

Supplementary Materials

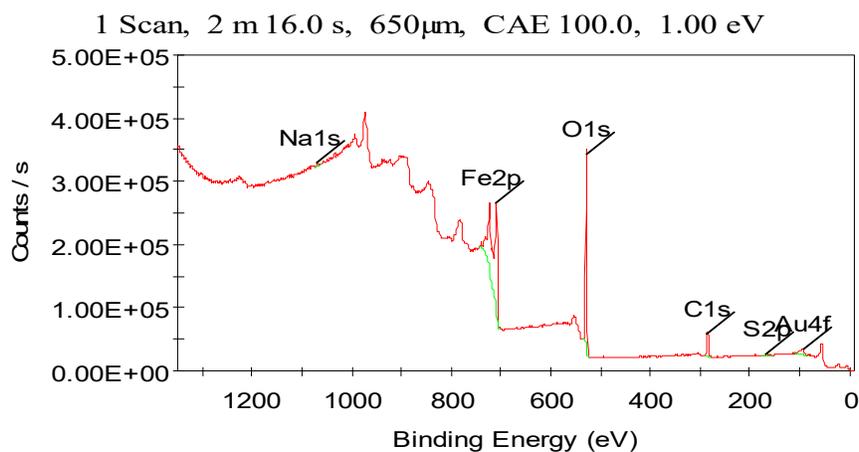


Figure S1 The XPS of iron oxide nanoparticles

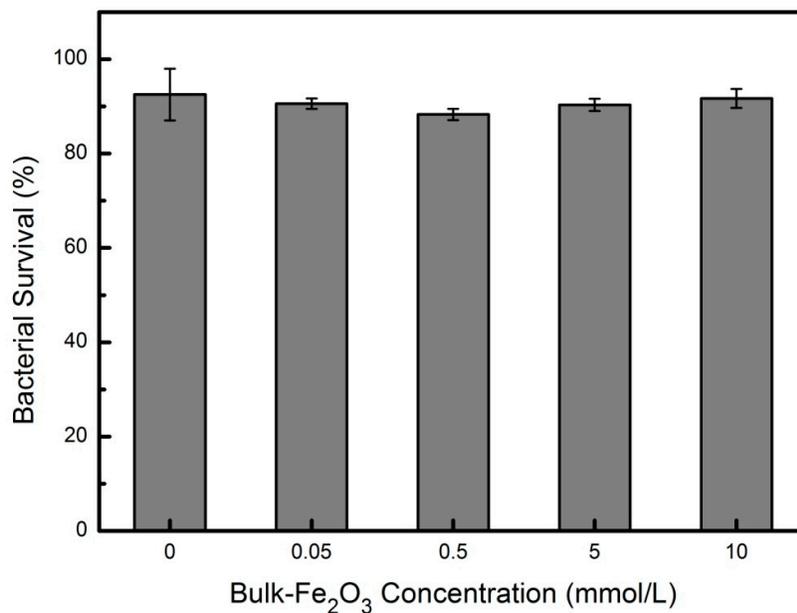


Figure S2. Viability loss of *Escherichia coli* induced by iron oxide bulk particles exposure in PBS. *E. coli* MG1655 at 10^7 colony formation unit (CFU)/mL were exposed to 0, 0.05, 0.5, 5, or 10 mM iron oxide bulk particles at pH 7.4 and 37°C for 2 h. The presence of iron oxide bulk particles did not significantly reduced the viability of the bacteria (ANOVA, $P > 0.05$); no significant differences between each

concentration of the nanoparticles and the control (0mmol/L) were found with the Student-Newman-Keuls (S-N-K) test.

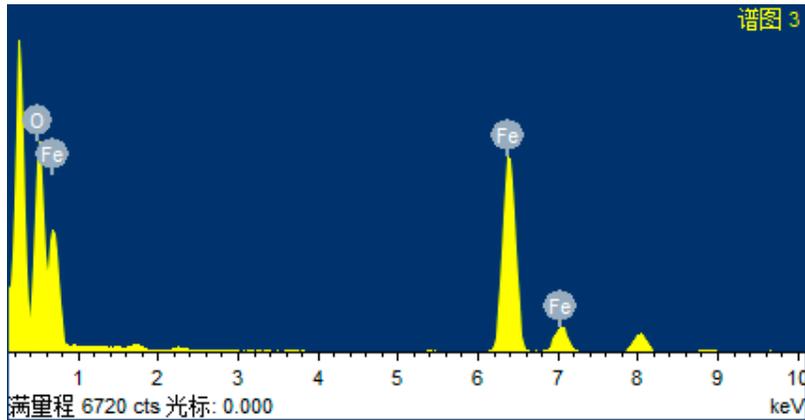


Figure S3. The composition of chemical elements of highly dense particles in bacteria. Possible neglected peaks: 1.739, 2.298, 5.440, 8.041, 8.895, 9.697 and 11.431 keV which originated from the copper net, whereas lead, arsenic, dye liquid and bacteria.

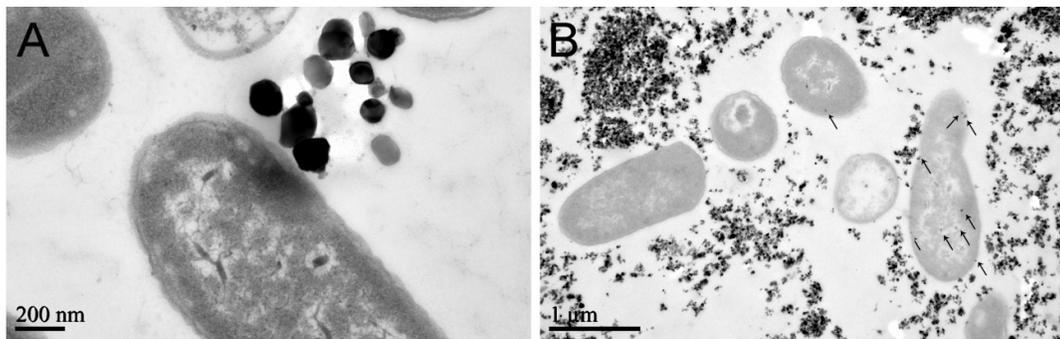


Figure S4. Iron oxide nanoparticles adsorbed on bacterial surfaces. A, large size graph; B, small size graph, arrows indicates the nanoparticles internalization.