

Supplementary data

Biomechanically, structurally and functionally meticulously tailored polycaprolactone/silk fibroin scaffold for meniscus regeneration

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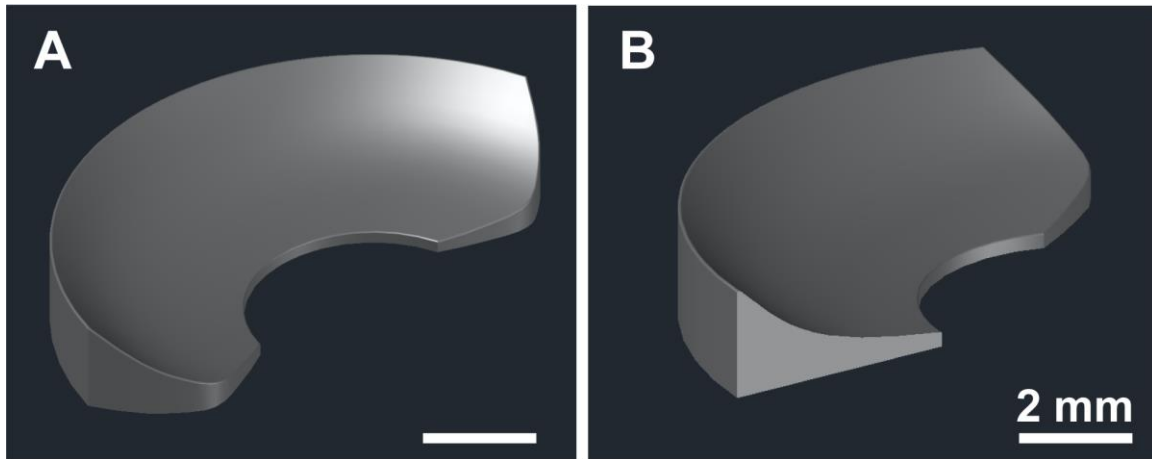
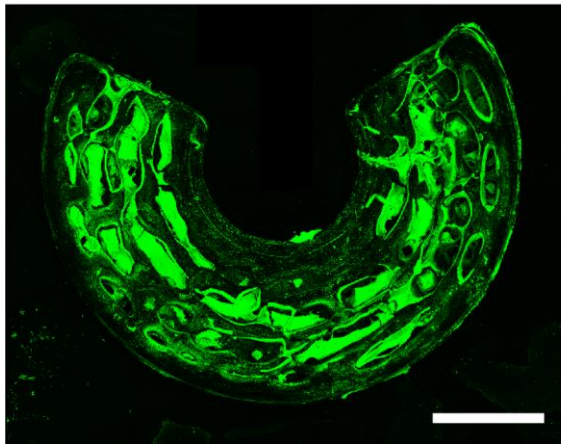


Figure S1. Meniscus model. (A) Top observation, **(B)** Lateral observation.

Confocal Microscope



Light Microscope

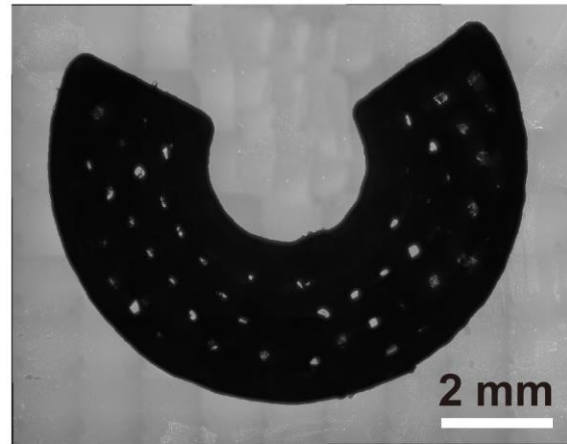


Figure S2. Confocal images of scaffold showed conjugation of FITC-L7 peptide.

Table S1. Gross Evaluation of Meniscal Implant Score^a

Parameter	PS-12W	PS-L7-12W	PS-24W	PS-L7-24W	P value ^b	
					α	β
Integration	1.3(1-2)	2.1(1-3)	1.7(1-2)	2.3(2-3)	0.001*	0.012*
Implant position	1.6(1-2)	2.0(1-3)	1.7(1-2)	2.2(2-3)	0.047*	0.012*
Horn position	1.6(1-3)	2.3(2-3)	1.8(1-3)	2.4(2-3)	0.004*	0.021*
Shape	1.7(1-2)	2.1(1-3)	1.6(1-2)	2.8(2-3)	0.094	0.001*
Tears	2.3(2-3)	2.6(2-3)	2.4(2-3)	2.8(2-3)	0.101	0.008*
Surface	1.2(1-3)	1.5(1-2)	1.8(1-3)	2.4(2-3)	0.101	0.000*
Size	1.4(1-2)	1.7(1-2)	1.8(1-3)	2.4(2-3)	0.101	0.013*
Tissue strength	1.9(1-3)	2.3(2-3)	2.0(1-3)	2.5(2-3)	0.047*	0.004*
Synovia	2.1(1-3)	2.4(2-3)	2.1(1-3)	2.5(2-3)	0.060	0.047*
Total score	15.1(10-23)	19.0(13-25)	16.9(10-24)	22.3(18-27)	0.000*	0.000*

^aEach parameter is scored from 1 to 3 based on the condition of the meniscal implant. Scores are provided as mean (range).

^b α represents PS-12W vs PS-L7-12W; β represents PS-24W vs PS-L7-24W.

* represents statistically significant (* $p < 0.05$).

Table S2. Histological Features of Implants^a

Feature	PS-12W	PS-L7-12W	PS-24W	PS-L7-24W
Residual scaffold	5 (100)	5 (100)	5 (100)	5 (100)
Foreign body reaction	5 (100)	4 (80)	5 (100)	3 (60)
Hypocellular areas	5 (100)	4 (80)	5 (100)	3 (60)
Blood vessels	5 (100)	5 (100)	5 (100)	5 (100)
Fibrosis	5 (100)	4 (80)	3 (60)	2 (40)
Cartilage metaplasia				
Tip	3 (60)	4 (80)	4 (80)	5 (100)
Central	2 (40)	3 (60)	3 (60)	5 (100)
Integration				
Good	3 (60)	4 (80)	4 (80)	5 (100)
Poor	2 (40)	1 (20)	1 (20)	0 (0)
Inflammatory infiltrate				
Lymphocytes	5 (100)	5 (100)	5 (100)	4 (80)
Plasma	0	0	0	0
Neutrophils	0	0	0	0

^aThe features were scored as being either present or absent for each implant (total of 5 implants for each group). Data are provided as n (%).

Table S3. Real-time PCR primers

Gene	Forward primer (5'–3')	Reverse primer (5'–3')
Type I collagen	gCAATgCTgAATCgTCCCAC	CAGCACAggCCCTCAAAAAC
Type II collagen	CACCgCTAACgTCCAgATgAC	ggAAGgCgTgAggTCTTCTgT
Sox9	AgCTgTgTgTAgACgggTTg	TCCCCgCAACAgATCTCCTA
Aggrecan	CATTCgCACgggAgCAGCCA	TggggTCCgTgggCTCACAA
18s RNA	gTAACCCgTTgAACCCATT	CCATCCAATCggTAgTAgCg