Support Information

1. Studies on the optimum conditions in buffer

This work first optimizes the separation of promethazine by improving the buffer conditions. As can be seen from the cartoon, the greater the acidic conditions of the buffer, the better the separation effect of promethazine. Compared with Figure S1 (c), as the pH increases, the interval between the two peaks of enantiomers increases, and the separation of promethazine is far more complete. This may be due to the fact that the silane hydroxyl groups are protonated easily under acidic conditions to effectively control the electroosmotic flow and improve the separation.

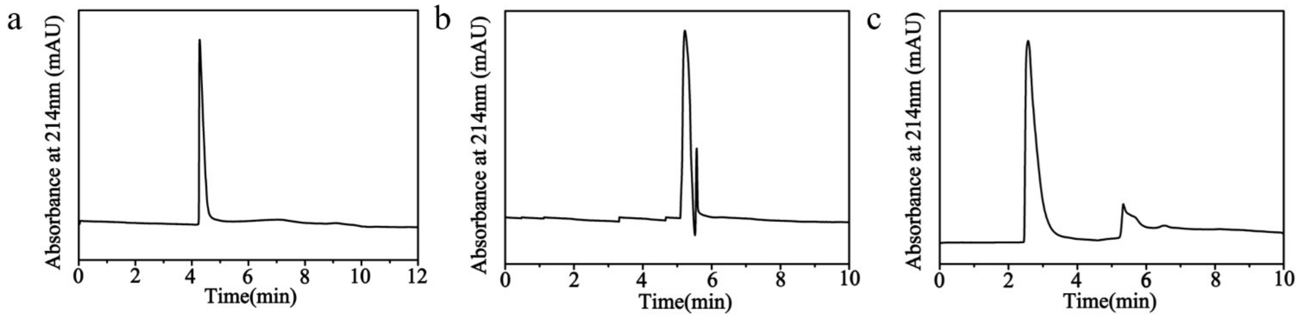

Figure S1. Separation of promethazine using the vancomycin covalently coated capillary. Separation conditions: buffer, TEAA: ACN=3:7; injection, applied pressure to 50 mbar within 4 s; applied voltage, +26 kV; UV detection, 214 nm; sample, 0.5 mg/mL; capillary, 50μm ID × 50 cm (41.4 cm effective); capillary temperature, 25 °C. (a) pH = 6.0 (b) pH = 5.0 (c) pH = 4.0

2. Studies on the optimum conditions in applied voltage

This work will continue to improve the separation conditions of promethazine by studying the applied voltage. Figures S2 (a) to Figures S2 (c) shows the separation of promethazine at voltages from 24 to 18. The response values of the two enantiomers increase with decreasing voltage. It can be seen that the response value of the enantiomer is the highest and the peak shape is better when the applied voltage is 18kV.

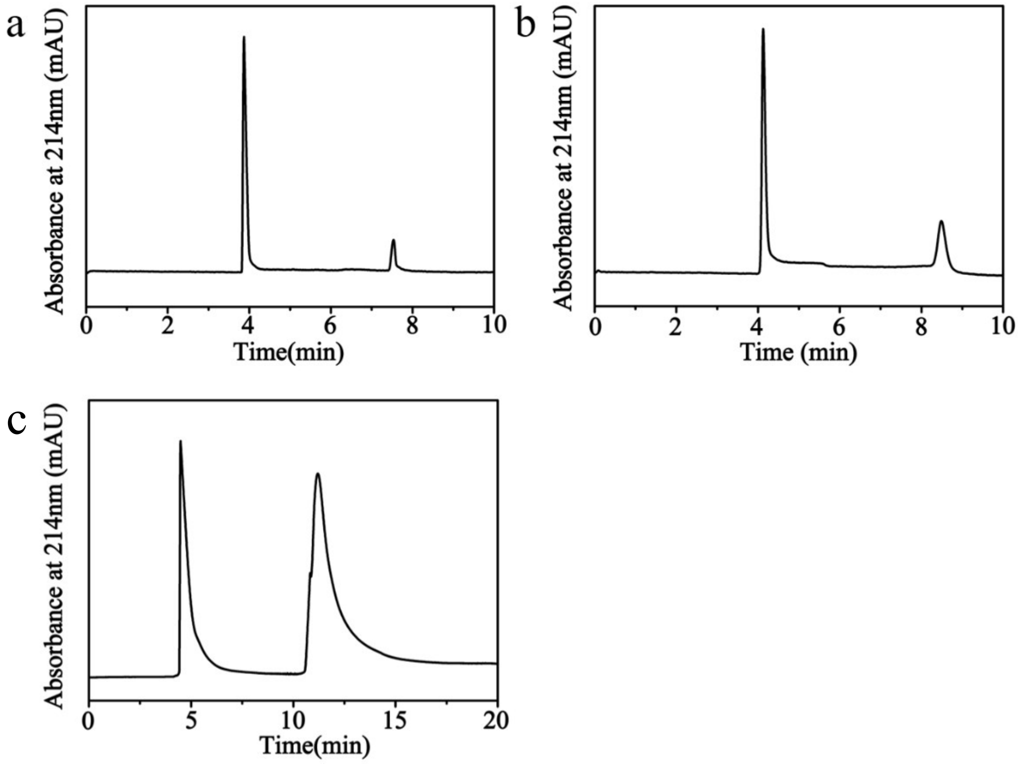

Figure S2. Separation of promethazine using the vancomycin covalently coated capillary. Separation conditions: buffer, TEAA: ACN=3:7 (pH = 4.0); injection, applied pressure to 50 mbar within 4 s; 214 nm; sample, 0.5 mg/mL; capillary, 50 μm ID × 50 cm (41.4 cm effective); capillary temperature, 25 ℃. (a) applied voltage, +24 kV (b) applied voltage, +21 kV (c) applied voltage, +18 kV