Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Electronic Supplementary Information

An Electrochemical Biosensing Platform for Progesterone Hormone using Magnetic Graphene Oxide

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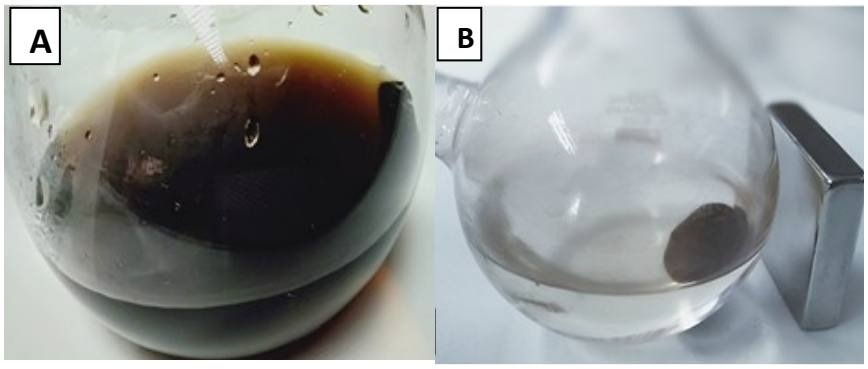

Figure S1. A) Photographs of synthesized graphene oxide (GO) dispersed in DI water and B) magnetic graphene oxide (MGO) with the external magnet response.

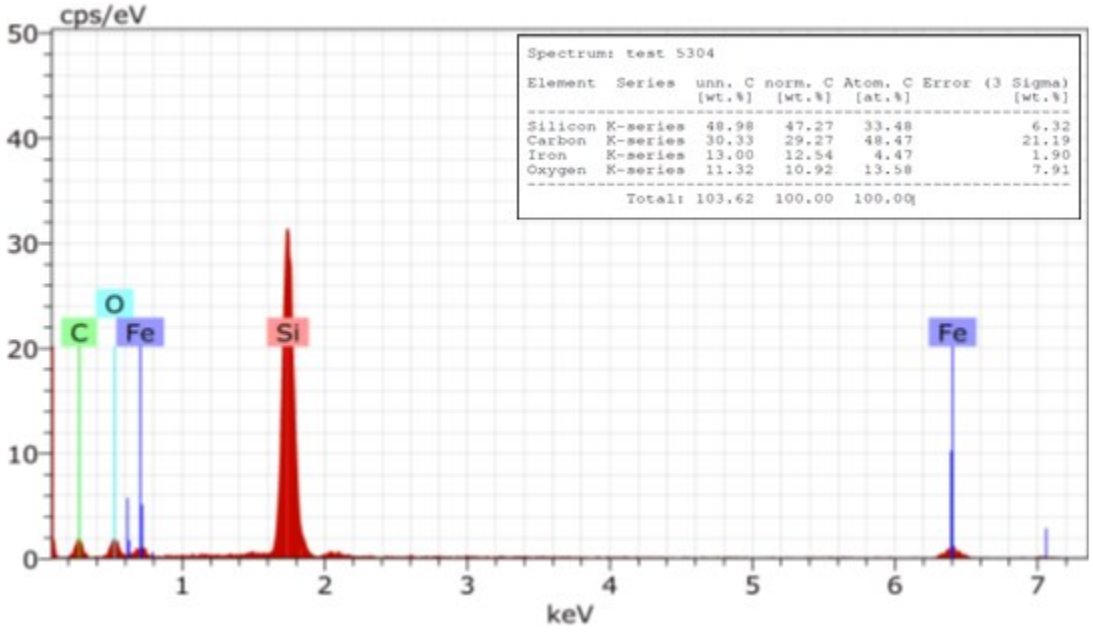

Figure S2. EDS analysis of MGO nanocomposite showing elemental composition.

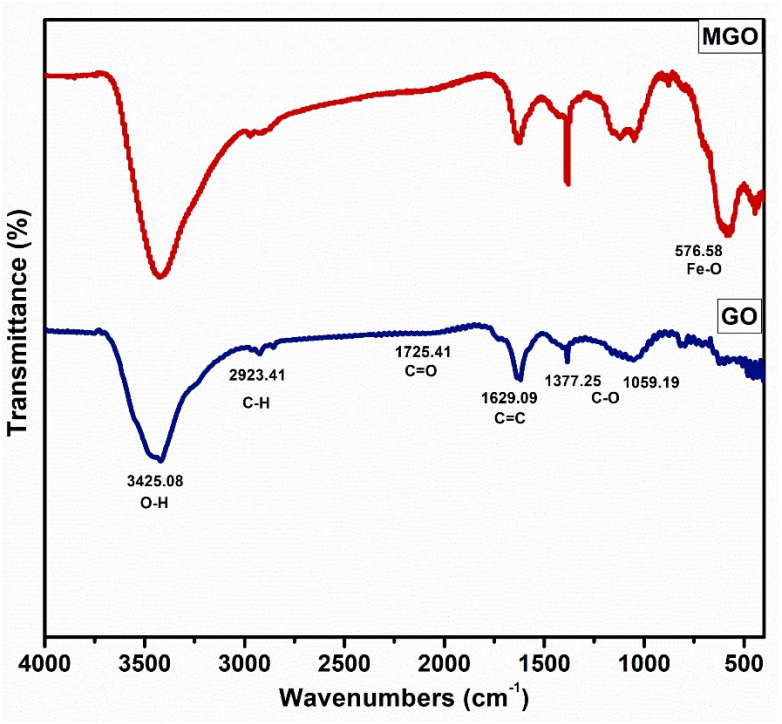

Figure S3. FT-IR spectra of graphene oxide (GO) & magnetic graphene oxide (MGO).

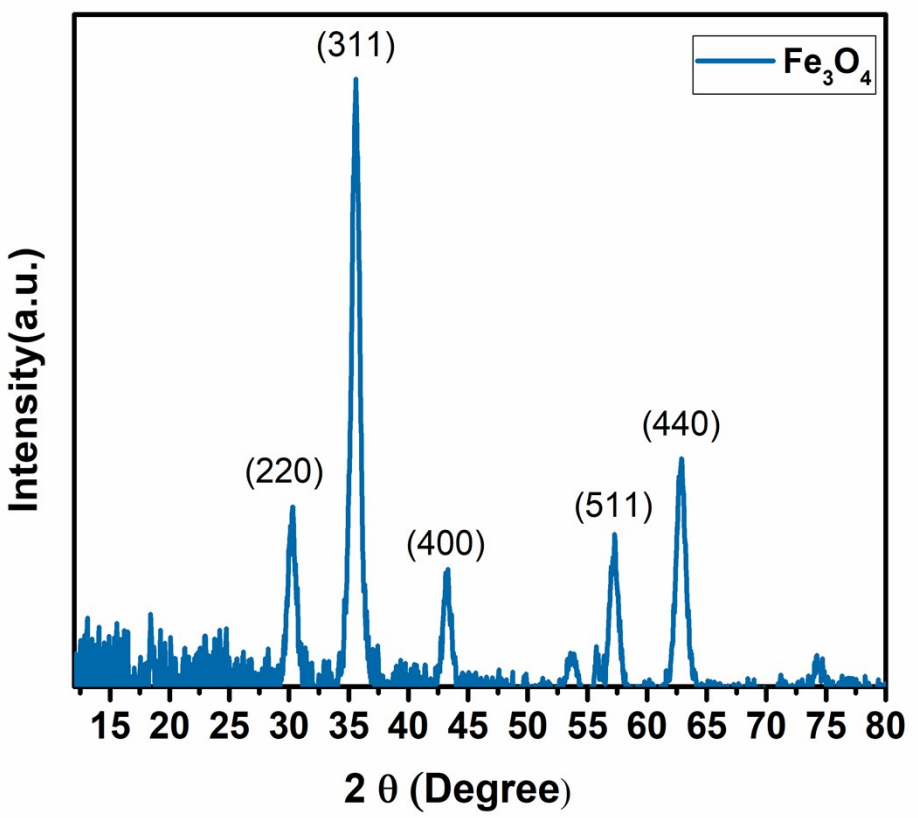

Figure S4. XRD spectrum ofFe_3O_4 magnetic nanoparticles.

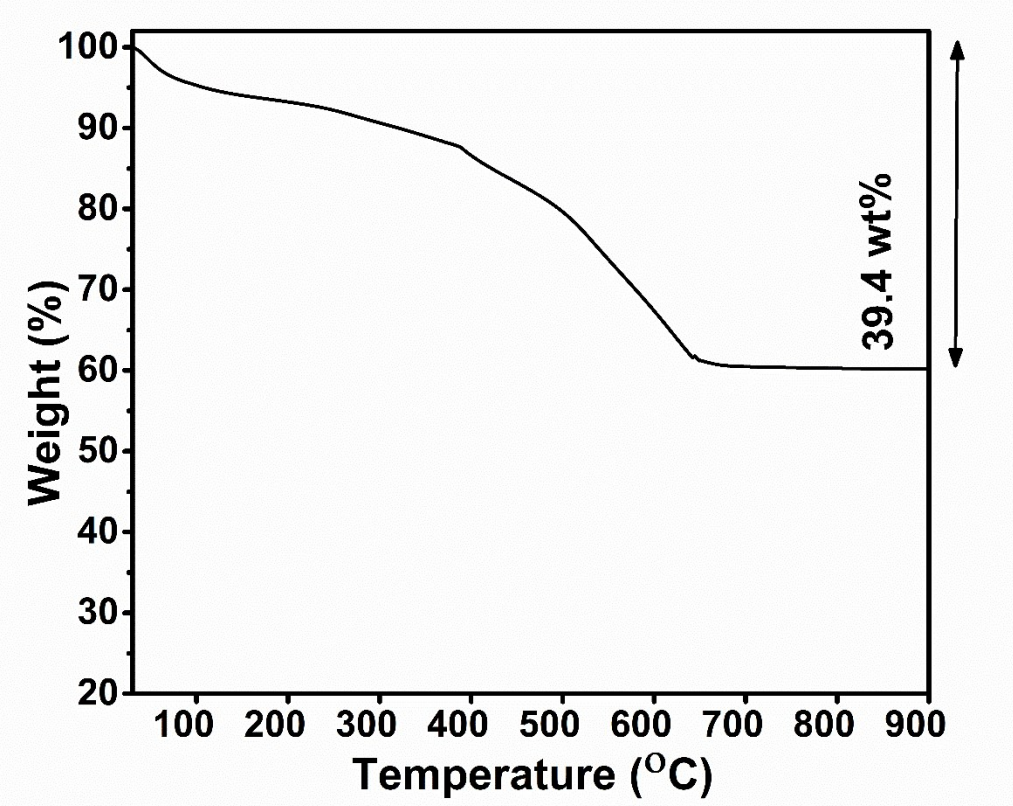

Figure S5. The thermogravimetric curve of MGO at heating rate of 5 ºC/min in air.

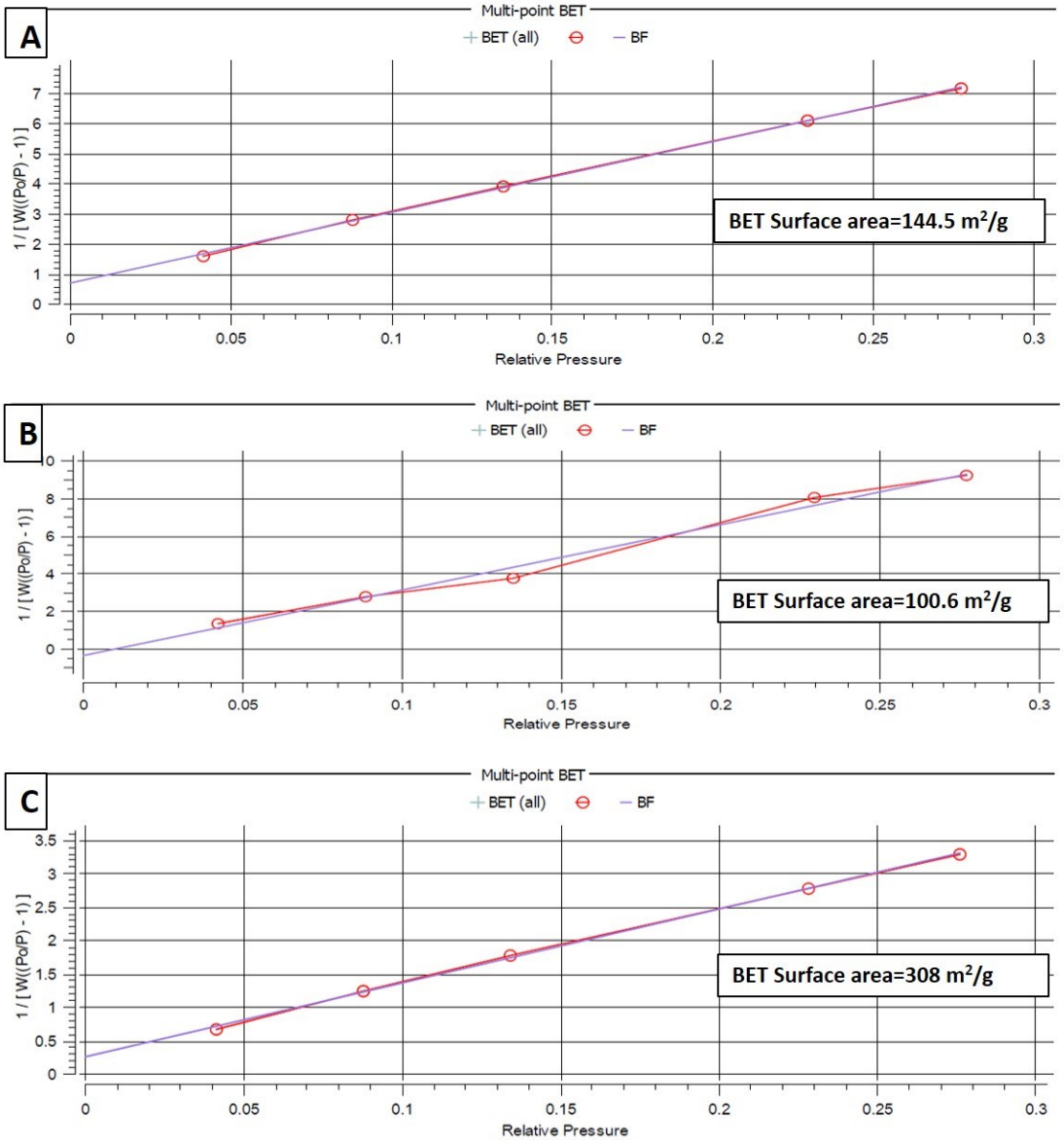

Figure S6. A, B & C are BET surface area measurements of Fe_3O_4, GO and MGO respectively.

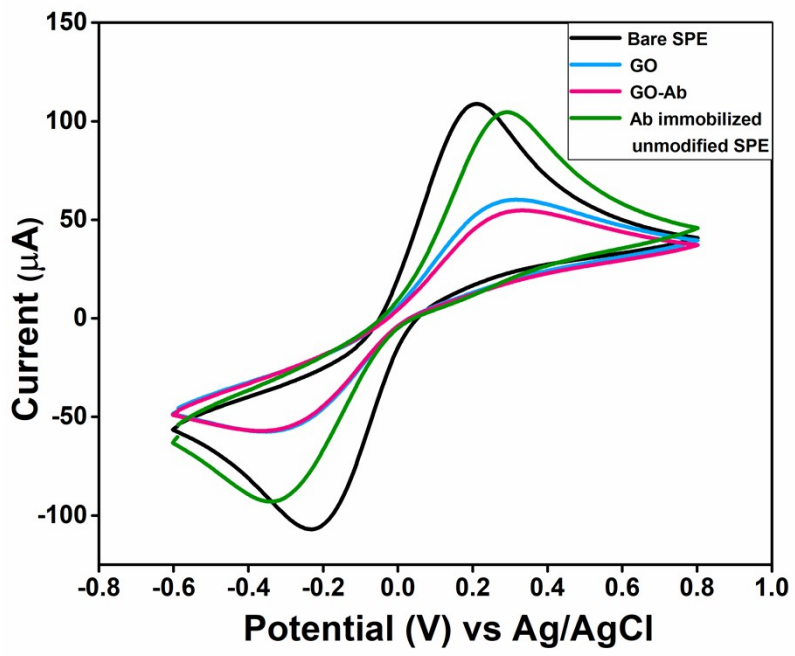

Figure S7. Current response of immunosensor constructed on GO/SPE and unmodified SPE in 10 mM $[Fe(CN)_6]^{3-/4-}$ solution (scan rate: 50 mVs^{-1})

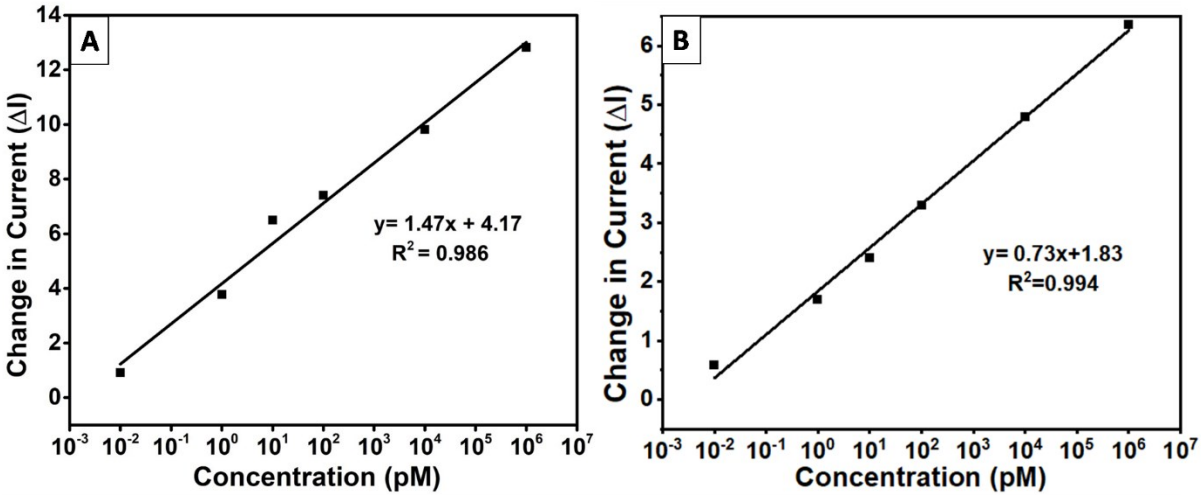

Figure S8. A & B are the current responses of immunosensor with different concentrations (from 0.01 pM - 1000 nM) in CV and DPV analysis respectively in 10mM $[Fe(CN)_6]^{3-/4-}$solution (scan rate: 50 mV s^{-1}).

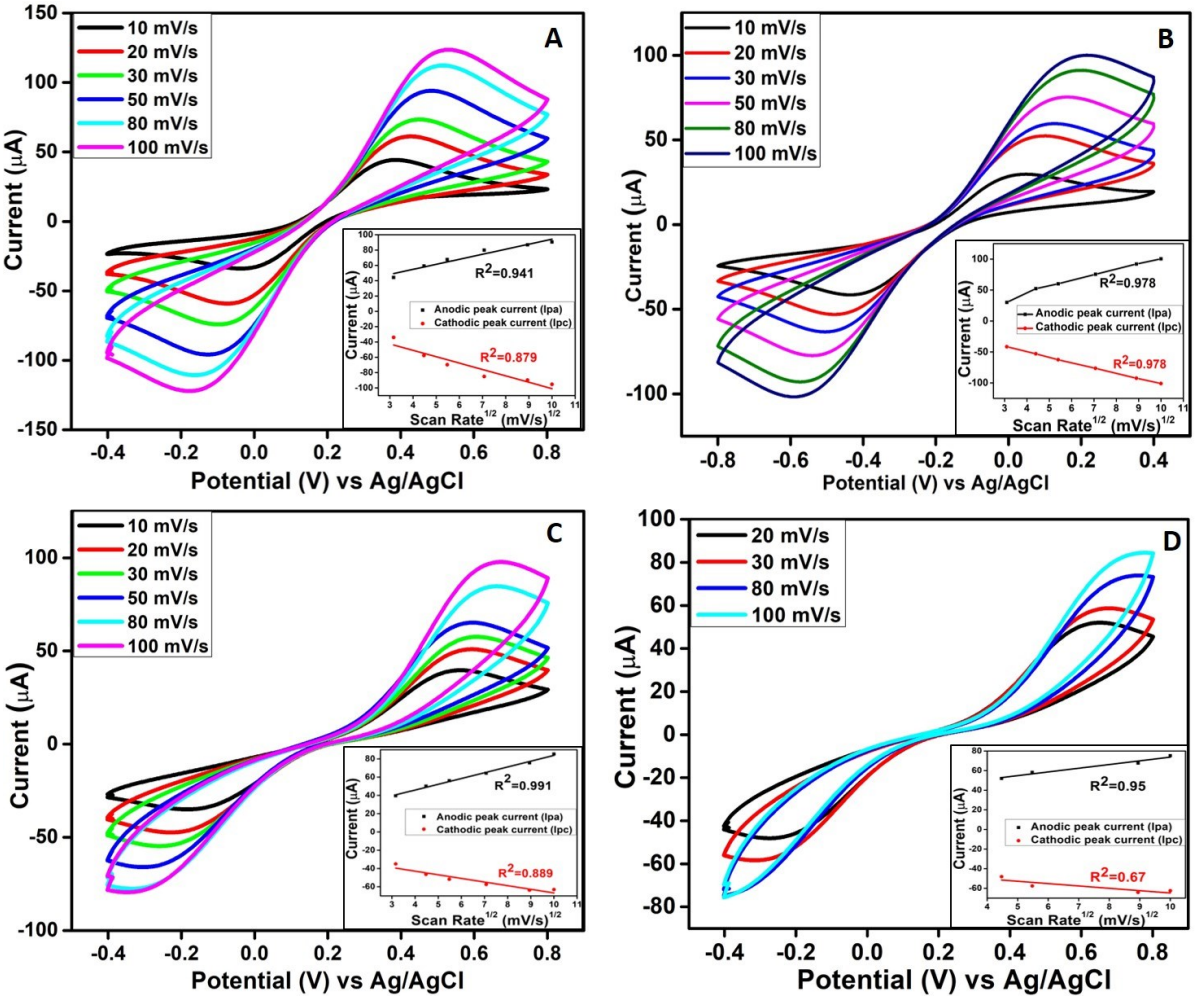

Figure S9. Cyclic voltammograms of various assembly steps of the immunosensor i.e. MGO/SPE (A), Ab/MGO/SPE (B), BSA/Ab/MGO/SPE (C) and PGN/BSA/Ab/MGO/SPE (D) at different scan rates: 10, 20, 30, 50, 80 and 100 mV s^{-1} in 10 mM $[Fe(CN)_6]^{3-/4-}$ + 10 mM PBS solution (pH 7.4), at room temperature. The insets show the linear dependence of the redox peak currents with square root of scan rates.

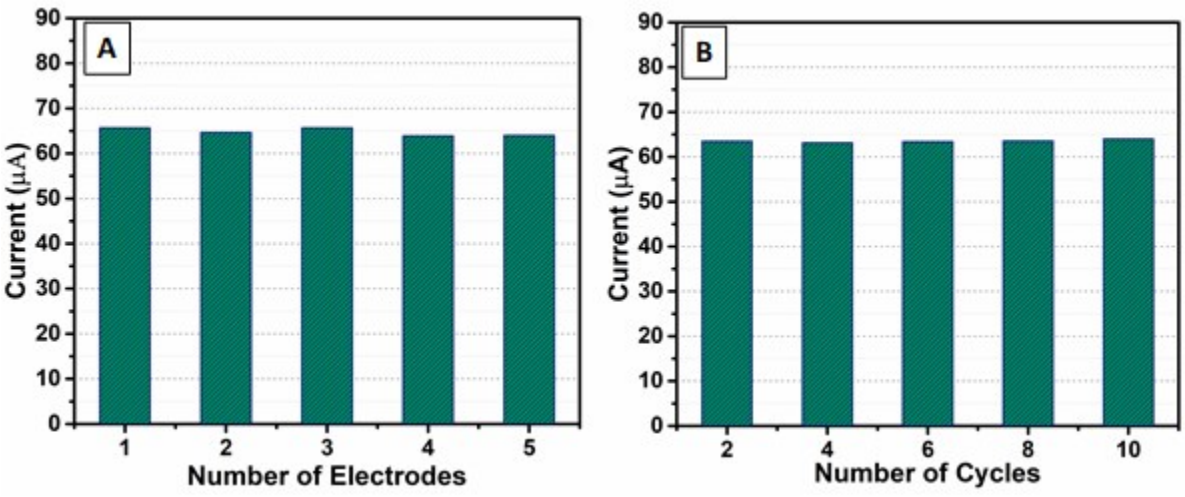

Figure S10. A) Current response of five electrode immunosensors prepared under same conditions. B) Current response of an electrode with increased number of CV cycles.

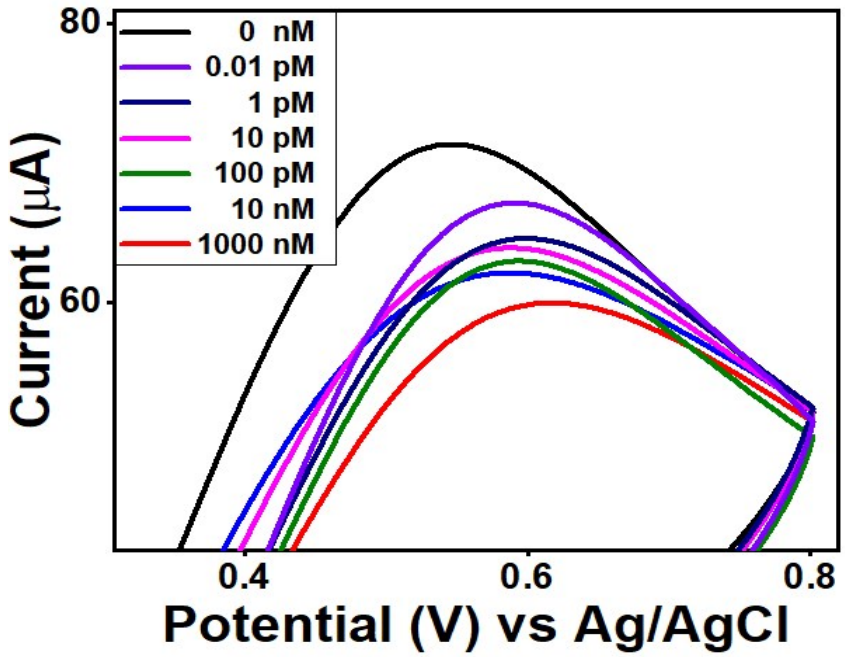

Figure S11. A) Inset of Figure 5 displaying zoom part of CV peaks.