Supporting Information

Facile core-shell nanoparticles with controllable antibacterial activity assembled by chemical and biological molecules

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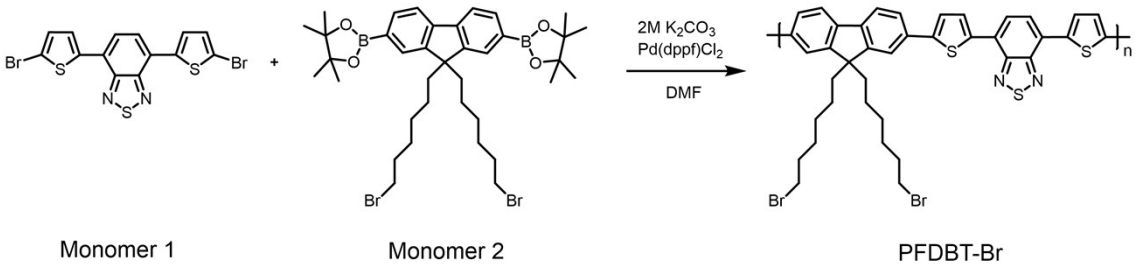

Fig. S1. Synthesis procedure of conjugated polymer PFDBT-Br.

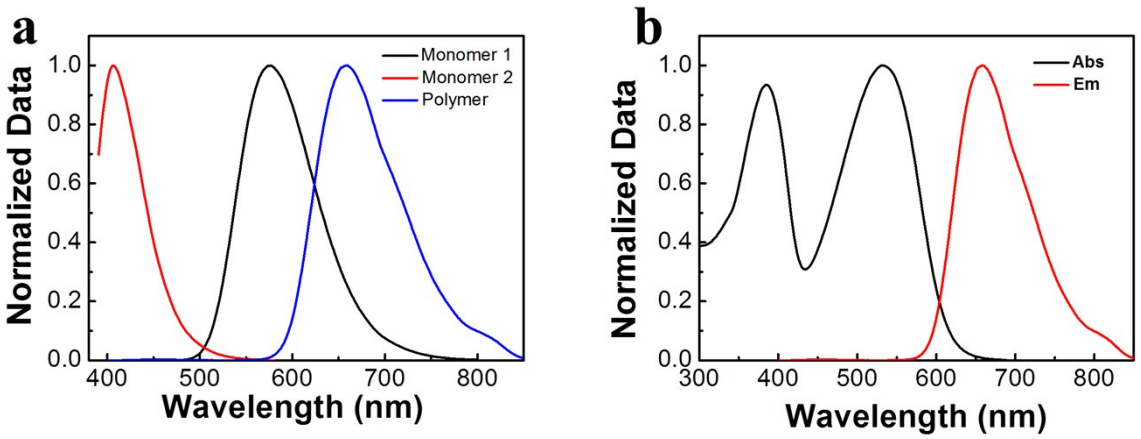

Fig. S2. a) Comparison of normalized emission spectra of monomers and polymer FPDBT-Br. The excitation wavelength is 380 nm, 452 nm, and 535nm, respectively. b) Normalized absorption and emission spectra of polymer FPDBT-Br. The excitation wavelength is 535 nm.

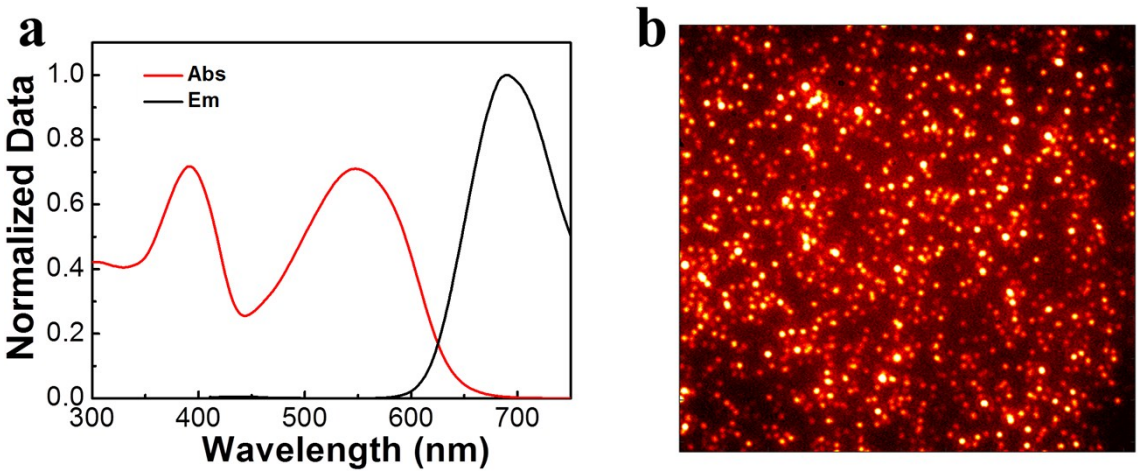

Fig. S3. a) Normalized absorption and emission spectra of CPNs (40 μg/mL). The excitation wavelength is 550 nm. b) Single-particle brightness of CPNs.

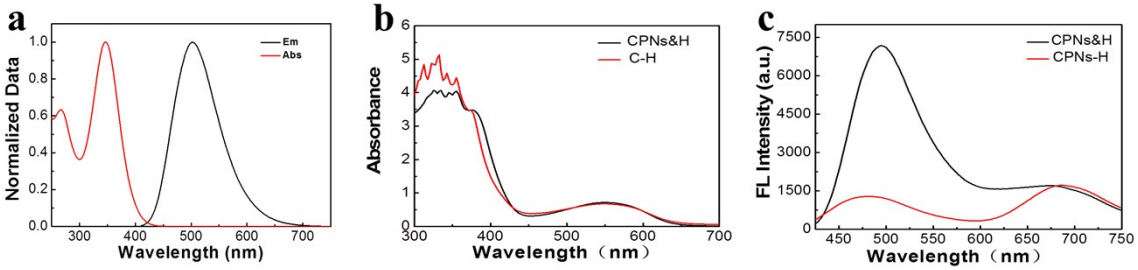

Fig. S4. a) Normalized absorption and emission spectra of Hoechst 33258 (122.8 μg/mL). The excitation wavelength is 346 nm. b) Absorption and c) emission spectra of CPNs & H and CPNs-H. [CPNs] = 20 μg/mL, [CPNs-H] = 20 μg/mL, [Hoechst] = 122.8 μg/mL. The excitation wavelength is 390 nm.

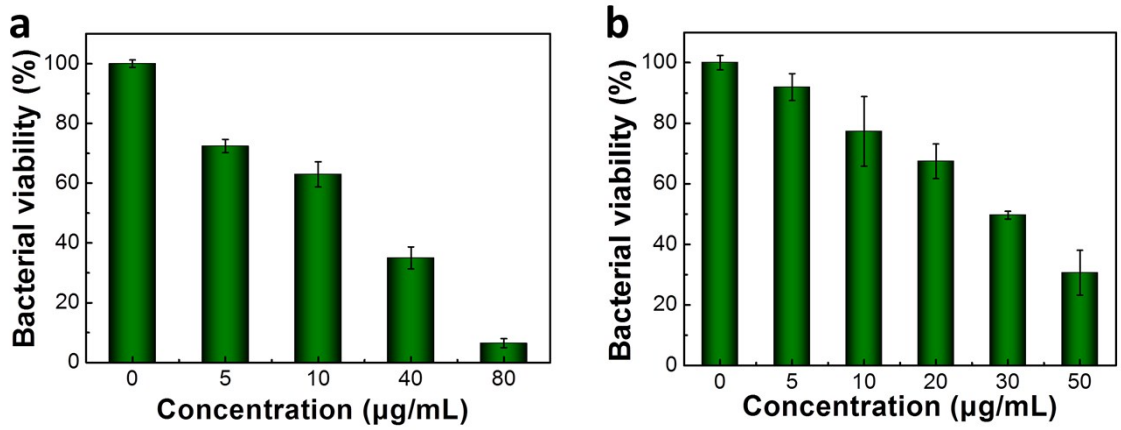

Fig. S5. a) Antibacterial activity of Hoechst33258 toward Amp^r *E.coli*. b) Antibacterial activity of CPNs&Hoechst toward Amp^r *E.coli*.

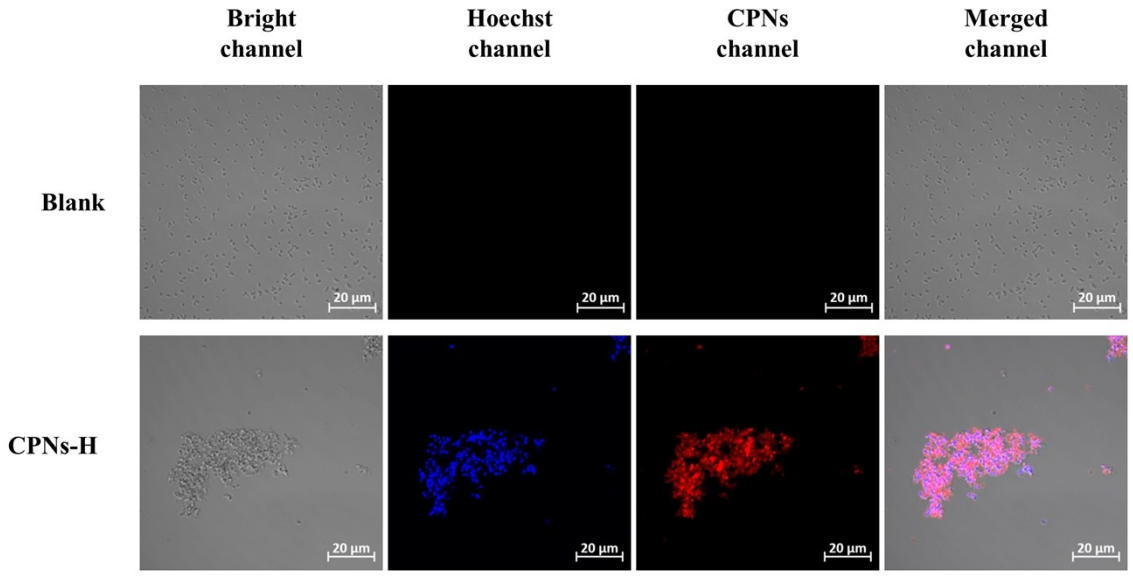

Fig. S6. CLSM images of Amp^r *E.coli* without and with treatment of CPNs-H (50 μg/mL) in different channels.

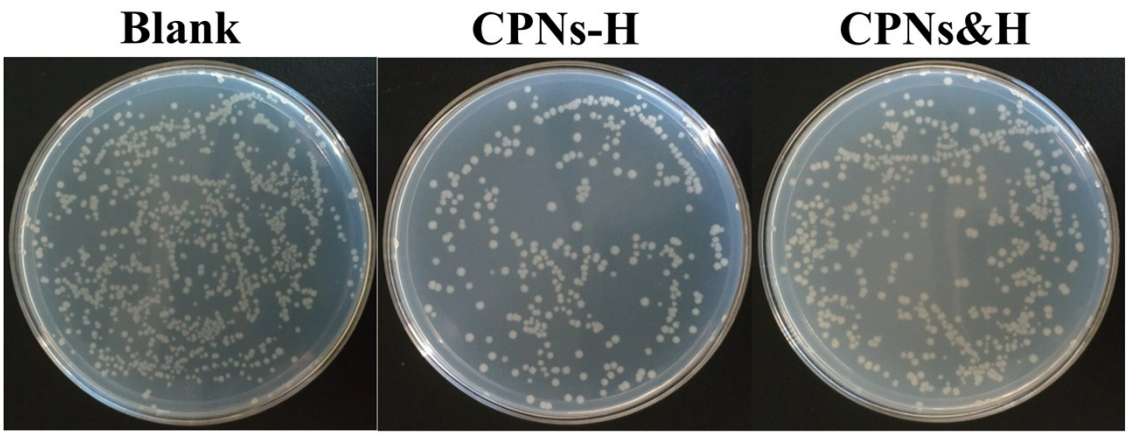

Fig. S7. Photographs of Amp^r *E.coli* on solid LB agar plate without and with treatment of CPNs-H and CPNs&H. [CPNs] = 30 μg/mL, [H33258] = 0.59 mg/mL.

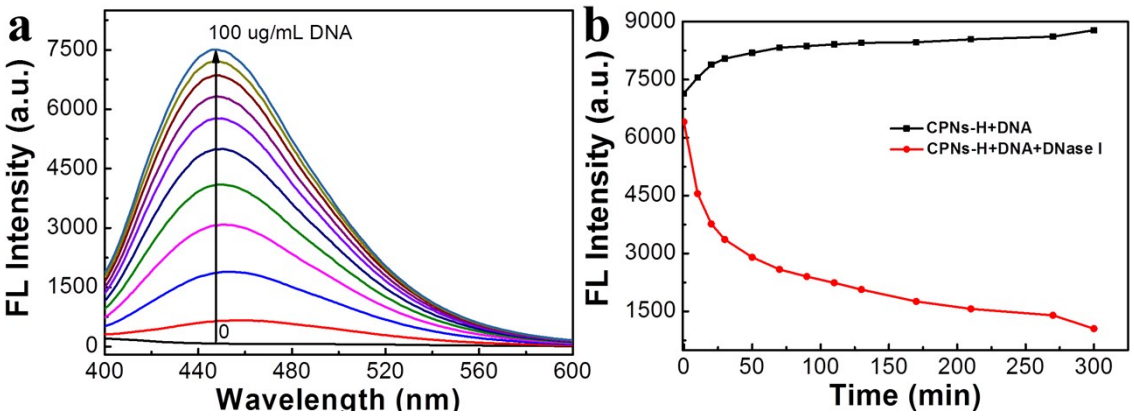

Fig. S8. a) Emission spectra of CPNs-H (1 μg/mL) treated with different concentrations of dsDNA (10 μg/mL, 20 μg/mL, 30 μg/mL, 40 μg/mL, 50 μg/mL, 60 μg/mL, 70 μg/mL, 80 μg/mL, 90 μg/mL, 100 μg/mL). b) Emission intensity changes of CPNs-H with different treatments. [CPNs-H] = 1 μg/mL, [DNA] = 100 μg/mL, [Dnase I] = 900 μg/mL.

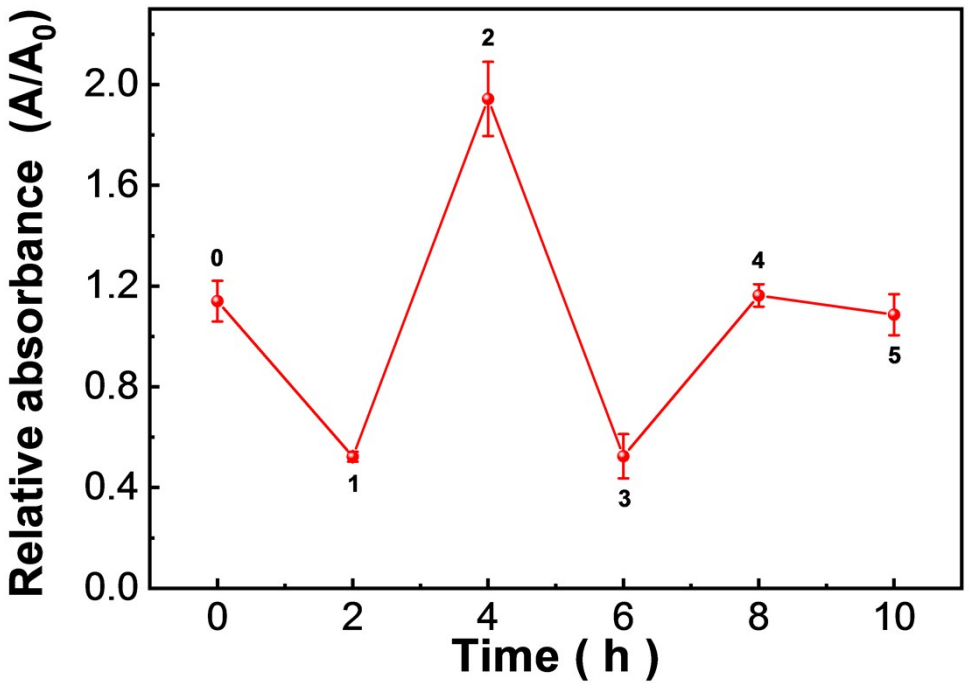

Fig. S9. Controlled antibacterial experiments were studied by addition of DNA and DNase I in different time scales. A is the OD_{600} of the experimental group, and A_0 is the OD_{600} of the control group. [CPNs-H] = 50 μg/mL, [DNA] = 600 μg/mL, [DNase I] = 5.59 mg/mL.

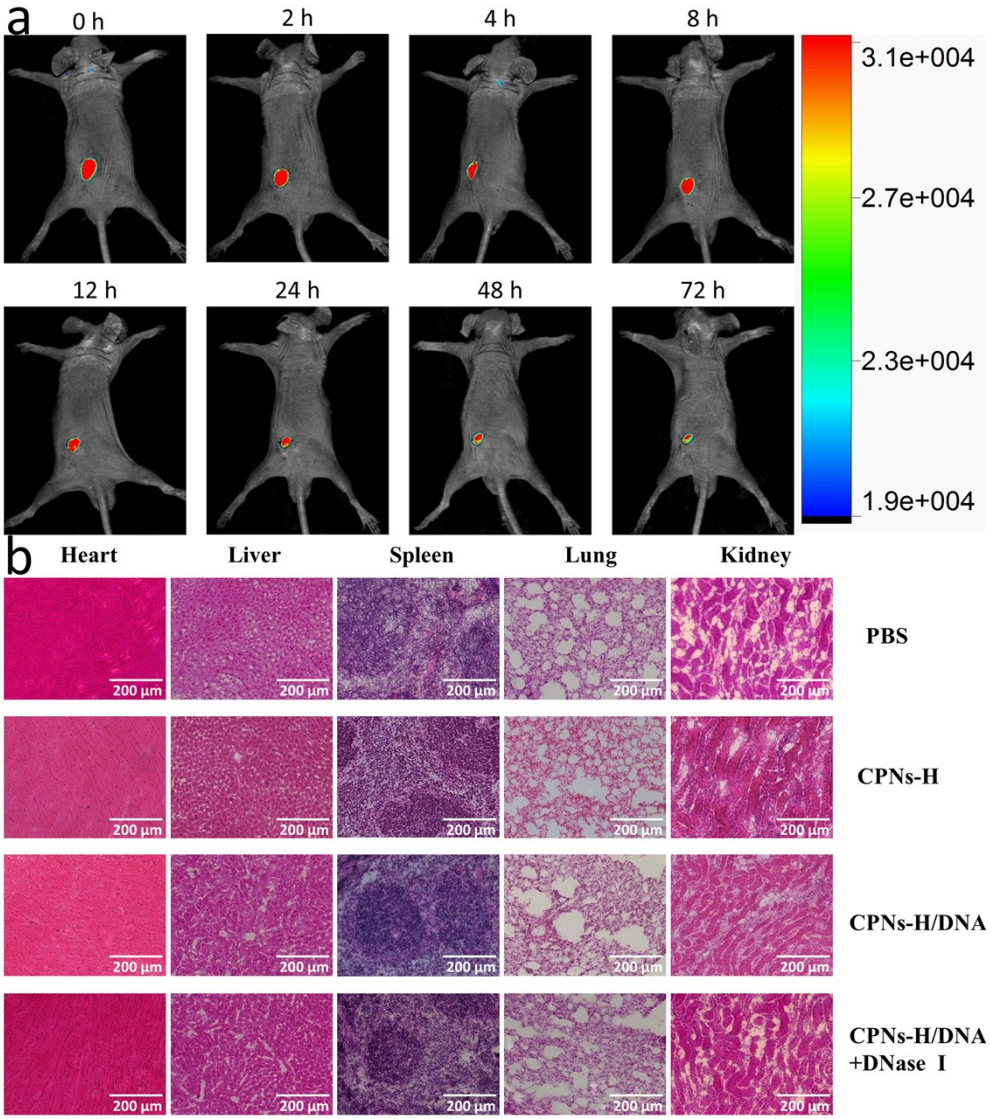

Fig. S10. (a) Fluorescence imaging of the E. coli infected mice within 3 days postinjection of CPNs-H (50 μg/mL). (b) Histological images of different organs (heart, liver, spleen, lung, and kidney) of mice treated with CPNs-H, CPNs-H/DNA, and CPNs-H/DNA+DNase I.