Supplementary Information

Electrochemically Charged Nanoengineered Bioelectronic Immunosensing Device for Osteopontin Detection in Serum samples

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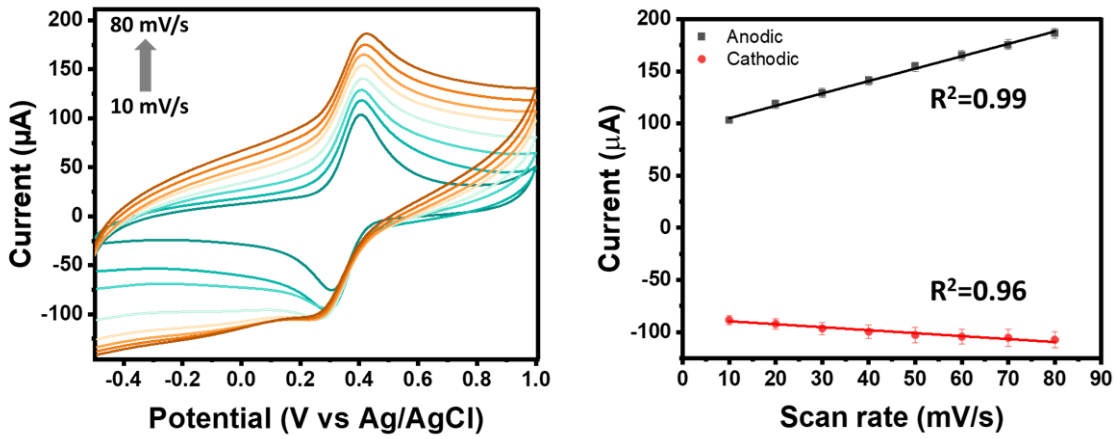

Fig. SI 1: *CV responses and corresponding linear plot showing the scan rate study (10-80 mV/s) of GCE/Au/FeGdHCF/oxGNPs/Anti-OPN in 5mM PBS [Ipa= 93.18 (±1.06) +1.18 (±0.02)Scan rate (mV/s)] and Ipc= − 86.59 (±0.01) + {− 0.28 (±0.02)} Scan rate (mV/s)]*

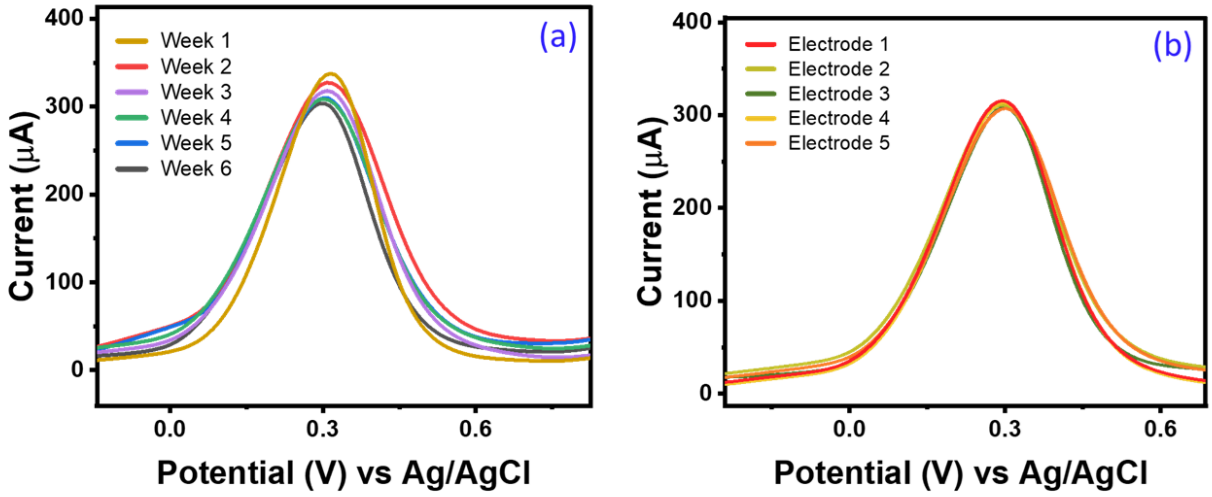

Fig. SI 2: *DPV curves showing (a) durability and stability of the immunosensor probe to detect OPN [Conc. 1×10⁴ pg/mL] over six weeks (b) reproducibility of the sensing probe by studying current responses using five separate electrodes under same operational parameters*.

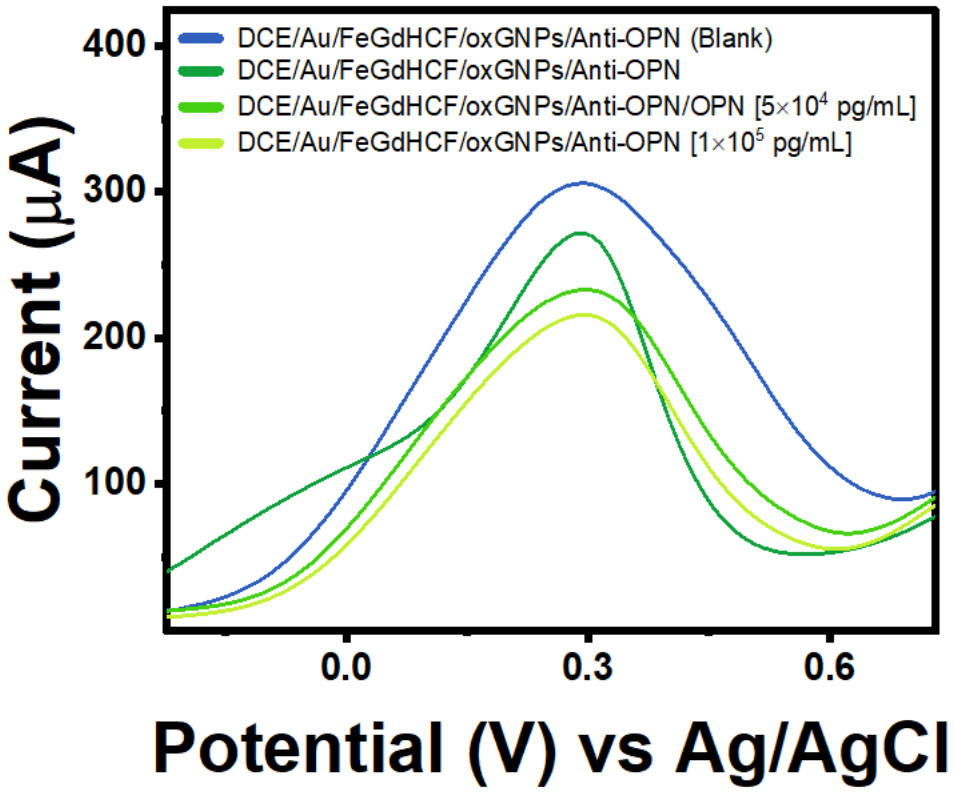

Fig. SI 3: *DPV responses recorded on a disposable printed carbon electrode (DCE) showing Blank (blue), DCE/Au/FeGdHCF/oxGNPs/Anti-OPN (dark green), DCE/Au/FeGdHCF/oxGNPs/Anti-OPN/OPN for two concentrations: 5 ×10⁴ pg/mL (light green) and 1 ×10⁵ pg/mL (lime).*