**Supplemental Materials**

**Table S1. Sequences of primers for Real-time-PCR**

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| Transcripts | Forward primer (5’–3’) | Reverse primer (5’–3’) |
| Nppa (mouse) | GGCTCCTTCTCCATCACCAA | TGTTATCTTCGGTACCG |
| Nppb (mouse) | GAGGTCACTCCTATCCTCTGG | GCCATTTCCTCCGACTTTTCTC |
| GAPDH (mouse) | ATGTGTCCGTCGTGGATCTGA | TTGCTGTTGAAGTCGCAGGAG |
| VEGFa (mouse) | CTGCCGTCCGATTGAGACC | CCCCTCCTTGTACCACTGTC |
| PDGF (mouse) | TCTGCTGGGAACAACTCAACA | GTGAGACACCTCATCAGGGTAT |
| Collagen I a1 (mouse) | CGCTATCCAGCTGACCTTCC | GCCTTCTTGAGGTTGCCAGT |
| Collagen III a1 (mouse) | TGCTCCTGTGCTTCCTGATG | GACCTGGTTGTCCTGGAAGG |
| TGF-β (mouse) | CTCCCGTGGCTTCTAGTGC | GCCTTAGTTTGGACAGGATCTG |
| NGAL (mouse) | ATGTCACCTCCATCCTGGTC | CCTGTGCATATTTCCCAGAGT |

**VIDEO LEGEND**

**Video S1: Step I:** Myocardial infarction surgery was performed on adult male C57BL/6 mice. The specific steps were as follows: (1) mice were anaesthetized with a mixture of xylazine and ketamine through intraperitoneal injection; (2) after confirming the anesthesia, keep the mouse in supine position by fixing the incisors with a suture and fixing the limbs; (3) clamp the tongue gently with forceps and then elevate the mandible with spatula to expose the glottis; (4) direct insert the trachea cannula and connect the ventilator; (5) apply hair removal cream to the chest area and connect the ECG machine as shown in the picture on the upper-right while waiting for the cream to take effect; (6) remove the hair from the chest and disinfect the expose skin with 75% alcohol; (7) make an incision and separate the skin; (8) blunt dissection of the muscular layer between the 3rd and 4th intercostals and expose the heart; (9) determine the entry point, around the left coronary artery at 2 mm from the tip of the left atrium, and ligature vessel using 8-0 nylon stitch; (10) make the double knot and then cut off the thread; (11) Suture the muscles and skin using 5-0 nylon stitch; (12) disinfect the skin again with 75% alcohol. Echocardiography was performed four weeks after myocardial infarction to confirm the formation of left ventricular aneurysm and significant enlargement of the left ventricle. Surgical ventricular reconstruction was performed after all parameters were determined. **Step II:** The specific steps were as follows: (1) anesthesia, fixation, endotracheal intubation, hair removal and incision were as described above; (2) blunt dissection of the muscular layer between the 4th and 5th intercostals, separate the adhesion between the heart and chest, and expose the left ventricular aneurysm; (3) determine the entry point, around the upper-left of the ligation knot remained by MI surgery, and the exit point, around the right-side of cardiac apex; (4) plicate the aneurysm with double-knot by a single-linear suture with a 6-0 nylon stitch without piercing the aneurysm; (5) after confirming no persistent bleeding, close the wound layer by layer and disinfect the skin as described above.