

# Synthesis of substituted pyrrole derivatives based on 8-azaspiro[5.6]dodec-10-ene scaffold

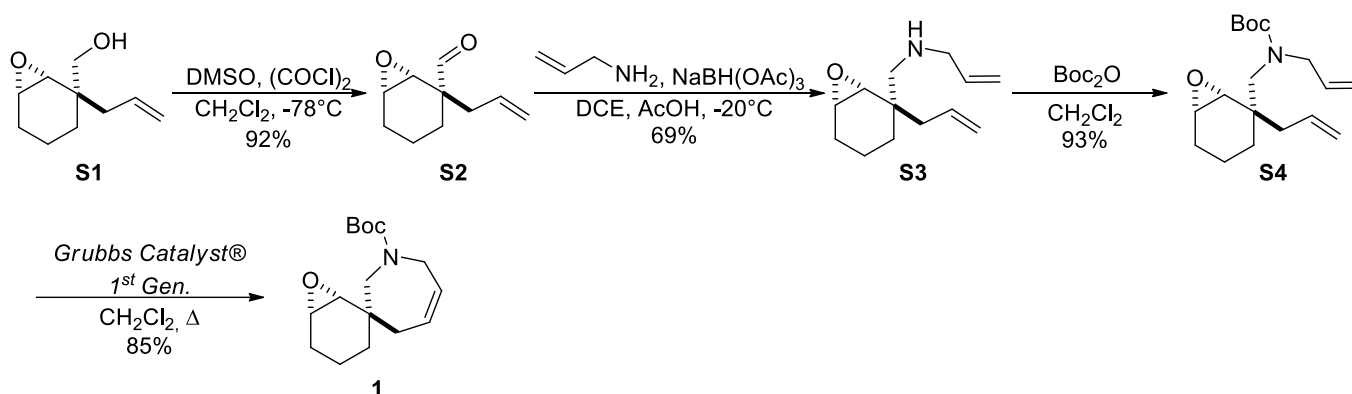
Ildar R. Iusupov <sup>1</sup>, Victor A. Tafenko <sup>1</sup>, Andrea Altieri <sup>1,2</sup>, Alexander V. Kurkin <sup>1\*</sup>

<sup>1</sup> Department of Chemistry, Lomonosov Moscow State University, Moscow, Russia

<sup>2</sup> EDASA Scientific srls, Via Stingi 37, 66050 San Salvo, Italy

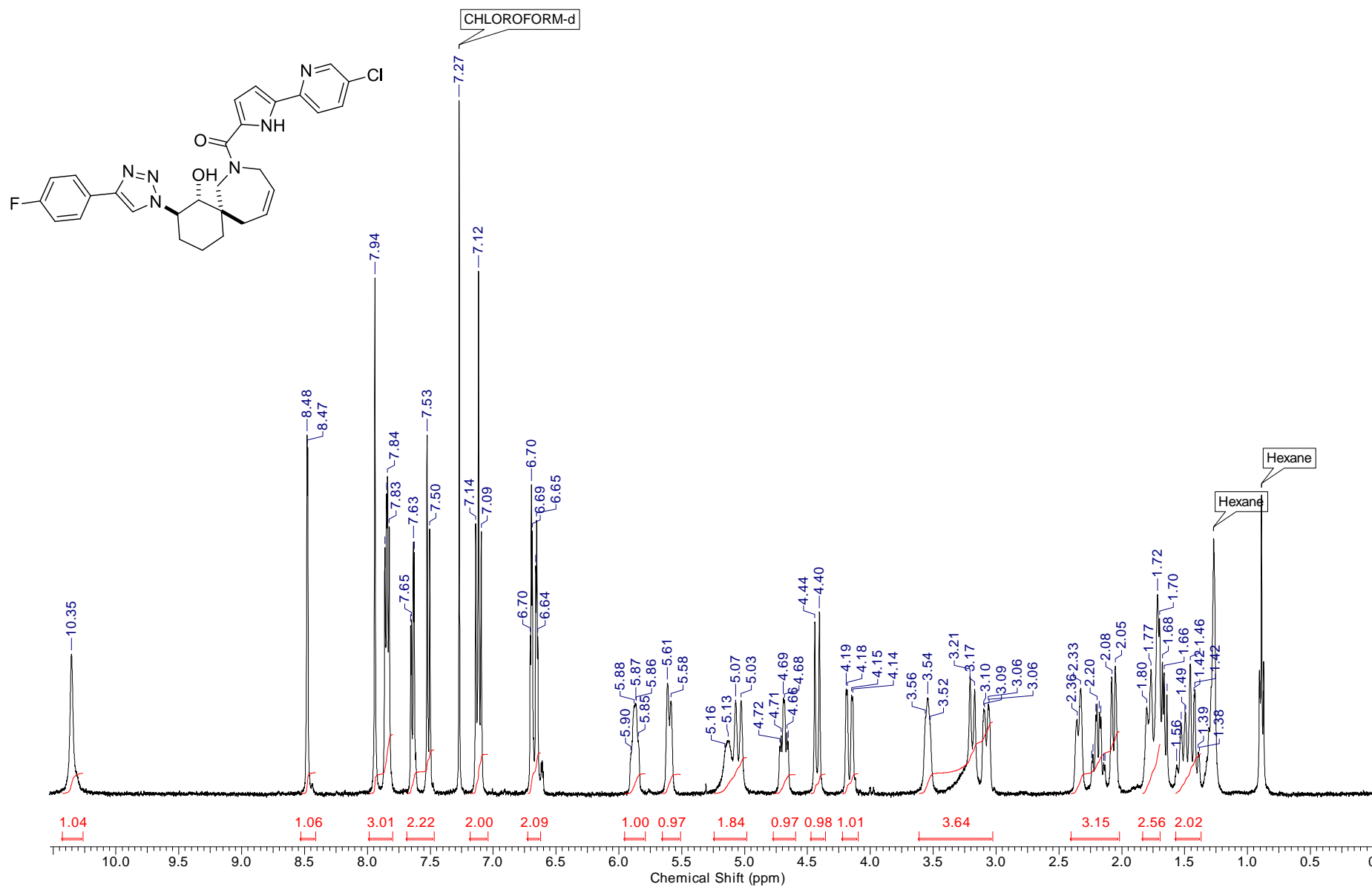
\*Correspondence: Alexander V. Kurkin: kurkin@direction.chem.msu.ru; Tel.: (+7-495-939-22-88)

Spectral data of compound 8	S2-S6
Spectral data of compound 5-7, 9, 10	S7-S21

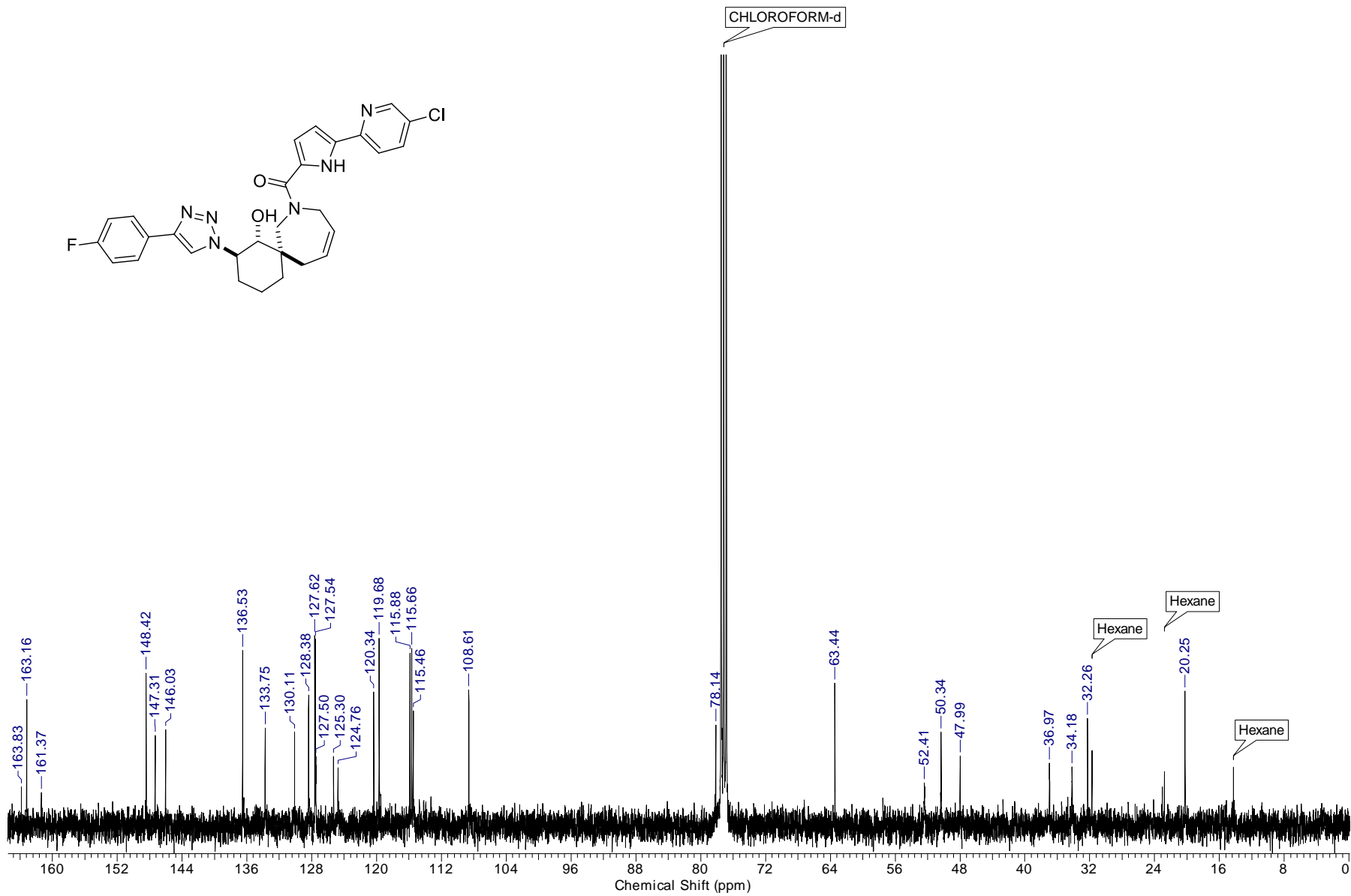
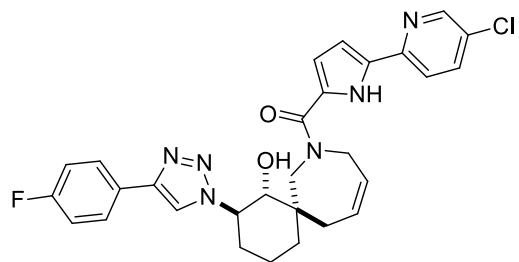


Scheme S1. Synthesis of epoxide 1.

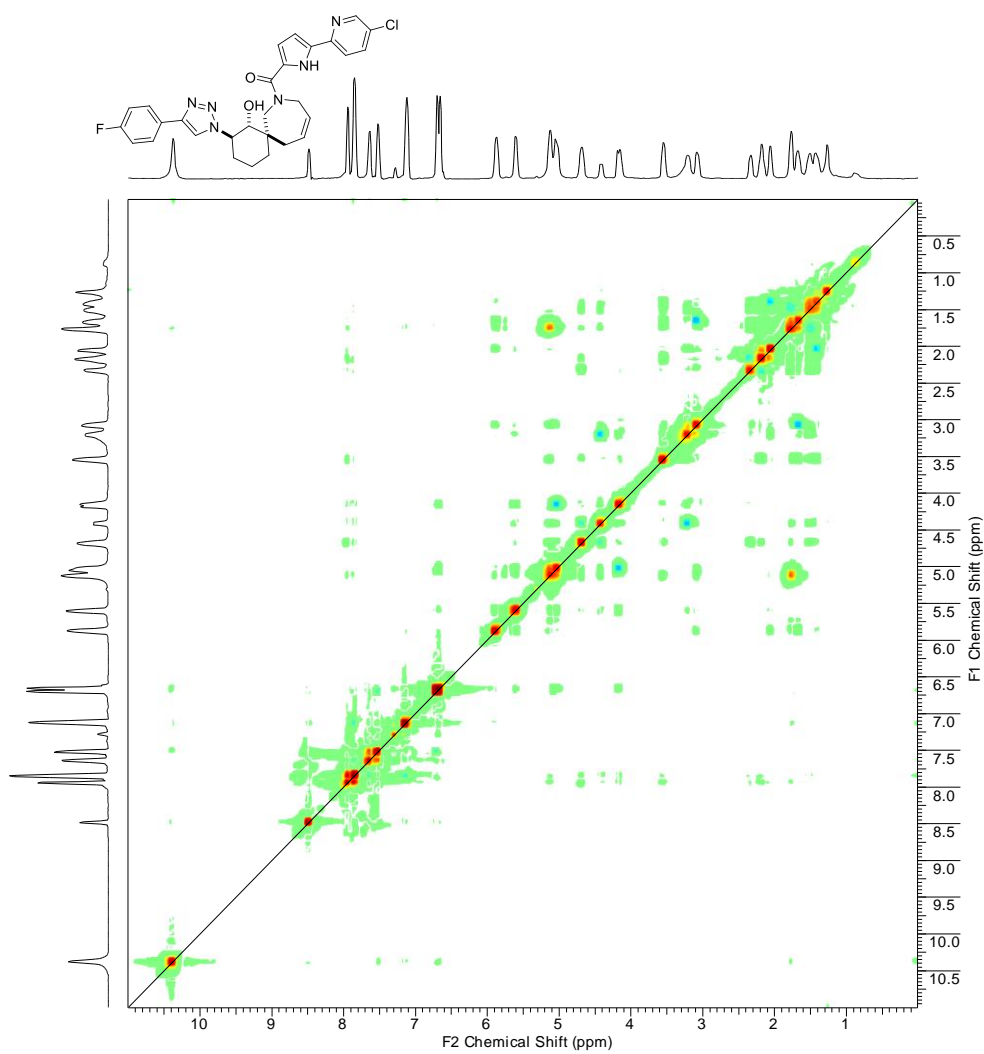
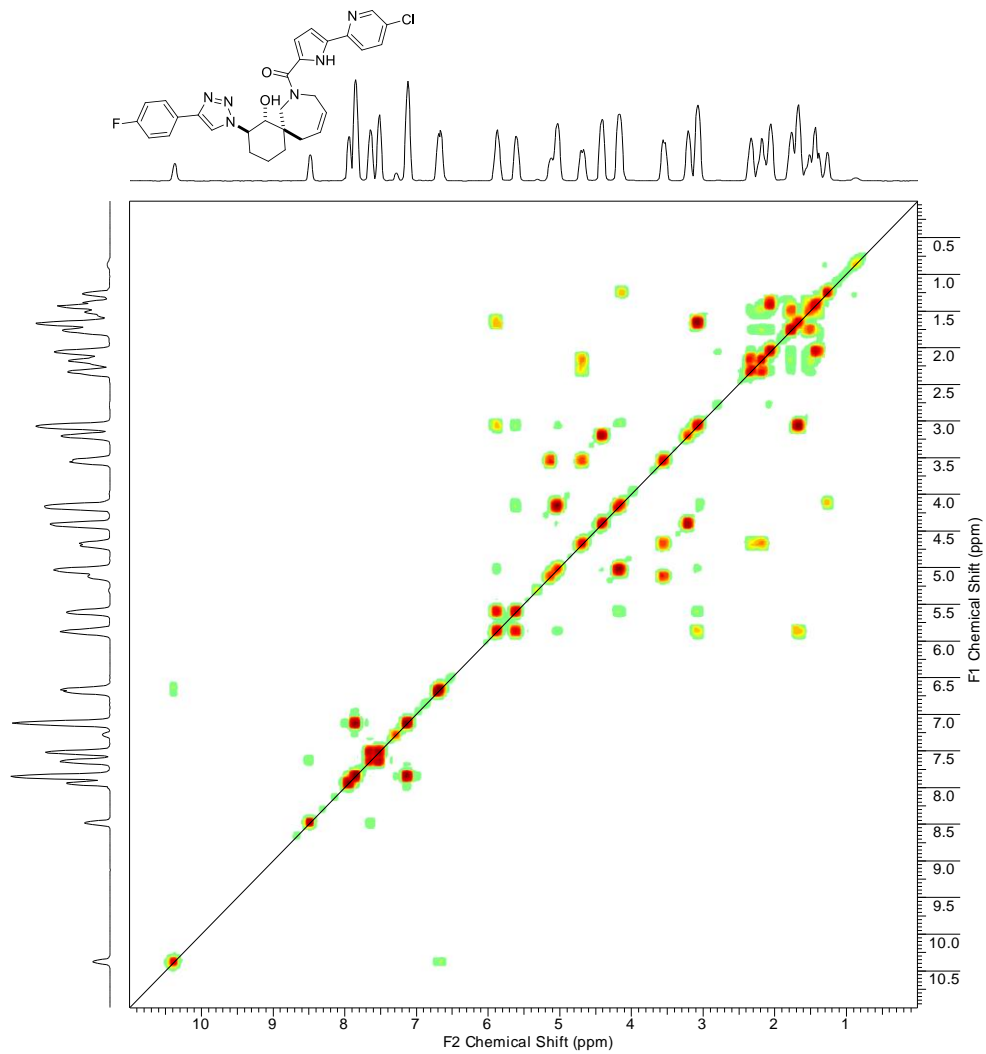
*(5-(5-chloropyridin-2-yl)-1H-pyrrol-2-yl)((1R,2R,6R)-2-(4-(4-fluorophenyl)-1H-1,2,3-triazol-1-yl)-1-hydroxy-8-azaspiro[5.6]dodec-10-en-8-yl)methanone (8)*



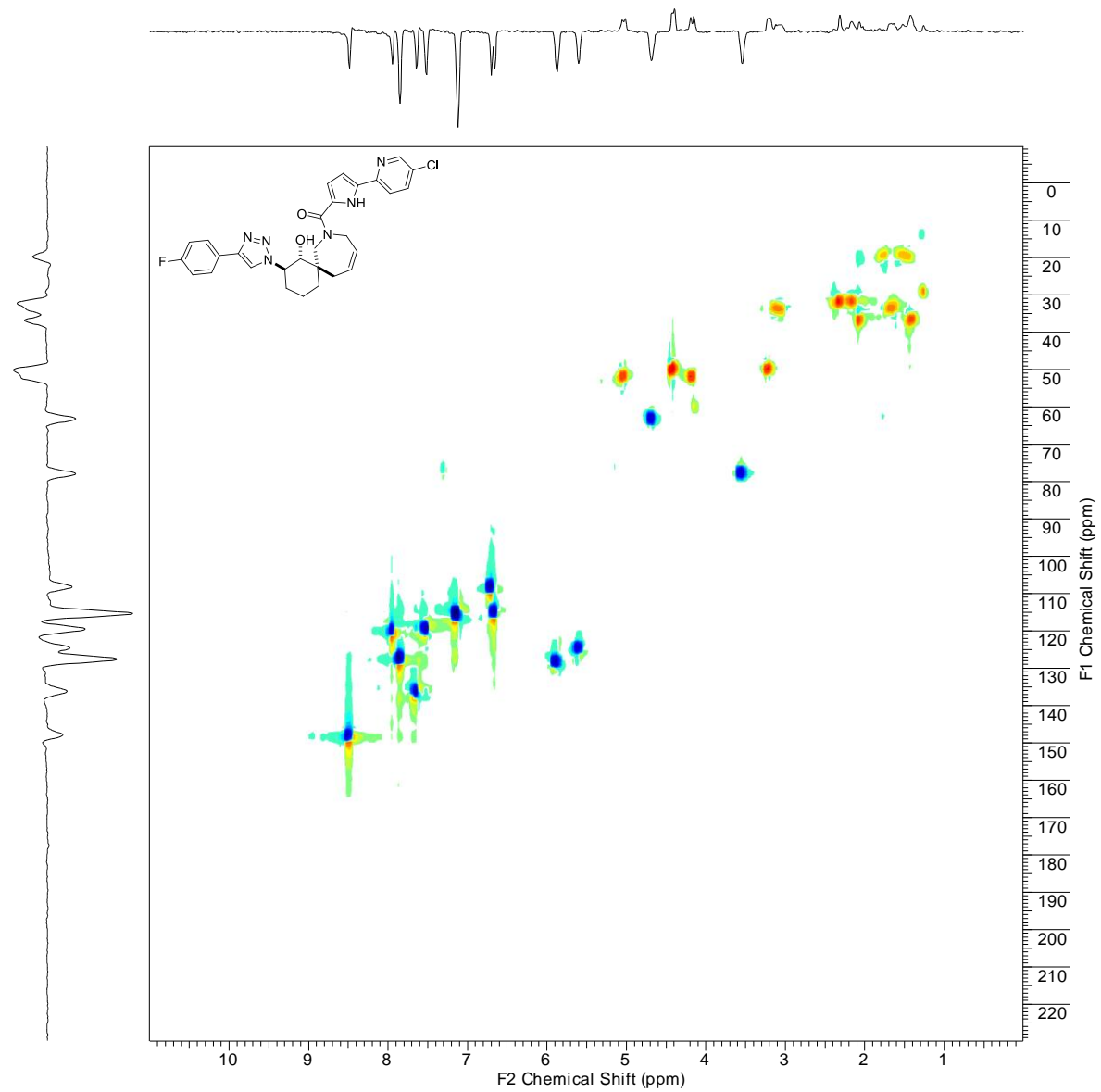
$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) spectrum of 8



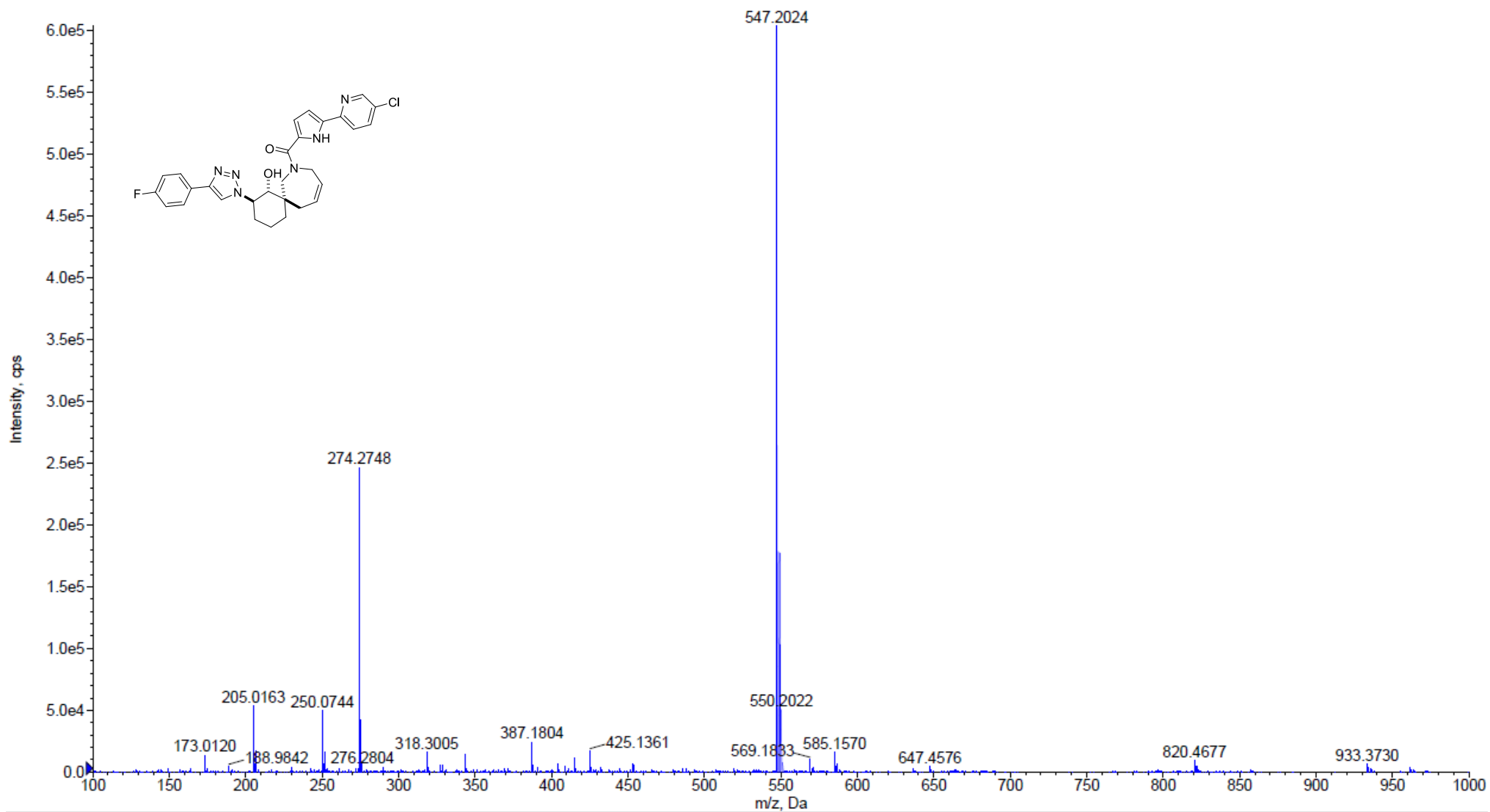
**$^{13}\text{C}$  NMR (100 MHz,  $\text{CDCl}_3$ ) spectrum of 8**



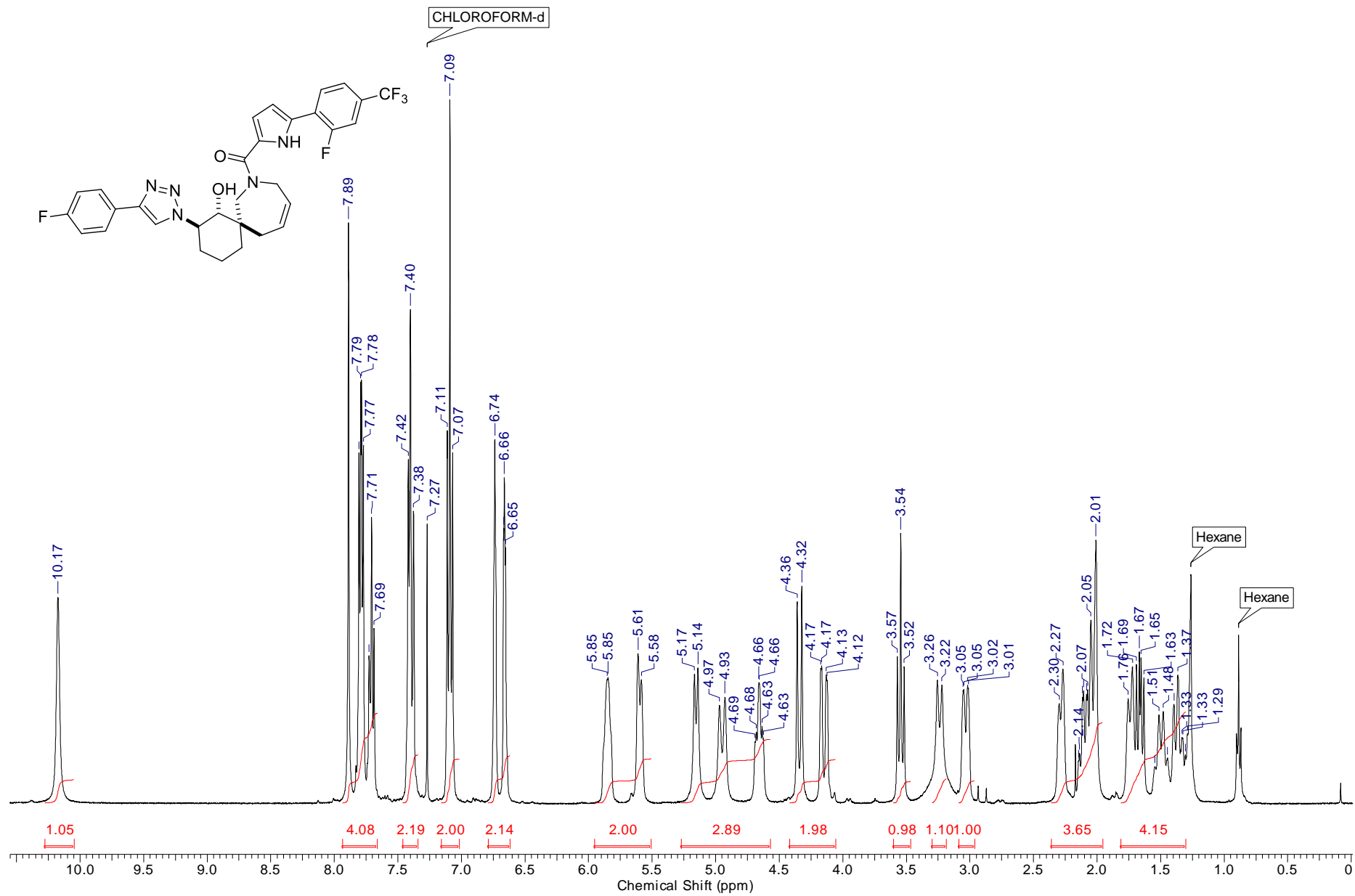
**COSY and NOESY NMR (500 MHz, CDCl<sub>3</sub>) spectra of 8**



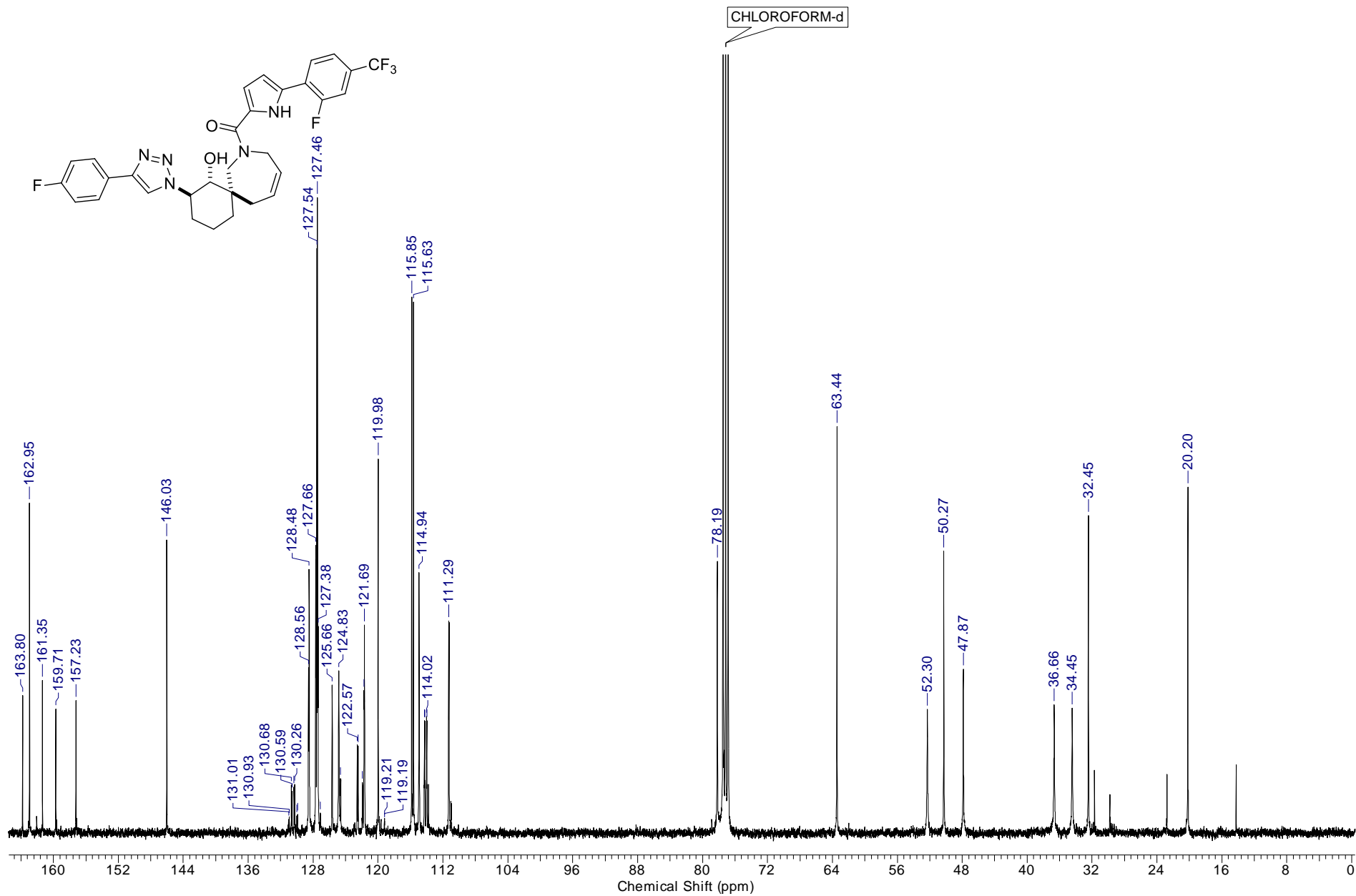
**HSQC NMR (500 MHz, CDCl<sub>3</sub>) spectra of 8**



HRMS spectrum of 8

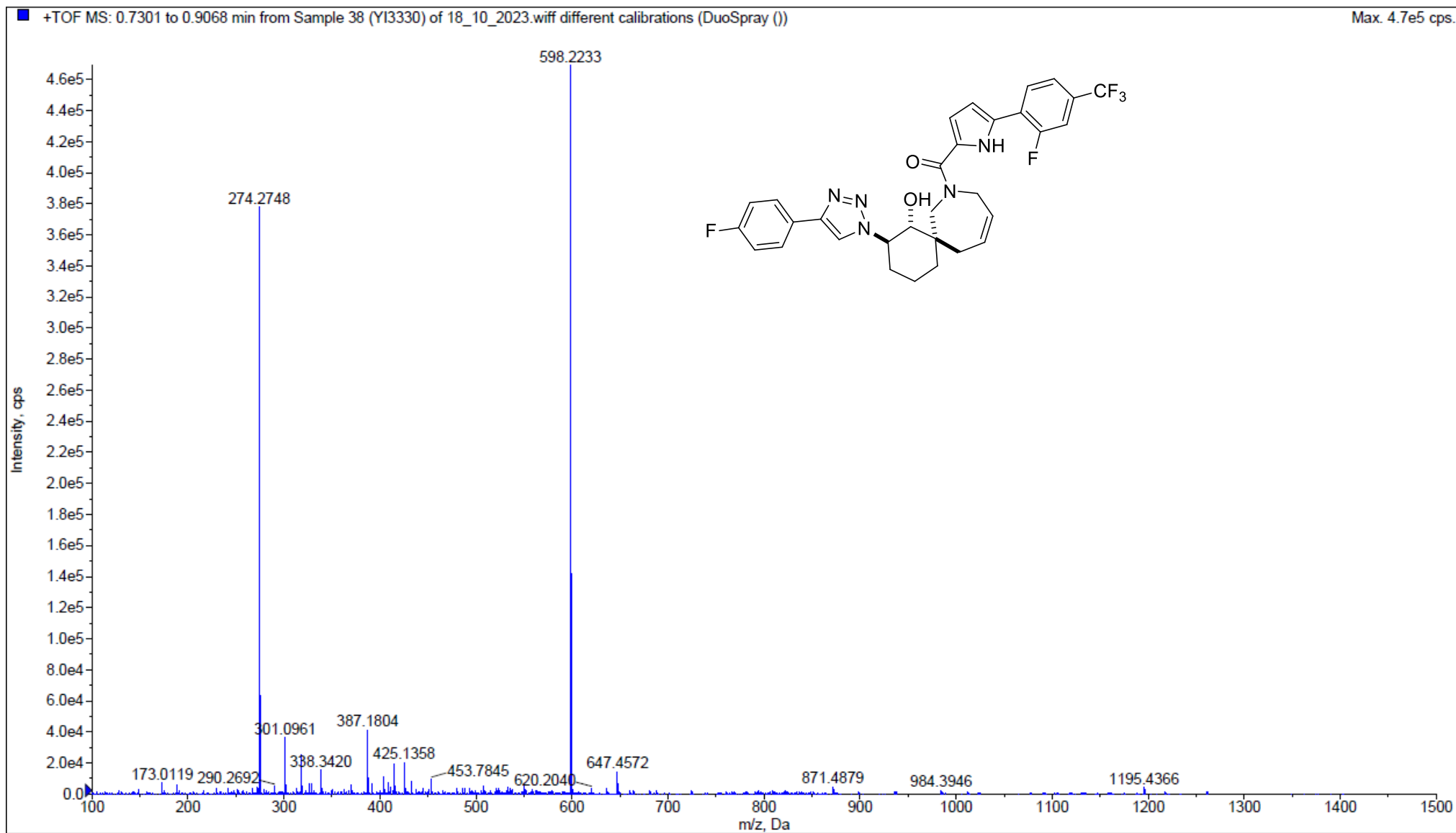


**<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of 5**

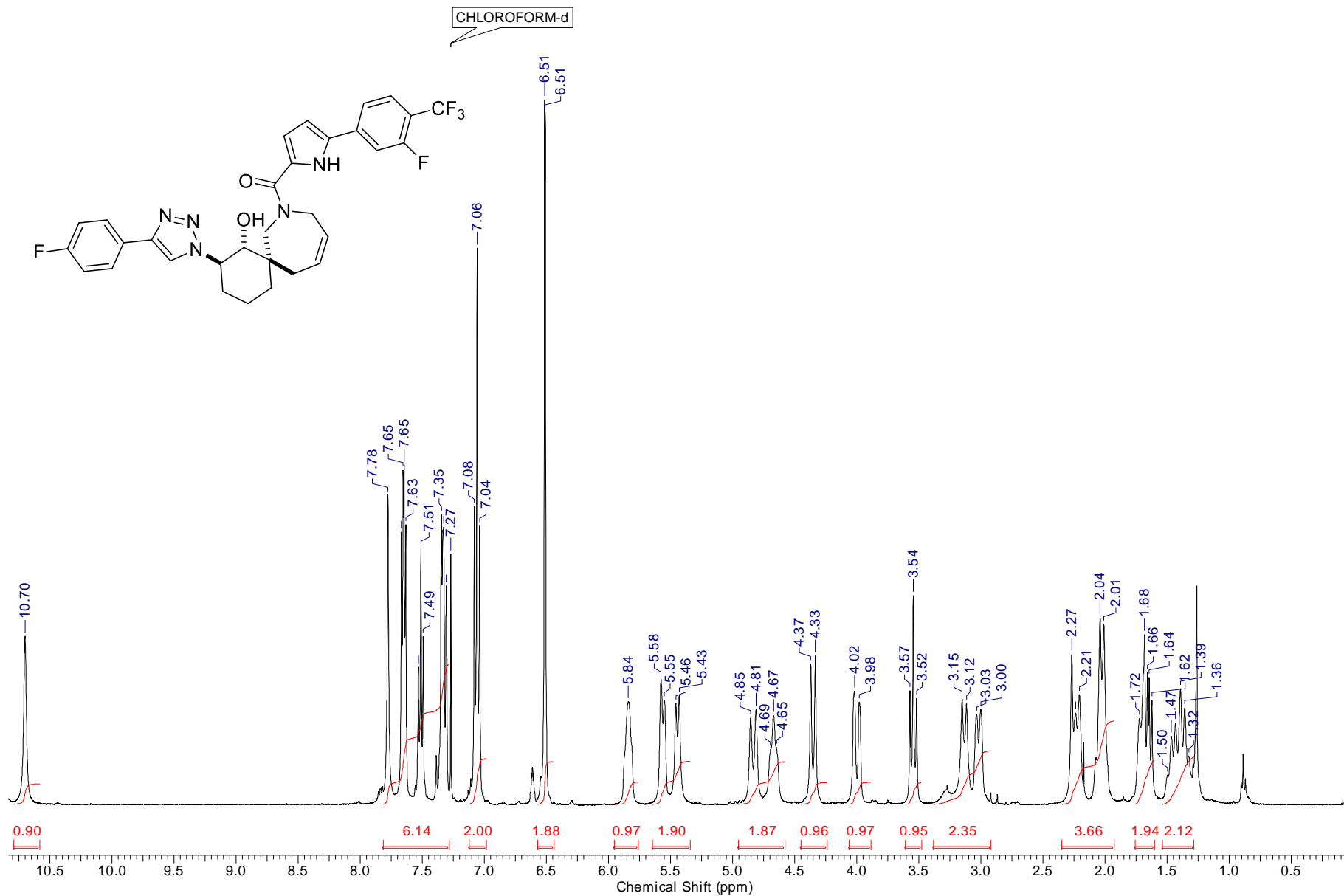


**<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectrum of 5**

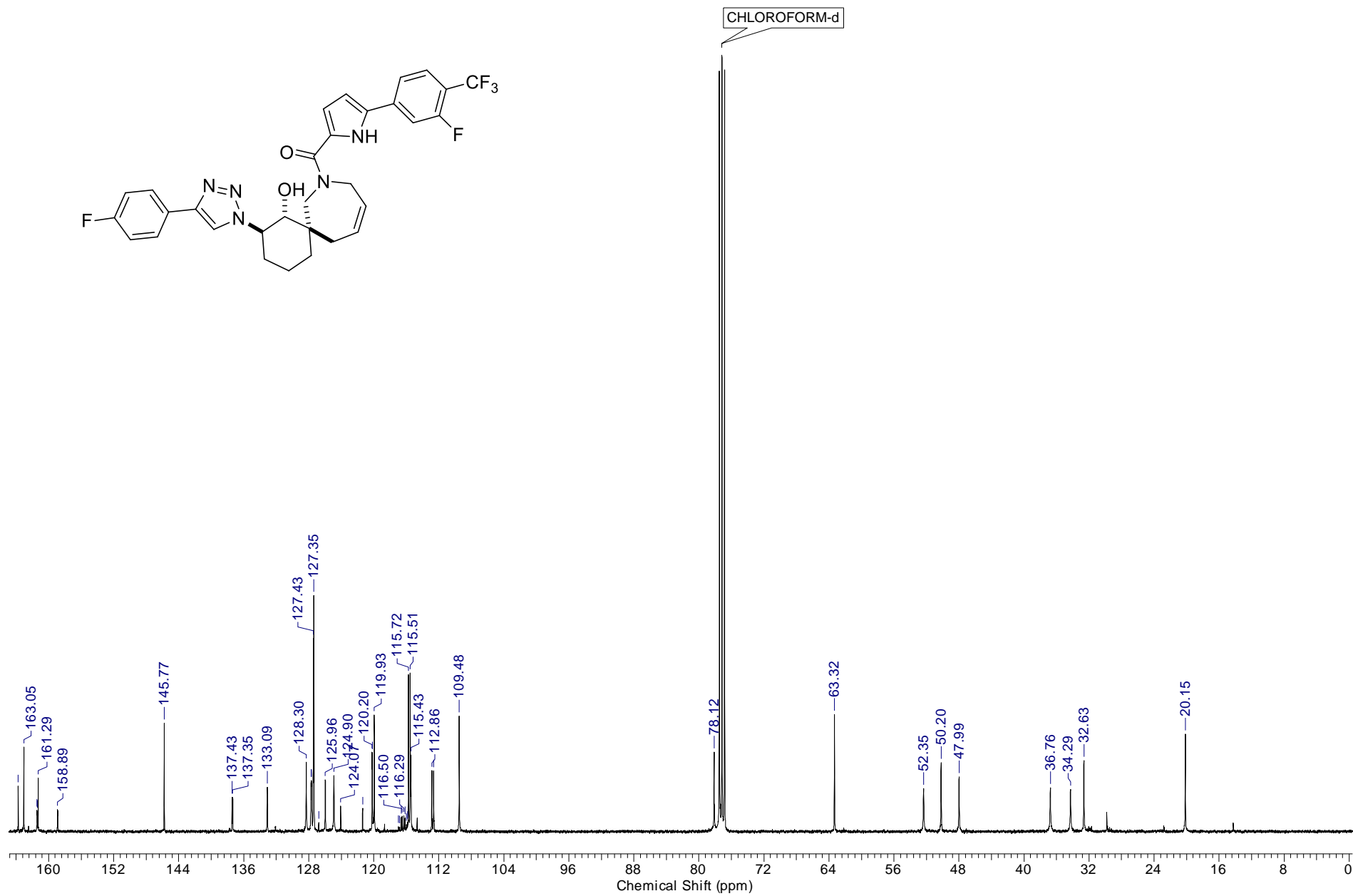
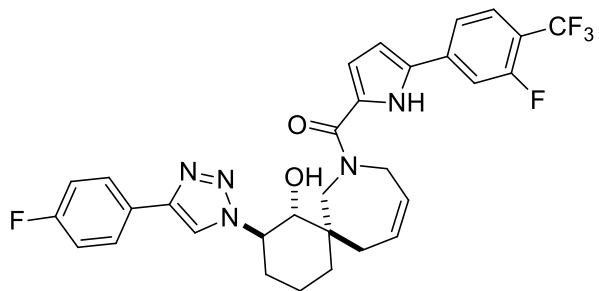




HRMS spectrum of 5



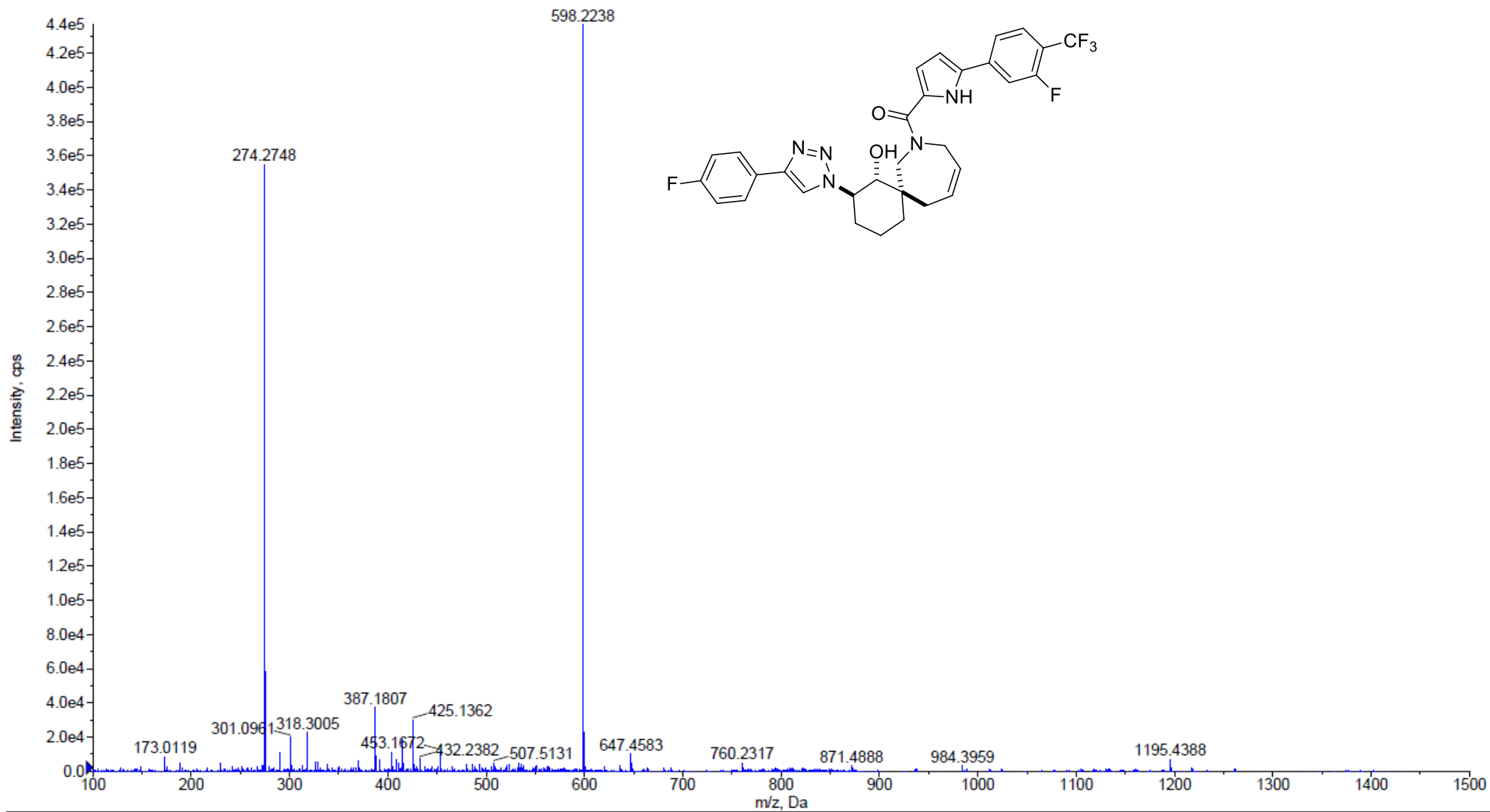
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of 6



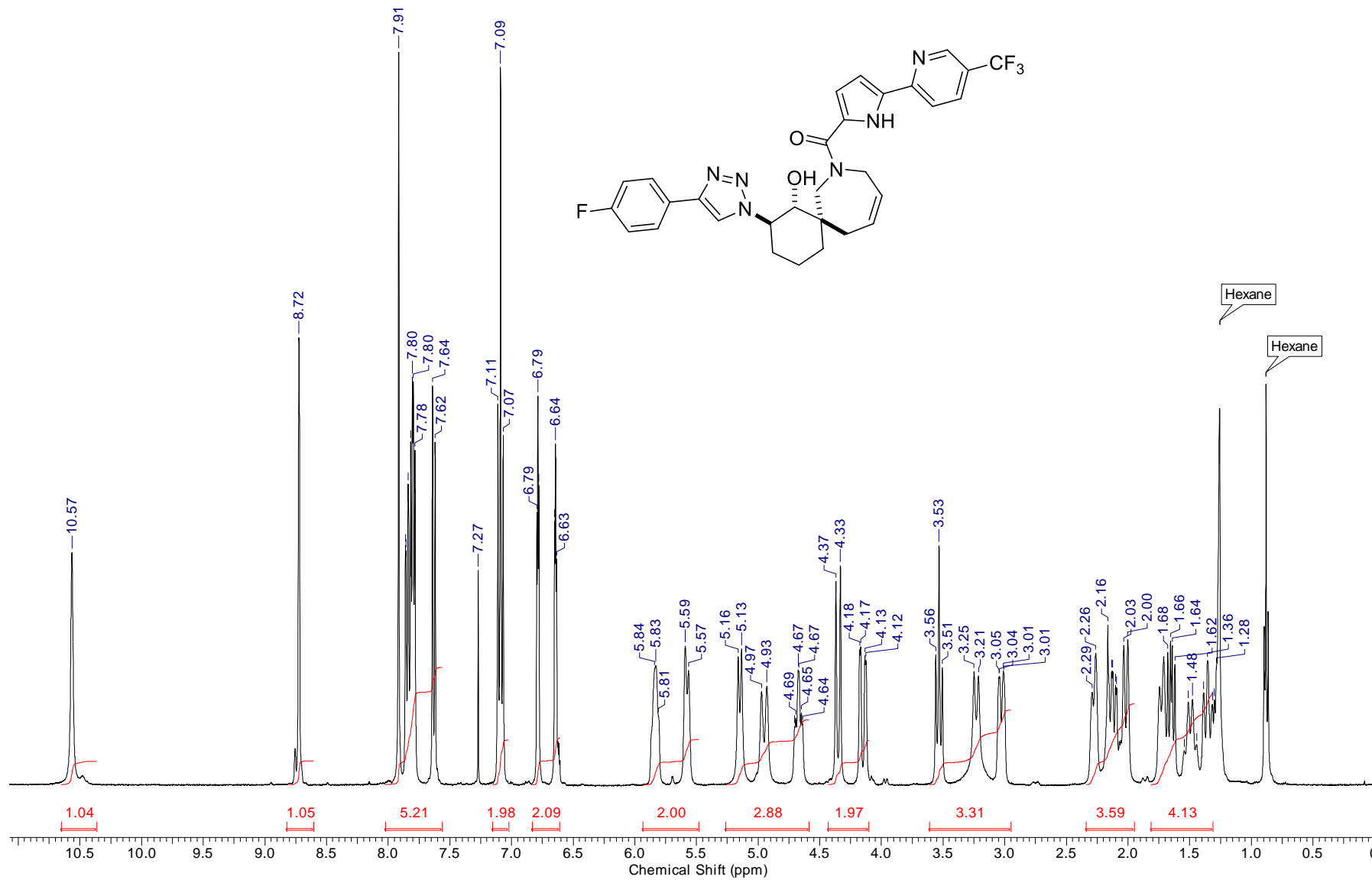
**<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectrum of 6**

+TOF MS: 0.8370 to 1.0509 min from Sample 39 (Y13331) of 18\_10\_2023.wiff different calibrations (DuoSpray ())

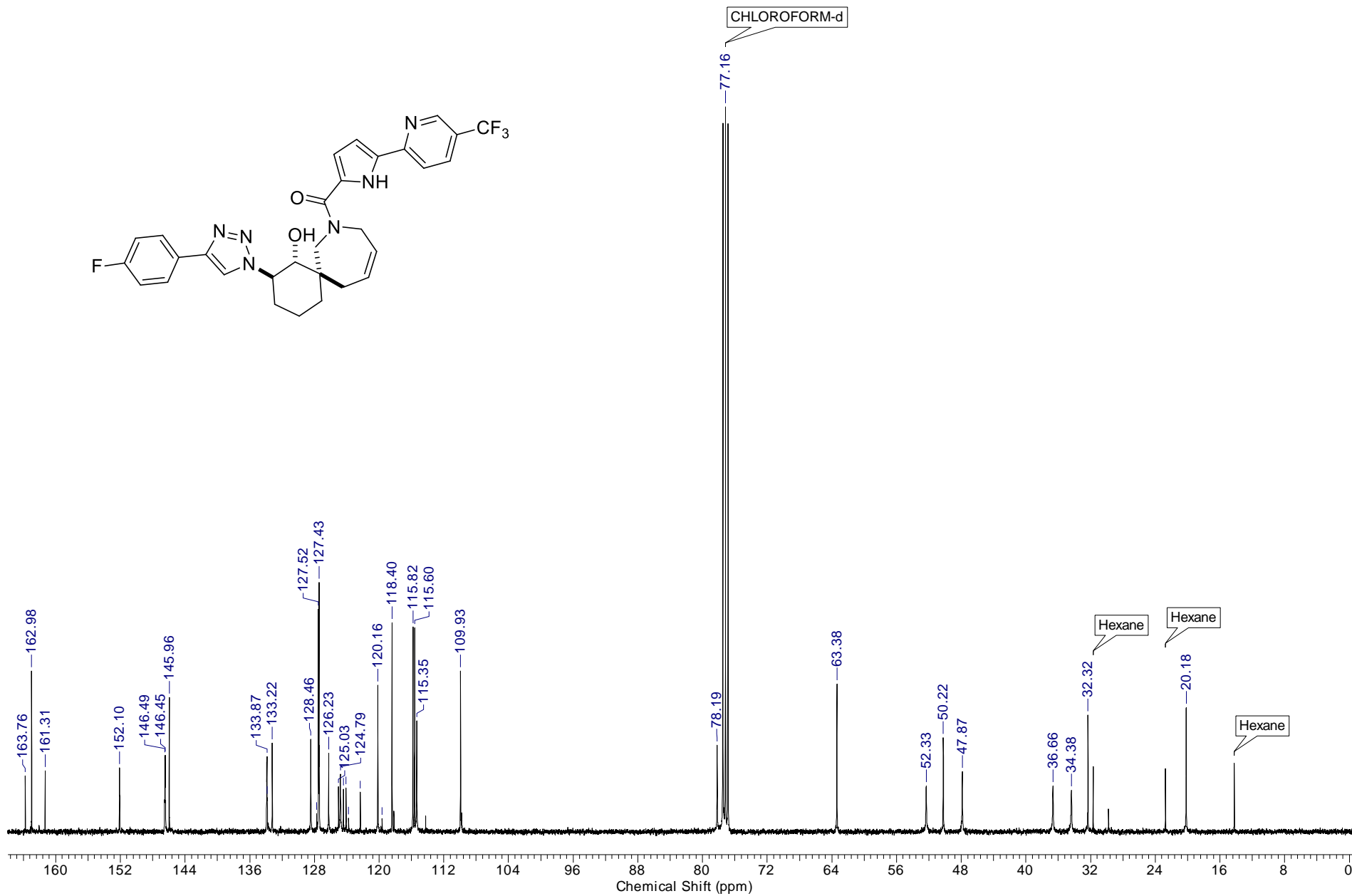
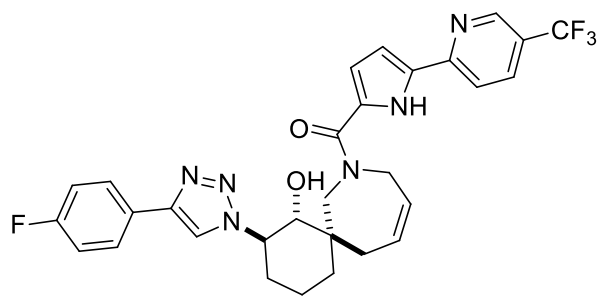
Max. 4.4e5 cps.



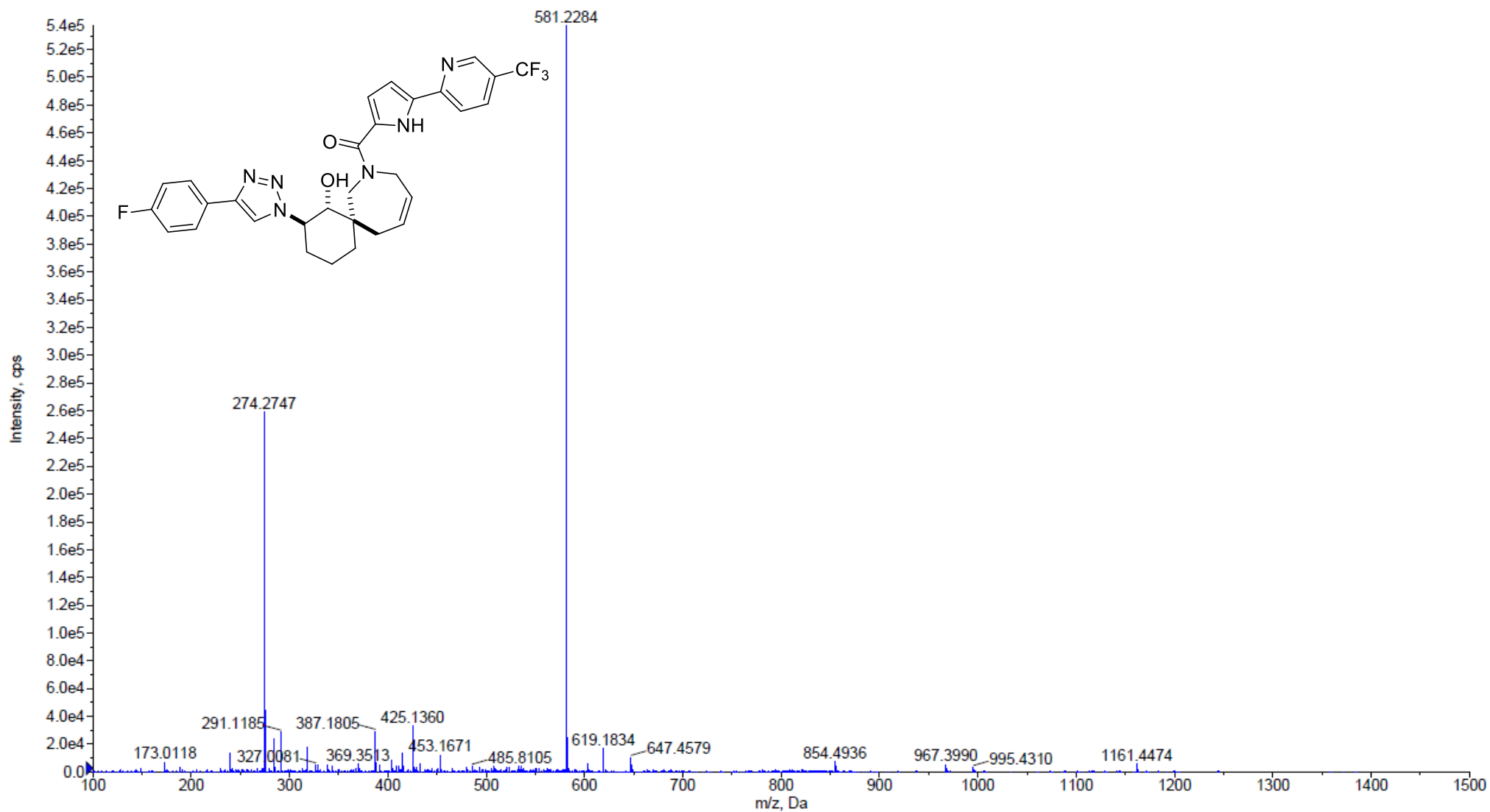
HRMS spectrum of 6



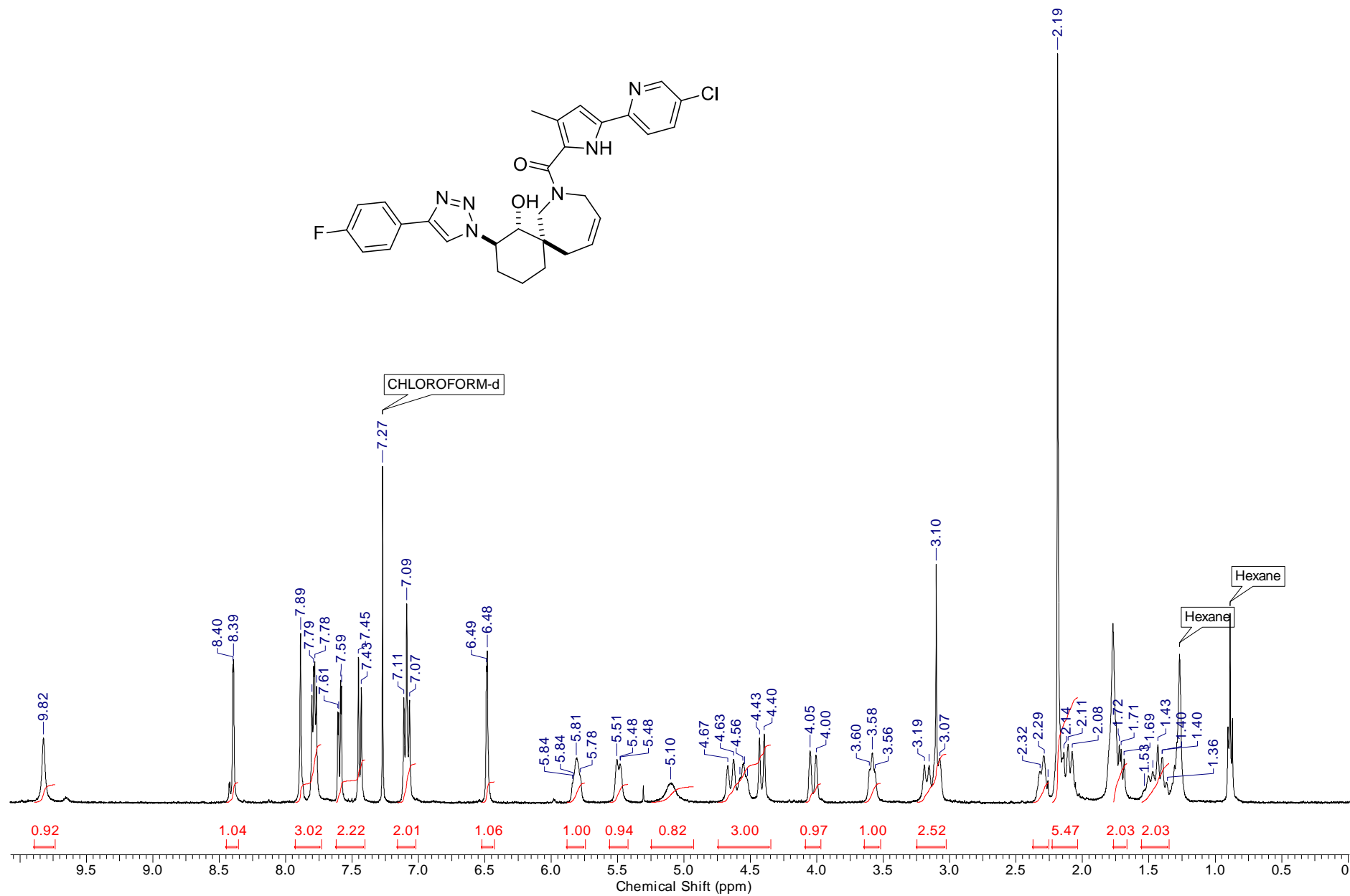
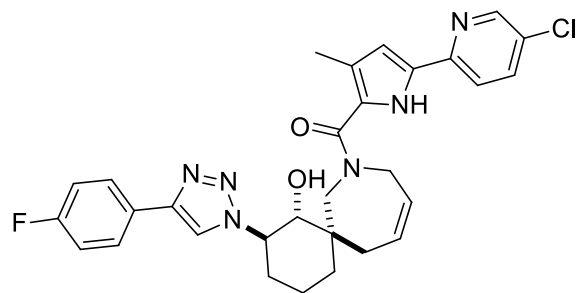
<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of 7



**<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectrum of 7**

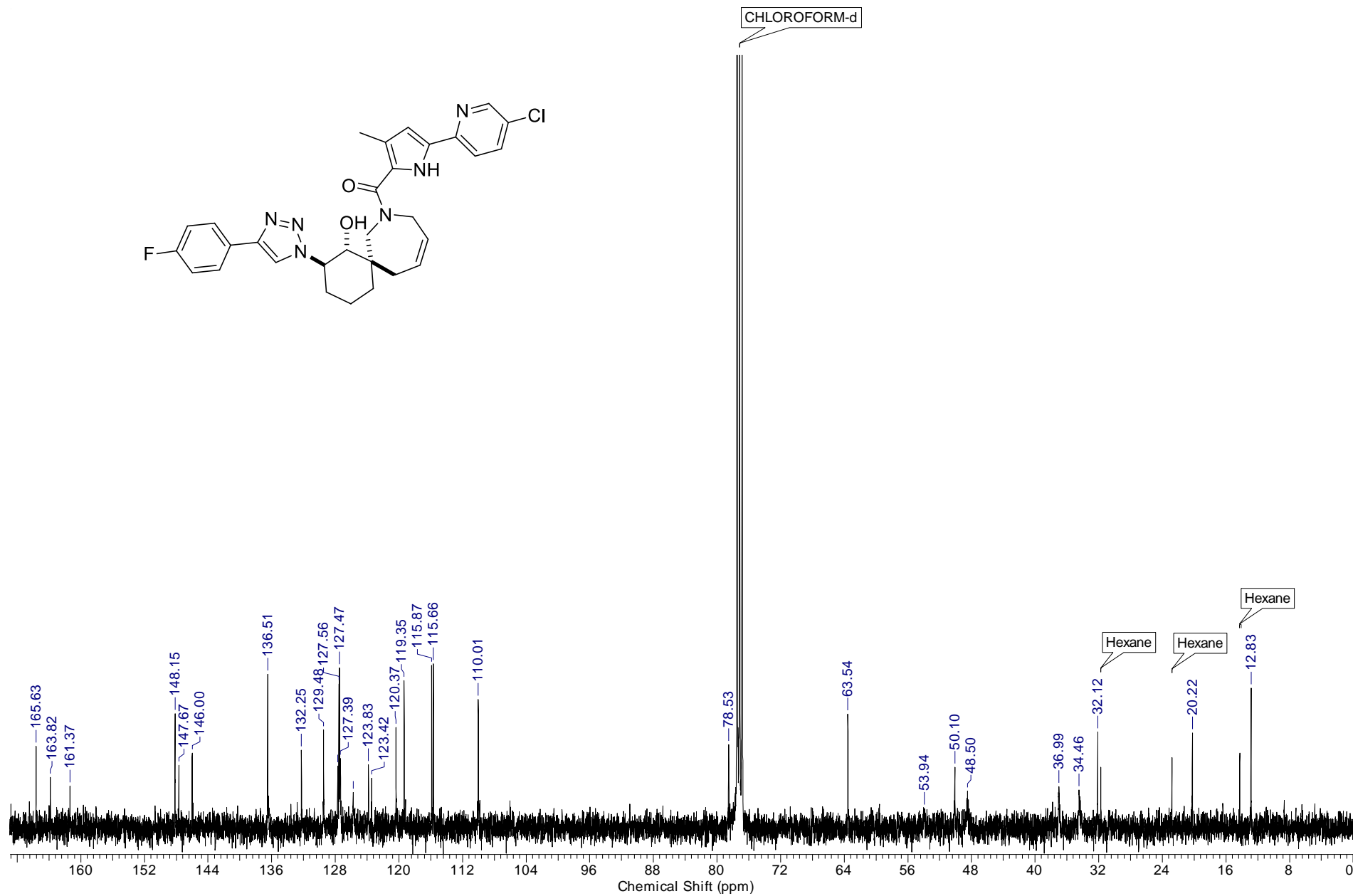
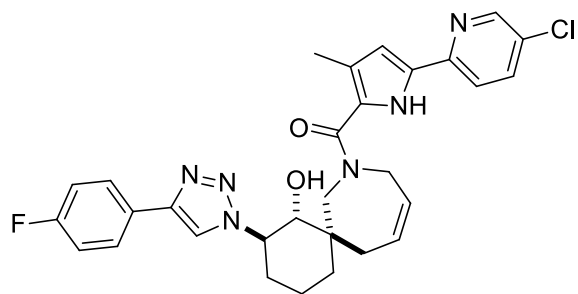


HRMS spectrum of 7

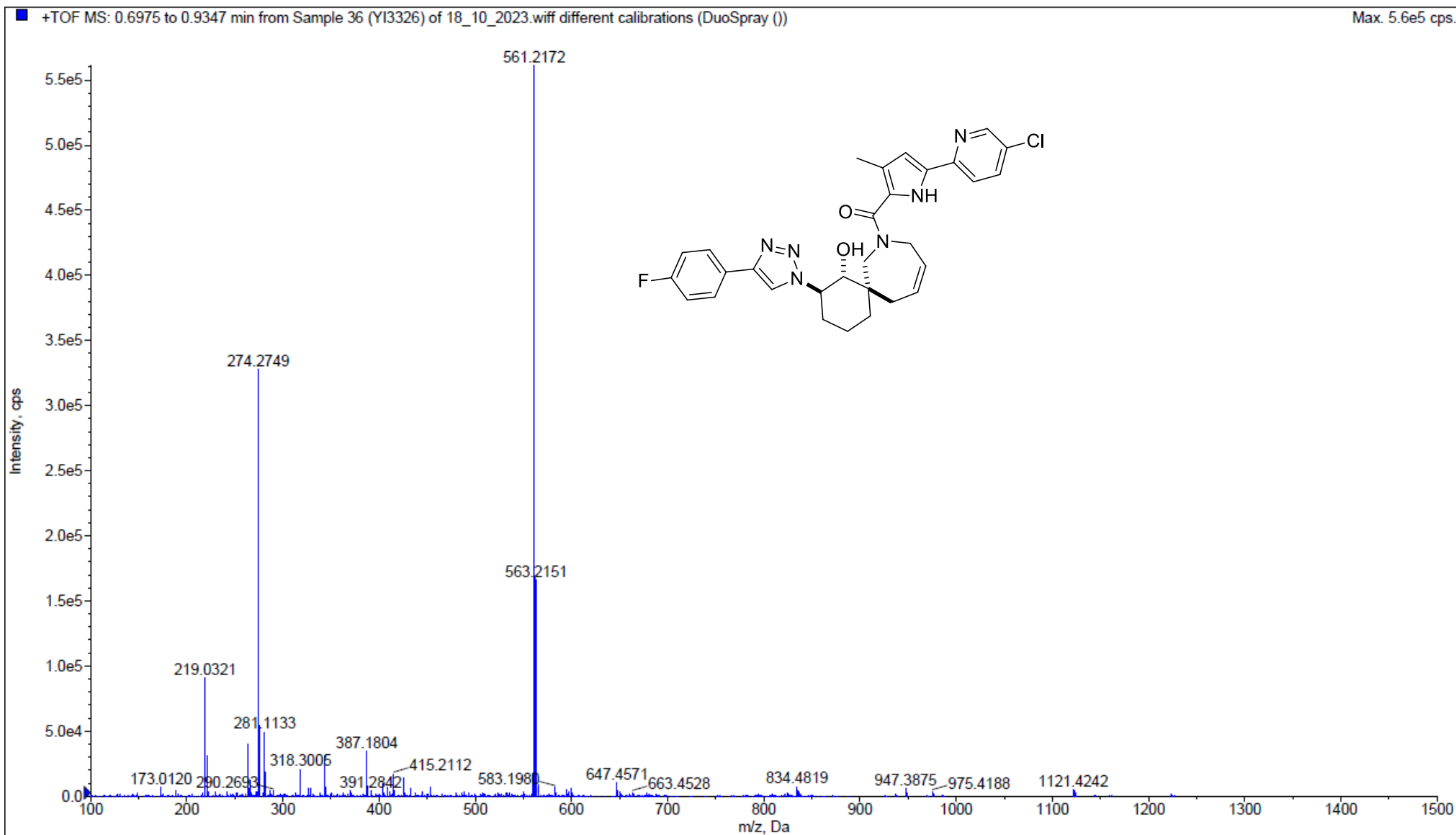


<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of **9**

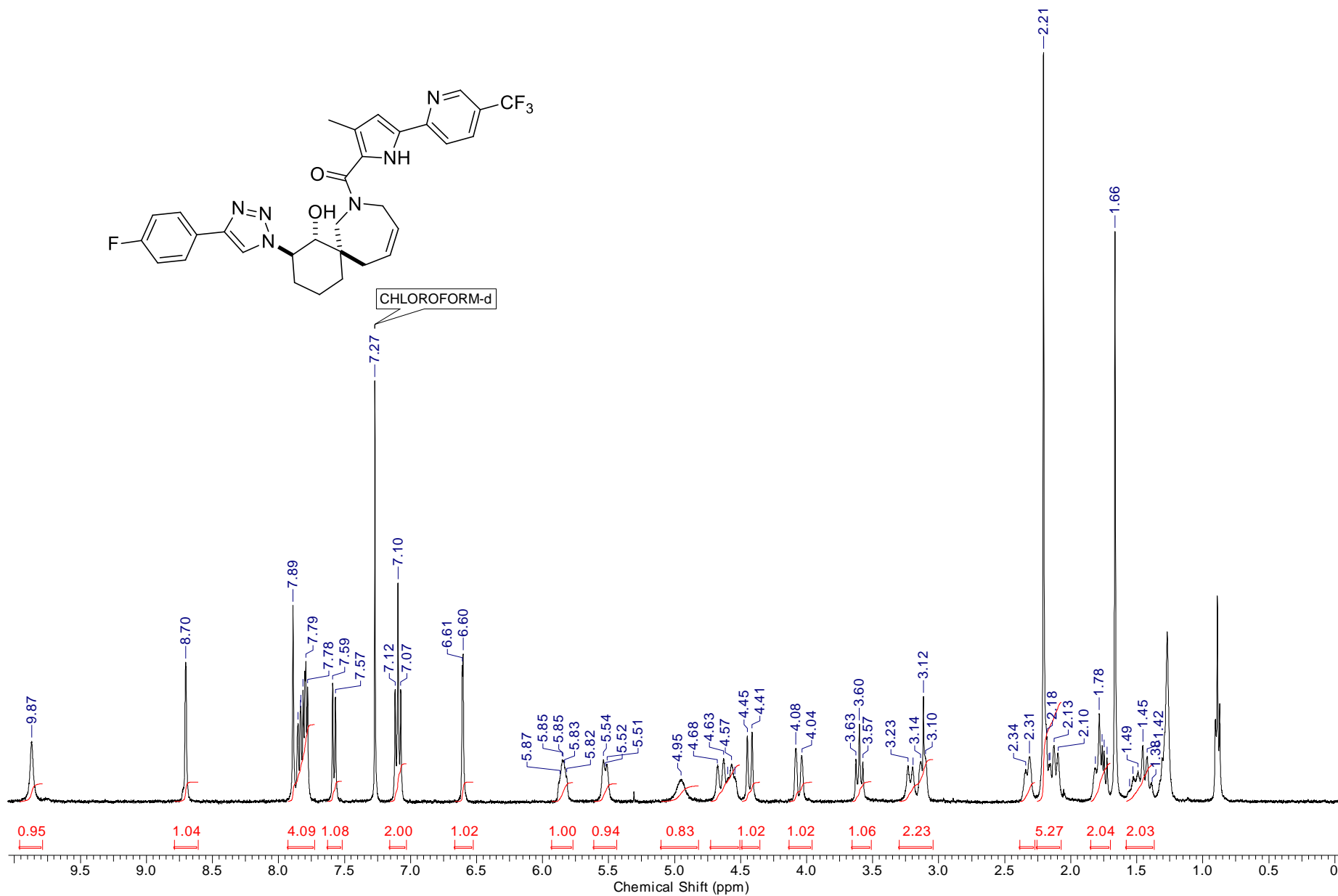




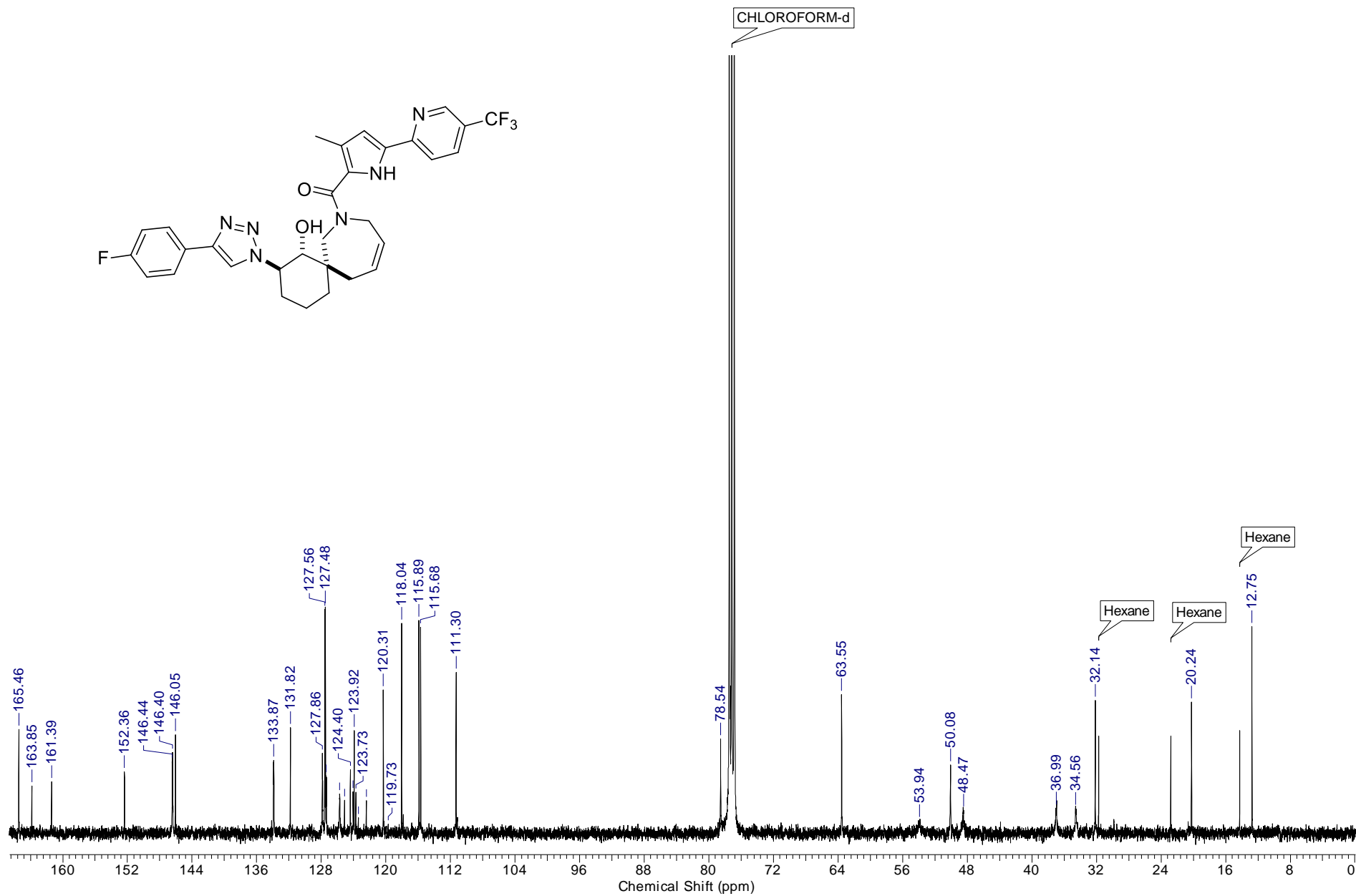
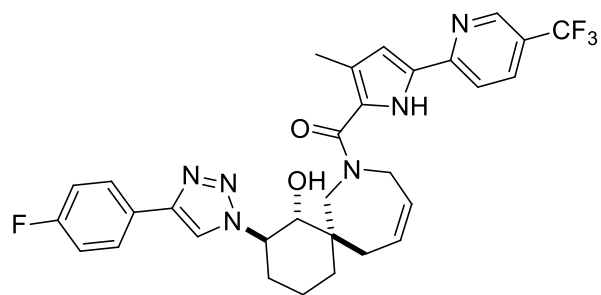
**<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectrum of 9**



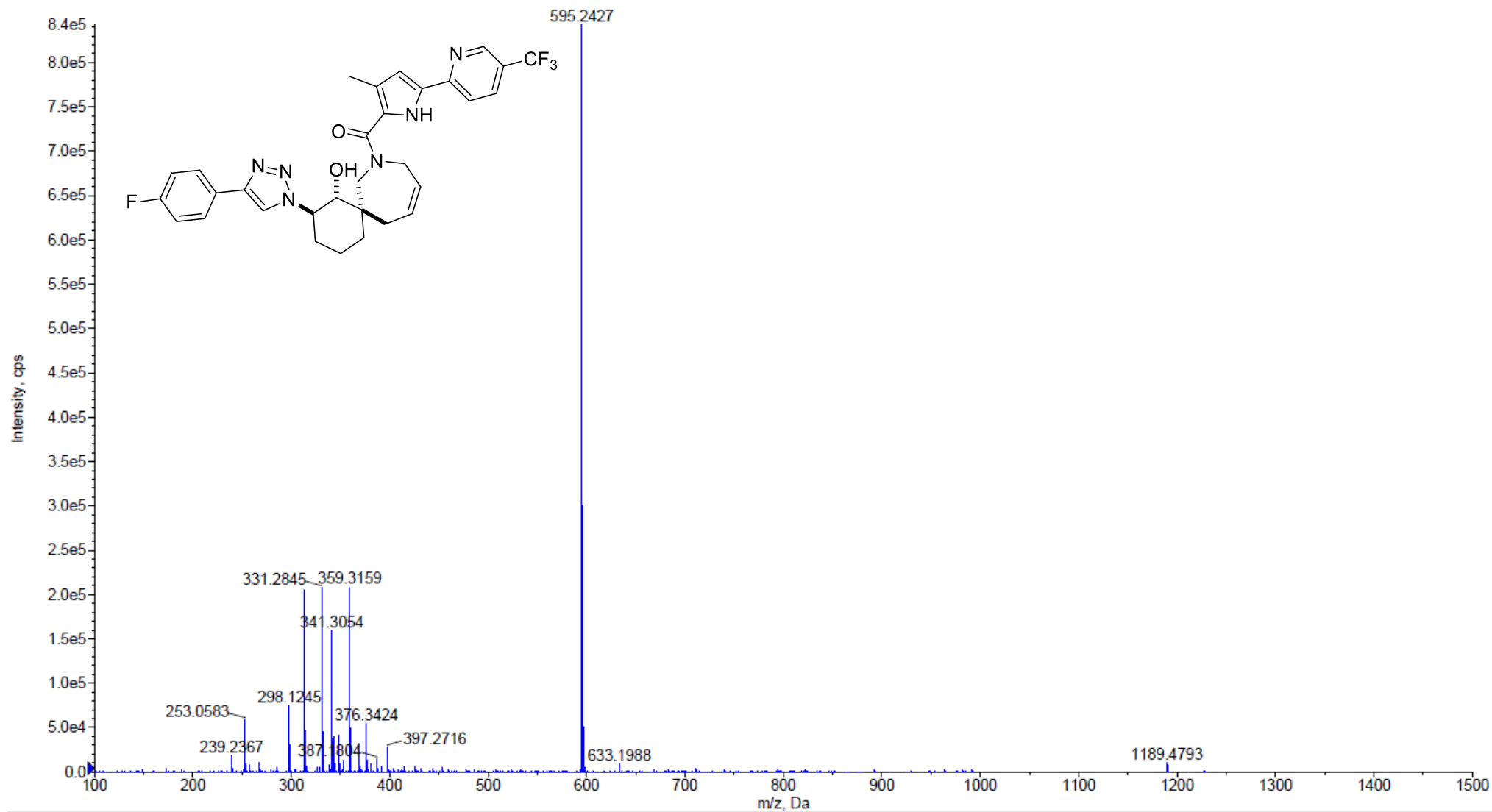
HRMS spectrum of 9



<sup>1</sup>H NMR (400 MHz, CDCl<sub>3</sub>) spectrum of 10



**<sup>13</sup>C NMR (100 MHz, CDCl<sub>3</sub>) spectrum of 10**



HRMS spectrum of 10