

Supporting Information

pH-Sensitive Polymeric Micelles for Co-delivery of Proapoptotic Peptide and Anticancer Drug for Synergistic Cancer Therapy

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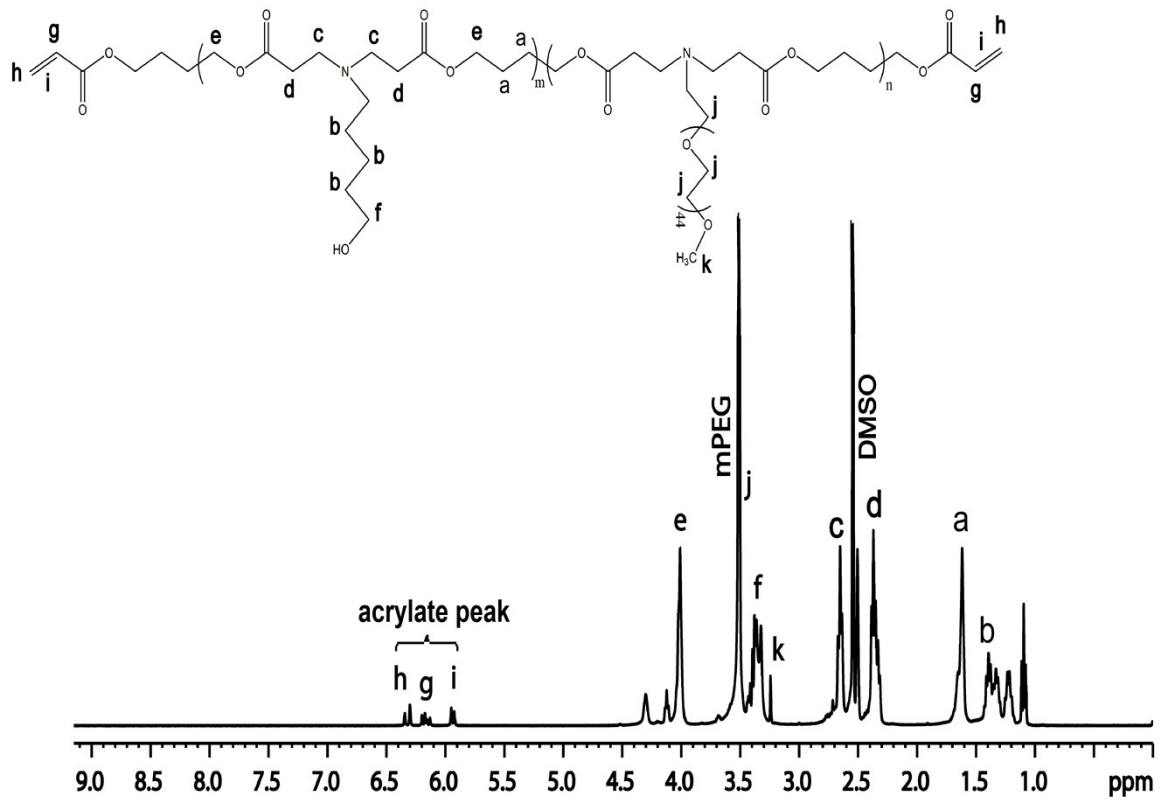
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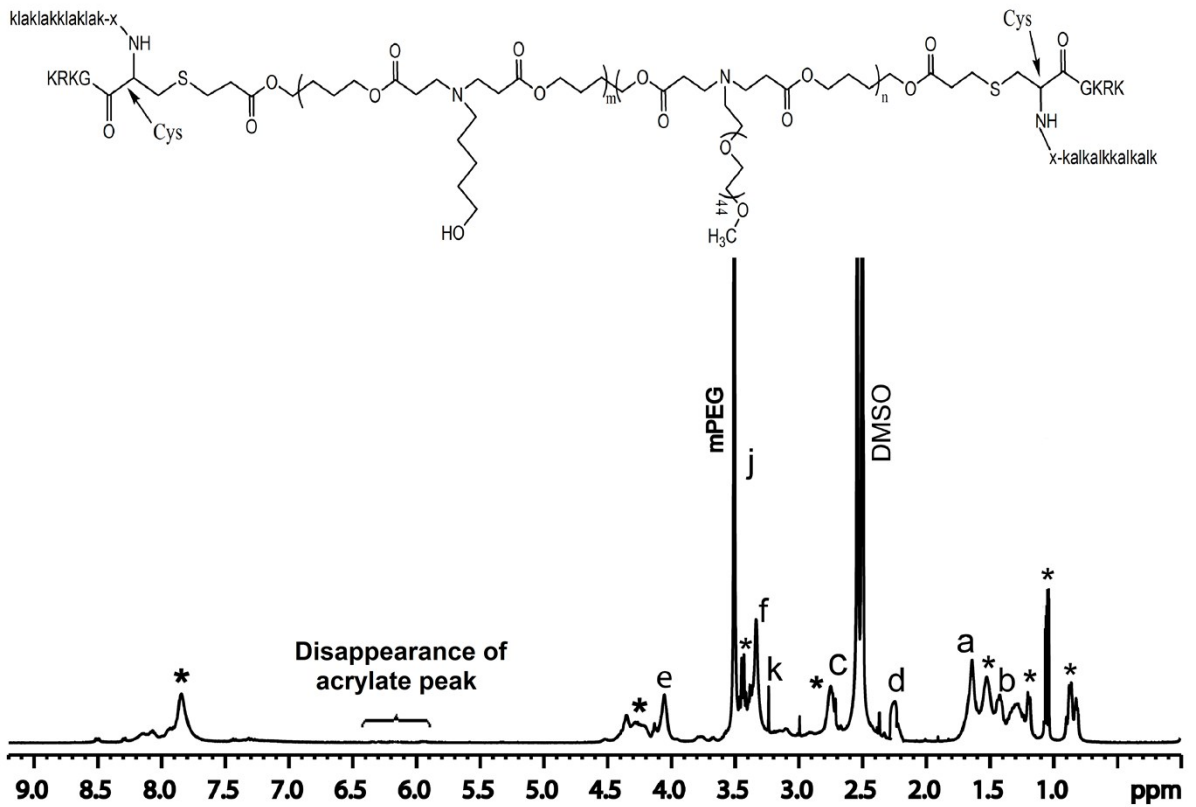
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(A)



(B)



(C)

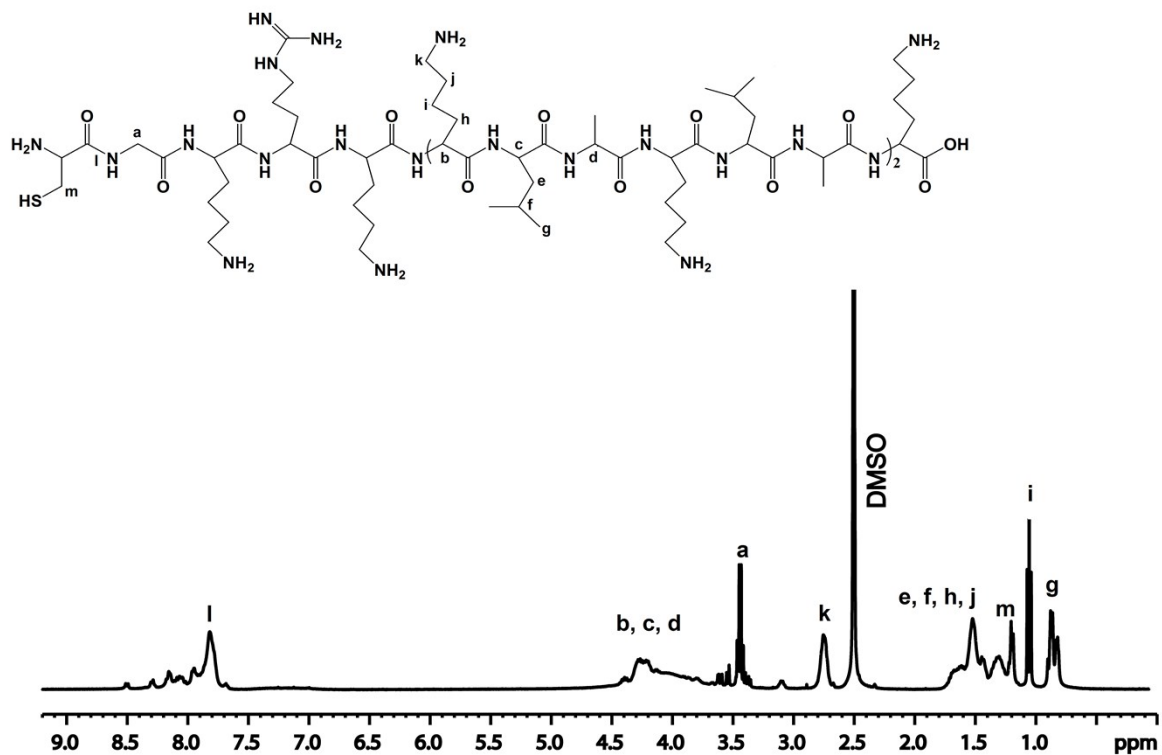


Fig. S1 ¹H NMR spectra of (A) PBAE-PEG, (B) CGKRRK_D(KLAKLAK)₂-conjugated PBAE-PEG copolymer and (C) free CGKRRK_D(KLAKLAK)₂. Spectra were recorded in DMSO-d₆. The therapeutic peptide signals in B are denoted by asterisks (*) symbols.

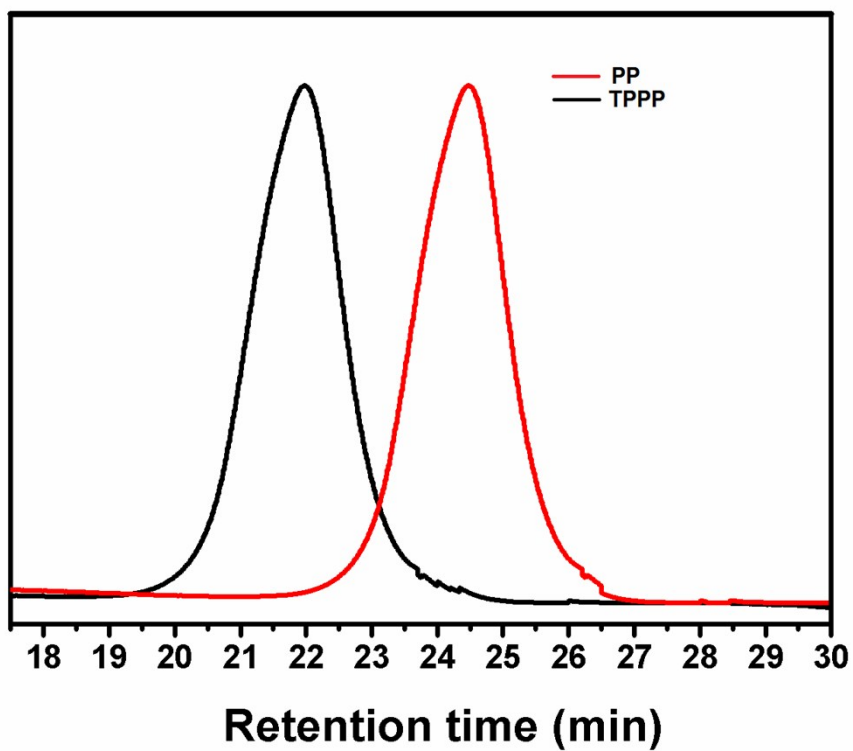


Fig. S2 GPC traces of PP (PBAE-PEG) and TPPP ((CGKRRK_D(KLAKLAK)₂-PBAE-PEG) determined by DMF based gel permeation chromatography.

Table S1 Physicochemical characterization of CGKRR_D(KLAKLAK)₂-conjugated PBAE-PEG copolymer.

Sample	Feed ratio	Mn^a (g/mol)	PDI^a	CMC^b (mg/mL)
PP	BD: AP: PEG (1.2:0.9:0.1)	4092	1.4	0.01
TP	-	2097	-	-
TPPP	PP: TP (1:2.2)	8286	1.02	0.04

^aMolecular weight of the polymer was determined by GPC measurements. PDI = Mw/Mn.

^bCMC was determined using pyrene as a fluorescence probe. Abbreviation: PP = PBAE-PEG, TP = CGKRR_D(KLAKLAK)₂, TPPP = CGKRR_D(KLAKLAK)₂-PBAE-PEG.

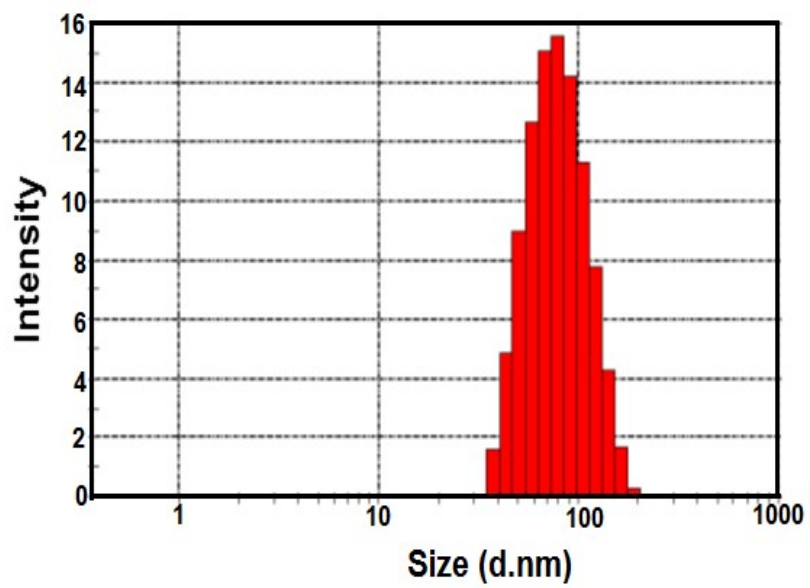


Fig. S3 The diameter and size distribution of DTX-loaded PP micelles measured by DLS.

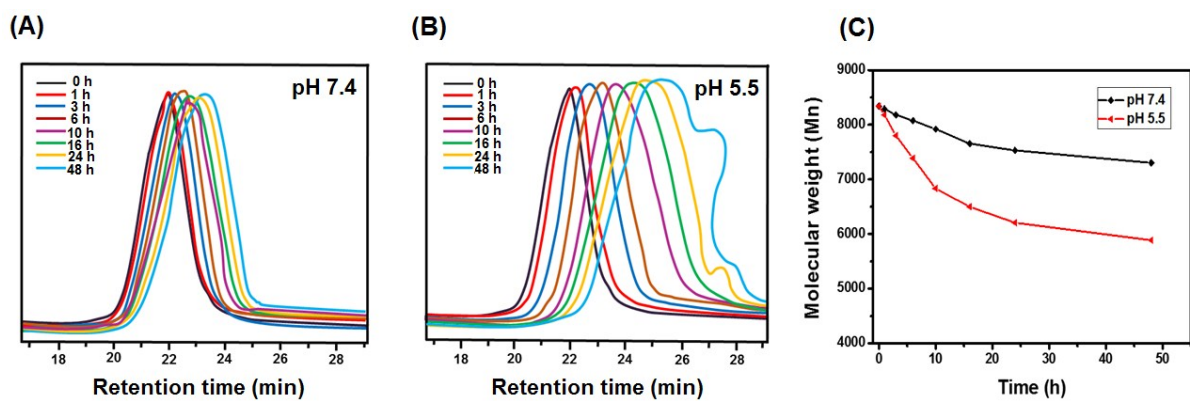


Fig. S4 The GPC traces of time-dependent hydrolysis of TPPP at (A) pH 7.4 and (B) pH 5.5. (C) Determination of molecular weight changes of TPPP copolymer based on time-dependent hydrolysis *via* GPC analysis.

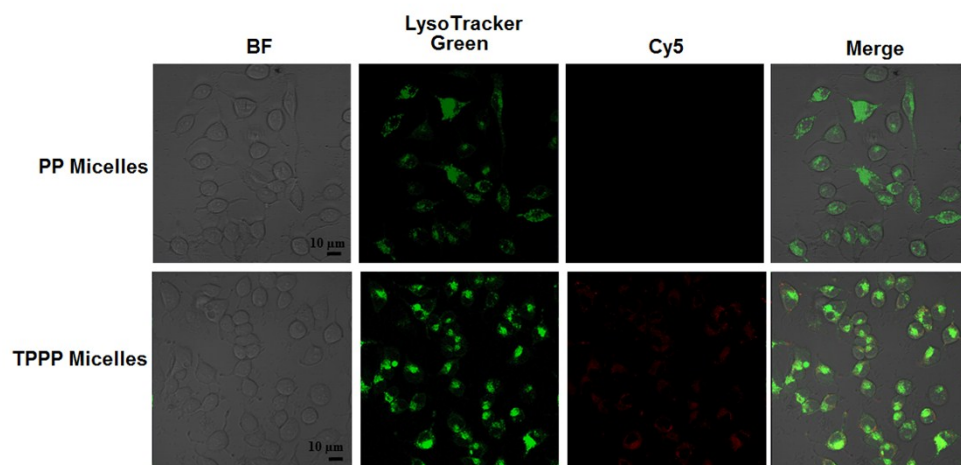


Fig. S5 Confocal images of MCF-7 cells treated with Cy5-loaded PP and Cy5-loaded TPPP micelles (1 h). Lysosomes were labelled with LysoTracker for 15-20 min. Red and green colors denote Cy5 and LysoTracker respectively.

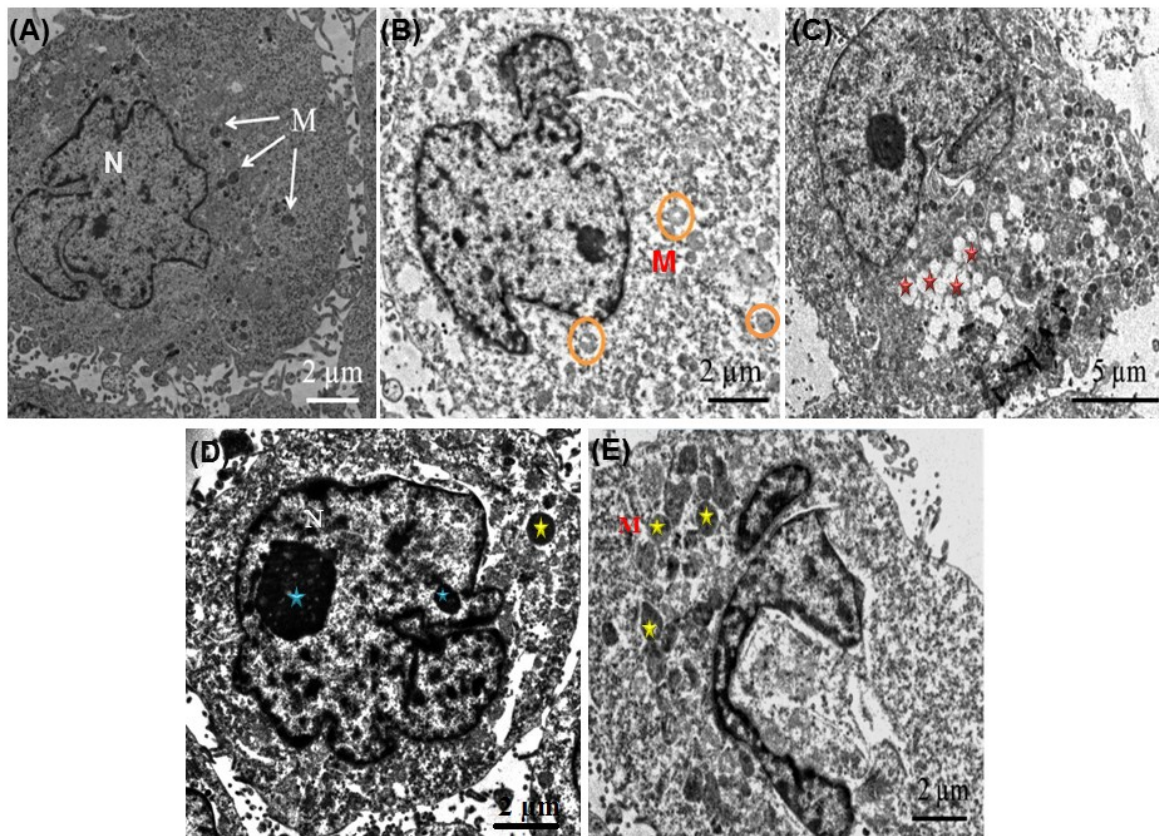


Fig. S6 BIO-TEM images of (A) MCF-7 cells incubated for 36 h with empty PP micelles and (B, C, D, and E) MCF-7 cells incubated with DTX-loaded TPPP micelles. Mitochondria (M) were highlighted by enlarged orange circle and yellow stars. Nucleus (N) was indicated by blue stars. Red stars show large vacuoles.