

List of videos:

Video 1: Biowires based on neonatal rat cardiomyocytes started to beat spontaneously and synchronously between day 3 and day 4 post seeding, depending on the initial seeding density. Combined video shows biowires seeded with 1×10^8 cells/ml or 2×10^8 cells/ml neonatal rat cardiomyocytes on day 5 (10× magnification).

Video 2: Bright field video of perfusable biowire based on neonatal rat cardiomyocytes that was beating spontaneously on day 8 and perfused with FITC-labeled beads (diameter = 1 μ m) simultaneously (10× magnification).

Video 3: Biowires based on hESC derived cardiomyocytes (labeled with eGFP) started to beat spontaneously and synchronously between day 2 and day 3 post seeding. Video shows the biowire based on hESC derived cardiomyocytes on day 6 with green fluorescent (4× magnification).

Video 4: Bright field video of the identical biowire in Video 3 at the same location (4× magnification).

Video 5: NO released from SNP that perfused through the lumen slowed down the spontaneous beating of biowires based on hESC derived cardiomyocytes. Combined video shows the spontaneous beating of the biowire before treatment (on day 7) and after 24 hr of NO treatment (10× magnification).