

Online transient isotachopheresis concentration by the pseudo-terminating electrolyte buffer for the separation of DNA-aptamer and its thrombin complex in poly(methyl methacrylate) microchip

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Fig. S1 shows electropherograms of aptamer and its thrombin complex by different concentrations of methylcellulose (MC) in LE. It shows that increasing the concentration of the methylcellulose also led to signal enhancement of DNA-aptamer and its thrombin complex, which was attributed to the elimination of the adsorption of aptamer or thrombin protein on the PMMA channel wall.

Fig. S2 shows schematic diagrams of tITP concentration of DNA-aptamer complex by high concentrations of LE Cl⁻. Compared to Figure 2 in the main text, the high concentration of Cl⁻ in the LE buffer can cause the continuous field-amplified stacking, which can cause higher concentration of DNA-aptamer zone by the combination of transient ITP concentration, as shown in Figure 5.

Fig. S3 shows schematic diagrams of transient ITP concentration by high concentrations of Gly ion in pseudo-TE buffer. Compared to Figure 2 in the main text, the high concentration of Gly ion in the pseudo-TE buffer will lead to the more Gly ion in the intersection of microchannels and longer standing time of transient ITP concentration process, therefore, the enhancement of peak signal of DNA-aptamer and thrombin complex is obtained, as shown in Figure 6 of main text.

Fig. S4 shows electropherograms for DNA-aptamer and its thrombin complex by different TE buffer additives, the results indicate that ITP concentration effect in MCE can also be varied by different additives in this TE buffer. We tried several additives (tricine, taurine, threonine, GABA) and proved that the glycine is better than the others in terms of signal enhancement and peak shape, the difference of tITP concentration by different additives is probably due to the different mobility which is important to form the suitable tITP concentration effect.

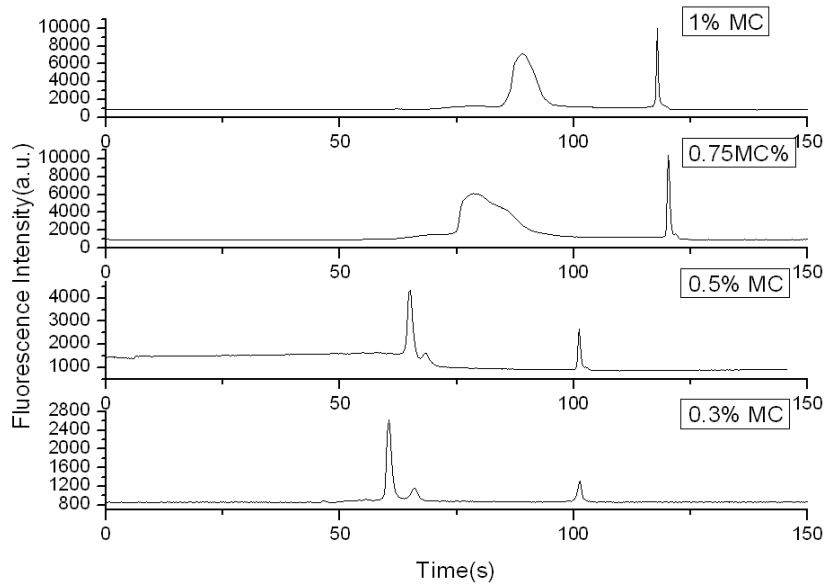


Fig. S1: Effects on tITP concentration by different concentrations of methylcellulose (MC) in LE.

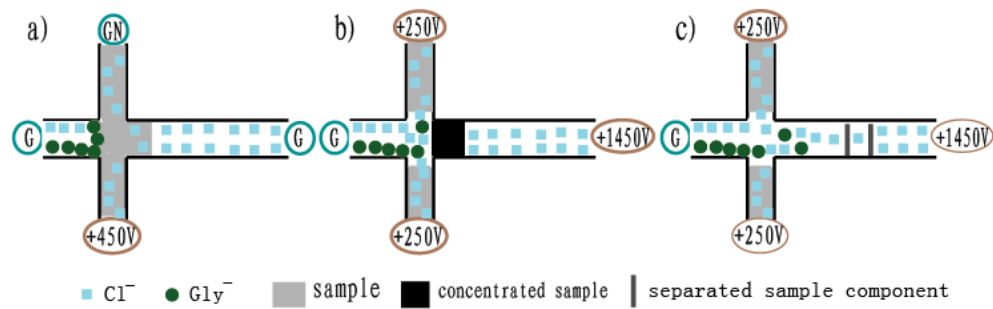


Fig. S2: Schematic diagrams of tITP concentration of DNA-aptamer complex by high concentrations of LE Cl^- .

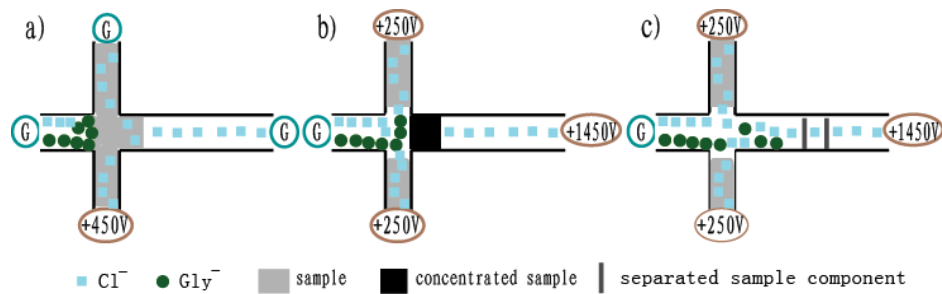


Fig. S3 : Schematic diagrams of transient ITP concentration by high concentrations of Gly ion in pseudo-TE.

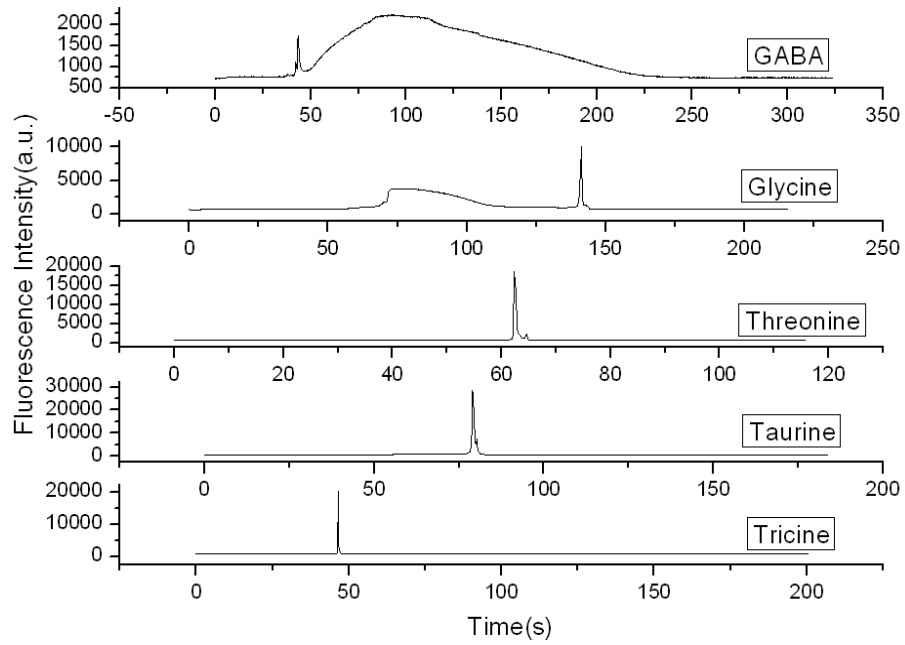


Fig. S4: Electropherograms for DNA-aptamer and its thrombin complex by different TE buffer additives