

Supplementary Information for

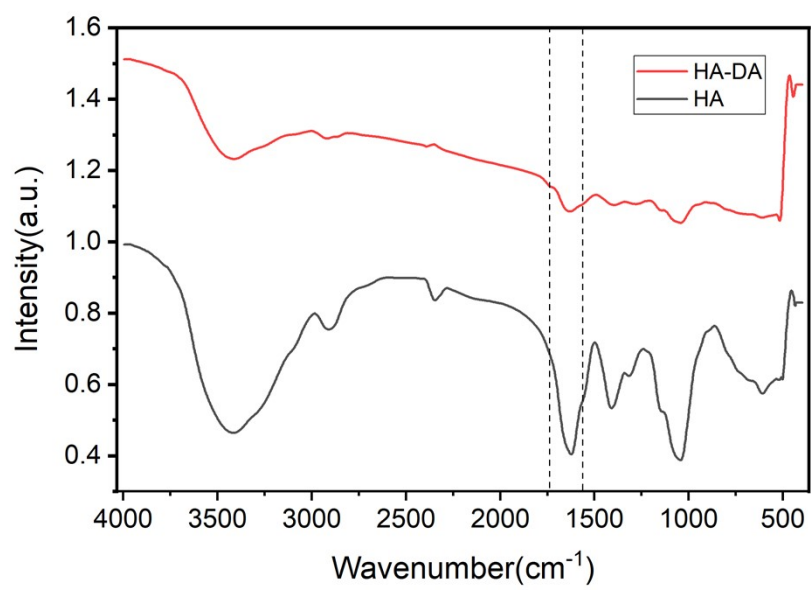
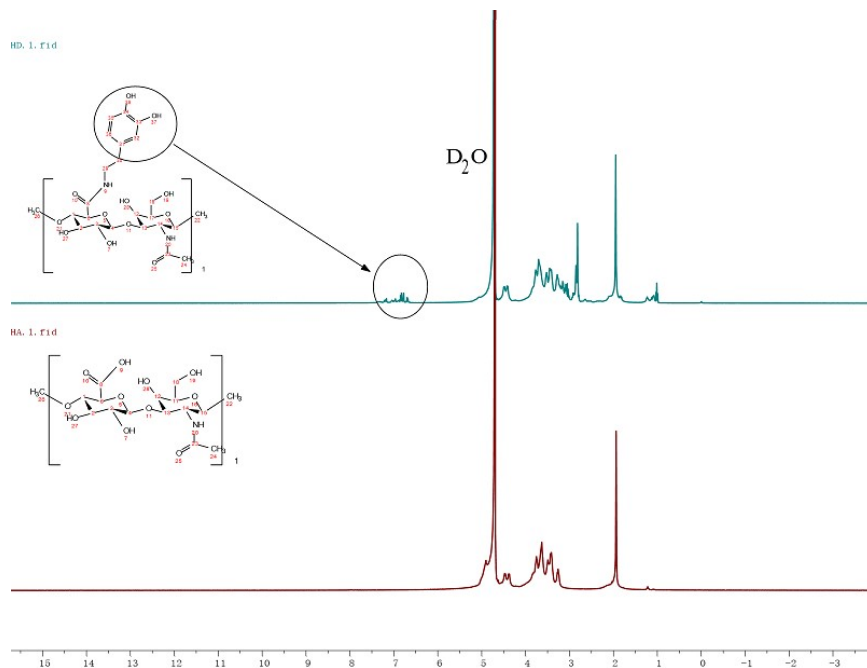
**A self-Healing photothermal antibacterial hydrogels  
constructed by multiple dynamic chemical bonds**

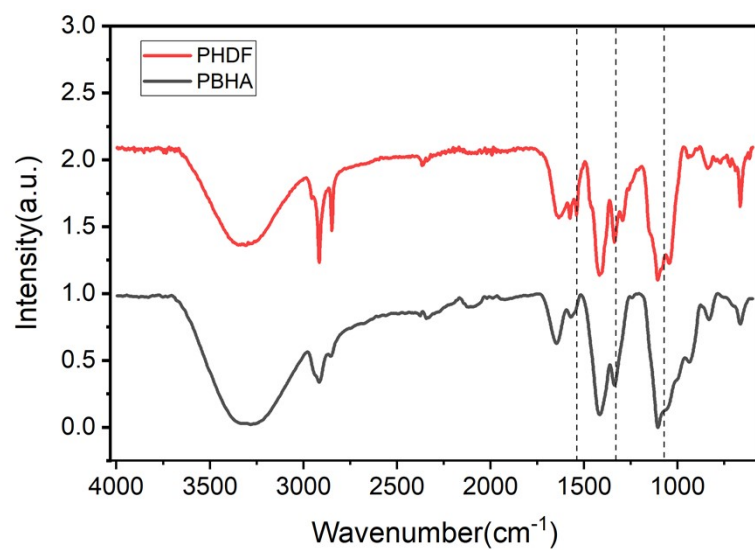
Jingrui Chang,<sup>a</sup> Xinyu Wang,<sup>a</sup> Xuejiao Ma,<sup>a</sup> and Bo Lu<sup>\*a</sup>

<sup>a</sup>School of Chemistry, Department of Chemical Engineering and Life

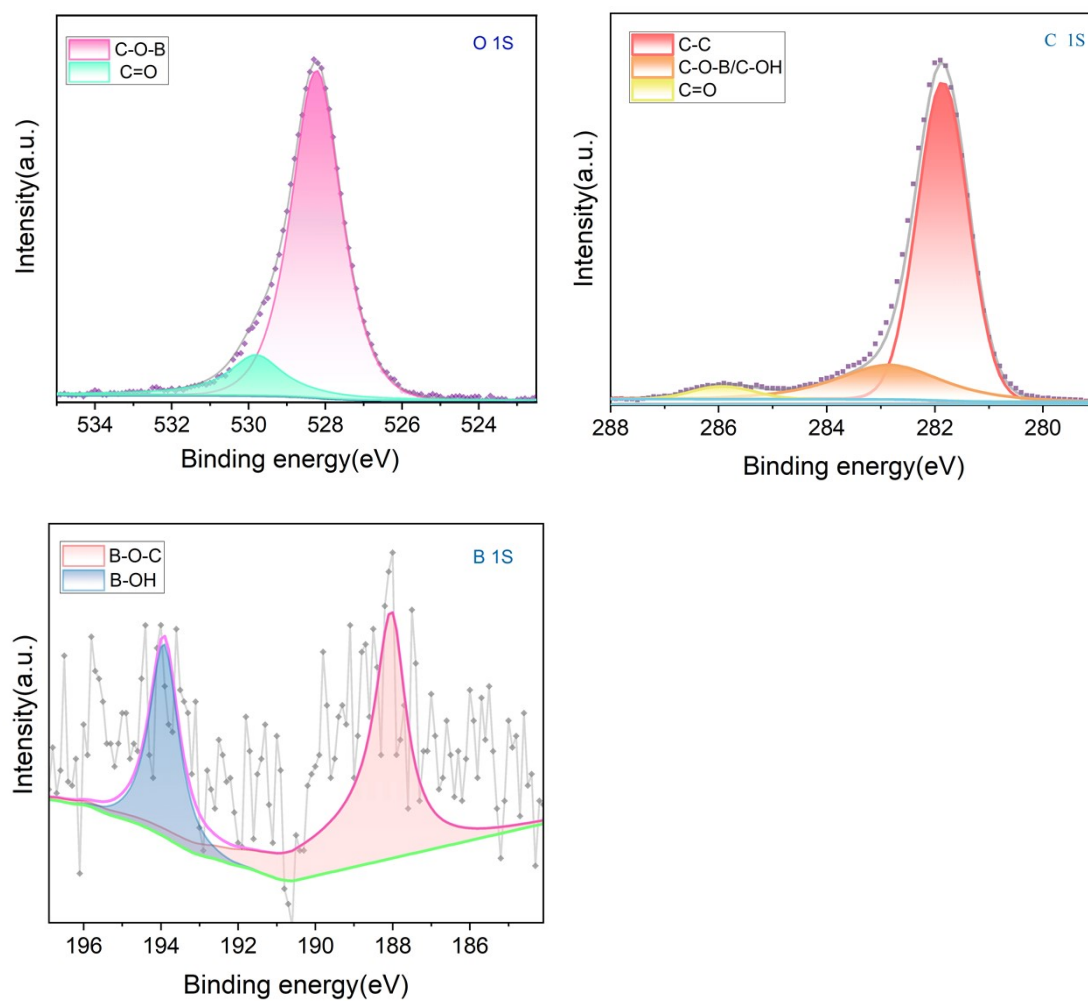
Sciences, Wuhan University of Technology, Wuhan, 430070, China; Tel:

086-027-87749300; E-mail: [lvb@whut.edu.cn](mailto:lvb@whut.edu.cn)

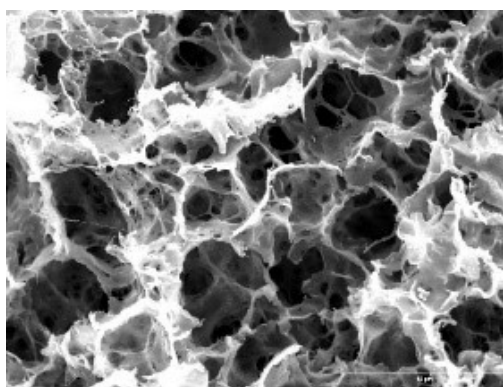
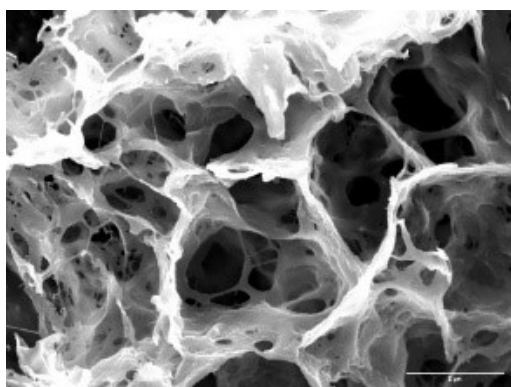
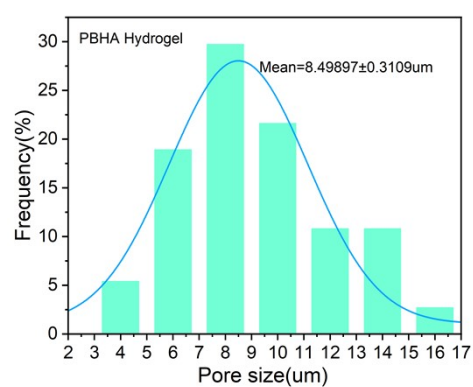
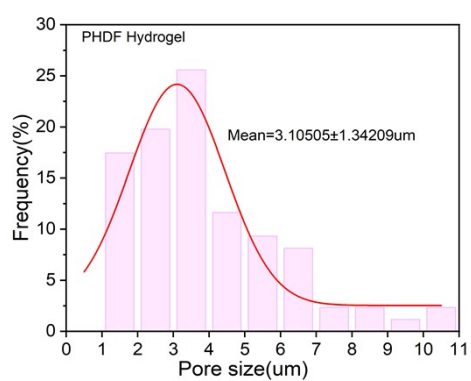




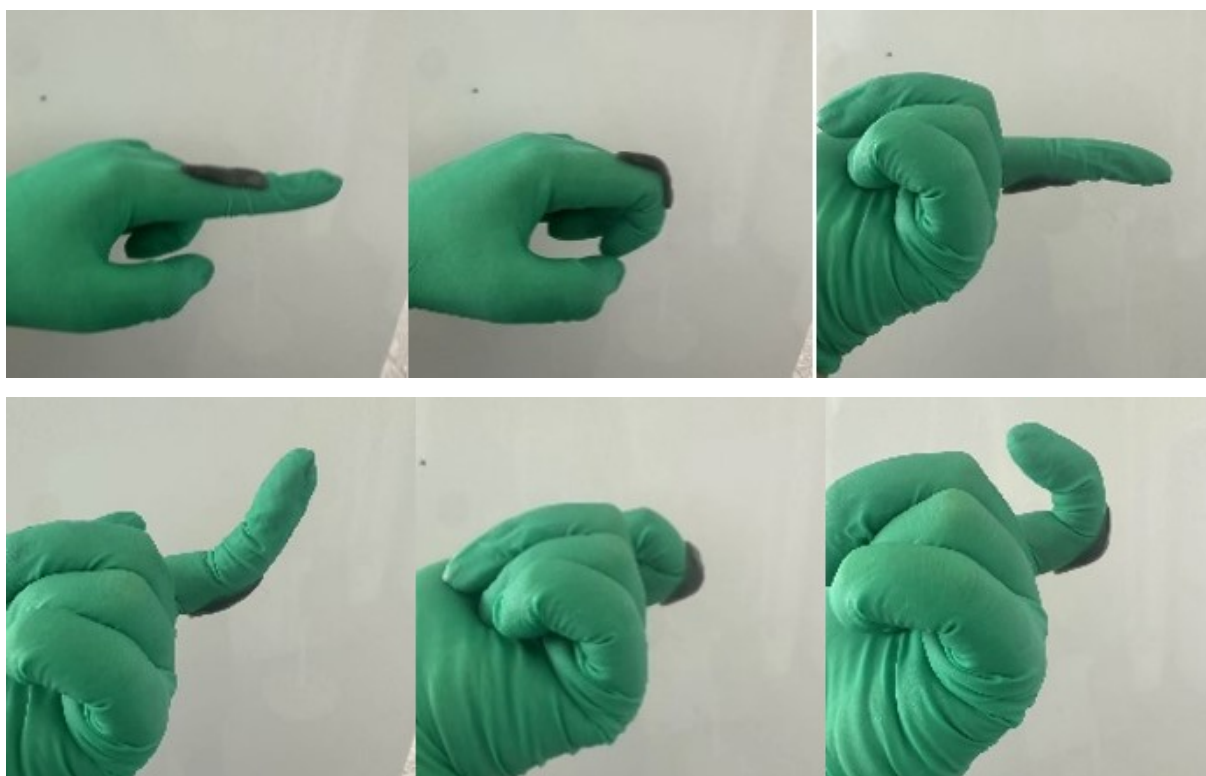
**Figure S1.** <sup>1</sup>H-NMR spectra of HA and HA-DA polymers. FT-IR spectrums of HA. HA-DA, PHDF, and PBHA hydrogels.



**Figure S2.** XPS (O1S, C1S,B1S) data of the PHDF hydrogels.



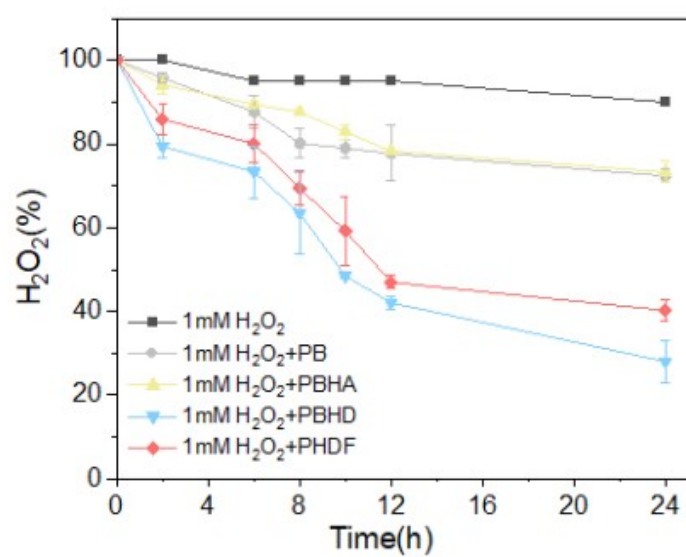
**Figure S3.** The pore size distributions of PHDF, and PBHD hydrogels. Pore morphology of PBHD hydrogel.



**Figure S4.** Observation of adhesive ability of PHDF hydrogel.



**Figure S5.** Color changes of hydrogels in DPPH solution, and color changes of the PHDF hydrogel in MB solution at 5 minutes, 30 minutes and 1 hour.



**Figure S6.** The  $H_2O_2$  scavenging experiment in solutions incubated without or with the hydrogel.