

## **Electronic Supplementary Information**

### **Construction of biotinylated peptide nanotubes for arranging proteins**

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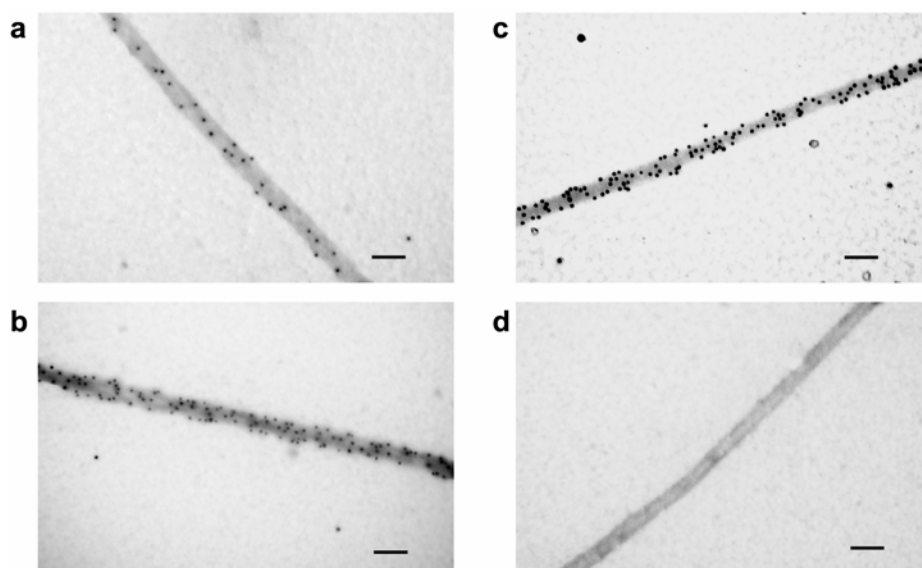
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## Supplementary data

### **Modification of peptide tubes with antibody.**

Goat anti-biotin IgG antibody labelled with colloidal gold (diameter of colloidal gold; 10 nm, protein concentration; 31 µg/mL) was purchased from BBinternational (UK). A solution of peptide tubes after treatment with glutaraldehyde (1%, 1 h) was applied to a collodion- and carbon-coated copper grid. After 20 min, the solution was blotted with a filter paper and the grid was washed with water. The grid was blocked with 0.3 M NH<sub>4</sub>Cl in Tris-HCl buffer (Tris-HCl; 7 mM, NaCl; 50 mM, pH 6.0) for 30 min, and washed with water three times. After blocking with a incubation buffer containing BSA (Tris-HCl; 20 mM, NaCl; 150 mM, Tween20; 1%, BSA; 1%, pH 5.7) for 10 min, the grid was floated onto a droplet of gold-labelled goat anti-biotin antibody solution appropriately diluted with the incubation buffer, and incubated for 30 min at room temperature. The grid was washed with 0.1% Tween20/water 6 times and stained with 0.3% phosphotungstic acid for 30 seconds. The solution was blotted with a filter paper and then dried gradually at room temperature prior to TEM analysis. In another procedure that the peptide tubes were incubated with the antibody in a solution before being fixed onto a grid, the modification of the peptide tubes with the antibodies was accomplished in a higher level. However, we selected the incubation with the antibody after fixation of the peptide tubes on a grid for easier evaluation of bound gold particles.



**Fig. 1S.** TEM images of peptide tubes with anti-biotin antibody. (a) The peptide tube of **BiDH-FI** with the antibody (0.31  $\mu\text{g}/\text{mL}$ ). The peptide tubes of **BiDH-FI** (b) and **BiDD-FI** (c) with the antibody (3.1  $\mu\text{g}/\text{mL}$ ). (d) The peptide tube of **AcHH-FI** with the antibody (0.31  $\mu\text{g}/\text{mL}$ ).