

Electronic Supplementary Information

**Fundamentals of Fast-Scan Cyclic Voltammetry for Dopamine
Detection**

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Experimental Details

Cyclic voltammetry

Cyclic voltammetry was performed at Gamry Reference 600 (Gamry Instruments, Warminster, PA) A three electrode system was used, the working electrode was glassy carbon (CH Instruments, Inc. Austin, TX), the reference electrode was a standard Ag/AgCl electrode, and the counter electrode was a Pt wire. A waveform scanned from -0.2 V to 0.6 V was used for dopamine at a scan rate of 100 mV/s in a phosphate-buffered saline (PBS) (131.25 mM NaCl, 3.00 mM KCl, 10 mM NaH₂PO₄, 1.2 mM MgCl₂, 2.0 mM Na₂SO₄, and 1.2 mM CaCl₂ with pH adjusted to 7.4) to the desired concentration.

Fast-scan cyclic voltammetry

Fast-scan cyclic voltammetry were conducted using a two-electrode system. T-650 carbon fiber (7 μm diameter, Cytec Engineering Materials, West Paterson, NJ) was the working electrode and Ag/AgCl was the reference electrode. The electrodes were connected to a ChemClamp potentiostat and headstage (Dagan, Minneapolis, MN) and HDCV software (UNC Chapel Hill). Unless specified, a triangle waveform was used with a holding potential of -0.4 V, switching potential of +1.3 V, scan rate of 400 V/s, and repetition frequency of 10 Hz. The PBS buffer and test solutions were injected with flow cell (Harvard Apparatus, Holliston, MA) at a flow rate of 2 mL/min.