

# Nanoparticles Based on Novel Carbohydrate-Functionalized Polymers

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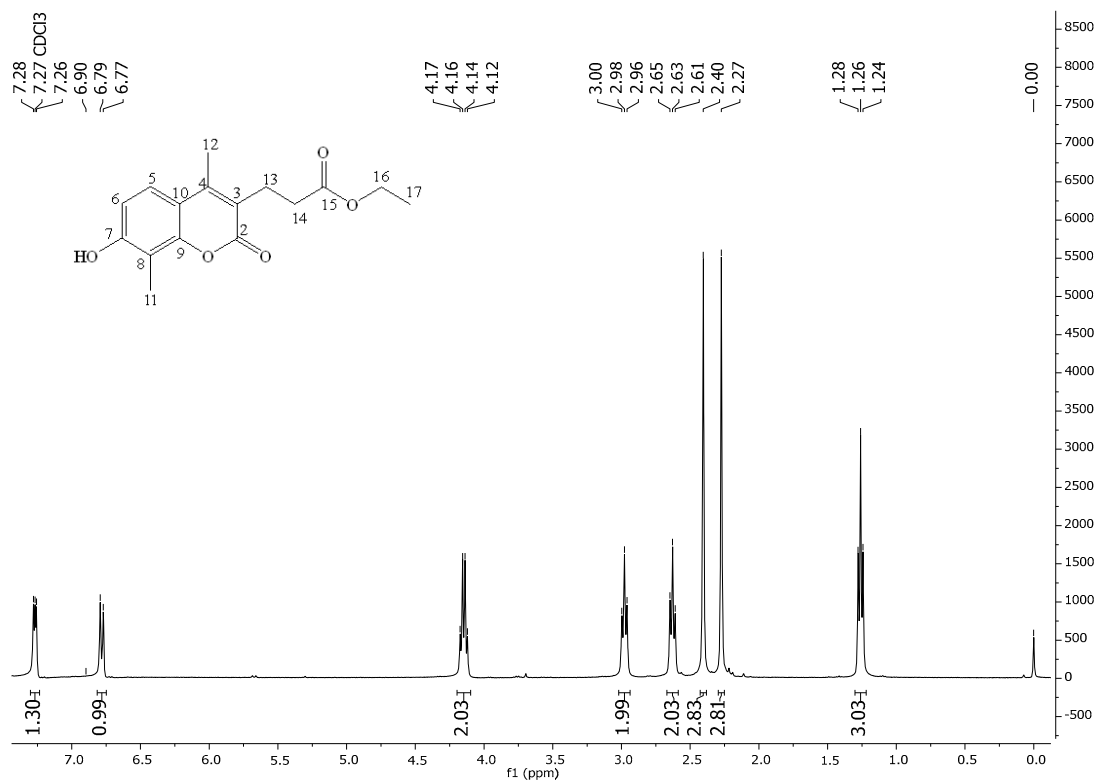
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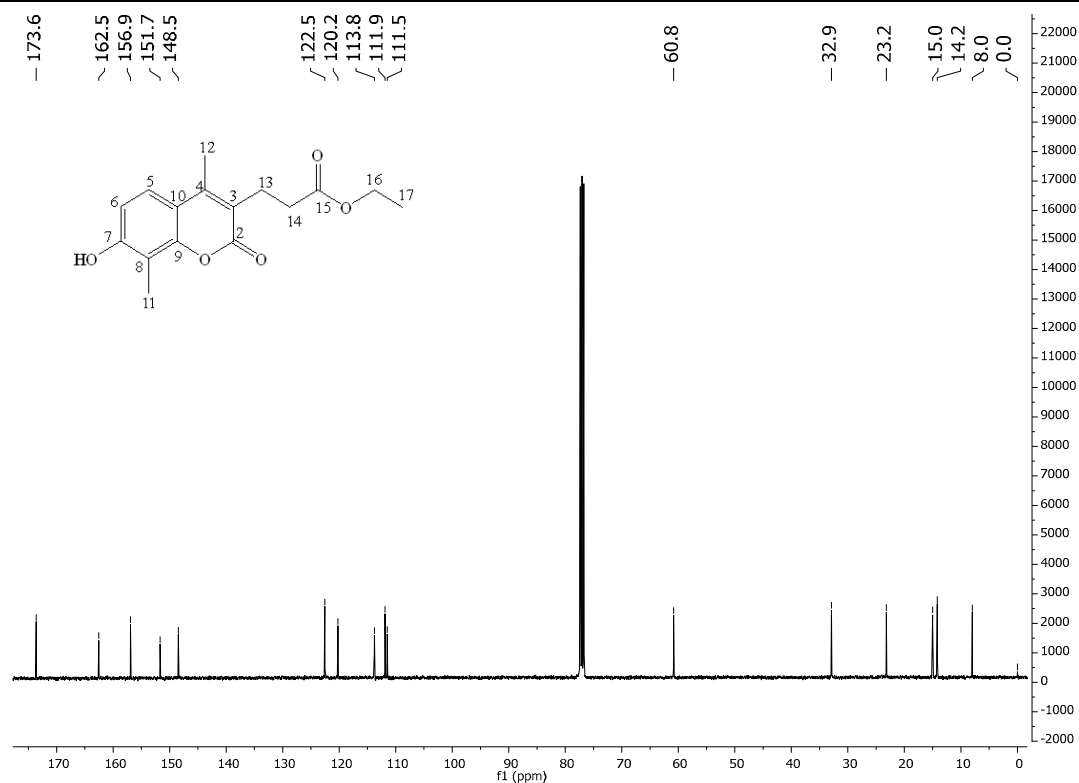
## Compounds characterization: <sup>1</sup>H, <sup>13</sup>C NMR, ESI-MS and MALDI-TOF spectra

*Ethyl 3-(7-hydroxy-4,8-dimethyl-2-oxo-2H-chromen-3-yl)propanoate (1)*



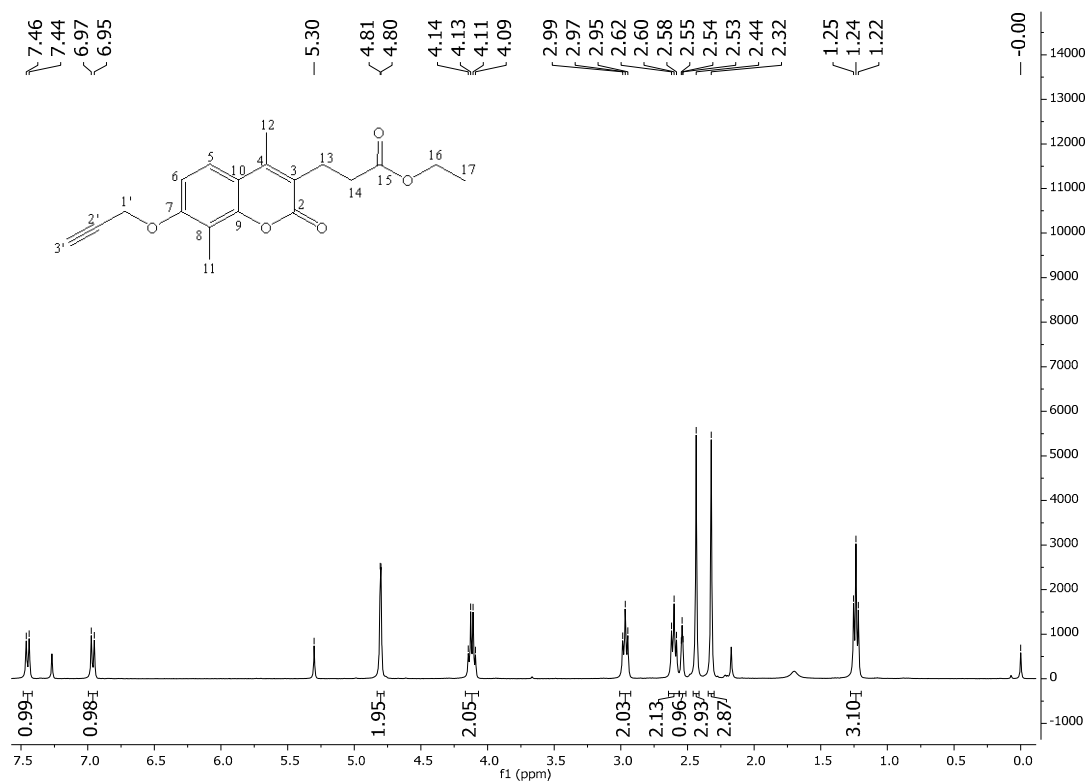
S01- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 1.

Supplementary Materials



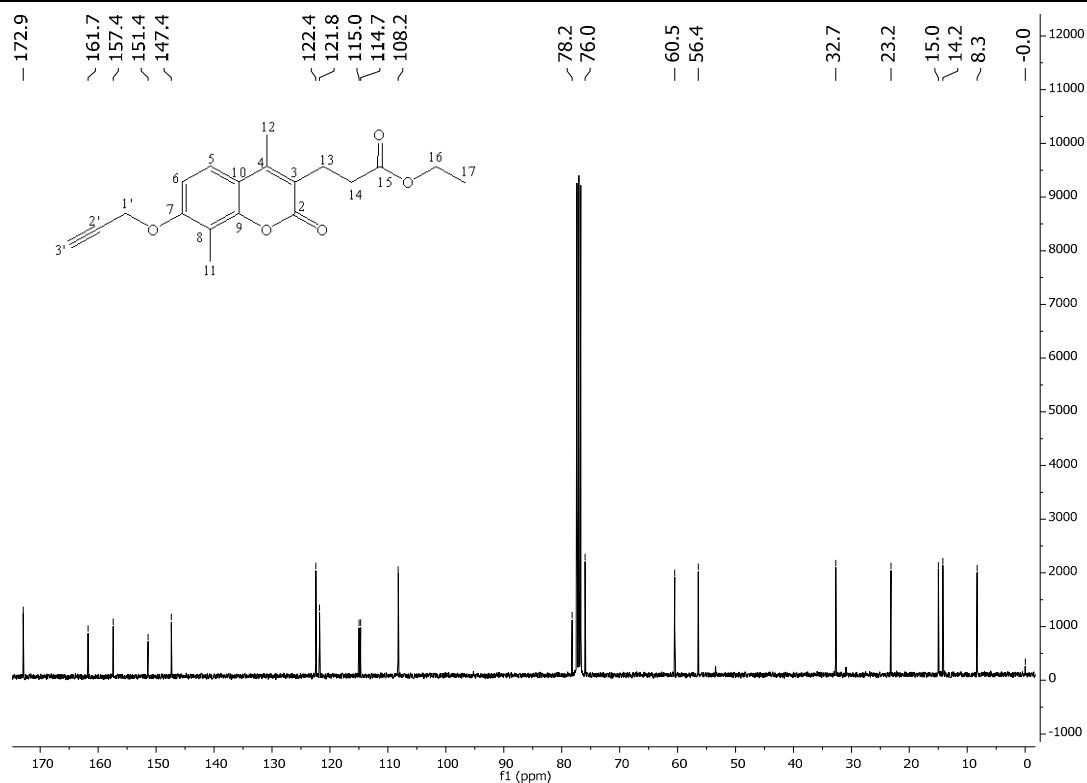
S02- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 1.

Ethyl 3-(4,8-dimethyl-2-oxo-7-(prop-2-yn-1-yloxy)-2H-chromen-3-yl)propanoate (2)



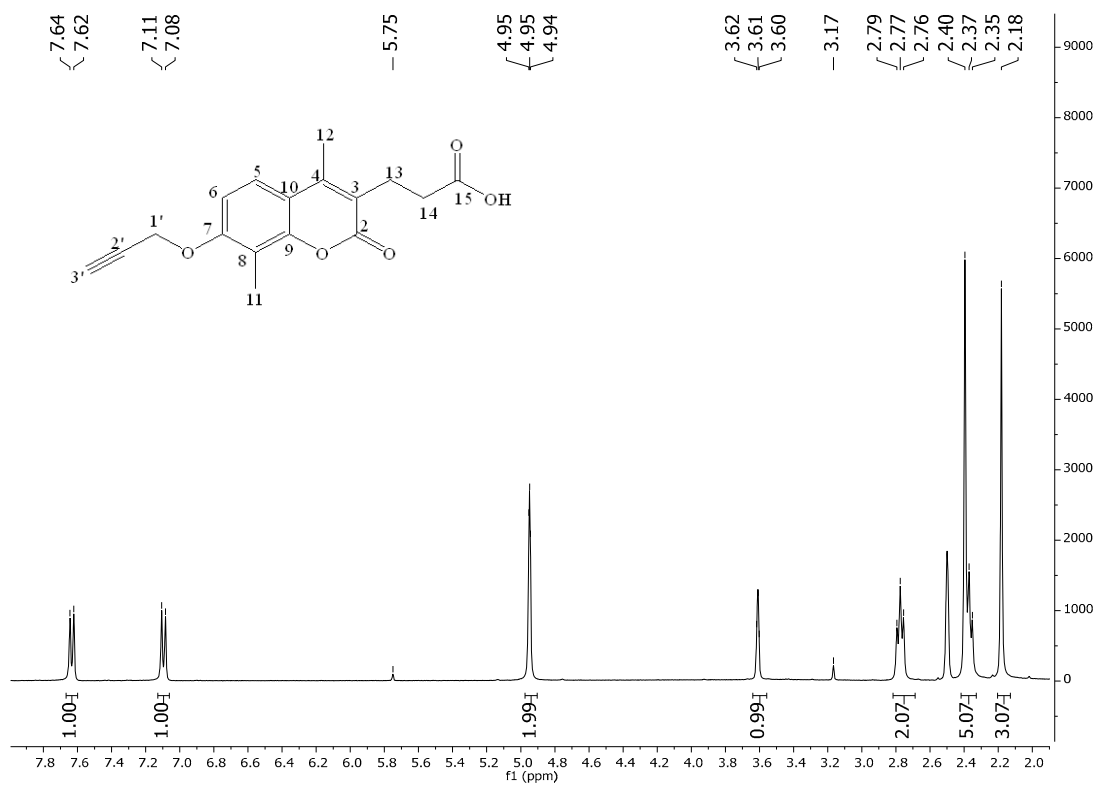
S03- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 2.

Supplementary Materials



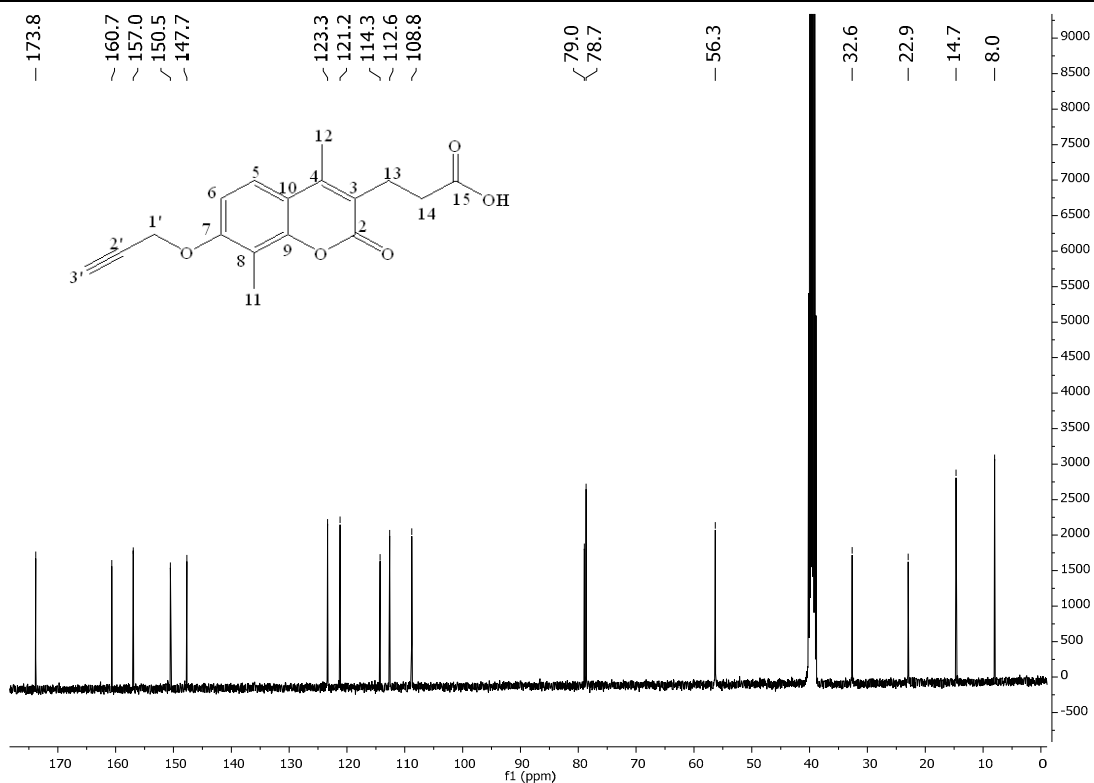
S04- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 2.

3-(4,8-Dimethyl-2-oxo-7-(prop-2-yn-1-yloxy)-2H-chromen-3-yl)propanoic acid (3)



S05- <sup>1</sup>H NMR (400 MHz, DMSO-d<sub>6</sub>) spectrum of compound 3.

Supplementary Materials



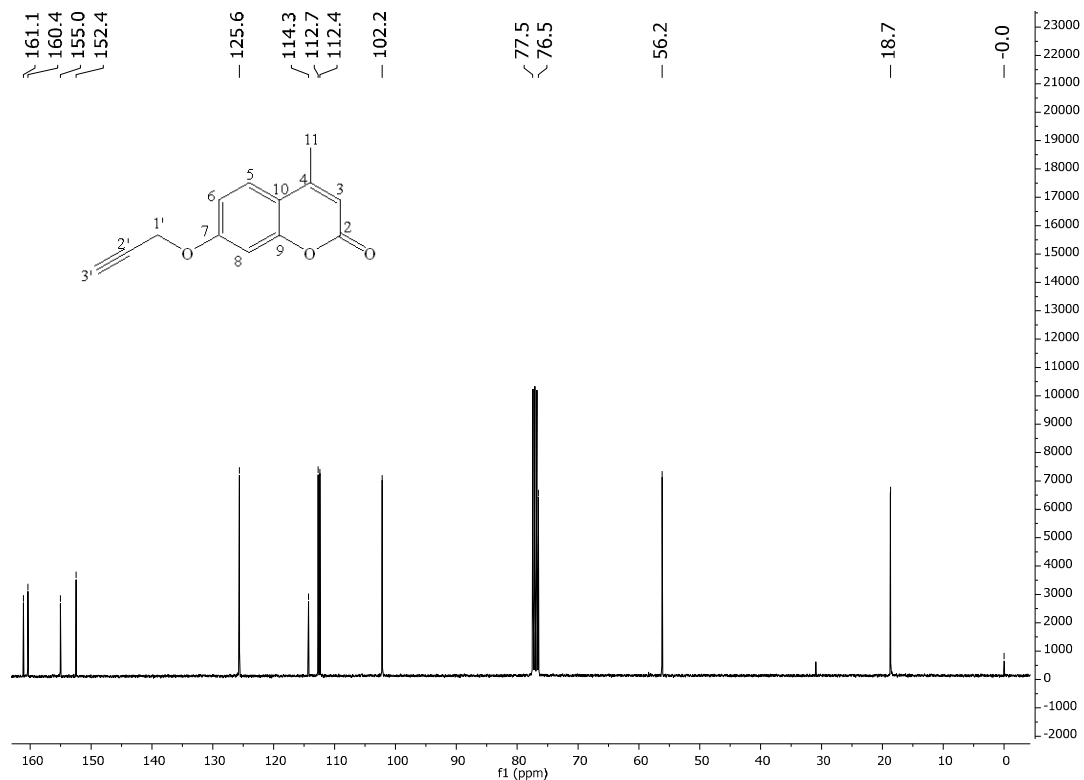
S06- <sup>13</sup>C NMR (101 MHz, DMSO-d<sub>6</sub>) spectrum of compound 3.

4-methyl-7-(prop-2-yn-1-yloxy)-2H-chromen-2-one (6)



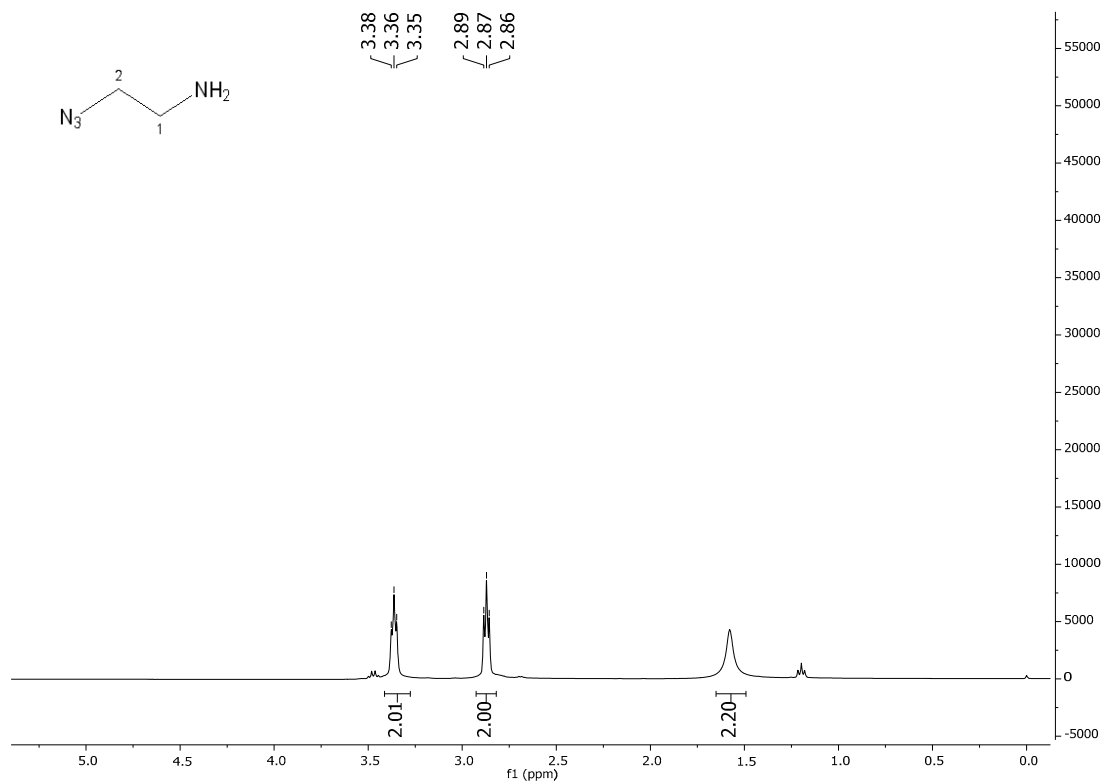
S07- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 6.

Supplementary Materials

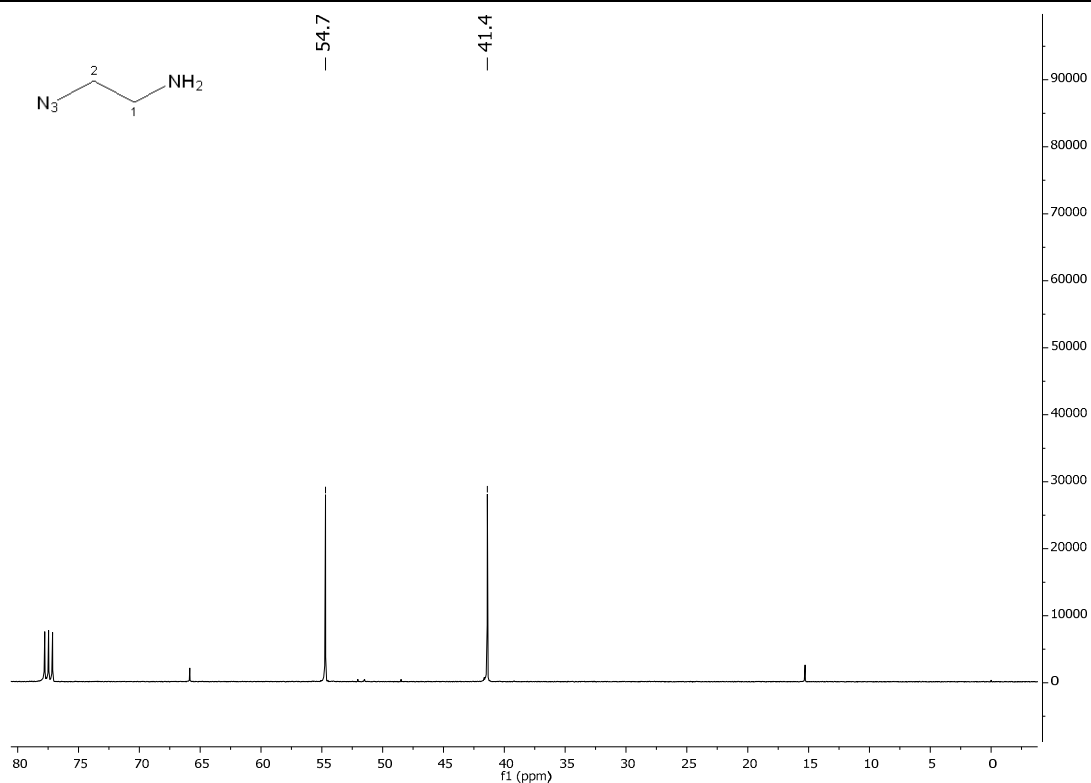


S08- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 6.

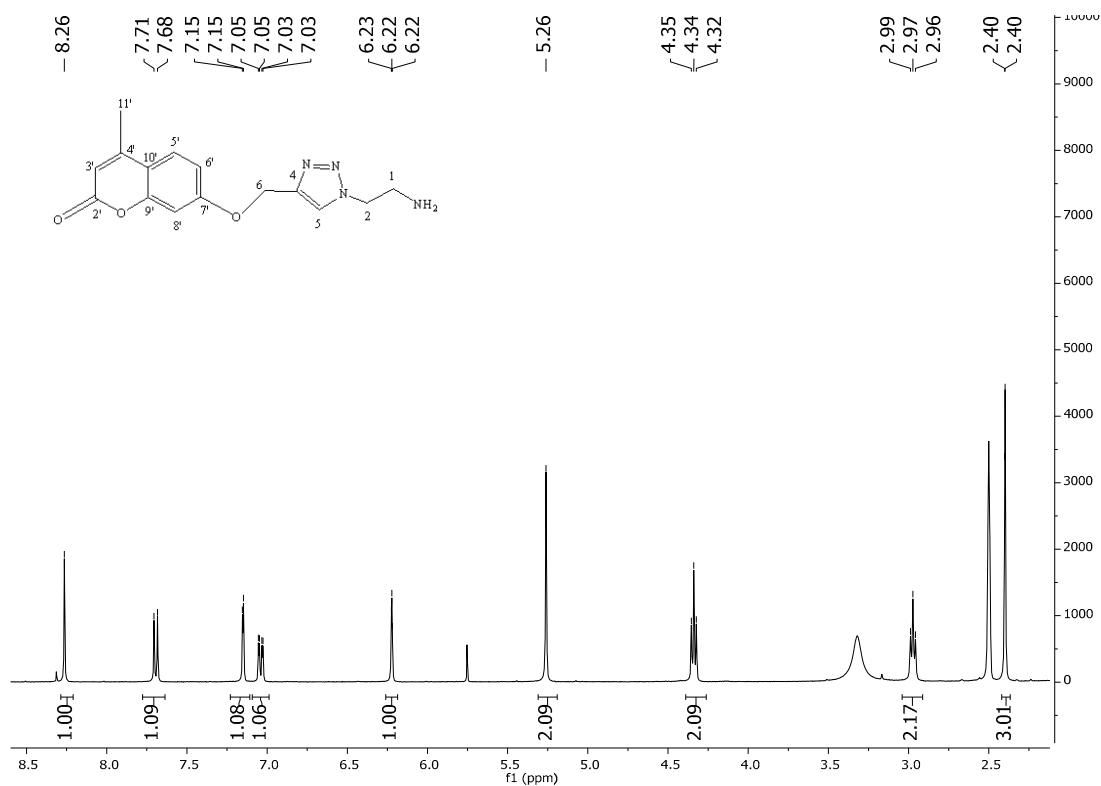
2-Azidoethanamine (7)



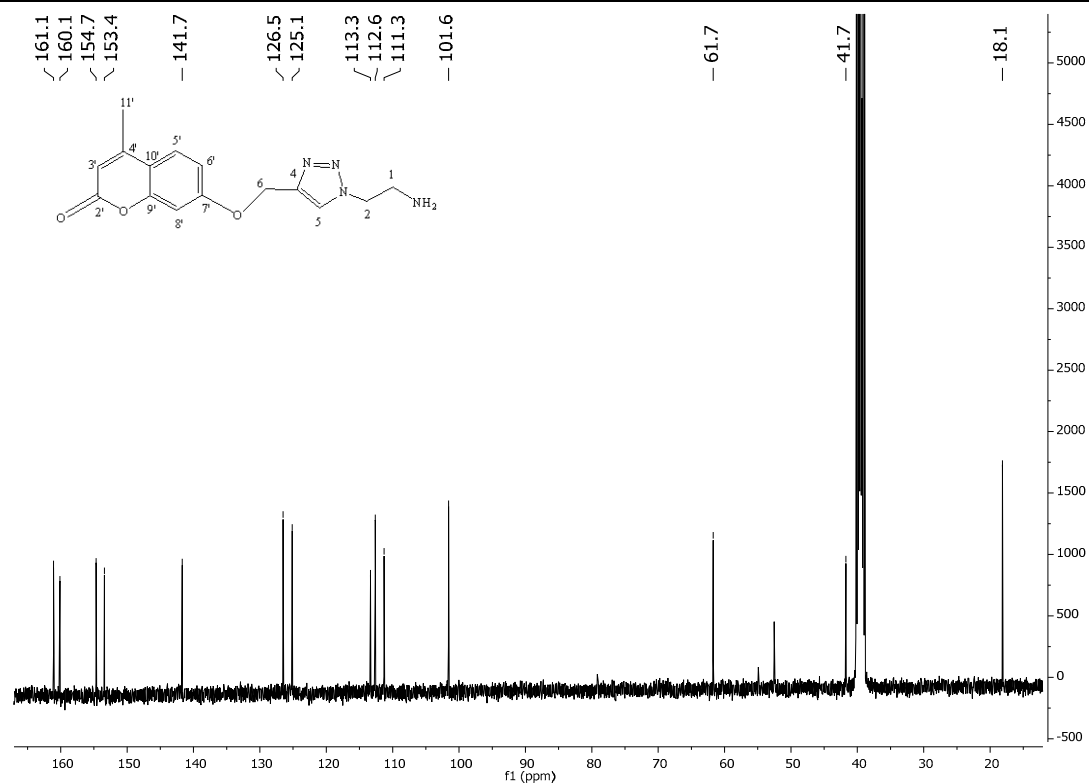
S09- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 7.

S10- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 7.

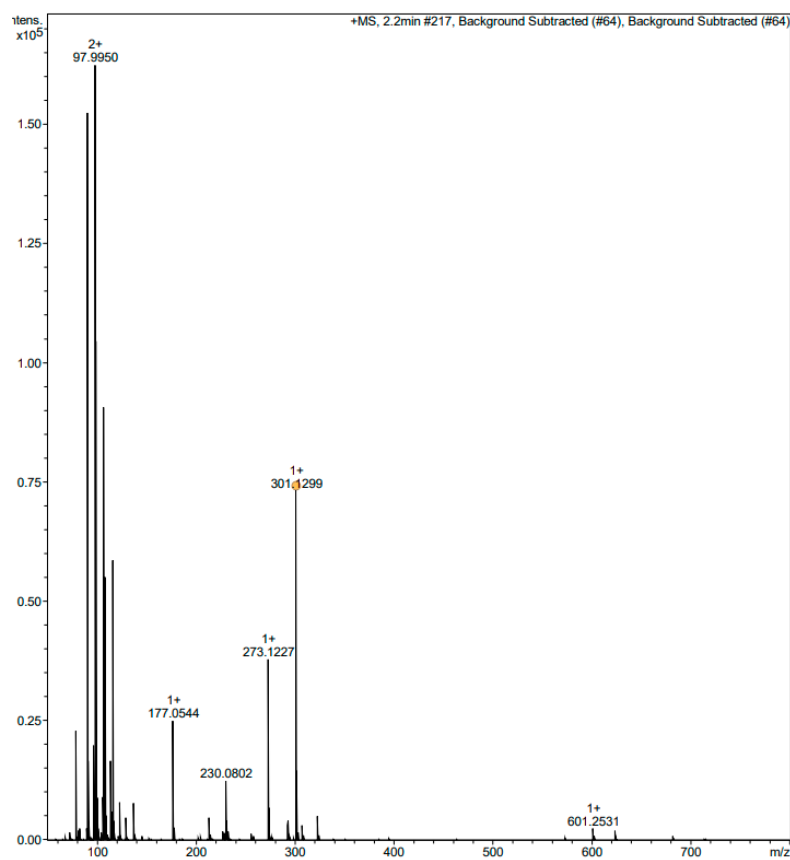
## 7-((1-(2-Aminoethyl)-1H-1,2,3-triazol-4-yl)methoxy)-4-methyl-2H-chromen-2-one (8)

S11- <sup>1</sup>H NMR (400 MHz, DMSO-d<sub>6</sub>) spectrum of compound 8.

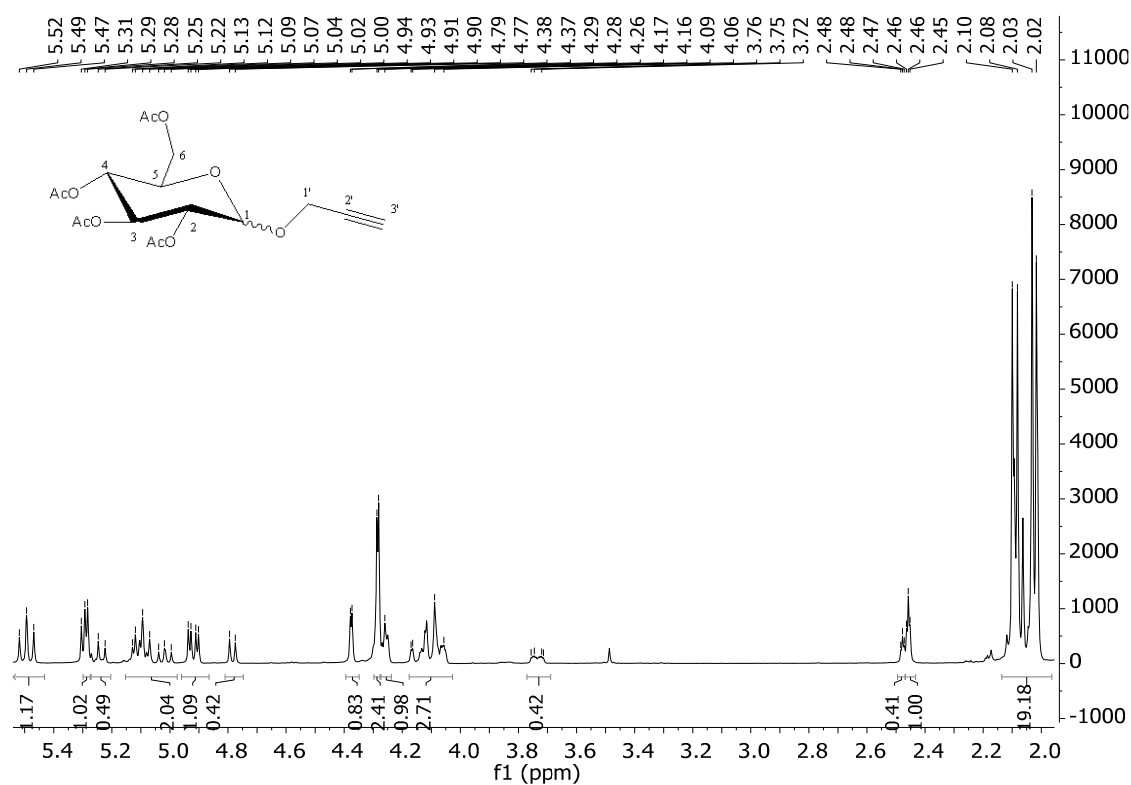
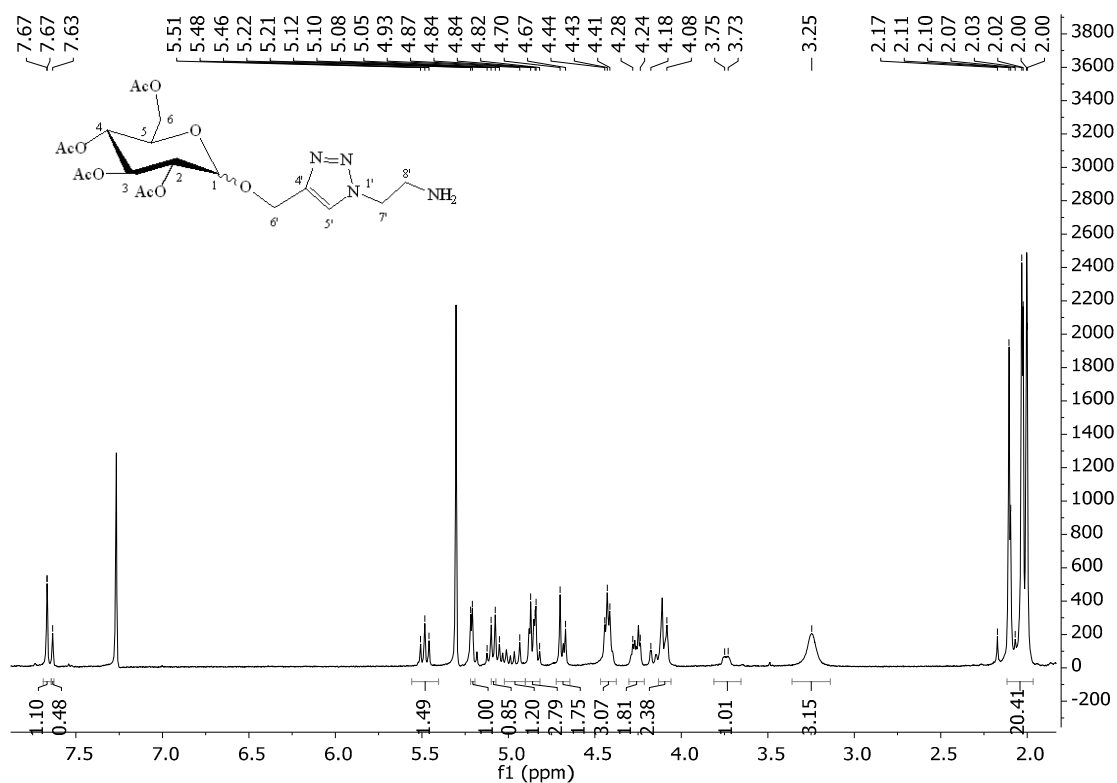
Supplementary Materials



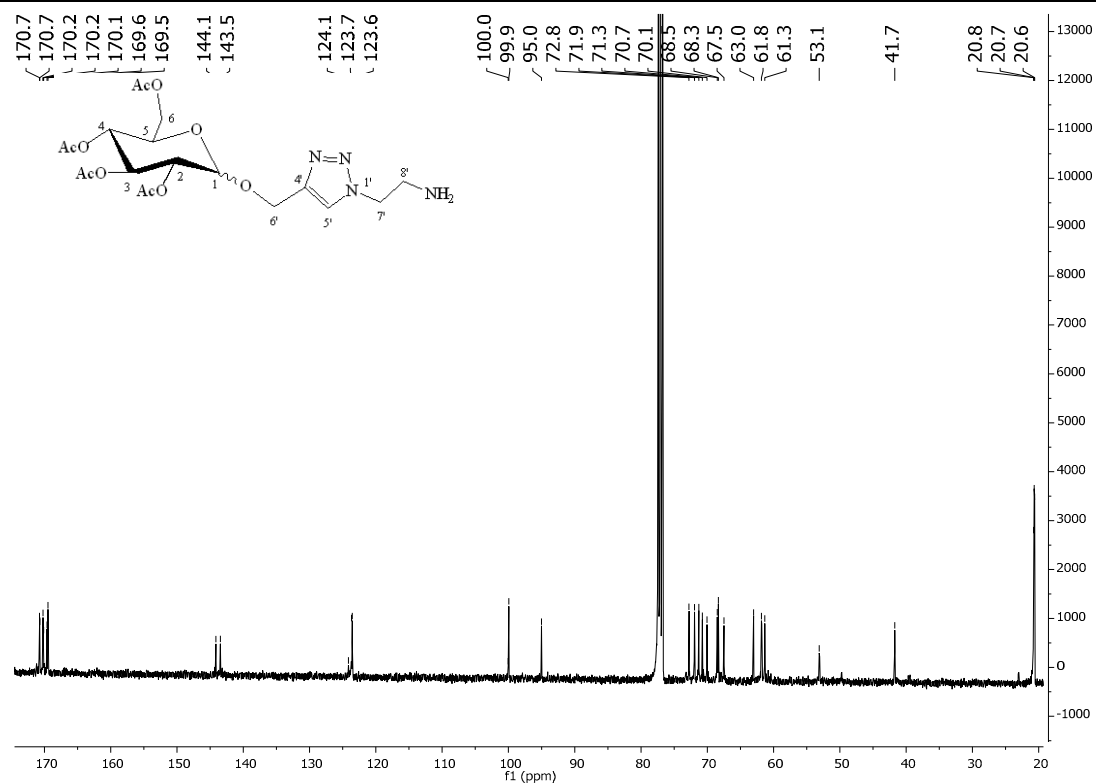
S12- <sup>13</sup>C NMR (101 MHz, DMSO-d<sub>6</sub>) spectrum of compound 8.



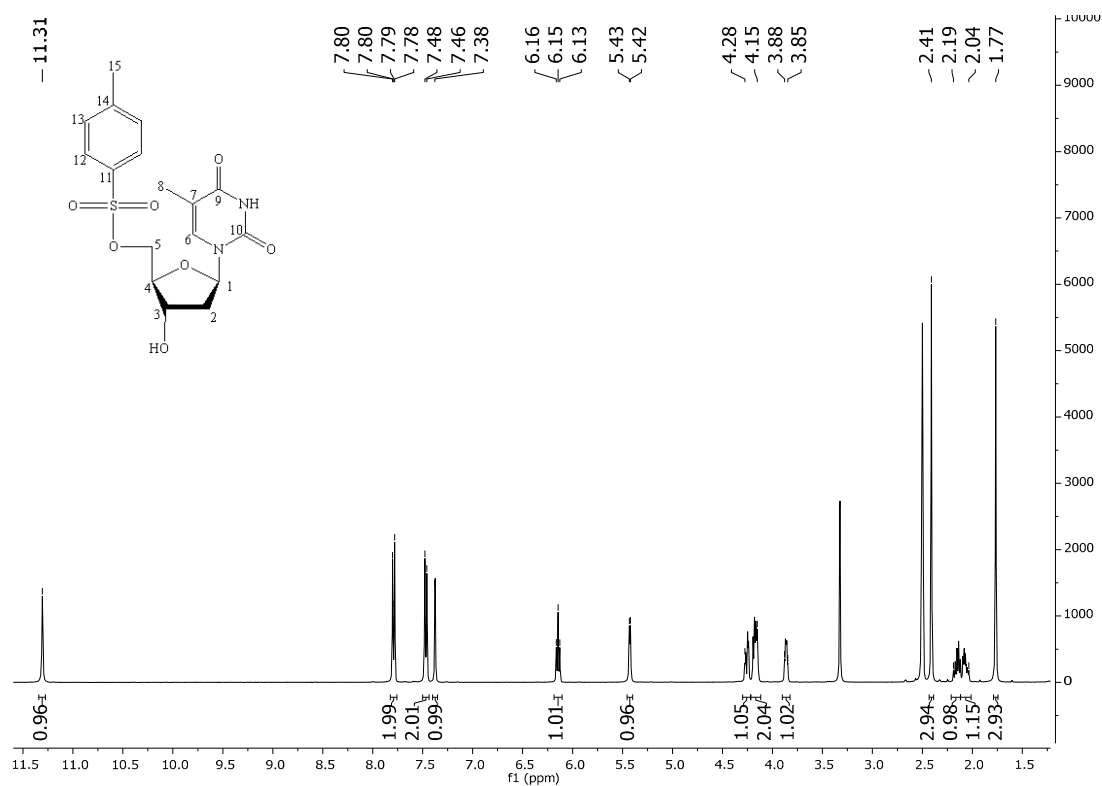
S13- ESI-MS spectrum of compound 8.

1-O-Propargyl-2,3,4,6-tetra-O-acetyl-D-glucopyranoside (**12**)S14- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>-d<sub>6</sub>) spectrum of compound **12**.1-[1'-Ethylamine-triazolyl-4]-1-methyl-2,3,4,6-tetra-O-acetyl-D-glucopyranoside (**13**)S15- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound **13**.

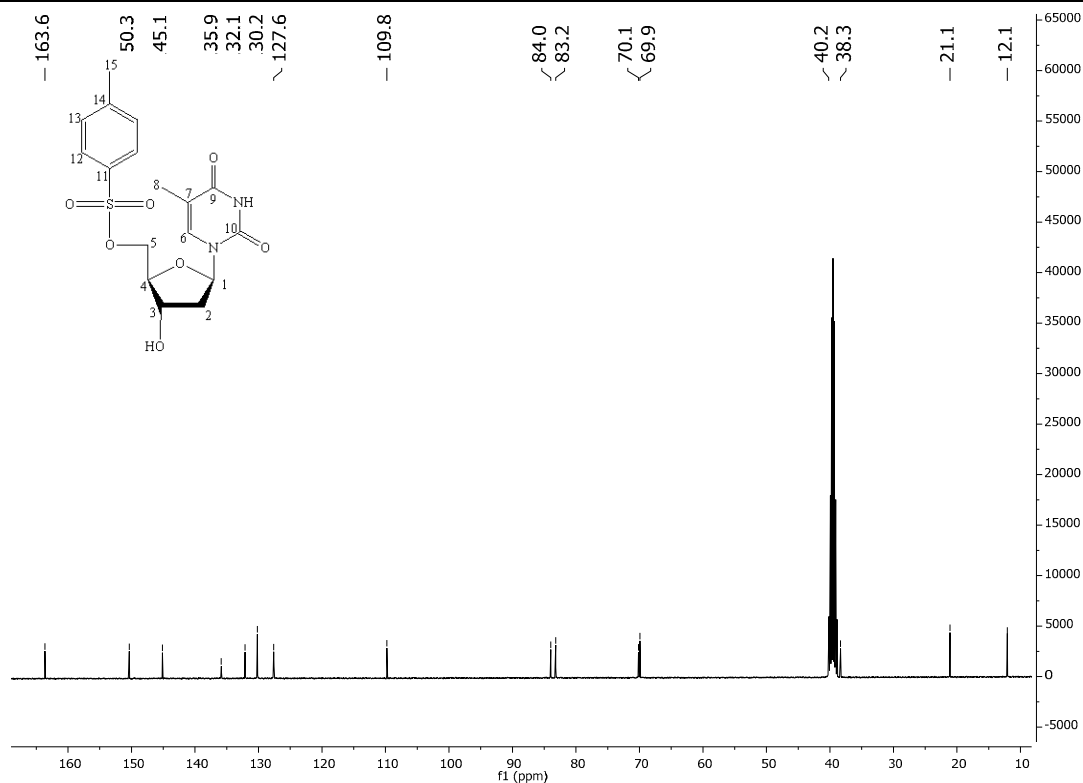
Supplementary Materials



5'-O-[(4-Methylphenyl)sulfonyl] thymidine (**15**)

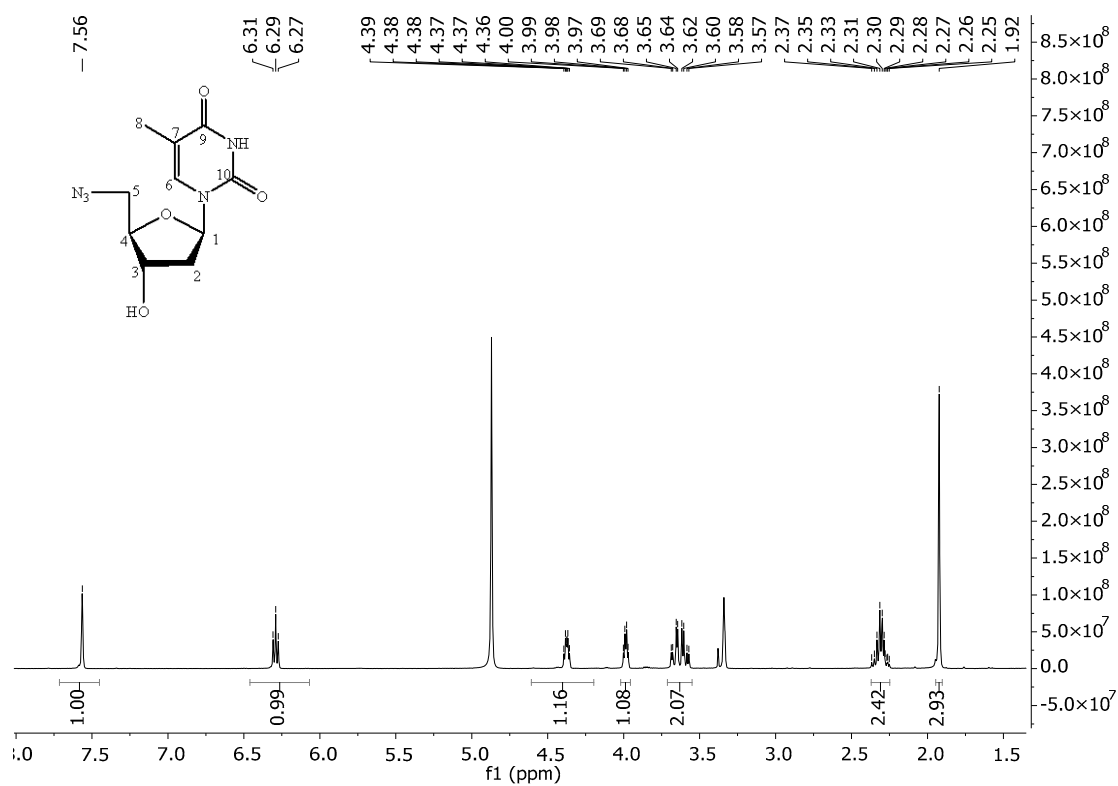


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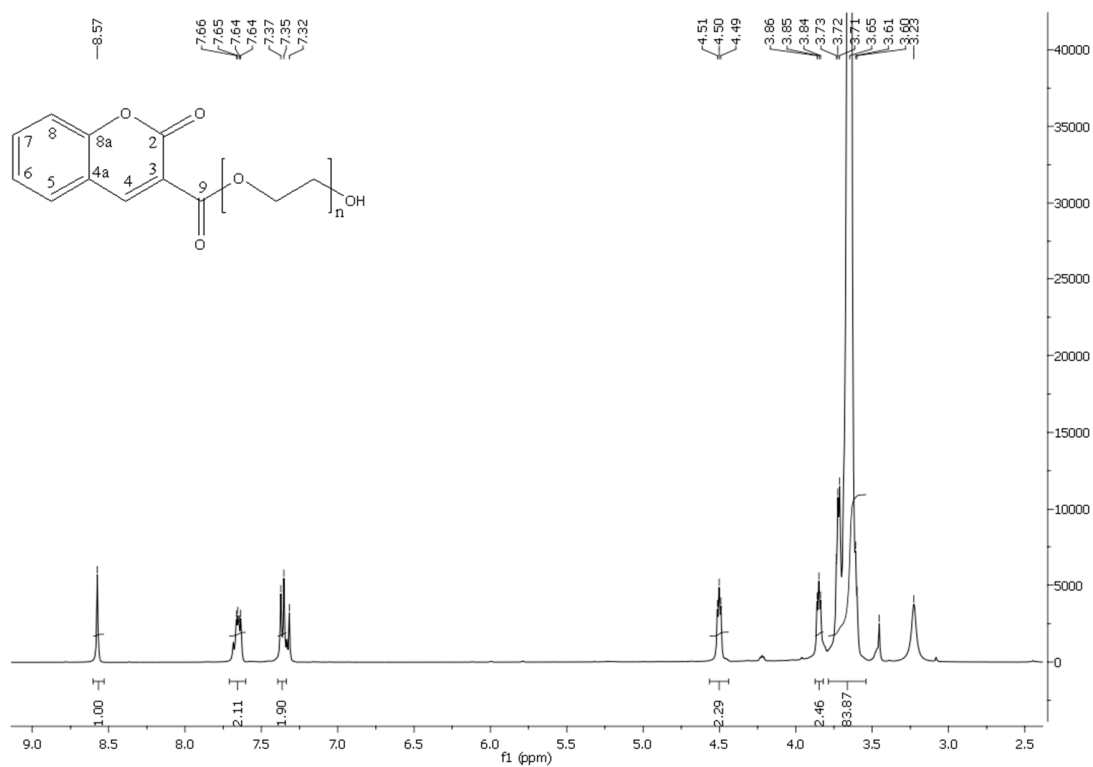


S18-  $^{13}\text{C}$  NMR (101 MHz, DMSO- $d_6$ ) spectrum of compound 15.

5'-Azide-5'-deoxythymidine (**16**)

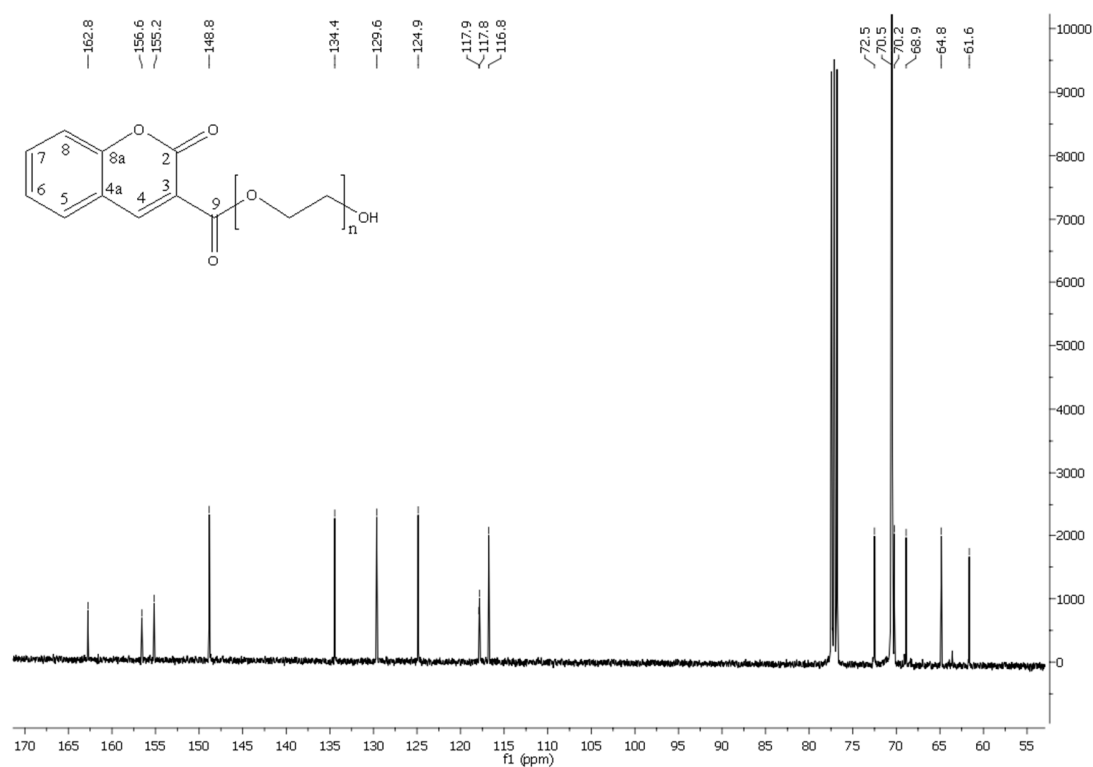


S19-  $^1\text{H}$  NMR (400 MHz,  $\text{CD}_3\text{OD}$ ) spectrum of compound 16.

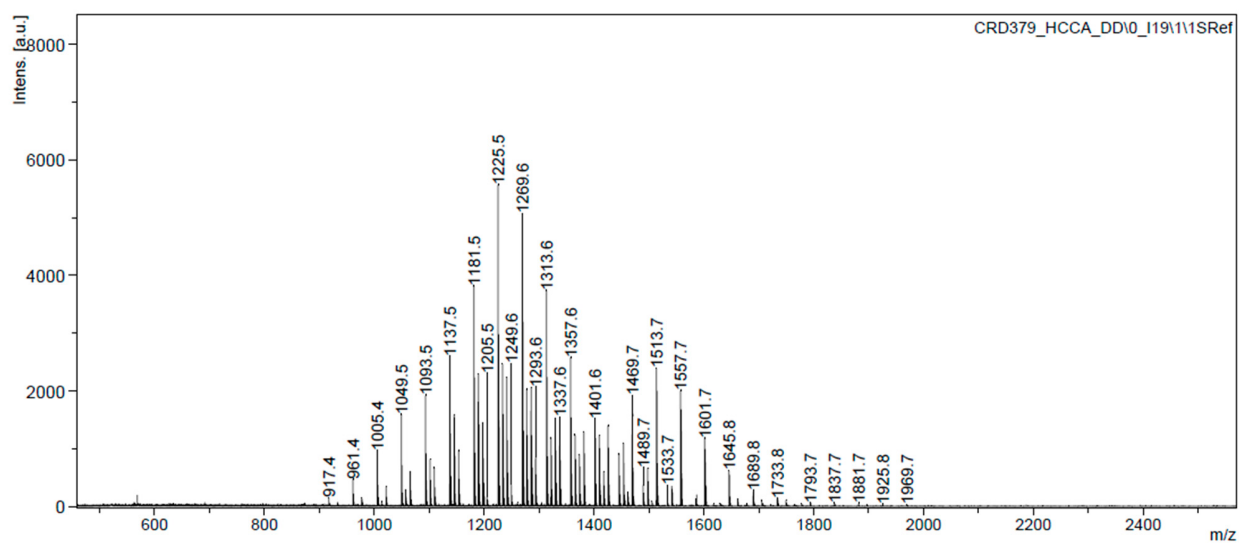
$\alpha$ -Coumarin 3-carboxylate- $\omega$ -hydroxyl PEG<sub>1000</sub> (**17**)

S21- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 17.

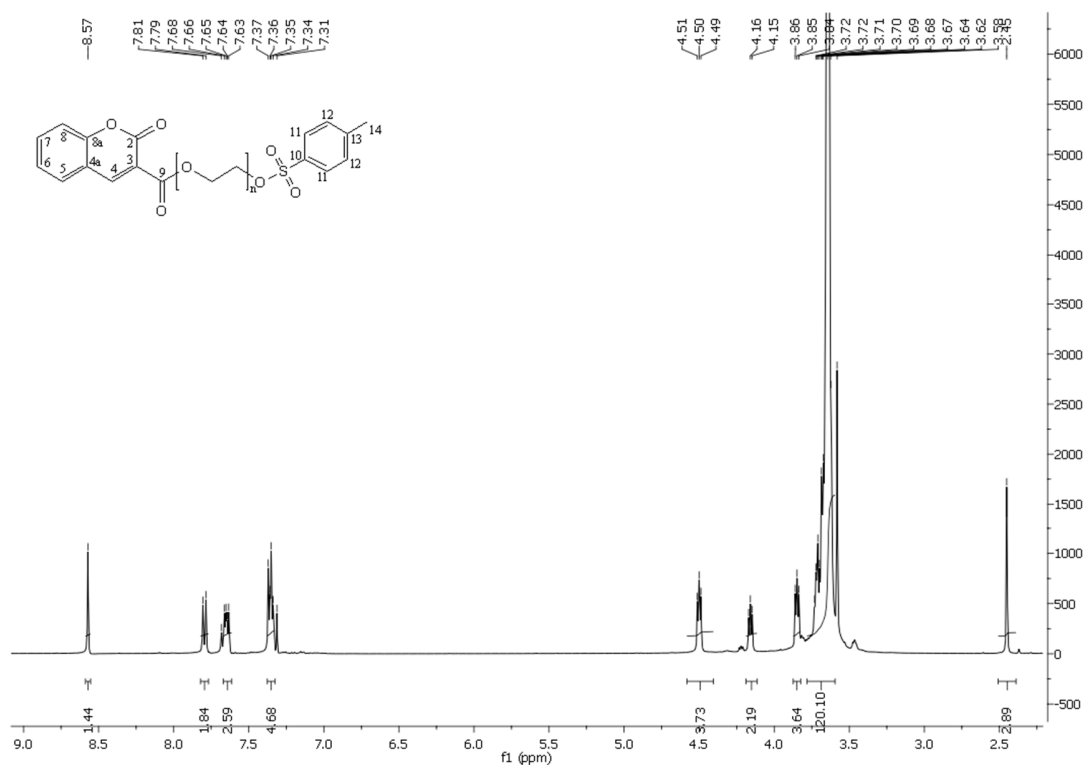
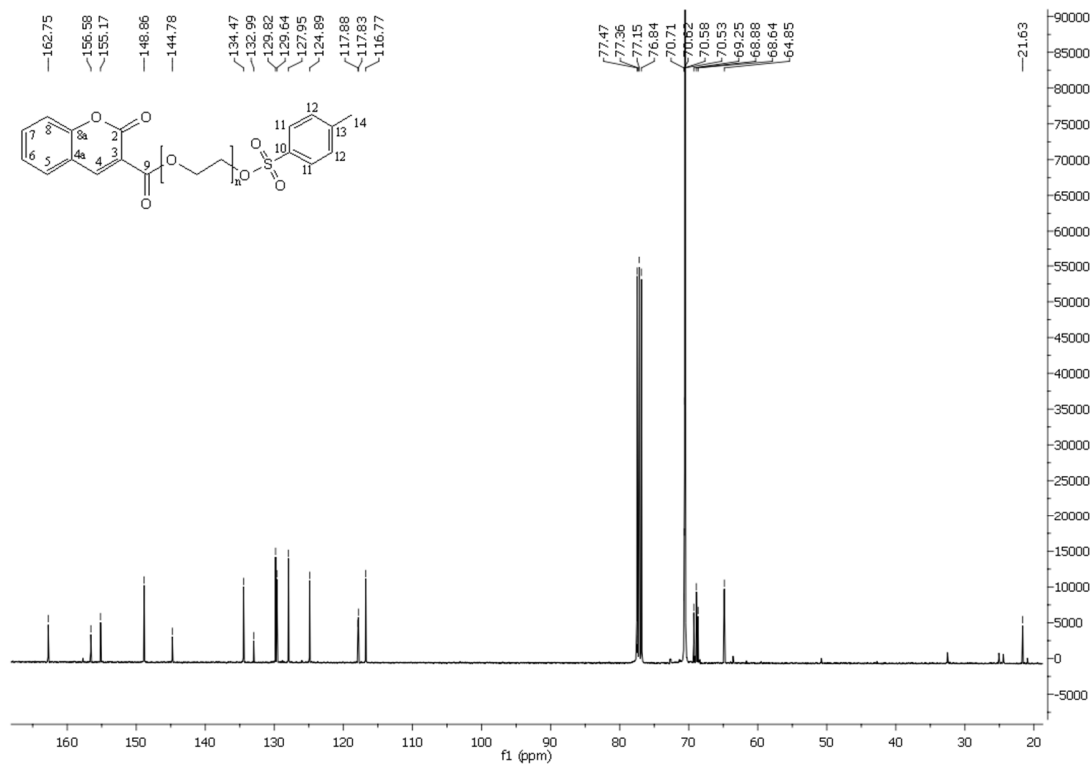
# Supplementary Materials

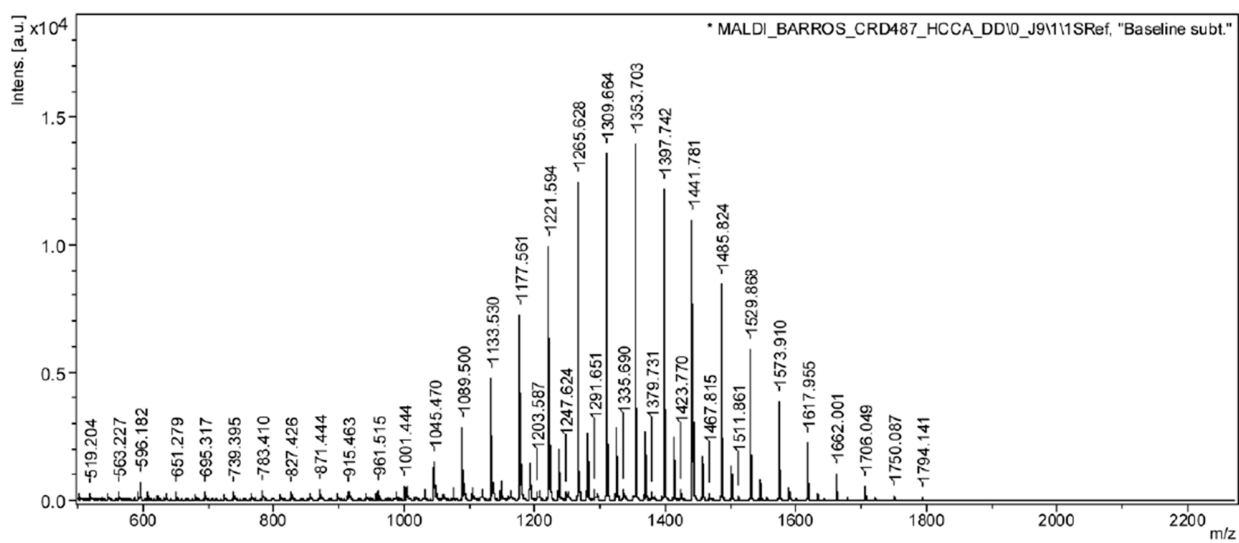


S22- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 17.

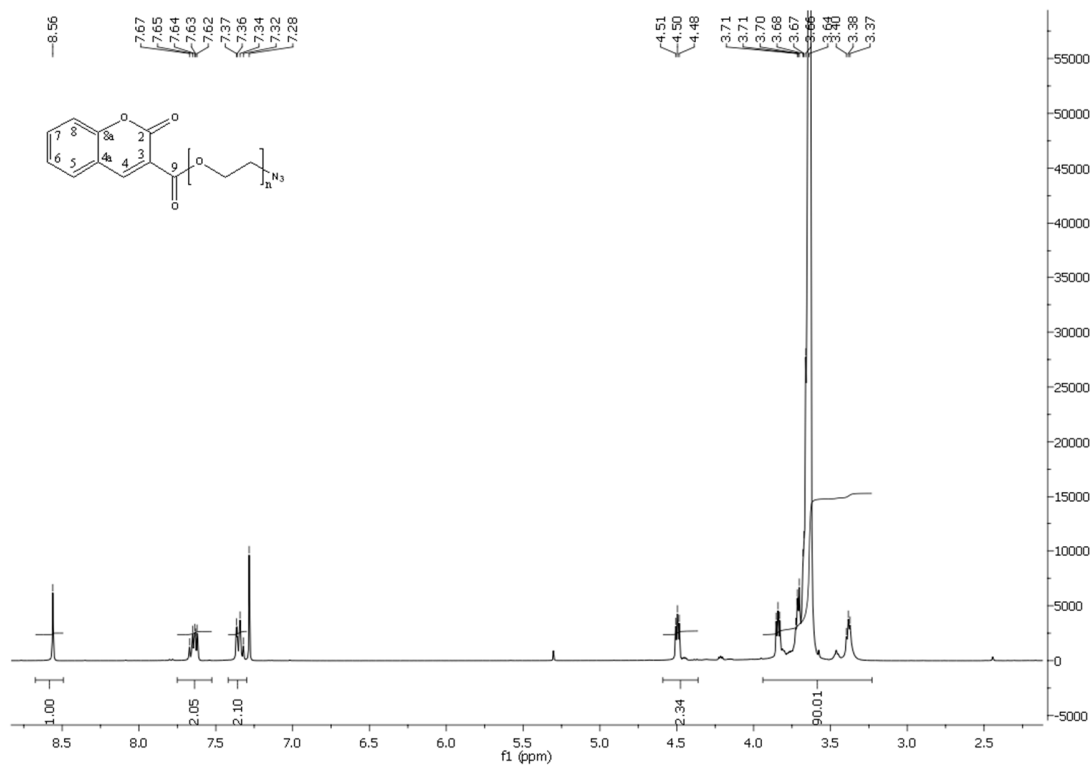


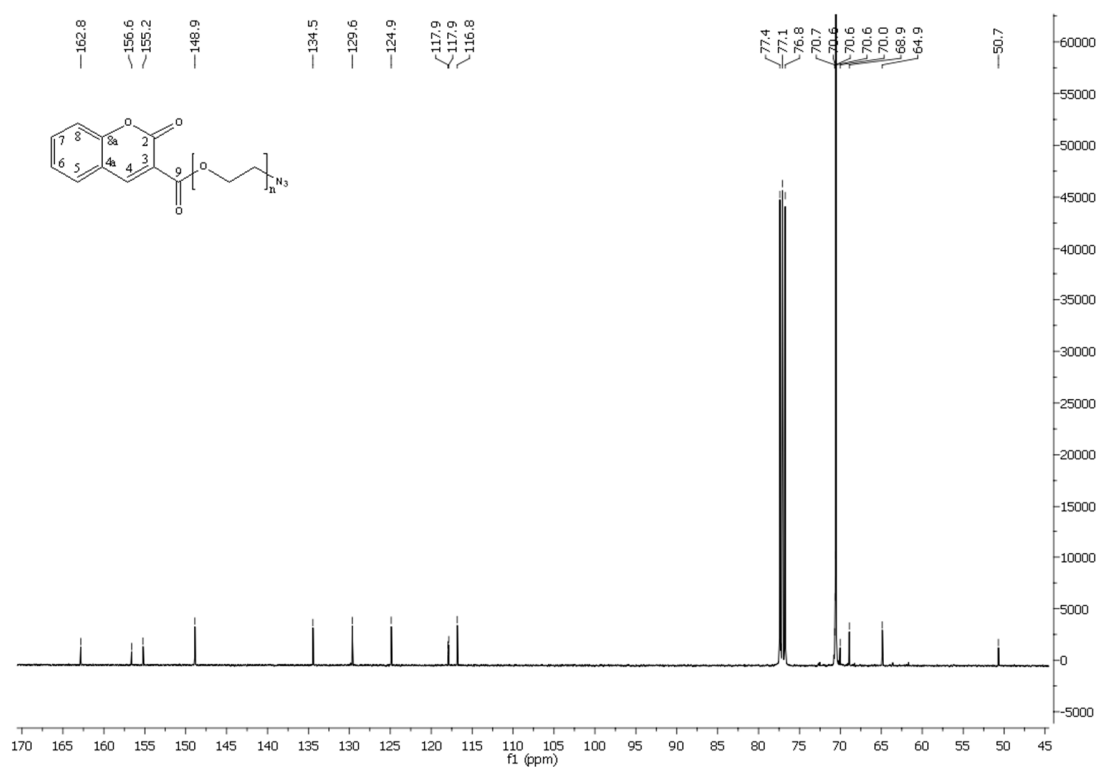
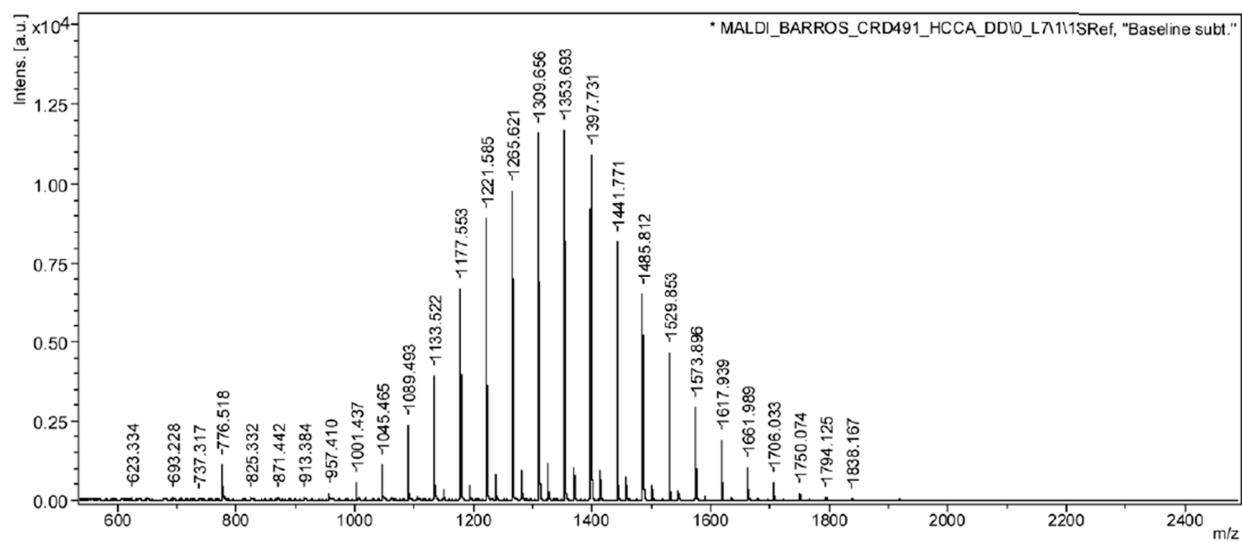
S23- MALDI-TOF spectrum of compound 17.

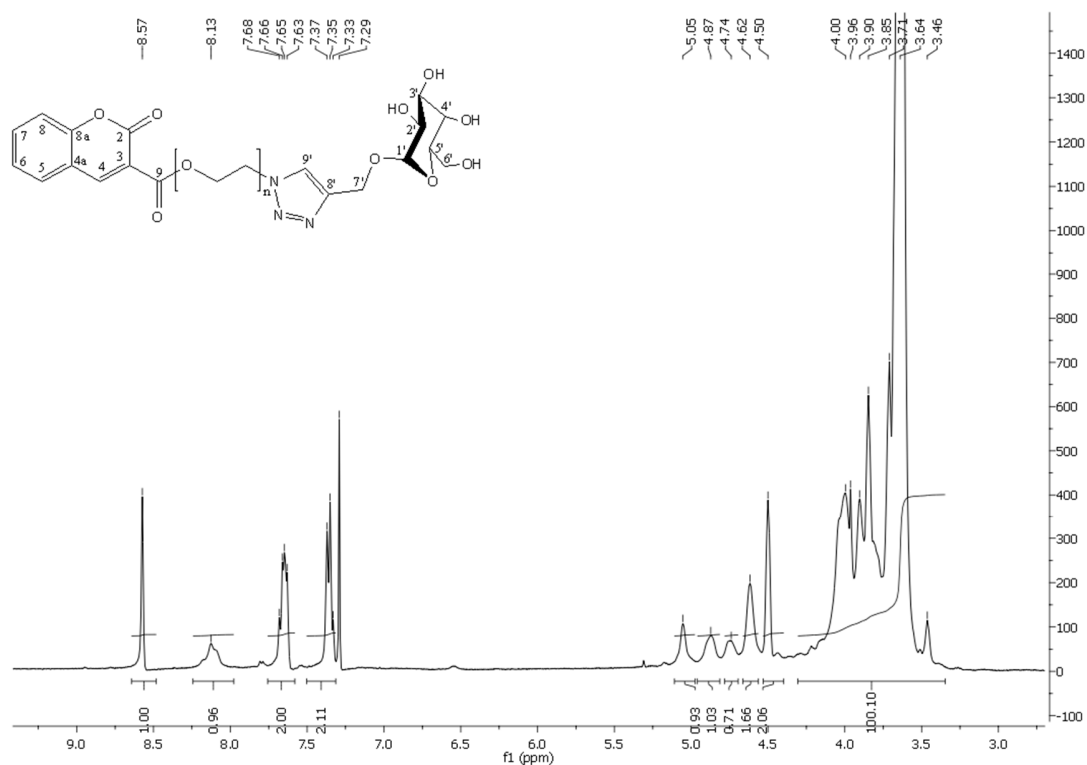
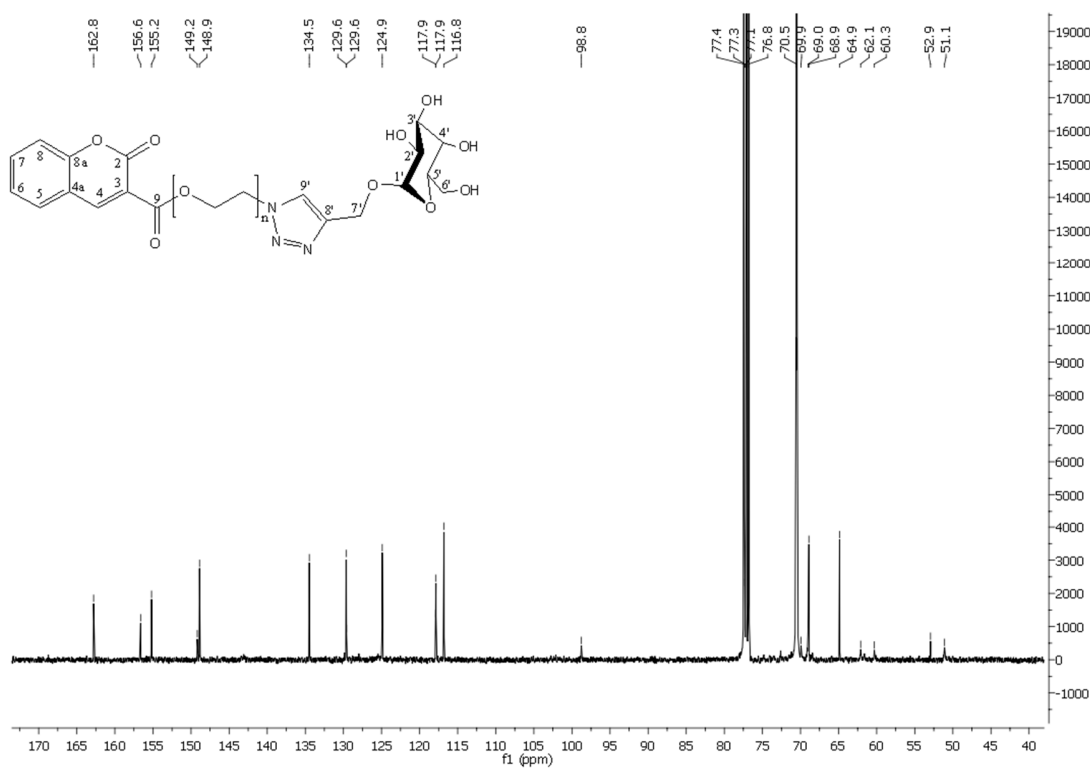
$\alpha$ -Coumarin 3-carboxylate- $\omega$ -tosyl PEG<sub>1000</sub> (**18**)S24- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of the compound **18**.S25- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of the compound **18**.

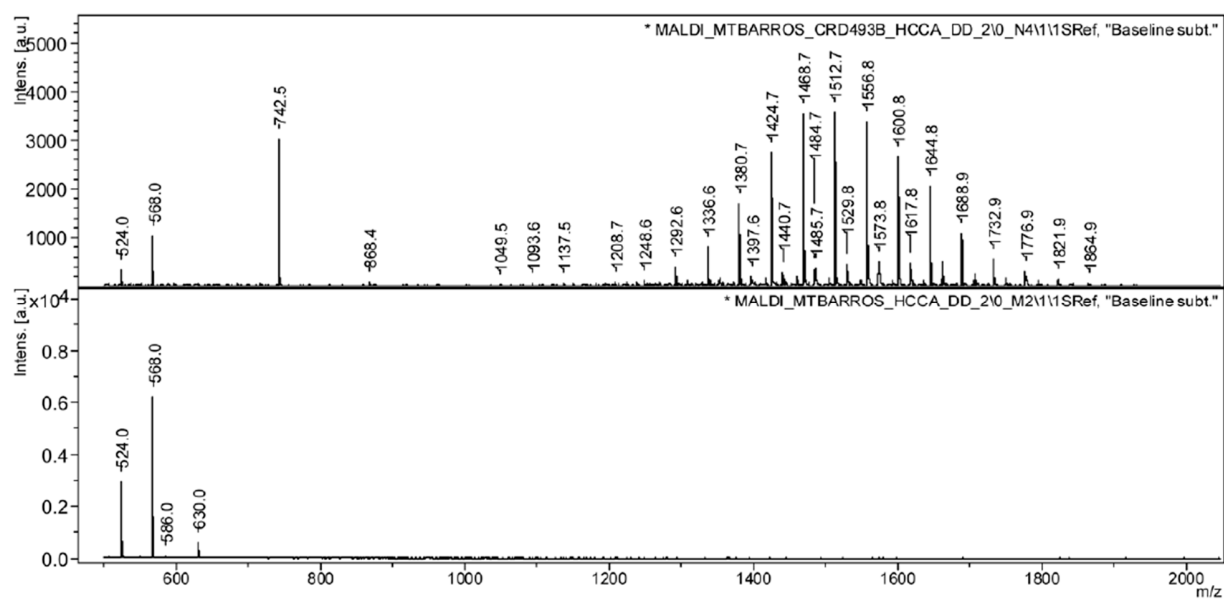
S26- MALDI-TOF spectrum of compound **18**.

$\alpha$ -Coumarin 3-carboxylate- $\omega$ -azide PEG<sub>1000</sub> (**19**)

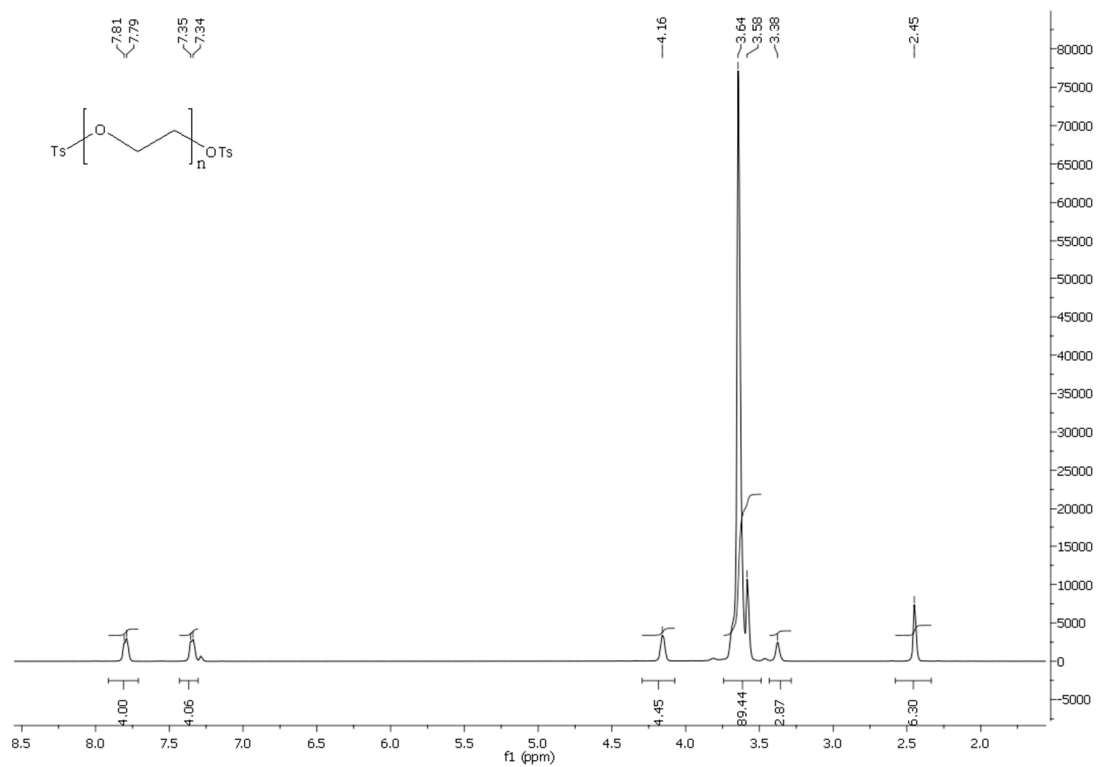
S27- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of the compound **19**.

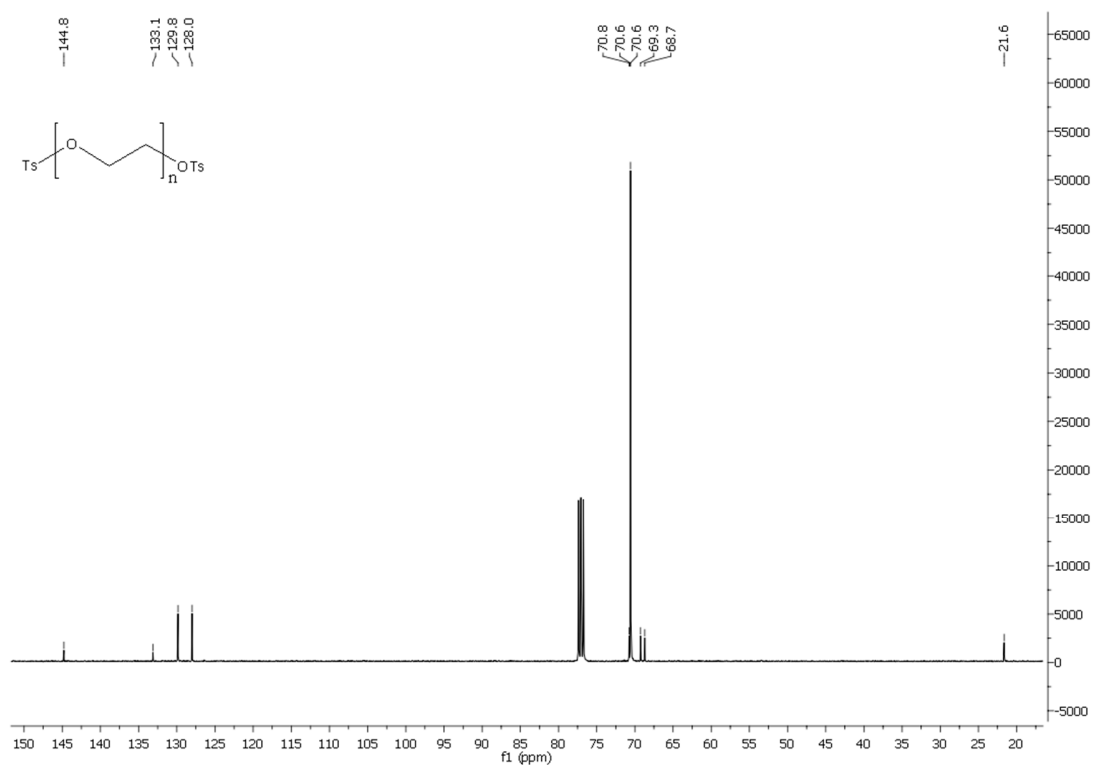
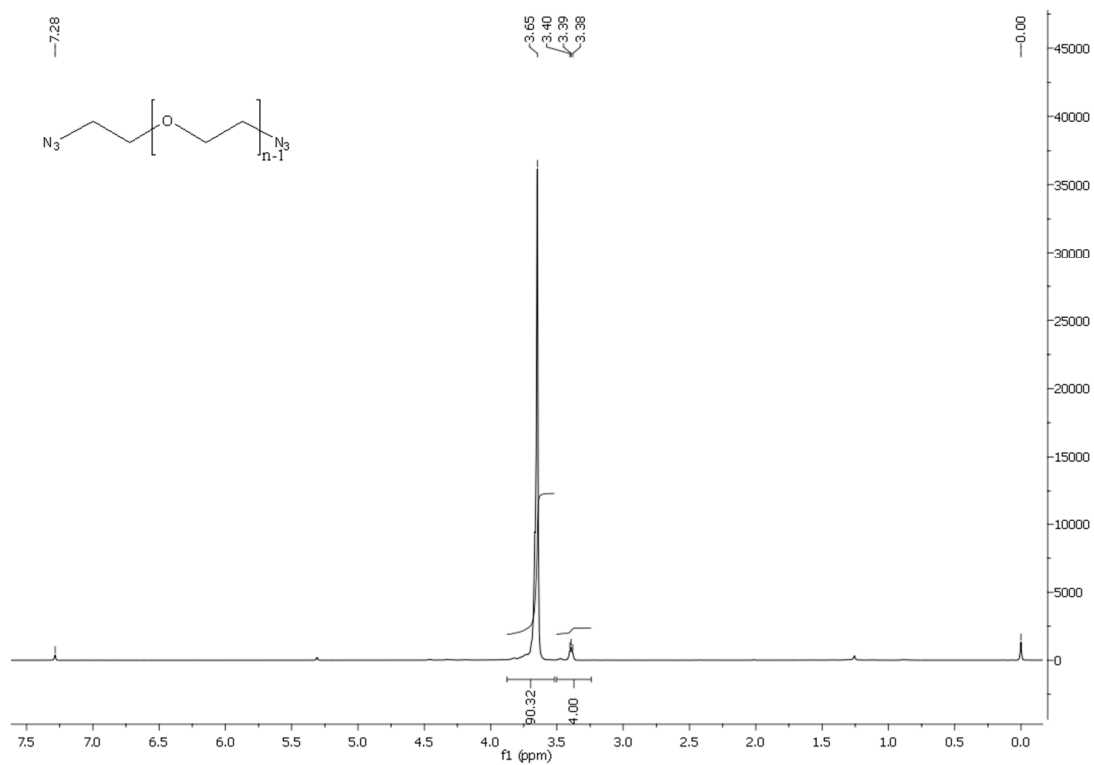
S28-  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ ) spectrum of the compound **19**.S29- MALDI-TOF spectrum of compound **19**.

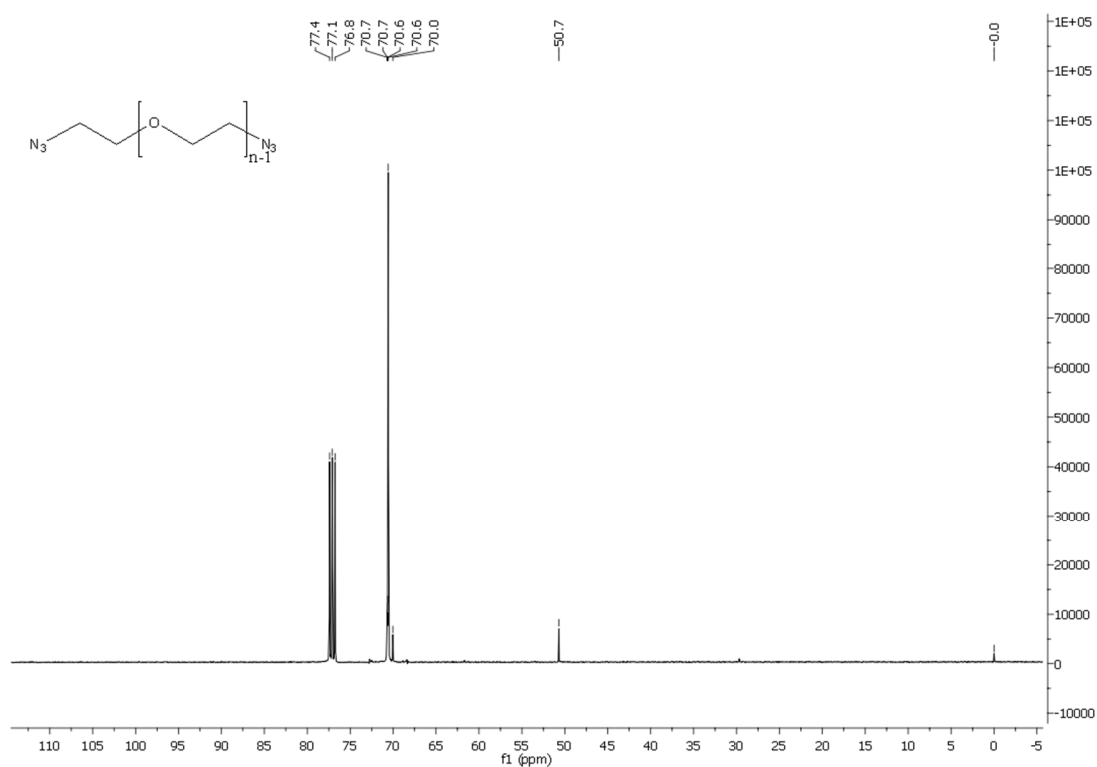
$\alpha$ -Coumarin 3-carboxylate- $\omega$ -[(1H-1,2,3-triazol-4-yl)methoxygalactopyranosyl] PEG<sub>1000</sub> (**20**)S30- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of the compound **20**.S31- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound **20**.

S32- MALDI-TOF spectrum of compound **20**.

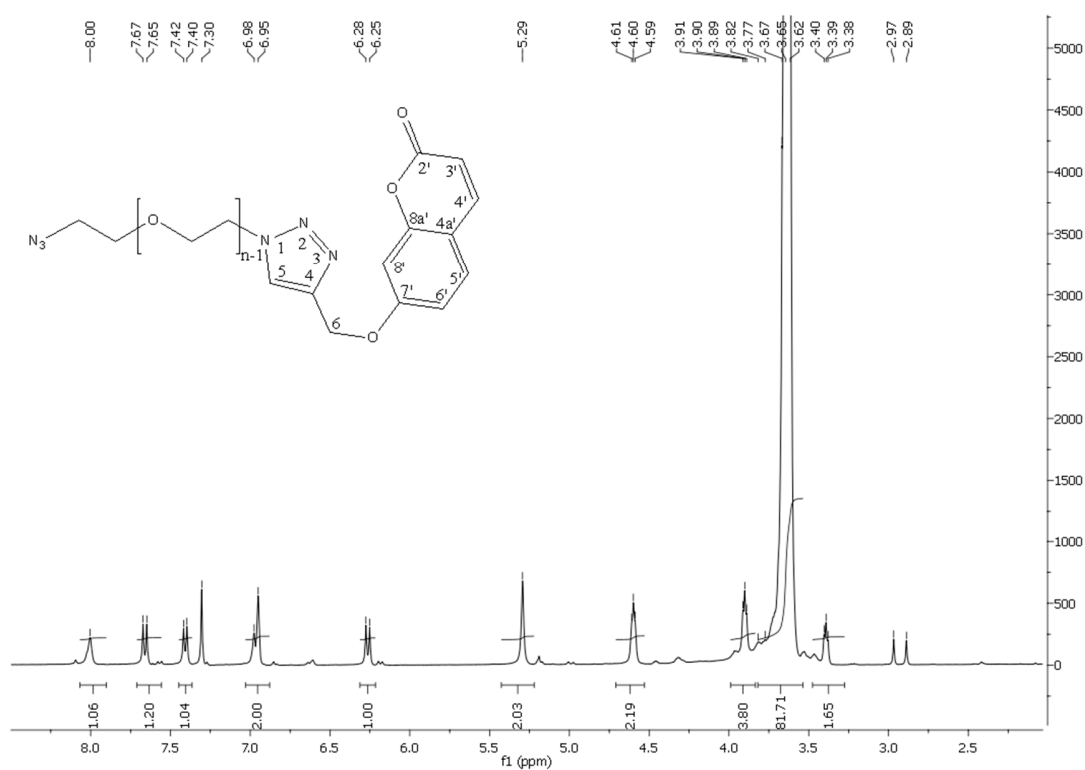
$\alpha$ -Tosyl- $\omega$ -tosyl PEG<sub>1000</sub> (**21**)

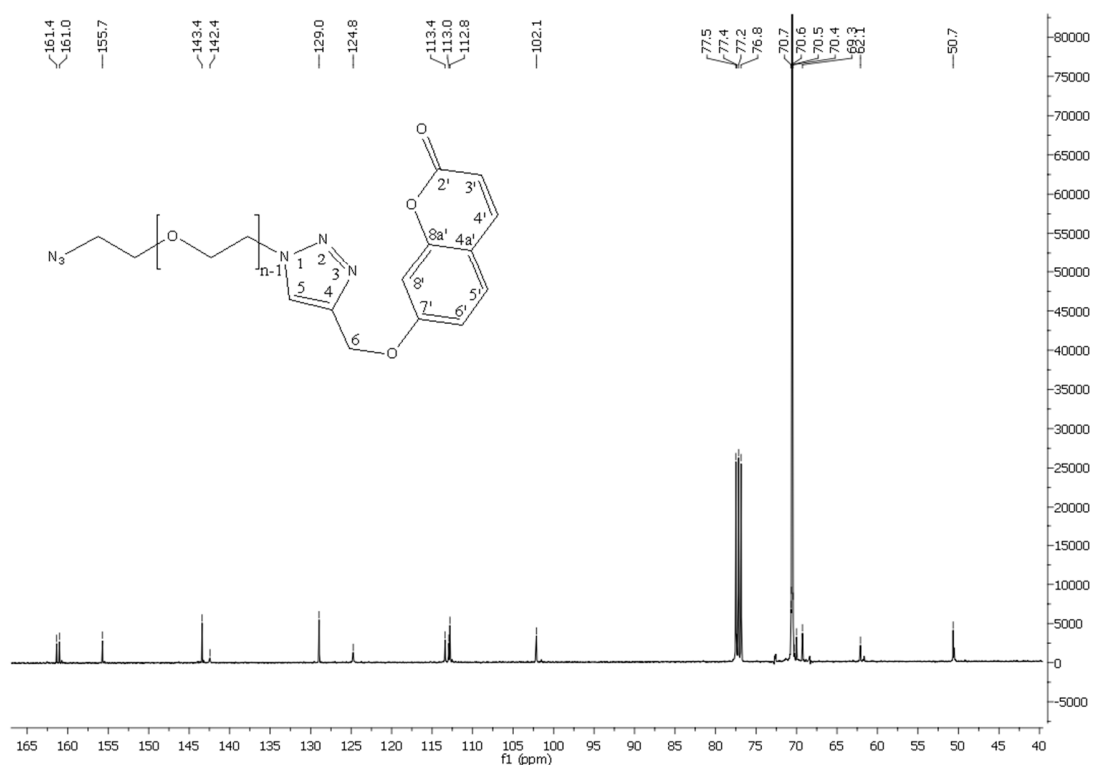
S33-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound **21**.

S34-  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ ) spectrum of compound **21**. $\alpha$ -Azide- $\omega$ -azide PEG<sub>1000</sub> (**22**)S35-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound **22**.

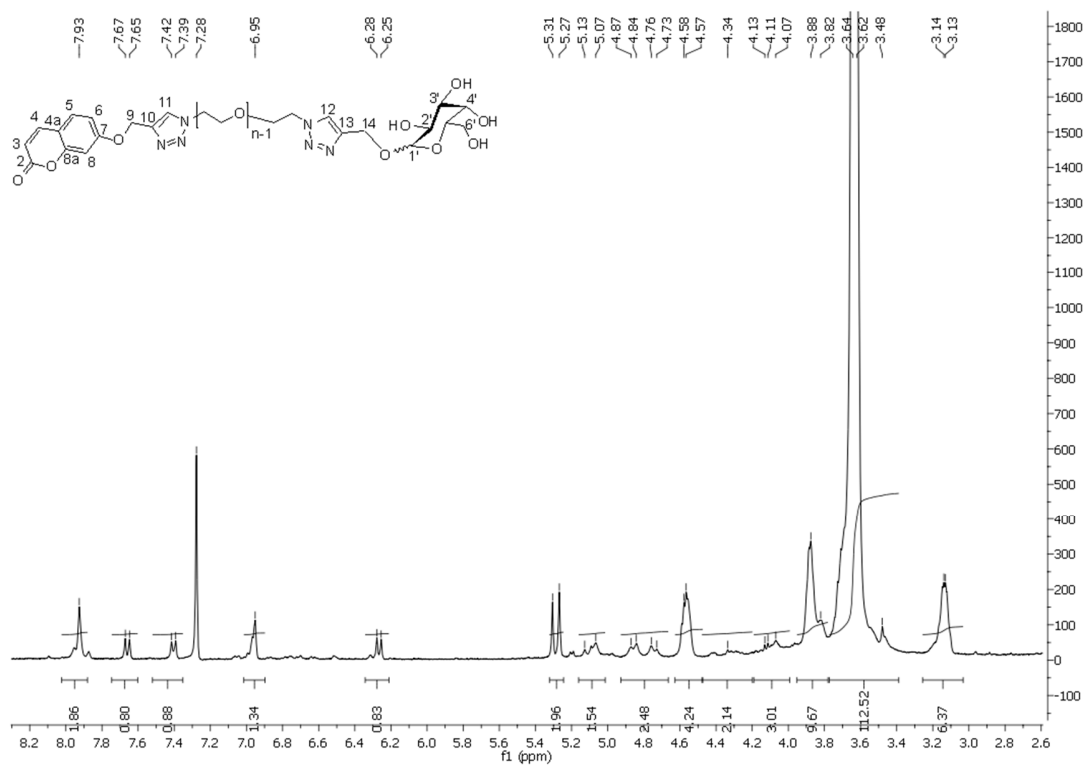
S36- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound **22**.

$\alpha$ -Azide- $\omega$ -[7-((1H-1,2,3-triazol-4-yl)methoxy)-2H-chromen-2-one] PEG<sub>1000</sub> (**23**)

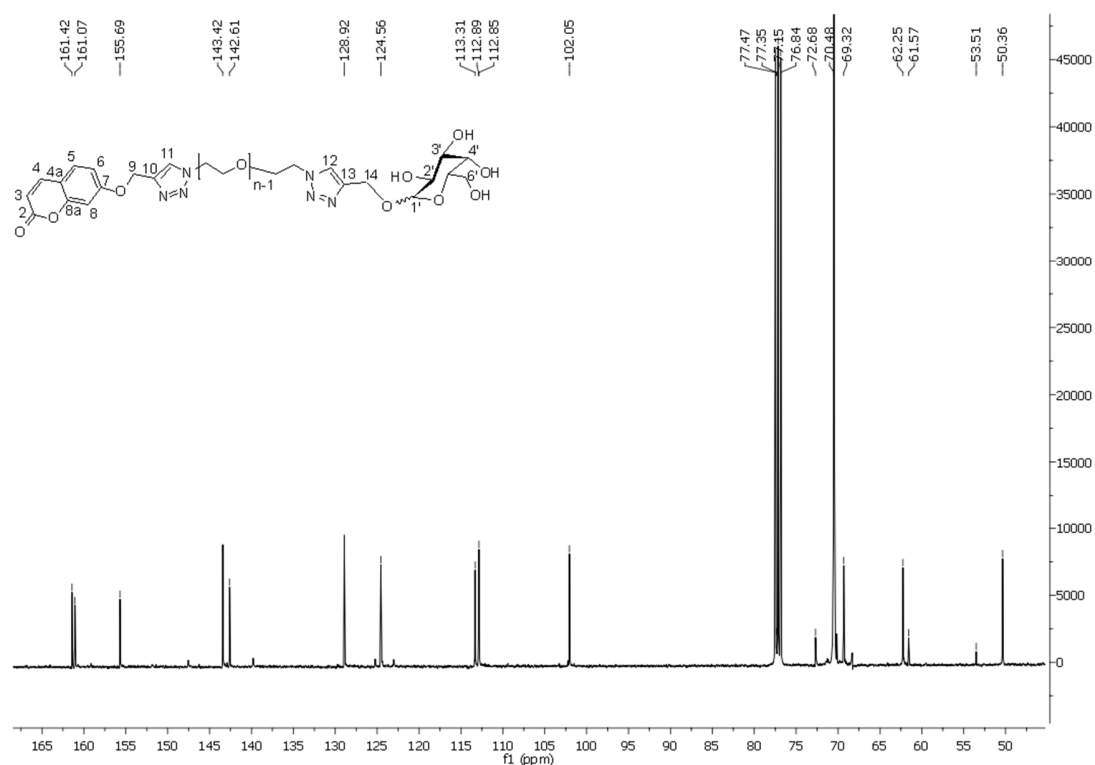
S37- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound **23**.

S38-  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ ) spectrum of compound **23**.

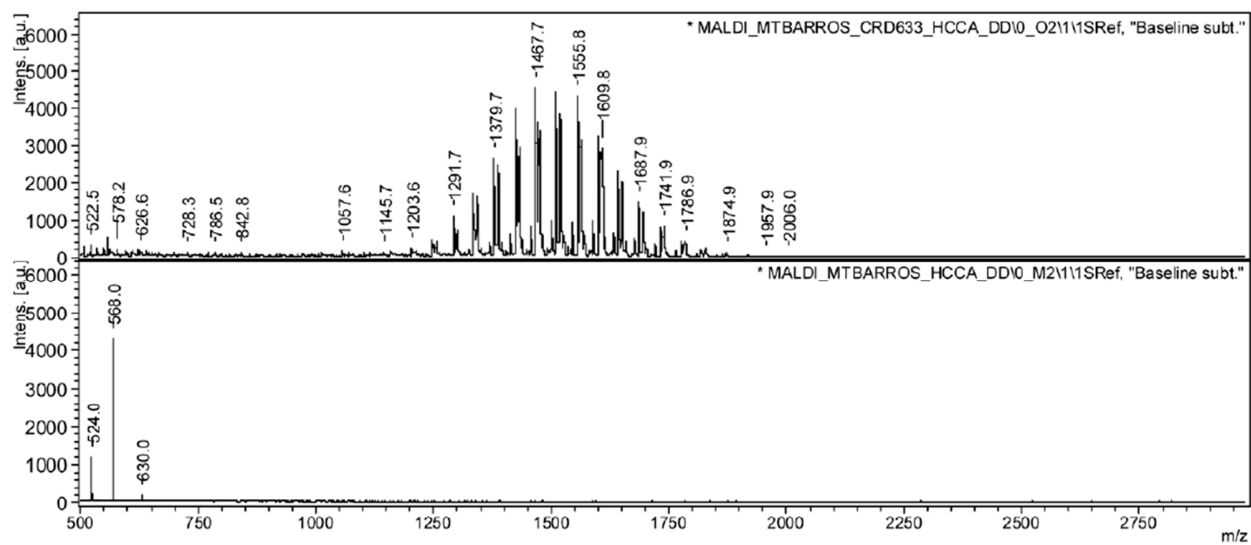
$\alpha$ -[7-((1H-1,2,3-triazol-4-yl)methoxy)-2H-chromen-2-one]- $\omega$ -[(1H-1,2,3-triazol-4-yl)methoxygalactopyranosyl] PEG<sub>1000</sub> (**24**)

S39-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound **24**.

Supplementary Materials

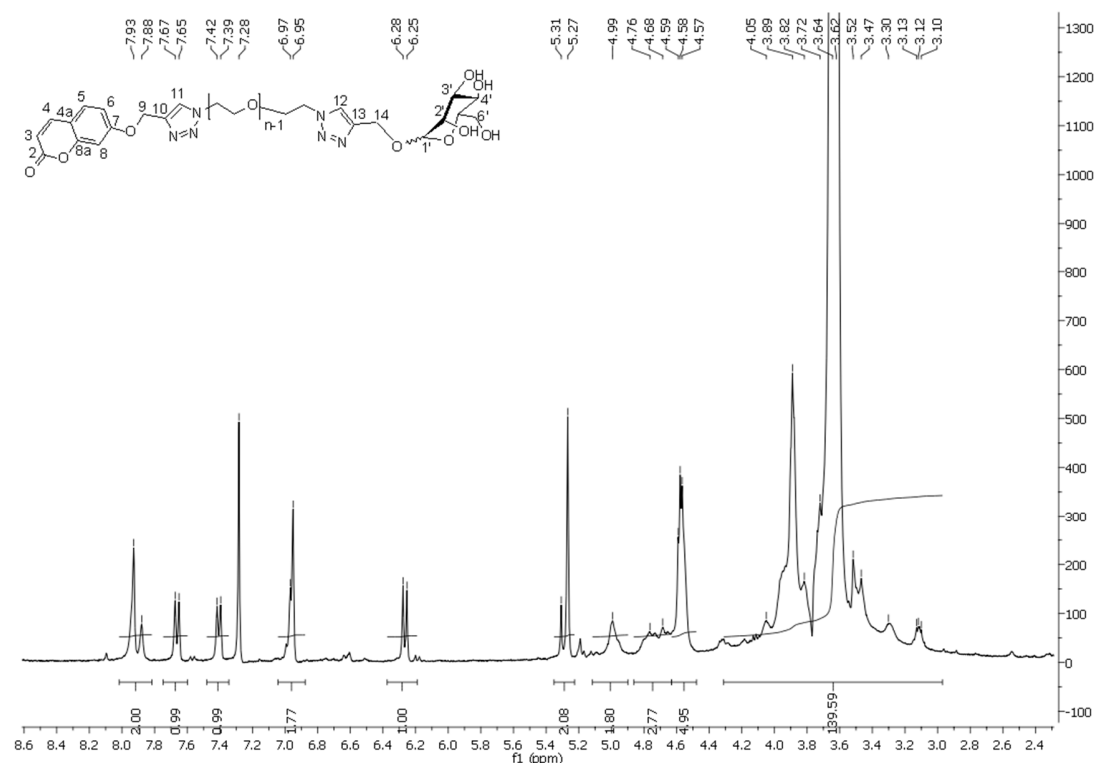


S40-  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ ) spectrum of compound 24.

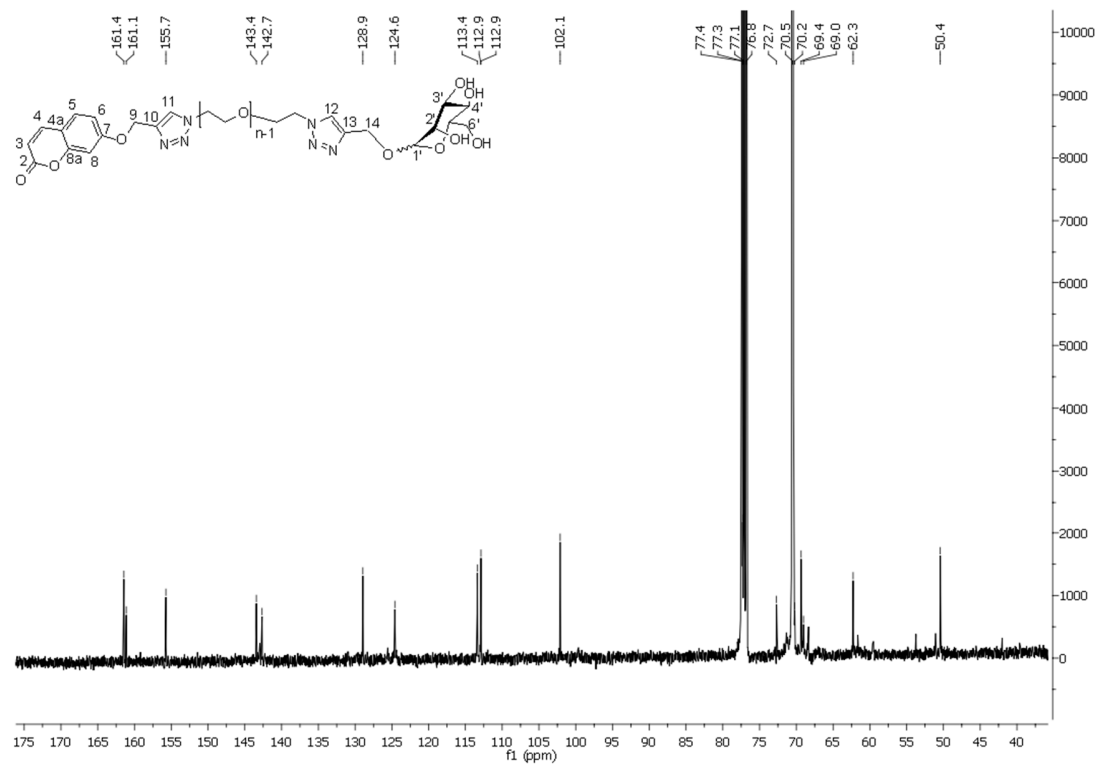


S41- MALDI-TOF spectrum of compound 24.

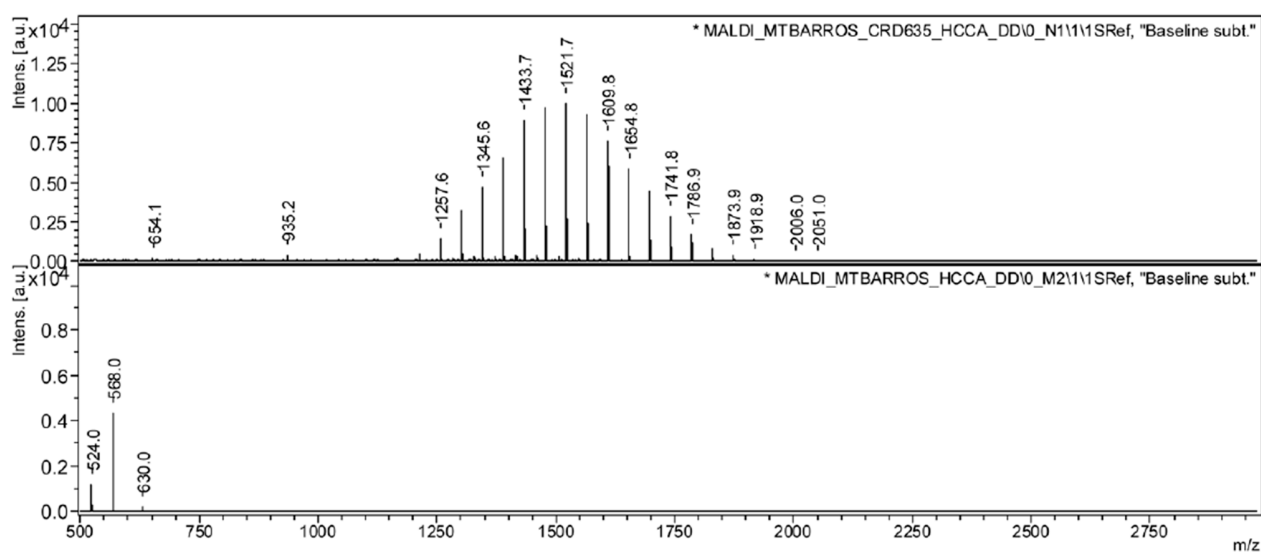
$\alpha$ -[7-((1*H*-1,2,3-triazol-4-yl)methoxy)-2*H*-chromen-2-one)]- $\omega$ -[(1*H*-1,2,3-triazol-4-yl)methoxymannopyranosyl] PEG<sub>1000</sub> (**25**)



S42- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound **25**.



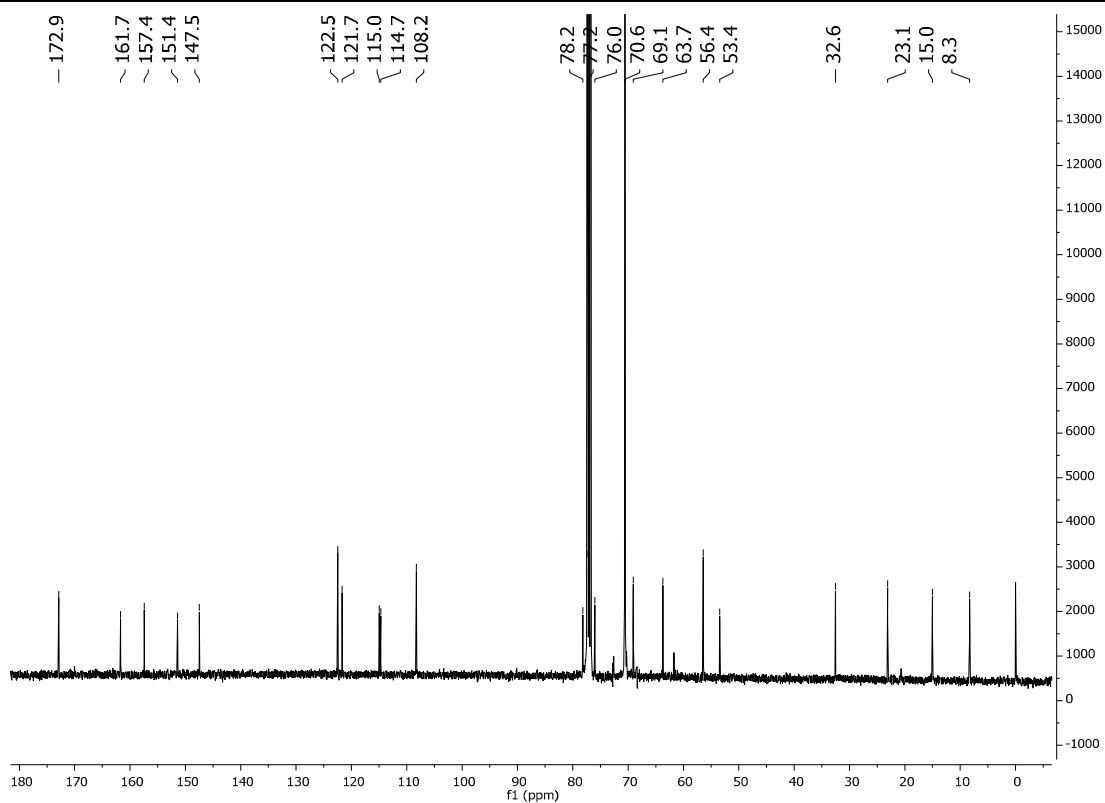
S43- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound **25**.



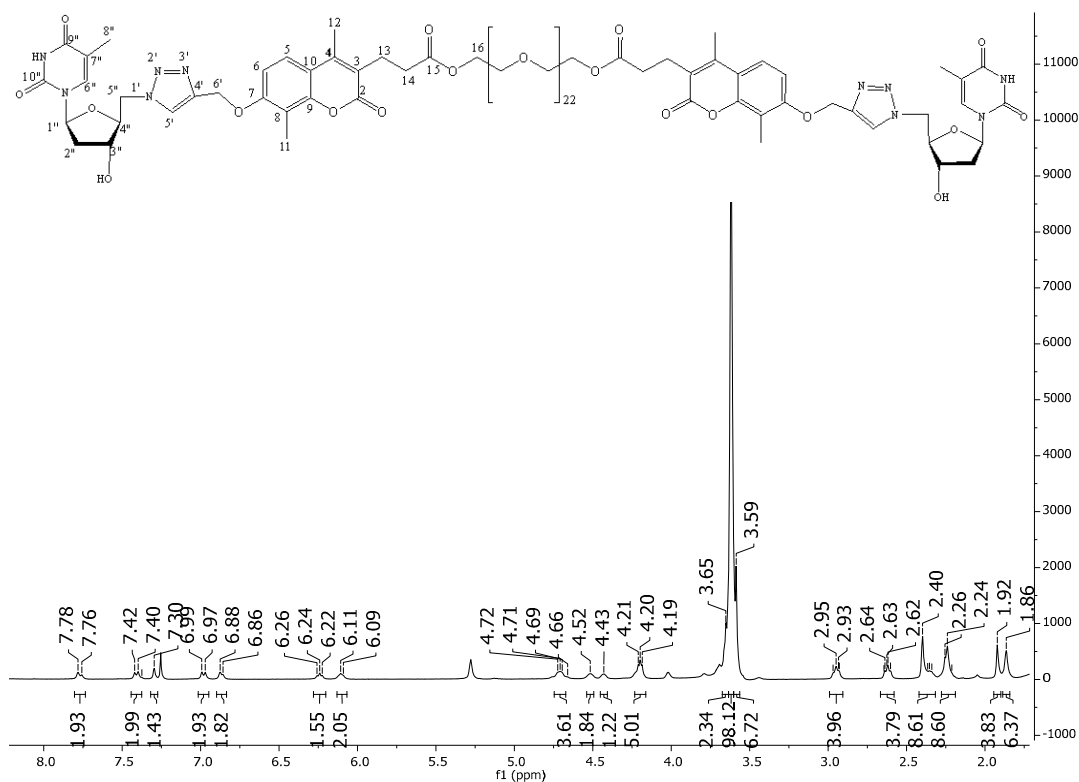
S44- MALDI-TOF spectrum of compound 25.

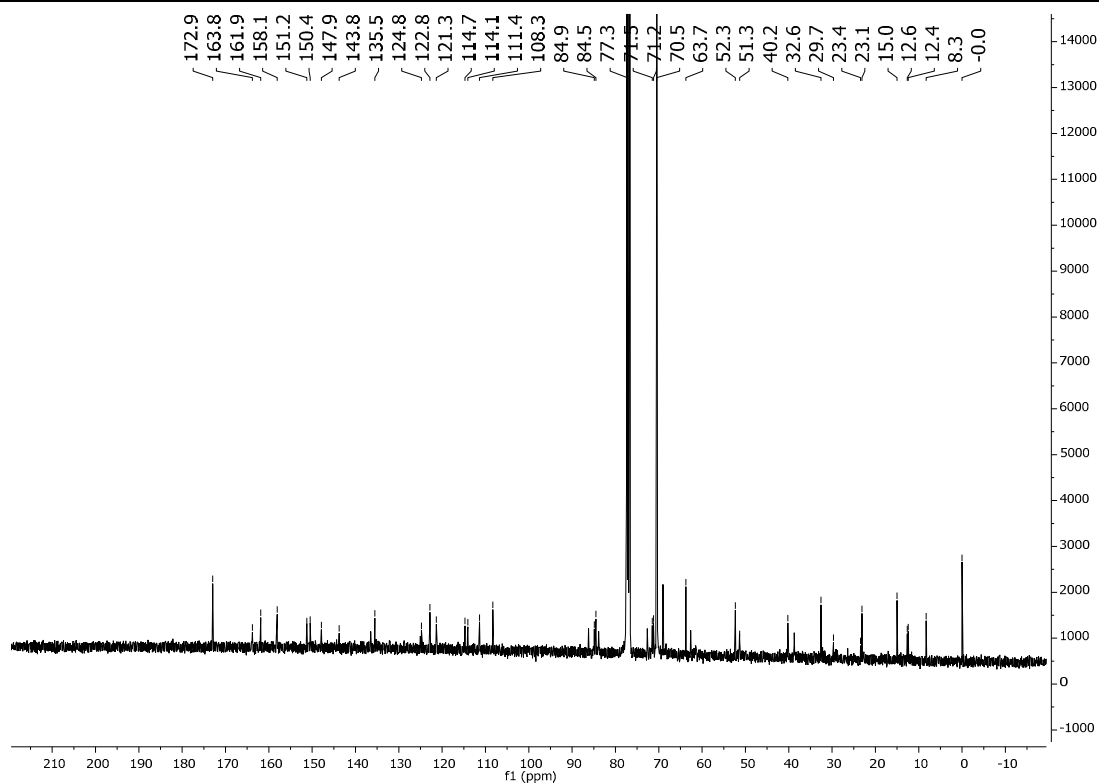
$\alpha$ -3-[3-(4,8-dimethyl)-7-(2-propynyloxy)]-coumarinyl propanoate- $\omega$ -3-[3-(4,8-dimethyl)-7-(2-propynyloxy)]-coumarinyl propanoate PEG<sub>1000</sub> (**26**)

S45- <sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of compound 26.

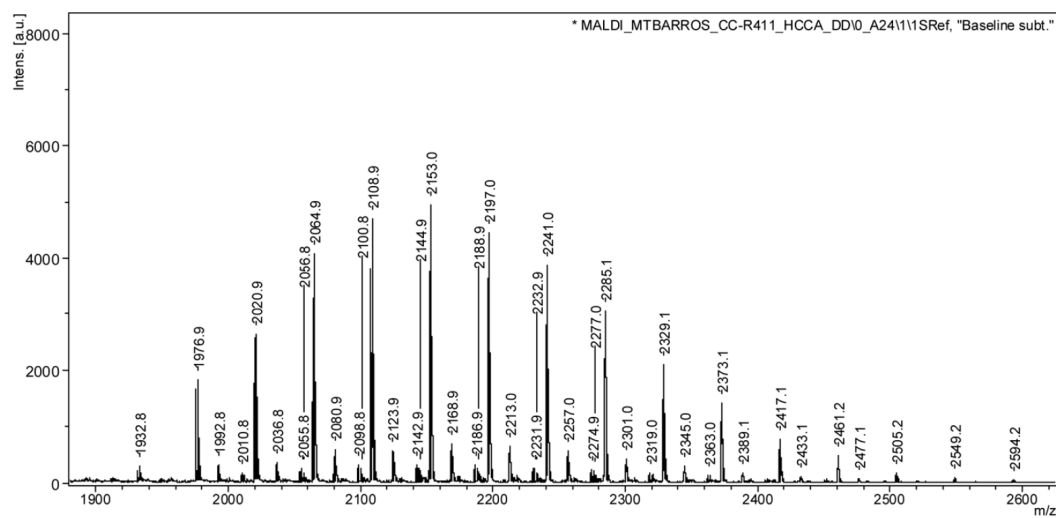
S46-  $^{13}\text{C}$  NMR (101 MHz,  $\text{CDCl}_3$ ) spectrum of compound 26.

$\alpha$ -thymidinyl-5-((1,2,3-triazol-1-yl)-3-[3-(4,8-dimethyl)-7-(methyloxi)-cumarinyl]propanoate  $\omega$ -thymidinyl-5-((1,2,3-triazol-1-yl)-3-[3-(4,8-dimethyl)-7-(methyloxi)-cumarinyl]propanoate PEG<sub>1000</sub> (27)

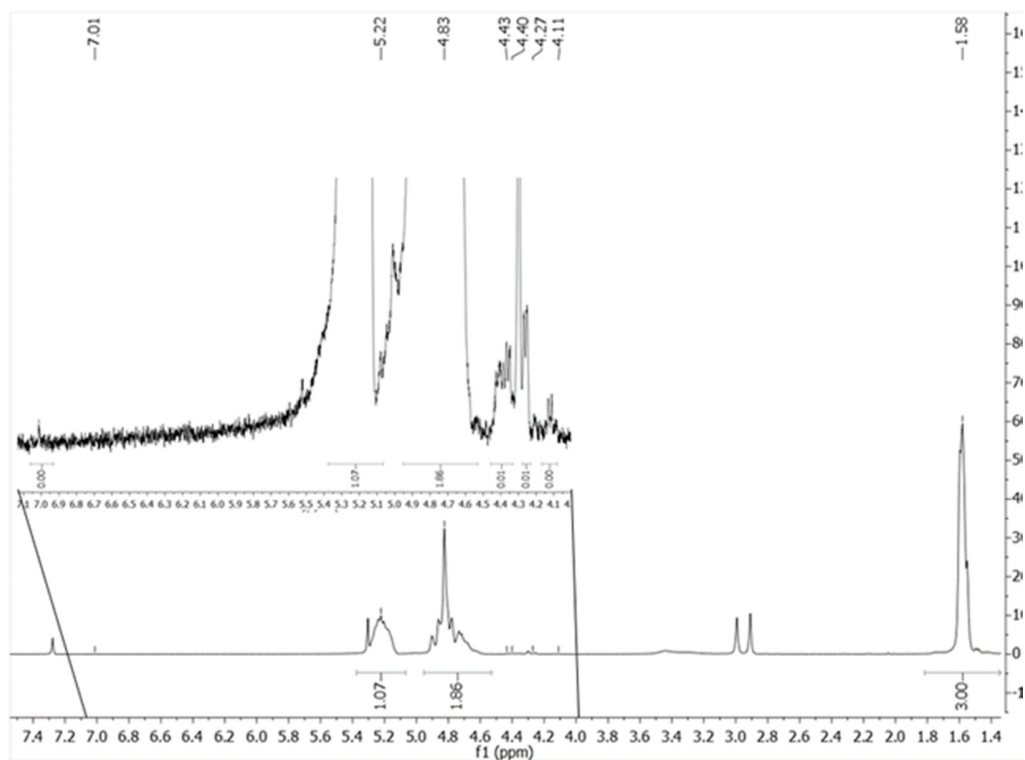
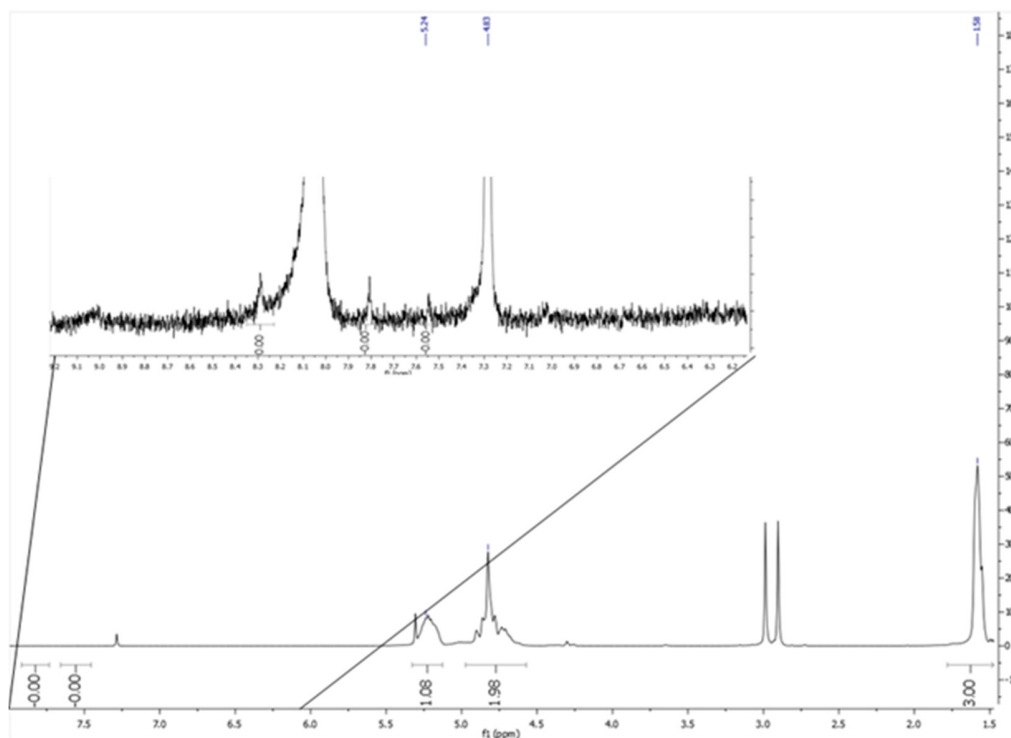
S47-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound 27.



S48- <sup>13</sup>C NMR (101 MHz, CDCl<sub>3</sub>) spectrum of compound 27.



S49- MALDI-TOF spectrum of compound 27.

*1-[1'-Ethylamide-triazolyl-4]-1-O-methyl-D-glucopyranoside-PLGA conjugate (28)*S50-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound **28**.*7-((1-(2-Amide-ethyl)-1H-1,2,3-triazol-4-yl)methoxy)-4-methyl-2H-chromen-2-one -PLGA conjugate (29)*S51-  $^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of compound **29**.