

# Influences of Different Sugar Ligands on Targeted Delivery of Liposomes

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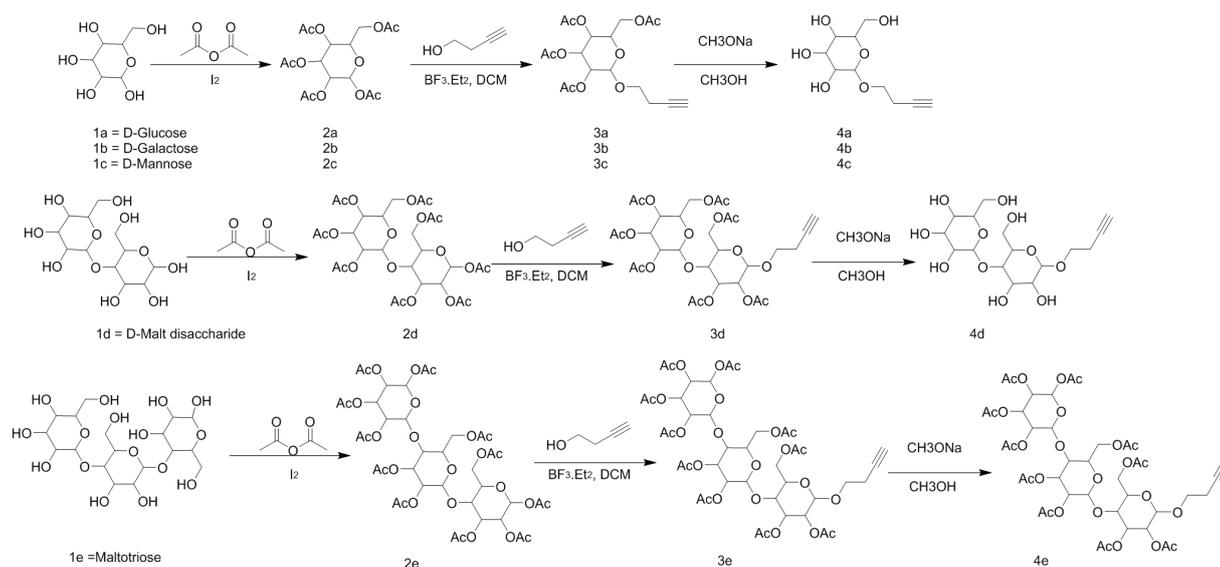
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## Materials and Instruments

### 1. Synthesis of Mannose-PEG-DSPE, Galactose-PEG-DSPE, Glucose-PEG-DSPE, Malt disaccharide-PEG-DSPE and Maltotriose-PEG-DSPE

#### 1. Synthesis of sugar-PEG<sub>600</sub>-DSPE

##### 1.1 Modification and synthesis process of sugar structure



**Scheme 1.** Modification and synthesis process of five sugar ligands.

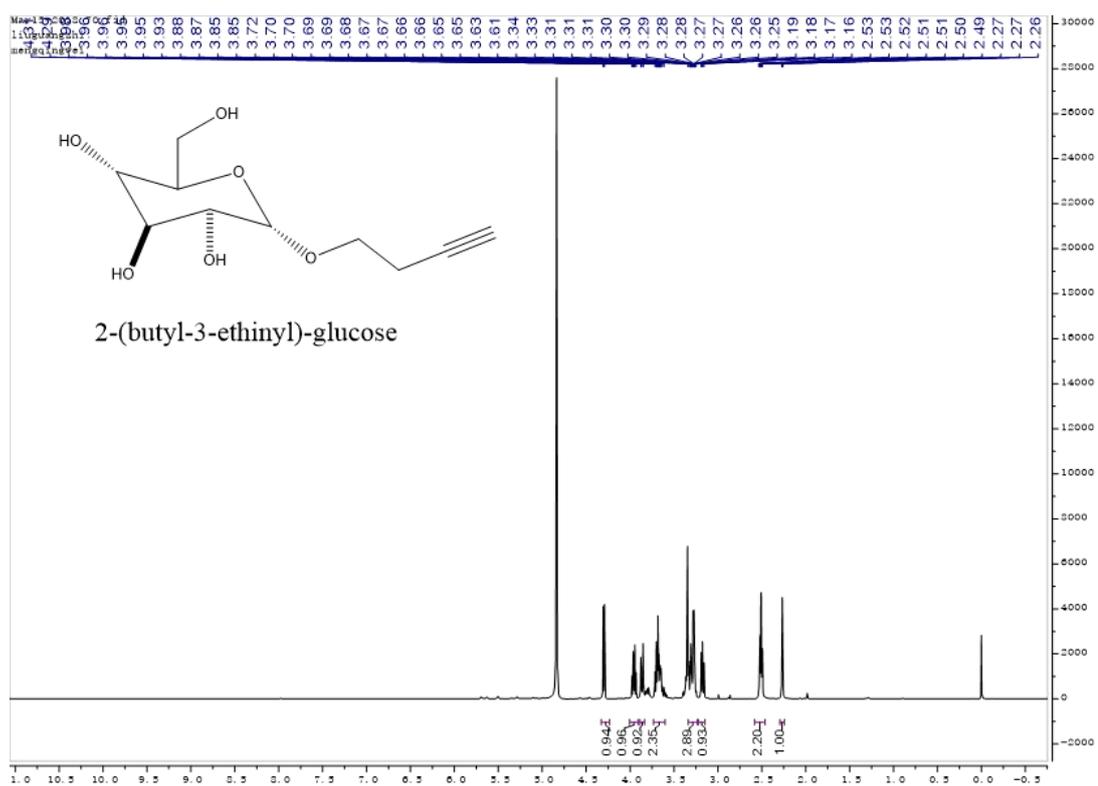


Figure S1.  $^1\text{H}$  NMR spectrum of compound **4a** in  $\text{CDCl}_3$ .

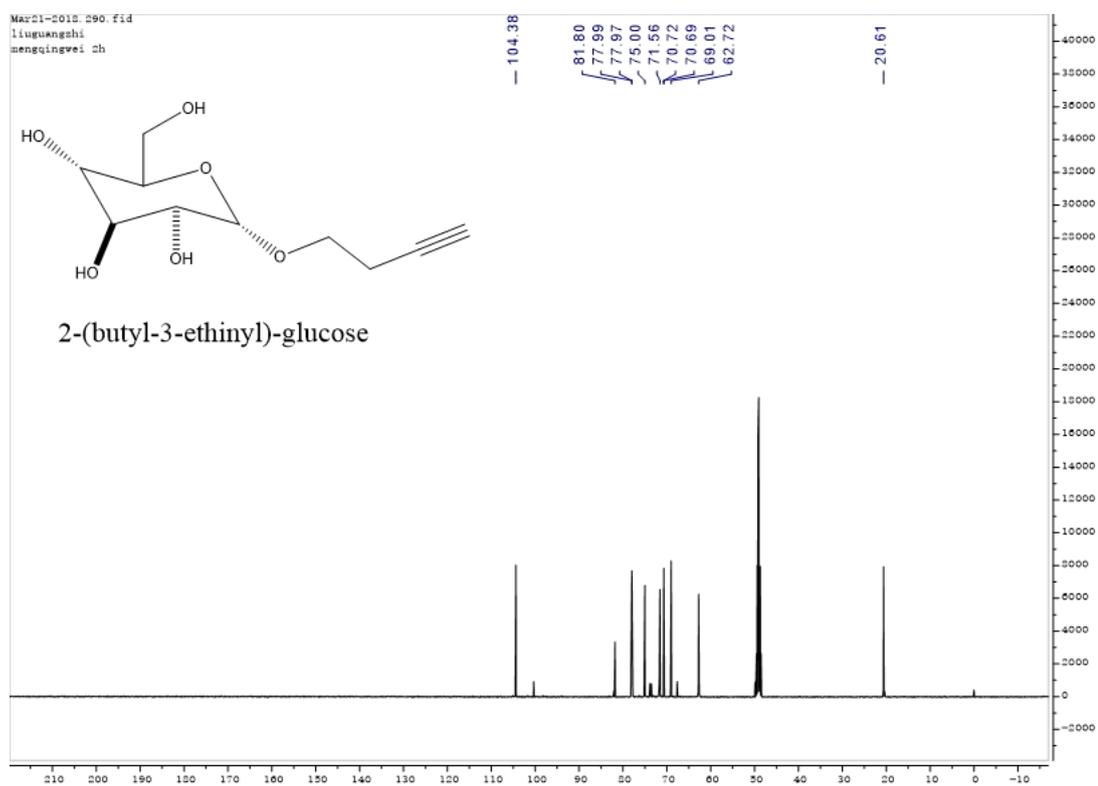
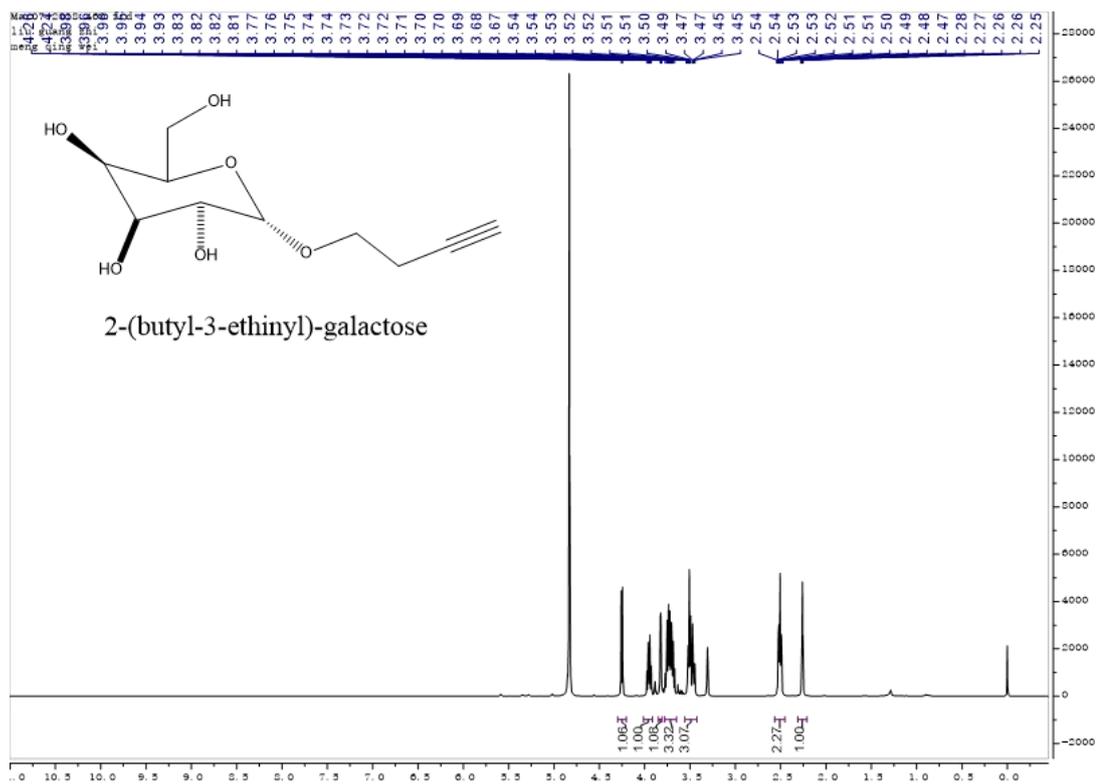
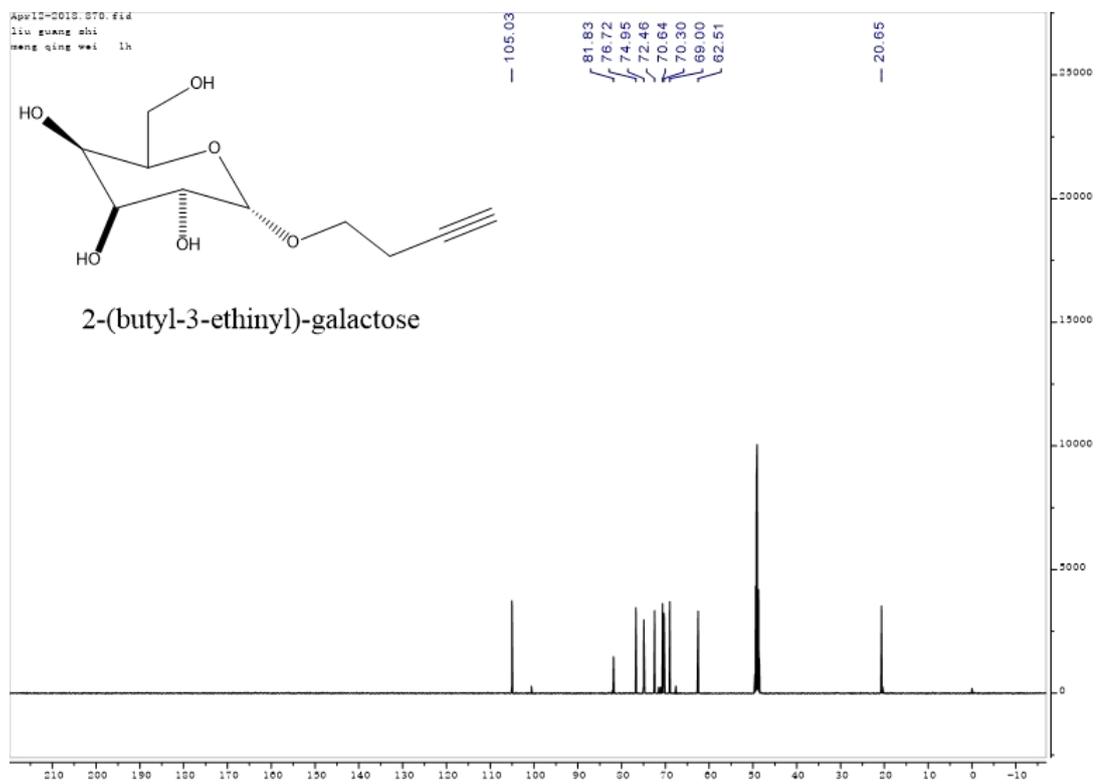


Figure S2.  $^{13}\text{C}$  NMR spectrum of compound **4a** in  $\text{CDCl}_3$ .



**Figure S3.** <sup>1</sup>H NMR spectrum of compound **4b** in CDCl<sub>3</sub>.



**Figure S4.** <sup>13</sup>C NMR spectrum of compound **4b** in CDCl<sub>3</sub>.

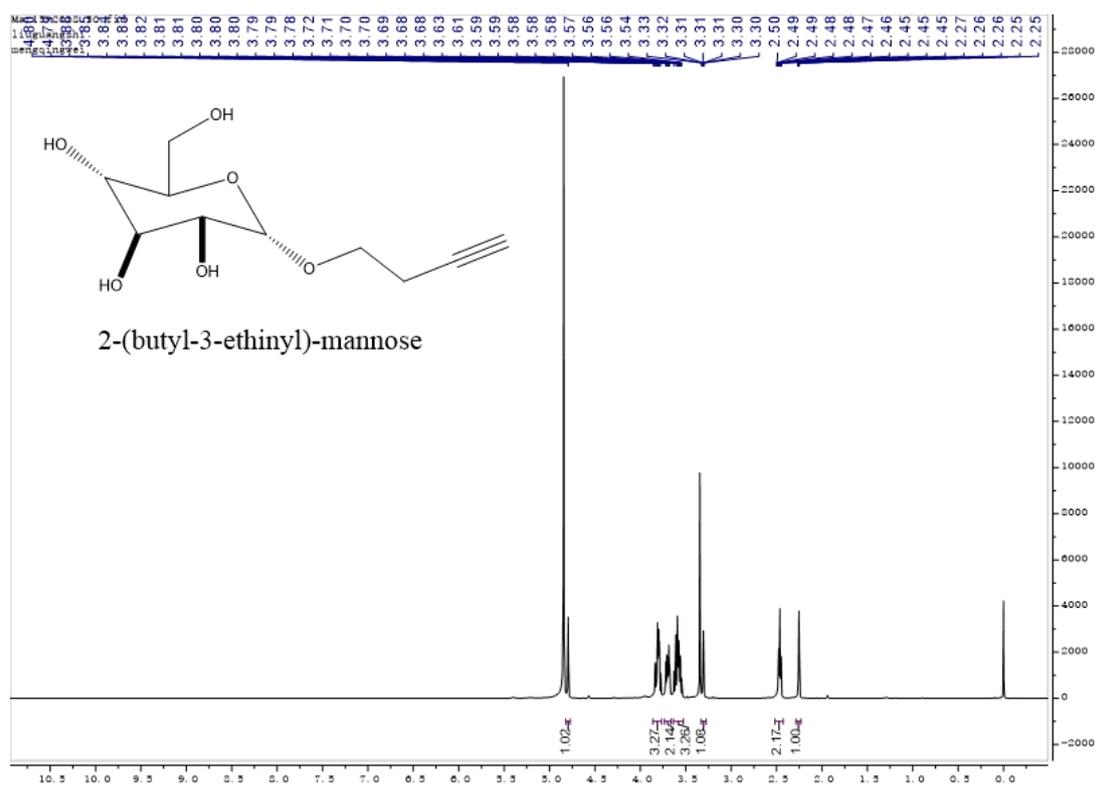


Figure S5. <sup>1</sup>H NMR spectrum of compound **4c** in CDCl<sub>3</sub>.

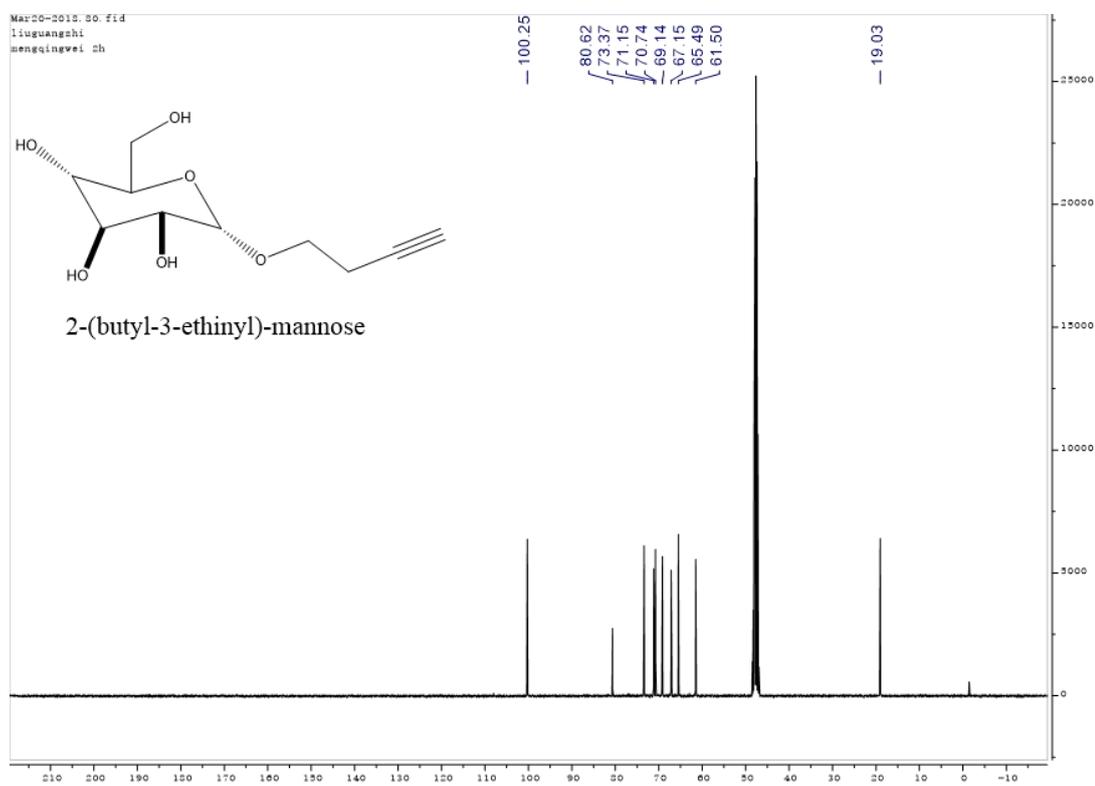
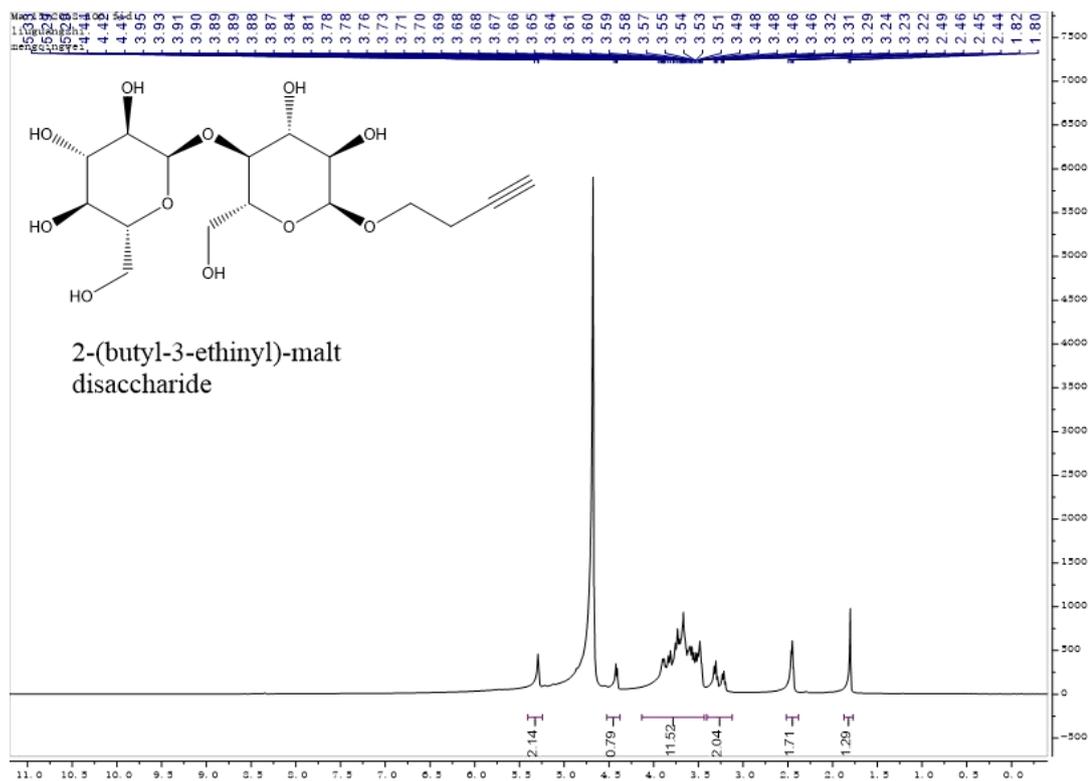
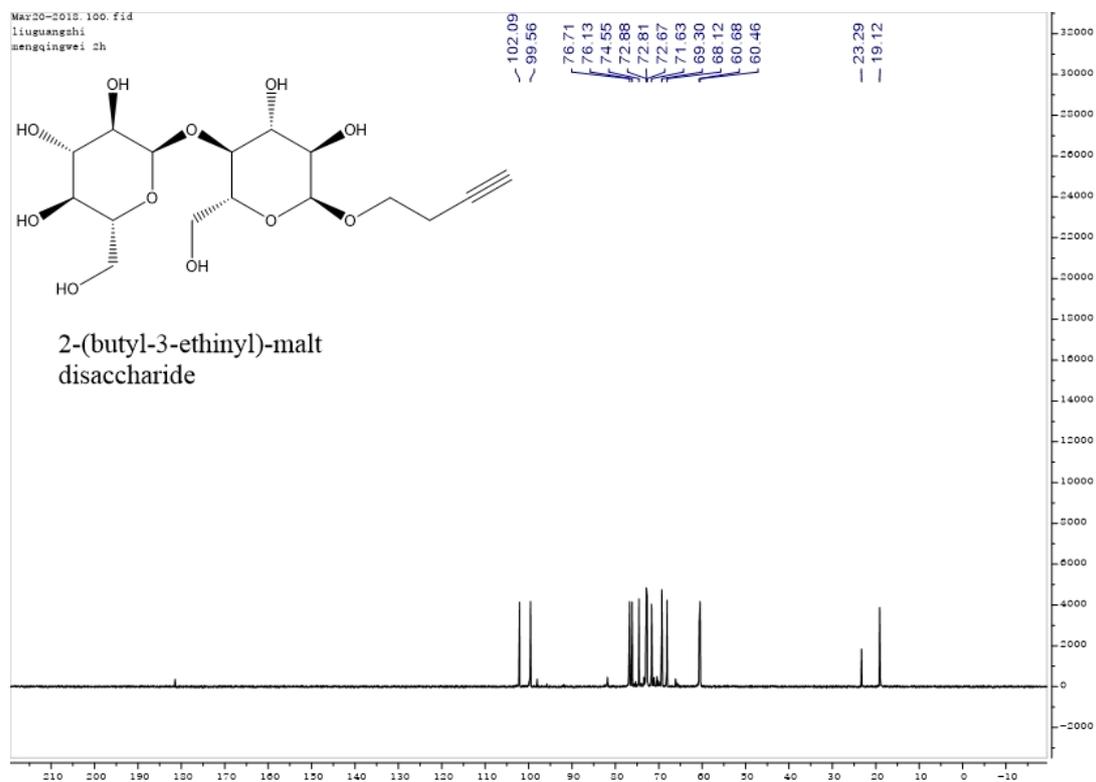


Figure S6. <sup>13</sup>C- NMR spectrum of compound **4c** in CDCl<sub>3</sub>.



**Figure S7.**  $^1\text{H}$  NMR spectrum of compound **4d** in CDCl<sub>3</sub>.



**Figure S8.**  $^{13}\text{C}$  NMR spectrum of compound **4d** in CDCl<sub>3</sub>.

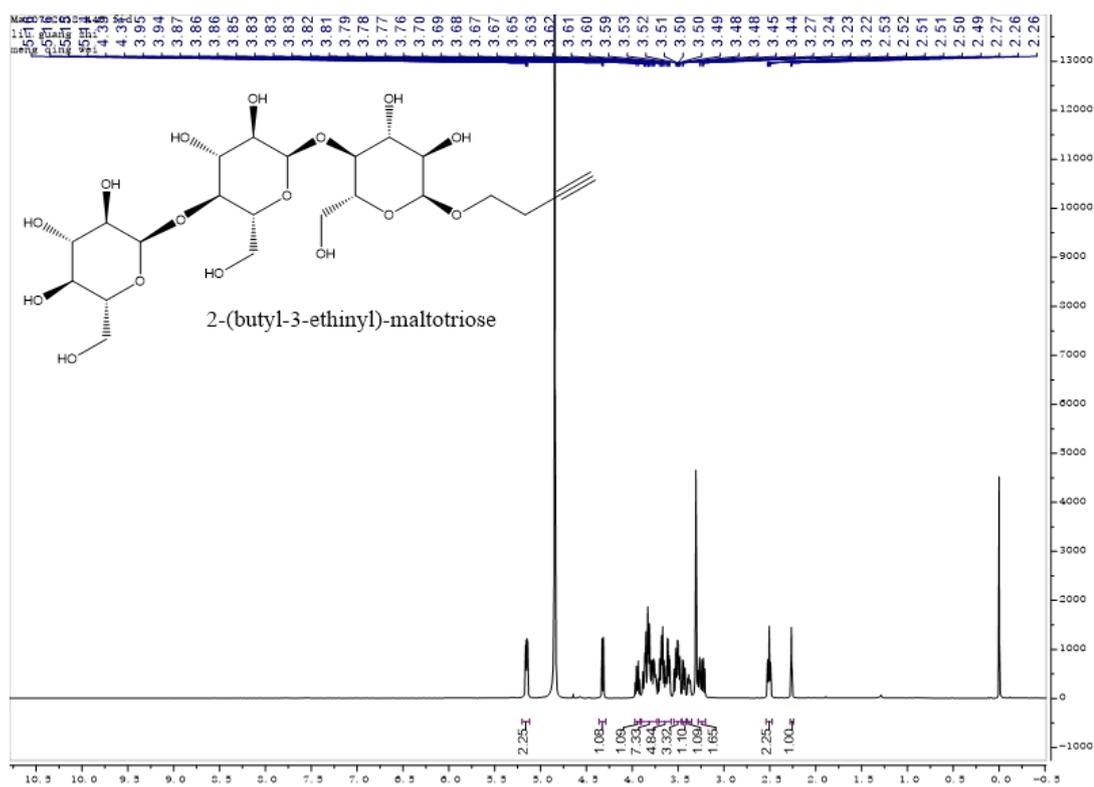


Figure S9. <sup>1</sup>H NMR spectrum of compound 4e in CDCl<sub>3</sub>.

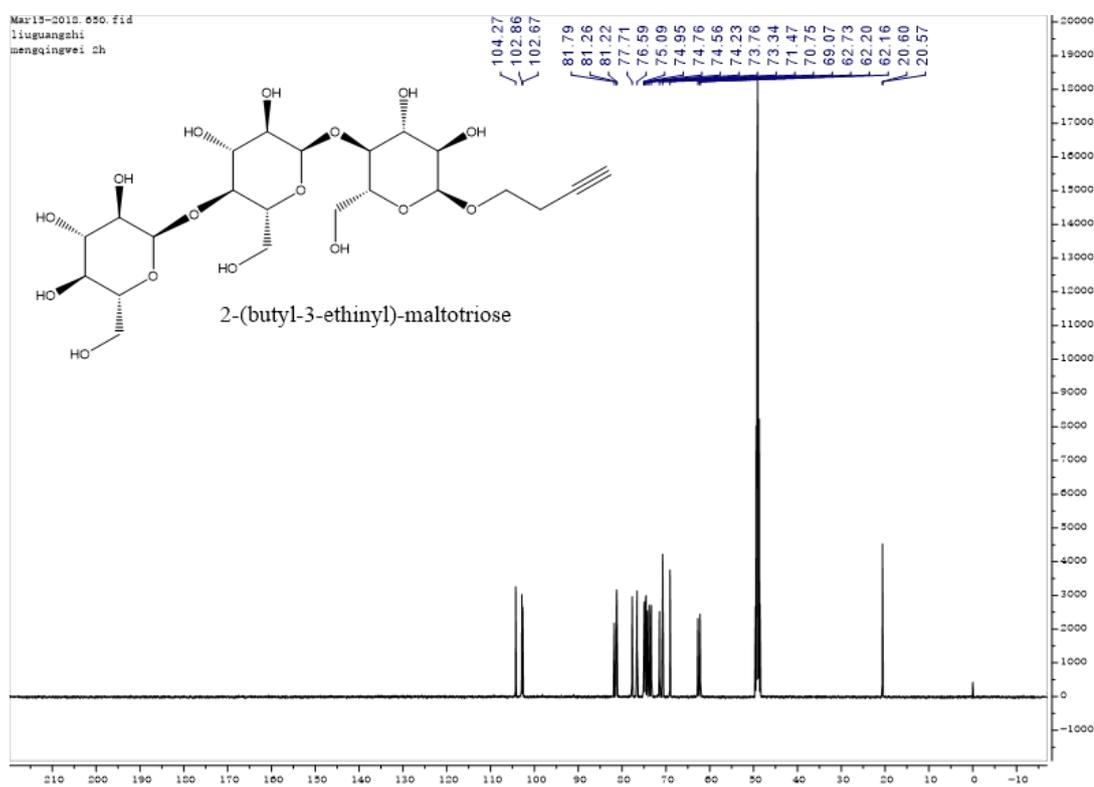
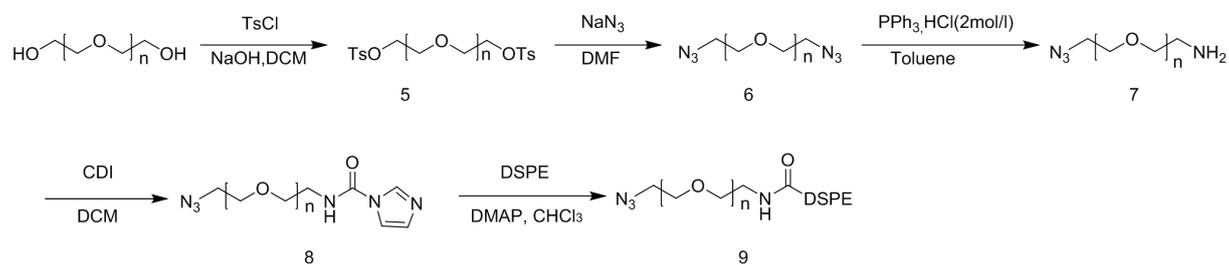
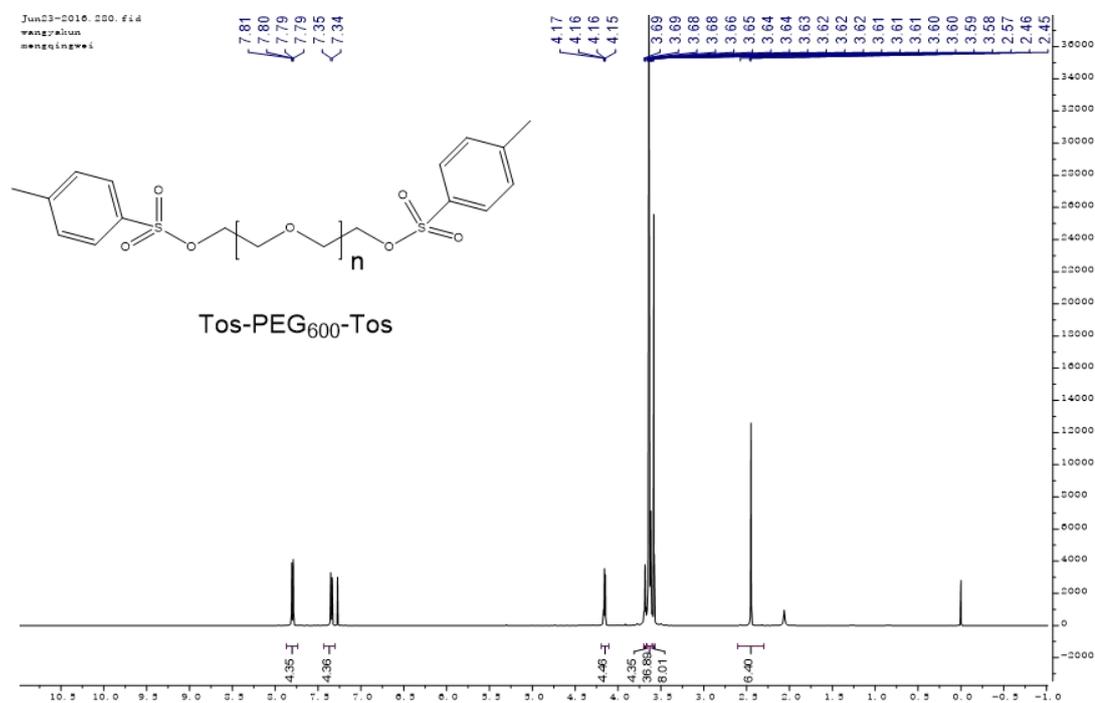


Figure S10. <sup>13</sup>C NMR spectrum of compound 4e in CDCl<sub>3</sub>.

## 1.2 Modification and synthesis process of PEG-DSPE structure



**Scheme 2.** Modification and synthesis process of PEG-DSPE.



**Figure S11.**  $^1\text{H}$  NMR spectrum of compound **5** in  $\text{CDCl}_3$ .

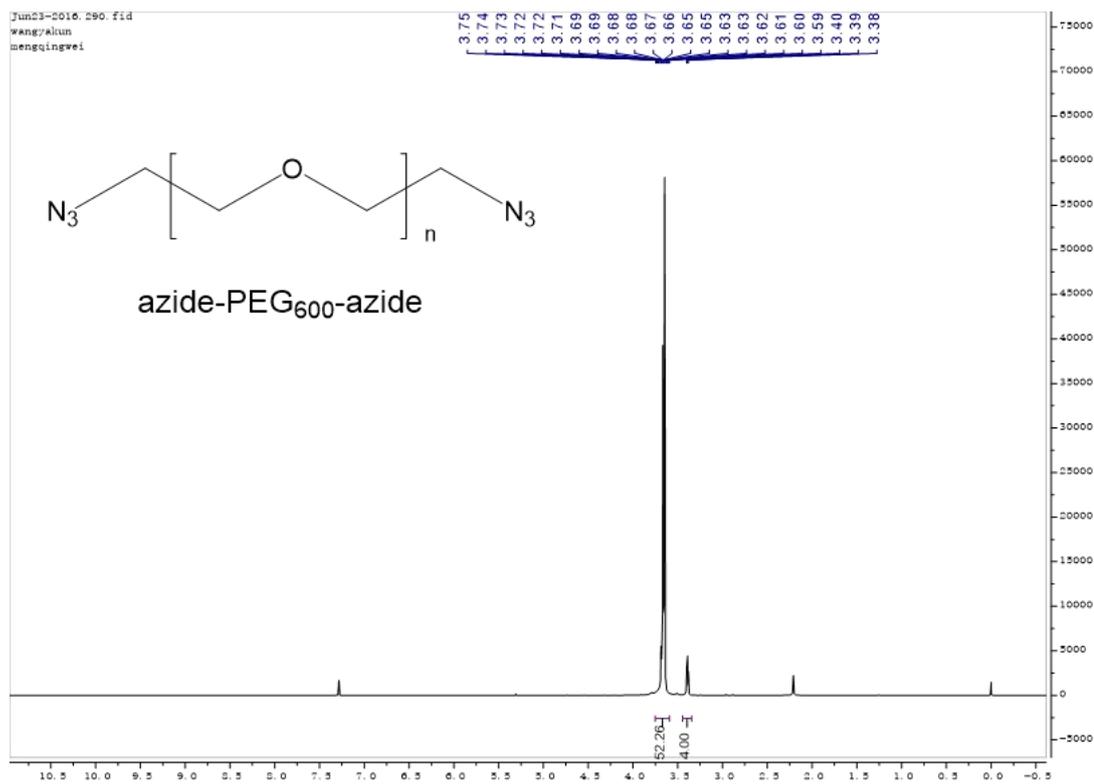


Figure S12. <sup>1</sup>H NMR spectrum of compound 6 in CDCl<sub>3</sub>.

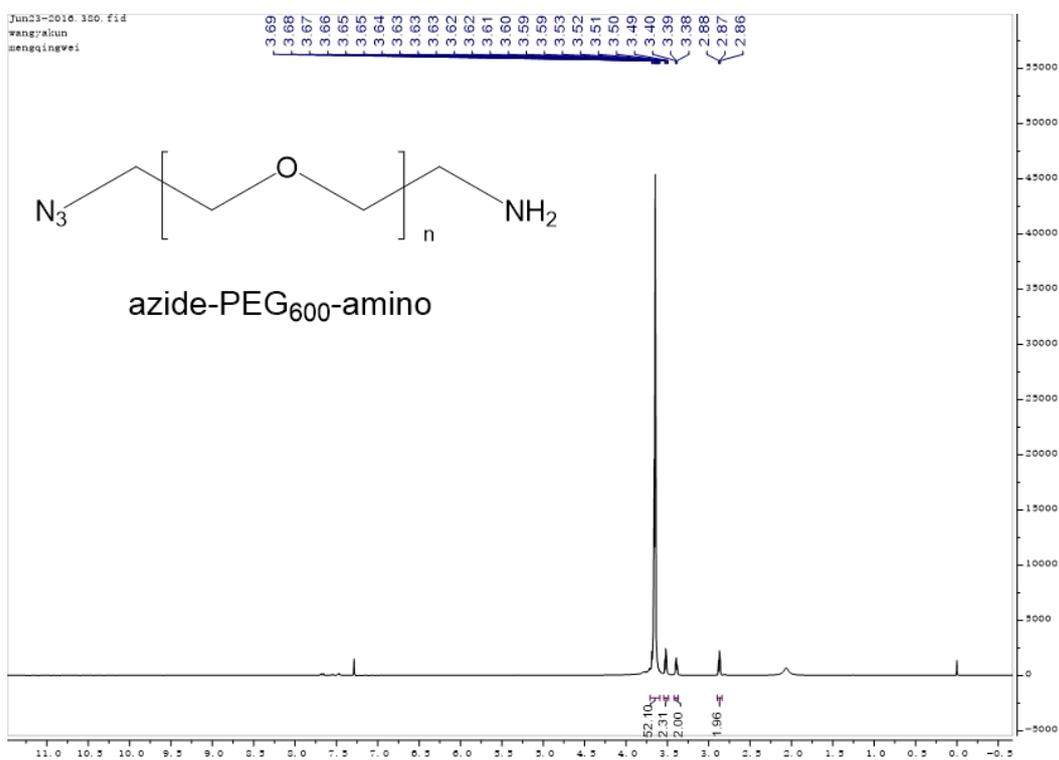


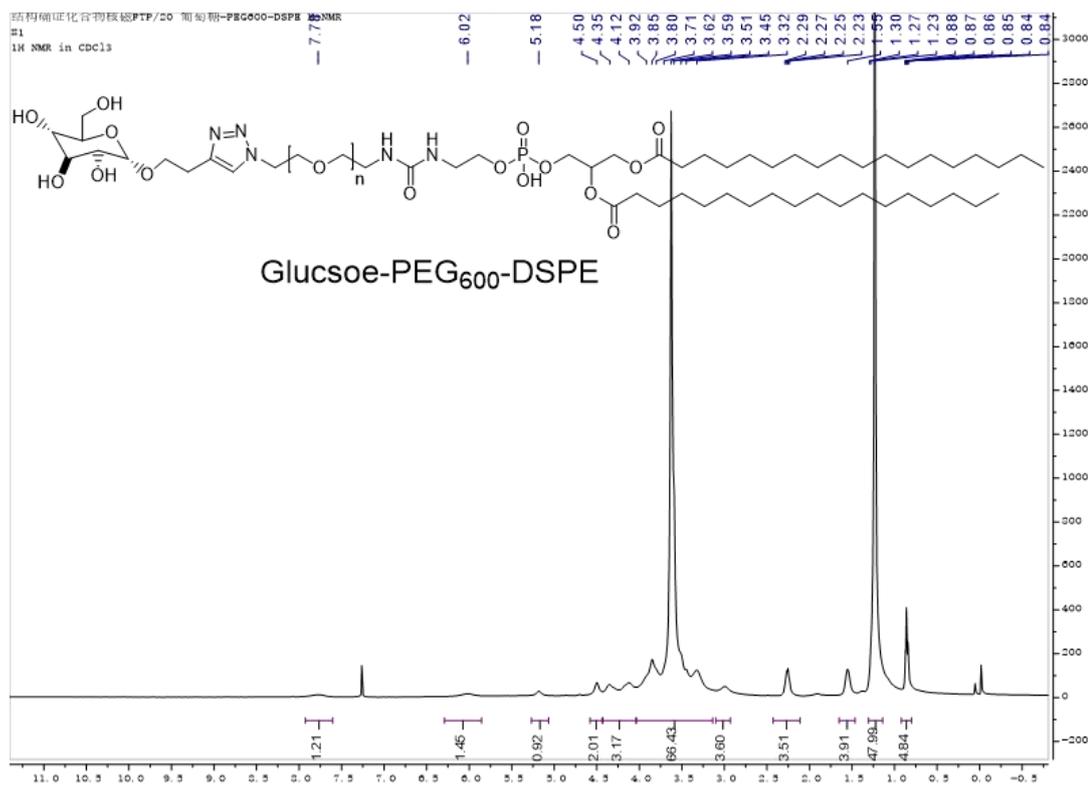
Figure S13. <sup>1</sup>H NMR spectrum of compound 7 in CDCl<sub>3</sub>.



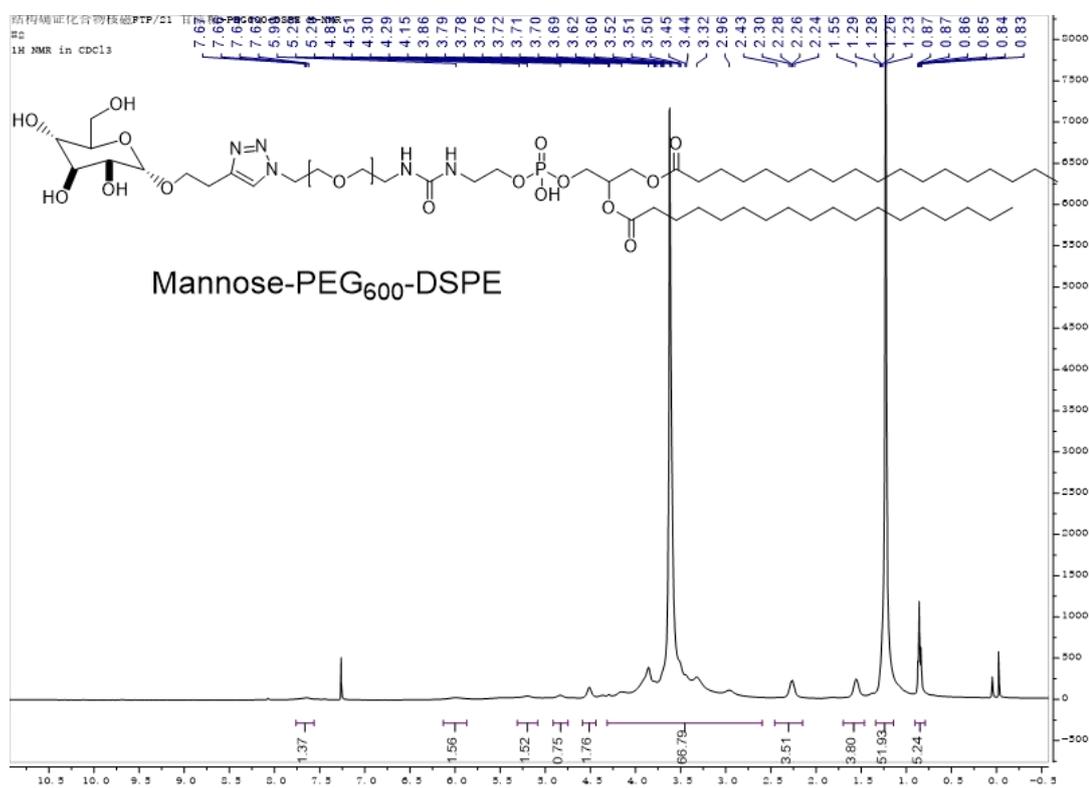
**Figure S14.** <sup>1</sup>H NMR spectrum of compound **9** in CDCl<sub>3</sub>.

### 1.3 Synthesis of Mannose-PEG<sub>600</sub>-DSPE, Galactose-PEG<sub>600</sub>-DSPE, Glucose-PEG<sub>600</sub>-DSPE, Malt disaccharide-PEG<sub>600</sub>-DSPE and Maltotriose-PEG<sub>600</sub>-DSPE





**Figure S15.** <sup>1</sup>H NMR spectrum of compound **10a** in CDCl<sub>3</sub>.



**Figure S16.** <sup>1</sup>H NMR spectrum of compound **10b** in CDCl<sub>3</sub>.

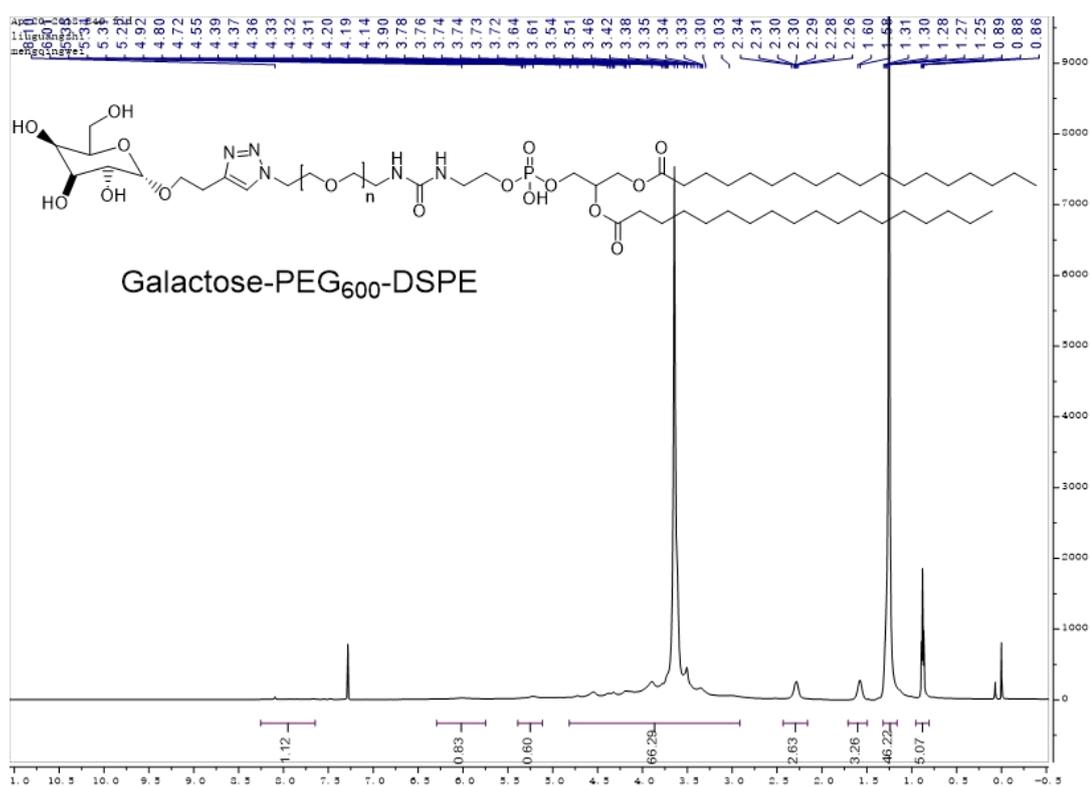


Figure S17. <sup>1</sup>H NMR spectrum of compound **10c** in CDCl<sub>3</sub>.

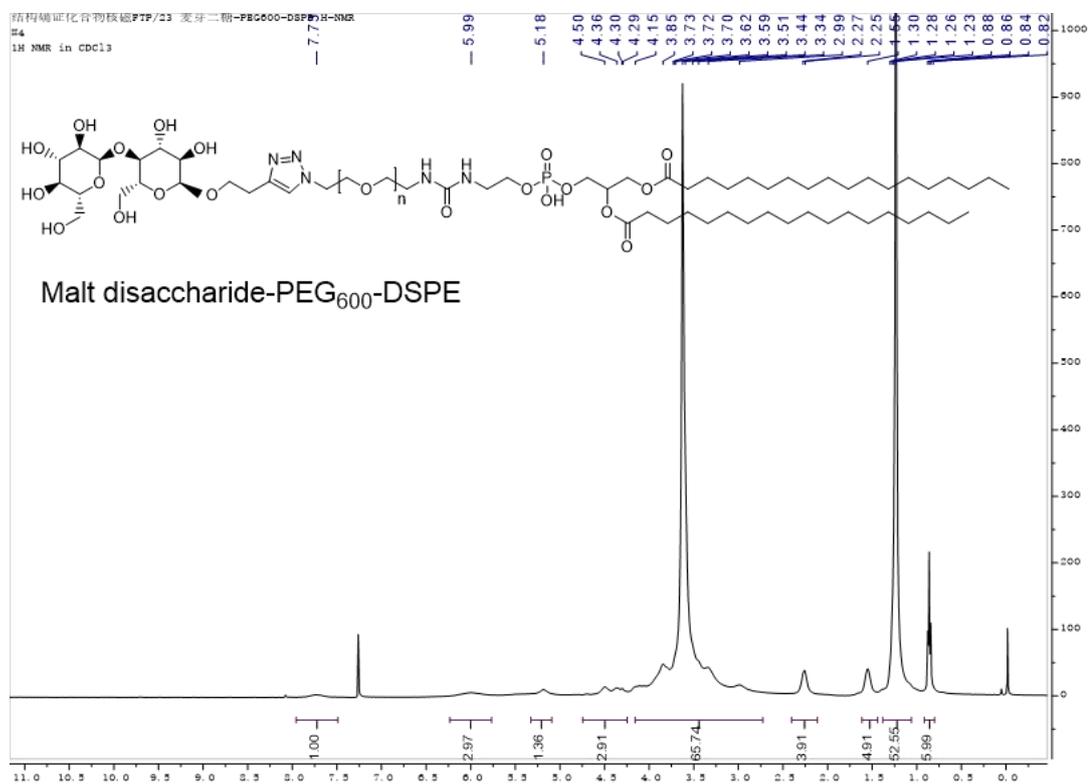
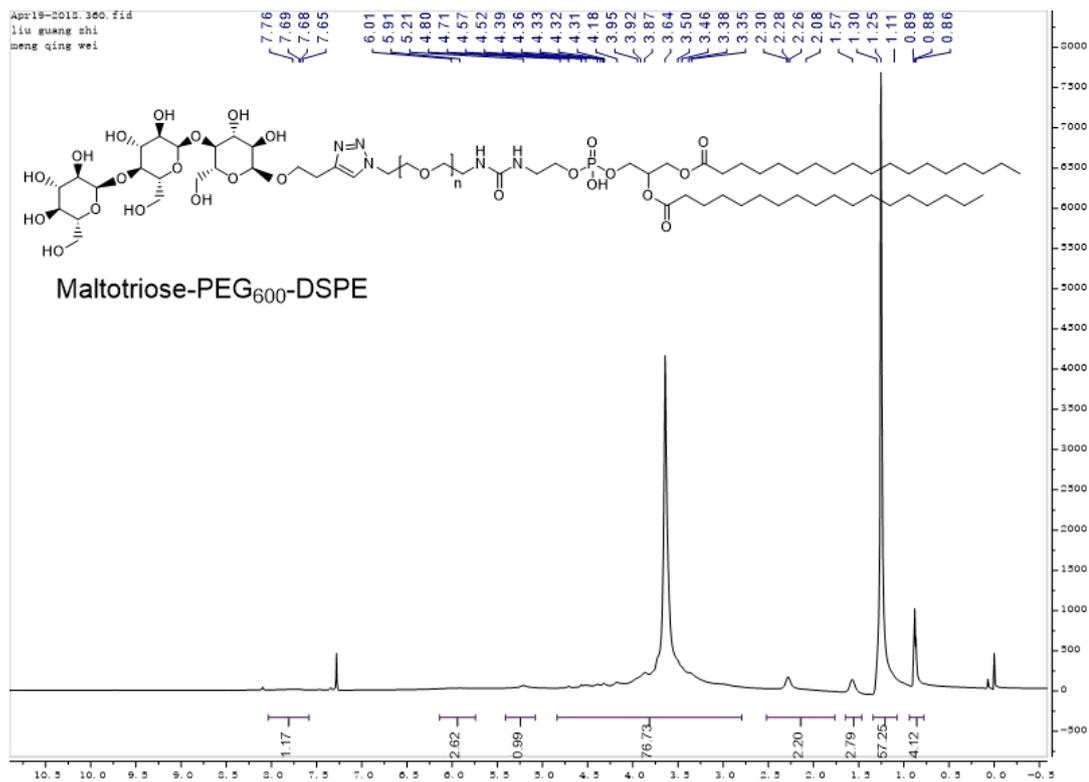
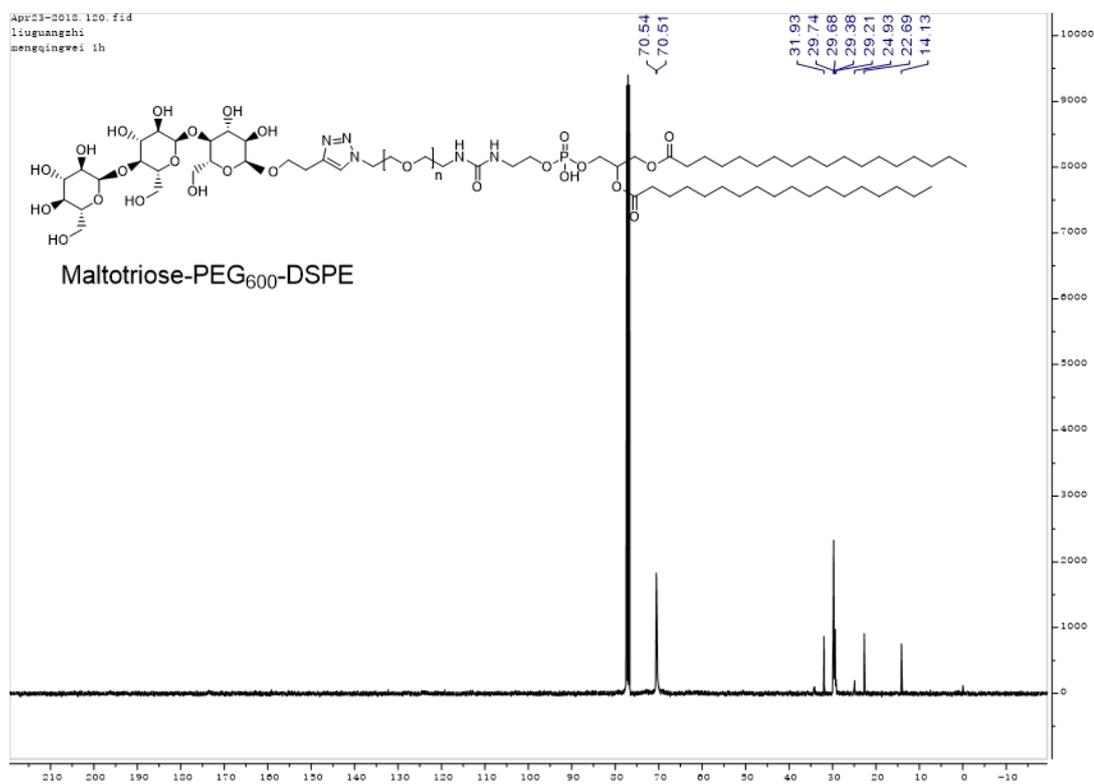


Figure S18. <sup>1</sup>H NMR spectrum of compound **10d** in CDCl<sub>3</sub>.

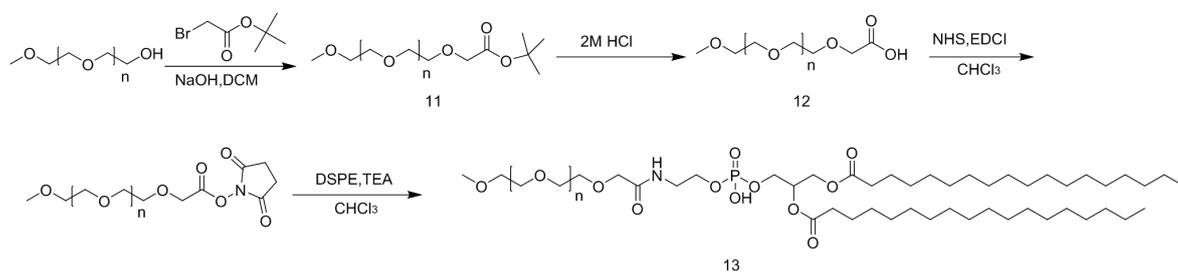


**Figure S19.**  $^1\text{H}$  NMR spectrum of compound **10e** in  $\text{CDCl}_3$ .

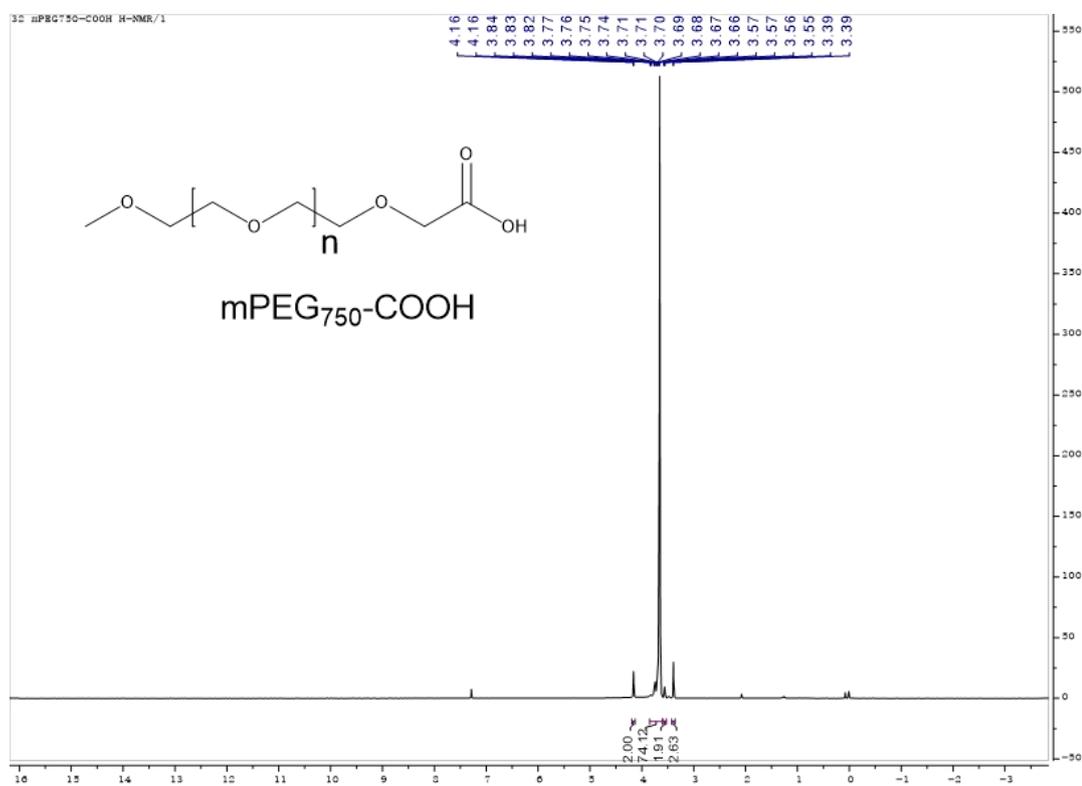


**Figure S20.**  $^{13}\text{C}$  NMR spectrum of compound **10e** in  $\text{CDCl}_3$ .

## 1.4 Synthesis of Blank-PEG750-DSPE



**Scheme 4.** Modification and synthesis process of Blank-PEG-DSPE.



**Figure S21.** <sup>1</sup>H NMR spectrum of compound **12** in CDCl<sub>3</sub>.

