

## Supporting Information

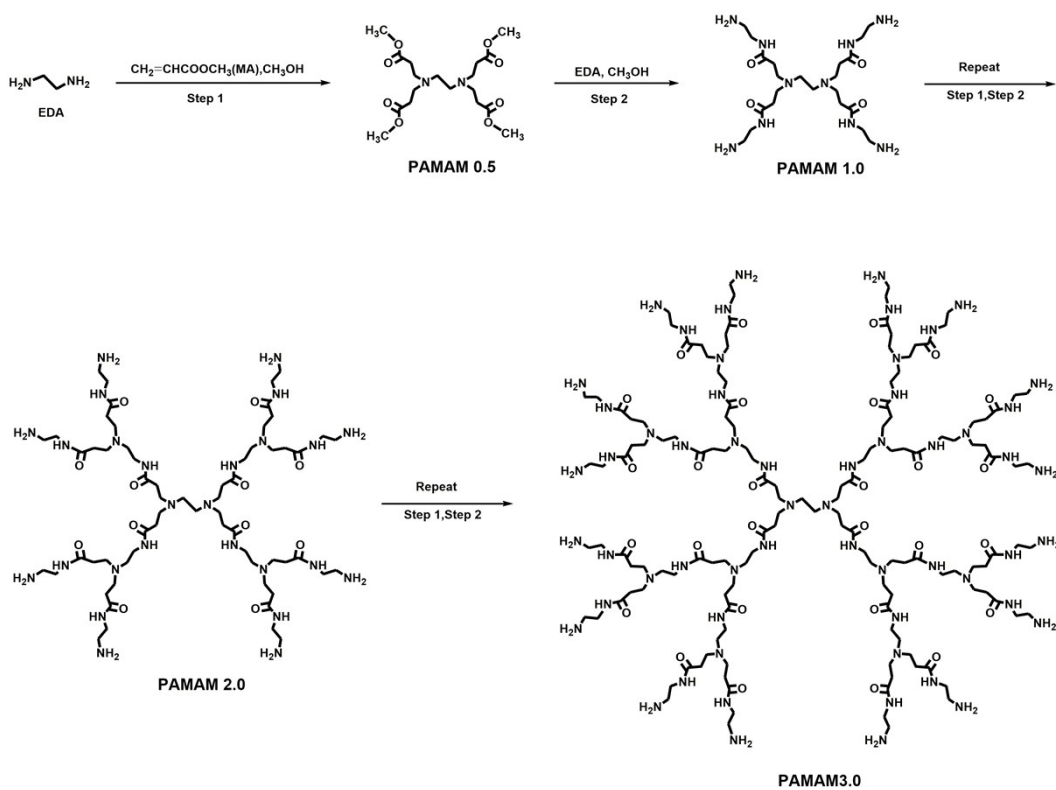


Fig. S1 Synthetic route of PAMAM3.0

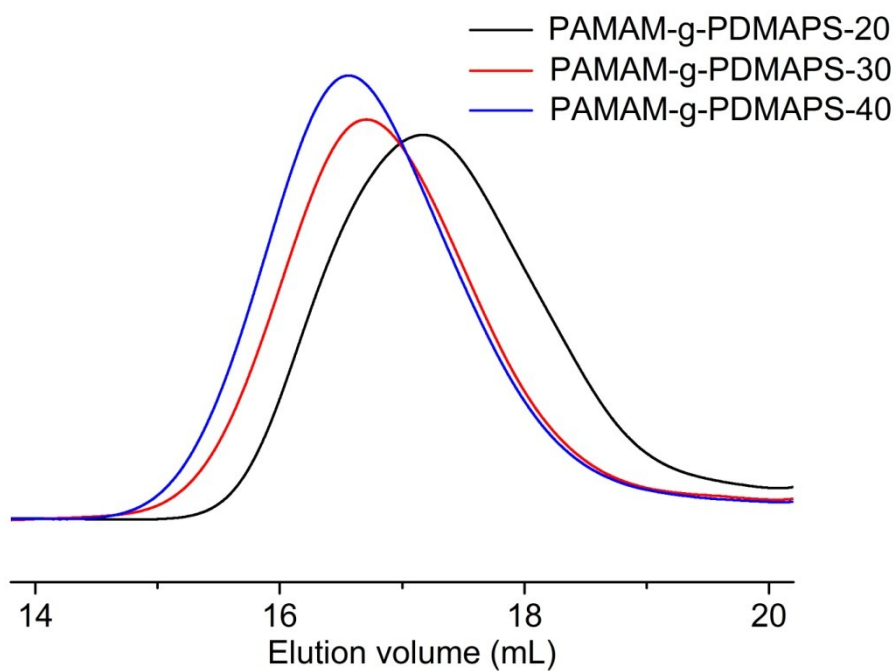


Fig. S2 GPC traces of PAMAM3.0-g-PDMAPS

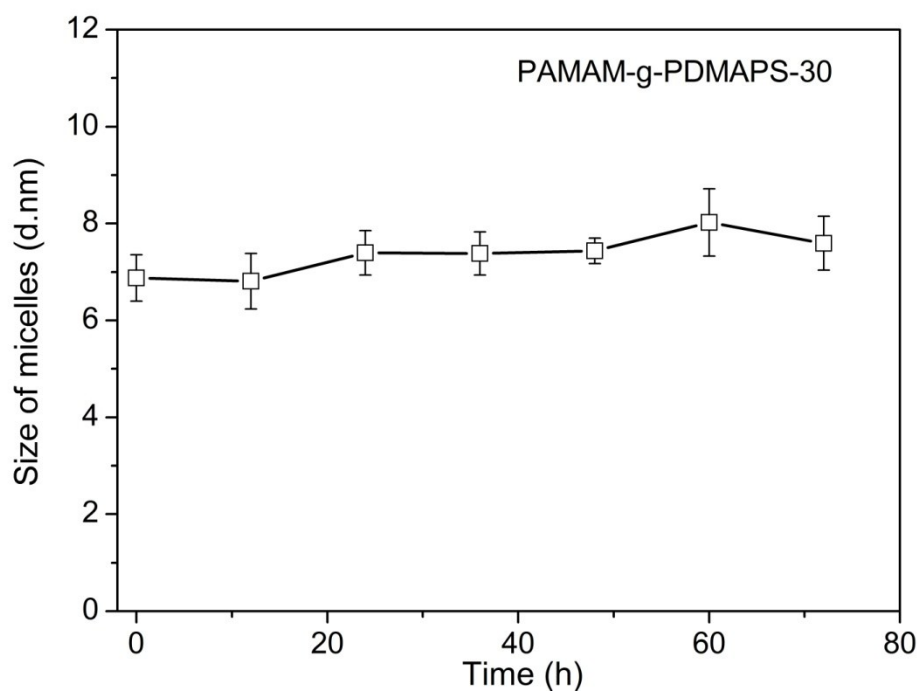


Fig. S3 size of PAMAM3.0-g-PDMAPS-30 micelles in DMEM cultured media containing 10% FBS within 72 h.

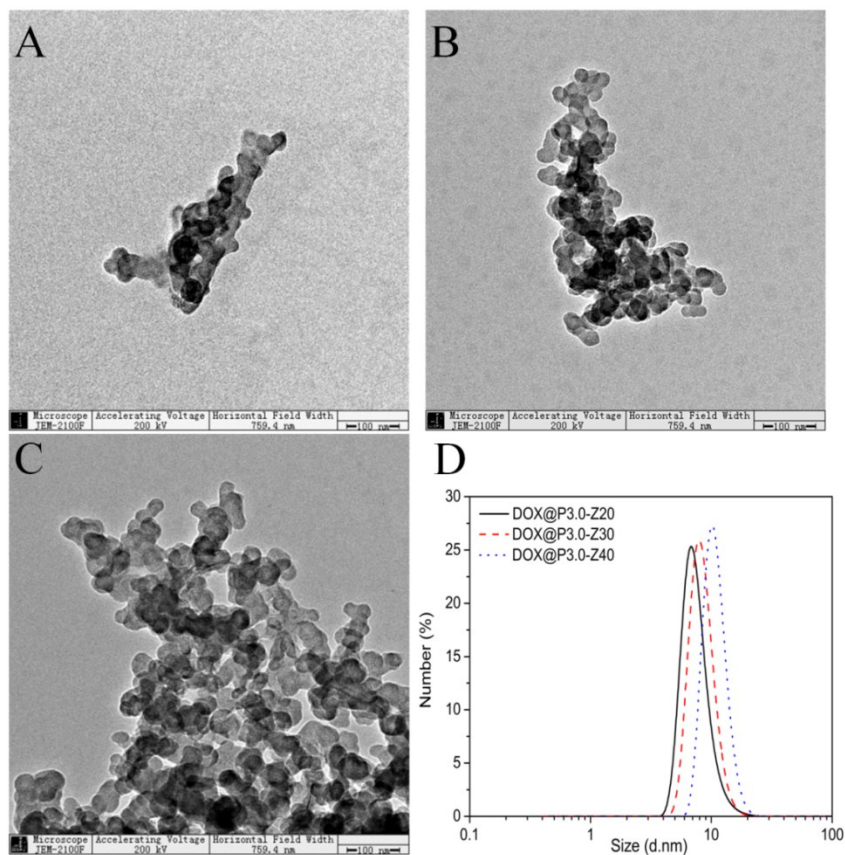


Fig. S4 TEM images of (A) DOX@P3.0-Z20, (B) DOX@P3.0-Z30 and (C) DOX@P3.0-Z40. (D) The size distribution of DOX@P3.0-Z20/30/40

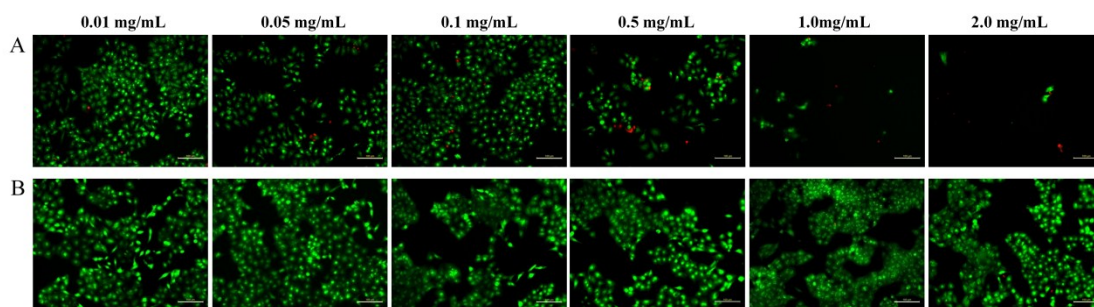


Fig. S5 AO/PI staining images of HepG2 cells after treatment with PAMAM3.0 (A) and PAMAM3.0-g-PDMAPS-30 (B) micelles with different concentration at 48 h.

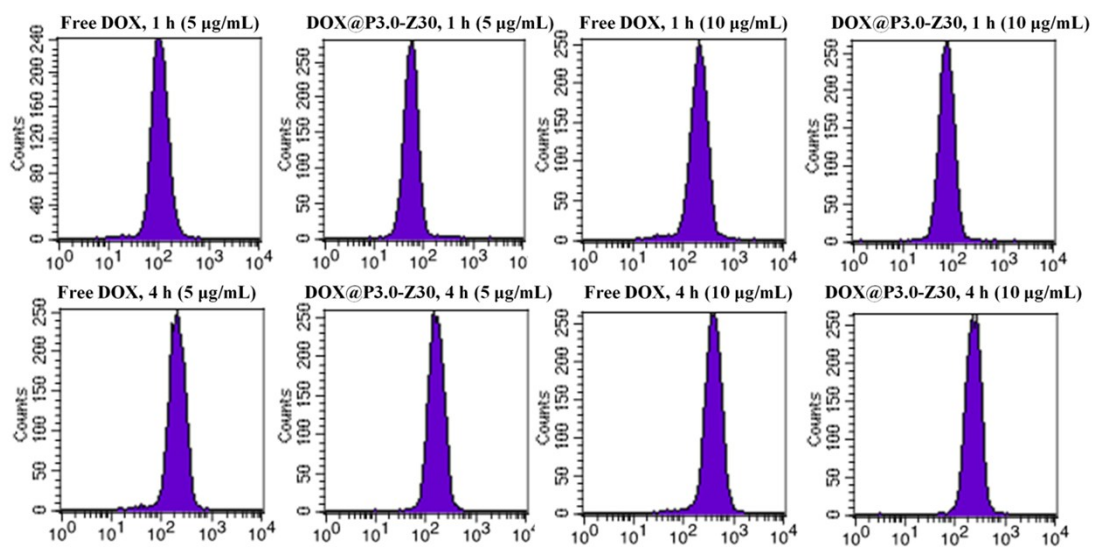


Fig. S6 Flow cytometry analyses of HepG2 cells after incubated with free DOX or DOX@P3.0-Z30 system for 1 h or 4 h.

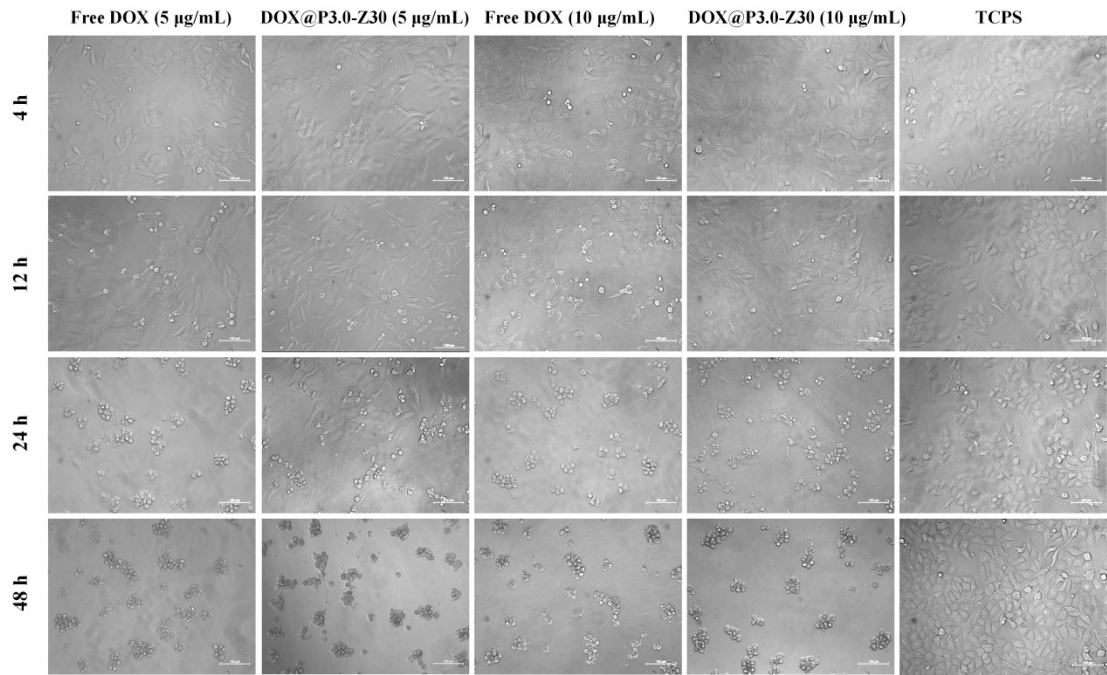


Fig. S7 the morphology images of HepG2 cells treated by free DOX and DOX@P3.0-Z30 micelles for 4, 12, 24 and 48 h.