

## Supplementary Information

### **Rapid preparation and characterization of a bridged bis( $\beta$ -cyclodextrin) functionalized urea-formaldehyde monolithic column by “one-pot” approach**

Liu Yue<sup>a</sup>, Zhiping Su<sup>a</sup>, Shuangcheng Jiang<sup>c</sup>, Haoran Sun<sup>a</sup>, Haixia Lyu<sup>a\*</sup>, Zenghong Xie<sup>b\*</sup>

<sup>a</sup>*College of Materials Science and Engineering, Fuzhou University, Fuzhou, 350108, China*

<sup>b</sup>*College of Chemistry, Fuzhou University, Fuzhou, 350108, China*

<sup>c</sup>*Fisheries Research Institute of Fujian, Fujian Xiamen, 361013, China*

\*Corresponding author: Haixia Lyu

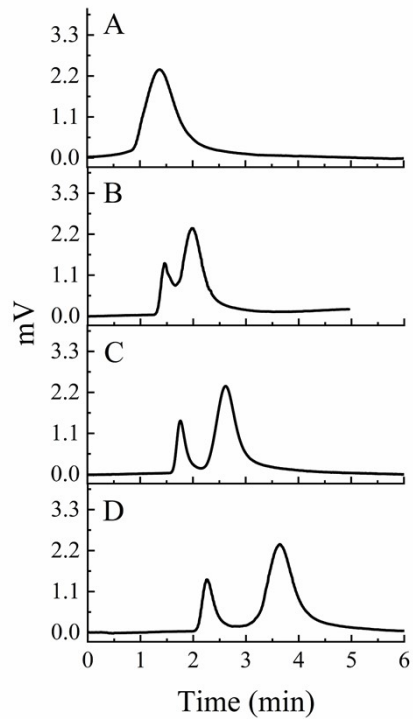
Tel: +86-591-22866131

E-mail: [hx\\_lv@163.com](mailto:hx_lv@163.com)

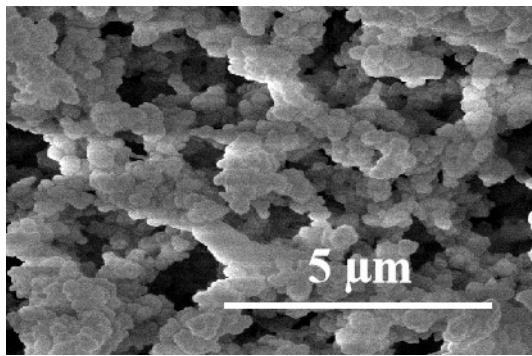
\*Corresponding author: Zenghong Xie

Tel: +86-591-22866159

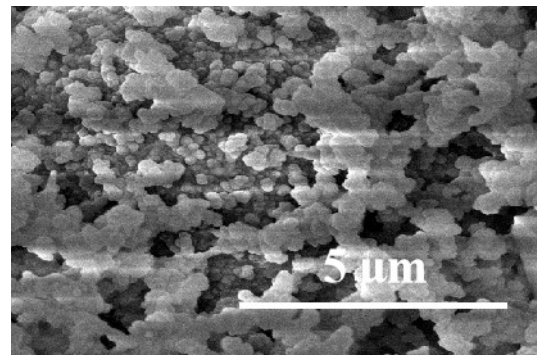
E-mail: [zhxie@fzu.edu.cn](mailto:zhxie@fzu.edu.cn)



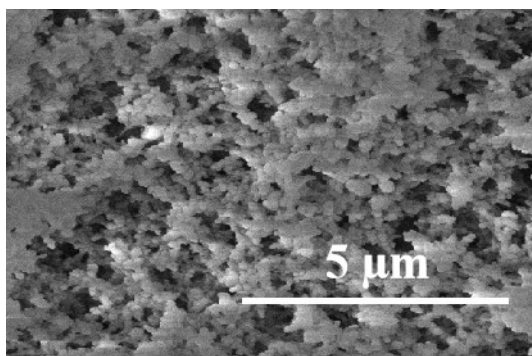
**Fig. S1** Separation of RS-(±)-1-4-Met on different columns (A): urea/formaldehyde: 500/500; (B): urea/formaldehyde: 450/550; (C): urea/formaldehyde: 400/600; (D): urea/formaldehyde: 350/650; Experimental conditions: mobile phase: 10 mM ammonium formate, pH 3.5, H<sub>2</sub>O/ACN = 10/90, applied voltage: -5 kV; pump flow rate: 0.1 mL min<sup>-1</sup>; applied pressure: 1000 psi; detection wave: 214 nm.



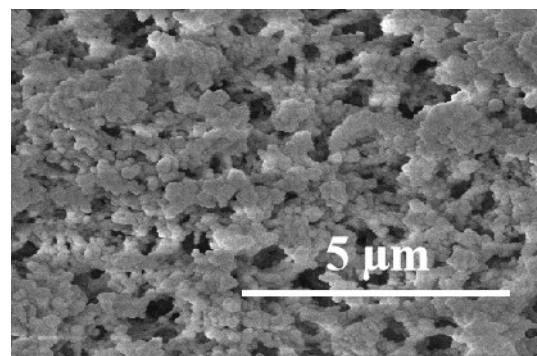
(A)



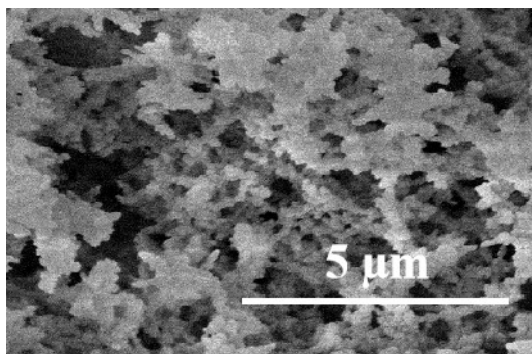
(B)



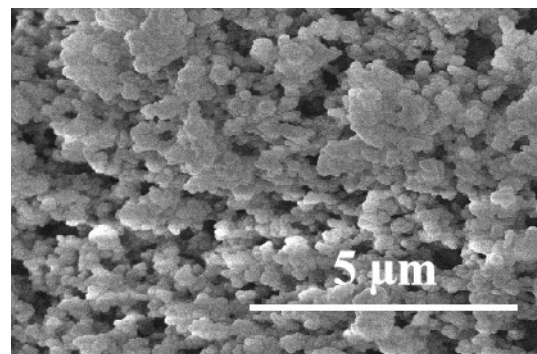
(C)



(D)



(E)

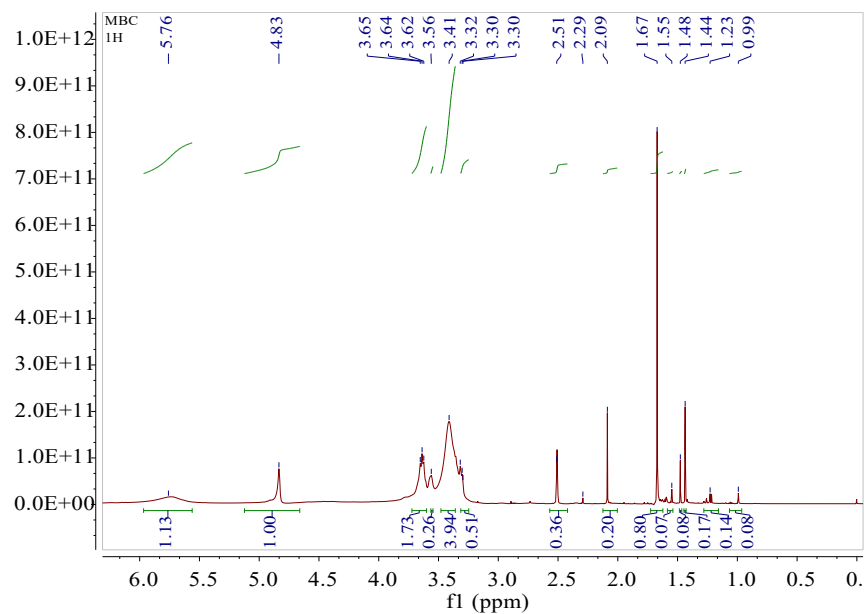


(F)

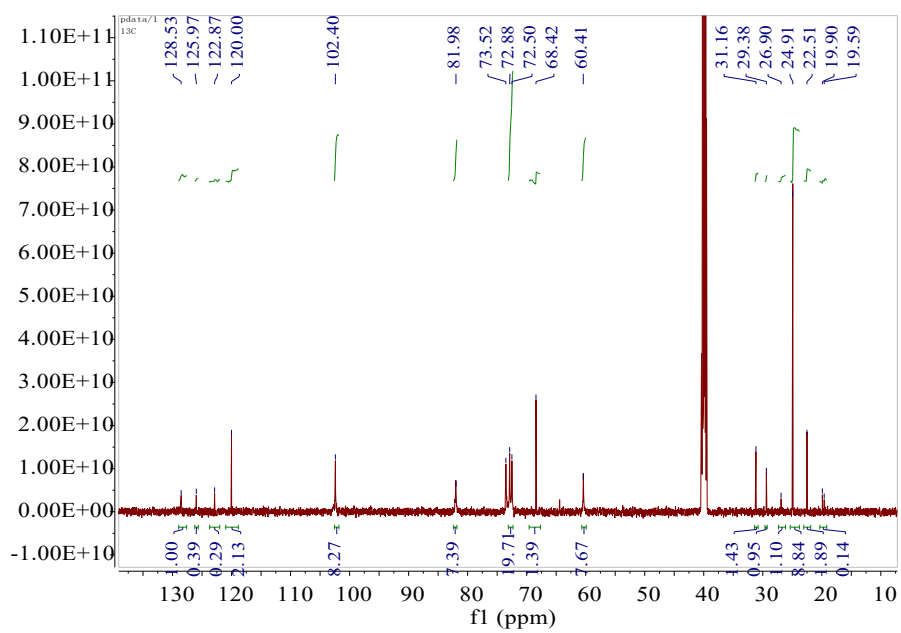
**Fig. S2** SEMs of DAA-bridged monoliths with different composition

A-D: The ratio of urea/formaldehyde were 500:500, 450:550, 400:600 and 350:650, respectively.

C, E, F: The total quality of DAA and  $\beta$ -CD were 15.56, 7.79 and 22.93 mg, respectively.

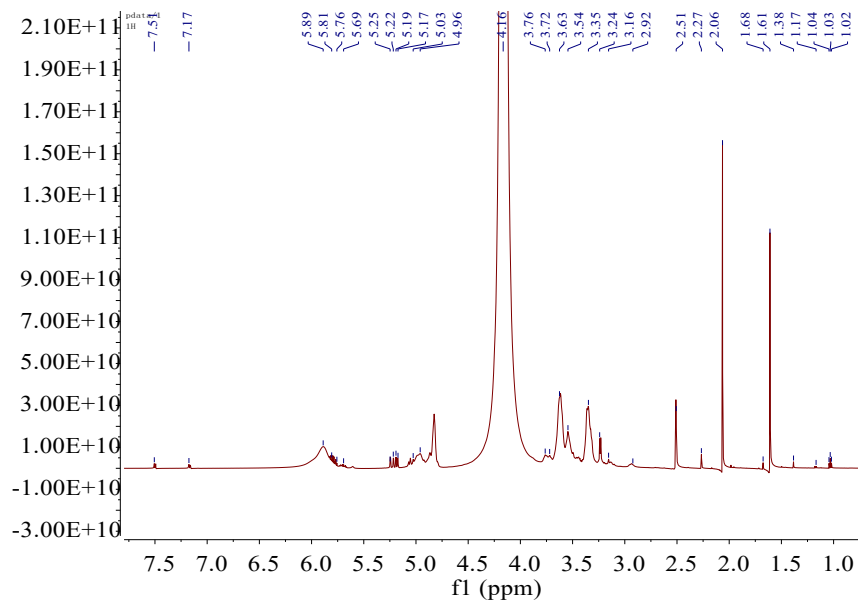


(A)

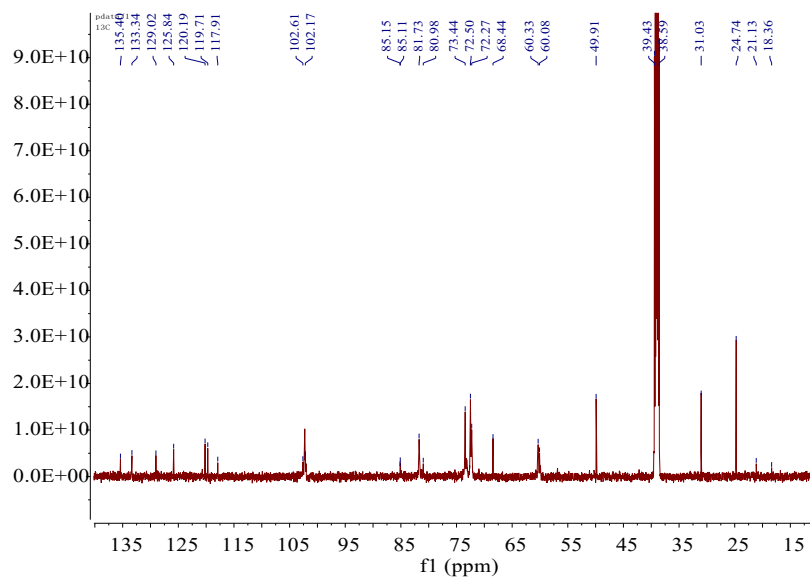


(B)

**Fig. S3** NMR of MBA-bridged-CD monolith (A:  $^1\text{H}$  NMR, B:  $^{13}\text{C}$  NMR)

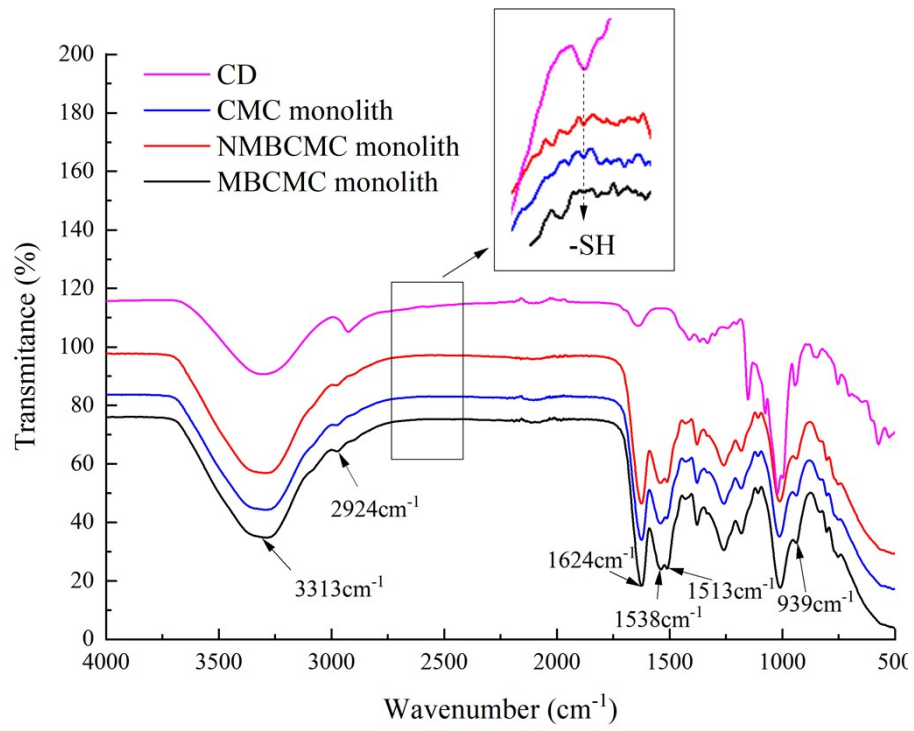


(A)

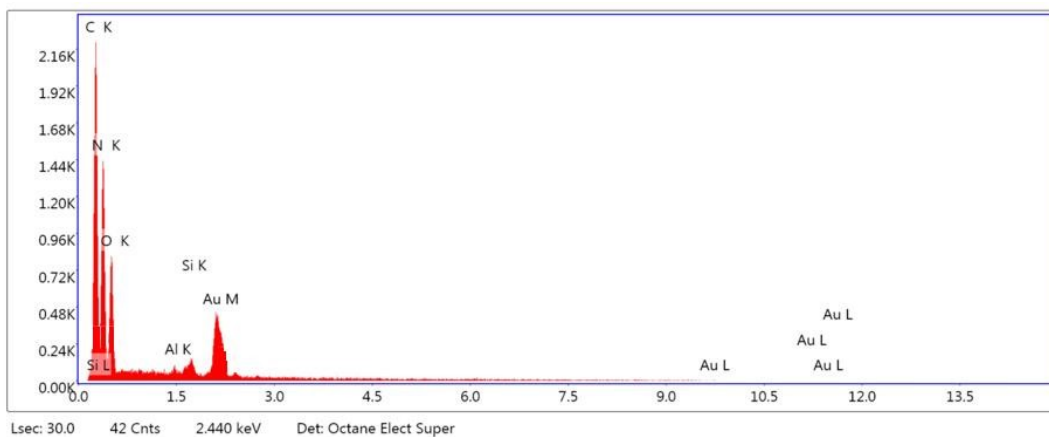


(B)

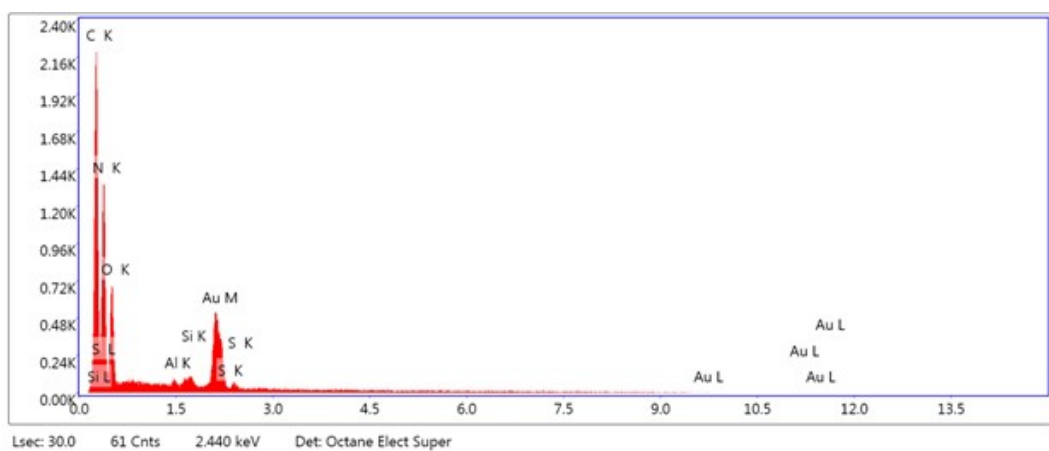
**Fig. S4** NMR of DAA-bridged-CD monolith (A:  $^1\text{H}$  NMR, B:  $^{13}\text{C}$  NMR)



**Fig. S5** FT-IR of monoliths and SH- $\beta$ -CD

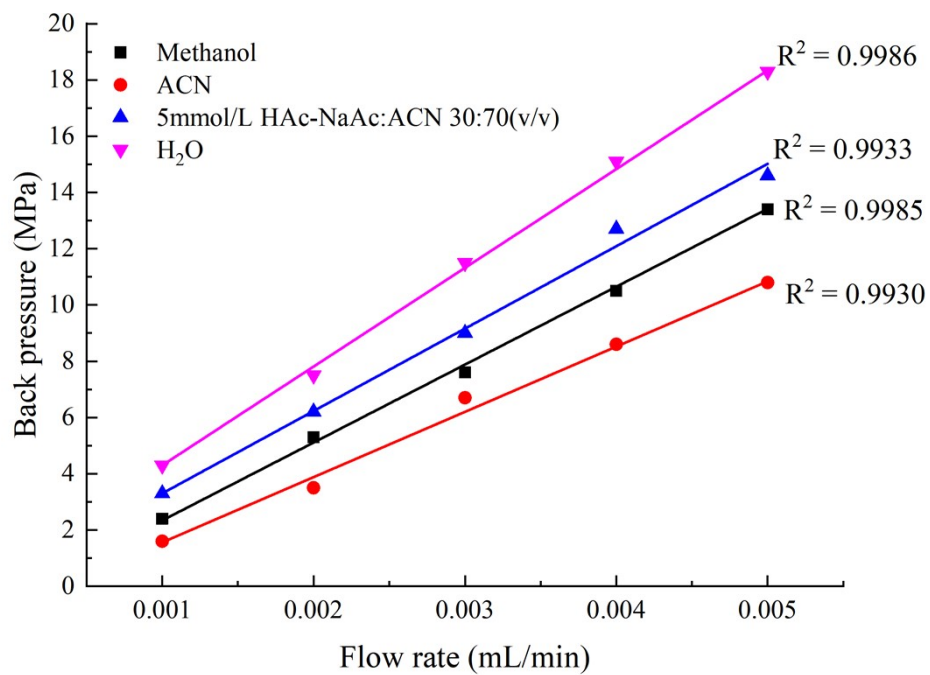


(A) urea-formaldehyde matrix



(B) MBA-bridged-CD-monolith

**Fig. S6** EDS of different monoliths



**Fig. S7** Influence of flow rate on the back pressure of MBA-bridged-CD-monolith



**Table S1** Preparation of monolith with different composition

Column	Reaction solution					Back pressure (MPa)	Permeability ( $\times 10^{-14} \text{ m}^2$ )
	1 g mL <sup>-1</sup> Urea (mg)	Formaldehyde (mg)	DAA (mg)	SH- $\beta$ -CD (mg)	0.1 mol L <sup>-1</sup> HCl (mg)		
A	500	500	0.63	14.93	100	~0.3	~96.25
B	450	550	0.63	14.93	100	~5.5	~5.25
C	400	600	0.63	14.93	100	~14.4	~2.01
D	350	650	0.63	14.93	100	~20.1	~1.44
E	400	600	0.32	7.47	100	~5.3	~5.45
F	400	600	0.95	21.98	100	~17.5	~1.65