Electronic Supplementary Information (ESI)

Doped Overoxidized Polypyrrole Microelectrodes as Sensors for the Detection of Dopamine Released from Cell Populations

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S-1. Cyclic voltammetric characterization of IDEs

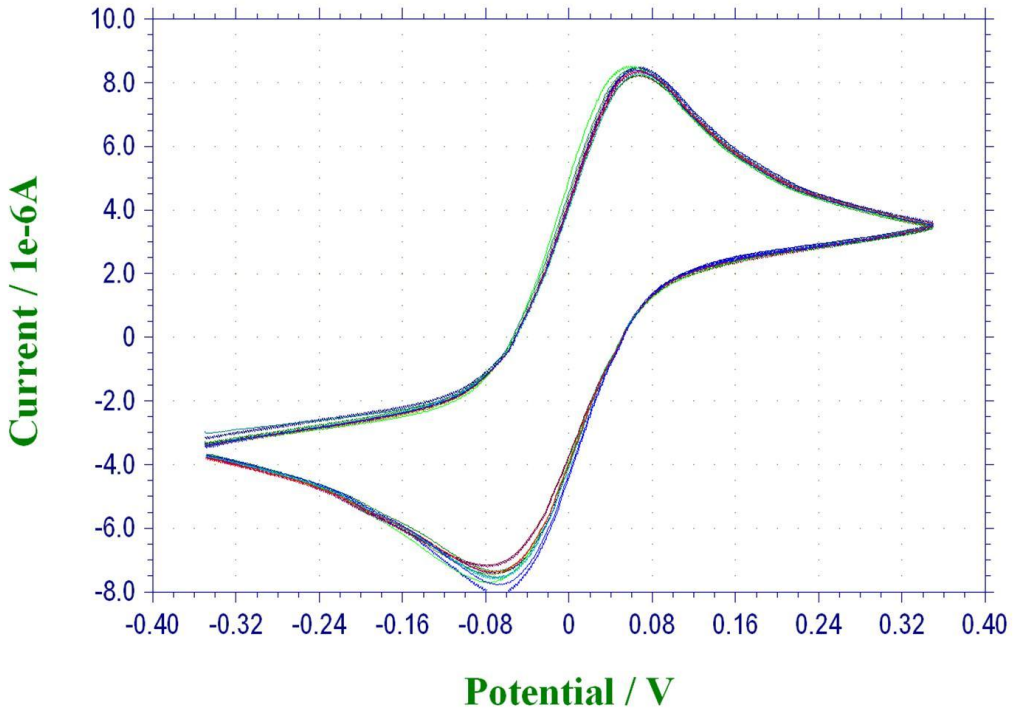

Figure S-1. Cyclic voltammograms of 10 mM ferri/ferrocyanide from 12 different individual sets of IDEs after completing the cleaning procedure described in the article. As evident in the figure, no significant potential shift or current peak difference were observed between the different IDEs, reflecting the exceptional quality of the electrodes after cleaning.

S-2. Complete analytical setup

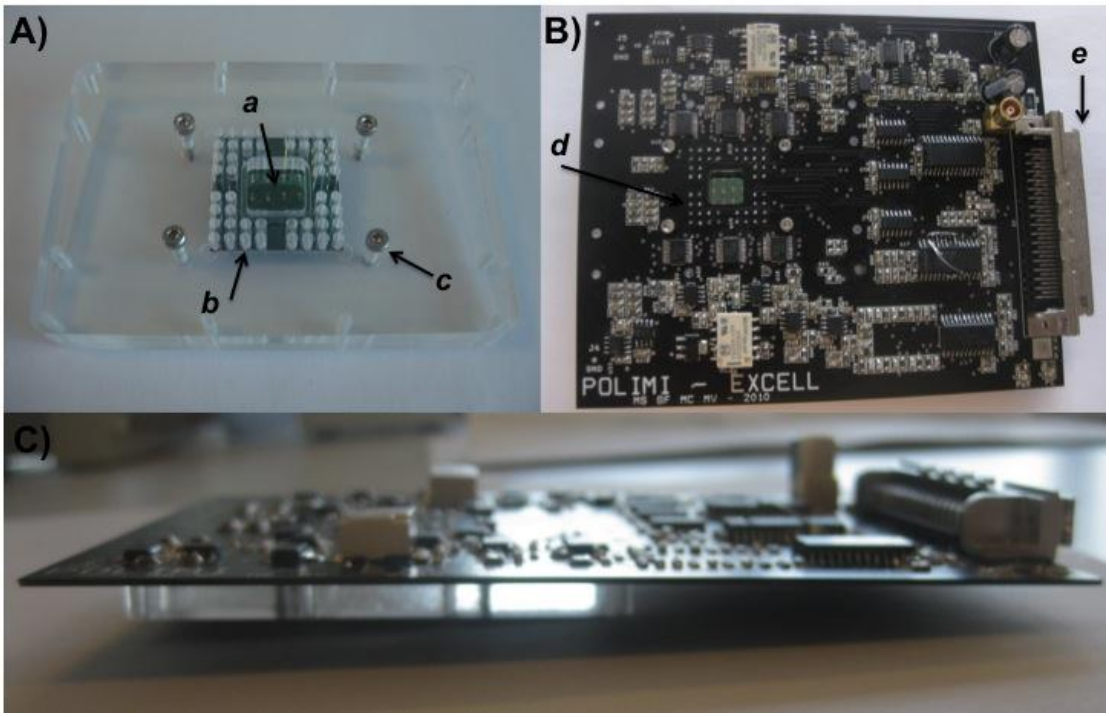

Figure S-2. The complete analytical setup showing A) the 2-piece PMMA holder fabricated using micromilling technology with a) the open chamber with exposed IDE sets, b) holes to exposed contact pads for connections via spring-loaded pins and c) screws to ensure good contact between the top and bottom layer of the PMMA holder, to avoid leakage out of the open chamber; B) a top view of the potentiostat incorporated directly onto the PMMA holder with d) locations where the metallic pins extrude from the bottom of the potentiostat PCB to connect directly with the contact pads of the microchip underneath and e) connection to an external computer; C) a side-view of the complete mounted setup.

S-3. Comparison of individual dopant counter ions

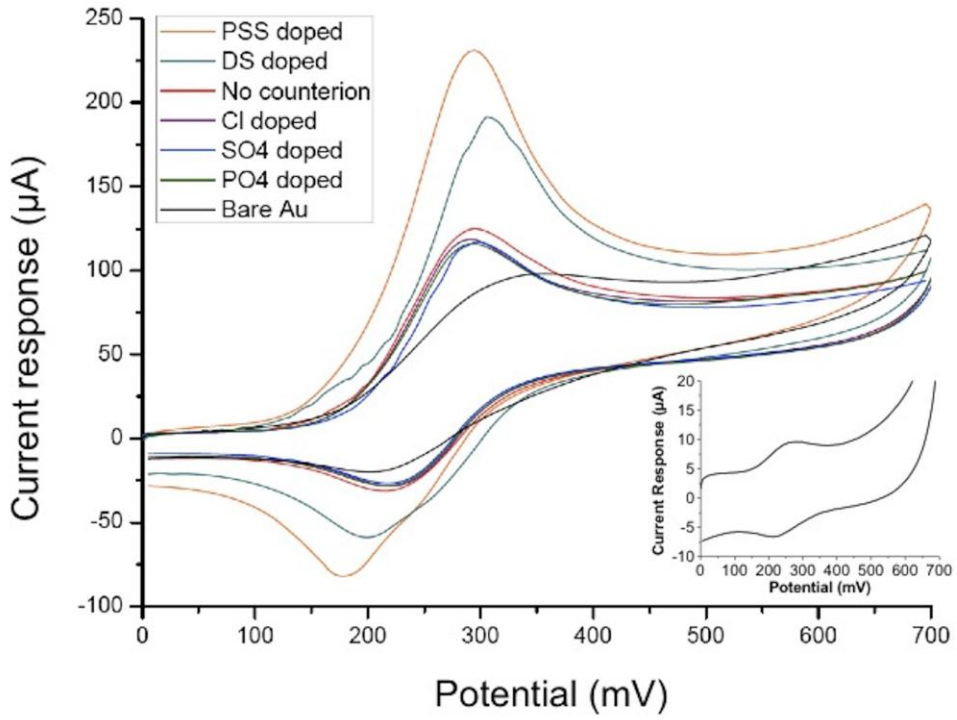

Figure S-3. Cyclic voltammograms of 100 µM dopamine (in PBS) on sets of IDEs modified with overoxidized PPy doped with different counter ions. The integrated RE and CE for each IDE set were used to obtain the three-electrode configuration. The potentials were adjusted vs. gold RE and the potential sweep rate was 50 mV/s. Inset shows a voltammogram obtained from the overoxidized PPy/PSS modification as a response to 10 nM.

S-4. Chemical Structure of large dopant counter ions

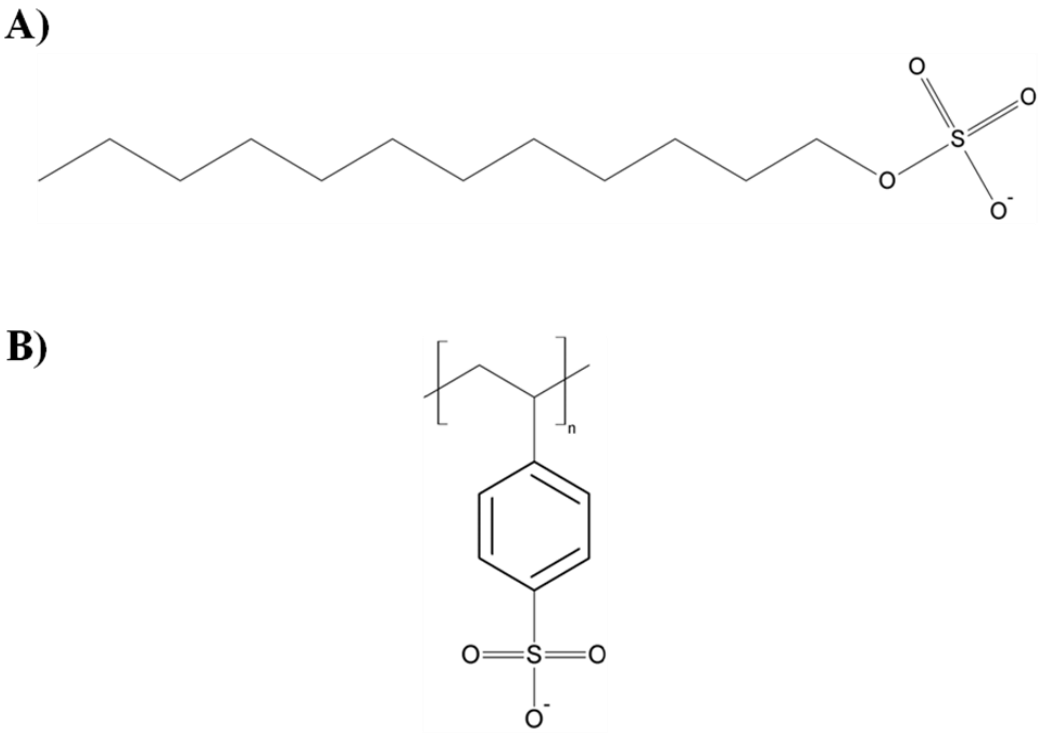

Figure S-4. Chemical structure of the large counterions: A) DS^- and B) PSS^- (n~340).