

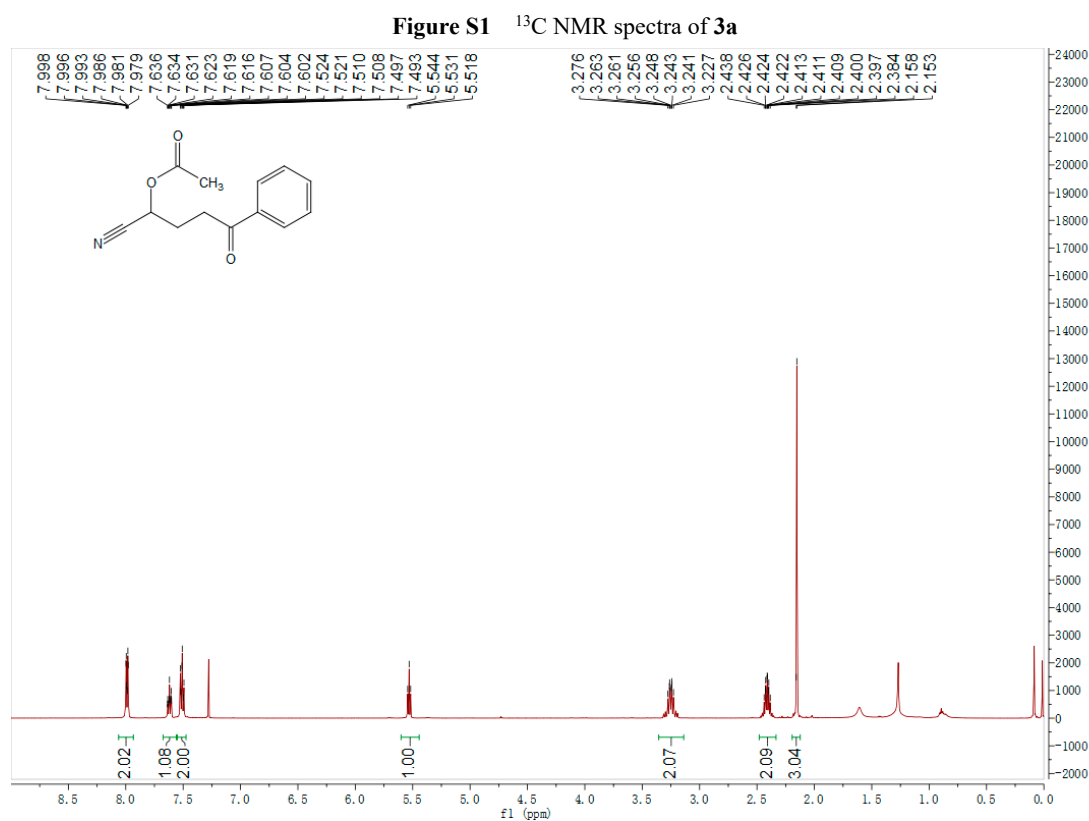
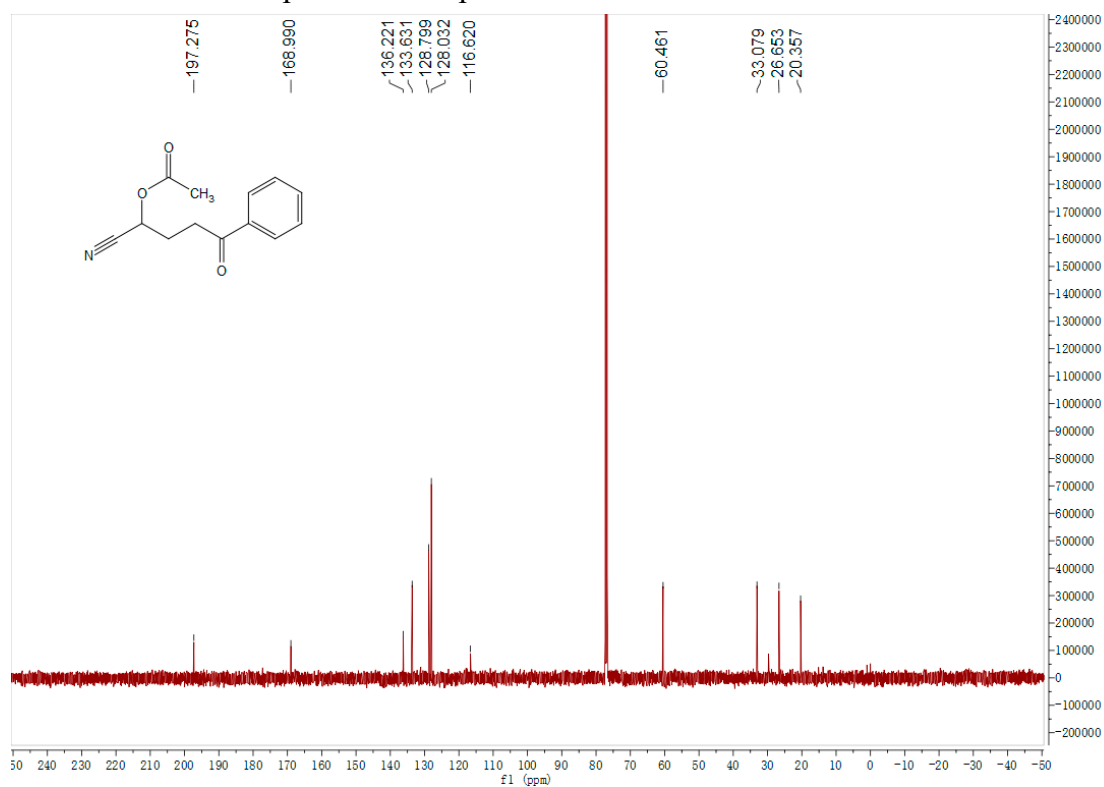
Supporting Information

TBPO-TBPB Initiate the Radical Addition of Benzaldehyde and Allyl Esters

Bin-Long Sun, Xiao-Yu Tian, Sen Yang, Ying-Ying Wang, Ying-Ying Shao, Xin-Hao Fu, Wen-Yuan Wang, Min-Ting Tu, Yang Chen, Jun-Hui Wu, Chang-Yuan Wu, Cheng-Xia Tan *

1. ^1H and ^{13}C NMR spectra of compounds **3** and GC-MC of **6a** (S1–S51).
2. ^1H and ^{13}C NMR spectra of compounds **4** (S52-S93).
3. ^1H and ^{13}C NMR spectra of compounds **5** (S94-S123).
4. ESI-HRMS spectra of compounds **3** (S124-S148).
5. ESI-HRMS spectra of compounds **4** (S149-S169).
6. ESI-HRMS spectra of compounds **5** (S170-S184).

1. ^1H and ^{13}C NMR spectra of compounds **3** and GC-MC of **6a**.



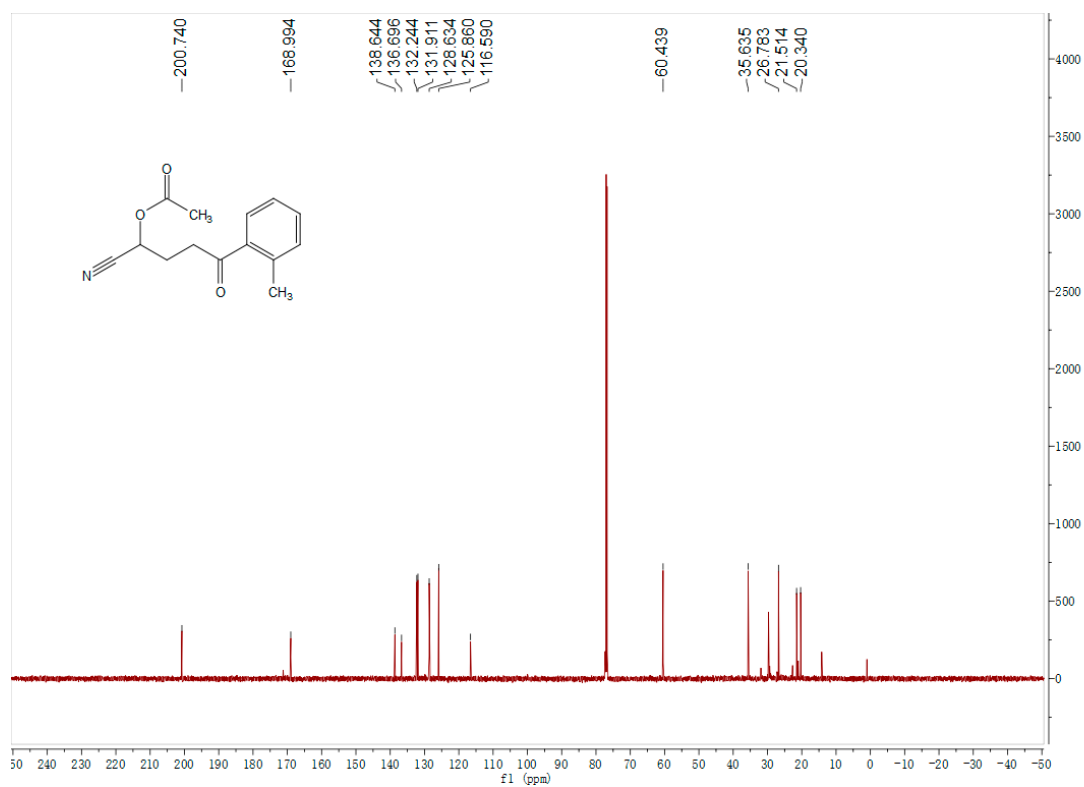


Figure S3 ¹³C NMR spectra of **3b**

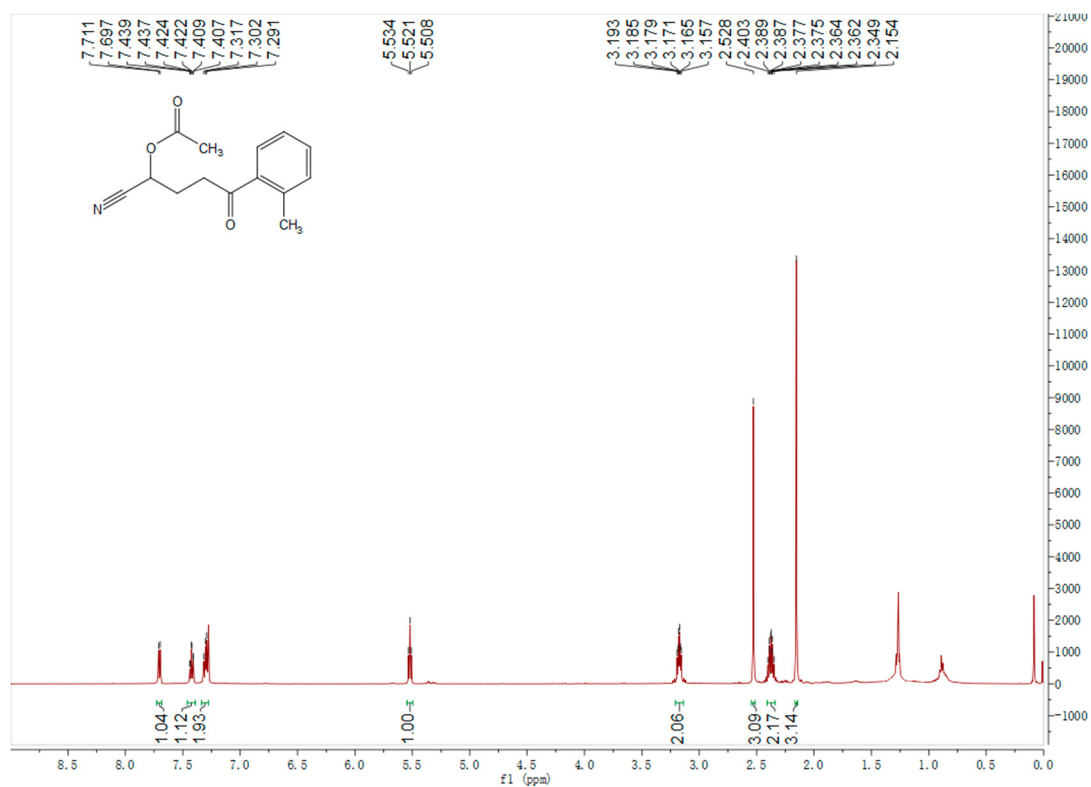


Figure S4 ¹H NMR spectra of **3b**

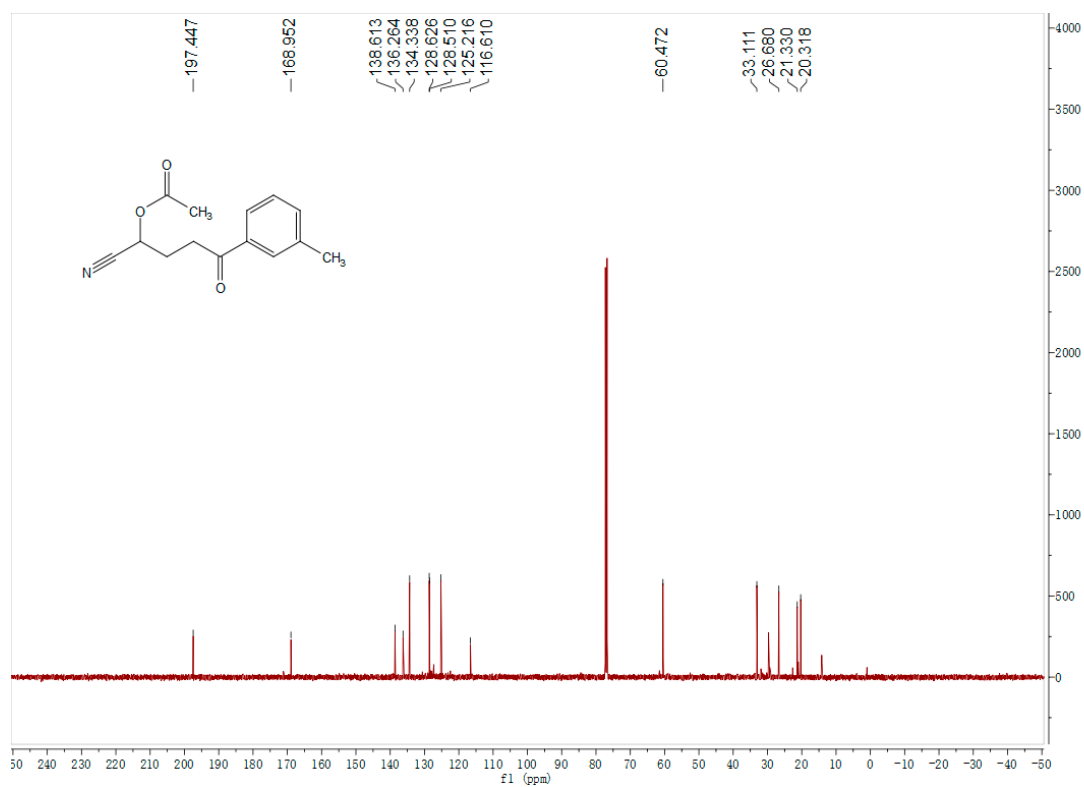


Figure S5 ¹³C NMR spectra of 3c

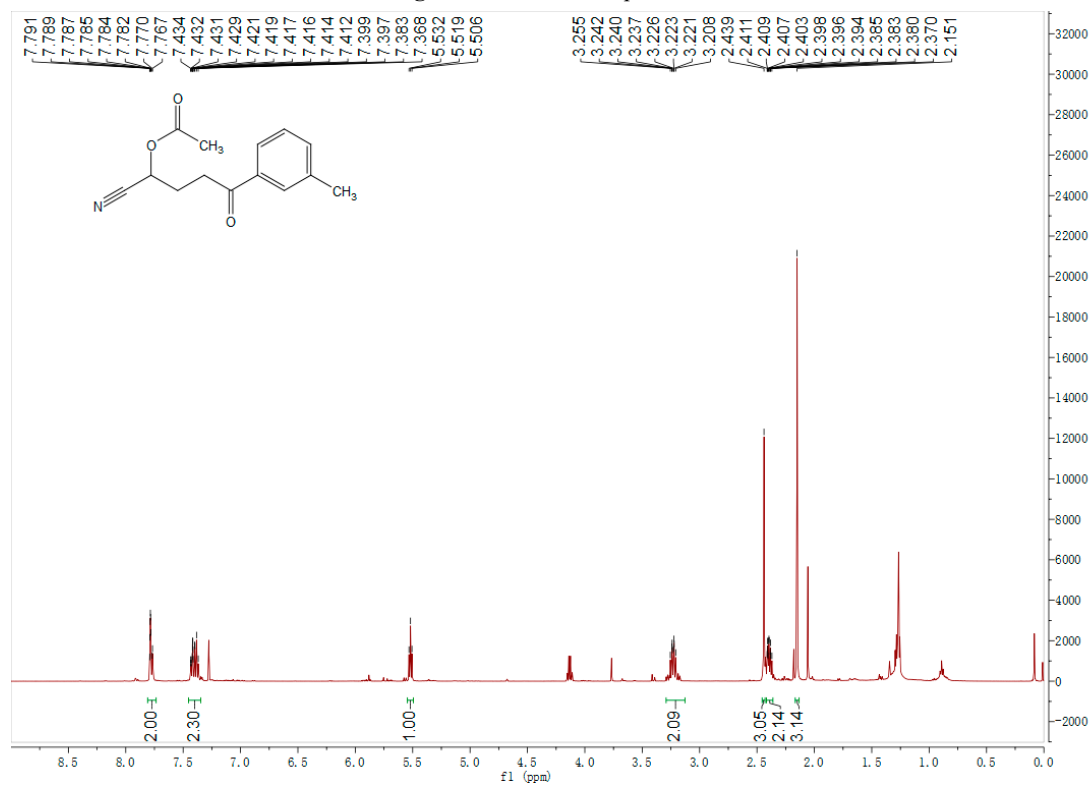


Figure S6 ¹H NMR spectra of 3c

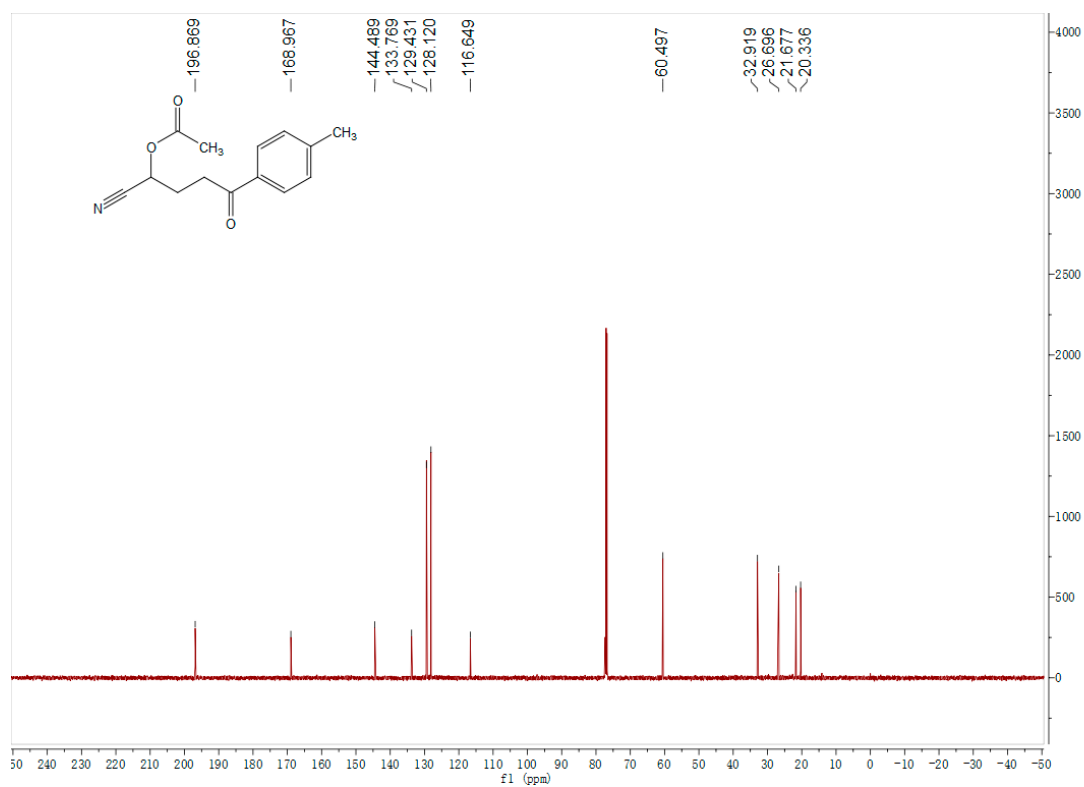


Figure S7 ¹³C NMR spectra of 3d

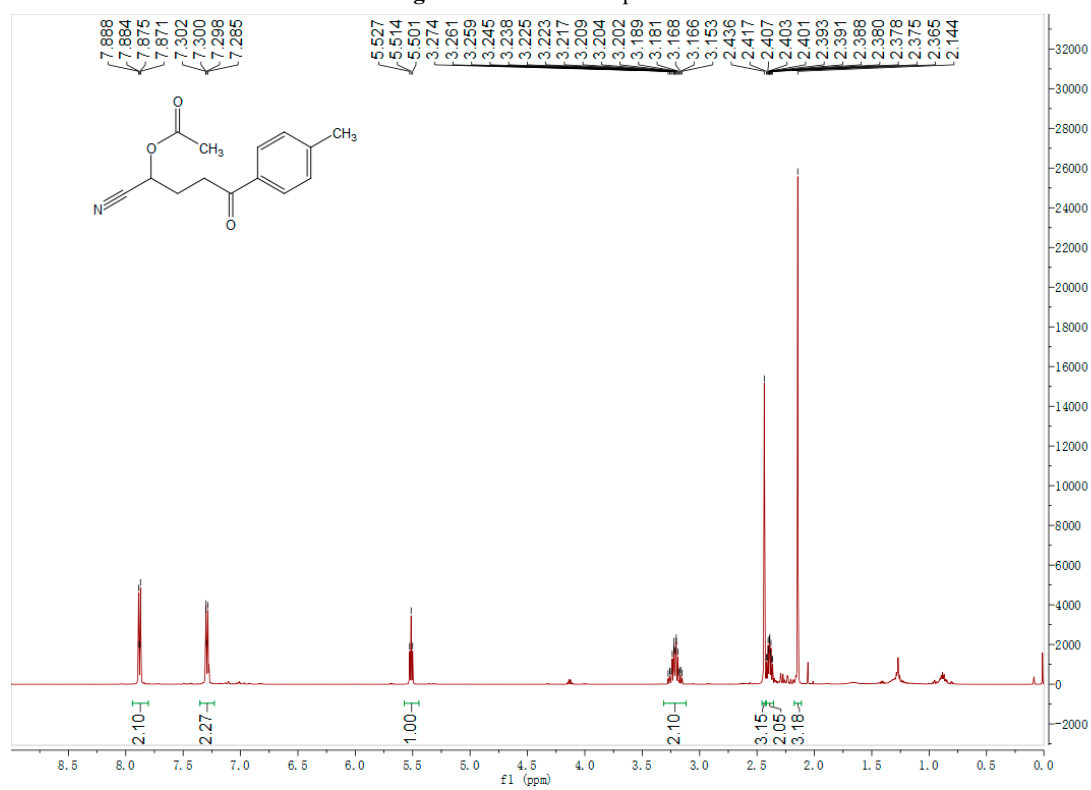


Figure S8 ¹H NMR spectra of 3d

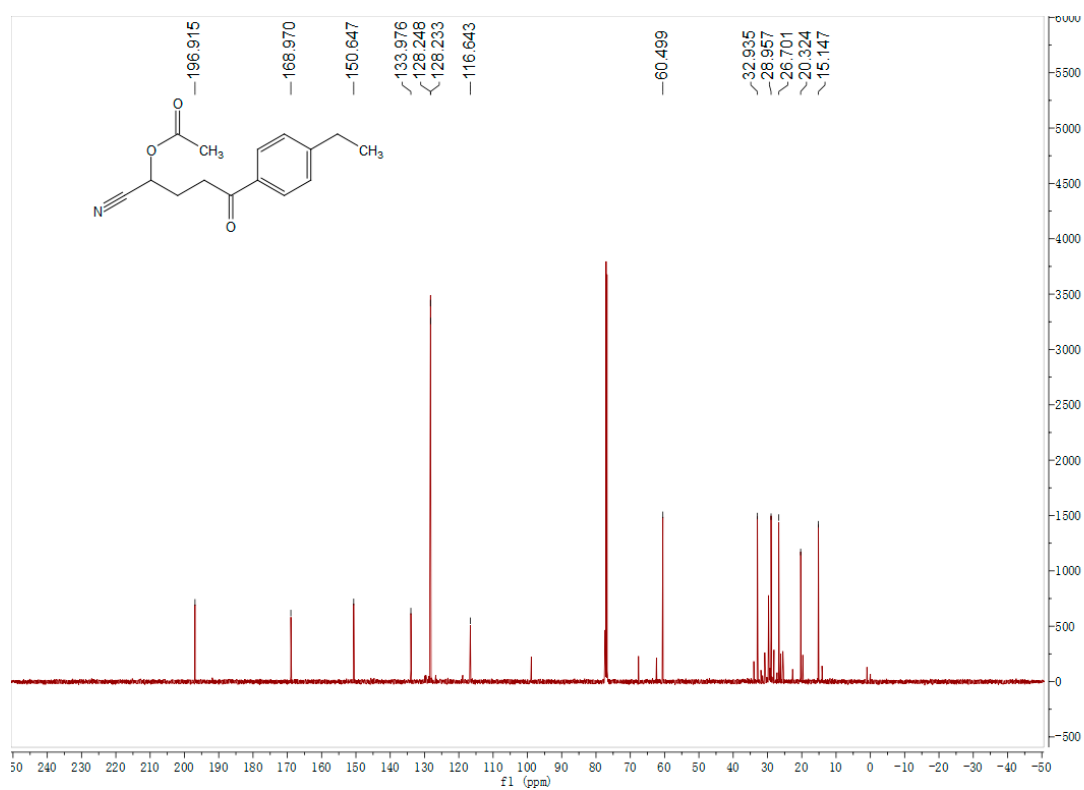


Figure S9 ¹³C NMR spectra of 3e

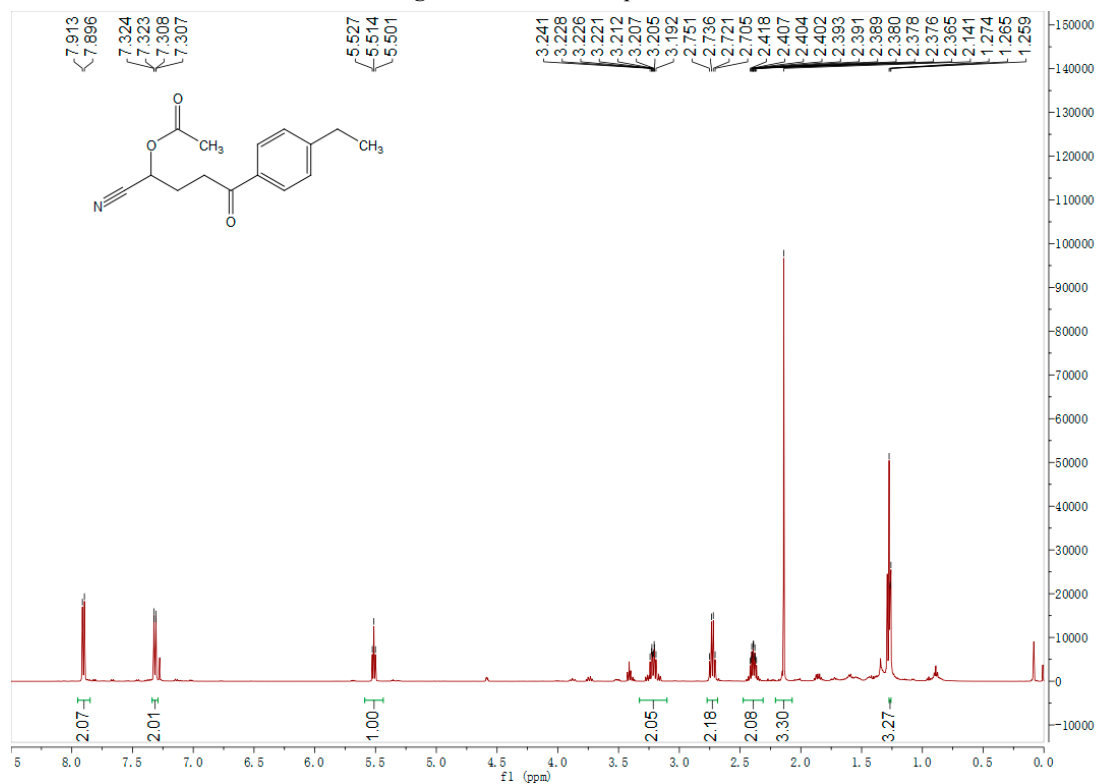


Figure S10 ¹H NMR spectra of 3e

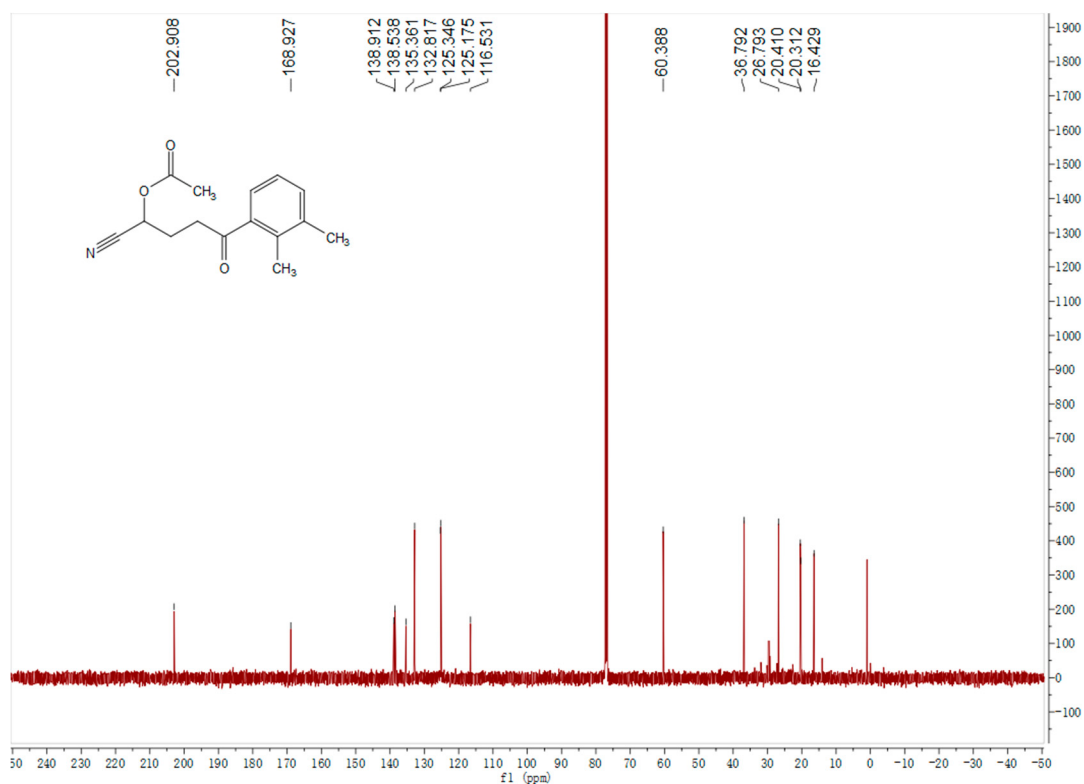


Figure S11 ¹³C NMR spectra of 3f

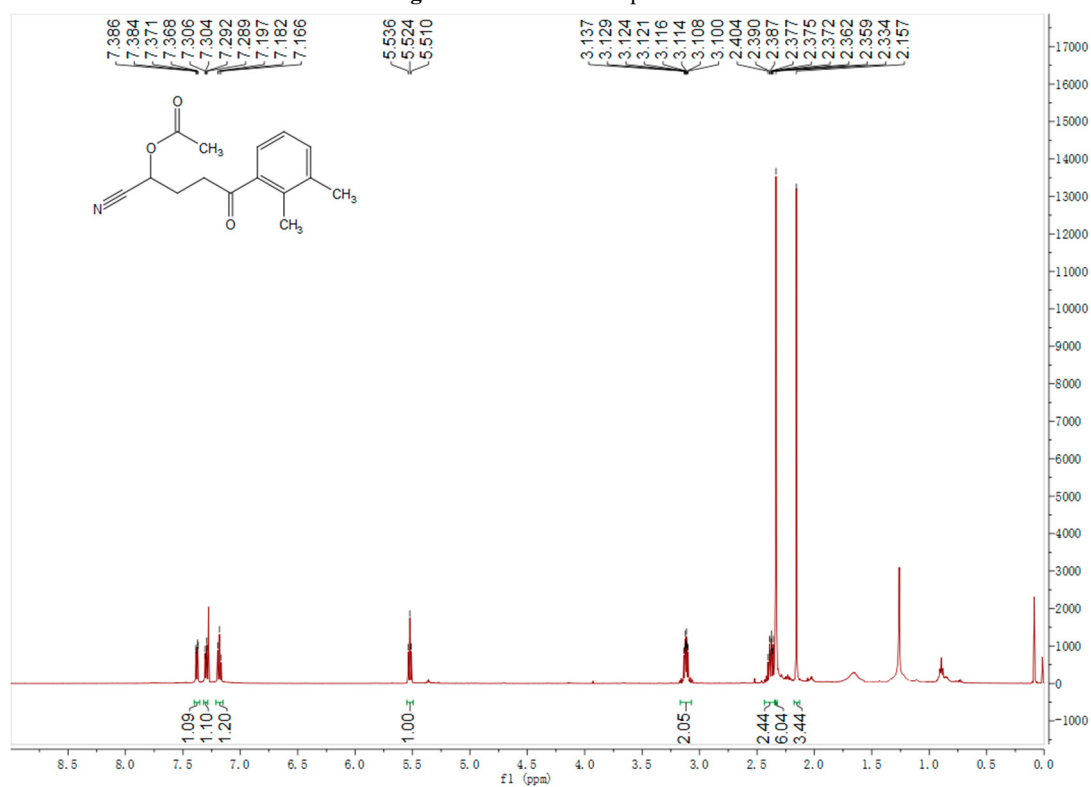


Figure S12 ¹H NMR spectra of 3f

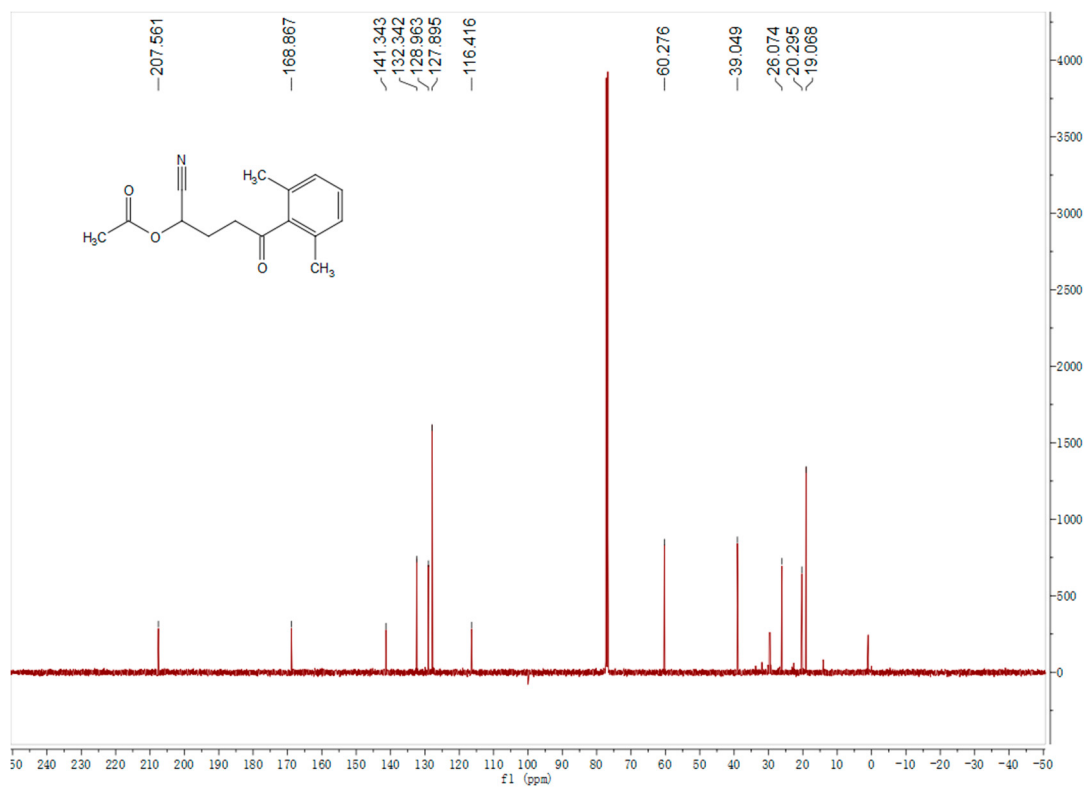


Figure S13 ^{13}C NMR spectra of **3g**

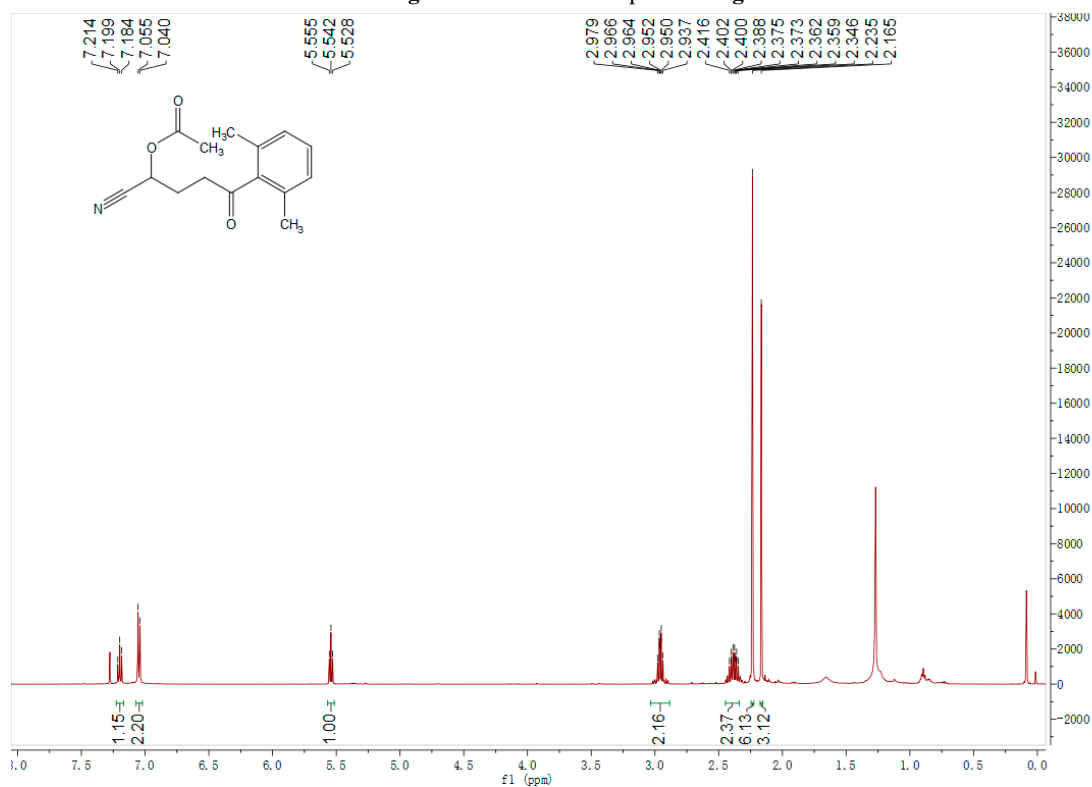


Figure S14 ^1H NMR spectra of **3g**

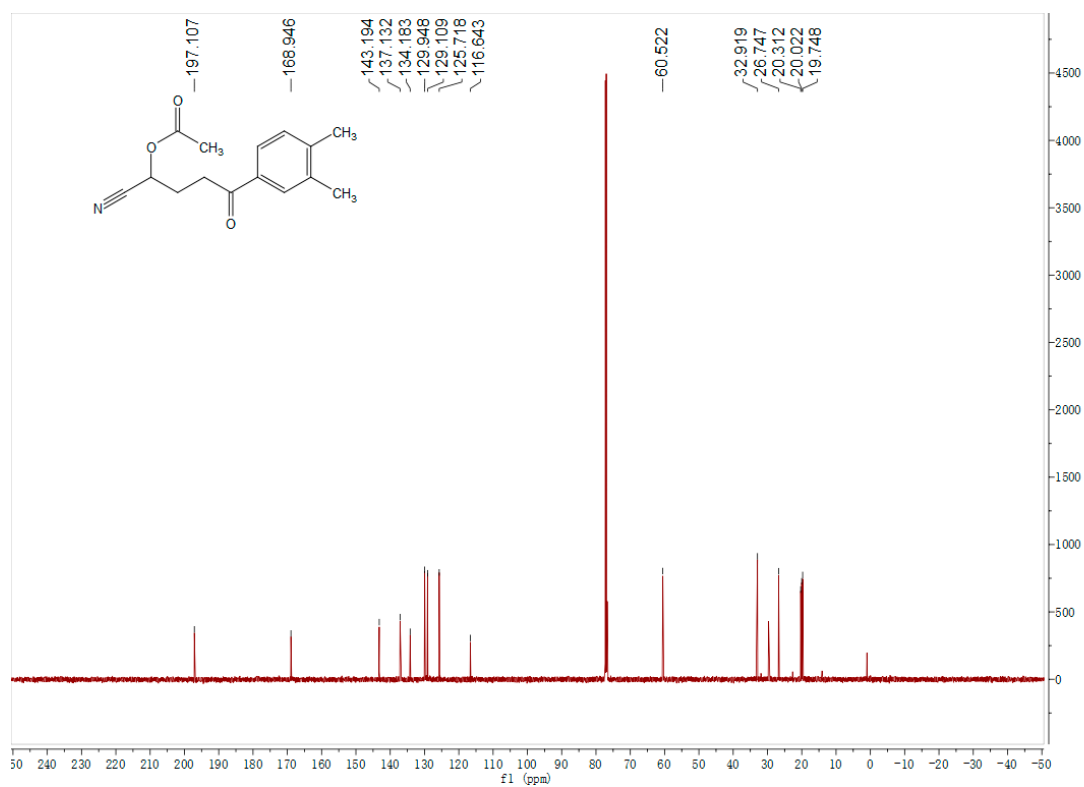


Figure S15 ¹³C NMR spectra of 3h

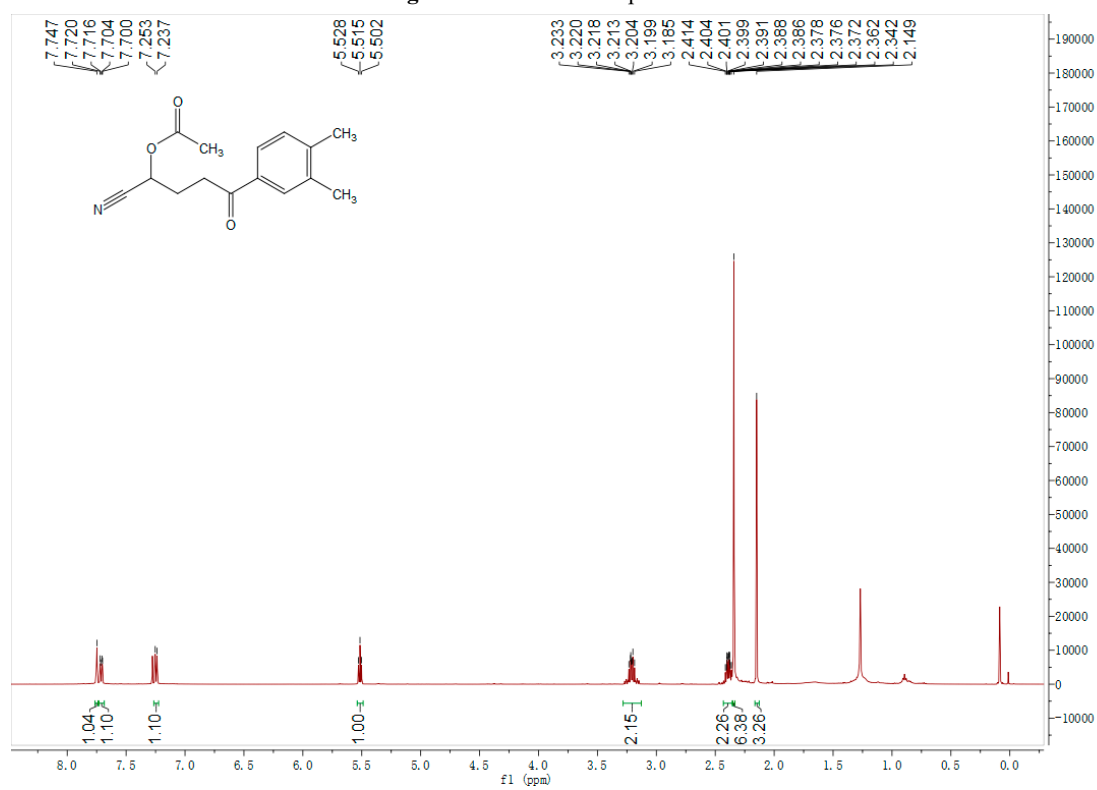


Figure S16 ¹H NMR spectra of 3h

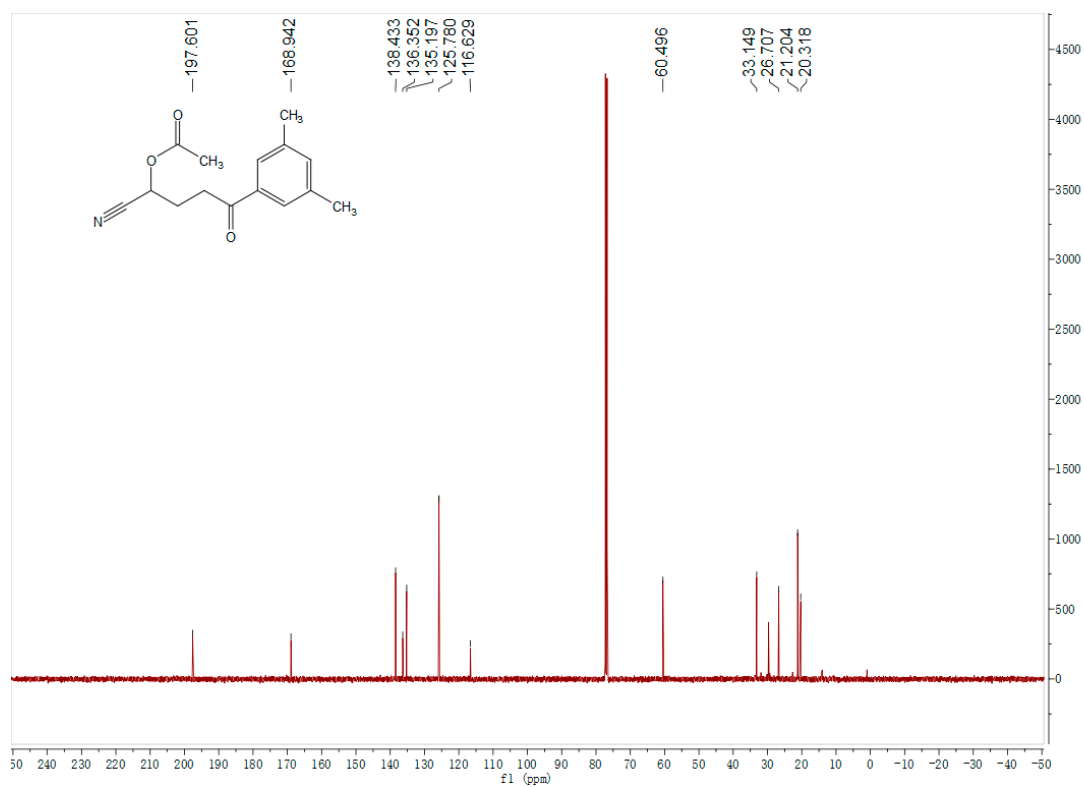


Figure S17 ¹³C NMR spectra of **3i**

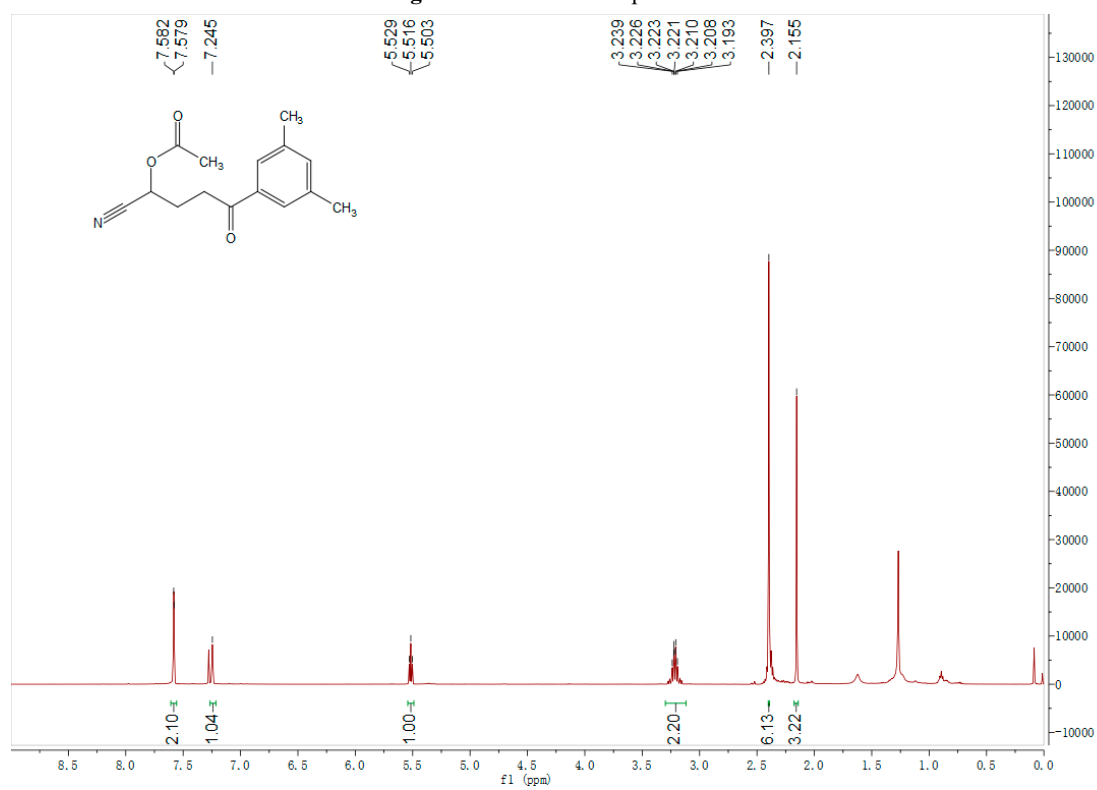


Figure S18 ¹H NMR spectra of **3i**

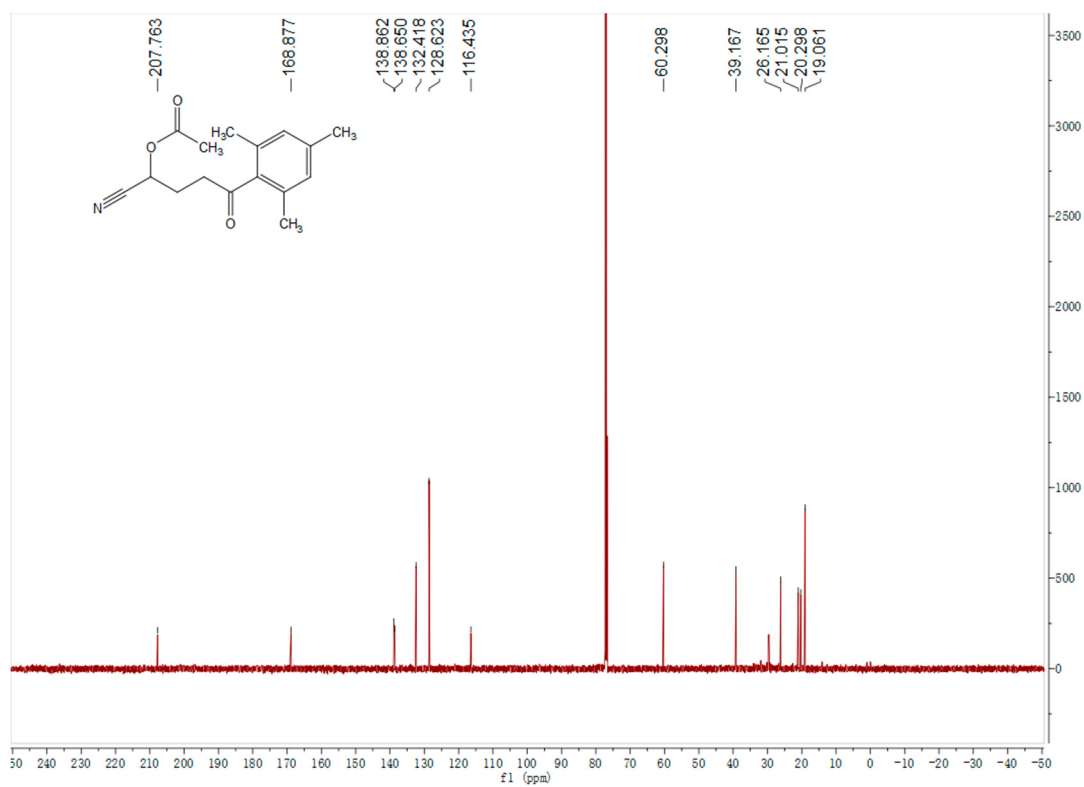


Figure S19 ¹³C NMR spectra of **3j**

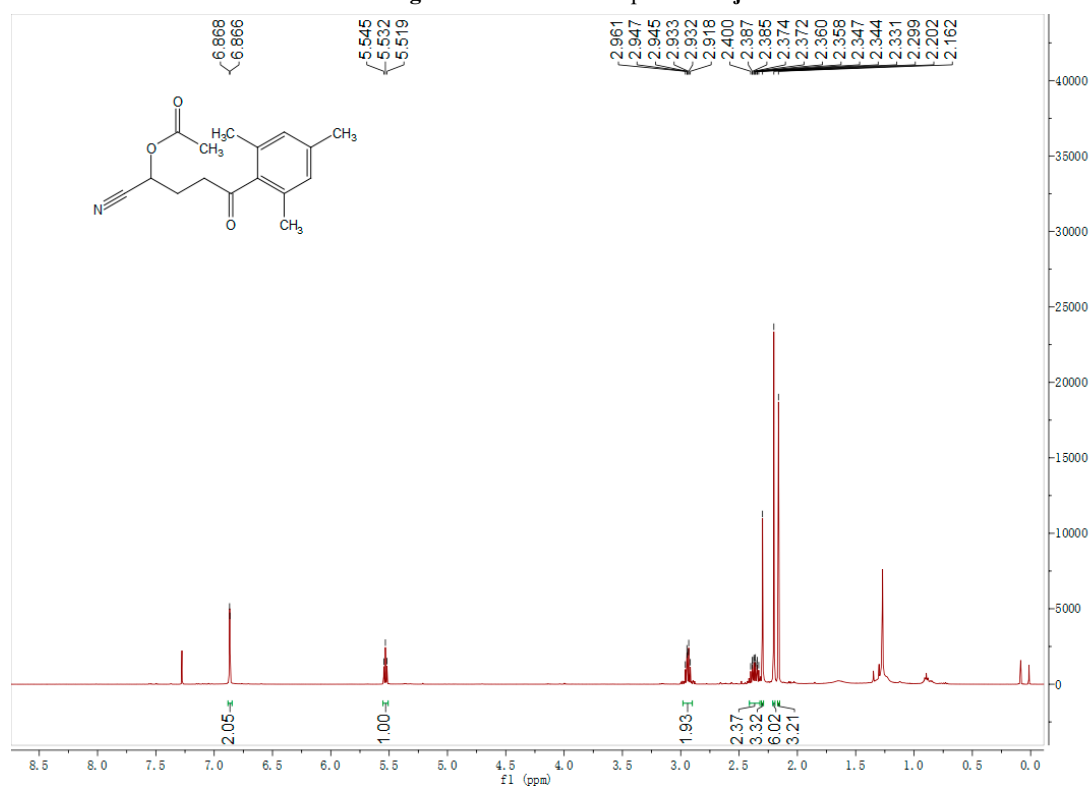


Figure S20 ¹H NMR spectra of **3j**

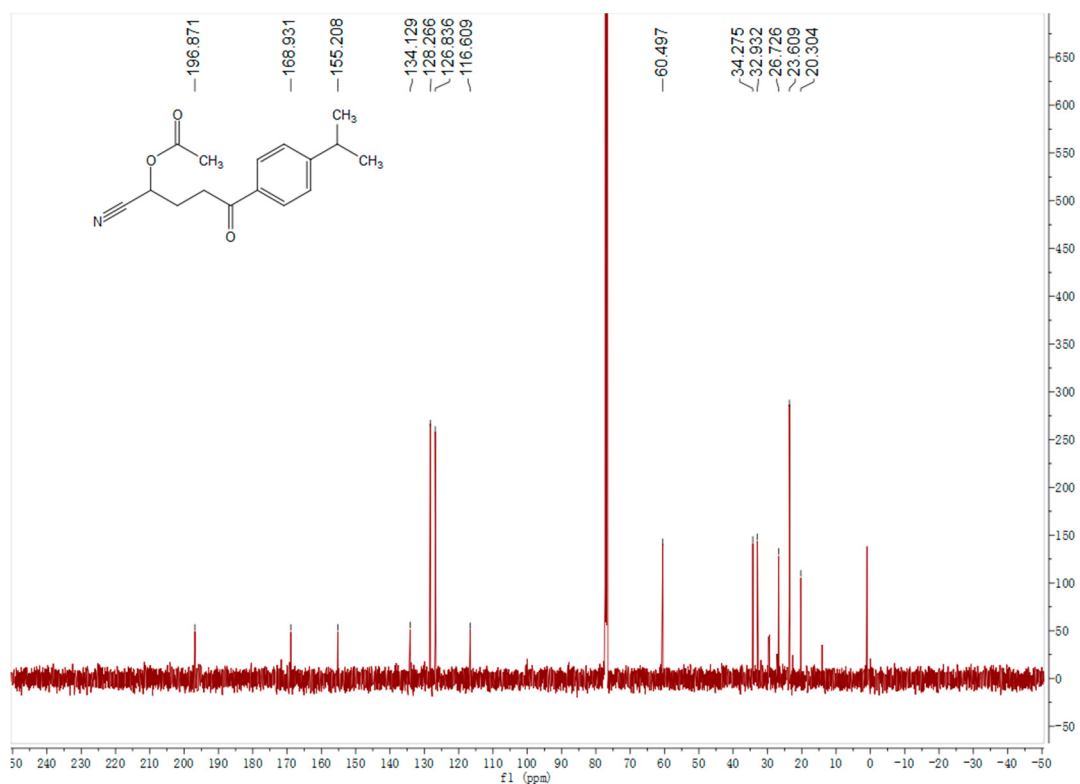


Figure S21 ¹³C NMR spectra of 3k

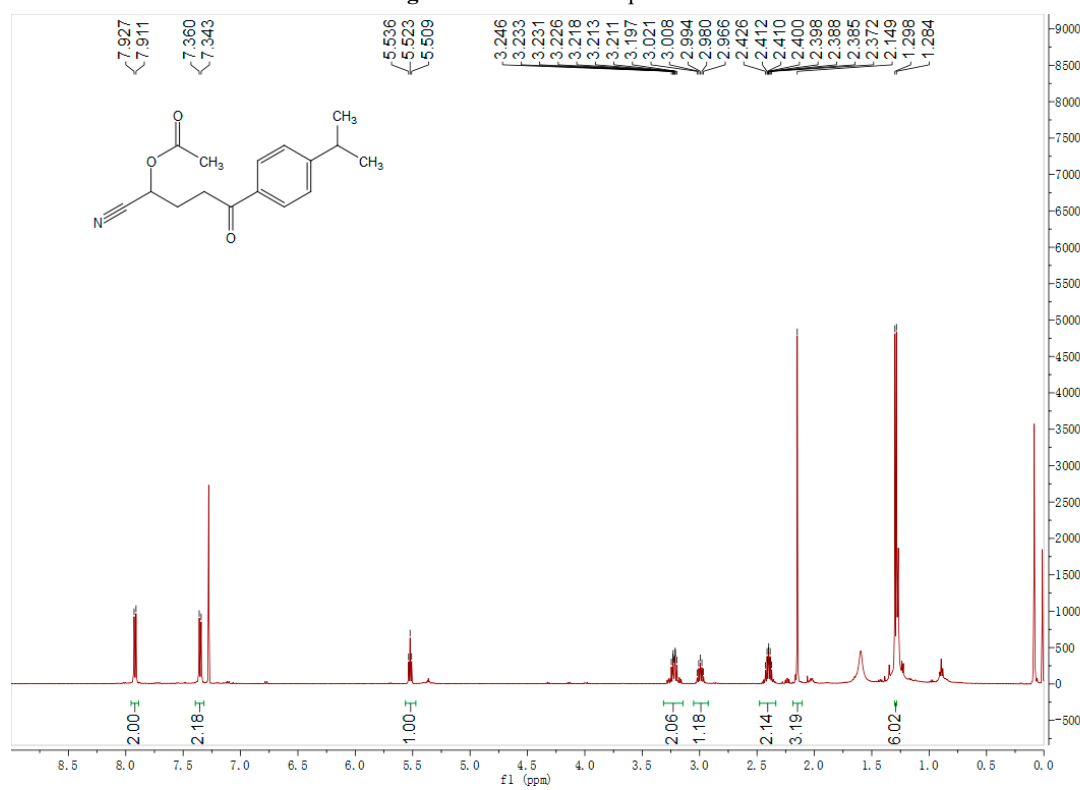


Figure S22 ¹H NMR spectra of 3k

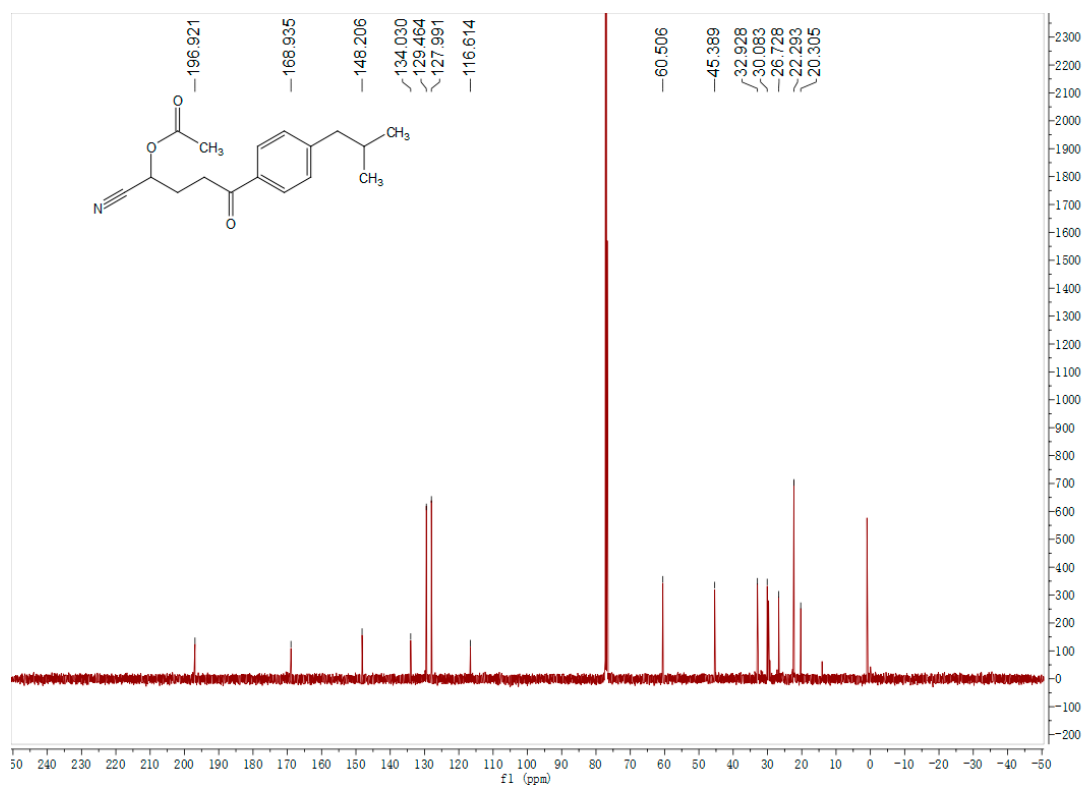


Figure S23 ¹H NMR spectra of 31

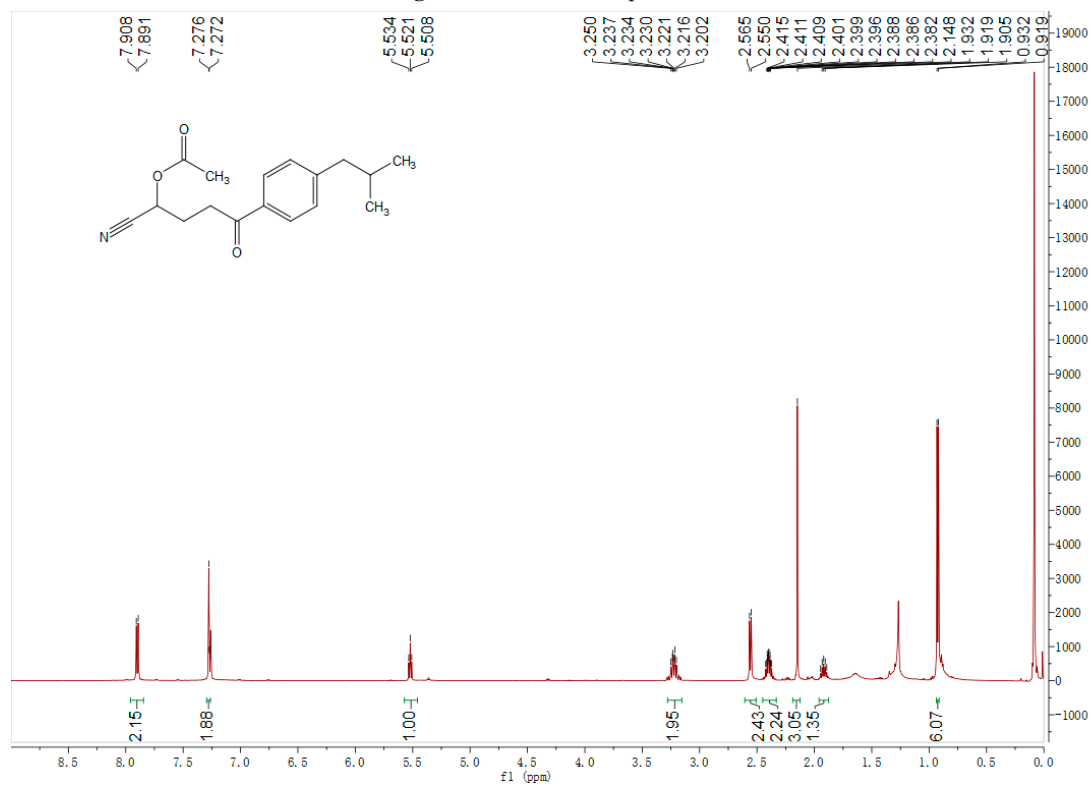


Figure S24 ¹³C NMR spectra of 31

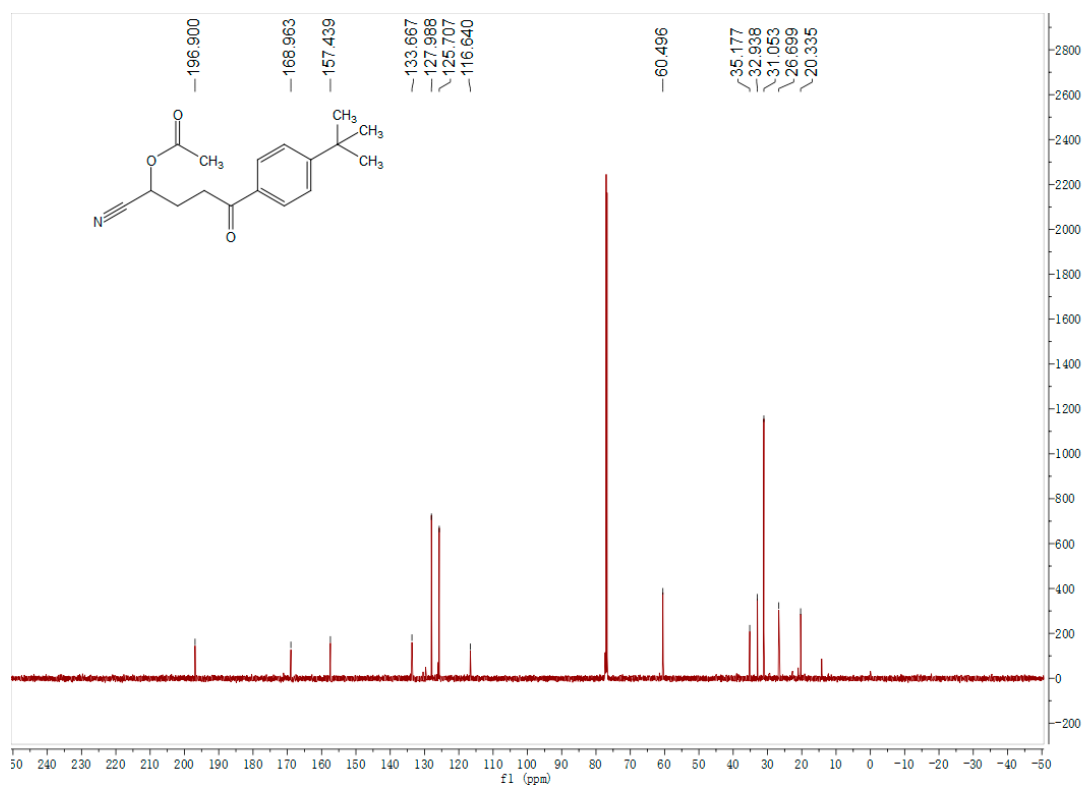


Figure S25 ¹³C NMR spectra of 3m

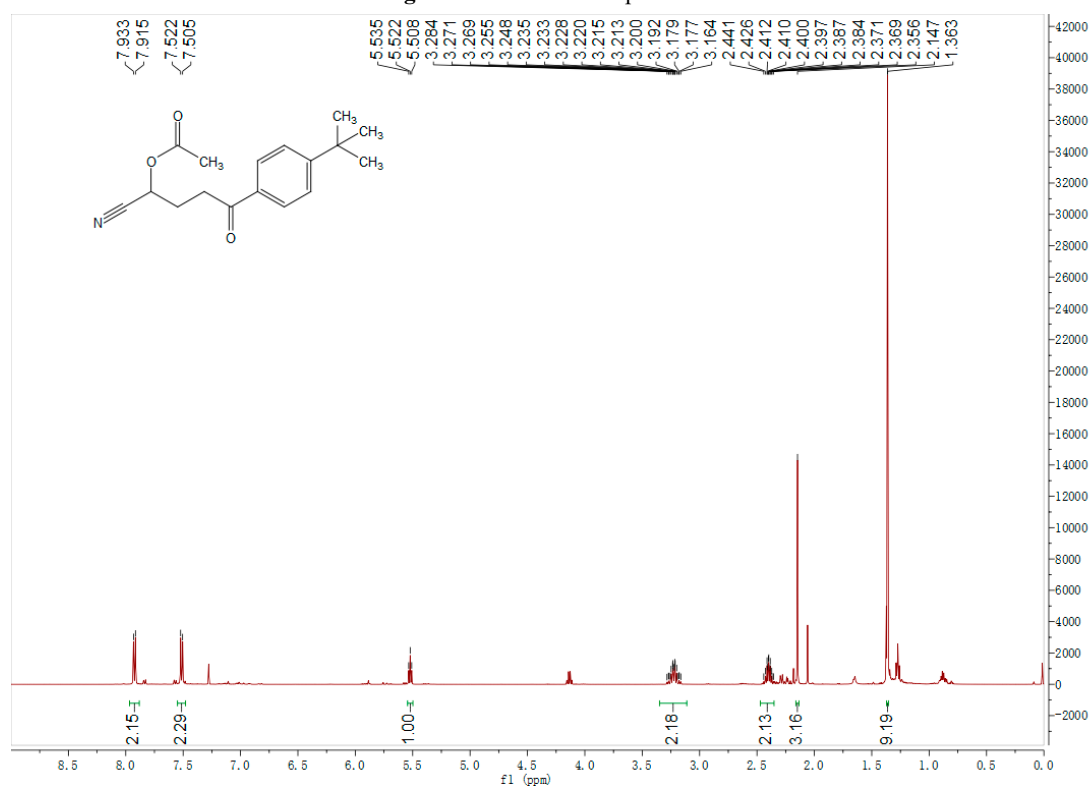


Figure S26 ¹H NMR spectra of 3m

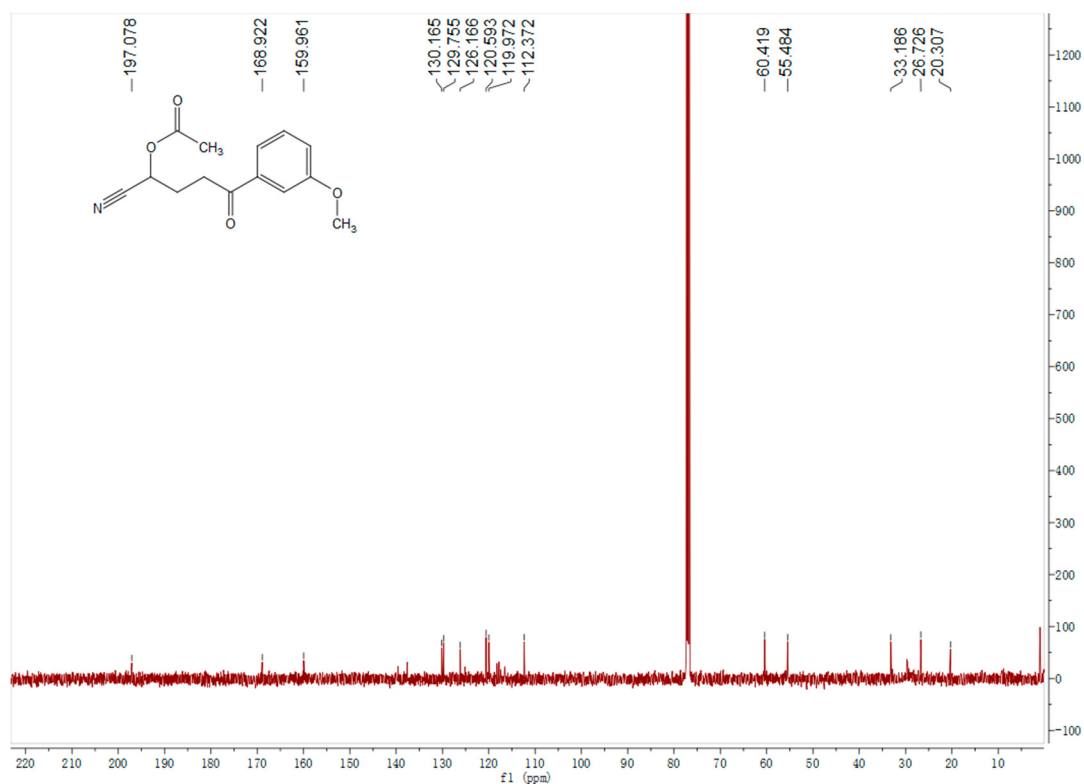


Figure S27 ¹³C NMR spectra of 3n

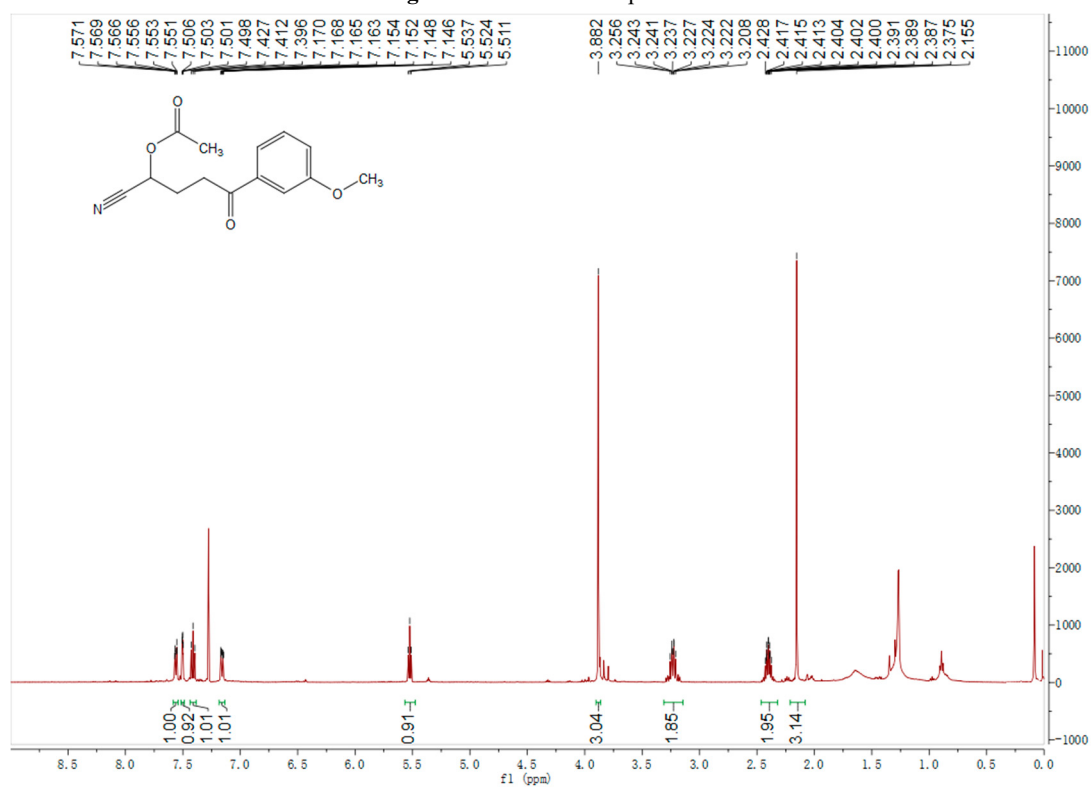


Figure S28 ¹H NMR spectra of 3n

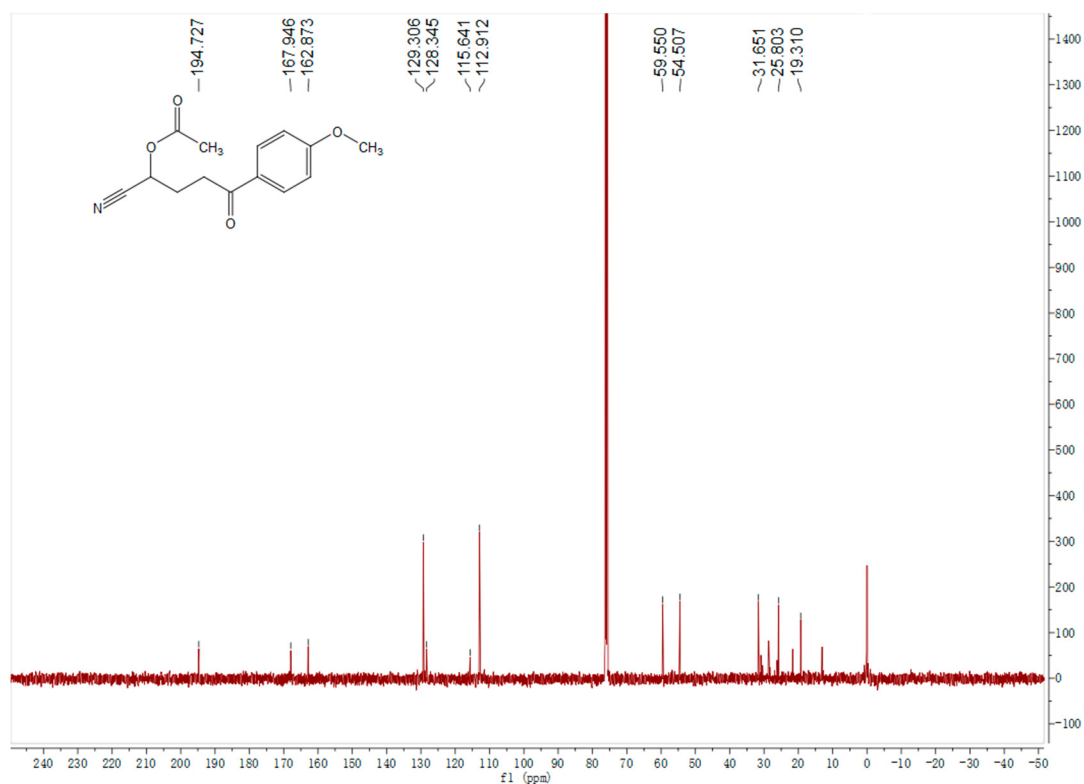


Figure S29 ¹³C NMR spectra of **3o**

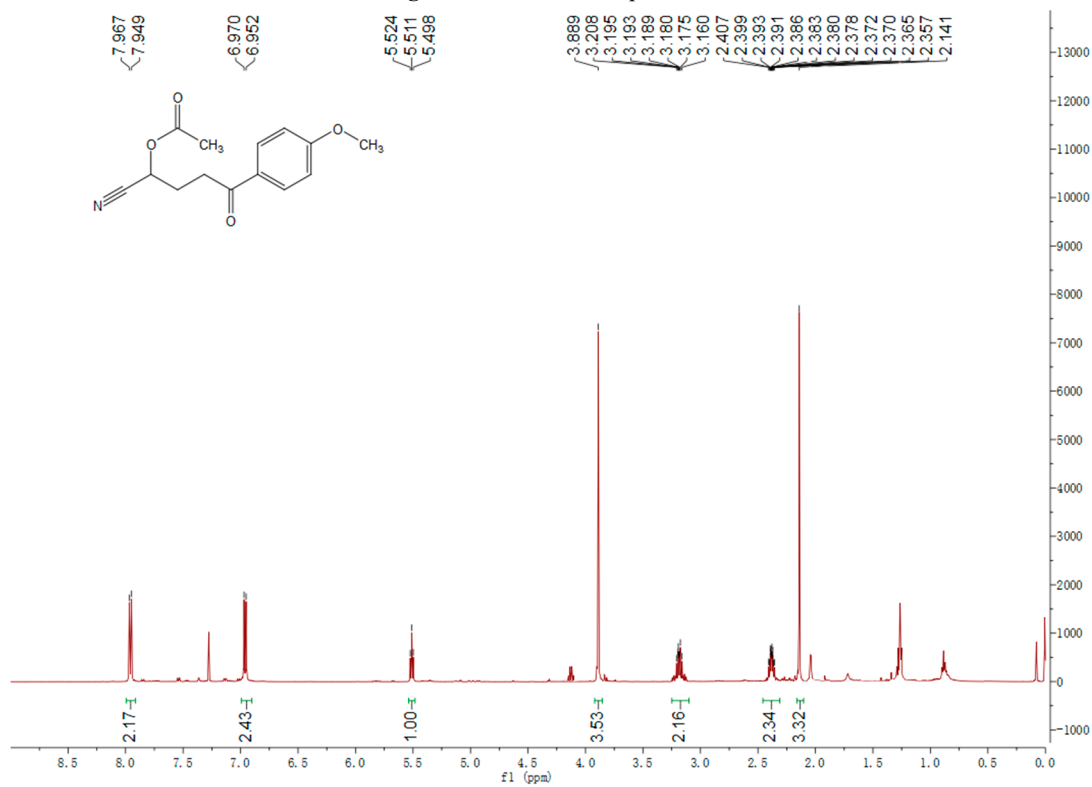


Figure S30 ¹H NMR spectra of **3o**

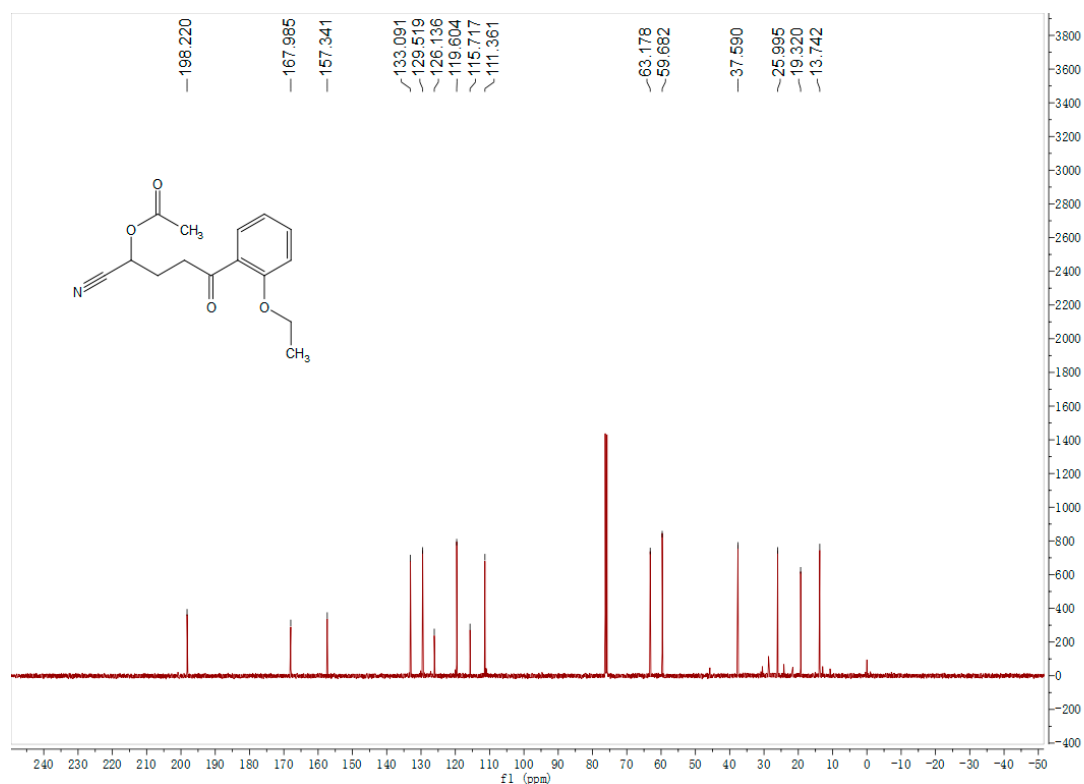


Figure S31 ¹³C NMR spectra of 3p

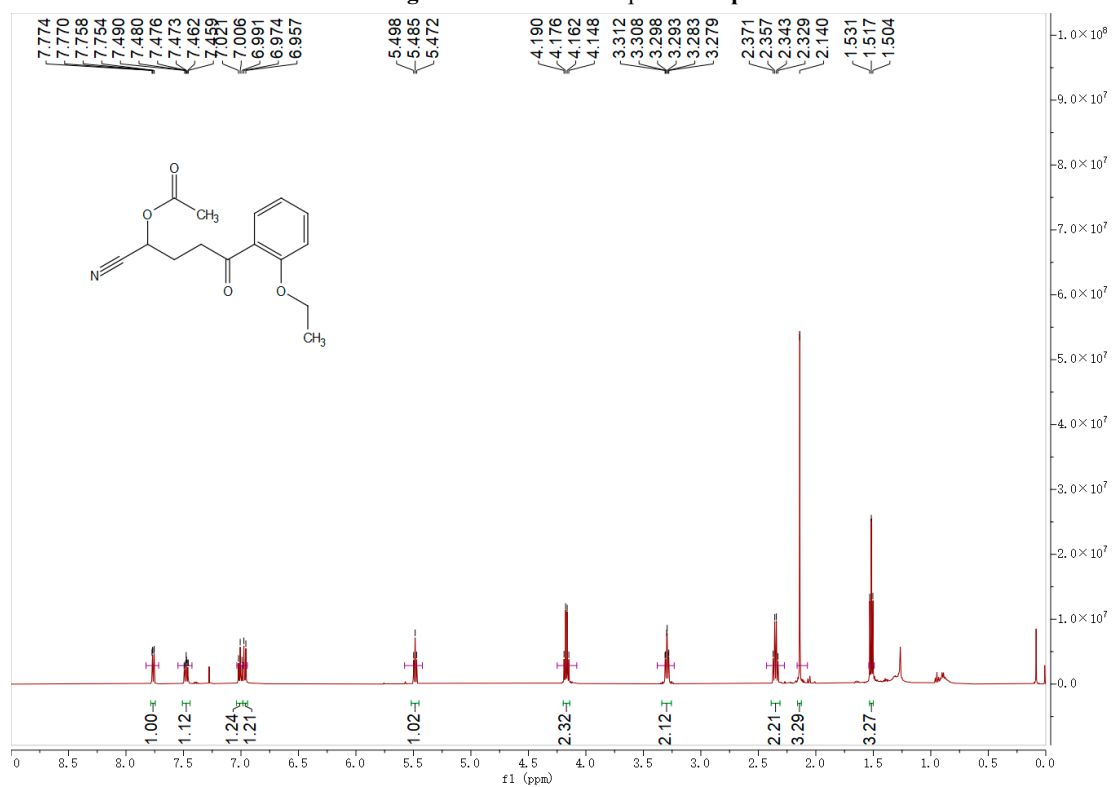


Figure S32 ¹H NMR spectra of 3p

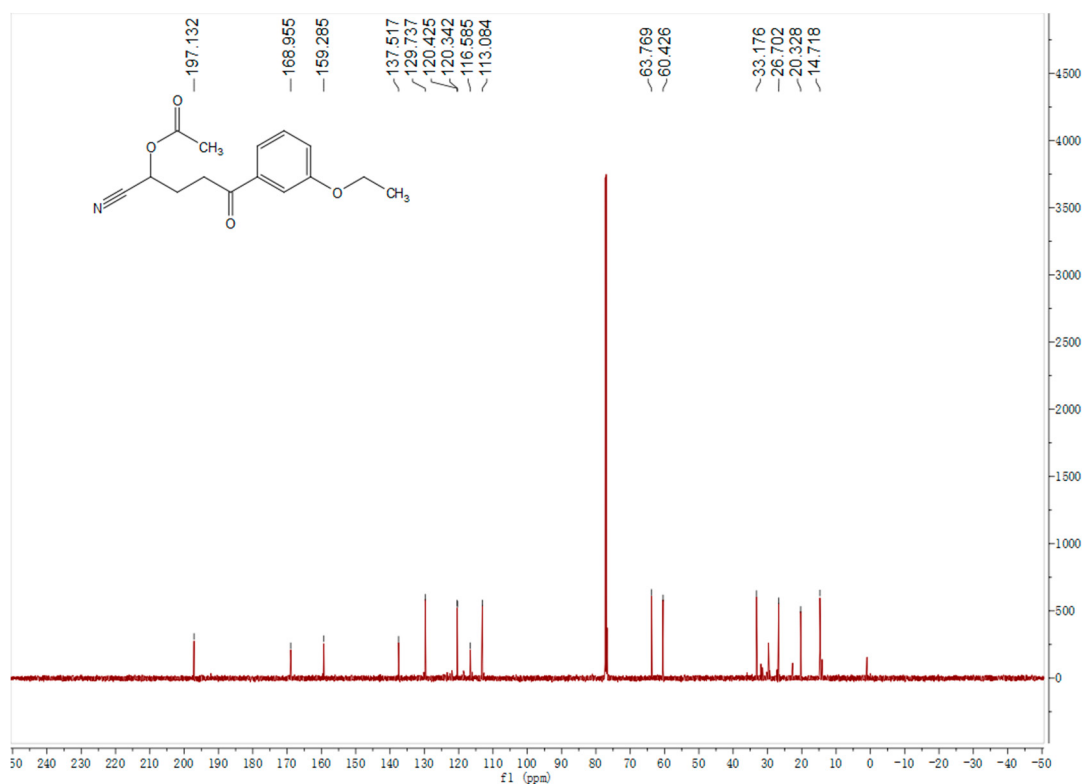


Figure S33 ¹³C NMR spectra of 3q

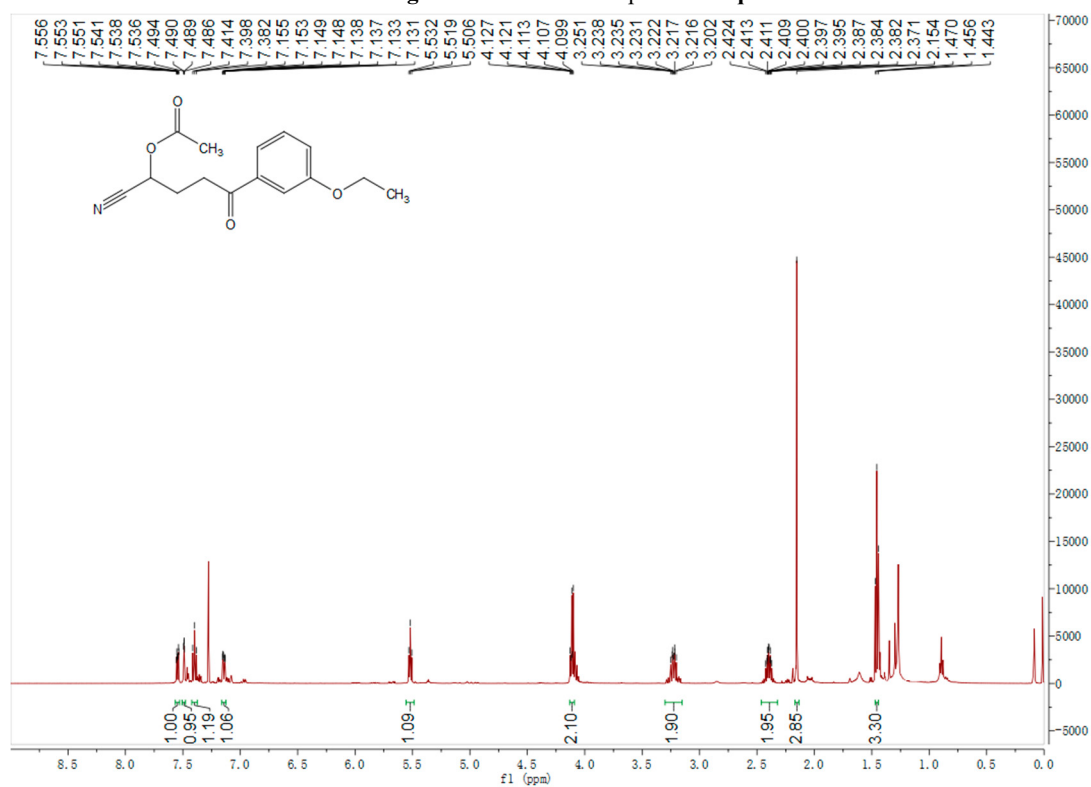


Figure S34 ¹H NMR spectra of 3q

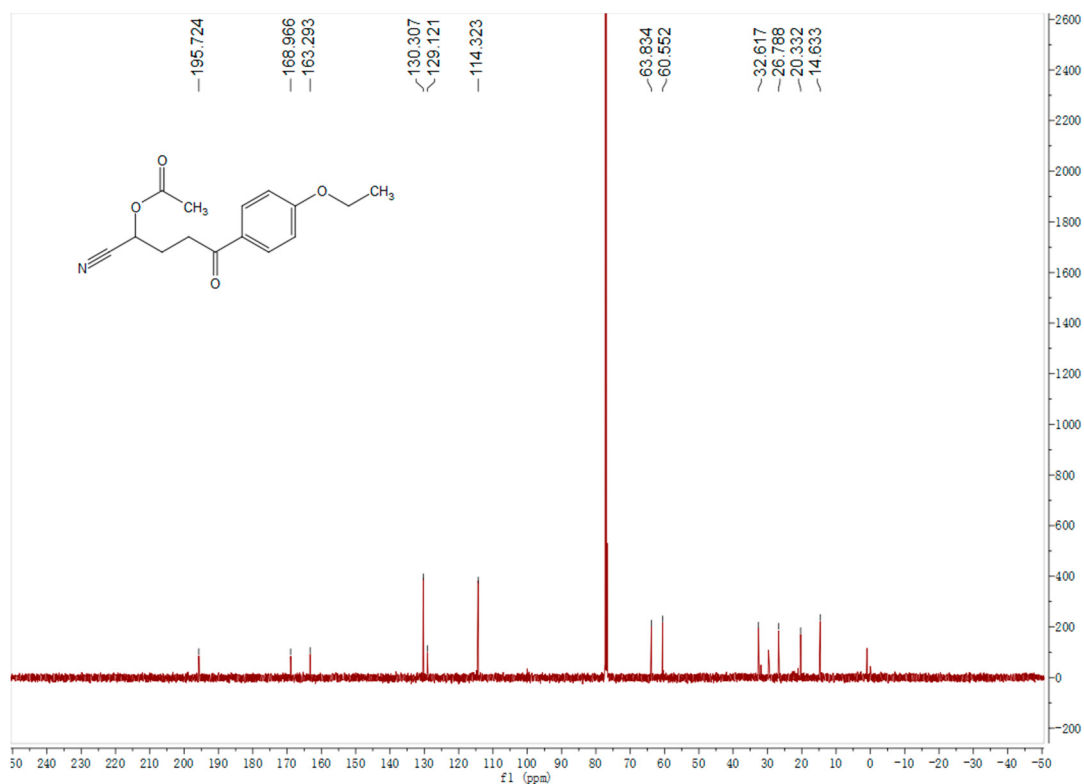


Figure S35 ¹³C NMR spectra of **3r**

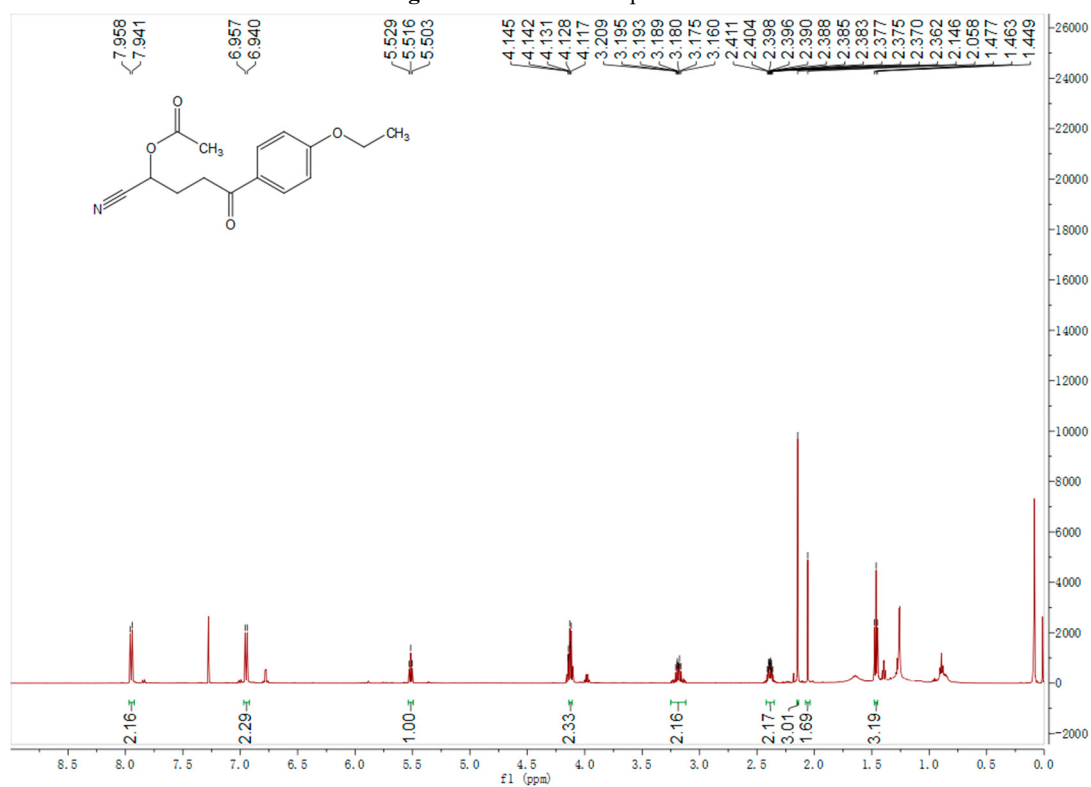


Figure S36 ¹H NMR spectra of **3r**

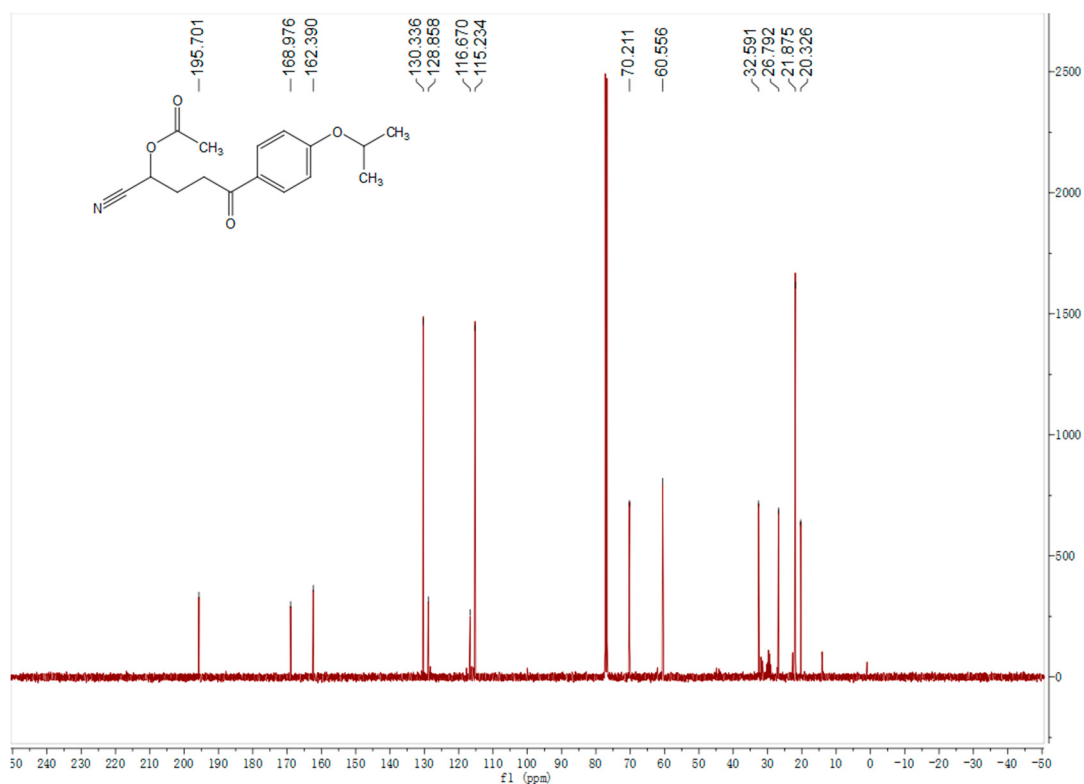


Figure S37 ¹³C NMR spectra of **3s**

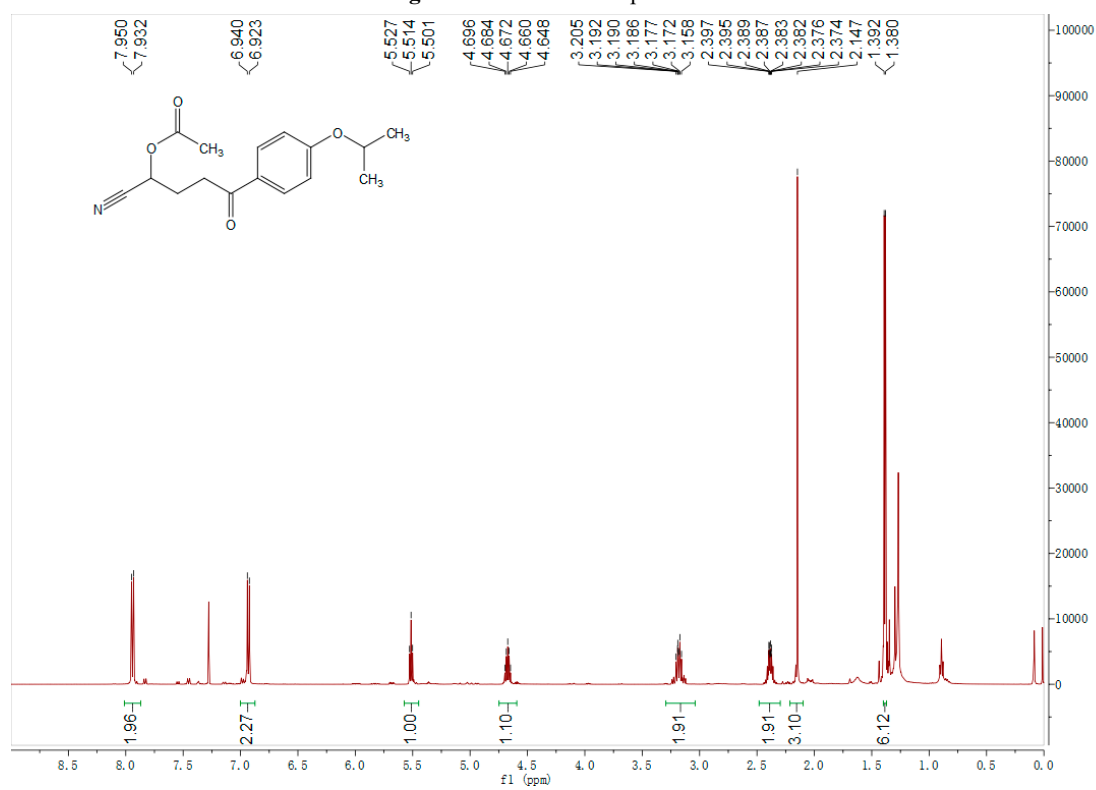


Figure S38 ¹H NMR spectra of **3s**

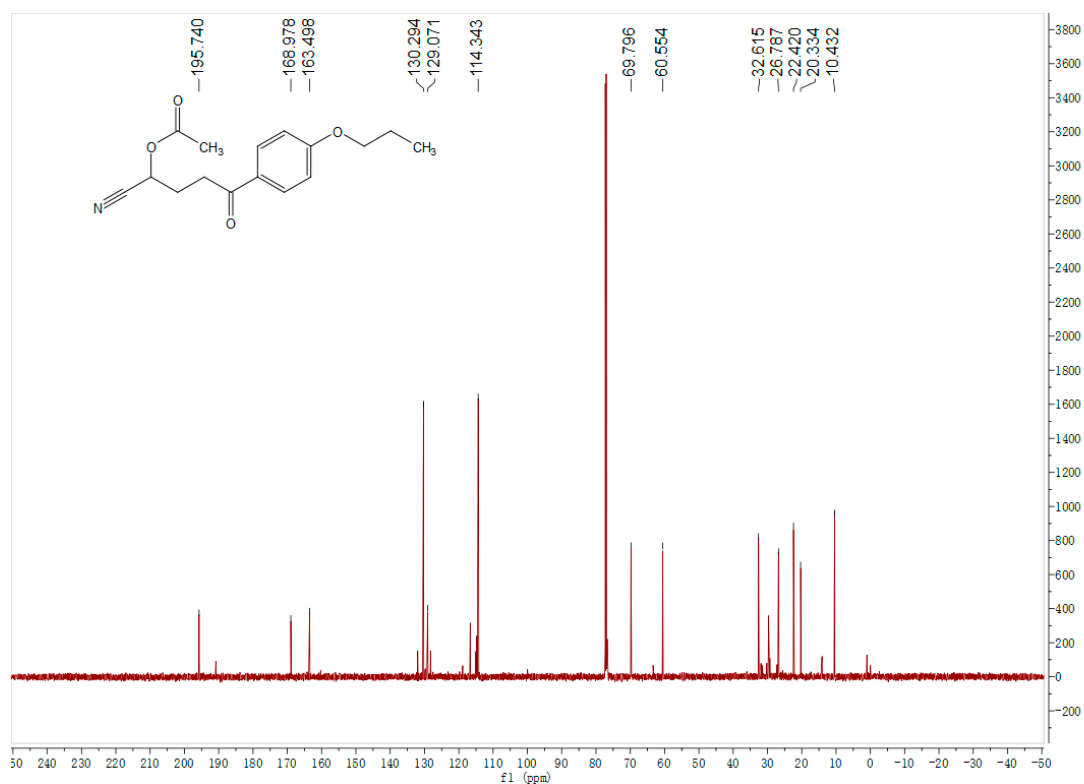


Figure S39 ¹³C NMR spectra of **3t**

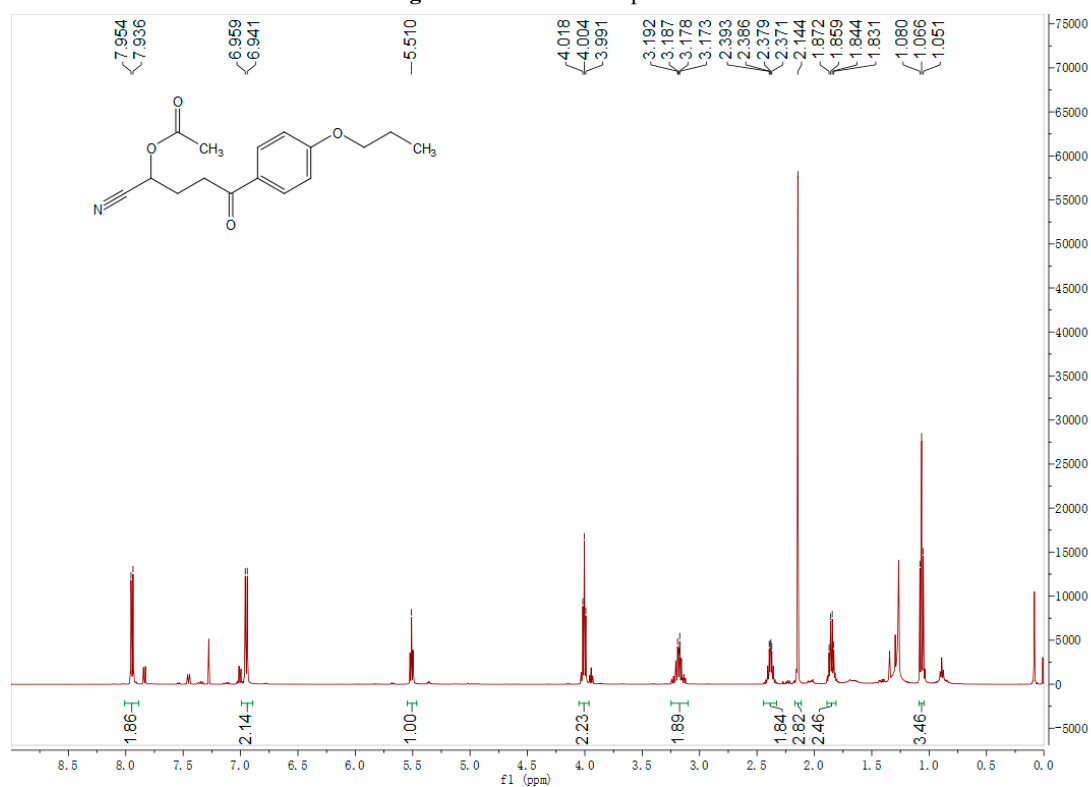


Figure S40 ¹H NMR spectra of **3t**

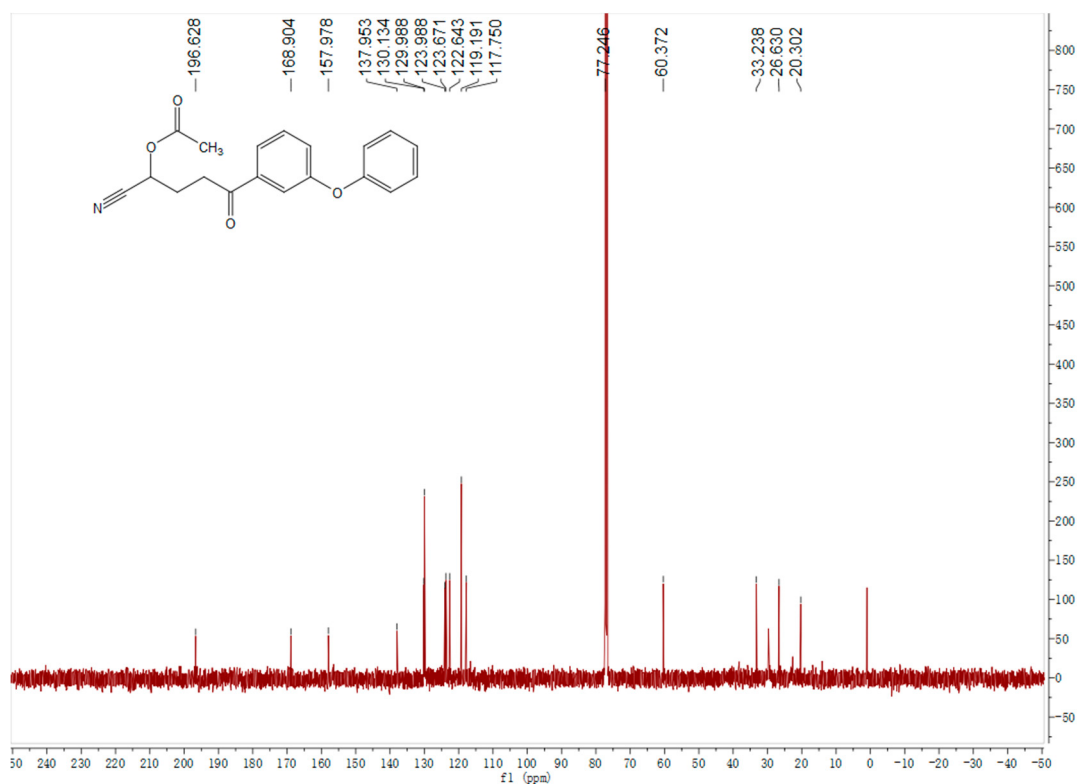


Figure S41 ¹³C NMR spectra of 3u

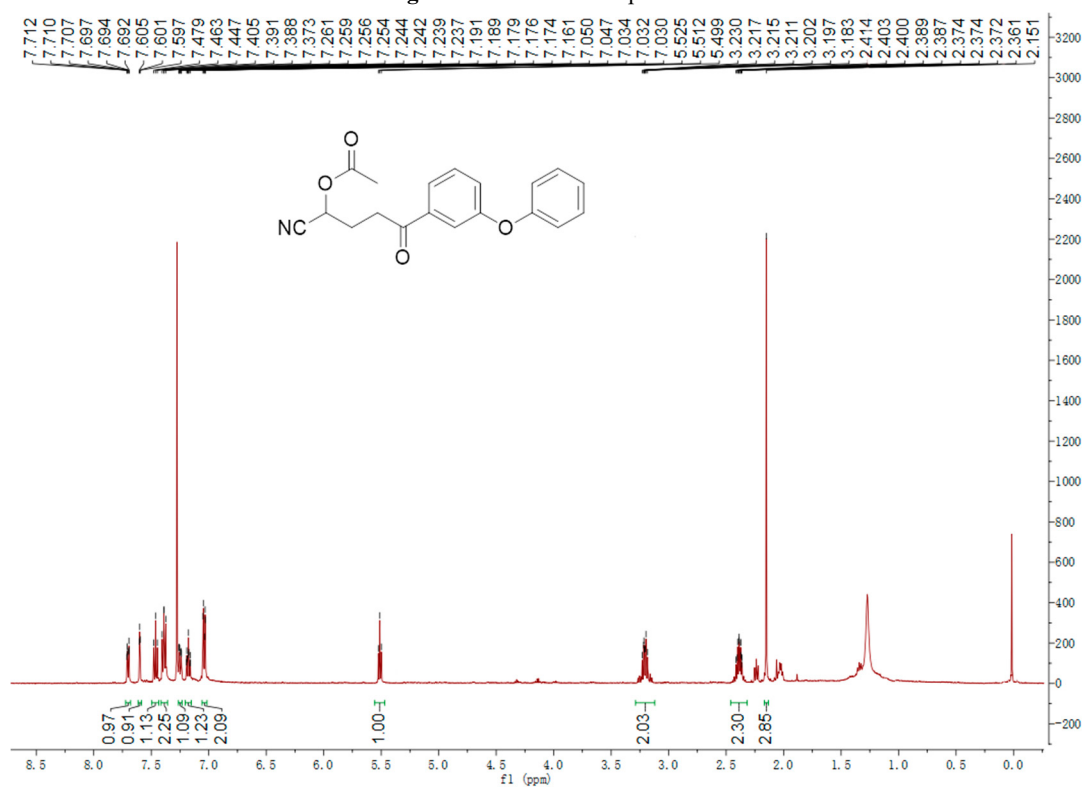


Figure S42 ¹H NMR spectra of 3u

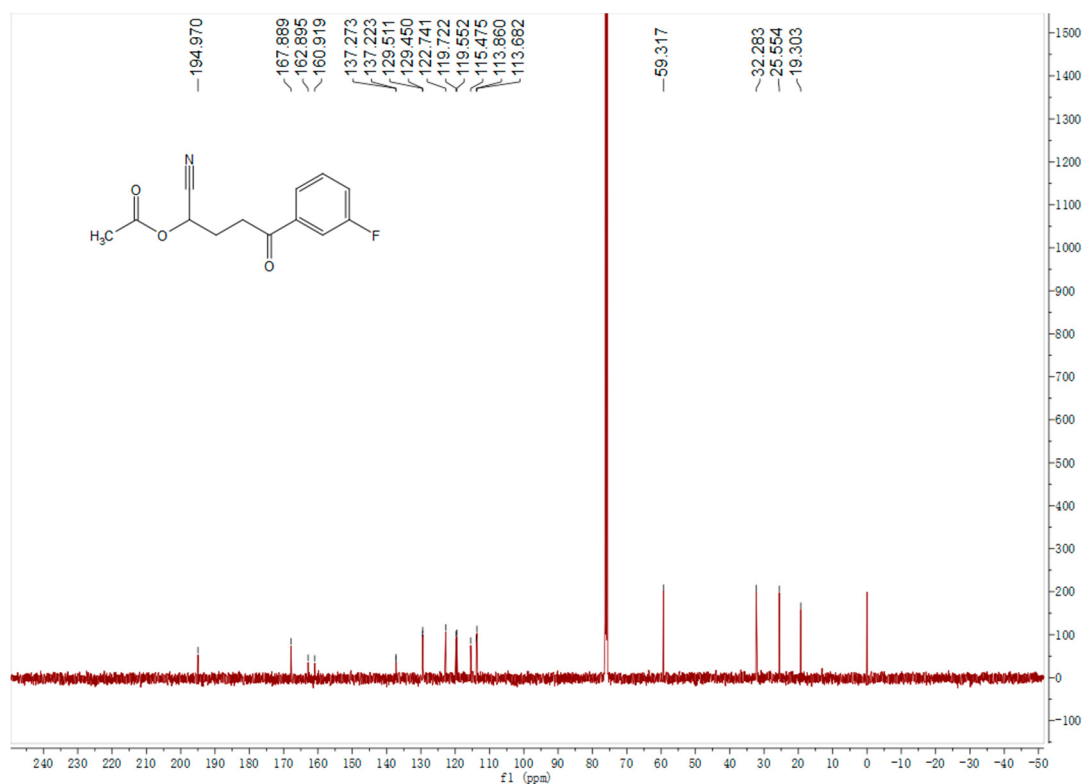


Figure S43 ¹³C NMR spectra of 3v

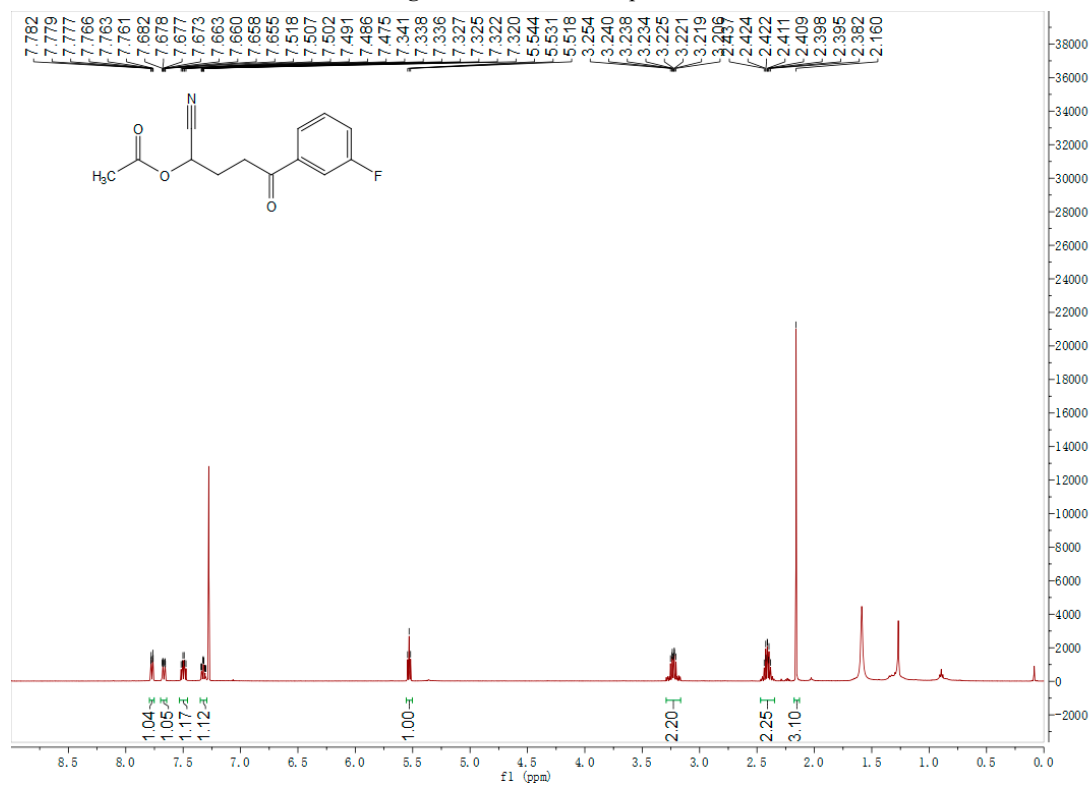


Figure S44 ¹H NMR spectra of 3v

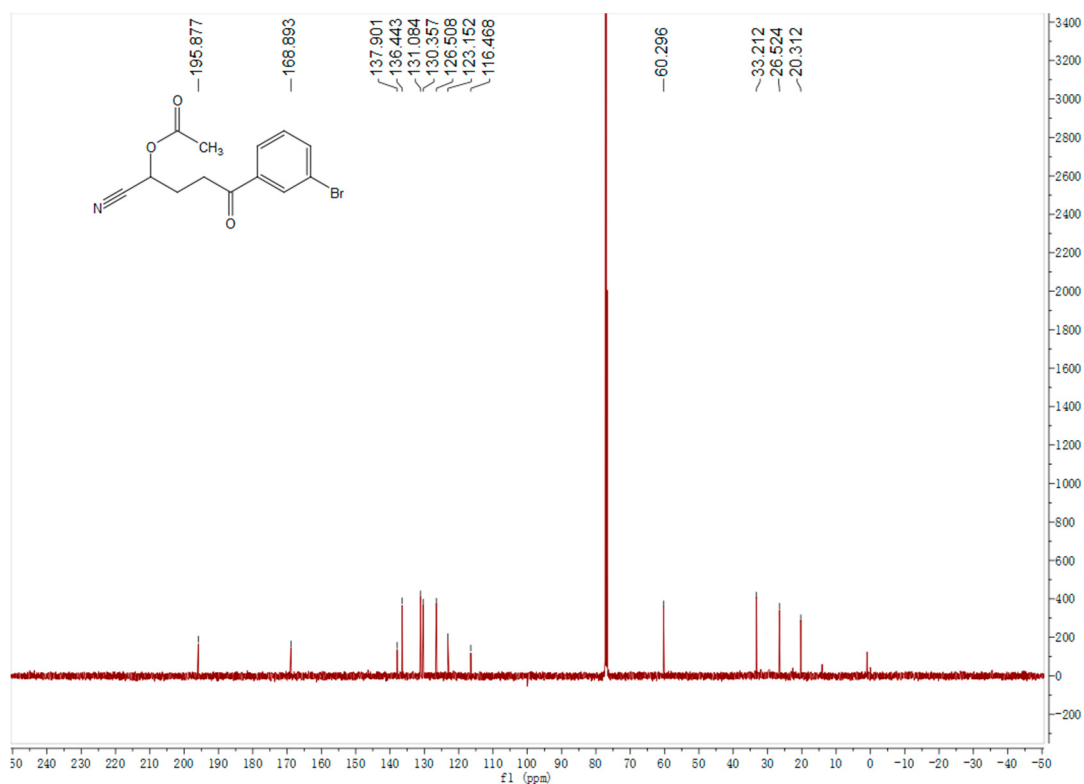


Figure S45 ¹³C NMR spectra of 3w

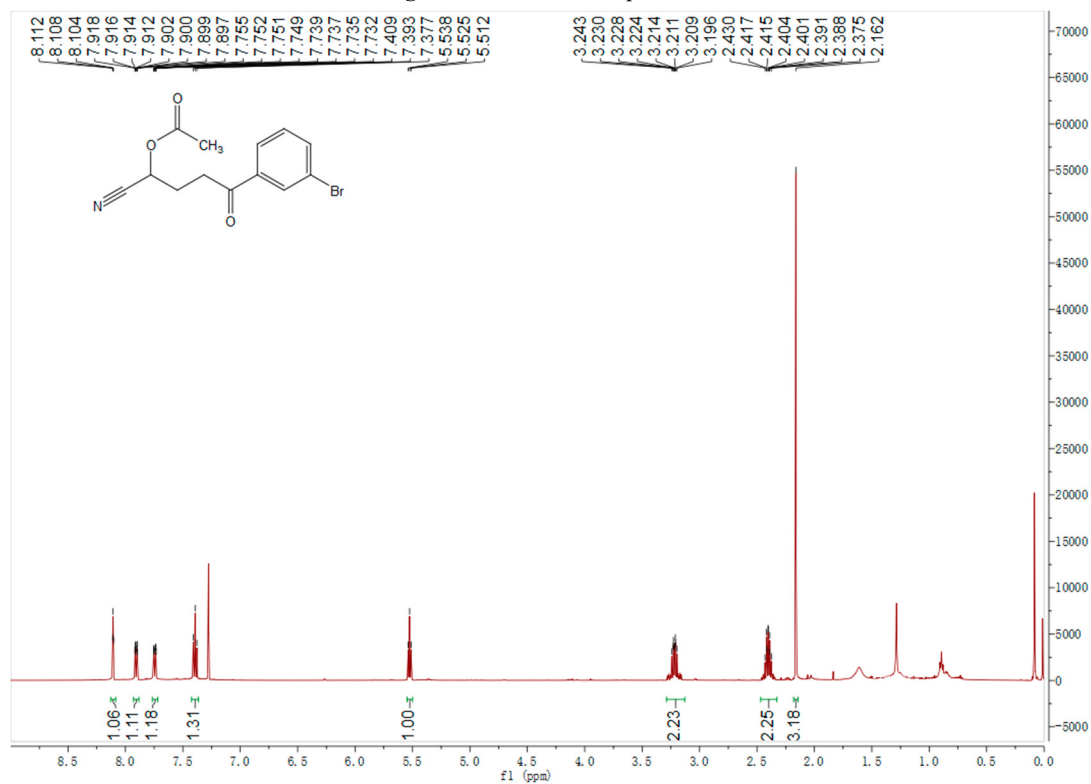


Figure S46 ¹H NMR spectra of 3w

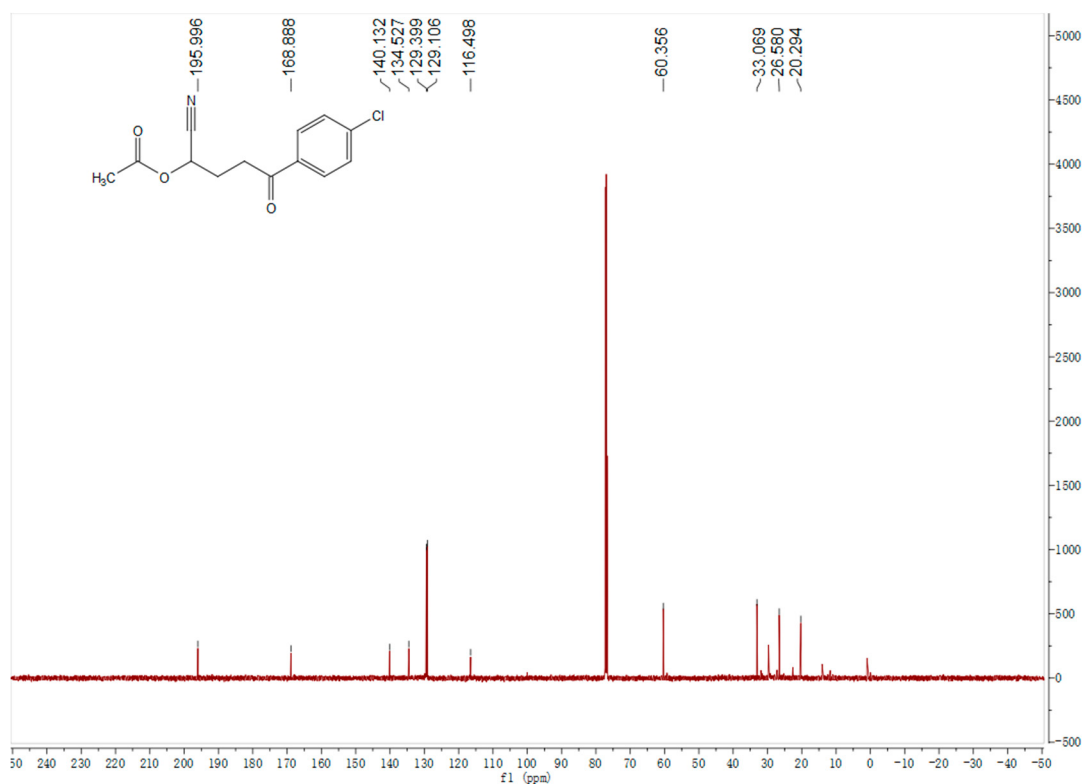


Figure S47 ¹³C NMR spectra of 3x

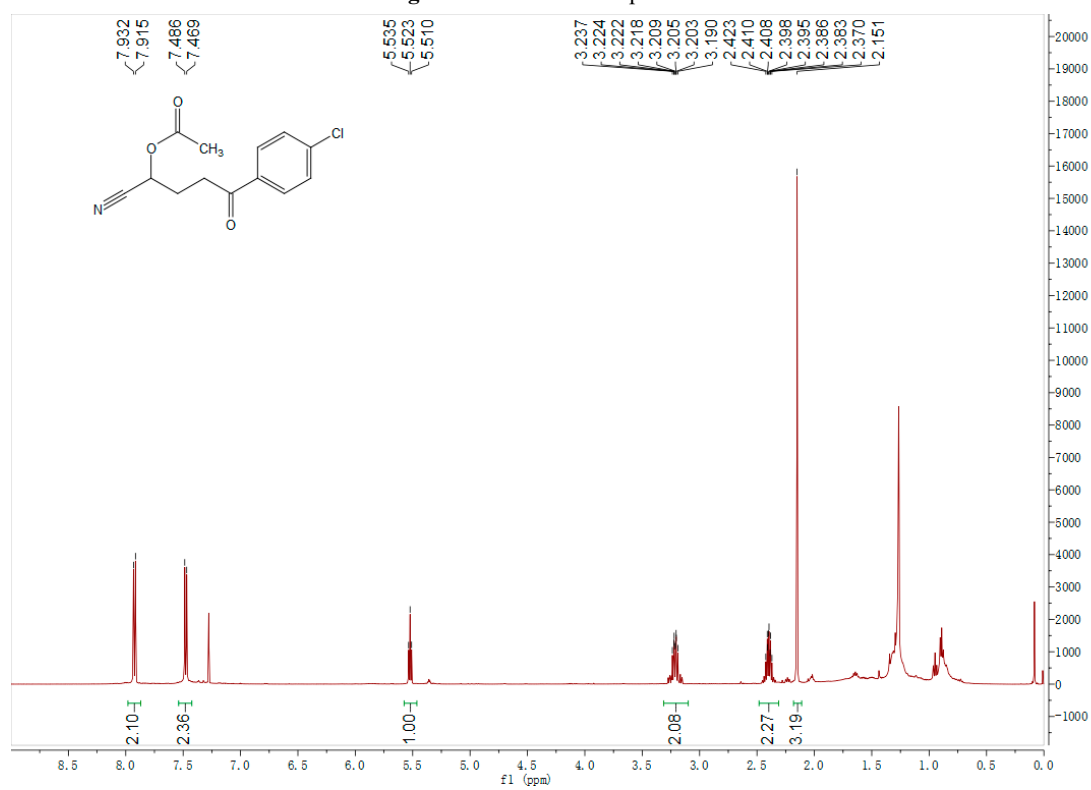


Figure S48 ¹H NMR spectra of 3x

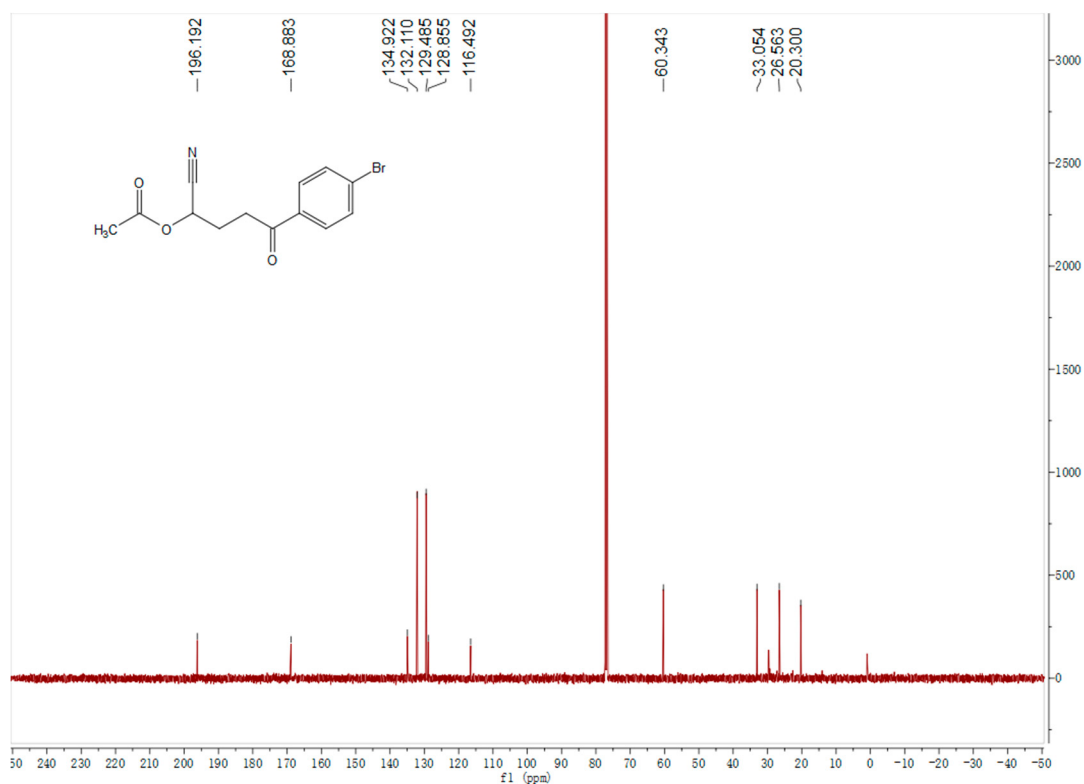


Figure S49 ¹³C NMR spectra of 3y

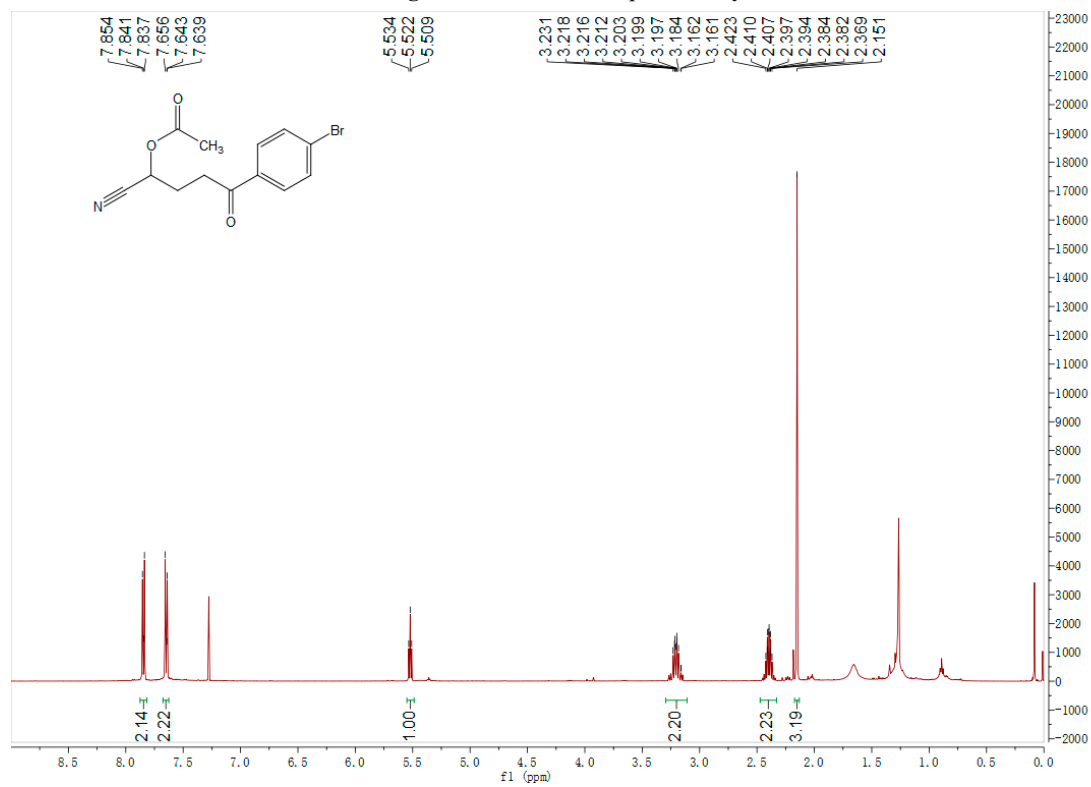


Figure S50 ¹H NMR spectra of 3y

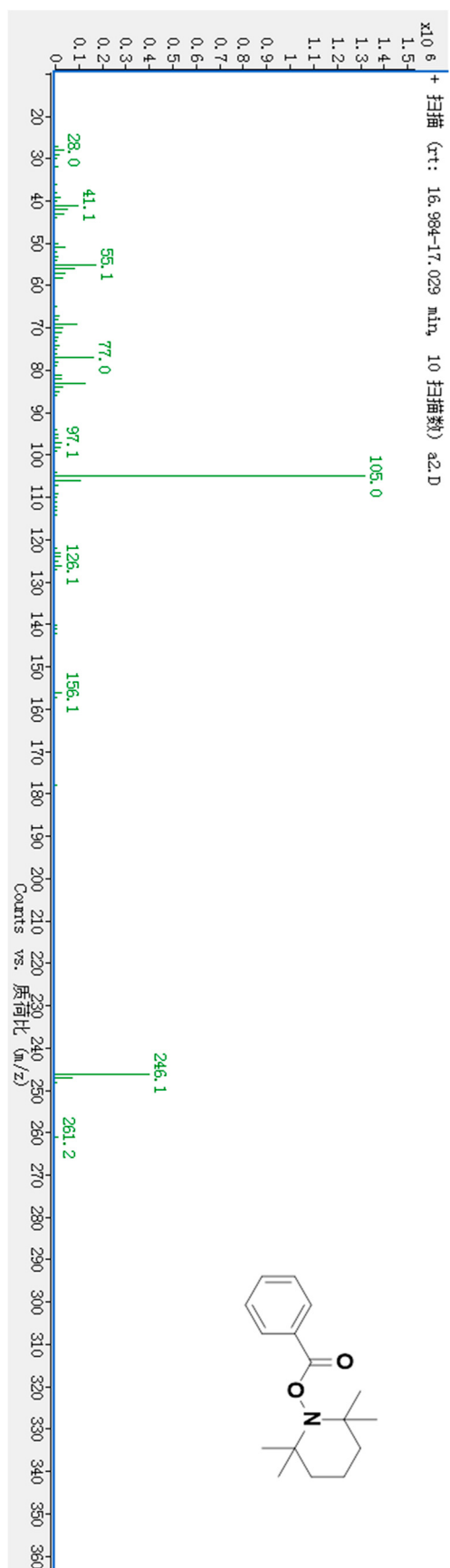


Figure S51 GC-MC of 6a

2. ^1H and ^{13}C NMR spectra of compounds 4.

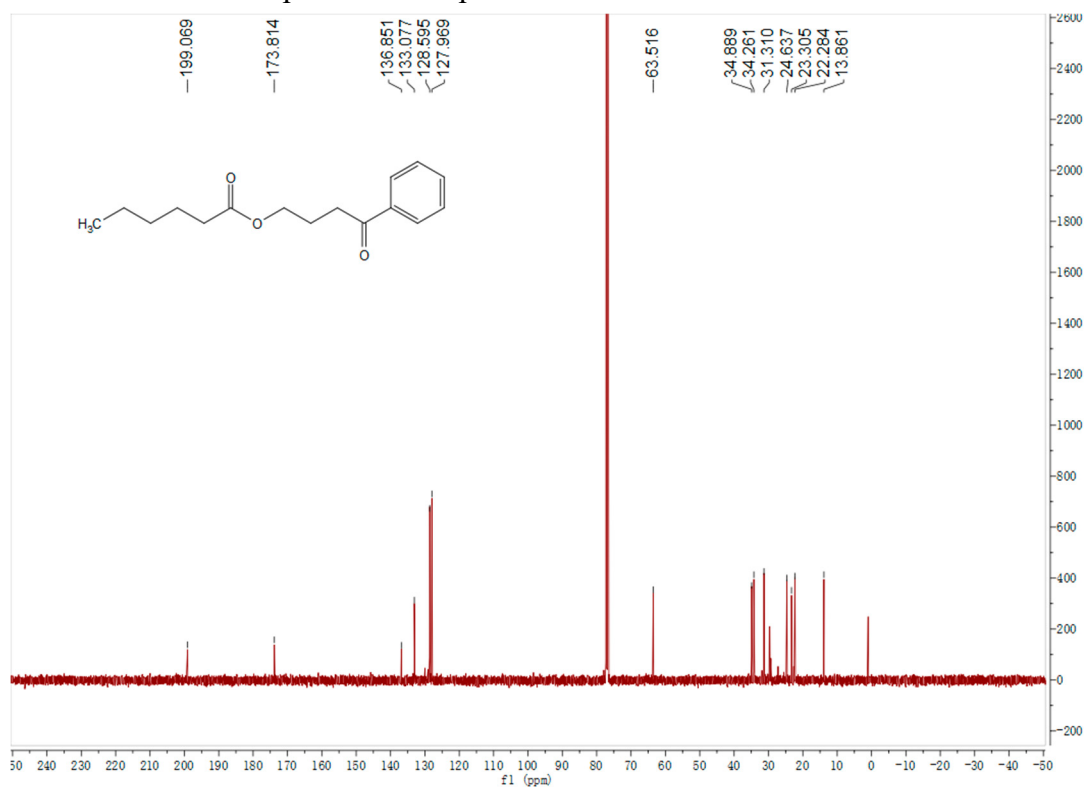


Figure S52 ^{13}C NMR spectra of 4a

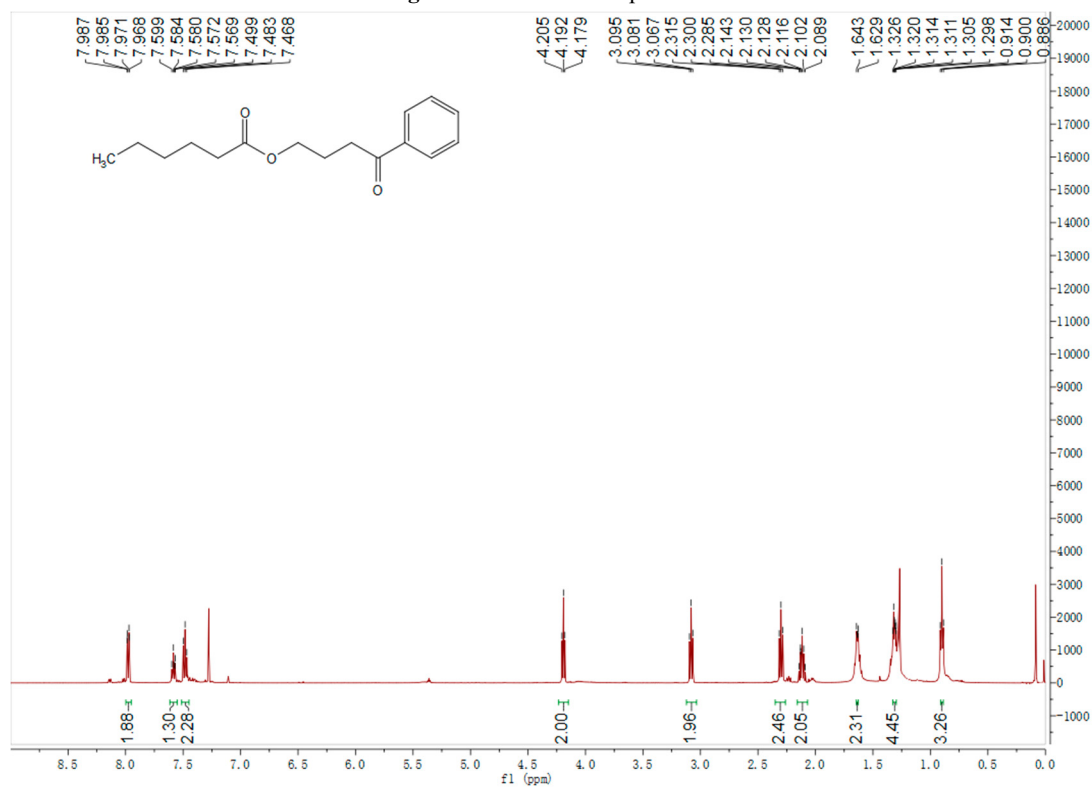


Figure S53 ^1H NMR spectra of 4a

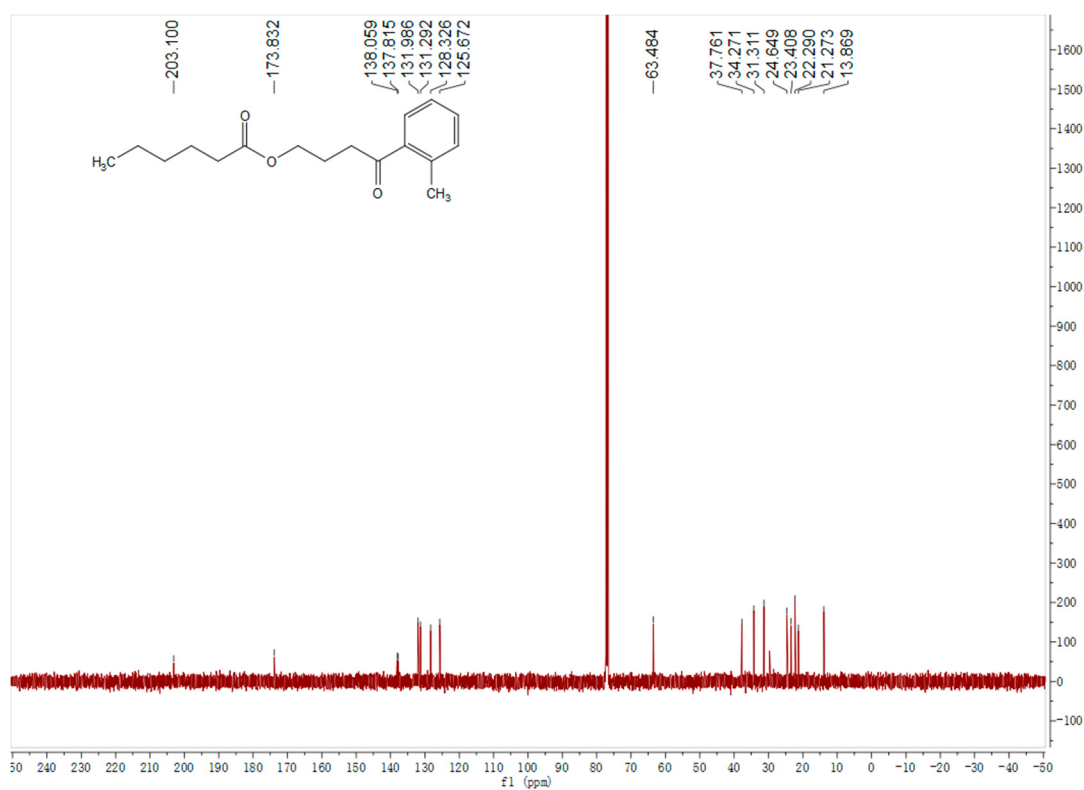


Figure S54 ¹³C NMR spectra of 4b

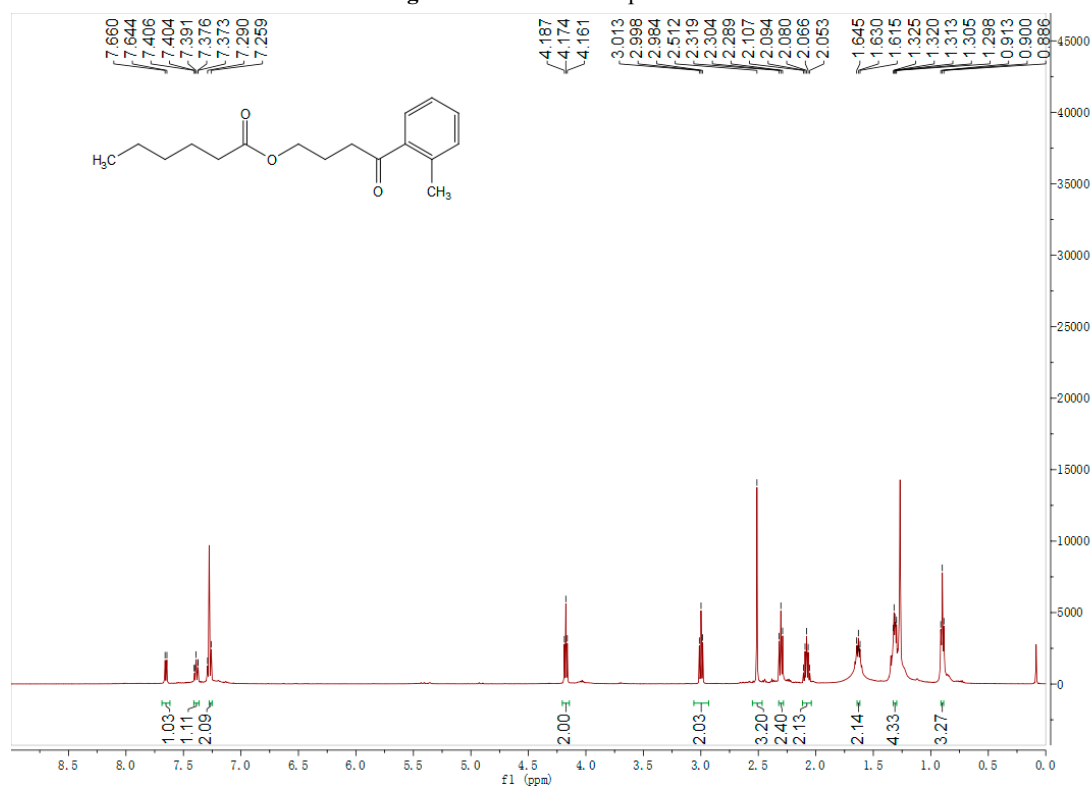


Figure S55 ¹H NMR spectra of 4b

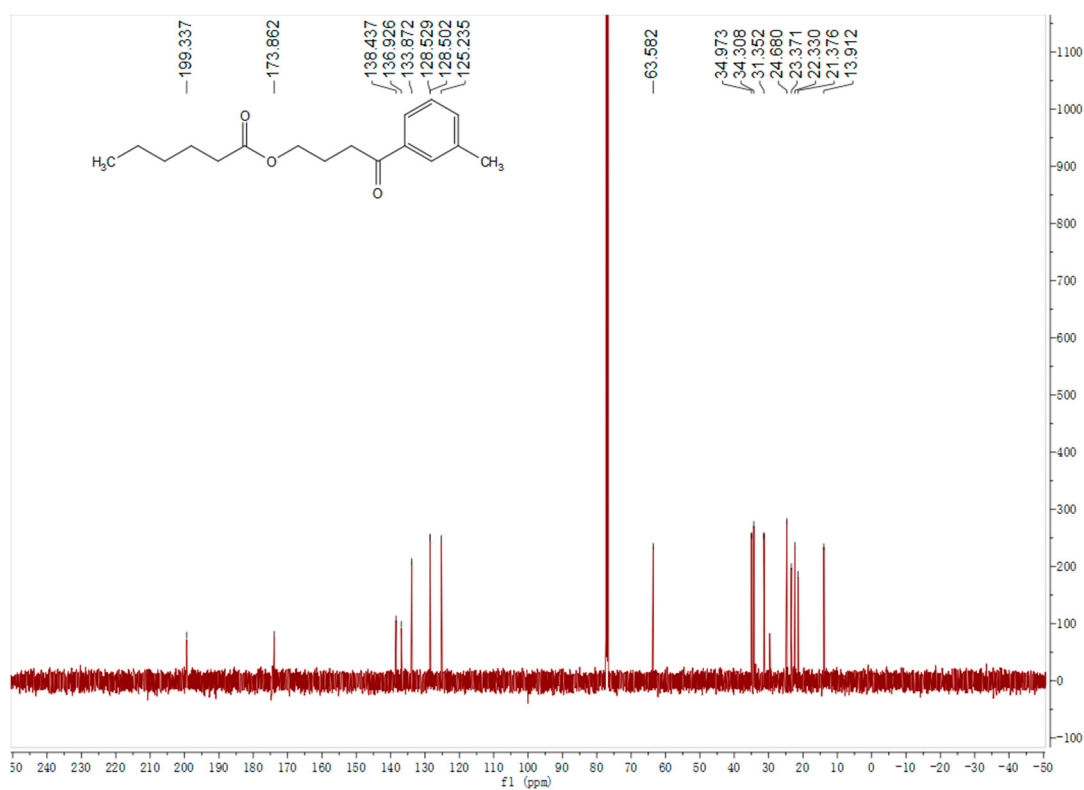


Figure S56 ¹³C NMR spectra of 4c

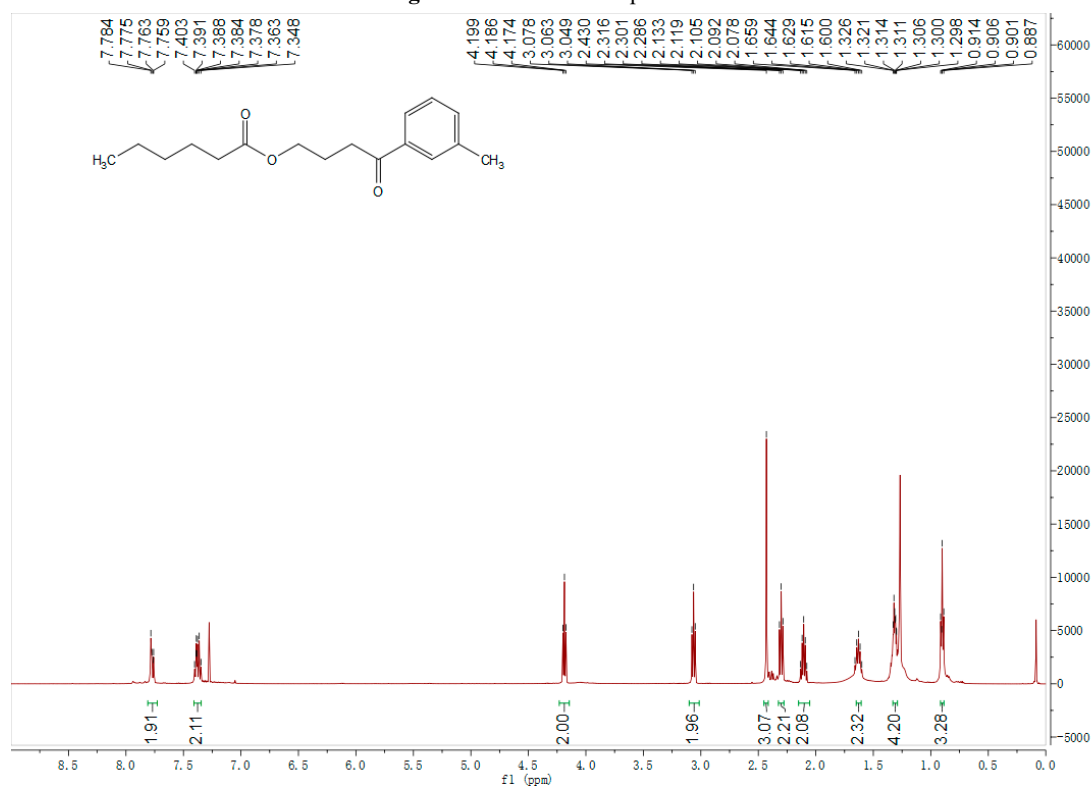


Figure S57 ¹H NMR spectra of 4c

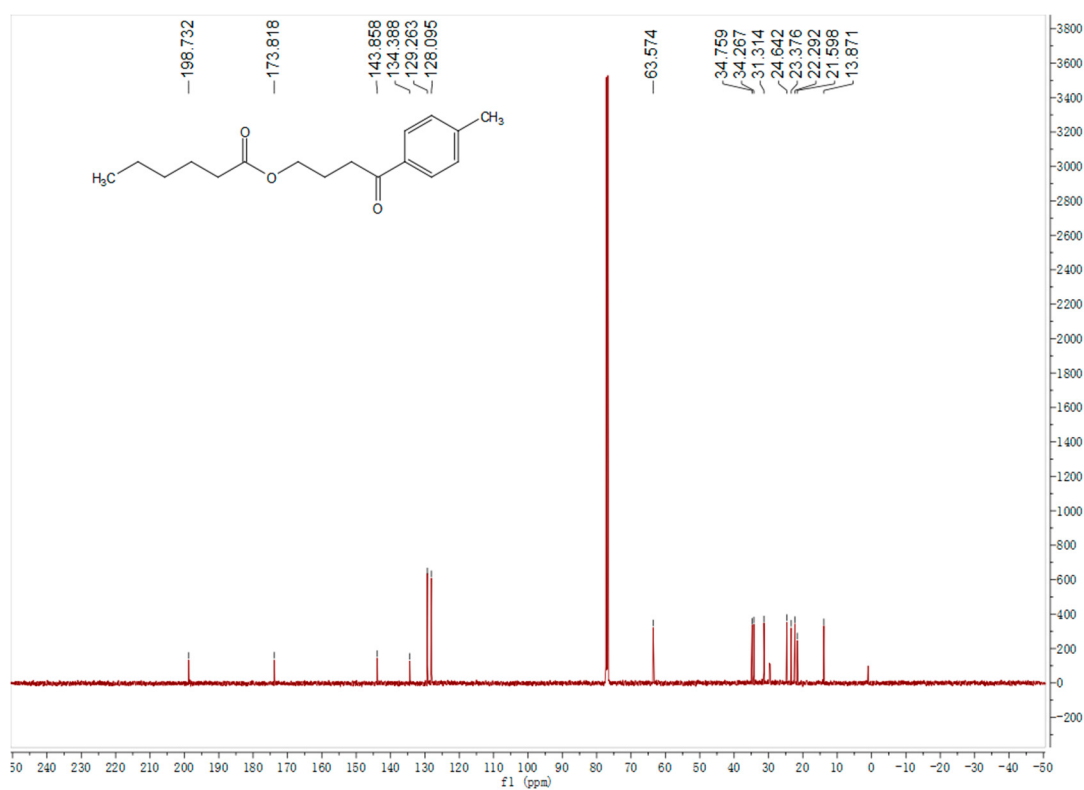


Figure S58 ¹³C NMR spectra of 4d

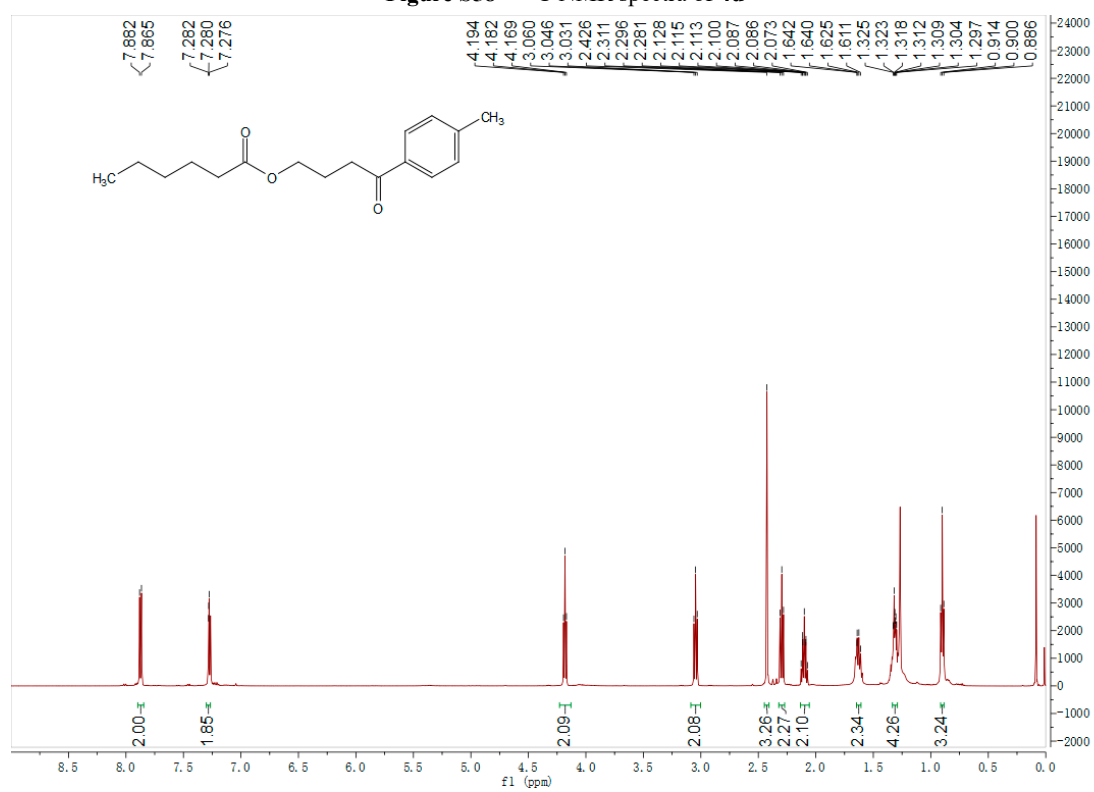


Figure S59 ¹H NMR spectra of 4d

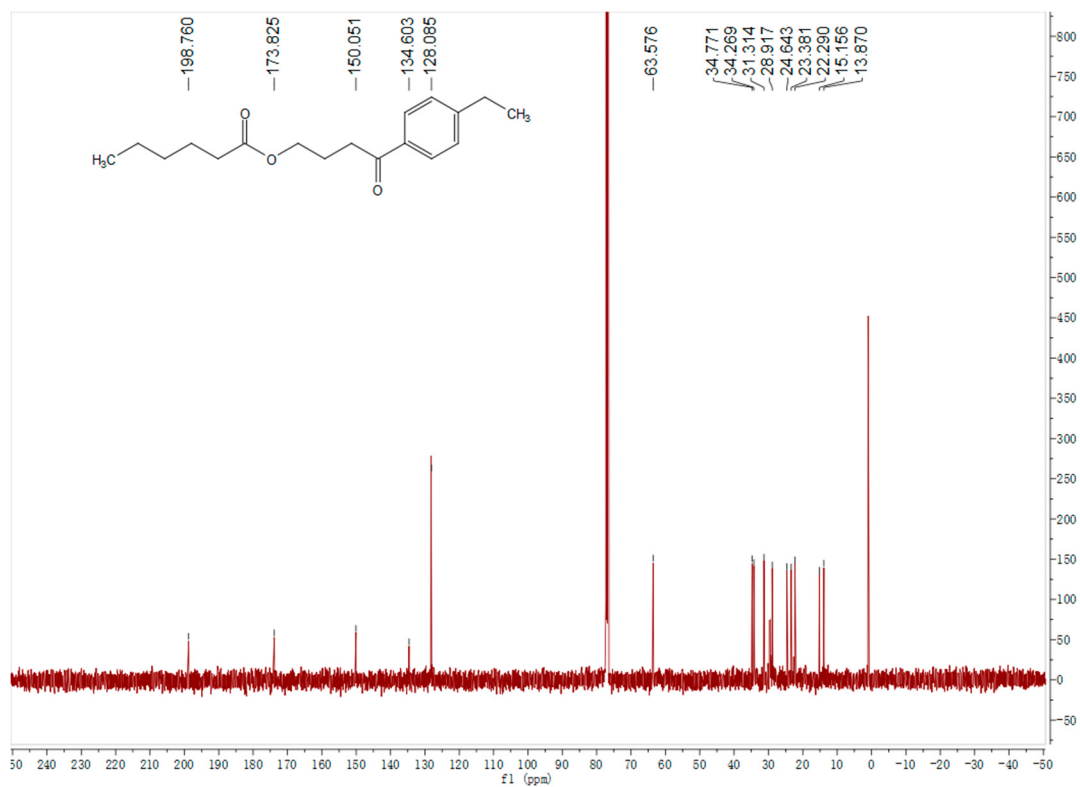


Figure S60 ¹³C NMR spectra of 4e

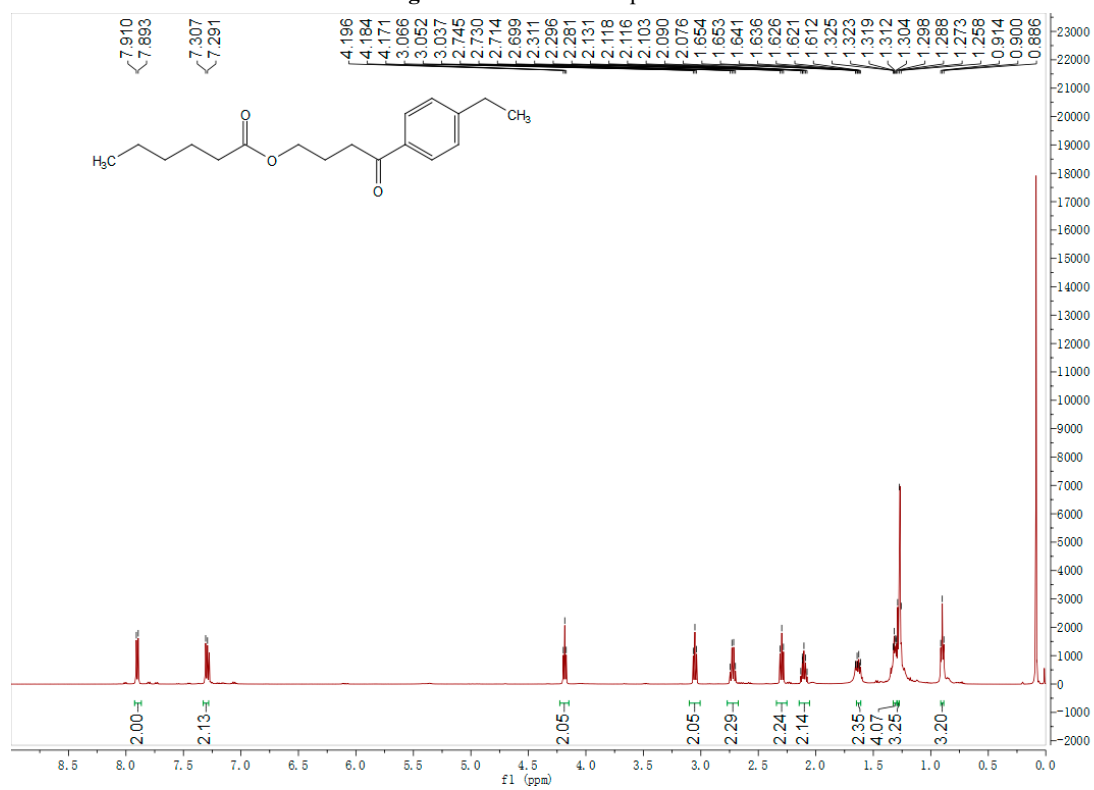


Figure S61 ¹H NMR spectra of 4e

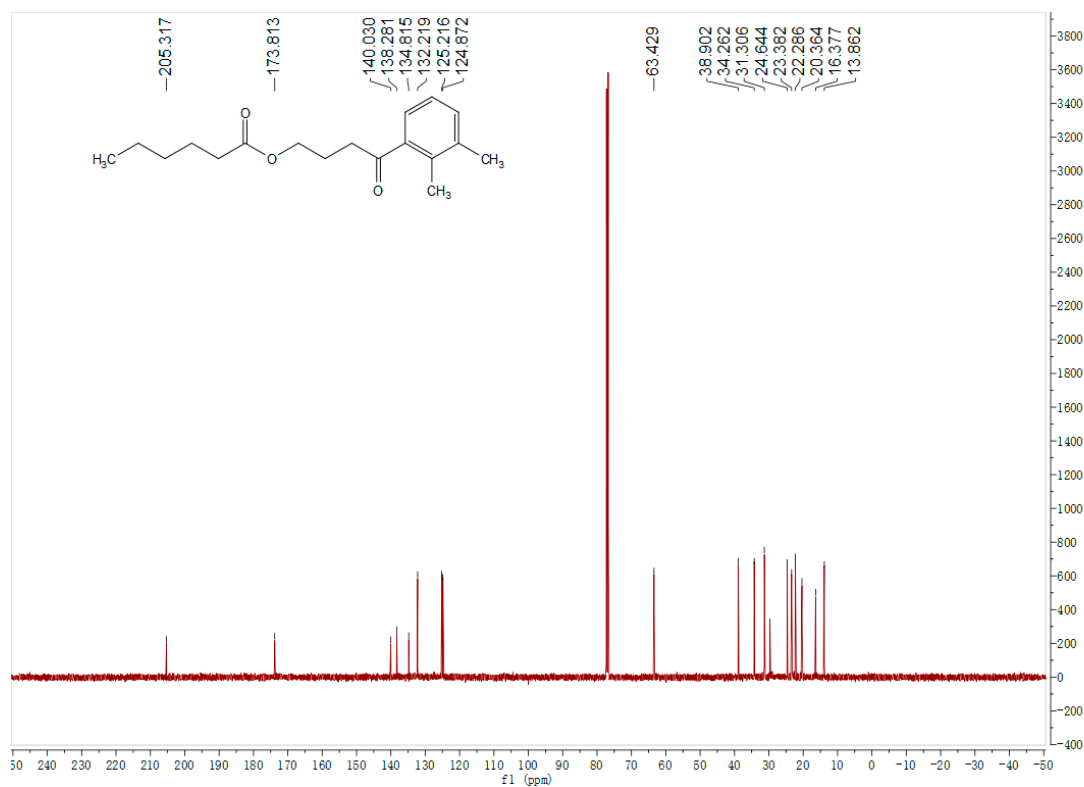


Figure S62 ¹³C NMR spectra of 4f

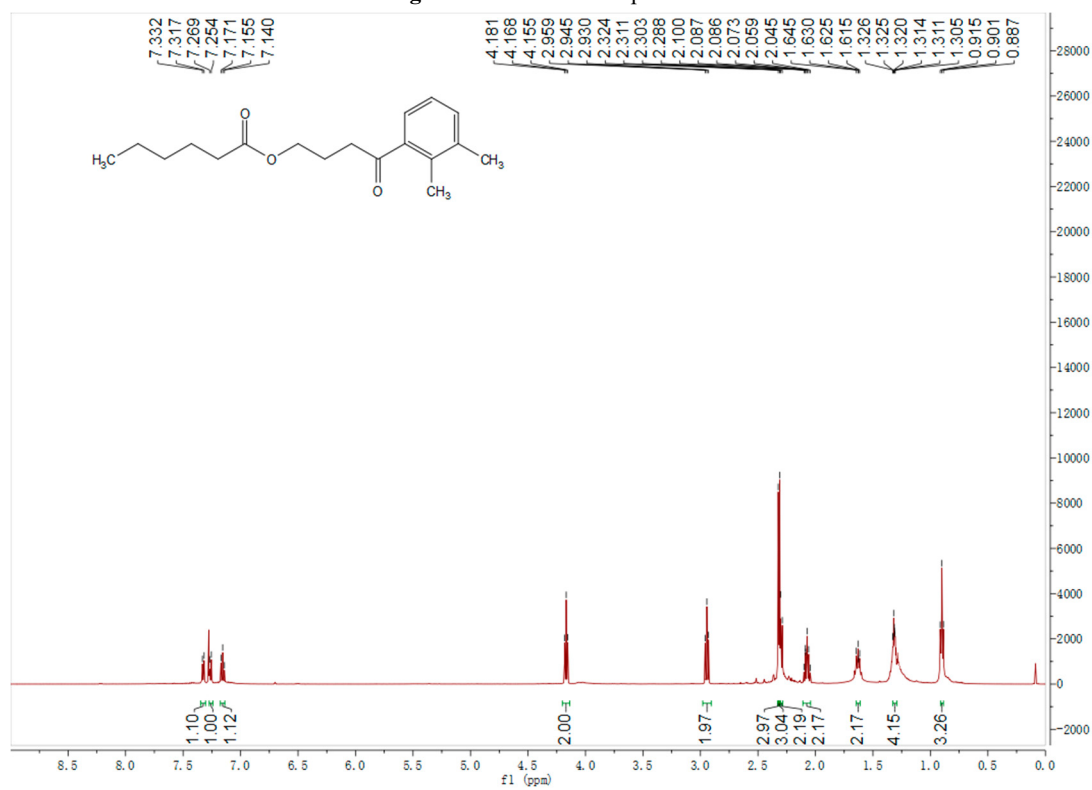


Figure S63 ¹H NMR spectra of 4f

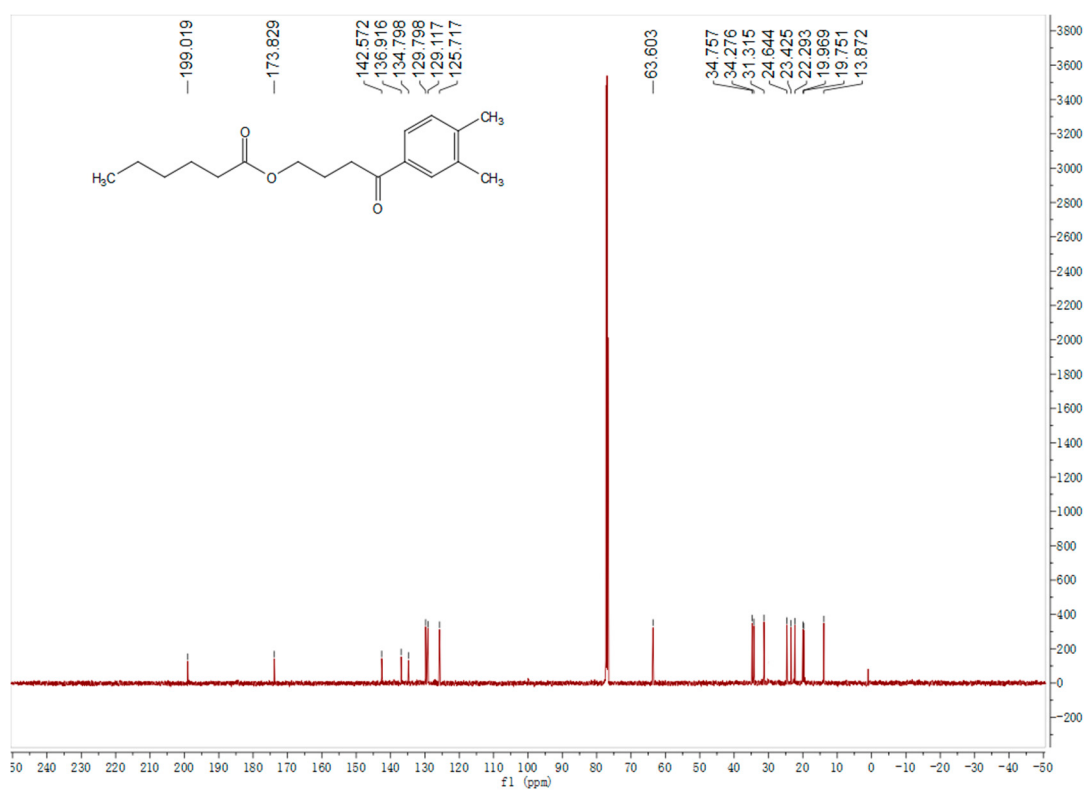


Figure S64 ¹³C NMR spectra of 4g

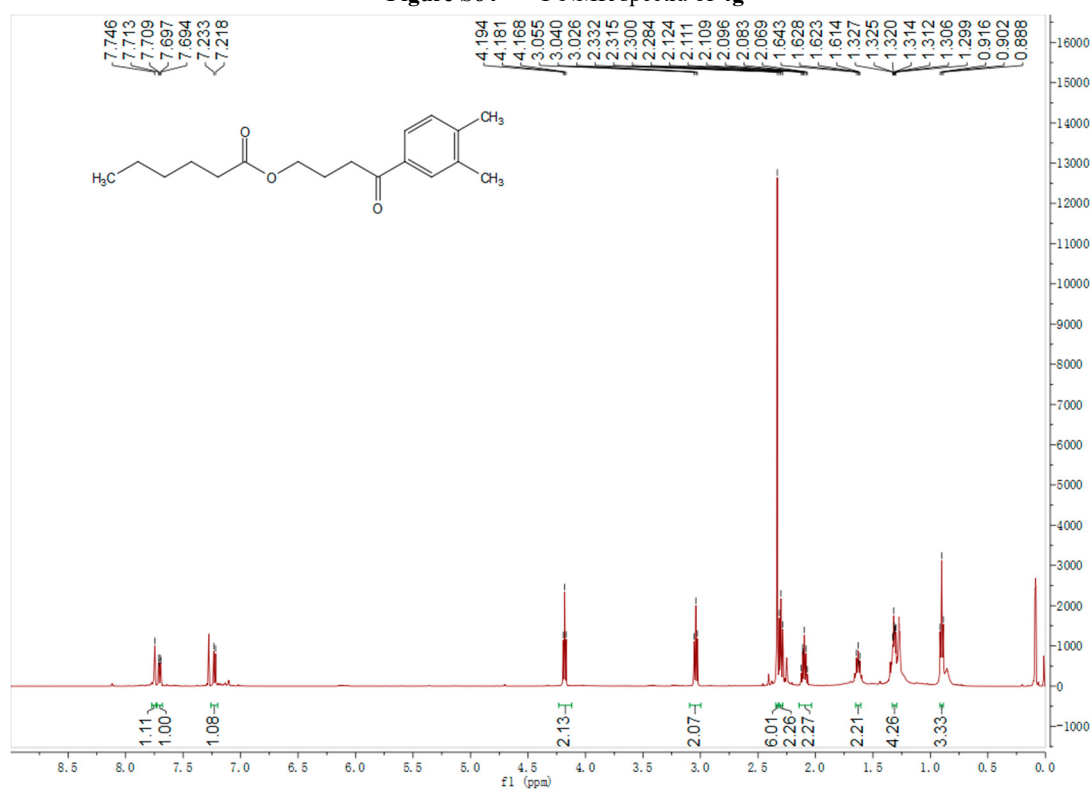


Figure S65 ¹H NMR spectra of 4g

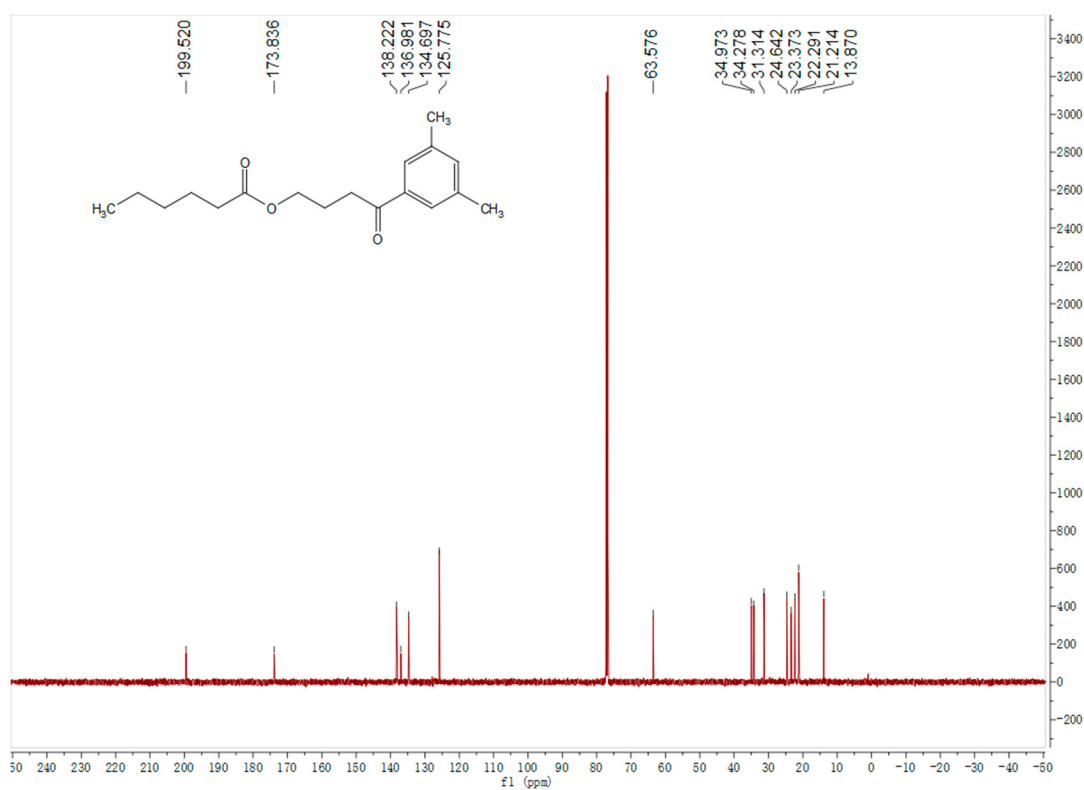


Figure S66 ¹³C NMR spectra of 4h

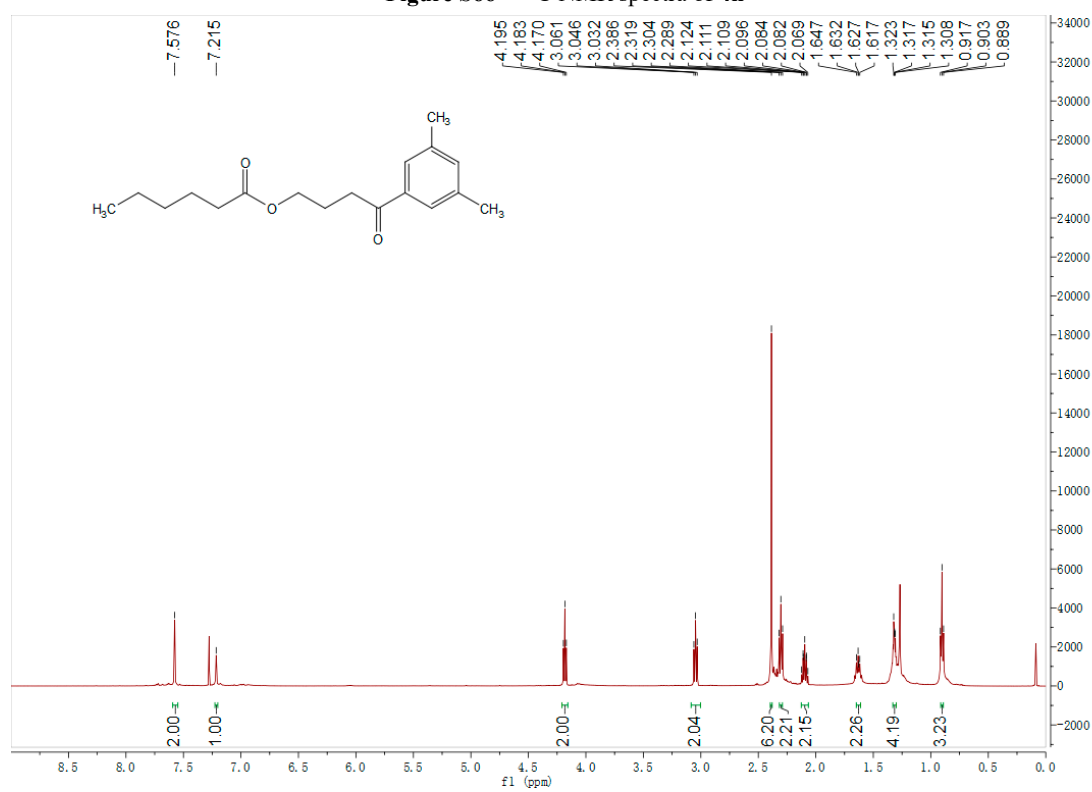


Figure S67 ¹H NMR spectra of 4h

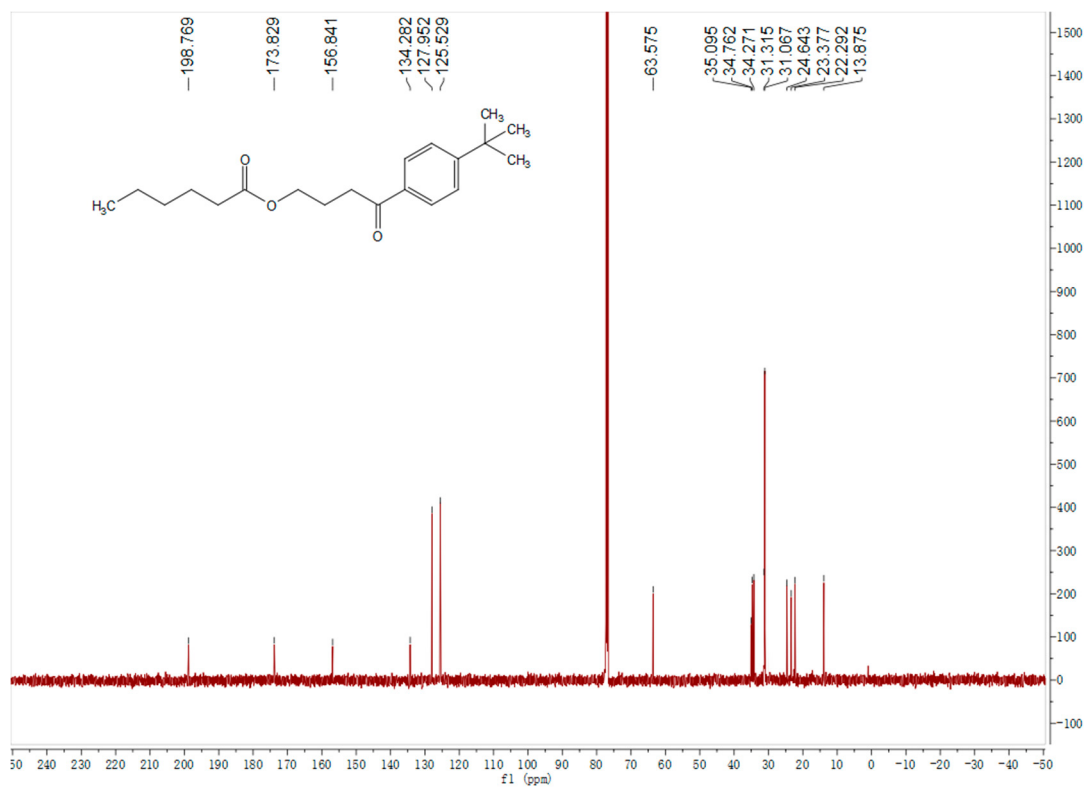


Figure S68 ¹³C NMR spectra of 4i

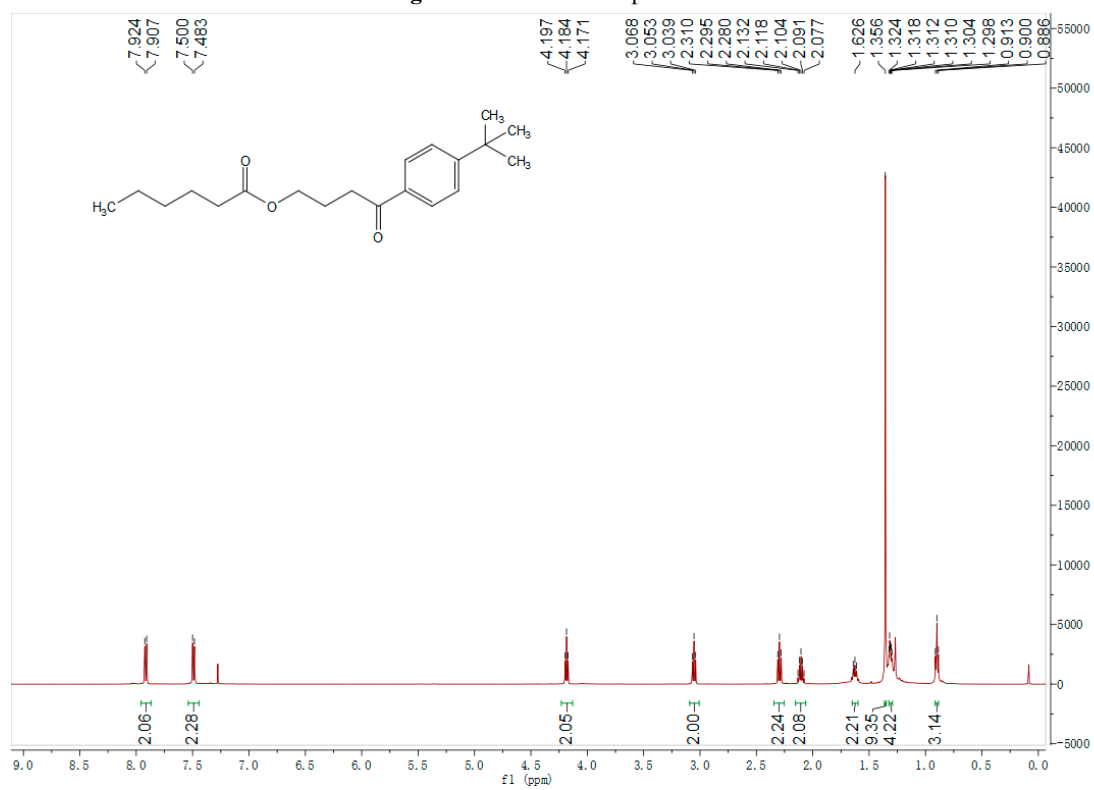


Figure S69 ¹H NMR spectra of 4i

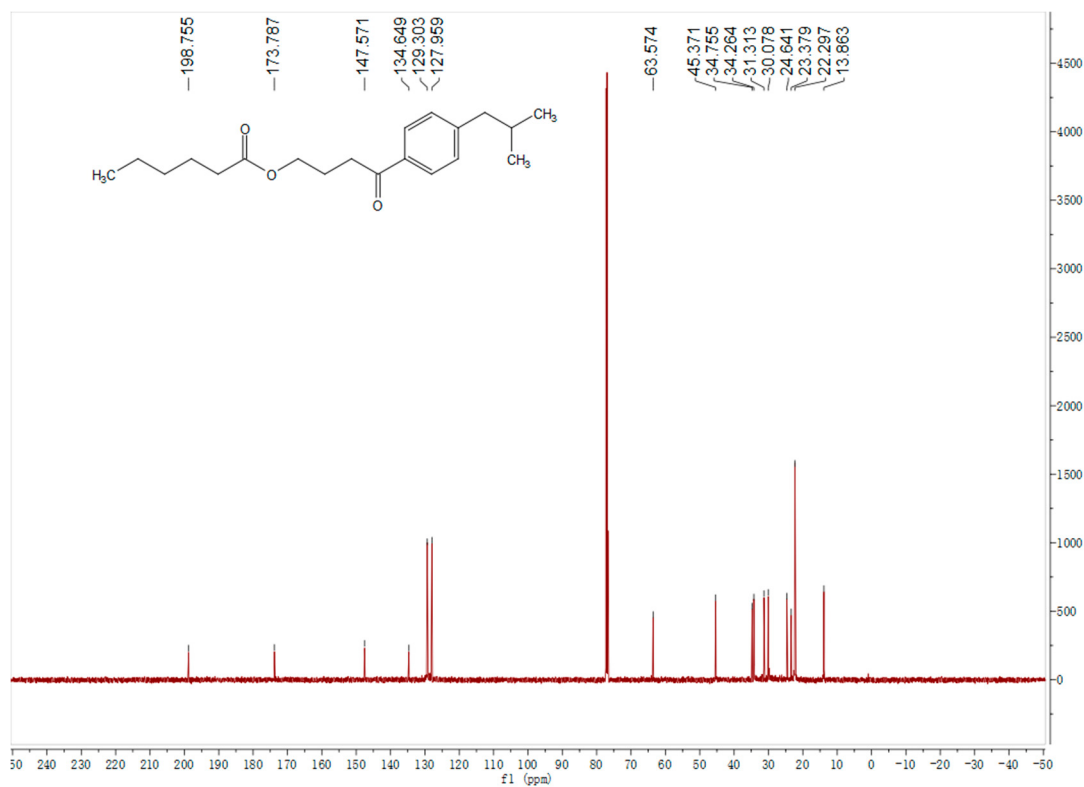


Figure S70 ¹³C NMR spectra of 4j

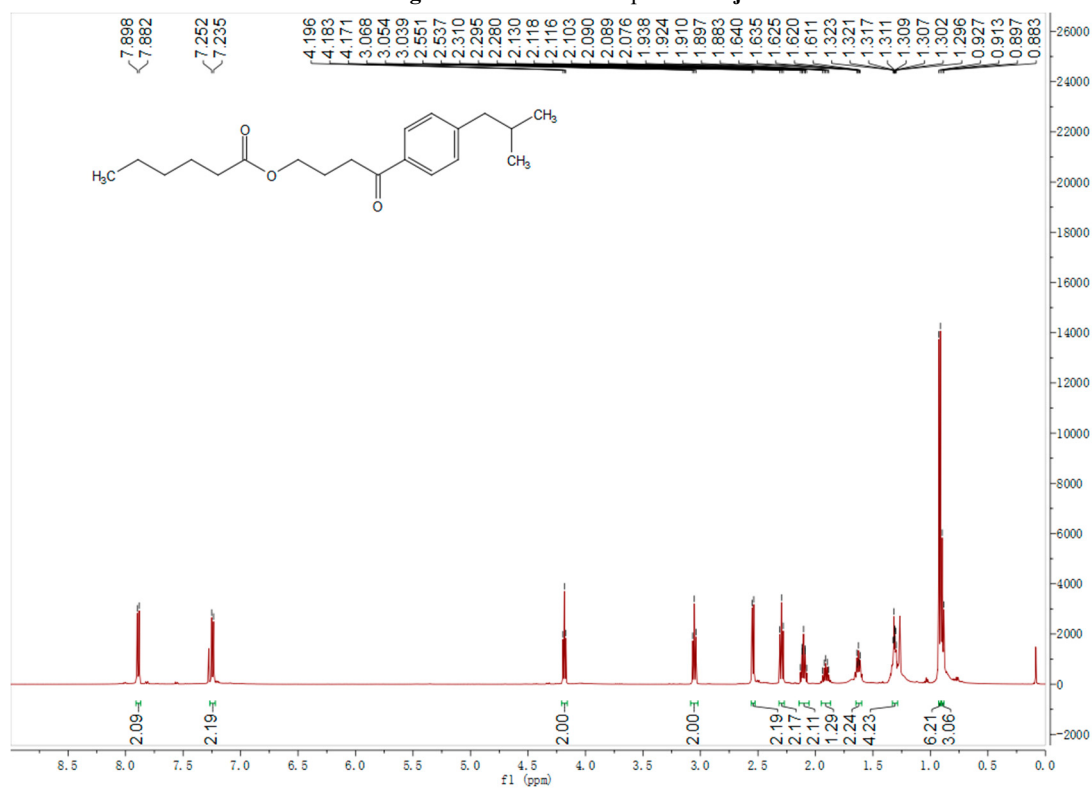


Figure S71 ¹H NMR spectra of 4j

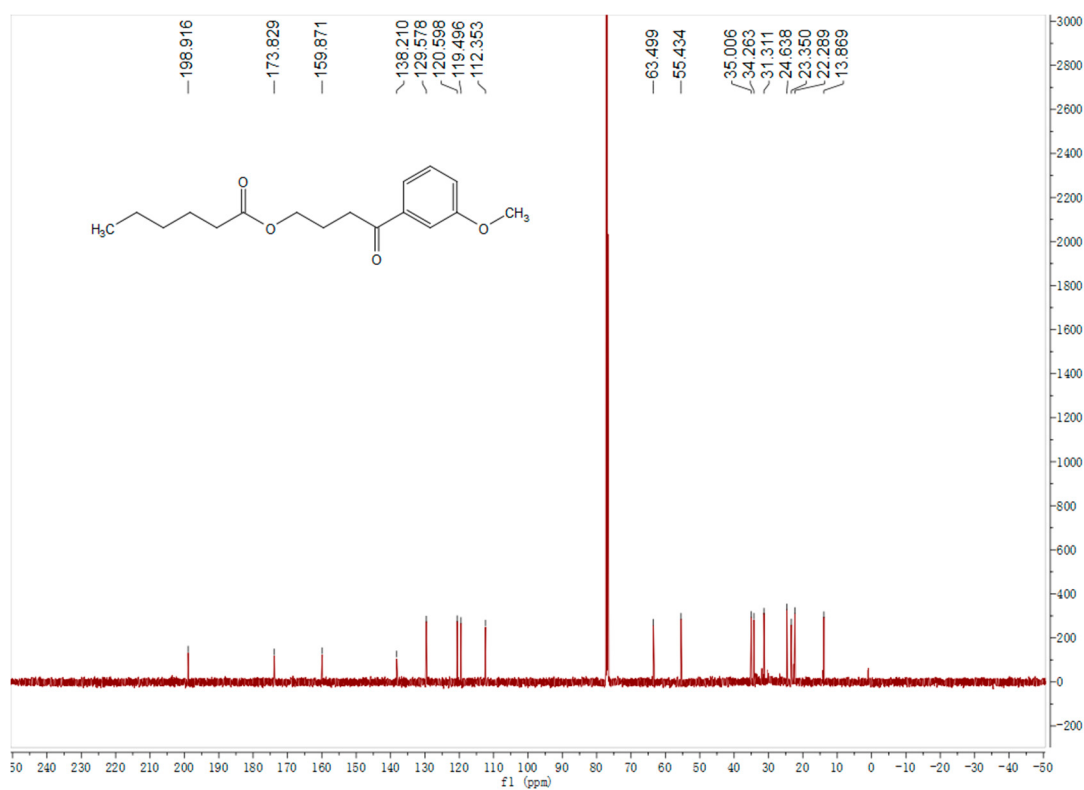


Figure S72 ¹³C NMR spectra of 4k

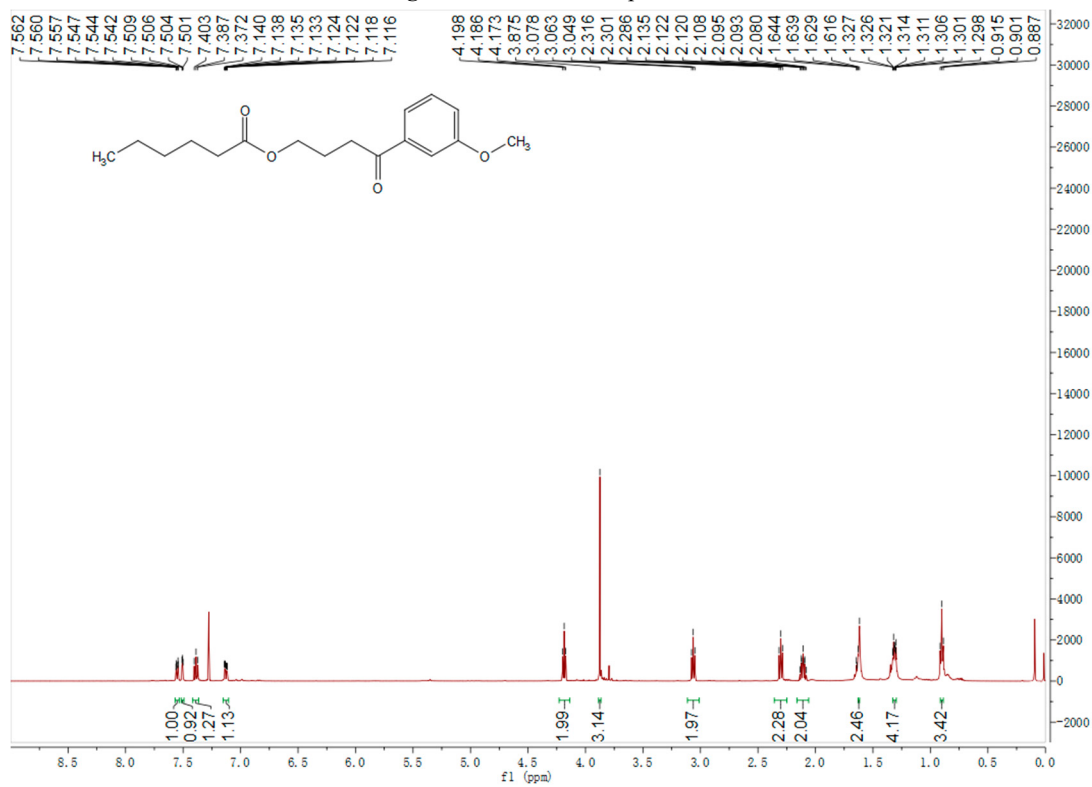


Figure S73 ¹H NMR spectra of 4k

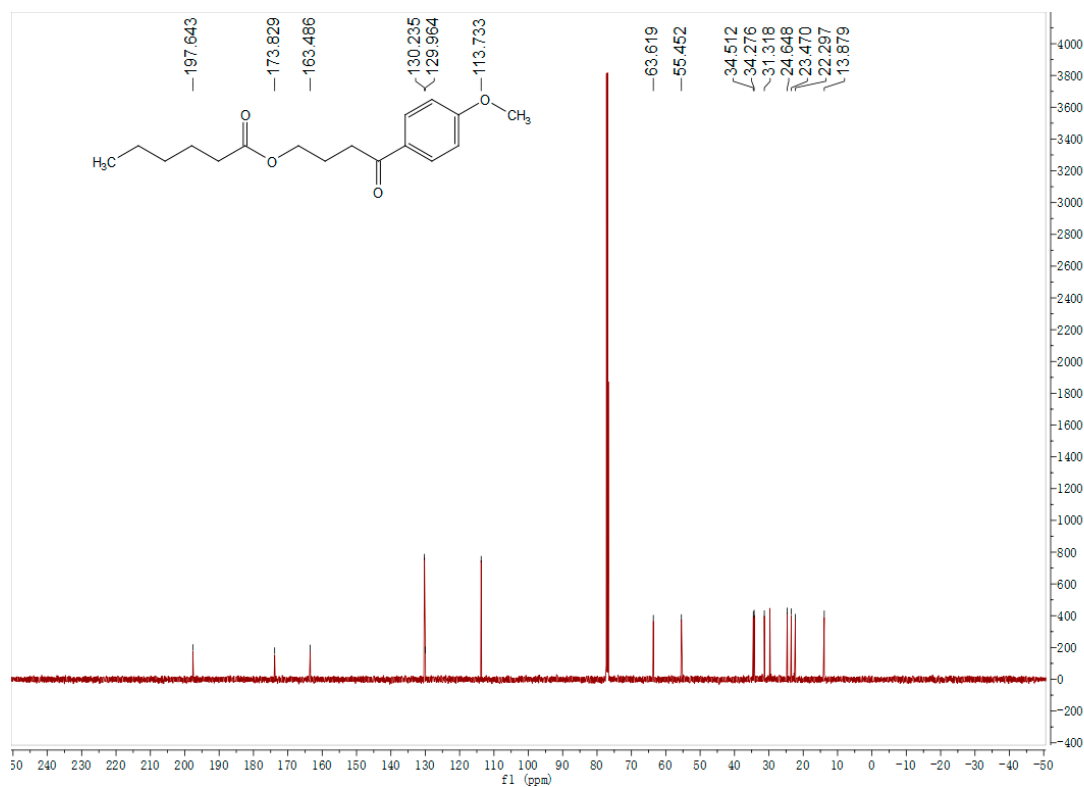


Figure S74 ¹³C NMR spectra of 4l

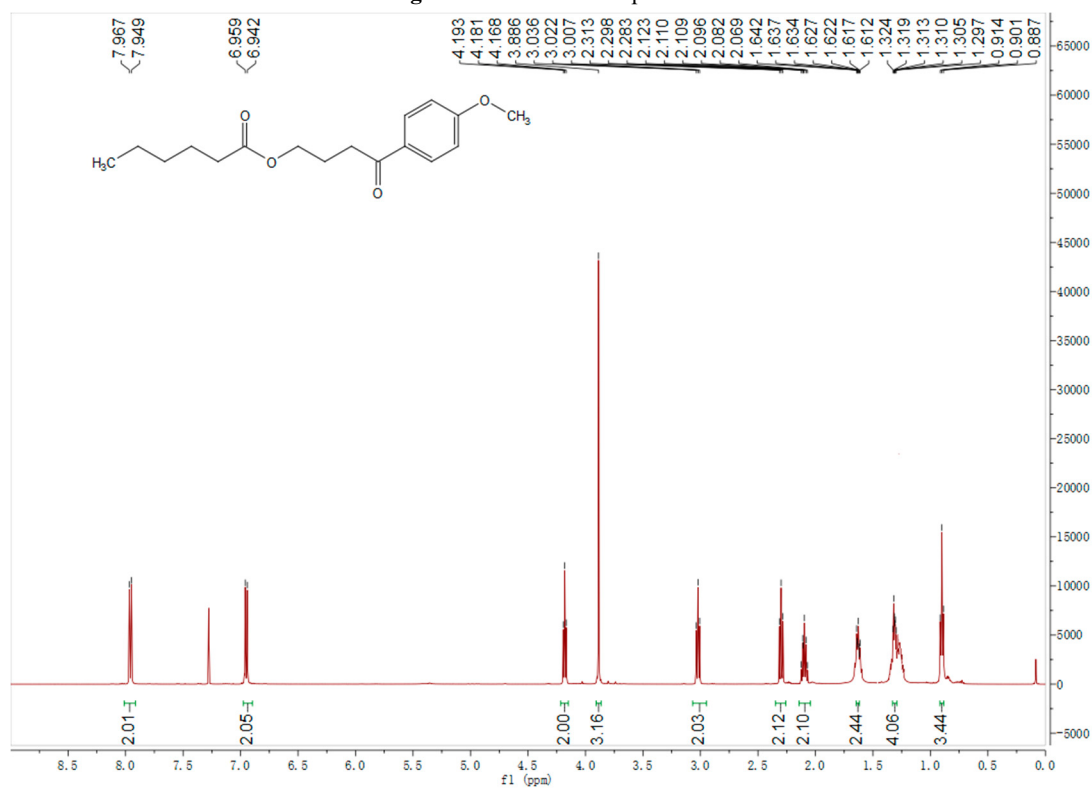


Figure S75 ¹H NMR spectra of 4l

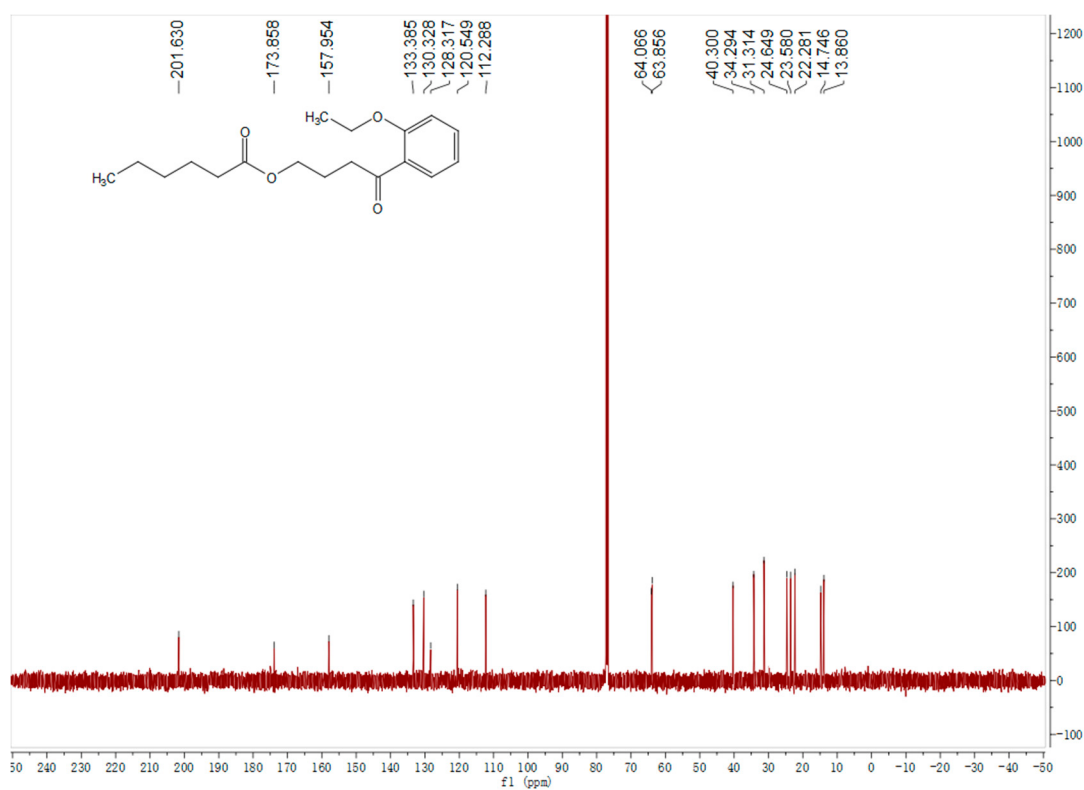


Figure S76 ¹³C NMR spectra of 4m

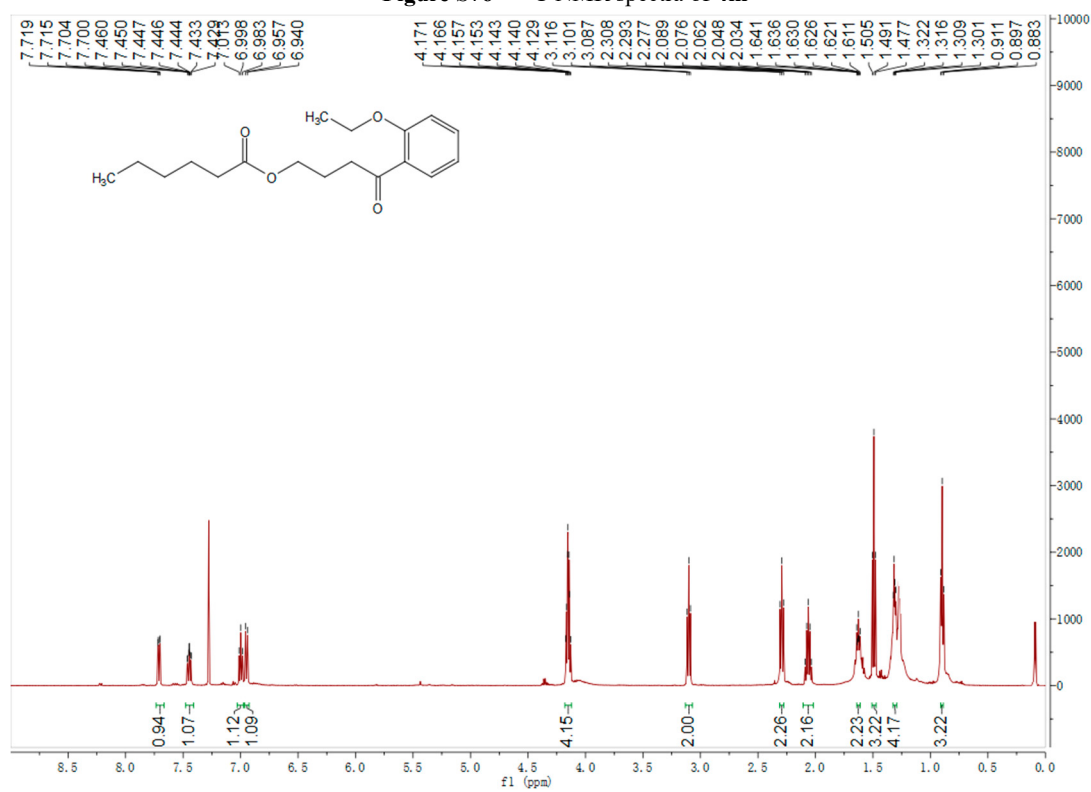


Figure S77 ¹H NMR spectra of 4m

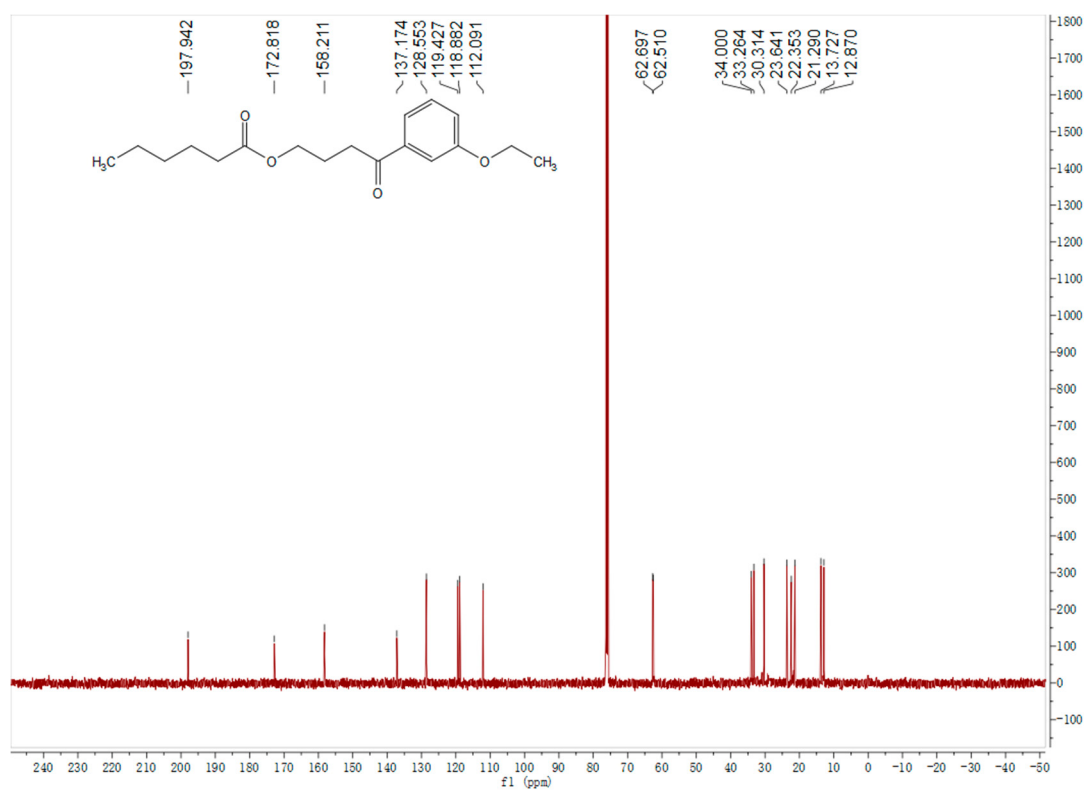


Figure S78 ¹³C NMR spectra of 4n

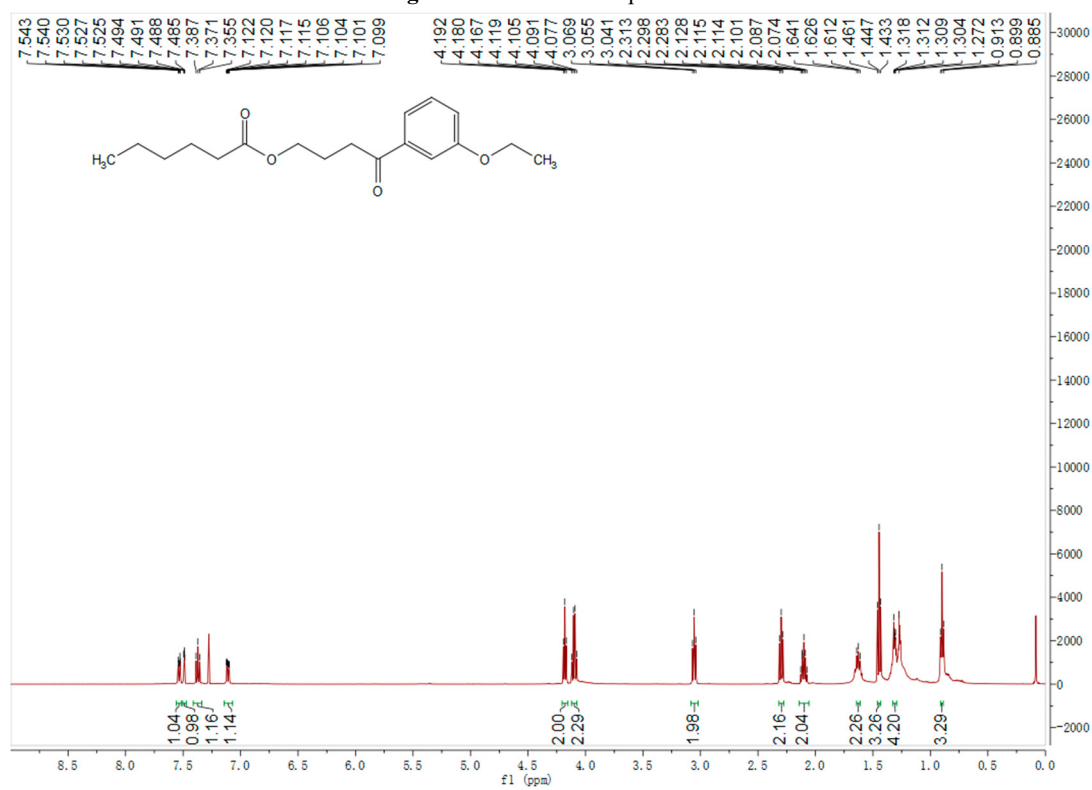


Figure S79 ¹H NMR spectra of 4n

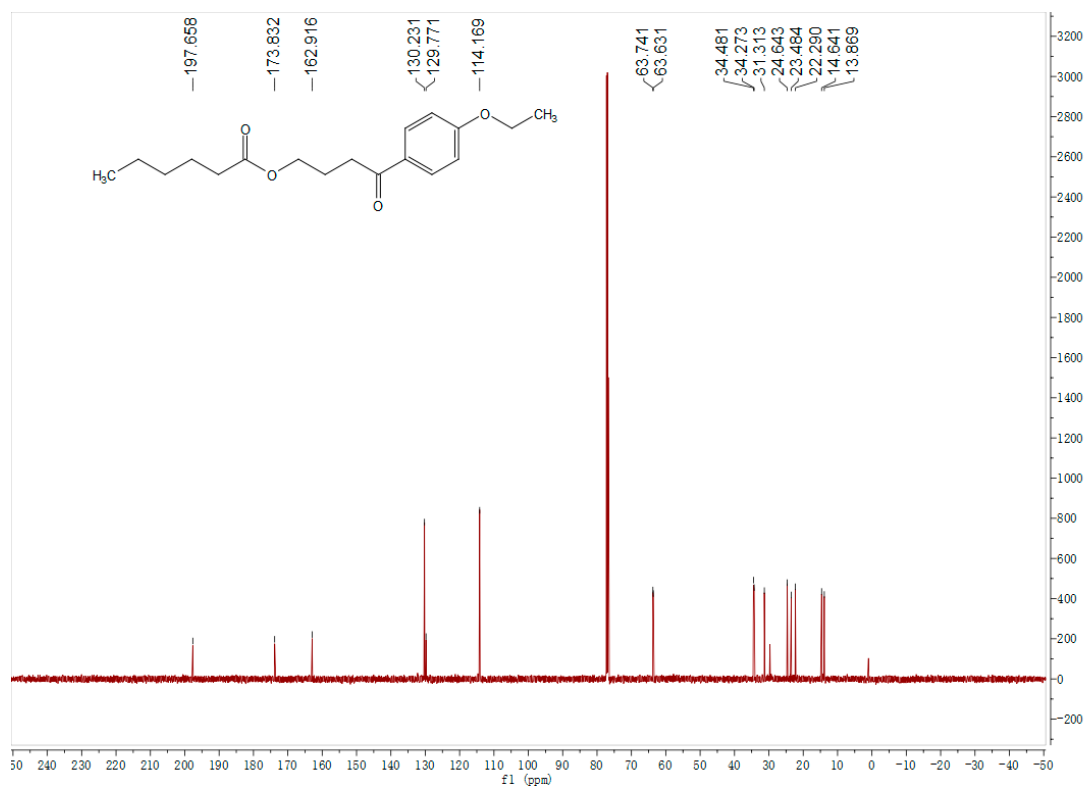


Figure S80 ¹³C NMR spectra of **4o**

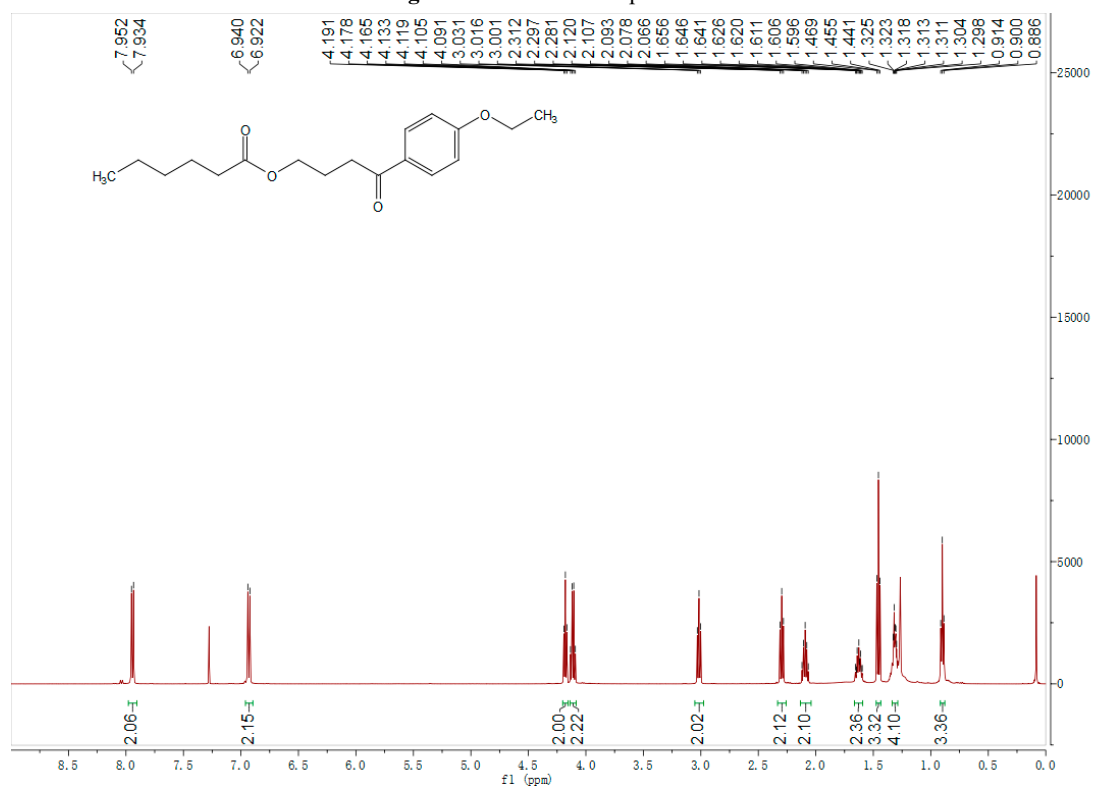


Figure S81 ¹H NMR spectra of **4o**

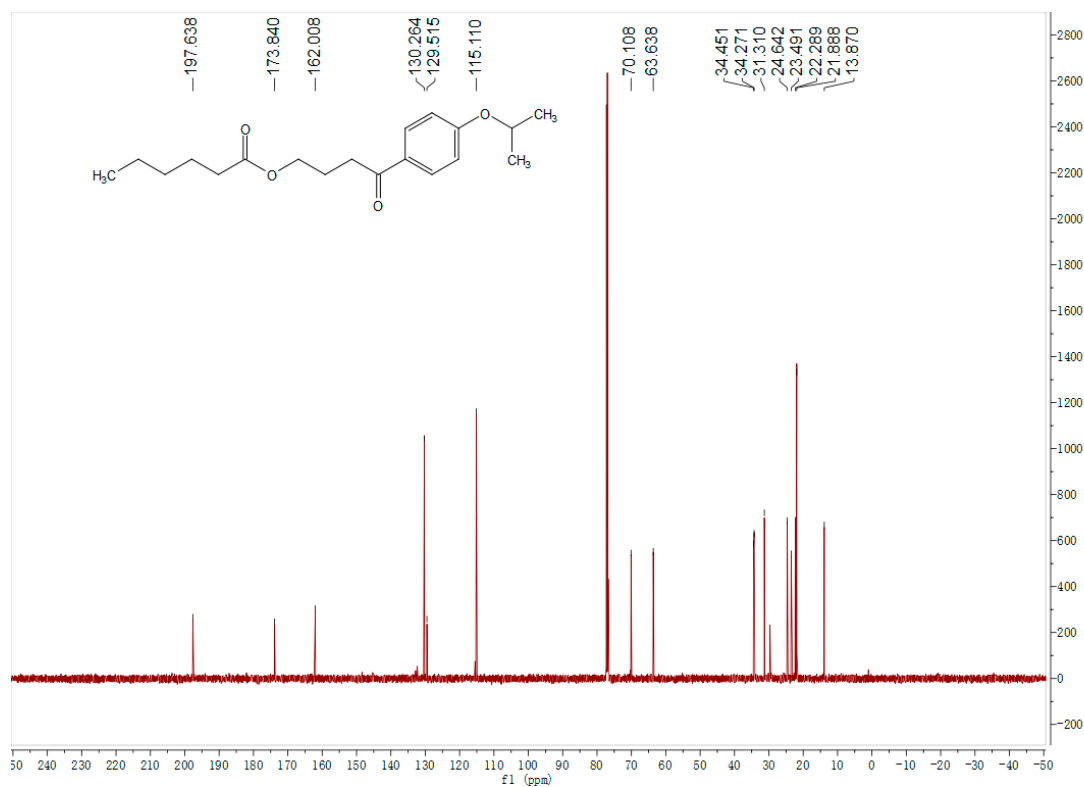


Figure S82 ¹³C NMR spectra of 4p

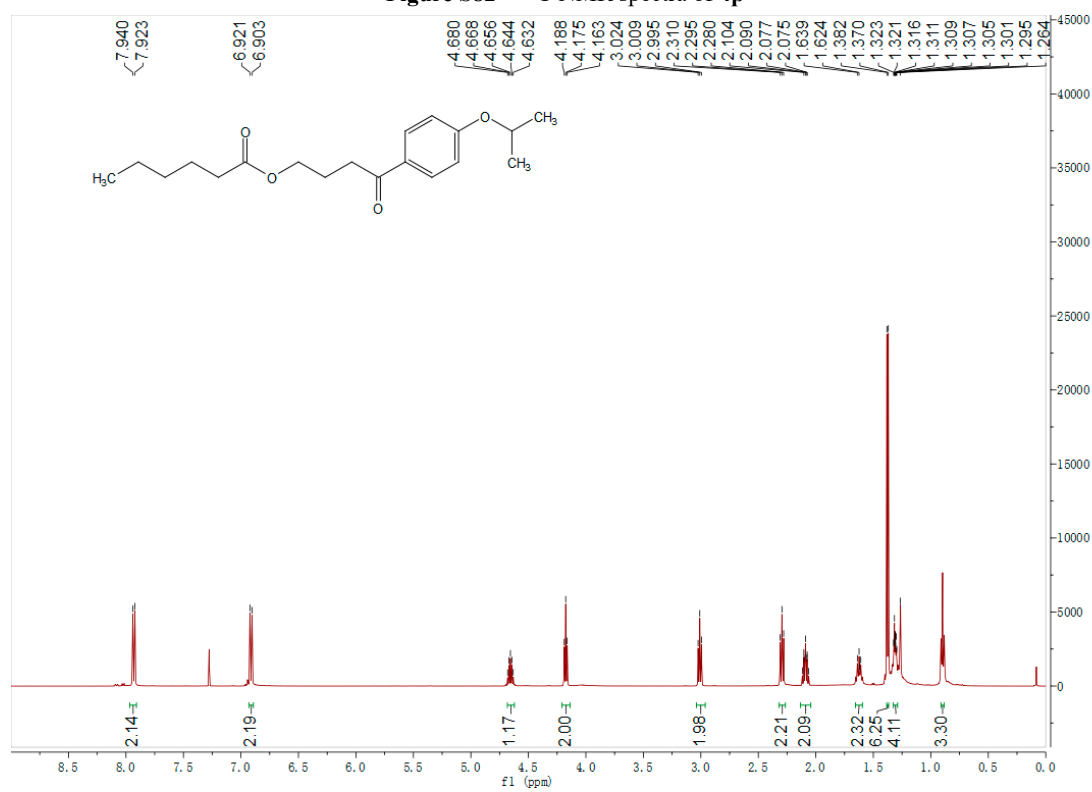


Figure S83 ¹H NMR spectra of 4p

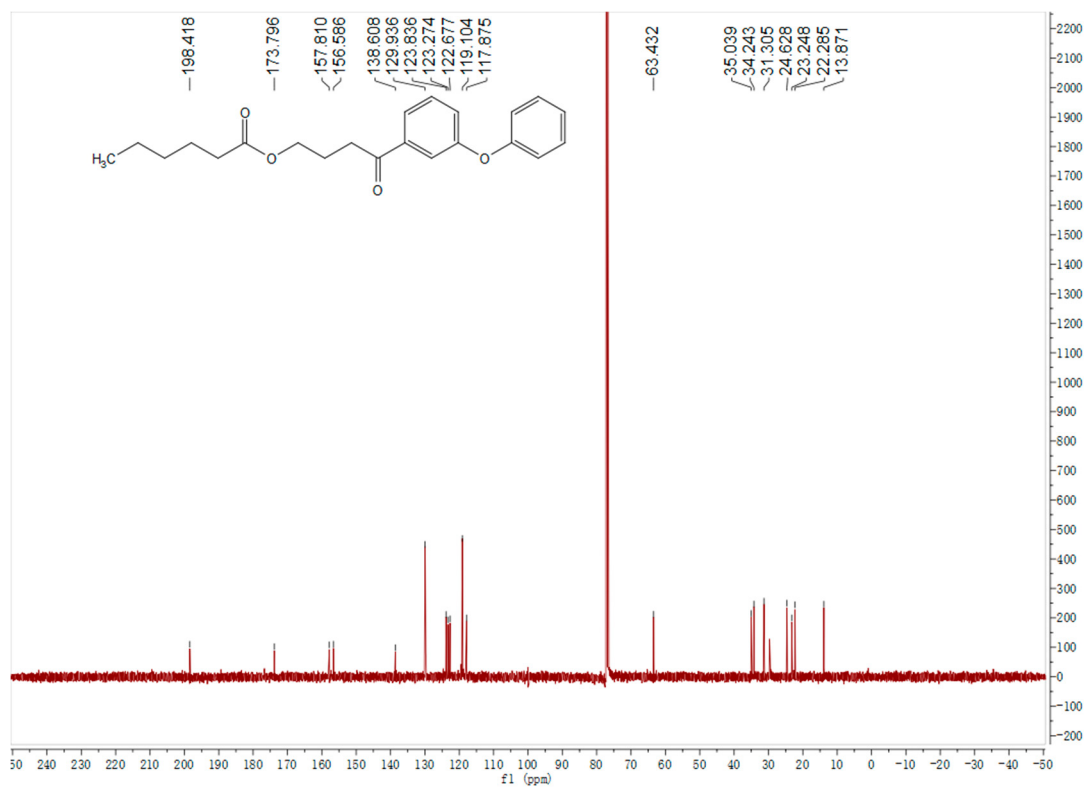


Figure S84 ¹³C NMR spectra of 4q

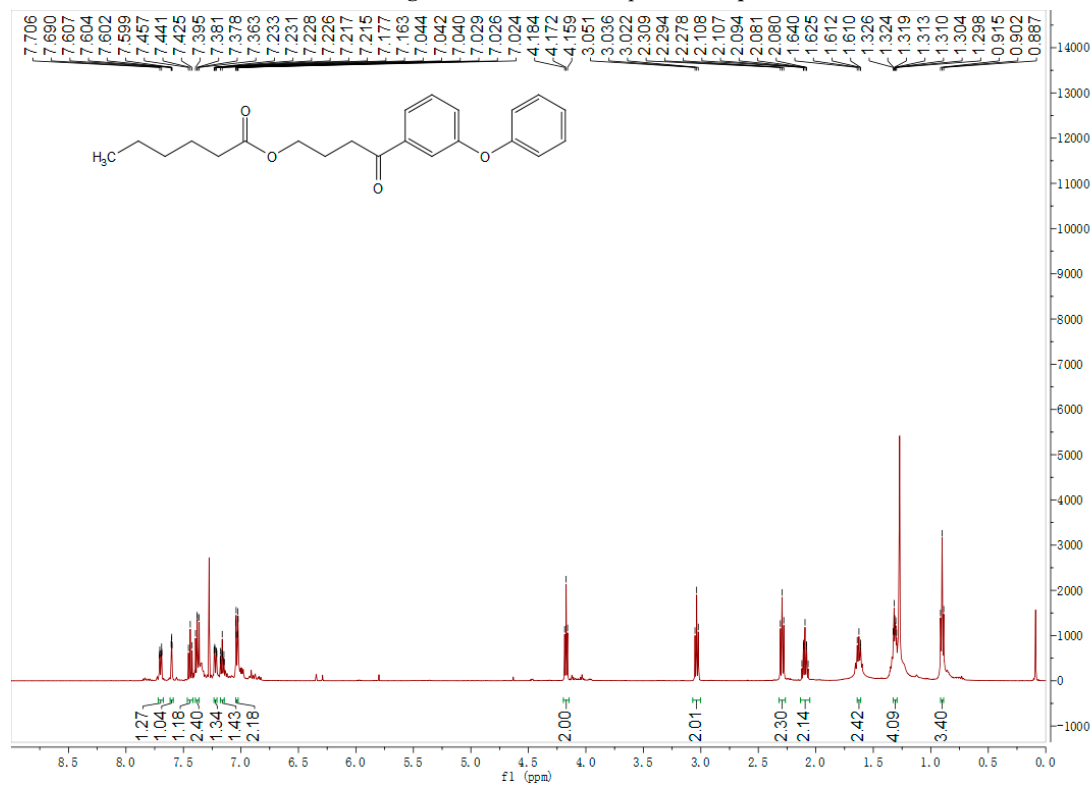


Figure S85 ¹H NMR spectra of 4q

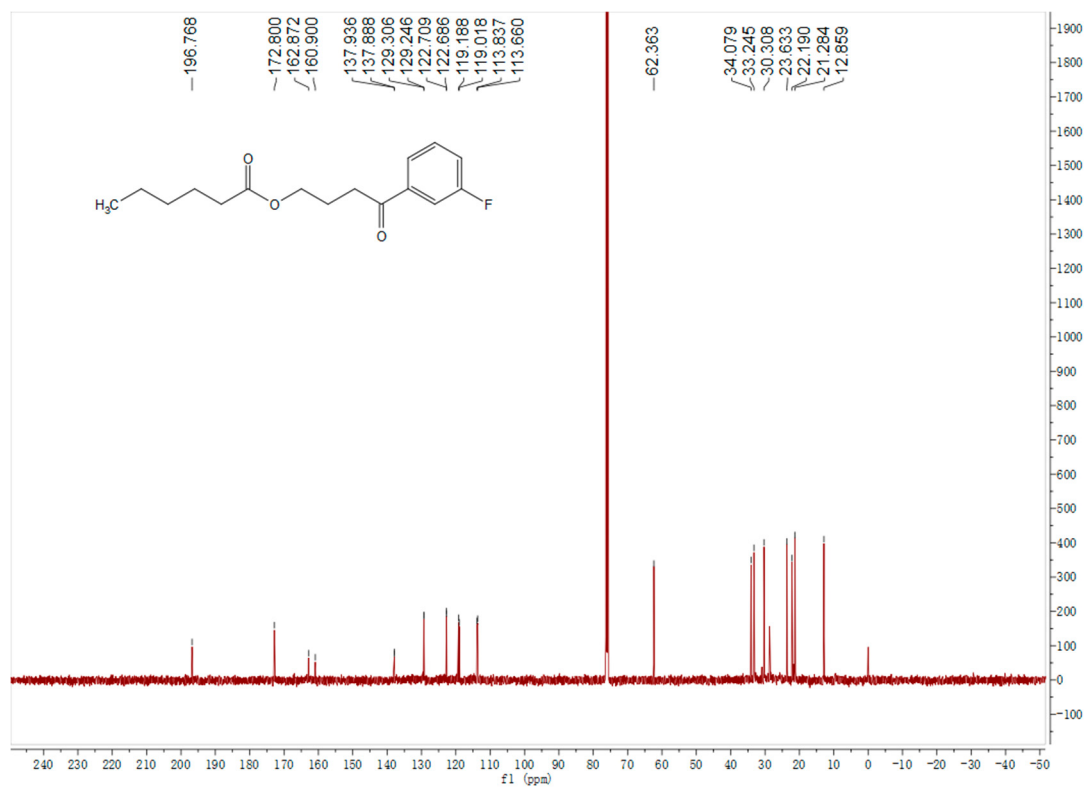


Figure S86 ¹³C NMR spectra of 4r

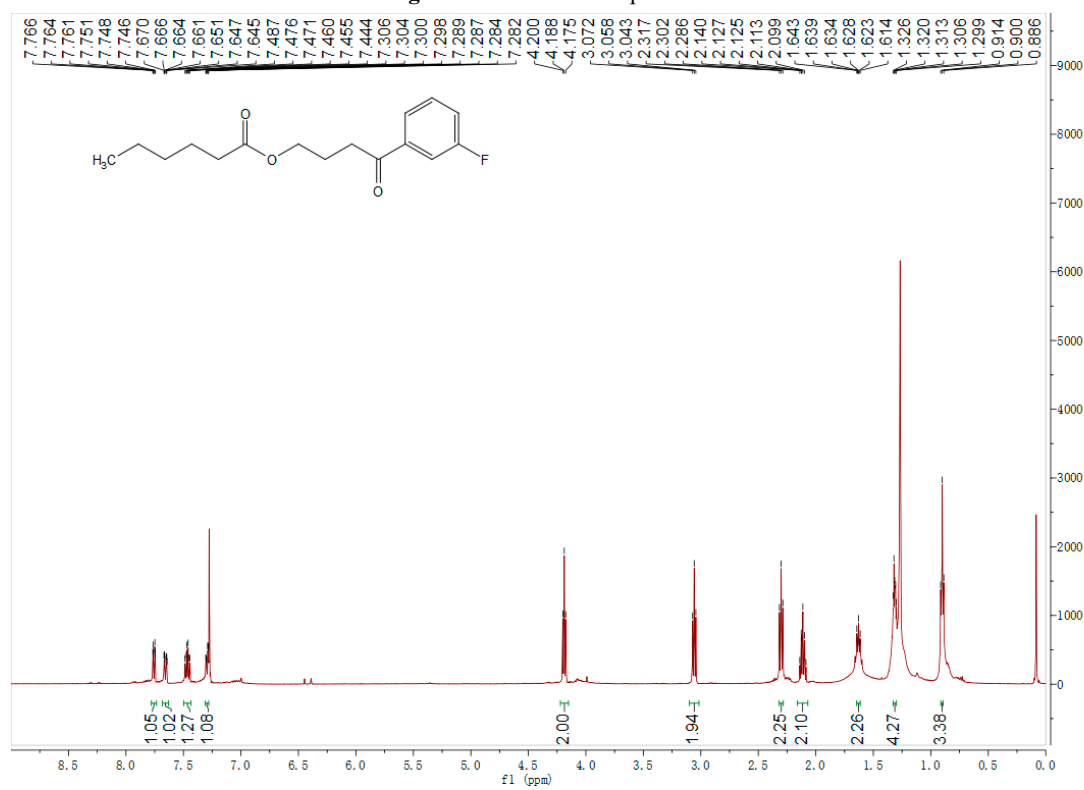


Figure S87 ¹H NMR spectra of 4r

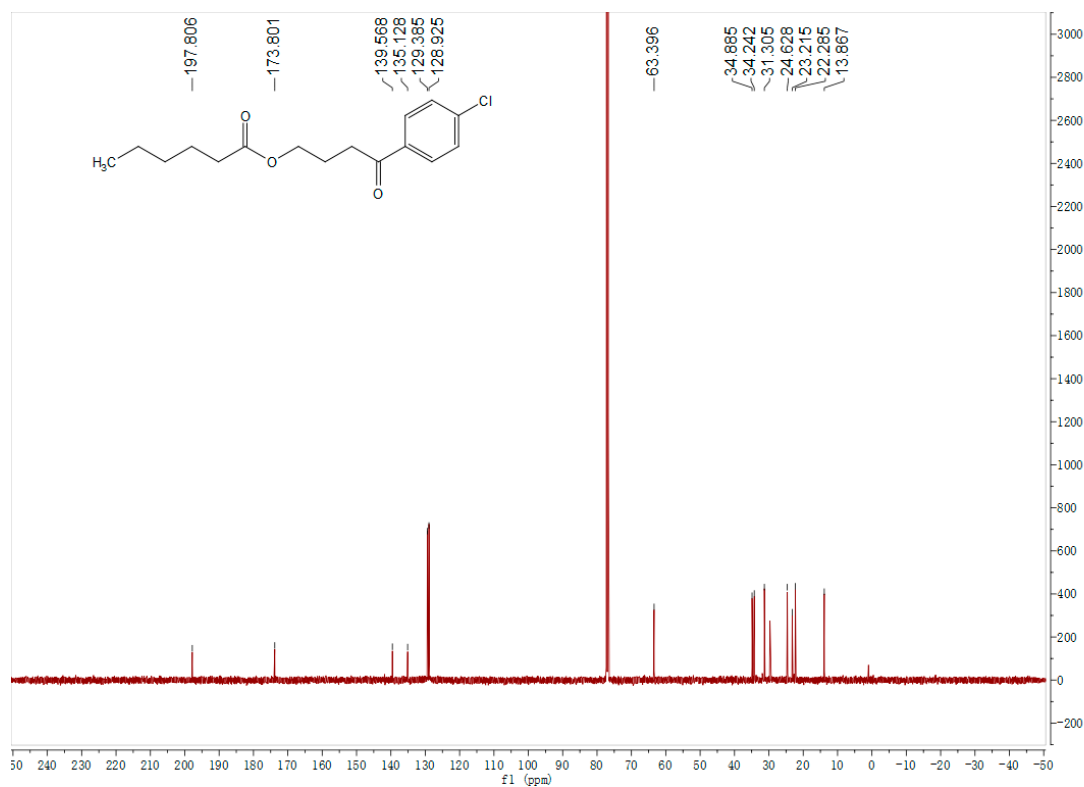


Figure S88 ¹³C NMR spectra of 4s

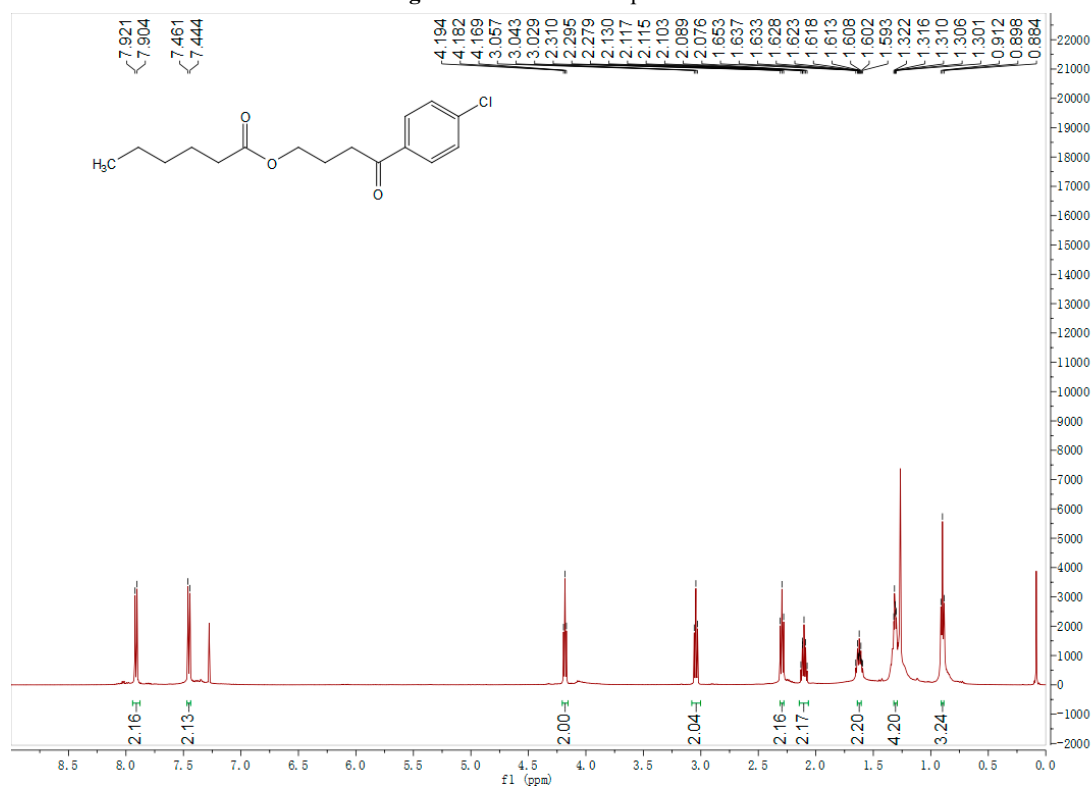


Figure S89 ¹H NMR spectra of 4s

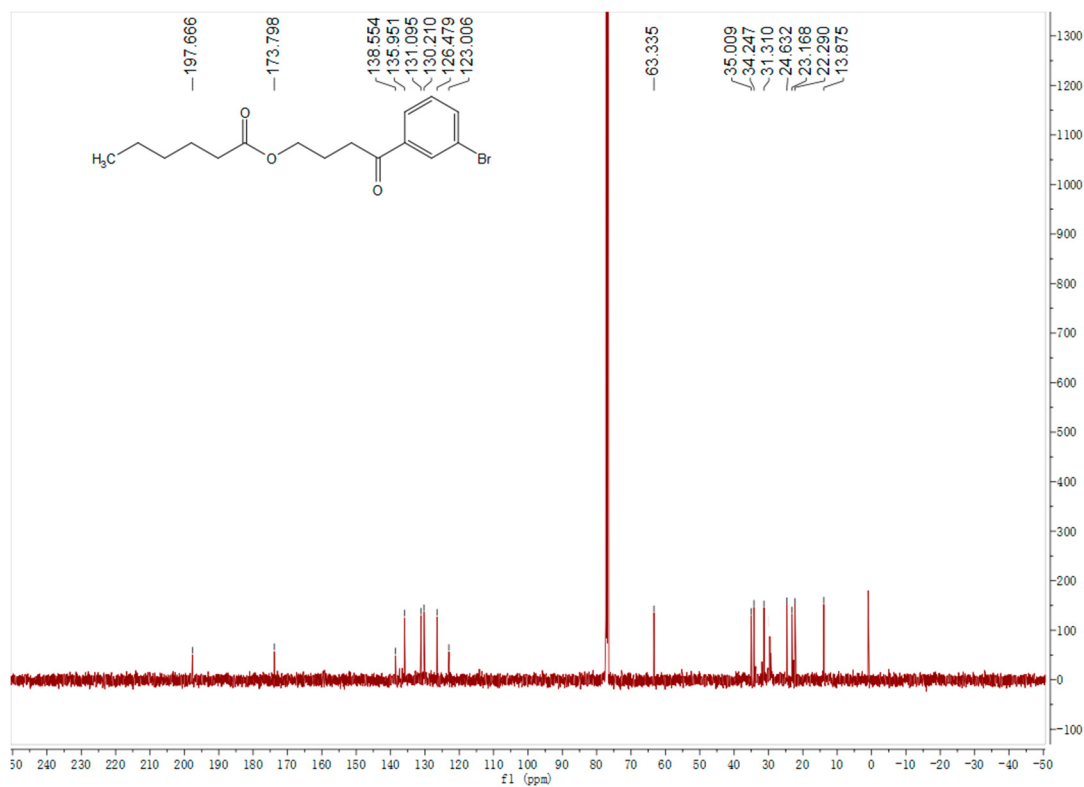


Figure S90 ¹³C NMR spectra of 4t

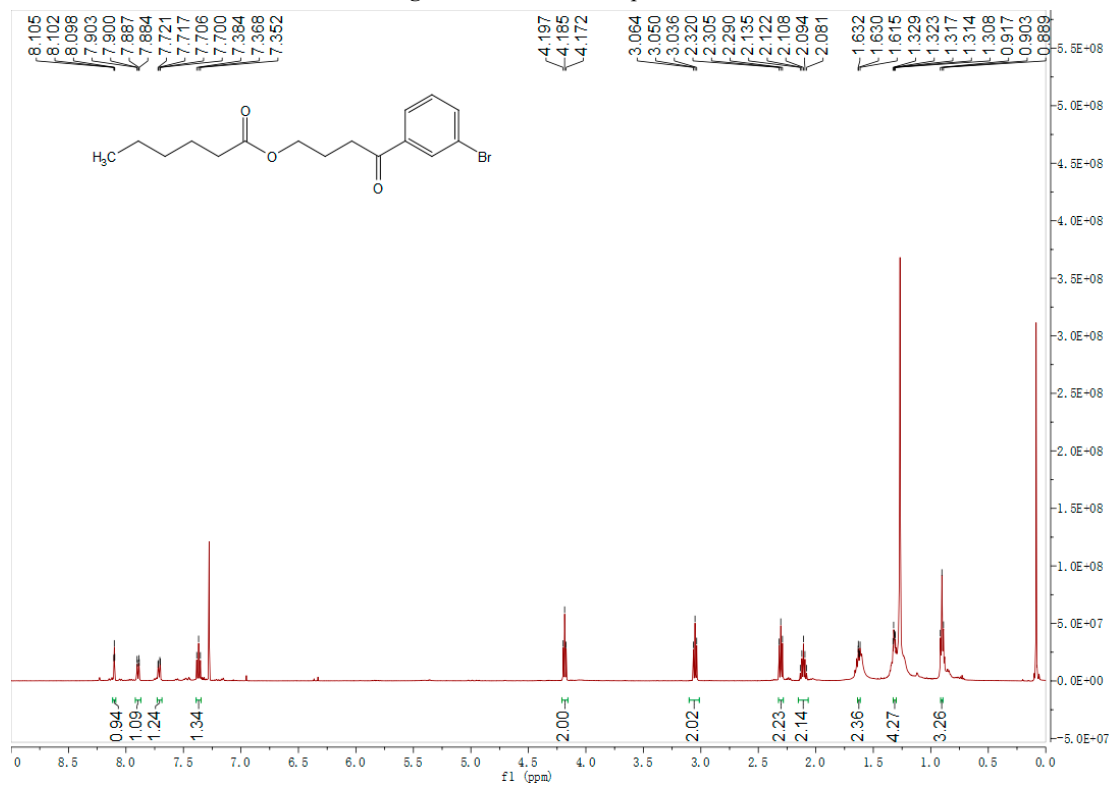


Figure S91 ¹H NMR spectra of 4t

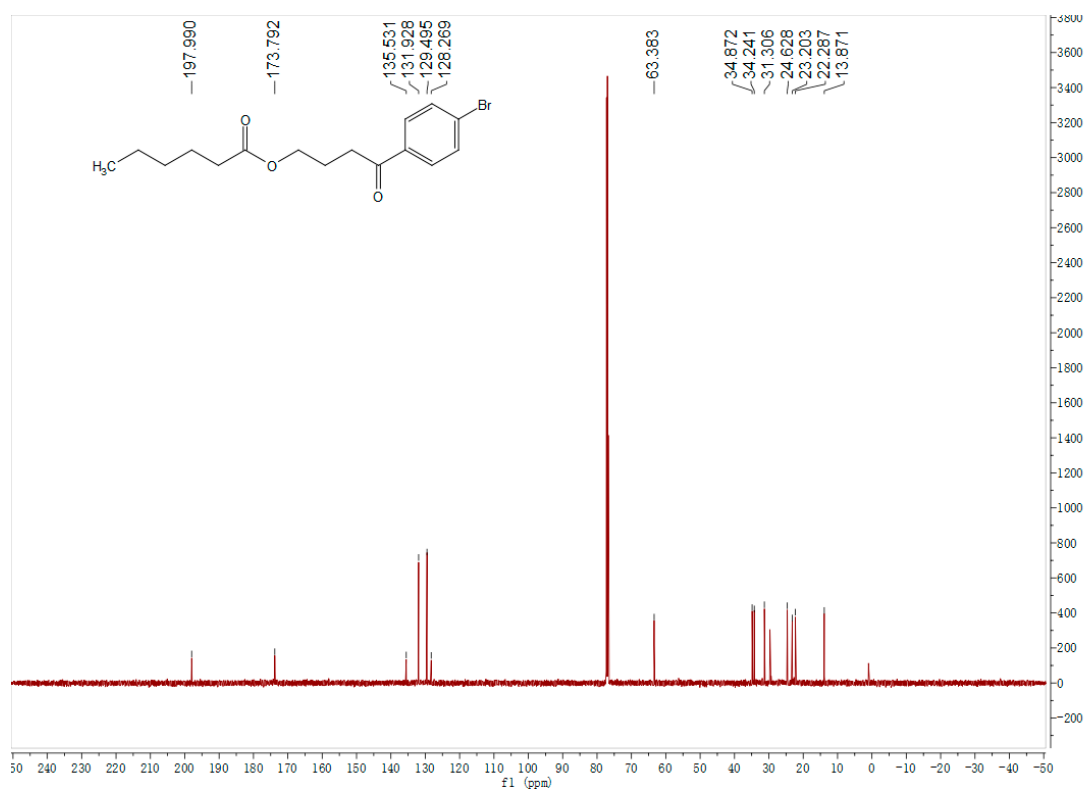


Figure S92 ¹³C NMR spectra of 4u

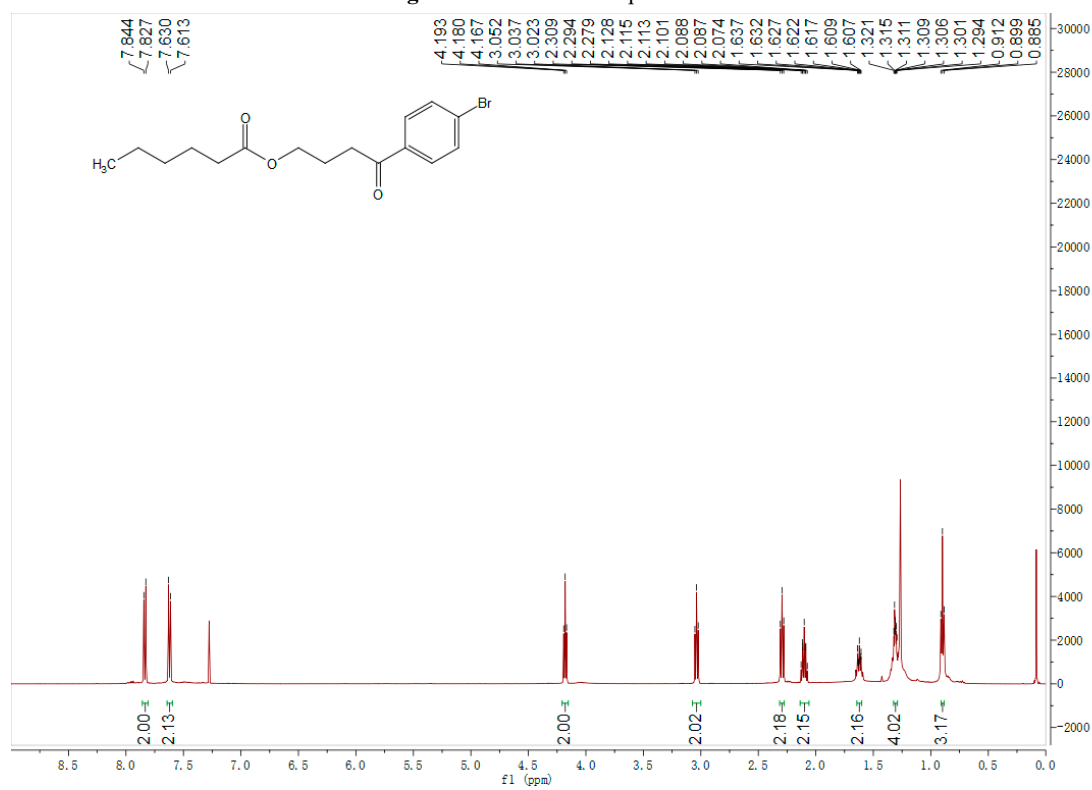


Figure S93 ¹H NMR spectra of 4u

3. ^1H and ^{13}C NMR spectra of compounds **5**

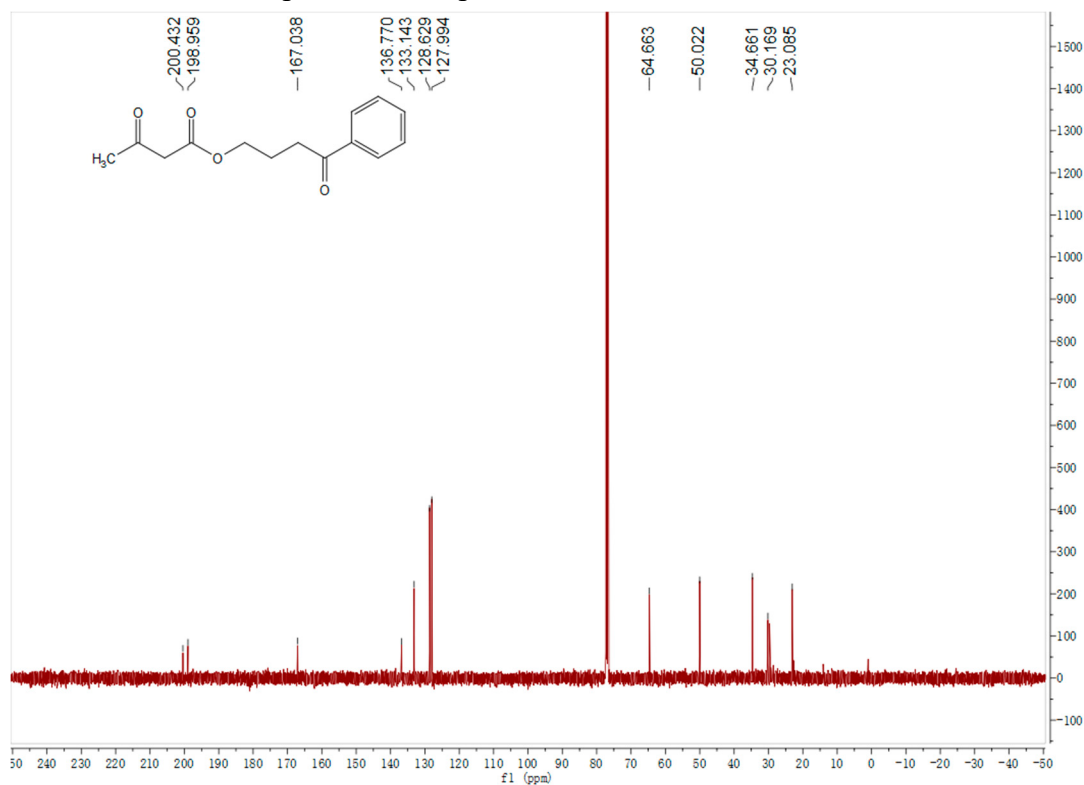


Figure S94 ^{13}C NMR spectra of **5a**

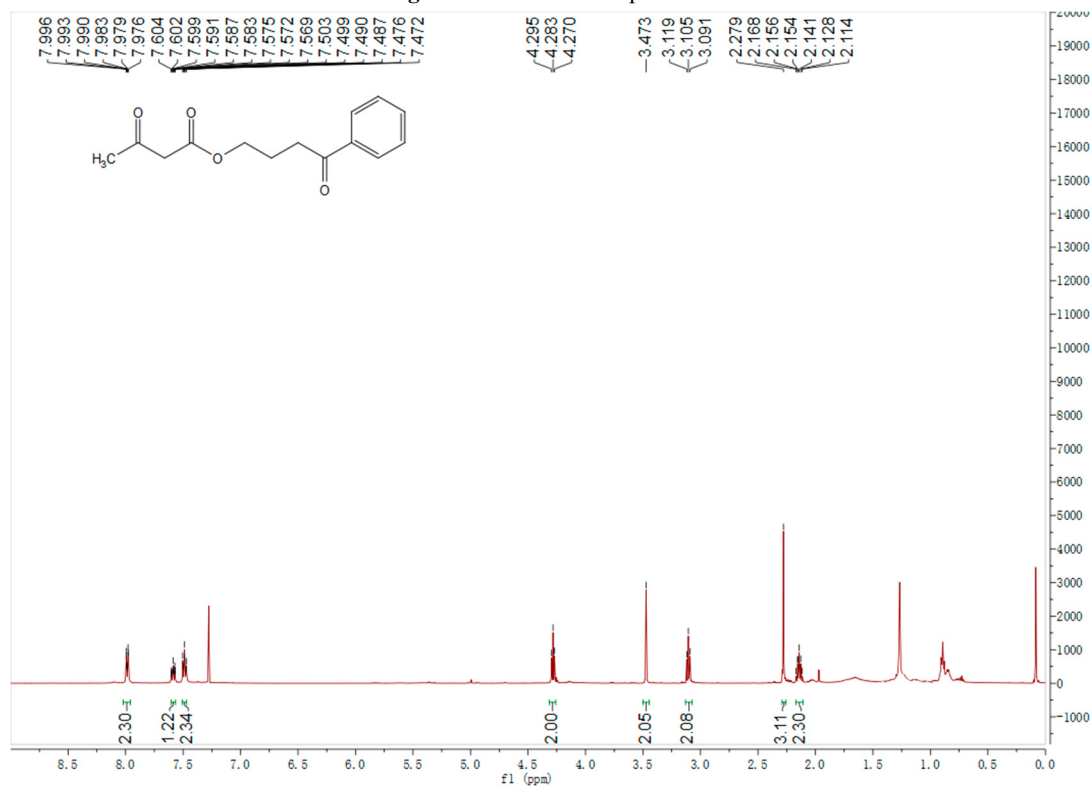


Figure S95 ^1H NMR spectra of **5a**

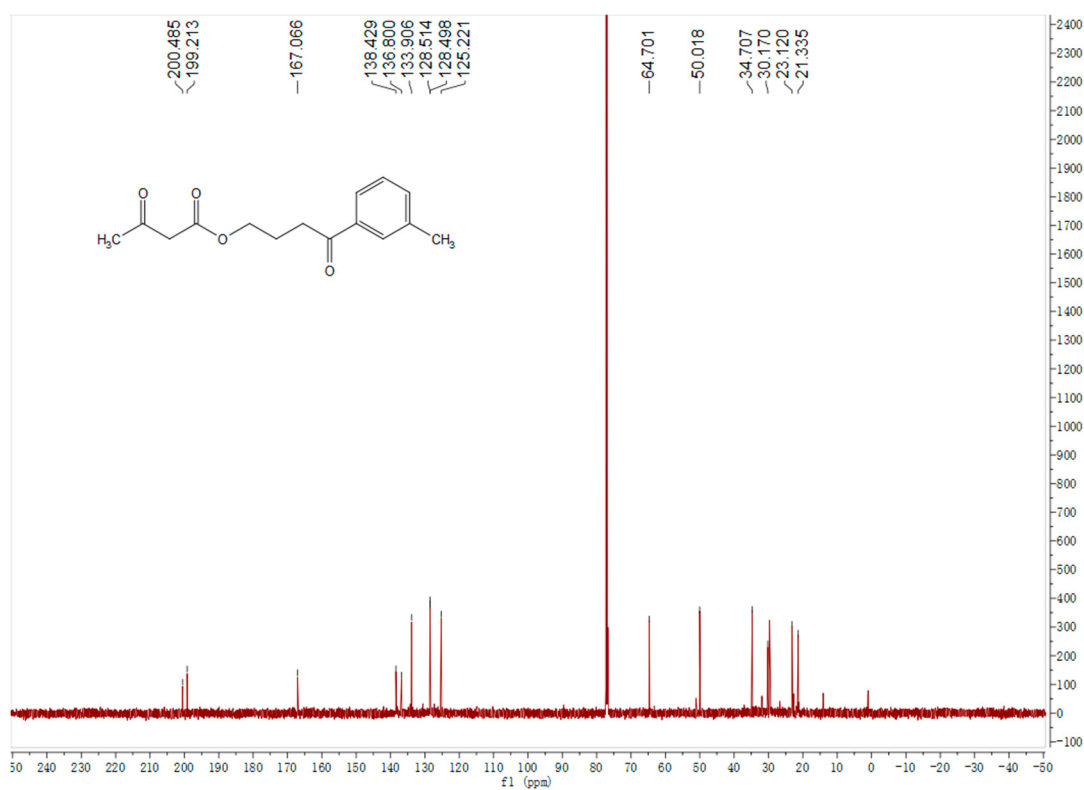


Figure S96 ¹³C NMR spectra of 5b

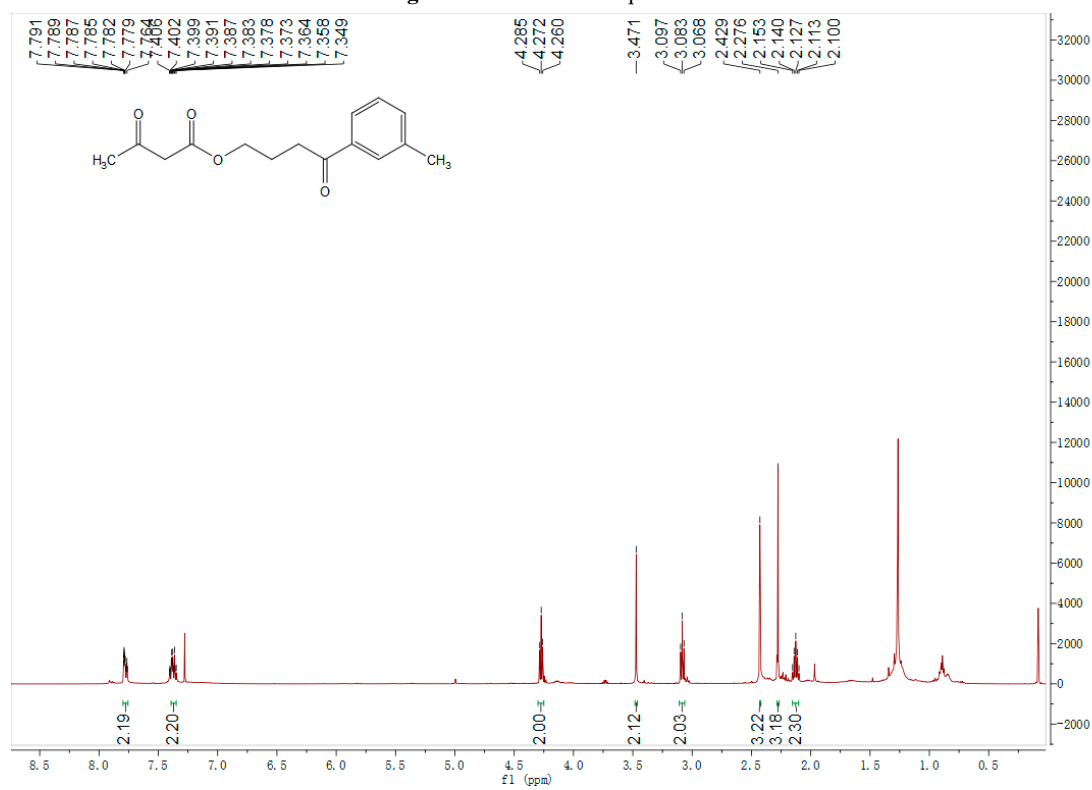


Figure S97 ¹H NMR spectra of 5b

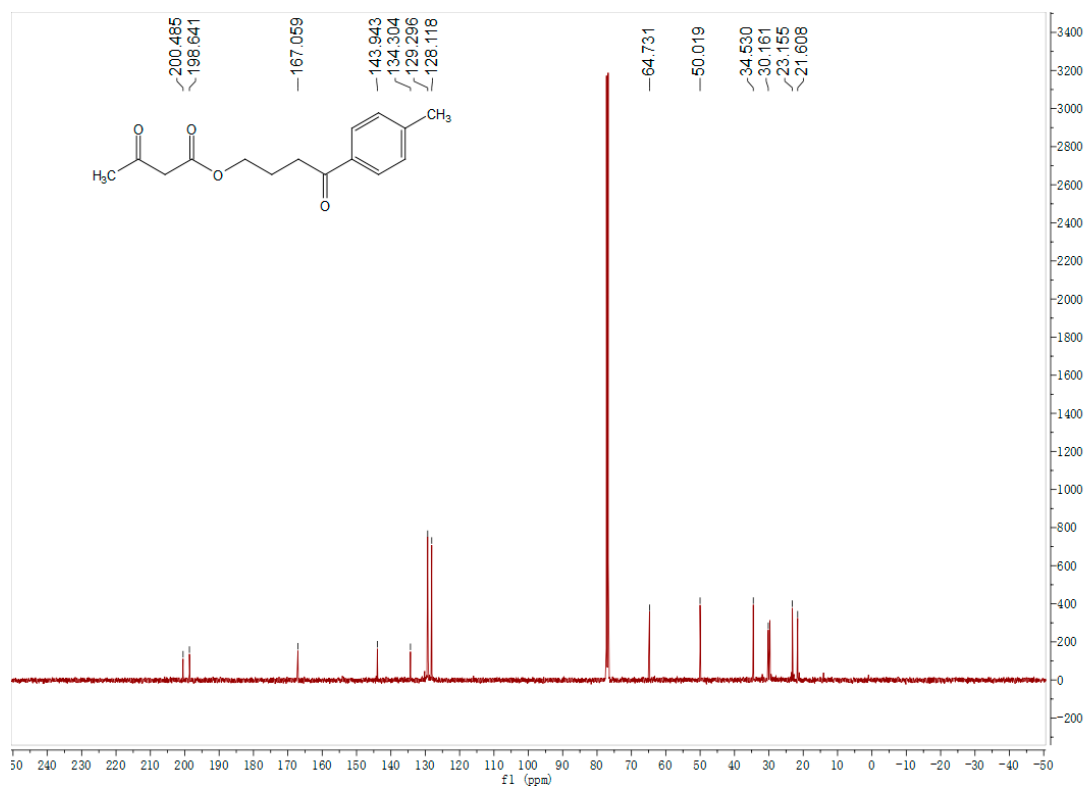


Figure S98 ¹³C NMR spectra of 5c

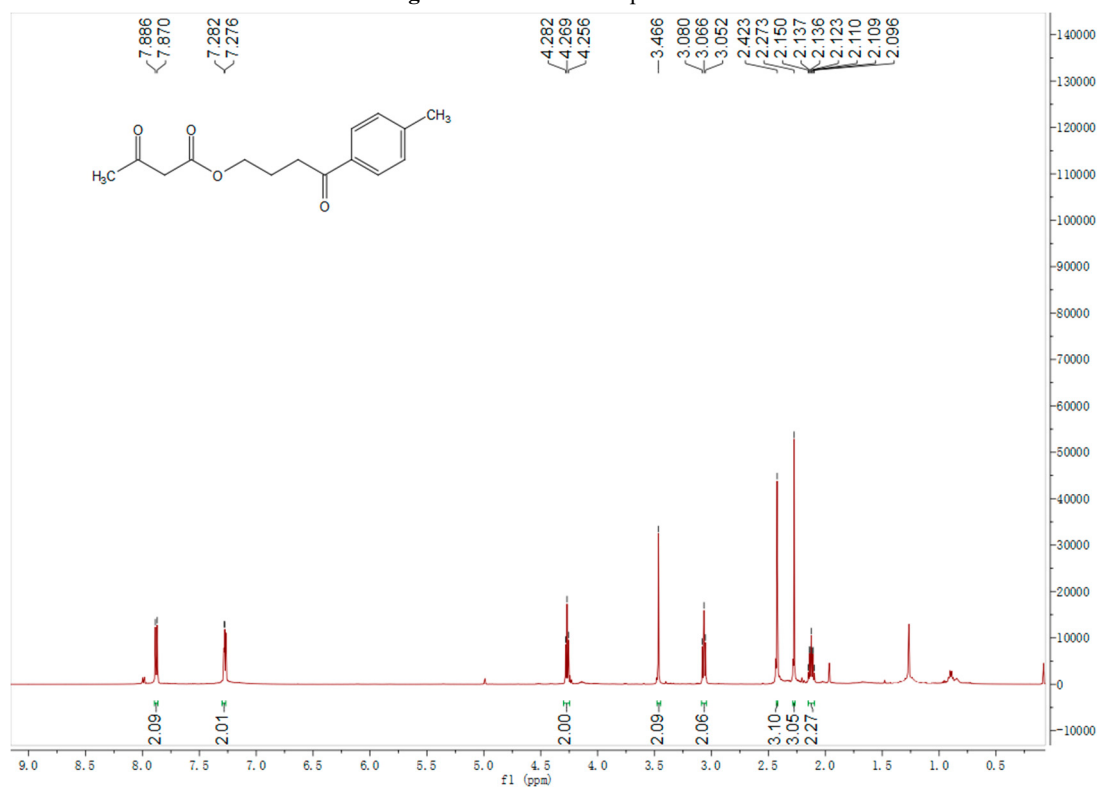


Figure S99 ¹H NMR spectra of 5c

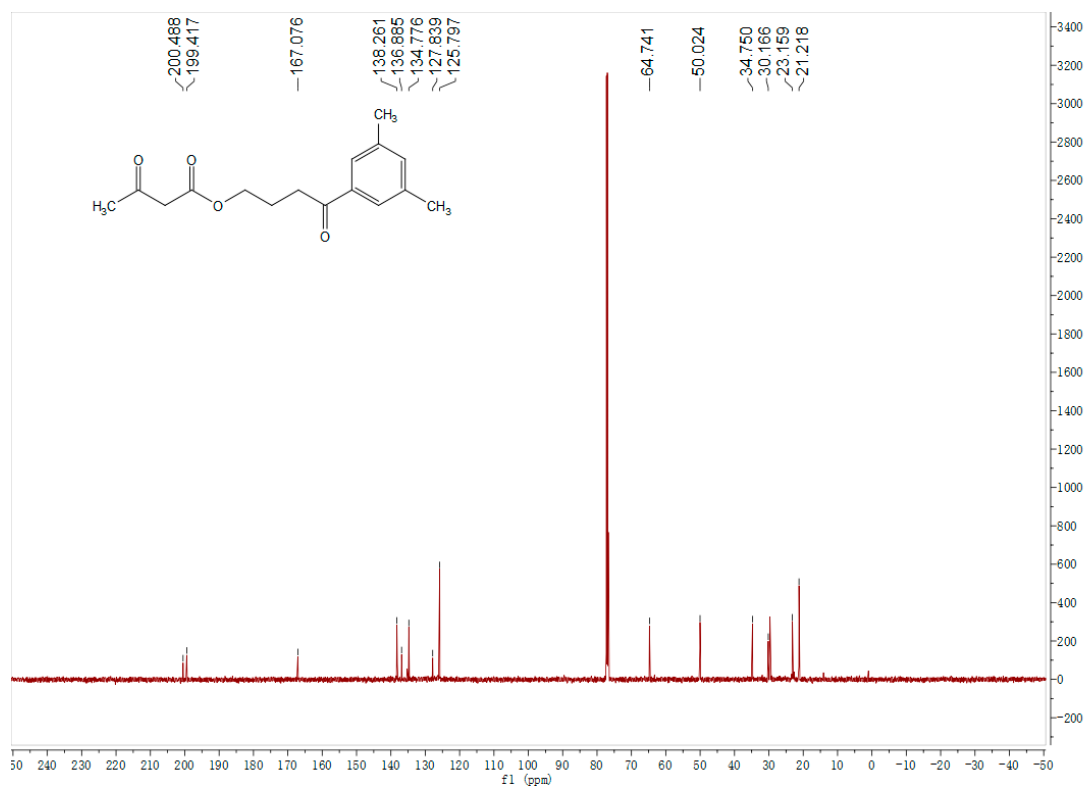


Figure S100 ¹³C NMR spectra of 5d

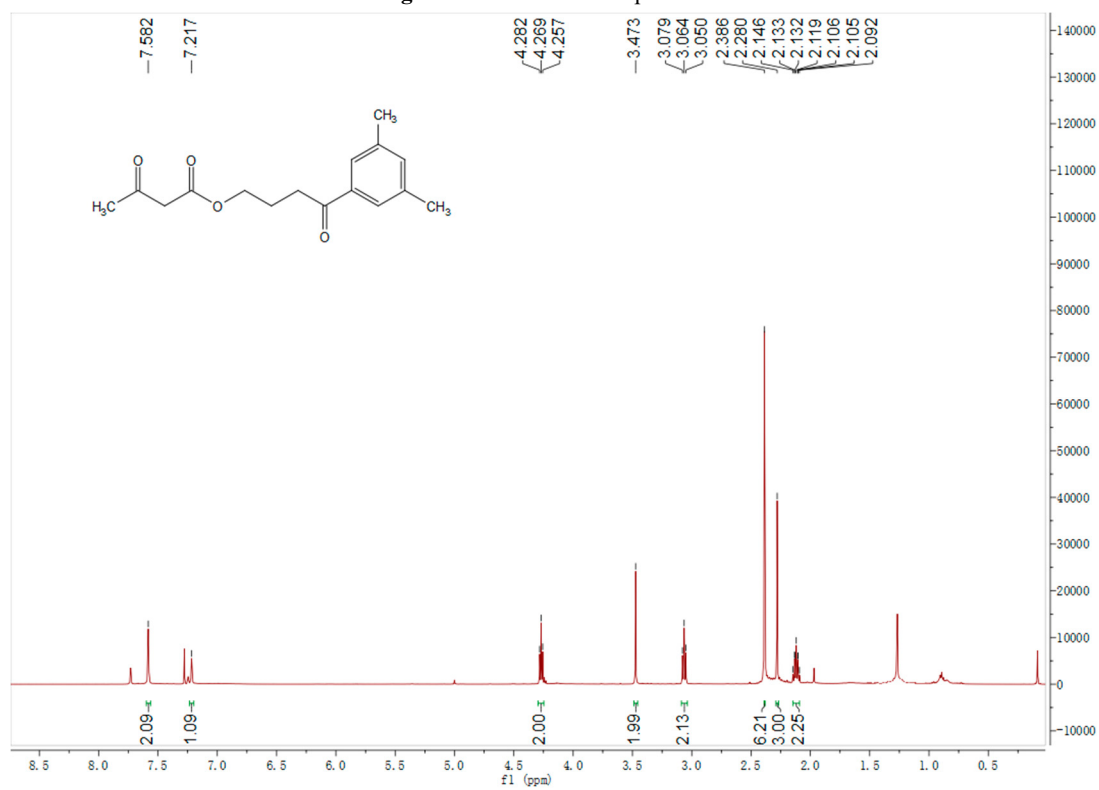


Figure S101 ¹H NMR spectra of 5d

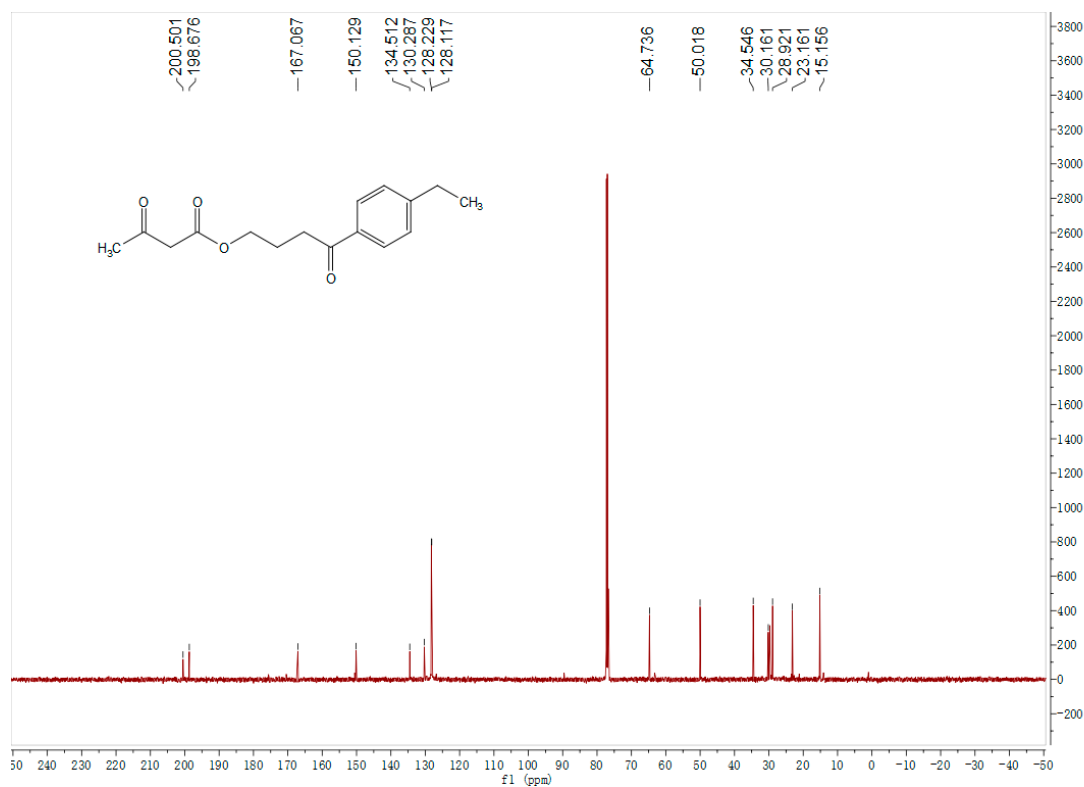


Figure S102 ¹³C NMR spectra of 5e

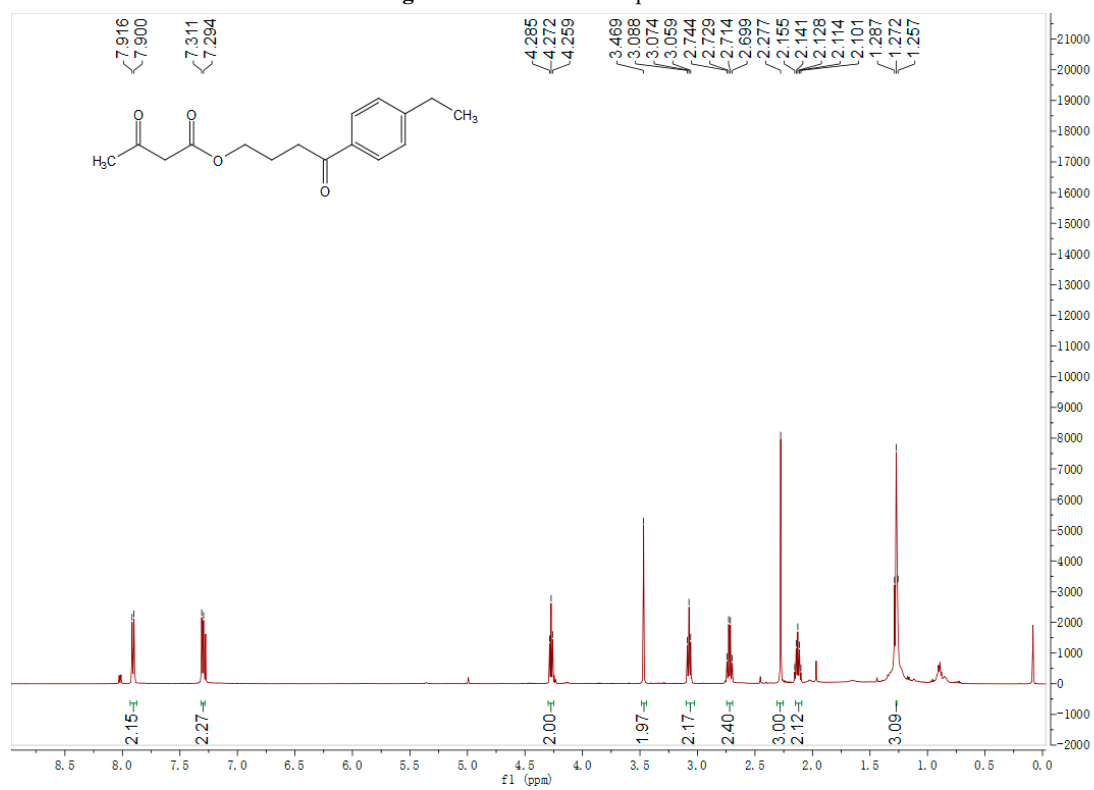


Figure S103 ¹H NMR spectra of 5e

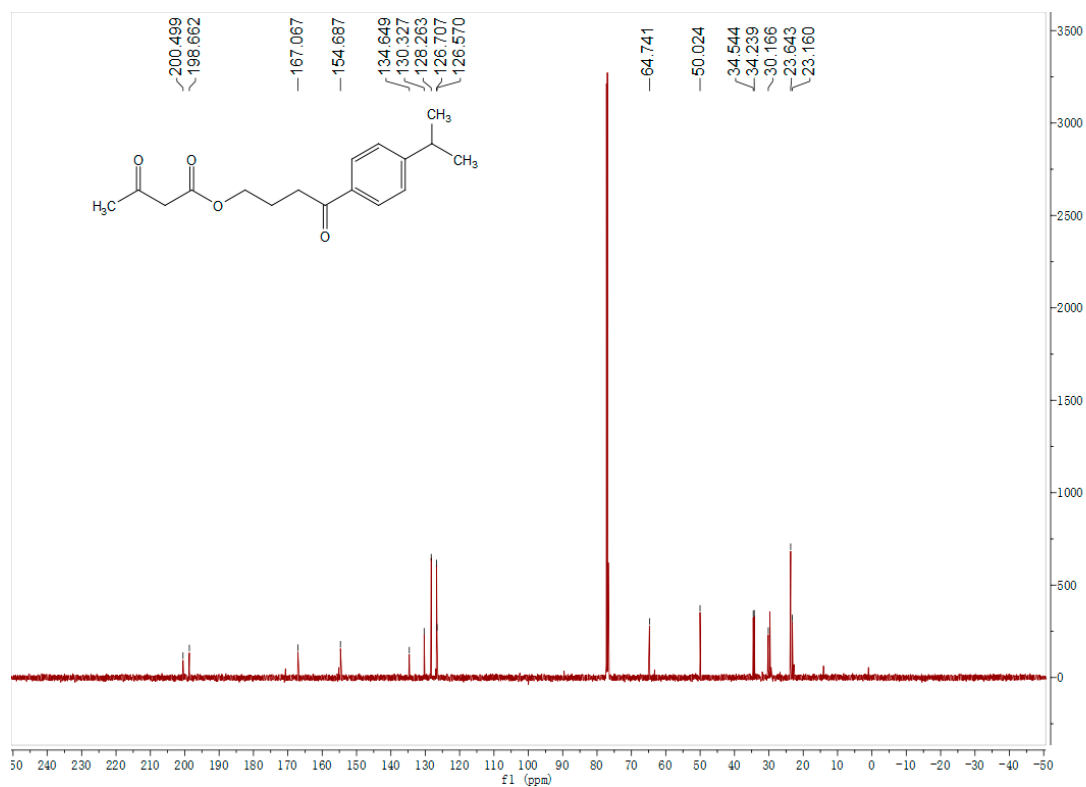


Figure S104 ¹³C NMR spectra of 5f

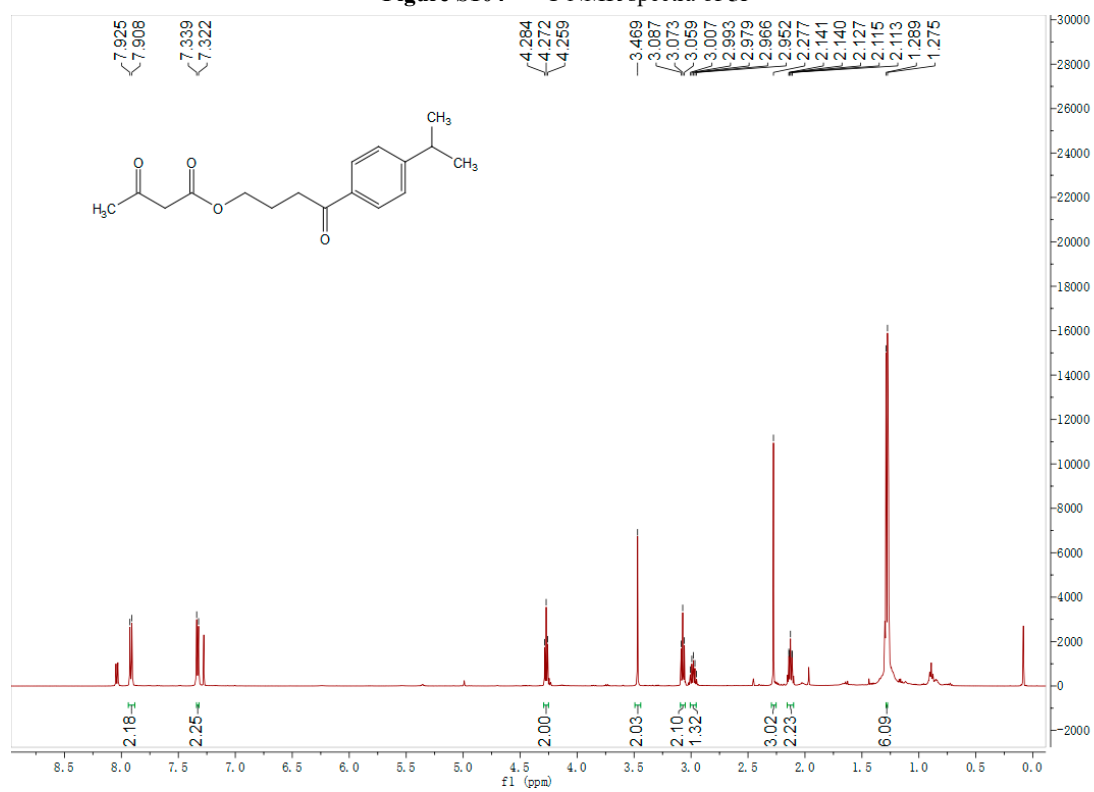


Figure S105 ¹H NMR spectra of 5f

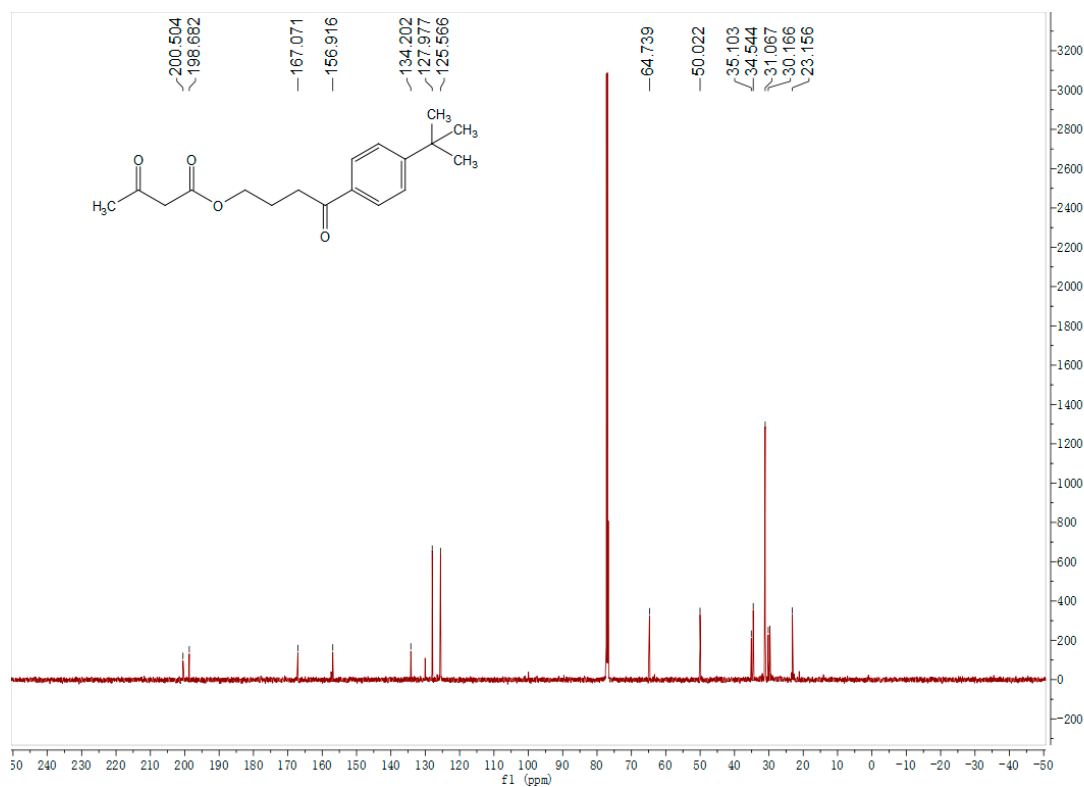


Figure S106 ¹³C NMR spectra of 5g

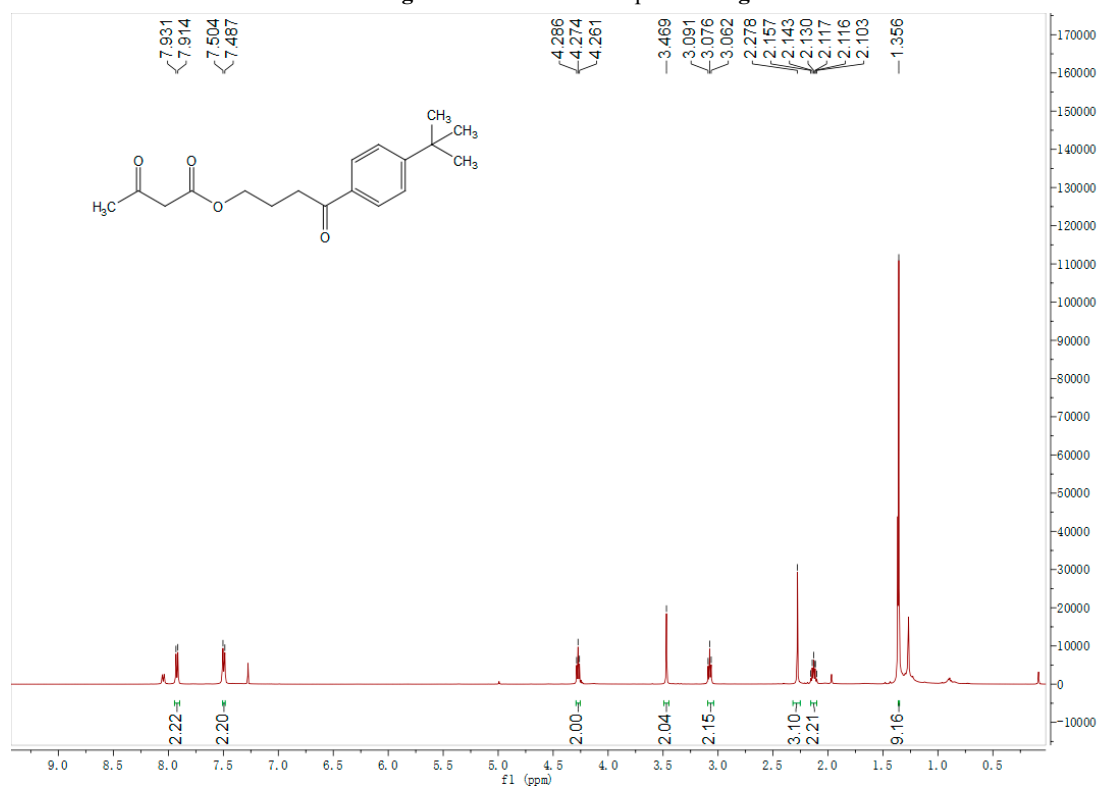
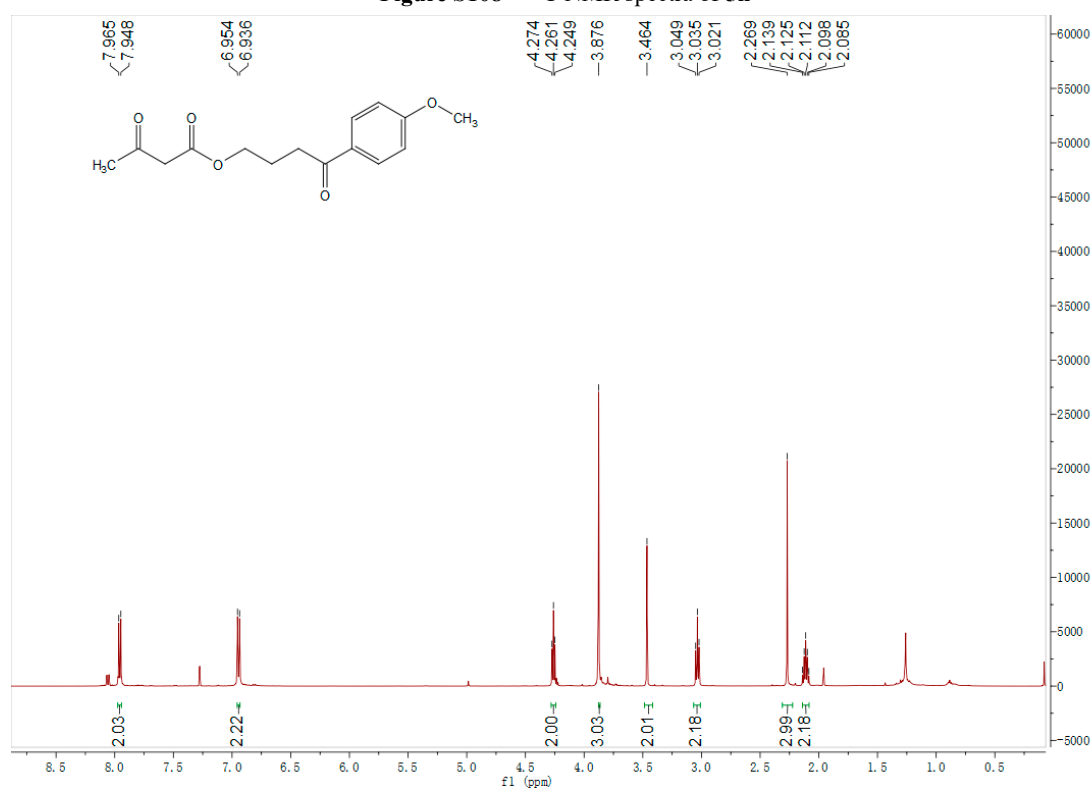
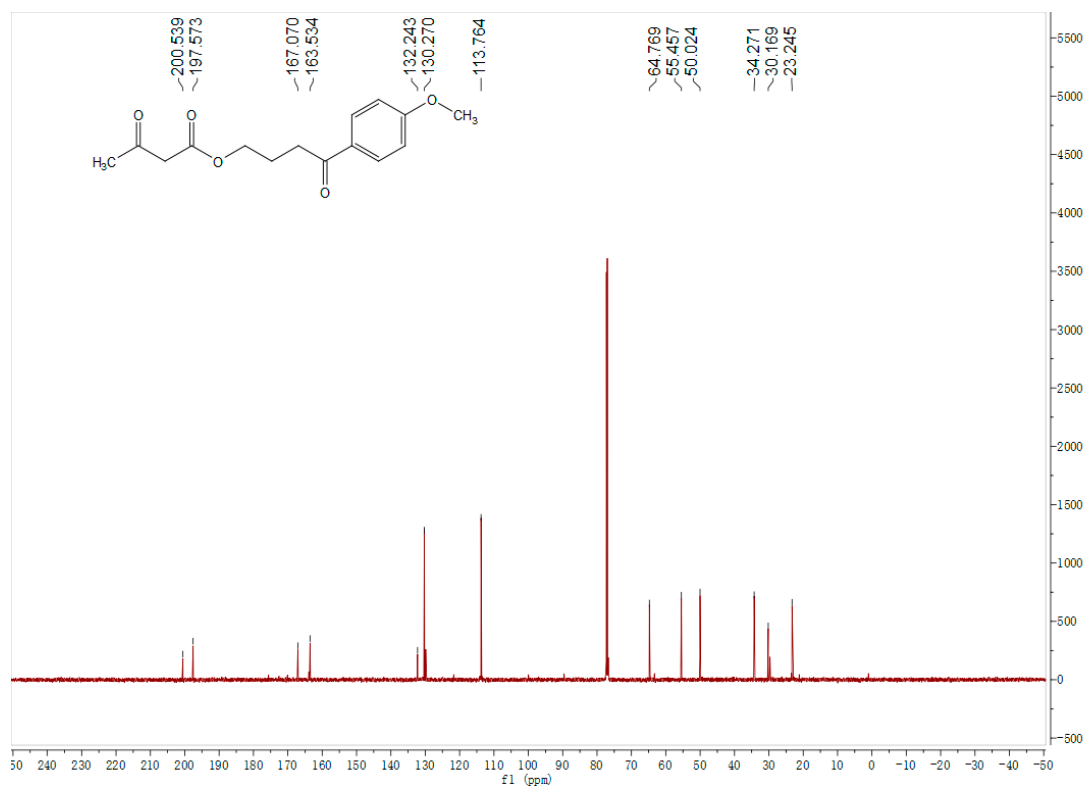


Figure S107 ¹H NMR spectra of 5g



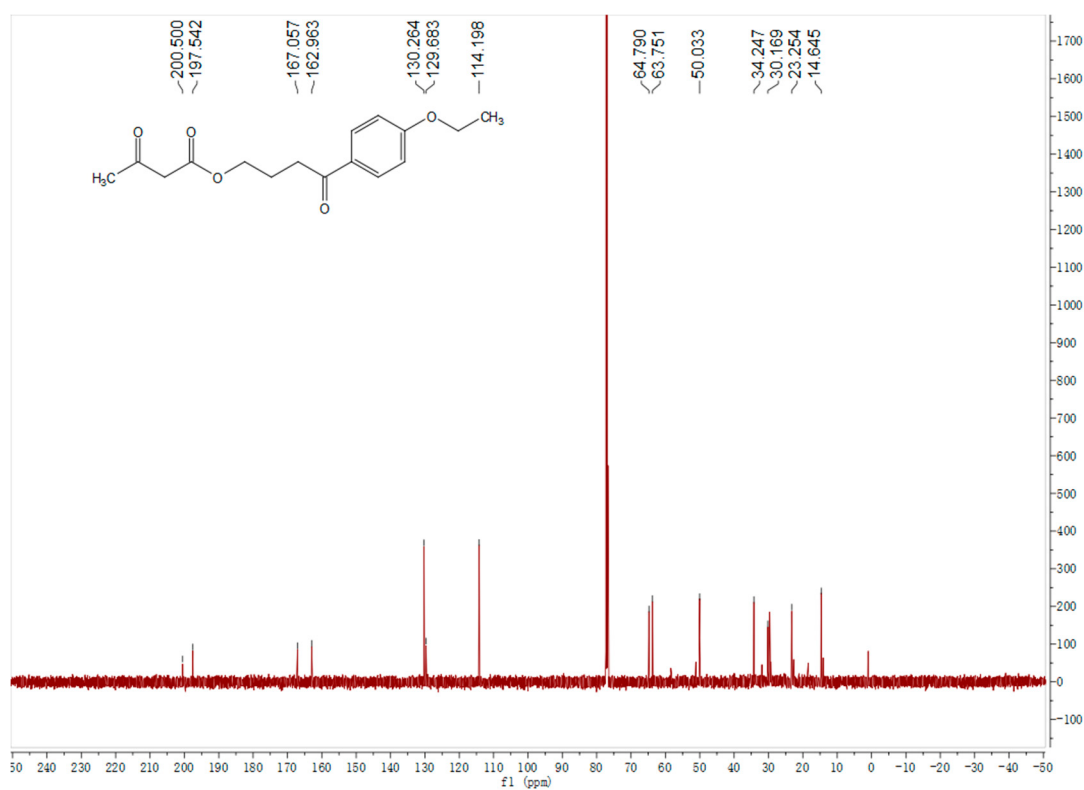


Figure S110 ¹³C NMR spectra of **5i**

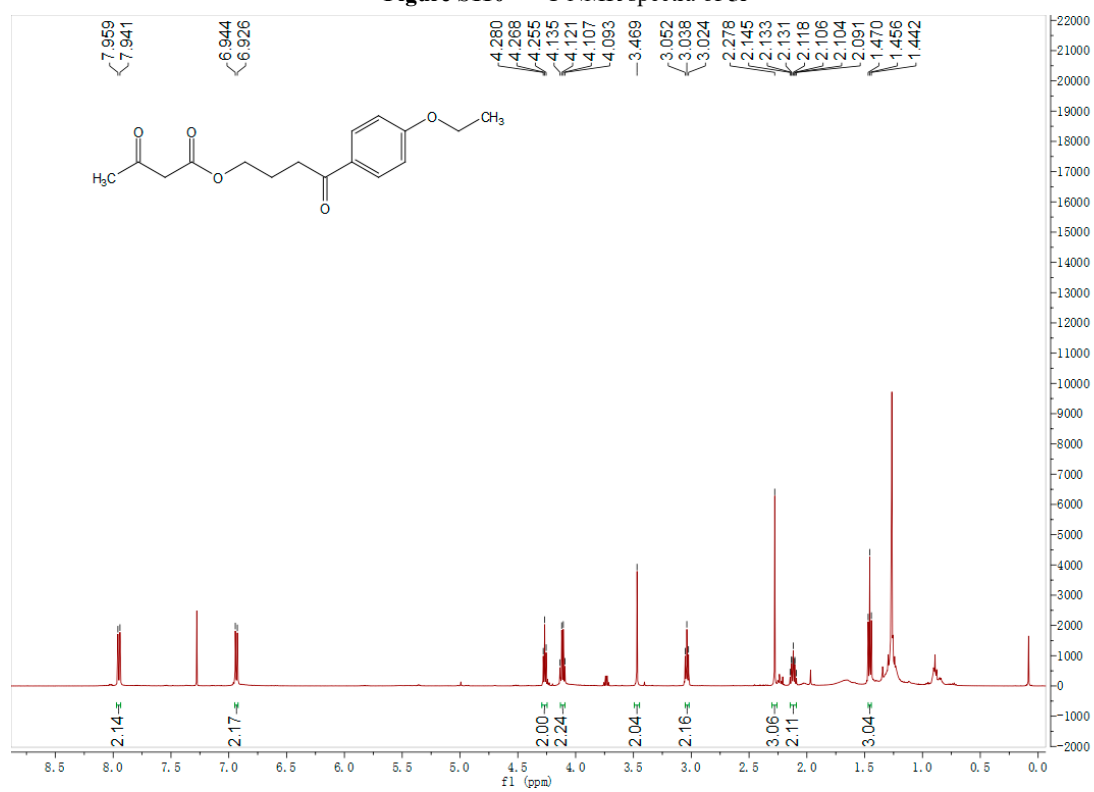


Figure S111 ¹H NMR spectra of **5i**

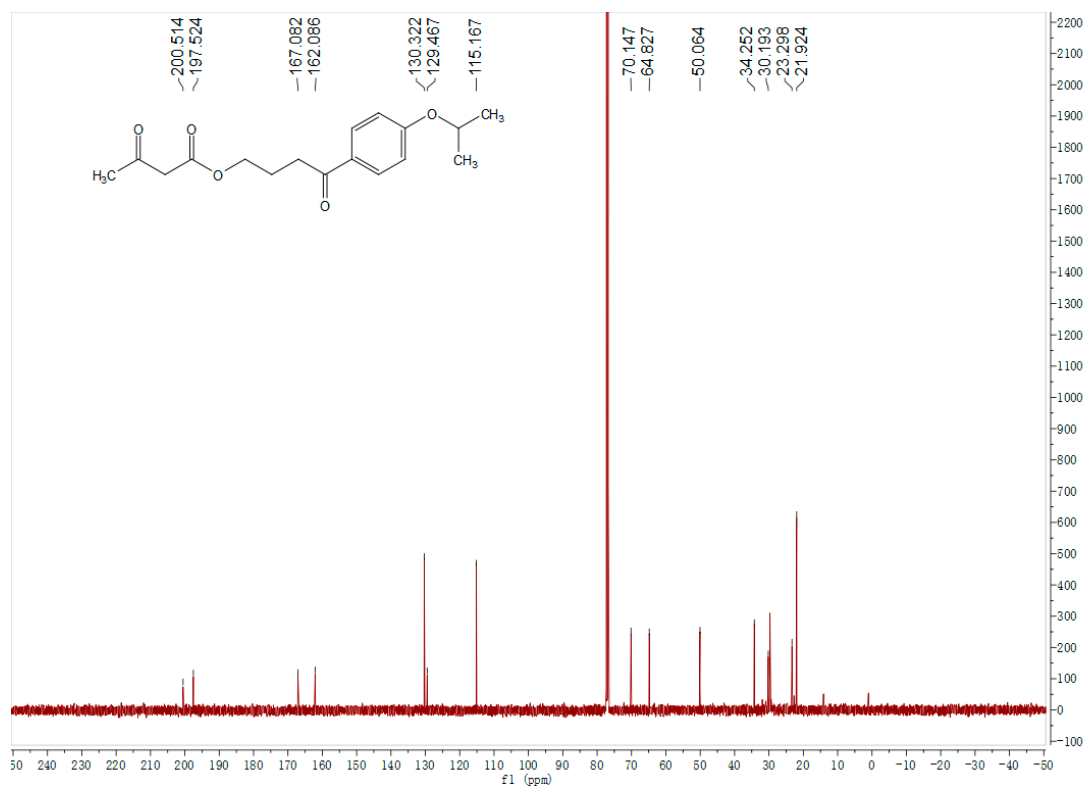


Figure S112 ¹³C NMR spectra of **5j**

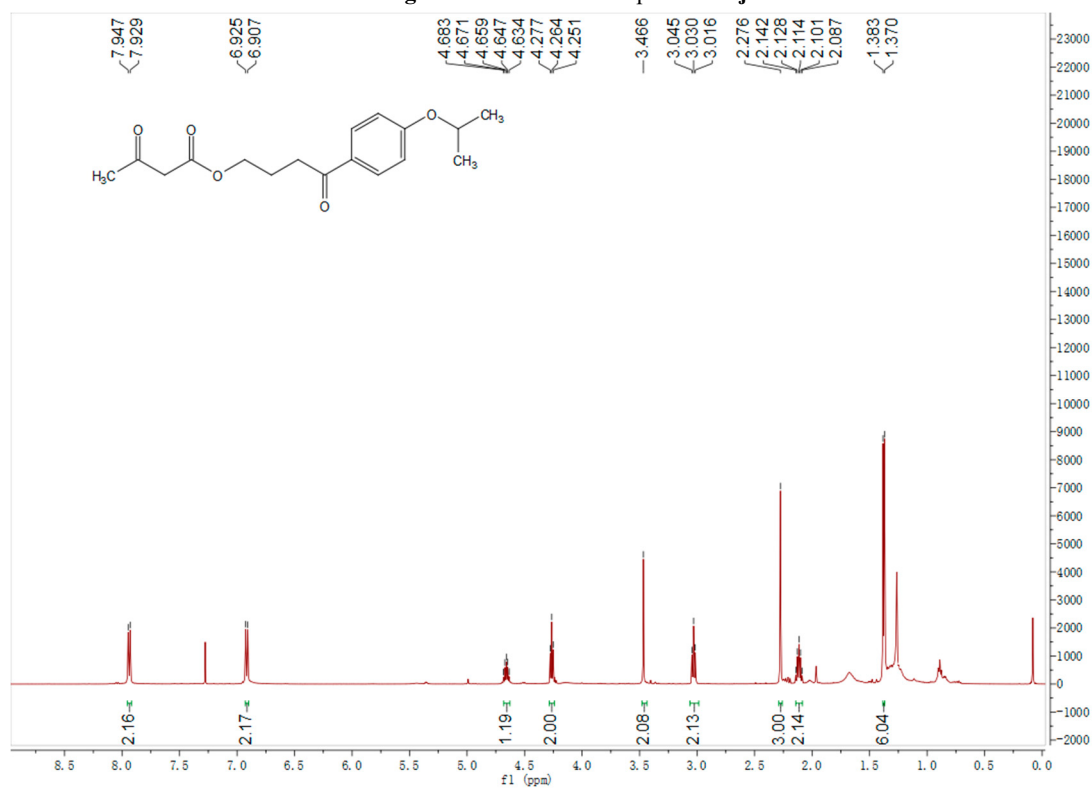


Figure S113 ¹H NMR spectra of **5j**

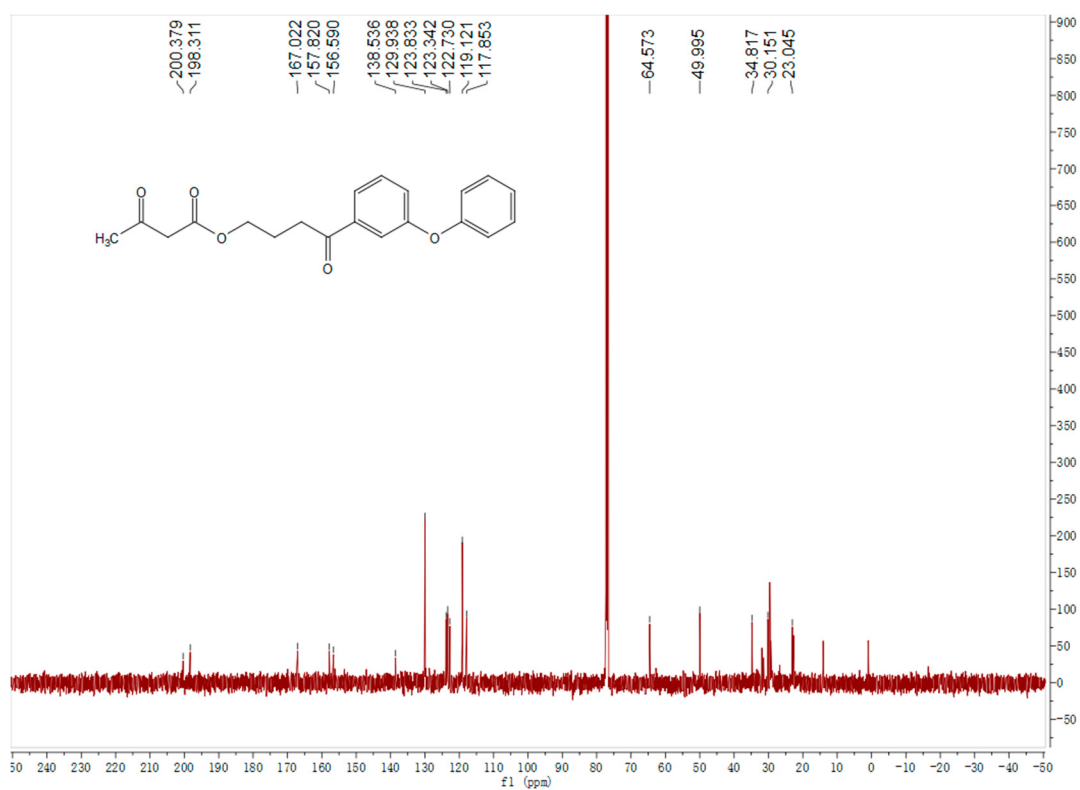


Figure S114 ¹³C NMR spectra of 5k

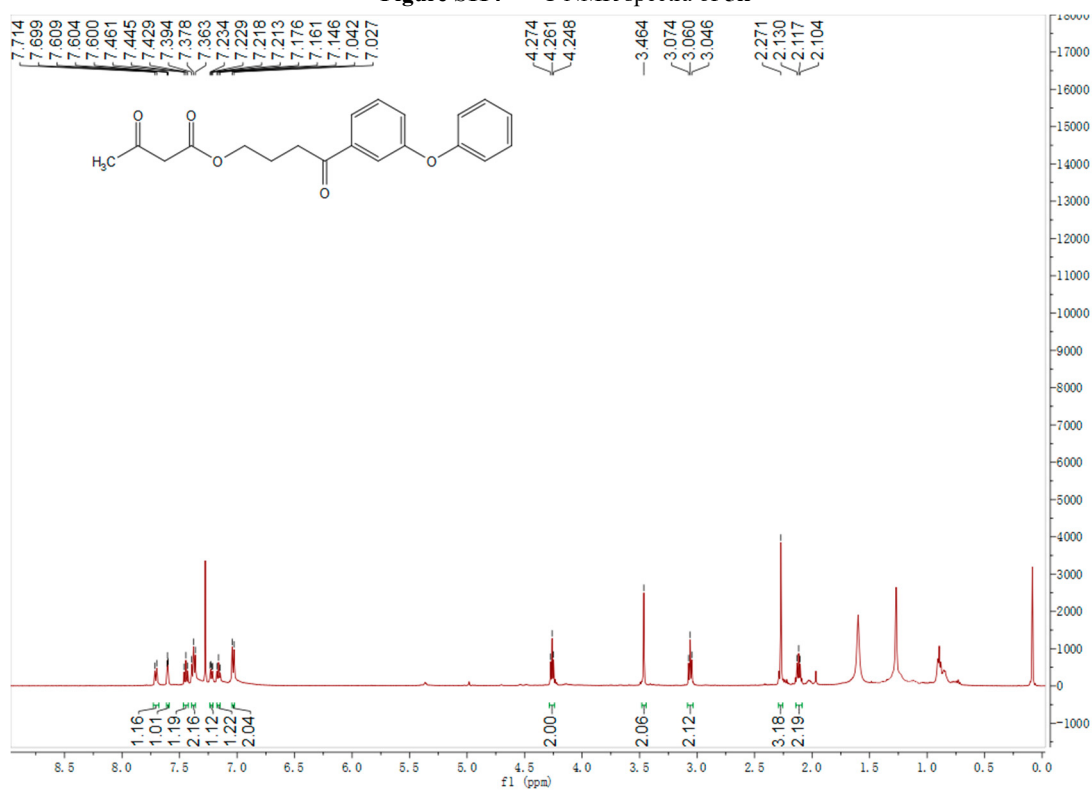


Figure S115 ¹H NMR spectra of 5k

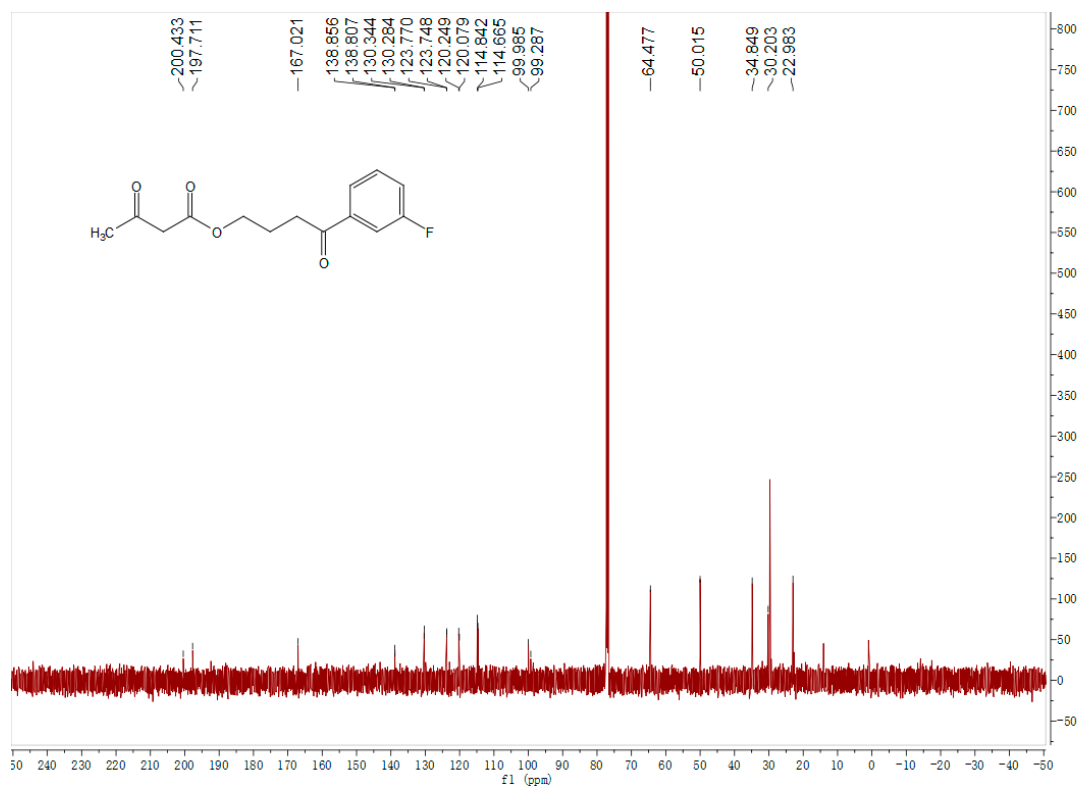


Figure S116 ¹³C NMR spectra of 5I

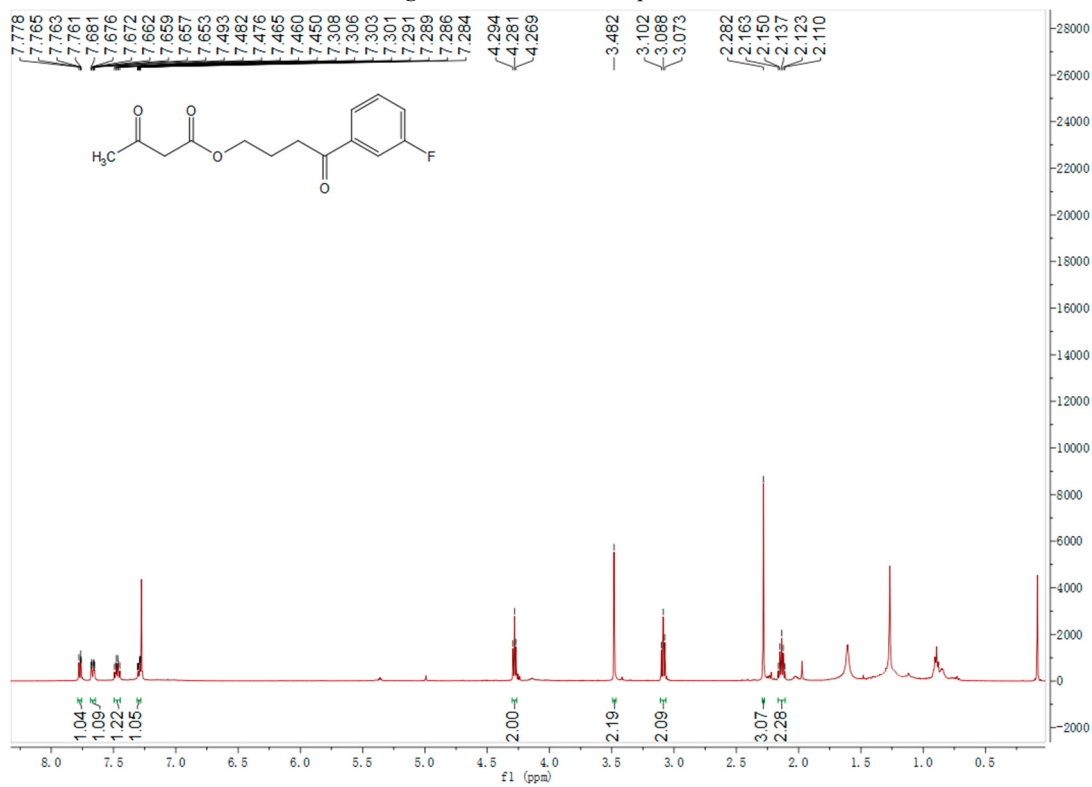


Figure S117 ¹H NMR spectra of 5I

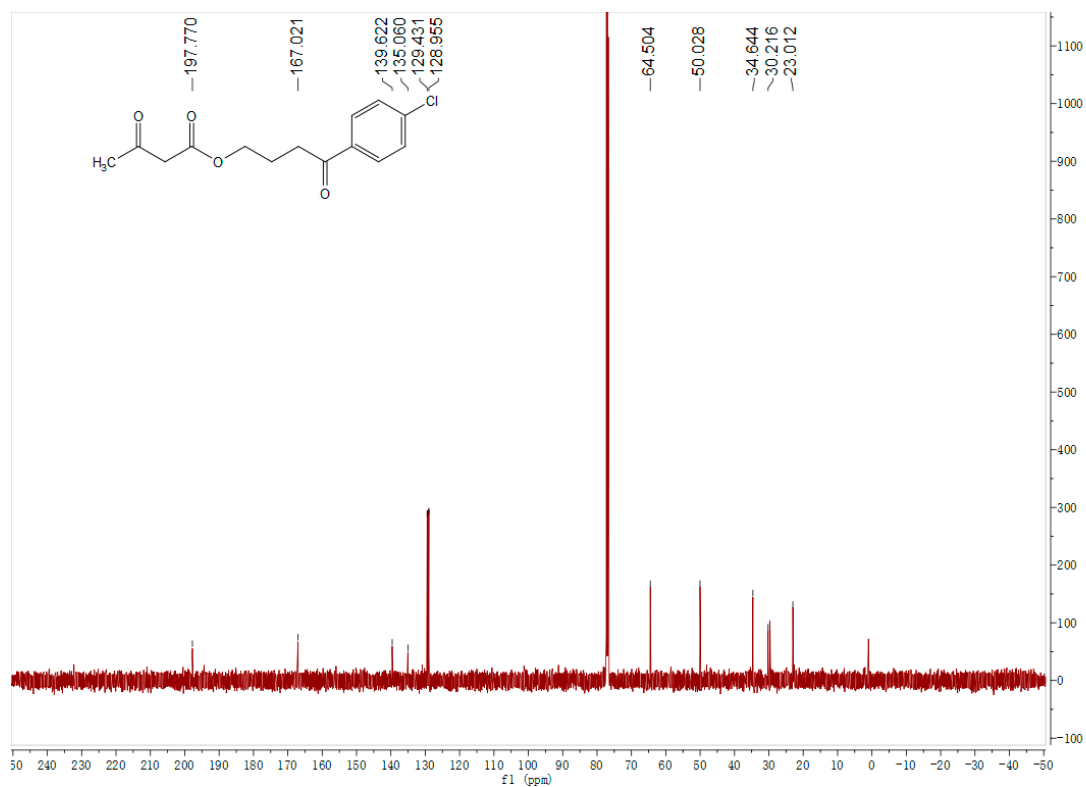


Figure S118 ¹³C NMR spectra of 5m

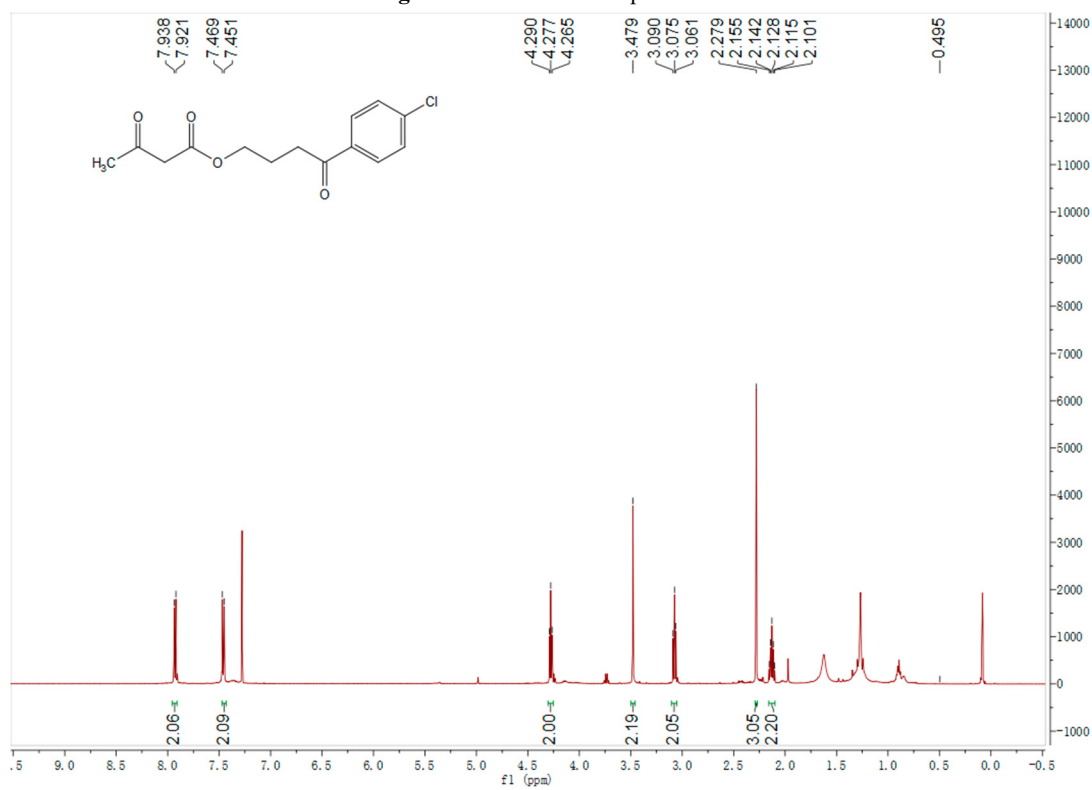


Figure 119 ¹H NMR spectra of 5m

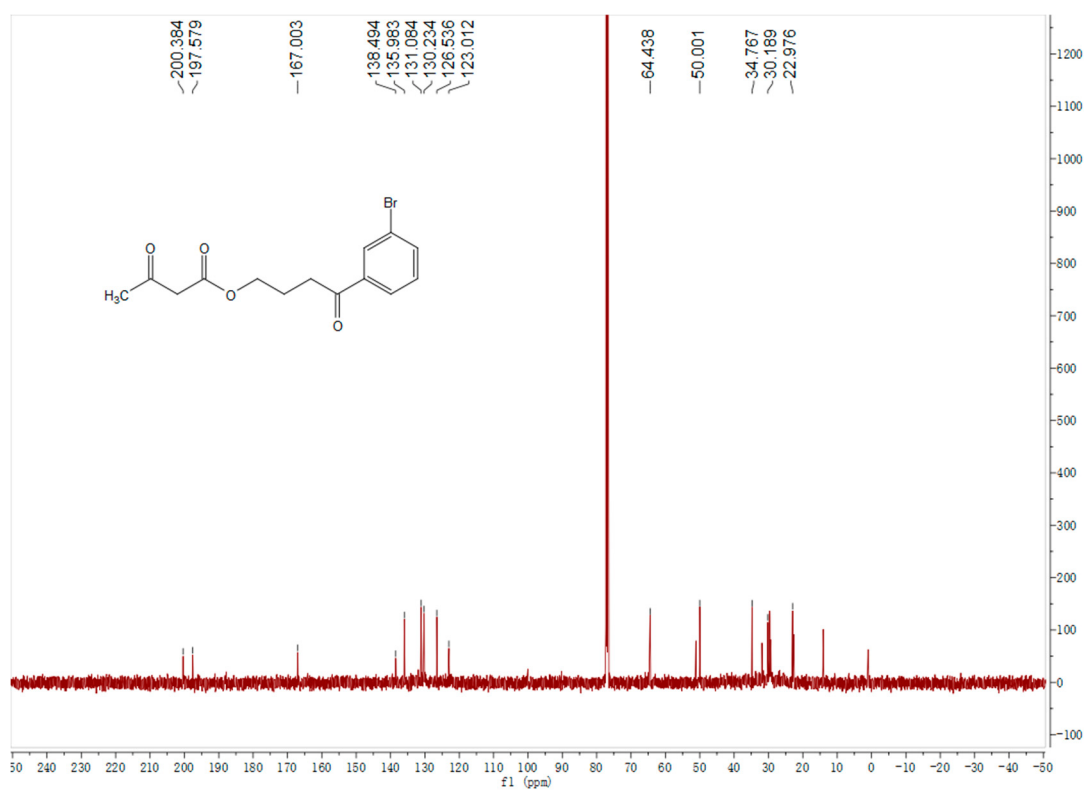


Figure S120 ¹³C NMR spectra of 5n

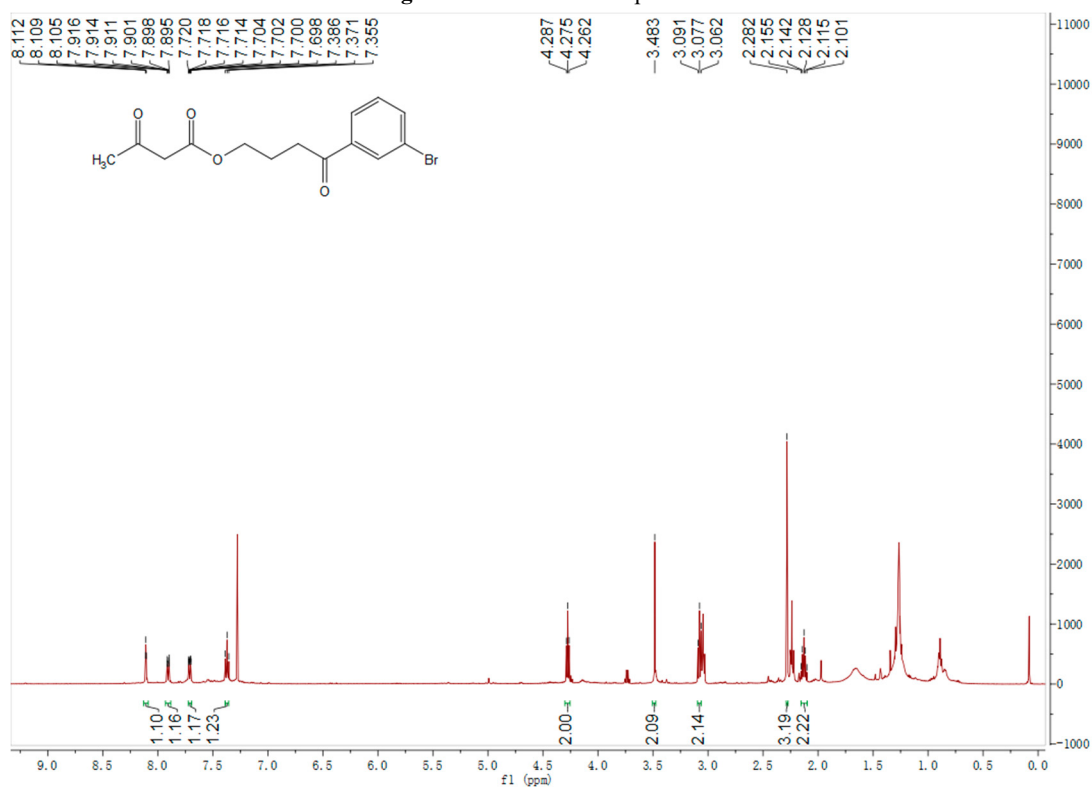


Figure S121 ¹H NMR spectra of 5n

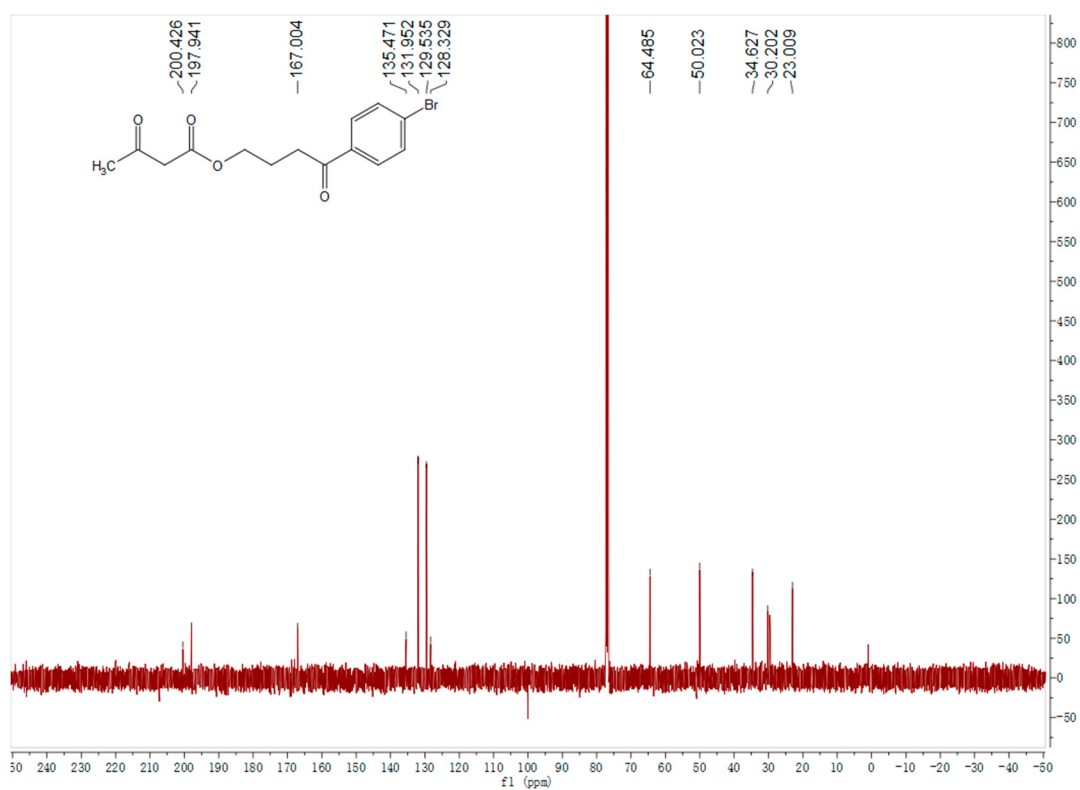


Figure S122 ¹³C NMR spectra of **5o**

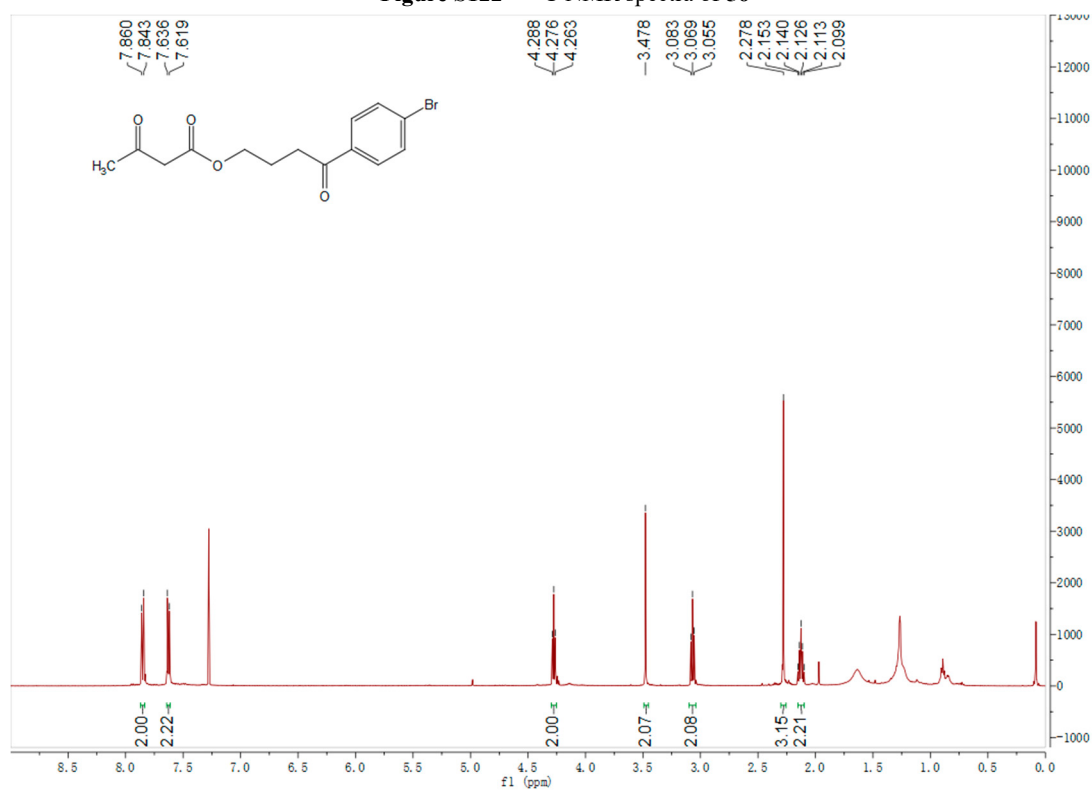


Figure S123 ¹H NMR spectra of **5o**

4. ESI-HRMS spectra of compounds **3**.

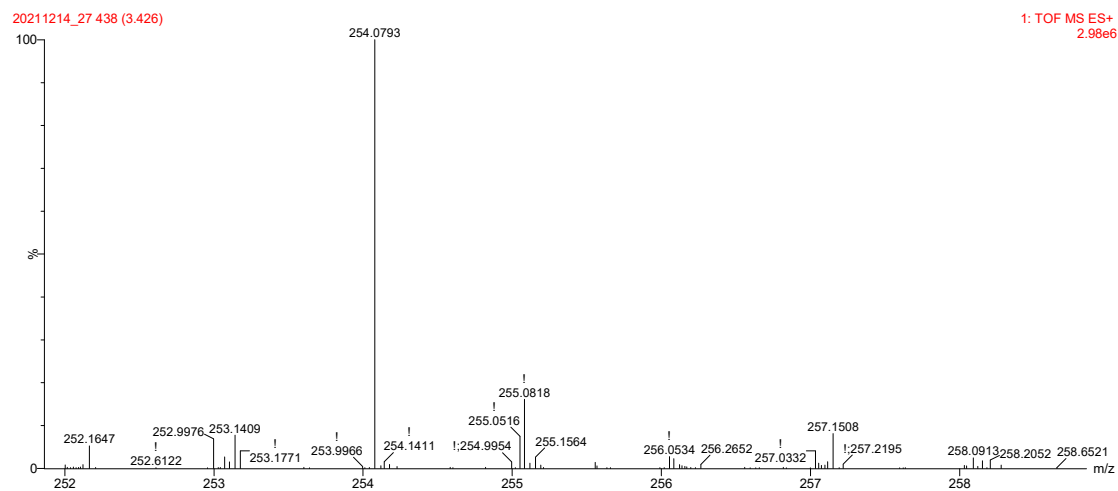


Figure S124 ESI-HRMS spectra of **3a**

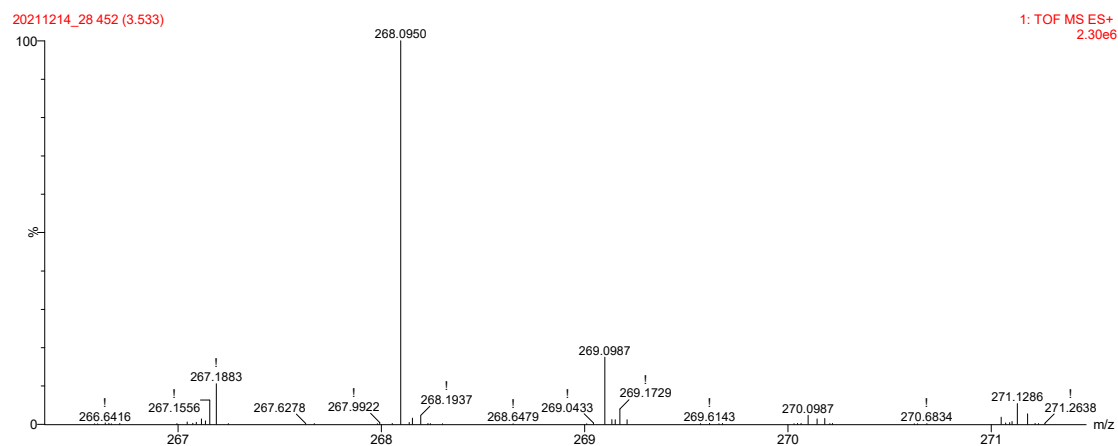


Figure S125 ESI-HRMS spectra of **3b**

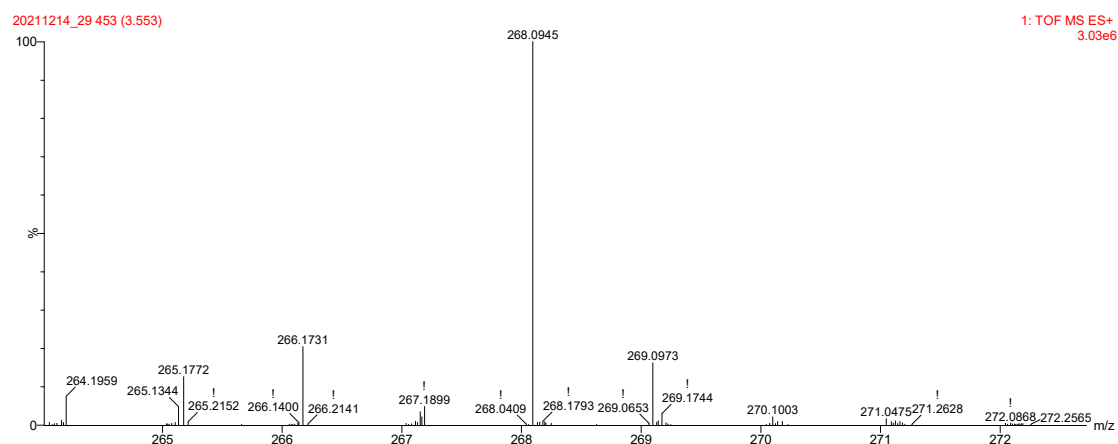
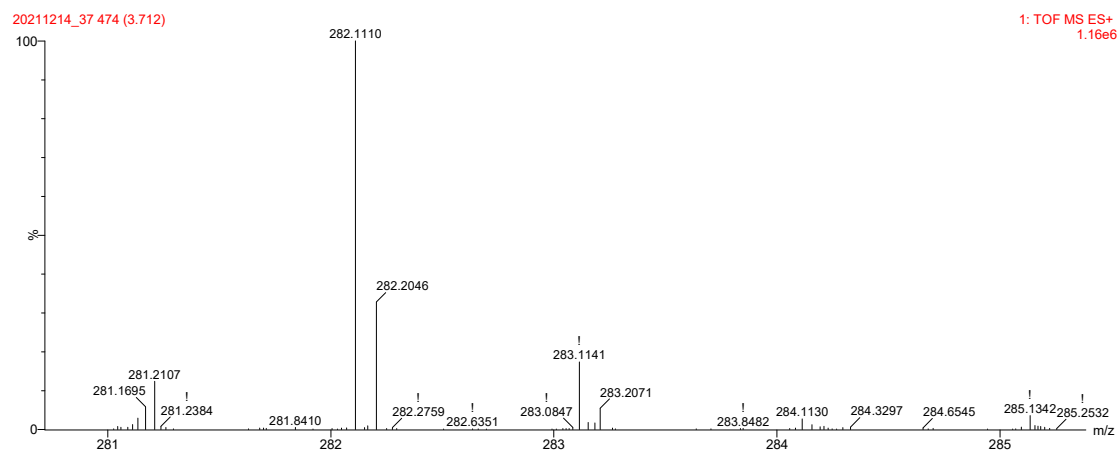
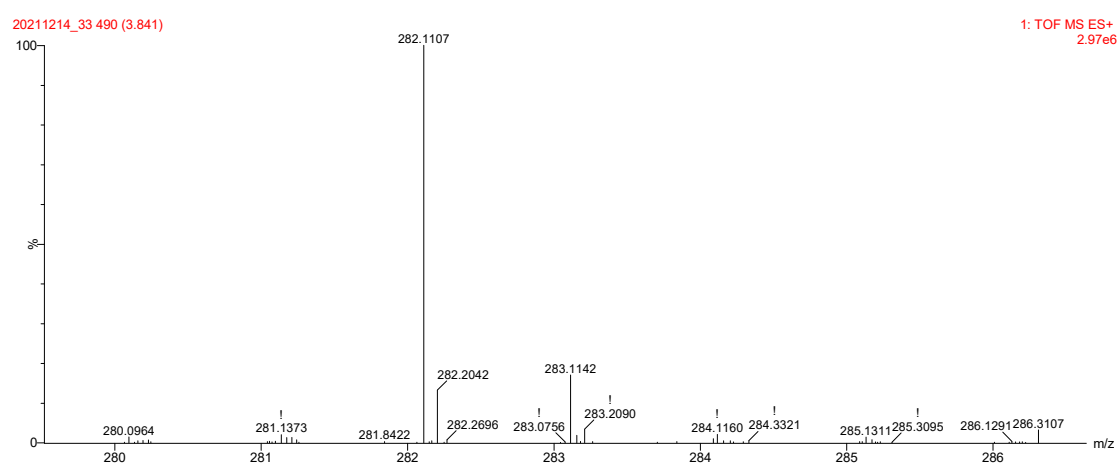
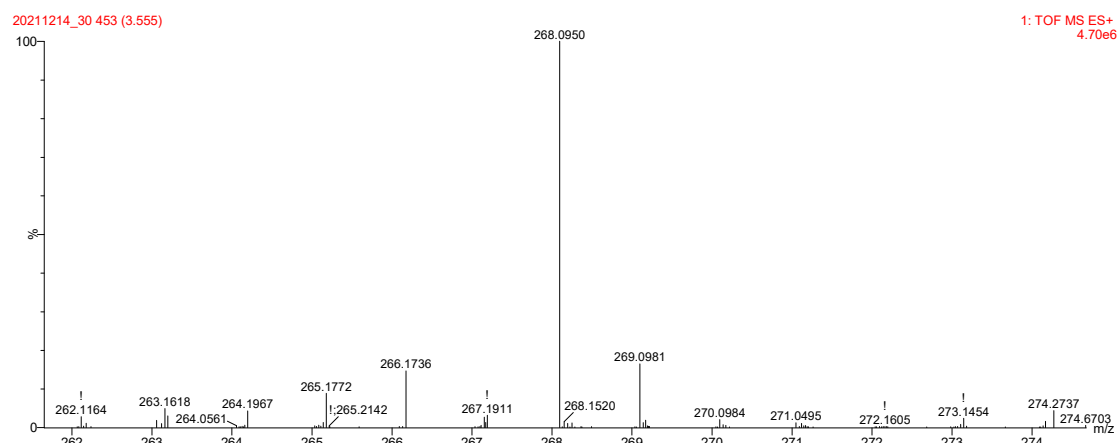


Figure S126 ESI-HRMS spectra of **3c**



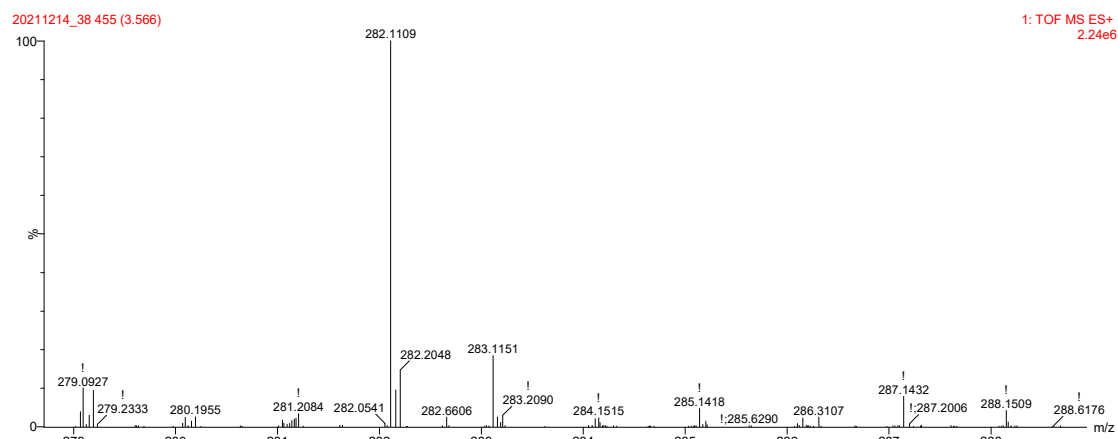


Figure S130 ESI-HRMS spectra of **3g**

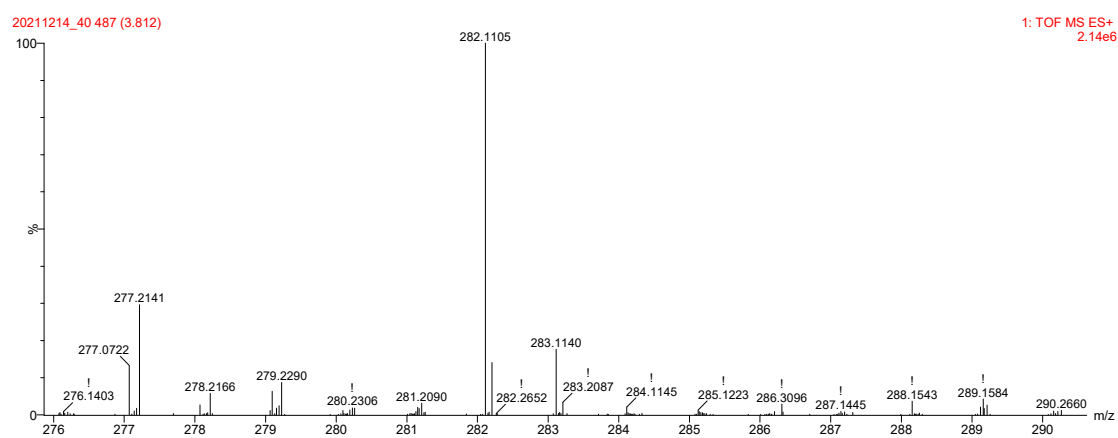


Figure S131 ESI-HRMS spectra of **3h**

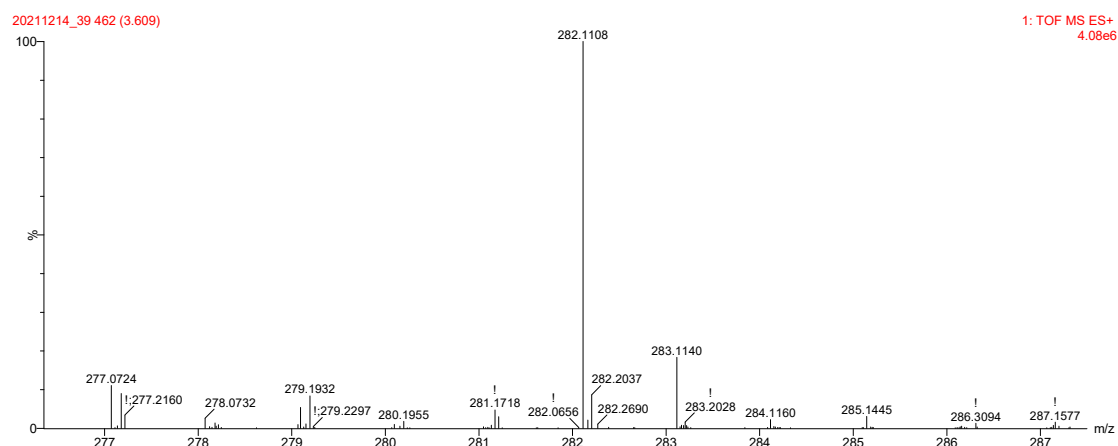


Figure S132 ESI-HRMS spectra of **3i**

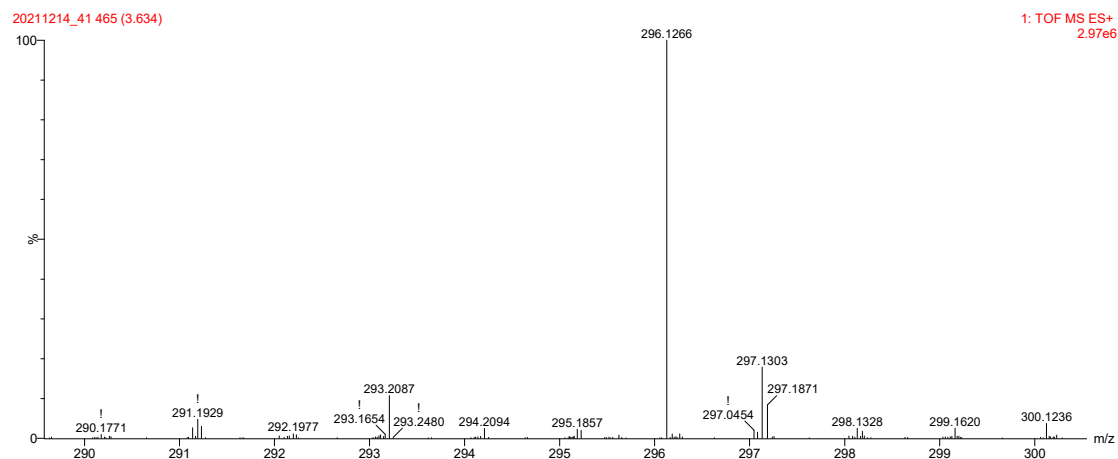


Figure S133 ESI-HRMS spectra of **3j**

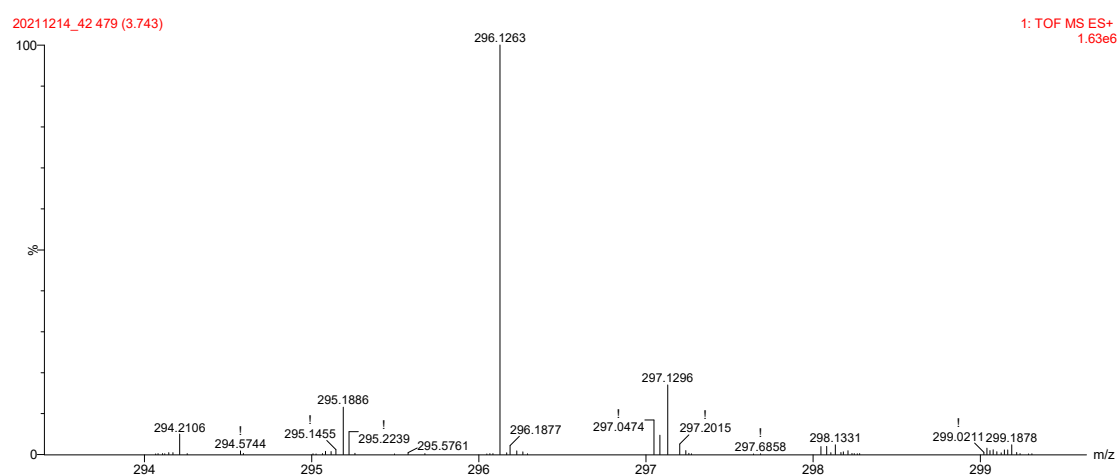


Figure S134 ESI-HRMS spectra of **3k**

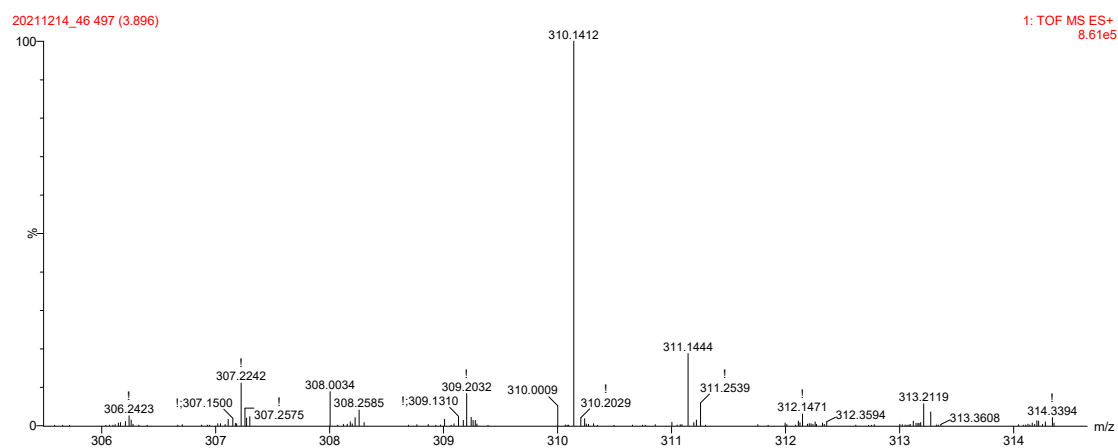


Figure S135 ESI-HRMS spectra of **3l**

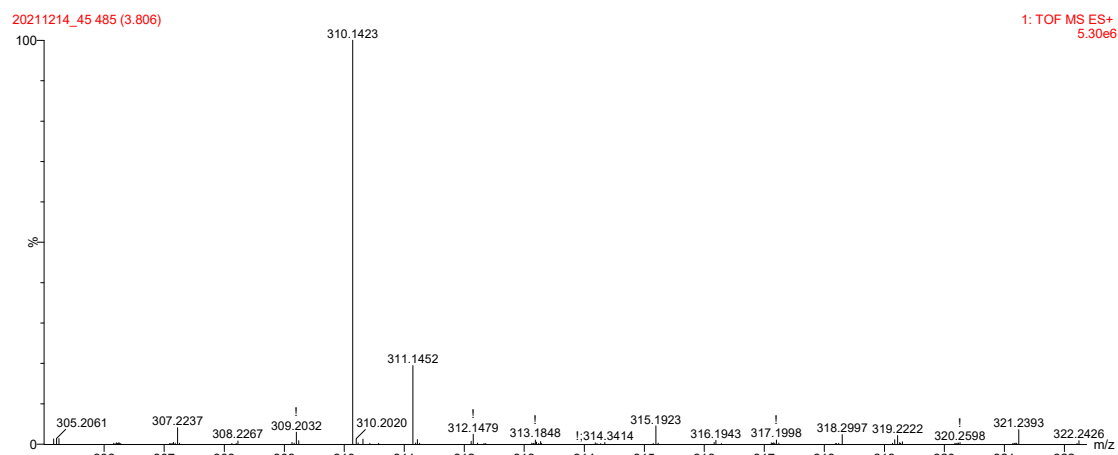


Figure S136 ESI-HRMS spectra of **3m**

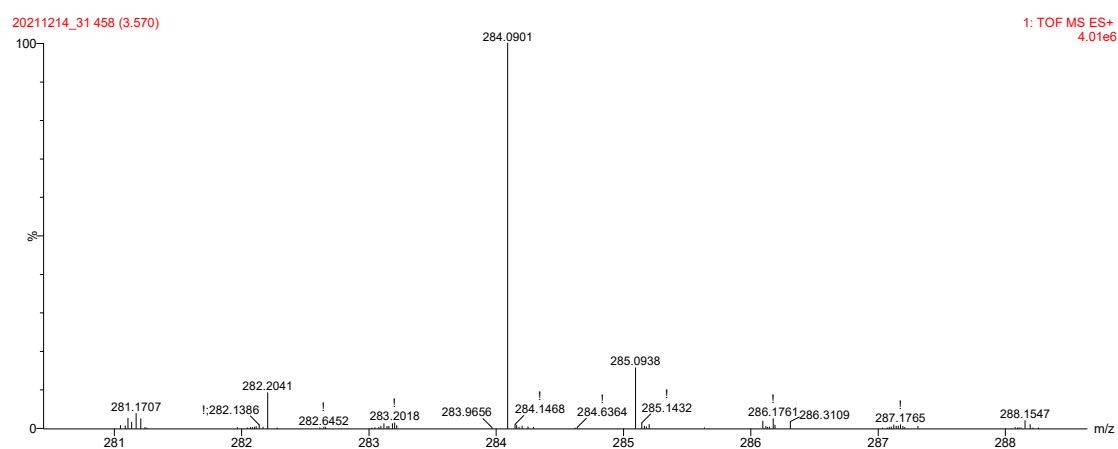


Figure S137 ESI-HRMS spectra of **3n**

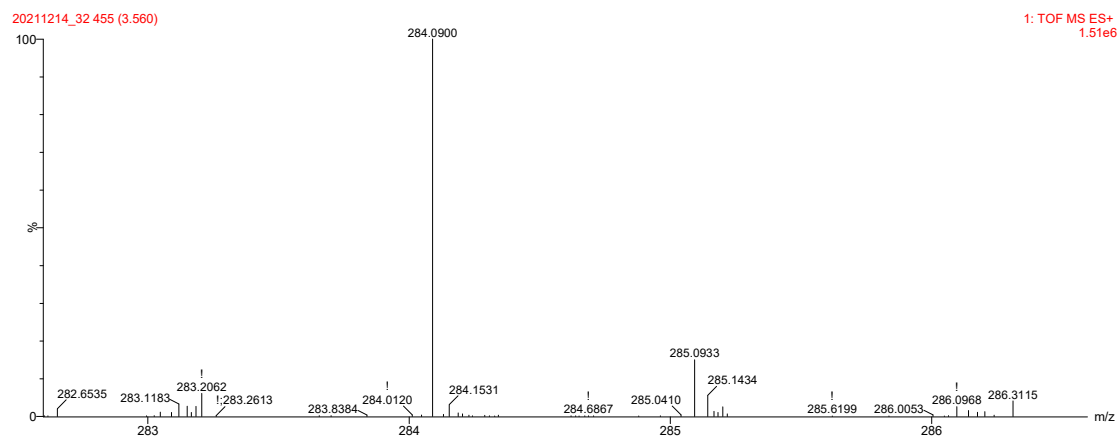


Figure S138 ESI-HRMS spectra of **3o**

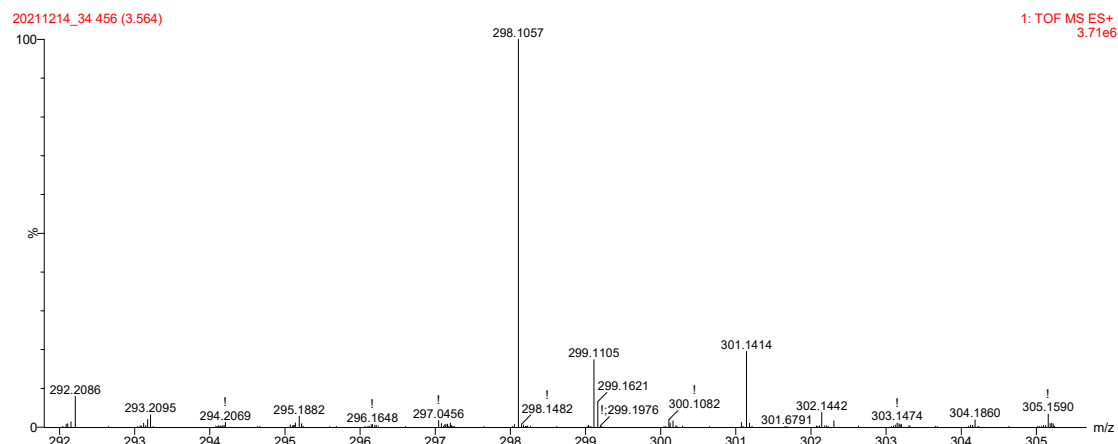


Figure S139 ESI-HRMS spectra of **3p**

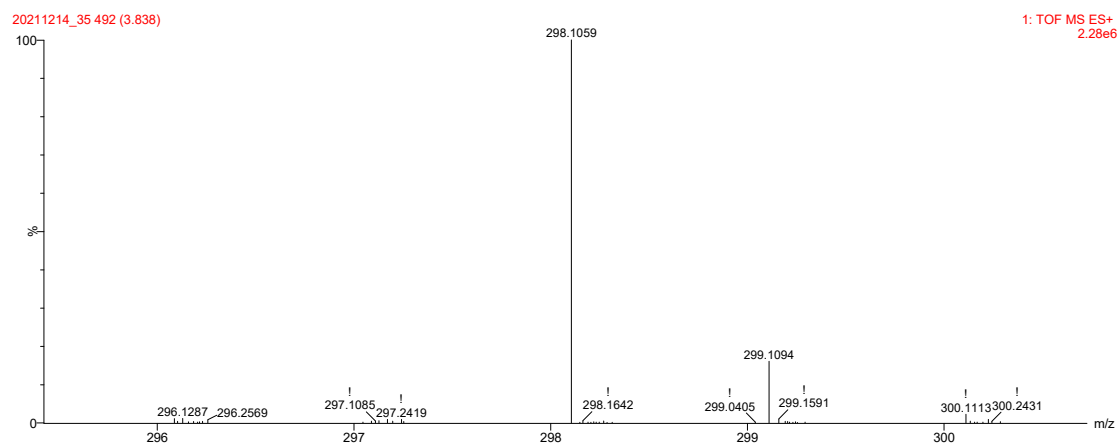


Figure S140 ESI-HRMS spectra of **3q**

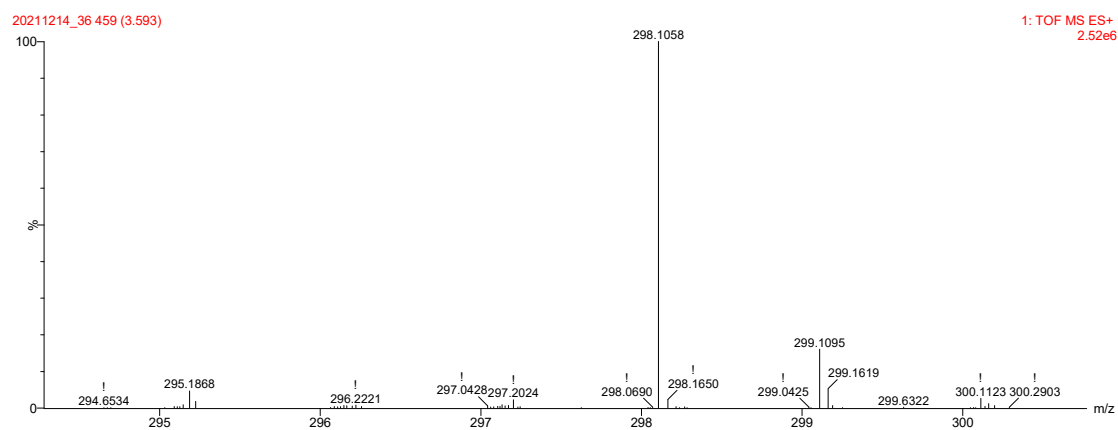


Figure S141 ESI-HRMS spectra of **3r**

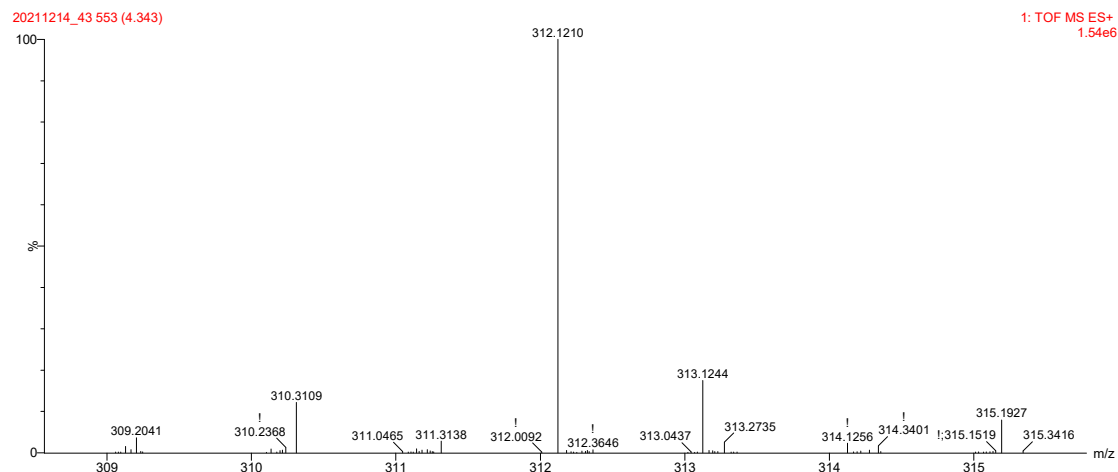


Figure S142 ESI-HRMS spectra of **3s**

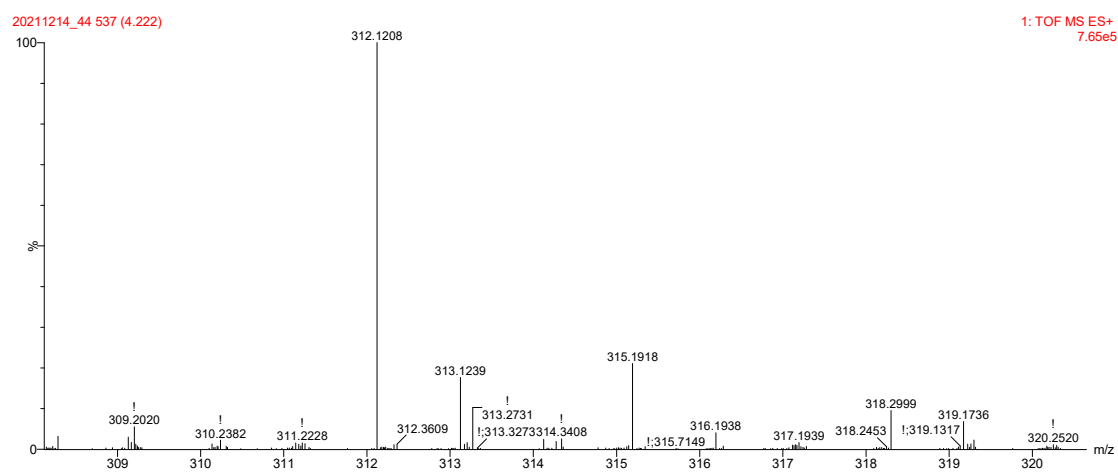


Figure S143 ESI-HRMS spectra of **3t**

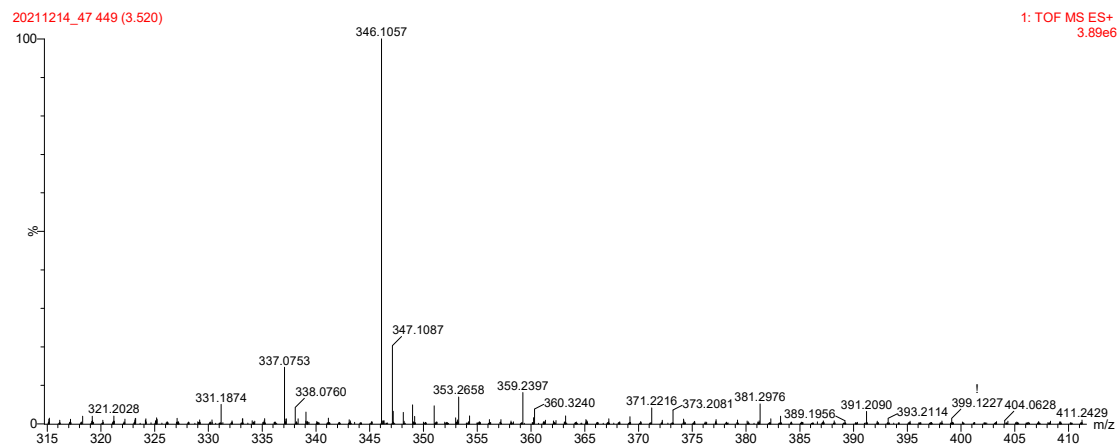
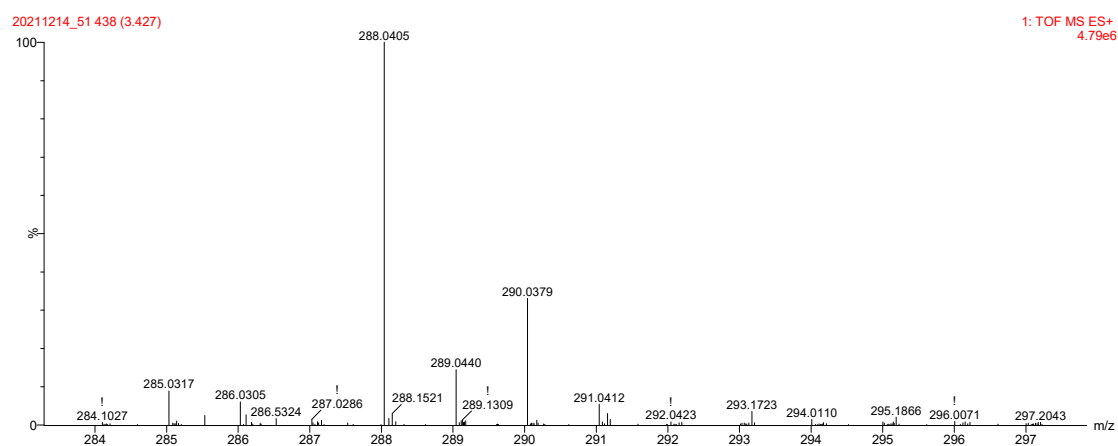
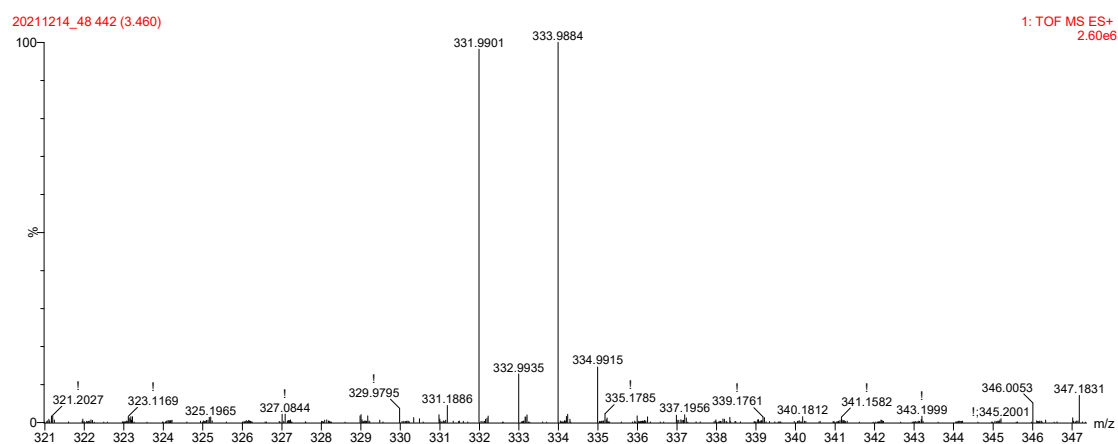
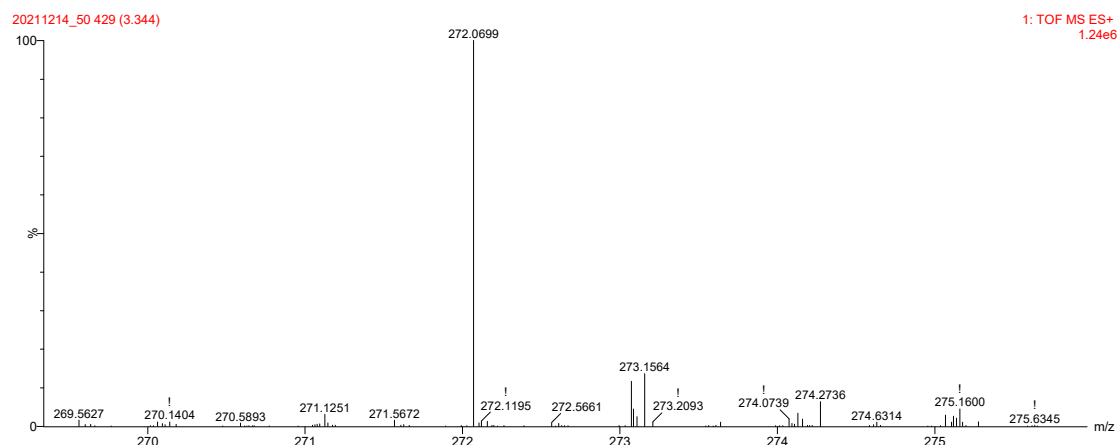


Figure S144 ESI-HRMS spectra of **3u**



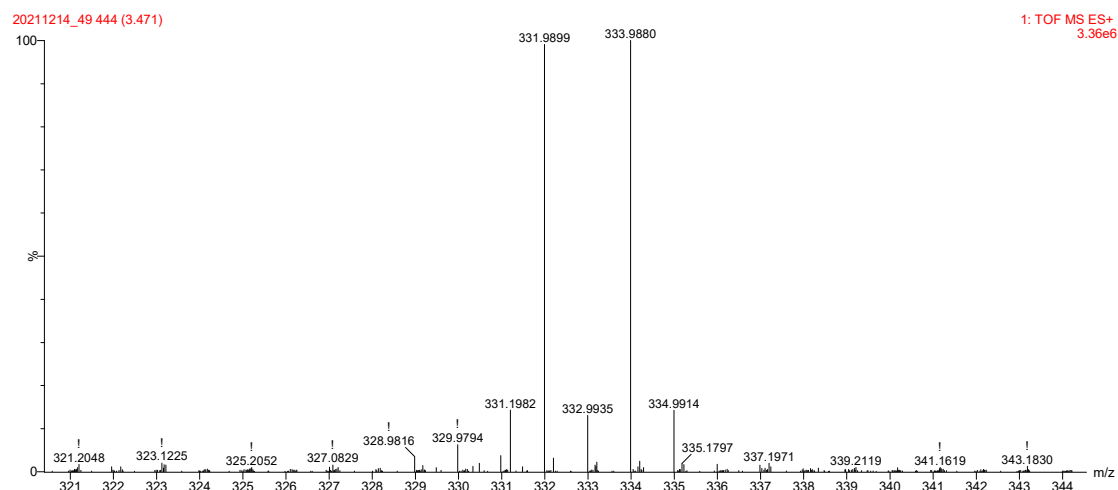


Figure S148 ESI-HRMS spectra of **3y**

5. ESI-HRMS spectra of compounds 4.

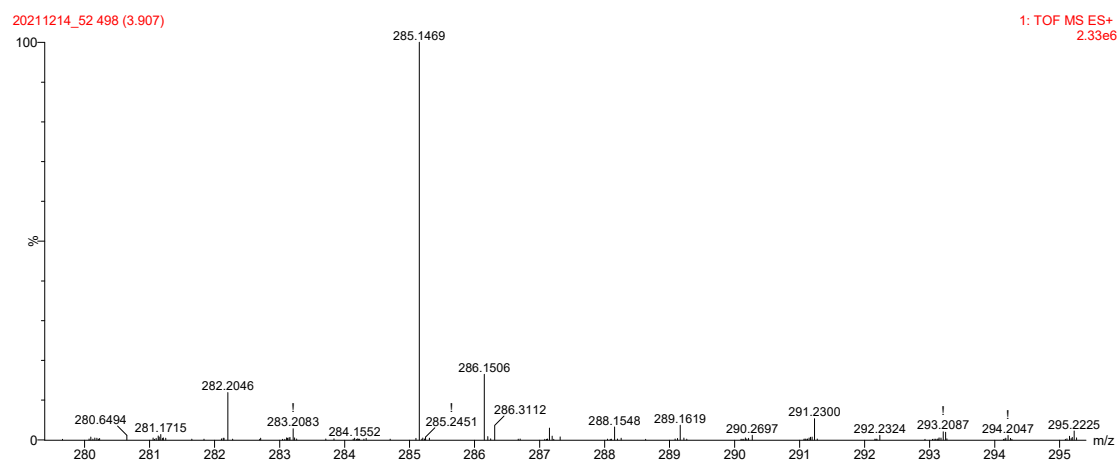


Figure S149 ESI-HRMS spectra of 4a

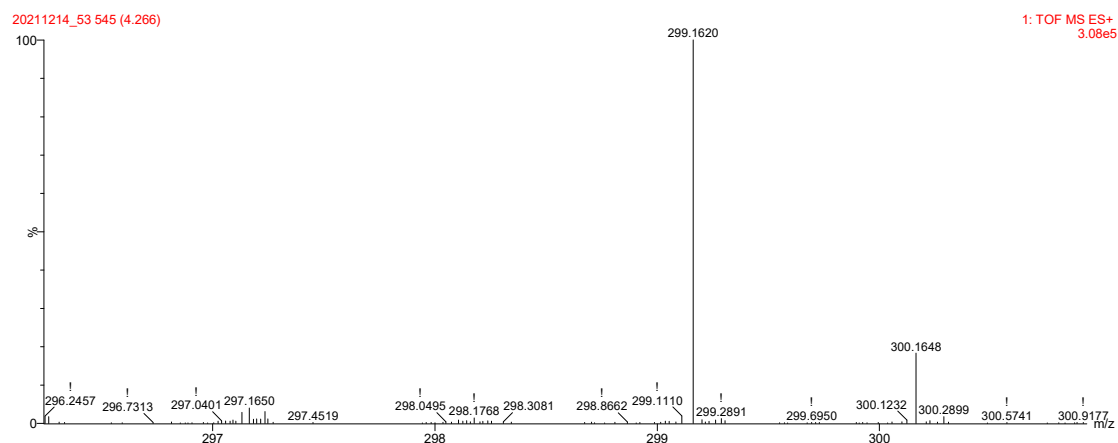


Figure S150 ESI-HRMS spectra of 4b

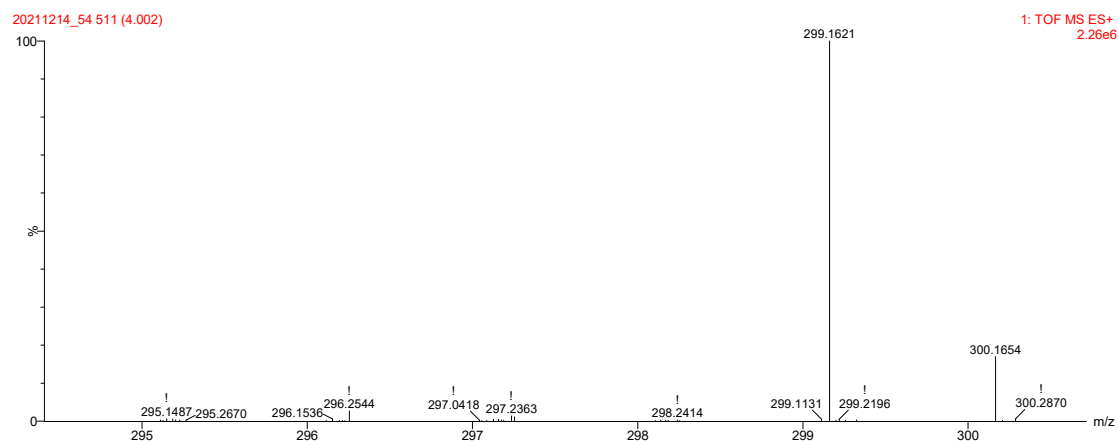


Figure S151 ESI-HRMS spectra of 4c

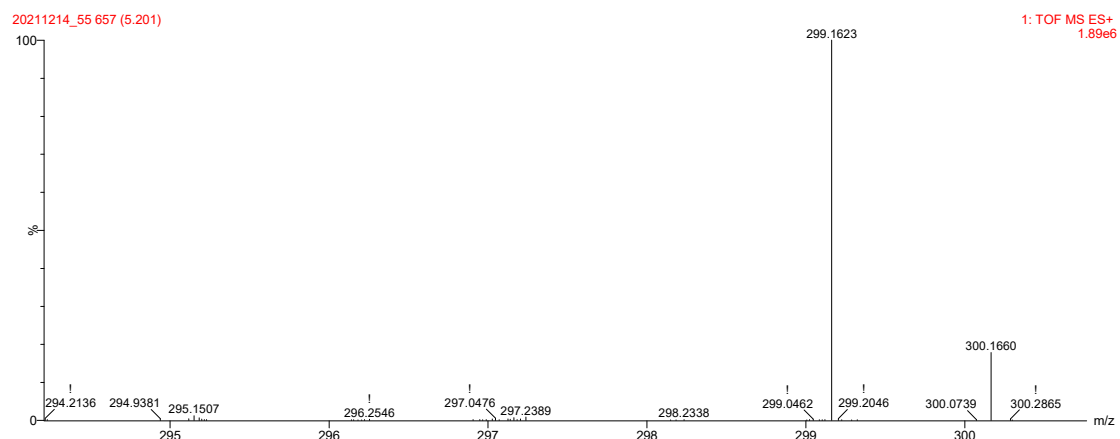


Figure S152 ESI-HRMS spectra of 4d

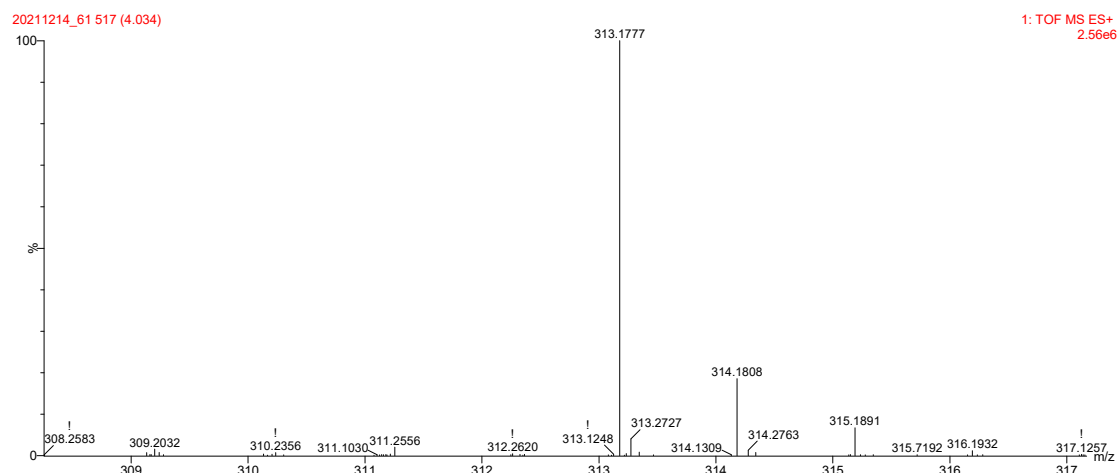


Figure S153 ESI-HRMS spectra of 4e

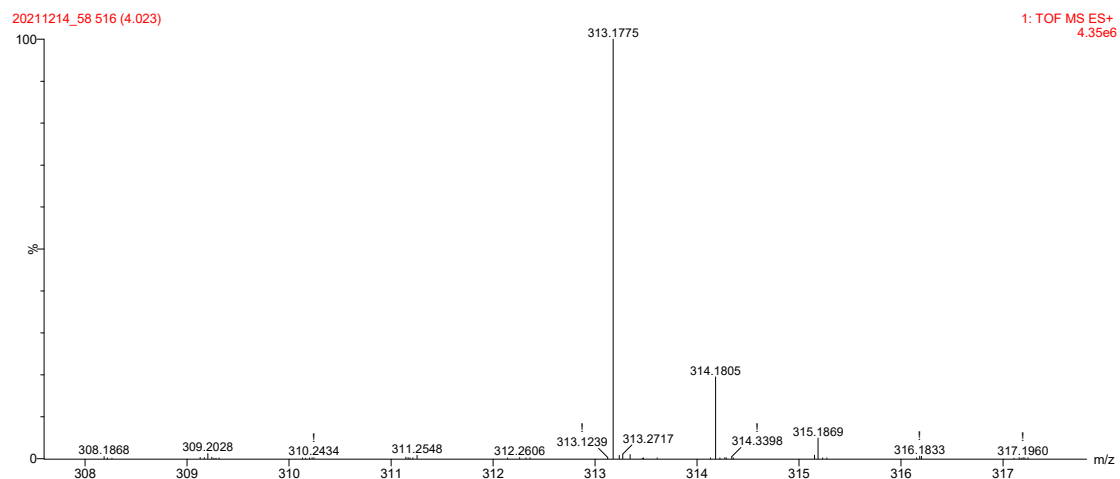


Figure S154 ESI-HRMS spectra of 4f

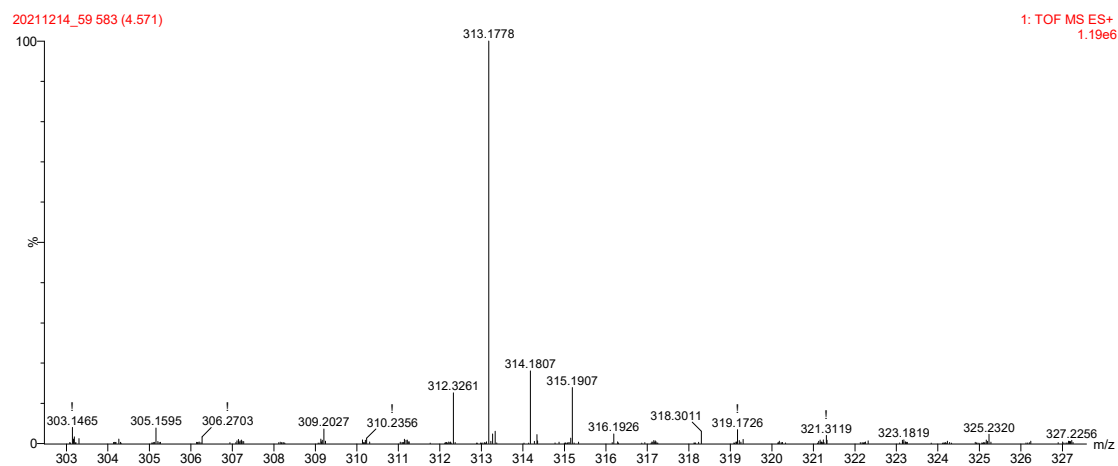


Figure S155 ESI-HRMS spectra of **4g**

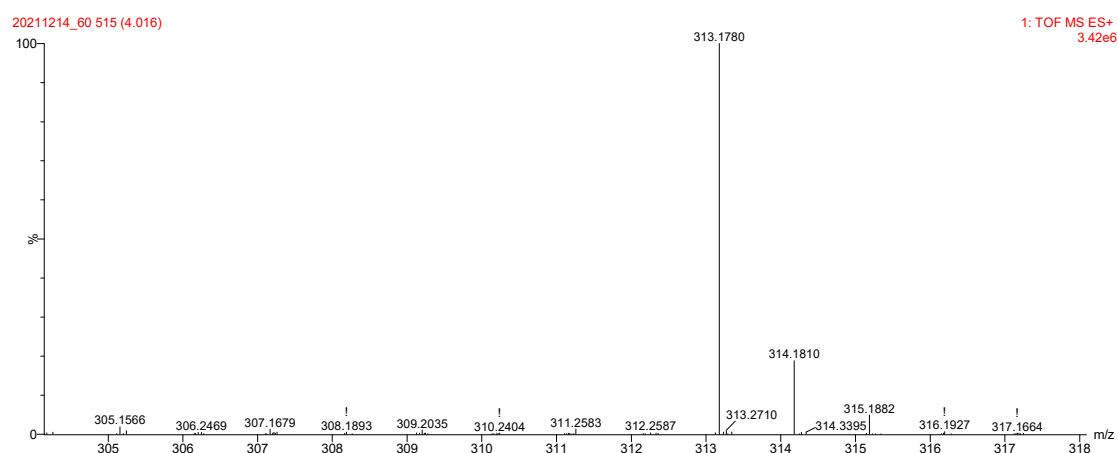


Figure S156 ESI-HRMS spectra of **4h**

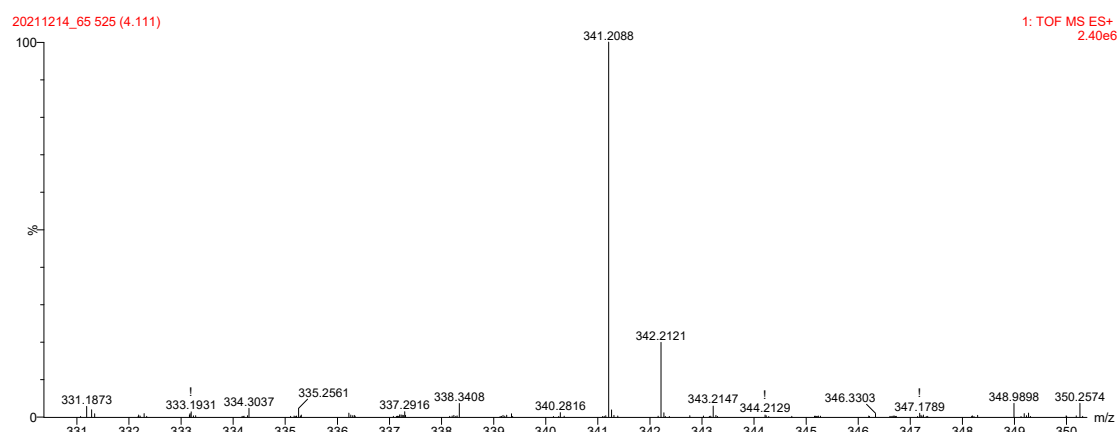


Figure S157 ESI-HRMS spectra of **4i**

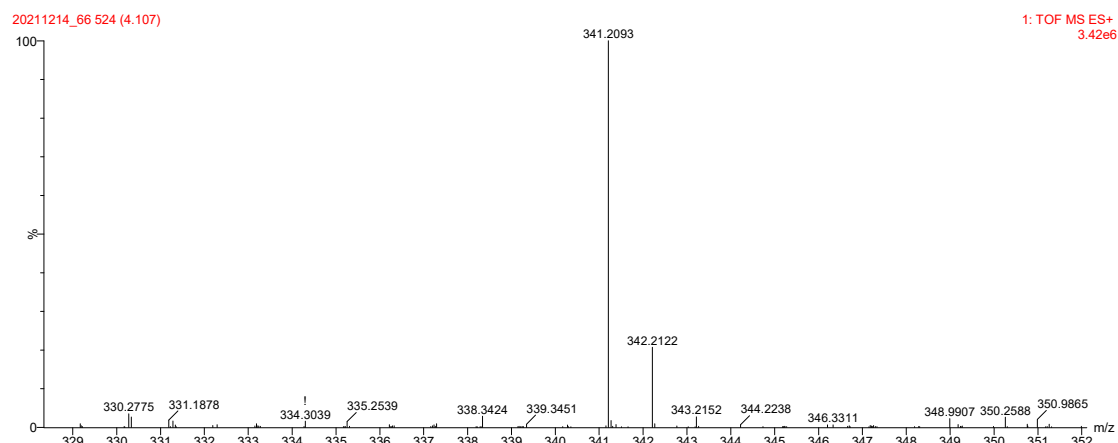


Figure S158 ESI-HRMS spectra of **4j**

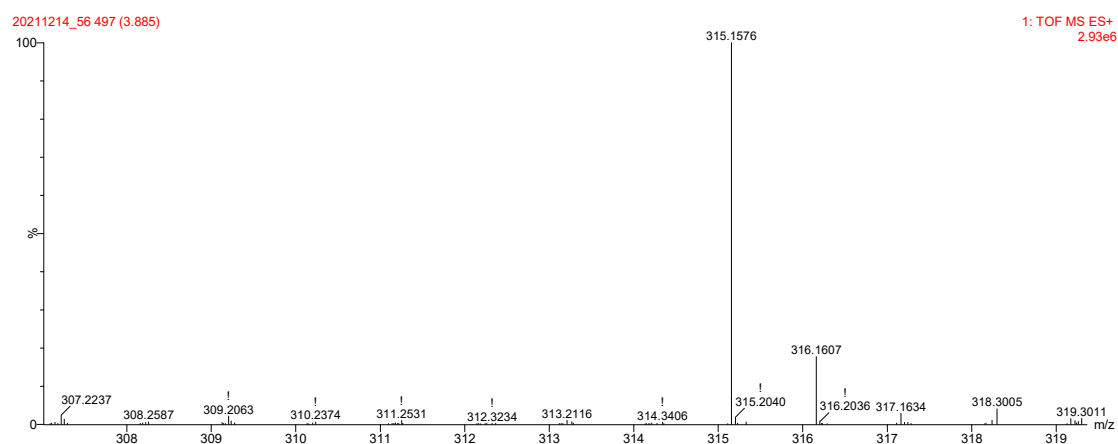


Figure S159 ESI-HRMS spectra of **4k**

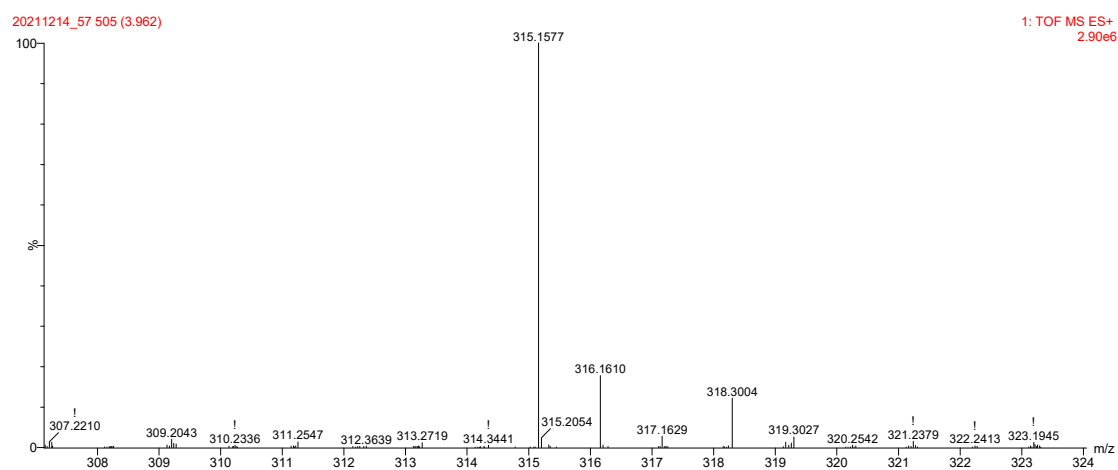


Figure S160 ESI-HRMS spectra of **4l**

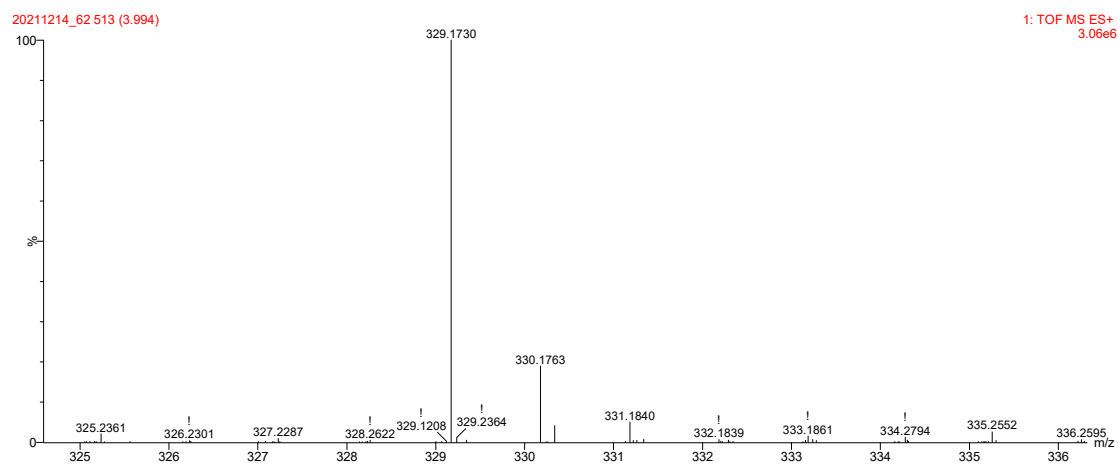


Figure S161 ESI-HRMS spectra of **4m**

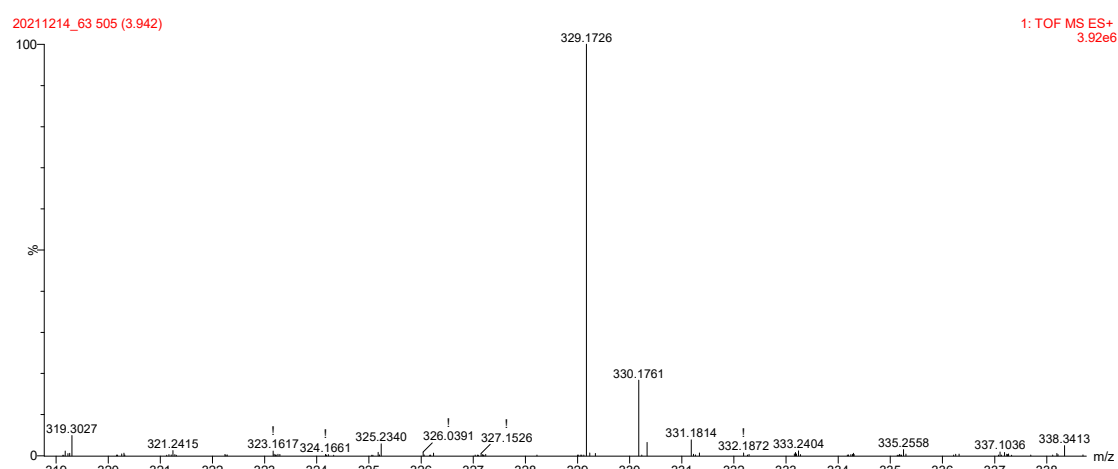


Figure S162 ESI-HRMS spectra of **4n**

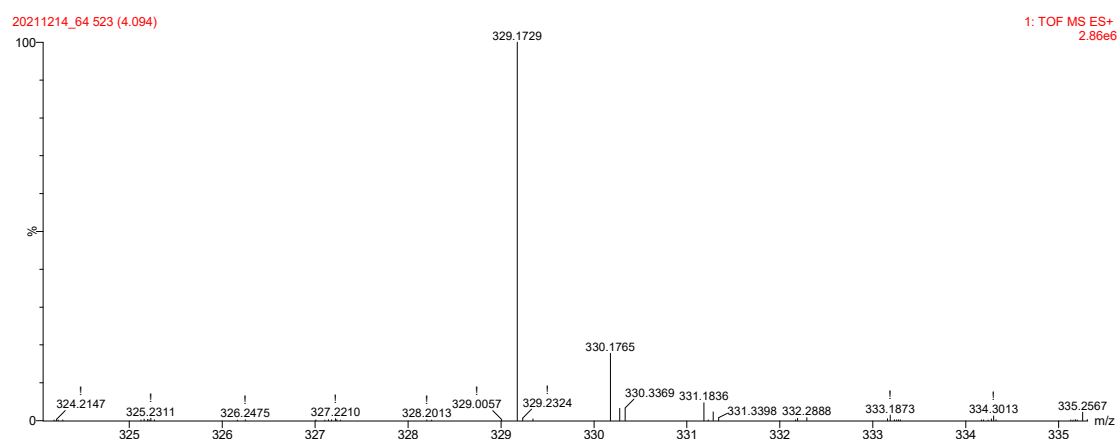


Figure S163 ESI-HRMS spectra of **4o**

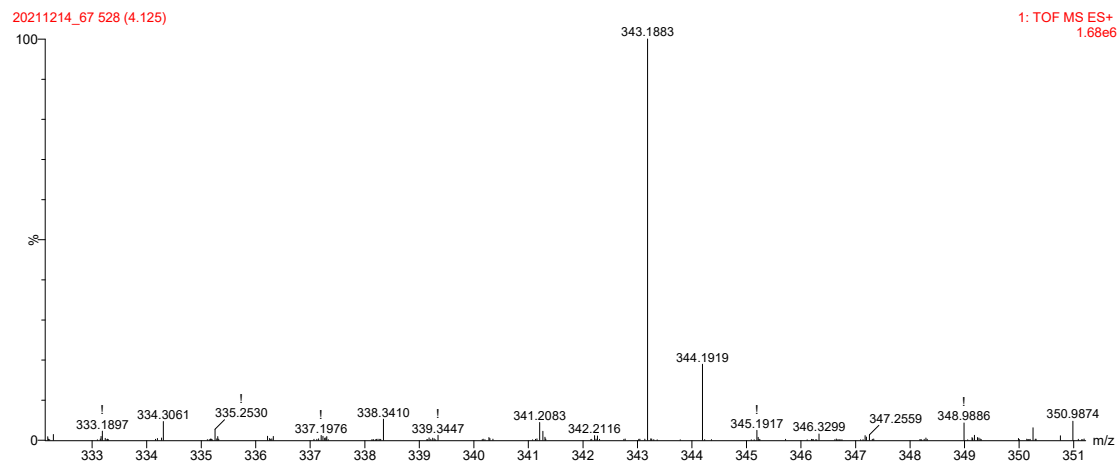


Figure S164 ESI-HRMS spectra of 4p

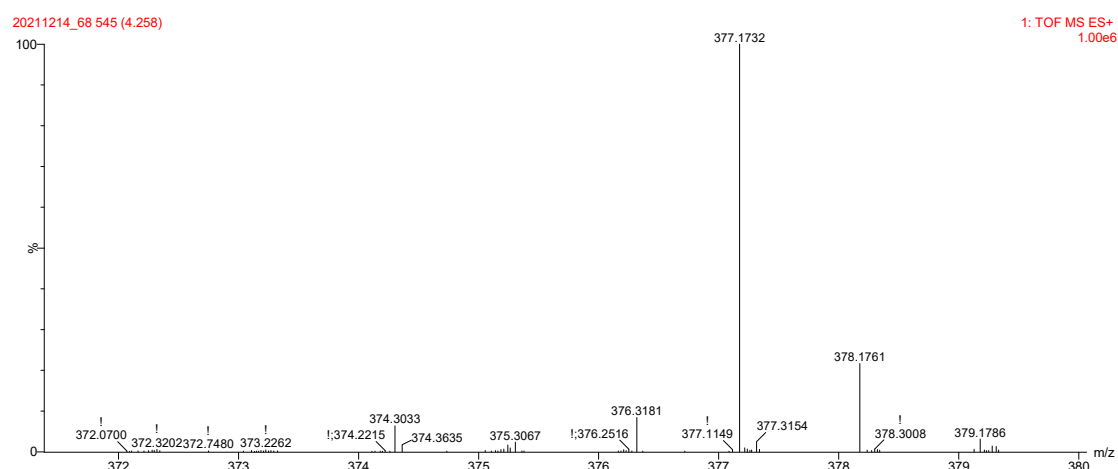


Figure S165 ESI-HRMS spectra of 4q

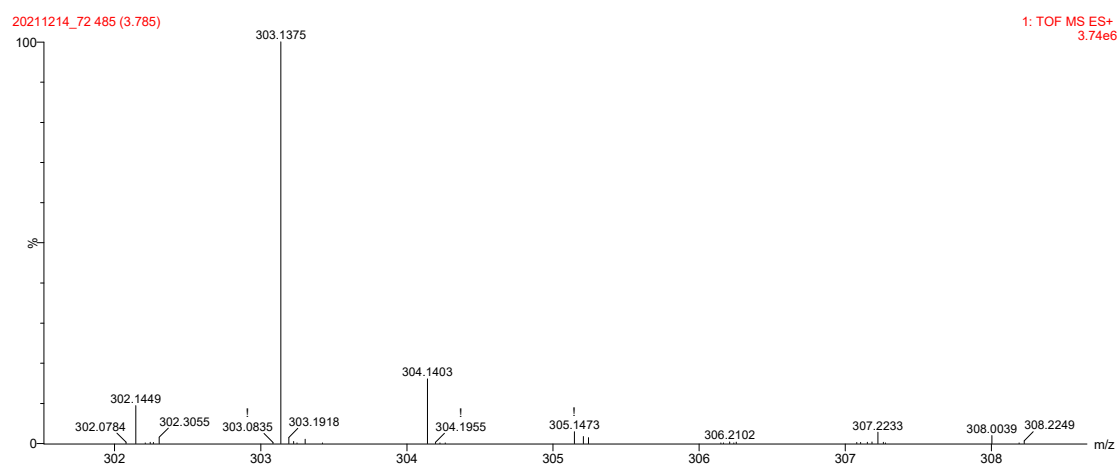


Figure S166 ESI-HRMS spectra of 4r

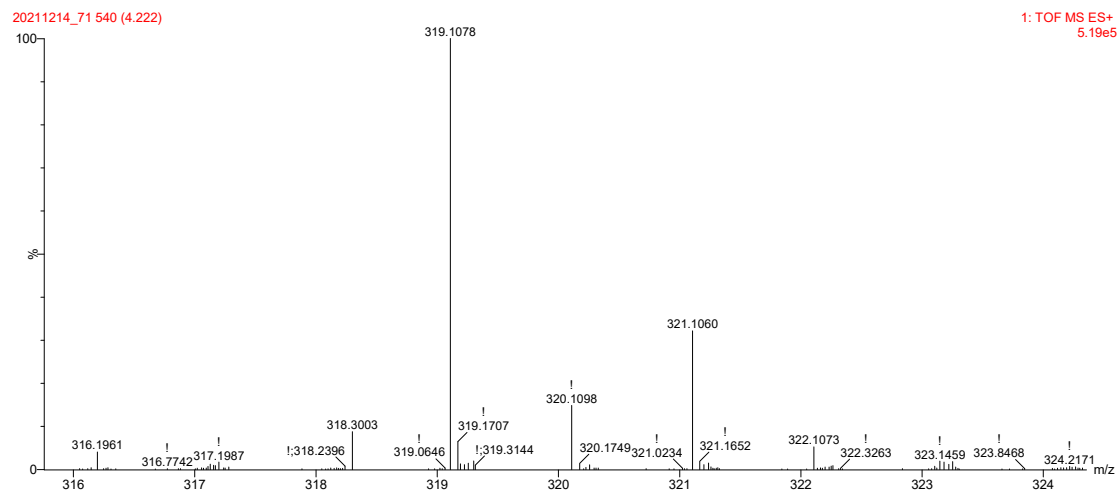


Figure S167 ESI-HRMS spectra of 4s

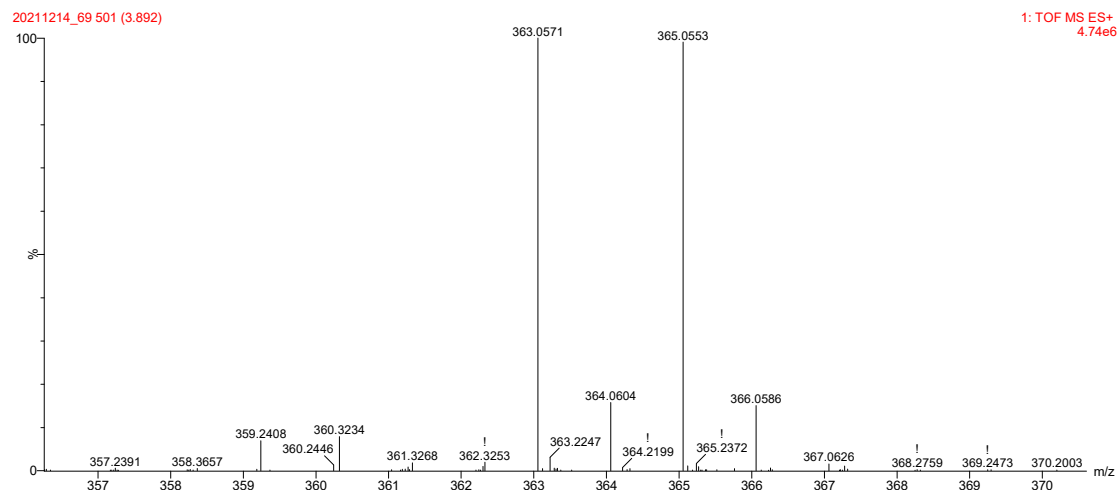


Figure S168 ESI-HRMS spectra of 4t

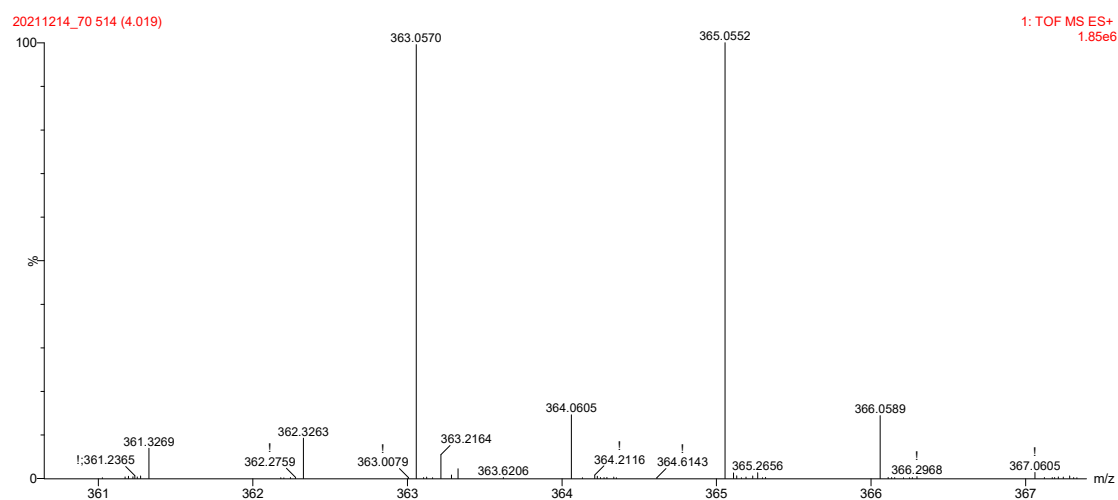


Figure S169 ESI-HRMS spectra of 4u

6. ESI-HRMS spectra of compounds **5**.

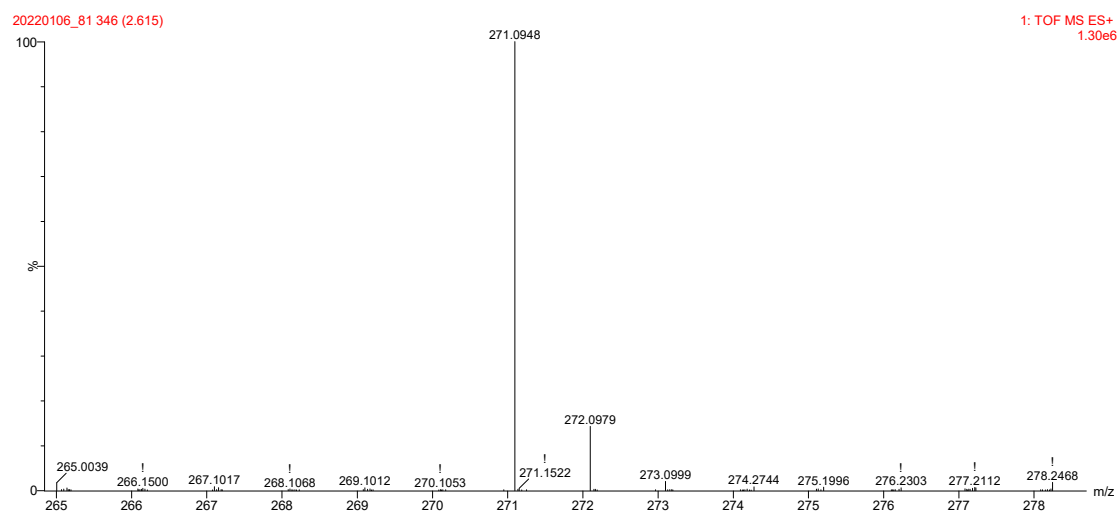


Figure S170 ESI-HRMS spectra of **5a**

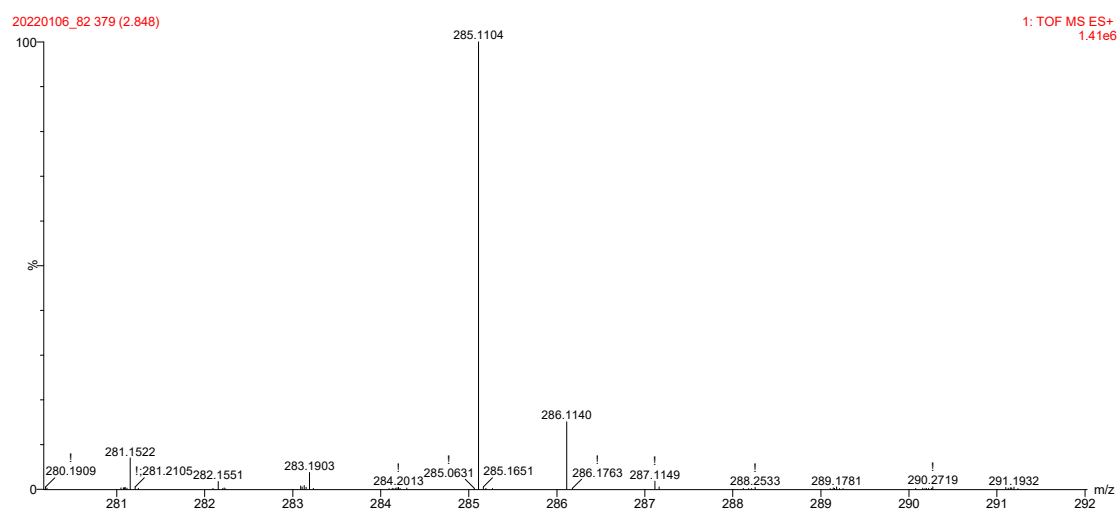


Figure S171 ESI-HRMS spectra of **5b**

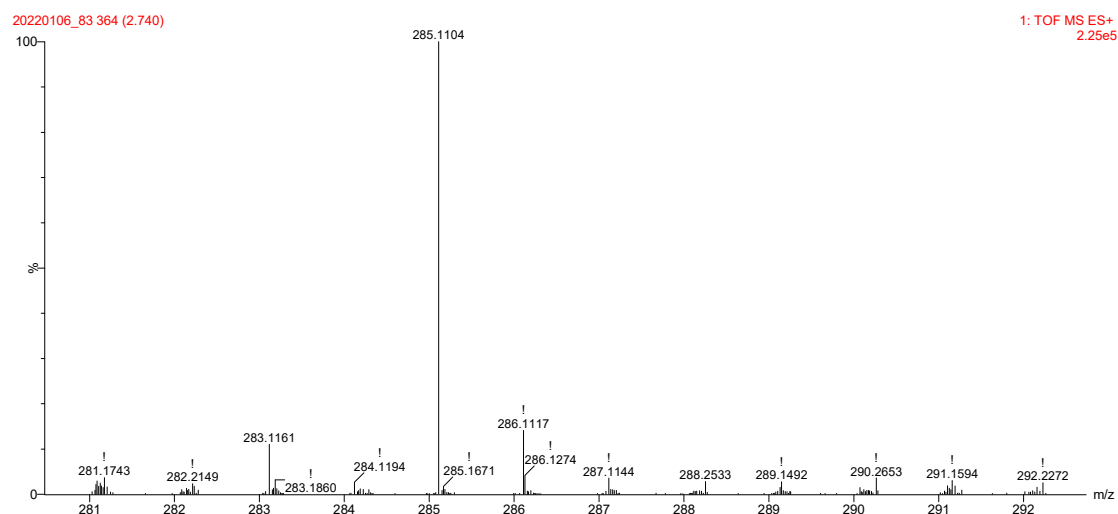


Figure S172 ESI-HRMS spectra of **5c**

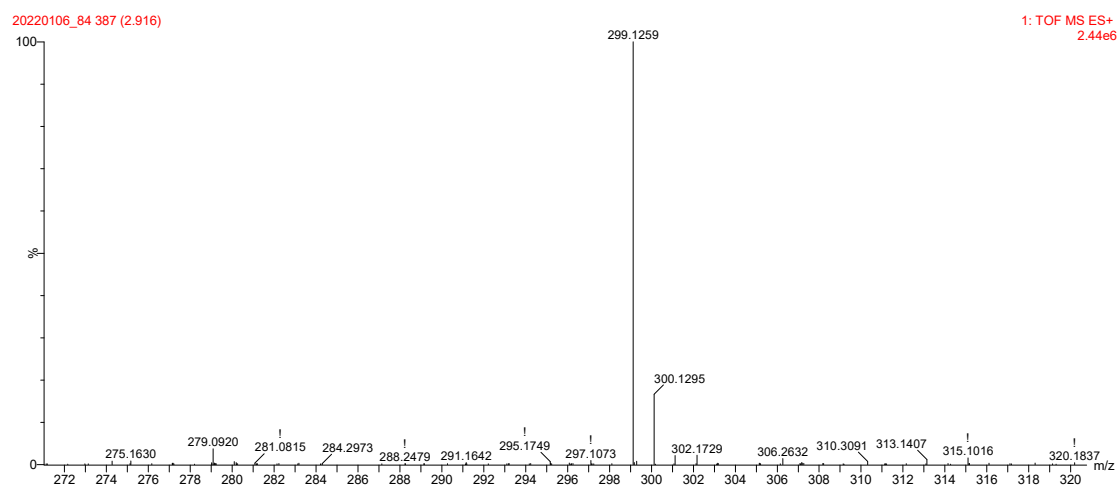


Figure S173 ESI-HRMS spectra of **5d**

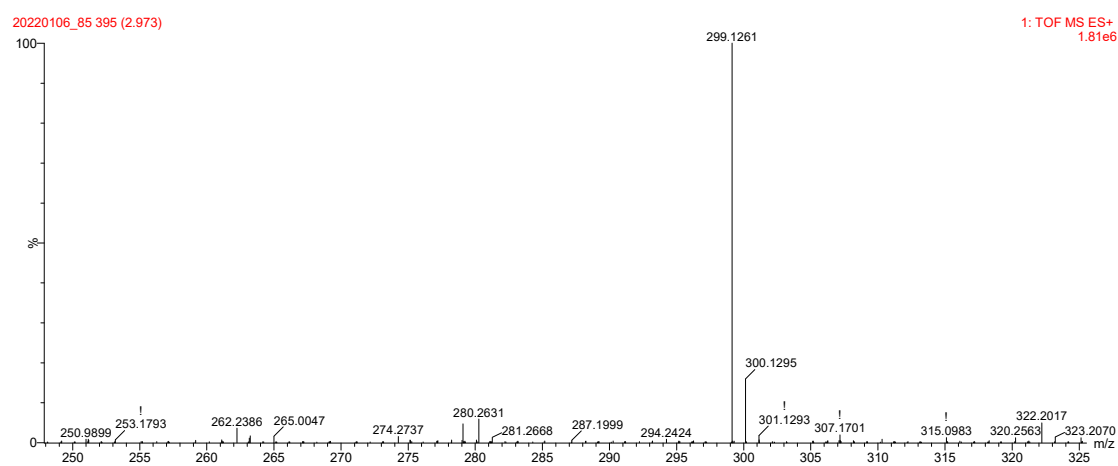


Figure S174 ESI-HRMS spectra of **5e**

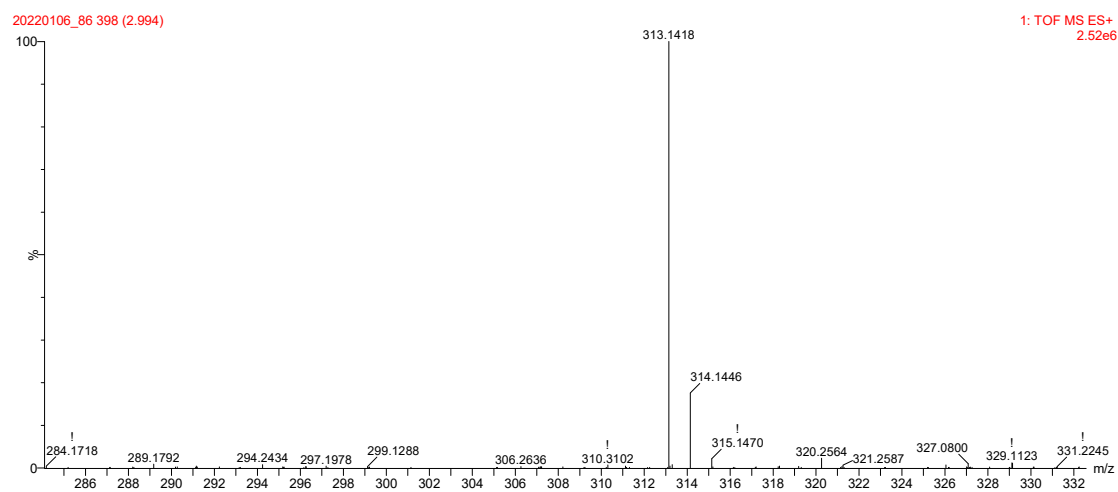
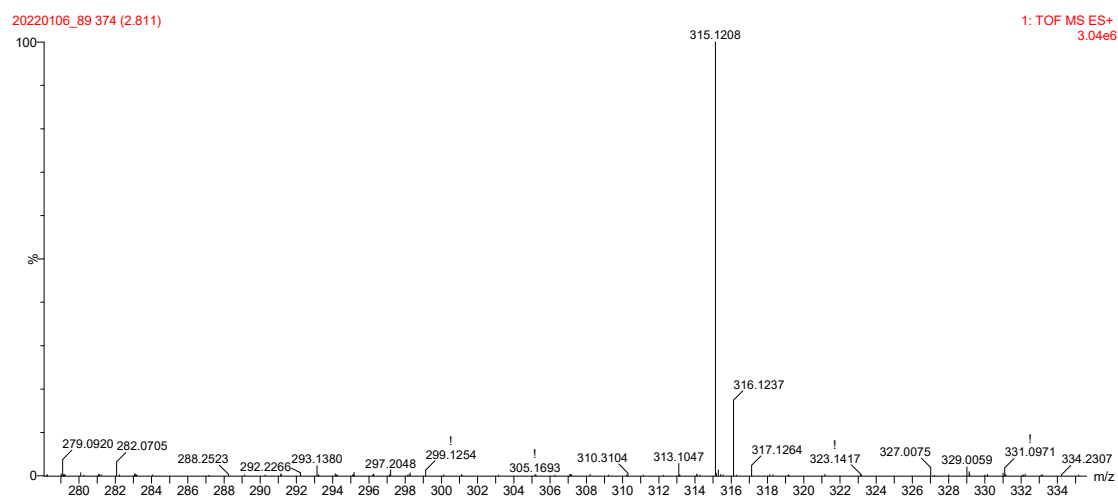
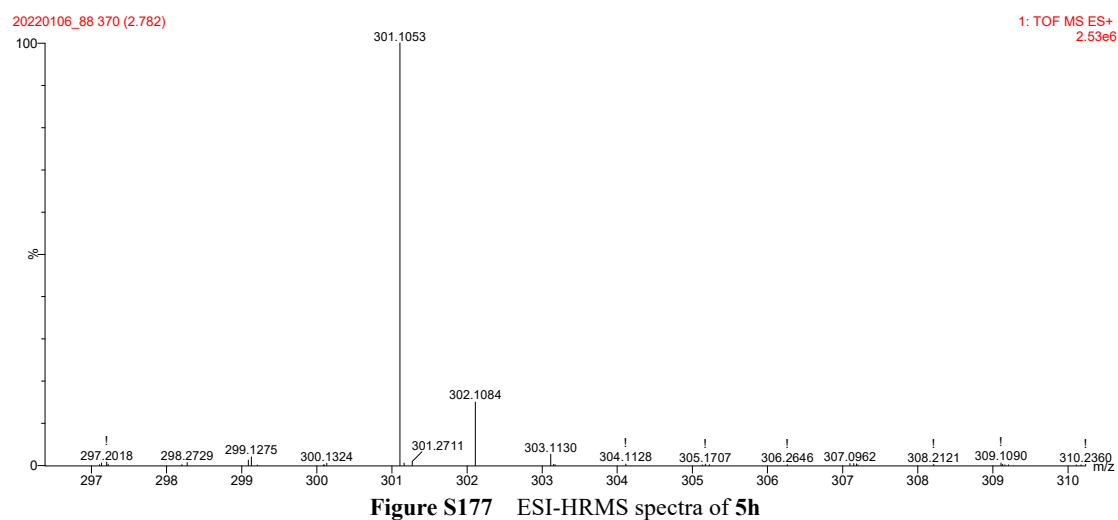
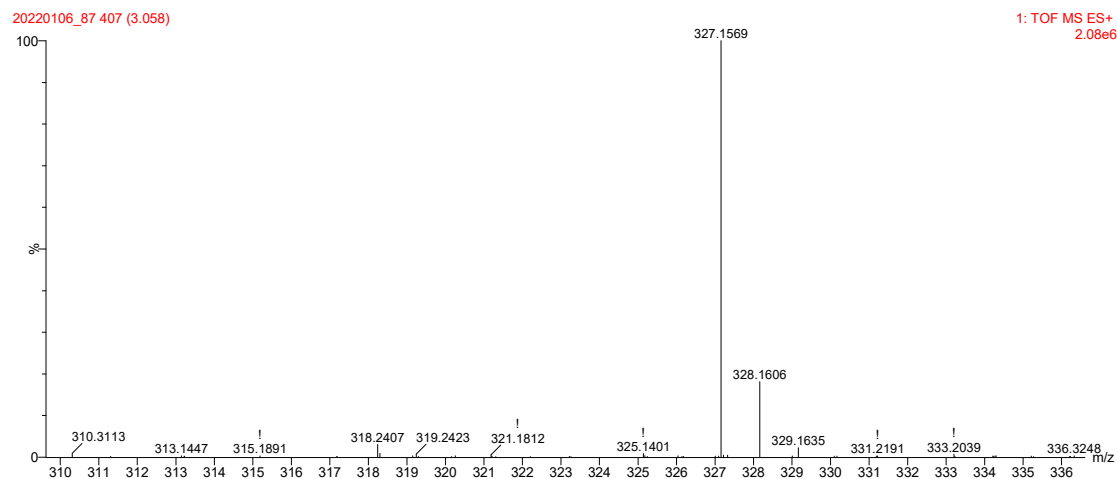
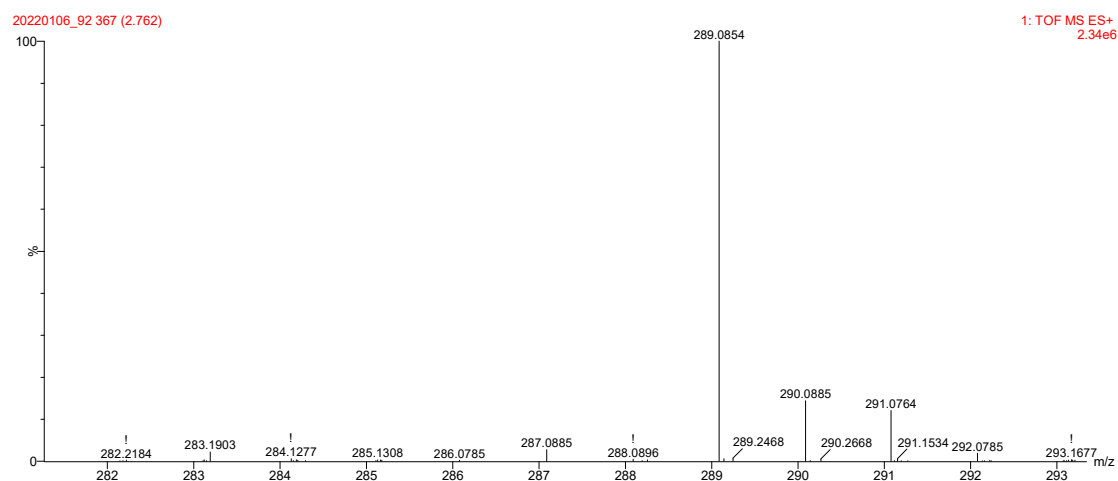
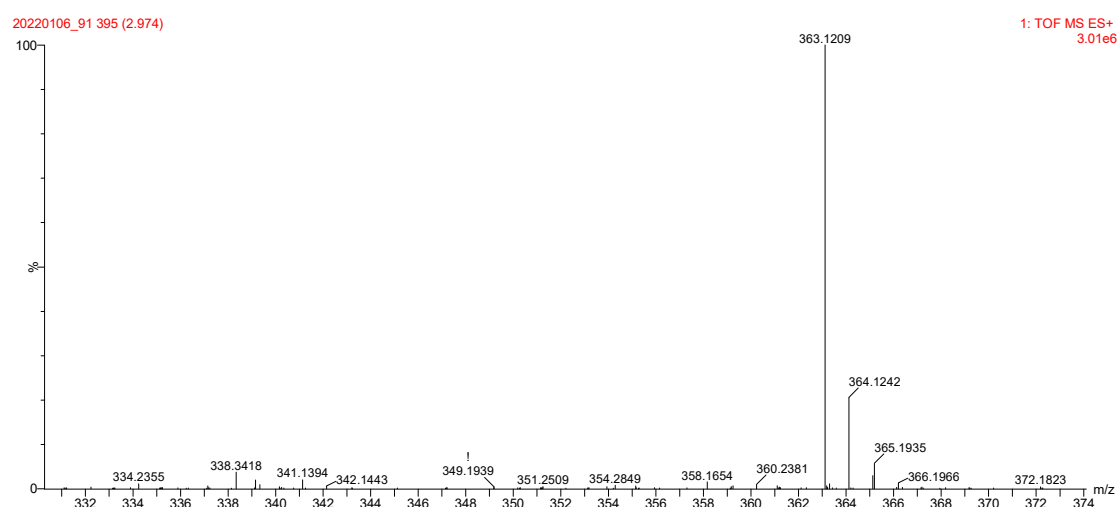
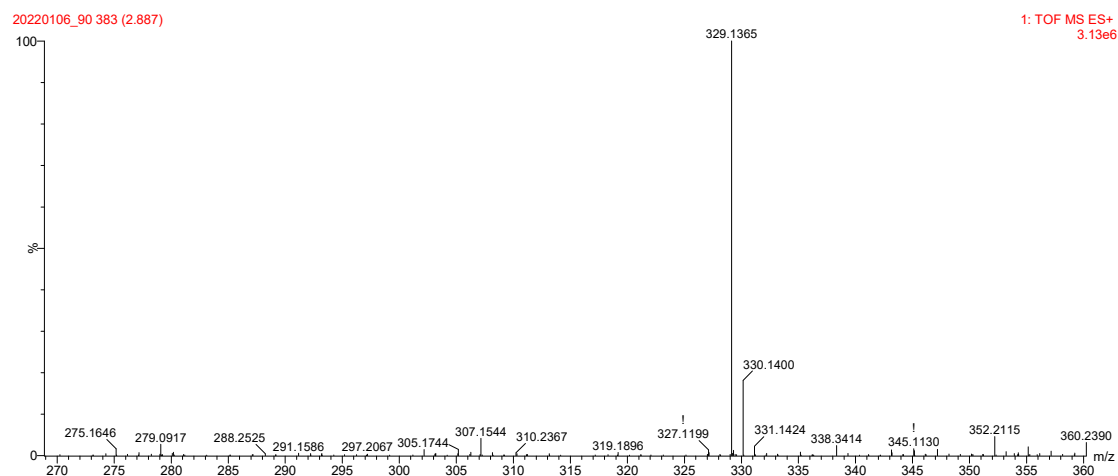


Figure S175 ESI-HRMS spectra of **5f**





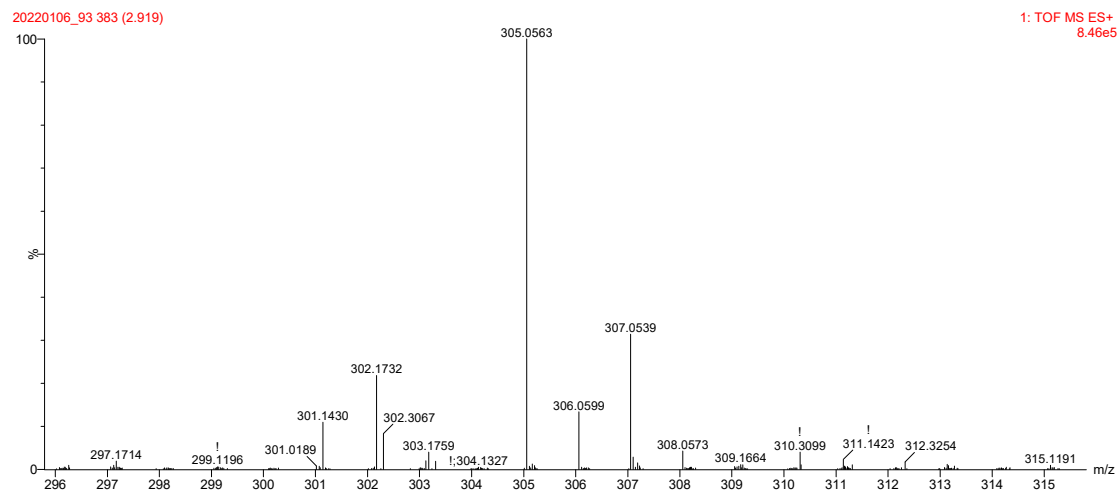


Figure S182 ESI-HRMS spectra of 5m

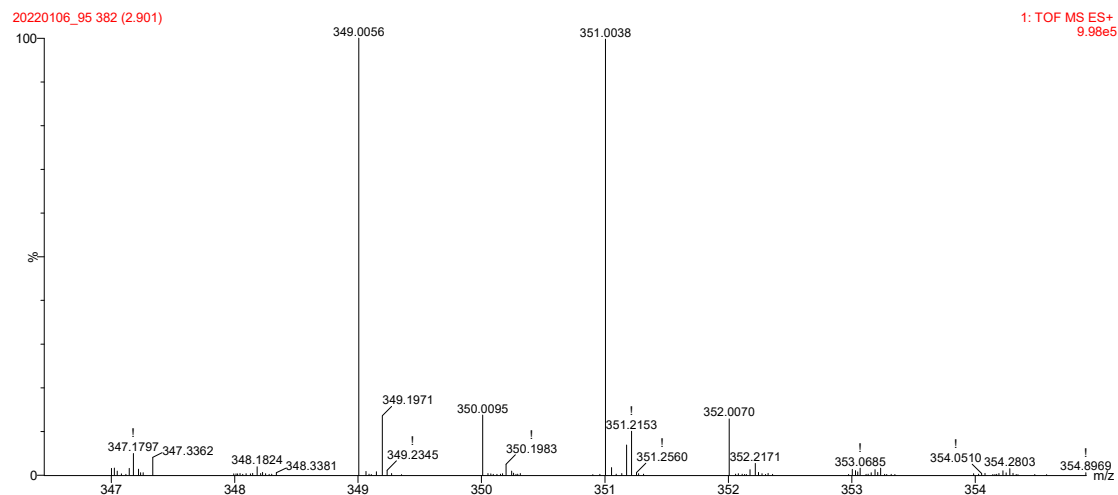


Figure S183 ESI-HRMS spectra of 5n

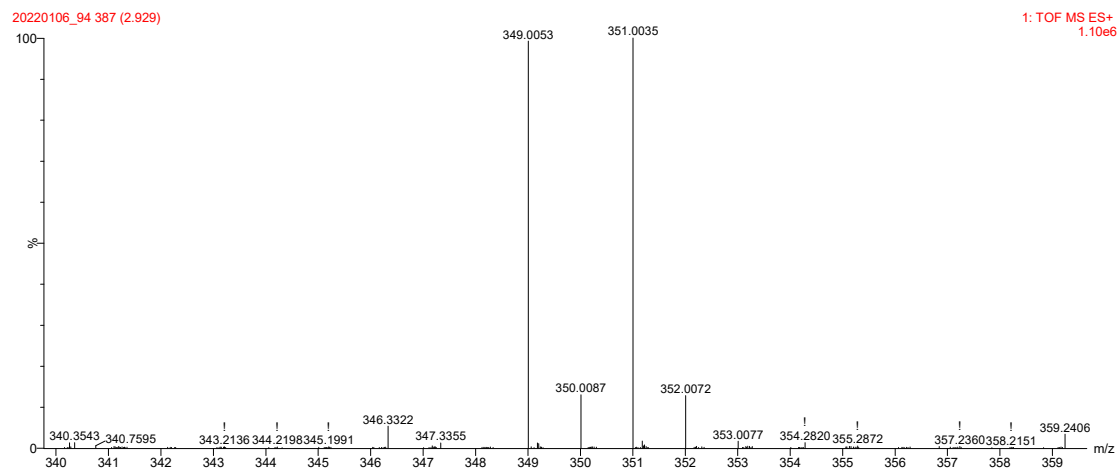


Figure S184 ESI-HRMS spectra of 5o