

## Supporting Information

# Efficient Disentanglement of Boron Nitride Nanotubes Using Water-Soluble Polysaccharides for Proteins Immobilization

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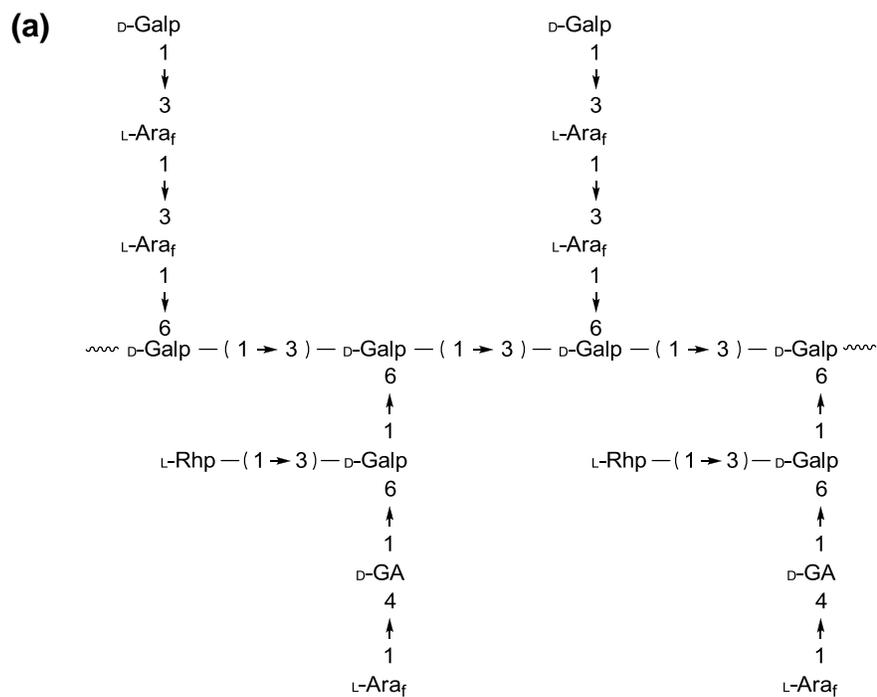
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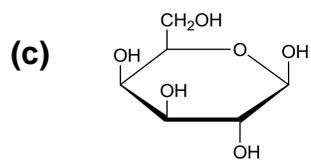
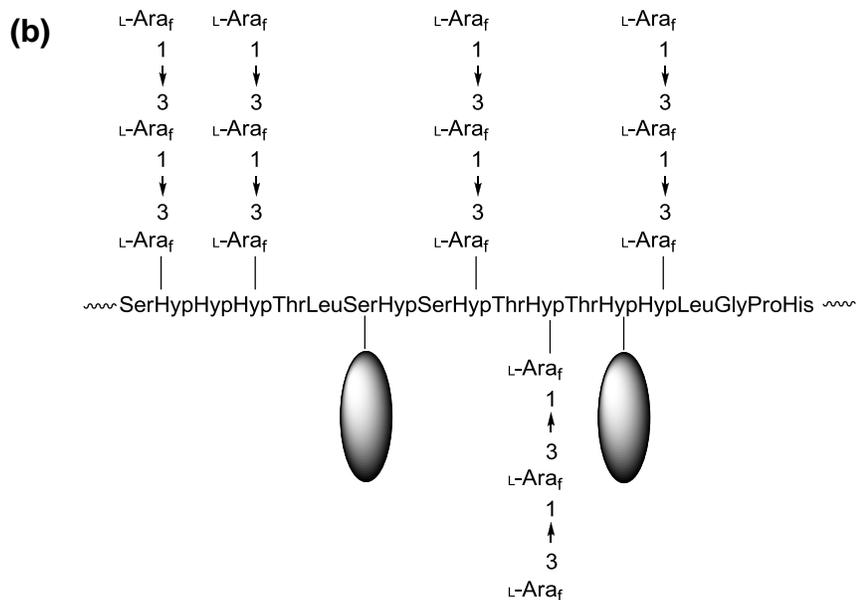
<sup>a, c</sup> The University of Tokyo

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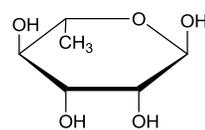
<sup>d</sup> Tokyo Institute of Technology

**Scheme S1.** Possible chemical structure of GA. (a) Arabinogalactan (b) arabinogalactan-protein complex (c) structural blocks contained in (a) and (b).

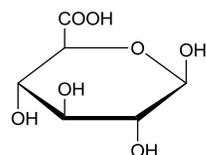




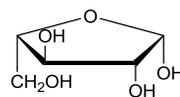
$\beta$ -D-Galp =  $\beta$ -D-Galactopyranose



$\beta$ -L-Rhp =  $\beta$ -L-Rhamnopyranose



$\beta$ -D-GA =  $\beta$ -D-Glucopyranosuronic Acid

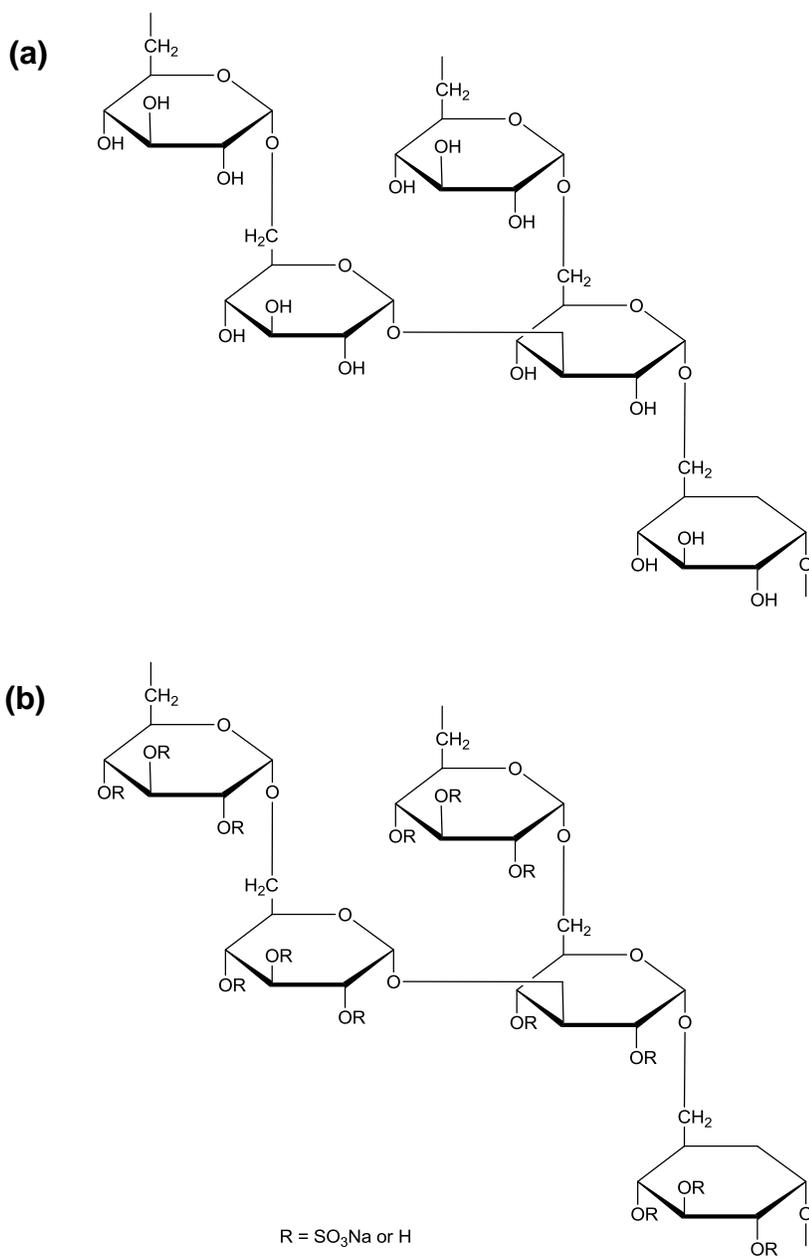


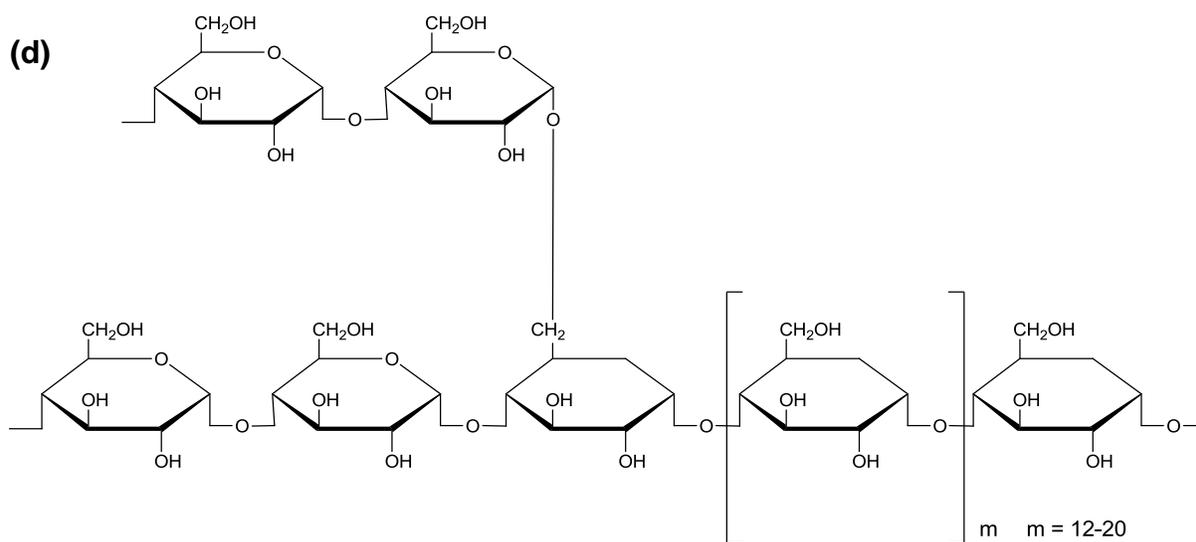
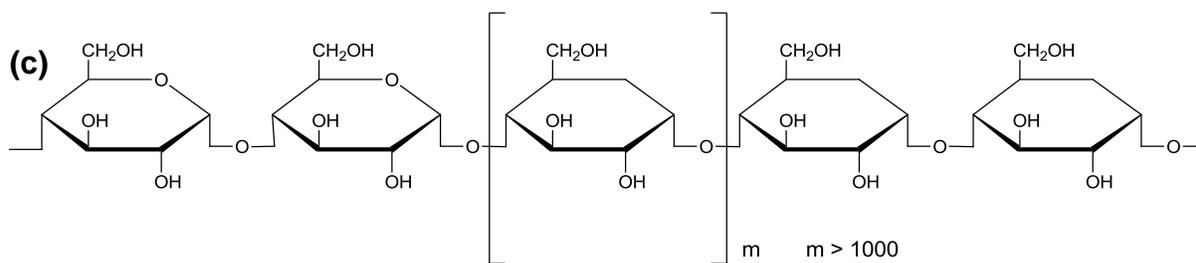
$\beta$ -L-Araf =  $\beta$ -L-Arabinofuranose

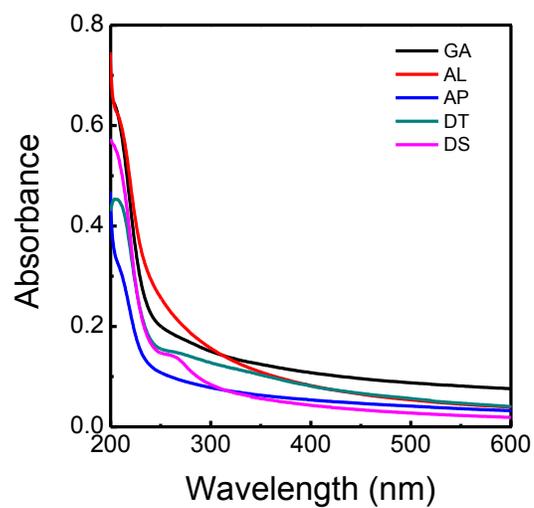


Carbohydrate block  
 $4 \times 10^4$  Da

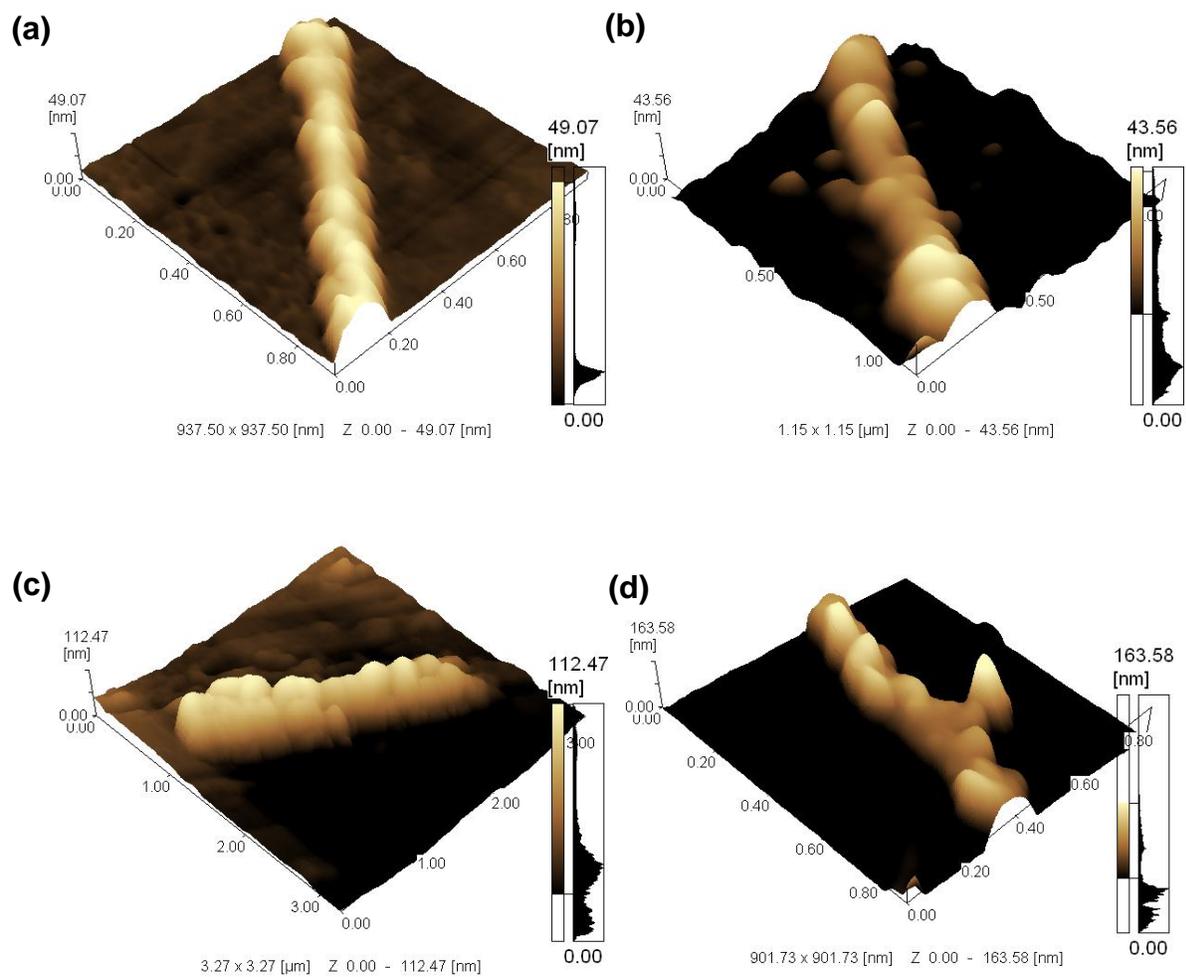
**Scheme S2.** Chemical structure of (a) DT (b) DS (c) AL and (d) AP.



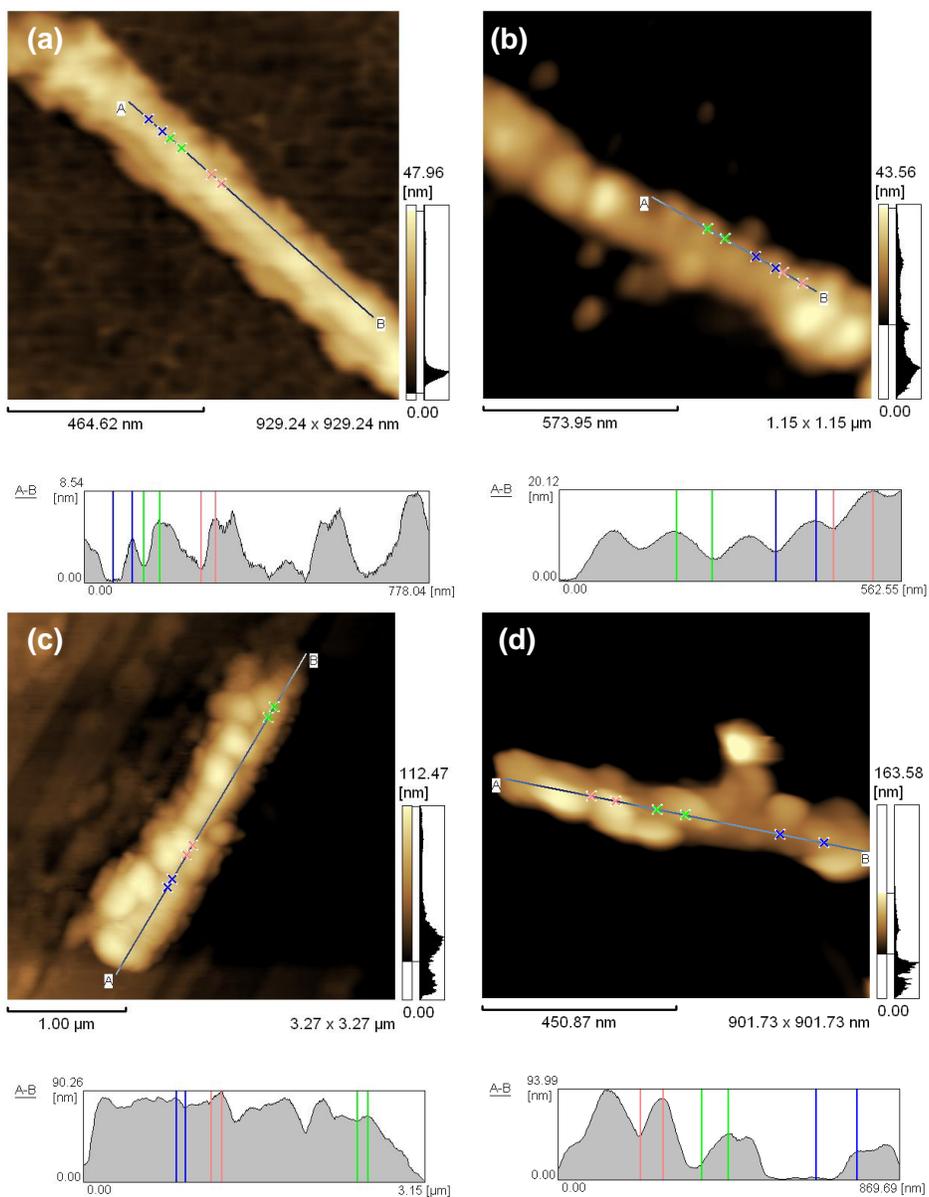




**Fig. S1** Comparative UV-Vis absorption spectra of as-prepared water-dispersed BNNTs with GA, AL, AP, DT, and DS, respectively.



**Fig. S2** 3D AFM images of (a) SAV; (b) BSA; (c) Lyz and (d) IgG on GA-functionalized BNNTs.



**Fig. S3** AFM height profiles of (a) SAV;(b) BSA; (c) Lyz and (d) IgG on GA-functionalized BNNTs. The height profile was recorded on the surface of GA-functionalized BNNTs with keeping along the longitudinal direction of BNNT. The surface of GA-functionalized BNNT was not fully covered by proteins, leading to the height of each GA-functionalized BNNT can be subtracted and the height of protein can be roughly measured.