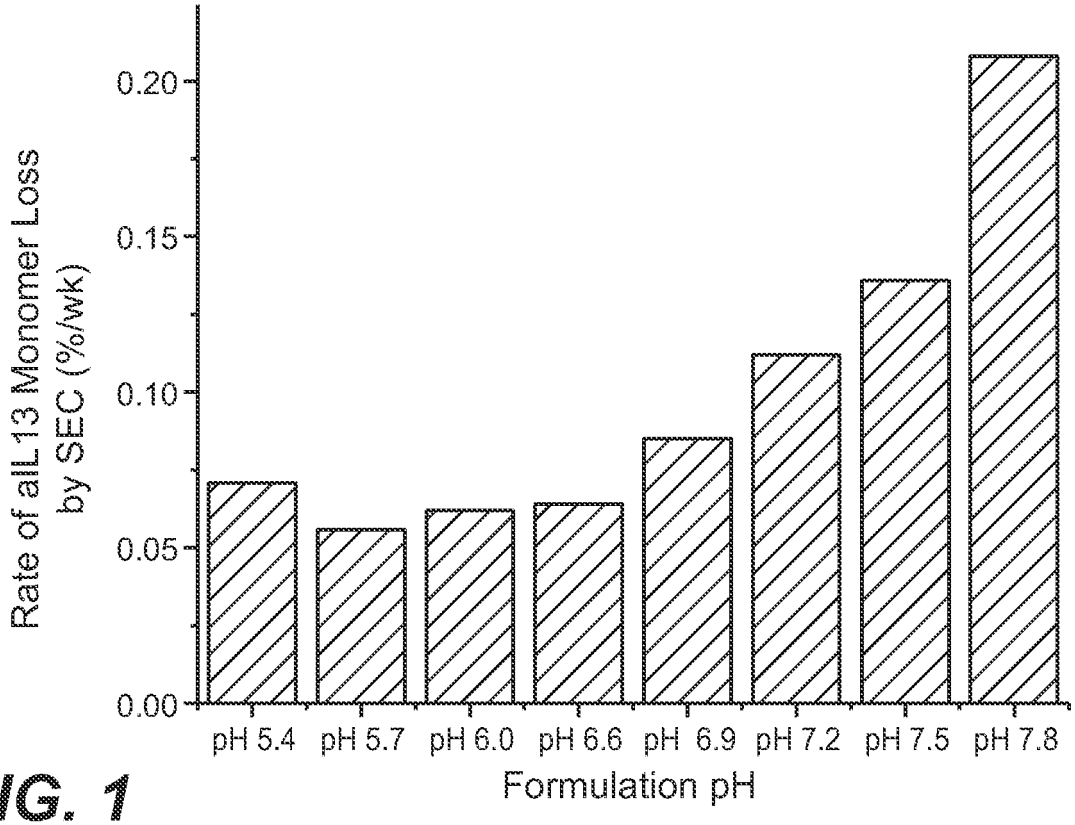

Rate of alL13 Monomer Loss by SEC (%/wk)
0.00
0.05
0.10
0.15
0.20
pH 5.4
pH 5.7
pH 6.0
pH 6.6
pH 6.9
pH 7.2
pH 7.5
pH 7.8
Formulation pH

FIG. 1

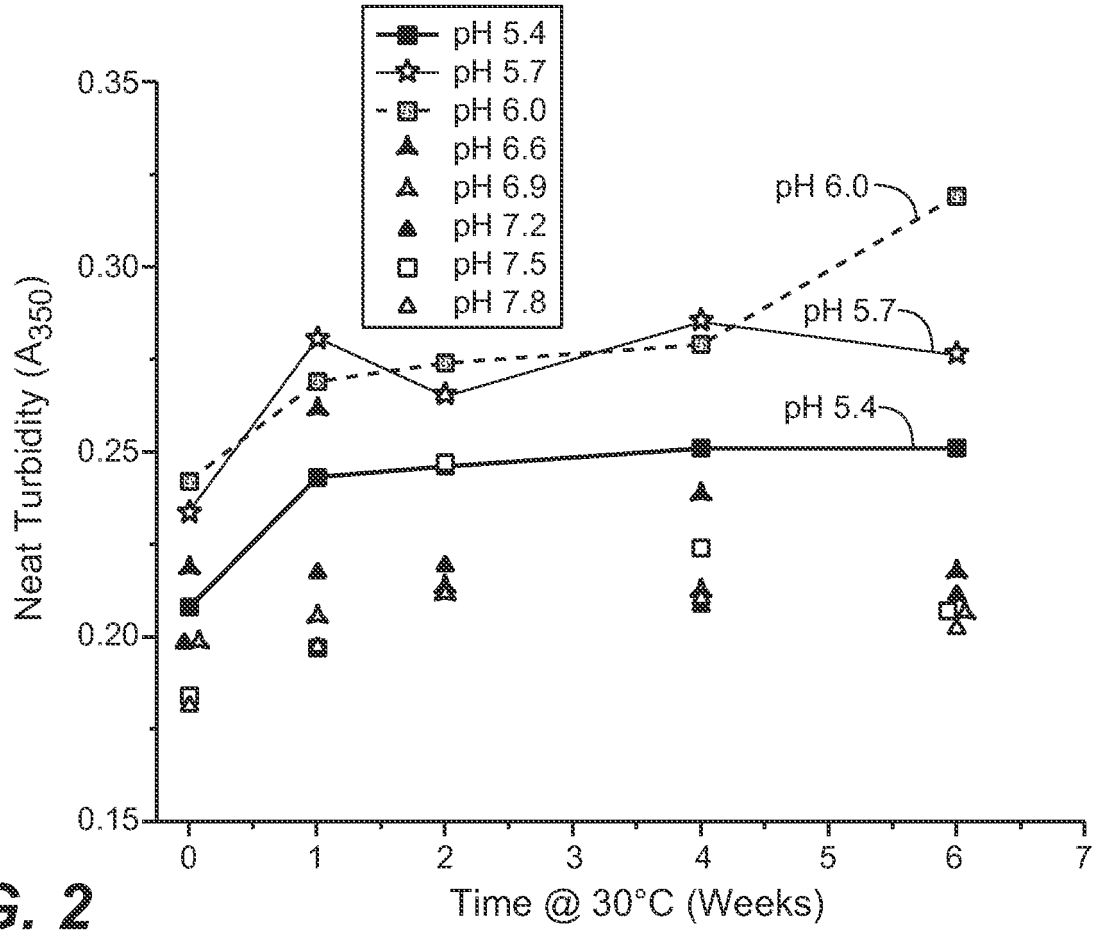

pH 5.4
pH 5.7
pH 6.0
pH 6.6
pH 6.9
pH 7.2
pH 7.5
pH 7.8
Neat Turbidity (A_{350})
0.15
0.20
0.25
0.30
0.35
0
1
2
3
4
5
6
7
Time @ 30°C (Weeks)

FIG. 2

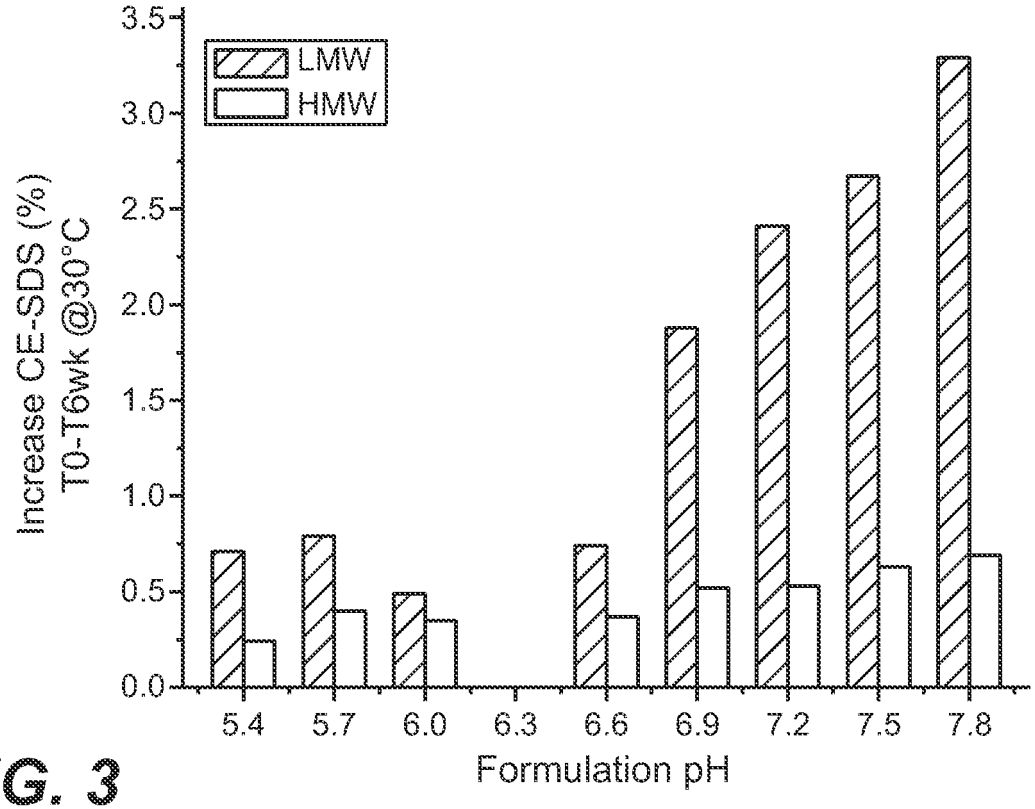

LMW
HMW
Increase CE-SDS (%)
T0-T6wk @30°C
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
5.4
5.7
6.0
6.3
6.6
6.9
7.2
7.5
7.8
Formulation pH

FIG. 3

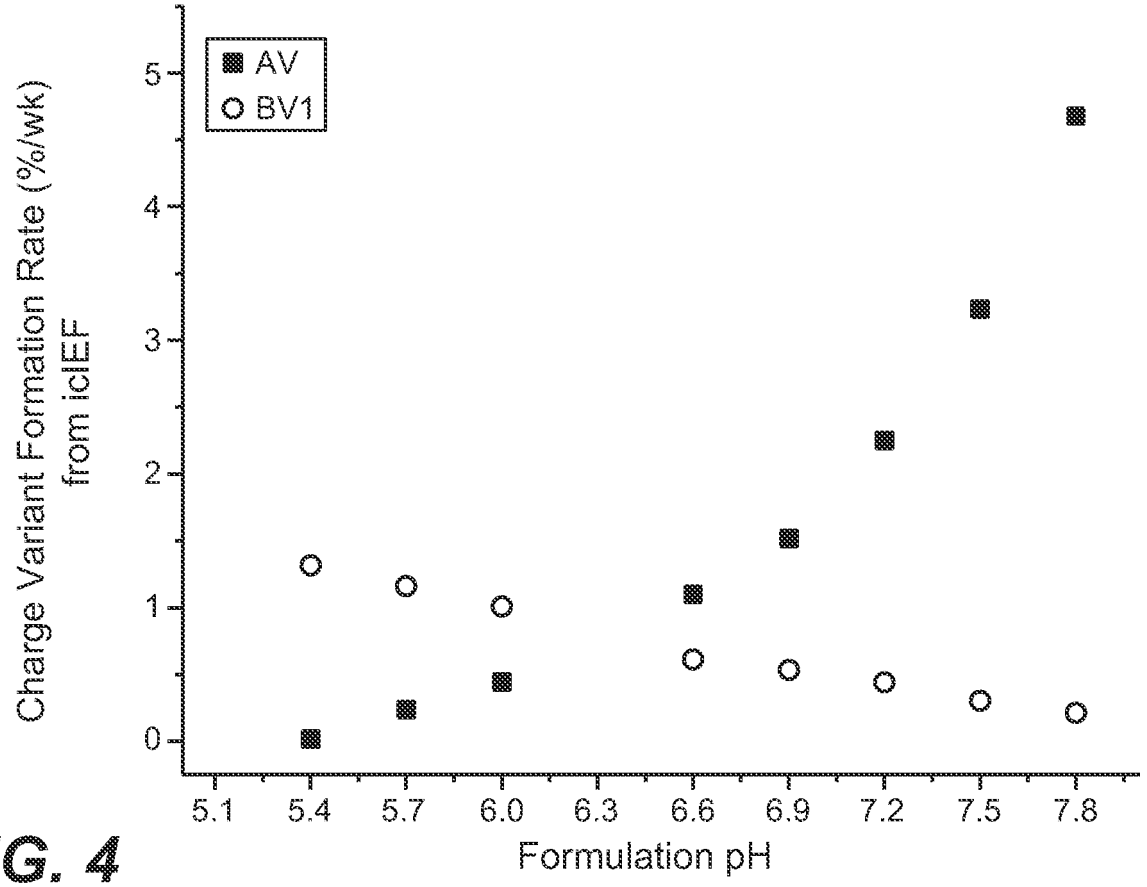

AV
BV1
Charge Variant Formation Rate (%/wk)
from icIEF
5
4
3
2
1
0
5.1
5.4
5.7
6.0
6.3
6.6
6.9
7.2
7.5
7.8
Formulation pH

FIG. 4

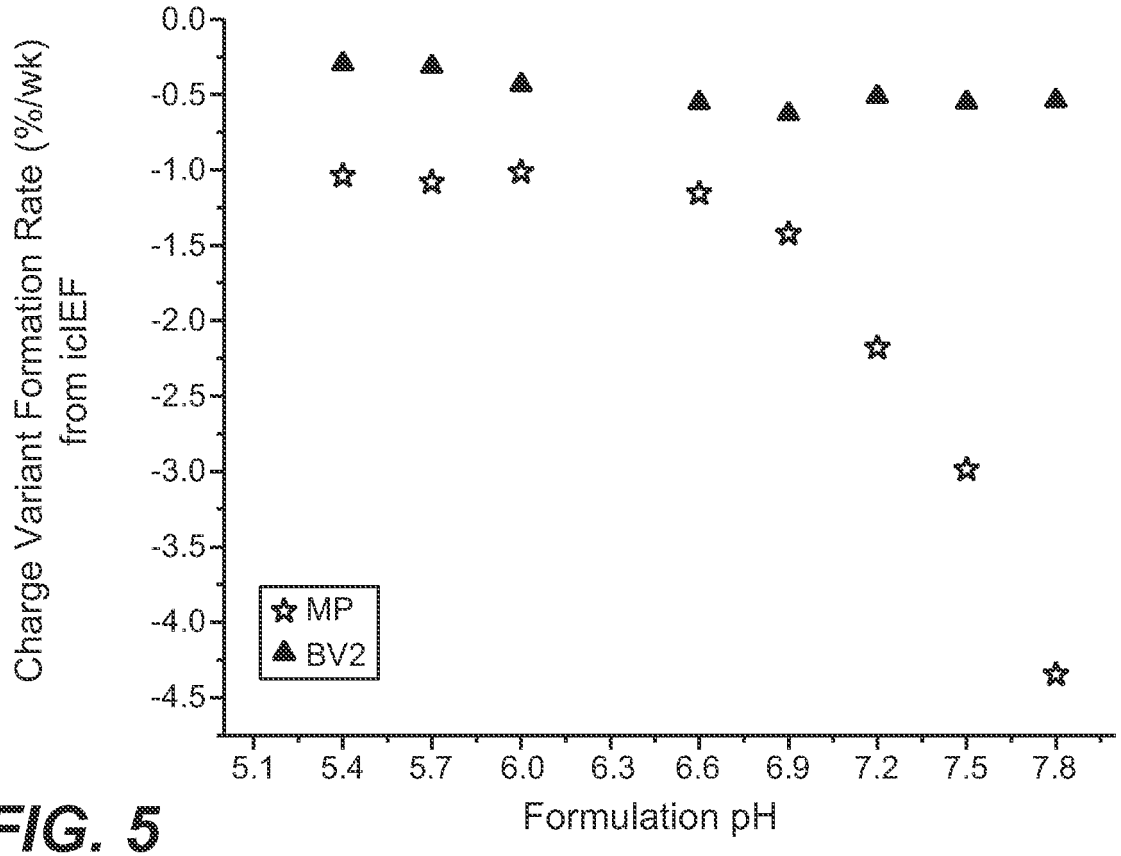

Charge Variant Formation Rate (%/wk) from icIEF
0.0
-0.5
-1.0
-1.5
-2.0
-2.5
-3.0
-3.5
-4.0
-4.5
MP
BV2
5.1
5.4
5.7
6.0
6.3
6.6
6.9
7.2
7.5
7.8
Formulation pH

FIG. 5

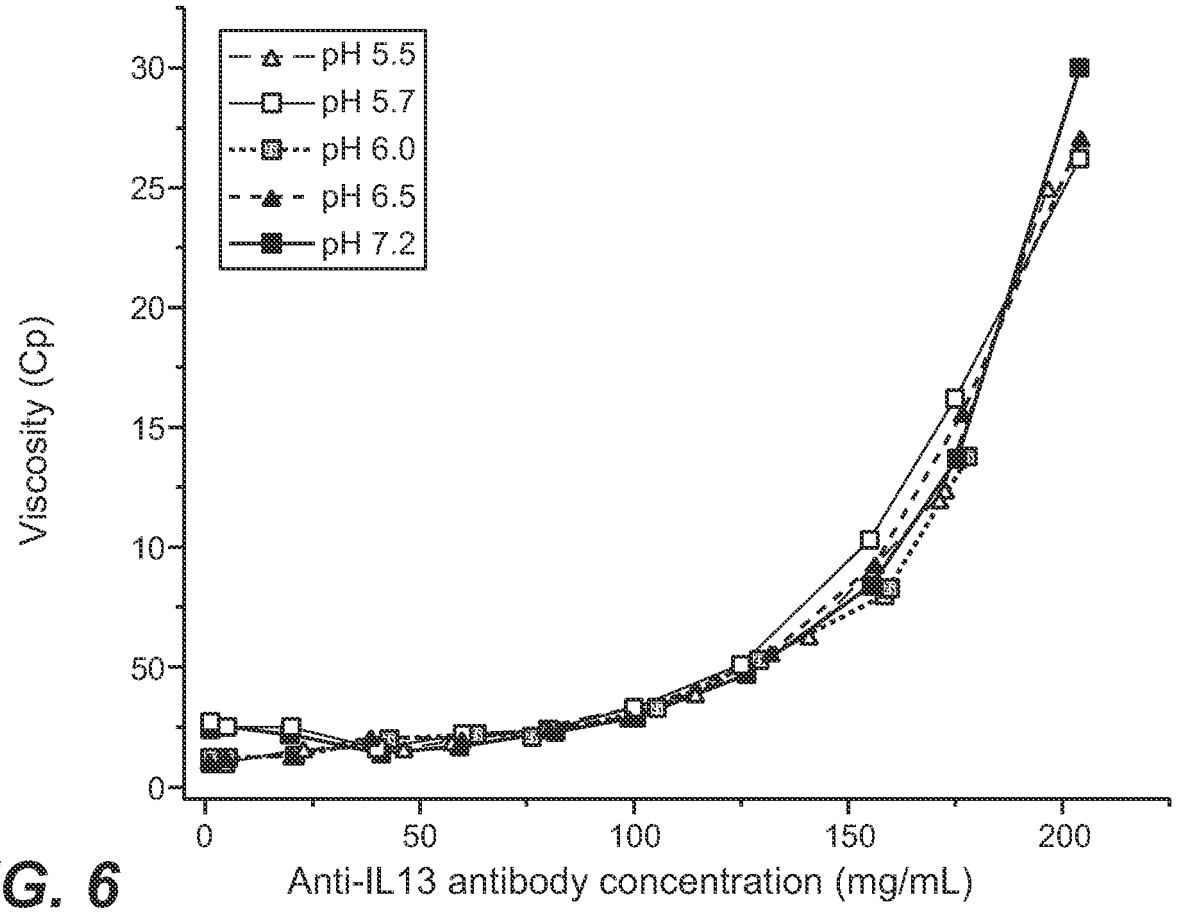

pH 5.5
pH 5.7
pH 6.0
pH 6.5
pH 7.2
Viscosity (Cp)
30
25
20
15
10
50
0
0
50
100
150
200
Anti-IL13 antibody concentration (mg/mL)

FIG. 6

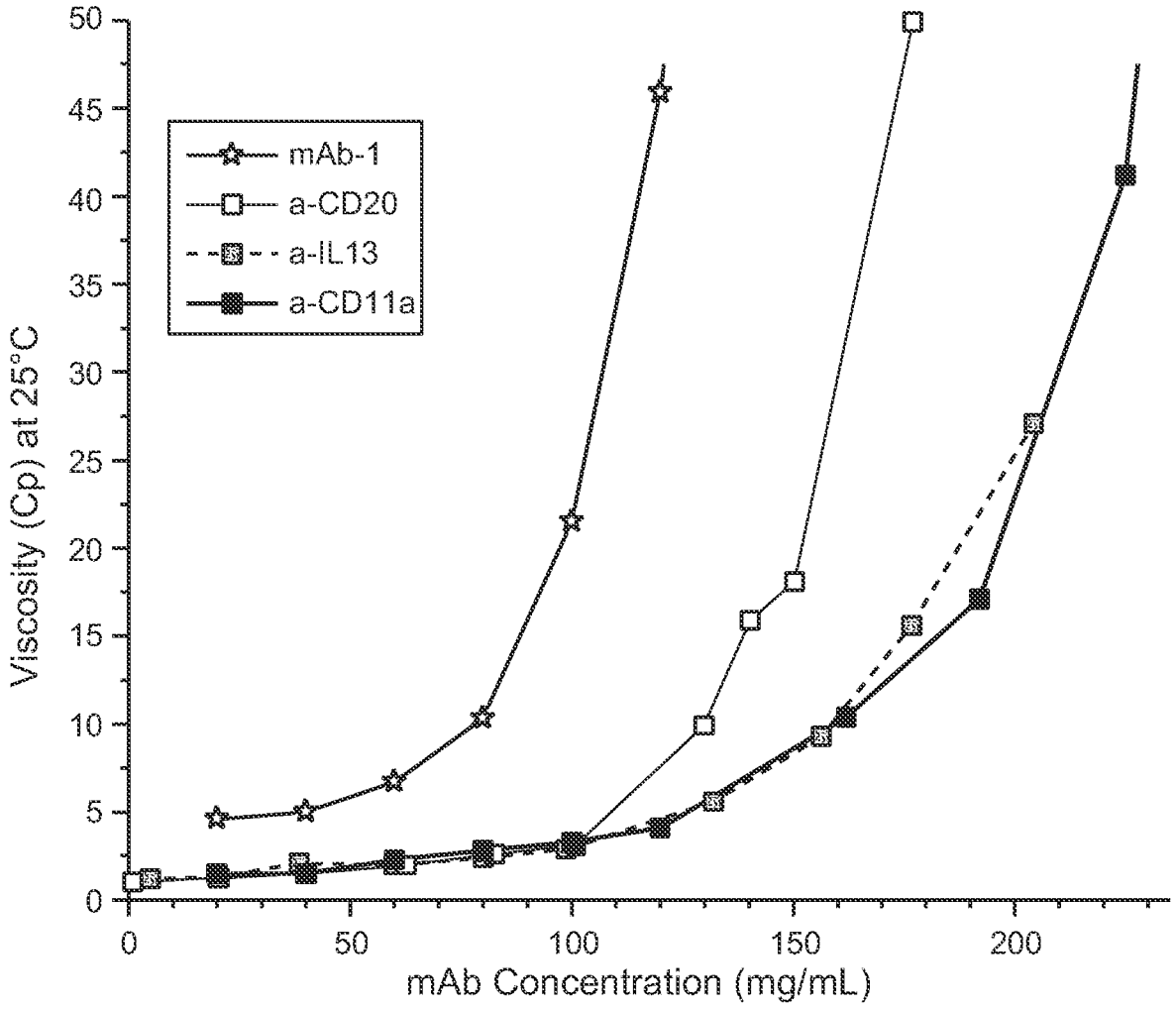

Viscosity (Cp) at 25°C
mAb Concentration (mg/mL)
mAb-1
a-CD20
a-IL13
a-CD11a
0
5
10
15
20
25
30
35
40
45
50
0
50
100
150
200

FIG. 7

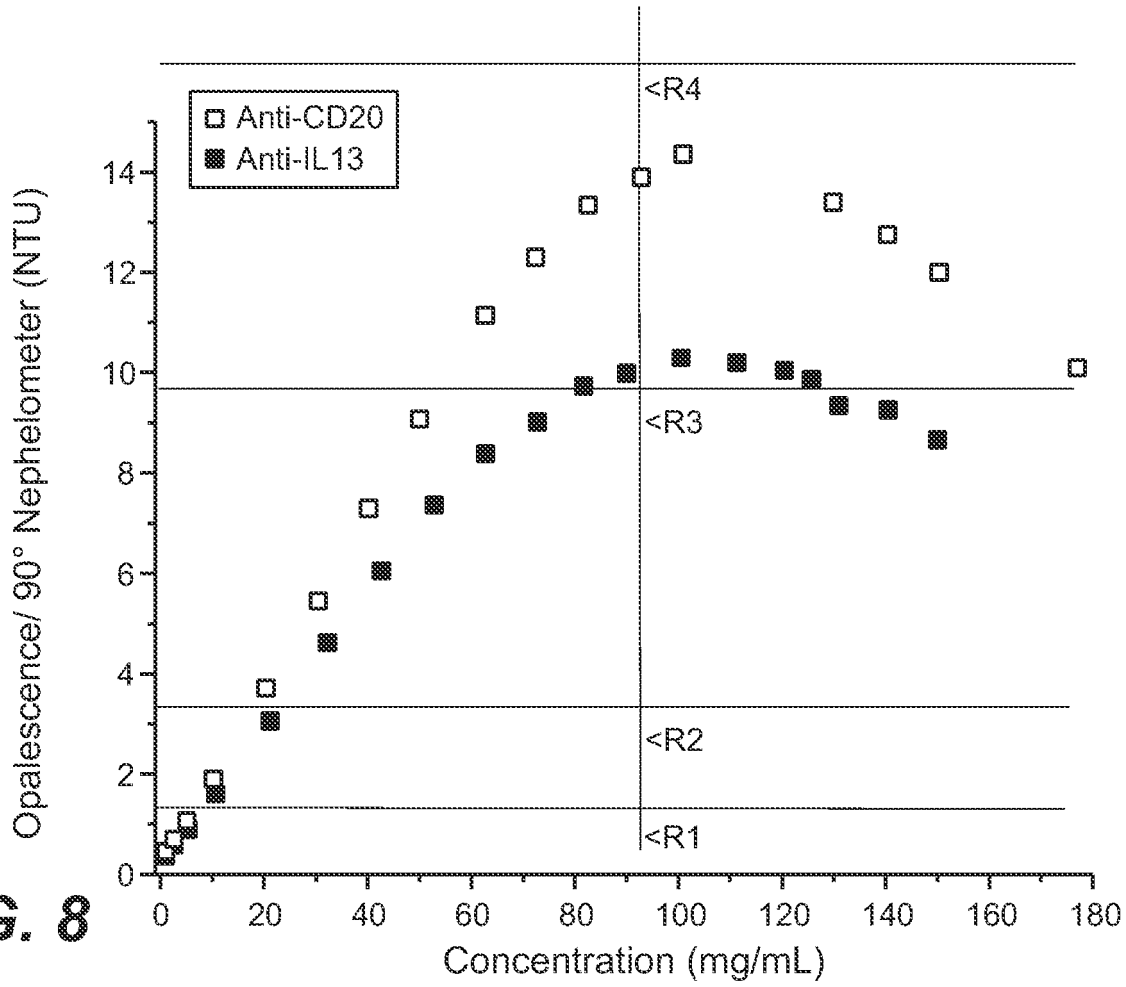

Anti-CD20
Anti-IL13
<R4
<R3
<R2
<R1
Opalescence/ 90° Nephelometer (NTU)
Concentration (mg/mL)
0
2
4
6
8
10
12
14
0
20
40
60
80
100
120
140
160
180

FIG. 8

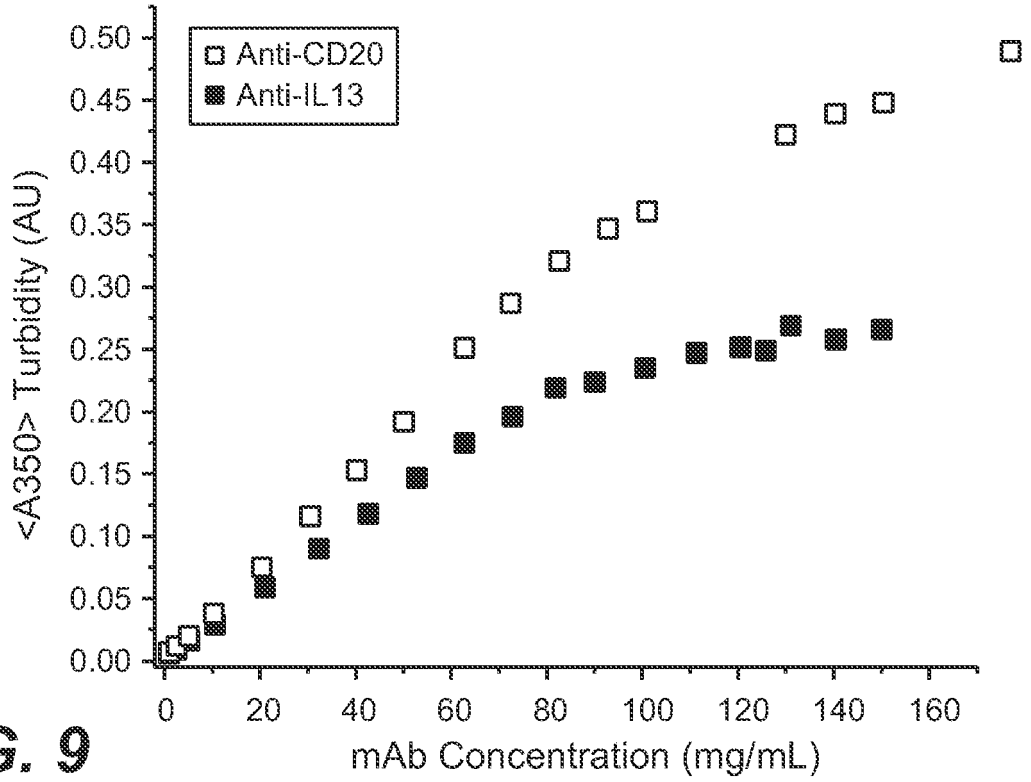

Anti-CD20
Anti-IL13
<A350> Turbidity (AU)
mAb Concentration (mg/mL)
0.00
0.05
0.10
0.15
0.20
0.25
0.30
0.35
0.40
0.45
0.50
0
20
40
60
80
100
120
140
160

FIG. 9

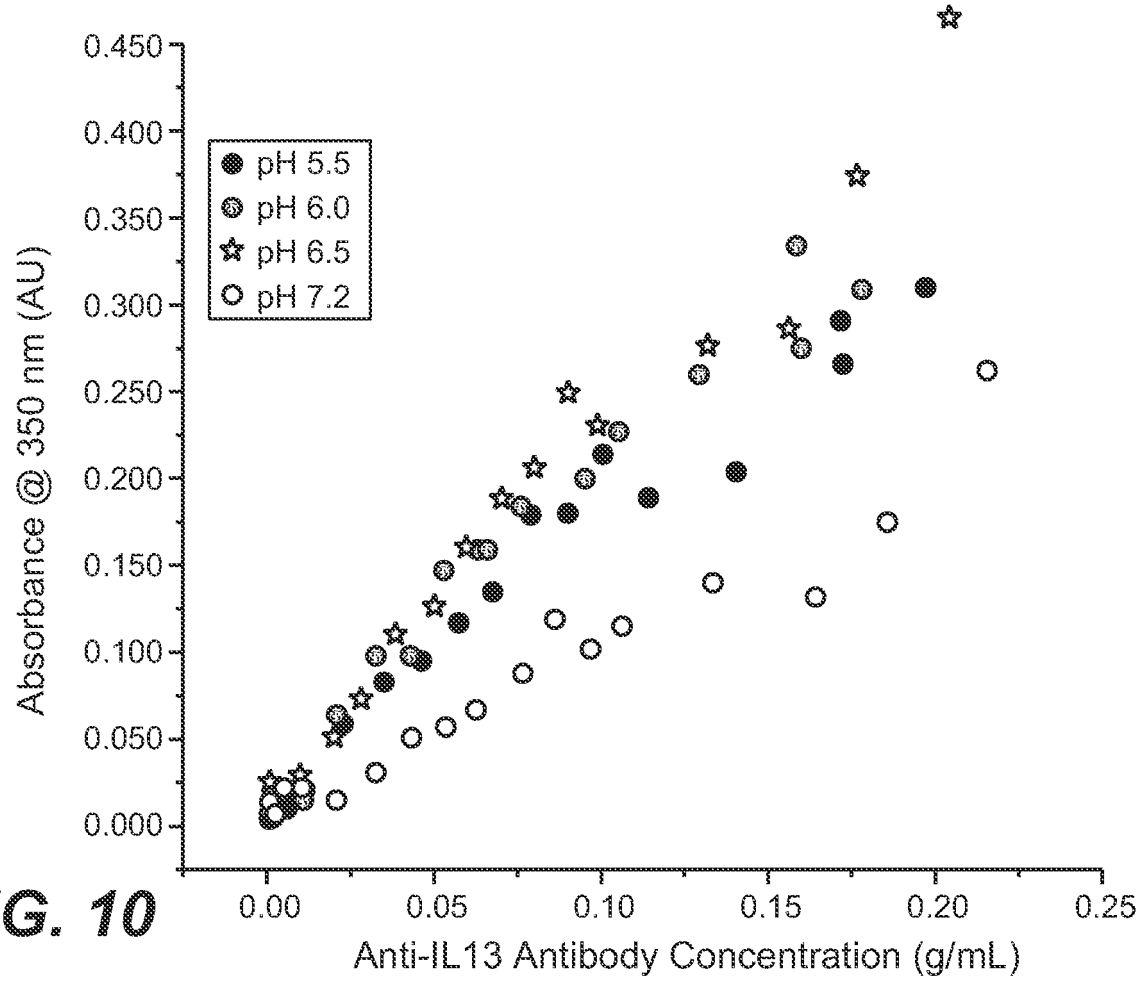

0.450
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
Absorbance @ 350 nm (AU)
pH 5.5
pH 6.0
pH 6.5
pH 7.2
0.00
0.05
0.10
0.15
0.20
0.25
Anti-IL13 Antibody Concentration (g/mL)

FIG. 10

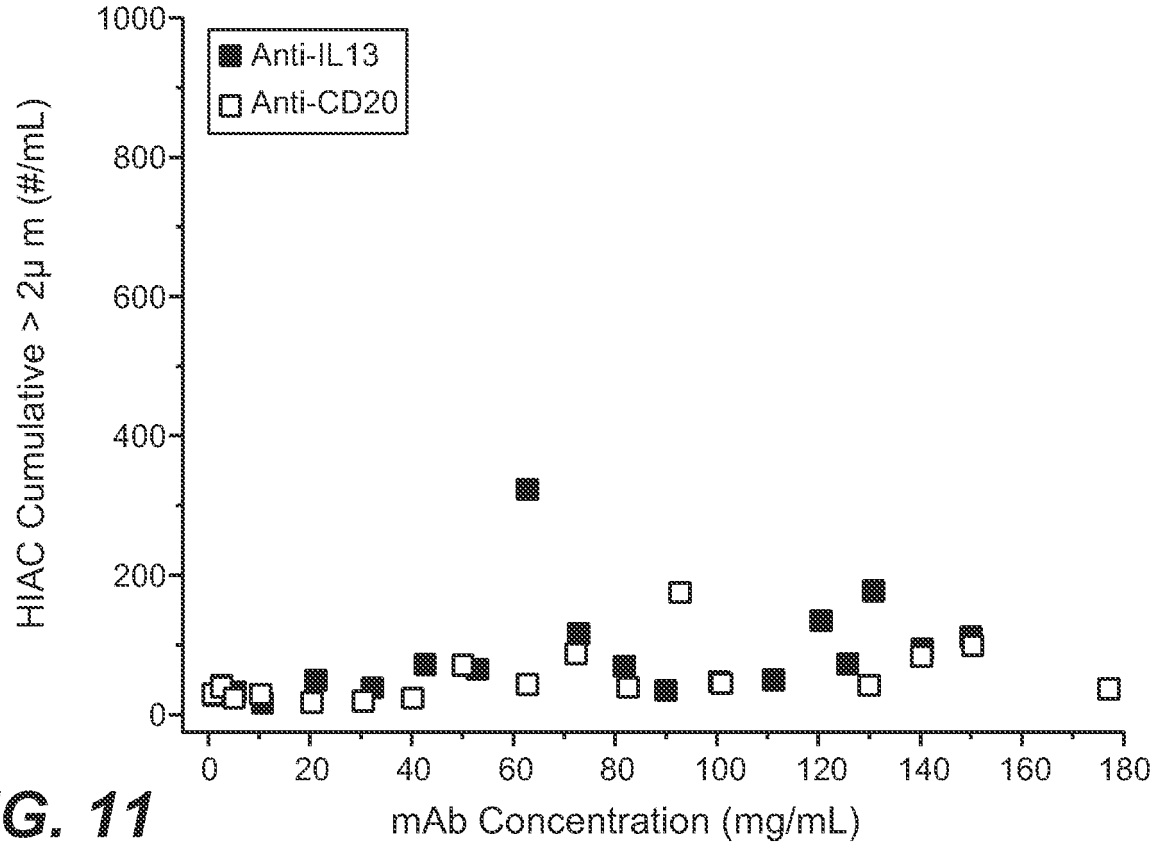

1000
800
600
400
200
0
HIAC Cumulative > 2μ m (#/mL)
Anti-IL13
Anti-CD20
0
20
40
60
80
100
120
140
160
180
mAb Concentration (mg/mL)

FIG. 11

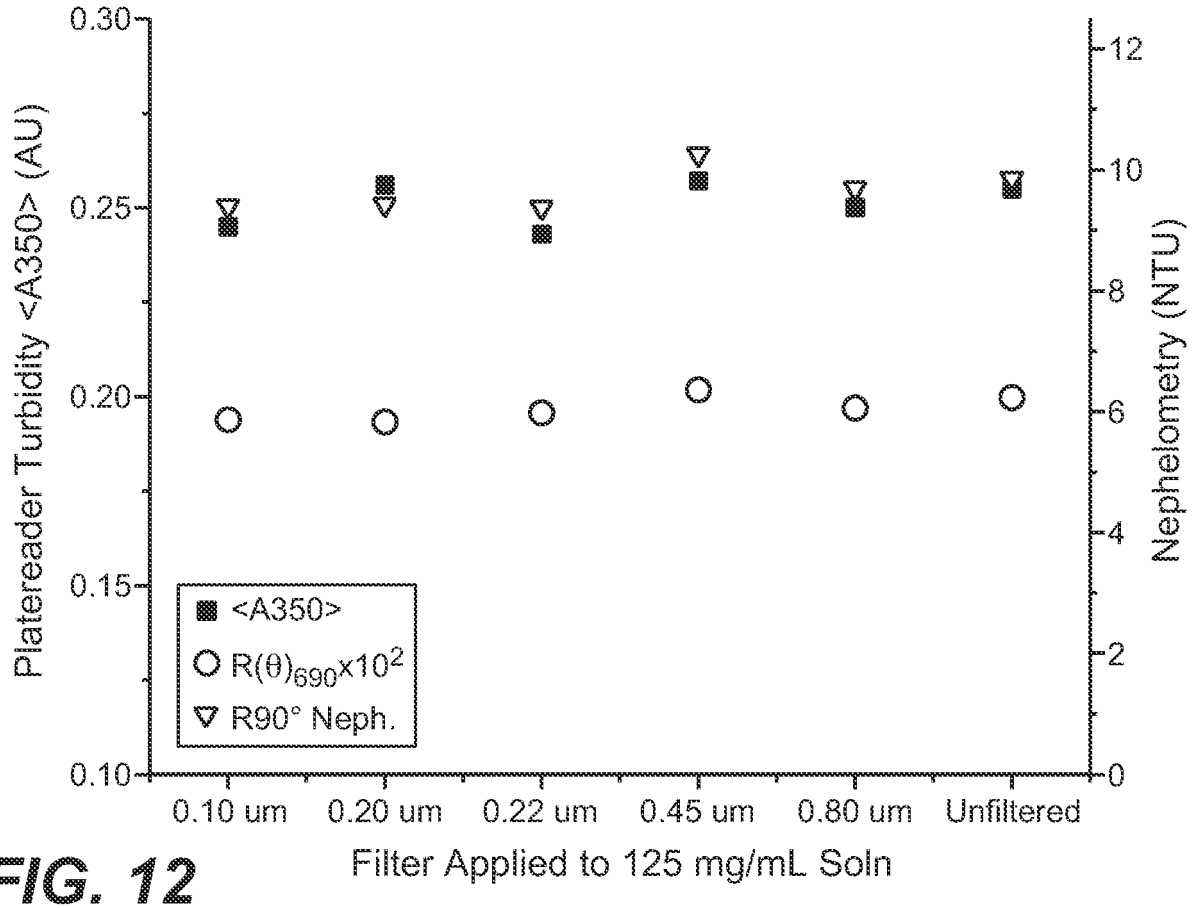

Platereader Turbidity <A350> (AU)
Nephelometry (NTU)
0.30
0.25
0.20
0.15
0.10
12
10
8
6
4
2
0
<A350>
R(θ)690x10^2
R90° Neph.
0.10 um
0.20 um
0.22 um
0.45 um
0.80 um
Unfiltered
Filter Applied to 125 mg/mL Soln

FIG. 12

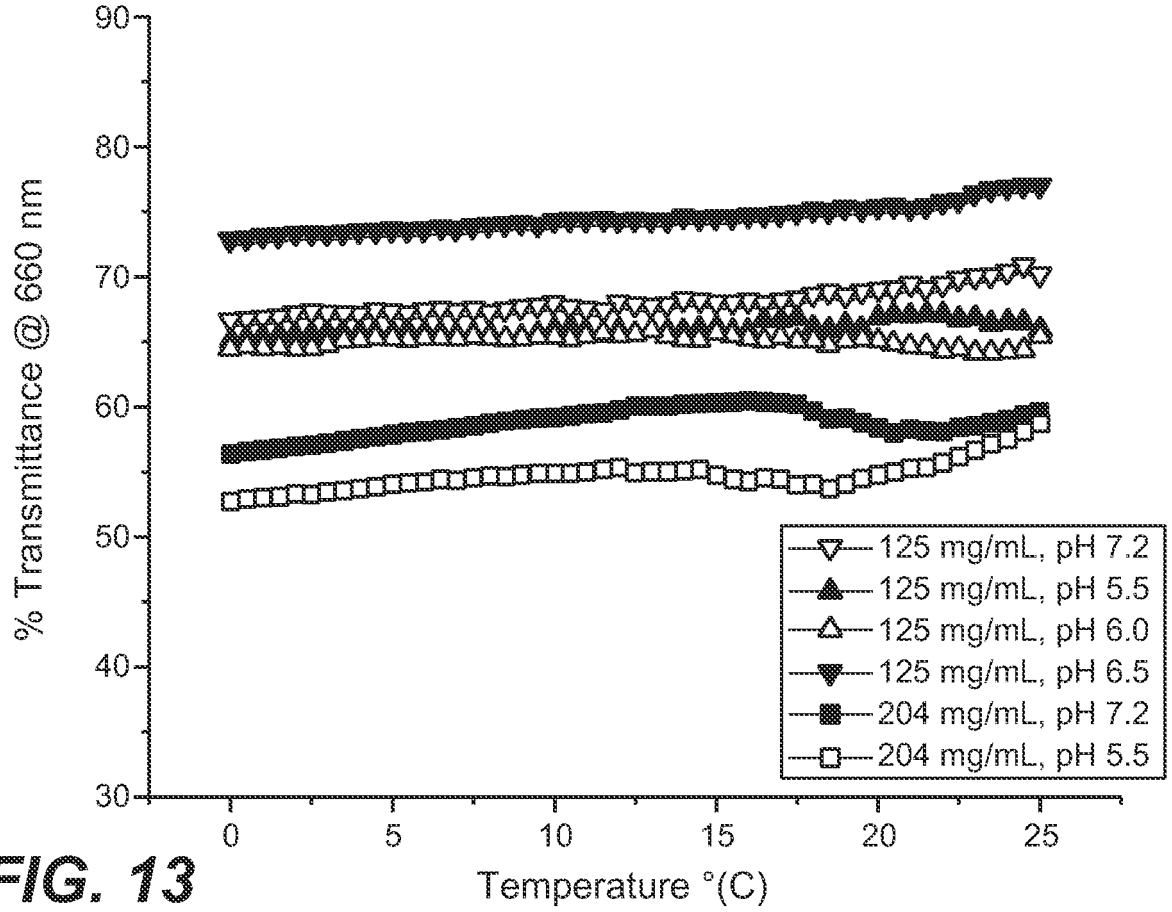

% Transmittance @ 660 nm
90
80
70
60
50
40
30
0
5
10
15
20
25
Temperature °(C)
125 mg/mL, pH 7.2
125 mg/mL, pH 5.5
125 mg/mL, pH 6.0
125 mg/mL, pH 6.5
204 mg/mL, pH 7.2
204 mg/mL, pH 5.5

FIG. 13

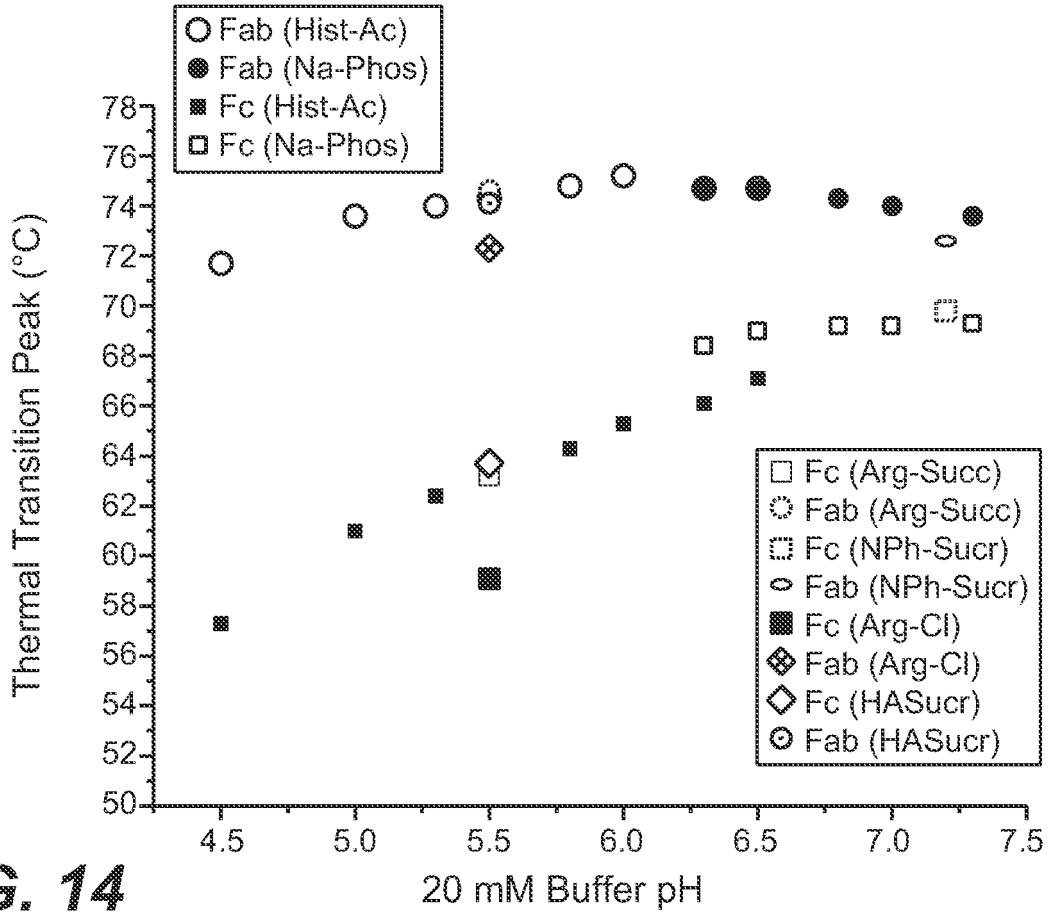

Fab (Hist-Ac)
Fab (Na-Phos)
Fc (Hist-Ac)
Fc (Na-Phos)
Fc (Arg-Succ)
Fab (Arg-Succ)
Fc (NPh-Sucr)
Fab (NPh-Sucr)
Fc (Arg-Cl)
Fab (Arg-Cl)
Fc (HASucr)
Fab (HASucr)
Thermal Transition Peak (°C)
78
76
74
72
70
68
66
64
62
60
58
56
54
52
50
4.5
5.0
5.5
6.0
6.5
7.0
7.5
20 mM Buffer pH

FIG. 14

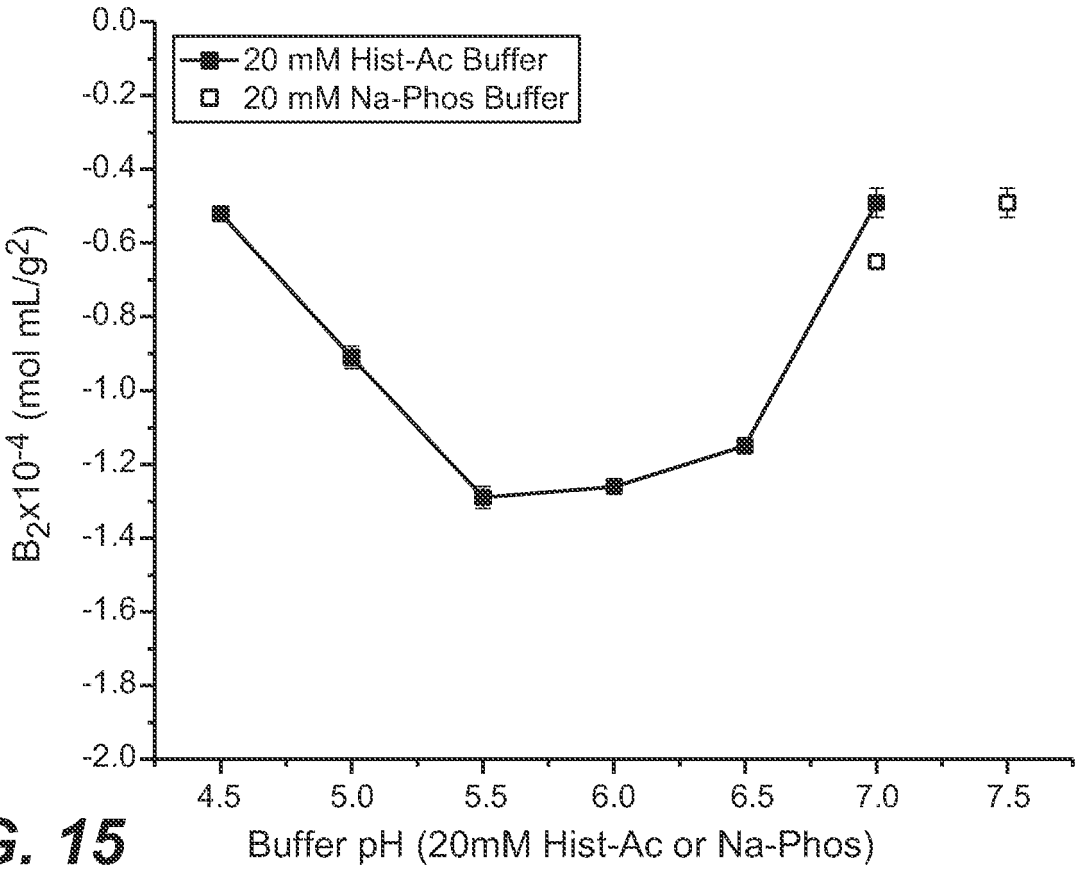

20 mM Hist-Ac Buffer
20 mM Na-Phos Buffer
$B_2 \times 10^{-4}$ (mol mL/g^2)
0.0
-0.2
-0.4
-0.6
-0.8
-1.0
-1.2
-1.4
-1.6
-1.8
-2.0
4.5
5.0
5.5
6.0
6.5
7.0
7.5
Buffer pH (20mM Hist-Ac or Na-Phos)

FIG. 15

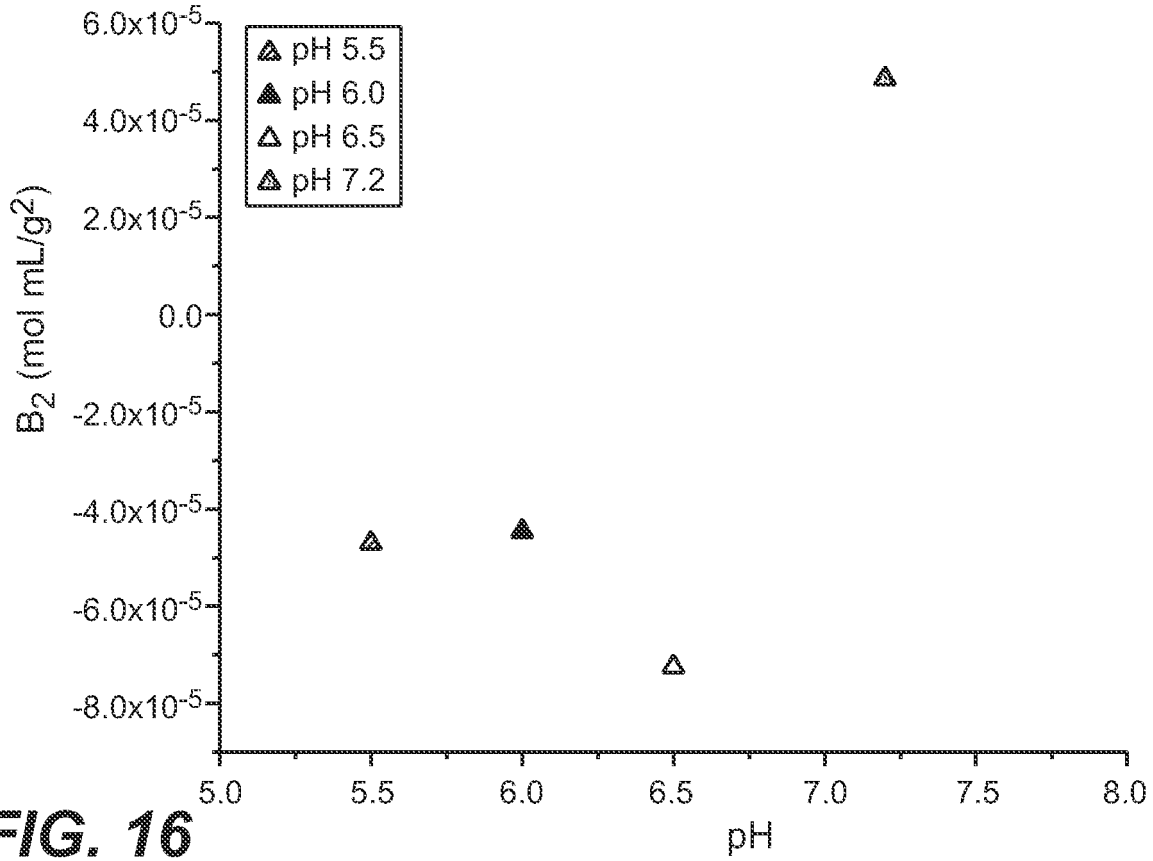

pH 5.5
pH 6.0
pH 6.5
pH 7.2
B_2 (mol mL/g^2)
6.0x10^{-5}
4.0x10^{-5}
2.0x10^{-5}
0.0
-2.0x10^{-5}
-4.0x10^{-5}
-6.0x10^{-5}
-8.0x10^{-5}
5.0
5.5
6.0
6.5
7.0
7.5
8.0
pH

FIG. 16

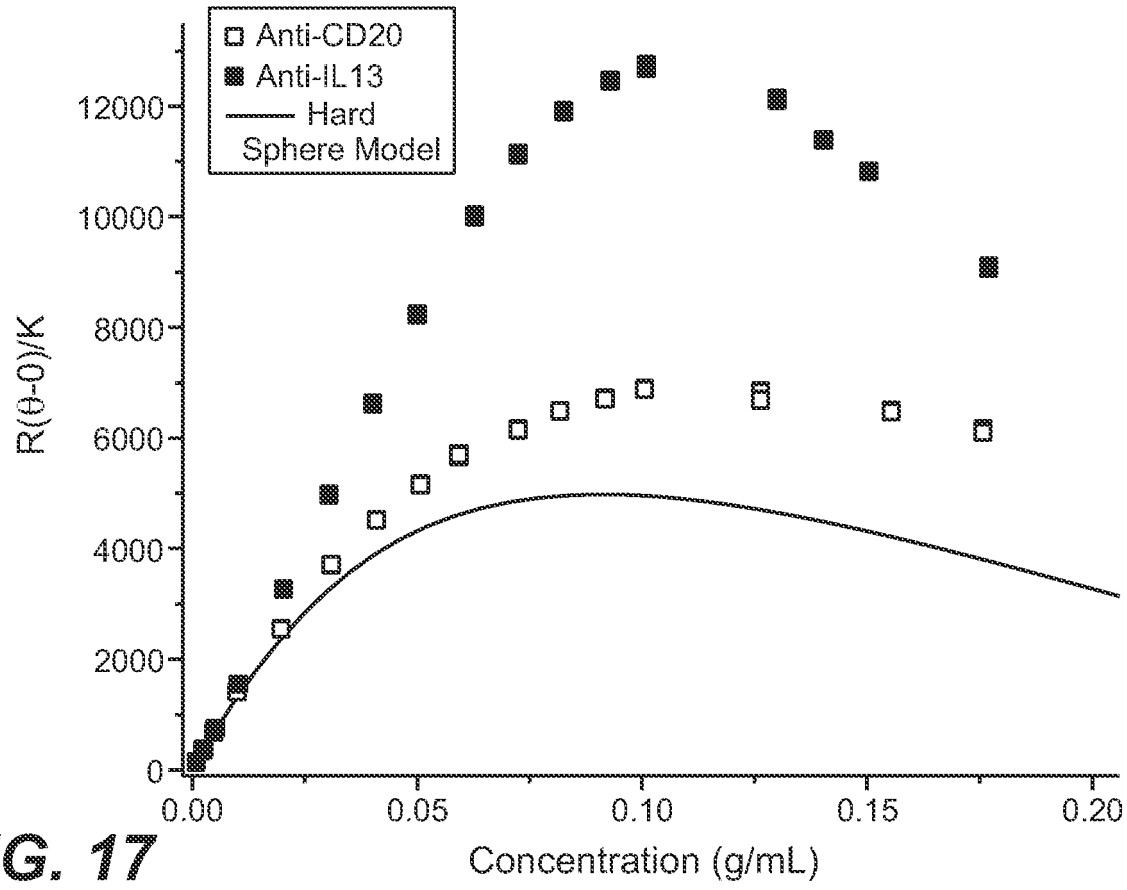

Anti-CD20
Anti-IL13
Hard Sphere Model
R(θ-0)/K
12000
10000
8000
6000
4000
2000
0
0.00
0.05
0.10
0.15
0.20
Concentration (g/mL)

FIG. 17

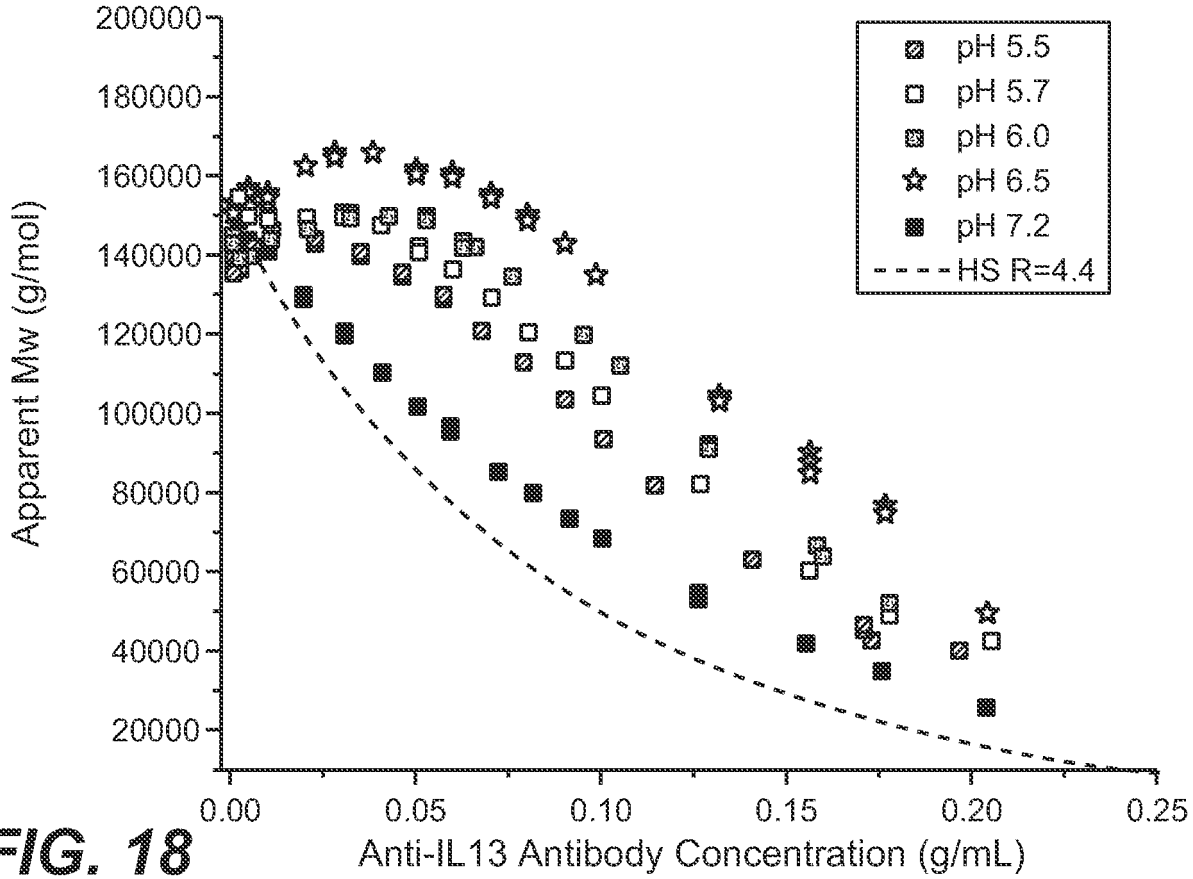

200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
Apparent Mw (g/mol)
0.00
0.05
0.10
0.15
0.20
0.25
Anti-IL13 Antibody Concentration (g/mL)
pH 5.5
pH 5.7
pH 6.0
pH 6.5
pH 7.2
HS R=4.4

FIG. 18

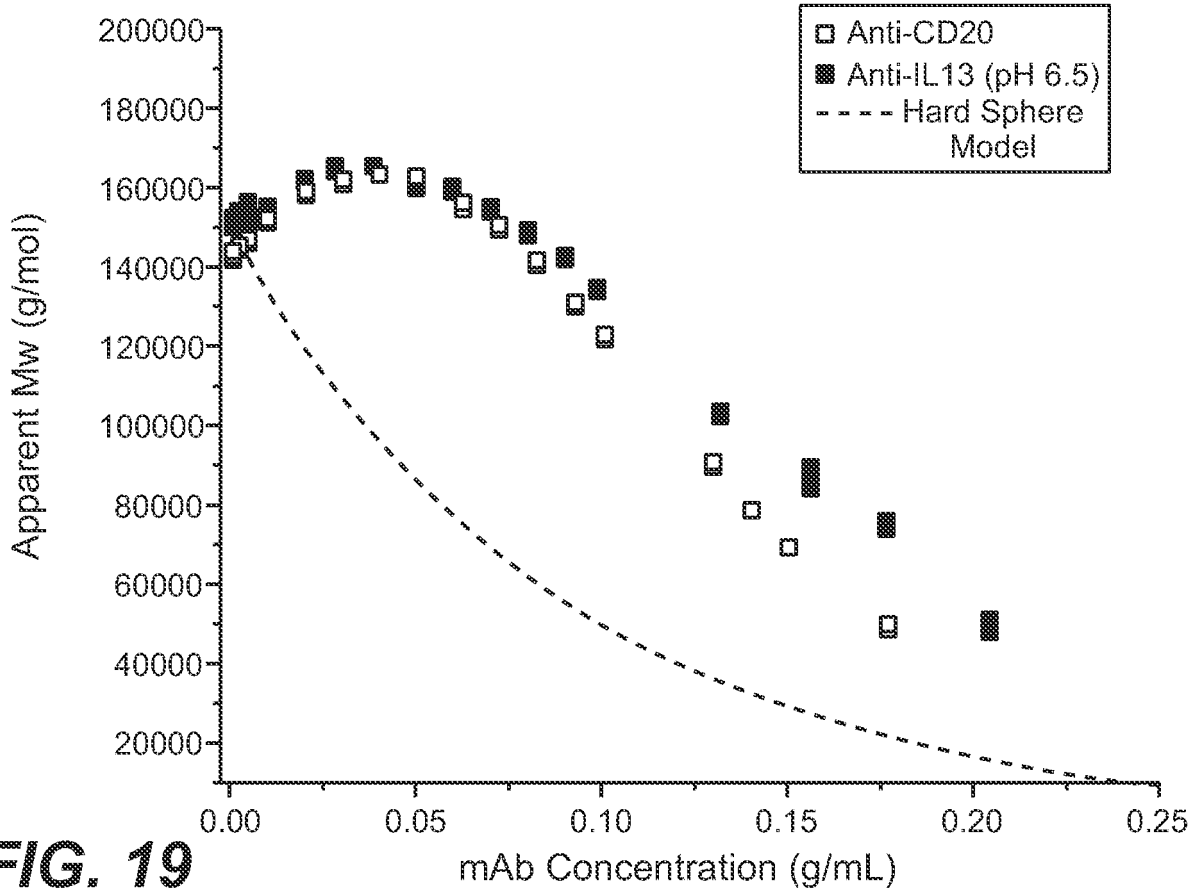

200000
180000
160000
140000
120000
100000
80000
60000
40000
20000
Apparent Mw (g/mol)
0.00
0.05
0.10
0.15
0.20
0.25
mAb Concentration (g/mL)
Anti-CD20
Anti-IL13 (pH 6.5)
Hard Sphere Model

FIG. 19

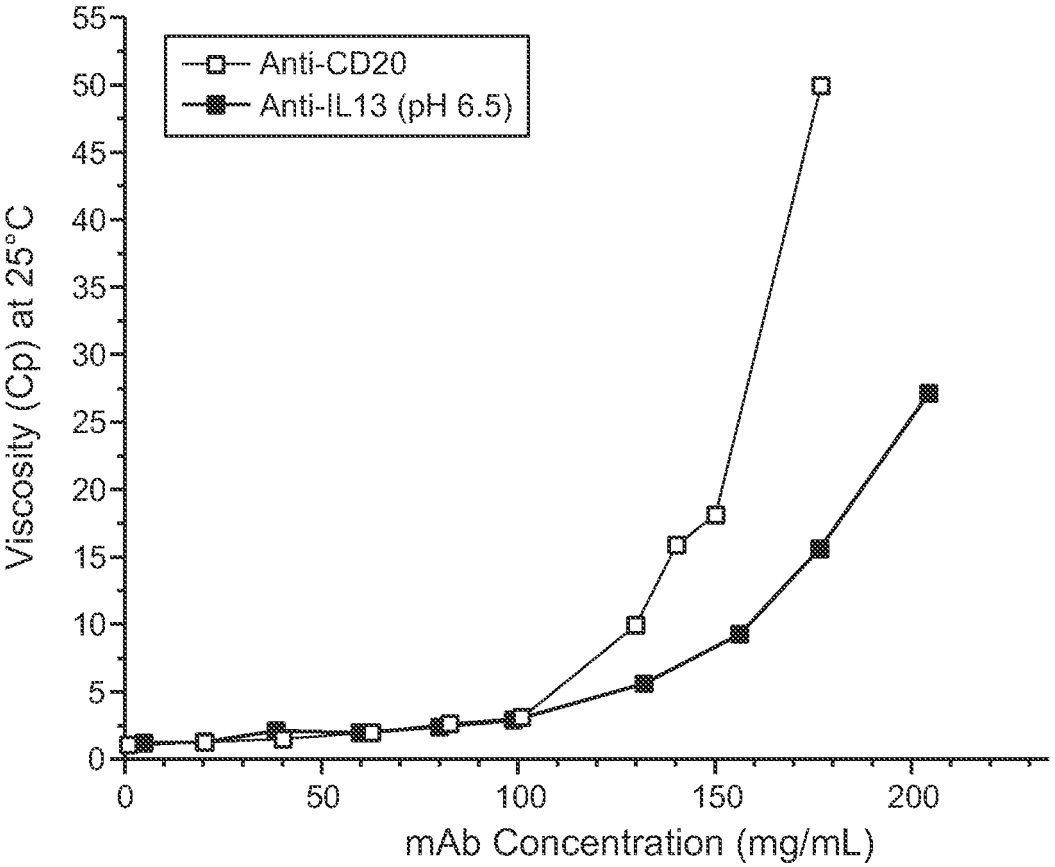

Anti-CD20
Anti-IL13 (pH 6.5)
Viscosity (Cp) at 25°C
mAb Concentration (mg/mL)
0
5
10
15
20
25
30
35
40
45
50
55
0
50
100
150
200

FIG. 20