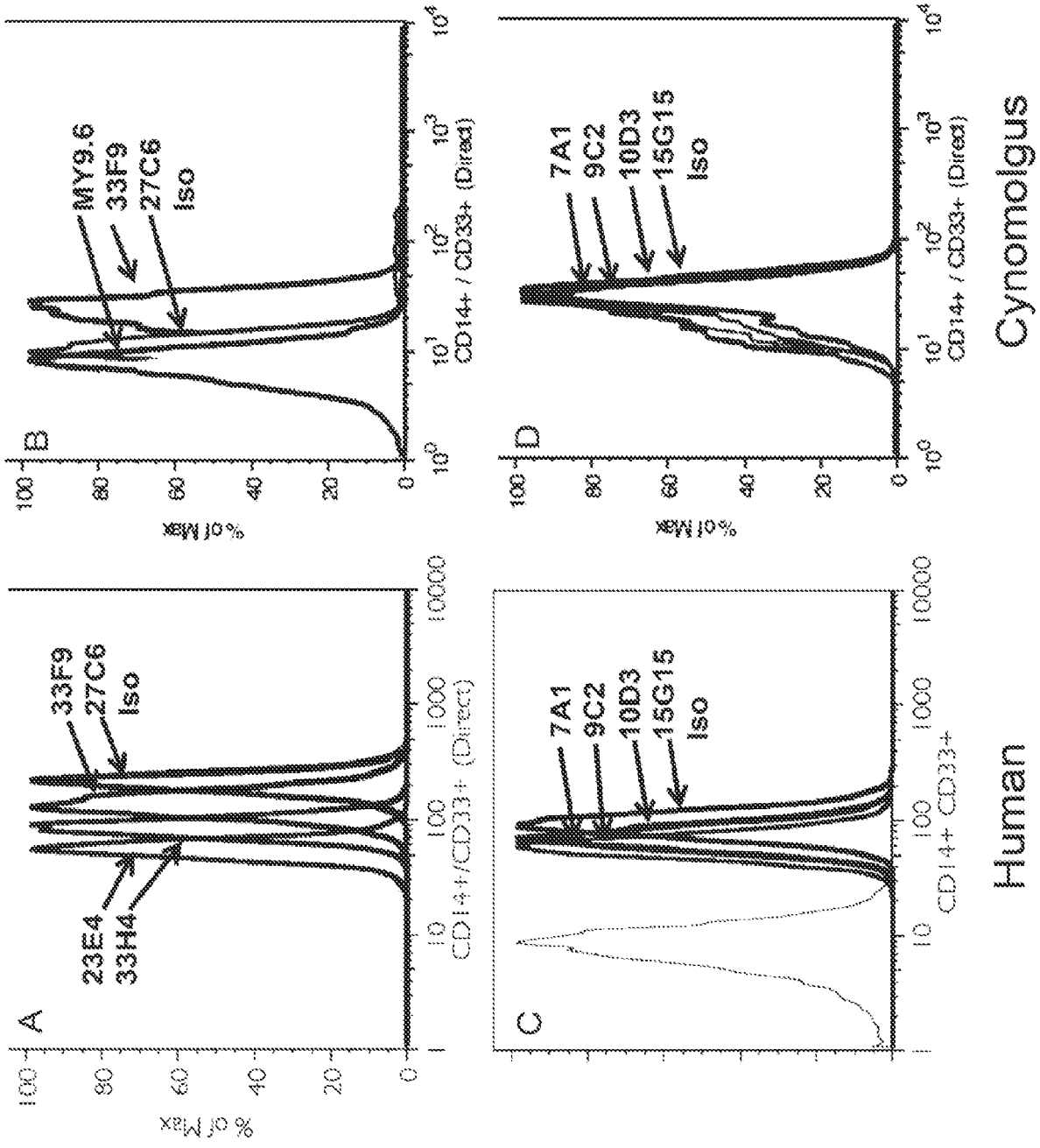
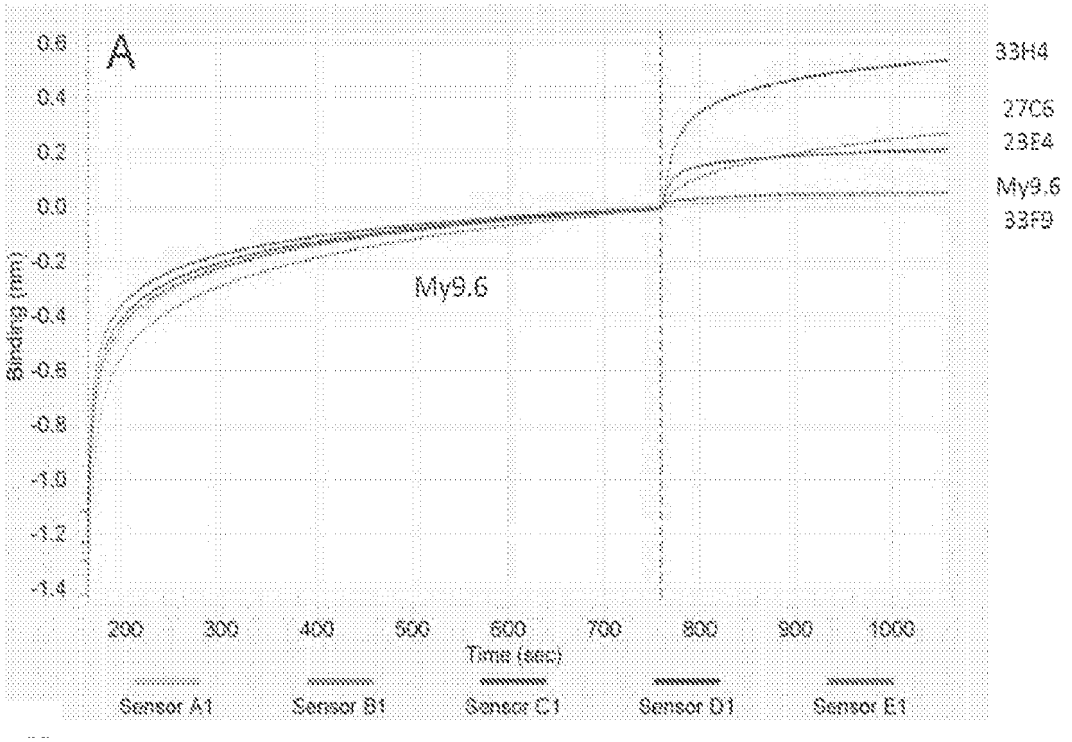

A
B
C
D
% of Max
CD14+/CD33+ (Direct)
CD14+ / CD33+ (Direct)
CD14+ CD33+
MY9.6
33F9
27C6
Iso
23E4
33H4
7A1
9C2
10D3
15G15
Human
Cynomolgus

FIG. 8


A
33H4
27C6
23E4
My9.6
33F9
My9.6
Binding (nm)
Time (sec)
Sensor A1
Sensor B1
Sensor C1
Sensor D1
Sensor E1

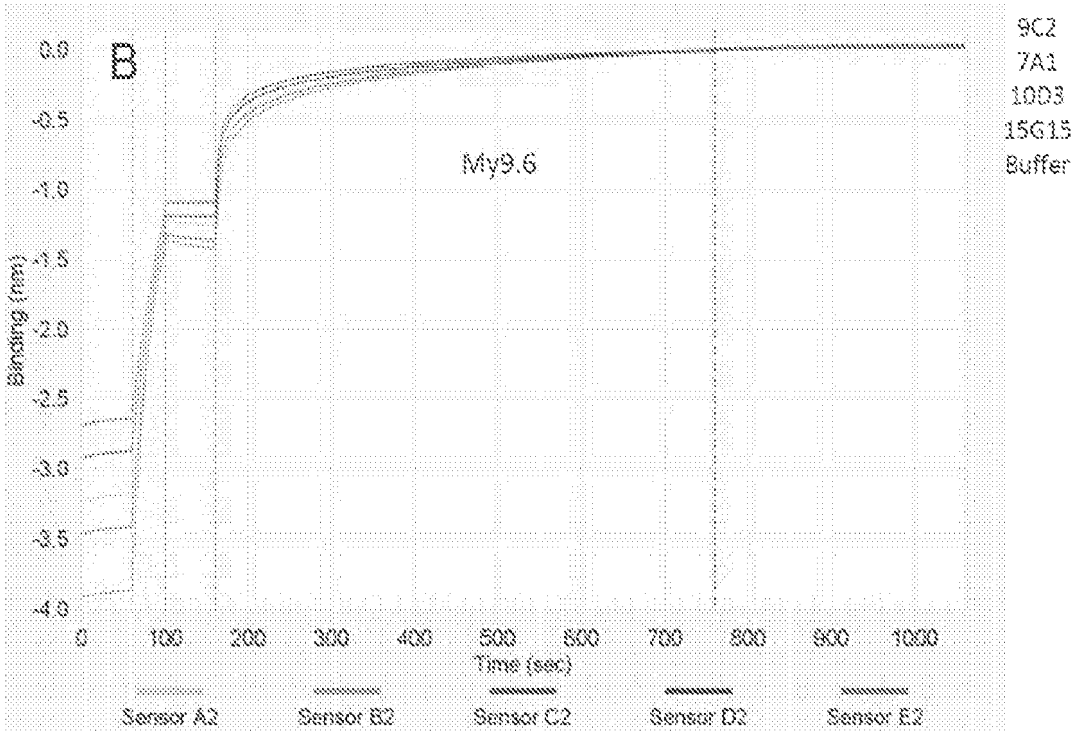

B
9C2
7A1
10D3
15G15
Buffer
My9.6
Binding (nm)
Time (sec)
Sensor A2
Sensor B2
Sensor C2
Sensor D2
Sensor E2

FIG. 8

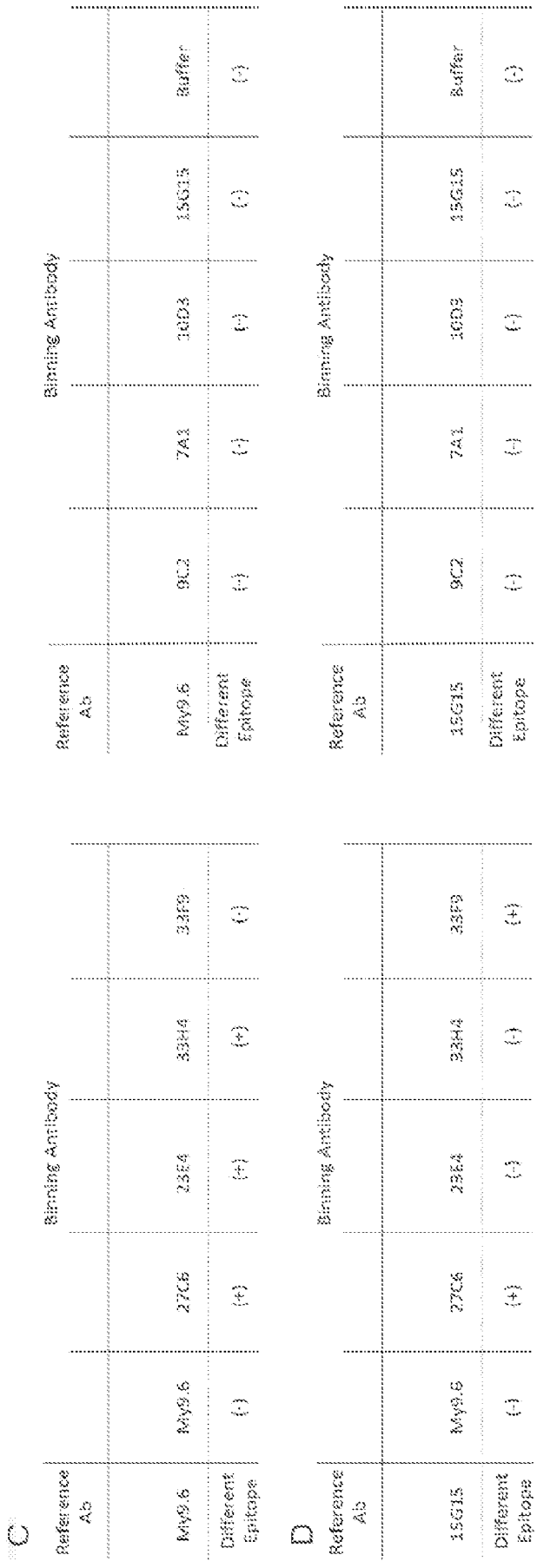

C
Reference Ab
My9.6
Different Epitope
Binning Antibody
My9.6
(-)
27C6
(+)
23E4
(+)
33H4
(+)
33F9
(-)
D
Reference Ab
15G15
Different Epitope
Binning Antibody
My9.6
(-)
27C6
(+)
23E4
(-)
33H4
(-)
33F9
(+)
Reference Ab
My9.6
Different Epitope
Binning Antibody
9C2
(-)
7A1
(-)
10D3
(-)
15G15
(-)
Buffer
(-)
Reference Ab
15G15
Different Epitope
Binning Antibody
9C2
(-)
7A1
(-)
10D3
(-)
15G15
(-)
Buffer
(-)

Figure 9

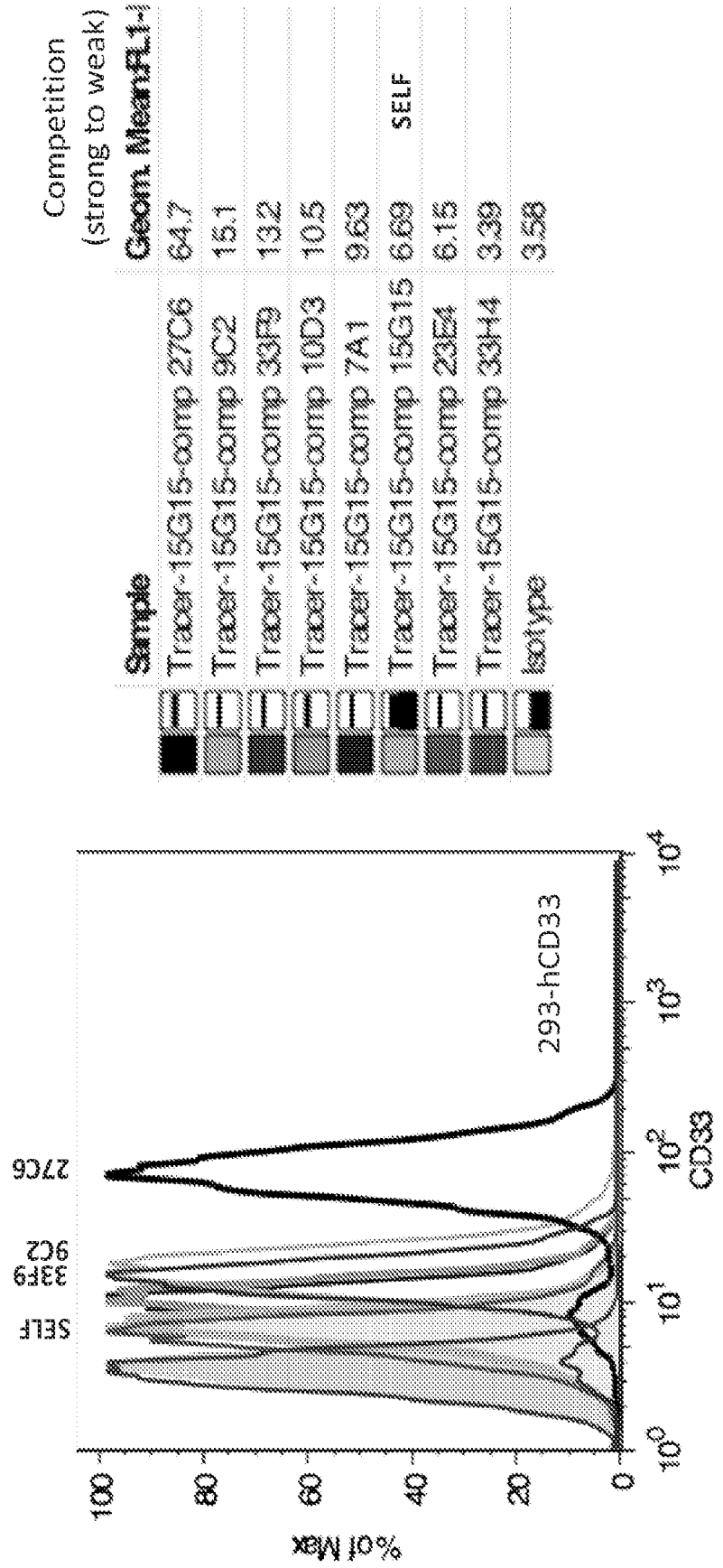

Competition
(strong to weak)
Sample
Geom. Mean PL1-A
Tracer-15G15-comp 27C6 64.7
Tracer-15G15-comp 9C2 15.1
Tracer-15G15-comp 33F9 13.2
Tracer-15G15-comp 10D3 10.5
Tracer-15G15-comp 7A1 9.63
Tracer-15G15-comp 15G15 6.69
Tracer-15G15-comp 23E4 6.15
Tracer-15G15-comp 33H4 3.39
Isotype 3.58
SELF
293-hCD33
27C6
33F9
9C2
SELF
CD33
%of Max

Figure 10

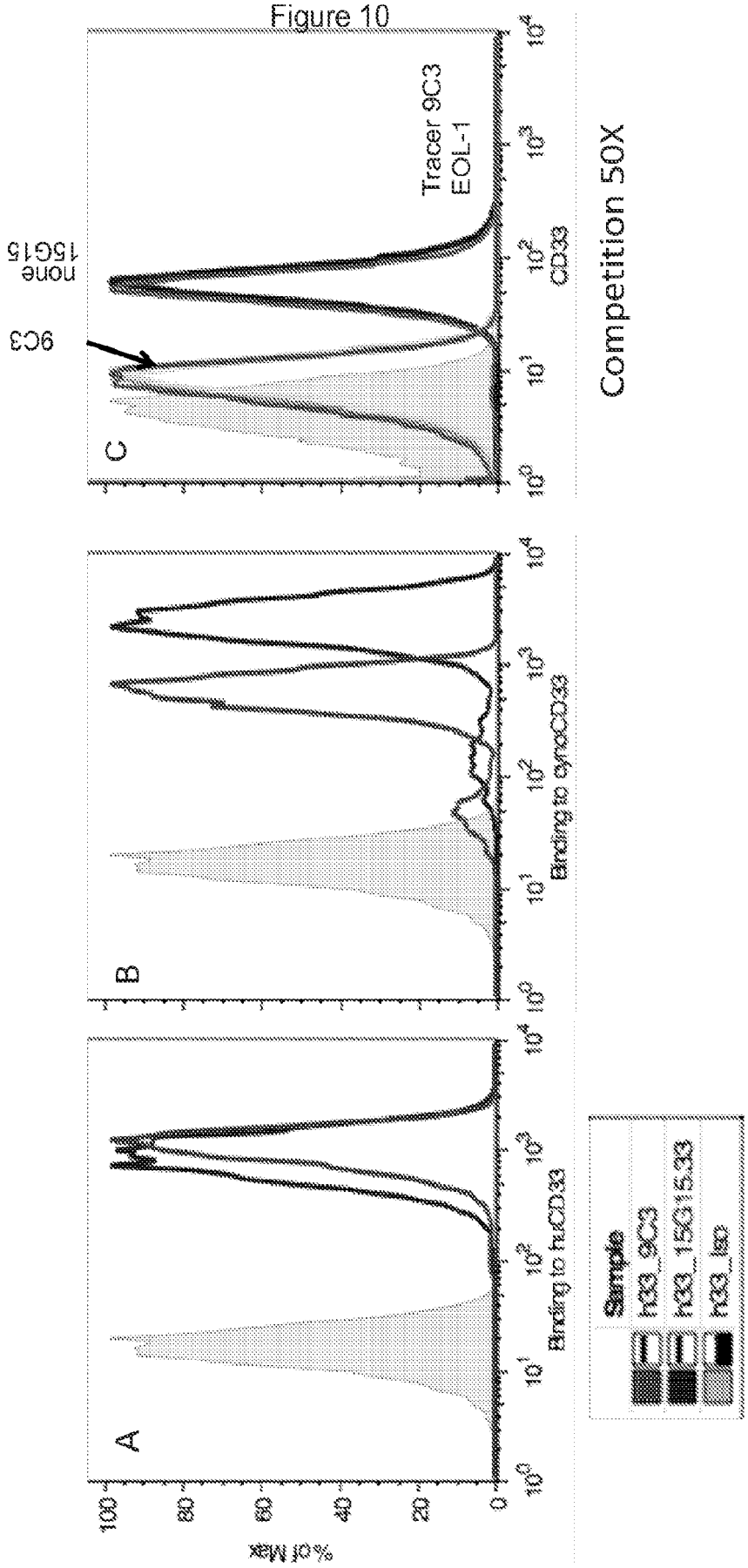

Competition 50X
Tracer 9C3
EOL-1
none
15G15
9C3
CD33
Binding to huCD33
Binding to cynoCD33
% of Max
A
B
C
Sample
h33_9C3
h33_15G15.33
h33_iso

Figure 11

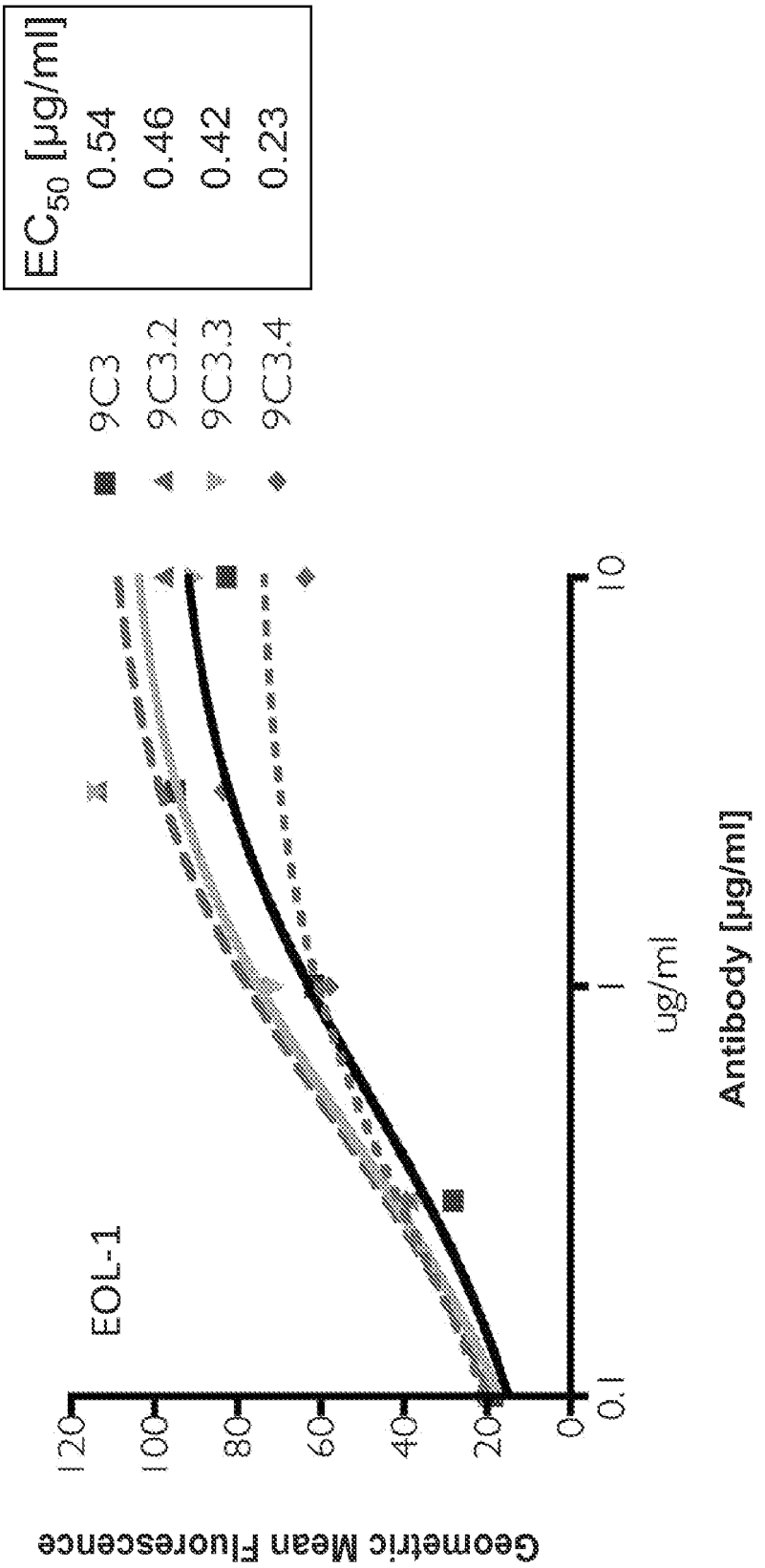

EC50 [µg/ml]
0.54
0.46
0.42
0.23
9C3
9C3.2
9C3.3
9C3.4
EOL-1
Geometric Mean Fluorescence
120
100
80
60
40
20
0
0.1
1
10
ug/ml
Antibody [ug/ml]

Figure 12

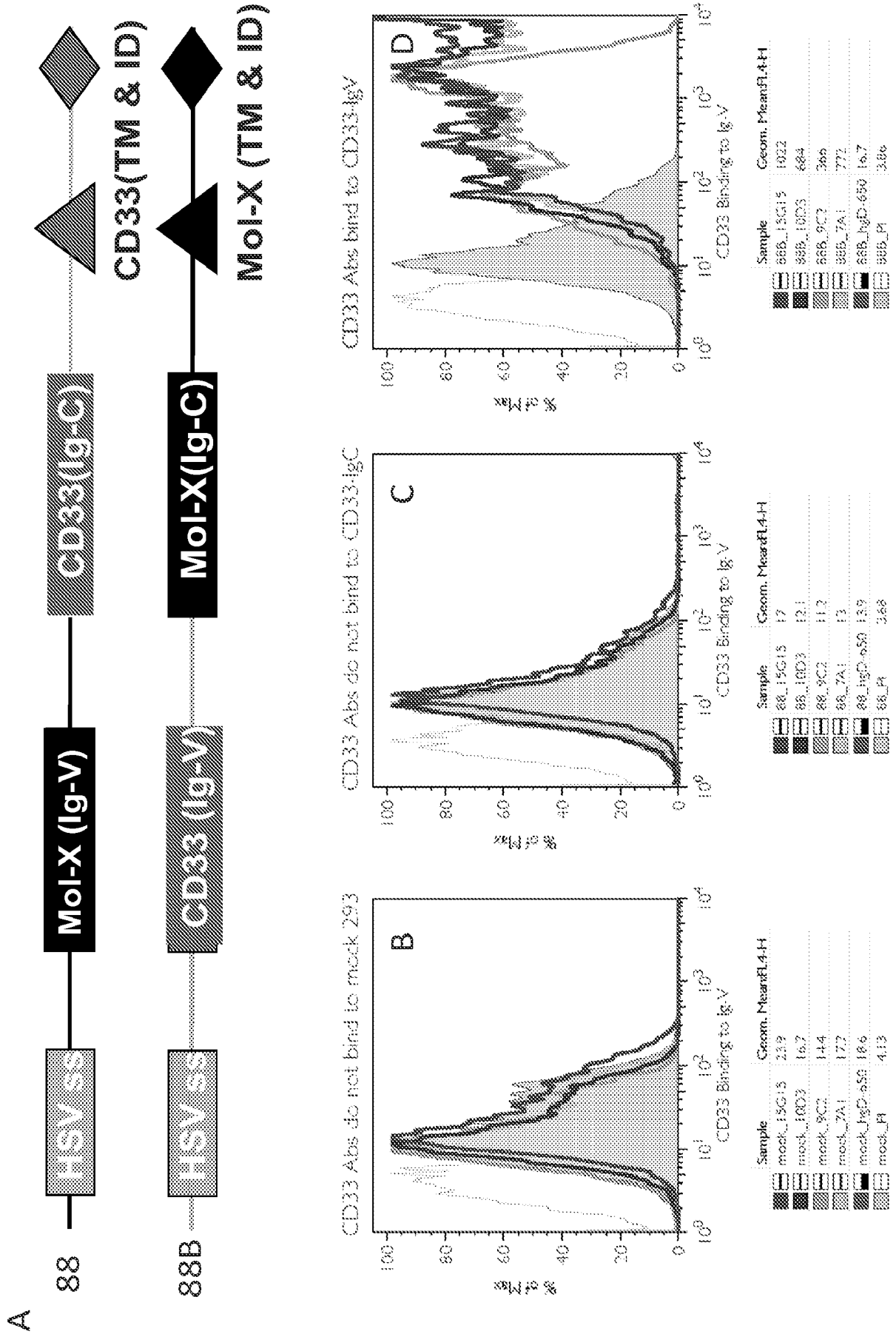
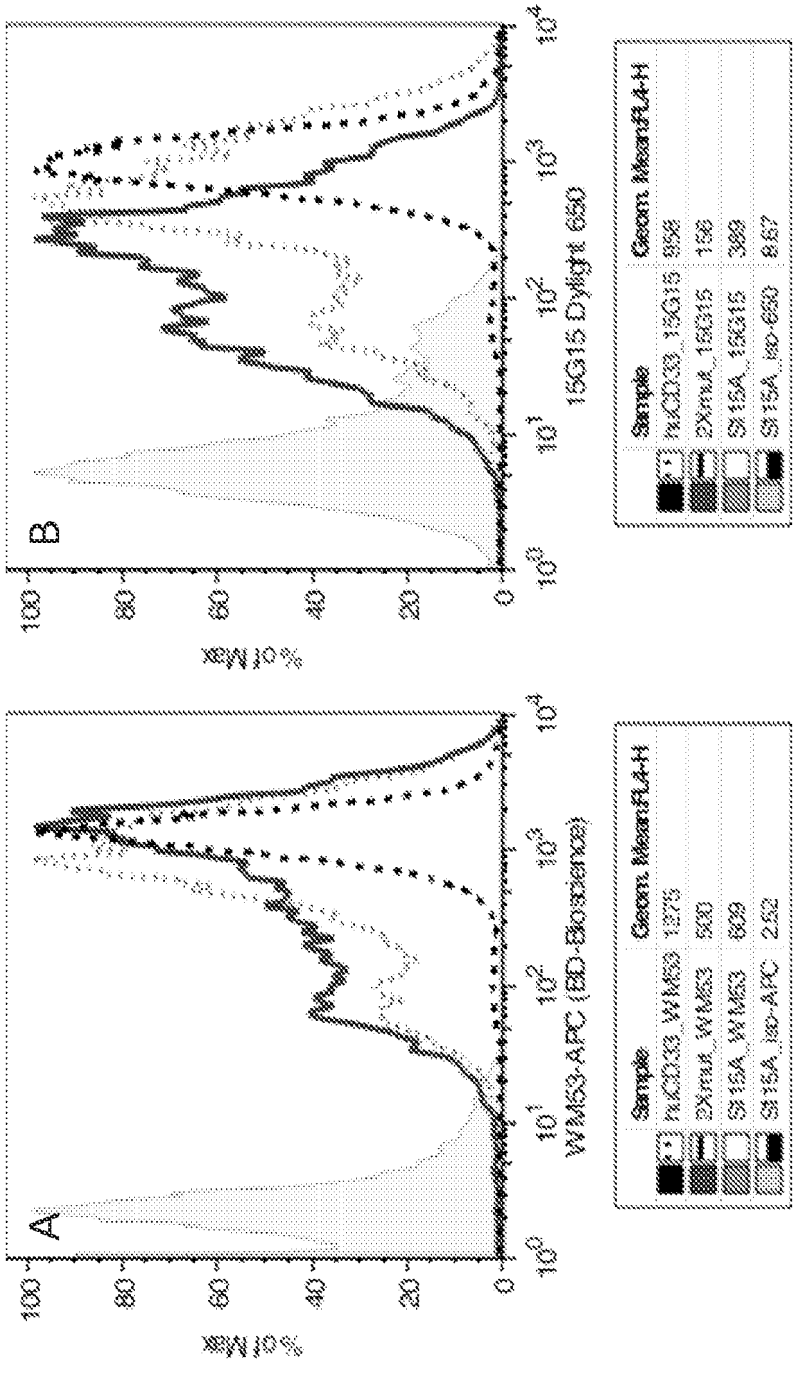

A
88
HSV SS
Mol-X (Ig-V)
CD33(Ig-C)
CD33(TM & ID)
88B
HSV SS
CD33 (Ig-V)
Mol-X(Ig-C)
Mol-X (TM & ID)
B
CD33 Abs do not bind to mock 293
C
CD33 Abs do not bind to CD33-IgC
D
CD33 Abs bind to CD33-IgV
% of Max
CD33 Binding to Ig-V
Sample
Geom. Mean(FL4-H)
mock_15G15 23.9
mock_16D3 16.7
mock_9C2 14.4
mock_7A1 17.2
mock_IgD e59 18.6
mock_PI 4.13
88_15G15 17
88_16D3 12.1
88_9C2 11.3
88_7A1 13
88_IgD e59 13.9
88_PI 3.68
88B_15G15 1022
88B_16D3 684
88B_9C2 365
88B_7A1 772
88B_IgD e59 16.7
88B_PI 3.86

Figure 13


A
B
% of Max
WM63-APC (BD-Bioscience)
15G15 Dylight 650
Sample
Geom. Mean:FL4-H
huCD33_15G15 858
2Xmut_15G15 196
S15A_15G15 389
S15A_iso-650 867
huCD33_WM53 1275
2Xmut_WM53 920
S15A_WM53 629
S15A_iso-APC 252

C

huCD33_0-99
1_huCD33_P69
1 MDPNFWLQVQESVTVQEGLCVLVPCTFFHPIPYYDKNSPVHGYWFREGAI 50
1 MDPNFWLQVQESVTVQEGLCVLVPCTFFHPIPYYDKNSPVHGYWFREGAI 50
(S102A)
(S115A)
huCD33_0-99
1_huCD33_P69
51 ISGDSPVATNKLDQEVQEETQGRFRLLGDPSRNNCSLSIVDARRRDNGSY 100
51 ISRDSPVATNKLDQEVQEETQGRFRLLGDPSRNNCSLSIVDARRRDNGSY 100
huCD33_0-99
1_huCD33_P69
101 FFRMERGSTKYSYKSPQLS 119
101 FFRMERGSTKYSYKSPQLS 119
Ig-V Like Domain

Figure 14

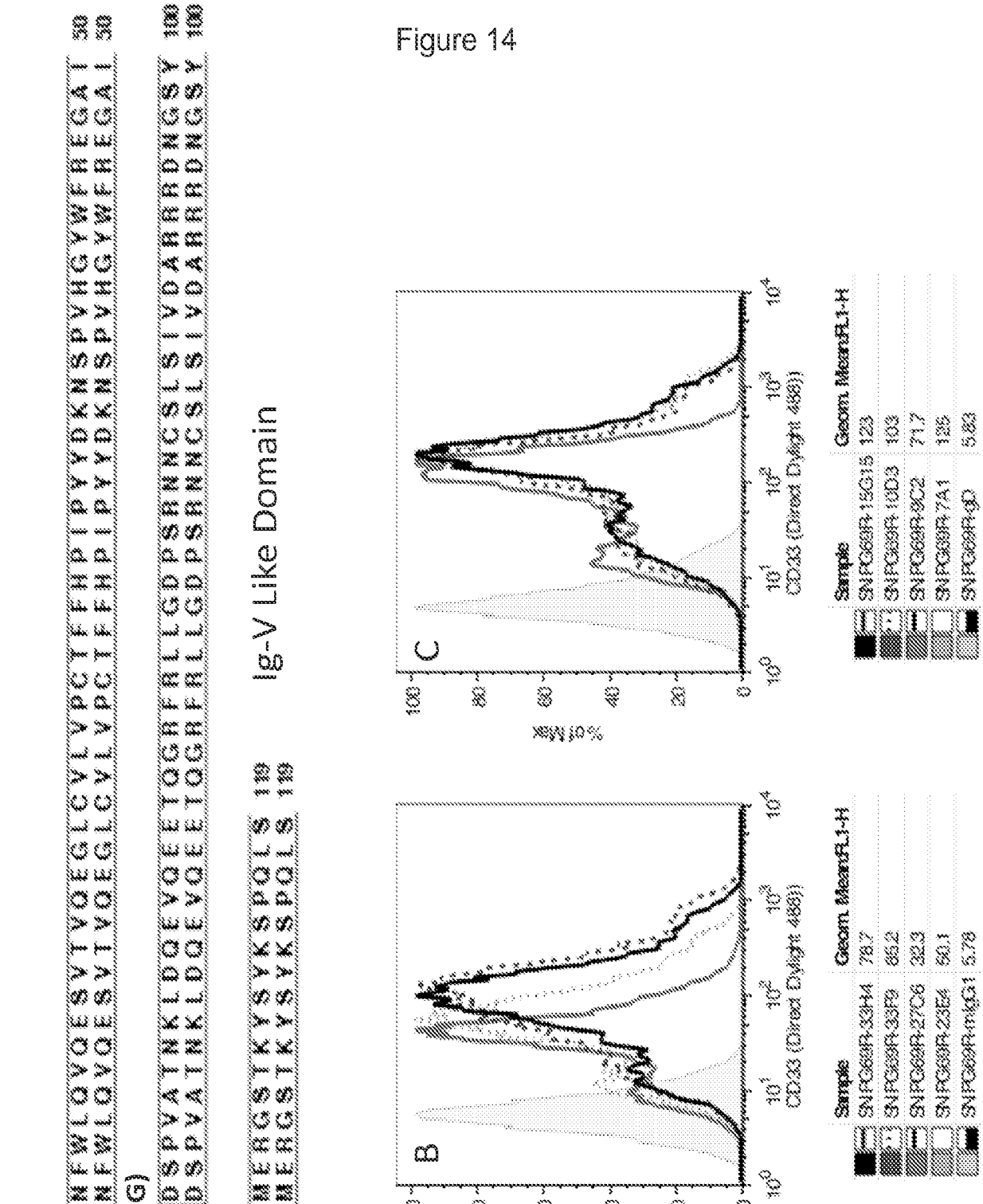
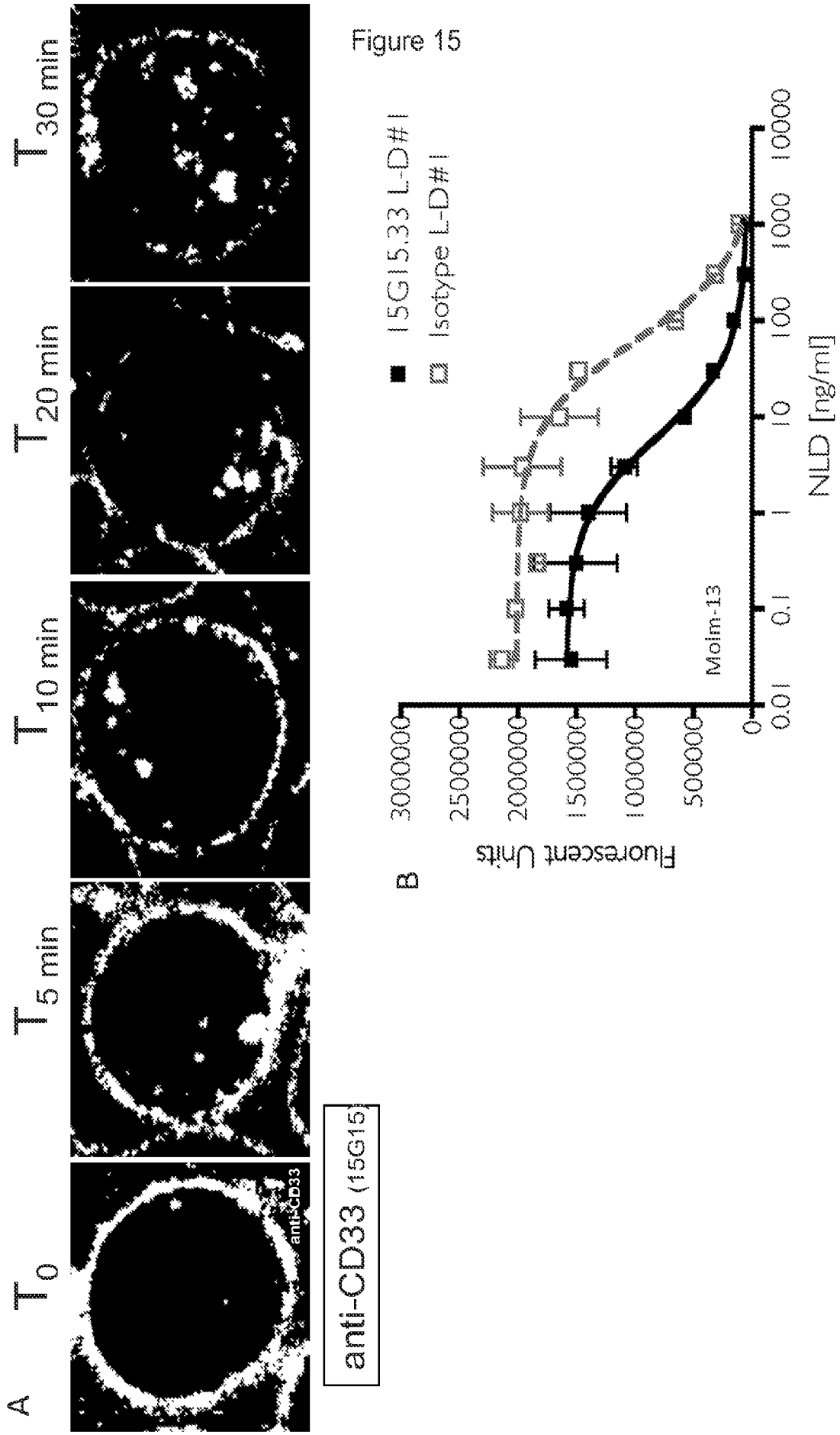

A
huCD33_aa
1_huCD33_Rev
1 MDPNFWLQVQESVTVQEGLCVLVPCTFFHPIPYYDKNSPVHGYWFREGAI 50
1 MDPNFWLQVQESVTVQEGLCVLVPCTFFHPIPYYDKNSPVHGYWFREGAI 50
(R69G)
huCD33_aa
51 ISGDSPVATNKLDQEVQEETQGRFRLLGDPSRNNCSLSIVDARRRDNGSY 100
51 ISRDSPVATNKLDQEVQEETQGRFRLLGDPSRNNCSLSIVDARRRDNGSY 100
huCD33_aa
101 FFRMERGSTKYSYKSPQLS 119
101 FFRMERGSTKYSYKSPQLS 119
Ig-V Like Domain
B
% of Max
CD33 (Direct Dylight 488)
Sample
Geom. Mean(FL1-H)
SNPG68R-33H4 78.7
SNPG68R-38F9 85.2
SNPG68R-27C6 32.3
SNPG68R-23E4 60.1
SNPG68R-mIgG1 5.78
C
% of Max
CD33 (Direct Dylight 488)
Sample
Geom. Mean(FL1-H)
SNPG68R-15G15 123
SNPG68R-10D3 103
SNPG68R-9C2 71.7
SNPG68R-7A1 135
SNPG68R-gD 5.83

Figure 15


A
T0
T5 min
T10 min
T20 min
T30 min
anti-CD33
anti-CD33 (15G15)
B
15G15.33 L-D#1
Isotype L-D#1
Molm-13
Fluorescent Units
NLD [ng/ml]
0
500000
1000000
1500000
2000000
2500000
3000000
0.01
0.1
1
10
100
1000
10000

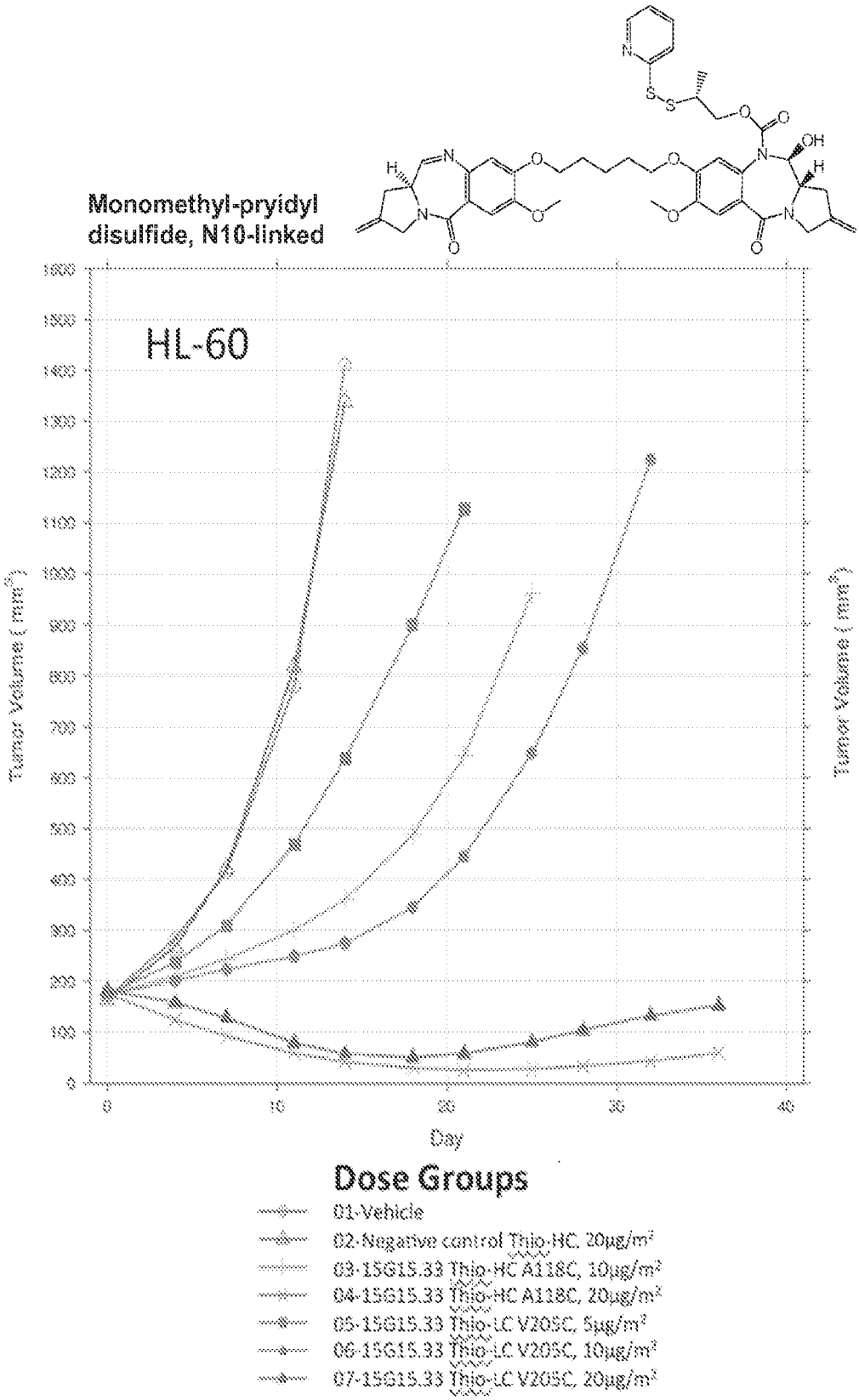

Monomethyl-pryidyl
disulfide, N10-linked
HL-60
Tumor Volume (mm³)
Day
Dose Groups
01-Vehicle
02-Negative control Thio-HC, 20µg/m²
03-15G15.33 Thio-HC A118C, 10µg/m²
04-15G15.33 Thio-HC A118C, 20µg/m²
05-15G15.33 Thio-LC V205C, 5µg/m²
06-15G15.33 Thio-LC V205C, 10µg/m²
07-15G15.33 Thio-LC V205C, 20µg/m²

FIG. 16A

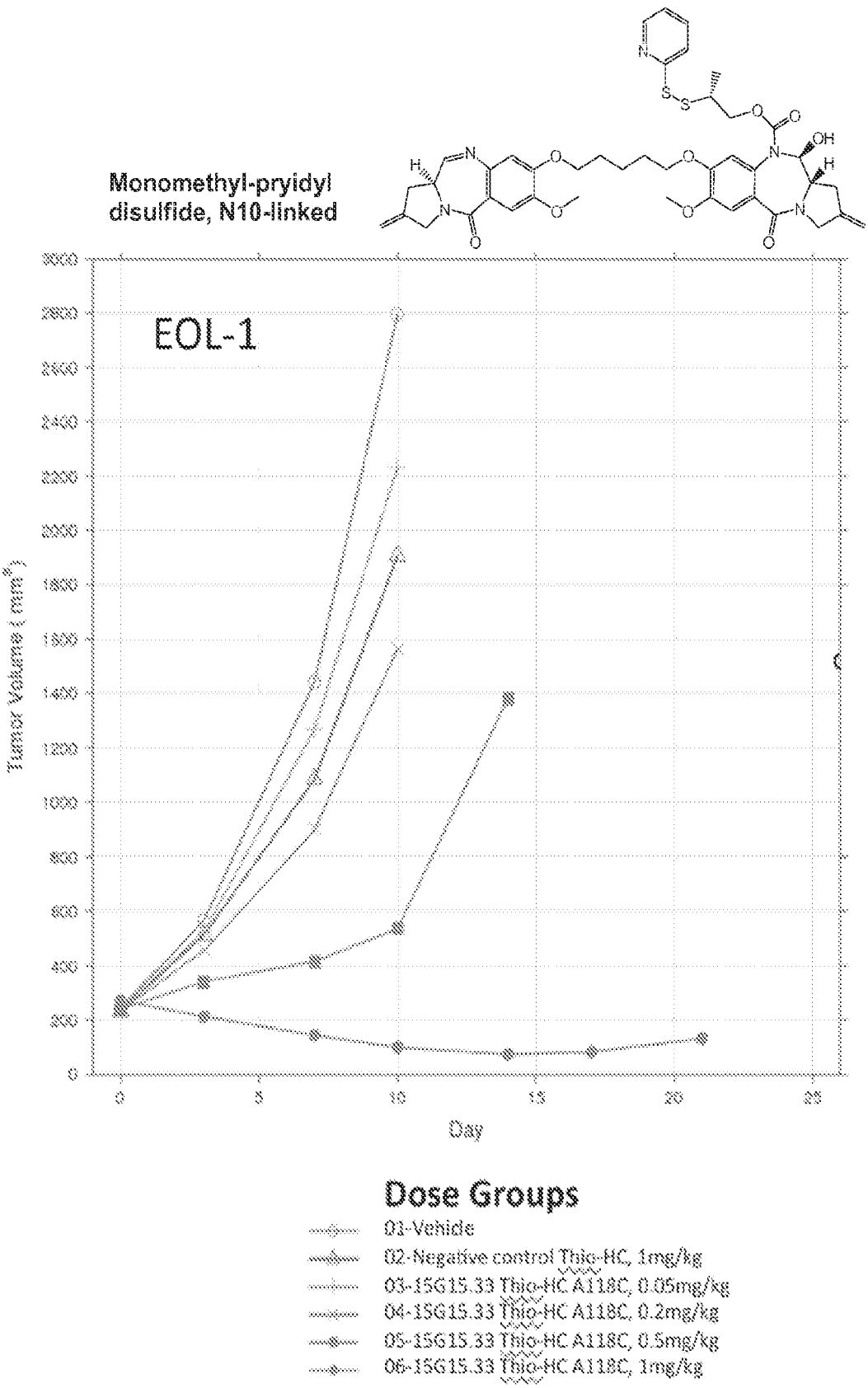
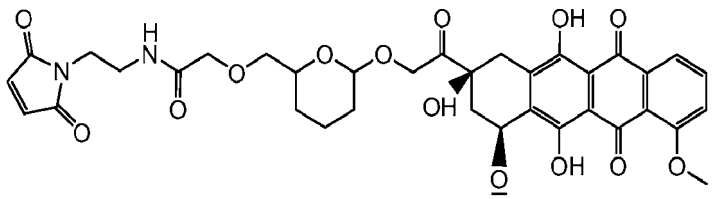
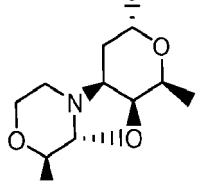

Monomethyl-pryidyl disulfide, N10-linked
EOL-1
Tumor Volume (mm³)
Day
Dose Groups
01-Vehicle
02-Negative control Thio-HC, 1mg/kg
03-15G15.33 Thio-HC A118C, 0.05mg/kg
04-15G15.33 Thio-HC A118C, 0.2mg/kg
05-15G15.33 Thio-HC A118C, 0.5mg/kg
06-15G15.33 Thio-HC A118C, 1mg/kg

FIG. 16B



Maleimide with acetal linker-PNU



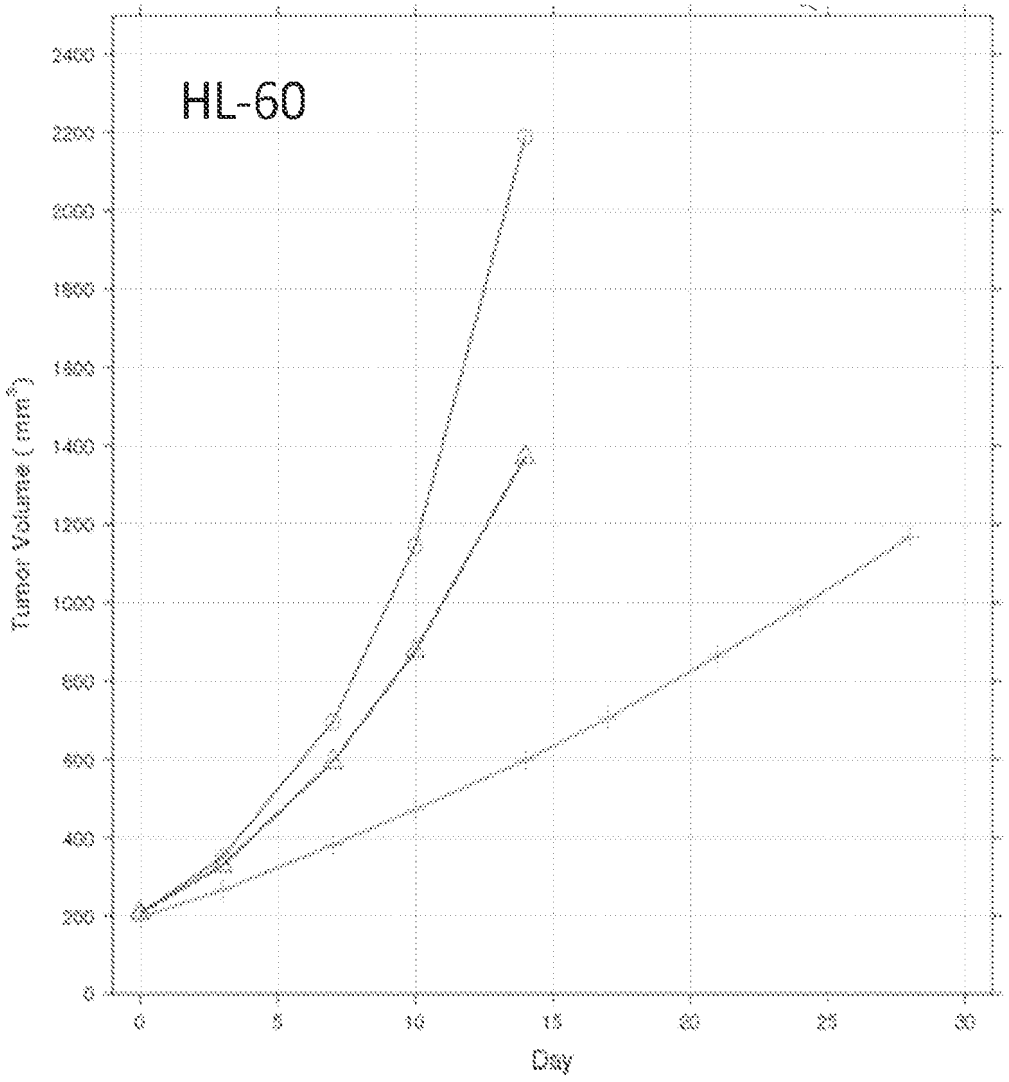


FIG. 17