Figure 1

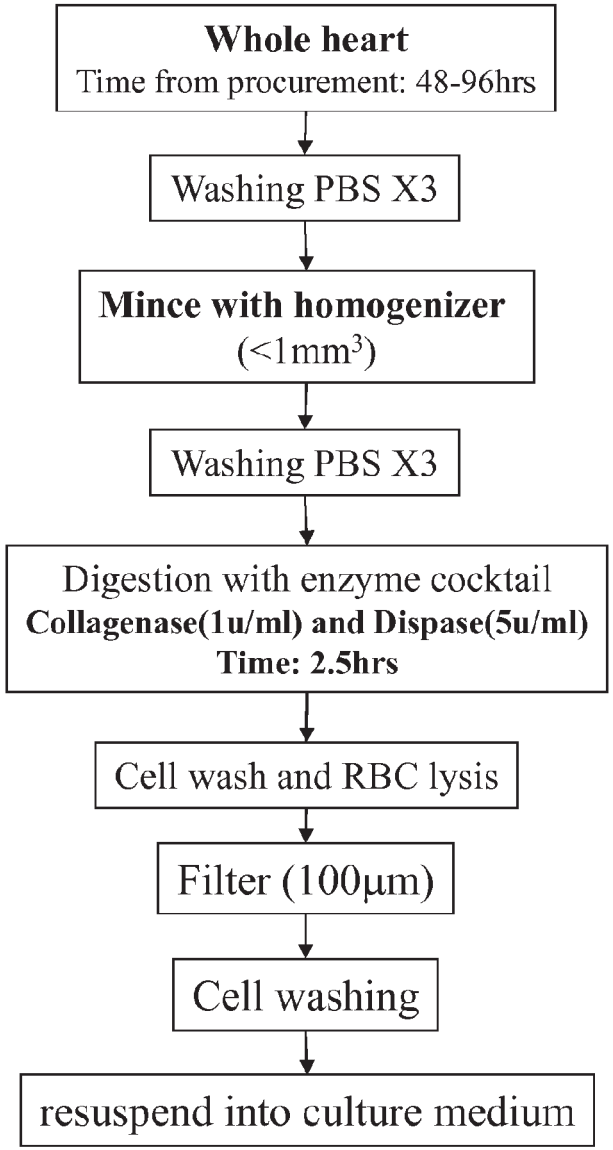

Whole heart
Time from procurement: 48-96hrs
Washing PBS X3
Mince with homogenizer
(<1mm³)
Washing PBS X3
Digestion with enzyme cocktail
Collagenase(1u/ml) and Dispase(5u/ml)
Time: 2.5hrs
Cell wash and RBC lysis
Filter (100μm)
Cell washing
resuspend into culture medium

Figure 2

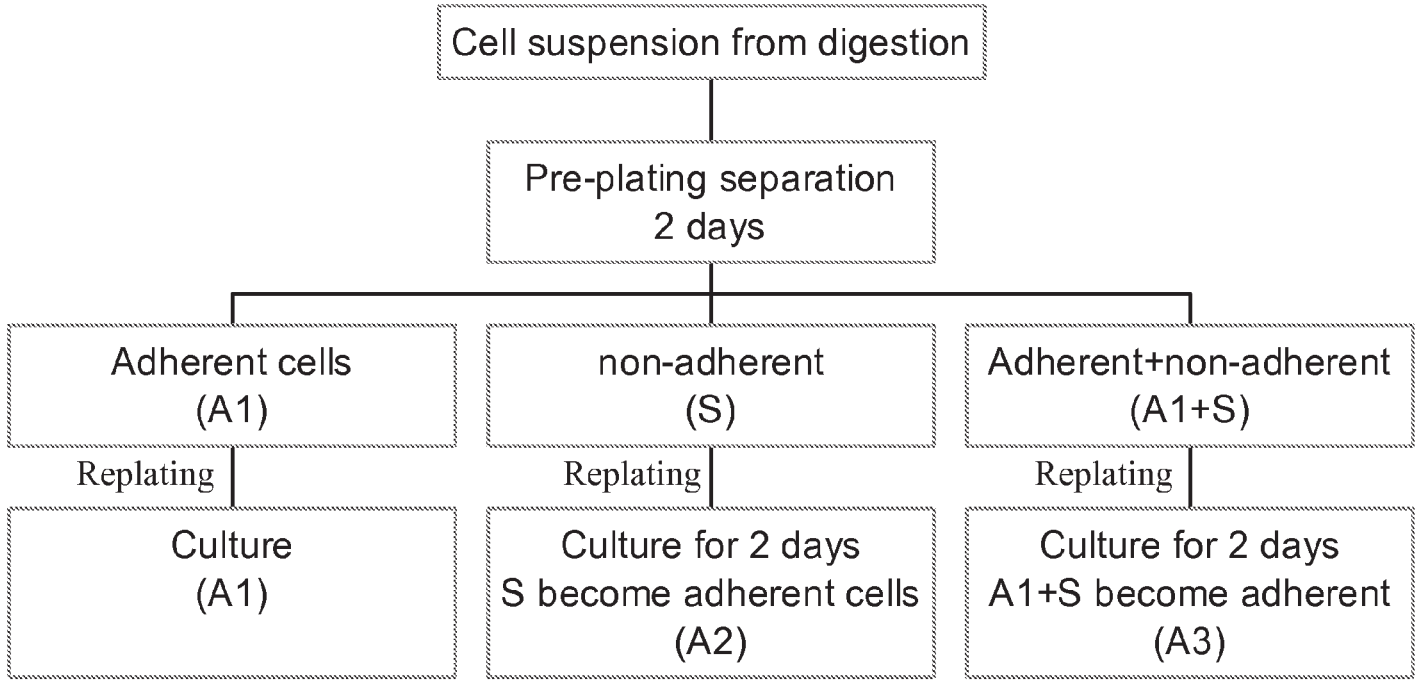

Cell suspension from digestion
Pre-plating separation
2 days
Adherent cells
(A1)
non-adherent
(S)
Adherent+non-adherent
(A1+S)
Replating
Replating
Replating
Culture
(A1)
Culture for 2 days
S become adherent cells
(A2)
Culture for 2 days
A1+S become adherent
(A3)

Figure 3

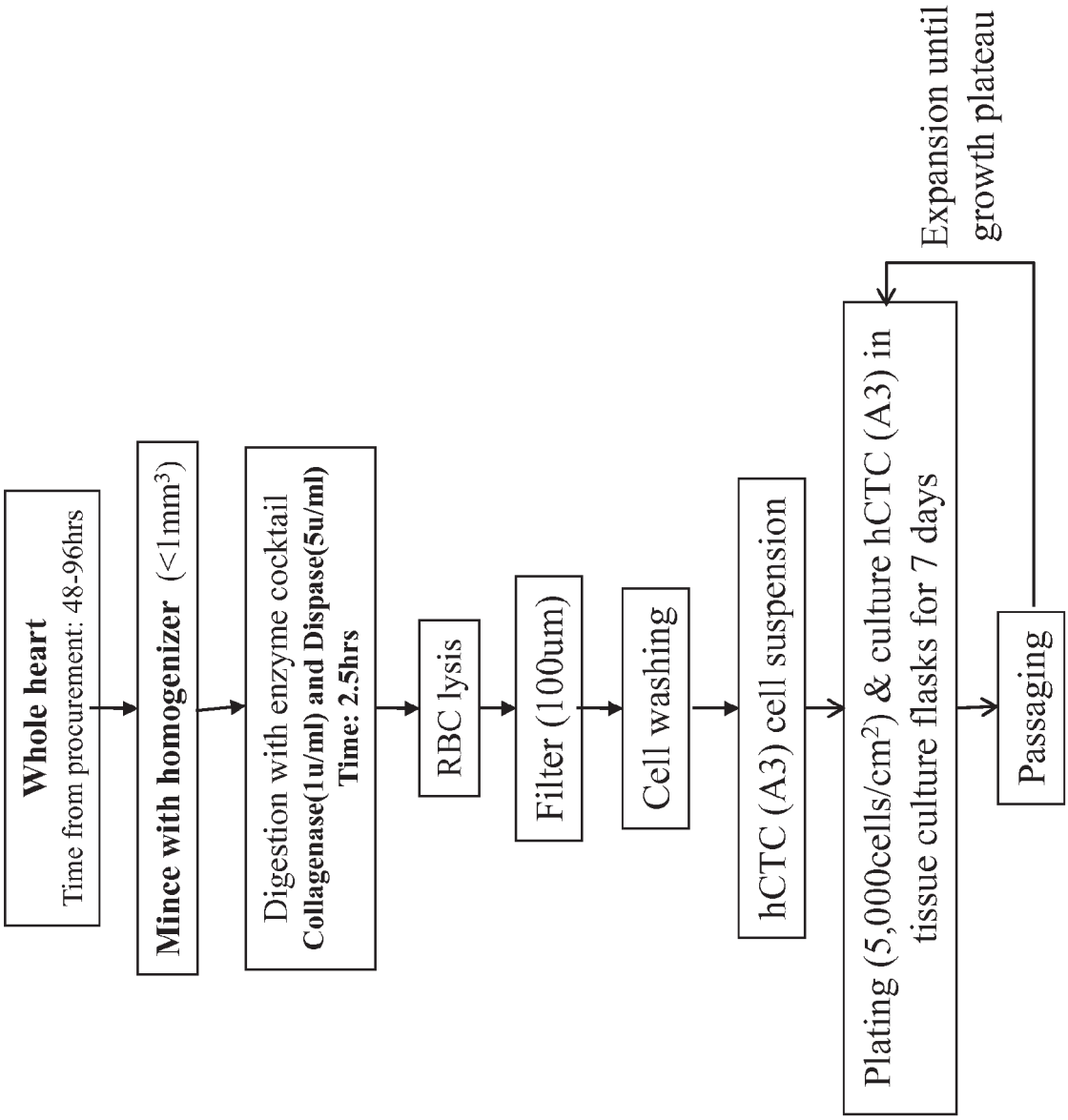

Whole heart
Time from procurement: 48-96hrs
Mince with homogenizer (<1mm3)
Digestion with enzyme cocktail
Collagenase(1u/ml) and Dispase(5u/ml)
Time: 2.5hrs
RBC lysis
Filter (100um)
Cell washing
hCTC (A3) cell suspension
Plating (5,000cells/cm2) & culture hCTC (A3) in tissue culture flasks for 7 days
Passaging
Expansion until growth plateau

Figure 4

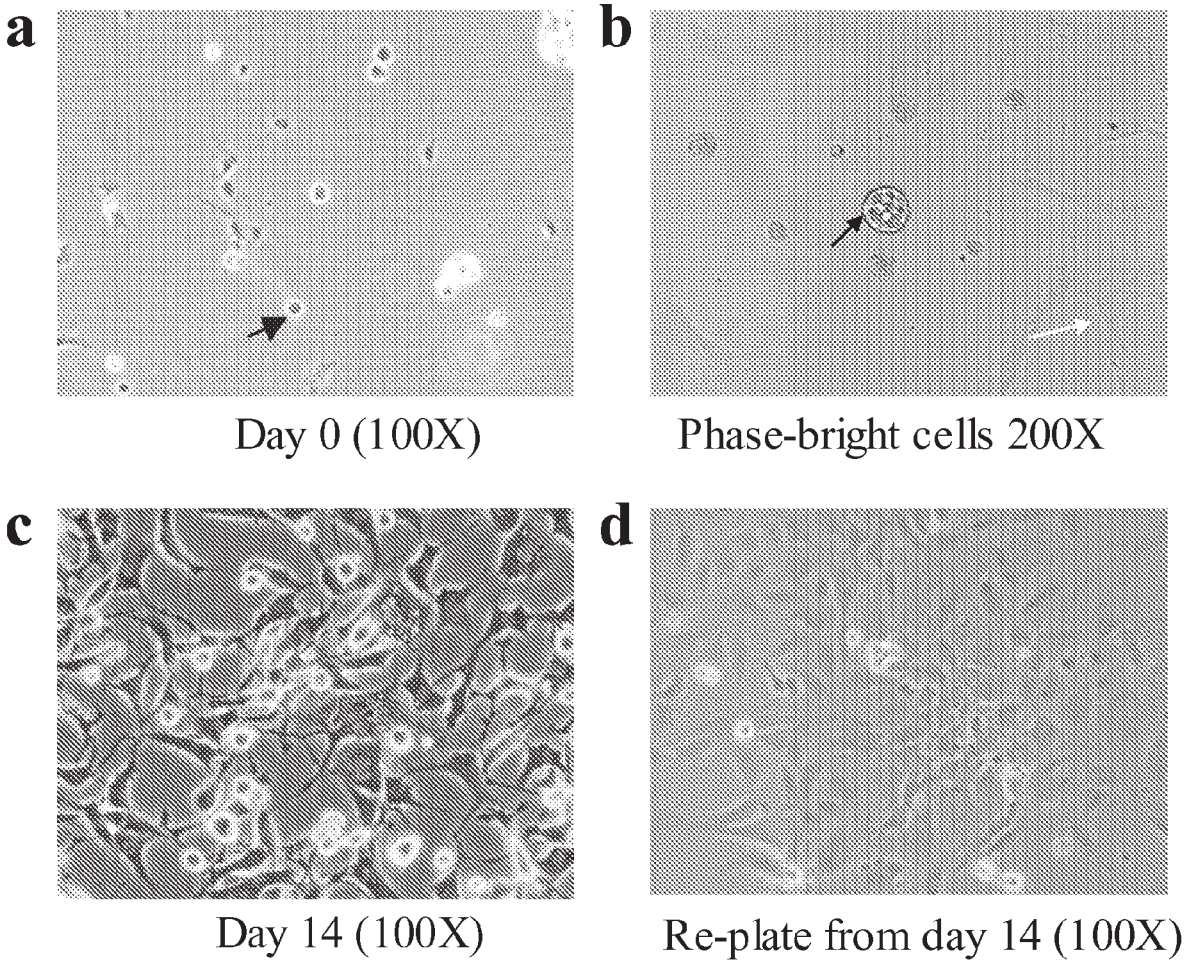

a
b
Day 0 (100X)
Phase-bright cells 200X
c
d
Day 14 (100X)
Re-plate from day 14 (100X)

Figure 5

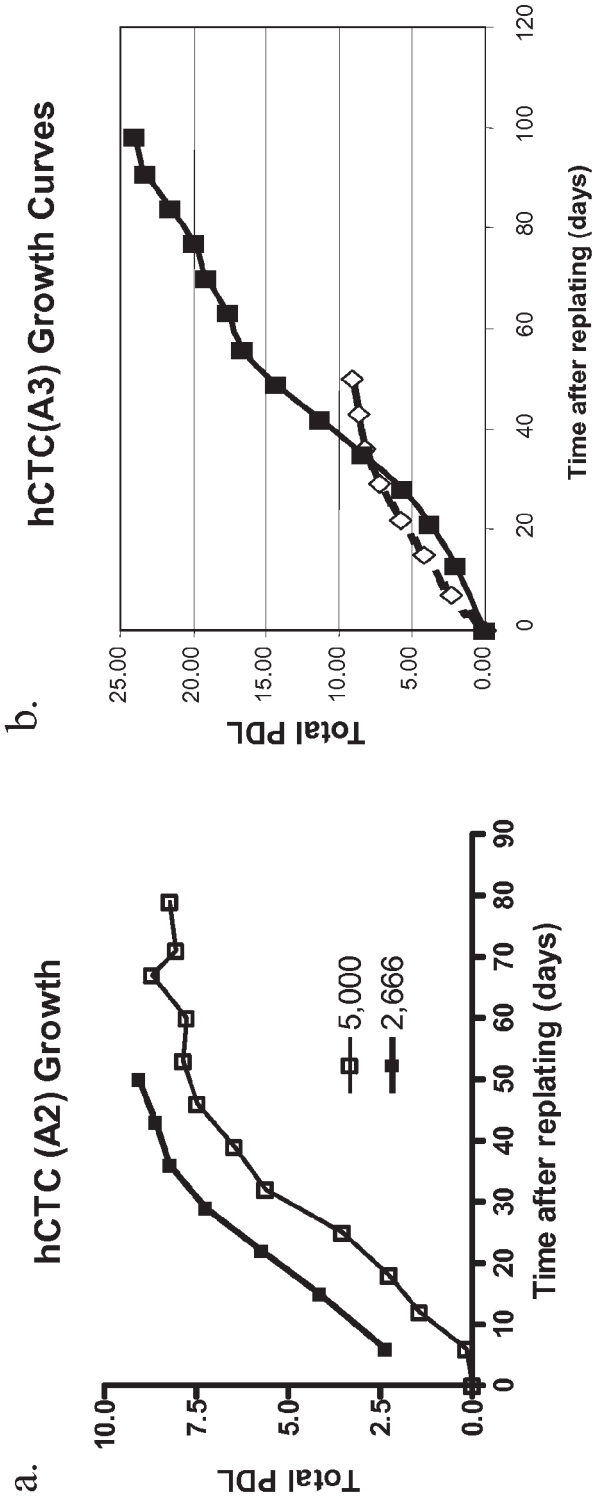

a.
hCTC (A2) Growth
Total PDL
10.0
7.5
5.0
2.5
0.0
0
10
20
30
40
50
60
70
80
90
Time after replating (days)
5,000
2,666
b.
hCTC(A3) Growth Curves
Total PDL
25.00
20.00
15.00
10.00
5.00
0.00
0
20
40
60
80
100
120
Time after replating (days)

Figure 6

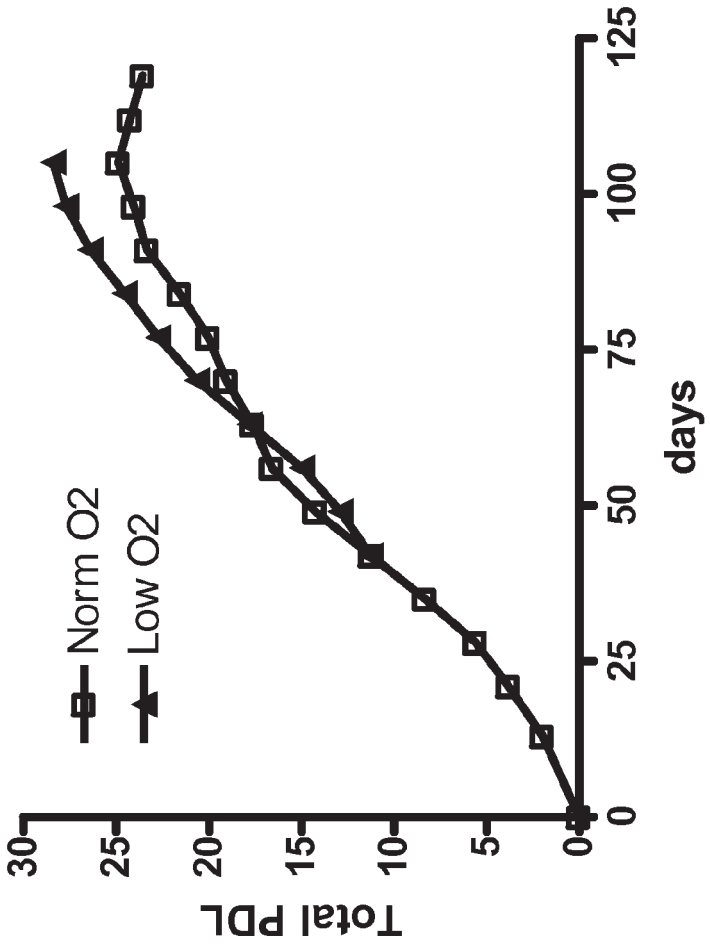

hCTC growth curve
Norm O2
Low O2
Total PDL
days
0
5
10
15
20
25
30
0
25
50
75
100
125

Figure 7

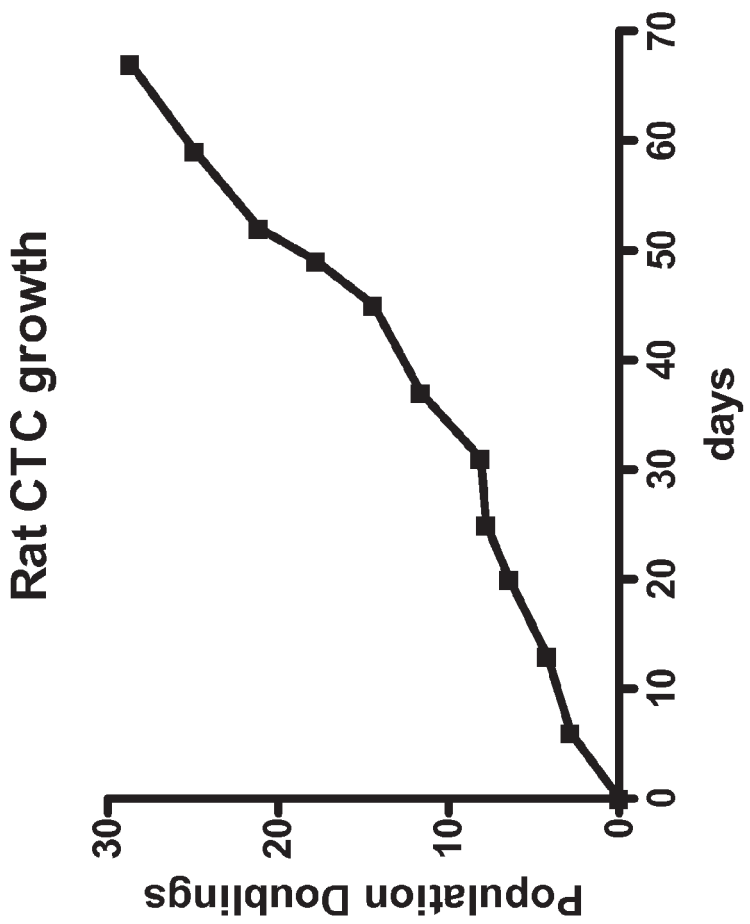

Rat CTC growth
Population Doublings
0
10
20
30
0
10
20
30
40
50
60
70
days

Figure 8

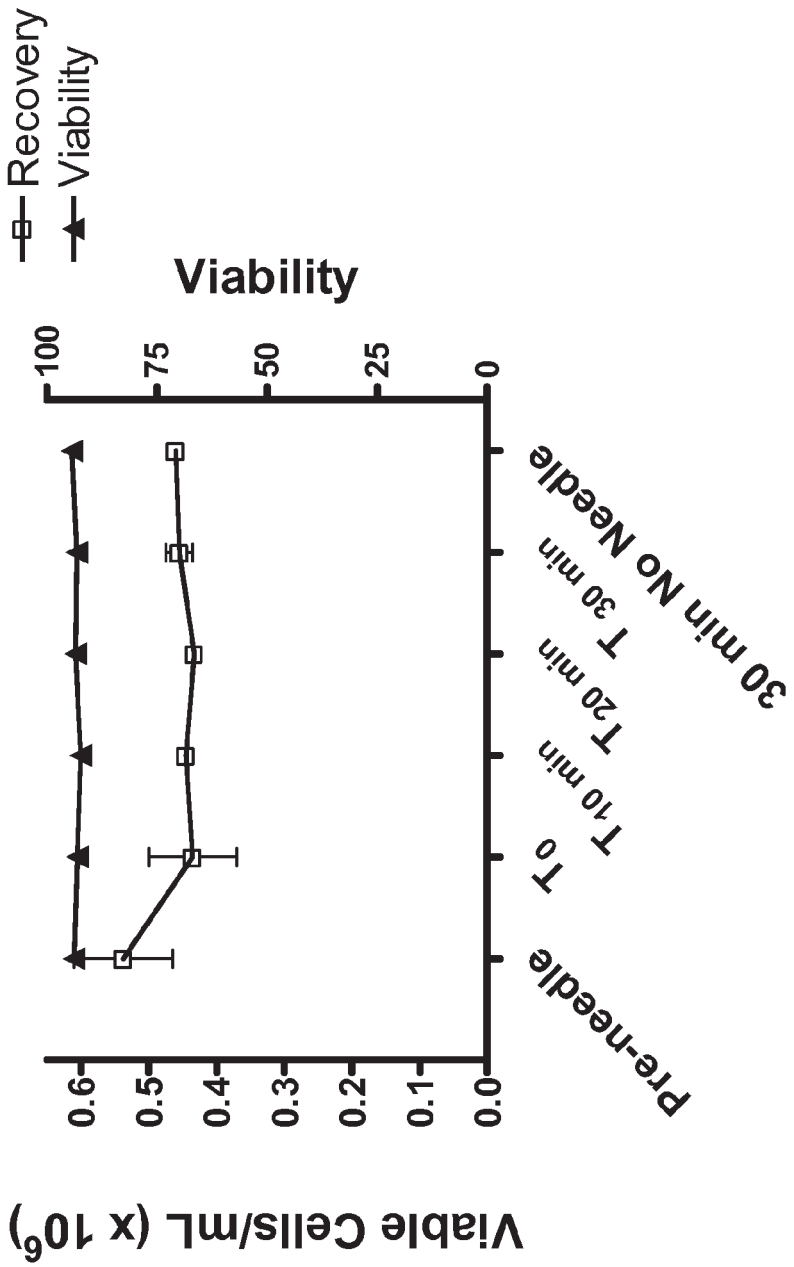

Recovery
Viability
Viability
100
75
50
25
0
Viable Cells/mL (x 10^6)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
Pre-needle
T0
T 10 min
T 20 min
T 30 min
30 min No Needle

Figure 9

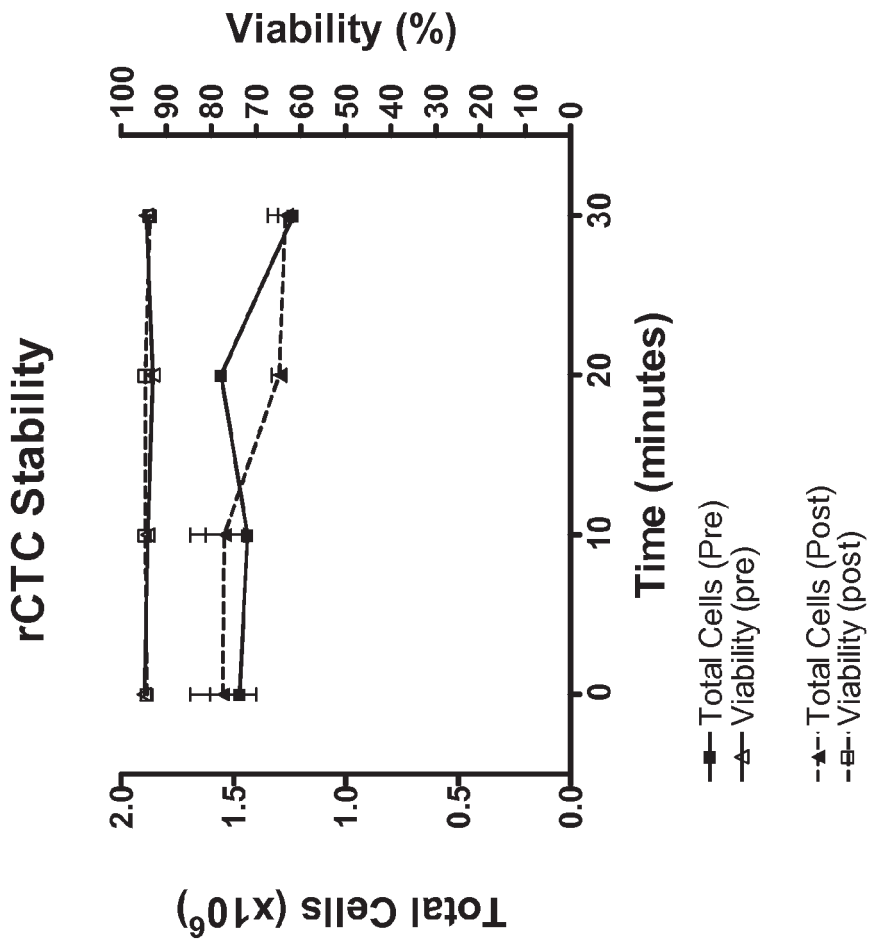

rCTC Stability
Viability (%)
100
90
80
70
60
50
40
30
20
10
0
2.0
1.5
1.0
0.5
0.0
Total Cells (x10^6)
0
10
20
30
Time (minutes)
Total Cells (Pre)
Viability (pre)
Total Cells (Post)
Viability (post)

Figure 10

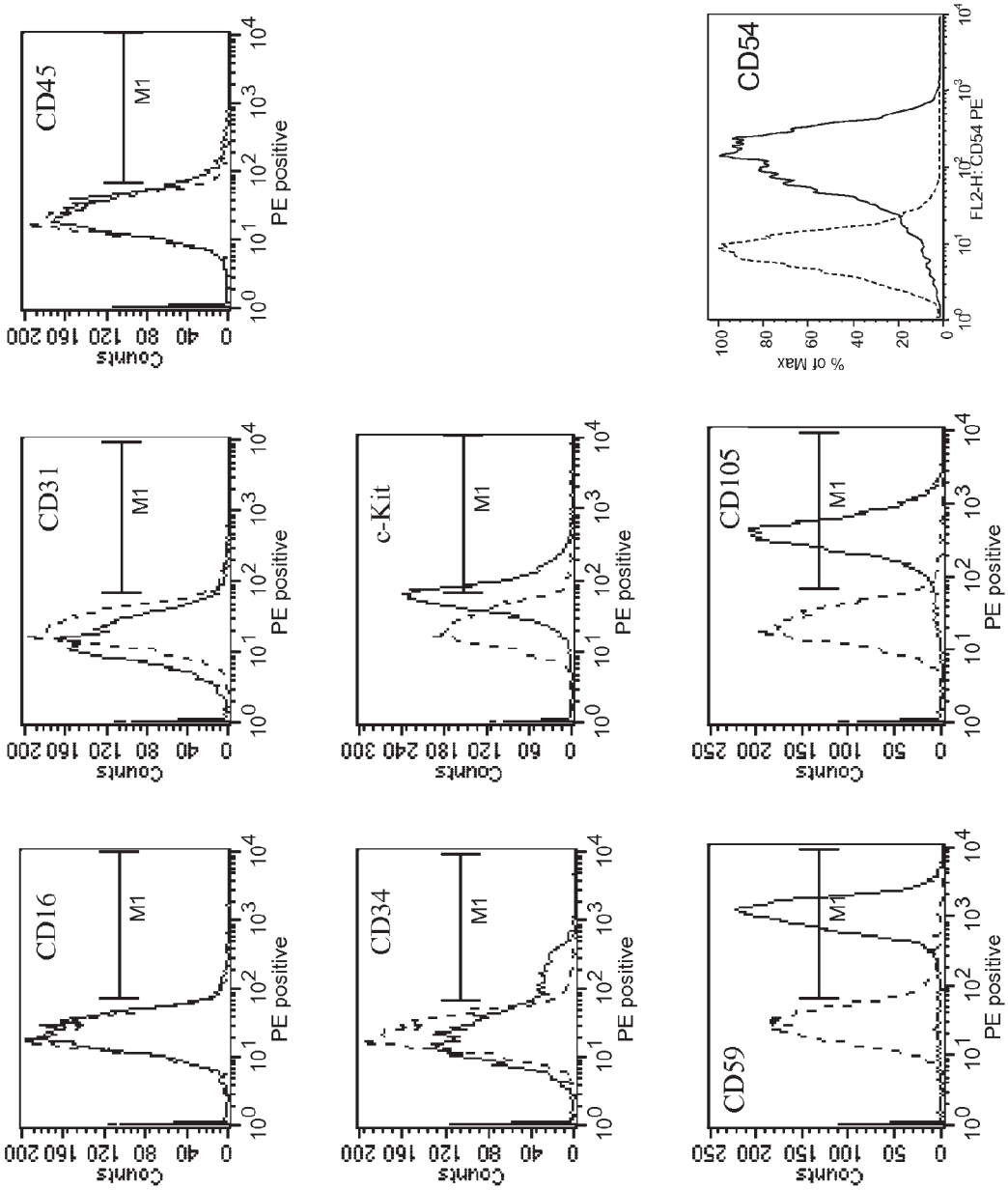

CD45
CD31
c-Kit
CD54
CD16
CD34
CD105
CD59
M1
Counts
PE positive
% of Max
FL2-H:CD54 PE

Figure 11

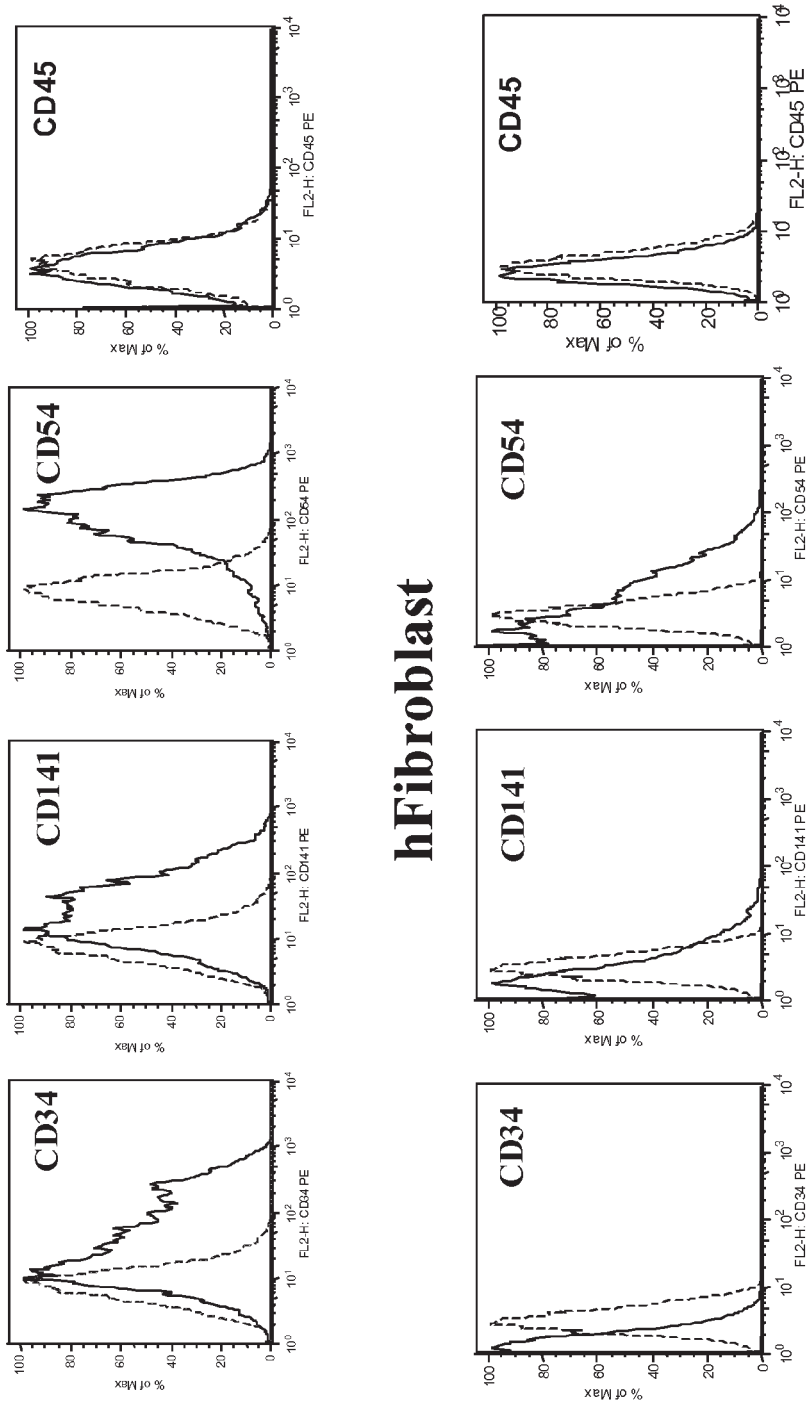

hCTC
CD34
CD141
CD54
CD45
hFibroblast
CD34
CD141
CD54
CD45
% of Max
FL2-H: CD34 PE
FL2-H: CD141 PE
FL2-H: CD54 PE
FL2-H: CD45 PE

Figure 12

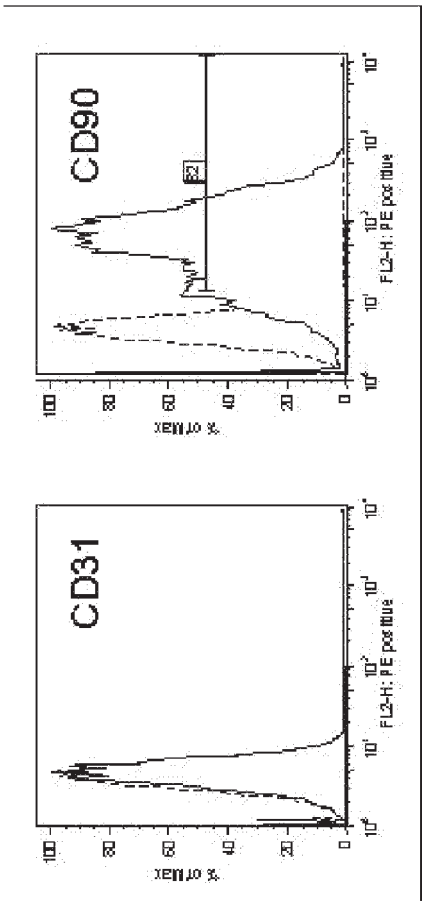
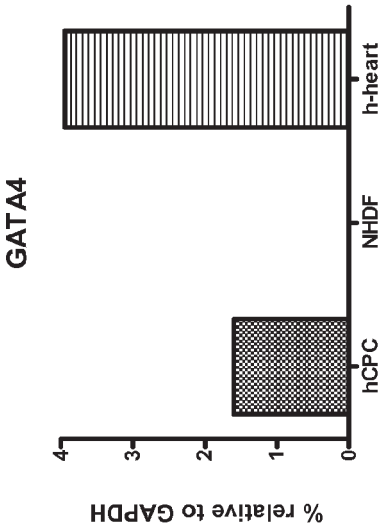
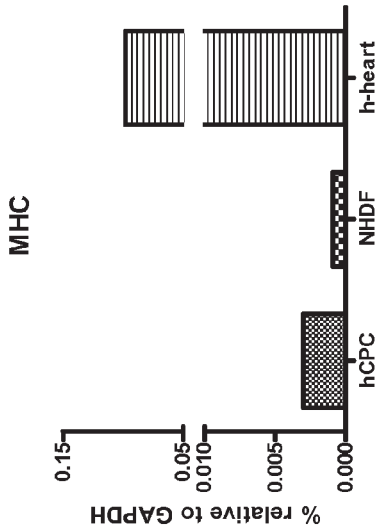


Figure 13


GATA4
% relative to GAPDH
0
1
2
3
4
hCPC
NHDF
h-heart


MHC
% relative to GAPDH
0.000
0.005
0.010
0.05
0.15
hCPC
NHDF
h-heart

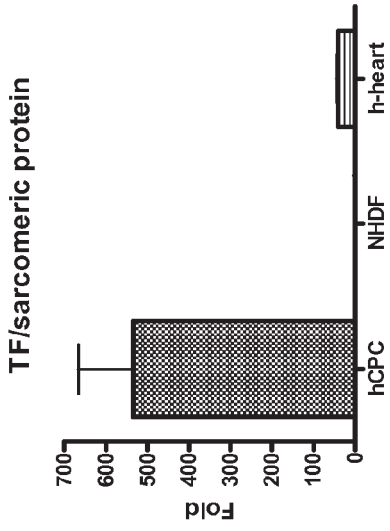

TF/sarcomeric protein
Fold
0
100
200
300
400
500
600
700
hCPC
NHDF
h-heart

Figure 14

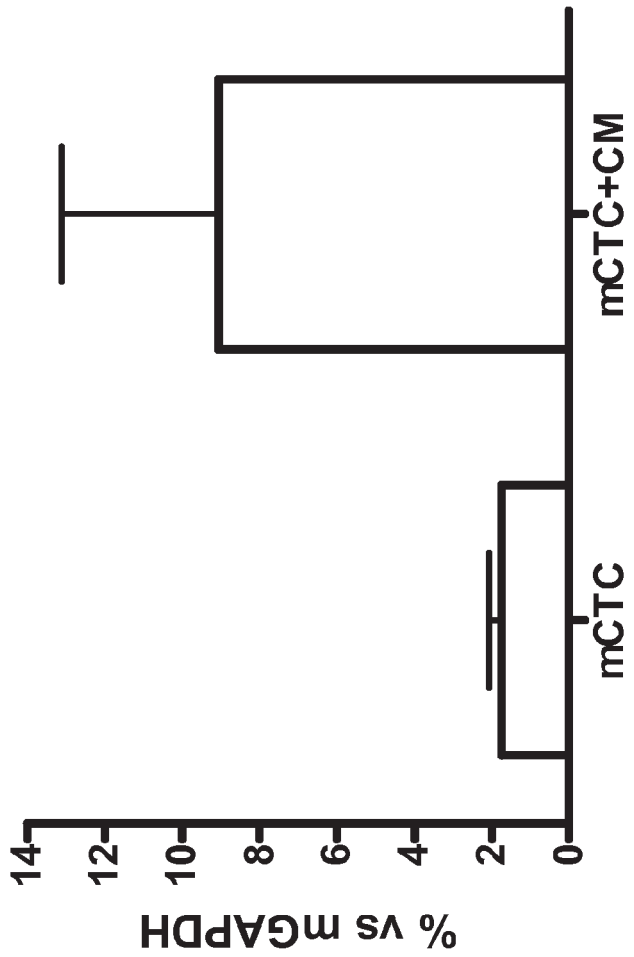


Figure 15

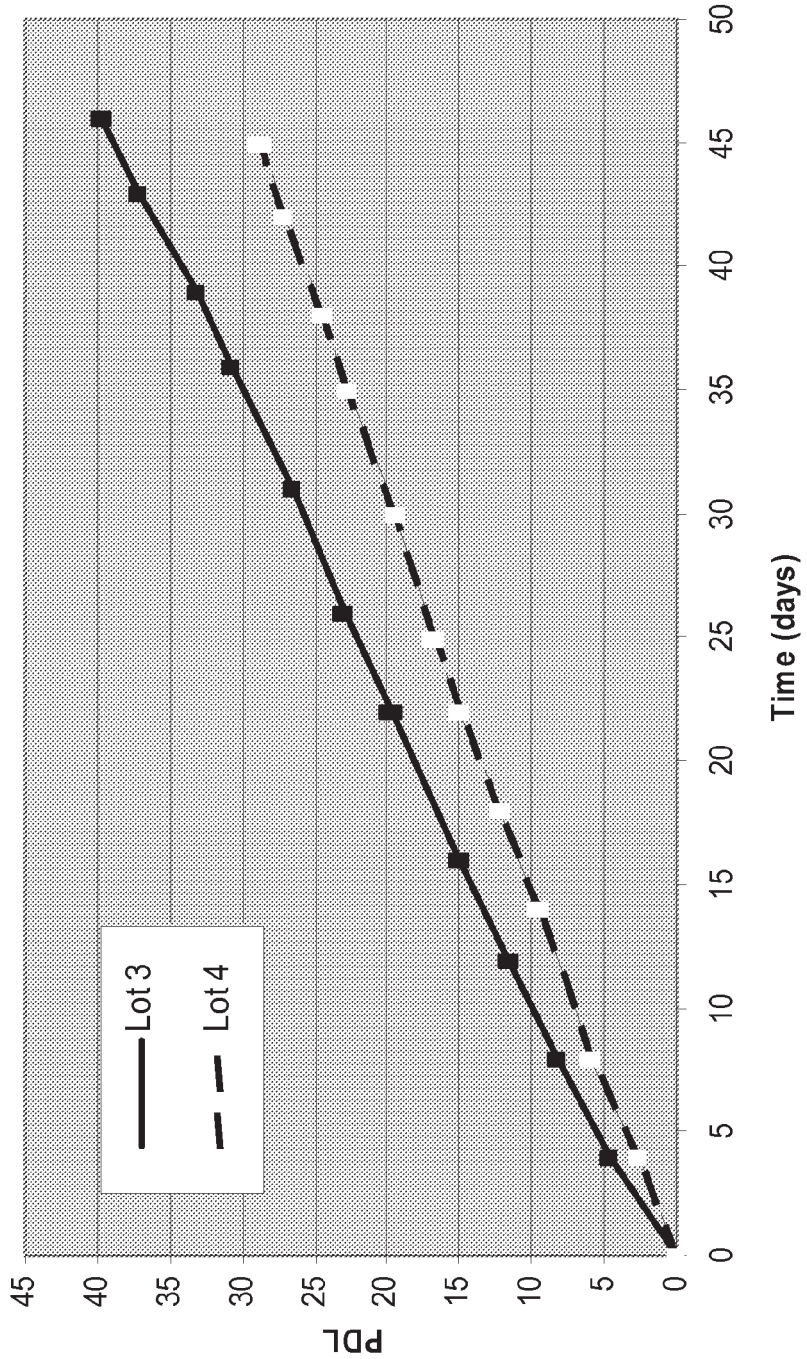


Figure 16

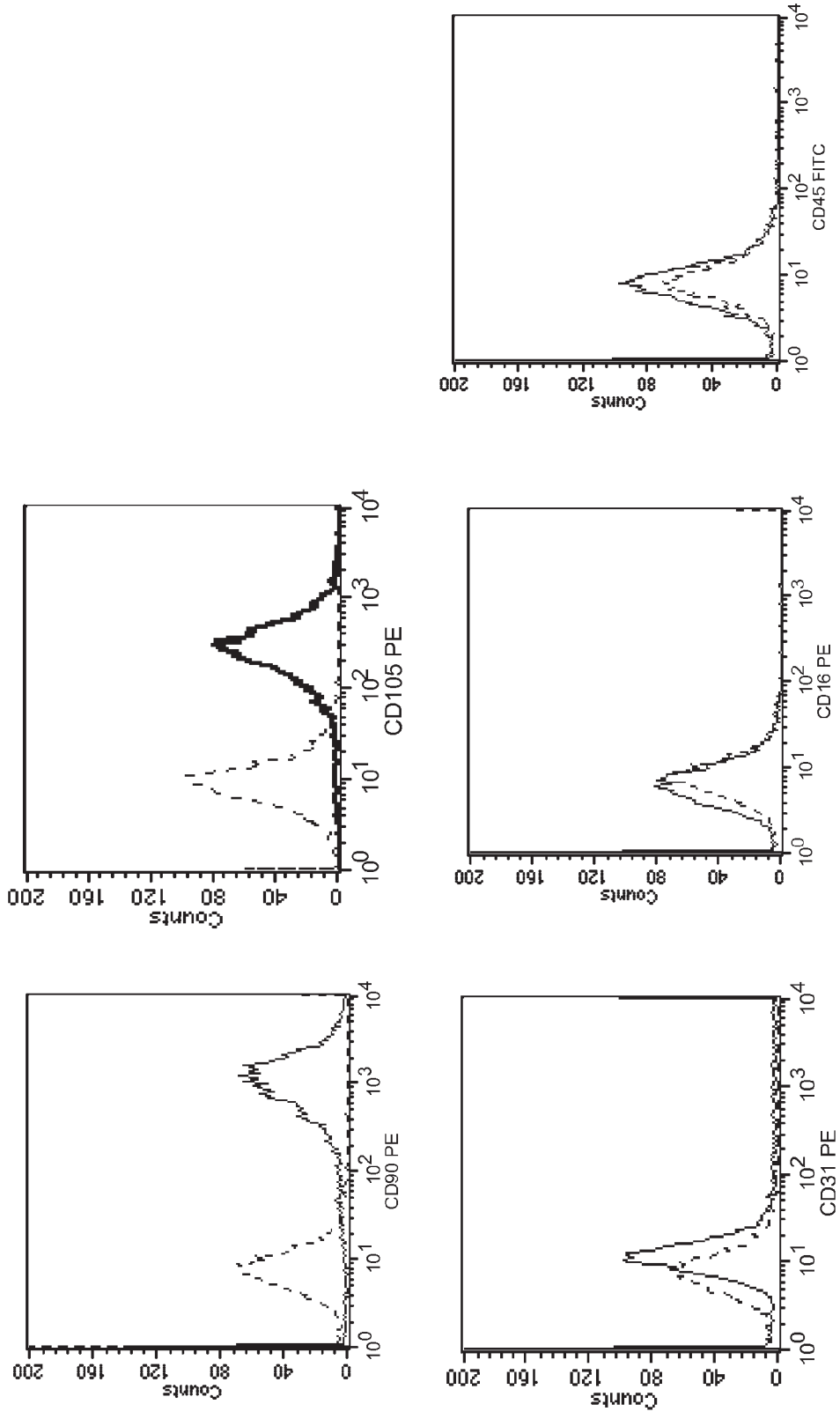
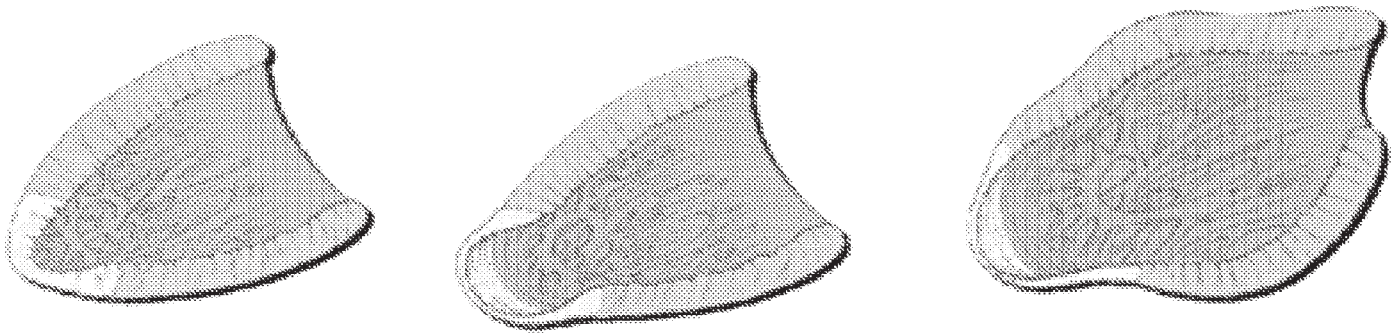

Counts
0
40
80
120
160
200
10^0
10^1
10^2
10^3
10^4
CD90 PE
CD105 PE
CD16 PE
CD31 PE
CD45 FITC

Figure 17



Myocardial infarction

Extension

Remodeling

Chamber geometry
Cellular phenotype
Extracellular space
Vasculature

Figure 18

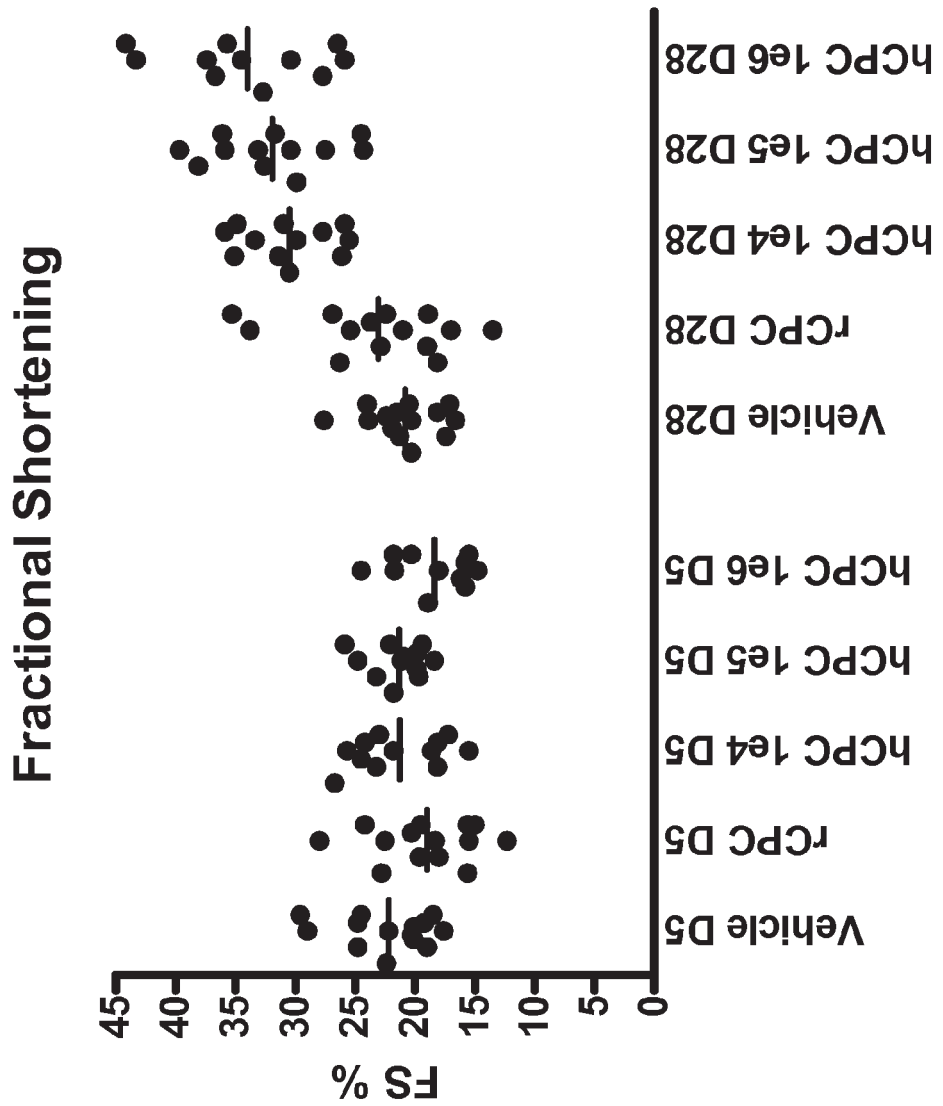

Fractional Shortening
FS %
45
40
35
30
25
20
15
10
5
0
Vehicle D5
rCPC D5
hCPC 1e4 D5
hCPC 1e5 D5
hCPC 1e6 D5
Vehicle D28
rCPC D28
hCPC 1e4 D28
hCPC 1e5 D28
hCPC 1e6 D28

Figure 19

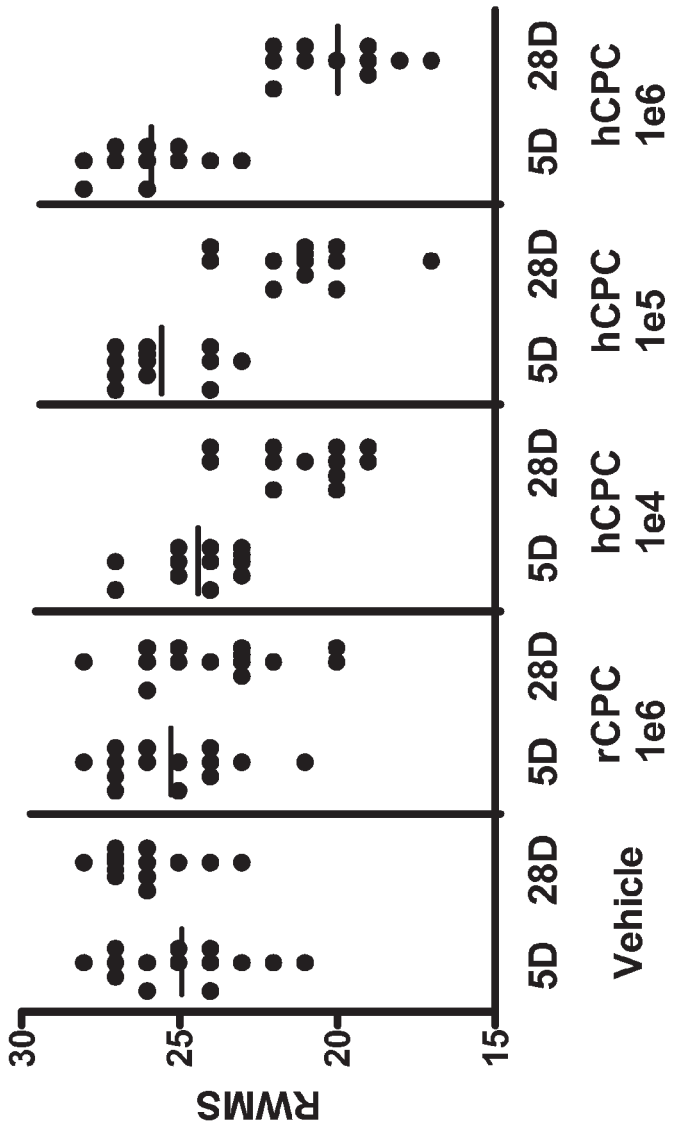

Wall motion score
RWMS
30
25
20
15
5D
28D
Vehicle
rCPC 1e6
hCPC 1e4
hCPC 1e5
hCPC 1e6

Figure 20

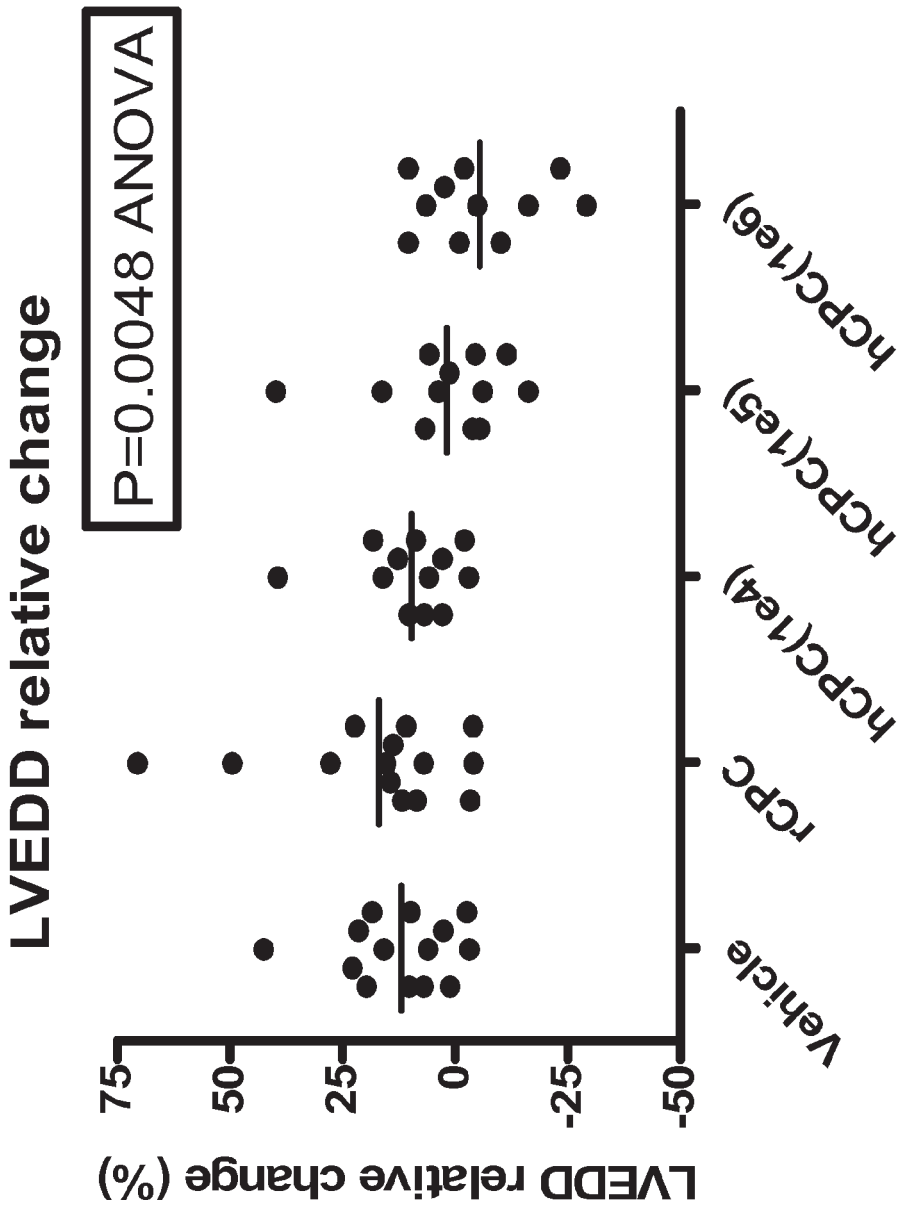

LVEDD relative change
P=0.0048 ANOVA
LVEDD relative change (%)
75
50
25
0
-25
-50
Vehicle
rCPC
hCPC(1e4)
hCPC(1e5)
hCPC(1e6)

Figure 21

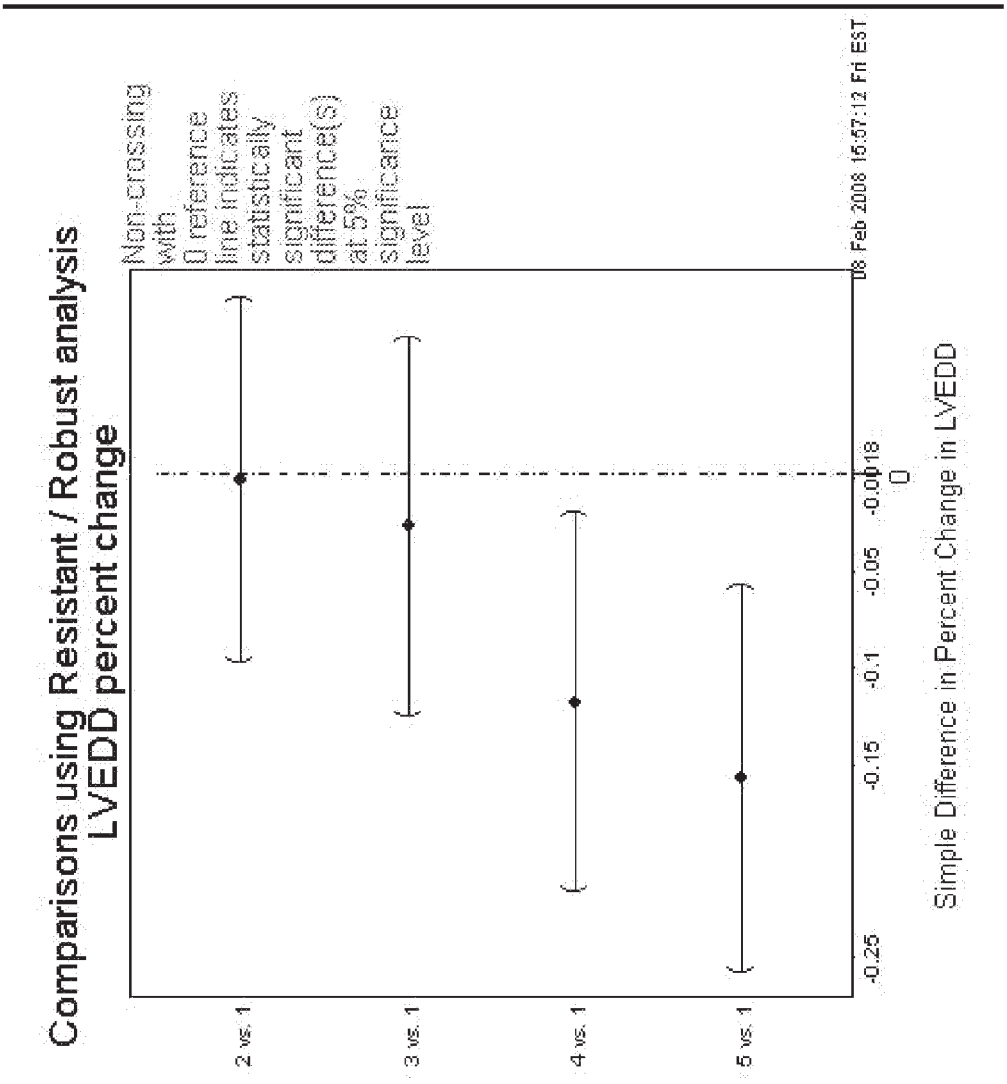

Comparisons using Resistant / Robust analysis
LVEDD percent change
Non-crossing with 0 reference line indicates statistically significant difference(s) at 5% significance level
2 vs. 1
3 vs. 1
4 vs. 1
5 vs. 1
-0.25
-0.15
-0.1
-0.05
-0.0018
0
08 Feb 2008 16:57:12 Fri EST
Simple Difference in Percent Change in LVEDD

Figure 22

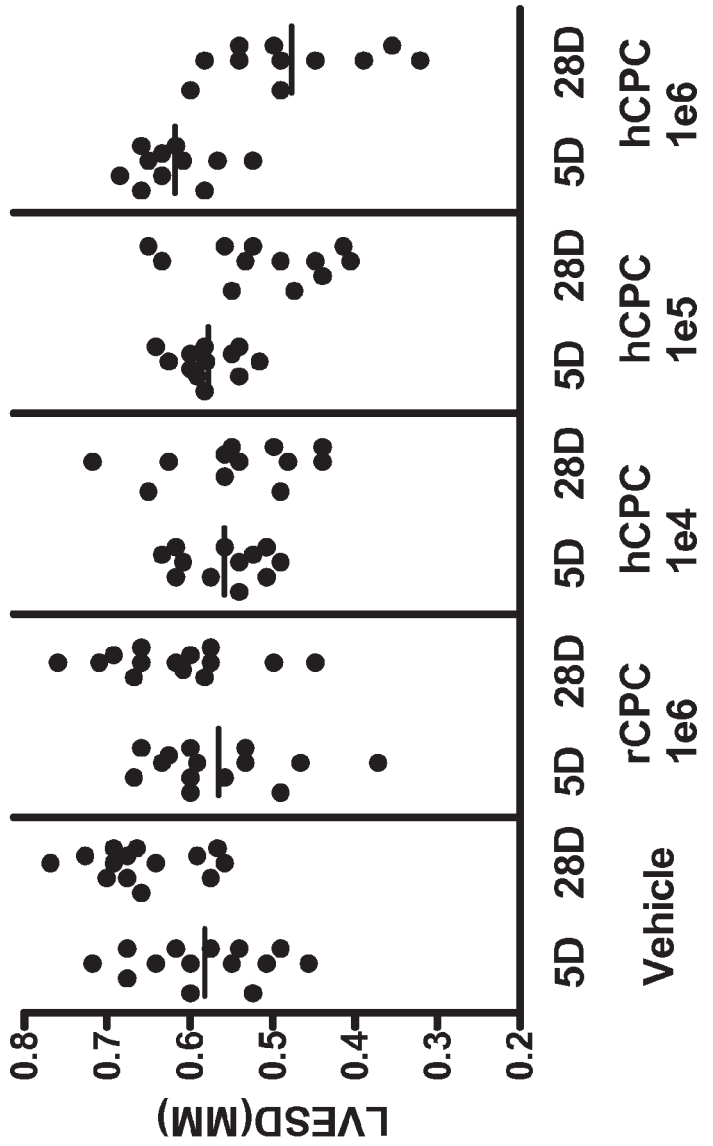
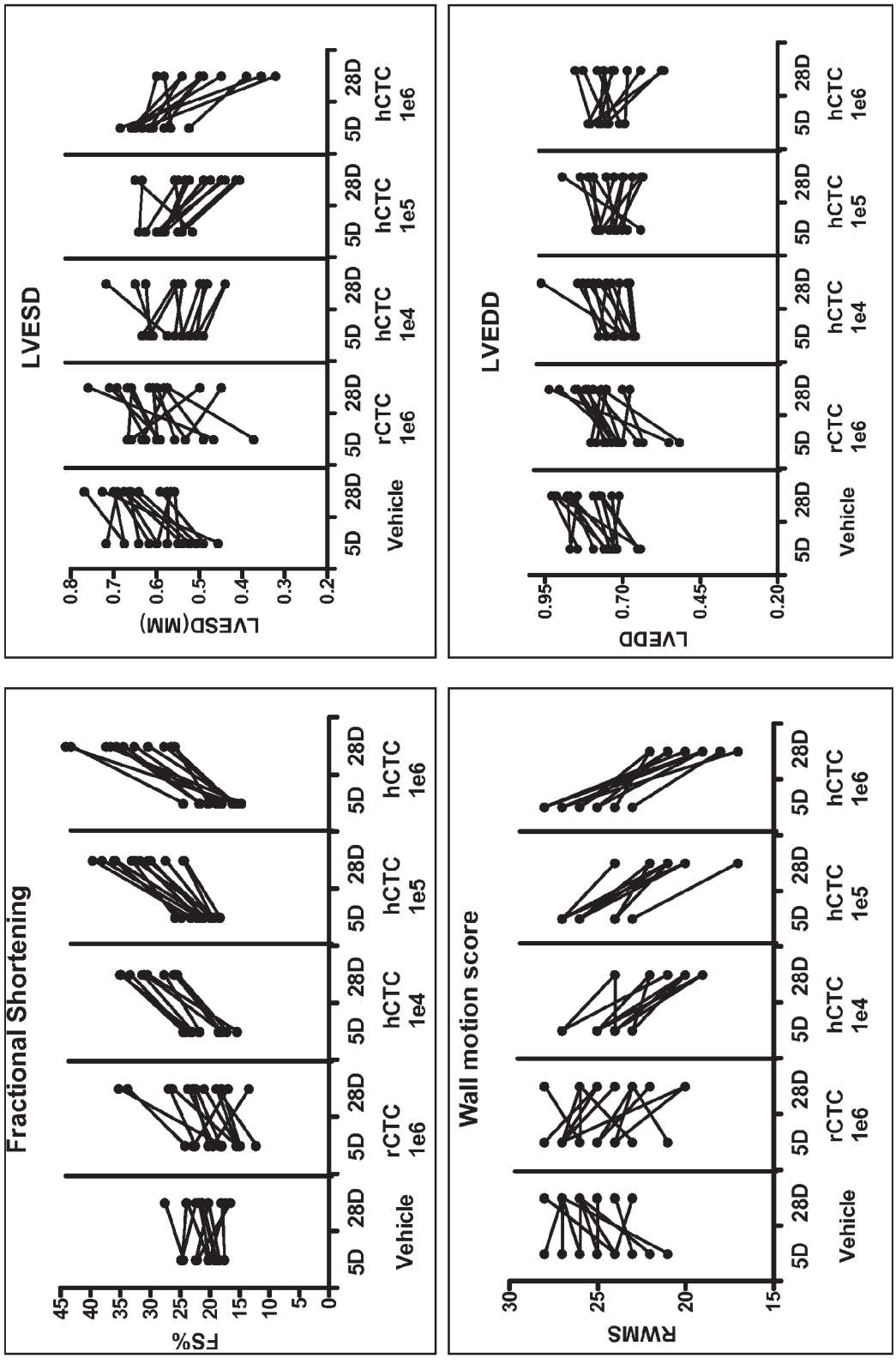

LVESD
LVESD(MM)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
5D
28D
5D
28D
5D
28D
5D
28D
5D
28D
Vehicle
rCPC 1e6
hCPC 1e4
hCPC 1e5
hCPC 1e6

Figure 23


LVESD
LVESD(MM)
0.8
0.7
0.6
0.5
0.4
0.3
0.2
5D 28D 5D 28D 5D 28D 5D 28D 5D 28D
Vehicle rCTC 1e6 hCTC 1e4 hCTC 1e5 hCTC 1e6
LVEDD
LVEDD
0.95
0.70
0.45
0.20
5D 28D 5D 28D 5D 28D 5D 28D 5D 28D
Vehicle rCTC 1e6 hCTC 1e4 hCTC 1e5 hCTC 1e6
Fractional Shortening
FS%
45
40
35
30
25
20
15
10
5
0
5D 28D 5D 28D 5D 28D 5D 28D 5D 28D
Vehicle rCTC 1e6 hCTC 1e4 hCTC 1e5 hCTC 1e6
Wall motion score
RWMS
30
25
20
15
5D 28D 5D 28D 5D 28D 5D 28D 5D 28D
Vehicle rCTC 1e6 hCTC 1e4 hCTC 1e5 hCTC 1e6

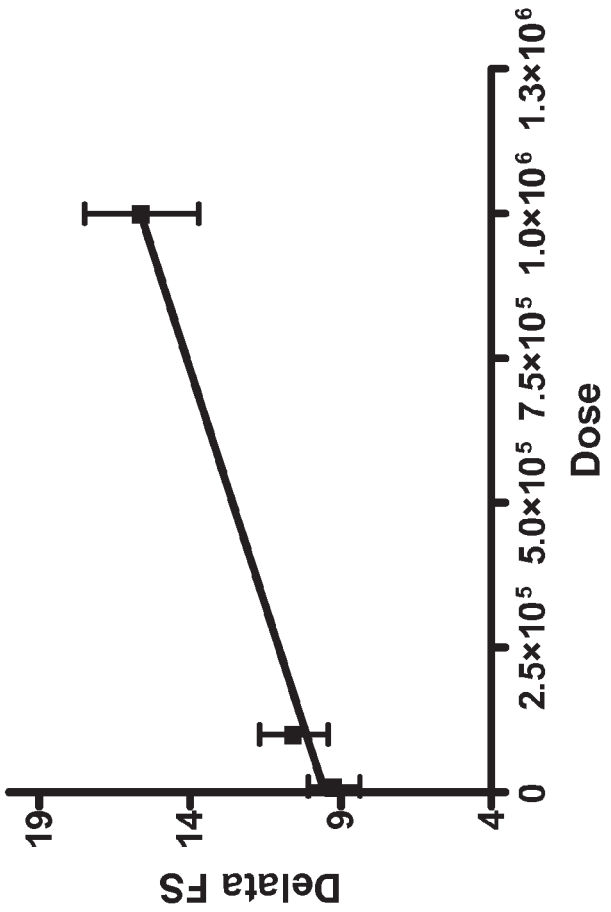


Figure 24

Figure 25

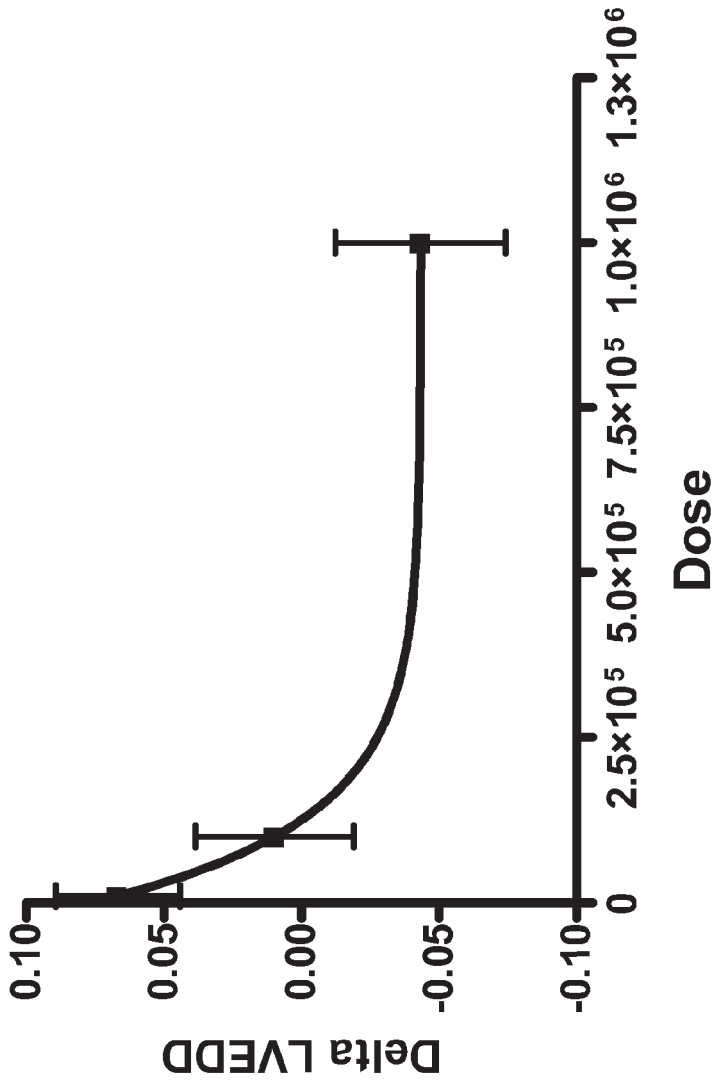
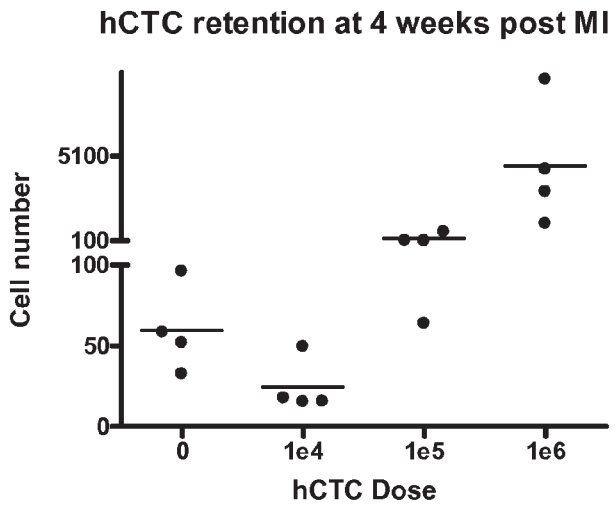
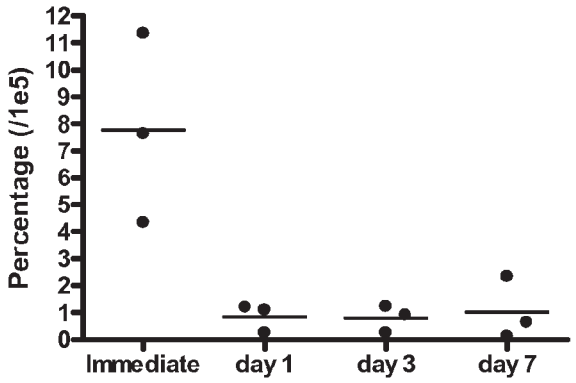

Delta LVEDD
0.10
0.05
0.00
-0.05
-0.10
0
2.5×10^5
5.0×10^5
7.5×10^5
1.0×10^6
1.3×10^6
Dose

Figure 26

a.



b. hCTC retention percentage of injected material



c.

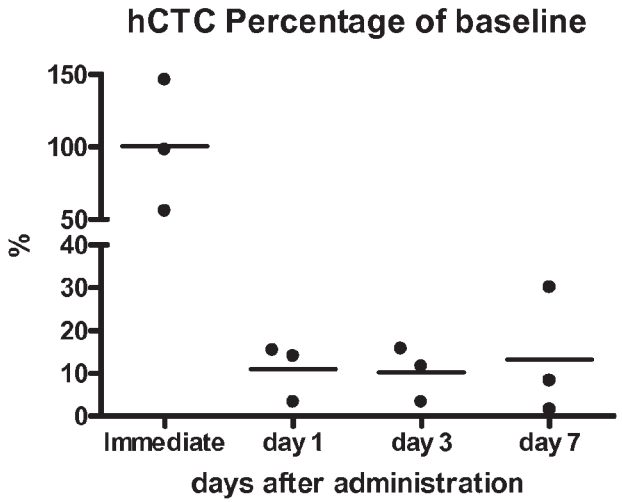
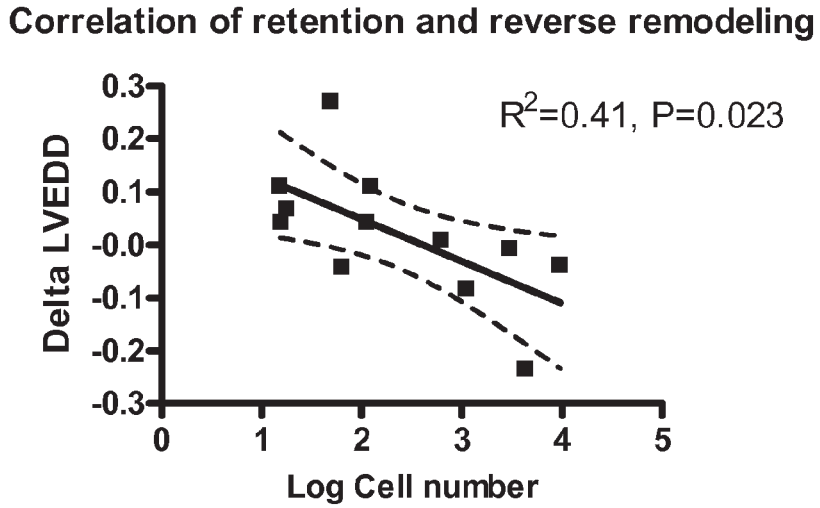


Figure 27



	Data Set-A
Best-fit values	
Slope	-0.07939 ± 0.02962
Y-intercept when X=0.0	0.2065 ± 0.07525
X-intercept when Y=0.0	2.601
1/slope	-12.60
95% Confidence Intervals	
Slope	-0.1454 to -0.01340
Y-intercept when X=0.0	0.03887 to 0.3742
X-intercept when Y=0.0	1.575 to 4.740
Goodness of Fit	
r^2	0.4181
Sy.x	0.09844
Is slope significantly non-zero?	
F	7.185
DFn, DFd	1.000, 10.00
P value	0.0231
Deviation from zero?	Significant
Data	
Number of X values	12
Maximum number of Y replicates	1
Total number of values	12
Number of missing values	0

Figure 28

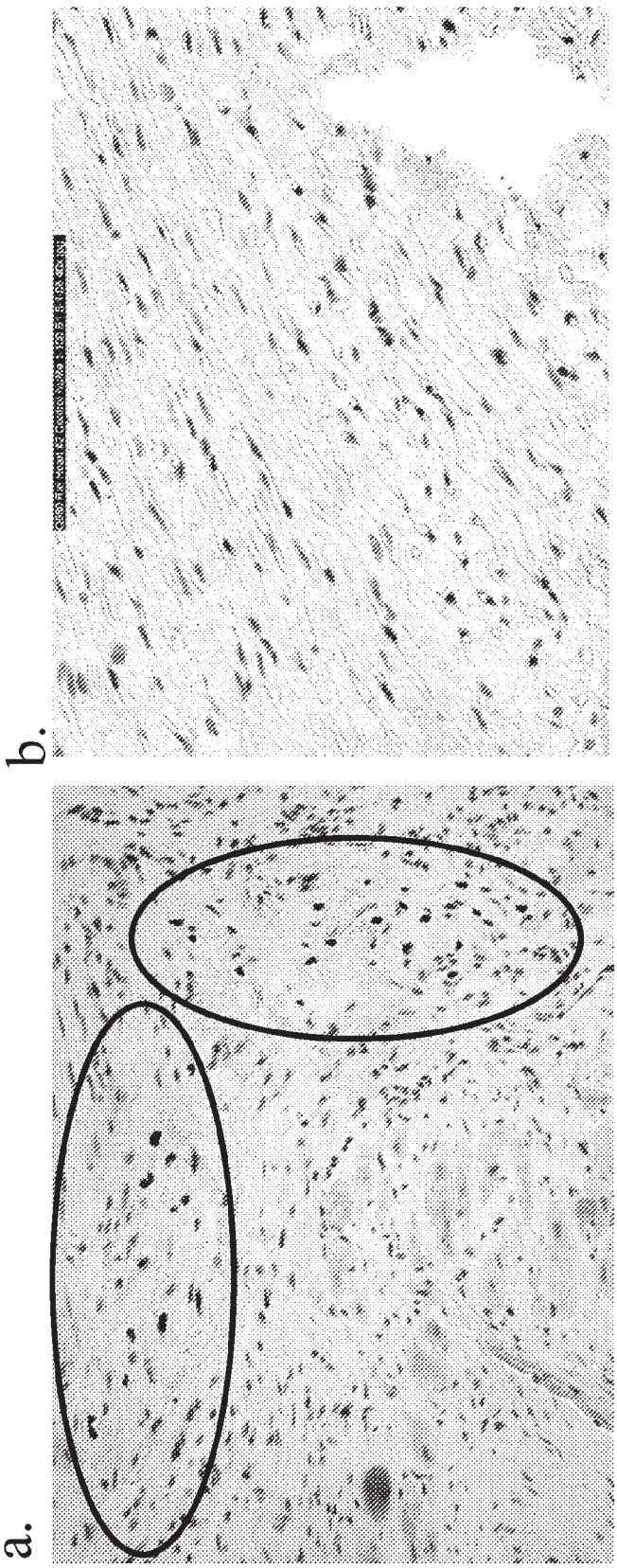


Figure 29

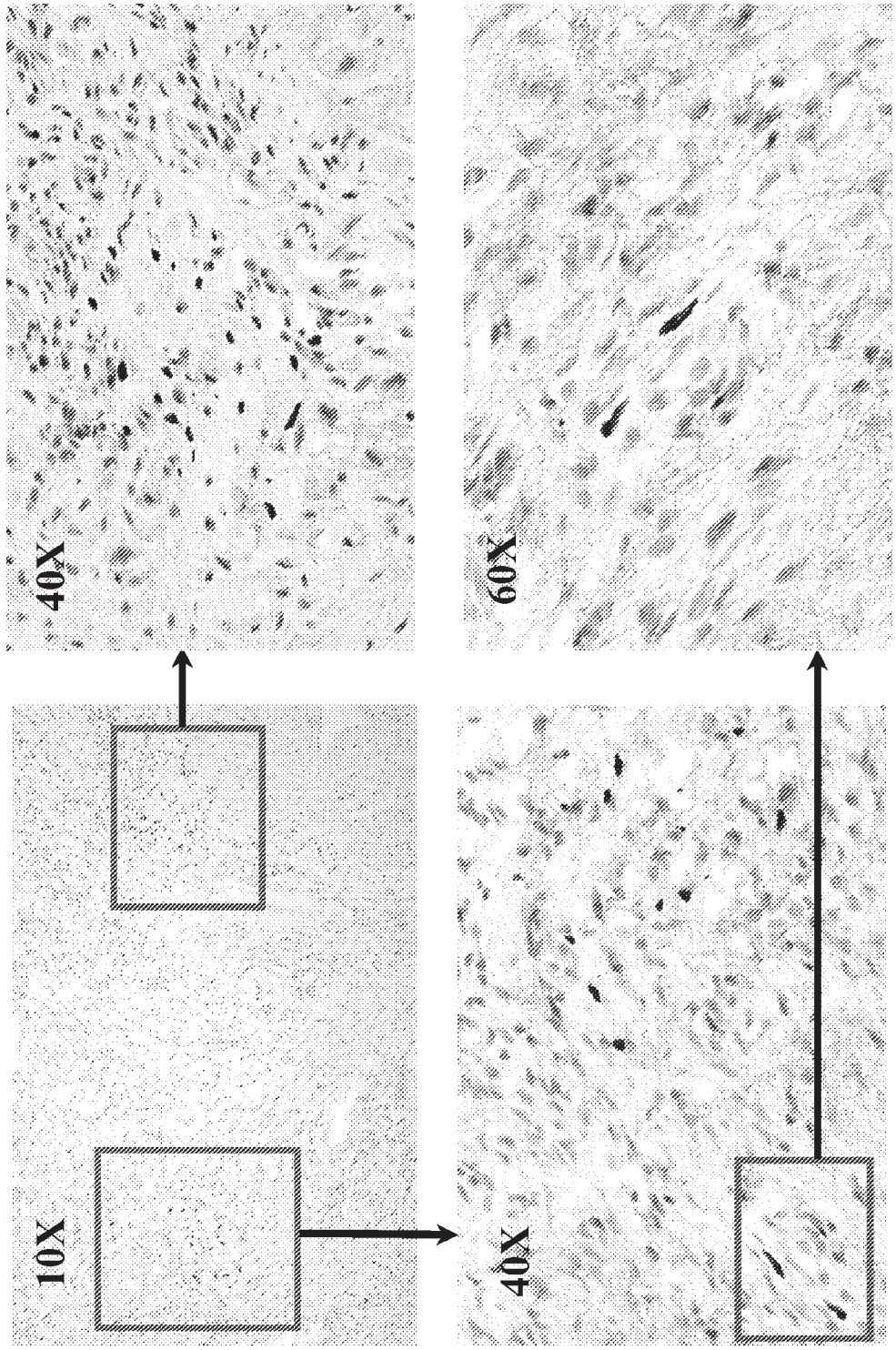


Figure 30

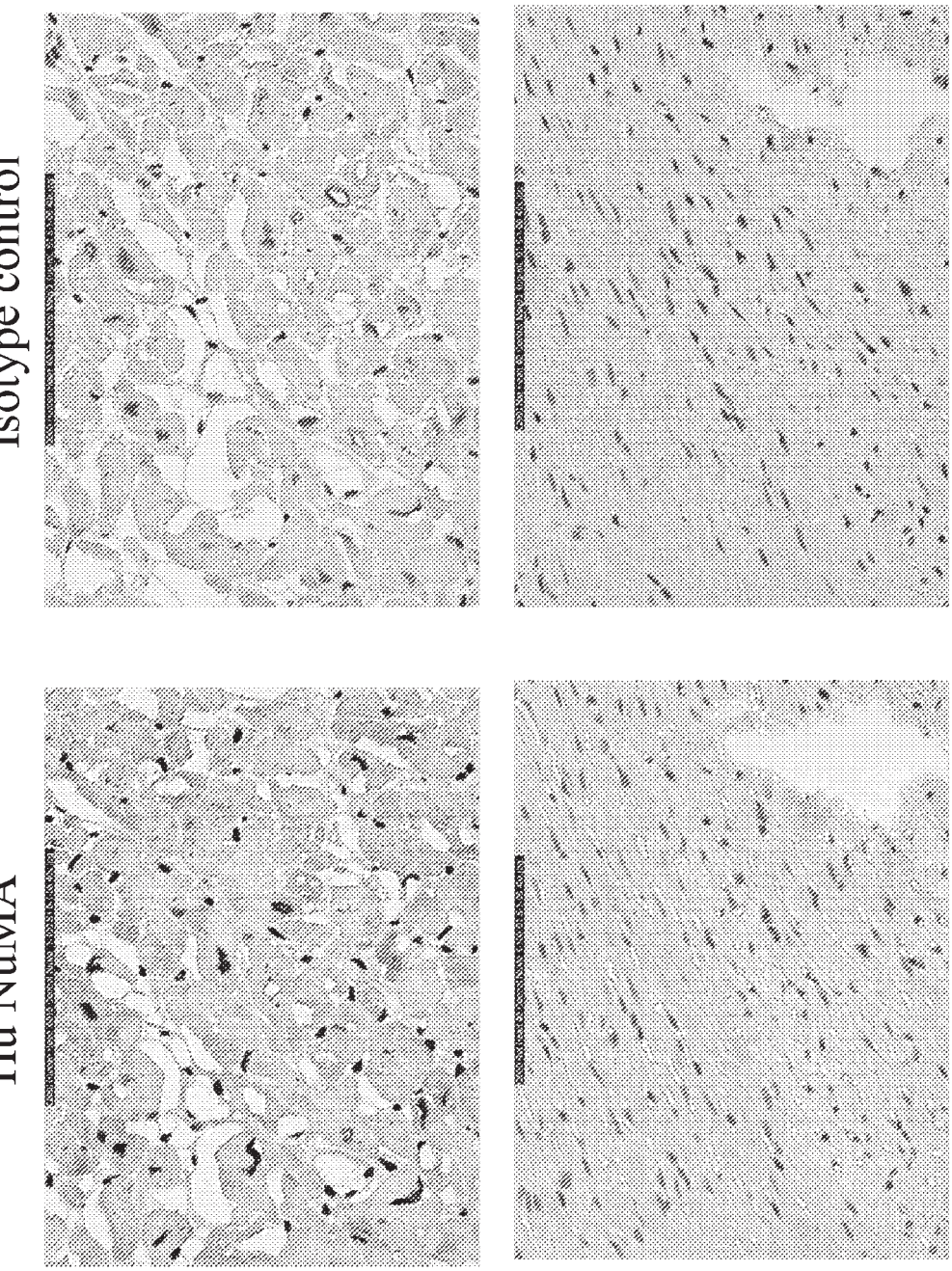


Figure 31

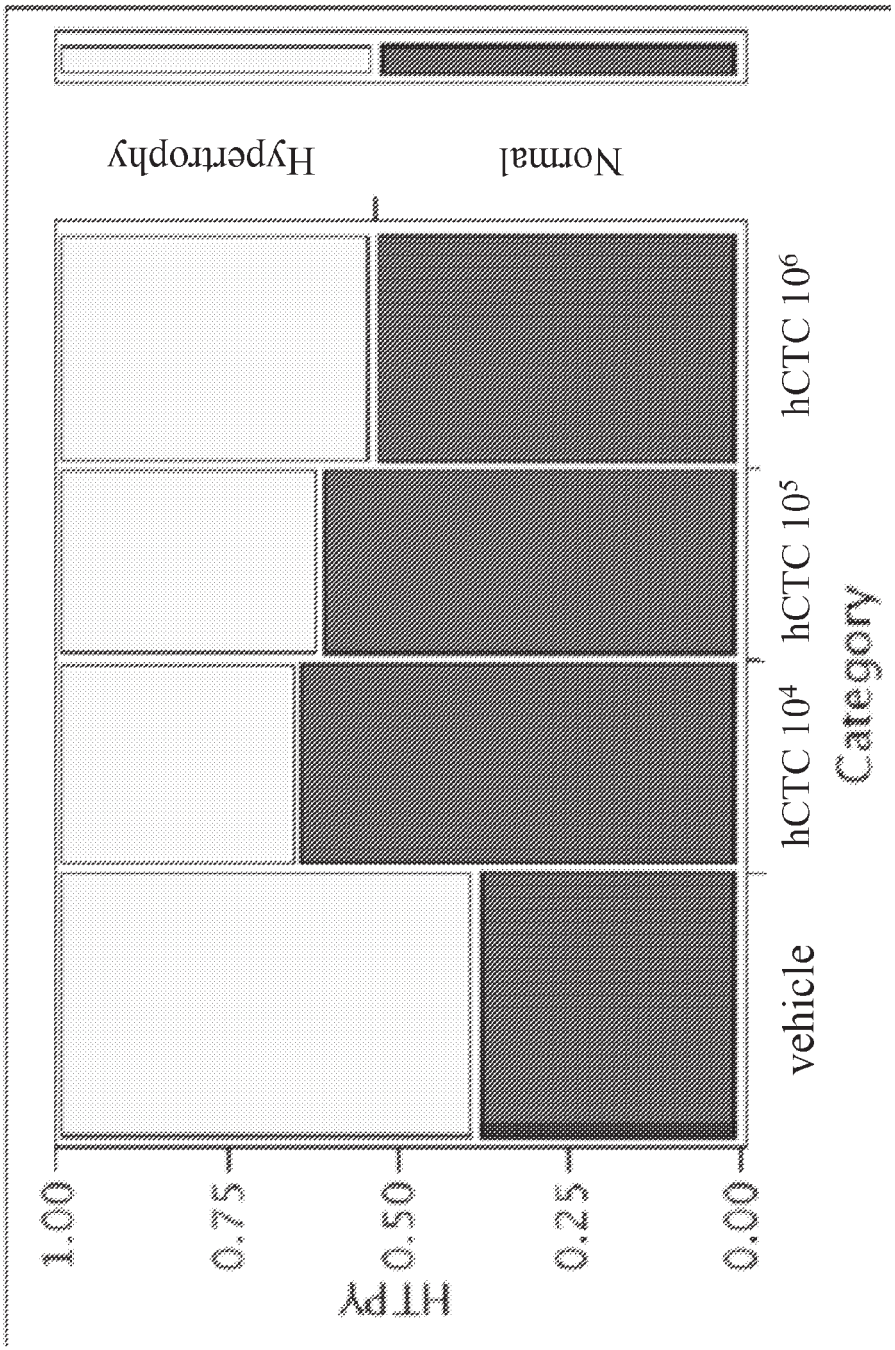
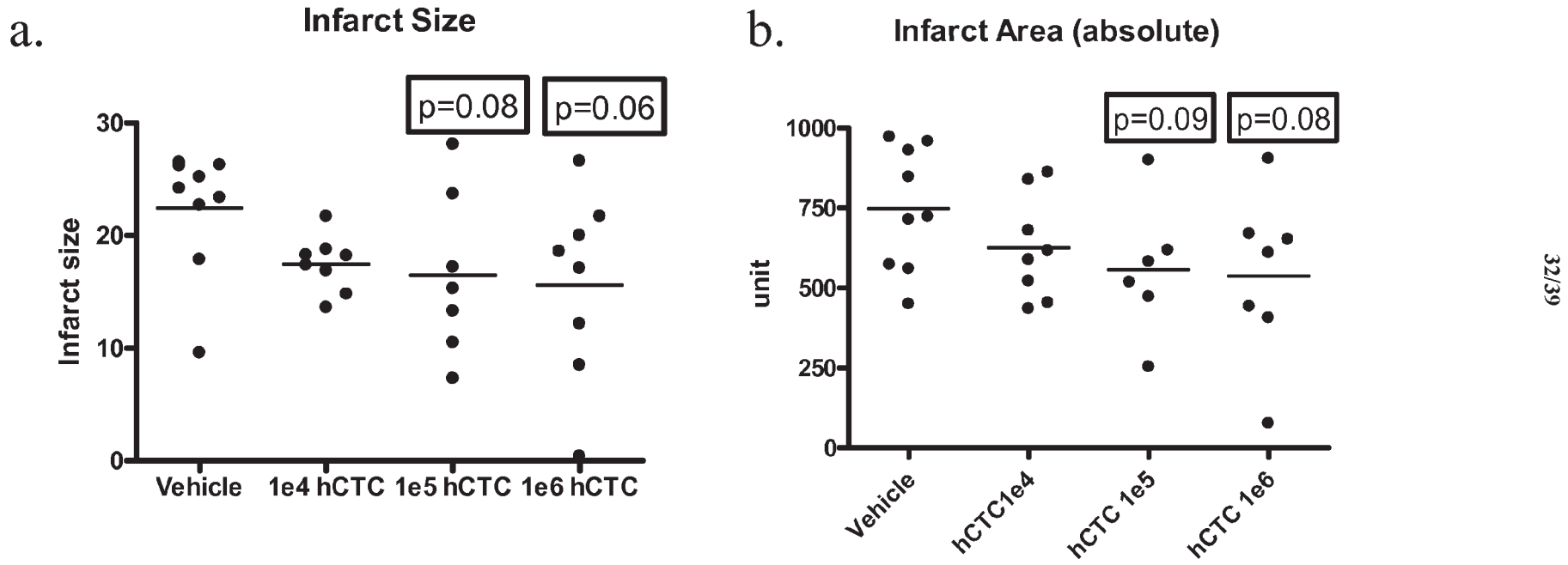

HTPy
1.00
0.75
0.50
0.25
0.00
vehicle
hCTC 10^4
hCTC 10^5
hCTC 10^6
Category
Normal
Hypertrophy

Figure 32



Relative Infarct= 100% [infarct area/(infarct area + non-infarct area)]

Figure 33

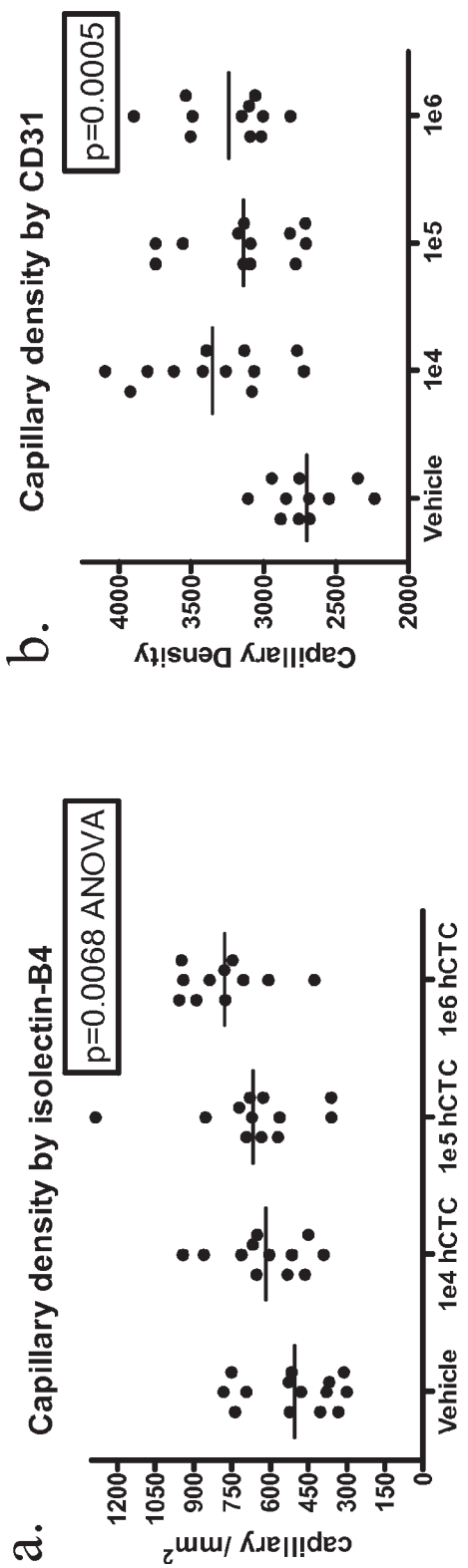
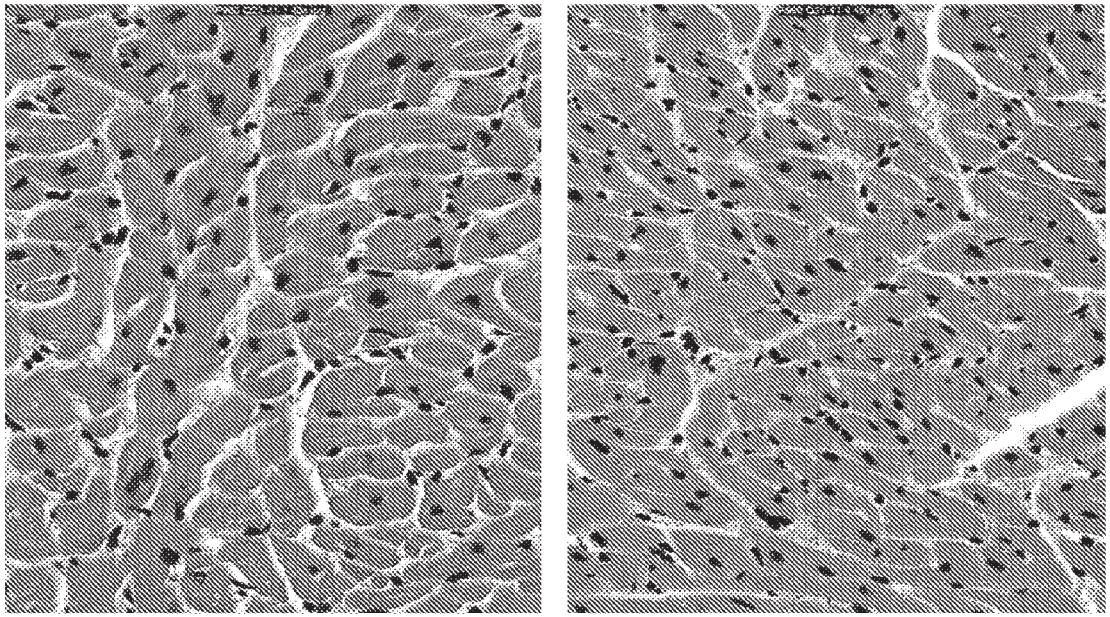

a.
Capillary density by isolectin-B4
p=0.0068 ANOVA
capillary /mm2
1200
1050
900
750
600
450
300
150
0
Vehicle
1e4 hCTC
1e5 hCTC
1e6 hCTC
b.
Capillary density by CD31
p=0.0005
Capillary Density
4000
3500
3000
2500
2000
Vehicle
1e4
1e5
1e6

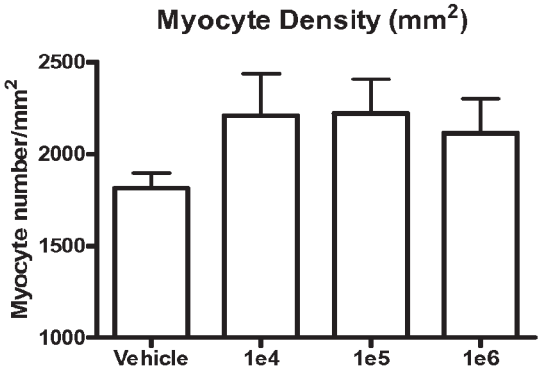
Figure 34

a.



Vehicle (100X) 1e5 hCTC (100X)

b.



c.

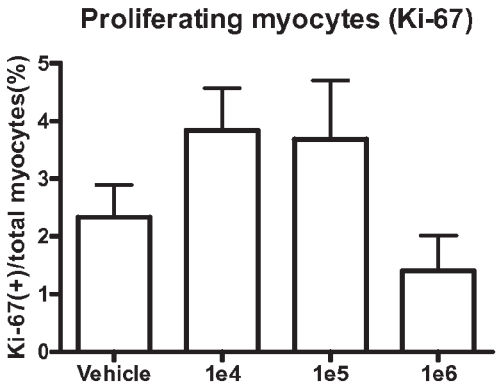


Figure 35

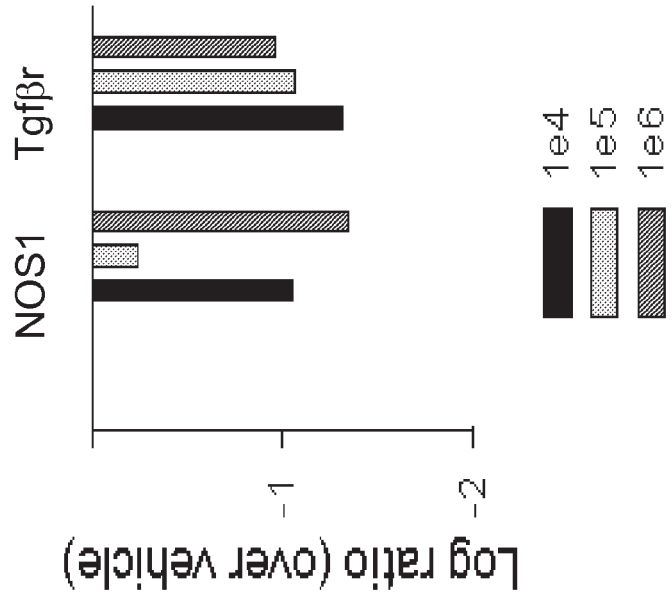


Figure 36

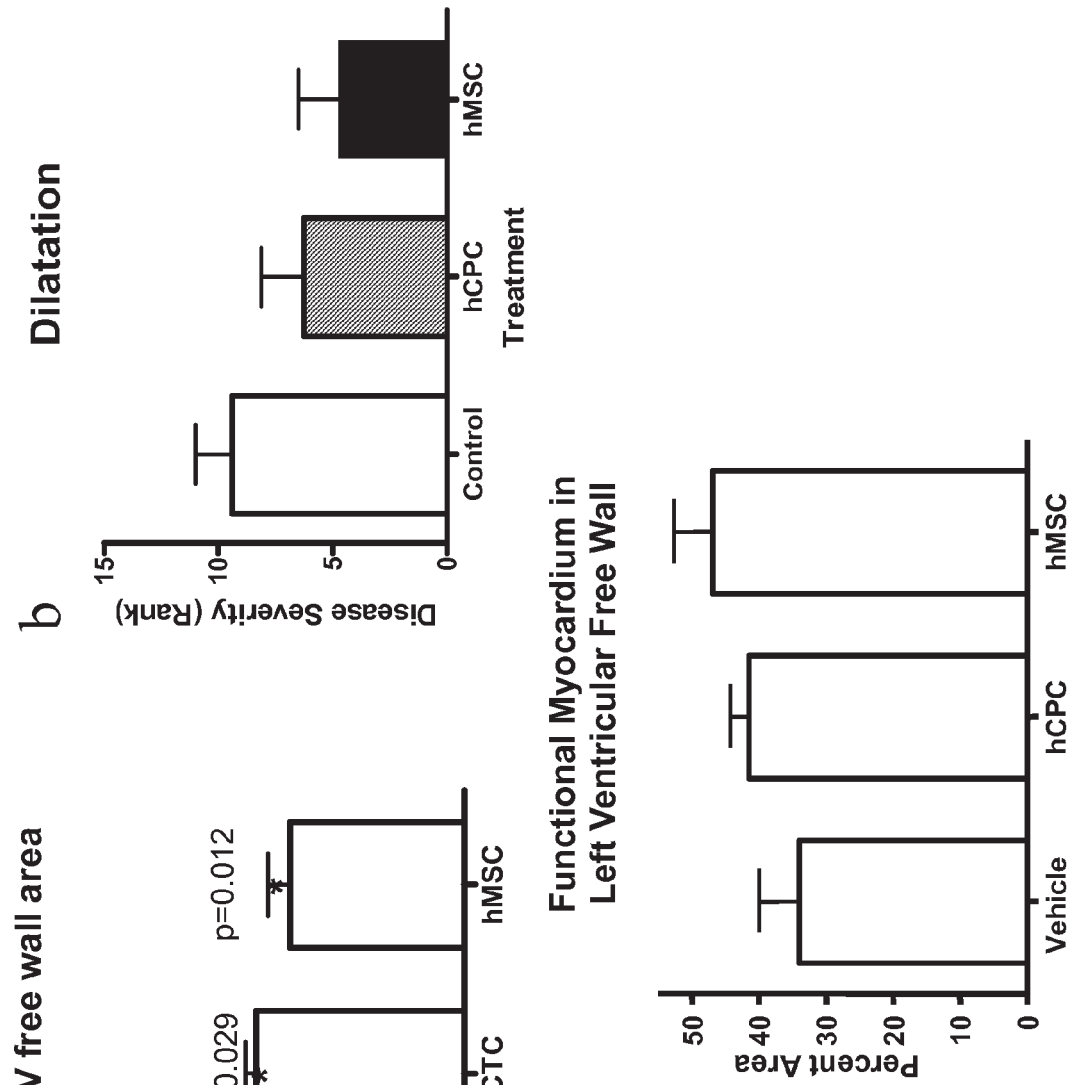

a.
Infarct area/LV free wall area
Percent
0
10
20
30
40
p=0.029
p=0.012
*
*
Vehicle
hCTC
hMSC
b
Dilatation
Disease Severity (Rank)
0
5
10
15
Control
hCPC
hMSC
Treatment
c.
Functional Myocardium in Left Ventricular Free Wall
Percent Area
0
10
20
30
40
50
Vehicle
hCPC
hMSC

Figure 37

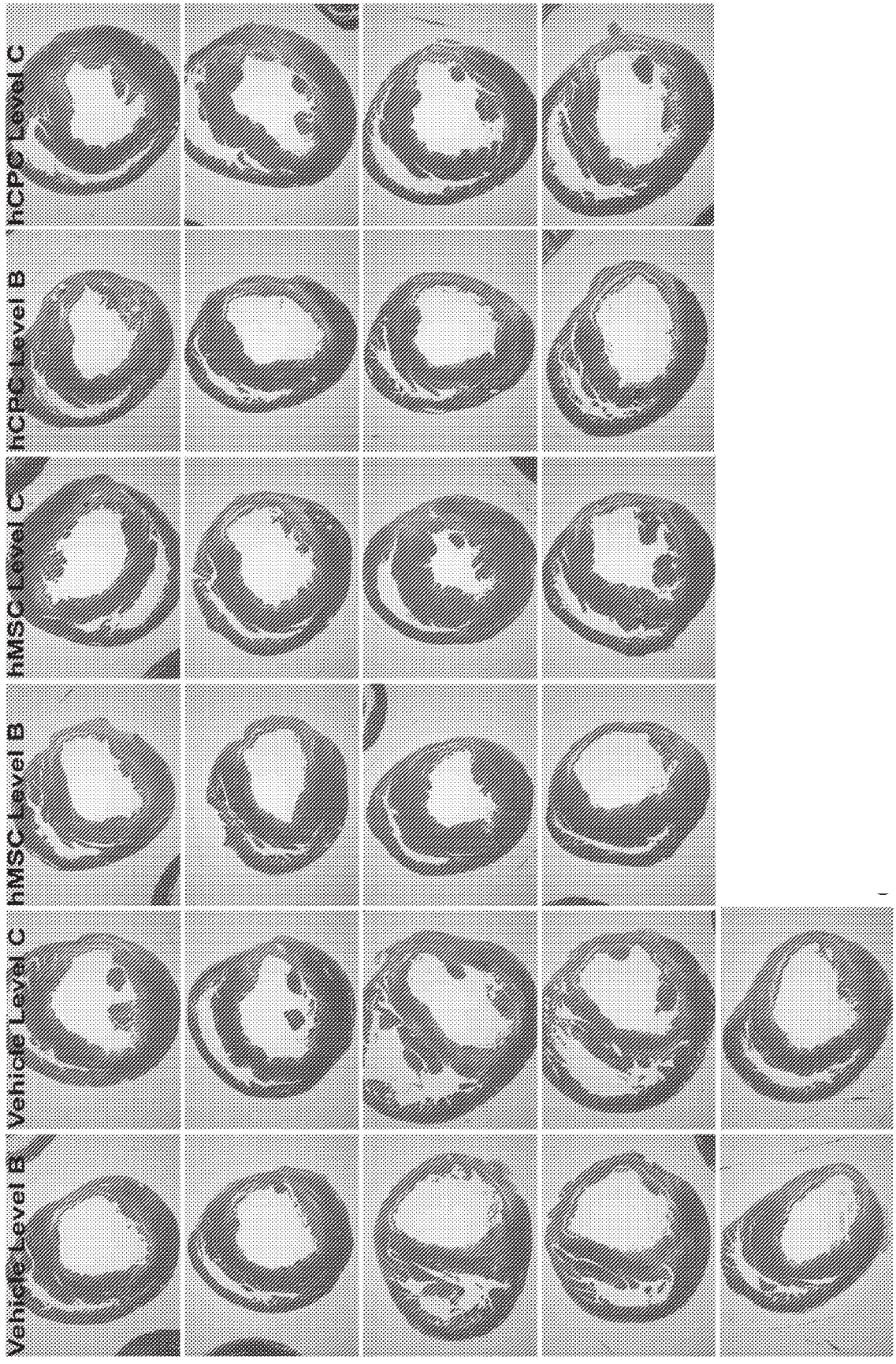

Vehicle Level B
Vehicle Level C
hMSC Level B
hMSC Level C
hCPC Level B
hCPC Level C

Figure 38

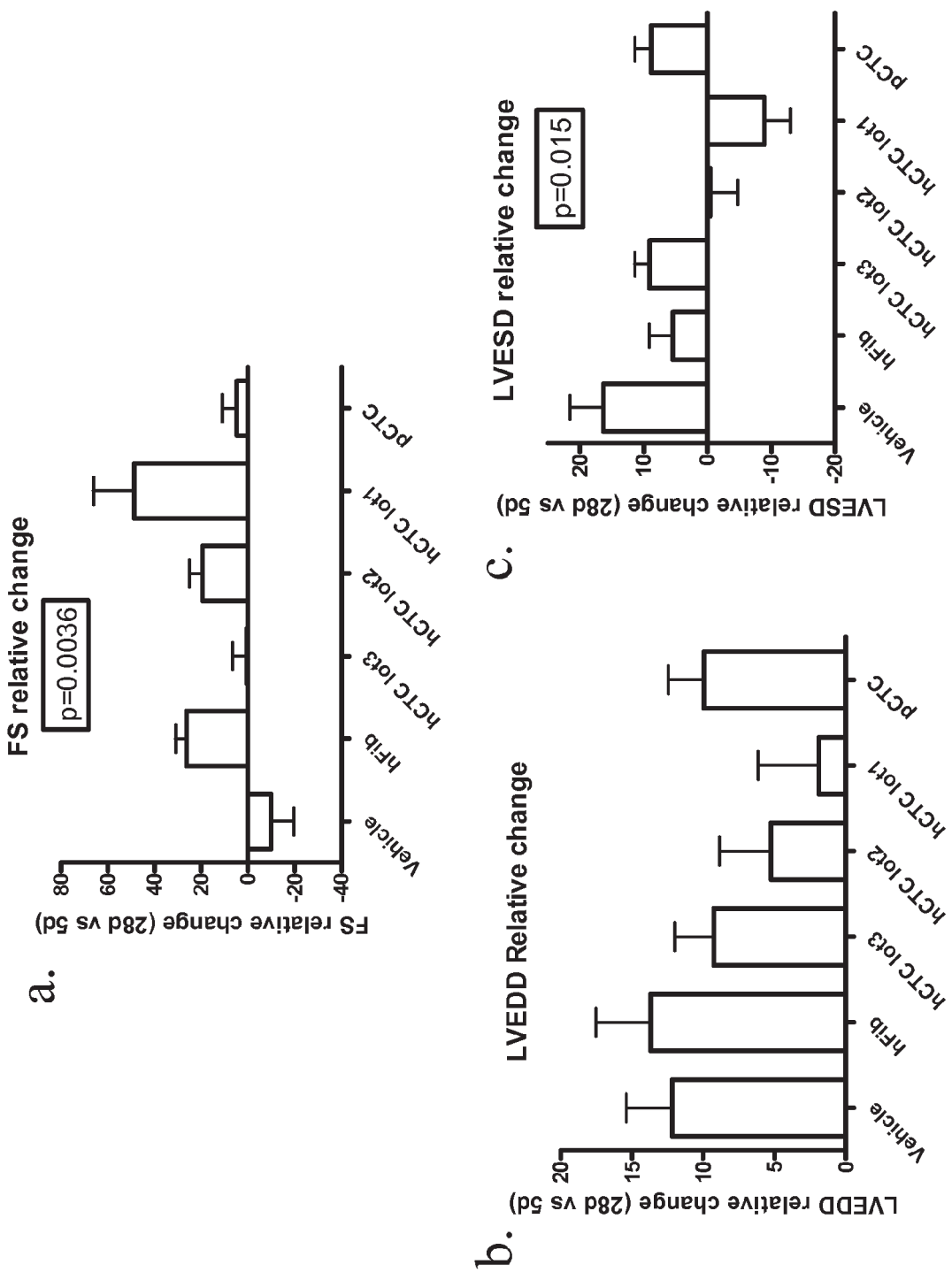
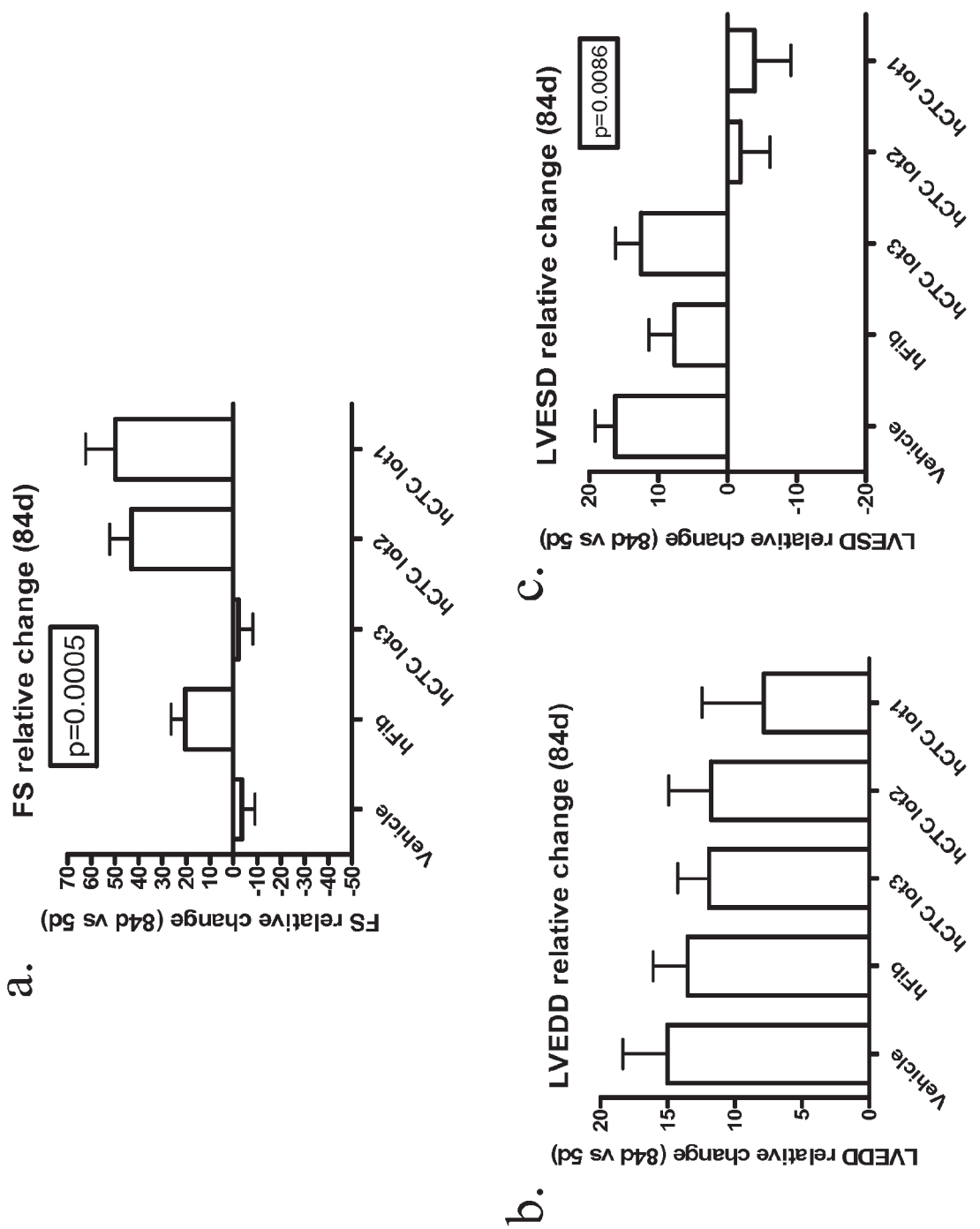

a.
FS relative change
p=0.0036
FS relative change (28d vs 5d)
80
60
40
20
0
-20
-40
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1
pCTC
b.
LVEDD Relative change
LVEDD relative change (28d vs 5d)
20
15
10
5
0
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1
pCTC
c.
LVESD relative change
p=0.015
LVESD relative change (28d vs 5d)
20
10
0
-10
-20
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1
pCTC

Figure 39


a.
FS relative change (84d)
p=0.0005
FS relative change (84d vs 5d)
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1
b.
LVEDD relative change (84d)
LVEDD relative change (84d vs 5d)
20
15
10
5
0
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1
c.
LVESD relative change (84d)
p=0.0086
LVESD relative change (84d vs 5d)
20
10
0
-10
-20
Vehicle
hFib
hCTC lot3
hCTC lot2
hCTC lot1