Supporting Information

for

Protein corona-guided tumor targeting therapy *via* the surface modulation of low molecular weight PEG

Teng Cui,[†a,b,c] Yu Ma,[†a] Jian-Yong Yang,[b] Shang Liu,[d] Zhenzhen Wang,[d] Fenfen Zhang,[a,e] Jing Wang,[a] Ting Cai,[a] Lei Dong,[d] Jin Hong,[f] Hai Qian,[*b] Can Zhang,[*b] Ya Ding[*a]

[a] Key Laboratory of Drug Quality Control and Pharmacovigilance, Ministry of Education, China Pharmaceutical University, Nanjing 210009, China

[b] State Key Laboratory of Natural Medicines, Jiangsu Key Laboratory of Drug Discovery for Metabolic Diseases, Center of Drug Discovery, China Pharmaceutical University, Nanjing 210009, China

[c] School of pharmacy, Jining medical college, Jining 276826, China

[d] State Key Laboratory of Pharmaceutical Biotechnology, School of Life Sciences, Nanjing University, 163 Xianlin Avenue, Nanjing 210093, China

[e] Research Center for Analysis and Measurement, Donghua University, Shanghai 201620, China

[f] Key Laboratory of Biomedical Functional Materials, School of Sciences, Ministry of Education, China Pharmaceutical University, Nanjing 211198, China

[†] The first two authors contributed equally to this work.

* Corresponding author: E-mail: qianhai24@cpu.edu.cn (H. Qian); zhangcan@cpu.edu.cn (C. Zhang); dingya@cpu.edu.cn (Y. Ding)

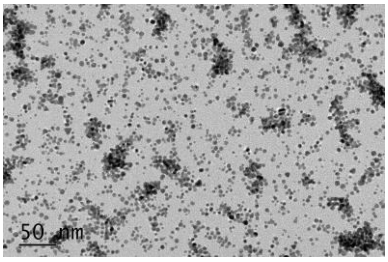

Figure S1. TEM image of citrate-protected GNPs.

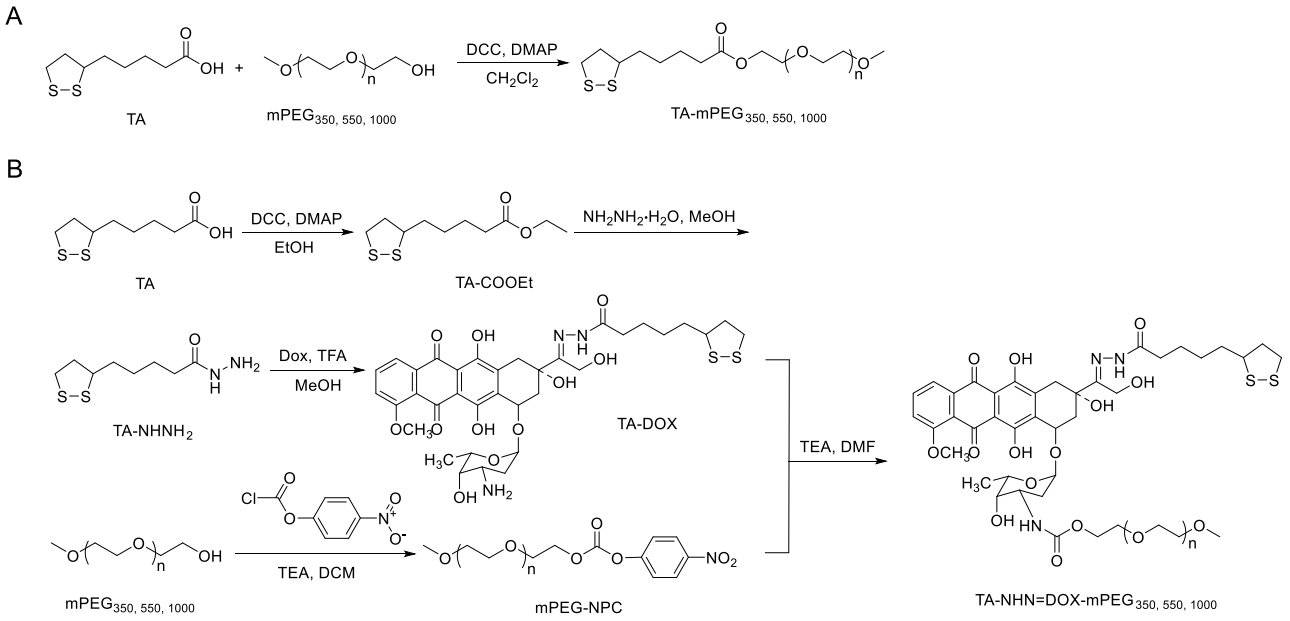

Figure S2. Synthetic procedures of (A) TA-mPEG and (B) TA-NHN=Dox-mPEG with different PEG molecular weights of 350, 550, and 1000 Da.

TA-NHN=DOX-mPEG$_{350}$ ^{1}H-NMR DMSO-d$_6$ 300k AV-300

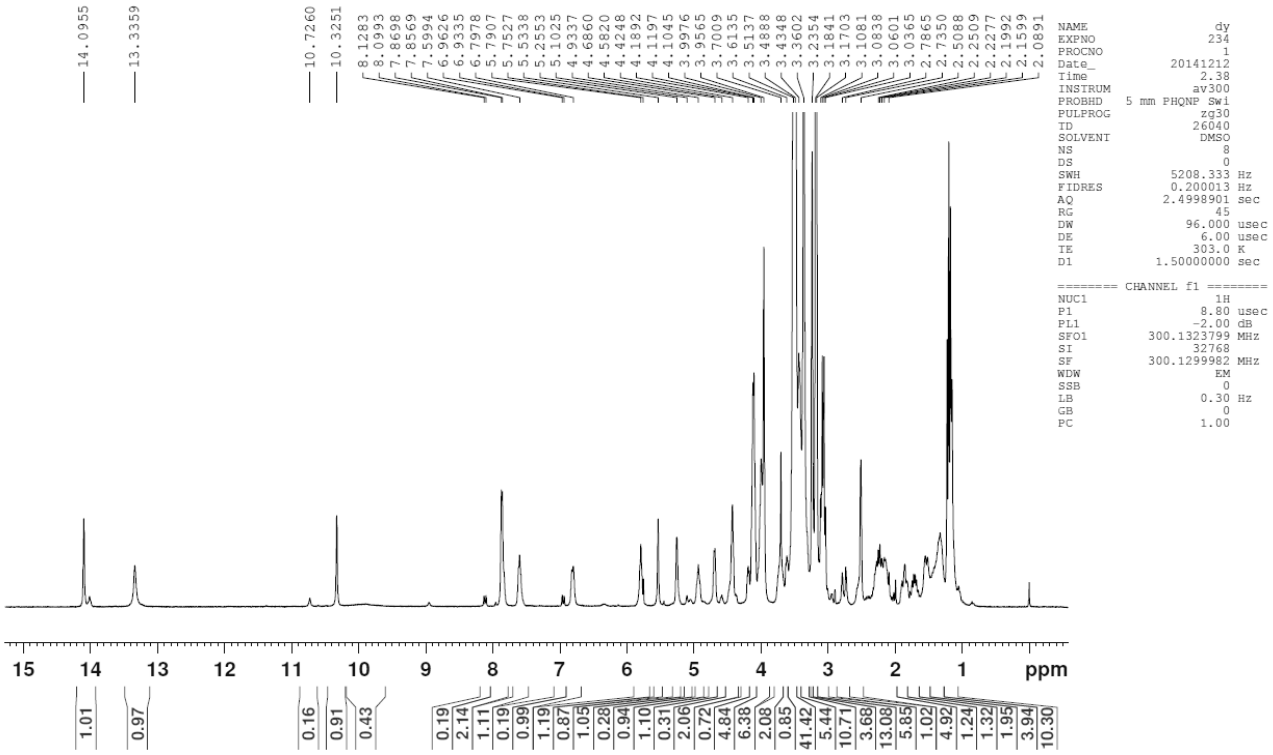

Figure S3. ^{1}H NMR spectrum of TA-NHN=DOX-mPEG$_{350}$.

TA-NHN=DOX-mPEG$_{550}$ ^{1}H-NMR DMSO-d$_6$ 300k AV-300

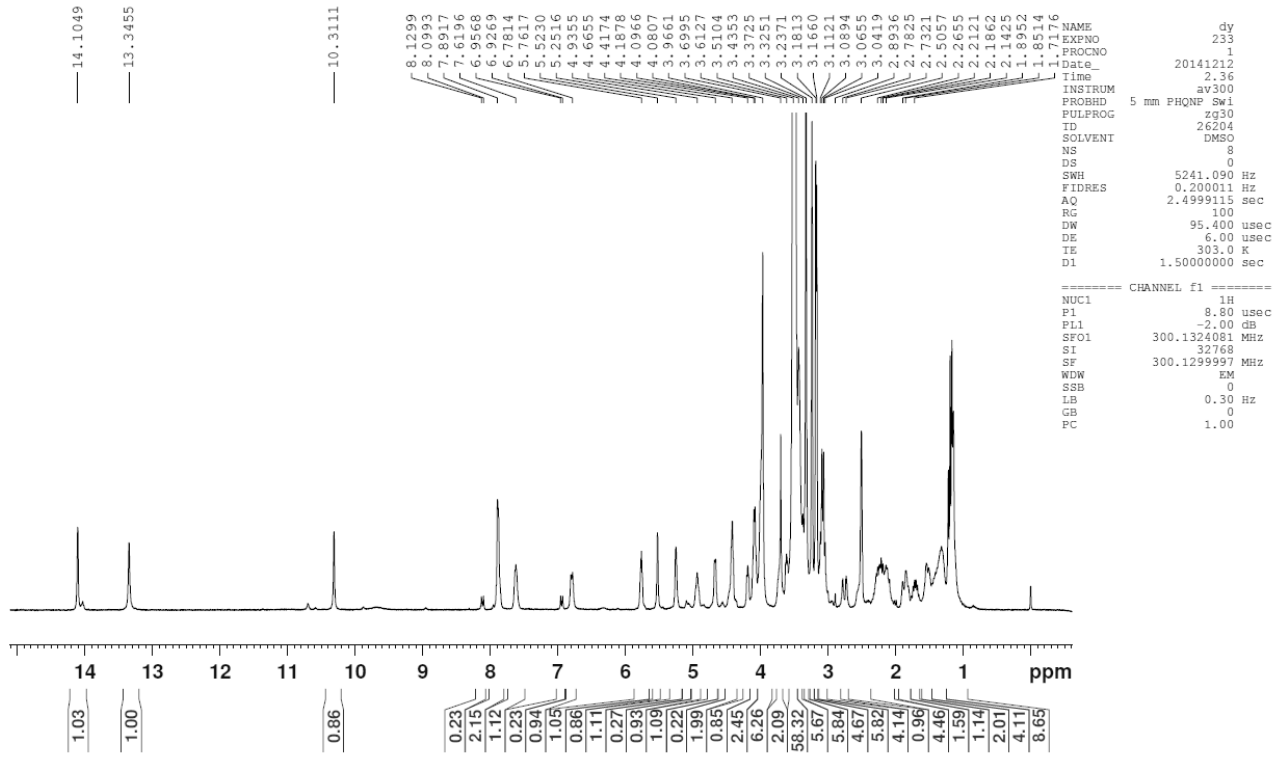

Figure S4. ^{1}H NMR spectrum of TA-NHN=DOX-mPEG$_{550}$.

TA-NHN=DOX-mPEG$_{1000}$ ^{1}H-NMR DMSO-d$_6$ 300k AV-300

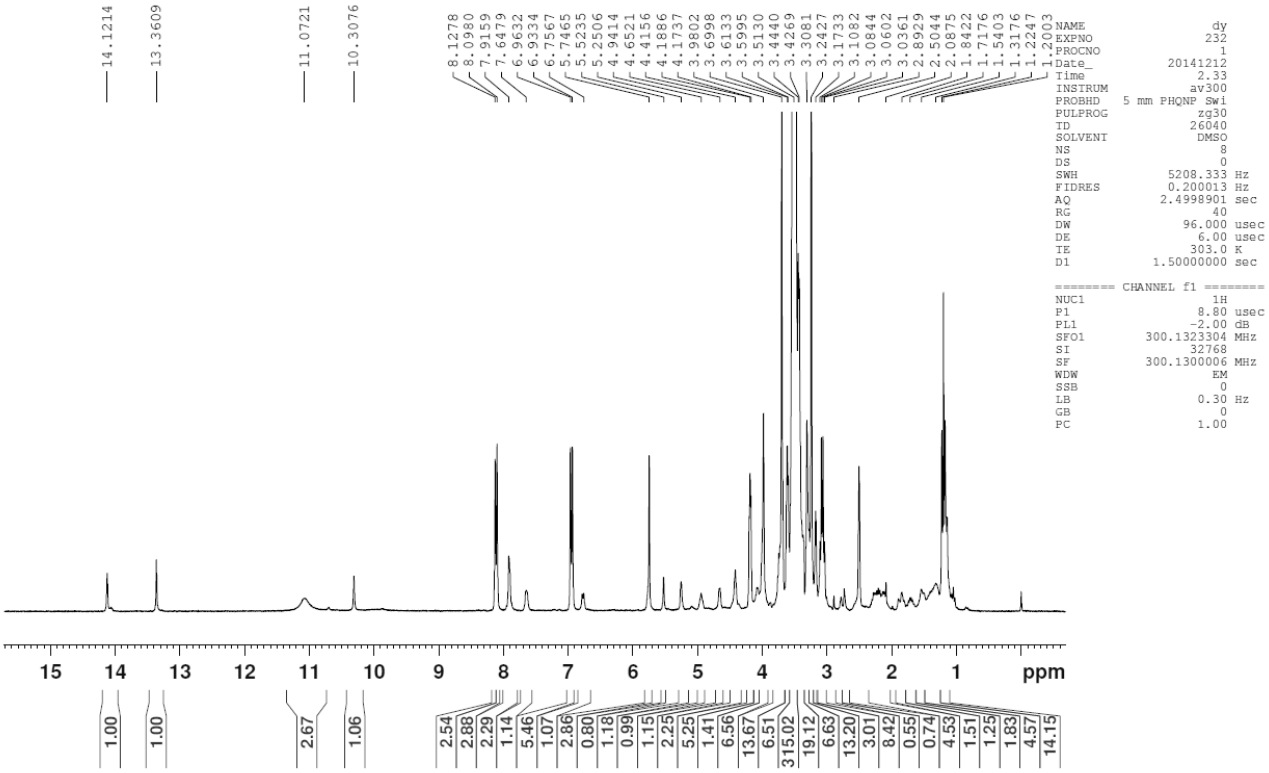

Figure S5. ^{1}H NMR spectrum of TA-NHN=DOX-mPEG$_{1000}$.

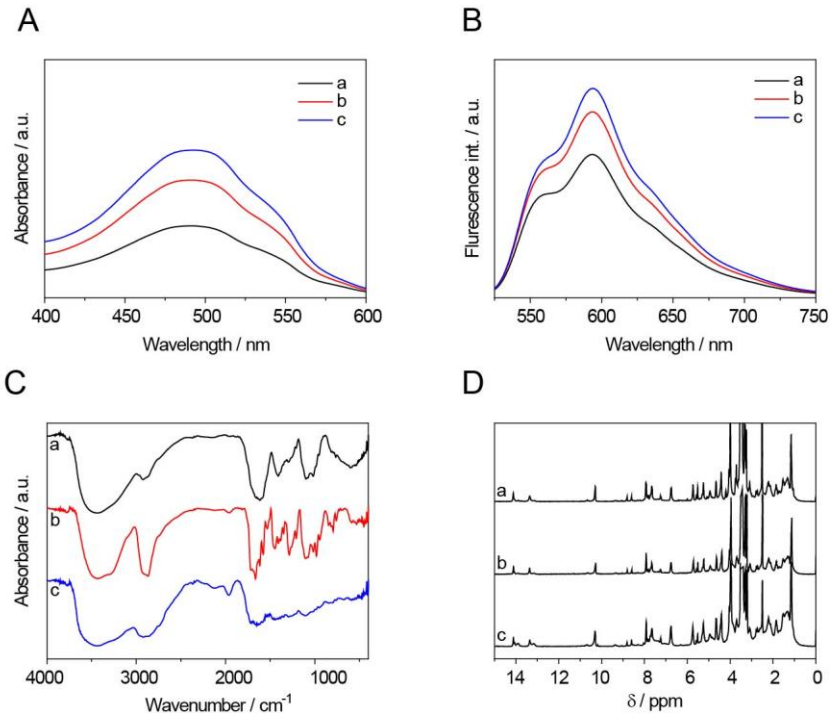

Figure S6. (A) UV-Vis, (B) fluorescence, (C) FT-IR, and (D) ^{1}H NMR spectra of (a) Conj-350, (b) Conj-550, and (c) Conj-1000.

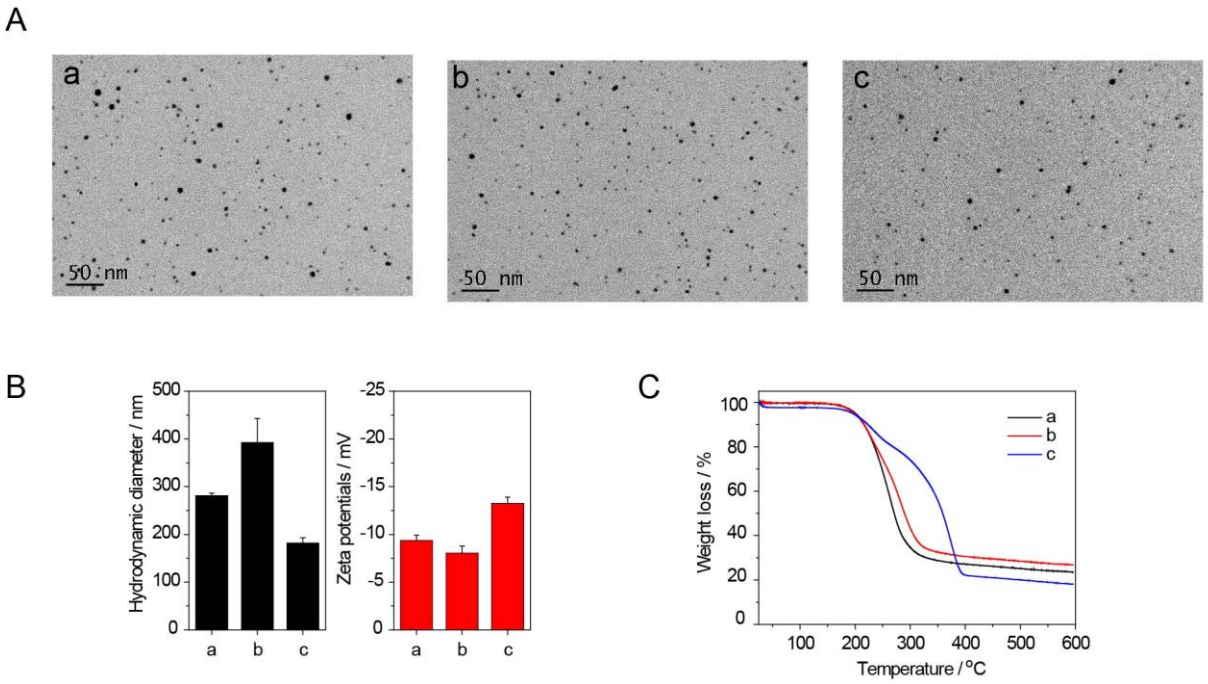

Figure S7. (A) TEM images, (B) hydrodynamic diameters and zeta potentials, and (C) TGA curves of (a) Conj-350, (b) Conj-550, and (c) Conj-1000. The date in (B) represents the mean ± SD (n=3).

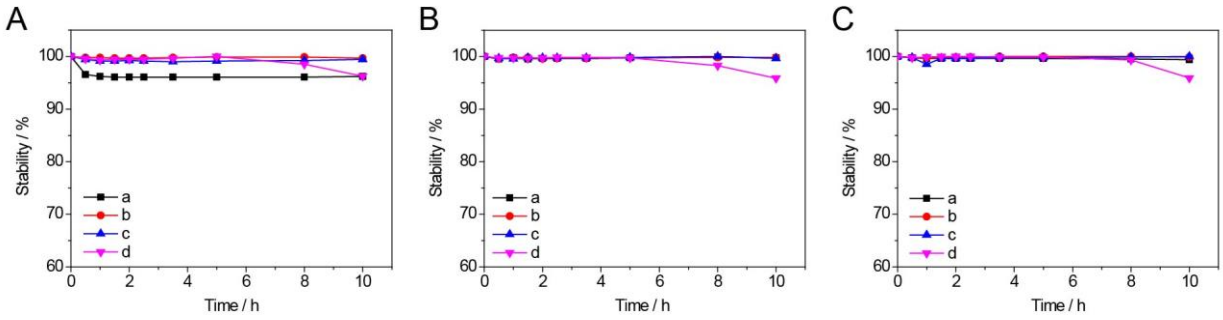

Figure S8. Stability of (A) Conj-350, (B) Conj-550, and (C) Conj-1000 in different media: (a) 0.03 M PBS at pH 7.4, (b) 0.03 M PBS at pH 5.5, (c) 0.2 M PBS at pH 7.4, and (d) 0.03 M, pH 7.4 PBS containing 2% FBS. The date represents the mean ± SD (n=3).

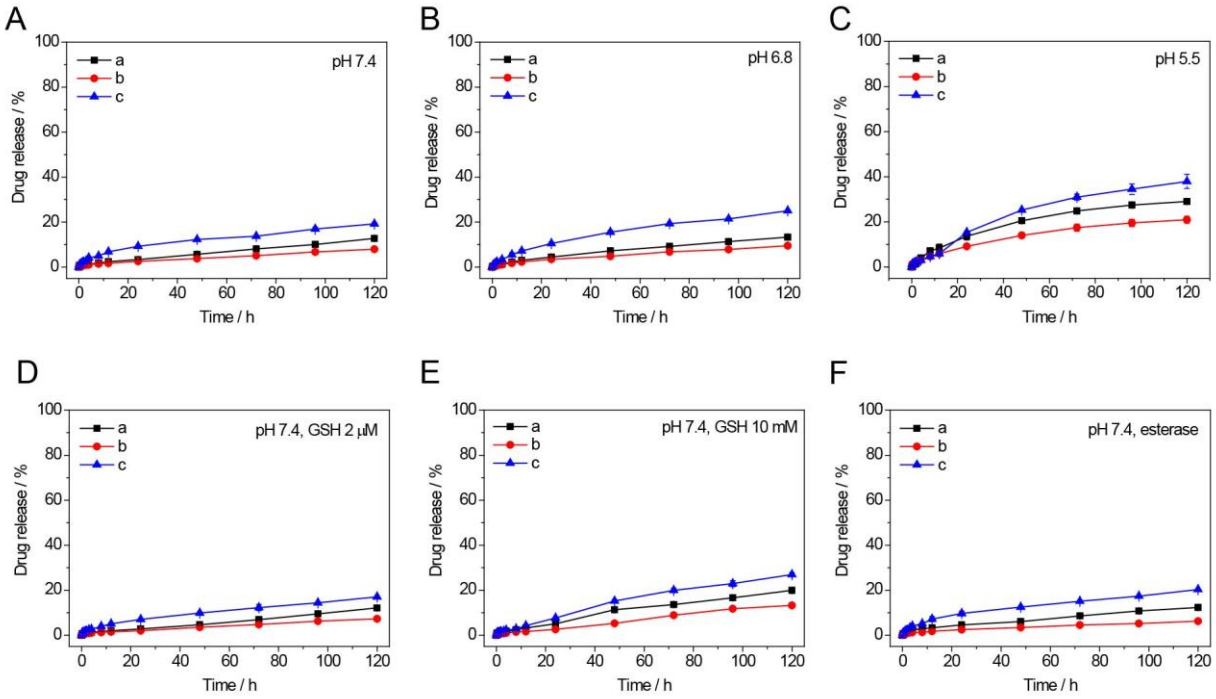

Figure S9. *In vitro* drug release of (a) Conj-350, (b) Conj-550, and (c) Conj-1000 in PBS at (A) pH 7.4, (B) pH 6.8, (C) pH 5.5, (D) pH 7.4 with 2 μM GSH, (E) pH 7.4 with 10 mM GSH, and (F) pH 7.4 with 20 unit/mL porcine liver esterase (PLE). The date represents the mean ± SD (n=3).

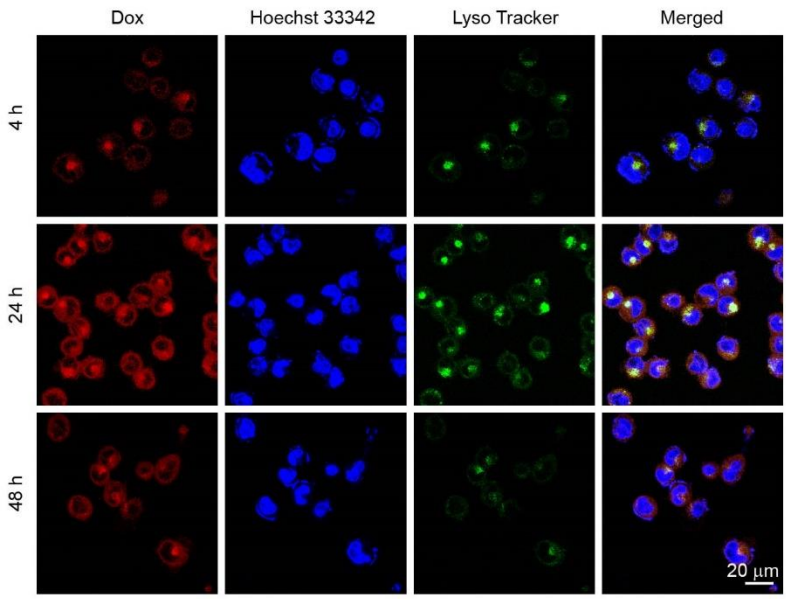

Figure S10. (A) CLSM images of HepG2 cells after incubated with Conj-350 at 37 ℃ for 4, 24, and 48 h, respectively. The nuclei and mitochondria were stained by Hoechst 33342 and LysoTracker, respectively. The scale bar is 20 μm.

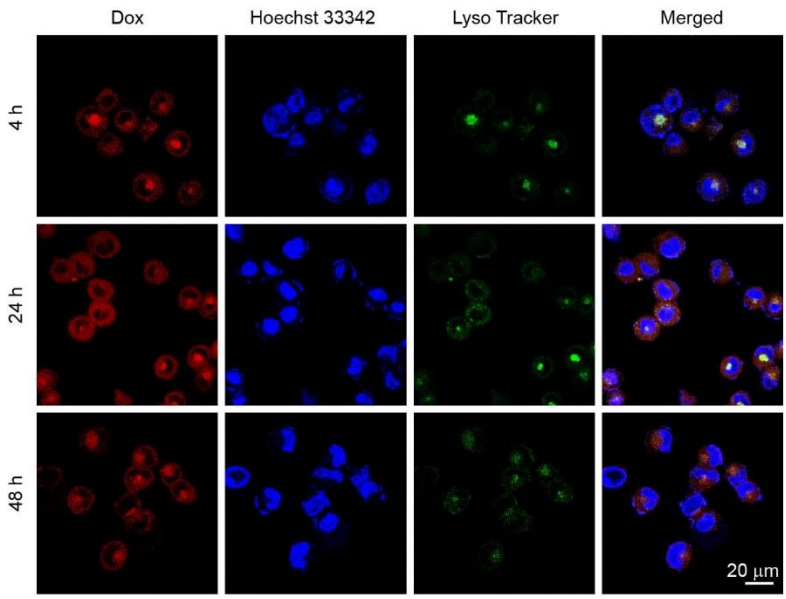

Figure S11. (A) CLSM images of HepG2 cells after incubated with Conj-1000 at 37℃ for 4, 24, and 48 h, respectively. The nuclei and mitochondria were stained by Hoechst 33342 and LysoTracker, respectively. The scale bar is 20 μm.