Reversible pH-responsive helical nanoribbons formed by camptothecin

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Supporting Information

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Experimental Section

Materials

Camptothecin and all other organic reagents were of analytical quality without further purification and were all commercially available from Sinopharm Chemical Reagent Co. Ltd., China.

Preparation of the helical nanoribbons

The 10^{-2} mol/L mother DMSO solution of CPT was prepared by dissolving certain molar quantities of powder CPT in DMSO directly. Then the mother solution was diluted into 3×10^{-4} mol/L with deionized water. Finally, the CPT helical nanoribbons were prepared after the CPT aqueous solution was shaked by hand for one min at room temperature.

Analytical instruments and methods

SEM pictures were gotten with a Hitachi S-4800 scanning electron microscope. The samples for SEM detection were dropped in the copper wire mesh and then sprayed by the gold. AFM testing was conducted with a Veeco Nanoscope Multimode III SPM and operated in tapping contact mode at ambient temperature. The AFM sample was dropped on the smooth silicon wafer and dried by freeze drying for 5 days. The

X-Ray powder Diffraction experiment was performed on a German Bruker/D8 ADVANCE diffractometer with Cu Kα radiation. FT-IR spectrum was obtained on an Avatar 370 FT-IR Spectrometer with KBr pellet method at room temperature. KBr was used in the process of sample disks preparation. UV-vis curves were obtained at room temperature with a TU-1800pc UV-vis spectrophotometer which was purchased from Purkinje General Co. Ltd., Beijing, China. The certain concentration of solution was poured into quartz cuvette to detect the absorption peaks. CD spectra were measured at room temperature with a JASCO-J810 CD spectrometer. The simulation and the molecular models were obtained from the software Materials Studio 5.5 by Accelrys.

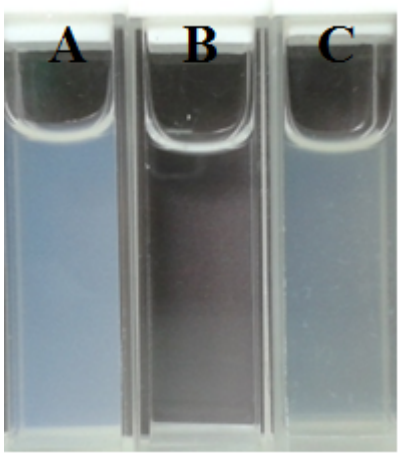

Fig. S1 (A) CPT aqueous solution (3×10^{-4} mol/L) at room temperature (pH = 7); (B) the solution of (A) is treated with a certain amount of sodium hydroxide (pH = 9); (C) the solution of (B) is treated with a certain amount of sulfuric acid (pH = 5).

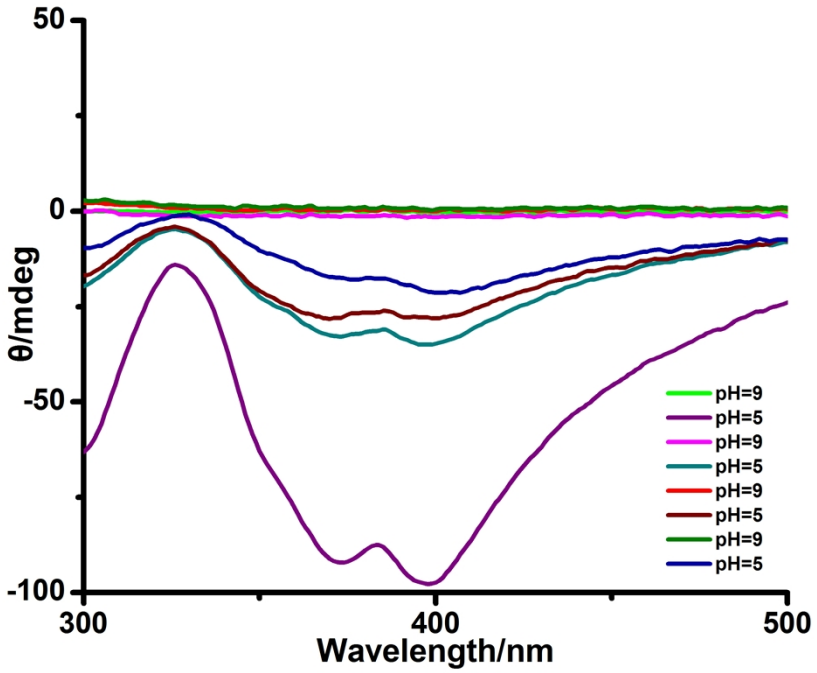

Fig. S2 The circular dichroism spectra comparison of CPT aqueous solution (3×10^{-4} mol/L) in different pH value.