

## **Description of Additional Supplementary Files**

**Supplementary Movie 1.** Contraction of hiPSC-derived cardiomyocytes 1

**Supplementary Movie 2.** Contraction of hiPSC-derived cardiomyocytes 2

**Supplementary Movie 3.** Surgical procedures

**Supplementary Movie 4.** Recording of echocardiography pre-intervention

**Supplementary Movie 5.** Recording of echocardiography 8 weeks post-intervention

**Supplementary Movie 6.** Contraction of hiPSC-CMs-GFP

**Supplementary Movie 7.** Recording of MEA mapping between hiPSC-CMs and NRVM

**Supplementary Movie 8.** Migration of hiPSC-CMs-GFP (hiPSC-CM-GFP culture Alone)

**Supplementary Movie 9.** Migration of hiPSC-CMs-GFP (co-cultures of hiPSC-CM-GFP with HUVEC)

**Supplementary Movie 10.** Migration of hiPSC-CMs-GFP (co-cultures of hiPSC-CM-GFP with hMSCs)