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Electronic Supplementary Information

Enhancing the tumor penetration of multiarm polymers by collagenase modification

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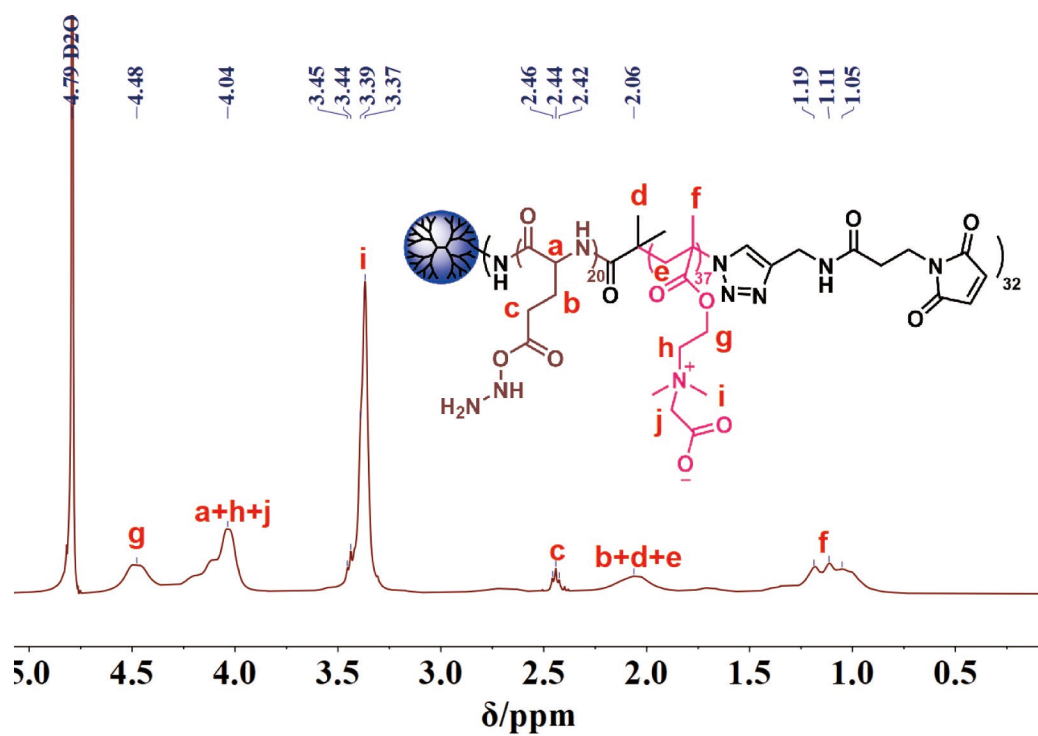


Fig. S1 ^1H NMR spectrum of DPMal in D_2O .

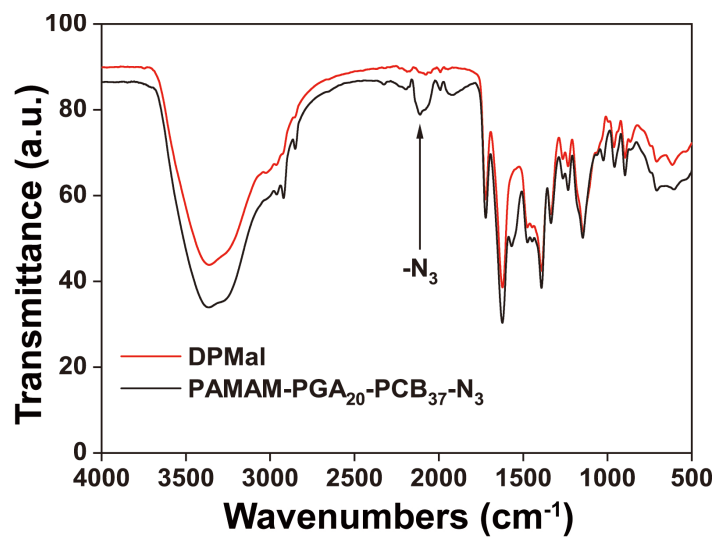


Fig. S2 FTIR spectra of DPMal and PAMAM-PGA₂₀-PCB₃₇-N₃.

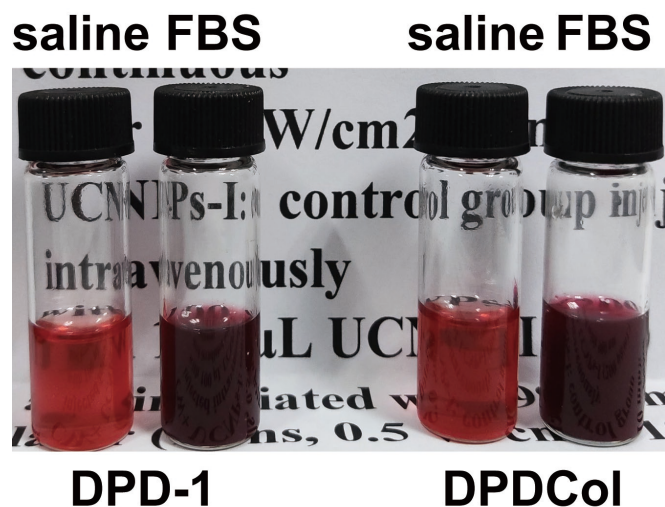


Fig. S3 Photographs of the saline and FBS solutions of DPD-1 and DPDCol at the concentrations normalized to 0.3 mg/mL DOX equivalent.

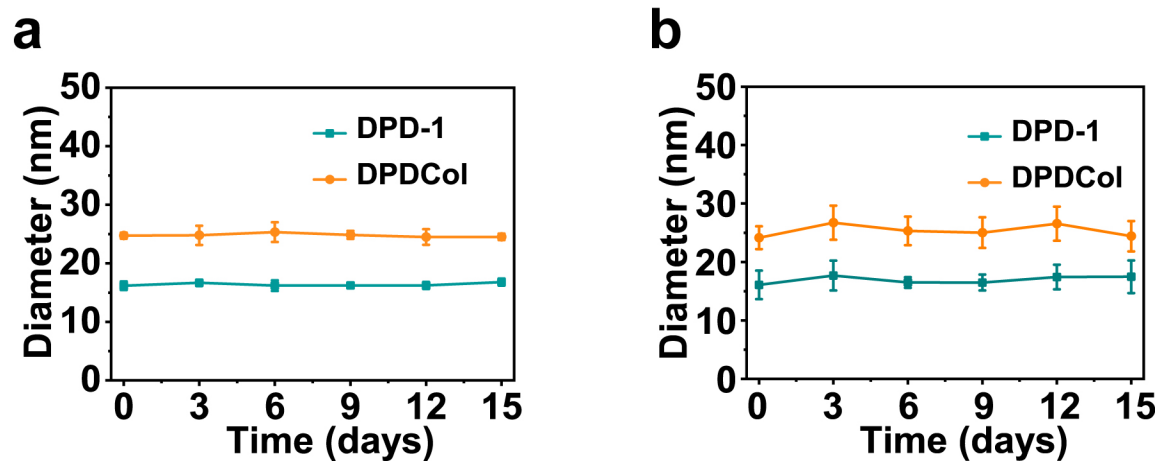


Fig. S4 The hydrodynamic diameter of DPD-1 and DPDCol after different days of storage in PBS (a) and cell culture medium (b).

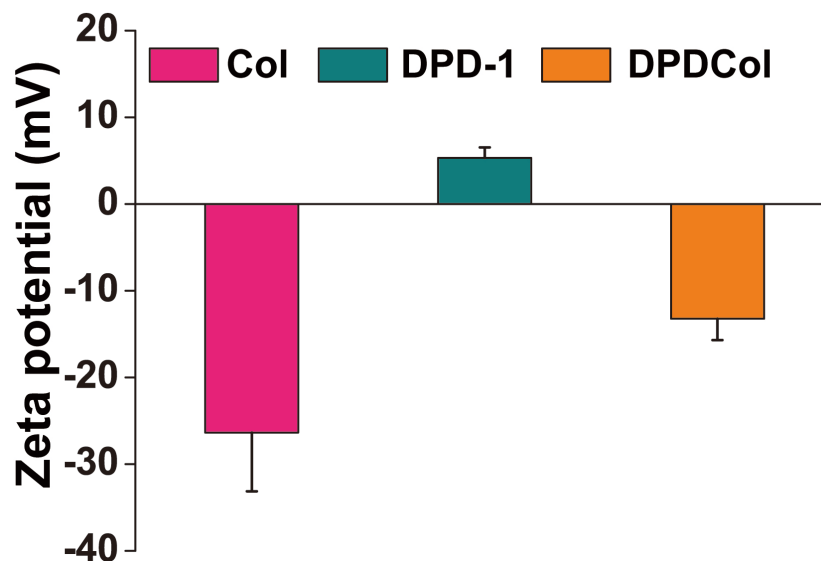


Fig. S5 Zeta potential of Col, DPD-1 and DPDCol in PBS (pH = 7.4) (n=5, mean \pm SD).

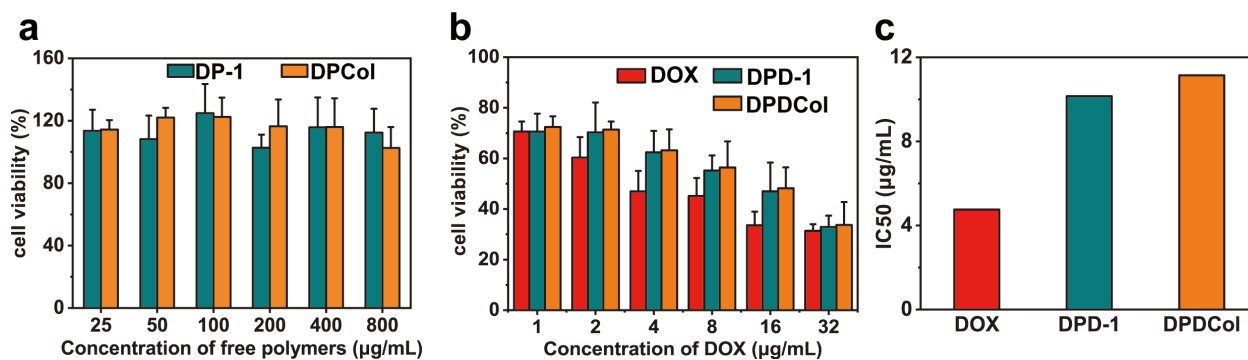


Fig. S6 (a) In vitro cytotoxicities of DP-1 and DPCol against CT26 cells after 48 h of incubation. (b) In vitro cytotoxicities of DOX, DPD-1, and DPDCol against CT26 cells after 24 h of incubation. Data represent mean \pm SD (n = 3). (c) IC50 values calculated from the MTT assay data.

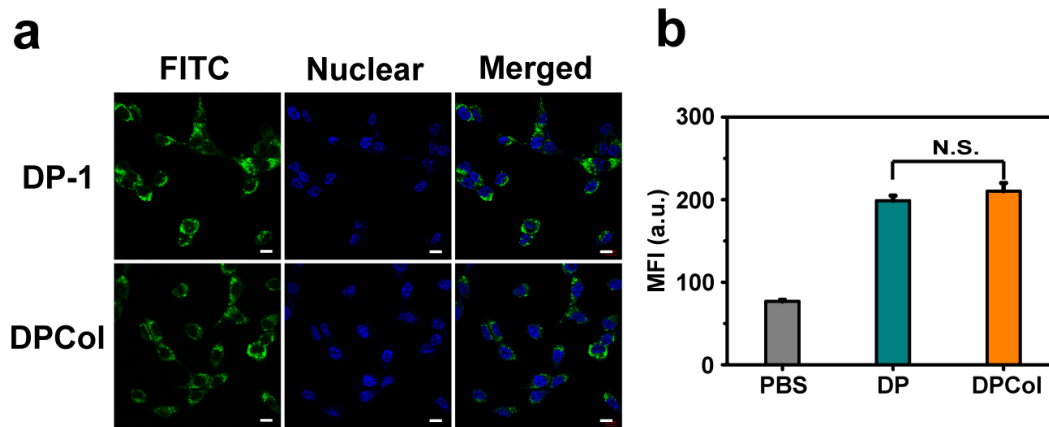


Fig. S7 Typical CLSM images (a) and mean fluorescence intensities measured by flow cytometry (b) of the CT26 cells after incubated with the FITC-labeled DP-1 and DPCol at 37°C for 4 h, respectively. Scale bars = 10 μ m. Data represent mean \pm SD (n = 3). N.S. means no significant difference.

Table S1 Maximal DOX Concentrations and Corresponding Appearance Time in the Tumors and Main Organs (DPD-1 versus DPDCol).

DPD-1 versus DPD-2	Heart	Liver	Spleen	Lung	Kidney	Tumor
Maximal DOX concentration (% ID/g)	6.7 7.5	18.5 25.4	15.2 19.6	8.9 8.1	27.6 13.1	3.6 4.6
Appearance time (h)	4 4	4 4	8 4	1 4	1 4	4 4

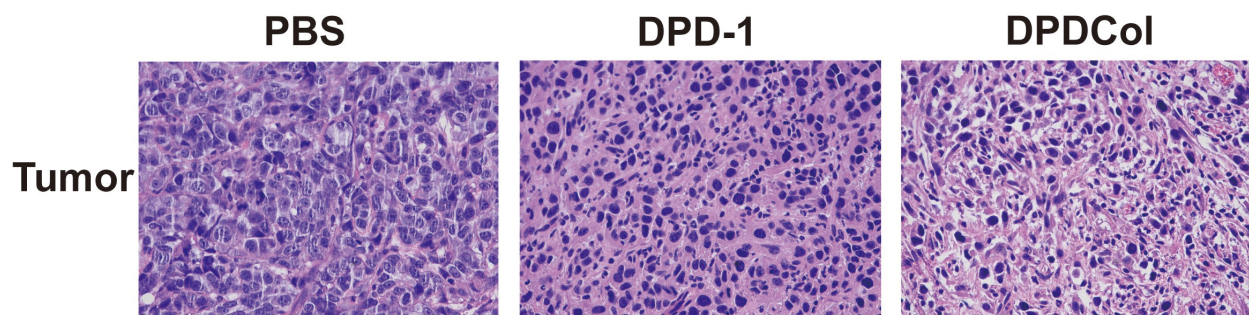


Fig. S8 H&E-stained tumor slices from 4T1 tumor-bearing BALB/c mice on the 7th day after treatment with PBS, DPD-1, and DPDCol. The images were taken at 400 \times magnification.

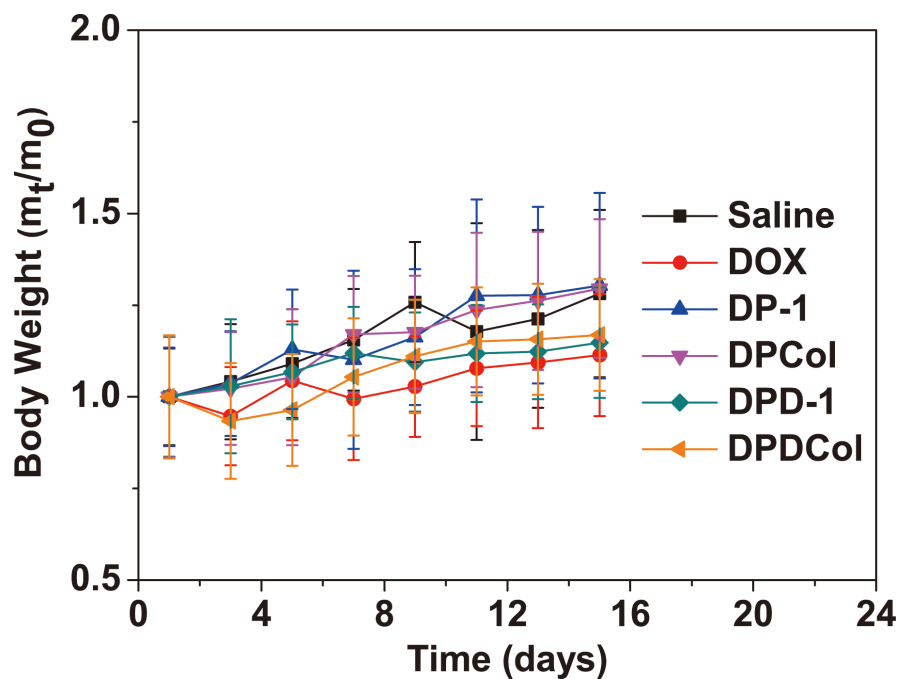


Fig. S9 Evolution of the body weights of the 4T1 tumor-bearing mice after the different treatments, expressed as the ratio of the measured body weight to the initial body weight. Data are presented as mean \pm SD (n = 10).

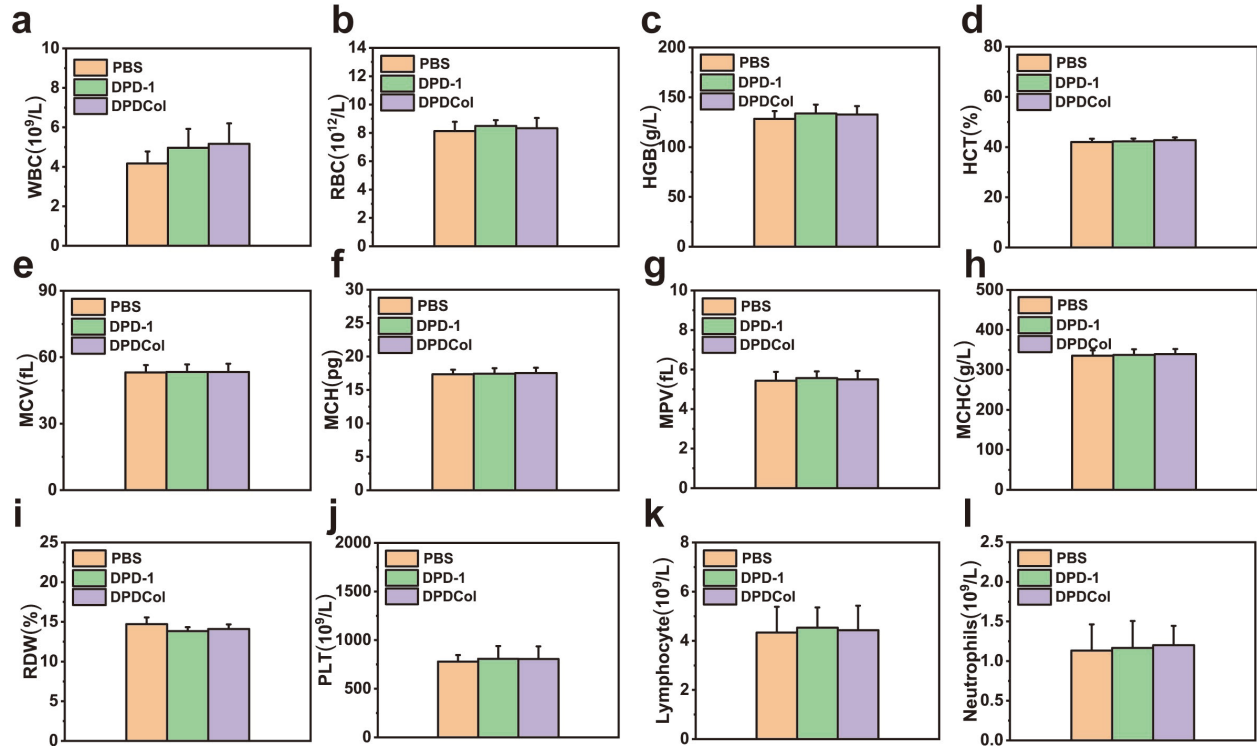


Fig. S10 Hematology analysis of the mice after tail-vein injection of DPD-1 and DPDCol. Data are presented as mean \pm SD (n=3).

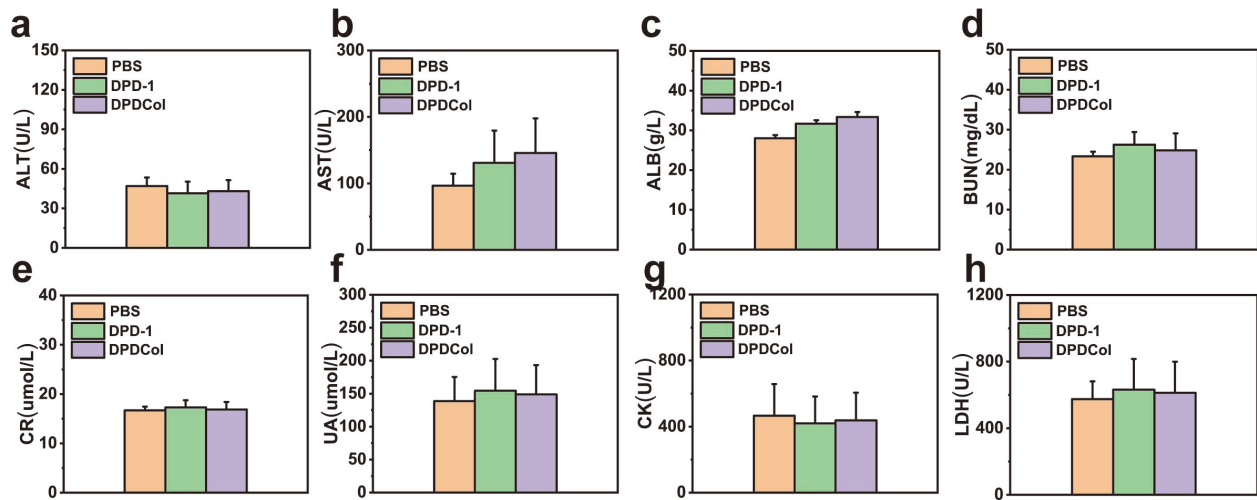


Fig. S11 Blood chemistry analysis of the mice after tail-vein injection of DPD-1 and DPDCol. Data are presented as mean \pm SD (n=3).