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, α 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.