Electronic Supplementary Material (ESI) for Biomaterials Science.

Synthesis of Magnetite hybrid nanocomplexes to eliminate bacteria and enhance biofilm disrupting

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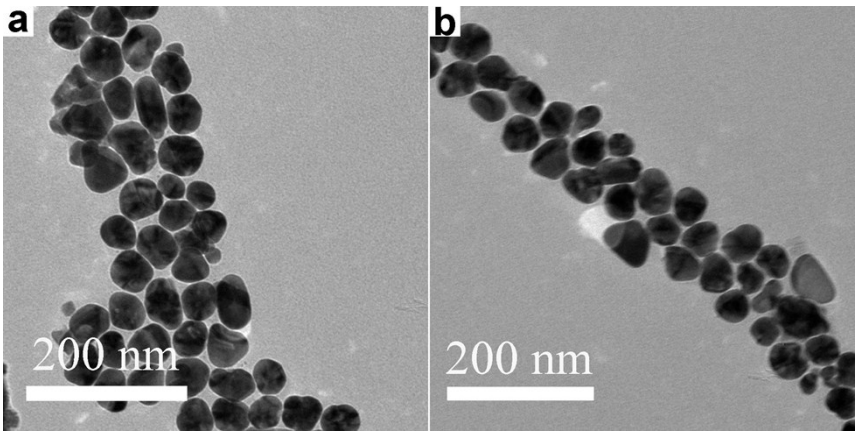

Figure. S1 TEM images of Ag nanoparticles.

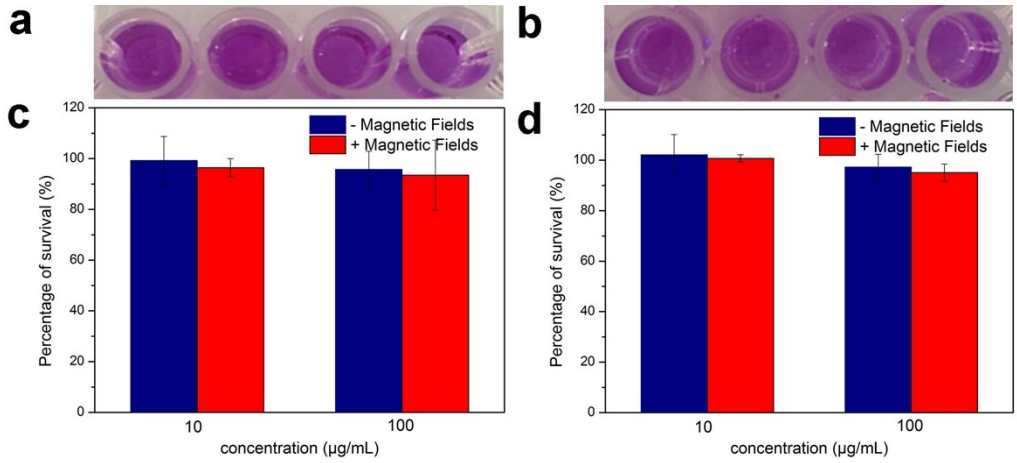

Figure. S2 Antibacterial properties of iron oxides against *E. coli* and *P. aeruginosa* biofilms with or without magnetic fields, (a), (b) The pictures of crystal violet staining against *E. coli* biofilms and *P. aeruginosa* biofilms respectively (c), (d) Percentage survival of *E. coli* biofilms and *P. aeruginosa* biofilms after treated with different concentration of iron oxides with or without magnetic fields.

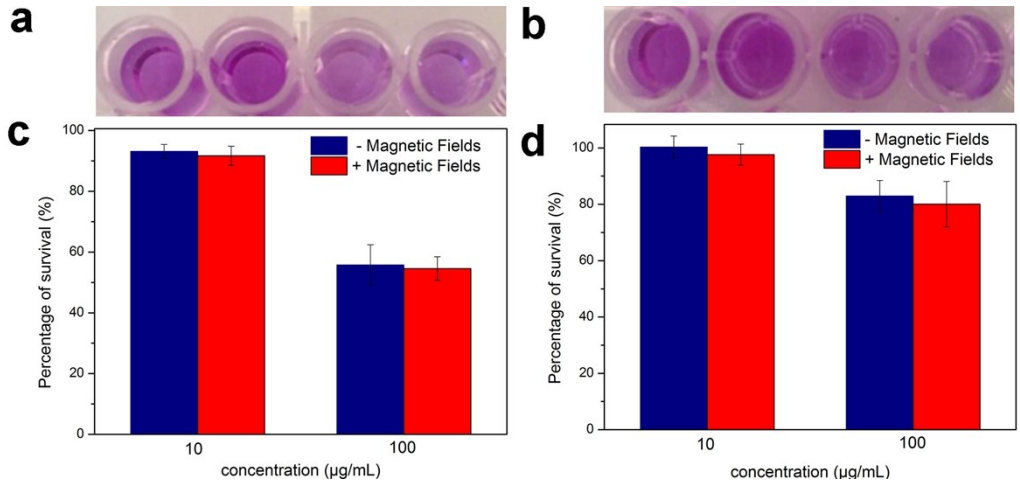

Figure. S3 Antibacterial properties of Ag nanoparticles against *E. coli* and *P. aeruginosa* biofilms with or without magnetic fields, (a), (b) The pictures of crystal violet staining against *E. coli* biofilms and *P. aeruginosa* biofilms respectively (c), (d) Percentage survival of *E. coli* biofilms and *P. aeruginosa* biofilms after treated with different concentration of Ag nanoparticles with or without magnetic fields.

Figure. S4 The optical image of magnetite hybrid nanocomplexes attracted by a magnet.

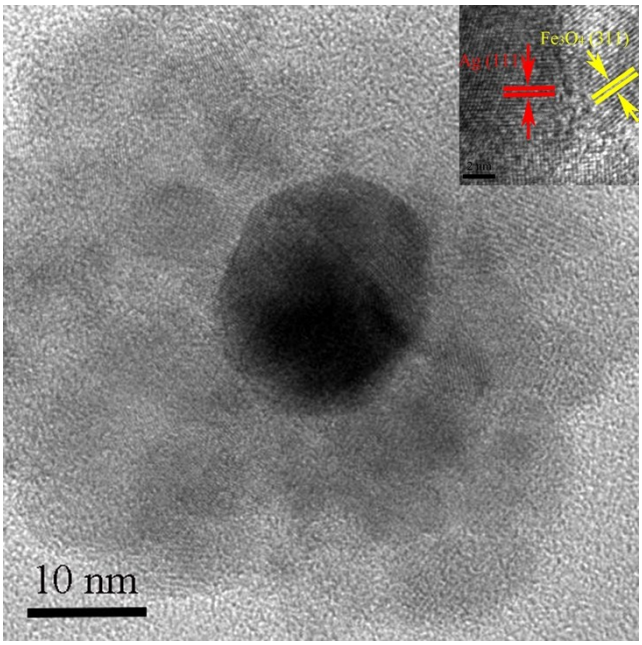

Figure. S5 HRTEM image of an individual magnetite hybrid nanocomplexes.

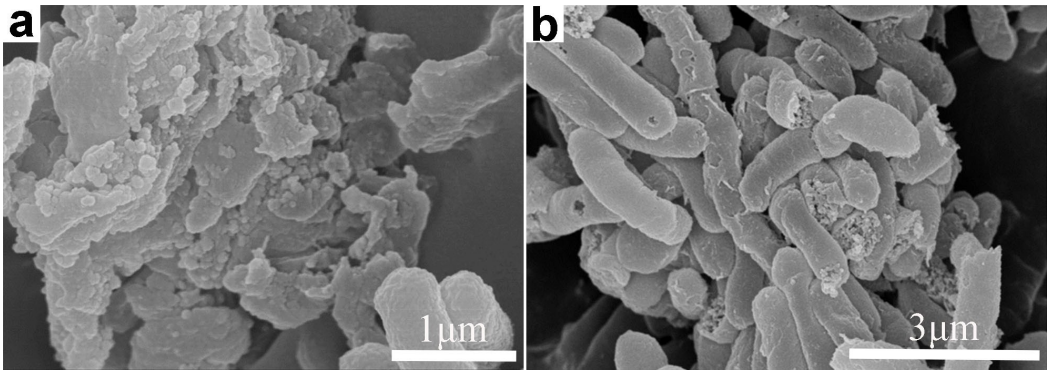

Figure. S6 SEM images of the *E. coli* (a) and *P. aeruginosa* (b) biofilm matrix after treated with 100 μg/mL magnetite hybrid nanocomplexes for 30 min with magnetic fields.

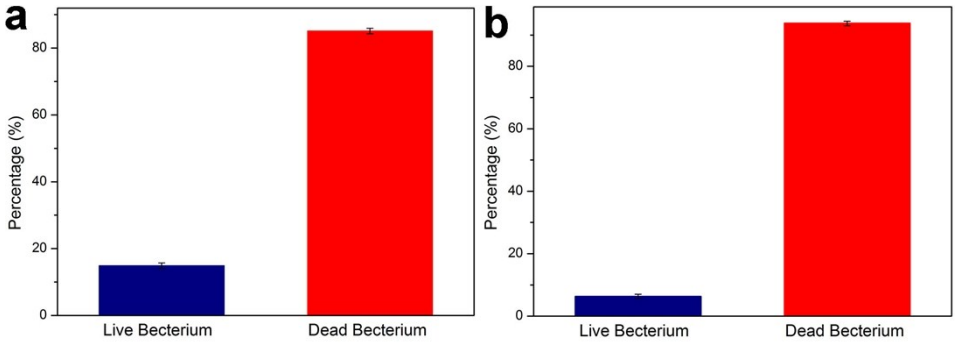

Figure. S7 Histogram of quantitative bacteria survival rate of *E. Coli* (a) and *P. aeruginosa* (b) biofilms after treated with 100 μg/mL magnetite hybrid nanocomplexes for 30 min with magnetic fields (according to the CLSM images of *E. coli* and *P. aeruginosa* biofilms).

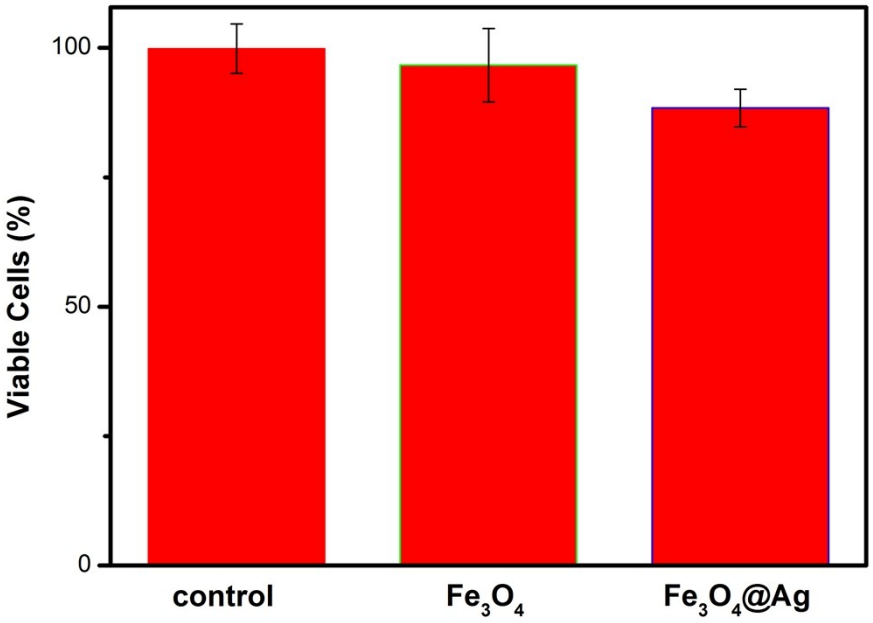

Figure. S8 Viability (%) of 3T3 mouse fibroblast cells exposed to Fe_3O_4 and magnetite hybrid nanocomplexes. Error bars represent the standard error of three parallel experiments.