

Supplementary material

Heart failure in humans reduces contractile force in myocardium from both ventricles

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Supplementary Table 1: Clinical data for patients who had heart transplants

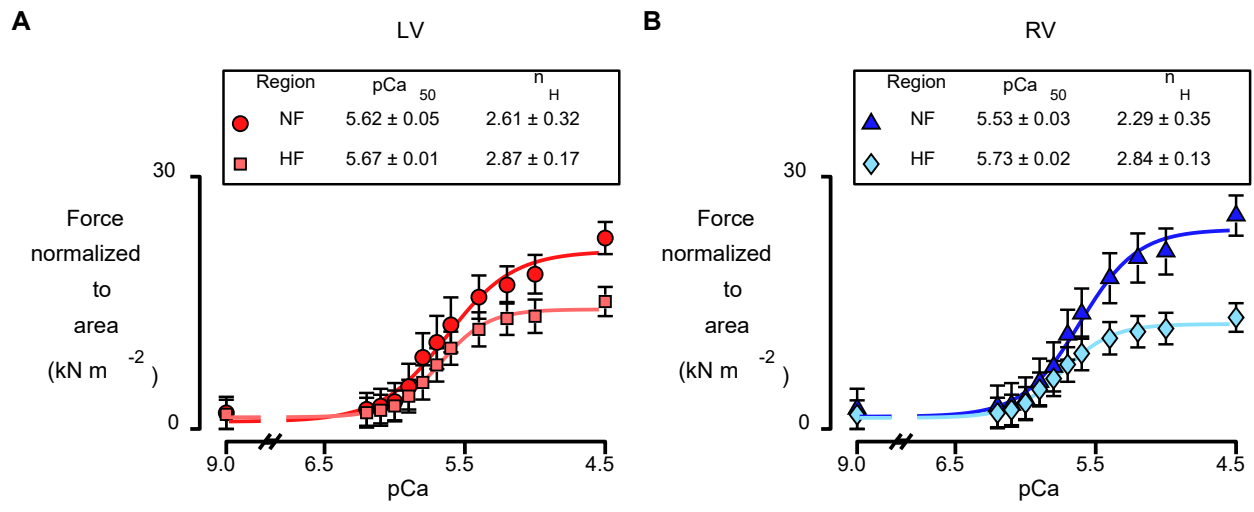
Patient code	Gender	Age	Race	BMI	Heart failure type	Ejection fraction (%)	B-blocker	ACE inhibitor	Statin	Aldosterone antagonist	Inotrope	Digitalis	Vasopressor	Aspirin
117DD	Female	56	White	23.0	Non-ischemic	21	No	Yes	No	No	Yes	No	No	No
27D6D	Male	54	Black or African American	25.5	Ischemic	No data	Yes	Yes	Yes	No	Yes	No	No	Yes
43149	Female	36	White	39.5	Non-ischemic	17	Yes	Yes	Yes	Yes	Yes	No	No	No
59B77	Female	19	White	24.4	Non-ischemic	20	No	Yes	No	Yes	Yes	No	No	No
5CCF6	Male	68	White	24.9	Ischemic	45	Yes	No	Yes	Yes	Yes	Yes	No	Yes
661CC	Male	64	White	27.6	Ischemic	20	Yes	Yes	Yes	Yes	Yes	No	No	Yes
668C5	Female	60	White	22.1	Non-ischemic	37	Yes	Yes	Yes	Yes	Yes	No	No	Yes
74B28	Female	67	White	29.0	Non-ischemic	25	Yes	Yes	Yes	Yes	No	No	No	Yes
98868	Male	35	White	23.0	Non-ischemic	10	Yes	Yes	No	No	Yes	No	No	Yes
A3CD2	Male	20	Black or African American	22.5	Non-ischemic	37	Yes	No	No	No	No	No	No	Yes
A8C59	Male	53	White	28.8	Ischemic	15	Yes	Yes	Yes	No	Yes	No	No	Yes
CEDF2	Male	42	White	32.2	Ischemic	20	Yes	Yes	Yes	No	Yes	No	No	Yes

Supplementary Table 2: Clinical data for organ donors

Patient code	Gender	Age	Race	BMI	Cause of death	β -blocker	ACE inhibitor	Statin	Aldosterone antagonist	Inotrope	Digitalis	Vasopressor	Aspirin
0A105	Male	28	White	23.6	Head trauma, blunt injury, non-motor vehicle accident	No data	No	No	No	No	No	No	Yes
B54F0	Female	47	White	36.3	Cerebrovascular accident, intracerebral hemorrhage, stroke	No data	No	No	Yes	No	No	No	No
BDC56	Male	48	White	No data	No data	No data	No data	No data	No data	No data	No data	No data	No data
CF462	Female	60	White	34.0	Cerebrovascular stroke, intracranial hemorrhage	No data	No	No	No	No	No	No	Yes
E94DC	Male	22	White	23.1	Motorcycle accident	No data	No	No	No	No	No	No	No

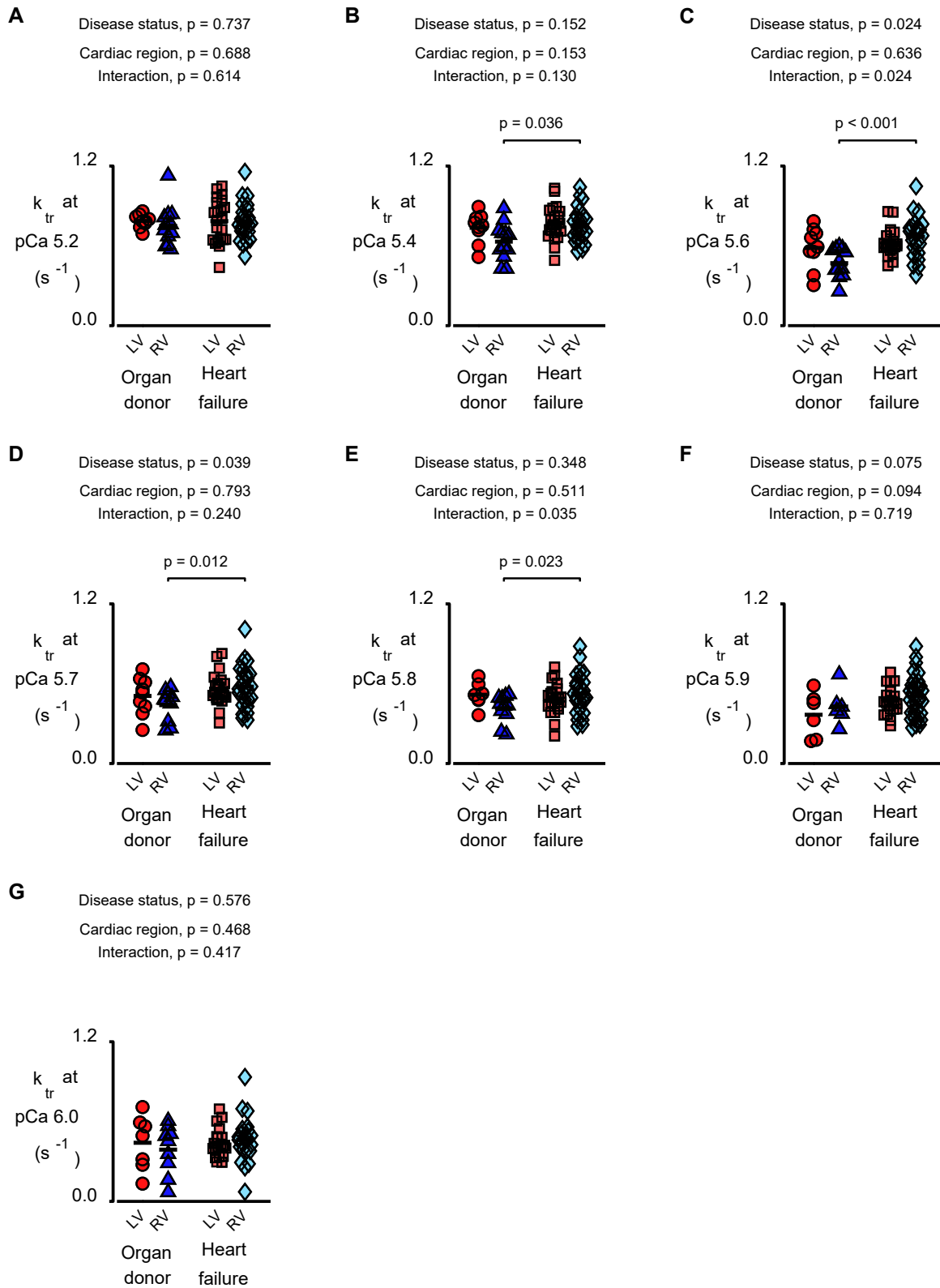
Supplementary Table 3: Ventricular function for patients who had heart transplants

Patient code	Ejection Fraction (%)	Right Ventricular Systolic Pressure (mm Hg)	TAPSE (mm)	RV function (Qualitative)
117DD	21	47.2	No data	Severely depressed
27D6D	No data	No data	No data	No data
43149	17	No data	No data	Normal
59B77	20	44.4	<16	Moderately depressed
5CCF6	45	24.7	No data	Moderately depressed
661CC	20	No data	No data	Moderately depressed
668C5	37	34.2	No data	Moderately depressed
74B28	25	26.3	No data	No data
98868	10	44.1	<16	Mildly depressed
A3CD2	37	34.7	<16	Moderately depressed
A8C59	15	47.2	No data	Severely depressed
CEDF2	20	No data	No data	Moderately depressed
Notes: Right Ventricular Systolic Pressure was estimated from the maximal tricuspid jet velocity using the modified Bernoulli equation. TAPSE is an abbreviation of Tricuspid Annular Plane Systolic Excursion. The normal range is ~18-20 mm.				

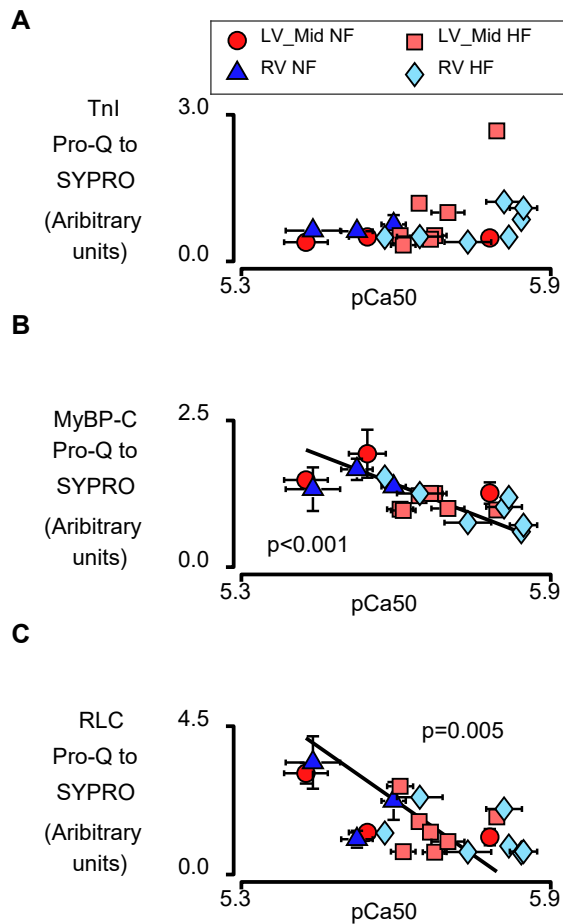


Supplementary Fig 1: Force-pCa curves comparing samples from matching ventricular regions.

Data for multicellular preparations isolated from the (A) left and (B) right ventricles of organ donors and patients who had heart failure.

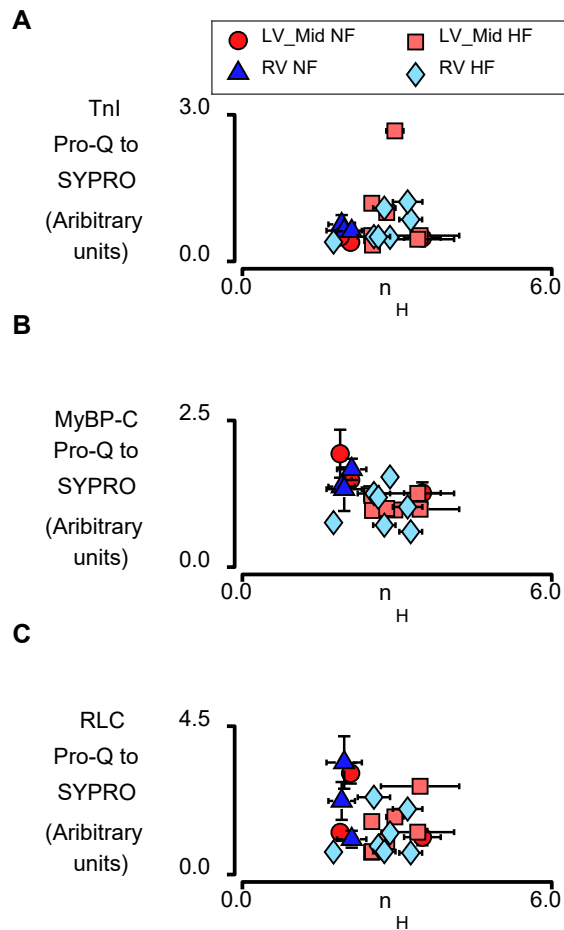


Supplementary Fig 2: Analysis of k_{tr} values measured at sub-maximal levels of activation As for Fig 5C in the main text, but showing analysis of k_{tr} values measured in solutions with pCa values ranging from (A) 5.2 to (G) 6.0.



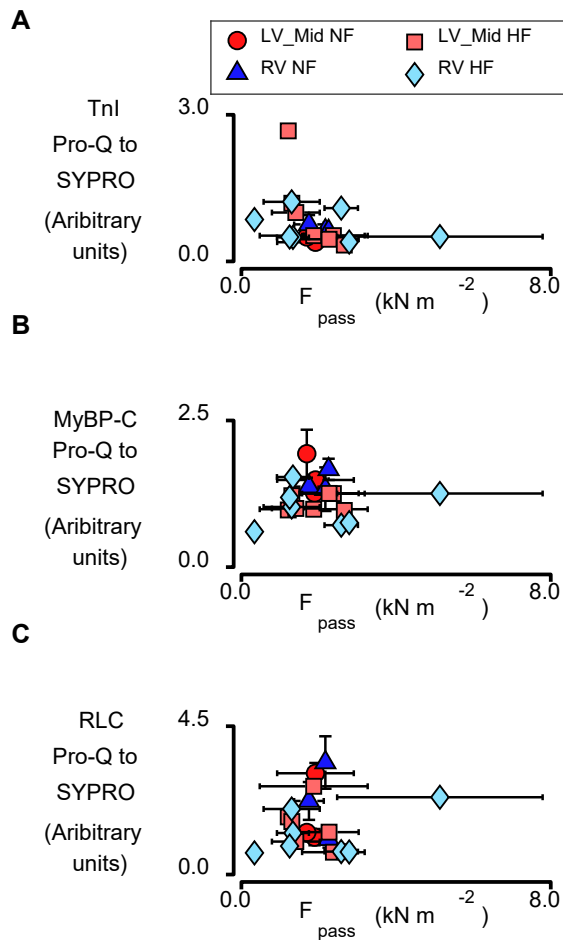
Supplementary Fig 3: Phosphorylation of TnI, MyBP-C, and RLC plotted against pCa₅₀.

Phosphorylation data from Fig 6 plotted against pCa₅₀. X values are the mean \pm SEM of the contractile parameter measured from 1 to 4 permeabilized preparations from each region of each heart. Y values are the mean \pm SEM of 1 or 2 technical replicates prepared from a single homogenate. Regression lines were calculated using a Deming regression function that takes into account uncertainty in both the x and y coordinates.



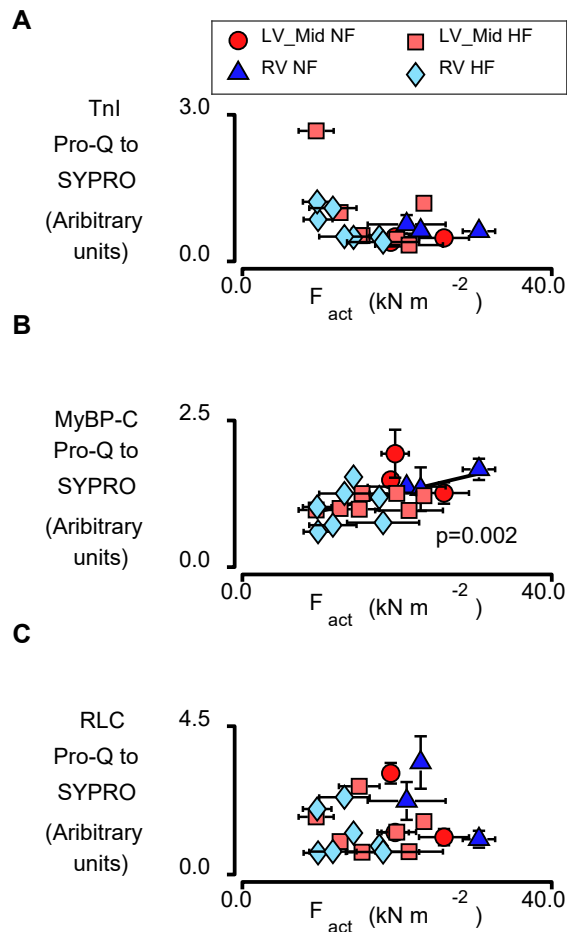
Supplementary Fig 4: Phosphorylation of Tnl, MyBP-C, and RLC plotted against n_H .

Phosphorylation data from Fig 6 plotted against n_H . X values are the mean \pm SEM of the contractile parameter measured from 1 to 4 permeabilized preparations from each region of each heart. Y values are the mean \pm SEM of 1 or 2 technical replicates prepared from a single homogenate. Regression lines were calculated using a Deming regression function that takes into account uncertainty in both the x and y coordinates.



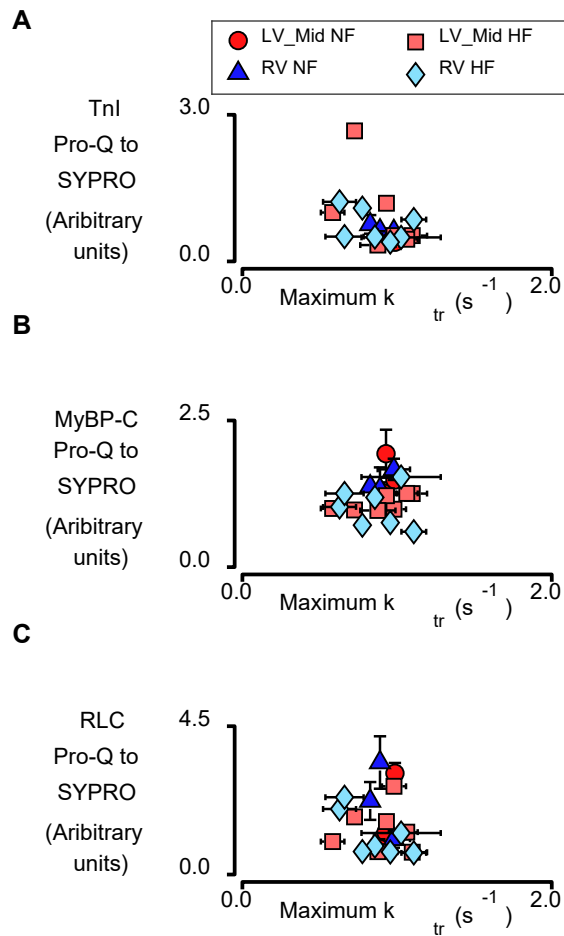
Supplementary Fig 5: Phosphorylation of TnI, MyBP-C, and RLC plotted against F_{pas} .

Phosphorylation data from Fig 6 plotted against F_{pas} . X values are the mean \pm SEM of the contractile parameter measured from 1 to 4 permeabilized preparations from each region of each heart. Y values are the mean \pm SEM of 1 or 2 technical replicates prepared from a single homogenate. Regression lines were calculated using a Deming regression function that takes into account uncertainty in both the x and y coordinates.



Supplementary Fig 6: Phosphorylation of TnI, MyBP-C, and RLC plotted against F_{act} .

Phosphorylation data from Fig 6 plotted against F_{act} . X values are the mean \pm SEM of the contractile parameter measured from 1 to 4 permeabilized preparations from each region of each heart. Y values are the mean \pm SEM of 1 or 2 technical replicates prepared from a single homogenate. Regression lines were calculated using a Deming regression function that takes into account uncertainty in both the x and y coordinates.



Supplementary Fig 7: Phosphorylation of Tnl, MyBP-C, and RLC plotted against maximum k_{tr} .

Phosphorylation data from Fig 6 plotted against maximum k_{tr} . X values are the mean \pm SEM of the contractile parameter measured from 1 to 4 permeabilized preparations from each region of each heart. Y values are the mean \pm SEM of 1 or 2 technical replicates prepared from a single homogenate. Regression lines were calculated using a Deming regression function that takes into account uncertainty in both the x and y coordinates.