

Supplementary Information

Self-Assembly of Supramolecular Aptamer Structures for Optical or Electrochemical Sensing

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Analyzing ATP using a self-assembled redox active supramolecular structure of aptamer subunits:

The thiolated nucleic acid 5'-HS-ATACCTGGGGGAGTATATAAT-3' was assembled on a Au surface, and the amino-functionalized nucleic acid 5'-ATTATAGCGGAGGAAGGTAT-(CH₂)₆NH₂-3' was modified with methylene blue to yield the redox labeled nucleic acid.

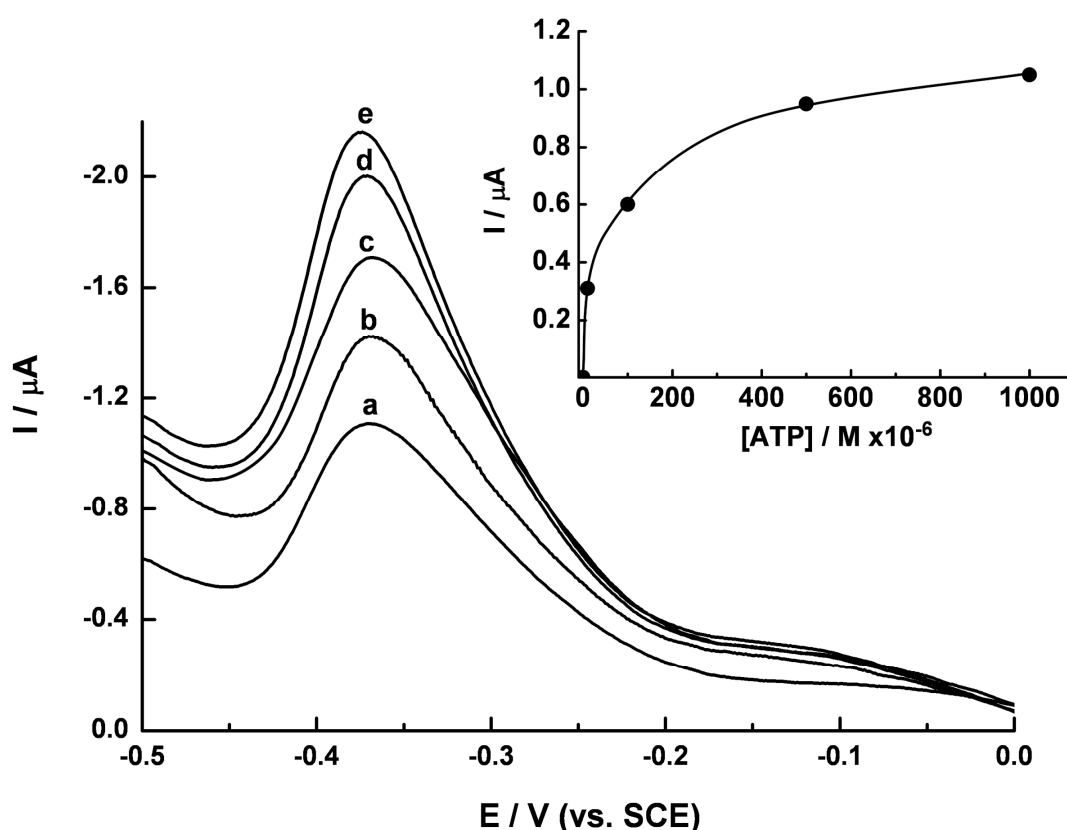


Figure S1: Linear sweep voltammograms corresponding to the analysis of variable concentrations of ATP: (a) 0 M.(b) 1×10⁻⁵ M. (c) 1×10⁻⁴ M. (d) 5×10⁻⁴ M. (e) 1×10⁻³ M. All experiments were performed in the presence of the (3)-functionalized electrode and (2) 1×10⁻⁵ M. Voltammograms were recorded under argon after equilibration of the system for 20 minutes.

Inset: Calibration curve corresponding to the analysis of cocaine by the (3)-modified Au electrode and MB⁺-functionalized (2) as redox reporter. ATP could be analyzed by the functionalized electrode with a sensitivity that corresponded to 1×10⁻⁵ M.