Electronic Supplementary Information

A label-free and enzyme-free aptasensor for visual Cd^{2+} detection based on split DNAzyme fragments

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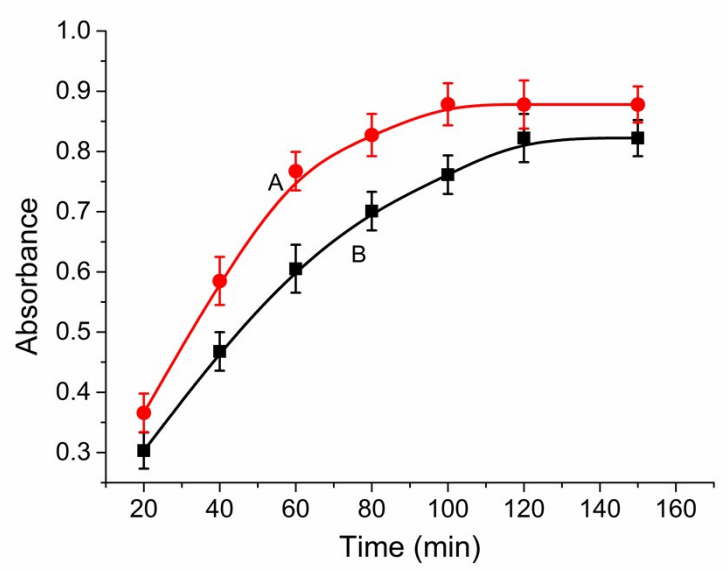

Fig. S1. The reaction kinetics of Cd^{2+}-aptamer to open hairpin 1 and DNA1 to open hairpin 1. Curve A: The absorbance of the sensing system containing Cd^{2+}-aptamer (100 nM). Curve B: The absorbance of the sensing system containing DNA1 (100 nM). The error bars denote the standard deviation of three independent measurements.

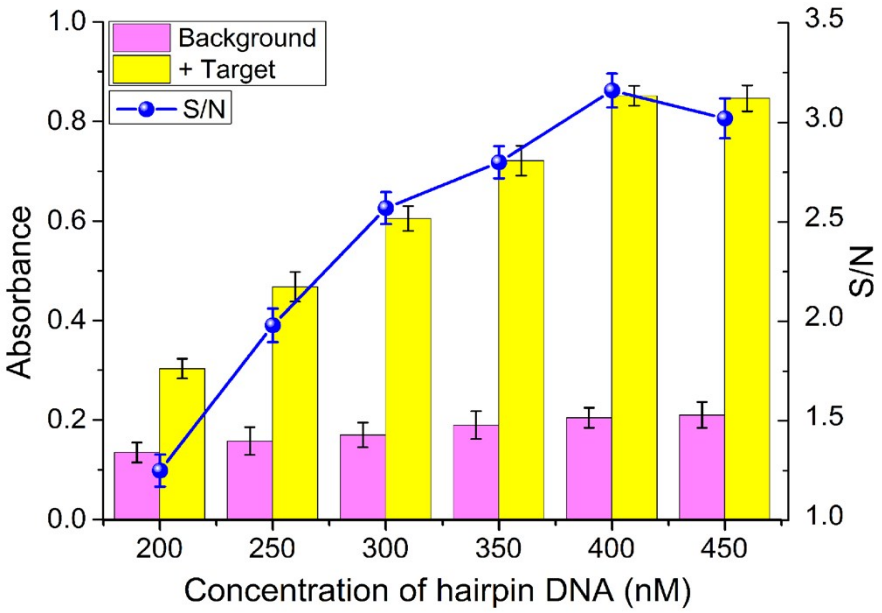

Fig. S2. Effect of concentration of hairpins on the performance of the platform. Keeping a fixed concentration (100 nM) of aptamer DNA, three hairpins were changed to obtain different ratio. The solution also contains Cd^{2+} (100 nM) and hemin (1μM). The error bars denote the standard deviation of three independent measurements.

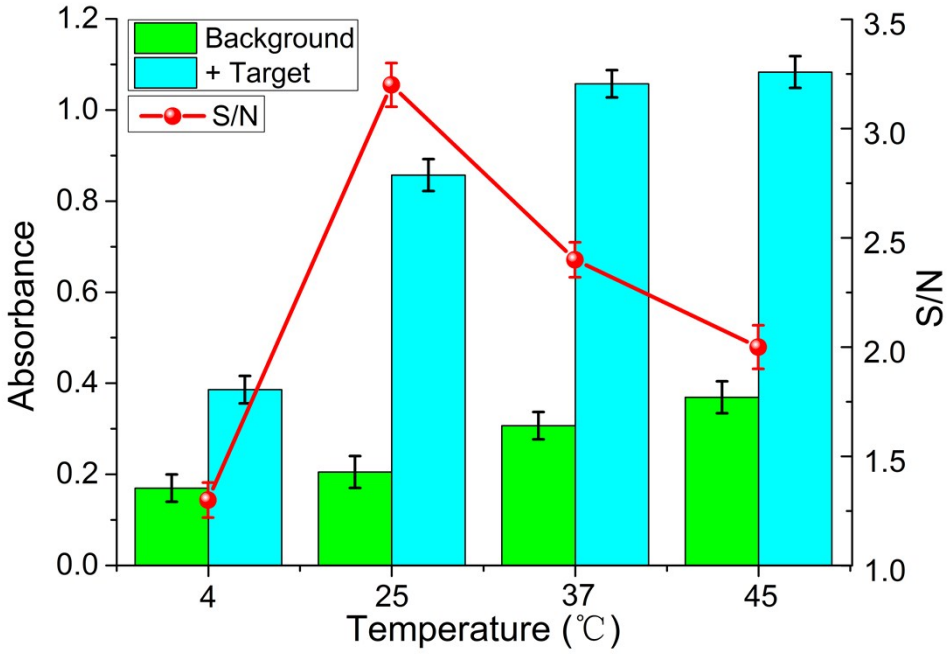

Fig. S3. Effect of the temperature on the performance of the platform. The green histogram represents the absorbance of the solution in the absence of target while the blue one represents the absorbance of the solution with 100 nM Cd^{2+}. The red line shows the S/N ratio. The solution also contains aptamer DNA (100 nM), hairpin 1 (400 nM), hairpin 2 (400 nM), hairpin 3 (400 nM), and hemin (1 μM). The error bars denote the standard deviation of three independent measurements.

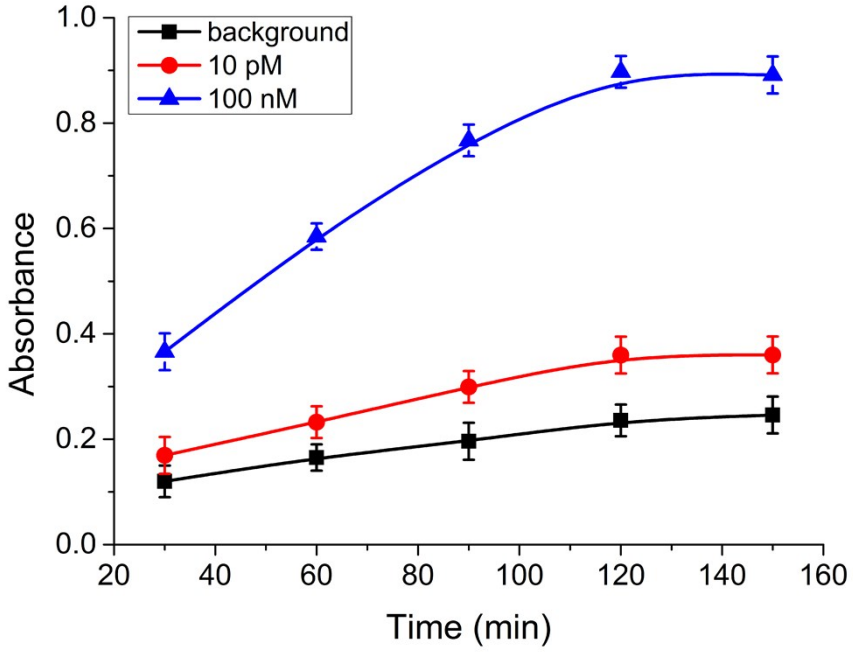

Fig. S4. Effect of the incubate time on the performance of the platform. Time course of absorbance response recorded in the absence (black curve), in the presence of 10 pM Cd^{2+} (red curve) and in the presence of 100 nM Cd^{2+} (blue curve) respectively. The experiments were performed at room temperature (25 ^{o}C). The error bars denote the standard deviation of three independent measurements.