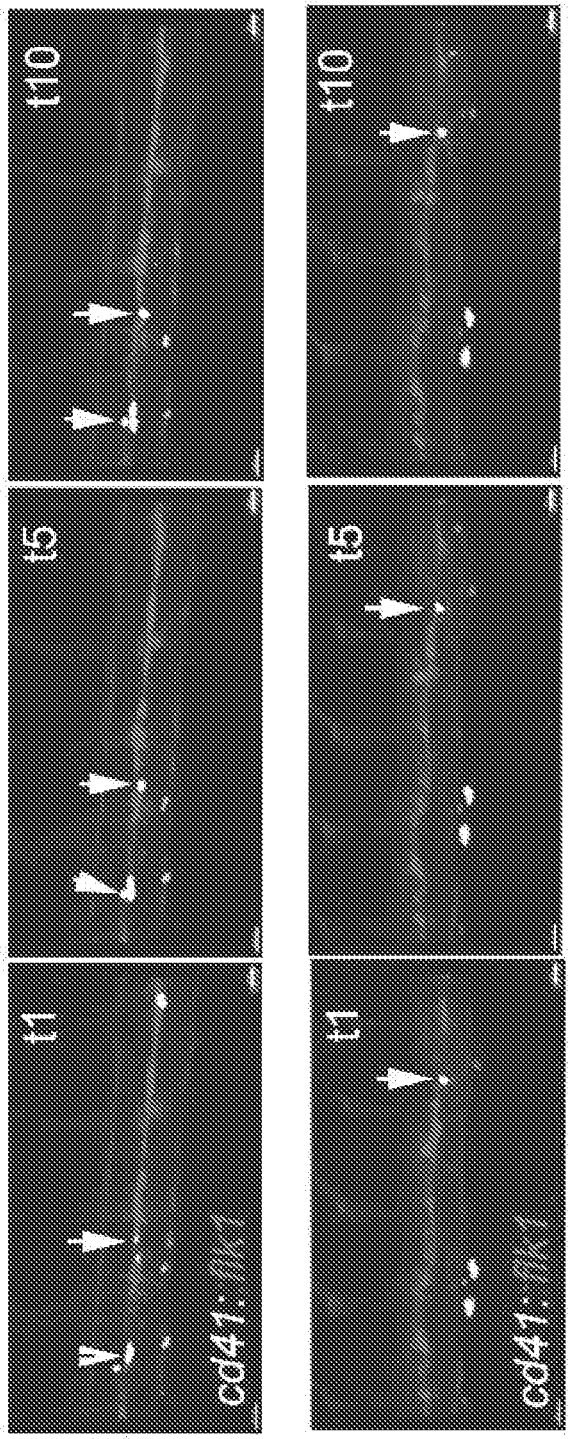


FIG. 1A

FIG. 1B

FIG. 1C

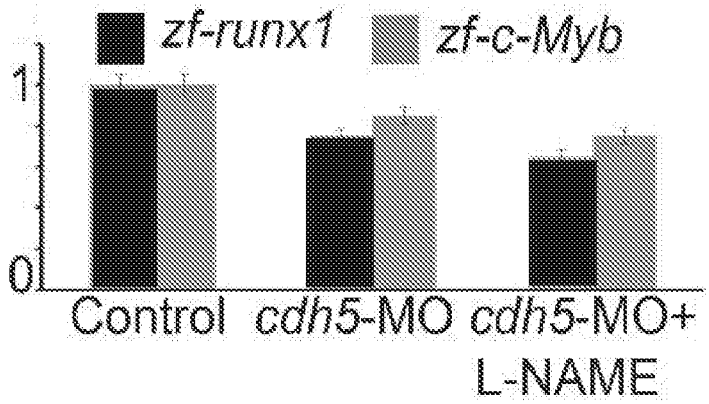


FIG. 1D

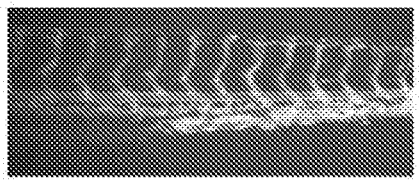
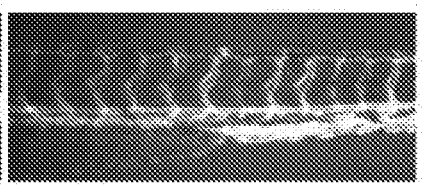


FIG. 1E



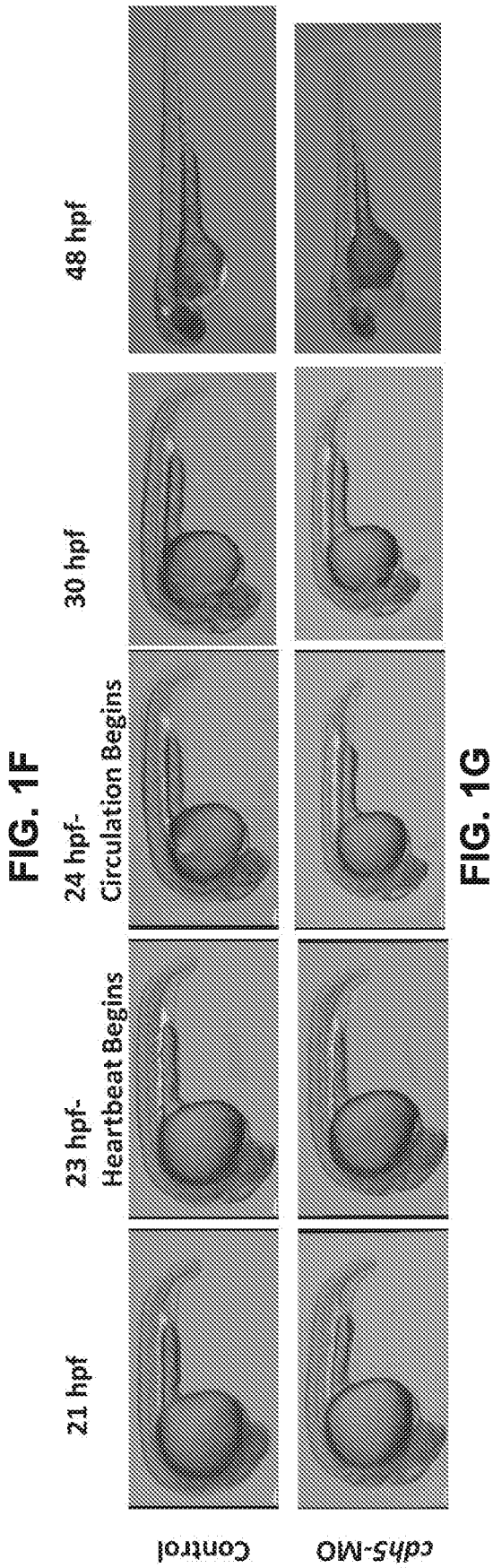
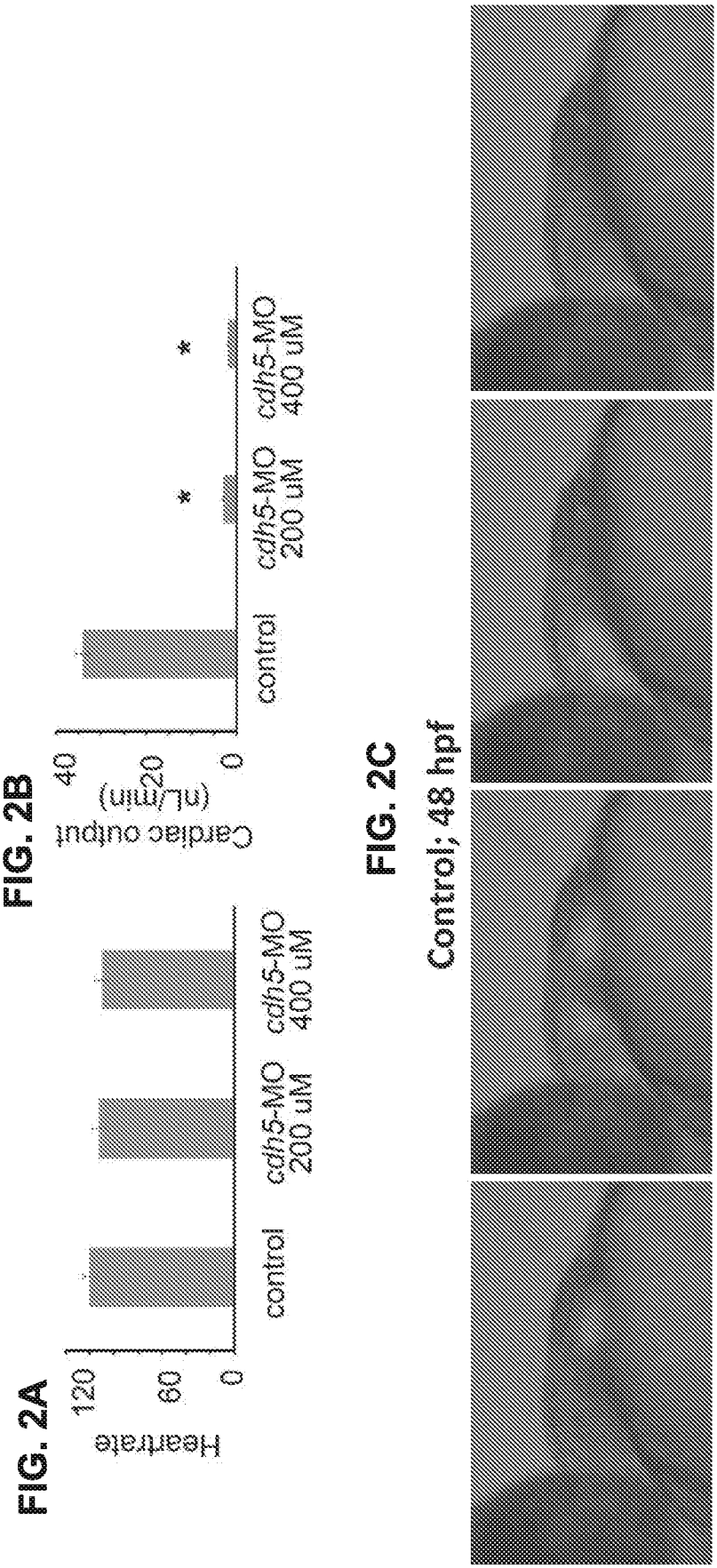

21 hpf
23 hpf-
Heartbeat Begins
24 hpf-
Circulation Begins
30 hpf
48 hpf
Control
cdh5-MO

FIG. 1F

FIG. 1G


FIG. 2A
Heartrate
120
60
0
control
cdh5-MO 200 uM
cdh5-MO 400 uM
FIG. 2B
Cardiac output (nL/min)
40
20
0
*
*
control
cdh5-MO 200 uM
cdh5-MO 400 uM
FIG. 2C
Control; 48 hpf

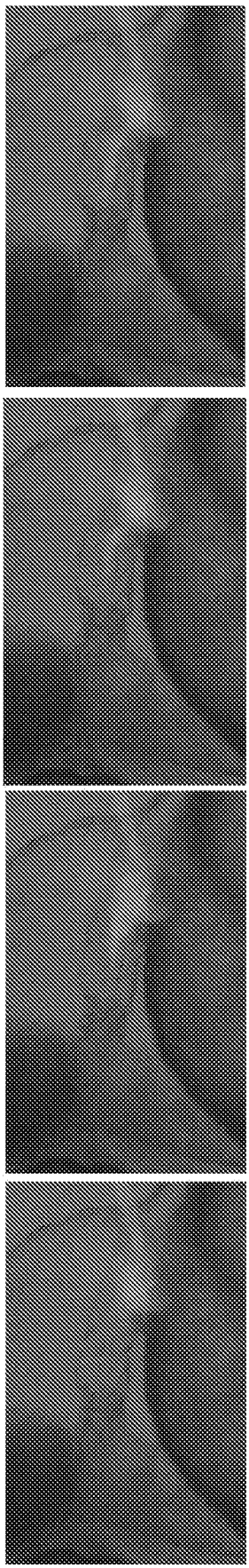


FIG. 2D
cdh5-MO; 48 hpf

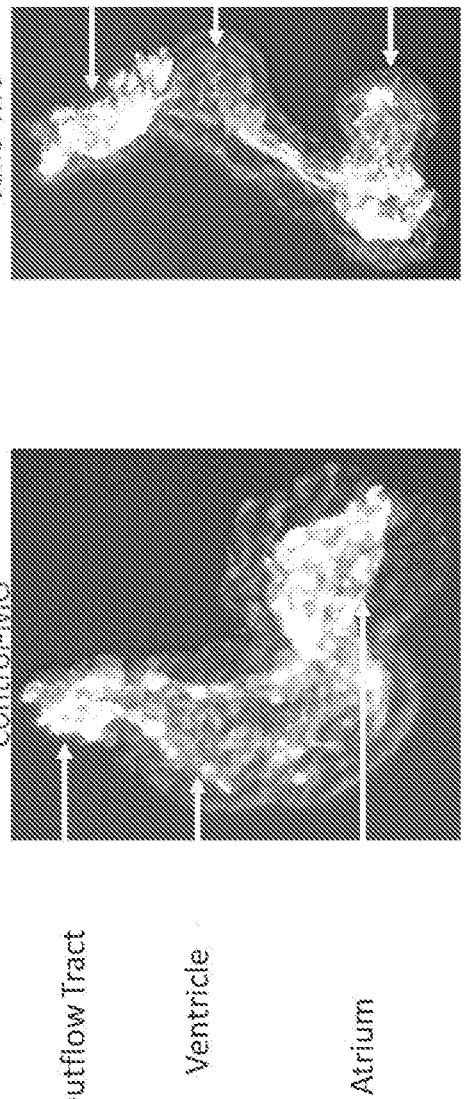


FIG. 2E

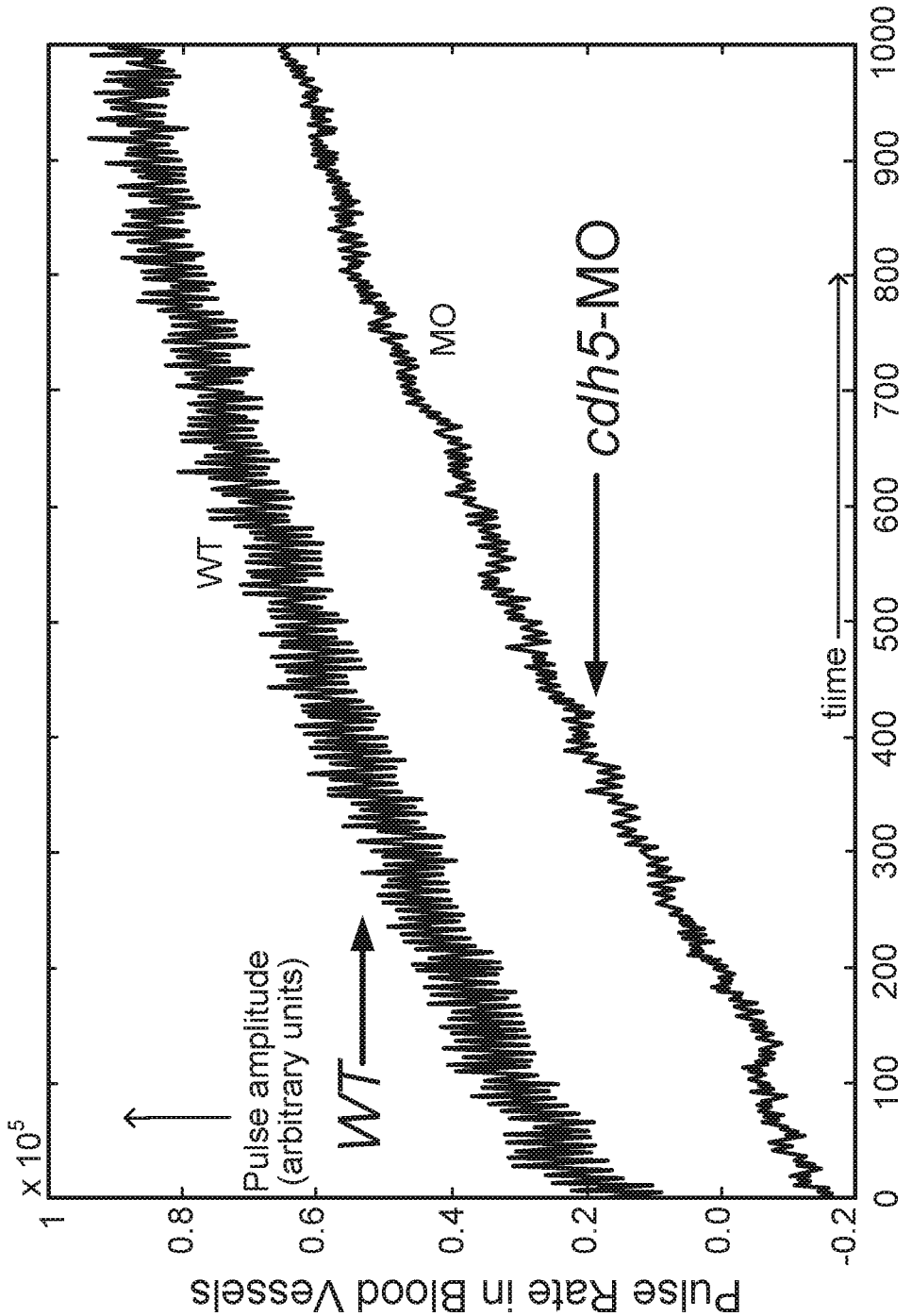

Pulse Rate in Blood Vessels
x 10^5
1
0.8
0.6
0.4
0.2
0.0
-0.2
0
100
200
300
400
500
600
700
800
900
1000
Pulse amplitude
(arbitrary units)
WT
MO
cdh5-MO
tiime

FIG. 3A

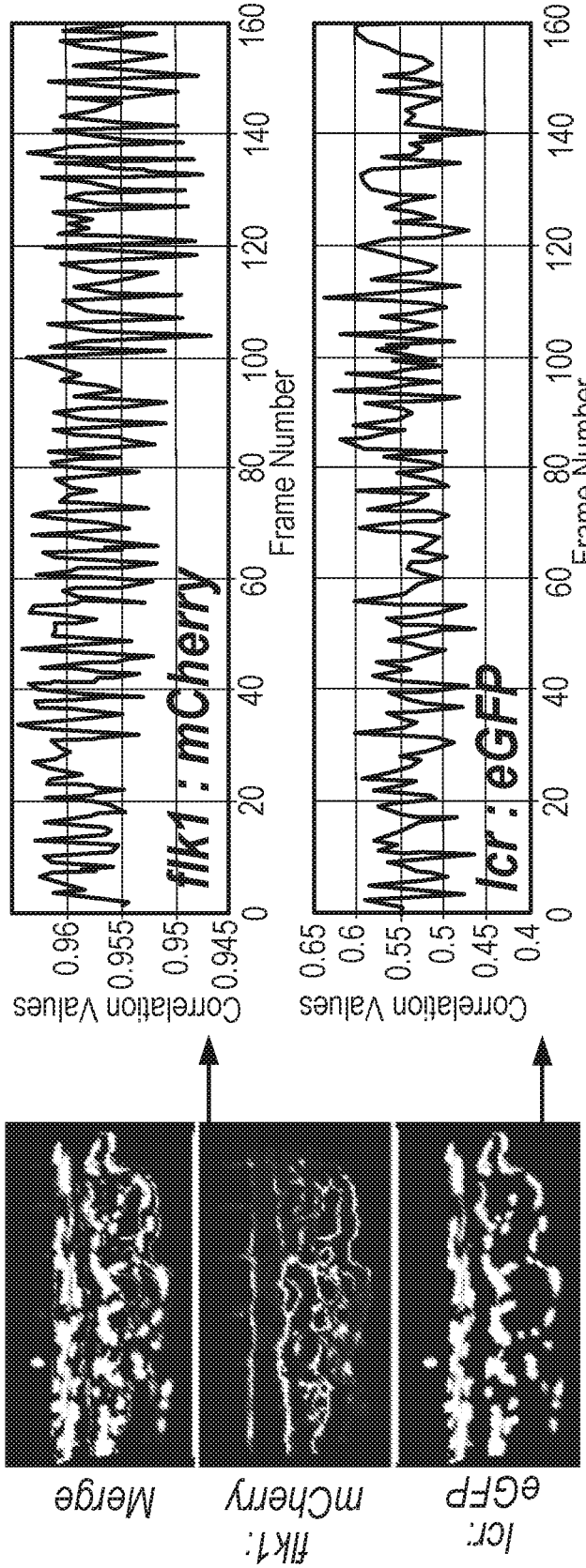

Correlation Values versus Frame Number
flk1 : mCherry
Icr : eGFP
Correlation Values
Frame Number
0.96
0.955
0.95
0.945
0.65
0.6
0.55
0.5
0.45
0.4
0
20
40
60
80
100
120
140
160
wild-type
Icr: eGFP
flk1: mCherry
Merge

FIG. 3C

FIG. 3B

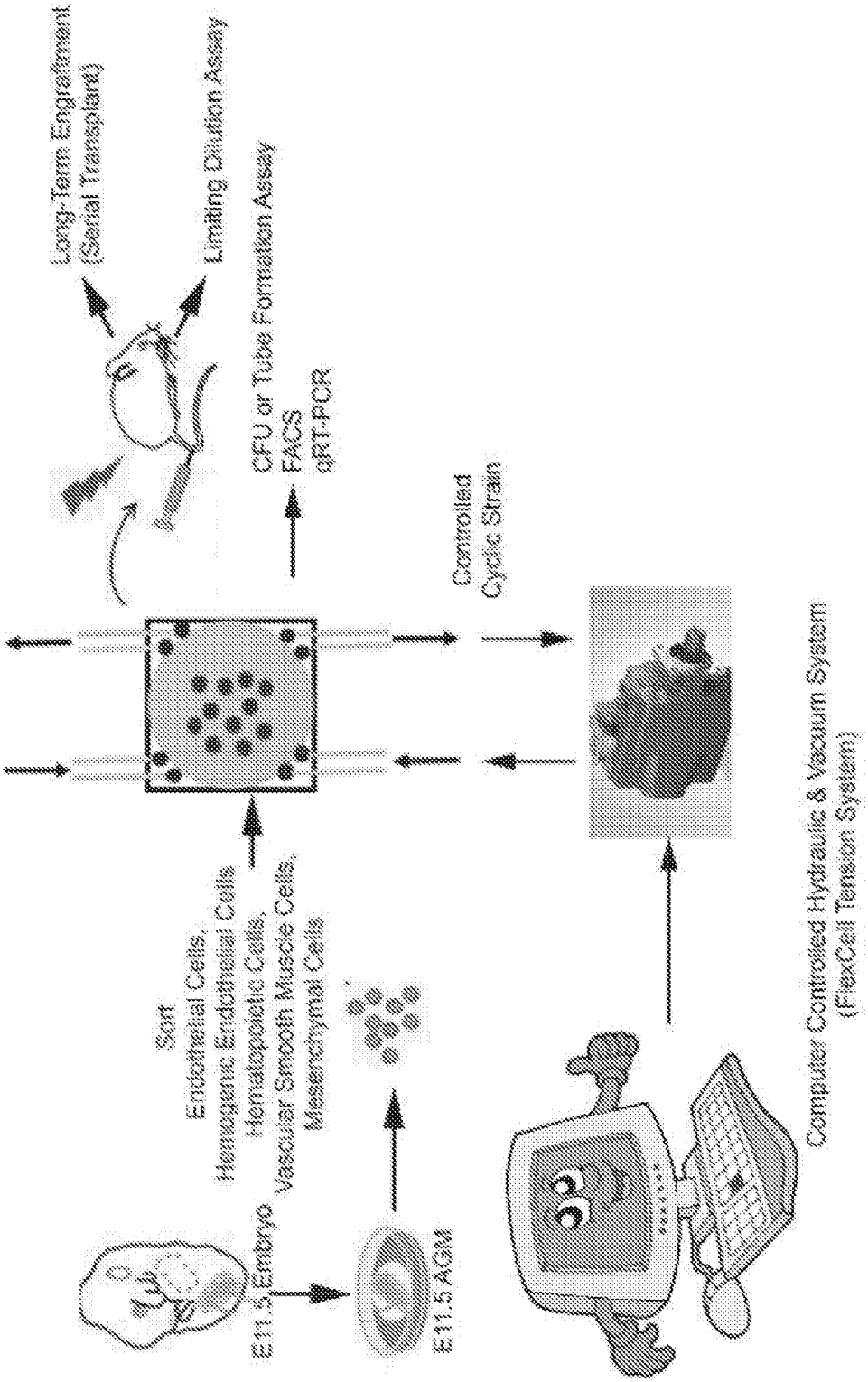

Long-Term Engraftment
(Serial Transplant)
Limiting Dilution Assay
CFU or Tube Formation Assay
FACS
qRT-PCR
Controlled
Cyclic Strain
Sort
Endothelial Cells,
Hemogenic Endothelial Cells
Hematopoietic Cells,
Vascular Smooth Muscle Cells,
Mesenchymal Cells
E11.5 Embryo
E11.5 AGM
Computer Controlled Hydraulic & Vacuum System
(FlexCell Tension System)

FIG. 4

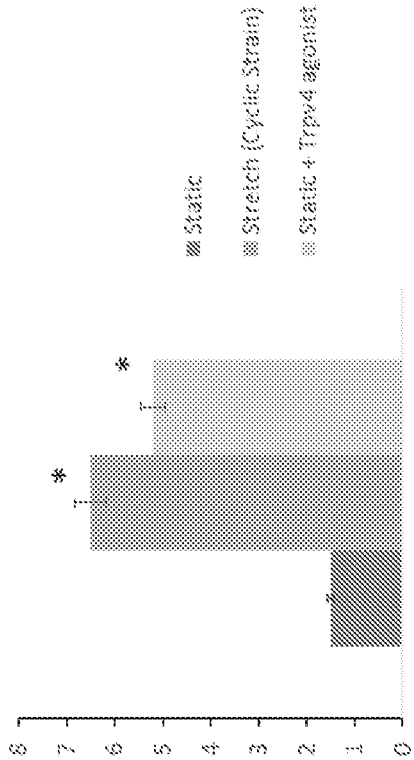


FIG. 5B

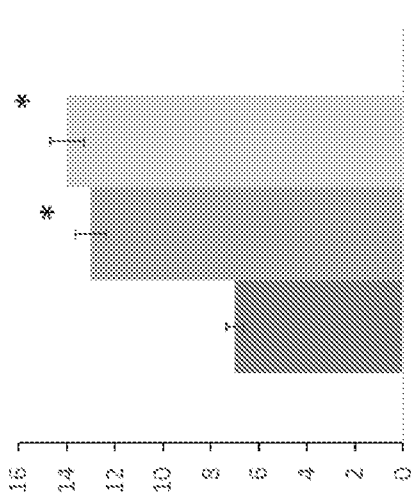


FIG. 5A

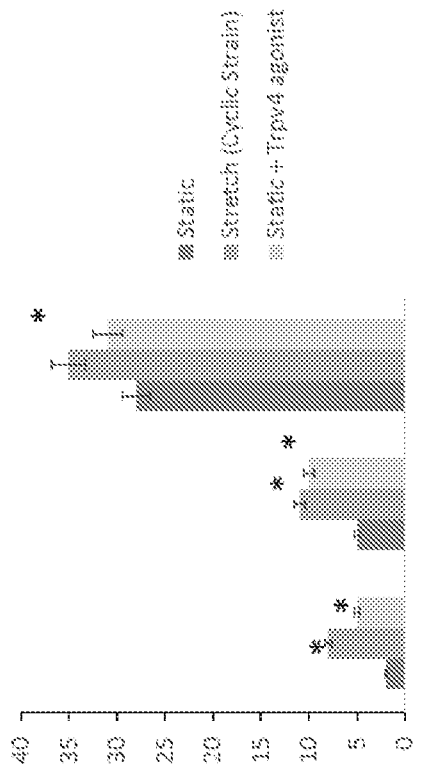


FIG. 5C

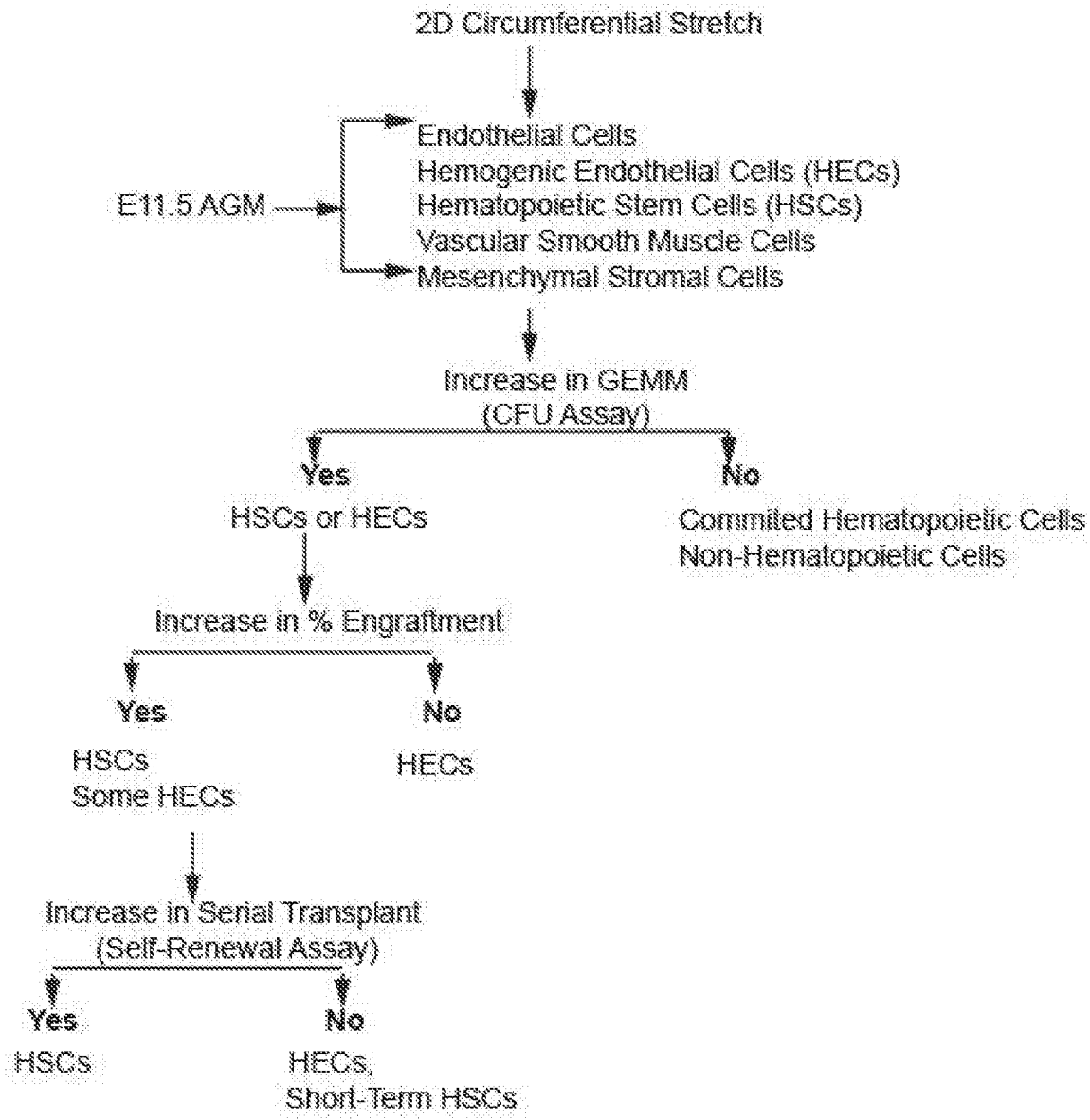

2D Circumferential Stretch
E11.5 AGM
Endothelial Cells
Hemogenic Endothelial Cells (HECs)
Hematopoietic Stem Cells (HSCs)
Vascular Smooth Muscle Cells
Mesenchymal Stromal Cells
Increase in GEMM (CFU Assay)
Yes
HSCs or HECs
No
Commited Hematopoietic Cells
Non-Hematopoietic Cells
Increase in % Engraftment
Yes
HSCs
Some HECs
No
HECs
Increase in Serial Transplant (Self-Renewal Assay)
Yes
HSCs
No
HECs,
Short-Term HSCs

FIG. 6

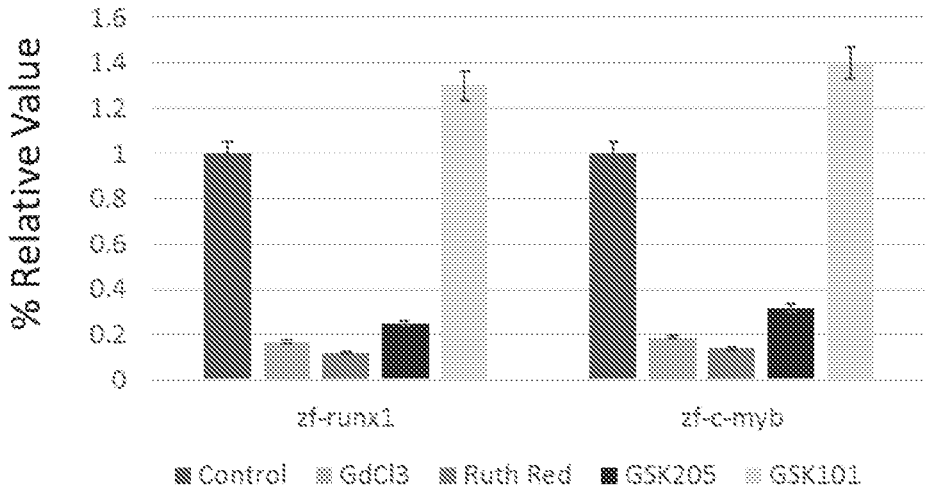
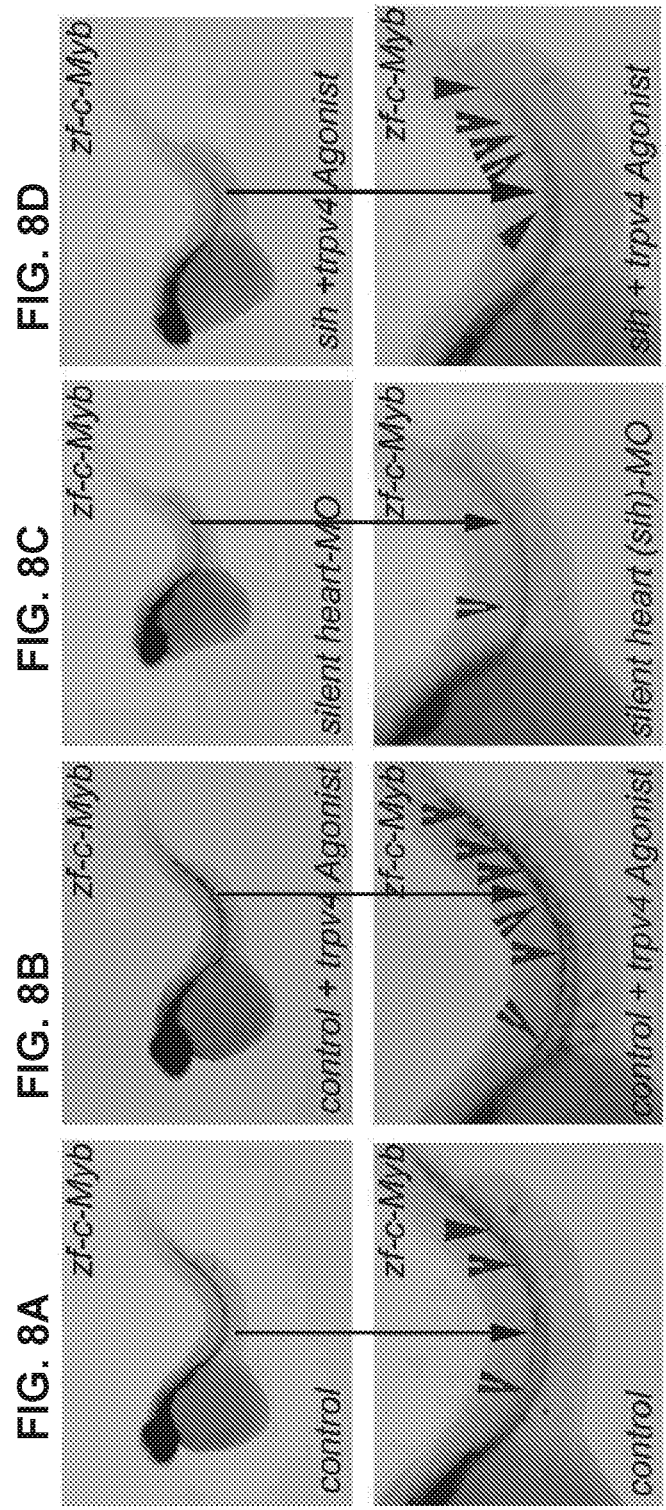

% Relative Value
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
zf-runx1
zf-c-myb
Control
GdCl3
Ruth Red
GSK205
GSK101

FIG. 7


FIG. 8A
zf-c-Myb
control
zf-c-Myb
FIG. 8B
zf-c-Myb
control + trpv4 Agonist
zf-c-Myb
FIG. 8C
zf-c-Myb
silent heart-MO
zf-c-Myb
FIG. 8D
zf-c-Myb
sih +trpv4 Agonist
zf-c-Myb

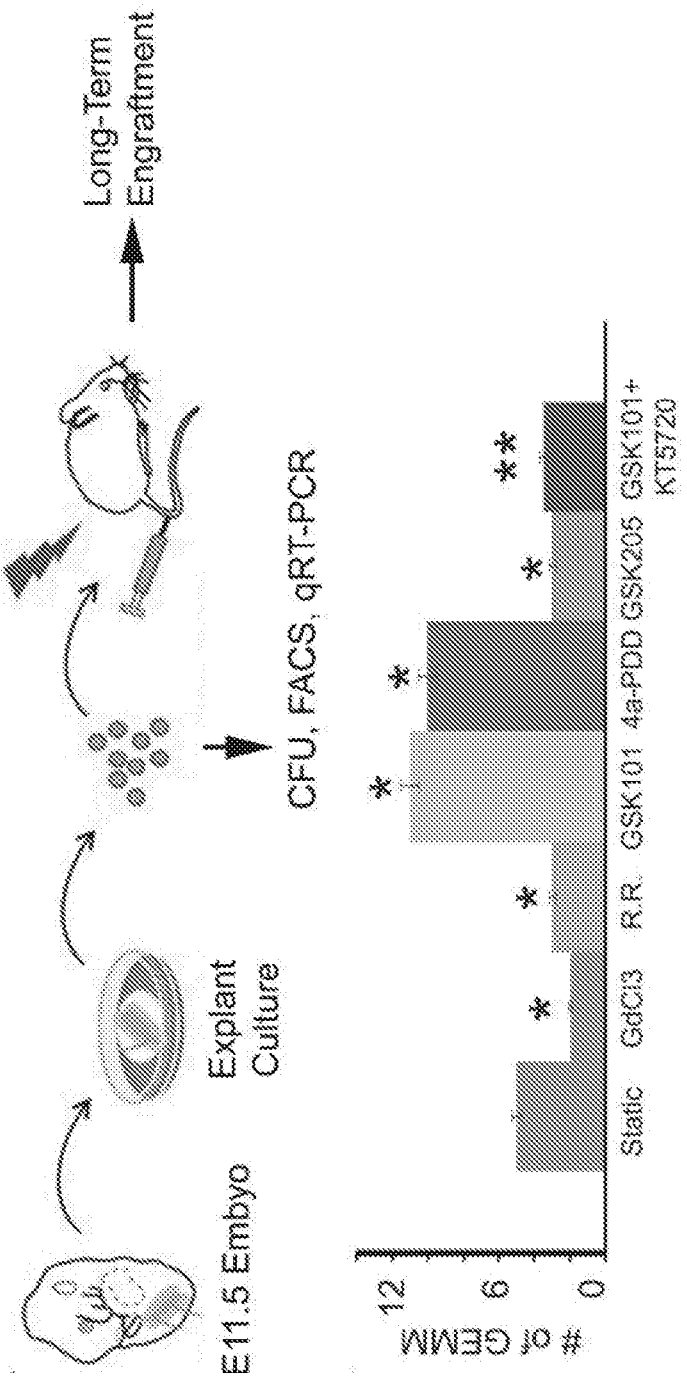
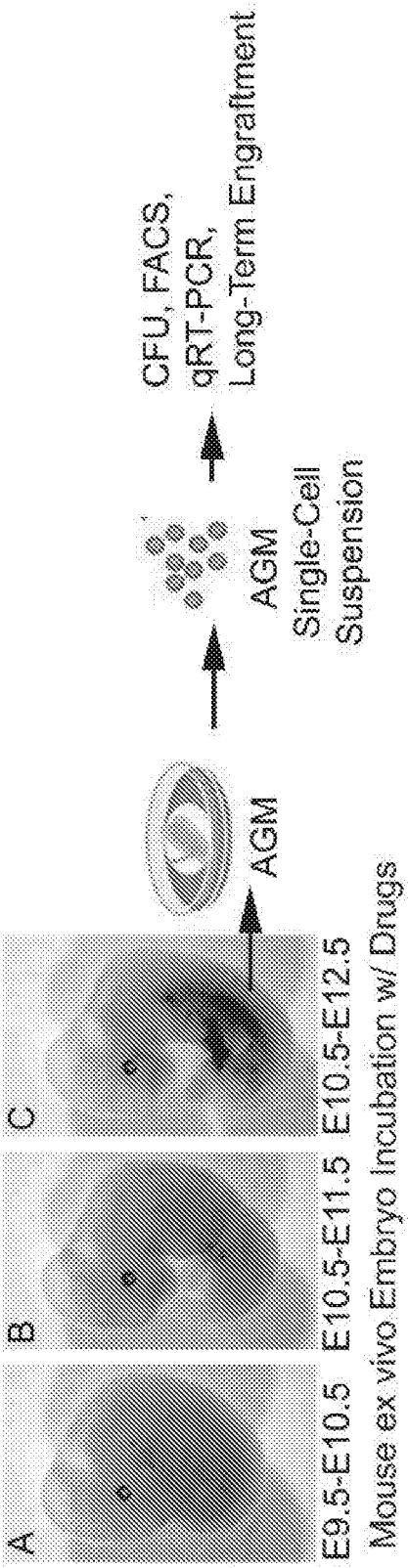

E11.5 Embyo
Explant Culture
CFU, FACS, qRT-PCR
Long-Term Engraftment

FIG. 9A

# of GEMM
12
6
0
Static
GdCl3
R.R.
GSK101
4a-PDD
GSK205
GSK101+ KT5720
*
*
*
*
**

FIG. 9B


FIG. 10A
FIG. 10B
FIG. 10C
FIG. 10D
A
B
C
E9.5-E10.5
E10.5-E11.5
E10.5-E12.5
AGM
Mouse ex vivo Embryo Incubation w/ Drugs
AGM
Single-Cell Suspension
CFU, FACS, qRT-PCR, Long-Term Engraftment

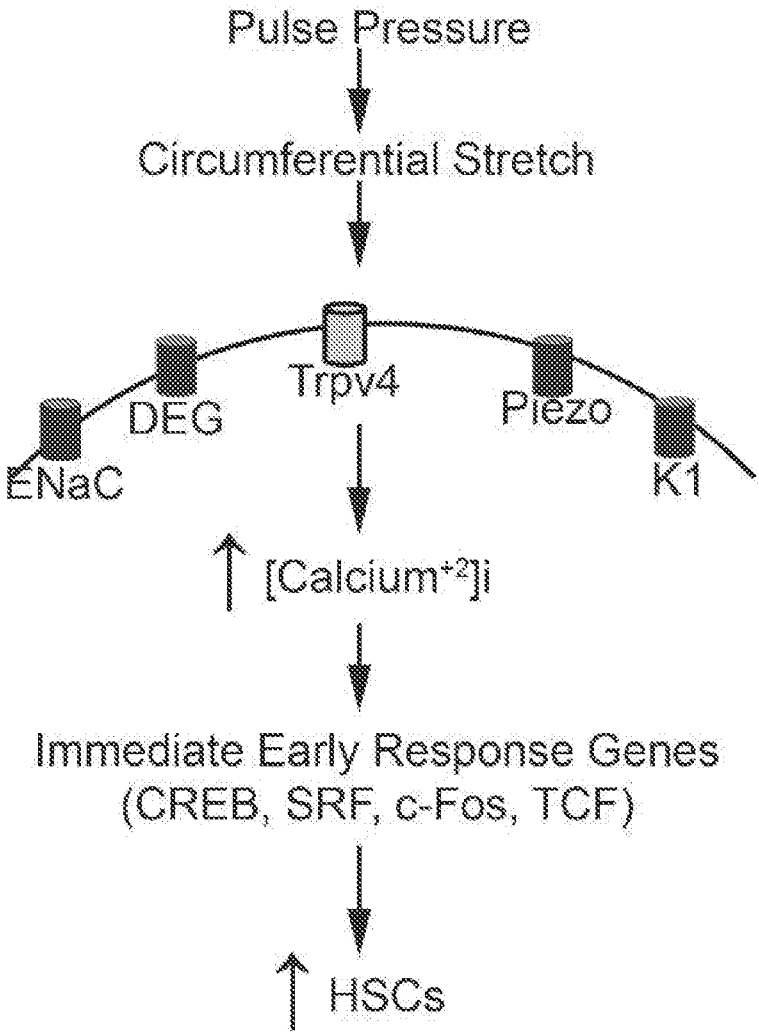

Pulse Pressure
Circumferential Stretch
Trpv4
DEG
ENaC
Piezo
K1
[Calcium+2]i
Immediate Early Response Genes
(CREB, SRF, c-Fos, TCF)
HSCs

FIG. 11