

Supporting information

Immuno-DNA binding directed template-free DNA extension and enzyme catalysis for sensitive electrochemical DNA methyltransferase activity assay and inhibitor screening

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Table S1. The involved DNA sequences in current biosensor system

Name	Sequence (5' to 3')
S1	CAATAGAGTACTTGTATCCGGATGAATCACTGA

S2	TCAGTGATTCCGGATACAAGTACTCTATTG
S3	CAATAGAGTACTTGTAT AAAAATGAATCACTGA
S4	TCAGTGATTCA TTT TACAAGTACTCTATTG
Biotin-S1	CAATAGAGTACTTGTATCCGGATGAATCACTGA-biotin
Biotin-S2	TCAGTGATTCCGGATACAAGTACTCTATTG-biotin

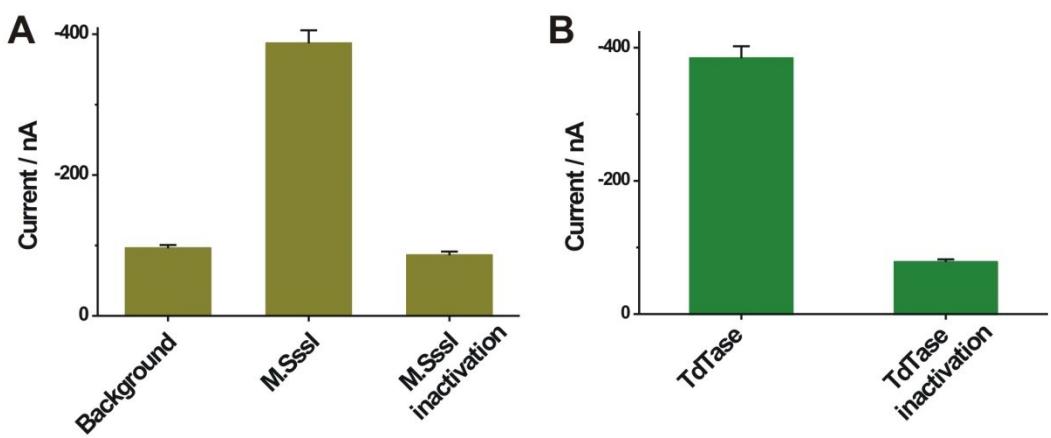


Figure S1. Effect of heat inactivation of M.SssI Mtase (A) and TdTase (B) on the DPV responses of the fabricated biosensors.

Table S2. Detection performance comparison of current DNA Mtase biosensor with the reported methods

Method	Strategy	Linear range (U/mL)	Detection limit (U/mL)	Refs.
Colorimetry	Methylation-responsive DNA-Based machine	2.5-40	2.5	1
Photoelectrochemistry	Immunogold labeled streptavidin amplification	0.1-50	0.035	2
Fluorescence	Collapse of DNA Tetrahedron Nanostructure	0.1-40	0.045	3
Electrochemistry	electrostatic interactions between RuHex and DNA strands	0.25-10	0.18	4
Electrochemistry	Graphene Oxide Combining with Restriction Endonuclease	0.1-450	0.05	5
Electrochemistry	enzymatic HRP-based signal amplification	0.5-50	0.1	6
Electrochemistry	DNA methylation-sensitive cleavage and terminal transferase-mediated extension	0.1-20	0.04	7
Electrochemistry	Immuno-DNA binding directed template-independent DNA extension and enzyme catalysis	0.05-10	0.039	This work

Table S3. Recovery experiments of M.SssI in diluted human serum

Samples	Added (U/mL)	Detected (U/mL)	Recovery (%)	RSD (%)
1	0.5	0.46	92	6.4
2	1	1.06	106	4.2
3	5	4.91	98.2	5.1

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