

SUPPLEMENTARY INFORMATION

Cationic Poly(lactic-co-glycolic acid) Iron Oxide Microspheres for Nucleic Acid Detection

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Figure S1

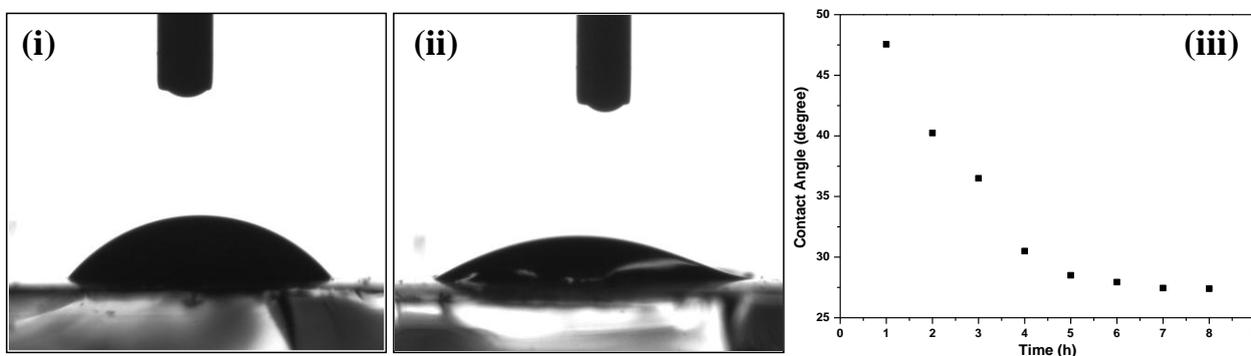


Figure S1: Contact angle measurements of (i) PlgNPs/ITO electrode (ii) pDNA/PlgNPs/ITO bioelectrode (iii) CA of pDNA/PlgNPs/ITO bioelectrode as a function of time.

Figure S2

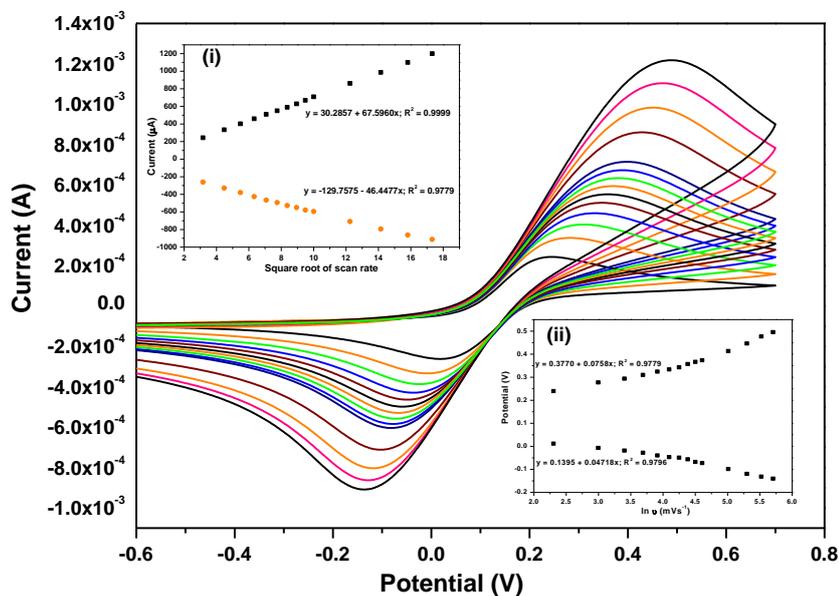


Figure S2: Cyclic voltammogram of pDNA/PIgNPs/ITO bioelectrode at scan rate from 10 - 300 mV/S and inset showing the variation of (i) current with respect to square root of scan rate, and (ii) potential with log of scan rate.

Figure S3

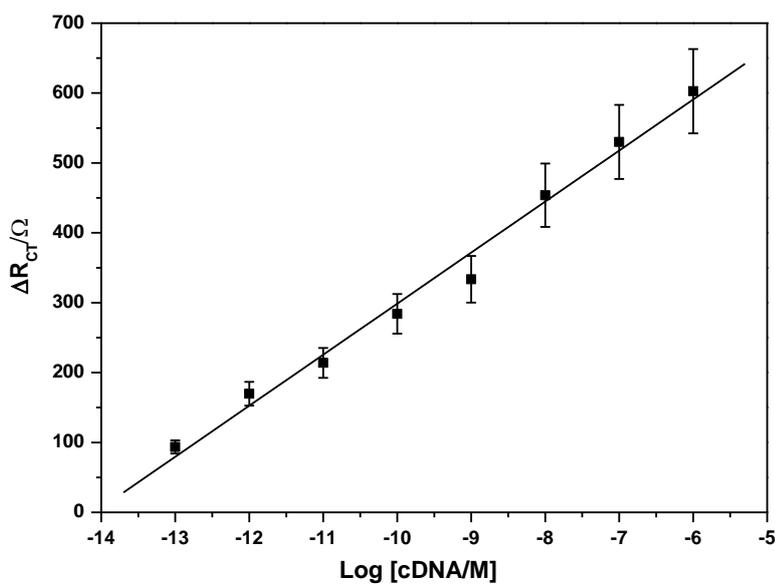


Figure S3: Change in ΔR_{CT} (R_{CT} cDNA - R_{CT} pDNA) as a function of logarithm of target DNA concentration.

Figure S4

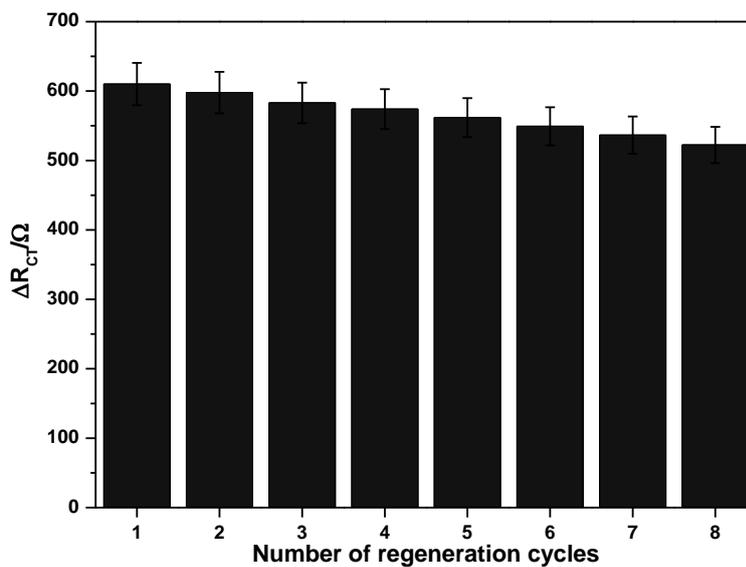


Figure S4: Comparison of the ΔR_{CT} values of pDNA/PIgNPs/ITO bioelectrode with repeated denaturation and rehybridization process.

Table S1

Chitosan concentration (weight %)	Size (d, nm)	Zeta potential
0.1	298.5	19.8
0.2	306.3	27.3
0.3	311.5	34.9

Table S1: Mean size and zeta potential of PIgNPs with varying chitosan concentration.

Table S2

Sl.No	Working electrode	Detection Range	Limit of Detection	Reusability	Reference
1	PTCA/graphene/GCE	1.0×10^{-12} to 1.0×10^{-6} M	5.0×10^{-13} M	-	34
2	Al(III)/PLGA/CPE	1.0×10^{-11} to 1.0×10^{-6} M	3.03×10^{-12} M	3 times	36
3	graphene/AuNPs/SPCE	5.0×10^{-14} to 5.0×10^{-9} M	1.0×10^{-14} M	-	37
4	Au _{nano} -CNT/PAN _{nano} /CPE	1.0×10^{-12} to 1.0×10^{-6} M	5.6×10^{-13} M	6 times	38
5	denCys/Au	1.0×10^{-14} to 1.0×10^{-6} M	1.0×10^{-14} M	4 times	23
6	pDNA/PlgNPs/ITO	1.0×10^{-13} to 1.0×10^{-6} M	8.7×10^{-14} M	8 times	present work

Table S2: Comparison of response characteristics of pDNA/PlgNPs/ITO bioelectrode along with those of other nanoparticles based impedimetric DNA sensors reported in literature.