

## SUPPORTING INFORMATION

# Conformationally-restricted glycoconjugates derived from arylsulfonamides and coumarins: new families of tumour-associated carbonic anhydrase inhibitors

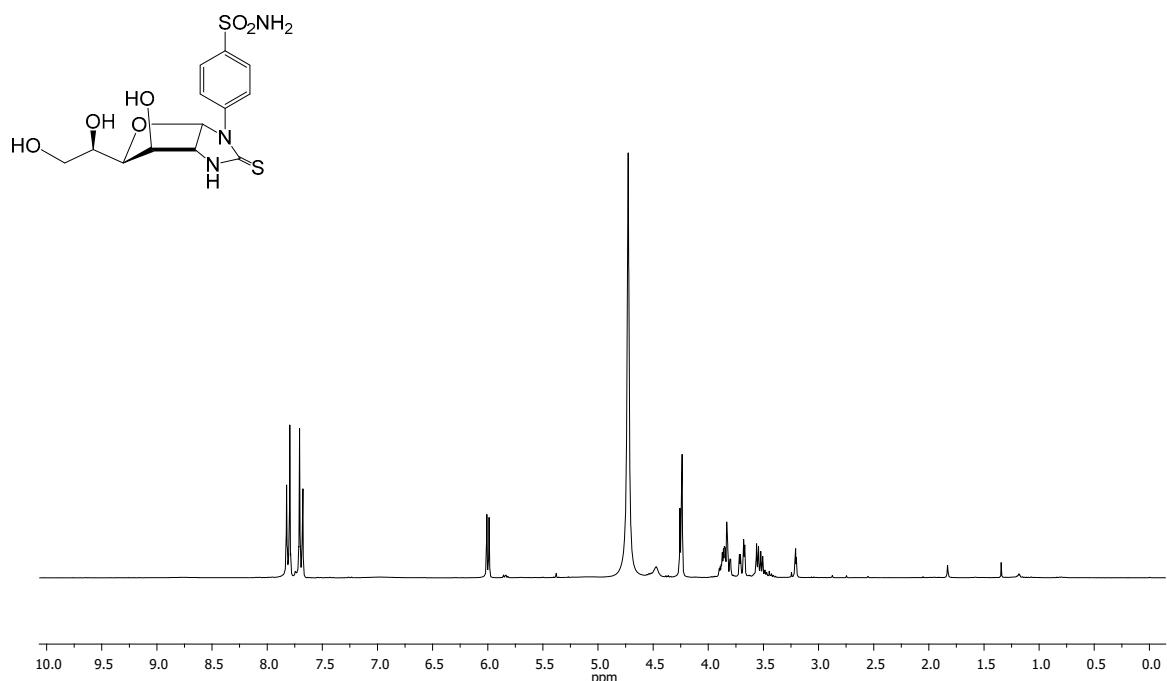
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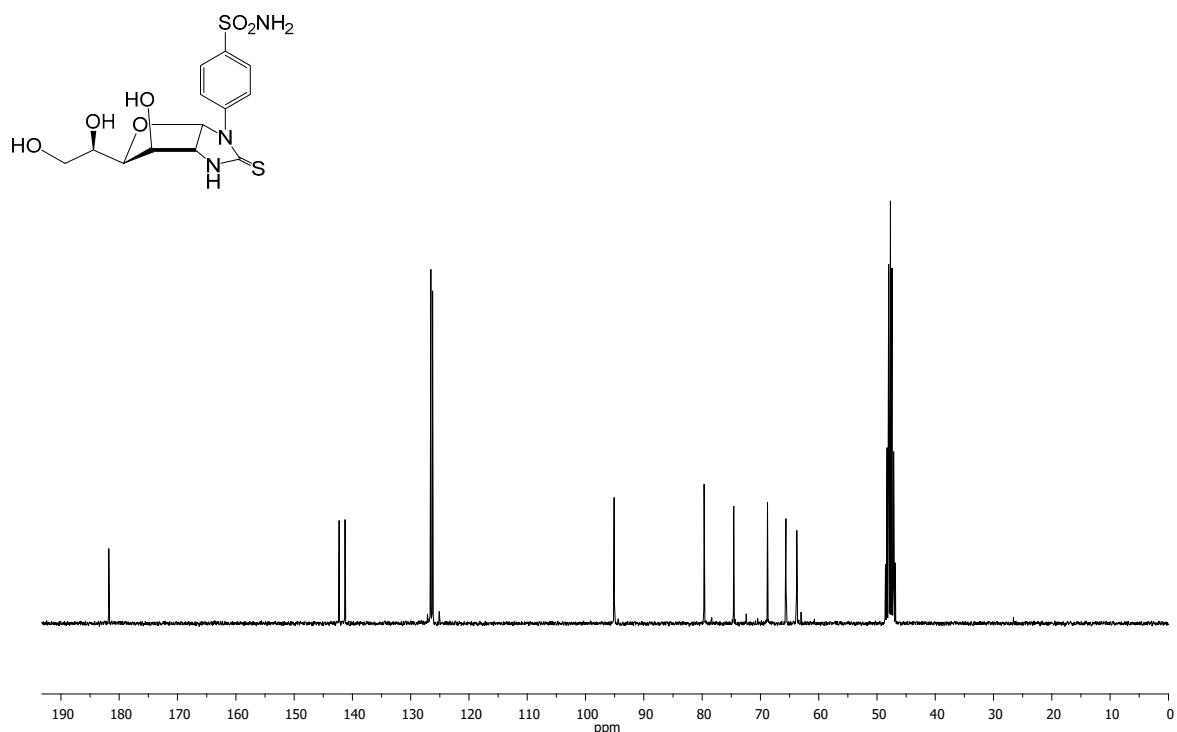
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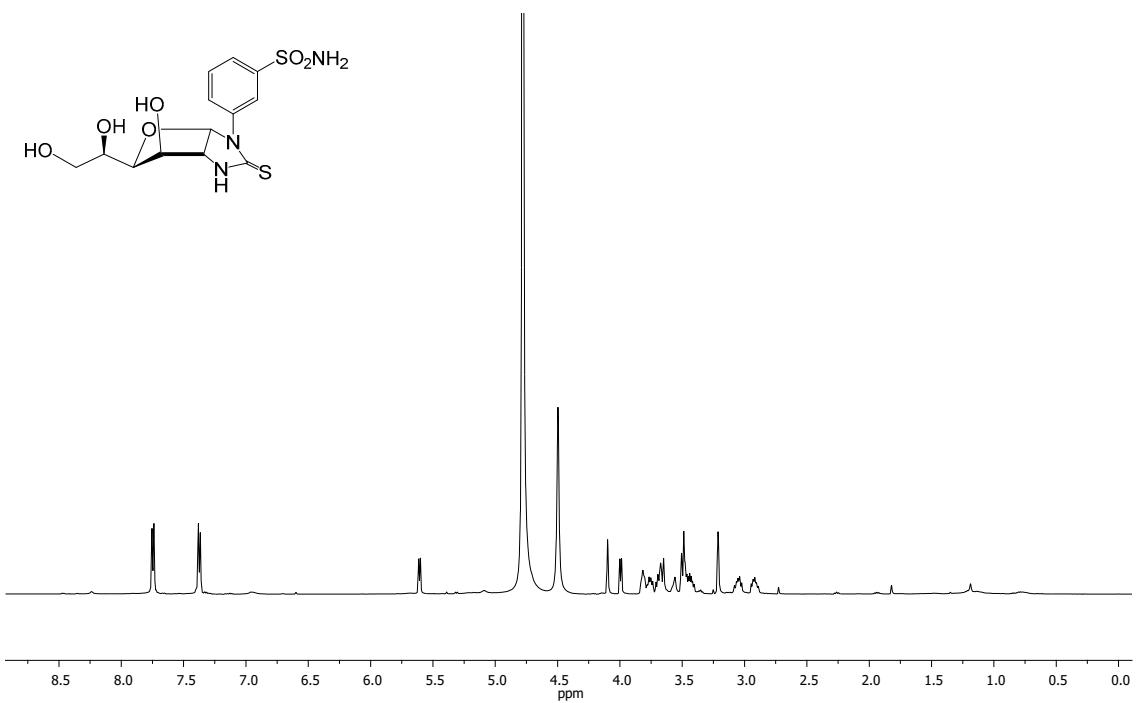
<sup>4</sup> BioLab, Instituto Universitario de Bio-Orgánica “Antonio González” (IUBO-AG), Universidad de La Laguna, c/Astrofísico Francisco Sánchez 2, La Laguna, E-38206, Spain



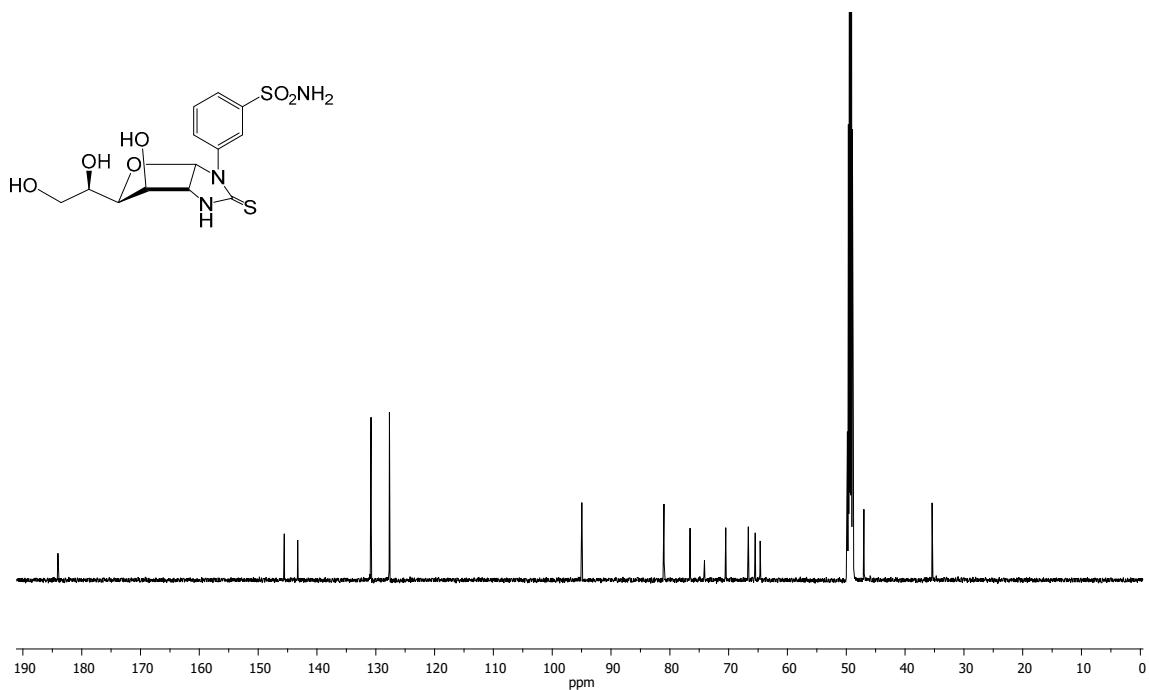
**Figure S1.** <sup>1</sup>H-NMR spectrum of **8a** (300 MHz, CD<sub>3</sub>OD)



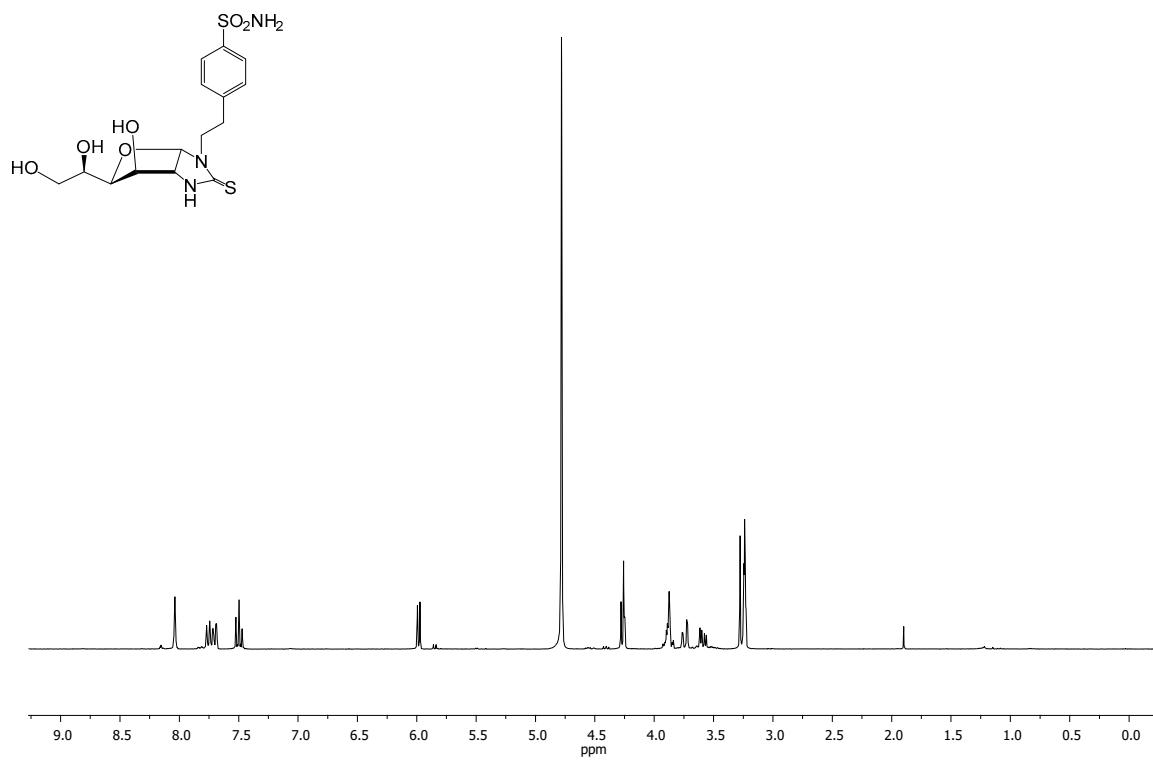
**Figure S2.** <sup>13</sup>C-NMR spectrum of **8a** (75.5 MHz, CD<sub>3</sub>OD)



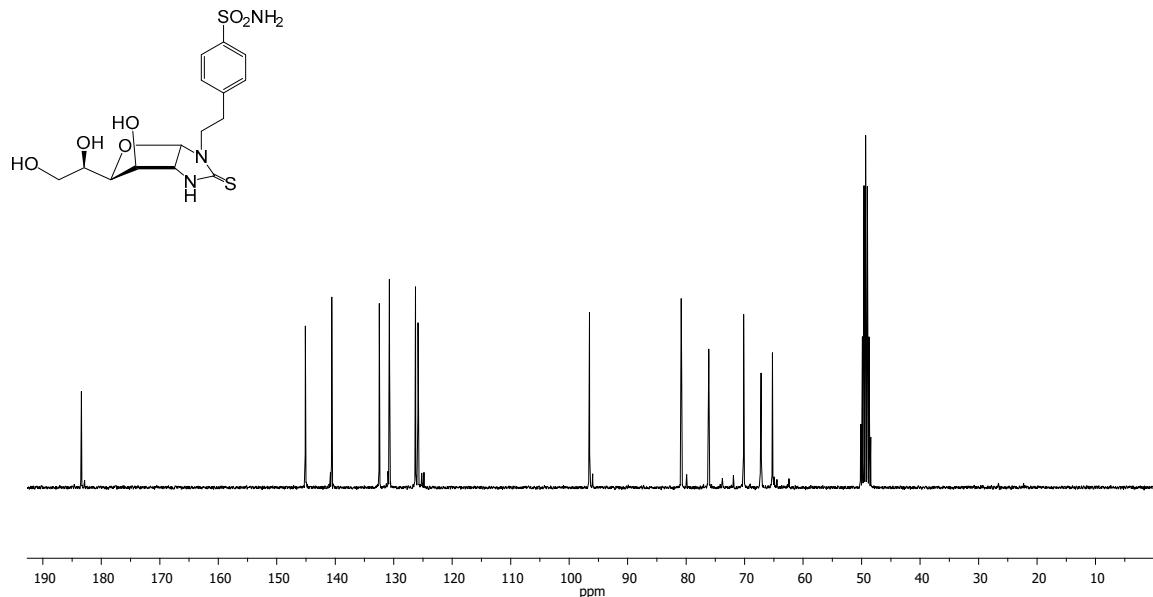
**Figure S3.** <sup>1</sup>H-NMR spectrum of **8b** (300 MHz, CD<sub>3</sub>OD)



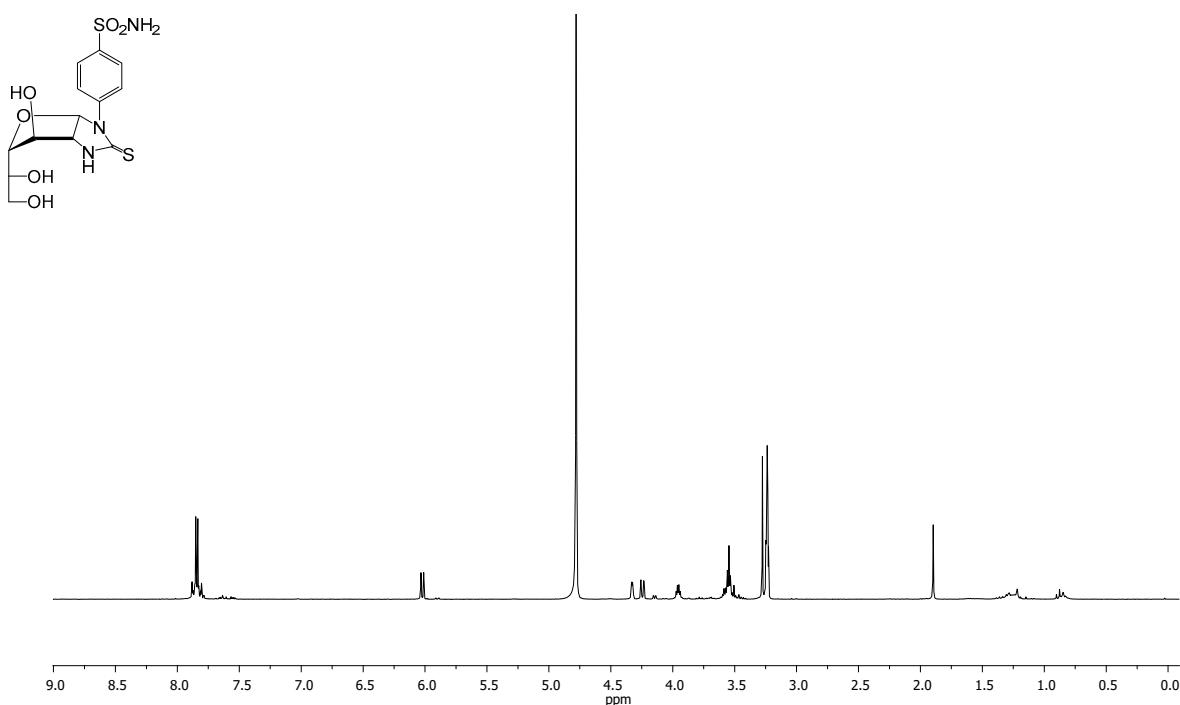
**Figure S4.** <sup>13</sup>C-NMR spectrum of **8b** (75.5 MHz, CD<sub>3</sub>OD)



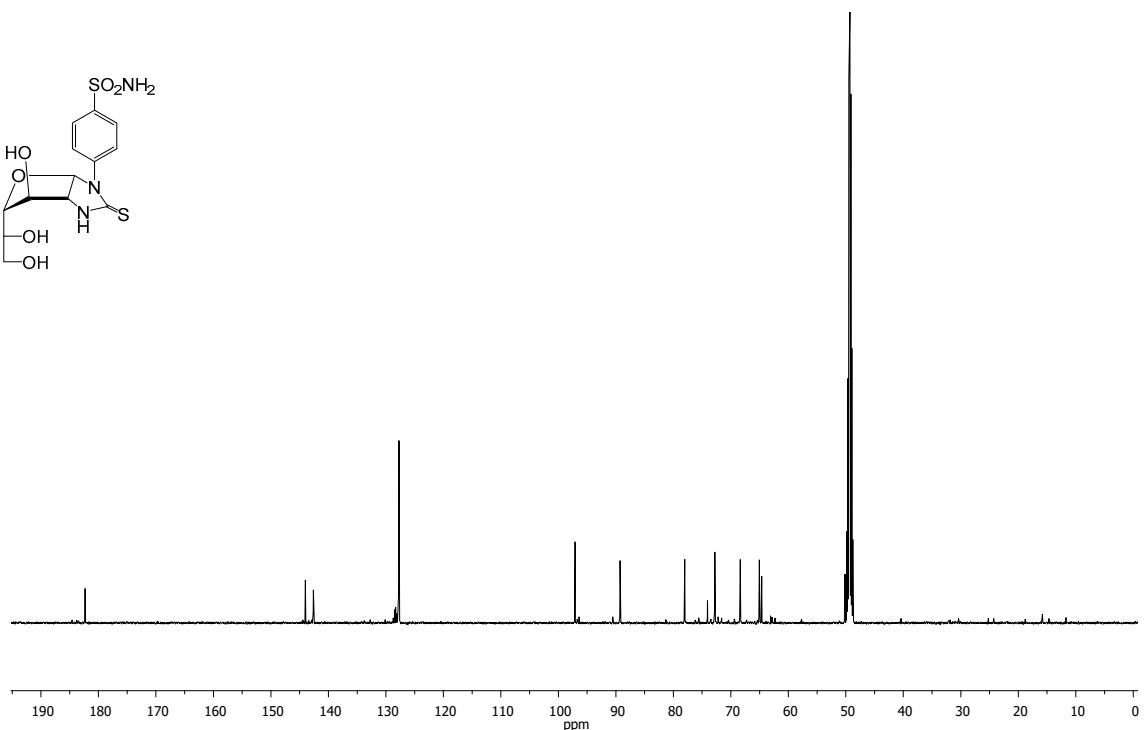
**Figure S5.** <sup>1</sup>H-NMR spectrum of **8c** (300 MHz, CD<sub>3</sub>OD)



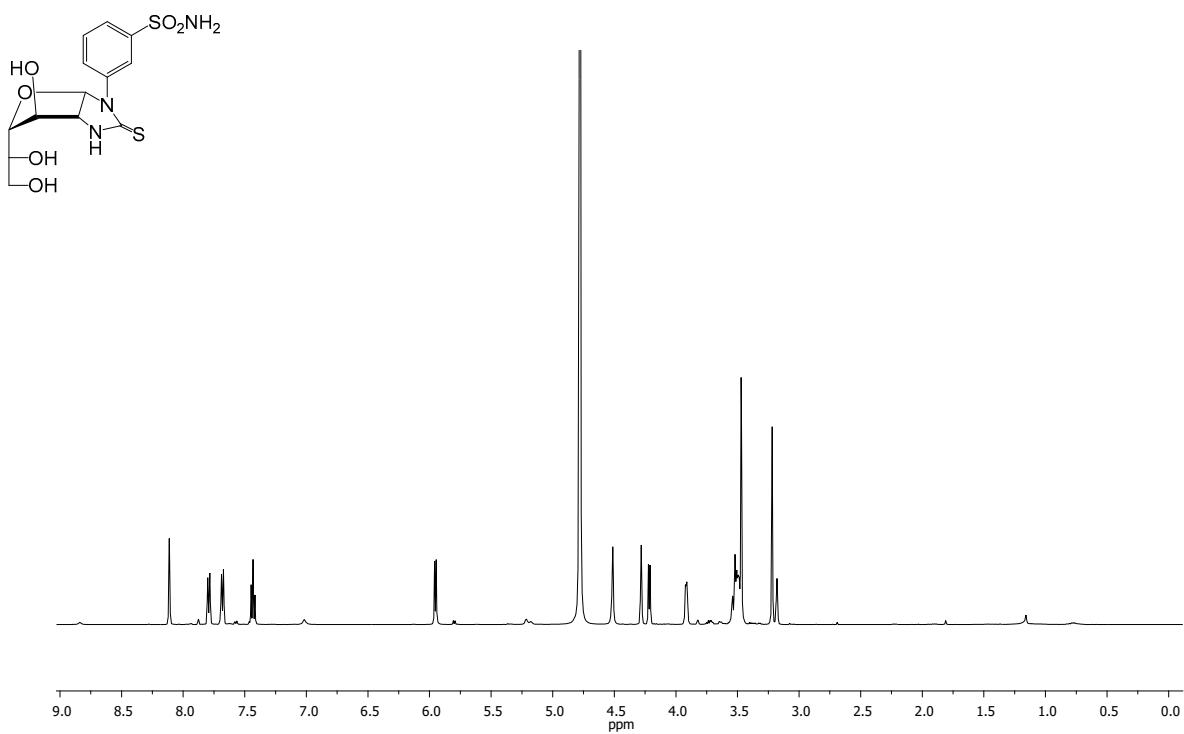
**Figure S6.** <sup>13</sup>C-NMR spectrum of **8c** (75.5 MHz, CD<sub>3</sub>OD)



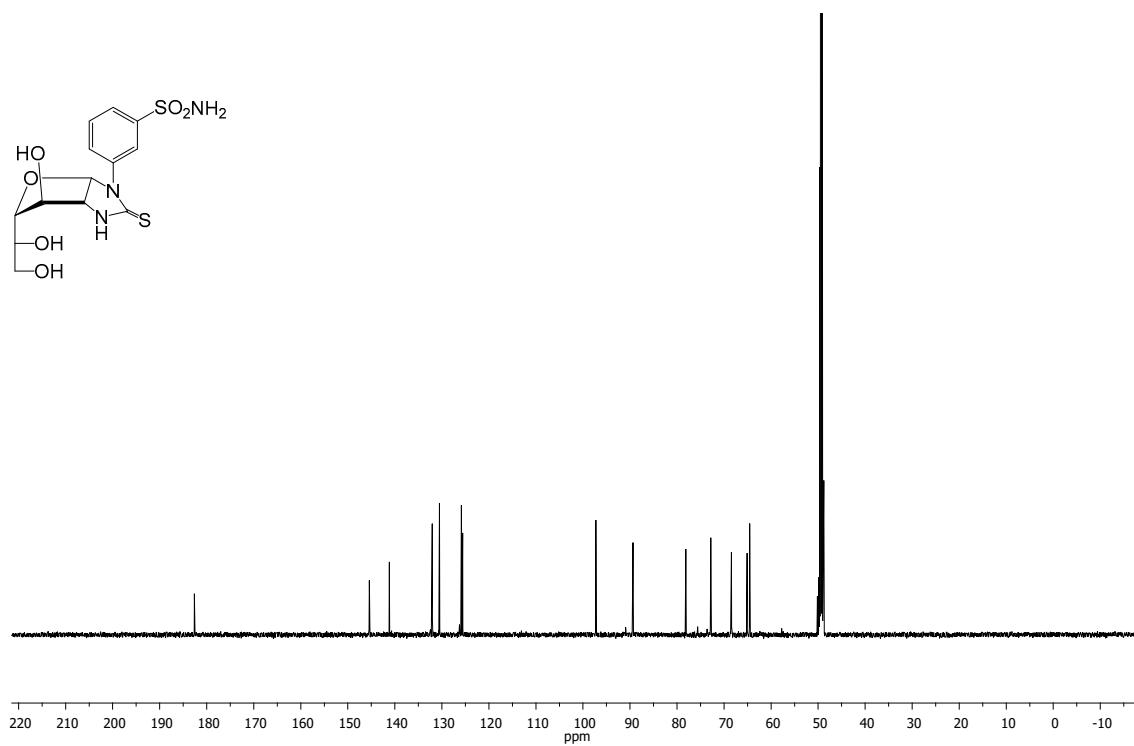
**Figure S7.**  $^1\text{H}$ -NMR spectrum of **9a** (300 MHz,  $\text{CD}_3\text{OD}$ )



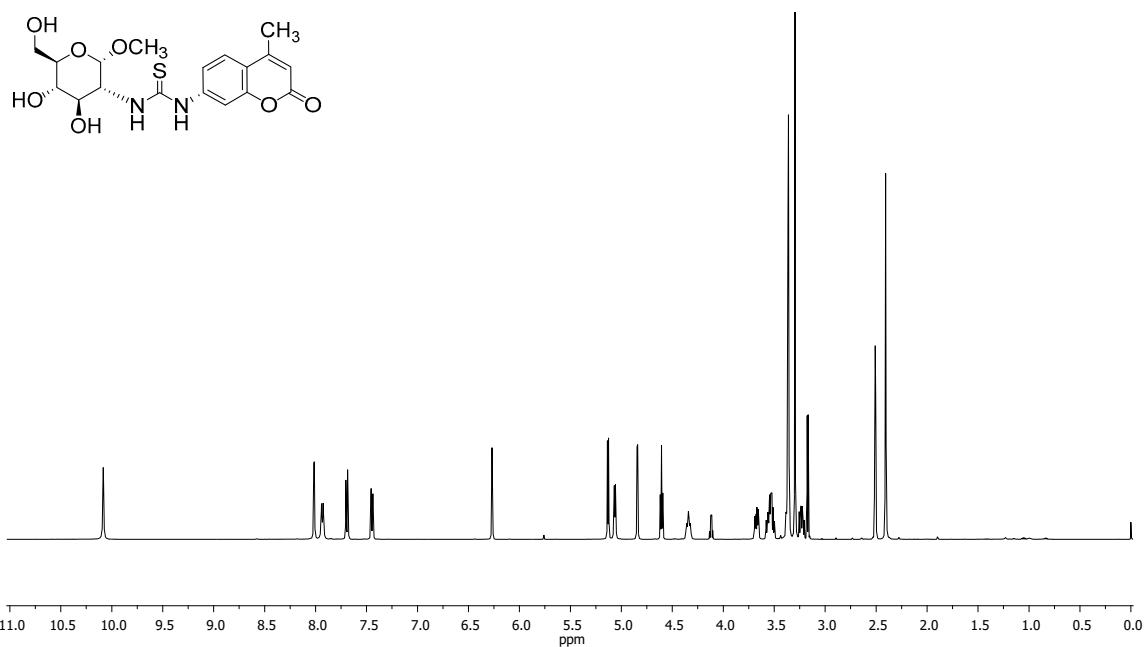
**Figure S8.**  $^{13}\text{C}$ -NMR spectrum of **9a** (125.7 MHz,  $\text{CD}_3\text{OD}$ )



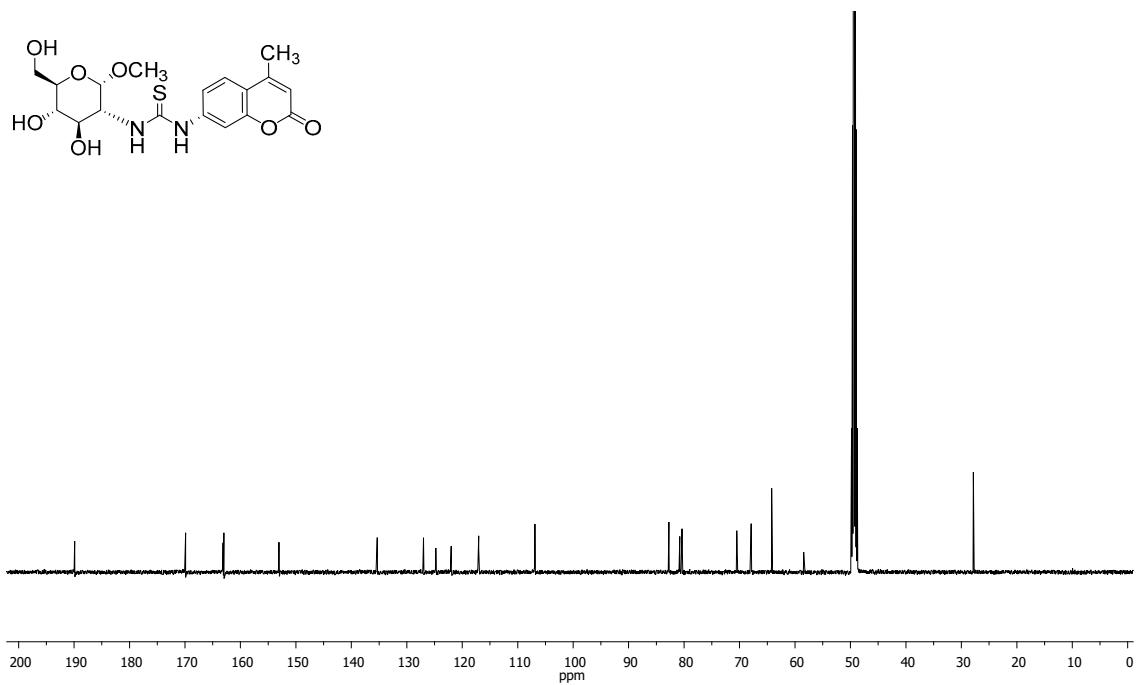
**Figure S9.**  $^1\text{H}$ -NMR spectrum of **9b** (300 MHz,  $\text{CD}_3\text{OD}$ )



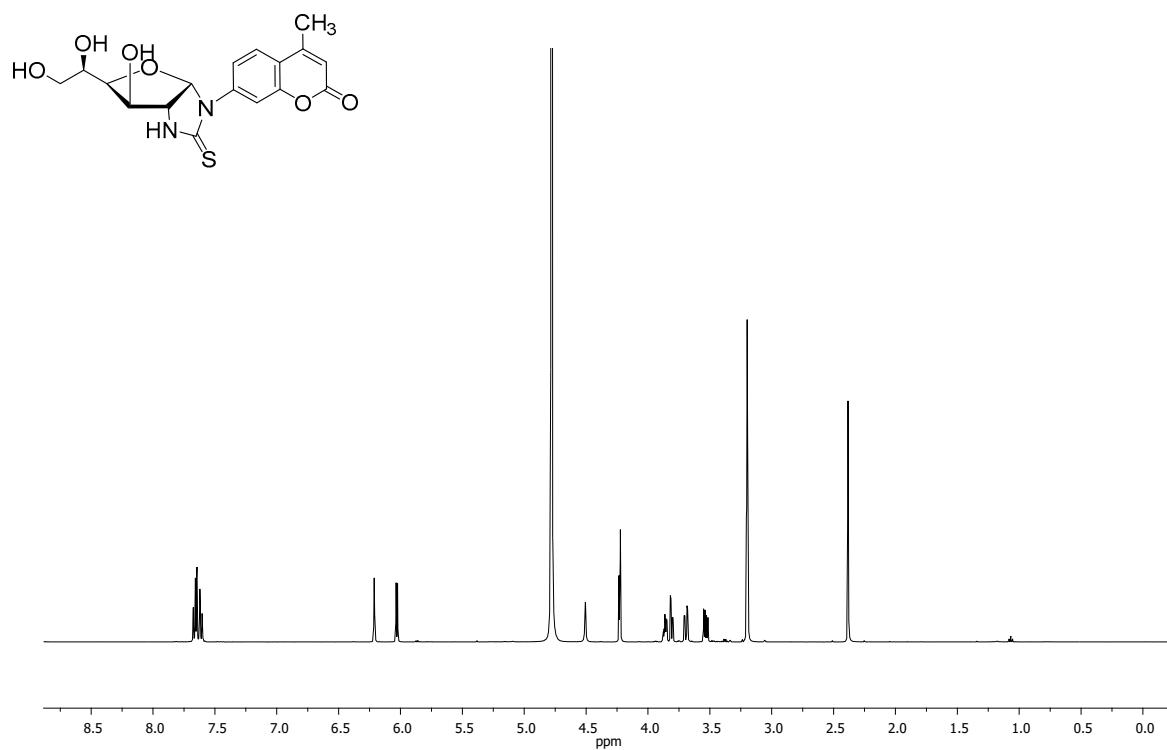
**Figure S10.**  $^{13}\text{C}$ -NMR spectrum of **9b** (125.7 MHz,  $\text{CD}_3\text{OD}$ )



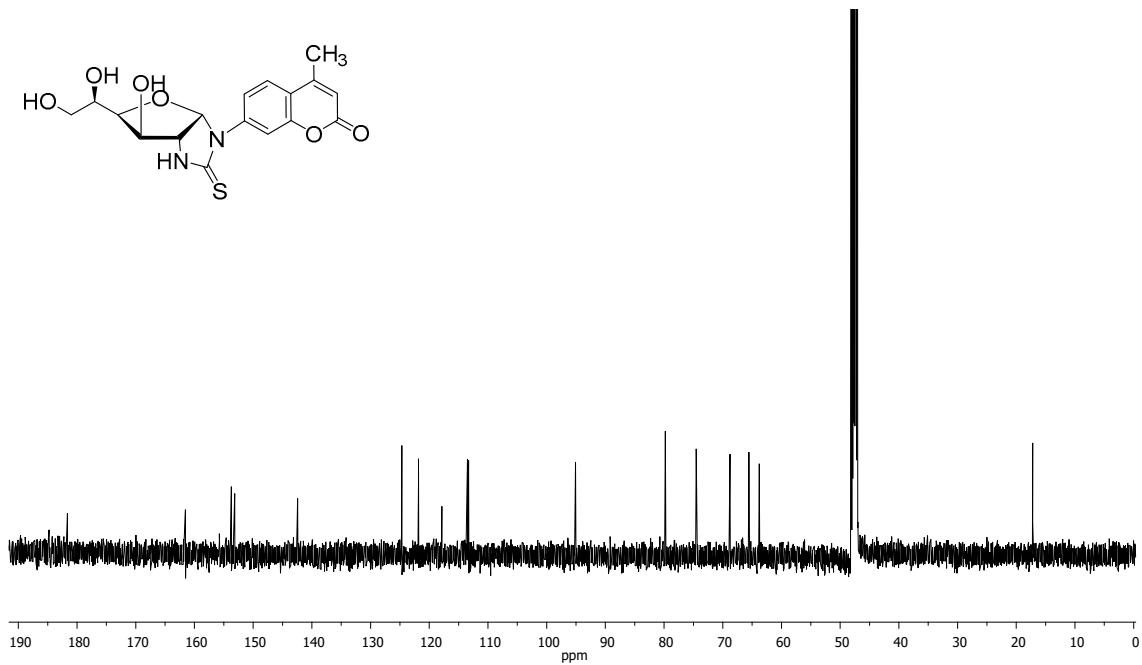
**Figure S11.** <sup>1</sup>H-NMR spectrum of **13** (500 MHz, DMSO-*d*<sub>6</sub>)



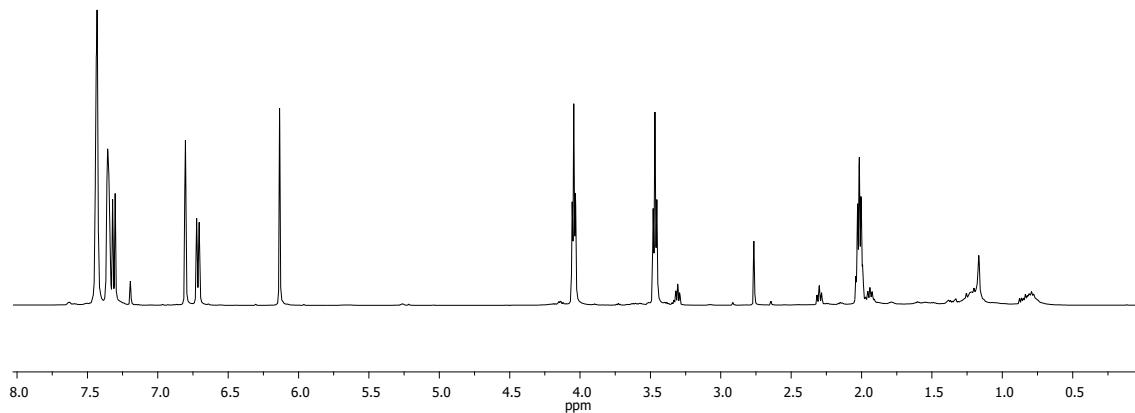
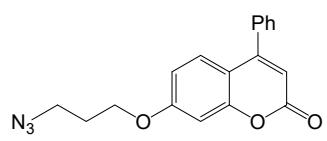
**Figure S12.** <sup>13</sup>C-NMR spectrum of **13** (125.7 MHz, DMSO-*d*<sub>6</sub>)



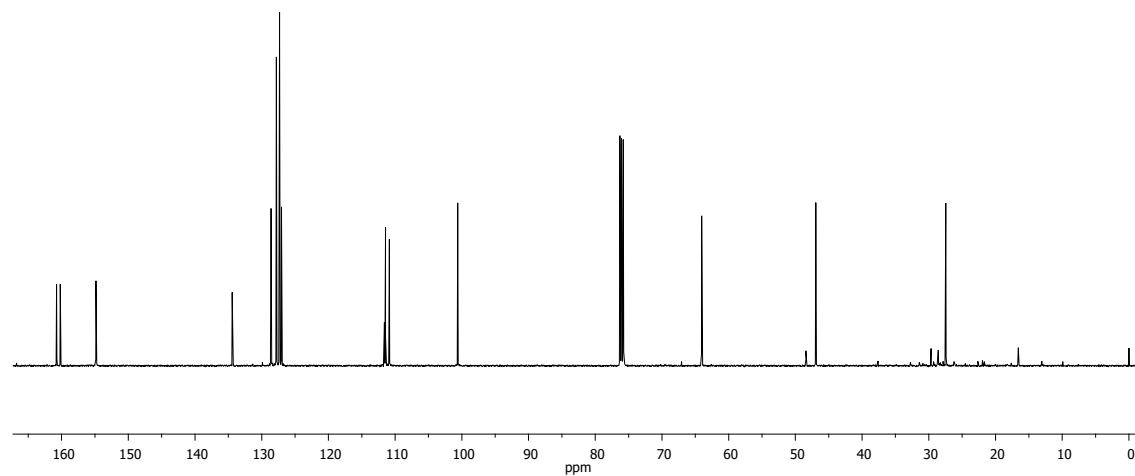
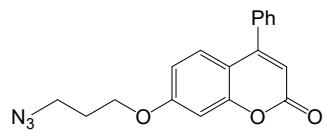
**Figure S13.**  $^1\text{H}$ -NMR spectrum of **16** (500 MHz,  $\text{DMSO}-d_6$ )



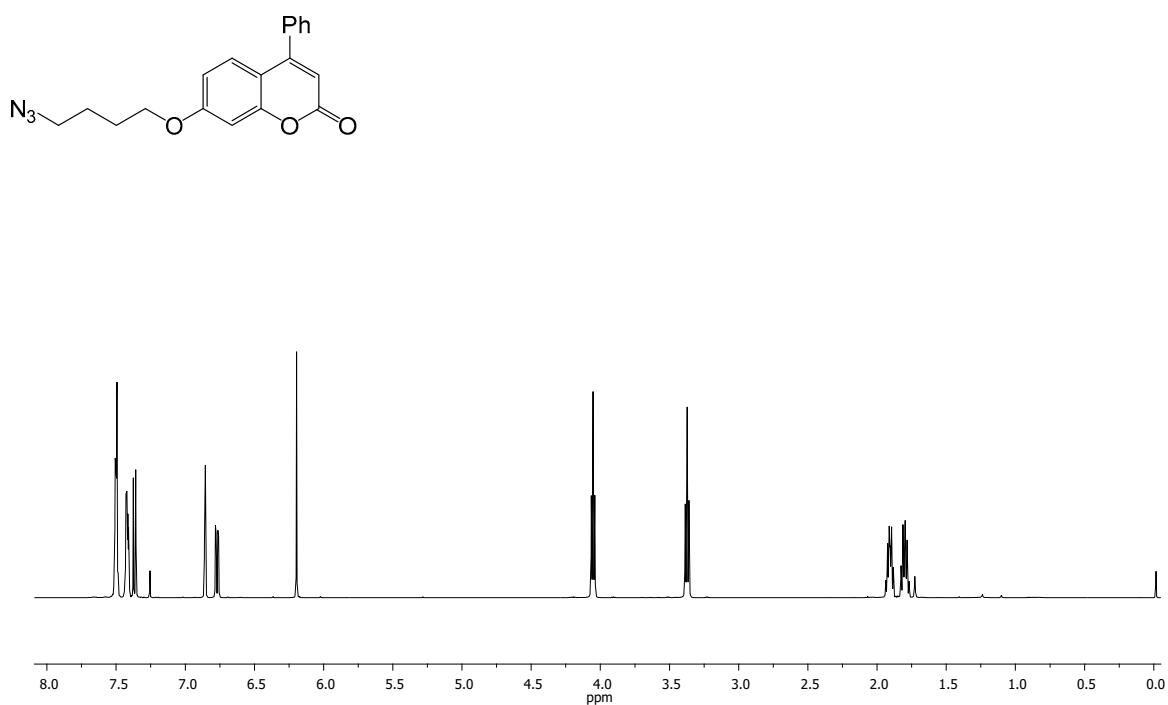
**Figure S14.**  $^{13}\text{C}$ -NMR spectrum of **16** (125.7 MHz,  $\text{DMSO}-d_6$ )



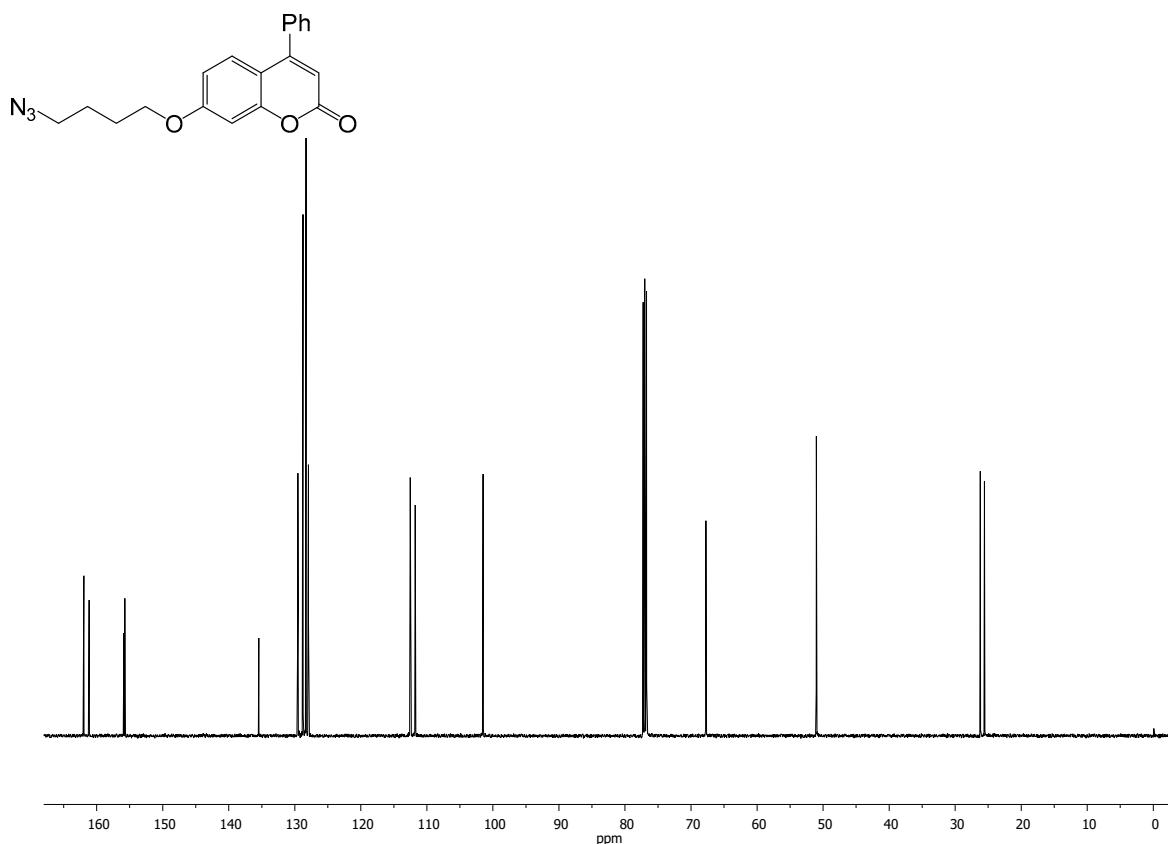
**Figure S15.** <sup>1</sup>H-NMR spectrum of **18d** (500 MHz, CDCl<sub>3</sub>)



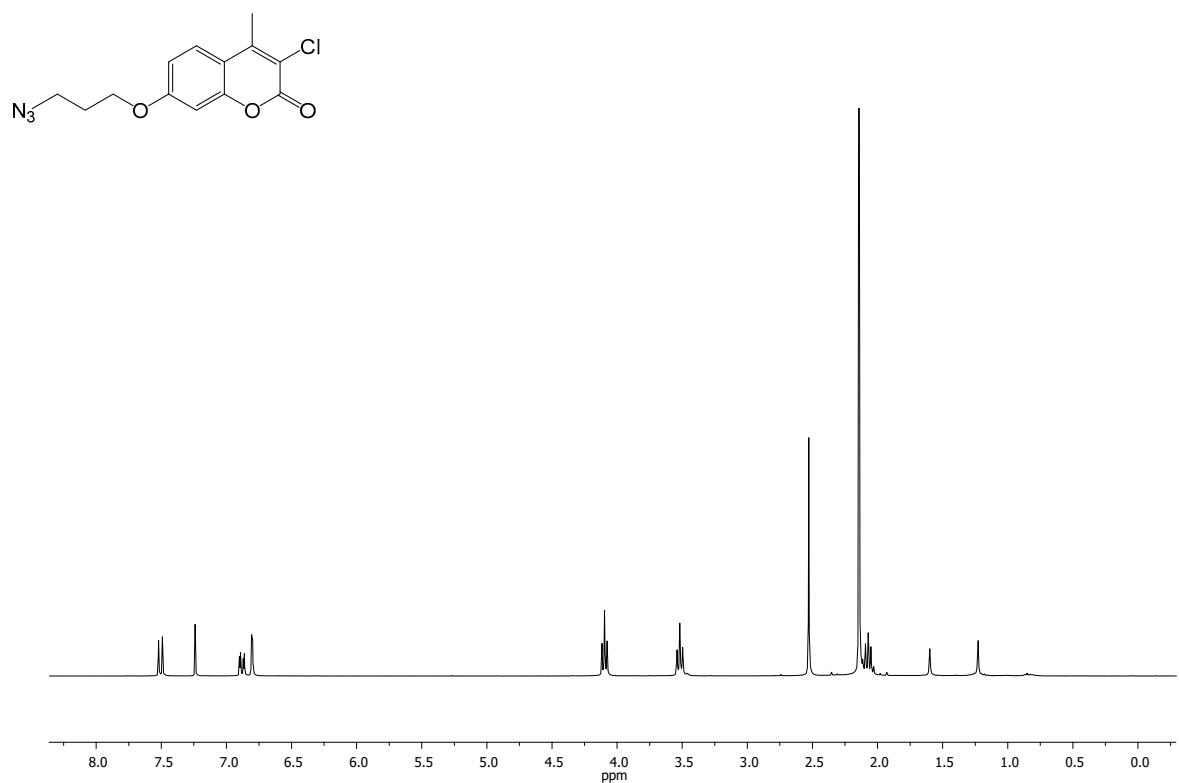
**Figure S16.** <sup>13</sup>C-NMR spectrum of **18d** (125.7 MHz, CDCl<sub>3</sub>)



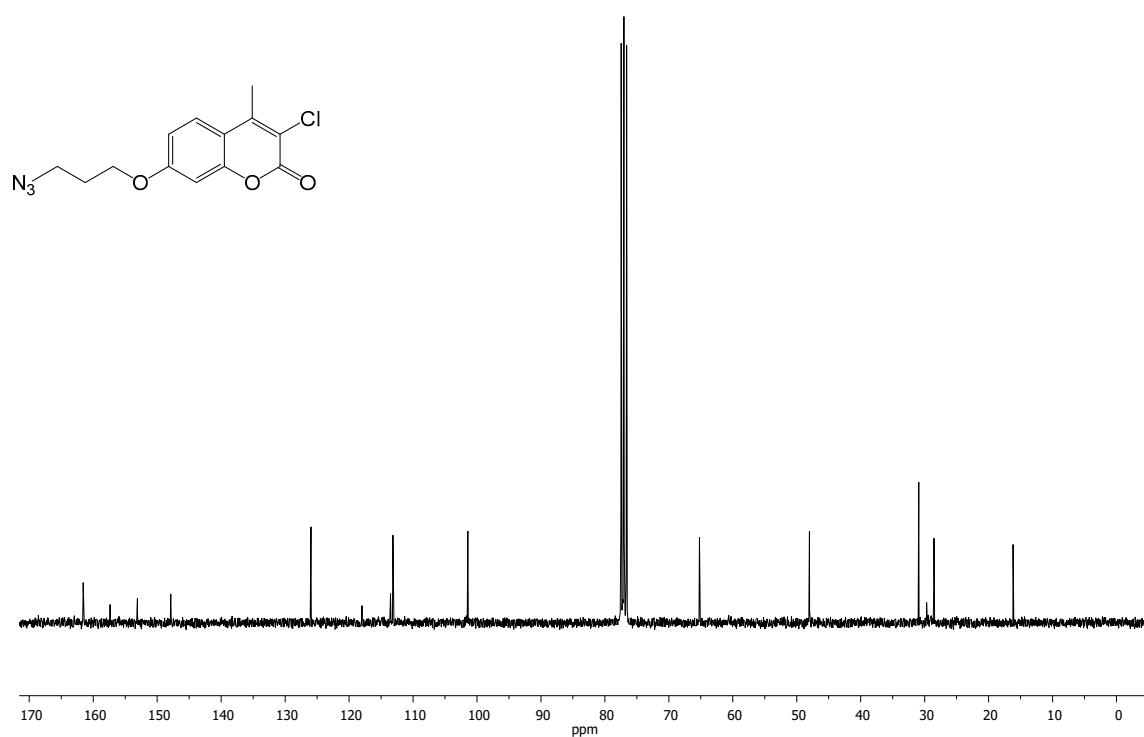
**Figure S17.** <sup>1</sup>H-NMR spectrum of **18e** (500 MHz, CDCl<sub>3</sub>)



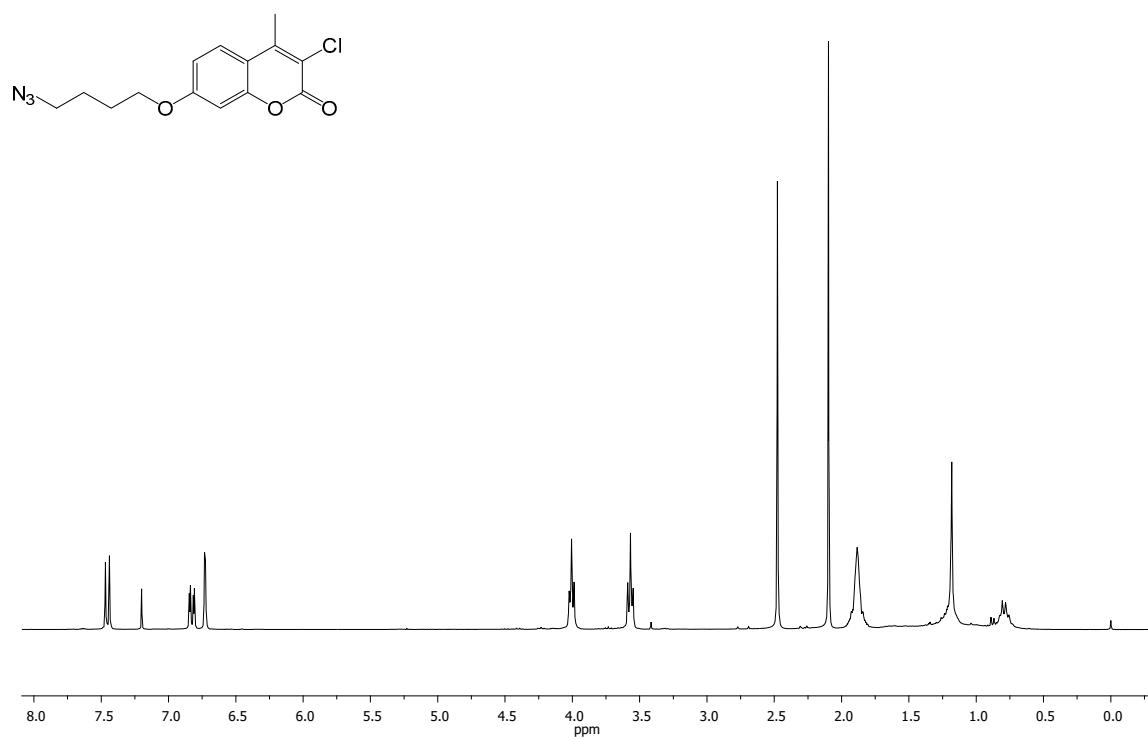
**Figure S18.** <sup>13</sup>C-NMR spectrum of **18e** (127.5 MHz, CDCl<sub>3</sub>)



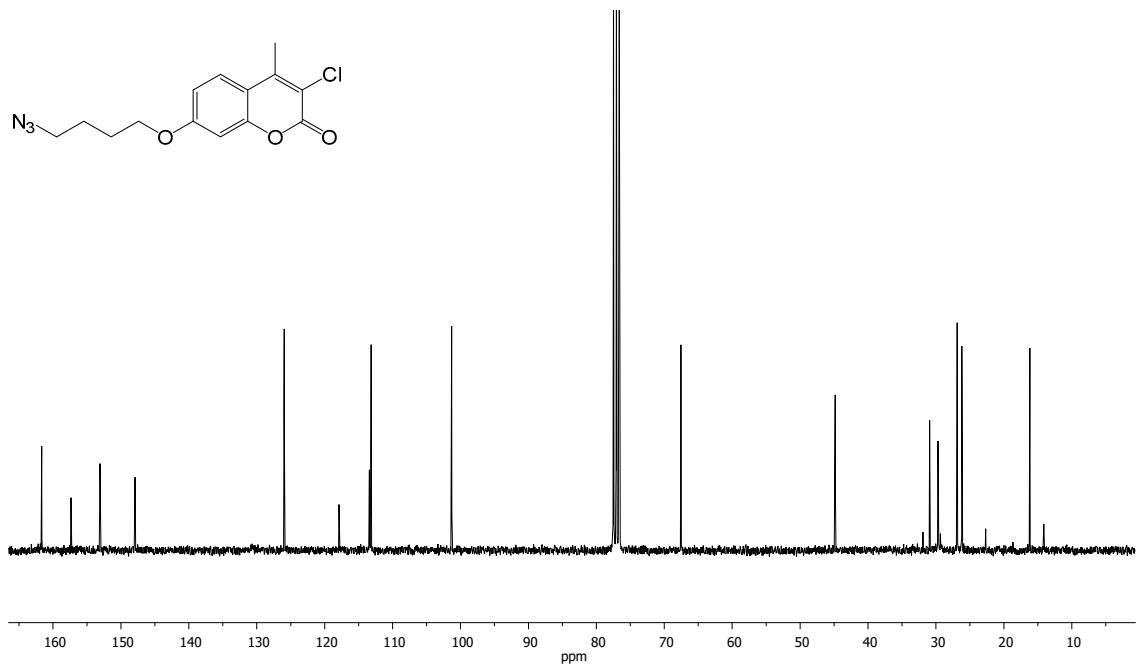
**Figure S19.** <sup>1</sup>H-NMR spectrum of **18g** (300 MHz, CDCl<sub>3</sub>)



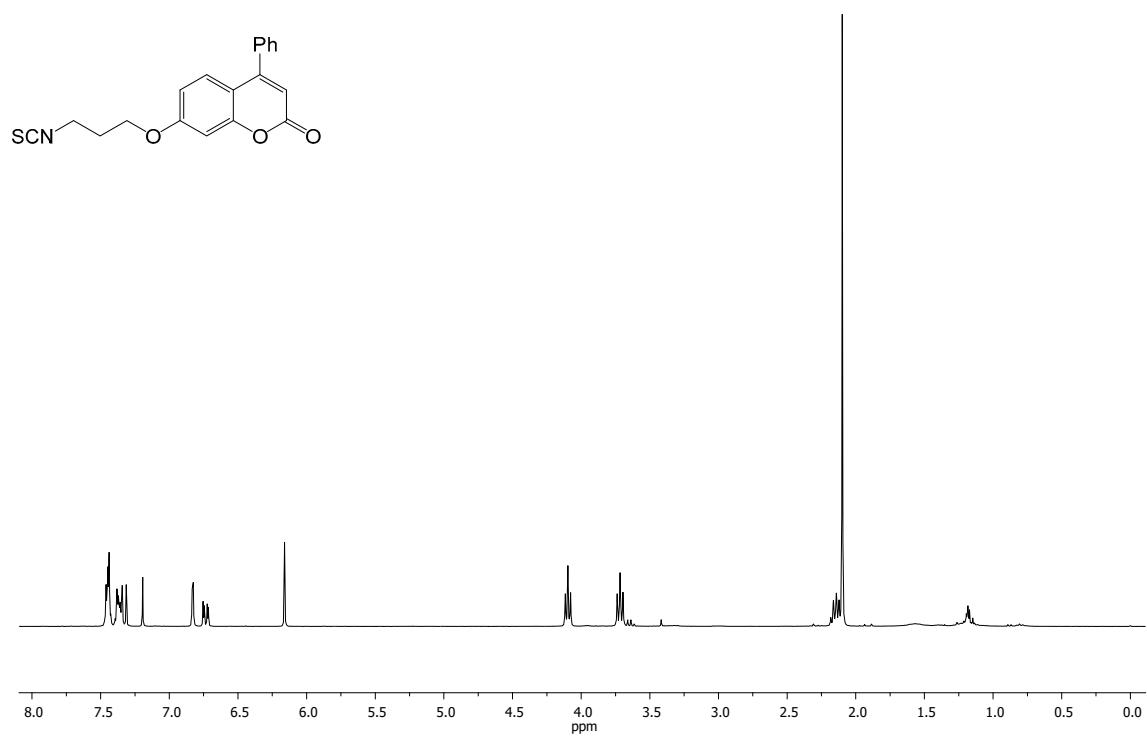
**Figure S20.** <sup>13</sup>C-NMR spectrum of **18g** (125.7 MHz, CDCl<sub>3</sub>)



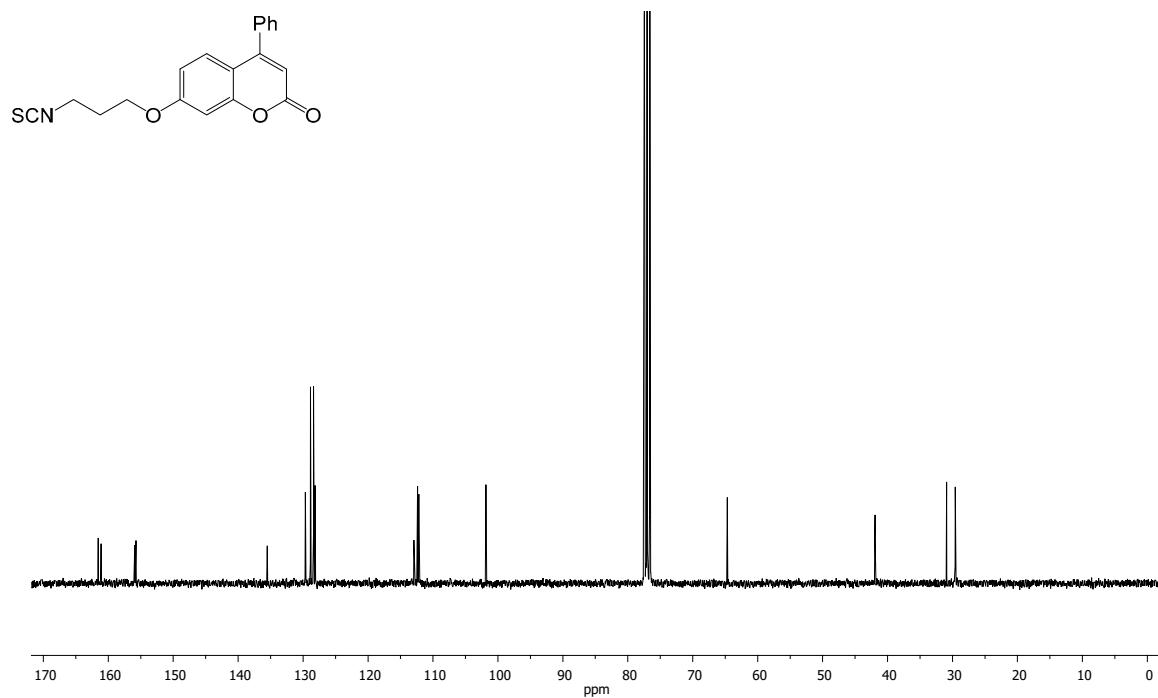
**Figure S21.** <sup>1</sup>H-NMR spectrum of **18h** (500 MHz, CDCl<sub>3</sub>)



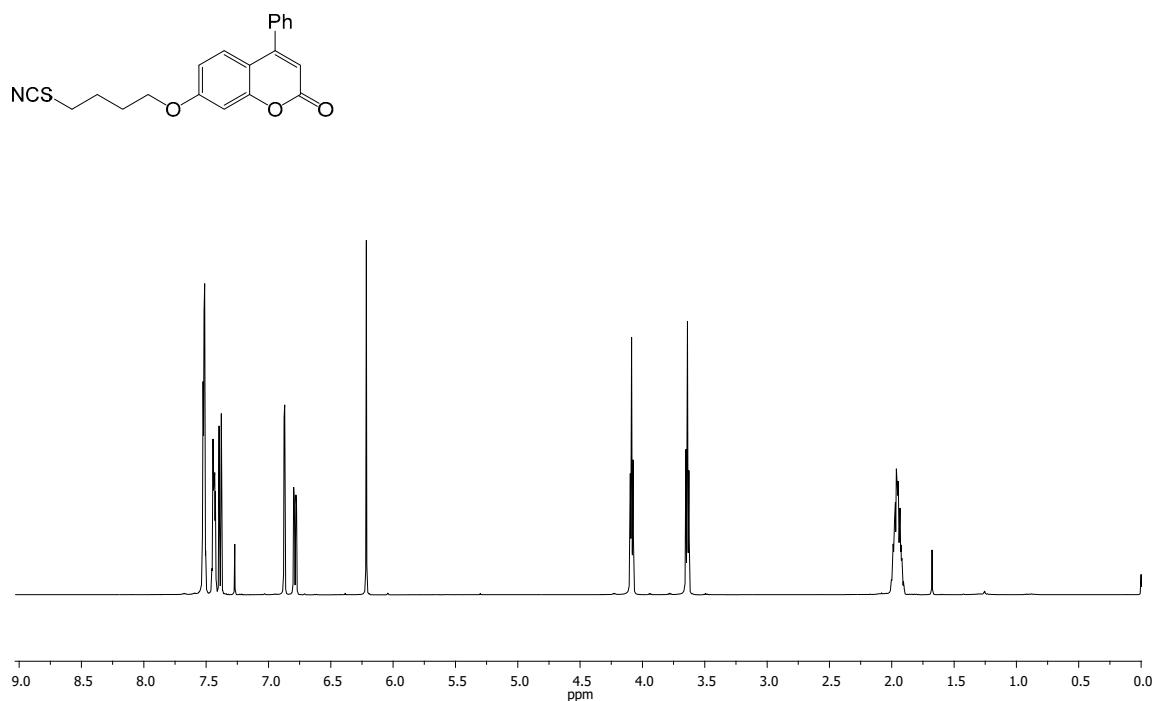
**Figure S22.** <sup>13</sup>C-NMR spectrum of **18h** (125.7 MHz, CDCl<sub>3</sub>)



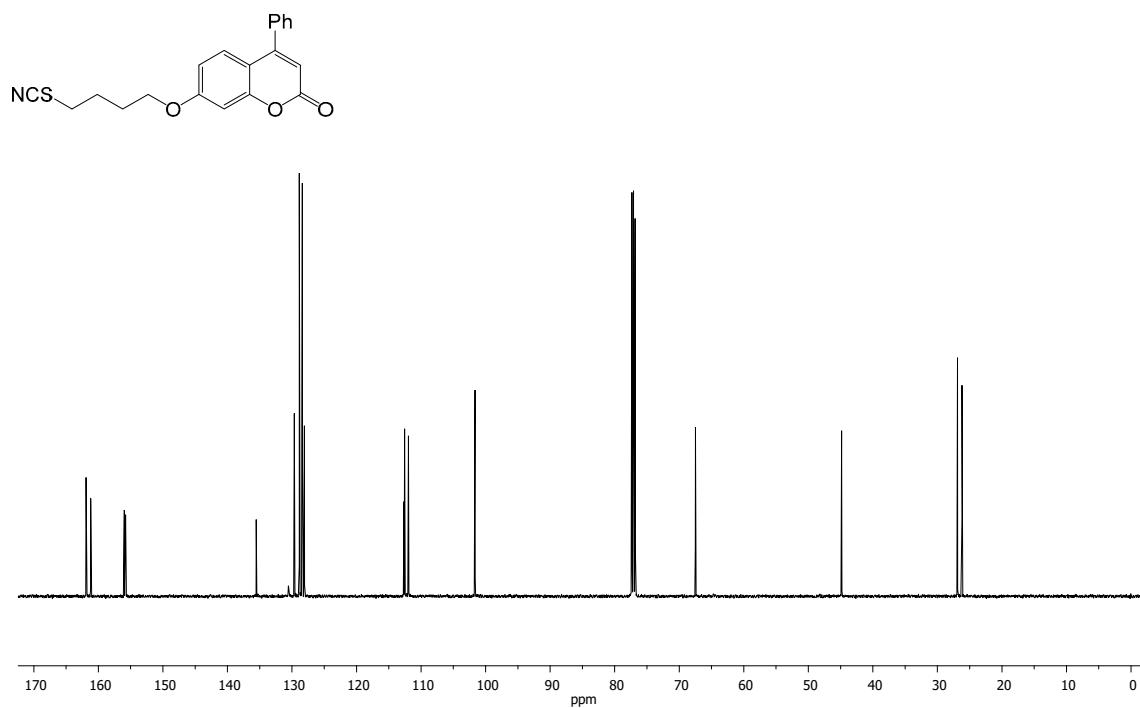
**Figure S23.** <sup>1</sup>H-NMR spectrum of **20d** (300 MHz, CDCl<sub>3</sub>)



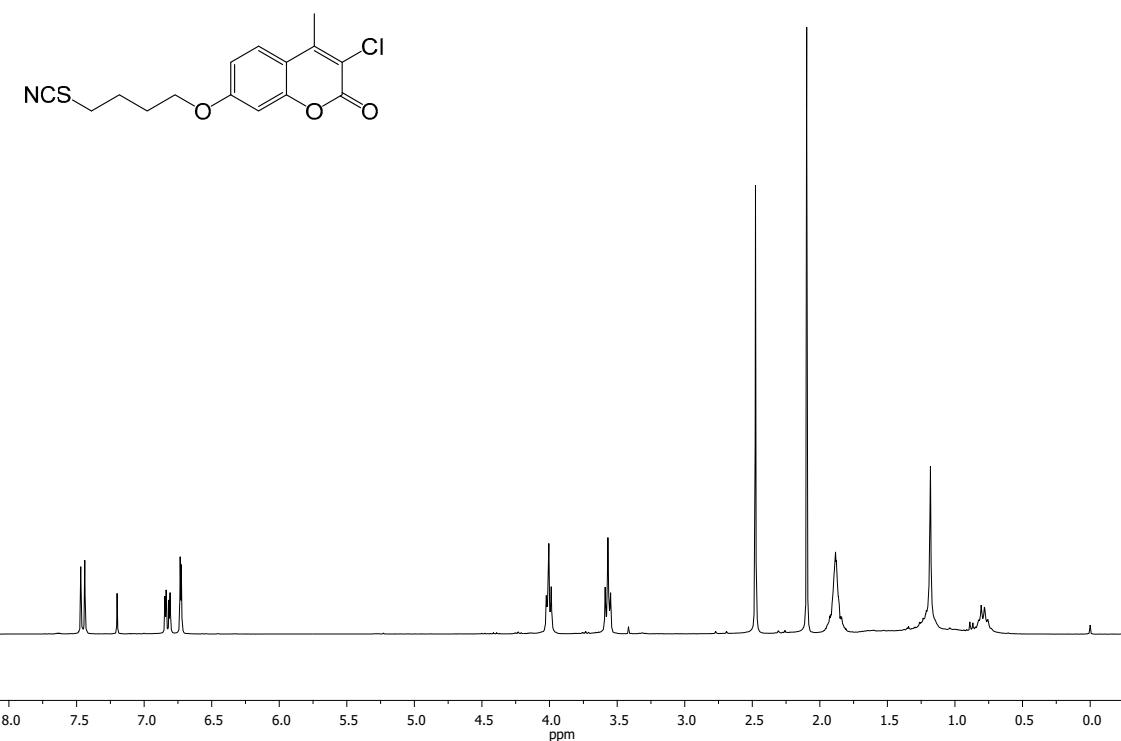
**Figure S24.** <sup>13</sup>C-NMR spectrum of **20d** (125.7 MHz, CDCl<sub>3</sub>)



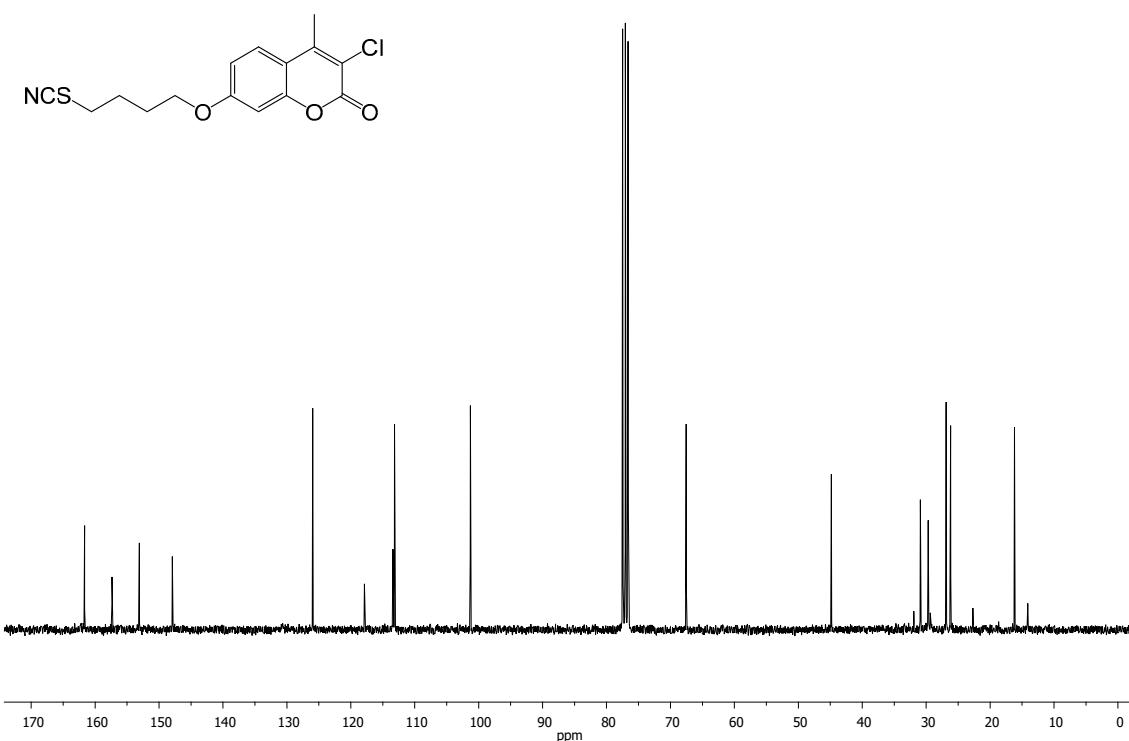
**Figure S25.** <sup>1</sup>H-NMR spectrum of **20e** (500 MHz, CDCl<sub>3</sub>)



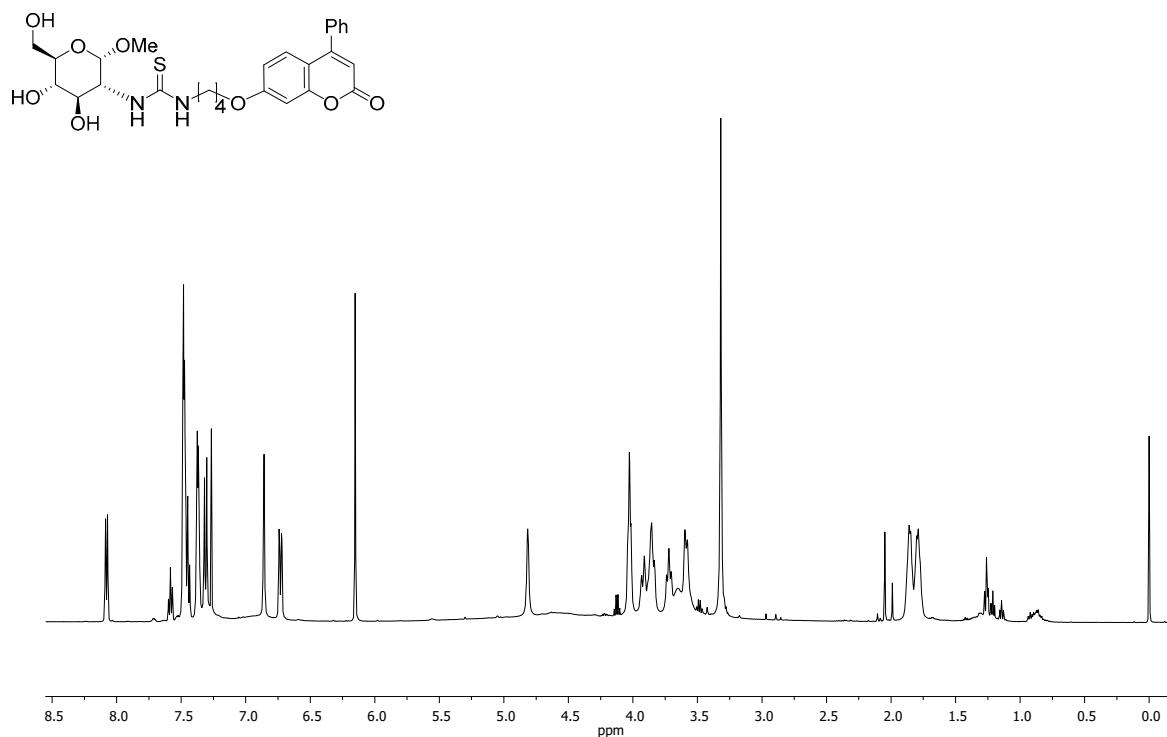
**Figure S26.** <sup>13</sup>C-NMR spectrum of **20e** (125.7 MHz, CDCl<sub>3</sub>)



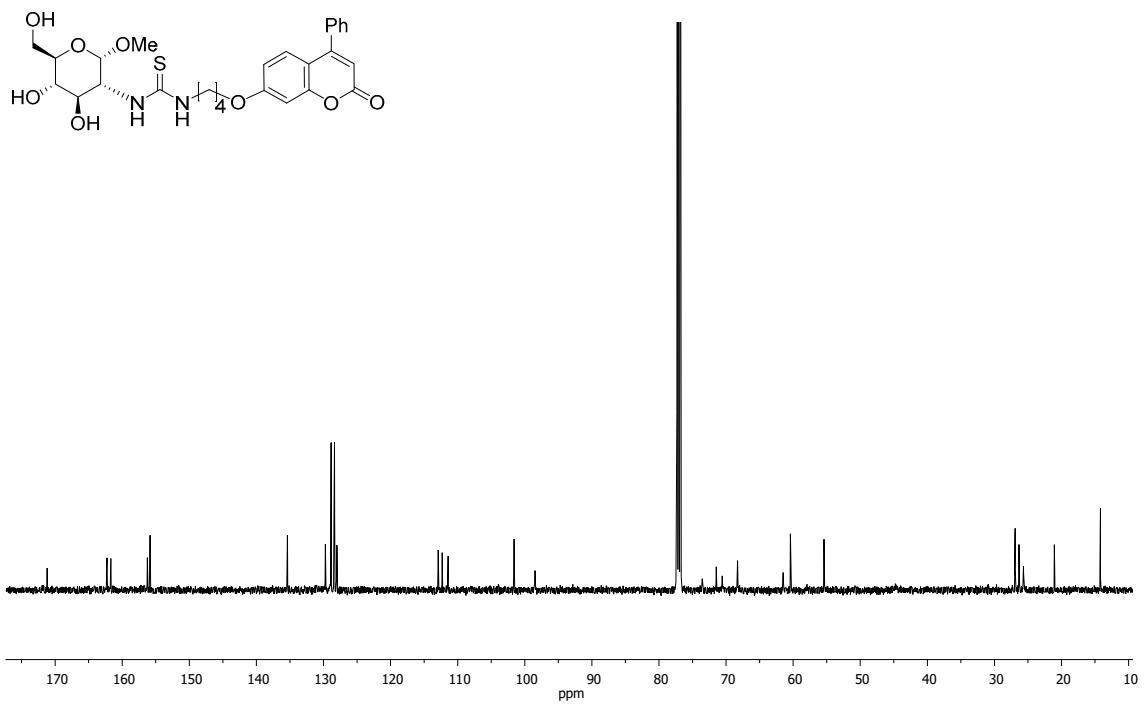
**Figure S27.**  $^1\text{H}$ -NMR spectrum of **20h** (300 MHz,  $\text{CDCl}_3$ )



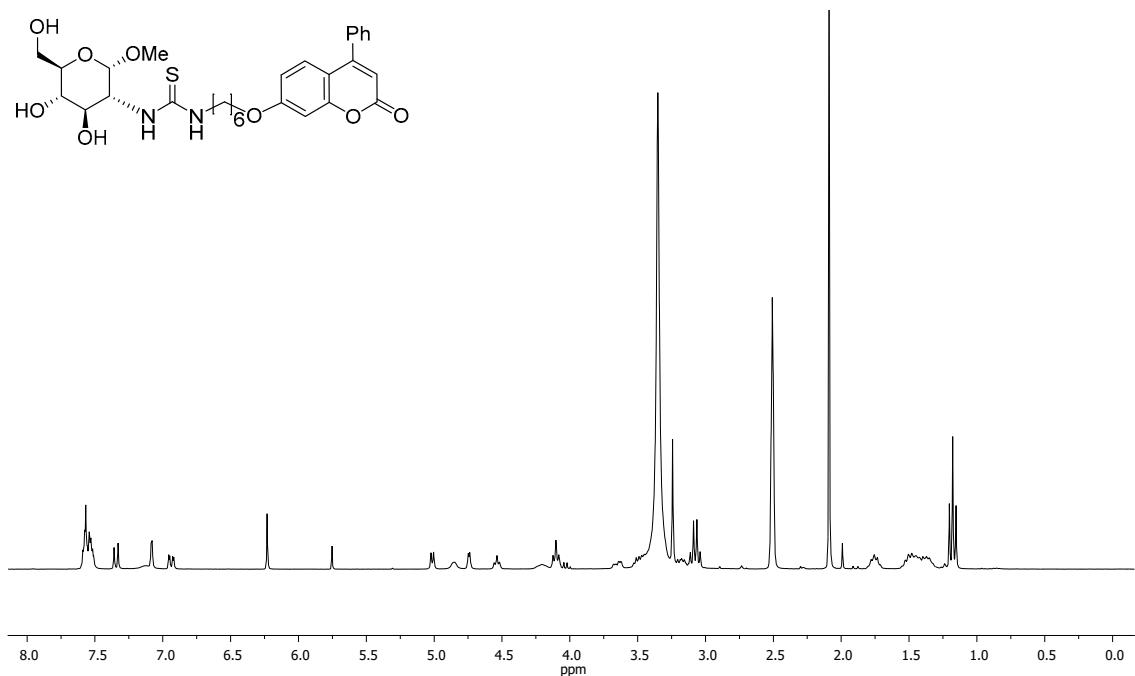
**Figure S28.**  $^{13}\text{C}$ -NMR spectrum of **20h** (125.7 MHz,  $\text{CDCl}_3$ )



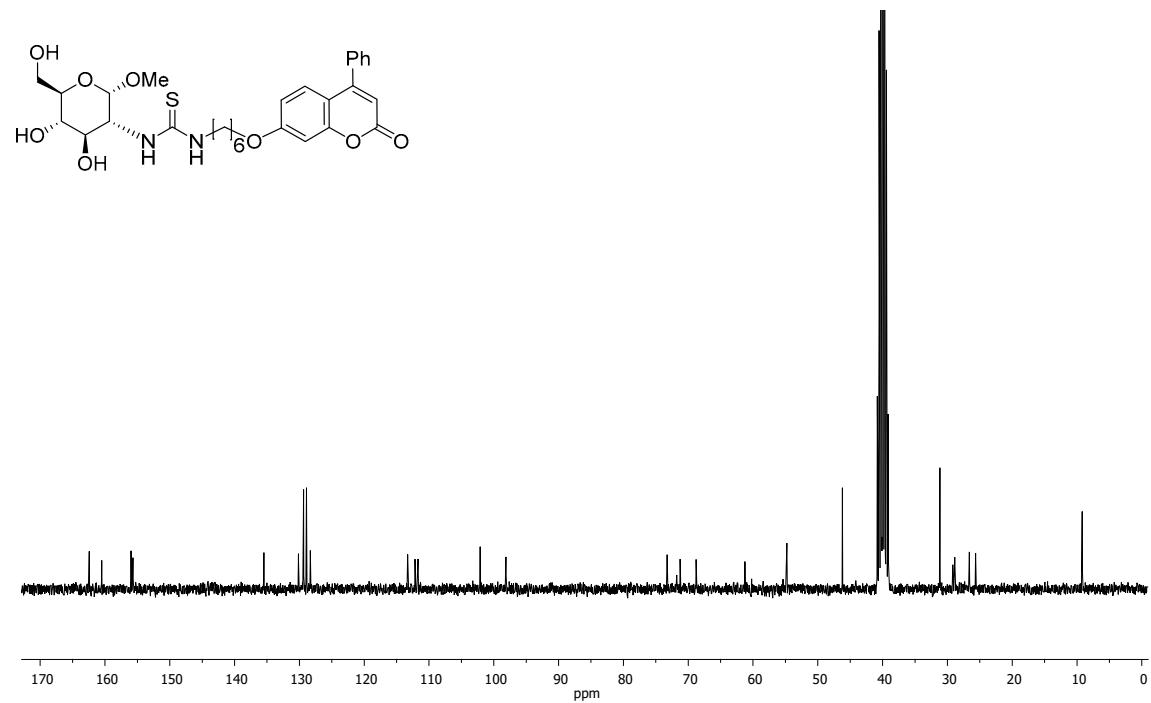
**Figure S29.**  $^1\text{H}$ -NMR spectrum of **21e** (300 MHz,  $\text{DMSO}-d_6-(\text{CD}_3)_2\text{CO}$ )



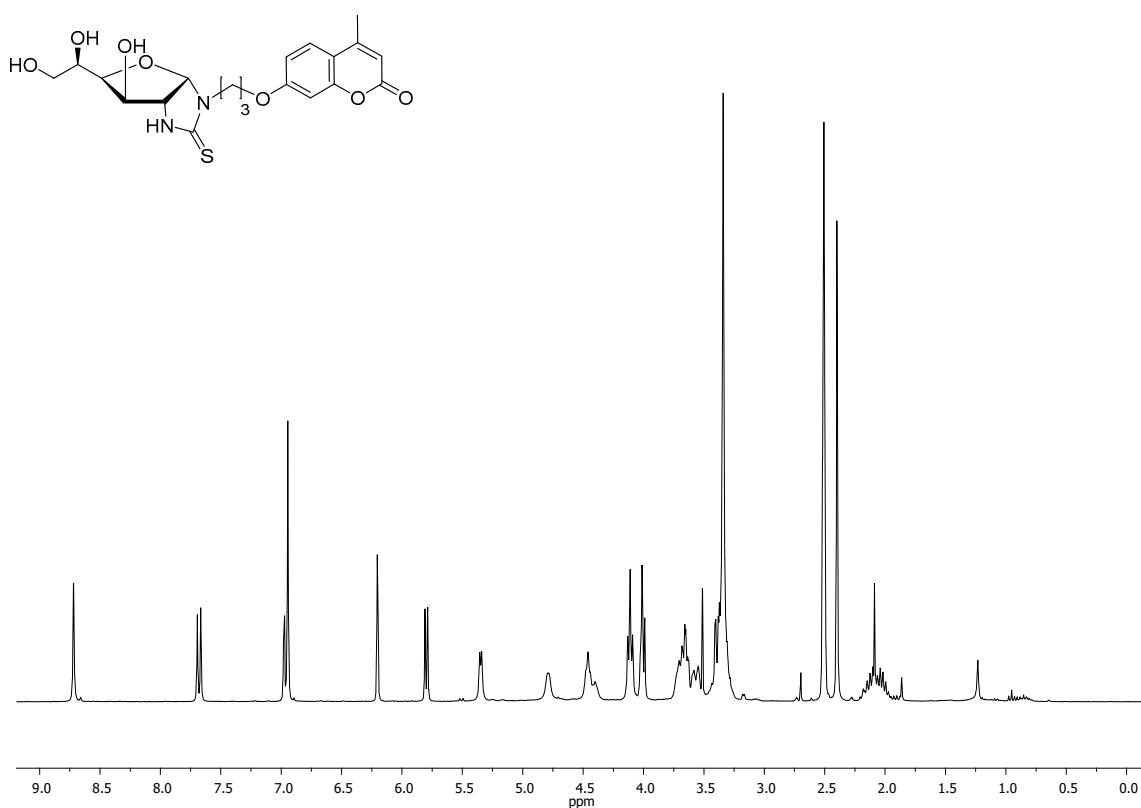
**Figure S30.**  $^{13}\text{C}$ -NMR spectrum of **21e** (75.5 MHz,  $\text{DMSO}-d_6$ )



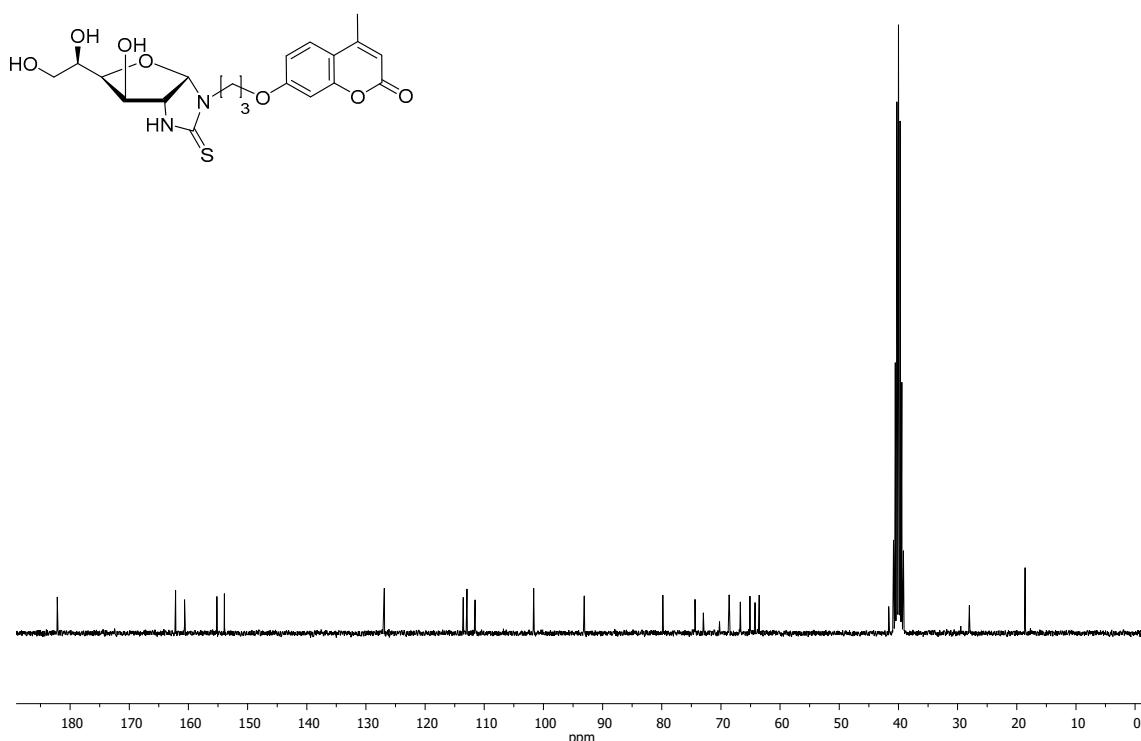
**Figure S31.**  $^1\text{H}$ -NMR spectrum of **21f** (300 MHz,  $\text{DMSO}-d_6$ )



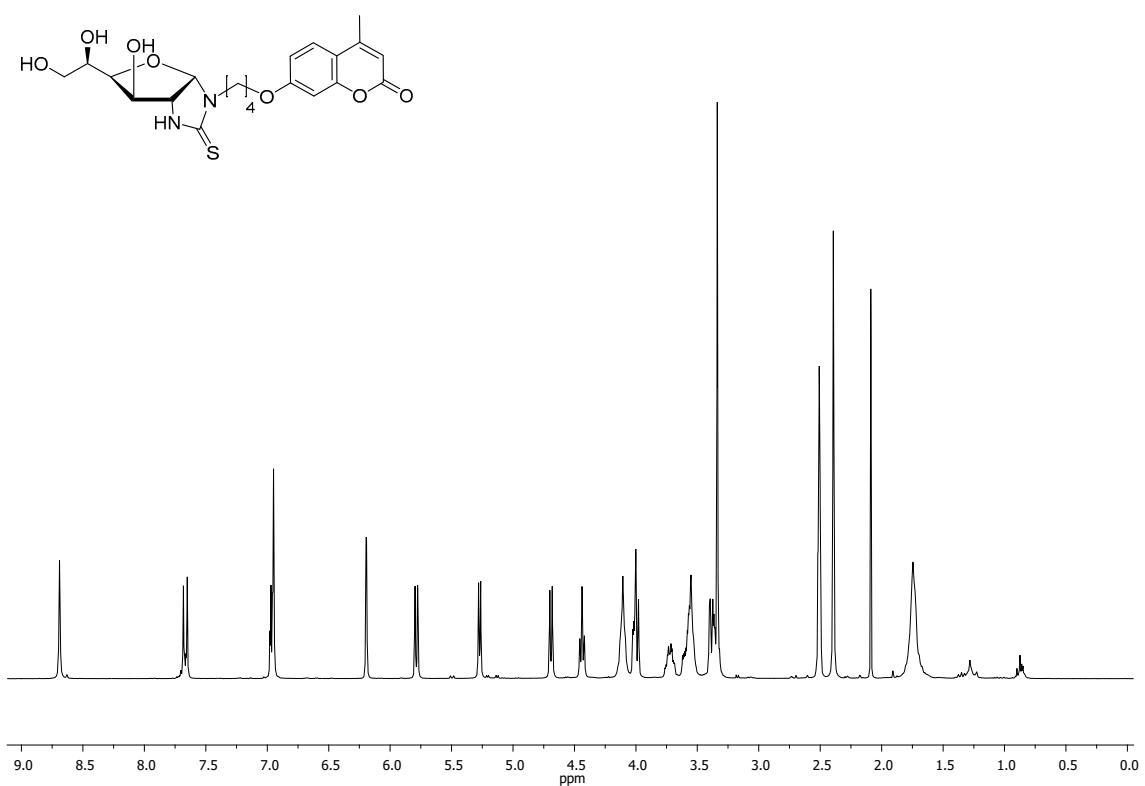
**Figure S32.**  $^{13}\text{C}$ -NMR spectrum of **21f** (75.5 MHz,  $\text{DMSO}-d_6$ )



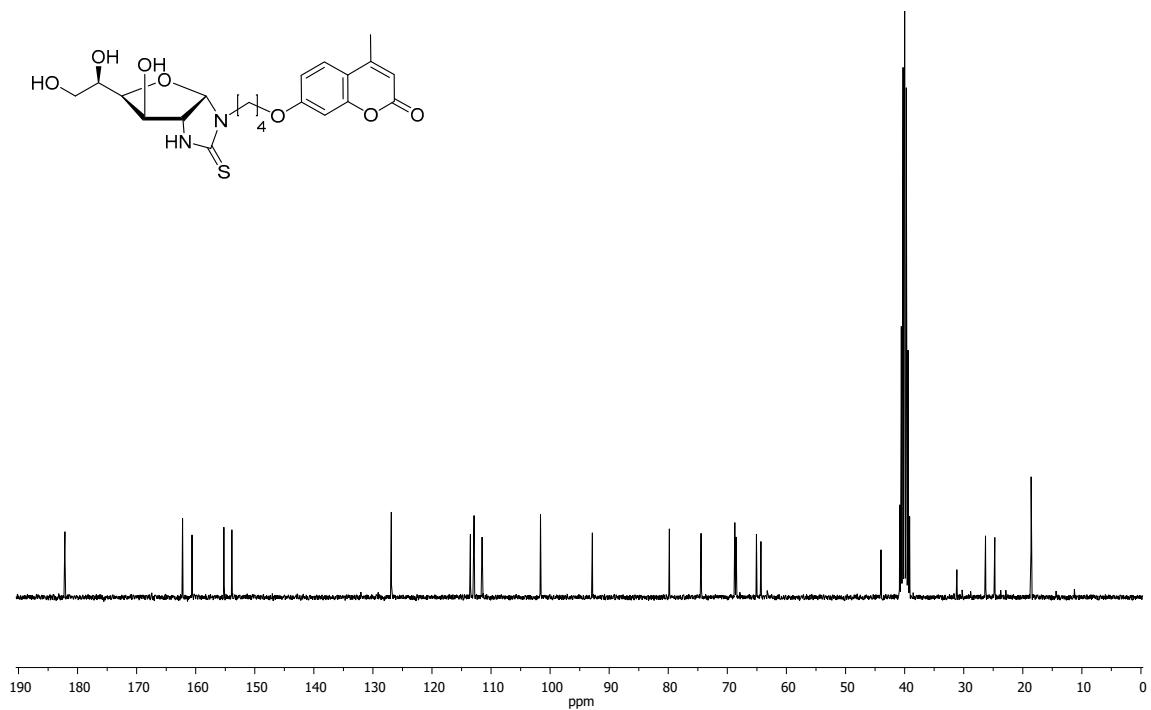
**Figure S33.**  $^1\text{H}$ -NMR spectrum of **24a** (300 MHz,  $\text{DMSO}-d_6$ )



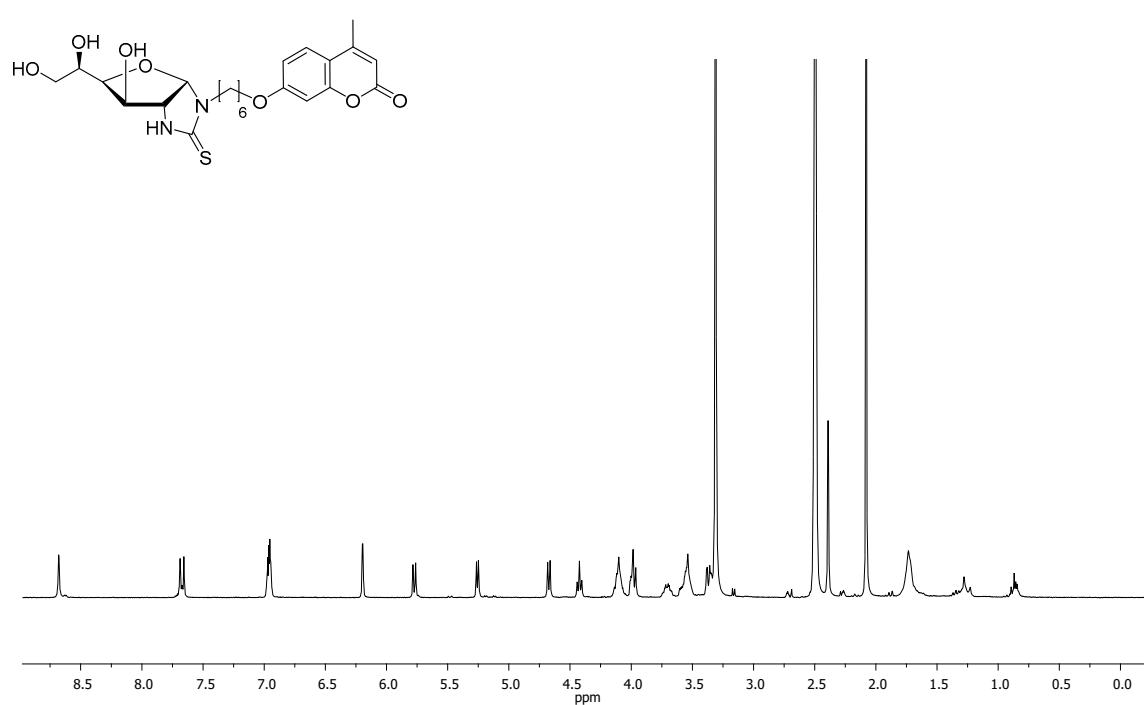
**Figure S34.**  $^{13}\text{C}$ -NMR spectrum of **24a** (75.5 MHz,  $\text{DMSO}-d_6$ )



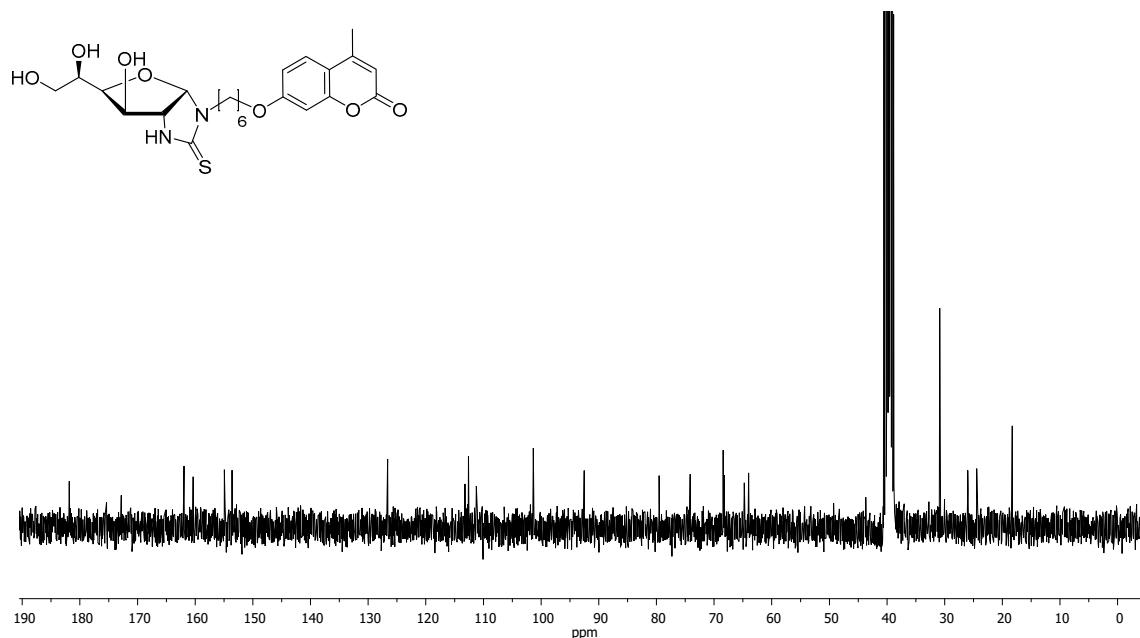
**Figure S35.** <sup>1</sup>H-NMR spectrum of **24b** (300 MHz, DMSO-*d*<sub>6</sub>)



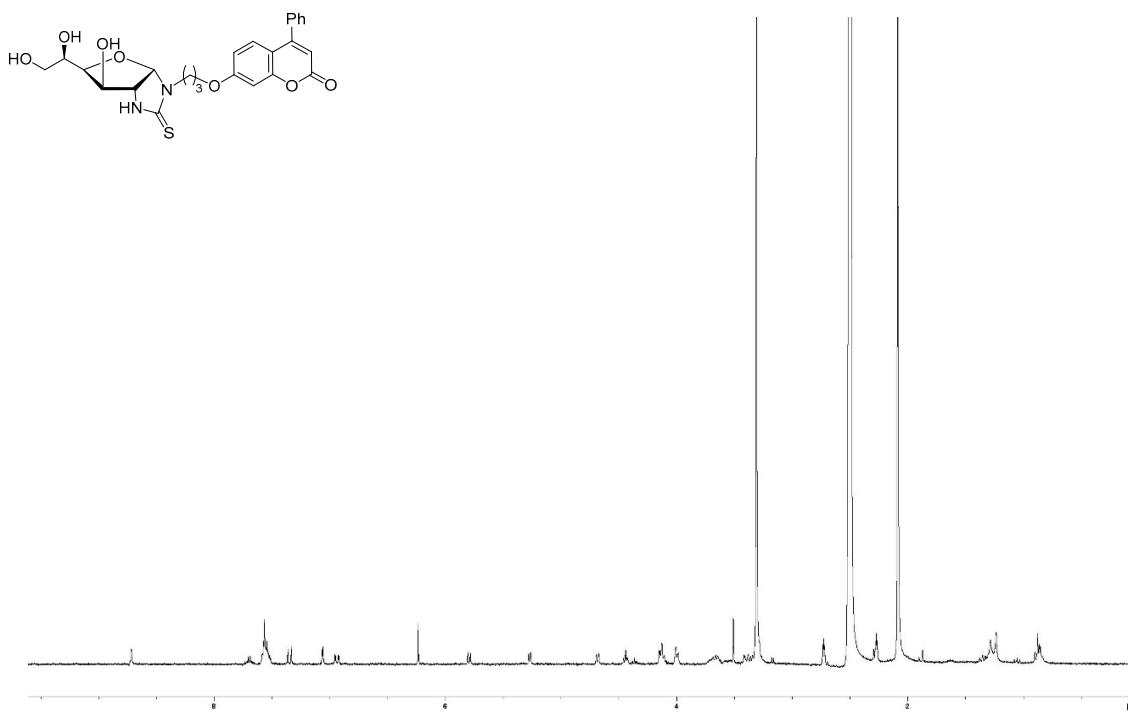
**Figure S36.** <sup>13</sup>C-NMR spectrum of **24b** (75.5 MHz, DMSO-*d*<sub>6</sub>)



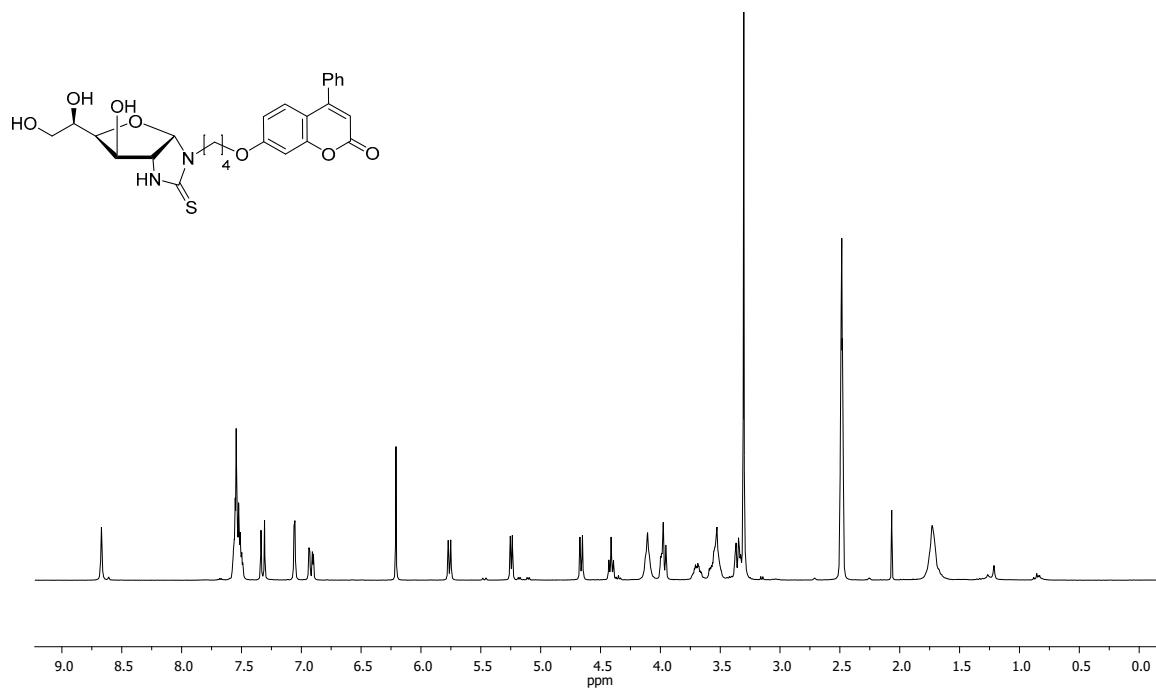
**Figure S37.**  $^1\text{H}$ -NMR spectrum of **24c** (300 MHz,  $\text{DMSO}-d_6$ )



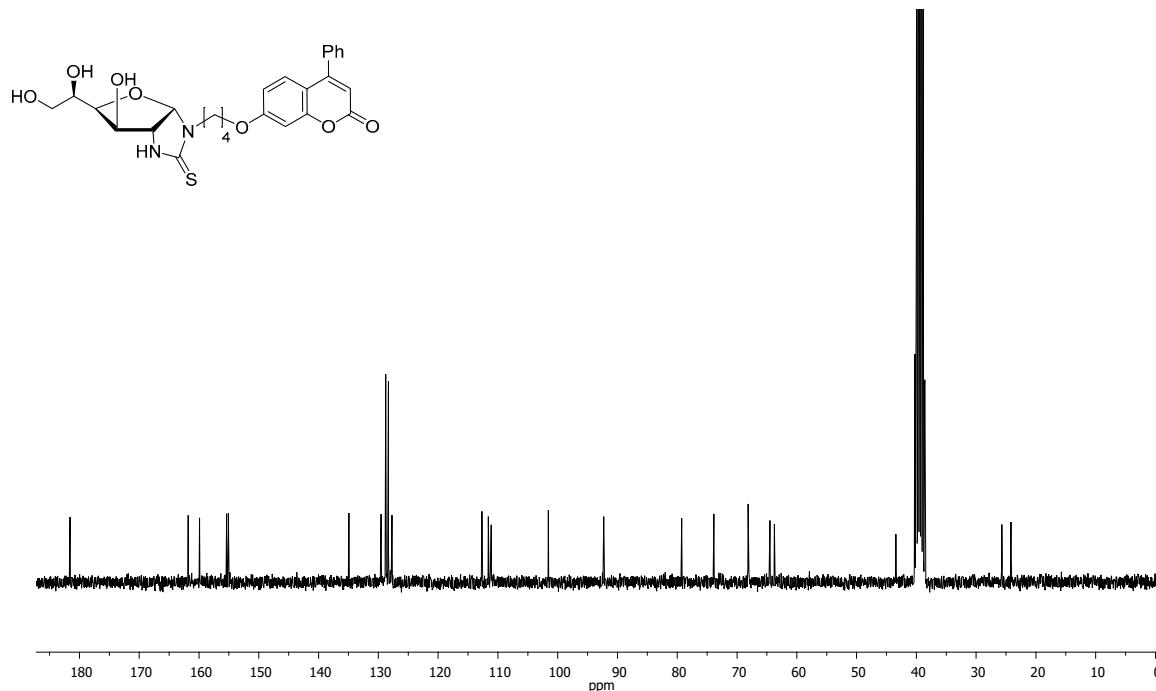
**Figure S38.**  $^{13}\text{C}$ -NMR spectrum of **24c** (75.5 MHz,  $\text{DMSO}-d_6$ )



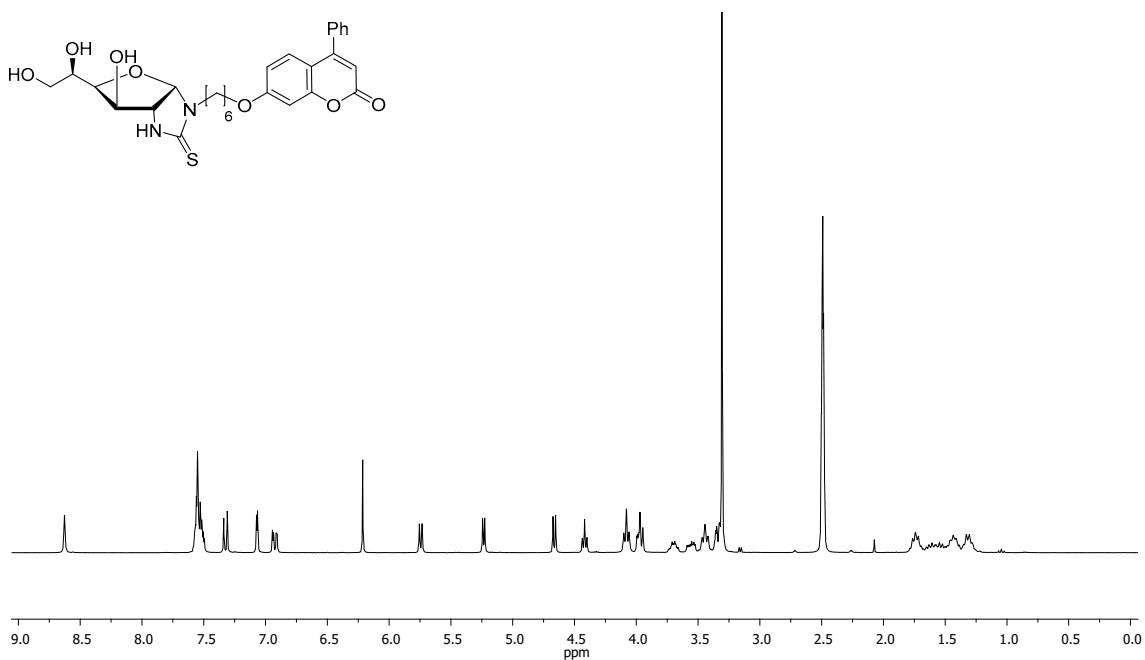
**Figure 39.** <sup>1</sup>H-NMR spectrum of **24d** (300 MHz, DMSO-*d*<sub>6</sub>)



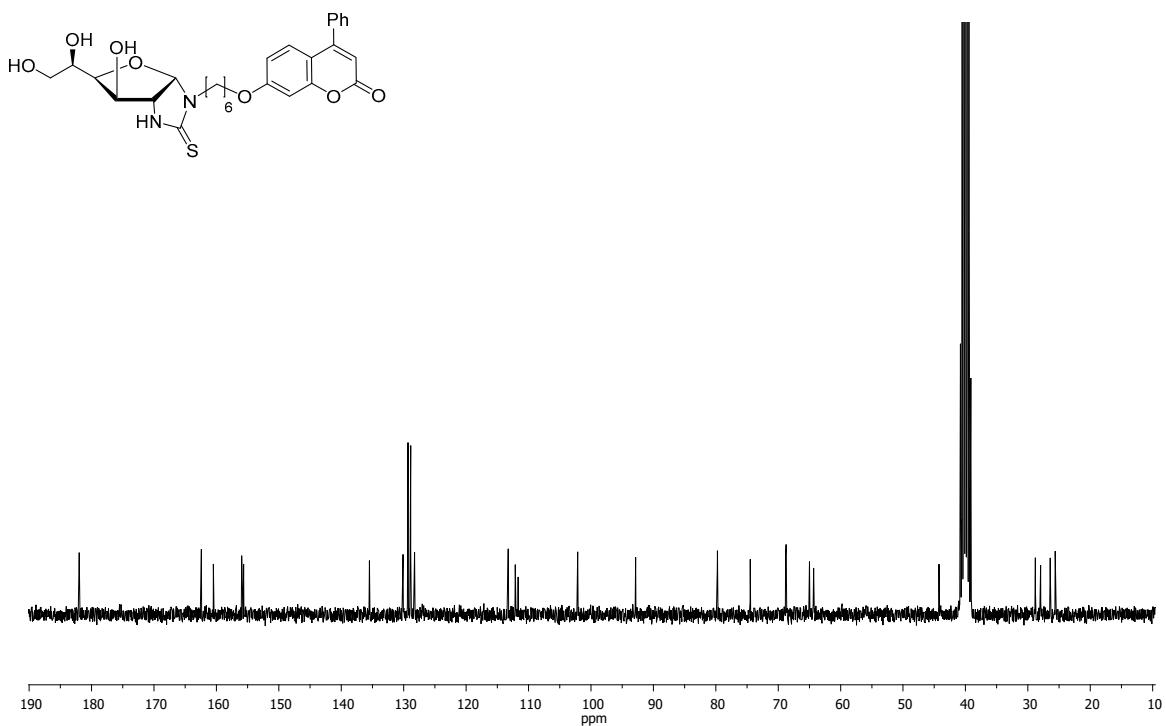
**Figure S40.**  $^1\text{H}$ -NMR spectrum of **24e** (300 MHz,  $\text{DMSO}-d_6$ )



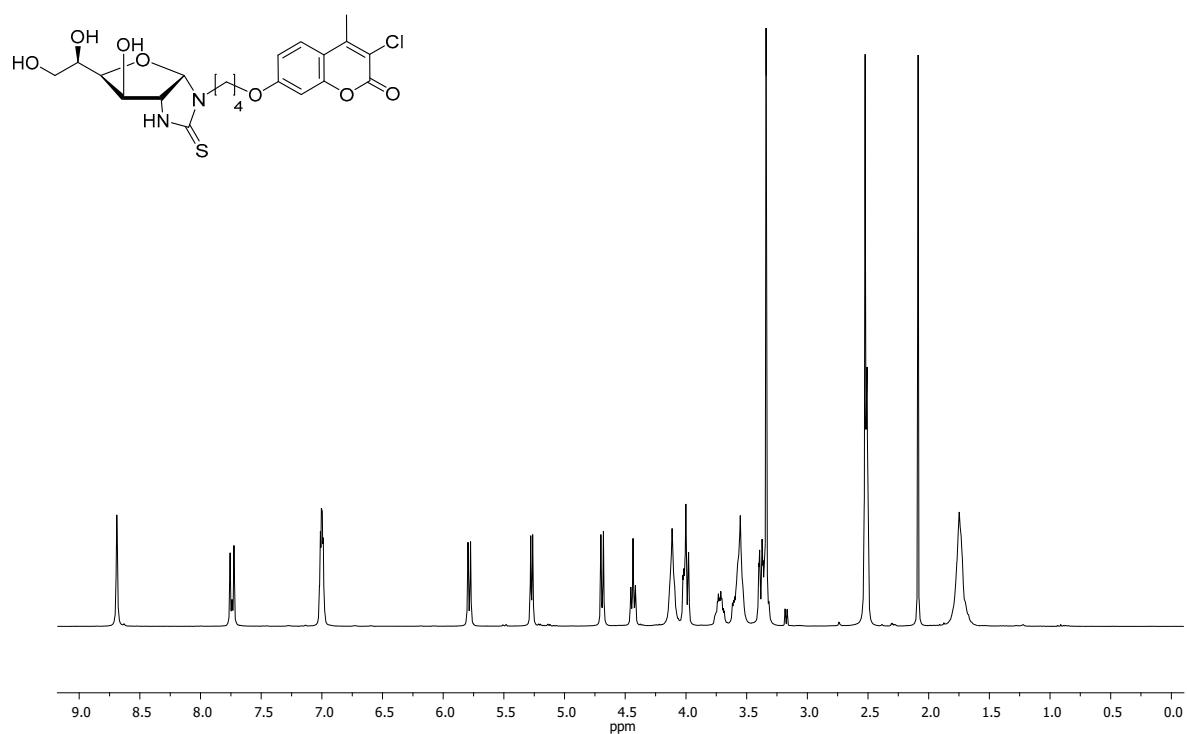
**Figure S41.**  $^{13}\text{C}$ -NMR spectrum of **24e** (75.5 MHz,  $\text{DMSO}-d_6$ )



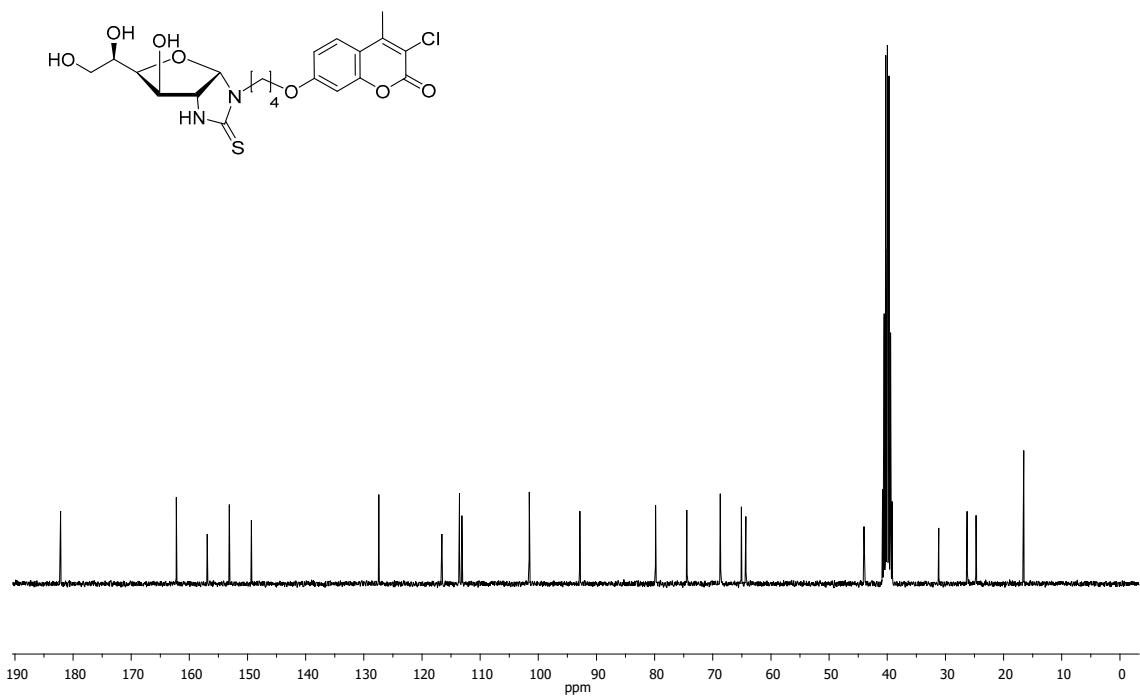
**Figure S42.**  $^1\text{H}$ -NMR spectrum of **24f** (300 MHz,  $\text{DMSO}-d_6$ )



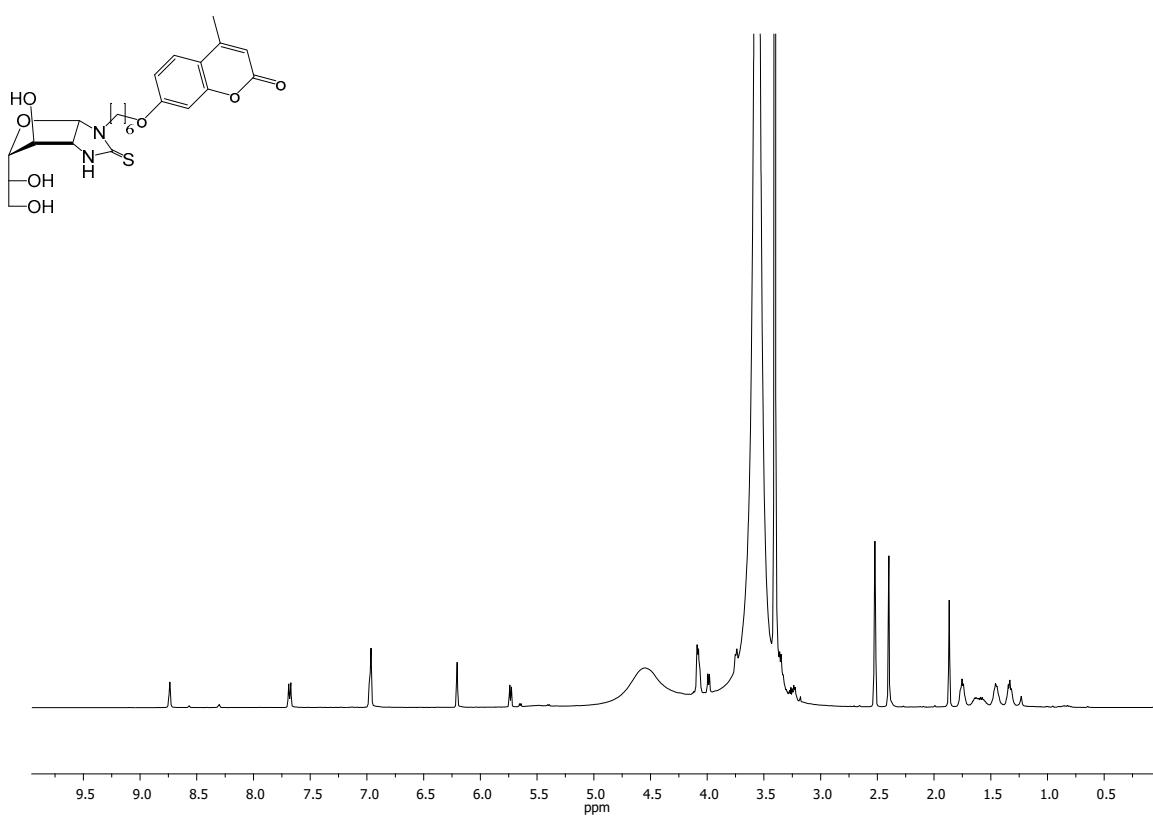
**Figure S43.**  $^{13}\text{C}$ -NMR spectrum of **24f** (75.5 MHz,  $\text{DMSO}-d_6$ )



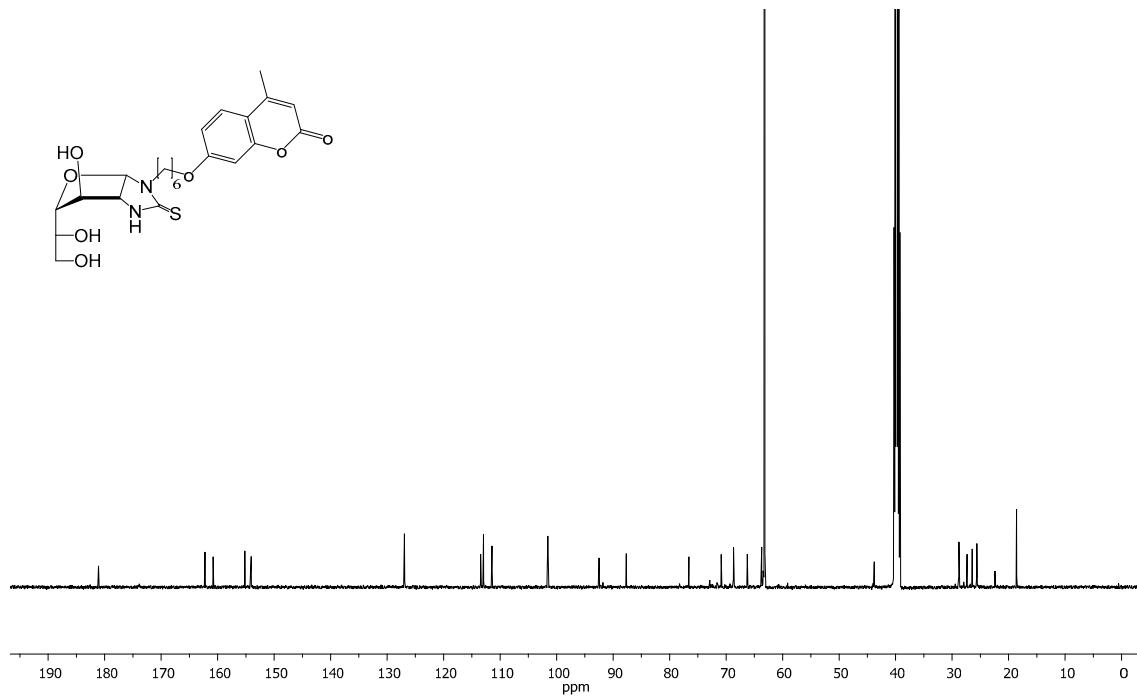
**Figure S44.** <sup>1</sup>H-NMR spectrum of **24h** (300 MHz, DMSO-d<sub>6</sub>)



**Figure S45.** <sup>13</sup>C-NMR spectrum of **24h** (75.5 MHz, DMSO-d<sub>6</sub>)



**Figure S46.**  $^1\text{H}$ -NMR spectrum of **26** (500 MHz,  $\text{DMSO}-d_6$ )



**Figure S47.**  $^{13}\text{C}$ -NMR spectrum of **26** (125.7 MHz,  $\text{DMSO}-d_6$ )