Supporting Data

HBC-nanofiber hydrogel scaffolds with 3D printed internal microchannels for enhanced cartilage differentiation

Xiaoyun Liu[a,b], Shaoshuai Song[a,b], Jie Huang*[a], Han Fu[a], Xinyu Ning[a], Yong He[c], and Zhijun Zhang*[a,b]

[a]CAS Key Laboratory of Nano-Bio Interface, Division of Nanobiomedicine, Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences, Suzhou 215123, China.

[b]School of Nano Technology and Nano Bionics, University of Science and Technology of China, Hefei 230026, China

[c]State Key Laboratory of Fluid Power and Mechatronic Systems and Key Laboratory of 3D Printing Process and Equipment of Zhejiang Province, College of Mechanical Engineering, Zhejiang University, Hangzhou, 310027 China

*Corresponding authors. E-mail address: jhuang2008@sinano.ac.cn; zjzhang2007@sinano.ac.cn (Z. Zhang)

Tel: +86-512-62872556

Table S1 Primer sequences used for real-time PCR.

Gene	Sense primer (5’-3’)	Antisense primer (5’-3’)
GAPDH	AATGAAGGGGTCATTGATGG	AAGGTGAAGGTCGGAGTCAA
N-cadherin	ATTGCCATCCTGCTCTGCAT	AAAAGTTGTTTGGCCTGGCG
N-CAM	AGTGTGTGGTTACAGGCGAG	TGGCGCATTCTTGAACATGAG

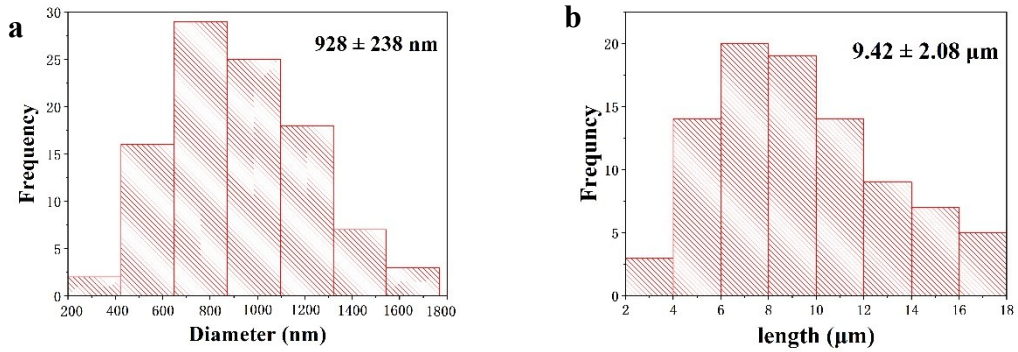

Fig. S1 (a) Diameter distribution of the as-prepared PLGA nanofibers. (b) Length distribution of the short PLGA nanofibers.

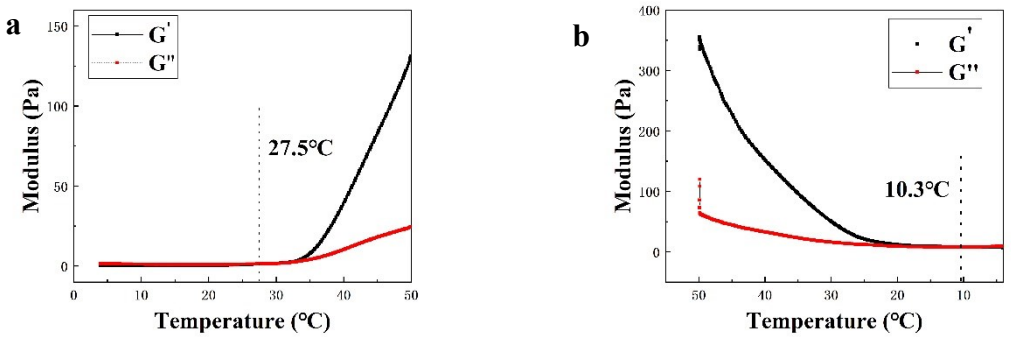

Fig. S2 (a) Gelation profile of HBC aqueous solution. (b) The reversible process of HBC from gel to sol.

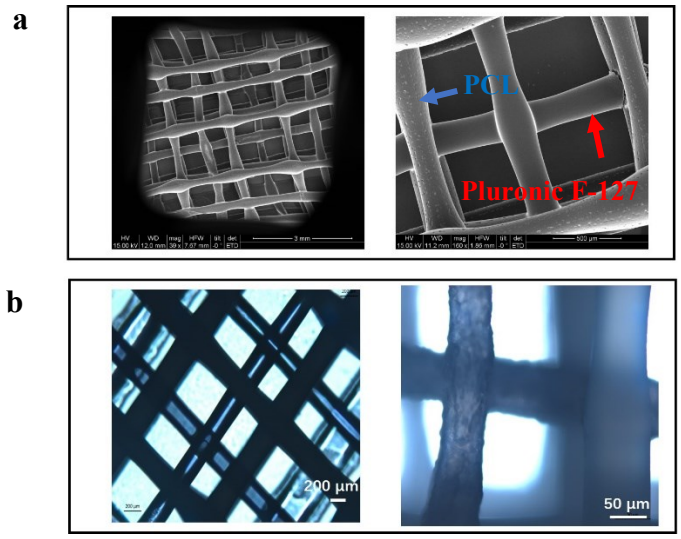

Fig. S3 (a) SEM image (left) and partially enlarged SEM image (right) of the framework formed by PCL and Pluronic F-127. (b) Microscopic image (left) and partially enlarged microscopic image (right) of the framework structure.

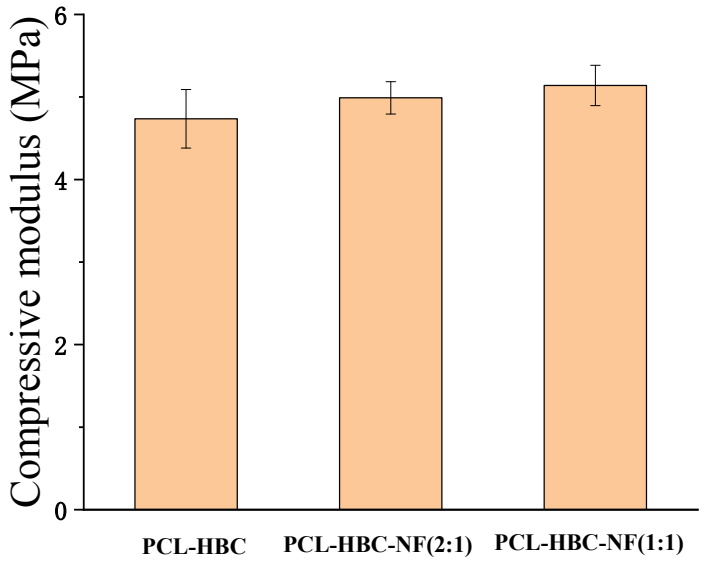

Fig. S4 Compressive modulus of the PCL framework reinforced hydrogel scaffolds.

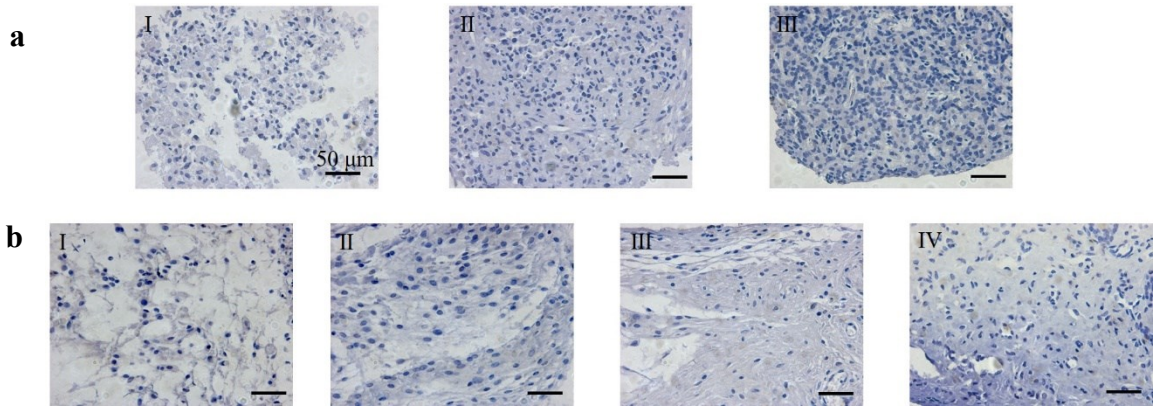

Fig. S5 (a) Immunochemical staining of collagen Ⅹ in the (Ⅰ) HBC, (Ⅱ) HBC-NF (2:1) and (Ⅲ) HBC-NF (1:1) hydrogels after culturing for four weeks *in vitro*. (b) Immunochemical staining of collagen Ⅹ in the (Ⅰ) PCL-HBC scaffold, (Ⅱ) PCL-HBC scaffold with internal microchannels, (Ⅲ) PCL-HBC-NF (1:1) scaffold and (Ⅳ) PCL-HBC-NF (1:1) scaffold with internal microchannels after the *in vitro* culturing for four weeks and *in vivo* culturing for a month.