Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Supporting Information

Switchable presentation of biomolecules on electroactive polypyrrole surfaces

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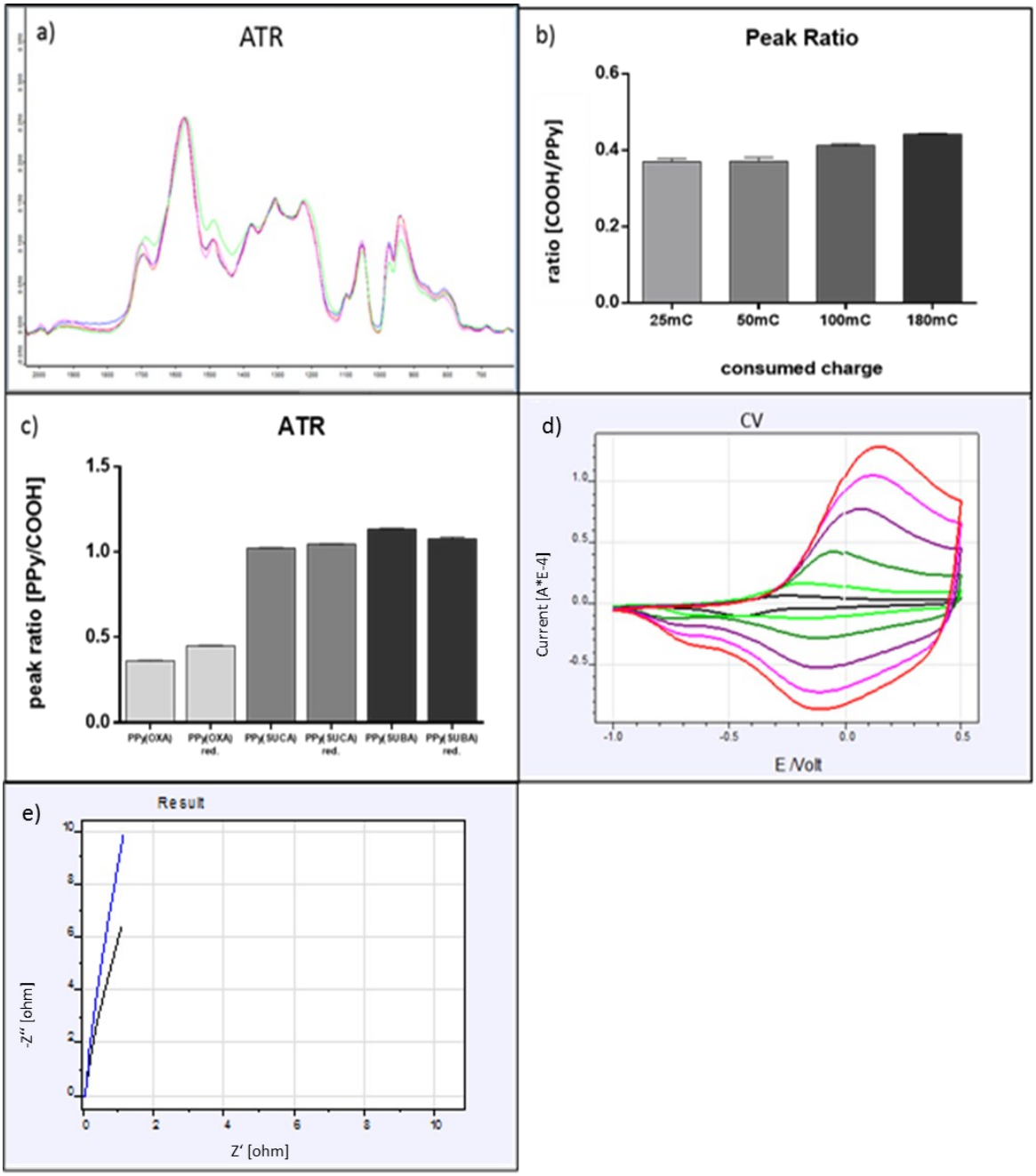

Figure S1: Characterization of differently doped PPy films. a) ATR measurements of PPy(OXA) films of different thicknesses ranging from 25mC to 180mC of consumed charge: blue – 25mC, red – 50mC, pink – 100mC, green – 180mC. All spectra were maximized using Opus.Viewer Software to allow for better comparison between spectra of films. b) COOH/PPy peak ratios determined for PPy(OXA) films of different thicknesses ranging from 25mC to 180mC of consumed charge. c) ATR measurements of PPy films doped with NaDBS, OXA, SUCA and SUBA (n=3 except for PPy(NaDBS) where n=1). d) Cyclic voltammetry of PPy films doped with $LiClO_4$ of different thicknesses (1, 2.5, 5, 10, 20 mC consumed charge) recorded at a scan rate of 50 mV/s. e) Electrochemical impedance measurement of bare PPy(SUBA) films and PPy(SUBA) films after EDC/NHS activation.

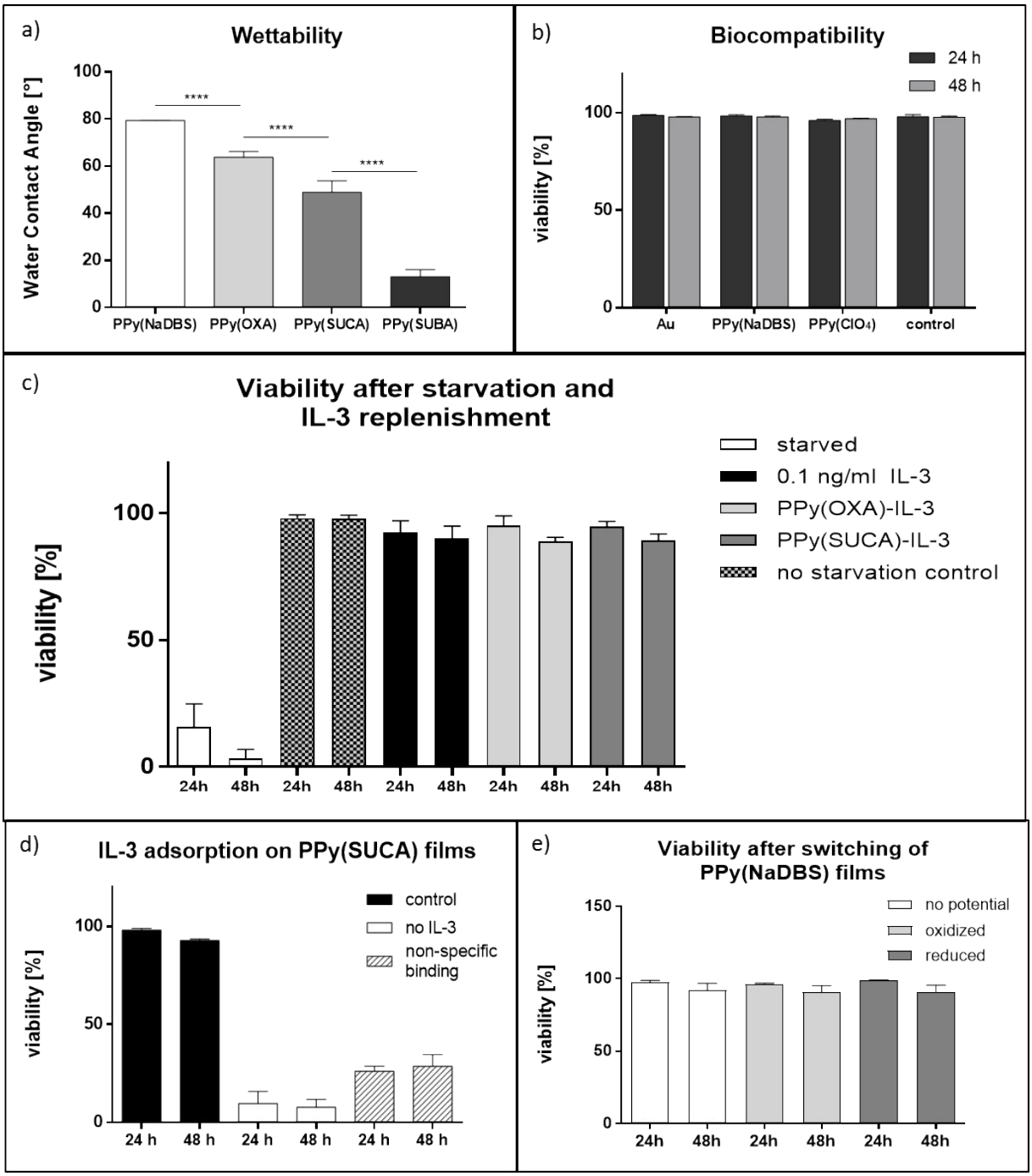

Figure S2: Surface wettability, Biocompatibility of PPy films and Viability of FDC-P1 cells. a) Water contact angle measurements of differently doped (NaDBS, OXA, SUCA, SUBA) PPy films. b) Biocompatibility studies performed on FDC-P1 cells for 24 and 48 hours. Control indicates cells in a plain culture dish without any PPy film. Au indicates FDC-P1 cells incubated with plain gold electrodes and PPy(NaDBS) and PPy(ClO_4) indicates cells incubated with films doped with the respective dopant (NaDBS and LiClO4). c) Viability after IL-3 starvation and IL-3 replenishment of FDCP-1 cells for 24 and 48 hours. The no starvation control was not subjected to the starvation protocol but cultivated with IL-3-enriched medium for 24 and 48 hours (n=3). d) Adsorption studies performed on PPy(SUCA) films. In the control setup, FDC-P1 cells were incubated with soluble IL-3 (0.1ng/ml), in the no IL-3 setup, cells were deprived off IL-3 and in the non-specific binding setup, PPy(SUCA) films were incubated with IL-3 only but not with the crosslinking EDC/NHS solution. e) Viability after redox switching of PPy(NaDBS) films after 24 and 48 hours. Films were incubated with FDC-P1 cells in presence of soluble IL-3 either in as fabricated state, or in oxidize (0.2V) or reduced state (-0.7V). **** $p < 0.0001$. Unless otherwise indicated, n =3.