Supplementary Information

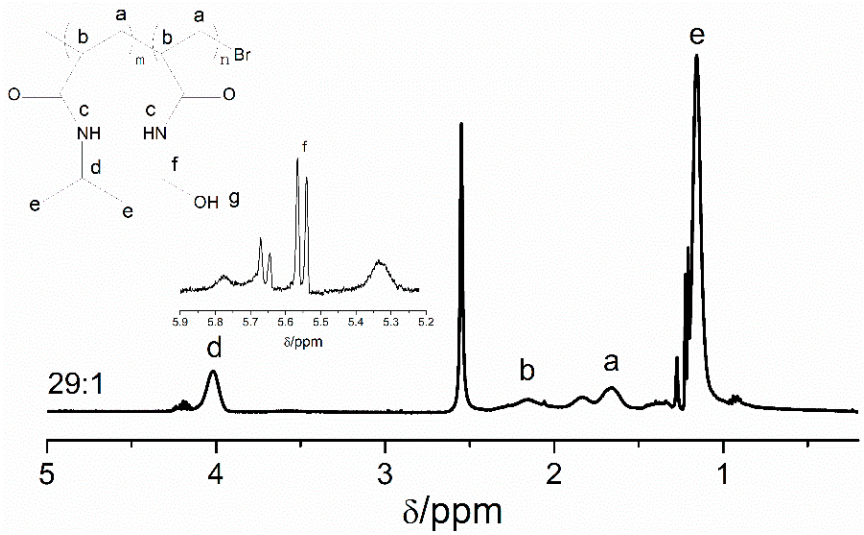

Figure S1. Typical ^{1}H NMR spectra of P(NIPAAM-*co*-NHMPA) and PNIPAAm were recorded in deuterated chloroform at room temperature. ^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.02 (1H, –NH–), 5.54–5.57 (2H, –N–CH_2–O–), 4.15 (2H, –O–CH_2–C–), 4.00 (1H, –N–CH<C), 2.76 (2H, –C–CH_2–C–), 2.1 (1H, –C–OH), 1.59–1.66 (1H, –C–CH<C), 1.25–1.14 (6H, –C<$(CH_3)_2$).

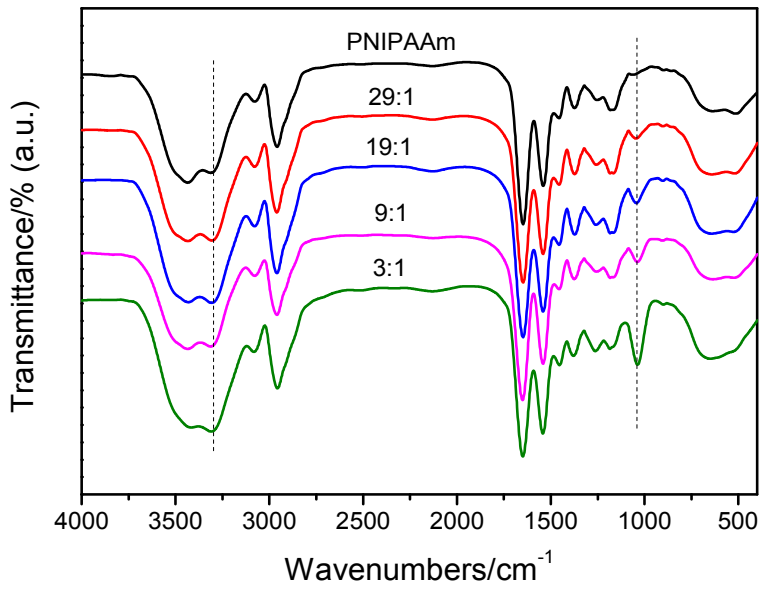

Figure S2. FTIR spectra of P(NIPAAm-*co*-NHMAAm) (the feed ratio of monomer are 29:1, 19:1, 9:1, 3:1) were recorded on Thermo Nicolet Avatar370 FT-IR Spectrometer with the KBr disk technique at room temperature. IR absorption strength of copolymer at 3393 cm^{-1} (υ_{O-H}), 1050 cm^{-1} (υ_{C-O}, –C–O–H) increased consequently, demonstrating the increase of NHMAAm segment in the polymer chain.

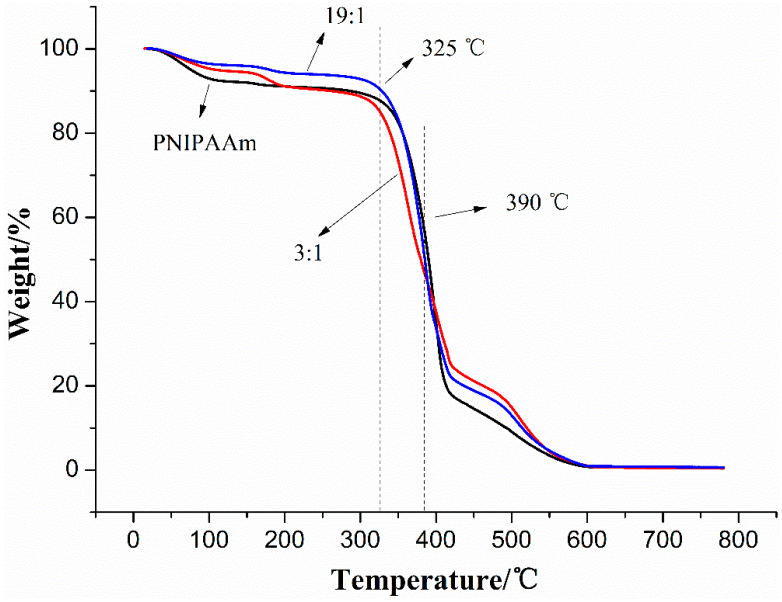

Figure S3. Thermo-gravimetric analysis (TGA) curves of PNIPAAm and P(NIPAAm-*co*-NHMAAm) (the feed ratio of monomer are 19:1, 3:1) were recorded with a TGA Pyris 1 thermogravimetric analyzer. The TGA curves of these polymers were quite similar, which showed similar thermal stability of these polymers. The introduction of the hydrophilic monomer NHMAAm has little effect on the thermal stability of the copolymer. P(NIPAAm-*co*-NHMAAm) (19:1 and 3:1) exhibit good thermal stability like PNIPAAm and begins to thermally decompose at 325 °C; it reaches half decomposition at 390 °C.