Supporting Information

Thrombin-responsive engineered nanoexcavator with full-thickness infiltration capability for pharmaceutical-free deep venous thrombosis theranostics

Anyu Yang,a Bin Qiao,a Jin Cao,a Yuanli Luo,a Zhigang Wang,a Eric M. Strohm,b Xun Yuan,c and Yang Sun*a

Dr. Anyu Yang, Dr. J. Cao, Dr. B. Qiao, Mrs. Y. Luo, Prof. Z. Wang, Dr. Y. Sun

Institute of Ultrasound Imaging, the Second Affiliated Hospital of Chongqing Medical University, Chongqing, 400010, China

E-mail: sunyang@hospital.cqmu.edu.cn

Dr. Eric Strohm, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto M5S 2E8, Canada

Mr. X. Yuan

Department of ophthalmology, The Second Affiliated Hospital of Chongqing Medical University, Chongqing 400010, China
Figure S1. a) HPLC Chromatograms of ACPP before (left) and after (right) cleavage by thrombin. b) Mass fragments of the polyanionic domain and polycationic domain were identified: 1868.18 Da and 1743.76 Da.

Figure S2. a) PA images of PFP-ACPP-FTP-DIR liposomes with LIFU irradiation and without LIFU irradiation at different time point. b) Quantitative PA intensity of PFP-ACPP-FTP-DIR liposomes with and without LIFU irradiation.
Figure S3. a) In vitro binding efficiency of frozen sections of blood clots incubated with PFP-ACPP-FTP-DIR/PFP-ACPP-DIR/PFP-FTP-DIR liposomes (targeted groups) or PFP-DIR liposomes (nontargeted group) for 1 h LIFU irradiation (scale bar: 50 μm). b) Fluorescence intensity of the confocal laser image for each group. (Values are means ± s.d., n = 3, *P < 0.05)

Figure S4. Final thrombus reduction rate of each group LIFU irradiation for 1 hour. (Values are means ± s.d., n = 3, *P < 0.05)
Figure S5. Quantification of intensity for B-mode (a), and PA imaging (c); the differences in acoustic intensity of the thrombi before and after the
treatment of PFP-ACPP-FTP-DIR liposomes, PFP-ACPP-DIR liposomes, PFP-FTP-DIR liposomes, PFP-DIR liposomes at different time point (2, 5, 10, 15 min) of LIFU irradiation.

Figure S6. Blood biochemical examination of SD rats after corresponding therapeutic stages.