

**Reduced Graphene Oxide-Titania based Platform for Label- Free
Biosensor**

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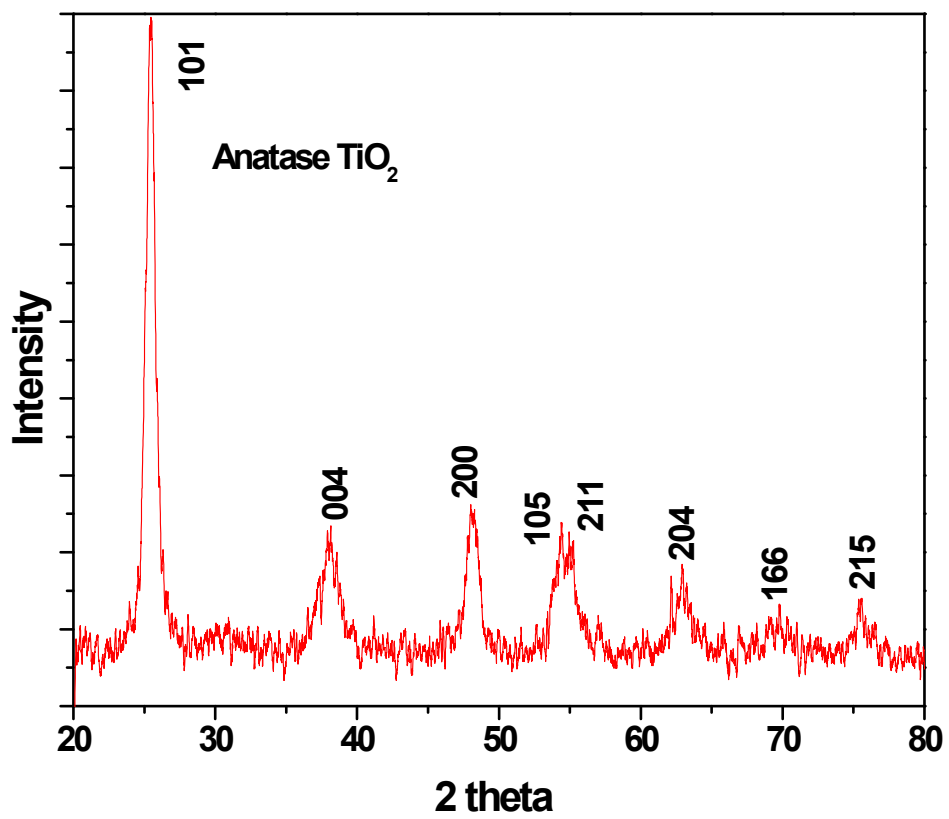


Figure S1 XRD of TiO₂ nanoparticles

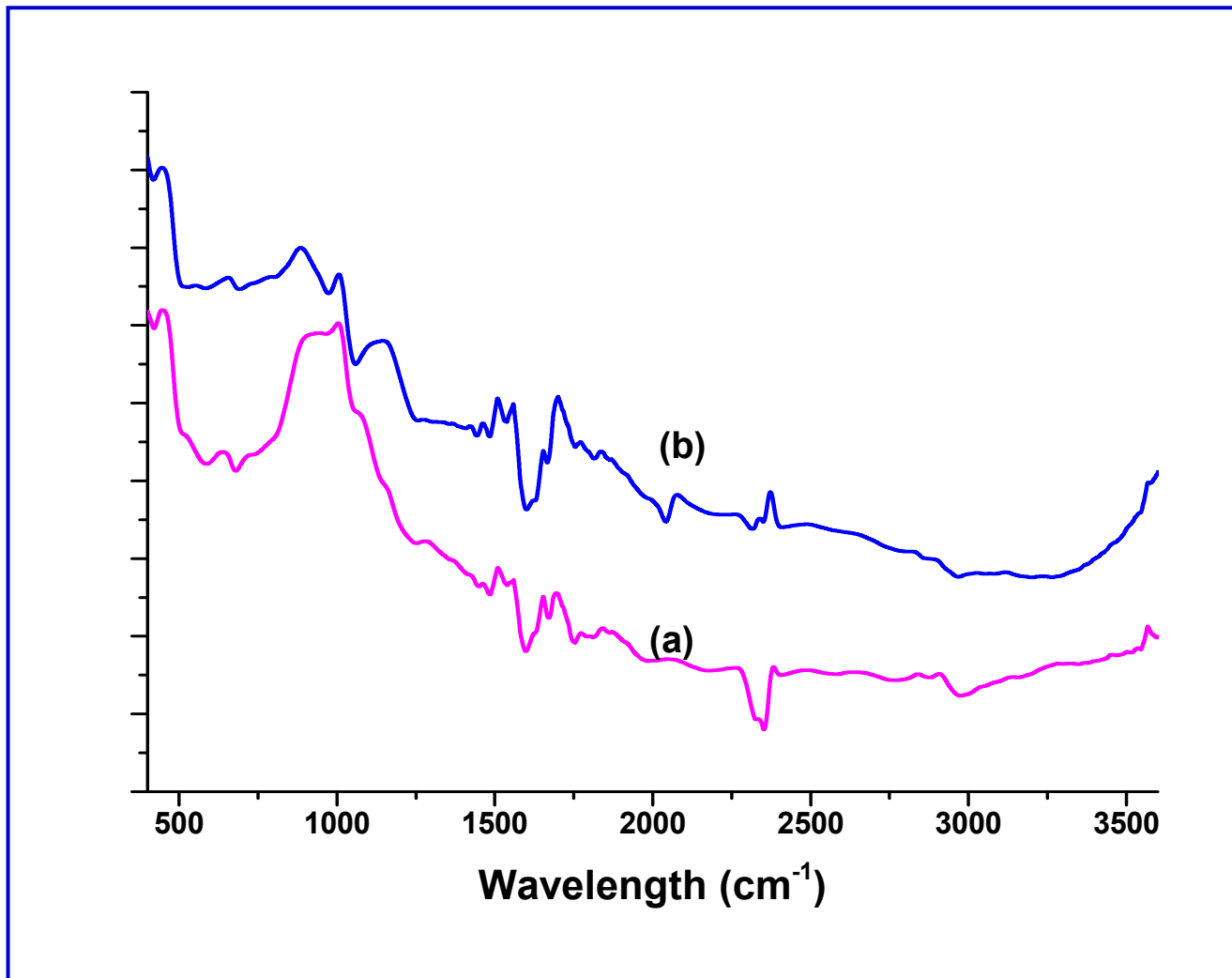


Figure S2. FT-IR spectra of RGO-antTiO₂/ITO nanohybrid (a) and BSA/Ab-Vc/RGO-antTiO₂/ITO immunoelectrode (b)

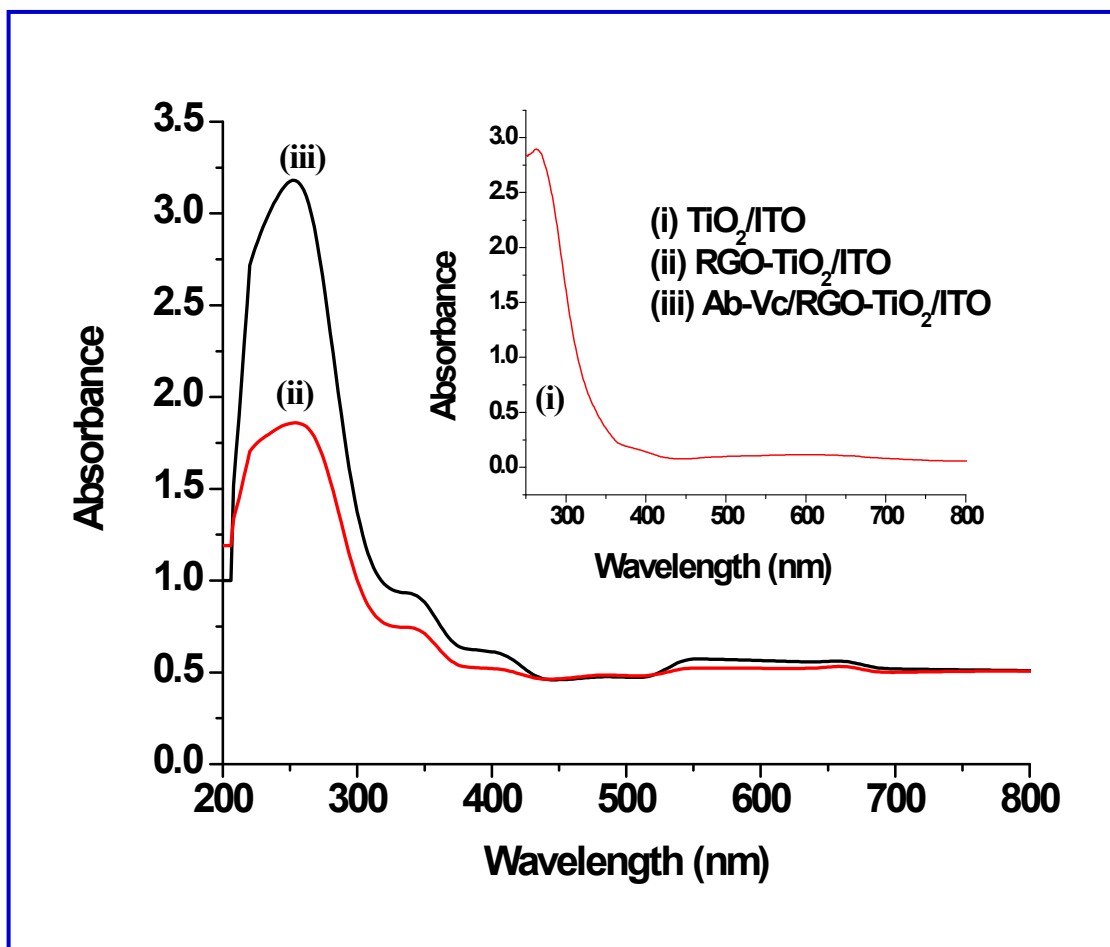


Figure S3. UV-visible spectra of RGO, RGO-antTiO₂ and Ab-Vc/RGO-antTiO₂ in aqueous solution.

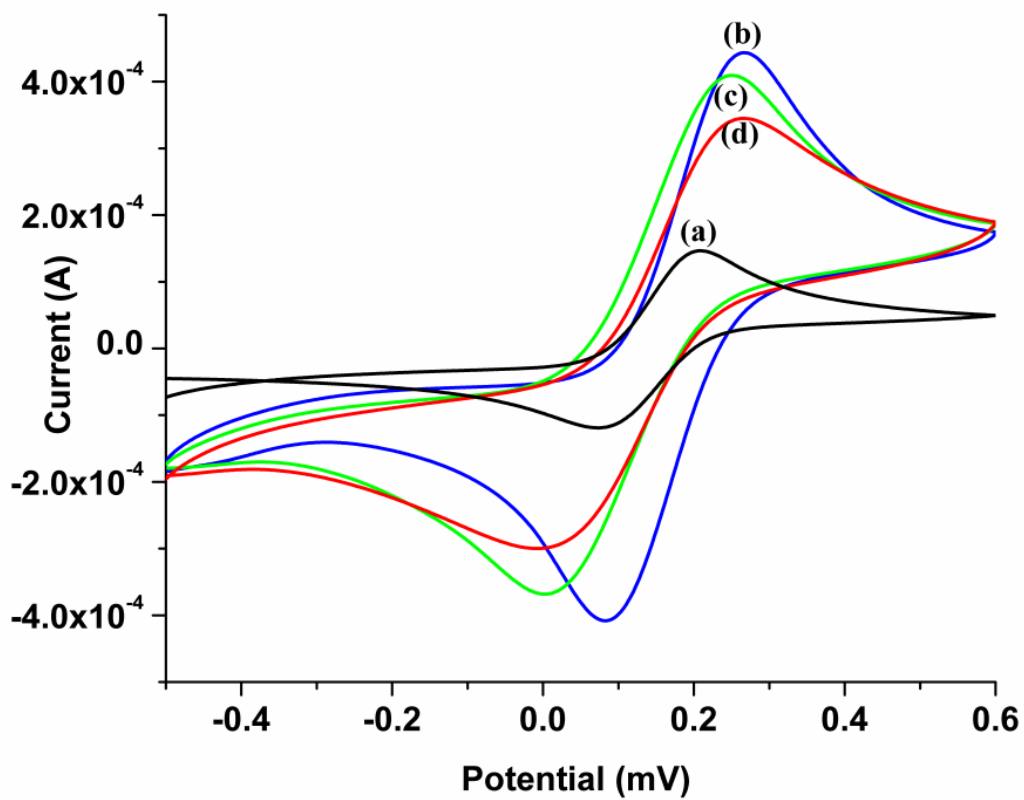


Figure S4. CV spectra of (a) ITO, (b) RGO-antTiO₂/ITO nanohybrid, (c) Ab-Vc/RGO-antTiO₂/ITO immunoelectrode and BSA/Ab-Vc/RGO-antTiO₂/ITO bioelectrode.

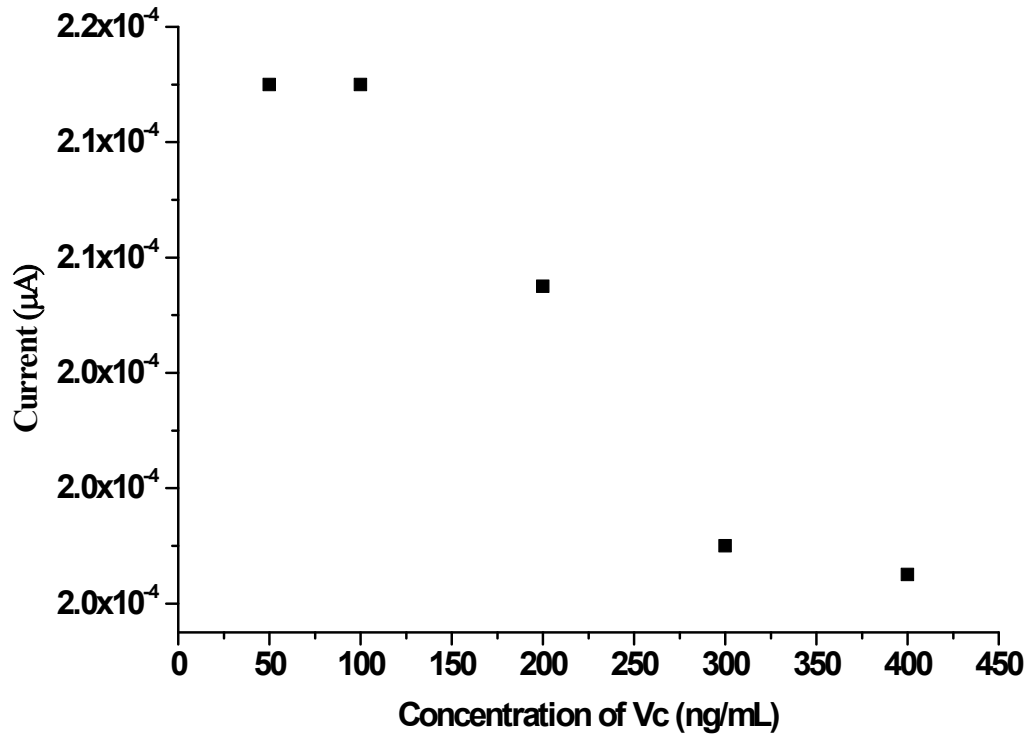


Figure S 5 Calibration plot between capacitance of the BSA/Ab-*Vc*/RGO/ITO immunoelectrode as a function of *Vibrio cholerae* concentration

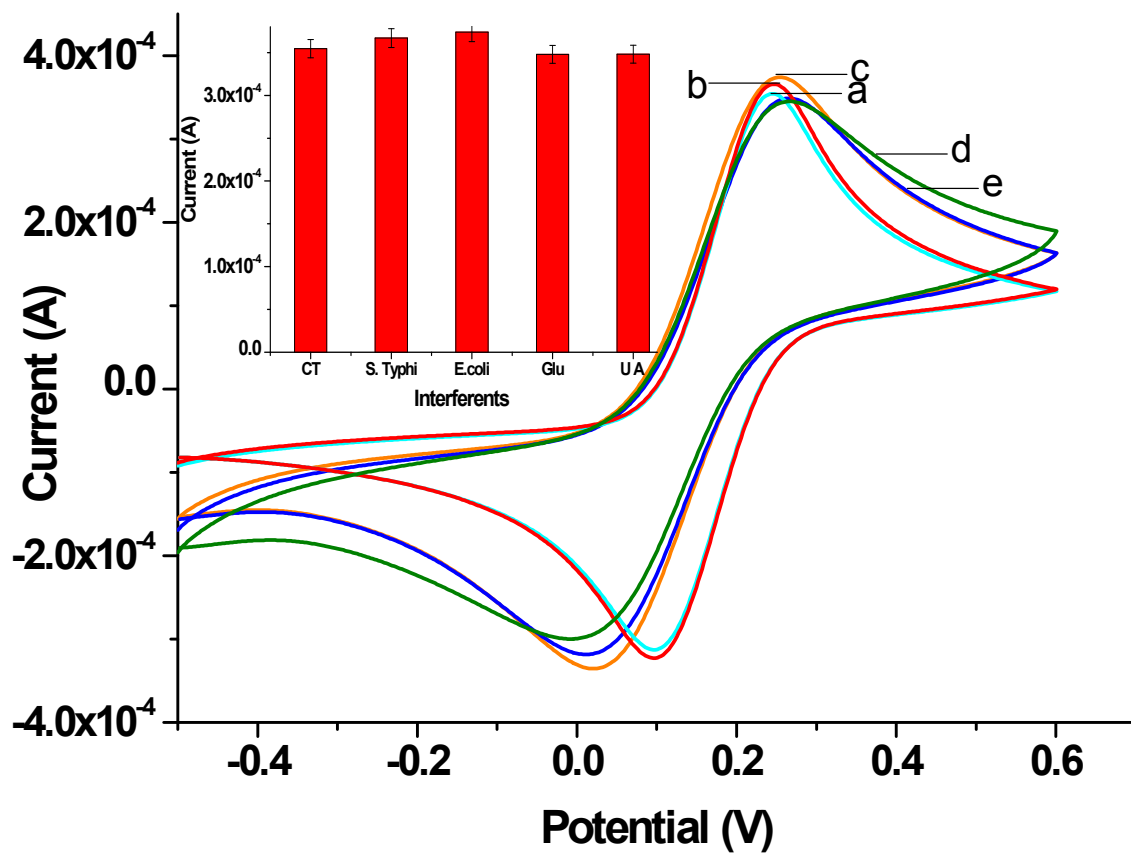


Figure S6. Interference studies of (a) BSA/Ab-Vc/RGO-antTiO₂/ITO immunoelectrode (300 ng/ μ L) in presence of (b) *Escherichia coli* (300 ng/ml), (c) *Salmonella typhi* (300 ng/ml), (d) glucose (Glu), (e) uric acid (UA); inset shows the histogram plot with all interferents.

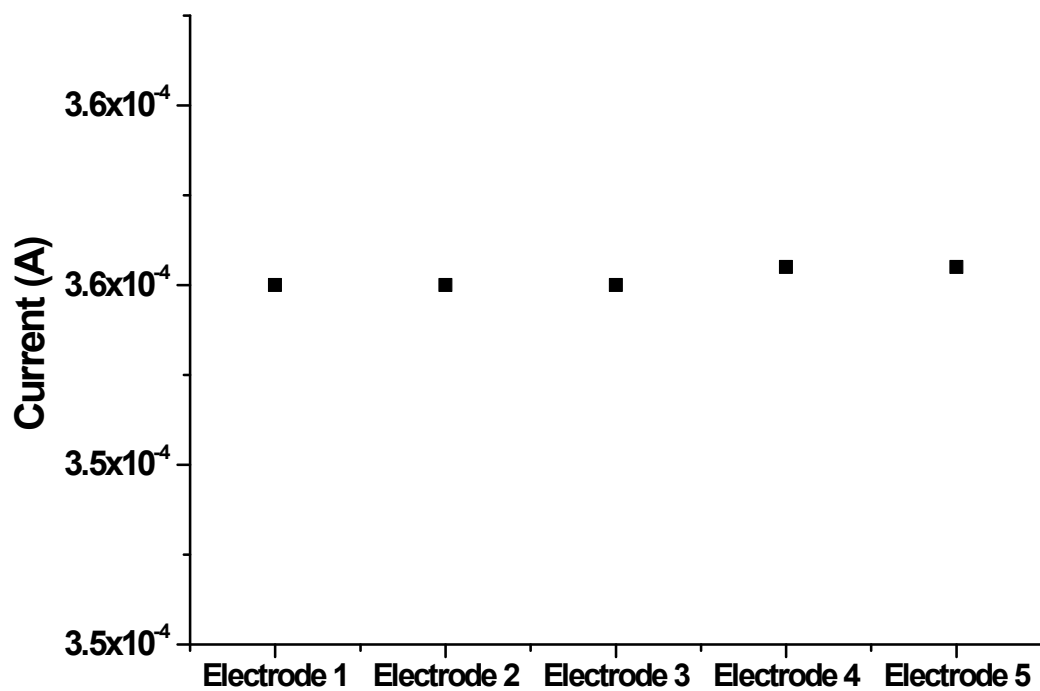


Figure S7. Reproducibility test for BSA/Ab-*Vc*/RGO-antTiO₂/ITO immunoelectrode at 100 ng/mL of CT.

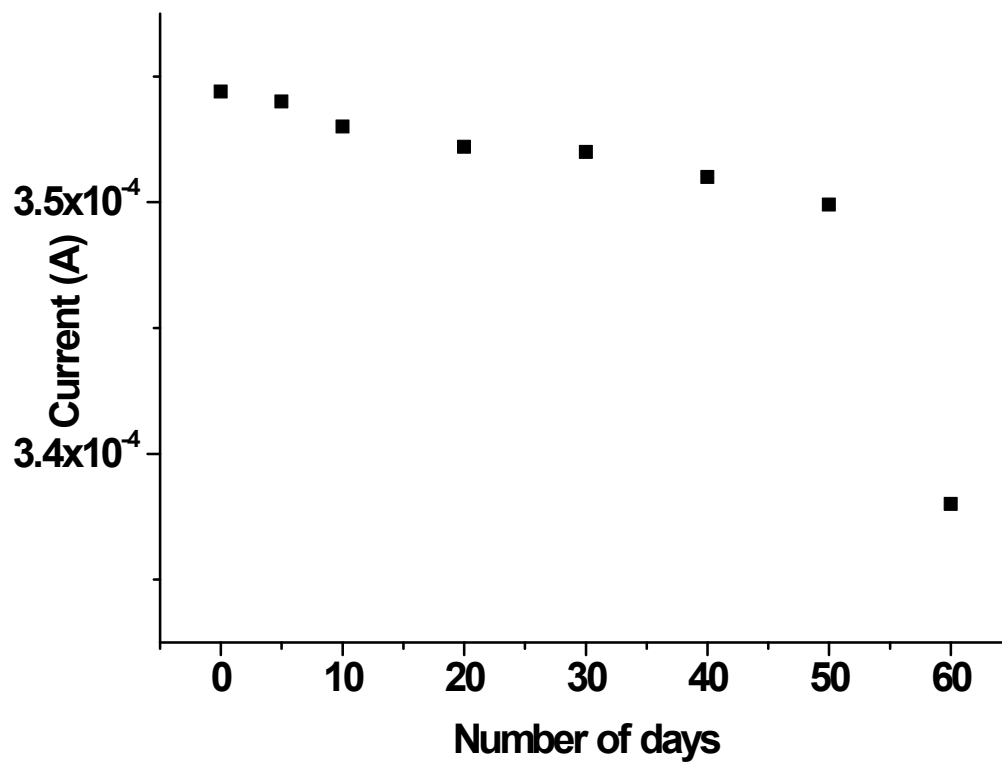
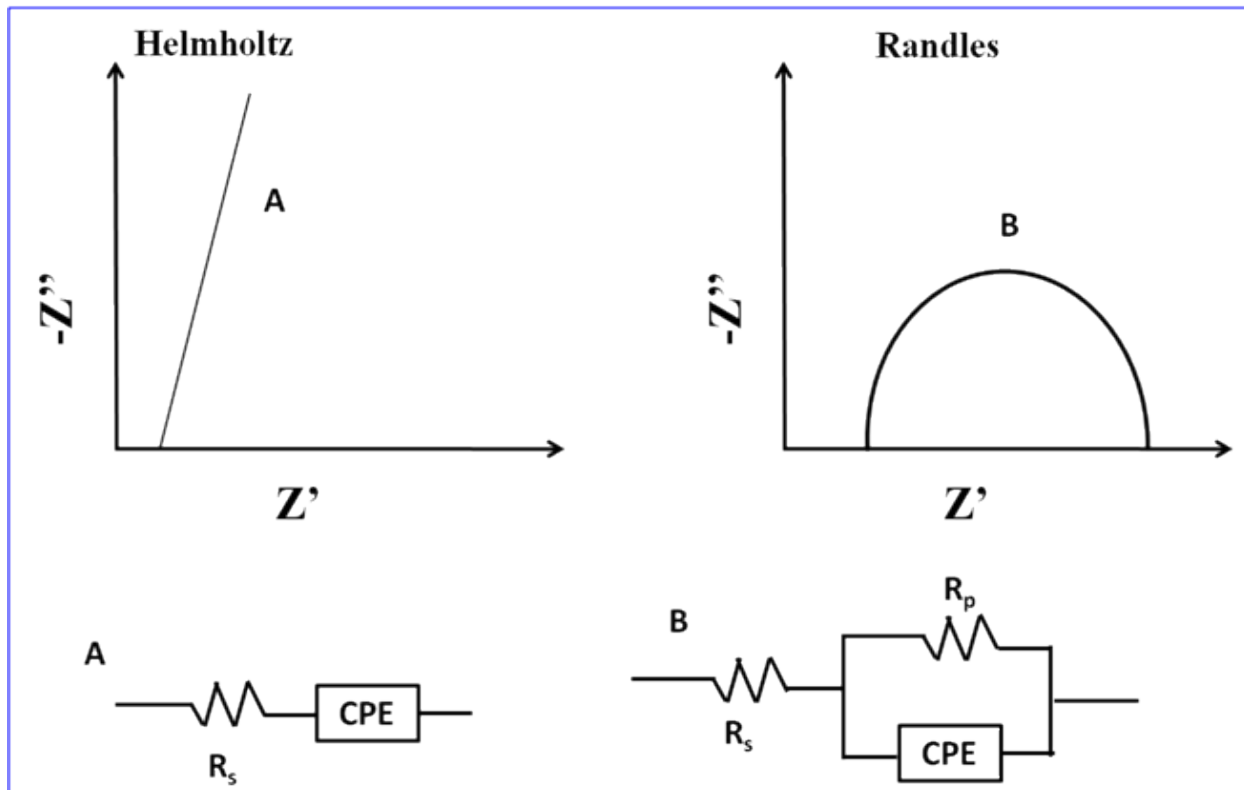


Figure S8. The stability curve of BSA/Ab-*Vc*/RGO-antTiO₂/ITO immunoelectrode (100 ng/mL) for 0-60 days.



Scheme A Date representation of impedance spectra and Helmholtz equivalent circuit model and (B) impedance spectra and Randles equivalent circuit model