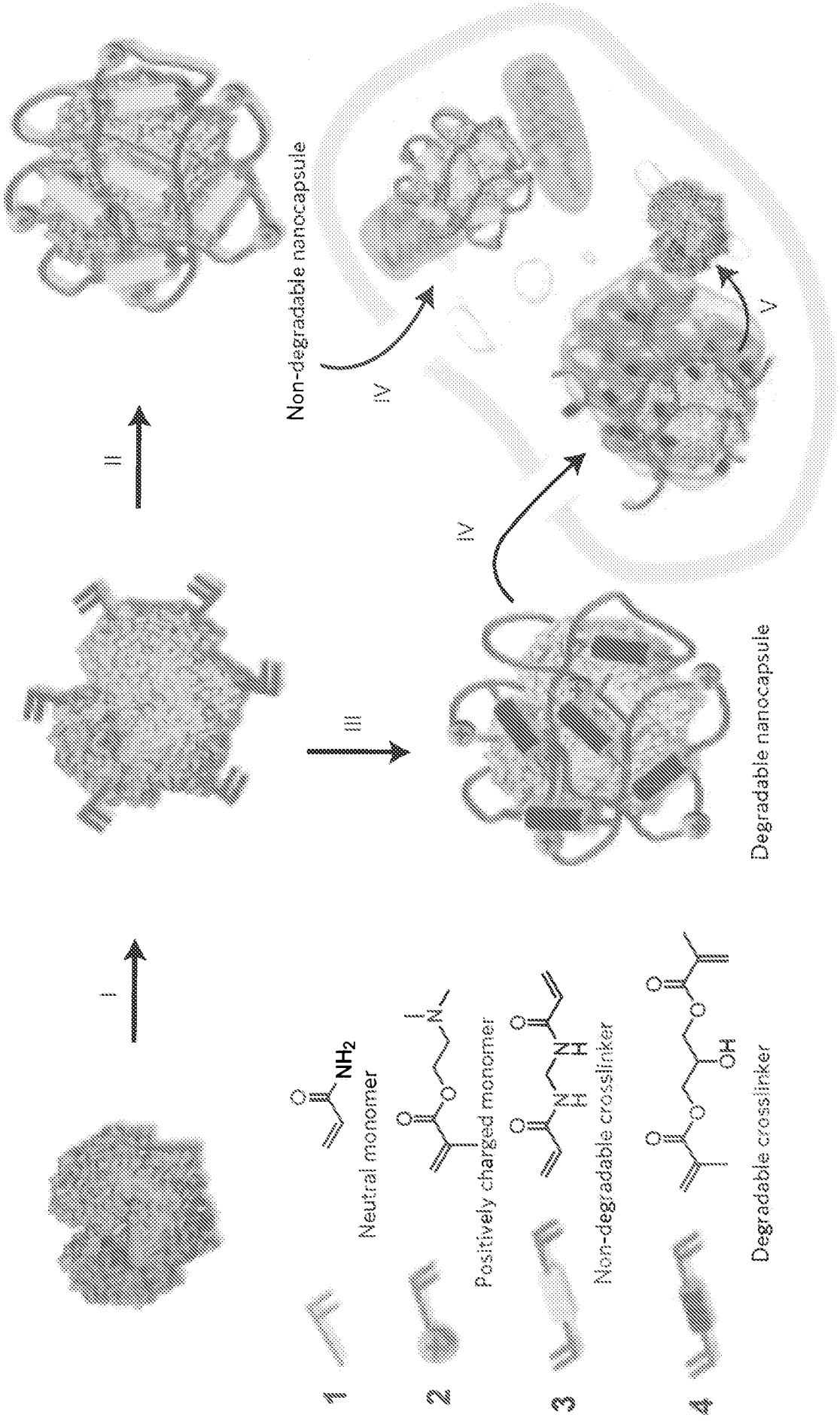

I
II
III
IV
IV
V
Non-degradable nanocapsule
Degradable nanocapsule
1
Neutral monomer
2
Positively charged monomer
3
Non-degradable crosslinker
4
Degradable crosslinker

Figure 1

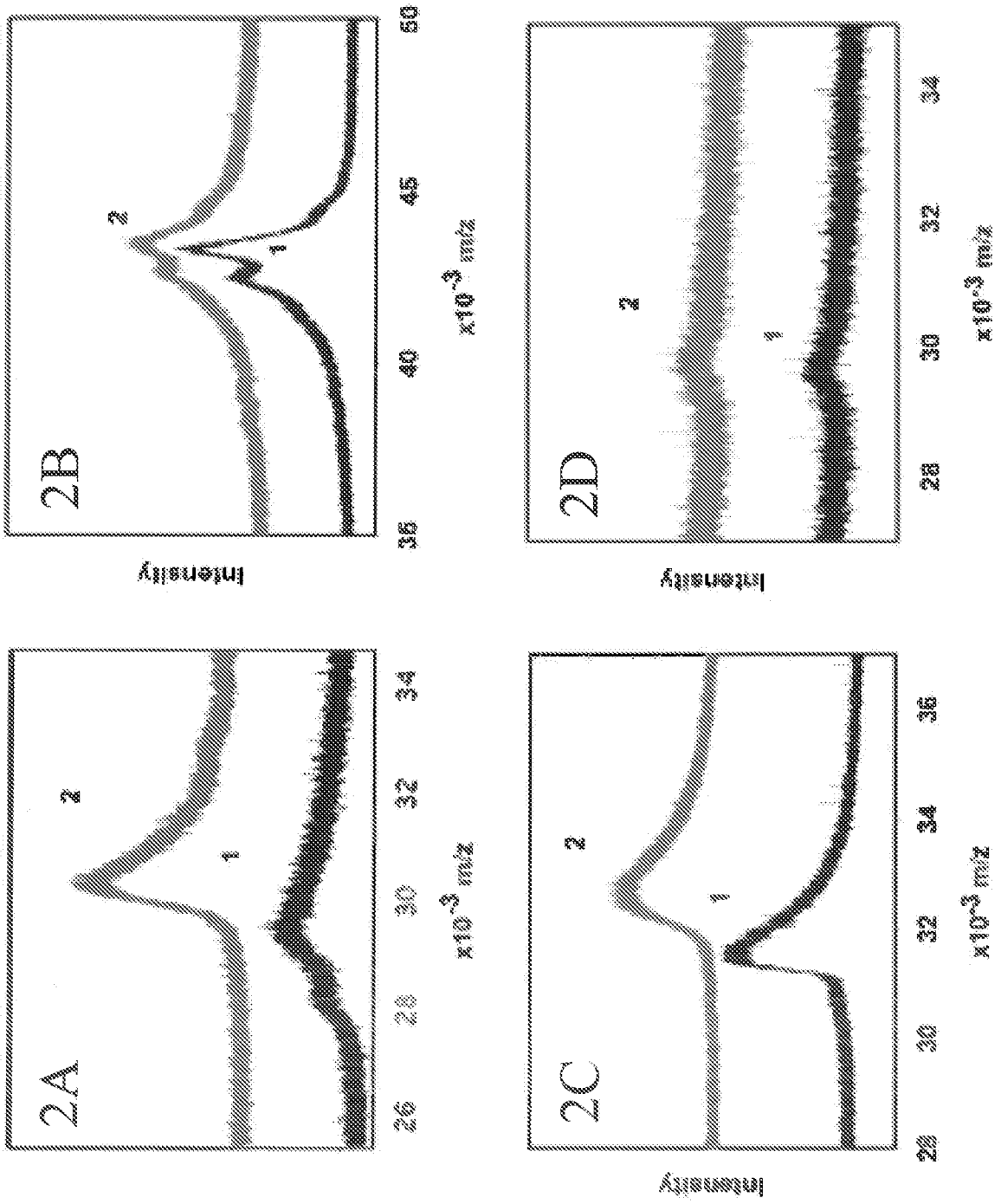


Figure 2

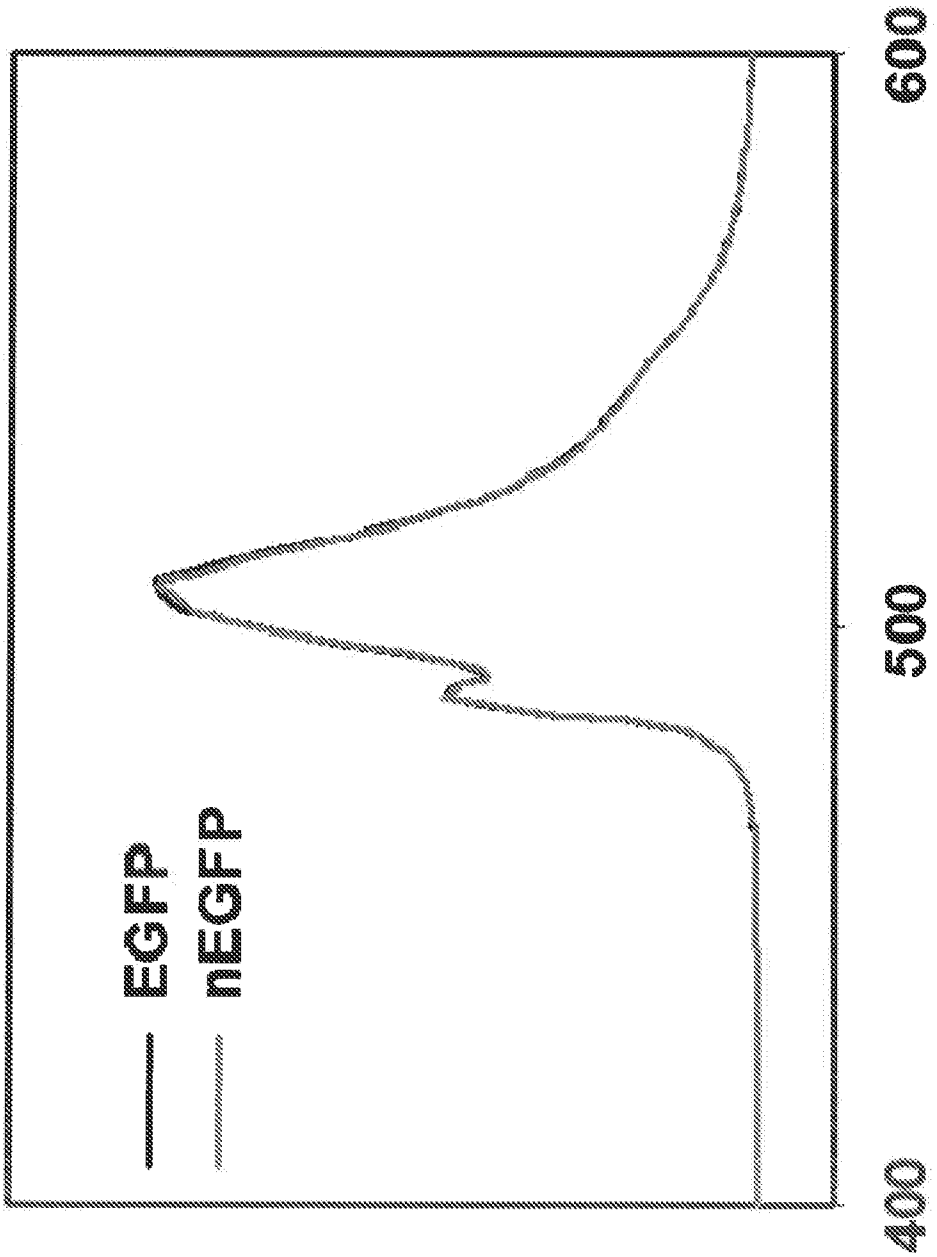


Figure 3

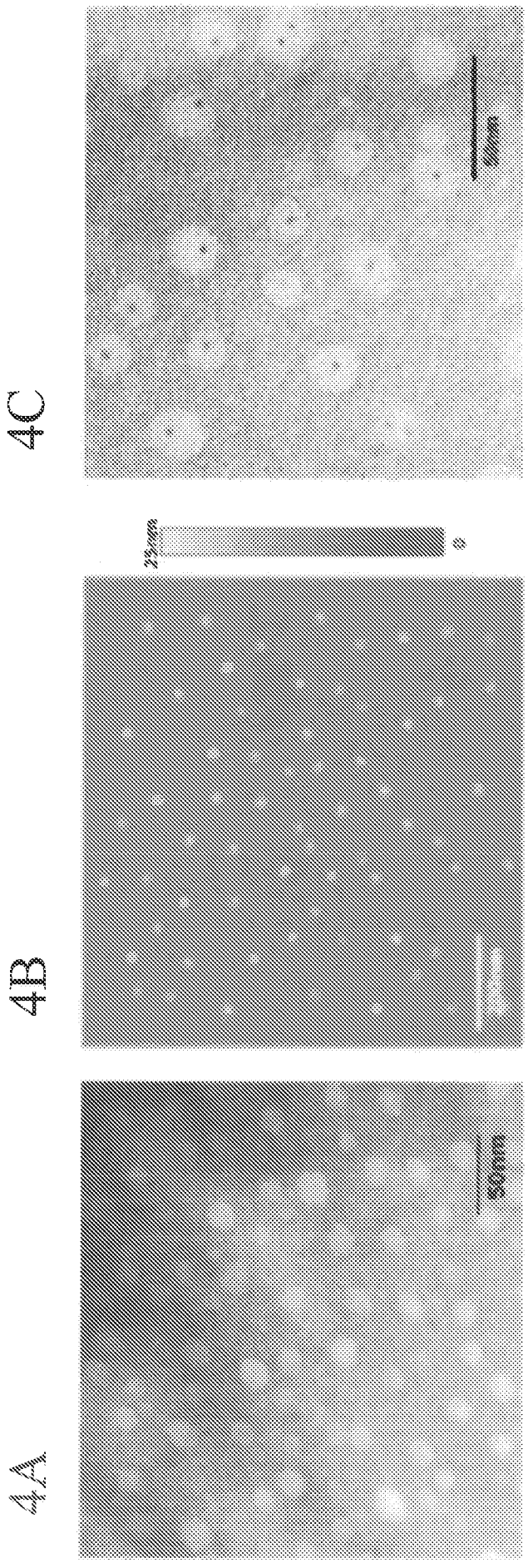


Figure 4

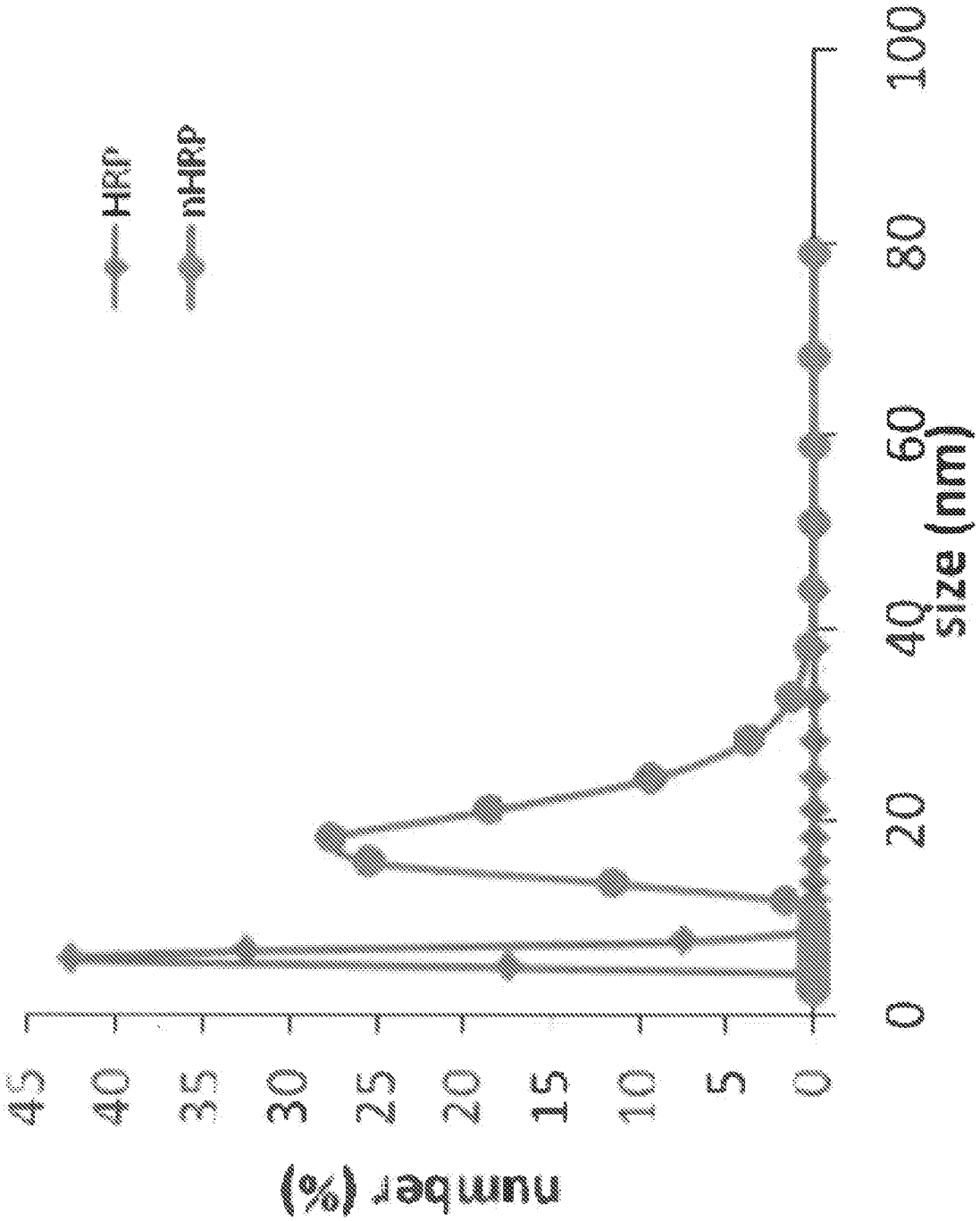


Figure 5

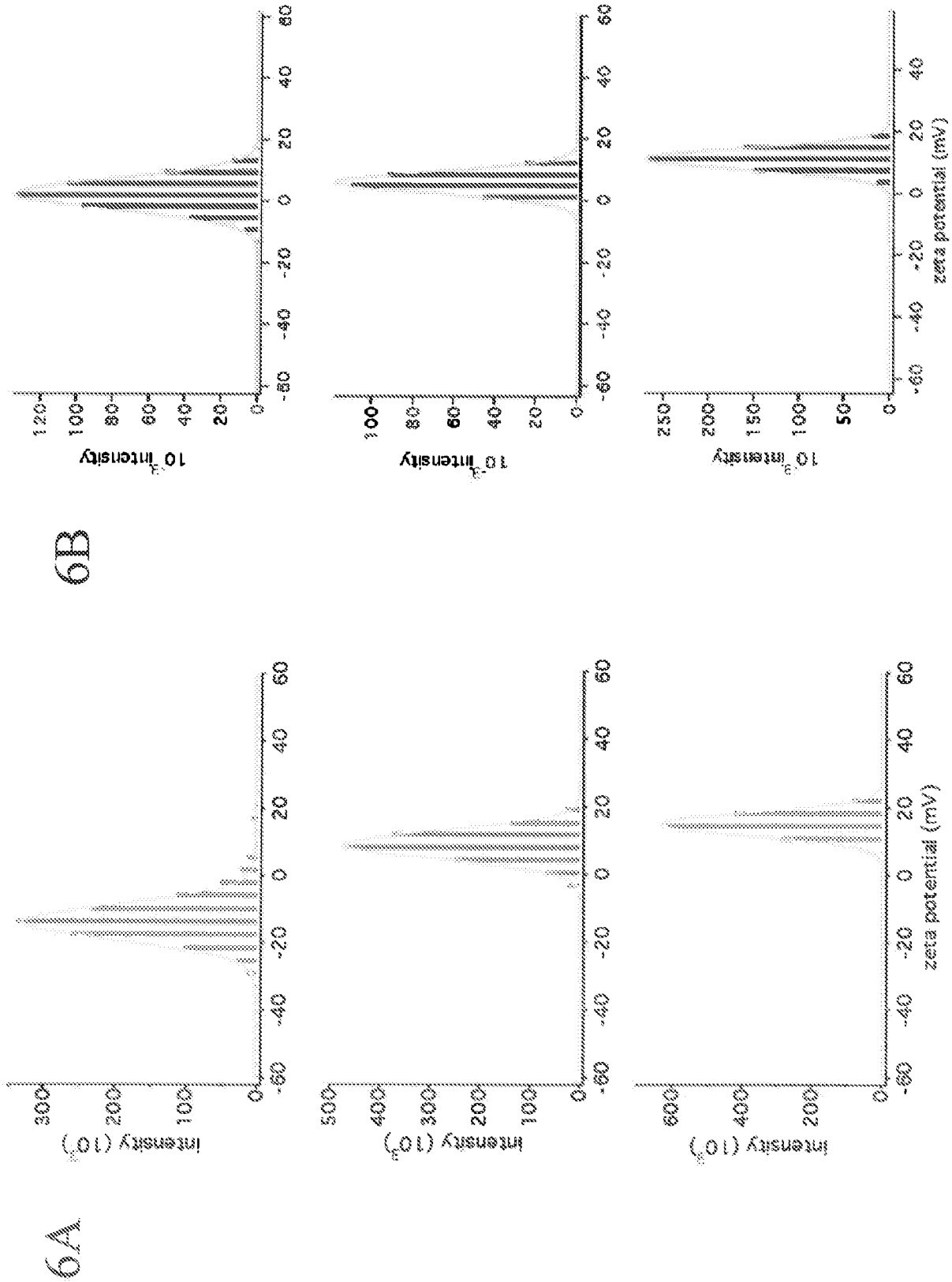


Figure 6

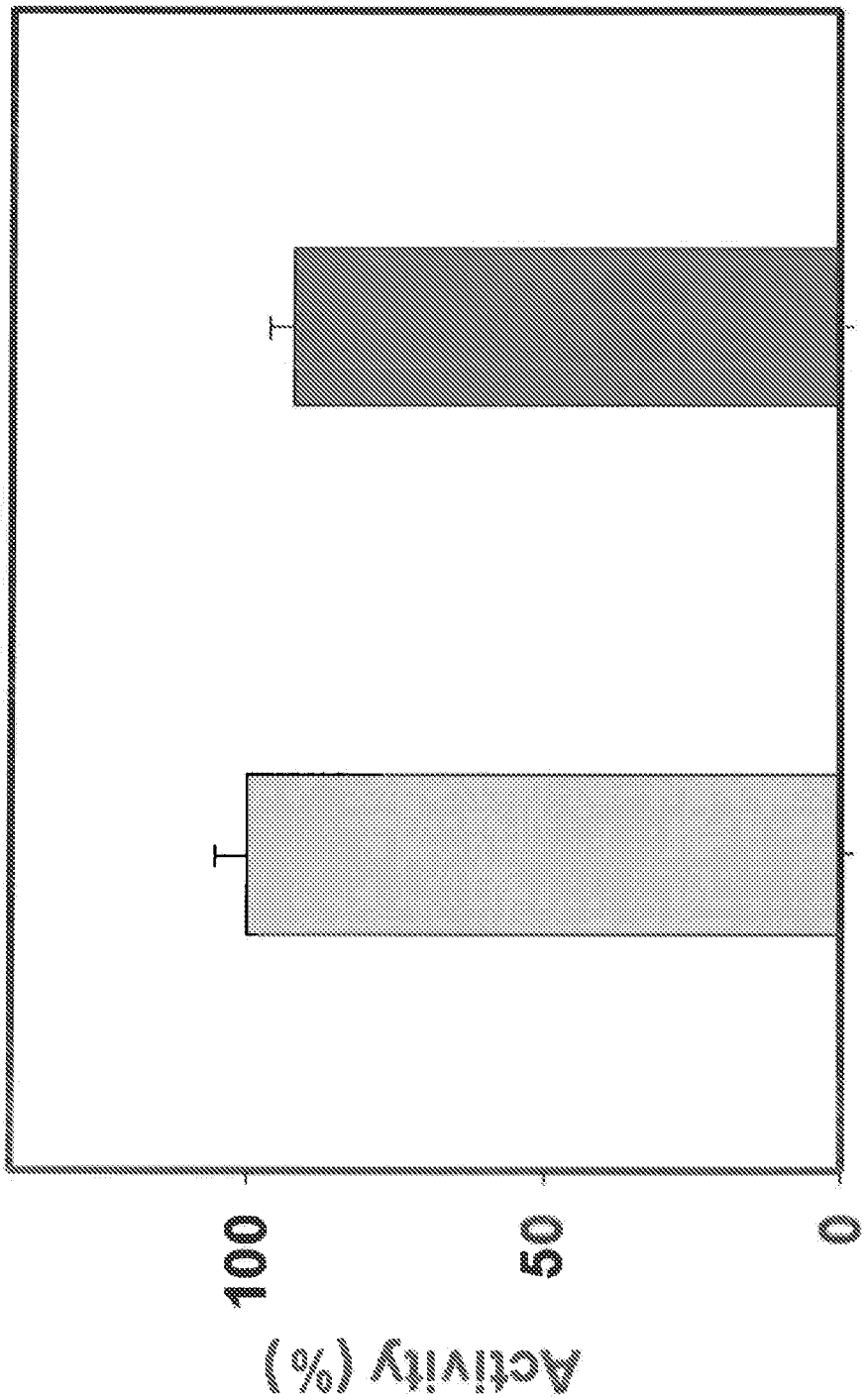


Figure 7

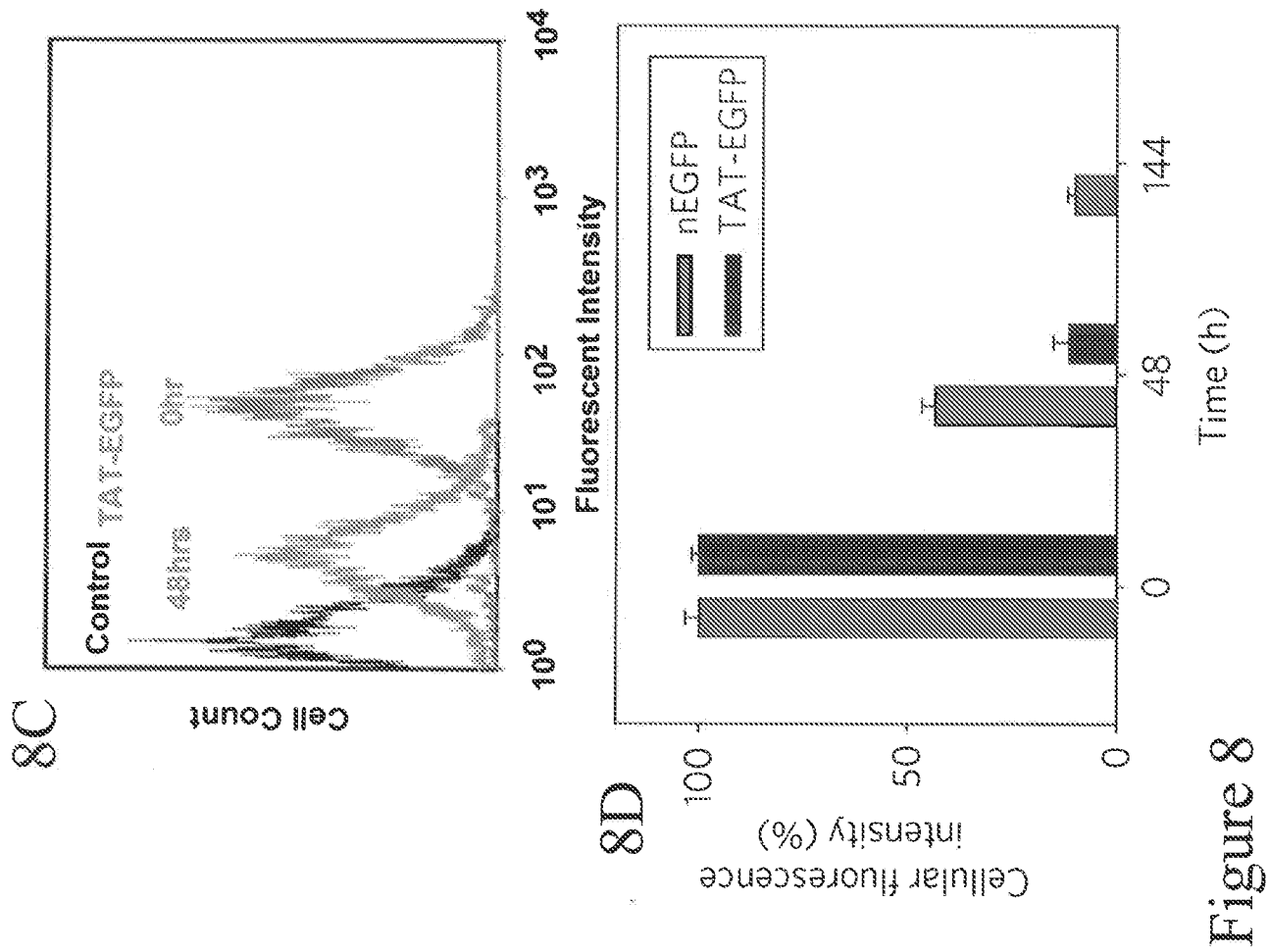

8A
Fluorescent intensity (%)
100
75
50
EGFP
nEGFP
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Time (hrs)
8B
Cell Count
Control 144 hrs
48 hrs
0 hr
10^0
10^1
10^2
10^3
10^4
Fluorescent Intensity
8C
Cell Count
Control
TAT-EGFP
48hrs
0hr
10^0
10^1
10^2
10^3
10^4
Fluorescent Intensity
8D
Cellular fluorescence intensity (%)
100
50
0
nEGFP
TAT-EGFP
0
48
144
Time (h)

Figure 8

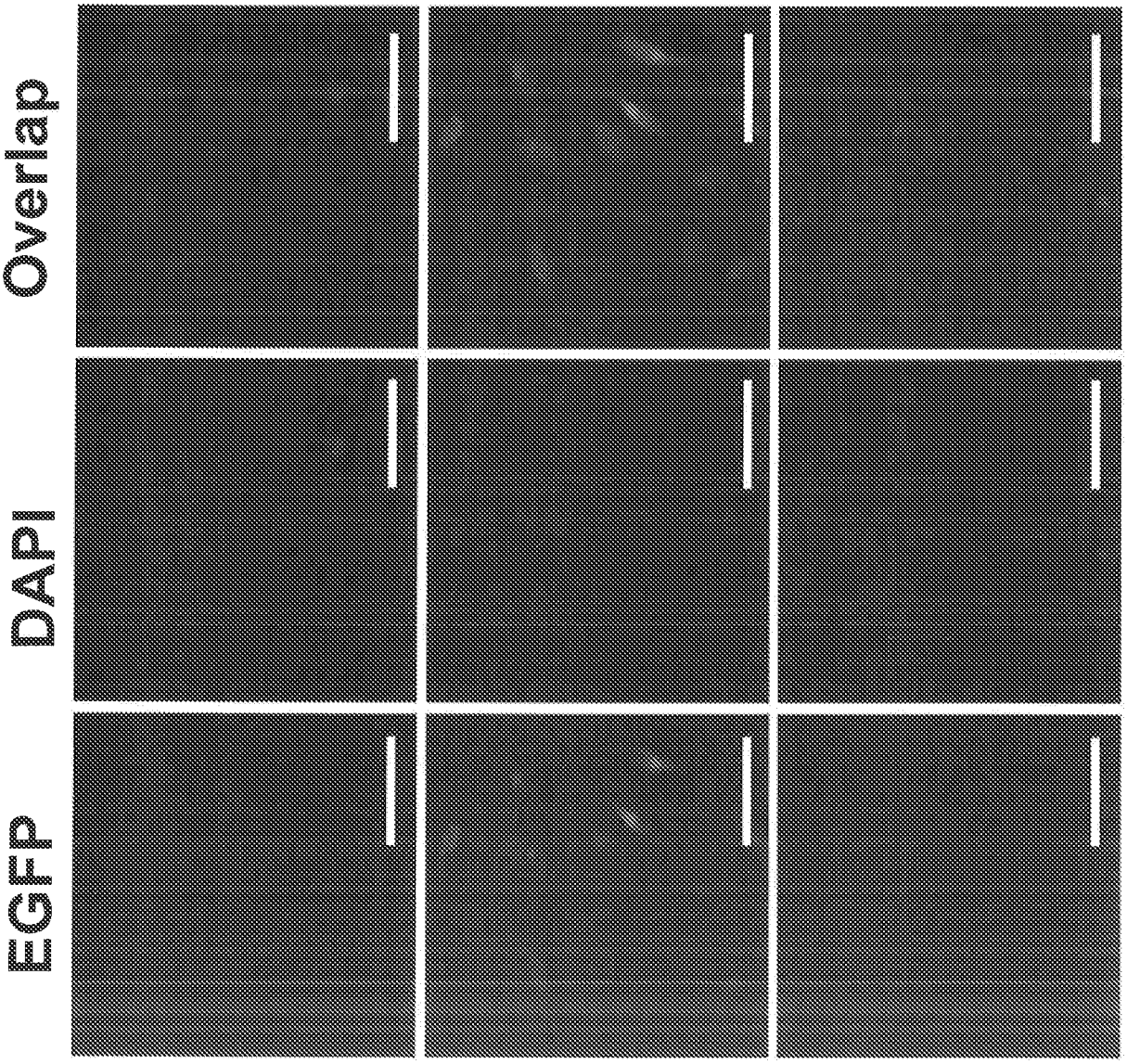


Figure 9

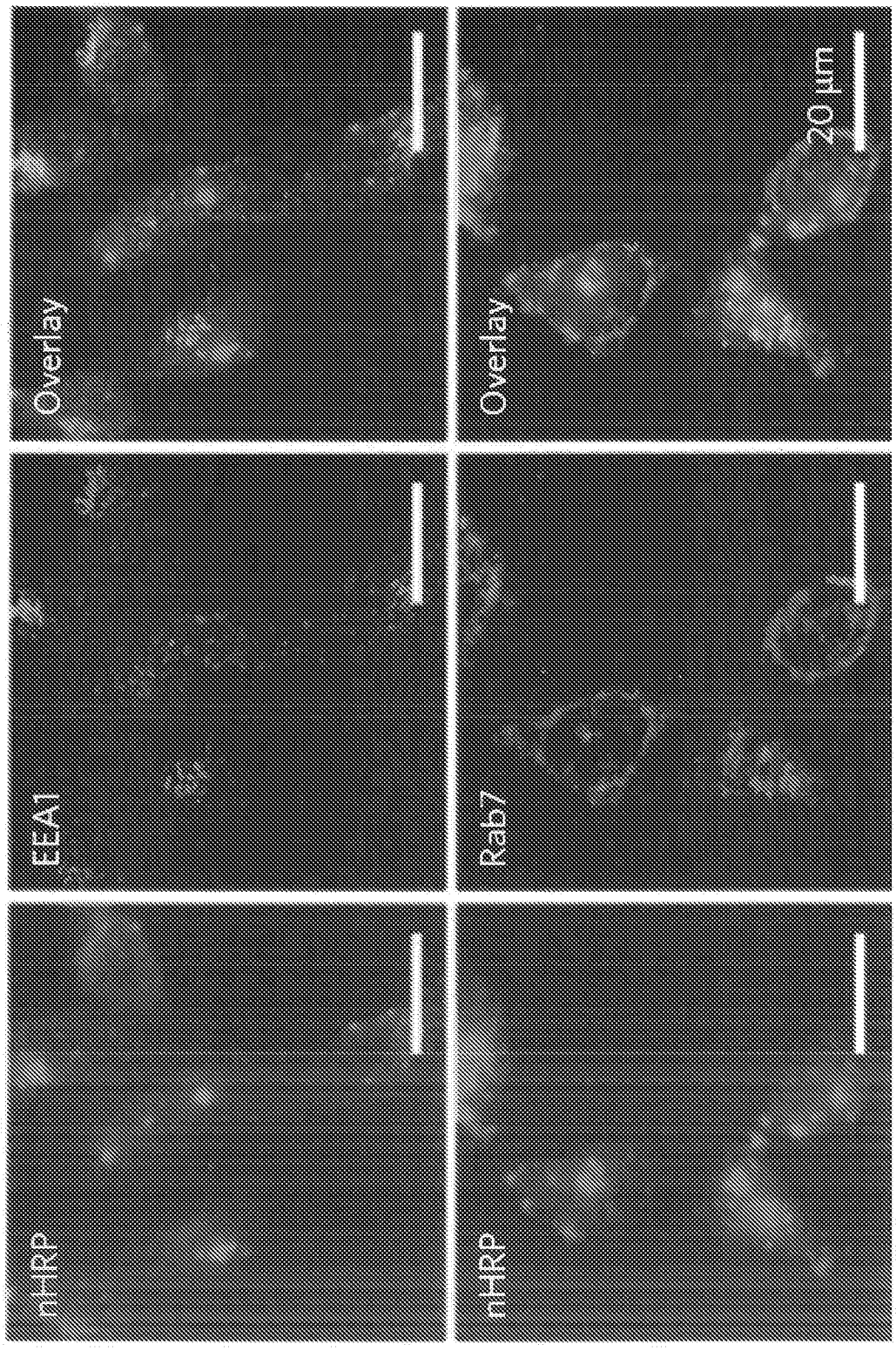


Figure 10

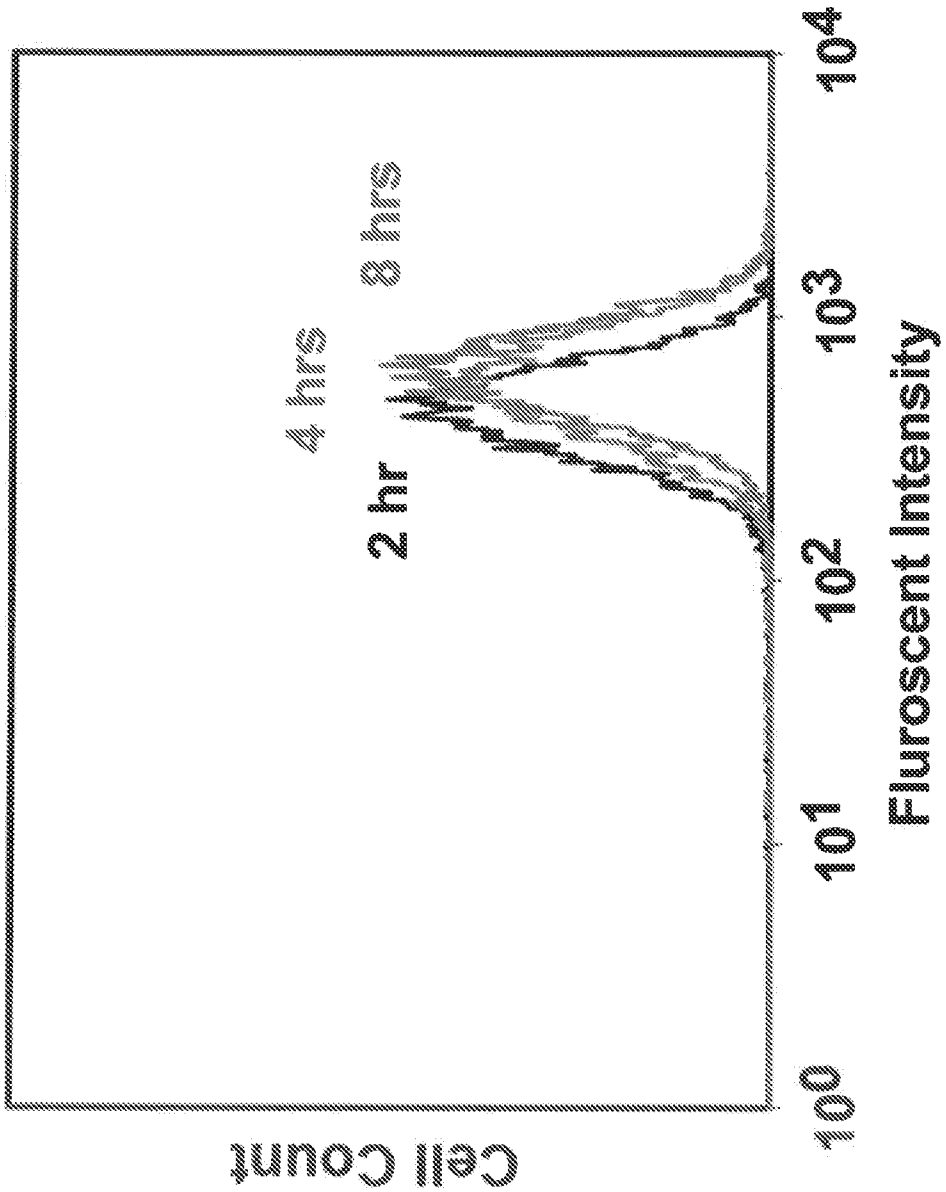

cell count
100
101
102
103
104
Fluroscent Intensity
2 hr
4 hrs
8 hrs

Figure 11

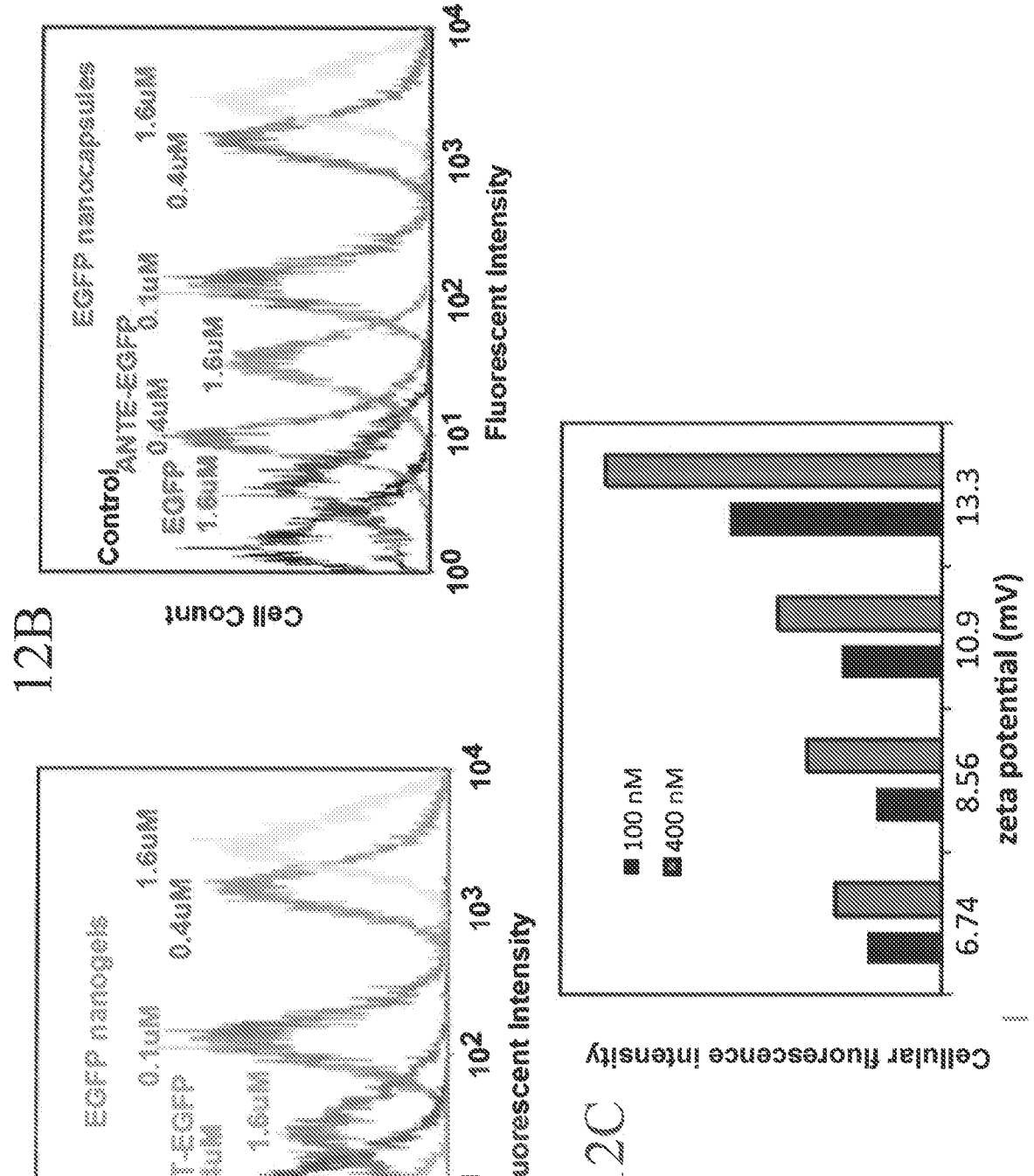
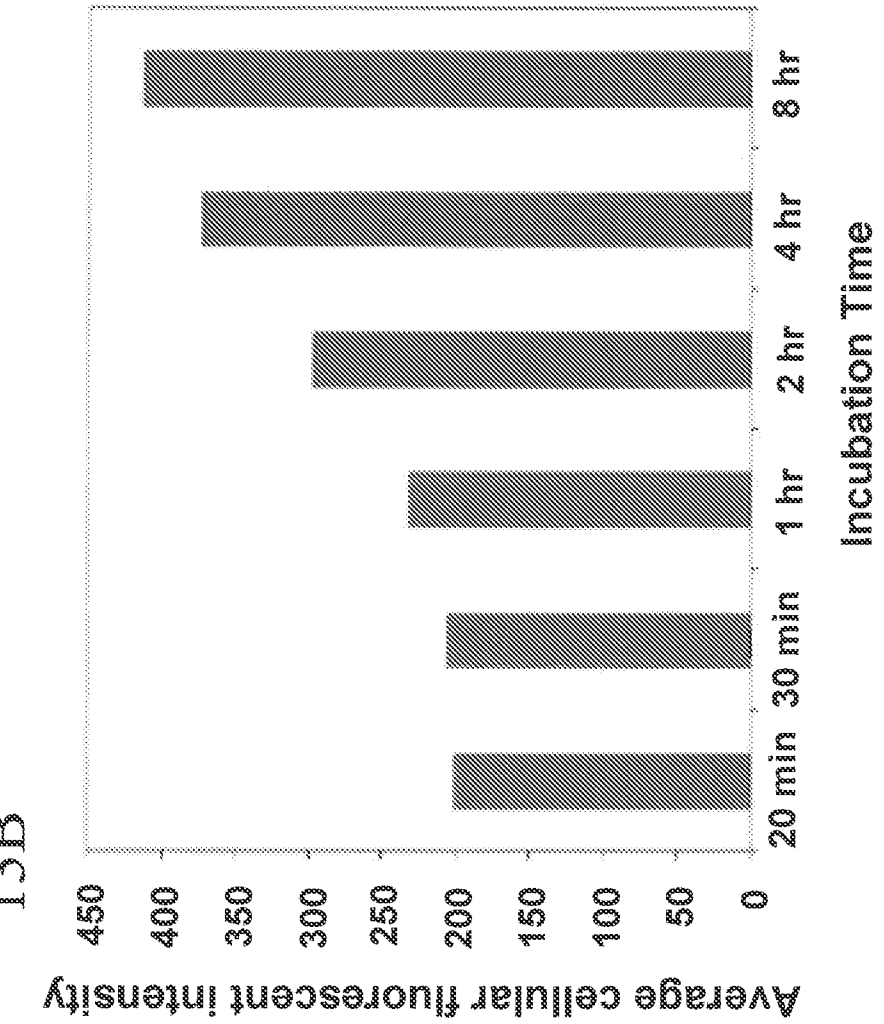

12A
Control
EGFP
TAT-EGFP
1.6uM
EGFP nanogels
0.1uM
0.4uM
1.6uM
1.6uM
0.4uM
Cell Count
Fluorescent Intensity
12B
Control
EGFP
1.6uM
ANTE-EGFP
0.4uM
0.1uM
1.6uM
EGFP nanocapsules
0.4uM
1.6uM
Cell Count
Fluorescent Intensity
12C
100 nM
400 nM
6.74
8.56
10.9
13.3
zeta potential (mV)
Cellular fluorescence intensity

Figure 12


13B
Average cellular fluorescent intensity
450
400
350
300
250
200
150
100
50
0
20 min
30 min
1 hr
2 hr
4 hr
8 hr
Incubation Time

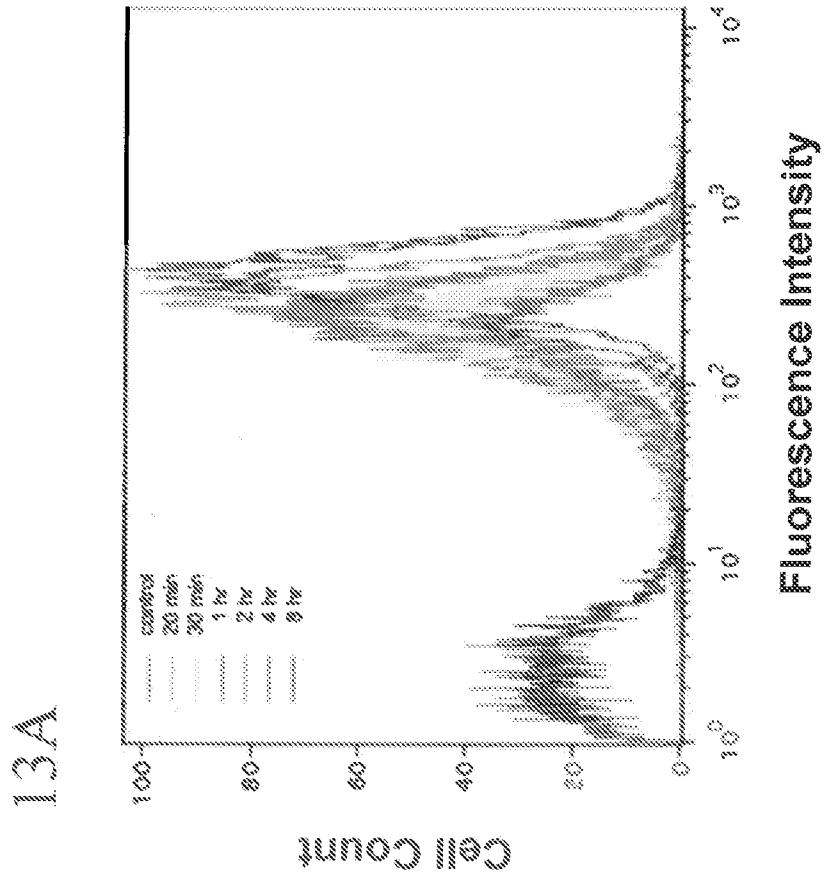

13A
Cell Count
100
80
60
40
20
0
Control
20 min
30 min
1 hr
2 hr
4 hr
8 hr
10^0
10^1
10^2
10^3
10^4
Fluorescence Intensity

Figure 13

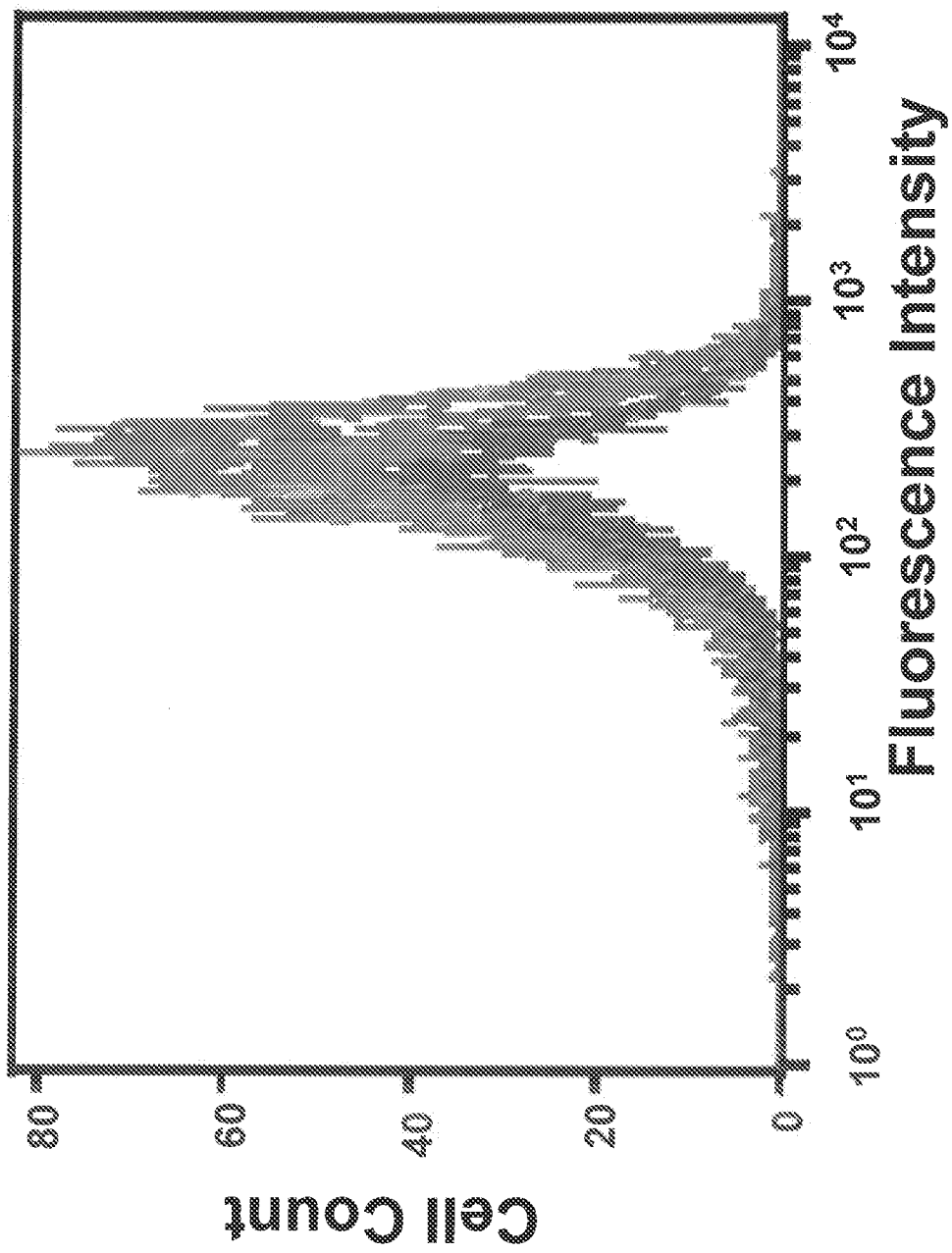

Cell Count
0
20
40
60
80
10^0
10^1
10^2
10^3
10^4
Fluorescence Intensity

Figure 14

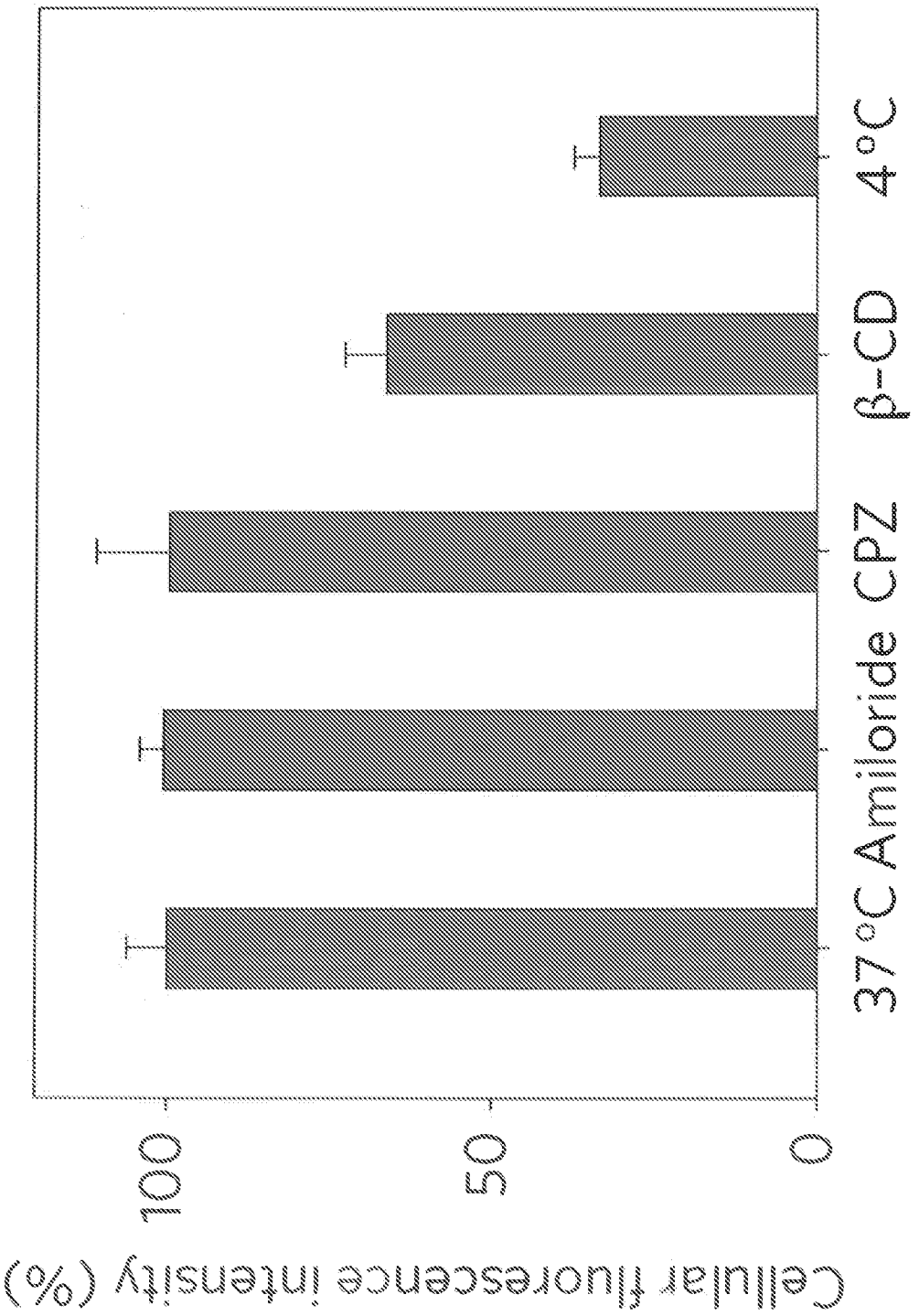

Cellular fluorescence intensity (%)
100
50
0
37 °C
Amiloride
CPZ
β-CD
4 °C

Figure 15

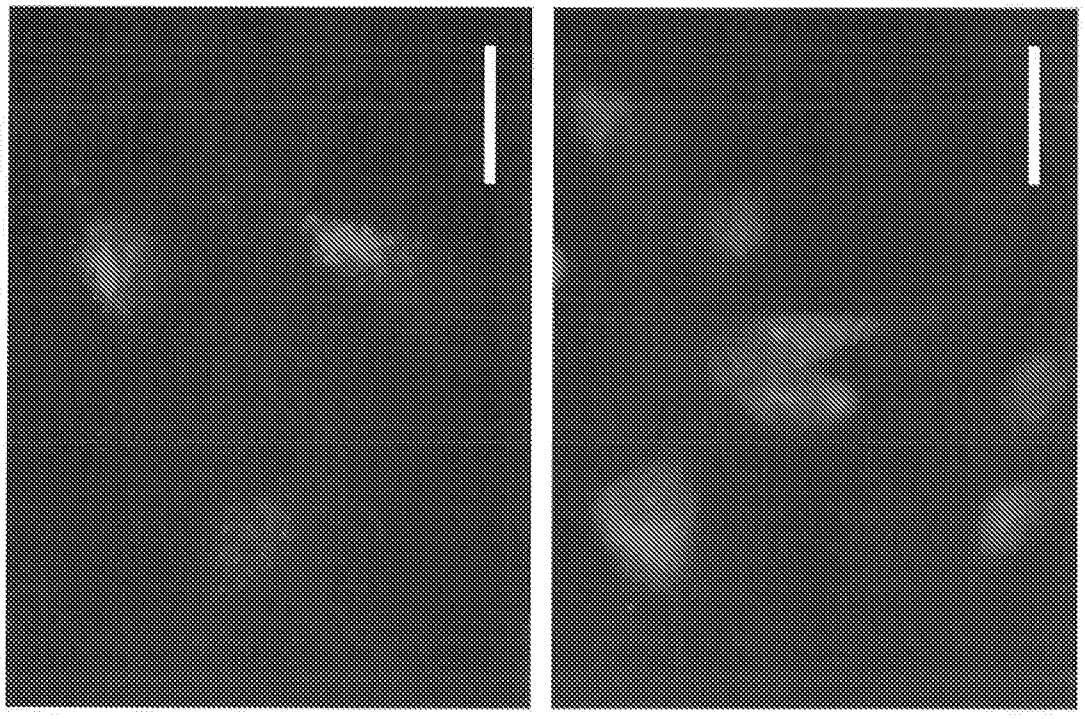


Figure 16

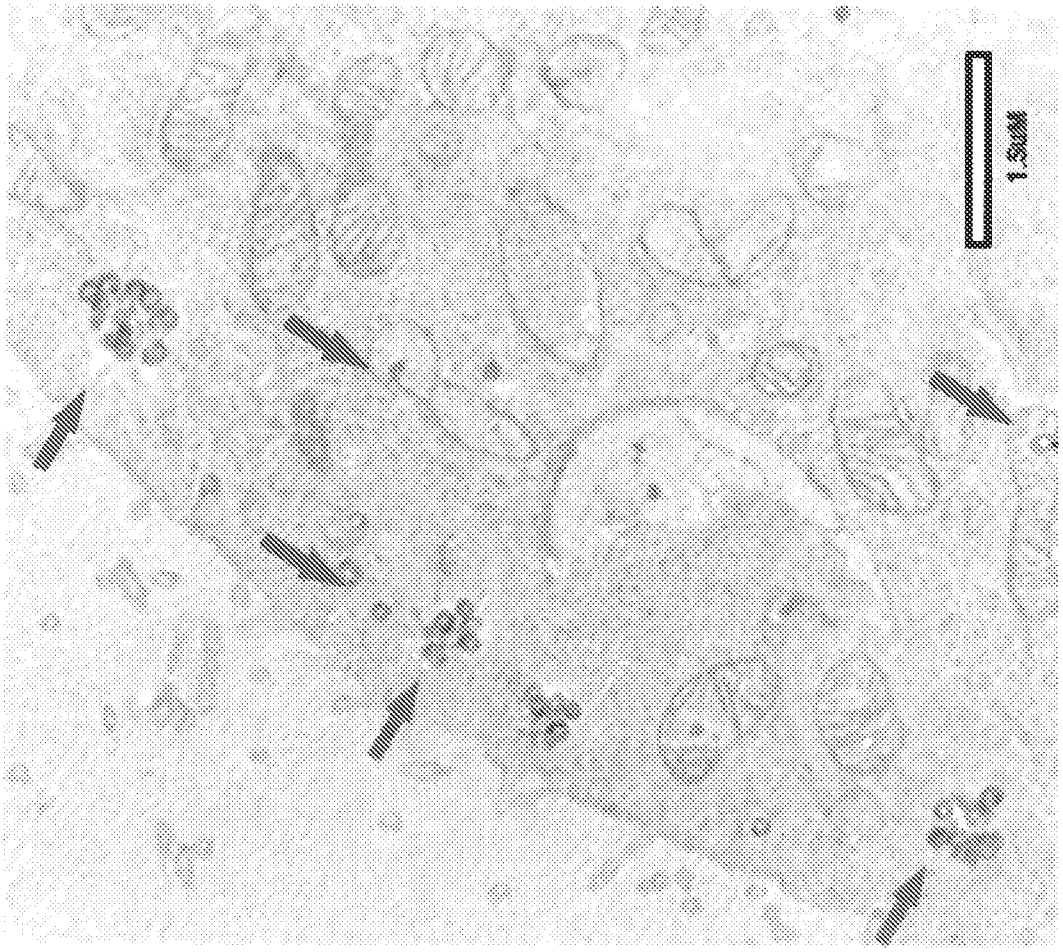


Figure 17

18A

18B

Figure 18

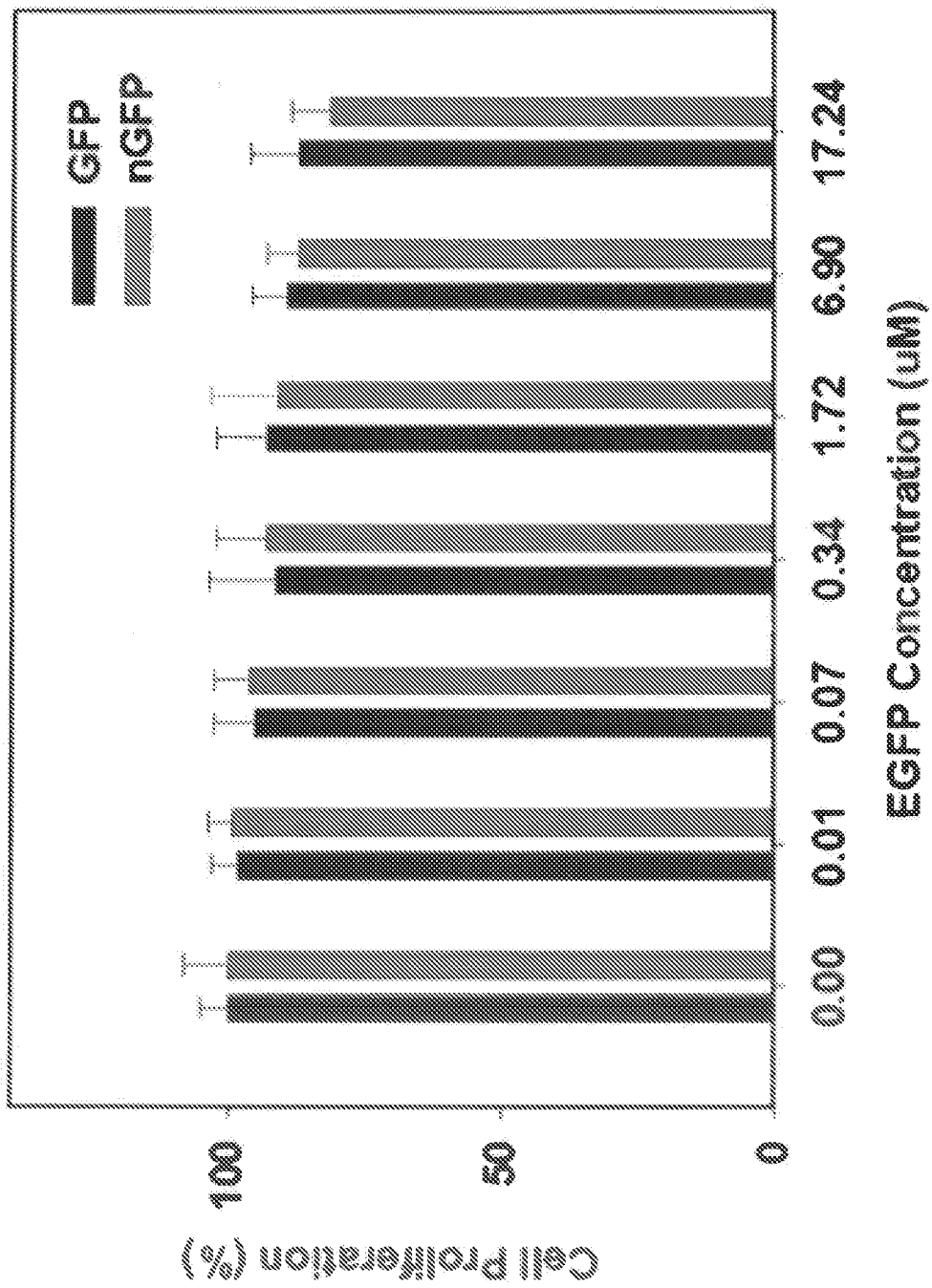

GFP
nGFP
Cell Proliferation (%)
100
50
0
0.00
0.01
0.07
0.34
1.72
6.90
17.24
EGFP Concentration (uM)

Figure 19

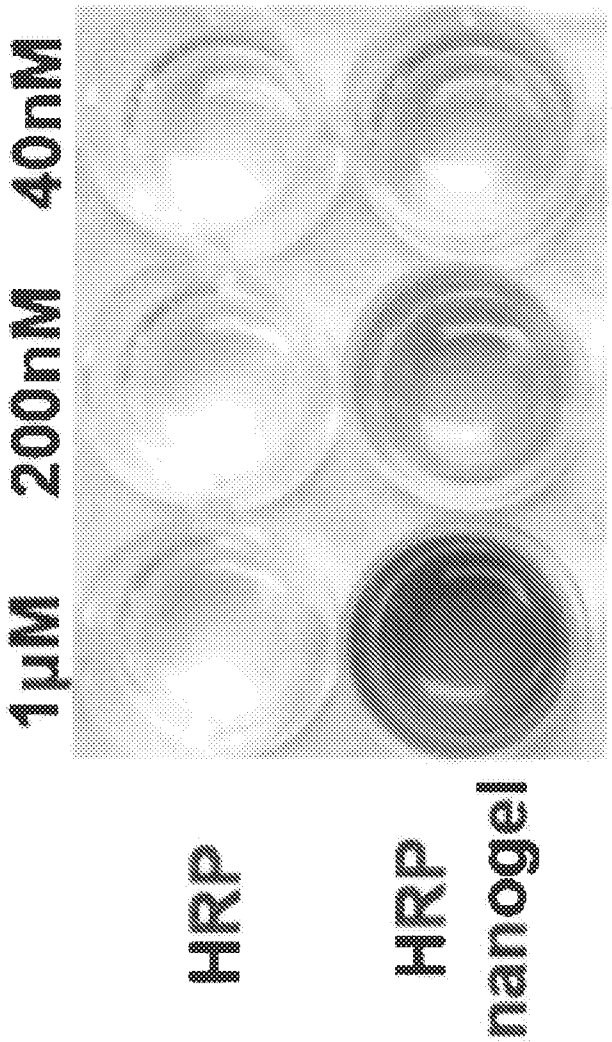


Figure 20

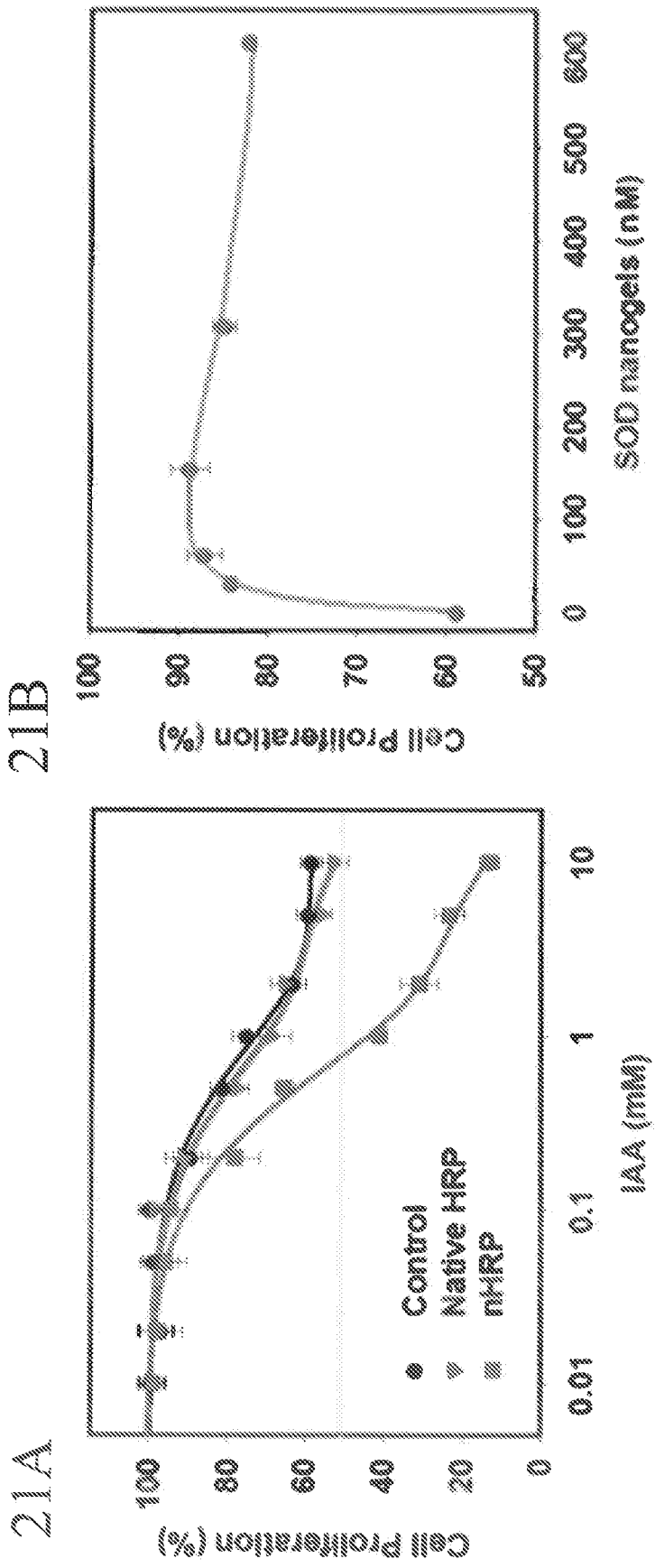

21A
Cell Proliferation (%)
100
80
60
40
20
0
0.01
0.1
1
10
IAA (mM)
Control
Native HRP
nHRP
21B
Cell Proliferation (%)
100
90
80
70
60
50
0
100
200
300
400
500
600
SOD nanogels (nM)

Figure 21

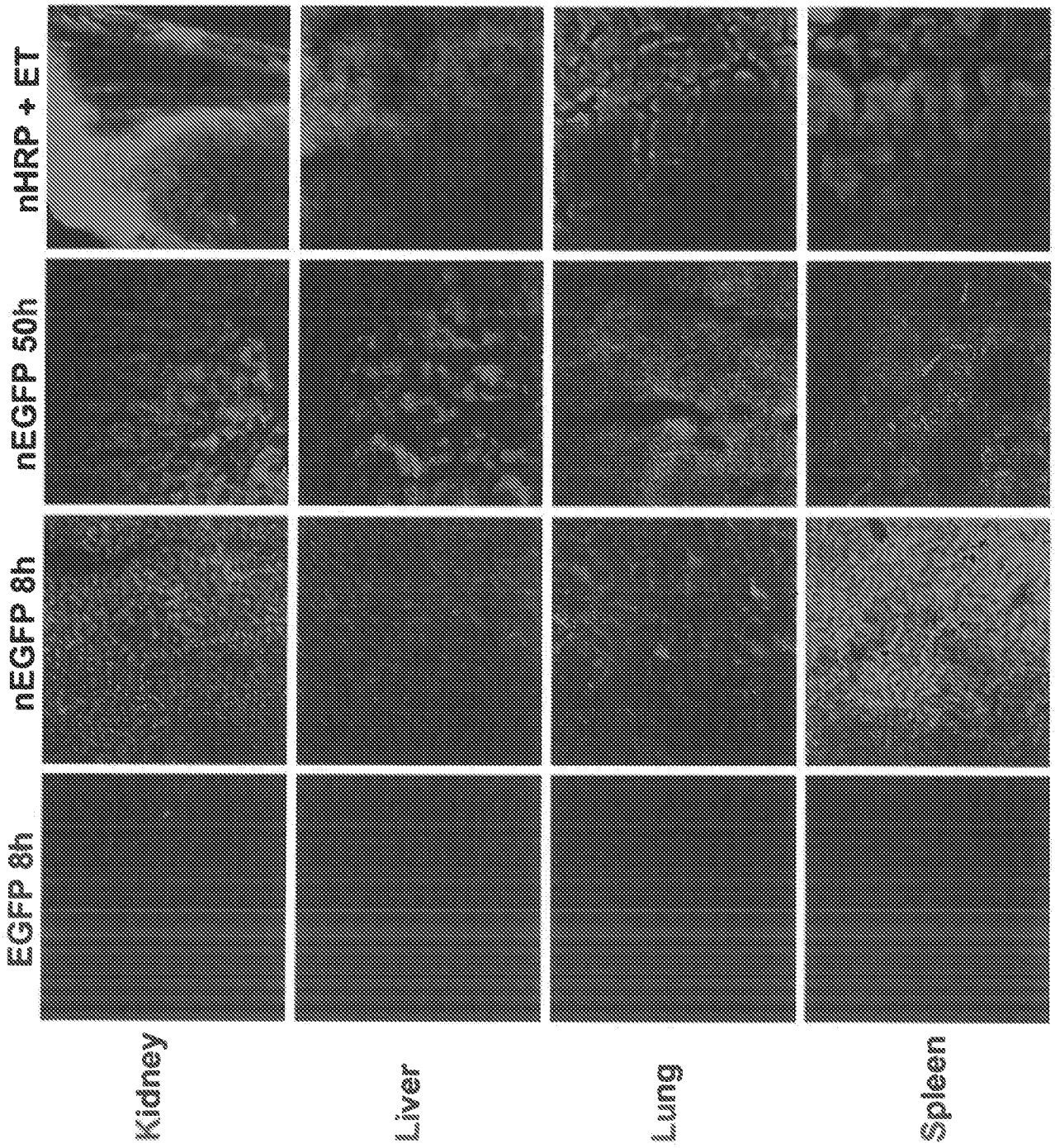


Figure 22

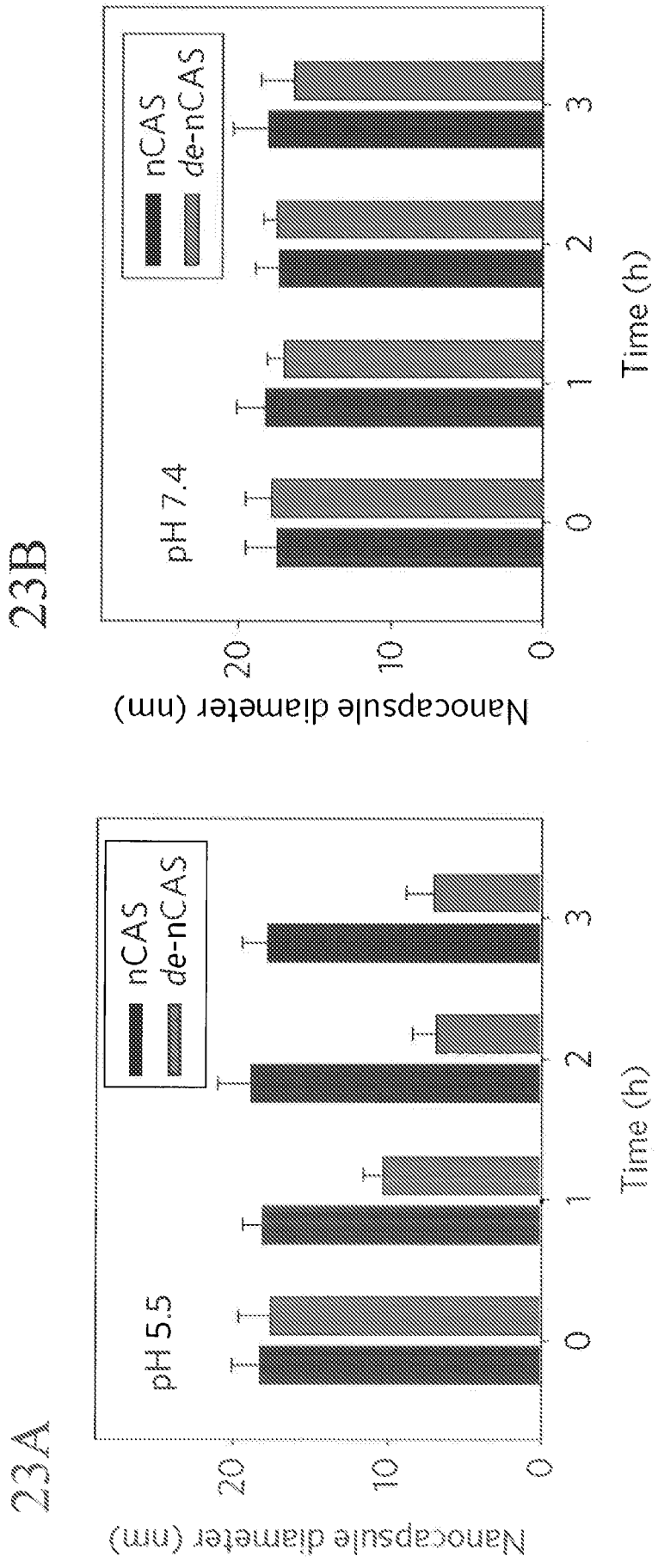

23A
Nanocapsule diameter (nm)
20
10
0
pH 5.5
nCAS
de-nCAS
0
1
2
3
Time (h)
23B
Nanocapsule diameter (nm)
20
10
0
pH 7.4
nCAS
de-nCAS
0
1
2
3
Time (h)

Figure 23

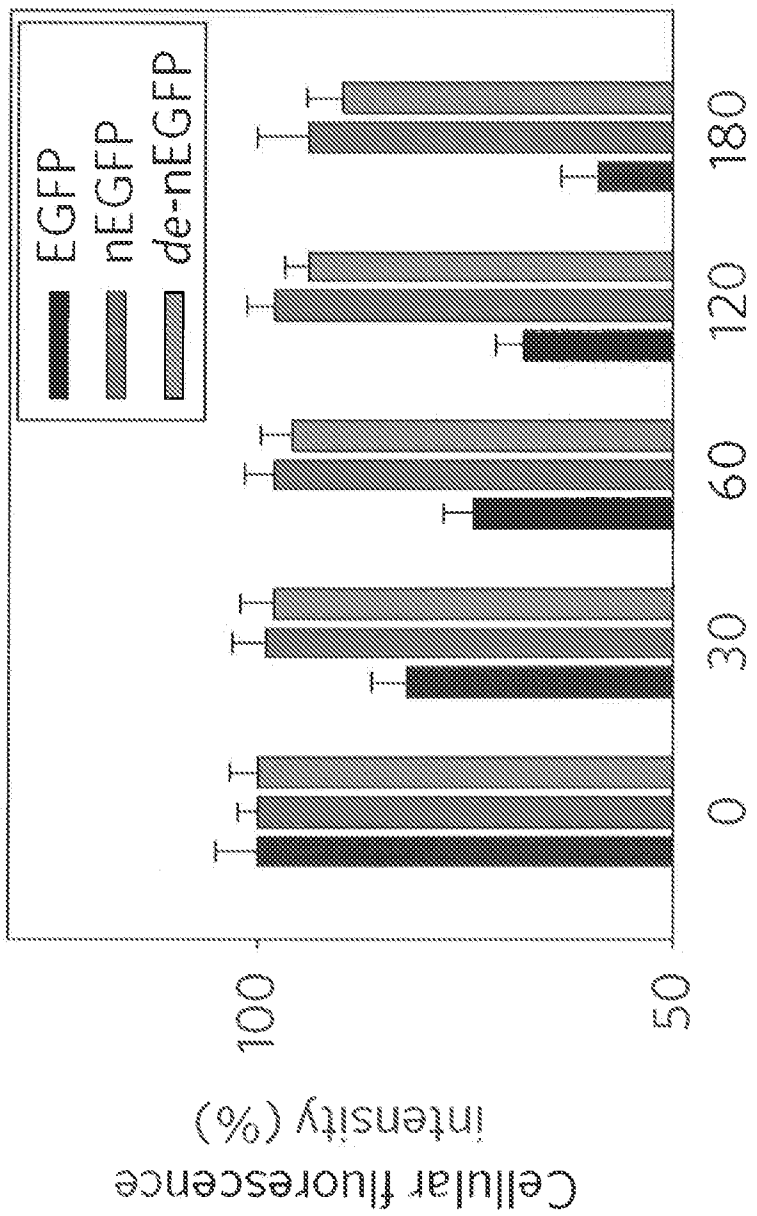

EGFP
nEGFP
de-nEGFP
100
50
0
30
60
120
180
Time (min)
Cellular fluorescence intensity (%)

Figure 24

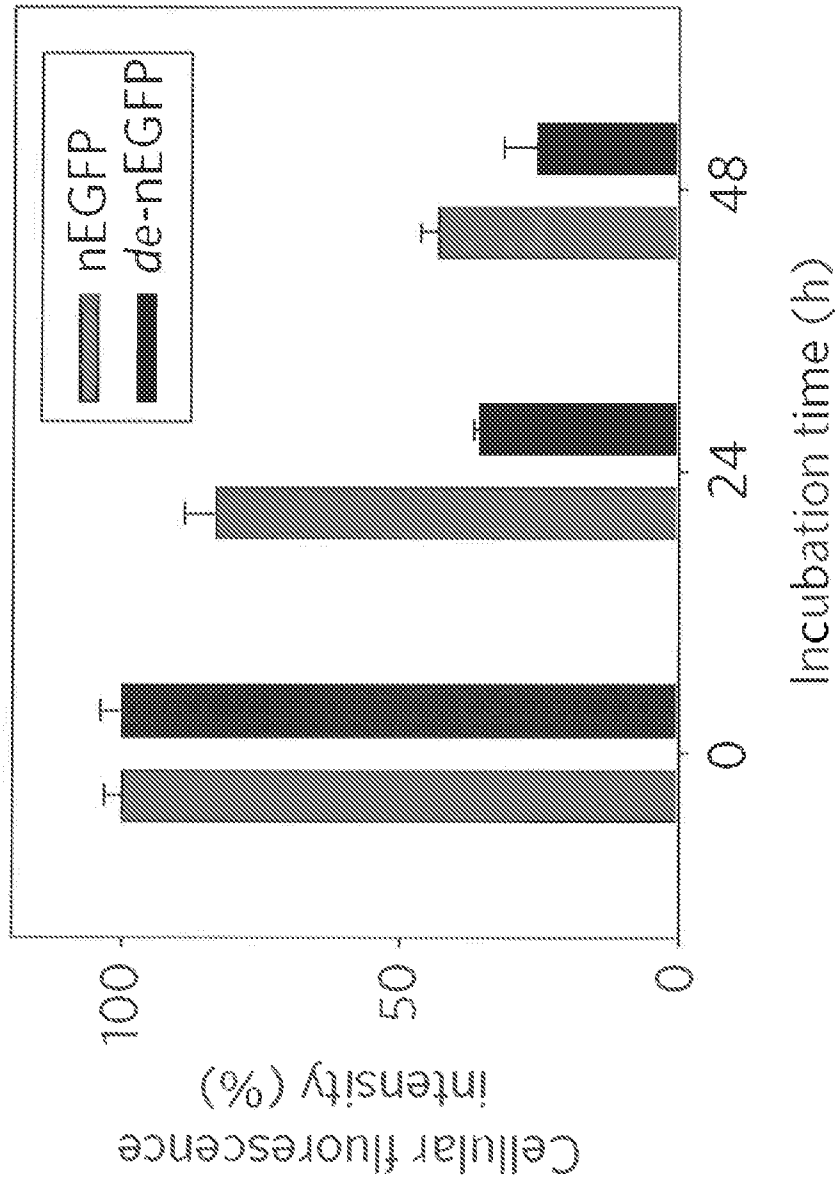

nEGFP
de-nEGFP
Cellular fluorescence intensity (%)
100
50
0
0
24
48
Incubation time (h)

Figure 25

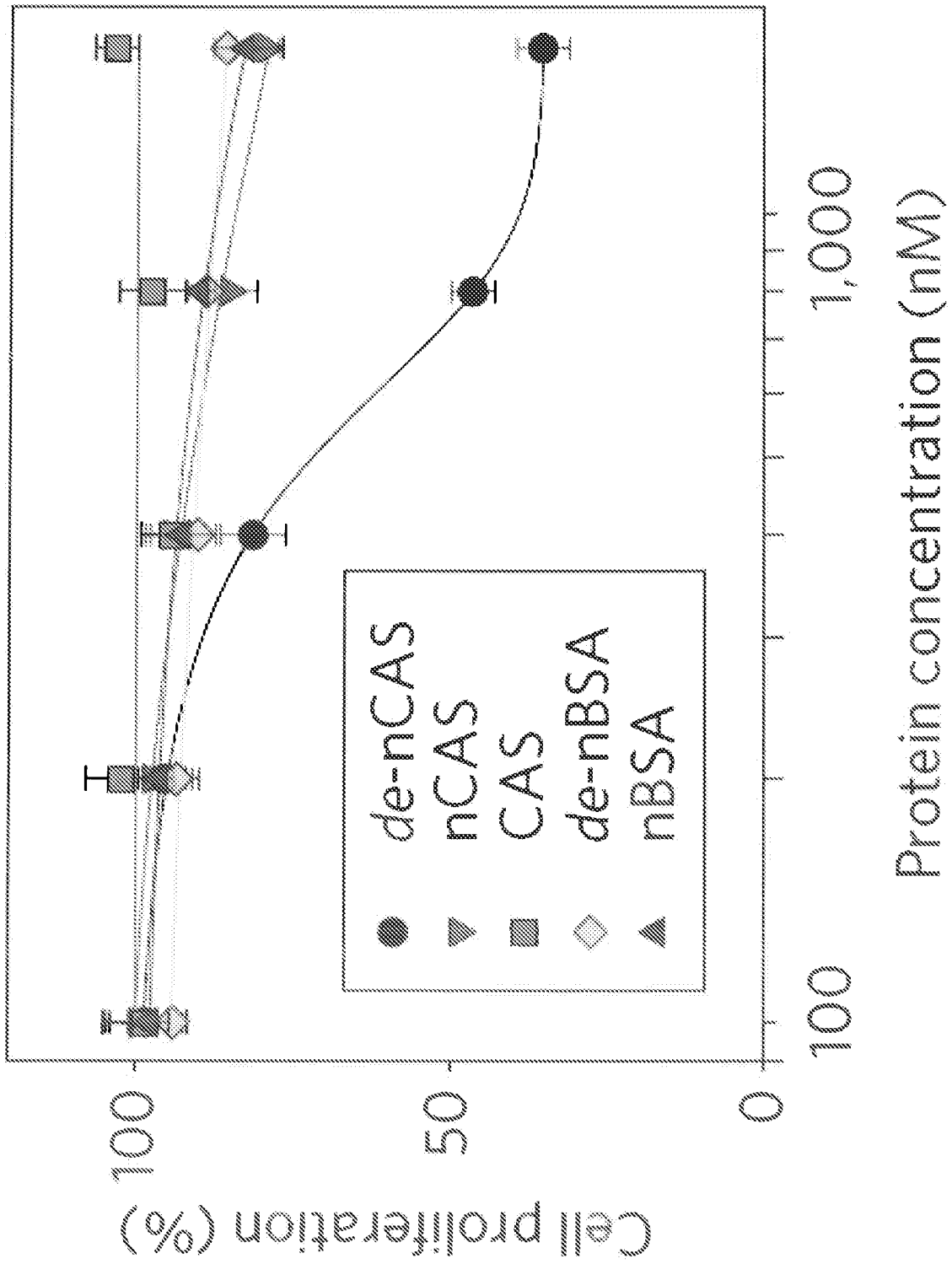

Cell proliferation (%)
100
50
0
100
1,000
Protein concentration (nM)
de-nCAS
nCAS
CAS
de-nBSA
nBSA

Figure 26

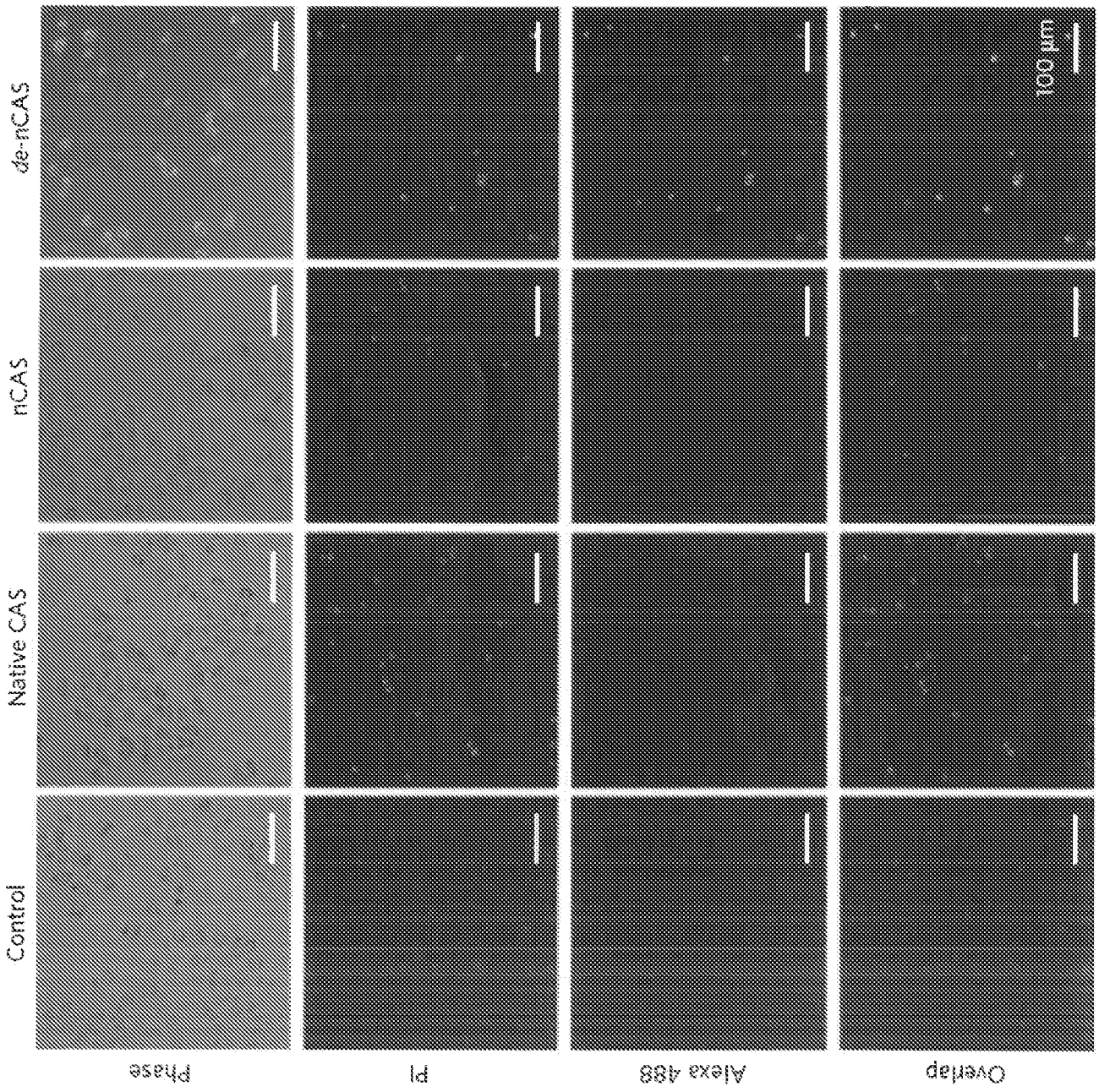

Control
Native CAS
nCAS
de-nCAS
Phase
PI
Alexa 488
Overlap
100 µm

Figure 27