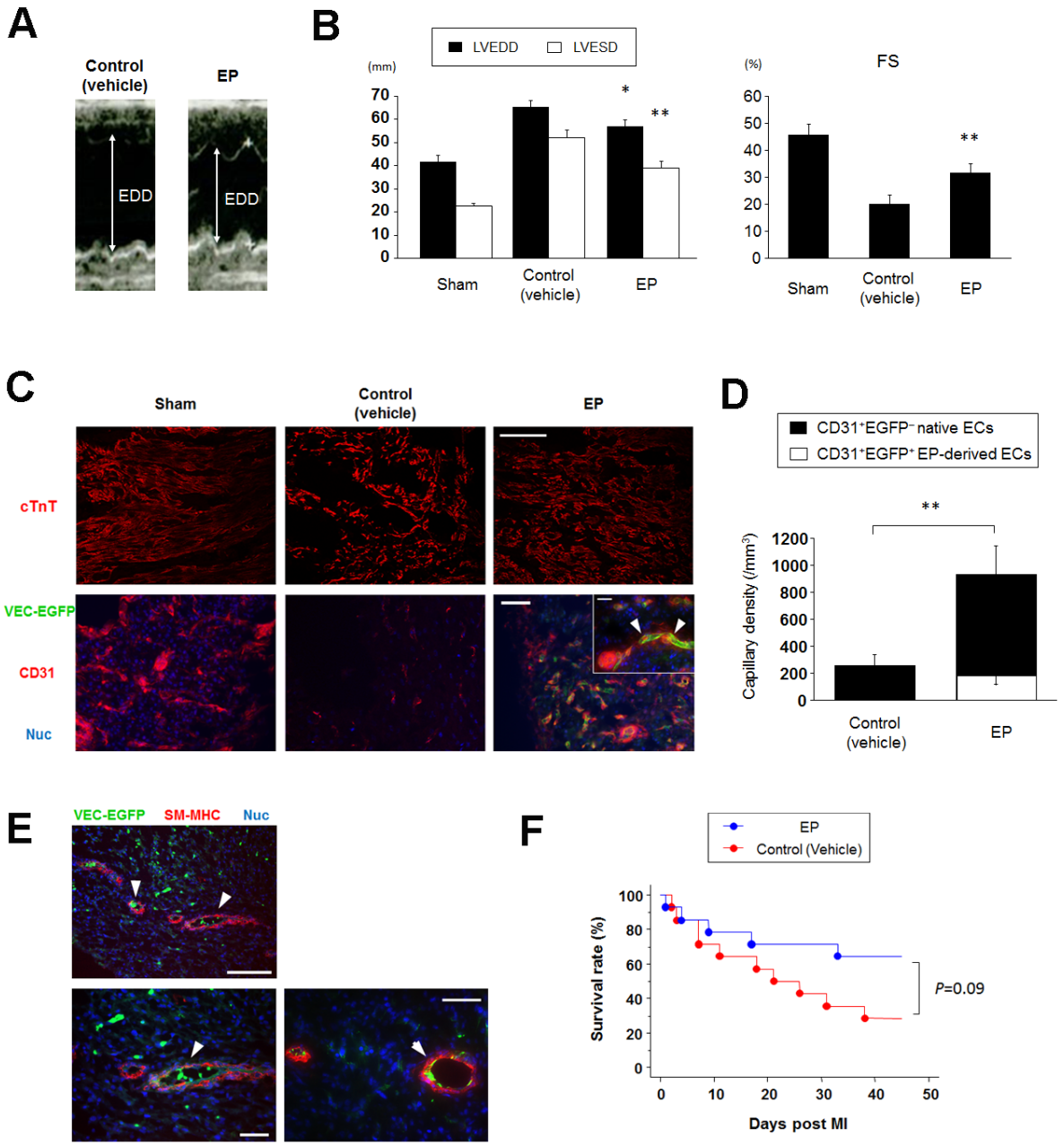

Supplementary information, Figure S7 Transplanted hPSC-derived EPs promotes capillary vessel formation in ischemic myocardium and improve heart function in mice after myocardial infarction.

MI was induced in 8-10 week NOD/SCID mice by permanent ligation of the LAD, followed by direct intramuscular injections of 1×10^7 hVEC-EGFP hESC-derived EPs or vehicle into the peri-infarcted regions of the myocardium. (**A**) Representative LV M-mode

echocardiograms in mice treated vehicle or EPs at 28 days after MI. EDD, end-diastolic diameter. (**B**) Quantitative results of LV end-diastolic diameter (LVEDD) and LV end-systolic diameter (LVESD) measured with echocardiography at 28 days after MI. Compared to vehicle, treatment with EPs significantly attenuated LVEDD and LVESD, and thereby improved LV function, calculated as fractional shortening (FS). **P*<0.05 and ***P*<0.01 vs control (vehicle). Error bars, s.d. (n=5). (**C**) Immunostaining of transversely-cryosectioned hearts at 28 days after MI showed transplanted EPs directly engrafted into micro-vasculature in the peri-infarcted regions (arrowheads). Scale bars, 25 μm (bottom, insets) and 50 μm. (**D**) Capillaries were identified with positive staining for CD31 and its morphology in **C**. Treatment with EPs significantly increased capillary density (number/mm^2) in ischemic regions of myocardium, which was derived from both the incorporation of $EGFP^+$ EPs into native vessels, occupying 19.3±3.5% among a total of $CD31^+$ ECs, and the increase of native vessel ECs. ***P*<0.01. Error bars, s.d. (n=5). (**E**) A subset of transplanted EP-derived vessels in the peri-infarcted regions were covered with smooth muscle myosin heavy chain (SM-MHC)-positive vascular SMCs (arrowheads). Scale bars, 100 μm (top) and 50 μm (bottom). (**F**) Survival analysis (n=14, each) indicated that transplanted EPs exhibited better outcome for the survival rate (64.3%) up to day 45 after MI, compared to control (28.6%), although not statistically-significant (*P*=0.09 by log-rank test).