Electronic Supplementary Material (ESI) for Nanoscale.
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Supplementary Information

Smart Surface Coating of Drug Nanoparticles with Cross-linkable Polyethylene Glycol for Bio-responsive and Highly Efficient Drug Delivery

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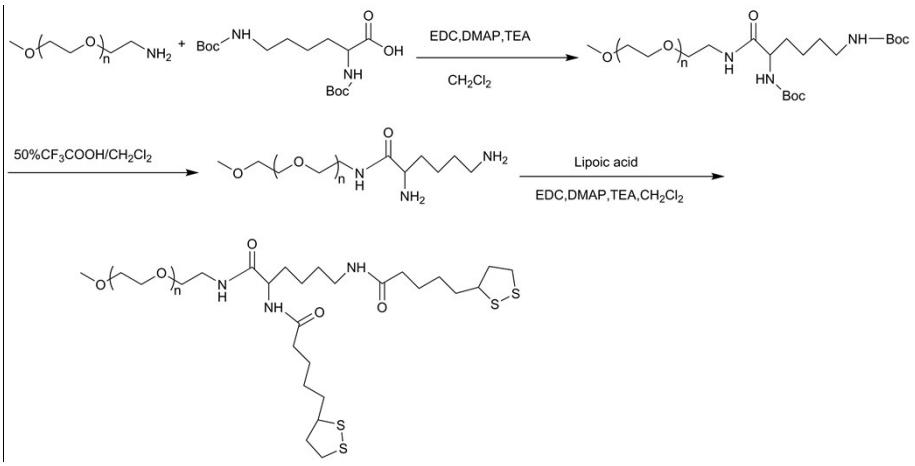

Fig. S1 Synthetic route of PEG-Lys-LA_2

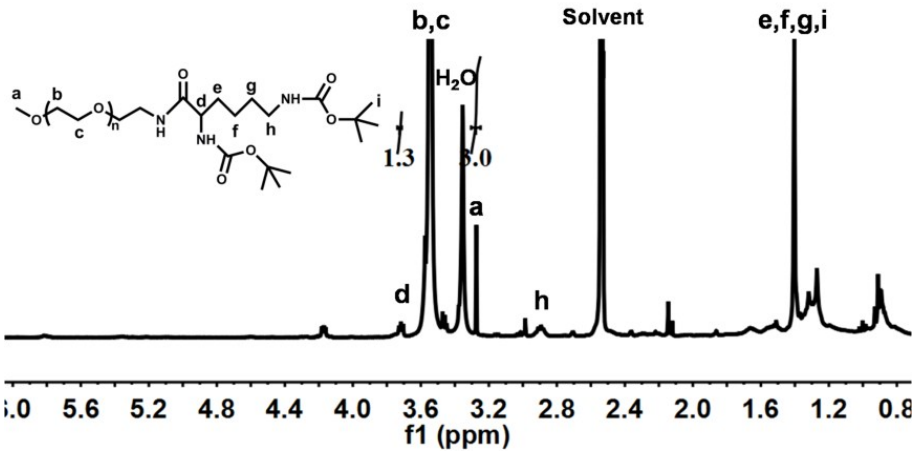

Fig. S2 The ^{1}H NMR of di-Boc-lysine-PEG^{5000}

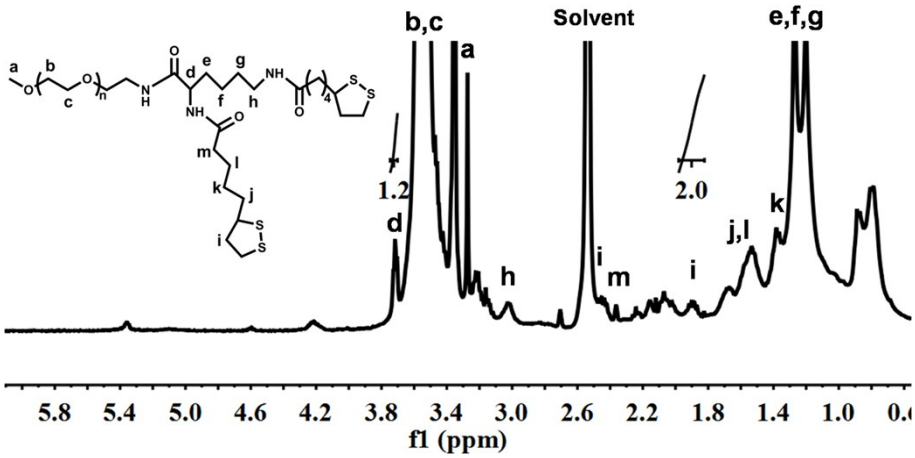

Fig. S3 The ^{1}H NMR of PEG^{5000}-Lys-LA_2.

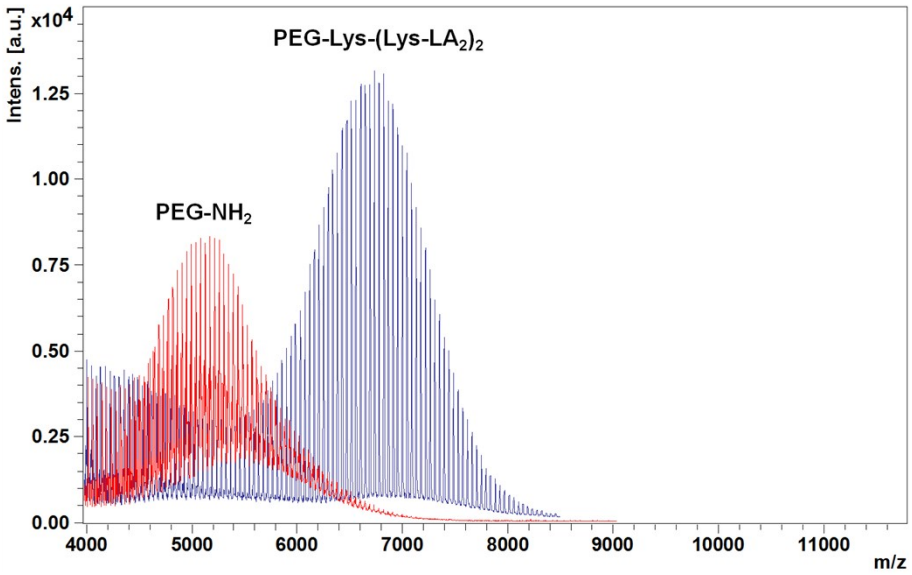

Fig. S4 MALDI-TOF Mass Spectrometry of PEG-NH_2 and PEG-Lys-(Lys-LA_2)$_2$.

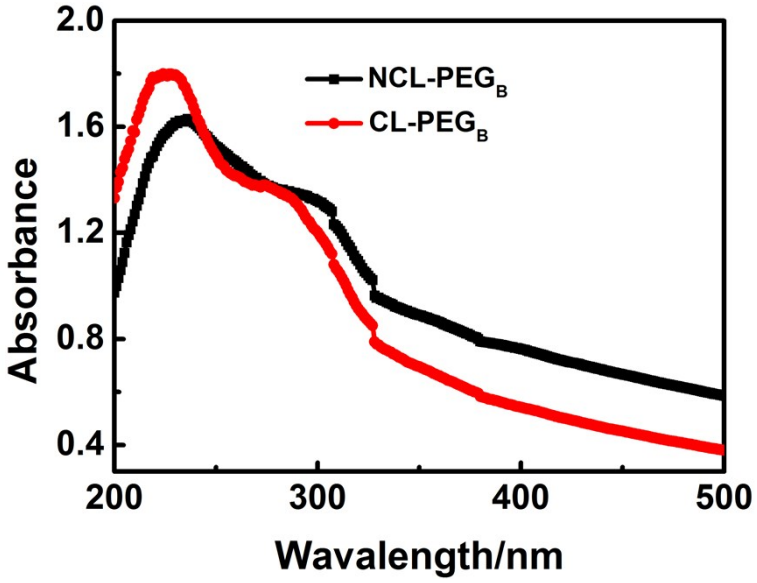

Fig. S5 UV-vis absorption spectra of NCL-PEG$_B$ and CL-PEG$_B$.

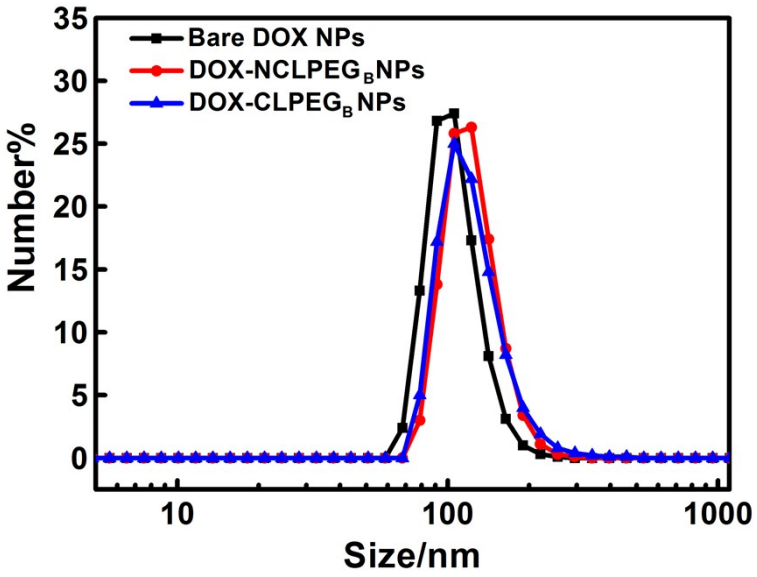

Fig. S6 DLS size analysis of bare DOX NPs, DOX-NCLPEG$_B$ NPs and DOX-CLPEG$_B$ NPs.

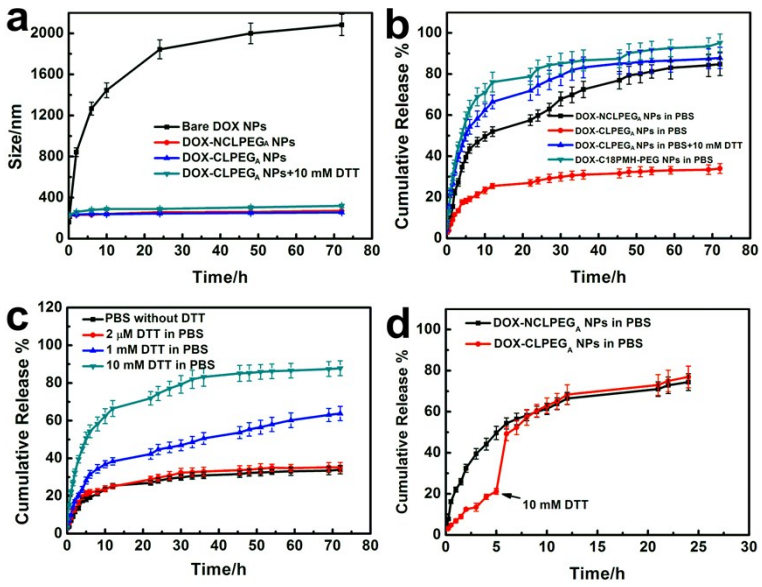

Fig. S7 .a) The evolution of the sizes of different NPs over a period of 3 days. b) The release profiles of DOX from DOX-C18PMH-PEG NPs，DOX-NCLPEG$_A$ NPs and DOX-CLPEG$_A$ NPs. c) The release profiles of DOX-CLPEG$_A$ NPs in the presence of different concentrations of DTT in PBS. d) The release profiles of DOX-NCLPEG$_A$ NPs and DOX-CLPEG$_A$ NPs. For the DOX-CLPEG$_A$ NPs, the release was in PBS for the first 5 h. After 5 h, 10 mM DTT was added to the solution.

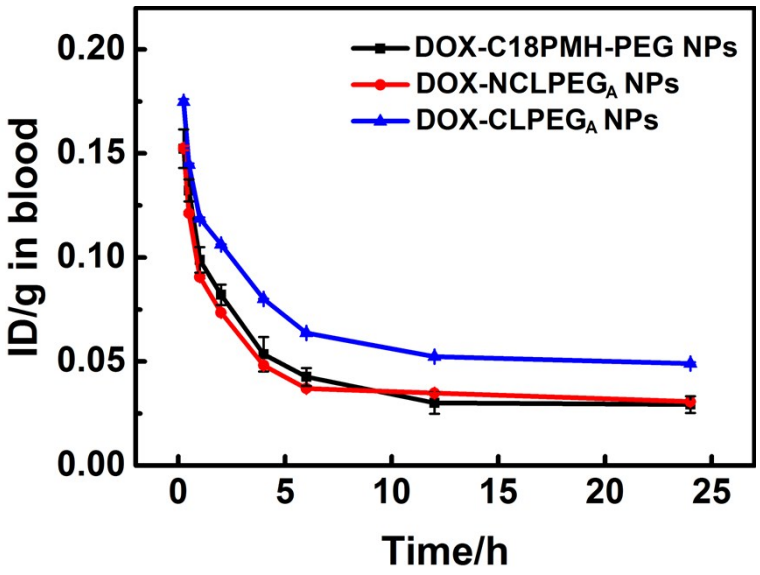

Fig. S8 The blood circulation curve of DOX-C18PMH-PEG NPs, DOX-NCLPEG$_A$ NPs and DOX-CLPEG$_A$ NPs, which was obtained through recording the fluorescence intensities of DOX in the blood at various times after drug administration. The unit is the percentage of the injected dose per gram tissue (% ID g^{-1}).

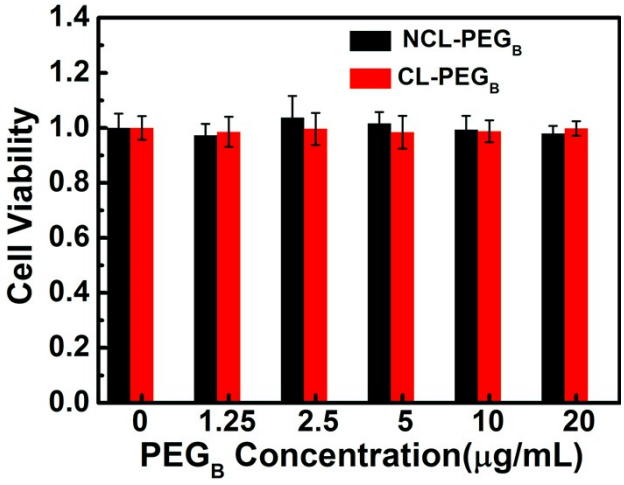

Fig. S9 Cell viabilities of HeLa cell lines after being incubated with NCL-PEG$_B$ and CL-PEG$_B$ for 72 h.

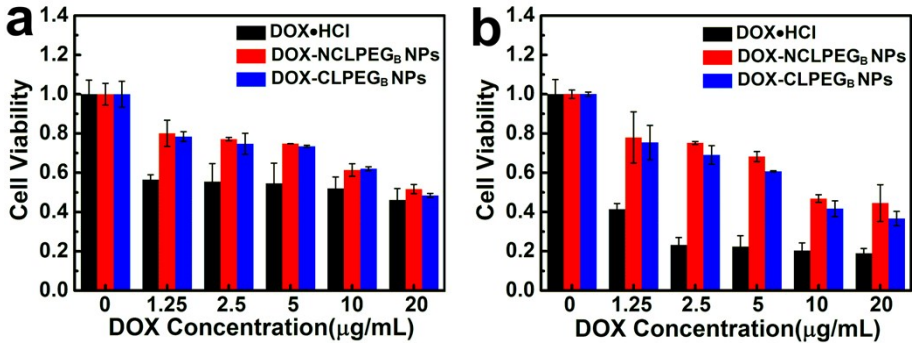

Fig. S10 a and b) Cell viabilities of HeLa cell lines after being incubated with DOX·HCl, DOX-NCLPEG$_B$ NPs and DOX-CLPEG$_B$ NPs for 24 and 48 h, respectively.

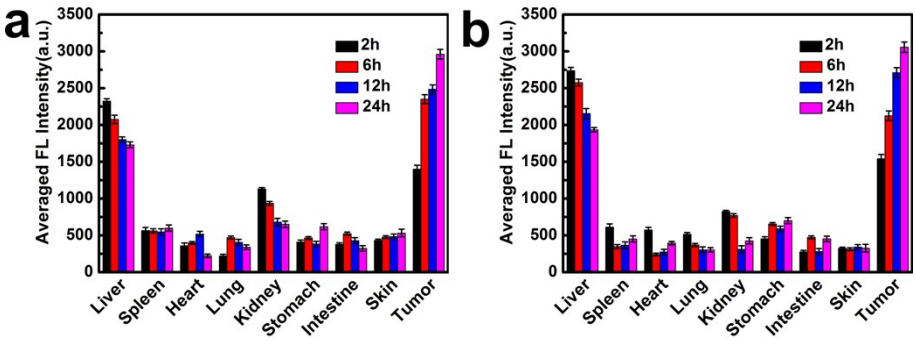

Fig. S11 Biodistribution of a) DOX-NCLPEG$_A$ NPs and b) DOX-CLPEG$_A$ NPs in major organs and tumor tissues at different times after drug administration.

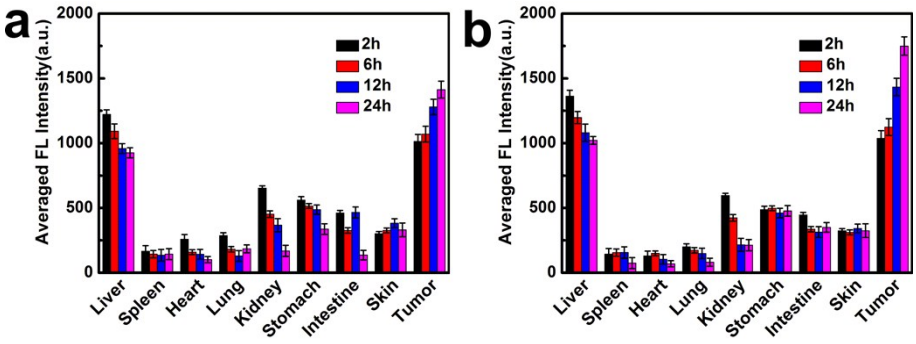

Fig. S12 Biodistribution of a) DOX-NCLPEG$_B$ NPs and b) DOX-CLPEG$_B$ NPs in major organs and tumor tissues at different times after drug administration.