

Supporting Information

Superparamagnetic plasmonic nanoshells for improved imaging, separation and seeding of co-cultured cells†

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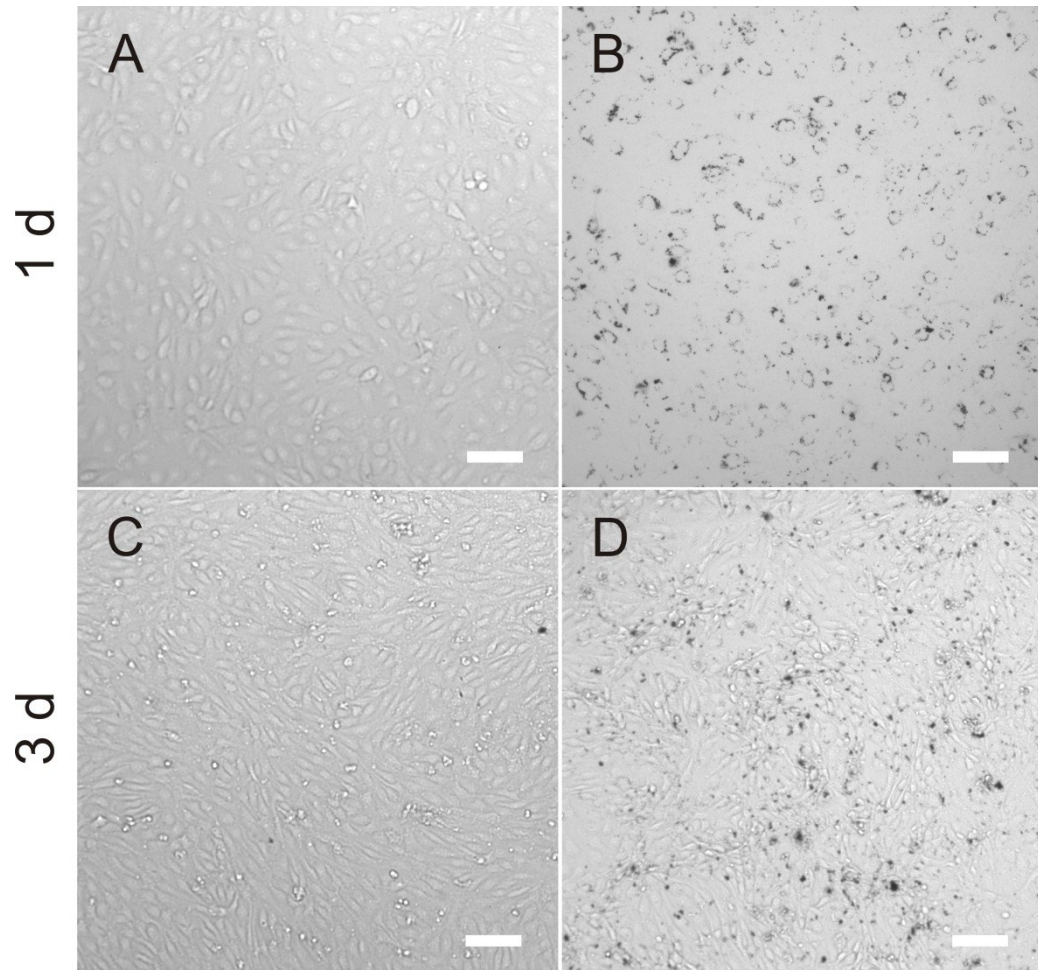


Fig. S1 Bright field images of HUVECs cultured without (A, C) and with (B, D) 0.02 nM superparamagnetic nanoshells. (A, B) and (C, D) are cultured for 1 and 3 days, respectively. All scale bars are 100 μm .

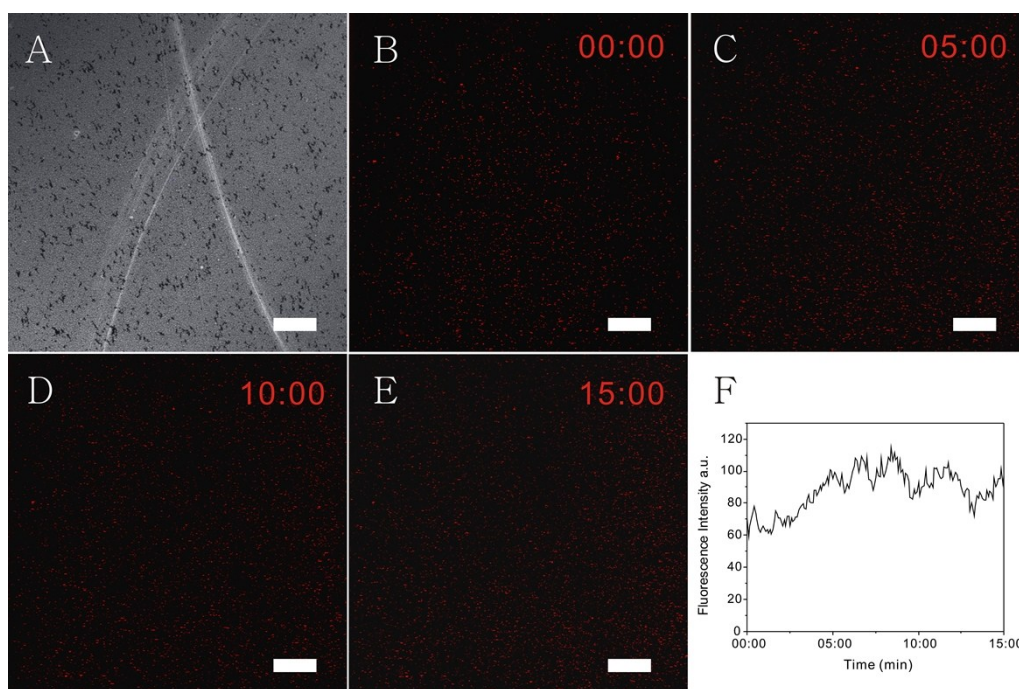


Fig. S2 Photo-bleaching investigation of SNs (800 nm excitation wavelength, 2 mW power, 16 × water immersion objective, 15 min). (A) Transmission image and (B)-(E) the corresponding TPL image at different time. (F) Luminescence intensity changes with time in measurement region.

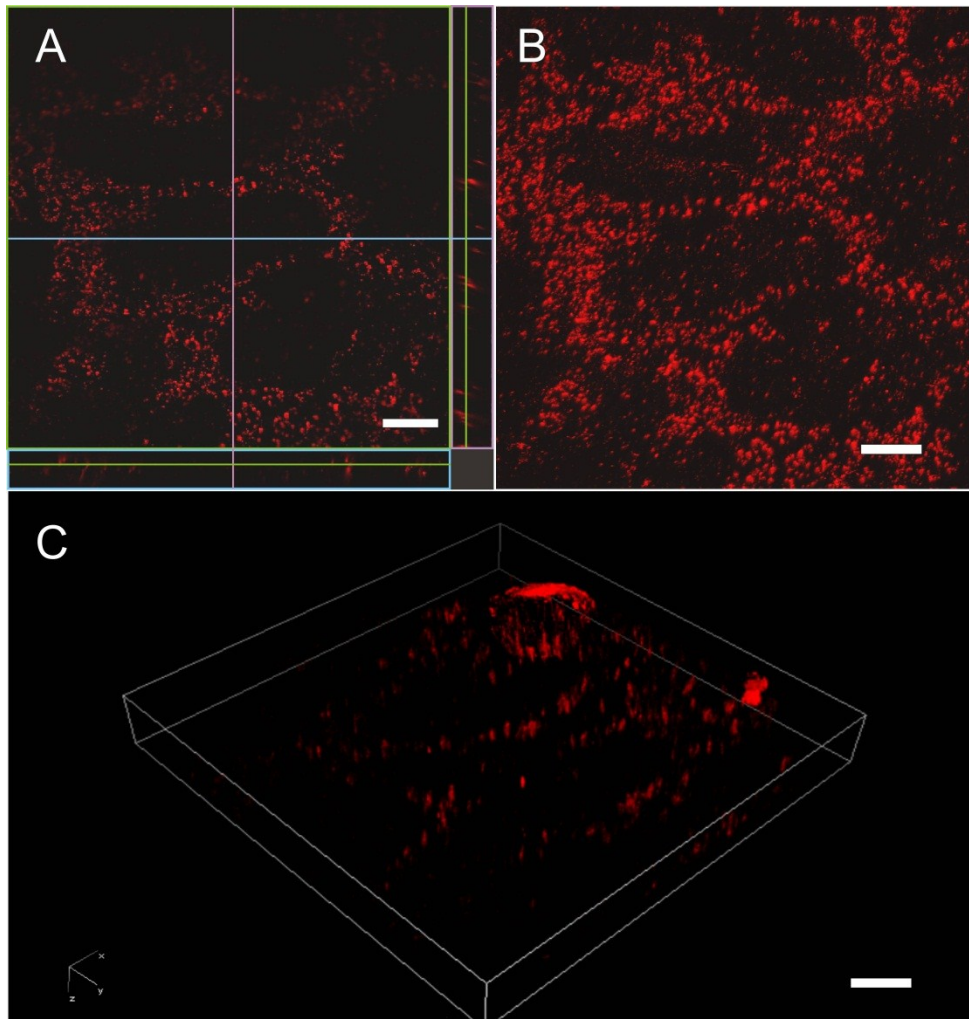


Fig. S3 3D TPL visualization images relative to Figure 3F. (A) Sections of the SNs-HUVECs are visualized from three different angles and the lines crossed at a point in the center of the significant tube-like structure formed during the vascularization process. (B) The overlay image of all z-sections. (C) 3D TPL visualization in a tilted direction. Scale bar is 50 μm .

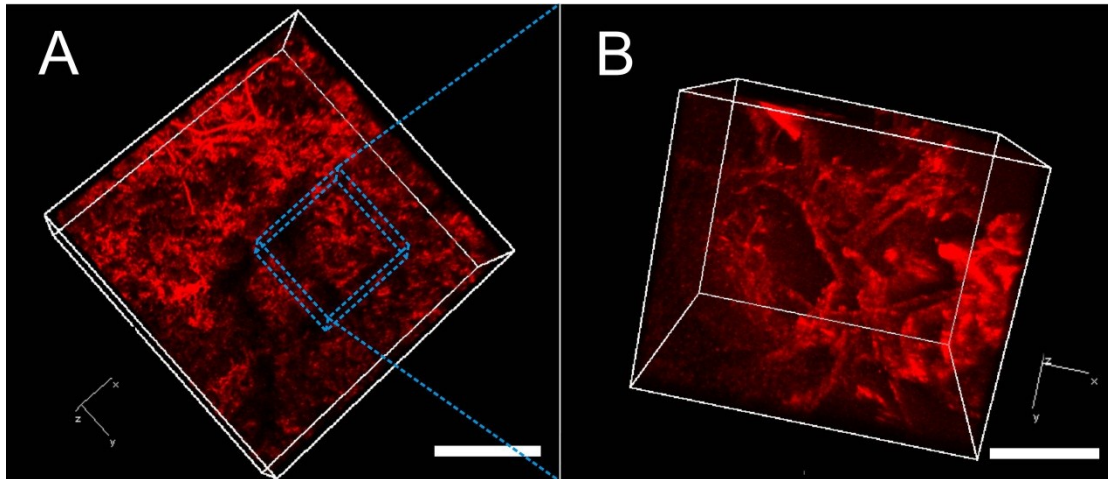


Fig. S4 (A) 3D TPL visualization of SNs in a PCL scaffold with a view field of $2.82 \text{ mm} \times 2.82 \text{ mm} \times 0.80 \text{ mm}$ (with a step interval of $80 \text{ }\mu\text{m}$ in Z direction). (B) An enlarged 3D visualization in (A) with a view field of $328 \text{ }\mu\text{m} \times 276 \text{ }\mu\text{m} \times 342 \text{ }\mu\text{m}$ (with a step interval of $1.0 \text{ }\mu\text{m}$ in Z direction). The scale bars in A and B are 1.0 mm and $100 \text{ }\mu\text{m}$, respectively.

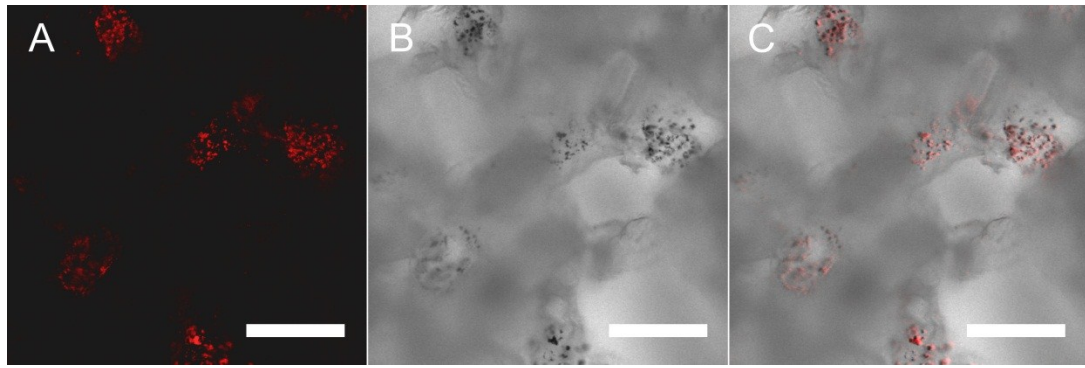


Fig. S5 *In vitro* angiogenesis study in SNs-HUVECs/HDFs 3D co-culture system in PCL scaffold. (A) TPL image, (B) transmission image and (C) overlay image of HUVECs/HDFs 3D co-culture system after 2 days. All scale bars are 200 μm .