

Electronic Supplementary Information

Aptamer and Rolling Circle Amplification Involved Sandwich Assay for Platelet-Derived Growth Factor-BB with Absorbance Analysis

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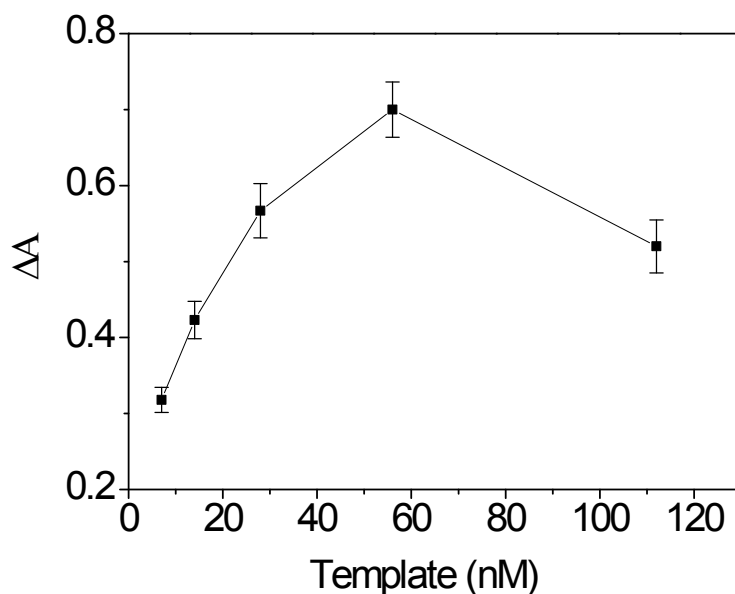


Fig. S1. The effect of template concentration on detection of PDGF-BB. Experimental condition: PDGF-BB, 50 pM; Aptamer-primer, 100 nM; Ligase, 0.02 U/ μ L; dNTPs, 0.1 mM; Polymerase, 0.4 U/ μ L; Biotinylated probe, 0.36 μ M; SA-HRP, 80-fold diluted.

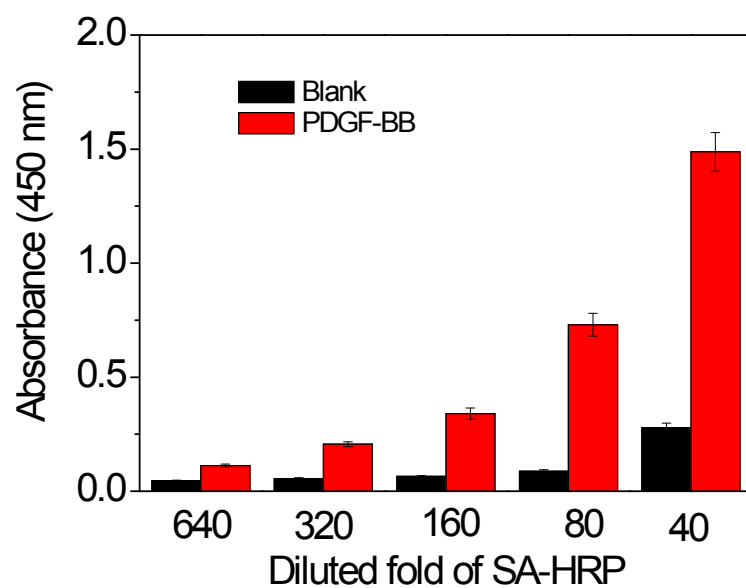


Fig. S2. Effect of the diluted fold of SA-HRP on detection of PDGF-BB. Experimental condition: PDGF-BB, 50 pM; Aptamer-primer, 100 nM; Template, 56 nM; Ligase, 0.02 U/ μ L; Polymerase, 0.4 U/ μ L; dNTPs, 0.1 mM; Biotinylated probe, 0.36 μ M.

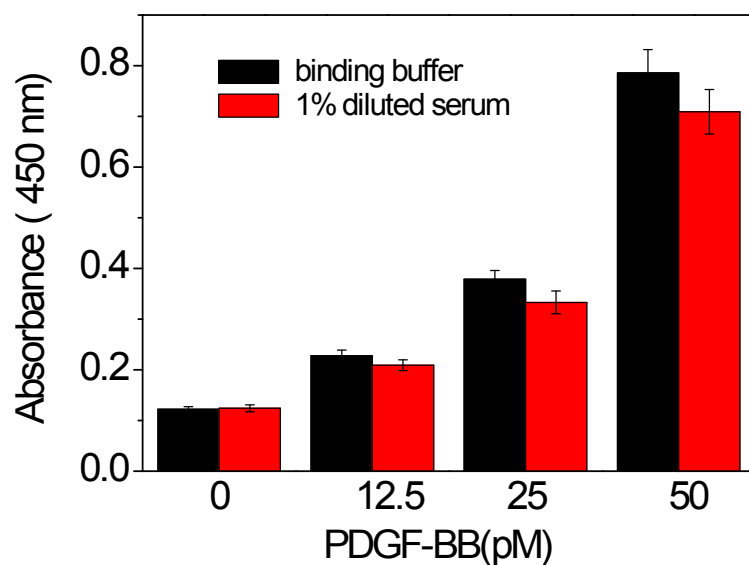


Fig. S3. Detection of PDGF-BB spiked in 1% bovine serum sample comparing with the result of detection of PDGF-BB in binding buffer solution.

Table S1 Comparison of sensitivity of aptamer-based assays for PDGF-BB

| Analytical method | Detection limit | Reference |
|---|-----------------|-----------|
| Capillary electrophoresis with laser-induced fluorescence detection | 0.5 nM | 14 |
| Fluorescence anisotropy assay | 2 nM | 16 |
| Fluorescence resonance energy transfer assay | 167 pM | 32 |
| Electrochemiluminescence assay | 80 pM | 33 |
| Fluorescence analysis with structure-switching based RCA | 0.4 nM | 30 |
| Chemiluminescence detection with RCA | 10 fM | 28 |
| Electrochemical assay based on target binding-induced RCA | 63 pM | 27 |
| Electrochemical detection with RCA | 10 fM | 26 |
| Absorbance analysis with RCA | 3.1 pM | this work |