FIG. 1A

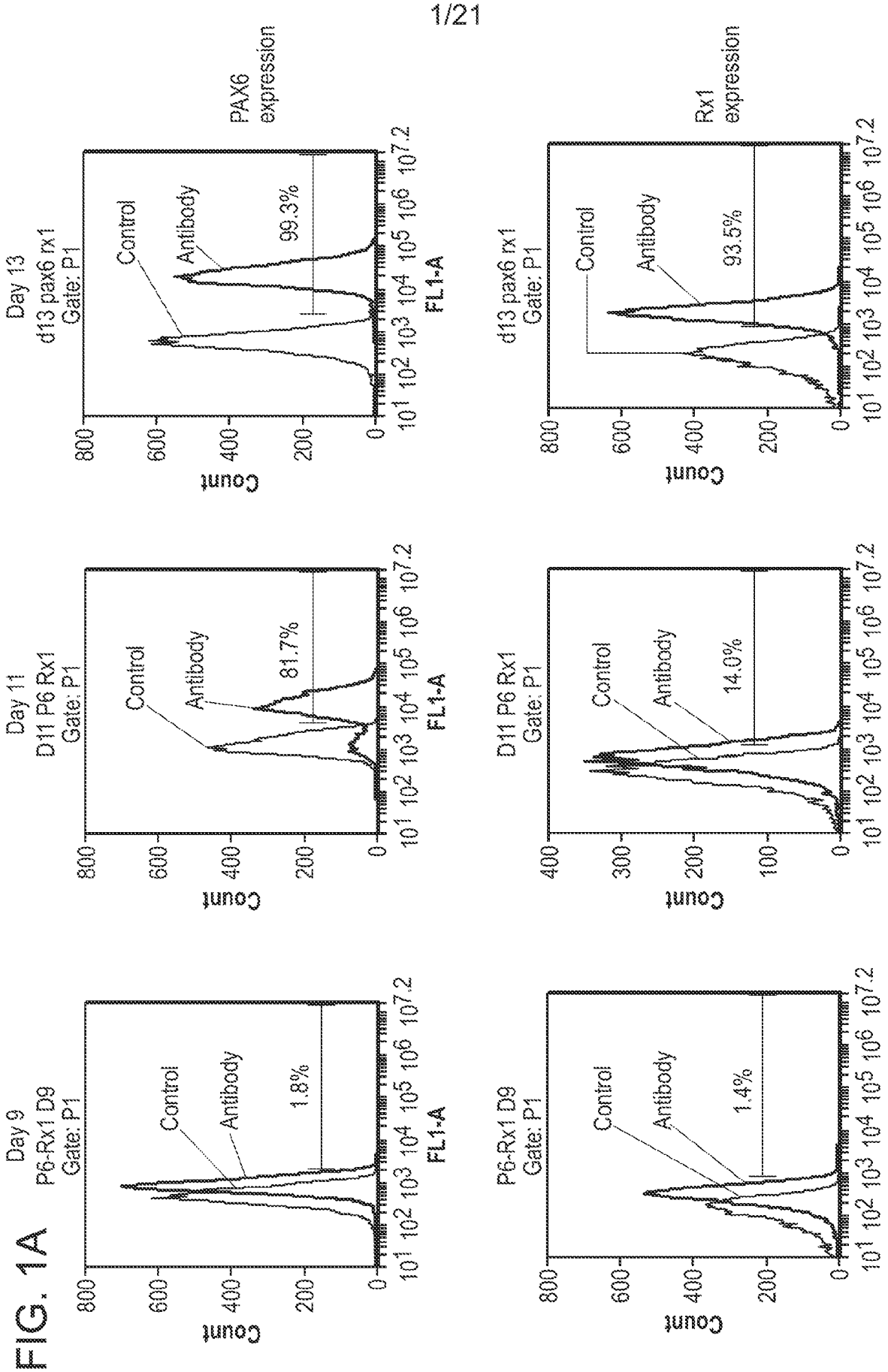

Day 9
P6-Rx1 D9
Gate: P1
Control
Antibody
1.8%
Count
FL1-A
Day 11
D11 P6 Rx1
Gate: P1
Control
Antibody
81.7%
Count
FL1-A
Day 13
d13 pax6 rx1
Gate: P1
Control
Antibody
99.3%
Count
FL1-A
PAX6 expression
P6-Rx1 D9
Gate: P1
Control
Antibody
1.4%
Count
FL2-A
D11 P6 Rx1
Gate: P1
Control
Antibody
14.0%
Count
FL2-A
d13 pax6 rx1
Gate: P1
Control
Antibody
93.5%
Count
FL2-A
Rx1 expression

FIG. 1B

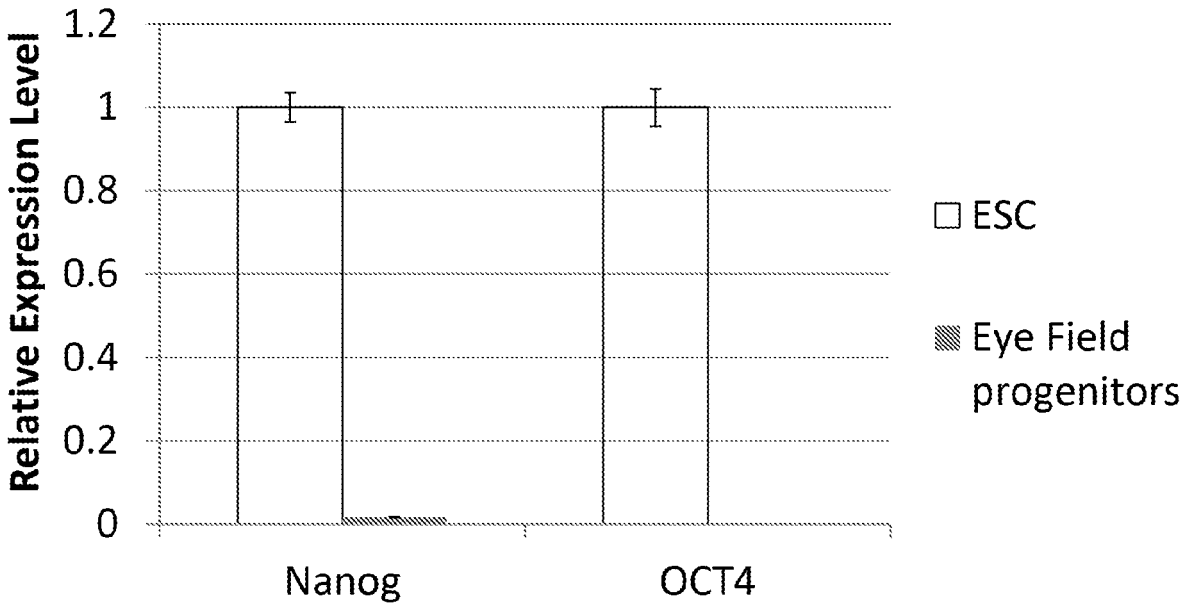

Relative Expression Level
1.2
1
0.8
0.6
0.4
0.2
0
Nanog
OCT4
ESC
Eye Field progenitors

FIG. 2A

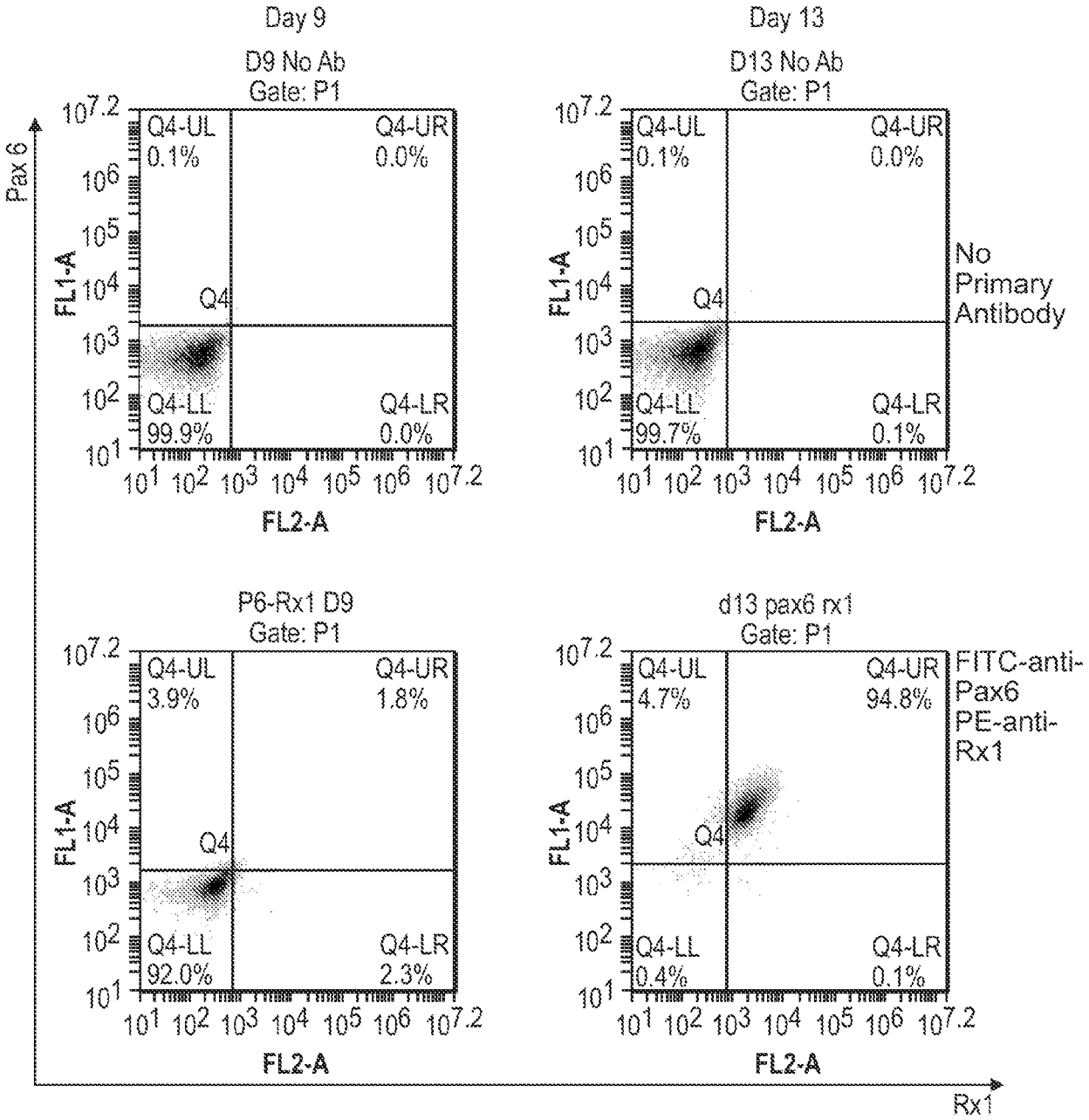

Day 9
D9 No Ab
Gate: P1
Q4-UL
0.1%
Q4-UR
0.0%
Q4
Q4-LL
99.9%
Q4-LR
0.0%
Day 13
D13 No Ab
Gate: P1
Q4-UL
0.1%
Q4-UR
0.0%
Q4
Q4-LL
99.7%
Q4-LR
0.1%
No Primary Antibody
P6-Rx1 D9
Gate: P1
Q4-UL
3.9%
Q4-UR
1.8%
Q4
Q4-LL
92.0%
Q4-LR
2.3%
d13 pax6 rx1
Gate: P1
Q4-UL
4.7%
Q4-UR
94.8%
Q4
Q4-LL
0.4%
Q4-LR
0.1%
FITC-anti-Pax6
PE-anti-Rx1
FL1-A
FL2-A
Pax 6
Rx1

FIG. 2B

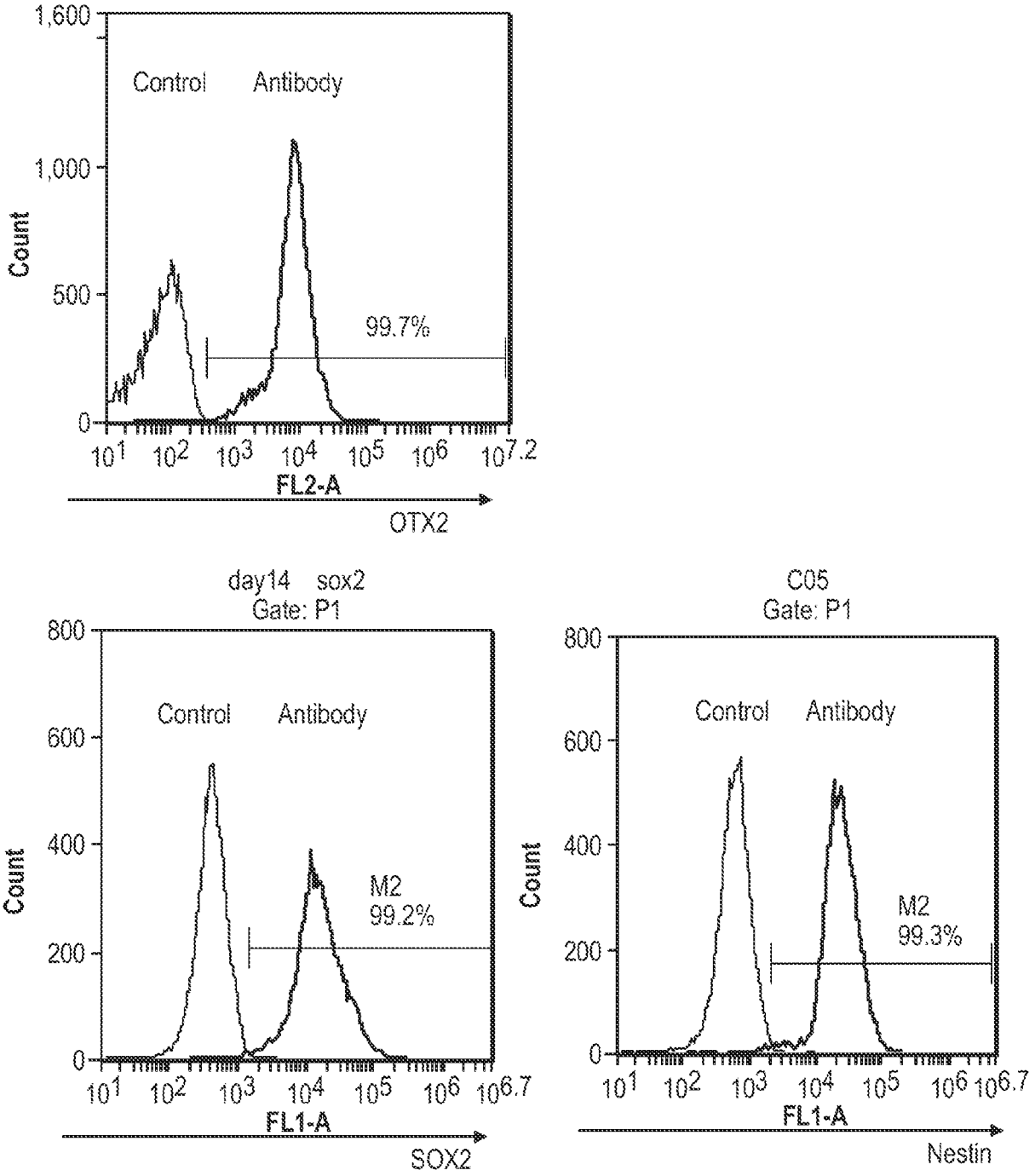
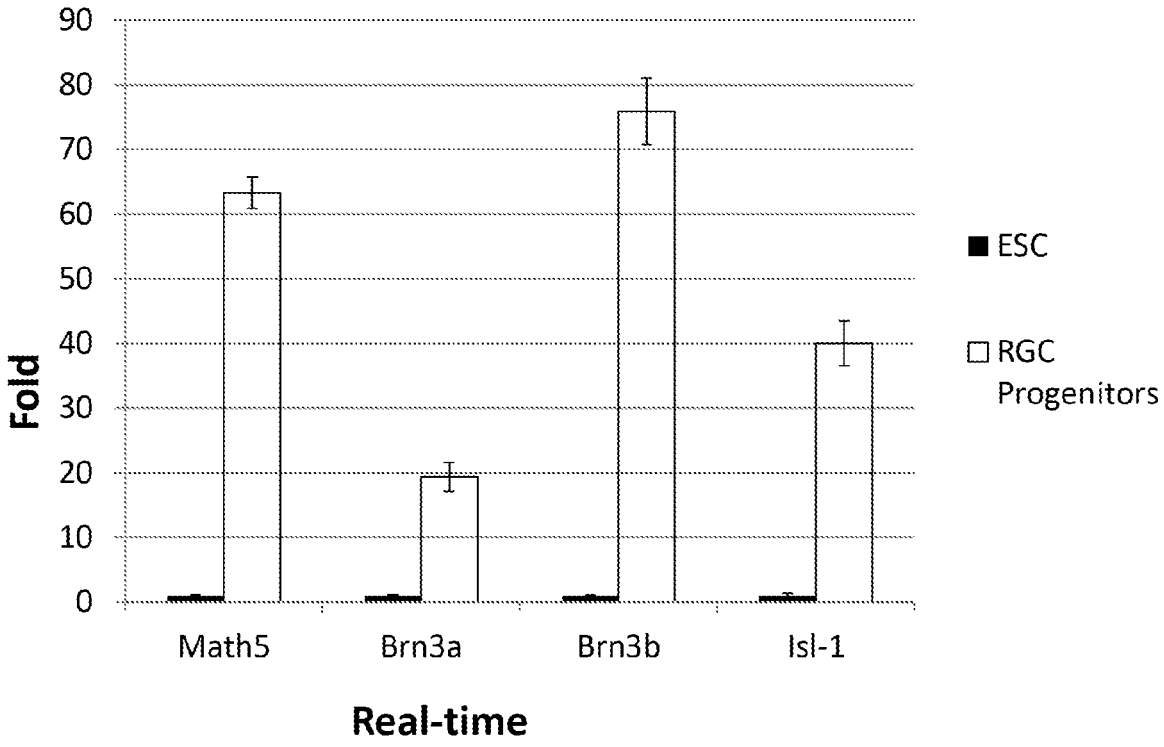

1,600
1,000
500
0
Count
Control
Antibody
99.7%
10^1 10^2 10^3 10^4 10^5 10^6 $10^{7.2}$
FL2-A
OTX2
day14 sox2
Gate: P1
800
600
400
200
0
Count
Control
Antibody
M2
99.2%
10^1 10^2 10^3 10^4 10^5 10^6 $10^{6.7}$
FL1-A
SOX2
C05
Gate: P1
800
600
400
200
0
Count
Control
Antibody
M2
99.3%
10^1 10^2 10^3 10^4 10^5 10^6 $10^{6.7}$
FL1-A
Nestin

FIG. 3A


90
80
70
60
50
40
30
20
10
0
Fold
Math5
Brn3a
Brn3b
Isl-1
Real-time
ESC
RGC Progenitors

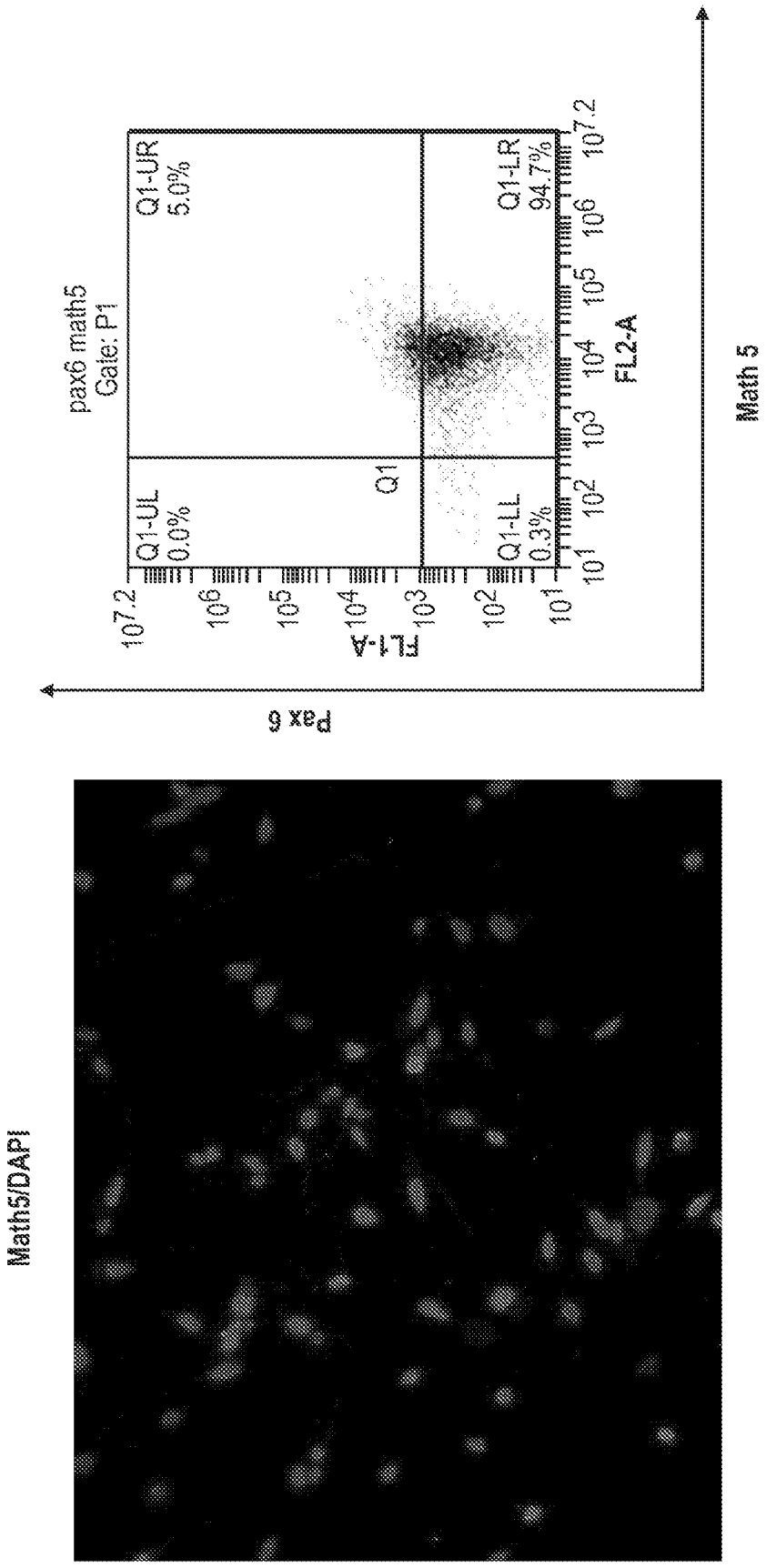

pax6 math5
Gate: P1
Q1-UR
5.0%
Q1-LR
94.7%
Q1-UL
0.0%
Q1-LL
0.3%
Q1
FL1-A
FL2-A
Pax 6
Math 5
Math5/DAPI

FIG. 3B

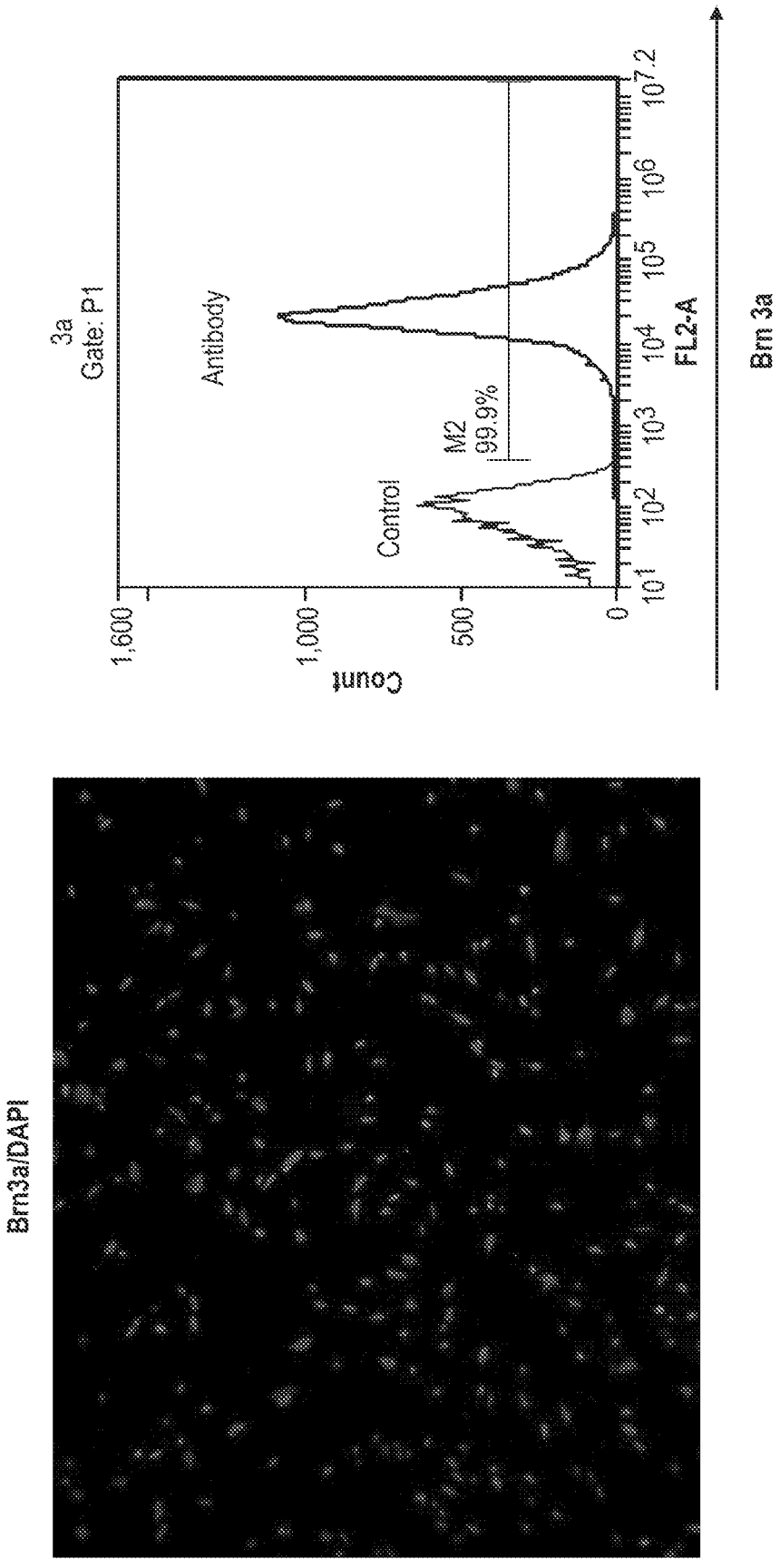
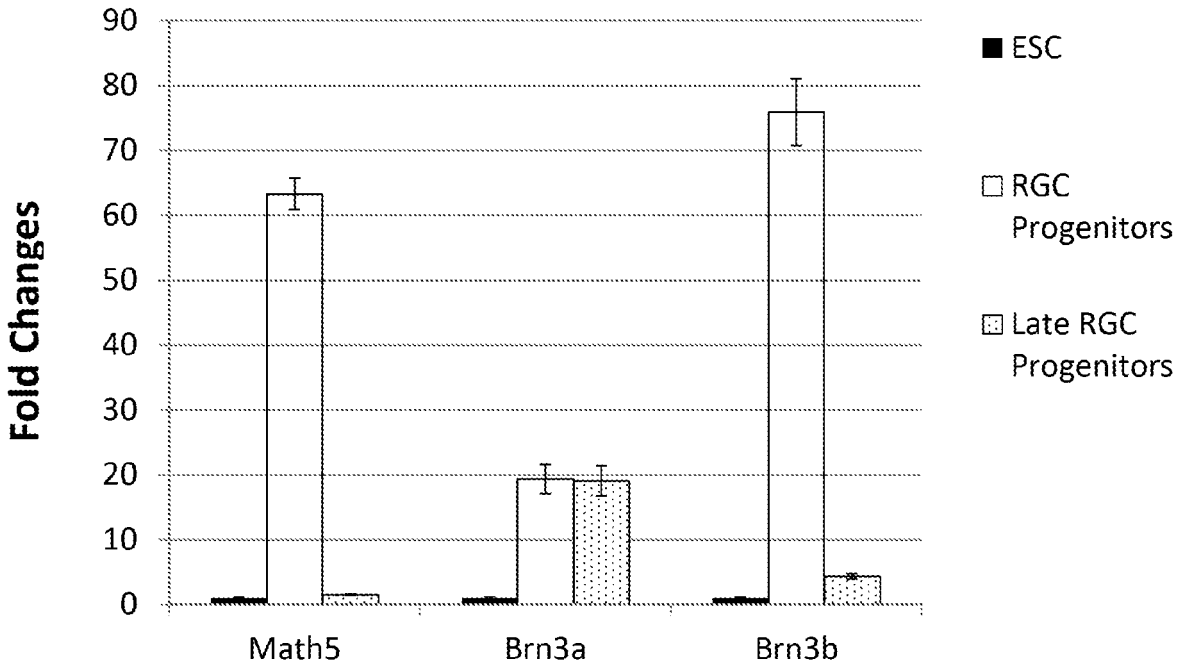


FIG. 3B (continued)

FIG. 4


Fold Changes
90
80
70
60
50
40
30
20
10
0
Math5
Brn3a
Brn3b
ESC
RGC Progenitors
Late RGC Progenitors

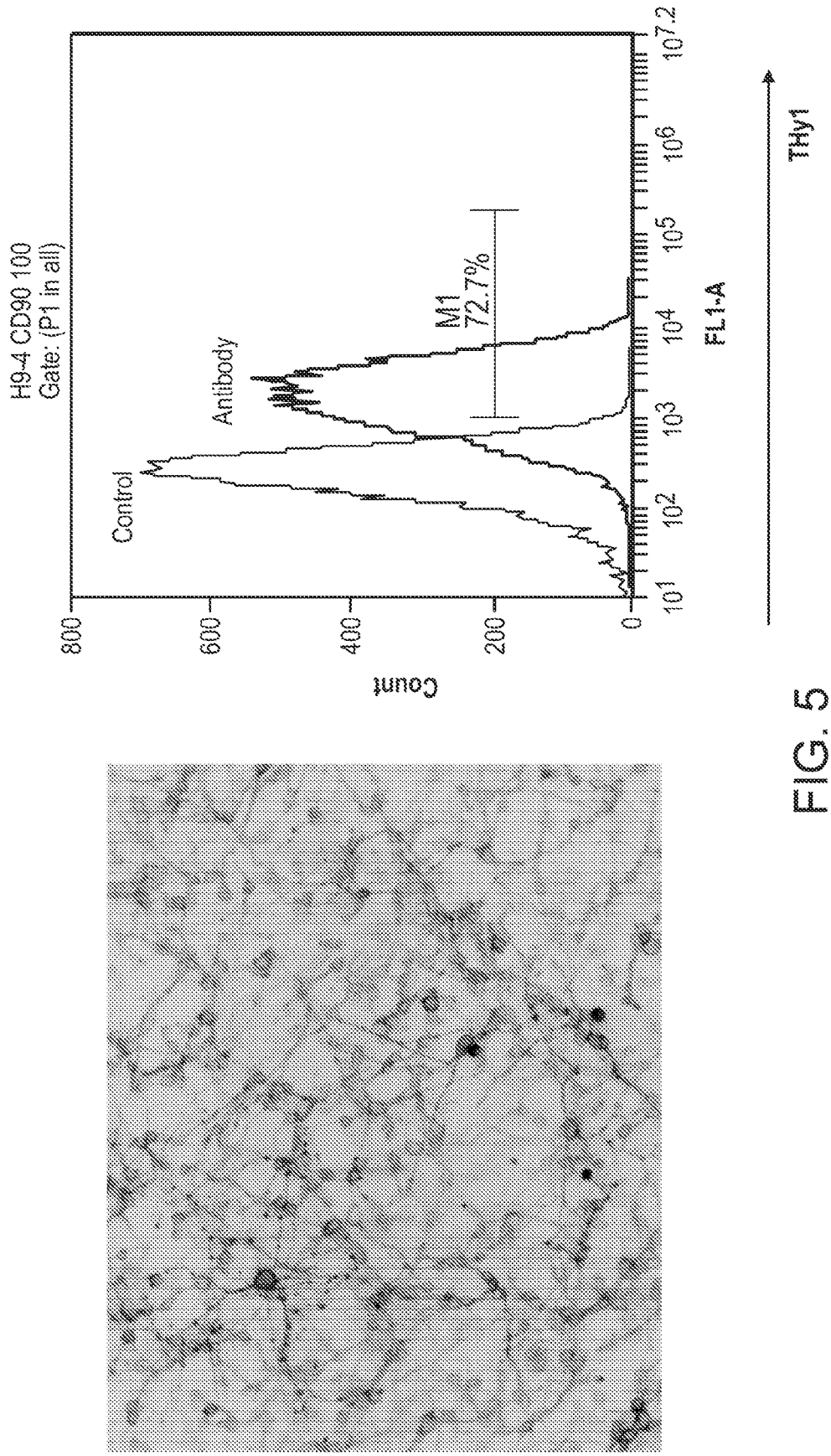

H9-4 CD90 100
Gate: (P1 in all)
Control
Antibody
M1
72.7%
Count
800
600
400
200
0
FL1-A
10^1
10^2
10^3
10^4
10^5
10^6
10^7.2
THy1

FIG. 5

FIG. 6A

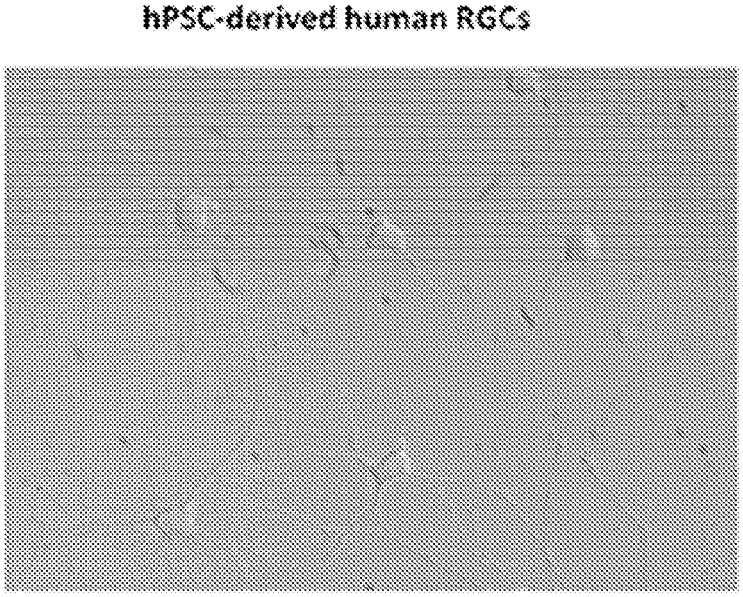


FIG. 6B



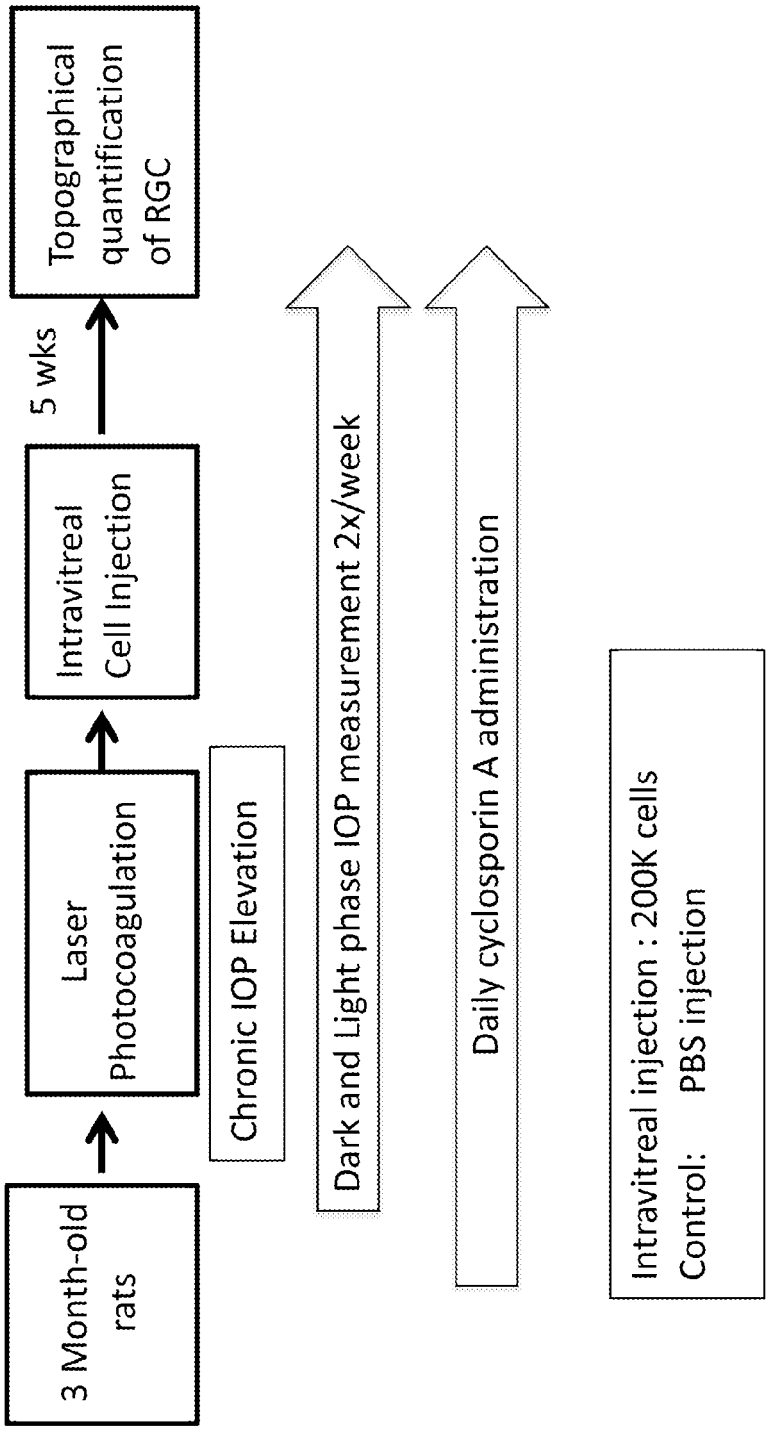
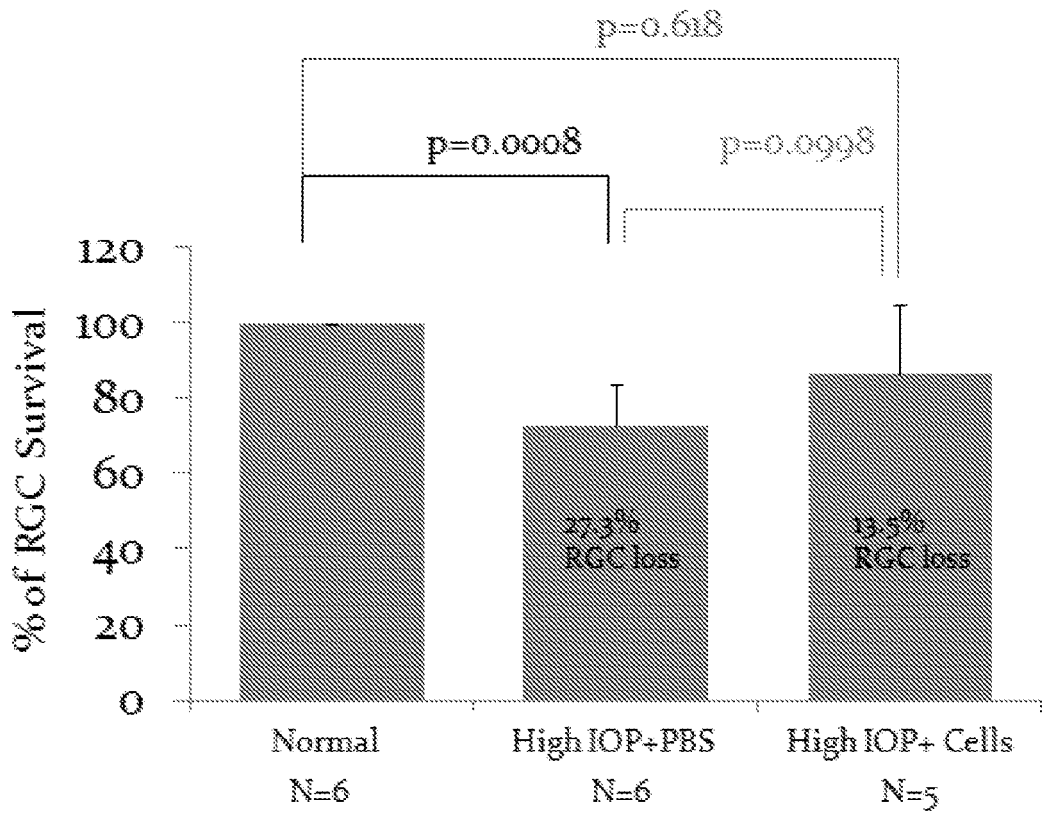

3 Month-old rats
Laser Photocoagulation
Chronic IOP Elevation
Intravitreal Cell Injection
5 wks
Topographical quantification of RGC
Dark and Light phase IOP measurement 2x/week
Daily cyclosporin A administration
Intravitreal injection : 200K cells
Control: PBS injection

FIG. 7

FIG. 8


p=0.618
p=0.0008
p=0.0998
% of RGC Survival
120
100
80
60
40
20
0
27.3% RGC loss
13.5% RGC loss
Normal
N=6
High IOP+PBS
N=6
High IOP+ Cells
N=5

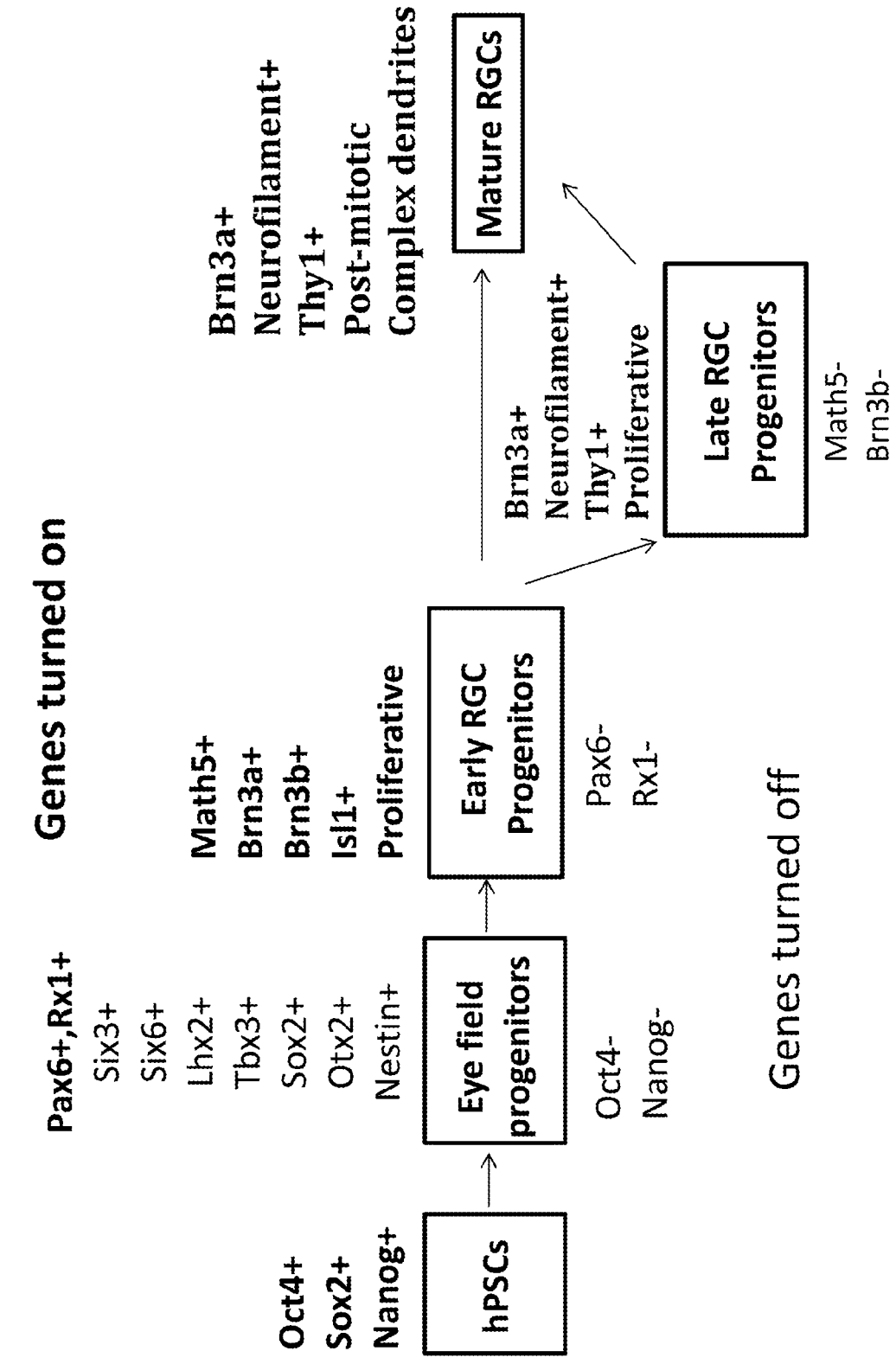

Oct4+
Sox2+
Nanog+
hPSCs
Pax6+,Rx1+
Six3+
Six6+
Lhx2+
Tbx3+
Sox2+
Otx2+
Nestin+
Eye field progenitors
Oct4-
Nanog-
Genes turned on
Math5+
Brn3a+
Brn3b+
Isl1+
Proliferative
Early RGC Progenitors
Pax6-
Rx1-
Genes turned off
Brn3a+
Neurofilament+
Thy1+
Proliferative
Late RGC Progenitors
Math5-
Brn3b-
Brn3a+
Neurofilament+
Thy1+
Post-mitotic
Complex dendrites
Mature RGCs

FIG. 9

FIG. 10

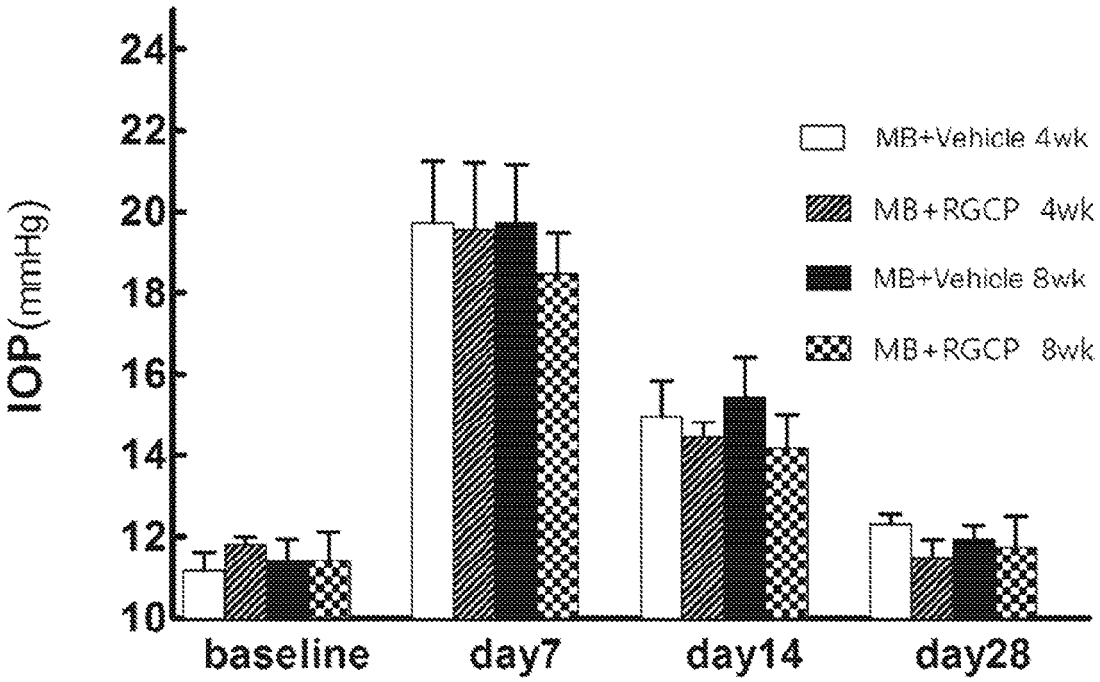

IOP(mmHg)
24
22
20
18
16
14
12
10
baseline
day7
day14
day28
MB+Vehicle 4wk
MB+RGCP 4wk
MB+Vehicle 8wk
MB+RGCP 8wk

FIG. 11

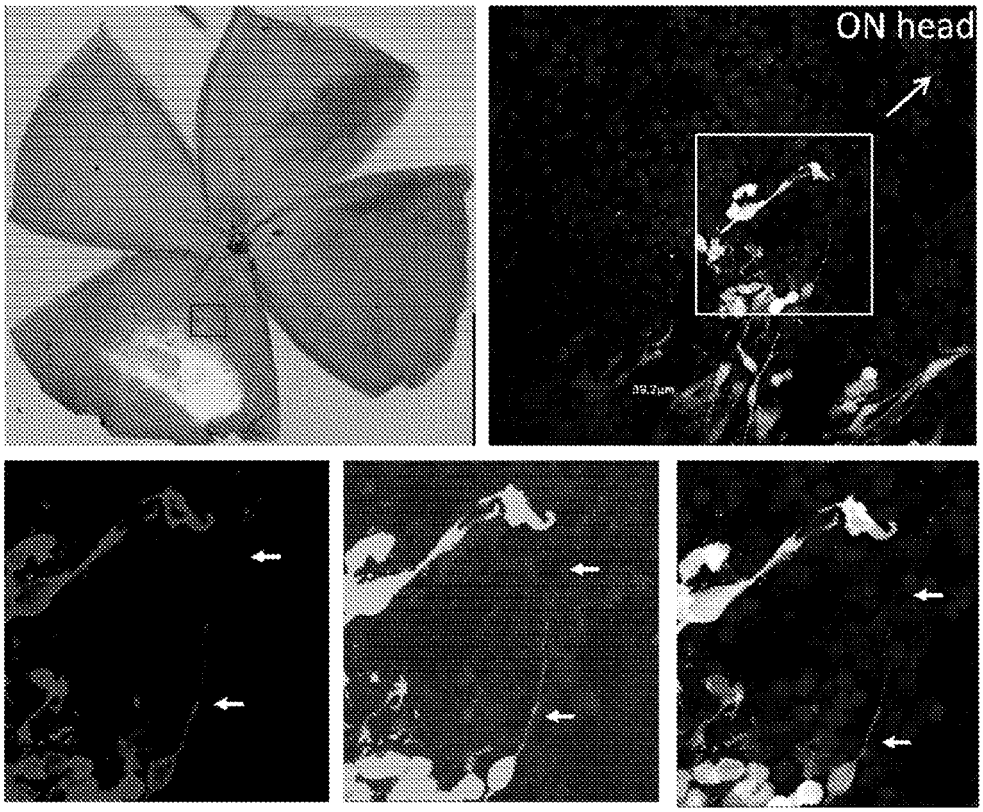
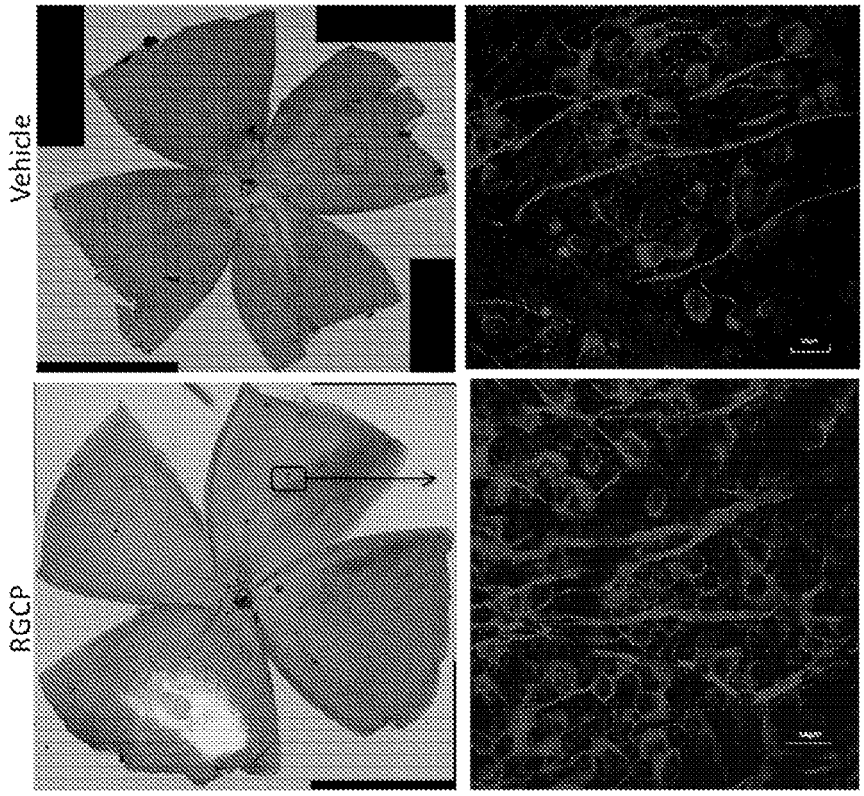


FIG. 12



FIG. 13A


Vehicle
RGCP

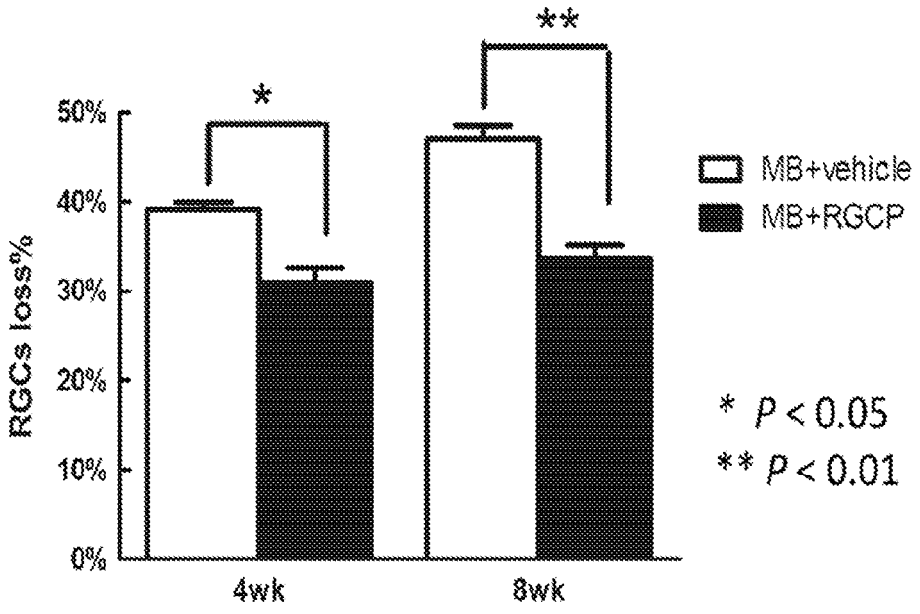

RGCs loss%
50%
40%
30%
20%
10%
0%
*
**
4wk
8wk
MB+vehicle
MB+RGCP
* P < 0.05
** P < 0.01

FIG. 13B

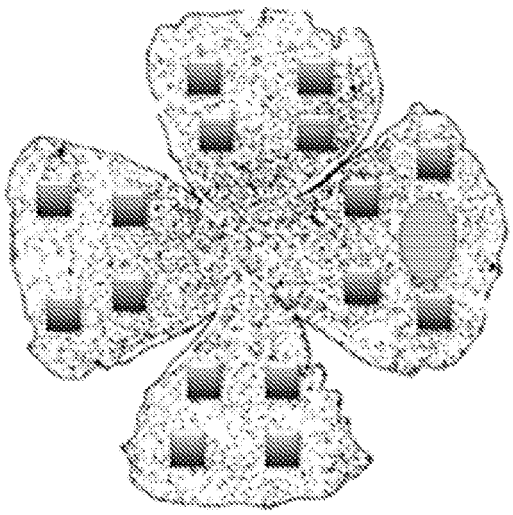


FIG. 14A

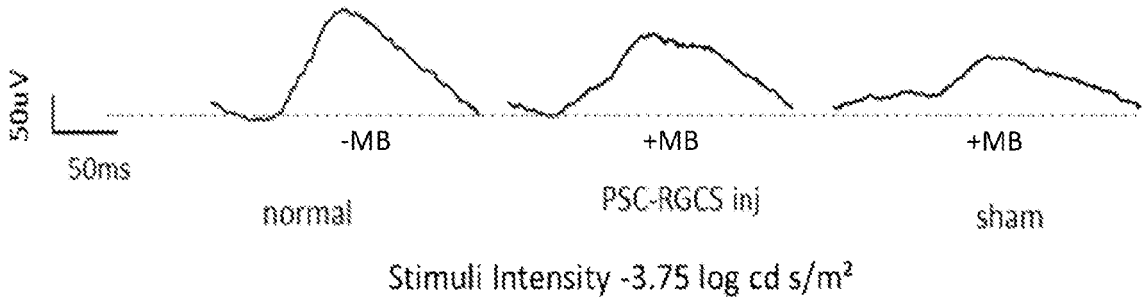


FIG. 14B

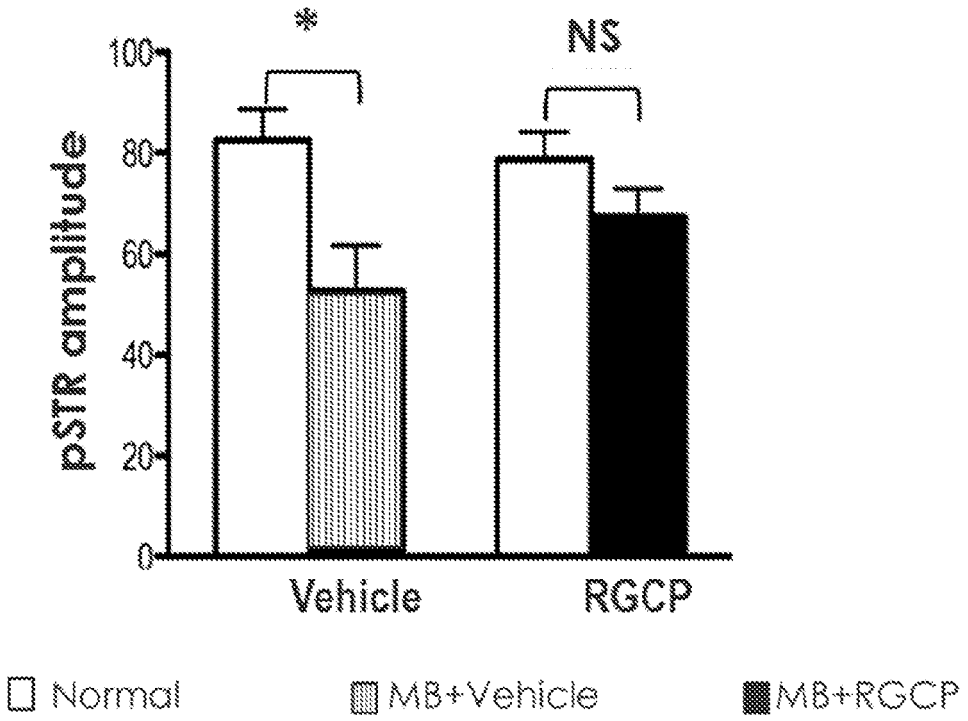


FIG. 14C

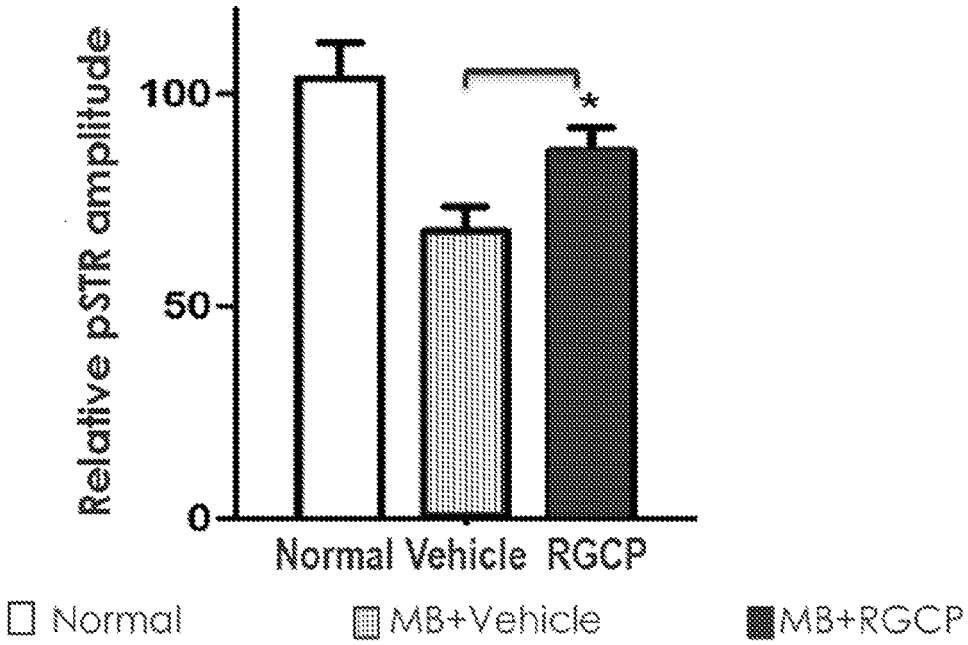


FIG. 14D

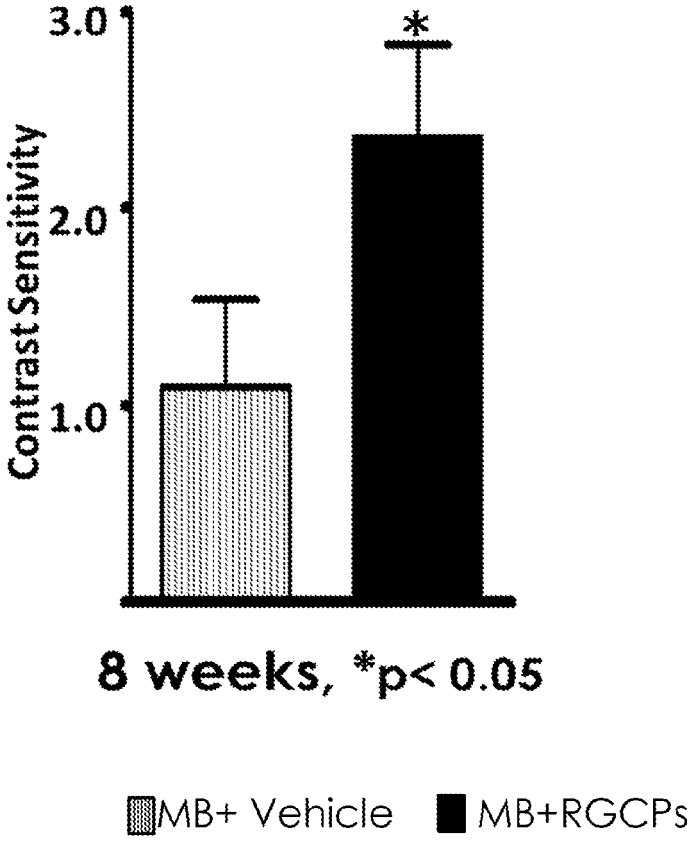
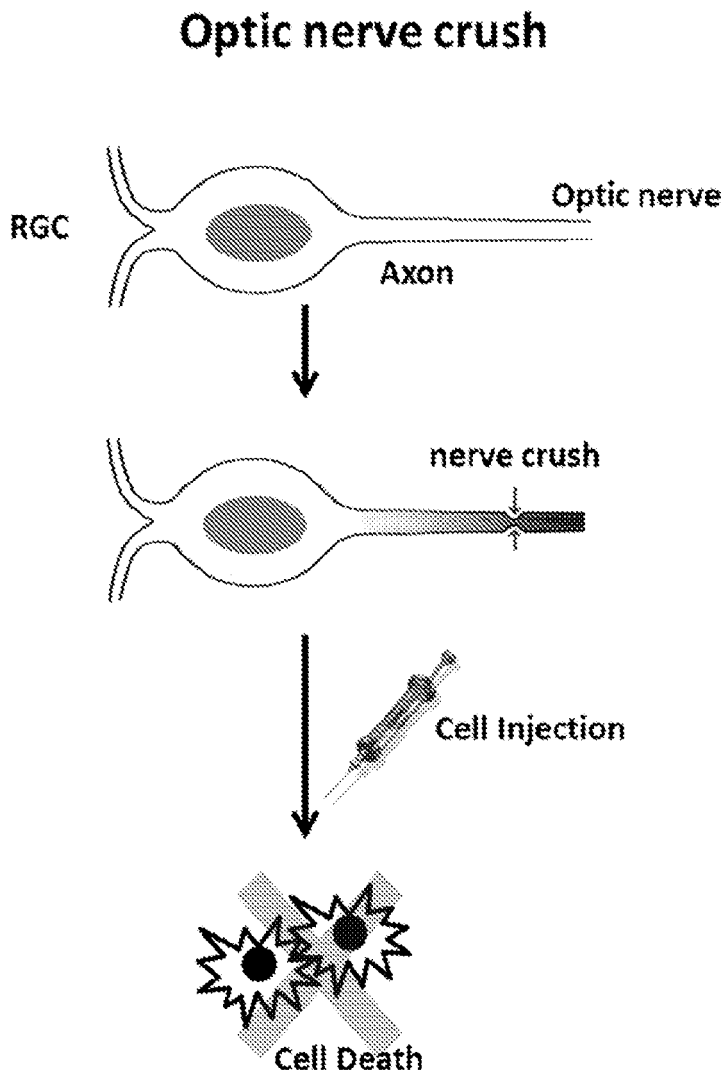
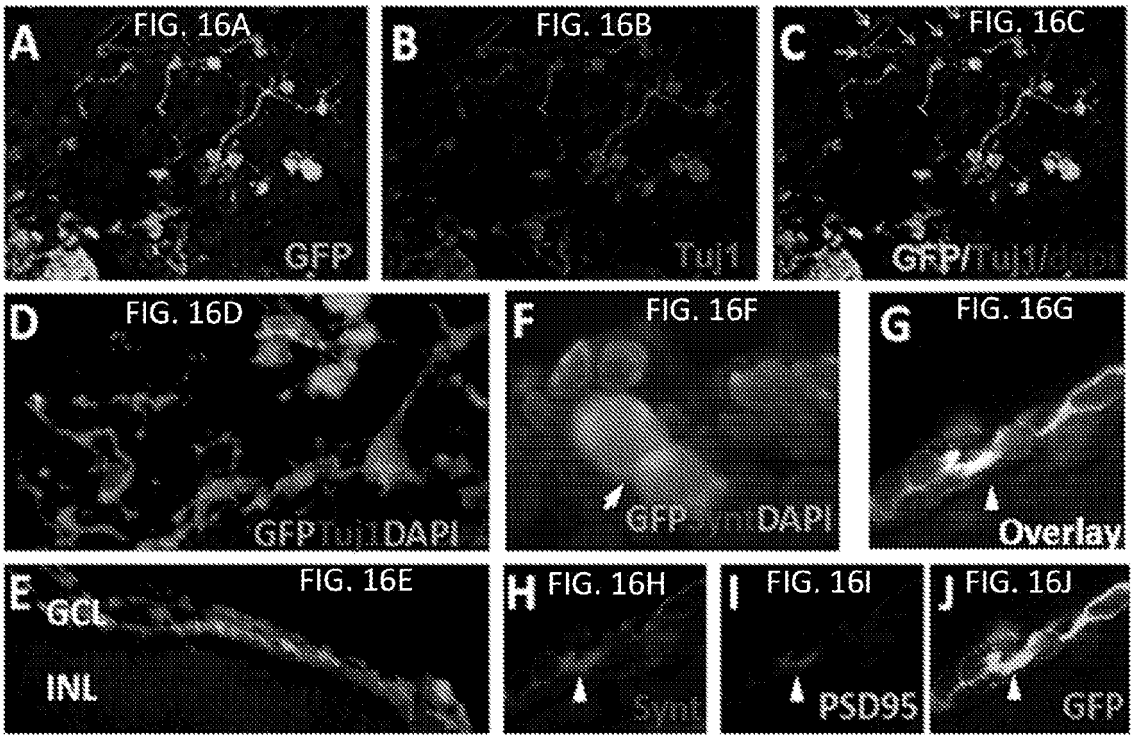

3.0
2.0
1.0
Contrast Sensitivity
*
8 weeks, *p< 0.05
MB+ Vehicle
MB+RGCPs

FIG. 15


Optic nerve crush
RGC
Optic nerve
Axon
nerve crush
Cell Injection
Cell Death

FIGs. 16A-J


A
FIG. 16A
GFP
B
FIG. 16B
Tuj1
C
FIG. 16C
GFP/Tuj1/dapi
D
FIG. 16D
GFP Tuj1 DAPI
F
FIG. 16F
GFP DAPI
G
FIG. 16G
Overlay
E
GCL
INL
FIG. 16E
H
FIG. 16H
Syn1
I
FIG. 16I
PSD95
J
FIG. 16J
GFP