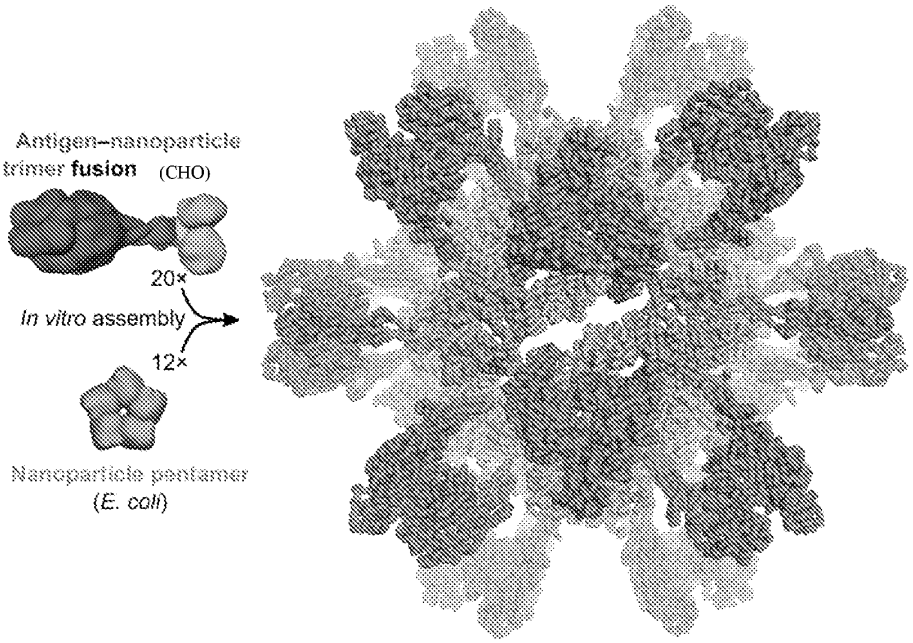

Antigen–nanoparticle
trimer fusion (CHO)
20×
In vitro assembly
12×
Nanoparticle pentamer
(E. coli)

FIG. 1A

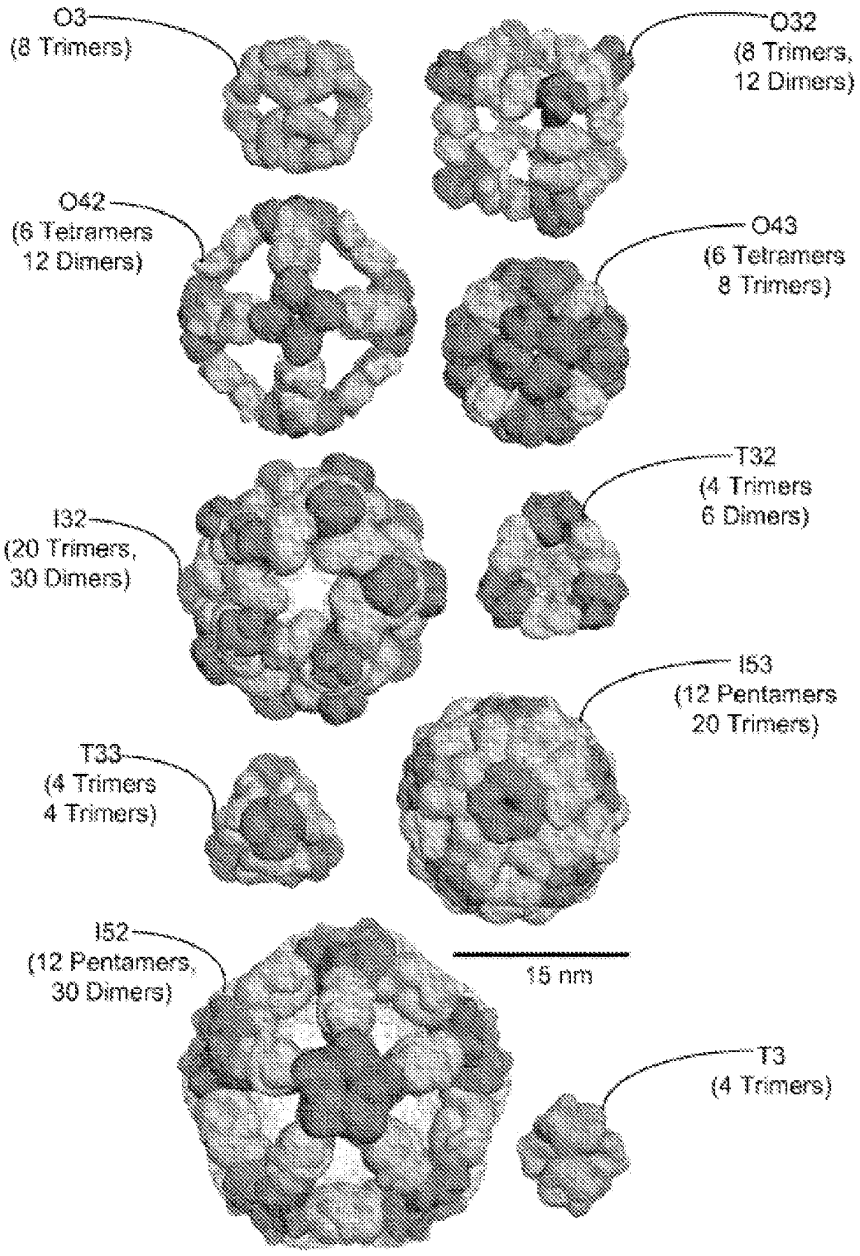

O3
(8 Trimers)
O32
(8 Trimers,
12 Dimers)
O42
(6 Tetramers
12 Dimers)
O43
(6 Tetramers
8 Trimers)
T32
(4 Trimers
6 Dimers)
I32
(20 Trimers,
30 Dimers)
I53
(12 Pentamers
20 Trimers)
T33
(4 Trimers
4 Trimers)
I52
(12 Pentamers,
30 Dimers)
15 nm
T3
(4 Trimers)

FIG. 1B

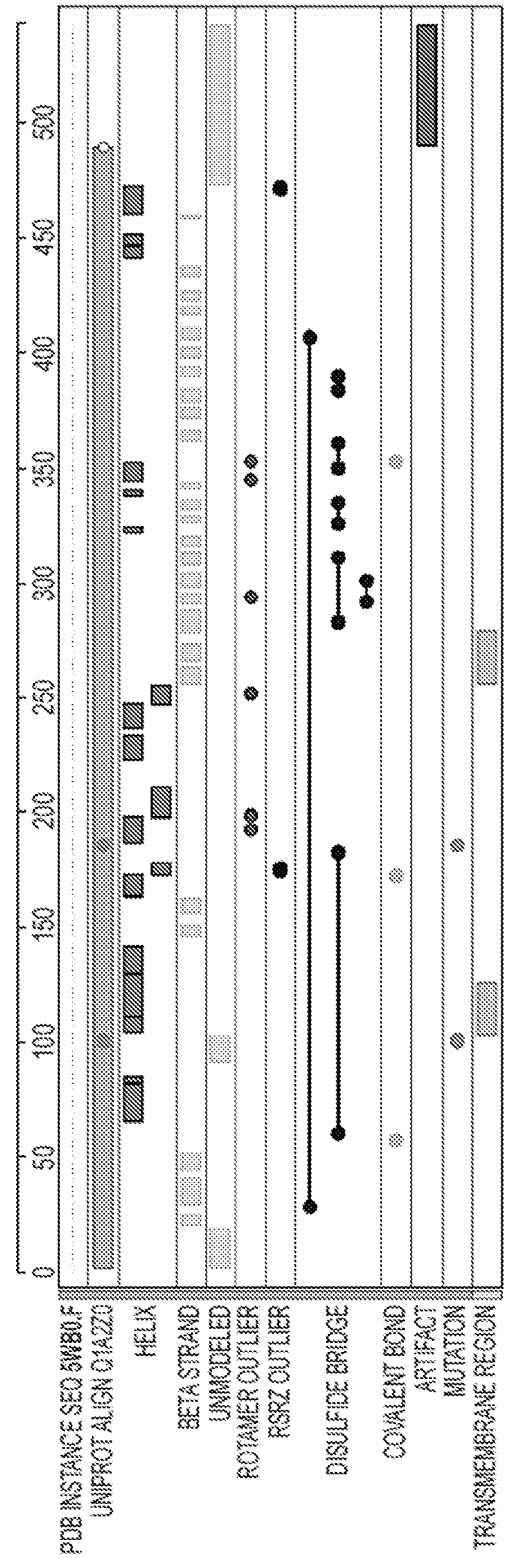

0
50
100
150
200
250
300
350
400
450
500
PDB INSTANCE SEQ 6WB0.F
UNIPROT ALIGN Q1A220
HELIX
BETA STRAND
UNMODELED
ROTAMER OUTLIER
RSRZ OUTLIER
DISULFIDE BRIDGE
COVALENT BOND
ARTIFACT
MUTATION
TRANSMEMBRANE REGION

FIG. 2

FIG. 3A

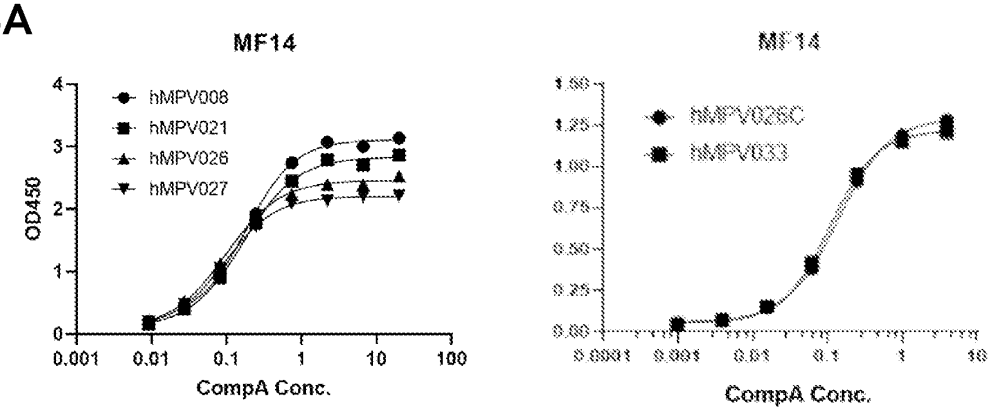


FIG. 3B

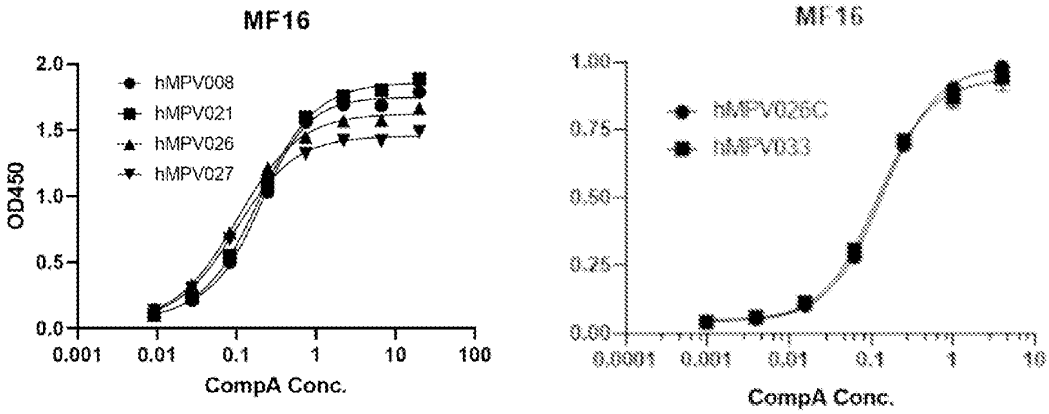
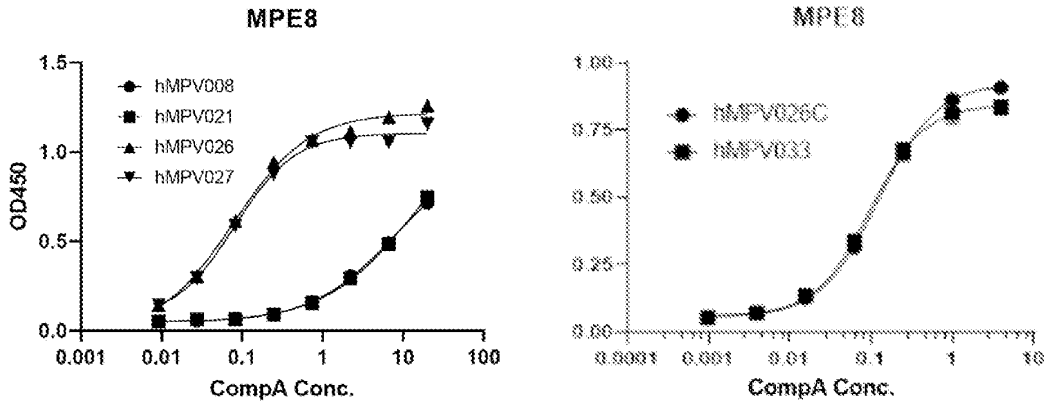


FIG. 3C



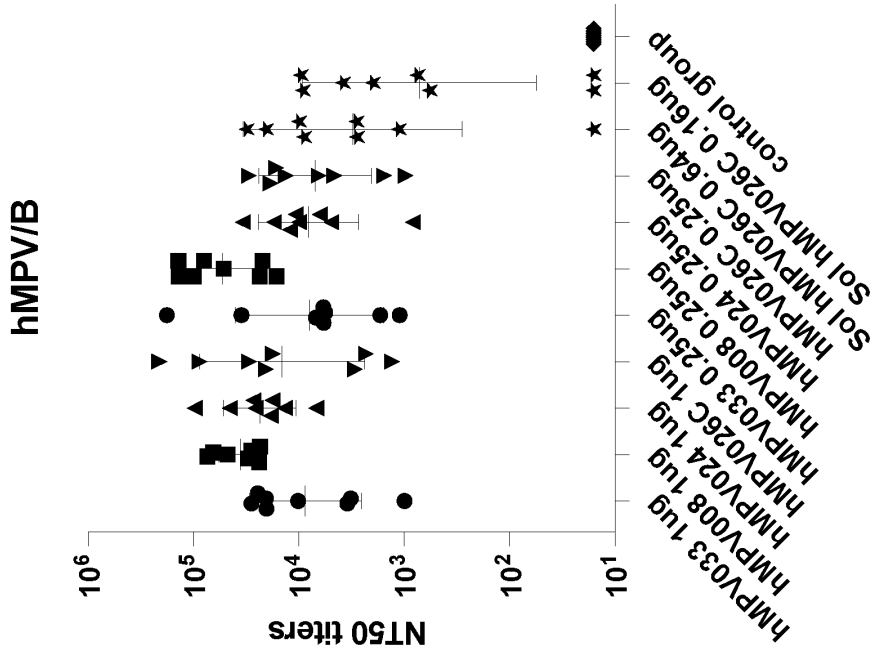

hMPV/B
NT50 titers
10^6
10^5
10^4
10^3
10^2
10^1
hMPV033 1ug
hMPV008 1ug
hMPV024 1ug
hMPV026C 1ug
hMPV033 0.25ug
hMPV008 0.25ug
hMPV024 0.25ug
hMPV026C 0.25ug
Sol hMPV026C 0.64ug
Sol hMPV026C 0.16ug
control group

FIG. 4B

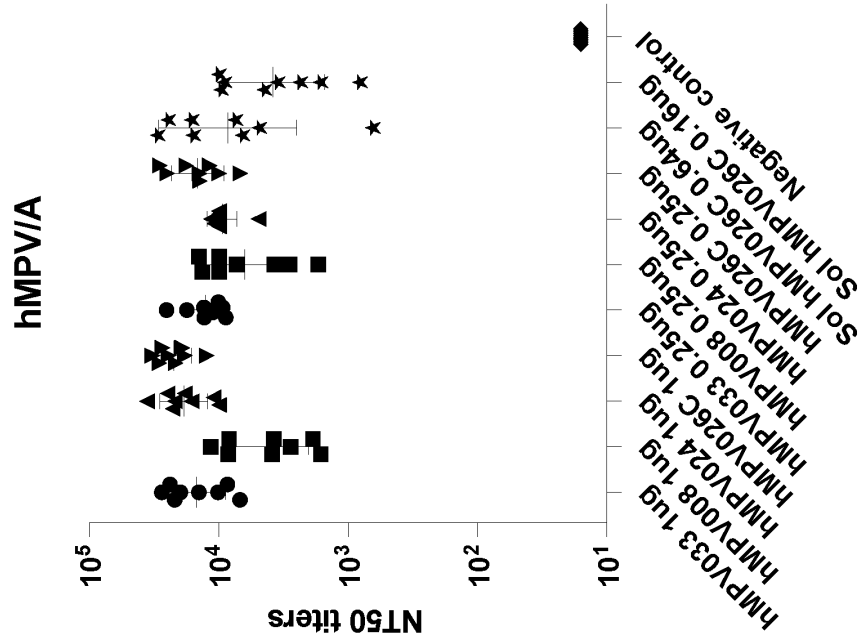

hMPV/A
NT50 titers
10^5
10^4
10^3
10^2
10^1
hMPV033 1ug
hMPV008 1ug
hMPV024 1ug
hMPV026C 1ug
hMPV033 0.25ug
hMPV008 0.25ug
hMPV024 0.25ug
hMPV026C 0.25ug
Sol hMPV026C 0.64ug
Negative control

FIG. 4A

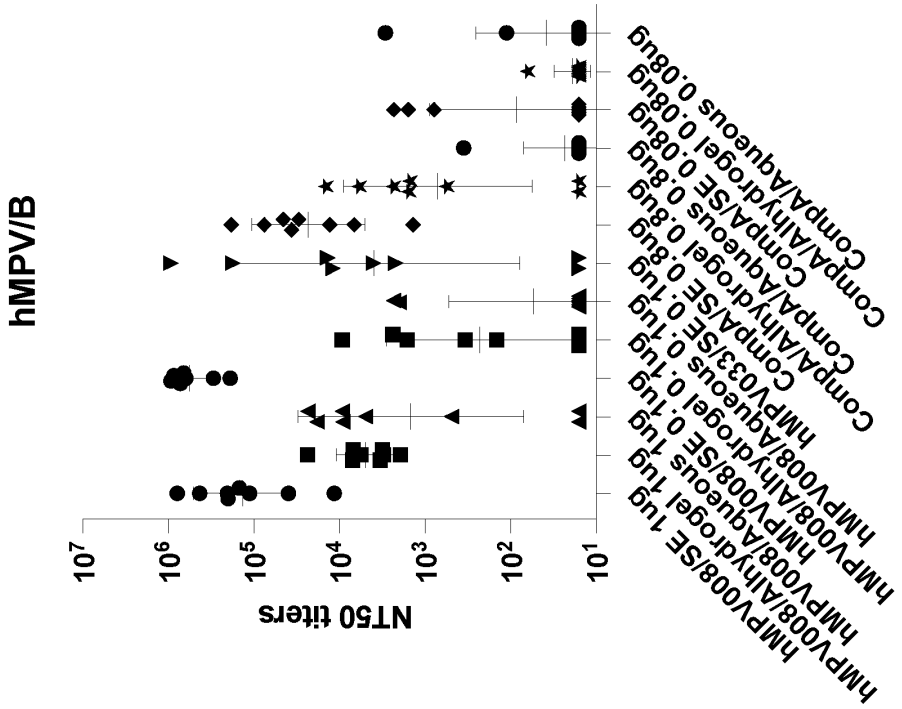

hMPV/B
NT50 titers
10^7
10^6
10^5
10^4
10^3
10^2
10^1
hMPV008/SE 1ug
hMPV008/Alhydrogel 1ug
hMPV008/Aqueous 1ug
hMPV008/Alhydrogel 0.1ug
hMPV033/SE 0.1ug
CompA/Alhydrogel 0.8ug
CompA/SE 0.8ug
hMPV008/Aqueous 0.1ug
hMPV008/Alhydrogel 0.8ug
hMPV008/SE 0.8ug
CompA/Aqueous 0.8ug
CompA/Alhydrogel 0.08ug
CompA/SE 0.08ug
CompA/Aqueous 0.08ug

FIG. 5B

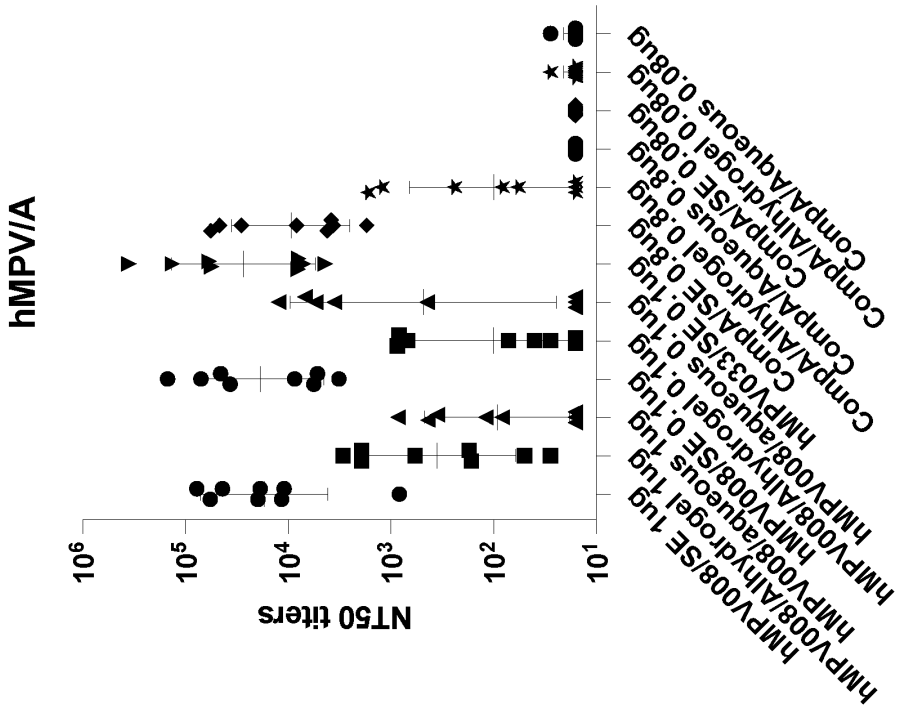

hMPV/A
NT50 titers
10^6
10^5
10^4
10^3
10^2
10^1
hMPV008/SE 1ug
hMPV008/Alhydrogel 1ug
hMPV008/aqueous 1ug
hMPV008/Alhydrogel 0.1ug
hMPV033/SE 0.1ug
CompA/Alhydrogel 0.8ug
CompA/SE 0.8ug
hMPV008/aqueous 0.1ug
hMPV008/Alhydrogel 0.8ug
hMPV008/SE 0.8ug
CompA/Aqueous 0.8ug
CompA/Alhydrogel 0.08ug
CompA/SE 0.08ug
CompA/Aqueous 0.08ug

FIG. 5A

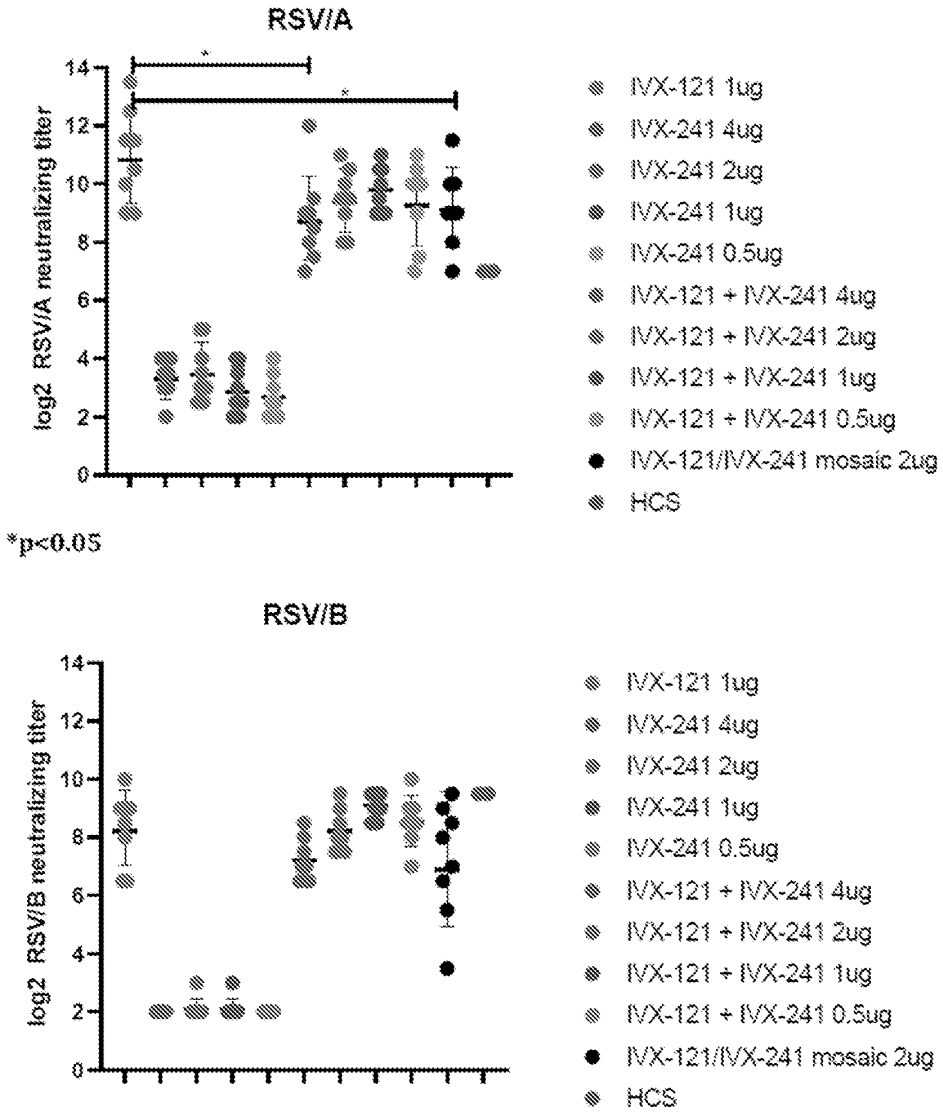
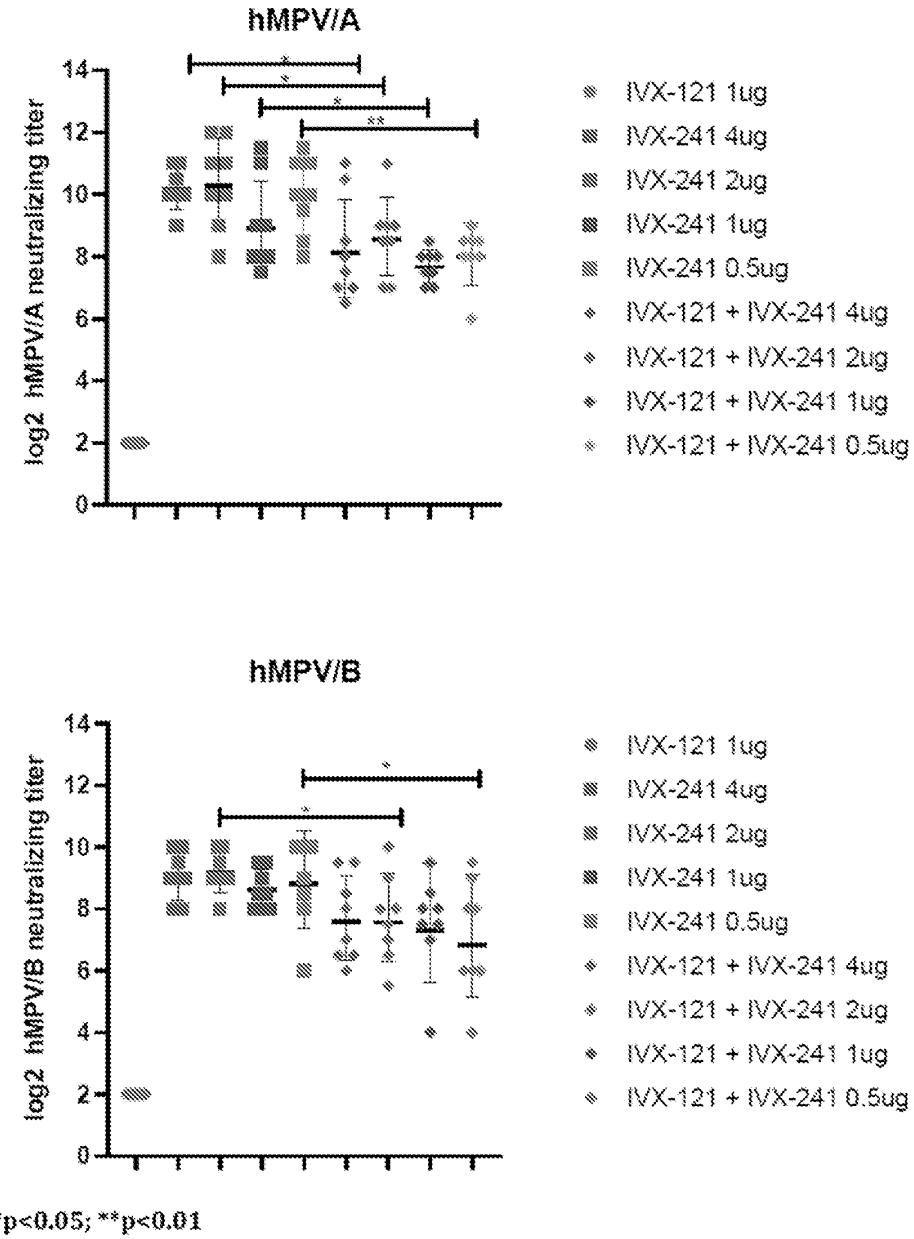

RSV/A
log2 RSV/A neutralizing titer
0
2
4
6
8
10
12
14
*
*
IVX-121 1ug
IVX-241 4ug
IVX-241 2ug
IVX-241 1ug
IVX-241 0.5ug
IVX-121 + IVX-241 4ug
IVX-121 + IVX-241 2ug
IVX-121 + IVX-241 1ug
IVX-121 + IVX-241 0.5ug
IVX-121/IVX-241 mosaic 2ug
HCS
*p<0.05
RSV/B
log2 RSV/B neutralizing titer
0
2
4
6
8
10
12
14
IVX-121 1ug
IVX-241 4ug
IVX-241 2ug
IVX-241 1ug
IVX-241 0.5ug
IVX-121 + IVX-241 4ug
IVX-121 + IVX-241 2ug
IVX-121 + IVX-241 1ug
IVX-121 + IVX-241 0.5ug
IVX-121/IVX-241 mosaic 2ug
HCS

FIG. 6



*p<0.05; **p<0.01

FIG. 7

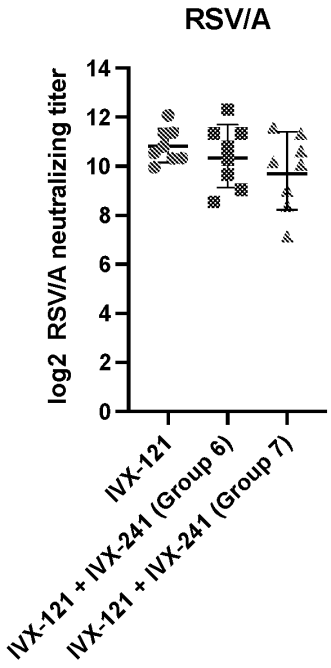


FIG. 8A

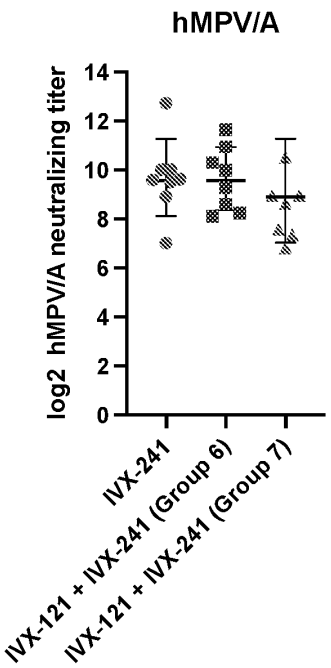


FIG. 8B

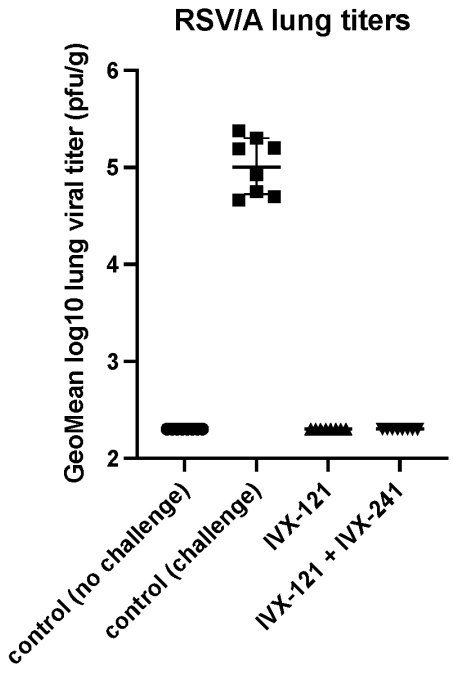


FIG. 8C

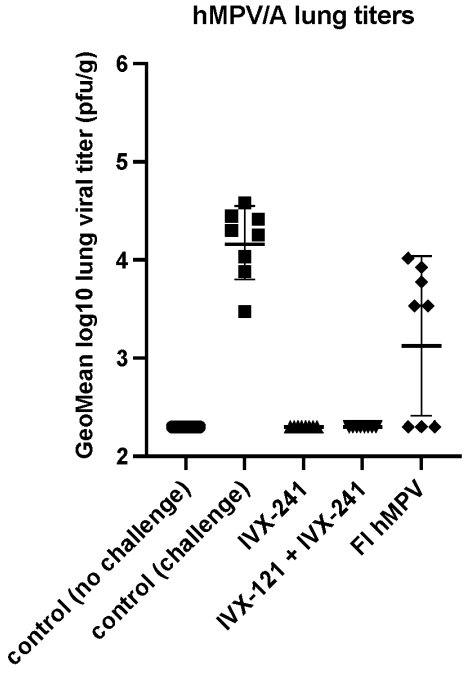


FIG. 8D

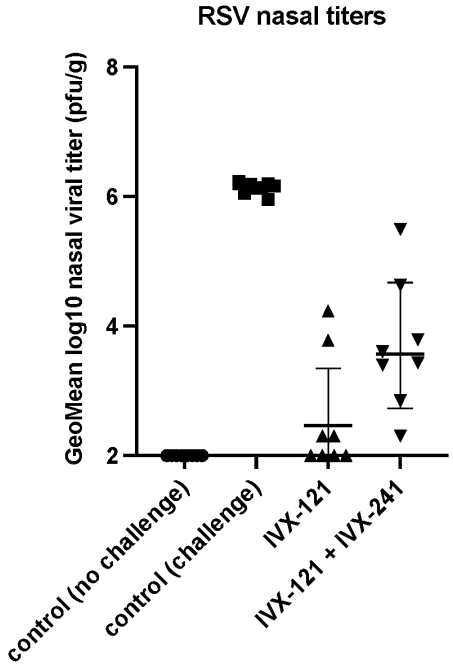

RSV nasal titers
GeoMean log10 nasal viral titer (pfu/g)
8
6
4
2
control (no challenge)
control (challenge)
IVX-121
IVX-121 + IVX-241

FIG. 8E

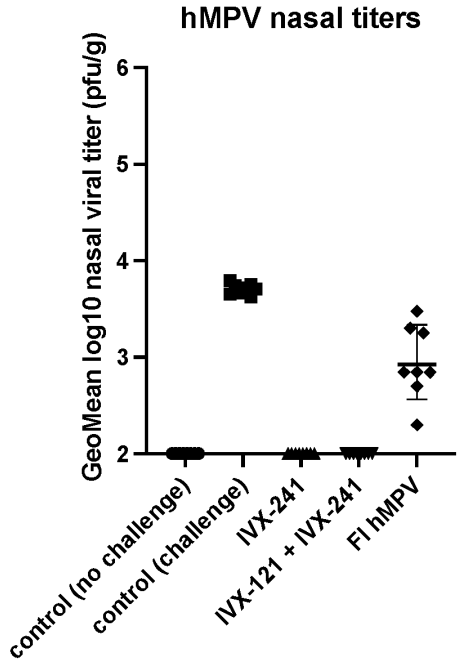

hMPV nasal titers
GeoMean log10 nasal viral titer (pfu/g)
6
5
4
3
2
control (no challenge)
control (challenge)
IVX-241
IVX-121 + IVX-241
FI hMPV

FIG. 8F

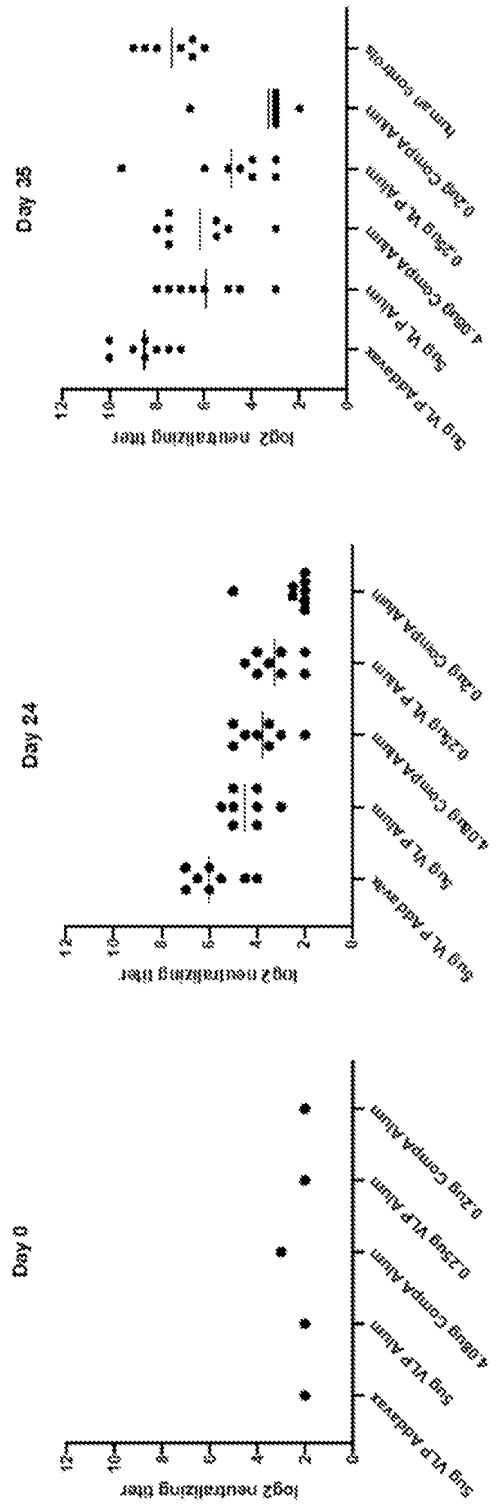

Day 0
log2 neutralizing titer
5ug VLP Adderavax
5ug VLP Alum
4.05ug CompA Alum
0.25ug VLP Alum
0.2ug CompA Alum
Day 24
log2 neutralizing titer
5ug VLP Adderavax
5ug VLP Alum
4.05ug CompA Alum
0.25ug VLP Alum
0.2ug CompA Alum
Day 25
log2 neutralizing titer
5ug VLP Adderavax
5ug VLP Alum
4.05ug CompA Alum
0.25ug VLP Alum
0.2ug CompA Alum
human controls

FIG. 9

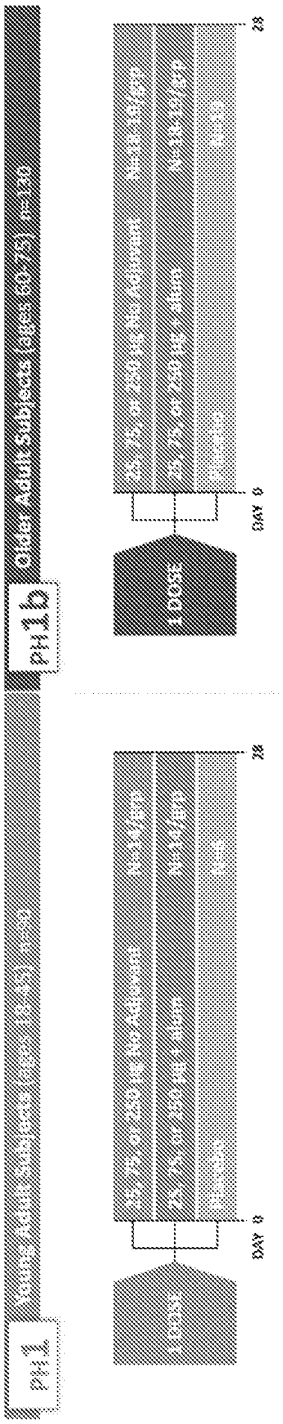

Ph1
Ph1b
Older Adult Subjects (age: 60-75) n=20
Day 0
Day 28
1 DOSE
Day 0
Day 28
1 DOSE

FIG. 10

	Ph1 Week 1 Cohort 1 (n=12) and Cohort 2 (n=12) pooled		Ph1b Day 1 Cohort 1 (n=55) and Cohort 2 (n=37) pooled	
	IVX-121 n (%)	Placebo n (%)	IVX-121 n (%)	Placebo n (%)
Any serious adverse event (AE)	0	0	0	0
Any AE of special interest	0	0	0	0
Any AE leading to death or study discontinuation	0	0	0	0
Any grade 4 (life-threatening) AE	0	0	0	0
Any related Medically-Attended AE	0	0	2 (1.8)	0
Any unsolicited adverse event (through day 28)				
Mild	25 (29.8)	2 (33.3)	27 (24.3)	7 (36.8)
Moderate	33 (39.3)	1 (16.7)	21 (18.9)	2 (10.5)
Severe	1* (1.2)	0	3* (2.7)	0

FIG. 11

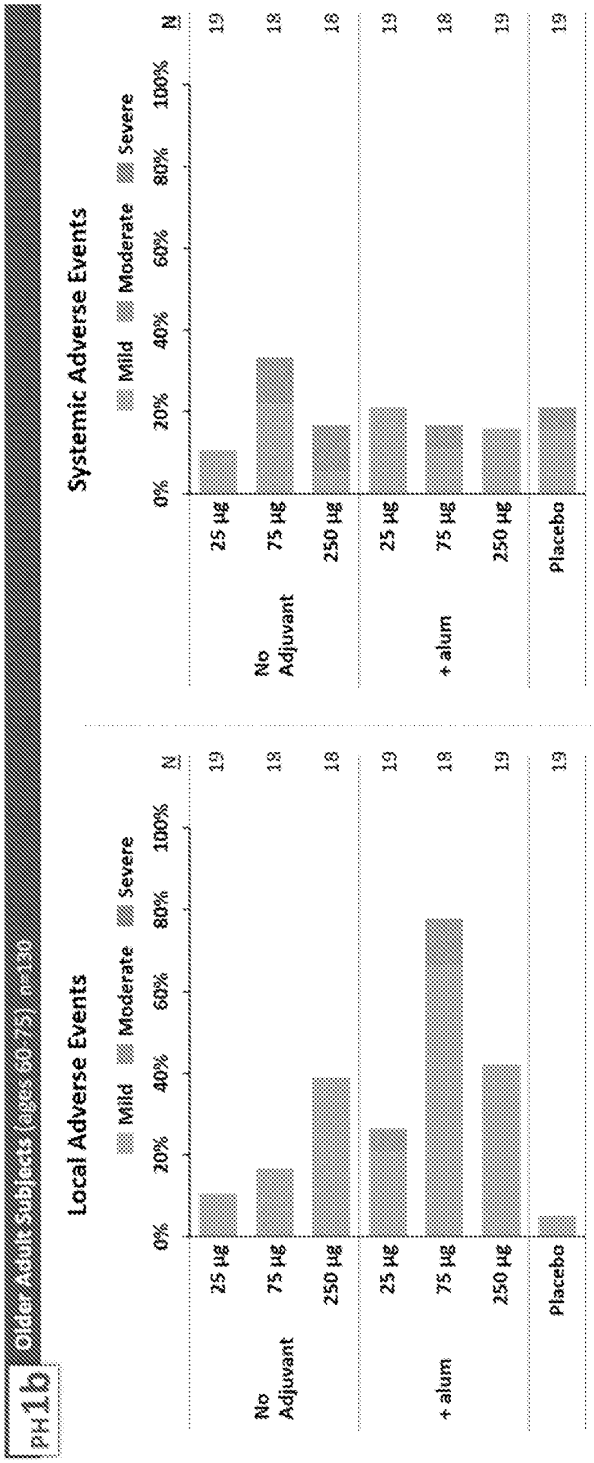

PH1b
Older Adults Subjects (ages 60-75) n=130
Local Adverse Events
Mild
Moderate
Severe
0%
20%
40%
60%
80%
100%
N
No Adjuvant
+ alum
25 µg
75 µg
250 µg
Placebo
19
18
Systemic Adverse Events

FIG. 12

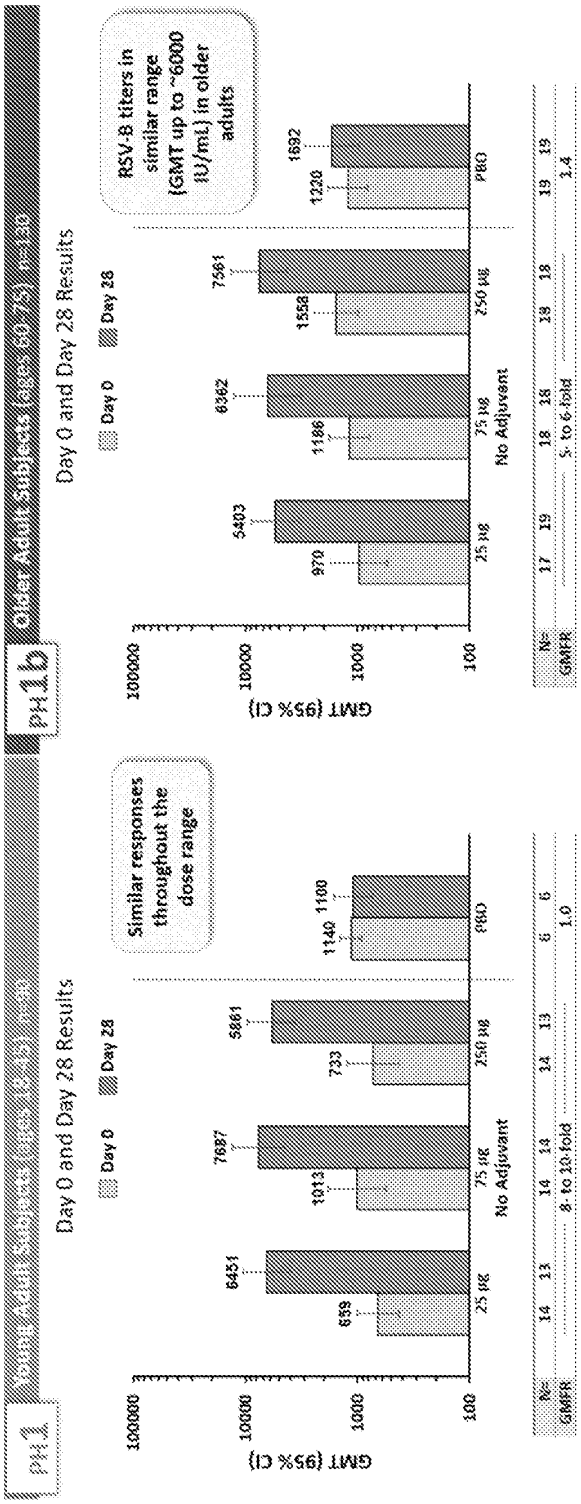

PH1
Younger Adult Subjects (ages 18-49) n=120
PH1b
Older Adult Subjects (ages 50-79) n=120
Day 0 and Day 28 Results
Day 0
Day 28
Similar responses throughout the dose range
RSV-B titers in similar range (GMT up to ~6000 IU/mL) in older adults
GMT (95% CI)
100000
10000
1000
100
659
6451
1013
7687
733
5861
1140
1100
970
5403
1186
6362
1558
7561
1220
1692
25 µg
75 µg
250 µg
No Adjuvant
PBO
N=
GMFR
8- to 10-fold
5- to 6-fold

FIG. 13

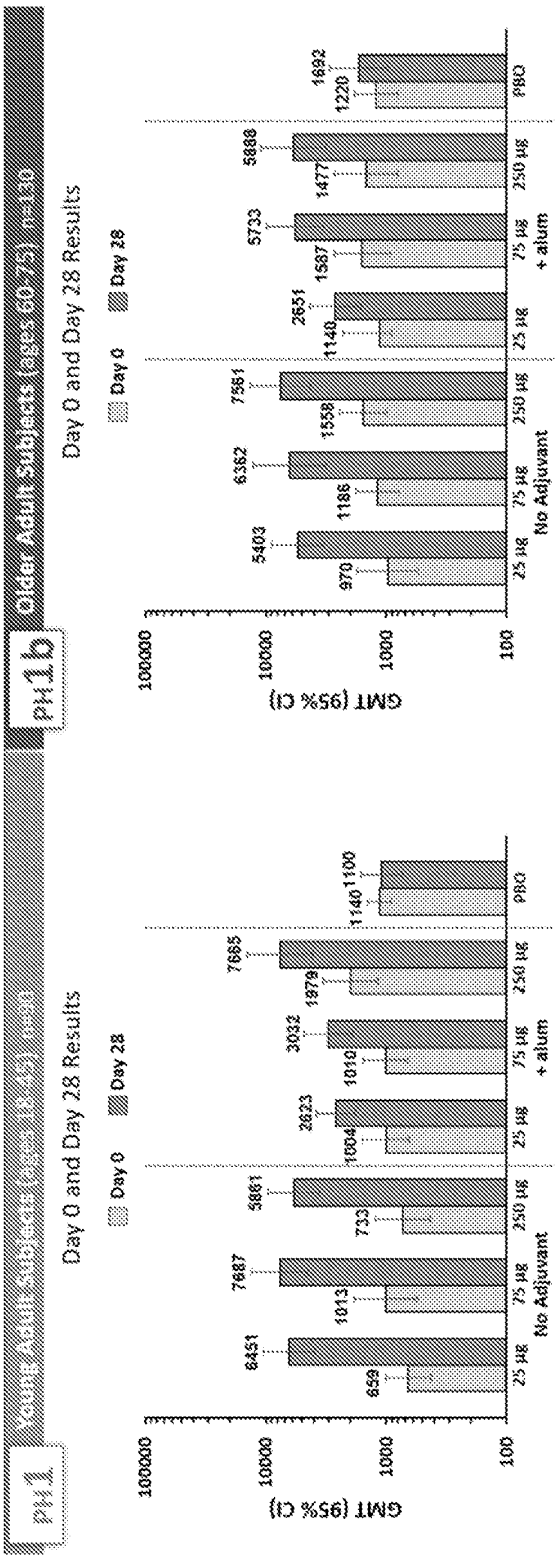

PH1
Younger Adult Subjects (ages 18-49) (n=110)
PH1b
Older Adult Subjects (ages 60-75) (n=110)
Day 0 and Day 28 Results
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
25 µg
75 µg
250 µg
No Adjuvant
+ alum
659
6451
1013
7687
733
5867
1604
2623
1010
3032
1879
7665
1140
1100
980
970
5403
1186
6362
1558
7581
1140
2651
1587
5733
1477
5888
1220
1692
980

FIG. 14

28 days post administration

	Younger Adults - RSV/A				Younger Adults RSV/B	Older Adults - RSV/A				Older Adults RSV/B
	GMT (IU/mL)	GMT (IU/mL) 95% CI	GMFR	Seroresponse 4 fold rise	GMT 95% CI	GMT (IU/mL)	GMT (IU/mL) 95% CI	GMFR	Seroresponse 4 fold rise	GMT 95% CI
25 mcg (no alum)	8451	3967-10492	8-10	up to 92%	1342-3971	3403	3282-8893	5-6	up to 67%	2528-8308
75 mcg (no alum)	7687	4507-13111			2997-8207	6362	3178-12732			1922-4875
250 mcg (no alum)	5961	3581-9592			2821-8209	7561	4044-13471			3309-10638
25 mcg (+ alum)	2623	1819-3784	2.6	not reported	1589-3686	2652	1639-4314	1.8	not reported	1402-3250
75 mcg (+ alum)	2032	1406-4824	3.0	not reported	1862-3136	5733	3355-9799	3.6	not reported	1340-3794
250 mcg (+ alum)	7665	4115-14278	3.9	not reported	2866-7184	5688	3157-10962	3.9	not reported	2137-5698
Placebo	1100	744-1625	1.0	0	434-958	1692	972-2944	1.4	10.50%	1274-2560

FIG. 15

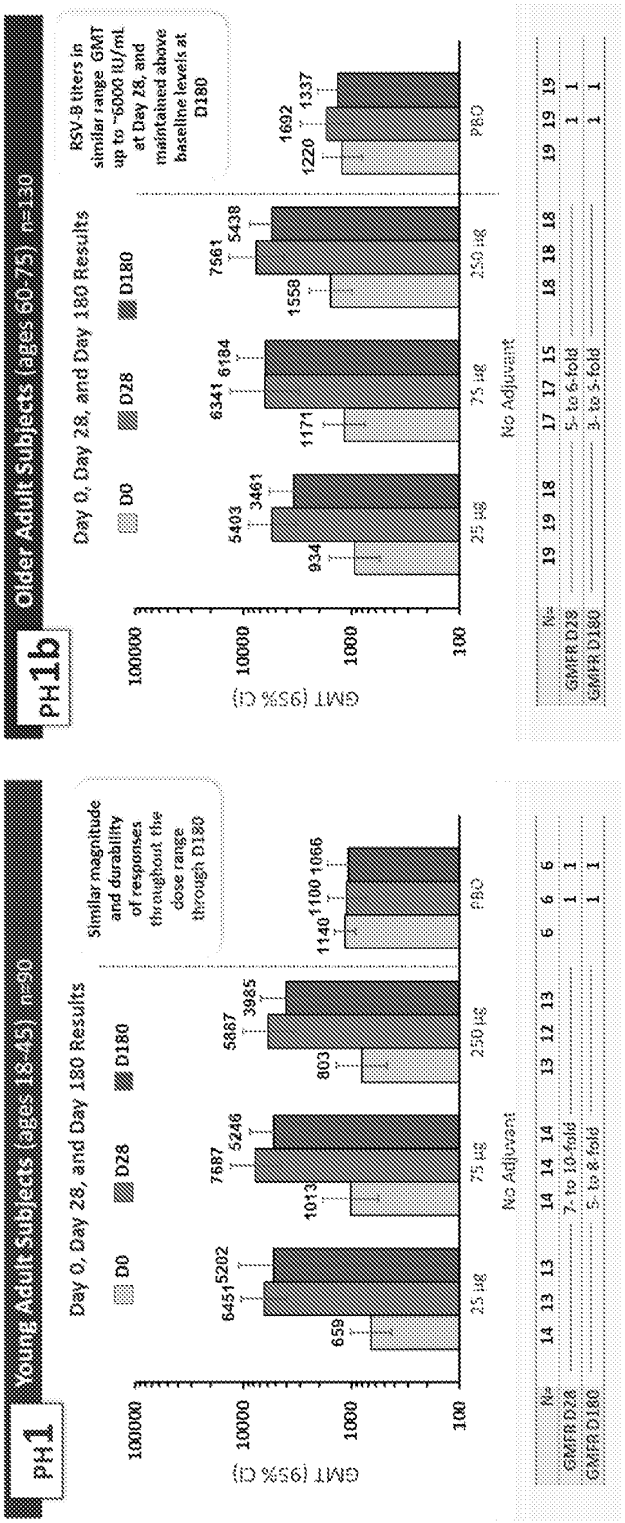

PH1
Young Adult Subjects (ages 18-49) n=30
Day 0, Day 28, and Day 180 Results
D0
D28
D180
Similar magnitude and durability of responses throughout the dose range through D180
GMT (95% CI)
100000
10000
1000
100
659
6451
5202
1013
7687
5246
803
5867
3985
1148
1100
1066
25 µg
75 µg
250 µg
PBO
No Adjuvant
No.
14 13 13 14 14 14 13 12 13 6 6 6
GMFR D28
7- to 10-fold 1 1
GMFR D180
5- to 8-fold 1 1
PH1b
Older Adult Subjects (ages 60-75) n=130
Day 0, Day 28, and Day 180 Results
RSV-B titers in similar range GMT up to ~5000 IU/mL at Day 28, and maintained above baseline levels at D180
GMT (95% CI)
100000
10000
1000
100
934
5403
3461
1171
6341
6184
1558
7561
5438
1220
1692
1337
25 µg
75 µg
250 µg
PBO
No Adjuvant
No.
19 19 18 17 17 15 18 18 18 19 19 19
GMFR D28
5- to 6-fold 1 1
GMFR D180
3- to 5-fold 1 1

FIG. 16

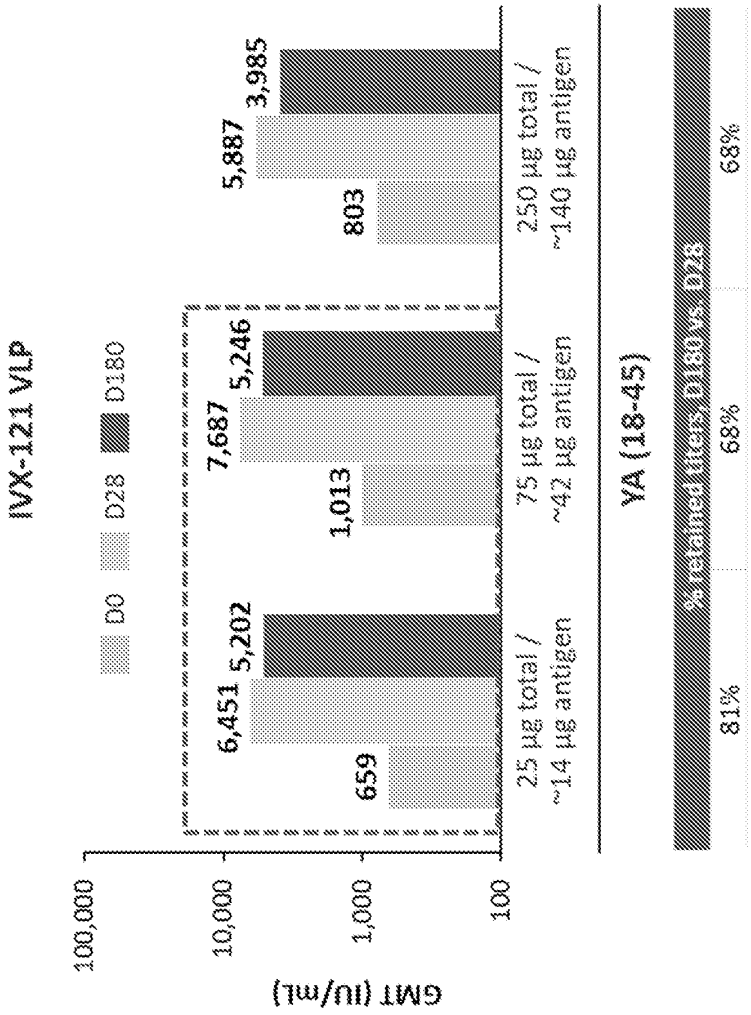

IVX-121 VLP
D0
D28
D180
GMT (IU/mL)
100,000
10,000
1,000
100
659
6,451
5,202
1,013
7,687
5,246
803
5,887
3,985
25 µg total / ~14 µg antigen
75 µg total / ~42 µg antigen
250 µg total / ~140 µg antigen
YA (18-45)
% seroprotection D180 vs. D28
81%
68%
68%

FIG. 17

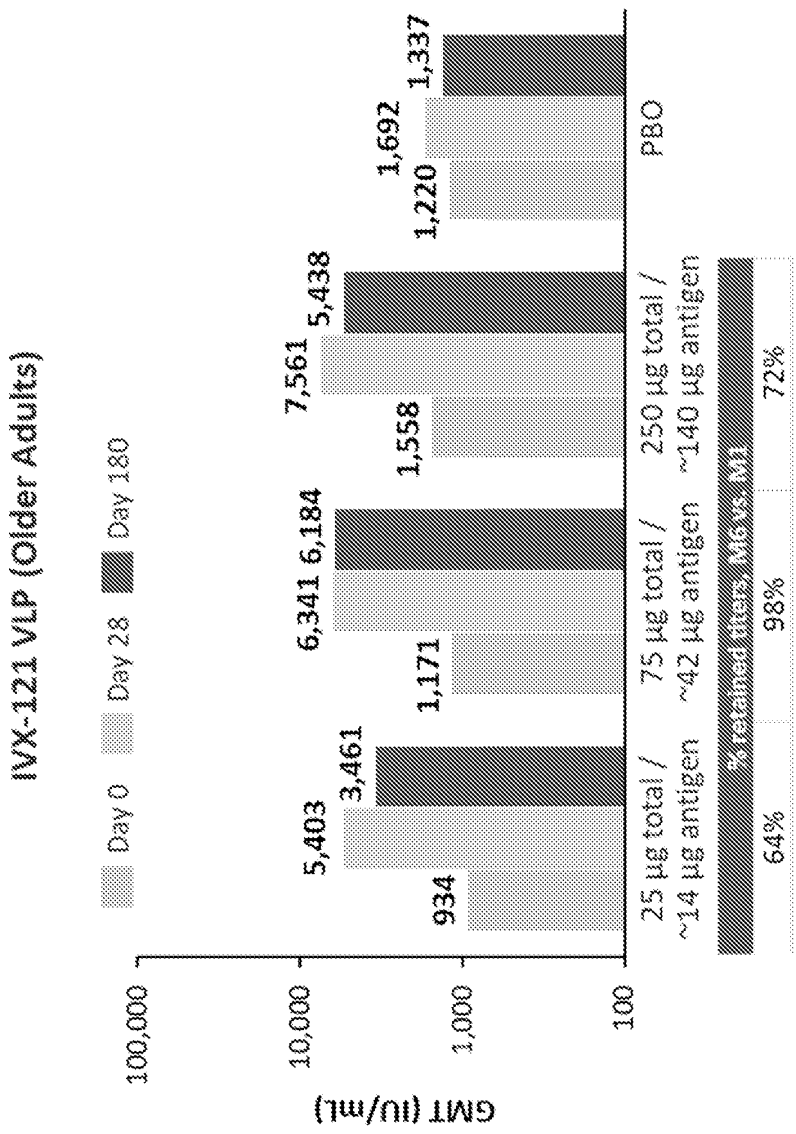

IVX-121 VLP (Older Adults)
Day 0
Day 28
Day 180
GMT (IU/mL)
100,000
10,000
1,000
100
934
5,403
3,461
1,171
6,341
6,184
1,558
7,561
5,438
1,220
1,692
1,337
25 µg total / ~14 µg antigen
75 µg total / ~42 µg antigen
250 µg total / ~140 µg antigen
PBO
% retained titer, M6 vs M1
64%
98%
72%

FIG. 18

	IVX-121 OA: 25-250 µg N=130
Solicited systemic AEs (any)	11-33%
Grade 3+ solicited systemic AEs	0%
SAEs	0%
Vaccine-related SAEs	0%
Vaccine-related deaths	0%
Age Group	60-75
Study Phase	1b

FIG. 19

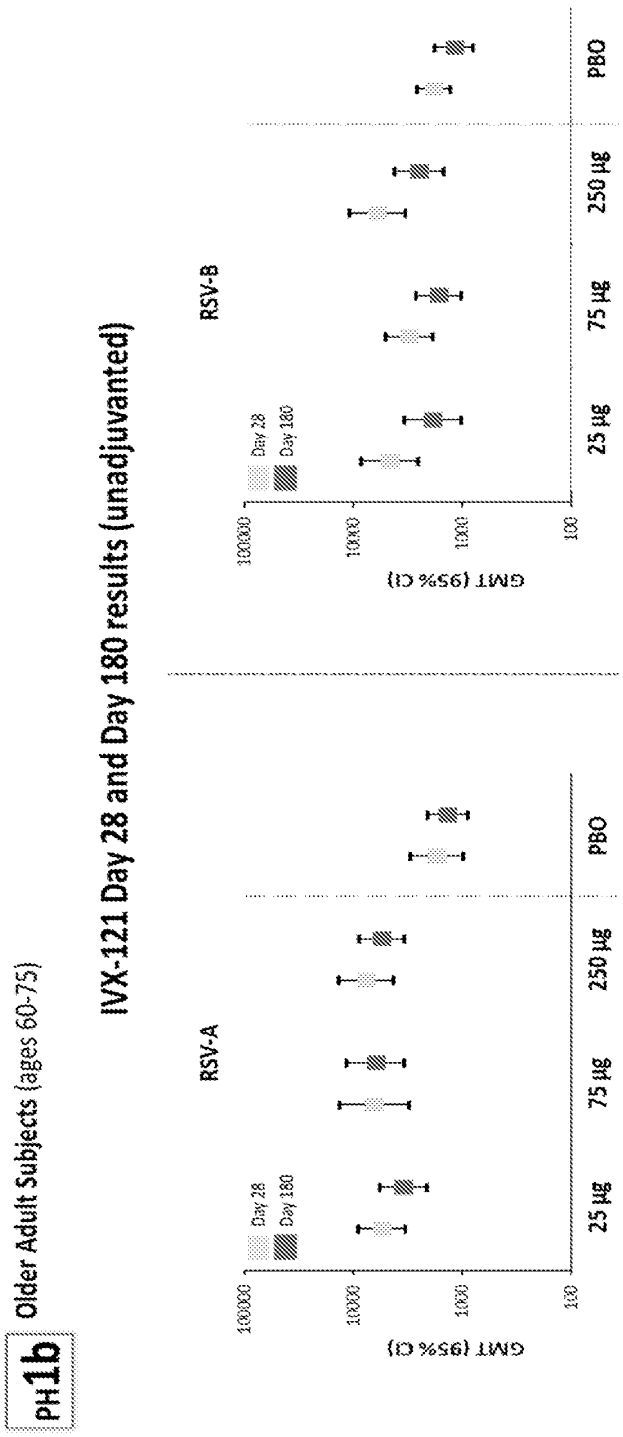
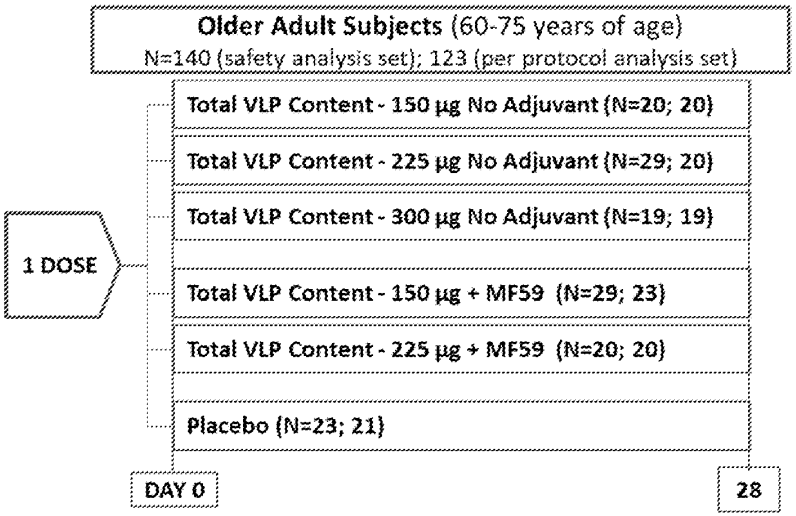

PH1b Older Adult Subjects (ages 60-75)
IVX-121 Day 28 and Day 180 results (unadjuvanted)
RSV-A
RSV-B
Day 28
Day 180
GMT (95% CI)
100000
10000
1000
100
25 µg
75 µg
250 µg
PBO

FIG. 20



IVX-A12 Total VLP Content	IVX-121 (RSV) VLP	IVX-241 (hMPV) VLP
150 µg	75 µg	75 µg
225 µg	75 µg	150 µg
300 µg	75 µg	225 µg

Topline Data through Day 28

Solicited AEs	SAEs, AESIs, MAAEs, Unsolicited AEs	Immunogenicity
DAYS 0-7	DAYS 0-28	DAYS 0 & 28
		RSV-A, RSV-B, hMPV-A, & hMPV-B Virus Microneutralization assay

FIG. 21

		IVX-A12 N=102 n (%)	Placebo N=21 n (%)
Gender	Male (%)	47.1	42.9
	Female (%)	52.9	57.1
Age	Average age (min, max)	64.8 (60, 75)	65.4 (60, 74)
Race	White or Caucasian (%)	90.2	81.0
BMI (kg/m^2)	Mean	27.88	29.42

FIG. 22A

	Older Adult Subjects (60-75 years of age)	
	IVX-A12 N=117 n (%)	Placebo N=23 n (%)
Any serious adverse event (AE)	0	0
Any AE of special interest	0	0
Any AE leading to death or study discontinuation	0	0
Any grade 4 (life-threatening) AE	0	0
Any related Medically-Attended AE	0	0
Any unsolicited adverse event	27 (23.1)	6 (26.1)
Mild	18 (15.4)	2 (8.7)
Moderate	8 (6.8)	4 (17.4)
Severe	1* (0.9)	0

FIG. 22B

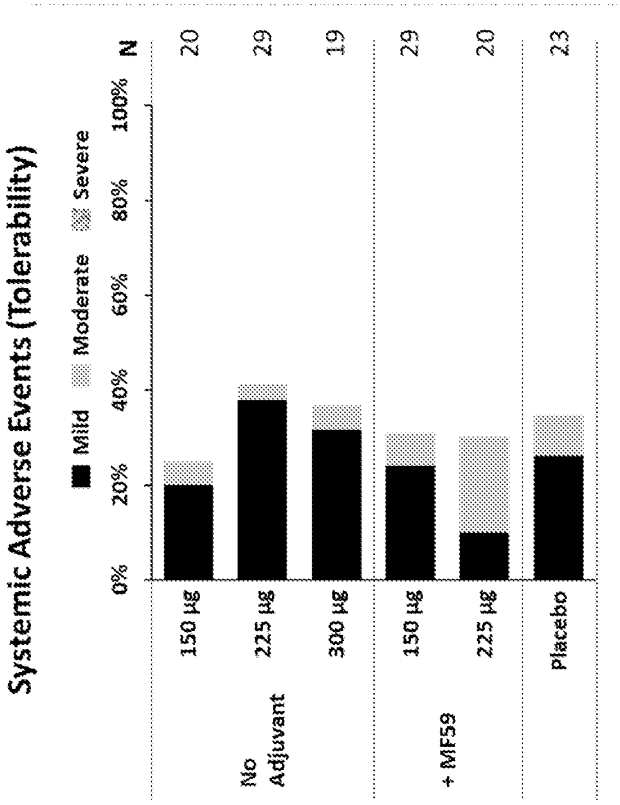


FIG. 23B

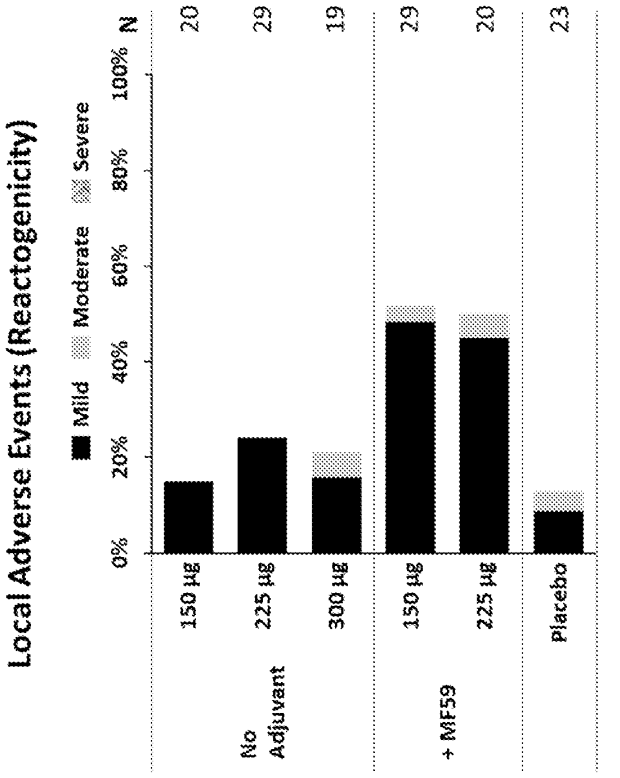


FIG. 23A

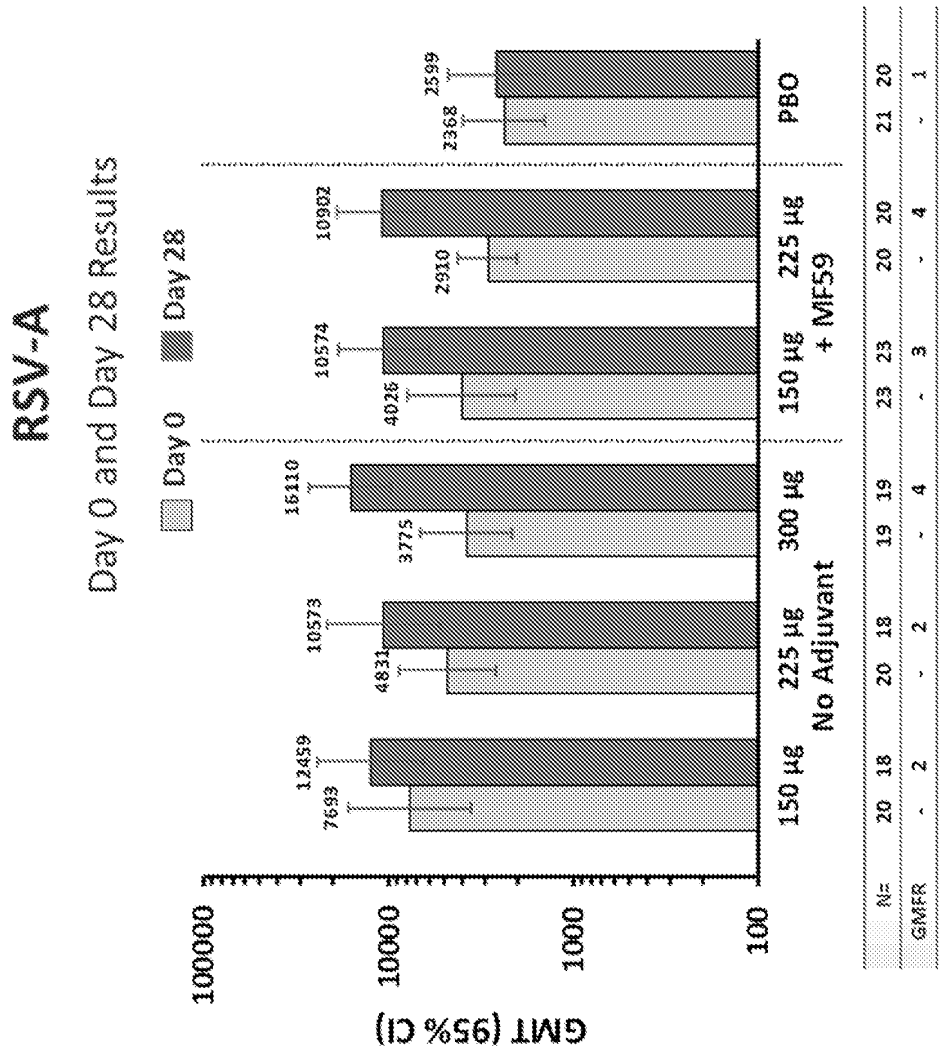

RSV-A
Day 0 and Day 28 Results
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
7693
12459
4831
10573
3775
16110
4026
10574
2910
10902
2368
2599
150 µg
225 µg
300 µg
150 µg
225 µg
PBO
No Adjuvant
+ MF59
N=
20 18 20 18 19 19 23 23 20 20 21 20
GMFR
- 2 - 2 - 4 - 3 - 4 - 1

FIG. 24A

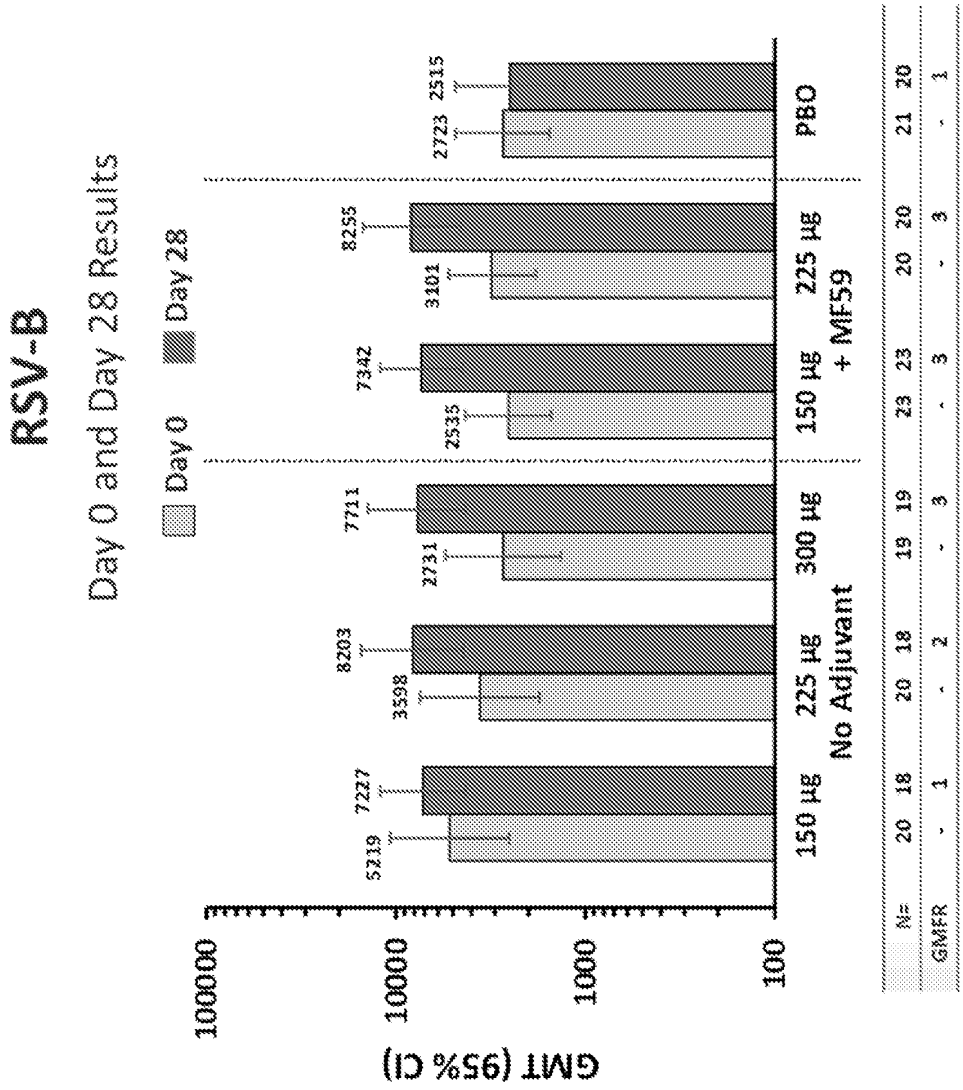

RSV-B
Day 0 and Day 28 Results
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
5219
7227
3598
8203
2731
7711
2535
7342
3101
8255
2723
2515
150 µg
225 µg
300 µg
No Adjuvant
150 µg
225 µg
+ MF59
PBO
N= 20 18 20 18 19 19 23 23 20 20 21 20
GMFR - 1 - 2 - 3 - 3 - 3 - 1

FIG. 24B

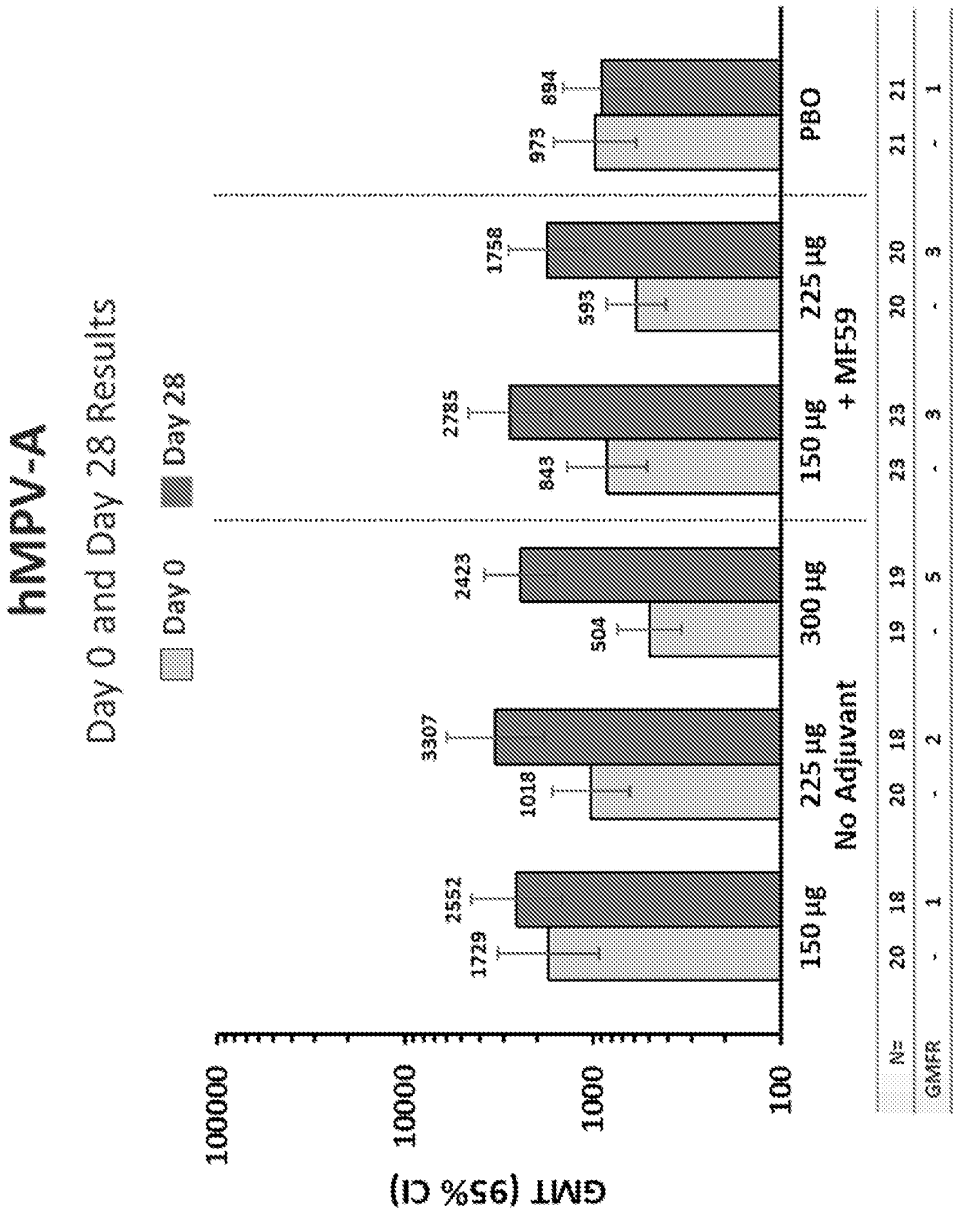

hMPV-A
Day 0 and Day 28 Results
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
1729
2552
1018
3307
504
2423
843
2785
593
1758
973
894
150 µg
225 µg
No Adjuvant
300 µg
150 µg
+ MF59
225 µg
PBO
N=
20 18 20 18 19 19 23 23 20 20 21 21
GMFR
- 1 - 2 - 5 - 3 - 3 - 1

FIG. 25A

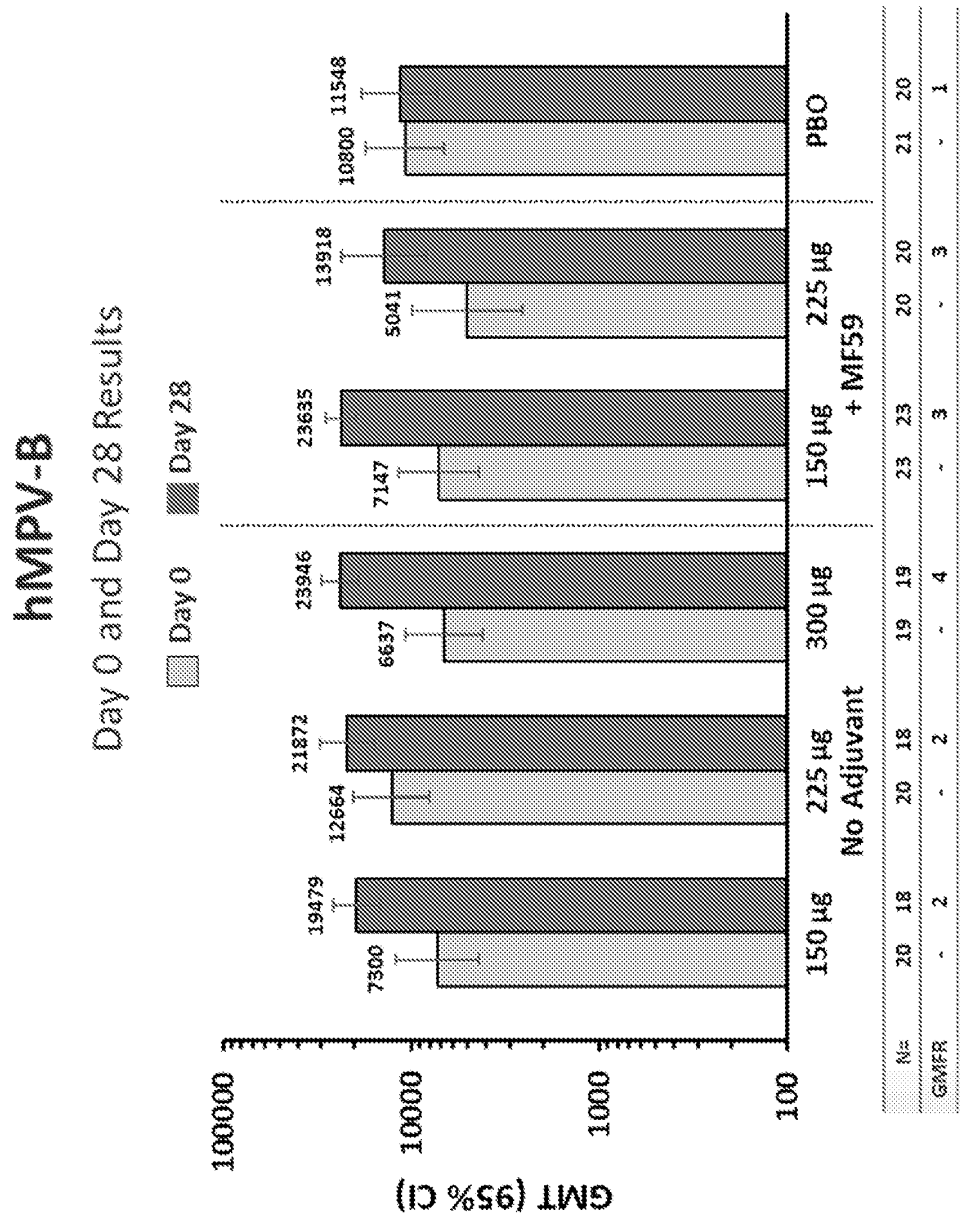

hMPV-B
Day 0 and Day 28 Results
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
7300
19479
12664
21872
6637
23946
7147
23635
5041
13918
10800
11548
150 µg
225 µg
300 µg
150 µg
225 µg
PBO
No Adjuvant
+ MF59
N=
20 18 20 18 19 19 23 23 20 20 21 20
GMFR
- 2 - 2 - 4 - 3 - 3 - 1

FIG. 25B

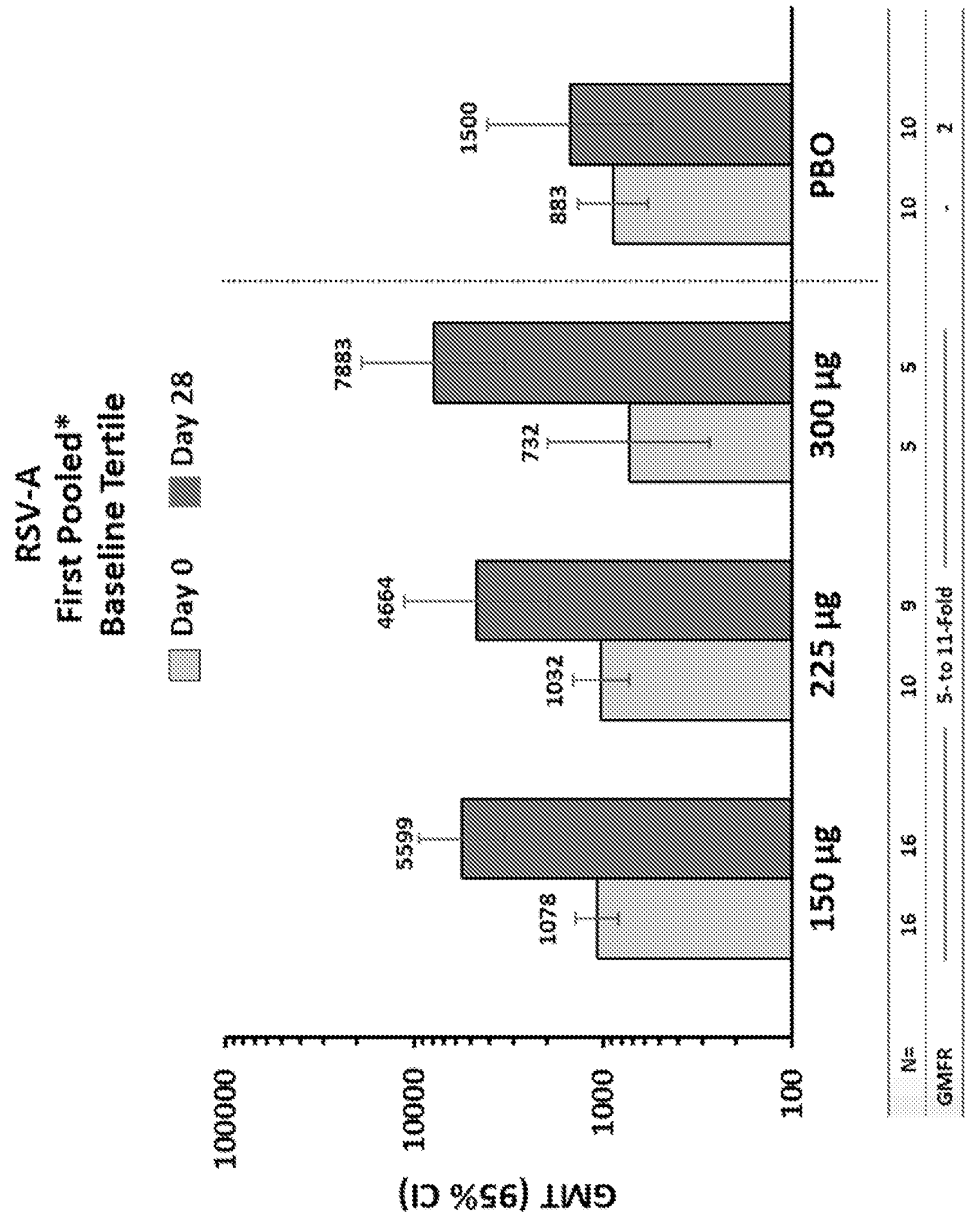

RSV-A
First Pooled*
Baseline Tertile
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
1078
5599
1032
4664
732
7883
883
1500
150 µg
225 µg
300 µg
PBO
N=
16
16
10
9
5
5
10
10
GMFR
5- to 11-Fold
-
2

FIG. 26A

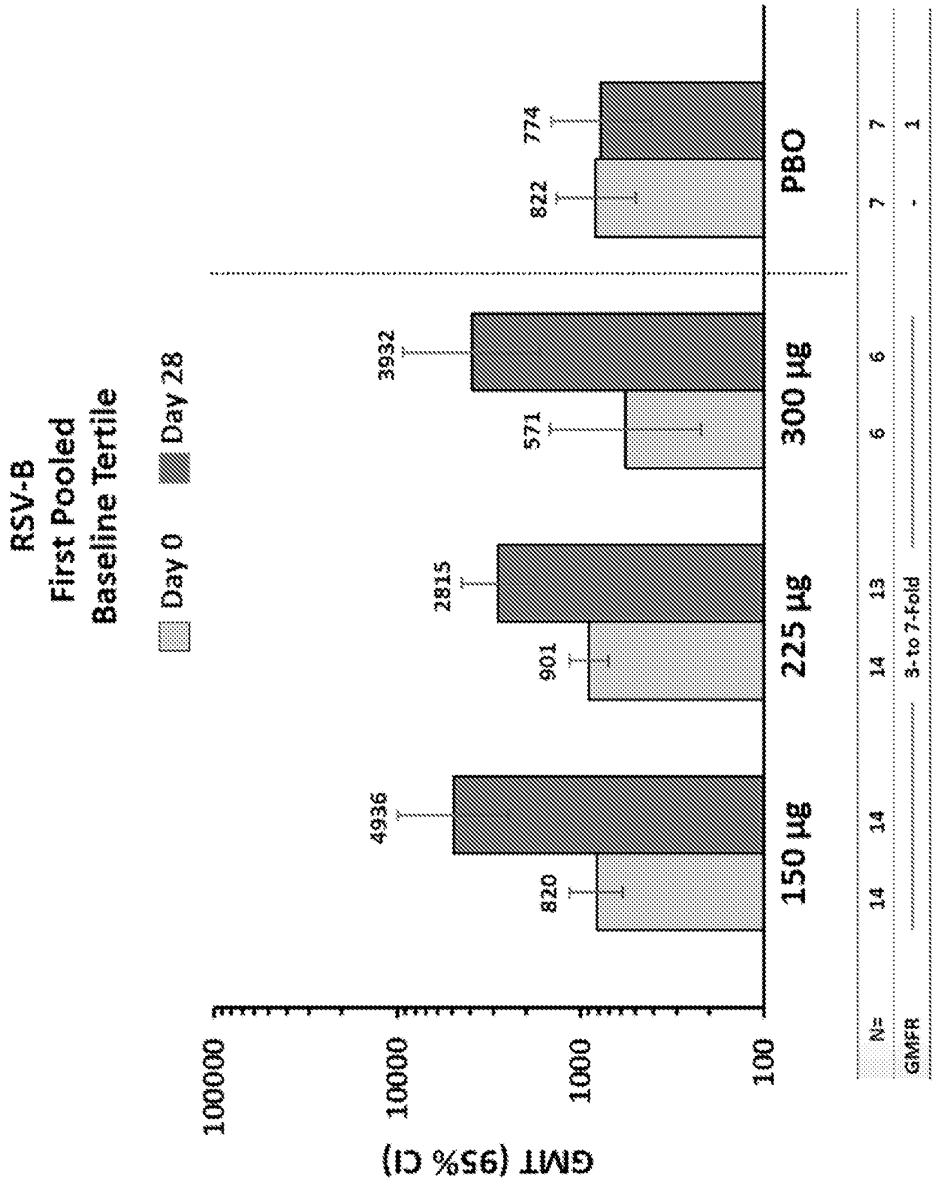

RSV-B
First Pooled
Baseline Tertile
Day 0
Day 28
GMT (95% CI)
100000
10000
1000
100
820
4936
901
2815
571
3932
822
774
150 µg
225 µg
300 µg
PBO
N=
14
14
14
13
6
6
7
7
GMFR
3- to 7-fold
-
1

FIG. 26B