SUPPLEMENTAL MATERIAL

Renal revascularization attenuates myocardial mitochondrial damage and improves diastolic function in pigs with metabolic syndrome and renovascular hypertension

Running head: Mitochondria in renovascular disease

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Figure legends

Figure S1. Schematic of the experimental protocol. MetS: Metabolic syndrome, RVH: Renovascular hypertension, PTRA: Percutaneous transluminal renal angioplasty. Four groups of pigs (n=6 each) were studied after 16 weeks of diet-induced MetS and RVH, MetS+RVH treated 4 weeks earlier with PTRA, and Lean+Sham and MetS+Sham controls.

Figure S2. *Renal revascularization increased the number of subsarcolemal mitochondria.* Representative transmission electron microscopy images of subsarcolemal mitochondria (arrows) and quantification of mitochondrial density, area, and matrix density in study groups (n=6/group each). *p<0.05 vs. Lean+Sham; †p<0.05 vs. MetS+Sham; ‡p<0.05 vs. MetS+RVH.

Figure S3. *PTRA preserved cardiac endothelial cell mitochondria.* Representative transmission electron microscopy images of cardiac endothelial cell mitochondria (arrows) and quantification of mitochondrial density, area, and matrix density in study groups (n=6/group each). *p<0.05 vs. Lean+Sham; †p<0.05 vs. MetS+Sham; ‡p<0.05 vs. MetS+RVH.

Fig. S1

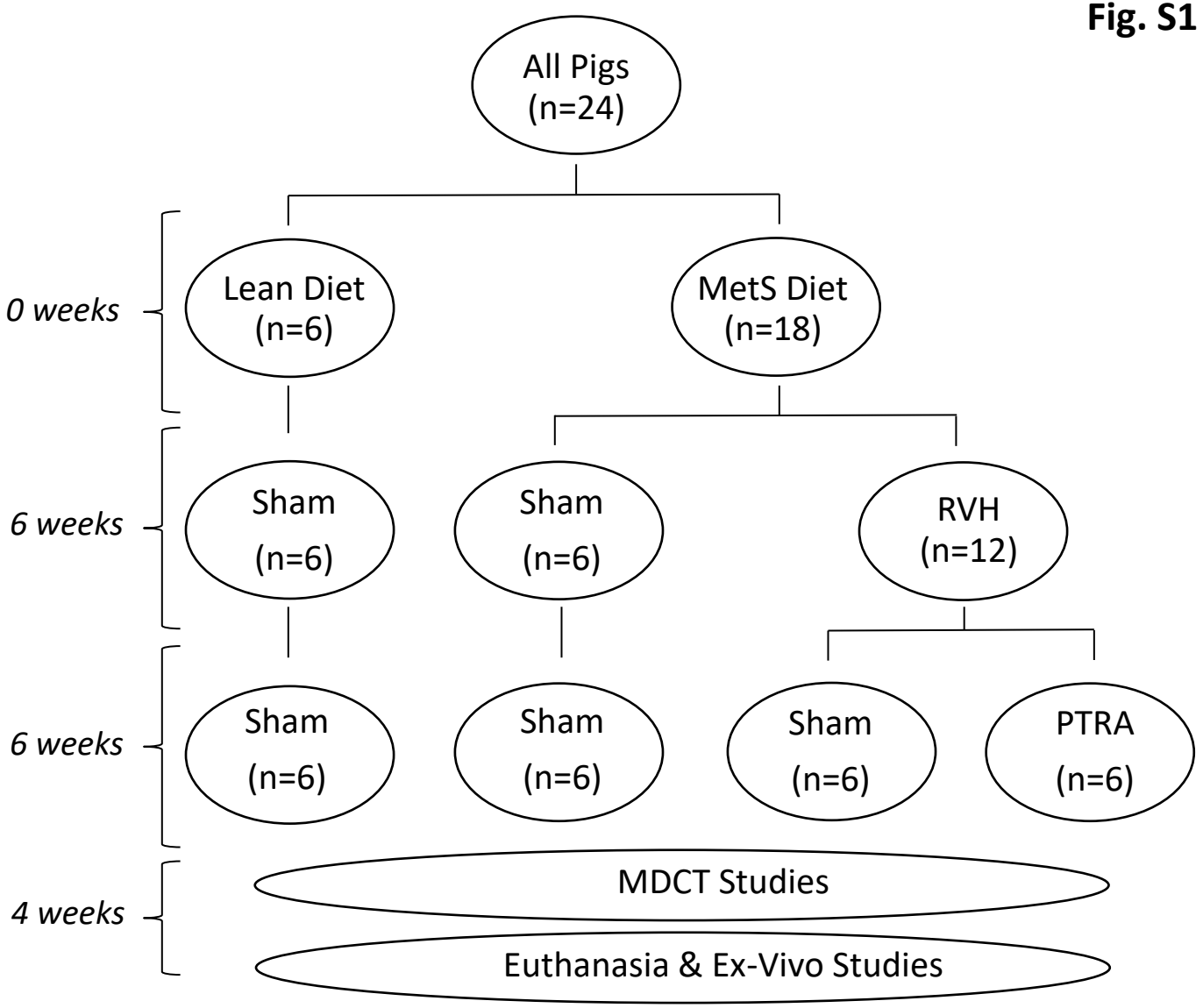
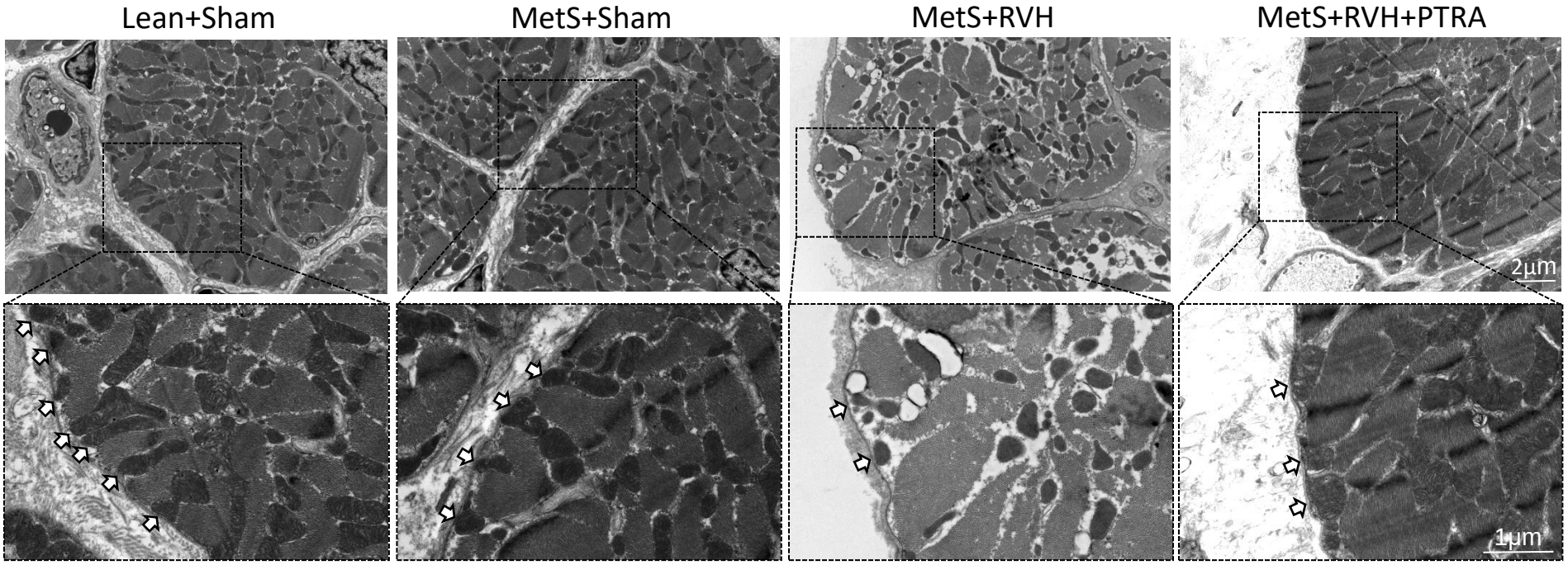
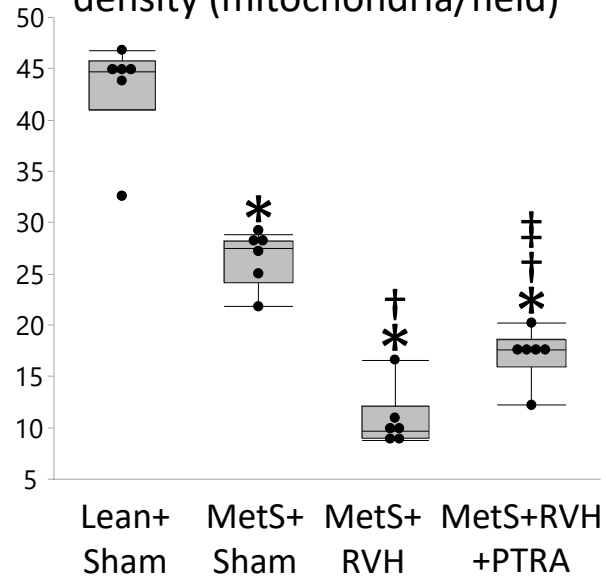
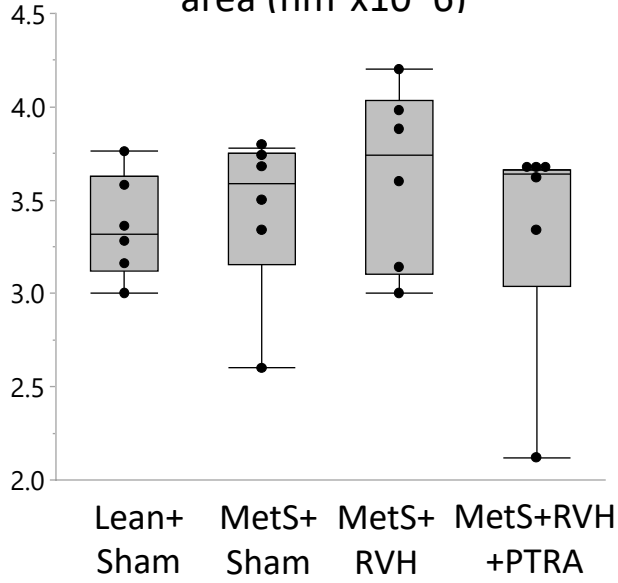

All Pigs
(n=24)
Lean Diet
(n=6)
MetS Diet
(n=18)
0 weeks
Sham
(n=6)
Sham
(n=6)
RVH
(n=12)
6 weeks
Sham
(n=6)
Sham
(n=6)
Sham
(n=6)
PTRA
(n=6)
6 weeks
MDCT Studies
Euthanasia & Ex-Vivo Studies
4 weeks

Fig. S2


Lean+Sham
MetS+Sham
MetS+RVH
MetS+RVH+PTRA
2µm
1µm


Subsarcolemal mitochondrial density (mitochondria/field)
50
45
40
35
30
25
20
15
10
5
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA


Subsarcolemal mitochondrial area (nm²x10^6)
4.5
4.0
3.5
3.0
2.5
2.0
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA

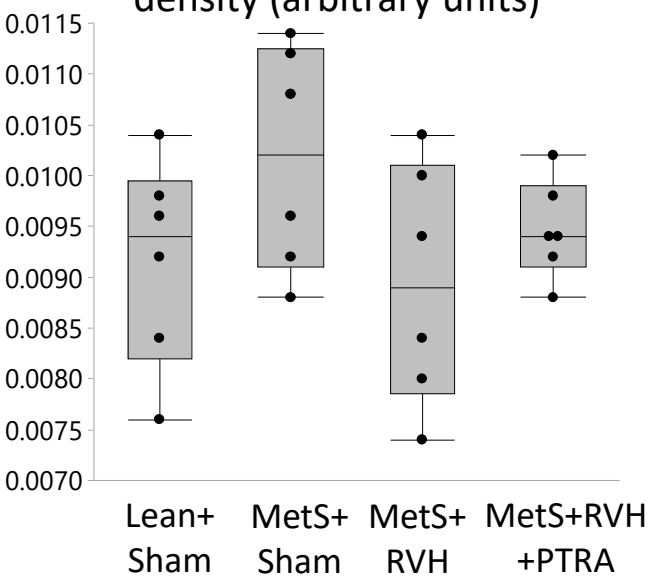
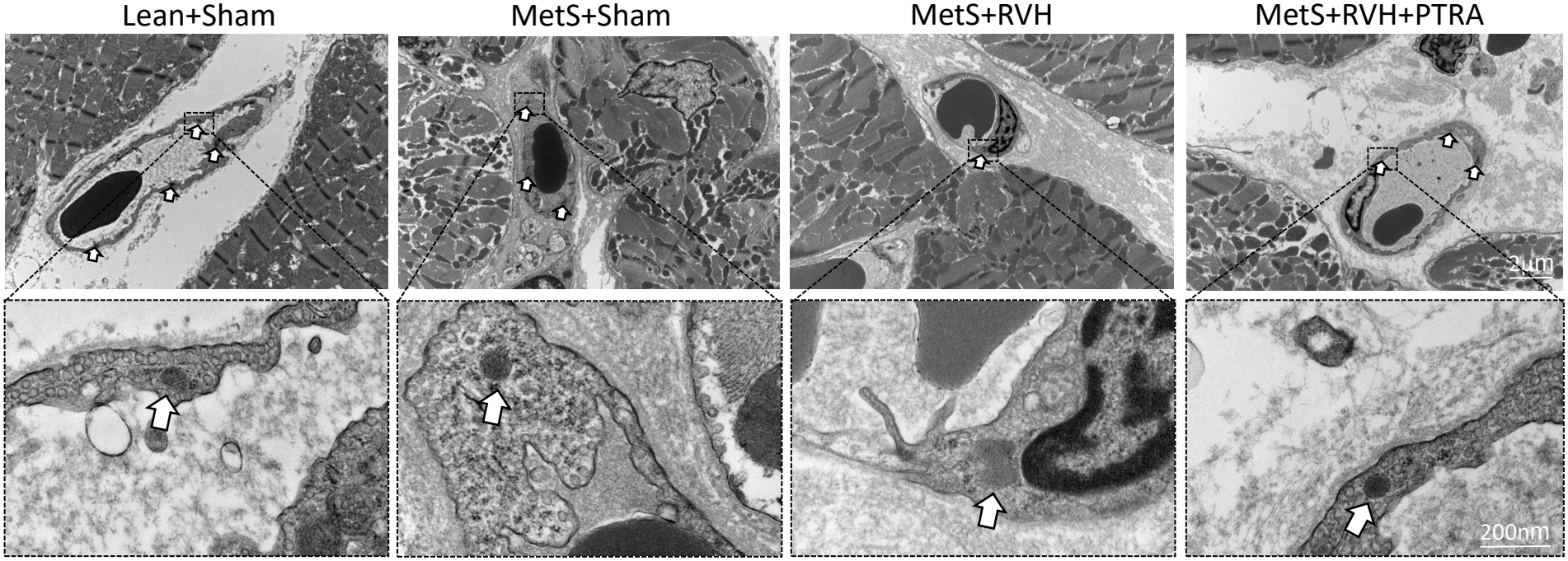
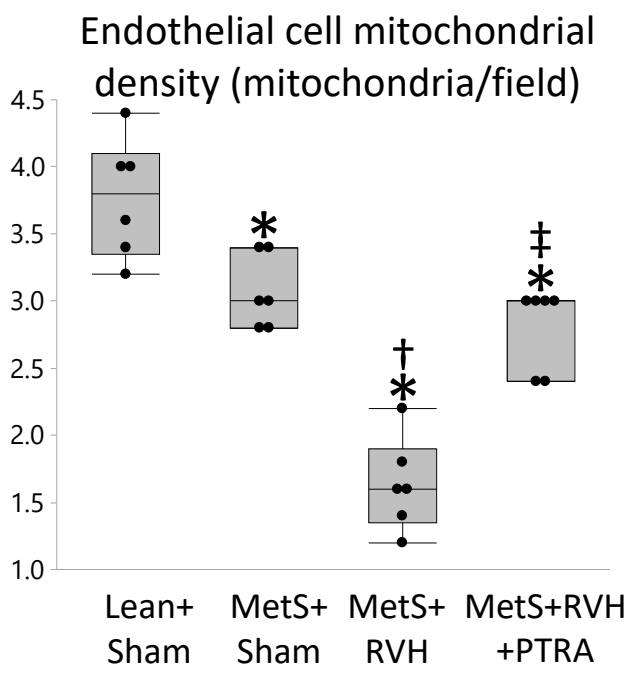
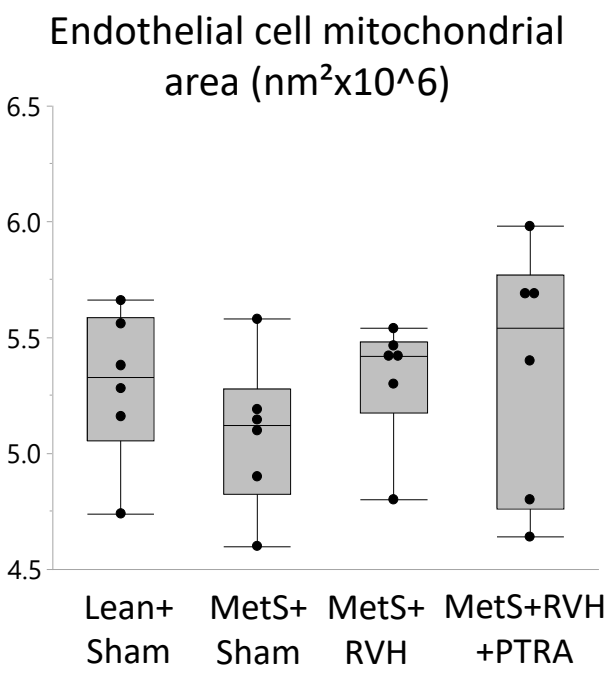
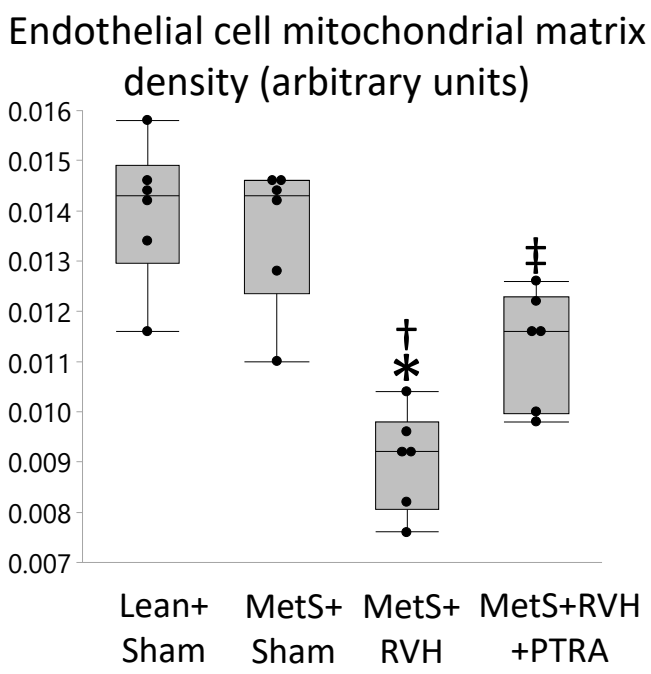

Subsarcolemal mitochondrial matrix density (arbitrary units)
0.0115
0.0110
0.0105
0.0100
0.0095
0.0090
0.0085
0.0080
0.0075
0.0070
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA

Fig. S3


Lean+Sham
MetS+Sham
MetS+RVH
MetS+RVH+PTRA
2um
200nm


Endothelial cell mitochondrial density (mitochondria/field)
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA


Endothelial cell mitochondrial area (nm²x10^6)
6.5
6.0
5.5
5.0
4.5
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA


Endothelial cell mitochondrial matrix density (arbitrary units)
0.016
0.015
0.014
0.013
0.012
0.011
0.010
0.009
0.008
0.007
Lean+ Sham
MetS+ Sham
MetS+ RVH
MetS+RVH +PTRA