

# Supplemental information

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## S1. The $^1\text{H-NMR}$ spectra of key intermediates.

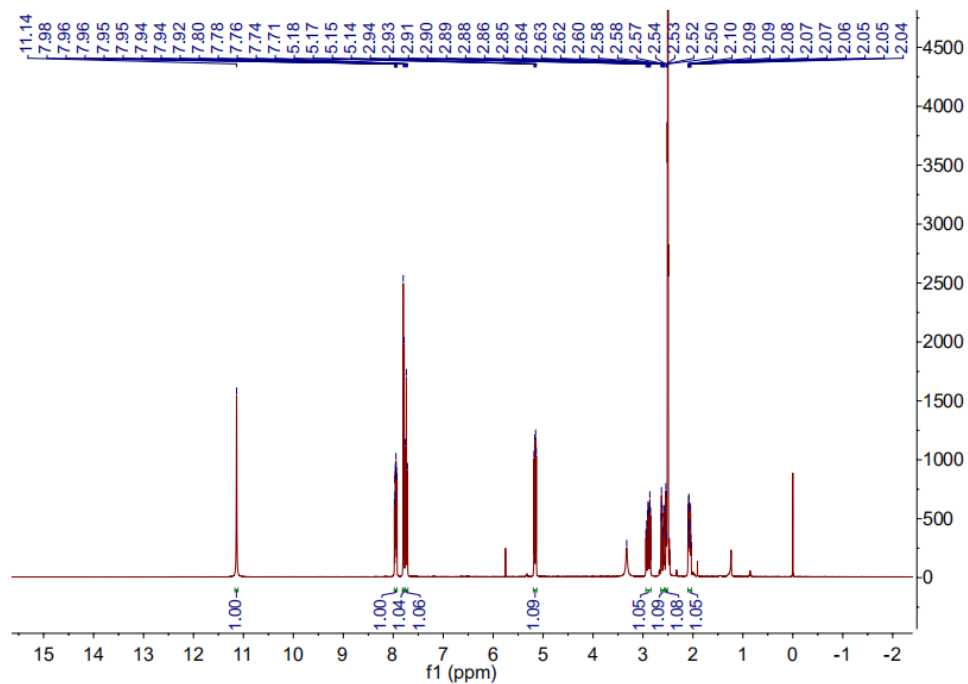


Figure S1. The  $^1\text{H-NMR}$  spectrum of Compd. 2

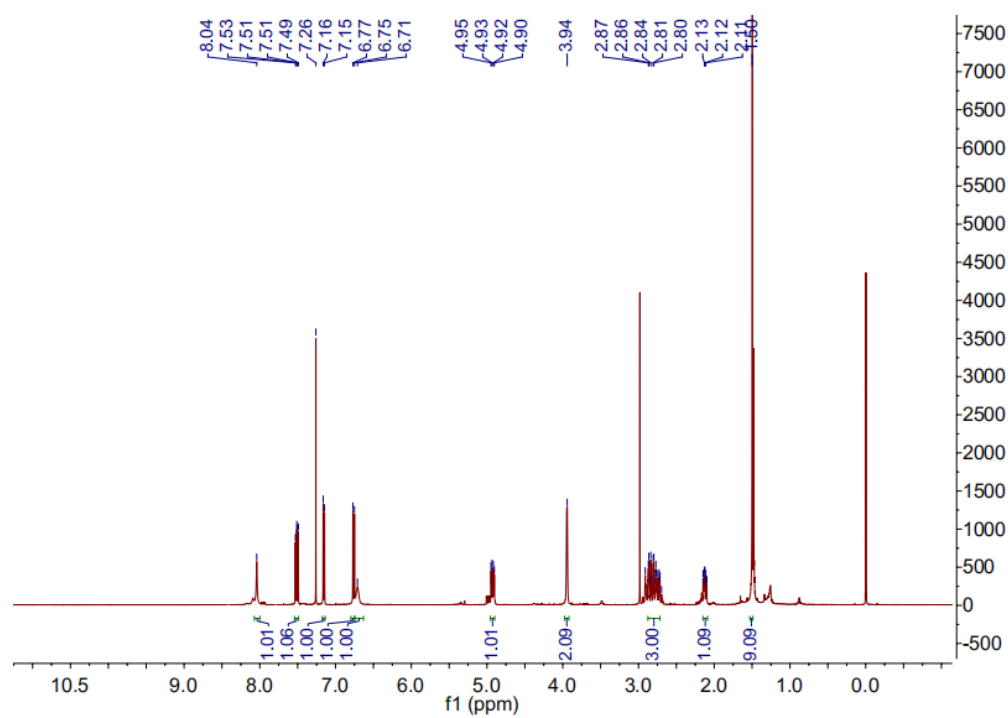
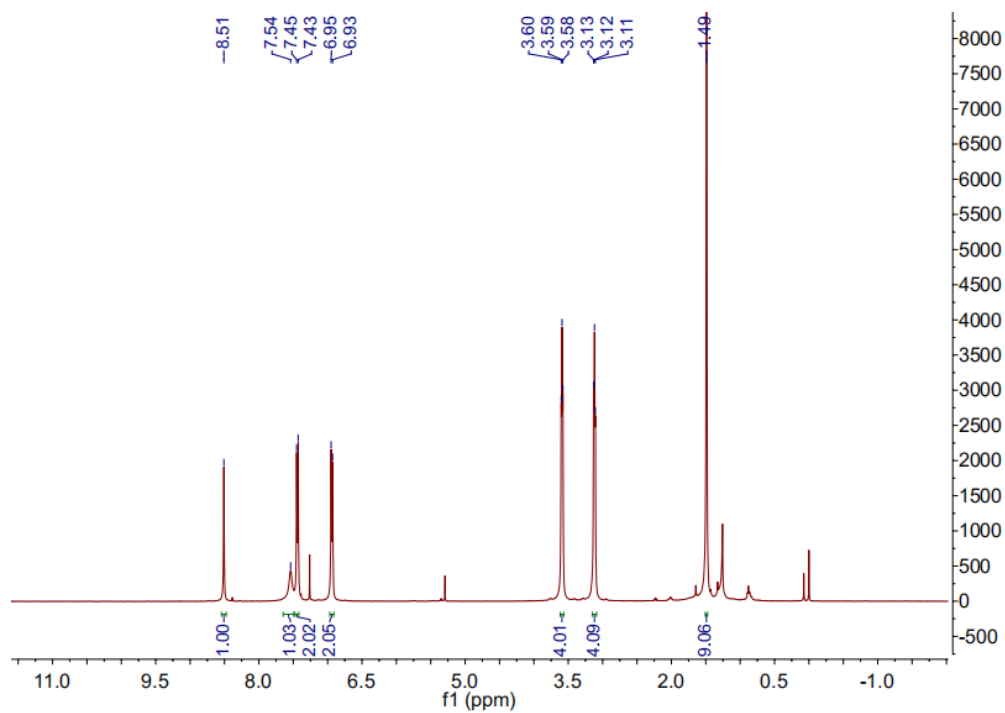
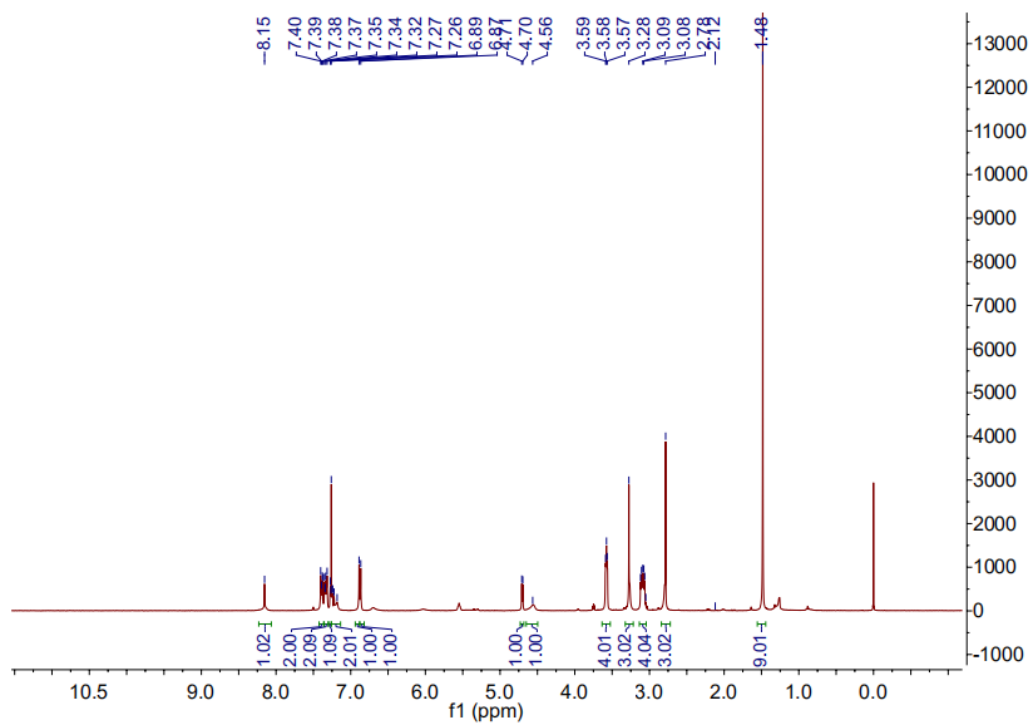


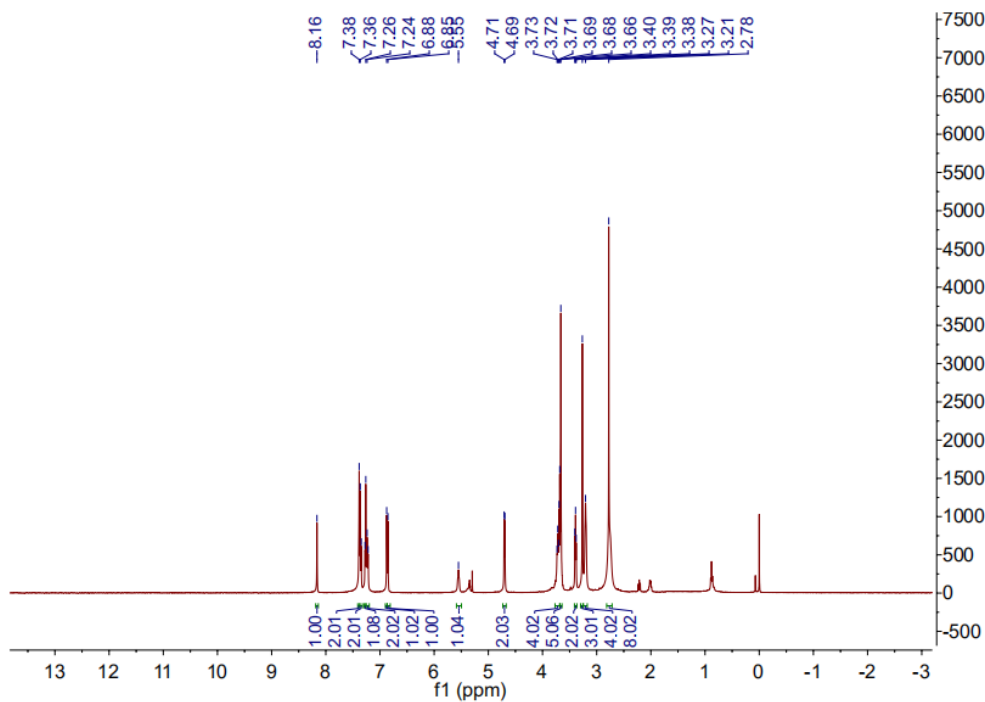
Figure S2. The  $^1\text{H-NMR}$  spectrum of Compd. 3



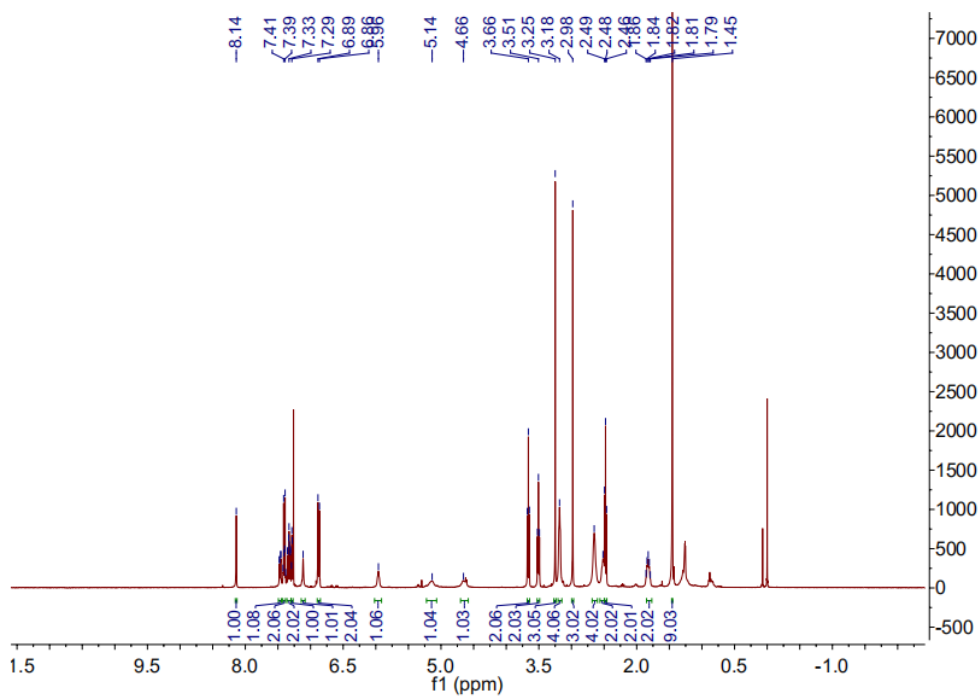
**Figure S3.** The  $^1\text{H}$ -NMR spectrum of Compd. **10**



**Figure S4.** The  $^1\text{H}$ -NMR spectrum of Compd. **11**



**Figure S5.** The  $^1\text{H}$ -NMR spectrum of Compd. 13



**Figure S6.** The  $^1\text{H}$ -NMR spectrum of Compd. 17

## S2. The $^1\text{H}$ -NMR and $^{13}\text{C}$ -NMR spectra of final compounds.

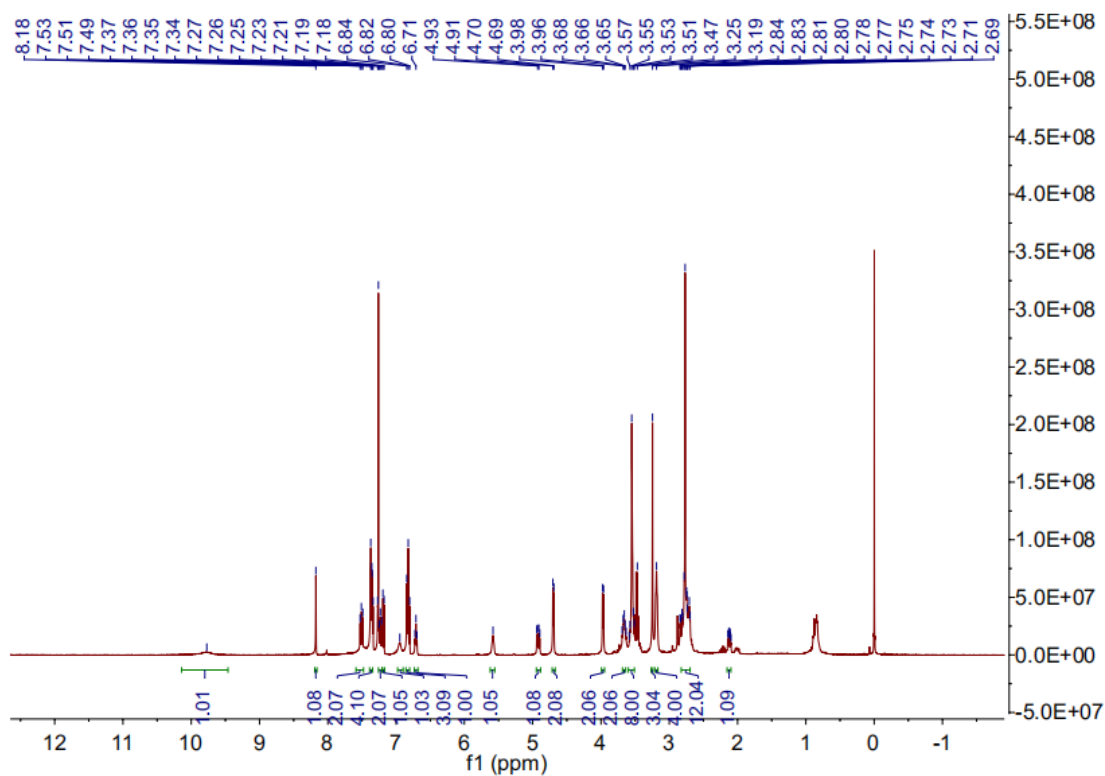


Figure S7. The  $^1\text{H}$ -NMR spectrum of Compd. 15

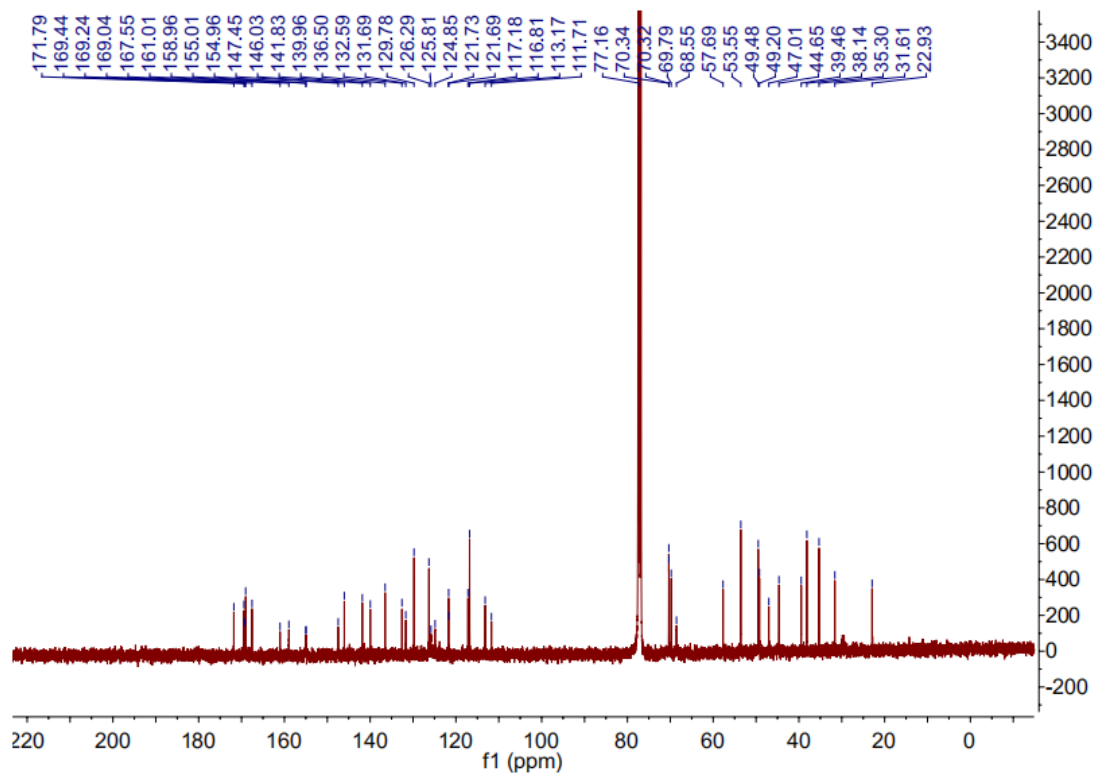
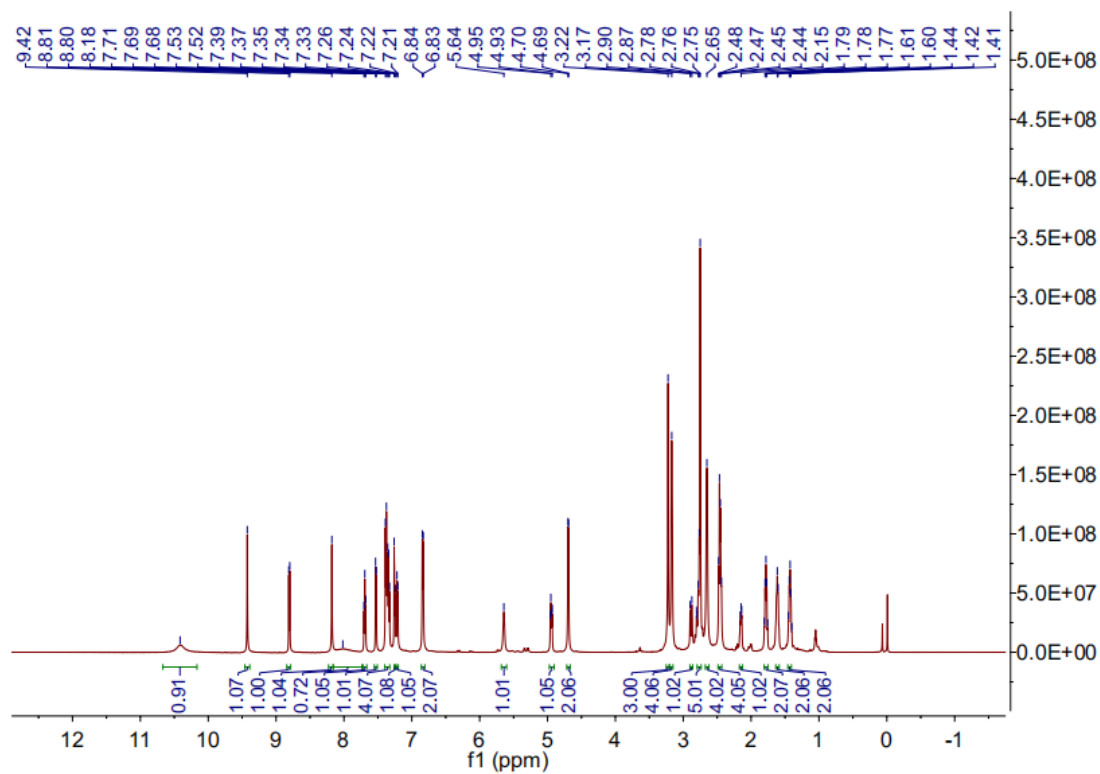
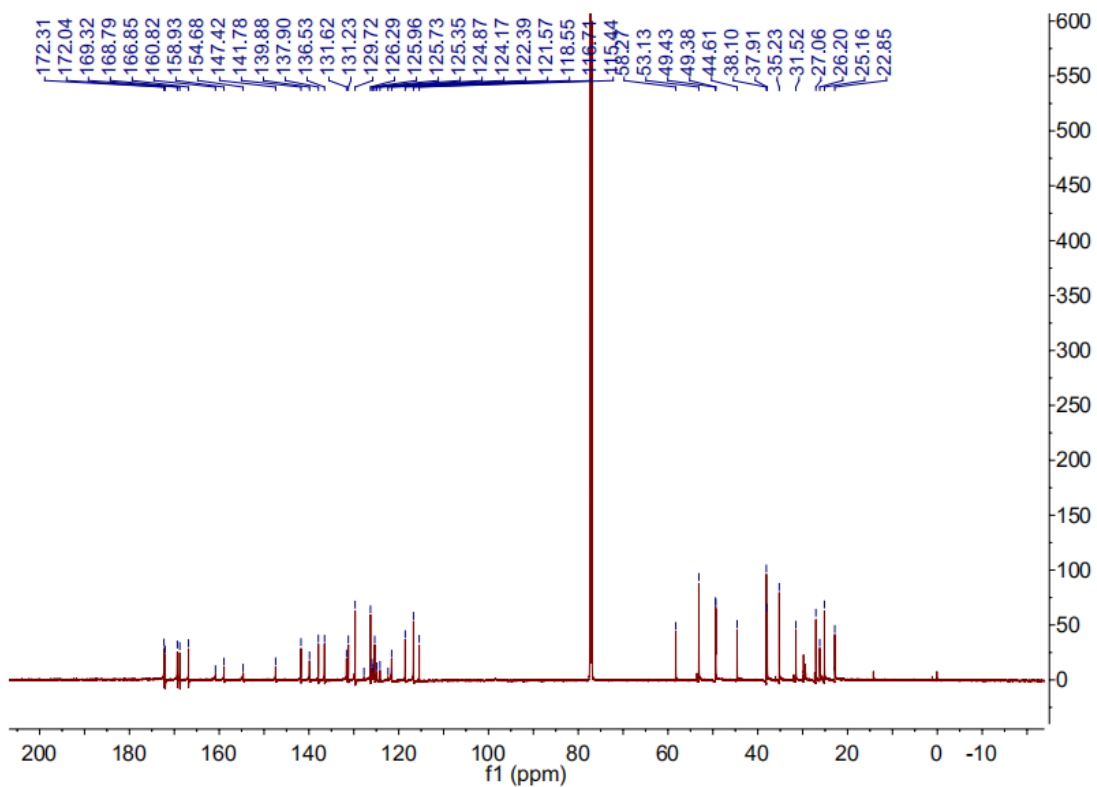


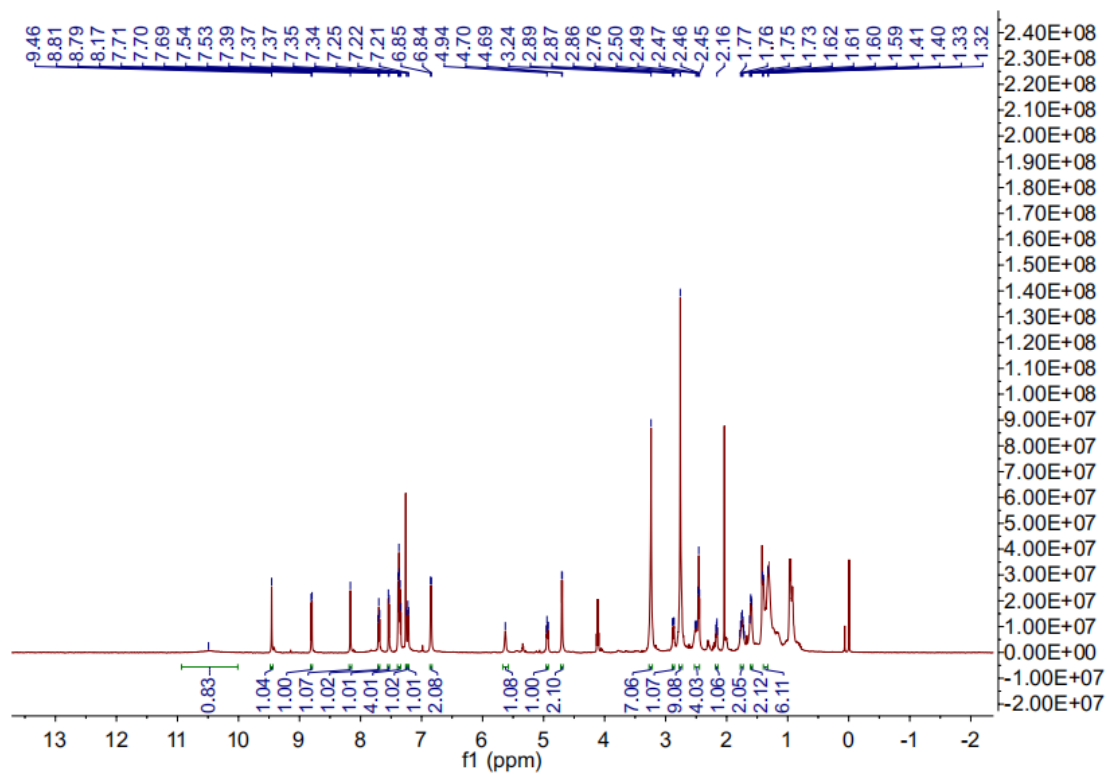
Figure S8. The  $^{13}\text{C}$ -NMR spectrum of Compd. 15



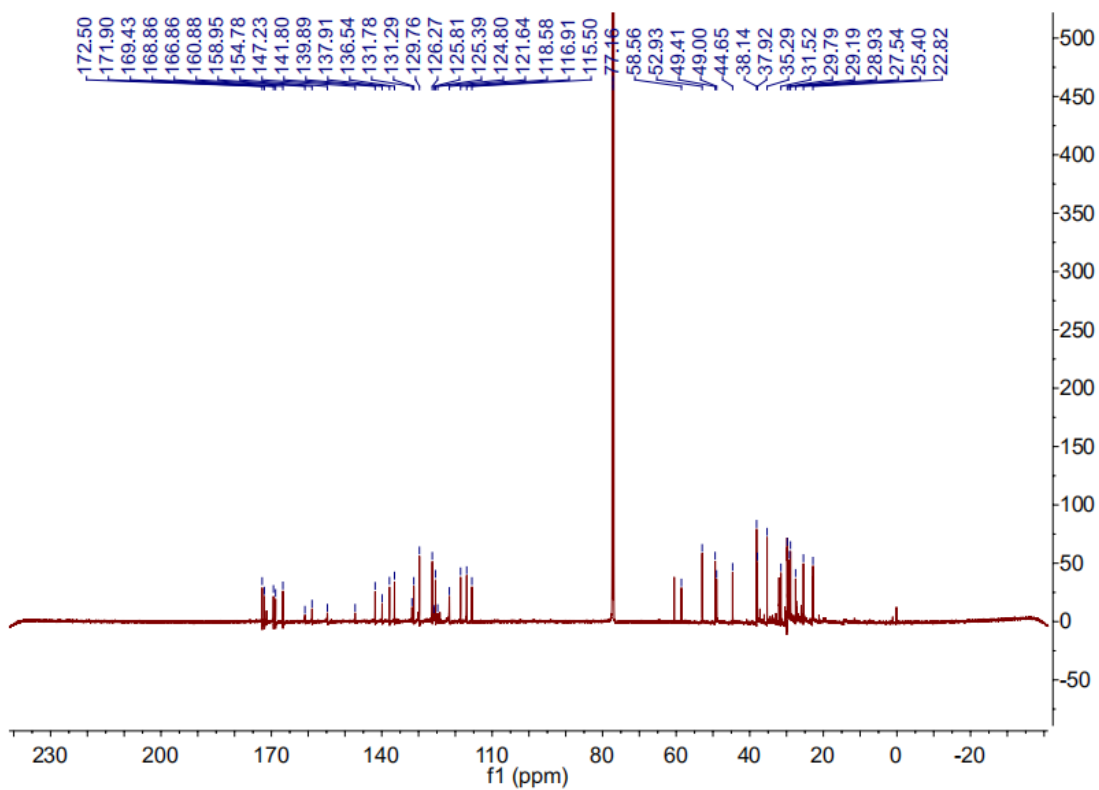
**Figure S9.** The <sup>1</sup>H-NMR spectrum of Compd. 16a



**Figure S10.** The <sup>13</sup>C-NMR spectrum of Compd. 16a



**Figure S11.** The  $^1\text{H}$ -NMR spectrum of Compd. **16b**



**Figure S12.** The  $^{13}\text{C}$ -NMR spectrum of Compd. **16b**

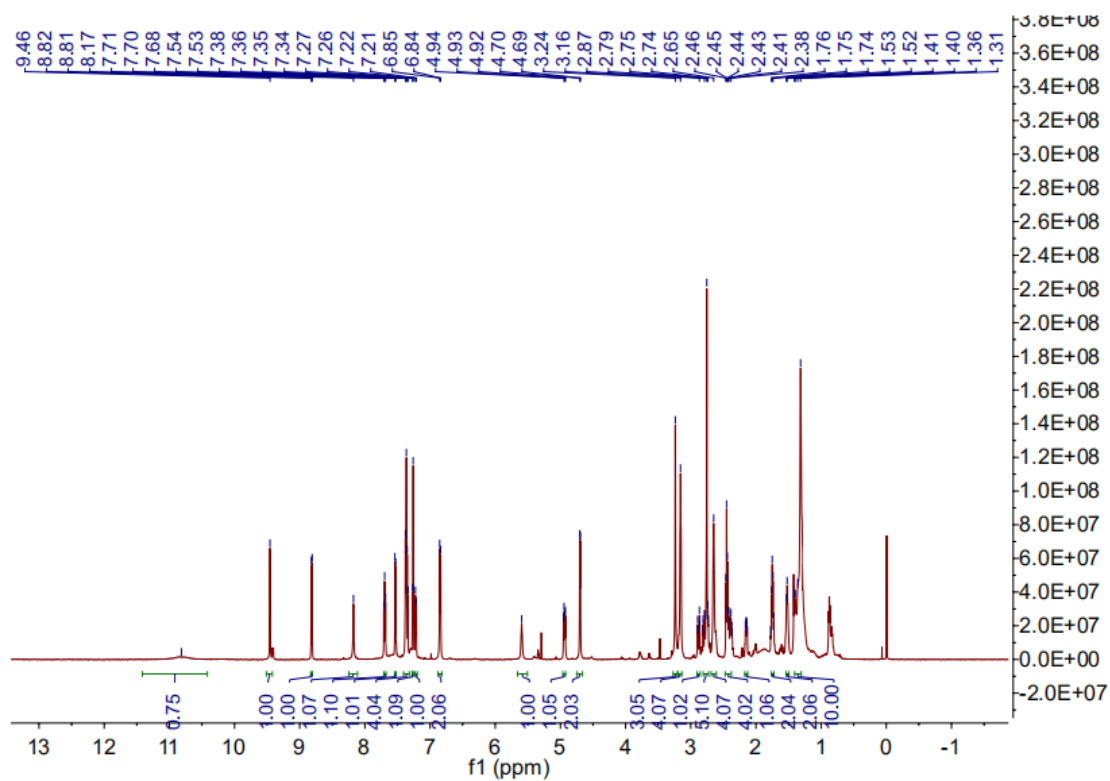


Figure S13. The <sup>1</sup>H-NMR spectrum of Compd. 16c

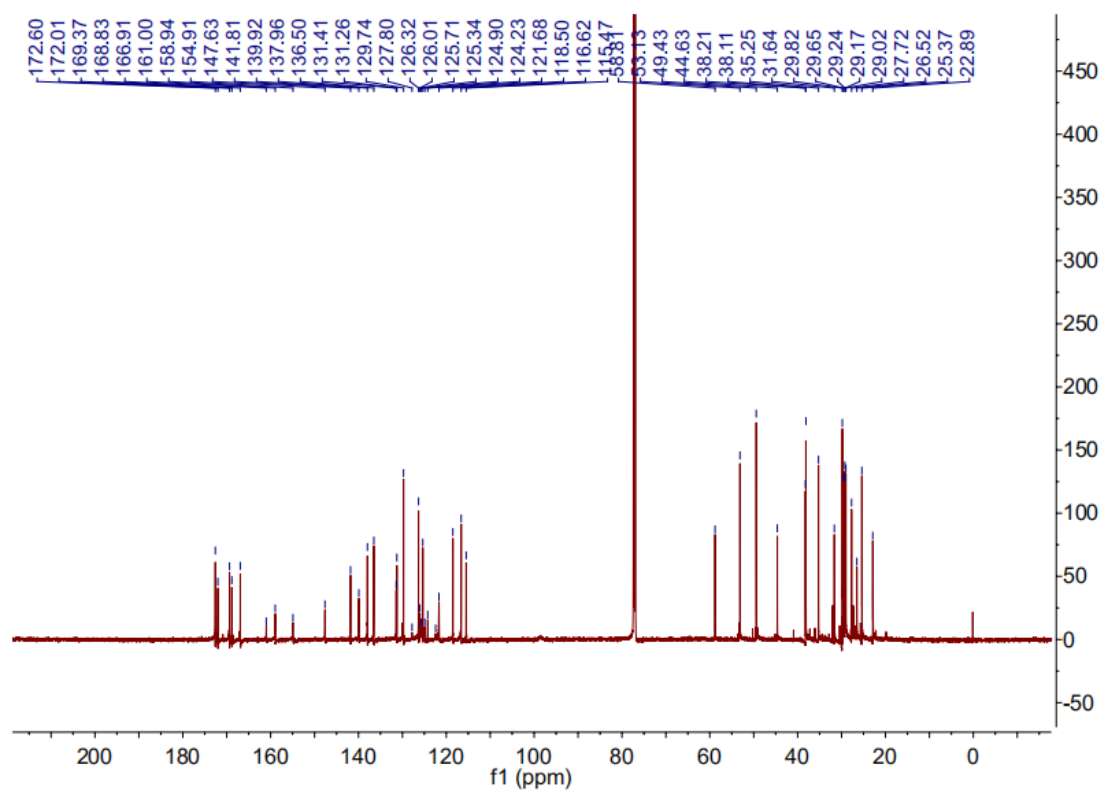


Figure S14. The <sup>13</sup>C-NMR spectrum of Compd. 16c



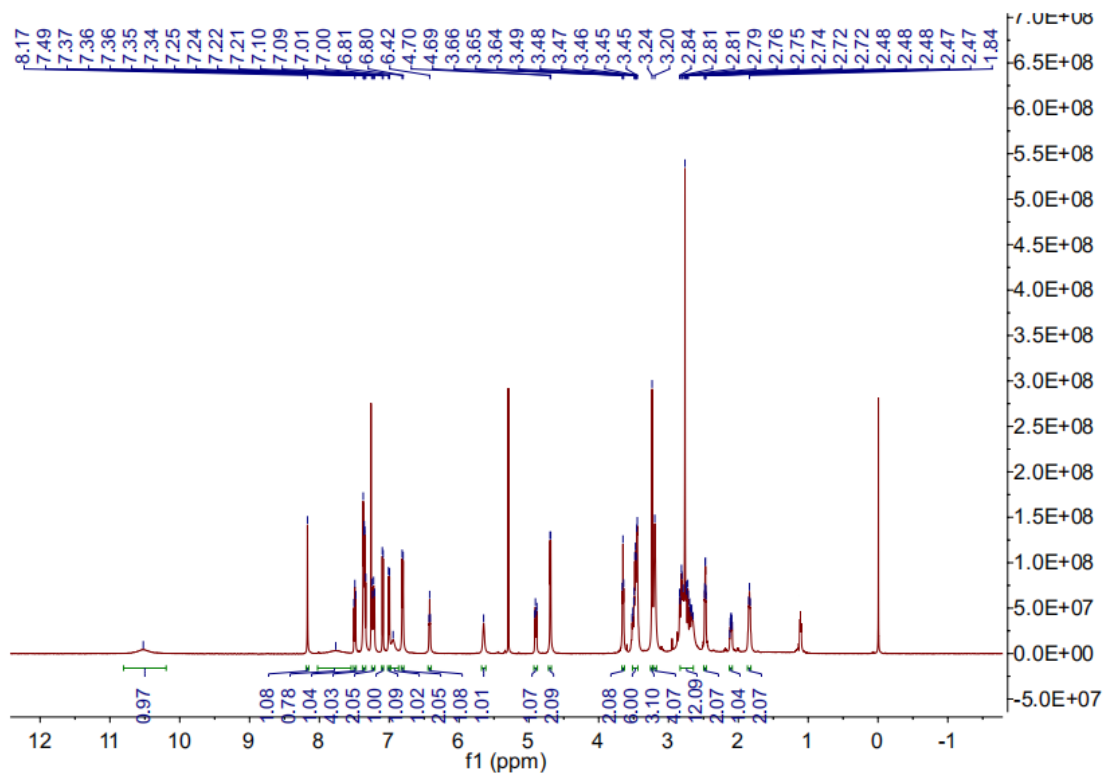


Figure S15. The <sup>1</sup>H-NMR spectrum of Compd. 19

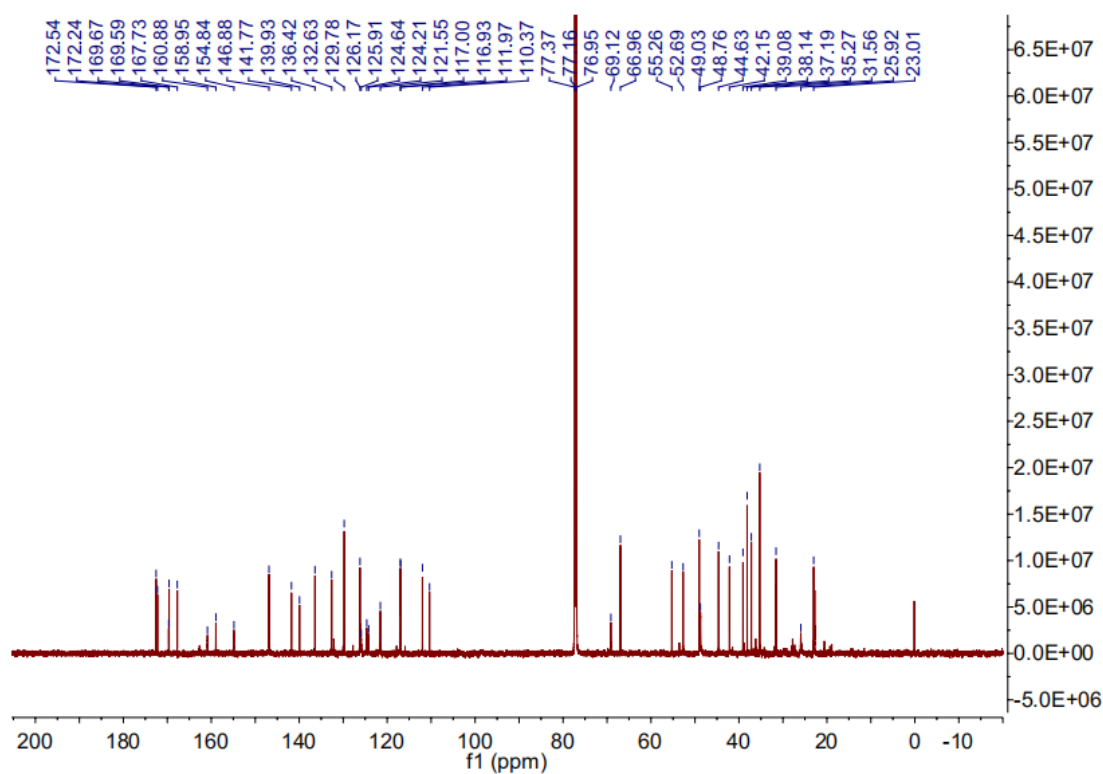


Figure S16. The <sup>13</sup>C-NMR spectrum of Compd. 19

### S3. The HRMS spectra of final compounds.

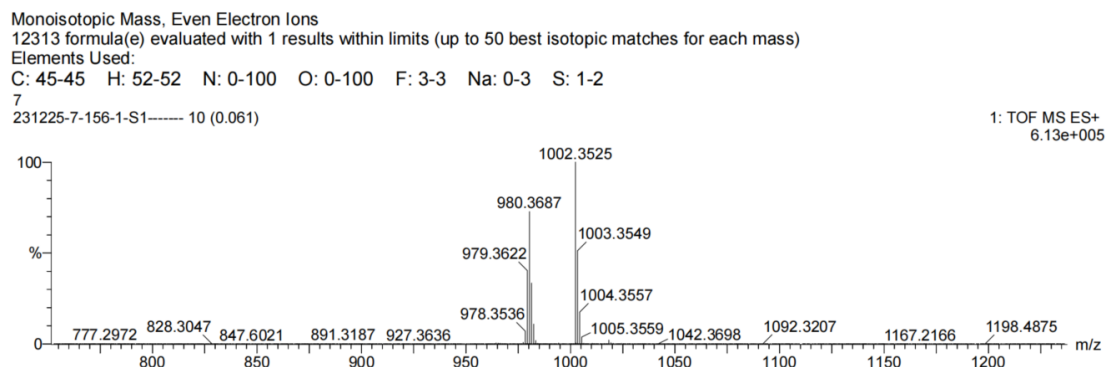
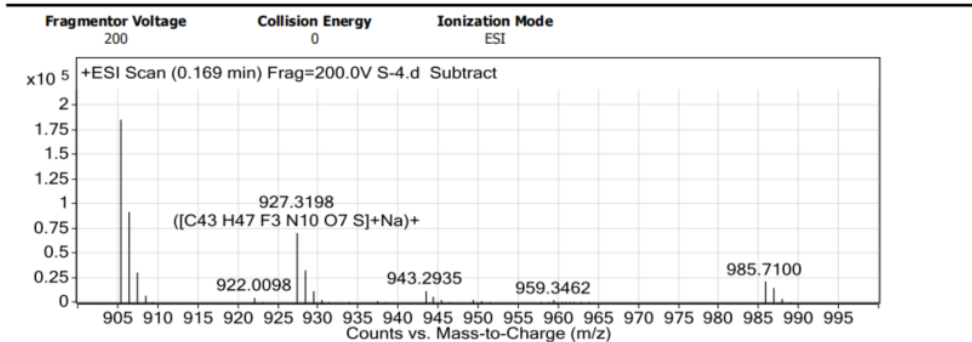


Figure S17. The HRMS spectrum of Compd. 15

#### User Spectra



#### Peak List

m/z	z	Abund	Formula	Ion
905.3388	1	186072.98	C43 H47 F3 N10 O7 S	(M+H)+
906.341	1	92361.34	C43 H47 F3 N10 O7 S	(M+H)+
907.3412	1	30667.26	C43 H47 F3 N10 O7 S	(M+H)+
908.3419	1	7500.62	C43 H47 F3 N10 O7 S	(M+H)+
927.3198	1	71513.15	C43 H47 F3 N10 O7 S	(M+Na)+
928.322	1	33405.98	C43 H47 F3 N10 O7 S	(M+Na)+
929.3233	1	12353.64	C43 H47 F3 N10 O7 S	(M+Na)+
943.2935	1	12743.85		
985.71	1	21757.96		
986.7142	1	15182.7		

Figure S18. The HRMS spectrum of Compd. 16a

#### User Spectra

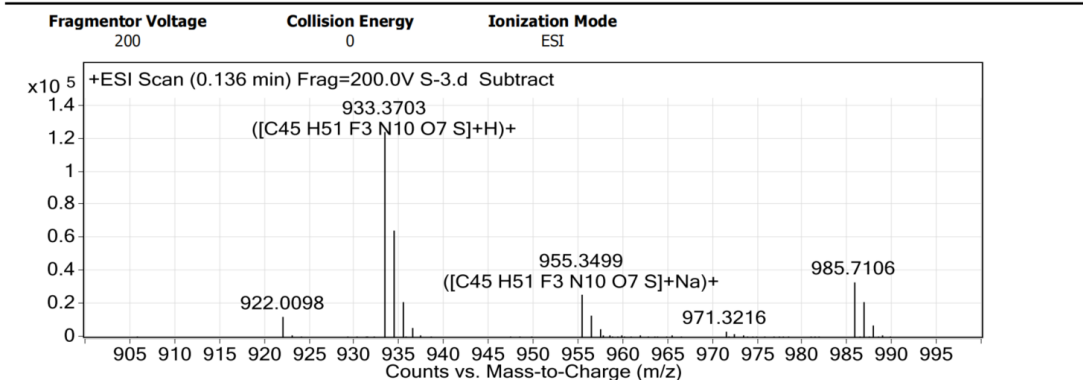
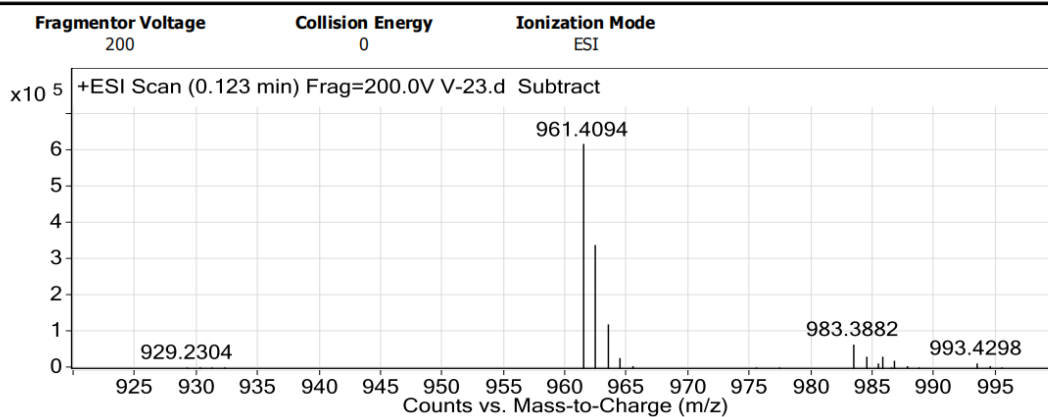


Figure S19. The HRMS spectrum of Compd. 16b

## User Spectra



**Figure S20.** The HRMS spectrum of Compd. **16c**

Monoisotopic Mass, Even Electron Ions

11346 formula(e) evaluated with 1 results within limits (up to 50 best isotopic matches for each mass)

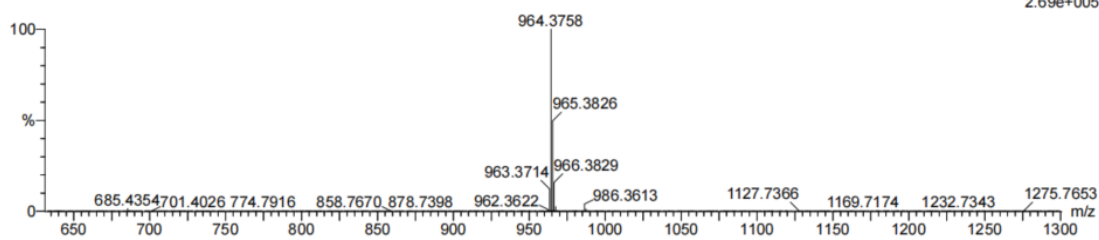
Elements Used:

C: 45-45 H: 53-53 N: 0-100 O: 0-100 F: 3-3 Na: 0-3 S: 1-2

7

231225-7-156-1-S5 24 (0.111)

1: TOF MS ES+  
2.69e+005



**Figure S21.** The HRMS spectrum of Compd. **19**