

Supporting Information

pH and Reduction Dual Responsive Polyurethane Triblock Copolymers for Efficient Intracellular Drug Delivery

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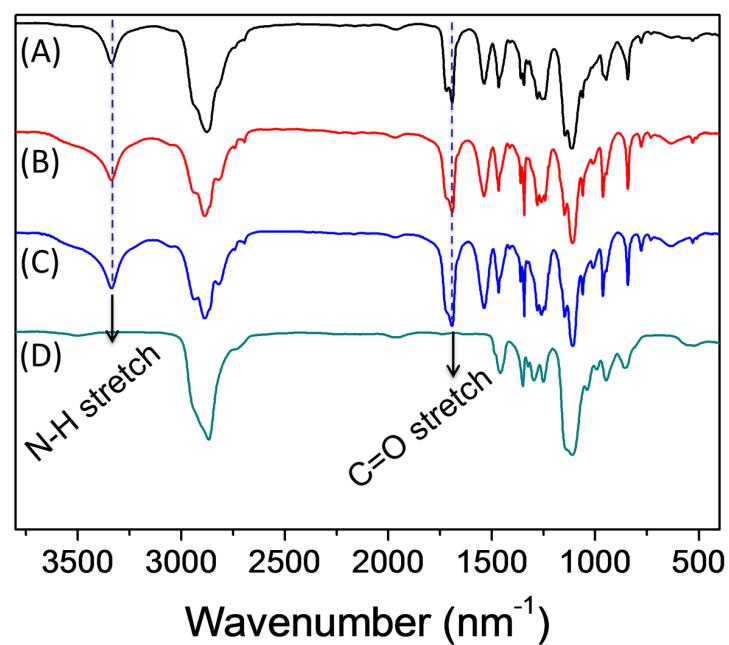


Fig. S1 FT-IR Spectra of PRS-PU-1 (A), PRS-PU-2 (B), PRS-PU-3 (C) and MPEG5000 (D).

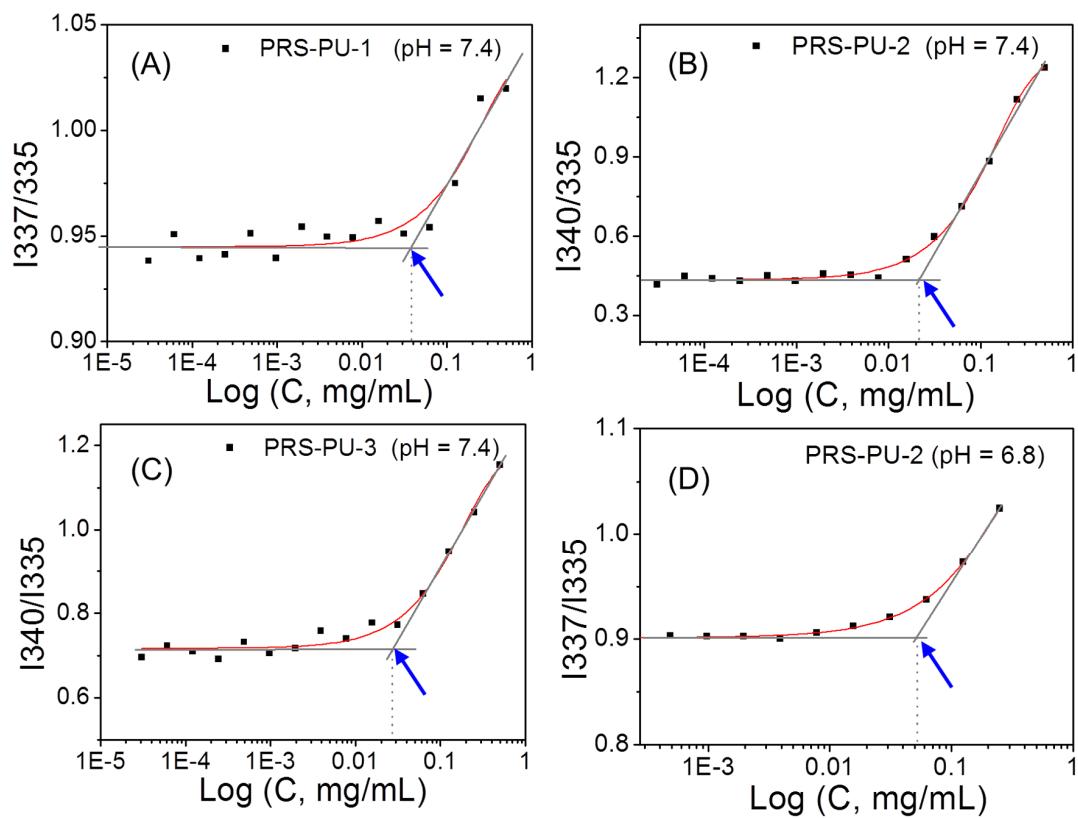


Fig. S2 The ratios from pyrene excitation spectra vs. concentrations of PRS-PU micelles: PRS-PU-1, pH = 7.4 (A), PRS-PU-2, pH = 7.4 (B), PRS-PU-3, pH = 7.4 (C), PRS-PU-2, pH = 6.8 (D). The arrows indicate CMC values.

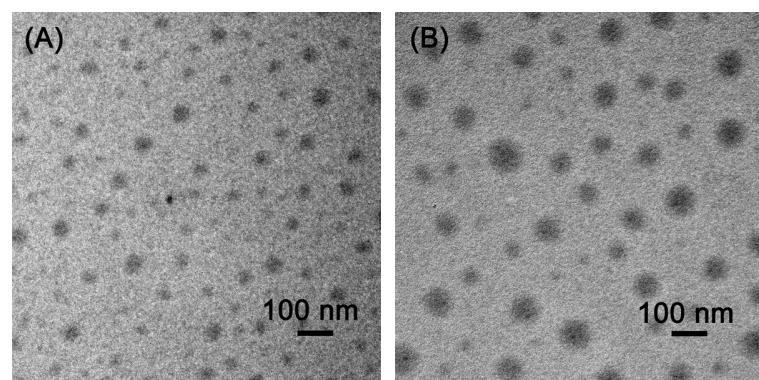


Fig. S3 TEM images of PRS-PU-1 micelles (A); and PRS-PU-3 micelles (B).

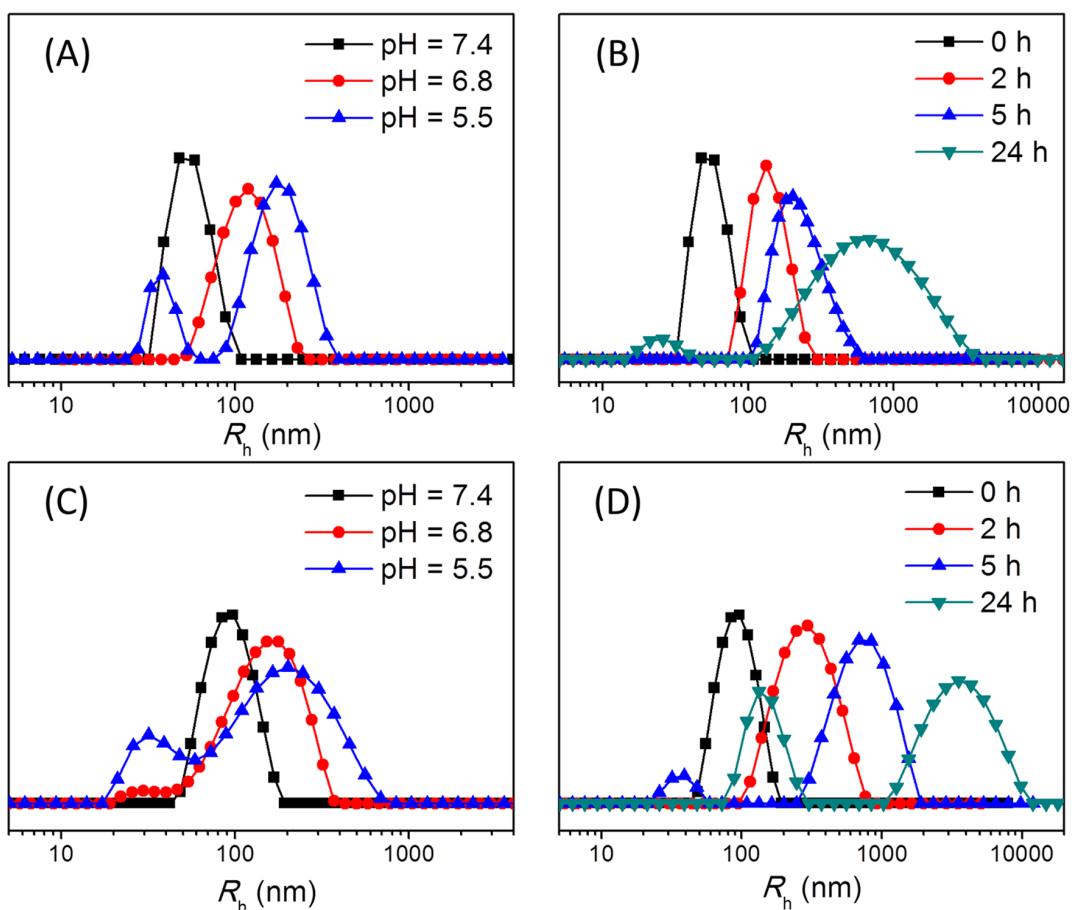


Fig. S4 The size distributions of PRS-PU-1 micelles (A) and PRS-PU-3 micelles (C) at different pH; change in the hydrodynamic radius of PRS-PU-1 micelles (B) and PRS-PU-3 micelles (D) after addition of 10 mM GSH at pH 7.4.

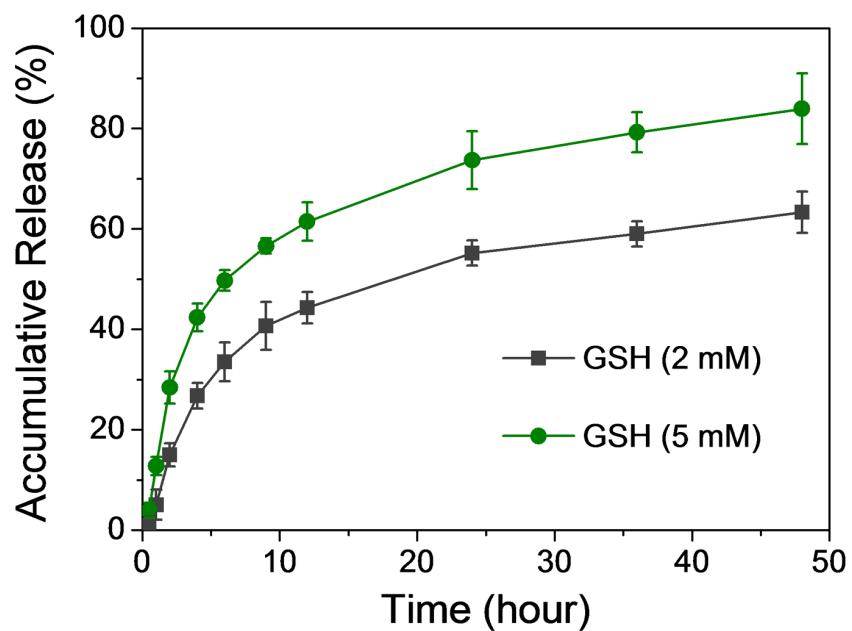


Fig. S5 In vitro DOX release from the dual-sensitive PRS-PU-2 micelles at different GSH concentrations at pH 7.4 and 37 °C.

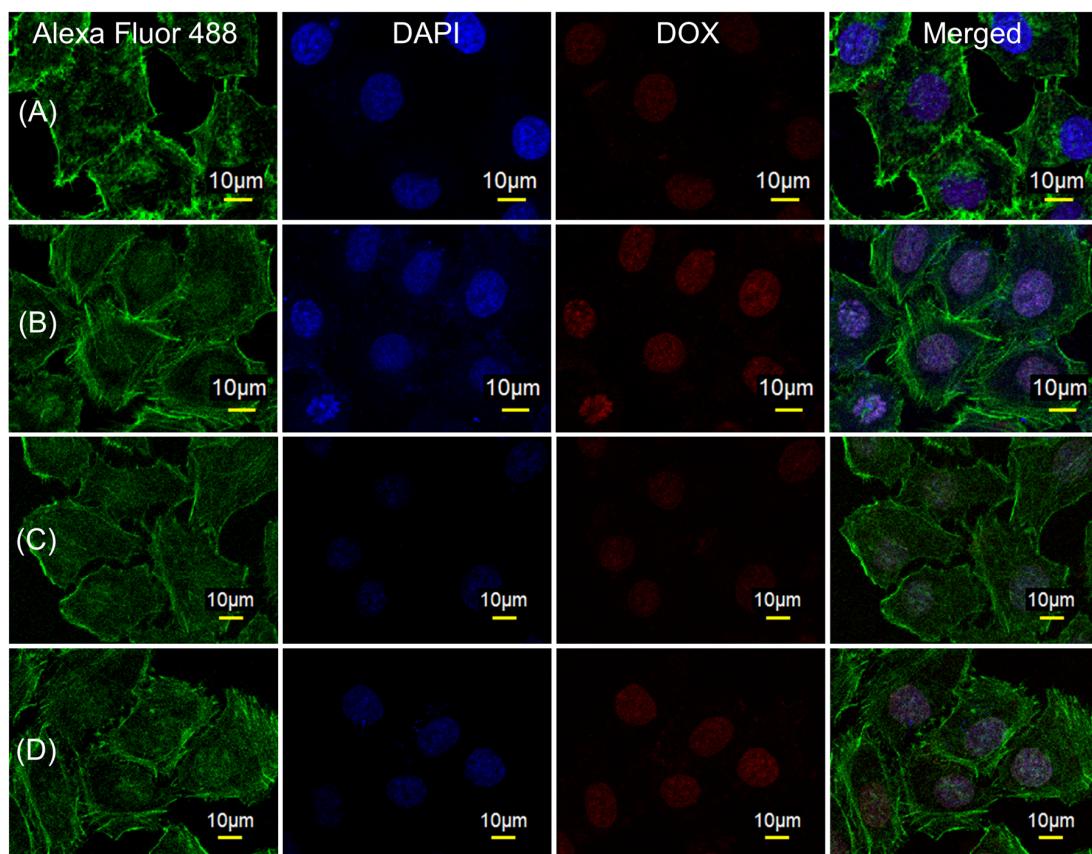


Fig. S6 Representative CLSM images of HeLa cells incubated with DOX-loaded PRS-PU-1 micelles (A and B) and DOX-loaded PRS-PU-3 micelles (C and D) for 2 h: (A) and (C) cells without pretreatment; (B) and (D) cells pretreated with 10 mM GSH. For each panel, the images from left to right show cell membrane stained by Alexa Fluor 488, cell nuclei stained by DAPI (blue), DOX fluorescence in cells (red), and overlays of the three images.

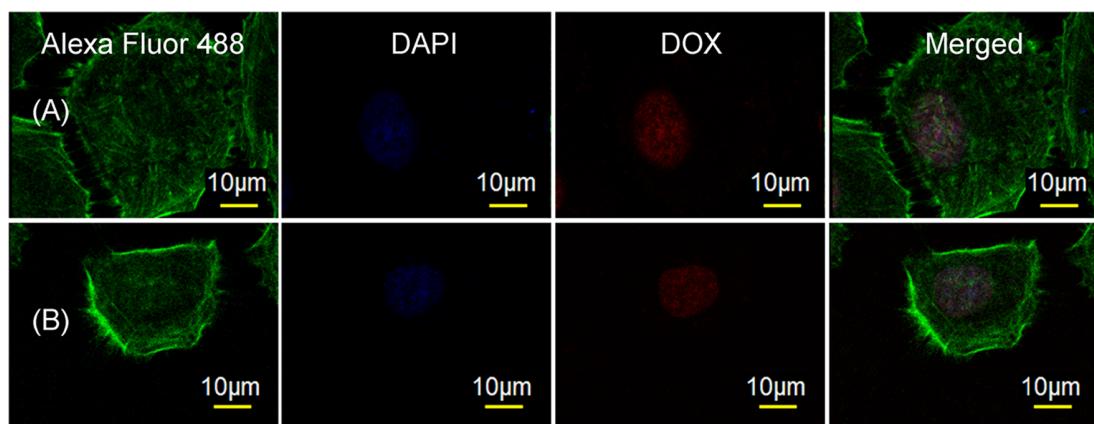


Fig. S7 Representative CLSM images of HeLa cells after being incubated with free DOX for 2 h: (A) cells without pretreatment; (B) cells pretreated with 10 mM GSH. For each panel, the images from left to right show cell membrane stained by Alexa Fluor 488, cell nuclei stained by DAPI (blue), DOX fluorescence in cells (red), and overlays of the three images.

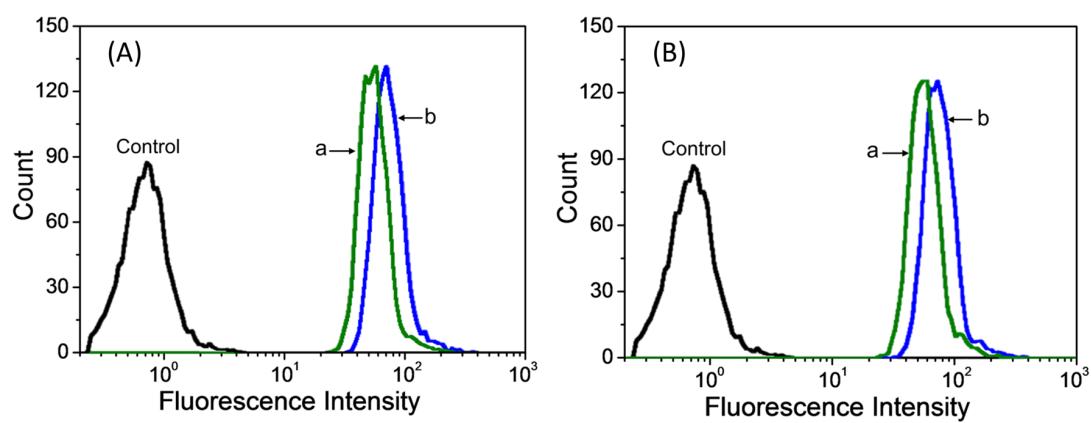


Fig. S8 Flow cytometric profiles of HeLa cells incubated with DOX-loaded PRS-PU-1 micelles (A) and DOX-loaded PRS-PU-2 micelles (B) for 2 h: (a) cells without pretreatment; (b) cells pretreated with 10 mM GSH.

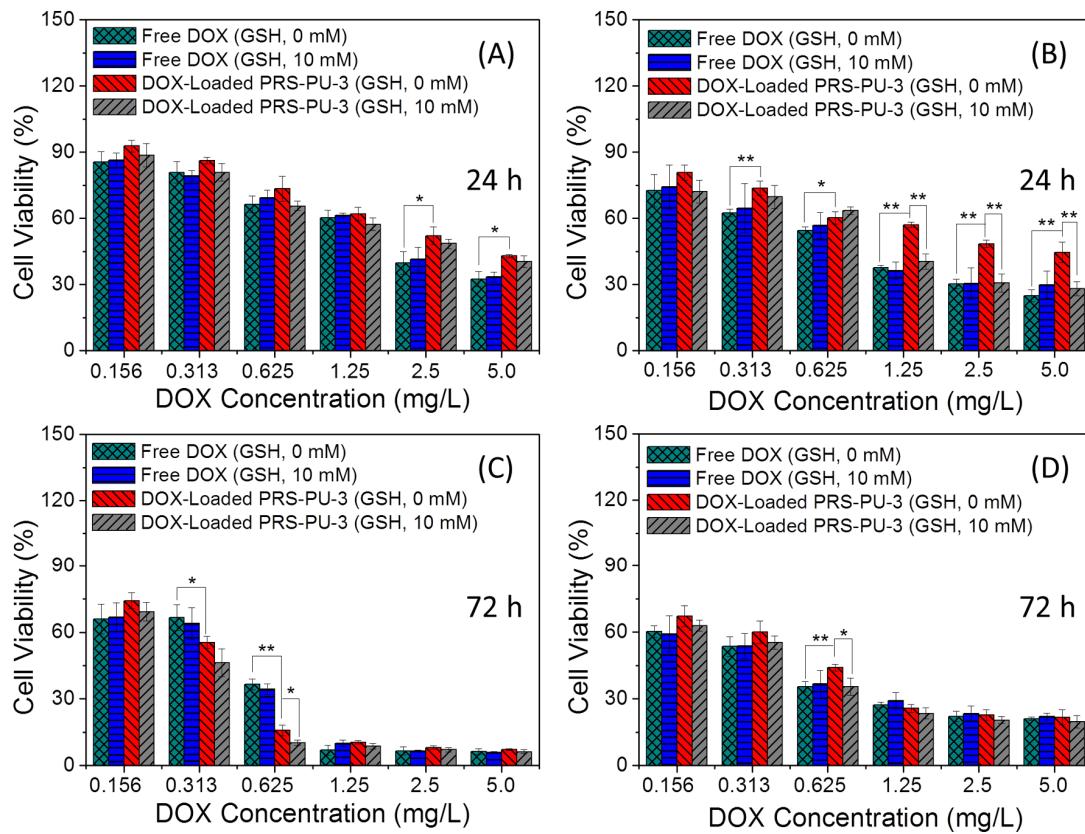


Fig. S9 Viabilities of HeLa cells (A, and C) and HepG2 cells (B and D) incubated with free DOX and DOX-loaded PRS-PU-3 micelles with various DOX concentrations for 24 h (A and B), and 72 h (C and D). Cells pretreated with 10 mM GSH were used to reveal the influence of intracellular GSH concentration on cytotoxicity, and non-pretreated cells were used for comparison. Data are presented as the average \pm standard deviation ($n = 3$) ($*p < 0.05$, $**p < 0.01$).

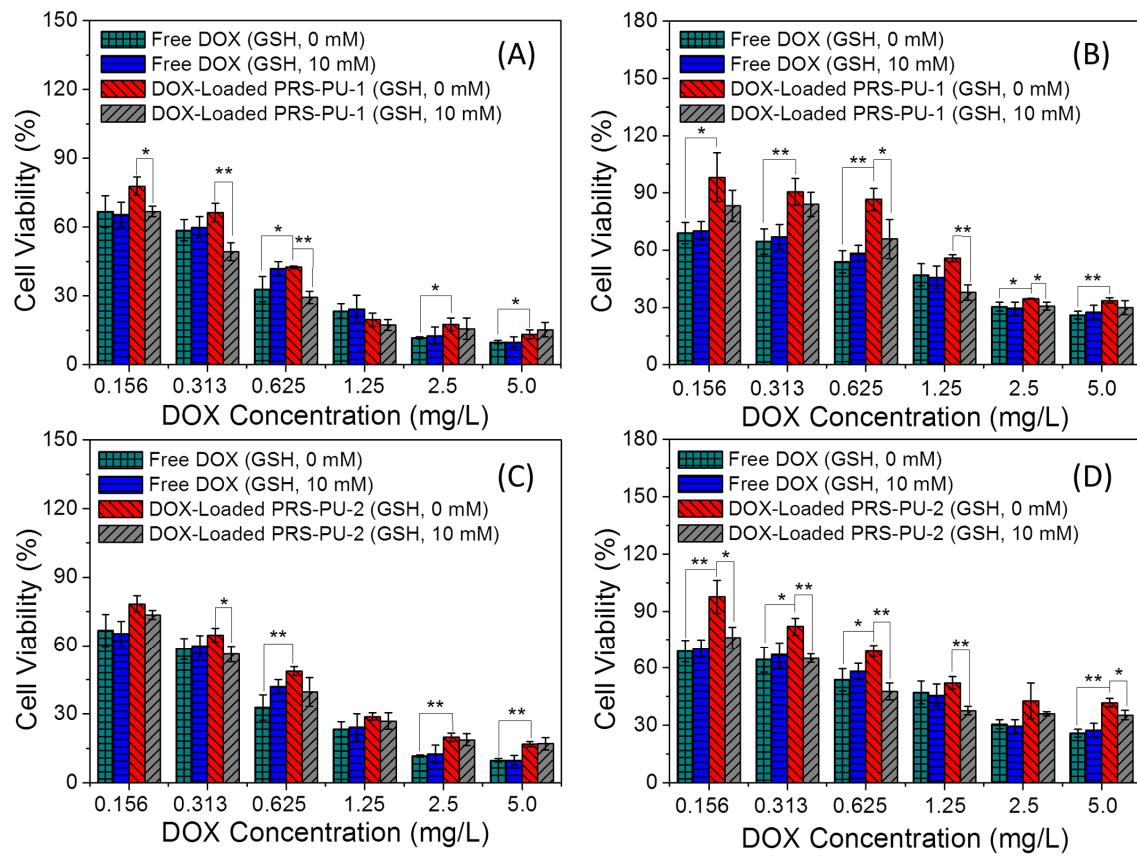


Fig. S10 Viabilities of HeLa cells (A and C) and HepG2 cells (B and D) incubated with free DOX and DOX-loaded PRS-PU micelles with various DOX concentrations for 48 h. Cells pretreated with 10 mM GSH were used to reveal the influence of intracellular GSH concentration on cytotoxicity, and non-pretreated cells were used for comparison. Data are presented as the average \pm standard deviation ($n = 3$) ($*p < 0.05$, $**p < 0.01$).