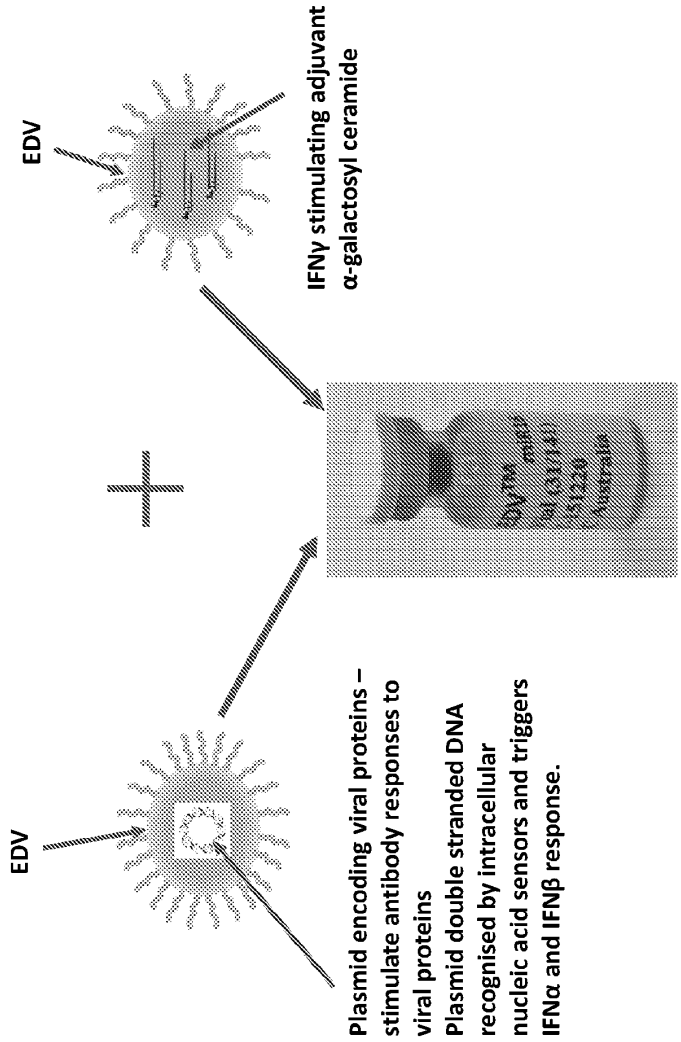
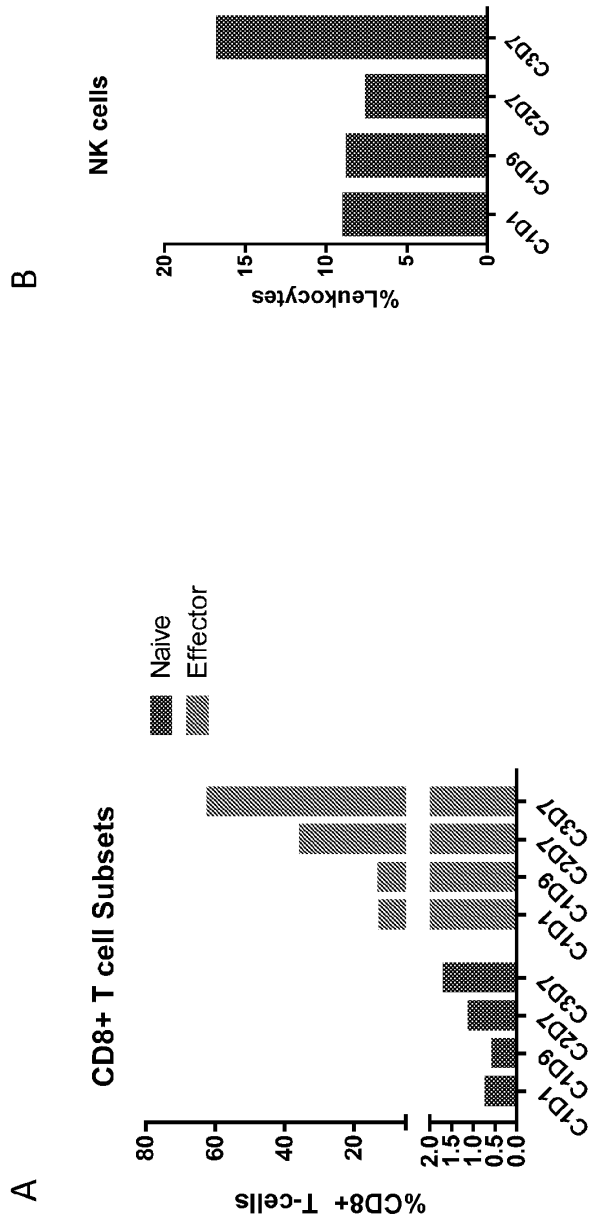
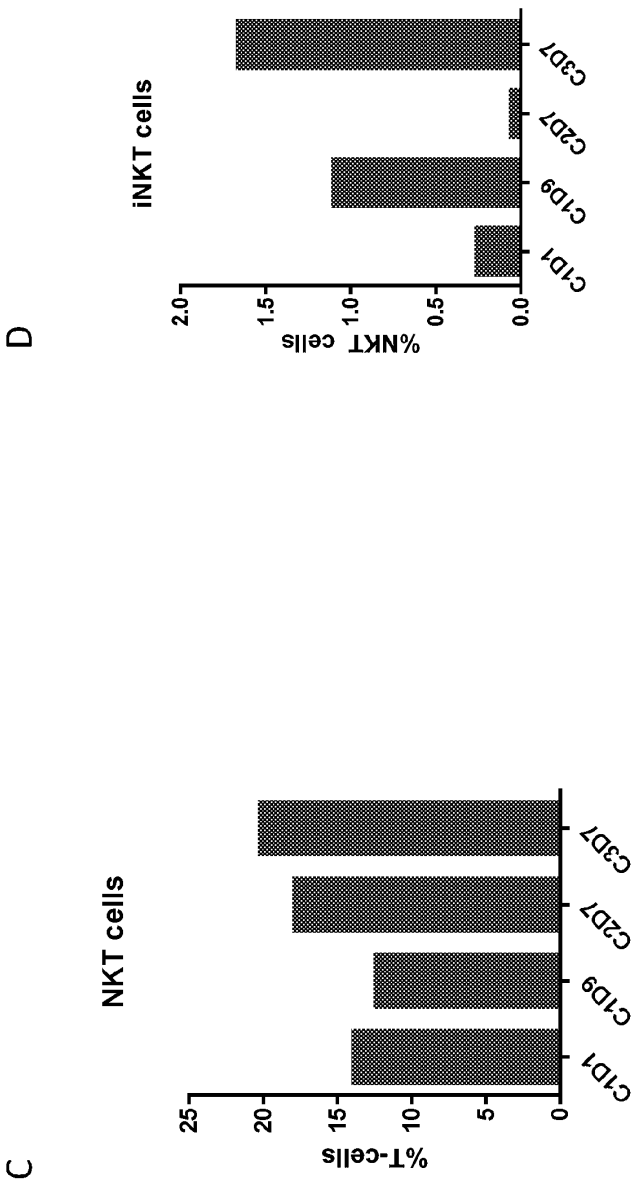
Figure 1


EDV
EDV
IFNγ stimulating adjuvant
α-galactosyl ceramide
Plasmid encoding viral proteins –
stimulate antibody responses to
viral proteins
Plasmid double stranded DNA
recognised by intracellular
nucleic acid sensors and triggers
IFNα and IFNβ response.

Figures 2A and 2B



Figures 2C and 2D



Figures 3A and 3B

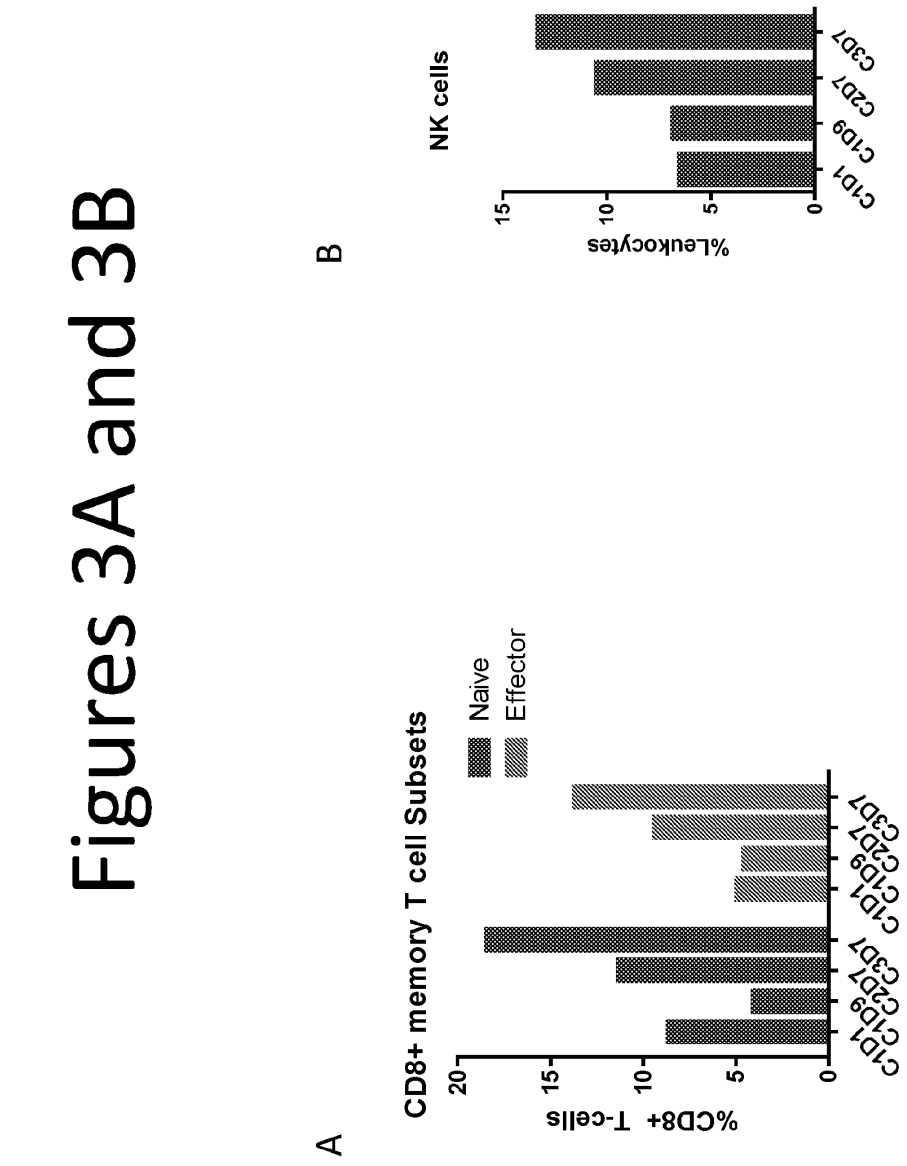


Figure 3C

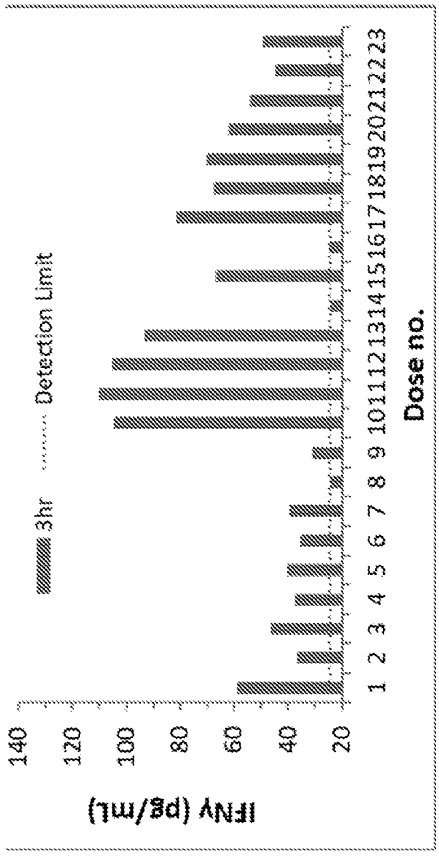

IFN-γ
3hr
Detection Limit
IFNγ (pg/mL)
140
120
100
80
60
40
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Dose no.

Figure 4

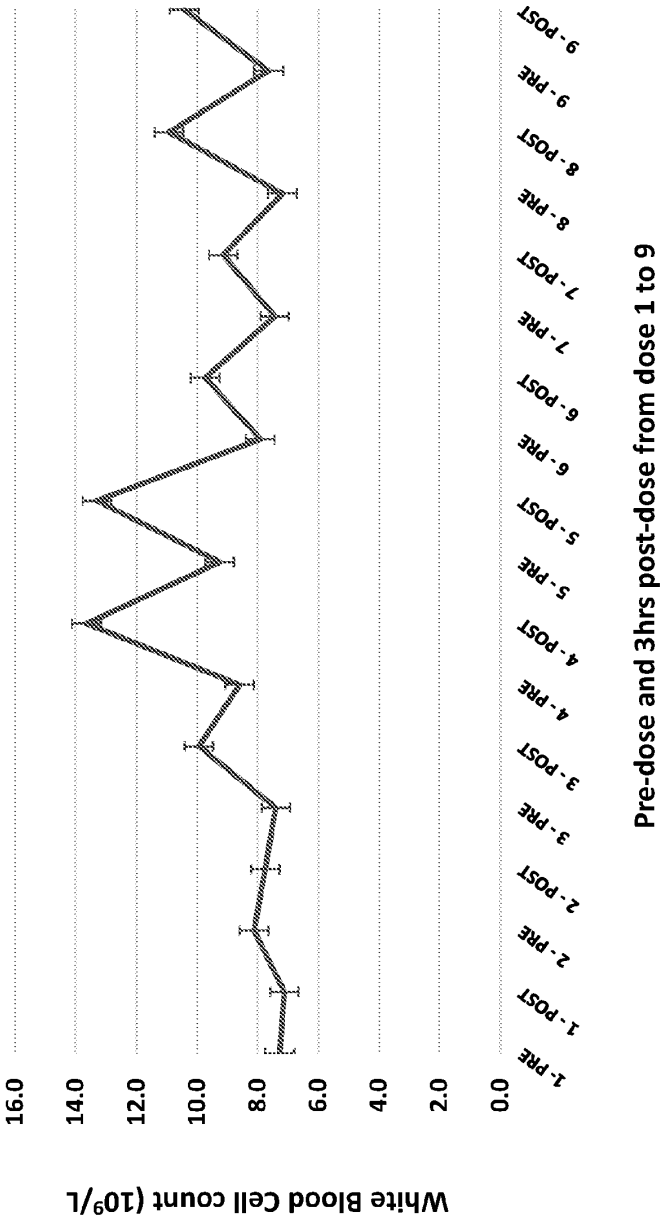

White Blood Cell count (10^9/L
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
1-PRE
1-POST
2-PRE
2-POST
3-PRE
3-POST
4-PRE
4-POST
5-PRE
5-POST
6-PRE
6-POST
7-PRE
7-POST
8-PRE
8-POST
9-PRE
9-POST
Pre-dose and 3hrs post-dose from dose 1 to 9

Figure 5A

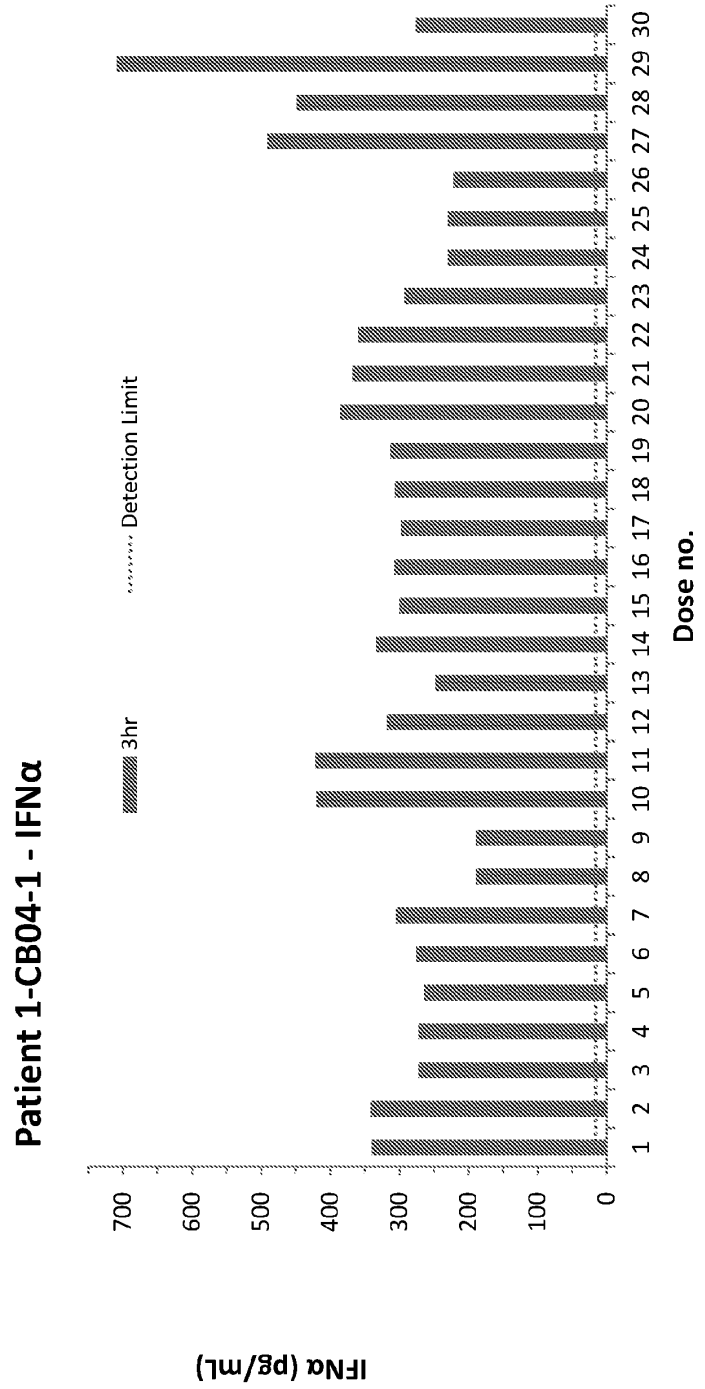

Patient 1-CB04-1 - IFNα
3hr
Detection Limit
IFNα (pg/mL)
0
100
200
300
400
500
600
700
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Dose no.

Figure 5B

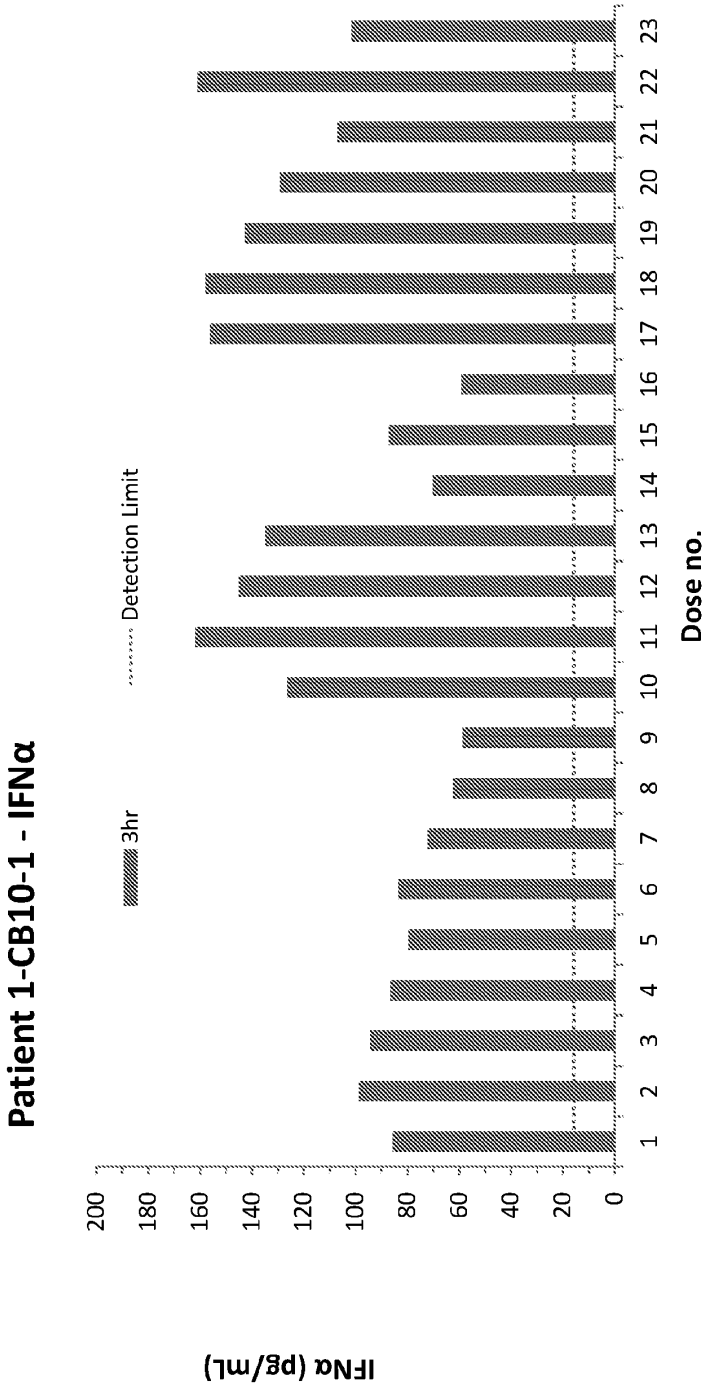

Patient 1-CB10-1 - IFNα
3hr
Detection Limit
IFNα (pg/mL)
Dose no.
0
20
40
60
80
100
120
140
160
180
200
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

Figure 5C

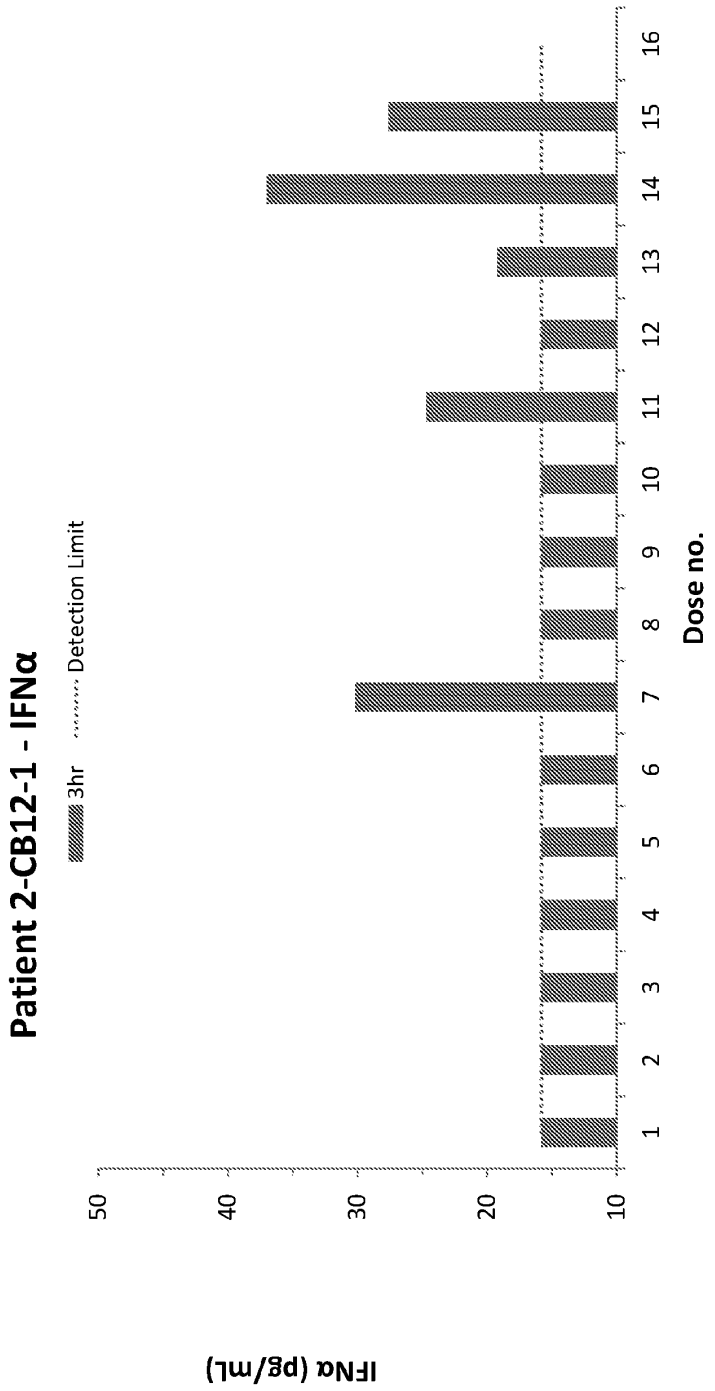

Patient 2-CB12-1 - IFNα
3hr
Detection Limit
IFNα (pg/mL)
50
40
30
20
10
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Dose no.

Figure 6A

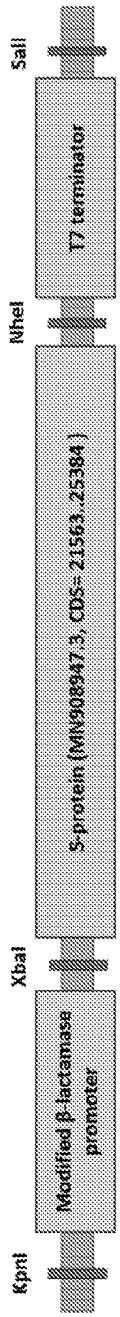

KpnI
Modified β-lactamase promoter
XbaI
S-protein (MN908947.3, CDS=21563..25384)
NheI
T7 terminator
SalI

Figure 6B

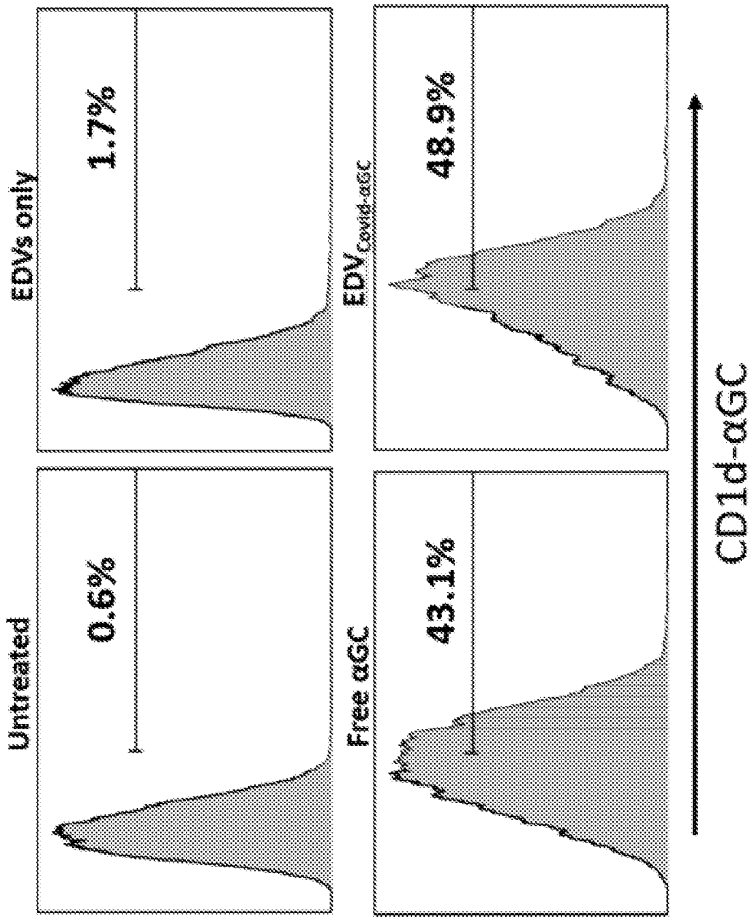

Untreated
0.6%
EDVs only
1.7%
Free αGC
43.1%
EDV Covid-αGC
48.9%
CD1d-αGC

Figure 6C

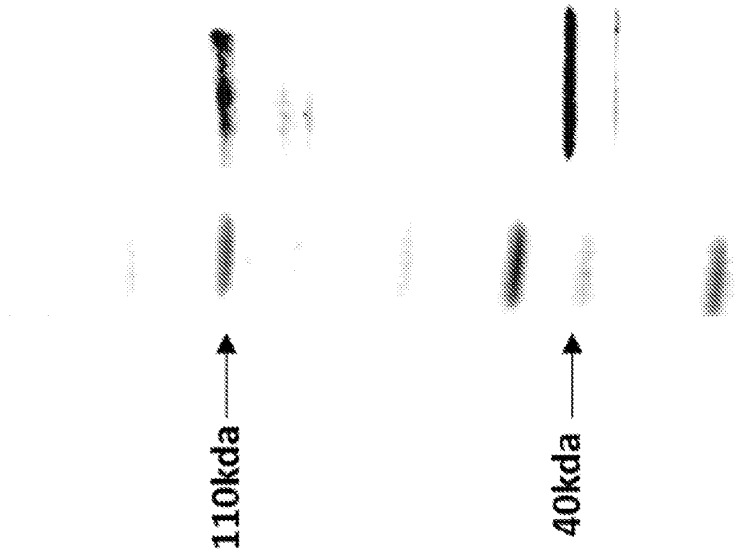


Figure 7A

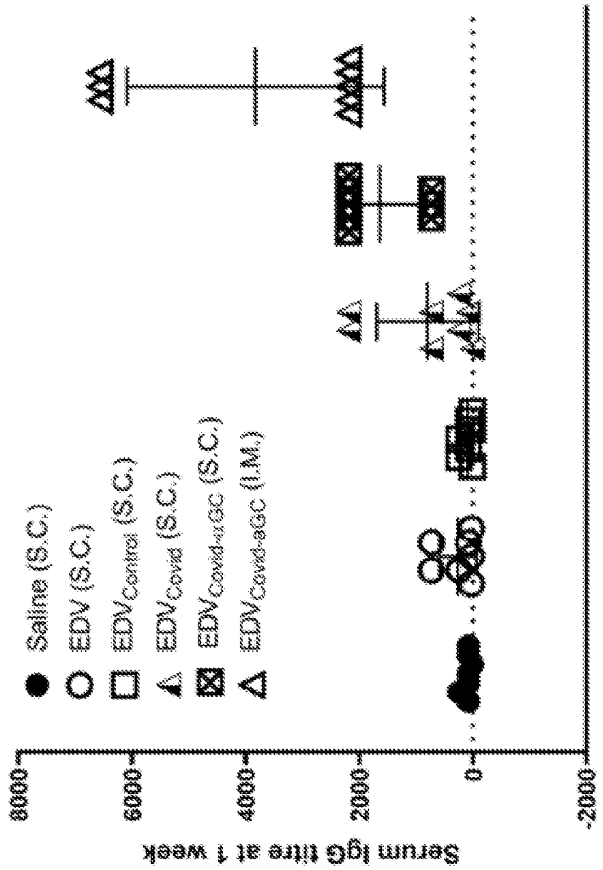
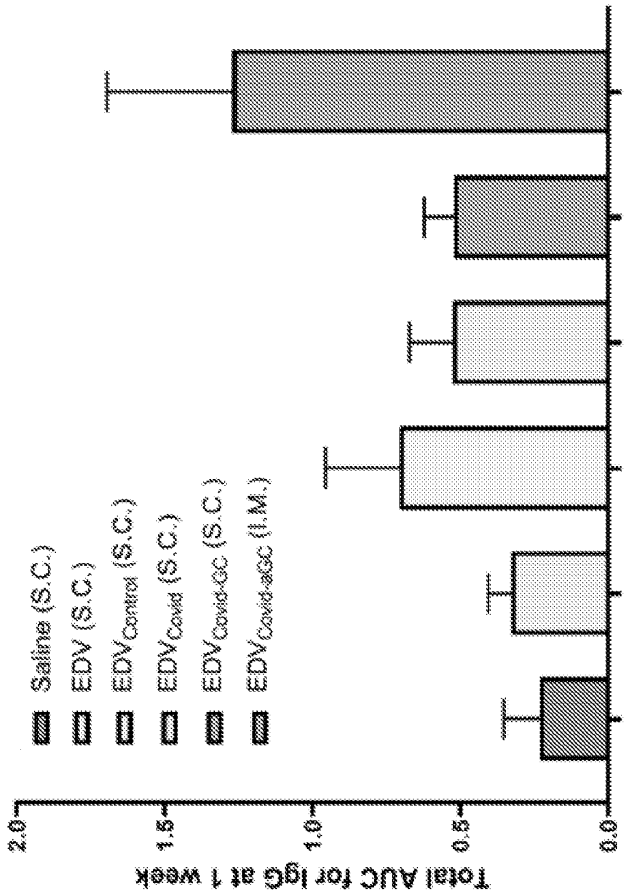

Saline (S.C.)
EDV (S.C.)
EDV Control (S.C.)
EDV Covid (S.C.)
EDV Covid-αGC (S.C.)
EDV Covid-αGC (I.M.)
Serum IgG titre at 1 week
8000
6000
4000
2000
0
-2000

Figure 7B


Saline (S.C.)
EDV (S.C.)
EDV$_{Control}$ (S.C.)
EDV$_{Covid}$ (S.C.)
EDV$_{Covid\text{-}GC}$ (S.C.)
EDV$_{Covid\text{-}aGC}$ (I.M.)
Total AUC for IgG at 1 week
2.0
1.5
1.0
0.5
0.0

Figures 7C, 7D

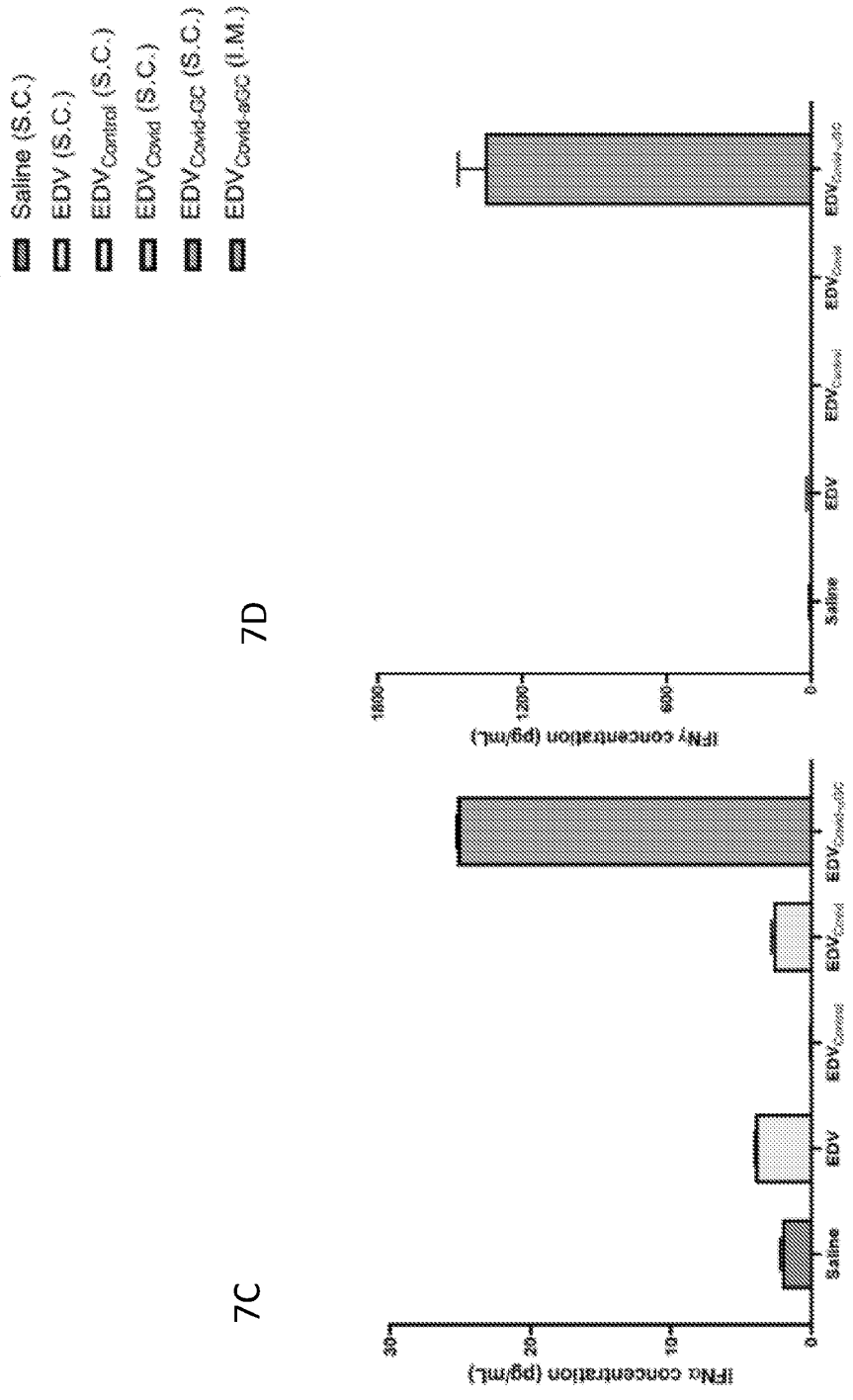


Figure 7E, 7F

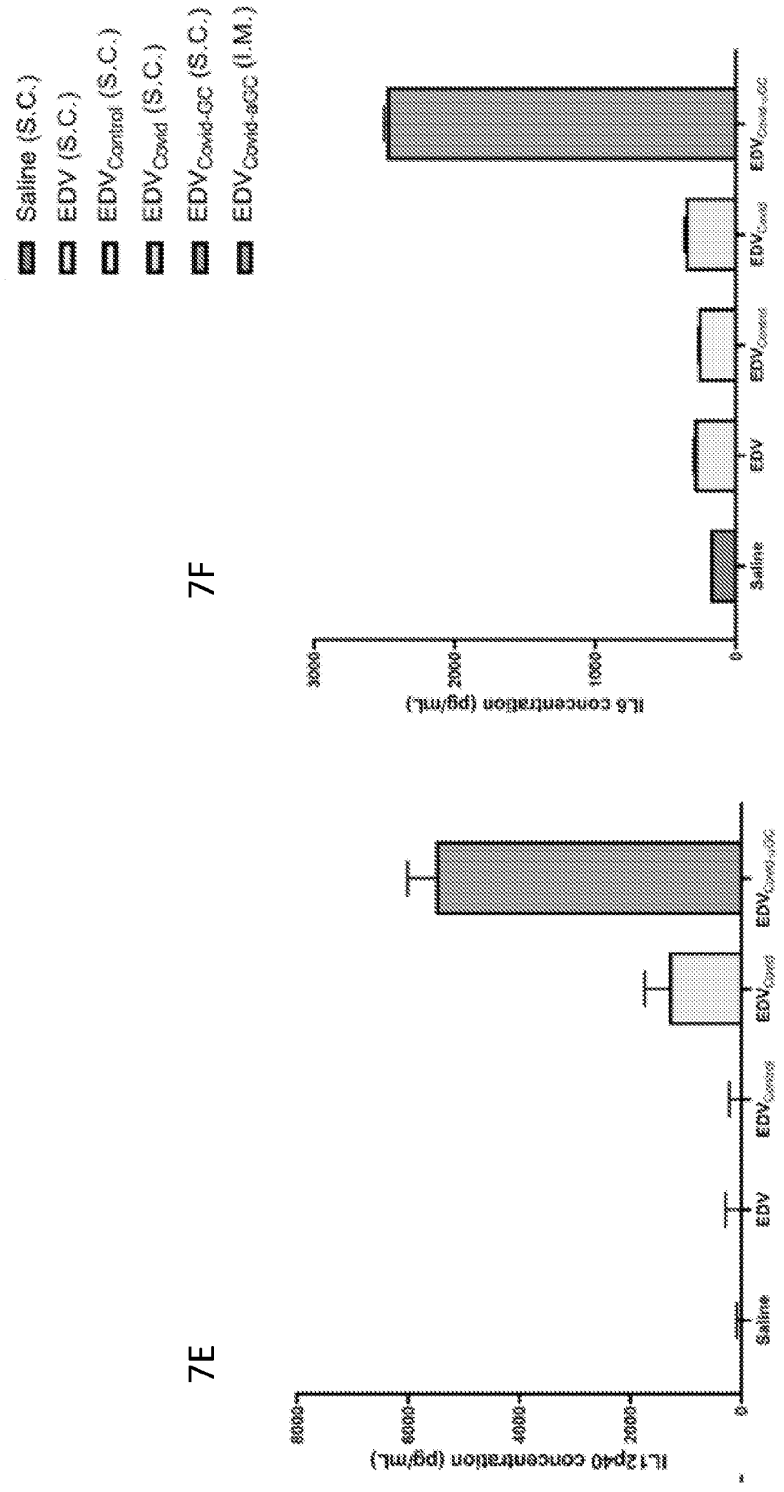

Saline (S.C.)
EDV (S.C.)
EDV Control (S.C.)
EDV Covid (S.C.)
EDV Covid-GC (S.C.)
EDV Covid-aGC (I.M.)
7E
IL12p40 concentration (pg/mL)
8000
6000
4000
2000
0
Saline
EDV
EDV Control
EDV Covid
EDV Covid-GC
7F
IL6 concentration (pg/mL)
3000
2000
1000
0
Saline
EDV
EDV Control
EDV Covid
EDV Covid-GC

Figure 7G

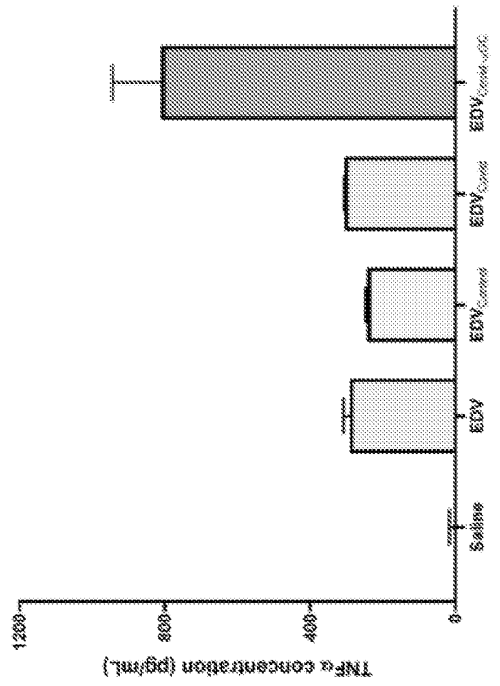

Saline (S.C.)
EDV (S.C.)
EDV Control (S.C.)
EDV Covid (S.C.)
EDV Covid-43C (S.C.)
EDV Covid-40C (I.M.)
TNFα concentration (pg/mL)
1200
800
400
0
Saline
EDV
EDV Control
EDV Covid
EDV Covid-40C

Figure 8A


Saline
EDV
EDV$_{Control}$
EDV$_{Covid}$
EDV$_{Covid-\alpha GC}$
Serum IgM titre at 4 weeks
70000
60000
50000
40000
30000
20000
10000
3000
2400
1800
1200
600
0

Figure 8B

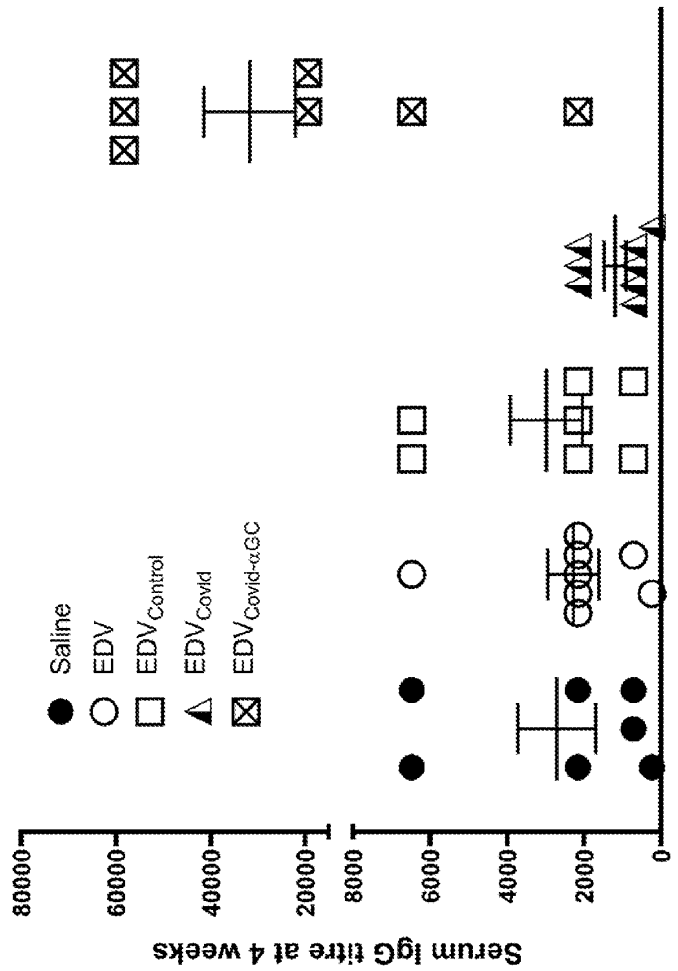

Saline
EDV
EDV$_{Control}$
EDV$_{Covid}$
EDV$_{Covid-\alpha GC}$
Serum IgG titre at 4 weeks
80000
60000
40000
20000
8000
6000
4000
2000
0

Figure 8C

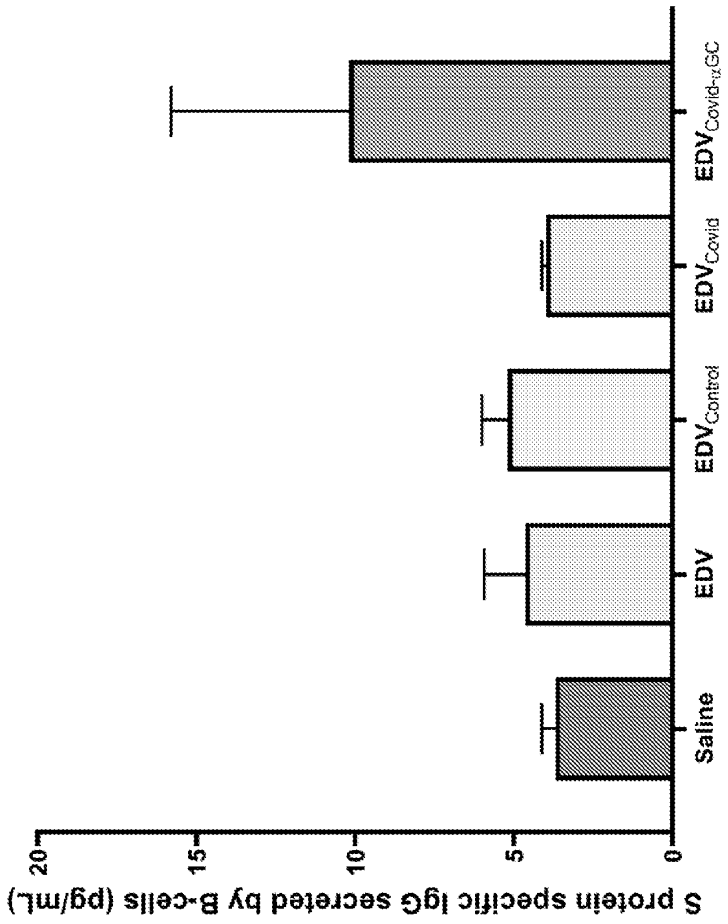

S protein specific IgG secreted by B-cells (pg/mL)
0
5
10
15
20
Saline
EDV
EDV Control
EDV Covid
EDV Covid-αGC

Figure 8D

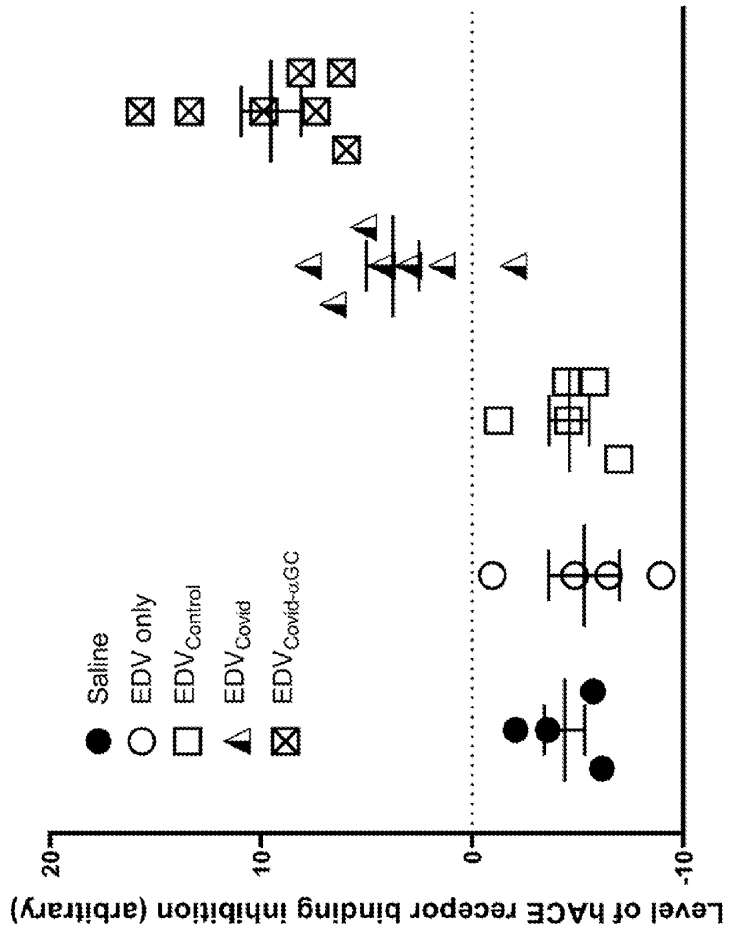

Level of hACE receptor binding inhibition (arbitrary)
20
10
0
-10
Saline
EDV only
EDV Control
EDV Covid
EDV Covid-uGC

Figure 8E

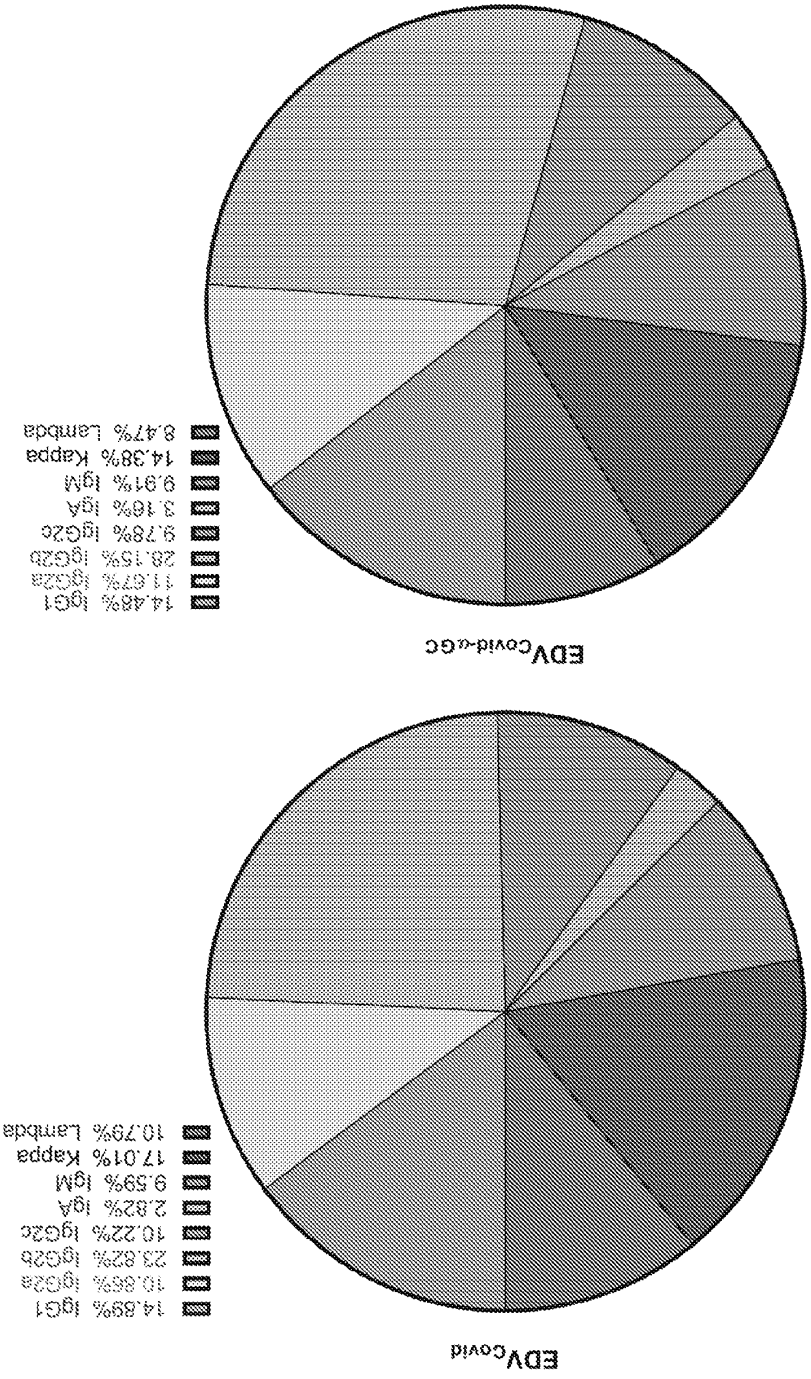

EDVCovid-αGC
14.48% IgG1
11.67% IgG2a
28.15% IgG2b
9.78% IgG2c
3.16% IgA
9.91% IgM
14.38% Kappa
8.47% Lambda
EDVCovid
14.89% IgG1
10.86% IgG2a
23.82% IgG2b
10.22% IgG2c
2.82% IgA
9.59% IgM
17.01% Kappa
10.79% Lambda

Figure 9A

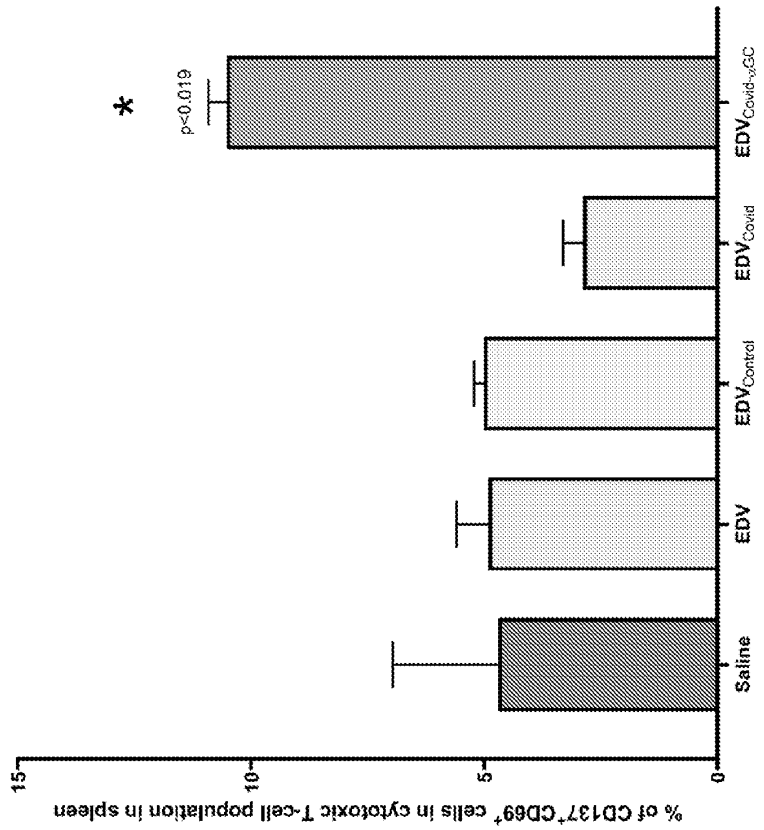

% of CD137+CD69+ cells in cytotoxic T-cell population in spleen
15
10
5
0
*
p<0.019
Saline
EDV
EDVControl
EDVCovid
EDVCovid-γGC

Figure 9B

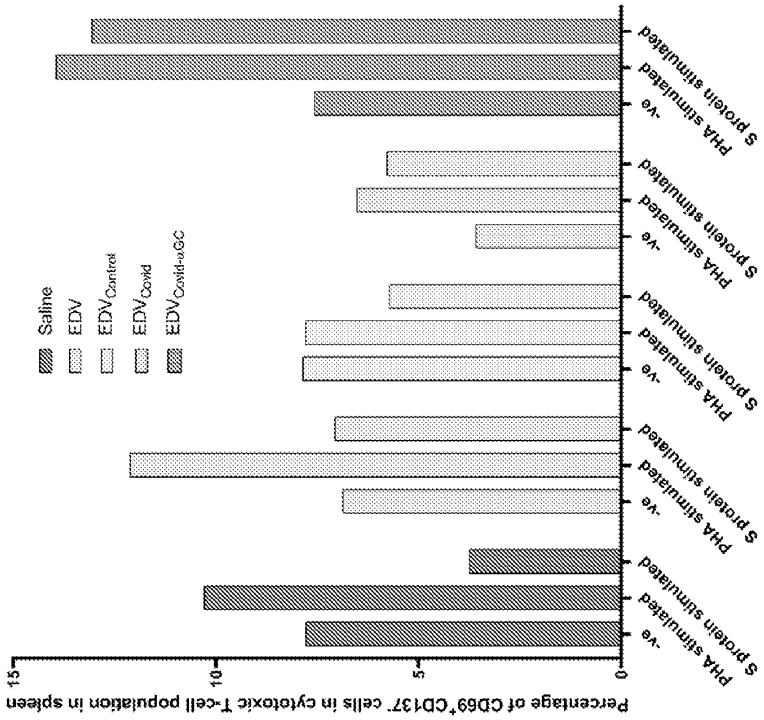

Saline
EDV
EDV$_{Control}$
EDV$_{Covid}$
EDV$_{Covid-αGC}$
Percentage of CD69$^+$CD137$^-$ cells in cytotoxic T-cell population in spleen
0
5
10
15
-ve
PHA stimulated
S protein stimulated

Figure 10A

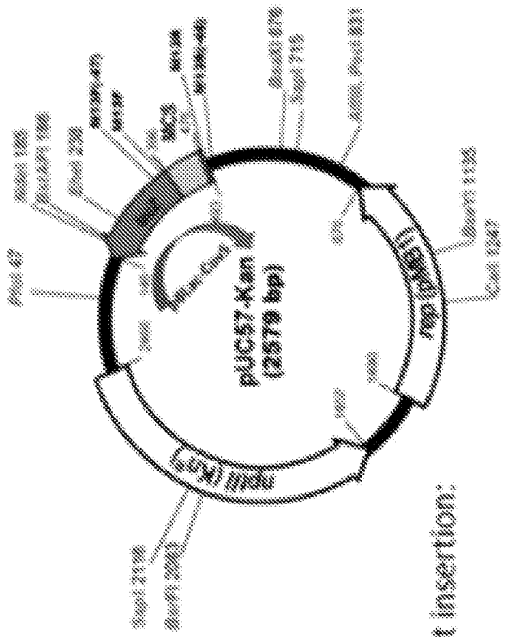

pUC57-Kan
(2579 bp)
LacZ (partial)
Kan (complete)
Sites of construct insertion:
5' KpnI, 3'SalI
Multiple Cloning Sites:

Figure 10B

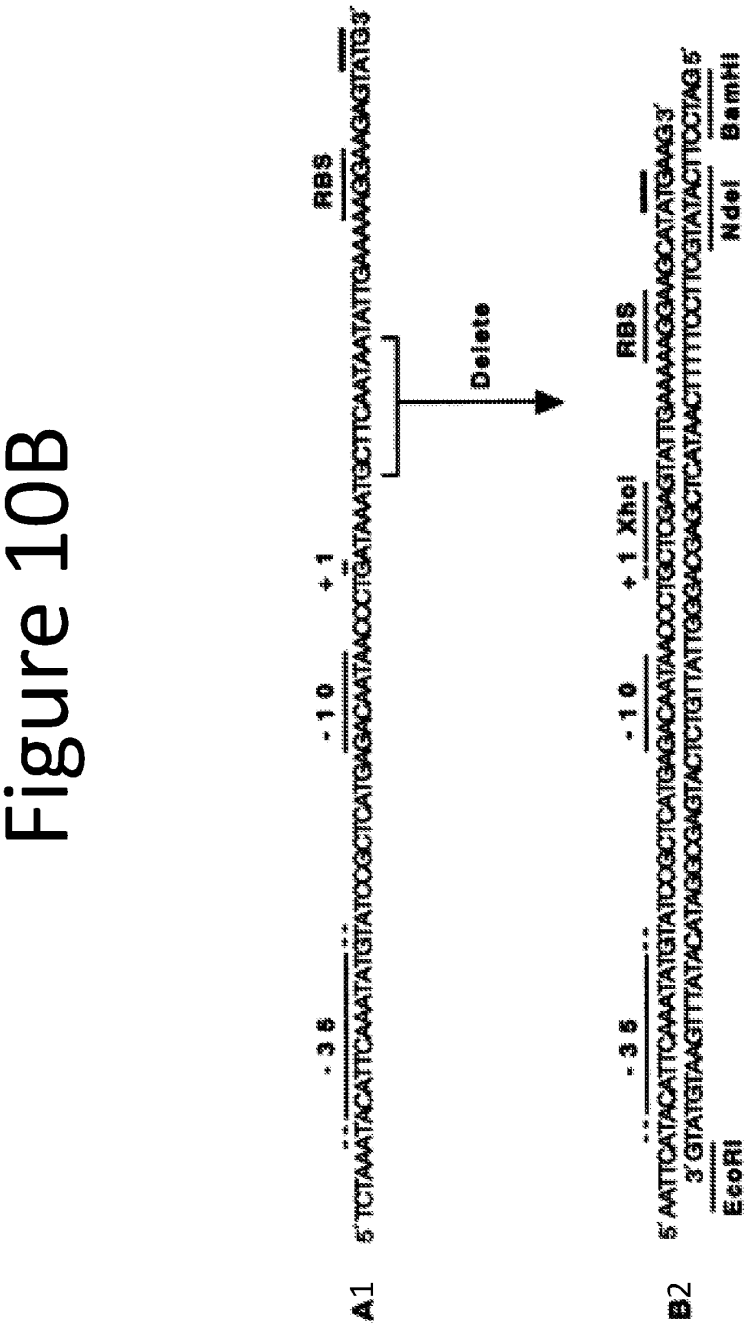
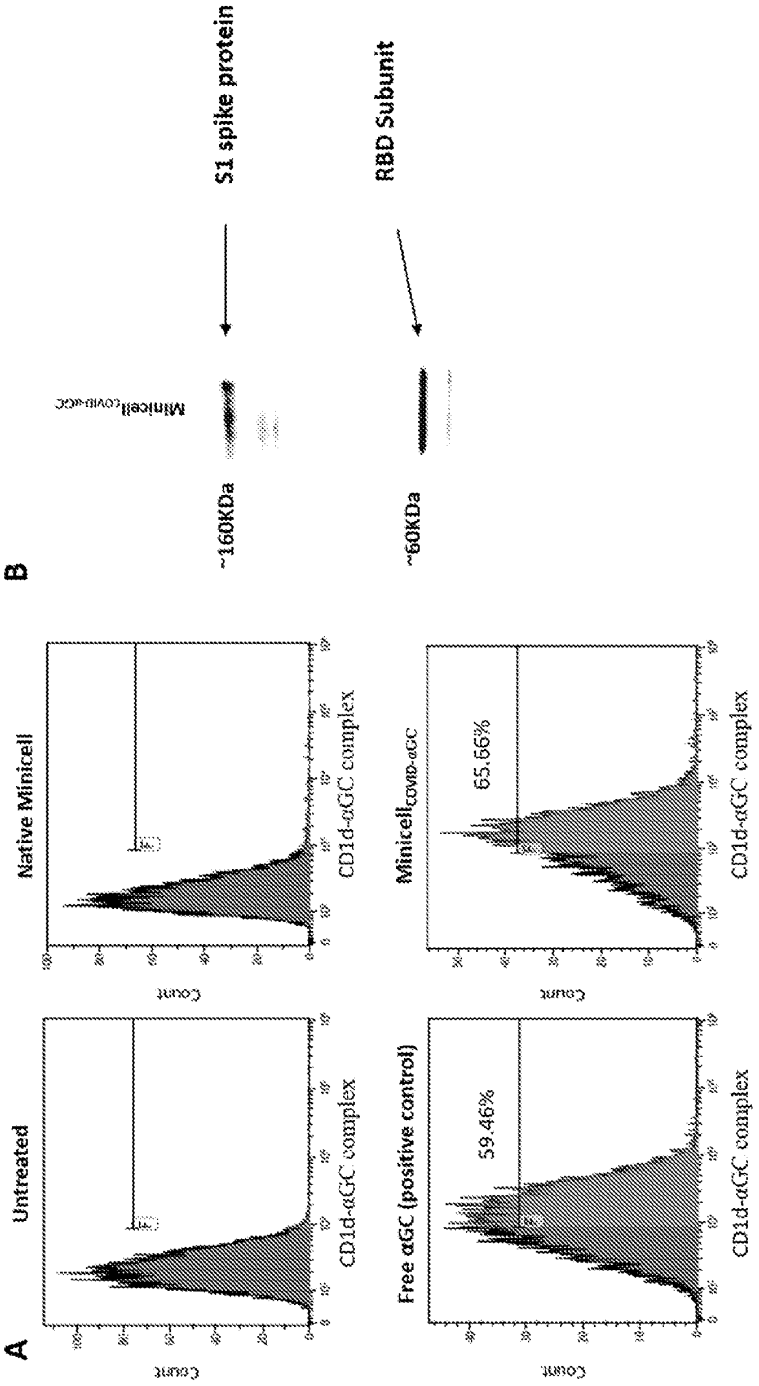

A1
-35
-10
+1
RBS
5' TCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAGGAAGGAGTATG 3'
Delete
B2
-35
-10
+1 XhoI
RBS
5' AATTCATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTCGAGTTATTGAAAAGGAAGGAGCATATGAAG 3'
3' GTATGTAAGTTTATACATAGGCGAGTACTCTGTTATTGGGAGCTCAATAACTTTTCCTTCGTATACTTCCTTAG 5'
EcoRI
NdeI
BamHI

Figure 11


A
Untreated
Native Minicell
Free αGC (positive control)
Minicell$_{COVID-αGC}$
59.46%
65.66%
Count
CD1d-αGC complex
B
S1 spike protein
RBD Subunit
~160KDa
~60KDa
Minicell$_{COVID-αGC}$

Figures 12A and 12B

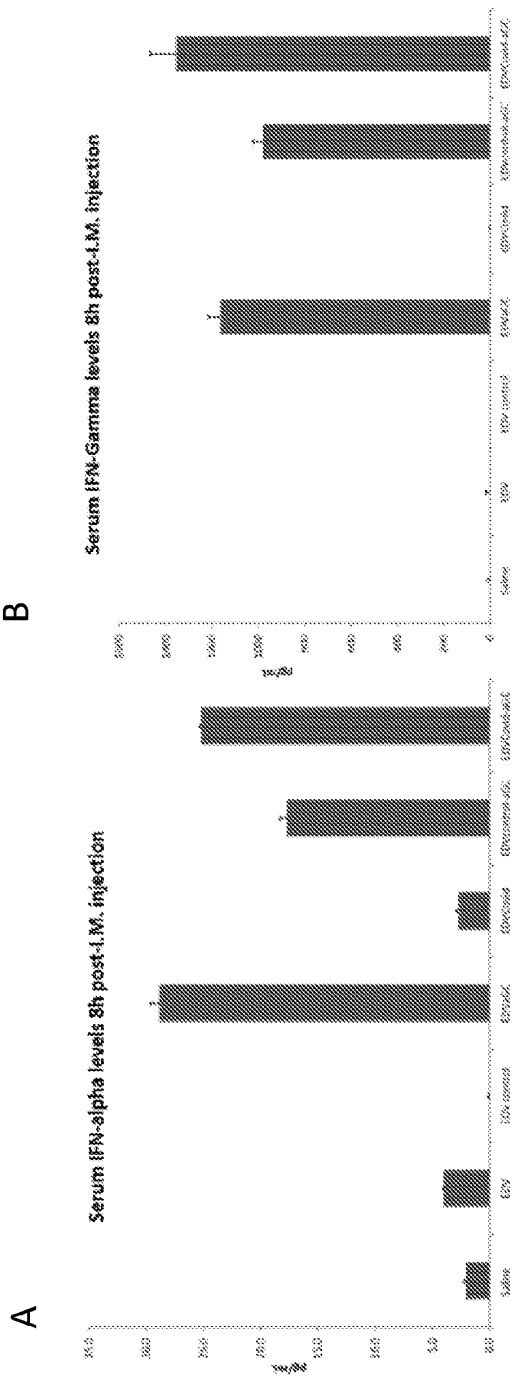


Figure 12C and 12D

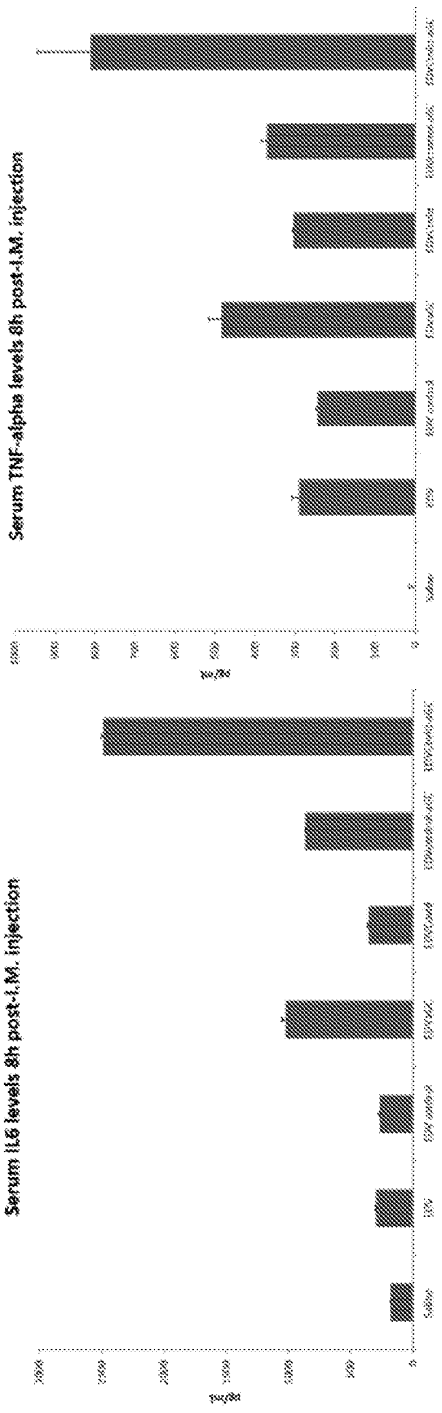


Figure 12E

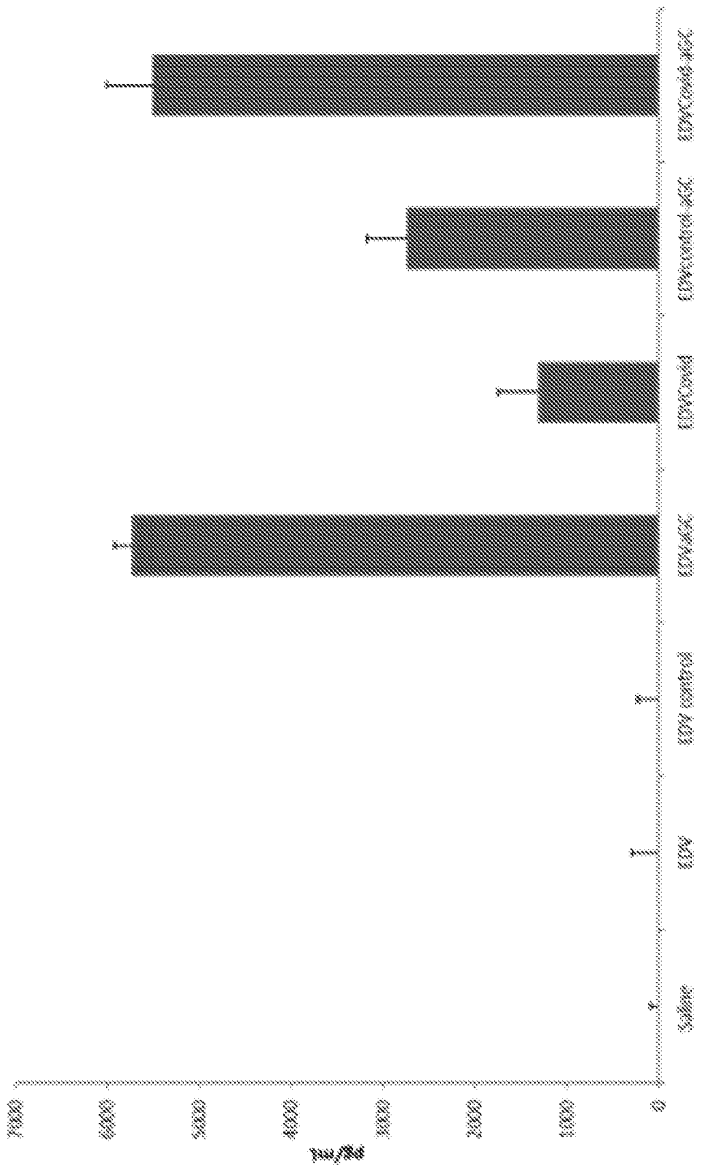

Serum IL12p40 levels 8h post-I.M. injection
pg/mL
7000
6000
5000
4000
3000
2000
1000
0
Saline
IDV
IDV control
IDVaGC
IDVGold
IDVControl aGC
IDVGold aGC

Figure 13A

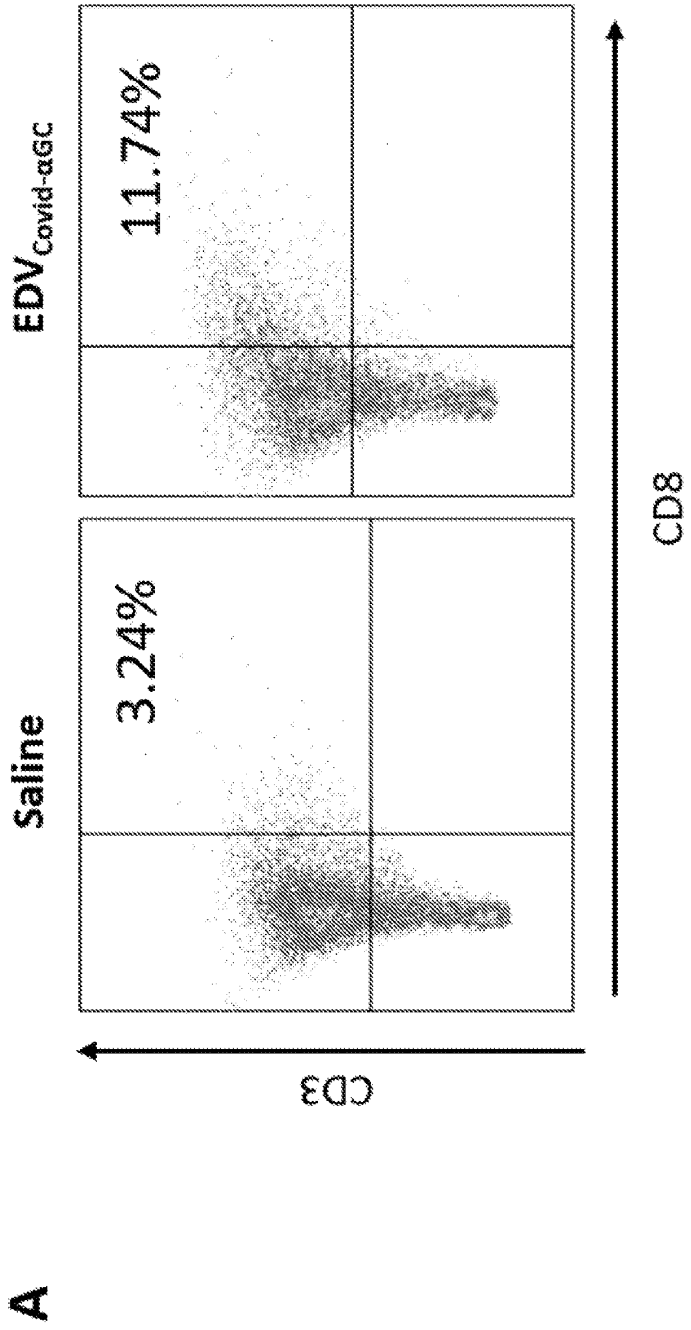


Figure 13B

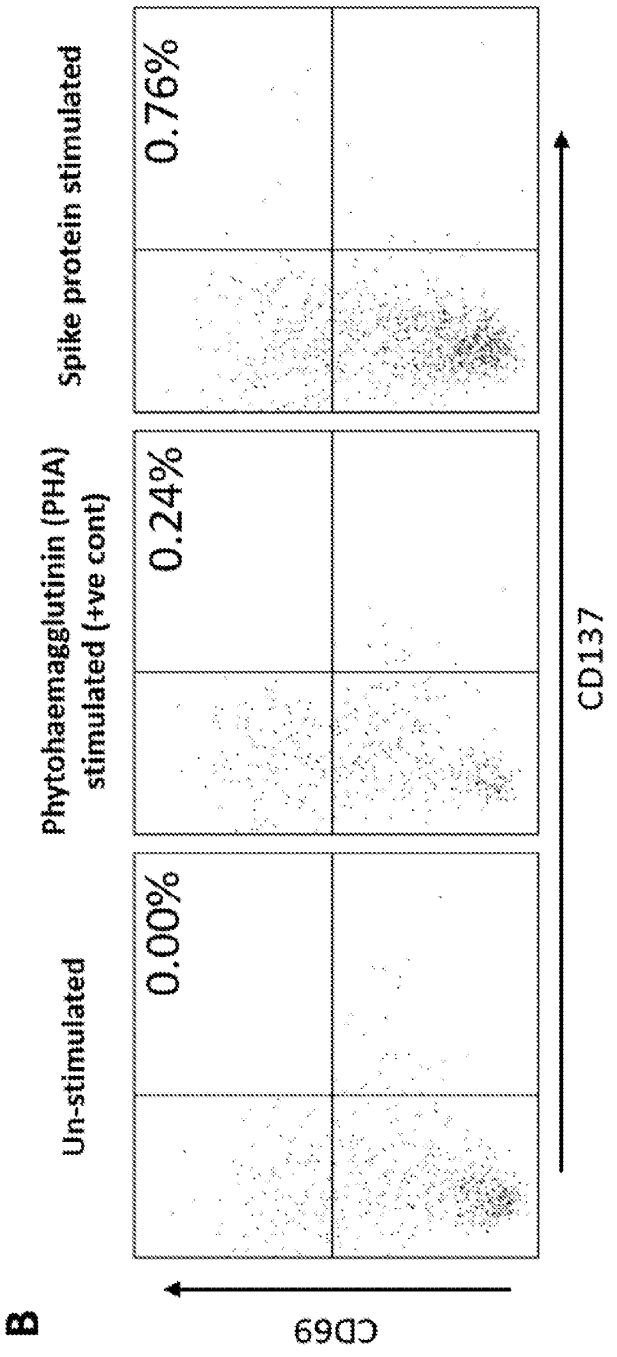

B
Un-stimulated
0.00%
Phytohaemagglutinin (PHA) stimulated (+ve cont)
0.24%
Spike protein stimulated
0.76%
CD69
CD137

Figure 14A and 14B

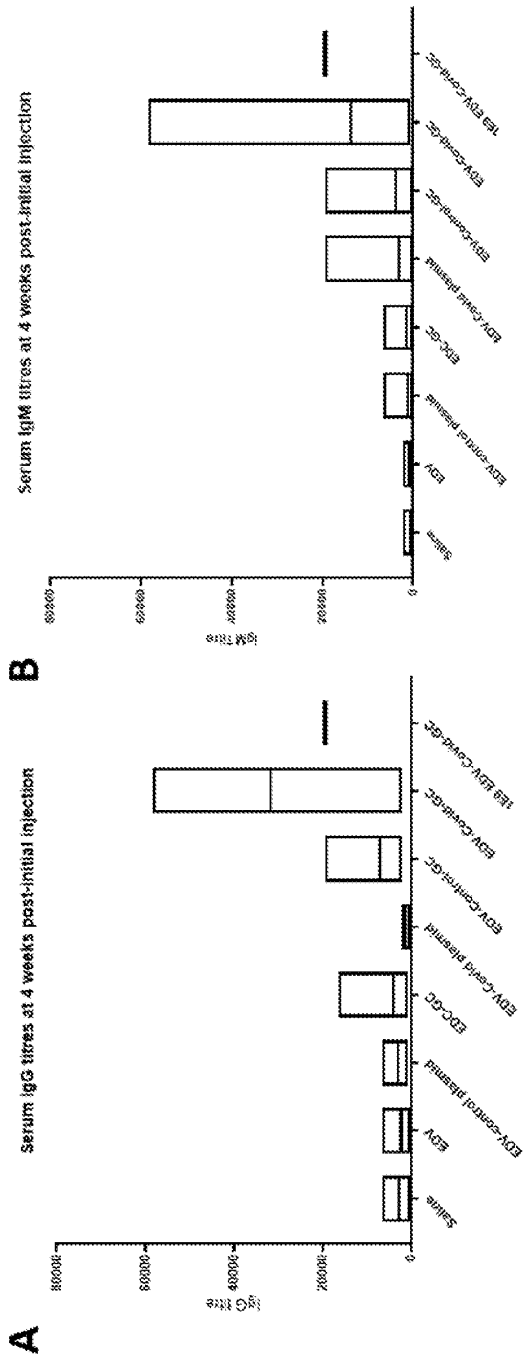


Figure 14C

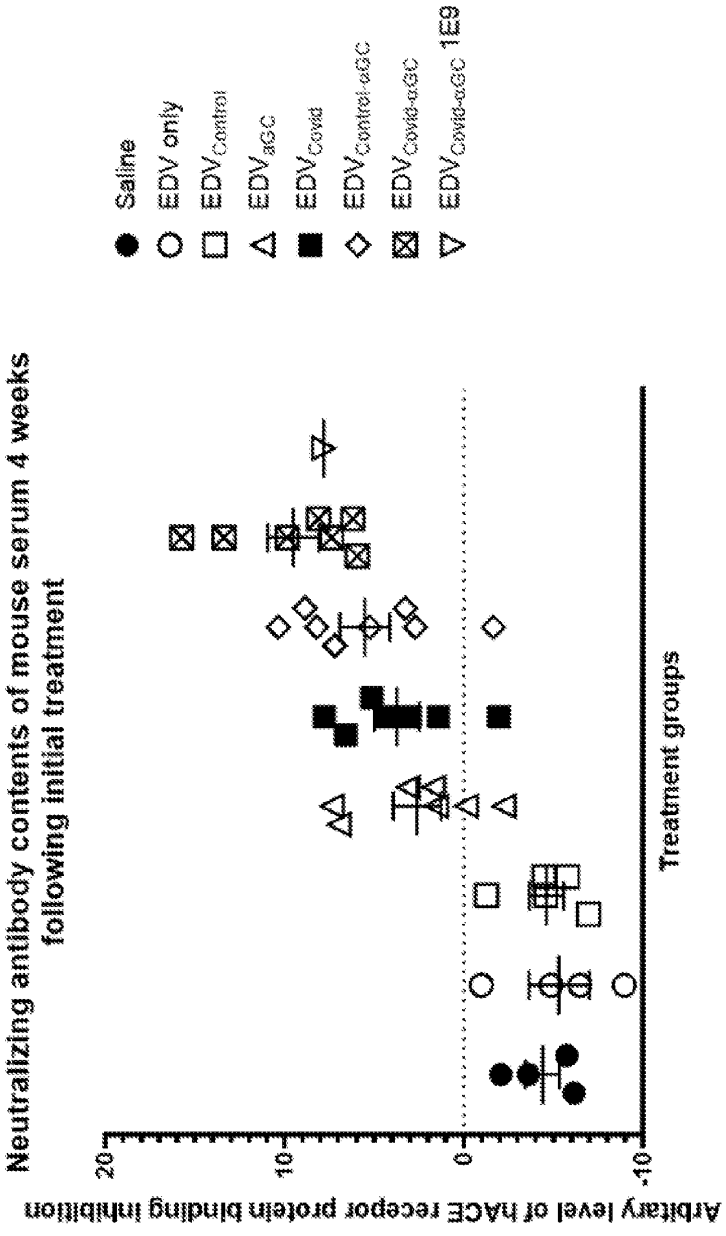
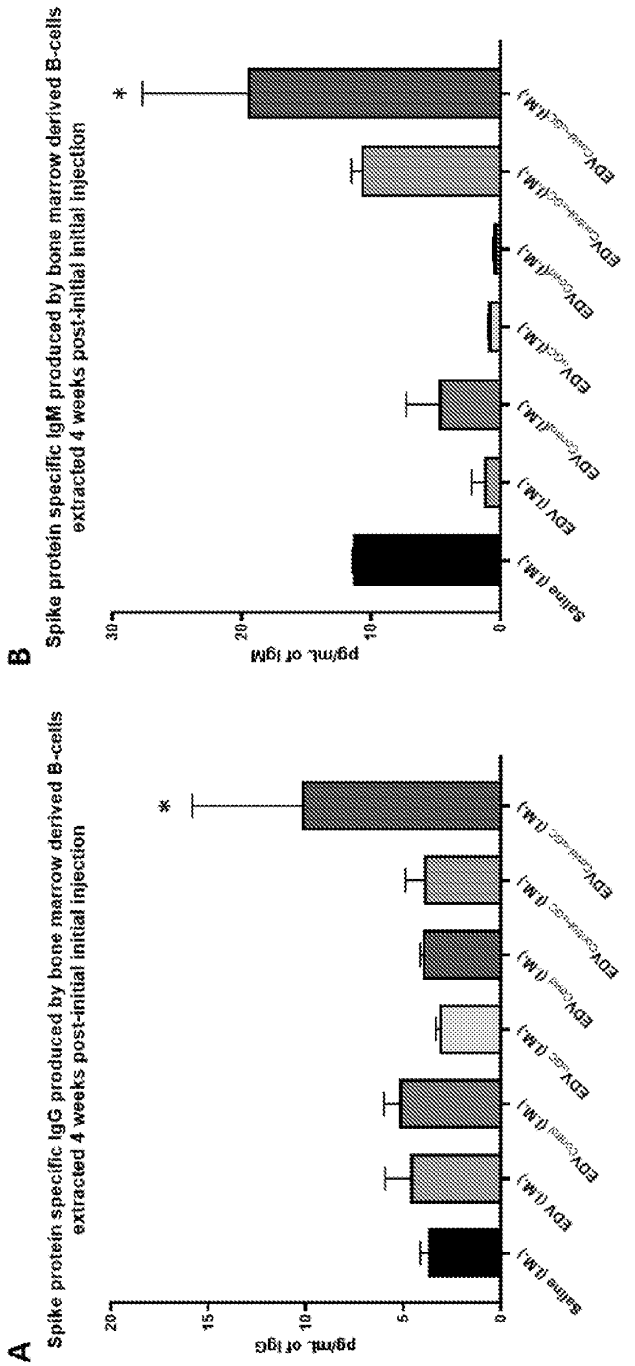

C
Neutralizing antibody contents of mouse serum 4 weeks following initial treatment
Arbitary level of hACE receptor protein binding inhibition
20
10
0
-10
Treatment groups
Saline
EDV only
EDV Control
EDV aGC
EDV Covid
EDV Control-aGC
EDV Covid-aGC
EDV Covid-aGC 1E9

Figure 15


A
Spike protein specific IgG produced by bone marrow derived B-cells
extracted 4 weeks post-initial initial injection
pg/mL of IgG
0
5
10
15
20
*
Saline (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
B
Spike protein specific IgM produced by bone marrow derived B-cells
extracted 4 weeks post-initial initial injection
pg/mL of IgM
0
10
20
30
*
Saline (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)
EDV (I.M.)