

Supplemental Information

Subcellular Localization of Survivin Determines Its Function in Cardiomyocytes

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1 supplemental table and 11 supplemental figures

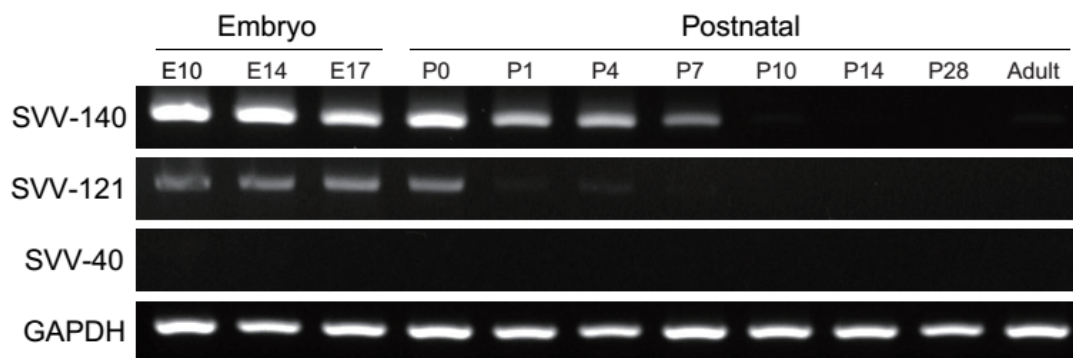
Supplemental Table 1

Echocardiography	Treatment											
	Sham		adGFP		adSVV		adT34A		adNLS-SVV		adNLS-SVV + AZD1152	
	D1	D21	D1	D21	D1	D21	D1	D21	D1	D21	D1	D21
EDV (mL)	0.087 ± 0.013	0.097 ± 0.008	0.163 ± 0.018	0.493 ± 0.1	0.158 ± 0.015	0.221 ± 0.024	0.164 ± 0.01	0.453 ± 0.074	0.132 ± 0.01	0.21 ± 0.025	0.134 ± 0.012	0.309 ± 0.043
ESV (mL)	0.028 ± 0.006	0.03 ± 0.004	0.1 ± 0.012	0.328 ± 0.056	0.1 ± 0.009	0.171 ± 0.022	0.105 ± 0.013	0.348 ± 0.068	0.097 ± 0.011	0.146 ± 0.025	0.092 ± 0.01	0.199 ± 0.043
FS (%)	31.2 ± 1.828	32.81 ± 0.969	14.29 ± 0.483	12.45 ± 0.686	15.26 ± 0.801	16.72 ± 1.827	15.68 ± 1.749	11.38 ± 0.477	16.12 ± 1.114	19.45 ± 2.38	15.85 ± 0.831	16.61 ± 1.979
EF (%)	67.2 ± 1.985	65.03 ± 2.779	36.53 ± 0.596	28.18 ± 1.698	36.35 ± 0.934	36.18 ± 0.613	35.33 ± 1.707	30.7 ± 1.439	36.31 ± 0.808	36.9 ± 1.101	36.53 ± 1.482	32.22 ± 2.497

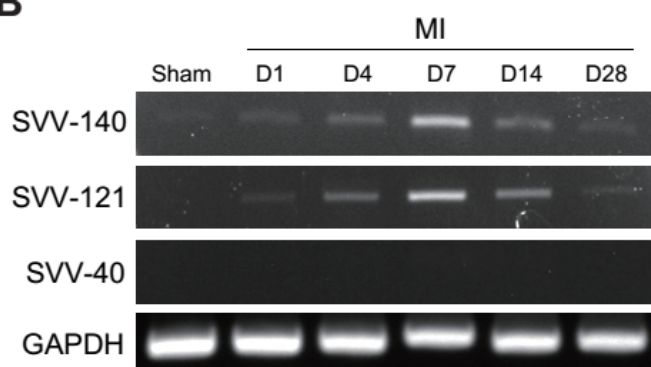
Supplemental Table 1. Cardiac functions of mice received intramyocardial virus injection and MI surgery. EDV, end diastolic volume; ESV, end systolic volume; FS, fraction shortening; EF, ejection fraction.

Supplemental Figure S1

A

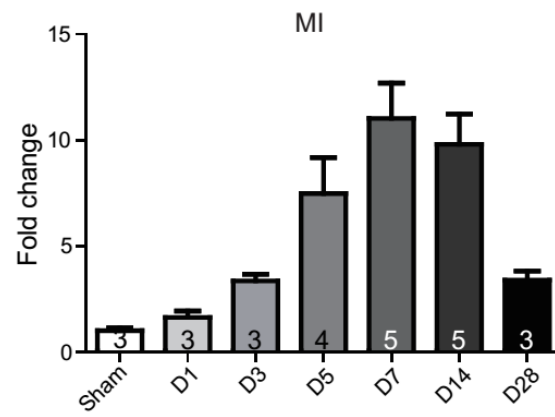


B



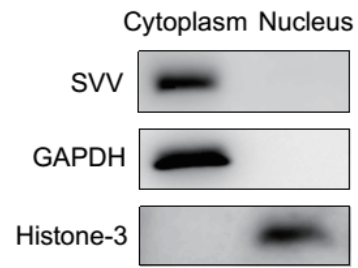
Supplemental Figure S1. Expression of three SVV isoforms in developing mouse heart and post-MI adult heart. A, SVV-140 and SVV-121 are detected in the developing mouse heart. B, SVV-140 and SVV-121 are detected in adult mouse heart post-MI.

Supplemental Figure S2



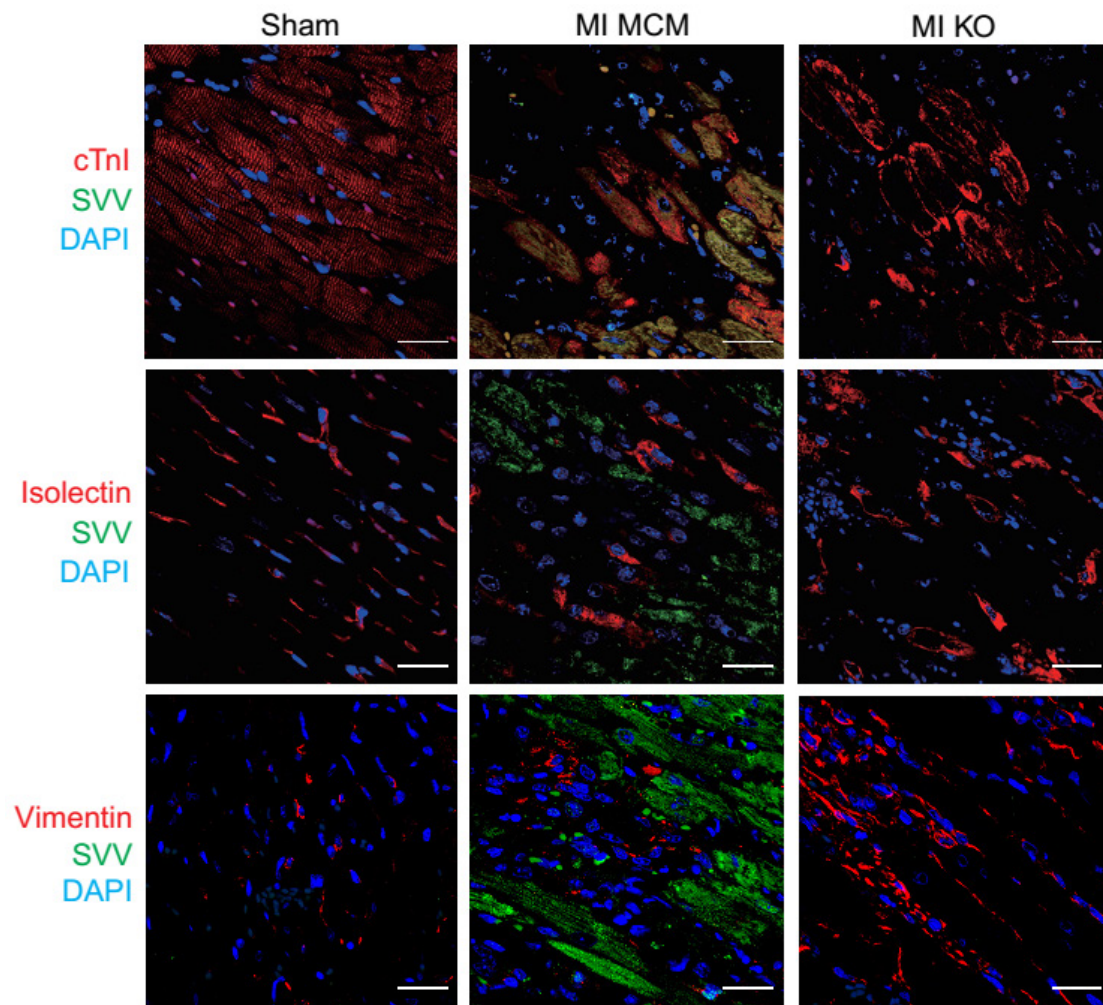
Supplemental Figure S2. Statistical analysis of SVV expression level in mouse heart after MI.

Supplemental Figure S3



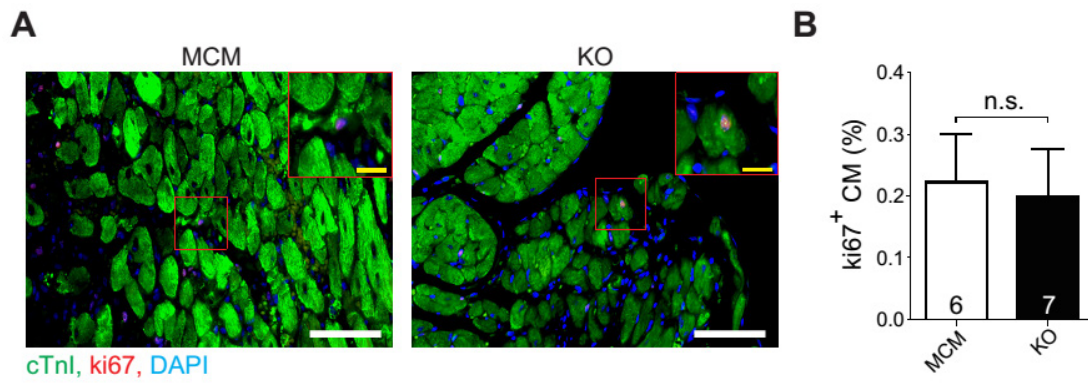
Supplemental Figure S3. Western blot of cardiomyocyte subcellular fractions after MI.

Supplemental Figure S4



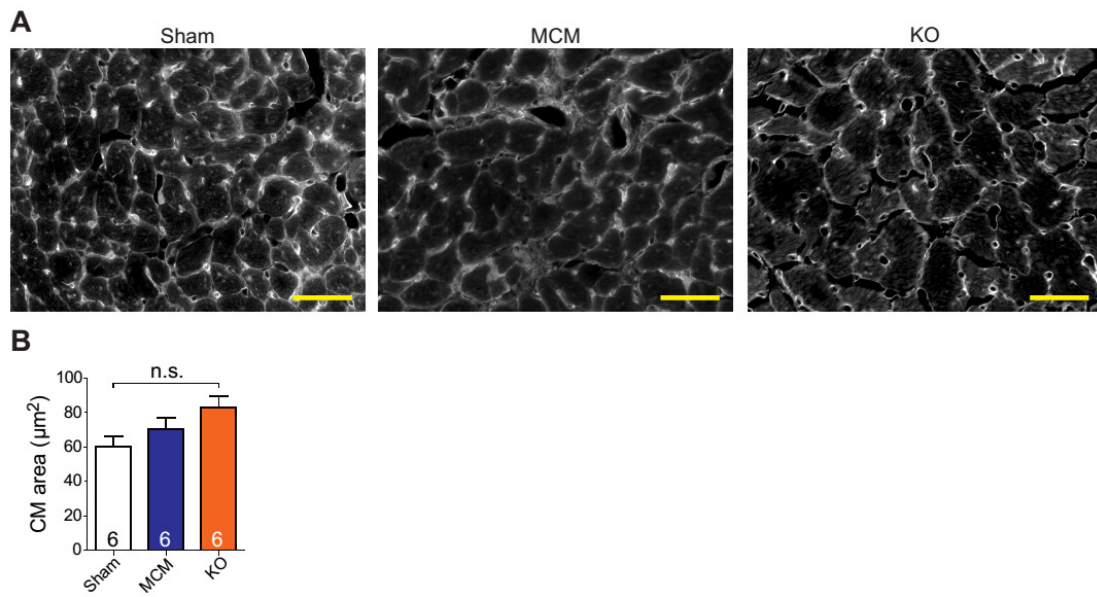
Supplemental Figure S4. SVV is not detectable in cardiomyocyte in KO mouse heart after MI. Scale bar, 20 μ m.

Supplemental Figure S5



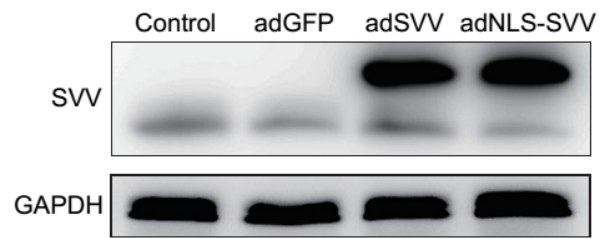
Supplemental Figure S5. Proliferating cardiomyocyte in MCM and KO mice after MI. A, Immunostaining of ki67 and cTnI in MCM and KO mice. White bar, 50 μ m; yellow bar, 10 μ m. **B,** Statistical analysis of proliferating cardiomyocytes in MCM and KO mice.

Supplemental Figure S6



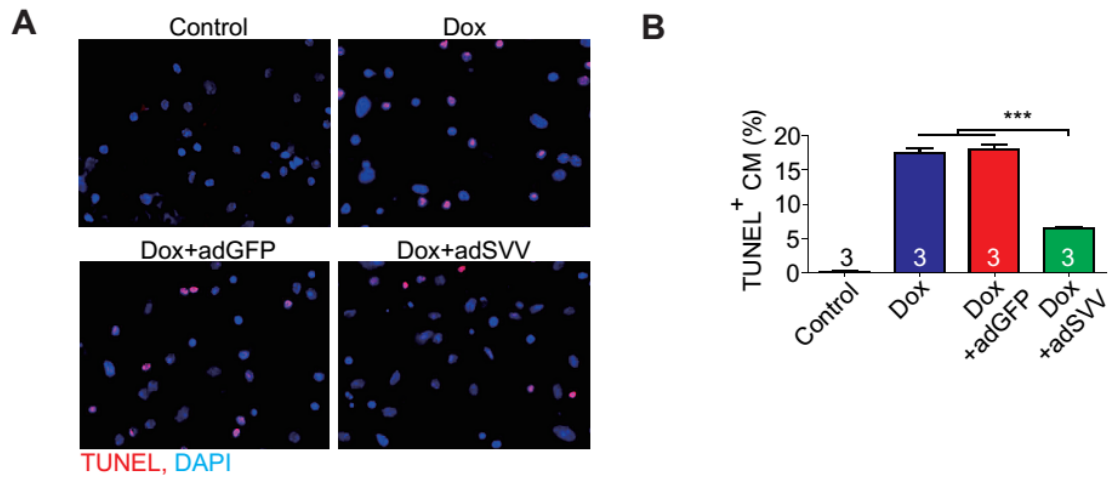
Supplemental Figure S6. Examination of cardiomyocyte size in MCM and KO mice after MI. **A**, WGA staining of heart in sham and MCM or KO mice after MI. Yellow bar, 200 μm . **B**, Quantification and statistical analysis of cardiomyocyte size.

Supplemental Figure S7



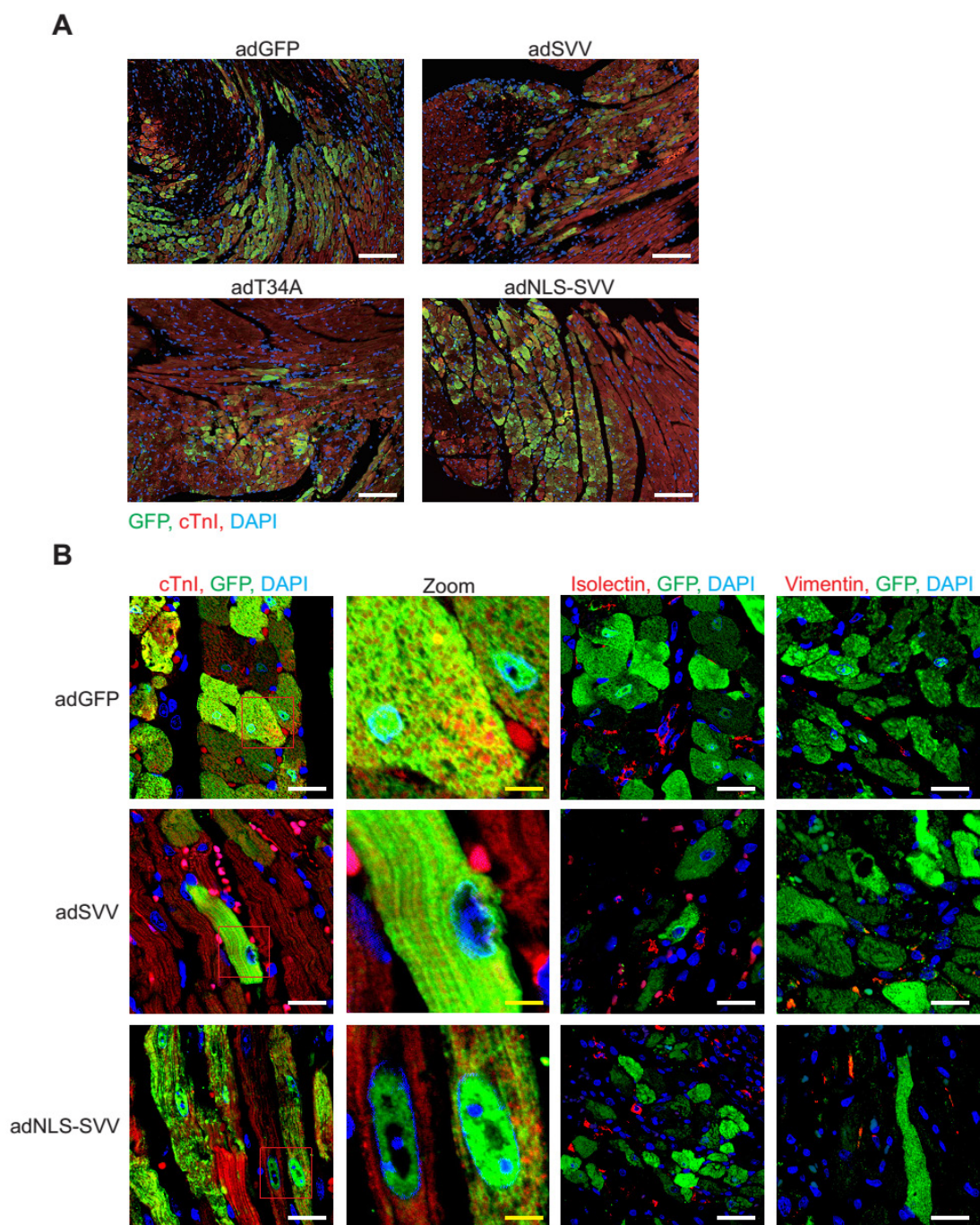
Supplemental Figure S7. Expression level of endogenous SVV and exogenous SVV, fused with GFP, in cardiomyocytes infected with virus.

Supplemental Figure S8



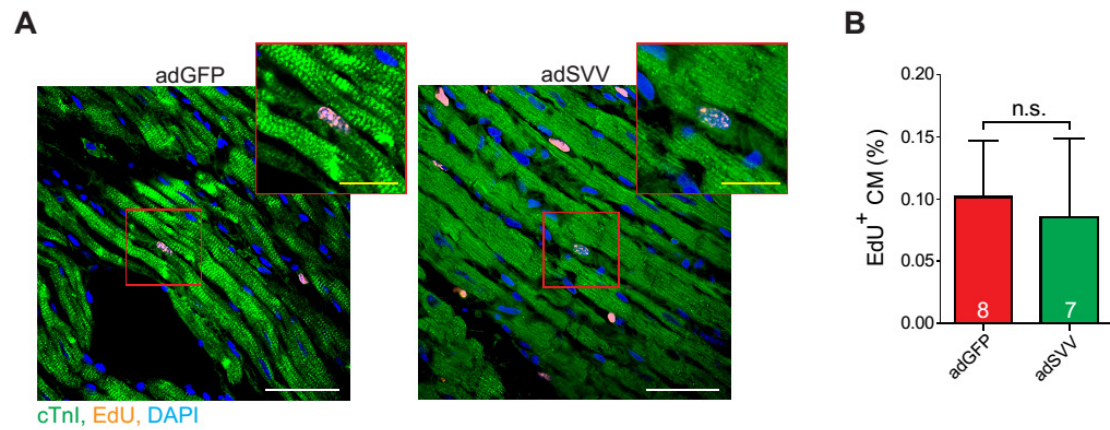
Supplemental Figure S8. Overexpression of SVV attenuates cardiomyocyte apoptosis. A, Overexpressing SVV in CMs reduces doxorubicin-induced apoptosis. Dox, doxorubicin. **B,** Quantification of TUNEL positive CMs. ***, $P < 0.005$.

Supplemental Figure S9



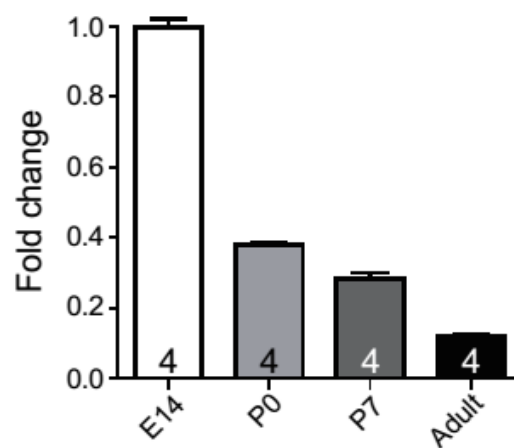
Supplemental Figure S9. Delivery efficiency and localization of treatment using intramyocardial injection of virus. **A**, Exogenous SVV, fused with GFP, could be detected around the infarction border zone 2 days after MI. Scale bar, 400 μm . **B**, Exogenous SVV is detected in the cytoplasm of cardiomyocytes in adSVV administration, but in both the nucleus and cytoplasm of cardiomyocytes in the adNLS-SVV group. White bar, 20 μm ; yellow bar, 5 μm .

Supplemental Figure S10



Supplemental Figure S10. EdU-pulse labeling assay in mouse received adGFP or adSVV administration. **A**, C57BL/6JNarl mice received virus injection and MI surgery, and were administrated with 50 mg/kg EdU daily. White bar, 50 μ m; yellow bar, 20 μ m. **B**, Statistical analysis of EdU-positive cardiomyocytes in adGFP and adSVV group.

Supplemental Figure S11



Supplemental Figure S11. Expression level of CREB-binding protein (CBP) mRNA in mouse heart development.