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Supporting Information

Fabrication of silica/polyrhodanine core/shell nanoparticles and their antibacterial properties

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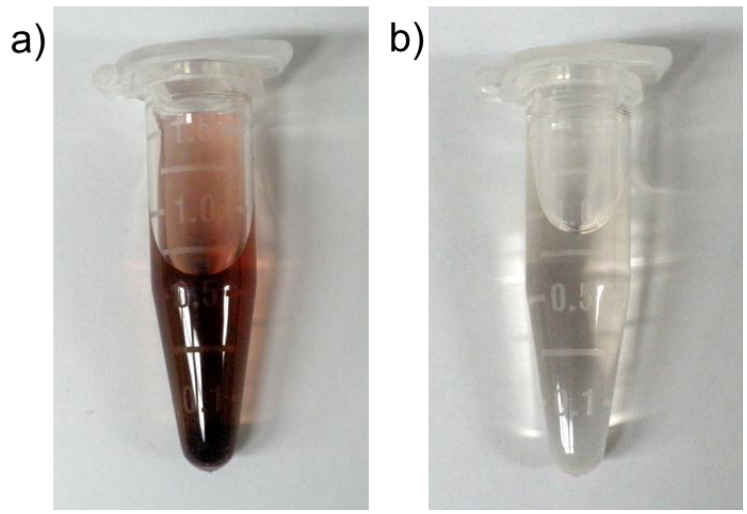

Fig. S1 Photographs of NMP solvents mixed with (a) the silica/polyrhodanine core/shell nanoparticle dispersed aqueous solution and (b) the upper solution of the nanoparticles precipitated aqueous solution.

Biocidal test for conducting polymer coated silica nanoparticles

To study the role of oxygen and sulfur groups on antibacterial properties, the 26 nm sized polythiophene (PT) and poly(3,4-ethylenedioxythiophene) (PEDOT) coated silica nanoparticles were prepared.[32] The 27 nm silica/polyrhodanine core/shell nanoparticles were also prepared for comparison. Each nanoparticles dispersed aqueous solution (10 mg/mL) was inoculated with 50 μL of *S. aureus* suspension (10^6-10^7 CFU/mL). After a specific contact time, 50 μL aliquots were taken from each tube and cultured on LB agar plates. The LB agar plates were kept at 37℃ for 24 h and the number of bacterial colonies was observed and counted to evaluate antibacterial performance.

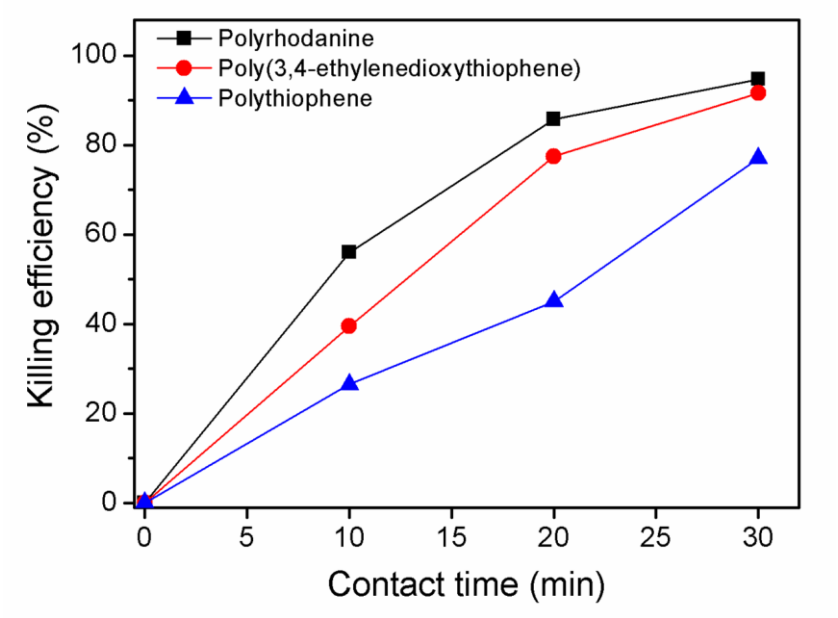

Fig. S2 Plot of killing efficiency versus contacting time (min) of the different polymer coated silica nanoparticles against *S. aureus*. The killing efficiency was obtained as killing efficiency = (1 − A/B) x 100 (where B is the number of surviving bacteria colonies in the control and A is that of the core/shell nanoparticles sample).