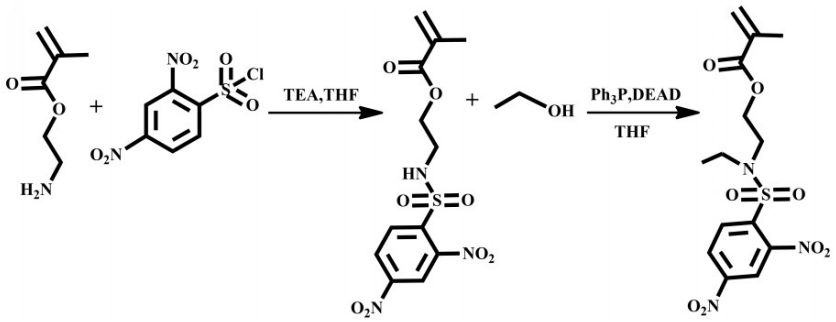
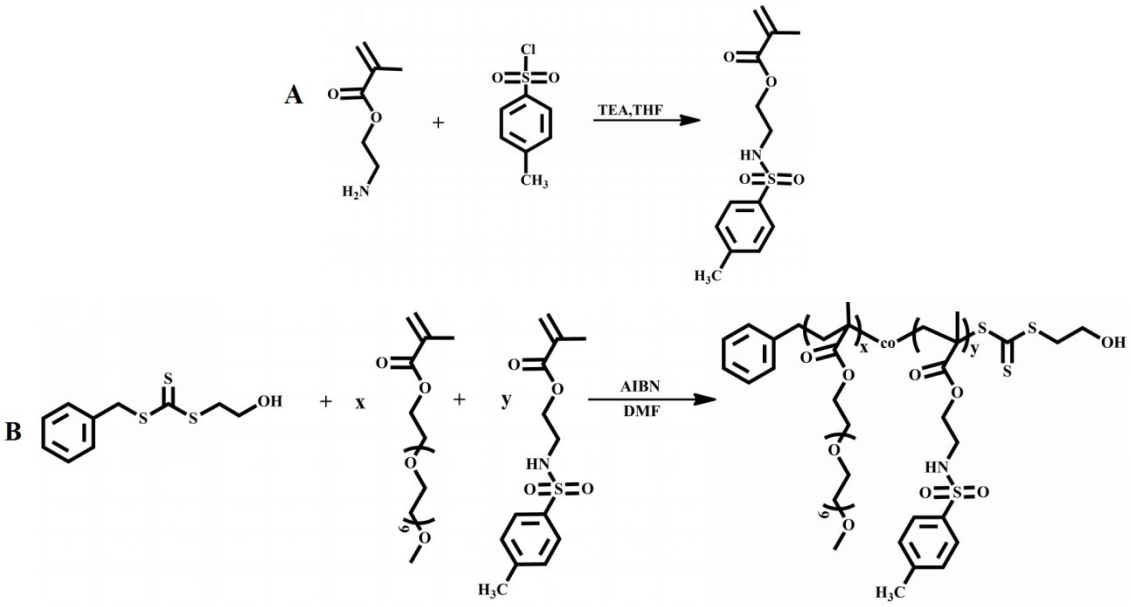



**Scheme S1.** The synthetic route of ADEE monomers.




**Scheme S2.** (A) The synthetic route of AMMA monomers and mPEG-PAMMA copolymers.

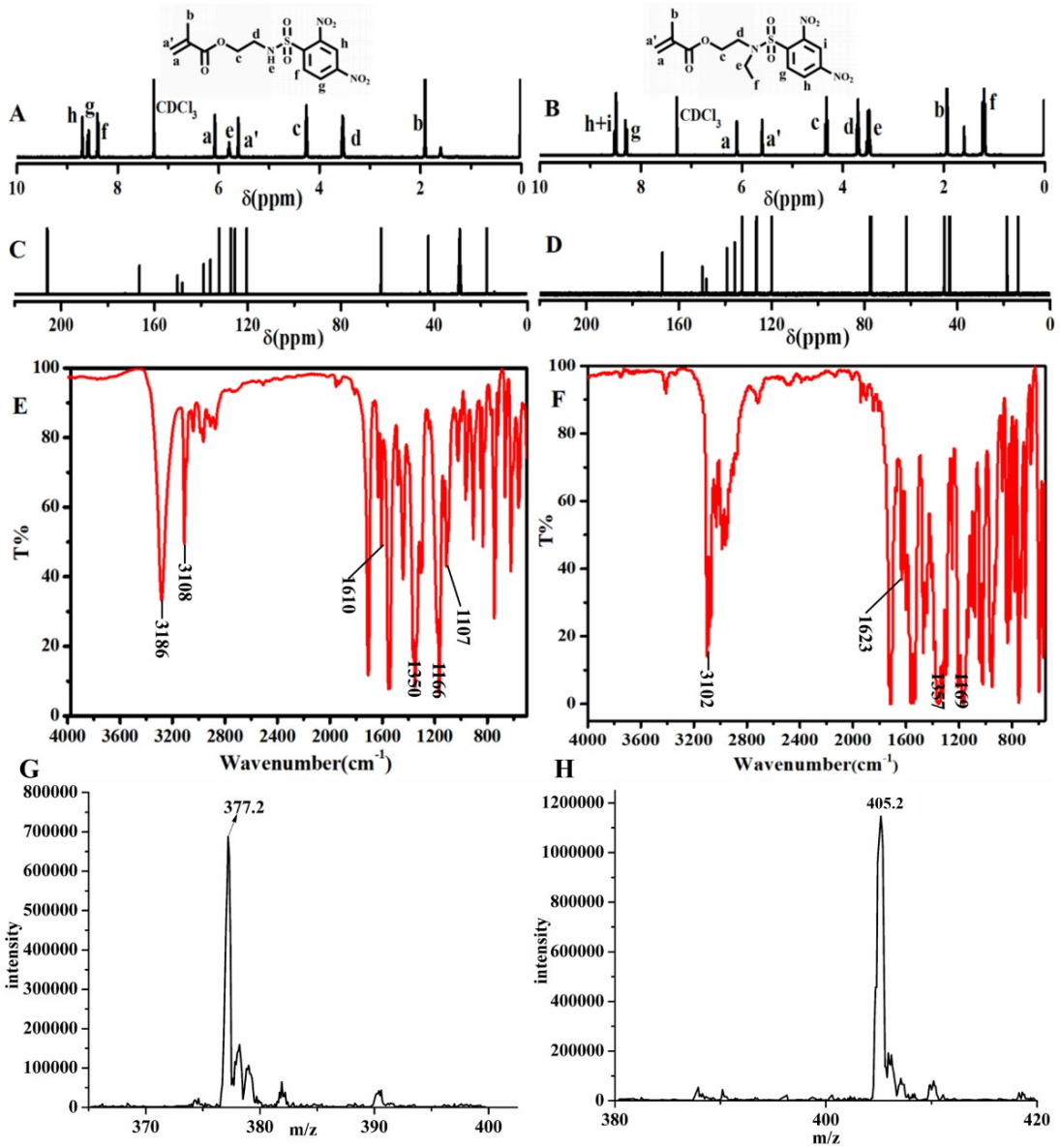



**Figure S1.** The characterization of ADE monomer *via* (A) $^{1}$H NMR, (C) $^{13}$C NMR, (E) FI-RT and (G) LCMS. The characterization of ADEE monomer *via* (B) $^{1}$H NMR, (D) $^{13}$C NMR, (F) FI-RT and (H) LCMS .

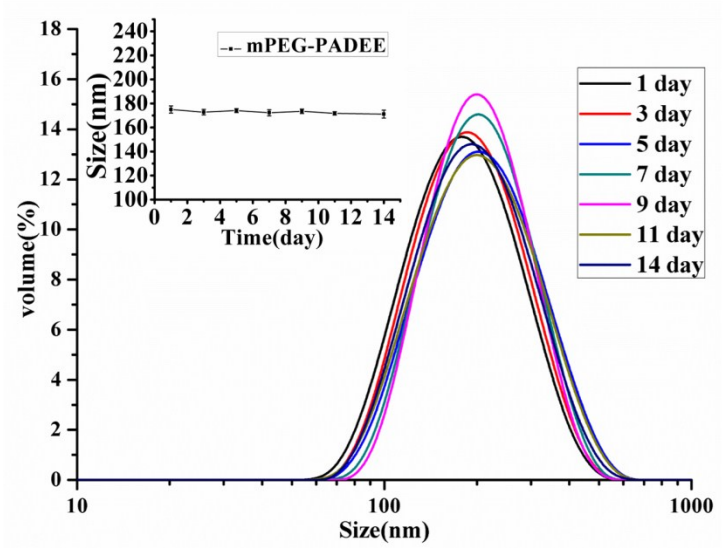



**Figure S2.** The size change of mPEG-PADEE micelles within two weeks.

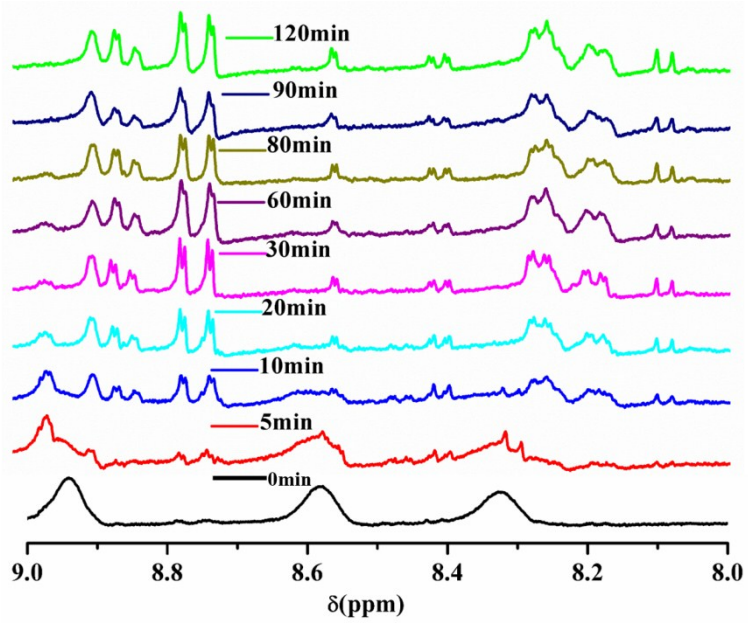



**Figure S3.** The enlarged $^{1}H$ NMR spetra of mPEG-PADEE-1 micelles solution upon treatment with cysteine (10 mM).

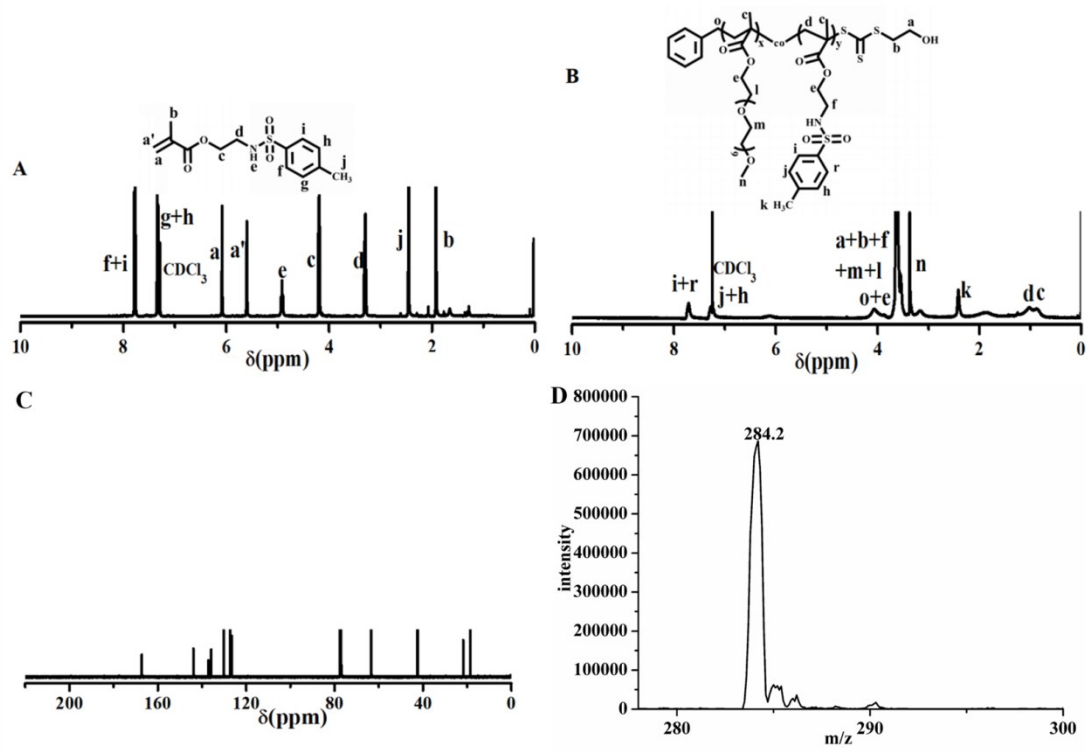



**Figure S4.** (A) $^{1}H$ NMR spectra of AMMA monomers and (B) mPEG-PAMMA copolymers. (C) $^{13}C$ NMR spectra of AMMA monomers and (D) LCMS spectra of AMMA monomers.

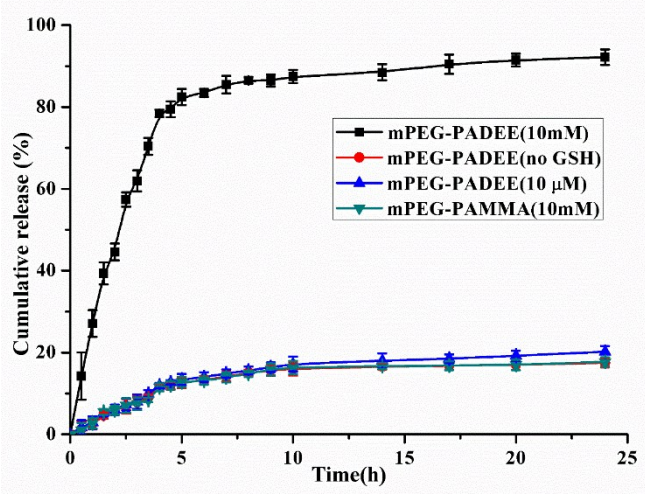



**Figure S5.** GSH triggered PhA release from mPEG-PADEE/PhA micelles and mPEG-PAMMA/PhA micelles. The error bars in the graph represent standard deviations (n =3).

**Table S1.** The composition of mPEG-PADEE copolymers.

| Samples | *Mn* (Da) [a] | *Mn* (Da) [b] | *M*w/*M*n [b] | Particle size(nm) [c] | PDI[c] |
|---|---|---|---|---|---|
| mPEG-PADEE-1 | 11530 | 12160 | 1.56 | 165.2±1.2 | 0.14±0.04 |
| mPEG-PADEE-2 | 12210 | 12945 | 1.68 | 190.4±1.8 | 0.26±0.11 |
| mPEG-PADEE-3 | 15780 | 16412 | 1.77 | 233.2±3.4 | 0.34±0.17 |
| Treated with thiols | 8471 | 8850 | 1.71 | - | - |

[a] Calculated by $^1$H NMR.

[b] Determined by GPC.

[c] Measured by Zeta Nano Sizer.

**Table S2.** Characterization of mPEG-PADEE/PhA and mPEG-PAMMA/PhA micelles. Data are represented as mean ± S.D. (n=3).

| Samples | DLE (%) | DLA ( %) | Particle size(nm) [a] | PDI[a] | Zeta potential (mV) [a] |
|---|---|---|---|---|---|
| mPEG-PADEE/PhA | 89.2±2.1 | 26.3±0.3 | 145±1.6 | 0.13±0.05 | -8.9±1.2 |
| mPEG-PAMMA/PhA | 85.3±2.3 | 25.5±0.5 | 157±2.1 | 0.14±0.04 | -11.4±3.3 |

[a] Measured by Zeta Nano Sizer.