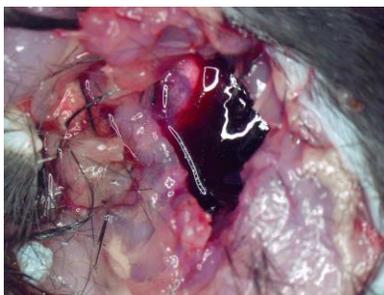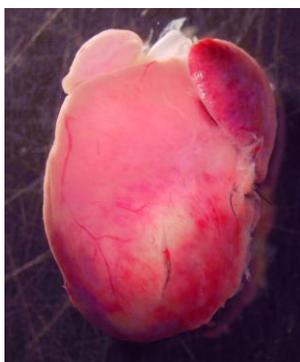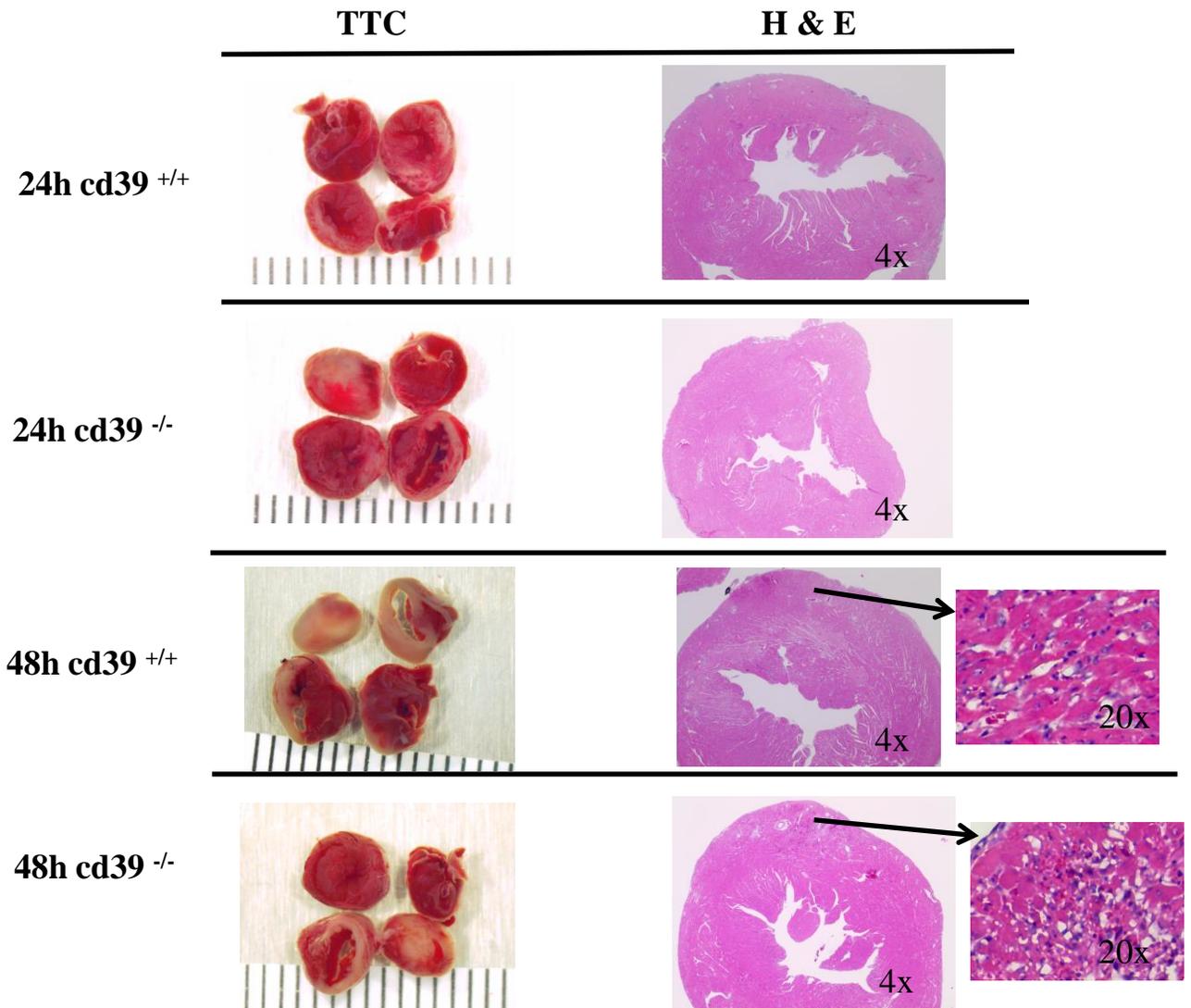**Supplemental Figure 1**

Thoracic cavity

Whole heart


Transverse section

Supplemental Figure 1. Necropsy results. Representative photographs of necropsy-proven cardiac rupture. The thoracic cavity is filled with blood.

Supplemental Figure 2


Supplemental Figure 2. Representative histology after myocardial infarction. Representative TTC and H&E staining for cd39+/+ and cd39-/- mice at 24 h and 48 h after myocardial infarction. 48 h H&E with 20x magnification demonstrating density of inflammatory cells in cd39-/- hearts relative to cd39+/+ hearts.

Supplemental Figure 3

Left coronary artery	Right coronary artery

cd39 +/+

LM → LCx
LAD →
RCA →

cd39 -/-

LM
LAD
RCA →
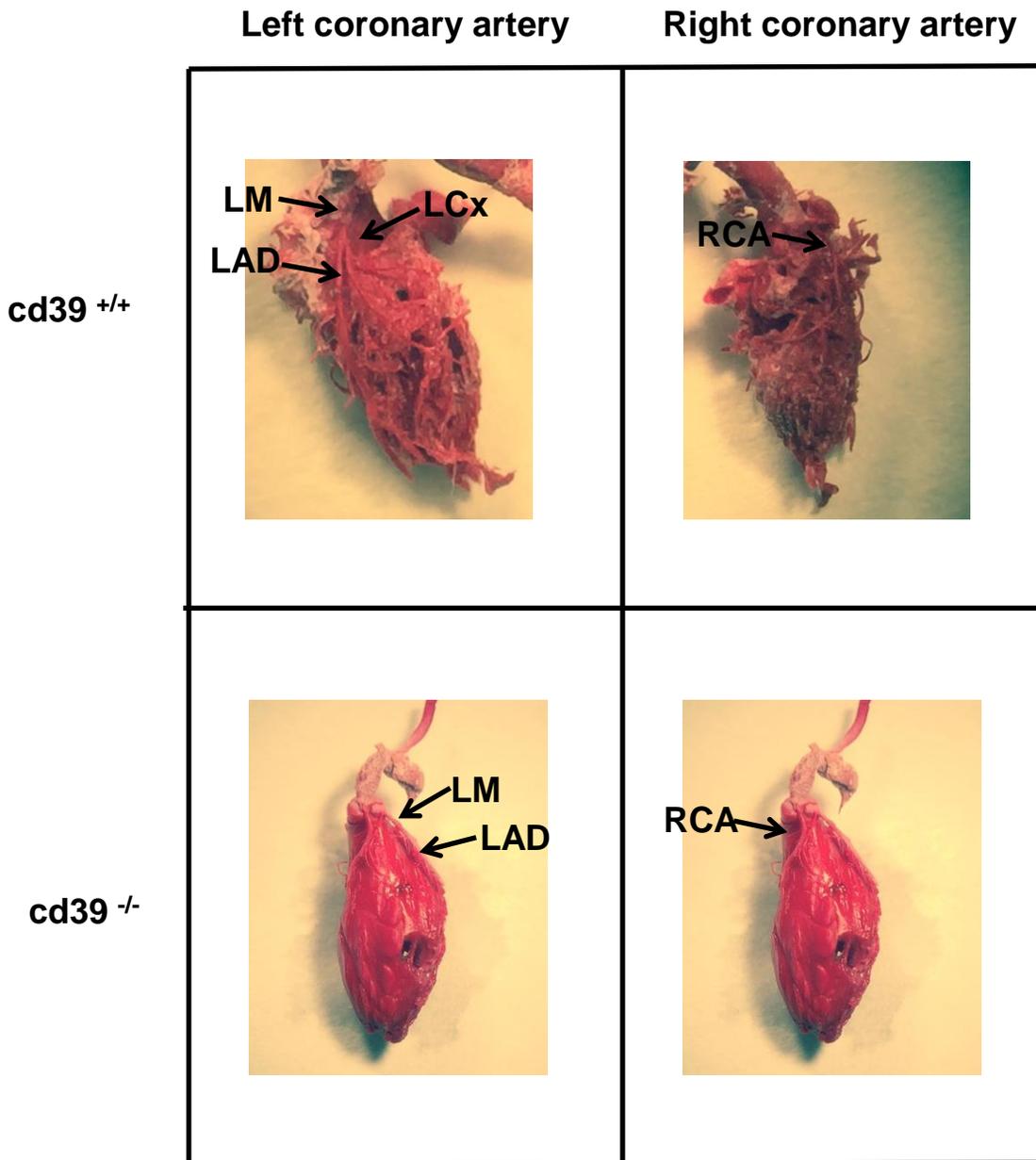
Supplemental Figure 3. Coronary artery anatomy. Representative photographs of plastination models demonstrating no differences in the origin or course of the major epicardial coronary arteries of *cd39+/+* and *cd39-/-* mice. LM = left main coronary artery, LAD = left anterior descending coronary artery, LCx = left circumflex coronary artery, RCA = right coronary artery. n = 3 per group.

Supplemental Figure 4
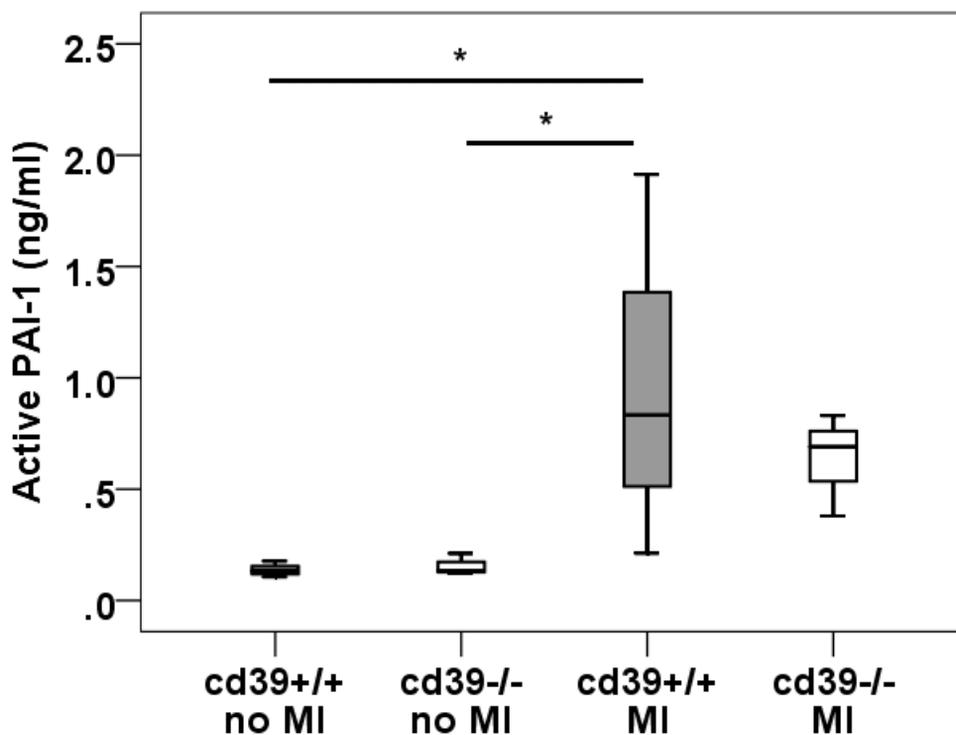
Supplemental Figure 4. Plasminogen-activator inhibitor-1 (PAI-1) activity. PAI-1 activity at baseline in myocardium and in infarcted myocardium three days after permanent coronary occlusion. PAI-1 activity increased after myocardial infarction (MI) in both groups. There was no difference in PAI-1 activity between *cd39*^{+/+} and *cd39*^{-/-} mice after MI. n = 3-4 per group. 1-way ANOVA * p < 0.05. Box and whisker plots show median (line within box), upper and lower quartiles (bounds of box), and minimum and maximum values (bars).

Supplemental Figure 5

a

$cd39^{+/+}$ $cd39^{-/-}$

Pro-MMP-9
Active MMP-9

Pro-MMP-2

Active MMP-2

b

c

d

e
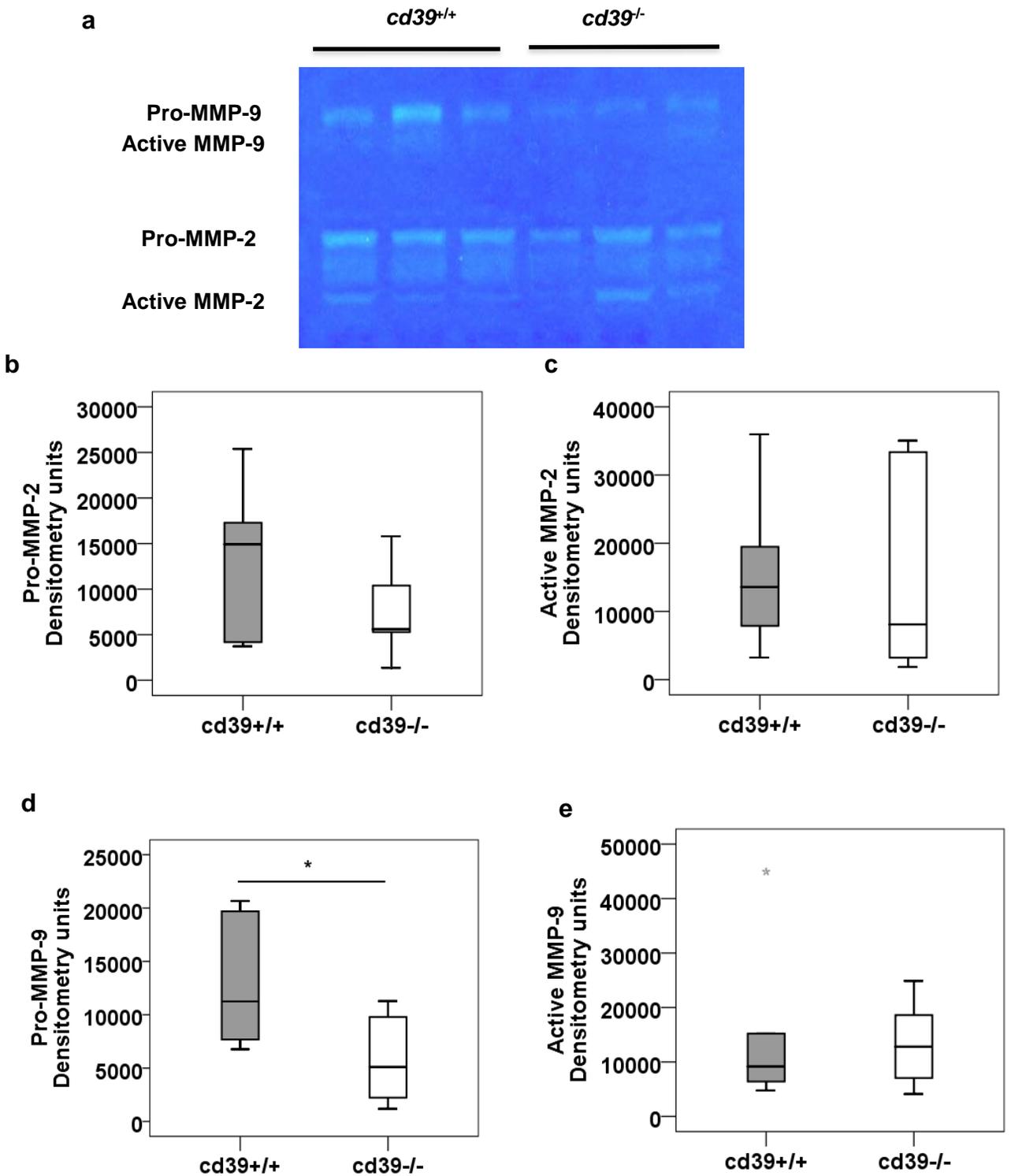
Supplemental Figure 5. Matrix metalloproteinase activity. (**a**) Zymogram and (**b-e**) quantification of bands demonstrating MMP activity in the infarct and peri-infarct regions of myocardium three days after myocardial infarction. No difference was seen in (**b**) pro-MMP-2 or (**c**) active MMP-2 activity. Increased (**d**) pro-MMP-9 but not (**e**) active MMP-9 was noted in $cd39^{+/+}$ mice compared to $cd39^{-/-}$ mice. n = 6 per group. MMP activity was undetectable in sham controls (data not shown). Student's t-test *$p < 0.05$. Box and whisker plots show median (line within box), upper and lower quartiles (bounds of box), and minimum and maximum values (bars).

Supplemental Tables

Supplemental Table 1

Genotype	Systolic blood pressure	Heart rate
cd39^{+/+}	94.6 ± 9.5	551 ± 37.6
cd39^{-/-}	96.6 ± 6.4	551 ± 78.5
p	NS	NS

Supplemental Table 1. Post-infarction blood pressure and heart rate. Blood pressures and heart rates were obtained on acclimatized mice by tail cuff 24 h after myocardial infarction. n = 3-4 per group. Student's t-test. NS, not significant. Data are shown as mean ± sd.

Supplemental Table 2

Genotype	Systolic blood pressure	Heart rate
$cd39^{+/+}$	116 ± 12.6	593 ± 59.6
$cd39^{-/-}$	107 ± 7.3	560 ± 30.9
$cd39^{flox/flox}$	114 ± 9.8	545 ± 39.7
$cd39^{flox/flox}LysM^{Cre/-}$	115 ± 10.4	551 ± 42.5
p	NS	NS

Supplemental Table 2. Cardiac phenotype of cd39+/+, cd39-/-, cd39flox/flox, and cd39flox/floxLysMCre/- mice. Blood pressures and heart rates were obtained on acclimatized mice by tail cuff. n = 4 per group. 1-way ANOVA. NS, not significant. Data are shown as mean ± sd.

Supplemental Table 3

Table 3

Genotype	LV EF (%)	LVDd (mm)	IVSd (mm)	LVPWd (mm)
cd39^{+/+}	45 ± 10.1	21 ± 1.4	0.73 ± 0.09	0.75 ± 0.10
cd39^{-/-}	57 ± 8.2	23 ± 3.9	0.75 ± 0.05	0.68 ± 0.10
cd39[flox/flox]	50 ± 11.6	23 ± 1.6	0.63 ± 0.13	0.62 ± 0.05
cd39[flox/flox]LysM[Cre/-]	54 ± 3.2	24 ± 0.7	0.72 ± 0.07	0.70 ± 0.09
p	NS	NS	NS	NS

Supplemental Table 3. Echocardiographic findings from *cd39^{+/+}*, *cd39^{-/-}*, *cd39[flox/flox]*, and *cd39[flox/flox]LysM[Cre/-]* mice. Baseline echocardiographic measurements were obtained. Left ventricular ejection fraction (LV EF), left ventricular diastolic dimension (LVDd), interventricular septal wall thickness (IVSd), left ventricular posterolateral wall thickness (LVPWd). n = 4 per group. 1-way ANOVA. NS, not significant. Data are shown as mean ± sd.