Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Hierarchically Theranostic Nanomedicine: MRI Contrast Agents as the Physical Vehicle Anchor for High Drug Loading and Triggered on-demand Delivery

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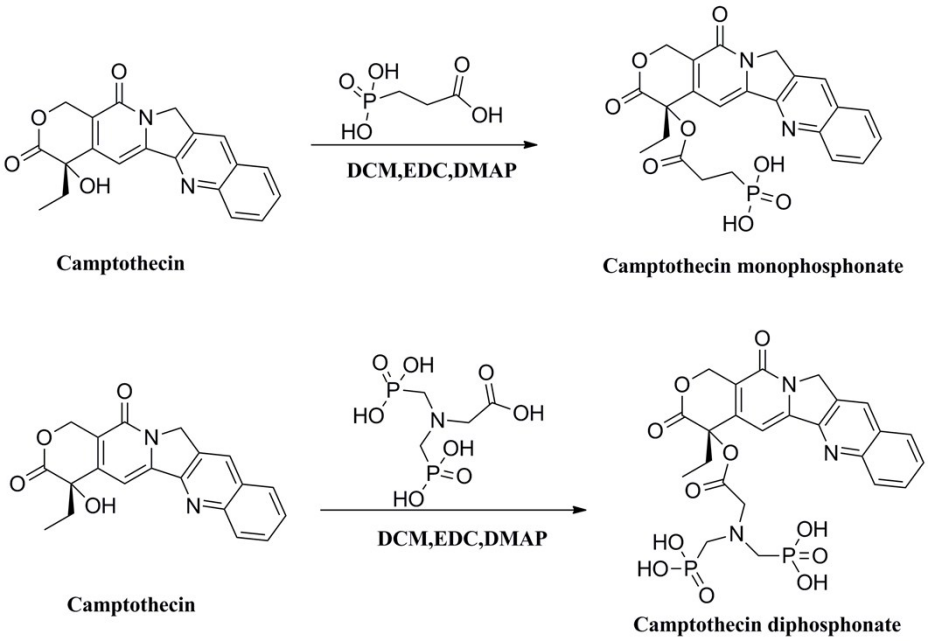

Scheme S1. Synthetic route of camptothecin monophosphonate (CPT-P) and campothecin diphosphonate (CPT-2P).

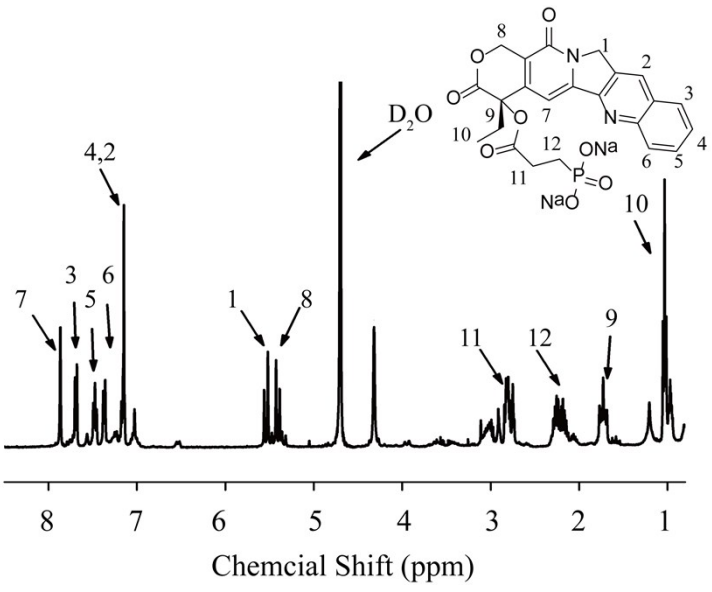

Figure S1. ^{1}H NMR spectrum of camptothecin phosphate (CPT-P) (D_2O).

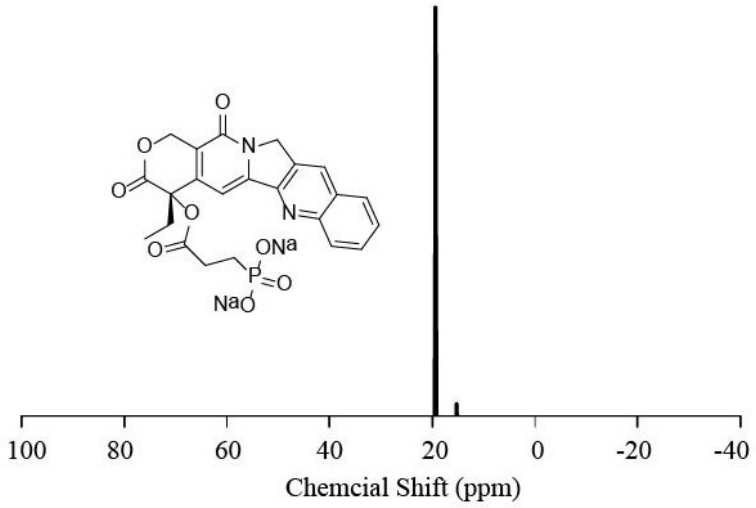

Figure S2. ^{31}P NMR spectrum of camptothecin phosphate (CPT-P) (D_2O).

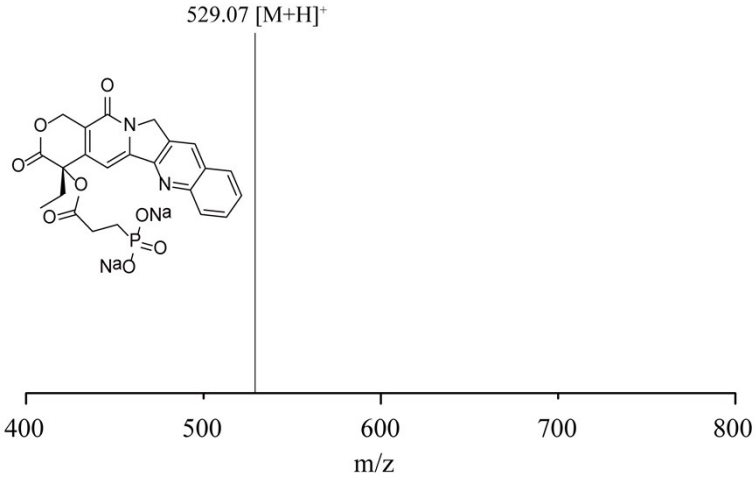

Figure S3. The mass spectrum of camptothecin phosphate (CPT-P).

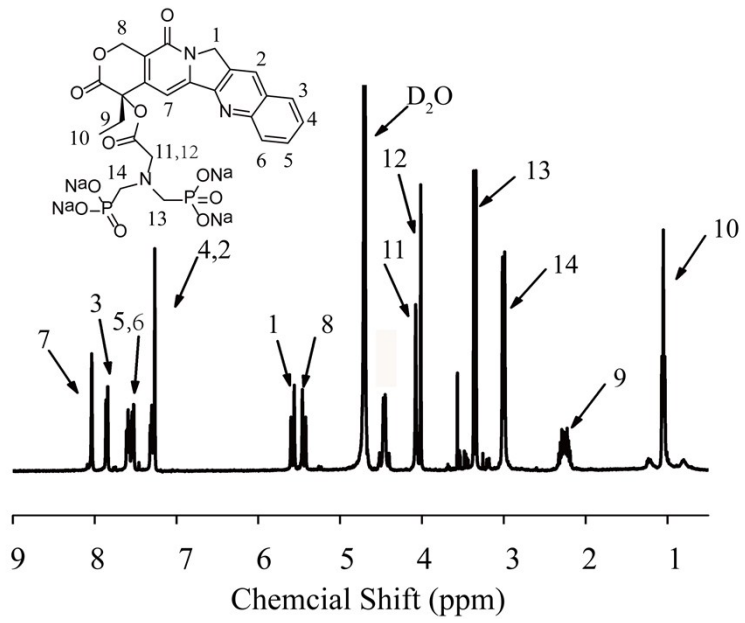

Figure S4. ^{1}H NMR spectrum of camptothecin diphosphate (CPT-2P) (D_2O).

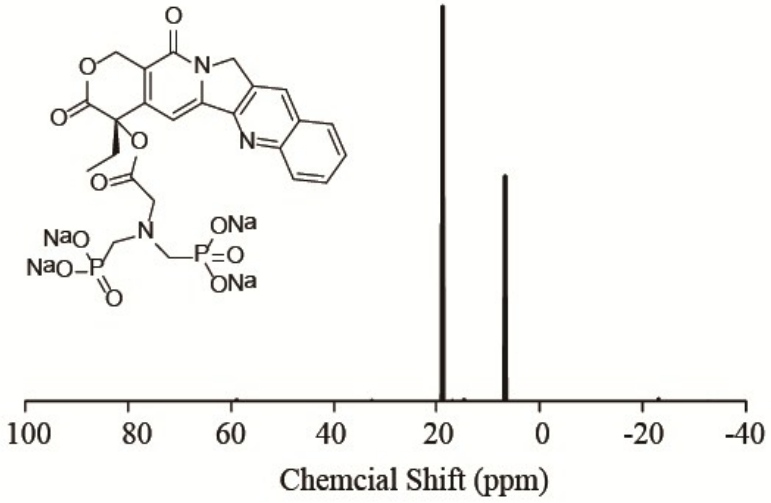

Figure S5. ^{31}P NMR spectrum of camptothecin diphosphate (CPT-2P) (D_2O).

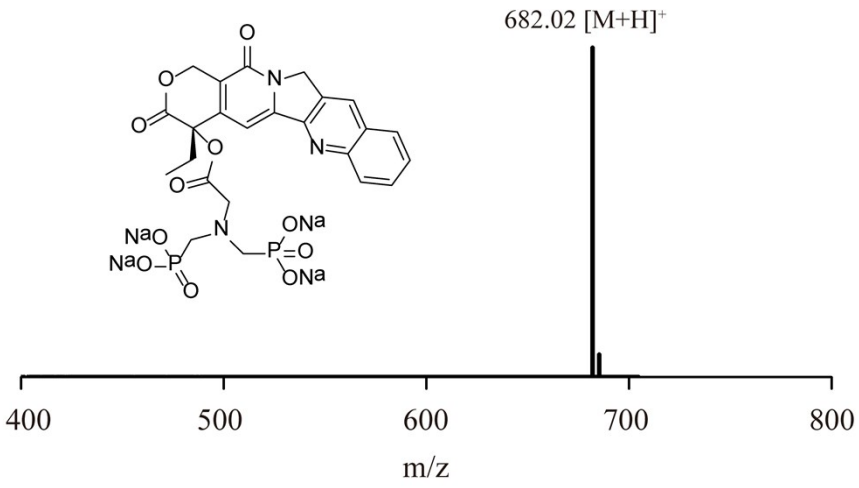

Figure S6. The mass spectrum of camptothecin diphosphate (CPT-2P).

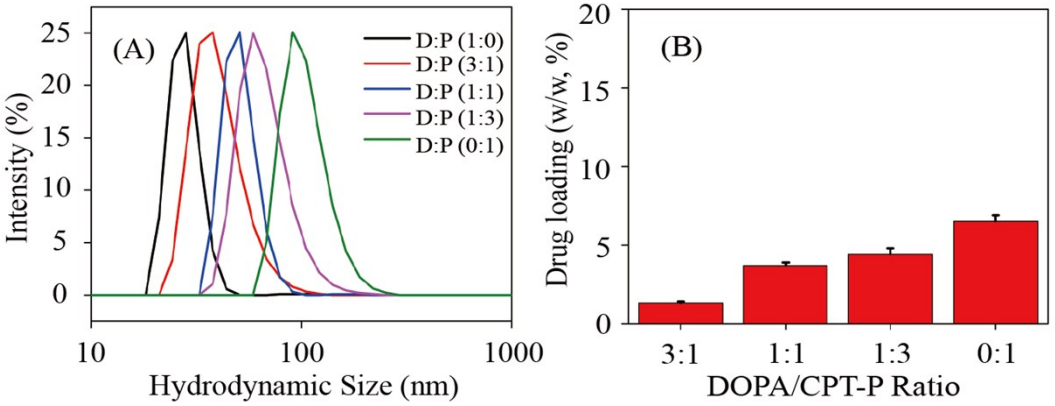

Figure S7. The influcence of dioleoylphosphatidic acid (DOPA or D) and campothecin monophosphonate (CPT-P or P) ratio on the particle size and drug loading in hybrid nanocarriers. (A) The hydrodynamic sizes of the hybrid nanocarrier when the mixture of a DOPA lipid and a model drug (CPT-P) at different molar ratios (D:P) were supplemented for the particle fabrication; (B) The drug loadings of four types of hybrid nanocarrier in corresponding to different D:P ratio.

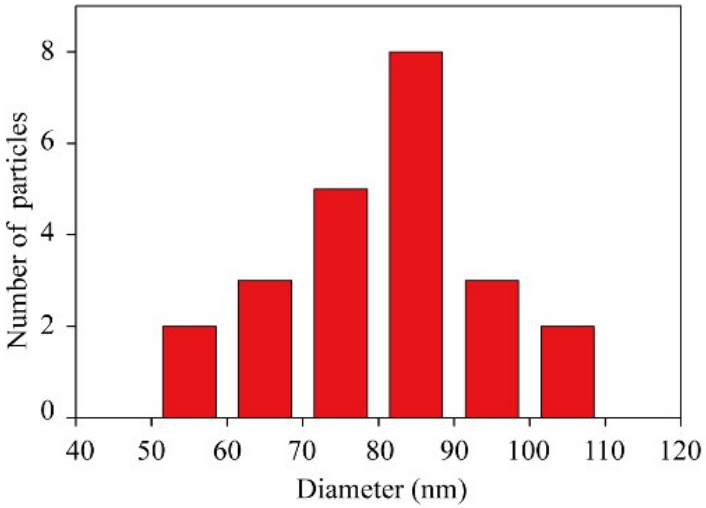

Figure S8. The number-based size and size distribution of micelles based on the TEM analysis in Figure 1D.

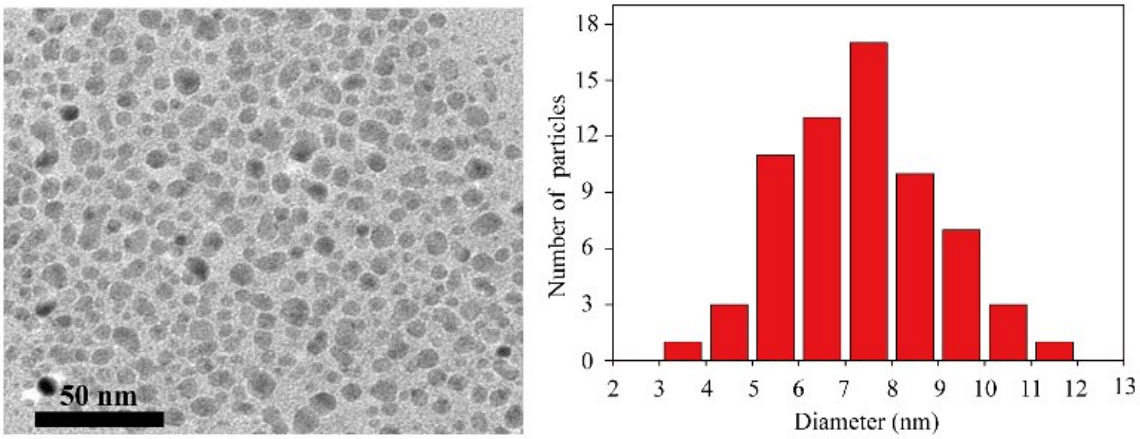

Figure S9. The TEM size of LMnP core and corresponding number-based size and size distribution histogram.

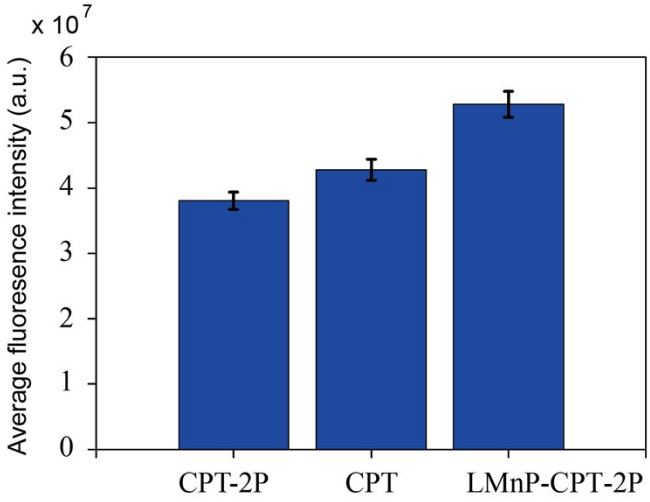

Figure S10. The average drug fluoresecence intensity when three samples (CPT-2P, CPT and LMnP-CPT-2P) were incubated with 4T1 cells for 4 hours. The data were extracted from Figure 3B.

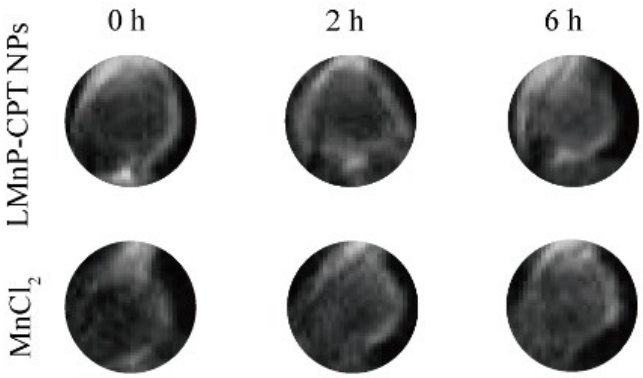

Figure S11. The enlarged MR images of tumor in Figure 4A.

Table S1. Significant comparison of three different formulations in terms of IC_{50}. Free CPT (3.9 ± 0.3 μM), free CPT-2P (6.4 ± 1.0 μM), LMnP-CPT-2P nanocarrier (5.4 ± 0.3 μM).

Samples	Significant Difference
Free CPT vs. Free CPT-2P	Yes ($p < 0.05$)
Free CPT vs. LMnP-CPT-2P Nanocarrier	Yes ($p < 0.05$)
Free CPT-2P vs. LMnP-CPT-2P Nanocarrier	No ($p > 0.05$)