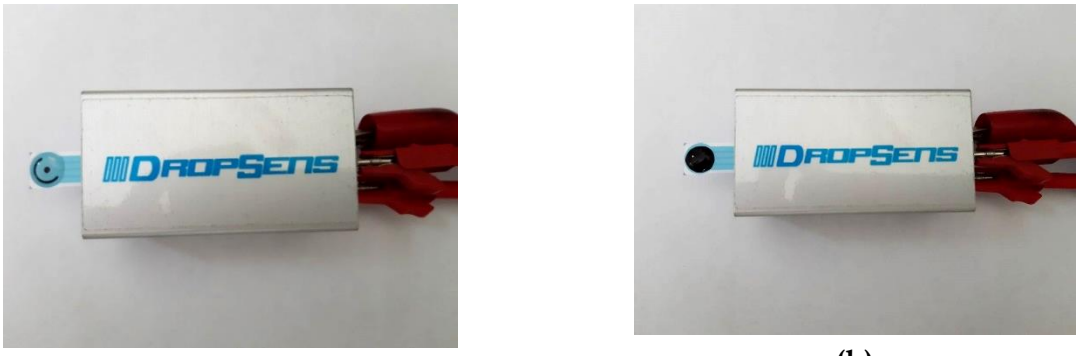
**Electronic Supporting Information**

to the article of A.I. Goida, A.M. Rogov, Y.I. Kuzin, A.V. Porfireva, G.A. Evtugyn "Impedimetric DNA-Sensor for Epirubicin Detection Based on Polythionine Films Electropolymerized from Deep Eutectic Solvent"




(a) (b)

**Figure S1.** Electrochemical cell design. (a) NADES is drop-casted on the electrode; (b) NADES with thionine is drop-casted on the electrode

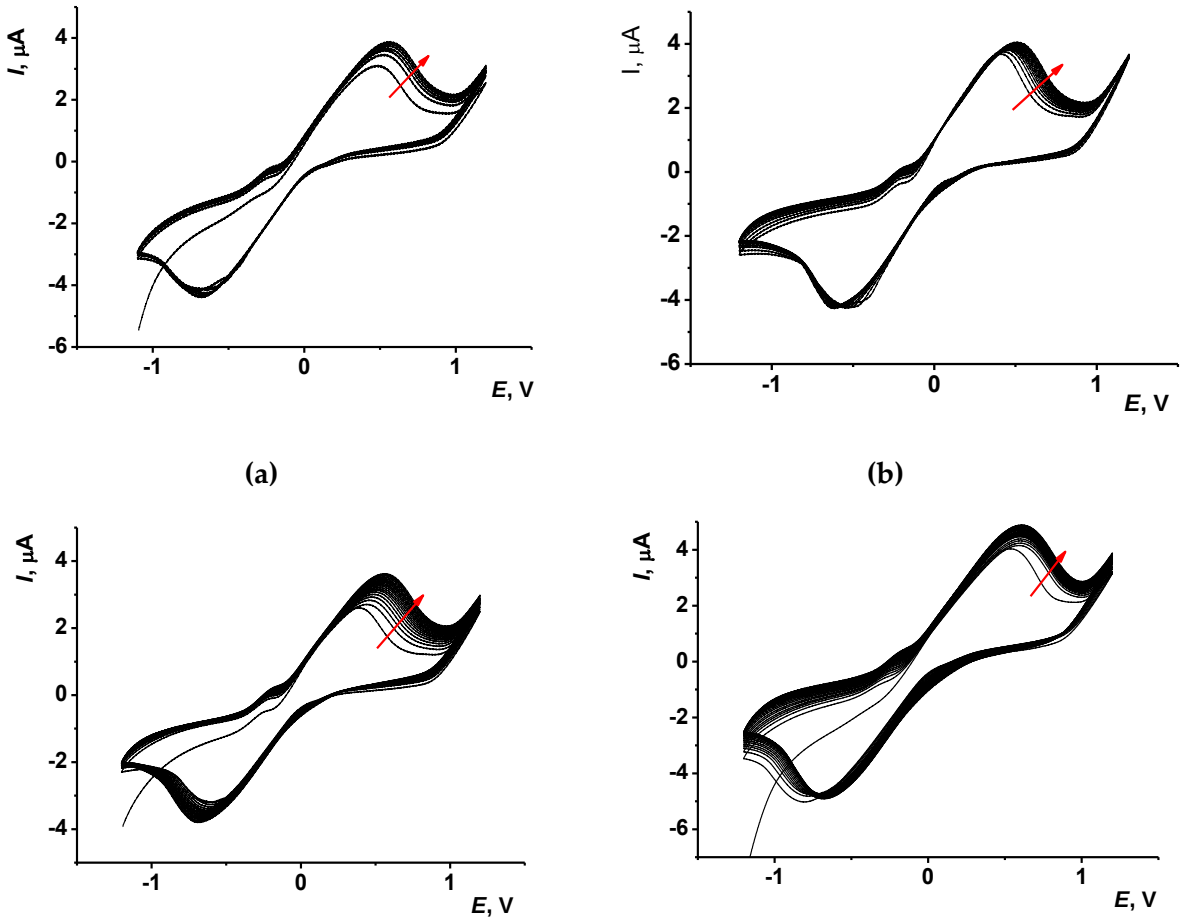



**Figure S2**. Multiple cyclic voltammograms recorded on the carbon SCE in NADES (citric acid, glucose and water, molar ratio 1:1:6) with 0.067 M thionine. Scan rate 50 mV/s; (a) 7 cycles; (b) 15 cycles; (c) 20 cycles; and (d) 30 cycles of the potential. Arrows indicate changes with increasing number of cycles

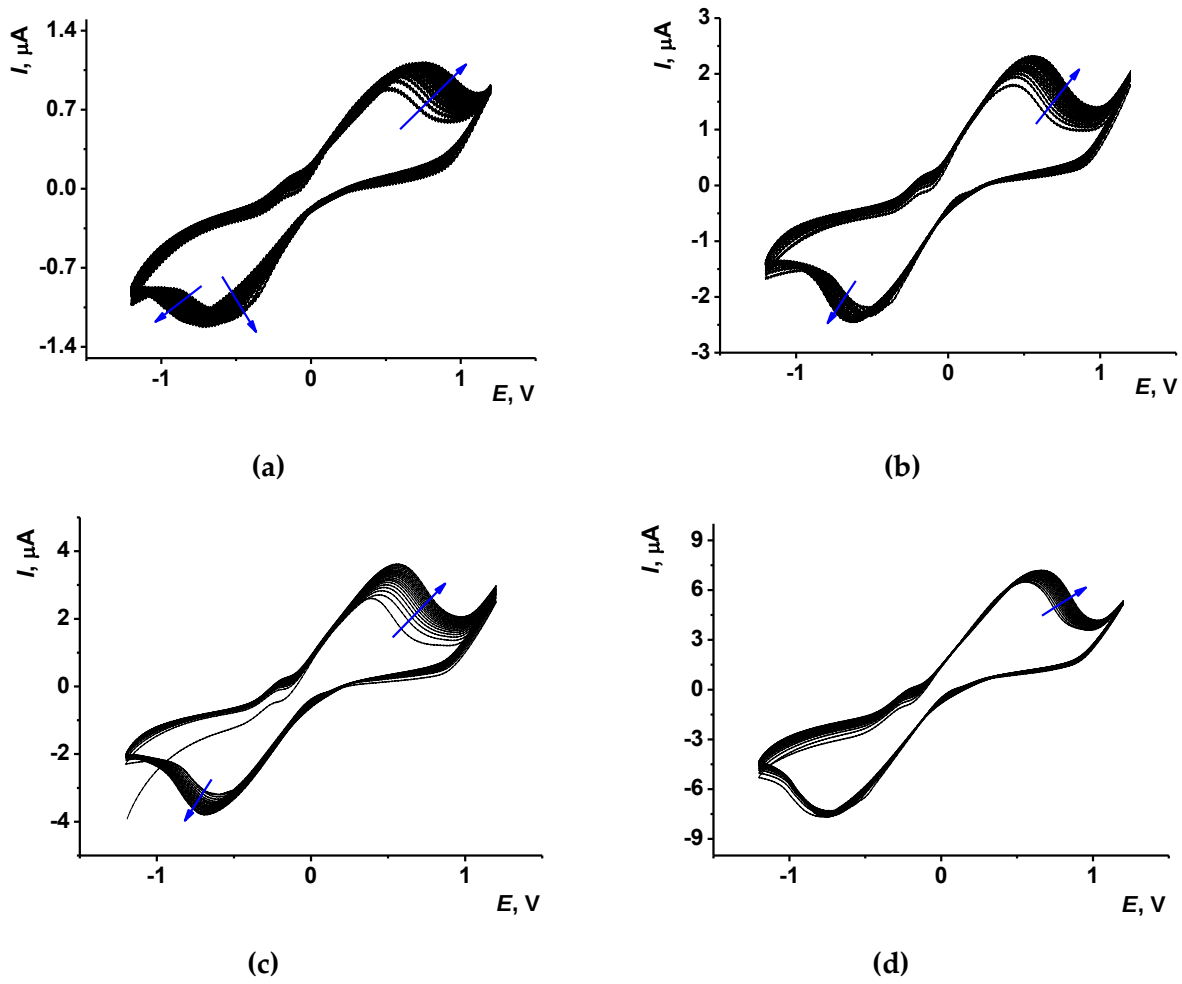



**Figure S3**. Multiple cyclic voltammograms recorded on the carbon SCE in NADES (citric acid, glucose and water, molar ratio 1:1:6), 20 cycles of the potential, scan rate 50 mV/s, in the presence of (a) 0.017; (b) 0.033, (c) 0.067 and (d) 0.10 M of thionine. Arrows indicate changes with increasing number of cycles.

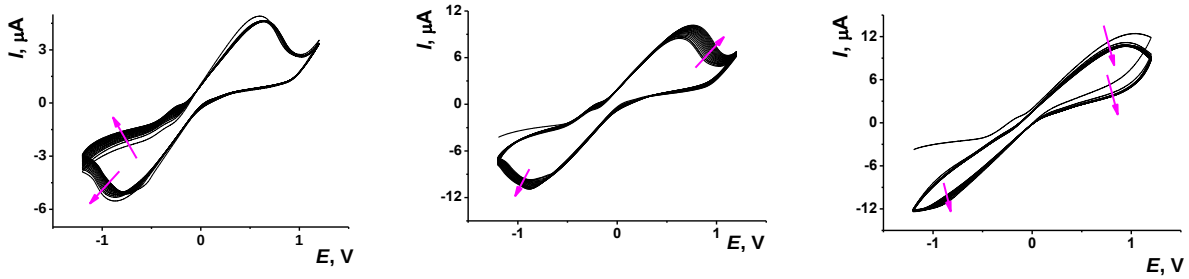



**Figure S4.** Multiple cyclic voltammograms recorded on the carbon SCE in NADES (citric acid, glucose and water, molar ratio 1:1:6) containing 0.1 M thionine, 20 cycles, at the scan rate (a) 50, (b) 100, and (c) 300 mV/s. Arrows indicate changes with increasing number of cycles.

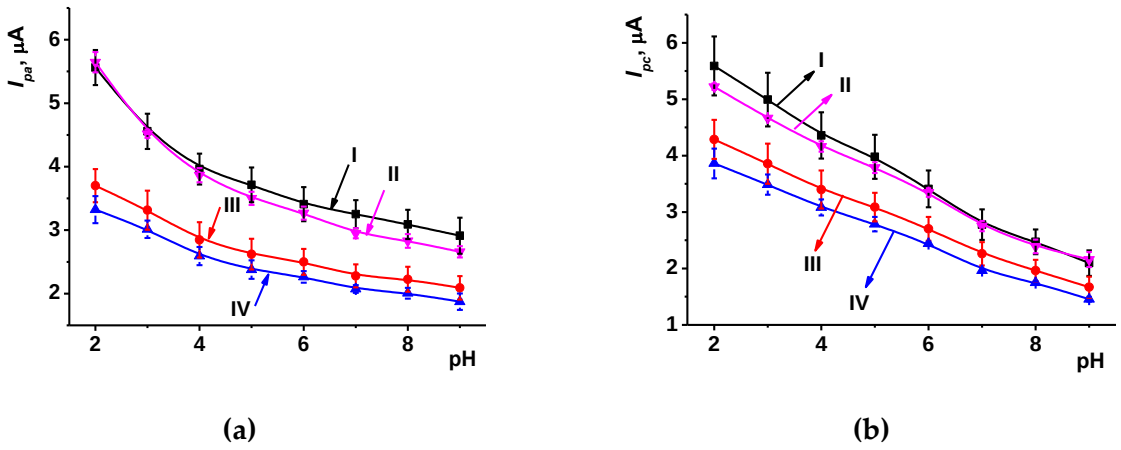



**Figure S5**. The pH dependence of the anodic (a) and cathodic (b) peak currents of the $PTN_{aq}$ with no signal stabilization (I), open-circuit (non-current) stabilization (II), tenfold consecutive scans in a single drop of HEPES (III), and tenfold consecutive scans in the drop of HEPES refreshed after each scan (IV). Electropolymerization of thionine at SPE in 0.1 M HEPES containing 0.03 M NaCl, pH 7.0, 100 mV/s, 20 cycles

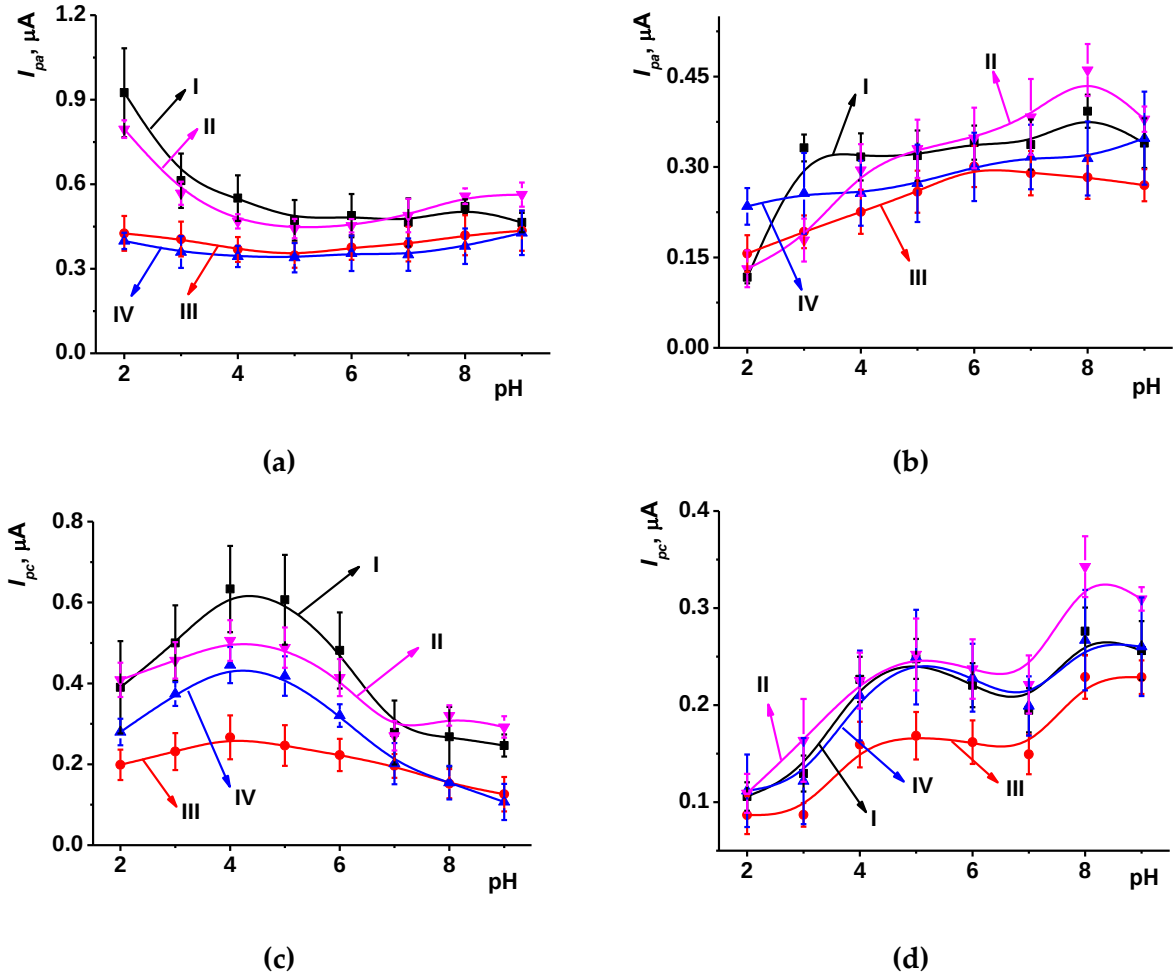



**Figure S6.** The pH dependence of the anodic peak current of the monomer (a), polymer (b), of the cathodic peak currents of the monomer (c), polymer (d) for the $PTN_{NADES}$, with no signal stabilization (I), open-circuit (non-current) stabilization (II), tenfold consecutive scans in a single drop of HEPES (III), and tenfold consecutive scans in the drop of HEPES refreshed after each scan (IV). Electropolymerization of thionine on SPE in 0.1 M HEPES containing 0.03 M NaCl, pH 7.0, 100 mV/s, 20 cycles

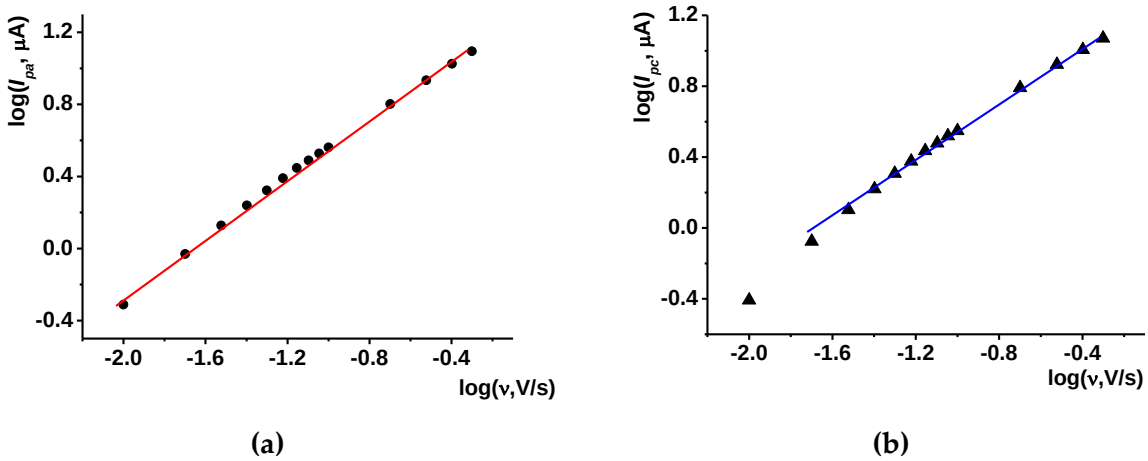



**Figure S7**. The scan rate (ν) dependence of the anodic $I_{pa}$ (a) and cathodic $I_{pc}$ (b) peak currents of the $PTN_{aq}$ in 0.1 M HEPES containing 0.03 M NaCl, pH 7.0, scan rate 10 - 500 mV/s

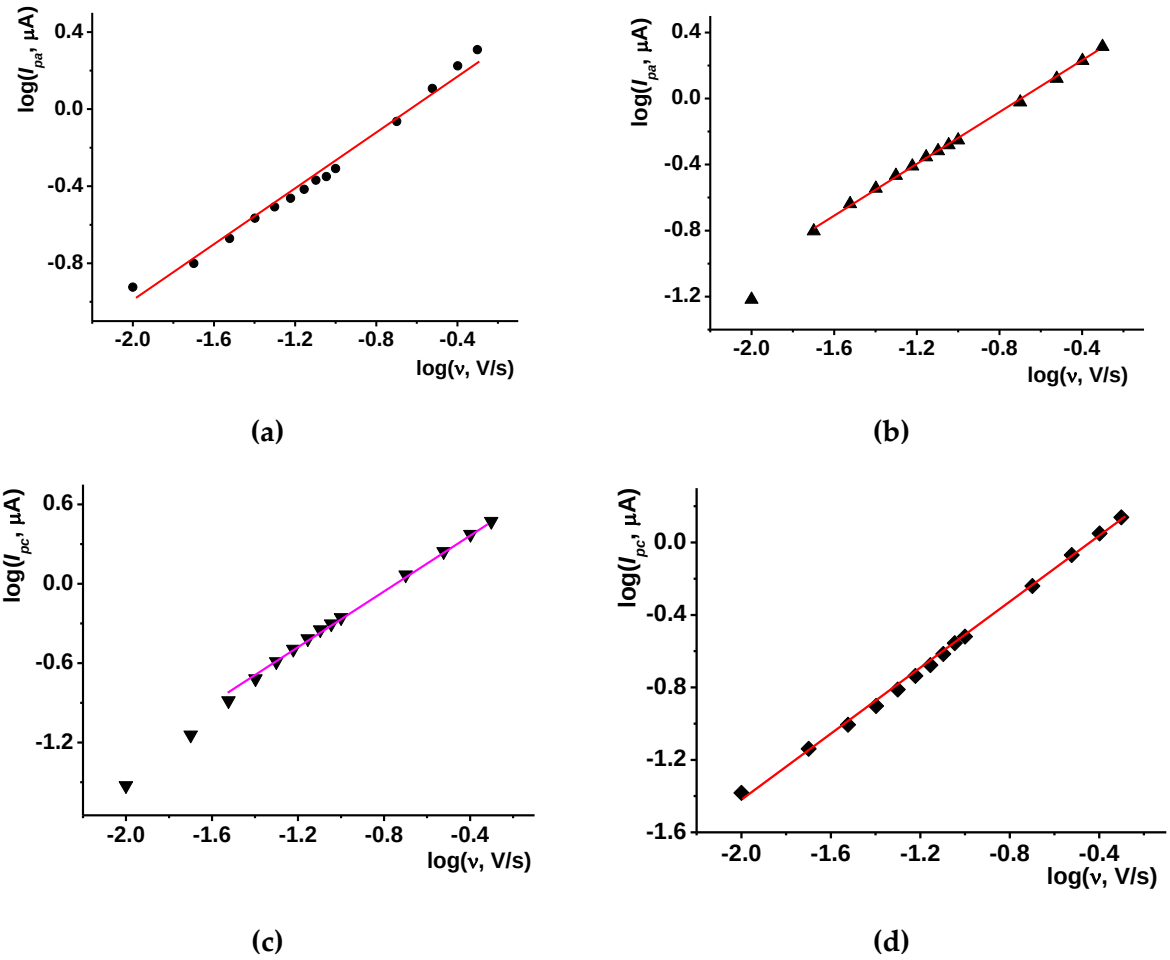



**Figure S8**. The scan rate dependence of the anodic ($I_{pc}$) peak current of the monomer (a), polymer (b), of the cathodic ($I_{pc}$) peak current of the monomer (c), polymer (d) for the $PTN_{NADES}$ in 0.1 M HEPES containing 0.03 M NaCl, pH 7.0, 10 - 500 mV/s

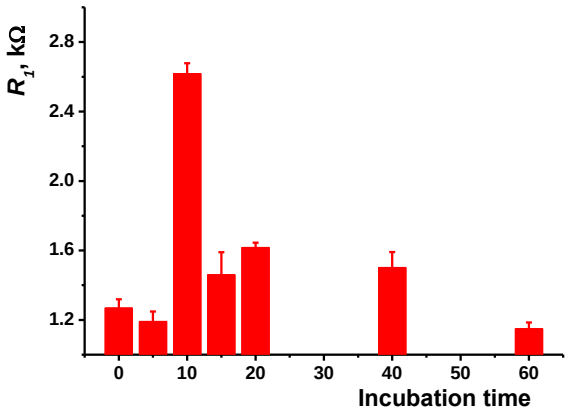



**Figure S9.** The charge transfer resistance on the modifying layer – solution interface for various incubation time in 10 μM epirubicin, $PTN_{NADES}$ in 0.1 M HEPES containing 0.03 M NaCl, pH 7.0, in presence of 0.01 M $[Fe(CN)_6]^{3-/4-}$ redox probe