Supplementary Materials

Thermodynamic and Kinetic Analysis of Galactose Oxidase Direct Electron Transfer on Carboxyl-Terminated SAM-Modified Gold Electrodes

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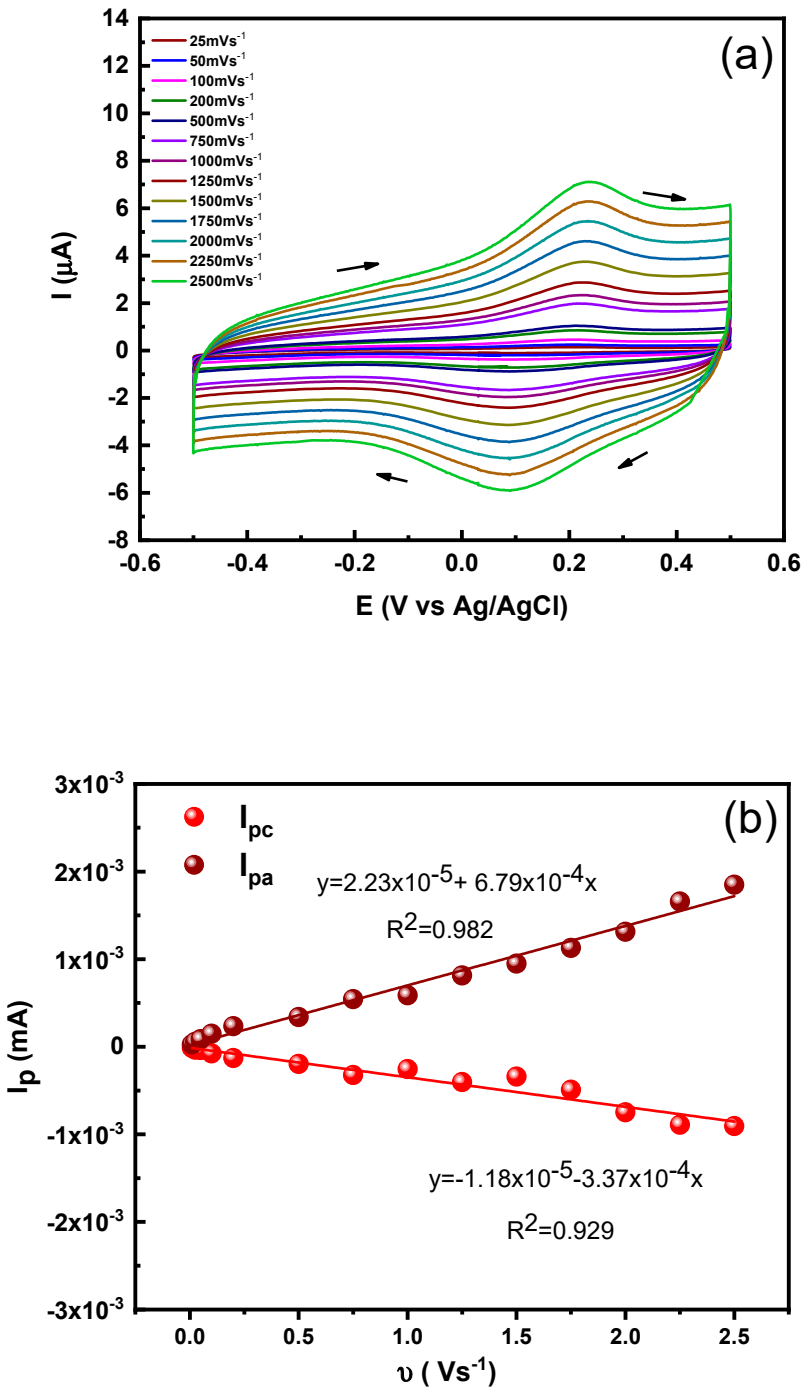

Figure S1. (a) Cyclic voltammetric response of the Au-MAA/GAOx electrode in the presence of 50 µM of GAOx at different scan rates (25 to 2500 mV·s-1); (b) plot of peak currents vs. scan rate derived from the cyclic voltammograms.

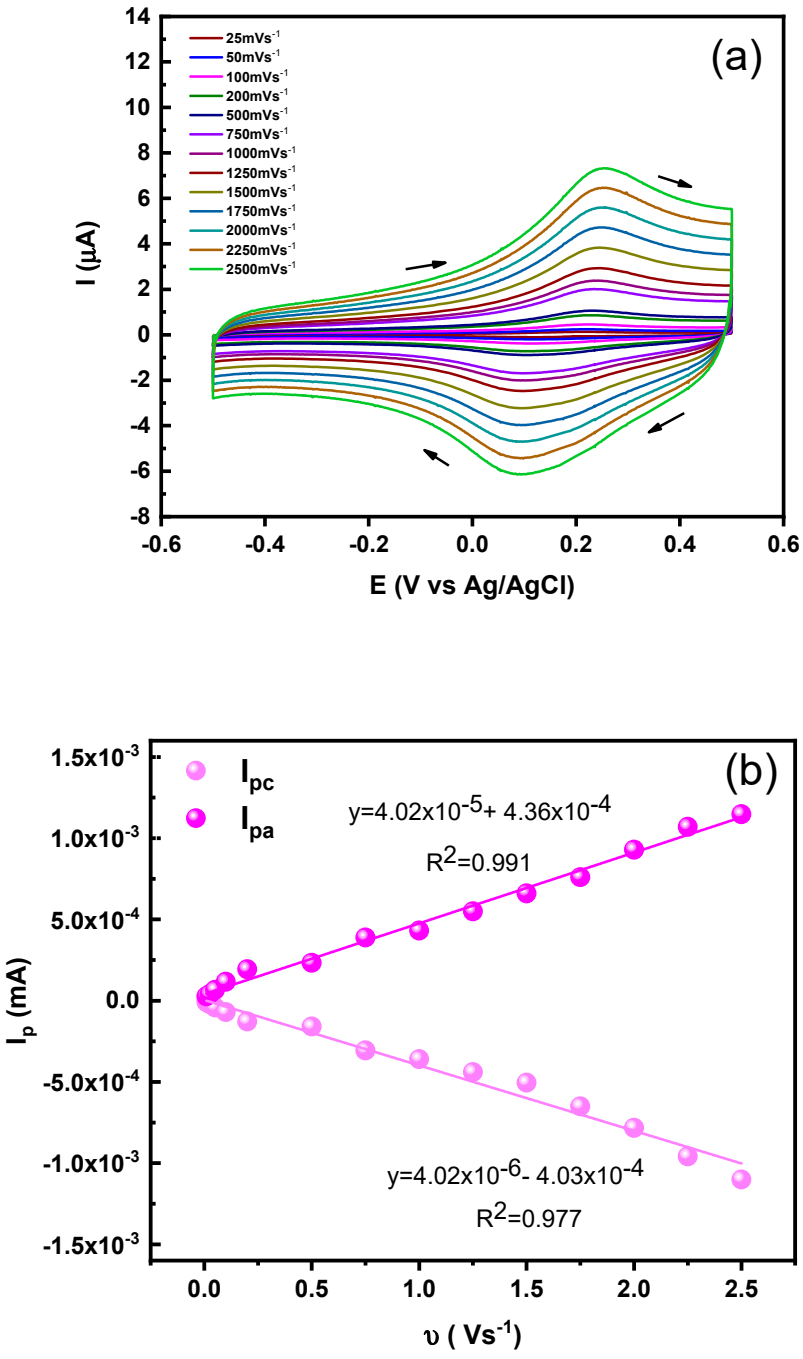

Figure S2. (a) Cyclic voltammetric response of the Au-NAC/GAOx electrode in the presence of 50 µM GAOx at different scan rates (25 to 2500 mV·s-1); (b) plot of peak currents vs. scan rate derived from the cyclic voltammograms.

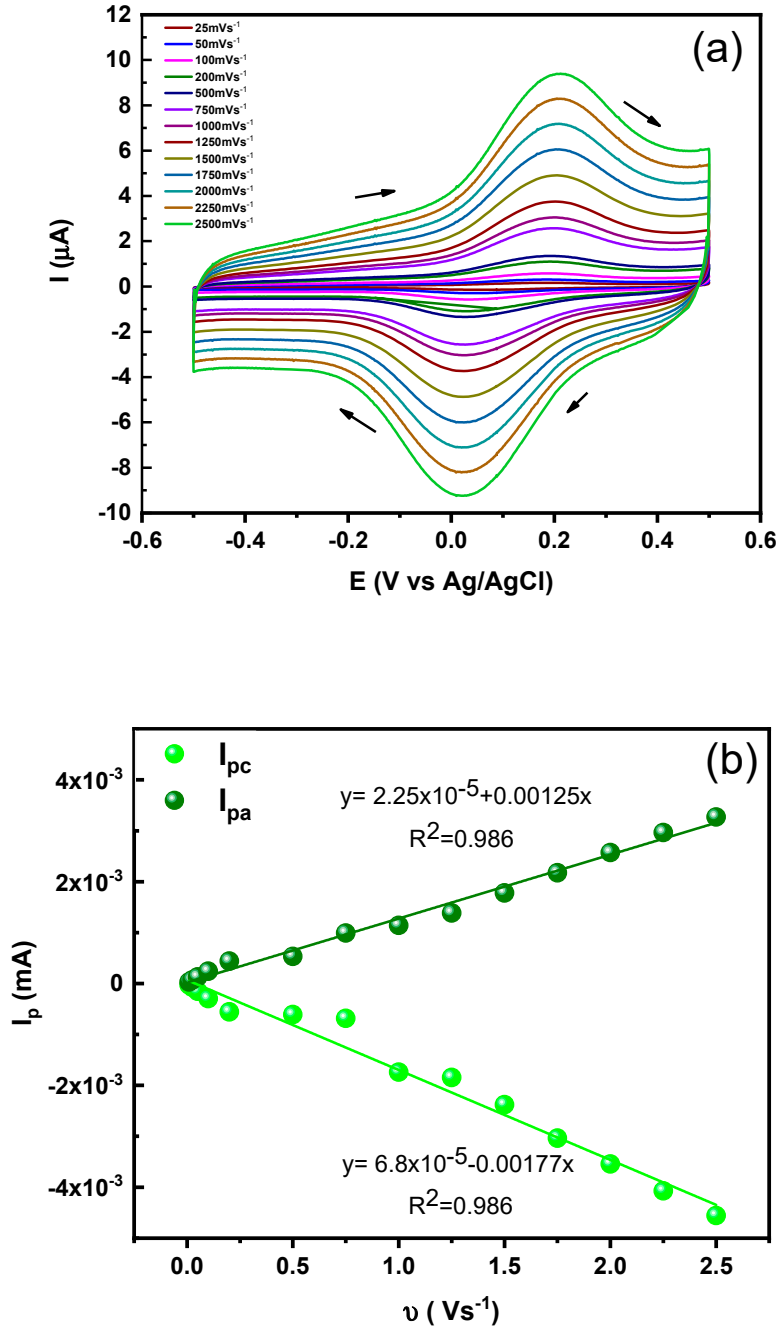

Figure S3. (a) Cyclic voltammetric response of the Au-MSA/GAOx electrode in the presence of 50 μM GAOx at different scan rates (25 to 2500 mV·s-1); (b) plot of peak currents vs. scan rate derived from the cyclic voltammograms.

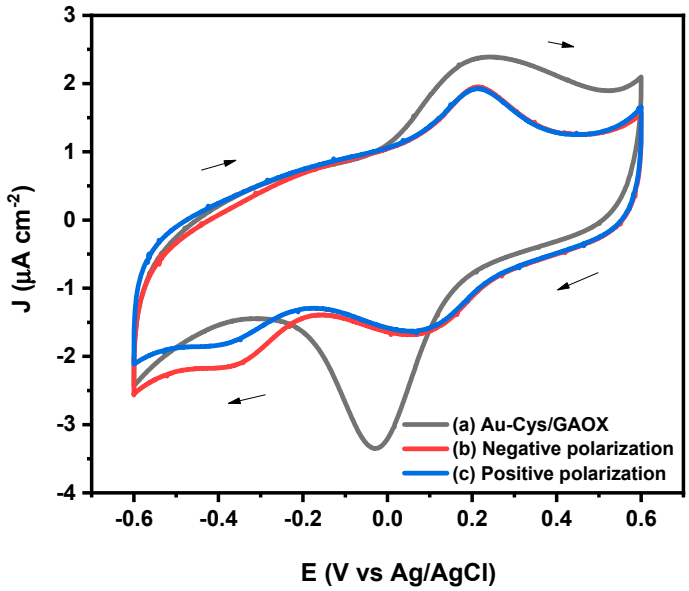

Figure S4. (a) Cyclic voltammetric response of the Au–Cys/GAOx electrode. (b) Cyclic voltammetric response of the Au–Cys/GAOx electrode after chronoamperometric polarization at −0.6 V vs Ag/AgCl. (c) Cyclic voltammetric response of the Au–Cys/GAOx electrode after chronoamperometric polarization at 0.6 V vs Ag/AgCl. All experiments were performed at a scan rate of 50 mVs^{-1} in 0.1M phosphate buffer (pH 7.2), as the supporting electrolyte.

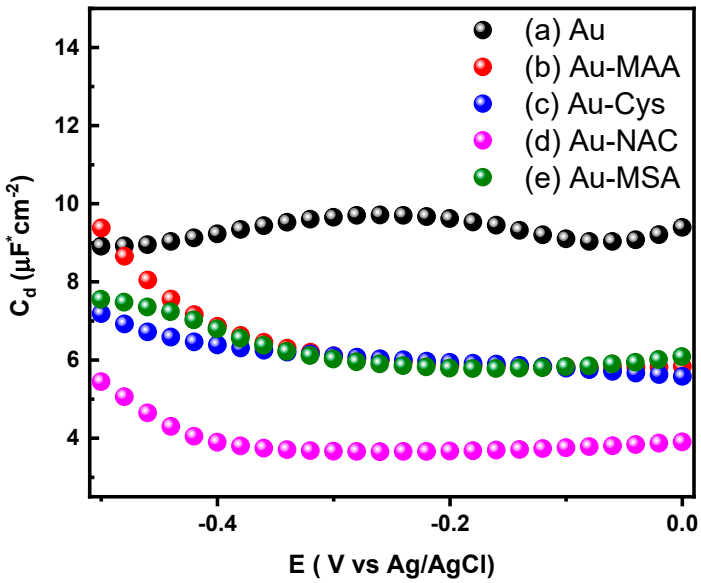

Figure S5. Capacitance spectra of (a) Au electrode unmodified and Au electrode modified with SAMs of (b) MAA, (c) Cys, (d) NAC, and (e) MSA.

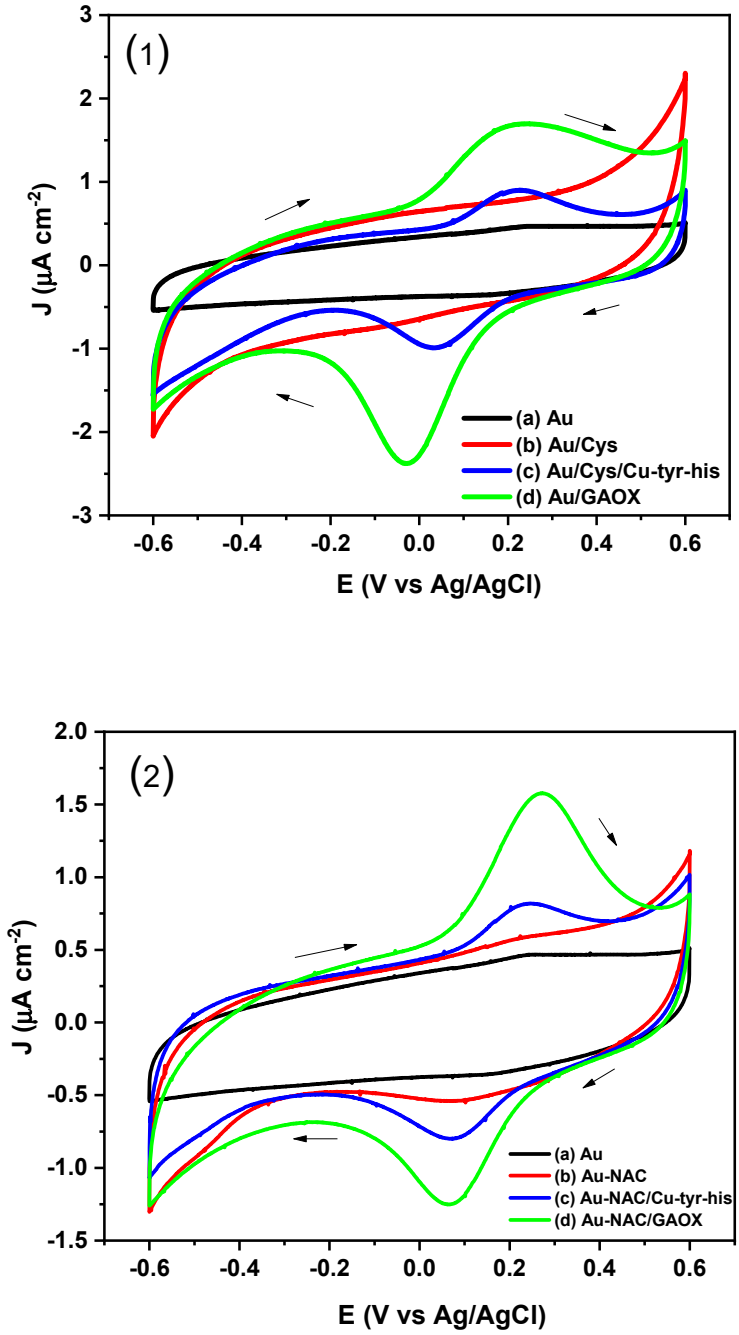

Figure S6. (1a) Unmodified Au electrode profile; (1b) modified Au–Cys electrode profile; (1c) modified Au–Cys/Cu–tyrosine–histidine electrode profile; (1d) modified Au–Cys/GAOx electrode. (2a) Unmodified Au electrode profile; (2b) modified Au–NAC electrode profile; (2c) modified Au–NAC/Cu–tyrosine–histidine electrode profile; (2d) modified Au–NAC/GAOx electrode. All measurements were performed at a scan rate of 50 mV s^{-1} in 0.1 M phosphate buffer (pH 7.2) as the supporting electrolyte.