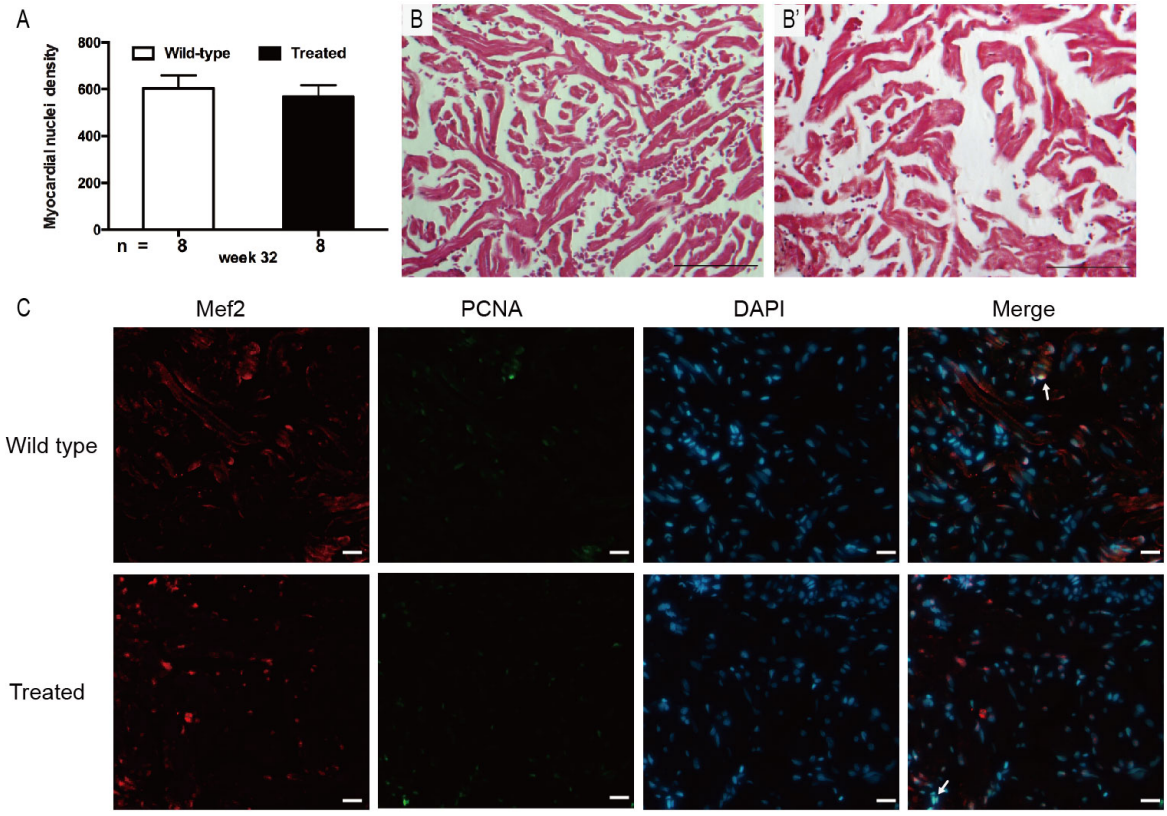
Supplementary Table 1

Table S1. Gene-specific primers for real-time PCR

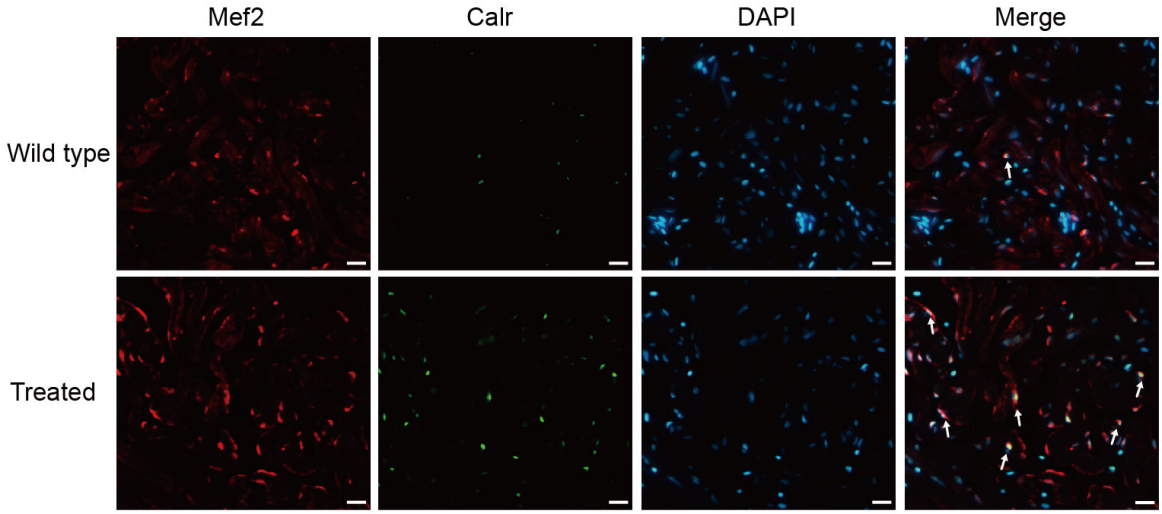
Gene	Primer sequence (5'-3')
Nkx2.5-F	GGGATGGTAAACCGTGTCTGG
Nkx2.5-R	TAGTTGCTGTTGGACTGTGAAGG
Calr-F	AAACAGATTGACAACCCCTCCTAC
Calr-R	CAGCCTCCTCAACATCATCGG
p53-F	ATAAGAGTGGAGGGCAATCAGCGA
p53-R	AGTGATGATTGTGAGGATGGGCCT
GLUT1-F	CCTGTTGCCCTTCTGTCCTG
GLUT1-R	CCTCATCATCTGTCTGCTCTCG
nppa-F	GATGTACAAGCGCACACGTT
nppa-R	TCTGATGCCTCTTCTGTTGC
nppb-F	CATGGGTGTTTTAAAGTTTCTCC
nppb-R	CTTCAATATTTGCCGCCTTTAC
18S-F	CACTTGTCCCTCTAAGAAGTTGCA
18S-R	GGTTGATTCCGATAACGAACGA

F, forward; R, reverse.

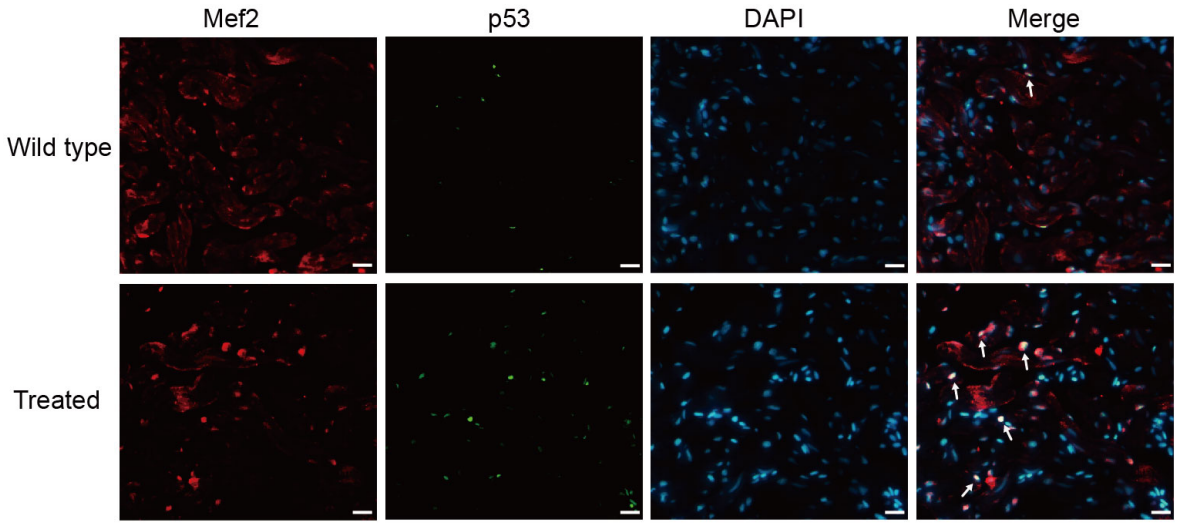
Supplementary Figures



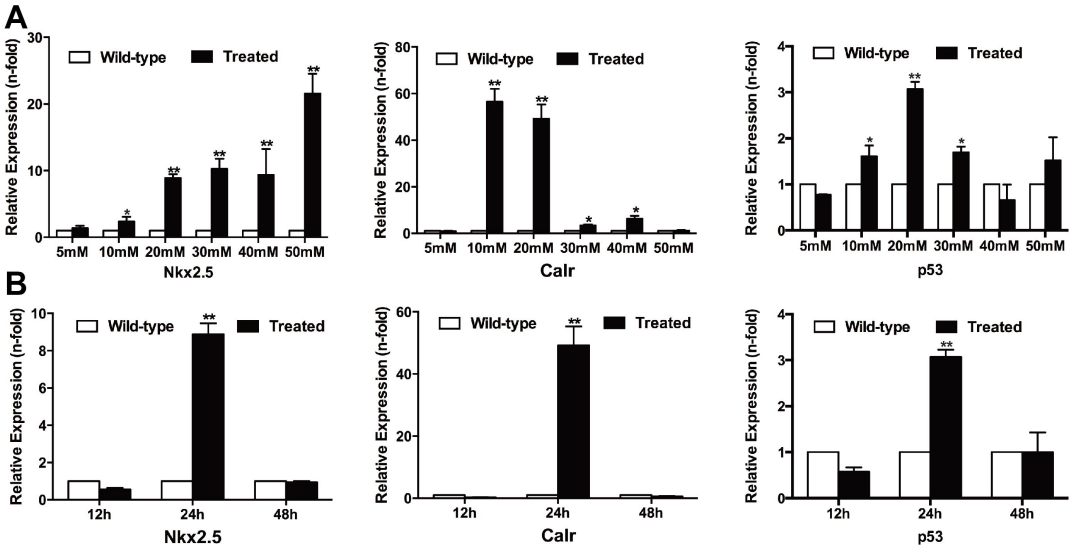
Supplementary Figure 1. (A) Myocardial nuclei density, defined as number of myocardial nuclei per field to myocardial density, showing no difference in two groups at week 32 ($p > 0.05$). (B) Masson's staining did not show any interstitial fibrosis in the two groups (n = 15 field, repeated five times); scale bar = 100μm. (C) Co-staining of PCNA (green), Mef2 (red) with DAPI (blue) on cryosections of adult zebrafish hearts, indicating no significant difference in PCNA staining between wild-type and treated group (*n* = 15 field, repeated five times); scale bar = 10μm； Arrows: PCNA+/Mef2+/DAPI+. (A) Bars represent mean ± standard error of the mean, n = number of fish examined.



Supplementary Figure 2. Co-staining of Calr (green), Mef2 (red) with DAPI (blue) on cryosections of adult zebrafish hearts, indicating increased Calr expression on cardiomyocytes of treated fish compared with the wild-type (n = 15 field, repeated five times); scale bar = 10μm； Arrows: Calr+/Mef2+/DAPI+ (white, green and red plus blue).

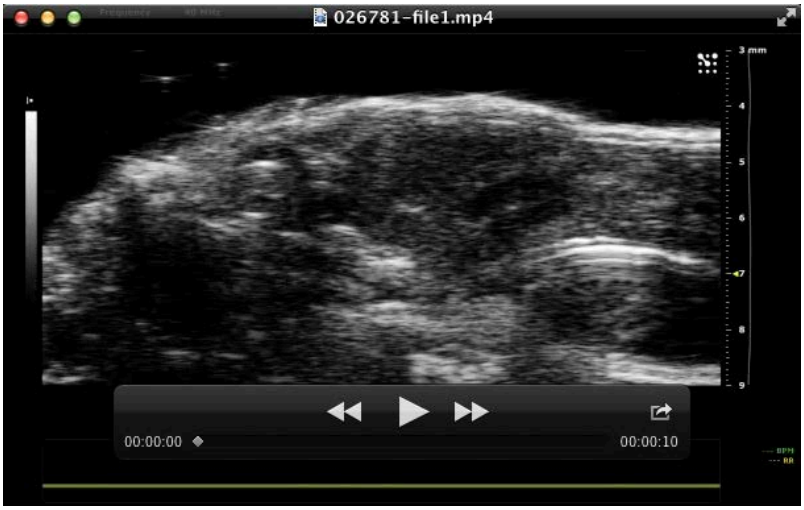


Supplementary Figure 3. Co-staining of p53 (green), Mef2 (red) with DAPI (blue) on cryosections of adult zebrafish hearts, indicating increased p53 expression on cardiomyocytes of treated fish compared with the wild-type (n = 15 field, repeated five times); scale bar = 10μm； Arrows: p53+/Mef2+/DAPI+ (white, green and red plus blue).

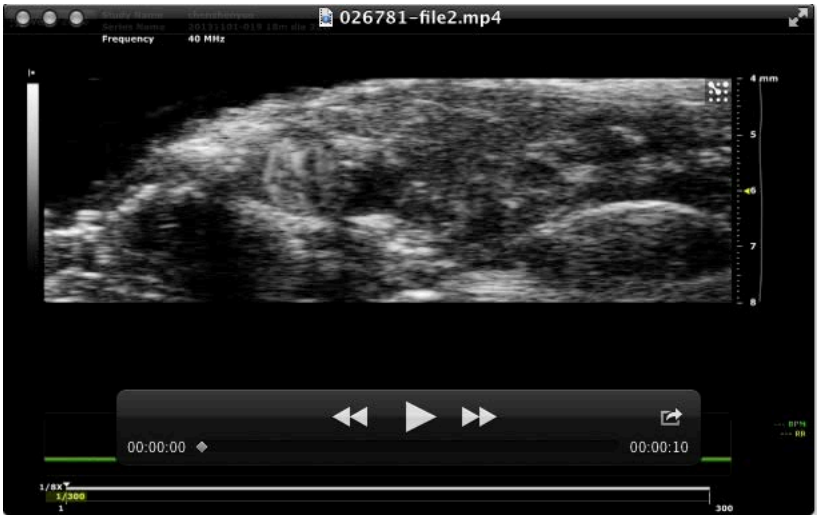


Supplementary Figure 4. Determination of the optimal conditions for glucose treatment of cardiomyocytes. (A) Real-time PCR analysis of *Nkx2.5*, calreticulin, and *p53* in cardiomyocytes (CMs) exposed to glucose for 24 h at different concentrations (5, 10, 20, 30, 40, 50 mM), compared with the wild-type group. (B) Real-time PCR analysis of *Nkx2.5*, *calreticulin*, and *p53* in CMs exposed to 20 mM glucose for different times (12, 24, 48 h). (A-B) Bars represent mean ± standard error of the mean (n = 5-6 fish per group). *$p < 0.05$, **$p < 0.01$ as compared with the wild-type group.

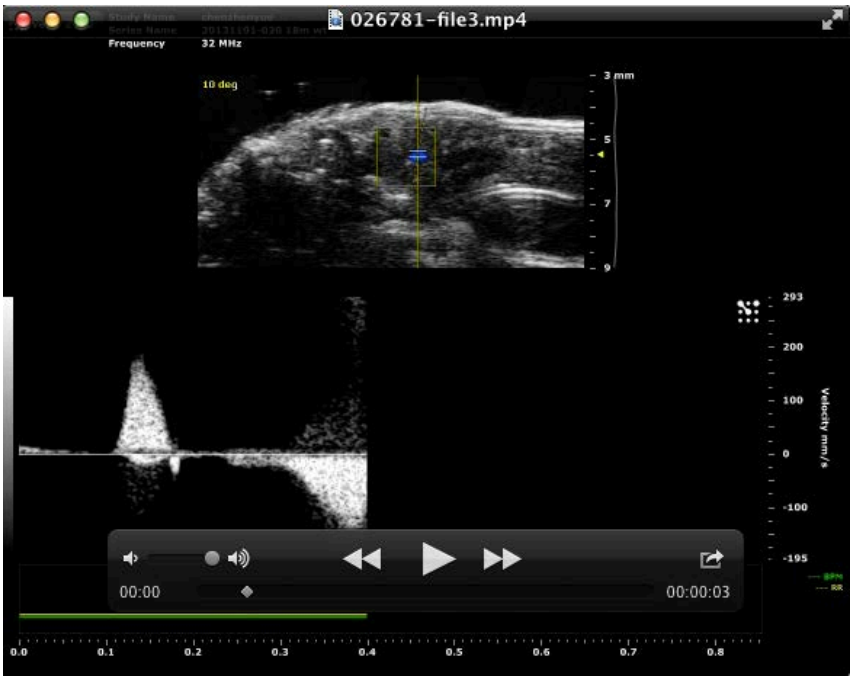
Supplementary Videos



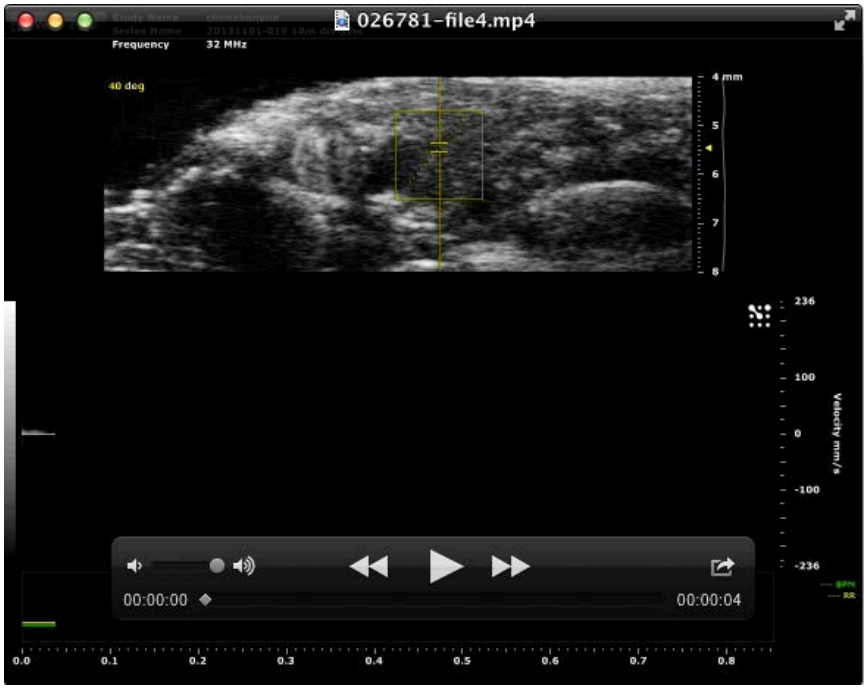
Movie 1. Ventricular morphology of the wild-type zebrafish at week 32, derived from B-mode echocardiography.



Movie 2. Ventricular morphology of the treated zebrafish at week 32, derived from B-mode echocardiography.



Movie 3. Atrioventricular (AV) valve velocity of the wild-type zebrafish at week 32, derived from Doppler echocardiography.



Movie 4. Atrioventricular (AV) valve velocity of the treated zebrafish at week 32, derived from Doppler echocardiography.