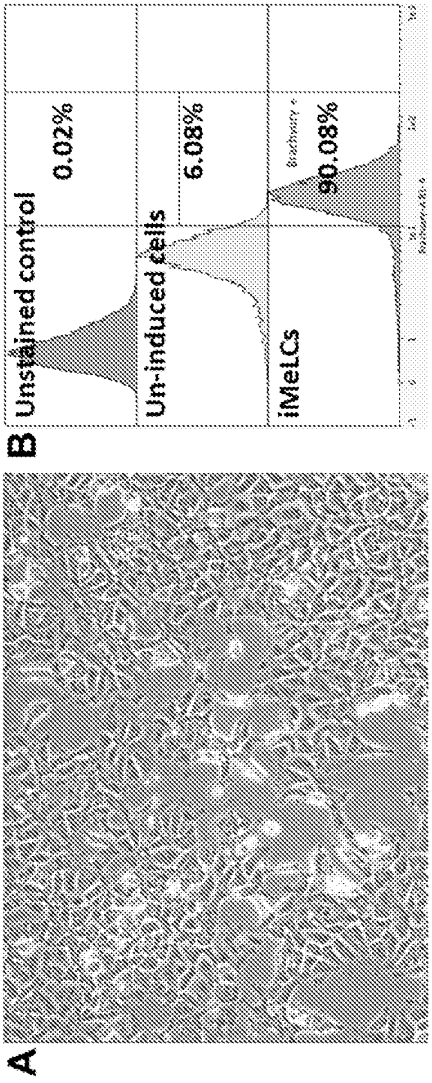


FIG. 1

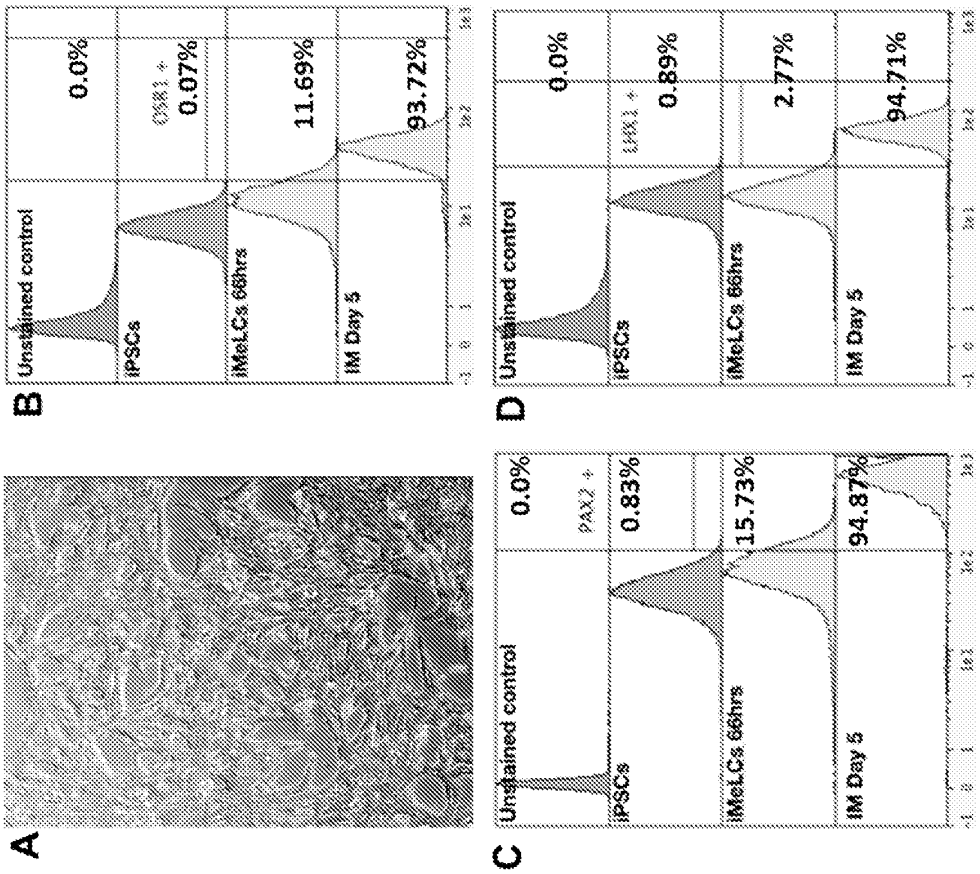
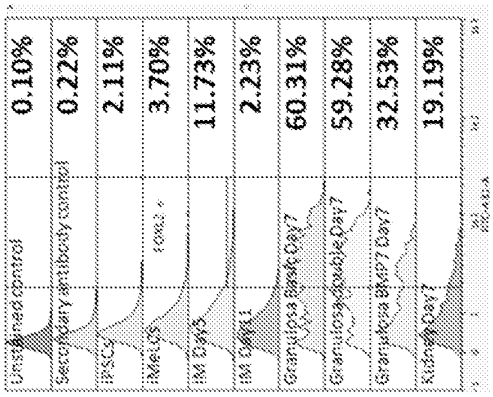

A
B
Unstained control
0.0%
iPSCs
0.07%
iMeLCs 66hrs
11.69%
IM Day 5
93.72%
C
Unstained control
0.0%
iPSCs
0.83%
iMeLCs 66hrs
15.73%
IM Day 5
94.87%
D
Unstained control
0.0%
iPSCs
0.89%
iMeLCs 66hrs
2.77%
IM Day 5
94.71%

FIG. 2

FIG. 3


B
Unstained control
0.10%
Secondary antibody control
0.22%
IPSCs
2.11%
MeLOS
3.70%
IM Day5
11.73%
IM Day11
2.23%
Granulosa Bank Day7
60.31%
Granulosa Double Day7
59.28%
Granulosa BMP7 Day7
32.53%
Kidney Day7
19.19%
A

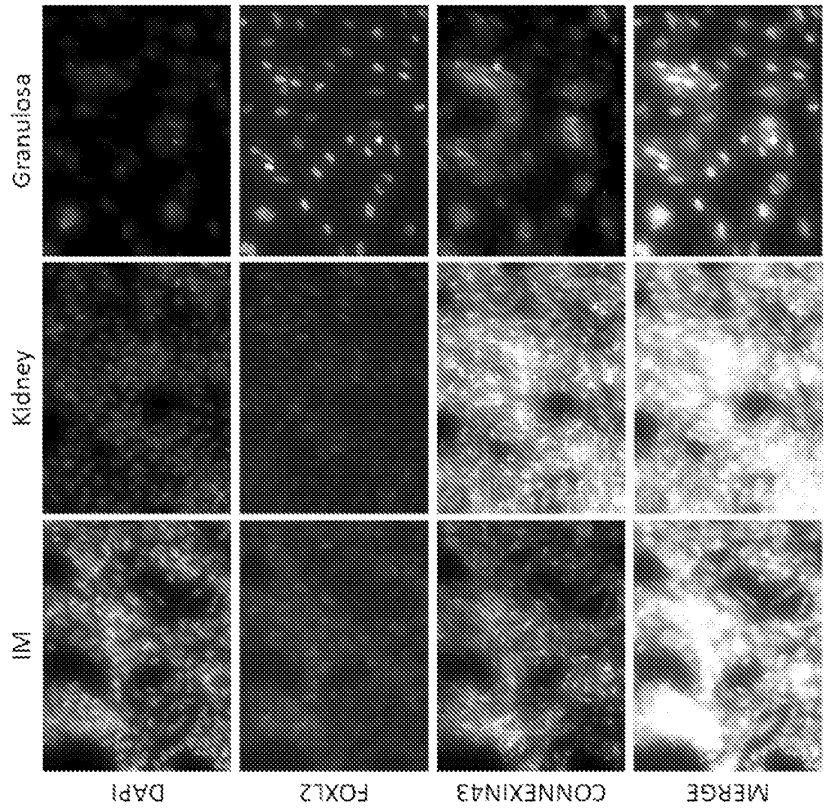


FIG. 3C

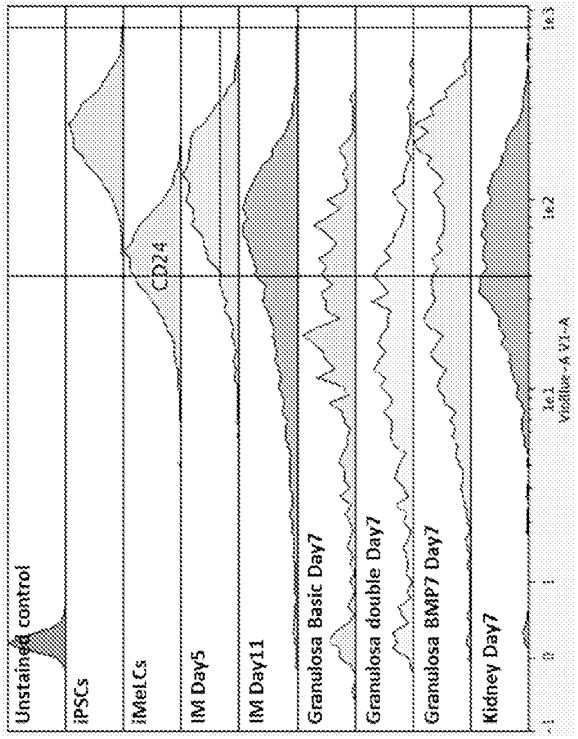

Unstained control
iPSCs
iMeLCs
CD24
IM Day5
IM Day11
Granulosa Basic Day7
Granulosa double Day7
Granulosa BMP7 Day7
Kidney Day7
1e1
1e2
1e3
Violet-A V1-A

FIG. 4

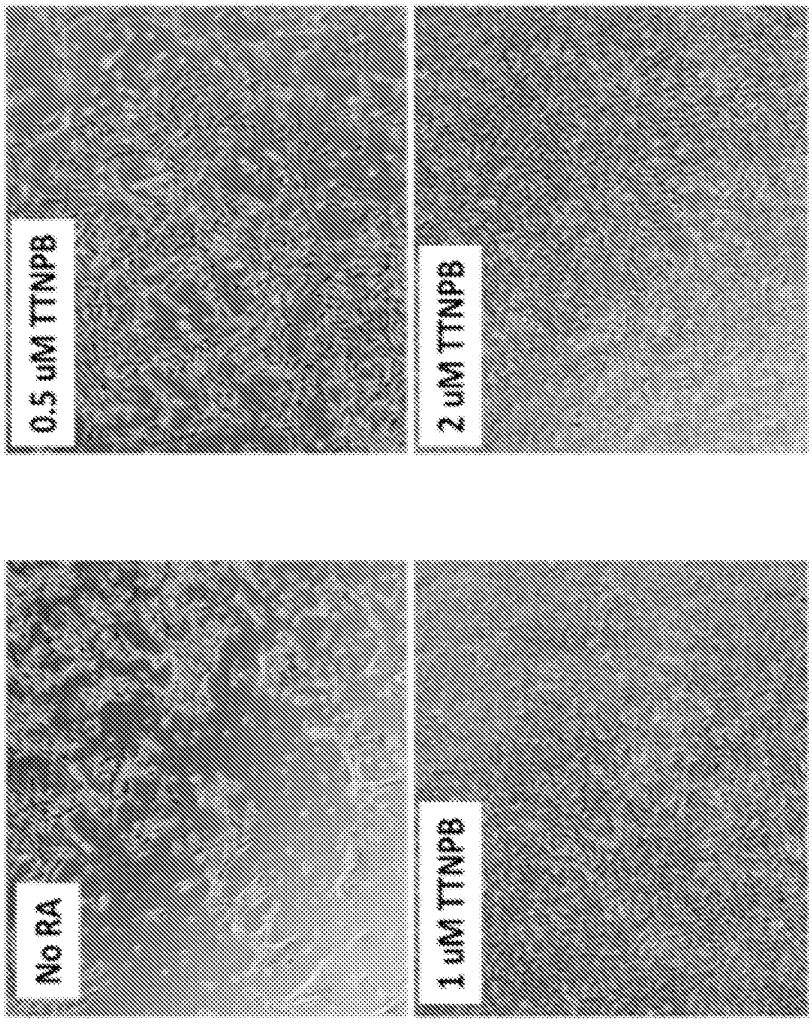


FIG. 5A

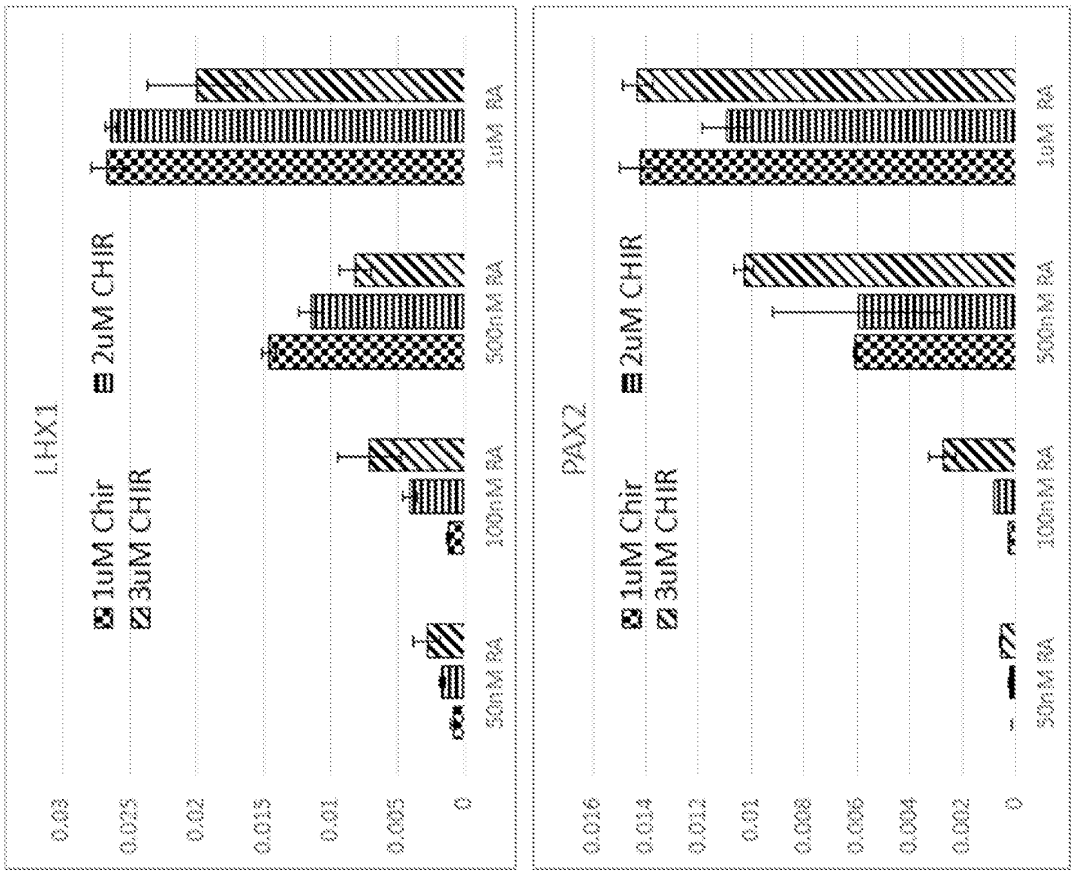

LHX1
1uM Chir
3uM CHIR
2uM CHIR
0.03
0.025
0.02
0.015
0.01
0.005
0
50nM RA
100nM RA
500nM RA
1uM RA
PAX2
1uM Chir
3uM CHIR
2uM CHIR
0.016
0.014
0.012
0.01
0.008
0.006
0.004
0.002
0
-
50nM RA
100nM RA
500nM RA
1uM RA

FIG. 5B

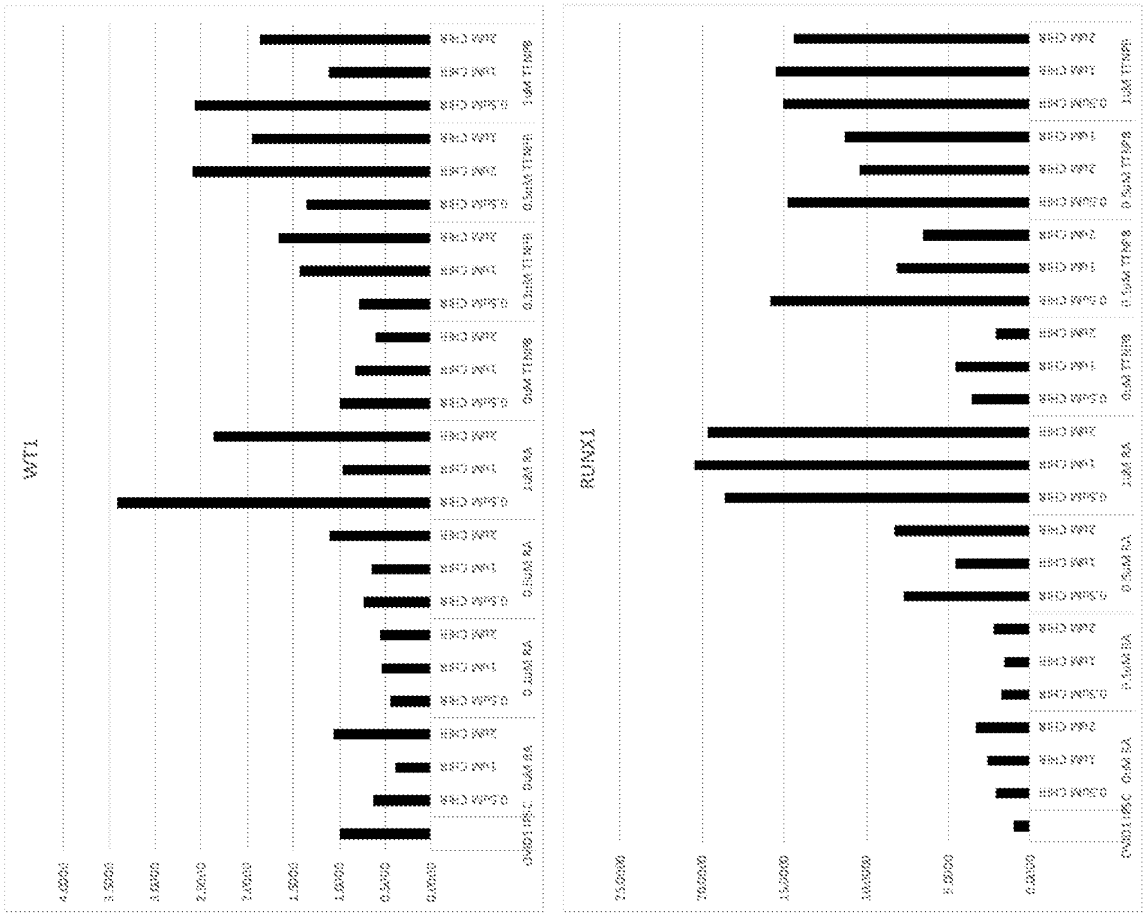


FIG. 5C

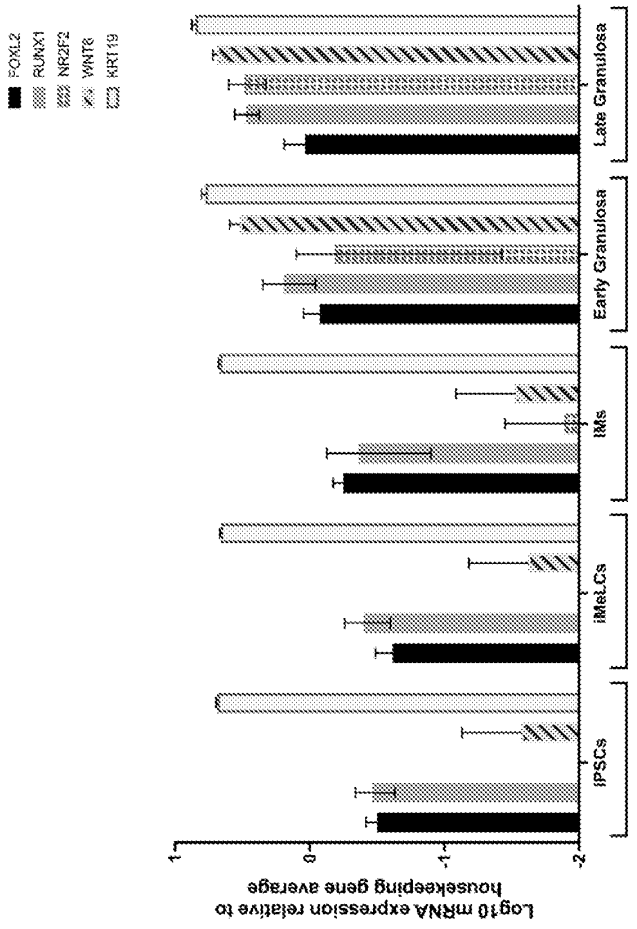

FOXL2
RUNX1
NR2F2
WNT6
KRT19
Log10 mRNA expression relative to housekeeping gene average
1
0
-1
-2
iPSCs
iMeLCs
iMs
Early Granulosa
Late Granulosa

FIG. 6A

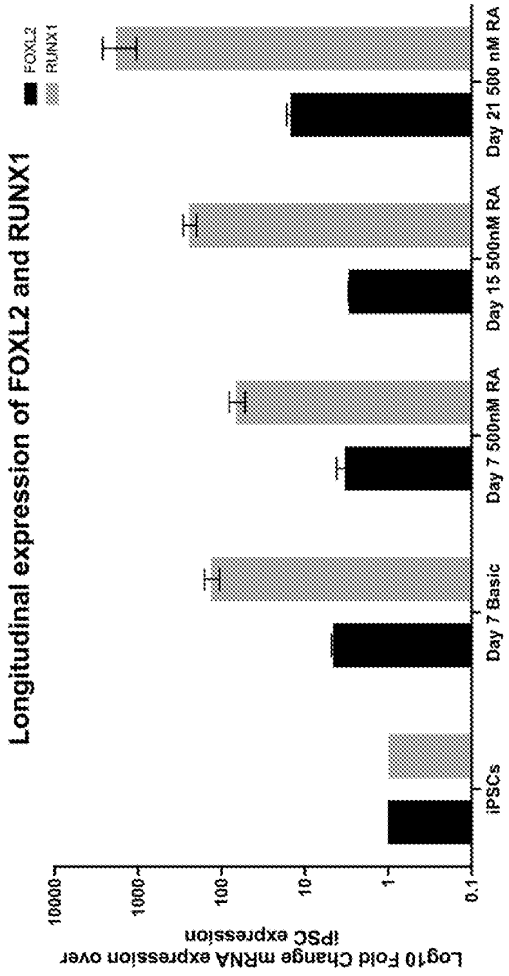
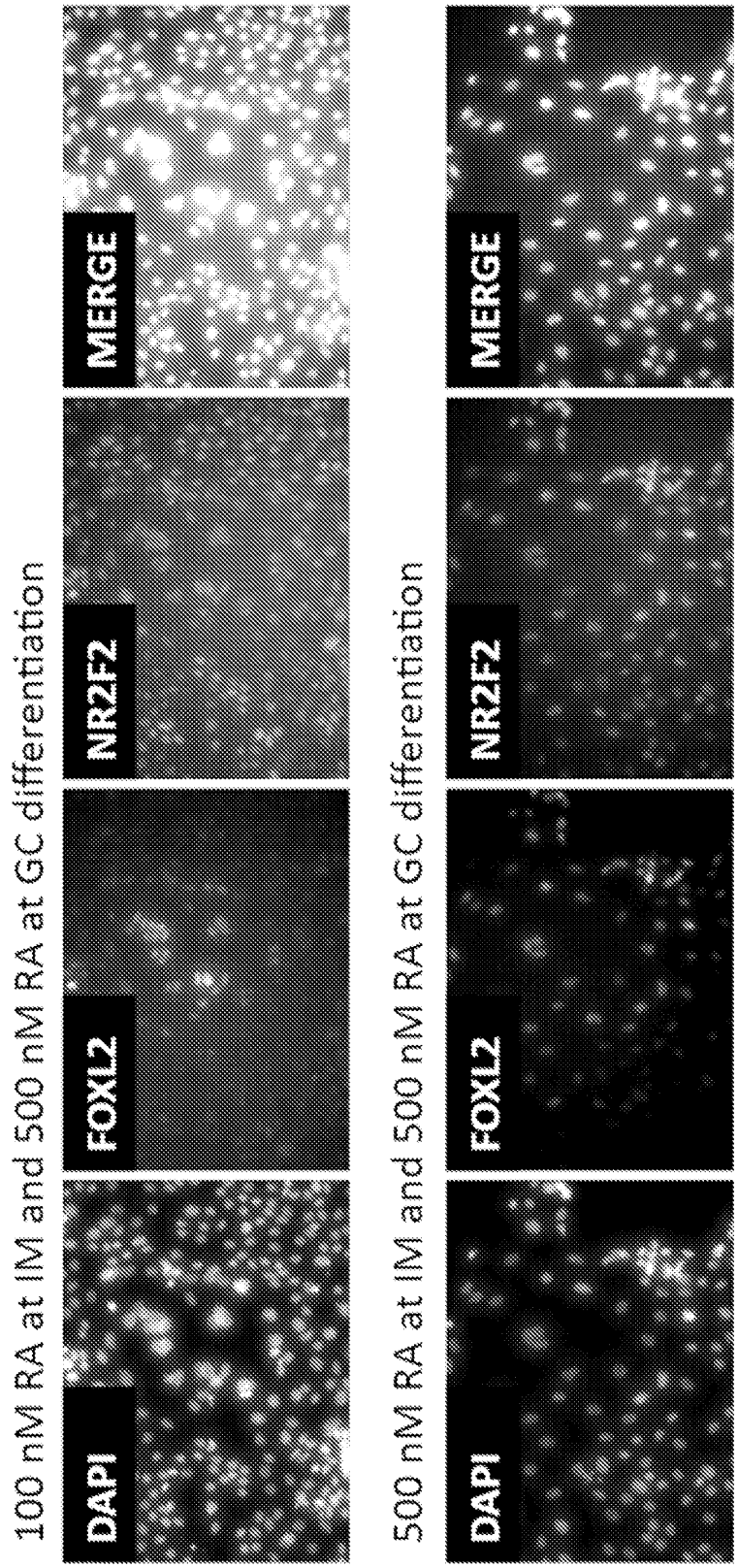

Longitudinal expression of FOXL2 and RUNX1
FOXL2
RUNX1
Log10 Fold Change mRNA expression over iPSC expression
10000
1000
100
10
1
0.1
iPSCs
Day 7 Basic
Day 7 500nM RA
Day 15 500nM RA
Day 21 500 nM RA

FIG. 6B

FIG. 6C


100 nM RA at IM and 500 nM RA at GC differentiation
DAPI
FOXL2
NR2F2
MERGE
500 nM RA at IM and 500 nM RA at GC differentiation
DAPI
FOXL2
NR2F2
MERGE

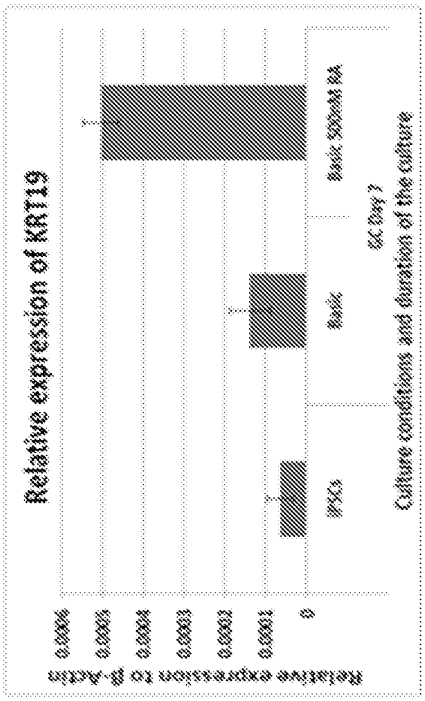

Relative expression of KRT19
Relative expression to β-Actin
0.0006
0.0005
0.0004
0.0003
0.0002
0.0001
0
IFKS
Basic
Basic 500nM RA
Culture conditions and duration of the culture

FIG. 6D

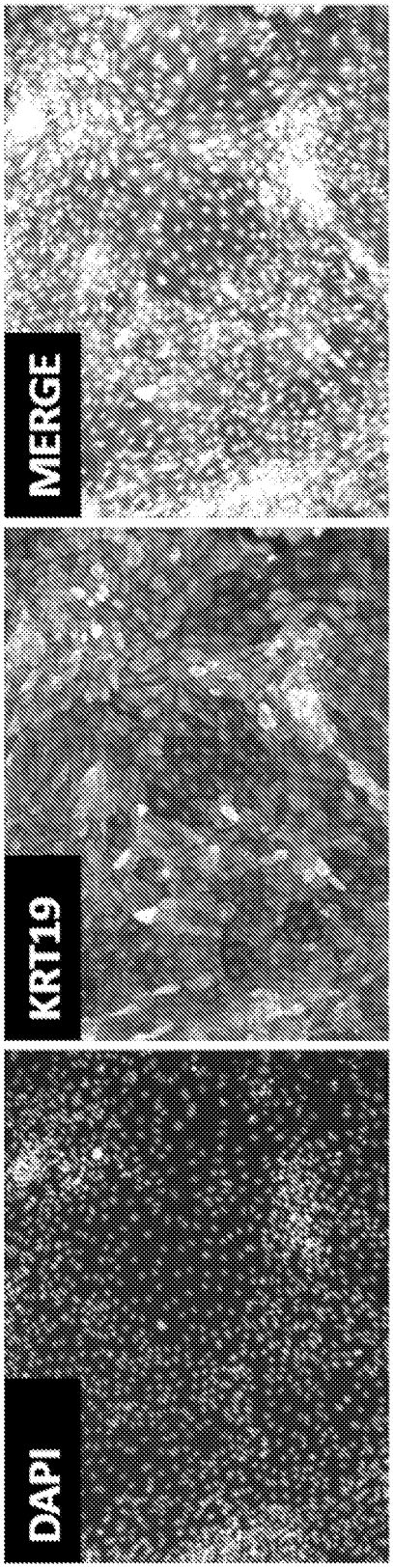

DAPI
KRT19
MERGE

FIG. 6E

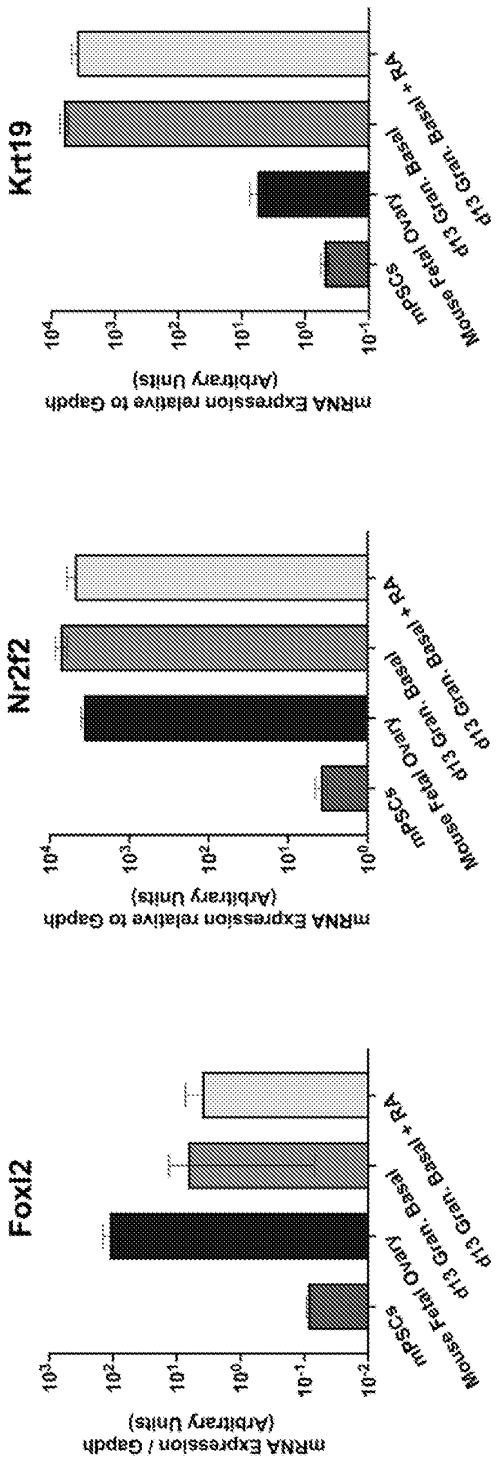
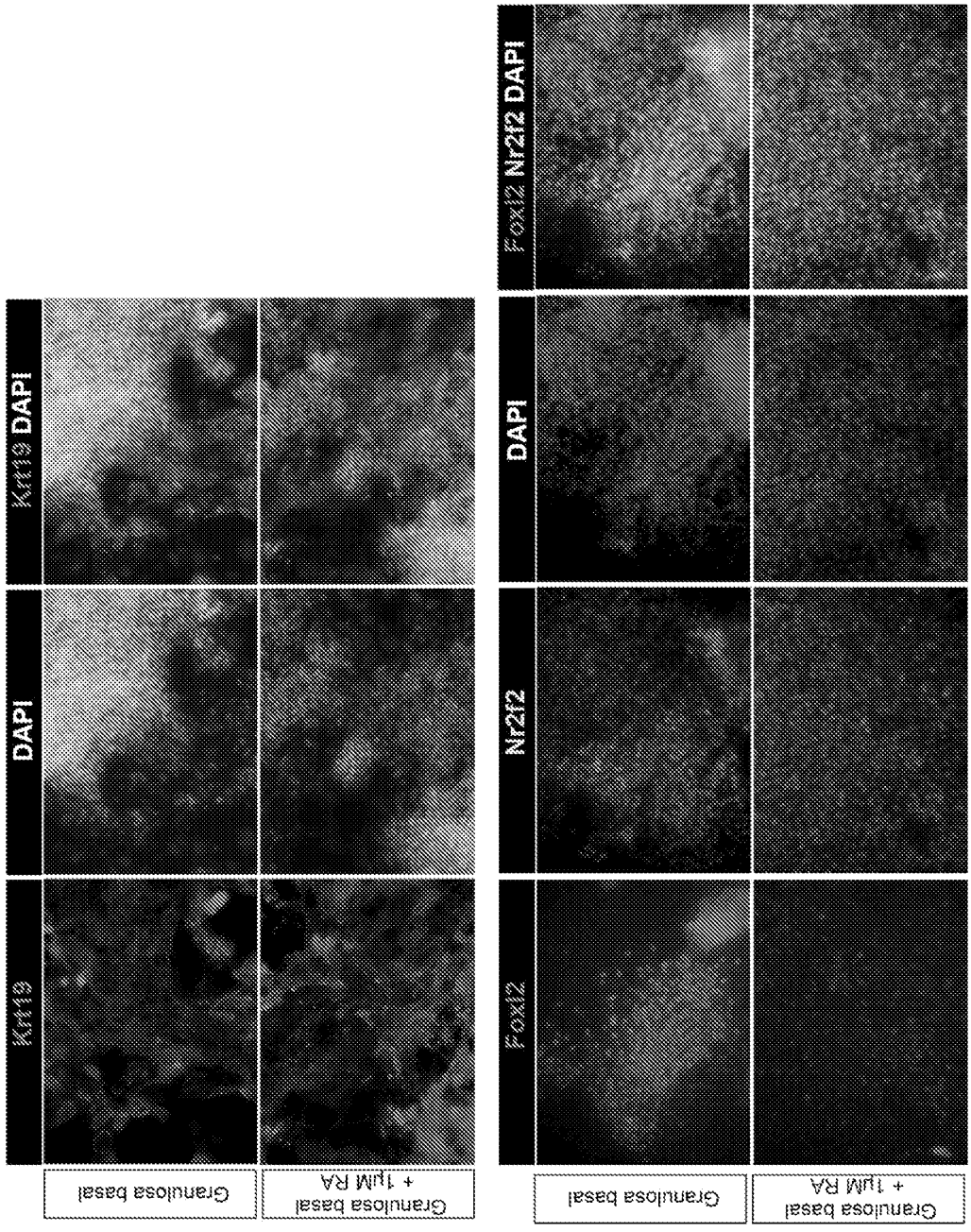

Foxl2
mRNA Expression / Gapdh
(Arbitrary Units)
mPSCs
Mouse Fetal Ovary
d13 Gran. Basal
d13 Gran. Basal + RA
Nr2f2
mRNA Expression relative to Gapdh
(Arbitrary Units)
mPSCs
Mouse Fetal Ovary
d13 Gran. Basal
d13 Gran. Basal + RA
Krt19
mRNA Expression relative to Gapdh
(Arbitrary Units)
mPSCs
Mouse Fetal Ovary
d13 Gran. Basal
d13 Gran. Basal + RA

FIG. 7

FIG. 8


Krt19
DAPI
Krt19 DAPI
Granulosa basal
Granulosa basal + 1μM RA
Fox12
Nr2f2
DAPI
Fox12 Nr2f2 DAPI
Granulosa basal
Granulosa basal + 1μM RA

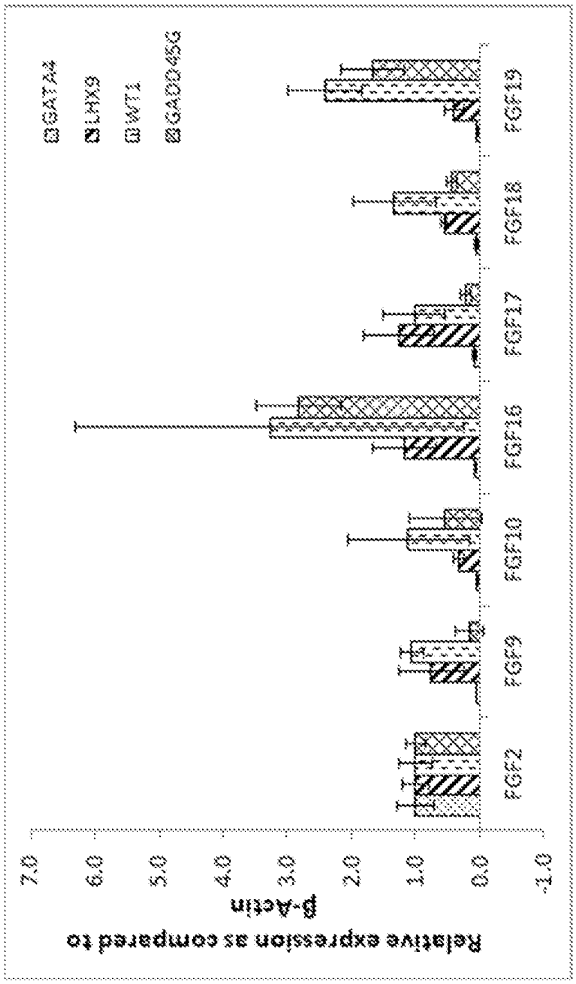

GATA4
LHX9
WT1
GADD45G
Relative expression as compared to β-Actin
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
-1.0
FGF2
FGF9
FGF10
FGF16
FGF17
FGF18
FGF19

FIG. 9A

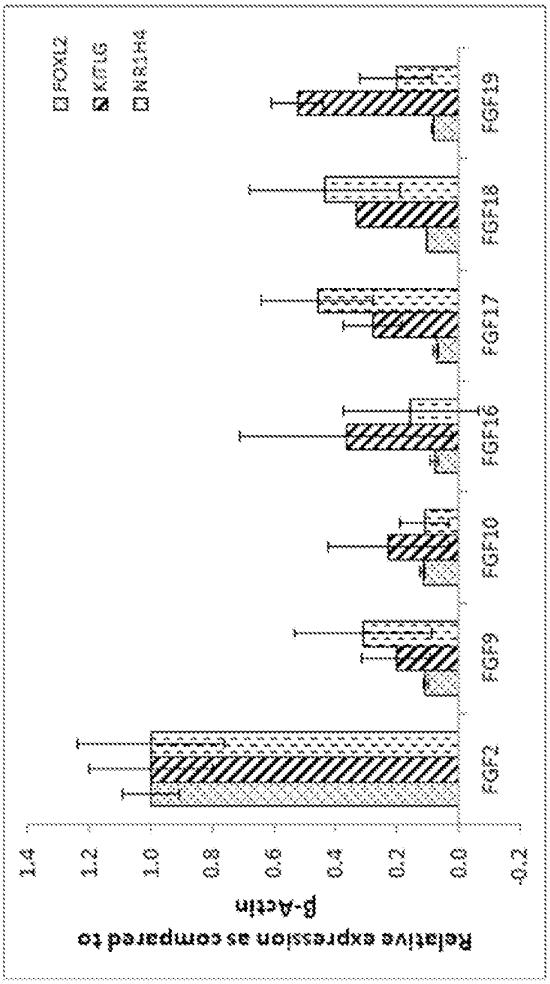

FOXL2
KITLG
NR5A4
Relative expression as compared to β-Actin
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
FGF2
FGF9
FGF10
FGF16
FGF17
FGF18
FGF19

FIG. 9B

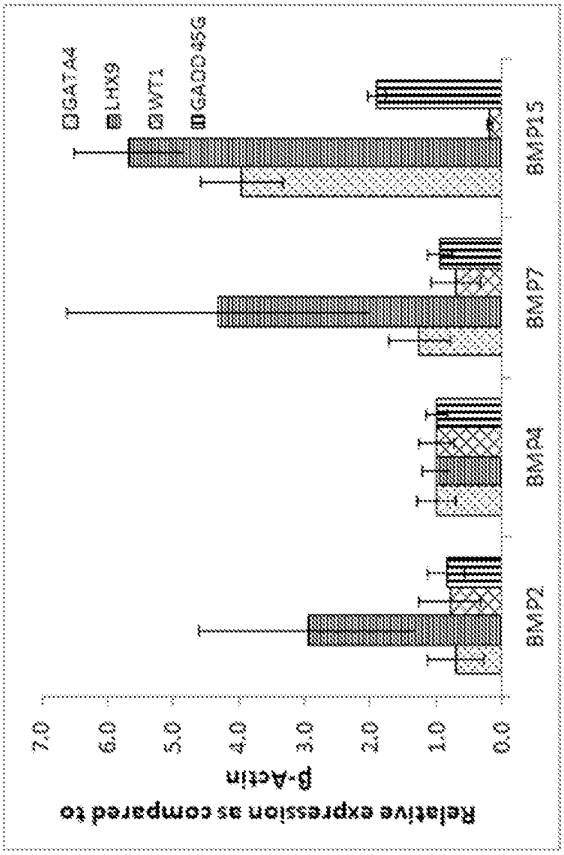


FIG. 10A

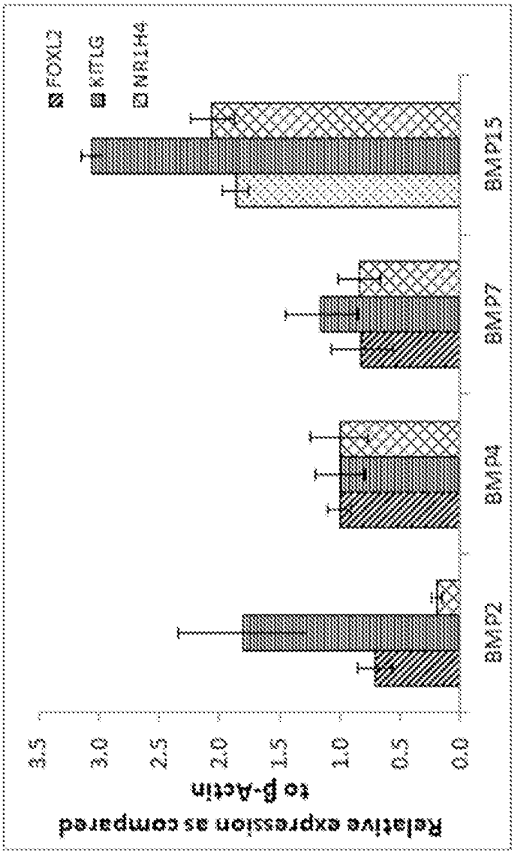


FIG. 10B

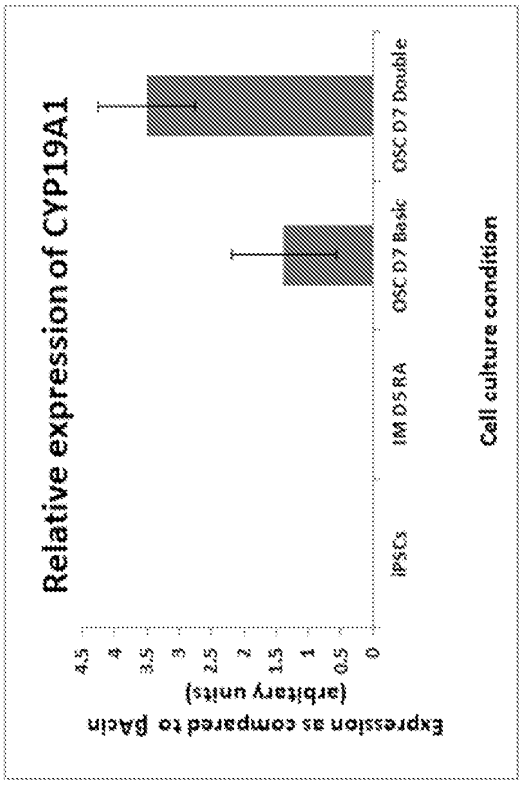


FIG. 11A

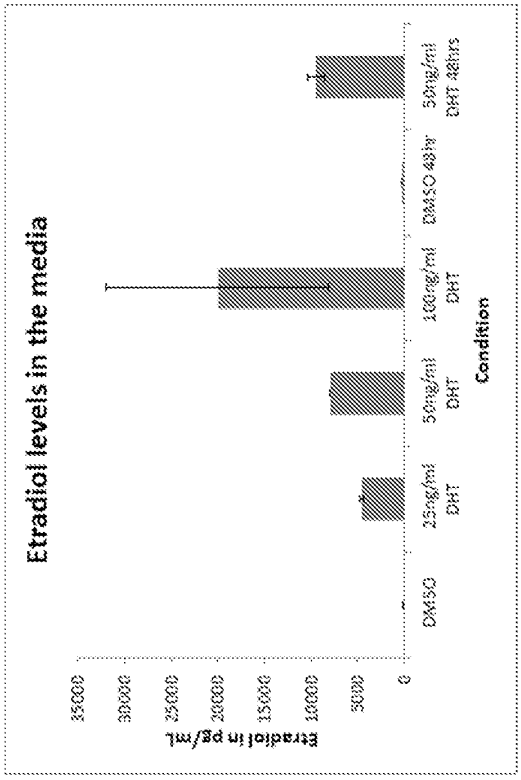


FIG. 11B

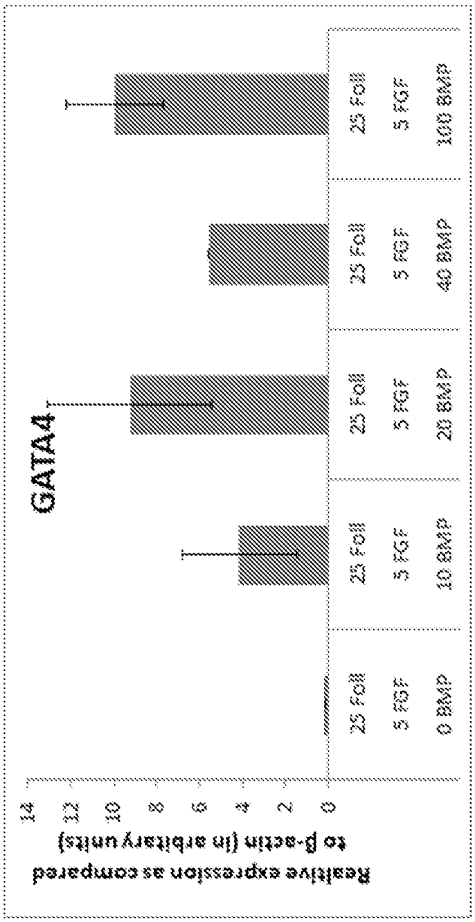


FIG. 12A

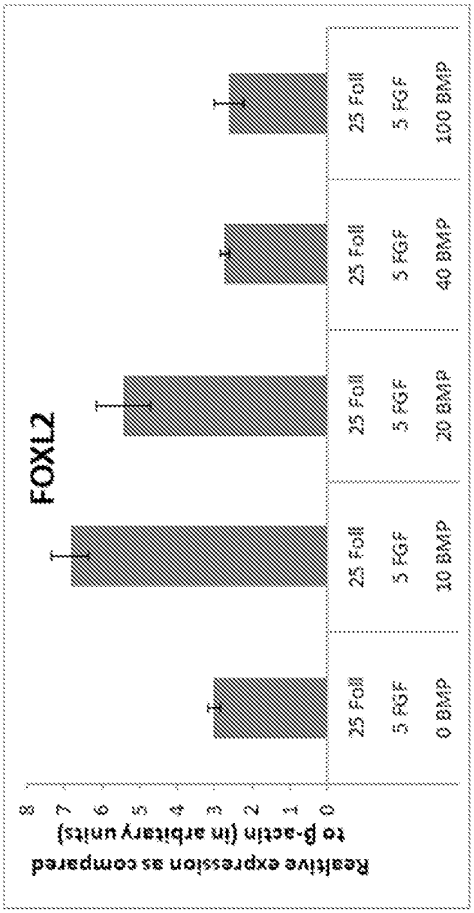


FIG. 12B

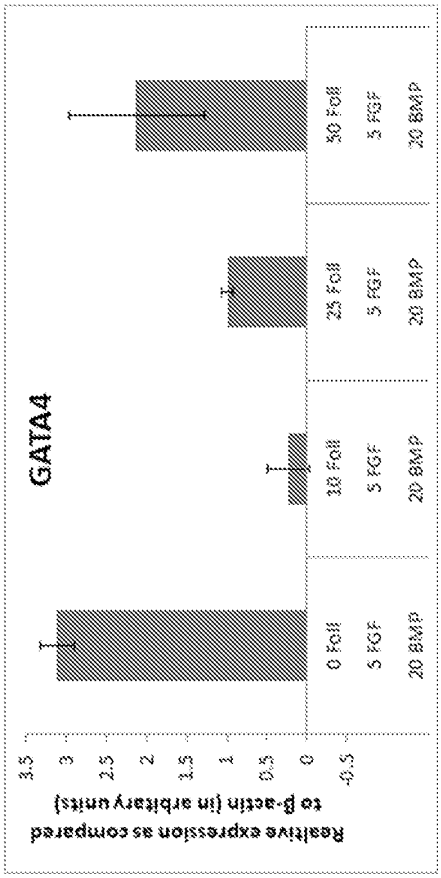


FIG. 12C

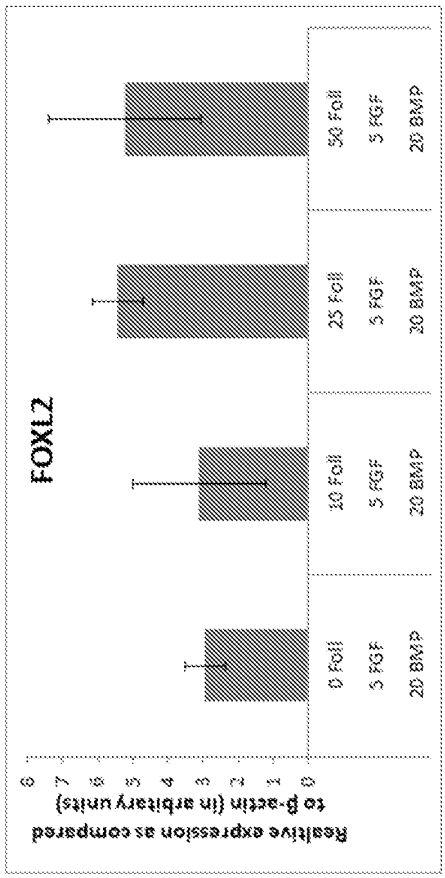


FIG. 12D

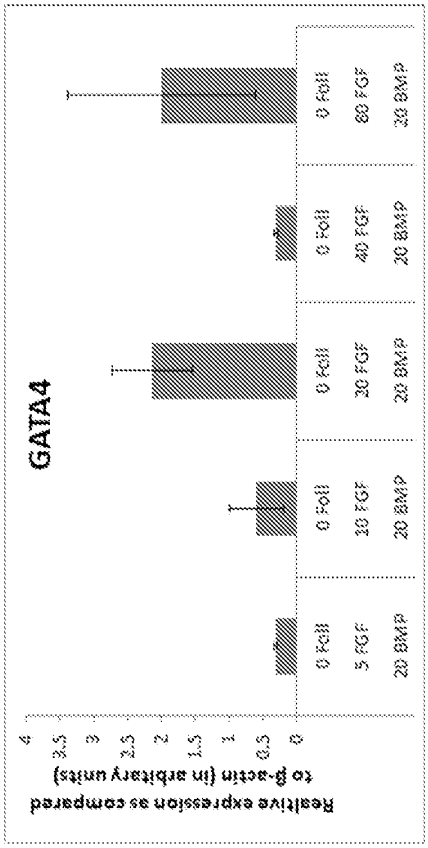


FIG. 12E

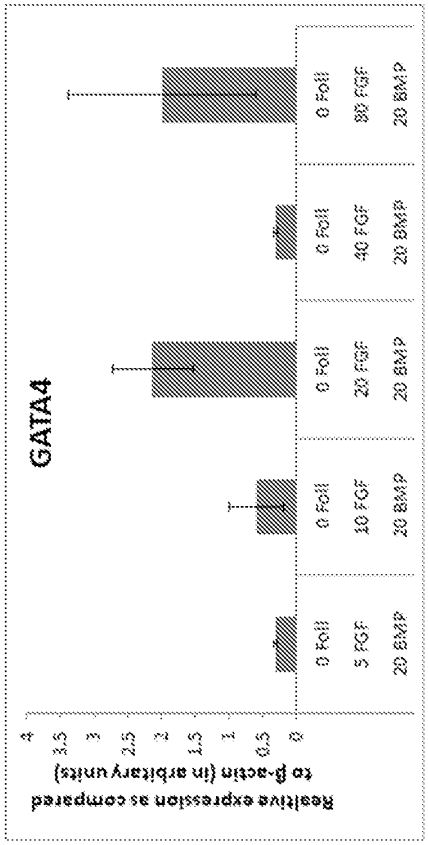


FIG. 12F

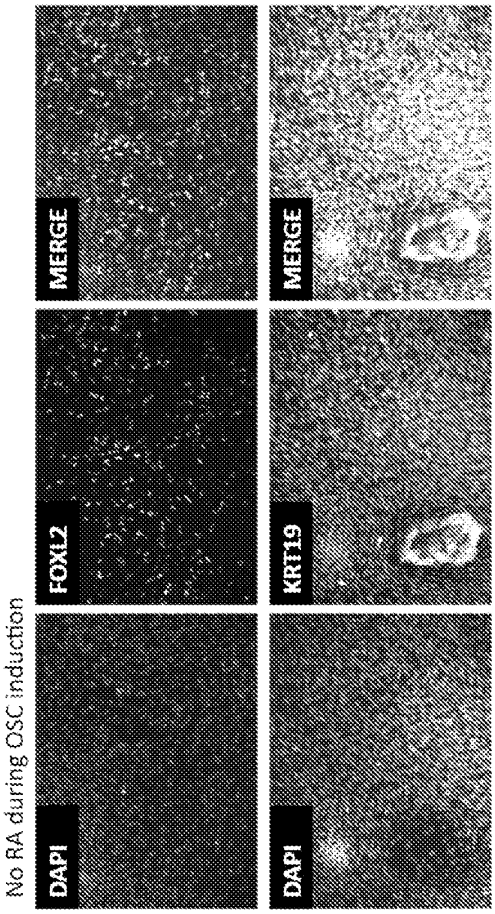


FIG. 13A

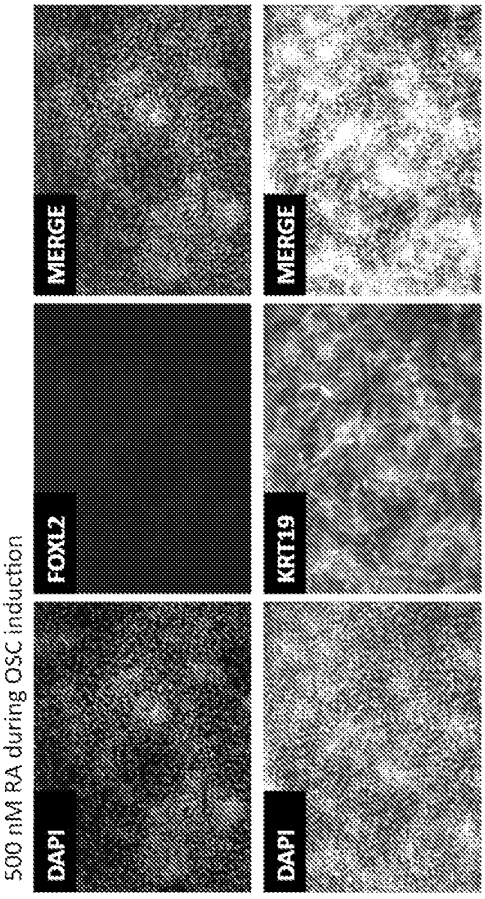


FIG. 13B

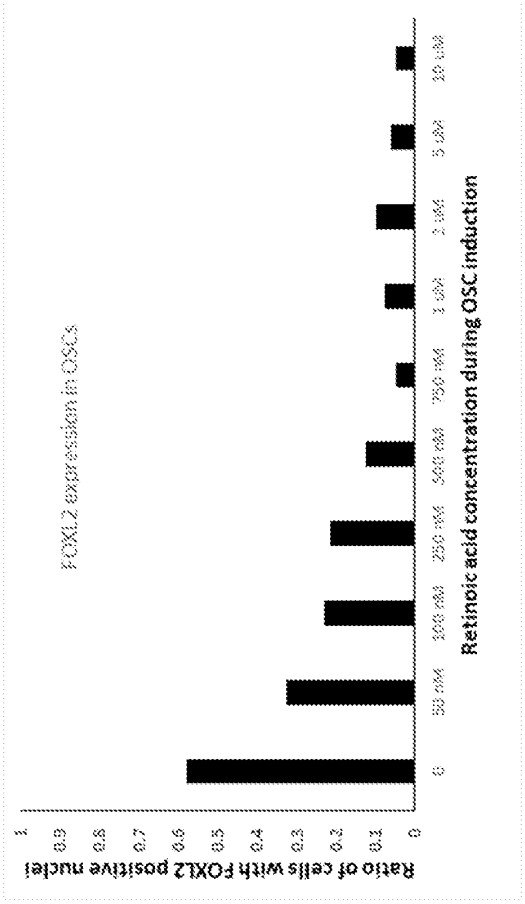


FIG. 13C

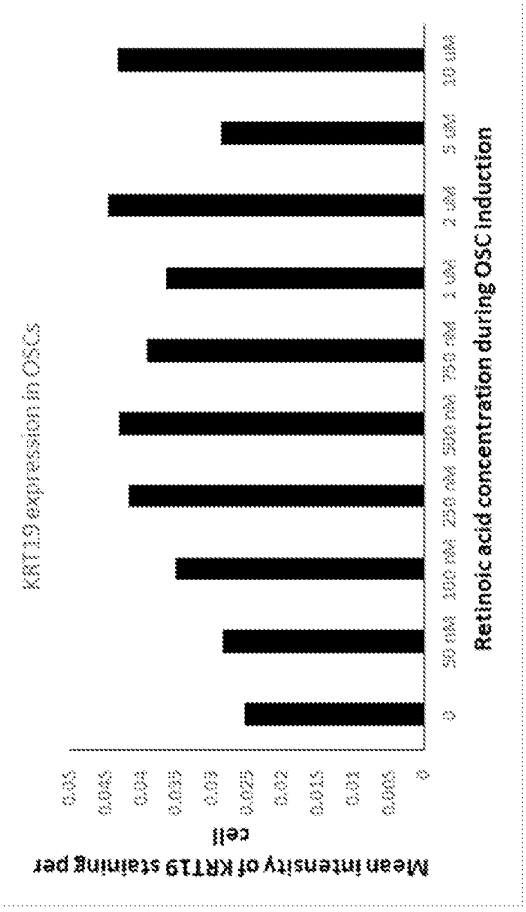


FIG. 13D

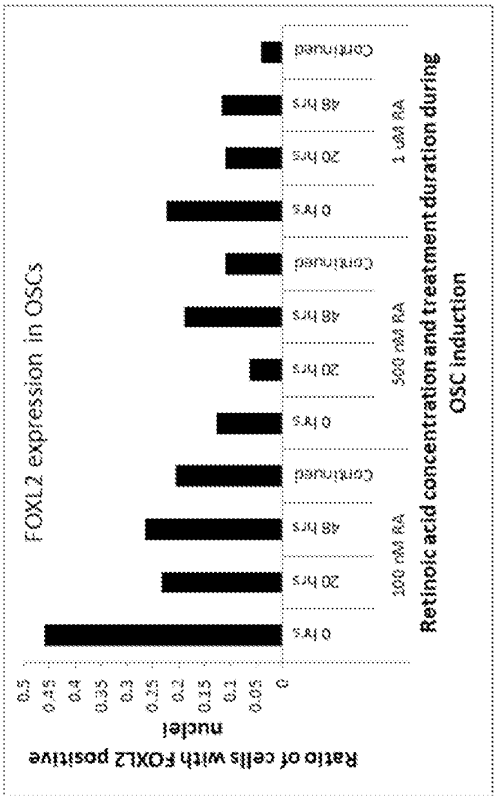


FIG. 13E

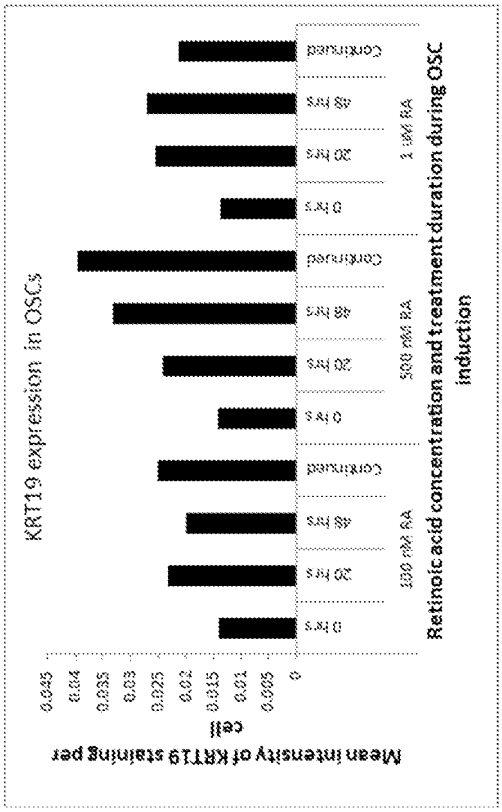


FIG. 13F

FIG. 14A

D7 gonadal somatic cells treated without retinoic acid treatment
D14 gonadal cells without retinoic acid treatment
D14 gonadal cells treated with retinoic acid
D7 gonadal cells treated with retinoic acid
Second intermediate stage cells
First intermediate stage cells
iPSCs

FIG. 14C

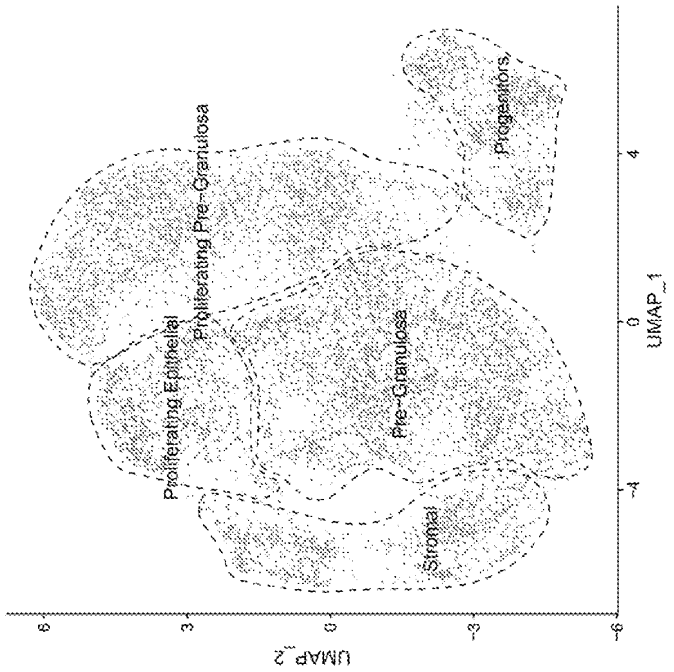
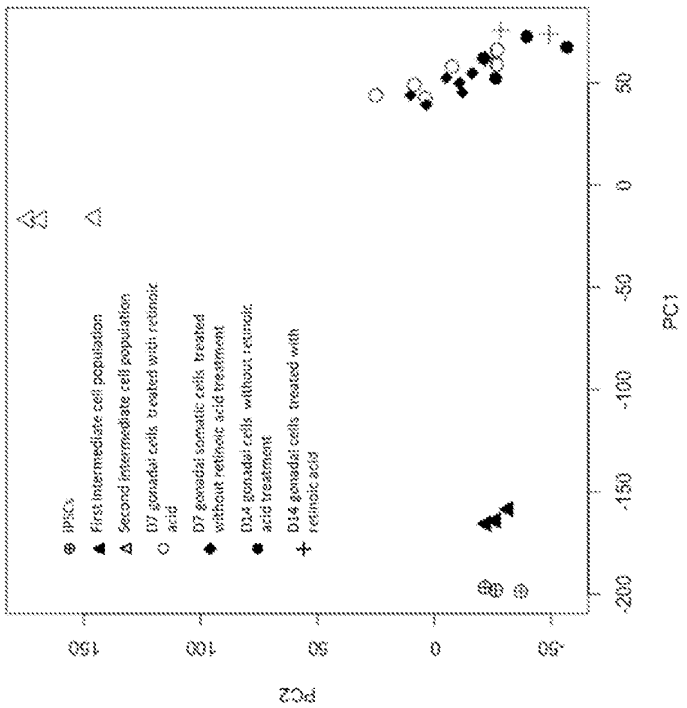


FIG. 14B



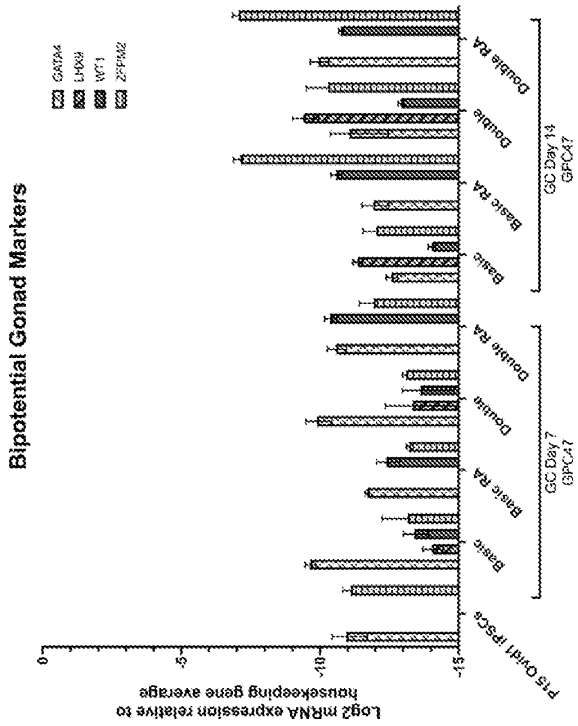


FIG. 14D

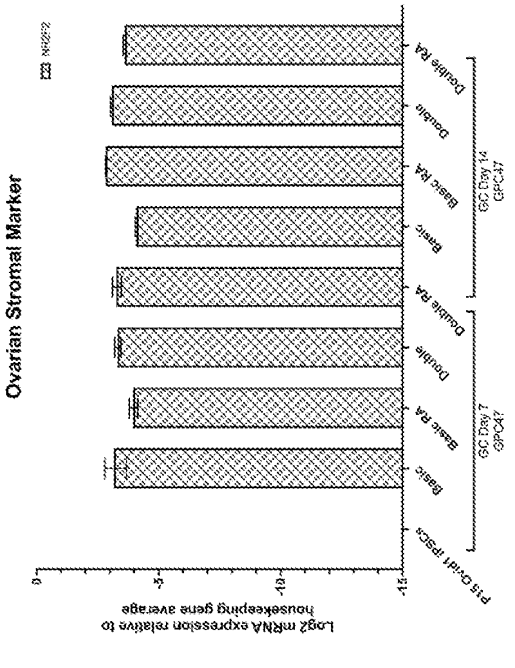


FIG. 14E

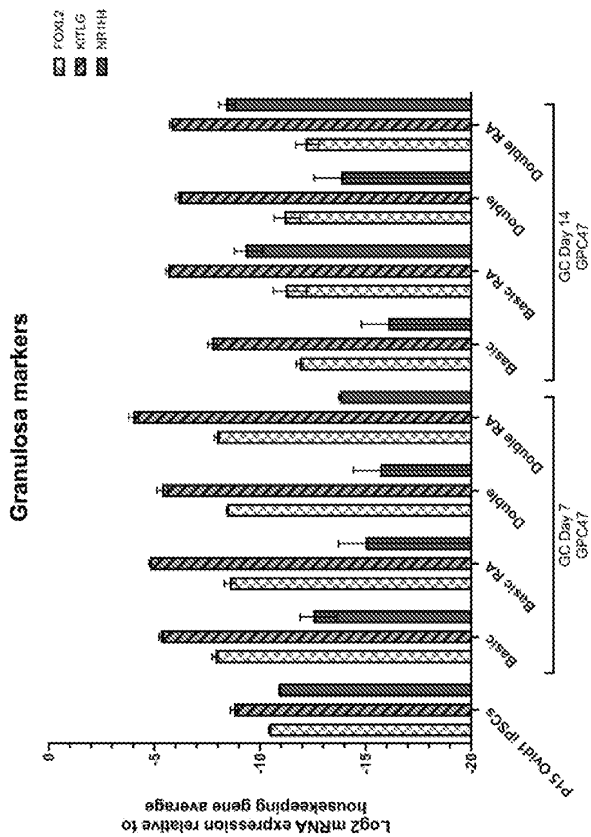


FIG. 14F

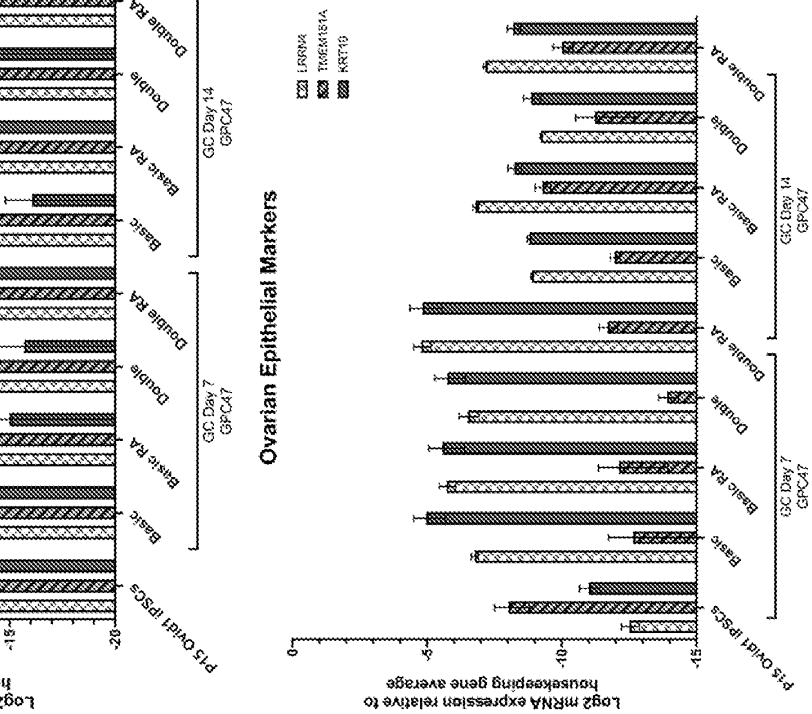


FIG. 14G

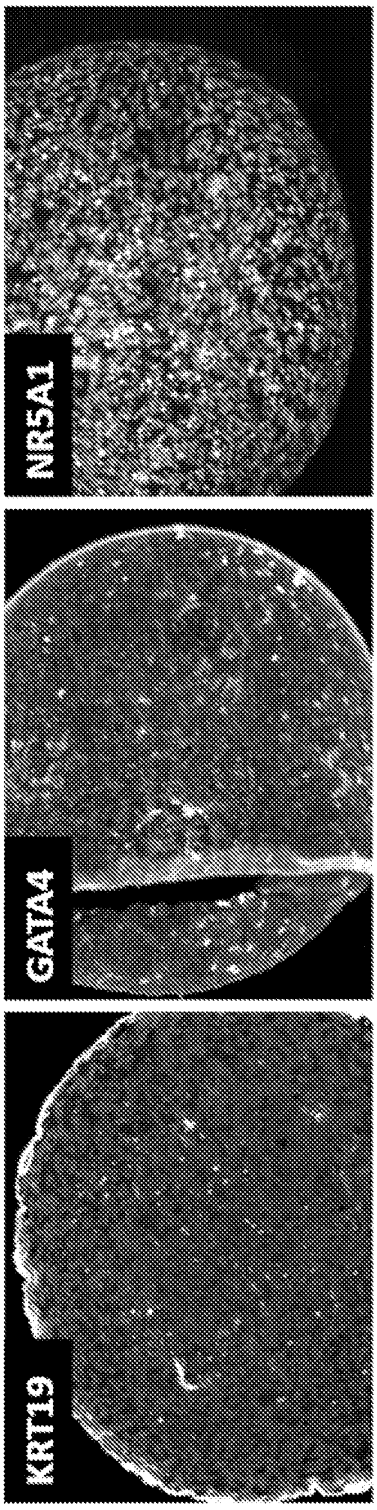


FIG. 15