Supporting Information

Facile Synthesis of Tunable Plasmonic Silver Core/Magnetic Fe_3O_4 Shell Nanoparticles for Rapid Capture and Effective Photothermal Ablation of Bacterial Pathogens

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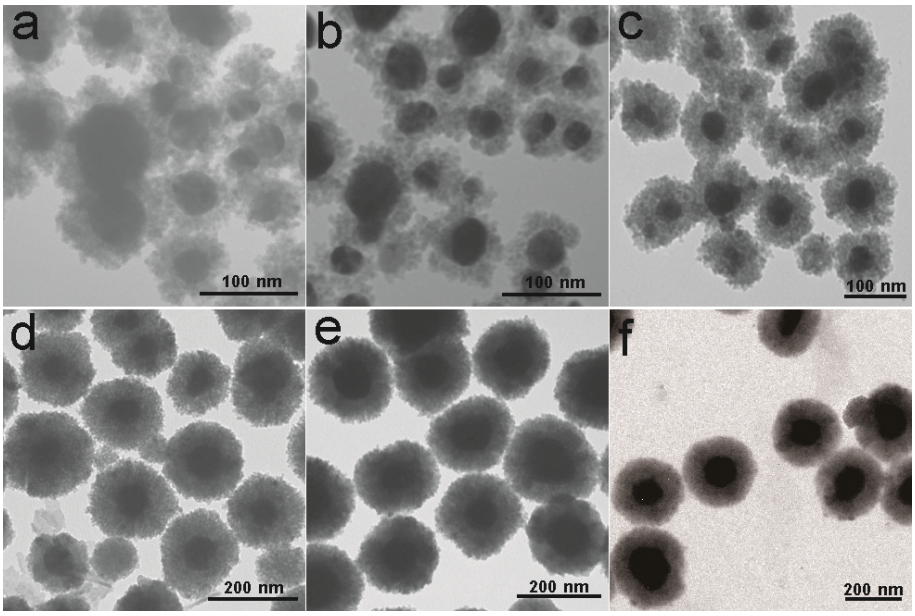

Figure S1. TEM images of $Ag@Fe_3O_4$ nanoparticles prepared at different $AgNO_3/Fe(NO_3)_3$ ratios: a) 1.0, b) 0.8, c) 0.65 , d) 0.4, e) 0.3, and f) 0.25, respectively.

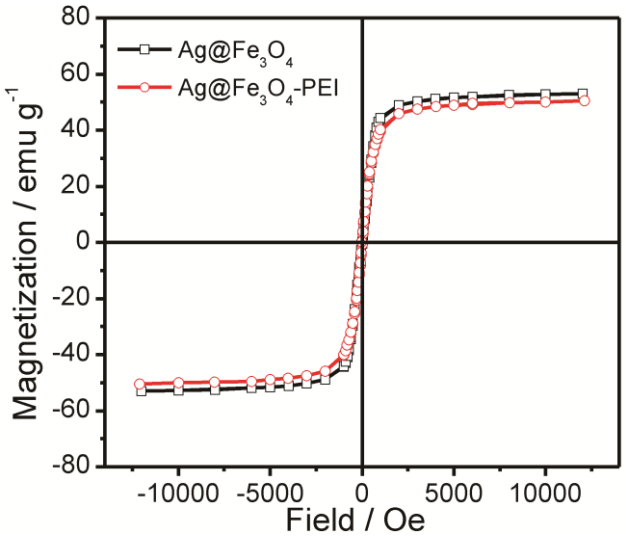

Figure S2. Hysteresis loops of $Ag@Fe_3O_4$ and $Ag@Fe_3O_4$-PEI nanoparticles.

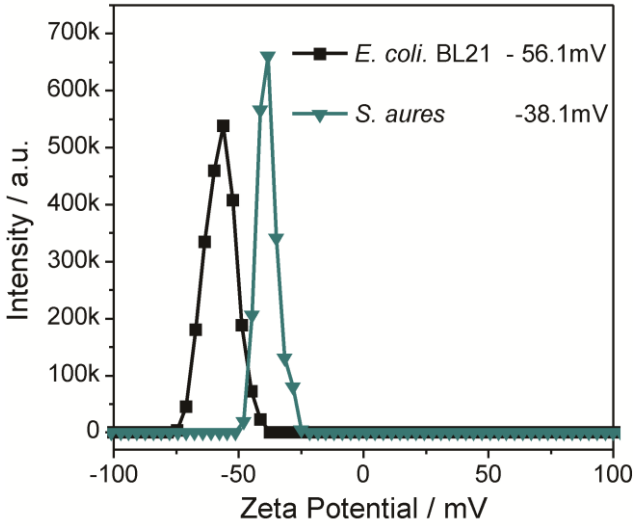

Figure S3. Zeta potential of *E.coli*. BL21 *a*nd *S. aures* in ultra-pure water.

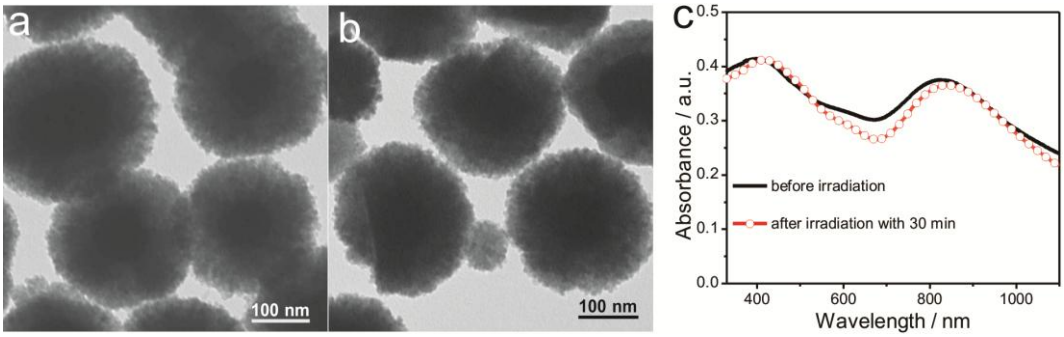

Figure S4. The photothermal stability of $Ag@Fe_3O_4$-PEI nanoparticles under 25-min irradiation with a 4 W/cm^2 808 nm laser. a) TEM image of the $Ag@Fe_3O_4$-PEI nanoparticles before the laser irradiation. b) TEM image of the $Ag@Fe_3O_4$-PEI nanoparticles after the laser irradiation. c) UV-Vis-NIR spectra of $Ag@Fe_3O_4$-PEI nanoparticles before and after the laser irradiation.

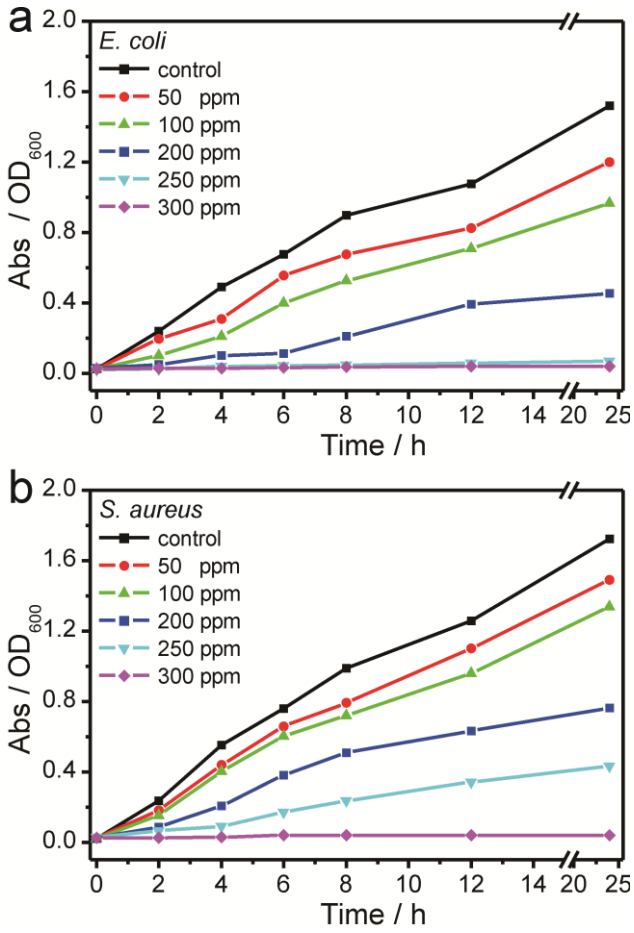

Figure S5. Growth curves of *E. coli* BL21 (a) and *B. subtilis* (b) in LB liquid medium inoculated with 10^7 CFU/mL (0.02 OD_{600})of bacteria in the presence of different concentrations of Ag@Fe_3O_4-PEI nanoparticles.

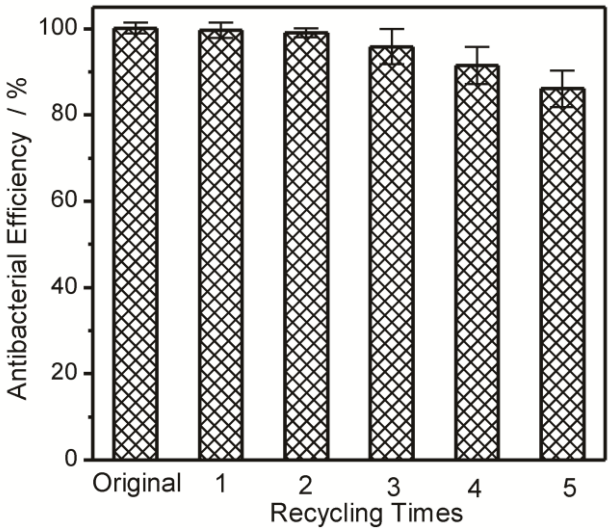

Figure S6. Antibacterial efficiency of Ag@Fe_3O_4-PEI nanoparticles (50 ppm) against *E. coli* BL21 (10^7 CFU/mL, 0.02 OD_{600}) under NIR laser irradiation with 10 min for five cycles.