Supporting Information:

An enzyme-based E-DNA sensor for sequence-specific detection of femtomolar DNA targets

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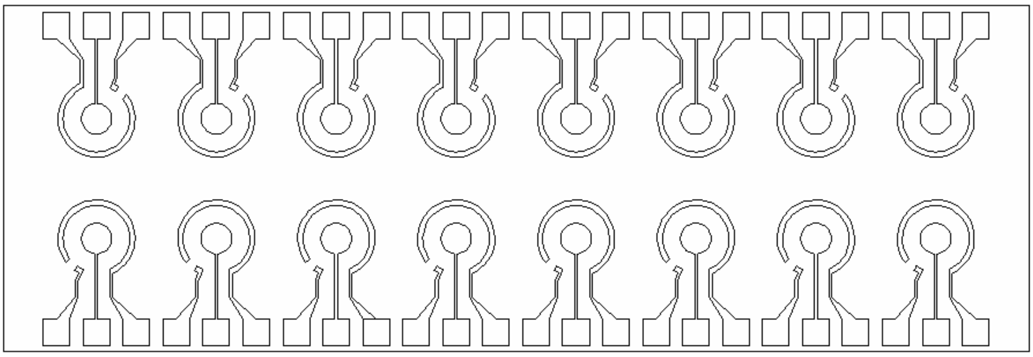
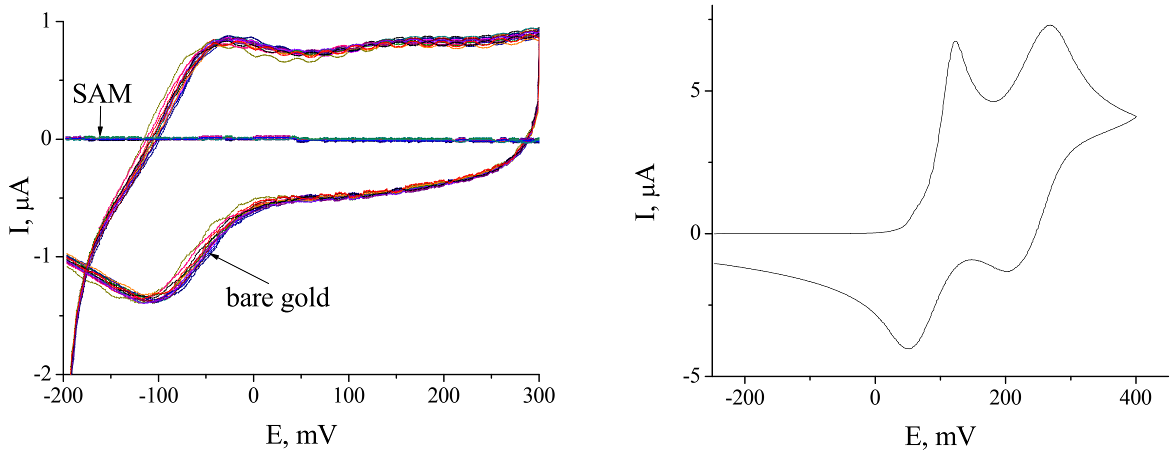


Figure 1-S. A gold sensor chip with 16 sensors, each having a gold working electrode in the centre surrounded by a gold auxiliary electrode (circle) and a gold reference electrode (small square).



(A) (B)

Figure 2-S. Electrochemical characterization of gold sensor chips. (A) Cyclic voltammograms for 0.5 mM $K_3Fe(CN)_6$ (in 0.1 M KCl) at bare gold electrodes and gold electrodes coated with SAM and avidin. At bare gold, $K_3Fe(CN)_6$ produced a pair of well defined redox peaks, and all 16 electrodes in a single chip showed high consistency (see overlayed 16 CVs); In contrast, $K_3Fe(CN)_6$ was electrochemical silent at coated electrodes, producing featureless CVs with low background currents. (B) Cyclic voltammogram for TMB (K-Blue substrate) at gold electrodes coated with SAM and avidin. Since the hydrophobic TMB could penetrate the dense SAM, it exhibited two pairs of characteristic redox peaks just as it was at bare gold electrodes.

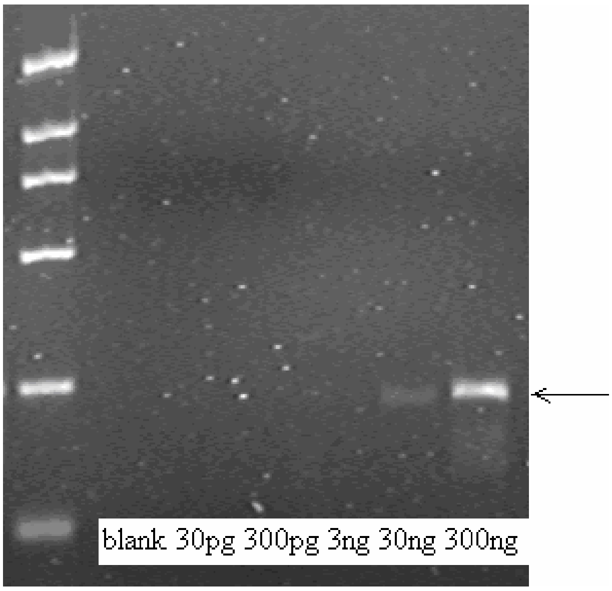


Figure 3-S. Electrophoretic analysis of the asymmetric PCR amplification for the uidA gene of E.coli. The arrow indicates the 250-bp product (uidA), and the starting template amounts are shown in the figure.

Table 1-S. Sequences for the 250-bp target, two primers and the probe.

Stem-loop probe (oligo 6)	5'-DIG-ggccgtACTGATCGTTAAAACTGCCTacggcc-biotin-3'
Primer 1 (5’)	5'-GCGAA AACTG TGGAA TTGAT-3'
Primer 2 (3’)	5'-TGATGCTCCATCACTTCCTG-3'
250-bp target	5’-GCGAA AACTG TGGAA TTGAT CAGCG TTGGT GGGAA AGCGC GTTAC AAGAA AGCCG GGCAA TTGCT GTGCC AGGCA GTTTT AACGA TCAGT TCGCC GATGC AGATA TTCGT AATTA TGCGG GCAAC GTCTG GTATC AGCGC GAAGT CTTTA TACCG AAAGG TTGGG CAGGC CAGCG TATCG TGCTG CGTTT CGATG CGGTC ACTCA TTACG GCAAA GTGTG GGTCA ATAAT CAGGA AGTGA TGGAG CATCA-3’