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Electronic Supplementary Information

A novel fluorescence method for highly sensitive detection of T4 polynucleotide kinase based on the polydopamine nanotubes

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Fig. S1. Fluorescence intensity of 100 nM P1 via time in the presence of 8 μg mL^{-1} of PDANTs. The assays were carried out in the Tris-HCl buffer.

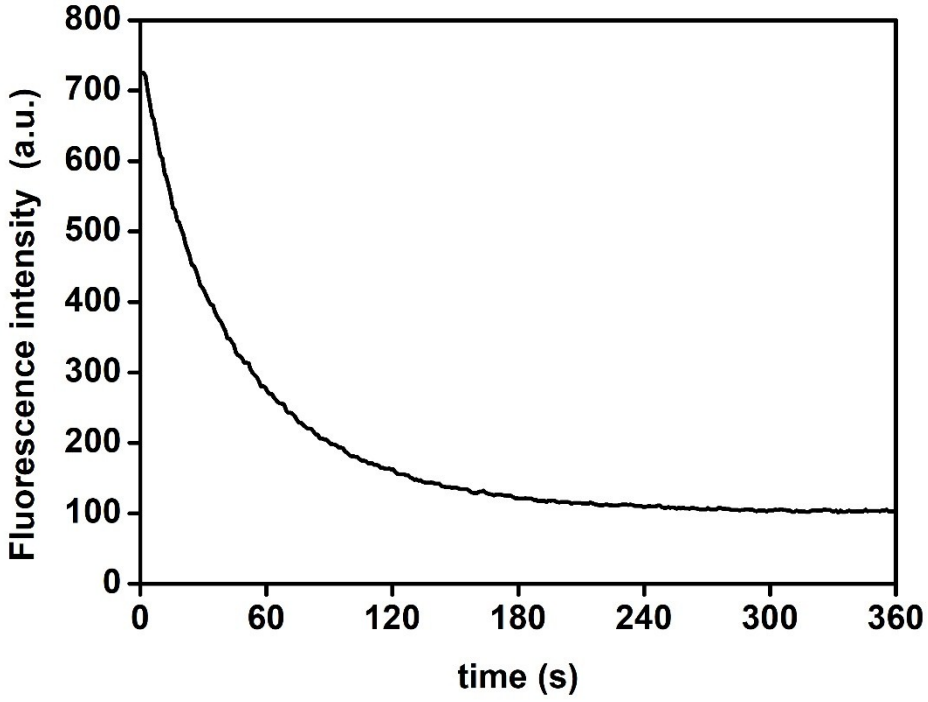

Fig. S2. Fluorescence intensity histogram of P1 + PDANTs (black histogram) and FAM labeled dsDNA + PDANTs (gray histogram) in the presence of 0, 2, 4, 6, 8 and 10 μg mL^{-1} PDANTs (P1 100 nM, FAM labeled dsDNA 100 nM).

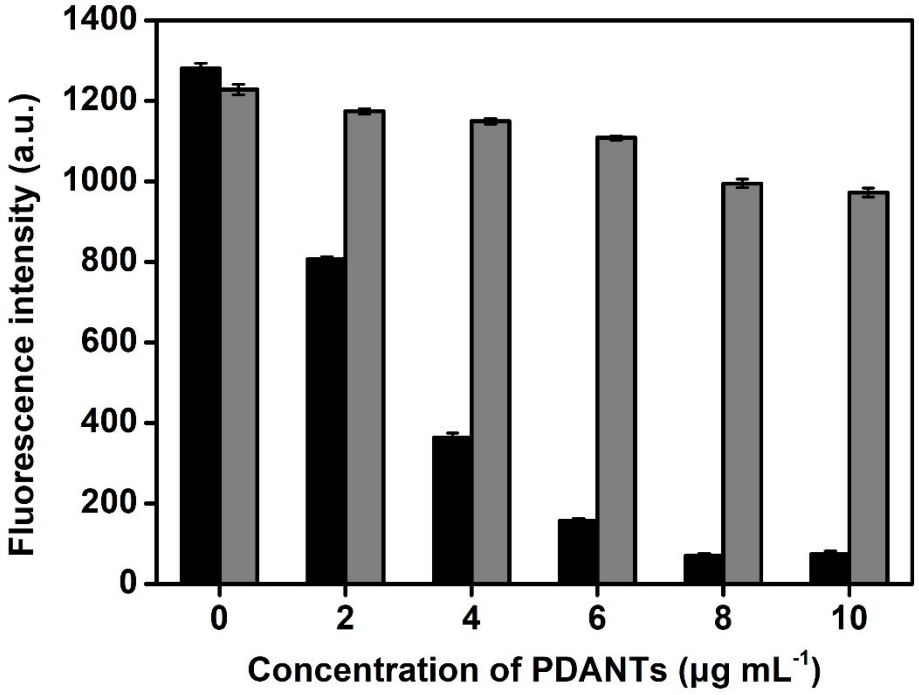

Fig. S3. Optimization of the reaction time. (FAM labeled dsDNA 100 nM, T4 PNK 50 U mL^{-1}, PDANTs 8 μg mL^{-1}, ATP 1mM, λ exonuclease 100 U mL^{-1}, respectively).

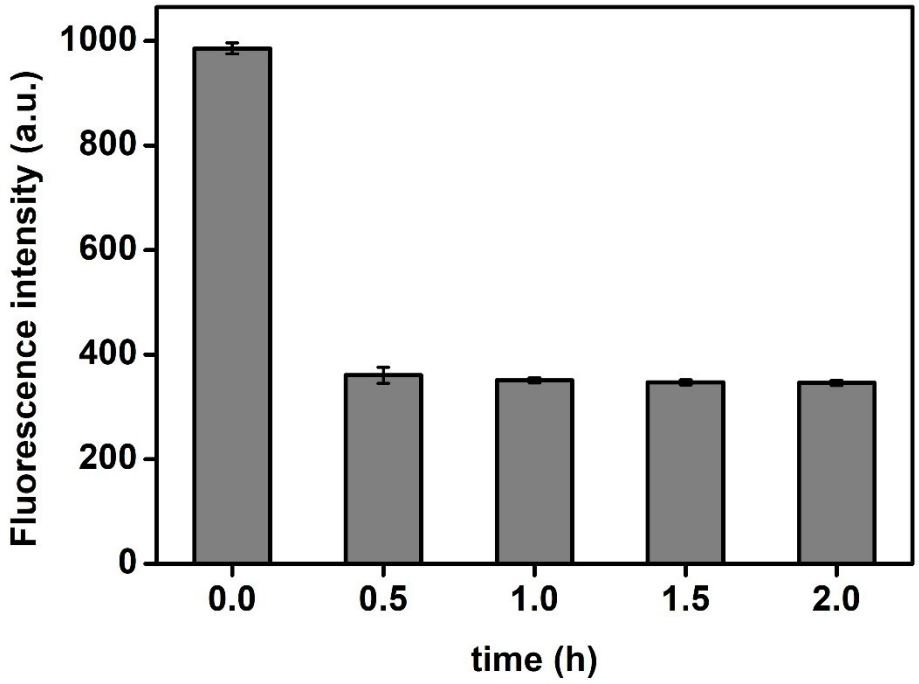

Fig. S4. Optimization of λ exonuclease concentration. (FAM labeled dsDNA 100 nM, T4 PNK 50 U mL^{-1}, PDANTs 8 μg mL^{-1}, ATP 1mM, respectively)

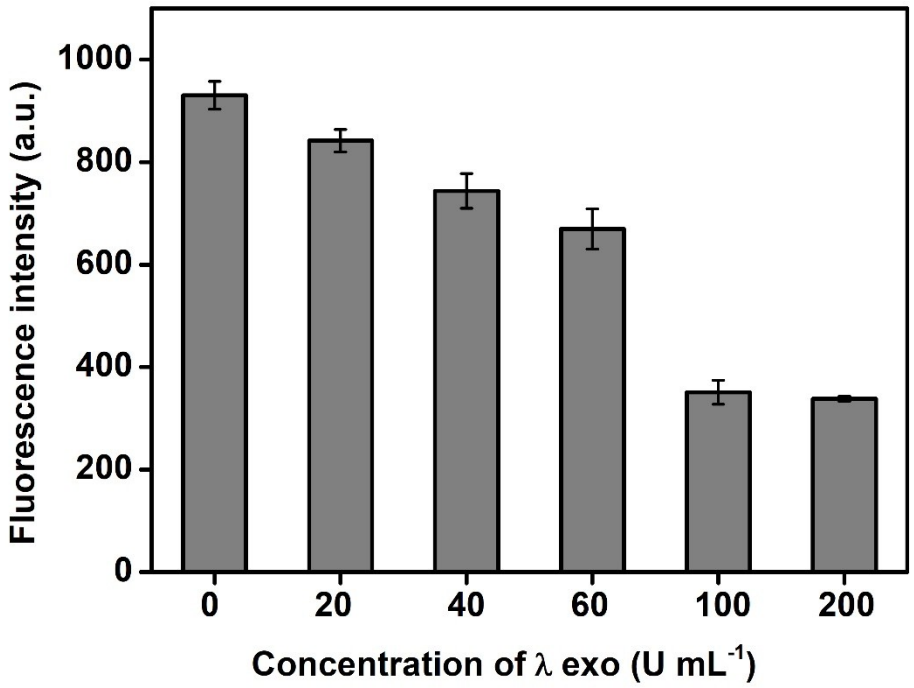

Fig. S5. Optimization of ATP concentration. (FAM labeled dsDNA 100 nM, T4 PNK 50 U mL^{-1}, PDANTs 8 μg mL^{-1}, λ exonuclease 100 U mL^{-1}, respectively)

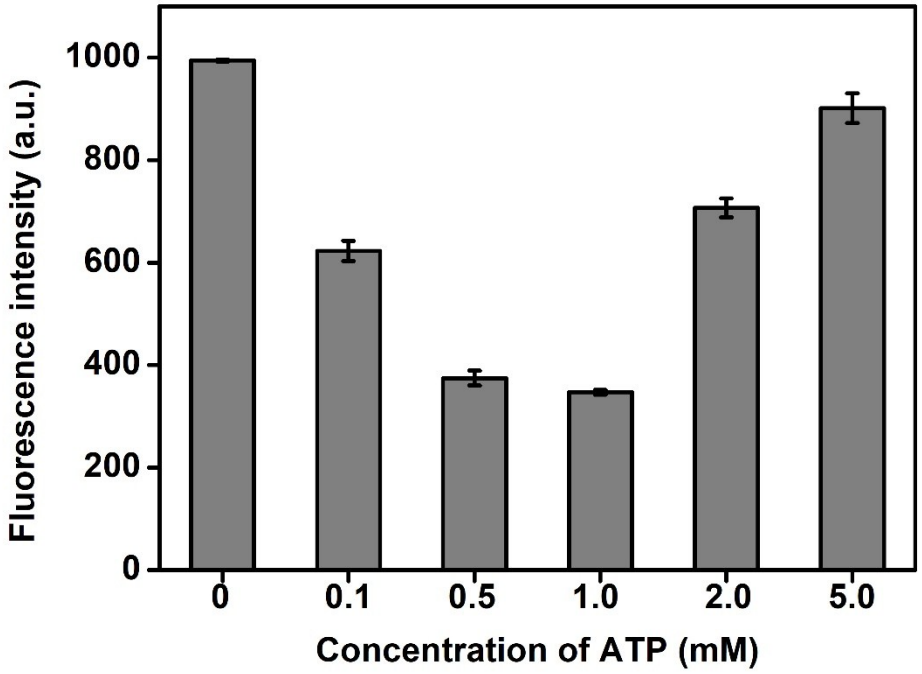

Fig. S6. Fluorescence intensity of P1 without (a) and with (d) incubation with 8 μg mL^{-1} PDANTs. Fluorescence intensity of FAM labeled dsDNA after incubation without (b) and with (c) 8 μg mL^{-1} PDANTs. The assays were all carried out in the reaction buffer containing 1% (v/v) cell extracts. (P1 100 nM, FAM labeled dsDNA 100 nM)

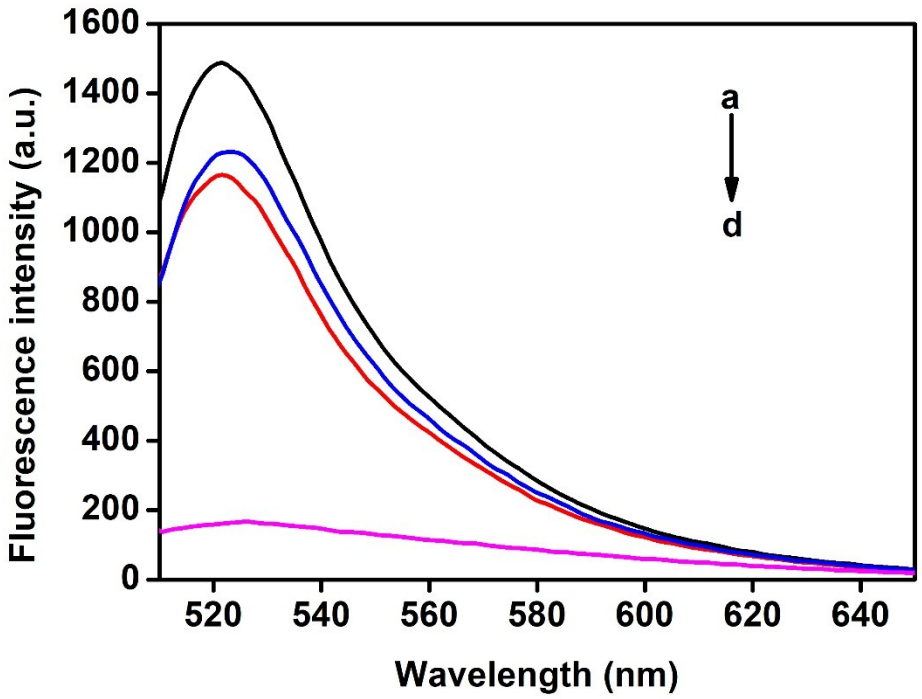

Fig. S7. (a) The fluorescence intensity with different concentration of T4 PNK in reaction buffer containing 1% (v/v) cell extracts. (b) The dependence of fluorescence intensity on the logarithm of the T4 PNK concentration in reaction buffer containing 1% (v/v) cell extracts. (FAM-labeled dsDNA 100 nM, ATP 1 mM, λ exonuclease 50 units). The error bars represent standard deviation (SD) across three repetitive experiments.