

## Supporting Information

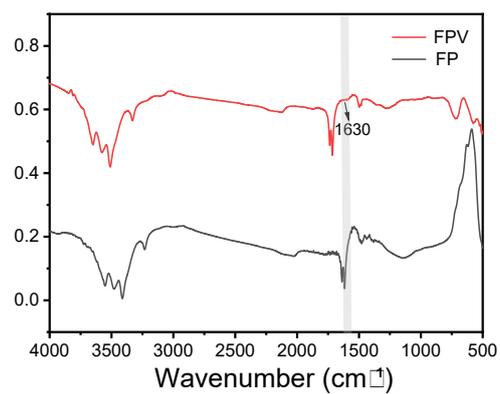
### **Fe<sub>3</sub>O<sub>4</sub> magnetic core-shell nanoparticles - a new type of antibacterial material with both cell membrane targeting and synergistic photothermal-antibiotic effects**

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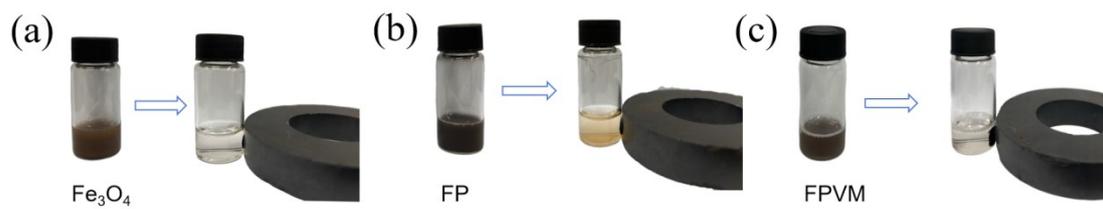
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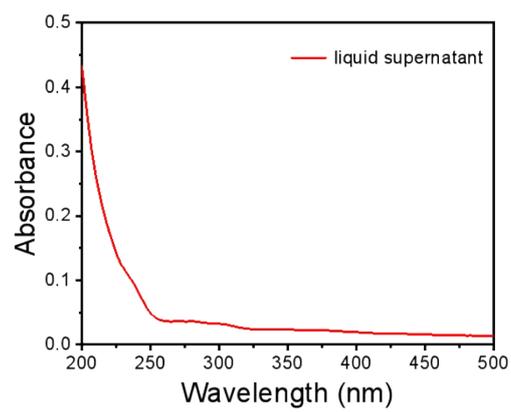
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**Figure S1.** FTIR spectra of FP and FPV. The characteristic absorption peak at  $1630\text{ cm}^{-1}$  in the FPV spectrum corresponds to the C=O stretching vibration (Amide I band) of van, confirming the successful conjugation of van onto the FP substrate.



**Figure S2.** Magnetic separation of (a)  $\text{Fe}_3\text{O}_4$  and (b) FP and (c) FPVM nanoparticles dispersed in aqueous solution to an external NdFeB magnet for 30 s.



**Figure S3.** UV-vis absorption spectrum of the supernatant after centrifugation of FPV.