Electronic Supplementary Information

Agarose-gel coating for improving the polydopamine-based pH sensor stability in continuous pH measurements

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Keywords: pH sensing, continuous monitoring, electrochemical, polydopamine, hydrogel, agarose

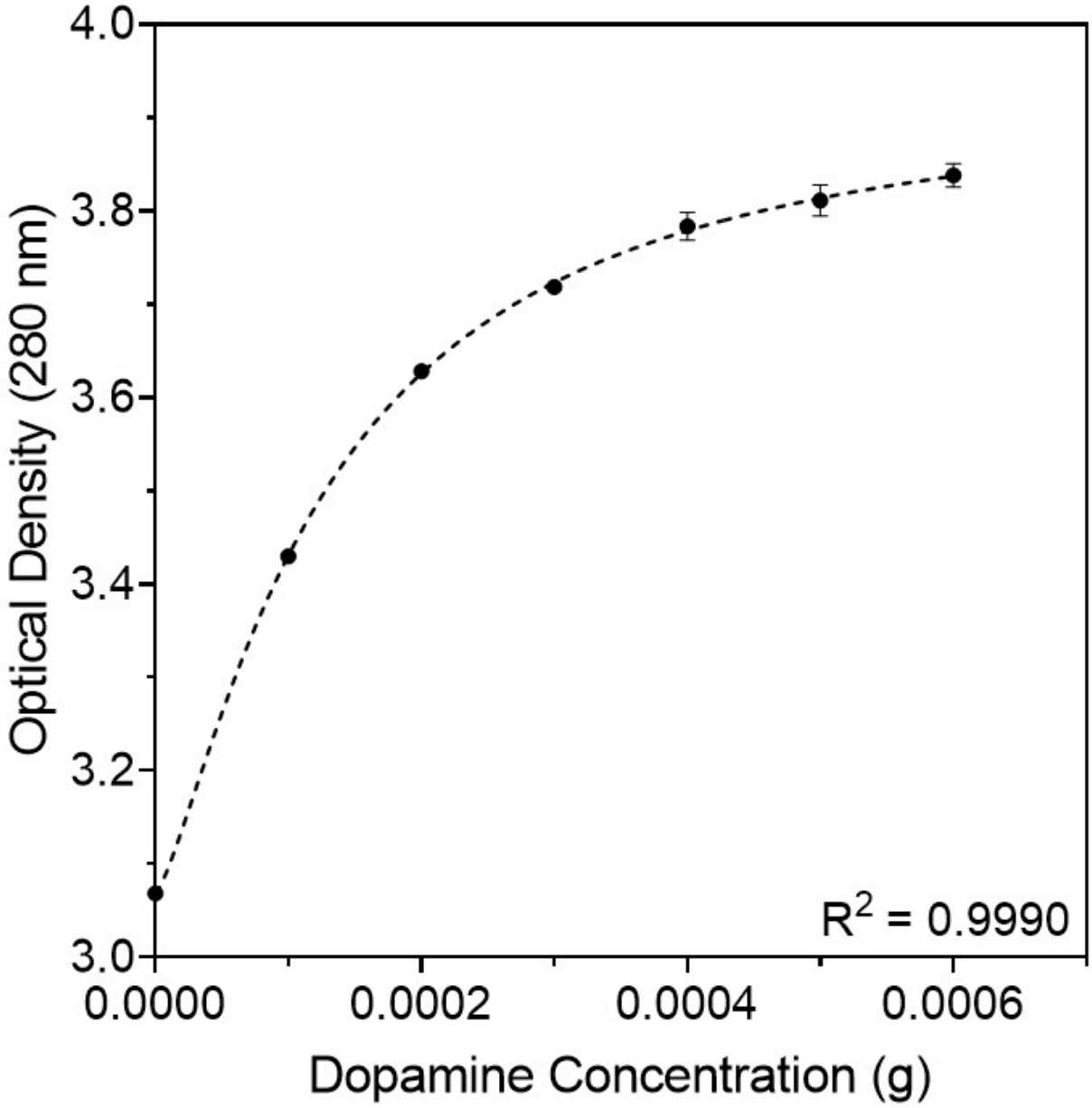
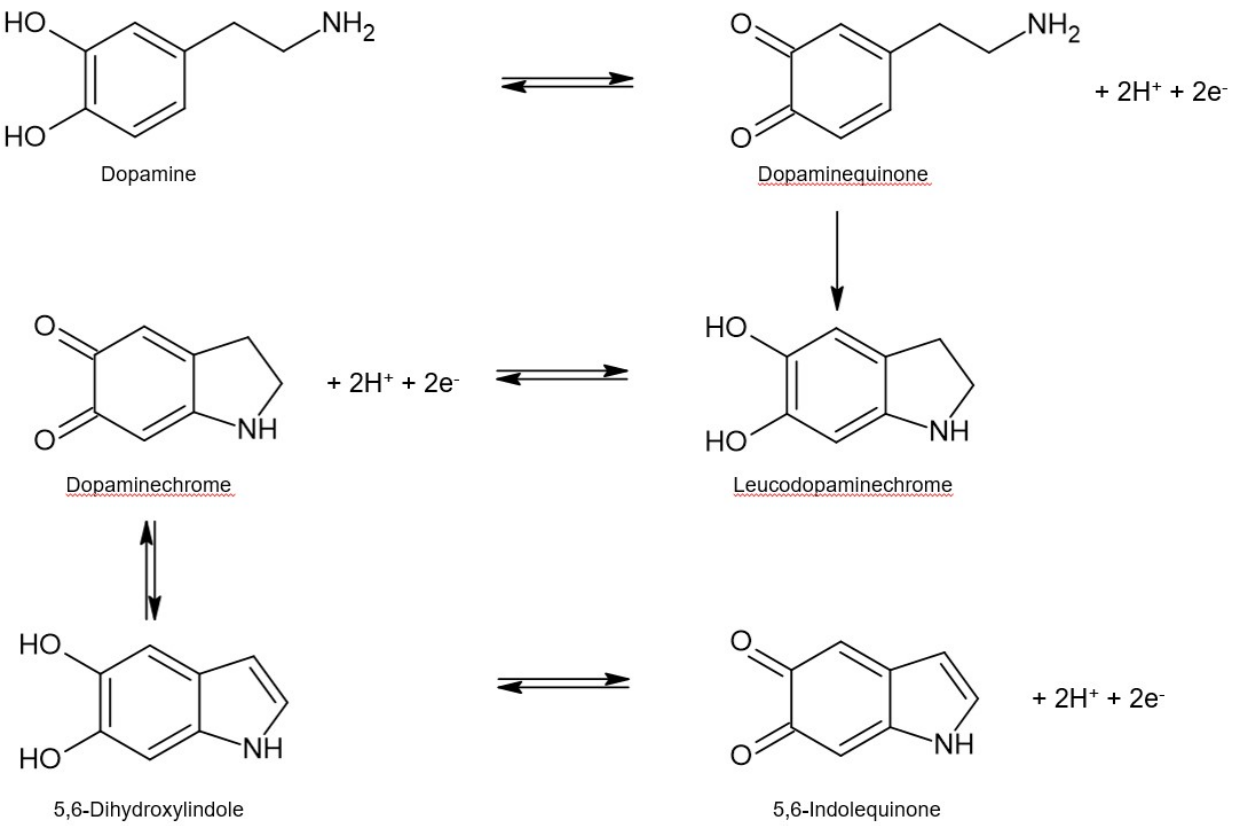


Fig S1. Calibration curve correlating the optical density at 280nm and dopamine concentration in 1X PBS at pH 7.3 (R^2 = 0.999, n = 2). Error bars represent the STD. The optical densities of dopamine from left to right are 3.838 ± 0.013, 3.811 ± 0.017, 3.784 ± 0.015, 3.719 ± 0.004, 3.628 ± 0.006, 3.430 ± 0.003, and 3.069 ± 0.008.



Scheme S1. Schematic of the polymerization of dopamine into polydopamine (PDA).

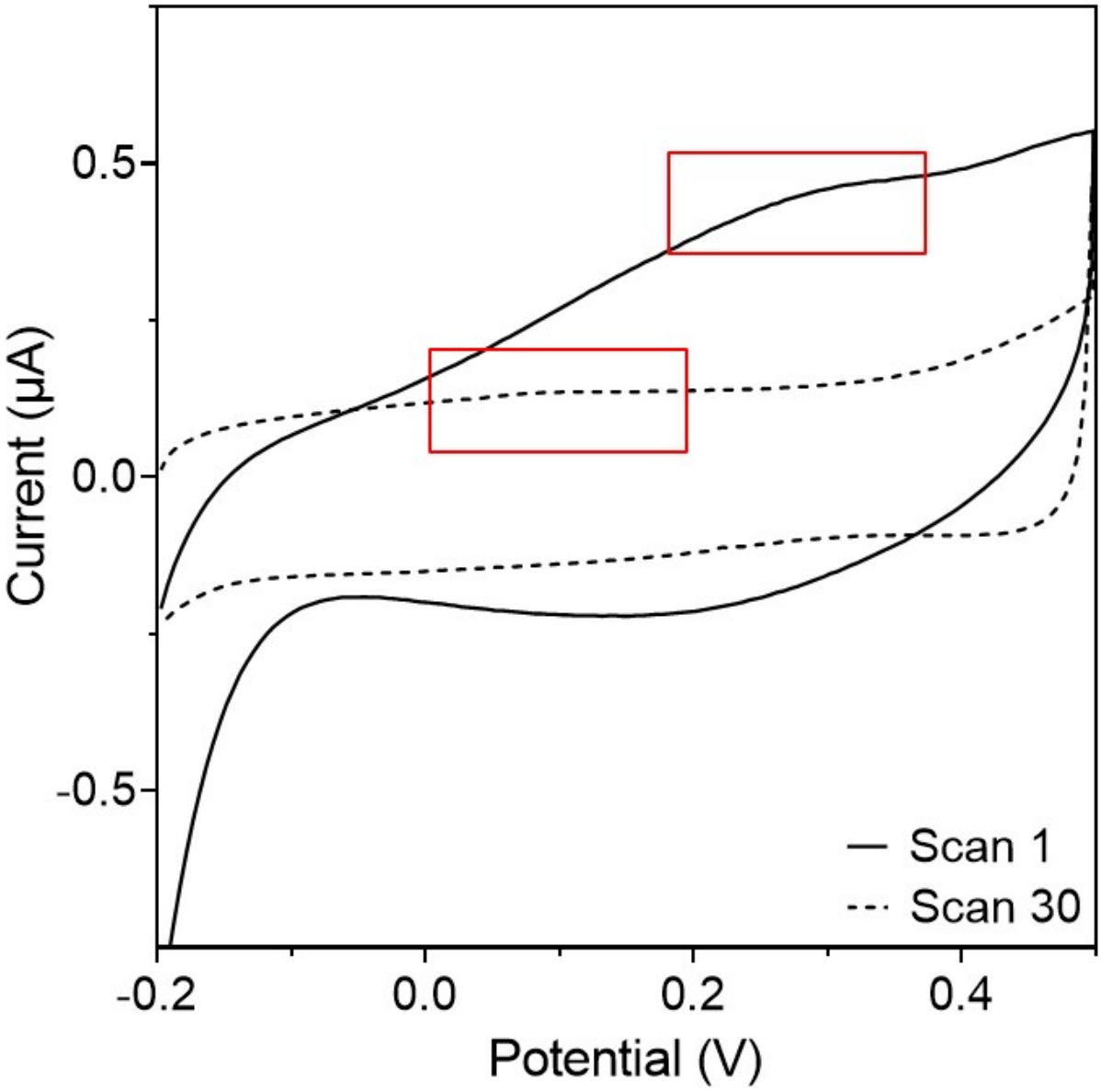


Fig S2. Comparing the initial and final CV measurements of the stability testing of the heat-treated pH sensors.

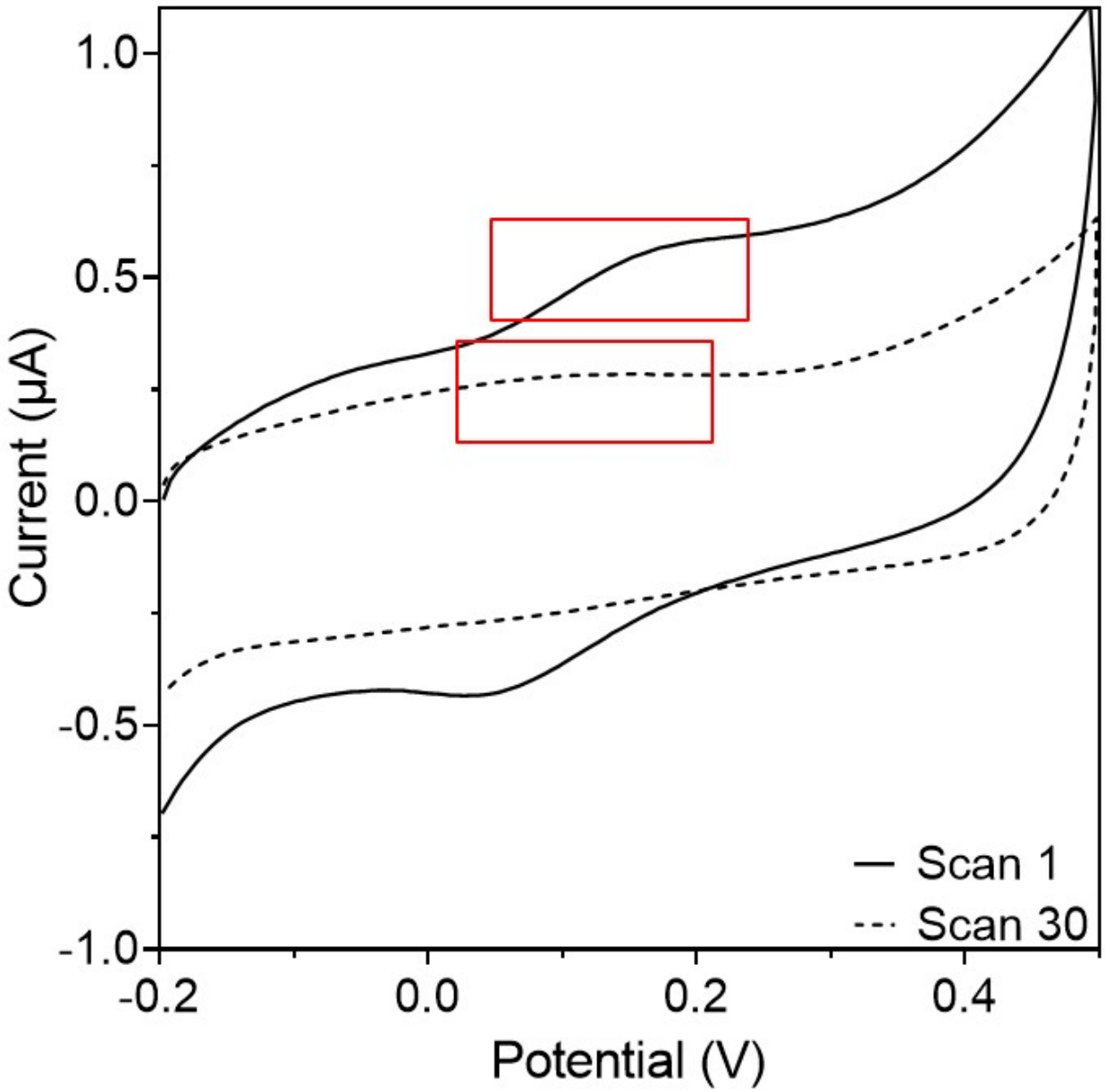


Fig S3. Comparing the initial and final CV measurements of the stability testing of the agarose-coated pH sensors.

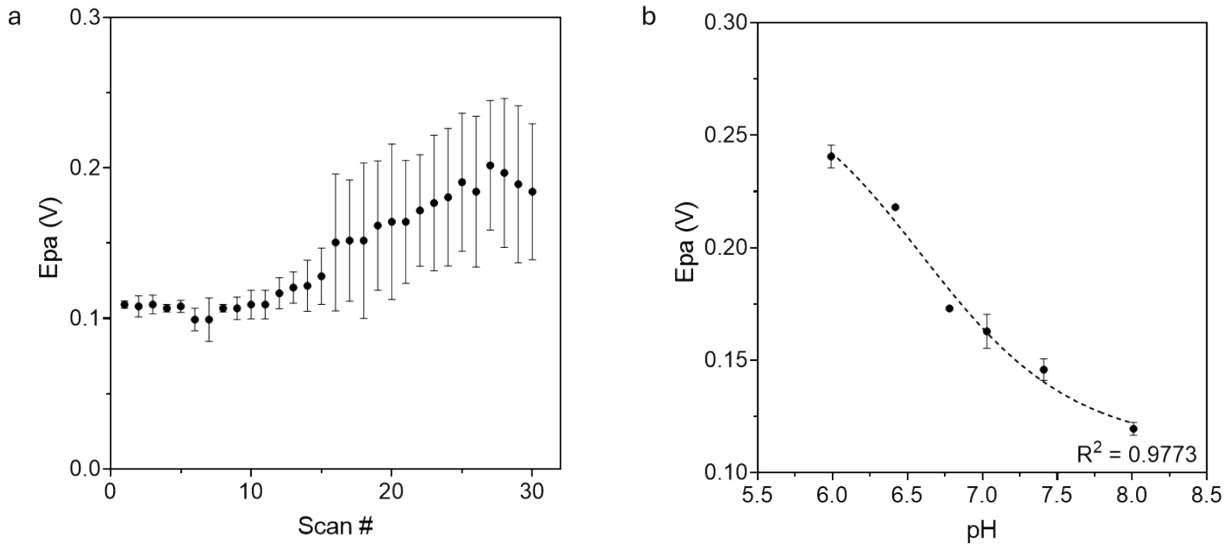


Fig S4. Stability testing the baseline PDA pH sensor in complex biological fluid. (a) Oxidation potentials of pH sensors (n=4) over 30 scans in simulated wound fluid exudate (WFE) at pH 7.32. (b) Calibration curve of pH sensors (n = 4) tested in WFE with varying pH (R^2 = 0.98, sensitivity = slope of the linear region [6.0 – 7.0] = -0.08). Error bars represent the STD.

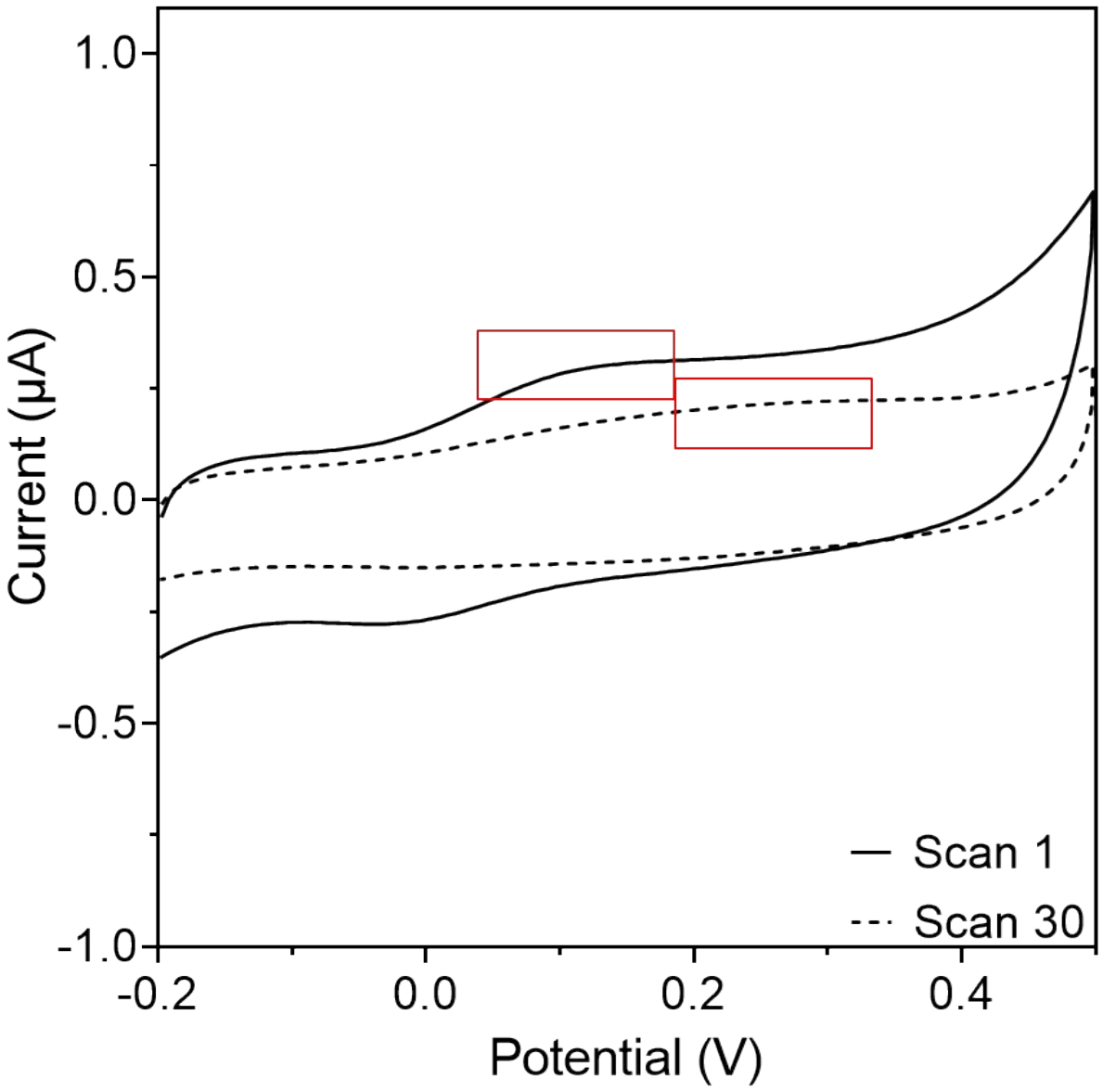


Fig S5. Comparing the initial and final CV measurements of the stability testing of the baseline PDA pH sensors in WFE.

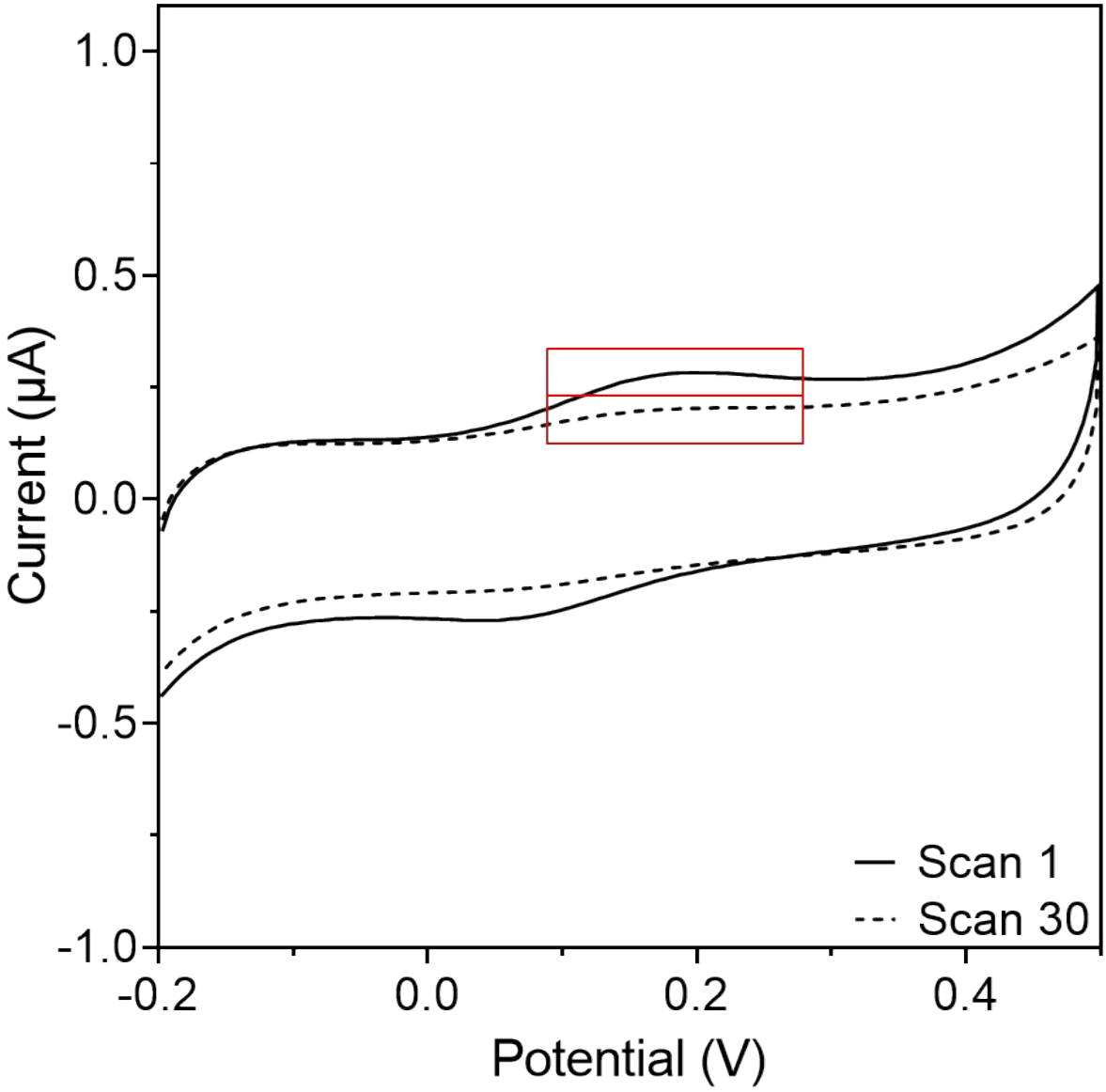


Fig S6. Comparing the initial and final CV measurements of the stability testing of the agarose-coated pH sensors in WFE.