Electronic Supplementary Material (ESI) for Analytical Methods.

Electronic Supplementary Information

Selection, identification, application of dual DNA aptamers against *Shigella sonnei*

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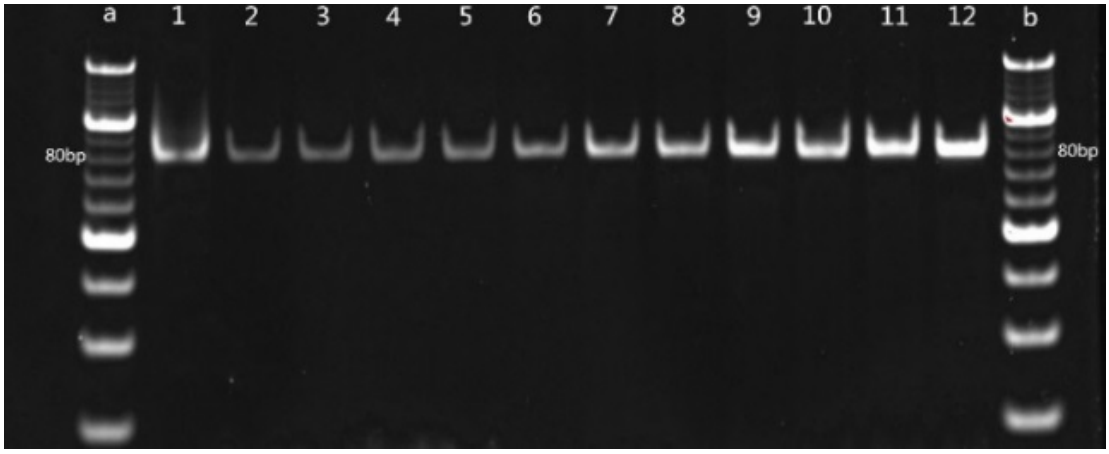

Fig. S1. The polyacrylamide gel electrophoresis of the PCR products. Lanes a and b: 10 bp DNA ladder as marker; lane 1-lane 12: the PCR products from the first round to the twelfth round.

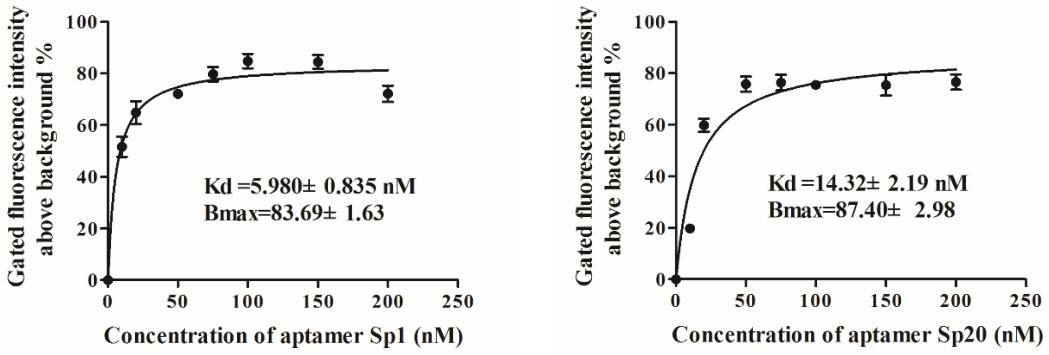

Fig. S2. The binding saturation curves of aptamer Sp1 and Sp20 plotted by GraphPad Prism 5.0 software.

Optimization of the incubation time in sandwich detection

In detection process, we optimized incubation time of aptamers binding to *S.sonnei*. The relationship between the relative fluorescence intensity and the incubation time is shown in Fig. S3. The relative fluorescence intensity increased with the increasing incubation time. When the incubation time exceeded 60 min, the combination of aptamers and the target reached dynamic equilibrium resulting in a plateau of the relative fluorescence intensity. Therefore, we used one hour as the optimal incubation time in the detection process.

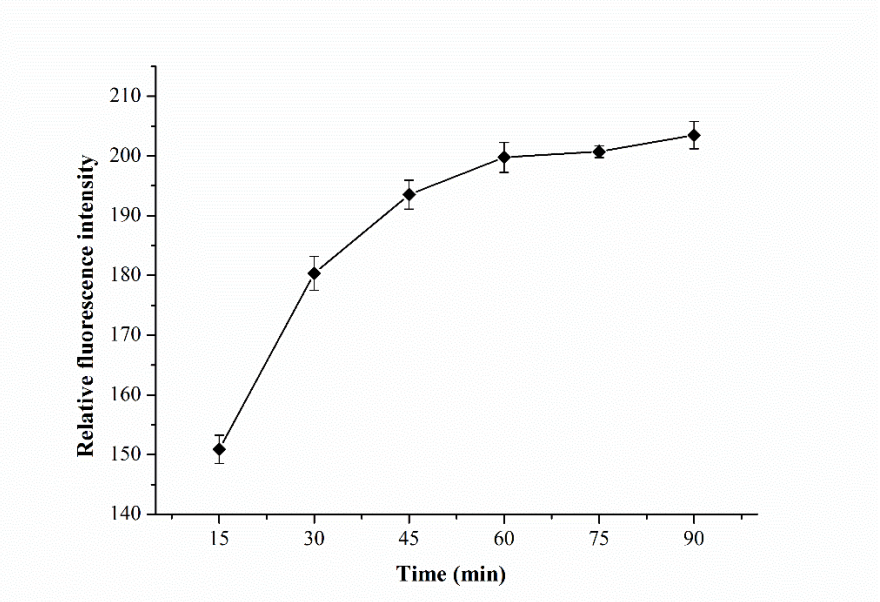

Fig. S3. The optimization curve for the incubation time. The concentration of *S. soonei* used for the optimization was 10^7 cfu/mL.

Optimization of the washing times in sandwich detection

To ensure that all the excess fluorescently labeled aptamer Sp20 can be removed by washing the wells. We washed the wells from one time increasing to four times, and measured the fluorescence intensity of supernatant after washing. The fluorescence intensity of supernatant decreased with increasing washing times until close to zero after washing three times. It can confirm that all the excess aptamer Sp20 in the wells can be removed by washing three times.