

## Supporting Information

# In-situ Hydrothermal Synthesis of Zeolite-PVA Hemostatic Sponge and Its Rapid Hemostasis in a Lethal Massive Hemorrhage Model

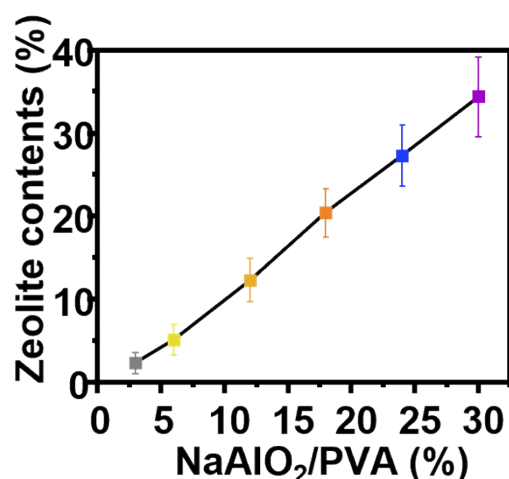
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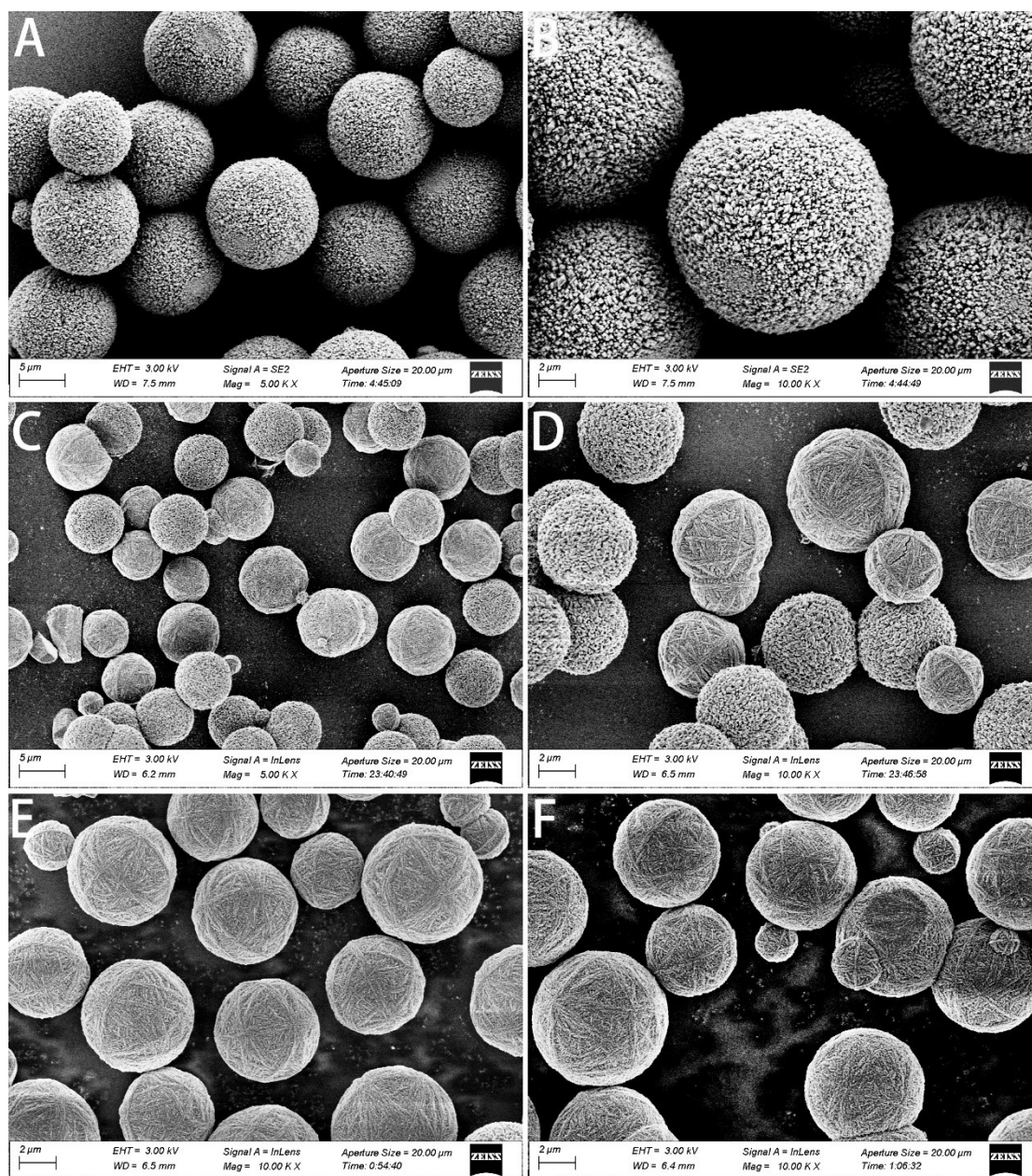
b. Department of General Surgery, The First Medical Center, Chinese PLA General Hospital, Beijing 100853, China

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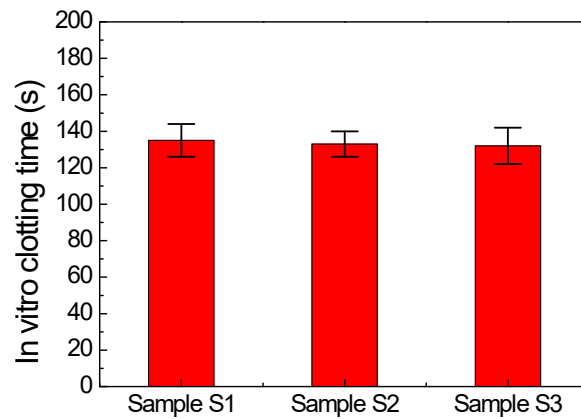
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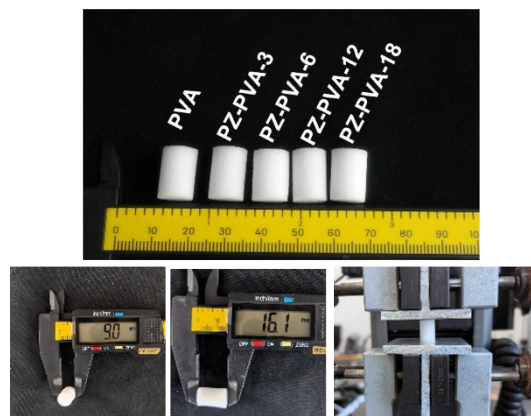
**Fig.S1** The zeolite content of the zeolite-polyvinyl alcohol (PVA) composite sponges synthesized under the conditions of different precursor concentrations.



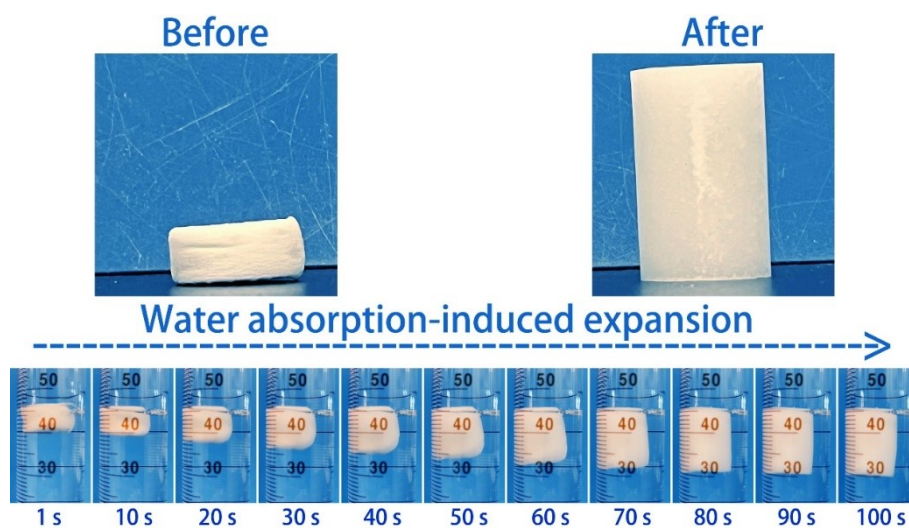
**Fig.S2** SEM images of P type zeolites with different particle morphology synthesized from precursors with different Si/Al/Na ratios: (A) and (B) bayberry-type zeolite P fabricated from precursor with Si/Al/Na of 8:2:7.2 (Sample S1), (C) and (D) bayberry-type and wool ball-type mixed zeolite P fabricated from precursor with Si/Al/Na of 9:2:9.9 (Sample S2), (E) and (F): wool ball-type zeolite P fabricated from precursor with Si/Al/Na of 10:2:13 (Sample S3).



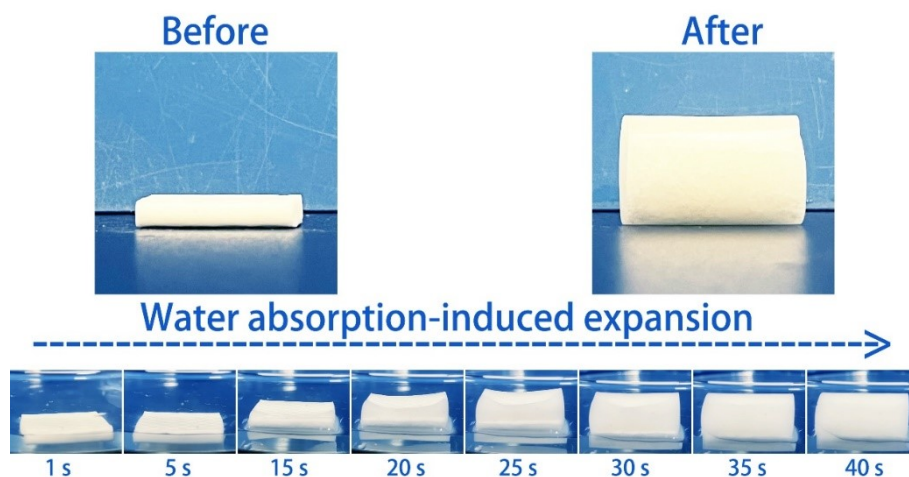
**Fig.S3** The *in vitro* clotting time of P-type zeolites powders with different particle morphologies measured with re-calcified porcine whole blood at 37°. No statistically significant differences were observed between any of the groups.



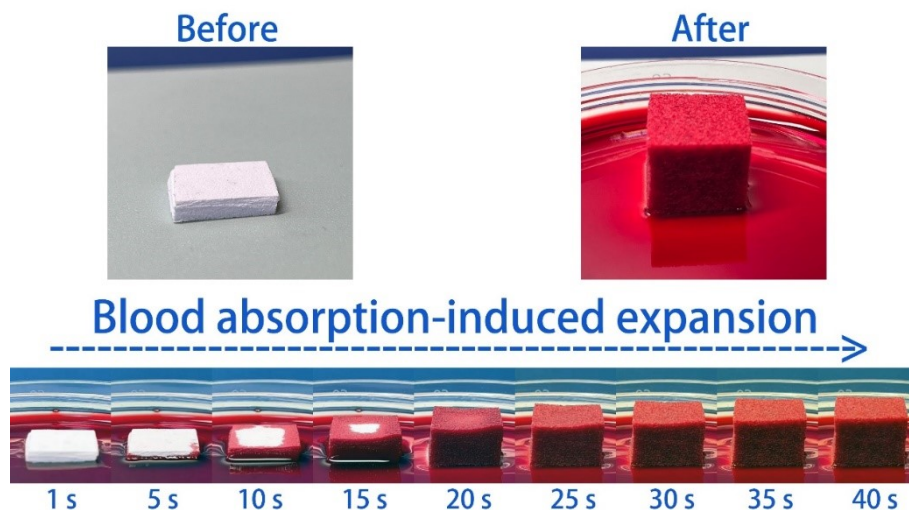
**Fig.S4** The photograph pictures of PVA, PZ-PVA-3, PZ-PVA-6, PZ-PVA-12, PZ-PVA-18, and the pictures taken at the actual testing site.



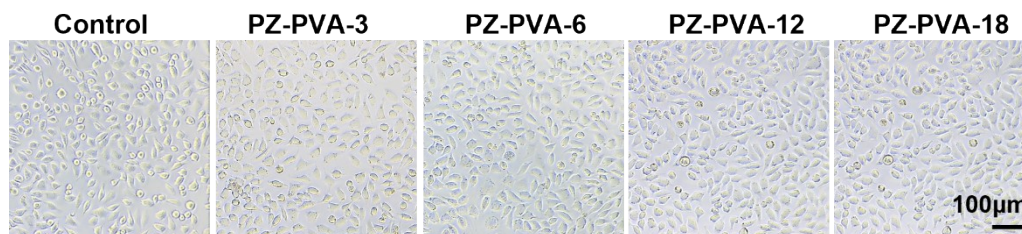
**Fig.S5** Photos of the zeolite-PVA sponge (PZ-PVA-12) in the axially compressed state and after water absorption and expansion, and the video screenshots of the sponge at different time points during the water absorption and expansion process.



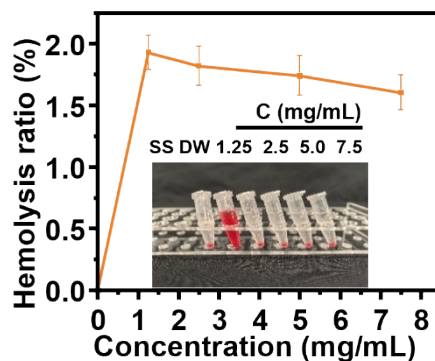
**Fig.S6** Photos of the zeolite-PVA sponge (PZ-PVA-12) in the lateral compressed state and after water absorption and expansion, and the video screenshots of the sponge at different time points during the water absorption and expansion process.



**Fig.S7** Photos of a compressed cubic zeolite-PVA sponge (PZ-PVA-12) and the sponge after blood absorption and expansion, and the video screenshots of the sponge at different time points during the blood absorption and expansion process.



**Fig.S8** Optical micrographs of L929 cells after treatment with extracts of zeolite-PVA composite sponges (10 mg/mL) for 24 h.



**Fig.S9** The hemolysis ratio of PZ-PVA-12 measured with different leaching solution (1.25 mg/ml, 2.5 mg/ml, 5 mg/ml, 7.5 mg/ml).