Supporting Information

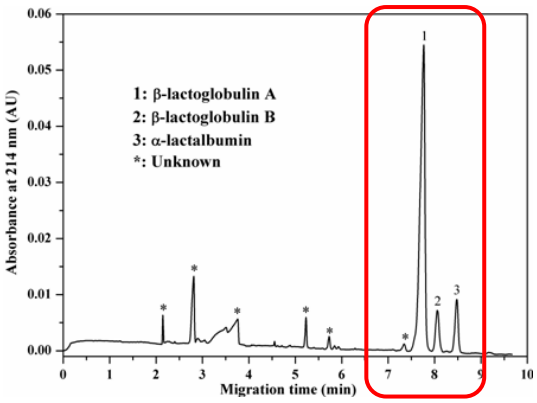

Fig. S1 Electropherograms of whey proteins in nonfat milk powder; separations were carried out using a polydopamine-*graft*-PEG coated capillary with id/od of 75/365 μm, effective/ total length of 30 /40 cm. Separation conditions: 150 mM sodium tetraborate buffer, pH 8.5; separation voltage, -20 kV; temperature, 25 ºC; detection, 214 nm; injection 0.5 psi for 5 sec;

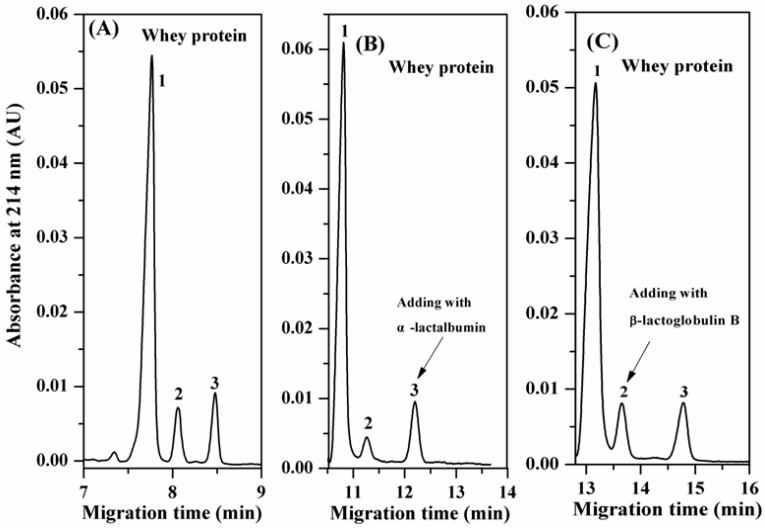

Fig. S2 Electropherograms of (A) whey proteins in nonfat milk powder which is the amplification part of Fig.S1; (B) The milk powder sample was spiked with 20 μL, 5.0 mg/mL α-lactalbumin; (C) The milk powder sample was spiked with 20 μL, 5.0 mg/mL β-lactoglobulin B; Separation conditions: 150 mM sodium tetraborate buffer, pH 8.5; separation voltage, -20 kV; temperature, 25 ºC; detection, 214 nm; injection 0.5 psi for 5 sec; separations were carried out using a polydopamine-*graft*-PEG coated capillary with id/od of 75/365 μm, effective/ total length of 30/40 cm.

To identifying the peak in nonfat milk powder, three parallel experiments were carried out as shown in Fig.S1 and Fig.S2. Firstly, the actual sample (whey proteins in nonfat milk powder) was separated in 150 mM sodium tetraborate buffer, according to the peak time and peak shape of three individual standard proteins, and standard proteins mixture, the peak time of the three whey proteins in actual sample must be in the range of 7 min-16 min as shown in Fig.S1 and Fig.S2 (A); At the same time, the peak of β-lactoglobulin A is adjacent to the peak of β-lactoglobulin B according to their isoelectric point. By running the actual sample, we can get three peaks remarked as 1, 2, 3. And then, the milk powder sample spiked with 20 μL 5.0 mg/mL α-lactalbumin (Fig. S2 (B)) and 20 μL 5.0 mg/mL β-lactoglobulin B (Fig. S2 (C)) were separated under the same conditions, respectively. When α-lactalbumin was added, the peak 3 is increased in the actual

sample separation as shown in Fig.S2 (B), this is caused by the extra added α-lactalbumin. When β-lactoglobulin B was added, the peak 2 is increased in the actual sample separation as shown in Fig. S2 (C), this is caused by the extra added β-lactoglobulin B. According to these changes of the peak shape, we could confirm each identified peak when the standard protein is spiked as the order we have suggested in the paper.