Supporting Information

# Drug-driven self-assembly of pH-sensitive nano-vesicles with high loading capacity and anti-tumor efficacy

Yaomin Zhai[#], Juan Wang[#], Liyan Qiu[*]

Ministry of Education (MOE), Key Laboratory of Macromolecular Synthesis and Functionalization, Department of Polymer Science and Engineering, Zhejiang University, Hangzhou 310027, China.

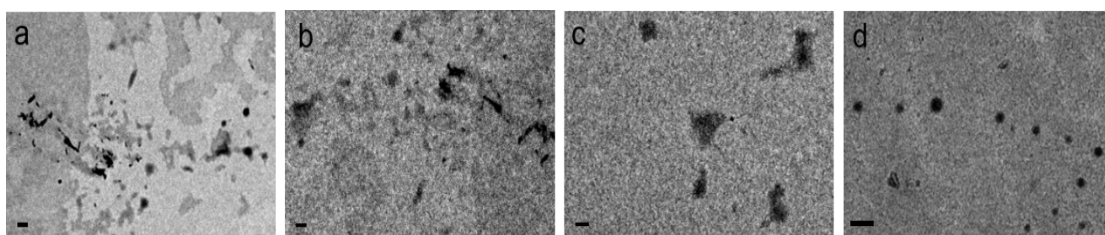* To whom correspondence should be addressed. E-mail: lyqiu@zju.edu.cn
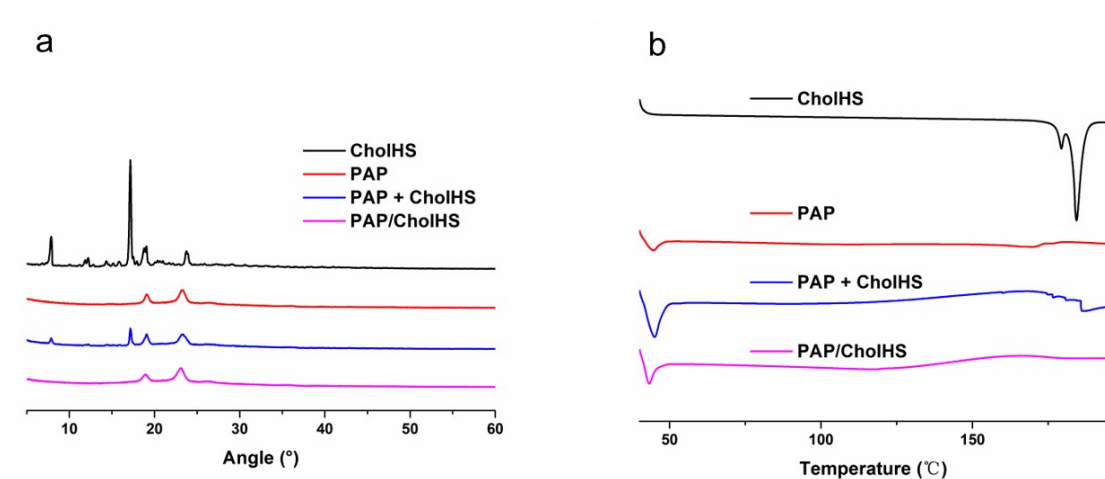
[#] These authors contributed equally.
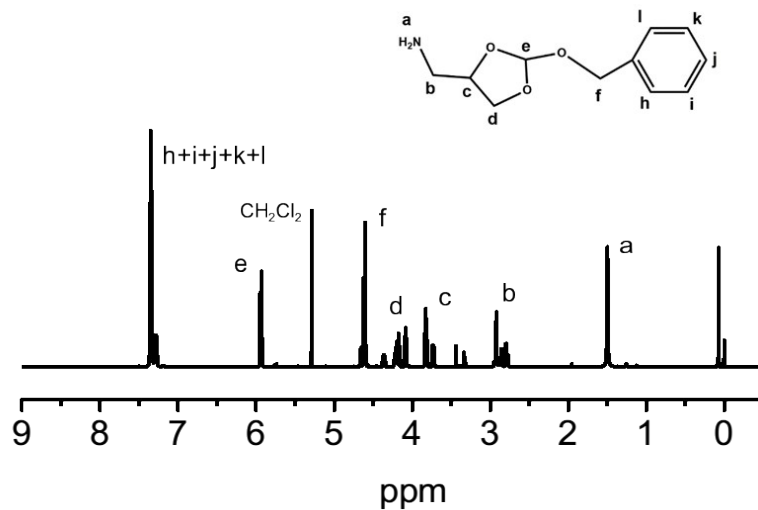
**Supplementary Fig. S1** The ^{1}H NMR spectrum of ortho ester molecule (ABD).
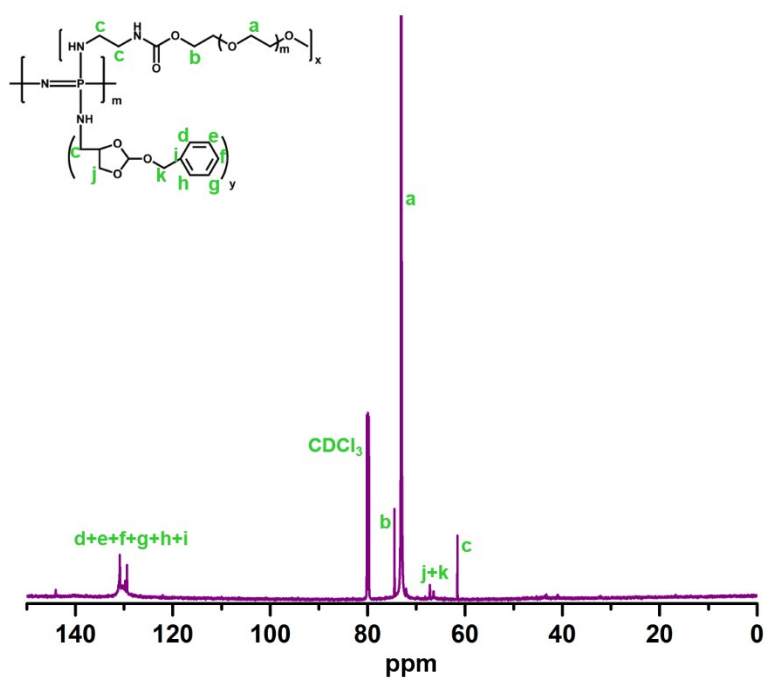
Supplementary Fig. S2 ^{13}C NMR spectrum of PAP-3 copolymer in deuterated chloroform.

Supplementary Fig. S3 TEM images of blank PAPs and DOX·HCl-loaded PAP-3. (a) PAP-1; (b) PAP-2; (c) PAP-3; (d) PAP-4. All scale bars are 0.2 μm.

Supplementary Fig. S4 Characterization of compatibility between PAP copolymer and CholHS. (a) XRD and (b) DSC patterns of PAP, CholHS, mixture of PAP and CholHS and PAP/CholHS.
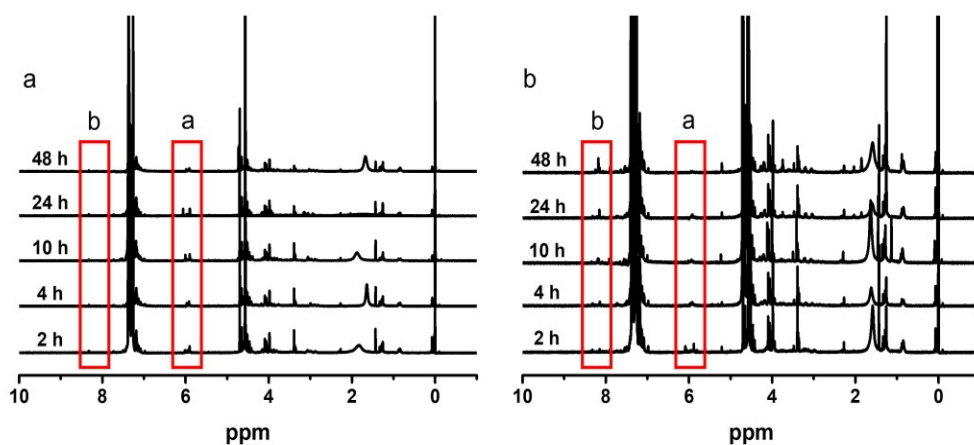
Supplementary Fig. S5 Characterization of the hydrolysis performance of ABD molecules at (a) pH 7.4 and (b) pH 5.5.
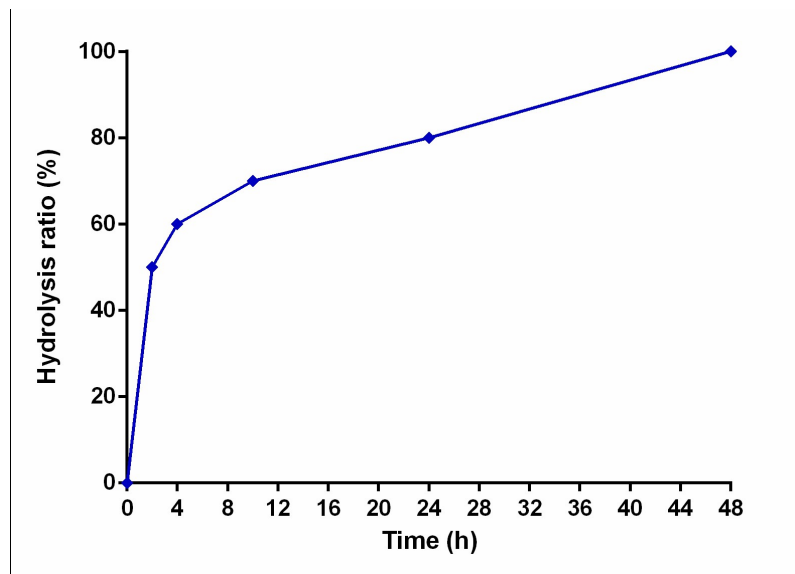
Supplementary Fig. S6 The hydrolysis rate curve of ABD molecules at pH 5.5.

Supplementary Table S1 Various properties of the DOX·HCl-loaded PAP vesicles containing different amounts of CholHS (DOX-PAP/CholHS).

CholHS content (wt%)	DOX·HCl-loaded PAP vesicles			
	Size (nm)	PDI	EE (%)	LC (%)
0	156.7 ± 8.8	0.38	98.33 ± 1.54	19.73 ± 0.24
5	234.5 ± 7.5	0.17	98.54 ± 1.43	19.77 ± 0.23
10	240.5 ± 23.6	0.20	97.78 ± 1.66	19.64 ± 0.27
15	307.3 ± 27.2	0.21	97.43 ± 1.75	19.59 ± 0.28
20	320.7 ± 28.1	0.18	97.03 ± 1.41	19.52 ± 0.21