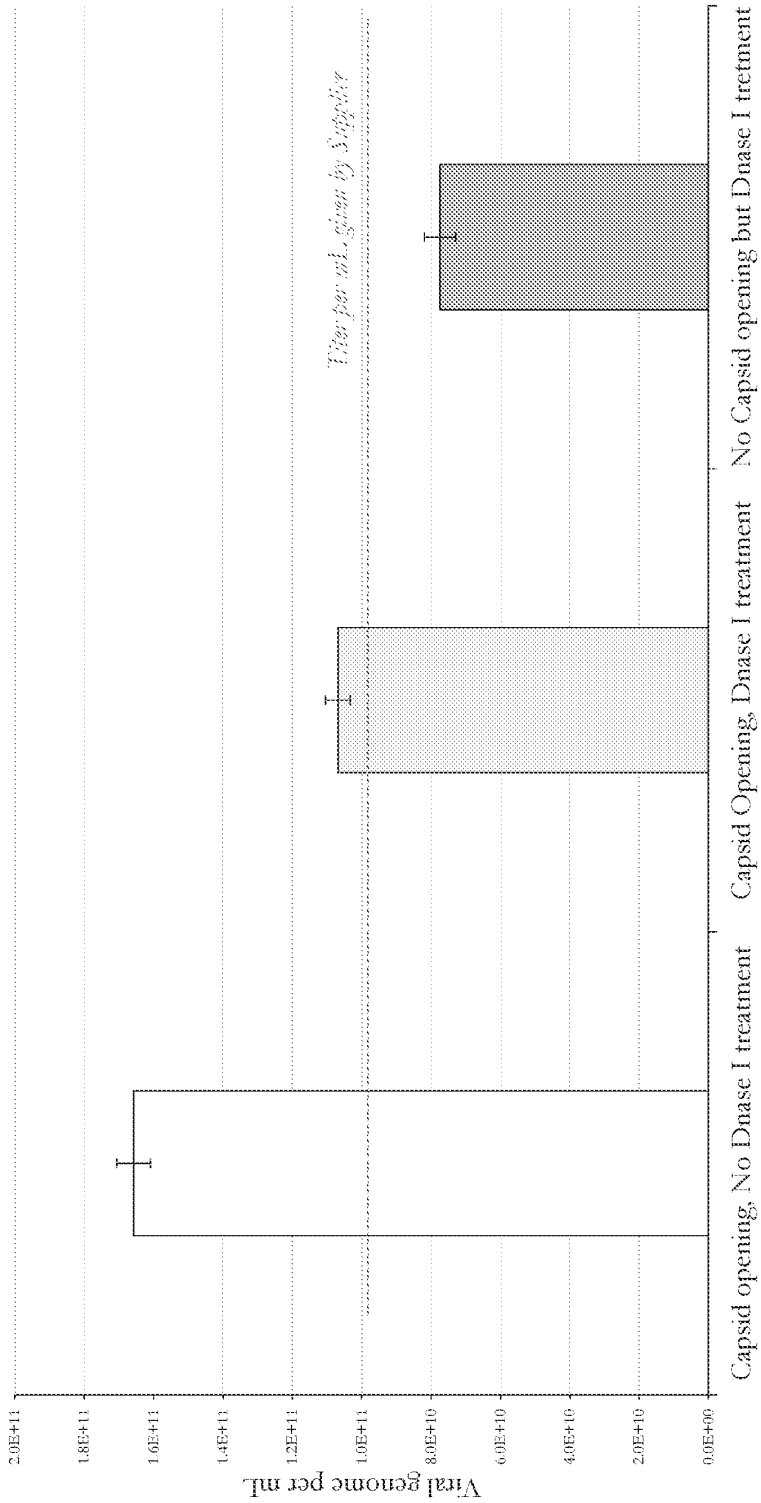

Titer per mL given by Sapphire
Viral genome per mL
2.0E+11
1.8E+11
1.6E+11
1.4E+11
1.2E+11
1.0E+11
8.0E+10
6.0E+10
4.0E+10
2.0E+10
0.0E+00
Capsid opening, No Dnase I treatment
Capsid Opening, Dnase I treatment
No Capsid opening but Dnase I tretment

Figure 1

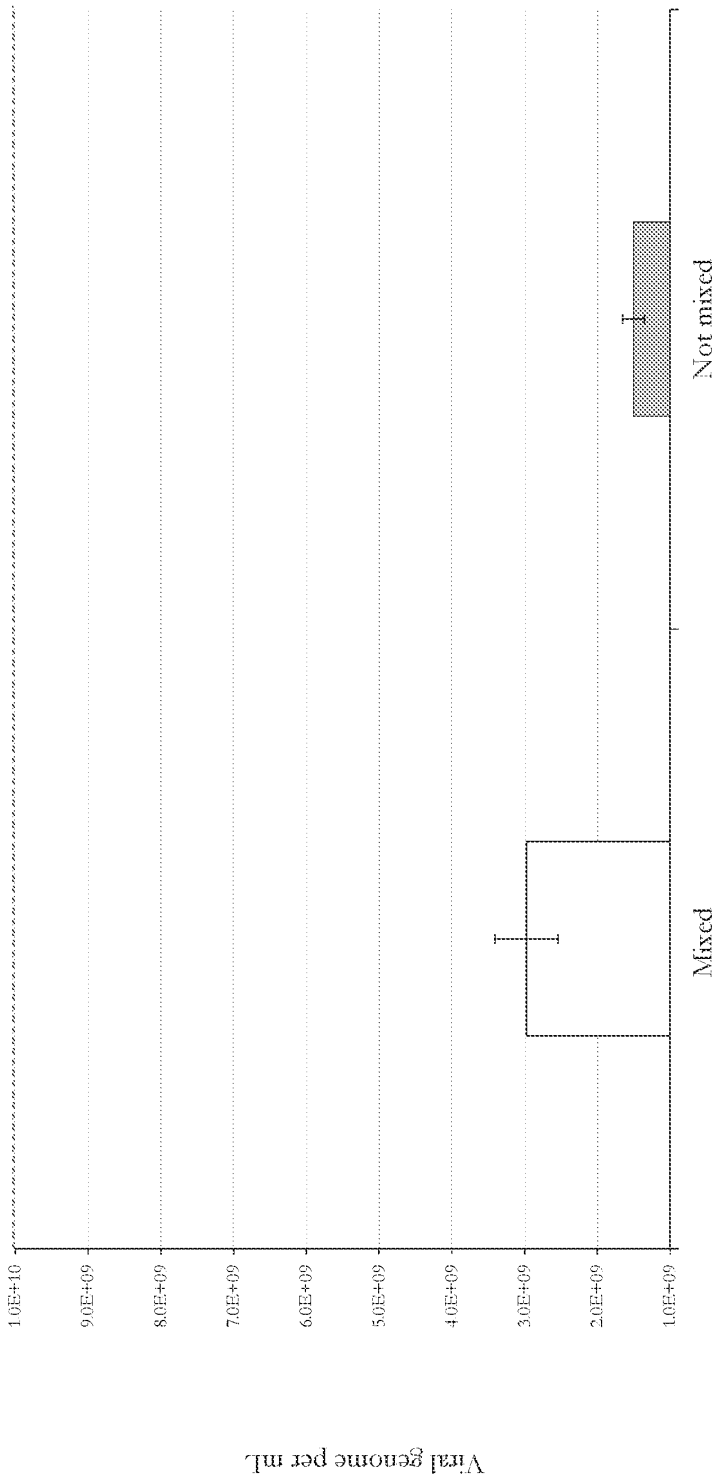
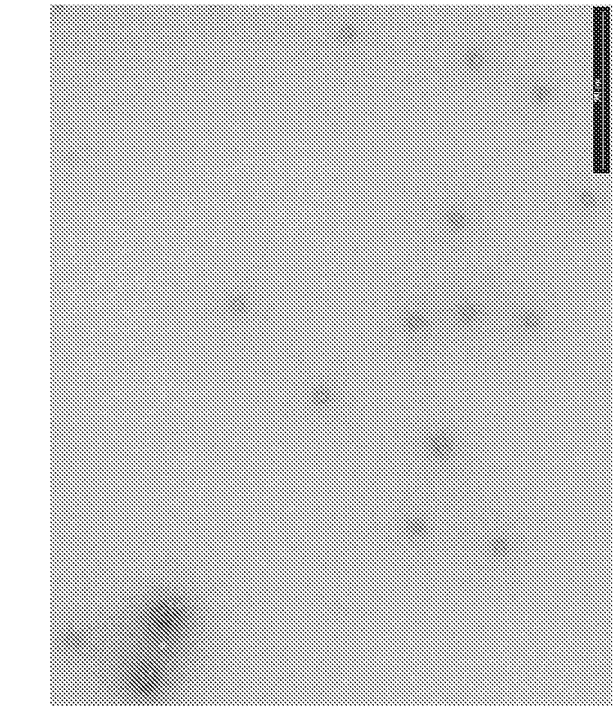
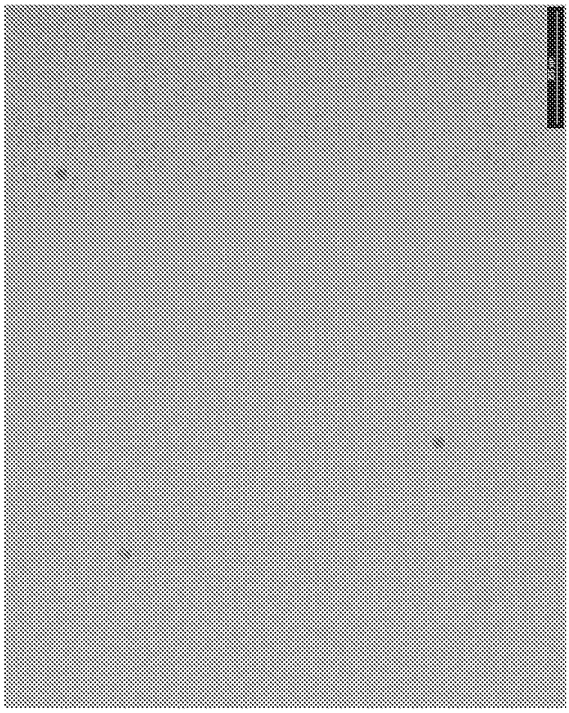

Viral genome per mL
1.0E+10
9.0E+09
8.0E+09
7.0E+09
6.0E+09
5.0E+09
4.0E+09
3.0E+09
2.0E+09
1.0E+09
Mixed
Not mixed

Figure 2



B



A

Figure 3

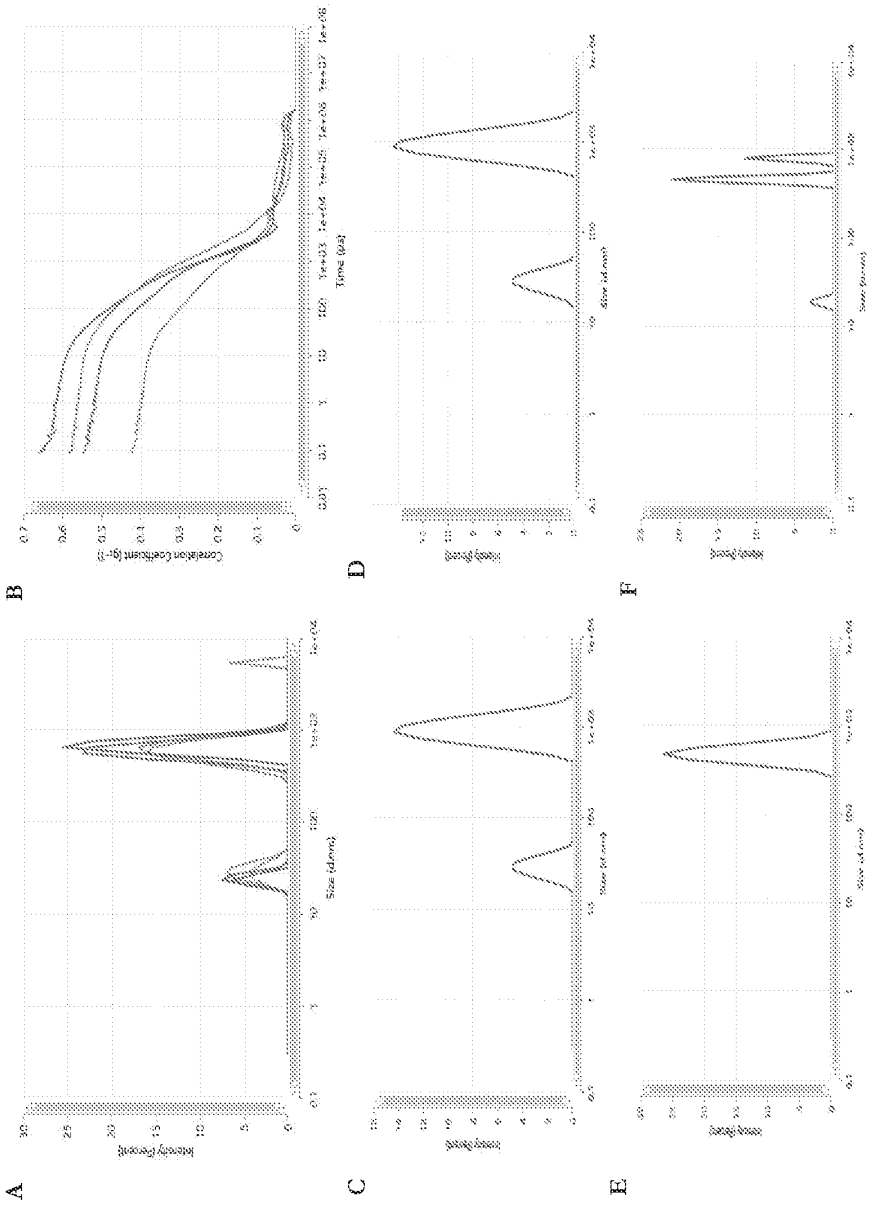


Figure 4

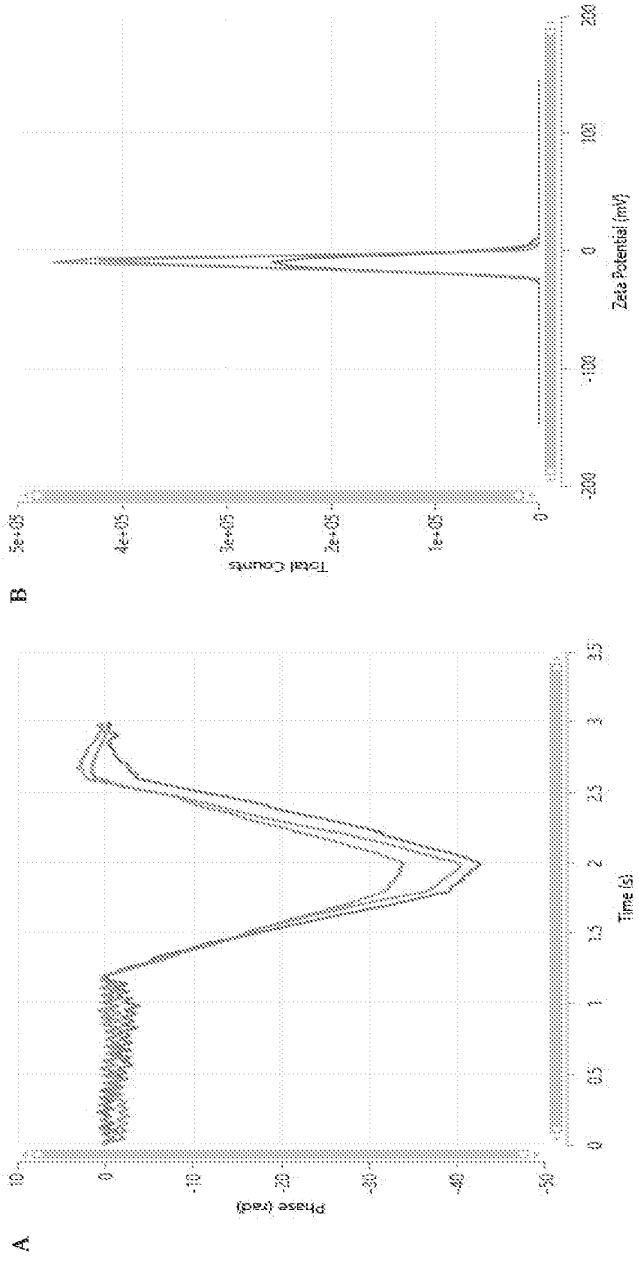

A
Phase (rad)
10
0
-10
-20
-30
-40
-50
0
0.5
1
1.5
2
2.5
3
3.5
Time (s)
B
Total Counts
5e+05
4e+05
3e+05
2e+05
1e+05
0
-200
-100
0
100
200
Zeta Potential (mV)

Figure 5

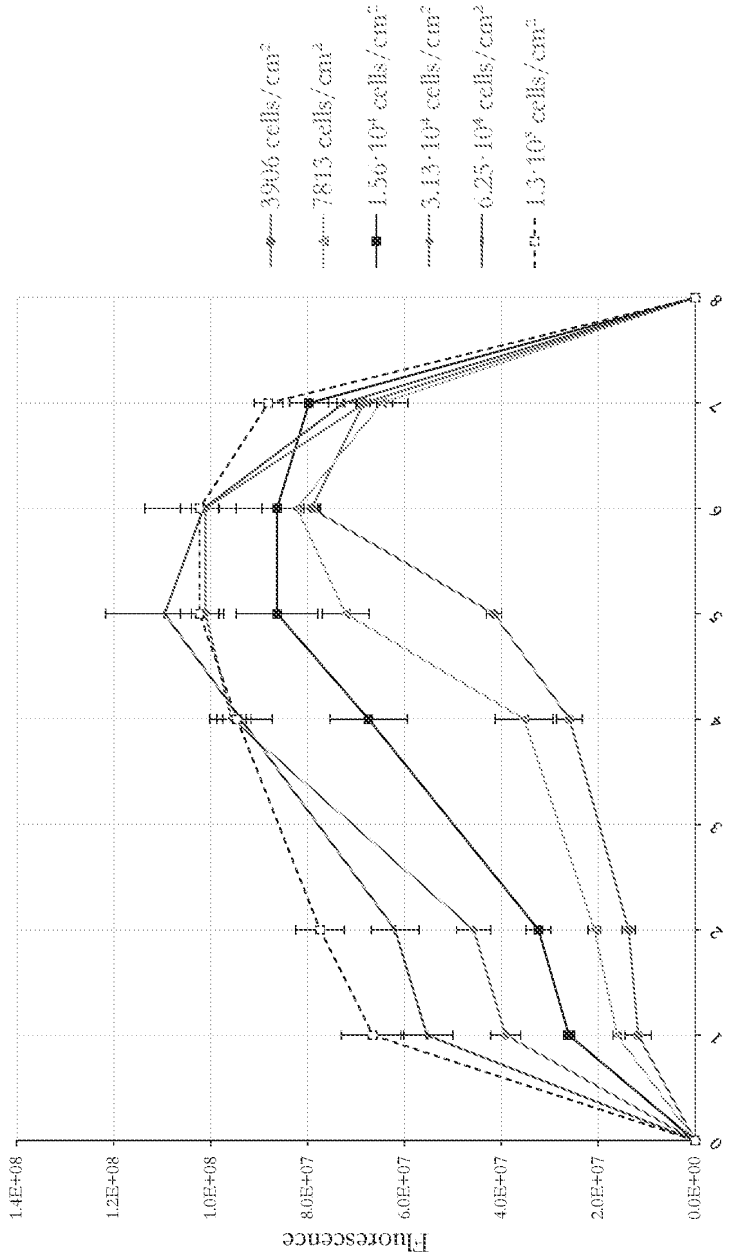

3906 cells/cm²
7813 cells/cm²
1.56·10⁴ cells/cm²
3.13·10⁴ cells/cm²
6.25·10⁴ cells/cm²
1.3·10⁵ cells/cm²
Fluorescence
1.4E+08
1.2E+08
1.0E+08
8.0E+07
6.0E+07
4.0E+07
2.0E+07
0.0E+00
0
1
2
3
4
5
6
7
8
Days

Figure 6

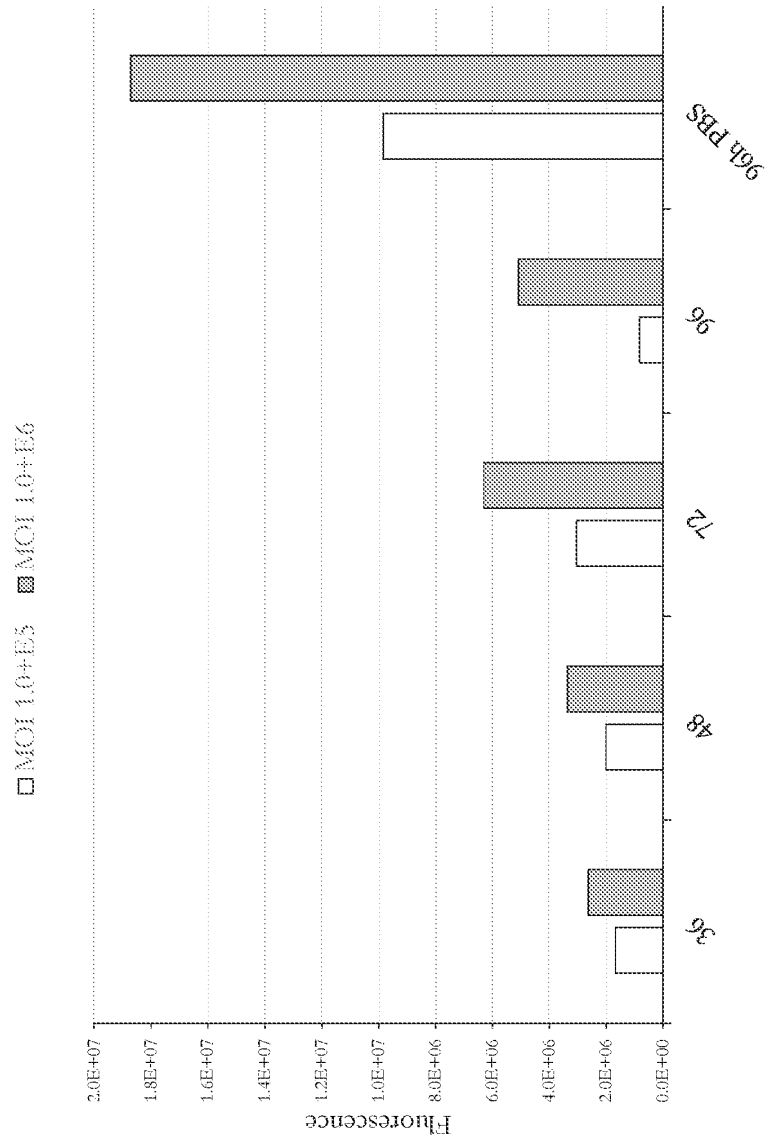

MOI 1.0+E5
MOI 1.0+E6
Fluorescence
2.0E+07
1.8E+07
1.6E+07
1.4E+07
1.2E+07
1.0E+07
8.0E+06
6.0E+06
4.0E+06
2.0E+06
0.0E+00
24
48
72
96
96h PBS
Hours

Figure 7

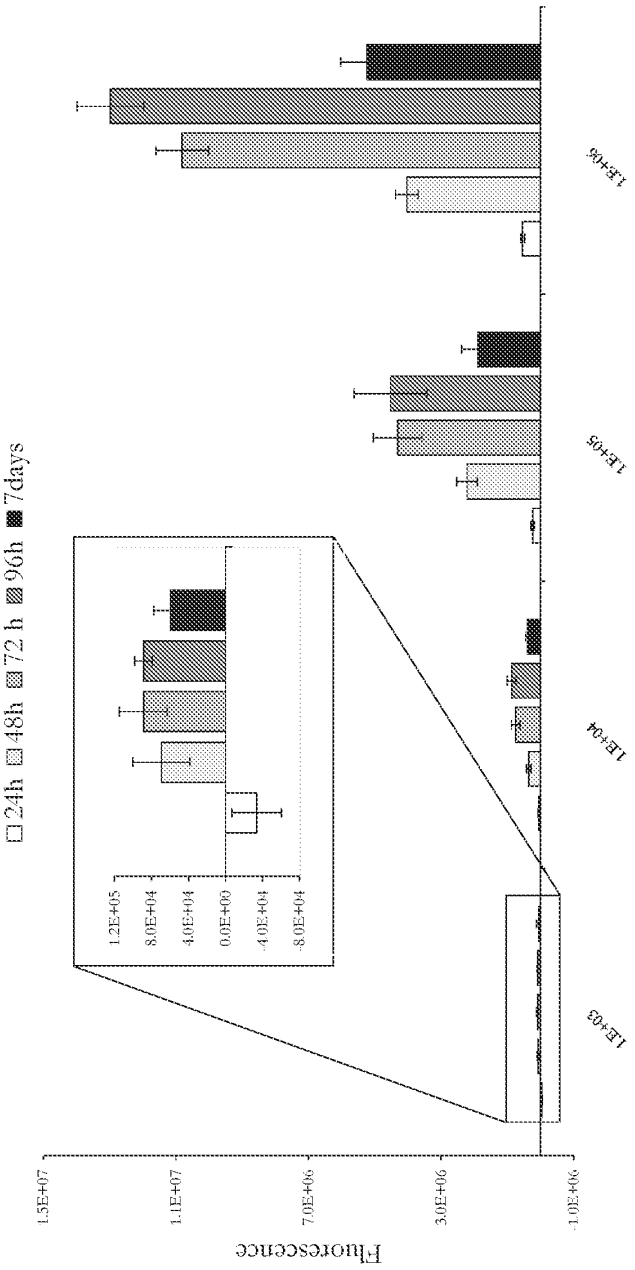

24h
48h
72 h
96h
7days
Fluorescence
1.5E+07
1.1E+07
7.0E+06
3.0E+06
1.0E+06
1.2E+05
8.0E+04
4.0E+04
0.0E+00
-4.0E+04
-8.0E+04
1E+03
1E+04
1E+05
1E+06
MOI

Figure 8

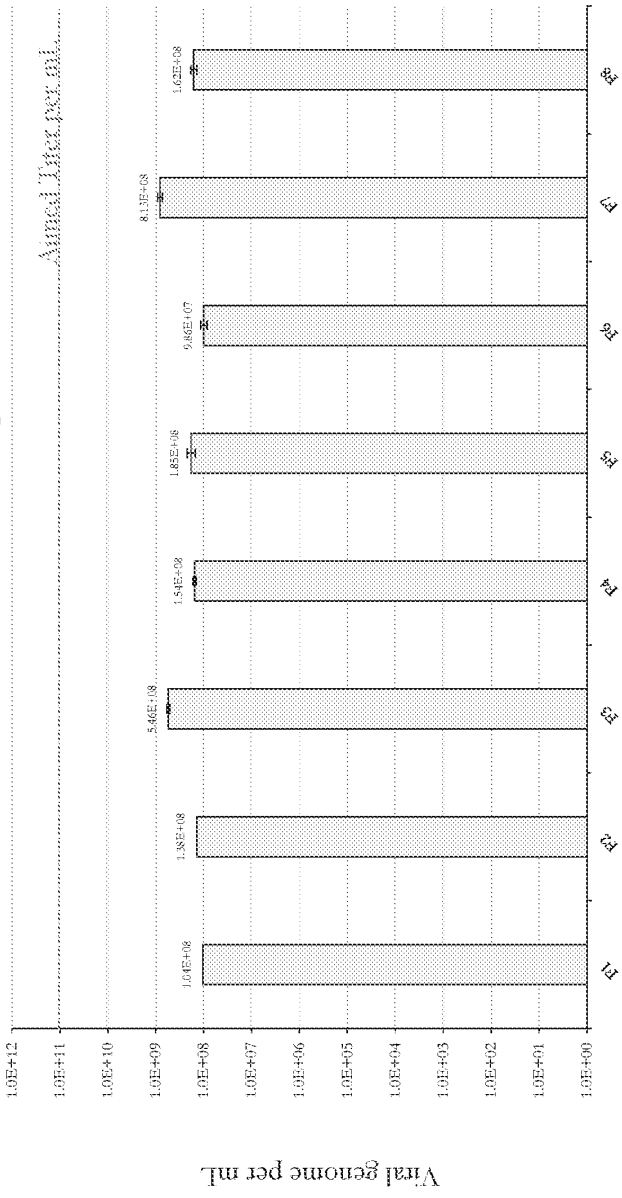

Measured Titer per mL
Annual Titer per mL
Viral genome per mL
1.0E+12
1.0E+11
1.0E+10
1.0E+09
1.0E+08
1.0E+07
1.0E+06
1.0E+05
1.0E+04
1.0E+03
1.0E+02
1.0E+01
1.0E+00
1.04E+08
1.38E+08
5.46E+08
1.54E+08
1.83E+08
9.85E+07
8.13E+08
1.62E+08
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 9

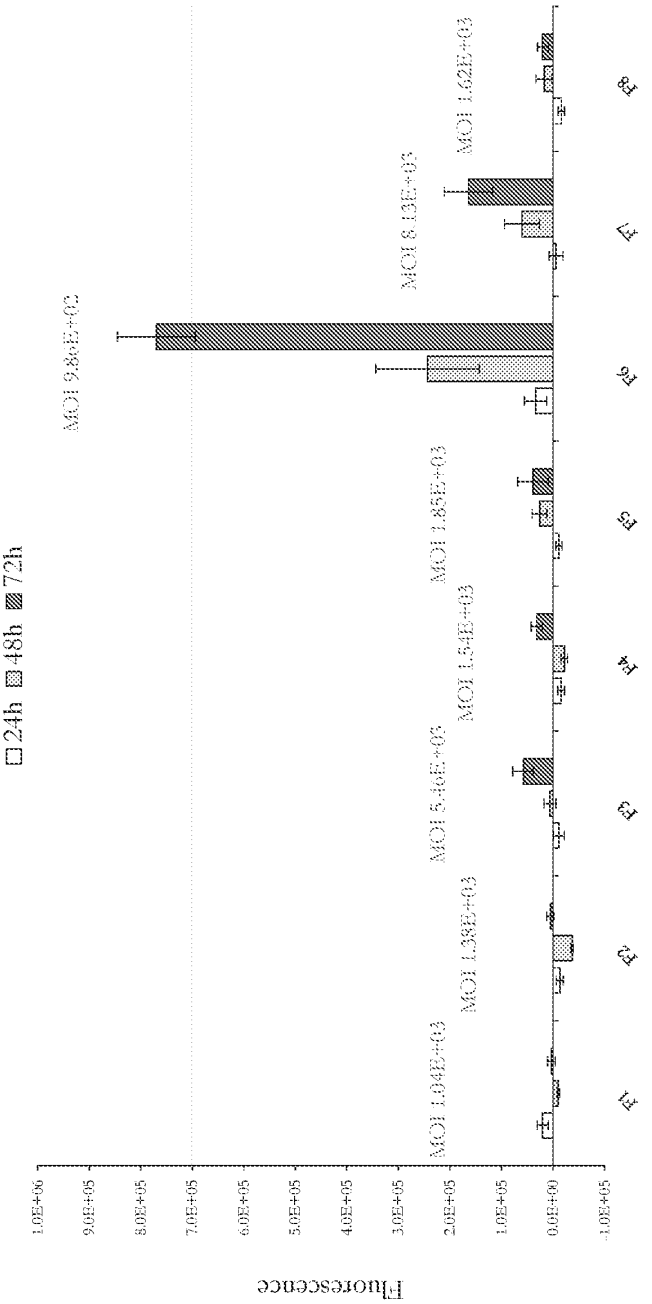

24h
48h
72h
Fluorescence
Formulation
MOI 1.04E+03
MOI 1.38E+03
MOI 5.46E+03
MOI 1.54E+03
MOI 1.85E+03
MOI 9.86E+02
MOI 8.13E+03
MOI 1.62E+03
1.0E+06
9.0E+05
8.0E+05
7.0E+05
6.0E+05
5.0E+05
4.0E+05
3.0E+05
2.0E+05
1.0E+05
0.0E+00
-1.0E+05
1
2
3
4
5
6
7
8

Figure 10

Figure 11

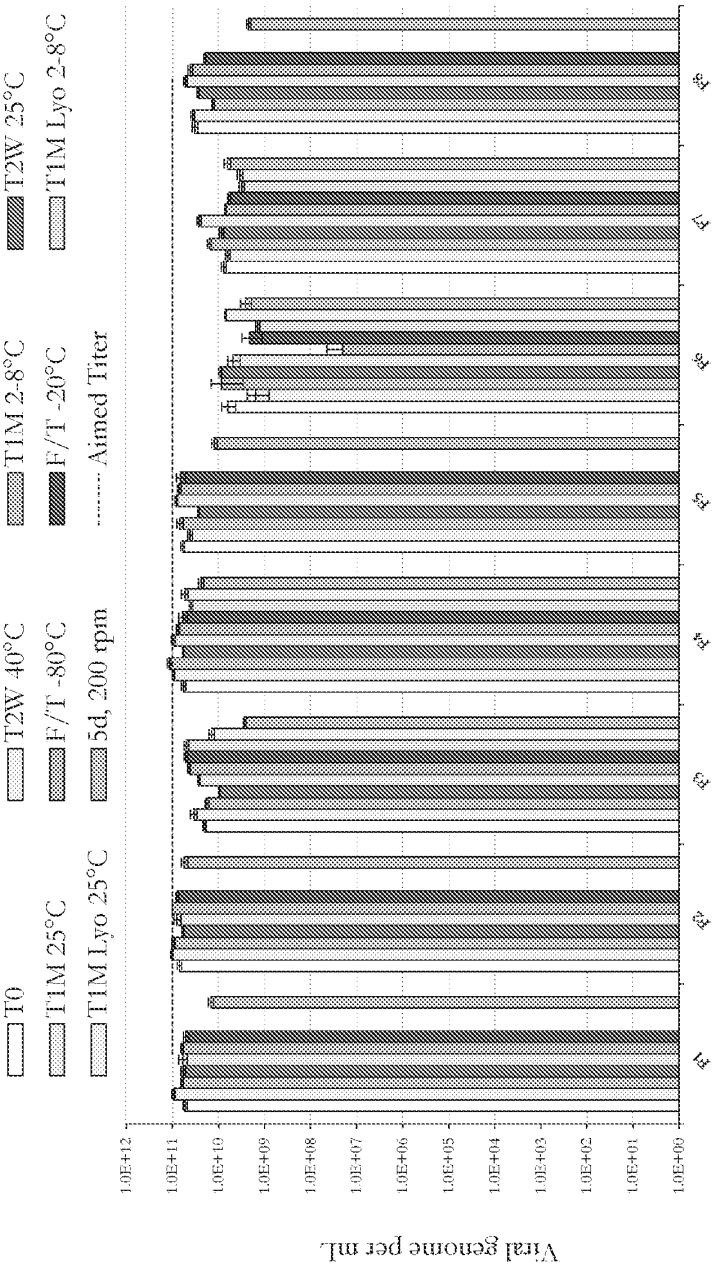

T0
T1M 25°C
T1M Lyo 25°C
T2W 40°C
F/T -80°C
5d, 200 rpm
T1M 2-8°C
F/T -20°C
Aimed Titer
T2W 25°C
T1M Lyo 2-8°C
Viral genome per mL
1.0E+12
1.0E+11
1.0E+10
1.0E+09
1.0E+08
1.0E+07
1.0E+06
1.0E+05
1.0E+04
1.0E+03
1.0E+02
1.0E+01
1.0E+00
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 12

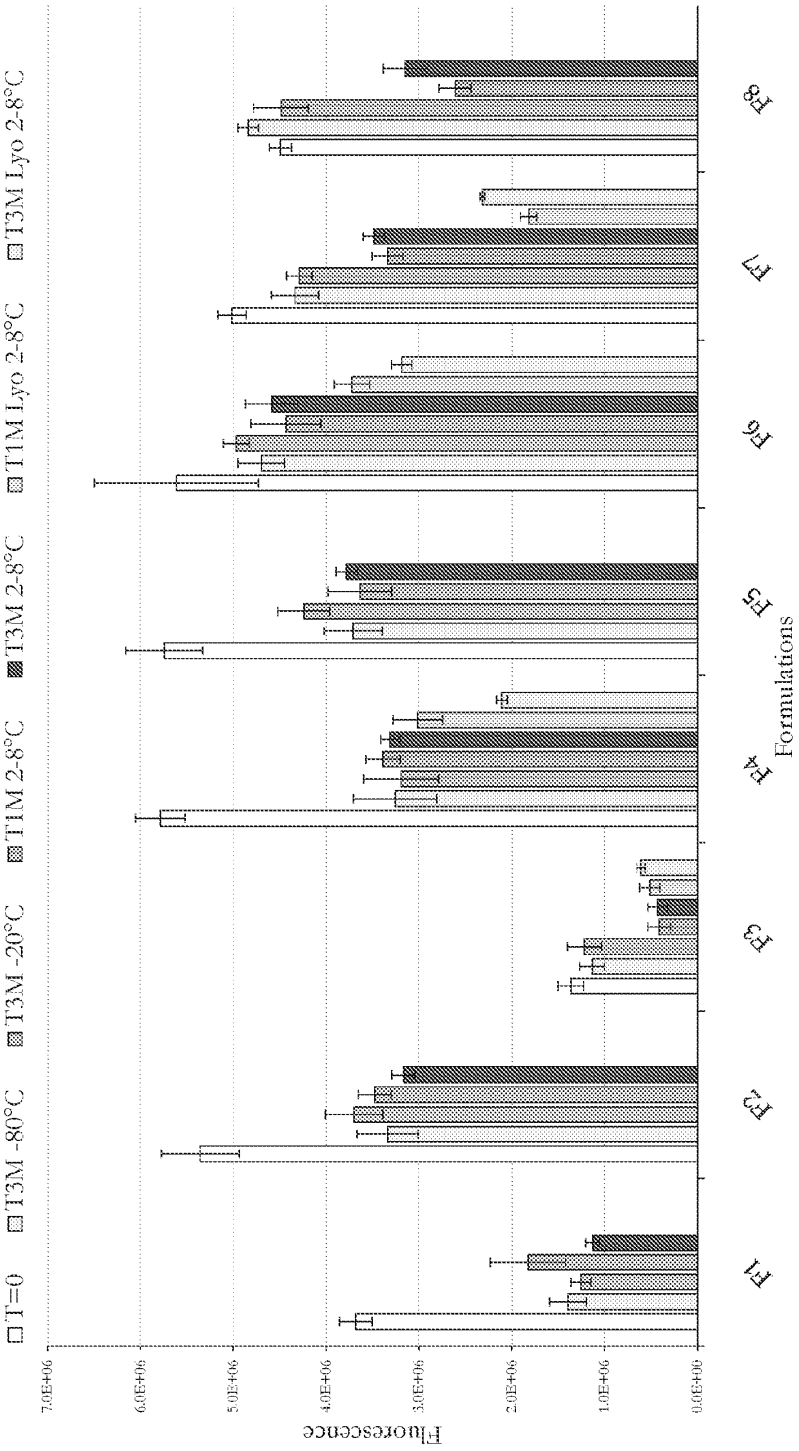

T=0
T3M -80°C
T3M -20°C
T1M 2-8°C
T3M 2-8°C
T1M Lyo 2-8°C
T3M Lyo 2-8°C
Fluorescence
7.0E+06
6.0E+06
5.0E+06
4.0E+06
3.0E+06
2.0E+06
1.0E+06
0.0E+00
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 13

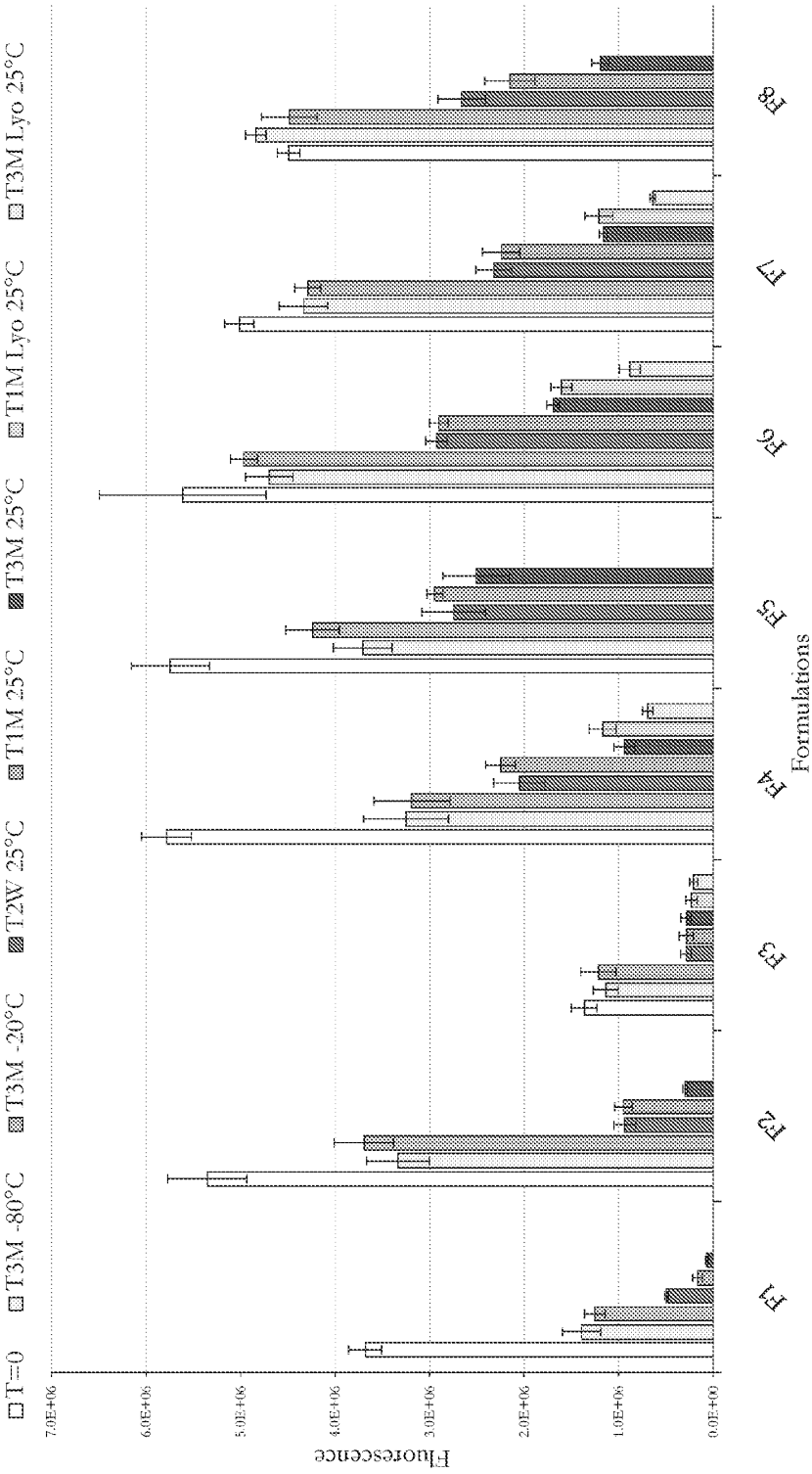

T=0
T3M -80°C
T3M -20°C
T2W 25°C
T1M 25°C
T3M 25°C
T1M Lyo 25°C
T3M Lyo 25°C
Fluorescence
7.0E+06
6.0E+06
5.0E+06
4.0E+06
3.0E+06
2.0E+06
1.0E+06
0.0E+00
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 14

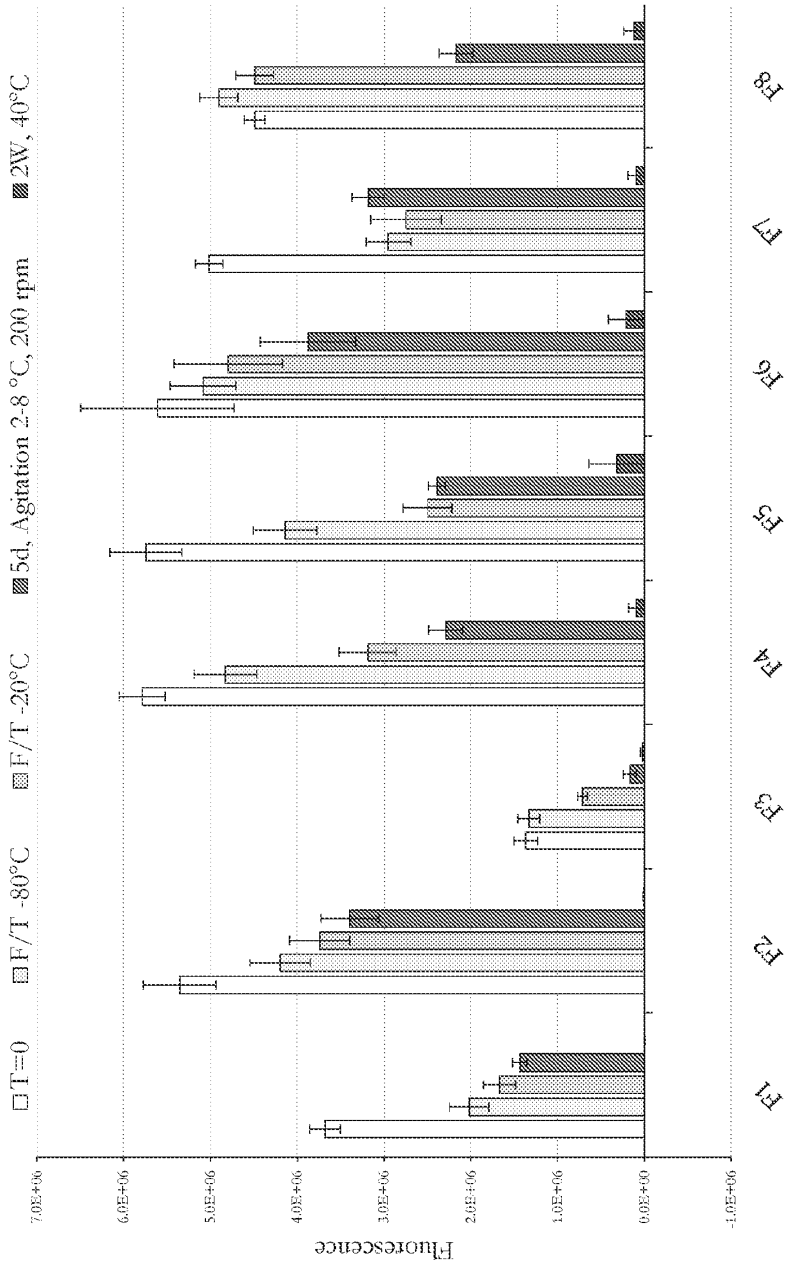

T=0
F/T -80°C
F/T -20°C
5d, Agitation 2-8 °C, 200 rpm
2W, 40°C
Fluorescence
7.0E+06
6.0E+06
5.0E+06
4.0E+06
3.0E+06
2.0E+06
1.0E+06
0.0E+00
-1.0E+06
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 15

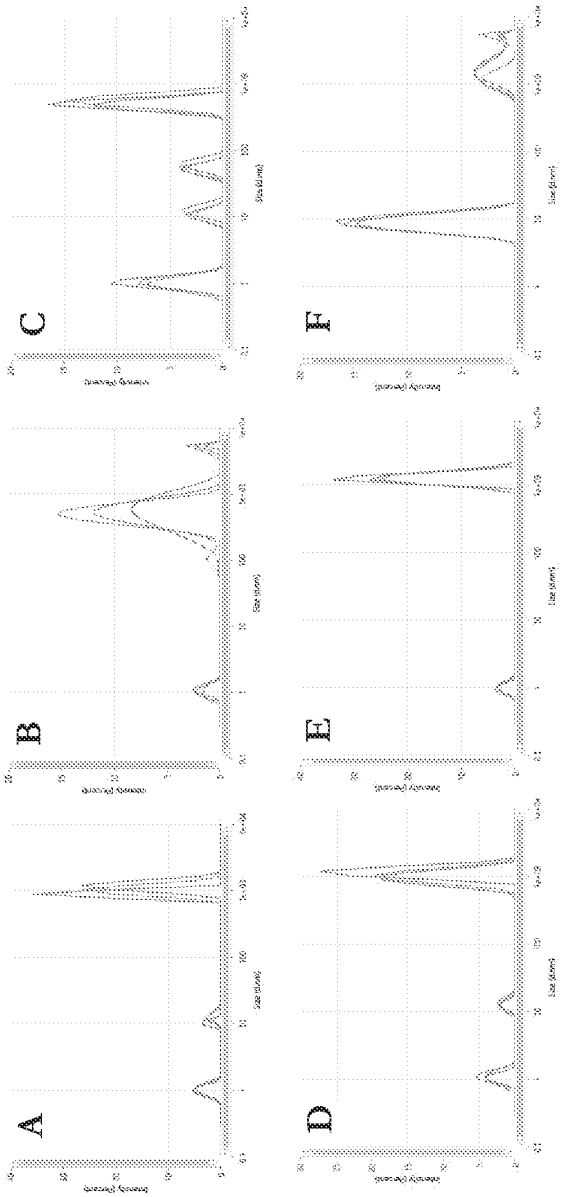


Figure 16

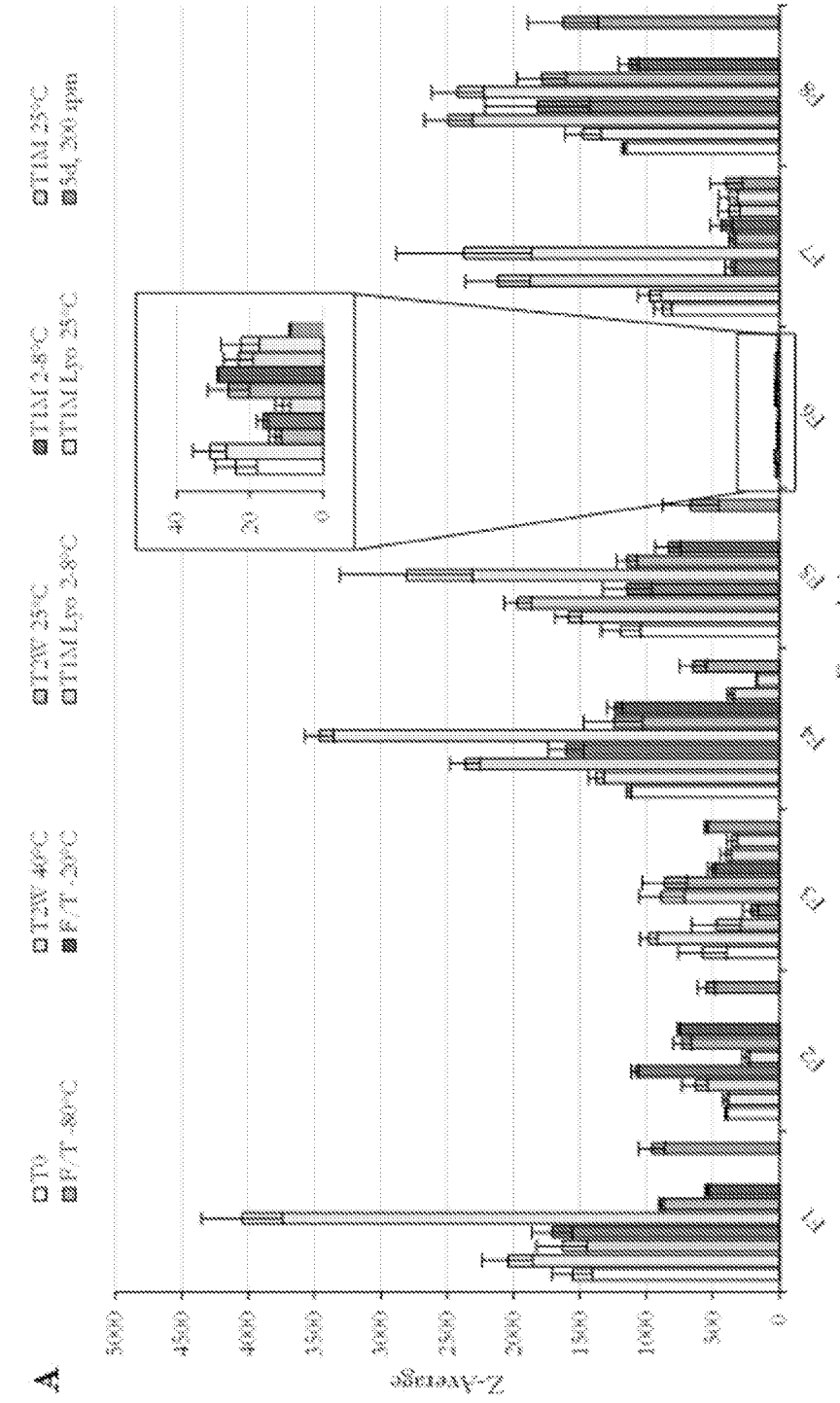

A
T0
F/T -80°C
T2W 40°C
F/T -20°C
T2W 25°C
TIM Lyo 2-8°C
TIM 2-8°C
TIM Lyo 25°C
TIM 25°C
Sol, 200 rpm
Z-Average
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
40
20
0
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 17A

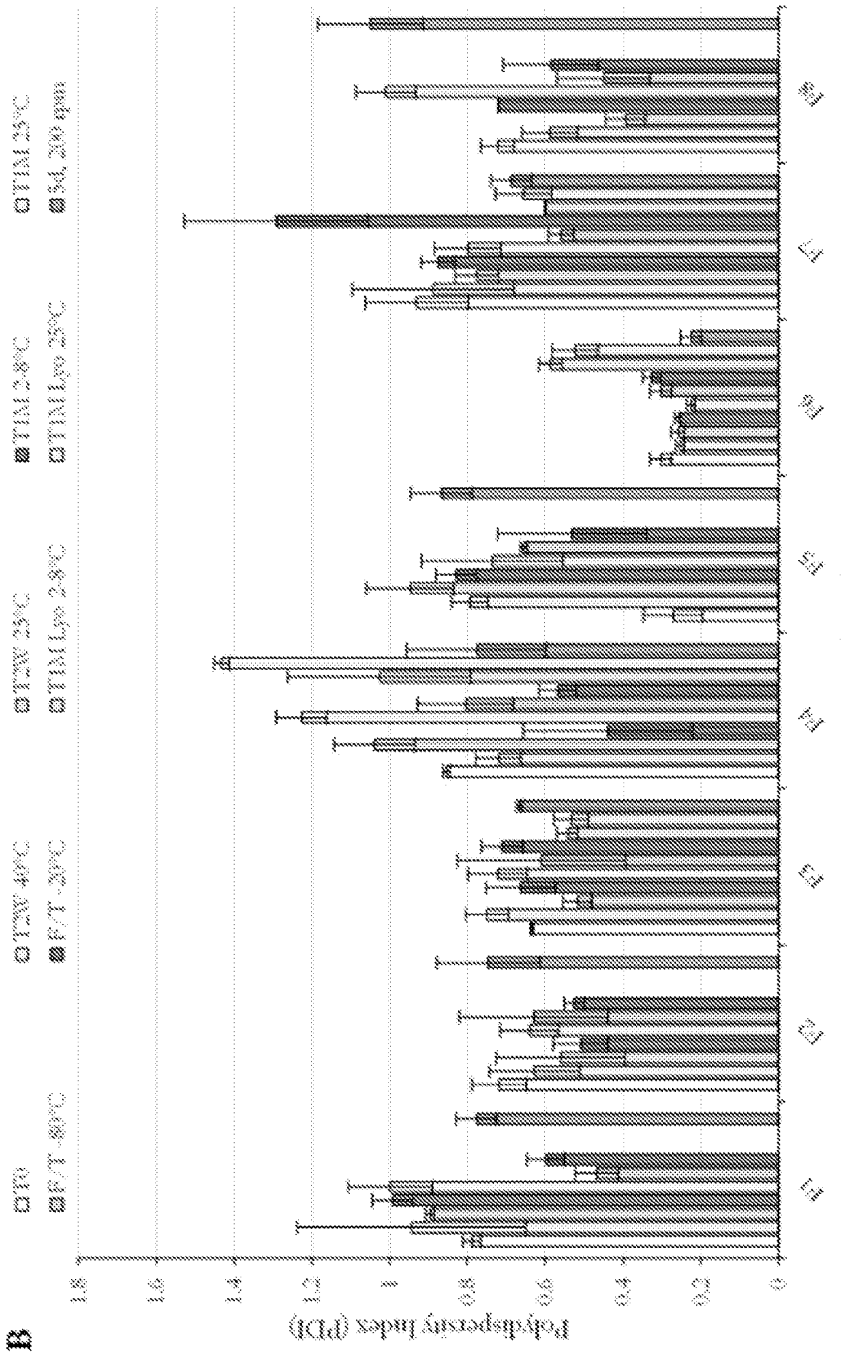

B
Polydispersity Index (PDI)
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
T0
P/T 40°C
P/T 25°C
T2W 40°C
T2W 25°C
T1M Lyo 2.8°C
T1M 2.8°C
T1M Lyo 25°C
T1M 25°C
Rd, 200 rpm
F1
F2
F3
F4
F5
F6
F7
F8
F9
Formulations

Figure 17B

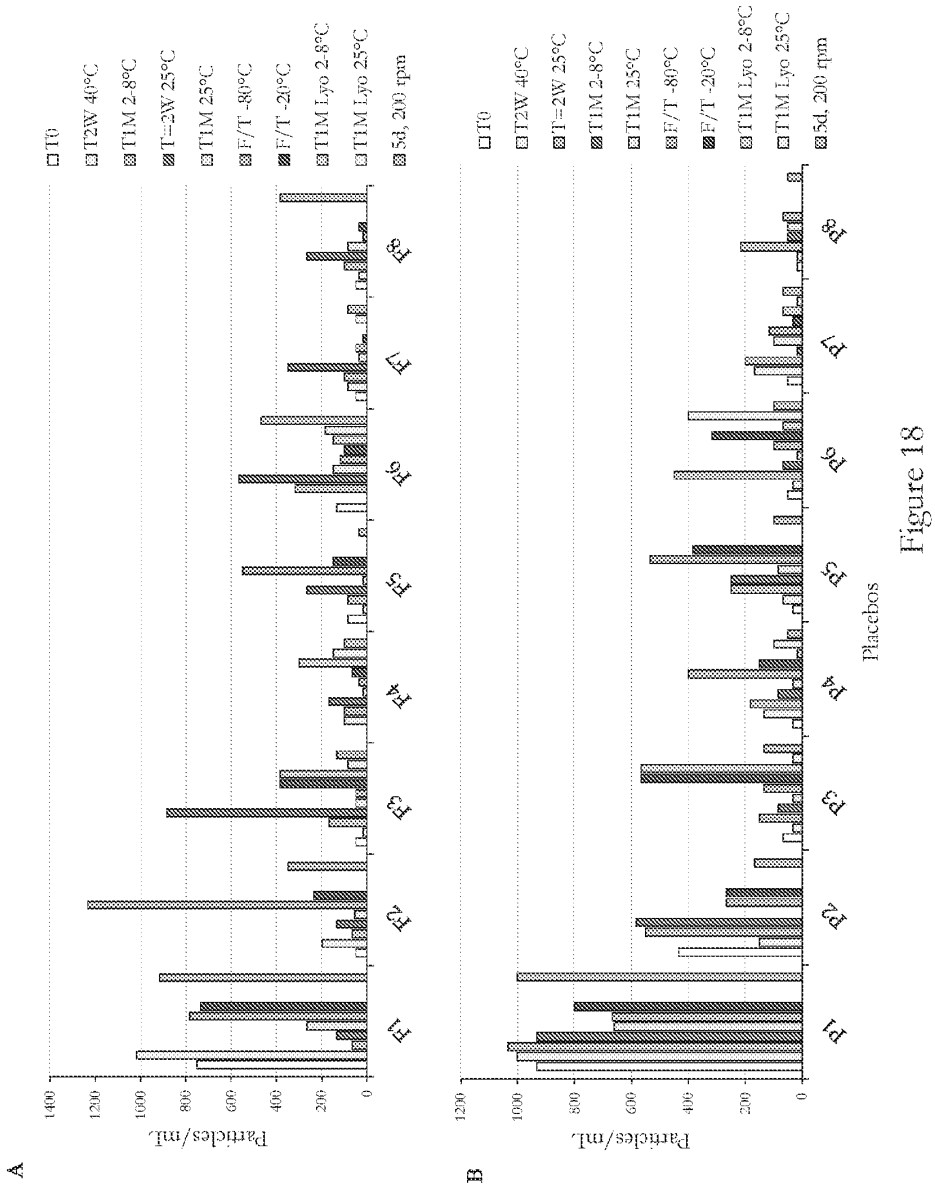

A
B
T0
T2W 40°C
T1M 2-8°C
T=2W 25°C
T1M 25°C
F/T -80°C
F/T -20°C
T1M Lyo 2-8°C
T1M Lyo 25°C
5d, 200 rpm
Particles/mL
Placebos

Figure 18

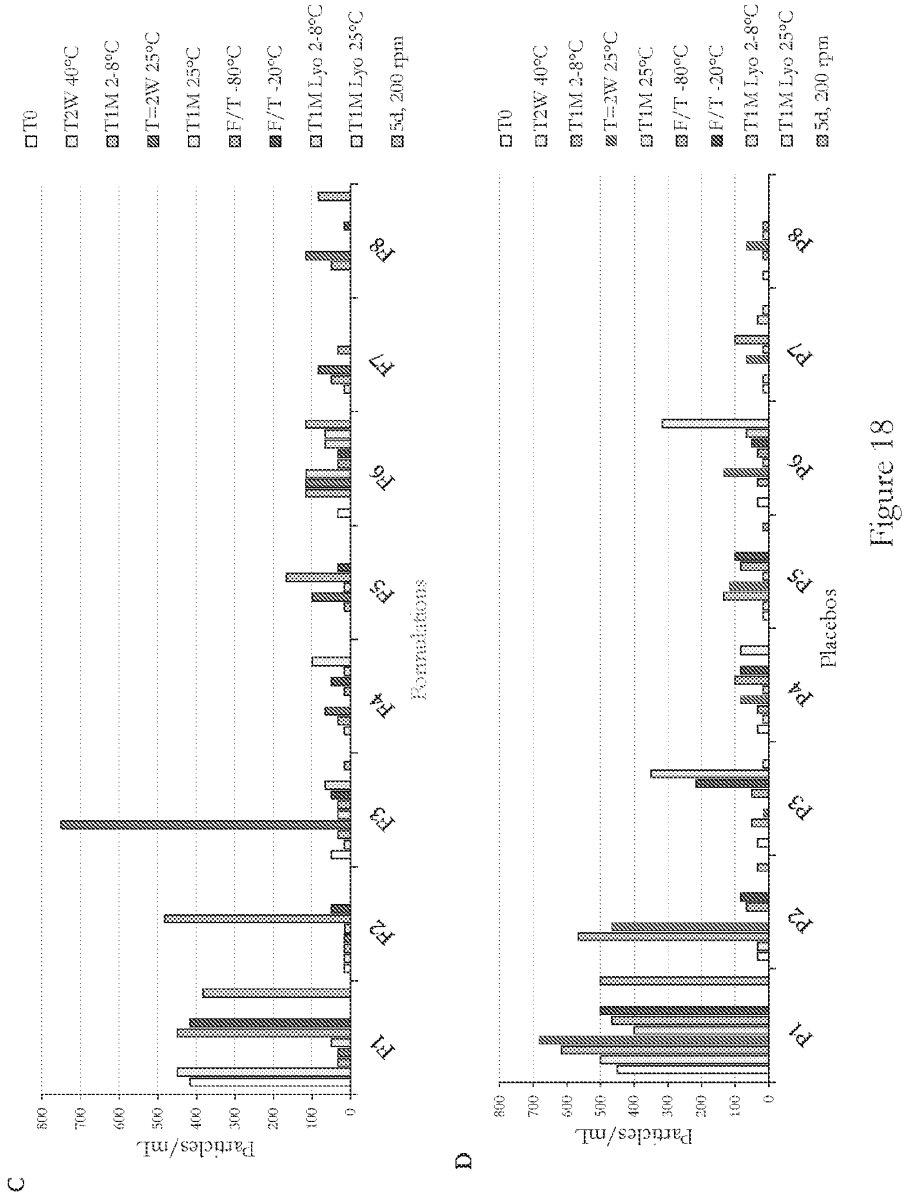

C
T0
T2W 40°C
T1M 2-8°C
T=2W 25°C
T1M 25°C
F/T -80°C
F/T -20°C
T1M Lyo 2-8°C
T1M Lyo 25°C
5d, 200 rpm
Particles/mL
800
700
600
500
400
300
200
100
0
F1
F2
F3
F4
F5
F6
F7
F8
Formulations
D
T0
T2W 40°C
T1M 2-8°C
T=2W 25°C
T1M 25°C
F/T -80°C
F/T -20°C
T1M Lyo 2-8°C
T1M Lyo 25°C
5d, 200 rpm
Particles/mL
800
700
600
500
400
300
200
100
0
P1
P2
P3
P4
P5
P6
P7
P8
Placebos

Figure 18

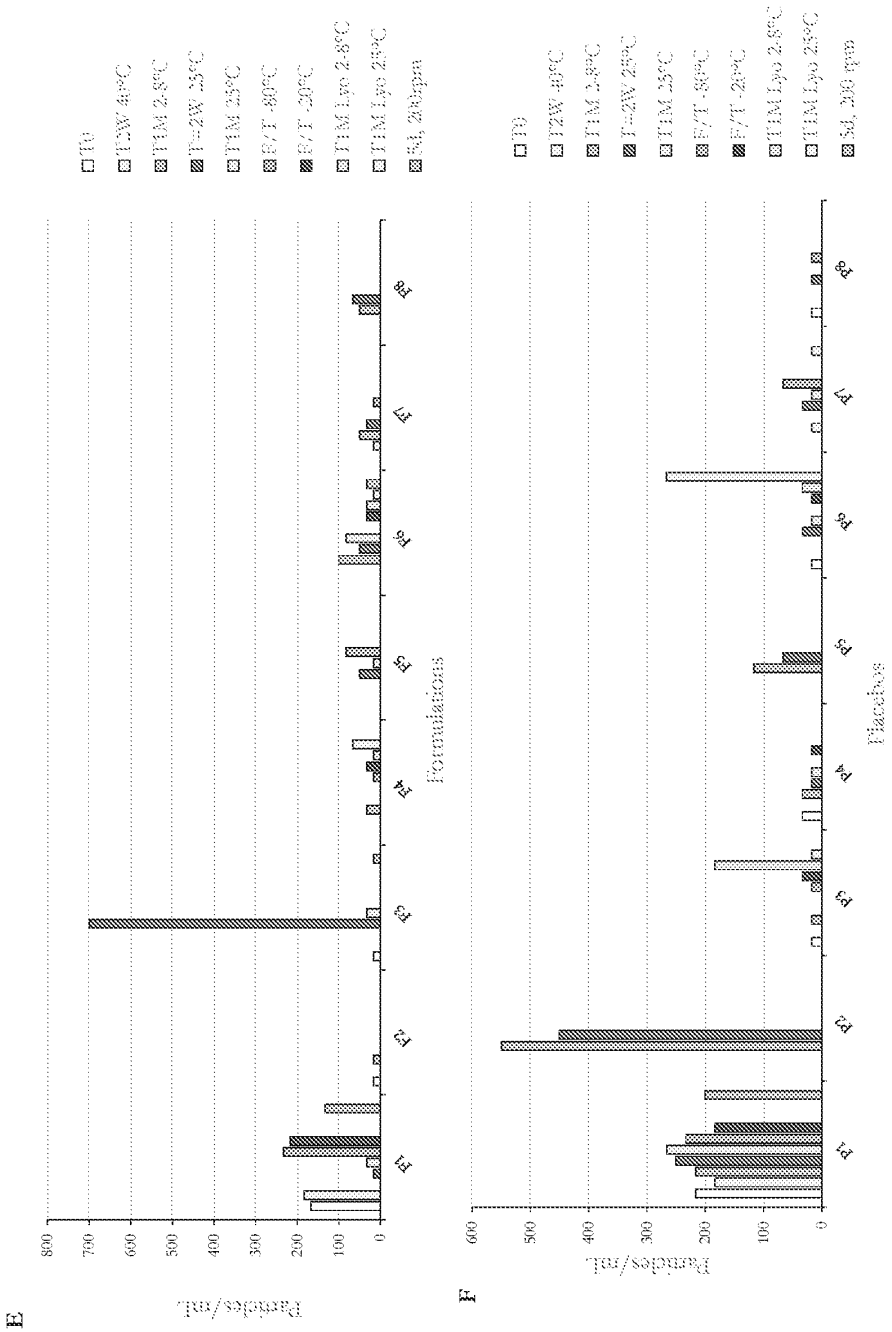

E
Particles/mL
800
700
600
500
400
300
200
100
0
F1
F2
F3
F4
F5
F6
F7
F8
Formulations
TB
F2W 4°C
F1M 2-8°C
F1-2W 25°C
F1M 25°C
F/T -80°C
F/T -20°C
F1M Lyo 2-8°C
F1M Lyo 25°C
SM, 200 rpm
F
Particles/mL
600
500
400
300
200
100
0
1d
2d
3d
4d
5d
6d
7d
8d
Batches
TB
F2W 4°C
F1M 2-8°C
F1-2W 25°C
F1M 25°C
F/T -80°C
F/T -20°C
F1M Lyo 2-8°C
F1M Lyo 25°C
SM, 200 rpm

Figure 18

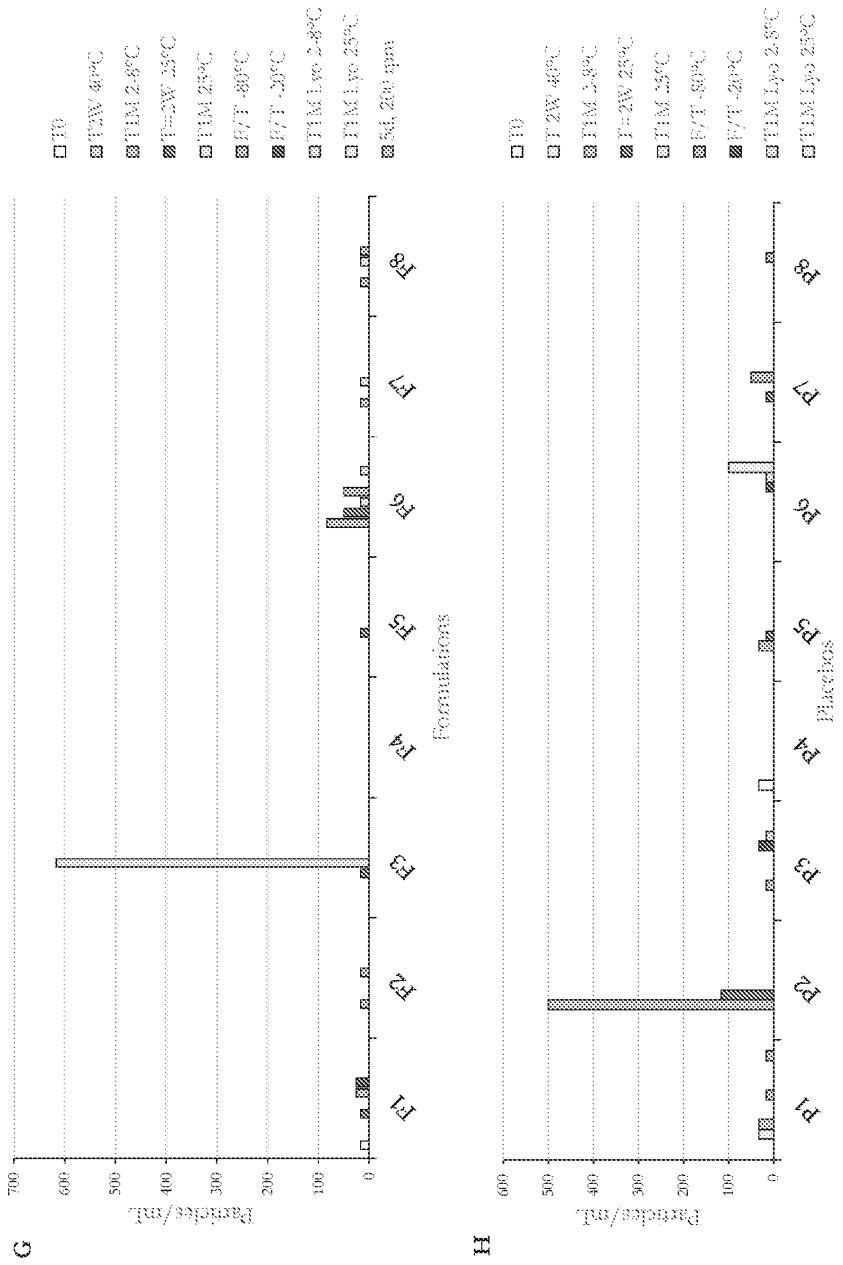

G
H
Particles/mL
Formulations
Placebos
T0
T 2W 4°C
TFM 2-8°C
T=2W 25°C
TFM 25°C
F/T -80°C
F/T -20°C
TFM Lyo 2-8°C
TFM Lyo 25°C
Std, 200 rpm
F1
F2
F3
F4
F5
F6
F7
F8
P1
P2
P3
P4
P5
P6
P7
P8

Figure 18

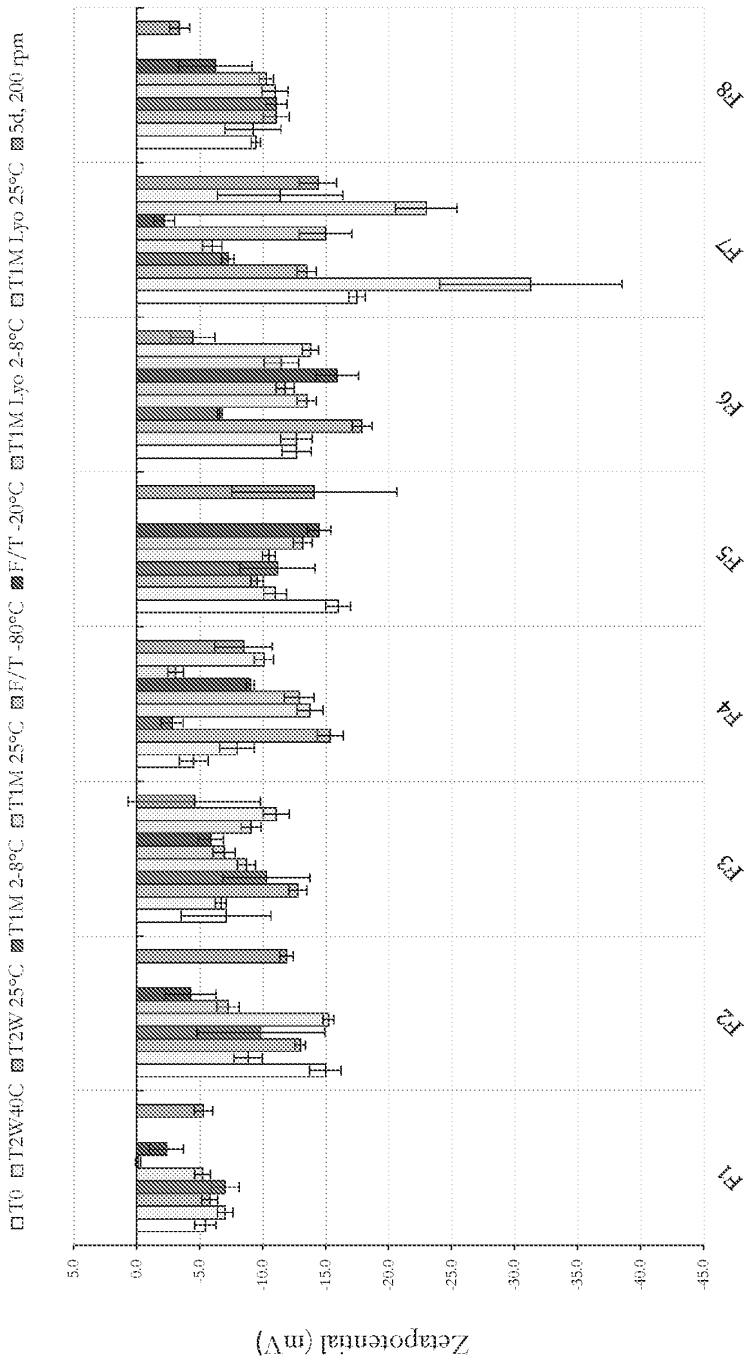

T0
T2W40C
T2W 25°C
T1M 2-8°C
T1M 25°C
F/T -80°C
F/T -20°C
T1M Lyo 2-8°C
T1M Lyo 25°C
5d, 200 rpm
Zetapotential (mV)
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
F1
F2
F3
F4
F5
F6
F7
F8
Formulations

Figure 19

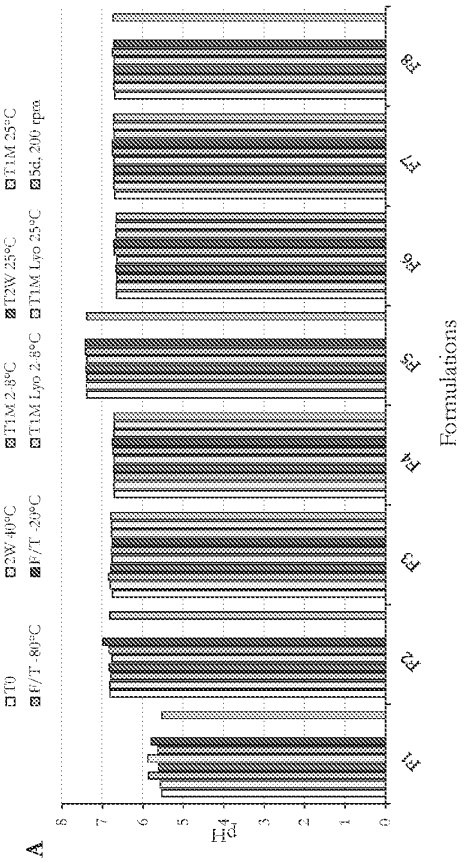

A
T0
2W 4°C
T1M 2-8°C
T2W 25°C
T1M 25°C
F/T -80°C
F/T -20°C
T1M Lyo 2-8°C
T1M Lyo 25°C
5d, 200 rpm
pH
Formulations
F1
F2
F3
F4
F5
F6
F7
F8
B
P1
P2
P3
P4
P5
P6
P7
P8
Placebos

Figure 2(f)

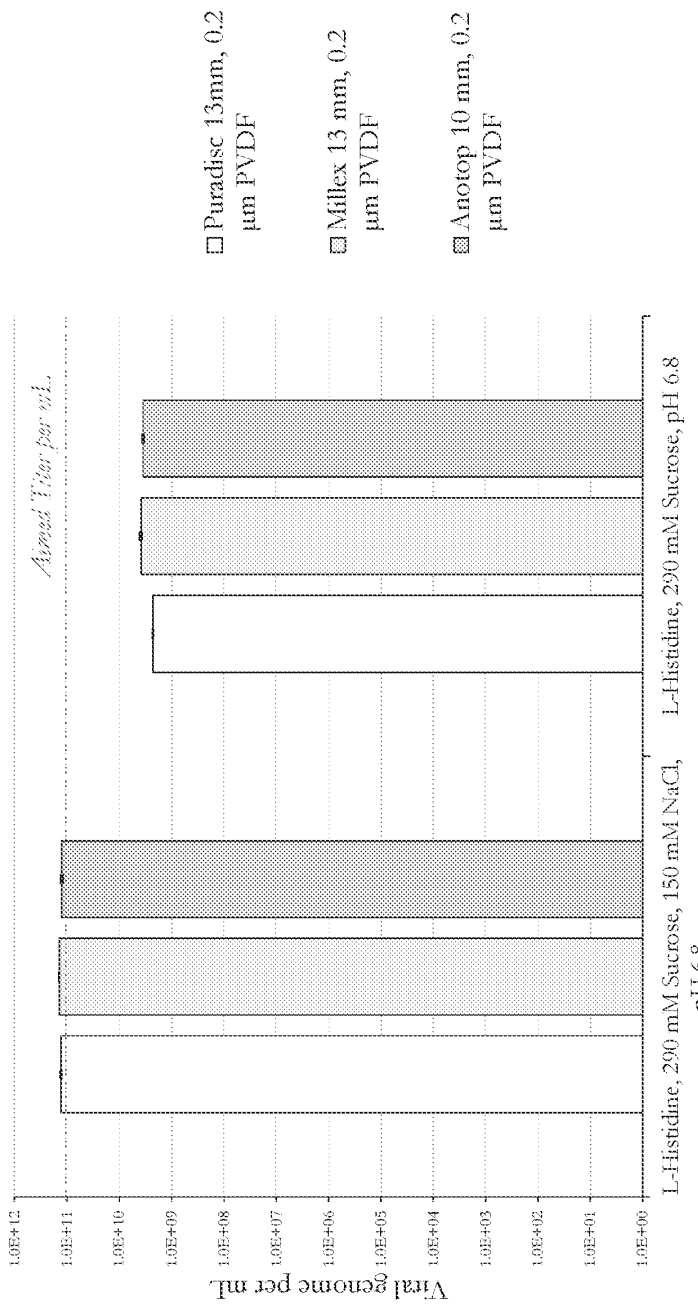

Puradisc 13mm, 0.2 µm PVDF
Millex 13 mm, 0.2 µm PVDF
Anotop 10 mm, 0.2 µm PVDF
Viral genome per mL
1.0E+12
1.0E+11
1.0E+10
1.0E+09
1.0E+08
1.0E+07
1.0E+06
1.0E+05
1.0E+04
1.0E+03
1.0E+02
1.0E+01
1.0E+00
L-Histidine, 290 mM Sucrose, 150 mM NaCl, pH 6.8
L-Histidine, 290 mM Sucrose, pH 6.8

Figure 21

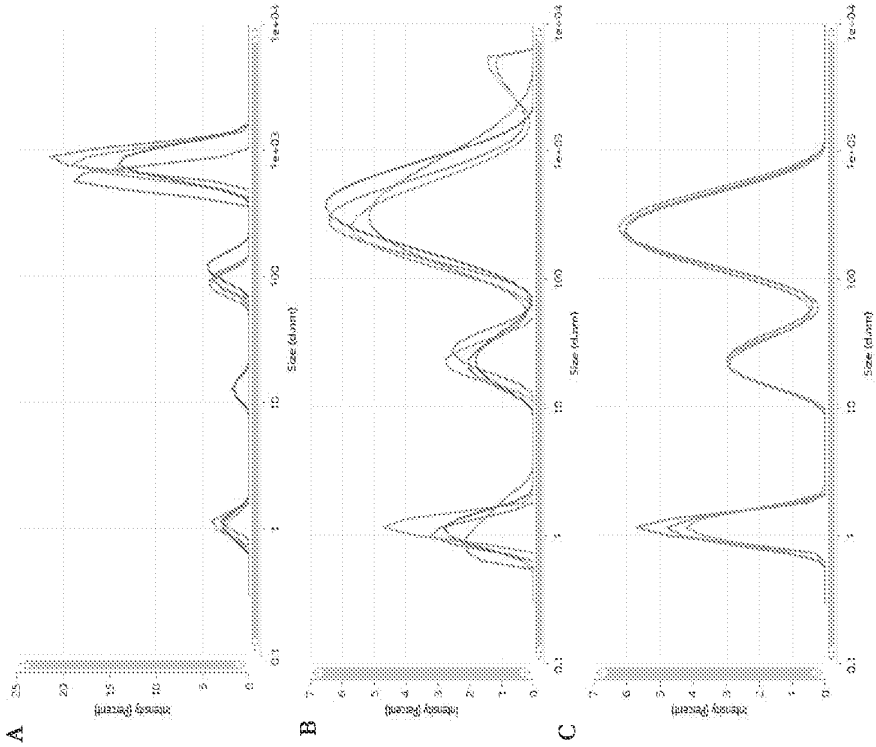


Figure 22

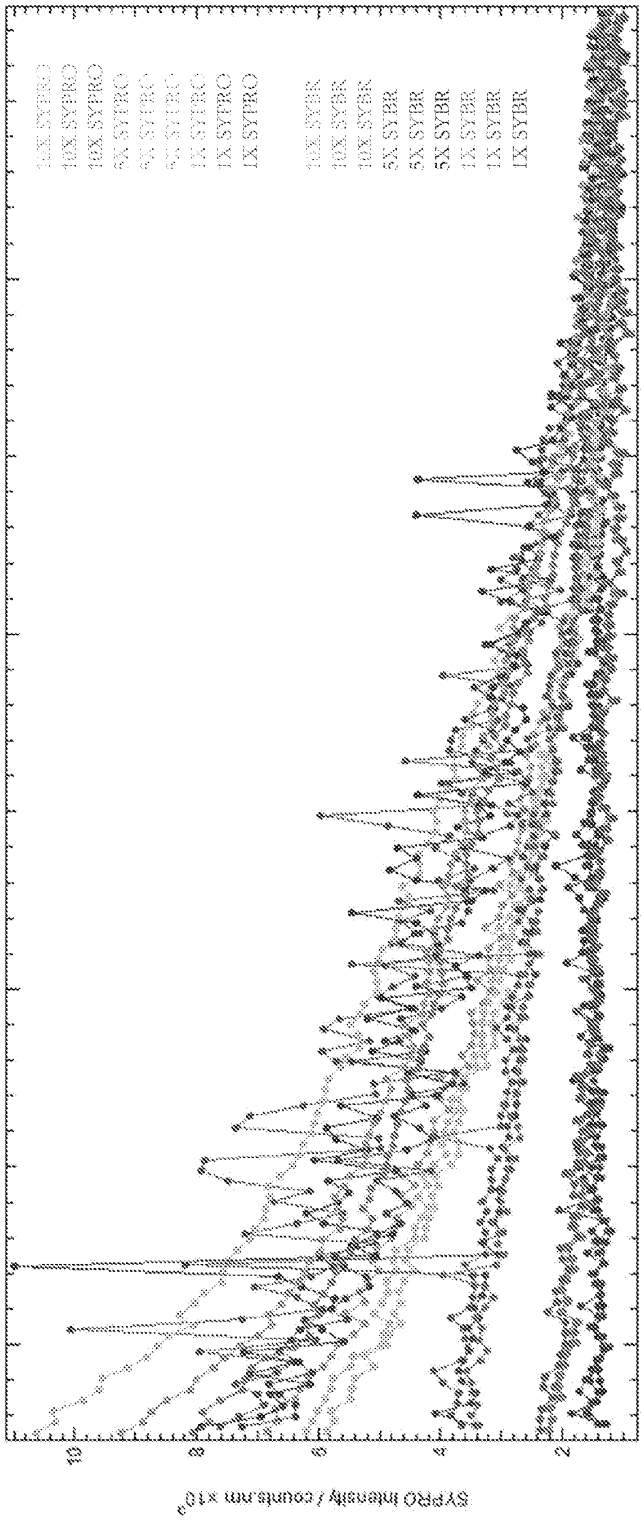

SYPRO Intensity / counts.mm x10²
Temperature / °C
10X SYPRO
10X SYPRO
10X SYPRO
5X SYPRO
5X SYPRO
1X SYPRO
1X SYPRO
1X SYPRO
10X SYBR
10X SYBR
10X SYBR
5X SYBR
5X SYBR
5X SYBR
1X SYBR
1X SYBR
1X SYBR

Figure 23

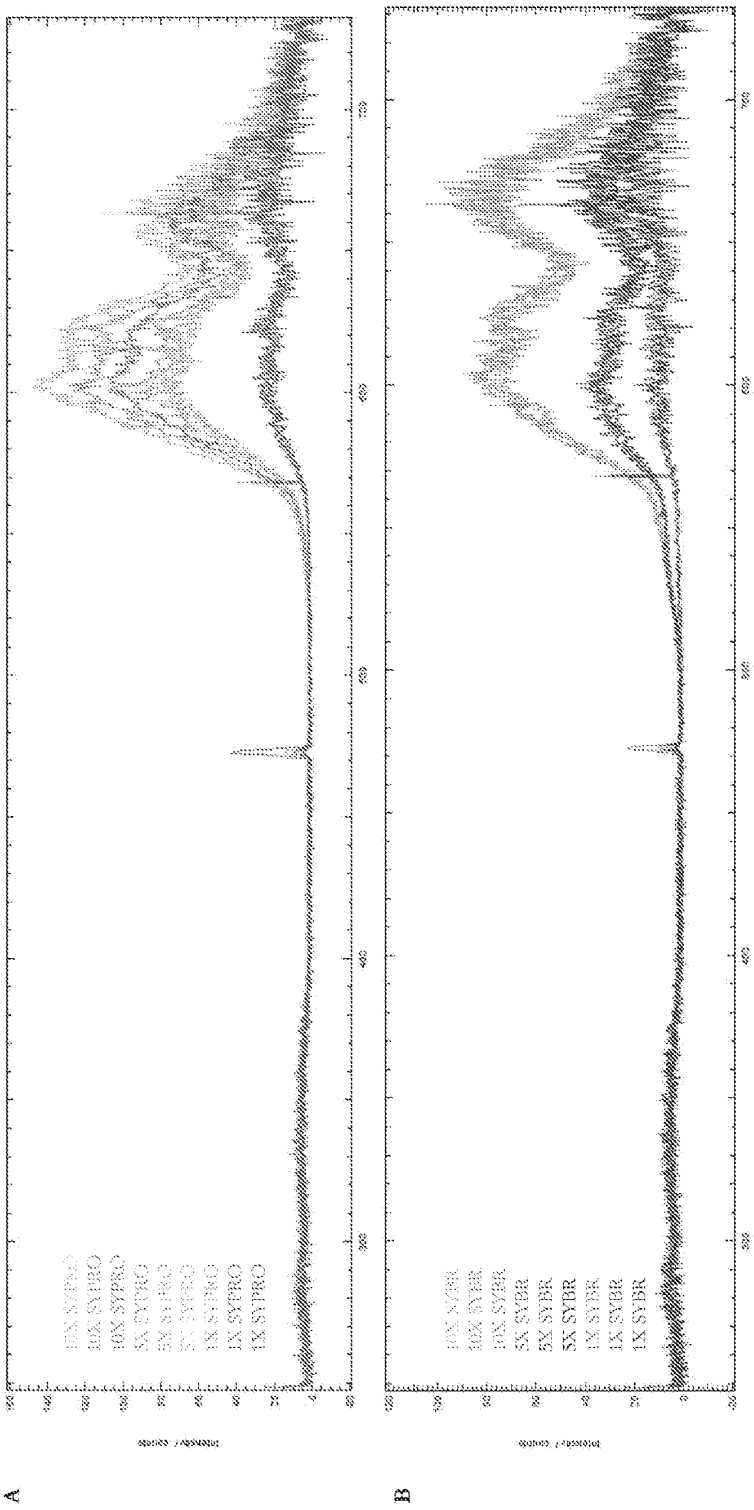


Figure 24

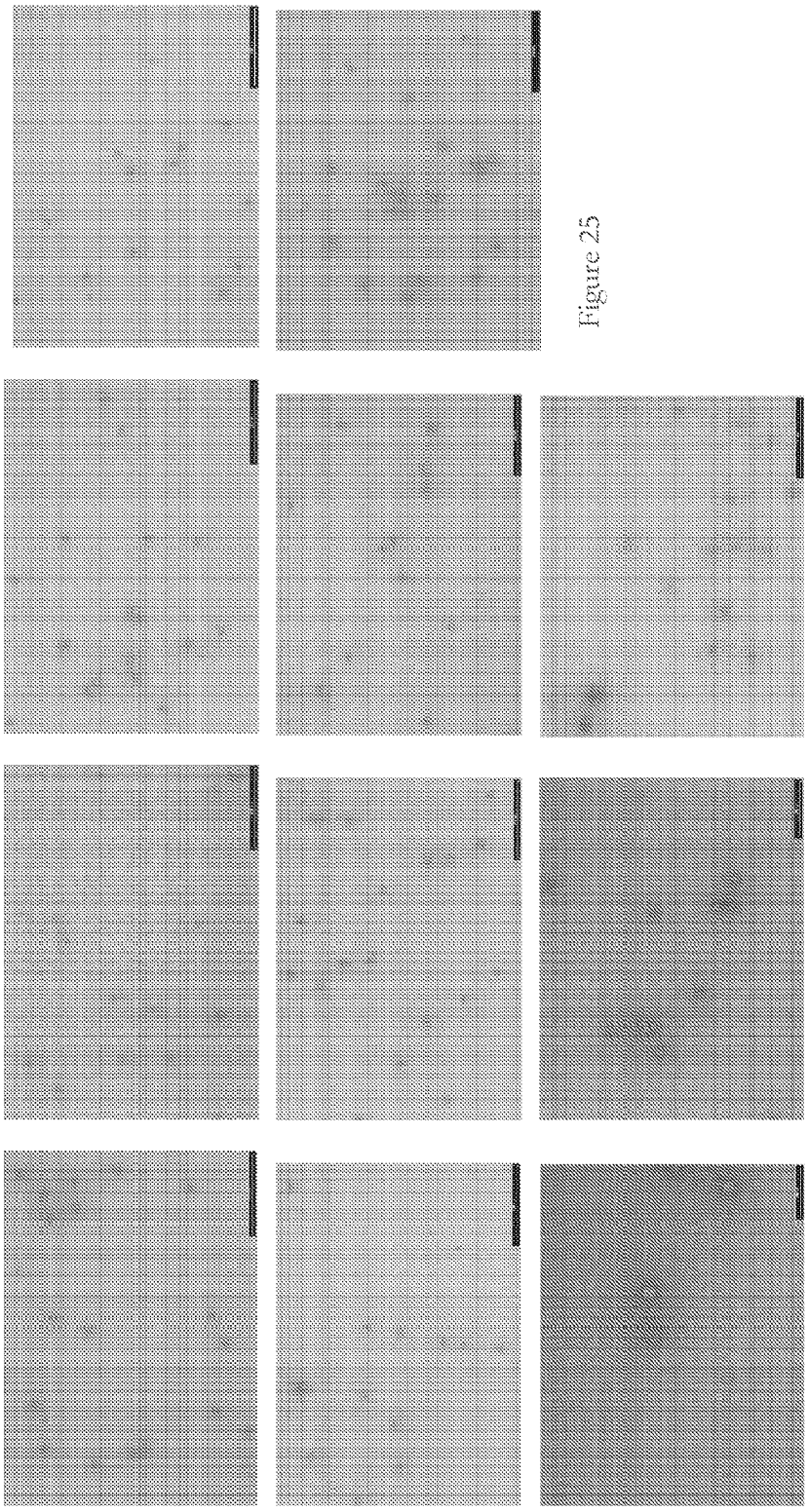


Figure 25

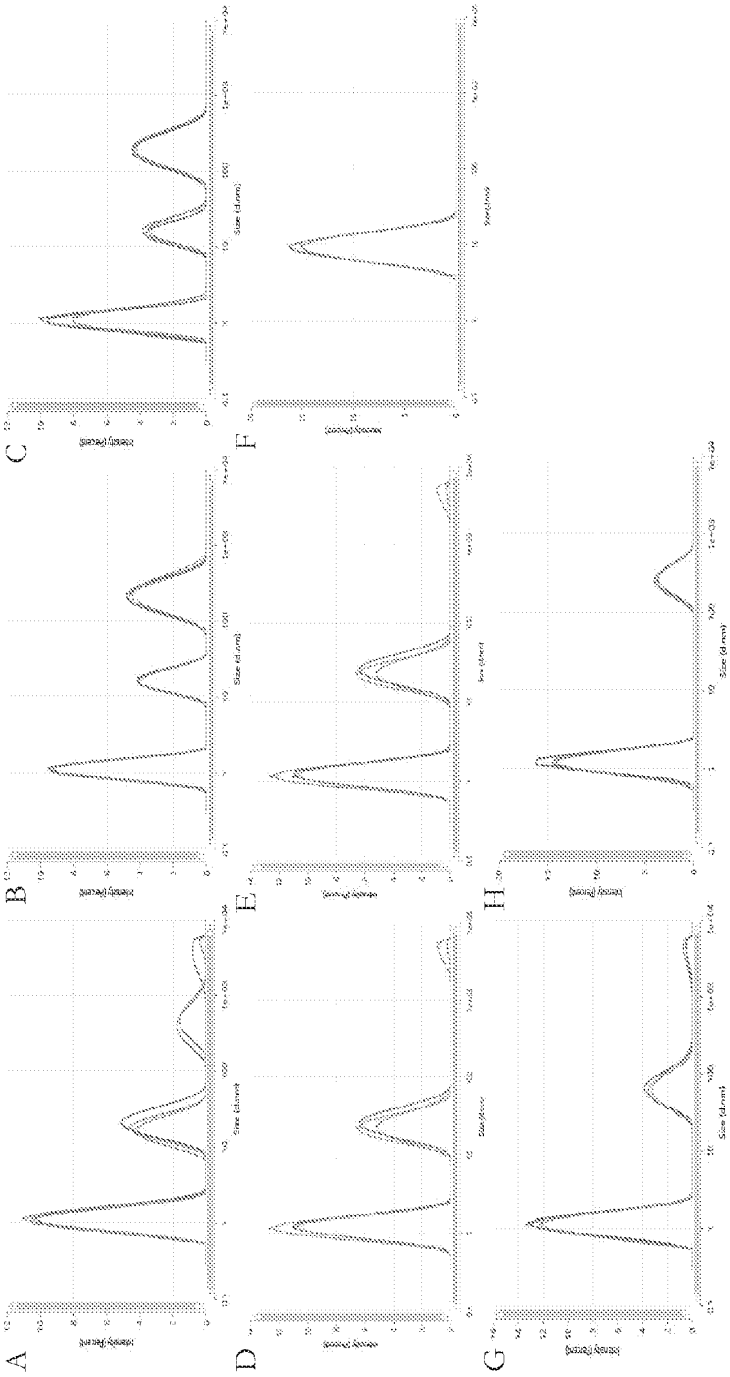


Figure 26

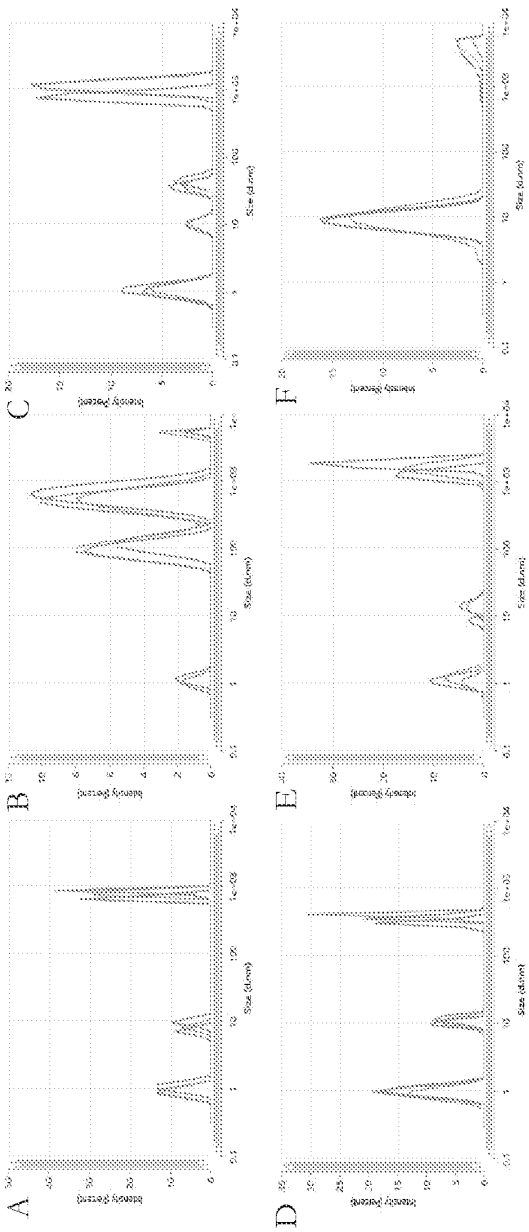


Figure 27