

Figure S1 The results of gene identification. (A) Gene identification results of *TXNIP* gene knockout mice. (B) Gene identification results of *TXNIP* gene knock-in mice. KO, knock-out; M, marker; N, negative control; *TXNIP*, thioredoxin-interacting protein; WT, wild type.

Table S1 Primer sequences for PCR

Name	Sequence (5'-3')
<i>TXNIP</i> -KO-tF1A	AAGAGGAGTCCCTGGATGAGGTT
<i>TXNIP</i> -KO-tR1A	AAGACAAACGCCAGAACGGTCAGC
<i>TXNIP</i> -KO-WT-tF1A	CGCAACTTCTGTCCAAGAAAGTG
<i>TXNIP</i> -KO-WT-tR1A	ATCGAGAAAAGCCTTCACCCAGT
<i>TXNIP</i> -KI-3'-rabbit-pA-tF1	CCTGCTGTCCATTCCATTCCATA
<i>TXNIP</i> -KI-3'-H11-tR3	ATATCCCCCTGTTCCCTTCTGC
<i>TXNIP</i> -KI-5'-H11-tF3	GGGCAGTCTGGTACTTCCAAGCT
<i>TXNIP</i> -KI-5'-CAG-tR1	TGGCGTTACTATGGGAACATACGTC
<i>TXNIP</i> -KI-H11-wt-tF1	CAGCAAAACCTGGCTGTGGATC
<i>TXNIP</i> -KI-H11-wt-tR1	ATGAGCCACCATGTGGGTGTC

KI, knock-in; KO, knock-out; *TXNIP*, thioredoxin-interacting protein; WT, wild type.

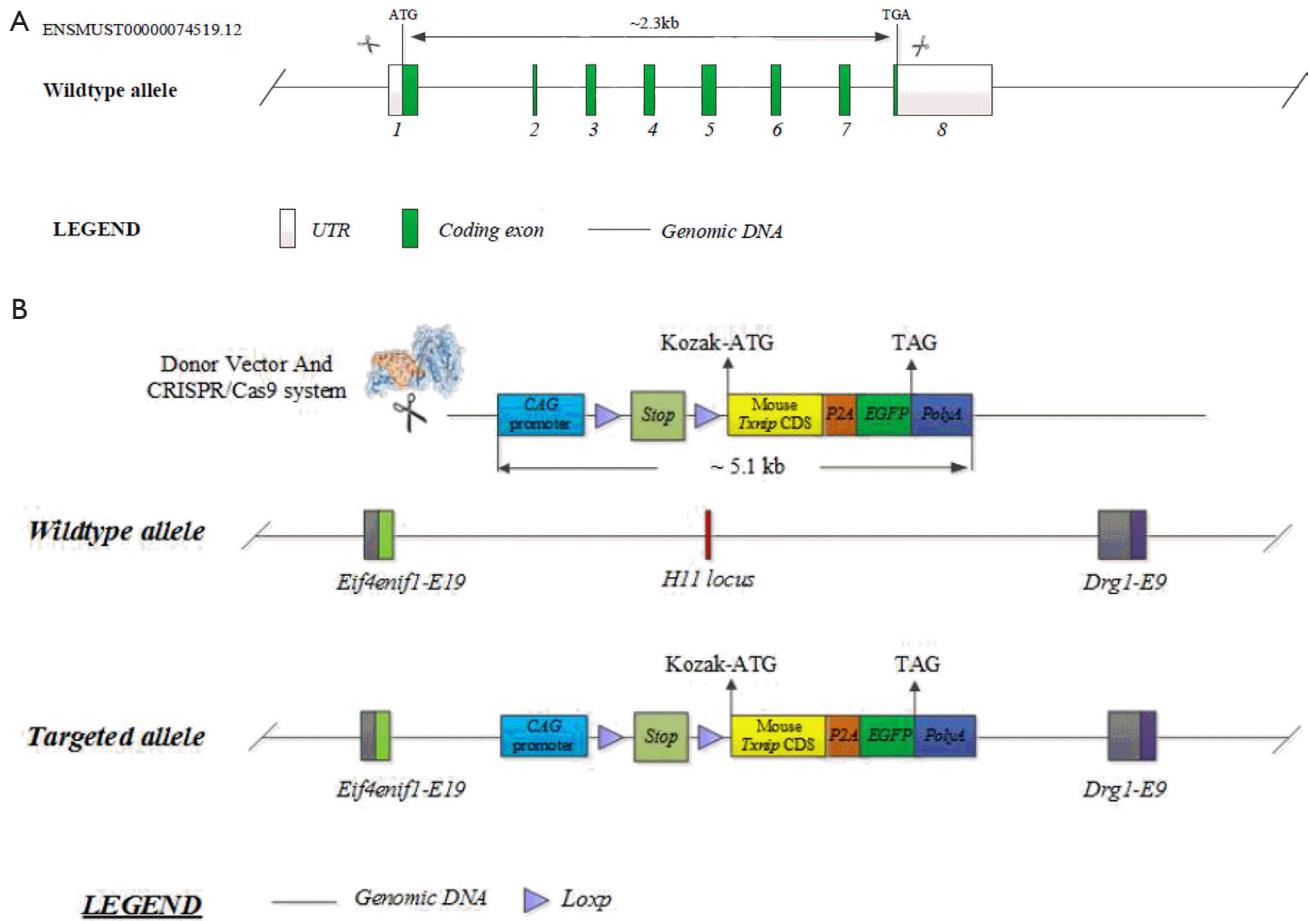


Figure S2 The project strategy map of transgenic mice. (A) The project strategy map of *TXNIP* knockout heterozygous mice. (B) The project strategy map of *TXNIP* knock-in heterozygous mice. *TXNIP*, thioredoxin-interacting protein; UTR, untranslated region.

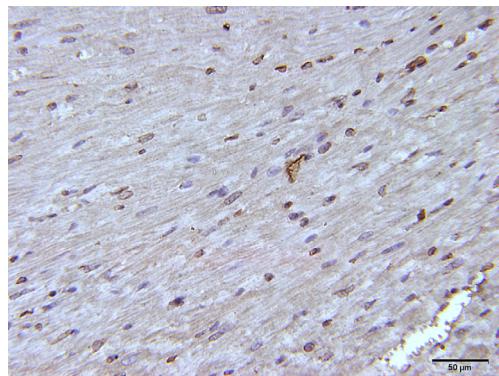


Figure S3 Immunohistochemical staining of α -actin in cardiomyocytes. Scale bar =50 μ m.

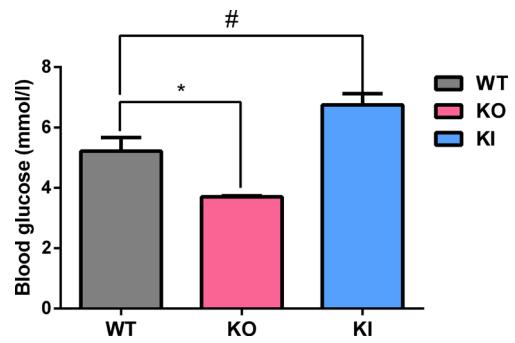


Figure S5 The blood glucose level of mice. Mean \pm SEM, n=6, P<0.05. *, P<0.05, KO vs. WT; #, P<0.05, KI vs. WT. KI, knock-in; KO, knock-out; SEM, standard error of the mean; WT, wild type.

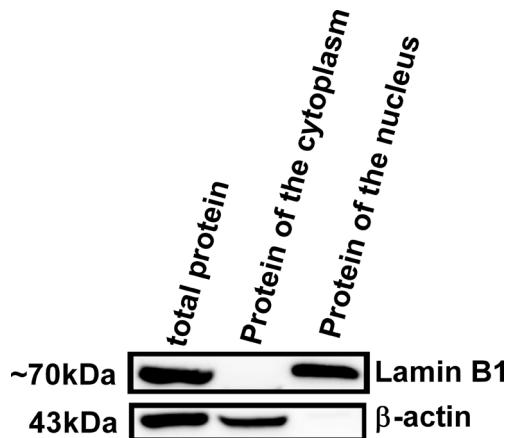


Figure S4 Expression of cytoplasmic reference and nuclear reference in each group.