Electronic Supplementary Material (ESI) for RSC Advances.

Polyethyleneimine-facilitated High-capacity Boronate Affinity Membrane and its Application for the Adsorption and Enrichment of cis-diol-containing Molecules

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Supplemental Information

Chromatographic conditions

HPLC analysis was performed using a Shimadzu LC-20AT (Shimadzu, Japan) with two HPLC pumps, a fluorescence detector (RF-10A XL), and a system controller (SCL-10Avp). Chromatograms were recorded, and the peak area was integrated using a N2000 workstation (SURWIT Technology, Inc.).

Chromatographic analysis was performed using an Agilent TC-C18 (150 mm×4.6 mm i.d., 5 μm particle size). The mobile phase was acetonitrile/sodium dihydrogen phosphate (10 mM, pH 3.0) (1:99, *V*/*V*), and the flow rate was 1.0 mL/min. The fluorescence was monitored at an excitation wavelength of 280 nm and an emission wavelength of 330 nm.

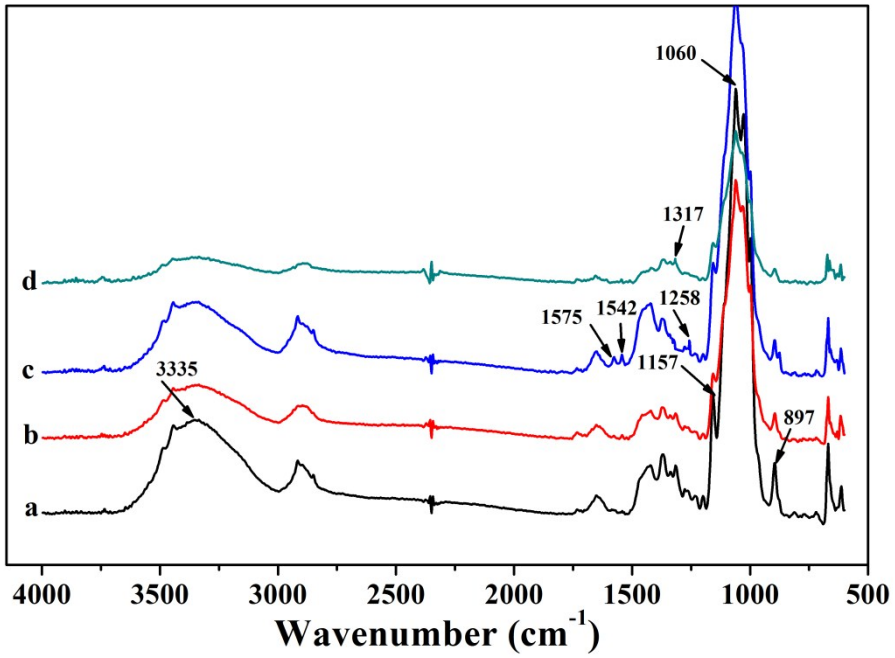

Fig.S1 ATR-FTIR spectra of the original RC (spectrum a), epoxidized (spectrum b), PEI-grafted (spectrum c) and boronate affinity (spectrum d) membranes

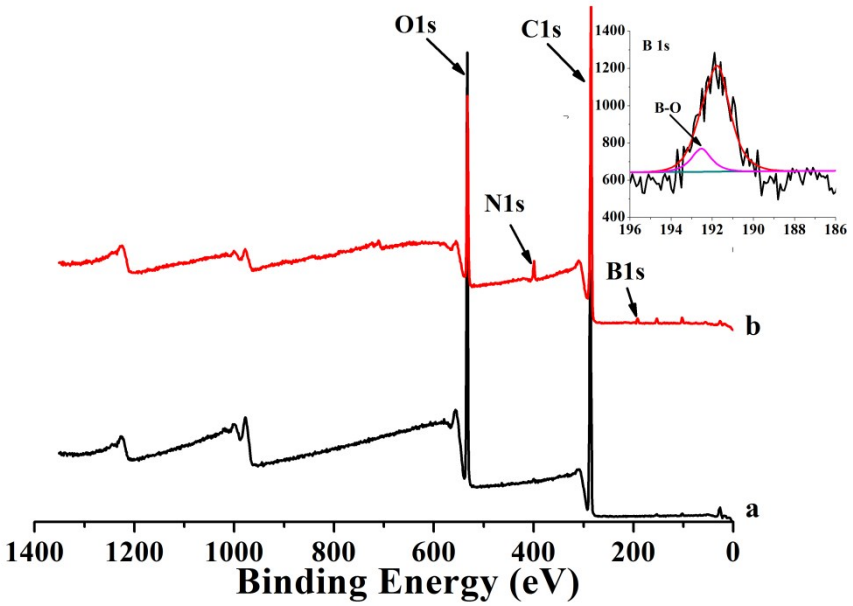

Fig.S2 XPS spectra of the original RC membrane (spectrum a) and boronate affinity membrane (spectrum b)

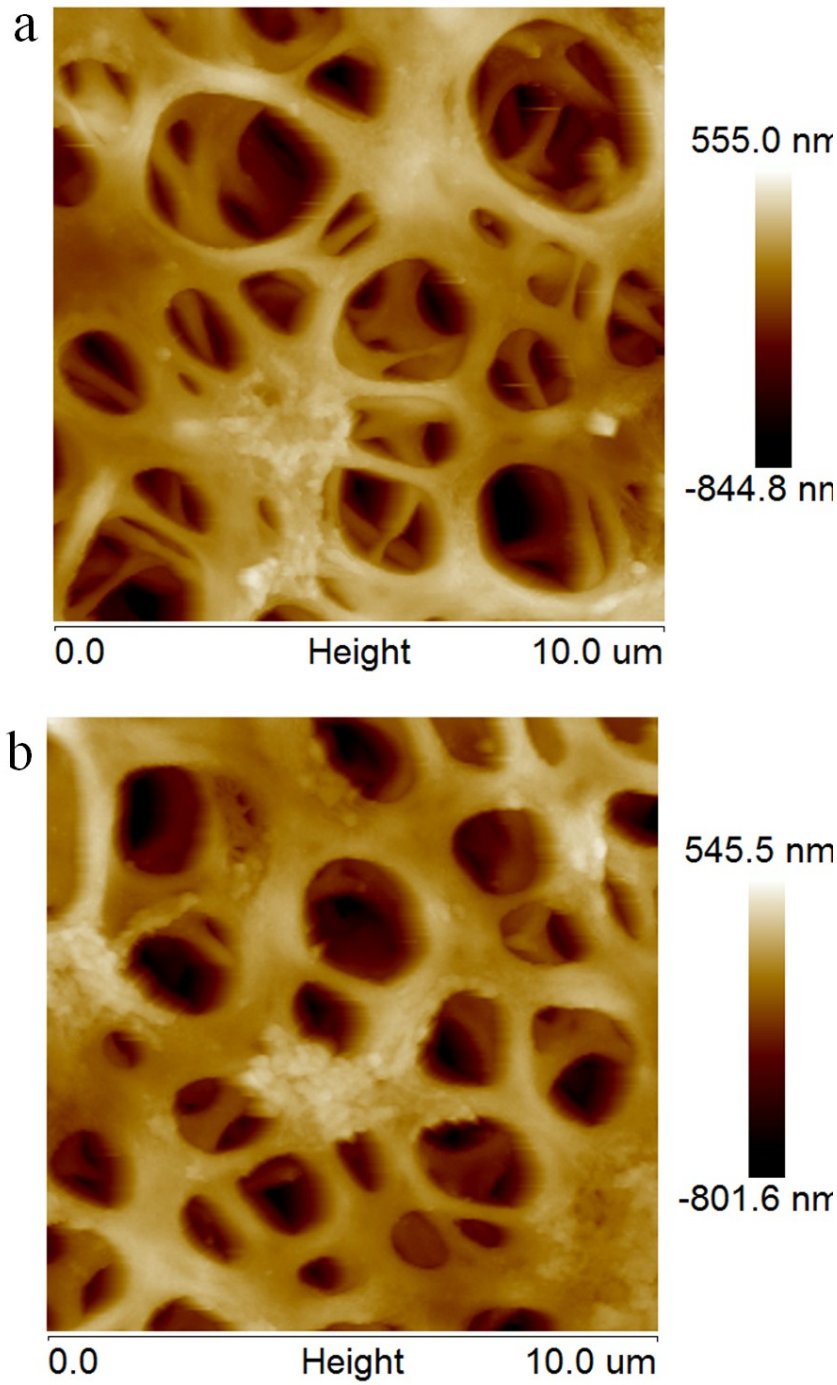

Fig.S3. AFM 2D images of the original RC membrane (a) and boronate affinity membrane (b).

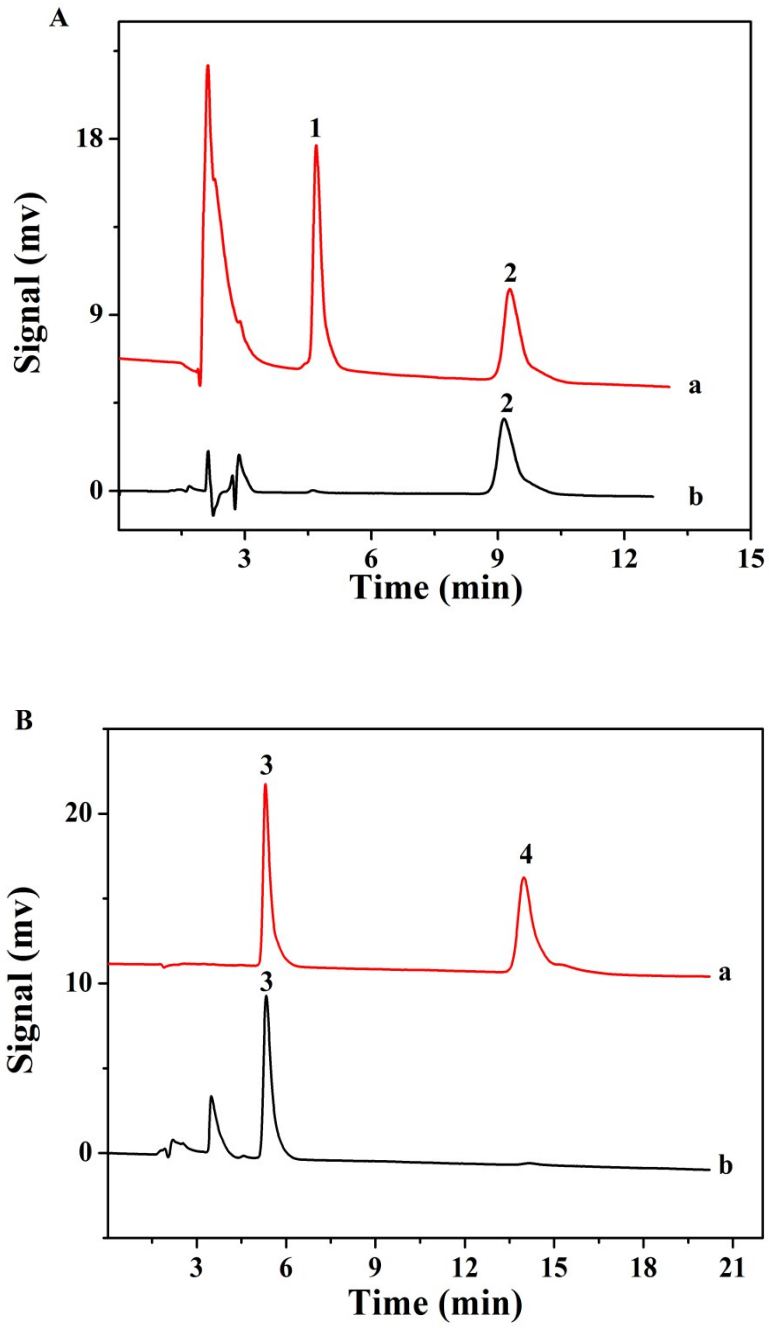

Fig. S4. HPLC chromatograms for the selective adsorption of cis-diol-containing compounds on the boronate affinity membrane. (A) Mixture of catechol and quinol before (a) and after (b) the extraction by the membrane. 1, quinol; 2, catechol. (B) Mixture of dopamine and 5-HT before (a) and after (b) the extraction by the membrane. 3, dopamine; 4, 5-HT

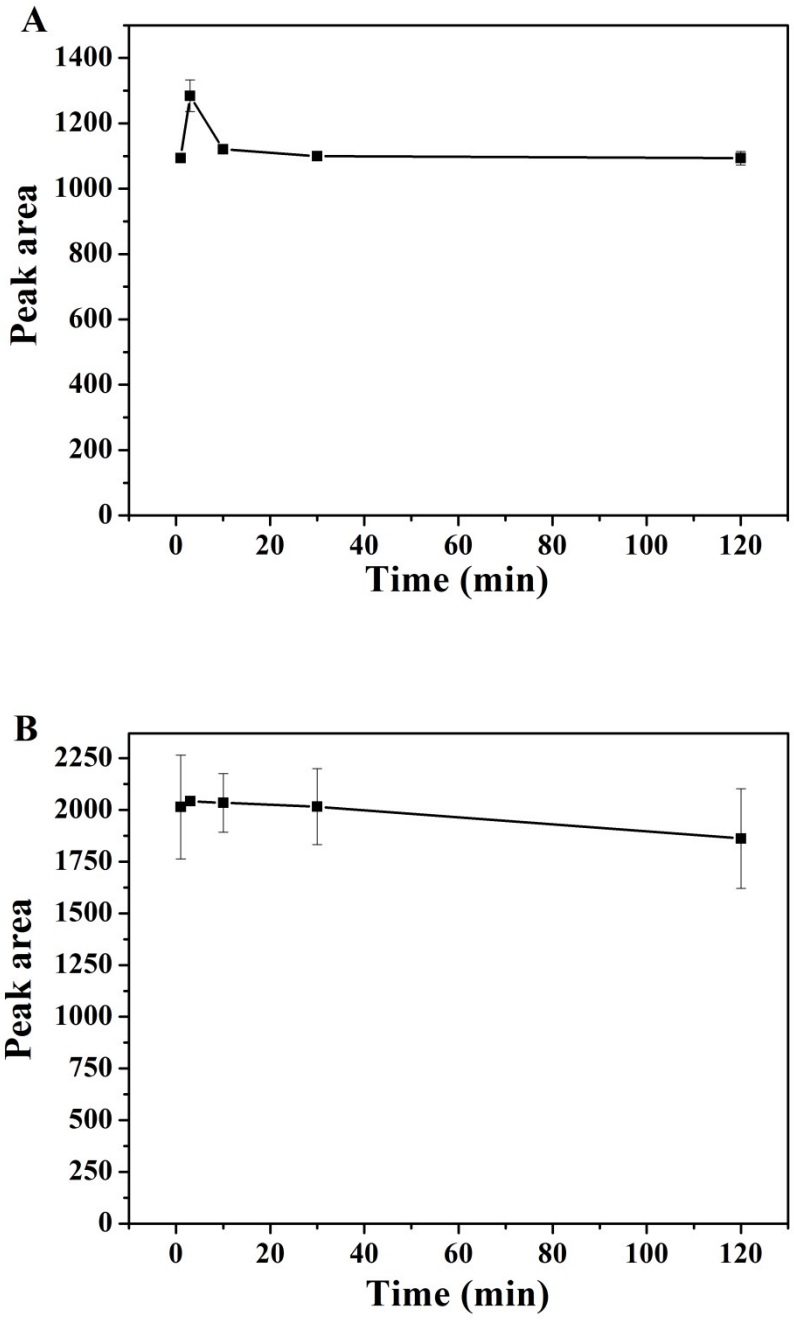

Fig. S5. Effects of the adsorption time (A) and desorption time (B) on dopamine extraction