

Supporting information for:

Effects of Polydopamine Incorporation on Carbon Nanostructure of Electrodeposited Polypyrrole Films

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Electrodeposition of polydopamine (PDA) investigation by eQCM

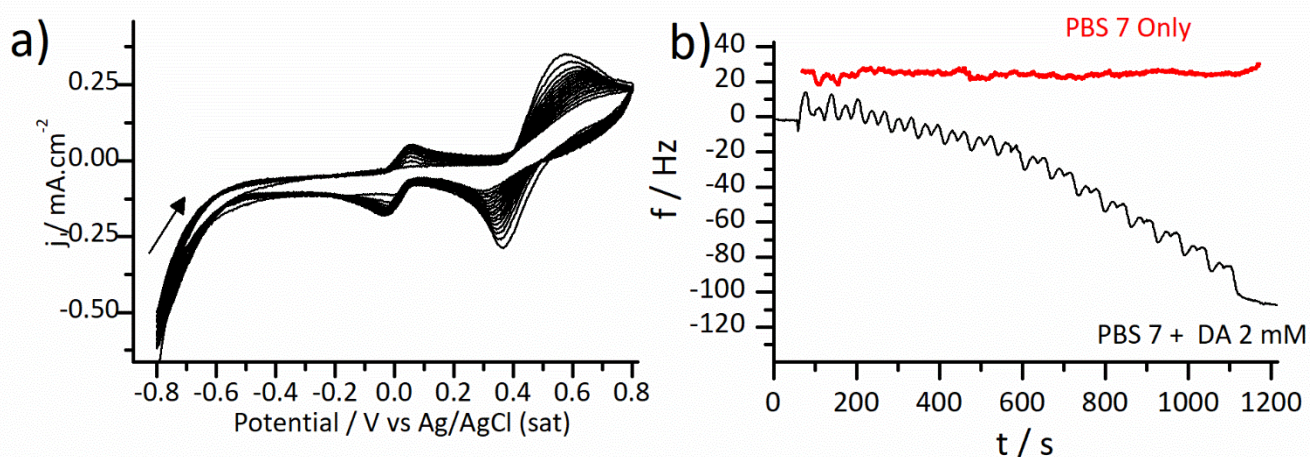


Figure S1. a) CVs in solution of 2mM DA in PBS 7 on a gold eQCM surface. b) The corresponding frequency-time curve of the eQCM during CV electrodeposition. A control experiment in PBS 7 only is presented for comparison. Pairs of peaks evident in the trace for the chip in presence of DA show the deposition of material at the chip surface follows each voltammetric cycle.

Images of coherent adhesive PPY-PDA coatings on ITO glass and Au/Si electrodes

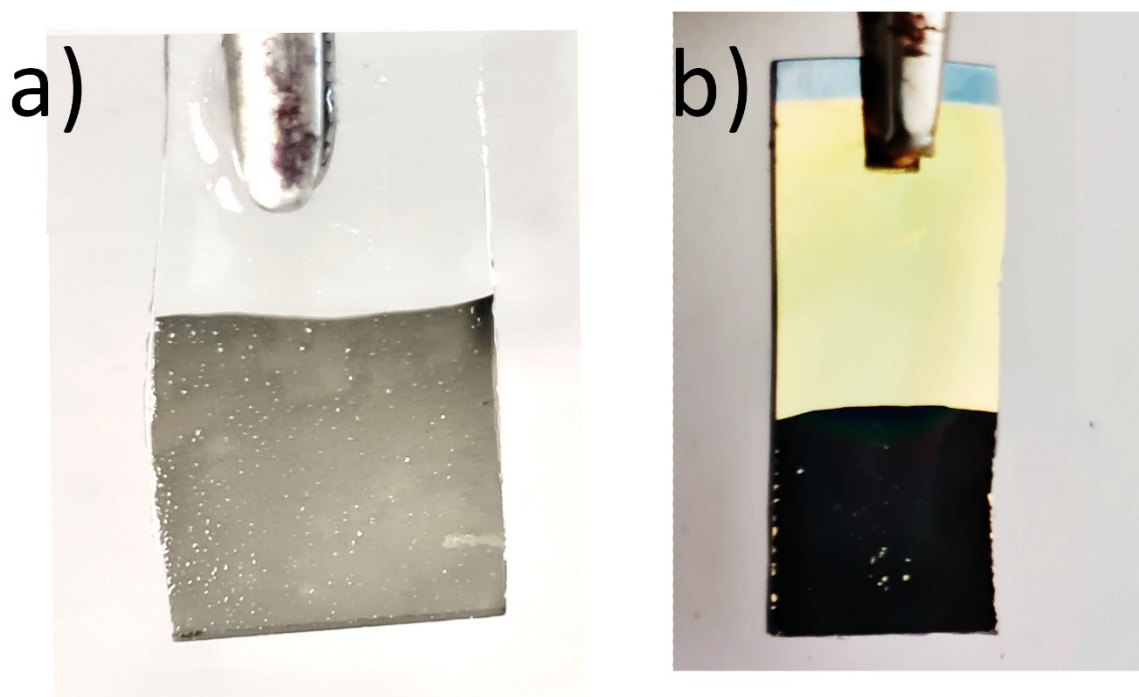


Figure S2. PPY-PDA coatings on **a)** ITO glass and **b)** Au/Si electrodes. Coatings in both cases were deposited potentiostatically at a potential of 0.85V.

Comparison of PPY and PPY-PDA electrodeposition by CV on ITO

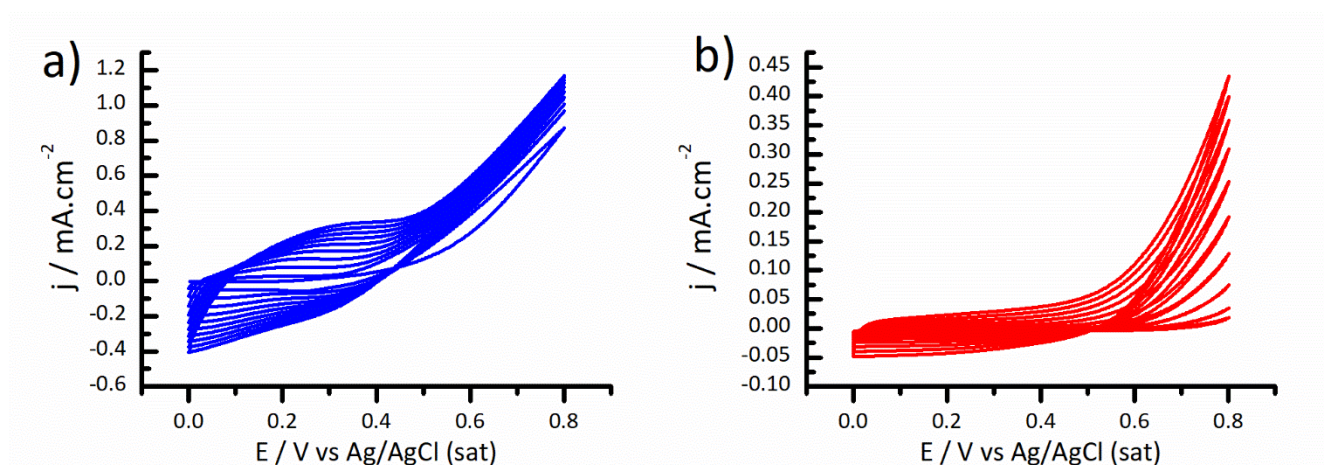


Figure S3. CVs for electrodeposition of **a)** PPY-PDA and **b)** PPY only on ITO glass.

Profilometry of PPY and PPY-PDA films

Profilometry was carried on PPY and PPY-PDA films using a Bruker Dektak XT profilometer. Films were deposited on Au/Si or ITO glass as described in the main text.

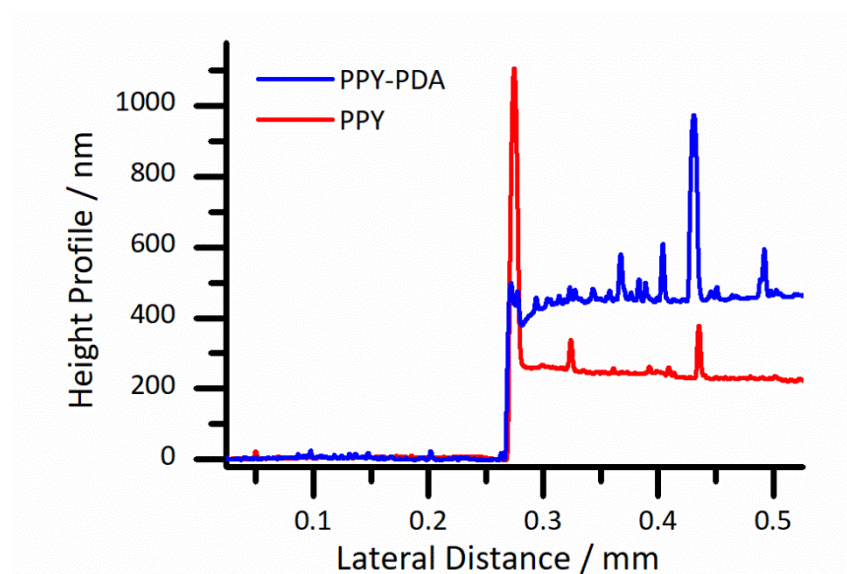


Figure S4. Representative height profiles of PPY and PPY-PDA films deposited on Au/Si Electrodes. Profiles were taken at the edge of the deposited films which were protected from polymer electrodeposition using Teflon tape.

Frequency – time curves for potentiostatic deposition of PPY and PPY-PDA via eQCM

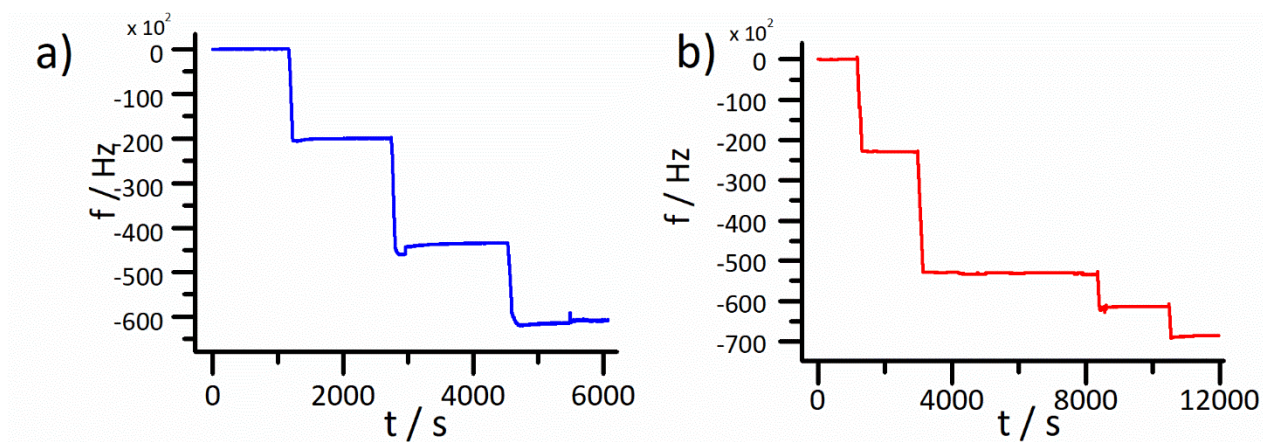


Figure S5. Frequency-time curves for eQCM potentiostatic depositions with varying deposition times on **a)** PPY-PDA and **b)** PPY only.

FTIR Spectra of PDA and Dopamine Hydrochloride

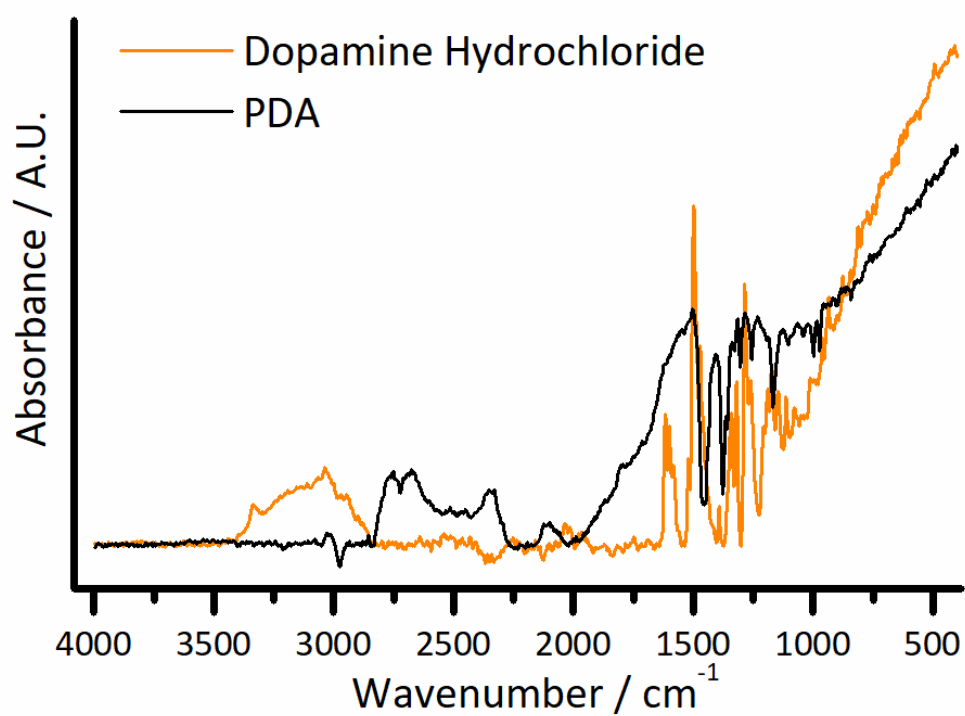


Figure S6. FTIR spectra of Dopamine Hydrochloride and PDA.

Supplementary XPS data

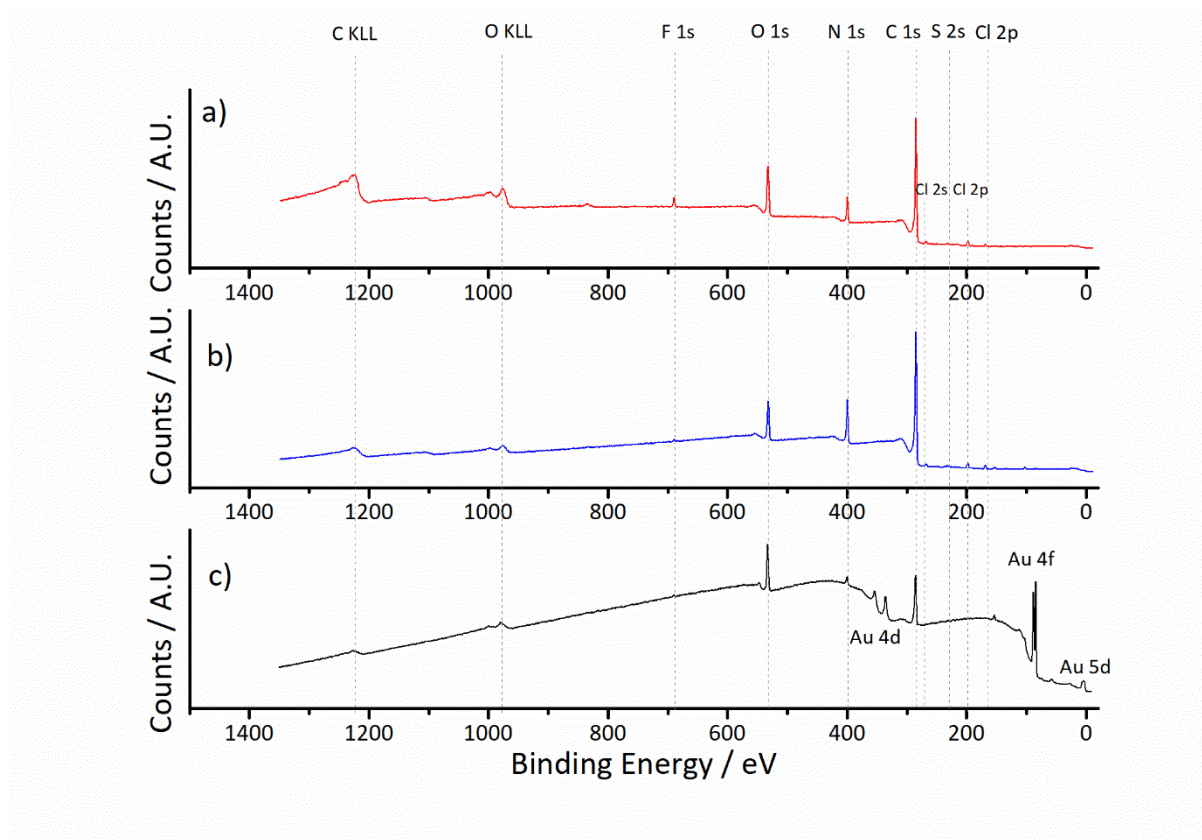


Figure S7. XPS survey spectra for **a)** PPY, **b)** PPY-PDA and **c)** PDA films deposited on gold electrodes. Au peaks are visible only for PDA, as the film thickness is estimated to be less than a typical information depth value in XPS (*ca.* 10 nm). S and Cl in samples is attributed to the buffer, while fluorine is most likely due to the use of Teflon® tape to control the electrode area in home-fabricated electrodes.