Supplementary Information

Antibiotic Mediated Synthesis of Gold Nanoparticles with Potent Antimicrobial Activity and Their Application in Antimicrobial Coatings

Akhilesh Rai*, Asmita Prabhune$, Carole C. Perry*
*School of Science and Technology, Nottingham Trent University, Clifton Lane, Nottingham, NG 11 8NS, United Kingdom
$Biochemical Sciences Division, National Chemical Laboratory, Pune, 411008, India
Figure S1: Representative TEM images of NaBH₄ reduced gold nanoparticles (A) and after surface modification of NaBH₄ reduced gold nanoparticles with cefaclor (B).

Figure S2: (A) UV-vis spectra of pure cefaclor solution (1), cefaclor reduced gold nanoparticle solution after 1 day (2), 60 days (3), 90 days (4) and 180 days (5). (B) UV-vis spectra of redispersed gold nanoparticle powders synthesized at 20°C (curve 1), 30°C (curve 2), 40°C (curve 3), 60°C (curve 4) and 70°C (curve 5), in water.
**Figure S3:** *S. aureus* colonies were treated with increasing amounts (10-500 µg/mL) of cefaclor reduced gold nanoparticles and cefaclor and 100 µL aliquots of bacterial suspensions after time intervals (0-6 h) were plated on LB agar plates. Digital images of the bacterial plates were recorded after 24 h of incubation.
Figure S4: E.coli colonies were treated with increasing amount (10-500 µg/mL) of cefaclor reduced gold nanoparticles and cefaclor and 100 µL aliquots of bacterial suspensions after time intervals (0-6 h) were plated on LB agar plates. Digital images of the grown bacterial plates were recorded after 24 h of incubation.
Figure S5: FTIR spectra of cefaclor reduced gold nanoparticles coated on PEI surface without treatment (curve 1), after treatment at pH 3 (curve 2) and at pH 10 (curve 3).