

Supporting Information

Eluting mode of photodynamic nanofibers without photosensitizer leakage for one-stop service of outdoor hemostasis and sterilizing superbacteria

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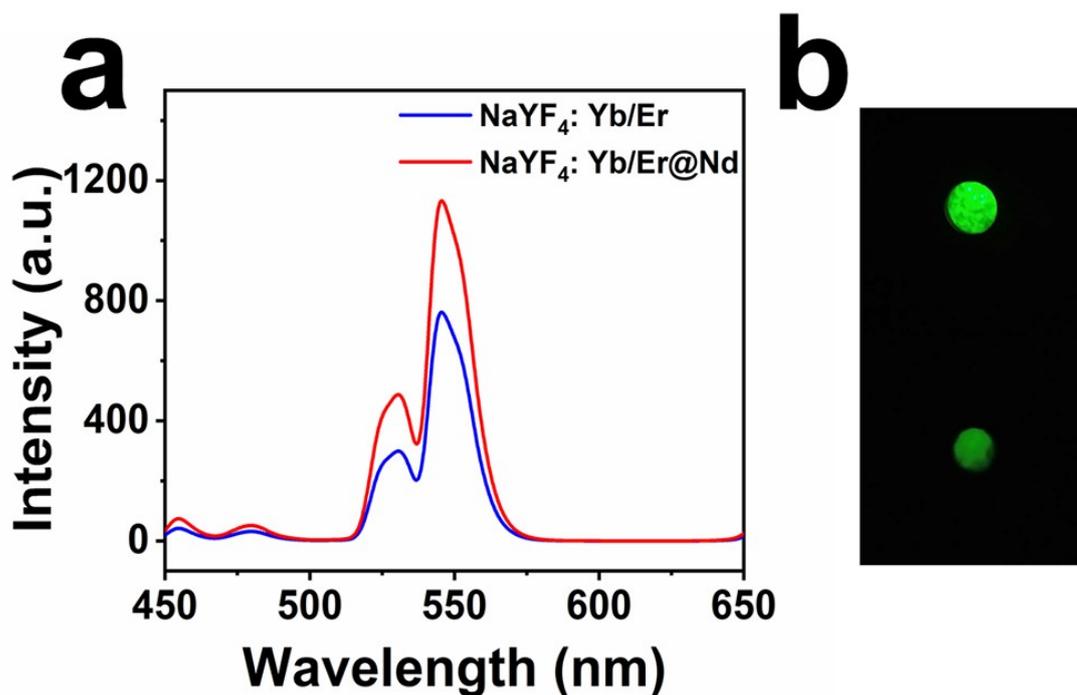


Figure S1. (a) PL spectrum of NaYF₄:Yb/Er and NaYF₄:Yb/Er@NaYF₄:Nd core-shell nanoparticles. (b) NaYF₄:Yb/Er@NaYF₄:Nd core-shell nanoparticles shows brighter green color emission than that of NaYF₄:Yb/Er nanoparticles.

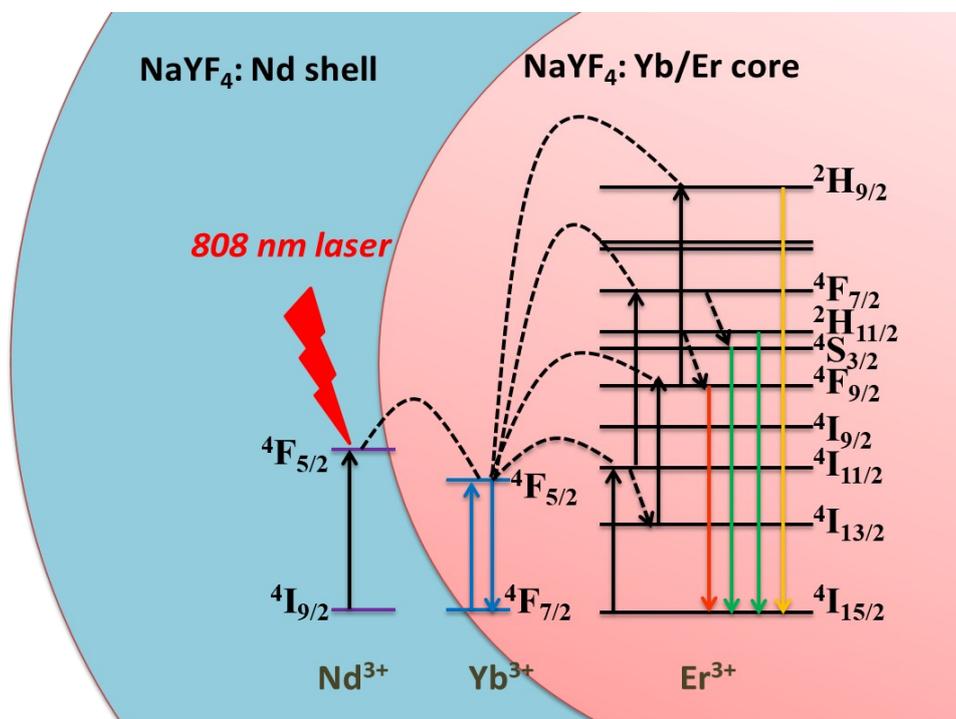


Figure S2. Schematic illustration of energy transfer and pathway from NaYF₄:Yb/Er@NaYF₄:Nd shell to NaYF₄:Yb/Er core under 808 nm laser excitation.

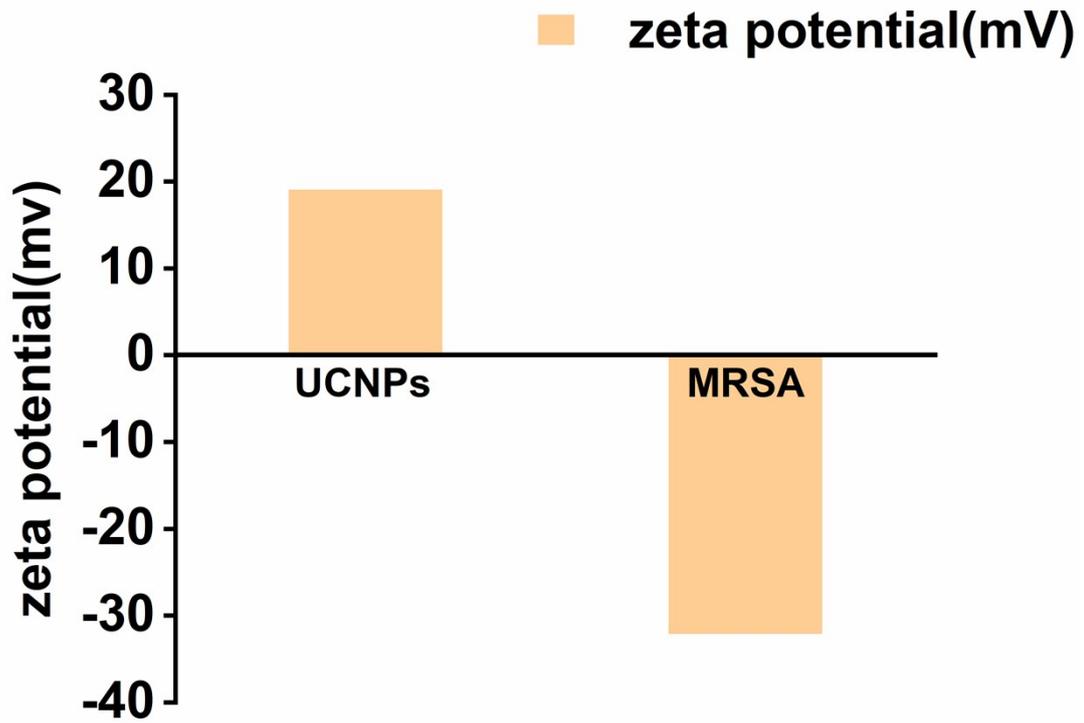


Figure S3. Zeta potential of the UCNPs@hypericin composite nanoparticles and MRSA.

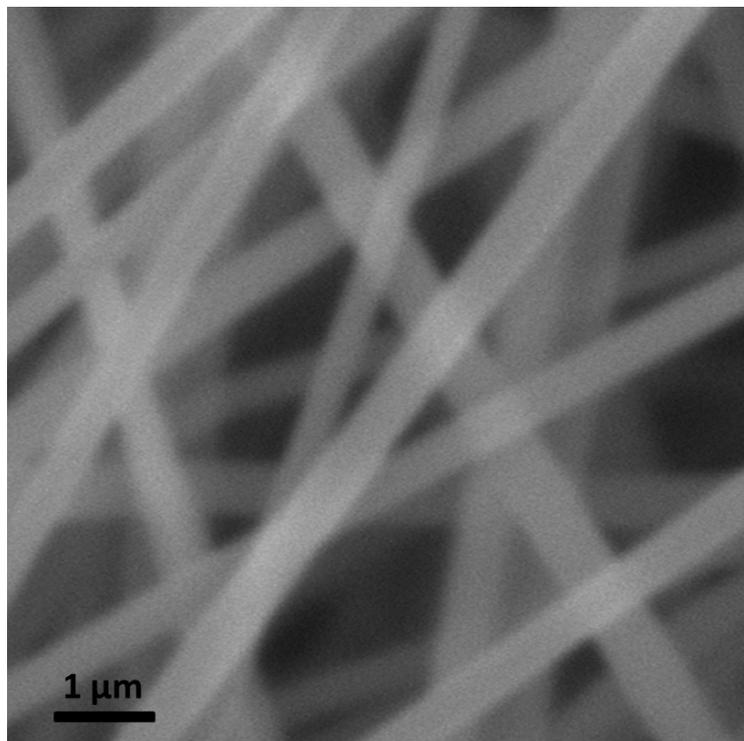


Figure S4. SEM image of nanofibers obtained by traditional electrospinning device.

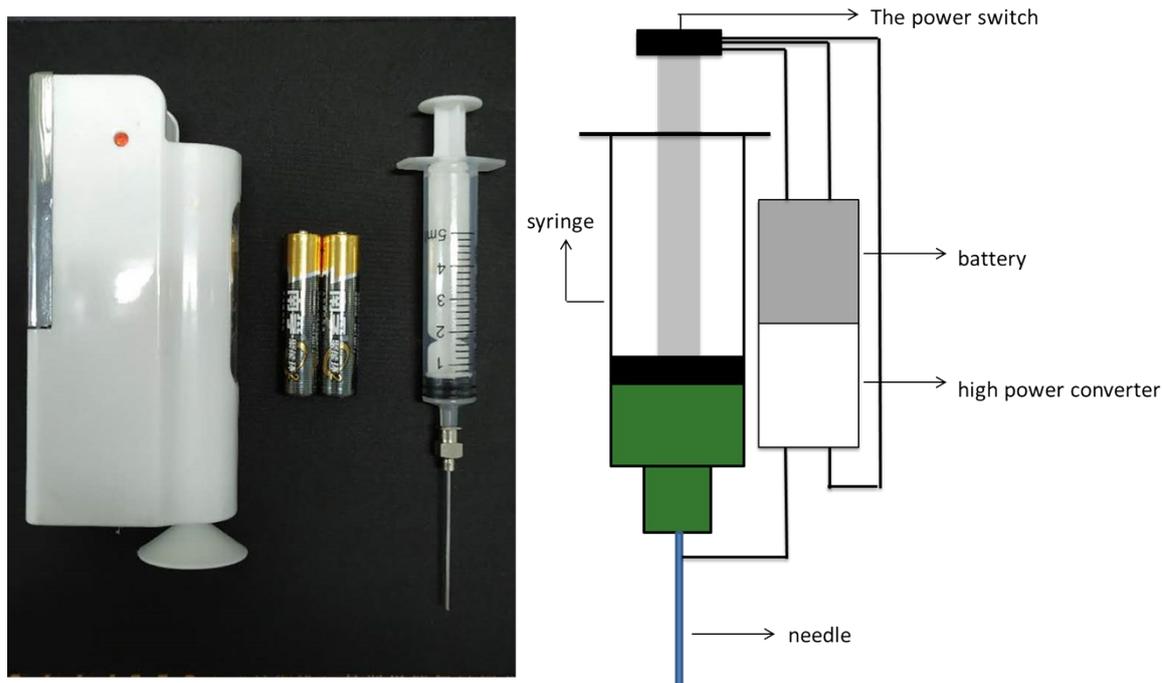


Figure S5. A light, small in size and portable electrospinning device powered by battery is developed for outdoor use (150 g in total weight), and its structure diagram.

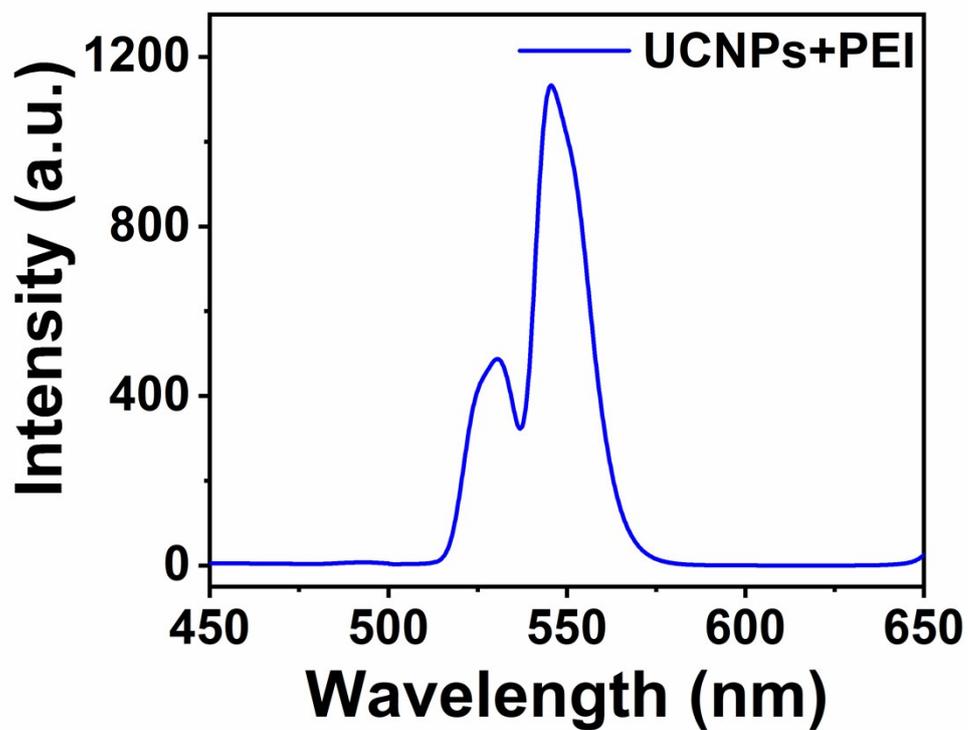


Figure S6. PL spectrum of UCNP only coated with PEI.

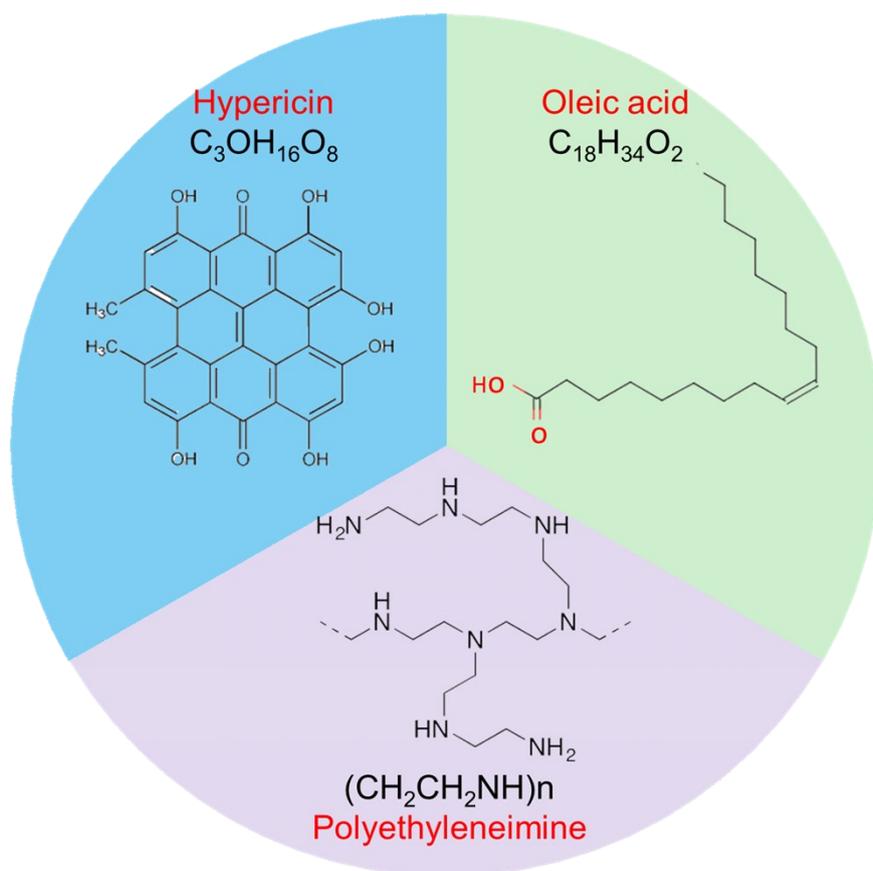


Figure S7. Structural formula of hypericin, oleic acid, and PEI.

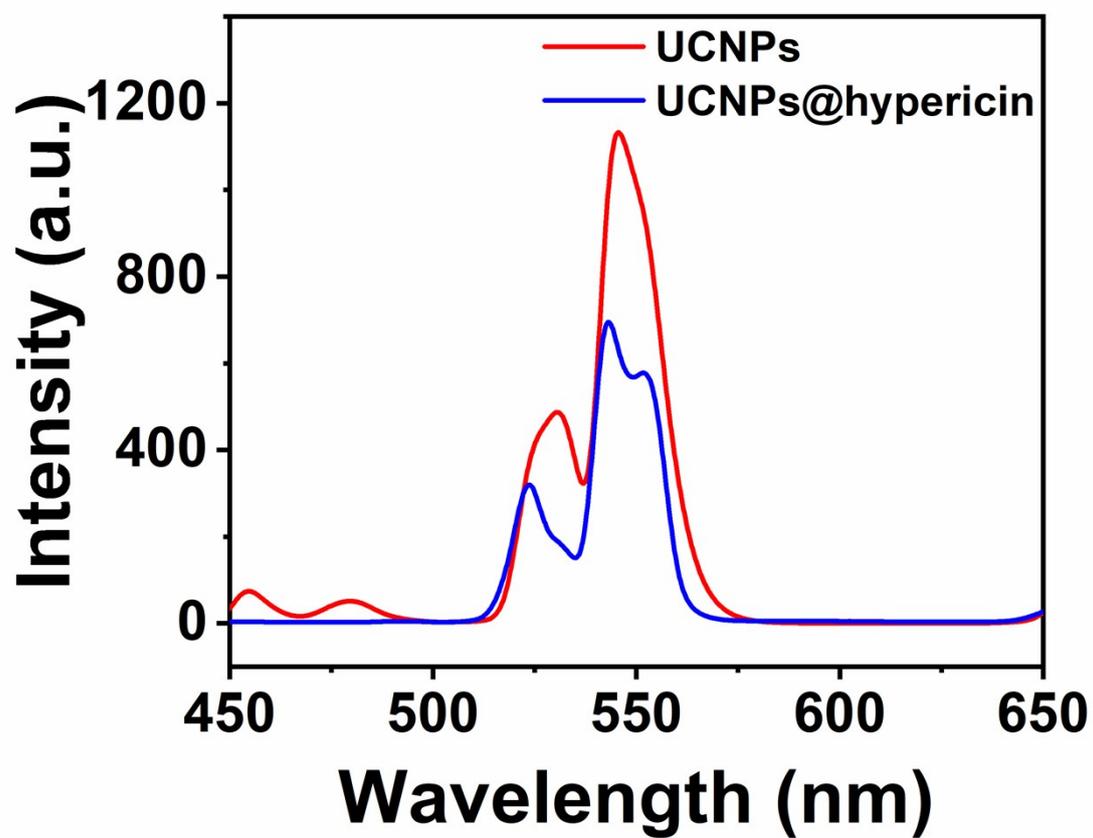


Figure S8. PL spectrum of UCNPs before and after coated with hypericin shell.

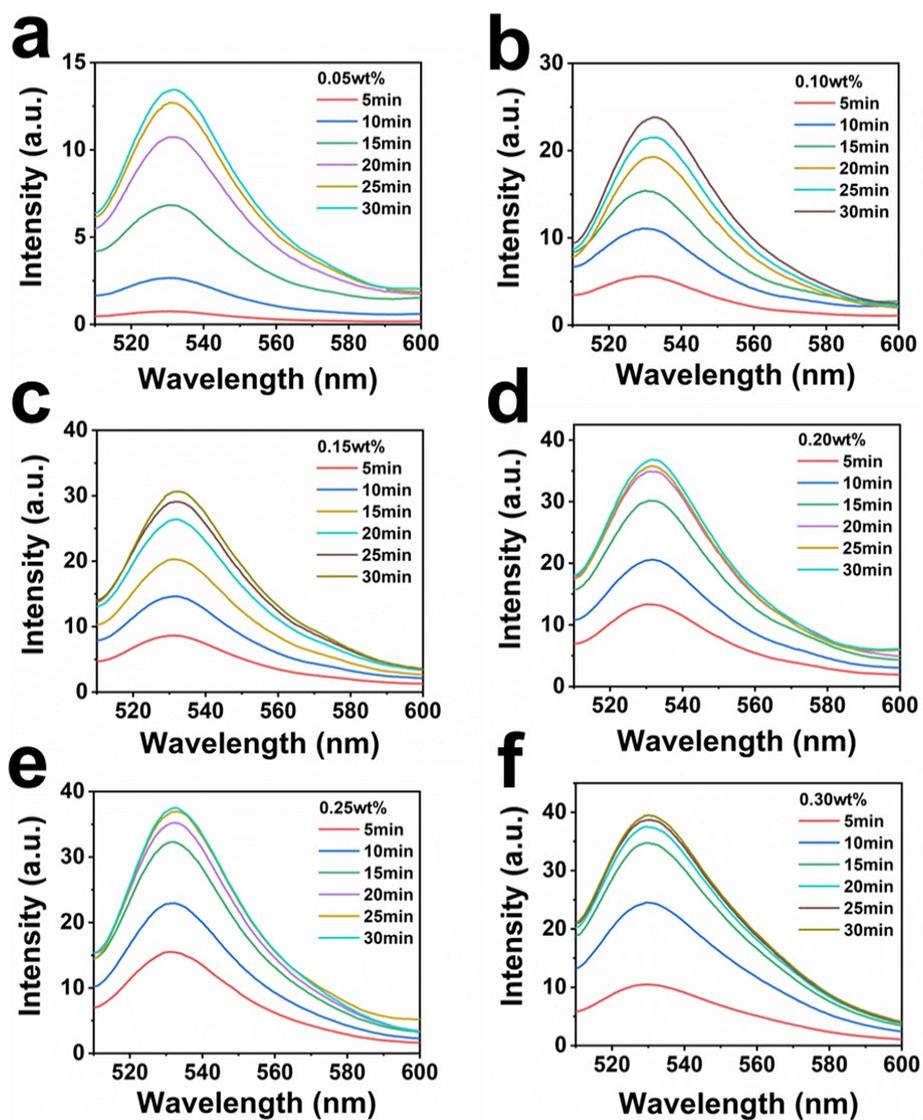


Figure S9. PL spectra of SOSG with nanocomposite fiber membrane doped with UCNPs@hypericin of different concentration: (a) 0.05 wt%, (b) 0.10 wt%, (c) 0.15 wt%, (d) 0.20 wt%, (e) 0.25 wt%, (f) 0.30wt%, when exposed to 808nm irradiation of 0~30 min.

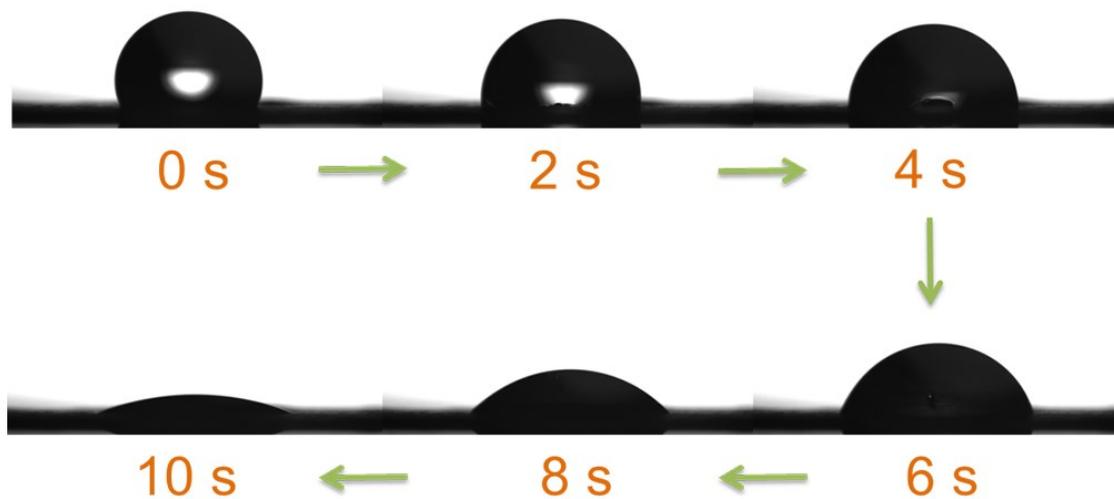


Figure S10. Water contact angle measurement of nanocomposite fiber membrane using body fluid.

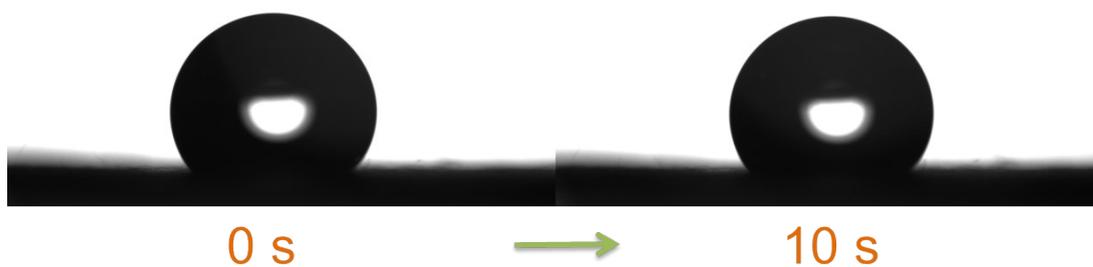


Figure S11. Water contact angle measurement of pure PCL fiber membrane using body fluid.

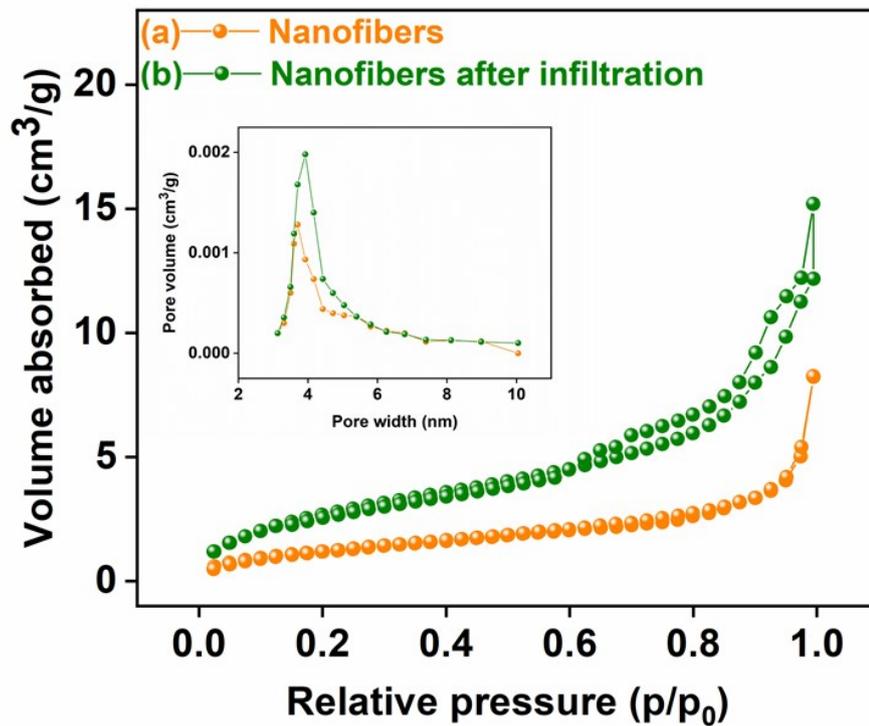


Figure S12. Nitrogen physisorption isotherms and (inset) the pore size distribution curve of nanocomposite fiber membrane (a) before and (b) after soaking in body fluid.

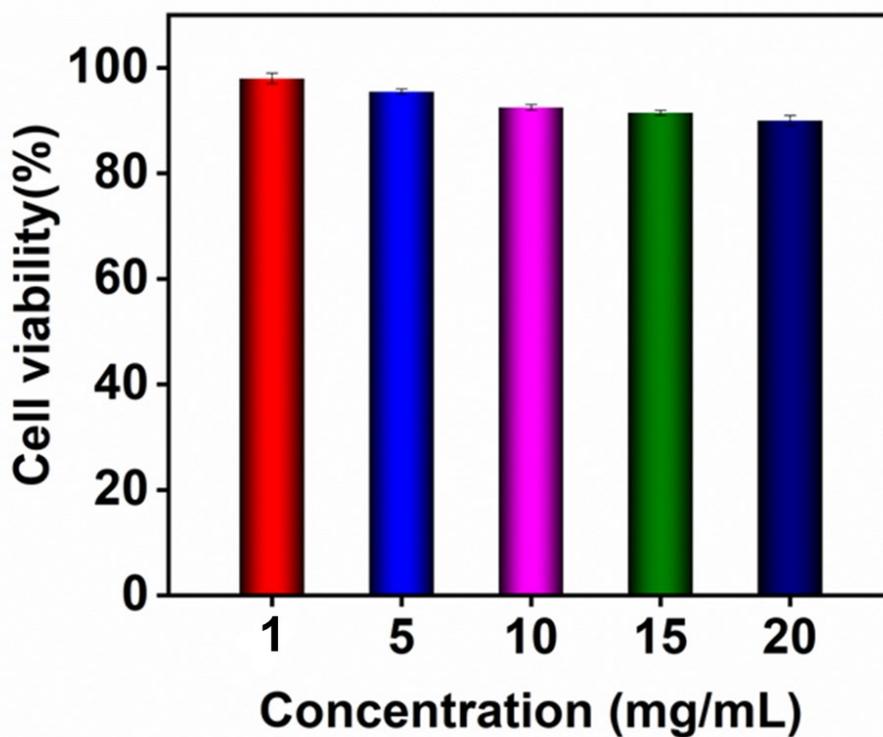


Figure S13. The biocompatibility of nanocomposite fiber membrane analyzed using MTT assay. The L929 fibroblast cells incubated with fiber membranes for 36 h.

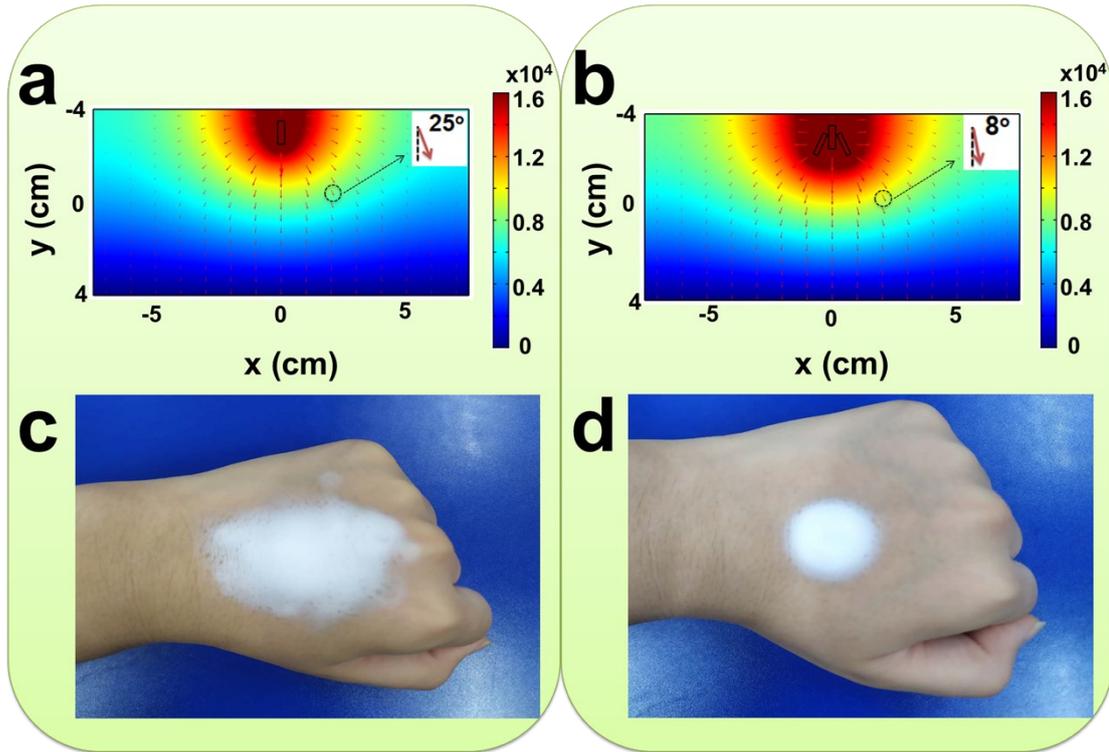


Figure S14. Electric field line simulation: (a) Traditional electrospinning; (b) Auxiliary electrode electrospinning. Insets are enlarged images of angles between the electric field line (red) and vertical direction (black). (c-d) Photographs of their deposition area by these two kinds of electrospinning method.



Figure S15. (a) *In-situ* electrospun nanofibers deposited onto the skin showing a good adhesiveness and compactness. (b) On the contrary, traditional electrospun nanofiber membrane pressed onto the skin, which shows bad compactness and there exists an air spacer.