Supporting Information

Aggregation-Induced Emission Nanoparticles with NIR and Photosensitizing Characteristics for Resistant Bacteria Elimination and Real-time Tracking

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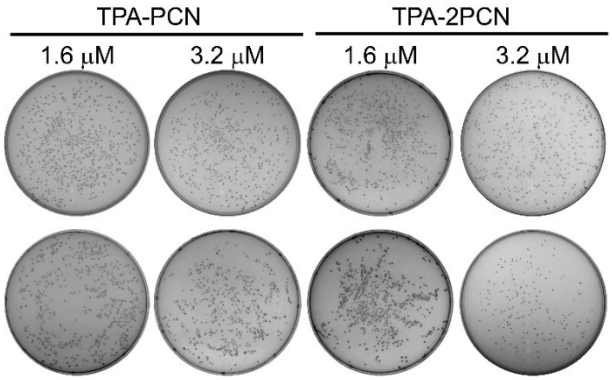


Fig. S1 Plate photographs for *E. coli* on LB agar plate treated with AIE nanoparticles respectively in the concentrations of 1.6 μM and 3.2 μM, the first line is the dark group and the second line is the irradiation group.

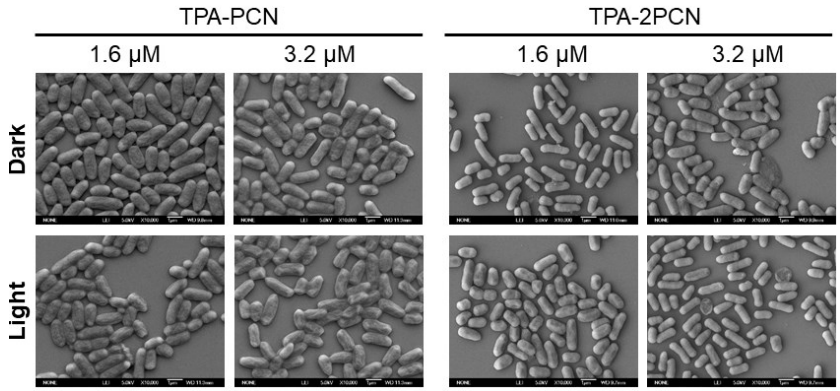


Fig. S2 Morphology of *E. coli* treated with TPA-PCN and TPA-2PCN nanoparticles respectively in the concentrations of 1.6 μM and 3.2 μM. Scale bar is 1 μm.

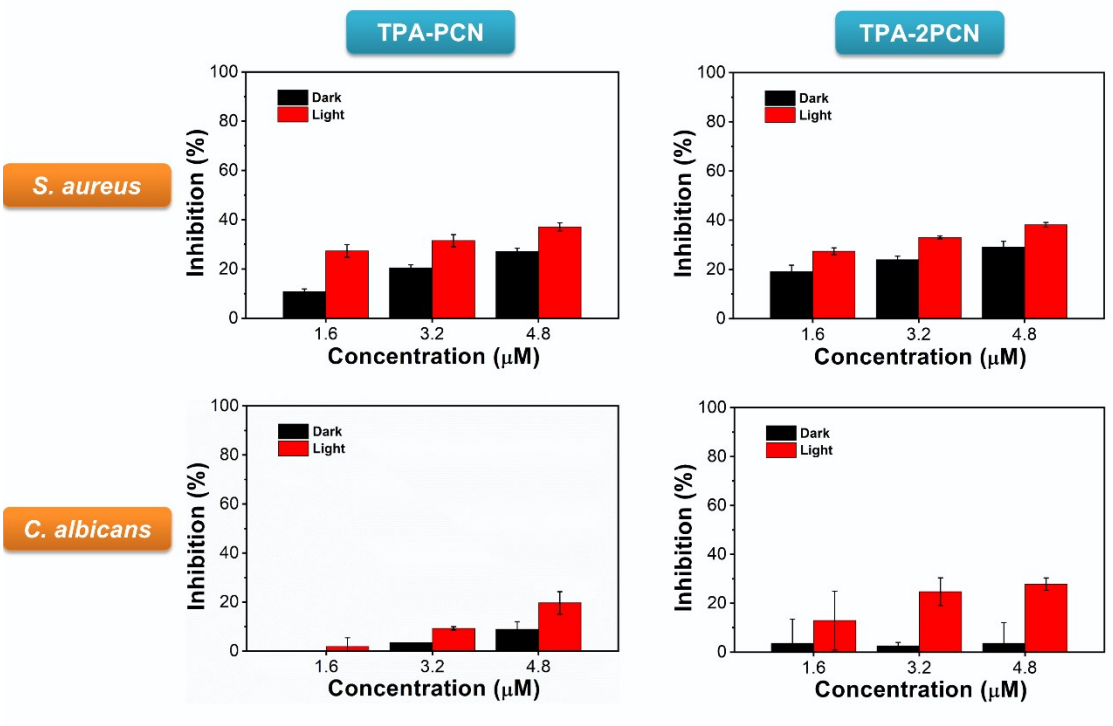
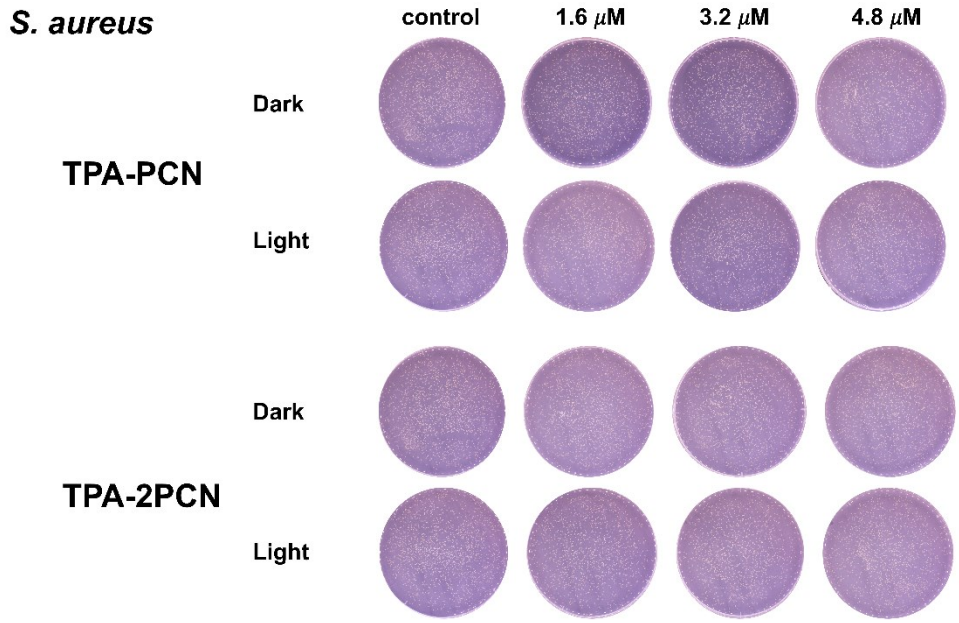


Fig. S3. The antibacterial activity of TPA-PCN and TPA-2PCN nanoparticles toward *S. aureus* and *C. albicans*.



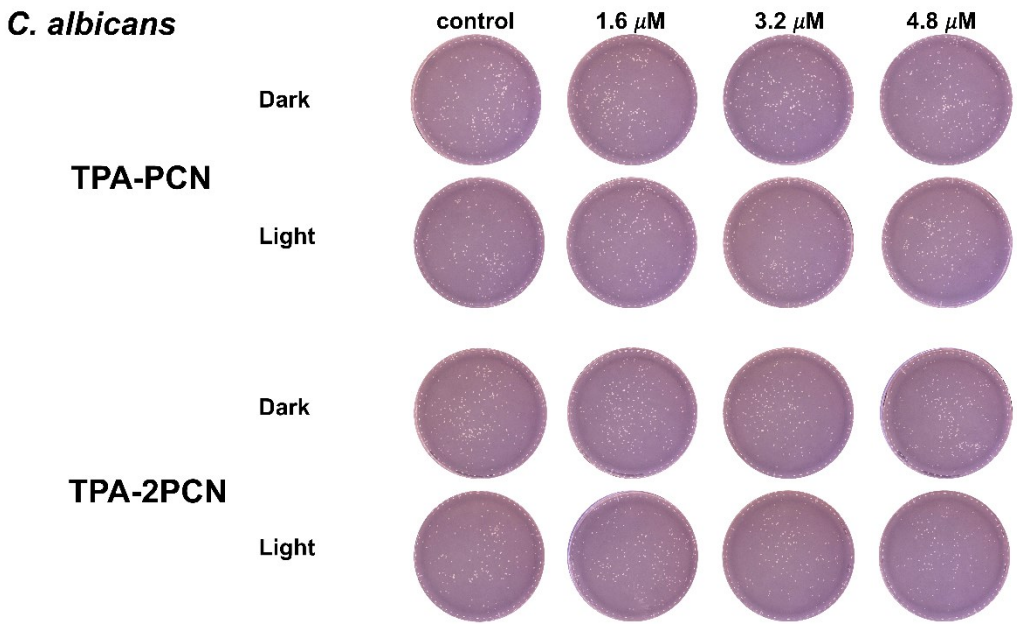


Fig. S4. The photographs of plate counting data of TPA-PCN and TPA-2PCN nanoparticles toward *S. aureus* and *C. albicans*.

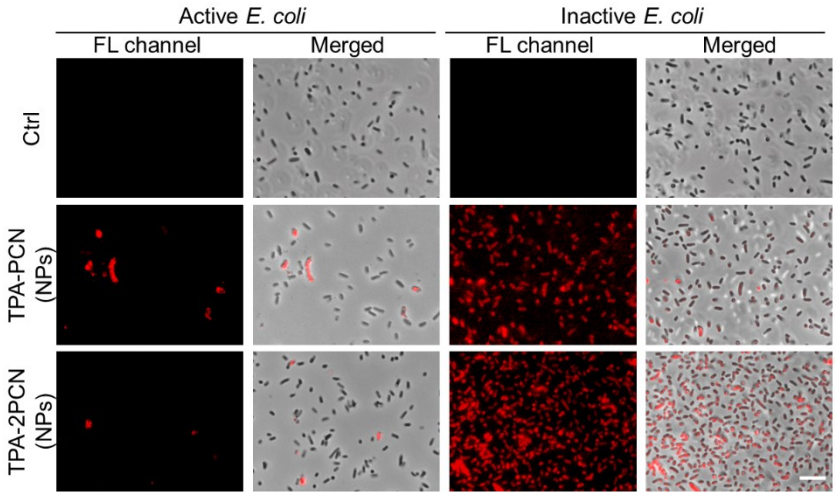


Fig. S5 Fluorescence images of active and inactive *E. coli* treated with TPA-PCN and TPA-2PCN nanoparticles. The inactive *E. coli* was fixed with 0.1% glutaraldehyde, the red colour presented the fluorescent nanoparticles, and the scale bar is 10 μm.

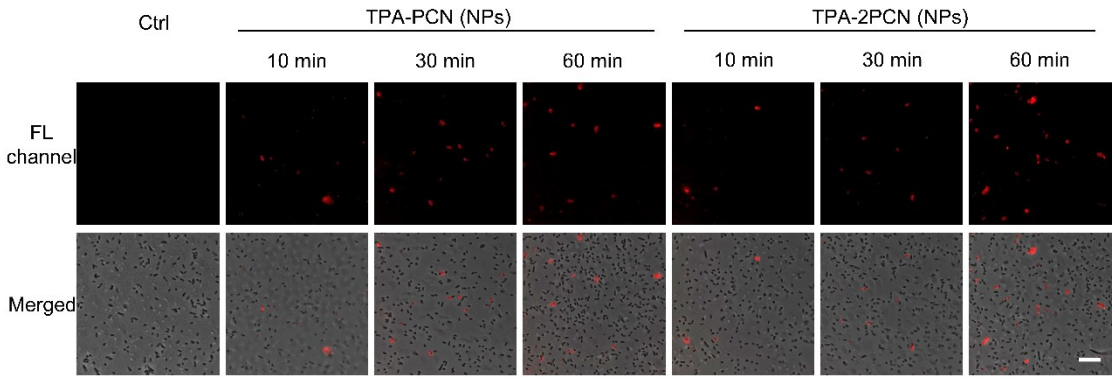


Fig. S6. Fluorescence images of active *E. coli* treated with TPA-PCN and TPA-2PCN nanoparticles for 10 min, 30 min, and 60 min respectively. The concentration of nanoparticles is 4.8 μM. Scale bar is 10 μm.

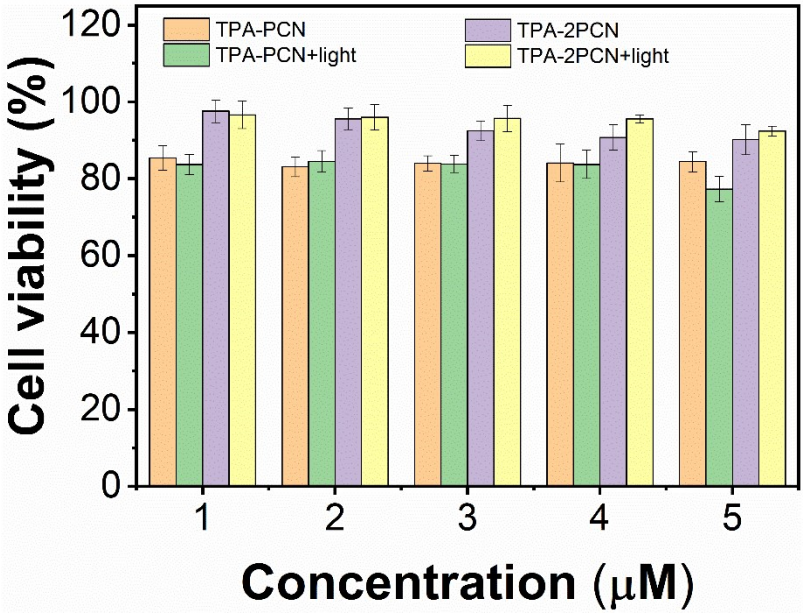


Figure S7. Cell viability of MCF-7 after incubation with TPA-PCN and TPA-2PCN nanoparticles respectively in the concentrations of 1 μM, 2 μM, 3 μM, 4 μM and 5 μM in dark or under light irradiation.

As a promising photosensitizer, it is important to compare with the commercial photosensitizer. Therefore, protoporphyrin as a common commercial photosensitizer was selected to be a control group for the ROS generation detection of the three kinds of nanoparticles. The results are listed as follows, which shows that TPA-PCN exhibit much stronger ROS generation ability than commercial protoporphyrin, while TPA-

2PCN and protoporphyrin are roughly equal in ROS production ability, turning out the prospect of TPA-PCN nanoparticles as an alternative photosensitizer.

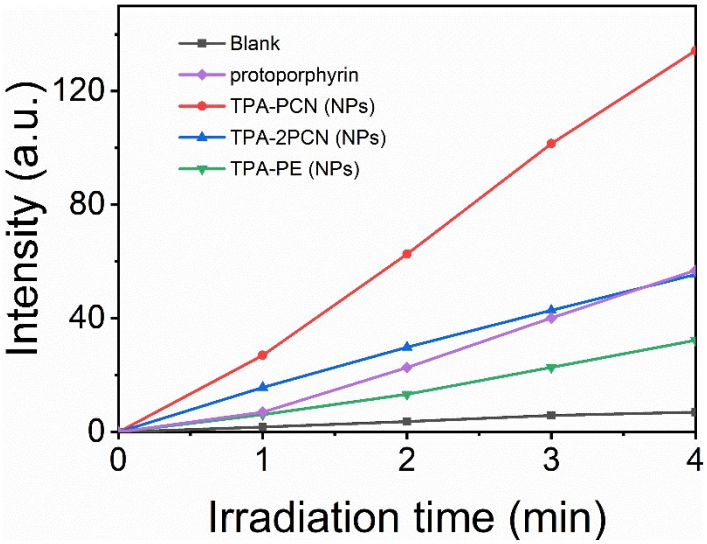


Fig. S8. Increasement of PL intensity of DCFH at 525 nm mixed/unmixed the three nanoparticles and protoporphyrin under white light irradiation.