ESI

Multi-Responsive Carbon Nanotube Gel Prepared via Ultrasound-Induced Assembly

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1. Materials

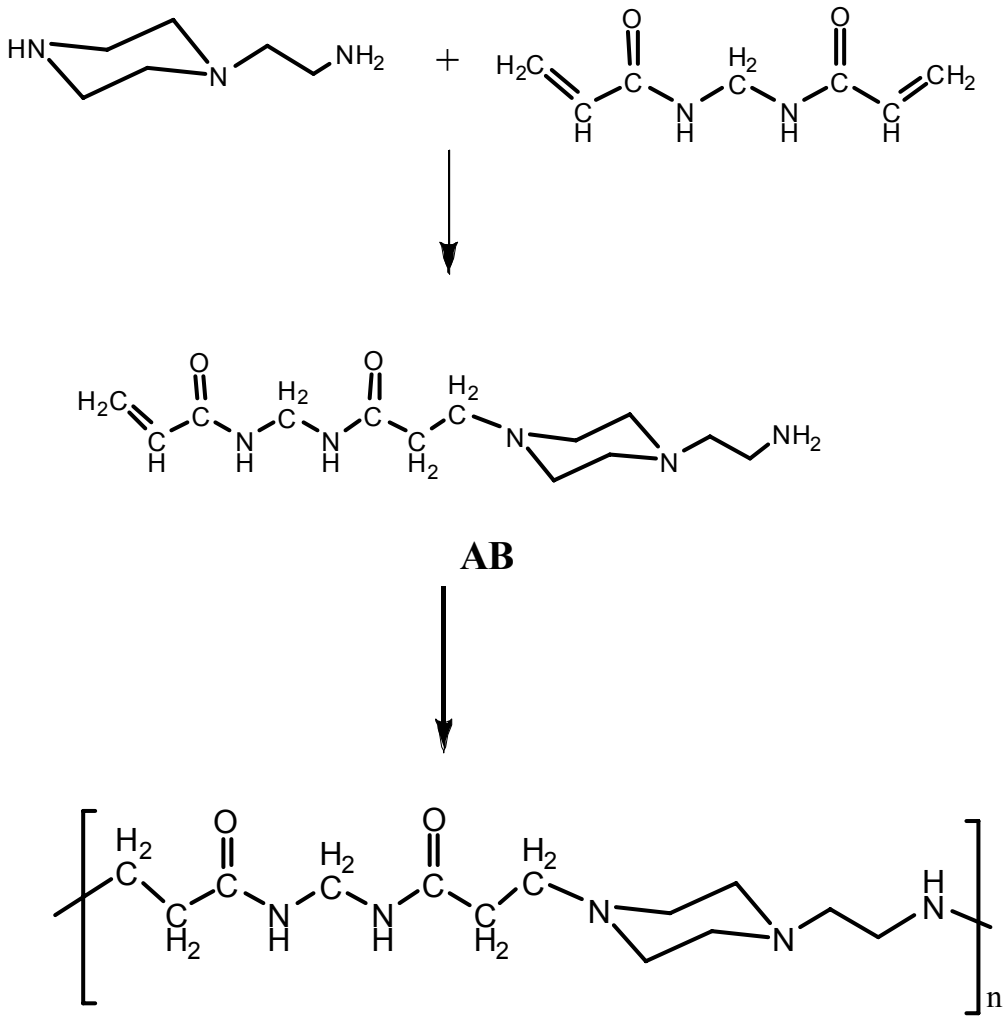
1-(2-aminoethyl)piperazine (AEPZ, 99%, Sigma-Aldrich), *N,N*'-methylene bisacrylamide (MBA, 99%, Sigma-Aldrich), methanol (99.8%, Sigma-Aldrich), acetone (99.5%, Aldrich), *N*,*N*-dimethylformamide (DMF, >99.0%, Sigma-Aldrich) and all other chemicals were used as received.

2. Characterizations

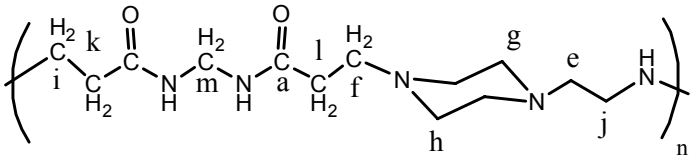
^{1}H NMR and ^{13}C NMR studies were performed on a Bruker spectrometer (300 MHz). The weight-average molecular weight (M_w), number-average molecular weight (M_n) and polydispersity index (PDI) of the polymers were determined by size exclusion chromatography (SEC) using a Shimadzu LC-10ADVP liquid chromatograph equipped with a Polymer Labs PL gel 5 μm mixed C column. The system was equipped with laser light scattering detector and a refractometer. *N*,*N*-dimethylformamide (DMF) was used as an eluent at a flow rate of 1.0 mL/min and temperature of 35 °C. Molecular weights were calculated

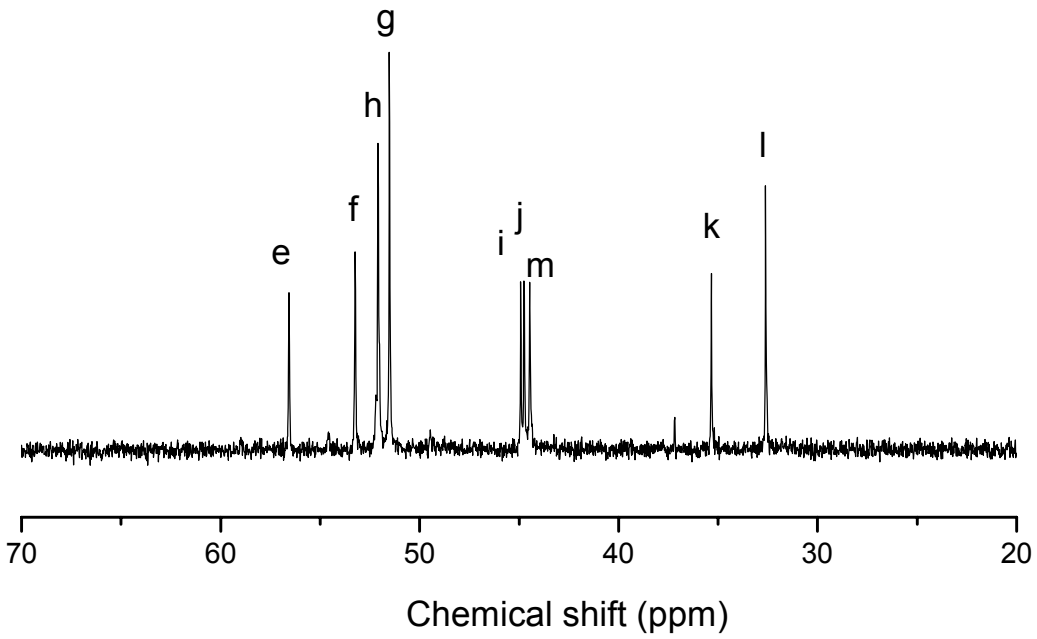
based on the light scattering data, dn/dc (0.075 mL/g) and concentration of sample. FT-IR spectra were recorded on a Bruker spectrometer using KBr window and all the measurements were performed at ambient temperature (ca. 25 ^{o}C).

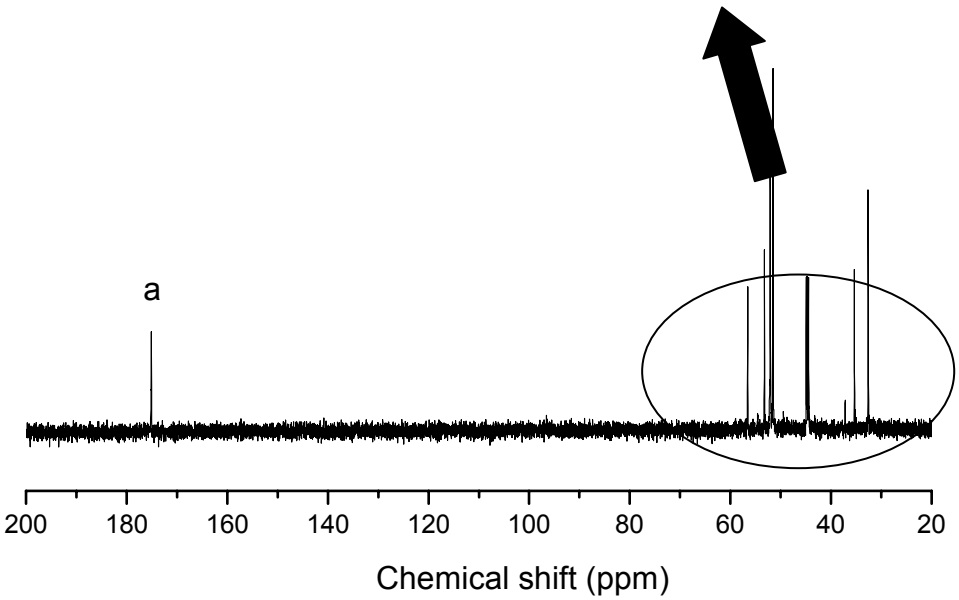
2. NMR spectra of linear poly(amido amine)



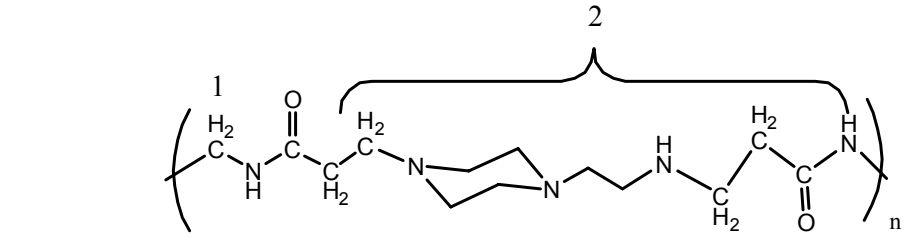
S-Scheme 1 Outline of the synthesis of linear poly(amido amine)

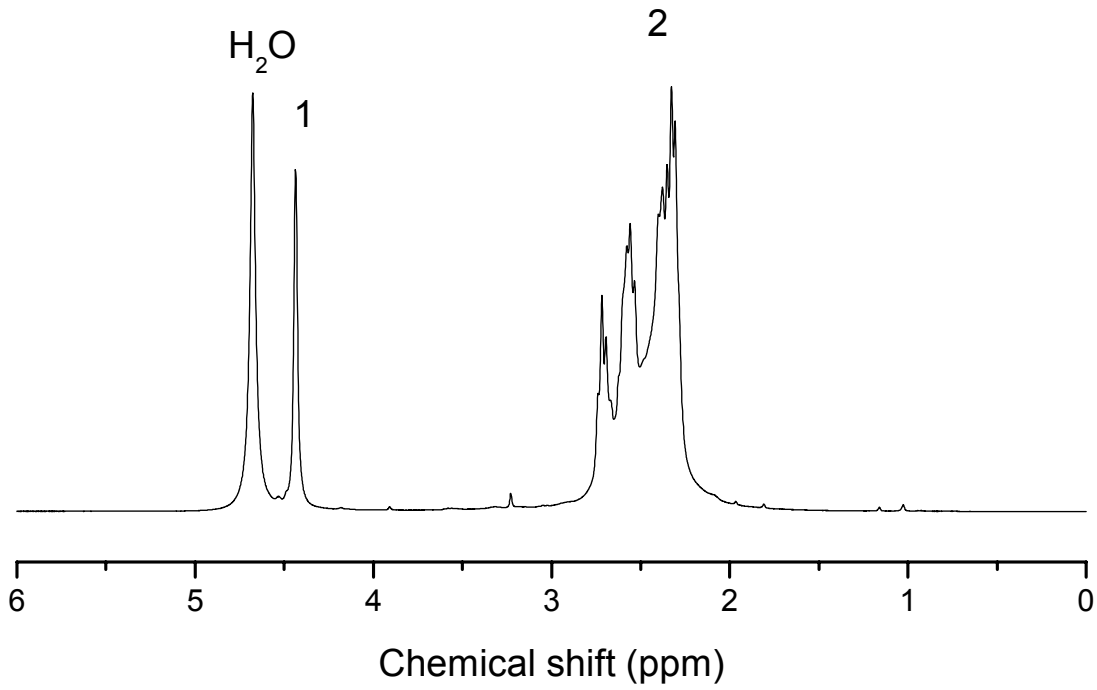






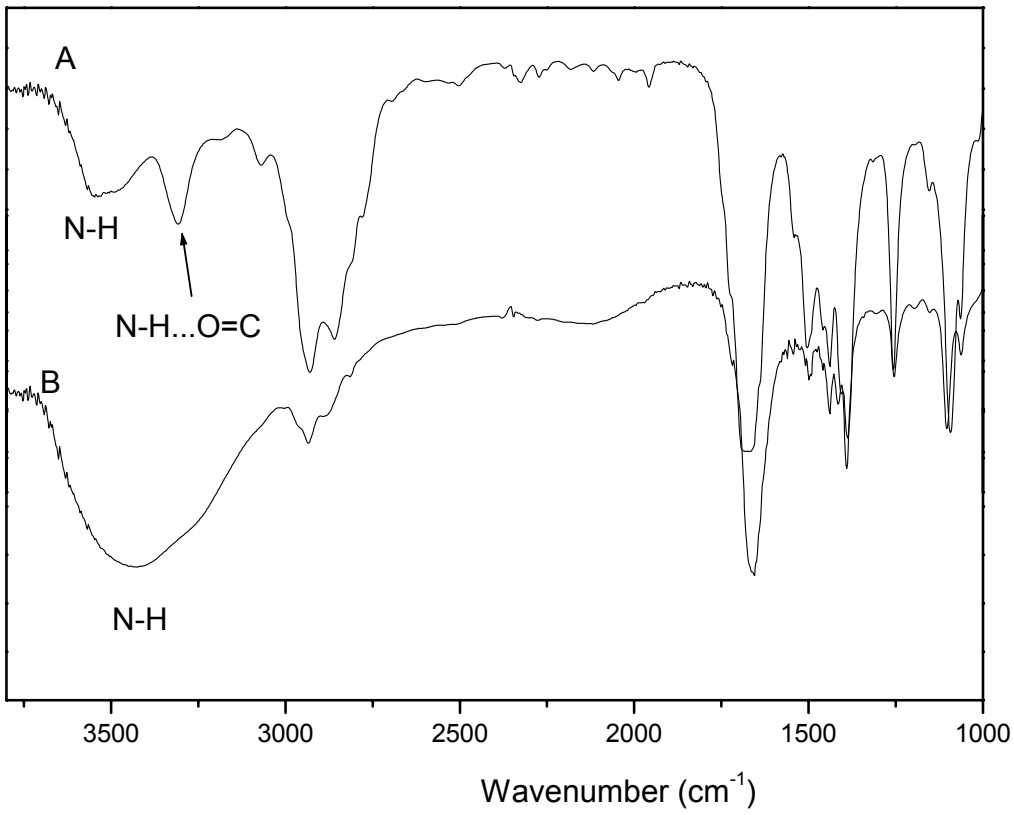
S-Figure 1 ^{13}C NMR spectrum of poly(amido amine) with Mn of 12800 in D_2O.





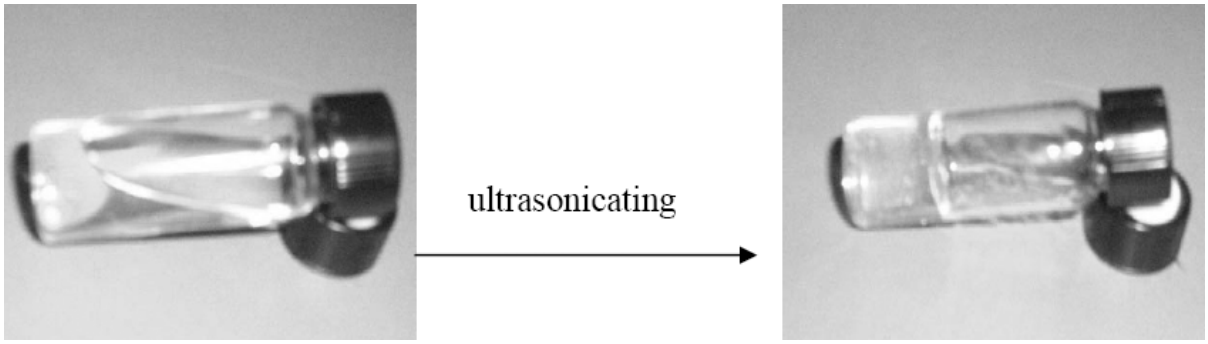
S-Figure 2 ^{1}H NMR spectrum of poly(amido amine) with Mw of 12800 in D_2O.

4. FT-IR spectra



S-Figure-3 FT-IR spectra of carbon nanotube gel under sonicating before (A) and after (B) adding small amount of water

5. The images of poly(amido amine) in DMF before(A) and after (B) altrasonication without carbon nanotubes.



S-Figure 4 The images of poly(amido amine) in DMF before(A) and after (B) altrasonication without carbon nanotubes.