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A turn-on fluorescent aptasensor based on carbon dots for sensitive detection of adenosine

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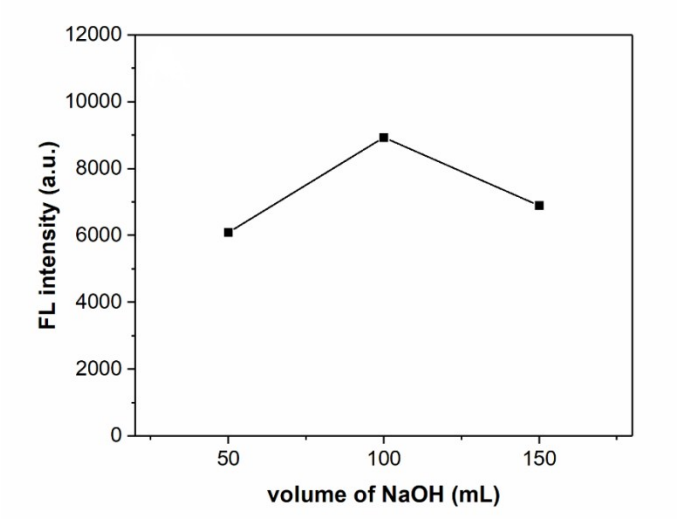

Fig. S1. Optimization of the concentration of CDs.

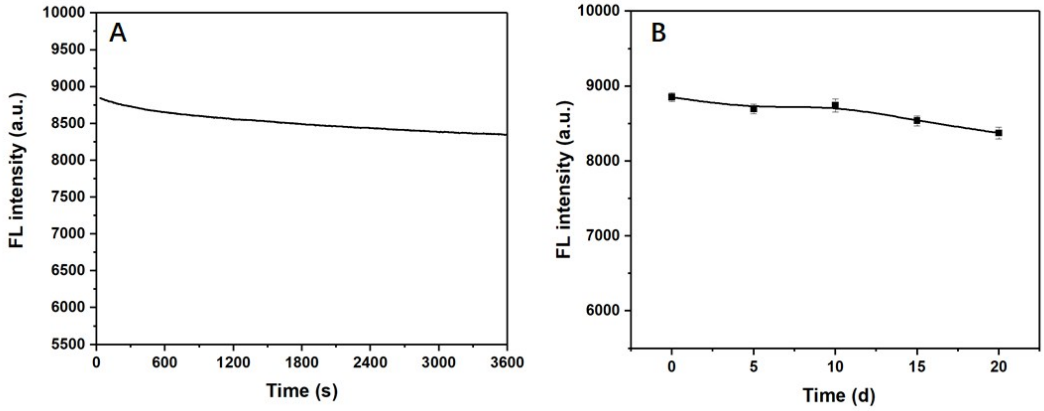

Fig. S2. The photostability and stability of CDs

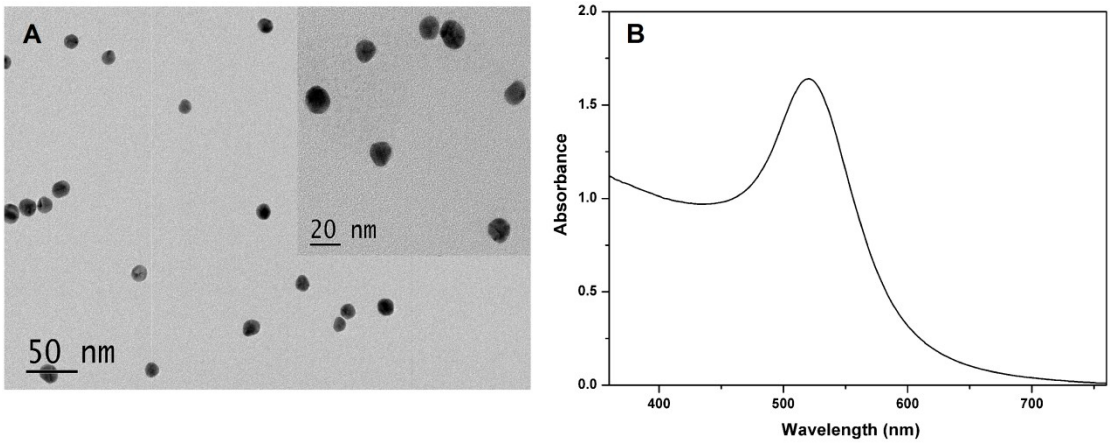

Fig. S3. The TEM images of Au NPs (A) and UV–vis absorption spectrum of Au NPs (B).

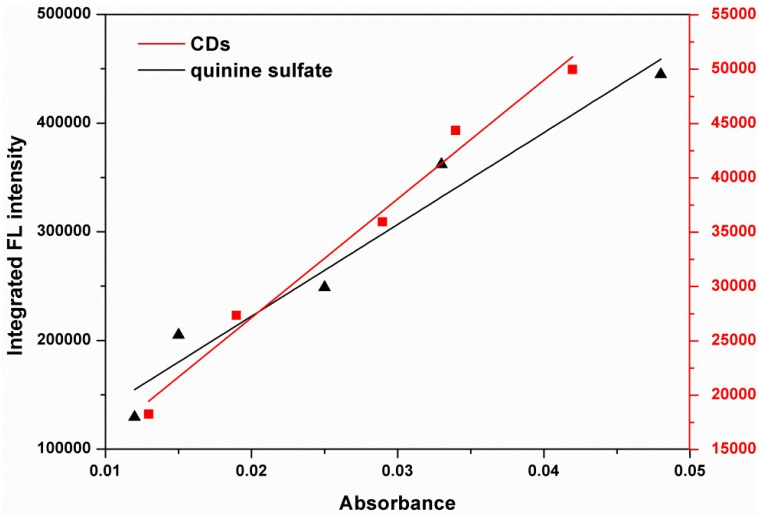

Fig. S4. The quantum yield curves of quinine sulfate (black line) and CDs (red line).

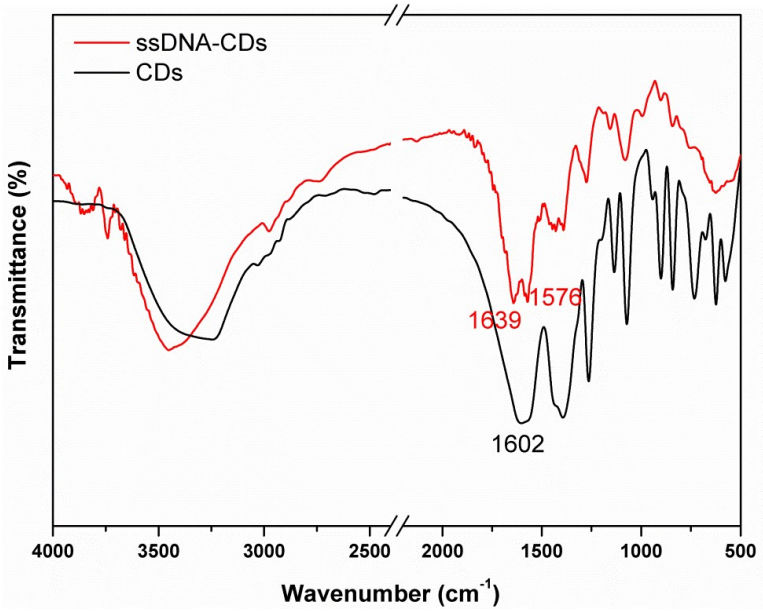

Fig. S5. The FT-IR spectra of CDs (black line) and ssDNA-CDs (red line).

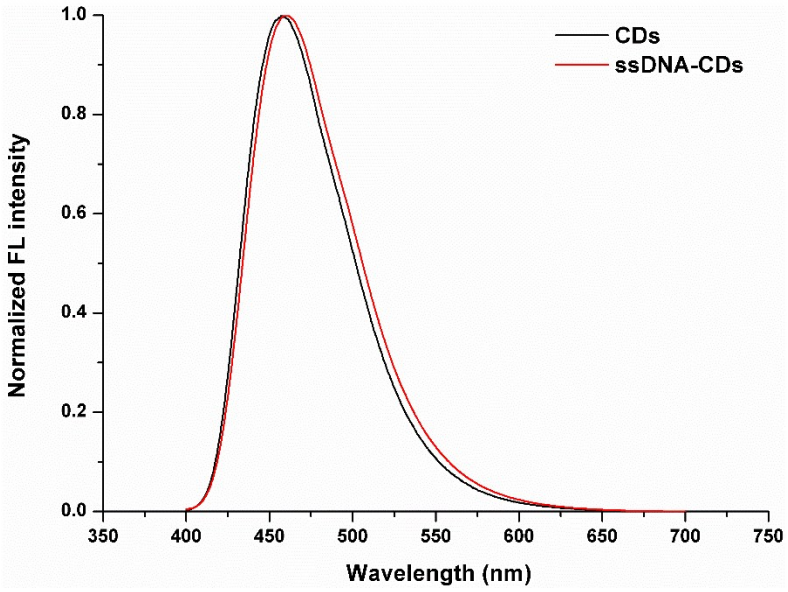

Fig. S6. Fluorescence emission spectra of CDs (black line) and ssDNA-CDs (red line).

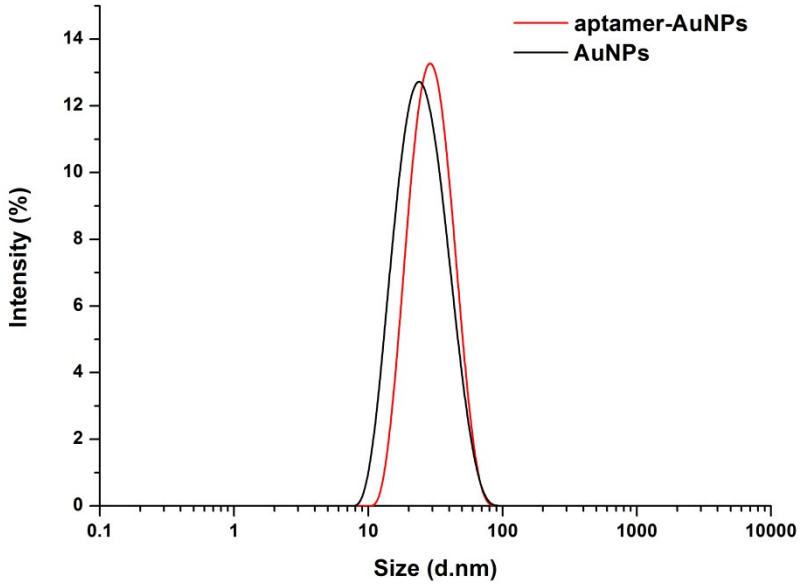

Fig. S7. Characterization of AuNPs (black line) and aptamer-AuNPs (red line) by means of DLS.

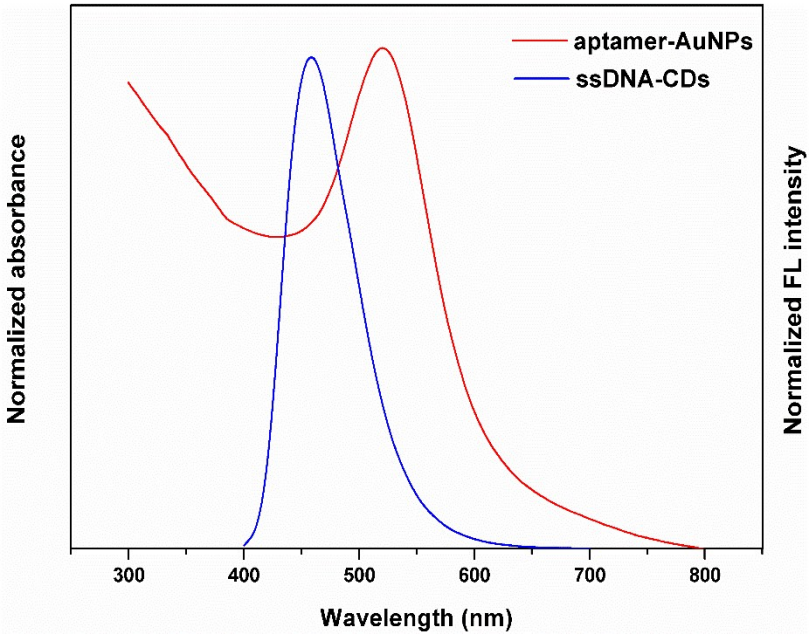

Fig. S8. Absorption spectrum of aptamer-AuNPs (red line) and fluorescence emission spectrum of ssDNA-CDs (blue line).

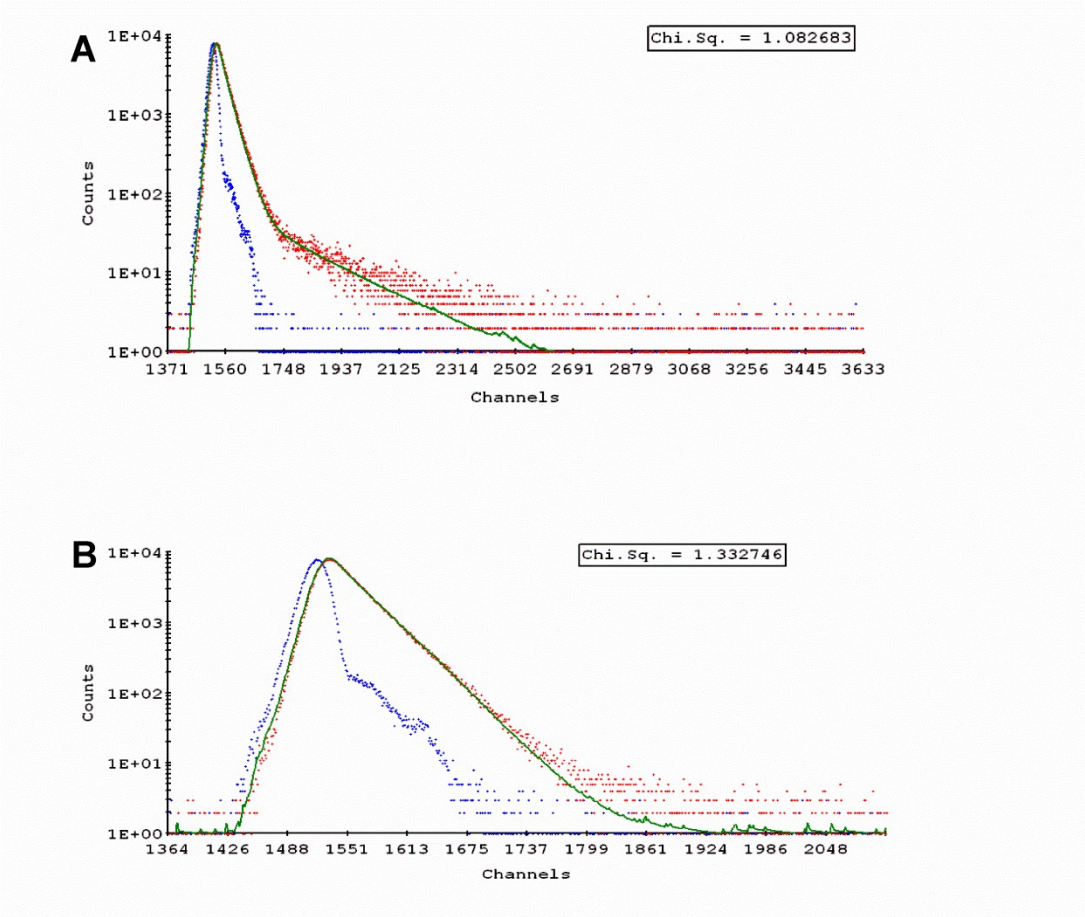

Fig. S9. The fluorescence lifetime of ssDNA-CDs before (A) and after (B) adding aptamer-AuNPs.

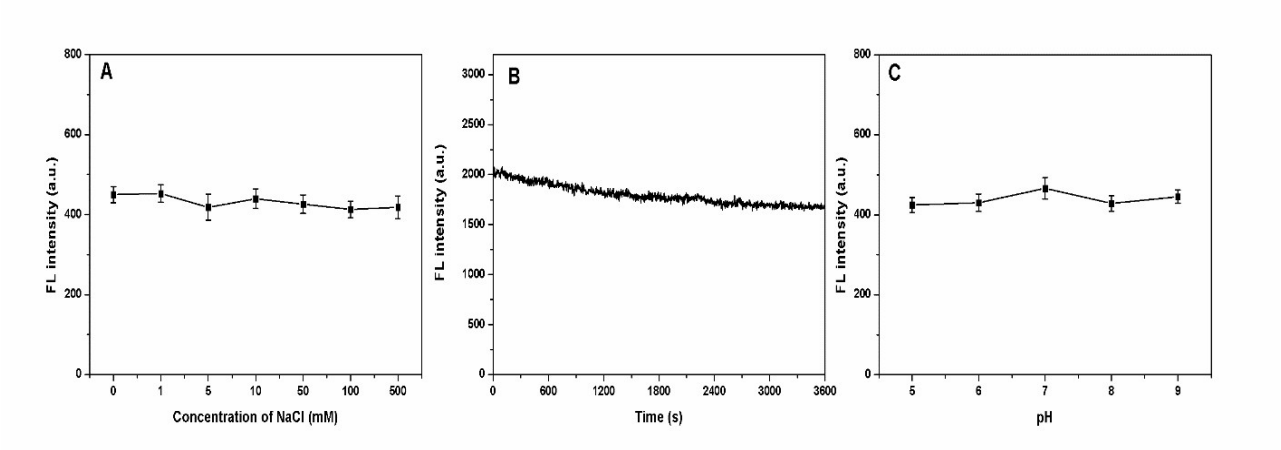

Fig. S10. The salt effect of the NaCl concentration on the fluorescence intensity of ssDNA-CDs (A), photostability of ssDNA-CDs (B) and the effect of media pH (C).

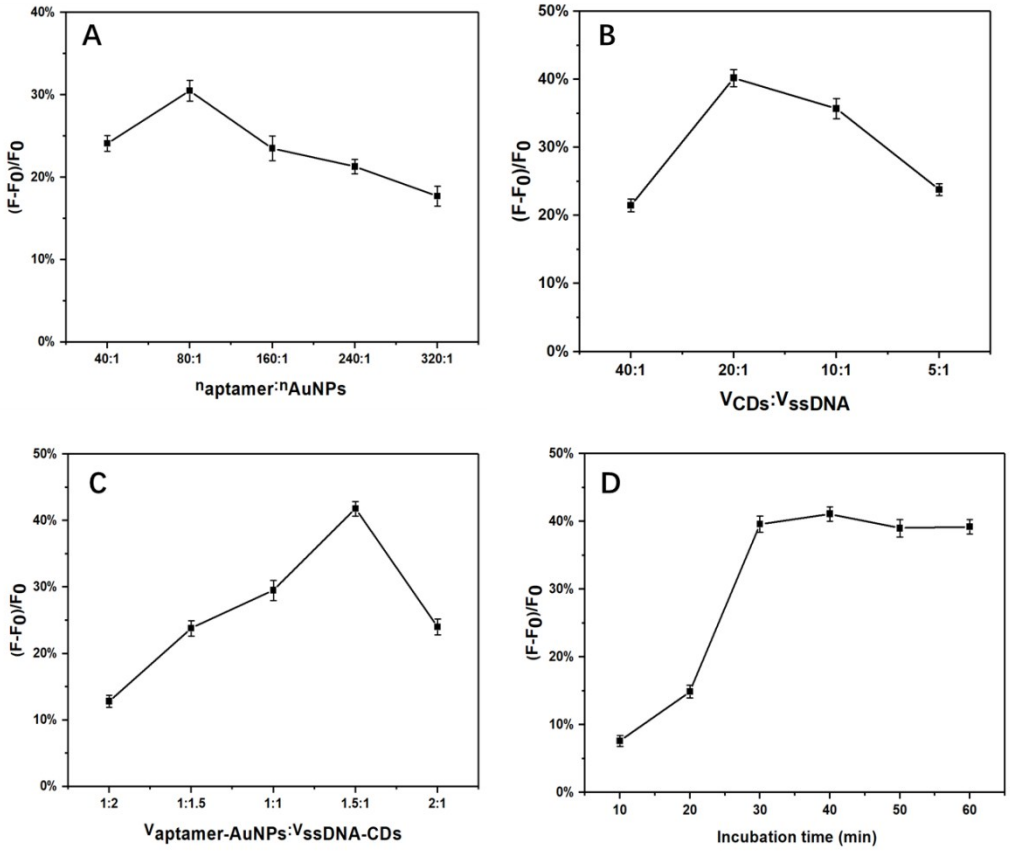

Fig. S11. Optimization of the molar ratio of aptamer/AuNPs (A), the volume ratio of CDs/ssDNA (B), the volumetric proportions of aptamer-AuNPs/ssDNA-CDs (C) and the incubation time (D).

Table S1. Comparison of the proposed method with other reported methods for adenosine detection.

Methods	Materials	LOD	Linear range	Reference
Colorimetric	AuNPs	1 μM	1-6 μM	[1]
Colorimetric	AuNPs	300 nM	1-80 μM	[2]
Electrochemistry	Pt nanoparticles	1 nM	1-4 nM 50-750 nM	[3]
SERS	Graphene/Cu nanoparticles	1 μM	1 μM-10 mM	[4]
Fluorescence	β-cyclodextrin polymer /pyrene	42 nM	50 nM-1μM	[5]
Fluorescence	SYBR Green I	0.2 μM	1-120 μM	[6]
Fluorescence	Aptamer-AuNPs/ssDNA-CDs	4.2 nM	10-500 nM	This work

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