Supporting Information

Table S1: Chemical and structural characteristics of non-labeled and USPIO-labeled collagen scaffolds. Pore sizes and DSC (Differential Scanning Calorimetry) properties were neither significantly affected by the incorporation of USPIO, nor by the labeling procedure.

	%(v/v)	µg Fe/ mg Collagen	%(w/w)	Pore size [µm]	DSC [°C]
Non-labeled	0	0	0	98+/-23	60+/-2
USPIO	0.5	2.2	0.2	98 +/- 30	61+/-1
	1	4.5	0.4	102+/-32	60+/-0.9
	1.5	6.7	0.7	89+/-20	58+/-1.3
USPIO-NH_2	0.5	2.2	0.2	80+/-20	59+/-1.1
	1	4.5	0.4	82+/-19	61+/-1.4
	1.5	6.7	0.7	81+/-21	62+/-1.3
USPIO-CHO	0.5	2.2	0.2	85+/-19	62+/-2.3
	1	4.5	0.4	84+/-19	62+/-0.5
	1.5	6.7	0.7	84+/-23	61+/-1.1

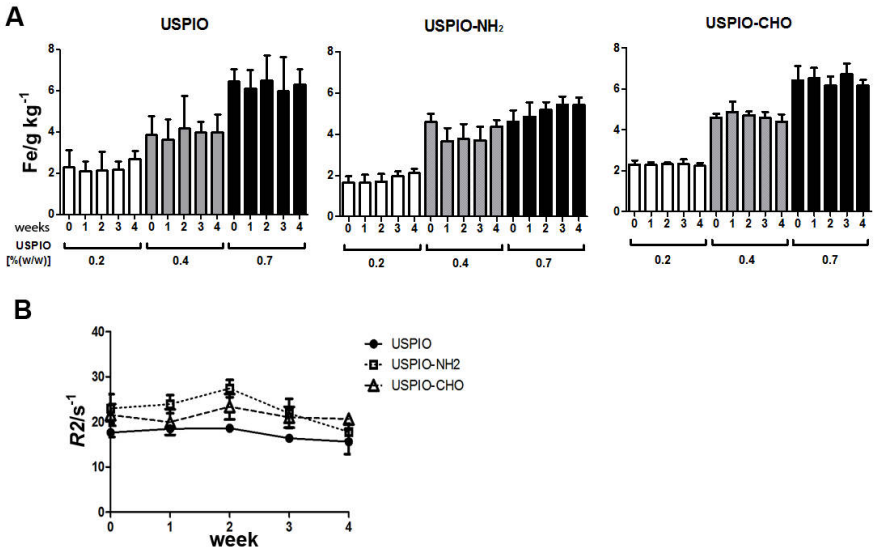

Figure S1: Iron concentrations (A) and R2 relaxation rates (B) in passively and actively USPIO-labeled collagen scaffolds during the course of extensive washing over 4 weeks. No significant loss of USPIO and MRI signal over time could be observed.

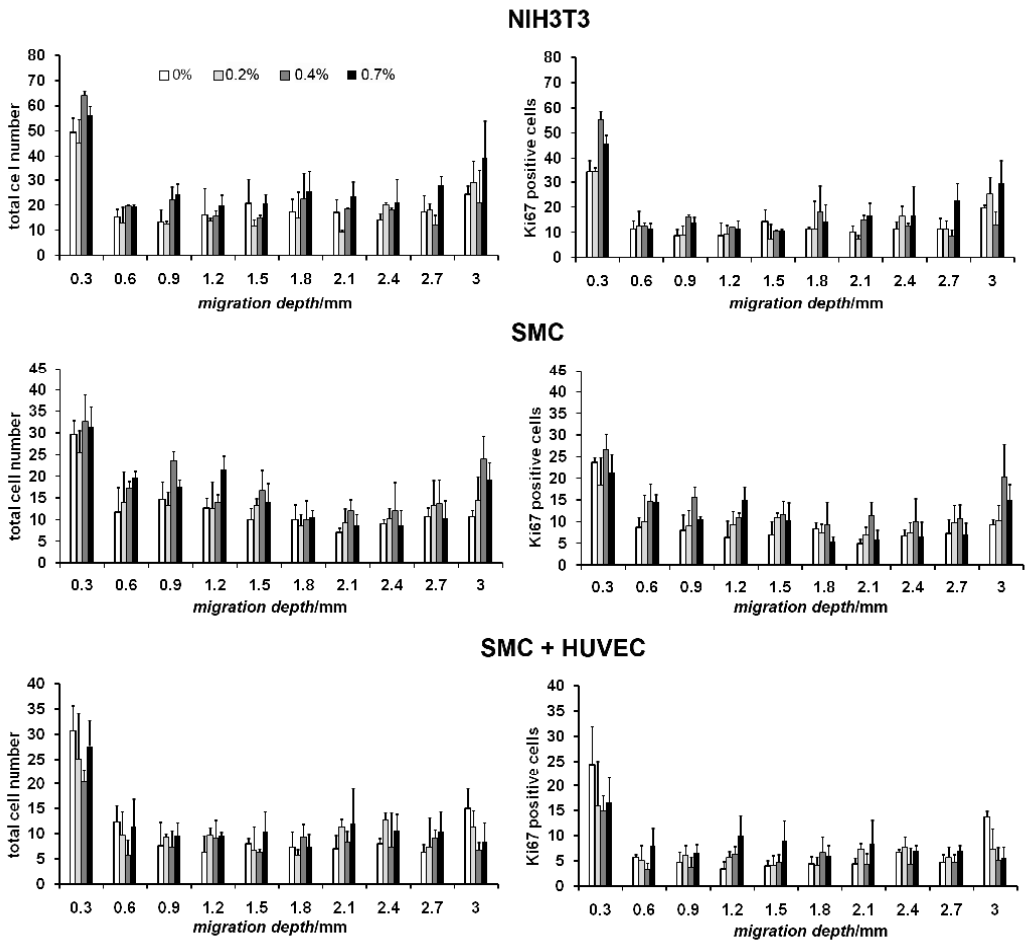

Figure S2: Quantitative analysis of the impact of USPIO-labeling on scaffold colonization upon 8 days of colonization with NIH3T3, SMC and HUVEC/SMC (co-culture). Overall colonization, penetration depth and cellular proliferation (assessed by Ki67 staining) were comparable for labeled and non-labeled scaffolds.

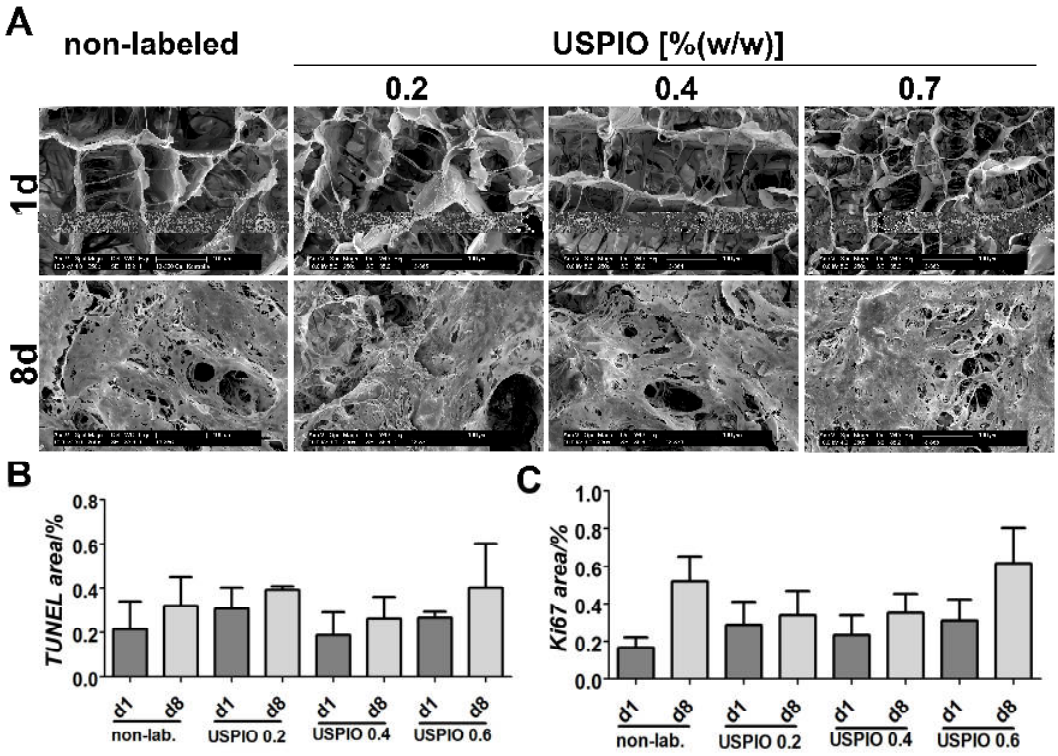

Figure S3: SEM images of the pore structure of non-labeled and USPIO-labeled collagen scaffolds upon 1 and 8 days of colonization with NIH3T3 fibroblasts at 250x magnification (A). Quantitative evaluation of the apoptotic (TUNEL) (B) and proliferating (Ki67) cells (C) by IHC area fraction analysis. No qualitative and quantitative differences in scaffold colonization, proliferation and apoptosis were observed for labeled vs. non-labeled scaffolds.