

## Supporting Information

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

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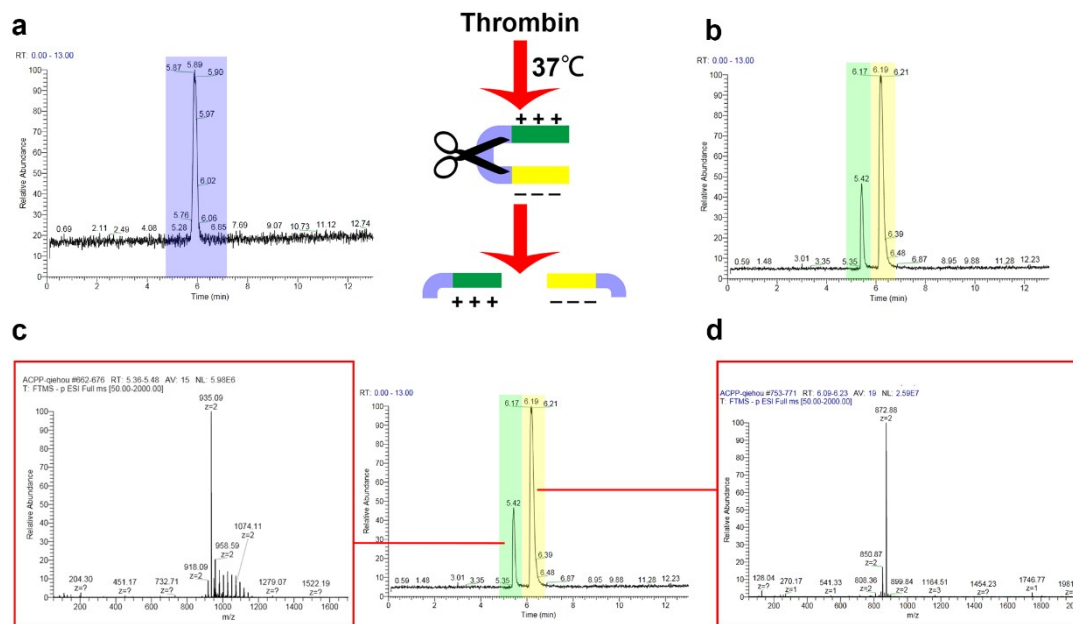
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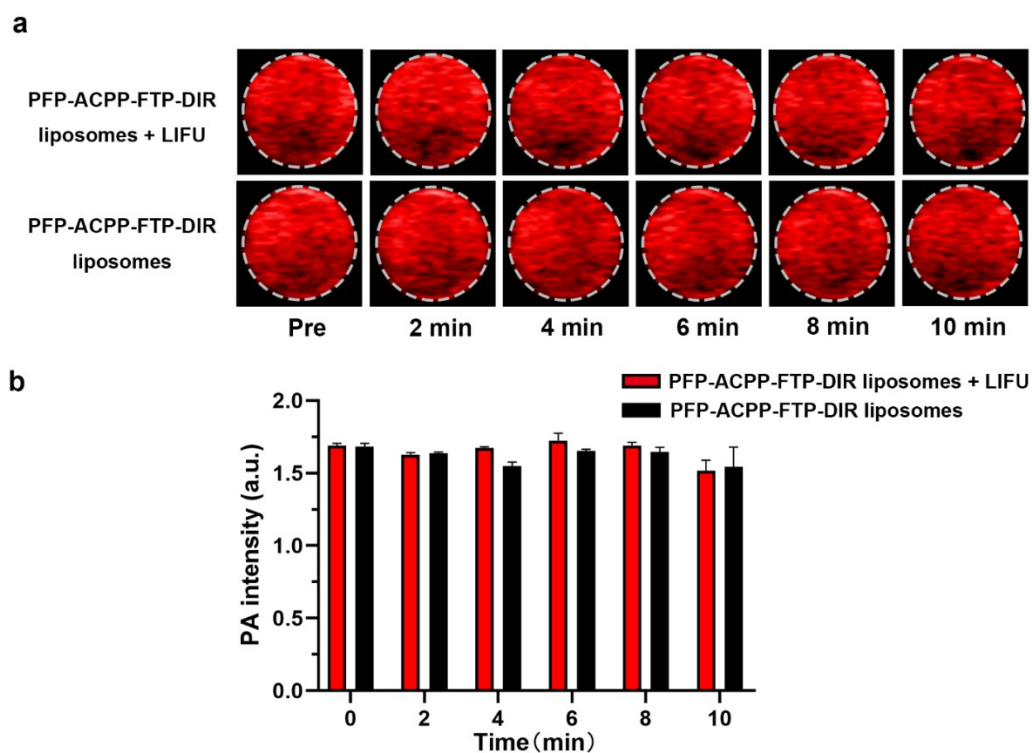
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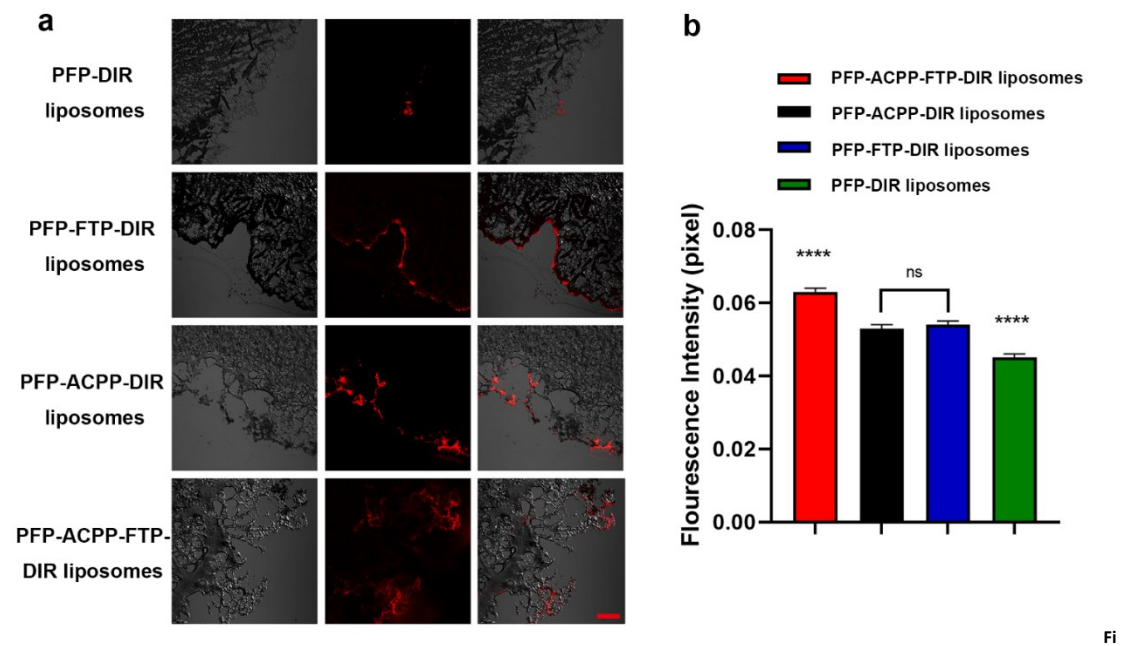


**Figure S1.** a) HPLC Chromatograms of ACPP before (left) and after (right) cleavage by thrombin. b) Masses fragments of the polyanionic domain and polycationic domain were identified: 1868.18 Da and 1743.76 Da.

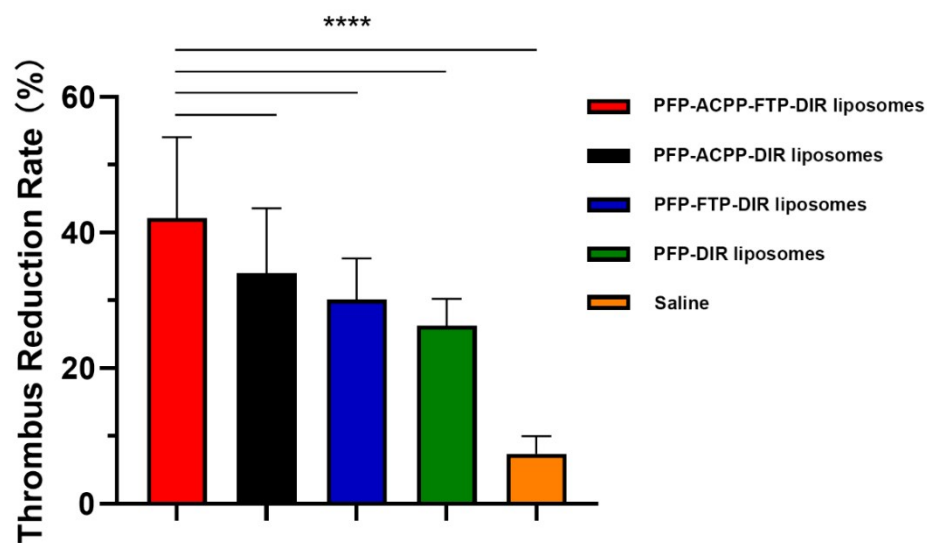


**Fig**

**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  $\mu$ m). b) Fluorescence intensity of the confocal laser image for each group. (Values are means  $\pm$  s.d.,  $n = 3$ ,  $*P < 0.05$ )



**Figure S4.** Final thrombus reduction rate of each group LIFU irradiation for 1 hour. (Values are means  $\pm$  s.d.,  $n = 3$ ,  $*P < 0.05$ )

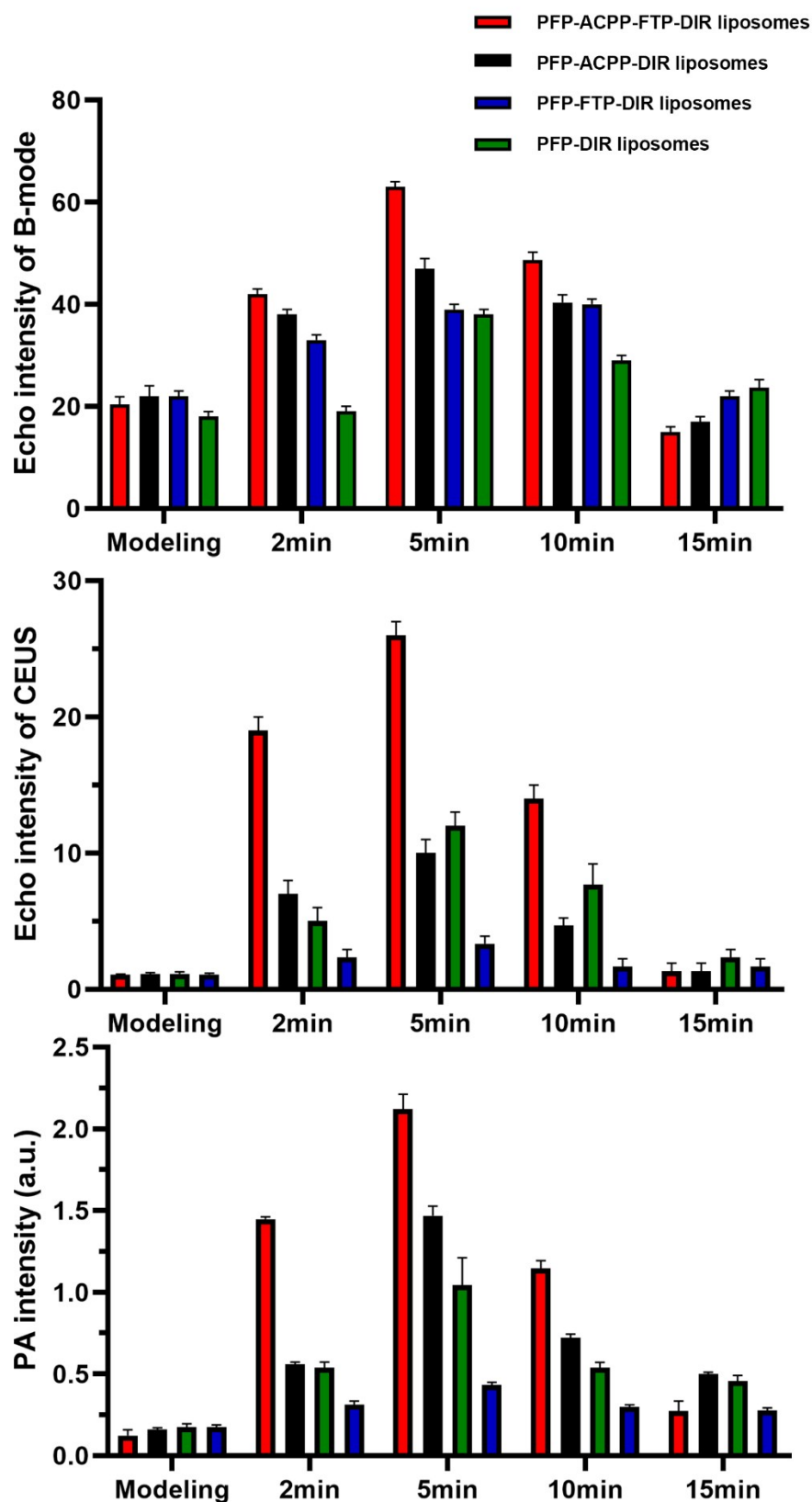


Figure S5. Quantification of intensity for B-mode (a), and PA imaging (c); the differences in acoustic intensity of the thrombi before and after the

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 irradiatio

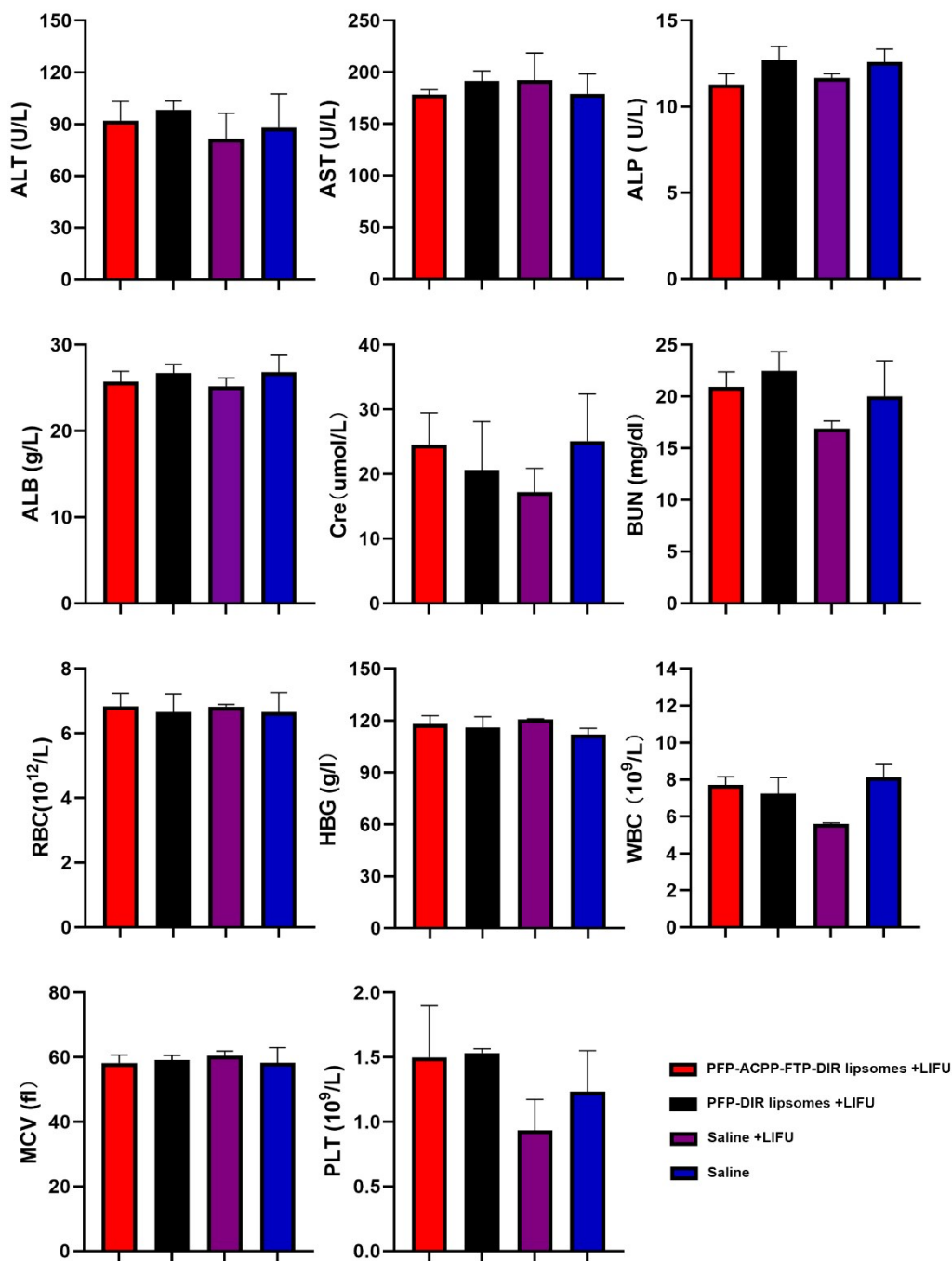


Figure S6. Blood biochemical examination of SD rats after corresponding therapeutic stages.