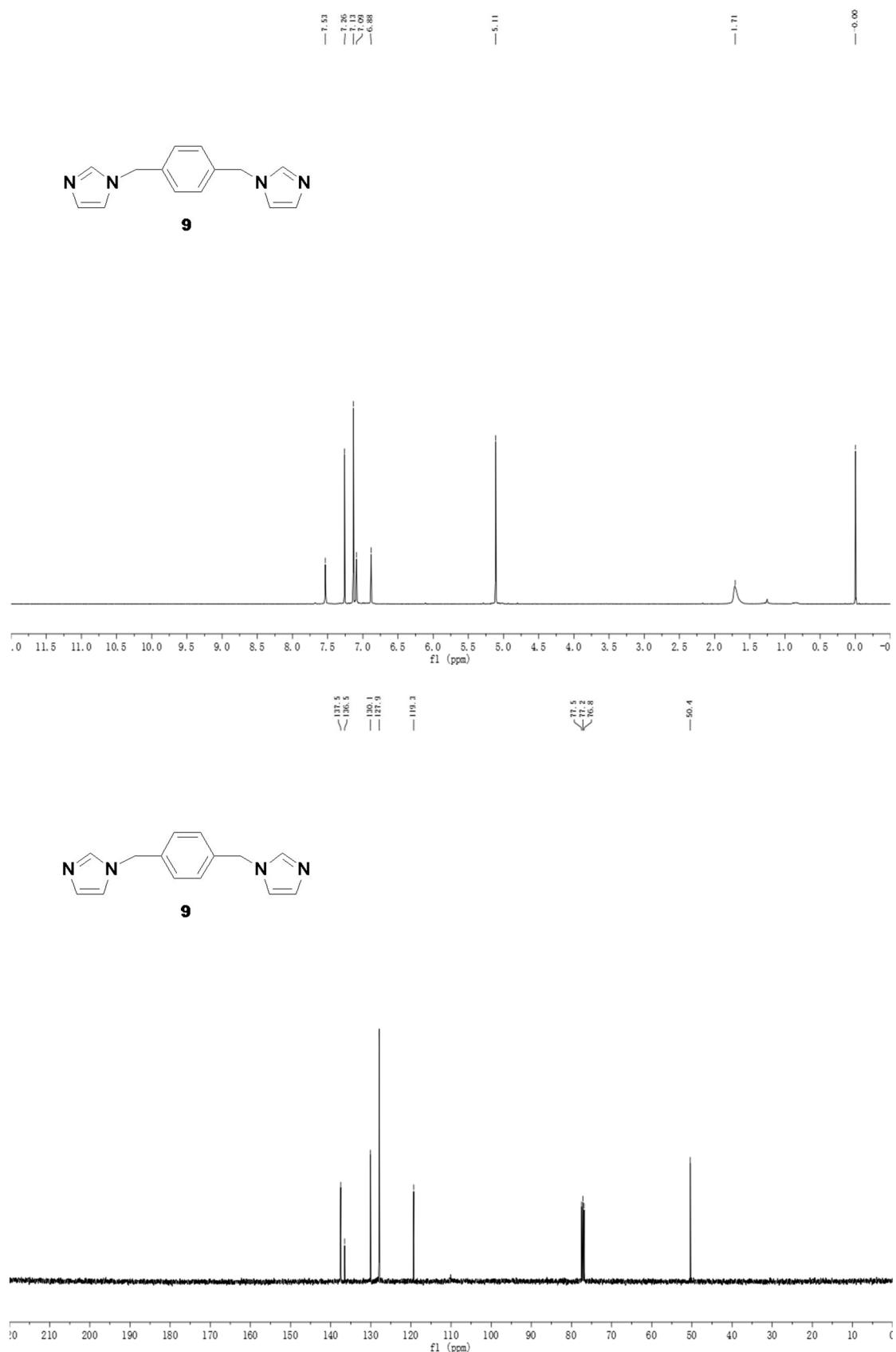


# Supplementary Materials: Self-Supported N-Heterocyclic Carbenes and Their Use as Organocatalysts

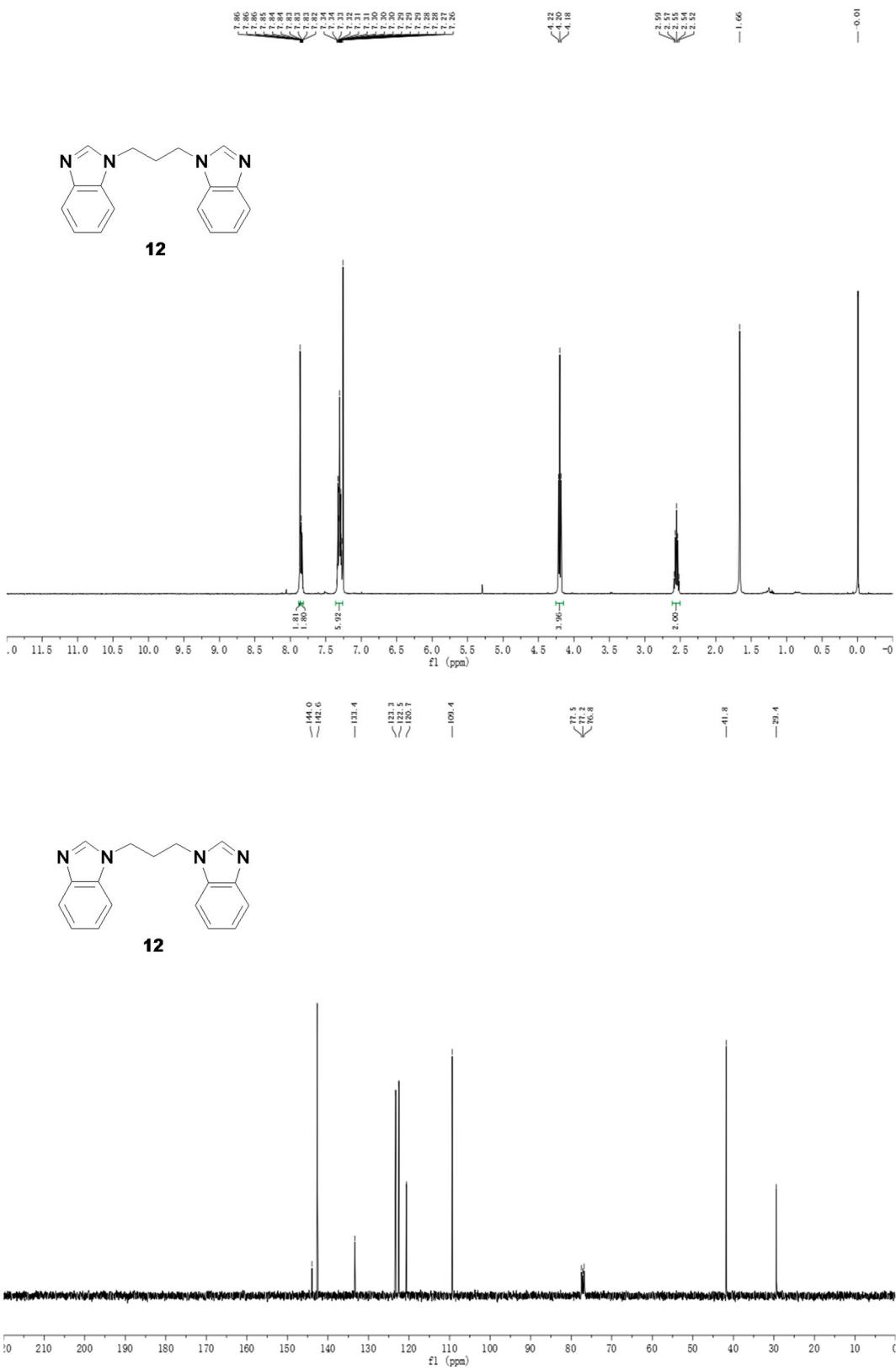
Shuang Ma and Patrick H. Toy

## Contents

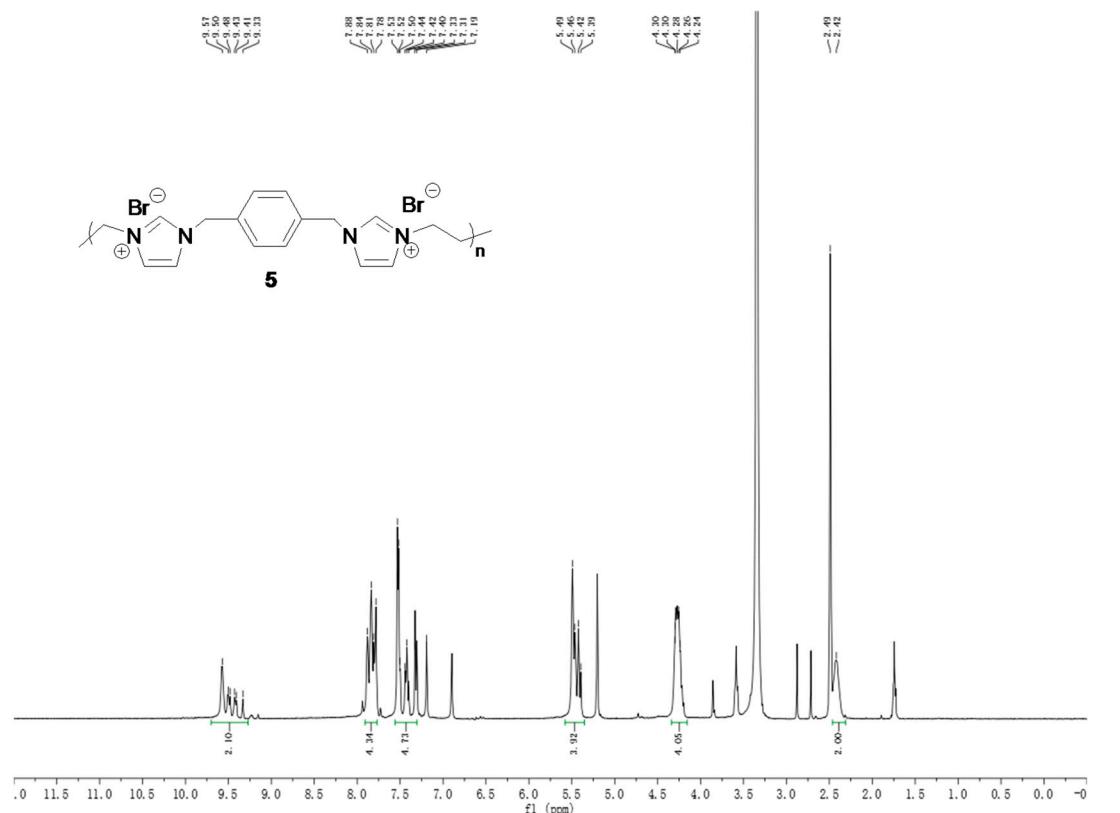
NMR Spectra of NHC precursors .....	S2
NMR Spectra of benzoin condensation reaction products .....	S6
NMR Spectra of redox esterification reaction products .....	S12



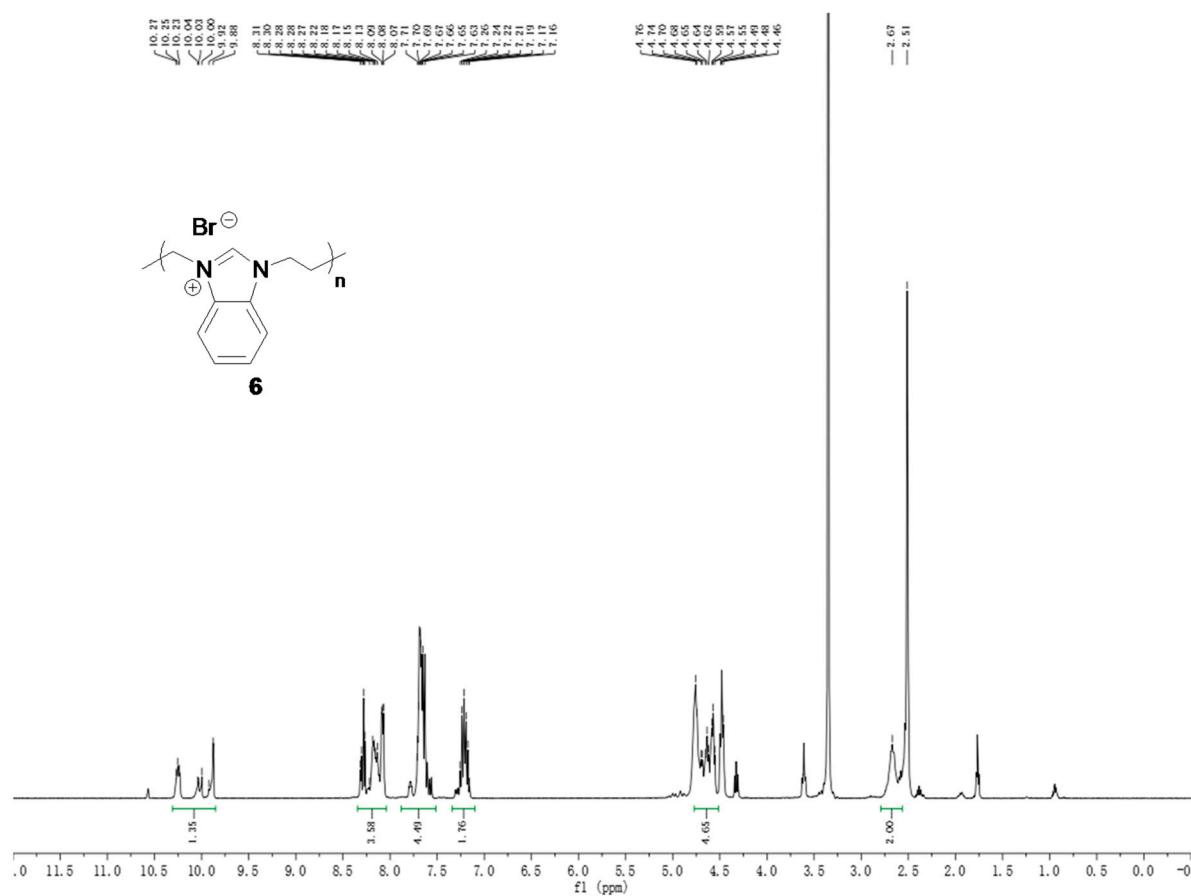
**Figure S1.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for 9.



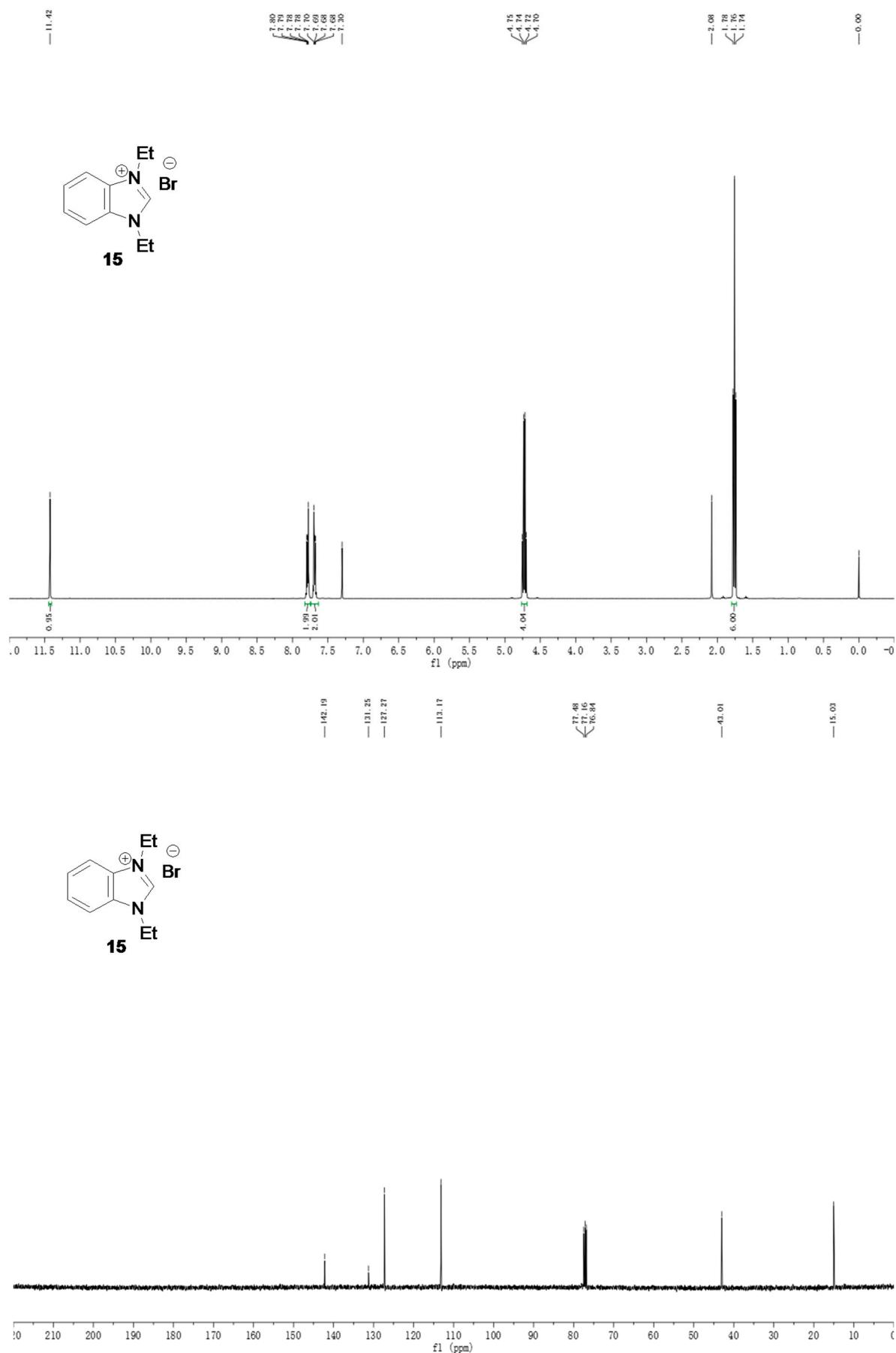
**Figure S2.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **12**.

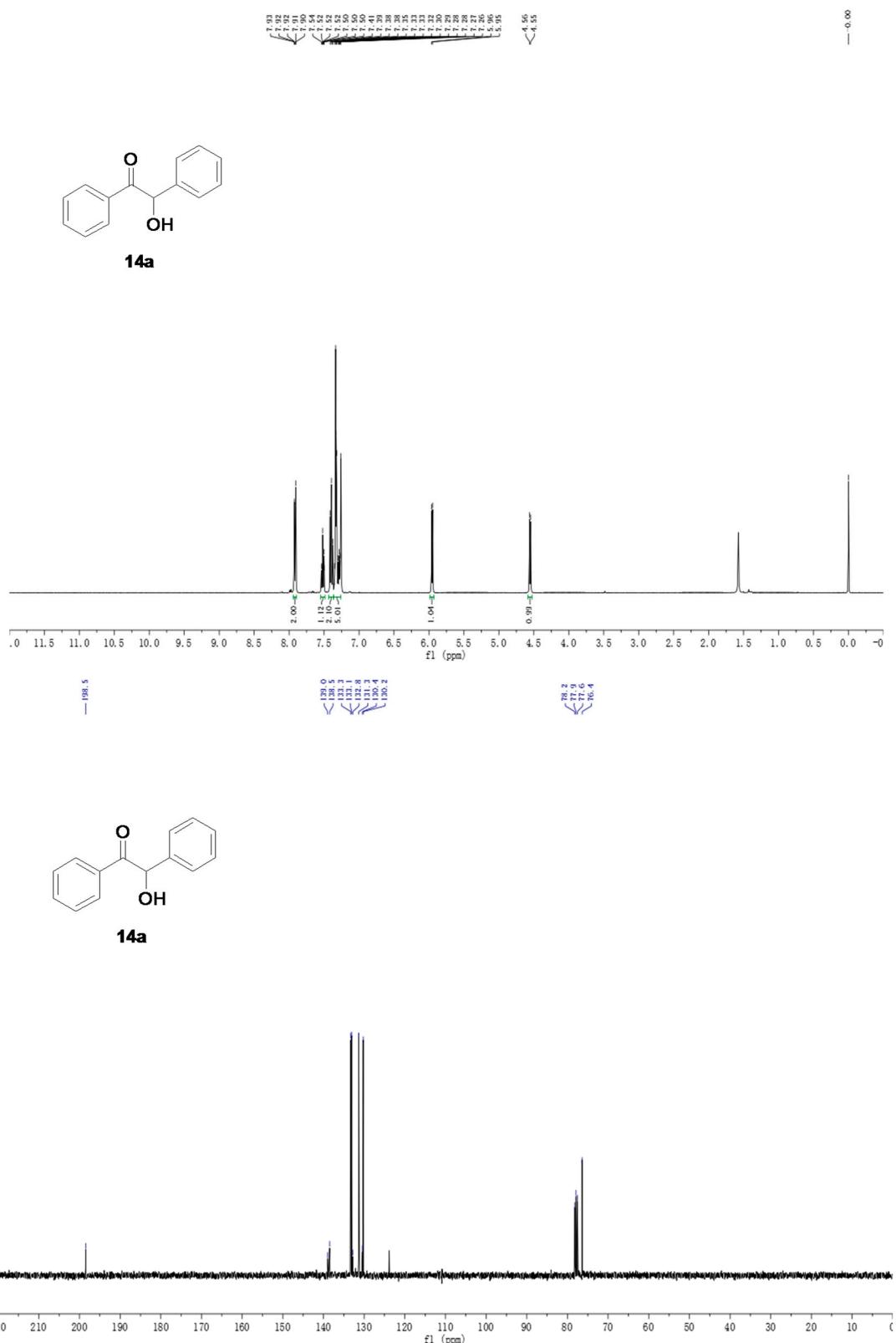


**Figure S3.**  $^1\text{H}$ -NMR spectrum for 5.

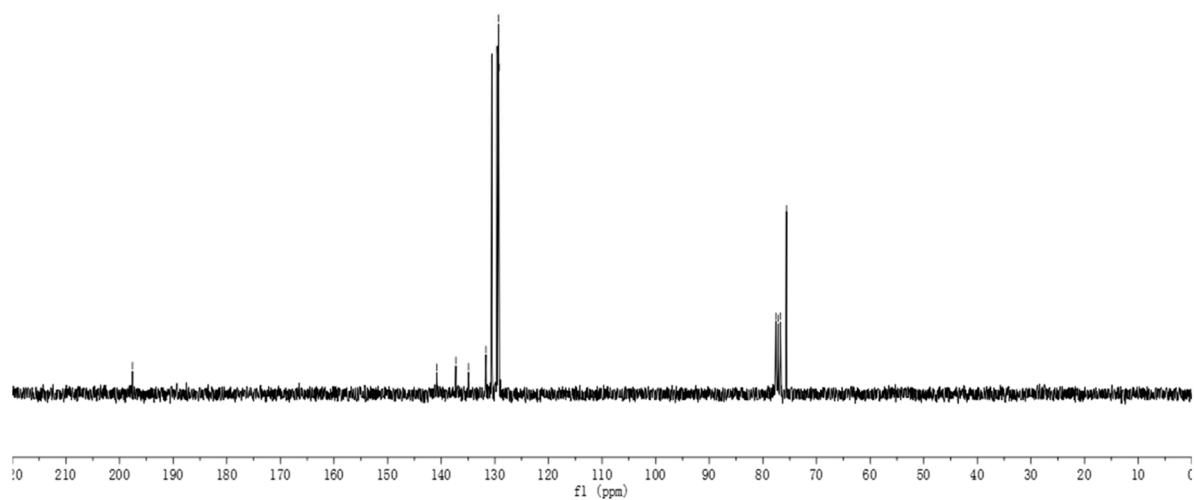
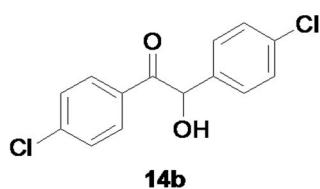
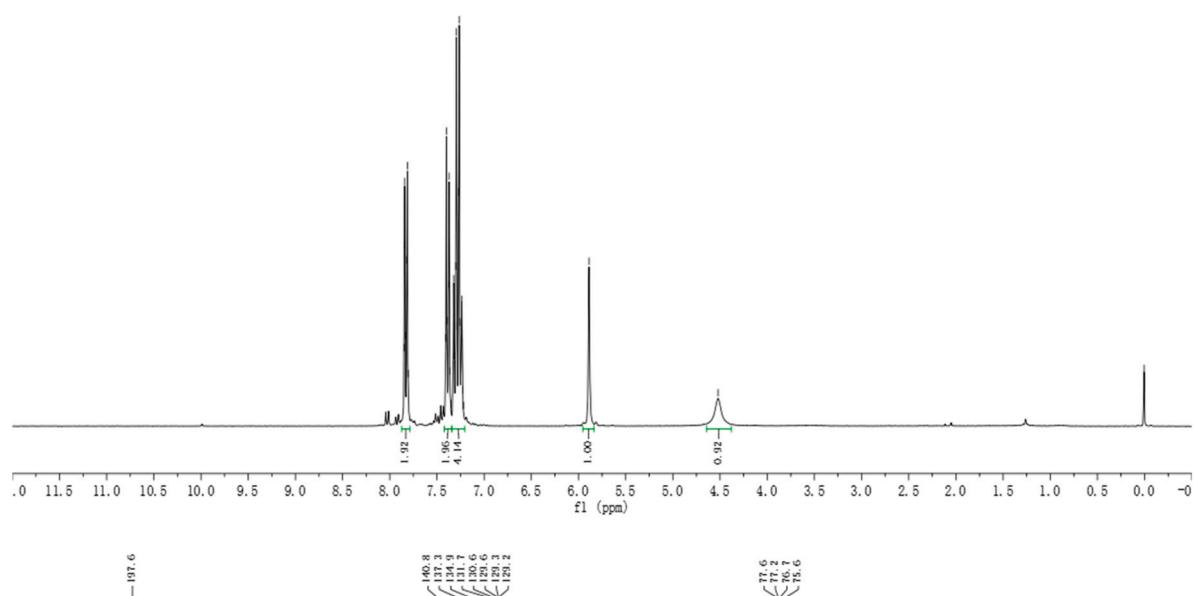
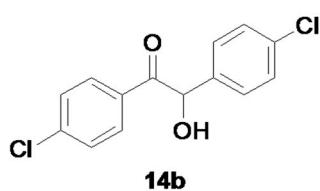


**Figure S4.**  $^1\text{H}$ -NMR spectrum for 6.

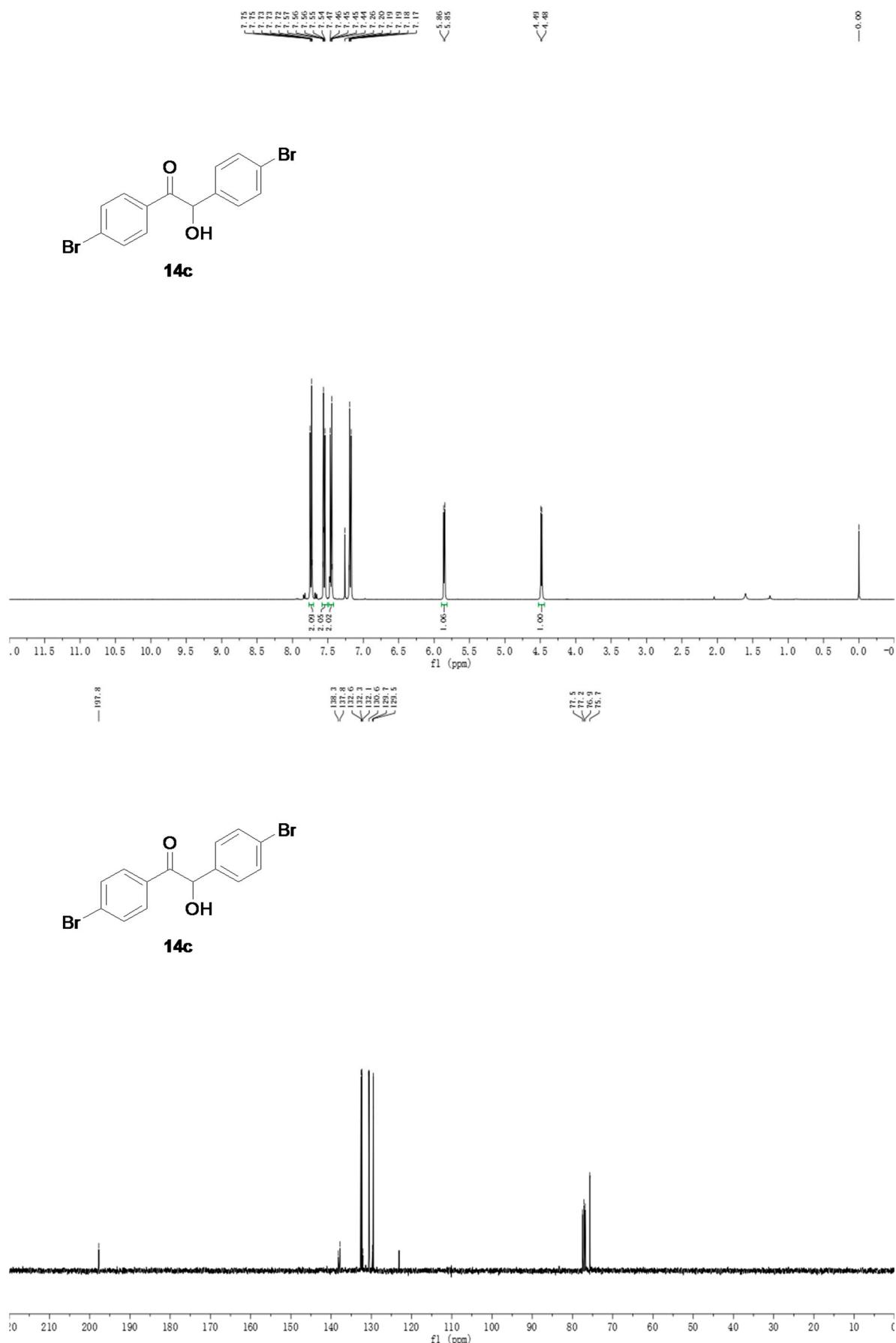
**Figure S5.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for **15**.

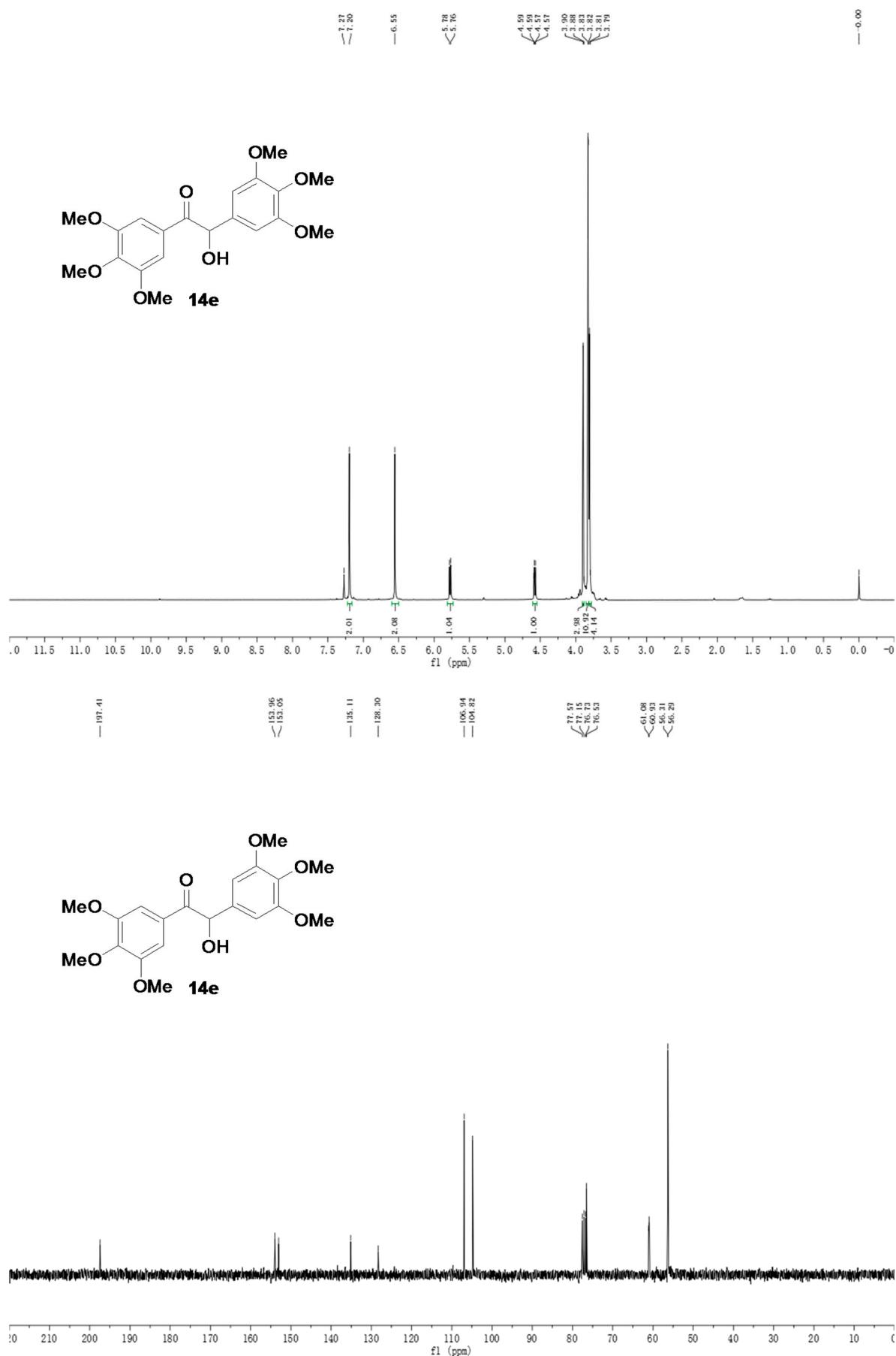


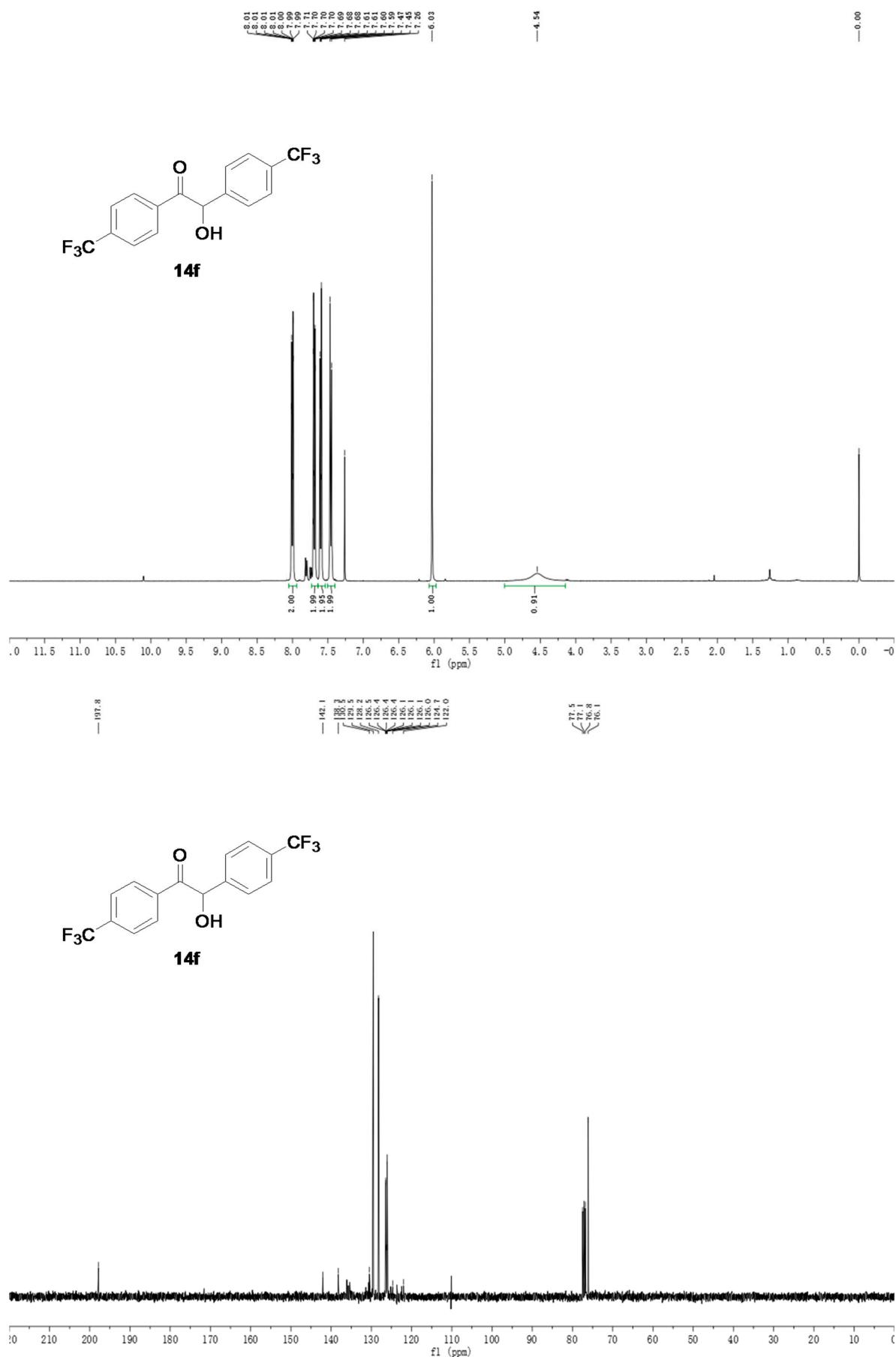
**Figure S6.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for **14a**.

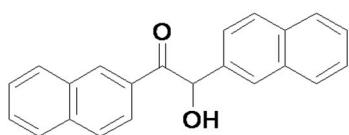


**Figure S7.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **14b**.

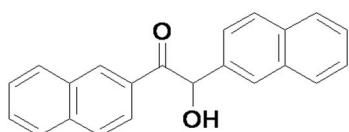
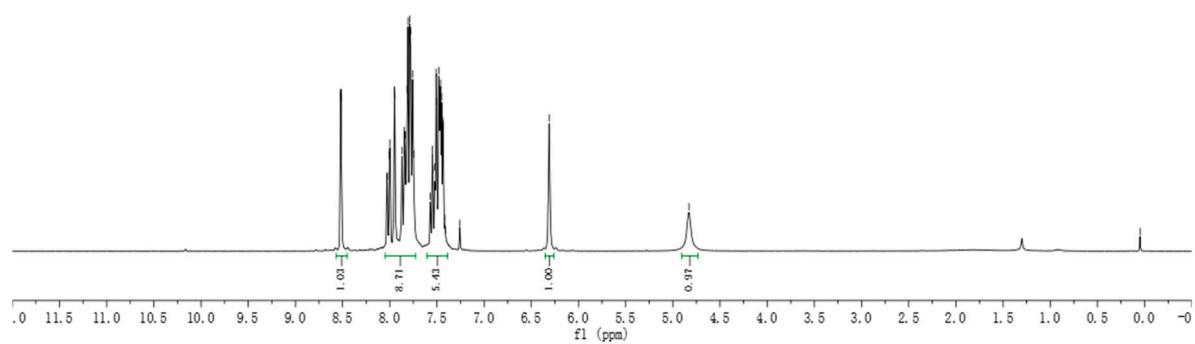
**Figure S8.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **14c**.

**Figure S9.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **1e**.

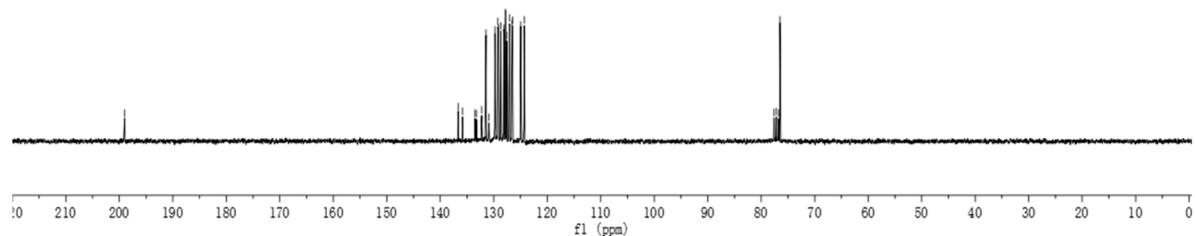
**Figure S10.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **14f**.



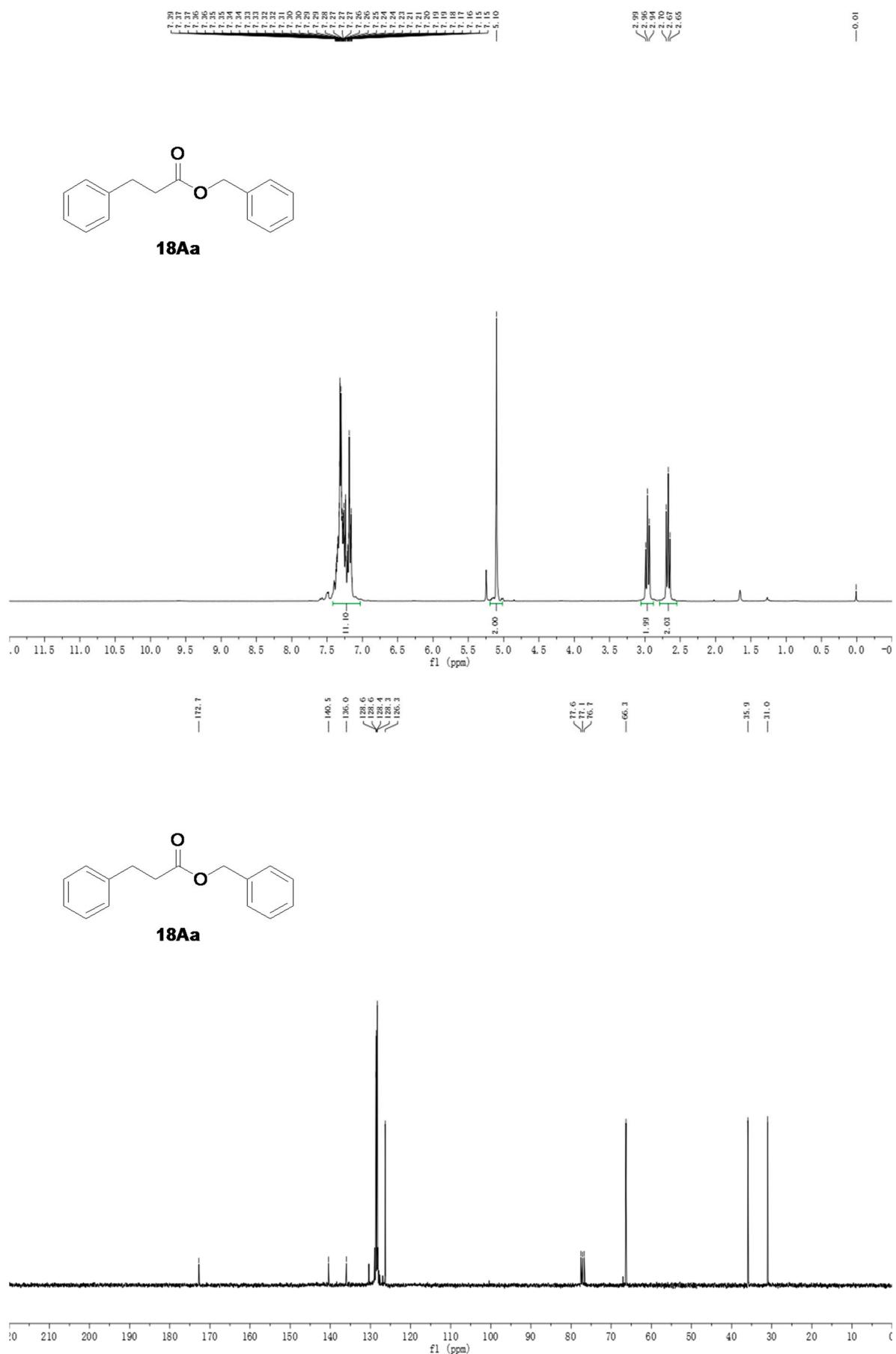
14g



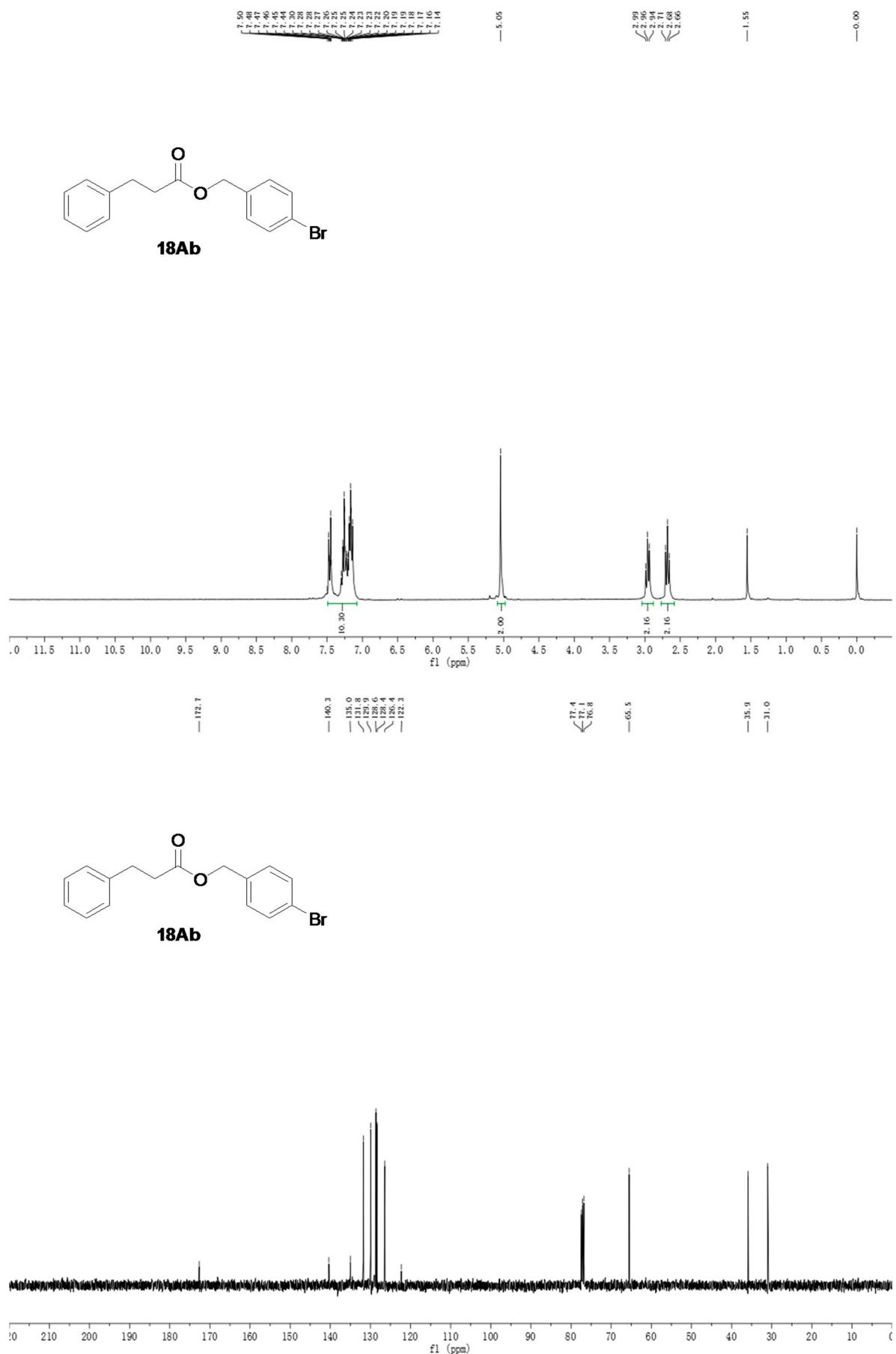
14g

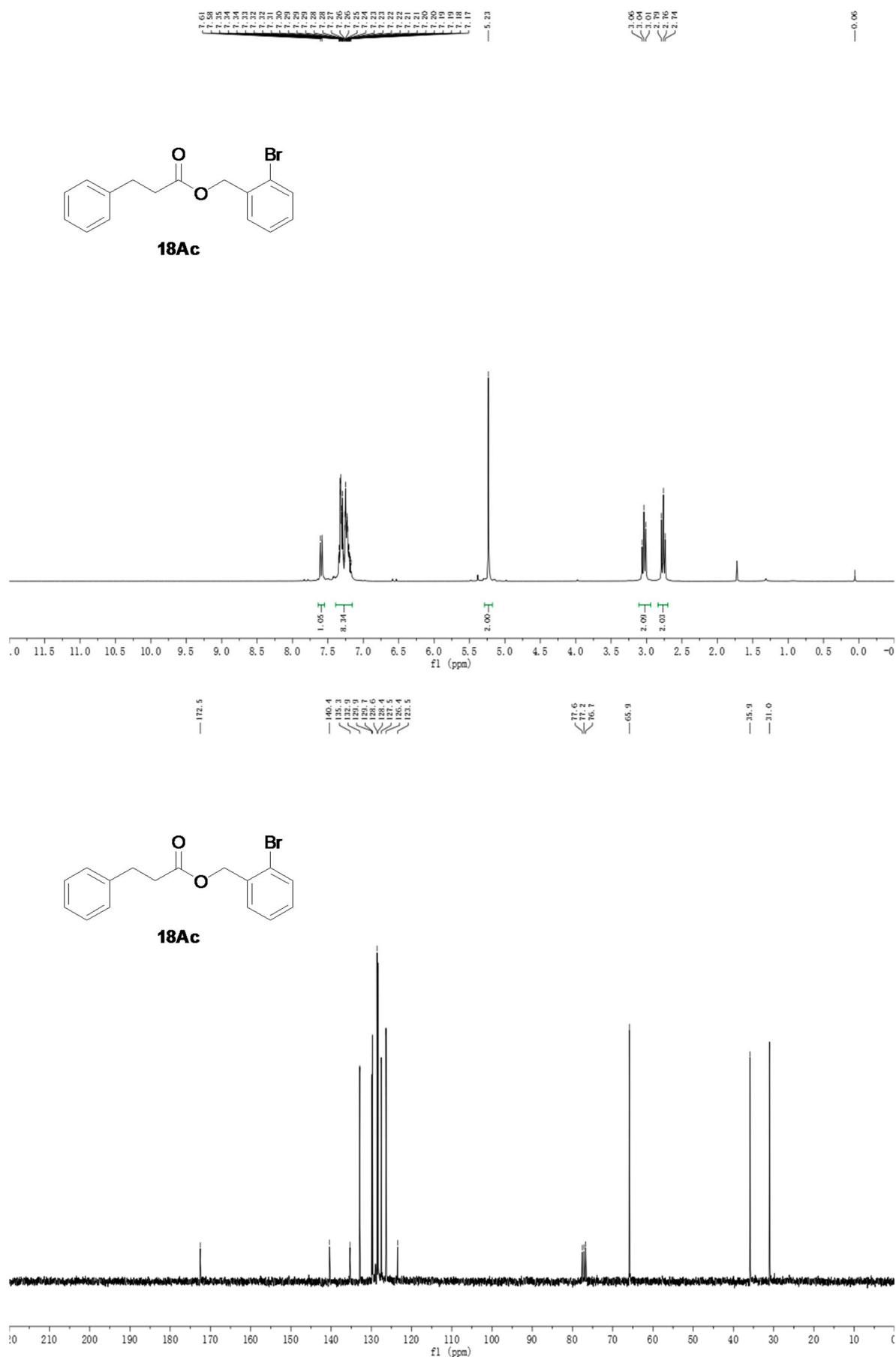


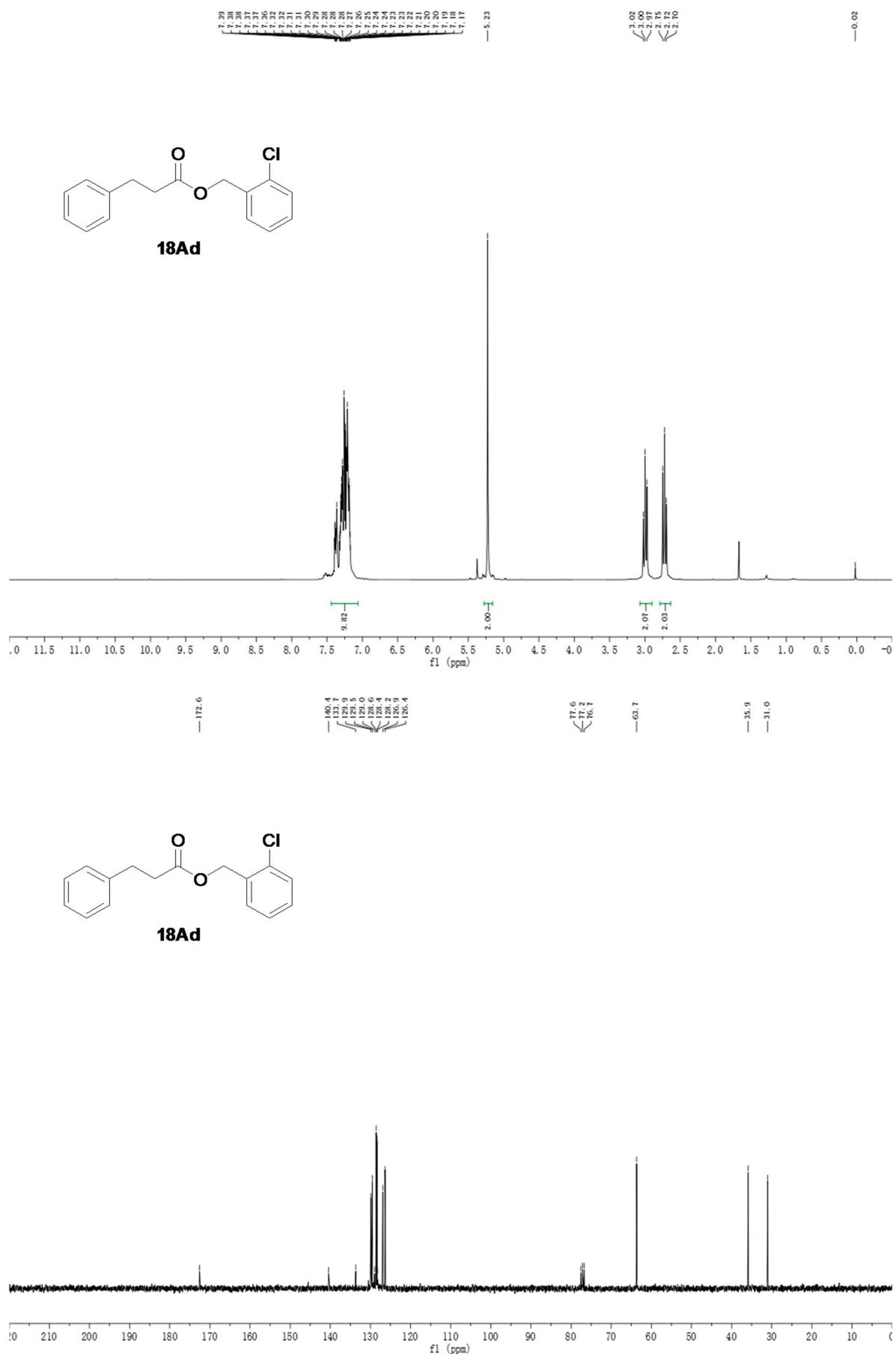
**Figure S11.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **14g**.



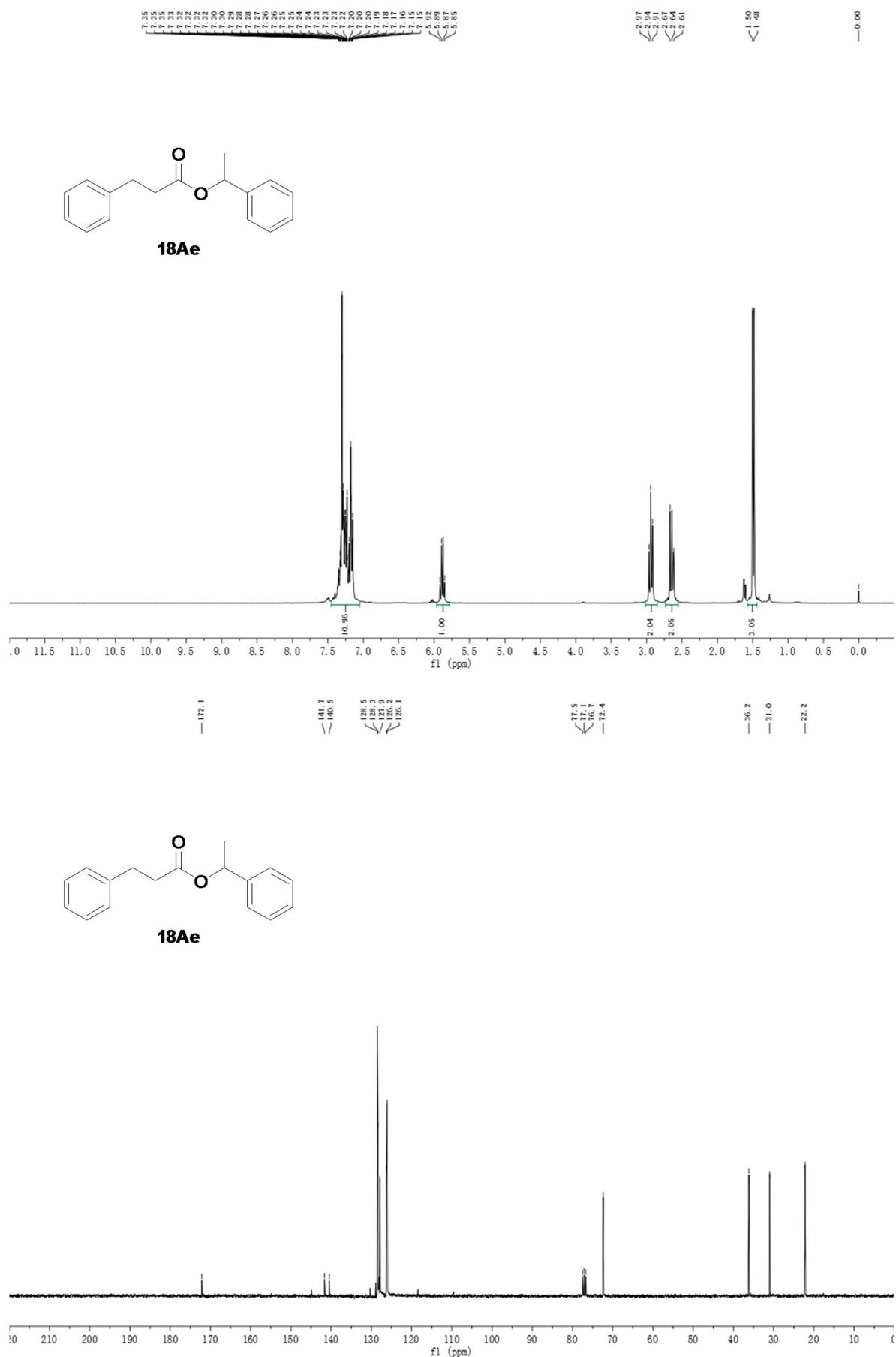
**Figure S12.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Aa**.

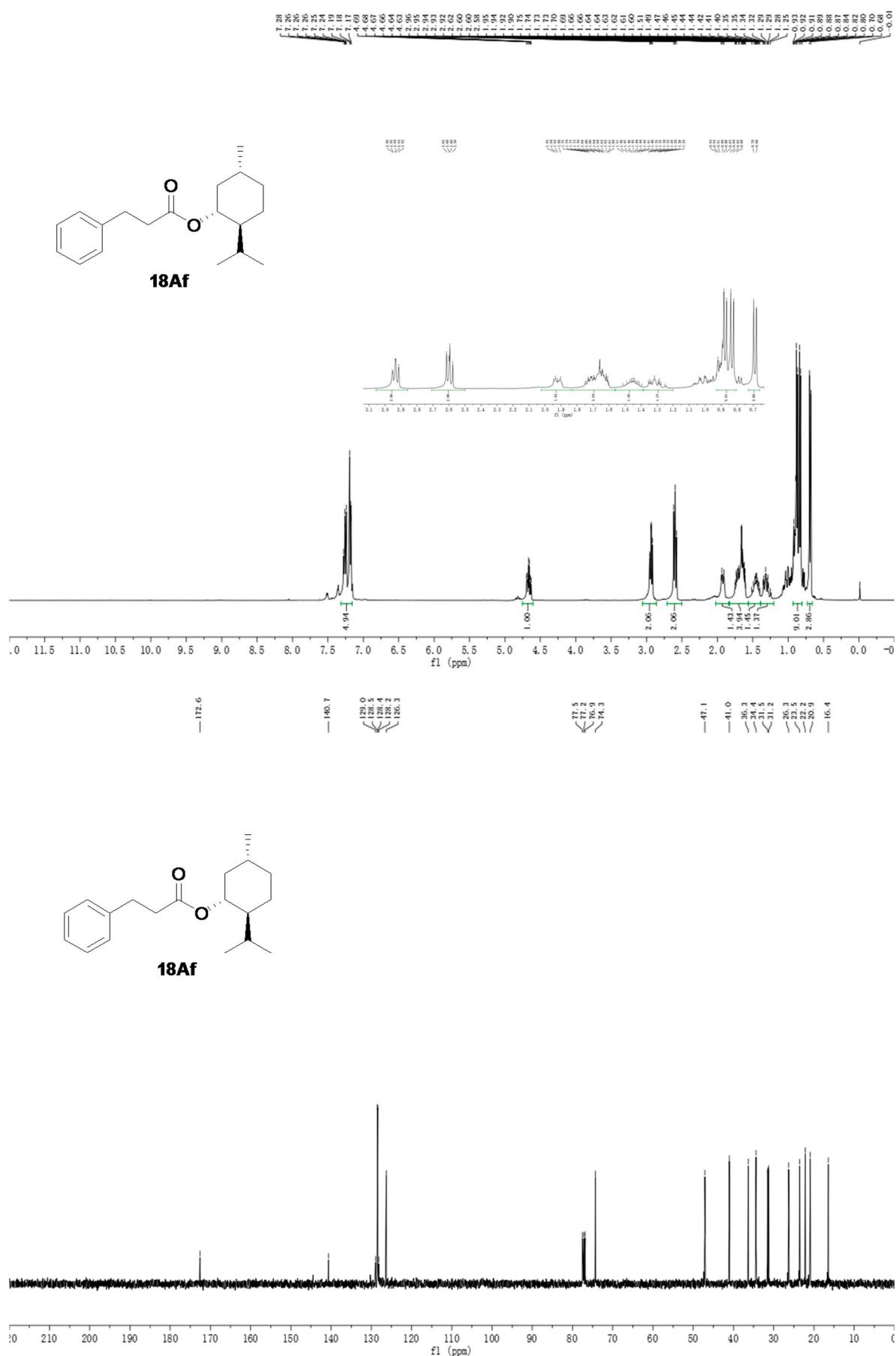
**Figure S13.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for 18Ab.

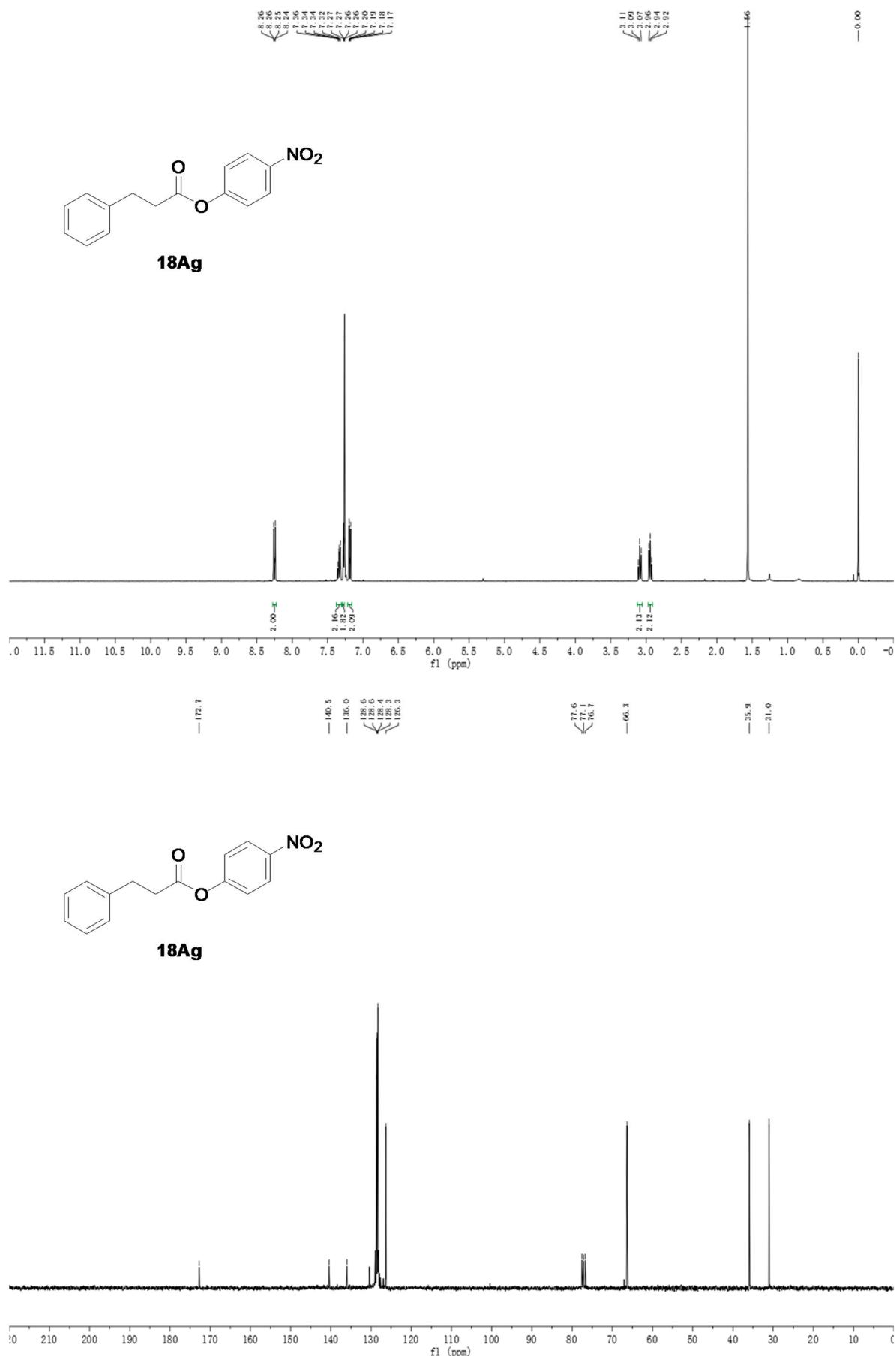
**Figure S14.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Ac**.

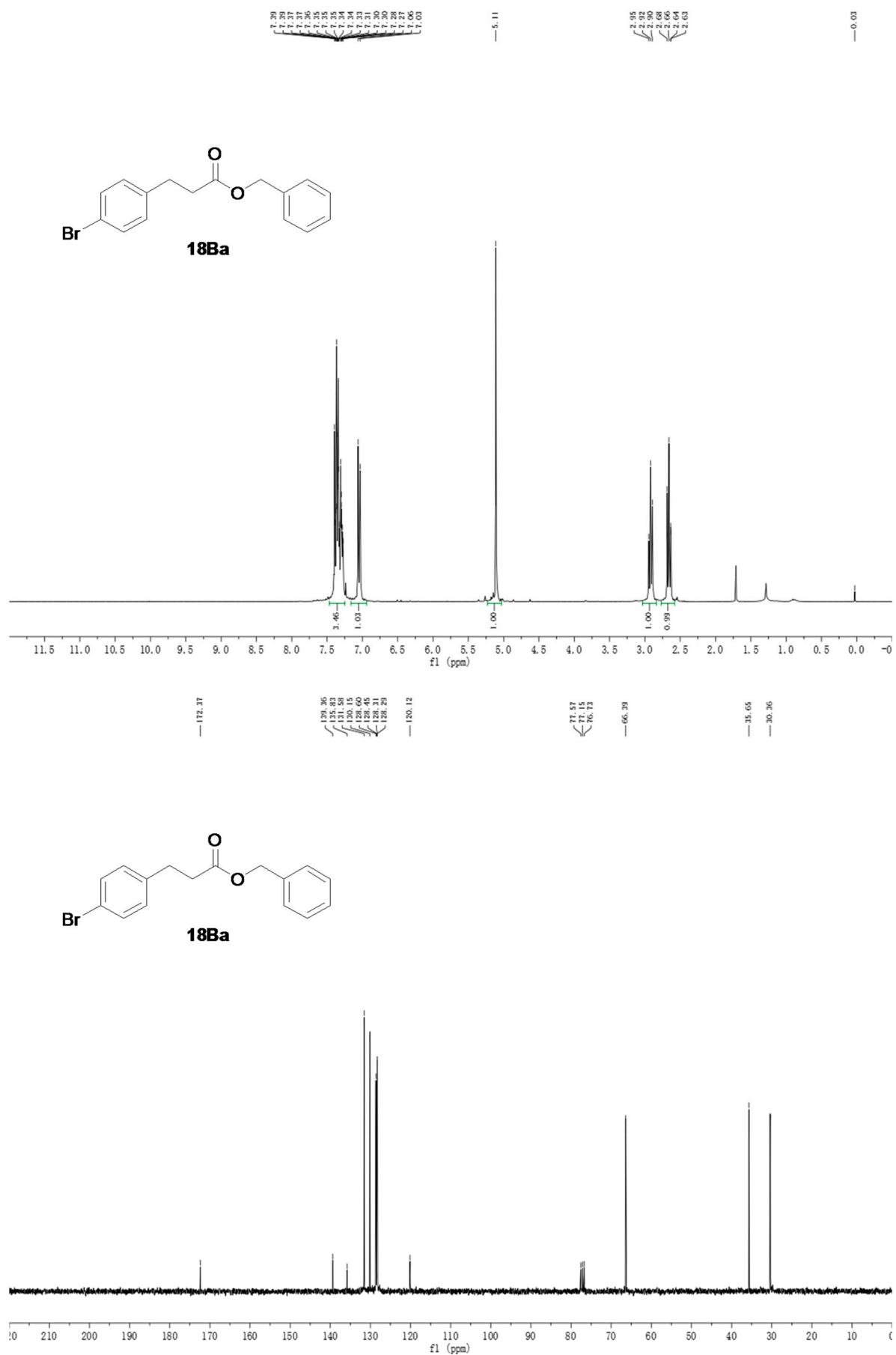


**Figure S15.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Ad**.

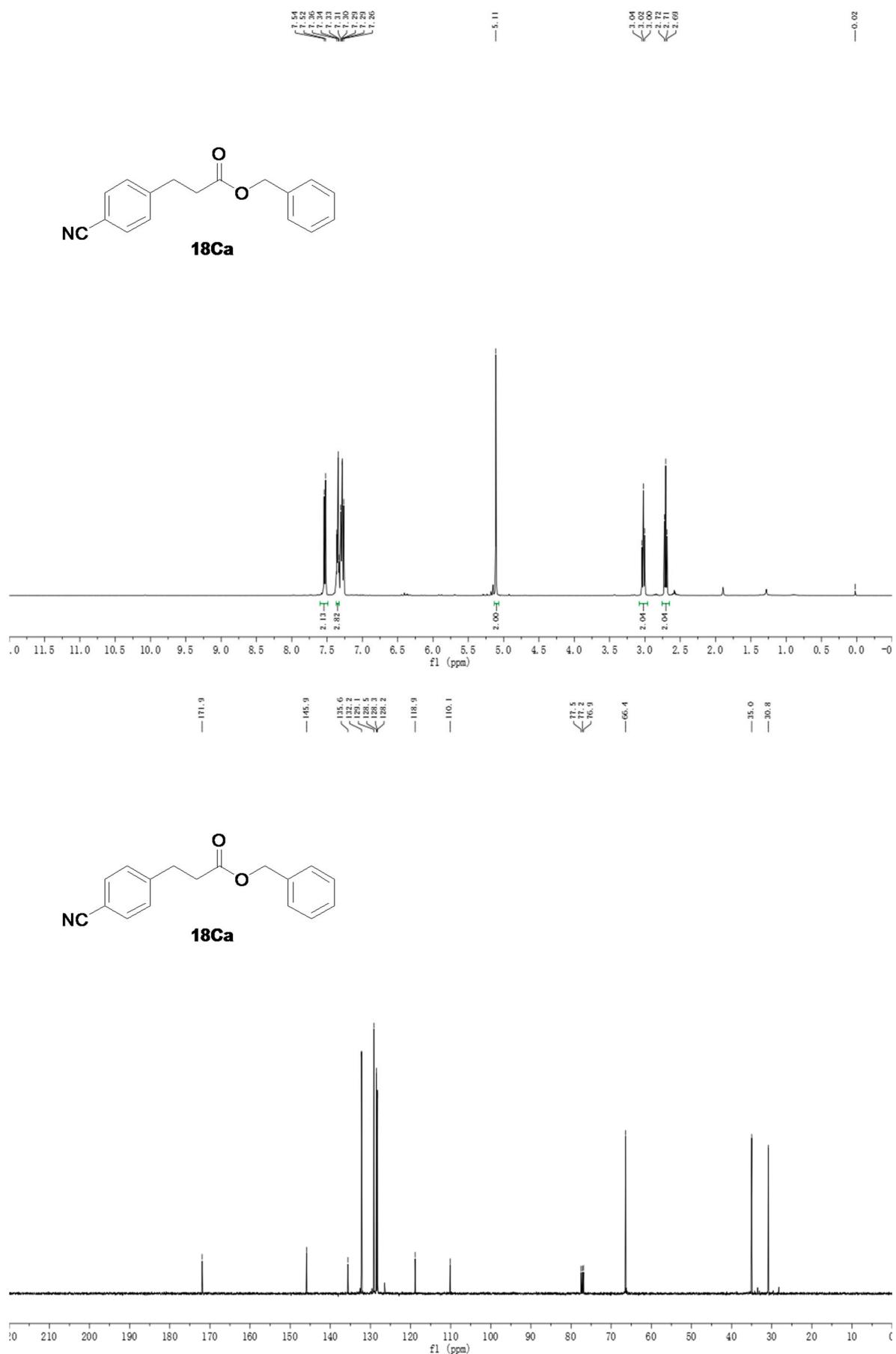
**Figure S16.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Ae**.

**Figure S17.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for 18Af.

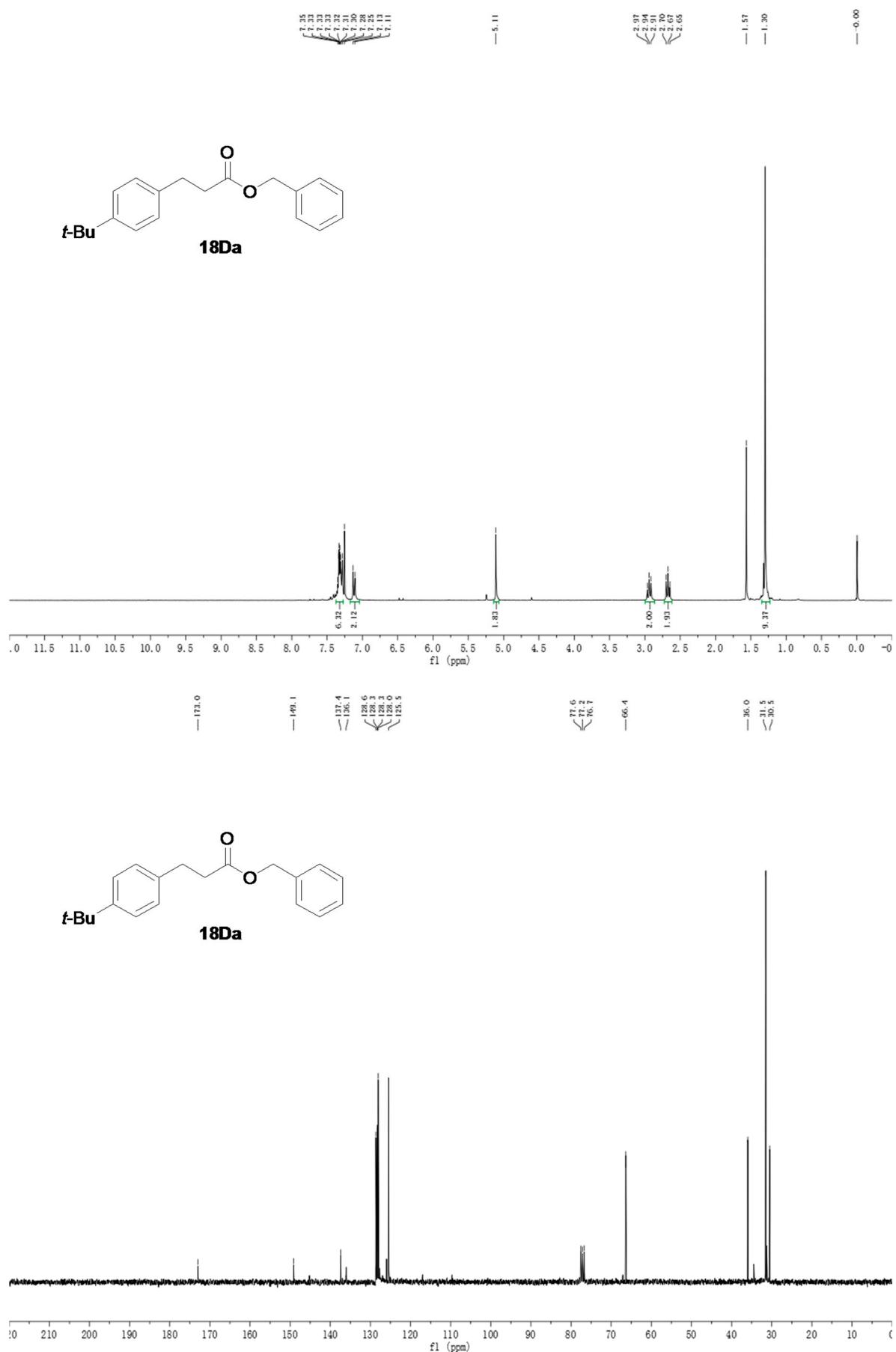
**Figure S18.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for **18Ag**.

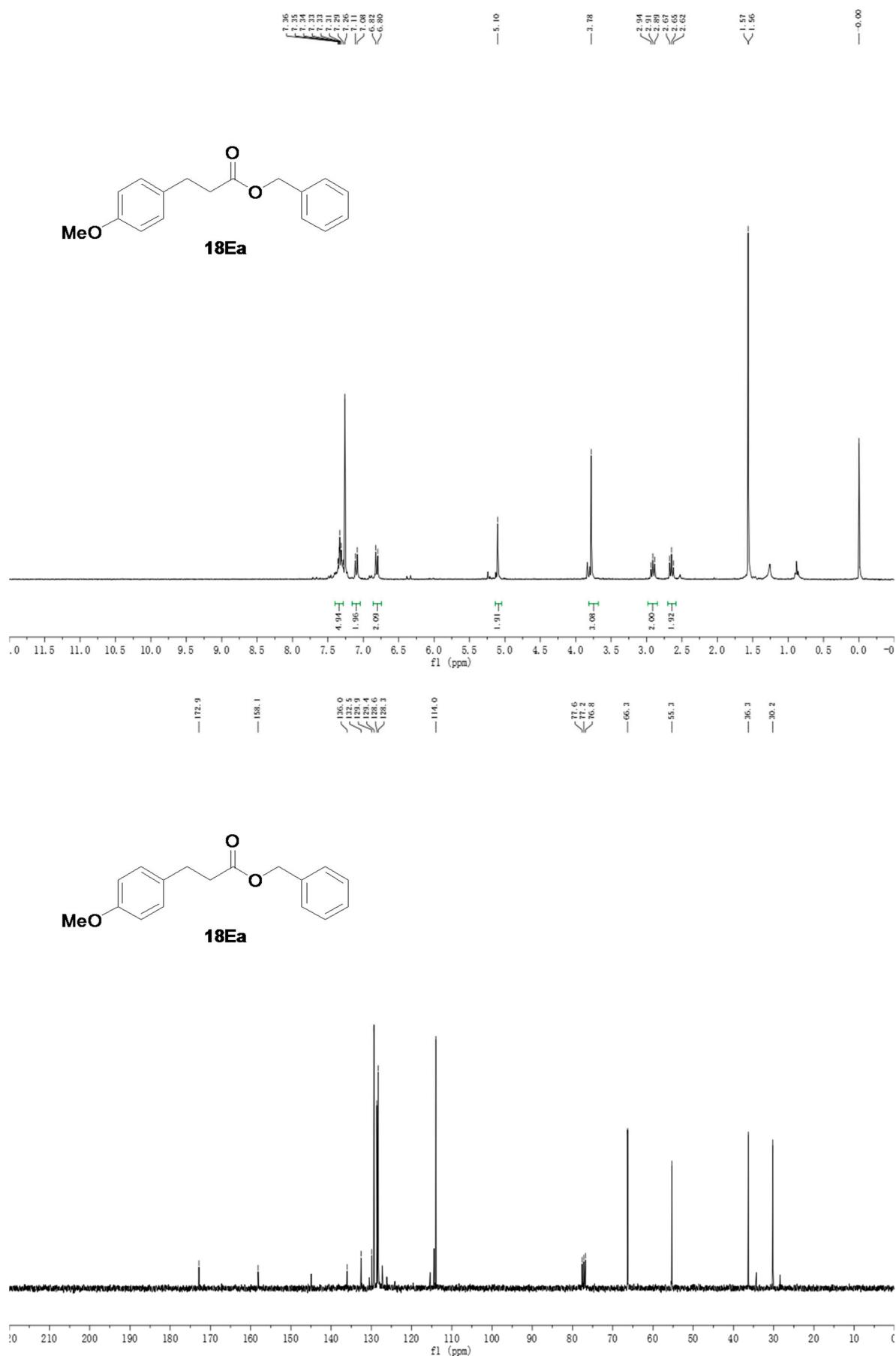


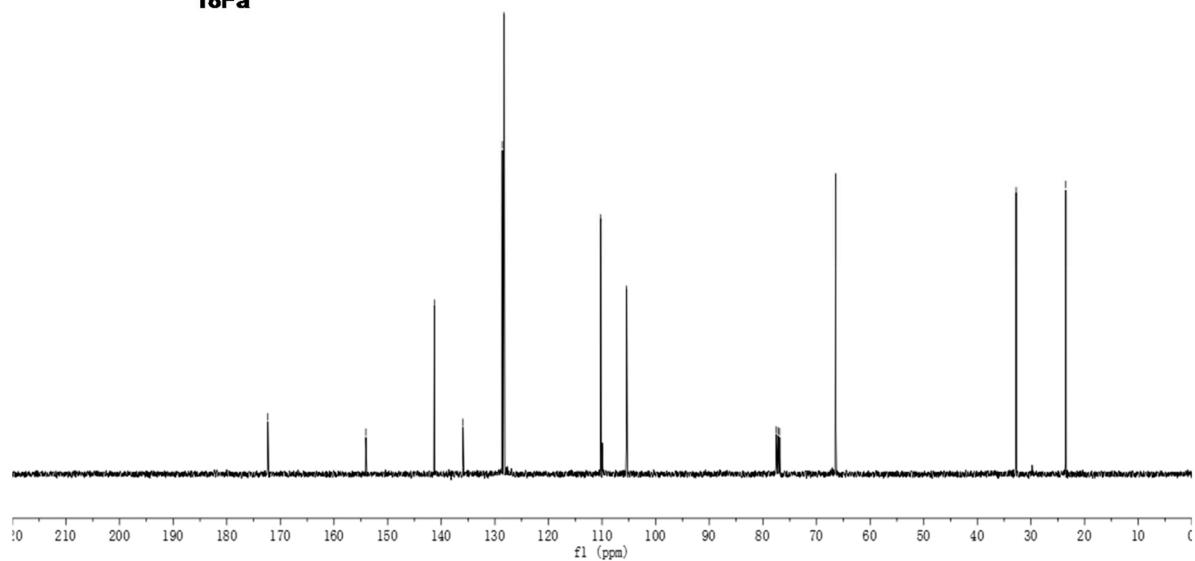
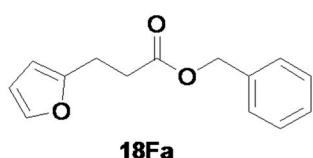
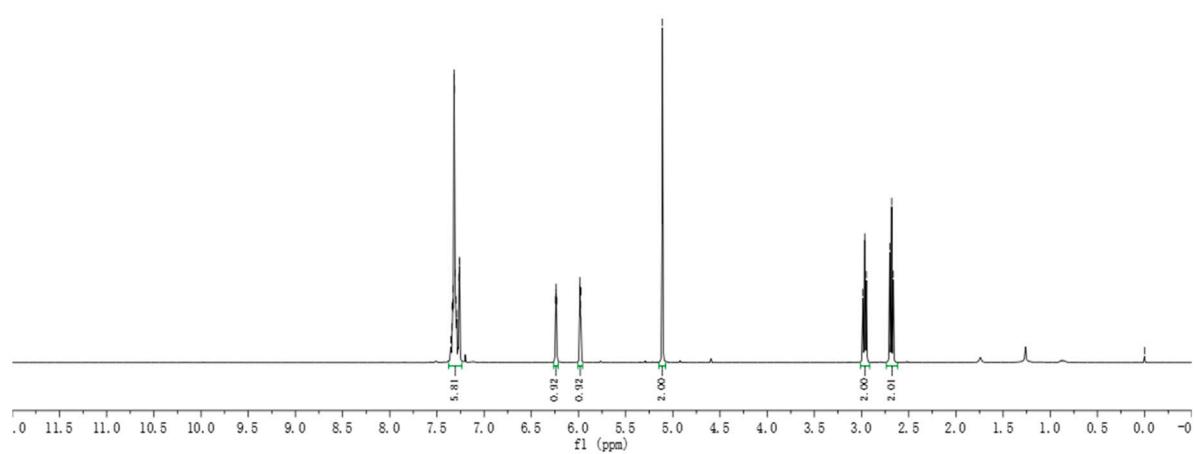
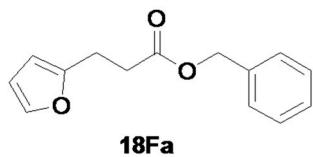
**Figure S19.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Ba**.



**Figure S20.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for **18Ca**.

**Figure S21.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Da**.

**Figure S22.** <sup>1</sup>H- and <sup>13</sup>C-NMR spectra for **18Ea**.



**Figure S23.**  $^1\text{H}$ - and  $^{13}\text{C}$ -NMR spectra for **18Fa**.