

Supporting Information

Prevascularized, multiple-layered cell sheets of direct cardiac reprogrammed cells for cardiac repair

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Table S1. Quantitative real-time polymerase chain reaction(qRT-PCR) primer sequences

Gene	Direction	Sequence
<i>GAPDH</i>	Forward	TGC ACC ACC AAC TGC TTA GC
	Reverse	GGC ATG GAC TGT GGT CAT GAG
<i>TNNT2</i>	Forward	GAC AGA GCG GAA AAG TGG GA
	Reverse	CCT TCC TCC TCT CAG CCA GA
<i>NPPA</i>	Forward	AGC AAG CAG TGG ATT GCT CC
	Reverse	CTG GTC TGA CCT AGG AGC TG
<i>RYR2</i>	Forward	TGC TCA TTC TTT CAG CCA CCT
	Reverse	TCC GTG TTT TGT GAT GCA ACT
<i>MYH6</i>	Forward	AGG TCA ACA AGC TTC GAG CC
	Reverse	TTG GCA AGA GTG AGG TTC CC
<i>ACTC1</i>	Forward	CAG ACC AGG ACT TGC AAC CT
	Reverse	TGC TCA GGG TGT CAA AGC AA
<i>MYL2</i>	Forward	CTC ATC TCT CTC CCC CGA GT
	Reverse	CGG CCA CGA AGT ACC CAT AG
<i>CLSTN2</i>	Forward	AGC GCT AGA AGC GCA C
	Reverse	AGC AGC CGC CCA CGA
<i>NFATC2</i>	Forward	GGC ACG CGG TAG AGA AGA C
	Reverse	AGC CTC TCT CTG CAT CTG GA

Table S2. Antibody information

Primary antibodies

Target	Reactivity	Manufacturer	Cat. No.	Dilution
Sarcomere alpha actinin (SAA)	human/rat	Sigma	A7811	1:500
Cardiac troponin T (cTnT)	human/rat	abcam	ab8295	1:200
Cardiac troponin T (cTnT)	human	abcam	ab64623	1:200
CD31	rat	Novus	AF3628	1:200
CD31	human	abcam	Ab32457	1:200

Secondary antibodies

Name	Manufacturer	Cat. No.	Dilution
FITC-conjugated donkey anti-goat antibody	Invitrogen	A11055	1:500
TRITC -conjugated goat anti-mouse antibody	Invitrogen	A11005	1:500
TRITC -conjugated donkey anti-goat antibody	Invitrogen	A32758	1:500
TRITC -conjugated goat anti-rabbit antibody	Invitrogen	A11012	1:500

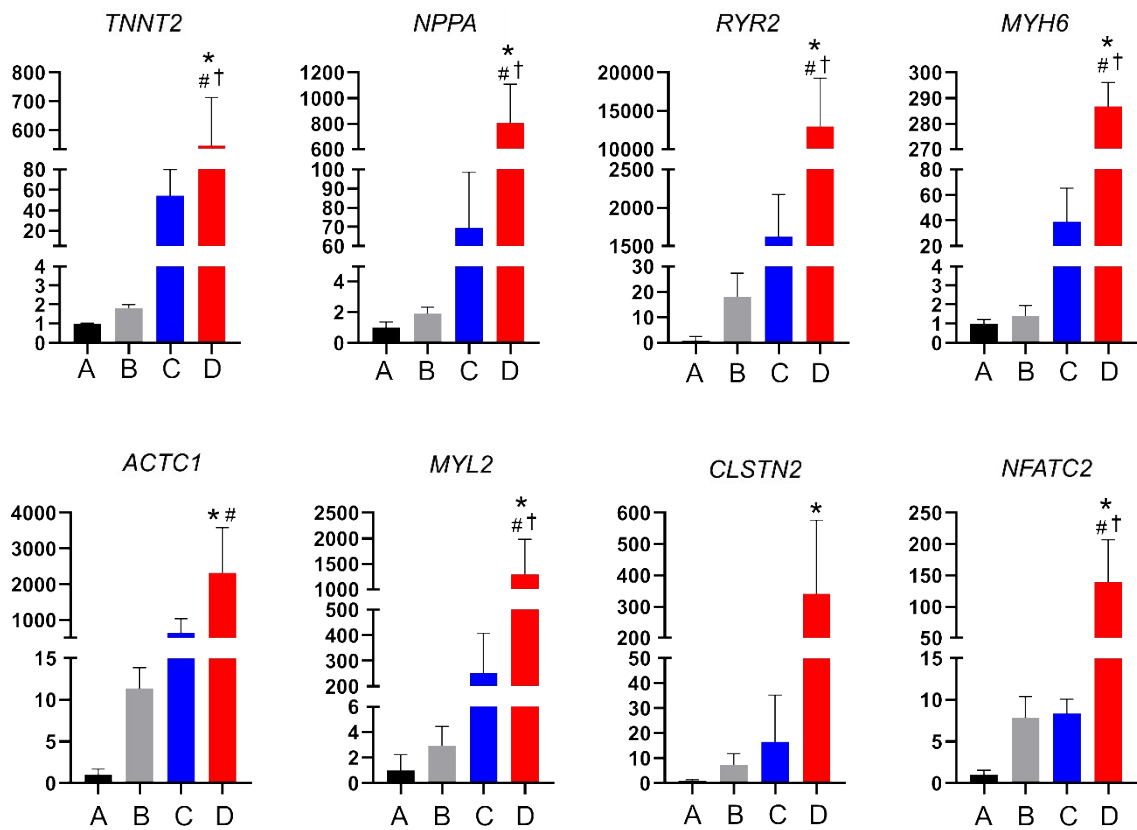


Figure S1. mRNA levels of cardiac markers and statistical analysis.

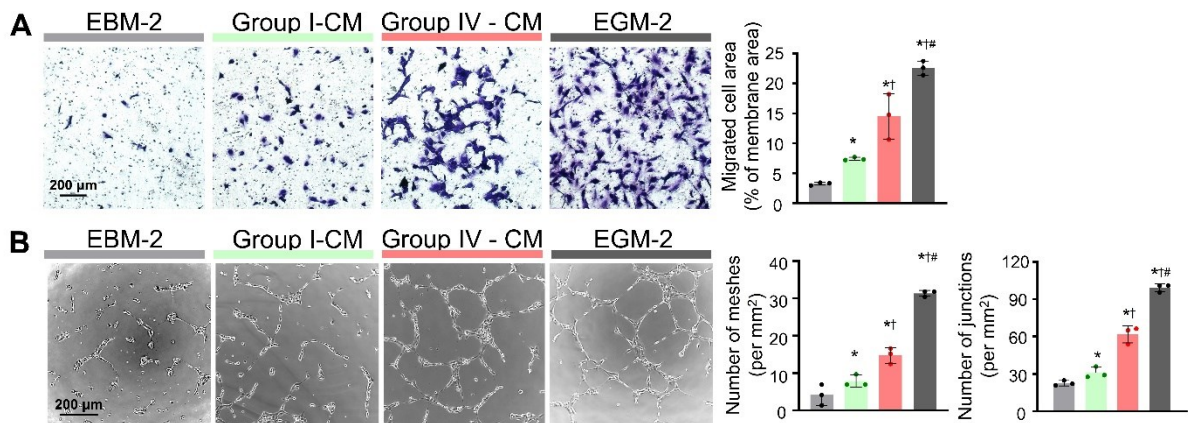


Figure S2. Pro-angiogenic paracrine effect of reprogrammed cell sheets. (A) HUVEC migration assay using Transwell (B) HUVEC tube formation assay. * $p < 0.05$ versus EBM-2 group, † $p < 0.05$ versus Group I-CM group, # $p < 0.05$ versus Group IV-CM group. $n = 3$ per group.

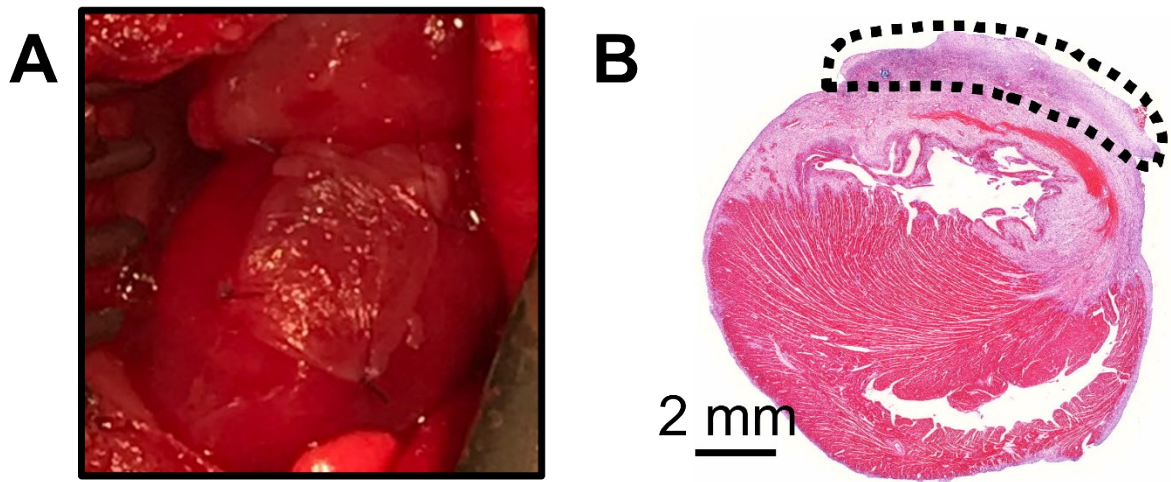


Figure S3. The epicardial implant of PMCS on the rat heart (A) and H&E stained section image for confirmation of stable mobilization of PMCS.

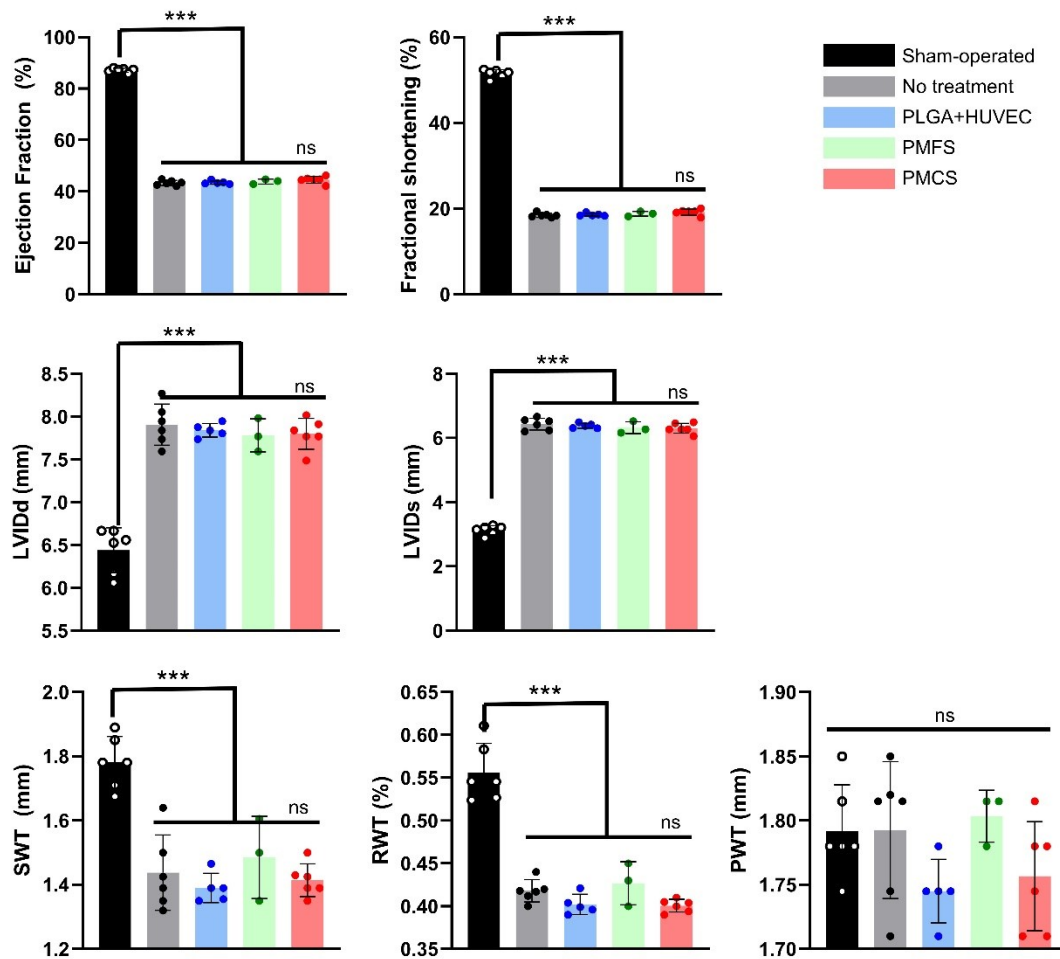


Figure S4. MI modeling before treatment compared to the sham-operated group.

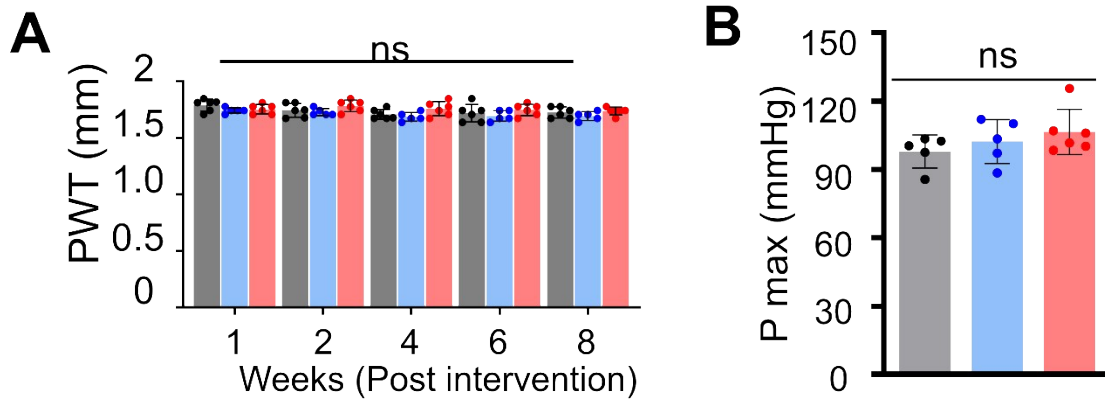


Figure S5. (A) Posterior wall thickness in echocardiography and (B) maximum pressure in P-V study

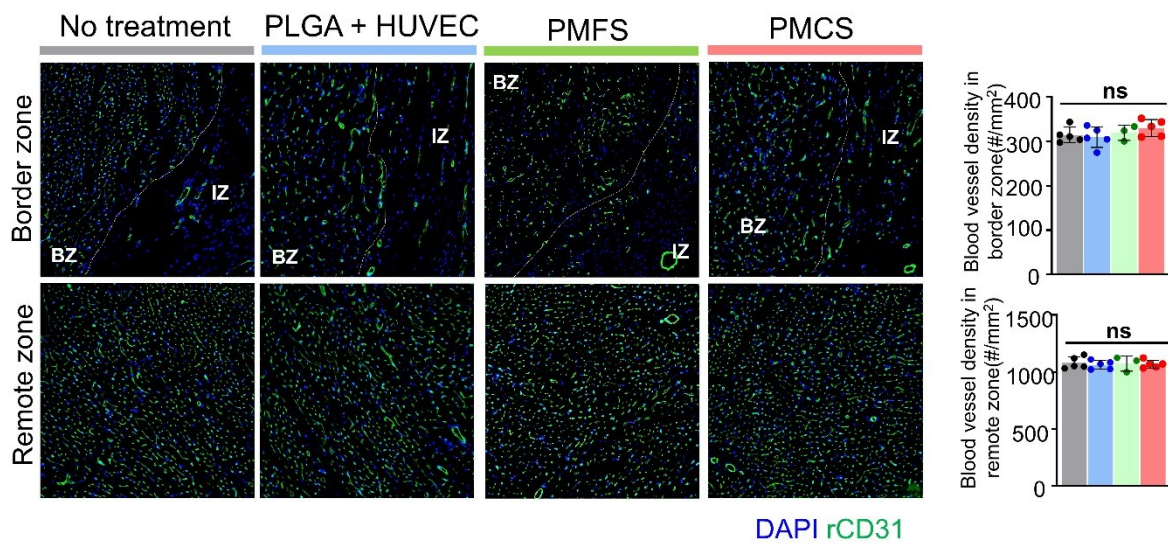


Figure S6. Representative images of blood vessels in the border zone and remote zone visualized by immunostaining of CD31 and the quantitative analysis 8 weeks after implant