**Fig. S1** $^1$H NMR of copolymers of P(MEA-co-PEG) in CDCl$_3$. (A) P(MEA$_{86}$-co-PEG$_{10}$); (B) P(MEA$_{76}$-co-PEG$_{18}$); (C) P(MEA$_{70}$-co-PEG$_{30}$); (D) P(MEA$_{84}$-co-PEG$_{15}$); (E) P(MEA$_{75}$-co-PEG$_{25}$).
Fig. S2 $^1$H NMR in D$_2$O of PDMA-$b$-P(MEA-$co$-PEGA) synthesized by dispersion polymerization. The molar ratio of PDMA, MEA and PEGA, and solid content are: (A) 1:80:20, 12.1%; (B) 1:90:10, 12.5%; (C) 1:127.5:22.5, 11.4%; (D) 1:170:30, 10.9%; (E) 1:160:40, 10.8%; (F) 1:170:30, 16.7%; (G) 1:85:15, 24.5%.
Fig. S3 Plot of \(\ln(M_0/M)\) vs time for solution polymerization in DMF. \([\text{CTA}] = 29 \text{ mM}\) in DMF, CTA:AIBN:monomer = 1:0.2:100, 70 °C. (A) Homopolymerization for PMEA_{97}; (B) copolymerization for P(MEA_{86}-co-PEGA_{10}); (C) copolymerization for P(MEA_{70}-co-PEGA_{30}); and (D) homopolymerization for PPEGA_{97}.

Fig. S4 Plot of \(\ln(M_0/M)\) vs time for dispersion polymerization in water. Monomer content = 10% (w/v), [Macro-CTA]:[MEA+PEGA]:[V-50] = 1:100:0.05, 70 °C. (A) [MEA]:PEGA = 90:10; (B) [MEA]:PEGA = 85:15.
Fig. S5 Typical TEM image for nanogels.