

Supporting Information

Growth Factor-Free Salt-leached Silk Scaffolds to Differentiate Endothelial Cells

Liyang Xiao^{a,b,#}, Caihong Zhu^{c,#}, Zhaozhao Ding^{a,b,#}, Shanshan Liu^d, Danyu Yao^{a,b},
Qiang Lu^{a,b,*}, David L Kaplan^e

^aNational Engineering Laboratory for Modern Silk & Collaborative Innovation Center
of Suzhou Nano Science and Technology, Soochow University, Suzhou 215123,
People's Republic of China

^bKey Laboratory of Stem Cells and Biomedical Materials of Jiangsu Province and
Chinese Ministry of Science and Technology, Soochow University, Suzhou 215123,
People's Republic of China

^cSchool of Mechanical and Electric Engineering, Soochow University, Suzhou
215123, People's Republic of China

^dSchool of Medicine, Shenzhen University, Shenzhen 518060, People's Republic of
China

^eDepartment of Biomedical Engineering, Tufts University, Medford, Massachusetts
02155, United States

Corresponding author:

*Qiang Lu, Tel: (+86)-512-67061649; E-mail: lvqiang78@suda.edu.cn

The authors have contributed equally to the first author.

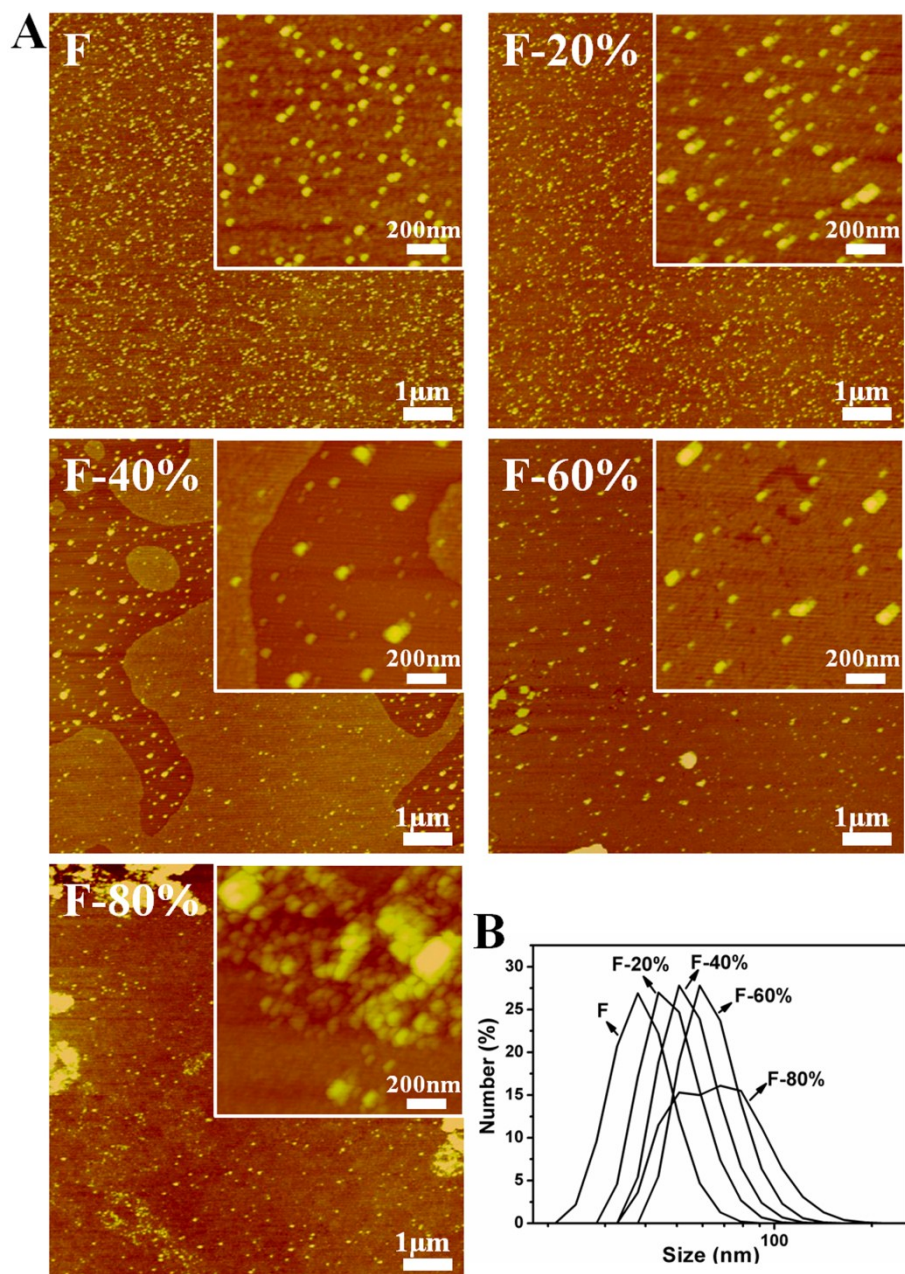


Figure S1. AFM images (A) and DLS size distribution (B) of the fresh silk solution (F) and the fresh silk solution mixed with glycerol at silk/glycerol weight ratios of 100:20 (F-20%), 100:40 (F-40%), 100:60 (F-60%) and 100:80 (F-80%).



Figure S2 Typical optical image of the salt-leached scaffolds

Table S1. FTIR determination of secondary structures of different silk scaffolds through FSD of the amide I region.

Samples	Conformation content of silk fibroin (%)		
	β -sheet	Random coil	Intermediate state
F-S	49.4±0.5	18.4±0.9	32.2±1.1
F-20%-S	46.6±0.4	23.8±0.7	29.6±0.4
F-40%-S	46.3±0.1	26.9±0.9	26.8±0.7
F-60%-S	45.9±0.1	23.7±0.9	30.4±1.0
F-80%-S	44.9±0.4	23.1±0.5	32.0±0.5

The samples were as follows: scaffolds prepared from the fresh silk solution (F-S) and the blended silk solutions with glycerol at silk/glycerol weight ratios of 100:20 (F-20%-S), 100:40 (F-40%-S), 100:60 (F-60%-S) and 100:80 (F-80%-S)

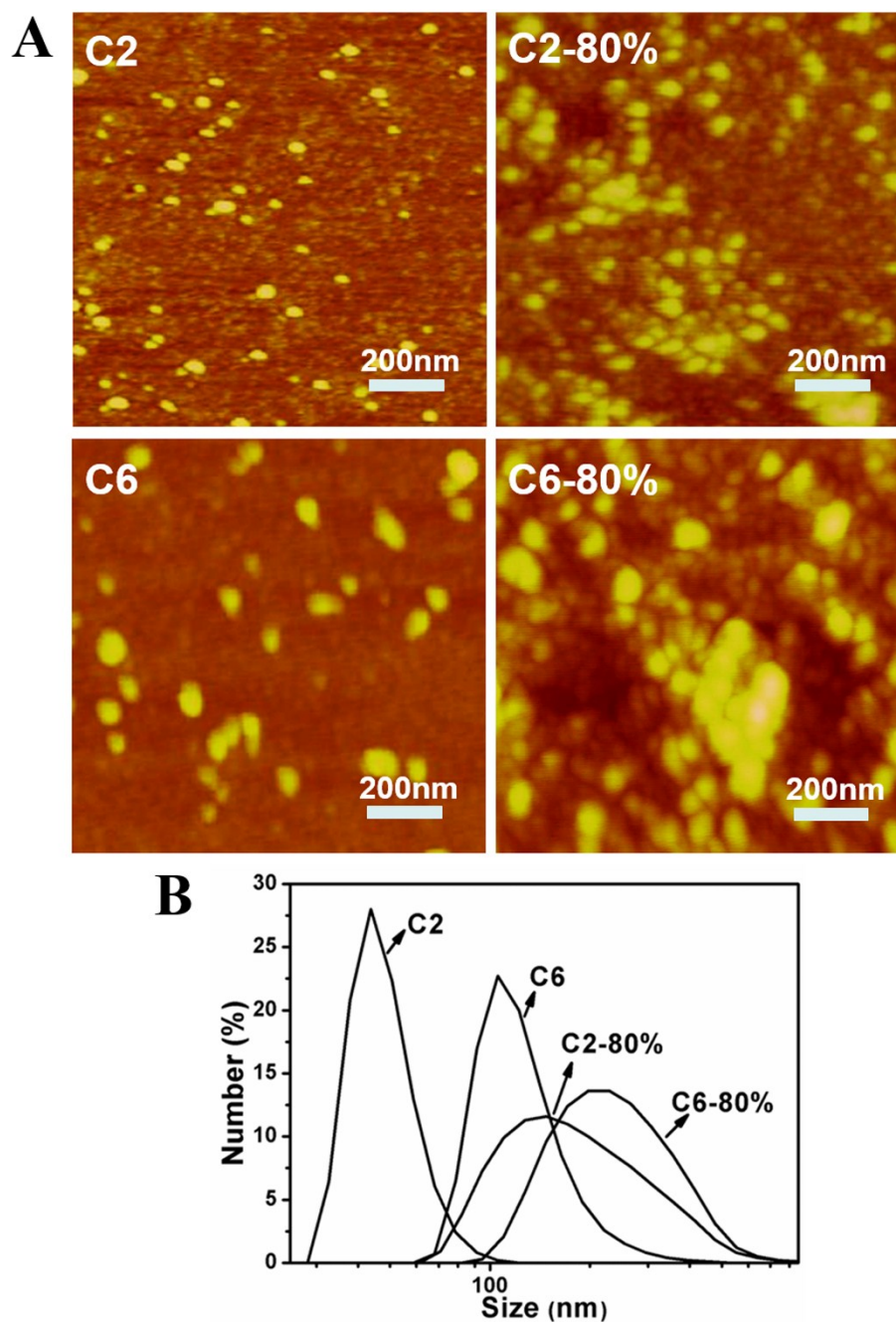


Figure S3. AFM images (A) and DLS size distribution (B) of the fast concentrated silk solution (C2), the slowly concentrated silk solution (C6-S), the fast concentrated silk solution mixed with glycerol at silk/glycerol weight ratios of 100:80 (C2-80%) and the slowly concentrated silk solution mixed with glycerol at silk/glycerol weight ratios of 100:80 (C6-80%-S).

Table S2. FTIR determination of secondary structures of different silk scaffolds through FSD of the amide I region.

Samples	Conformation content of silk fibroin (%)		
	β -sheet	Random coil	Intermediate state
C2-S	47.6 \pm 0.2	28.2 \pm 0.3	24.2 \pm 0.4
C2-80%-S	41.0 \pm 0.3	28.8 \pm 0.3	30.2 \pm 0.2
C6-S	42.8 \pm 0.9	27.6 \pm 0.5	29.6 \pm 0.3
C6-80%-S	38.8 \pm 0.2	31.4 \pm 0.2	29.8 \pm 0.1

C2-S, silk scaffolds prepared from the fast concentrated silk solution; C2-80%-S, scaffolds derived from the fast concentrated silk solution containing glycerol at silk/glycerol weight ratios of 100:80; C6-S, scaffolds prepared from the slowly concentrated silk solution; C6-80%-S, scaffolds derived from the slowly concentrated silk solution containing glycerol at silk/glycerol weight ratios of 100:80.