

Supporting Information:

PNA versus DNA in electrochemical gene sensing based on conducting polymers: study of charge and surface blocking effects on the sensor signal

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1. Scanning electron microscope (SEM) measurements were performed with a Philips XL30S FEG (field emission gun) scanning electron microscope. SEM images of poly(Py-co-PAA) coated GCE and bare GCE illustrate the nanoporous morphology arising from electropolymerisation (Figure S1); no such morphologies were observed for bare electrodes (Figure S2).

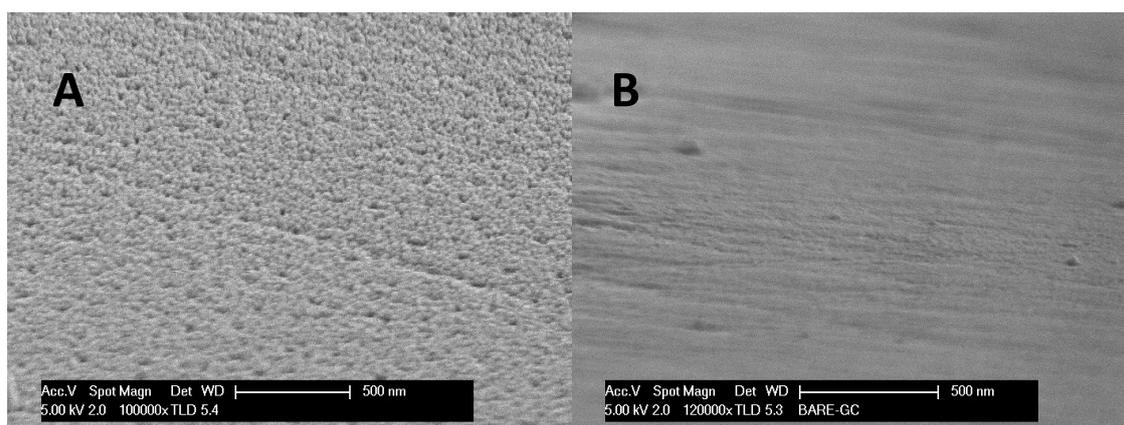


Figure S1 SEM images of (A) poly(Py-co-PAA) coated electrode; (B) bare electrode.

2. To confirm that PNA probes covalently couple to the copolymer, FTIR spectra of the post-attachment were taken. The FTIR spectra were collected between 400-4000 cm^{-1} using a Bruker Vertex 70 spectrometer in absorbance mode, as shown in Figure S2. After the attachment these peaks were clearly at 1645 cm^{-1} and 1632 cm^{-1} respectively, corresponding to the amide C=O stretch of PNA indicative of NH_2 -PNA coupling to the carboxylic acid functionalised copolymer, when comparing with the FTIR spectra from poly(Py-co-PAA). The broad peak between 3000 cm^{-1} and 3700 cm^{-1} , arising from the N-H stretch, is also suggestive of amide bond formation and addition of PNA.

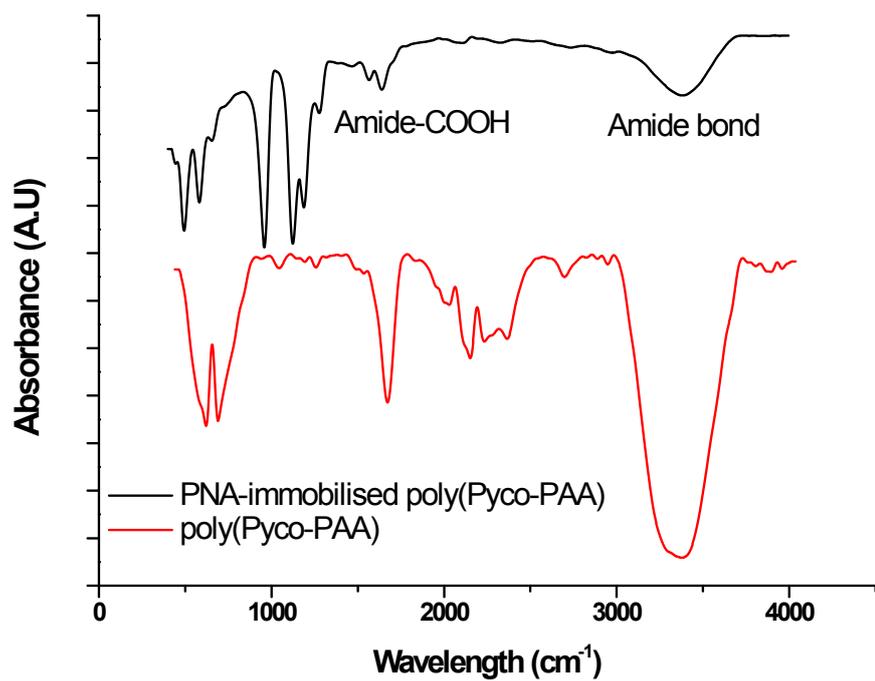


Figure S2 FTIR spectra PNA-immobilised poly(Py-co-PAA)-modified and poly(Py-co-PAA) modified GCE.