



Supplemental Figure 2

(A) Scale-up of Preculture conditions from microtemplate studies was possible by volumetrically scaling up the amount of matrigel and cells used in 100um diameter microchannels and applying this to the macroscale geometry of a cylindrical collagen sponge of 2 mm height, 7 mm diameter. (B) Live/dead staining of sequentially precultured cardiac patches shows overall good viability (inset shows 10X magnified view of cell forming cord like structures after ECs alone are seeded). (C) Images excerpted from videos of beating cardiac patches based on sequential preculture show the contraction amplitude of the patch decreasing upon systole (contraction) and increasing upon diastole (relaxation) when patches were stimulated above the excitation threshold ($> E \sim 5$ V/cm) with 2ms pulse width at 1Hz.