International Journal of Bioprinting

RESEARCH ARTICLE

Engineered extracellular vesicle-mediated delivery of miR-199a-3p increases the viability of 3D-printed cardiac patches

Supplementary File

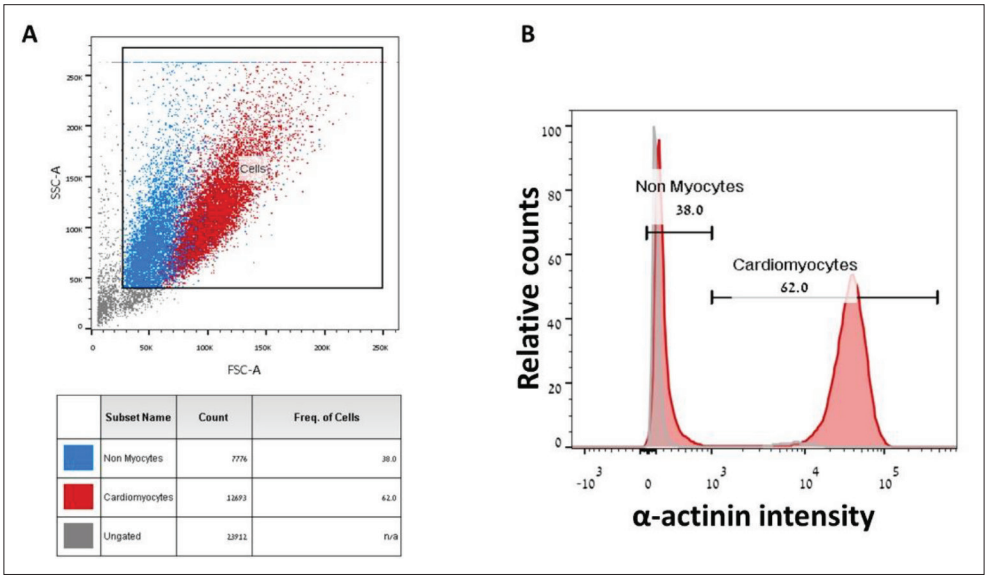

Figure S1. Flow cytometry analysis of isolated neonatal cardiac cells. (A) Representative gating of cells (square), cardiomyocytes (red), and non-myocytes (blue). (B) Sarcomeric α-actinin intensity distribution plot for isolated cardiac cells (red) and pre-plated cardiac fibroblasts (gray).

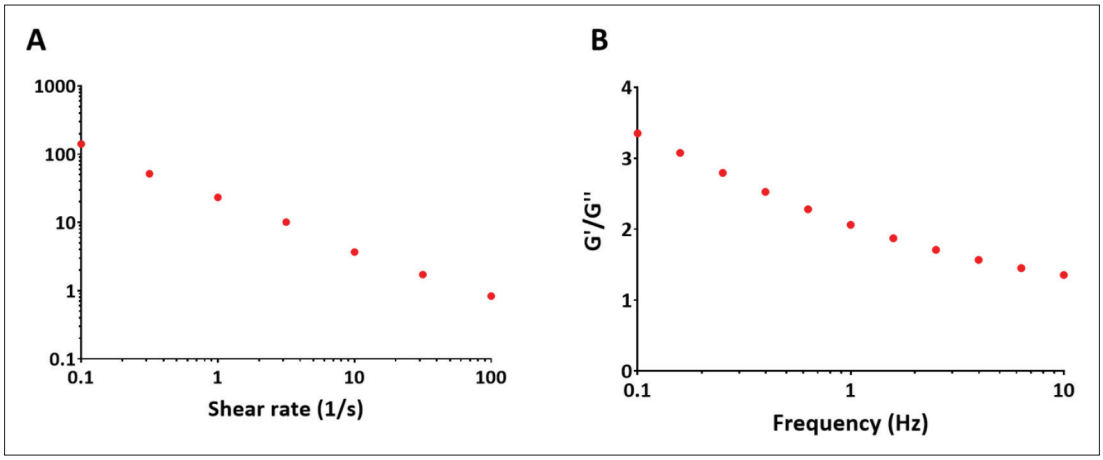

Figure S2. Rheological analysis of the cell-laden bioink for 3D bioprinting. (A) Representative viscosity spectra of the bioink. (B) Mechanical spectra of the bioink. The small-deformation oscillatory measurements are presented in terms of the storage modulus G′ (elastic response) and the loss modulus G″ (viscous response), as a function of angular frequency. G′ is used as the primary indicator of a gel-like (structured) system.

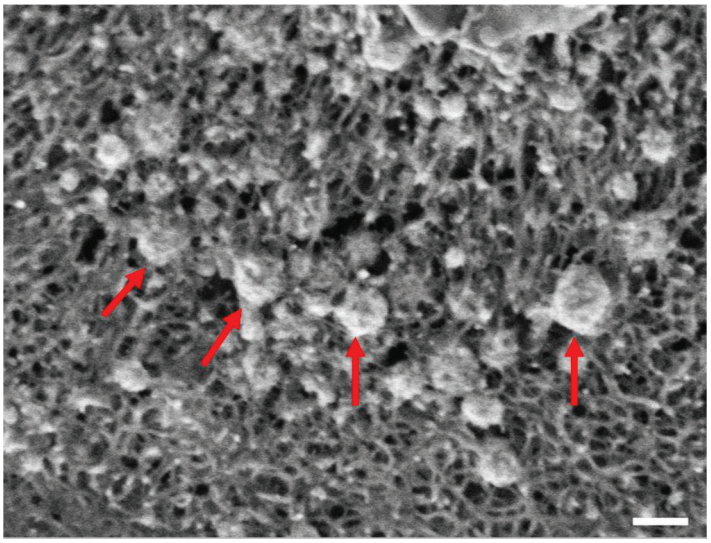

Figure S3. 3D bioprinting of EV-containing bioink. High-magnification, representative cryo-SEM image of EVs (indicated in red arrows) within 3D-bioprinted bioink constructs. Scale bar: 150 nm.

Other file:

Videoclip S1. 3D bioprinting procedure. A video describing the 3D bioprinting process. (A) Bioink loading into the printing syringe. (B) Bioink-containing EVs loading into the 3D Bioplotter cartilage. (C) The 3D bioprinting fabrication process preformed using the freeform reversible embedding of suspended hydrogels (FRESH) methodology.