

## Supplementary data

### **Chemical synthesis, inhibitory activity and molecular mechanism of 1-deoxynojirimycin–chrysin as a potent $\alpha$ -glucosidase inhibitor**

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<b>Table of Contents</b>	<b>Pages</b>
<b>Fig. S1.</b> <sup>1</sup> H-NMR spectrum of compound <b>1</b> .	S3
<b>Fig. S2.</b> <sup>13</sup> C-NMR spectrum of compound <b>1</b> .	S3
<b>Fig. S3.</b> <sup>1</sup> H-NMR spectrum of compound <b>2</b> .	S4
<b>Fig. S4.</b> <sup>13</sup> C-NMR spectrum of compound <b>2</b> .	S4
<b>Fig. S5.</b> <sup>1</sup> H-NMR spectrum compound <b>3</b> .	S5
<b>Fig. S6.</b> <sup>13</sup> C-NMR spectrum of compound <b>3</b> .	S5
<b>Fig. S7.</b> <sup>1</sup> H-NMR spectrum of compound <b>4</b> .	S6
<b>Fig. S8.</b> <sup>13</sup> C-NMR spectrum of compound <b>4</b> .	S6
<b>Fig. S9.</b> HRMS spectrum of compound <b>4</b> .	S7
<b>Fig. S10.</b> HPLC characterization of compound <b>4</b> .	S7
<b>Fig. S11.</b> <sup>1</sup> H-NMR spectrum of compound <b>5</b> .	S8
<b>Fig. S12.</b> <sup>13</sup> C-NMR spectrum of compound <b>5</b> .	S8
<b>Fig. S13.</b> HRMS spectrum of compound <b>5</b> .	S9
<b>Fig. S14.</b> HPLC characterization of compound <b>5</b> .	S9
<b>Fig. S15.</b> <sup>1</sup> H-NMR spectrum of compound <b>6</b> .	S10
<b>Fig. S16.</b> <sup>13</sup> C-NMR spectrum of compound <b>6</b> .	S10
<b>Fig. S17.</b> HRMS spectrum of compound <b>6</b> .	S11
<b>Fig. S18.</b> HPLC characterization of compound <b>6</b> .	S11

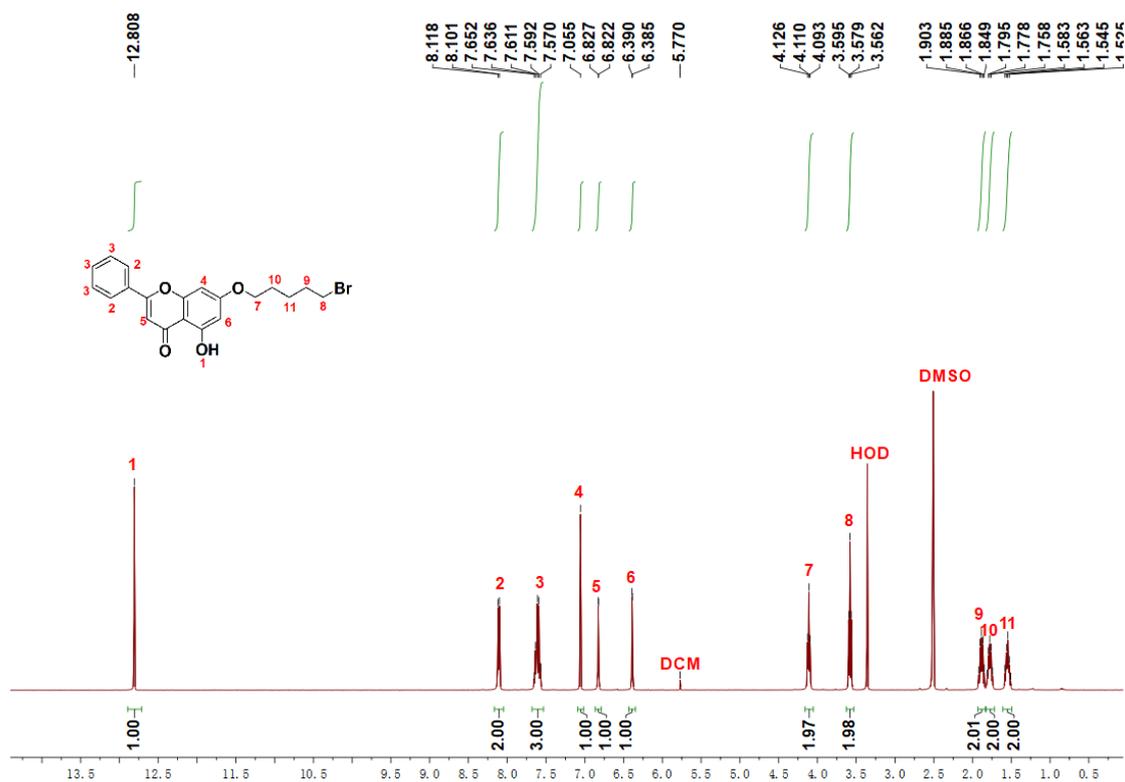


Fig. S1. <sup>1</sup>H-NMR spectrum (400 MHz) of compound 1 in DMSO-*d*<sub>6</sub>.

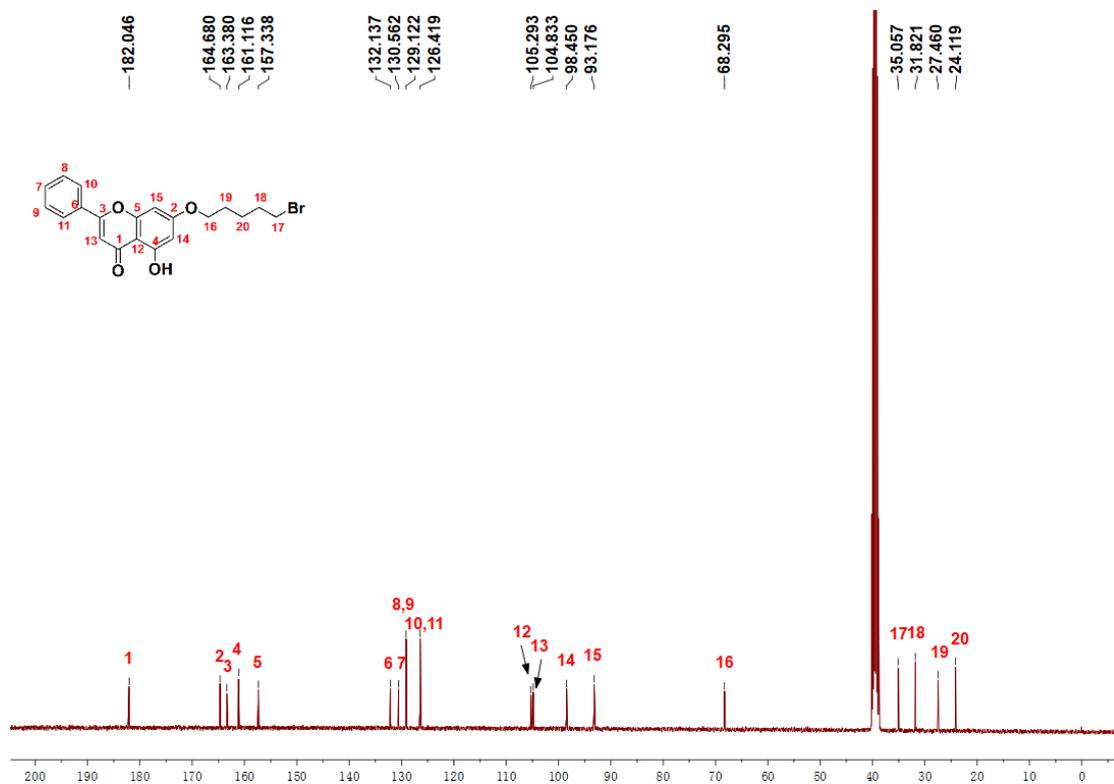


Fig. S2. <sup>13</sup>C-NMR spectrum (101 MHz) of compound 1 in DMSO-*d*<sub>6</sub>.

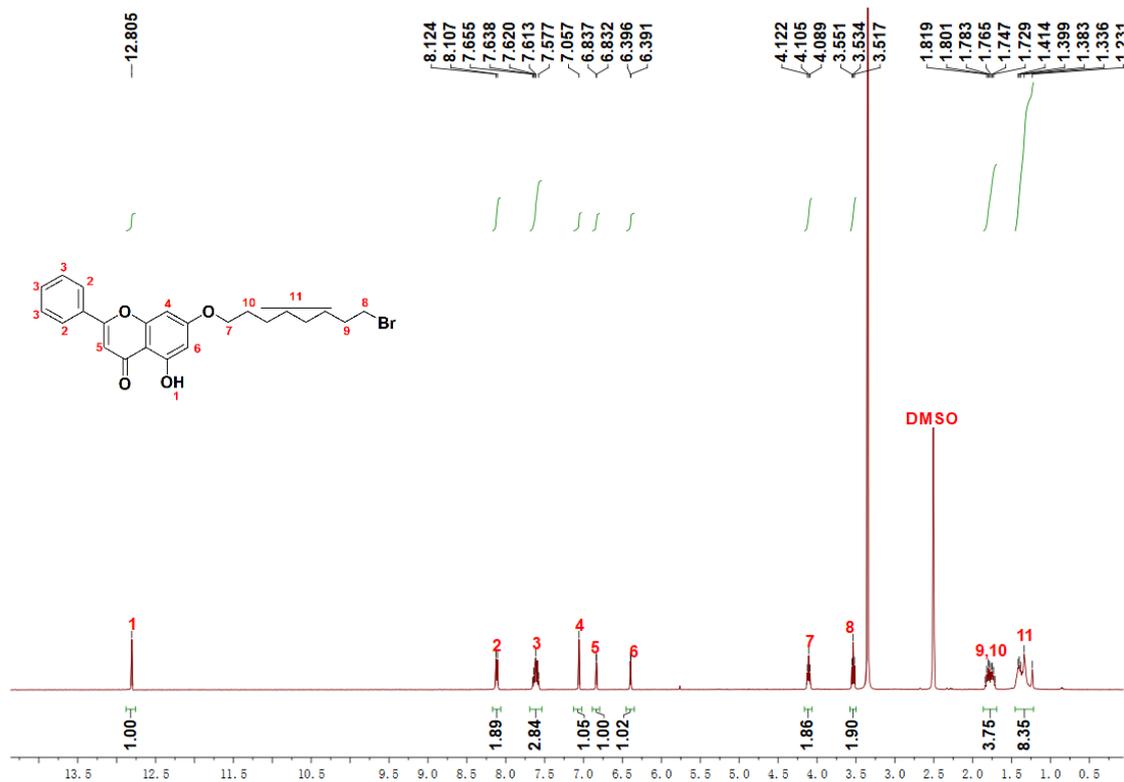


Fig. S3. <sup>1</sup>H-NMR spectrum (400 MHz) of compound 2 in DMSO-*d*<sub>6</sub>.

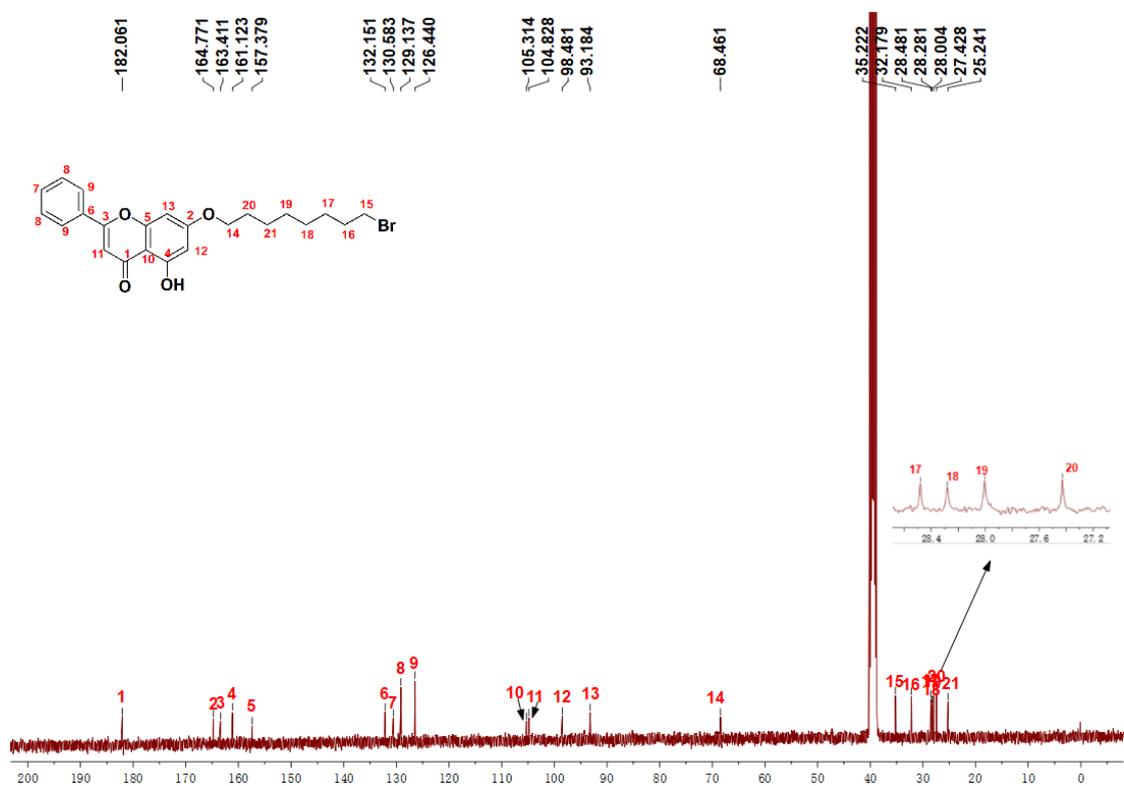


Fig. S4. <sup>13</sup>C-NMR spectrum (101 MHz) of compound 2 in DMSO-*d*<sub>6</sub>.

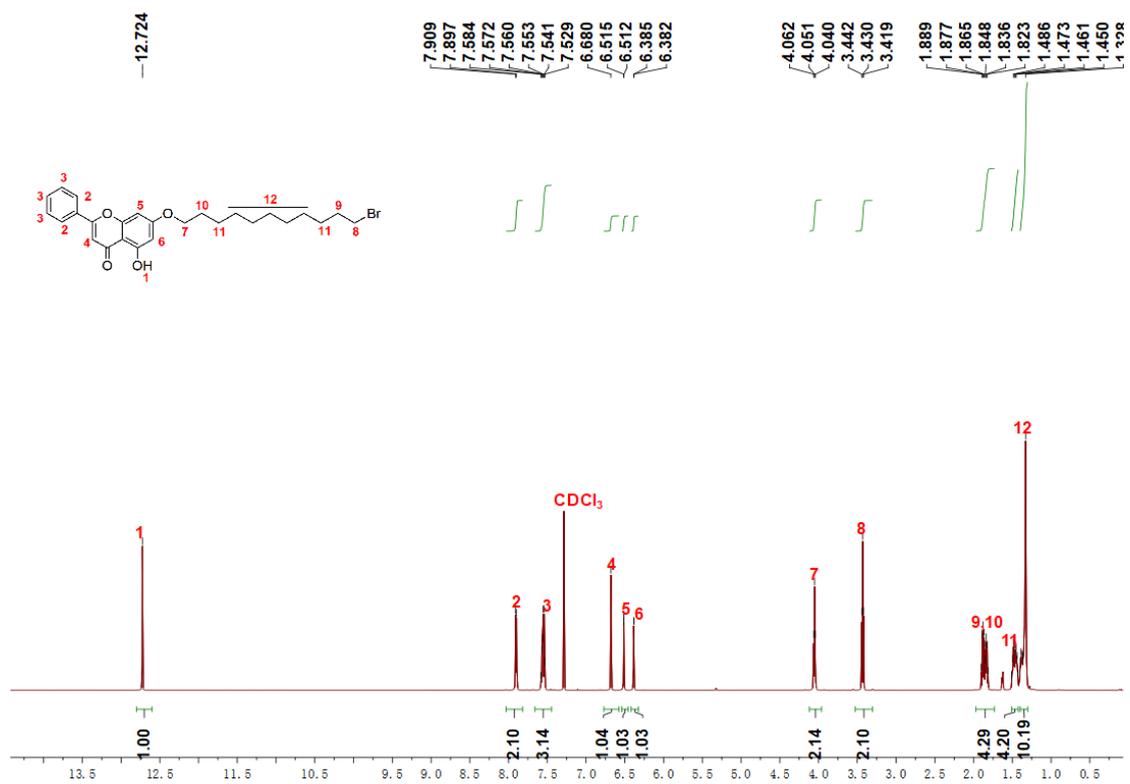


Fig. S5. <sup>1</sup>H-NMR spectrum (600 MHz) of compound 3 in CDCl<sub>3</sub>.

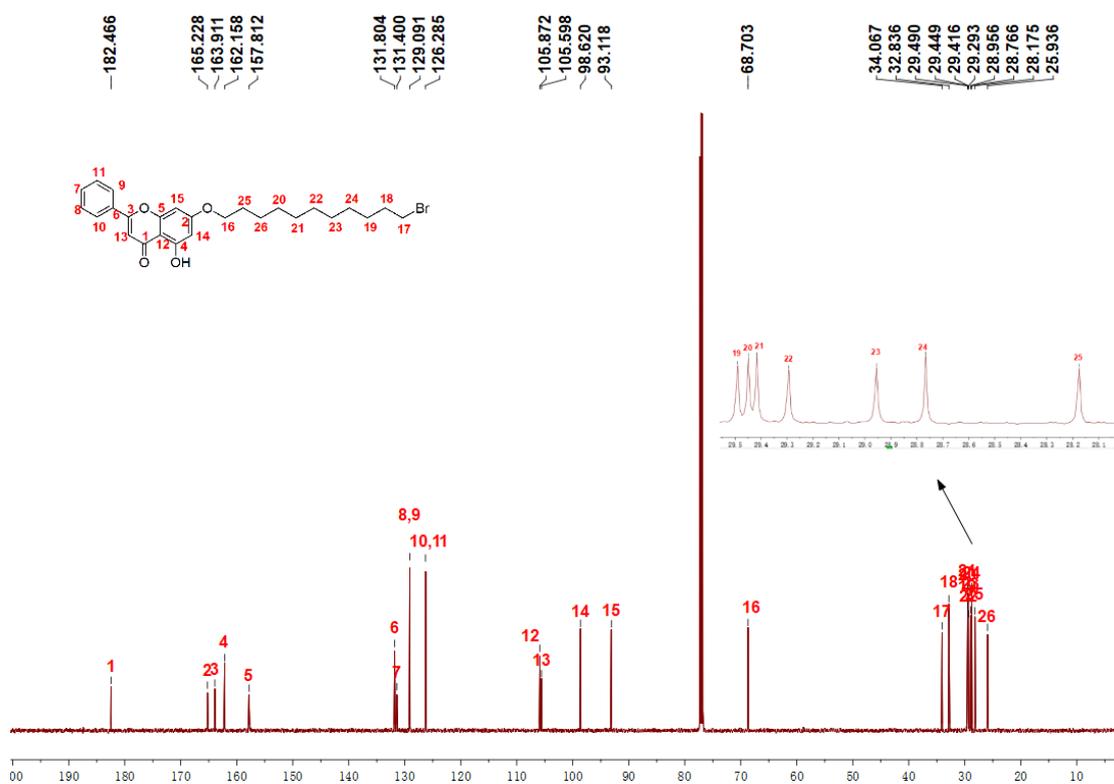


Fig. S6. <sup>13</sup>C-NMR spectrum (150 MHz) of compound 3 in CDCl<sub>3</sub>.

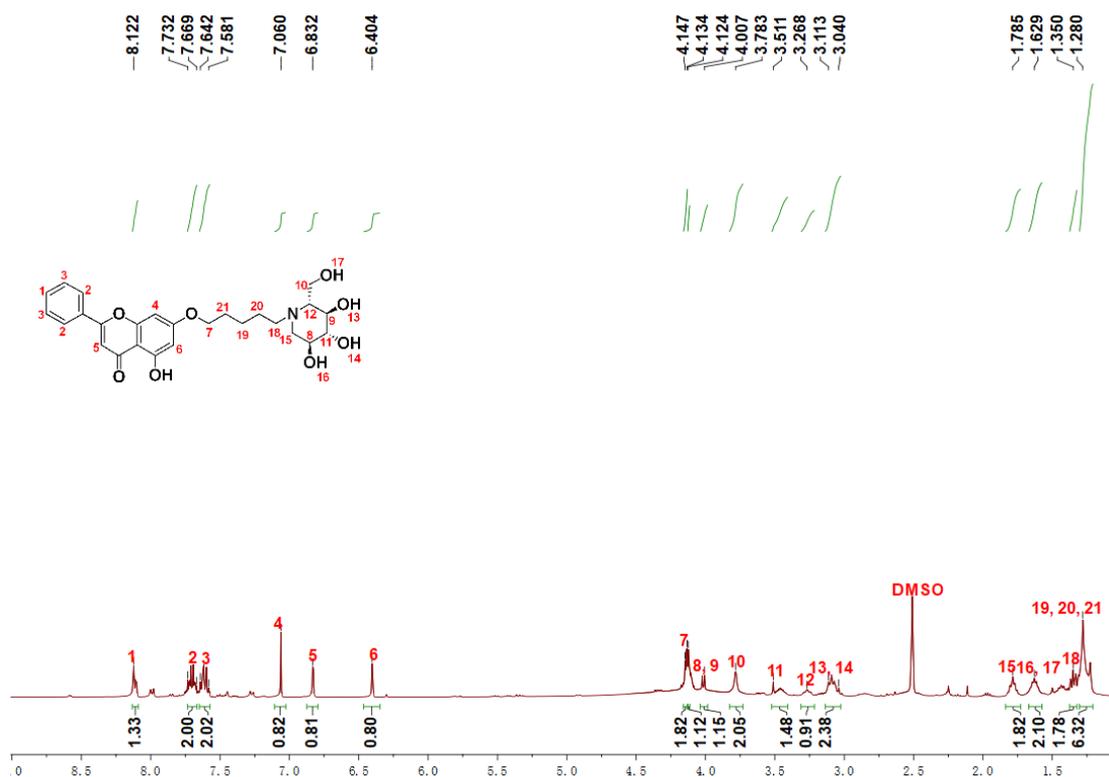


Fig. S7.  $^1\text{H-NMR}$  spectrum (400 MHz) of compound 4 in  $\text{DMSO-}d_6$ .

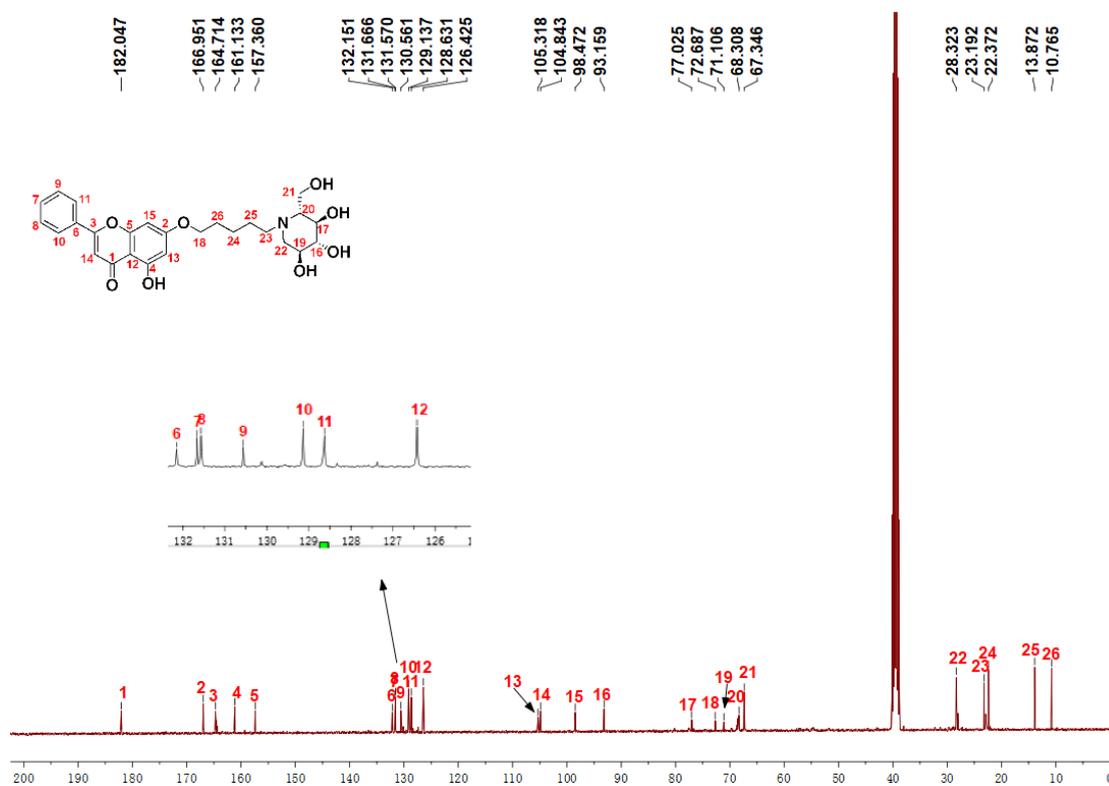
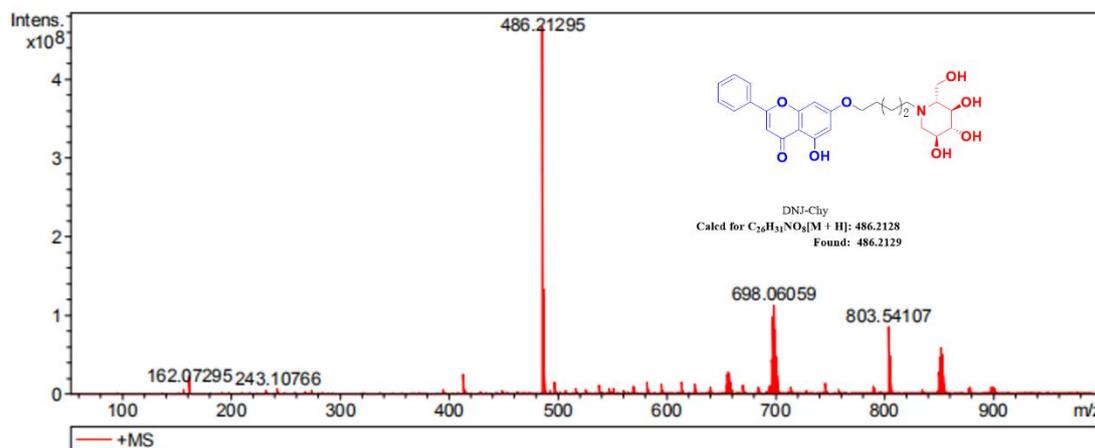
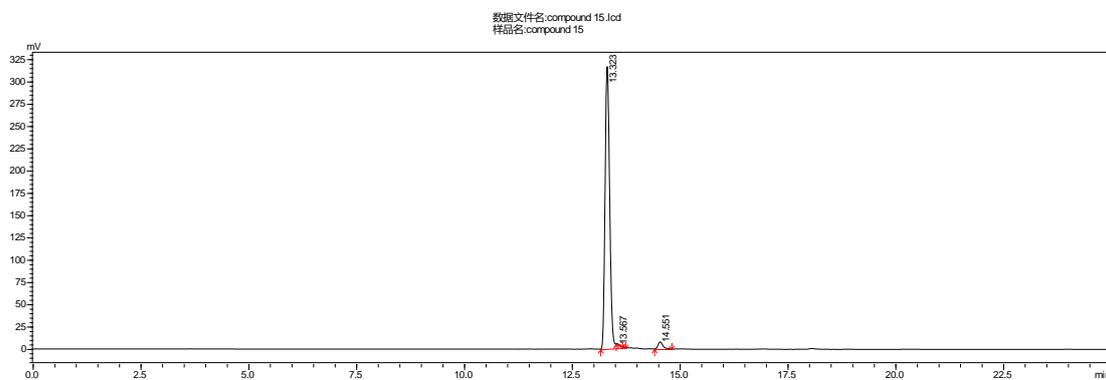


Fig. S8.  $^{13}\text{C-NMR}$  spectrum (101 MHz) of compound 4 in  $\text{DMSO-}d_6$ .



**Fig. S9.** HRMS spectrum of compound 4.



**Fig. S10.** HPLC characterization of compound 4.

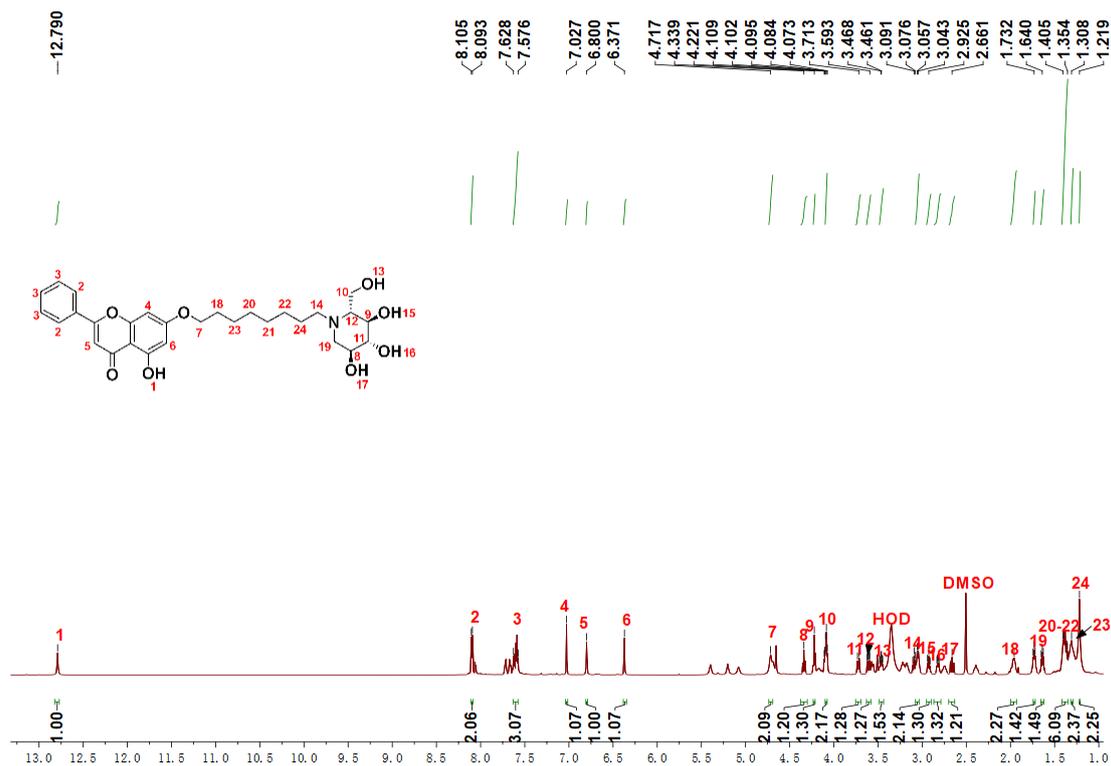


Fig. S11.  $^1\text{H-NMR}$  spectrum (600 MHz) of compound 5 in  $\text{DMSO-}d_6$ .

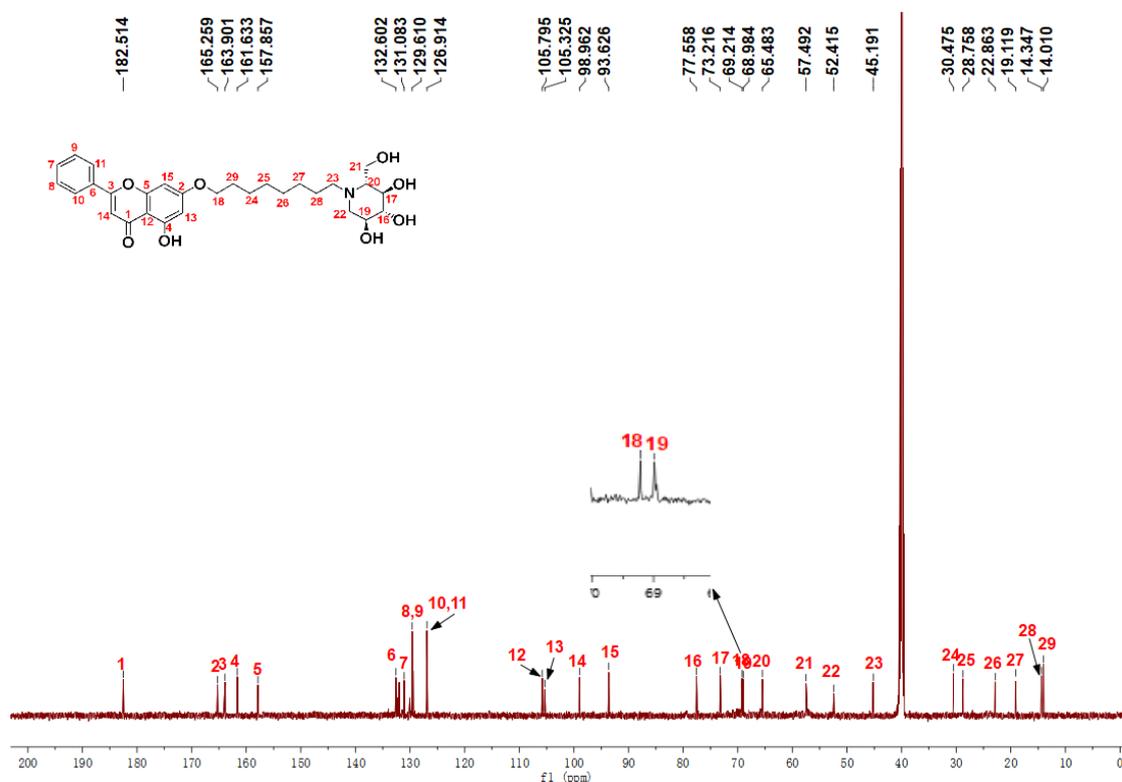
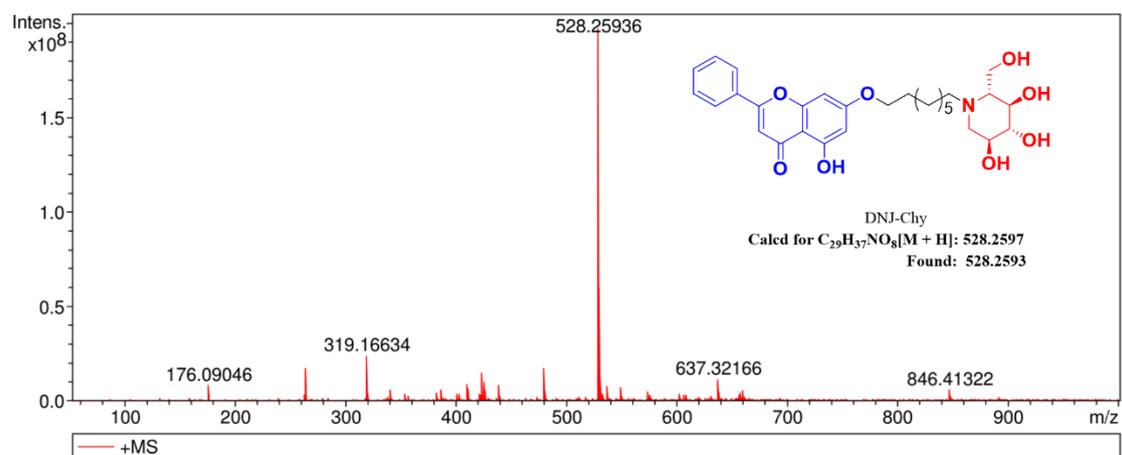
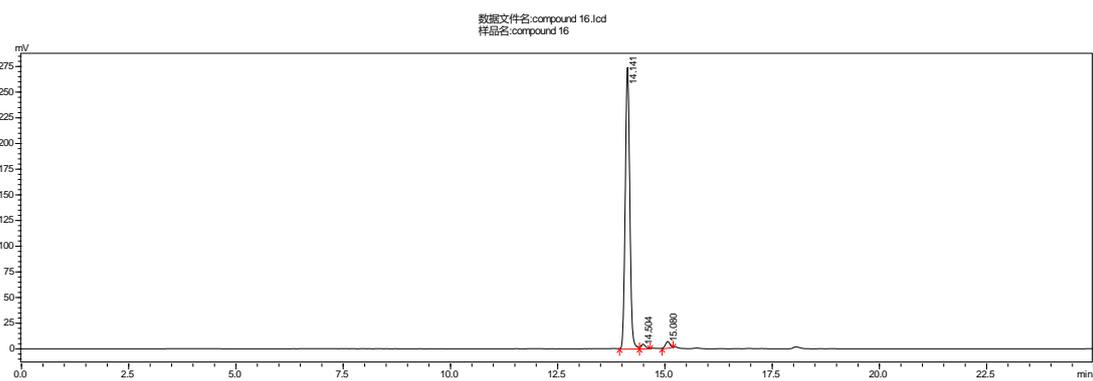


Fig. S12.  $^{13}\text{C-NMR}$  spectrum (150 MHz) of compound 5 in  $\text{DMSO-}d_6$ .



**Fig. S13.** HRMS spectrum of compound 5.



**Fig. S14.** HPLC characterization of compound 5.

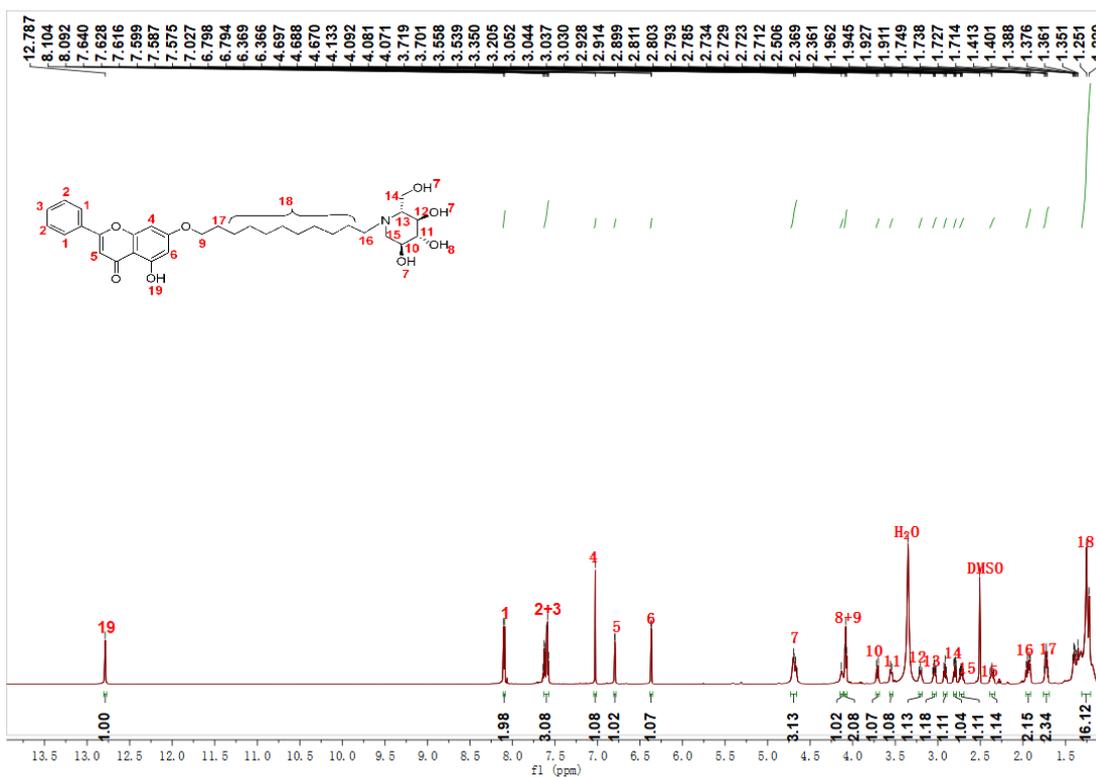


Fig. S11. <sup>1</sup>H-NMR spectrum (600 MHz) of compound 6 in DMSO-*d*<sub>6</sub>.

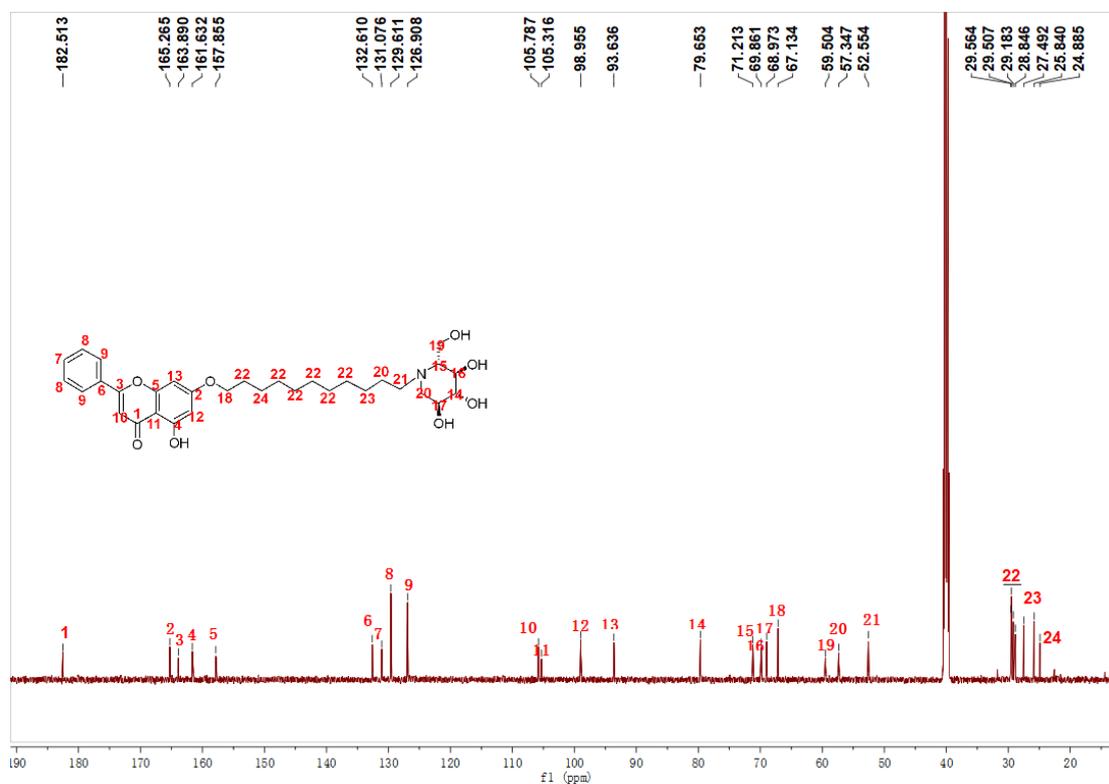
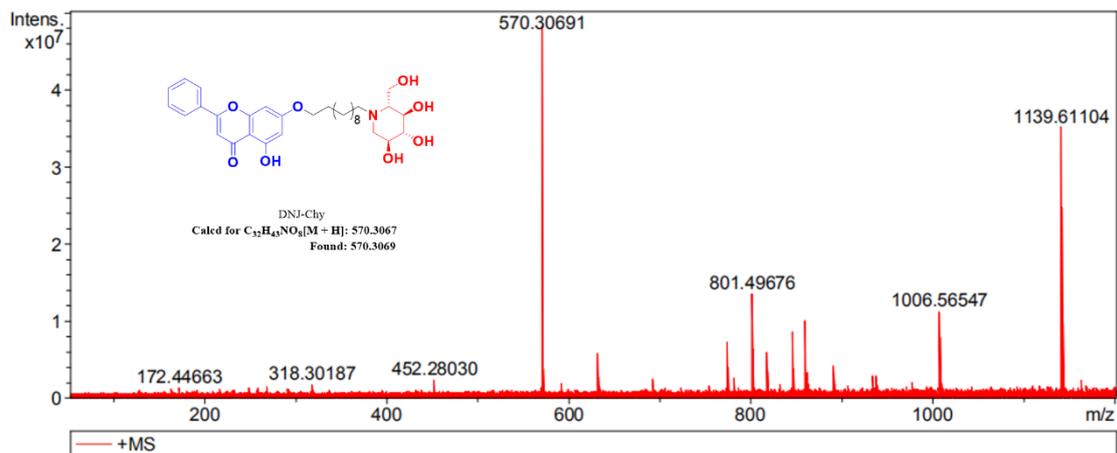
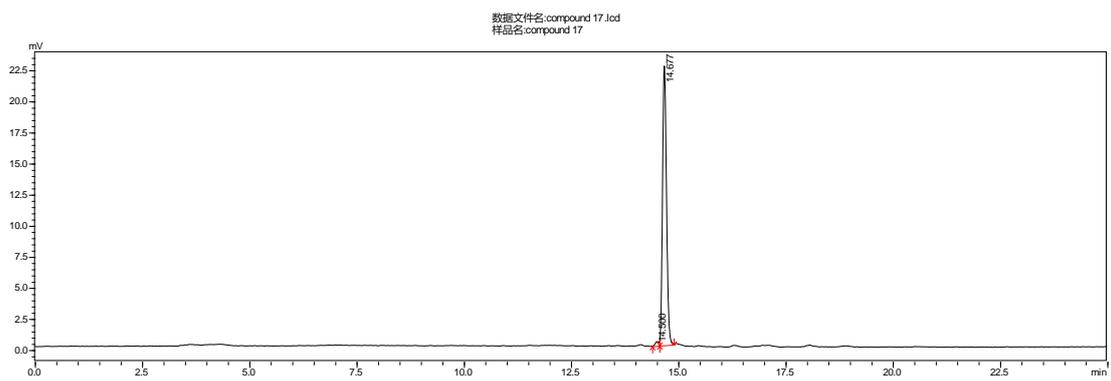


Fig. S12. <sup>13</sup>C-NMR spectrum (150 MHz) of compound 6 in DMSO-*d*<sub>6</sub>.



**Fig. S17.** HRMS spectrum of compound **6**.



**Fig. S18.** HPLC characterization of compound **6**.