

Media	Components
Growth Media	100ml DMEM/F12 (Sigma), 1ml ITS (Life Technologies), 100ml Neurobasal Medium (Life Technologies), 1ml Glutamax (Life Technologies), 2ml B27 (Life Technologies), 1ml N2 (Life Technologies), 44µl EGF (Peprotech), 22µl bFGF (Peprotech), 22ml ESCQ-FBS (Life Technologies), 10ng/ml LIF (Millipore) 1ml PenStrep (Life Technologies), 100µl Fungizone (Life Technologies), 100µl Gentamicin (Sigma)
Passage Media	177.6ml DMEM/F12 (Sigma), 20ml ESCQ-FBS, 2ml PenStrep (Life Technologies), 200µl Gentamicin (Sigma), 200µl Fungizone (Life Technologies)

Supplementary Table S1. Cell culture maintenance and passage media

Antibody	Source	Dilution	Incubation time	Temperature
Primary antibody				
anti-BrdU	Abcam ab1893	1:500	1 hour	RT
anti-WGA	Thermo Fisher W11261	1:500	1 hour	RT
anti-GFP	Rockland 32778	1:500	1 hour	RT
Anti-actin- α -sarcomere	Sigma A2172	1:1000	1 hour	RT
Anti-calponin	Abcam ab46794	1:500	1 hour	RT
Anti-vWF	Abcam ab7356	1:500	1 hour	RT
Anti-CC3	Cell Signalling asp165	1:200	1 hour	RT
Secondary Antibody				
Alexa Fluor 633 donkey anti-goat	Life Technologies a21082	1:500	1 hour	RT
Alexa Fluor 594 donkey anti-goat	Life Technologies a11058	1:500	1 hour	RT
Alexa Fluor 488 donkey anti-goat	Life Technologies a11055	1:500	1 hour	RT
Alexa Fluor 594 donkey anti-mouse	Life Technologies a21203	1:500	1 hour	RT
Alexa Fluor 594 donkey anti-rabbit	Life Technologies r37119	1:500	1 hour	RT
Alexa Fluor 647 donkey anti-rabbit	Life Technologies a31573	1:500	1 hour	RT

Supplementary Table S2. List of primary and secondary antibodies

Official Full Name	Alias	Forward Primer	Reverse Primer	Accession Number
Abhydrolase Domain Containing 15	Abhd15	TCCTACTTGGGGGAG TGTGG	GGCATACCTGCTGA GAGAGAT	NM_026185.4
ADAMTS16	ADAMTS16	GGTCCTTTGCACCCT AGCAT	CAGGTGTCTGCTGC TCACTG	NM_172053.3
ADAMTS17	ADAMTS17	GCGAGTCCCTGCTCT ATCAC	CCGACAGCTGTGCC CG	NM_001033877.4
Brain-derived neurotrophic factor	BDNF	ATCCACTGAGCAAAG CCGAA	CCTGGTGGAAACATT GTGGCT	NM_007540.4
Bone morphogenetic protein 1	BMP1	TACAGCCAGGGCAGG AGTAT	CTTGCTGAGTCGGG TCCTTT	NM_009755.3
Bone morphogenetic protein 2	BMP2	ACTGCGGTCTCCTAA AGGTCG	ACCTGGGGAAGCA GCAACAC	NM_007553.3
Bone morphogenetic protein 4	BMP4	GCAACCCAGCCTGAG TATCT	ATGGCTCCATTGGT TCCTGC	NM_007554.3
Bone morphogenetic protein 6	BMP6	GGCTCCGGTTCTTCA GACTA	TGGCATT CATGTGT GCGTTG	NM_007556.3
Bone morphogenetic protein 8b	BMP8b	TGATGATGGCCACGG TTCTC	AATGACAGAGTCCA GCCAGC	NM_007559.5
Bone morphogenetic protein 10	BMP10	AGCTTCAAGAACGAA GATCTGTTT	TTTTACGGTCCACG CCATCA	NM_009756.3
Crim1	Crim1	GGATCGAAGAAGAGA AGCCAGA	GGTAAAGGACAGCA CTCCCC	NM_015800.3
Connective tissue growth factor	Ctgf	AGAACTGTGTACGGA GCGTG	GTGCACCATCTTTG GCAGTG	NM_010217.2
CCL2	CCL2	AGCTGTAGTTTTTGTC ACCAAGC	GTGCTGAAGACCTT AGGGCA	NM_011333.3
Cardiotrophin1	CTF1	AGAGGGAGGGAAGTC TGGAAGA	TTGGCCTCCAAATG GGGTAG	NM_007795.1
chemokine (C-X-C motif) ligand 1	CXCL1	ACCGAAGTCATAGCC AACTC	CTCCGTTACTTGGG GACACC	NM_008176.3
chemokine (C-X-C motif) ligand 9	CXCL9	TGTGGAGTTCGAGGA ACCCT	AGTCCGGATCTAGG CAGGTT	NM_008599.4
chemokine (C-X3-C motif) ligand 1	CX3CL1	GCGACAAGATGACCT CACGA	TGTCGTCTCCAGGA CAATGG	NM_009142.3
CX3CR1	CX3CR1	CCATCTGCTCAGGAC CTCAC	CACCAGACCGAACG TGAAGA	NM_009987.4

Supplementary Table S3. List of primers used

Official Full Name	Alias	Forward Primer	Reverse Primer	Accession Number
dickkopf WNT signaling pathway inhibitor 1	Dkk1	GACAACTACCAGCCCT ACCC	GATCTGTACACCT CCGACGC	NM_010051.3
Epidermal growth factor	EGF	AGGATCCTGACCCCGA ACTT	ACAGCCGTGATTC TGAGTGG	NM_010113.4
Acidic fibroblast growth factor	FGF1	TTATACGGCTCGCAGA CACC	TCTCCGCATGCTT CTTGGAG	NM_010197.3
Fibroblast growth factor 2 (basic)	FGF2	GGCTGCTGGCTTCTAA GTGT	GTCCCGTTTTTGA TCCGAGT	NM_008006.2
Fibroblast growth factor 7	FGF7	GAGAGGCTCAAGTTGC ACGA	CGGTTGCTCCTTG ACTTTTGT	NM_008008.4
Fibroblast growth factor 9	FGF9	GCAGTCACGGACTTGG ATCA	AATTCCAGAATGC CGAAGCG	NM_013518.4
Fibroblast growth factor 23	FGF23	GGCACTGCTAGAGCCT ATCC	TCAGGGCACTGTA GATGGTC	NM_022657.4
Follistatin	Fst	CTGAGAAAGGCCACCT GCTT	TCTTCACAGGACT TTGCTTTGAT	NM_00130137 3.1
Growth differentiation factor 2	GDF2	GCTTCAGCGTGGAAGA TGCTA	GGCAGGAGACAT AGAGTCGG	NM_019506.4
Growth differentiation factor 5	GDF5	AAAGGGCAAGATGACC GAGG	TAAGATCCGCAGT TCAGCCC	NM_008109.3
Growth differentiation factor 9	GDF9	CAACCAGGTGACAGGA CCG	AGCAAGTGTTCCA TGGCAGT	NM_008110.2
Growth differentiation factor 10	GDF10	GCAGACATCGGGTGGA ATGA	ATGGGCGGACAAT CTTGGG	NM_145741.3
Growth differentiation factor 11	GDF11	GAGGGGCTGCATCCTT TCAT	GGAGCAGTAGTT GGCCTTGT	NM_010272.2
Growth differentiation factor 15	GDF15	TCCAGAGGTGAGATTG GGGT	GCTTCAGGGGCC TAGTGATG	NM_011819.3
Glial cell-derived neurotrophic factor	GDNF	ACCAGTGACTCCAATAT GCCTG	GCTGCCGCTTGTT TATCTGG	NM_010275.3

Supplementary Table S3 continued. List of primers used

Official Full Name	Alias	Forward Primer	Reverse Primer	Accession Number
Granulin	Grn	CTGCCCCGTTCTCTA AGGGTG	ATCCCCACGAACCAT CAACC	NM_008175. 4
Glucose-6-phosphate isomerase	Gpi1	TGTCTACGAACACG GCCAAA	AGTCCAATGGCTGA CCACAG	NM_008155. 4
Hepatoma-derived growth factor	HDGF	AAACTTGGGCTCG CGCTTC	GGCATCTCATCAATC CGGGC	NM_008231. 4
Hepatocyte growth factor-like	HGF	TGCTCCTCCCTTCC CTACTC	CCGGGCTGAAAGAA TCAAAGC	NM_0012894 58.1
Heparin-binding EGF-like growth factor	Hbegf	GCATCCAAAGTGAT CGCTGC	GACAACACTGCGGC CAGAAA	NM_010415. 2
Interleukin 1, alpha	IL1a	GCTTGAGTCGGCA AAGAAATCA	AGATGGTCAATGGCA GAACTGT	NM_010554. 4
Interleukin 1, beta	IL1b	TGCCACCTTTTGAC AGTGATG	TGATGTGCTGCTGC GAGATT	NM_008361. 4
Interleukin 6	IL6	CTCTGCAAGAGAC TTCCATCCA	GACAGGTCTGTTGG GAGTGG	NM_031168.2
Interleukin 10	IL10	GGCGCTGTCATCG ATTTCTC	ATGGCCTTGTAGACA CCTTGG	NM_010548. 2
Interleukin-33	IL33	GGCTCACTGCAGG AAAGTACA	TTGGTCTTCTGTTGG GATCTTCT	NM_0011647 24.2
Insulin-like growth factor 1	IGF1	TCTGCCTCTGTGAC TTCTTGA	TAGCCTGTGGGCTT GTTGAA	NM_010512. 5
Insulin-like growth factor 2	IGF2	AAAAGCCATCTCCC CGTTCT	GGATCCCCATTGGTA CCTGG	NM_010514. 3
Inhibin, alpha	INHA	AGCAATGGATGGG GAAGGTG	GTGGCACCTGTAGC TGGG	NM_010564. 5
Inhibin, beta A	INHBA	GCTGCTCAAGTGC CAATACC	GTTTTGTCAGCCGG CTCTTG	NM_008380. 2
Inhibin, beta B	INHBB	TCAGCTTTGCAGA GACAGATGG	CCTTGACCCGTACCT TCCTC	NM_008381. 4
Jagged 1	Jag1	AGCCAAGGTGTGC GGG	ACGCGGGACTGATA CTCCTT	NM_013822. 5
Jagged 2	Jag2	GGGTGGCAACTCC TTCTACC	AGCTCCTCATCTGGA GTGGT	NM_010588. 2
latent TGF-beta binding protein	Ltbp1	CCCGAAGTGGTAA CAGCACC	GCACAGGAGGGGAT GTCTTTT	NM_019919. 4
Leukemia inhibitory factor	LIF	ACAAGTGTGCAGA CTGTGGA	CAGTAAGGGCACAAT CCCTGC	NM_008501. 2
Myostatin	Mstn	GAGCCCAGGCACT GGTATTT	AGGGATTGAGCCCAT CTTCTC	NM_010834. 3
macrophage migration inhibitory factor	MIF	CTTTGTACCGTCCT CCGGTC	GTGCACTGCGATGTA CTGTG	NM_010798. 2

Supplementary Table S3 continued. List of primers used

Official Full Name	Alias	Forward Primer	Reverse Primer	Accession Number
Noggin	Nog	GAGGAGGGAAAA GGCTCGTC	CGGGCATCCGAGAT TACTCC	NM_008711. 2
nephroblastoma overexpressed gene	Nov	GAGTGCTGCGAAA AGTGGAC	CTATAGGCTGGAAG GGCCAAG	NM_010930. 4
Neuregulin-1	Nrg1	TCATAGTGAAAGG TATGTATCAGCC	GGAGACATTTCCGA AGGGGG	NM_178591. 2
Neuregulin-2	Nrg2	GCCAGATCCTAAG CAAAGGC	TCTGCCGGAGATGA TGATGC	NM_0011678 91.1
Neuregulin 3	Nrg3	GATCCAACAGACC ACTTGGGG	AATGCTGCACAGAA CATGCC	NM_008734. 3
Neurotrophin 3	Ntf3	CTGATCGGATCCG GAGGAAG	CCGCAGCCACTCAT CATTATC	NM_0011640 34.1
Periostin	Postn	CTGCTTCAGGGAG ACACACC	TCTGAAGTCAGTGT GGTGGC	NM_015784. 3
Platelet-derived growth factor subunit A	PDGFa	GAGGAGGAGACA GATGTGAGG	AGGAGAACAAGAC CGCACG	NM_008808. 3
Platelet-derived growth factor C	PDGFc	AAGGAACAGAACG GAGTGCAAG	TGAGGAAACTTCGG GCTGTG	NM_019971. 3
Platelet-derived growth factor D	PDGFd	CAACCTCAGGAGA GATGAGAGC	TTTTCTCCTGGGAA CGGAGC	NM_027924. 3
placental growth factor	PGF	GACGAGCATGGTG ATTGTGC	AGGCACCACTTCCA CTTCTG	NM_008827. 3
Kit ligand	SCF	TTACCTTCGCACA GTGGCTG	TCATCCACACAAGG TCACGG	NM_013598. 3
secreted phosphoprotein 1	SPP1	CTGGCAGCTCAGA GGAGAAG	CAGCATTCTGTGGC GCAAG	NM_0012042 01.1
Secreted frizzled related protein 1	SFRP1	CAAGCGAGTTTGC ACTGAGG	AGTTGTGGCTGAGG TTGTCC	NM_013834. 3
TIMP metalloproteinase inhibitor 1	TIMP1	AGAGACACACCAG AGCAGATACC	TGGTCTCGTTGATTT CTGGGG	NM_0010443 84.1
TIMP metalloproteinase inhibitor 2	TIMP2	CAAAGCAGTGAGC GAGAAGG	TGTCAGGTCCTTTG AACATCTTT	NM_011594. 3
Transforming growth factor, beta 1	TGFB1	CCCGAAGCGGACT ACTATGC	CATAGATGGCGTTG TTGCGG	NM_011577. 2
Transforming growth factor, beta 2	TGFB2	TCCCCTCCGAAAA TGCCATC	ACTCTGCCTTCACC AGATTCCG	NM_009367. 4
Transforming growth factor, beta 3	TGFB3	GCACTTTACAACA GCACCCG	CAGACGGCCAGTTC ATTGTG	NM_009368. 3

Supplementary Table S3 continued. List of primers used

Official Full Name	Alias	Forward Primer	Reverse Primer	Accession Number
thyroid hormone receptor interactor 6	Trip6	GCTGTTACAAGTG TGAGGAGTG	AGAGCTCTTGGATA CGCCAG	NM_011639. 3
thymidine phosphorylase	Tymp	TGAATAGACTGGA GCAATGGCAG	GCCCCAATTTGTGT GTCCTG	NM_138302. 2
Vascular endothelial growth factor A	Vegfa	CTTGCAGATGTGA CAAGCCAA	TCAACGGTGACGAT GATGGC	NM_001025 250.3
Vascular endothelial growth factor D	Vegfd	GTTGTAAGTGCTT GCCACG	GAGTGGTCTTCTGT CCCAGG	NM_010216. 2
wingless-type MMTV integration site family, member 1	Wnt1	GCAACCACAGTCG TCAGAAC	G TTCACGATGCCCC ACCATC	NM_021279. 4
wingless-type MMTV integration site family, member 3A	Wnt3a	TGGCTCCTCTCGG ATACCTC	AGCCAAGGACCACC AGATCG	NM_009522. 2
wingless-type MMTV integration site family, member 5A	Wnt5a	CGCTTCGCTTGAA TTCCTCG	CAATGGGCTTCTTC ATGGCG	NM_009524. 4
wingless-type MMTV integration site family, member 7A	Wnt7a	GGGACTATGACCC GGAAAGC	CGAAGAGAAGCCAC CGATCC	NM_009527. 3
wingless-type MMTV integration site family, member 10A	Wnt10a	AGATCGCCATCCA TGAGTGC	ACTCTCTCGAAAAC CTCGGC	NM_009518. 2
Actin, beta	B-Actin	GATCAAGATCATTG CTCCTCCTG	ACGCAGCTCAGTAA CAGTCC	NM_007393. 5
Beta-2-microglobulin	B2M	GGCTCACACTGAA TTCACCC	TGTCTCGATCCCAG TAGACGG	NM_009735. 3
Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	GAGAGTGTTCCT CGTCCCG	ATGAAGGGGTCGTT GATGGC	NM_0012897 26.1

Supplementary Table S3 continued. List of primers used

		Sham n=8	MI-PBS n=7	MI-PICs n=7
IVS,d (mm)	Baseline	0.85±0.05	0.72±0.01	0.76±0.04
	Week 1	0.90±0.05	0.51±0.04*	0.58±0.02*
	Week 3	0.88±0.10	0.50±0.07*	0.67±0.04*
	Week 6	0.95±0.06	0.44±0.03*	0.57±0.08*
IVS,s (mm)	Baseline	1.31 ±0.11	1.35 ±0.18	1.15±0.05
	Week 1	1.35 ±0.12	0.74 ±0.09*	0.77 ±0.03*
	Week 3	1.40 ±0.08	0.68 ±0.11*	0.88 ±0.09*
	Week 6	1.30 ±0.08	0.66 ±0.06*	0.80 ±0.13*
LVID,d (mm)	Baseline	3.75 ±0.09	3.70 ±0.12	3.87±0.13
	Week 1	3.88 ±0.14	5.32 ±0.22*	4.59 ±0.24*
	Week 3	4.18 ±0.19	4.99 ±0.31*	4.07 ±0.17*
	Week 6	3.95 ±0.17	5.02 ±0.34*	3.63 ±0.25#
LVID,s (mm)	Baseline	2.42 ±0.07	2.23 ±0.15	2.53 ±0.15
	Week 1	2.56 ±0.12	4.71 ±0.21*	3.65 ±0.28*
	Week 3	2.54 ±0.10	4.39 ±0.36*	3.46 ±0.10*
	Week 6	2.55 ±0.12	4.44 ±0.31*	3.49 ±0.31*#

Supplementary Table S4. Echocardiography parameters measured

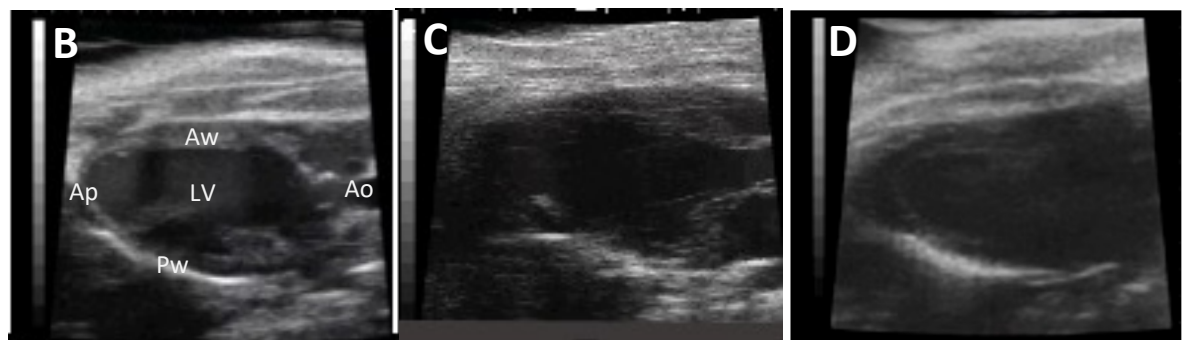
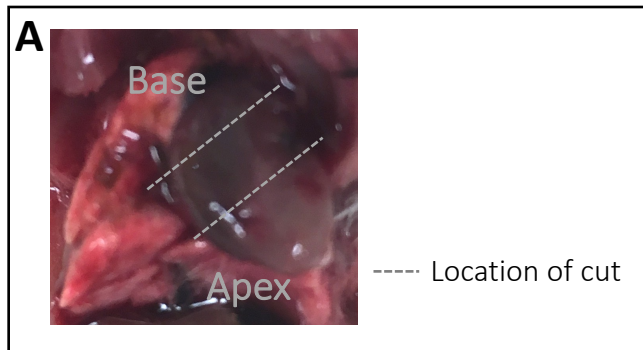
at baseline, weeks 1, 3 and 6. Data expressed as means ± sem

*<0.05 vs. sham, #<0.05 vs MI-PBS. Interventricular septum; IVS,

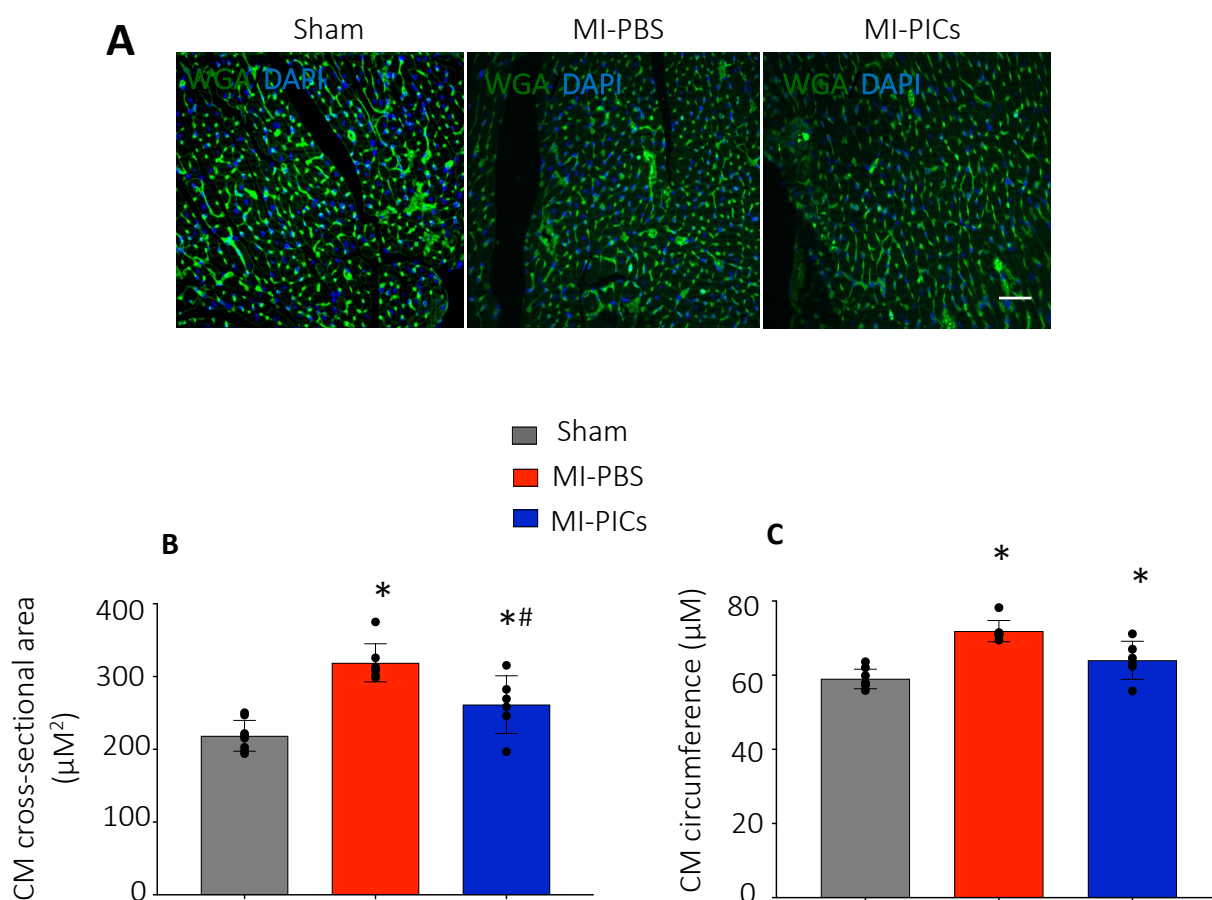
left ventricle inner dimension; LVID at diastole; d and systole; s

		Sham n=8	MI-PBS n=7	MI-PICs n=7
LVPW,d (mm)	Baseline	0.95 ±0.10	0.76 ±0.03	0.62 ±0.04
	Week 1	0.85 ±0.05	0.68 ±0.12	0.61 ±0.08
	Week 3	0.78 ±0.05	0.64 ±0.06	0.67 ±0.07
	Week 6	0.91 ±0.03	0.74 ±0.13	0.82 ±0.26
LVPW,s (mm)	Baseline	1.30 ±0.12	1.30 ±0.19	1.05 ±0.06
	Week 1	1.17 ±0.08	0.94 ±0.18	0.86 ±0.10
	Week 3	1.18 ±0.05	0.89 ±0.13	0.84 ±0.06
	Week 6	1.35 ±0.08	0.93 ±0.16*	0.86 ±0.31*#
LVAW,d (mm)	Baseline	0.81 ±0.03	0.80 ±0.04	0.78 ±0.05
	Week 1	0.83 ±0.04	0.61 ±0.09*	0.59 ±0.03*
	Week 3	0.82 ±0.05	0.67 ±0.06*	0.66 ±0.06*
	Week 6	0.85 ±0.06	0.44 ±0.03*	0.59 ±0.15*
LVAW,s (mm)	Baseline	1.15 ±0.04	1.20 ±0.05	1.21 ±0.05
	Week 1	1.20 ±0.06	0.72 ±0.05*	0.91 ±0.09*
	Week 3	1.34 ±0.13	0.87 ±0.08*	0.91 ±0.07*
	Week 6	1.07 ±0.07	0.71 ±0.05*	0.89 ±0.17
LVID trace, d (μl)	Baseline	64.7±3.1	56.3±5.0	69.4±5.3
	Week 1	69.1±7.5	143.8±10.4*	109.1±14.0*
	Week 3	74.6±8.1	127.8±22.9*	71.7±8.4#
	Week 6	67.8±9.5	118.0±17.1*	64.3±2.9#
LVID trace, s (μl)	Baseline	19.9±1.4	24.7±8.1	23.2±2.5
	Week 1	21.2±2.3	106.2±9.6*	61.4±9.5*#
	Week 3	29.2±4.1	90.3±20.1*	33.1±3.8#
	Week 6	25.9±1.8	86.6±15.3*	31.3.3±2.9#

Supplementary Table S5. Echocardiography parameters measured at baseline, weeks 1, 3 and 6. Data expressed as means \pm sem
* <0.05 vs. sham, # <0.05 vs MI-PBS. left ventricle posterior wall; LVPW, left ventricle anterior wall; LVAW, left ventricular internal dimension trace; LVID trace at diastole; d and systole; s.

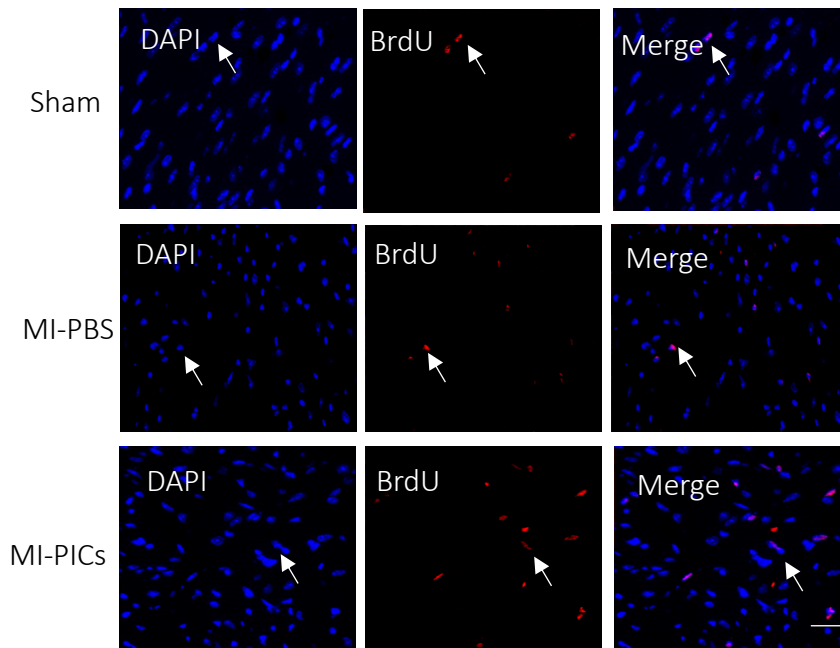


S.F.1- Photomicrograph depicting the areas of the heart dissected for ex vivo analysis. Echocardiographic Parasternal long axis images of the left ventricle in sham (B), MI-PBS (C) and MI-PICs (D), Anterior wall; (Aw), Posterior wall; (Pw), Apex; (Ap), Aorta; (Ao) and left ventricle (LV).

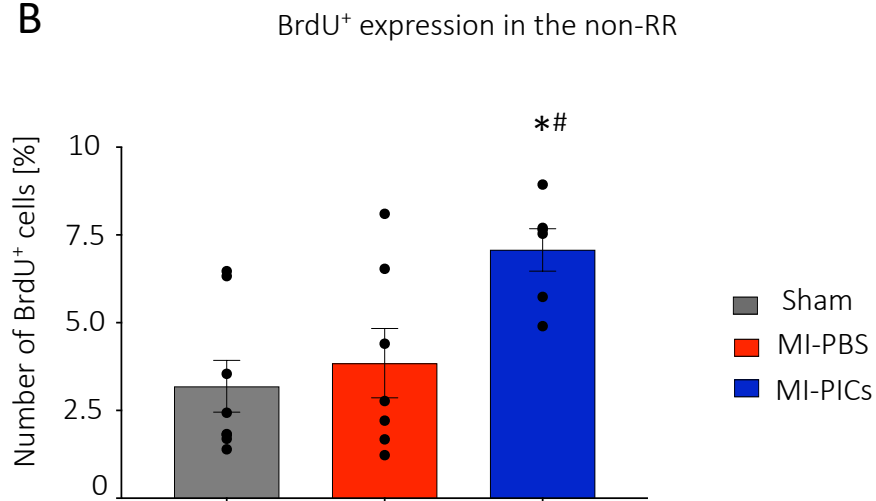


Supplementary Figure S2. A- Confocal images depicts hypertrophic cardiomyocytes in the non-RR of sham = 8, MI-PICs = 6 and MI-PBS = 7 groups, scale bar = 500 μM . WGA (green) and DAPI (blue). Measurements of the cross-sectional area, **B** and circumference, **C** of cardiomyocytes in the non-RR of the LV,. Data expressed as means \pm SD * <0.05 vs. sham, # <0.05 vs MI-PBS.

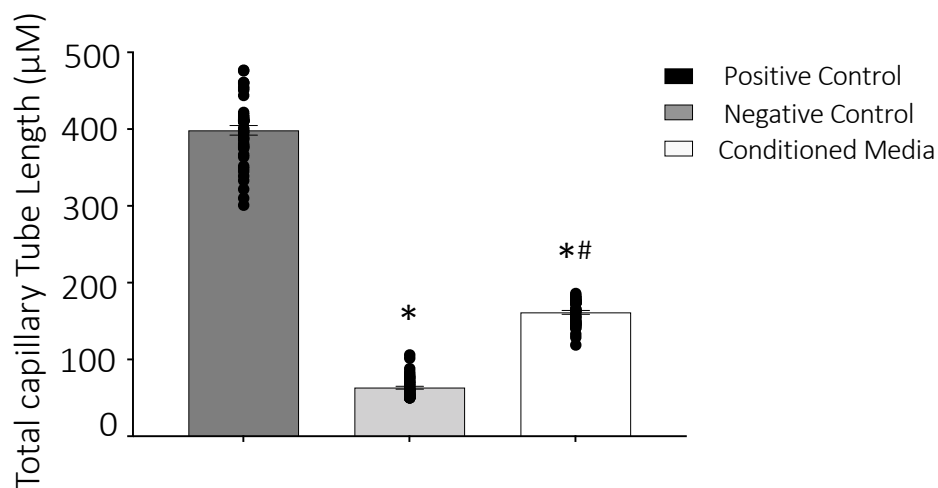
A



B



Supplementary Figure S3. Representative photomicrographs of the proliferation index in the non-RR of the LV in the sham = 8, MI-PBS = 7 and MI-PICs = 6 groups, Scale bar 10μM **A**. Quantification of the proliferating index in each group **B**, data expressed as means ± sem of the total number of BrdU⁽⁺⁾ cells over the total number of cells (Dapi), *<0.05 vs. sham, #<0.05 vs MI-PBS.



Supplementary Figure S4. Total capillary tube length as measured using a Matrigel tube formation assay. HUVECs were exposed for 15 h in 96-well plates coated with Matrigel to HUVEC media (positive control), serum-free DMEM (negative control) or PIC conditioned media. Data are presented as the Mean \pm SEM. * <0.05 vs. Positive control, # <0.05 vs Negative control.