

CONCERT-HF On-line Supplement Table of Contents

CONCERT-HF Stage 1 Summary Report

Supplemental Table 1. Inclusion and Exclusion Criteria

Supplemental Table 2. Summary of Manufactured Products

Supplemental Table 3. Advanced Characterization of C-Kit Positive Cardiac Cell (CPC) Products

Supplemental Table 4. Patients with Events by System Organ Class and Treatment Group

Supplemental Table 5. Patients with MACE and Other Significant Clinical Events by Treatment Group (As Treated)

Supplemental Table 6. Endpoint Analysis for Baseline to 6 Month (Intention to Treat)

Supplemental Table 7. Endpoint Analysis for Baseline to 12 Month (Intention to Treat)

Supplemental Table 8. Trajectory Assessment (Intention To Treat)

Supplemental Table 9. Trajectory Assessment (As Treated)

Supplemental Table 10. Endpoint Analysis for Baseline to 6 Month (As Treated)

Supplemental Table 11. Endpoint Analysis for Baseline to 12 Month (As Treated)

CONCERT-HF Stage 1 Summary Report

The CONCERT-HF protocol was conducted in two stages; an open label lead-in investigation (Stage 1) followed by a randomized controlled trial (Stage 2). The open label lead-in investigation consisted of 18 subjects randomized 1:1 to either a standard of care (SOC) control group (i.e., subjects did not undergo harvest, mapping, or injection procedures) or to the combination cell therapy group (mesenchymal stromal cells [MSCs] + c-kit positive cardiac cells [CPCs]). All subjects were followed for 3 months to complete safety and functional assessments. The resulting three-month data were reviewed by the NHLBI's Gene and Cell Therapy Data and Safety Monitoring Board (DSMB) prior to initiation of Stage 2 (n=125).

Enrollment

The first participant was enrolled on October 31, 2015. Twenty-seven participants were consented/enrolled in the CONCERT-HF Lead-in, and 18 successfully completed baseline testing and randomization, 9 to MSCs+CPCs therapy and 9 to SOC. Successful harvest procedures took place in 6 of the 9 treated participants; one participant suffered a stroke prior to harvest (reported to the DSMB in January 2016); one participant died from complications during the endomyocardial biopsy (EMB) procedure (reviewed on teleconference with DSMB in April 2016), and one participant's harvest procedures were cancelled because they were scheduled after the DSMB placed a hold on EMB procedures. Of the remaining 6 treated participants, 5 had successful growth of both cell types and successful study product injection by NOGA; one failed to meet the release criteria for minimum dose of CPCs and thus did not get study product injection. Of the nine participants randomized to SOC, one withdrew consent and one received an LVAD before the three-month endpoint. Thus, 8 SOC and 5 MSCs+CPCs participants were followed for the endpoints of CONCERT-HF lead-in. A full report of the Lead-in Phase (Stage 1) data was submitted to the DSMB on November 7, 2016 and subsequently forwarded to the Food and Drug Administration under our IND 16399. The final Stage 1 follow-up study visits were completed in July 2017. Final adverse event reporting concluded at the September 2017 DSMB meeting.

Baseline Characteristics

Eighteen participants were randomized during the lead-in phase, 9 to MSCs+CPCs therapy and 9 to SOC. No statistically significant differences were seen in baseline characteristics between the treated and SOC groups. The 9 participants randomized to the MSCs+CPCs group had an average age of 62 years, weight 92.5 kg, BMI 31, and blood pressure (BP) 120/71 mmHg; the 9 participants in the SOC group had an average age of 57 years, weight 97.1 kg, BMI 33, and BP 114/67 mmHg. Though also not statistically significant, 4 participants in the SOC group had previous hospitalizations compared with none in the treated group (p=0.082); 6 participants in the treated group had a history of diabetes compared with 3 in the SOC group (p=0.347); and 7 participants in the treated group were on ACE inhibitors compared with 2 in the SOC group (p=0.057). In addition, 7 participants in each group had an implantable cardiac device.

Adverse events

The tables below are provided for reference. There were 12 adverse events (AEs), of which nine were serious and reported to the DSMB.

Serious Adverse Events

Subject ID	Acrostic	Date of Treatment (SPI)	Date of SAE	Description (MedDRA preferred terms)	Expectedness	Severity or Grade	Relationship to Study Product	Relationship to Study Procedure	Outcome
03-5002-03	FREJO	No SPI	12/8/2015	Haemorrhagic transformation stroke	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized with sequelae
03-5002-03	FREJO	No SPI	12/8/2015	Acute myocardial infarction	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized with sequelae
02-5003-02	JAMARR	No SPI	3/31/2016	Cardiac perforation	Expected*	Grade 5 - Death	Definitely related	Endomyocardial Biopsy Harvest	Death: death due to AE
07-5040-07	SALMI	No SPI	4/18/2016	Cardiac failure	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized without sequelae
07-5040-07	SALMI	No SPI	5/9/2016	Cardiac failure congestive	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized with sequelae
03-5021-03	PARSH	No SPI	4/13/2016	Cardiac failure congestive	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized without sequelae
03-5021-03	PARSH	No SPI	4/13/2016	Intracardiac thrombus	Expected	Grade 3 - Severe	Unrelated	Not related to study procedure	Resolved or stabilized without sequelae
07-5040-07	SALMI	No SPI	5/17/2016	Cardiac failure congestive	Expected	Grade 4 - Life Threatening or Disabling	Unrelated	Not related to study procedure	Resolved or stabilized with sequelae
07-5040-07	SALMI	No SPI	6/20/2016	Cardiac failure congestive	Expected	Grade 4 - Life Threatening or Disabling	Unrelated	Not related to study procedure	Resolved or stabilized with sequelae

* Per the FDA, similar events (should they occur in the future) would best be characterized as unexpected

Other adverse events

Subject ID	Acrostic	Date of Treatment (SPI)	Date of AE	Description (MedDRA preferred terms)	Expectedness	Severity or Grade	Relationship to Study Product	Relationship to Study Procedure	Outcome
03-5006-03	GALRI	No SPI	4/1/2016	Cardiac failure acute	Expected	Grade 2 - Moderate	Unrelated	Not related to study procedure	Resolved or stabilized without sequelae
07-5042-07	MARSTJ	No SPI	6/18/2016	Epistaxis	Unexpected	Grade 2 - Moderate	Unrelated	Not related to study procedure	Resolved or stabilized without sequelae
07-5002-07	SALPAF	6/23/2016	6/23/2016	Abdominal pain	Expected	Grade 2 - Moderate	Unlikely	Study Product Injection	Resolved or stabilized without sequelae

There were no events attributed to the SPI, and total events reported do not differ significantly between the two groups for either the SAEs or AEs. In summary, the safety profile surrounding the SPI is excellent, and the Network accepted the guidance of the DSMB to eliminate the biopsy for the untreated participants in the placebo and MSCs only groups.

LV Function and Functional Status

The table below includes measures assessed at baseline and 3 months post treatment to explore changes over time in those receiving the MSCs + CPCs (Combo) versus those receiving SOC.

Of the nine patients randomized to the MSCs + CPCs group, four were excluded from the primary analysis (one withdrew due to an SAE prior to harvest, one died, one harvest was canceled due to DSMB hold, and one was unable to get the Month 3 data due to a weather event); also the subject whose cells failed to grow did not have the Month 3 MRI or CPET exams. Of the nine patients randomized to the SOC group, one withdrew consent and was excluded from the primary analysis; also one subject received an LVAD and did not receive the Month 3 MRI, CPET or 6MWT.

LV Function and Functional Status

	MSCs+CPCs (Combo) [N] mean (SD) {median}	SOC [N] mean (SD) {median}	Effect Estimate Diff (SE) [95%CI] P(t-test): P(Wilcoxon)
Function			
LVEF			
Baseline	[4] 27.4 (5.7) { 26 }	[7] 31.8 (7) { 31.9 }	
Three Month	[4] 29.3 (5.4) { 29 }	[7] 32.7 (7.4) { 32.7 }	
Delta	[4] 1.9 (3.5) { 1.5 }	[7] 0.9 (1.9) { 0.4 }	1 (1.6) [-4.3, 6.2] 0.638: 0.571
Within Group P-value	0.375	0.328	
Structure			
LVEDV			
Baseline	[4] 229.6 (45.4) { 228 }	[7] 281.8 (91.9) { 283.3 }	
Three Month	[4] 245.5 (40.7) { 234.1 }	[7] 275.8 (83.6) { 266.1 }	
Delta	[4] 15.9 (14.8) { 19.7 }	[7] -6 (18.9) { 0.9 }	22 (11.1) [-1.9, 45.8] 0.066: 0.059
Within Group P-value	0.25	0.812	
LVESV			
Baseline	[4] 167.7 (41.5) { 168 }	[7] 196.8 (79.6) { 191.1 }	
Three Month	[4] 174 (36) { 163.8 }	[7] 189.9 (75.4) { 167.2 }	
Delta	[4] 6.3 (18.4) { 10.9 }	[7] -6.9 (10.8) { -0.8 }	13.2 (8.6) [-14.2, 40.5] 0.258: 0.089
Within Group P-value	0.625	0.219	
LVEDVI			
Baseline	[4] 112 (23.9) { 108.5 }	[7] 125.5 (29.9) { 132 }	
Three Month	[4] 118.3 (21.4) { 111.7 }	[7] 122.5 (26.8) { 122.7 }	
Delta	[4] 6.3 (7.7) { 7.9 }	[7] -3 (9.6) { -1.5 }	9.3 (5.6) [-2.9, 21.5] 0.117: 0.131
Within Group P-value	0.25	0.469	
LVESVI			
Baseline	[4] 82.1 (22.5) { 80.2 }	[7] 87.2 (28.3) { 91.7 }	
Three Month	[4] 84.2 (20.3) { 78.7 }	[7] 83.9 (27) { 84.7 }	
Delta	[4] 2.1 (9) { 4 }	[7] -3.3 (5.4) { -0.5 }	5.4 (4.3) [-8, 18.9] 0.331: 0.186
Within Group P-value	0.625	0.297	
Functional Capacity			
Peak VO2			
Baseline	[4] 14.3 (4.7) { 14.6 }	[7] 16.2 (4.2) { 17.3 }	
Three Month	[4] 14 (5.9) { 14 }	[7] 16.3 (3) { 17.1 }	
Delta	[4] -0.3 (2) { -0.6 }	[7] 0 (2.2) { 0.1 }	-0.3 (1.3) [-3.4, 2.7] 0.798: 0.924
Within Group P-value	0.875	1	
Exercise Tolerance (6MWT)			
Baseline	[5] 391.4 (81.1) { 353 }	[7] 402.6 (102.5) { 392 }	
Three Month	[5] 413.8 (116.8) { 429 }	[7] 422.5 (88.3) { 389.5 }	
Delta	[5] 22.4 (98.1) { -10 }	[7] 19.9 (56.4) { 18 }	2.5 (44.4) [-117.4, 122.4] 0.961: 0.808
Within Group P-value	1	0.578	
MLHFQ			
Baseline	[5] 22.5 (20.2) { 24 }	[8] 49.2 (20.5) { 56.5 }	
Three Month	[5] 23.8 (18.9) { 15 }	[8] 50.9 (27.6) { 49.5 }	
Delta	[5] 1.3 (12.9) { 0 }	[8] 1.6 (18.7) { -2.5 }	-0.3 (9.6) [-19.7, 19] 0.97: 0.77
Within Group P-value	0.875	0.945	

Supplemental Table 1. Inclusion and Exclusion Criteria

Inclusion Criteria

To participate, a patient MUST:

- Be ≥ 21 and < 80 years of age
 - Have documented coronary artery disease with evidence of myocardial injury, LV dysfunction, and clinical evidence of HF
 - Have a “detectable” area of myocardial injury defined as $\geq 5\%$ LV involvement (infarct volume) and any subendocardial involvement by cMRI
 - Have an EF $\leq 40\%$ by cMRI
 - Be receiving guideline-driven medical therapy for heart failure at stable and tolerated doses for ≥ 1 month prior to consent
 - Be a candidate for cardiac catheterization
 - Have NYHA class I, II or III heart failure symptoms
 - If a female of childbearing potential, be willing to use one form of birth control for the duration of the study, and undergo a pregnancy test at baseline and within 36 hours prior to injection
-

Exclusion Criteria

To participate, a patient MUST NOT HAVE:

- Indication for standard-of-care surgery (including valve surgery, placement of LV assist device, or imminent heart transplantation), coronary artery bypass grafting (CABG) procedure, and/or percutaneous coronary intervention (PCI). Candidates cannot be UNOS 1A or 1B, and they must have documented low probability of being transplanted.
- PCI within 3 months of randomization
- CABG within 4 months of randomization
- Valvular heart disease including mechanical or bioprosthetic heart valve, severe valvular (any valve) insufficiency/regurgitation within 12 months of consent, and aortic stenosis with valve area $\leq 1.5 \text{ cm}^2$
- History of ischemic or hemorrhagic stroke within 90 days of consent
- History of an LV remodeling surgical procedure utilizing prosthetic material
- Presence of a pacemaker and/or ICD generator with any of the following limitations/conditions:
 - manufactured before the year 2000
 - leads implanted < 6 weeks prior to consent
 - non-transvenous epicardial or abandoned leads
 - subcutaneous ICDs
 - leadless pacemakers
 - any other condition that, in the judgment of device-trained staff, would deem an MRI contraindicated
- Pacemaker-dependence with an ICD (pacemaker-dependent candidates without an ICD are not excluded)
- A cardiac resynchronization therapy (CRT) device implanted within 3 months of consent
- Other MRI contraindications (e.g., patient body habitus incompatible with MRI)
- An appropriate ICD firing or anti-tachycardia pacing (ATP) for ventricular fibrillation or ventricular tachycardia within 30 days of consent

- Ventricular tachycardia (≥ 20 consecutive beats) without an ICD within 3 months of consent, or symptomatic Mobitz II or higher degree atrioventricular block without a functioning pacemaker within 3 months of consent
 - Presence of LV thrombus
 - Baseline VO_2 max $> 75\%$ of age and gender based predictive values
 - Baseline eGFR < 35 ml/min/1.73 m²
 - Poorly controlled blood glucose levels (HbA1c $> 10\%$)
 - Hematologic abnormality evidenced by hematocrit $< 25\%$, white blood cell $< 2,500$ /ul or platelet count $< 100,000$ /ul
 - Liver dysfunction evidenced by enzymes (AST and ALT) > 3 times the ULN
 - Coagulopathy (INR ≥ 1.3) not due to a reversible cause (e.g., warfarin and/or Factor Xa inhibitors). Patients who cannot be withdrawn from anticoagulation will be excluded.
 - HIV and/or active HBV or HCV
 - Allergy to radiographic contrast material that cannot adequately be managed by premedication
 - Known history of anaphylactic reaction to penicillin or streptomycin
 - Received gene or cell-based therapy from any source within the previous 12 months
 - History of malignancy within 5 years, excluding basal cell carcinoma and cervical carcinoma *in situ* which have been definitively treated
 - Condition that limits lifespan to < 1 year
 - History of drug or alcohol abuse
 - Participation in an investigational therapeutic or device trial within 30 days of consent
 - Cognitive or language barriers that prohibit obtaining informed consent or any study elements
 - Pregnancy or lactation or plans to become pregnant in the next 12 months
 - Any other condition that, in the judgment of the Investigator or Sponsor, would impair enrollment, study product administration, or follow-up
-

Supplemental Table 2. Summary of Manufactured Products

Characteristics of Manufactured Products*	MSC Products (N=41)			CPC Products (N=48)		
	Mean ± SD	Min	Max	Mean ± SD	Min	Max
Cell Count Total Yield (x10 ⁶)	197.4 ± 92.1	78.8	545.0	16.8 ± 11.7	2.0	48.0
Cell Count Cryopreserved for Dose (x10 ⁶)	180.5 ± 68.0	77.2	335.0	6.7 ± 2.3	1.5	12.0
Percent Viable	96.3 ± 2.7	86.9	100.0	97.7 ± 2.3	89.4	100.0
Percentage of cells with phenotype CD45+	1.1 ± 0.5	0.3	1.9	0.6 ± 0.3	0.03	1.3
Percentage of cells with phenotype CD105+ (MSCs)	99.1 ± 0.9	95.5	99.9			
Percentage of cells with phenotype CD117+ (CPCs)				82.9 ± 5.9	73.3	97.4

*Only products administered to participants included in table

MSC=mesenchymal stromal cells, CPC=ckit positive cardiac cells

Released products were all negative for aerobic, anaerobic, and fungal with negative mycoplasma PCR.

Endotoxin values ≤ 5.000 EU/ml were required for release.

Supplemental Table 3. Advanced Characterization of C-Kit Positive Cardiac Cell (CPC) Products

	n	Mean ± SD	Min	Max
Cardiogenic Markers (%)				
Homeobox protein NKx2.5	27	97.21 ± 1.98	93	100
GATA transcription factor	27	95.24 ± 4.33	80.3	100
Myocyte Enhancer Factor 2C (MEF2c)	27	88.21 ± 9.19	62	99
p16 ^{INK4a} (Inhibitor of cyclin-dependent kinases)	27	0.34 ± 0.47	0	1.2
Von Willebrand Factor protein (vWF)	27	99.37 ± 0.48	98	100
α-Sarcomeric Actin	20	93.10 ± 21.63	2	100
Hematopoietic stem/progenitor cell markers (%)				
CD11b	35	7.58 ± 9.09	0.96	47.63
CD14	35	6.84 ± 3.70	1.58	17.6
CD16	34	14.46 ± 9.92	1.72	40.34
CD19	33	1.54 ± 0.77	0.23	3.74
CD29	28	96.68 ± 2.67	87.81	99.16
CD31	35	5.16 ± 6.61	0.67	2.17
CD34	35	17.09 ± 11.54	1.05	42.71
CD73	28	97.50 ± 2.19	88.33	99.21
CD90	35	38.94 ± 25.99	1.2	94.2
CD105	35	94.92 ± 5.88	68.05	99.2
CD133	35	1.69 ± 2.26	0.14	13.08
CXCR4 (also known as CD184)	35	6.87 ± 5.66	0.41	22.45
Senescence				
Telomere Length (kb)	24	8.96 ± 1.99	6	13
Telomere Activity (relative telomerase activity to Hela cells- RTA)	31	2.98 ± 1.77	0.6	8.3

Supplemental Table 4. Patients with Events by System Organ Class and Treatment Group*

System Organ Class†	Pre-RZ Consented (N=193)	Post-RZ Randomized (N=125)	MSCs+CPCs (n=33)	MSCs (n=29)	CPCs (n=31)	Placebo (n=32)	P-value
Any system organ class‡	12 (6.2%)	93 (74.4%)	22 (66.7%)	23 (79.3%)	25 (80.6%)	23 (71.9%)	0.564
Blood and lymphatic system disorders	0 (0%)	10 (8%)	3 (9.1%)	2 (6.9%)	3 (9.7%)	2 (6.2%)	0.971
Cardiac disorders	3 (1.6%)	56 (44.8%)	14 (42.4%)	8 (27.6%)	17 (54.8%)	17 (53.1%)	0.126
Eye disorders	0 (0%)	3 (2.4%)	1 (3%)	1 (3.4%)	1 (3.2%)	0 (0%)	0.801
Gastrointestinal disorders	0 (0%)	11 (8.8%)	0 (0%)	5 (17.2%)	2 (6.5%)	4 (12.5%)	0.054
General disorders and administration site conditions	0 (0%)	9 (7.2%)	0 (0%)	5 (17.2%)	2 (6.5%)	2 (6.2%)	0.06
Hepatobiliary disorders	1 (0.5%)	2 (1.6%)	2 (6.1%)	0 (0%)	0 (0%)	0 (0%)	0.245
Infections and infestations	2 (1%)	28 (22.4%)	8 (24.2%)	3 (10.3%)	5 (16.1%)	12 (37.5%)	0.069
Injury, poisoning and procedural complications	2 (1%)	15 (12%)	5 (15.2%)	6 (20.7%)	2 (6.5%)	2 (6.2%)	0.57
Investigations	1 (0.5%)	7 (5.6%)	4 (12.1%)	0 (0%)	1 (3.2%)	2 (6.2%)	0.087
Metabolism and nutrition disorders	1 (0.5%)	10 (8%)	2 (6.1%)	2 (6.9%)	3 (9.7%)	3 (9.4%)	0.943
Musculoskeletal and connective tissue disorders	1 (0.5%)	11 (8.8%)	2 (6.1%)	4 (13.8%)	3 (9.7%)	2 (6.2%)	0.771
Neoplasms benign, malignant and unspecified (incl cysts and polyps)	1 (0.5%)	7 (5.6%)	2 (6.1%)	1 (3.4%)	4 (12.9%)	0 (0%)	0.216
Nervous system disorders	1 (0.5%)	12 (9.6%)	3 (9.1%)	4 (13.8%)	1 (3.2%)	4 (12.5%)	0.36
Product issues	0 (0%)	4 (3.2%)	1 (3%)	0 (0%)	1 (3.2%)	2 (6.2%)	0.848
Renal and urinary disorders	0 (0%)	16 (12.8%)	3 (9.1%)	1 (3.4%)	6 (19.4%)	6 (18.8%)	0.167
Reproductive system and breast disorders	0 (0%)	3 (2.4%)	0 (0%)	2 (6.9%)	0 (0%)	1 (3.1%)	0.139
Respiratory, thoracic and mediastinal disorders	1 (0.5%)	11 (8.8%)	2 (6.1%)	2 (6.9%)	1 (3.2%)	6 (18.8%)	0.206
Skin and subcutaneous tissue disorders	0 (0%)	7 (5.6%)	2 (6.1%)	0 (0%)	1 (3.2%)	4 (12.5%)	0.217
Surgical and medical procedures	0 (0%)	8 (6.4%)	2 (6.1%)	3 (10.3%)	2 (6.5%)	1 (3.1%)	0.68
Vascular disorders	0 (0%)	10 (8%)	1 (3%)	3 (10.3%)	1 (3.2%)	5 (15.6%)	0.227

*Total number of patients with events, N=99

†System Organ Classification by MedDRA version 19.1

‡Patients could have events in more than one SOC class

Denominators are per column

Pre-RZ=patients with events occurring prior to randomization, Post-RZ=patient with events occurring after randomization

MSC=mesenchymal stromal cells, CPC=ckit positive cardiac cells

Supplemental Table 5. Patients with MACE and Other Significant Clinical Events by Treatment Group (As Treated)

	Post-RZ (N = 125)	Not Treated (N = 15)	MSCs+CPCs (N = 20)	MSCs (N = 21)	CPCs (N = 28)	Placebo (N = 41)	P-value
Patients with MACE and Other Significant Clinical Events*	43 (34.4%)	9 (60%)	6 (30%)	7 (33.3%)	5 (17.9%)	16 (39%)	0.083
Patients with Major Adverse Cardiac Events (MACE)	21 (16.8%)	5 (33.3%)	1 (5%)	4 (19%)	1 (3.6%)	10 (24.4%)	0.027
Death	11 (8.8%)	3 (20%)	1 (5%)	2 (9.5%)	1 (3.6%)	4 (9.8%)	0.486
Hospitalization for worsening HF	14 (11.2%)	3 (20%)	1 (5%)	2 (9.5%)	0 (0%)	8 (19.5%)	0.046
Exacerbation of HF (non-hospitalization)	2 (1.6%)	0 (0%)	0 (0%)	1 (4.8%)	0 (0%)	1 (2.4%)	0.852
Patients with Other Significant Clinical Events	29 (23.2%)	5 (33.3%)	6 (30%)	4 (19%)	5 (17.9%)	9 (22%)	0.711
Non-fatal stroke	2 (1.6%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)	1 (2.4%)	0.741
Non-fatal MI	4 (3.2%)	1 (6.7%)	0 (0%)	1 (4.8%)	1 (3.6%)	1 (2.4%)	0.853
Coronary artery revascularization	7 (5.6%)	1 (6.7%)	1 (5%)	2 (9.5%)	1 (3.6%)	2 (4.9%)	0.931
Ventricular tachycardia / fibrillation	19 (15.2%)	5 (33.3%)	4 (20%)	3 (14.3%)	3 (10.7%)	4 (9.8%)	0.256
Pericardial tamponade	2 (1.6%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)	1 (2.4%)	0.741
Patients with MACE and Other Significant Clinical Events that were SAEs	37 (29.6%)	9 (60%)	5 (25%)	6 (28.6%)	3 (10.7%)	14 (34.1%)	0.017

*Categories of MACE and Patients with Other Significant Clinical Events are not mutually exclusive.

Denominators are per column

MACE=major adverse cardiac event, MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells HF=heart failure; MI=myocardial infarction, SAE=serious adverse event

Supplemental Table 6. Endpoint Analysis for Baseline to 6 Month (Intention to Treat)

Function												
LVEF (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	29.70 (6.92)	[24]	29.06 (6.04)	[25]	26.16 (5.02)	[25]	29.48 (6.03)	Mean Difference (SE)	-0.08 (1.05)	0.70 (0.96)	1.38 (1.05)
6 Month	[28]	29.29 (5.79)	[24]	29.43 (7.00)	[25]	27.21 (6.01)	[25]	29.14 (4.81)	ANCOVA adjusted for Baseline (p-value)	0.993	0.499	0.578
Delta	[28]	-0.42 (3.90)	[24]	0.37 (2.95)	[25]	1.05 (3.68)	[25]	-0.33 (3.73)	95% Confidence Interval	-2.190 to 2.023	-1.229 to 2.635	-0.729 to 3.485
Within group p-value		0.578		0.544		0.168		0.661				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-1.46 (1.04)	-0.79 (0.95)	0.67 (0.95)
									ANCOVA adjusted for Baseline (p-value)	0.523	0.471	0.485
									95% Confidence Interval	-3.552 to 0.629	-2.7 to 1.127	-1.240 to 2.590
Global Circumferential Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[26]	-8.70 (2.50)	[17]	-8.63 (3.23)	[22]	-8.30 (2.88)	[16]	-9.03 (3.73)	Mean Difference (SE)	-0.26 (1.05)	0.58 (1.17)	0.66 (0.95)
6 Month	[26]	-9.06 (3.34)	[17]	-8.15 (2.57)	[22]	-7.74 (2.96)	[16]	-9.13 (2.29)	ANCOVA adjusted for Baseline (p-value)	0.942	0.282	0.163
Delta	[26]	-0.36 (3.20)	[17]	0.48 (3.36)	[22]	0.56 (2.08)	[16]	-0.10 (3.38)	95% Confidence Interval	-2.406 to 1.887	-1.815 to 2.975	-1.310 to 2.635
Within group p-value		0.572		0.564		0.219		0.907				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.92 (0.77)	-0.84 (1.03)	0.08 (0.93)
									ANCOVA adjusted for Baseline (p-value)	0.175	0.329	0.752
									95% Confidence Interval	-2.471 to 0.628	-2.932 to 1.254	-1.829 to 1.994

Function												
Longitudinal Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[26]	-10.18 (2.85)	[18]	-10.00 (2.42)	[22]	-9.47 (2.51)	[17]	-9.58 (2.93)	Mean Difference (SE)	0.40 (0.75)	0.40 (0.81)	0.15 (0.80)
6 Month	[26]	-10.68 (3.16)	[18]	-10.51 (2.82)	[22]	-10.22 (2.69)	[17]	-10.49 (2.97)	ANCOVA adjusted for Baseline (p-value)	0.733	0.735	0.794
Delta	[26]	-0.50 (2.33)	[18]	-0.51 (2.33)	[22]	-0.76 (2.49)	[17]	-0.91 (2.44)	95% Confidence Interval	-1.118 to 1.927	-1.248 to 2.041	-1.464 to 1.767
Within group p-value		0.282		0.366		0.170		0.145				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.25 (0.70)	0.01 (0.71)	-0.24 (0.76)
									ANCOVA adjusted for Baseline (p-value)	0.951	0.962	0.945
									95% Confidence Interval	-1.161 to 1.666	-1.441 to 1.457	-1.793 to 1.303
Structure												
LVEDVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	126.14 (28.99)	[24]	128.71 (35.39)	[25]	133.33 (25.99)	[25]	126.36 (30.00)	Mean Difference (SE)	-2.02 (3.85)	-2.78 (3.39)	-4.13 (3.42)
6 Month	[28]	127.11 (30.36)	[24]	128.92 (33.69)	[25]	132.19 (22.20)	[25]	129.35 (30.31)	ANCOVA adjusted for Baseline (p-value)	0.602	0.443	0.348
Delta	[28]	0.97 (16.06)	[24]	0.21 (11.91)	[25]	-1.13 (12.37)	[25]	2.99 (11.84)	95% Confidence Interval	-9.754 to 5.711	-9.609 to 4.044	-11.011 to 2.760
Within group p-value		0.752		0.932		0.651		0.218				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	2.10 (3.92)	0.76 (3.89)	-1.34 (3.47)
									ANCOVA adjusted for Baseline (p-value)	0.812	0.900	0.848
									95% Confidence Interval	-5.760 to 9.968	-7.052 to 8.574	-8.321 to 5.635

Structure												
LVESVI (mL/m ²)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	89.73 (27.17)	[24]	92.82 (31.90)	[25]	99.04 (23.61)	[25]	90.16 (27.29)	Mean Difference (SE)	-1.25 (3.01)	-2.46 (3.06)	-4.60 (3.08)
6 Month	[28]	90.72 (26.45)	[24]	92.59 (31.04)	[25]	96.67 (20.35)	[25]	92.39 (26.07)	ANCOVA adjusted for Baseline (p-value)	0.659	0.466	0.293
Delta	[28]	0.98 (11.17)	[24]	-0.22 (10.75)	[25]	-2.37 (11.09)	[25]	2.23 (10.69)	95% Confidence Interval	-7.281 to 4.789	-8.621 to 3.710	-10.799 to 1.594
Within group p-value		0.645		0.919		0.296		0.307				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	3.36 (3.06)	1.21 (3.05)	-2.15 (3.12)
									ANCOVA adjusted for Baseline (p-value)	0.530	0.761	0.669
									95% Confidence Interval	-2.795 to 9.508	-4.910 to 7.330	-8.426 to 4.132
Sphericity (ml)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[26]	0.57 (0.10)	[24]	0.56 (0.09)	[25]	0.58 (0.10)	[25]	0.56 (0.18)	Mean Difference (SE)	-0.00 (0.02)	-0.01 (0.02)	-0.01 (0.02)
6 Month	[26]	0.58 (0.10)	[24]	0.55 (0.08)	[25]	0.58 (0.09)	[25]	0.57 (0.14)	ANCOVA adjusted for Baseline (p-value)	0.989	0.493	0.926
Delta	[26]	0.00 (0.07)	[24]	-0.00 (0.07)	[25]	0.00 (0.08)	[25]	0.01 (0.08)	95% Confidence Interval	-0.048 to 0.040	-0.056 to 0.033	-0.053 to 0.039
Within group p-value		0.834		0.785		0.991		0.664				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.00 (0.02)	0.01 (0.02)	-0.00 (0.02)
									ANCOVA adjusted for Baseline (p-value)	0.904	0.476	0.515
									95% Confidence Interval	-0.041 to 0.047	-0.035 to 0.049	-0.040 to 0.048

Morphology												
Scar Size Percent (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[22]	18.76 (6.60)	[20]	20.19 (5.96)	[22]	18.93 (4.88)	[21]	21.44 (5.47)	Mean Difference (SE)	-0.04 (0.85)	-0.17 (0.80)	-0.52 (0.71)
6 Month	[22]	18.18 (6.24)	[20]	19.49 (6.69)	[22]	17.87 (5.05)	[21]	20.90 (5.13)	ANCOVA adjusted for Baseline (p-value)	0.569	0.767	0.261
Delta	[22]	-0.57 (3.25)	[20]	-0.70 (2.80)	[22]	-1.06 (2.40)	[21]	-0.53 (2.29)	95% Confidence Interval	-1.770 to 1.687	-1.792 to 1.457	-1.965 to 0.921
Within group p-value	0.416		0.278		0.051		0.299					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.48 (0.86)	0.13 (0.93)	-0.36 (0.81)
									ANCOVA adjusted for Baseline (p-value)	0.587	0.994	0.639
									95% Confidence Interval	-1.261 to 2.222	-1.763 to 2.014	-1.993 to 1.283
Scar Tissue Mass (g)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[22]	31.14 (10.84)	[20]	31.25 (12.32)	[22]	32.86 (10.30)	[21]	35.42 (10.84)	Mean Difference (SE)	0.44 (1.42)	0.18 (1.22)	-1.20 (1.31)
6 Month	[22]	30.27 (11.07)	[20]	30.12 (11.97)	[22]	30.35 (9.51)	[21]	34.11 (10.29)	ANCOVA adjusted for Baseline (p-value)	0.992	0.862	0.217
Delta	[22]	-0.87 (5.21)	[20]	-1.13 (3.71)	[22]	-2.51 (4.51)	[21]	-1.31 (4.07)	95% Confidence Interval	-2.437 to 3.319	-2.278 to 2.643	-3.846 to 1.443
Within group p-value	0.443		0.190		0.016		0.156					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	1.64 (1.47)	0.26 (1.39)	-1.38 (1.27)
									ANCOVA adjusted for Baseline (p-value)	0.327	0.859	0.338
									95% Confidence Interval	-1.325 to 4.611	-2.551 to 3.068	-3.952 to 1.184

Functional Capacity												
Peak V0 ₂ (ml/kg/min)												
	MSC + CPC		MSCs only		CPCs only		Placebo			MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	16.63 (5.23)	[23]	17.67 (5.37)	[25]	15.80 (4.59)	[26]	16.41 (4.55)	Mean Difference (SE)	-1.02 (0.71)	-0.97 (0.90)	0.63 (0.73)
6 Month	[28]	15.74 (4.56)	[23]	16.83 (4.33)	[25]	16.57 (5.76)	[26]	16.55 (4.89)	ANCOVA adjusted for Baseline (p-value)	0.157	0.428	0.382
Delta	[28]	-0.89 (2.94)	[23]	-0.83 (3.75)	[25]	0.77 (2.86)	[26]	0.13 (2.28)	95% Confidence Interval	-2.456 to 0.411	-2.798 to 0.859	-0.83 to 2.093
Within group p-value		0.122		0.297		0.193		0.766				
										MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only
									Mean Difference (SE)	-1.65 (0.80)	-0.05 (0.96)	1.60 (0.97)
									ANCOVA adjusted for Baseline (p-value)	0.056	0.610	0.195
									95% Confidence Interval	-3.255 to -0.052	-1.991 to 1.885	-0.356 to 3.557
Exercise Tolerance - 6 MWT (m)												
	MSC + CPC		MSCs only		CPCs only		Placebo			MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	371.07 (80.09)	[24]	366.90 (92.99)	[25]	377.52 (88.20)	[27]	376.11 (90.43)	Mean Difference (SE)	18.57 (19.01)	23.19 (17.88)	1.69 (16.21)
6 Month	[29]	390.31 (90.46)	[24]	390.75 (102.81)	[25]	379.88 (93.55)	[27]	376.78 (94.32)	ANCOVA adjusted for Baseline (p-value)	0.348	0.230	0.905
Delta	[29]	19.24 (71.65)	[24]	23.85 (57.03)	[25]	2.36 (44.30)	[27]	0.67 (70.54)	95% Confidence Interval	-19.537 to 56.687	-12.759 to 59.134	-30.974 to 34.361
Within group p-value		0.159		0.052		0.792		0.961				
										MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only
									Mean Difference (SE)	16.88 (15.98)	-4.61 (17.68)	-21.49 (14.63)
									ANCOVA adjusted for Baseline (p-value)	0.335	0.827	0.163
									95% Confidence Interval	-15.267 to 49.030	-40.106 to 30.880	-50.989 to 8.001

Functional Capacity												
MLHFQ Summary Score												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[30]	40.86 (23.35)	[24]	50.71 (22.97)	[25]	30.34 (23.82)	[28]	39.93 (24.83)	Mean Difference (SE)	-9.64 (4.63)	-15.09 (5.84)	-2.97 (5.86)
6 Month	[30]	25.54 (19.09)	[24]	29.93 (18.37)	[25]	21.69 (18.47)	[28]	34.25 (23.23)	ANCOVA adjusted for Baseline (p-value)	0.023	0.050	0.119
Delta	[30]	-15.32 (16.94)	[24]	-20.78 (23.11)	[25]	-8.65 (23.72)	[28]	-5.68 (18.23)	95% Confidence Interval	-18.915 to -0.357	-26.871 to -3.319	-14.784 to 8.836
Within group p-value	0.000		0.000		0.081		0.111					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-6.66 (5.66)	5.46 (5.64)	12.12 (6.69)
									ANCOVA adjusted for Baseline (p-value)	0.845	0.976	0.717
									95% Confidence Interval	-18.087 to 4.762	-5.931 to 16.848	-1.337 to 25.578
Biomarkers												
NT-proBNP (pg/ml)*												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	1446.54 (4762.24)	[23]	487.83 (629.88)	[25]	879.94 (845.06)	[27]	701.19 (1350.74)	Mean Difference (SE)	-1411.7 (840.6)	-634.6 (405.1)	-483.2 (400.7)
6 Month	[29]	722.08 (866.27)	[23]	540.43 (589.59)	[25]	1084.04 (1070.04)	[27]	1388.43 (2356.32)	ANCOVA adjusted for Baseline (p-value)	0.110	0.112	0.891
Delta	[29]	-724.46 (4020.53)	[23]	52.60 (586.16)	[25]	204.09 (533.51)	[27]	687.25 (2006.72)	95% Confidence Interval	-3108.3 to 284.9	-1460.7 to 191.4	-1301.5 to 335.2
Within group p-value	0.469		0.289		0.013		0.023					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-928.6 (754.2)	-777.1 (756.5)	151.5 (162.2)
									ANCOVA adjusted for Baseline (p-value)	0.009	0.661	0.015
									95% Confidence Interval	-2470.7 to 613.6	-2323.2 to 769.1	-175.4 to 478.4

*Log transformation for NT-proBNP; p-values were obtained from transformed data. Data presented as [N] Mean (SD), unless otherwise indicated

ANCOVA model adjusted for baseline value of outcome

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide

Supplemental Table 7. Endpoint Analysis for Baseline to 12 Month (Intention to Treat)

Function												
LVEF (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	29.66 (6.80)	[20]	29.88 (6.16)	[23]	25.74 (4.99)	[20]	29.32 (6.68)	Mean Difference (SE)	0.58 (1.35)	1.57 (1.33)	1.54 (1.13)
12 Month	[29]	29.91 (6.74)	[20]	31.12 (7.06)	[23]	26.96 (5.12)	[20]	28.99 (5.79)	ANCOVA adjusted for Baseline (p-value)	0.606	0.195	0.611
Delta	[29]	0.25 (6.07)	[20]	1.24 (4.96)	[23]	1.21 (4.12)	[20]	-0.33 (3.30)	95% Confidence Interval	-2.132 to 3.294	-1.140 to 4.282	-0.744 to 3.833
Within group p-value		0.828		0.279		0.173		0.656				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.96 (1.42)	-0.99 (1.58)	-0.03 (1.40)
									ANCOVA adjusted for Baseline (p-value)	0.713	0.494	0.499
									95% Confidence Interval	-3.812 to 1.883	-4.174 to 2.193	-2.869 to 2.817
Global Circumferential Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[26]	-8.70 (2.50)	[17]	-8.63 (3.23)	[22]	-8.30 (2.88)	[16]	-9.03 (3.73)	Mean Difference (SE)	-0.71 (0.99)	-1.46 (1.04)	-0.50 (1.06)
12 Month	[26]	-8.46 (2.78)	[17]	-9.14 (3.12)	[22]	-7.85 (2.54)	[16]	-8.08 (3.46)	ANCOVA adjusted for Baseline (p-value)	0.492	0.168	0.908
Delta	[26]	0.24 (2.44)	[17]	-0.51 (2.40)	[22]	0.45 (2.87)	[16]	0.95 (3.45)	95% Confidence Interval	-2.744 to 1.322	-3.593 to 0.677	-2.664 to 1.660
Within group p-value		0.620		0.397		0.471		0.287				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.21 (0.78)	0.75 (0.75)	0.96 (0.84)
									ANCOVA adjusted for Baseline (p-value)	0.548	0.313	0.147
									95% Confidence Interval	-1.777 to 1.359	-0.784 to 2.277	-0.756 to 2.666

Function												
Longitudinal Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[26]	-10.18 (2.85)	[18]	-10.00 (2.42)	[22]	-9.47 (2.51)	[17]	-9.58 (2.93)	Mean Difference (SE)	0.78 (0.95)	-0.03 (1.01)	0.28 (0.99)
12 Month	[26]	-10.13 (2.78)	[18]	-10.77 (3.27)	[22]	-9.92 (2.68)	[17]	-10.32 (3.16)	ANCOVA adjusted for Baseline (p-value)	0.582	0.836	0.693
Delta	[26]	0.05 (3.08)	[18]	-0.77 (2.97)	[22]	-0.45 (3.16)	[17]	-0.74 (3.01)	95% Confidence Interval	-1.139 to 2.708	-2.089 to 2.029	-1.734 to 2.298
Within group p-value		0.938		0.289		0.507		0.328				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.50 (0.90)	0.81 (0.92)	0.31 (0.97)
									ANCOVA adjusted for Baseline (p-value)	0.958	0.391	0.496
									95% Confidence Interval	-1.319 to 2.324	-1.057 to 2.686	-1.656 to 2.280
Structure												
LVEDVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	125.70 (28.57)	[20]	121.78 (33.26)	[23]	131.46 (26.27)	[20]	128.44 (31.85)	Mean Difference (SE)	-0.52 (5.80)	-2.66 (5.57)	1.76 (5.59)
12 Month	[29]	128.34 (33.74)	[20]	122.28 (34.15)	[23]	136.38 (26.22)	[20]	131.60 (28.99)	ANCOVA adjusted for Baseline (p-value)	0.871	0.483	0.629
Delta	[29]	2.64 (17.82)	[20]	0.50 (12.93)	[23]	4.92 (14.02)	[20]	3.16 (21.29)	95% Confidence Interval	-12.279 to 11.237	-14.014 to 8.695	-9.613 to 13.142
Within group p-value		0.433		0.865		0.106		0.515				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-2.29 (4.42)	2.14 (4.39)	4.42 (4.11)
									ANCOVA adjusted for Baseline (p-value)	0.573	0.639	0.212
									95% Confidence Interval	-11.155 to 6.584	-6.704 to 10.979	-3.88 to 12.727

Structure												
LVESVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	89.43 (26.73)	[20]	86.73 (29.88)	[23]	98.24 (23.92)	[20]	92.01 (29.16)	Mean Difference (SE)	-0.39 (4.72)	-3.11 (4.72)	0.16 (4.85)
12 Month	[29]	90.95 (29.45)	[20]	85.52 (30.57)	[23]	100.30 (24.39)	[20]	93.91 (24.27)	ANCOVA adjusted for Baseline (p-value)	0.852	0.361	0.698
Delta	[29]	1.51 (13.02)	[20]	-1.21 (10.85)	[23]	2.06 (12.78)	[20]	1.90 (18.11)	95% Confidence Interval	-9.993 to 9.214	-12.738 to 6.515	-9.696 to 10.013
Within group p-value		0.536		0.625		0.447		0.643				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.55 (3.60)	2.72 (3.43)	3.27 (3.60)
									ANCOVA adjusted for Baseline (p-value)	0.781	0.440	0.271
									95% Confidence Interval	-7.784 to 6.688	-4.178 to 9.622	-4.009 to 10.549
Sphericity (ml)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	0.57 (0.10)	[20]	0.54 (0.09)	[23]	0.57 (0.10)	[20]	0.55 (0.12)	Mean Difference (SE)	-0.00 (0.02)	-0.01 (0.03)	0.00 (0.03)
12 Month	[28]	0.58 (0.12)	[20]	0.54 (0.09)	[23]	0.59 (0.10)	[20]	0.56 (0.10)	ANCOVA adjusted for Baseline (p-value)	0.851	0.696	0.515
Delta	[28]	0.01 (0.07)	[20]	0.00 (0.08)	[23]	0.01 (0.08)	[20]	0.01 (0.08)	95% Confidence Interval	-0.048 to 0.047	-0.061 to 0.047	-0.047 to 0.056
Within group p-value		0.578		0.952		0.448		0.666				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.01 (0.02)	0.01 (0.02)	0.01 (0.02)
									ANCOVA adjusted for Baseline (p-value)	0.774	0.626	0.330
									95% Confidence Interval	-0.049 to 0.038	-0.04 to 0.053	-0.039 to 0.062

Morphology												
Scar Size Percent (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[21]	18.62 (6.73)	[16]	20.24 (5.48)	[19]	19.49 (5.19)	[17]	21.39 (5.97)	Mean Difference (SE)	-0.35 (1.05)	-0.12 (0.90)	0.08 (1.01)
12 Month	[21]	17.72 (6.03)	[16]	19.58 (5.98)	[19]	19.03 (6.34)	[17]	20.84 (5.58)	ANCOVA adjusted for Baseline (p-value)	0.350	0.804	0.963
Delta	[21]	-0.90 (3.34)	[16]	-0.66 (1.90)	[19]	-0.46 (2.90)	[17]	-0.55 (3.14)	95% Confidence Interval	-2.491 to 1.784	-1.958 to 1.725	-1.976 to 2.137
Within group p-value		0.231		0.183		0.494		0.484				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.43 (0.99)	-0.24 (0.87)	0.20 (0.82)
									ANCOVA adjusted for Baseline (p-value)	0.591	0.618	0.777
									95% Confidence Interval	-2.431 to 1.562	-2.006 to 1.532	-1.468 to 1.863
Scar Tissue Mass (g)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[21]	31.37 (11.05)	[16]	30.67 (11.30)	[19]	33.30 (10.91)	[17]	34.55 (10.92)	Mean Difference (SE)	0.52 (1.78)	1.04 (1.48)	0.82 (1.84)
12 Month	[21]	30.24 (11.13)	[16]	30.06 (11.08)	[19]	32.47 (12.85)	[17]	32.90 (9.74)	ANCOVA adjusted for Baseline (p-value)	0.994	0.725	0.699
Delta	[21]	-1.13 (5.78)	[16]	-0.61 (3.10)	[19]	-0.83 (5.87)	[17]	-1.65 (5.17)	95% Confidence Interval	-3.092 to 4.130	-1.989 to 4.071	-2.92 to 4.562
Within group p-value		0.381		0.445		0.546		0.207				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.30 (1.85)	-0.52 (1.48)	-0.22 (1.55)
									ANCOVA adjusted for Baseline (p-value)	0.835	0.776	0.897
									95% Confidence Interval	-4.039 to 3.436	-3.539 to 2.496	-3.401 to 2.962

Functional Capacity												
Peak V0₂ (ml/kg/min)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[27]	16.98 (5.13)	[21]	17.36 (5.02)	[22]	15.94 (4.42)	[21]	17.19 (4.70)	Mean Difference (SE)	-0.55 (0.94)	1.31 (0.87)	0.99 (0.95)
12 Month	[27]	15.78 (5.13)	[21]	18.02 (4.47)	[22]	16.28 (6.08)	[21]	16.54 (4.79)	ANCOVA adjusted for Baseline (p-value)	0.515	0.107	0.317
Delta	[27]	-1.20 (3.26)	[21]	0.66 (2.39)	[22]	0.34 (3.03)	[21]	-0.65 (3.20)	95% Confidence Interval	-2.441 to 1.344	-0.449 to 3.078	-0.926 to 2.914
Within group p-value	0.067		0.218		0.603		0.361					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-1.54 (0.90)	-1.86 (0.82)	-0.32 (0.83)
									ANCOVA adjusted for Baseline (p-value)	0.112	0.019	0.681
									95% Confidence Interval	-3.356 to 0.271	-3.506 to -0.220	-1.997 to 1.356
Exercise Tolerance - 6 MWT (m)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	370.79 (81.55)	[20]	371.18 (94.88)	[23]	381.59 (90.91)	[21]	385.17 (96.00)	Mean Difference (SE)	26.57 (17.26)	29.49 (17.44)	10.35 (17.07)
12 Month	[28]	397.07 (87.66)	[20]	400.38 (98.55)	[23]	391.65 (102.56)	[21]	384.88 (101.69)	ANCOVA adjusted for Baseline (p-value)	0.177	0.116	0.563
Delta	[28]	26.29 (67.60)	[20]	29.20 (58.19)	[23]	10.07 (60.05)	[21]	-0.29 (53.19)	95% Confidence Interval	-8.157 to 61.299	-5.806 to 64.777	-24.105 to 44.807
Within group p-value	0.049		0.037		0.430		0.981					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	16.22 (17.89)	-2.91 (18.24)	-19.13 (18.06)
									ANCOVA adjusted for Baseline (p-value)	0.425	0.870	0.326
									95% Confidence Interval	-19.734 to 52.175	-39.659 to 33.831	-55.618 to 17.348

Functional Capacity												
MLHFQ Summary Score												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[29]	40.75 (23.75)	[22]	50.77 (24.04)	[25]	29.46 (23.58)	[25]	40.60 (25.46)	Mean Difference (SE)	-11.35 (6.71)	-16.70 (7.96)	0.27 (6.73)
12 Month	[29]	25.35 (15.77)	[22]	30.02 (19.67)	[25]	25.68 (19.02)	[25]	36.55 (21.13)	ANCOVA adjusted for Baseline (p-value)	0.020	0.134	0.204
Delta	[29]	-15.40 (22.90)	[22]	-20.75 (28.30)	[25]	-3.78 (21.37)	[25]	-4.05 (25.97)	95% Confidence Interval	-24.841 to 2.146	-32.754 to -0.642	-13.264 to 13.808
Within group p-value	0.001		0.002		0.385		0.443					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-11.62 (6.03)	5.35 (7.38)	16.97 (7.39)
									ANCOVA adjusted for Baseline (p-value)	0.362	0.598	0.771
									95% Confidence Interval	-23.72 to 0.481	-9.574 to 20.274	2.01 to 31.929
Biomarkers												
NT-proBNP (pg/ml)*												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[28]	567.49 (528.86)	[21]	437.48 (652.88)	[23]	833.03 (798.86)	[23]	726.30 (1460.23)	Mean Difference (SE)	-220 (232.3)	-202.7 (230.5)	-263.9 (240.2)
12 Month	[28]	693.48 (768.85)	[21]	580.81 (756.89)	[23]	915.15 (757.94)	[23]	1072.32 (2161.64)	ANCOVA adjusted for Baseline (p-value)	0.404	0.654	0.744
Delta	[28]	125.99 (550.26)	[21]	143.33 (457.79)	[23]	82.13 (578.44)	[23]	346.01 (996.21)	95% Confidence Interval	-692.8 to 252.7	-672.5 to 267.1	-751.4 to 223.6
Within group p-value	0.302		0.172		0.297		0.123					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	43.86 (159.3)	-17.34 (144.2)	-61.20 (156.6)
									ANCOVA adjusted for Baseline (p-value)	0.322	0.656	0.363
									95% Confidence Interval	-276.7 to 364.4	-307.5 to 272.8	-377.4 to 255

*Log transformation for NT-proBNP; p-values were obtained from transformed data.

Data presented as [N] Mean (SD), unless otherwise indicated

ANCOVA model adjusted for baseline value of outcome

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide

Supplemental Table 8. Trajectory Assessment (Intention To Treat)

LVEF (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	28.793	1.468	<.0001	28.841	1.243	<.0001	25.600	1.123	<.0001	29.714	1.153	<.0001	29.009	1.139	<.0001
Change per Six Months	0.167	0.551	0.765	0.422	0.480	0.388	0.633	0.411	0.135	-0.175	0.332	0.602	0.267	0.241	0.269
MSCs+CPCs (vs Placebo)												-0.243	1.430	0.866	
MSCs (vs Placebo)												0.0891	1.515	0.953	
CPCs (vs Placebo)												-2.565	1.487	0.087	

Global Circumferential Strain (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	-8.918	0.610	<.0001	-7.778	0.752	<.0001	-8.634	0.825	<.0001	-10.214	0.947	<.0001	-9.060	0.684	<.0001
Change per Six Months	0.126	0.239	0.603	-0.324	0.283	0.269	0.276	0.300	0.369	0.576	0.417	0.188	0.141	0.153	0.361
MSCs+CPCs (vs Placebo)												0.005	0.776	0.995	
MSCs (vs Placebo)												0.176	0.851	0.837	
CPCs (vs Placebo)												0.838	0.802	0.300	

Regional Longitudinal Strain (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	-10.023	0.754	<.0001	-9.645	0.743	<.0001	-9.173	0.776	<.0001	-9.473	0.909	<.0001	-9.487	0.645	<.0001
Change per Six Months	-0.084	0.287	0.772	-0.385	0.350	0.287	-0.325	0.323	0.325	-0.288	0.360	0.435	-0.267	0.164	0.107
MSCs+CPCs (vs Placebo)												-0.248	0.728	0.734	
MSCs (vs Placebo)												-0.374	0.790	0.637	
CPCs (vs Placebo)												0.239	0.754	0.752	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
LVEDVI (mL/m2)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	126.940	5.515	<.0001	127.410	6.969	<.0001	129.220	5.565	<.0001	122.530	6.383	<.0001	125.050	5.821	<.0001
Change per Six Months	1.538	1.585	0.339	0.320	1.303	0.808	1.7964	1.393	0.208	1.862	1.980	0.355	1.395	0.829	0.095
MSCs+CPCs (vs Placebo)												2.162	7.693	0.779	
MSCs (vs Placebo)												0.607	8.143	0.941	
CPCs (vs Placebo)												6.146	7.996	0.444	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
LVESVI (mL/m2)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	91.317	4.828	<.0001	92.278	6.231	<.0001	95.586	4.737	<.0001	87.832	6.024	<.0001	90.005	5.185	<.0001
Change per Six Months	0.826	1.158	0.481	-0.394	1.117	0.727	0.626	1.288	0.631	1.077	1.709	0.534	0.603	0.683	0.379
MSCs+CPCs (vs Placebo)												1.866	6.855	0.786	
MSCs (vs Placebo)												0.543	7.252	0.941	
CPCs (vs Placebo)												6.609	7.123	0.356	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Sphericity (ml)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	0.555	0.019	<.0001	0.561	0.021	<.0001	0.561	0.020	<.0001	0.549	0.043	<.0001	0.550	0.021	<.0001
Change per Six Months	0.004	0.007	0.513	-0.004	0.008	0.600	0.008	0.007	0.293	0.002	0.012	0.860	0.003	0.004	0.401
MSCs+CPCs (vs Placebo)												0.008	0.027	0.768	
MSCs (vs Placebo)												-0.004	0.028	0.874	
CPCs (vs Placebo)												0.019	0.028	0.494	

Scar Size Percent (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	18.875	1.455	<.0001	20.170	1.178	<.0001	19.467	0.906	<.0001	20.215	1.181	<.0001	20.589	1.110	<.0001
Change per Six Months	-0.341	0.314	0.286	-0.290	0.231	0.221	-0.427	0.306	0.174	-0.013	0.340	0.971	-0.244	0.158	0.126
MSCs+CPCs (vs Placebo)												-1.925	1.503	0.203	
MSCs (vs Placebo)												-0.585	1.587	0.713	
CPCs (vs Placebo)												-1.214	1.527	0.428	

Scar Tissue Mass (g)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	32.267	2.514	<.0001	29.929	2.474	<.0001	32.040	1.828	<.0001	33.769	2.334	<.0001	33.718	2.135	<.0001
Change per Six Months	-0.309	0.539	0.572	-0.266	0.367	0.476	-0.958	0.615	0.131	-0.390	0.549	0.484	-0.4200	0.281	0.139
MSCs+CPCs (vs Placebo)												-1.423	2.906	0.625	
MSCs (vs Placebo)												-3.532	3.068	0.252	
CPCs (vs Placebo)												-1.769	2.951	0.550	

Peak V _O ₂ (ml/kg/min)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	17.398	1.254	<.0001	16.115	1.053	<.0001	16.084	0.811	<.0001	16.570	1.191	<.0001	16.920	0.999	<.0001
Change per Six Months	-0.711	0.352	0.055	0.632	0.275	0.034	-0.165	0.325	0.617	-0.093	0.369	0.799	-0.133	0.184	0.472
MSCs+CPCs (vs Placebo)												-0.566	1.307	0.666	
MSCs (vs Placebo)												1.027	1.392	0.463	
CPCs (vs Placebo)												-0.575	1.324	0.666	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Six Minute Walk Test (m)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	358.360	15.774	<.0001	358.250	18.413	<.0001	371.690	17.632	<.0001	374.680	14.860	<.0001	358.700	15.218	<.0001
Change per Six Months	9.996	5.558	0.082	11.434	5.531	0.048	6.776	6.192	0.283	-4.248	5.215	0.422	6.544	2.882	0.025
MSCs+CPCs (vs Placebo)												4.742	20.624	0.819	
MSCs (vs Placebo)												8.530	21.322	0.690	
CPCs (vs Placebo)												12.660	20.970	0.547	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall*		
MLHFQ	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	52.579	5.946	<.0001	49.025	6.298	<.0001	23.776	4.328	<.0001	41.368	6.193	<.0001	39.163	5.893	<.0001
Change per Six Months	-9.258	2.079	<.0001	-7.295	2.746	0.013	0.776	1.731	0.657	-2.378	2.357	0.321	-1.437	2.298	0.533
MSCs+CPCs (vs Placebo)												9.727	8.237	0.240	
MSCs (vs Placebo)												12.635	8.561	0.143	
CPCs (vs Placebo)												-10.700	8.396	0.205	
MSCs+CPCs x change												-6.783	3.175	0.035	
MSCs x change												-7.078	3.348	0.037	
CPCs x change												0.245	3.264	0.940	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
NT-ProBNP (pg/ml)†	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	432.050	168.340	<.0001	455.890	119.830	<.0001	658.670	162.580	<.0001	736.980	204.770	<.0001	1106.430	244.070	<.0001
Change per Six Months	74.650	72.303	0.421	102.250	46.194	0.081	61.680	57.365	0.486	185.210	99.190	0.413	84.557	35.810	0.092
MSCs+CPCs (vs Placebo)												-484.200	334.830	0.456	
MSCs (vs Placebo)												-659.630	352.480	0.196	
CPCs (vs Placebo)												-170.230	347.460	0.970	

*There were significant time treatment interactions for MLHFQ

†Log transformation for NT-proBNP; p-values were obtained from transformed data.

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic

volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide

Supplemental Table 9. Trajectory Assessment (As Treated)

LVEF (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	28.828	1.518	<.0001	28.762	1.807	<.0001	26.021	1.197	<.0001	30.158	0.911	<.0001	29.235	0.970	<.0001
Change per Six Months	0.237	0.399	0.559	0.546	0.797	0.501	0.624	0.402	0.132	-0.250	0.256	0.335	0.250	0.241	0.302
MSCs + CPCs (vs Placebo)												-0.291	1.507	0.848	
MSCs (vs Placebo)												0.155	1.479	0.917	
CPCs (vs Placebo)												-2.594	1.354	0.058	

Global Circumferential Strain (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	-9.786	0.690	<.0001	-8.452	0.745	<.0001	-7.427	0.789	<.0001	-9.540	0.807	<.0001	-8.987	0.549	<.0001
Change per Six Months	0.479	0.246	0.071	0.079	0.328	0.813	-0.258	0.300	0.400	0.406	0.295	0.180	0.137	0.155	0.381
MSCs + CPCs (vs Placebo)												-0.288	0.757	0.705	
MSCs (vs Placebo)												-0.090	0.791	0.910	
CPCs (vs Placebo)												0.860	0.689	0.216	

Regional Longitudinal Strain (%)	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	-10.933	0.895	<.0001	-10.847	0.654	<.0001	-8.371	0.869	<.0001	-9.223	0.620	<.0001	-9.562	0.524	<.0001
Change per Six Months	0.114	0.345	0.745	0.115	0.317	0.722	-0.609	0.340	0.088	-0.461	0.275	0.105	-0.274	0.165	0.101
MSCs + CPCs (vs Placebo)												-0.755	0.717	0.296	
MSCs (vs Placebo)												-0.280	0.733	0.703	
CPCs (vs Placebo)												0.640	0.651	0.329	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
LVEDVI (mL/m2)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	126.600	6.252	<.0001	119.180	7.266	<.0001	124.960	5.7210	<.0001	125.670	5.277	<.0001	126.620	4.753	<.0001
Change per Six Months	1.959	1.981	0.335	2.168	1.412	0.140	2.213	1.352	0.113	1.500	1.559	0.342	1.542	0.831	0.066
MSCs + CPCs (vs Placebo)												-0.233	7.896	0.977	
MSCs (vs Placebo)												-6.489	7.750	0.404	
CPCs (vs Placebo)												2.873	7.092	0.686	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
LVESVI (mL/m2)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	91.095	5.702	<.0001	86.148	6.616	<.0001	91.716	4.860	<.0001	89.357	4.749	<.0001	90.768	4.224	<.0001
Change per Six Months	0.484	1.602	0.766	0.725	1.365	0.601	1.059	1.278	0.414	1.084	1.244	0.389	0.744	0.684	0.279
MSCs + CPCs (vs Placebo)												-0.303	7.026	0.966	
MSCs (vs Placebo)												-4.497	6.890	0.515	
CPCs (vs Placebo)												4.513	6.306	0.476	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Sphericity (ml)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	0.545	0.024	<.0001	0.550	0.025	<.0001	0.571	0.020	<.0001	0.558	0.030	<.0001	0.557	0.018	<.0001
Change per Six Months	0.007	0.009	0.451	-0.001	0.009	0.893	0.005	0.007	0.485	0.001	0.008	0.908	0.003	0.004	0.453
MSCs + CPCs (vs Placebo)												-0.004	0.028	0.877	
MSCs (vs Placebo)												-0.015	0.027	0.564	
CPCs (vs Placebo)												0.017	0.025	0.487	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Scar Size Percent (%)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	17.995	1.981	<.0001	18.369	0.929	<.0001	20.297	0.986	<.0001	20.136	1.022	<.0001	20.342	0.929	<.0001
Change per Six Months	-0.485	0.387	0.227	-0.242	0.240	0.326	-0.437	0.336	0.205	-0.182	0.244	0.462	-0.256	0.160	0.114
MSCs + CPCs (vs Placebo)												-2.620	1.551	0.094	
MSCs (vs Placebo)												-1.894	1.523	0.216	
CPCs (vs Placebo)												-0.275	1.402	0.845	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Scar Tissue Mass (g)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	29.564	3.381	<.0001	27.967	2.043	<.0001	33.837	1.874	<.0001	32.454	1.963	<.0001	32.706	1.783	<.0001
Change per Six Months	-0.424	0.604	0.491	-0.452	0.423	0.299	-1.006	0.662	0.141	-0.339	0.412	0.416	-0.416	0.282	0.143
MSCs + CPCs (vs Placebo)												-2.750	3.013	0.363	
MSCs (vs Placebo)												-4.399	2.958	0.140	
CPCs (vs Placebo)												0.800	2.725	0.770	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Peak V _O ₂ (ml/kg/min)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	17.942	1.562	<.0001	15.511	1.338	<.0001	17.379	1.055	<.0001	16.883	0.889	<.0001	16.676	0.849	<.0001
Change per Six Months	-0.949	0.505	0.081	0.884	0.310	0.015	-0.140	0.331	0.678	-0.258	0.253	0.316	-0.151	0.185	0.418
MSCs + CPCs (vs Placebo)												-0.239	1.385	0.864	
MSCs (vs Placebo)												1.180	1.457	0.420	
CPCs (vs Placebo)												0.972	1.252	0.440	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
Six Minute Walk Test (m)	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	362.480	21.904	<.0001	351.360	19.632	<.0001	382.990	17.464	<.0001	366.180	15.149	<.0001	358.330	13.871	<.0001
Change per Six Months	5.846	7.762	0.461	11.707	6.191	0.073	8.572	5.922	0.159	1.662	4.357	0.705	6.711	2.923	0.024
MSCs + CPCs (vs Placebo)												4.865	23.114	0.834	
MSCs (vs Placebo)												1.244	22.728	0.956	
CPCs (vs Placebo)												26.282	20.768	0.209	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall*		
MLHFQ	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	40.928	7.642	<.0001	59.490	7.694	<.0001	27.828	4.491	<.0001	41.982	5.329	<.0001	39.889	5.130	<.0001
Change per Six Months	-6.996	2.711	0.018	-10.599	3.198	0.004	-0.882	1.778	0.624	-3.187	2.024	0.123	-2.434	1.977	0.221
MSCs + CPCs (vs Placebo)												1.359	8.948	0.880	
MSCs (vs Placebo)												19.141	8.834	0.033	
CPCs (vs Placebo)												-8.495	8.039	0.293	
MSCs + CPCs x change												-3.839	3.439	0.267	
MSCs x change												-8.162	3.414	0.019	
CPCs x change												0.036	3.078	0.991	

	MSCs + CPCs			MSCs			CPCs			Placebo			Overall		
NT-ProBNP (pg/ml)†	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value	Estimate	SE	p-value
Intercept	360.290	420.890	<.0001	340.120	123.010	<.0001	651.470	163.990	<.0001	645.590	158.650	<.0001	1159.780	287.700	<.0001
Change per Six Months	84.186	186.430	0.793	121.350	56.050	0.068	56.627	52.958	0.464	138.200	73.237	0.253	-23.347	80.311	0.089
MSCs +CPCs (vs Placebo)												-247.820	346.010	0.902	
MSCs (vs Placebo)												-451.160	341.590	0.129	
CPCs (vs Placebo)												-232.000	311.210	0.913	

*There were significant time treatment interactions for MLHFQ

†Log transformation for NT-proBNP; p-values were obtained from transformed data.

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide

Supplemental Table 10. Endpoint Analysis for Baseline to 6 Month (As Treated)

Function												
LVEF (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[17]	29.94 (6.44)	[20]	29.45 (6.55)	[26]	26.73 (5.58)	[36]	29.55 (5.73)	Mean Difference (SE)	-0.19 (0.96)	0.75 (1.08)	0.68 (0.93)
6 Month	[17]	29.61 (6.28)	[20]	30.06 (6.75)	[26]	27.27 (6.06)	[36]	29.42 (4.78)	ANCOVA adjusted for Baseline (p-value)	0.930	0.460	0.952
Delta	[17]	-0.33 (2.99)	[20]	0.61 (3.95)	[26]	0.54 (3.50)	[36]	-0.14 (3.73)	95% Confidence Interval	-2.121 to 1.744	-1.440 to 2.933	-1.178 to 2.533
Within group p-value		0.660		0.498		0.438		0.827				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.87 (1.00)	-0.93 (1.14)	-0.07 (1.12)
									ANCOVA adjusted for Baseline (p-value)	0.649	0.455	0.709
									95% Confidence Interval	-2.890 to 1.157	-3.256 to 1.387	-2.333 to 2.197
Global Circumferential Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[16]	-9.16 (2.58)	[14]	-9.10 (2.52)	[22]	-7.81 (2.73)	[28]	-8.94 (3.48)	Mean Difference (SE)	-0.26 (1.07)	0.94 (0.88)	0.22 (0.84)
6 Month	[16]	-9.42 (3.64)	[14]	-8.16 (1.99)	[22]	-7.59 (2.58)	[28]	-8.94 (3.02)	ANCOVA adjusted for Baseline (p-value)	0.684	0.306	0.237
Delta	[16]	-0.26 (3.32)	[14]	0.94 (2.09)	[22]	0.22 (2.34)	[28]	-0.00 (3.57)	95% Confidence Interval	-2.435 to 1.917	-0.829 to 2.715	-1.466 to 1.913
Within group p-value		0.756		0.116		0.663		0.996				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.48 (0.97)	-1.20 (1.00)	-0.72 (0.75)
									ANCOVA adjusted for Baseline (p-value)	0.269	0.216	0.851
									95% Confidence Interval	-2.475 to 1.510	-3.259 to 0.855	-2.247 to 0.809

Function												
Longitudinal Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[16]	-10.98 (2.77)	[15]	-10.27 (2.25)	[22]	-8.92 (2.86)	[29]	-9.70 (2.52)	Mean Difference (SE)	0.05 (0.74)	-0.31 (0.69)	-0.90 (0.71)
6 Month	[16]	-11.31 (3.40)	[15]	-10.94 (2.34)	[22]	-10.19 (2.77)	[29]	-10.07 (2.96)	ANCOVA adjusted for Baseline (p-value)	0.748	0.499	0.365
Delta	[16]	-0.32 (2.26)	[15]	-0.68 (1.95)	[22]	-1.27 (2.49)	[29]	-0.37 (2.56)	95% Confidence Interval	-1.457 to 1.547	-1.714 to 1.098	-2.338 to 0.530
Within group p-value		0.577		0.201		0.026		0.446				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.95 (0.78)	0.35 (0.76)	-0.60 (0.73)
									ANCOVA adjusted for Baseline (p-value)	0.642	0.770	0.919
									95% Confidence Interval	-0.626 to 2.524	-1.196 to 1.903	-2.081 to 0.890
Structure												
LVEDVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[17]	130.09 (28.38)	[20]	121.64 (32.63)	[26]	130.96 (29.79)	[36]	127.72 (29.86)	Mean Difference (SE)	-6.23 (4.63)	-0.55 (3.21)	-5.68 (3.16)
6 Month	[17]	127.52 (29.93)	[20]	124.75 (31.66)	[26]	128.94 (26.78)	[36]	131.38 (29.61)	ANCOVA adjusted for Baseline (p-value)	0.155	0.738	0.093
Delta	[17]	-2.58 (16.93)	[20]	3.11 (10.71)	[26]	-2.02 (11.86)	[36]	3.66 (12.88)	95% Confidence Interval	-15.773 to 3.305	-7.023 to 5.922	-12.014 to 0.662
Within group p-value		0.539		0.210		0.394		0.097				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.56 (4.72)	-5.68 (4.75)	-5.13 (3.34)
									ANCOVA adjusted for Baseline (p-value)	0.870	0.297	0.234
									95% Confidence Interval	-10.254 to 9.138	-15.450 to 4.082	-11.858 to 1.606

Structure												
LVESVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[17]	92.17 (26.07)	[20]	87.05 (29.48)	[26]	96.87 (27.19)	[36]	90.97 (27.00)	Mean Difference (SE)	-4.13 (3.19)	-0.99 (3.01)	-5.00 (2.73)
6 Month	[17]	90.59 (25.90)	[20]	88.61 (28.50)	[26]	94.41 (24.17)	[36]	93.52 (25.80)	ANCOVA adjusted for Baseline (p-value)	0.198	0.622	0.113
Delta	[17]	-1.58 (10.90)	[20]	1.56 (10.89)	[26]	-2.45 (10.58)	[36]	2.55 (10.66)	95% Confidence Interval	-10.632 to 2.366	-7.091 to 5.108	-10.481 to 0.474
Within group p-value	0.558		0.530		0.248		0.160					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.87 (3.36)	-3.14 (3.59)	-4.01 (3.20)
									ANCOVA adjusted for Baseline (p-value)	0.956	0.462	0.395
									95% Confidence Interval	-5.964 to 7.705	-10.447 to 4.163	-10.477 to 2.452
Sphericity (ml)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[16]	0.57 (0.09)	[20]	0.55 (0.10)	[25]	0.58 (0.10)	[36]	0.56 (0.15)	Mean Difference (SE)	-0.01 (0.03)	-0.02 (0.02)	-0.02 (0.02)
6 Month	[16]	0.57 (0.09)	[20]	0.54 (0.08)	[25]	0.58 (0.09)	[36]	0.57 (0.12)	ANCOVA adjusted for Baseline (p-value)	0.626	0.236	0.520
Delta	[16]	-0.00 (0.09)	[20]	-0.00 (0.07)	[25]	-0.01 (0.08)	[36]	0.01 (0.08)	95% Confidence Interval	-0.068 to 0.040	-0.057 to 0.024	-0.059 to 0.022
Within group p-value	0.990		0.837		0.742		0.319					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.00 (0.03)	0.00 (0.03)	0.00 (0.02)
									ANCOVA adjusted for Baseline (p-value)	0.986	0.590	0.538
									95% Confidence Interval	-0.051 to 0.061	-0.053 to 0.059	-0.045 to 0.041

Morphology												
Scar Size Percent (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[15]	17.45 (6.73)	[16]	18.51 (4.52)	[21]	19.80 (4.81)	[31]	21.06 (5.98)	Mean Difference (SE)	0.21 (1.02)	-0.47 (0.75)	-0.42 (0.68)
6 Month	[15]	17.07 (6.88)	[16]	17.44 (4.86)	[21]	18.79 (4.89)	[31]	20.46 (5.53)	ANCOVA adjusted for Baseline (p-value)	0.748	0.268	0.369
Delta	[15]	-0.39 (3.63)	[16]	-1.07 (2.51)	[21]	-1.01 (2.51)	[31]	-0.60 (2.29)	95% Confidence Interval	-1.927 to 2.351	-2.009 to 1.061	-1.799 to 0.968
Within group p-value		0.686		0.107		0.079		0.156				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.63 (1.09)	0.69 (1.13)	0.06 (0.83)
									ANCOVA adjusted for Baseline (p-value)	0.742	0.613	0.823
									95% Confidence Interval	-1.618 to 2.872	-1.638 to 3.01	-1.635 to 1.753
Scar Tissue Mass (g)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[15]	28.51 (11.03)	[16]	29.46 (9.62)	[21]	34.50 (9.88)	[31]	34.00 (11.55)	Mean Difference (SE)	0.74 (1.67)	-0.30 (1.04)	-1.25 (1.23)
6 Month	[15]	28.02 (11.70)	[16]	27.94 (9.20)	[21]	32.03 (9.05)	[31]	32.77 (10.96)	ANCOVA adjusted for Baseline (p-value)	0.882	0.484	0.292
Delta	[15]	-0.48 (5.91)	[16]	-1.52 (3.19)	[21]	-2.47 (4.71)	[31]	-1.22 (3.74)	95% Confidence Interval	-2.740 to 4.222	-2.415 to 1.815	-3.738 to 1.238
Within group p-value		0.756		0.075		0.026		0.078				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	1.99 (1.84)	1.04 (1.72)	-0.95 (1.30)
									ANCOVA adjusted for Baseline (p-value)	0.529	0.575	0.899
									95% Confidence Interval	-1.790 to 5.773	-2.536 to 4.618	-3.591 to 1.690

Functional Capacity												
Peak V0₂ (ml/kg/min)												
	MSC + CPC		MSCs only		CPCs only		Placebo			MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[17]	16.98 (5.14)	[18]	16.74 (5.38)	[26]	16.76 (4.86)	[38]	16.17 (4.47)	Mean Difference (SE)	-0.51 (0.92)	0.29 (0.96)	1.02 (0.72)
6 Month	[17]	16.04 (3.93)	[18]	16.60 (3.90)	[26]	17.34 (5.84)	[38]	15.74 (4.68)	ANCOVA adjusted for Baseline (p-value)	0.689	0.577	0.146
Delta	[17]	-0.95 (3.36)	[18]	-0.14 (3.65)	[26]	0.58 (2.95)	[38]	-0.44 (2.68)	95% Confidence Interval	-2.409 to 1.389	-1.689 to 2.274	-0.436 to 2.471
Within group p-value	0.262		0.869		0.325		0.321					
										MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only
									Mean Difference (SE)	-1.53 (1.00)	-0.80 (1.18)	0.73 (1.04)
									ANCOVA adjusted for Baseline (p-value)	0.125	0.444	0.454
									95% Confidence Interval	-3.565 to 0.509	-3.213 to 1.608	-1.389 to 2.839
Exercise Tolerance - 6 MWT (m)												
	MSC + CPC		MSCs only		CPCs only		Placebo			MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	363.36 (87.52)	[19]	354.21 (76.49)	[26]	395.15 (77.56)	[39]	367.92 (97.49)	Mean Difference (SE)	18.57 (20.54)	17.88 (16.59)	-6.75 (14.29)
6 Month	[18]	390.39 (99.75)	[19]	380.55 (85.53)	[26]	396.87 (83.37)	[39]	376.38 (105.60)	ANCOVA adjusted for Baseline (p-value)	0.374	0.385	0.860
Delta	[18]	27.03 (73.09)	[19]	26.34 (53.45)	[26]	1.71 (45.36)	[39]	8.46 (69.84)	95% Confidence Interval	-23.279 to 60.412	-15.533 to 51.295	-35.304 to 21.804
Within group p-value	0.135		0.046		0.849		0.454					
										MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only
									Mean Difference (SE)	25.32 (19.39)	0.69 (21.15)	-24.63 (15.15)
									ANCOVA adjusted for Baseline (p-value)	0.256	0.917	0.189
									95% Confidence Interval	-14.536 to 65.169	-42.437 to 43.809	-55.384 to 6.123

Functional Capacity												
MLHFQ Summary Score												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[19]	38.01 (24.40)	[19]	55.45 (22.67)	[26]	32.00 (23.44)	[40]	39.00 (24.16)	Mean Difference (SE)	-9.65 (4.80)	-15.45 (5.84)	-1.19 (5.68)
6 Month	[19]	20.85 (16.35)	[19]	32.49 (20.45)	[26]	23.31 (19.66)	[40]	31.50 (21.65)	ANCOVA adjusted for Baseline (p-value)	0.020	0.122	0.284
Delta	[19]	-17.16 (16.06)	[19]	-22.95 (21.60)	[26]	-8.69 (24.33)	[40]	-7.50 (19.50)	95% Confidence Interval	-19.346 to 0.038	-27.333 to -3.569	-12.633 to 10.246
Within group p-value	0.000		0.000		0.080		0.020					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-8.46 (6.03)	5.80 (6.18)	14.26 (6.88)
									ANCOVA adjusted for Baseline (p-value)	0.321	0.535	0.933
									95% Confidence Interval	-20.621 to 3.699	-6.762 to 18.357	0.369 to 28.147
Biomarkers												
NT-proBNP (pg/ml)*												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[19]	1929.85 (5865.01)	[17]	469.36 (708.36)	[26]	781.48 (825.76)	[39]	675.61 (1154.85)	Mean Difference (SE)	-1683.0 (1167.2)	-452.7 (316.9)	-341.2 (289.1)
6 Month	[19]	765.64 (978.04)	[17]	535.38 (666.28)	[26]	959.03 (1074.76)	[39]	1194.37 (1998.41)	ANCOVA adjusted for Baseline (p-value)	0.138	0.181	0.989
Delta	[19]	-724.46 (4949.82)	[17]	66.02 (683.98)	[26]	177.55 (526.72)	[39]	518.76 (1686.29)	95% Confidence Interval	-4117.3 to 751.3	-1088.1 to 182.7	-922.4 to 240.0
Within group p-value	0.999		0.372		0.019		0.007					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-1341.8 (1140.3)	-1230.2 (1147.6)	111.5 (195.4)
									ANCOVA adjusted for Baseline (p-value)	0.065	0.808	0.067
									95% Confidence Interval	-3734.5 to 1051.0	-3634.2 to 1173.8	-288.7 to 511.8

*Log transformation for NT-proBNP; p-values were obtained from transformed data. Data presented as [N] Mean (SD), unless otherwise indicated

ANCOVA model adjusted for baseline value of outcome

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide

Supplemental Table 11. Endpoint Analysis for Baseline to 12 Month (As Treated)

Function												
LVEF (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	29.86 (6.26)	[17]	30.17 (6.72)	[24]	26.38 (5.65)	[31]	29.46 (6.12)	Mean Difference (SE)	0.99 (1.04)	1.51 (2.05)	1.39 (1.02)
12 Month	[18]	30.48 (6.64)	[17]	31.31 (7.91)	[24]	27.40 (5.84)	[31]	29.10 (5.40)	ANCOVA adjusted for Baseline (p-value)	0.271	0.249	0.506
Delta	[18]	0.62 (3.61)	[17]	1.14 (8.08)	[24]	1.02 (4.06)	[31]	-0.37 (3.32)	95% Confidence Interval	-1.126 to 3.102	-2.775 to 5.797	-0.663 to 3.451
Within group p-value		0.477		0.568		0.229		0.540				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.41 (1.19)	-0.52 (2.14)	-0.12 (2.13)
									ANCOVA adjusted for Baseline (p-value)	0.889	0.758	0.418
									95% Confidence Interval	-2.809 to 1.997	-4.954 to 3.909	-4.531 to 4.297
Global Circumferential Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[16]	-9.16 (2.58)	[14]	-9.10 (2.52)	[22]	-7.81 (2.73)	[28]	-8.94 (3.48)	Mean Difference (SE)	0.09 (0.78)	-0.94 (0.91)	-1.19 (0.85)
12 Month	[16]	-8.32 (3.06)	[14]	-9.29 (3.29)	[22]	-8.25 (2.50)	[28]	-8.19 (2.93)	ANCOVA adjusted for Baseline (p-value)	0.992	0.240	0.453
Delta	[16]	0.84 (2.03)	[14]	-0.19 (2.54)	[22]	-0.44 (2.83)	[28]	0.75 (3.16)	95% Confidence Interval	-1.491 to 1.675	-2.781 to 0.908	-2.898 to 0.521
Within group p-value		0.118		0.785		0.473		0.222				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	1.28 (0.79)	1.03 (0.85)	-0.25 (0.91)
									ANCOVA adjusted for Baseline (p-value)	0.367	0.236	0.699
									95% Confidence Interval	-0.319 to 2.881	-0.719 to 2.777	-2.109 to 1.605

Function												
Longitudinal Strain (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[16]	-10.98 (2.77)	[15]	-10.27 (2.25)	[22]	-8.92 (2.86)	[29]	-9.70 (2.52)	Mean Difference (SE)	1.53 (0.97)	0.97 (0.84)	-0.03 (0.89)
12 Month	[16]	-10.36 (2.89)	[15]	-10.20 (3.05)	[22]	-9.85 (2.73)	[29]	-10.61 (3.09)	ANCOVA adjusted for Baseline (p-value)	0.333	0.383	0.592
Delta	[16]	0.62 (3.20)	[15]	0.06 (2.47)	[22]	-0.94 (3.29)	[29]	-0.91 (2.98)	95% Confidence Interval	-0.456 to 3.519	-0.744 to 2.691	-1.830 to 1.776
Within group p-value		0.449		0.922		0.197		0.111				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	1.56 (1.06)	0.56 (1.02)	-1.00 (0.95)
									ANCOVA adjusted for Baseline (p-value)	0.862	0.815	0.788
									95% Confidence Interval	-0.607 to 3.724	-1.538 to 2.654	-2.928 to 0.927
Structure												
LVEDVI (mL/m2)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	129.17 (27.81)	[17]	114.13 (27.20)	[24]	128.97 (30.16)	[31]	129.28 (30.96)	Mean Difference (SE)	-0.99 (5.53)	1.04 (4.76)	3.09 (4.42)
12 Month	[18]	130.53 (31.92)	[17]	117.52 (29.49)	[24]	134.41 (32.01)	[31]	131.63 (30.22)	ANCOVA adjusted for Baseline (p-value)	0.854	0.788	0.501
Delta	[18]	1.36 (18.43)	[17]	3.39 (13.66)	[24]	5.44 (13.74)	[31]	2.35 (19.04)	95% Confidence Interval	-12.195 to 10.22	-8.567 to 10.644	-5.780 to 11.966
Within group p-value		0.758		0.322		0.065		0.497				
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-4.08 (5.17)	-2.03 (5.46)	2.05 (4.34)
									ANCOVA adjusted for Baseline (p-value)	0.421	0.828	0.563
									95% Confidence Interval	-14.639 to 6.478	-13.165 to 9.114	-6.761 to 10.871

Structure												
LVESVI (mL/m ²)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	91.55 (25.43)	[17]	80.63 (24.80)	[24]	95.91 (27.66)	[31]	92.29 (28.14)	Mean Difference (SE)	-1.48 (4.24)	-0.89 (3.96)	1.08 (3.79)
12 Month	[18]	91.79 (28.07)	[17]	81.46 (25.18)	[24]	98.71 (29.84)	[31]	94.00 (26.05)	ANCOVA adjusted for Baseline (p-value)	0.705	0.469	0.679
Delta	[18]	0.24 (13.85)	[17]	0.83 (11.92)	[24]	2.79 (13.02)	[31]	1.71 (15.03)	95% Confidence Interval	-10.052 to 7.097	-8.882 to 7.109	-6.523 to 8.680
Within group p-value	0.943		0.779		0.305		0.531					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-2.56 (4.21)	-0.59 (4.36)	1.97 (3.93)
									ANCOVA adjusted for Baseline (p-value)	0.527	0.973	0.507
									95% Confidence Interval	-11.098 to 5.986	-9.465 to 8.284	-5.997 to 9.927
Sphericity (ml)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[17]	0.56 (0.10)	[17]	0.53 (0.09)	[24]	0.58 (0.10)	[31]	0.55 (0.10)	Mean Difference (SE)	0.01 (0.02)	0.00 (0.03)	0.00 (0.02)
12 Month	[17]	0.57 (0.12)	[17]	0.54 (0.09)	[24]	0.59 (0.10)	[31]	0.56 (0.09)	ANCOVA adjusted for Baseline (p-value)	0.686	0.776	0.583
Delta	[17]	0.01 (0.07)	[17]	0.01 (0.09)	[24]	0.01 (0.08)	[31]	0.01 (0.08)	95% Confidence Interval	-0.040 to 0.052	-0.050 to 0.055	-0.043 to 0.044
Within group p-value	0.514		0.686		0.698		0.694					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.01 (0.02)	0.00 (0.03)	0.00 (0.03)
									ANCOVA adjusted for Baseline (p-value)	0.942	0.687	0.554
									95% Confidence Interval	-0.043 to 0.054	-0.053 to 0.059	-0.057 to 0.052

Morphology												
Scar Size Percent (%)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[14]	17.15 (6.87)	[13]	18.99 (4.26)	[19]	20.03 (5.34)	[26]	21.36 (6.12)	Mean Difference (SE)	-0.47 (1.13)	-0.01 (0.75)	0.03 (0.89)
12 Month	[14]	16.13 (6.04)	[13]	18.43 (5.22)	[19]	19.51 (6.18)	[26]	20.81 (5.85)	ANCOVA adjusted for Baseline (p-value)	0.216	0.806	0.917
Delta	[14]	-1.02 (3.77)	[13]	-0.56 (1.95)	[19]	-0.52 (3.12)	[26]	-0.55 (2.67)	95% Confidence Interval	-2.838 to 1.892	-1.544 to 1.522	-1.773 to 1.830
Within group p-value	0.328		0.320		0.476		0.303					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-0.50 (1.24)	-0.46 (1.14)	0.04 (0.90)
									ANCOVA adjusted for Baseline (p-value)	0.455	0.522	0.996
									95% Confidence Interval	-3.047 to 2.044	-2.847 to 1.923	-1.795 to 1.873
Scar Tissue Mass (g)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[14]	28.65 (11.43)	[13]	29.88 (8.45)	[19]	34.75 (10.29)	[26]	33.52 (11.75)	Mean Difference (SE)	-0.40 (1.87)	0.02 (1.27)	-0.47 (1.67)
12 Month	[14]	27.49 (11.09)	[13]	29.14 (9.29)	[19]	33.52 (12.17)	[26]	32.76 (11.21)	ANCOVA adjusted for Baseline (p-value)	0.528	0.832	0.812
Delta	[14]	-1.16 (6.21)	[13]	-0.74 (3.33)	[19]	-1.23 (6.21)	[26]	-0.77 (4.43)	95% Confidence Interval	-4.300 to 3.509	-2.565 to 2.61	-3.869 to 2.938
Within group p-value	0.497		0.437		0.399		0.387					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	0.07 (2.19)	-0.42 (1.90)	-0.49 (1.70)
									ANCOVA adjusted for Baseline (p-value)	0.869	0.778	0.769
									95% Confidence Interval	-4.409 to 4.548	-4.379 to 3.542	-3.962 to 2.985

Functional Capacity												
Peak V0 ₂ (ml/kg/min)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	17.12 (5.02)	[18]	16.69 (5.36)	[23]	17.02 (4.70)	[31]	16.72 (4.71)	Mean Difference (SE)	-0.87 (1.00)	1.38 (0.75)	0.48 (0.81)
12 Month	[18]	15.80 (5.11)	[18]	17.63 (4.83)	[23]	17.05 (6.15)	[31]	16.27 (4.64)	ANCOVA adjusted for Baseline (p-value)	0.374	0.064	0.536
Delta	[18]	-1.32 (3.75)	[18]	0.93 (2.49)	[23]	0.03 (3.14)	[31]	-0.45 (2.65)	95% Confidence Interval	-2.931 to 1.191	-0.147 to 2.910	-1.151 to 2.117
Within group p-value	0.155		0.130		0.958		0.354					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-1.35 (1.10)	-2.25 (1.06)	-0.90 (0.88)
									ANCOVA adjusted for Baseline (p-value)	0.223	0.039	0.339
									95% Confidence Interval	-3.593 to 0.887	-4.420 to -0.083	-2.677 to 0.88
Exercise Tolerance - 6 MWT (m)												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	363.36 (87.52)	[17]	362.53 (74.52)	[24]	400.52 (78.37)	[32]	372.66 (104.19)	Mean Difference (SE)	10.62 (20.30)	16.41 (17.10)	1.56 (15.89)
12 Month	[18]	385.78 (96.02)	[17]	390.74 (79.90)	[24]	413.88 (87.70)	[32]	384.45 (111.25)	ANCOVA adjusted for Baseline (p-value)	0.623	0.384	0.774
Delta	[18]	22.42 (73.76)	[17]	28.21 (55.73)	[24]	13.35 (58.48)	[32]	11.80 (59.28)	95% Confidence Interval	-30.871 to 52.111	-18.330 to 51.148	-30.349 to 33.464
Within group p-value	0.215		0.053		0.275		0.269					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	9.06 (21.09)	-5.79 (22.02)	-14.85 (18.03)
									ANCOVA adjusted for Baseline (p-value)	0.938	0.797	0.656
									95% Confidence Interval	-33.918 to 52.043	-50.675 to 39.096	-51.441 to 21.737

Functional Capacity												
MLHFQ Summary Score												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	37.67 (25.06)	[18]	54.86 (23.81)	[26]	31.16 (23.27)	[36]	39.53 (24.88)	Mean Difference (SE)	-7.49 (7.08)	-18.65 (7.88)	-0.85 (6.07)
12 Month	[18]	24.73 (15.62)	[18]	30.75 (20.17)	[26]	24.85 (20.22)	[36]	34.07 (19.48)	ANCOVA adjusted for Baseline (p-value)	0.082	0.229	0.182
Delta	[18]	-12.95 (23.89)	[18]	-24.11 (28.04)	[26]	-6.31 (21.86)	[36]	-5.46 (25.77)	95% Confidence Interval	-21.844 to 6.864	-34.717 to -2.591	-12.999 to 11.293
Within group p-value	0.034		0.002		0.154		0.212					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-6.64 (7.08)	11.16 (8.68)	17.80 (7.88)
									ANCOVA adjusted for Baseline (p-value)	0.645	0.690	0.788
									95% Confidence Interval	-21.011 to 7.737	-6.498 to 28.826	1.725 to 33.878
Biomarkers												
NT-proBNP (pg/ml)*												
	MSC + CPC		MSCs only		CPCs only		Placebo		MSC + CPC vs. Placebo	MSCs Only vs. Placebo	CPCs Only vs. Placebo	
	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)	[N]	MEAN (SD)				
Baseline	[18]	589.28 (517.76)	[17]	440.42 (711.60)	[24]	728.32 (771.74)	[34]	680.34 (1232.07)	Mean Difference (SE)	-223.6 (206.6)	-106.8 (191.8)	-189.0 (184.6)
12 Month	[18]	648.92 (734.23)	[17]	616.88 (827.02)	[24]	822.56 (762.36)	[34]	963.58 (1814.75)	ANCOVA adjusted for Baseline (p-value)	0.227	0.895	0.838
Delta	[18]	59.63 (613.43)	[17]	176.46 (505.35)	[24]	92.25 (543.76)	[34]	283.24 (860.10)	95% Confidence Interval	-639.5 to 192.3	-492.5 to 278.9	-558.9 to 180.9
Within group p-value	0.963		0.175		0.234		0.057					
									MSC + CPC vs. CPCs Only	MSC + CPC vs. MSCs Only	MSCs Only vs. CPCs Only	
									Mean Difference (SE)	-34.61 (182.3)	-116.8 (189.5)	-82.22 (165.4)
									ANCOVA adjusted for Baseline (p-value)	0.297	0.320	0.574
									95% Confidence Interval	-405.0 to 335.8	-502.7 to 269.1	-417.5 to 253.1

*Log transformation for NT-proBNP; p-values were obtained from transformed data. Data presented as [N] Mean (SD), unless otherwise indicated

ANCOVA model adjusted for baseline value of outcome

MSC=mesenchymal stromal cells, CPC=c-kit positive cardiac cells, LVEF=left ventricular ejection fraction, LVEDVI=left ventricular end diastolic volume index, LVESVI=left ventricular end systolic volume index, MLHFQ=Minnesota Living with Heart Failure Questionnaire, NT-proBNP= N-Terminal pro-Brain Natriuretic Peptide