

Supplementary Information

Inducible Prmt1 ablation in adult vascular smooth muscle leads to contractile dysfunction and aortic dissection

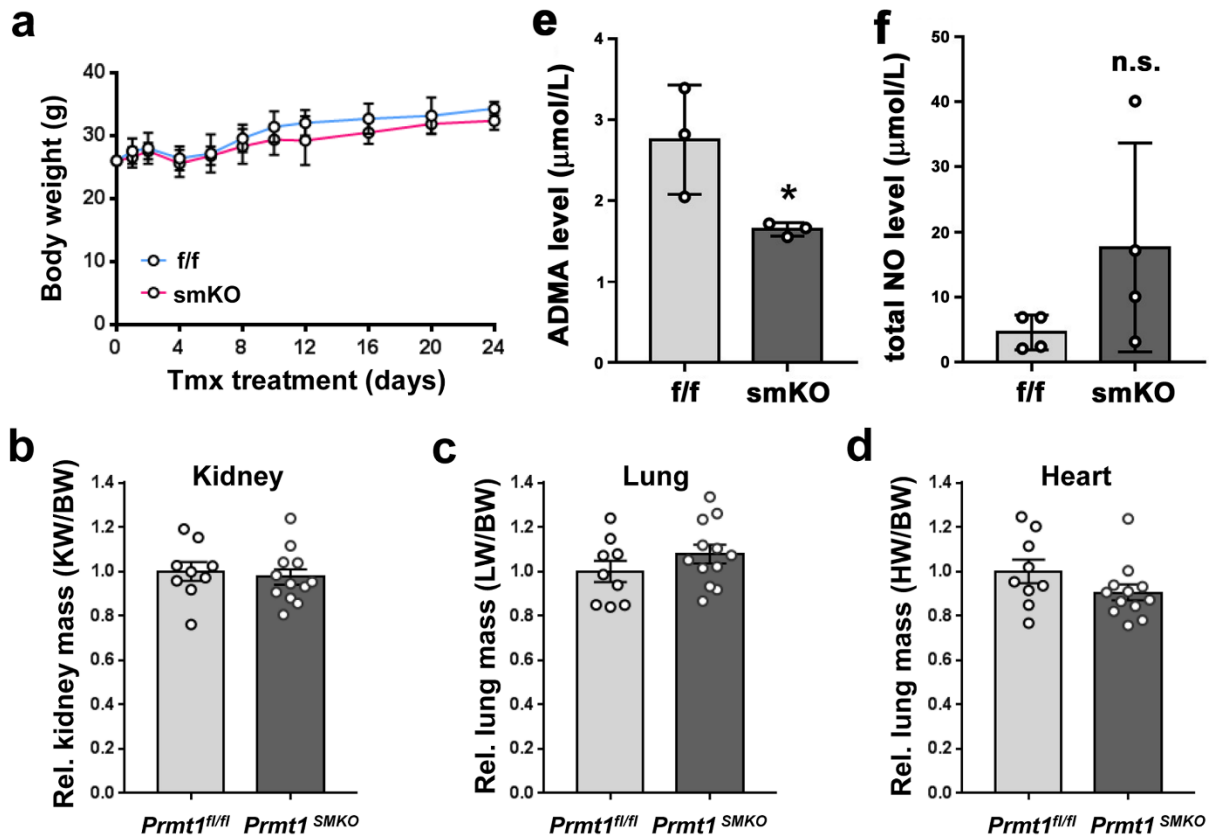
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22 **Supplementary Figures**

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24 **Figure S1.**

25 **Supplementary Figure 1 Inducible Prmt1 ablation in adult VSMCs does not greatly alter**
 26 **body and organ weights.** **a** Body weights of f/f and smKO mice during tamoxifen treatment
 27 (n = 24). Data represent means ± SEM. **P* < 0.05, Student's *t*-test. **b-d** Relative kidney (KW),
 28 Lung (LW) and Heart weight (HW) / Body weight (BW) of f/f and smKO mice treated with
 29 tmx for 20 weeks (n = 9-12). Data represent means ± SEM, Student's *t*-test. **e, f** Serum ADMA
 30 and NO level from f/f and smKO mice treated with tmx for 20 weeks (n = 3 - 4). Data represent
 31 means ± SEM, Student's *t*-test.

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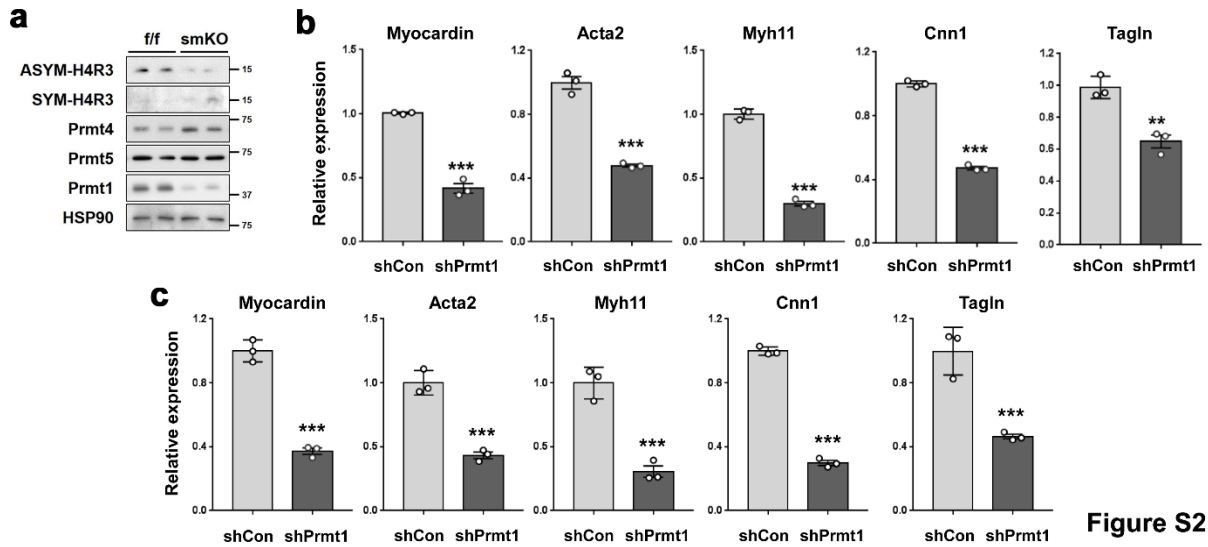


Figure S2.

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Supplementary Figure 2 Prmt1 depletion in VSMCs reduces Myocardin and its target contractile genes. **a** Protein analysis for Prmt1, Prmt4 and Prmt5 expressions in aorta isolated from *f/f* and *smKO* mice. **b** qRT-PCR analysis of Myocardin and its target genes in RVSMC/shCon or RVSMC/shPrmt1 cells. Data represent means \pm SEM. ** $P < 0.01$, *** $P < 0.001$, Student's *t*-test. **c** RNA expression analysis for Myocardin and its target genes in Prmt1-depleted A7R5 cells. Data represent means \pm SEM. *** $P < 0.001$, Student's *t*-test.

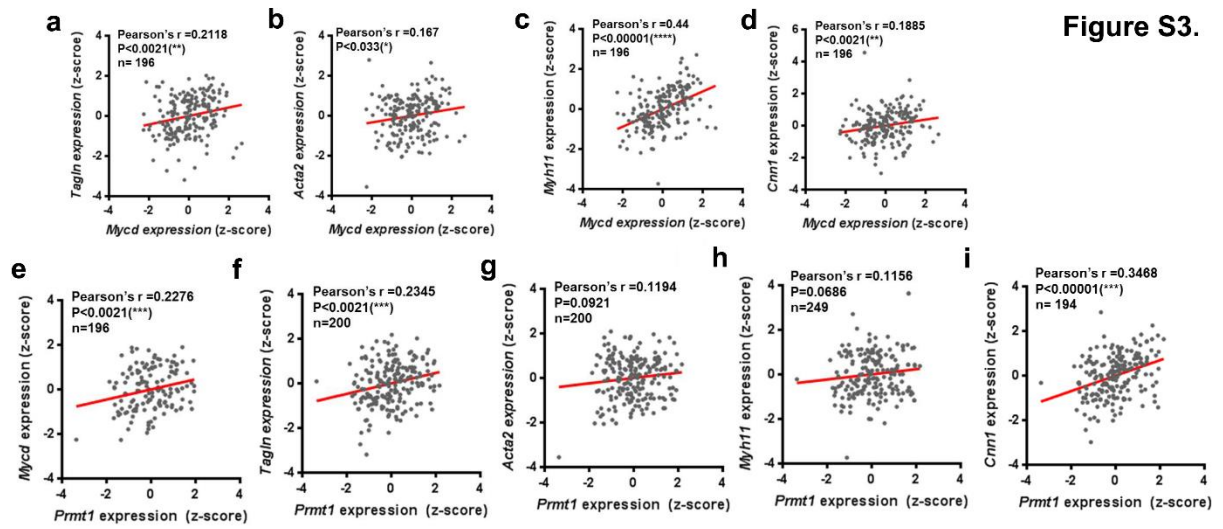


Figure S3.

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Supplementary Figure 3 A positive correlation of Prmt1, Myocardin and its target genes in VSMC transcriptomes from public database. **a-d** Covariation analysis of public dataset

47 for the expression of Myocardin and its target contractile genes. Data represent means \pm SEM.
48 * $P < 0.033$, ** $P < 0.0021$, **** $P < 0.00001$. Student's t -test. **e** Correlation analysis for
49 Myocardin and Prmt1 expression. Data represent means \pm SEM. *** $P < 0.0021$. Student's t -
50 test. **f-i** Covariation study for the expression of Prmt1 and contractile genes. Data represent
51 means \pm SEM. *** $P < 0.0021$, **** $P < 0.00001$. Student's t -test.

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54 **Supplementary Table 1. Antibodies used in study.**

Protein	Manufacturer	Catalog number
Prmt1	Millipore	07-404
Prmt1	Abcam	ab3768
Alpha smooth muscle actin	Abcam	Ab5694
Myosin heavy chain 11	Abcam	Ab53219
Myocardin	Abcam	ab107301
Myocardin	biorbyt	Orb1794
Gapdh	Ab frontier	LF-PA0018
Histone H4 (asymmetric di methyl R3)	Abcam	ab194683
Histone H3 (Acetyl K9)	Abcam	ab4441
Histone H3 (Tri-methyl K27)	Abcam	ab6002
HSP90	Abcam	ab13495

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56 **Supplementary Table 2. Primer sequences used in study.**

	Forward(5'→3')	Reverse(3'→5')
Acta2 (rat)	CACGAAACCACCTATAACAGCA	GAATATTTGCGTTCTGGAGGAG
Myosin heavy chain 11 (rat)	GAAAGGAAACACCAAGGTCAAG	CTCACTGCGAAGTTTCTTG TG
Calponin1 (rat)	ATCATTGGCCTACAGATGGGC	AGCGTGTCACAGTGTTCAT
Tagln (rat)	AAGAATGGCGTGATTCTGAGC	CTGCCTTCAAGAATTGAGCC
Acta2 (mouse)	GCTTCGCTGGTGATGATGCTC	AGTTGGTGATGATGCCGTGTTCC
Myosin heavy chain 11 (mouse)	TGCCGACACCGCCTACAGAAG	TTTCCAGCTCCCCCGTGAT
Calponin1 (mouse)	GGACCAGGCGACCATCAG	TAGGCAGAGTTGTAGTAGTTGTG
Tagln (mouse)	TGAGCCAAGCAGACTTCCAT	TGTTGAGGCAGAGAAGGCTTG
Myocardin (rat)	CAAGGGTGTGCACAGATGACT	ATGATCTTCCCTGGCATCCG
Myocardin (mouse)	AGTTTTCTGGGGACACTGGC	GCCGTAAGTGTAAAGACTGATCG
Gapdh (mouse)	CAGTGCCAGCCTCGTCCCGTAGA	CTGCAAATGGCAGCCCTGGTGAC
Gapdh (rat)	GACATGCCGCCTGGAGAAAC	AGCCCAGGATGCCCTTTAGT
Myocardin (chip)	GCAAAGAGTTAAGAGCCTGCT	CCAGGAGTGTGATGGTGAGTC
SRF (chip)	GCGAGTTCGGTATGTCTATGCAA	CCCAGCTTGGCTCGGTAACAT

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