Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Data

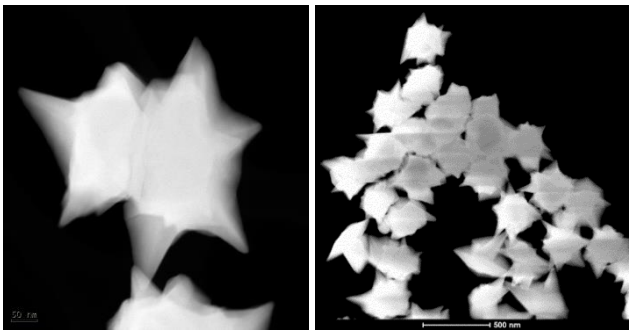


Figure S1: TEM images of AuNSs.

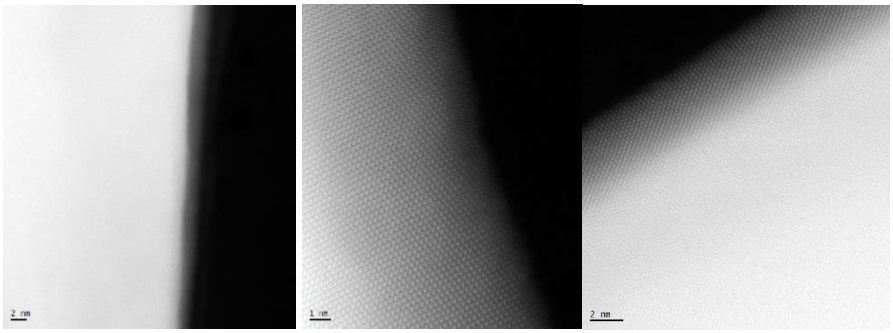


Figure S2: TEM images of AuNSs in atomic scale resolution.

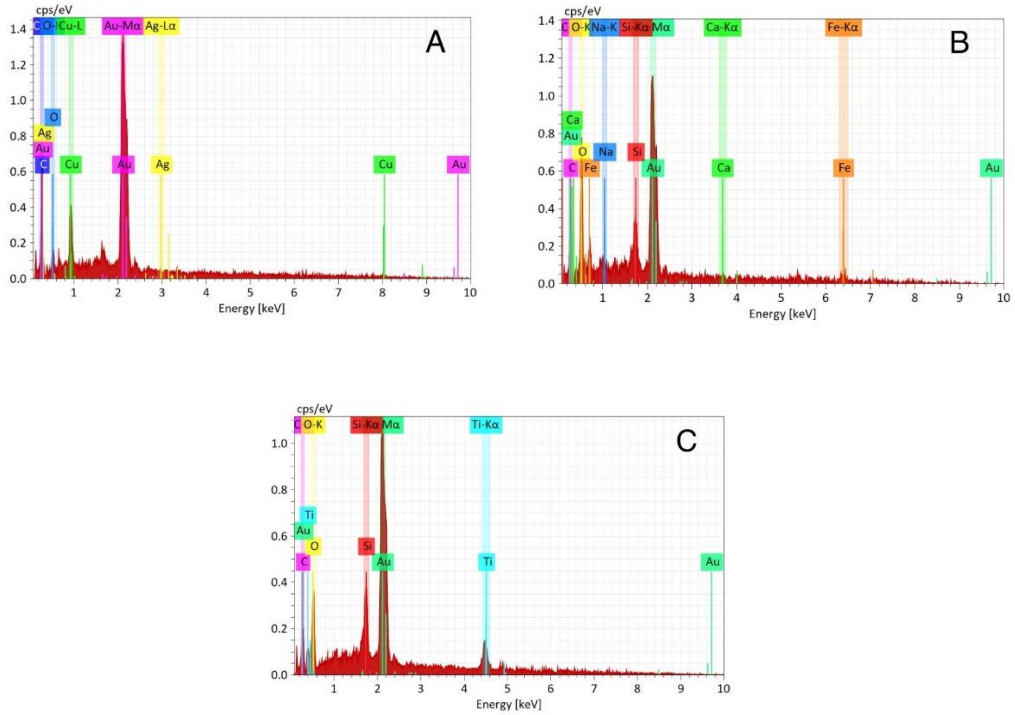


Figure S3: EDX analysis of A) AuNSs modified electrode B) AuNSs-pDNA modified electrode, C) AuNSs-pDNA-cDNA modified electrode.

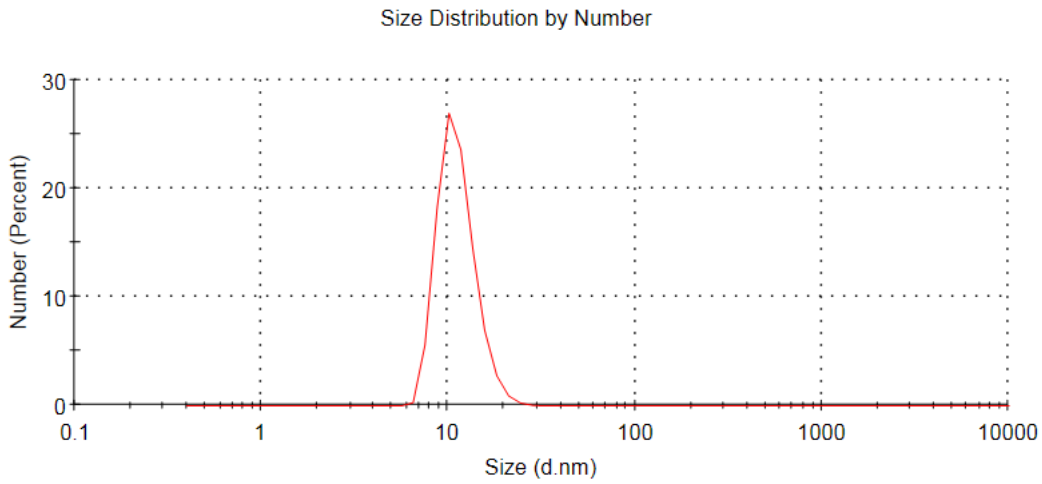


Figure S4: Size distribution analysis of AuNSs by DLS.

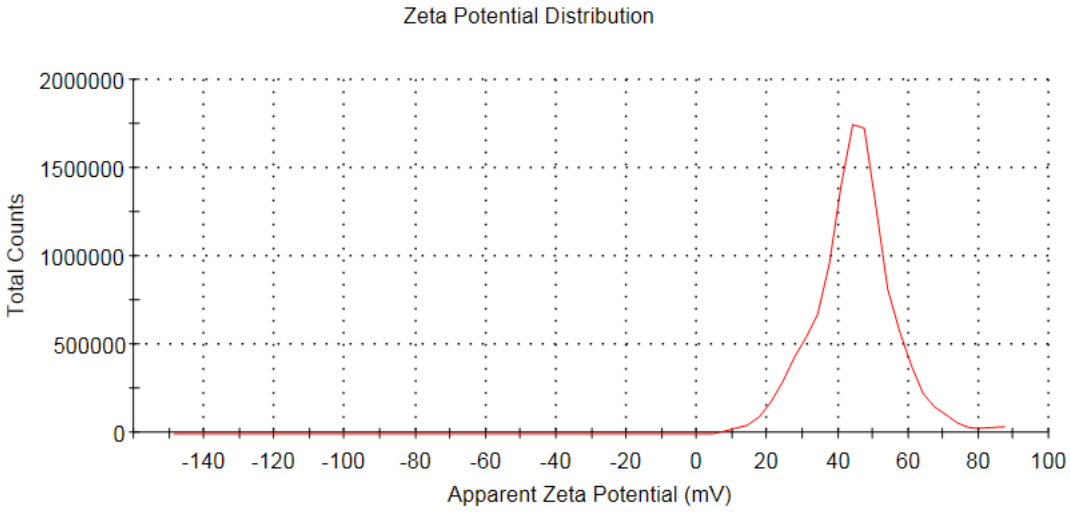


Figure S5: Zeta potential analysis of AuNSs.

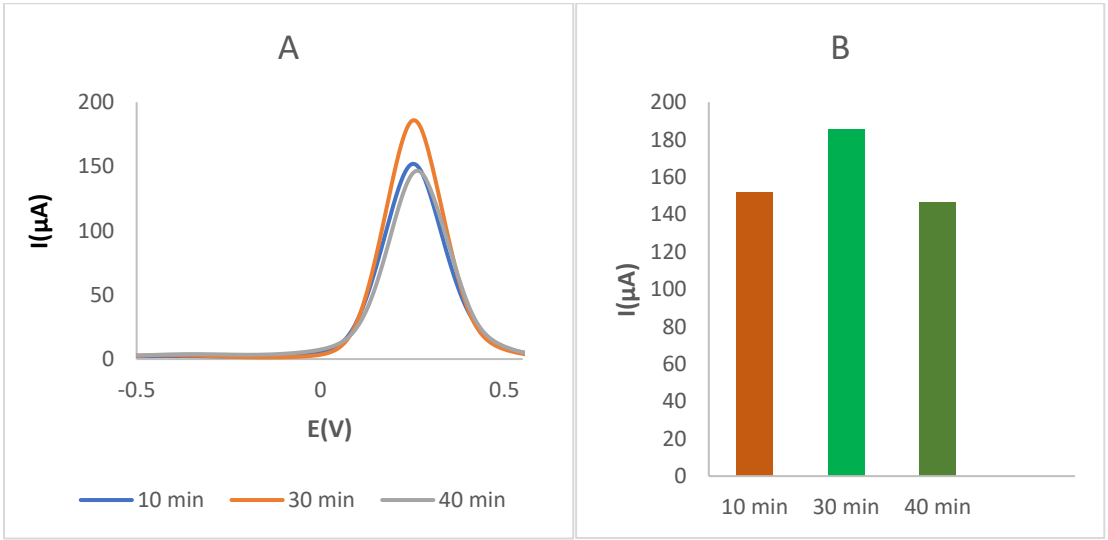


Figure S6: A) SWVs of the fabricated genosensor after hybridization in different incubation time of tDNA (10,30 and 40 min). Supporting electrolyte is 0.01 M (Fe $(CN)_6^{3/4}$-KCl). Step size is 10 mV. B) Histogram of cDNA incubation time.

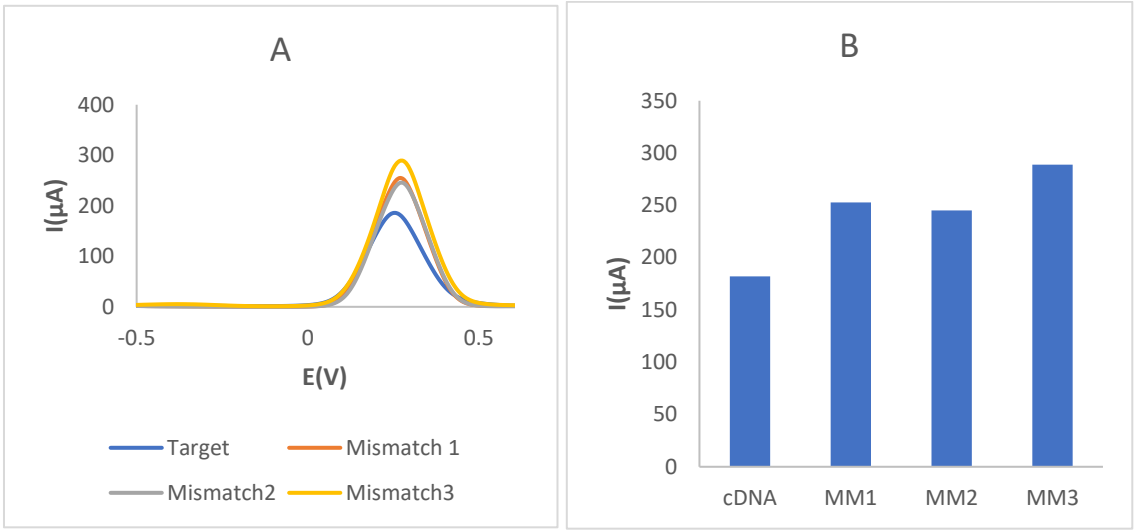
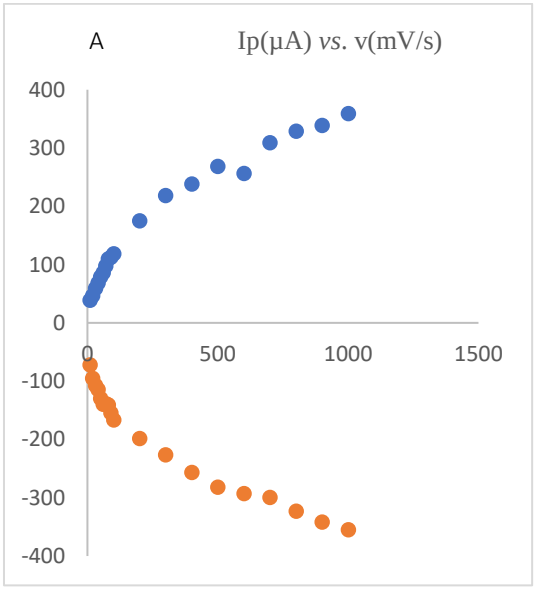


Figure S7: A) SWVs (E step=0.01 V,Amplitude 0.1 V, Frequency 1.0Hz) of the DNA sensor after hybridization by 5 microliter of 7.3 µM cDNA, 7.3 µM 1-missmatch DNA, 7.3 µM 2-mismatch DNA and 7.3 µM 3-missmatch DNA in 0.01 M (Fe $(CN)_6^{3/4}$-KCl). (Incubation time 30 min at room temperature). B) Histogram of the selectivity study.



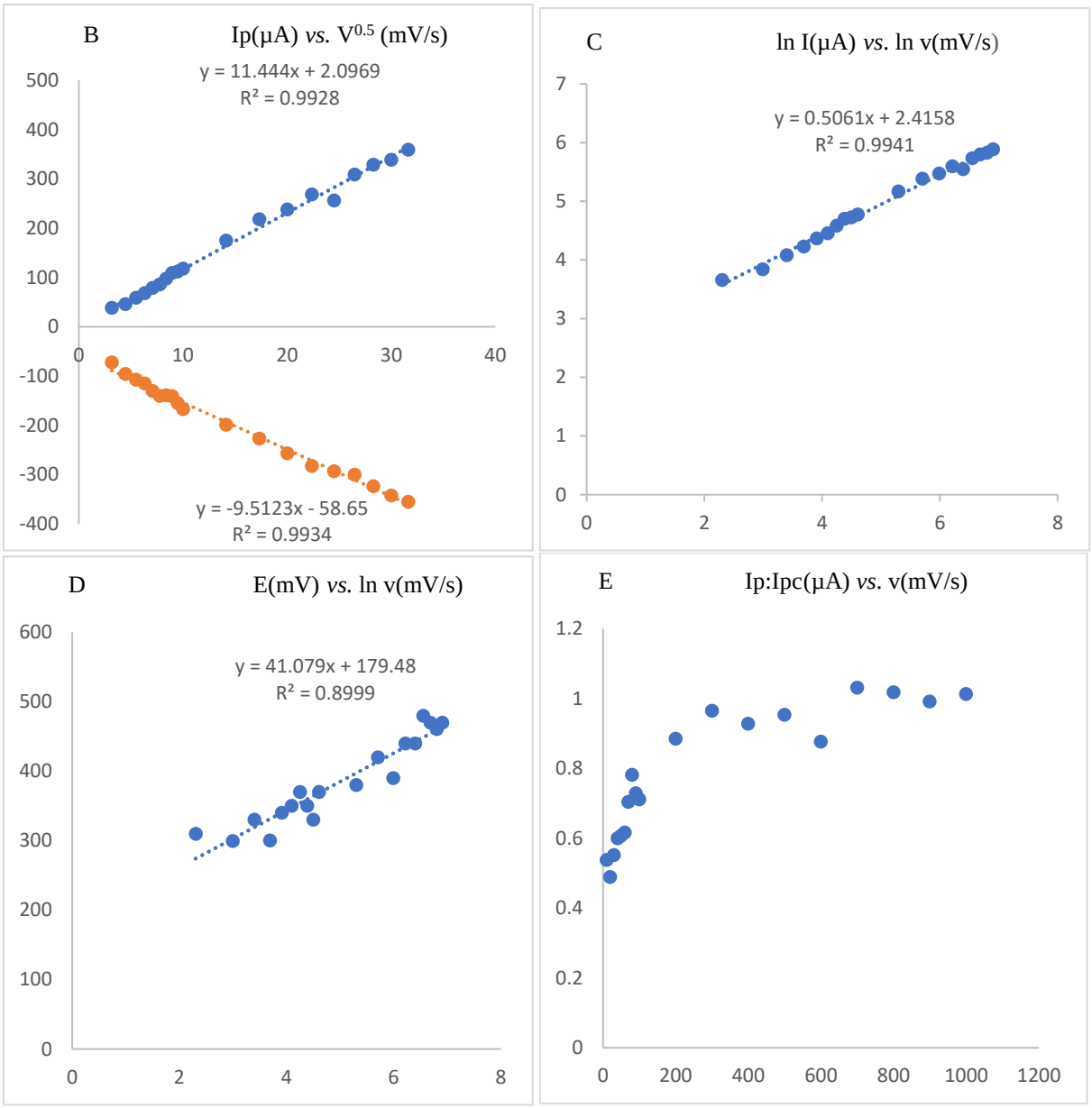


Figure S8: A) Dependency of anodic/cathodic peak currents vs. potential sweep rate. B) Dependency of anodic/cathodic peak currents vs. square root of potential sweep rate. C) Dependency of Ln Ip vs. Ln v. D) Dependency of Ep vs. Ln v. E) Dependency of Ip:IPc.

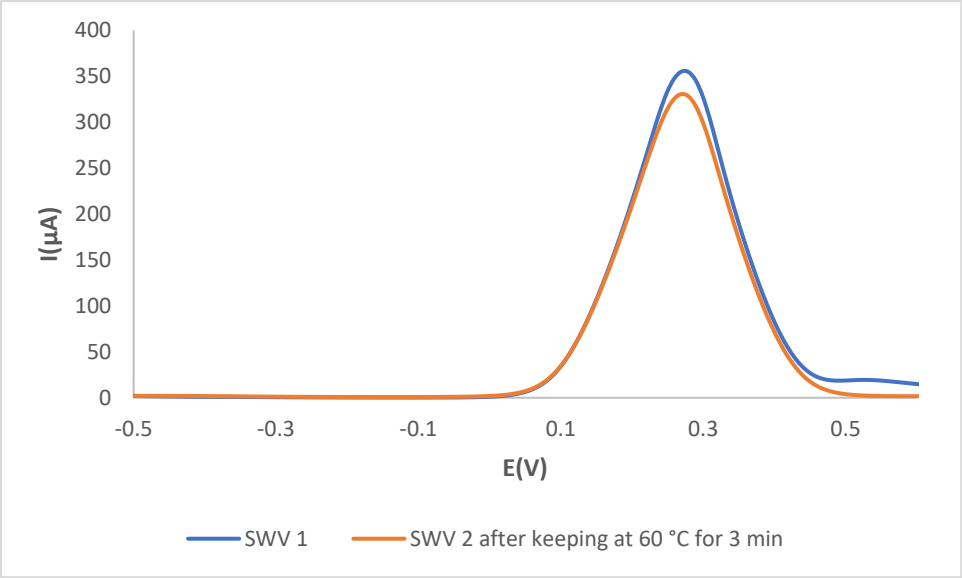


Figure S9: Regeneration study: 1) SWV signal of Au-GNSs-pDNA-MCE-TB-tDNA. 2) SWV signal of Au-GNSs-pDNA-MCE-TB-tDNA after keeping at 60 °C for 3 min and after re-hybridization.

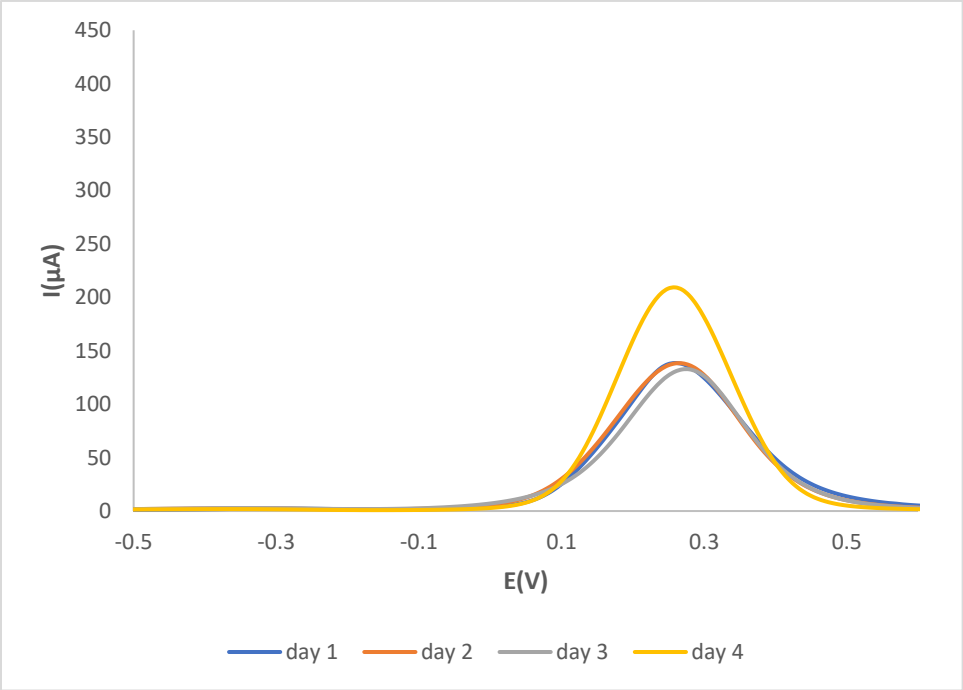


Figure S10: Interday stability of the Au/GNSs/pDNA electrode