Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information

A novel linear molecular beacon based on DNA-scaffolded silver nanocluster for DNA detection via exonuclease III-assisted cyclic amplification

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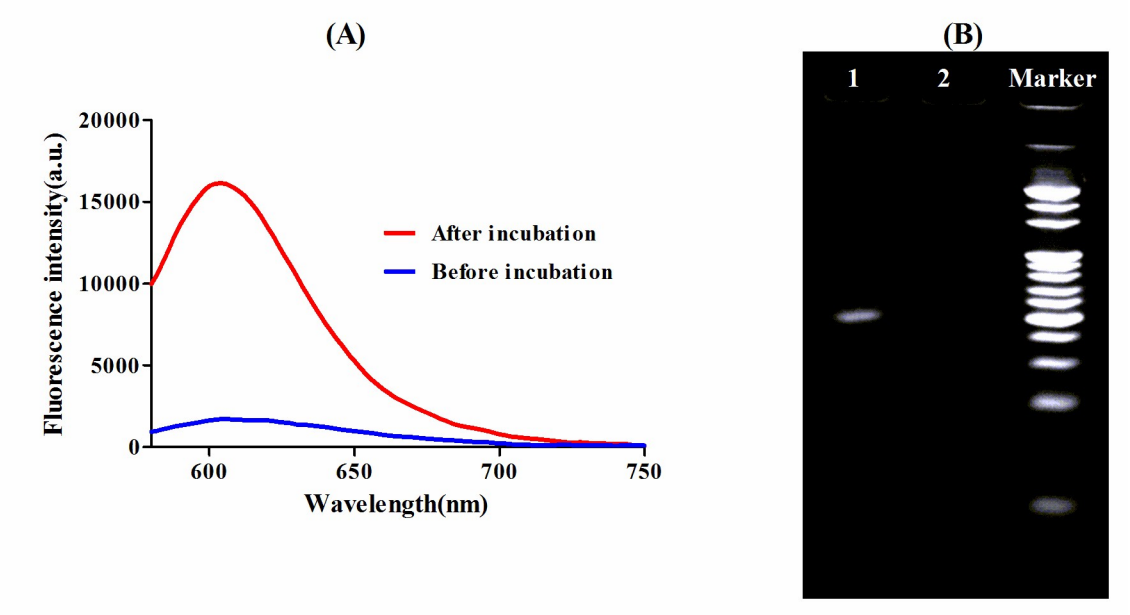

Fig. S1 (A) Fluorescence spectra of DNA/AgNCs formed by the reaction mixture containing 500 nM Probe, 500 nM T1, and 1 U/μL Exo III before and after incubation at 37°C for 2 h. (B) Nondenaturing PAGE of the reaction mixture before (lane 1) and after (lane 2) incubation at 37°C for 2 h.

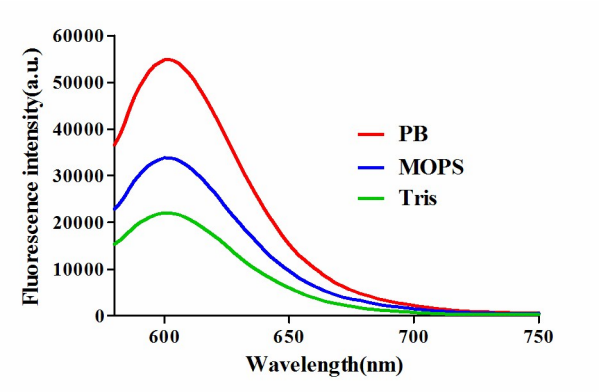

Fig. S2 Selection of reaction buffer for DNA/AgNC synthesis by comparison of fluorescence intensity among three tested reaction buffers. The reaction buffers used in DNA/AgNCs synthesis are as follows: 10×PB (phosphate buffer) (38 mM NaH_2PO_4, 62 mM Na_2HPO_4, 5 mM $MgNO_3$, pH 7.0), 2×MOPS (100 mM $NaNO_3$, 40 mM MOPS, pH 7.0), 10×Tris (100 mM Tris, pH 7.9).

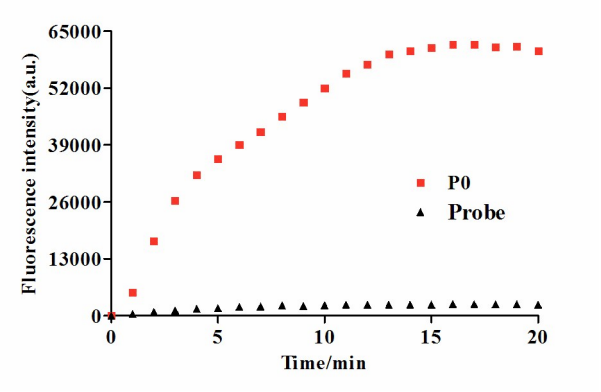

Fig. S3 Fluorescence intensity as a function of time for DNA/AgNC stabilized by P0 and Probe, respectively.

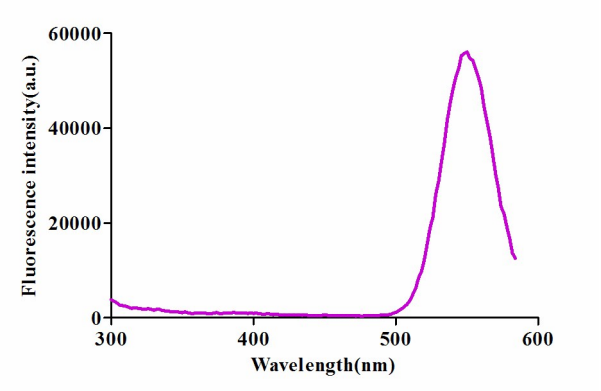

Fig. S4 The excitation spectrum of DNA/AgNC stabilized by P0. Emission : 604 nm.

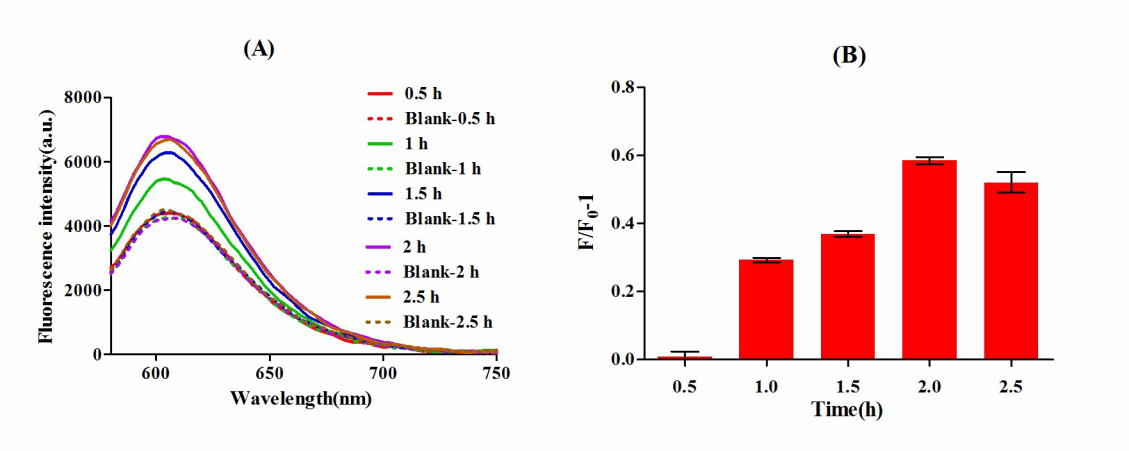

Fig. S5 Time-course experiments for the kinetic response upon enzymatic digestion. (A) Fluorescence emission spectral responses to the different reaction times in the absence and the presence of T1 with 40 nM. (B) Bar graph of fluorescence ratio (F/F_0-1) responses to the different reaction times. F and F_0 are the fluorescence intensities at a peak value of 604 nm in the presence and absence of T1, respectively.

Table S1. Recovery results of spiked target T1 at two concentrations in serum samples

Spiked amount (nM)	Detected amount (nM)	Recovery (%)	CV (%)
25.00	24.49	97.98	13.11
100.00	105.83	105.83	2.67