PARP1 Promotes Heart Regeneration and Cardiomyocyte Proliferation

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Figure S1 Schematic representation of the conditional knockin of PARP1.

(A) Schematic representation of the conditional knockin of PARP1.
Figure S2 PARP1 and PAR expression decreases in mice heart with age. (A) Representative immunostaining image and statistical analysis of PARP1 expression level (red) in cardiomyocytes at P21 relative to E15.5 (n=3 per group). Scale bars, 10μm. **P < 0.01 by unpaired Student’s test. (B) Representative immunostaining image and statistical analysis of PAR expression level (red) in cardiomyocytes at P21 relative to E15.5 (n=3 per group). Scale bars, 10μm. **P < 0.01 by unpaired Student’s test.
Figure S3 Transduce efficiency of Ad-PARP1-Flag in NRCMs.

(A) Representative images and statistical analysis of transduce efficiency of Ad-ctrl-Flag and Ad-PARP1-Flag infected NRCMs (n=3). **P < 0.01 by unpaired Student’s test.
Figure S4 PARP1 overexpression does not affect cardiomyocyte apoptosis.

(A) TUNEL staining and statistical analysis of cell apoptosis between Ad-Ctrl and Ad-PARP1 infected NRCMs (n=3).
Figure S5 ERK or AKT inhibitor partially hinders the effect of PARP1 on cardiomyocyte proliferation.

(A and B) Representative images and statistical analysis of Ki67+, Aurora B+ cardiomyocytes (red) in Ad-Ctrl, Ad-PARP1, and Ad-PARP1+MK2206 NRCMs (n=3-6). #P < 0.01 by unpaired Student's test, *P < 0.01 by unpaired Student's test. (C) Representative western blot images and statistical analysis of p-AKT, t-AKT, and GAPDH protein expression (n=4). ##P < 0.01 by unpaired Student's test, *P < 0.01 by unpaired Student's test. (D and E) Representative images and statistical analysis of Ki67+, Aurora B+ cardiomyocytes (red) in Ad-Ctrl, Ad-PARP1, and Ad-PARP1+PD98059 NRCMs (n=3-7). ¥P < 0.01 by unpaired Student's test, *P < 0.01 by unpaired Student's test. (F) Representative western blot images and statistical analysis of p-AKT, t-AKT, and GAPDH protein expression (n=3). #¥P < 0.01 by unpaired Student's test, **P < 0.01 by unpaired Student's test.
Figure S6 PARP1 improves cardiac repair in adult mice after MI.

(A and B) Representative images of Evans blue-TTC staining of MI and statistical analysis of area at risk (AAR) and infarct size (IS) in AAV9-Ctrl and AAV9-PARP1 group (n=3). *P < 0.05 by unpaired Student’s test.