Supporting Information

A one-step fluorescent biosensing strategy for highly sensitive detection of HIV-related DNA based on strand displacement amplification and DNAzyme

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Table S1 DNA sequences used in this work

DNA	DNA sequence (from 5' to 3')
HIV	AGTCAGTGTGGAAAATCTCTAGC
DNA	TCAACCACATCGTTGTAGCTAGCCTGGCATCTCCTCAGC
Template	TAGAGATTTTCCACACTGACT
	AGTCAGTGTGGAAAATCTC<u>A</u>AGC
DNA-1	AGTCAGTGTGGAAAA<u>A</u>CTC<u>A</u>AGC
DNA-2	AGGCACAAACACGCACCTCAAAG
DNA-3	FAM--TCAACCACAguGGCATCTG--BHQ-1
Substrate	

gu: ribonucleotide

Underline portion represents mutation base in target DNA.

Table S2 Comparison of different platforms for HIV-related DNA detection

Platform	Strategy [a]	Dynamic range	LOD	Reference
Fluorescence	T7 exonuclease	50 pM-8 nM	9.1 pM	1
Fluorescence	MB and Ag NCs	10 nM-200 nM	4.4 nM	2
Colorimetry	Glucose oxidase and CHA	10 pM-120 nM	4.8 pM	3
Electrochemical	triplex-forming molecular beacon	0.1 nM-10 nM	54 pM	4
Fluorescence	SDA and DNAzyme	0.1 pM-1 nM	61 fM	**This work**

[a] MB, molecular beacon; Ag NCs, silver nanoclusters; CHA, catalytic hairpin assembly; SDA, strand displacement amplification.

Table S3 Recovery results of HIV DNA spiked in human serum sample

samples	spiked (pM)	measured (pM)	relative error (%)	recovery (%)
1	10	9.251	3.5	92.5
2	100	115.721	4.1	115.7
3	1000	977.237	2.3	97.7

Reference:

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