

Supplementary Figures

Gold nanoparticles functionalized poly(3,4-ethylenedioxythiophene) thin film for high sensitive label free DNA detection

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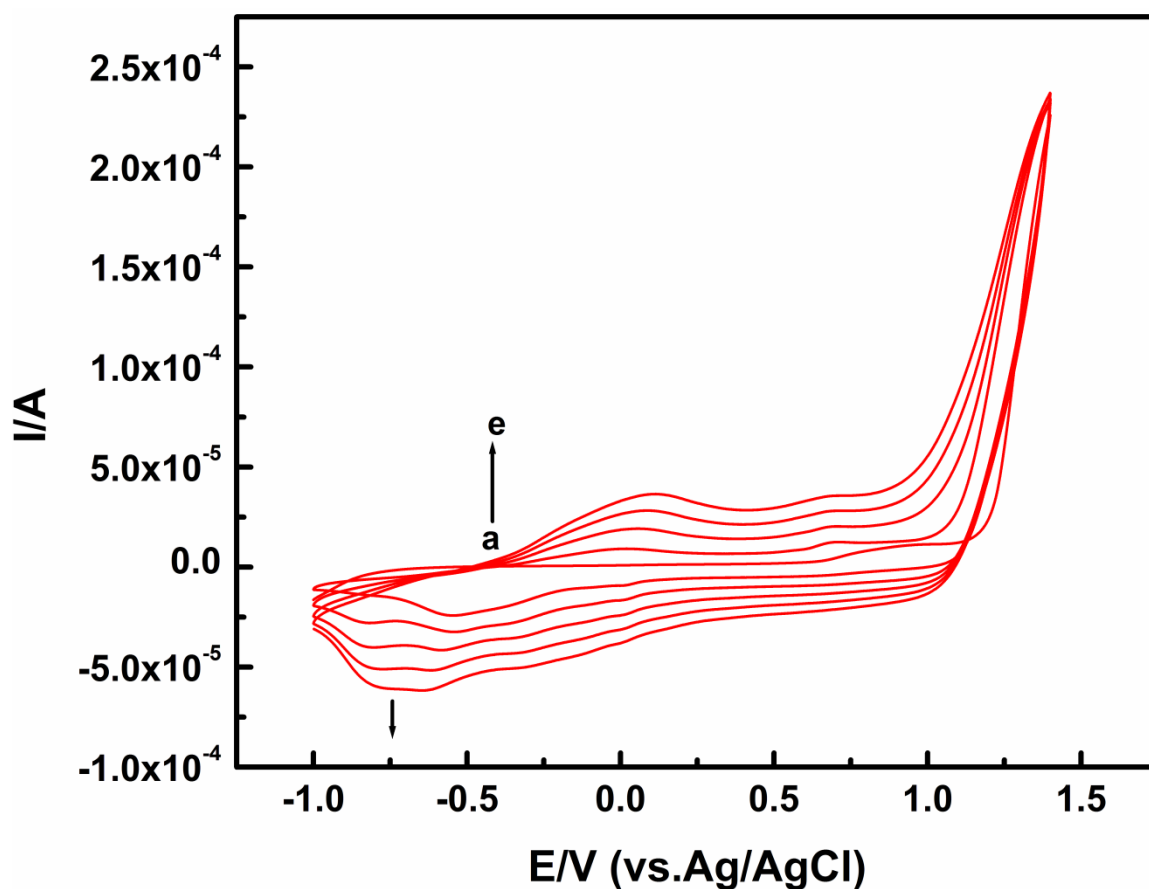


Fig. S1

Fig. S1. Polymerization of PEDOT (5 cycles) on GC electrode in 10 mM EDOT and propylene carbonate containing 0.1 M LiClO₄ at scan rate of 100 mV/s. (a) 1st and (e) 5th cycles.

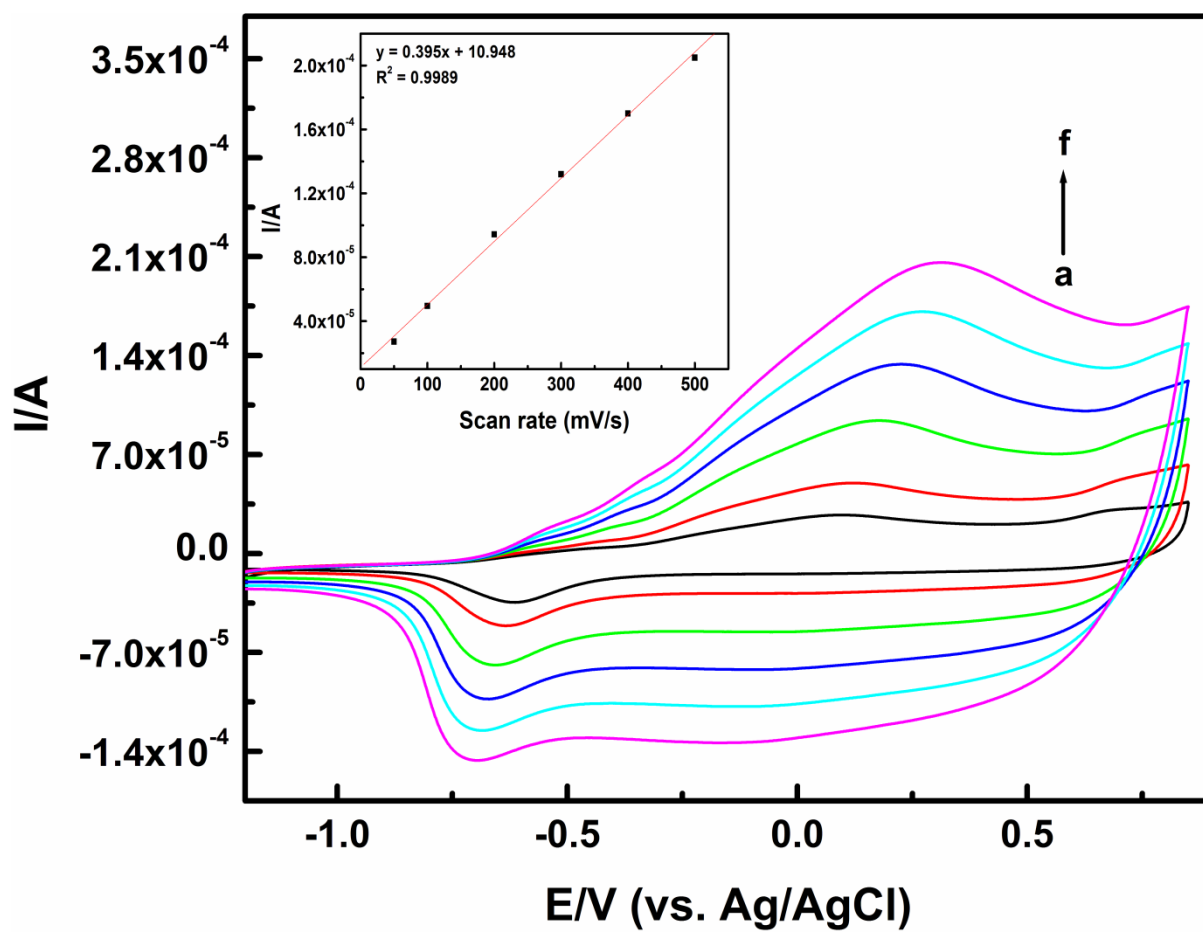


Fig. S2

Fig. S2. CVs of PEDOT on a GC electrode deposited by 5 cycles in propylene carbonate at a scan rate of (a) 10 mVs^{-1} , (b) 100 mVs^{-1} , (c) 200 mVs^{-1} , (d) 300 mVs^{-1} , (e) 400 mVs^{-1} and (f) 500 mVs^{-1} . Inset: plot of the anodic peak currents vs. scan rate.

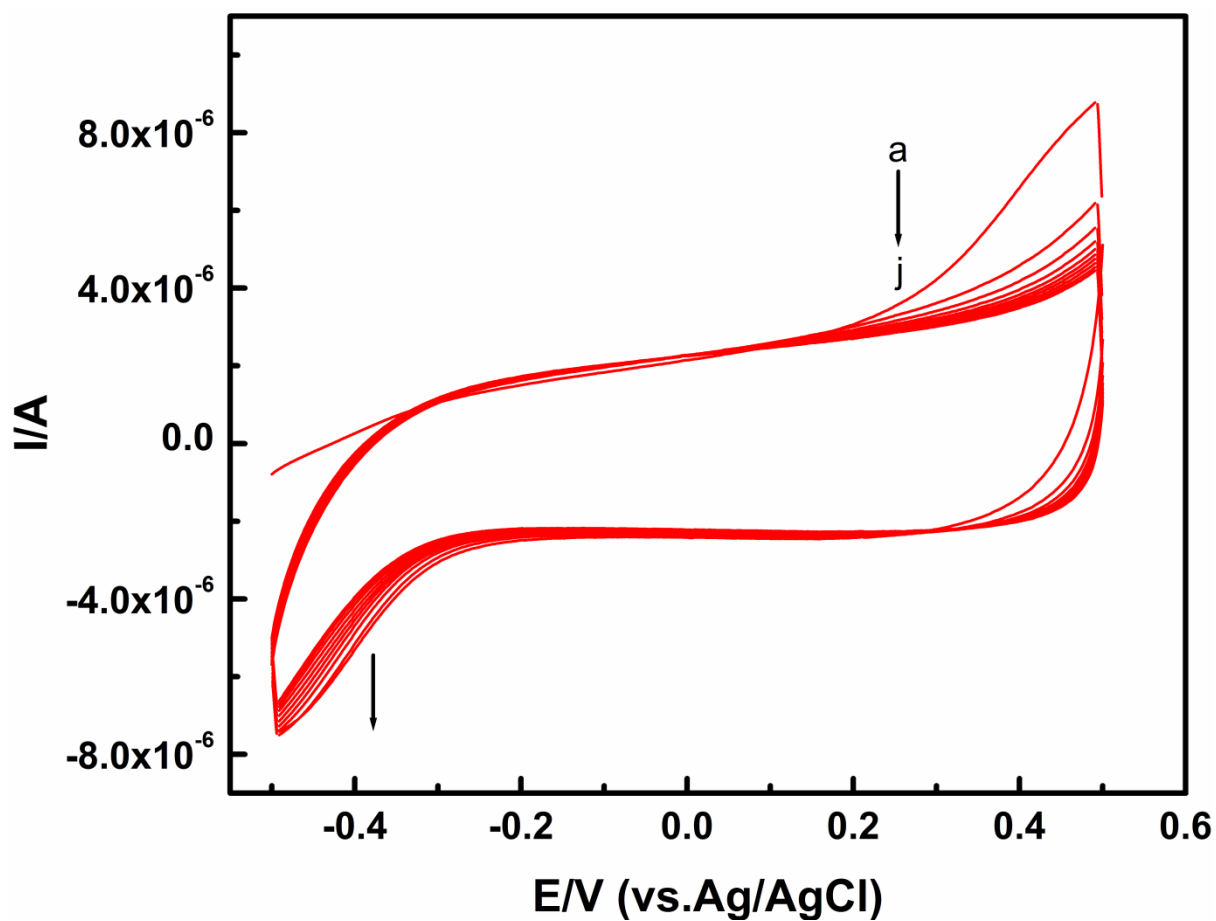


Fig. S3

Fig. S3 CV of PEDOT film in 0.1 M Tris-HCl (pH 7.0) in the potential between -0.5 to 0.5 V for continuous 10 cycles at a scan rate of 50 mV/s.

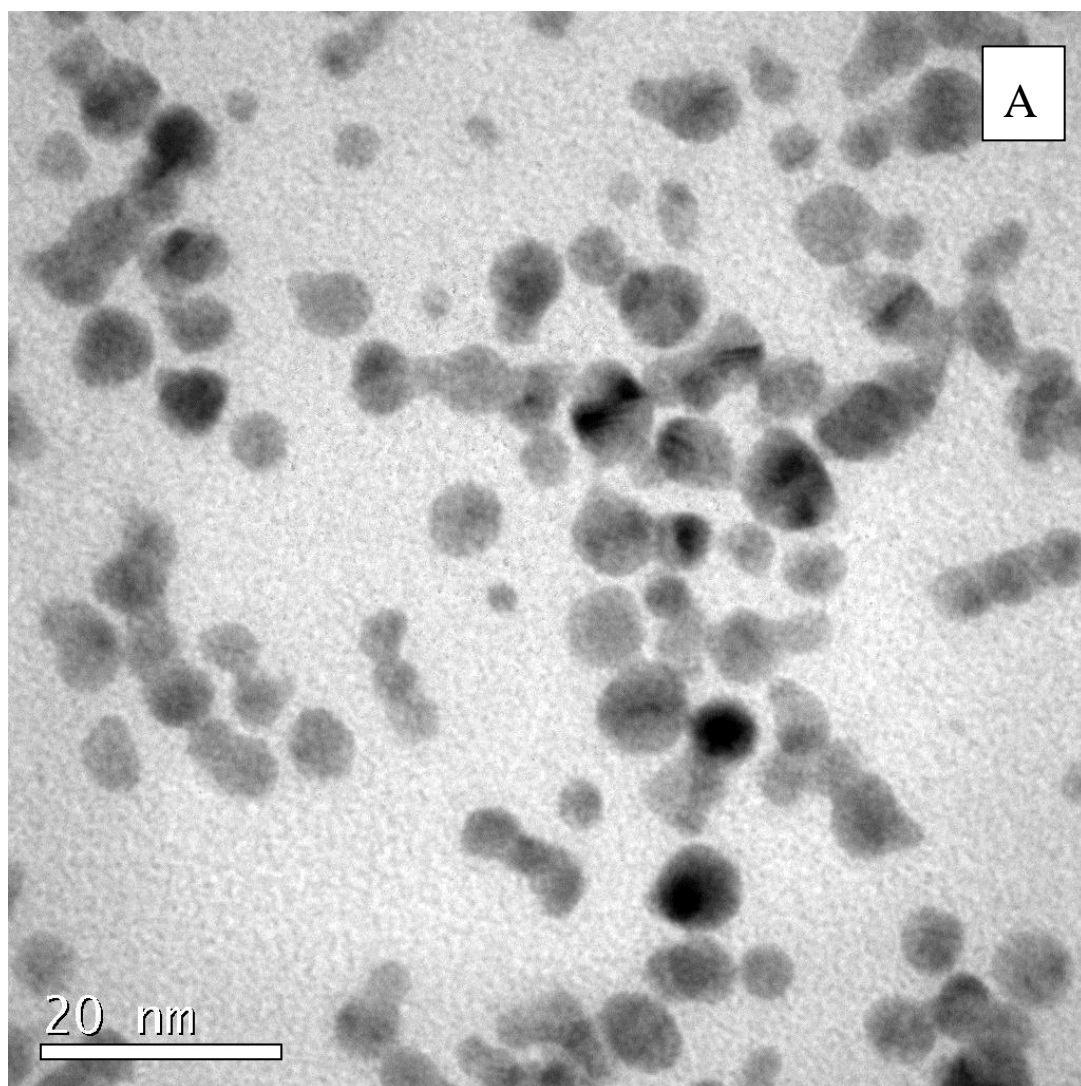


Fig. S (4A)

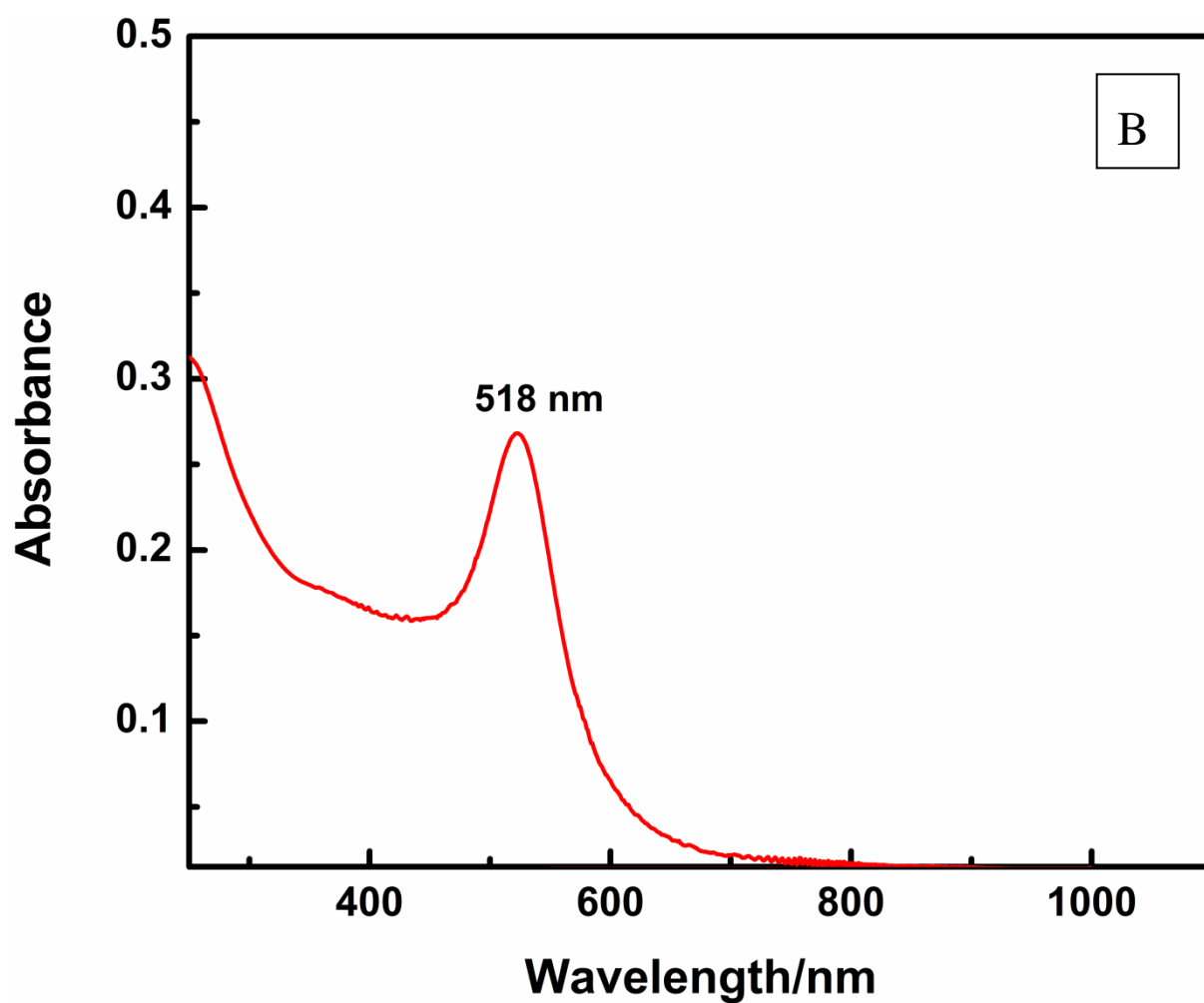


Fig. S4B

Fig. S4 (A) TEM image of AuNPs; (B) UV-Vis spectrum of corresponding AuNP

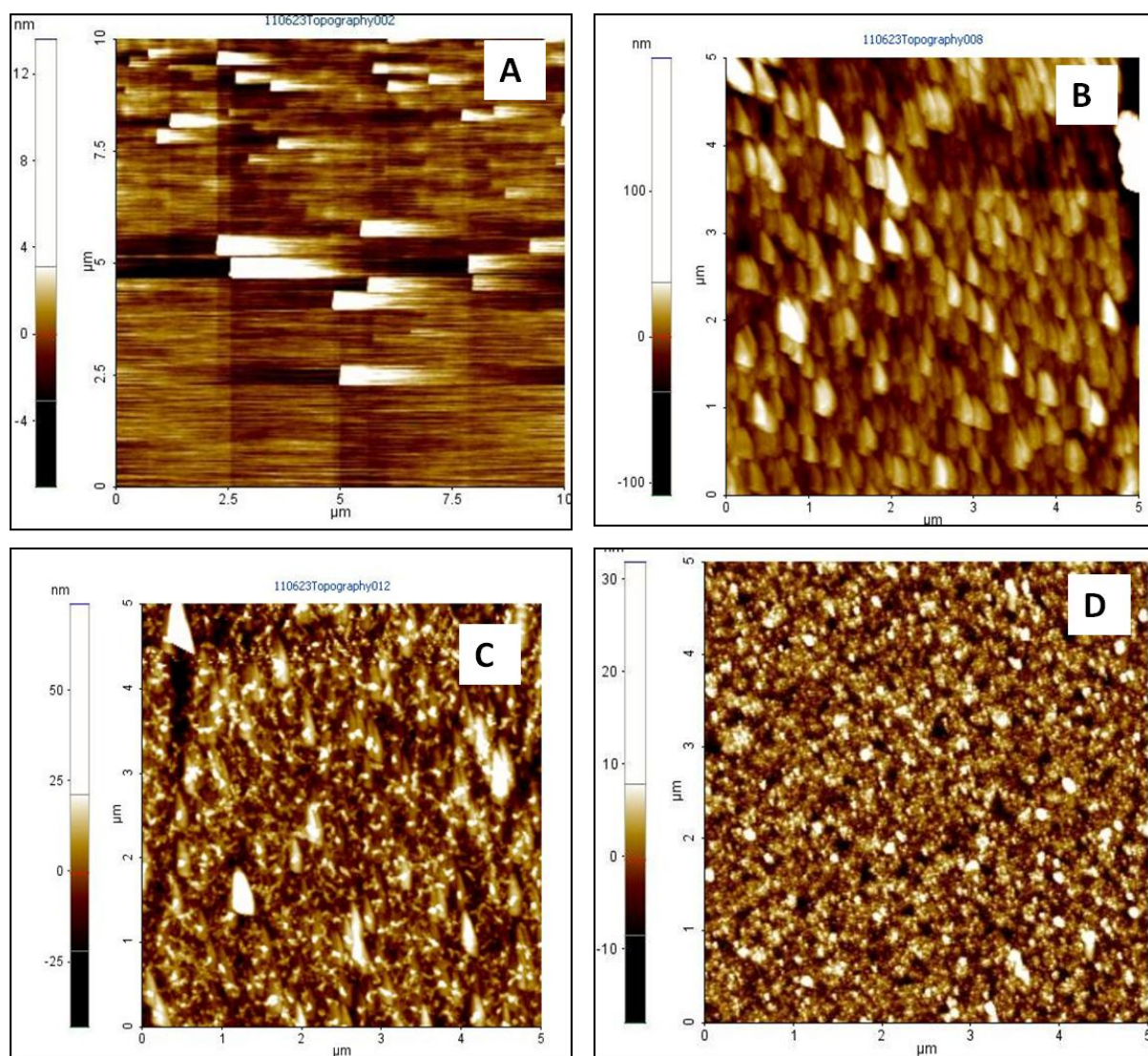


Fig. S5

Fig. S5 AFM images of (A) bare Au; (B) PEDOT; (C) PEDOT- AuNPs and (D) PEDOT- AuNPs-S-ssDNA on individual gold coated silicon chips.

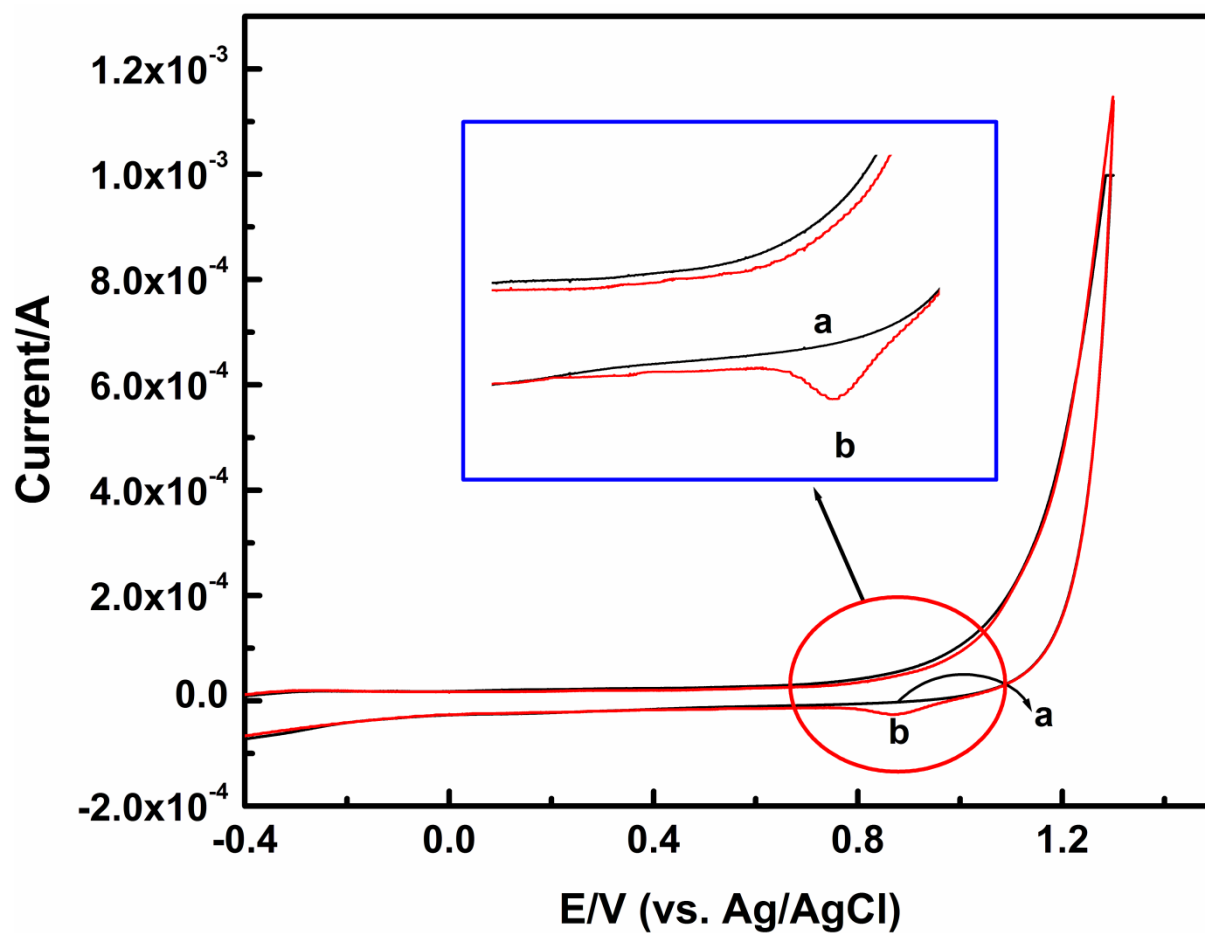


Fig. S6

Fig. S6 CV of (a) PEDOT and (b) PEDOT-AuNPs modified electrode in 0.5 M H_2SO_4 in the potential range between -0.4 to 1.3 V at a scan rate of 100 mV/s.

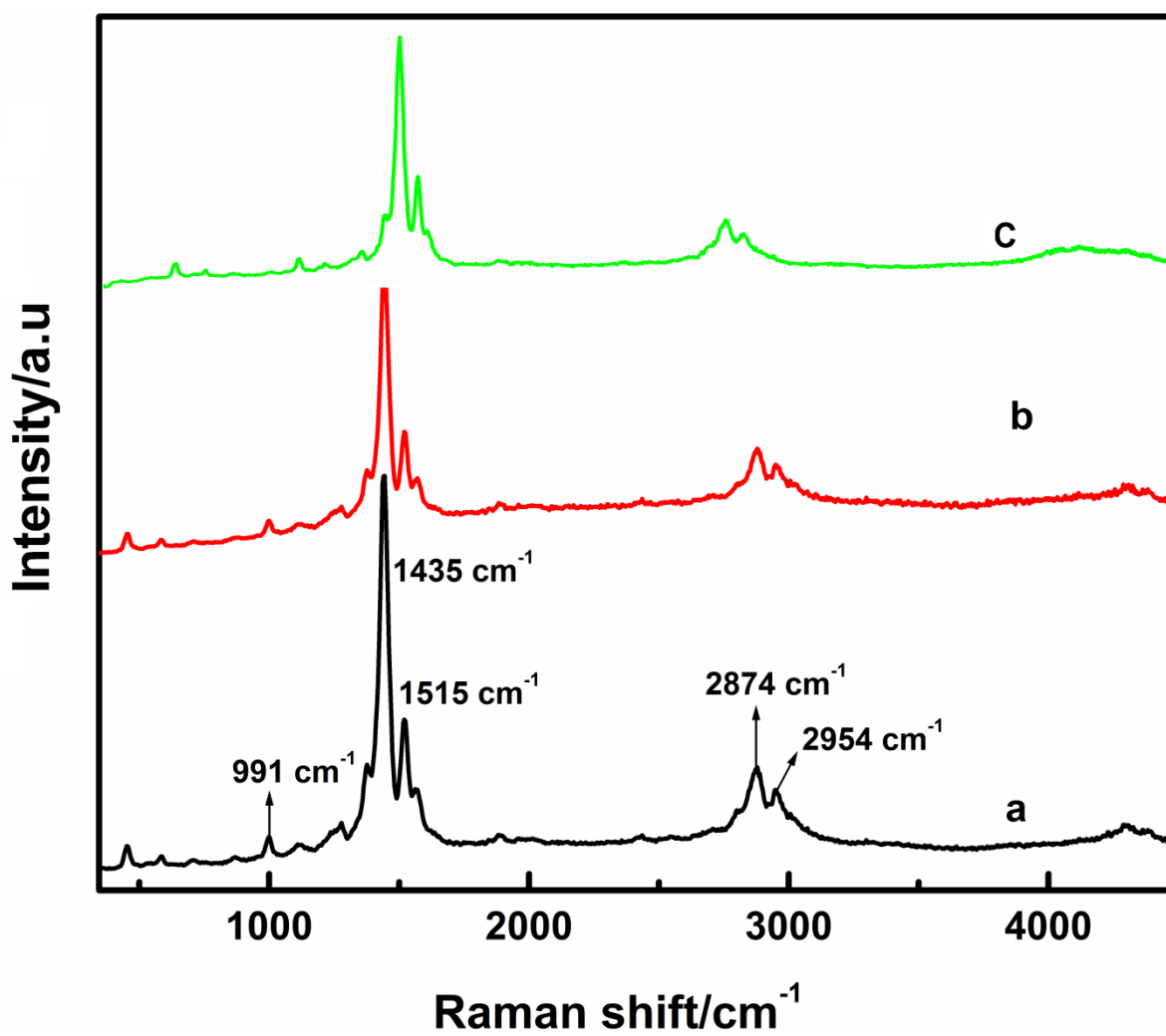


Fig. S7

Fig. S7 Surface laser Raman spectra of (a) PEDOT, (b) PEDOT- AuNP and (c) PEDOT- Au NPs -S-ssDNA on gold coated silicon chip.

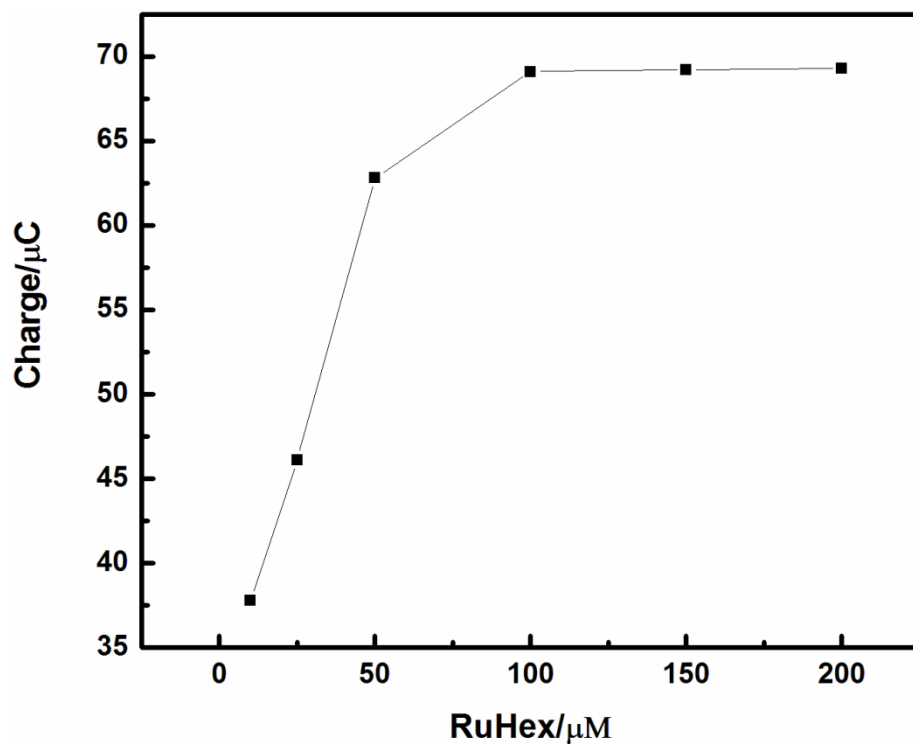


Fig. S8. Effect of RuHex concentration (10-200 μM) on CC signal of RuHex at complementary dsDNA modified electrode surface.