Supplementary Figures and Tables

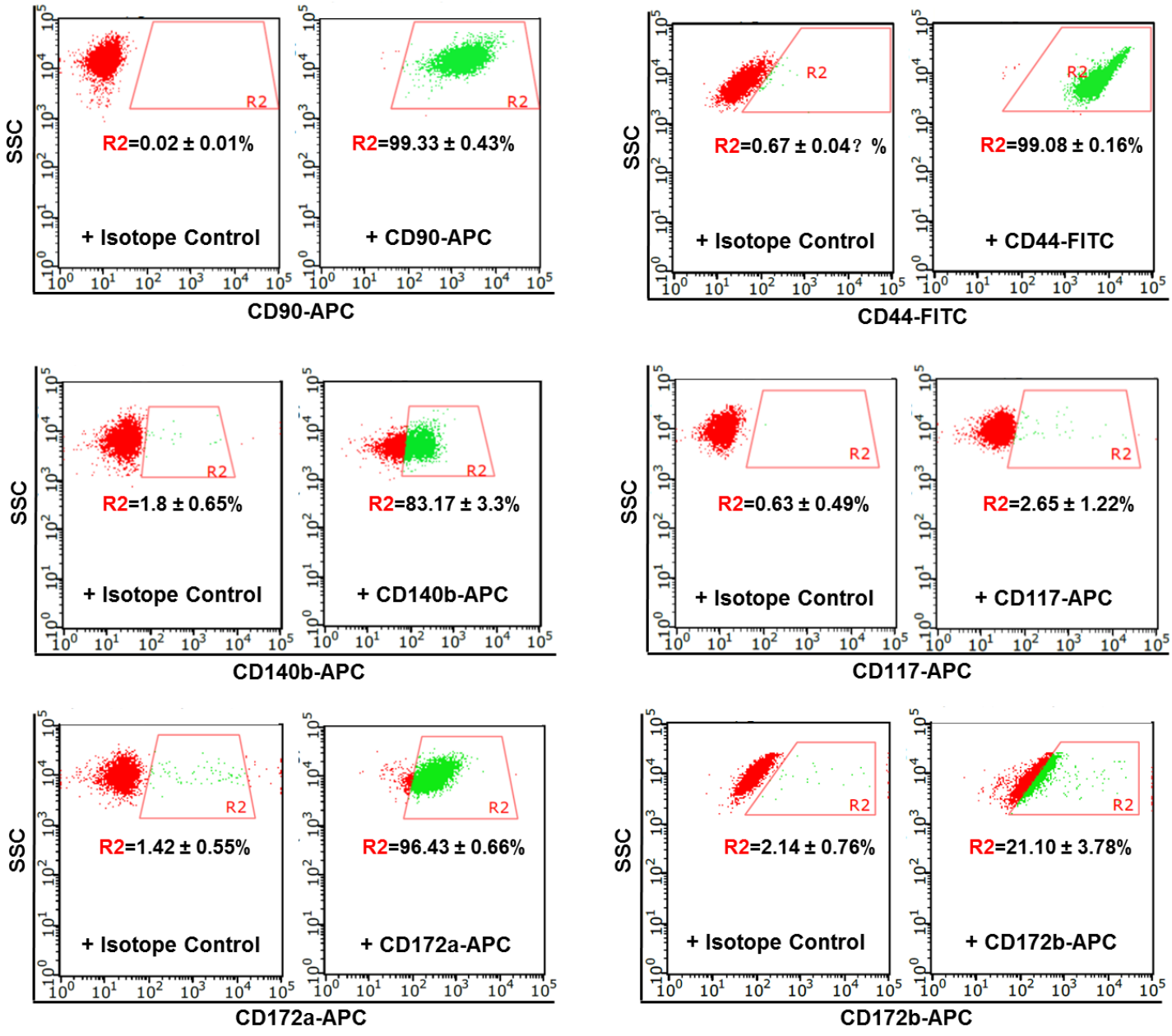
Mitochondrial Membrane Potential Identifies a Subpopulation of Mesenchymal Progenitor Cells to Promote Angiogenesis and Myocardial Repair

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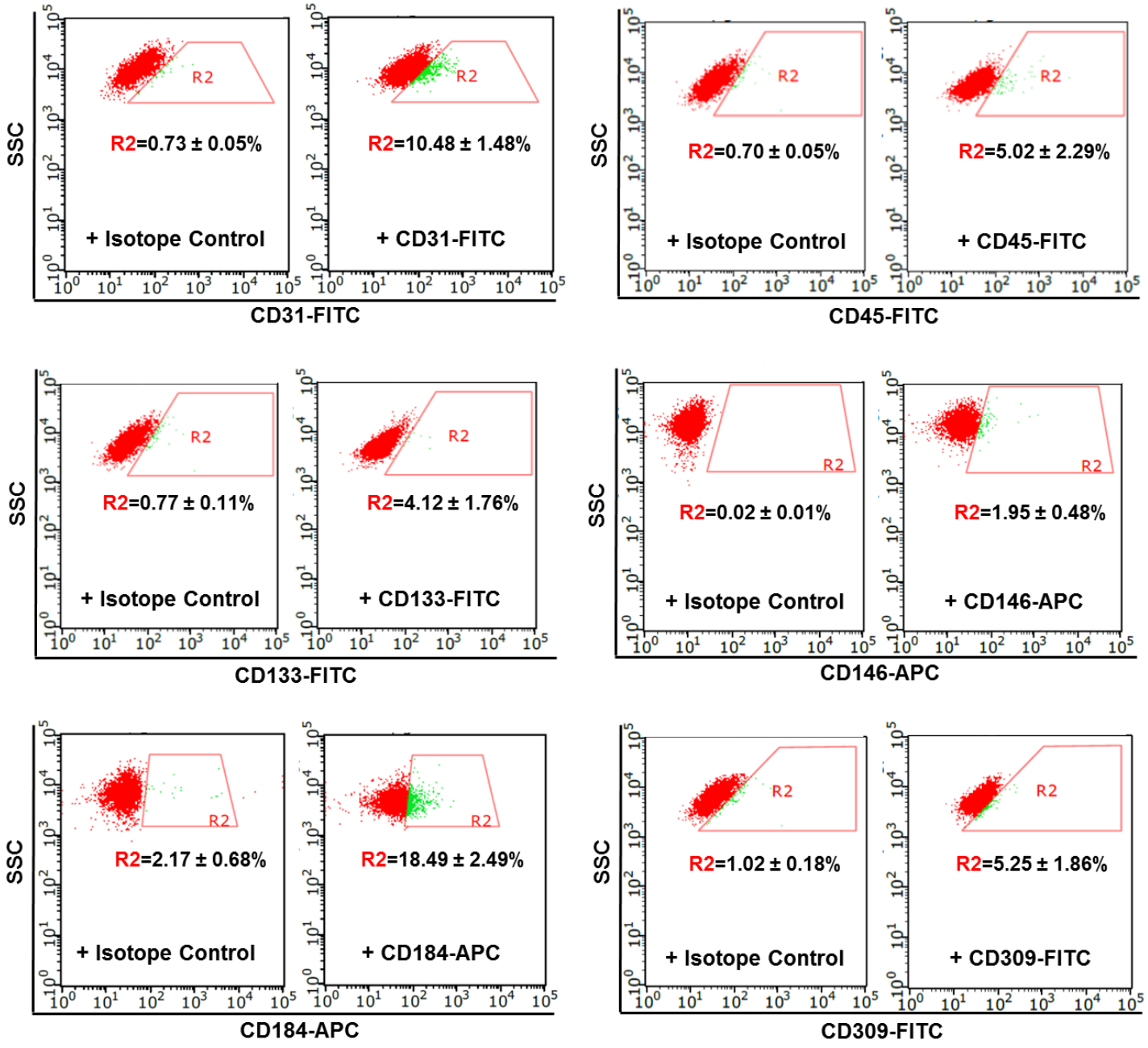
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Supplementary Figures

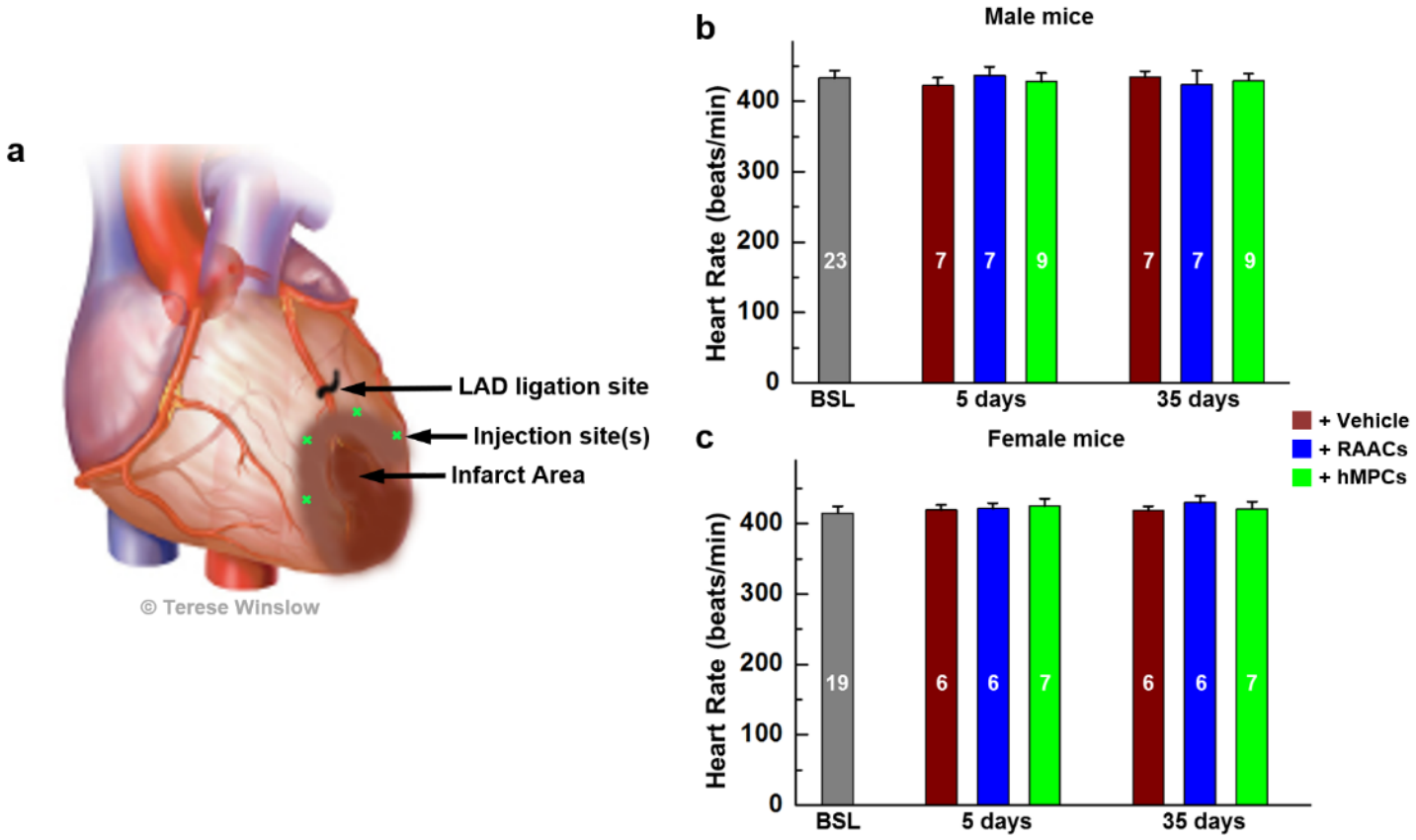
Supplementary Figure S1. Flow cytometric analysis of cell surface markers in hMPCs. Flow cytometer analysis of cell surface markers in hMPCs, including mesenchymal stem cell markers (CD90, CD44 and CD140b) and cardiac precursor cell markers (CD117, CD172a and CD172b). Green cell populations are positive cells for the individual cell surface marker as indicated in the images. Data are mean ± SEM, n=3.



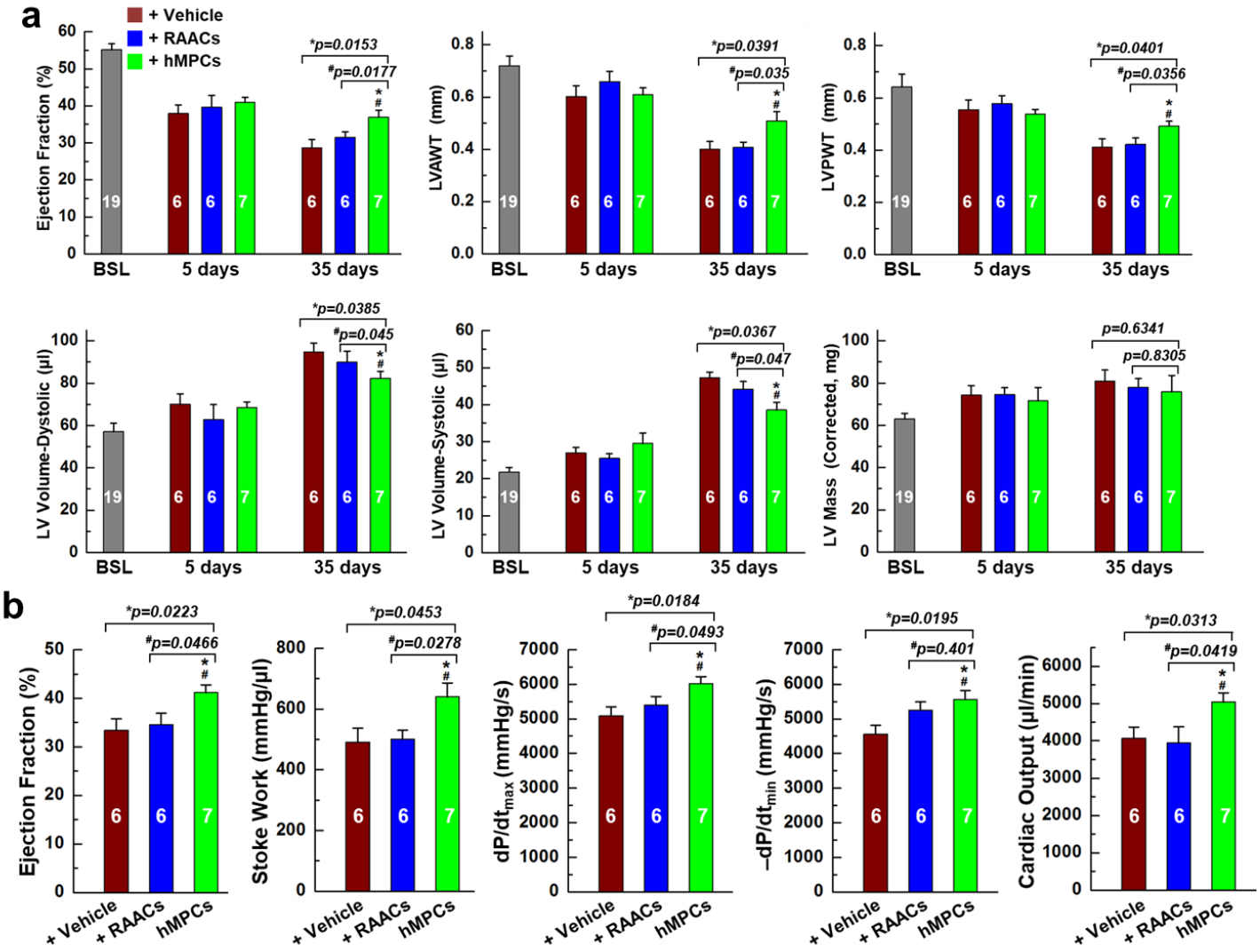
Supplementary Figure S2. Flow cytometric analysis of cell surface markers in hMPCs. Flow cytometer analysis of cell surface markers in hMPCs, including hematopoietic stem cell markers (CD31, CD45 and CD133) and angiogenic cell markers (CD146, CD184 and CD309). Green cell populations are positive cells for the individual cell surface marker as indicated in the images. Data are mean ± SEM, n=3.



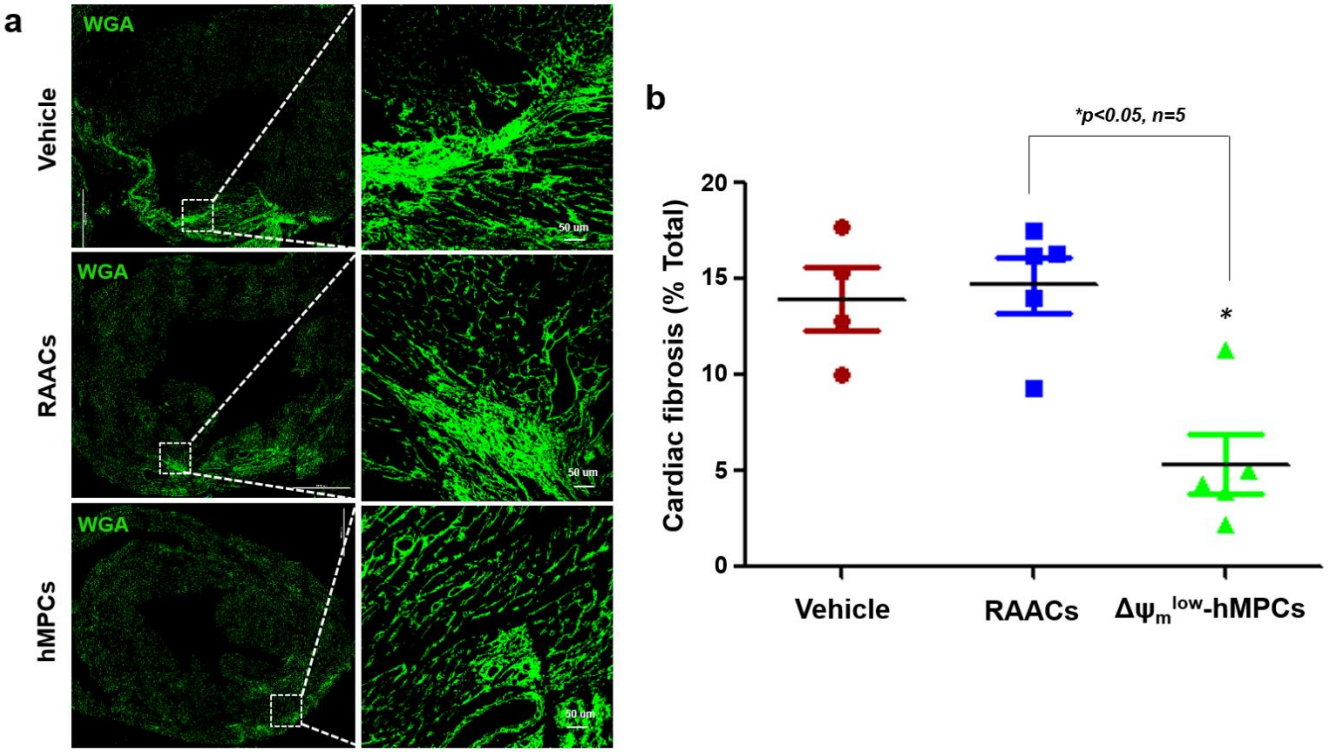
Supplementary Figure S3. Heart rate for animals during the echocardiographic measurement. a. Schematic animal model for the myocardial infarction induced by ischemia/reperfusion, and the injection sites for donor cell transplantation. **b-c**. Quantitative analysis of heart rate that were recorded during conducting the echocardiographic measurement for both male (**b**) and female (**c**) mice. "BSL" stands for "baseline".



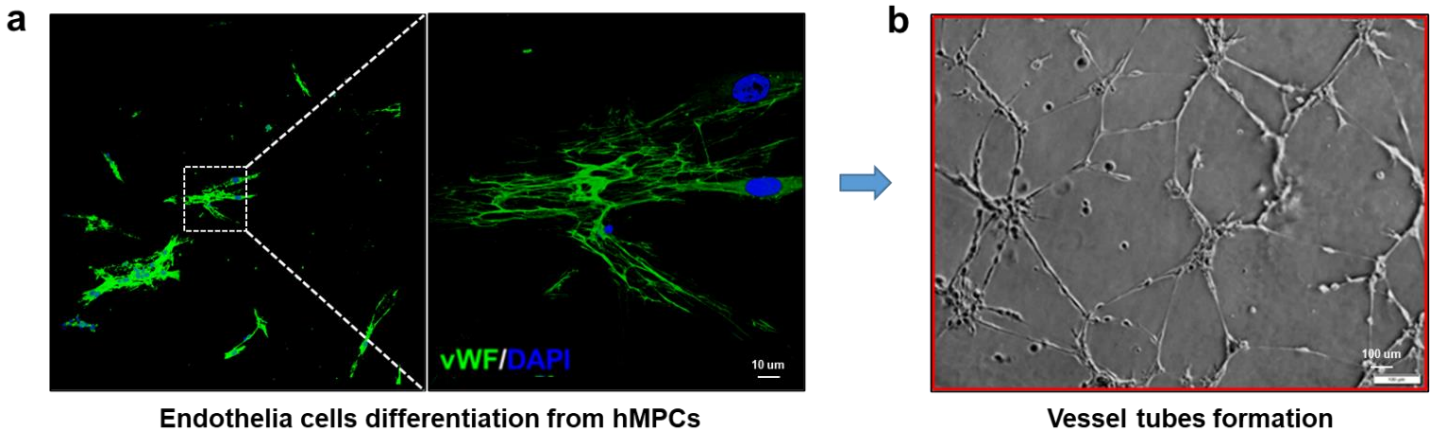
Supplementary Figure S4. Transplantation of hMPCs into female mouse infarcted heart improves cardiac function and structure. a. Echocardiographic parameters for female mice, including ejection fraction (EF), left ventricle anterior wall thickness (LVAWT), left ventricle posterior wall thickness (LVPWT), LV volume-dystonic, LV volume-systolic, and LV mass among the groups of vehicles (n=6), RAACs (n=6) and hMPCs (n7) at 5 days and 35 days after cell transplantation. "BSL" stand for "baseline". **b**. Hemodynamic parameters for the female mice among three groups, including EF, stoke volume, dP/dt_{max}, dP/dt_{min} and cardiac output at 39 days. Data are mean ± SEM. * $p < 0.05$ versus Vehicle group, $^{\#}$ $p < 0.05$ versus RAAC group, which was calculated by the one-way ANOVA followed by Tukey's multiple comparison test.



Supplementary Figure S5 Transplantation of hMPCs reduces the cardiac fibrosis in infarcted mouse heart. a. Representative confocal images for cardiac fibrosis followed with the Wheat Germ Agglutinin (WGA) staining. Bright green area indicated the fibrosis area in heart. **b**. Quantitative analysis for the percentage of cardiac fibrosis. The y-axis represents the percentage of the fibrotic area over the whole heart area. Data are mean ± SEM. * $p < 0.05$ versus Vehicle group, $^{\#}$ $p < 0.05$ versus RAAC group , which was calculated by the one-way ANOVA followed by Tukey's multiple comparison test.



Supplementary Figure S6 hMPCs has the capacity to form vessel tubes in vitro. a. Representative images of endothelial cells that were differentiated from hMPCs following with the staining with vWF antibody. Green color indicates vWF positive cells, and blue color indicates the DAPI stained nuclei. **b**. Representative image for vessel tubes formation derived from hMPCs *in vitro*.



Supplementary Tables

Supplemental Table S1. Clinical Profile of Patients used for hMPCs Isolation.

Patient ID	Age (Yrs)	Sex	EF%	Cardiac Index	Diabetes	Hyper-lipidemia	Smoker	Infarct	Ischemia	ACE Inhibitor	β-Blocker	Anti-coagulant	NYHA
AMC119	74	Male	50%	-	x	-	√	√	√	√	√	√	III
AMC123	74	Male	57%	1.68	x	-	x	√	√	-	-	√	III
AMC131	42	Male	48%	1.52	x	√	√	√	√	√	√	√	IV
AMC143	70	Male	55%	-	x	-	-	√	√	√	√	-	III
AMC167	69	Male	60%	1.57	x	√	x	√	√	√	√	√	IV
AMC175	74	Male	55%	1.65	x	√	√	√	√	-	√	-	III

EF indicates ejection fraction; NYHA, New York Heart Association; Patient information is (√) positive; (x) negative; (-) unavailable.

Supplemental Table S2. List of genes in the human cytokine primer library I.

Well	Symbol	Name	Well	Symbol	Name
A1	IL2	Interleukin 2	E1	CSF1	Colony stimulating factor 1 (macrophage)
A2	IL7	Interleukin 7	E2	FLT3LG	Fms-related tyrosine kinase 3 ligand
A3	IL9	Interleukin 9	E3	FGF1	Fibroblast growth factor 1 (acidic)
A4	IL15	Interleukin 15	E4	FGF2	Fibroblast growth factor 2 (basic)
A5	IL21	Interleukin 21	E5	FGF4	Fibroblast growth factor 4
A6	TSLP	Thymic stromal lymphopoietin	E6	FGF5	Fibroblast growth factor 5
A7	IL3	Interleukin 3 (colony-stimulating factor, mu	E7	FGF6	Fibroblast growth factor 6
A8	IL5	Interleukin 5 (colony-stimulating factor, eos	E8	FGF7	Galactokinase 2
A9	CSF2	Colony stimulating factor 2 (granulocyte- m	E9	FGF8	Fibroblast growth factor 8 (androgen-induced)
A10	IL6	Interleukin 6 (interferon, beta 2)	E10	FGF9	Fibroblast growth factor 9 (glia-activating factor)
A11	IL11	Interleukin 11	E11	FGF10	Fibroblast growth factor 10
A12	IL12A	Interleukin 12A	E12	FGF11	Fibroblast growth factor 11
B1	IL12B	Interleukin 12B	F1	FGF12	Fibroblast growth factor 12
B2	IL23A	Interleukin 23, alpha subunit p19	F2	FGF13	Fibroblast growth factor 13
B3	LIF	Leukemia inhibitory factor	F3	FGF14	Fibroblast growth factor 14
B4	ZFP91	Zinc finger protein 91 homolog (mouse)	F4	FGF16	Fibroblast growth factor 16
B5	CLC	Cardiotrophin-like cytokine factor 1	F5	FGF18	Fibroblast growth factor 18
B6	CTF1	Cardiotrophin 1	F6	FGF19	Fibroblast growth factor 19
B7	CSF3	Colony stimulating factor 3 (granulocyte)	F7	FGF20	Fibroblast growth factor 20
B8	LEP	Leptin (obesity homolog, mouse)	F8	FGF23	Fibroblast growth factor 23
B9	EPO	Erythropoietin	F9	NRG1	Neuregulin 1
B10	GH1	Growth hormone 1	F10	NRG2	Neuregulin 2
B11	GH2	Growth hormone 2	F11	NRG3	Neuregulin 3
B12	PRL	Prolactin	F12	NRG4	Neuregulin 4
C1	TPO	Thyroid peroxidase	G1	IGF1	Insulin-like growth factor 1 (somatomedin C)
C2	IFNA1	Interferon, alpha 1	G2	HGF	Hepatocyte growth factor
C3	IFNB1	Interferon, beta 1, fibroblast	G3	EGF	Epidermal growth factor (beta-urogastrone)
C4	IFNW1	Interferon, omega 1	G4	KITLG	KIT ligand
C5	IFNK	Interferon, kappa	G5	EFNA1	Ephrin-A1
C6	IFNE1	Interferon epsilon 1	G6	EFNA2	Ephrin-A2
C7	IL28A	Interleukin 28A (interferon, lambda 2)	G7	EFNA3	Ephrin-A3
C8	IL29	Interleukin 29 (interferon, lambda 1)	G8	EFNA4	Ephrin-A4
C9	IFNG	Interferon, gamma	G9	EFNA5	Ephrin-A5
C10	IL10	Interleukin 10	G10	EFNB1	Ephrin-B1
C11	IL20	Interleukin 20	G11	EFNB2	Ephrin-B2
C12	IL24	Interleukin 24	G12	EFNB3	Ephrin-B3
D1	IL22	Interleukin 22	H1	GAS6	Growth arrest-specific 6
D2	IL26	Interleukin 26	H2	ANGPT1	Angiopoietin 1
D3	VEGFA	Vascular endothelial growth factor	H3	ANGPT2	Angiopoietin 2
D4	VEGFB	Vascular endothelial growth factor B	H4	ANGPT4	Angiopoietin 4
D5	VEGFC	Vascular endothelial growth factor C	H5	ACTB	Actin, beta
D6	PDGFC	Platelet derived growth factor C	H6	B2M	Beta-2-microglobulin
D7	PDGFD	DNA-damage inducible protein 1	H7	GAPD	Glyceraldehyde-3-phosphate dehydrogenase
D8	NGFB	Nerve growth factor, beta polypeptide	H8	GUSB	Glucuronidase, beta
D9	NTF3	Neurotrophin 3	H9	HPRT1	Hypoxanthine phosphoribosyltransferase 1
D10	NTF5	Neurotrophin 5 (neurotrophin 4/5)	H10	PGK	Phosphoglycerate kinase 1
D11	BDNF	Brain-derived neurotrophic factor	H11	PPIA	Peptidylprolyl isomerase A
D12	GDNF	Glial cell derived neurotrophic factor	H12	RPL13A	Ribosomal protein L13a

Supplemental Table S3. List of genes in the human cytokine primer library II.

Well	Symbol	Name	Well	Symbol	Name
A1	TNF	Tumor necrosis factor (TNF superfamily, member 2)	E1	INHBA	Inhibin, beta A
A2	LTA	Lymphotoxin alpha (TNF superfamily, member 1)	E2	INHBB	Inhibin, beta B
A3	LTB	Lymphotoxin beta (TNF superfamily, member 3)	E3	INHBC	Inhibin, beta C
A4	TNFSF4	Tumor necrosis factor (ligand) superfamily, member 4	E4	INHBE	Inhibin, beta E
A5	CD40LG	CD40 ligand (TNF superfamily)	E5	TGFB1	Transforming growth factor, beta 1
A6	FASLG	Fas ligand (TNF superfamily, member 6)	E6	TGFB2	Transforming growth factor, beta 2
A7	TNFSF7	CD70 molecule	E7	TGFB3	Transforming growth factor, beta 3
A8	TNFSF8	Tumor necrosis factor (ligand) superfamily, member 8	E8	AMH	Anti-Mullerian hormone
A9	TNFSF9	Tumor necrosis factor (ligand) superfamily, member 9	E9	INHA	Inhibin, alpha
A10	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10	E10	BMP10	Bone morphogenetic protein 10
A11	TNFSF11	Tumor necrosis factor (ligand) superfamily, member 11	E11	LEFTY1	Left-right determination factor 1
A12	TNFSF13	Tumor necrosis factor (ligand) superfamily, member 13	E12	LEFTY2	Left-right determination factor 2
B1	TNFSF13B	Tumor necrosis factor (ligand) superfamily, member 13b	F1	CCL2	Chemokine (C-C motif) ligand 2
B2	TNFSF14	Tumor necrosis factor (ligand) superfamily, member 14	F2	CCL3	Chemokine (C-C motif) ligand 3
B3	TNFSF15	Tumor necrosis factor (ligand) superfamily, member 15	F3	CCL4	Chemokine (C-C motif) ligand 4
B4	TNFSF18	Tumor necrosis factor (ligand) superfamily, member 18	F4	CCL5	Chemokine (C-C motif) ligand 5
B5	EDA	Ectodysplasin A	F5	CCL7	Chemokine (C-C motif) ligand 7
B6	IL1A	Interleukin 1, alpha	F6	CCL8	Chemokine (C-C motif) ligand 8
B7	IL1B	Interleukin 1, beta	F7	CCL11	Chemokine (C-C motif) ligand 11
B8	IL1RN	Interleukin 1 receptor antagonist	F8	CCL13	Chemokine (C-C motif) ligand 13
B9	IL18	Interleukin 18 (interferon-gamma-inducing factor)	F9	CCL15	Chemokine (C-C motif) ligand 14
B10	IL1F5	Interleukin 1 family, member 5 (delta)	F10	CCL16	Chemokine (C-C motif) ligand 16
B11	IL1F7	Interleukin 1 family, member 7 (zeta)	F11	CCL17	Chemokine (C-C motif) ligand 17
B12	IL1F8	Interleukin 1 family, member 8 (eta)	F12	CCL18	Chemokine (C-C motif) ligand 18
C1	IL1F9	Interleukin 1 family, member 9	G1	CCL19	Chemokine (C-C motif) ligand 19
C2	IL1F10	Interleukin 1 family, member 10 (theta)	G2	CCL20	Chemokine (C-C motif) ligand 20
C3	IL17	Interleukin 17	G3	CCL21	Chemokine (C-C motif) ligand 21
C4	IL17B	Interleukin 17B	G4	CCL22	Chemokine (C-C motif) ligand 22
C5	IL17C	Interleukin 17C	G5	CCL23	Chemokine (C-C motif) ligand 23
C6	IL17D	Interleukin 17D	G6	CCL24	Chemokine (C-C motif) ligand 24
C7	IL17E	Interleukin 17E	G7	CCL25	Chemokine (C-C motif) ligand 25
C8	IL17F	Interleukin 17F	G8	CCL26	Chemokine (C-C motif) ligand 26
C9	BMP2	Bone morphogenetic protein 2	G9	CCL27	Chemokine (C-C motif) ligand 27
C10	BMP4	Bone morphogenetic protein 4	G10	CCL28	Chemokine (C-C motif) ligand 28
C11	BMP6	Bone morphogenetic protein 6	G11	CXCL1	Chemokine (C-X-C motif) ligand 1
C12	BMP7	Bone morphogenetic protein 7	G12	CXCL2	Chemokine (C-X-C motif) ligand 2
D1	BMP8A	Bone morphogenetic protein 8a	H1	CXCL3	Chemokine (C-X-C motif) ligand 3
D2	BMP8B	Bone morphogenetic protein 8b	H2	CXCL5	Chemokine (C-X-C motif) ligand 5
D3	GDF5	Growth differentiation factor 5	H3	CXCL12	Chemokine (C-X-C motif) ligand 12
D4	GDF7	Growth differentiation factor 7	H4	CXCL13	Chemokine (C-X-C motif) ligand 13
D5	LASS1	LAG1 longevity assurance homolog 1	H5	ACTB	Actin, beta
D6	GDF3	Growth differentiation factor 3	H6	B2M	Beta-2-microglobulin
D7	BMP3	Bone morphogenetic protein 3	H7	GAPD	Glyceraldehyde-3-phosphate dehydr
D8	GDF10	Growth differentiation factor 10	H8	GUSB	Glucuronidase, beta
D9	GDF8	Growth differentiation factor 8	H9	HPRT1	Hypoxanthine phosphoribosyltransfe
D10	GDF11	Growth differentiation factor 11	H10	PGK	Phosphoglycerate kinase 1
D11	GDF9	Growth differentiation factor 9	H11	PPIA	Peptidylprolyl isomerase A
D12	BMP15	Bone morphogenetic protein 15	H12	RPL13A	Ribosomal protein L13a

Supplemental Table S4. Human Cytokine antibody Library array (Cat. NO. AAH-CYT-6-2)

Each antibody is spotted in duplicate vertically														
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
	1	POS	POS	NEG	NEG	BLANK	Angiogenin	BDNF	BLC (CXCL13)	BMP-4	BMP-6	Ck beta 8-1 (CCL23)	CNTF	EGF	Eotaxin-1 (CCL11)
	2														
	3	Eotaxin-2 (CCL24)	Eotxin-2 (CCL26)	FGF-6	FGF-7 (KGF)	Flt-3 Ligand	Fractalkine (CX3CL1)	GCP-2 (CXCL6)	GDNF	GM-CSF	I-309 (CCL1)	IFN-gamma	IGFBP-1	IGFBP-2	IGFBP-4
	4														
	5	IGF-1	IL-10	IL-13	IL-15	IL-16	IL-1 alpha (IL-1 F1)	IL-1 beta (IL-1 F2)	IL-1 ra (IL-1 F3)	IL-2	IL-3	IL-4	IL-5	IL-6	IL-7
	6														
	7	Leptin	LIGHT (TNFSF14)	MCP-1 (CCL2)	MCP-2 (CCL8)	MCP-3 (MARC/CCL7)	MCP-4 (CCL13)	M-CSF	MDC (CCL22)	MIG (CXCL9)	MIP-1 delta (CCL15)	MIP-3 alpha (CCL20)	NAP-2 (CXCL7)	NT-3	PARC (CCL18)
	8														
	9	PDGF-BB	RANTES (CCL5)	SCF	SDF-1 alpha	TARC (CCL17)	TGF beta 1	TGF beta 3	TNF alpha	TNF beta	BLANK	BLANK	BLANK	BLANK	POS
	10														

Supplementary Table S5. Primer sequence for RT-PCR

Primer Name	Sequences	Primer Name	Sequences
Myc F	AGCAGAGGAGCAAAAGCTCATT	Nkx2.5 F	ACCTCAACAGCTCCCTGACTCT
Myc R	CCAAAGTCCAATTTGAGGCAGT	Nkx2.5 R	ATAATCGCCGCCACAAACTCTCC
Sox2 F	TTACCTCTTCCTCCCACTCCAG	OCT3/4 F	GCTTCAGACTTCGCCTCCTCACC
Sox2 R	GGGTTTTCTCCATGCTGTTTCT	OCT3/4 R	GCCATCCCTCCGCAGAACTCG
Lin28 F	CAAAAGGAAAGAGCATGCAGAA	RYR2 F	GTCTTCCTCAGACACCACCG
Lin28 R	ATGATCTAGACCTCCAGAGTTGTAGC	RYR2 R	TGATGAGGGAGCCTGGATGA
DPPA3 F	AACCCTGGTCCCAGTCTTCA	ESRRG F	TCAGAACGGACTTGACTCGC
DPPA3 Rr	GCAGCATCTGAAATGTCCAC	ESRRG R	ACACAGTCTCTTGGGCATCG
p16 F	GACATCCCCGATTGAAAGAA	MESP1 F	CCTCCTGCTTGCCTCAAAGT
p16 R	TTTACGGTAGTGGGGGAAGG	MESP1 R	CGAAGTGGTTCCTTGGCAGA
MYH6 F	CAAGTTGGAAGACGAGTGCT	MYOCD F	AAAAAGCCCAAGGACCCCAA
MYH6 R	ATGGGCCTCTTGTAGAGCTT	MYOCD R	AGTCCATAGGTGGAGGGGAC
cTNT F	TTCACCAAAGATCTGCTCCTCGCT	GATA6 F	CTTCCCCCACAACACAACCT
cTNT R	TTATTACTGGTGTGGAGTGGGTGTGG	GATA6 R	CTGTTCTCGGGATTGGTGCT
GAPDH F	GGAGCGAGATCCCTCCAAAAT	NANOG F	AGAAGGCCTCAGCACCTAC
GAPDH R	GGCTGTTGTCATACTTCTCATGG	NANOG R	GGCCTGATTGTTCCAGGAT
GATA4 F	ACCTGGGACTTGGAGGATAGCAAA	p21 F	ATTAGCAGCGGAACAAGGAGTCAGACAT
GATA4 R	TCCCATCAGCGTGTAAAGGCATCT	p21 R	CTGTGAAAGACACAGAACAGTACAGGGT
Mef2C F	AGATACCCACAACACACCAGGCGCC	p27 F	TAACCCGGGACTTGGAGAAG
Mef2C R	ATCCTTCAGAGAGTCGCATGCGCTT	p27 R	GCTTCTTGGGCGTCTGCTC
Hand2 F	CATCGCCTACCTCATGGACC		
Hand2 R	TCTTGTCGTTGCTGCTCACT		

Supplementary Table S6. Key resource table

REAGENT or RESOURCE	SOURCE	IDENTIFIER
Antibodies		
Anti-CD90-APC (clone DG53)	Miltenyi Biotec	Cat#130-097-935
Anti-CD44-FITC (clone DG53)	Miltenyi Biotec	Cat#130-113-896
Anti-CD140b-APC (clone REA363)	Miltenyi Biotec	Cat#130-105-322
Anti-CD117-APC (clone A3C6E2)	Miltenyi Biotec	Cat#130-091-733
Anti-CD172a-APC (clone REA144)	Miltenyi Biotec	Cat#130-099-785
Anti-CD172a-APC (clone B4B6)	Miltenyi Biotec	Cat#130-105-484
Anti-CD31-FITC (clone REA730)	Miltenyi Biotec	Cat#130-110-668
Anti-CD45-FITC (clone 5B1)	Miltenyi Biotec	Cat#130-098-043
Anti-CD133/2 VioBright FITC (clone293C3)	Miltenyi Biotec	Cat#130-104-322
Anti-CD309-VioBright FITC (clone ES8-20E6)	Miltenyi Biotec	Cat#130-105-303
Anti-CD146-APC (clone 541-10B2)	Miltenyi Biotec	Cat#130-097-942
Anti-CD184-APC (clone REA649)	Miltenyi Biotec	Cat#130-109-886
Mouse monoclonal Anti-Cardiac Troponin T-FITC (clone 1C11)	Abcam	Cat#ab105439
Mouse monoclonal anti-Nkx2.5 (clone 2E1)	Abcam	Cat#ab91196
Mouse Monoclonal Anti- HMOX1 (clone HO-1-1)	Thermo Fisher	Cat#MA1-112
Mouse monoclonal Anti-Cardiac Troponin T-FITC (clone 1C11)	Abcam	Cat#ab8295
Mouse Monoclonal Anti-a-SARCOMERIC ACTIN (clone 5c5)	Sigma	Cat#A2172
Mouse Monoclonal Anti-a Smooth Muscle Actin (clone 1A4)	Sigma	Cat#A2547
Polyclonal Rabbit Anti-von Willebrand Factor	Sigma	Cat#F3520
Goat anti-Mouse IgG (H+L) Cross-Adsorbed Secondary Antibody, Alexa Fluor 488 conjugate	Thermo Fisher	Cat#A-11001
Goat anti-Mouse IgM Heavy Chain Secondary Antibody, Alexa Fluor® 647 conjugate	Thermo Fisher	Cat#A-21238
BrdU (Bu20a) Mouse mAb	Cell signaling	Cat#5292s
mouse monoclonal IgG Anti-GAPDH (0411)	Santa Cruz	Cat#sc-47724
Polyclonal Rabbit Anti-α-Tubulin	Cell signaling	Cat#2144s
Wheat Germ Agglutinin (Alexa Fluor™ 488 Conjugates)	Invitrogen™	Cat#w11261
Anti-Bcl2 (124)	Cell signaling	Cat#15071s
Anti-Mcl1 (D2W9E)	Cell signaling	Cat# 94296
Anti-SOD2 (B-1)	Santa Cruz	Cat#sc-133254
Anti-p16 (EPR1473)	Abcam	Cat#ab108349
Isolectin IB4 Conjugates	Thermo Fisher	Cat# I21411
Anti-MYH6 (K13)	Santa Cruz	Cat# sc-168676
Anti-Human Nuclei Antibody (HNA, clone 3E1.3)	Millipore Sigma	Cat#MAB4383
Chemicals, Peptides, and Recombinant Proteins		
Human erythropotein	Sigma	Cat#E5627
Human FGF	PeproTech	Cat#100-18B
FBS	Hyclone	Cat#SH30910.03

Penicillin/streptomycin	Gibco	Cat#15140122
Glutathione	Sigma	Cat#G6013
5-Azacytidine	Sigma	Cat#A2385
RPMI 1640	Gibco	Cat#22400089
B27® supplement with insulin free	Invitrogen	Cat#A1895601
Trichostatin A	Sigma	Cat#T8552
CHIR99021	EMD Millipore	Cat#361571
KY02111	Sigma	Cat#SML0948
XAV939	Sigma	Cat#x3004
LIF	PeproTech	Cat#300-05
TGFb1	Sigma	Cat#H8541
Insulin	Sigma	Cat#I3536
NRG-1	R&D systems	Cat#396-HB
G-CSF	R&D systems	Cat#214-CS
Vitamin C	Sigma	Cat#A92902
DMEM	Gibco	Cat#11995-065
Matrigel	BD Biosciences	Cat#356234
VEGF	PeproTech	Cat#100-20
Ham's F-12 medium	Invitrogen	Cat#12-615F
PDGF-BB	PeproTech	Cat#100-14B
Smooth muscle cell differentiation medium	Sigma	Cat#311D-250
Tetramethyl rhodamine methylester	Sigma	Cat#T5428
Gelatin	Sigma	Cat# G9391
5-Bromo-2′-deoxyuridine	Sigma	Cat#B5002
Tert-Butyl hydroperoxide solution	Sigma	Cat#B2633
Hydrogen peroxide solution	Sigma	Cat#216763
Dexamethasone	Sigma	Cat# D1756-1G
Cadmium chloride	Sigma	Cat#439800
Critical Commercial Assays		
AurumTM Total RNA mini kit	Bio-Rad	Cat#732-6820
Bio-Rad iScriptTM cDNA Synthesis kit	Bio-Rad	Cat#170-8891
iTaqTM Universal SYBR Green Supermix	Bio-Rad	Cat#172-5124
Cellular ROS Detection Assay Kit	Abcam	Cat#ab113851
SuperSignal™ West Pico PLUS Chemiluminescent Substrate	ThermoFisher	Cat#34577
TUNEL Andy Fluor™ 488 Apoptosis Detection Kit	GeneCopoeia	Cat#A050
Human Cytokine antibody library kit	RayBiotech	Cat# AAH-CYT-6-2
Annexin V/Dead cell apoptosis kit	Invitrogen	Cat# V13241
Human Cytokine Primer Library I	RealTimePrimers.com	Cat# HCA-I
Human Cytokine Primer Library II	RealTimePrimers.com	Cat# HCA-II
Thermo Scientific™ Richard-Allan Scientific™ Masson Trichrome Kit	Thermo Fisher Scientific	Cat# 22-110-648
Experimental Models: Cell Lines		

$\Delta\psi_m^{low}$-hMPCs cell line	Division of Cardiothoracic Surgery, Albany Medical Center	Isolated from human left atrial appendages
$\Delta\psi_m^{high}$-RAACs cell line	Division of Cardiothoracic Surgery, Albany Medical Center	Isolation from human left atrial appendages
RAACs cell line	Division of Cardiothoracic Surgery, Albany Medical Center	Isolation from human left atrial appendages
Experimental Models: Organisms/Strains		
NSG mouse model	The Jackson Laboratory	NOD.Cg-*Prkdc*^{scid} *Il2rg*^{tm1Wjl}/SzJ
Oligonucleotides		
See primer sequence for RT-PCR in Supplementary Table 5		
Software and Algorithms		
GraphPad Prism 5 software	Prism	NA
Image J software	NIH	NA
Guava EasyCyte™ System software 3.1	EMD Millipore	NA
Leica TCS SPE confocal microscope software	Leica	NA
NIS-elements AR version 5.0	Nikon	NA
Bio-Rad CFX Manager software 3.0	BioRad	NA
Vevo 3100 workstation software	FUJIFILM Visual Sonics	NA