Supporting Information:

\[ \text{PEI} \]
\[ \xrightarrow{\text{pH 7.4}} \]
\[ \text{C6-SANH} \]
\[ \xrightarrow{\text{pH 6.0}} \]
\[ \text{DOX·HCl} \]

Fig. S1 Synthesis scheme of DP
Fig. S2 Synthesis scheme of CPN
Fig. S3 $^1$H NMR of PEI, C6-SANH, DOX, C6-SANH-PEI and DOX-PEI
Fig. S4 $^1$H NMR of CMCS, PEG, NGR and CPN
Fig. S5 (A) The changes of PDI of DPD and CDPD in distilled water for 7 days, and DPD was more stable than CDPD obviously; (B) The changes of PDI of DPD and CDPD in DMEM with 10% FBS at 37°C for 24 h, and CDPD was more stable than DPD obviously.