Supplemental Material

To accompany the manuscript:

Disrupting circadian control of peripheral myogenic reactivity mitigates cardiac injury following myocardial infarction

Supplemental Methods

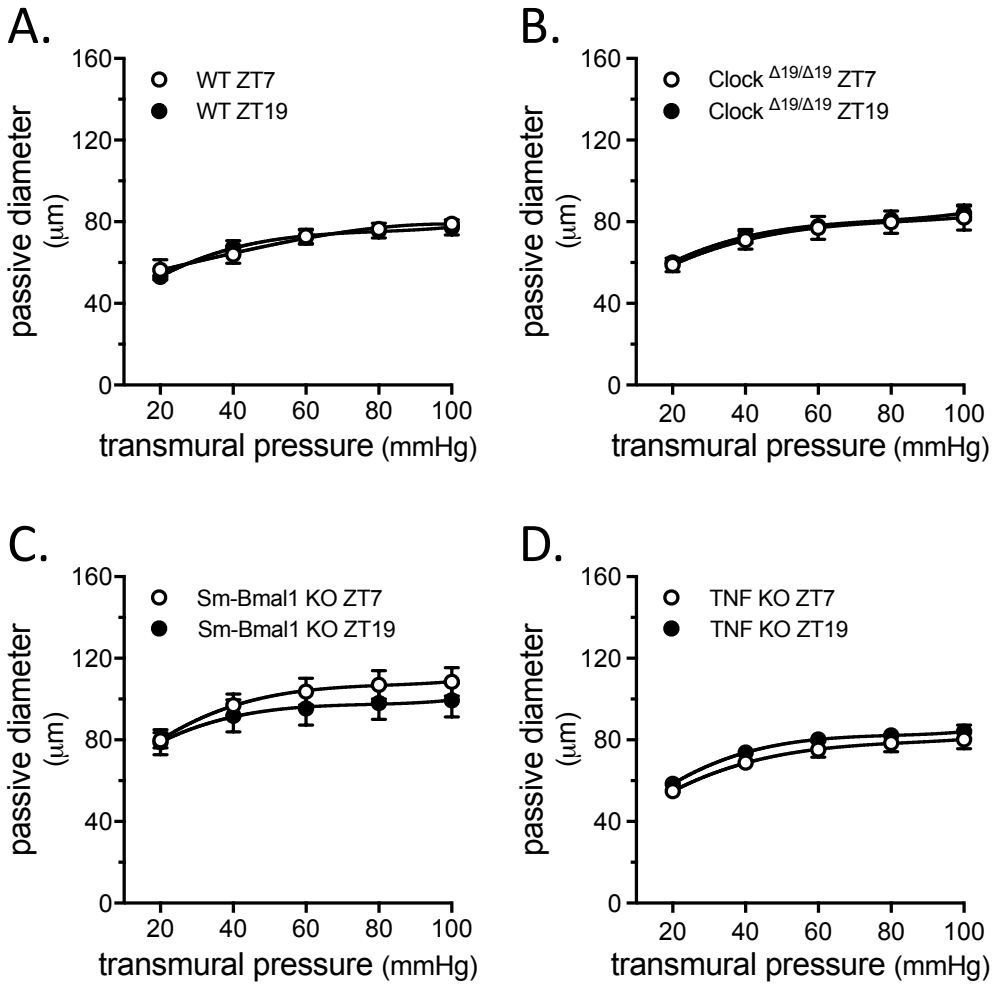
Pressure myography. Mouse cremaster skeletal muscle resistance arteries were dissected from the cremaster muscle and cannulated onto micropipettes. The isolation procedure and myography experiments utilized calcium-containing 3-morpholinopropanesulfonic acid (MOPS) buffered saline containing [mmol/L]: NaCl 147.0, KCl 4.7, $CaCl_2$ 1.5, $MgSO_4$ 1.2, NaH_2PO_4 1.2, pyruvate 2.0, EDTA 0.02, MOPS 3.0 and glucose 5.0. Following cannulation, arteries were heated to 37°C and stretched to their *in vivo* lengths. Vessel viability as assessed with 10 μmol/L phenylephrine: vessels that developed >50% tone were considered viable. Prior to myogenic tone measurements, vasoconstriction to 60 mmol/L KCl was assessed, followed by a phenylephrine dose-response assessment (1 nmol/L to 10 μmol/L).

Myogenic responses were elicited by step-wise 20 mmHg increases in transmural pressure from 20 mmHg to 100 mmHg. At each pressure step, vessel diameter (dia_{active}) was measured once a steady state was reached. Following completion of all dia_{active} measurements, the MOPS buffer was replaced with a Ca^{2+}-free version and maximal passive diameter (dia_{max}) was recorded at each pressure step. Myogenic tone was calculated as the percent constriction in relation to the maximal diameter at each transmural pressure: tone (% of dia_{max}) = $[(dia_{max}-dia_{active})/dia_{max}]x100$, where dia_{active} is the vessel diameter in MOPS containing Ca^{2+} and dia_{max} is the diameter in Ca^{2+}-free MOPS. Analyses of KCl and phenylephrine-stimulated responses (measured at 60 mmHg transmural pressure) used the same calculation, only in this case, dia_{active} represents the vessel diameter at steady state following application of the given agent.

The majority of *in vitro* inhibitor studies utilized a pre/post experimental design: myogenic and phenylephrine responses were assessed following viability assessment; vessels were then incubated with 10 nmol/L - 1 μmol/L CKI-7 for 30 minutes (Cayman Chemical; distributed by Cedarlane Laboratories, Burlington, Canada); and myogenic and phenylephrine responses were reassessed in the presence of CKI-7. For **Figures 2E-F** in the main article, vessels were pre-treated with 10 nmol/L CKI-7 for 30 minutes following viability assessment, followed by response assessment in the presence of CKI-7.

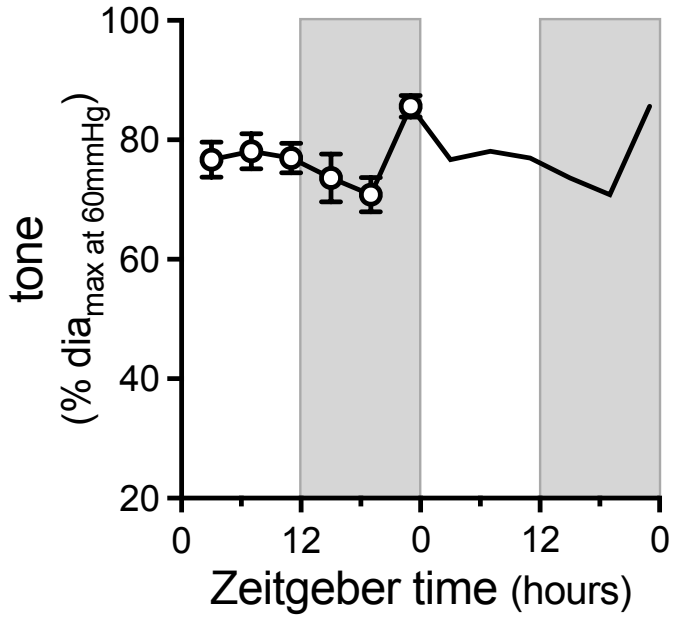
For the *in vivo* inhibitor studies, wild-type mice were administered a single i.p. injection of PF670462 (30-50 mg/kg in 200 μl sterile water; Cayman Chemical) or vehicle (200 μl sterile water) between Zeitgeber time 10 (ZT10) and ZT10.5. Cremaster arteries were isolated the following day for functional assessment at ZT7.

Western blotting. Cremaster arteries were isolated, cannulated and tested for viability; after a 30-minute incubation at 40 mmHg, arteries were subjected to either a 40-100 mmHg pressure step or no pressure step. After 5 minutes, vessels were snap-frozen in liquid nitrogen. Lysates were prepared by pooling and mechanically homogenizing 2 cremaster arteries in lysis buffer. Proteins were electrophoretically separated on a standard 9% SDS-PAGE gels and transferred to polyvinyl difluoride (PVDF) membranes. The PVDF membranes were fixed in 0.5% glutaraldehyde in PBS for 40 minutes and blocked with 5% milk in PBS for 1 hour. Blots were incubated with rabbit anti-phospho-p44/42 MAPK (ERK1/2) antibody (1:1000 in 2% bovine serum albumin; cat #4377S, Cell Signaling Technology Canada; Whitby Canada) or rabbit anti-p44/42 MAPK (ERK1/2) antibody (1:1000 in 2% bovine serum albumin; cat #4695S, Cell Signaling Technology) overnight at 4°C; conjugated with biotinylated donkey anti-rabbit IgG for 2 hours (1:20,000 in 2% bovine serum albumin; cat# AP182B; Millipore Sigma, Oakville Canada); and then high sensitivity peroxidase-conjugated streptavidin for 2 hours (1:500 in 2% bovine serum albumin; cat# 21130; ThermoFisher Scientific; Mississauga, Canada). Using standard chemiluminescence procedures, digital images were captured with a Bio-Rad Laboratories (Mississauga, Canada) Chemidoc Touch system and quantified using Bio-Rad Laboratories Image Lab software. Uncropped blots for all western blot experiments are displayed in **Supplemental Figures 15-17**.



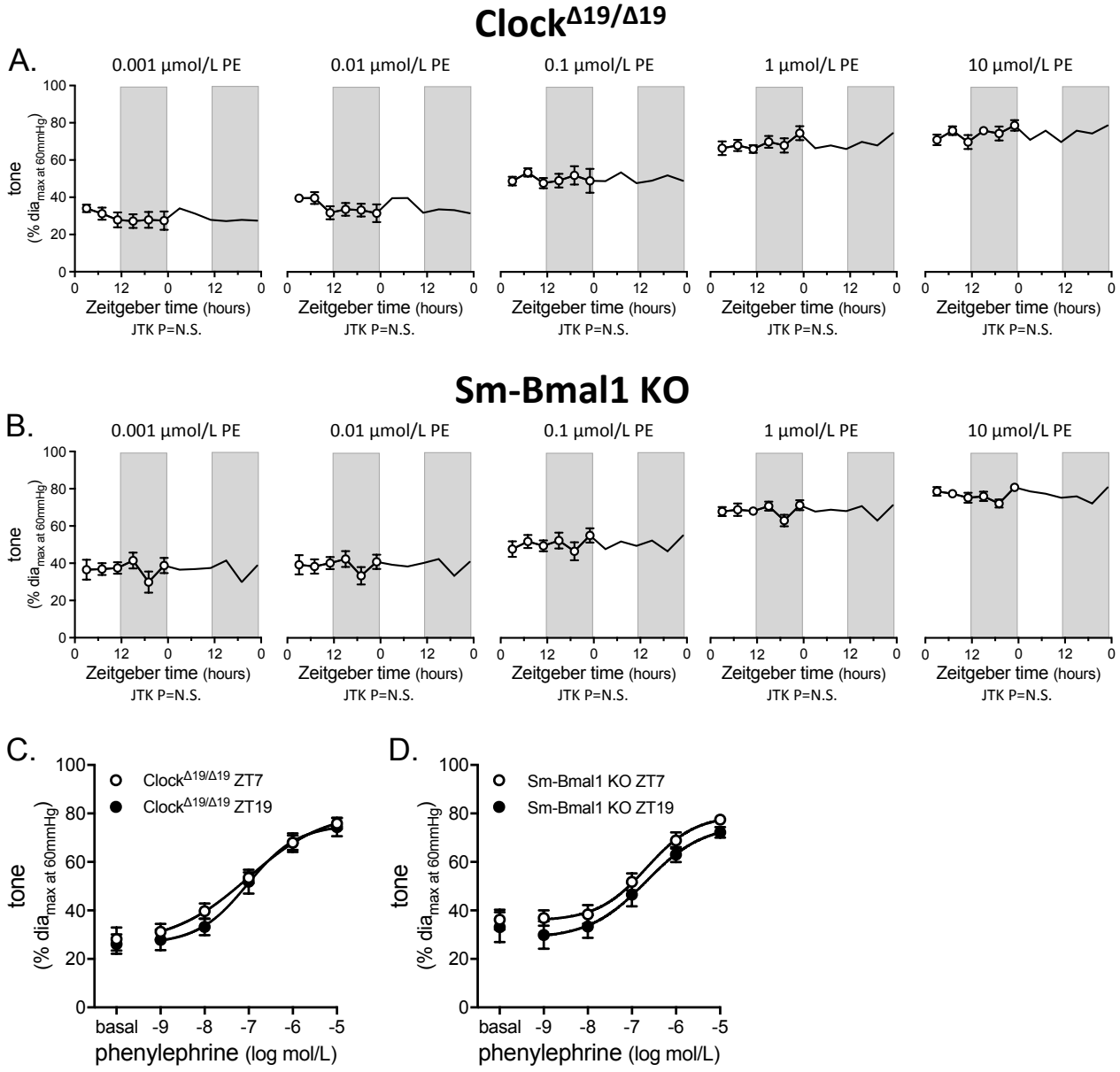
Supplemental Figure 1: Passive diameter measurements for ZT7 / ZT19 comparisons.

Passive diameter measurements for cremaster arteries isolated from (**A**) wild-type (WT; n=4-6) mice, **(B)** Clock$^{\Delta 19/\Delta 19}$ mutant mice (n=5-6), **(C)** smooth muscle cell-specific Bmal1 knockout mice (Sm-Bmal1 KO; n=5-6) and **(D)** tumor necrosis factor knockout mice (TNF KO; n=5) at Zeitgeber time 7 (ZT7) and Zeitgeber time 19 (ZT19). For all panels, P=N.S. for ZT7 versus ZT19 at a given transmural pressure.



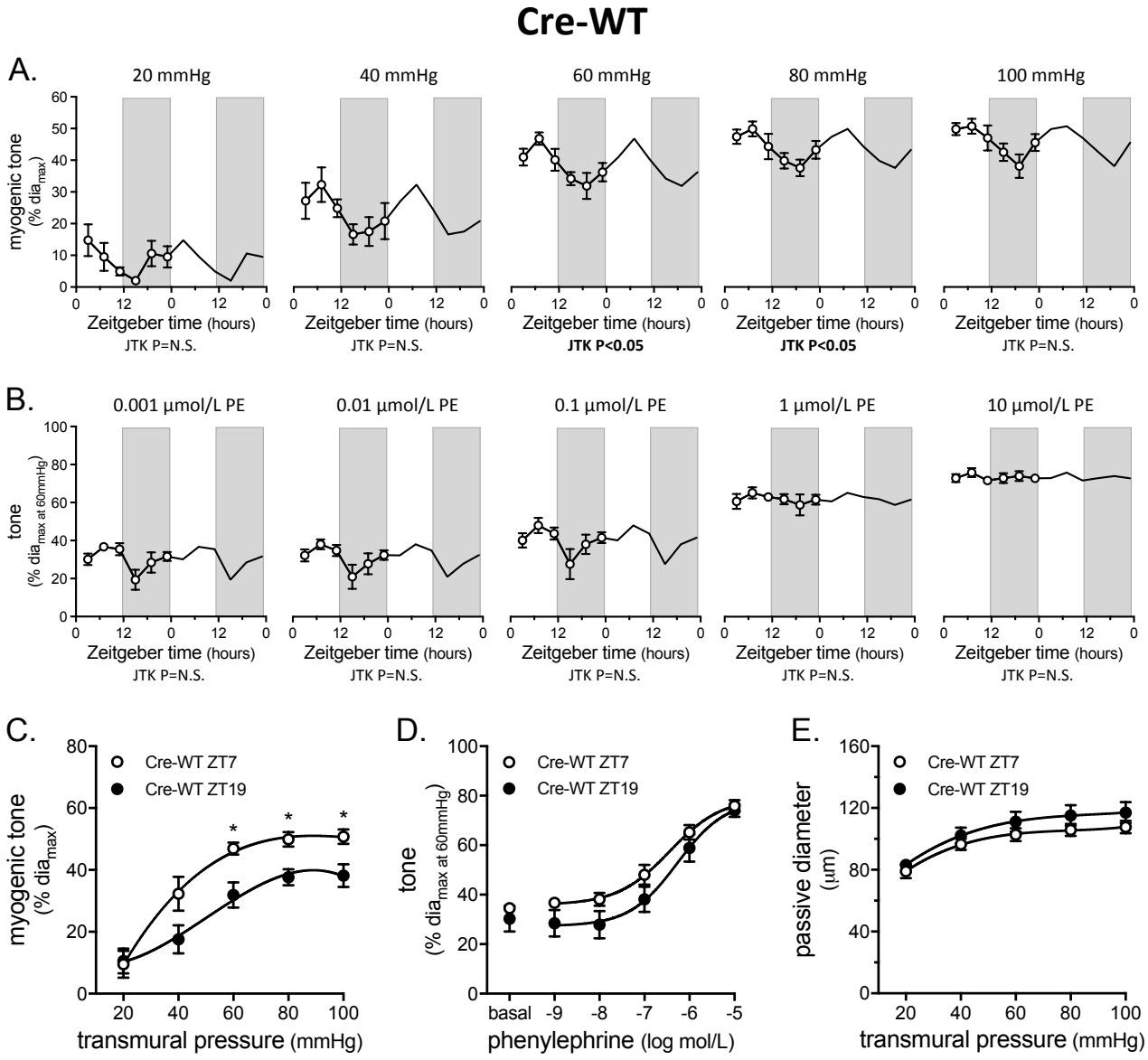
Supplemental Figure 2: Depolarization-stimulated vasoconstriction in circadian time.

Depolarization-induced vasoconstriction (60 mmol/L KCl) in wild-type cremaster arteries is plotted over Zeitgeber time (n=4-6); data are "double-plotted" for visualization purposes. P=N.S. for a circadian rhythm by JTK_CYCLE (see **Supplemental Table 6**).



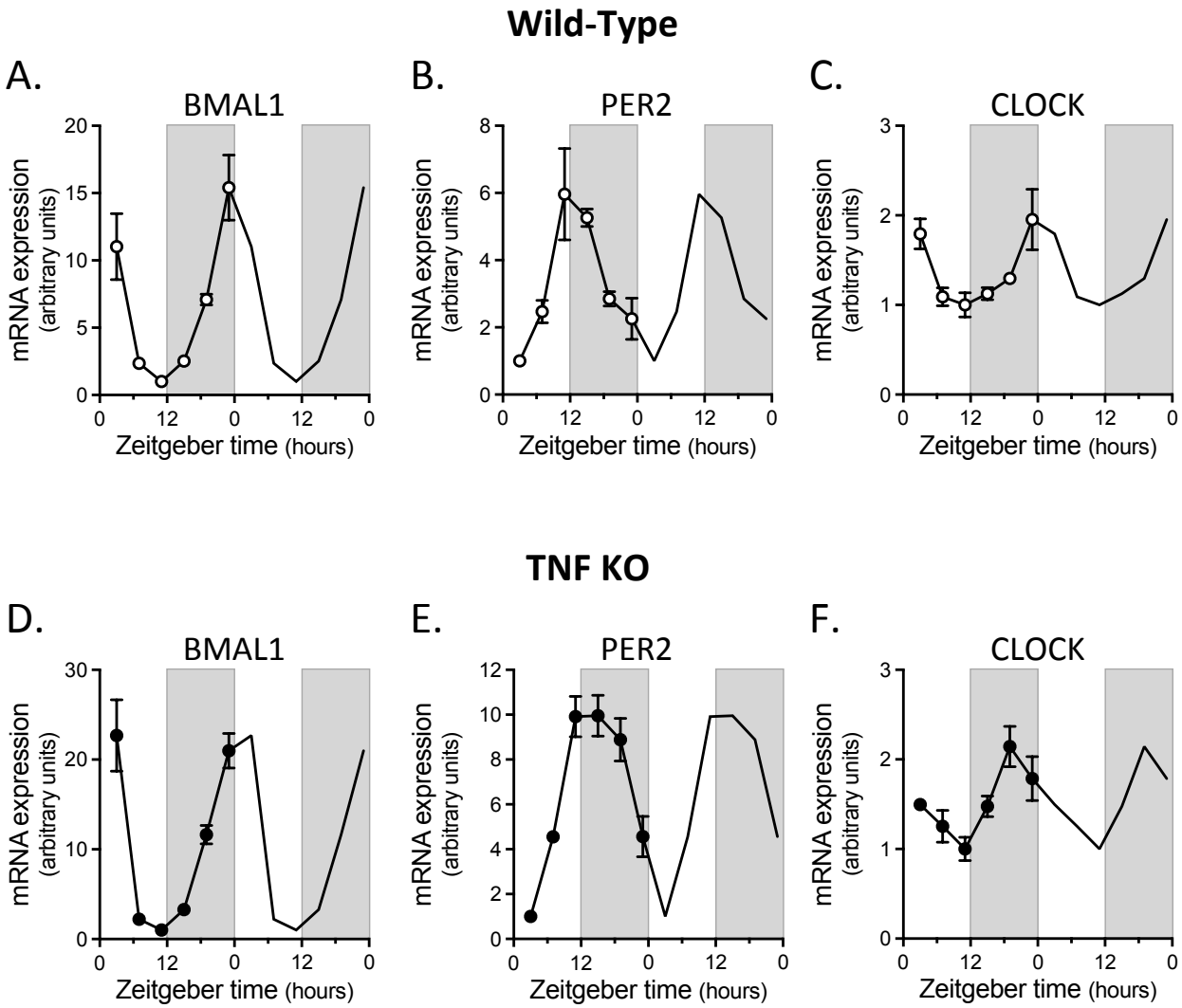
Supplemental Figure 3: Cremaster artery phenylephrine responses in molecular clock disruption models

Phenylephrine (PE)-stimulated vasoconstriction in cremaster arteries isolated from **(A)** Clock$^{\Delta19/\Delta19}$ mutant mice (n=5-7) and **(B)** smooth muscle cell-specific Bmal1 knockout mice (Sm-Bmal1 KO; n=5-6) plotted over Zeitgeber time; data are "double-plotted" for visualization purposes. In both mutant models, P=N.S. for a circadian rhythm at all phenylephrine concentrations by JTK_CYCLE (see **Supplemental Table 7**). In *Panels C-D*, phenylephrine responses at Zeitgeber time 7 (ZT7) and Zeitgeber time 19 (ZT19) are compared for **(C)** Clock$^{\Delta19/\Delta19}$ cremaster arteries (n=5-6) and **(D)** Sm-Bmal1 KO cremaster arteries (n=5-6). In both mutant models, P=N.S. for ZT7 versus ZT19 at all phenylephrine concentrations.



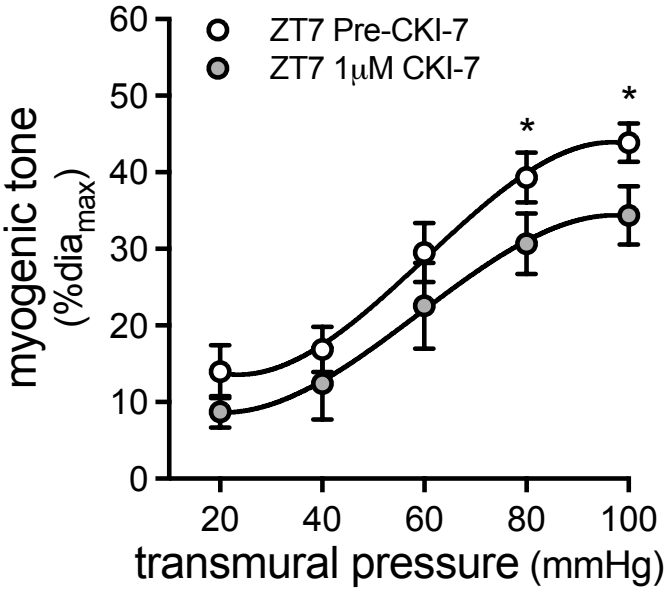
Supplemental Figure 4: Control measurements in Cre-WT cremaster arteries

(A) Myogenic- and **(B)** phenylephrine (PE)-stimulated vasoconstriction in cremaster arteries isolated from tamoxifen-treated, Cre-expressing wild-type control mice (Cre-WT) plotted over Zeitgeber time; data are "double-plotted" for visualization purposes (n=5-6). Myogenic vasoconstriction displays a statistically significant circadian rhythm (P<0.05 by JTK_CYCLE; see **Supplemental Table 7**), while phenylephrine responses do not (P=N.S. at all concentrations for a circadian rhythm by JTK_CYCLE; see **Supplemental Table 7**). **(C)** Myogenic vasoconstriction (n=6), **(D)** phenylephrine responses (n=6) and **(E)** passive diameters (n=6) are compared at Zeitgeber time 7 (ZT7) and Zeitgeber time 19 (ZT19). For *Panels C-E*, * denotes P<0.05 for ZT7 versus ZT19 at a given transmural pressure or phenylephrine concentration.



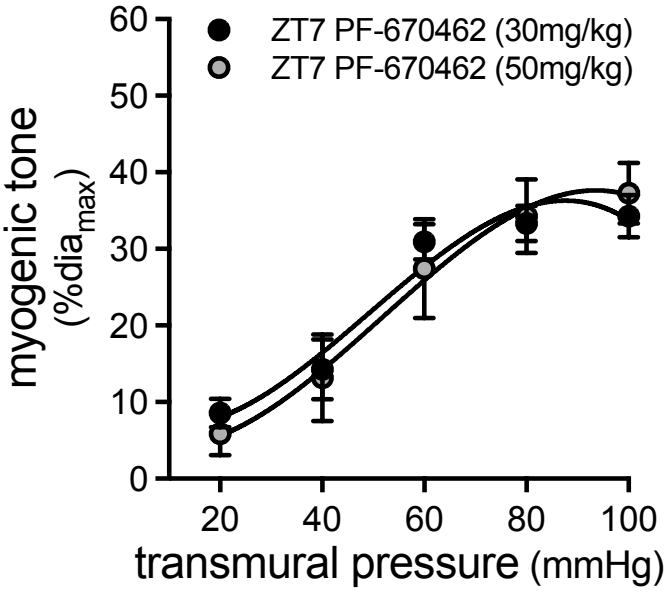
Supplemental Figure 5: Circadian clock gene expression in wild-type and TNF KO mouse cremaster arteries.

Wild-type cremaster artery **(A)** *Bmal1*, (**B**) *Per2* and (**C**) *Clock* mRNA expression oscillate with a circadian rhythm (n=3 for all panels). Likewise, tumor necrosis factor knockout (TNF KO) cremaster artery **(D)** *Bmal1*, (**E**) *Per2* and (**F**) *Clock* mRNA expression oscillate with a comparable circadian rhythm (n=3 for all panels). A statistical analysis for circadian rhythmicity is provided in **Supplemental Table 8**.



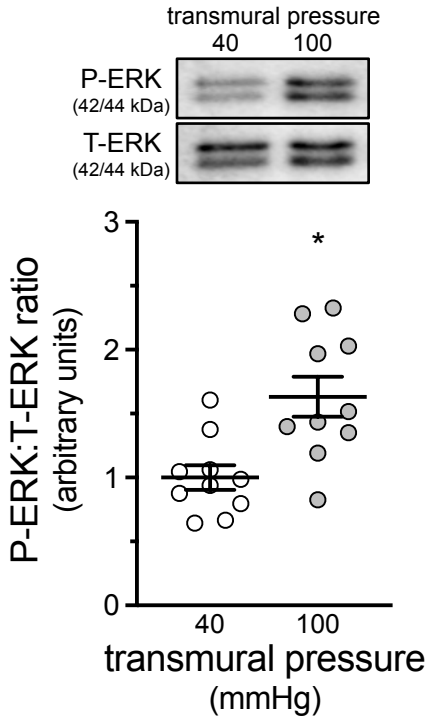
Supplemental Figure 6: Myogenic tone following 1μmol/L CKI-7 treatment *in vitro*.

Myogenic tone was assessed in cremaster arteries isolated from naïve wild-type mice at ZT7 (white circles). The arteries were then incubated with 1μmol/L CKI-7 for 30 minutes and myogenic tone was re-assessed (grey circles). * denotes $p<0.05$ (paired t-test comparisons).



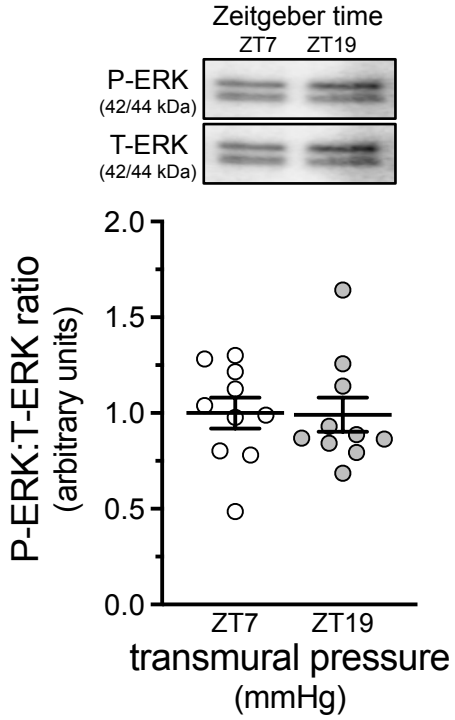
Supplemental Figure 7: Myogenic tone following 50mg/kg PF670462.

Naïve wild-type mice were treated with a single dose of PF670462 (50mg/kg i.p. within 2 hours of ZT7); cremaster arteries were harvested at ZT7 the following day. For comparison purposes, the 30mg/kg PF670462 is reproduced from **Figure 2I** of the main manuscript. Compared to the 30mg/kg dosage, 50mg/kg PF670462 has no appreciable effect.



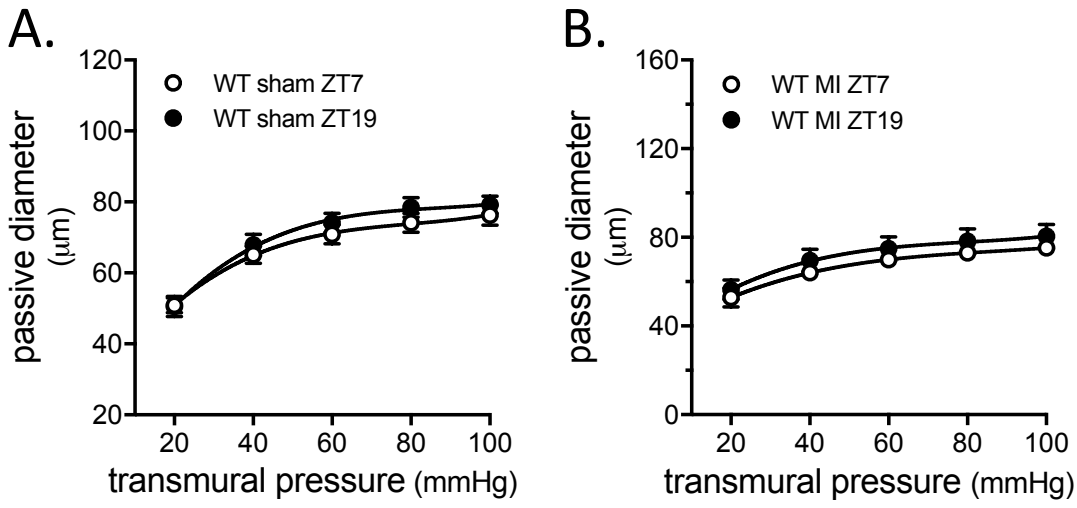
Supplemental Figure 8: Pressure-stimulated ERK1/2 phosphorylation in cremaster arteries.

Western blot assessment of ERK1/2 phosphorylation in naïve wild-type cremaster skeletal muscle resistance arteries maintained at 40 mmHg (n=10) or 5 minutes following a 40 mmHg to 100 mmHg pressure step (n=10). A representative western blot image is displayed above. A total of 10 independent experiments were performed, each with 1 vessel sample from each group. After pooling, the data were normalized to the mean of the 40 mmHg group. To account for differences in western blot conditions, the data are analyzed with a paired t-test. * denotes $p<0.05$.



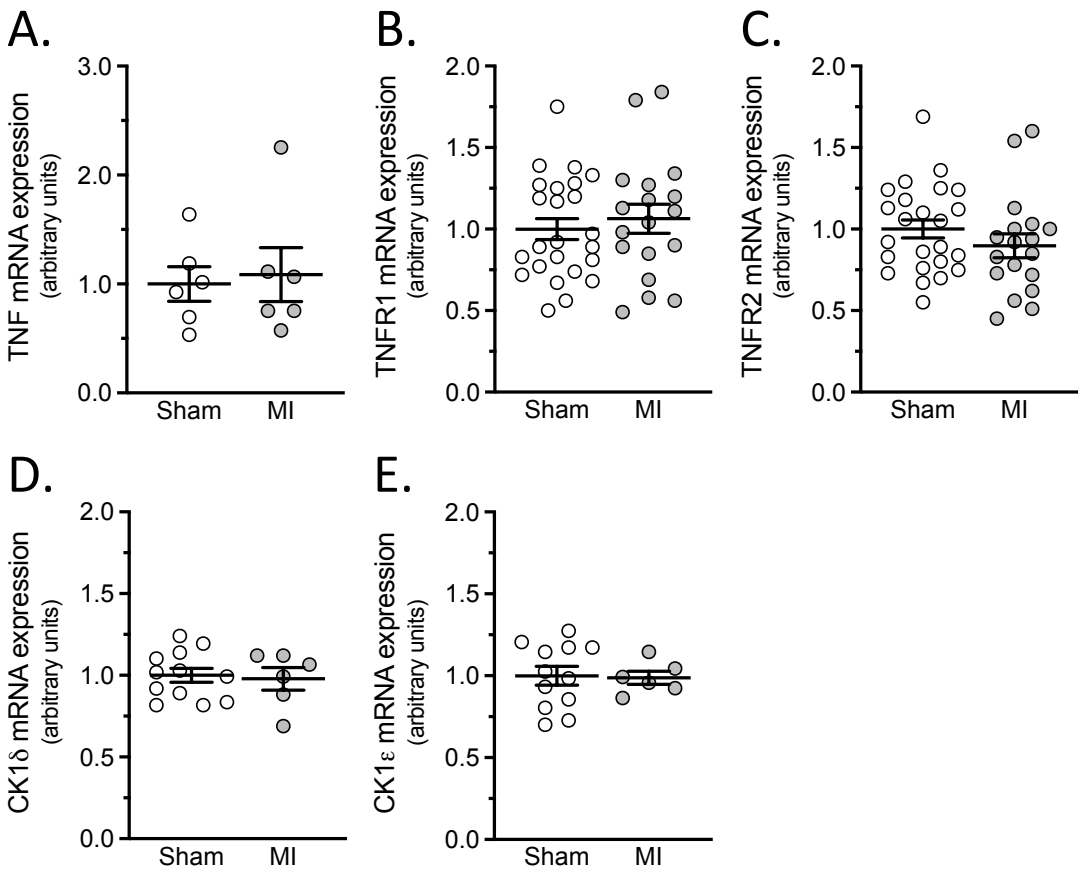
Supplemental Figure 9: Pressure-stimulated ERK1/2 phosphorylation in cremaster arteries following casein kinase 1 inhibition.

Western blot assessment of ERK1/2 phosphorylation in naïve wild-type cremaster skeletal muscle resistance arteries pre-treated with 10 μmol/L PF670462 (30 minutes) and then subjected to a pressure step from 40 mmHg to100 mmHg (lysates prepared 5 minutes post-pressure step; n=10). A representative western blot image is displayed above. A total of 10 independent experiments were performed, each with 1 vessel sample from each group. To account for differences in western blot conditions, the data are analyzed with paired statistical test (Wilcoxon test). P=N.S. for ZT7 versus ZT19.



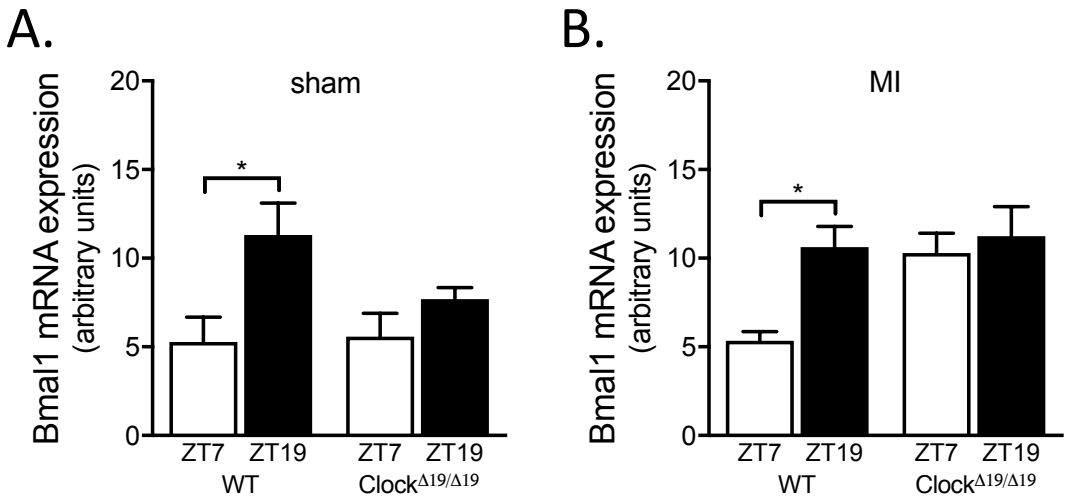
Supplemental Figure 10: Passive diameter measurements for cremaster arteries from wild-type mice with myocardial infarction.

Panels A-B display passive diameter measurements for wild-type (WT) cremaster arteries isolated at Zeitgeber time 7 (ZT7) and Zeitgeber time 19 (ZT19) from **(A)** sham-operated mice (n=6-9) and **(B)** mice with a myocardial infarction (MI; n=7). For both panels, P=N.S. for all ZT7 versus ZT19 comparisons at a given transmural pressure.



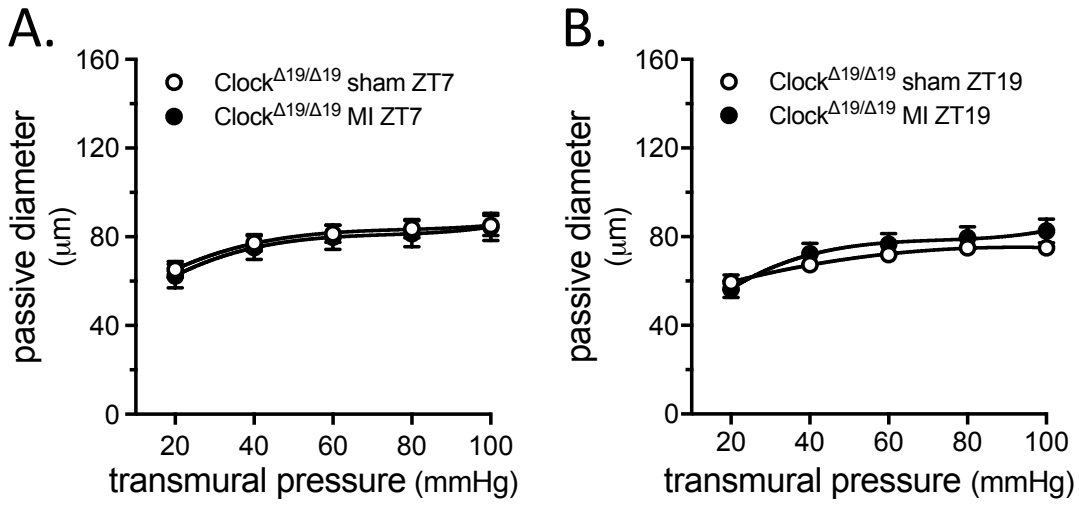
Supplemental Figure 11: mTNF reverse signaling component mRNA expression in cremaster arteries isolated from wild-type mice with myocardial infarction.

(A) Tumor necrosis factor (TNF; n=6), **(B)** tumor necrosis factor receptor 1 (TNFR1; n=24-18), **(C)** tumor necrosis factor receptor 2 (TNFR2; n=24-18), **(D)** Casein kinase 1 delta (CK1δ; n=6-12) and **(E)** Casein kinase 1 epsilon (CK1ε; n=6-12) mRNA expression in cremaster arteries isolated from mice with a myocardial infarction (MI) and sham-operated controls. For all panels, P=N.S. for sham versus MI.



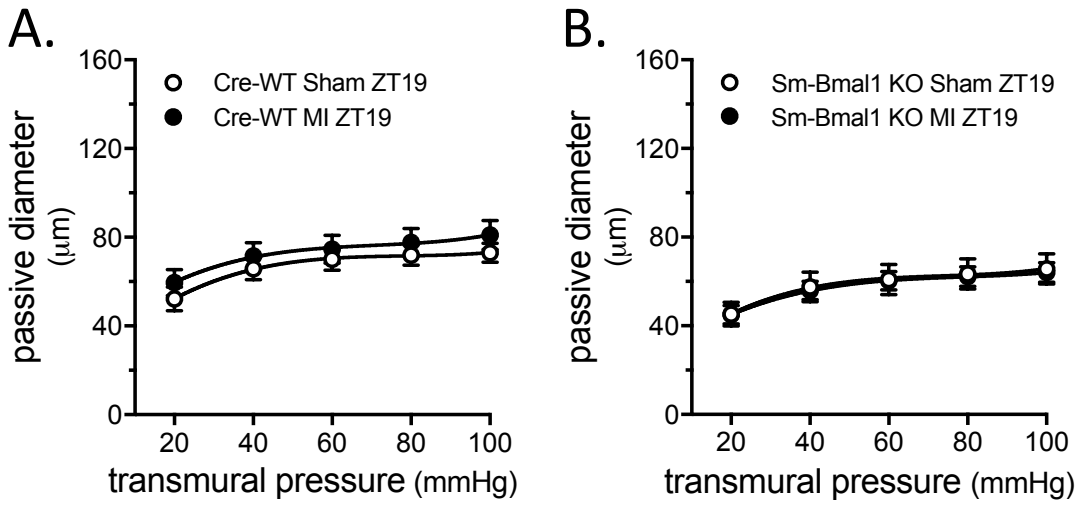
Supplemental Figure 12: Bmal1 mRNA expression in cremaster arteries isolated from wild-type and ClockΔ19/Δ19 mice with myocardial infarction.

(A) Bmal1 mRNA expression in cremaster arteries isolated at Zeitgeber time 7 (ZT7) and Zeitgeber time 19 (ZT19) from wild-type (WT) and Clock$^{\Delta 19/\Delta 19}$ mutant mice following **(A)** sham surgery (WT n=8; Clock$^{\Delta 19/\Delta 19}$ n=4-5) and **(B)** myocardial infarction (MI; WT n=7; Clock$^{\Delta 19/\Delta 19}$ n=3-4). * denotes $P<0.05$ for ZT7 versus ZT19 in the respective genotype/intervention groupings.



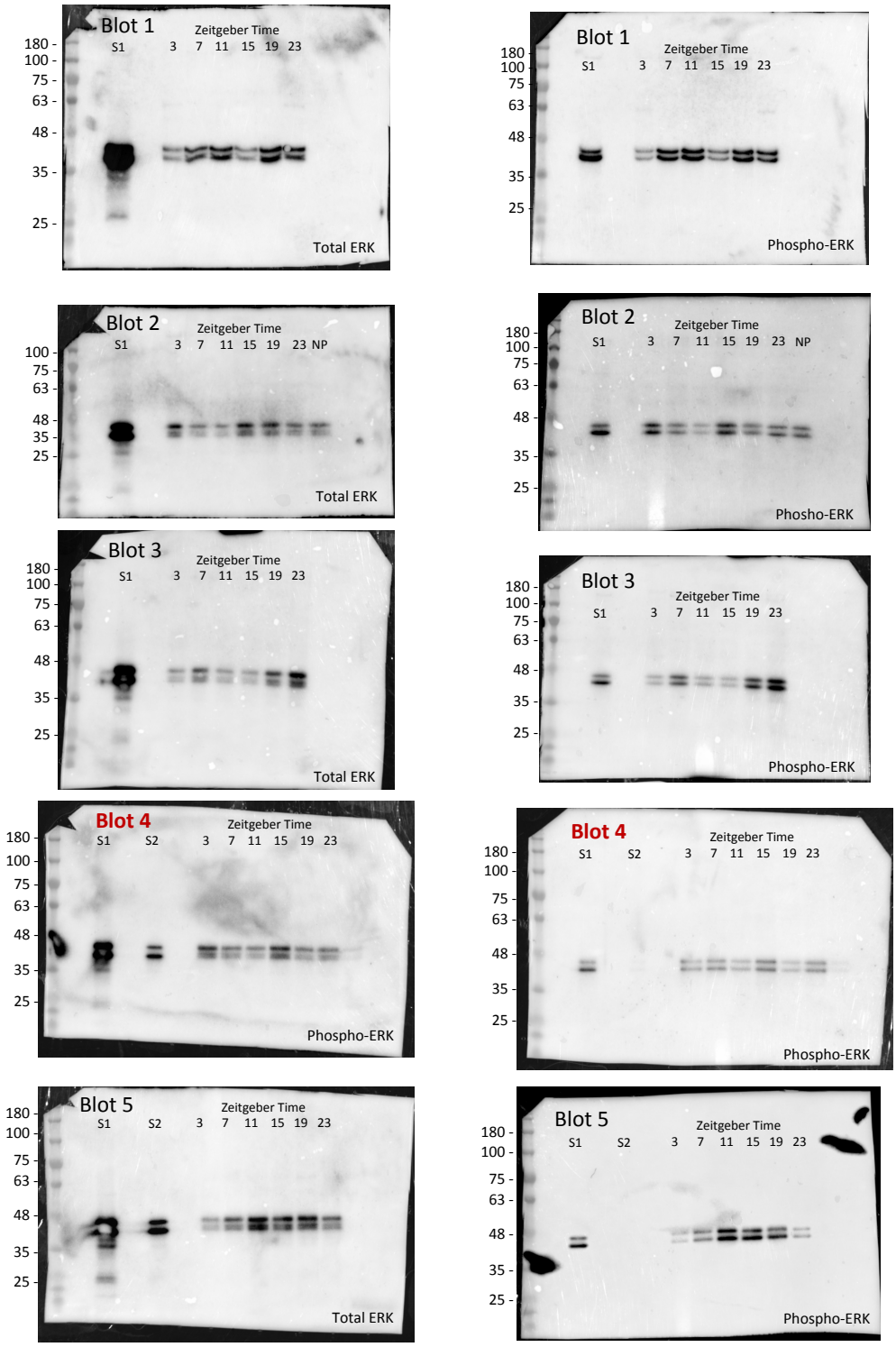
Supplemental Figure 13: Passive diameter measurements for cremaster arteries from ClockΔ19/Δ19 mice with myocardial infarction.

Panels A-B display passive diameter measurements for cremaster arteries isolated at **(A)** Zeitgeber time 7 (ZT7; n=7-8) and **(B)** Zeitgeber time 19 (ZT19; n=7-8) from Clock$^{\Delta 19/\Delta 19}$ mice following myocardial infarction (MI) or sham procedure. P=N.S. for all sham versus MI comparisons at a given transmural pressure.



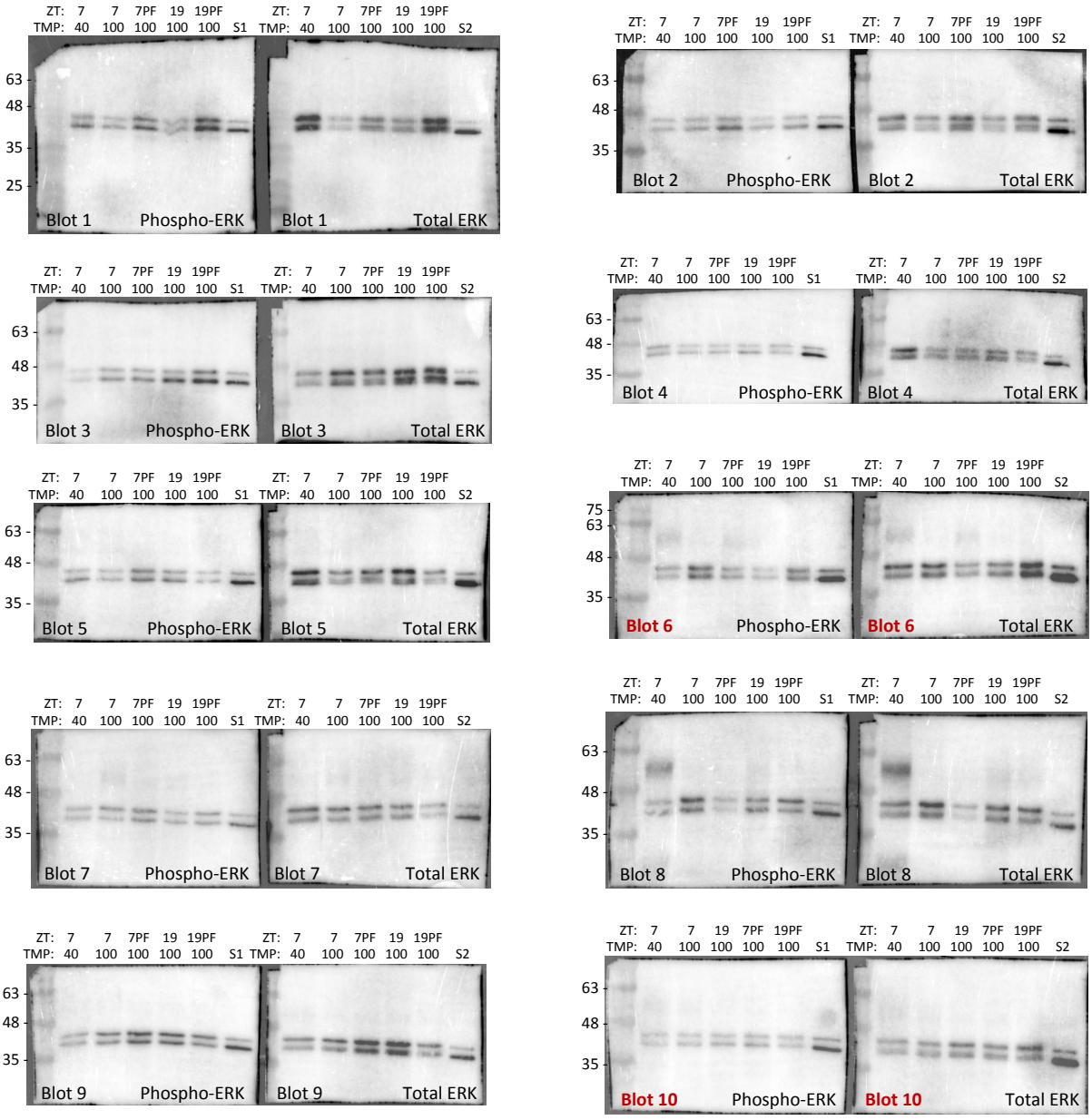
Supplemental Figure 14: Passive diameter measurements for cremaster arteries from Cre-WT and Sm-Bmal1 KO mice with myocardial infarction.

Panels A-B display passive diameter measurements for cremaster arteries isolated at Zeitgeber time 19 (ZT19) from **(A)** tamoxifen-treated, Cre-expressing wild-type control mice (Cre-WT) following myocardial infarction (MI) or sham procedure (n=7) and **(B)** smooth muscle cell-specific Bmal1 knockout (Sm-Bmal1 KO) mice following MI or sham procedure (n=7). P=N.S. for all sham versus MI comparisons at a given transmural pressure.



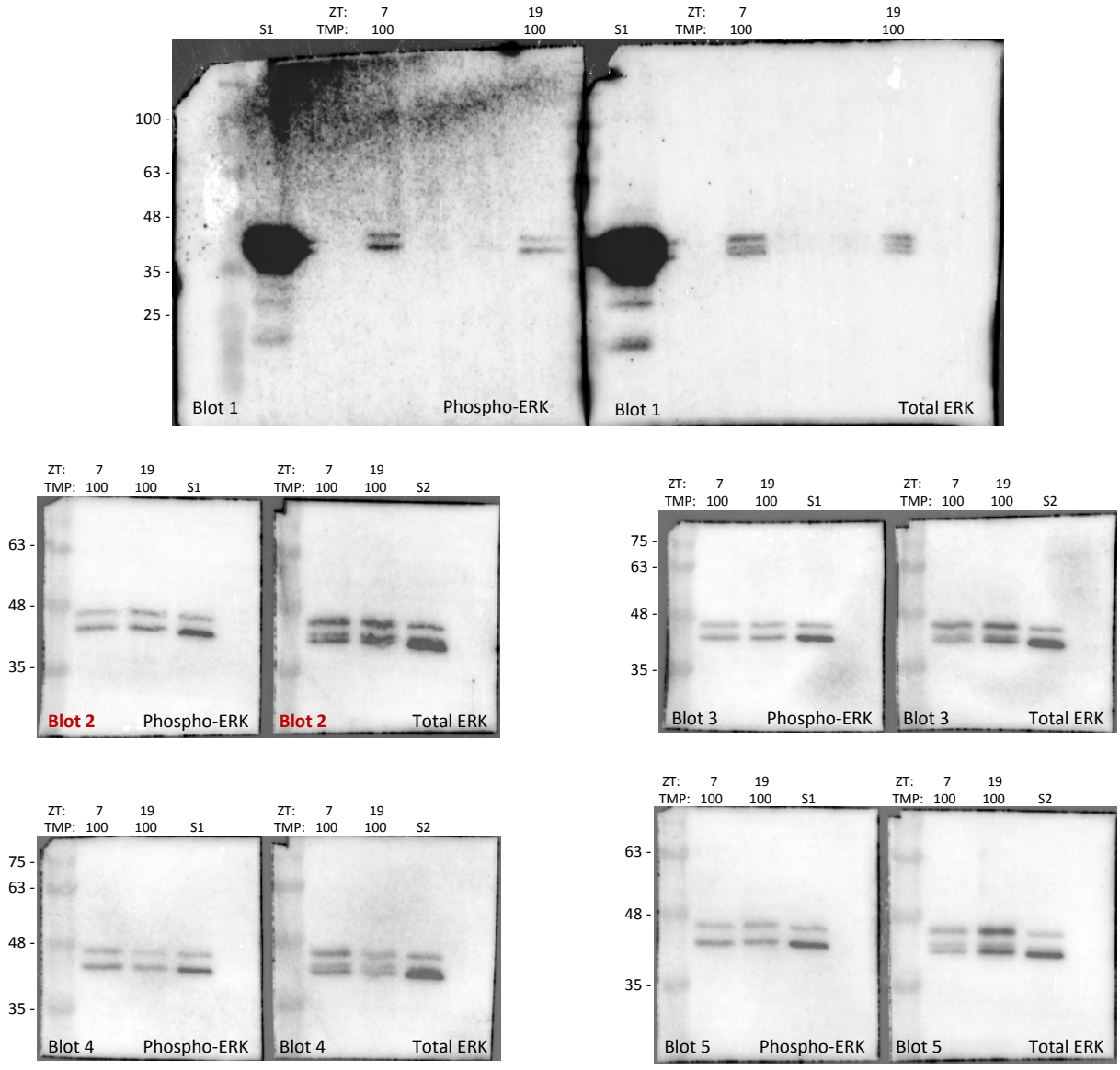
Supplemental Figure 15: Uncropped western blot images – Circadian ERK phosphorylation.

Shown are the uncropped, annotated western blots probing wild-type cremaster skeletal muscle artery lysates for total ERK1/2 (p42/p44) and phosphorylated ERK1/2. The artery lysates were prepared at Zeitgeber times 3, 7, 11, 15, 19 and 23 following a pressure step from 40 mmHg to 100 mmHg (5 minutes duration). All blots contain a standard (S1) to ensure similar detection; blots 4-5 possess a diluted standard (S2). Data from these blots are incorporated into Figures 2M and 2N; data from Blot 4 are displayed as a cropped image in **Figure 2M** (sample lanes 3-8; all data shown, excluding standards).



Supplemental Figure 16: Uncropped western blot images – ERK phosphorylation (wild-type).

Shown are the uncropped, annotated western blots probing wild-type cremaster skeletal muscle artery lysates for total ERK1/2 (p42/p44) and phosphorylated ERK1/2. The artery lysates were prepared at Zeitgeber times (ZT) 7 and 19, either without a pressure step (transmural pressure 40 mmHg; TMP: 40) or five minutes following a pressure step from 40 mmHg to 100 mmHg (TMP: 100). In certain experiments, arteries were pretreated with 10 µmol/L PF670462 (30 minutes) prior to the pressure step (denoted with a "PF" beside the Zeitgeber time). All blots contain a standard to ensure similar detection (S1 and S2; S2 is diluted in relation to S1). Data from these blots are incorporated into Figure 2N and Supplemental Figures 8-9; data from Blot 6 are displayed as a cropped image in **Figure 2N** (sample lanes 2 and 4) and **Supplemental Figure 8** (sample lanes 1 and 2); data from Blot 10 are displayed as a cropped image in **Supplemental Figure 9** (sample lanes 4-5).



Supplemental Figure 17: Uncropped western blot images – ERK phosphorylation (TNF KO).

Shown are the uncropped, annotated western blots probing cremaster skeletal muscle artery lysates for total ERK1/2 (p42/p44) and phosphorylated ERK1/2. The artery lysates were prepared from tumor necrosis factor knockout mice (TNF KO) at Zeitgeber times (ZT) 7 and 19 five minutes following a pressure step from 40 mmHg to 100 mmHg (TMP: 100). All blots contain a standard to ensure similar detection (S1 and/or S2; S2 is diluted in relation to S1). Data from these blots are incorporated into Figure 2O; data from Blot 2 are displayed as a cropped image in **Figure 2O** (sample lanes 1 and 2).

Supplemental Table 1: Quantitative PCR primer information

Gene	Primer Sequences (5' to 3')	Product Size (bp)	Efficiency	Accession no.
Bmal1	GCCACCAACCCATACACAGA TCTTCCCTCGGTCACATCCT	124	1.09	NM_007489.4
Per2	CACACTGCTGCCCTGAGTTC ATCTGAGGACCAGCAGCACA	120	0.98	NM_011066.3
Clock	TGCAGGTACCTTGCTCTGGA GGTTTAACGCCAGCCTCAAG	108	1.00	NM_007715.6
Rev-Erbα	GAAGTGTCTCTCCGTTGGCA CTGCTCAGTTGGTTGTTGGC	126	0.97	NM_145434.4
GAPDH	AGGTCGGTGTGAACGGATTTG TGTAGACCATGTAGTTGAGGTCA	123	0.94	NM_008084.2
G6PD	CACAGTGGACGACATCCGAAA AGCTACATAGGAATTACGGGCAA	103	1.02	NM_008062
HMBS	CCCGTAACATTCCAAGAGGA CCTGTGCCCTACAGACCAGT	147	1.08	NM_013551.2

Abbreviations: Bmal1 = Brain and muscle aryl hydrocarbon receptor nuclear translocator-like protein 1, Per2 = Period circadian regulator 2, Clock = Circadian locomotor output cycles kaput, Rev-Erbα = Reverse strand of ERBA, GAPDH = glyceraldehyde 3-phosphate dehydrogenase, G6PD = glucose-6-phosphate dehydrogenase, HMBS = hydroxymethylbilane synthase.

Supplemental Table 2: ZT7 / ZT19 statistical comparisons

Figure	Genotype	Parameter	Level	ZT7	n	N	ZT19	n	N	Comparison Test	Statistical Outcome
1B	Wild-Type	Myogenic	20 mmHg	37.0 ± 3.13	4	3	24.7 ± 6.49	6	3	t-test	t(8) = 1.45, p = 0.186
1B	Wild-Type	Myogenic	40 mmHg	39.1 ± 4.26	4	3	34.0 ± 4.47	6	3	t-test	t(8) = 0.794, p = 0.450
1B	Wild-Type	Myogenic	60 mmHg	48.0 ± 2.62	4	3	35.6 ± 4.19	6	3	t-test	t(8) = 2.19, p = 0.060
1B	Wild-Type	Myogenic	80 mmHg	53.8 ± 2.09	4	3	39.7 ± 2.52	6	3	Mann-Whitney	$U(N_{ZT7} = 4, N_{ZT19} = 6) = 0$, **p = 0.010**
1B	Wild-Type	Myogenic	100 mmHg	54.4 ± 2.77	4	3	40.7 ± 3.08	6	3	t-test	t(8) = 3.10, **p = 0.015**
1D	Wild-Type	Phenylephrine	Basal	35.8 ± 3.11	4	3	24.6 ± 5.14	6	3	t-test	t(8) = 1.64, p = 0.140
1D	Wild-Type	Phenylephrine	1 nmol/L	42.5 ± 3.42	4	3	27.8 ± 4.62	6	3	t-test	t(8) = 2.431, **p = 0.049**
1D	Wild-Type	Phenylephrine	10 nmol/L	50.8 ± 2.64	4	3	35.1 ± 5.33	6	3	Mann-Whitney	$U(N_{ZT7} = 4, N_{ZT19} = 6) = 6$, p = 0.257
1D	Wild-Type	Phenylephrine	100 nmol/L	62.9 ± 2.17	4	3	50.6 ± 6.47	6	3	t-test	t(8) = 1.49, p = 0.174
1D	Wild-Type	Phenylephrine	1 µmol/L	72.7 ± 2.28	4	3	67.9 ± 4.45	6	3	t-test	t(8) = 0.83, p = 0.430
1D	Wild-Type	Phenylephrine	10 µmol/L	75.1 ± 3.25	4	3	76.0 ± 3.47	6	3	t-test	t(8) = 0.19, p = 0.853
1F	$Clock^{\Delta 19/\Delta 19}$	Myogenic	20 mmHg	14.9 ± 3.8	6	3	16.5 ± 5.5	5	3	t-test	t(9) = 0.25, p = 0.811
1F	$Clock^{\Delta 19/\Delta 19}$	Myogenic	40 mmHg	27.9 ± 3.4	6	3	26.1 ± 6.1	5	3	t-test	t(9) = 0.27, p = 0.793
1F	$Clock^{\Delta 19/\Delta 19}$	Myogenic	60 mmHg	39.8 ± 4.3	6	3	35.0 ± 4.3	5	3	t-test	t(9) = 0.78, p = 0.456
1F	$Clock^{\Delta 19/\Delta 19}$	Myogenic	80 mmHg	44.1 ± 2.6	6	3	37.1 ± 3.8	5	3	t-test	t(9) = 1.55, p = 0.156
1F	$Clock^{\Delta 19/\Delta 19}$	Myogenic	100 mmHg	45.4 ± 2.0	6	3	39.3 ± 6.0	5	3	t-test	t(9) = 1.03, p = 0.330
1H	Sm-Bmal1 KO	Myogenic	20 mmHg	15.4 ± 4.5	6	3	13.3 ± 6.5	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 13$, p = 0.792
1H	Sm-Bmal1 KO	Myogenic	40 mmHg	32.0 ± 3.7	6	3	29.5 ± 5.7	5	3	t-test	t(9) = 0.38, p = 0.709
1H	Sm-Bmal1 KO	Myogenic	60 mmHg	43.5 ± 3.3	6	3	43.0 ± 4.6	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 15$, p = 1.000
1H	Sm-Bmal1 KO	Myogenic	80 mmHg	48.3 ± 3.3	6	3	48.2 ± 4.7	5	3	t-test	t(9) = 0.02, p = 0.980
1H	Sm-Bmal1 KO	Myogenic	100 mmHg	50.4 ± 3.3	6	3	50.3 ± 4.6	5	3	t-test	t(9) = 0.02, p = 0.985
2B	TNF KO	Myogenic	20 mmHg	8.1 ± 2.7	5	3	11.3 ± 3.0	5	3	t-test	t(8) = 0.78, p = 0.459
2B	TNF KO	Myogenic	40 mmHg	11.4 ± 3.1	5	3	18.5 ± 4.3	5	3	t-test	t(8) = 1.34, p = 0.216
2B	TNF KO	Myogenic	60 mmHg	21.6 ± 3.9	5	3	28.8 ± 2.7	5	3	t-test	t(8) = 1.51, p = 0.169
2B	TNF KO	Myogenic	80 mmHg	26.1 ± 2.3	5	3	36.0 ± 1.0	5	3	t-test	t(8) = 3.95, **p = 0.004**
2B	TNF KO	Myogenic	100 mmHg	30.2 ± 2.6	5	3	40.4 ± 0.9	5	3	t-test	t(8) = 3.75, **p = 0.006**
2D	TNF KO	Phenylephrine	1 nmol/L	19.5 ± 3.0	5	3	25.0 ± 4.5	5	3	t-test	t(8) = 1.04, p = 0.323
2D	TNF KO	Phenylephrine	10 nmol/L	19.8 ± 3.4	5	3	25.6 ± 4.5	5	3	t-test	t(8) = 1.03, p = 0.335
2D	TNF KO	Phenylephrine	100 nmol/L	22.0 ± 4.2	5	3	29.0 ± 4.2	5	3	t-test	t(8) = 1.19, p = 0.268
2D	TNF KO	Phenylephrine	1 µmol/L	37.8 ± 3.1	5	3	48.2 ± 1.6	5	3	t-test	t(8) = 2.95, **p = 0.019**
2D	TNF KO	Phenylephrine	10 µmol/L	70.3 ± 4.0	5	3	72.4 ± 3.1	5	3	Mann-Whitney	$U(N_{ZT7} = 5, N_{ZT19} = 5) = 11$, p = 0.841
2N	Wild-Type	ERK Phosphorylation	--	1.00 ± 0.08	15	19	0.78 ± 0.06	15	19	paired t-test	t(14) = 3.47, **p = 0.004**
2O	TNF KO	ERK Phosphorylation	--	1.00 ± 0.11	5	6	0.90 ± 0.10	5	6	paired t-test	t(4) = 0.78, p = 0.480
3A	Wild-Type	Sham Myogenic	20 mmHg	13.0 ± 3.2	9	5	9.3 ± 3.2	6	3	t-test	t(13) = 0.78, p = 0.450
3A	Wild-Type	Sham Myogenic	40 mmHg	25.0 ± 4.2	9	5	22.0 ± 2.0	6	3	t-test	t(13) = 0.57, p = 0.580
3A	Wild-Type	Sham Myogenic	60 mmHg	37.4 ± 2.2	9	5	29.8 ± 2.4	6	3	t-test	t(13) = 2.30, **p = 0.039**
3A	Wild-Type	Sham Myogenic	80 mmHg	42.7 ± 1.8	9	5	34.5 ± 3.6	6	3	t-test	t(13) = 2.26, **p = 0.042**
3A	Wild-Type	Sham Myogenic	100 mmHg	44.4 ± 2.2	9	5	34.8 ± 4.5	6	3	t-test	t(13) = 2.13, p = 0.053
3A	Wild-Type	MI Myogenic	20 mmHg	24.4 ± 5.7	7	4	23.9 ± 3.7	7	4	t-test	t(12) = 0.07, p = 0.949
3A	Wild-Type	MI Myogenic	40 mmHg	32.0 ± 5.9	7	4	35.9 ± 3.3	7	4	t-test	t(12) = 0.58, p = 0.570
3A	Wild-Type	MI Myogenic	60 mmHg	40.5 ± 3.0	7	4	42.5 ± 2.2	7	4	t-test	t(12) = 0.53, p = 0.600
3A	Wild-Type	MI Myogenic	80 mmHg	46.2 ± 2.2	7	4	46.7 ± 2.0	7	4	t-test	t(12) = 0.18, p = 0.864
3A	Wild-Type	MI Myogenic	100 mmHg	46.9 ± 1.9	7	4	48.0 ± 1.9	7	4	t-test	t(12) = 0.42, p = 0.686
3B	Wild-Type	Sham Phenylephrine	Basal	19.7 ± 2.9	9	5	16.7 ± 4.4	6	3	t-test	t(13) = 0.60, p = 0.561
3B	Wild-Type	Sham Phenylephrine	1 nmol/L	23.0 ± 3.1	9	5	18.4 ± 3.6	6	3	t-test	t(13) = 0.97, p = 0.352
3B	Wild-Type	Sham Phenylephrine	10 nmol/L	24.6 ± 3.7	9	5	19.8 ± 3.8	6	3	t-test	t(13) = 0.87, p = 0.400
3B	Wild-Type	Sham Phenylephrine	100 nmol/L	37.8 ± 2.0	9	5	27.6 ± 4.0	6	3	Mann-Whitney	$U(N_{ZT7} = 9, N_{ZT19} = 6) = 10$, **p = 0.049**
3B	Wild-Type	Sham Phenylephrine	1 µmol/L	59.1 ± 1.7	9	5	49.5 ± 6.3	6	3	Mann-Whitney	$U(N_{ZT7} = 9, N_{ZT19} = 6) = 17.5$, p = 0.285
3B	Wild-Type	Sham Phenylephrine	10 µmol/L	72.1 ± 2.0	9	5	70.4 ± 2.3	6	3	t-test	t(13) = 0.57, p = 0.577
3C	Wild-Type	MI Phenylephrine	Basal	27.7 ± 3.9	7	4	23.1 ± 4.8	7	4	t-test	t(12) = 0.74, p = 0.473
3C	Wild-Type	MI Phenylephrine	1 nmol/L	30.9 ± 3.6	7	4	25.5 5.2	7	4	t-test	t(12) = 0.85, p = 0.411
3C	Wild-Type	MI Phenylephrine	10 nmol/L	30.0 ± 2.3	7	4	28.5 4.8	7	4	t-test	t(12) = 0.27, p = 0.791
3C	Wild-Type	MI Phenylephrine	100 nmol/L	37.0 ± 3.0	7	4	41.1 3.8	7	4	t-test	t(12) = 0.84, p = 0.419
3C	Wild-Type	MI Phenylephrine	1 µmol/L	59.2 ± 1.8	7	4	64.4 2.3	7	4	t-test	t(12) = 1.76, p = 0.104
3C	Wild-Type	MI Phenylephrine	10 µmol/L	72.4 ± 2.3	7	4	76.3 1.1	7	4	t-test	t(12) = 1.54, p = 0.150
Sup 1A	Wild-Type	Passive Diameter	20 mmHg	56.5 ± 4.9	4	3	53.0 ± 3.1	6	3	t-test	t(8) = 0.64, p = 0.541
Sup 1A	Wild-Type	Passive Diameter	40 mmHg	63.9 ± 4.2	4	3	67.4 ± 3.3	6	3	Mann-Whitney	$U(N_{ZT7} = 4, N_{ZT19} = 6) = 7$, p = 0.352
Sup 1A	Wild-Type	Passive Diameter	60 mmHg	72.9 ± 3.5	4	3	72.5 ± 3.5	6	3	t-test	t(8) = 0.08, p = 0.941
Sup 1A	Wild-Type	Passive Diameter	80 mmHg	76.5 ± 2.3	4	3	75.6 ± 3.7	6	3	t-test	t(8) = 0.17, p = 0.869
Sup 1A	Wild-Type	Passive Diameter	100 mmHg	79.1 ± 2.9	4	3	77.3 ± 3.7	6	3	t-test	t(8) = 0.35, p = 0.739

...Supplemental Table 2 continues on the next page

Figure	Genotype	Parameter	Level	ZT7	n	N	ZT19	n	N	Comparison Test	Statistical Outcome
Sup 1B	$Clock^{\Delta19/\Delta19}$	Passive Diameter	20 mmHg	58.8 ± 3.5	6	3	60.1 ± 3.0	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 15$, p = 1.000
Sup 1B	$Clock^{\Delta19/\Delta19}$	Passive Diameter	40 mmHg	71.0 ± 4.4	6	3	72.8 ± 3.3	5	3	t-test	t(9) = 0.32, p = 0.753
Sup 1B	$Clock^{\Delta19/\Delta19}$	Passive Diameter	60 mmHg	77.1 ± 5.7	6	3	77.9 ± 2.4	5	3	t-test	t(8) = 0.12, p = 0.905
Sup 1B	$Clock^{\Delta19/\Delta19}$	Passive Diameter	80 mmHg	79.8 ± 5.6	6	3	81.1 ± 2.3	5	3	t-test	t(8) = 0.19, p = 0.854
Sup 1B	$Clock^{\Delta19/\Delta19}$	Passive Diameter	100 mmHg	82.1 ± 6.1	6	3	84.2 ± 3.5	5	3	t-test	t(8) = 0.28, p = 0.783
Sup 1C	Sm-Bmal1 KO	Passive Diameter	20 mmHg	79.8 ± 3.8	6	3	78.8 ± 6.2	5	3	t-test	t(9) = 0.15, p = 0.886
Sup 1C	Sm-Bmal1 KO	Passive Diameter	40 mmHg	97.0 ± 5.4	6	3	91.8 ± 7.9	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 12$, p = 0.628
Sup 1C	Sm-Bmal1 KO	Passive Diameter	60 mmHg	103.7 ± 6.5	6	3	95.4 ± 8.2	5	3	t-test	t(9) = 0.80, p = 0.442
Sup 1C	Sm-Bmal1 KO	Passive Diameter	80 mmHg	107.0 ± 6.9	6	3	98.0 ± 8.1	5	3	t-test	t(9) = 0.85, p = 0.416
Sup 1C	Sm-Bmal1 KO	Passive Diameter	100 mmHg	108.5 ± 6.9	6	3	99.4 ± 8.2	5	3	t-test	t(9) = 0.86, p = 0.414
Sup 1D	TNF KO	Passive Diameter	20 mmHg	54.8 ± 1.6	5	3	58.4 ± 2.7	5	3	t-test	t(8) = 1.14, p = 0.286
Sup 1D	TNF KO	Passive Diameter	40 mmHg	68.8 ± 3.1	5	3	73.8 ± 2.1	5	3	t-test	t(8) = 1.35, p = 0.213
Sup 1D	TNF KO	Passive Diameter	60 mmHg	75.2 ± 3.9	5	3	80.2 ± 2.8	5	3	t-test	t(8) = 1.05, p = 0.323
Sup 1D	TNF KO	Passive Diameter	80 mmHg	78.4 ± 4.3	5	3	82.2 ± 3.0	5	3	t-test	t(8) = 0.73, p = 0.486
Sup 1D	TNF KO	Passive Diameter	100 mmHg	80.2 ± 4.5	5	3	84.0 ± 3.2	5	3	t-test	t(8) = 0.68, p = 0.513
Sup 3C	Sm-Bmal1 KO	Phenylephrine	Basal	36.2 ± 4.1	6	3	33.1 ± 6.2	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 14$, p = 0.931
Sup 3C	Sm-Bmal1 KO	Phenylephrine	1 nmol/L	36.9 ± 3.2	6	3	29.9 ± 5.7	5	3	t-test	t(9) = 1.13, p = 0.289
Sup 3C	Sm-Bmal1 KO	Phenylephrine	10 nmol/L	38.4 ± 3.8	6	3	33.3 ± 4.7	5	3	t-test	t(9) = 0.84, p = 0.424
Sup 3C	Sm-Bmal1 KO	Phenylephrine	100 nmol/L	51.8 ± 3.5	6	3	46.6 ± 4.9	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 11$, p = 0.537
Sup 3C	Sm-Bmal1 KO	Phenylephrine	1 µmol/L	68.9 ± 3.3	6	3	63.0 ± 3.1	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 6$, p = 0.126
Sup 3C	Sm-Bmal1 KO	Phenylephrine	10 µmol/L	77.5 ± 1.7	6	3	72.2 ± 2.2	5	3	t-test	t(9) = 1.93, p = 0.085
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	Basal	28.2 ± 4.7	6	3	26.1 ± 4.0	5	3	t-test	t(9) = 0.33, p = 0.748
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	1 nmol/L	31.2 ± 3.3	6	3	27.9 ± 4.3	5	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 5) = 14$, p = 0.931
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	10 nmol/L	39.7 ± 3.2	6	3	33.2 ± 3.4	5	3	t-test	t(9) = 1.39, p = 0.199
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	100 nmol/L	53.5 ± 2.3	6	3	51.8 ± 4.9	5	3	t-test	t(9) = 0.32, p = 0.757
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	1 µmol/L	68.0 ± 3.0	6	3	68.0 ± 3.8	5	3	t-test	t(9) = 0.001, p = 0.999
Sup 3D	$Clock^{\Delta19/\Delta19}$	Phenylephrine	10 µmol/L	75.8 ± 2.4	6	3	74.4 ± 3.8	5	3	t-test	t(9) = 0.34, p = 0.740
Sup 4C	Cre-WT	Myogenic	20 mmHg	9.5 ± 4.4	6	3	10.6 ± 4.0	6	3	t-test	t(10) = 0.18, p = 0.861
Sup 4C	Cre-WT	Myogenic	40 mmHg	32.3 ± 5.5	6	3	17.5 ± 4.6	6	3	t-test	t(10) = 2.07, p = 0.065
Sup 4C	Cre-WT	Myogenic	60 mmHg	46.9 ± 2.0	6	3	31.9 ± 4.1	6	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 6) = 0$, **p = 0.002**
Sup 4C	Cre-WT	Myogenic	80 mmHg	49.9 ± 2.4	6	3	37.6 ± 2.6	6	3	t-test	t(10) = 3.49, **p = 0.006**
Sup 4C	Cre-WT	Myogenic	100 mmHg	50.8 ± 2.4	6	3	38.2 ± 3.7	6	3	t-test	t(10) = 2.86, **p = 0.017**
Sup 4D	Cre-WT	Phenylephrine	Basal	34.6 ± 1.9	6	3	30.3 ± 5.2	6	3	t-test	t(10) = 0.78, p = 0.456
Sup 4D	Cre-WT	Phenylephrine	1 nmol/L	36.7 ± 1.5	6	3	28.5 ± 5.3	6	3	t-test	t(10) = 1.48, p = 0.170
Sup 4D	Cre-WT	Phenylephrine	10 nmol/L	38.2 ± 2.6	6	3	27.9 ± 5.5	6	3	t-test	t(10) = 1.68, p = 0.124
Sup 4D	Cre-WT	Phenylephrine	100 nmol/L	48.1 ± 4.0	6	3	38.1 ± 5.1	6	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 6) = 10$, p = 0.240
Sup 4D	Cre-WT	Phenylephrine	1 µmol/L	65.2 ± 2.9	6	3	58.9 ± 5.5	6	3	t-test	t(10) = 1.02, p = 0.332
Sup 4D	Cre-WT	Phenylephrine	10 µmol/L	75.9 ± 2.3	6	3	74.0 ± 2.6	6	3	t-test	t(10) = 0.54, p = 0.604
Sup 4E	Cre-WT	Passive Diameter	20 mmHg	79.0 ± 4.4	6	3	83.2 ± 2.3	6	3	t-test	t(10) = 0.84, p = 0.422
Sup 4E	Cre-WT	Passive Diameter	40 mmHg	96.5 ± 3.7	6	3	102.2 ± 5.1	6	3	Mann-Whitney	$U(N_{ZT7} = 6, N_{ZT19} = 6) = 12.5$, p = 0.420
Sup 4E	Cre-WT	Passive Diameter	60 mmHg	102.7 ± 4.2	6	3	111.2 ± 6.4	6	3	t-test	t(10) = 1.12, p = 0.291
Sup 4E	Cre-WT	Passive Diameter	80 mmHg	105.8 ± 3.9	6	3	115.2 ± 6.7	6	3	t-test	t(10) = 1.20, p = 0.259
Sup 4E	Cre-WT	Passive Diameter	100 mmHg	107.7 ± 4.0	6	3	117.0 ± 6.8	6	3	t-test	t(10) = 1.19, p = 0.262
Sup 9	Wild-Type	ERK Phosphorylation	PF670462	1.00 ± 0.08	10	13	0.99 ± 0.09	10	13	Wilcoxon test	$W(N_{ZT7} = 10, N_{ZT19} = 10) = -7$, p = 0.770
Sup 10A	Wild-Type	Sham Passive Diameter	20 mmHg	50.8 ± 2.1	9	5	50.5 ± 2.8	6	3	t-test	t(13) = 0.10, p = 0.922
Sup 10A	Wild-Type	Sham Passive Diameter	40 mmHg	65.1 ± 2.4	9	5	67.9 ± 3.0	6	3	t-test	t(13) = 0.72, p = 0.486
Sup 10A	Wild-Type	Sham Passive Diameter	60 mmHg	70.9 ± 2.6	9	5	74.1 ± 2.7	6	3	t-test	t(13) = 0.83, p = 0.422
Sup 10A	Wild-Type	Sham Passive Diameter	80 mmHg	74.1 ± 2.7	9	5	78.5 ± 2.7	6	3	t-test	t(13) = 1.09, p = 0.297
Sup 10A	Wild-Type	Sham Passive Diameter	100 mmHg	76.3 ± 2.9	9	5	79.2 ± 2.4	6	3	t-test	t(13) = 0.70, p = 0.496
Sup 10B	Wild-Type	MI Passive Diameter	20 mmHg	52.8 ± 4.3	7	4	56.4 ± 4.4	7	4	t-test	t(12) = 0.57, p = 0.577
Sup 10B	Wild-Type	MI Passive Diameter	40 mmHg	64.0 ± 2.6	7	4	69.5 ± 5.1	7	4	t-test	t(12) = 0.95, p = 0.359
Sup 10B	Wild-Type	MI Passive Diameter	60 mmHg	69.9 ± 2.6	7	4	74.8 ± 5.3	7	4	Mann-Whitney	$U(N_{ZT7} = 7, N_{ZT19} = 7) = 17$, p = 0.383
Sup 10B	Wild-Type	MI Passive Diameter	80 mmHg	73.0 ± 2.9	7	4	78.1 ± 5.6	7	4	Mann-Whitney	$U(N_{ZT7} = 7, N_{ZT19} = 7) = 14$, p = 0.209
Sup 10B	Wild-Type	MI Passive Diameter	100 mmHg	75.2 ± 2.2	7	4	80.4 ± 5.3	7	4	Mann-Whitney	$U(N_{ZT7} = 7, N_{ZT19} = 7) = 14$, p = 0.209
Sup 12A	Wild-Type	Sham Bmal1 mRNA	--	5.3 ± 1.4	8	8	11.3 ± 1.8	8	8	Mann-Whitney	$U(N_{ZT7} = 8, N_{ZT19} = 8) = 9$, **p = 0.015**
Sup 12A	$Clock^{\Delta19/\Delta19}$	Sham Bmal1 mRNA	--	5.6 ± 1.3	5	5	7.7 ± 0.6	4	4	t-test	t(7) = 1.33, p = 0.225
Sup 12B	Wild-Type	MI Bmal1 mRNA	--	5.3 ± 0.5	7	7	10.6 ± 1.2	7	7	t-test	t(12) = 4.14, **p = 0.001**
Sup 12B	$Clock^{\Delta19/\Delta19}$	MI Bmal1 mRNA	--	10.3 ± 1.1	3	3	11.2 ± 1.7	4	4	Mann-Whitney	$U(N_{ZT7} = 3, N_{ZT19} = 4) = 3$, p = 0.343

Data are means ± standard error measurements, where n equals the number of measurements (i.e., vessels, western blot samples or RNA samples) and N equals the number of mice used to generate those samples. Statistical significance is defined at $p < 0.05$ (significant p values are highlighted).

Abbreviations: Cre-WT = tamoxifen-treated, Cre-expressing wild-type control arteries; MI = myocardial infarction; Sm-Bmal1 KO = smooth muscle specific Bmal1 knockout arteries; TNF KO = tumor necrosis factor knockout arteries; ZT7 = Zeitgeber Time 7; ZT19 = Zeitgeber Time 19.

Supplemental Table 3: Pre/Post and *in vivo* intervention statistical comparisons

Figure	Genotype	Parameter	Level	Control	n	N	Intervention	n	N	Comparison Test	Statistics
2E	Wild-Type	TNFR1-Fc	--	0.83 ± 0.02	5	5	0.95 ± 0.04	5	5	t-test	t(8) = 2.55, **p = 0.034**
2F	Wild-Type	Phenylephrine	--	0.55 ± 0.06	5	5	0.47 ± 0.10	5	5	t-test	t(8) = 0.77, p = 0.464
2G	Wild-Type	ZT7 Myogenic	20 mmHg	10.2 ± 3.5	6	3	10.4 ± 2.5	6	3	paired t-test	t(5) = 0.11, p = 0.919
2G	Wild-Type	ZT7 Myogenic	40 mmHg	21.2 ± 2.8	6	3	20.1 ± 3.2	6	3	paired t-test	t(5) = 1.13, p = 0.316
2G	Wild-Type	ZT7 Myogenic	60 mmHg	34.9 ± 1.3	6	3	29.8 ± 1.8	6	3	paired t-test	t(5) = 3.33, **p = 0.021**
2G	Wild-Type	ZT7 Myogenic	80 mmHg	41.3 ± 0.8	6	3	36.0 ± 1.0	6	3	paired t-test	t(5) = 9.56, **p < 0.001**
2G	Wild-Type	ZT7 Myogenic	100 mmHg	44.6 ± 1.3	6	3	38.2 ± 2.2	6	3	paired t-test	t(5) = 4.63, **p = 0.006**
2G	Wild-Type	ZT19 Myogenic	20 mmHg	6.6 ± 2.6	5	3	2.9 ± 1.9	5	3	Wilcoxon test	$W(N_{Con} = 5, N_{CKI\text{-}7} = 5) = -10$, p = 0.125
2G	Wild-Type	ZT19 Myogenic	40 mmHg	15.5 ± 3.2	5	3	10.6 ± 3.7	5	3	Wilcoxon test	$W(N_{Con} = 5, N_{CKI\text{-}7} = 5) = -15$, p = 0.063
2G	Wild-Type	ZT19 Myogenic	60 mmHg	25.5 ± 3.0	5	3	25.6 ± 3.3	5	3	paired t-test	t(4) = 0.61, p = 0.955
2G	Wild-Type	ZT19 Myogenic	80 mmHg	31.2 ± 3.7	5	3	31.6 ± 3.2	5	3	paired t-test	t(4) = 0.52, p = 0.628
2G	Wild-Type	ZT19 Myogenic	100 mmHg	35.4 ± 3.8	5	3	36.1 ± 3.0	5	3	paired t-test	t(4) = 0.51, p = 0.638
2H	TNF KO	ZT7 Myogenic	20 mmHg	12.9 ± 1.8	5	3	13.5 ± 3.2	5	3	paired t-test	t(4) = 0.39, p = 0.717
2H	TNF KO	ZT7 Myogenic	40 mmHg	23.0 ± 4.4	5	3	22.2 ± 4.4	5	3	paired t-test	t(4) = 0.62, p = 0.568
2H	TNF KO	ZT7 Myogenic	60 mmHg	35.1 ± 3.7	5	3	35.2 ± 3.1	5	3	paired t-test	t(4) = 0.01, p = 0.990
2H	TNF KO	ZT7 Myogenic	80 mmHg	39.2 ± 3.0	5	3	39.7 ± 2.4	5	3	paired t-test	t(4) = 0.47, p = 0.664
2H	TNF KO	ZT7 Myogenic	100 mmHg	41.5 ± 2.5	5	3	40.8 ± 1.9	5	3	paired t-test	t(4) = 0.94, p = 0.401
2I	Wild-Type	ZT7 Myogenic	20 mmHg	6.9 ± 4.1	5	4	8.6 ± 1.8	5	4	t-test	t(8) = 0.37, p = 0.712
2I	Wild-Type	ZT7 Myogenic	40 mmHg	21.8 ± 4.7	5	4	14.3 ± 3.9	5	4	t-test	t(8) = 1.24, p = 0.252
2I	Wild-Type	ZT7 Myogenic	60 mmHg	35.1 ± 2.5	5	4	30.9 ± 2.3	5	4	t-test	t(8) = 1.23, p = 0.254
2I	Wild-Type	ZT7 Myogenic	80 mmHg	44.4 ± 2.2	5	4	33.3 ± 2.3	5	4	t-test	t(8) = 3.51, **p = 0.008**
2I	Wild-Type	ZT7 Myogenic	100 mmHg	46.2 ± 1.1	5	4	34.3 ± 2.8	5	4	t-test	t(8) = 4.01, **p = 0.004**
2J	Wild-Type	ZT7 Phenylephrine	1 nmol/L	23.6 ± 5.9	5	4	23.2 ± 4.8	5	4	t-test	t(8) = 0.05, p = 0.961
2J	Wild-Type	ZT7 Phenylephrine	10 nmol/L	28.8 ± 5.1	5	4	21.4 ± 5.2	5	4	t-test	t(8) = 1.01, p = 0.342
2J	Wild-Type	ZT7 Phenylephrine	100 nmol/L	35.4 ± 3.9	5	4	30.3 ± 4.9	5	4	t-test	t(8) = 0.81, p = 0.439
2J	Wild-Type	ZT7 Phenylephrine	1 µmol/L	56.5 ± 4.0	5	4	47.1 ± 2.1	5	4	t-test	t(8) = 2.08, p = 0.071
2J	Wild-Type	ZT7 Phenylephrine	10 µmol/L	74.1 ± 2.3	5	4	68.4 ± 2.4	5	4	t-test	t(8) = 1.73, p = 0.121
Sup 6	Wild-Type	Myogenic	20 mmHg	14.0 ± 3.5	6	3	8.7 ± 2.1	6	3	paired t-test	t(5) = 2.42, p = 0.060
Sup 6	Wild-Type	Myogenic	40 mmHg	16.9 ± 3.0	6	3	12.4 ± 4.7	6	3	paired t-test	t(5) = 2.02, p = 0.100
Sup 6	Wild-Type	Myogenic	60 mmHg	29.5 ± 3.9	6	3	22.6 ± 5.6	6	3	paired t-test	t(5) = 1.98, p = 0.105
Sup 6	Wild-Type	Myogenic	80 mmHg	39.3 ± 3.3	6	3	30.7 ± 4.0	6	3	paired t-test	t(5) = 2.63, **p = 0.046**
Sup 6	Wild-Type	Myogenic	100 mmHg	43.9 ± 2.5	6	3	34.4 ± 3.8	6	3	paired t-test	t(5) = 4.79, **p = 0.005**
Sup 8	Wild-Type	ERK Phosphorylation	--	1.00 ± 0.10	10	13	1.63 ± 0.16	10	13	paired t-test	t(9) = 5.36, **p = 0.001**

Data are means ± standard error measurements, where n equals the number of measurements (i.e., vessels or western blot samples) and N equals the number of mice used to generate those samples. Statistical significance is defined as $p < 0.05$ (significant p values are highlighted).

Abbreviations: TNF KO = tumor necrosis factor knockout arteries; TNFR1-Fc = recombinant tumor necrosis factor receptor 1 / Fc fusion protein decoy construct; ZT7 = Zeitgeber Time 7; ZT19 = Zeitgeber Time 19.

Supplemental Table 4: Sham / myocardial infarction statistical comparisons

Figure	Genotype	Parameter	Level	Sham	n	N	MI	n	N	Comparison Test	Statistics
4A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Myogenic	20 mmHg	14.3 ± 3.6	7	4	18.1 ± 3.0	6	4	t-test	t(11) = 0.79, p = 0.448
4A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Myogenic	40 mmHg	22.7 ± 4.1	7	4	25.1 ± 3.5	6	4	t-test	t(11) = 0.43, p = 0.674
4A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Myogenic	60 mmHg	28.5 ± 4.1	7	4	32.1 ± 2.8	6	4	t-test	t(11) = 0.69, p = 0.505
4A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Myogenic	80 mmHg	32.7 ± 4.9	7	4	36.4 ± 1.9	6	4	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 6) = 18$, p = 0.731
4A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Myogenic	100 mmHg	36.0 ± 2.8	7	4	38.9 ± 2.2	6	4	t-test	t(11) = 0.80, p = 0.440
4B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Myogenic	20 mmHg	19.7 ± 3.1	7	4	20.1 ± 4.5	8	4	t-test	t(13) = 0.57, p = 0.956
4B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Myogenic	40 mmHg	22.9 ± 3.6	7	4	28.9 ± 4.1	8	4	t-test	t(13) = 1.09, p = 0.297
4B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Myogenic	60 mmHg	30.7 ± 3.6	7	4	34.0 ± 2.2	8	4	t-test	t(13) = 0.82, p = 0.428
4B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Myogenic	80 mmHg	34.6 ± 2.7	7	4	37.8 ± 2.8	8	4	t-test	t(13) = 0.80, p = 0.436
4B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Myogenic	100 mmHg	36.9 ± 2.6	7	4	38.3 ± 3.4	8	4	t-test	t(13) = 0.33, p = 0.750
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	Basal	13.9 ± 4.5	7	4	18.6 ± 3.7	8	4	t-test	t(13) = 0.80, p = 0.436
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	1 nmol/L	23.0 ± 4.6	7	4	20.2 ± 2.8	8	4	t-test	t(13) = 0.53, p = 0.605
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	10 nmol/L	23.5 ± 4.4	7	4	24.2 ± 2.5	8	4	t-test	t(13) = 0.13, p = 0.895
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	100 nmol/L	34.7 ± 5.5	7	4	33.1 ± 3.4	8	4	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 8) = 21$, p = 0.463
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	1 µmol/L	62.9 ± 3.5	7	4	53.9 ± 3.2	8	4	t-test	t(13) = 1.90, p = 0.080
4C	$Clock^{\Delta 19/\Delta 19}$	ZT7 Phenylephrine	10 µmol/L	74.5 ± 0.9	7	4	69.6 ± 3.2	8	4	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 8) = 18$, p = 0.281
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	Basal	16.4 ± 3.4	7	4	19.4 ± 3.2	8	4	t-test	t(13) = 0.64, p = 0.535
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	1 nmol/L	21.2 ± 3.4	7	4	24.7 ± 3.3	8	4	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 8) = 21$, p = 0.463
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	10 nmol/L	23.7 ± 3.1	7	4	25.3 ± 1.9	8	4	t-test	t(13) = 0.45, p = 0.658
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	100 nmol/L	32.8 ± 3.5	7	4	36.6 ± 3.0	8	4	t-test	t(13) = 0.84, p = 0.417
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	1 µmol/L	55.9 ± 2.1	7	4	59.2 ± 2.4	8	4	t-test	t(13) = 1.01, p = 0.332
4D	$Clock^{\Delta 19/\Delta 19}$	ZT19 Phenylephrine	10 µmol/L	72.2 ± 2.4	7	4	73.1 ± 1.9	8	4	t-test	t(13) = 0.31, p = 0.759
5A	Cre-WT	ZT19 Myogenic	20 mmHg	5.3 ± 1.6	7	4	20.7 ± 4.4	7	5	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 7) = 6$, **p = 0.017**
5A	Cre-WT	ZT19 Myogenic	40 mmHg	15.1 ± 3.5	7	4	30.5 ± 4.1	7	5	t-test	t(12) = 2.86, **p = 0.014**
5A	Cre-WT	ZT19 Myogenic	60 mmHg	23.7 ± 2.6	7	4	35.2 ± 3.9	7	5	t-test	t(12) = 2.46, **p = 0.030**
5A	Cre-WT	ZT19 Myogenic	80 mmHg	29.1 ± 4.4	7	4	39.8 ± 3.5	7	5	t-test	t(12) = 1.92, p = 0.079
5A	Cre-WT	ZT19 Myogenic	100 mmHg	27.3 ± 4.9	7	4	41.5 ± 3.1	7	5	t-test	t(12) = 2.44, **p = 0.031**
5B	Sm-Bmal1 KO	ZT19 Myogenic	20 mmHg	7.8 ± 2.4	7	4	11.3 ± 4.2	7	5	t-test	t(12) = 0.73, p = 0.479
5B	Sm-Bmal1 KO	ZT19 Myogenic	40 mmHg	13.4 ± 5.5	7	4	17.9 ± 5.3	7	5	t-test	t(12) = 0.59, p = 0.569
5B	Sm-Bmal1 KO	ZT19 Myogenic	60 mmHg	20.6 ± 3.8	7	4	22.1 ± 5.9	7	5	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 7) = 24$, p = 1.000
5B	Sm-Bmal1 KO	ZT19 Myogenic	80 mmHg	27.0 ± 3.1	7	4	23.9 ± 6.0	7	5	t-test	t(12) = 0.46, p = 0.655
5B	Sm-Bmal1 KO	ZT19 Myogenic	100 mmHg	23.8 ± 3.6	7	4	26.1 ± 5.7	7	5	t-test	t(12) = 0.34, p = 0.739
5C	Cre-WT	ZT19 Phenylephrine	Basal	24.7 ± 2.7	7	4	24.8 ± 7.1	7	5	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 7) = 22$, p = 0.805
5C	Cre-WT	ZT19 Phenylephrine	1 nmol/L	25.6 ± 3.5	7	4	25.4 ± 6.6	7	5	t-test	t(12) = 0.02, p = 0.988
5C	Cre-WT	ZT19 Phenylephrine	10 nmol/L	24.5 ± 3.8	7	4	25.7 ± 6.7	7	5	t-test	t(12) = 0.16, p = 0.878
5C	Cre-WT	ZT19 Phenylephrine	100 nmol/L	29.6 ± 4.5	7	4	27.3 ± 7.0	7	5	t-test	t(12) = 0.28, p = 0.787
5C	Cre-WT	ZT19 Phenylephrine	1 µmol/L	52.5 ± 5.2	7	4	39.2 ± 7.9	7	5	t-test	t(12) = 1.40, p = 0.187
5C	Cre-WT	ZT19 Phenylephrine	10 µmol/L	69.5 ± 3.6	7	4	67.7 ± 4.3	7	5	t-test	t(12) = 0.32, p = 0.756
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	Basal	14.6 ± 3.2	7	4	21.8 ± 5.0	7	5	t-test	t(12) = 1.22, p = 0.248
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	1 nmol/L	15.7 ± 3.9	7	4	19.1 ± 4.4	7	5	t-test	t(12) = 0.58, p = 0.547
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	10 nmol/L	17.6 ± 4.1	7	4	23.8 ± 4.2	7	5	t-test	t(12) = 1.07, p = 0.308
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	100 nmol/L	23.2 ± 5.9	7	4	35.2 ± 6.2	7	5	t-test	t(12) = 1.39, p = 0.189
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	1 µmol/L	46.9 ± 8.3	7	4	47.6 ± 8.9	7	5	t-test	t(12) = 0.05, p = 0.959
5D	Sm-Bmal1 KO	ZT19 Phenylephrine	10 µmol/L	73.5 ± 3.2	7	4	72.4 ± 3.3	7	5	t-test	t(12) = 0.24, p = 0.815
Sup 11	Wild-Type	TNF mRNA	--	1.00 ± 0.16	6	6	1.09 ± 0.25	6	6	Mann-Whitney	$U(N_{Sham} = 6, N_{MI} = 6) = 17$, p = 0.905
Sup 11	Wild-Type	TNFR1 mRNA	--	1.00 ± 0.06	24	24	1.06 ± 0.09	18	18	t-test	t(40) = 0.60, p = 0.553
Sup 11	Wild-Type	TNFR2 mRNA	--	1.00 ± 0.06	24	24	0.90 ± 0.07	18	18	t-test	t(40) = 1.15, p = 0.259
Sup 11	Wild-Type	CK1 delta mRNA	--	1.00 ± 0.04	12	12	0.98 ± 0.07	6	6	t-test	t(16) = 0.28, p = 0.784
Sup 11	Wild-Type	CK1 epsilon mRNA	--	1.00 ± 0.06	12	12	0.99 ± 0.04	6	6	t-test	t(16) = 0.14, p = 0.890
Sup 13A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Passive Diameter	20 mmHg	65.2 ± 3.6	7	4	62.4 ± 5.4	6	4	t-test	t(11) = 0.45, p = 0.663
Sup 13A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Passive Diameter	40 mmHg	77.3 ± 3.7	7	4	75.1 ± 5.4	6	4	t-test	t(11) = 0.34, p = 0.738
Sup 13A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Passive Diameter	60 mmHg	81.4 ± 3.9	7	4	79.7 ± 5.6	6	4	t-test	t(11) = 0.25, p = 0.810
Sup 13A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Passive Diameter	80 mmHg	83.7 ± 4.2	7	4	81.5 ± 5.9	6	4	t-test	t(11) = 0.32, p = 0.757
Sup 13A	$Clock^{\Delta 19/\Delta 19}$	ZT7 Passive Diameter	100 mmHg	85.1 ± 4.6	7	4	84.5 ± 6.1	6	4	t-test	t(11) = 0.08, p = 0.936
Sup 13B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Passive Diameter	20 mmHg	59.5 ± 3.4	7	4	56.4 ± 3.7	8	4	t-test	t(13) = 0.61, p = 0.555
Sup 13B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Passive Diameter	40 mmHg	67.5 ± 3.0	7	4	72.3 ± 4.7	8	4	t-test	t(13) = 0.85, p = 0.411
Sup 13B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Passive Diameter	60 mmHg	71.9 ± 2.9	7	4	76.6 ± 4.9	8	4	t-test	t(13) = 0.79, p = 0.441
Sup 13B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Passive Diameter	80 mmHg	75.0 ± 2.8	7	4	79.5 ± 5.0	8	4	t-test	t(13) = 0.75, p = 0.468
Sup 13B	$Clock^{\Delta 19/\Delta 19}$	ZT19 Passive Diameter	100 mmHg	75.0 ± 3.1	7	4	82.6 ± 5.3	8	4	Mann-Whitney	$U(N_{Sham} = 7, N_{MI} = 8) = 14$, p = 0.121

...Supplemental Table 4 continues on the next page

Figure	Genotype	Parameter	Level	Sham	n	N	MI	n	N	Comparison Test	Statistics
Sup 14A	Cre-WT	ZT19 Passive Diameter	20 mmHg	52.2 ± 5.4	7	4	59.5 ± 5.9	7	5	t-test	t(12) = 0.92, p = 0.377
Sup 14A	Cre-WT	ZT19 Passive Diameter	40 mmHg	65.8 ± 4.9	7	4	71.5 ± 6.0	7	5	t-test	t(12) = 0.74, p = 0.475
Sup 14A	Cre-WT	ZT19 Passive Diameter	60 mmHg	70.0 ± 5.0	7	4	74.6 ± 6.2	7	5	t-test	t(12) = 0.57, p = 0.579
Sup 14A	Cre-WT	ZT19 Passive Diameter	80 mmHg	71.9 ± 4.5	7	4	77.7 ± 6.3	7	5	t-test	t(12) = 0.74, p = 0.471
Sup 14A	Cre-WT	ZT19 Passive Diameter	100 mmHg	73.1 ± 4.3	7	4	81.0 ± 6.6	7	5	t-test	t(12) = 1.00, p = 0.335
Sup 14B	Sm-Bmal1 KO	ZT19 Passive Diameter	20 mmHg	45.2 ± 5.4	7	4	45.0 ± 4.2	7	5	t-test	t(12) = 0.03, p = 0.979
Sup 14B	Sm-Bmal1 KO	ZT19 Passive Diameter	40 mmHg	57.5 ± 6.7	7	4	55.9 ± 4.2	7	5	t-test	t(12) = 0.21, p = 0.840
Sup 14B	Sm-Bmal1 KO	ZT19 Passive Diameter	60 mmHg	60.8 ± 6.8	7	4	60.3 ± 4.2	7	5	t-test	t(12) = 0.06, p = 0.950
Sup 14B	Sm-Bmal1 KO	ZT19 Passive Diameter	80 mmHg	63.4 ± 6.8	7	4	62.2 ± 4.4	7	5	t-test	t(12) = 0.15, p = 0.883
Sup 14B	Sm-Bmal1 KO	ZT19 Passive Diameter	100 mmHg	65.6 ± 6.8	7	4	64.0 ± 4.5	7	5	t-test	t(12) = 0.20, p = 0.843

Data are means ± standard error measurements, where n equals the number of measurements (i.e., vessels) and N equals the number of mice used to generate those samples. Statistical significance is defined as $p < 0.05$ (significant p values are highlighted).

Abbreviations: CK1 = casein kinase 1; Cre-WT = tamoxifen-treated, Cre-expressing wild-type control arteries; MI = myocardial infarction; Sm-Bmal1 KO = smooth muscle specific Bmal1 knockout arteries; TNF = tumor necrosis factor; TNFR = tumor necrosis factor receptor; ZT7 = Zeitgeber Time 7; ZT19 = Zeitgeber Time 19.

Supplemental Table 5: Wild-type / mutant mouse statistical comparisons

Figure	Genotype	Parameter	Time Point	WT	n	N	Mutant	n	N	Comparison Test	Statistics
4E	WT / Clock$^{\Delta 19/\Delta 19}$	Sham TPR	8 weeks	5.49 ± 0.22	8	8	5.46 ± 0.17	8	8	t-test	t(14) = 0.11, p = 0.912
4E	WT / Clock$^{\Delta 19/\Delta 19}$	MI TPR	8 weeks	6.88 ± 0.24	8	8	5.48 ± 0.19	8	8	t-test	t(14) = 4.56, **p < 0.001**
4F	WT / Clock$^{\Delta 19/\Delta 19}$	Sham MAP	8 weeks	74.6 ± 0.4	8	8	73.3 ± 0.7	8	8	t-test	t(14) = 1.42, p = 0.179
4F	WT / Clock$^{\Delta 19/\Delta 19}$	MI MAP	8 weeks	68.7 ± 0.5	8	8	66.6 ± 0.7	8	8	t-test	t(14) = 2.43, **p = 0.029**
4G	WT / Clock$^{\Delta 19/\Delta 19}$	Sham CO	8 weeks	13.7 ± 0.5	8	8	13.5 ± 0.4	8	8	t-test	t(14) = 0.31, p = 0.761
4G	WT / Clock$^{\Delta 19/\Delta 19}$	MI CO	8 weeks	10.1 ± 0.4	8	8	12.3 ± 0.4	8	8	t-test	t(14) = 4.08, **p = 0.001**
4H	WT / Clock$^{\Delta 19/\Delta 19}$	Sham EF	8 weeks	76.2 ± 0.9	8	8	76.5 ± 0.4	8	8	t-test	t(14) = 0.27, p = 0.790
4H	WT / Clock$^{\Delta 19/\Delta 19}$	MI EF	1 week	59.7 ± 1.6	8	8	60.8 ± 1.6	8	8	t-test	t(14) = 0.51, p = 0.618
4H	WT / Clock$^{\Delta 19/\Delta 19}$	MI EF	8 weeks	49.9 ± 1.2	8	8	57.7 ± 1.7	8	8	t-test	t(14) = 3.81, **p = 0.002**
4I	WT / Clock$^{\Delta 19/\Delta 19}$	Sham LVIDs	8 weeks	2.46 ± 0.05	8	8	2.44 ± 0.01	8	8	Mann-Whitney	U(N_{WT} = 8, N_{Clock} = 8) = 31, p = 0.934
4I	WT / Clock$^{\Delta 19/\Delta 19}$	MI LVIDs	1 week	3.41 ± 0.09	8	8	3.35 ± 0.09	8	8	t-test	t(14) = 0.49, p = 0.635
4I	WT / Clock$^{\Delta 19/\Delta 19}$	MI LVIDs	8 weeks	4.18 ± 0.11	8	8	3.62 ± 0.10	8	8	t-test	t(14) = 3.71, **p = 0.002**
4J	WT / Clock$^{\Delta 19/\Delta 19}$	Sham LVIDd	8 weeks	4.05 ± 0.05	8	8	4.04 ± 0.02	8	8	t-test	t(14) = 0.14, p = 0.894
4J	WT / Clock$^{\Delta 19/\Delta 19}$	MI LVIDd	1 week	4.70 ± 0.07	8	8	4.65 ± 0.07	8	8	t-test	t(14) = 0.46, p = 0.653
4J	WT / Clock$^{\Delta 19/\Delta 19}$	MI LVIDd	8 weeks	5.31 ± 0.10	8	8	4.90 ± 0.08	8	8	t-test	t(14) = 3.30, **p = 0.005**
4K	WT / Clock$^{\Delta 19/\Delta 19}$	Infarct Expansion	8 weeks	47.8 ± 3.1	4	4	37.1 ± 2.9	4	4	t-test	t(6) = 2.50, **p = 0.047**
5E	WT / Sm-Bmal1 KO	Sham TPR	8 weeks	5.9 ± 0.3	5	5	5.8 ± 0.3	5	5	Mann-Whitney	U(N_{WT} = 5, N_{KO} = 5) = 9, p = 0.548
5E	WT / Sm-Bmal1 KO	MI TPR	8 weeks	7.4 ± 0.3	6	6	6.3 ± 0.2	9	6	t-test	t(13) = 3.58, **p = 0.003**
5F	WT / Sm-Bmal1 KO	Sham MAP	8 weeks	76.5 ± 1.7	5	5	77.8 ± 2.2	5	5	t-test	t(8) = 0.45, p = 0.664
5F	WT / Sm-Bmal1 KO	MI MAP	8 weeks	70.9 ± 0.7	6	6	74.5 ± 1.0	9	6	t-test	t(13) = 2.63, **p = 0.021**
5G	WT / Sm-Bmal1 KO	Sham CO	8 weeks	13.1 ± 0.5	5	5	13.5 ± 0.4	5	5	t-test	t(8) = 0.64, p = 0.537
5G	WT / Sm-Bmal1 KO	MI CO	8 weeks	9.7 ± 0.4	6	6	11.9 ± 0.4	9	6	t-test	t(13) = 4.12, **p = 0.001**
5H	WT / Sm-Bmal1 KO	Sham EF	8 weeks	69.4 ± 2.4	8	8	72.3 ± 1.2	9	8	t-test	t(15) = 1.13, p = 0.276
5H	WT / Sm-Bmal1 KO	MI EF	1 week	45.1 ± 5.4	6	6	57.1 ± 3.8	10	6	t-test	t(14) = 1.85, p = 0.085
5H	WT / Sm-Bmal1 KO	MI EF	8 weeks	43.0 ± 4.1	6	6	55.1 ± 3.2	12	6	t-test	t(16) = 2.24, **p = 0.039**
5I	WT / Sm-Bmal1 KO	Sham LVIDs	8 weeks	2.6 ± 0.1	8	8	2.6 ± 0.1	9	8	Mann-Whitney	U(N_{WT} = 8, N_{KO} = 9) = 29, p = 0.523
5I	WT / Sm-Bmal1 KO	MI LVIDs	1 week	3.8 ± 0.3	6	6	3.1 ± 0.2	10	6	t-test	t(14) = 2.21, **p = 0.044**
5I	WT / Sm-Bmal1 KO	MI LVIDs	8 weeks	4.1 ± 0.2	6	6	3.3 ± 0.2	12	6	t-test	t(16) = 3.09, **p = 0.007**
5J	WT / Sm-Bmal1 KO	Sham LVIDd	8 weeks	3.9 ± 0.1	8	8	4.0 ± 0.1	9	8	Mann-Whitney	U(N_{WT} = 8, N_{KO} = 9) = 24, p = 0.264
5J	WT / Sm-Bmal1 KO	MI LVIDd	1 week	4.7 ± 0.2	6	6	4.2 ± 0.1	10	6	t-test	t(14) = 2.14, p = 0.051
5J	WT / Sm-Bmal1 KO	MI LVIDd	8 weeks	5.0 ± 0.2	6	6	4.3 ± 0.1	12	6	Mann-Whitney	U(N_{WT} = 6, N_{KO} = 12) = 8.5, **p = 0.007**
5K	WT / Sm-Bmal1 KO	Infarct Expansion	8 weeks	43.9 ± 3.7	3	3	20.8 ± 3.5	3	3	t-test	t(4) = 4.58, **p = 0.010**

Data are means ± standard error measurements, where n equals the number of measurements from N mice. Statistical significance is defined as $p < 0.05$ (significant p values are highlighted).

Abbreviations: CO = cardiac output; EF = ejection fraction; LVIDd = left ventricle internal dimensions at diastole; LVIDs = left ventricle internal dimensions at systole MAP = mean arterial pressure; MI = myocardial infarction; Sm-Bmal1 KO = smooth muscle specific Bmal1 knockout arteries; TPR = total peripheral resistance.

Supplemental Table 6: JTK_CYCLE analysis - wild-type artery pressure myography data

Figure	Parameter	Level	ZT3	n	N	ZT7	n	N	ZT11	n	N	ZT15	n	N	ZT19	n	N	ZT23	n	N	JTK P	Period	Acrophase	Amplitude
1A	Myogenic	20 mmHg	19.2 ± 5.6	5	5	37.0 ± 3.1	4	3	32.2 ± 3.1	4	3	19.4 ± 4.4	6	3	24.7 ± 6.5	6	3	22.3 ± 5.6	6	4	0.626	24	6	5.09
1A	Myogenic	40 mmHg	35.4 ± 2.1	5	5	39.1 ± 4.3	4	3	39.3 ± 2.3	4	3	32.4 ± 3.5	6	3	34.0 ± 4.5	6	3	31.3 ± 3.8	6	4	0.541	24	6	3.92
1A	Myogenic	60 mmHg	44.0 ± 2.4	5	5	48.0 ± 2.6	4	3	47.8 ± 2.3	4	3	38.3 ± 2.2	6	3	35.6 ± 4.2	6	3	35.6 ± 3.5	6	4	0.002 *	24	6	6.97
1A	Myogenic	80 mmHg	46.0 ± 2.4	5	5	53.8 ± 2.1	4	3	50.3 ± 1.8	4	3	42.8 ± 1.8	6	3	39.7 ± 2.5	6	3	37.2 ± 3.9	6	4	< 0.001 *	24	6	6.63
1A	Myogenic	100 mmHg	46.4 ± 2.6	5	5	54.4 ± 2.8	4	3	51.0 ± 2.1	4	3	44.8 ± 2.4	6	3	40.7 ± 3.1	6	3	36.9 ± 5.2	6	4	0.003 *	24	6	6.31
1C	Phenylephrine	1 nmol/L	40.8 ± 2.8	5	5	42.5 ± 3.4	4	3	30.6 ± 8.7	4	4	32.1 ± 2.7	6	3	27.8 ± 4.6	6	3	37.9 ± 3.8	6	4	0.132	24	6	5.09
1C	Phenylephrine	10 nmol/L	46.6 ± 3	5	5	50.8 ± 2.6	4	3	36.6 ± 10	4	4	38.1 ± 2.8	6	3	35.1 ± 5.3	6	3	40.0 ± 4.5	6	4	0.451	24	6	5.94
1C	Phenylephrine	100 nmol/L	57.2 ± 3.8	5	5	62.9 ± 2.2	4	3	55.5 ± 7.7	4	4	44.1 ± 2.6	6	3	50.6 ± 6.5	6	3	46.4 ± 5.1	6	4	0.238	24	6	8.98
1C	Phenylephrine	1 µmol/L	65.1 ± 3.8	5	5	72.7 ± 2.3	4	3	73.0 ± 2	4	4	62.5 ± 3.1	6	3	67.9 ± 4.5	6	3	58.5 ± 7.1	6	4	0.368	24	6	3.75
1C	Phenylephrine	10 µmol/L	77.8 ± 3.4	5	5	75.1 ± 3.3	4	3	77.9 ± 2.9	4	4	70.6 ± 3.6	6	3	76.0 ± 3.5	6	3	64.9 ± 6.6	6	4	1.000	24	6	4.24
Sup 2	KCl	60 mmol/L	76.7 ± 2.9	4	4	78.1 ± 2.9	4	3	77.0 ± 2.5	6	4	73.6 ± 4	6	3	70.8 ± 2.9	6	3	85.6 ± 1.8	4	3	0.397	24	6	4.74

Data are means ± standard error measurements, where n equals the number of measurements (i.e., vessels) and N equals the number of mice used to generate those samples. *JTK P* is the Bonferroni-adjusted minimal P value calculated by JTK_CYCLE. *Acrophase* is the Zeitgeber time of the sinusoidal rhythm peak calculated by JTK_CYCLE. * denotes a statistically significant circadian rhythm ($P<0.05$).

Abbreviations: KCl = potassium chloride; ZT = Zeitgeber time.

Supplemental Table 7: JTK_CYCLE analysis - mutant mouse artery pressure myography data

Figure	Genotype	Parameter	Level	ZT3	n	N	ZT7	n	N	ZT11	n	N	ZT15	n	N	ZT19	n	N	ZT23	n	N	JTK P	Period	Acrophase	Amplitude
Sup 4A	Cre-WT	Myogenic	20 mmHg	14.8 ± 5.0	6	3	9.5 ± 4.4	6	3	4.9 ± 1.3	6	3	2.0 ± 1.0	6	3	10.6 ± 4.0	6	3	9.5 ± 3.3	6	3	0.624	24	0	3.57
Sup 4A	Cre-WT	Myogenic	40 mmHg	27.2 ± 5.7	6	3	32.3 ± 5.5	6	3	24.9 ± 2.8	6	3	16.6 ± 3.2	6	3	17.5 ± 4.6	6	3	20.9 ± 5.7	6	3	0.167	24	4	7.22
Sup 4A	Cre-WT	Myogenic	60 mmHg	41.0 ± 2.7	6	3	46.9 ± 2.0	6	3	40.2 ± 3.5	6	3	34.2 ± 2.1	6	3	31.9 ± 4.1	6	3	36.3 ± 2.9	6	3	**0.014 ***	24	4	5.73
Sup 4A	Cre-WT	Myogenic	80 mmHg	47.5 ± 2.7	6	3	49.9 ± 2.4	6	3	44.4 ± 4.0	6	3	39.9 ± 2.5	6	3	37.6 ± 2.6	6	3	43.3 ± 2.8	6	3	**0.011 ***	24	4	5.14
Sup 4A	Cre-WT	Myogenic	100 mmHg	49.9 ± 1.9	6	3	50.8 ± 2.4	6	3	47.1 ± 3.9	6	3	42.6 ± 2.8	6	3	38.2 ± 3.7	6	3	45.6 ± 2.7	6	3	0.052	24	4	4.51
Sup 4B	Cre-WT	Phenylephrine	1 nmol/L	30.2 ± 3.0	6	3	36.7 ± 1.5	6	3	35.4 ± 3.2	6	3	19.4 ± 5.3	6	3	28.5 ± 5.3	6	3	31.7 ± 2.4	6	3	0.147	20	6	6.02
Sup 4B	Cre-WT	Phenylephrine	10 nmol/L	32.3 ± 3.2	6	3	38.2 ± 2.6	6	3	34.9 ± 2.9	6	3	21.1 ± 6.3	6	3	27.9 ± 5.5	6	3	32.5 ± 2.5	6	3	0.718	24	4	4.75
Sup 4B	Cre-WT	Phenylephrine	100 nmol/L	40.2 ± 3.8	6	3	48.1 ± 4.0	6	3	43.8 ± 3.2	6	3	27.7 ± 8.0	6	3	38.1 ± 5.1	6	3	41.6 ± 2.8	6	3	0.403	20	4	3.98
Sup 4B	Cre-WT	Phenylephrine	1 µmol/L	60.7 ± 3.8	6	3	65.2 ± 2.9	6	3	63.0 ± 1.8	6	3	61.9 ± 2.7	6	3	58.9 ± 5.5	6	3	61.7 ± 2.6	6	3	1.000	20	6	1.23
Sup 4B	Cre-WT	Phenylephrine	10 µmol/L	72.9 ± 2.1	6	3	75.9 ± 2.3	6	3	71.7 ± 1.7	6	3	73.0 ± 2.6	6	3	74.0 ± 2.6	6	3	72.8 ± 1.8	6	3	1.000	20	0	1.45
1E	$Clock^{\Delta 19/\Delta 19}$	Myogenic	20 mmHg	24.3 ± 4.4	7	4	14.9 ± 3.8	6	3	13.9 ± 2.2	6	3	17.4 ± 4.2	5	3	16.5 ± 5.5	5	3	21.5 ± 6.1	6	4	1.000	24	6	2.33
1E	$Clock^{\Delta 19/\Delta 19}$	Myogenic	40 mmHg	29.3 ± 3.9	7	4	27.9 ± 3.4	6	3	28.4 ± 1.9	6	3	28.2 ± 4.4	5	3	26.1 ± 6.1	5	3	27.3 ± 4.5	6	4	1.000	24	6	2.97
1E	$Clock^{\Delta 19/\Delta 19}$	Myogenic	60 mmHg	33.8 ± 3.8	7	4	39.8 ± 4.3	6	3	36.7 ± 3.6	6	3	35.7 ± 4.7	5	3	35.0 ± 4.3	5	3	36.3 ± 2.7	6	4	0.205	24	6	5.02
1E	$Clock^{\Delta 19/\Delta 19}$	Myogenic	80 mmHg	35.7 ± 3.8	7	4	44.1 ± 2.6	6	3	40.7 ± 3.5	6	3	38.8 ± 4.0	5	3	37.1 ± 3.8	5	3	40.4 ± 3.1	6	4	0.067	24	6	5.20
1E	$Clock^{\Delta 19/\Delta 19}$	Myogenic	100 mmHg	34.4 ± 4.3	7	4	45.4 ± 2.0	6	3	41.6 ± 2.7	6	3	39.1 ± 4.6	5	3	39.3 ± 6.0	5	3	42.4 ± 3.2	6	4	0.294	24	6	4.47
Sup 3A	$Clock^{\Delta 19/\Delta 19}$	Phenylephrine	1 nmol/L	34.0 ± 2.0	7	4	31.2 ± 3.3	6	3	27.9 ± 4.0	6	3	27.2 ± 3.7	5	3	27.9 ± 4.3	5	3	27.4 ± 5.0	6	4	0.446	24	4	5.16
Sup 3A	$Clock^{\Delta 19/\Delta 19}$	Phenylephrine	10 nmol/L	39.6 ± 1.8	7	4	39.7 ± 3.2	6	3	31.8 ± 3.5	6	3	33.6 ± 3.4	5	3	33.2 ± 3.4	5	3	31.6 ± 4.8	6	4	0.050	24	4	6.63
Sup 3A	$Clock^{\Delta 19/\Delta 19}$	Phenylephrine	100 nmol/L	48.8 ± 2.3	7	4	53.5 ± 2.3	6	3	47.7 ± 2.8	6	3	49.0 ± 3.7	5	3	51.8 ± 4.9	5	3	49.0 ± 6.4	6	4	0.109	24	6	4.81
Sup 3A	$Clock^{\Delta 19/\Delta 19}$	Phenylephrine	1 µmol/L	66.4 ± 2.3	7	4	68.0 ± 3.0	6	3	66.1 ± 2.1	6	3	69.9 ± 3.2	5	3	68.0 ± 3.8	5	3	74.5 ± 3.8	6	4	1.000	24	8	1.34
Sup 3A	$Clock^{\Delta 19/\Delta 19}$	Phenylephrine	10 µmol/L	70.9 ± 2.8	7	4	75.8 ± 2.4	6	3	69.8 ± 3.8	6	3	75.9 ± 1.4	5	3	74.4 ± 3.8	5	3	78.7 ± 2.9	6	4	1.000	24	18	2.14
--	$Clock^{\Delta 19/\Delta 19}$	KCl	60 mmol/L	67.9 ± 5.3	6	3	57.0 ± 3.8	6	3	71.5 ± 4.8	6	3	57.0 ± 4.9	6	3	41.9 ± 4.9	4	3	62.0 ± 7.3	6	4	0.893	24	6	7.50
1G	Sm-Bmal1 KO	Myogenic	20 mmHg	11.3 ± 4.0	6	3	15.4 ± 4.5	6	3	16.5 ± 4.3	6	3	17.3 ± 5.1	6	3	13.3 ± 6.5	5	3	21.5 ± 5.3	6	3	1.000	20	8	3.31
1G	Sm-Bmal1 KO	Myogenic	40 mmHg	34.6 ± 4.1	6	3	32.0 ± 3.7	6	3	31.2 ± 5.5	6	3	37.8 ± 4.3	6	3	29.5 ± 5.7	5	3	39.5 ± 4.4	6	3	1.000	24	18	1.73
1G	Sm-Bmal1 KO	Myogenic	60 mmHg	45.4 ± 3.0	6	3	43.5 ± 3.3	6	3	42.5 ± 3.1	6	3	47.9 ± 3.4	6	3	43.0 ± 4.6	5	3	46.3 ± 3.8	6	3	1.000	20	16	1.14
1G	Sm-Bmal1 KO	Myogenic	80 mmHg	49.2 ± 3.0	6	3	48.3 ± 3.3	6	3	46.4 ± 2.1	6	3	52.1 ± 3.0	6	3	48.2 ± 4.7	5	3	49.8 ± 3.8	6	3	1.000	20	16	1.93
1G	Sm-Bmal1 KO	Myogenic	100 mmHg	51.3 ± 3.0	6	3	50.4 ± 3.3	6	3	48.5 ± 2.2	6	3	54.9 ± 3.0	6	3	50.3 ± 4.6	5	3	50.6 ± 3.6	6	3	1.000	20	16	1.87
Sup 3B	Sm-Bmal1 KO	Phenylephrine	1 nmol/L	36.5 ± 5.4	6	3	36.9 ± 3.2	6	3	37.5 ± 3.1	6	3	41.5 ± 4.3	6	3	29.9 ± 5.7	5	3	38.8 ± 4.1	6	3	1.000	20	8	3.04
Sup 3B	Sm-Bmal1 KO	Phenylephrine	10 nmol/L	39.3 ± 5.2	6	3	38.4 ± 3.8	6	3	40.2 ± 3.2	6	3	42.4 ± 4.3	6	3	33.3 ± 4.7	5	3	40.8 ± 3.9	6	3	1.000	20	10	2.15
Sup 3B	Sm-Bmal1 KO	Phenylephrine	100 nmol/L	47.7 ± 4.2	6	3	51.8 ± 3.5	6	3	49.4 ± 2.9	6	3	52.3 ± 4.2	6	3	46.6 ± 4.9	5	3	55.1 ± 3.8	6	3	1.000	24	0	1.98
Sup 3B	Sm-Bmal1 KO	Phenylephrine	1 µmol/L	67.9 ± 4.2	6	3	68.9 ± 3.3	6	3	68.2 ± 1.8	6	3	70.8 ± 2.5	6	3	63.0 ± 3.1	5	3	71.3 ± 2.7	6	3	1.000	20	8	2.17
Sup 3B	Sm-Bmal1 KO	Phenylephrine	10 µmol/L	78.7 ± 2.3	6	3	77.5 ± 1.7	6	3	75.3 ± 2.7	6	3	76.0 ± 2.6	6	3	72.2 ± 2.2	5	3	80.9 ± 1.4	6	3	0.347	20	2	2.78
2A	TNF KO	Myogenic	20 mmHg	16.5 ± 1.9	6	3	8.1 ± 2.7	5	3	10.3 ± 3.2	6	3	9.7 ± 3.4	6	3	11.3 ± 3.0	5	3	6.7 ± 1.9	6	3	1.000	20	18	3.46
2A	TNF KO	Myogenic	40 mmHg	19.1 ± 3.0	6	3	11.4 ± 3.1	5	3	16.0 ± 3.6	6	3	18.8 ± 4.6	6	3	18.5 ± 4.3	5	3	13.1 ± 5.3	6	3	1.000	20	16	3.65
2A	TNF KO	Myogenic	60 mmHg	33.5 ± 2.7	6	3	21.6 ± 3.9	5	3	28.7 ± 1.9	6	3	31.7 ± 2.6	6	3	28.8 ± 2.7	5	3	21.8 ± 4.8	6	3	0.568	20	14	0.91
2A	TNF KO	Myogenic	80 mmHg	39.4 ± 2.7	6	3	26.1 ± 2.3	5	3	33.9 ± 1.9	6	3	37.1 ± 2.9	6	3	36.0 ± 1.0	5	3	31.5 ± 3.6	6	3	0.158	20	16	4.30
2A	TNF KO	Myogenic	100 mmHg	40.7 ± 2.8	6	3	30.2 ± 2.6	5	3	37.5 ± 2.0	6	3	40.6 ± 2.9	6	3	40.4 ± 0.9	5	3	34.9 ± 3.3	6	3	0.259	20	16	3.70
2C	TNF KO	Phenylephrine	1 nmol/L	31.8 ± 2.5	6	3	19.5 ± 3.0	5	3	27.1 ± 2.5	6	3	28.9 ± 3.6	6	3	25.0 ± 4.5	5	3	23.9 ± 2.5	6	3	1.000	20	16	3.57
2C	TNF KO	Phenylephrine	10 nmol/L	32.0 ± 2.7	6	3	19.8 ± 3.4	5	3	27.9 ± 2.6	6	3	31.3 ± 3.7	6	3	25.6 ± 4.5	5	3	23.0 ± 2.7	6	3	0.663	20	14	1.05
2C	TNF KO	Phenylephrine	100 nmol/L	39.0 ± 2.4	6	3	22.0 ± 4.2	5	3	30.6 ± 3.3	6	3	33.9 ± 3.5	6	3	29.0 ± 4.2	5	3	26.8 ± 2.7	6	3	1.000	20	16	5.02
2C	TNF KO	Phenylephrine	1 µmol/L	58.3 ± 2.4	6	3	37.8 ± 3.1	5	3	45.9 ± 4.6	6	3	49.8 ± 4.5	6	3	48.2 ± 1.6	5	3	46.0 ± 4.2	6	3	0.800	20	0	0.96
2C	TNF KO	Phenylephrine	10 µmol/L	76.9 ± 3.3	6	3	70.3 ± 4.0	5	3	69.5 ± 6.1	6	3	74.3 ± 4.6	6	3	72.4 ± 3.1	5	3	70.8 ± 5.0	6	3	1.000	20	16	1.91

Data are means ± standard error measurements, where n equals the number of measurements (i.e., vessels) and N equals the number of mice used to generate those samples. *JTK P* is the Bonferroni-adjusted minimal P value calculated by JTK_CYCLE. *Acrophase* is the Zeitgeber time of the sinusoidal rhythm peak calculated by JTK_CYCLE. * denotes a statistically significant circadian rhythm ($P<0.05$).

Abbreviations: Cre-WT = tamoxifen-treated, Cre-expressing wild-type controls; KCl = potassium chloride; Sm-Bmal1 KO = smooth muscle specific Bmal1 knockout. TNF KO = tumor necrosis factor knockout.

Supplemental Table 8: JTK_CYCLE analysis of gene expression in cremaster arteries isolated from naïve wild-type and tumor necrosis factor knockout mice.

Figure	Genotype	Gene	ZT3	n	ZT7	n	ZT11	n	ZT15	n	ZT19	n	ZT23	n	JTK P		Period	Acrophase	Amplitude
Sup 5A	Wild-Type	Bmal1	11.02 ± 2.46	3	2.35 ± 0.36	3	1.00 ± 0.22	3	2.52 ± 0.35	3	7.08 ± 0.41	3	15.41 ± 2.42	3	< 0.001	*	24	22	5.30
Sup 5B	Wild-Type	Per2	1.00 ± 0.04	3	2.47 ± 0.33	3	5.96 ± 1.36	3	5.27 ± 0.26	3	2.85 ± 0.21	3	2.25 ± 0.62	3	< 0.001	*	20	10	2.18
Sup 5C	Wild-Type	Clock	1.79 ± 0.17	3	1.09 ± 0.10	3	1.00 ± 0.14	3	1.13 ± 0.07	3	1.30 ± 0.05	3	1.95 ± 0.34	3	0.001	*	24	22	0.37
2K	Wild-Type	TNF	1.23 ± 0.15	5	1.06 ± 0.13	5	1.11 ± 0.21	4	1.06 ± 0.14	5	1.00 ± 0.12	5	1.59 ± 0.24	5	0.765		20	2	0.06
2K	Wild-Type	TNFR1	1.22 ± 0.16	6	1.18 ± 0.12	7	1.00 ± 0.11	7	1.14 ± 0.13	6	1.16 ± 0.10	6	1.18 ± 0.19	6	1.000		20	0	0.07
2K	Wild-Type	TNFR2	1.44 ± 0.05	6	1.25 ± 0.12	7	1.01 ± 0.10	7	1.24 ± 0.17	6	1.11 ± 0.07	6	1.05 ± 0.06	6	0.874		20	0	0.13
2L	Wild-Type	CK1 delta	1.13 ± 0.22	2	1.00 ± 0.11	2	1.11 ± 0.14	2	1.04 ± 0.04	2	1.25 ± 0.05	2	1.01 ± 0.12	2	1.000		20	18	0.11
2L	Wild-Type	CK1 epsilon	1.00 ± 0.15	2	1.07 ± 0.13	2	1.36 ± 0.02	2	1.16 ± 0.34	2	1.39 ± 0.02	2	1.05 ± 0.05	2	0.903		24	14	0.24
Sup 5D	TNF KO	Bmal1	22.69 ± 3.98	3	2.22 ± 0.40	3	1.00 ± 0.26	3	3.28 ± 0.36	3	11.63 ± 1.04	3	20.98 ± 1.92	3	< 0.001	*	20	0	6.96
Sup 5E	TNF KO	Per2	1.00 ± 0.08	3	4.56 ± 0.22	3	9.92 ± 0.90	3	9.95 ± 0.92	3	8.89 ± 0.95	3	4.57 ± 0.90	3	< 0.001	*	24	12	4.42
Sup 5F	TNF KO	Clock	1.50 ± 0.06	3	1.25 ± 0.18	3	1.00 ± 0.13	3	1.48 ± 0.12	3	2.14 ± 0.22	3	1.79 ± 0.25	3	0.006	*	20	18	0.34

Data are means ± standard error measurements, where n equals the number of samples (each sample generated from 1 mouse). *JTK P* is the Bonferroni-adjusted minimal P value calculated by JTK_CYCLE. *Acrophase* is the Zeitgeber time of the sinusoidal rhythm peak calculated by JTK_CYCLE. * denotes a statistically significant circadian rhythm ($P<0.05$).

Abbreviations: CK1 = casein kinase 1; TNF = tumor necrosis factor; TNFR = tumor necrosis factor receptor; TNF KO = tumor necrosis factor knockout.

Supplemental Table 9: JTK_CYCLE analysis of clock gene expression in arteries isolated from mice with myocardial infarction or sham surgical procedure.

Figure	Condition	Gene	ZT3	n	ZT7	n	ZT11	n	ZT15	n	ZT19	n	ZT23	n	JTK P	Period	Acrophase	Amplitude
3E	Sham	Bmal1	8.67 ± 0.60	4	3.12 ± 0.43	4	1.00 ± 0.13	4	1.94 ± 0.19	4	7.13 ± 0.81	4	14.13 ± 1.24	4	< 0.001 *	24	22	5.23
3E	Sham	Per2	1.00 ± 0.10	4	3.25 ± 0.55	4	6.75 ± 1.13	4	5.63 ± 0.98	4	3.25 ± 0.39	4	1.88 ± 0.38	4	< 0.001 *	20	10	2.33
3E	Sham	Rev-Erb	7.19 ± 1.23	4	9.97 ± 0.72	4	5.84 ± 0.57	4	1.98 ± 0.32	4	1.00 ± 0.12	4	3.16 ± 0.37	4	< 0.001 *	24	4	3.78
3E	Sham	Clock	1.22 ± 1.23	4	1.09 ± 0.13	4	0.99 ± 0.07	4	1.00 ± 0.08	4	1.17 ± 0.12	4	1.52 ± 0.14	4	0.025 *	24	22	0.18
3E	MI	Bmal1	9.63 ± 0.82	3	5.51 ± 0.82	3	1.02 ± 0.23	3	2.49 ± 0.48	3	7.77 ± 1.35	3	13.75 ± 1.43	3	< 0.001 *	24	22	5.18
3E	MI	Per2	1.24 ± 0.35	3	3.26 ± 0.73	3	6.13 ± 0.61	3	5.96 ± 0.61	3	3.76 ± 0.67	3	1.53 ± 0.01	3	< 0.001 *	24	12	2.52
3E	MI	Rev-Erb	7.20 ± 0.15	3	9.11 ± 0.55	3	6.08 ± 1.13	3	2.76 ± 0.43	3	0.95 ± 0.08	3	3.76 ± 1.27	3	< 0.001 *	24	4	3.71
3E	MI	Clock	1.43 ± 0.15	3	1.18 ± 0.07	3	0.82 ± 0.04	3	1.05 ± 0.10	3	1.25 ± 0.10	3	1.40 ± 0.08	3	< 0.001 *	20	0	0.25

Data are means ± standard error measurements, where n equals the number of samples (each sample generated from 1 mouse). *JTK P* is the Bonferroni-adjusted minimal P value calculated by JTK_CYCLE. *Acrophase* is the Zeitgeber time of the sinusoidal rhythm peak calculated by JTK_CYCLE. * denotes a statistically significant circadian rhythm ($P<0.05$).

Abbreviation: MI = myocardial infarction.

Supplemental Table 10: Hemodynamic and cardiac parameters in Clock$^{\Delta 19/\Delta 19}$ and control mice following myocardial infarction or sham surgical procedure.

Parameter	Clock$^{\Delta 19/\Delta 19}$ MI	Wild Type MI	Clock$^{\Delta 19/\Delta 19}$ Sham	Wild Type Sham
n	8	8	8	8
Echocardiography (1 week)				
LVIDd (mm)	4.65±0.07	4.69±0.07	4.06±0.02	4.00±0.04
LVIDs (mm)	3.35±0.09	3.42±0.09	2.44±0.02	2.41±0.04
EF (%)	60.83±1.56	59.71±1.56	76.19±0.84	76.73±0.74
FS (%)	28.02±0.98	27.42±0.98	39.69±0.51	39.77±0.65
HR (bpm)	438±4	440±7	455±7	458±7
Echocardiography (8 week)				
LVIDd (mm)	**4.90±0.08***	5.31±0.10	4.05±0.02	4.05±0.02
LVIDs (mm)	**3.62±0.10***	4.17±0.11	2.44±0.01	2.45±0.05
EF (%)	**57.69±1.67***	49.93±1.16	76.51±0.43	76.23±0.94
FS (%)	**26.18±1.00***	21.70±0.63	39.56±0.37	39.40±0.82
HR (bpm)	448±6	461±4	446±4	462±9
Morphometry (8 week)				
HW (mg)	158.50±1.61	157.38±2.68	141.00±2.47	131.13±0.93
HW:BW (mg/g)	4.64±0.16	5.09±0.19	4.16±0.18	4.12±0.08
HW:TL (mg/mm)	7.76±0.08	7.79±0.14	6.96±0.13	6.50±0.09
Pressure-volume Hemodynamics (8 week)				
LVESP (mmHg)	88.17±1.05	90.59±1.22	99.61±0.89	98.77±0.50
LVEDP (mmHg)	0.30±0.69	0.72±0.39	-0.35±0.17	0.27±0.43
LVESV (µl)	**27.48±1.97***	39.00±2.37	9.08±1.16	8.92±0.74
LVEDV (µl)	**49.95±2.03***	56.75±2.07	34.68±1.46	34.28±1.44
SV (µl)	**22.47±0.66***	17.74±0.44	25.09±1.05	24.58±0.90
CO (mL/min)	**12.24±0.39***	10.08±0.36	13.52±0.43	13.73±0.54
$+dP/dt_{max}$	7954±392	7862±472	10173±542	9617±512
$-dP/dt_{min}$	6771±689	6442±392	9970±668	9354±629
SBP (mmHg)	**85.98±0.81***	90.73±0.91	96.84±0.84	97.01±0.38
DBP (mmHg)	57.88±1.08	58.76±0.80	62.69±1.08	66.44±0.73
MAP (mmHg)	**66.58±0.74***	68.72±0.48	73.33±0.74	74.55±0.44
TPR (mmHg/mL/min)	**5.48±0.19***	6.88±0.24	5.46±0.17	5.49±0.22
HR (bpm)	546±16	567±20	543±20	559±14

Data are means ± standard error measurements, where n equals the number of mice. * denotes $P<0.05$ for Clock$^{\Delta 19/\Delta 19}$ MI versus wild-type MI.

Abbreviations: CO = cardiac output; DBP = diastolic blood pressure; dP/dt_{max} = maximum first derivative of left ventricular pressure; and dP/dt_{min} = minimum first derivative of left ventricular pressure; EF = ejection fraction; FS = fractional shortening; HR = heart rate; HW = heart weight; HW:BW = HW:body weight ratio; HW:TL = HW:tibia length ratio; LV = left ventricle; LVEDP = LV end diastolic pressure; LVESP = LV end systolic pressure; LVEDV = LV end diastolic volume; LVESV = LV end systolic volume; LVIDd = LV internal dimensions at diastole; LVIDs = LV internal dimensions at systole; MAP = mean arterial pressure; MI = myocardial infarction; SBP = systolic blood pressure; SV = stroke volume; TPR = total peripheral resistance.

Supplemental Table 11: Hemodynamic and cardiac parameters in Sm-Bmal1 KO and control mice following myocardial infarction or sham surgical procedure.

Parameter	Sm-Bmal1-KO MI	Cre-WT MI	Sm-Bmal1-KO Sham	Cre-WT Sham
Echocardiography (4 week)				
n	10	6	9	7
LVIDd (mm)	4.18±0.13	4.66±0.19	3.85±0.07	3.75±0.09
LVIDs (mm)	3.14±0.17	3.81±0.28	2.62±0.05	2.45±0.09
EF (%)	57.05±3.82	45.10±5.39	68.27±1.06	71.64±2.26
FS (%)	25.18±2.31	18.58±2.77	31.85±0.73	34.61±1.85
HR (bpm)	445±17	462±33	443±21	474±20
Echocardiography (8 week)				
n	12	5	9	8
LVIDd (mm)	**4.33±0.11***	4.99±0.18	3.96±0.08	3.88±0.08
LVIDs (mm)	**3.31±0.16***	4.13±0.19	2.58±0.07	2.61±0.10
EF (%)	**55.14±3.24***	42.96±4.09	72.29±1.20	69.38±2.39
FS (%)	**23.94±1.85***	17.30±1.97	34.92±0.95	32.91±1.74
HR (bpm)	463±19	458±38	478±24	451±32
Morphometry (8 week)				
n	12	5	7	8
HW (mg)	133.00±3.43	139.50±6.24	112.71±3.39	124.00±2.83
HW:BW (mg/g)	5.04±0.12	4.96±0.21	4.67±0.13	4.75±0.13
HW:TL (mg/mm)	6.22±0.19	6.57±0.20	5.39±0.18	6.01±0.16
Pressure-volume Hemodynamics (8 week)				
n	9	6	5	5
LVESP (mmHg)	**93.58±0.96***	88.87±1.44	98.56±2.13	100.55±2.67
LVEDP (mmHg)	4.68±0.74	6.26±1.51	2.47±0.49	2.29±0.31
LVESV (µl)	**20.11±1.23***	30.65±2.55	15.11±1.23	13.71±1.10
LVEDV (µl)	**44.21±1.05***	51.61±2.12	43.00±1.73	40.42±1.46
SV (µl)	**24.10±0.53***	20.96±0.83	27.89±1.71	26.71±1.26
CO (mL/min)	**11.93±0.37***	9.67±0.36	13.51±0.43	13.09±0.48
$+dP/dt_{max}$	7120±209	5976±580	8196±194	9260±114
$-dP/dt_{min}$	6220±339	5506±589	8152±769	9038±381
SBP (mmHg)	**94.31±1.02***	88.34±1.55	99.69±2.39	98.01±1.52
DBP (mmHg)	65.67±1.09	63.20±0.92	67.98±2.22	66.91±2.02
MAP (mmHg)	**74.47±1.01***	70.86±0.68	77.76±2.20	76.50±1.72
TPR (mmHg/mL/min)	**6.28±0.18***	7.38±0.25	5.78±0.28	5.88±0.29
HR (bpm)	496±16	464±22	488±18	492±14

Data are means ± standard error measurements, where n equals the number of mice. * denotes $P<0.05$ for Sm-Bmal1 -KO MI versus control MI.

Abbreviations: CO = cardiac output; DBP = diastolic blood pressure; dP/dt_{max} = maximum first derivative of left ventricular pressure; and dP/dt_{min} = minimum first derivative of left ventricular pressure; EF = ejection fraction; FS = fractional shortening; HR = heart rate; HW = heart weight; HW:BW = HW:body weight ratio; HW:TL = HW:tibia length ratio; LV = left ventricle; LVEDP = LV end diastolic pressure; LVESP = LV end systolic pressure; LVEDV = LV end diastolic volume; LVESV = LV end systolic volume; LVIDd = LV internal dimensions at diastole; LVIDs = LV internal dimensions at systole; MAP = mean arterial pressure; MI = myocardial infarction; SBP = systolic blood pressure; SV = stroke volume; TPR = total peripheral resistance.