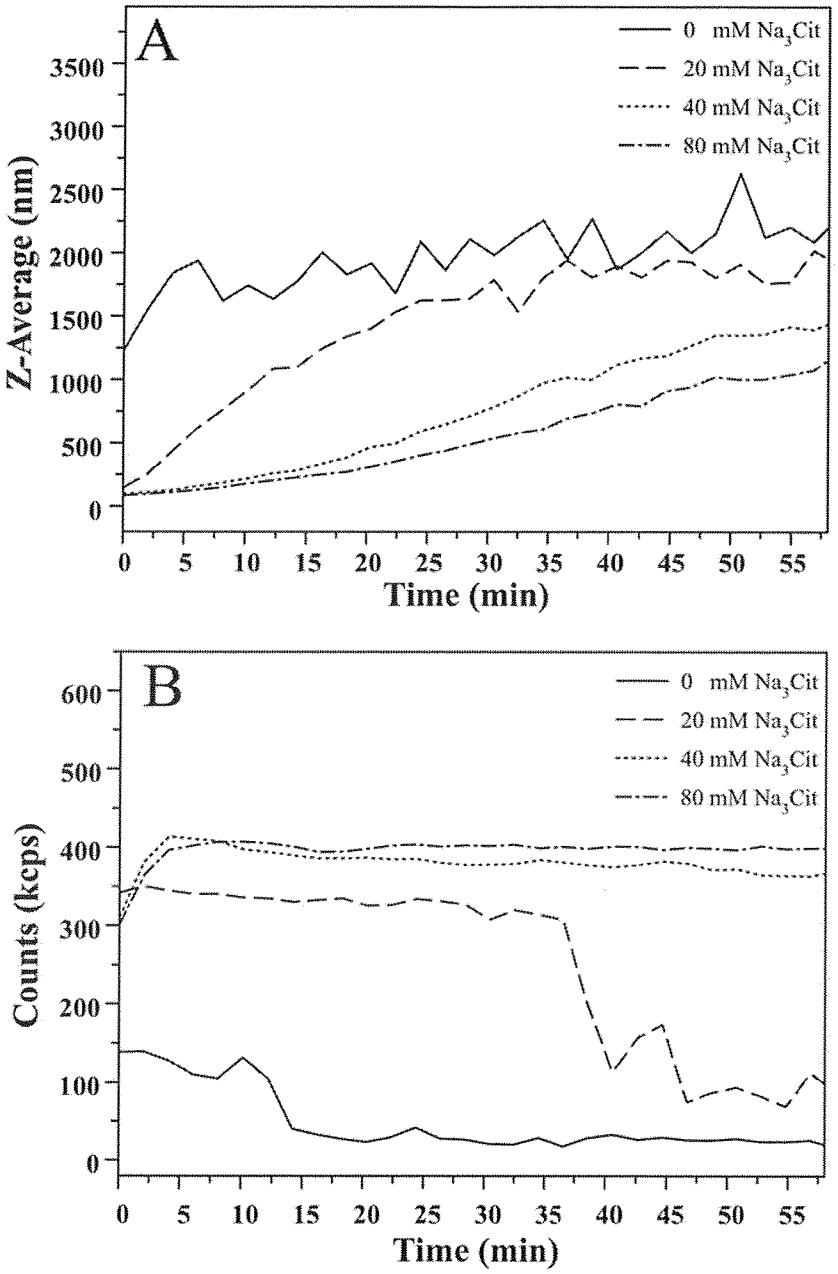

A
0 mM Na3Cit
20 mM Na3Cit
40 mM Na3Cit
80 mM Na3Cit
Z-Average (nm)
0
500
1000
1500
2000
2500
3000
3500
0 5 10 15 20 25 30 35 40 45 50 55
Time (min)
B
0 mM Na3Cit
20 mM Na3Cit
40 mM Na3Cit
80 mM Na3Cit
Counts (kcps)
0
100
200
300
400
500
600
0 5 10 15 20 25 30 35 40 45 50 55
Time (min)

Figure 1

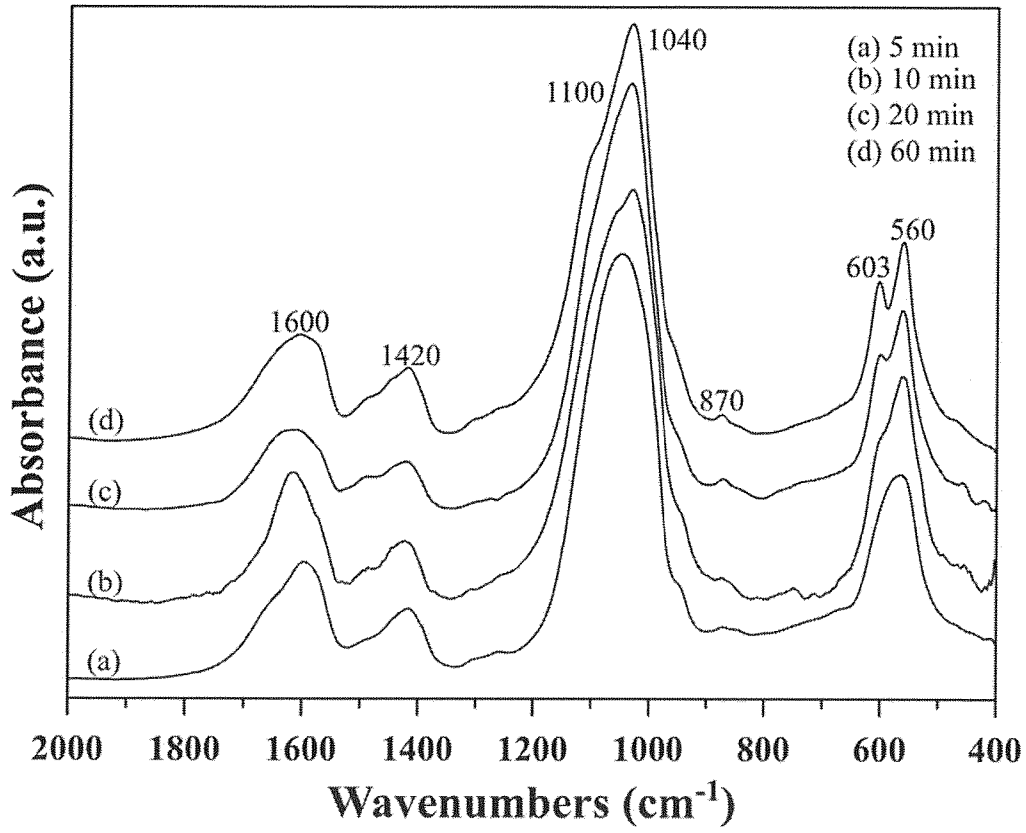

Absorbance (a.u.)
Wavenumbers (cm-1)
2000
1800
1600
1400
1200
1000
800
600
400
1040
1100
1600
1420
870
603
560
(a) 5 min
(b) 10 min
(c) 20 min
(d) 60 min
(d)
(c)
(b)
(a)

Figure 2

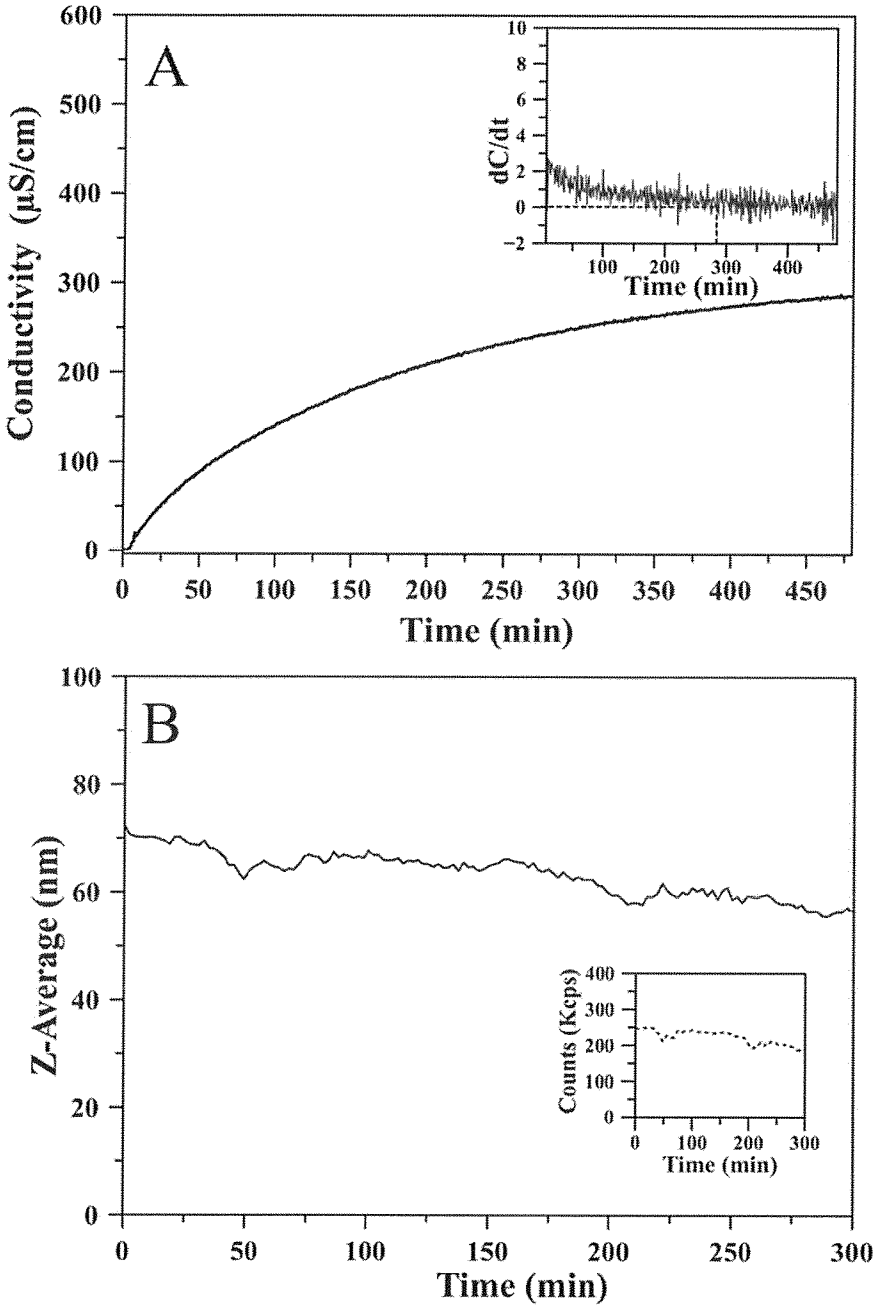

A
Conductivity (µS/cm)
Time (min)
dC/dt
Time (min)
B
Z-Average (nm)
Time (min)
Counts (Kcps)
Time (min)

Figure 3

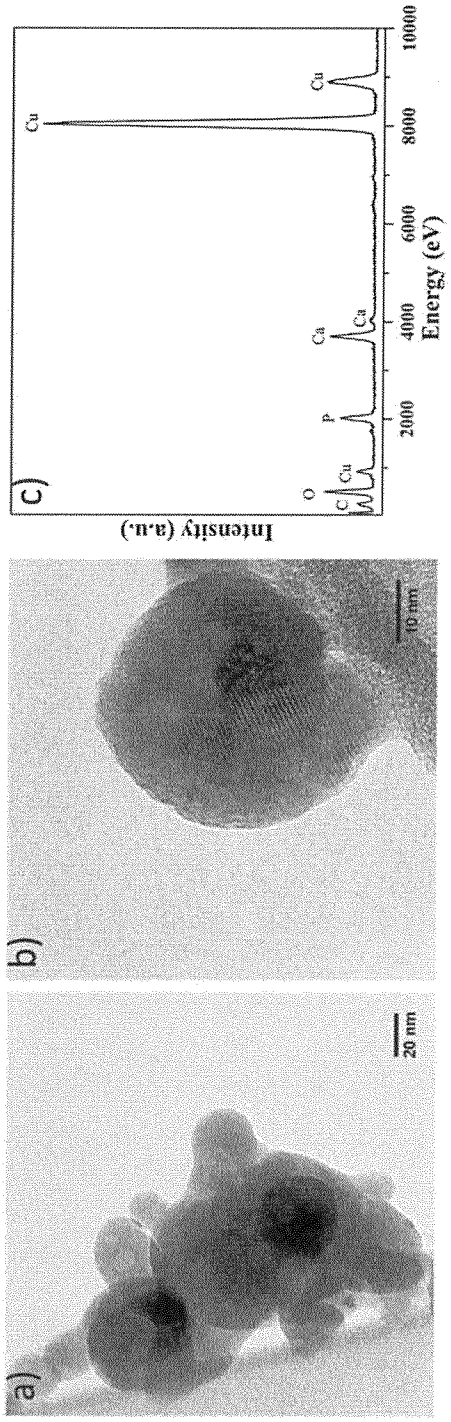

a)
20 nm
b)
10 nm
c)
Intensity (a.u.)
O
C
Cu
P
Ca
Ca
Cu
Cu
2000
4000
6000
8000
10000
Energy (eV)

Figure 4

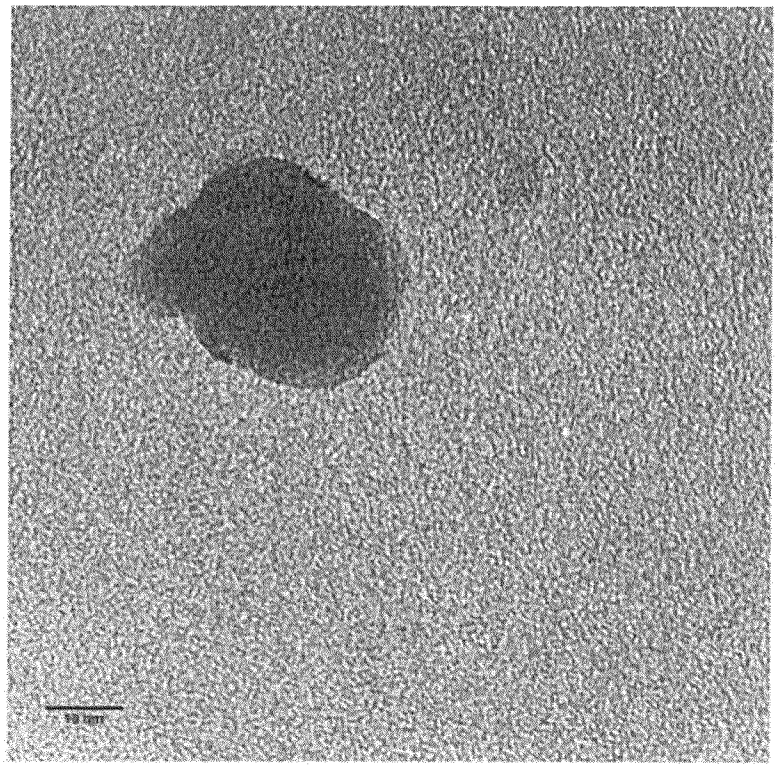


Figure 5

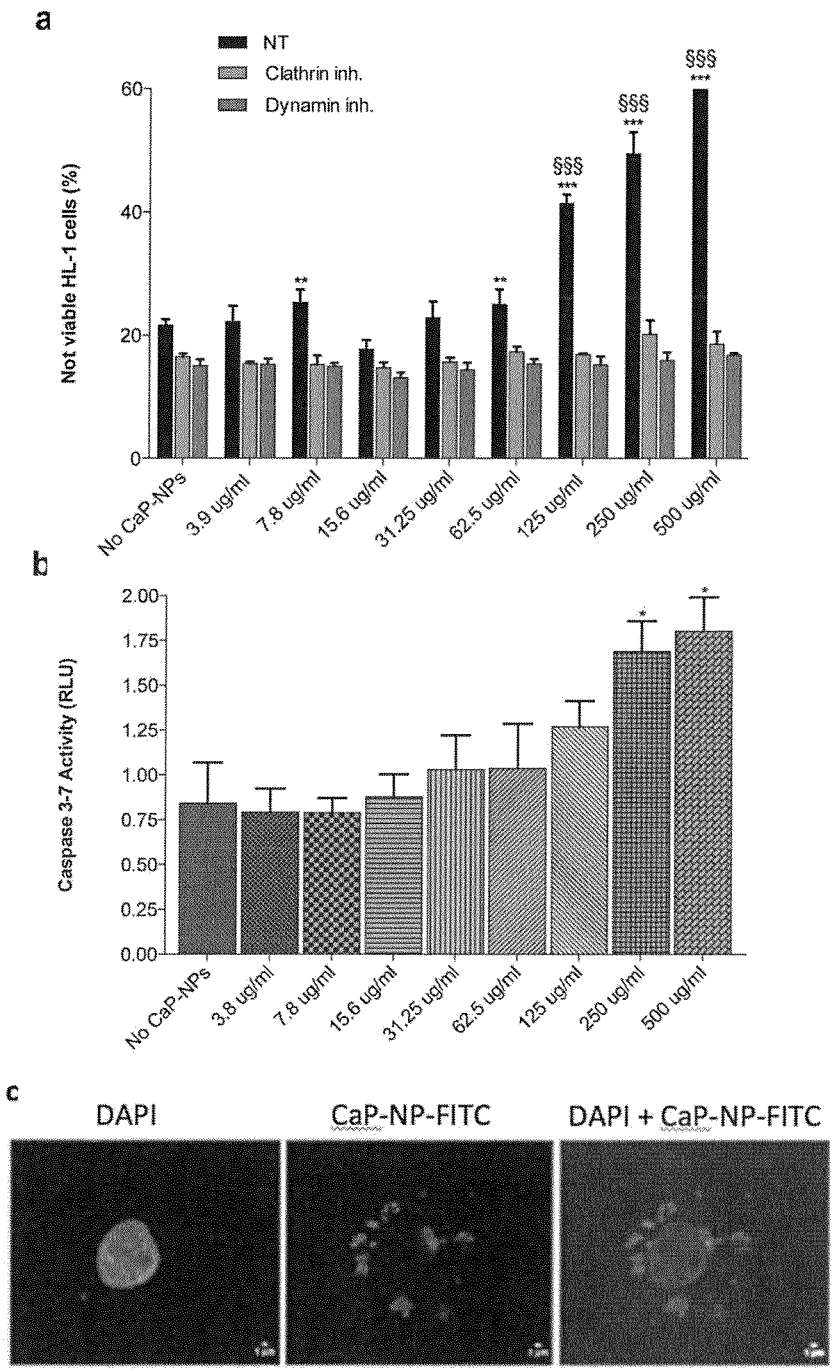

a
NT
Clathrin inh.
Dynamin inh.
Not viable HL-1 cells (%)
60
40
20
0
§§§
§§§
§§§
No CaP-NPs
3.9 ug/ml
7.8 ug/ml
15.6 ug/ml
31.25 ug/ml
62.5 ug/ml
125 ug/ml
250 ug/ml
500 ug/ml
b
Caspase 3-7 Activity (RLU)
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
No CaP-NPs
3.8 ug/ml
7.8 ug/ml
15.6 ug/ml
31.25 ug/ml
62.5 ug/ml
125 ug/ml
250 ug/ml
500 ug/ml
c
DAPI
CaP-NP-FITC
DAPI + CaP-NP-FITC

Figure 6

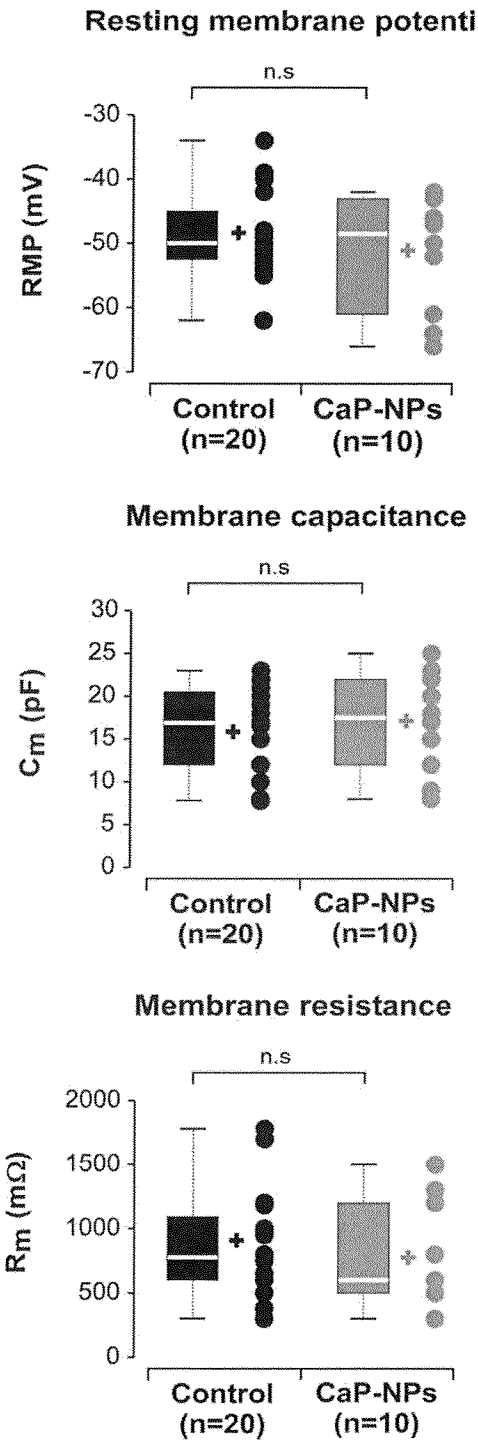

Resting membrane potential
n.s
RMP (mV)
-30
-40
-50
-60
-70
Control (n=20)
CaP-NPs (n=10)
Membrane capacitance
n.s
Cm (pF)
30
25
20
15
10
5
0
Control (n=20)
CaP-NPs (n=10)
Membrane resistance
n.s
Rm (mΩ)
2000
1500
1000
500
0
Control (n=20)
CaP-NPs (n=10)

Figure 7

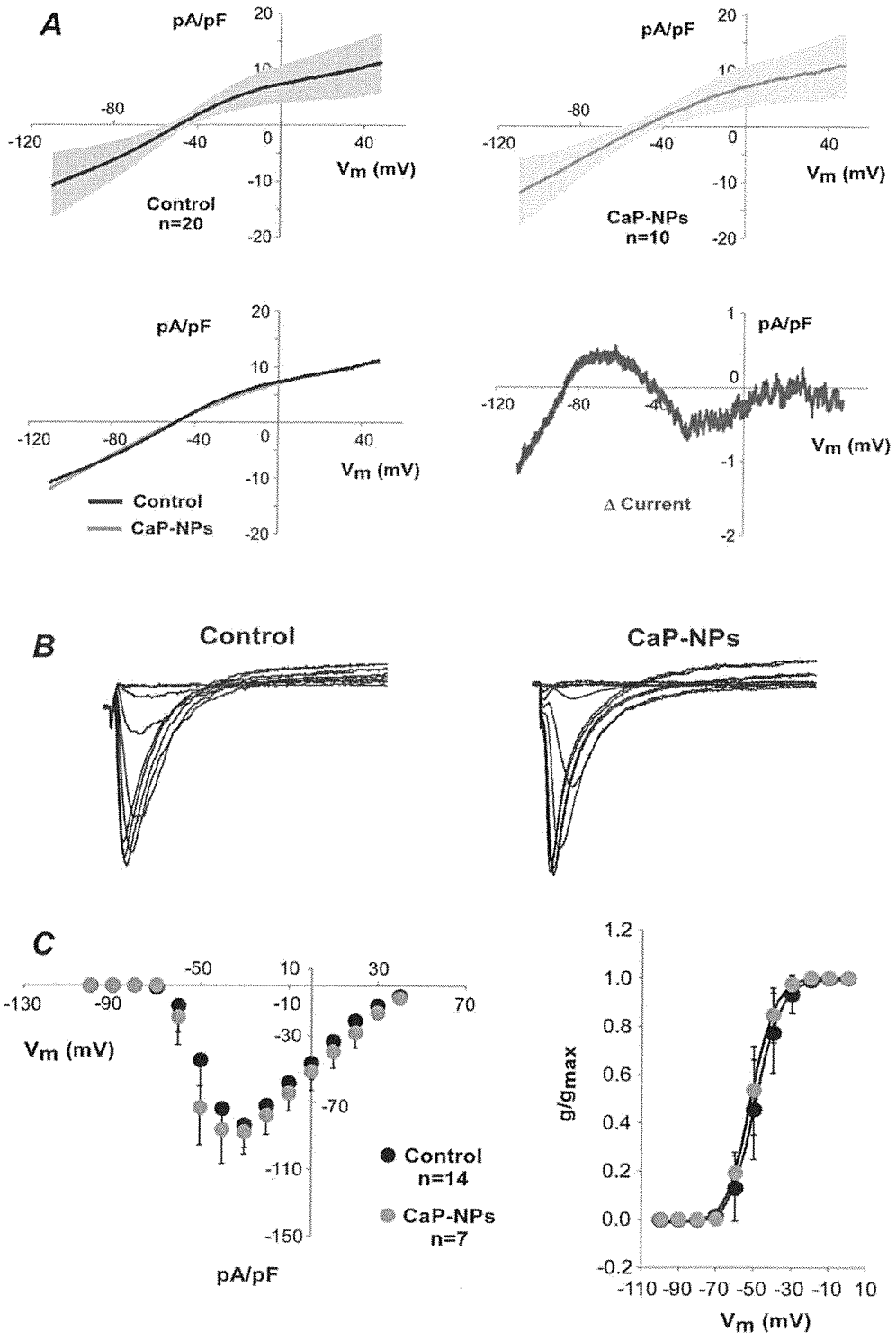

A
pA/pF
Control
n=20
CaP-NPs
n=10
Vm (mV)
Control
CaP-NPs
Δ Current
B
Control
CaP-NPs
C
Vm (mV)
pA/pF
Control
n=14
CaP-NPs
n=7
g/gmax

Figure 8

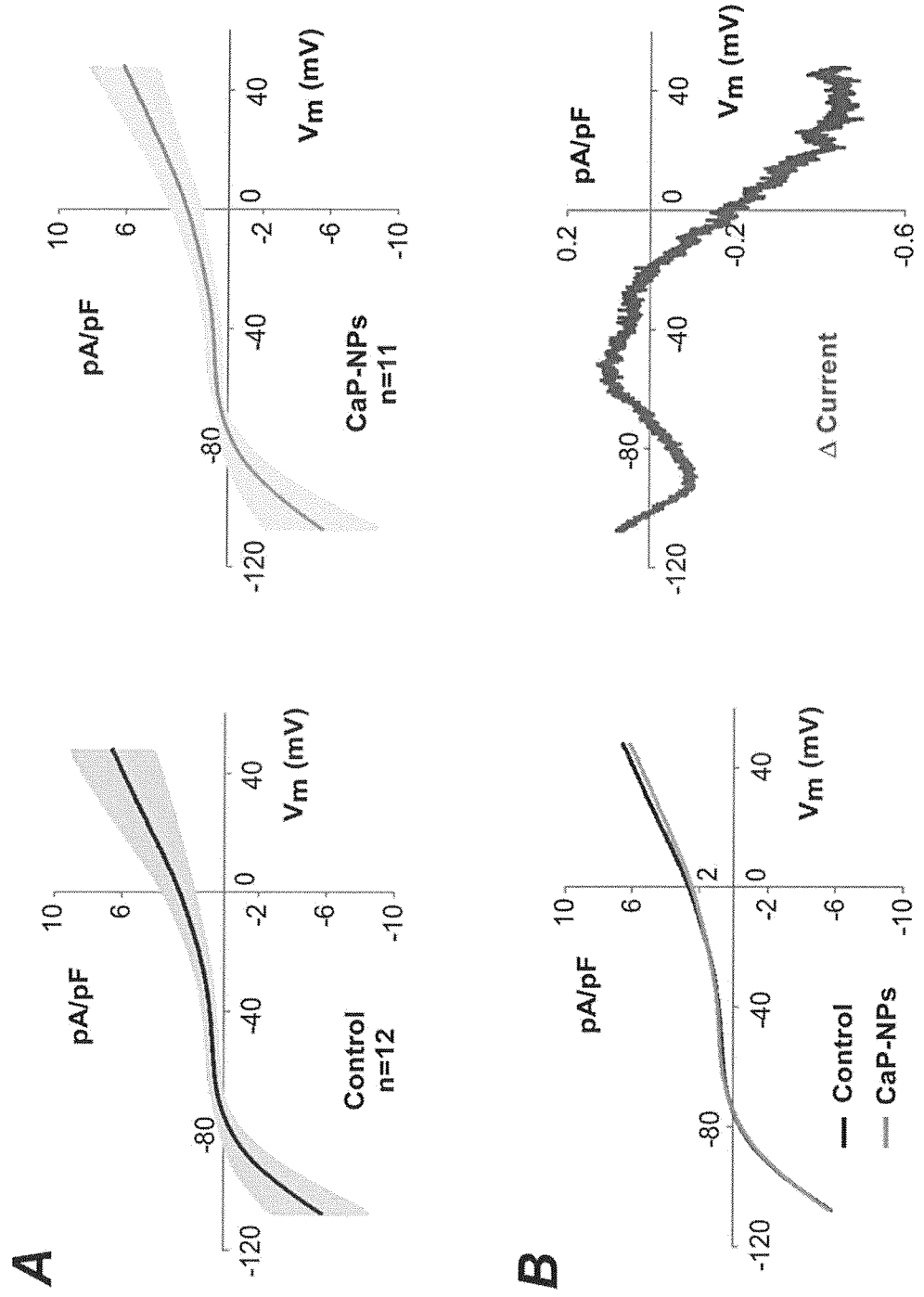

A
pA/pF
10
6
2
-2
-6
-10
-80
-120
-40
0
40
Vm (mV)
Control
n=12
CaP-NPs
n=11
B
pA/pF
0.2
-0.2
-0.6
Δ Current
Control
CaP-NPs

Figure 9

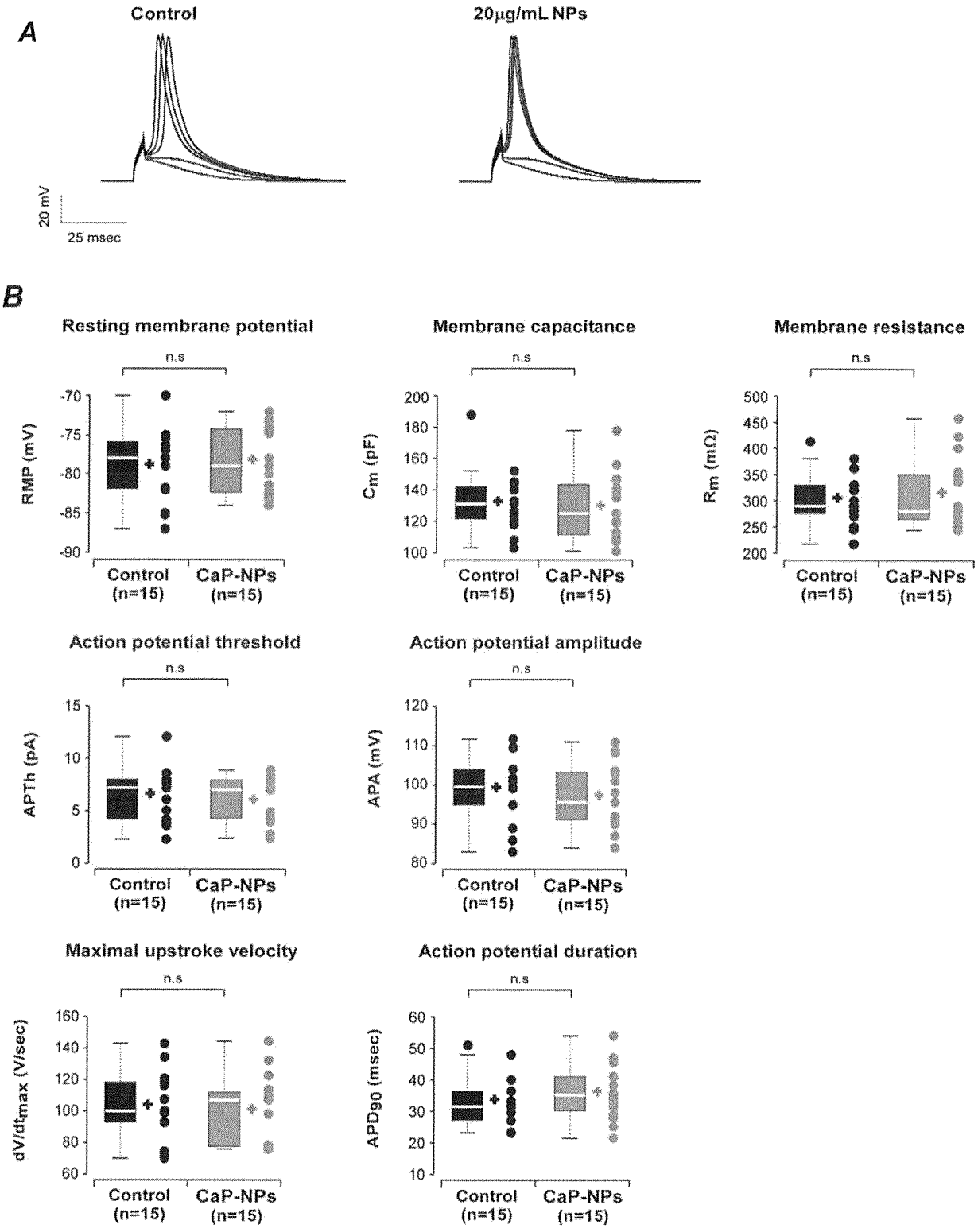

A
Control
20µg/mL NPs
20 mV
25 msec
B
Resting membrane potential
RMP (mV)
Membrane capacitance
Cm (pF)
Membrane resistance
Rm (mΩ)
Action potential threshold
APTh (pA)
Action potential amplitude
APA (mV)
Maximal upstroke velocity
dV/dtmax (V/sec)
Action potential duration
APD90 (msec)
n.s
Control (n=15)
CaP-NPs (n=15)

Figure 10

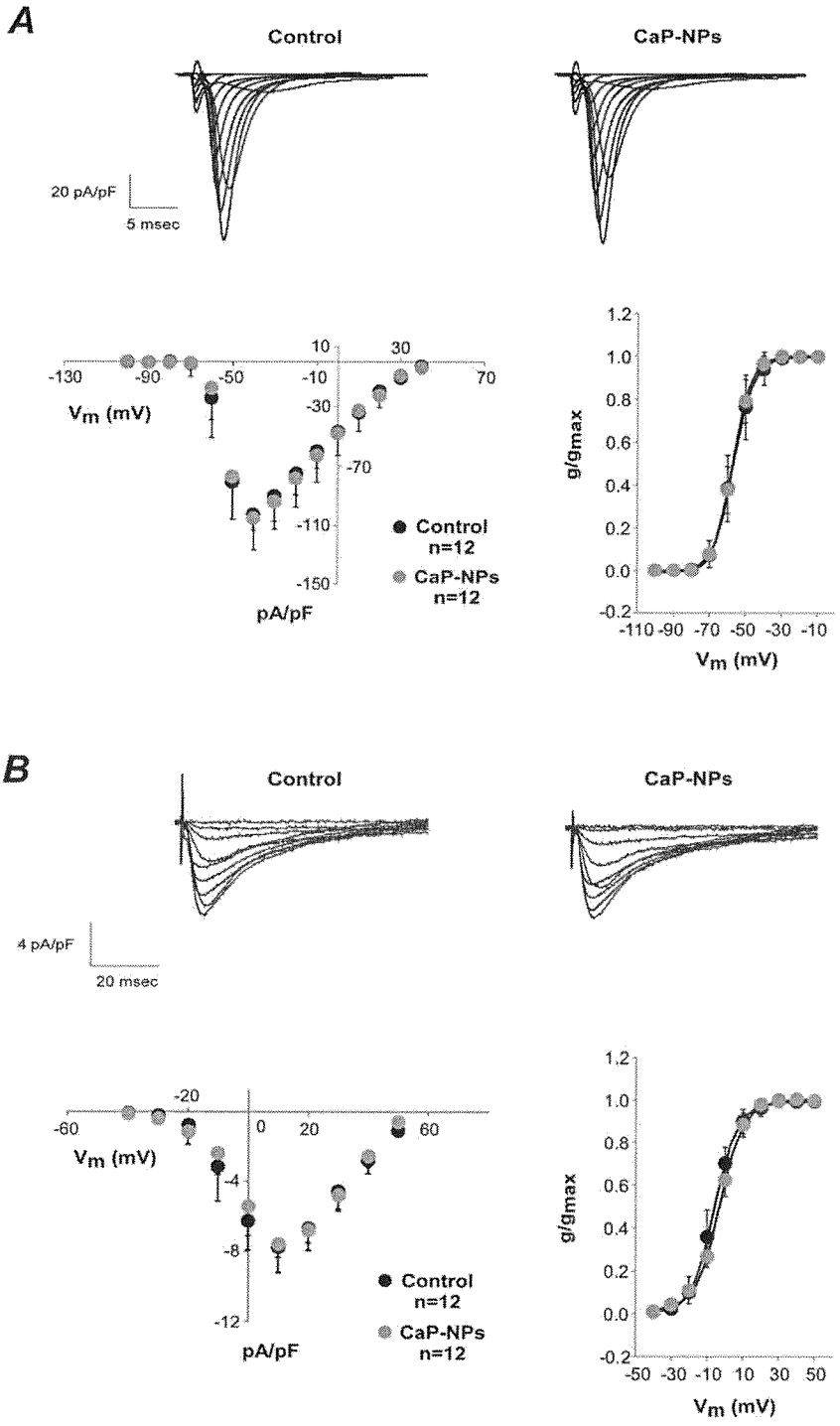

A
Control
CaP-NPs
20 pA/pF
5 msec
10
30
-130
-90
-50
-10
70
Vm (mV)
-30
-70
-110
-150
pA/pF
Control
n=12
CaP-NPs
n=12
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
g/gmax
-110 -90 -70 -50 -30 -10
Vm (mV)
B
Control
CaP-NPs
4 pA/pF
20 msec
-20
-60
0
20
60
Vm (mV)
-4
-8
-12
pA/pF
Control
n=12
CaP-NPs
n=12
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
g/gmax
-50 -30 -10 10 30 50
Vm (mV)

Figure 11

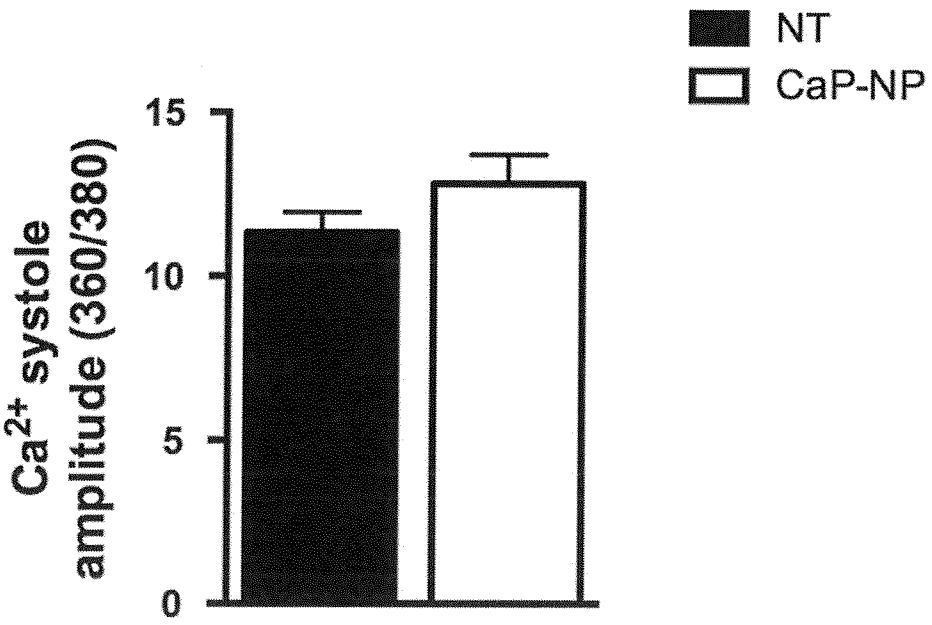


Figure 12

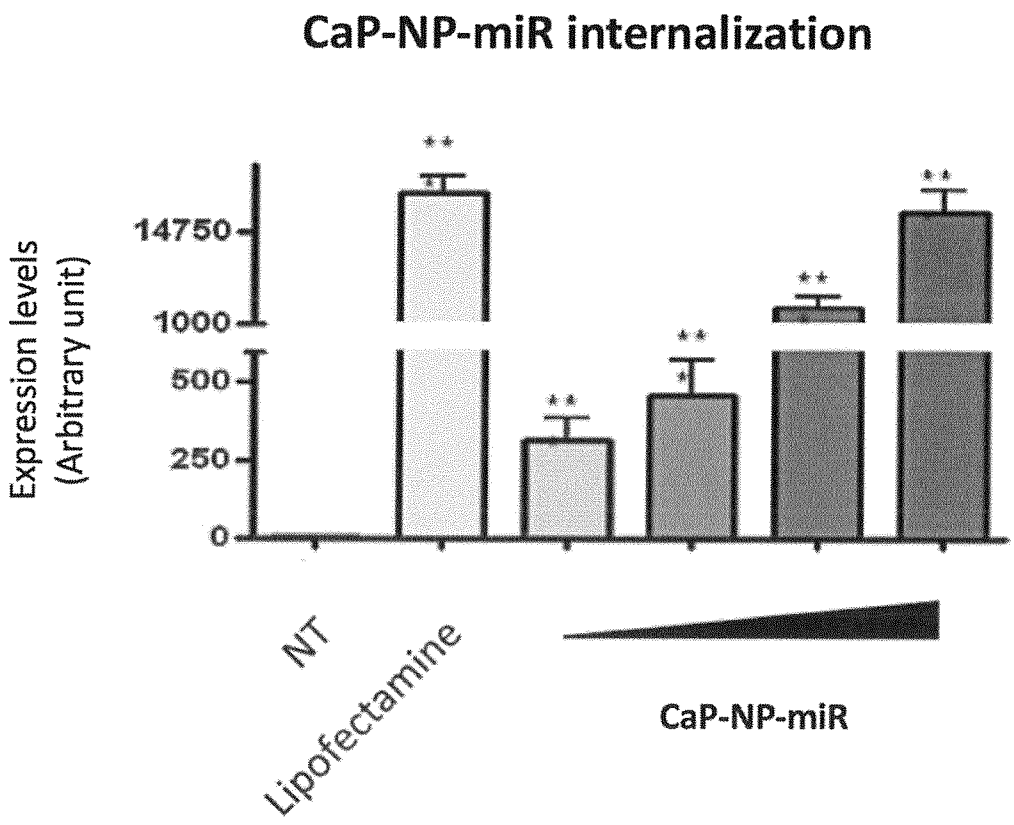

CaP-NP-miR internalization
Expression levels (Arbitrary unit)
14750
1000
500
250
0
**
NT
Lipofectamine
CaP-NP-miR

Figure 13

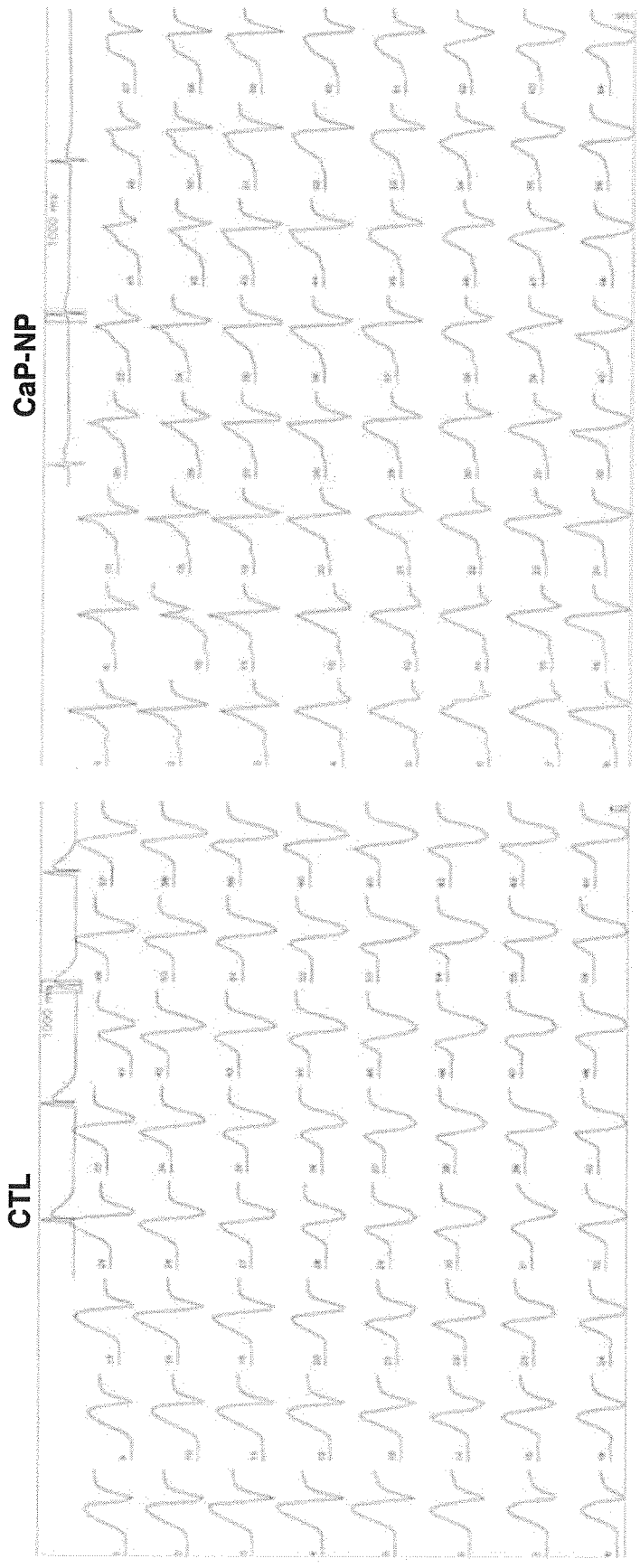


Figure 14

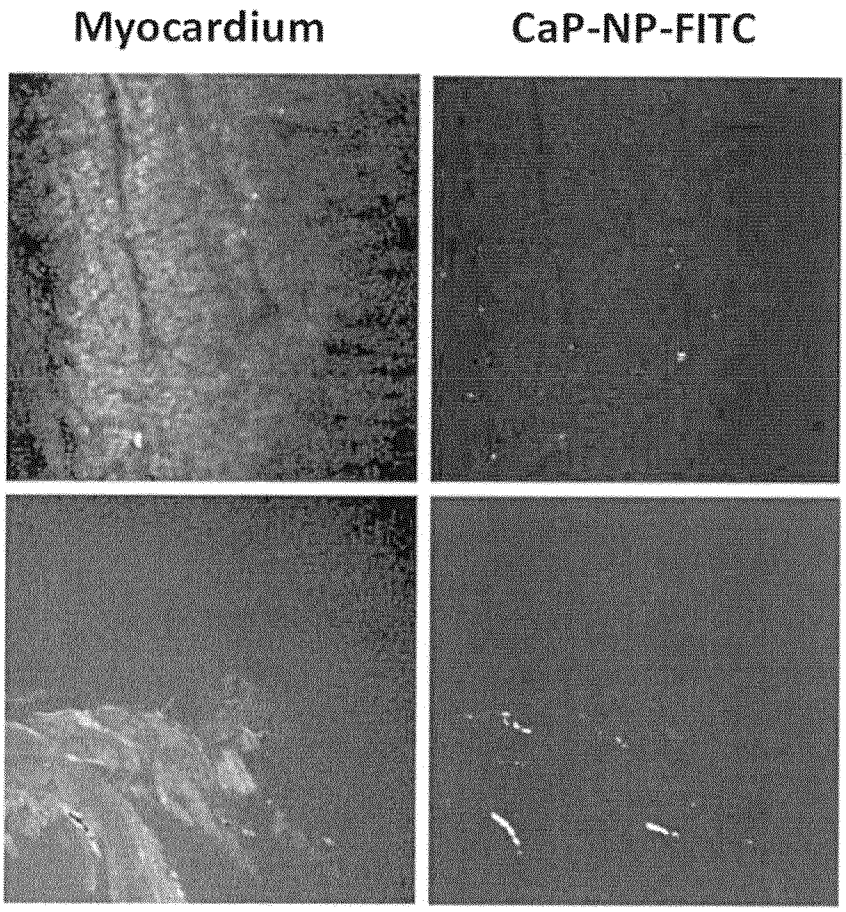


Figure 15

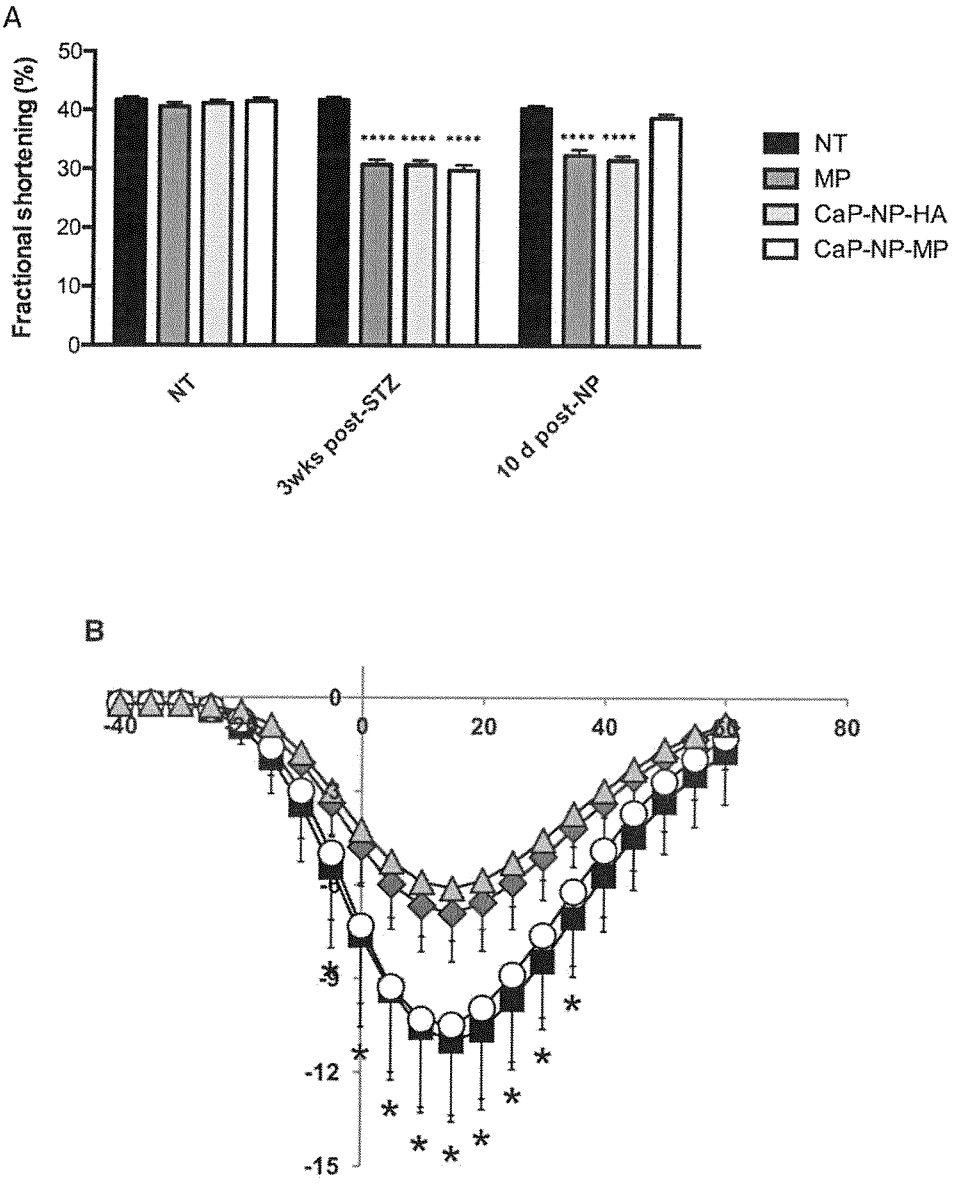

A
Fractional shortening (%)
50
40
30
20
10
0
NT
3wks post-STZ
10 d post-NP
NT
MP
CaP-NP-HA
CaP-NP-MP
B
-40
0
20
40
80
-12
-15

Figure 16