Supporting Information

Armoring liposome-integrated tissue factor with sacrificial CaCO₃ to form potent self-propelled hemostats

Chengkun Liu[1], Zhuang Shi[1], Jingyan Zhu[1], Chang Liu[1], Xiaodan Liu[1], Naseer Ullah Khan[1], Shihai Liu[2], Xiaojuan Wang[1], Xiaoqiang Wang[1,*], Fang Huang[1,*]

[1]State Key Laboratory of Heavy Oil Processing & College of Chemistry and Chemical Engineering, China University of Petroleum (East China), 66 West Changjiang Road, Qingdao, Shandong 266580, China

[2]Medical Research Center, the Affiliated Hospital of Qingdao University, Qingdao, Shandong 266550, China
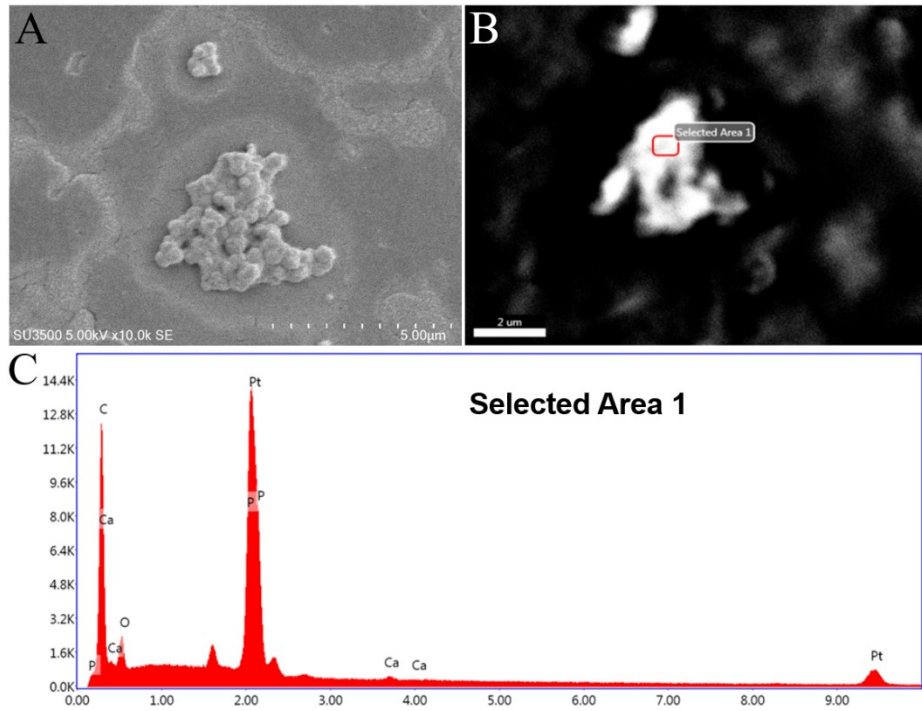
Figure S1 SEM micrograph (A) and the corresponding secondary electron micrograph (B) of TF-liposome-loaded $CaCO_3$ particles. (C) EDX spectrum of the selected area in (B).
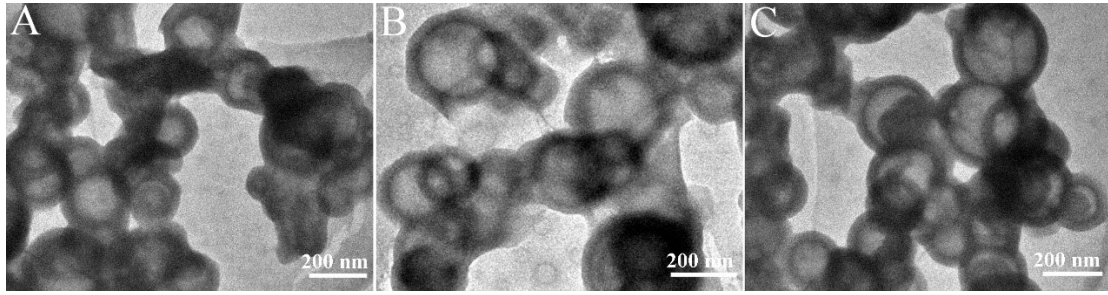
Figure S2 STEM micrographs of mineralized TF-liposomes dried under different conditions: (A) 60 °C; (B) 90 °C; (C) Freeze-drying.
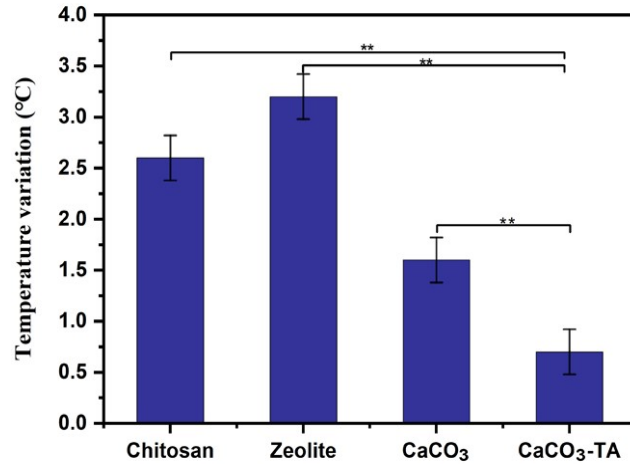
Figure S3 Temperature changes generated by different exothermic hydration reactions. 100 mg of each of chitosan, zeolite, TF-liposome-loaded $CaCO_3$ and TF-liposome-loaded $CaCO_3$ plus TA was mixed with 1.5 g of water at room temperature, and the resultant temperature variation was recorded using a digital thermometer. Values represent mean ± s.d. (n = 3 independent samples). **$P \leq 0.01$ among the marked groups using a one-tailed analysis of variance.
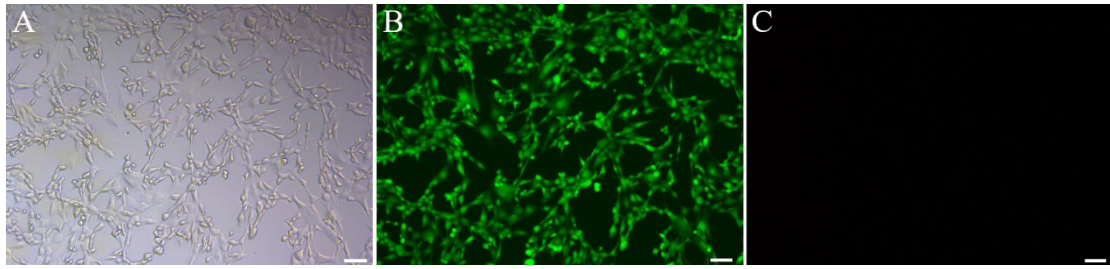
Figure S4 Evaluation of TF-liposome-loaded CaCO$_3$ cytotoxicity using the live/dead assay. (A) bright-field image; (B) live cells fluoresced green against dead cells, which fluoresce red (C). Scale bar, 50 µm.
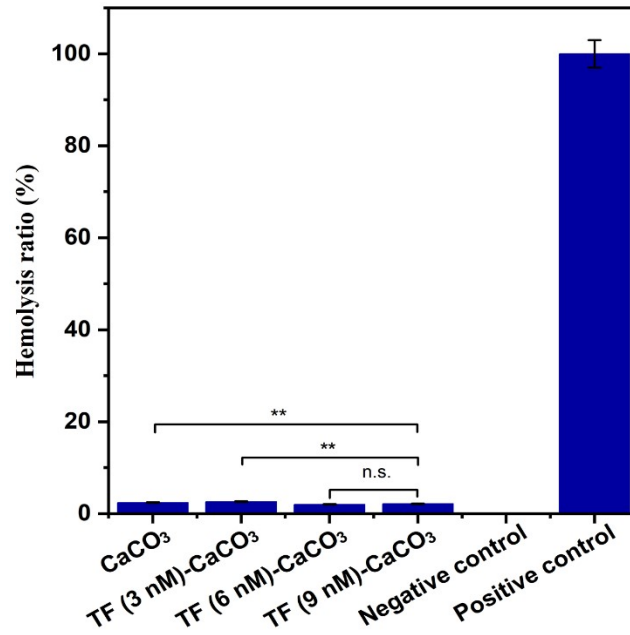
Figure S5 Hemolysis ratio of the mixture of TA with pure $CaCO_3$ or TF-liposome-loaded $CaCO_3$. Blood in PBS and deionized water served as negative and positive controls. Values represent mean ± s.d. (n = 3 independent samples). n.s., no significance, **P ≤ 0.01 among the marked groups using a one-tailed analysis of variance.