Table S1 Stem cell immunophenotype of isolated MSCs*. (Passage 6)

Stem-Cell-Specific Monoclonal Antibodies	IgG Isolypes	Positive Cell Number	
		Neg Ctrl (%)	Experimental group (%)
CD73 IgG1-APC	IgG1-APC	0.05	99.95
CD45 IgG1-FITC	IgG1-FITC	0.33	0.36
CD90 IgG1-FITC			99.76
CD19 IgG1-RPE	IgG1-RPE	0.05	0.03
CD34 IgG1-RPE			1.22
CD105 IgG1-RPE			99.48

* FACS analysis of immunocytochemistry-labeled cells following the descriptions in "Materials and methods"on the "intracellular qualitative analysis" just without permeabilization. IgG isolypes were used as negative control (Neg Ctrl) groups.

Table S2 Compiled list of gene targets probed for SMCs contractile markers.

GenBank Accession number	Gene target	Sequence (5'-3')	Amplicon length (bp)
NM_001256799	GAPDH	ACAGTTGCCATGTAGACC	95
		TTTTTGGTTGAGCACAGG	
NM_001613	ACTA2	AGATCAAGATCATTGCCCC	116
		TTCATCGTATTCCTGTTTGC	
NM_001299	CNN1	CATCATTCTTTGCGAATTCATC	75
		CAATTTTGGGTTGACTCATTG	
NM_022844	MYH11	CTATCTGCTAGAAAAATCACGG	104
		CACTTCTCATCTTCTCCTTG	

Table S3 Compiled list of monoclonal antibodies targeted for SMCs contractile markers.

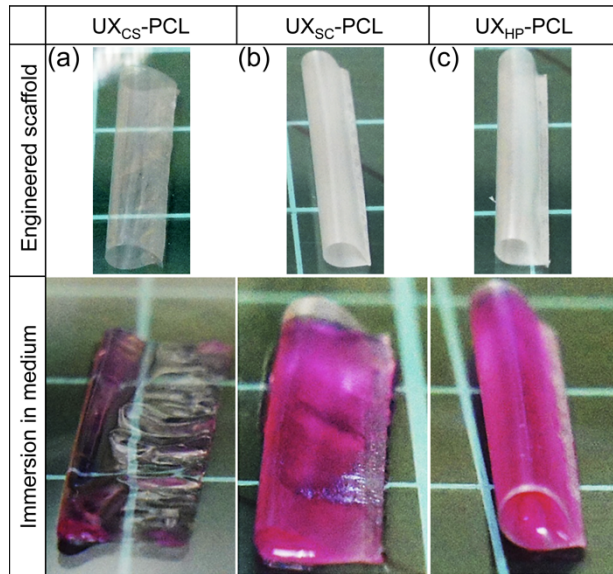| 1st monoclonal antibodies (Mouse anti-human SM)	IgG isotypes	Dilution in 1-wt% BSA solution (v/v)
SM-α-actin	IgG 2a k	1:100
Calponin	IgG 1 k	1:100
SM myosin heavy chain (SM-MHC)	IgG 1 k	1:50
2nd antibody (Goat anti-mouse IgG-FITC)	/	1:500

Fig. S1 Collapse of 3D tubular vascular TE scaffolds. Scaffolds were engineered from (a) UX_{CS}-PCL, (b) UX_{SC}-PCL, and (c) UX_{HP}-PCL, respectively. UX_{HP}-PCL-based scaffold after being in contact with the biologcal liquids (e.g. cell culture medium) retained tubular patency without collapse.