Formation of calcite with stepped (104) face under control of poly (ethylene glycol)-*b*-poly (L-leucine) at the air/solution interface

Xiaoxiao Wei, Yunlan Su,* Tao Wen, Zhiyong Li, Jian Yang, and Dujin Wang*

Characterization of polymer solution: The aqueous solution of poly (ethylene glycol)-*b*-poly (L-leucine) was prepared immediately before use by dissolving 2 mg of polymer in 10 ml deionized water. In order to make certain the polymer was fully dissolved, it was dissolved under ultrasonic processing for two hours. Furthermore, the solution was stirred for another hour. Then the pH was adjusted to 9.0 using a diluted 1M NaOH solution.

Hydrodynamic diameter was measured using ALV-5022F Laser Light Scattering Spectrometer, which consists of a 22mW HeNe linear polarized laser with 632.8 nm wavelength. The sample was kept at constant temperature (25 ºC) during all the experiment. The accessible scattering angle range is 90°. The solutions were introduced into 10 mm diameter glass cells. The minimum sample volume required for the experiment was 1 milliliter. The data acquisition was done with the ALV-Correlator Control Software, and the counting time was 600 s.

For TEM, copper grids were surface-coated with polyvinyl formal film. A droplet of 200 ppm polymer solution was adsorbed to the grids for three minutes and then blotted with filter paper to remove the excess solution. To stain the aggregates, phosphotungstic acid (1 w/v %) solution was soaked on the sample-loaded grid for another 3 minutes and then carefully blotted to remove the excess stain. The grid was then dried naturally. Imaging was performed on a JEM-2200FS transmission electron

microscope operated at 200 KV, equipped with a Gatan 1k×1k CCD camera.

Analysis of the secondary conformation of the polymer was obtained at 25 ºC using a J-815 circular dichroism spectrometer. The solutions at concentration of 200 ppm was introduced in quartz cells with a path length of 1 mm. Wavelengths scans were conducted from 190 to 250 nm, using a total of five scans with 0.25 nm/s scan rate.

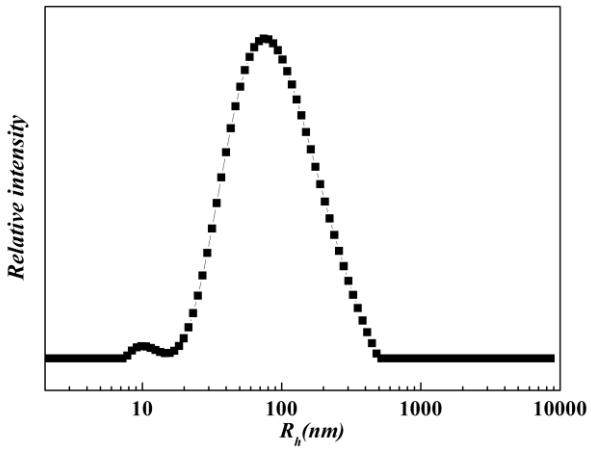

Fig. S1 Dynamic light scattering of PEG-*b*-PLeu micelles at pH value of 9 and concentration of 200 ppm.

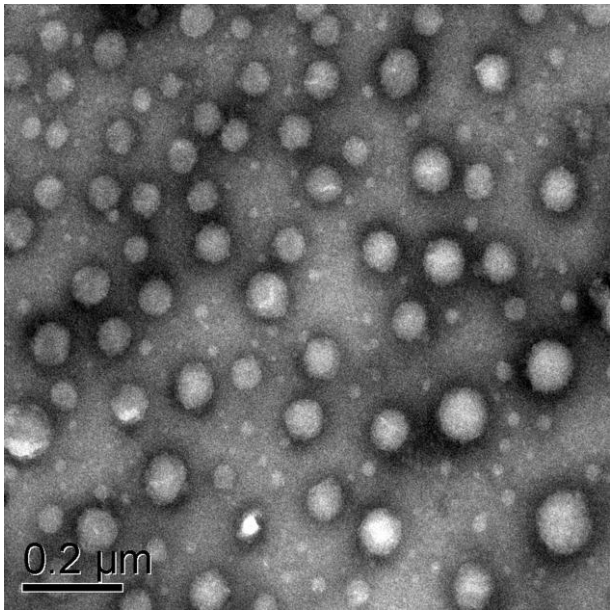

Fig. S2 TEM images of PEG-*b*-PLeu micelles dried from aqueous solution.

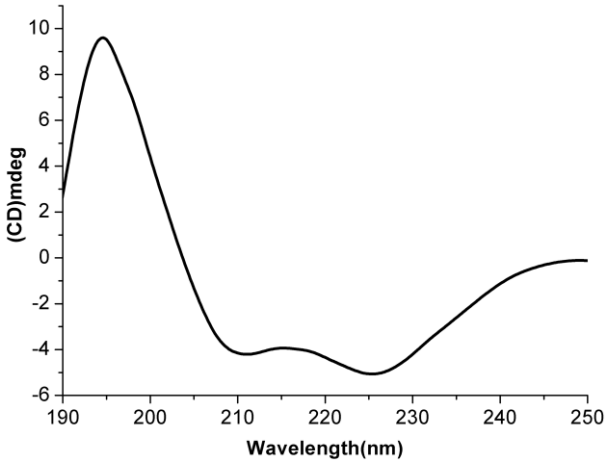

Fig. S3 CD spectra of PEG-*b*-PLeu solution at 200 ppm.