

Supplementary material

The effect of uncoated SPIONs on hiPSC-differentiated endothelial cells

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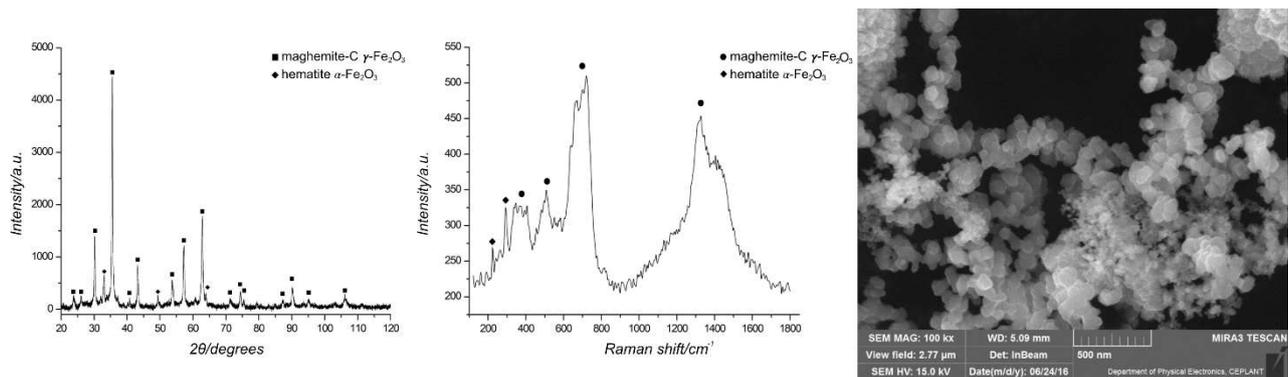


Figure S1 Characterisation of the prepared uSPIONs. Left, sample diffraction pattern. Middle, phase composition of the prepared sample analyzed by Raman spectroscopy. Right, SEM of the synthesized uSPIONs (size: 20-50 nm). Abbreviations: SEM, scanning electron microscopy.

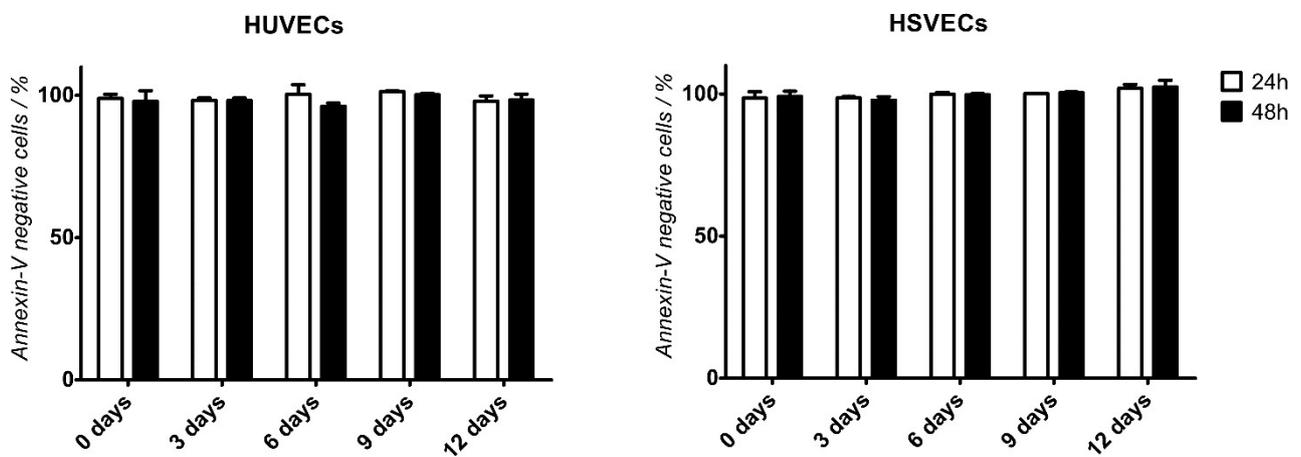


Figure S2 Cell viability after incubation with uSPIONs assessed by Annexin assay. HSVECs and HUVECs were incubated with 10 μ g/ml uSPIONs for 24 and 48 h and observed up to 12 days after incubation. Viability was assessed by annexin assay during passaging – every 3 days ($N = \pm 3$ SEM). Viability was standardized to the control. The statistical evaluation (*t*-test) showed no significant difference in cell survival among the cell lines ($p > 0.05$). Abbreviations: HUVECs, human umbilical vein endothelial cells; HSVECs, human saphenous vein endothelial cells.

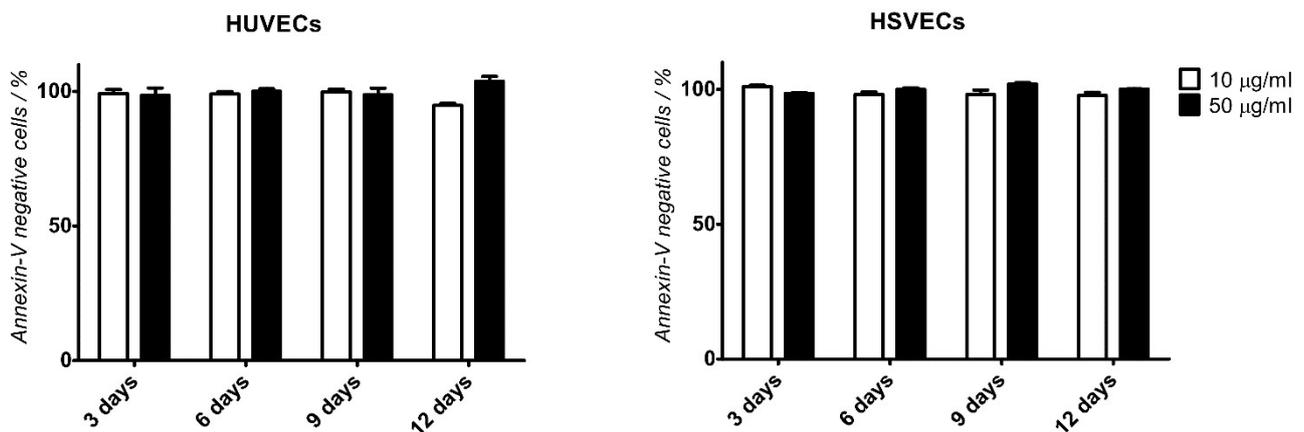


Figure S3 Cell viability during long-term incubation with uSPIONs assessed by Annexin assay. HUVECs and HSVECs were incubated with 10 and 50 μ g/ml uSPIONs for 3, 6, 9 and 12 days ($N = \pm 3$ SEM). Viability was standardized to the control. The statistical evaluation (*t*-test) showed no significant difference in cell viability among the cell lines ($p > 0.05$). Abbreviations: HUVECs, human umbilical vein endothelial cells; HSVECs, human saphenous vein endothelial cells.

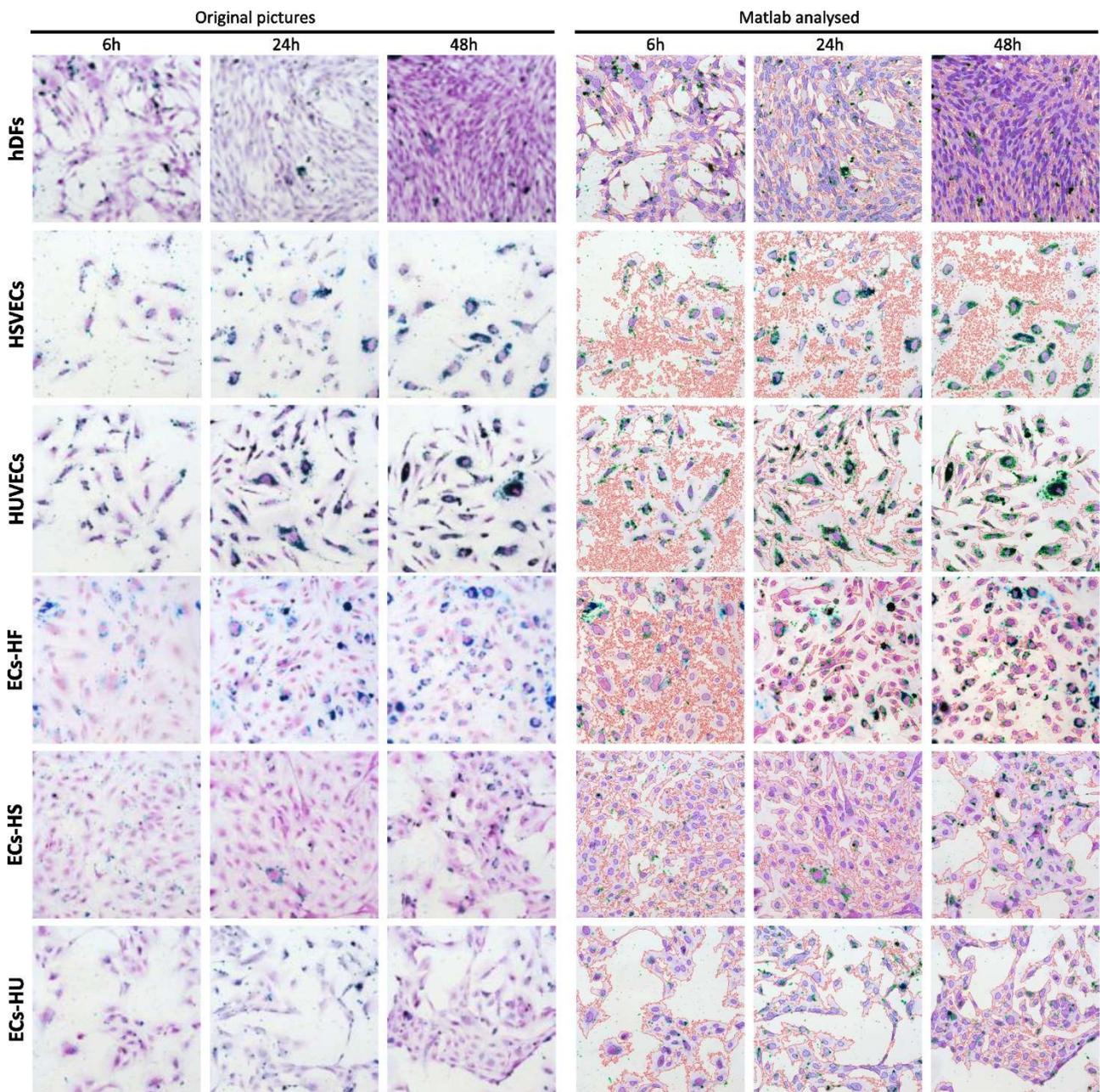


Figure S4 Internalization of uSPIONs in 6 cell types, Matlab analysis. *Left - Representative pictures of internalization of uSPIONs visualized after Prussian blue staining. Cells were incubated with uSPIONs for 6 h, 24 h and 48 h, stained with Prussian blue for iron detection and observed under a light microscope. Right – Matlab analysis of internalization of uSPIONs visualized after Prussian blue staining. Analysis of number of uSPIONs inside the cell. Red lines – cell borders, green – uSPIONs. Abbreviations: HUVECs, human umbilical vein endothelial cells; HSVECs, human saphenous vein endothelial cells; hDFs, adult human dermal fibroblasts; ECs-HUs, endothelial cells differentiated from hiPSCs-HU; ECs-HS, endothelial cells differentiated from hiPSCs-HS; ECs-HF, endothelial cells differentiated from hiPSCs-HF.*