Supplemental Figure Legends

**Figure S1**: Image of Figure 1A with a higher resolution.

**Figure S2**: miRNA expression analysis indicated the enrichment of miR-708 in the hearts of embryos and neonatal mice, while decreased in the hearts of adult mice.

**Figure S3**: Representative images for HE staining of the hearts from control, NLE-miR-NC and NLE-miR-708 treated mice.

**Figure S4**: miRNA expression analysis indicated the increased level of miR-708 in the hearts after ISO treatment.

**Figure S5**: The increased levels of LVID (mm) in the mice treated by ISO at day 5, day 10 and day15, which was partly rescued at day 5 by *in vivo* delivery of miR-708. Data are presented as mean ± SEM (n=7). *p<0.05.

**Figure S6**: Sequence BLAST analysis identified three binding sites to miR-708 in the 3’UTR of rat Mapk14 mRNA (A). The second site from the three is highly conserved with the binding site in the 3’UTR of mouse Mapk14 (B).

**Figure S7**: Original image for Figure 6G.

**Figure S8**: Original image for Figure 6H.
Supplemental Figure 2

Relative abundance of miR-708

- adult
- neonatal
- E14.5
Supplemental Figure 3
Supplemental Figure 4

Relative abundance of miR-708

NC  ISO

**
Supplemental Figure 6

A  Rat Mapk14 (NM_031020.2)

miR-708

3' UTR

Mouse Mapk14 (NM_001168508.1)

miR-708

3' UTR
Supplemental Figure 7

MAPK14

β-actin