Electronic Supplementary Information (ESI)

An Amplified Fluorescence Detection of Adenosine Strategy via Catalyzed Hairpin Assembly and Host-guest Interaction Between β-Cyclodextrin Polymer and Pyrene

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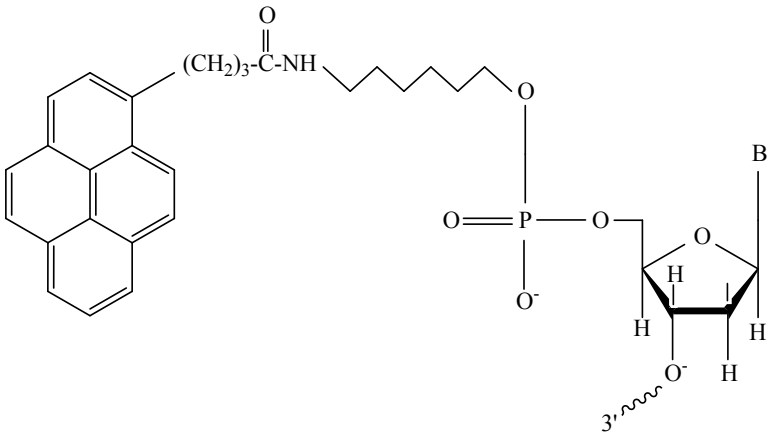
Table S1. Oligonucleotide sequences used in this work

Entry	Sequence (from 5′ to 3′)
Probe H1	Pyrene-AGAGGCATCAATGGGAATGGGATCAT GCCTCTAACCTAGCGATCCCATTCCCATTG
Probe H2	ATGGGATCGCTAGGT TAG AGGCATGATCCC ATTCCCATACATGCCTCTAACCTAGC
Aptamer-Trigger	GATCCCATTCCCATTGATGCCTCT*ACCTGGGGGAGT ATTGCGGAGGAAGGT*
Inhibitor 1	AGGTAGAGGCAT
Inhibitor 2	CAGGTAGAGGCA
Inhibitor 3	CAGGTAGAGGCAT
Inhibitor 4	CAGGTAGAGGCATC
Inhibitor 5	CAGGTAGAGGCATCA
Inhibitor 6	CCAGGTAGAGGCATC
Inhibitor 7	CAGGTAGAGGCATCAA
Inhibitor 8	CCAGGTAGAGGCATCA
Inhibitor 9	CCAGGTAGAGGCATCAA

* Aptamer sequence were marked in red and indicated as italic letters.

** Pyrene linked to the 5′-terminus of probe H1 via amido bond. The spacer is -$(CH_2)_3$-CO-NH-$(CH_2)_6$- and the structural schematic diagram is as followed.



Structural schematic diagram of pyrene linked to the 5′-terminus of probe H1. B represents adenine, thymine, cytosine and guanine.

Table S2. Comparison of the new method with other detection strategies.

Strategies	Detection limit	References
Gold Nanoparticle Colorimetric Probes	0.4 mM	S1
Fast Colorimetic Sensor	0.3 mM	S2
Designed aptamer and Colorimetic Sensor	0.25 mM	S3
Luminescent Aptamer Sensor	60 μM	S4
Aptamer Folding on Gold Nanoparticles	20 μM	S5
Origami Paper Analytical Device	11.8 μM	S6
Label-Free Fluorescent Detection	3.4 μM	S7
Amplified Colorimetric Detection	300 nM	S8
Aptamer-Based Chemiluminescence Detection	80 nM	S9
Modified Pyrolytic Graphite Electrode	51 nM	S10
This method	42 nM	

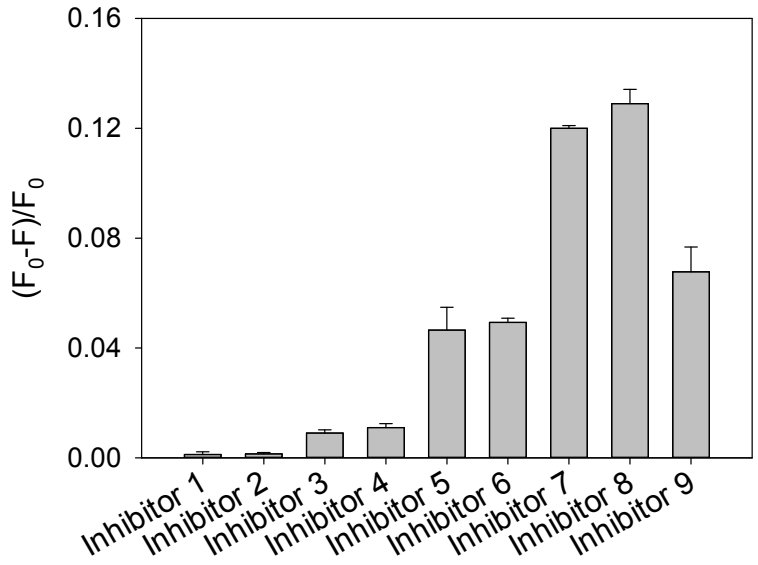


Fig. S1. Optimization of the length of inhibitor. Error bars indicated the standard deviations of three experiments.

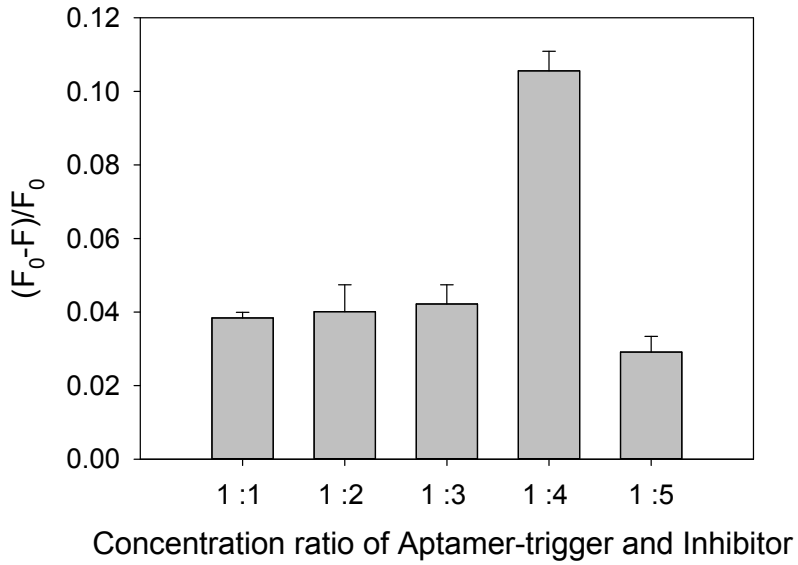


Fig. S2. Optimization of ratio of Aptamer-trigger and inhibitor. Concentration of Aptamer-trigger is 100 nM. Error bars indicated the standard deviations of three experiments.

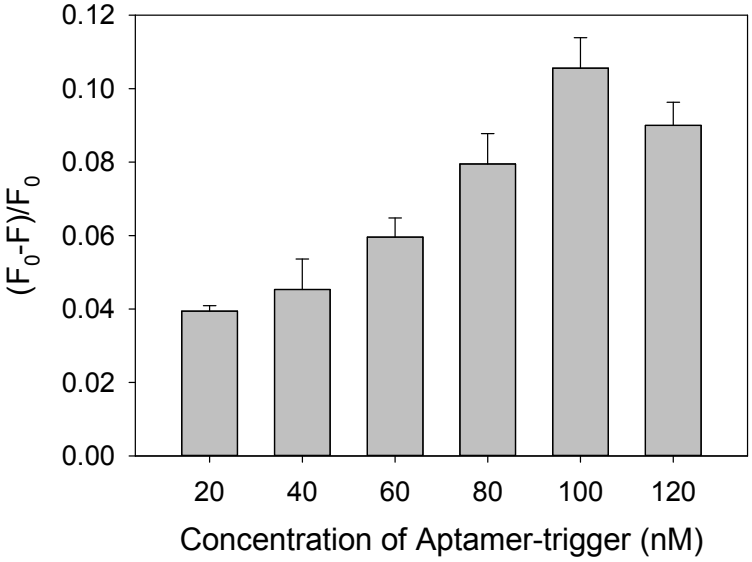


Fig. S3. Optimization of concentration of Aptamer-trigger. Error bars indicated the standard deviations of three experiments.

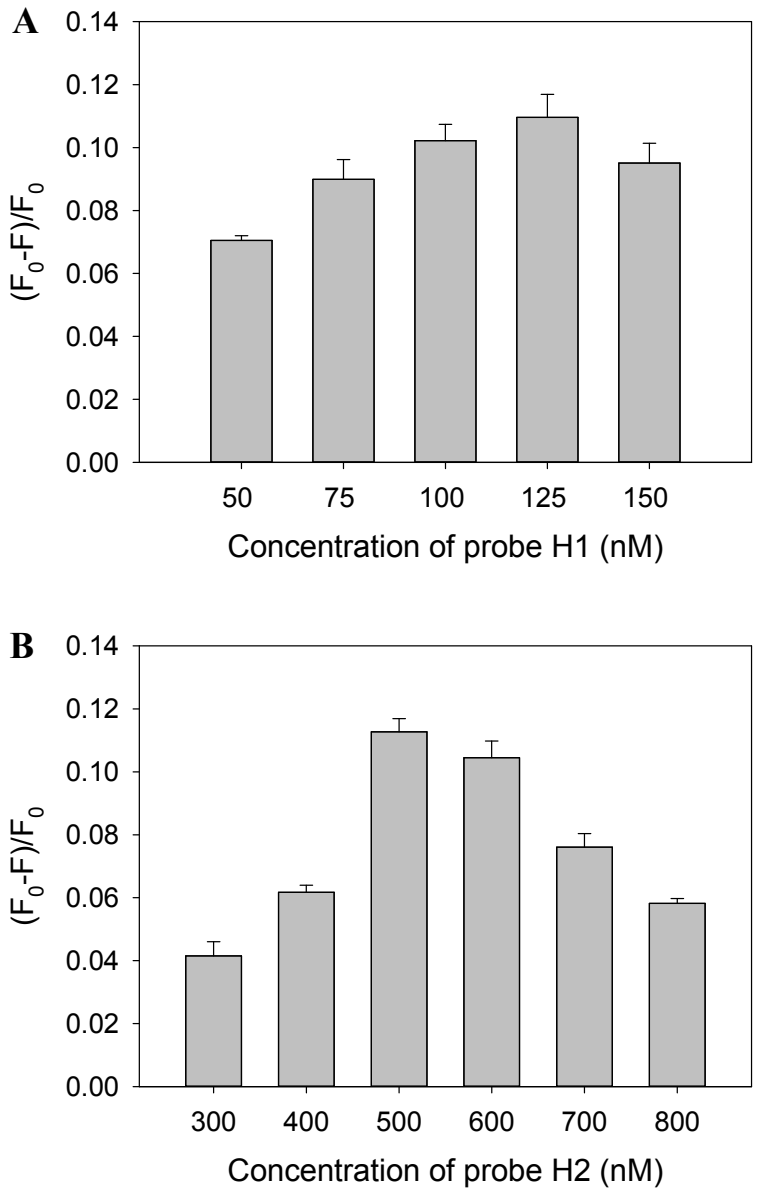


Fig. S4. (A) Optimization of concentration of probe H1. **(B)** Optimization of concentration of probe H2. Error bars indicated the standard deviations of three experiments.

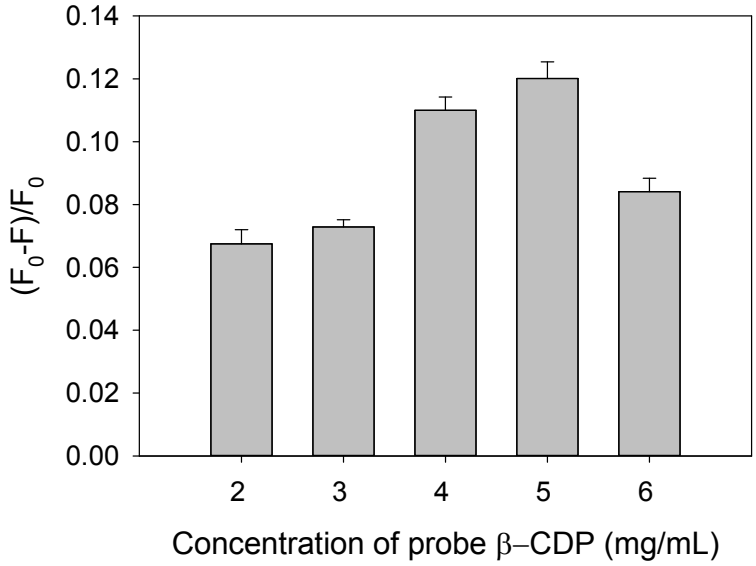


Fig. S5. Optimization of concentration of β-CDP. Error bars indicated the standard deviations of three experiments.

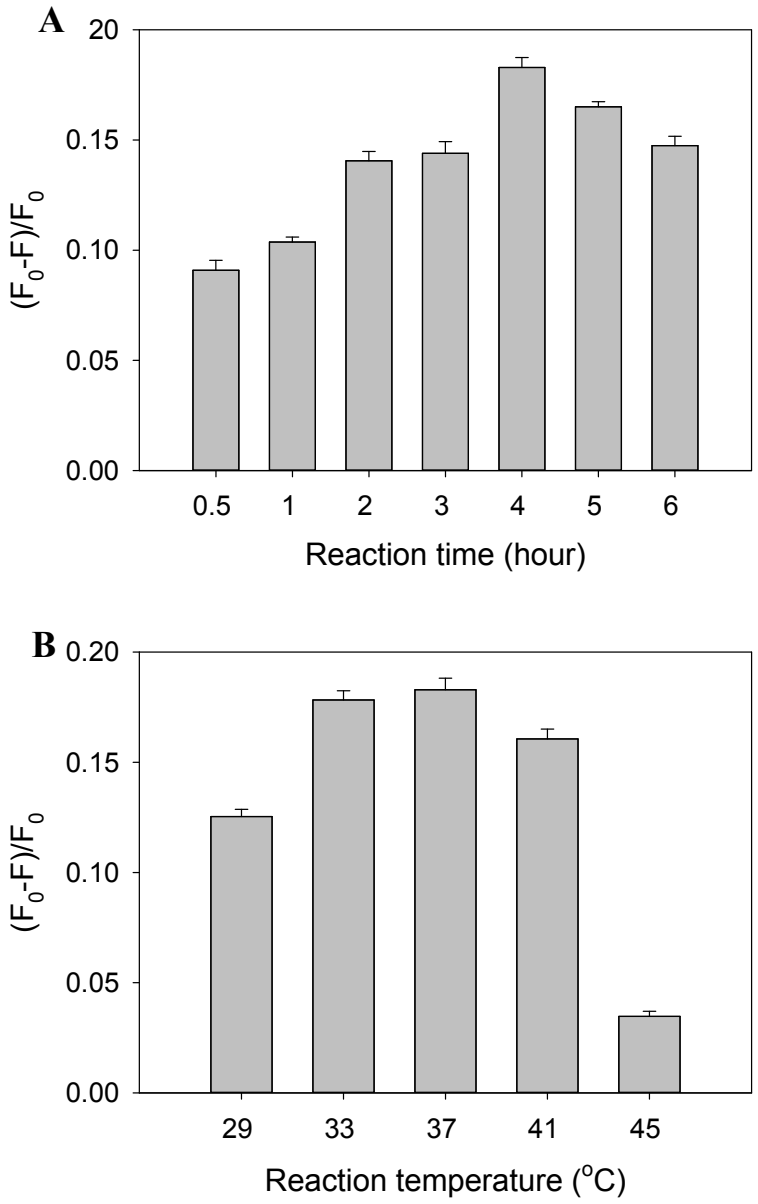


Fig. S6. (A) Optimization of reaction time. **(B)** Optimization of reaction temperature. Error bars indicated the standard deviations of three experiments.

References

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