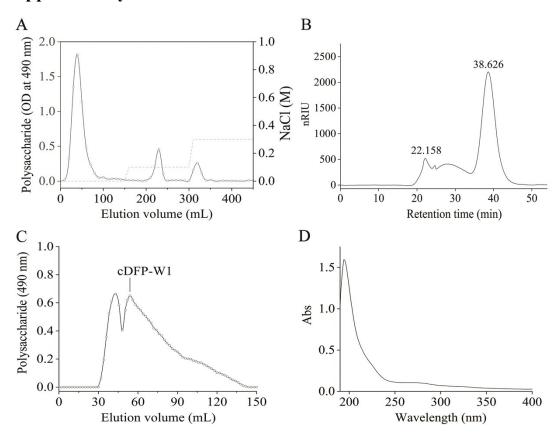
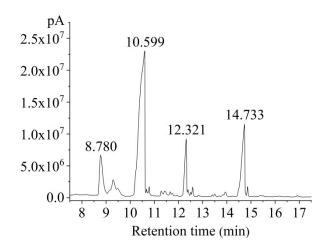
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## **Supplementary information**



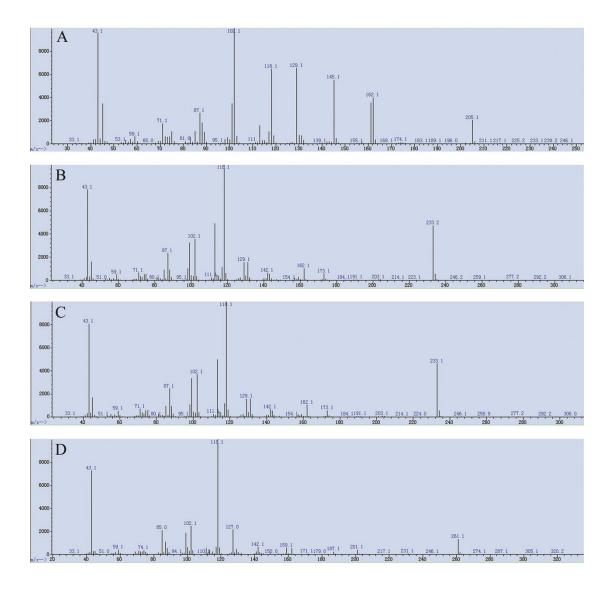
Supplementary Figure 1

Elution curve of cDFP on DE-52 cellulose anion exchange column (A), HPGPC spectrum of cDFP-W (B), Elution curve of cDFP-W on Sephadex G-75 column (C), UV spectrum of cDFP-W1 (D).



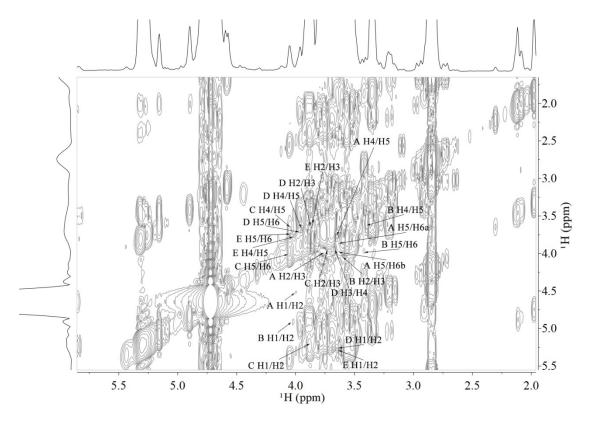
Supplementary Figure 2

The total ion current profile of methylation analysis of cDFP-W1.



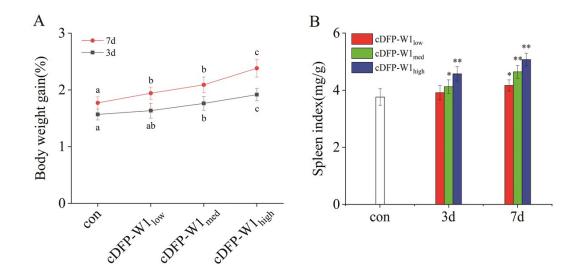
Supplementary Figure 3

A. Mass fragment of 8.780 min  $(2,3,4,6-Me_4-Manp)$ ; B. Mass fragment of 10.599 min  $(2,3,6-Me_3-Glcp)$ ; C. Mass fragment of 12.321 min  $(2,3,6-Me_3-Manp)$ ; D. Mass fragment of 14.733 min  $(2,3-Me_2-Glcp)$ .



Supplementary Figure 4

The COSY spectrum of cDFP-W1.



Supplementary Figure 5

Effects of oral administration period and doses of cDFP-W1 on body weight change (A) and spleen index (B) in mice. In A, the means with different lowercases are significantly different (p < 0.05). In B, \*p < 0.05 and \*\*p < 0.01 versus control group. Body weight gain (%) = [(body weight of day 3 or 7 – body weight of day 0) / body weight of day 0] × 100. Index (mg/g) = organ weight / body weight.