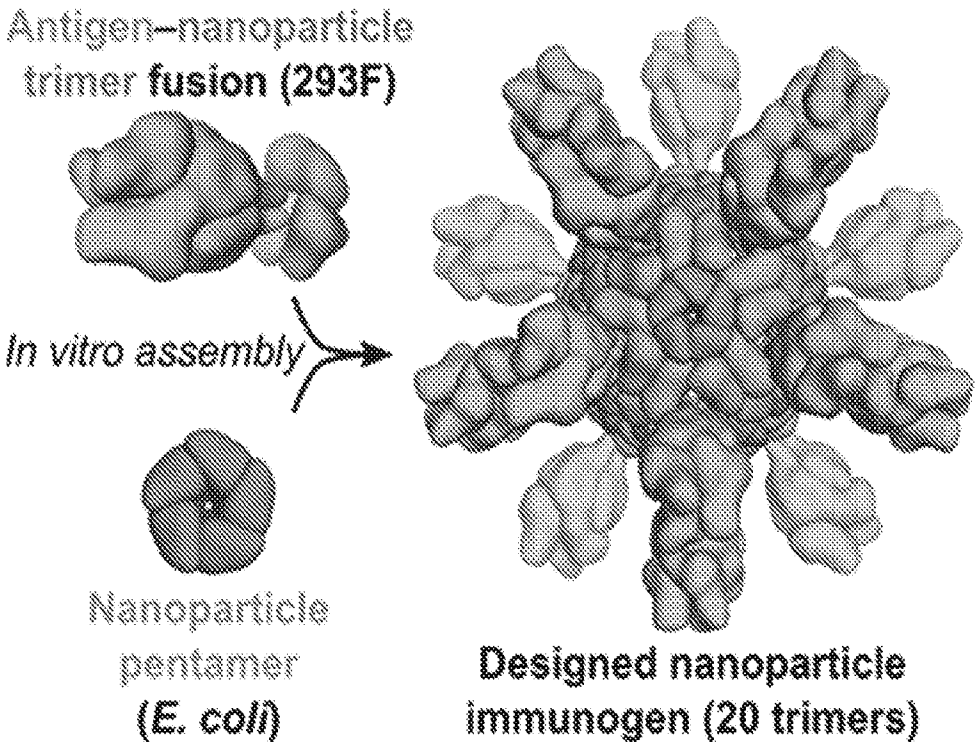

Antigen–nanoparticle
trimer fusion (293F)
In vitro assembly
Nanoparticle
pentamer
(E. coli)
Designed nanoparticle
immunogen (20 trimers)

FIG. 1

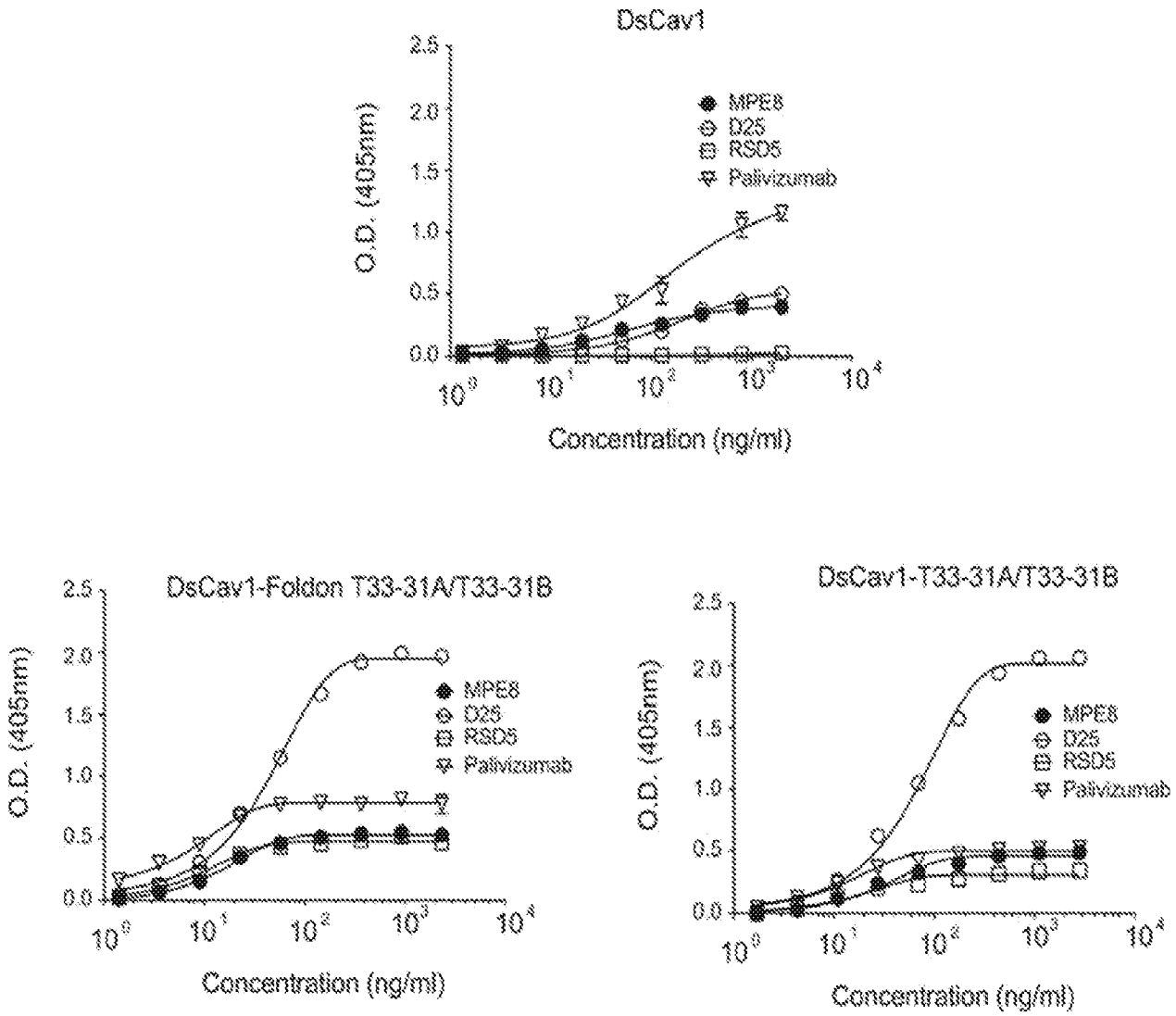

DsCav1
O.D. (405nm)
Concentration (ng/ml)
MPE8
D25
RSD5
Palivizumab
DsCav1-Foldon T33-31A/T33-31B
DsCav1-T33-31A/T33-31B

FIG. 2

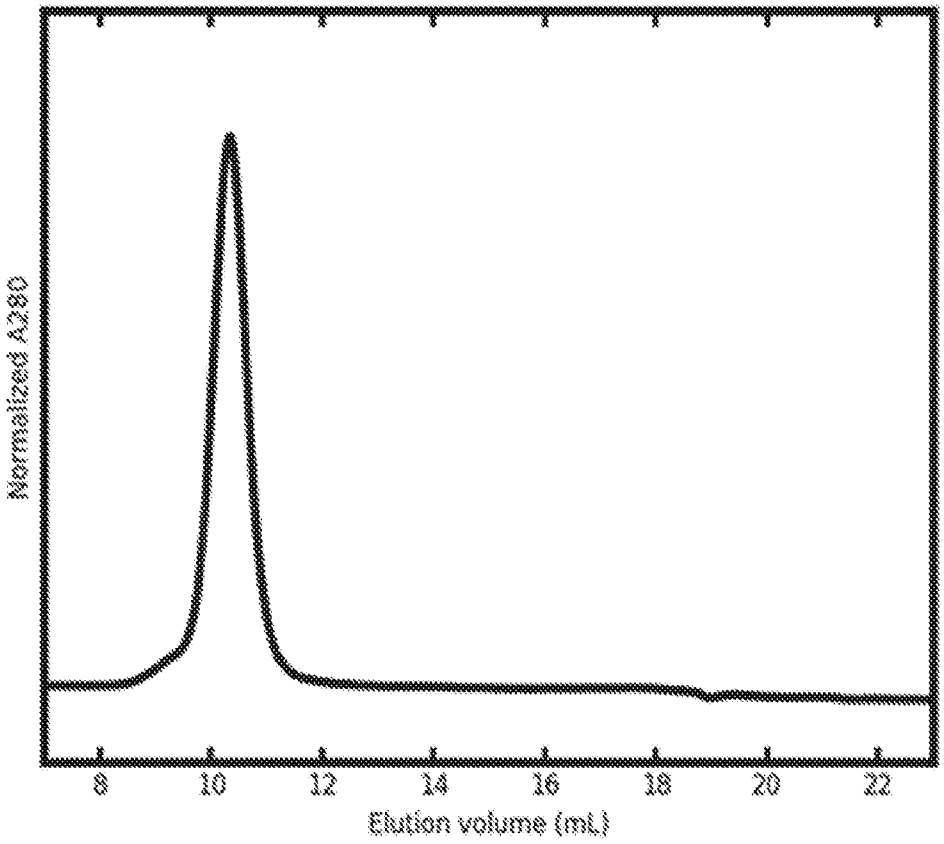


FIG. 3

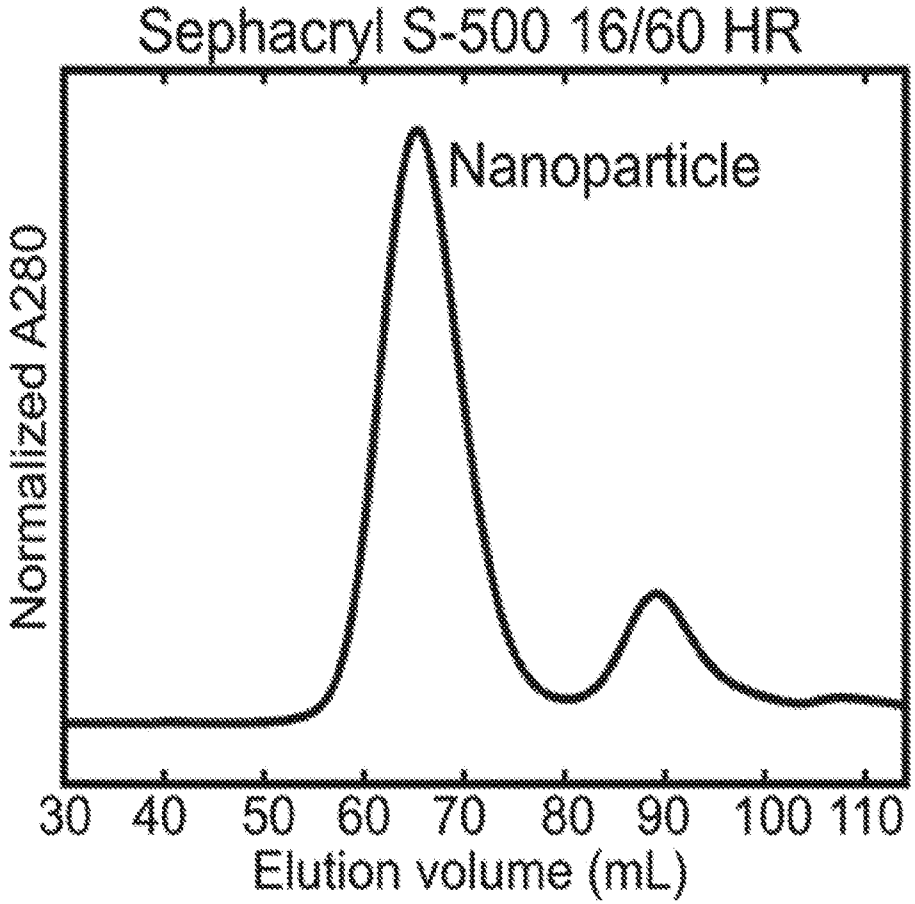

Sephacryl S-500 16/60 HR
Nanoparticle
Normalized A280
30 40 50 60 70 80 90 100 110
Elution volume (mL)

FIG. 4

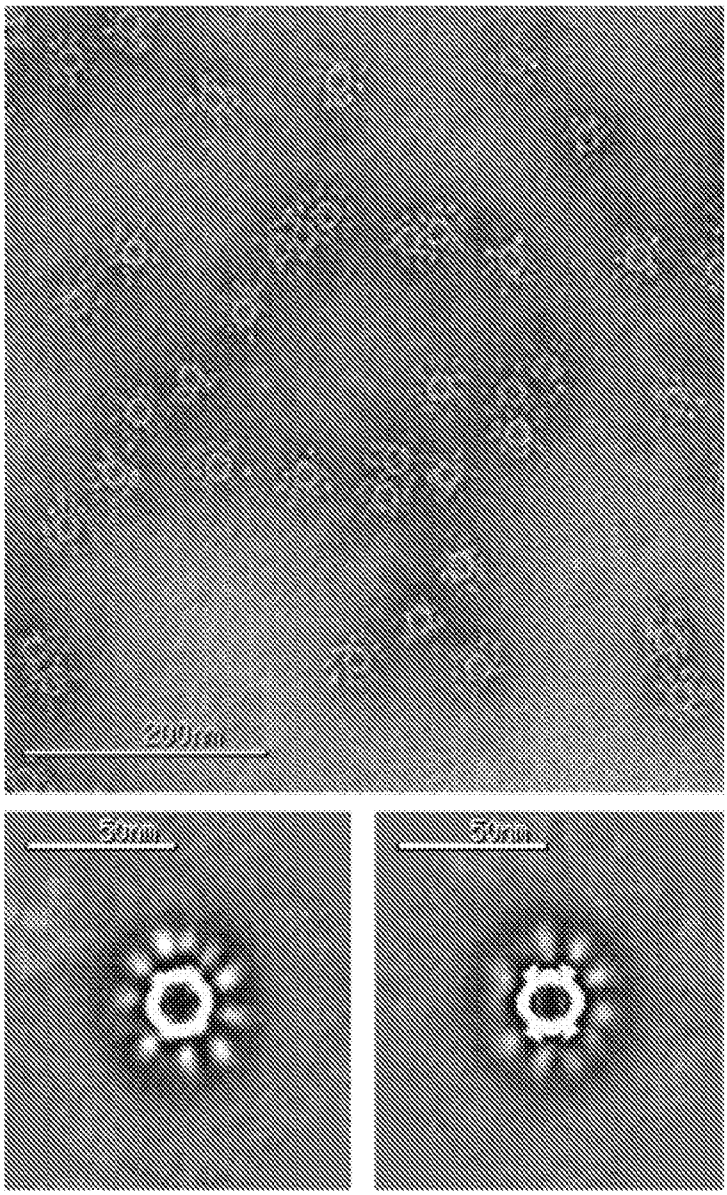


FIG. 5

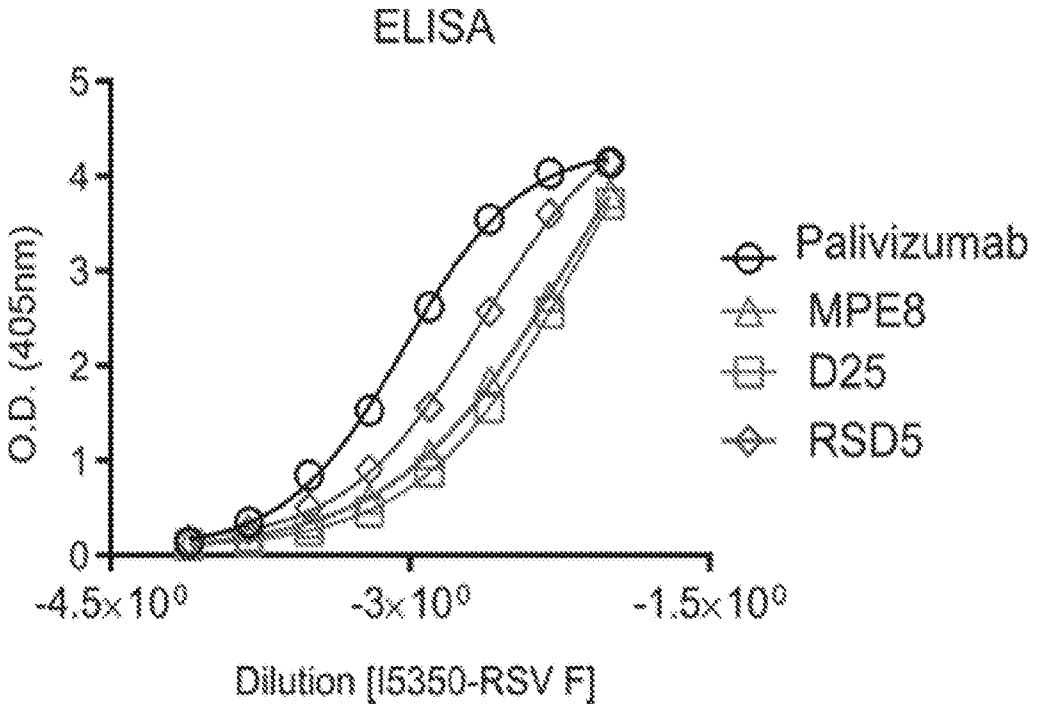

ELISA
O.D. (405nm)
5
4
3
2
1
0
-4.5x10⁰
-3x10⁰
-1.5x10⁰
Dilution [I5350-RSV F]
Palivizumab
MPE8
D25
RSD5

FIG. 6a

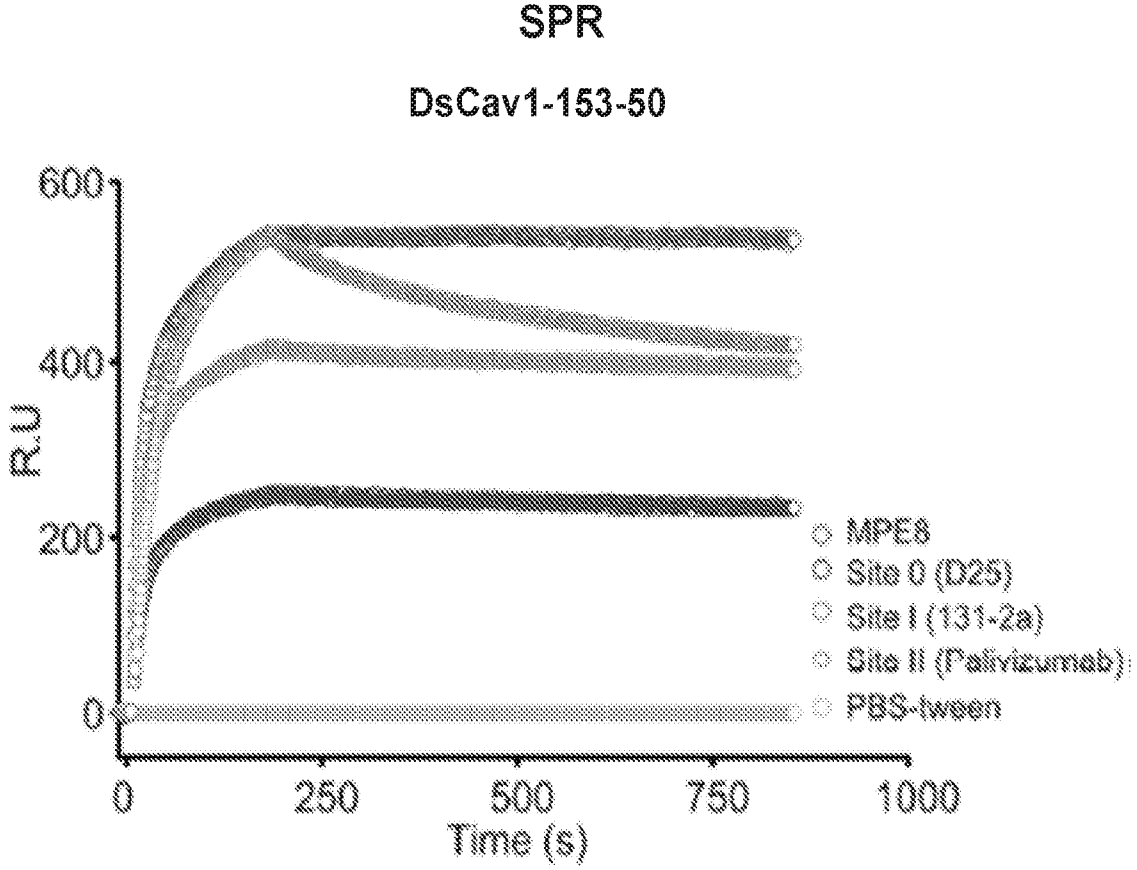

SPR
DsCav1-153-50
600
400
200
0
RU
0
250
500
750
1000
Time (s)
MPE8
Site 0 (D25)
Site I (131-2a)
Site II (Palivizumab)
PBS-tween

FIG. 6b

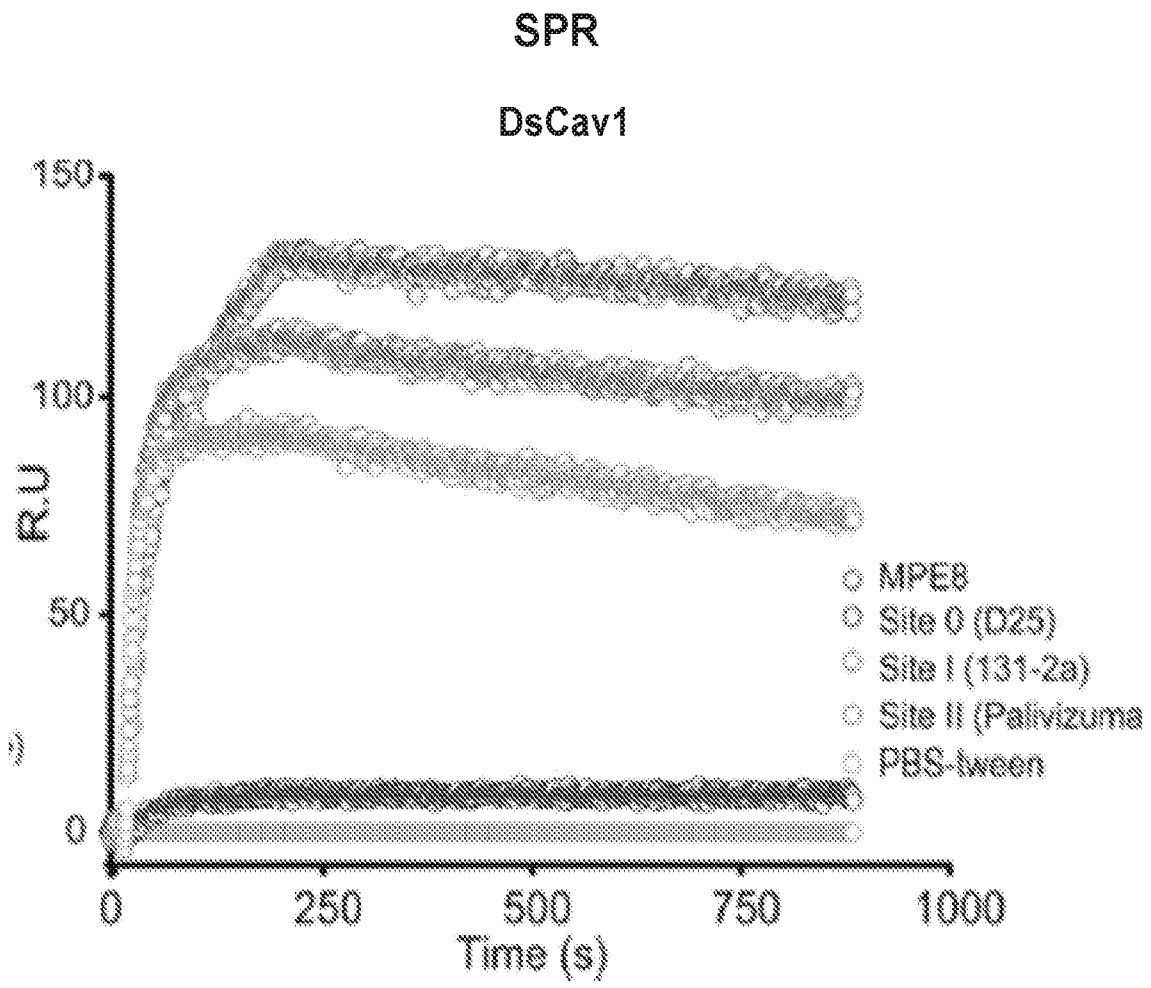

SPR
DsCav1
150
100
50
0
R.U
0
250
500
750
1000
Time (s)
MPE8
Site 0 (D25)
Site I (131-2a)
Site II (Palivizuma
PBS-tween

FIG. 6c

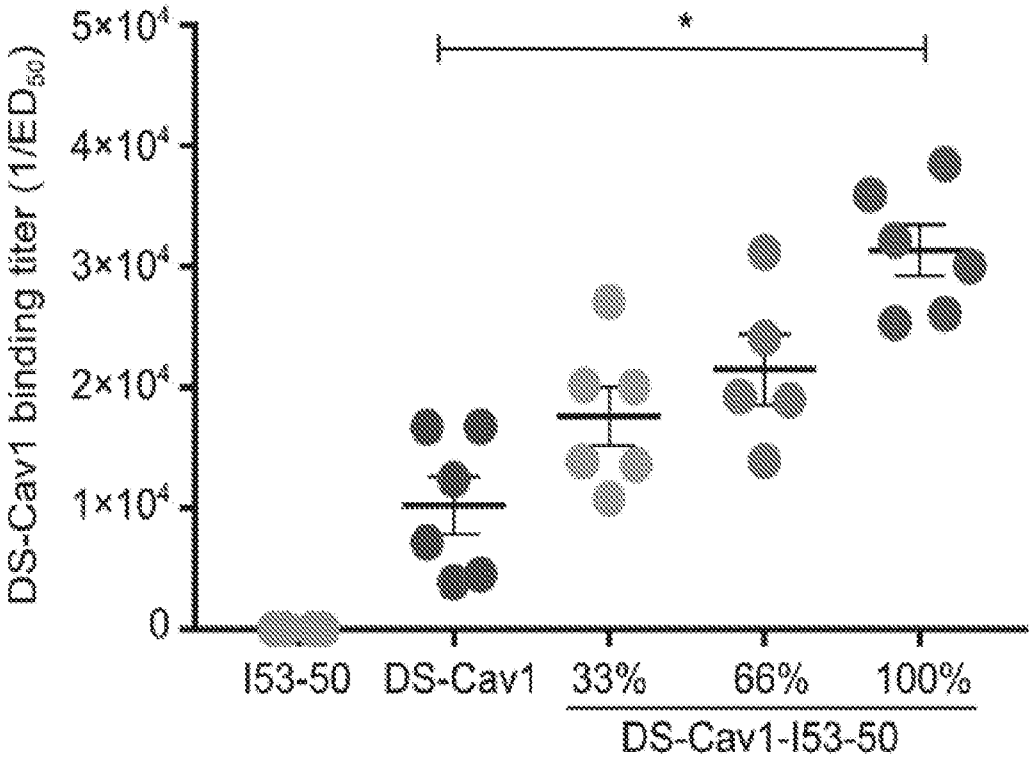

DS-Cav1 binding titer (1/ED50)
5×10⁴
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
*
I53-50
DS-Cav1
33%
66%
100%
DS-Cav1-I53-50

FIG. 7

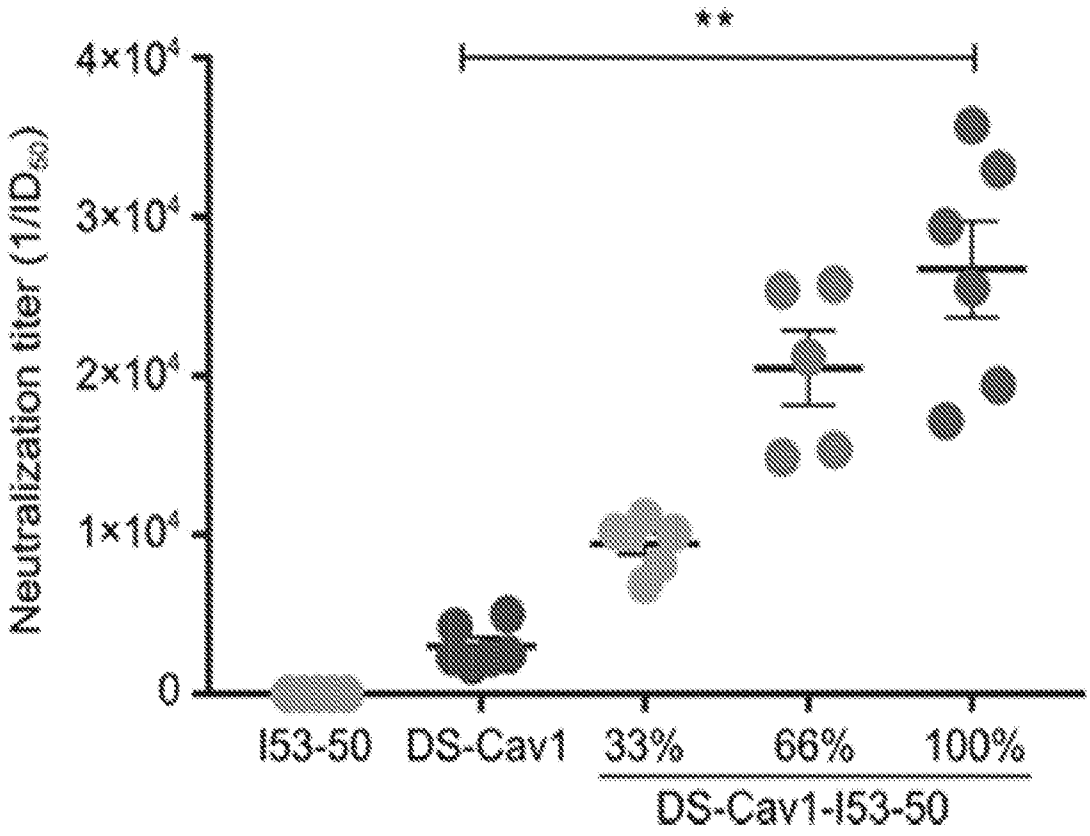

**
4×10⁴
3×10⁴
2×10⁴
1×10⁴
0
Neutralization titer (1/ID50)
I53-50
DS-Cav1
33%
66%
100%
DS-Cav1-I53-50

FIG. 8

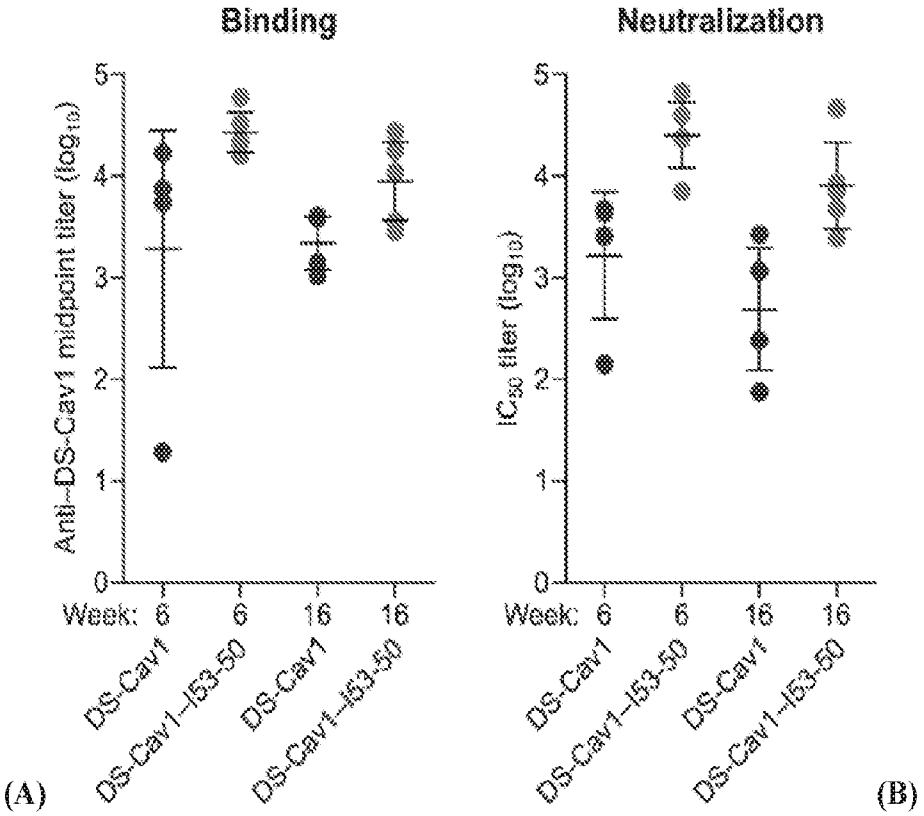

Binding
Neutralization
Anti–DS-Cav1 midpoint titer (log_{10})
IC_{50} titer (log_{10})
0
1
2
3
4
5
Week: 6 6 16 16
DS-Cav1
DS-Cav1–I53-50
DS-Cav1
DS-Cav1–I53-50
(A)
(B)

FIG. 9

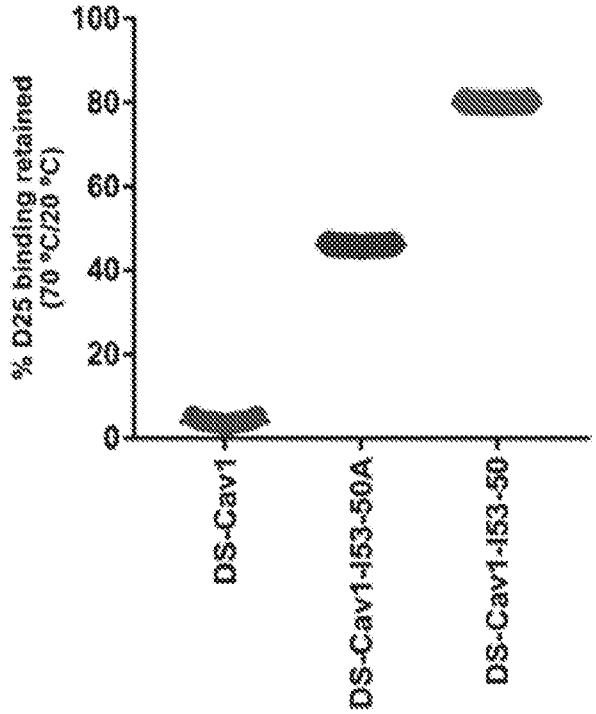

% D25 binding retained (7 d °C/28 °C)
0
20
40
60
80
100
DS-Cav1
DS-Cav1-I53-50A
DS-Cav1-I53-50

FIG. 10

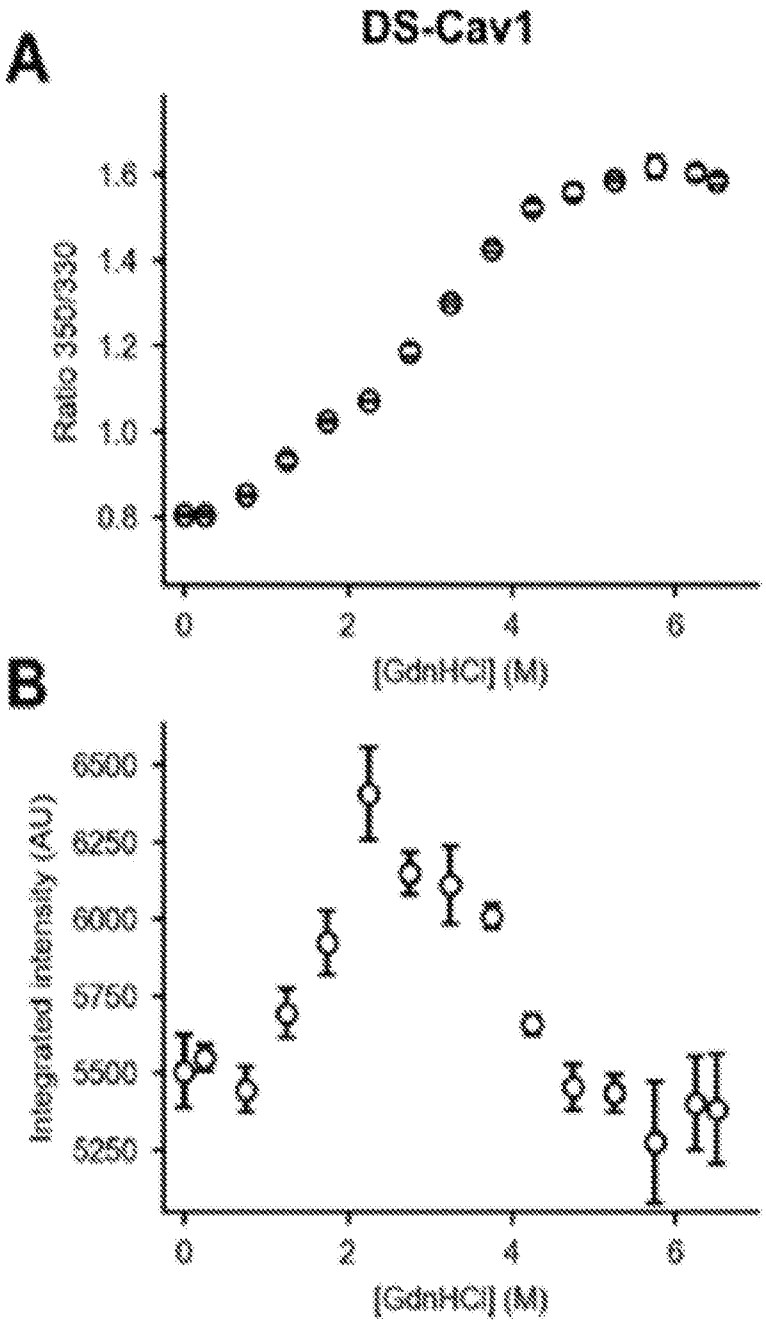

A
DS-Cav1
Ratio 350/330
1.6
1.4
1.2
1.0
0.8
0
2
4
6
[GdnHCl] (M)
B
Integrated intensity (AU)
6500
6250
6000
5750
5500
5250
0
2
4
6
[GdnHCl] (M)

FIG. 11a – 11b

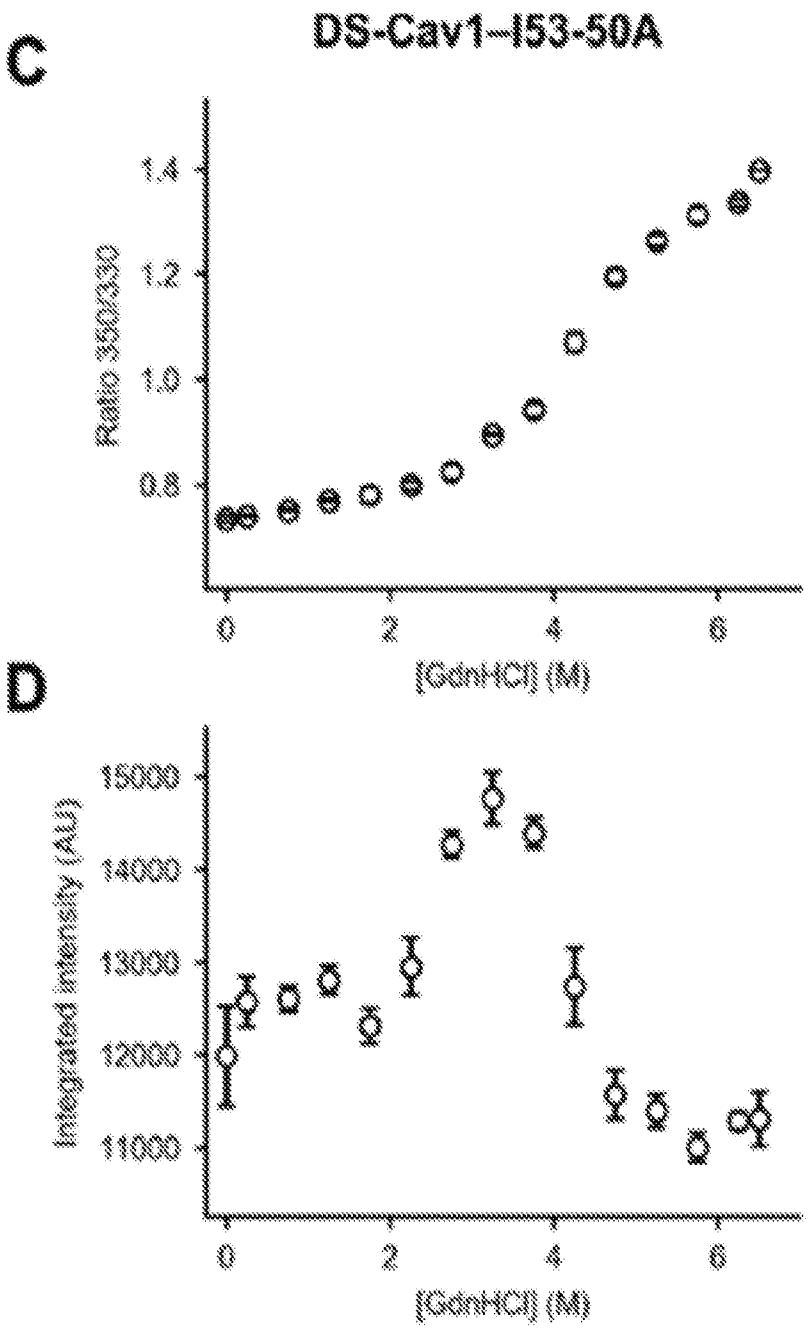

C
DS-Cav1–I53-50A
Ratio 350/330
1.4
1.2
1.0
0.8
0
2
4
6
[GdnHCl] (M)
D
Integrated intensity (AU)
15000
14000
13000
12000
11000
0
2
4
6
[GdnHCl] (M)

FIG. 11c – 11d

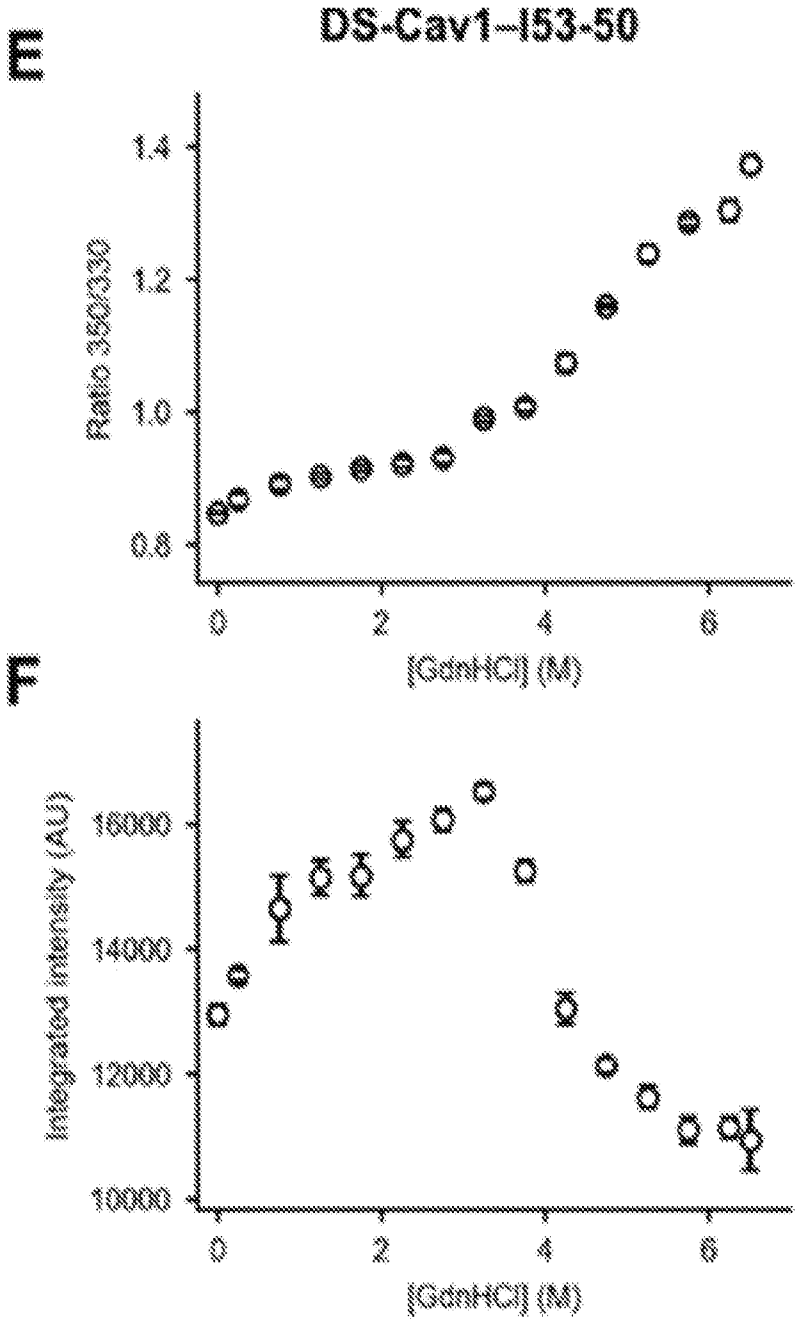

E
DS-Cav1–I53-50
Ratio 350/330
1.4
1.2
1.0
0.8
0
2
4
6
[GdnHCl] (M)
F
Integrated Intensity (AU)
16000
14000
12000
10000
0
2
4
6
[GdnHCl] (M)

FIG. 11e -11f

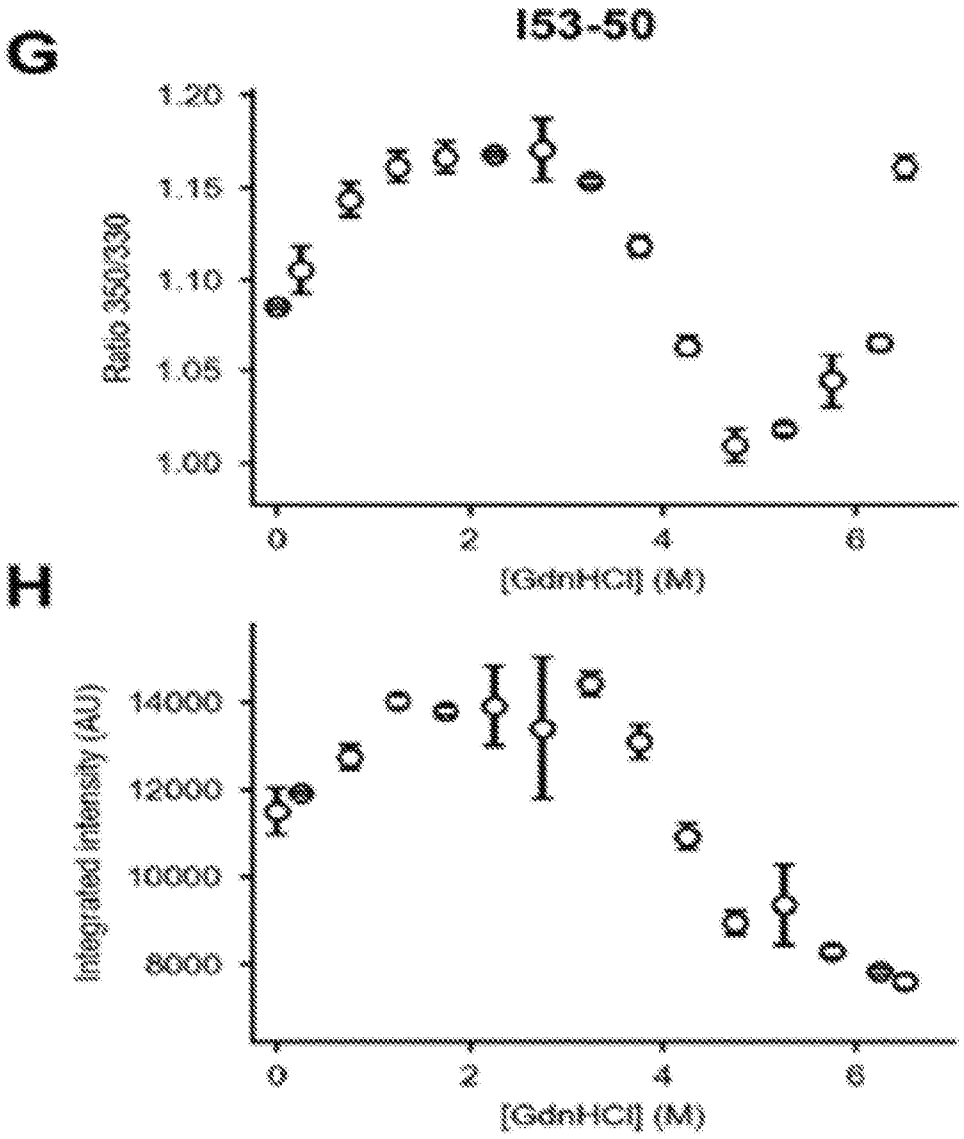

G
I53-50
Ratio 350/330
1.20
1.15
1.10
1.05
1.00
0
2
4
6
[GdnHCl] (M)
H
Integrated intensity (AU)
14000
12000
10000
8000
0
2
4
6
[GdnHCl] (M)

FIG. 11g – 11h

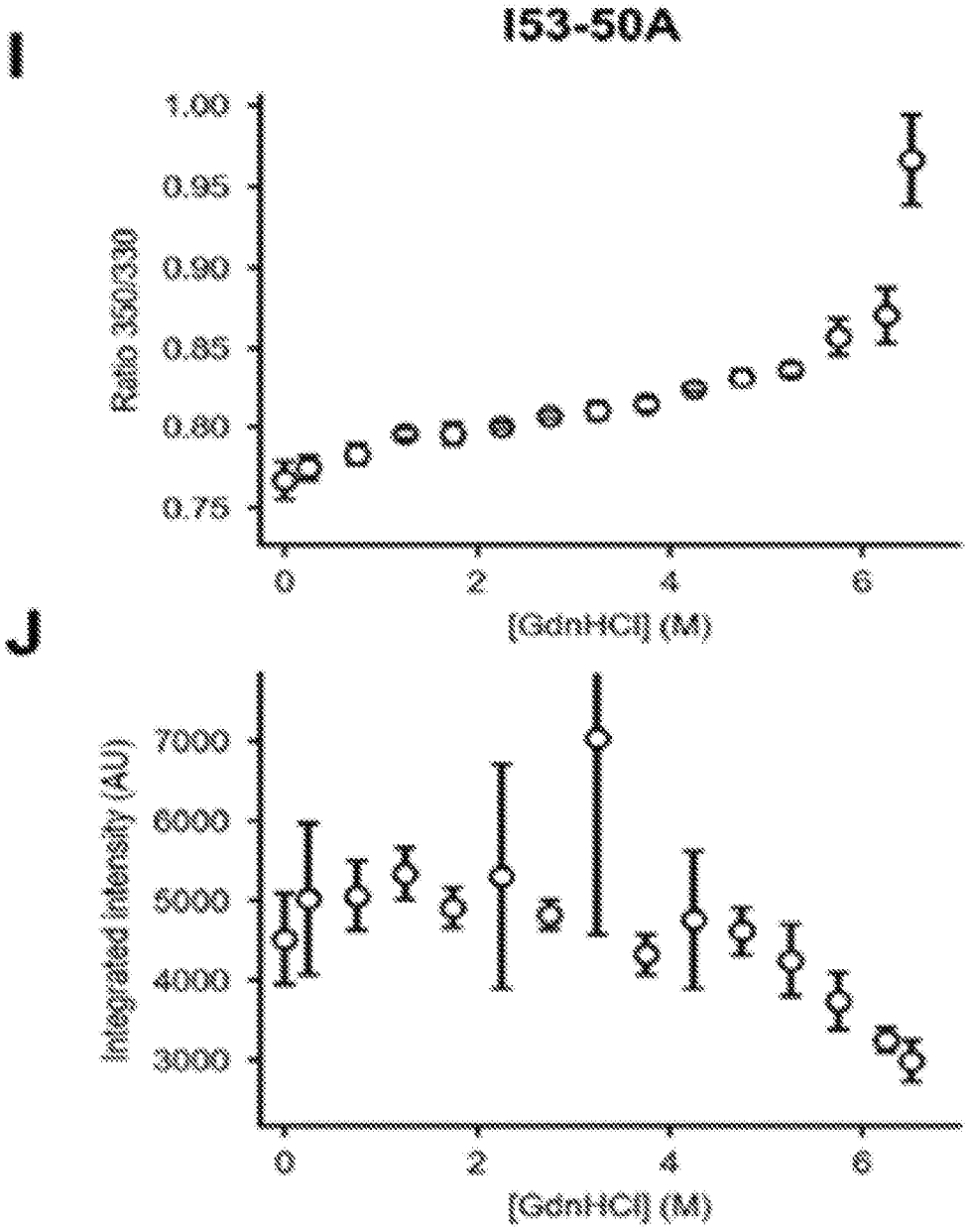

I
I53-50A
1.00
0.95
0.90
0.85
0.80
0.75
Ratio 350/330
0
2
4
6
[GdnHCl] (M)
J
7000
6000
5000
4000
3000
Integrated Intensity (AU)
0
2
4
6
[GdnHCl] (M)

FIG. 11i -11j