

Supporting Information

Remodeling of Structurally Reinforced (TPU+PCL/PCL)-Hep Electrospun Small Diameter Bilayer Vascular Grafts Interposed in Rat Abdominal Aortas

Zhiping Fang,^a Yuehao Xing,^b Hang Wang,^{a, c} Xue Geng,^a Ai-ying Zhang,^a Yongquan Gu,^b and Zeng-guo Feng^a

- a. School of Materials Science and Engineering, Beijing Institute of Technology, Beijing 100081, China
- b. Department of Vascular Surgery, Xuanwu Hospital and Institute of Vascular Surgery, Capital Medical University, Beijing 100053, China
- c. National Institutes for Food and Drug Control, Beijing 102629, China

Table S1. Quantitative measurement of the structural parameters of (TPU+PCL/PCL)-Hep BLVG and PCL-Hep SLVG.

Contents	(TPU+PCL/PCL)-Hep BLVG	PCL-Hep SLVG
Porosity (%)	61.2 ± 4.3	75.3 ± 3.1
Luminal diameter (mm)	2.0 ± 0.05	2.0 ± 0.05
Suture retention (N)	1.23 ± 0.05	1.15 ± 0.08
Compliance (%/100mmHg)	4.51 ± 0.11	3.72 ± 0.06
Burst pressure (mmHg)	1403 ± 101	1311 ± 105

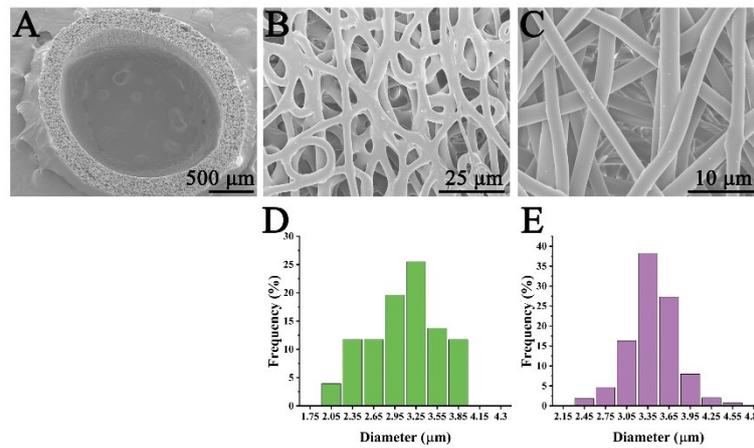


Figure S1. Morphology observation of electrospun PCL-Hep SLVG, and TPU mat. (A) SEM image for the cross-section of PCL-Hep SLVG. (B) SEM image of PCL-Hep SLVG. (C) SEM image of TPU mat. (D) Microfiber diameter distribution of PCL-Hep SLVG. (E) Microfiber diameter distribution of TPU mat.

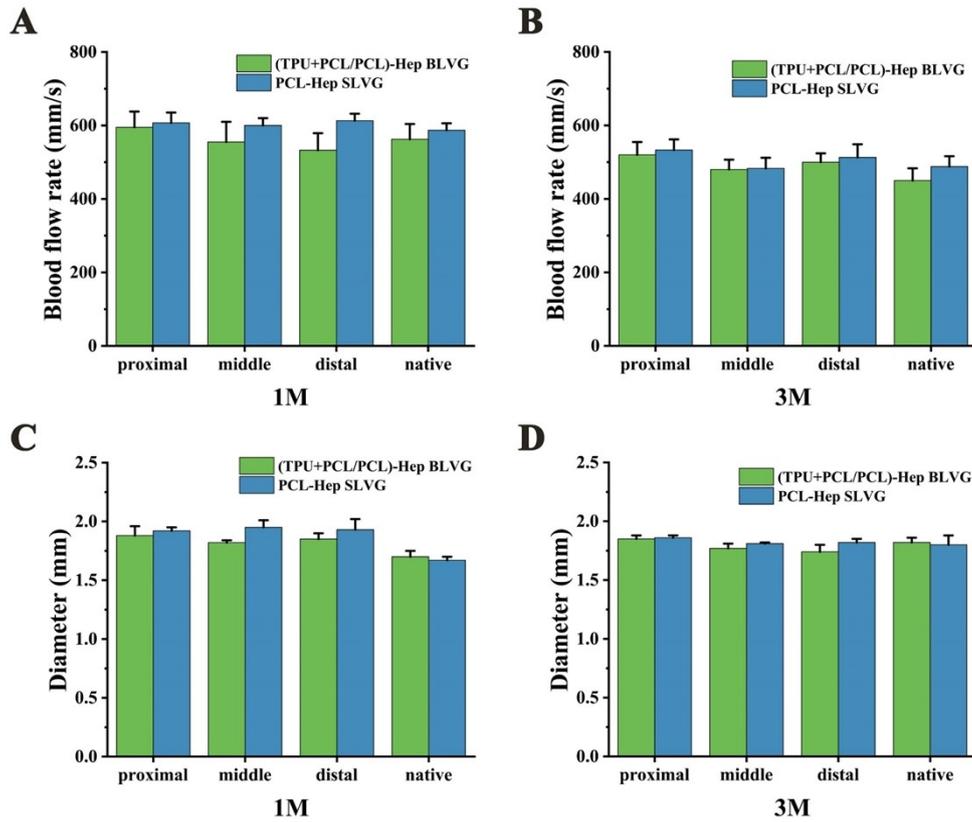


Figure S2. Blood flow rate (A, B) and internal diameter (C, D) of (TPU+PCL/PCL)-Hep BLVGs, PCL-Hep SLVG and native blood vessel after 1 and 3 month implantation.

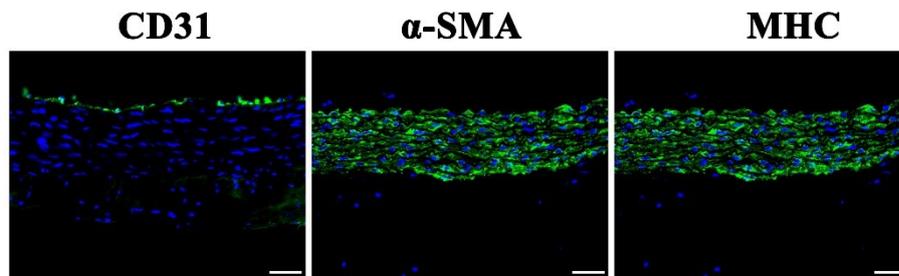


Figure S3. Endothelial cells and smooth muscle cells of native artery were detected by anti-CD 31, anti- α -SMA and anti-MHC antibody. Nuclei were stained with DAPI (blue). Scale bar, 50 μ m.

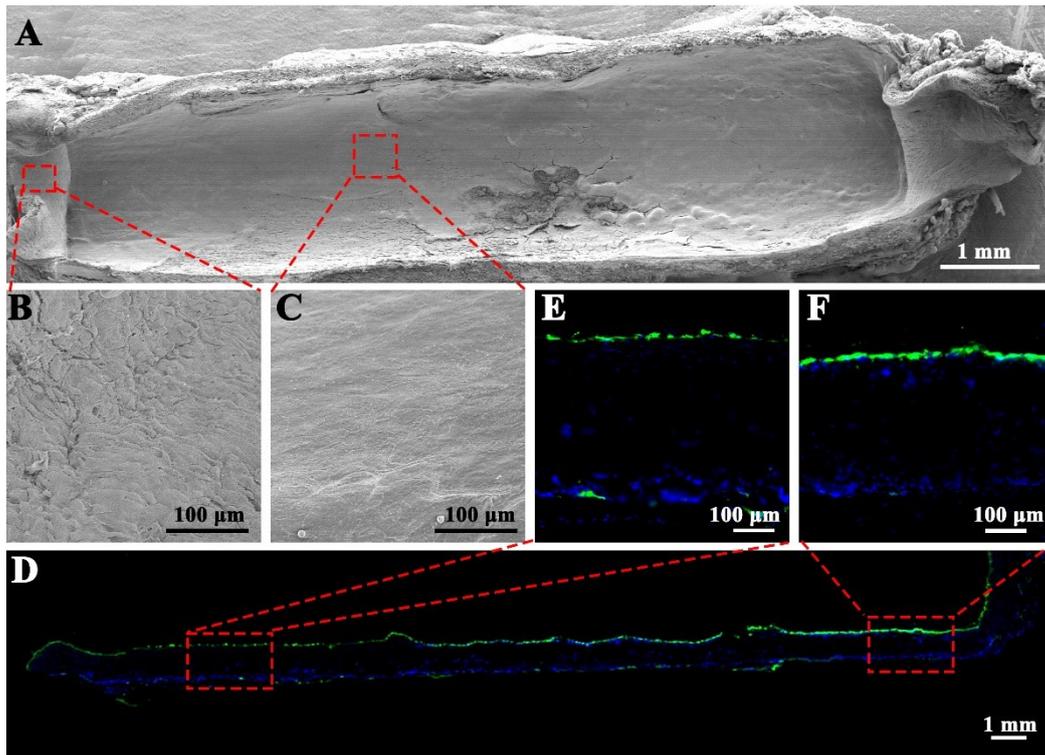


Figure S4. Endothelialization of (TPU+PCL/PCL)-Hep BLVGs at 6 months. (A) SEM of explant which was cut longitudinally into two pieces. Higher magnification micrographs showed the luminal surface of native artery (B) and the middle part of the graft (C). (D) Coverage of lumen by endothelial cells (CD31, green). Higher magnification micrographs showed CD31⁺ cells (E), and near the suture site in the graft (F). Nuclei were stained with DAPI (blue).

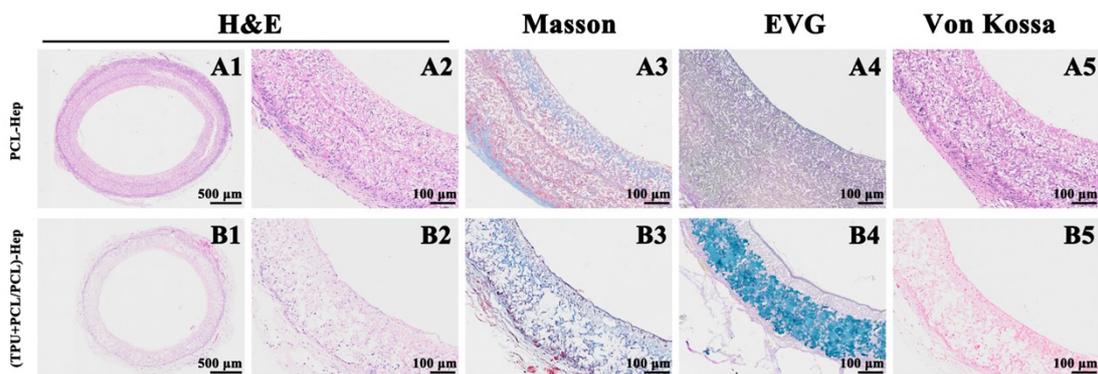


Figure S5. Characterization of ECM deposition in one month after implantation. Microscopic photos of cross-sections stained with H&E (A1-A2, B1-B2), Masson for collagen (blue, A3, B3), EVG for elastin (black, A4, B4) and Von Kossa for calcification (black, A5, B5).