Supporting Information

Simulation of ECM with Silk and Chitosan Nanocomposite Materials

Zhaozhao Ding[a,#], Jie Ma[b,#], Wei He[c,#], Zili Ge[b],Qiang Lu[a,*], David L. Kaplan[d]

[a]Collaborative Innovation Center of Suzhou Nano Science and Technology and National Engineering Laboratory for Modern Silk, Soochow University, Suzhou 215123, People's Republic of China

[b]Department of Stomatology, The First Affiliated Hospital of Soochow University, Suzhou 215006, People's Republic of China

[c]Department of Maxillofacial Surgery, The People's Hospital, Qinghai 44000115-4, People's Republic of China

[d]Department of Biomedical Engineering, Tufts University, Medford, MA 02155, USA

[#] The authors have contributed equally to the first author

*Address corresponding to Lvqiang78@suda.edu.cn

Atomic Force Microscopy (AFM): silk solutions were diluted to below 0.1 wt %, a total of 2 μL of the diluted silk solution was dropped onto freshly cleaved 4 × 4 mm^2 mica surfaces. The morphology of silk fibroin was observed by AFM (Nanoscope V, Veeco, NY, USA) in air.[1]

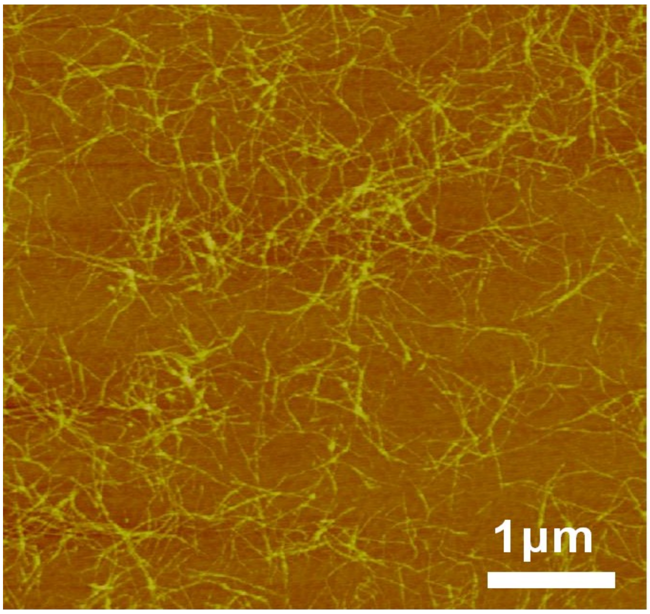

Figure S1. The microstructure of SF nanofibers in solution.

Porosity measurement by liquid displacement: The lyophilized scaffolds were immersed in a graduated cylinder of known volume of ethanol (V_1). The scaffold was immersed in ethanol for 5 min until it became saturated (V_2). Then the ethanol-soaked scaffold was removed from the graduated cylinder, and the remaining volume was recorded as (V_3). The porosity of the scaffolds was expressed as:

$$\text{Porosity} = ((V_1 - V_3) / (V_2 - V_3)) \times 100\%$$

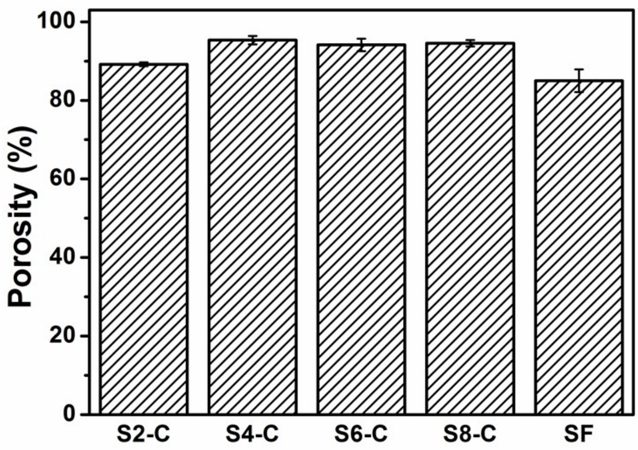

Figure S2. The porosity of the scaffolds.(The samples SF, S2-C, S4-C, S6-C and S8-C indicate the ratio of SF and chitosan 1:0, 2:1, 4:1, 6:1 and 8:1, respectively).

REFERENCES

(1) Bai, S. M.; Zhang, X. L.; Lu, Q.; Sheng, W. Q.; Liu, L. J.; Dong, B. J.; Kaplan, D. L.; Zhu, H. S. *Biomacromolecules* **2014**, *15*, 3044-3051.