

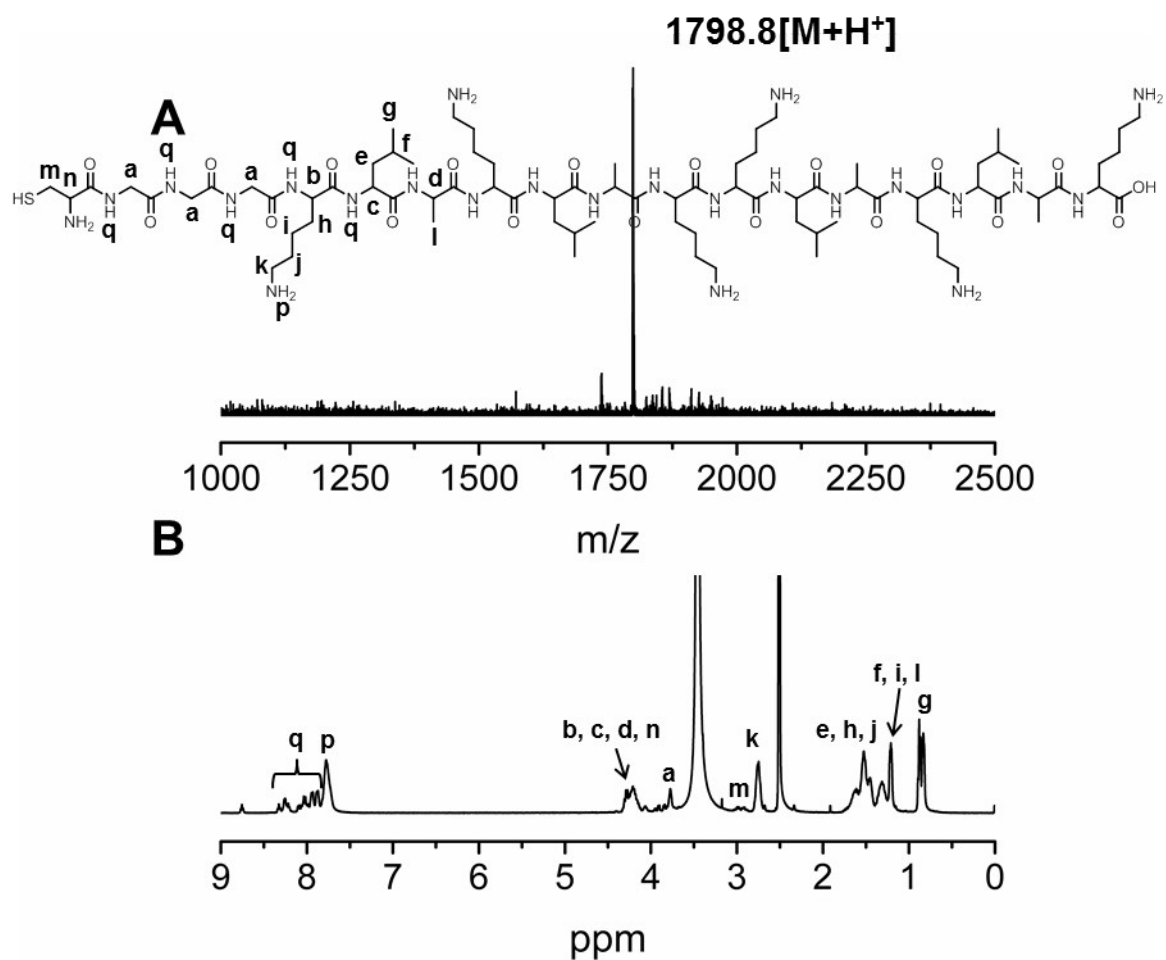
## Supporting Information

### **One-pot synthesis of pH-responsive hyperbranched polymer-peptide conjugates with enhanced stability and loading efficiency for combined cancer therapy**

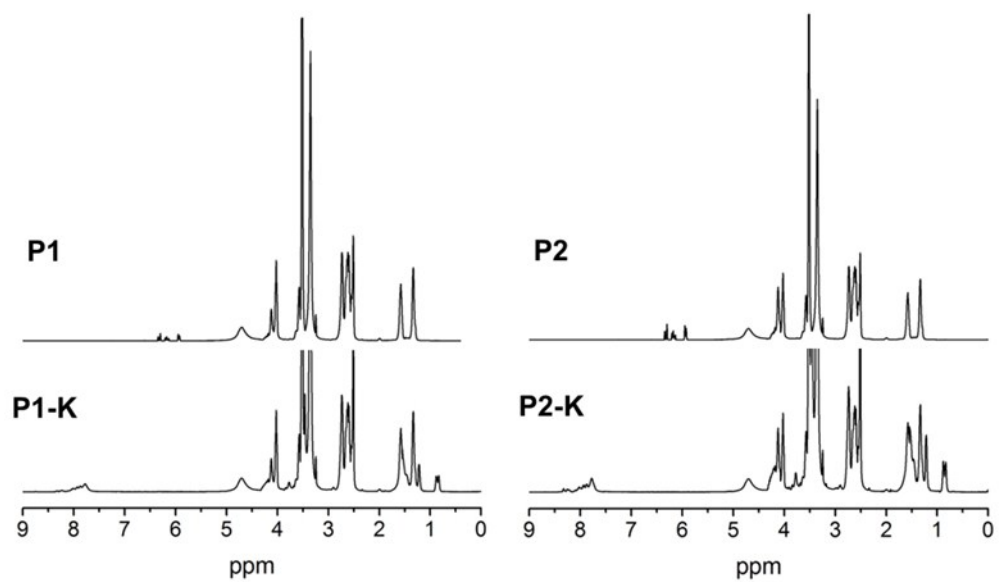
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**Fig. S1** MALDI-TOF (A) and <sup>1</sup>H NMR (400MHz, DMSO-*d*<sub>6</sub>) (B) spectra of peptide CGGG(KLAKLAK)<sub>2</sub>



**Fig. S2** <sup>1</sup>H NMR (400MHz, DMSO-*d*<sub>6</sub>) spectra of PPHD-P (P1, P2) and PPHD-PK (P1-K, P2-K).

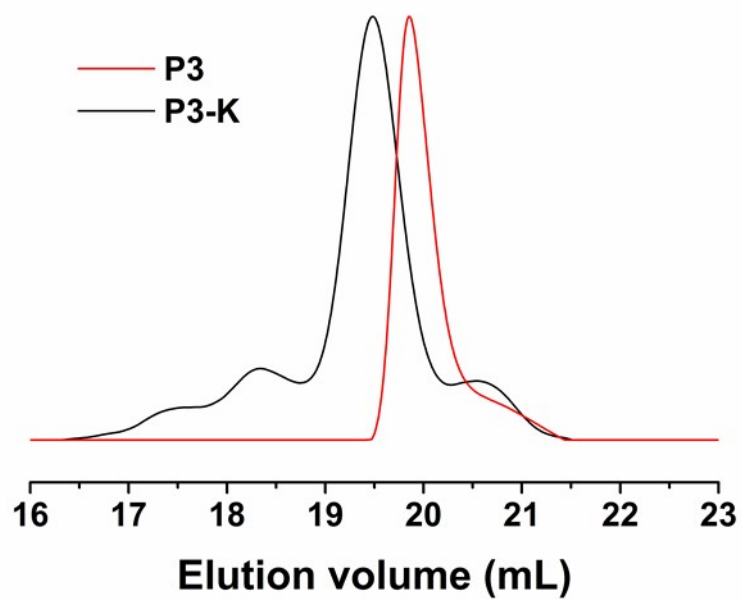
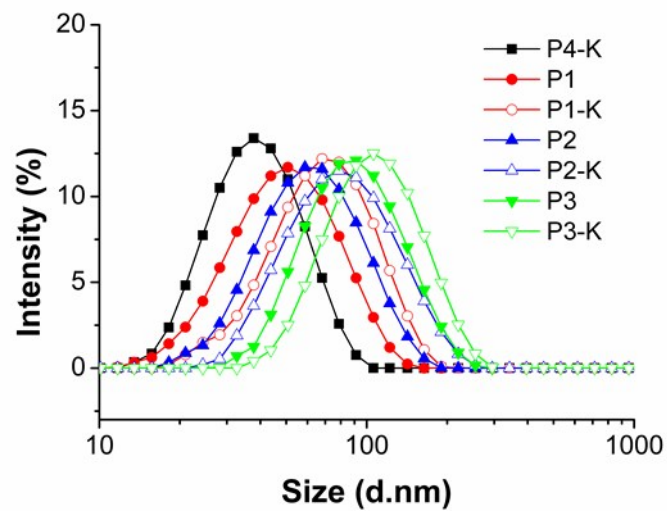
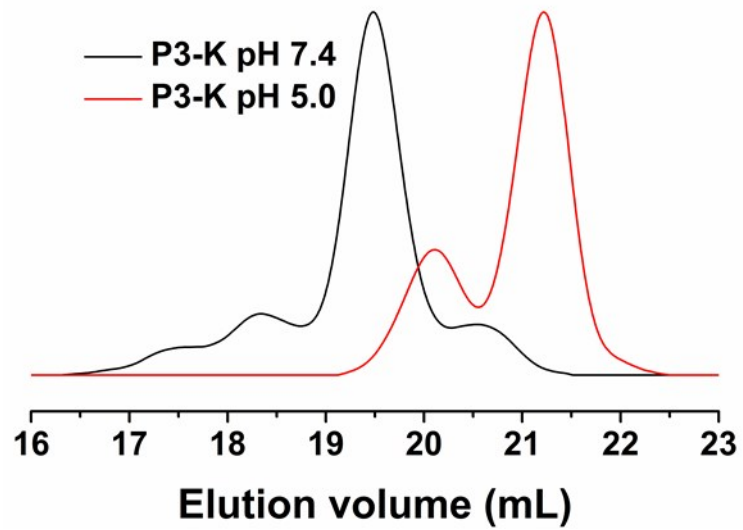


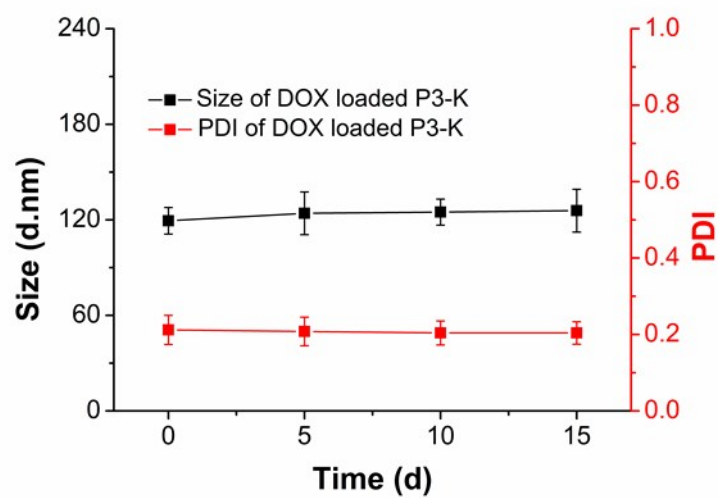
Fig. S3 GPC diagrams of P3 and P3-K.



**Fig. S4** Particle size of nanoparticles in phosphate buffered solution (0.01 M, pH 7.4) measured by DLS.



**Fig. S5** GPC diagrams of P3-K after incubation 24 h at pH 7.4 or pH 5.0.



**Fig. S6** Change of particle size and PDI of DOX-loaded P3-K in phosphate buffered solution (0.01 M, pH 7.4) at different time points measured by DLS