Description of Additional Supplementary Files

Supplementary Movie 1: 3D bioprinting of spheroids. Movie and cartoon of the 1) aspiration of a spheroid, 2) transfer of the spheroid into a support gel, and 3) translation and deposition of the spheroid into the support gel into a defined pattern.

Supplementary Movie 2: Shear-thinning and self-healing support gel during spheroid translation. Fluorescent microscopy of the support gel containing fluorescent beads during the translation of a spheroid through the gel, illustrating gel displacement and healing.

Supplementary Movie 3: Calcium imaging of spheroids. Calcium imaging of "healthy" and "scarred" spheroids containing varied ratios of iPSC-derived cardiomyocytes and cardiac fibroblasts.

Supplementary Movie 4: Cardiac microtissue contractility. Light microscopy of cardiac microtissues formed from 8 spheroids after spheroid fusion – containing either 8 "healthy" spheroids or 7 "healthy" spheroids and 1 "scarred" spheroid to mimic healthy myocardium and myocardium after infarction, respectively.

Supplementary Movie 5: Calcium imaging of cardiac microtissues. Calcium imaging of microtissues containing either 8 "healthy" spheroids or 7 "healthy" spheroids and 1 "scarred" spheroid to mimic healthy myocardium and myocardium after infarction, respectively. "Scarred" spheroid shown in the center of images.