Supporting Information

Nanoporous block copolymer membranes immobilized with gold nanoparticles for continuous flow catalysis

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Scheme S1. Synthesis of PDMAEMA-b-PS by two-step RAFT polymerization.

Figure S1. $^1$H NMR spectra of PDMAEMA (a) and PDMAEMA-b-PS (b) in CDCl$_3$. 
Here, refers to the integral value of corresponding signal.

\[ DP_{PDMAEMA} = \frac{I_{4.07}}{I_{7.3207.90}} \times \frac{5}{2} \]  
\[ DP_{PS} = \frac{I_{6.207.21}}{I_{4.07}} \times \frac{2}{5} \times DP_{PDMAEMA} \]  

Figure S2. GPC traces of PDMAEMA (a) and PDMAEMA-b-PS (b).
Figure S3. SEM images of the as-coated BCP composite membrane: (a) surface and (b) cross-sectional SEM image. The SEM images have the same magnification and the scale bar corresponding to 500 nm is given in (b).

Figure S4. UV-vis absorption spectra of 10 ppm 4-NP solution without NaBH₄, before and after flowing through the AuNP-immobilized BCP membranes.
Figure S5. Recyclability performance of the AuNP-immobilized BCP membrane prepared with 5.0 mg/mL HAuCl₄ for the flow catalytic reduction of 4-NP to 4-AP at a flow rate of 0.5 mL/min.

Figure S6. UV-vis absorption spectra of (a) 10 ppm RhB solution with 500 ppm NaBH₄, and (b) 10 ppm MO solution with 500 ppm NaBH₄ before and after flowing through the Au-free BCP membranes.
Figure S7. UV-vis absorption spectra of (a) 10 ppm RhB solution without NaBH₄, and (b) 10 ppm MO solution without NaBH₄ before and after flowing through the AuNP-immobilized BCP membranes.