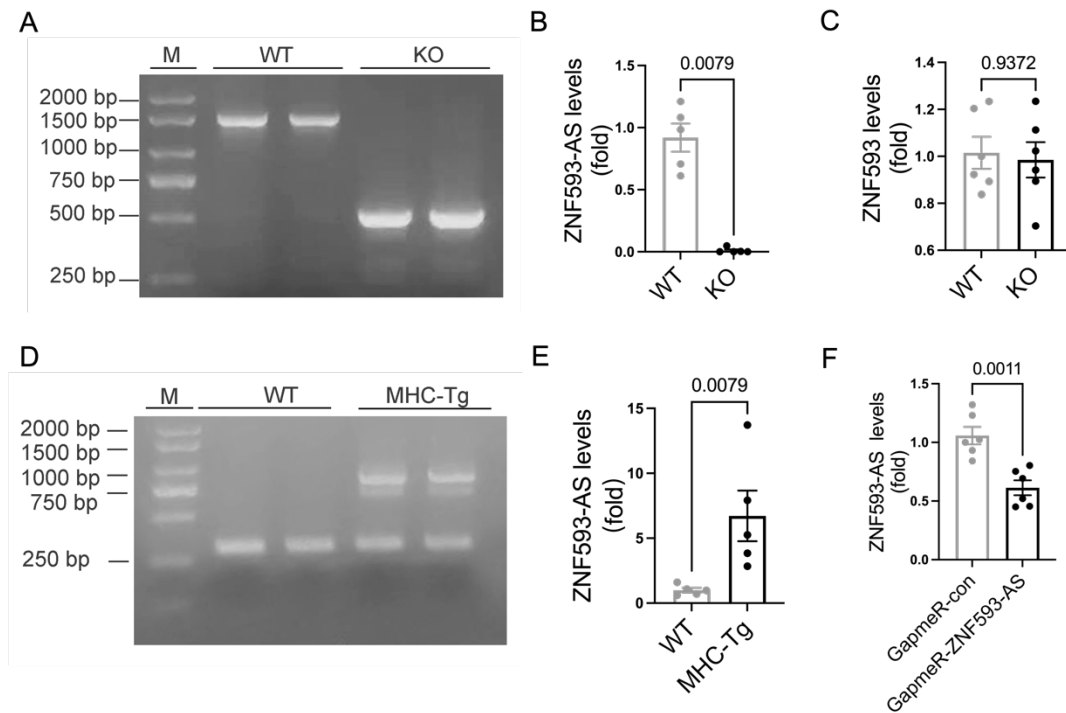


Supplementary Figure 1



Supplementary Figure 1. Generation of ZNF593-AS knockout or MHC-Tg mice.

A. PCR assay for the genotype identification of ZNF593-AS knockout mice. One band at 1500 bp for wild type; One band at 500 bp for ZNF593-AS knockout mice.

B. qPCR assay for cardiac lncRNA ZNF593-AS expression levels in ZNF593-AS KO mice.

C. qPCR assay for cardiac ZNF593 mRNA expression levels in ZNF593-AS KO mice.

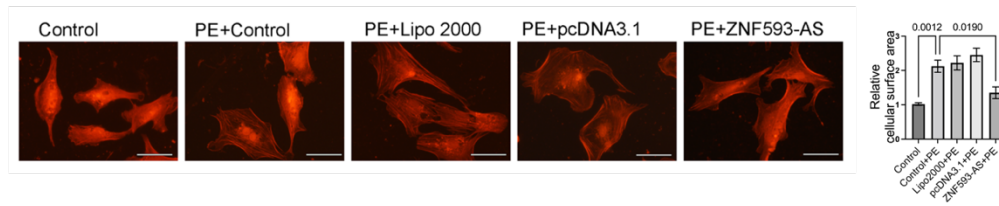
D. PCR assay for the genotype identification of ZNF593-AS transgenic mice. One band at 250 bp for wild type; One band at 1000 bp for ZNF593-AS MHC-Tg mice.

E. qPCR assay for cardiac ZNF593-AS expression levels in ZNF593-AS MHC-Tg mice.

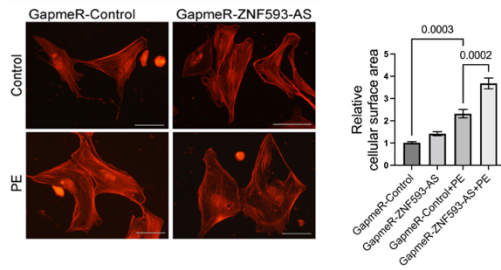
F. qPCR assay for ZNF593-AS expression levels in AC16 cells treated with Gapmer-ZNF593-AS.

Supplementary Figure 2

A



B

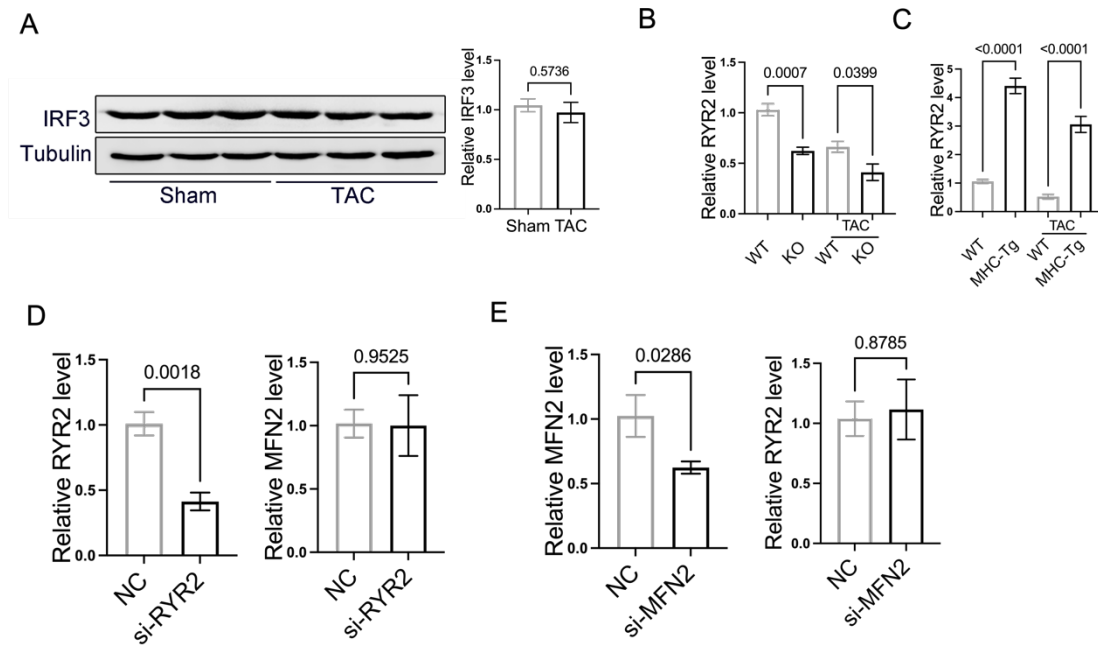


Supplementary Figure 2. Cellular surface area in primary cardiomyocytes isolated from neonatal mice with pcDNA3.1-ZNF593-AS or GapmeR-ZNF593-AS treatments.

A. Surface area in primary CMs isolated from neonatal mice after pcDNA3.1-ZNF593-AS treatment.

B. Surface area in primary CMs isolated from neonatal mice after ZNF593-AS knockdown.

Supplementary Figure 3



Supplementary Figure 3. The regulation of Mfn2 on RYR2 expression.

A. IRF3 protein level in cardiac hypertrophy.

B. qPCR analysis of RYR2 expression in ZNF593-AS knockout mice.

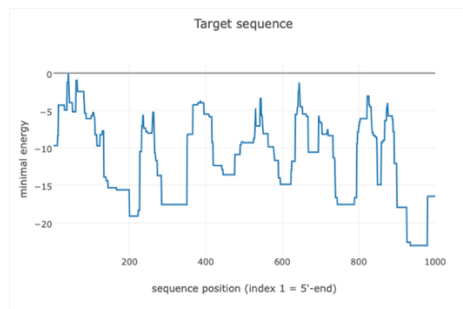
C. qPCR analysis of RYR2 expression in ZNF593-AS transgenic mice.

D. qPCR analysis of RYR2 and Mfn2 expression in HL-1 cells after RYR2 knockdown.

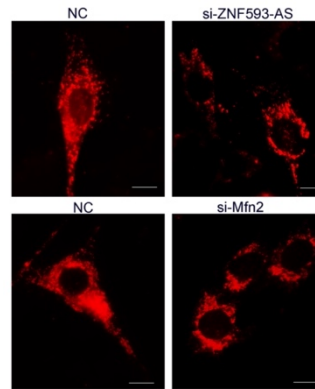
E. qPCR analysis of Mfn2 and RYR2 expression in HL-1 cells after Mfn2 knockdown.

Supplementary Figure 4

A



B



Supplementary Figure 4. MFN2 is a target of ZNF593-AS.

A. ENCORI database predicting the binding site of ZNF593-AS on Mfn2 promoter.

B. Mitochondrial morphology staining in HL-1 cells after ZNF593-As or Mfn2 knockdown.