

## **Electronic Supplementary Information**

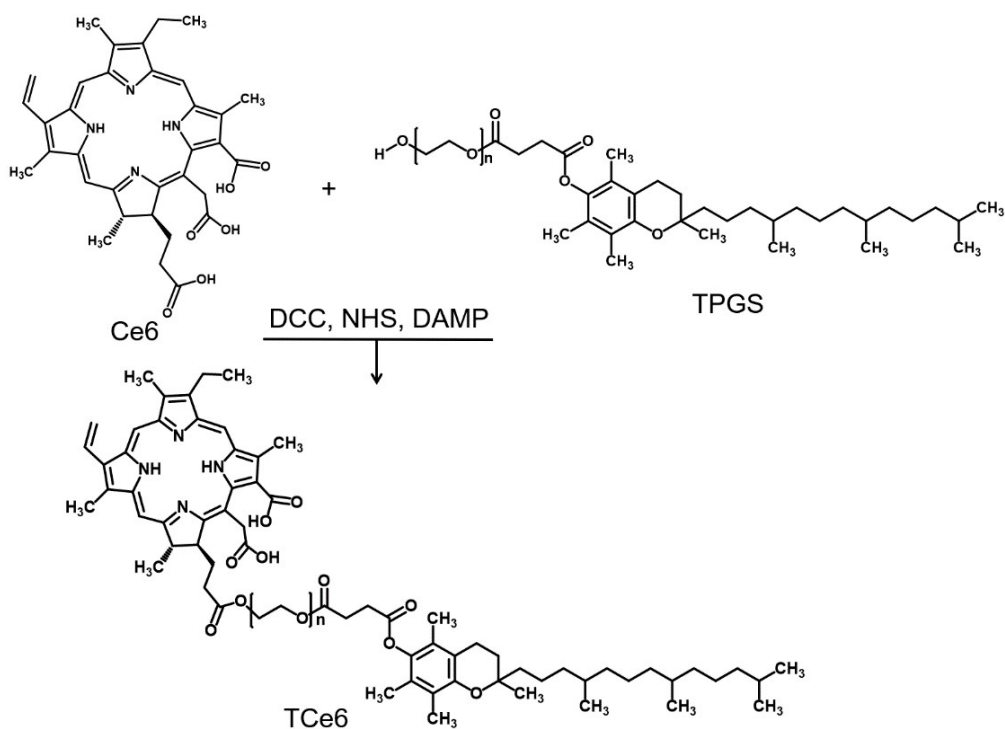
### **Nanoengineering of newly designed chlorin e6 derivative for amplified photodynamic therapy via regulating lactate metabolism**

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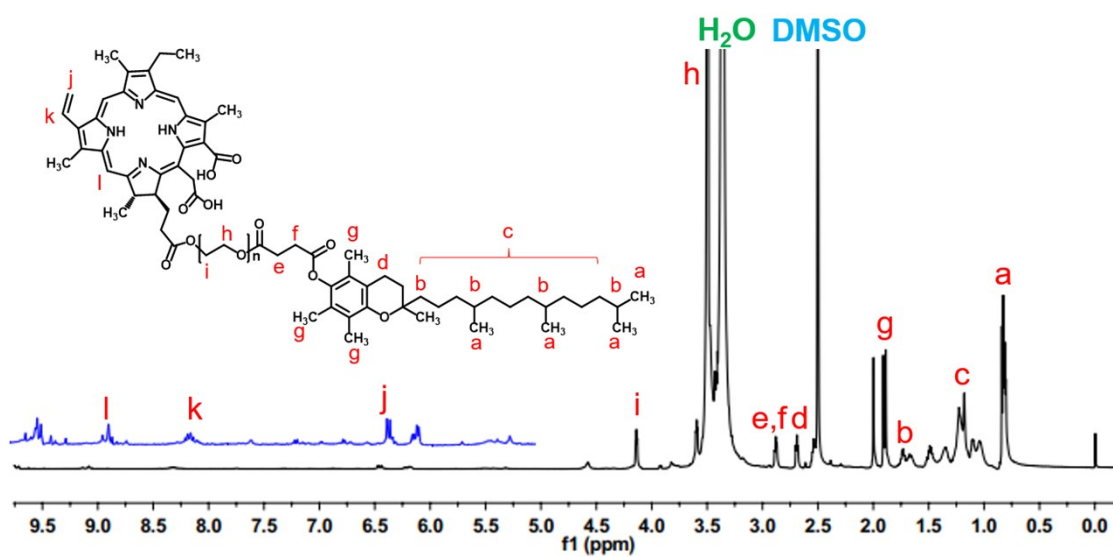
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**Figure S1.** Synthetic route of TCE6 conjugate.



**Figure S2.**  $^1\text{H}$  NMR spectrum of TCE6 conjugate in  $\text{DMSO-}d_6$ .

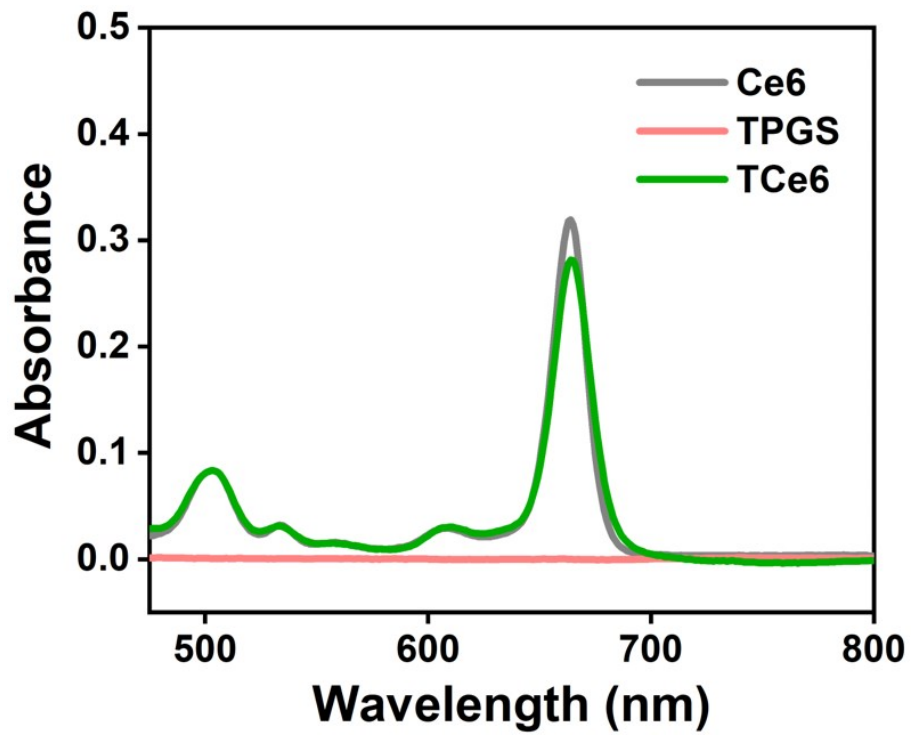


Figure S3. UV-vis spectra of Ce6, TPGS and TCe6.

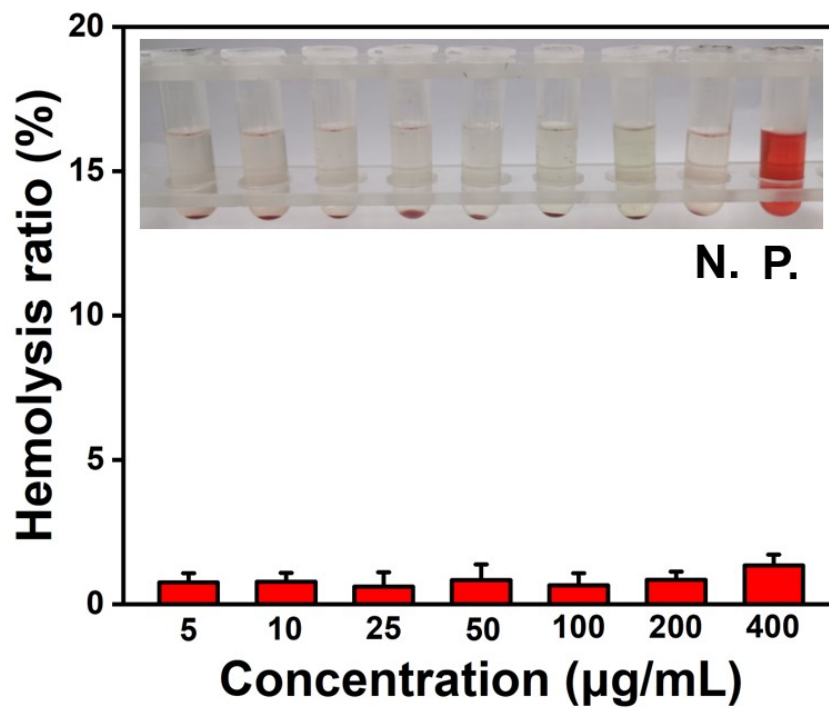
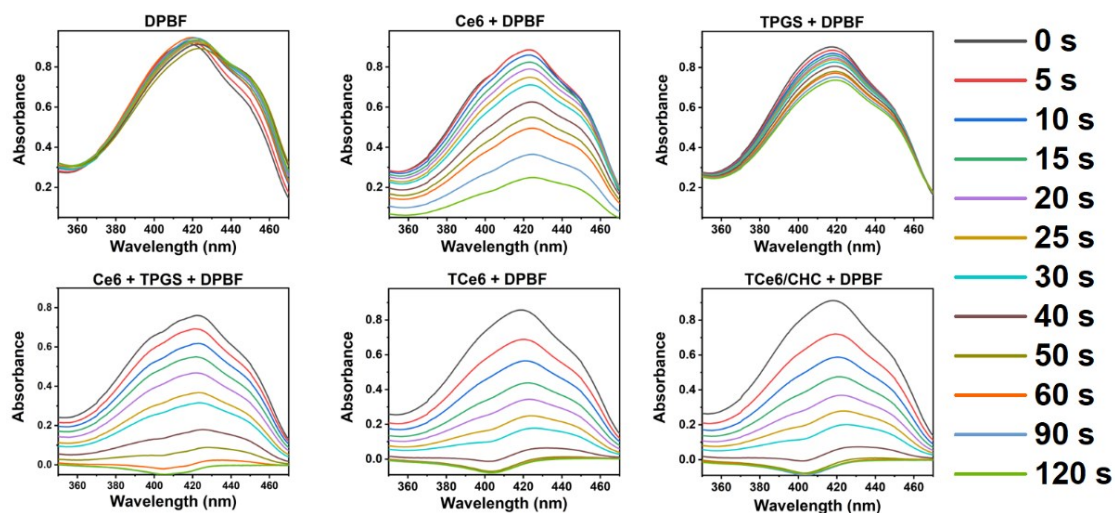
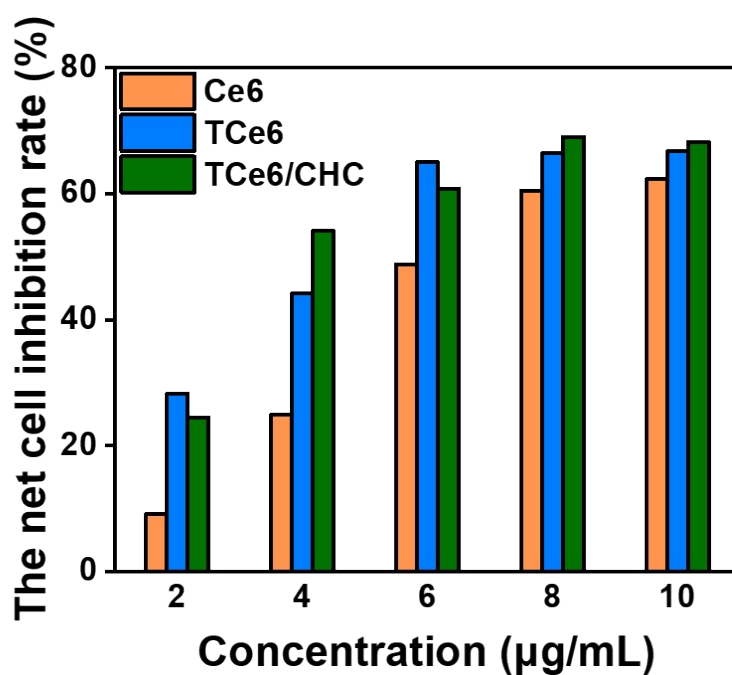


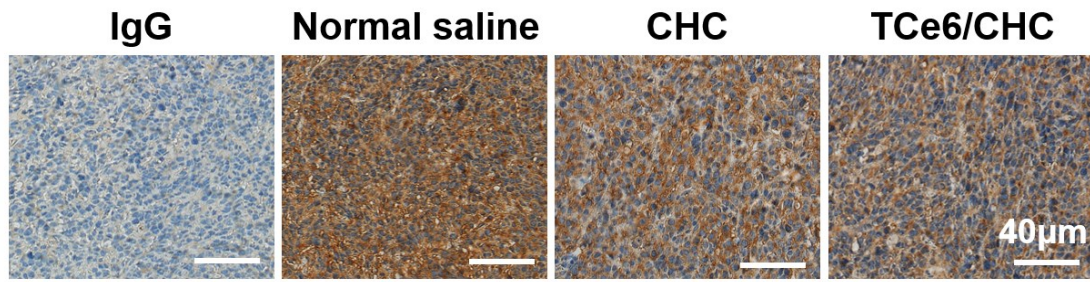
Figure S4. Hemolysis ratios of TCe6/CHC NPs (n = 3).



**Figure S5.** Absorbance of DPBF in different groups under 660 nm laser irradiation at a power density of  $100 \text{ mW/cm}^2$  for 120 s.



**Figure S6.** The net cell inhibition rate of Ce6, TCe6 NPs and TCe6/CHC NPs (Ce6 concentration: 2 to 10 µg/mL).



**Figure S7.** Immunohistochemistry of MCT1 expression in the CT26 tumor after the treatment by normal saline, CHC, TCe6/CHC NPs. The IgG group is a negative control group, and 5% BSA is incubated as a negative control instead of MCT1 antibody. Blue color refers to nucleus, and brown color is MCT1. Scale bar = 40 μm.