

Supporting information file (SI)

1. Chemicals and Materials

Chitosan, with a deacetylation degree of 88% and a molecular weight of 2.0×10^5 , was acquired from Acros Organics, NJ, USA. Other chemicals and reagents, obtained from Aldrich, were of analytical grade and used as supplied.

2. Measurements

IR spectra were recorded in potassium bromide discs on Pye Unicam SP 3300 and Shimadzu FTIR 8101 PC infrared spectrophotometers. The Shimadzu GCMS-QP1000 EX mass spectrometer was used to record mass spectra at 70 eV. NMR spectra were recorded on a Varian Mercury VX-500 NMR spectrometer operating at 500 MHz (^1H -NMR) and run in deuterated dimethylsulfoxide ($\text{DMSO-}d_6$) (125 MHz for ^{13}C -NMR). On a digital melting point device from the Electrothermal IA 9000 series, melting points were calculated. Sonication was performed in Shanghai Branson-CQX ultrasonic cleaner at a frequency of 40 kHz, and ultrasonic power was kept at 250 W. FTIR spectra of chitosan and PIBTU-CS hydrogel were given using KBr pellets with a range of 400 to 4000 cm^{-1} by a Tescan Shimadzu FTIR spectrophotometer, Model 8000, Japan. X-ray diffractometer (Brucker's D-8) was used to determine the internal structure of chitosan and PIBTU-CS hydrogel. The samples were scanned at a various angle, 2θ , in the range between 3° and 70° at 80 min^{-1} speed at room temperature. The source of the X-ray (1.5406 \AA , 40 kV, 30 mA) was made by $\text{CuK}\alpha$ radiation filtered by a nickel. Chitosan and PIBTU-CS surface morphology was scanned using a Quanta scanning electron microscope (model FEG 250). Before scanning the samples were sputtered with gold.

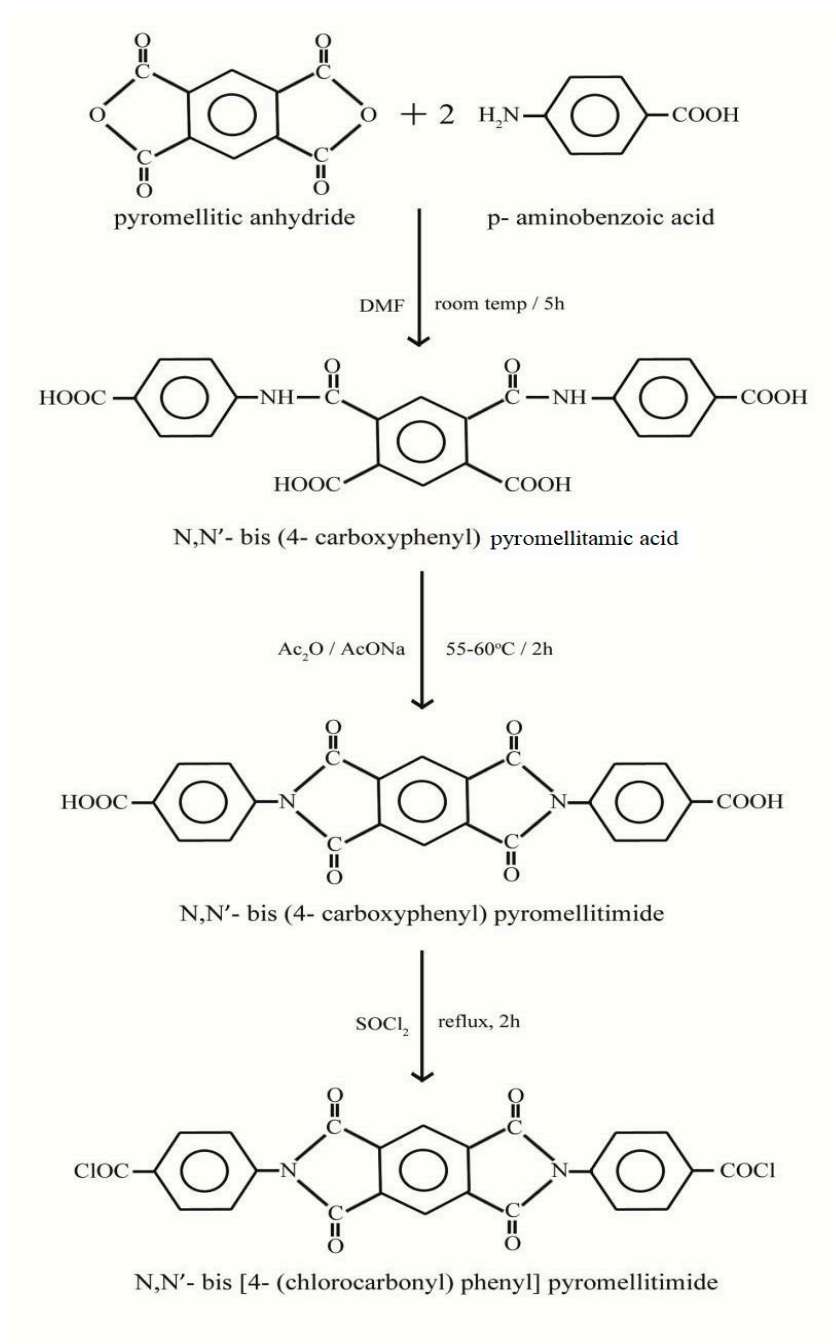


Fig.S1. Synthesis of N,N'- bis [4-(chlorocarbonyl)phenyl] pyromellitimide.

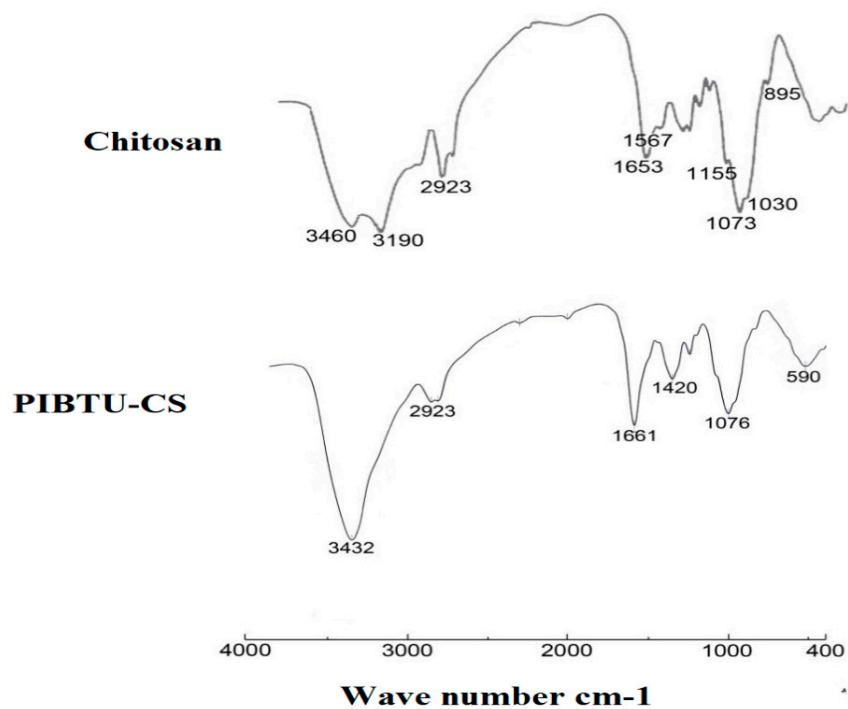


Fig.S2. FTIR spectra of chitosan and PIBTU-CS hydrogel.

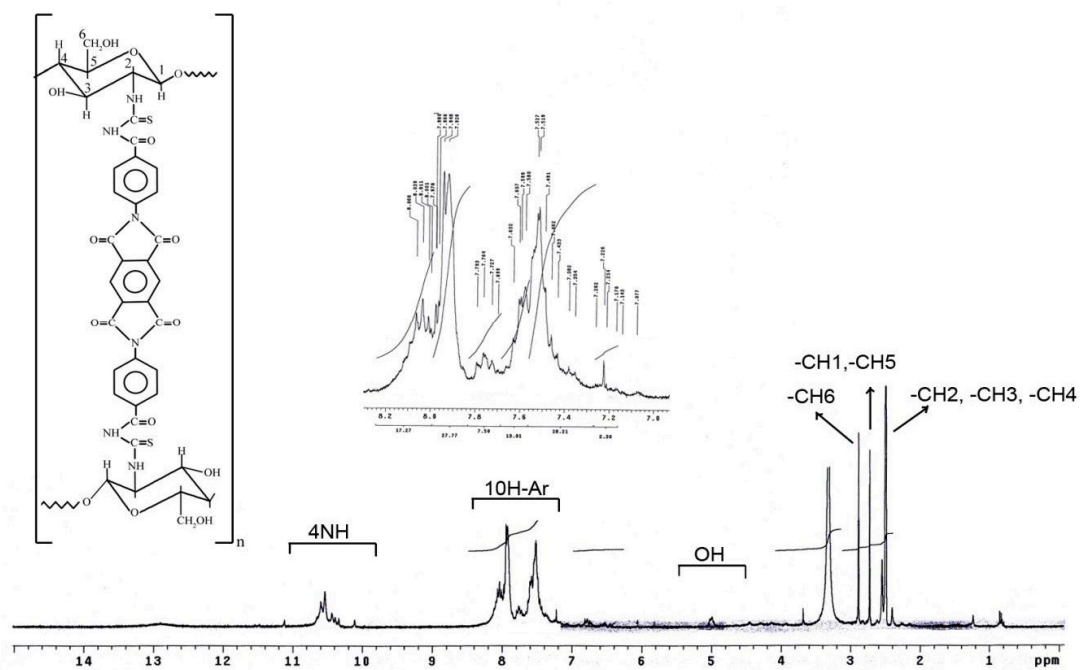


Fig.S3. $^1\text{H-NMR}$ spectrum of PIBTU-CS hydrogel.

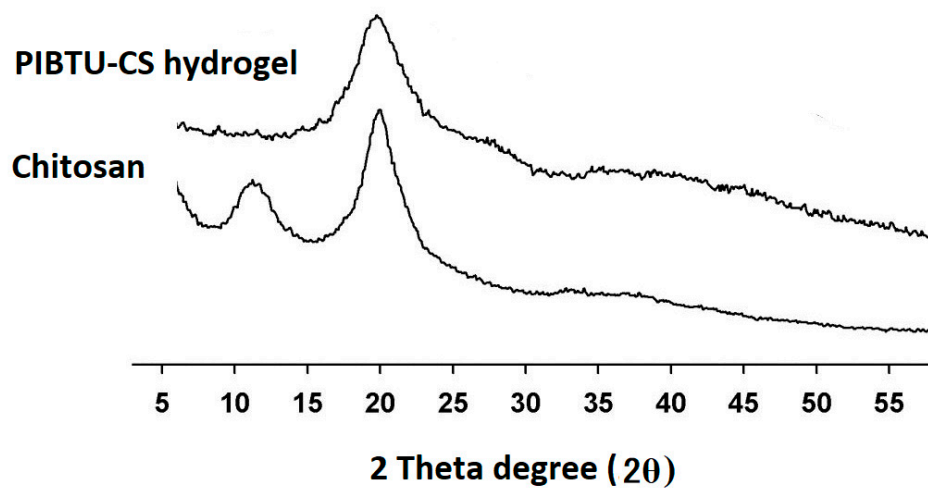
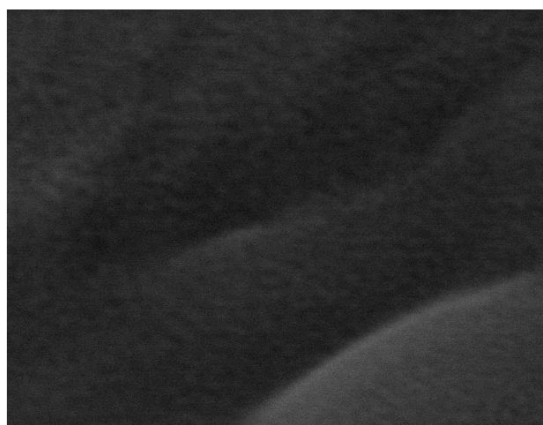
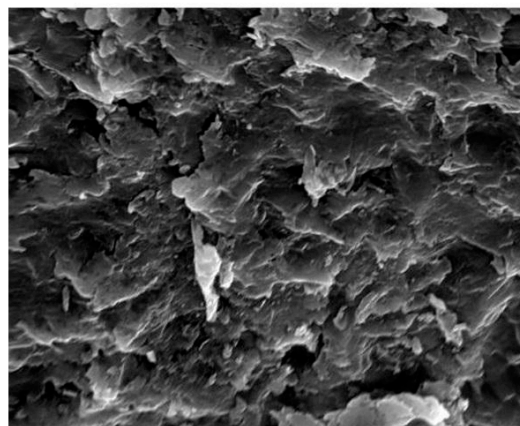


Fig.S4. Powder X-ray diffraction of chitosan and PIBTU-CS hydrogel.



Chitosan



PIBTU-CS hydrogel

Fig.S5. SEM images of chitosan and PIBTU-CS hydrogel.