

id	Tnl baseline	Tnl 6hours	Tnl 12hours	Tnl 18hours	Tnl 24hours	Tnl 14days	CKMB baseline	CKMB 6hours	CKMB 12hours	CKMB 18hours	CKMB 24hours	CKMB 14days
00003-CDC01-001	0.06	0.06	0.06	0.06	0.06	0.06	2.00	2.00	2.00	2.00	2.00	2.00
00003-CDC01-002	0.00	0.06	0.06	0.06	0.06	0.00	4.00	4.00	3.00	3.00	3.00	4.00
00003-CDC01-005	0.29	0.36	0.26	0.26	0.26	0.22	3.00	2.00	2.00	2.00	2.00	2.00
00003-CDC01-006	0.06	0.07	0.17	0.23	0.20	0.06	3.00	5.00	4.00	4.00	3.00	3.00
00003-CDC01-007	0.06	0.10	0.29	0.27	0.16	0.06	5.00	6.00	6.00	5.00	4.00	5.00
00005-CDC01-001	0.01	0.07	0.05	0.03	0.03	0.01	1.20	1.00	1.00	1.10	1.00	1.00
00005-CDC01-006	0.03	0.04	0.17	0.72	0.98	0.03	2.10	6.40	5.90	6.20	5.70	2.00
00005-CDC01-008	0.02	0.04	0.05	0.04	0.03	0.02	1.50	1.80	1.50	1.40	1.30	2.80
00005-CDC01-009	0.08	0.09	0.10	0.11	0.10	0.06	n/a	1.20	1.10	1.00	0.90	1.10
00005-CDC01-012	0.01	0.14	0.21	0.16	0.10	0.01	2.10	2.00	2.50	1.50	1.20	1.10
00005-CDC01-014	0.01	0.03	0.17	0.26	0.33	0.02	2.20	1.90	2.10	n/a	n/a	2.80
00005-CDC01-015	0.02	0.09	0.07	0.05	0.04	0.03	1.80	2.70	2.60	2.70	2.40	2.40
00005-CDC01-018	0.03	0.08	0.09	0.07	0.05	0.03	3.80	2.50	2.50	2.30	2.20	3.10
00005-CDC01-019	0.01	0.02	0.06	0.04	0.03	0.01	1.30	0.50	0.50	0.70	0.70	1.10
00005-CDC01-022	0.04	0.05	0.05	0.04	0.04	0.04	2.40	2.00	1.30	1.00	n/a	3.60
00005-CDC01-023	0.03	0.03	0.04	0.03	0.04	0.04	1.80	1.20	1.00	0.80	0.90	0.90
00005-CDC01-024	0.02	n/a	0.01	0.01	0.01	0.01	2.50	1.90	1.90	1.90	1.60	2.20

Supp Table 1. Serum Tnl (ng/ml) and CKMB (ng/ml) at baseline (pre-infusion) and at 6 hours, 12 hours, 18 hours, 24 hours and 14 days post-infusion.

id	Dose (10 <sup>6</sup> )	Scar mass base (g)	Scar mass 6 mos (g)	Scar mass 1 year (g)	Scar size base (%LV)	Scar size 6 mos (%LV)	Scar size 1 year (%LV)	EDV base (ml)	EDV 6 mos (ml)	EDV 1 year (ml)	ESV base (ml)	ESV 6 mos (ml)	ESV 1 year (ml)	EF base (%)	EF 6 mos (%)	EF 1 year (%)	Viable mass base (g)	Viable mass 6 mos (g)	Viable mass 1 year (g)	Stroke volume base (ml)	Stroke volume 6 mos (ml)	Stroke volume 1 year (ml)	Cardiac output base (ml/min)	Cardiac output 6 mos (ml/min)	Cardiac output 1 year (ml/min)	Heart rate base (bpm)	Heart rate 6 mos (bpm)	Heart rate 1 year (bpm)	LV mass base (g)	LV mass 6 mos (g)	LV mass 1 year (g)
00003-CDC01-001	12.50	31.49	27.30	59.70	26.96	24.58	29.70	216.34	208.80	251.00	161.57	153.87	175.00	25.32	26.31	30.00	85.33	83.76	141.30	54.77	54.93	76.00	3,833.90	4,119.75	4,256.00	70.00	75.00	56.00	116.82	111.06	201.00
00003-CDC01-002	12.50	51.29	32.87	32.69	43.96	25.97	25.94	229.56	240.60	290.35	148.20	166.31	200.41	35.44	26.36	30.87	65.39	93.68	93.33	81.36	74.29	89.94	6,915.60	5,051.72	5,756.16	85.00	68.00	64.00	116.68	126.55	126.02
00005-CDC01-001	12.50	12.10	4.26	4.96	14.53	5.12	5.12	138.92	125.34	142.55	69.94	61.44	79.41	49.65	51.98	46.30	71.15	78.98	91.83	68.98	63.90	63.14	4,621.66	3,770.10	4,230.38	67.00	59.00	67.00	83.25	83.24	96.79
00005-CDC01-006	12.50	10.06	12.92	8.78	9.00	10.77	7.18	131.57	154.50	135.59	77.57	101.40	76.27	41.04	34.37	43.75	101.66	107.07	113.47	54.00	53.10	59.32	2,916.00	3,026.70	3,974.44	54.00	57.00	67.00	111.72	119.99	122.25
00003-CDC01-005	25.00	59.55	45.09	32.03	29.05	21.89	15.04	210.00	220.00	196.00	126.00	141.00	117.00	40.00	36.00	40.00	145.45	160.91	180.97	84.00	79.00	79.00	4,788.00	4,582.00	3,160.00	57.00	58.00	40.00	205.00	206.00	213.00
00003-CDC01-006	25.00	58.08	49.14	5.74	47.79	41.90	3.26	278.58	276.18	310.00	239.40	221.12	261.00	14.14	19.94	16.00	63.46	68.15	170.26	39.18	55.06	49.00	2,194.08	3,303.60	2,891.00	56.00	60.00	59.00	121.54	117.29	176.00
00003-CDC01-007	25.00	30.68	22.49	22.73	27.07	15.83	16.40	123.06	105.75	159.94	73.16	68.74	106.72	40.55	35.00	33.27	82.67	119.57	116.04	49.90	37.01	53.22	3,343.30	2,553.69	3,512.52	67.00	69.00	66.00	113.35	142.06	138.77
00005-CDC01-008	25.00	22.82	15.17	8.60	22.53	15.42	8.25	186.38	164.61	129.70	107.18	83.90	59.94	42.49	49.03	53.79	78.48	83.24	95.59	79.20	80.71	69.76	3,643.20	4,761.89	4,813.44	46.00	59.00	69.00	101.30	98.41	104.19
00005-CDC01-009	25.00	17.58	13.62	n/a	16.77	13.09	n/a	204.28	198.22	n/a	167.24	155.96	n/a	18.13	21.32	n/a	87.28	90.40	n/a	37.04	42.26	n/a	2,000.16	2,831.42	n/a	54.00	67.00	n/a	104.86	104.02	n/a
00005-CDC01-012	25.00	18.41	9.51	10.00	23.94	11.66	12.30	147.14	106.29	110.60	80.89	57.68	50.21	38.23	45.73	54.60	58.50	72.05	71.27	66.25	48.61	60.39	3,776.25	2,041.62	3,261.06	57.00	42.00	54.00	76.91	81.56	81.27
00005-CDC01-014	17.30	34.47	28.63	23.24	36.52	28.91	19.78	183.69	130.03	172.26	122.71	83.89	109.39	33.20	35.48	36.50	59.91	70.39	94.24	60.98	46.14	62.87	3,841.74	3,506.64	2,892.02	63.00	76.00	46.00	94.38	99.02	117.48
00005-CDC01-015	25.00	n/a	n/a	n/a	n/a	n/a	n/a	244.16	225.95	75.35	180.15	182.21	29.43	26.22	19.36	60.94	n/a	n/a	n/a	64.01	43.74	45.92	3,904.61	3,193.02	2,938.88	61.00	73.00	64.00	139.92	133.75	109.11
00005-CDC01-018	25.00	33.00	17.21	18.39	27.08	13.68	13.90	161.81	130.13	134.32	97.05	56.67	68.55	40.02	56.45	48.97	88.86	108.64	113.88	64.76	73.46	65.77	4,727.48	5,582.96	4,209.28	73.00	76.00	64.00	121.86	125.85	132.27
00005-CDC01-019	25.00	n/a	n/a	n/a	n/a	n/a	n/a	124.31	172.44	145.99	74.92	102.11	82.30	39.73	40.79	43.62	n/a	n/a	n/a	49.39	70.33	63.69	7,210.94	3,235.18	3,502.95	146.00	46.00	55.00	105.66	119.28	98.66
00005-CDC01-022	25.00	25.59	16.60	16.96	20.28	14.19	13.31	138.43	151.30	110.32	61.75	71.62	41.93	55.39	52.66	61.99	100.59	100.33	110.47	76.68	79.68	68.39	3,603.96	3,665.28	4,992.47	47.00	46.00	73.00	126.18	116.93	127.43
00005-CDC01-023	25.00	30.34	21.32	14.80	17.84	11.29	8.09	192.20	217.55	241.91	81.74	80.84	111.47	56.47	64.66	53.92	139.74	167.46	168.12	110.46	136.71	130.44	6,185.76	7,929.18	7,043.76	56.00	58.00	54.00	170.08	188.78	182.92
00005-CDC01-024	25.00	24.10	17.14	16.74	18.56	11.91	11.97	201.99	205.95	190.20	95.90	88.70	79.37	52.52	56.93	58.27	108.64	126.77	123.00	106.09	117.25	110.83	6,047.13	6,097.00	6,206.48	57.00	52.00	56.00	132.74	143.91	139.74
00003-CDC01-003	0.00	26.98	28.03	27.61	19.59	21.02	21.43	167.50	190.38	175.44	102.03	113.51	102.88	39.09	38.68	41.36	110.72	105.33	101.25	65.47	76.87	72.56	4,190.08	4,996.55	4,135.92	64.00	65.00	57.00	137.70	133.36	128.86
00003-CDC01-004	0.00	27.00	14.81	9.29	25.50	14.02	9.19	113.58	134.25	118.24	46.69	76.76	42.11	58.89	42.82	64.39	78.90	90.83	91.85	66.89	57.49	76.13	4,080.29	3,046.97	4,187.15	61.00	53.00	55.00	105.90	105.64	101.14
00005-CDC01-002	0.00	20.12	30.74	25.12	19.64	27.06	23.74	172.34	179.95	219.68	100.34	96.84	120.88	41.78	46.19	44.98	82.35	82.88	80.70	72.00	83.11	98.80	3,816.00	4,238.61	4,940.00	53.00	51.00	50.00	102.47	113.62	105.82
00005-CDC01-004	0.00	38.86	36.31	n/a	21.77	21.48	n/a	307.29	299.31	n/a	213.30	199.51	n/a	30.59	33.35	n/a	139.66	132.71	n/a	93.99	99.80	n/a	6,015.36	6,886.20	n/a	64.00	69.00	n/a	178.52	169.02	n/a
00005-CDC01-007	0.00	28.09	32.74	29.74	37.74	38.48	33.45	167.96	201.12	167.34	120.64	149.83	119.11	28.18	27.13	31.81	46.34	52.35	59.16	47.32	51.29	48.23	3,170.44	2,667.08	2,604.42	67.00	52.00	54.00	74.43	85.09	88.90
00005-CDC01-011	0.00	27.27	33.64	23.89	19.55	23.02	17.12	201.86	180.70	176.08	134.24	105.43	99.97	33.50	41.66	43.23	112.19	112.48	115.65	67.62	75.27	76.11	5,477.22	4,440.93	6,545.46	81.00	59.00	86.00	139.46	146.12	139.54
00005-CDC01-013	0.00	19.85	21.03	17.28	22.76	22.89	20.33	130.48	131.53	129.02	78.14	67.77	63.33	40.11	48.48	50.92	67.38	70.86	67.73	52.34	63.76	65.69	4,134.86	3,443.04	4,663.99	79.00	54.00	71.00	87.23	91.89	85.01
00005-CDC01-016	0.00	13.47	13.90	18.10	12.20	12.88	16.59	108.48	110.70	75.35	58.01	45.47	29.43	55.66	58.93	60.94	96.96	94.04	91.01	50.47	65.23	45.92	3,028.20	4,696.56	3,398.08	60.00	72.00	74.00	110.43	107.94	109.11

Patient underwent CT imaging Delayed-enhancement images deemed technically uninterpretable by the imaging core Patient lost to follow-up

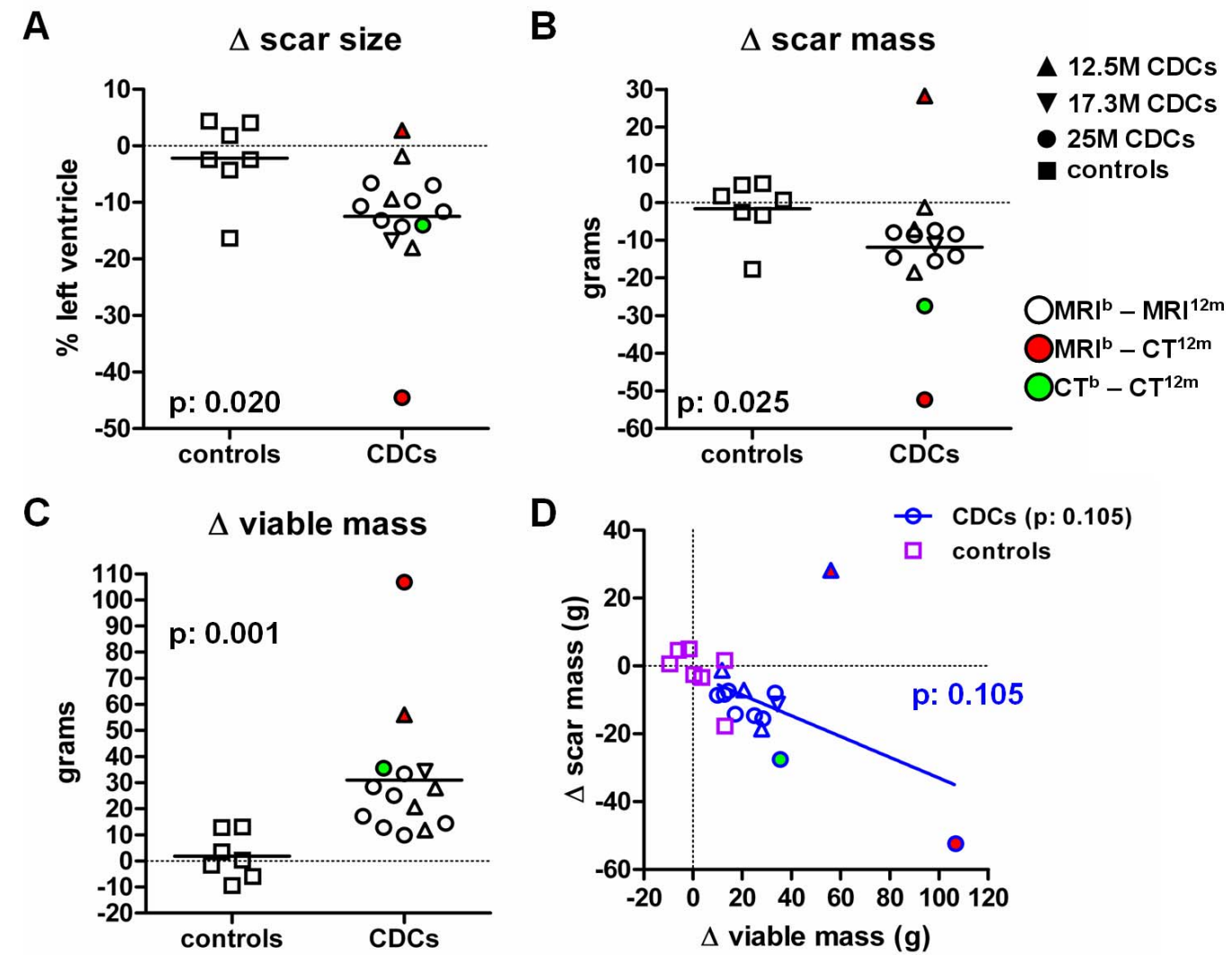
Supp Table 2. Complete list of all MRI-measured parameters for each patient

	CDCs		Controls		Statistical test	p value
	mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value		
<b>Scar mass baseline (g)</b>	26.6±11.5	0.652	23.3±5.5	0.07	independent samples t-test	0.482
<b>Scar mass 1 year (g)</b>	16.2±8.1	0.695	21.6±7.1	0.641	independent samples t-test	0.167
<b>Δ scar mass (g)</b>	-11.9±6.8	0.375	-1.7±7.8	0.059	independent samples t-test	0.008
<b>Scar size baseline (% LV)</b>	23.8±9.9	0.684	22.4±7.9	0.251	independent samples t-test	0.768
<b>Scar size 1 year (% LV)</b>	12.9±6.1	0.483	20.3±7.5	0.821	independent samples t-test	0.036
<b>Δ scar size (% LV)</b>	-11.1±4.6	0.972	-2.2±7.1	0.122	independent samples t-test	0.004
<b>Viable mass baseline (g)</b>	86.9±24.5	0.421	85.0±23.8	0.711	independent samples t-test	0.874
<b>Viable mass 1 year (g)</b>	108.3±24.8	0.123	86.8±19.4	0.956	independent samples t-test	0.070
<b>Δ viable mass (g)</b>	22.6±9.4	0.249	1.8±8.7	0.499	independent samples t-test	<0.001
<b>EDV baseline (ml)</b>	169.5±40.1	0.238	151.7±34.7	0.425	independent samples t-test	0.338
<b>EDV 1 year (ml)</b>	156.9±57.3	0.157	151.6±47.4	0.850	independent samples t-test	0.838
<b>Δ EDV (ml)</b>	-12.7±56.0	0.038	-0.2±26.1	0.442	Mann-Whitney U test	0.636
<b>ESV baseline (ml)</b>	97.8±34.4	0.029	91.4±32.1	0.802	Mann-Whitney U test	0.938
<b>ESV 1 year (ml)</b>	84.3±43.1	0.042	82.5±37.3	0.244	Mann-Whitney U test	0.817
<b>Δ ESV (ml)</b>	-13.2±48.1	0.021	-8.9±18.7	0.833	Mann-Whitney U test	0.913
<b>EF baseline (%)</b>	42.4±8.9	0.543	42.5±11.1	0.490	independent samples t-test	0.987
<b>EF 1 year (%)</b>	48.2±10.3	0.497	48.2±11.4	0.766	independent samples t-test	0.997
<b>Δ EF (%)</b>	5.4±10.6	0.038	5.8±3.3	0.238	Mann-Whitney U test	0.636
<b>Stroke volume baseline (ml)</b>	71.7±19.2	0.109	60.3±9.9	0.183	independent samples t-test	0.162
<b>Stroke volume 1 year (ml)</b>	72.6±23.9	0.007	69.1±18.2	0.549	Mann-Whitney U test	0.757
<b>Δ Stroke volume (ml)</b>	0.5±10.1	0.979	8.8±9.9	0.704	independent samples t-test	0.090
<b>Cardiac output baseline (l/min)</b>	4.7±1.4	0.069	4.0±0.8	0.359	independent samples t-test	0.261
<b>Cardiac output 1 year (l/min)</b>	4.4±1.3	0.317	4.4±1.2	0.875	independent samples t-test	0.926
<b>Δ Cardiac output (l/min)</b>	-0.4±1.3	0.230	0.4±0.6	0.788	independent samples t-test	0.194
<b>LV mass baseline (g)</b>	114.9±24.7	0.913	108.2±24.1	0.586	independent samples t-test	0.567
<b>LV mass 1 year (g)</b>	121.3±25.5	0.483	108.3±19.9	0.623	independent samples t-test	0.260
<b>Δ LV mass (g)</b>	6.5±13.5	0.034	0.1±7.4	0.418	Mann-Whitney U test	0.079
<b>VT duration</b>	4.0±2.2	<0.001	4.0±1.4	n/a	Mann-Whitney U test	0.655
<b>mid-wall Ecc baseline (%)</b>	-10.1±5.8	0.259	-10.0±5.2	0.05	independent samples t-test	0.878
<b>mid-wall Ecc 1 year (%)</b>	-12.7±5.9	0.442	-10.0±4.5	0.439	independent samples t-test	0.020
<b>Systolic thickening baseline (%)</b>	24.8±26.1	0.406	25.9±20.9	0.300	independent samples t-test	0.642
<b>Systolic thickening 1 year (%)</b>	35.9±31.8	0.060	28.4±22.4	0.281	independent samples t-test	0.008
<b>End-systolic thickness baseline (mm)</b>	9.9±3.4	0.019	9.4±3.4	0.014	Mann-Whitney U test	0.144
<b>End-systolic thickness 1 year (mm)</b>	10.3±3.2	0.002	9.4±3.7	0.001	Mann-Whitney U test	0.004

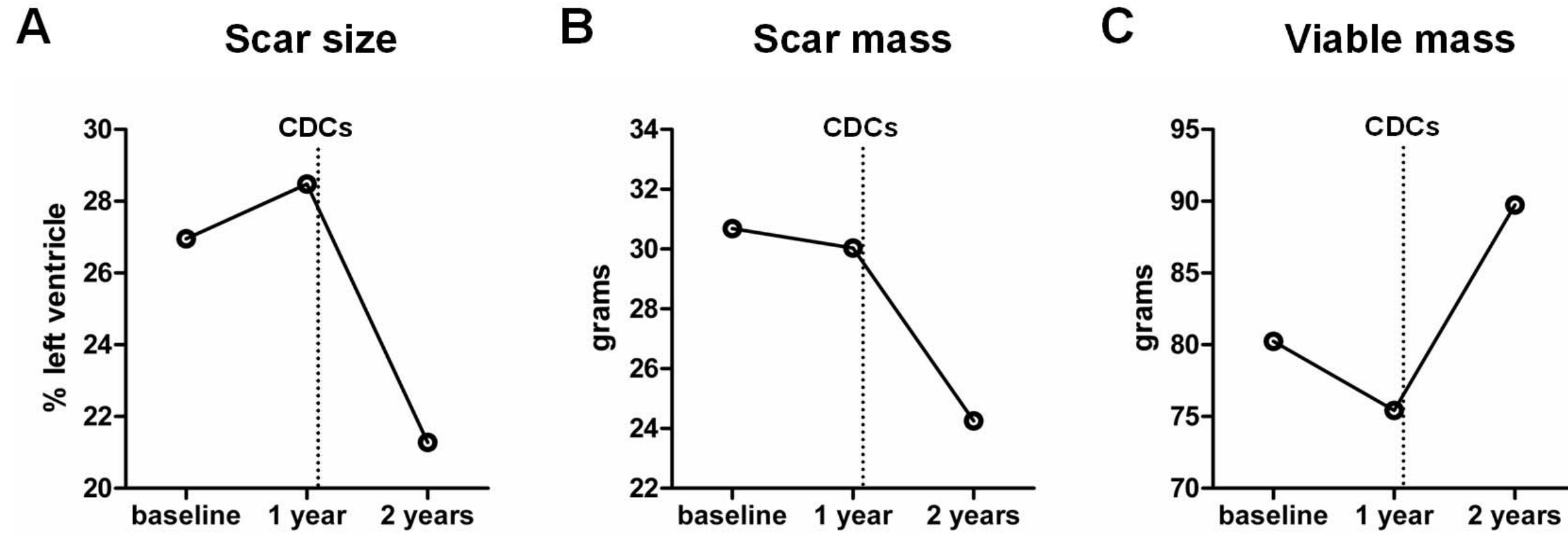
Supp Table 3. The results of the Shapiro-Wilk test, the test used for between groups comparisons, and the calculated p values for all between groups statistical comparisons.

	Group	Baseline		6hours		12hours		18hours		24hours		14days		Statistical test	p value	
		mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value			
<b>Tnl (ng/ml)</b>	CDCs	0.048±0.069	<0.001	0.083±0.080	<0.001	0.119±0.082	0.009	0.152±0.177	<0.001	0.157±0.237	<0.001	0.044±0.051	<0.001	Friedman test (post-hoc: Wilcoxon signed-rank tests with Bonferroni correction)	<0.001 (b vs 6h: 0.001; b vs 12h: 0.002; b vs 18h: 0.004; b vs 24h: 0.005; b vs 14d: 0.680)	
<b>CK-MB (ng/ml)</b>	CDCs	2.5±1.1	0.154	2.8±1.8	0.045	2.6±1.7	0.051	2.5±1.6	0.070	2.2±1.4	0.068	2.3±1.2	0.236	Friedman test (post-hoc: Wilcoxon signed-rank tests with Bonferroni correction)	0.010 (b vs 6h: 0.844; b vs 12h: 0.813; b vs 18h: 0.324; b vs 24h: 0.064; b vs 14d: 0.202)	
		Baseline		12 months		Statistical test	P value									
		mean±SD	Shapiro-Wilk test p value	mean±SD	Shapiro-Wilk test p value											
<b>Peak VO2 (ml/kg/min)</b>	CDCs	29.2±5.2	0.429	31.4±6.9	0.594	paired-samples t-test	0.121									
<b>Peak VO2 (ml/kg/min)</b>	Controls	33.1±6.2	0.525	37.2±4.7	0.207	paired-samples t-test										
<b>MLHFQ</b>	CDCs	21.9±14.9	0.770	20.5±20.8	0.041	Wilcoxon signed ranks test	0.649									
<b>MLHFQ</b>	Controls	32.7±24.8	0.306	20.7±21.0	0.055	paired-samples t-test	0.100									
<b>6MWT (meters)</b>	CDCs	433.2±115.4	0.024	461.1±128.5	0.205	Wilcoxon signed ranks test	0.086									
<b>6MWT (meters)</b>	Controls	439.3±75.2	0.234	429.7±61.3	0.304	paired-samples t-test	0.786									
<b>Scar mass (g)</b>	CDCs	26.6±11.5	0.652	16.2±8.1	0.695	paired-samples t-test	<0.001									
<b>Scar mass (g)</b>	Controls	23.3±5.5	0.07	21.6±7.1	0.641	paired-samples t-test	0.588									
<b>Scar size (% LV)</b>	CDCs	23.8±9.9	0.684	12.9±6.1	0.483	paired-samples t-test	<0.001									
<b>Scar size (% LV)</b>	Controls	22.4±7.9	0.251	20.3±7.5	0.821	paired-samples t-test	0.452									
<b>Viable mass (g)</b>	CDCs	86.9±24.5	0.421	108.3±24.8	0.123	paired-samples t-test	<0.001									
<b>Viable mass (g)</b>	Controls	85.0±23.8	0.711	86.8±19.4	0.956	paired-samples t-test	0.605									

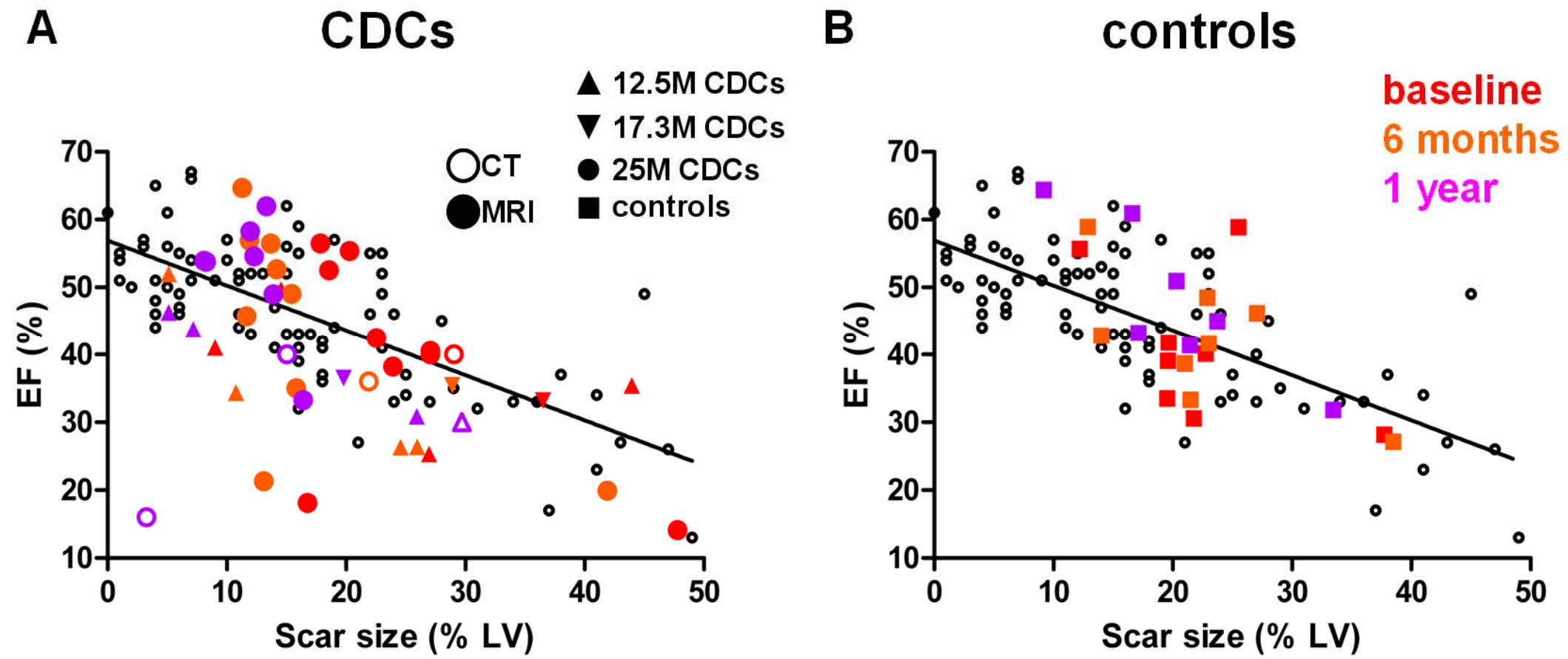
Supp Table 4. The results of the Shapiro-Wilk test, the test used for within groups comparisons, and the calculated p values for all within groups statistical comparisons.



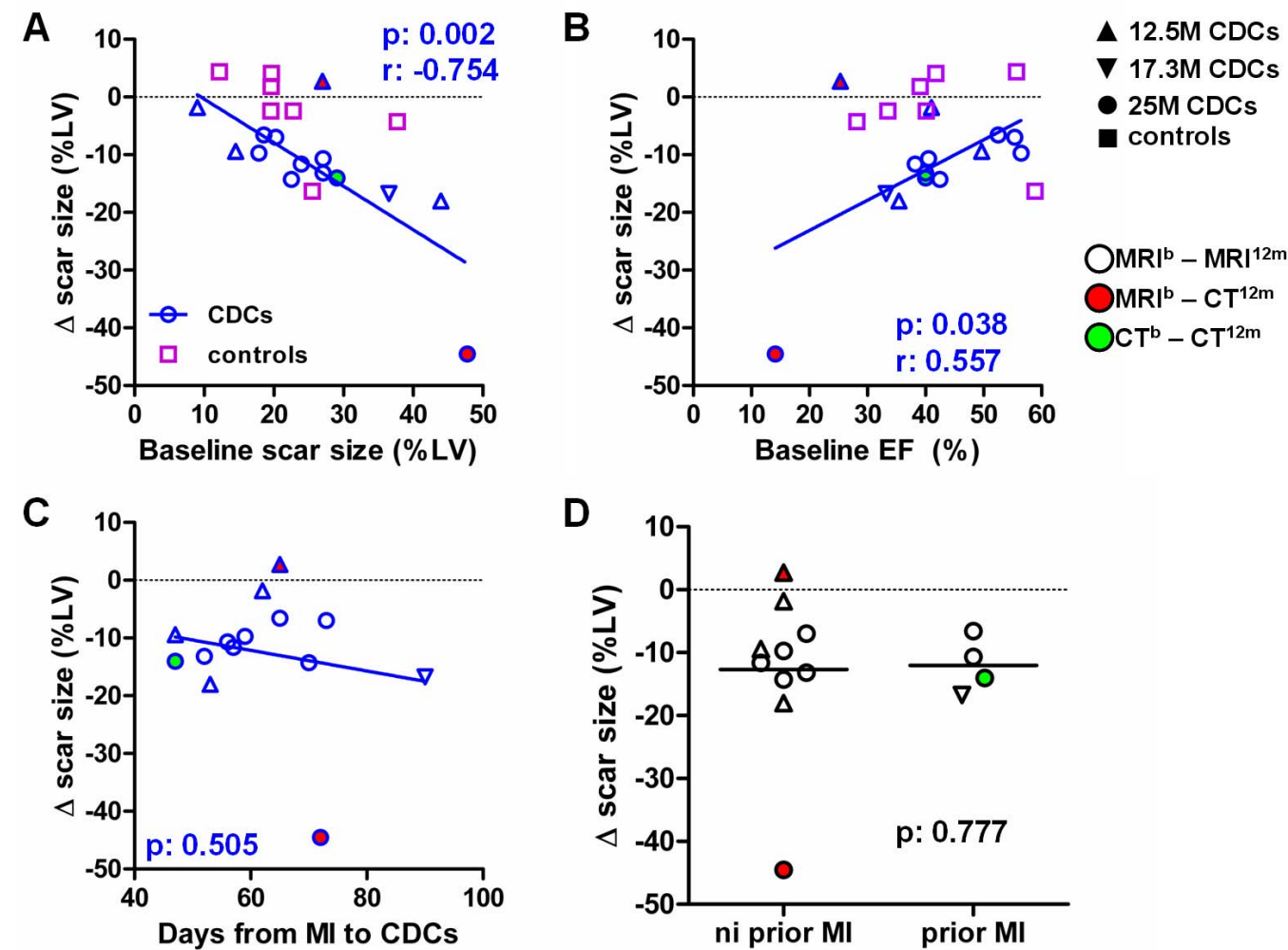
**Supp Fig 1. Autologous CDCs decrease scar size, decrease scar mass and increase viable myocardium.** A: Changes in scar size (A), scar mass (B) and viable mass (C) from baseline to 1 year. D: Correlation between the change in scar mass and the change in viable mass in individual control and CDC-treated subjects from baseline to 1 year (blue line of best fit is derived only from the CDC-treated patients). All individual within-patient treatment effects are presented, regardless of whether data were obtained with matching (MRI-MRI, CT-CT) or non-matching (MRI-CT) imaging modalities at different timepoints. Different shapes of symbols denote different CDC doses, while different colors denote different combinations of imaging modalities. The reliability of the comparisons is higher when the modalities match (1), but the additional data are presented for the sake of completeness.



**Supp Fig 2. MRI data from the single subject that was infused off-protocol 14 months post-MI.** A: Serial MRI measurements of scar size. B: Serial MRI measurements of scar mass. C: Serial MRI measurements of viable mass.



**Supp Fig 3.** Scatter plot showing the natural relationship between scar size and LVEF ~5 months post MI (open black circles), as measured by MRI or CT. Measurements of scar size and LVEF from all individual CADUCEUS patients (treated [A] and controls [B]) at baseline, 6 months and 1 year are superimposed onto the scatter plot. Different shapes of symbols denote different CDC doses, different colors denote different timepoints, open symbols in CADUCEUS patients denote CT measurements, while filled symbols in CADUCEUS patients denote MRI measurements.



**Fig 4. Predictors of efficacy.** A: Correlation between the change in scar size (from baseline to 1 year) and baseline scar size. B: Correlation between the change in scar size (from baseline to 1 year) and baseline LVEF. C: Correlation between the change in scar size (from baseline to 1 year) and time from MI to CDC infusion. D: Changes in scar size from baseline to in year in CDC-treated patients with and without history of temporally-remote MI. All individual collected measurements are presented, regardless of whether data were obtained with matching (MRI-MRI, CT-CT) or non-matching (MRI-CT) imaging modalities at different timepoints. Different shapes of symbols denote different CDC doses, while different colors denote different combinations of imaging modalities. The reliability of the comparisons is higher when the modalities match (1), but the additional data are presented for the sake of completeness.

#### Supplemental References

- Schuleri KH, Centola M, Choi SH, et al. Multi-detector computed tomography for the evaluation of myocardial cell therapy in heart failure: a comparison with cardiac magnetic resonance imaging. *J Am Coll Cardiol Imaging* 2011; 4:1284-93.