Electronic Supplementary Information

Photocurrent response after enzymatic treatment of DNA duplexes immobilized on gold electrodes: electrochemical discrimination of 5-methylcytosine modification in DNA

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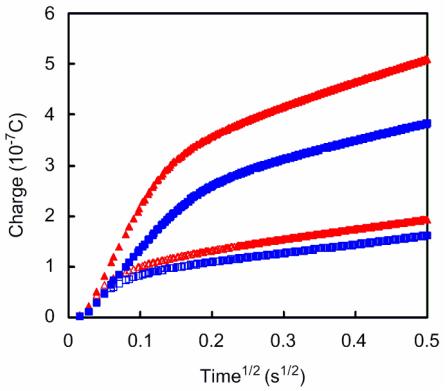

Fig. S1. Chronocoulometric response curves for 5′-ATGAACCGGAGGCCCAT-$(CH_2)_6$-SAu-3′ / ODN 1(C) duplex immobilized on a gold electrode; after treatment with *Hap*II at 23 °C for 1 h (blue squares), without treatment with *Hap*II (red triangles). Chronocoulometric analysis was carried out in the absence (open) and presence (closed) of 50 μM Hexaammineruthenium (III) chloride in 10 mM Tris-EDTA buffer (pH 8.0) at 20 °C.[1]

Reference

1 A. B. Steel, T. M. Herne and M. J. Tarlov, *Anal. Chem.* 1998, **70**, 4670–4677.

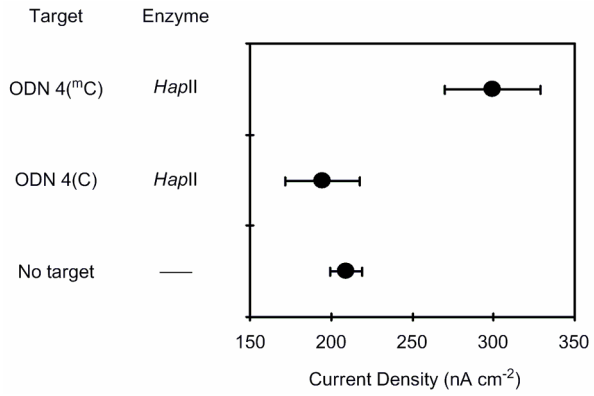

Fig. S2. Photoelectrochemical discrimination between normal C and modified ^{m}C in a long sequence of the human p53 gene corresponding to codons 275–303 of exon 8. The photocurrent density was evaluated at an applied potential of 500 mV vs SCE upon photoirradiation with 365 ± 5 nm light (13.0 mW cm^{-2}) at 20 °C in 2 mM sodium cacodylate buffer (pH 7.0) containing 20 mM NaCl, after treatment with a 1 unit of *Hap*II (23 °C, 1 h) of the unmethylated or methylated duplexes (AQ-Probe 2 / ODN 4(C) or AQ-Probe 2 / ODN 4(^{m}C), respectively) immobilized on the gold electrodes. Each error bar represents the SE calculated from ten experimental results that were corrected using different freshly prepared gold electrodes.