

Supporting Information

Elegant Chemistry to Directly Anchor Intact Carbohydrates on Solid Surfaces Used for Fabrication of Bioactivity-Conserved Saccharide Microarrays

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Figure S1

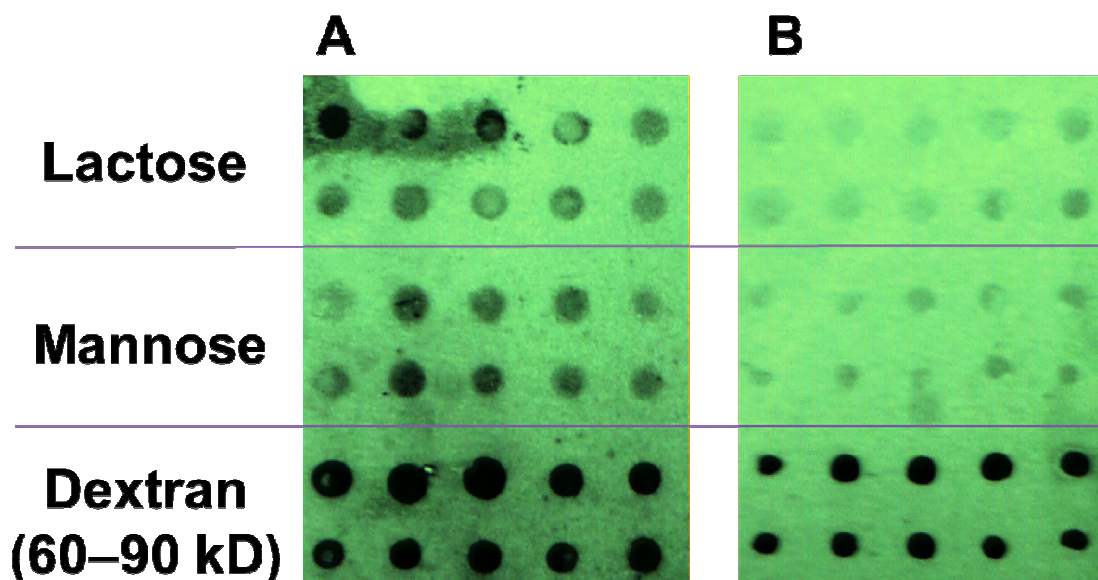
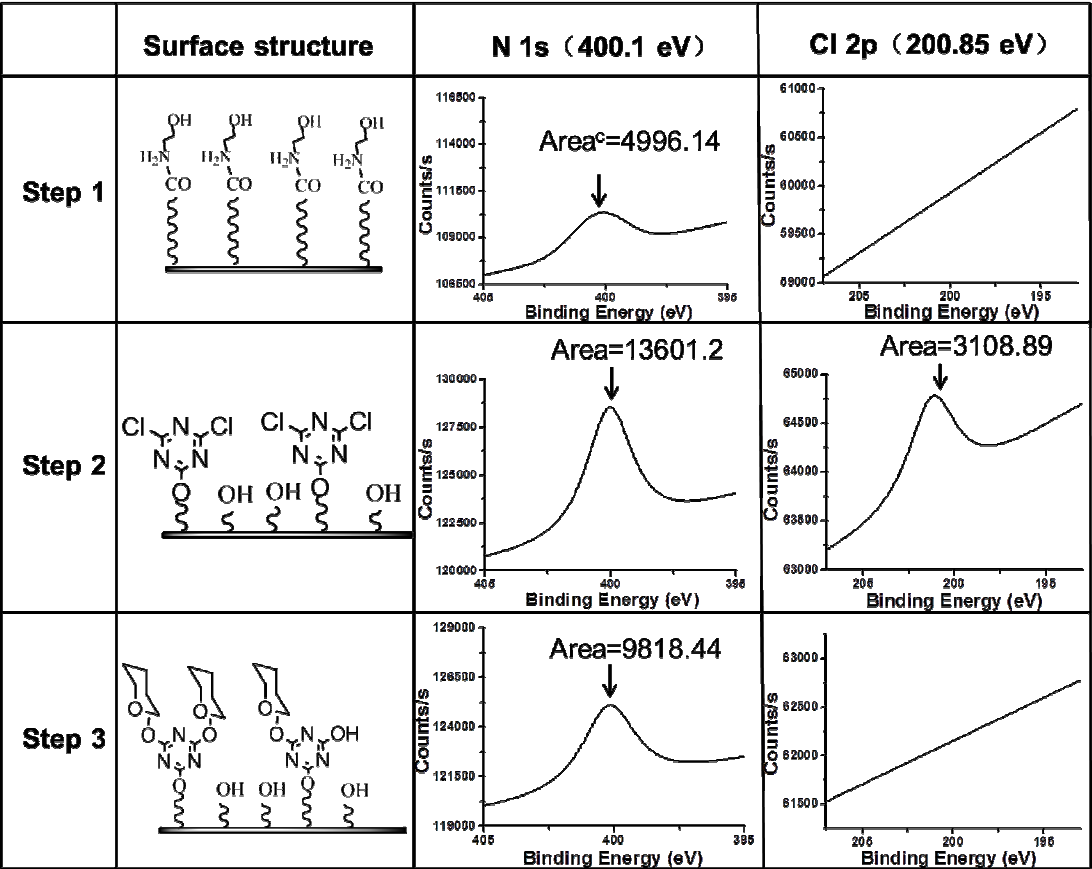


Figure S1. VCI images of carbohydrate microarray spotted on CC-amino-functioned surfaces with (A) a 50-nm gold-deposited glass slide and (B) a bare glass slide. The amino groups were introduced onto the gold surface by successive treatment with MUA, EDC/NHS and EDA and onto the glass surface by silanation with APTMS. The CC was anchored on the amino terminal surface by incubation of the amino-surface with mixed solution of CC (100 mM) and DIPEA (100 mM) in acetone at 4 °C for 6 h, and carbohydrates was then spotted on the CC-function surfaces in basic condition to react for 10 h to allow the completion of coupling reaction.

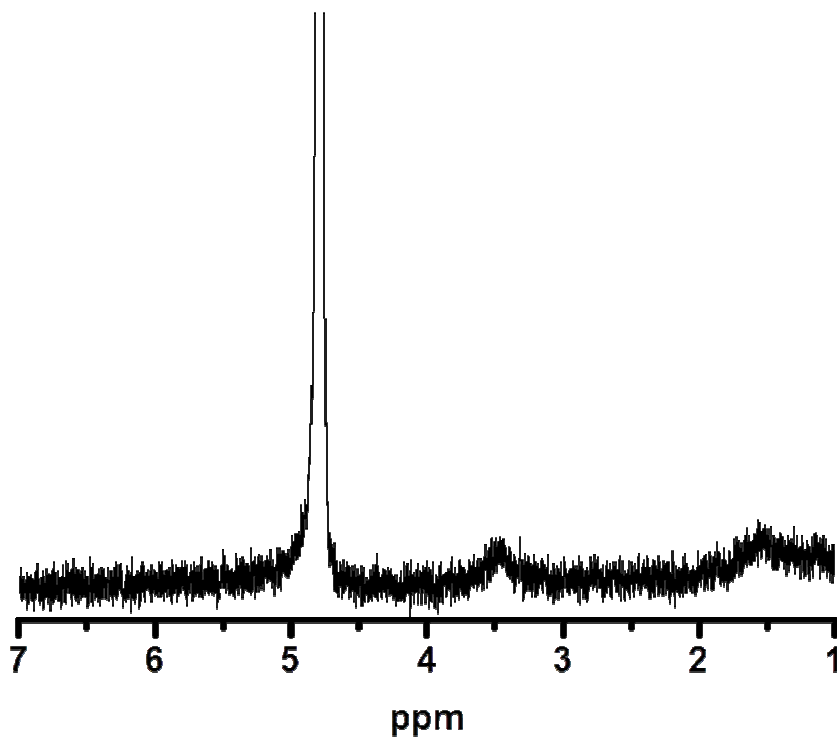
Figure S2



^c Area represents the integration of peak area

Figure S2. The XPS N 1s and Cl 2p spectra of the initial hydroxyl surface (step 1), after treated by CC (step 2) and by mannose (step 3).

80 **Figure S3**



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82 Figure S3. ^1H NMR spectra of gold nanoparticle modified with mannose through the CC-chemistry. The
83 gold nanoparticle (3 nm) was synthesized according to reported method (*J. Phys. Chem. C* 2007, *111*,
84 9255–9266) and stabilized by MUA. They were then treated with EDC/NHS, EOA, CC and mannose
85 solution sequentially. The final product was subjected to ^1H NMR in D_2O .

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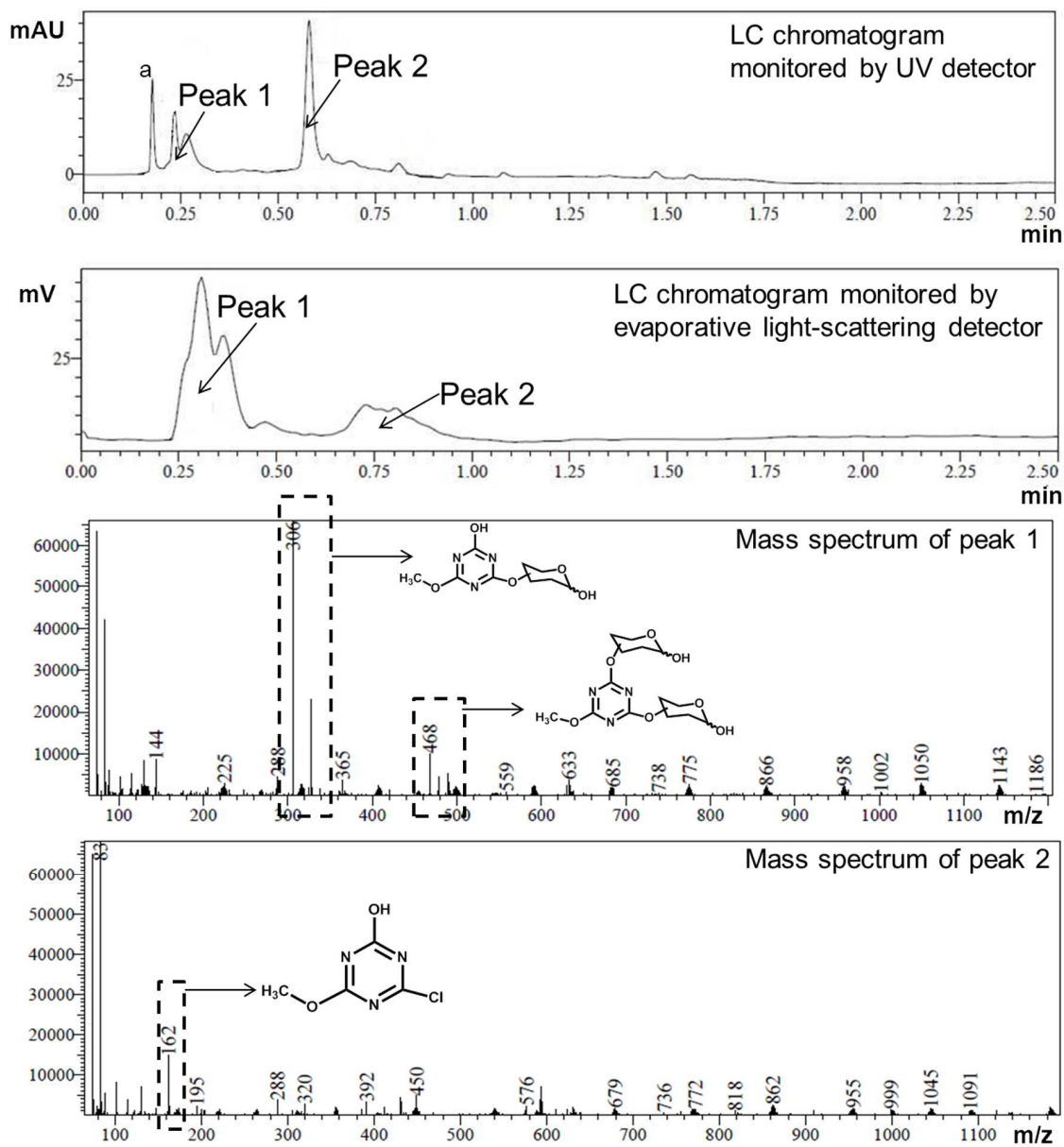
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Figure S4

A. LC-MS characterization of the MeO-CC and mannose



B. LC-MS characterization of the MeO-CC and fructose

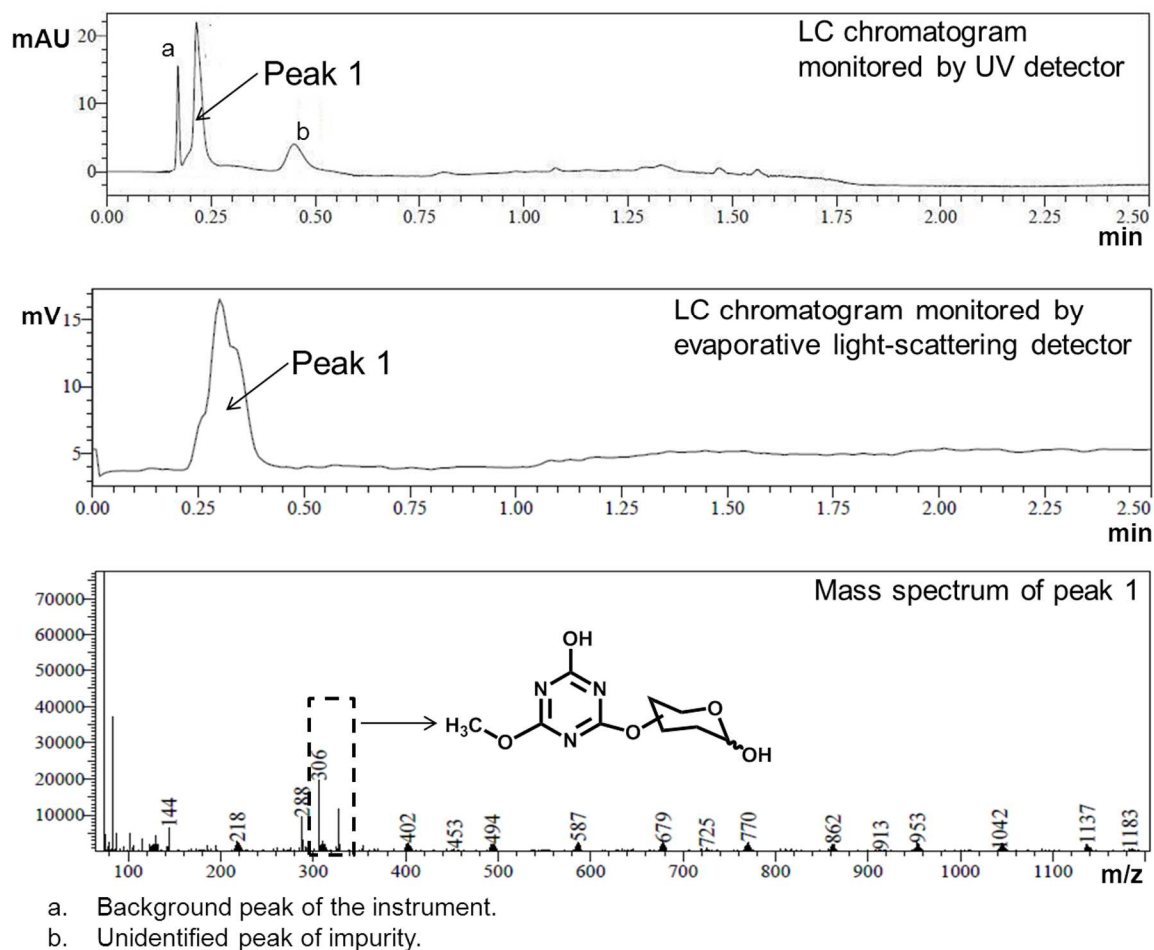


Figure S4. LC-MS characterization of products from the reaction of MeO-CC with mannose (A) and fructose (B).

Figure S5

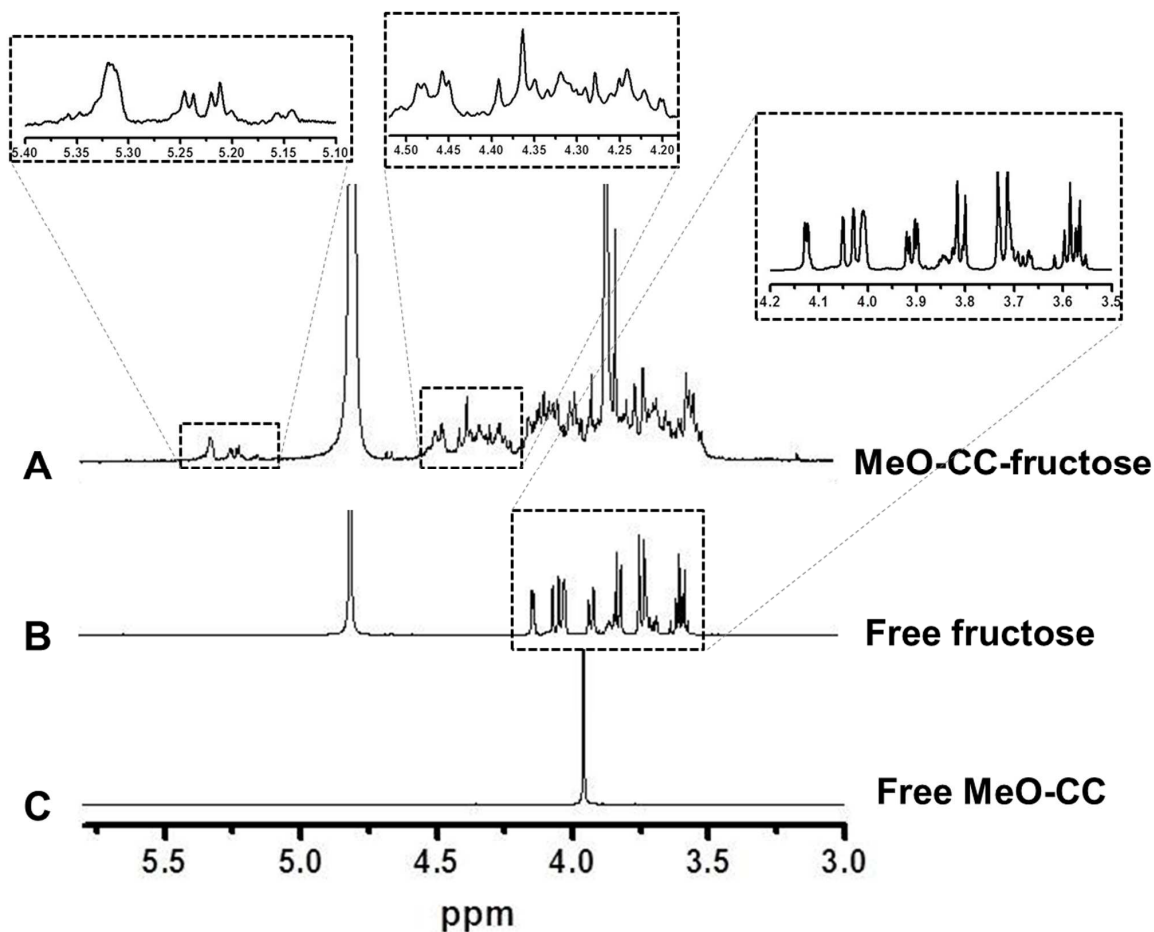
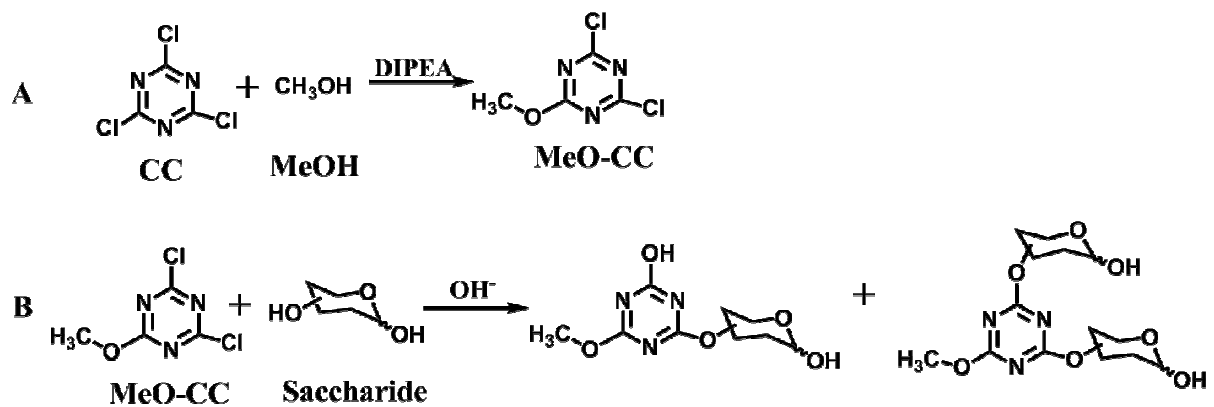


Figure S5 Comparison of ^1H NMR spectra between MeO-CC-fructose (A), free fructose (B) and free MeO-CC (C). A series of new peaks appeared at 4.2~4.5 ppm and 5.1~5.4 ppm for MeO-CC-fructose compared with free fructose, indicating that the non-selective linking happened after CC reacted with the hydroxyls on fructose.

Scheme S1.



Scheme S1. Model reaction of CC with carbohydrates, including the synthesis of MeO-CC (A) and the reaction between MeO-CC and carbohydrate (B).