

## Supporting Information

DACHPt-loaded unimolecular micelles based on hydrophilic dendritic block  
copolymers for enhanced therapy of lung cancer

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**Synthesis of block copolymer PEG-*b*-PGlu.** Firstly, Poly(ethylene glycol)-*b*-poly( $\gamma$ -benzyl-L-glutamate) (PEG-*b*-PBLG) was synthesized by ring-opening polymerization (ROP) according to our former work.<sup>1</sup> Briefly, *N*-carboxyanhydride of  $\gamma$ -benzyl-L-glutamate (BLG-NCA) was polymerized in DMF initiated by the primary amino group of CH<sub>3</sub>O-PEG-NH<sub>2</sub> to obtain PEG-*b*-PBLG block copolymer. The reaction mixture was stirred for 3 d at 35 °C under a dry argon atmosphere. The resulting solution was precipitated into 10-fold excess of cold diethyl ether. The crude precipitate was washed twice with diethyl ether to obtain white powder. The degree of polymerization of PEG-*b*-PBLG was verified by comparing the proton ratios of the methylene units in PEG (-OCH<sub>2</sub>CH<sub>2</sub>-:  $\delta$ = 3.7 ppm) with the methylene units of PBLG (C<sub>6</sub>H<sub>5</sub>CH<sub>2</sub>-:  $\delta$  = 5.1 ppm) by <sup>1</sup>H-NMR spectroscopy (solvent: CDCl<sub>3</sub>). To get PEG-*b*-PGlu, PEG-*b*-PBLG was deprotected by mixing with 0.5 N NaOH for 12 h at room temperature. After that, the solution was neutralized with 0.5 N HCl and dialyzed against DI water using a cellulose dialysis membrane (molecular weight cutoff, 3 kDa). PEG-*b*-PGlu was obtained after lyophilization and complete deprotection was confirmed by <sup>1</sup>H-NMR spectroscopy (solvent: D<sub>2</sub>O).

**Preparation of DACHPt aqueous solution.** DACHPt aqueous solution was prepared according to reference.<sup>2</sup> DACHPtCl<sub>2</sub> (5 mM) was suspended in distilled water and mixed with silver nitrate [(AgNO<sub>3</sub>)/(DACHPt) = 1] to form an aqueous complex. The solution was then kept in the dark at 25 °C for 24 h. AgCl precipitates found after the reaction were eliminated by centrifugation, and then the supernatant was purified by passing through a 0.22  $\mu$ m filter.

**Antitumor efficacy measurements.** The antitumor efficacy was determined in accordance with the tumor volume (V), which was calculated using the equation below:

$$V = a \times b^2/2$$

where a and b are the longest and shortest axes of the tumor, measured by a caliper.

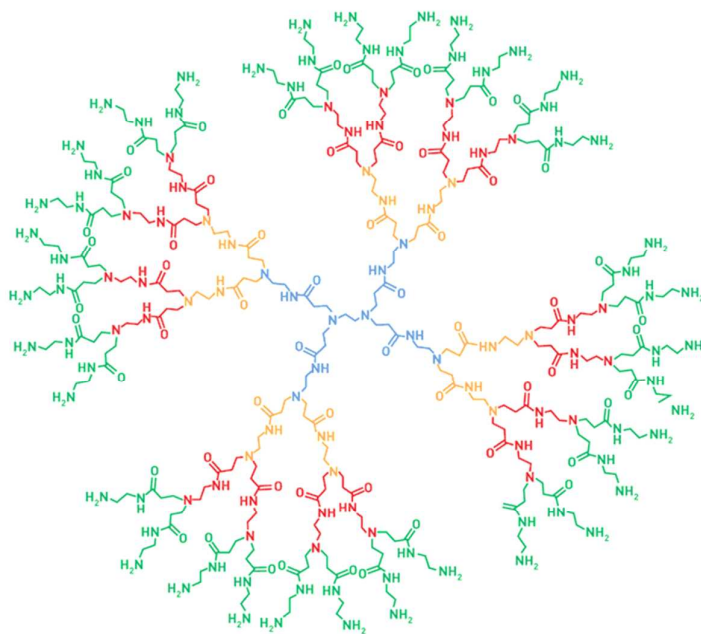


Figure S-1. The chemical structure of third generation of PAMAM dendrimer.

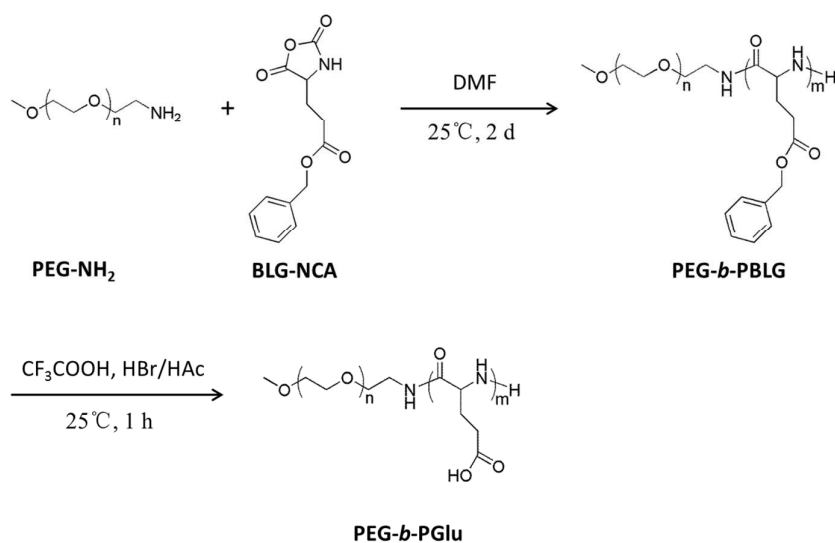


Figure S-2. Synthesis scheme of the diblock copolymer PEG-*b*-PGlu.

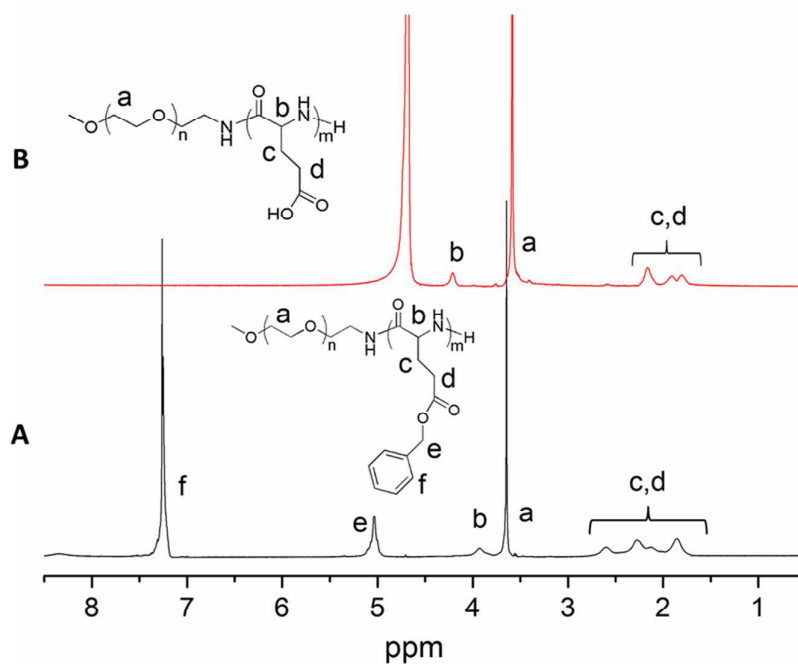


Figure S-3.  $^1\text{H}$ -NMR spectra of  $\text{PEG}_{45}\text{-}b\text{-PBLG}_{18}$  in  $\text{CDCl}_3$  (A) and  $\text{PEG}_{45}\text{-}b\text{-PGlu}_{18}$  in  $\text{D}_2\text{O}$  (B).

## REFERENCES

- (1) Liu, G.; Ma, R. J.; Ren, J.; Li, Z.; Zhang, H. X.; Zhang, Z. K.; An, Y. L.; Shi, L. Q. A Glucose-Responsive Complex Polymeric Micelle Enabling Repeated On-Off Release and Insulin Protection. *Soft Matter* **2013**, *9*, 1636-1644.
- (2) Cabral, H.; Matsumoto, Y.; Mizuno, K.; Chen, Q.; Murakami, M.; Kimura, M.; Terada, Y.; Kano, M. R.; Miyazono, K.; Uesaka, M.; Nishiyama, N.; Kataoka, K. Accumulation of Sub-100 Nm Polymeric Micelles in Poorly Permeable Tumours Depends On Size. *Nat. Nanotechnol.* **2011**, *6*, 815-823.