

Supplementary information

Self-assembled DNA dendrons as signal amplifiers in DNA probe-based chemiluminescent assay for enhanced colorimetric detection of short target cDNA

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Table S1. Sequences of all the oligonucleotides used in this study. DS, DNA dendron strands; *N*-HD, *N* gene-recognized hairpin DNA; *N*-TD, *N* gene target DNA; *KPC*, klebsiella pneumoniae carbapenemase; *HCV*, hepatitis C virus.

	Sequence (5' → 3')
DS1	G TTCCTTGTATGTGCCTTGTTCACGCGCCCCCTAGCCAGGAGACATAATAG G
DS2	AGGAGACATAATAGGGCAGTTCCGGGGCCGTGGAACAAGGC
DS3	AGGAGACATAATAGGGGCTAGGGGGGCGGCCCCGGAAGTGCAGGAGACATA ATAGG
<i>N</i> -HD1	with or without Biotin- ACATACAAGGAACAACATTGCCAAACATCCACAAGTGGC AATGTTGTTCTTGAGGAAG
<i>N</i> -HD2	Biotin-AAAAAAACATCCACAAGTGGCAACAAGGAACAACATTGCCAGTTGTGG ATGTTTGGCAATGT
<i>N</i> -TD	CTTCCTCAAGGAACAACATTGCCA
Detection DNA	Biotin-CCTATTATGTCTCCT
<i>KPC</i> TD	CACCCATGGACACACCCATCCGTT
<i>HCV</i> TD	TCTATGGCCAGCTCCTCGGCCAGC
miRNA 141	UAACACUGUCUGGUAAAGAUGG

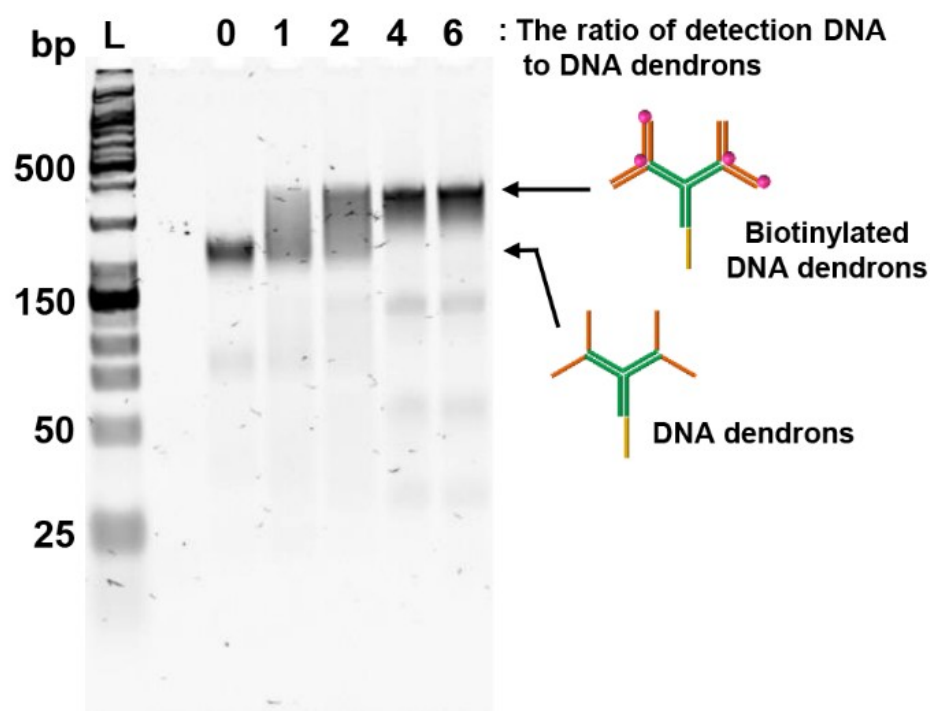


Figure S1. 8% PAGE analysis to confirm the preparation of biotinylated DNA dendrons at different ratios of DNA dendrons to biotin-modified detection DNA ranging from 0 to 6. Line L is a DNA ladder.

Table S2. Comparison of the representative assay for colorimetric detection of target nucleic acids. LOD, limit of detection; AgNP, silver nanoparticle; PtNP, platinum nanoparticle; MoS₂, metal-molybdenum disulfide; CHA, catalytic hairpin assembly; ELISA, enzyme-linked immunosorbent assay; TMB, 3,3',5,5'-Tetramethylbenzidine; ABTS, 2,2'-azinobis(3-ethylbenzothiazoline-6-sulfonic acid).

Method	Detection strategy	Colorimetric indicator	LOD	Ref.
DNA tetrahedron-coated AgNP-based colloid	Enzyme-based	AgNPs	840 pM	1
Rolling circle amplification (RCA)	Enzyme-based	Phenol red	3.3 pM	2
Hybridization chain reaction (HCR)	Enzyme-free	AuNPs	500 pM	3
PtNP-MoS ₂ nanohybrid-based nanosensor	Enzyme-free	TMB	50 pM	4
G-quadruplex-hemin DNAzyme	Enzyme-free	ABTS	200 pM	5
CHA-mediated ELISA-mimicking assay	Enzyme-free	TMB	50 pM	Present study

Reference

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