Electronic Supplementary Material (ESI) for New Journal of Chemistry.

Supporting Information

Prodrug-Based Self-Assembled Nanoparticles Formed by 3',5'-Dioleoyl Floxuridine for Cancer Chemotherapy

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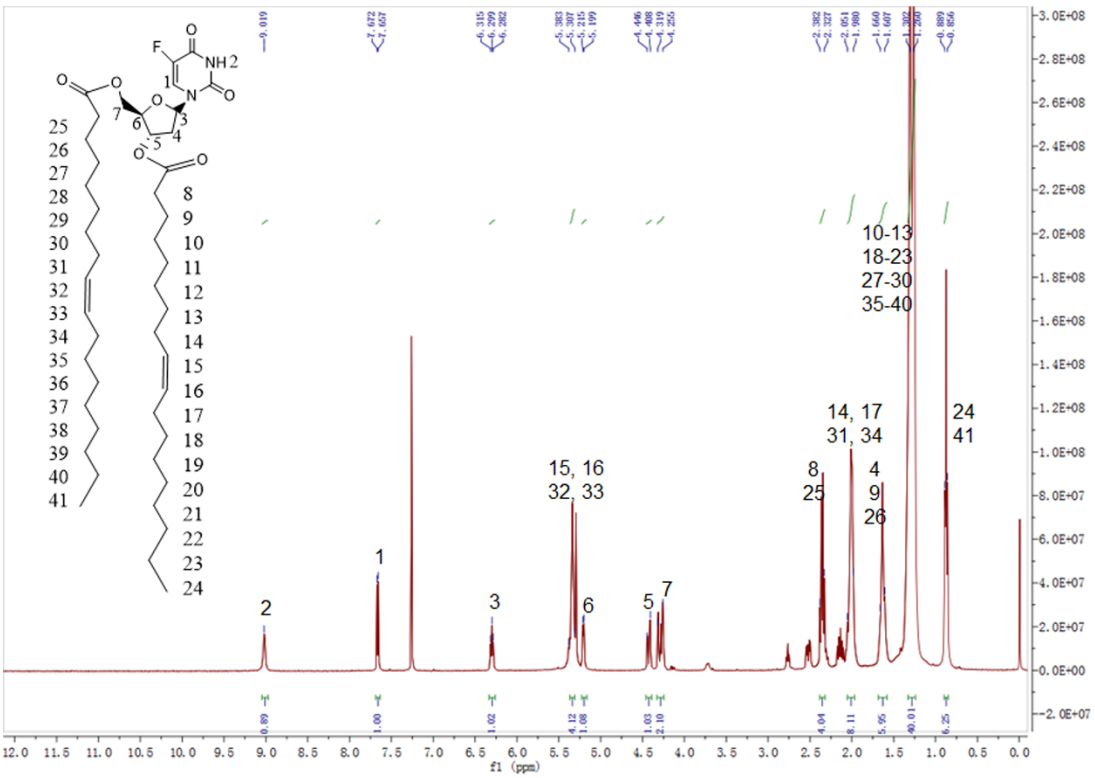

Figure S1. ^{1}H NMR spectrum of DOF in $CDCl_3$

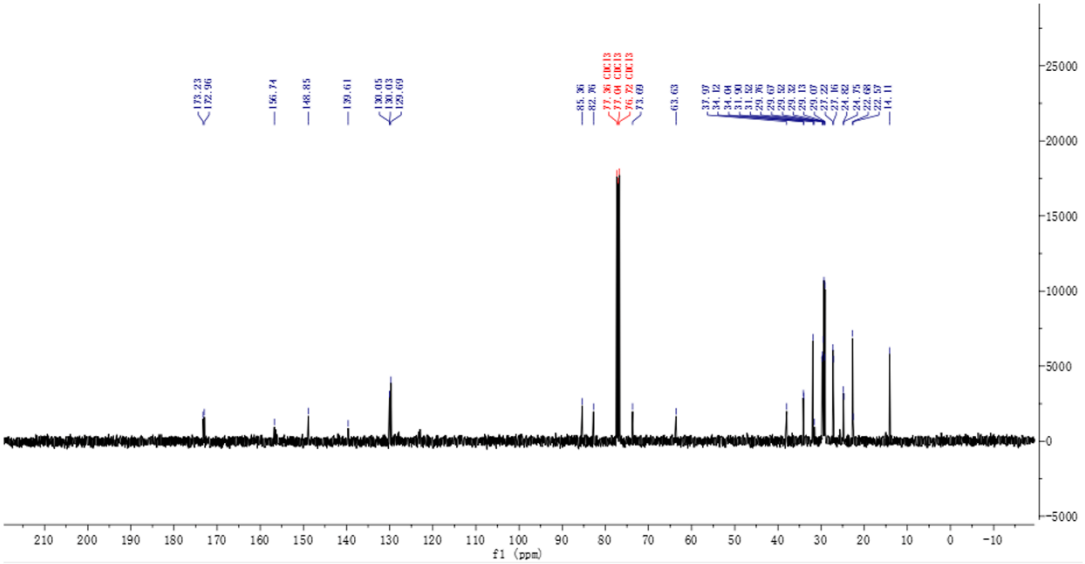

Figure S2. ^{13}C NMR spectrum of DOF in $CDCl_3$

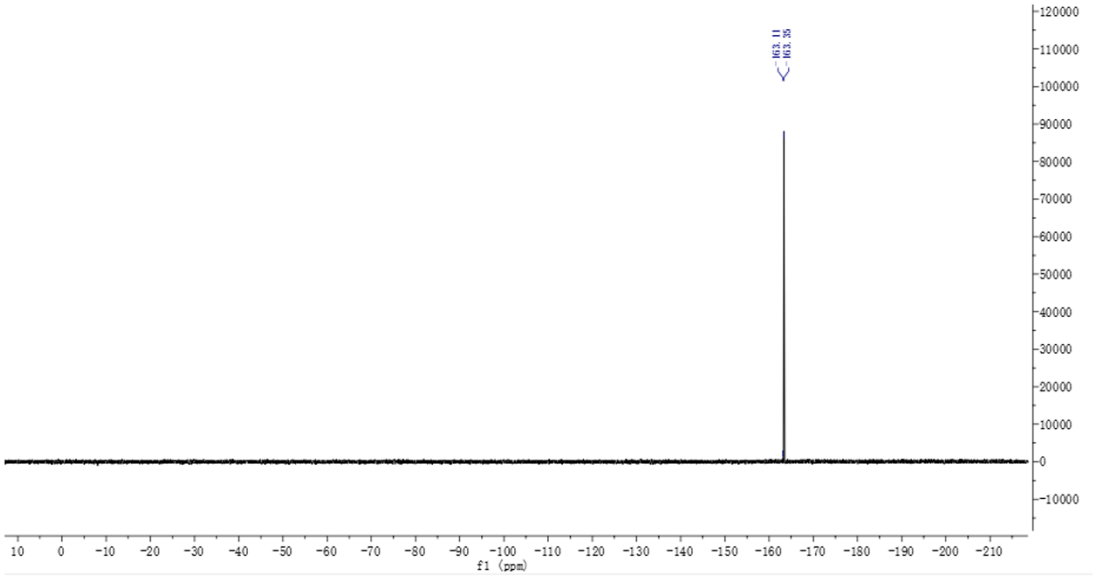

Figure S3. ^{19}F NMR spectrum of DOF in $CDCl_3$

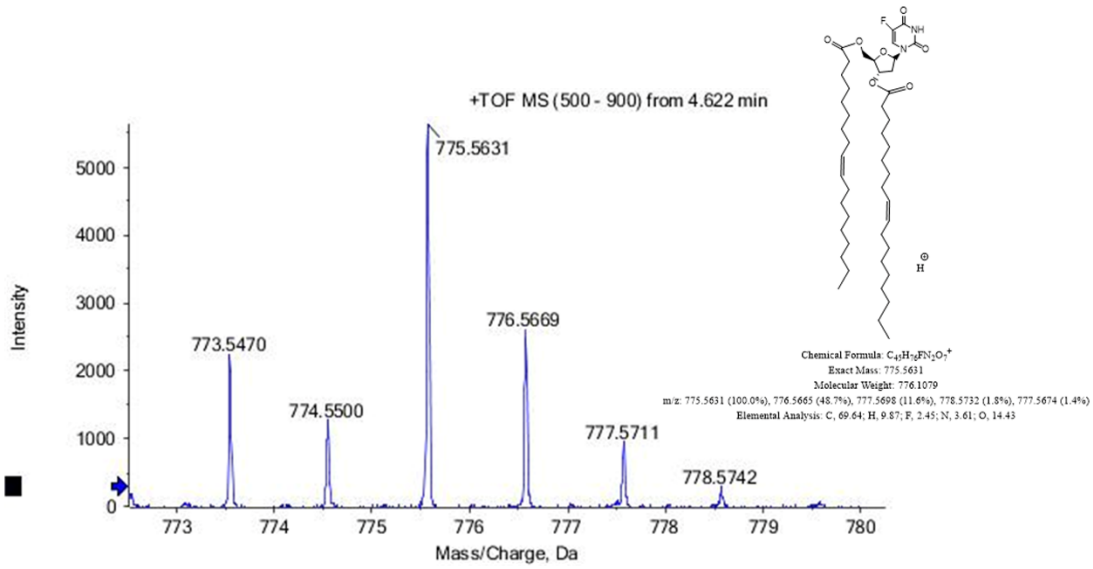

Figure S4. HR-TOF Mass spectrum of DOF.

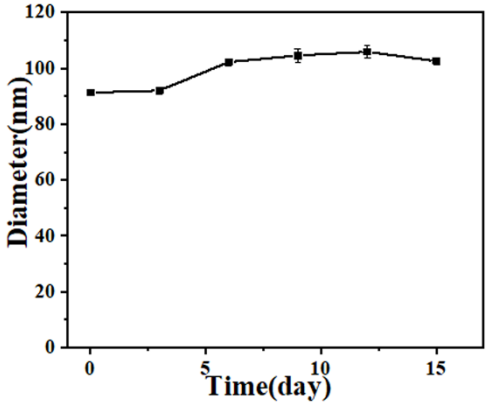

Figure S5. The size change of DOF nanoparticles store at 4 °C for 15 days. Error bars represent the standard deviation (n = 3).

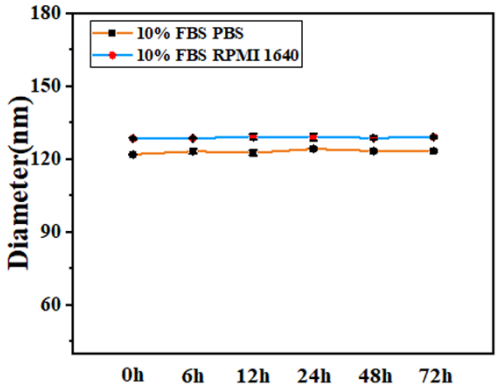

Figure S6. The size change of DOF nanoparticles after incubation in PBS (pH 7.4) supplemented with 10% FBS and RPMI 1640 medium supplemented with 10% FBS at 37 °C for 72 h. Error bars represent the standard deviation (n = 3).

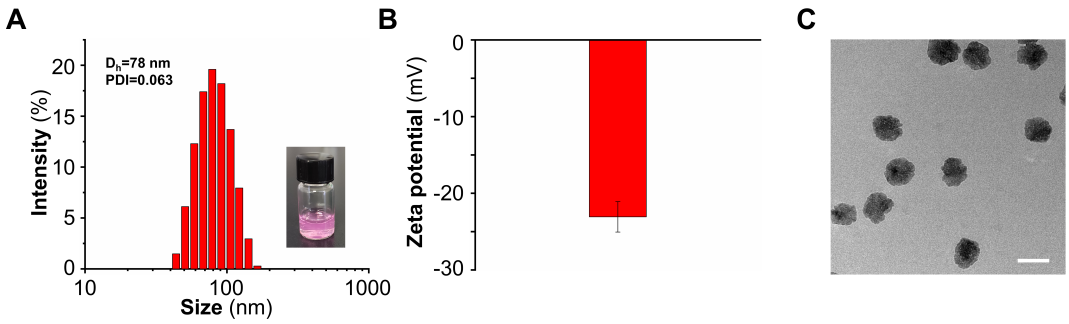

Figure S7. Characterization of NR-loaded DOF NPs. (A) Size distribution, (B) Zeta potential and (C) TEM image of NR-loaded DOF NPs. Scale bar: 100 nm.

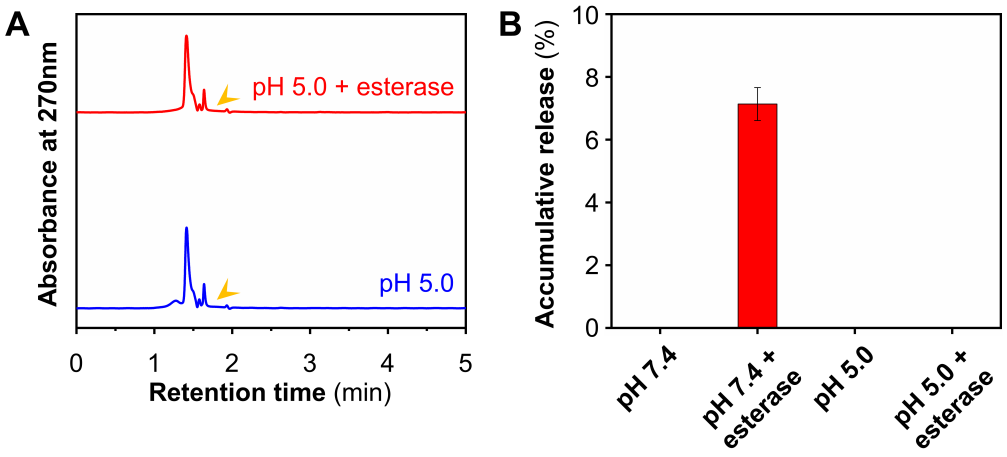

Figure S8. In vitro drug release of DOF NPs. (A) HPLC chromatograms of DOF NPs in PBS (pH 5.0) with or without esterase (20 U/mL) at 37 °C for 12 h. (B) In vitro floxuridine release from DOF NPs in PBS (pH 7.4 or pH 5.0) containing (or not) esterase (20 U/mL) at 37 °C for 12 h.

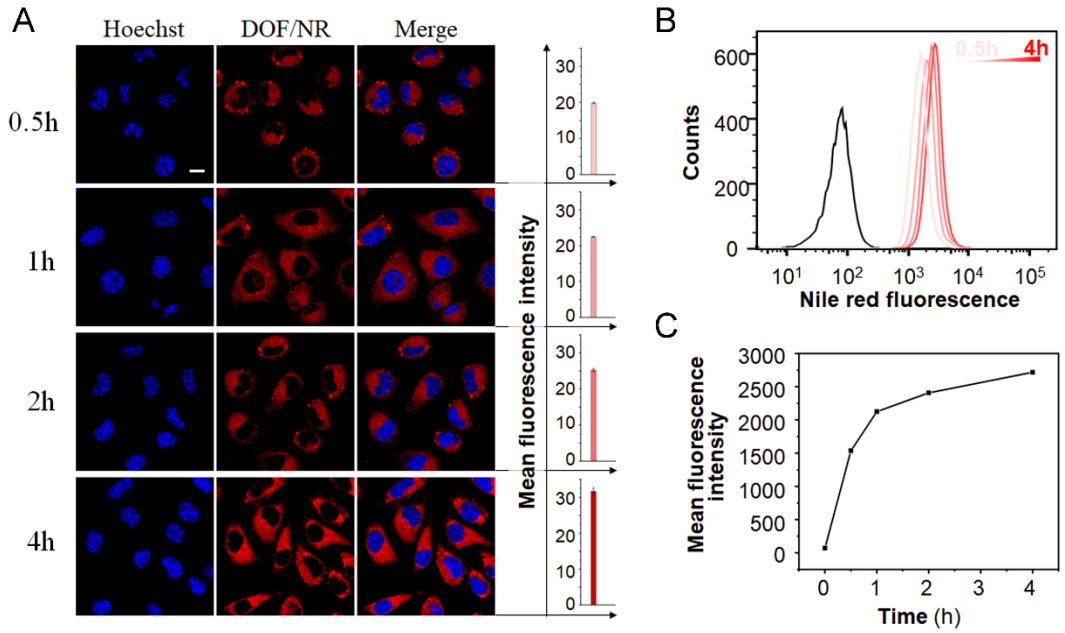

Figure S9. (A) Representative CLSM image of SMMC7721 cells treated with NR-loaded DOF nanoparticles for 0.5 h, 1 h, 2 h, and 4 h. (B) The representative flow cytometric profiles of SMMC7721 cells treated with DOF/Nile red nanoparticles and (C) Time-dependent profiles of DOF/Nile red nanoparticles' fluorescence intensity in the SMMC7721 cells by flow cytometry. Scale bar: 10 μm. Nile red concentration: 2 μM.

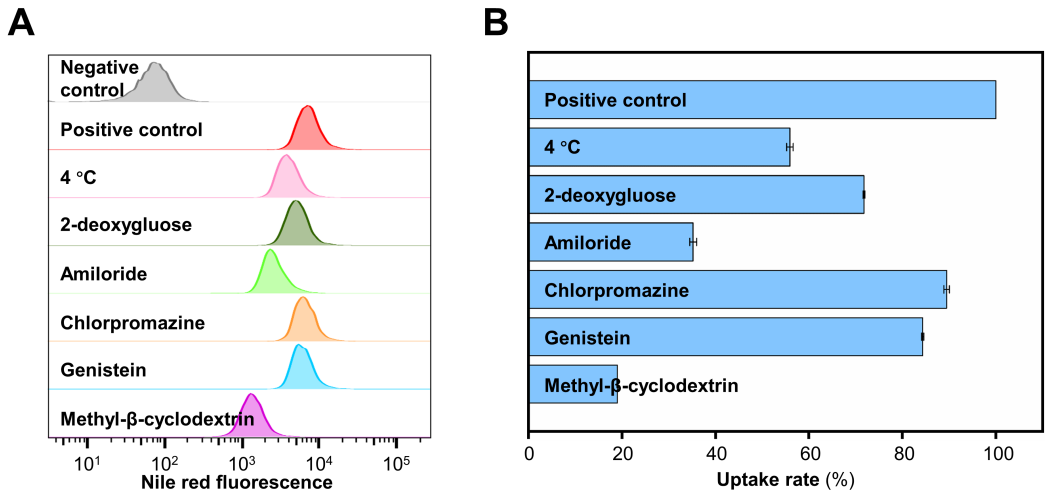

Figure S10. Investigation of the cell uptake pathway. (A) Flow cytometry analysis of the detection of the DOF NPs endocytosis function after various inhibitors treatments. (B) Evaluation of the cell uptake rate by the presence of various endocytosis inhibitors. 4 °C is used for slowing down metabolism. 2-deoxyglucose is used for ATP depletion. Amiloride is used for inhibiting micropinocytosis. Chlorpromazine is used for Inhibiting Rho GTPase (Clathrin). Genistein is used for inhibiting caveolae. Methyl-β-cyclodextrin is used for inhibiting lipid raft and cholesterol. The results are shown that the energy-dependent lipid raft- and macropinocytosis-mediated endocytosis process is the predominant pathway for DOF nanoparticles internalization.