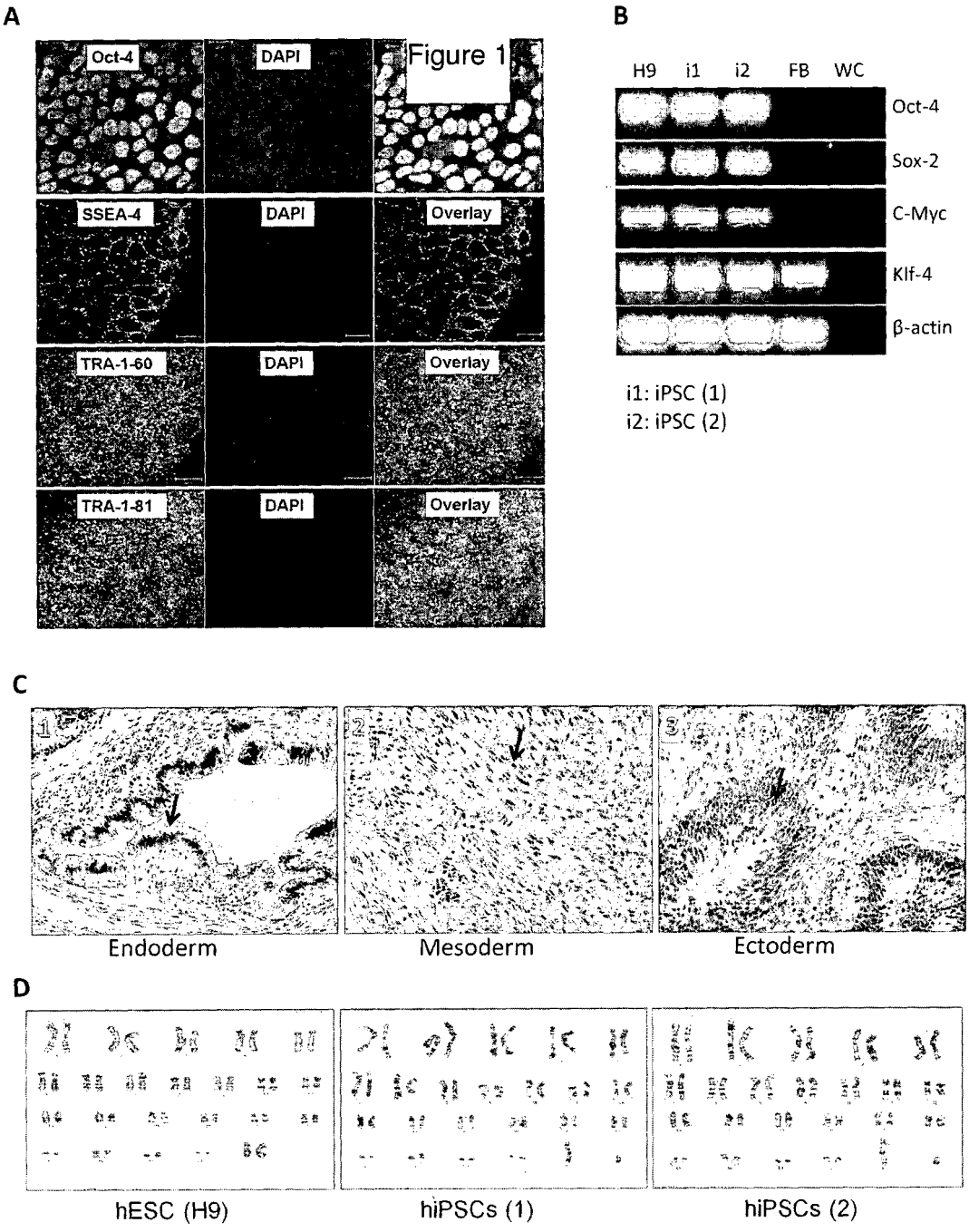

A
Oct-4
DAPI
SSEA-4
DAPI
Overlay
TRA-1-60
DAPI
Overlay
TRA-1-81
DAPI
Overlay
B
H9
i1
i2
FB
WC
Oct-4
Sox-2
C-Myc
Klf-4
β-actin
i1: iPSC (1)
i2: iPSC (2)
C
Endoderm
Mesoderm
Ectoderm
D
hESC (H9)
hiPSCs (1)
hiPSCs (2)

Figure 1

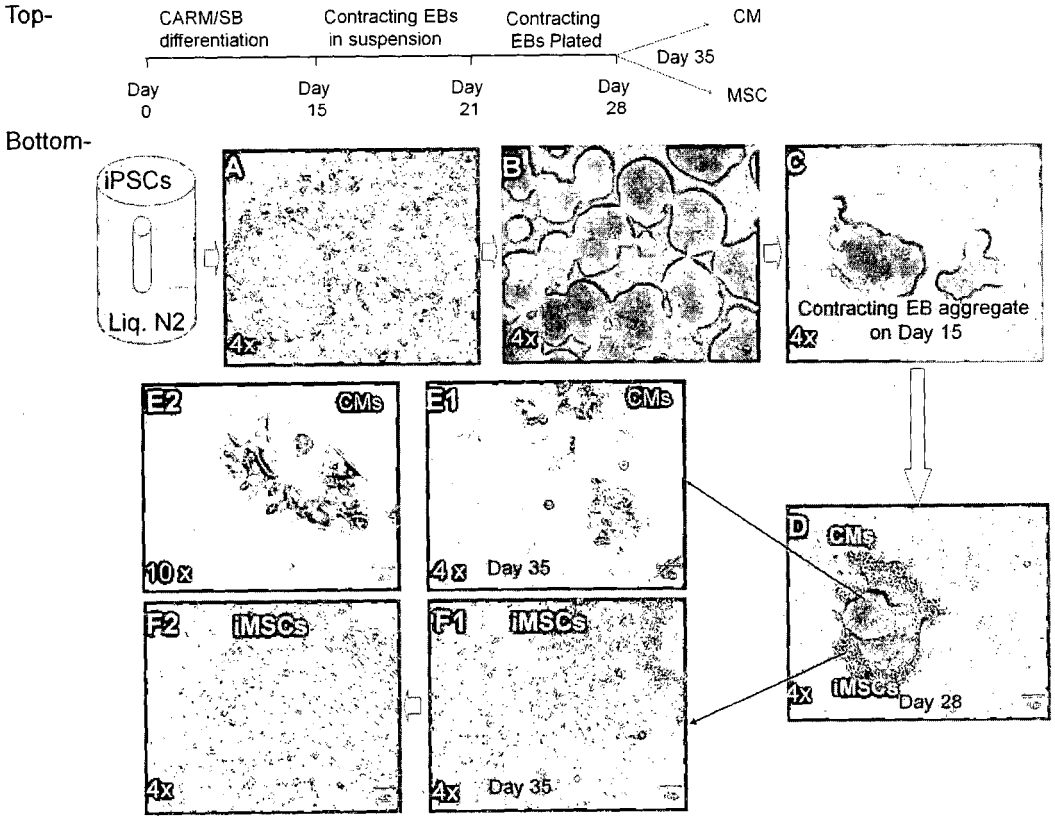
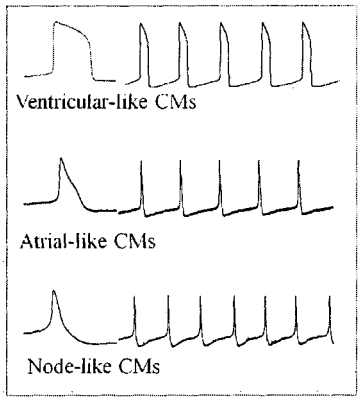

Top-
CARM/SB differentiation
Contracting EBs in suspension
Contracting EBs Plated
CM
Day 35
MSC
Day 0
Day 15
Day 21
Day 28
Bottom-
iPSCs
Liq. N2
A
4x
B
4x
C
Contracting EB aggregate on Day 15
4x
E2
CMs
10x
E1
CMs
4x Day 35
D
CMs
iMSCs
4x
Day 28
F2
iMSCs
4x
F1
iMSCs
4x Day 35

Figure 2

A



B

Lines	Differentiation methods	Differentiation Efficiency (%)
H9	CARM/SB	50±5
	EB-20	36±5*
hiPSC (1)	CARM/SB	28.7±3^
	EB-20	21.1±2*
hiPSC (2)	CARM/SB	23.5±3 ^
	EB-20	18.9±2*

Figure 3

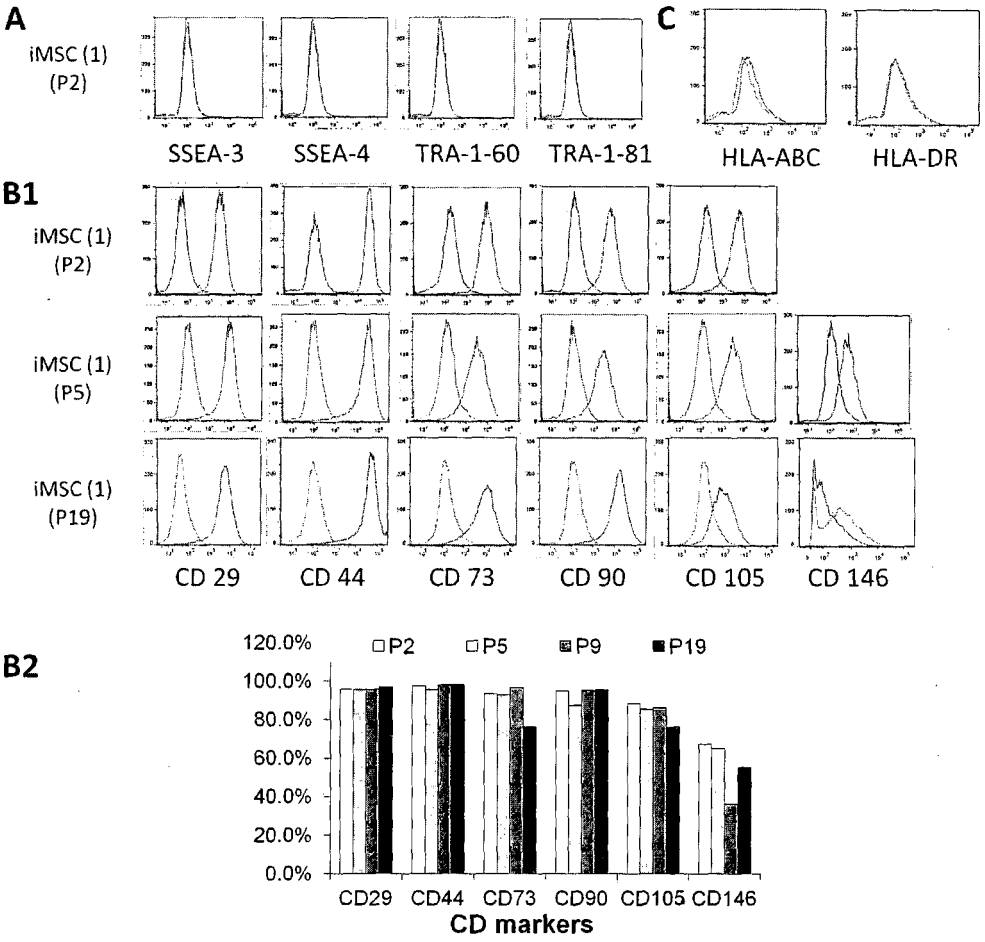

A
iMSC (1)
(P2)
SSEA-3
SSEA-4
TRA-1-60
TRA-1-81
C
HLA-ABC
HLA-DR
B1
iMSC (1)
(P2)
iMSC (1)
(P5)
iMSC (1)
(P19)
CD 29
CD 44
CD 73
CD 90
CD 105
CD 146
B2
120.0%
100.0%
80.0%
60.0%
40.0%
20.0%
0.0%
P2
P5
P9
P19
CD29
CD44
CD73
CD90
CD105
CD146
CD markers

Figure 4

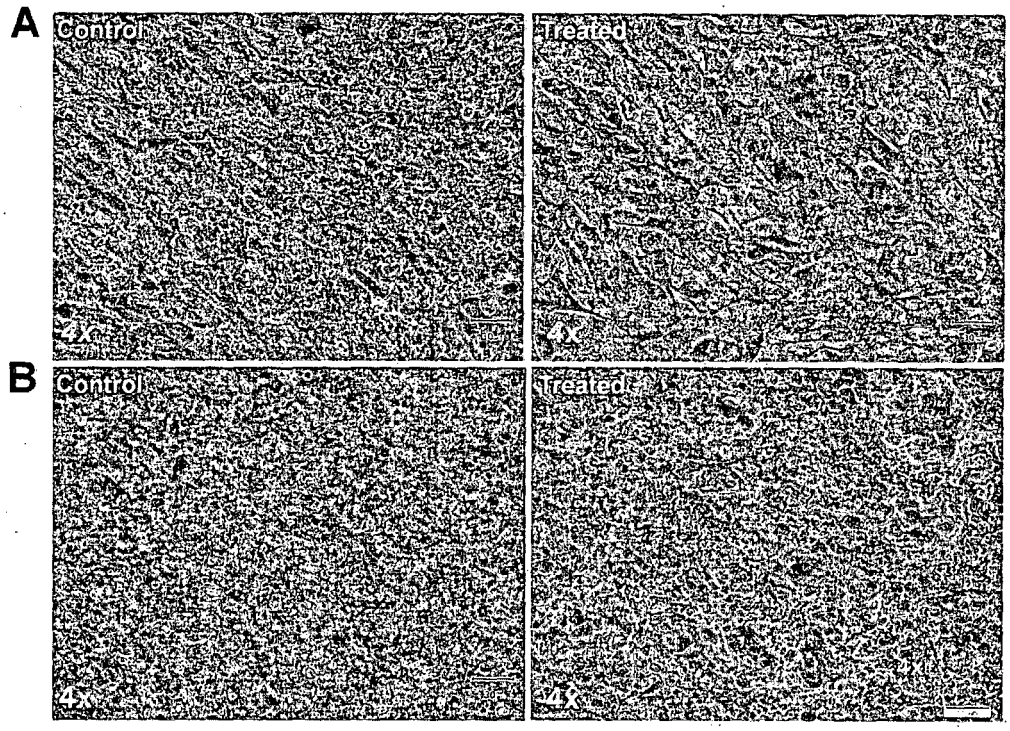
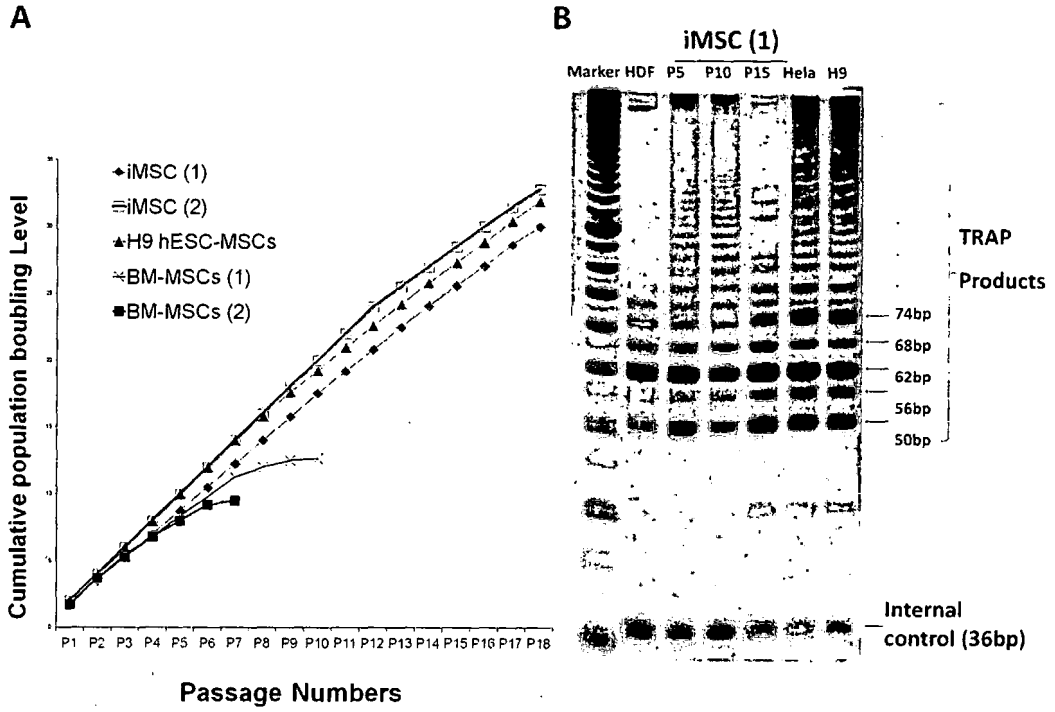


Figure 5


A
B
iMSC (1)
Marker HDF P5 P10 P15 Hela H9
iMSC (1)
iMSC (2)
H9 hESC-MSCs
BM-MSCs (1)
BM-MSCs (2)
Cumulative population boubling Level
P1 P2 P3 P4 P5 P6 P7 P8 P9 P10 P11 P12 P13 P14 P15 P16 P17 P18
Passage Numbers
TRAP
Products
74bp
68bp
62bp
56bp
50bp
Internal
control (36bp)

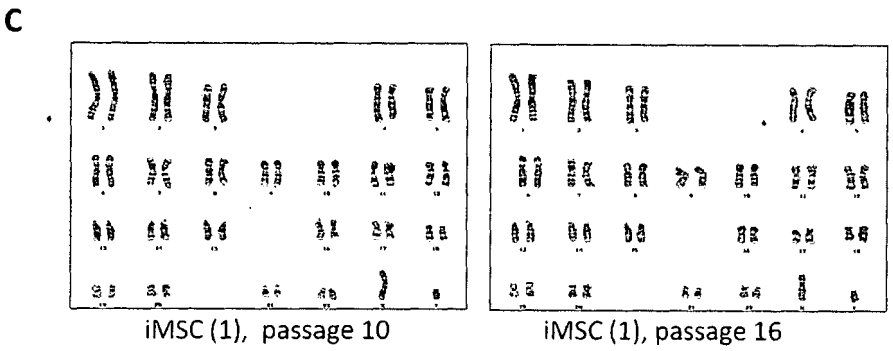

C
iMSC (1), passage 10
iMSC (1), passage 16

Figure 6

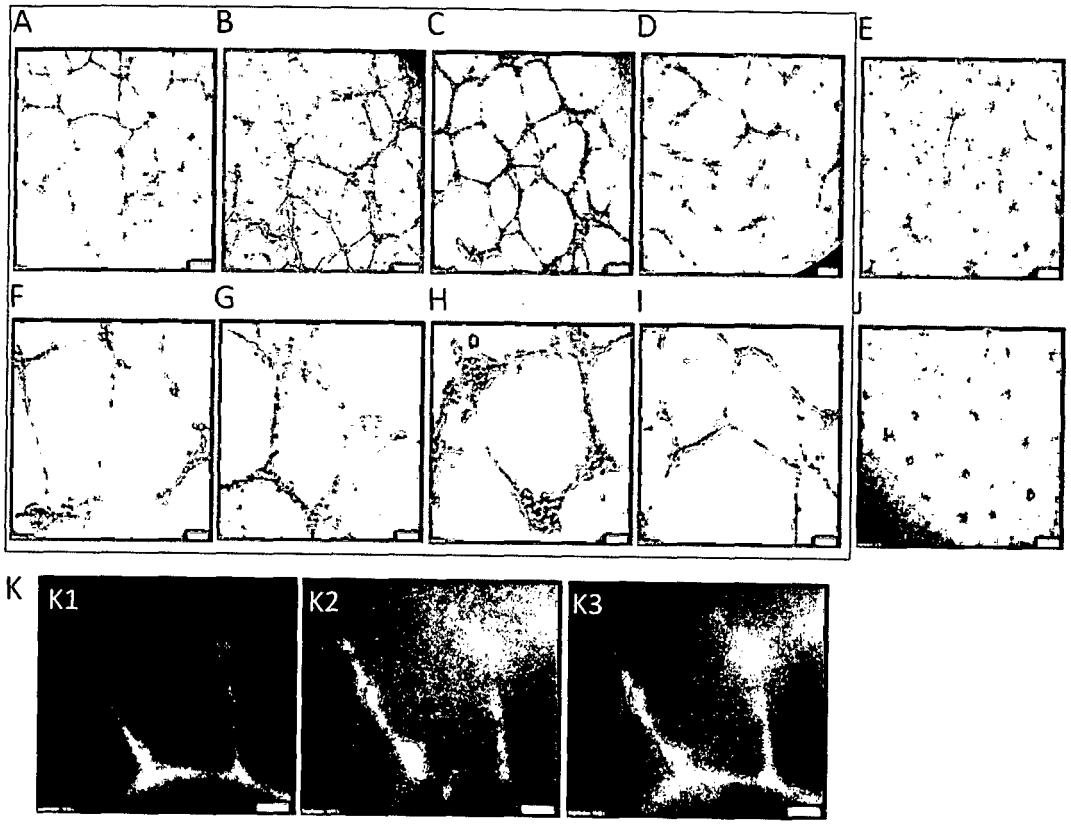

A
B
C
D
E
F
G
H
I
J
K
K1
K2
K3
L
Tube Length
HUVEC alone
HUVEC+BM-MSC (2)
HUVEC+hMSC (1) (US)
HUVEC+hMSC (1) (CD146+)
Tube Length (microM/mM2)
800
600
400
200
0
M
Tube Thickness
HUVEC alone
HUVEC+BM-MSC (2)
HUVEC+hMSC (1) (US)
HUVEC+hMSC (1) (CD146+)
Tube Thickness (microM)
100
80
60
40
20
*
**

Figure 7

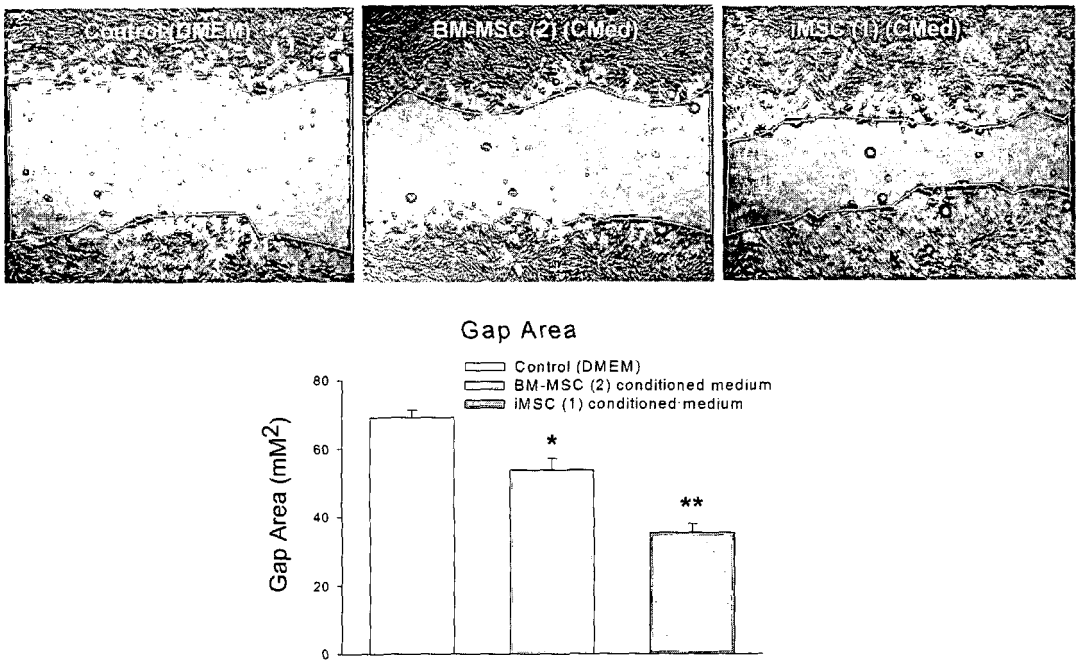

Control (DMEM)
BM-MSC (2) (CMed)
iMSC (1) (CMed)
Gap Area
Control (DMEM)
BM-MSC (2) conditioned medium
iMSC (1) conditioned medium
Gap Area (mM2)
80
60
40
20
0
*
**

Figure 8