Electronic Supplementary Material (ESI) for Analyst.

Support information

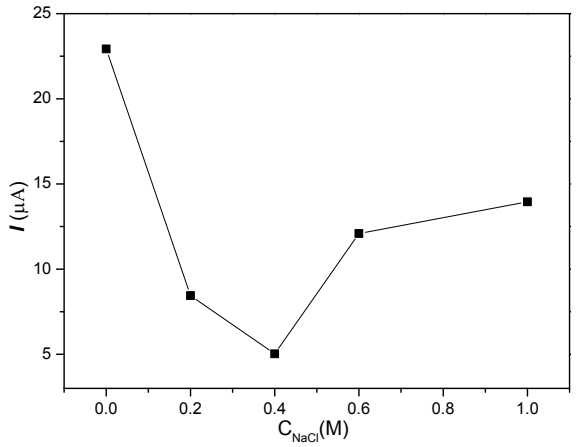

Fig. S1. Influences of different NaCl concentrentions in Buffer-3 containing 50 nM Hg^{2+} on the performance of E-DNA sensor. All other conditions are identical. Data were evaluated by SWV.

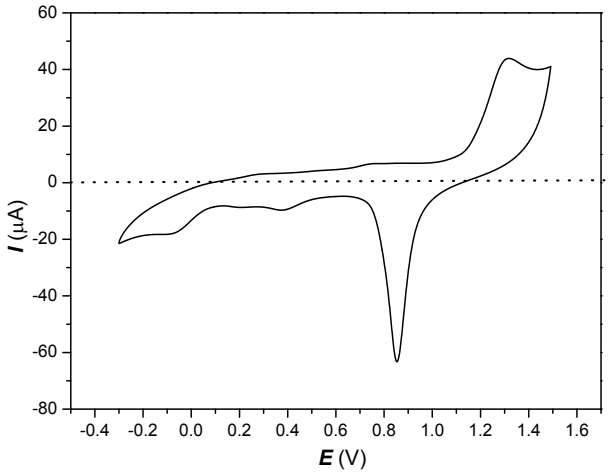

Fig. S2. Voltammetric behavior of a clean Au electrode in 0.5 M H_2SO_4.

Table S1 Performance comparison between the proposal strategy and other electrochemical DNA detection assays for Hg^{2+}.

Method	Linear range	Detection limit	Analytical technique	Reference
DNA functionalized graphene	8-100 nM	5 nM	DPV	12
Hg^{2+}catalyst $HAuCl_4/NH_2OH$ reaction	0.5-120 nM	0.06 nM	DPV	14
Inhibition of activity urease enzyme	6-60 nM	56 nM	CT	19
SRP enzymatic E-DNA sensor	0.5 nM-1 μM	0.3 nM	CV	20
DNA structure-switching	0.1 nM-5 μM	0.06nM	DPV	21
Hg^{2+}-induced DNA hybridization	1nM -10 μM	0.6 nM	CV	22
DNA conformational switch and Exo III's activity		0.2 nM	DPV	23
DNA conformational switch	1 nM-2.0 μM	0.5 nM	ASV	38
T-Hg^{2+}-T complex	0.1 nM-10 μM	0.1 nM	EIS	39
Our E-DNA senosr	0.01-500 nM	1 pM	SWV	

Abbreviations: SRP, streptavidin-horseradish peroxidase; E-DNA, electrochemical DNA; CV, cyclic voltammograms; EIS, electrochemical impedance spectroscopy; DPV, differential pulse voltammetry; SWV, square wave voltammetry; ASV, anodic stripping voltammetry; CT, chronoamperometry.

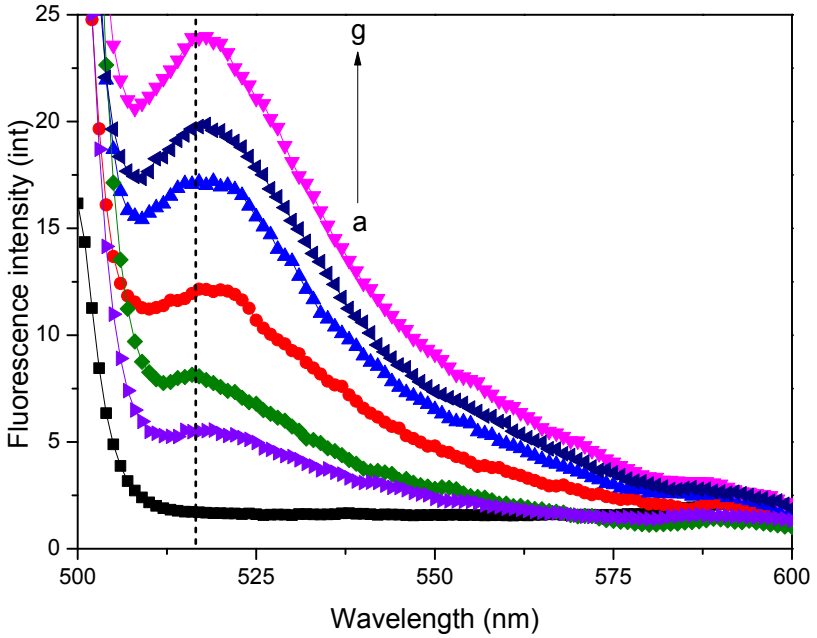

Fig. S3 Fluorescence spectra (λ_{EX}=494nm; λ_{EM}=517nm) of Exo III incubation buffer at different incubation times (a-g: 0, 5, 10, 20, 30, 40 and 60 min) for detecting 50 nM Hg^{2+}. 30 μL of buffer solution was diluted to 1 mL for the fluorescence test.