

## Supporting Information

### Stereoselective Synthesis of Bicyclo[6.1.0]nonene Precursors of the Bioorthogonal Reagents sTCO and BCN

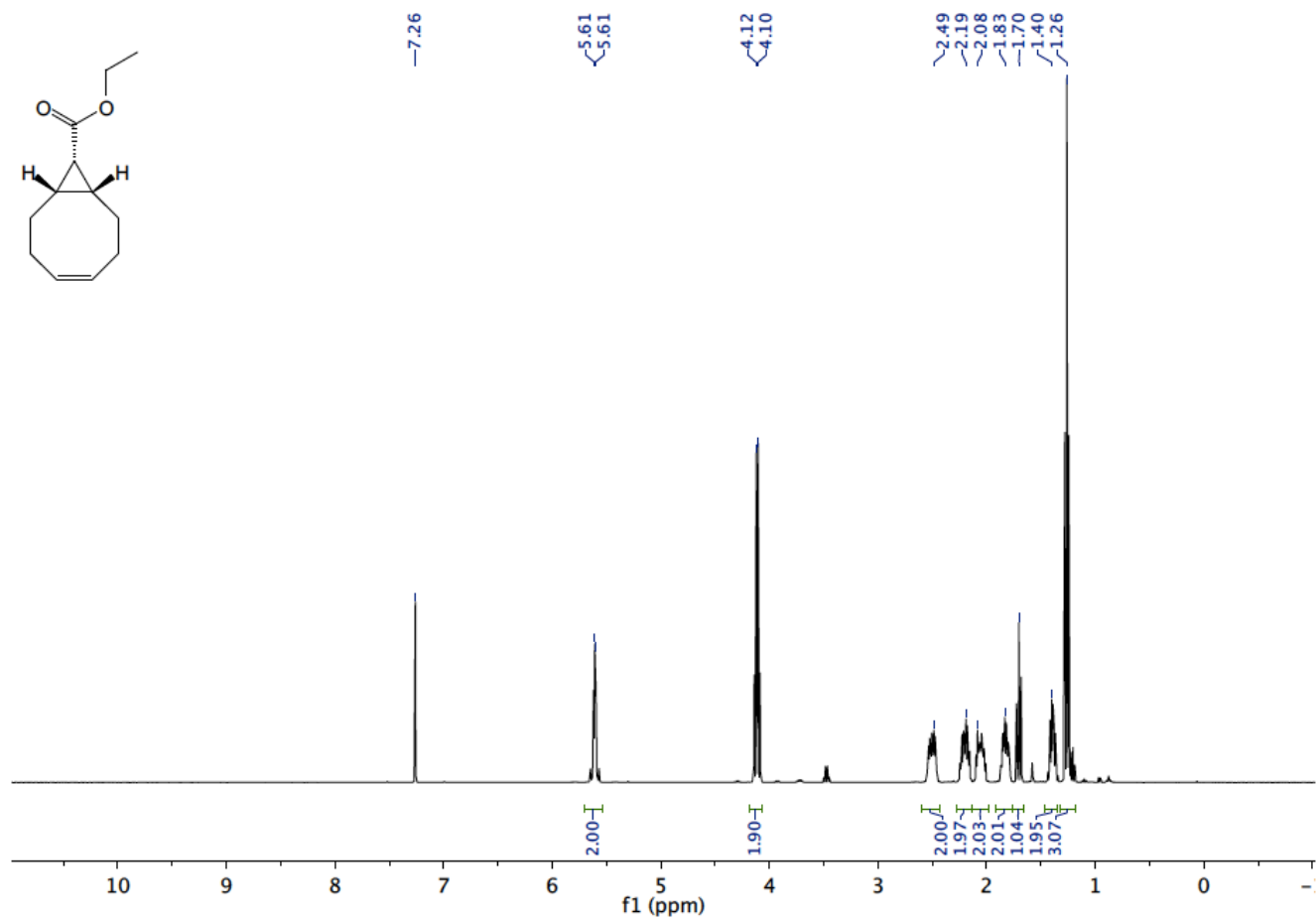
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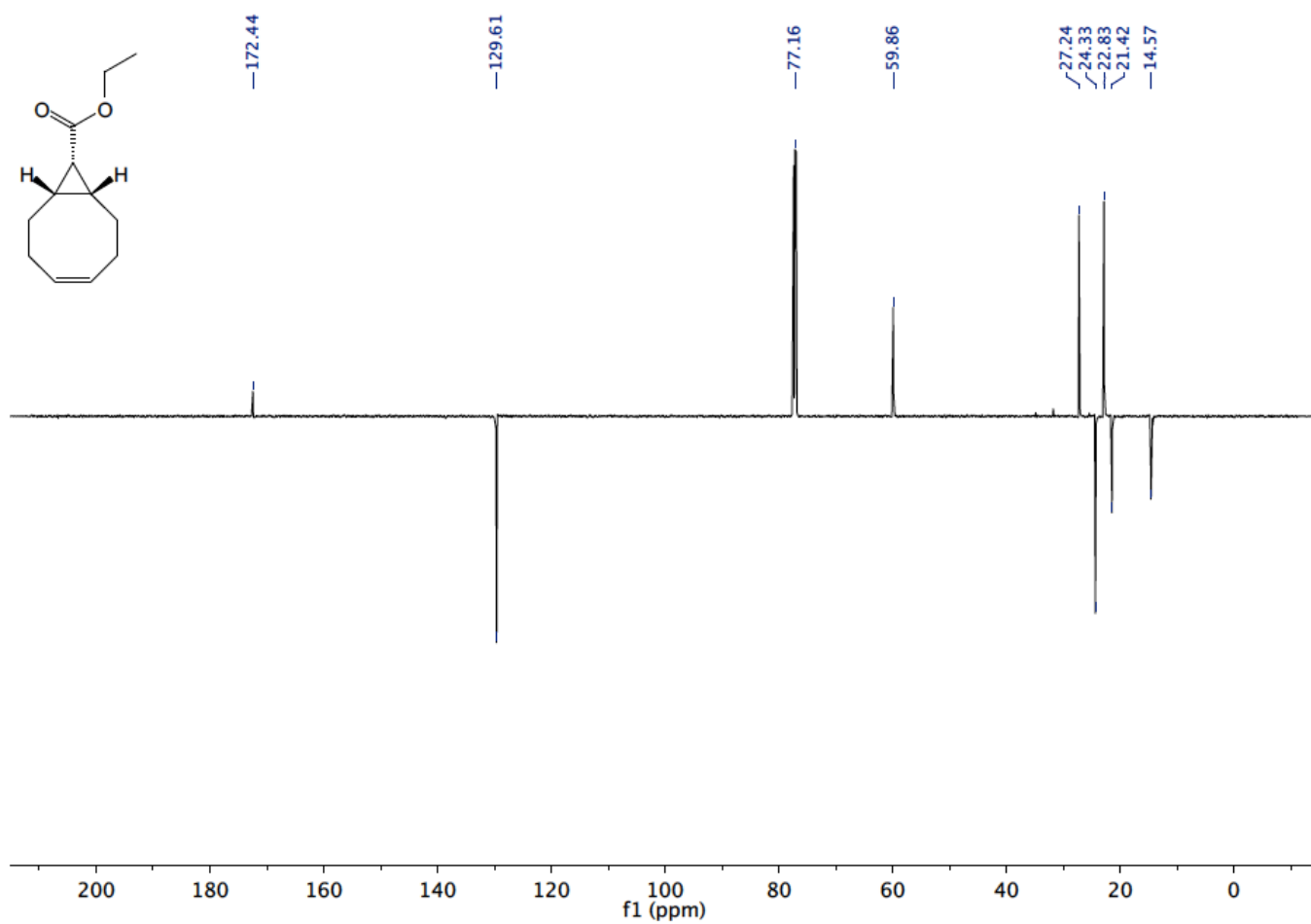
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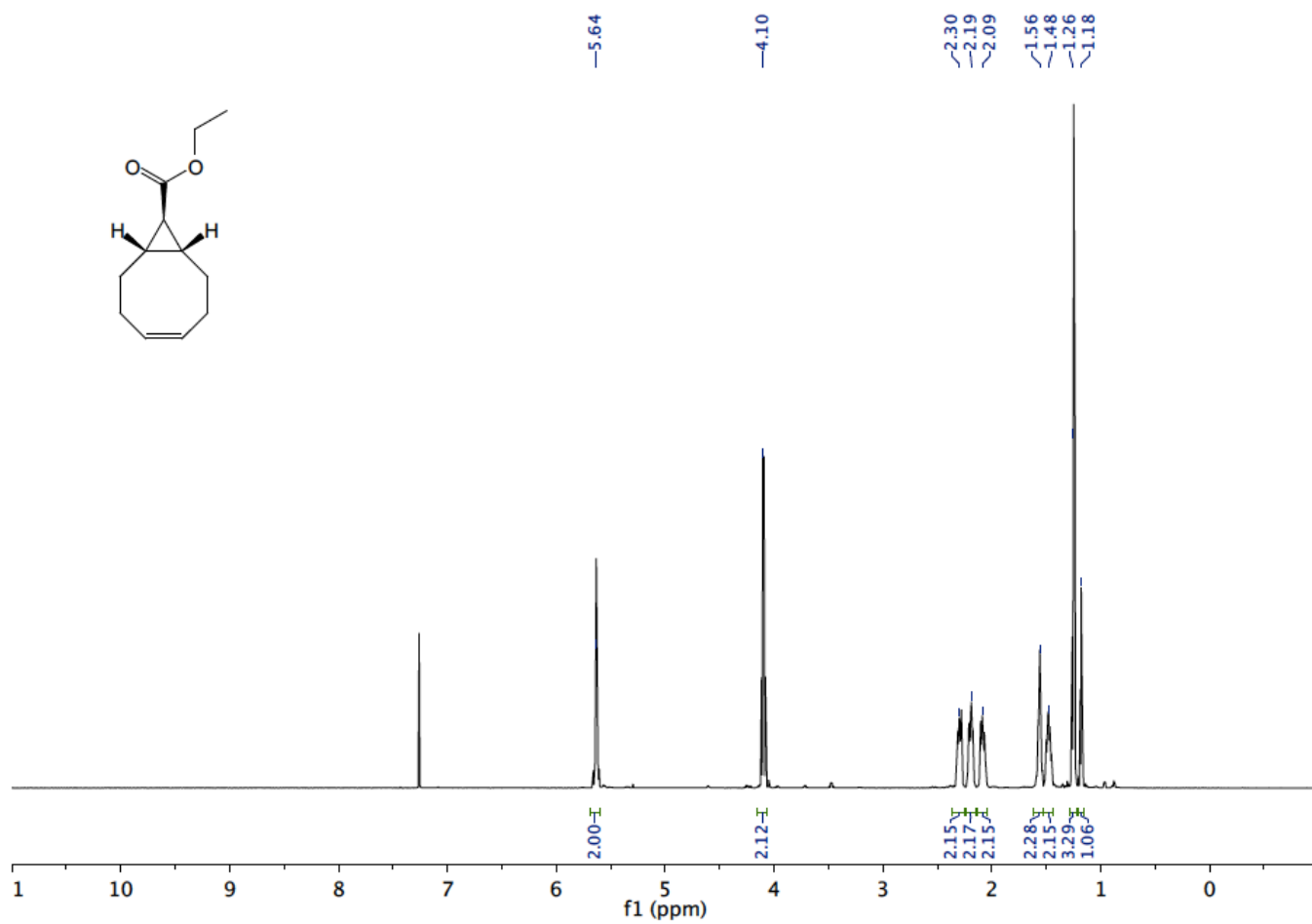
$^1\text{H}$  NMR spectrum of **3-syn** (400 MHz,  $\text{CDCl}_3$ )



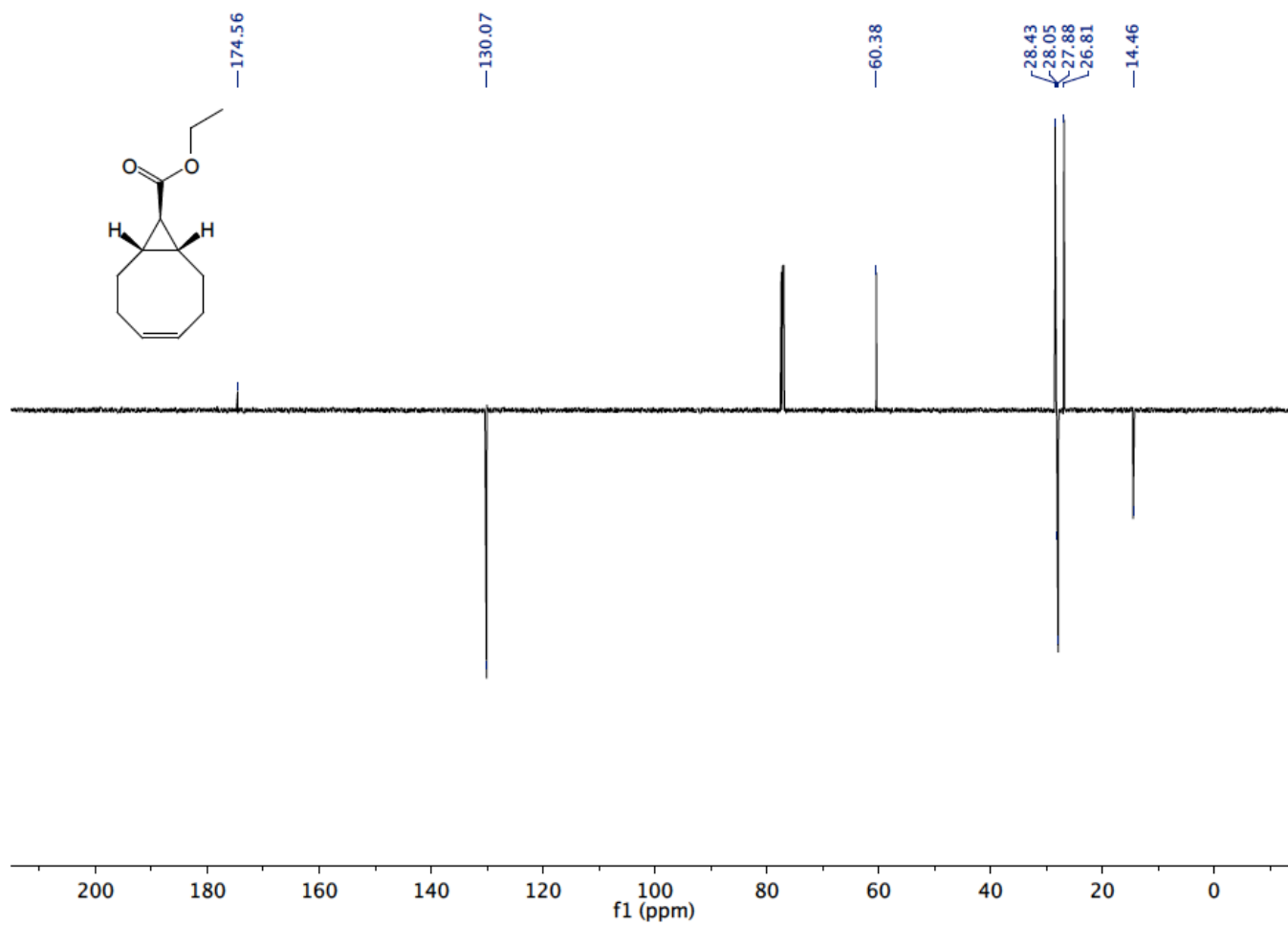
<sup>13</sup>C NMR spectrum of **3-syn** (150 MHz, CDCl<sub>3</sub>)



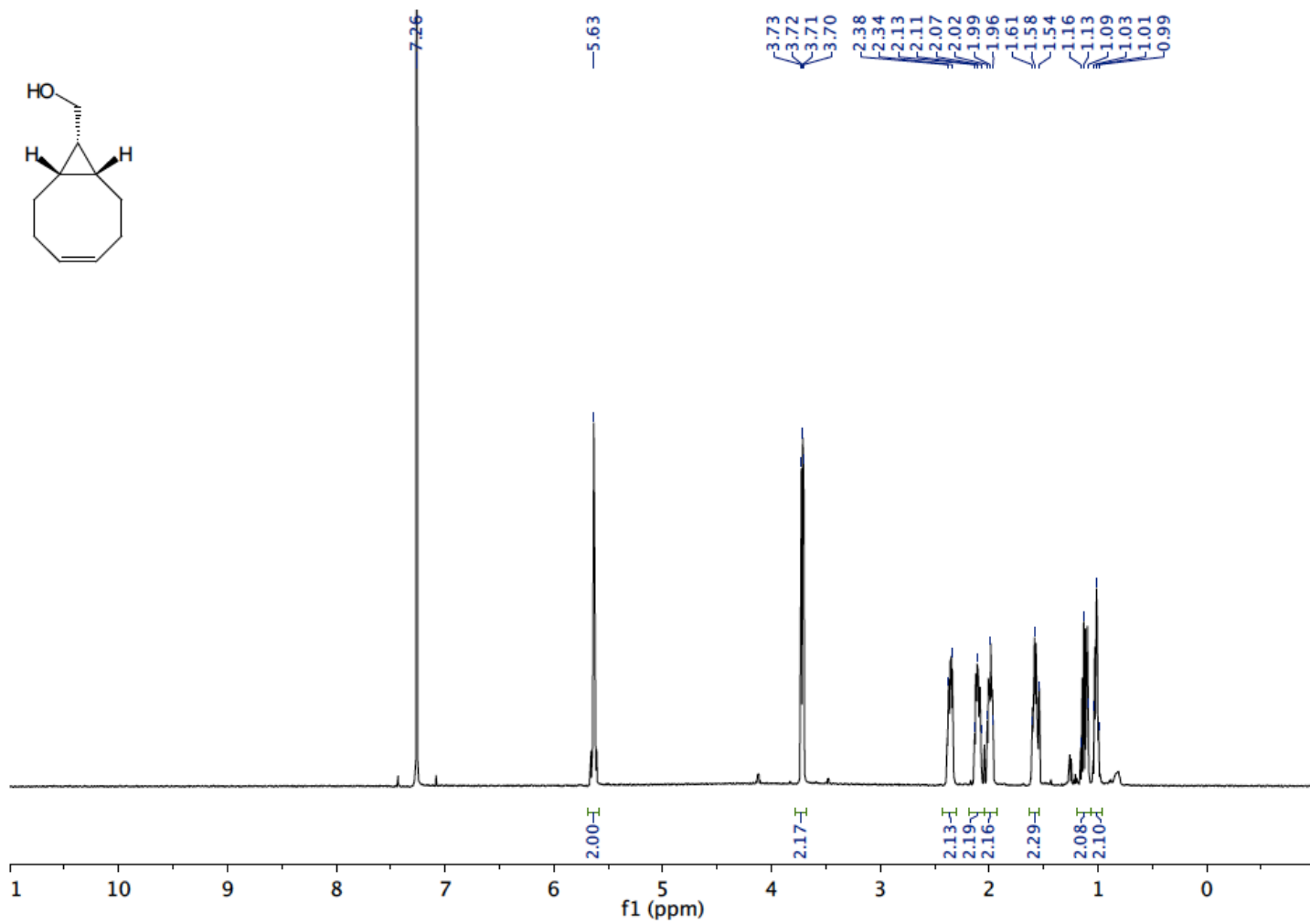
$^1\text{H}$  NMR spectrum of **3-anti** (600 MHz,  $\text{CDCl}_3$ )



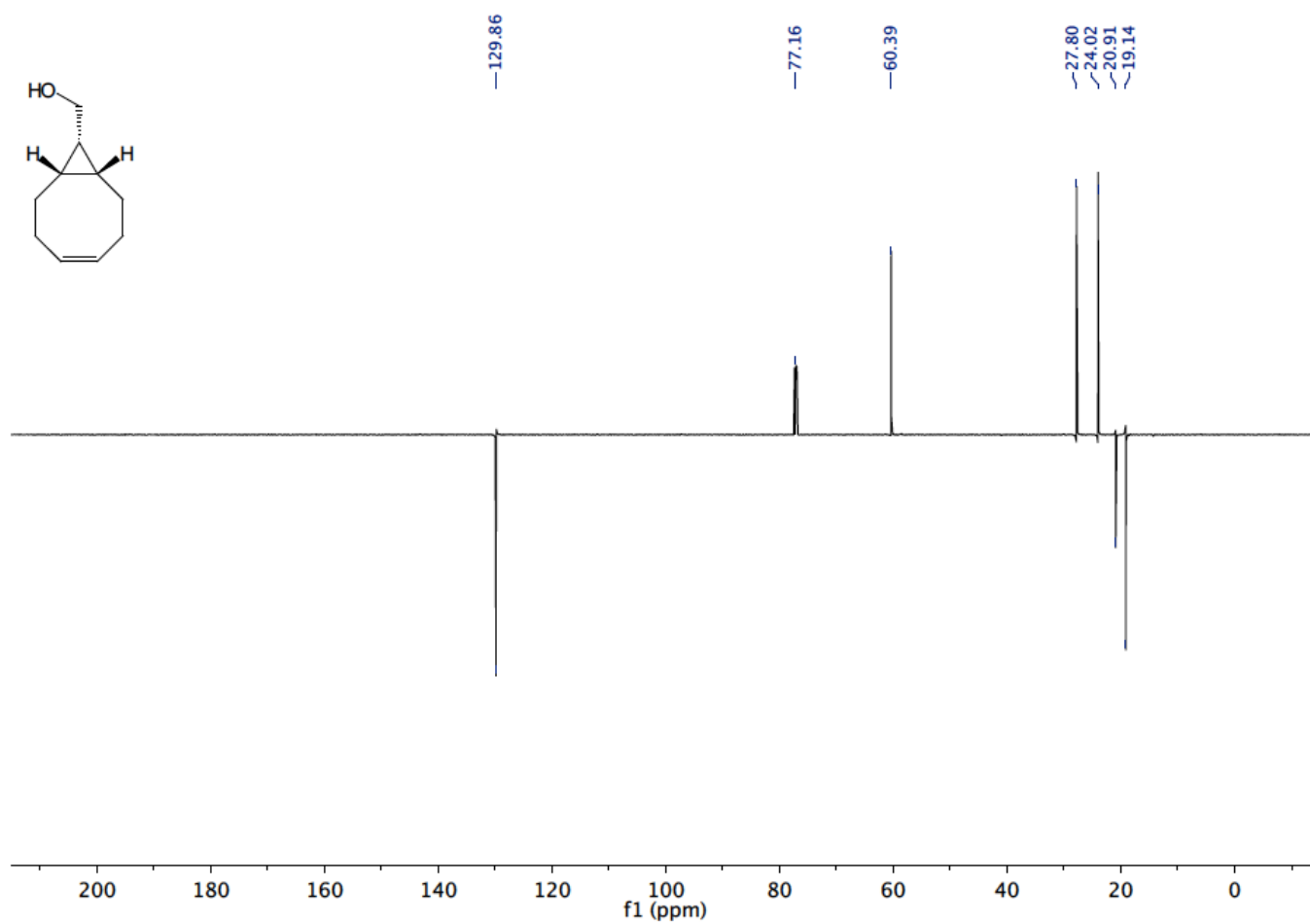
$^{13}\text{C}$  NMR spectrum of **3-anti** (150 MHz,  $\text{CDCl}_3$ )



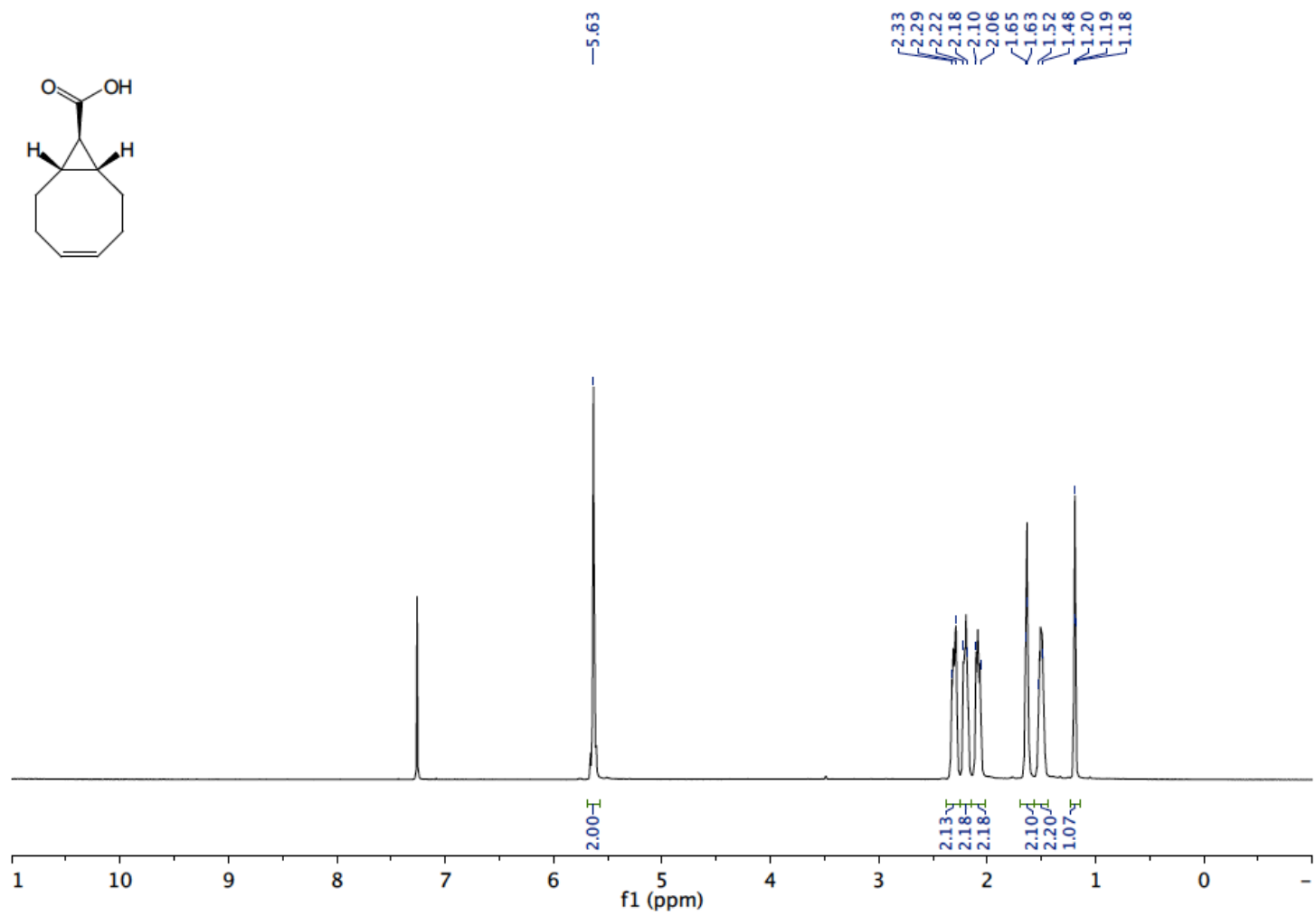
<sup>1</sup>H NMR spectrum of **5** (600 MHz, CDCl<sub>3</sub>)



<sup>13</sup>C NMR spectrum of **5** (150 MHz, CDCl<sub>3</sub>)

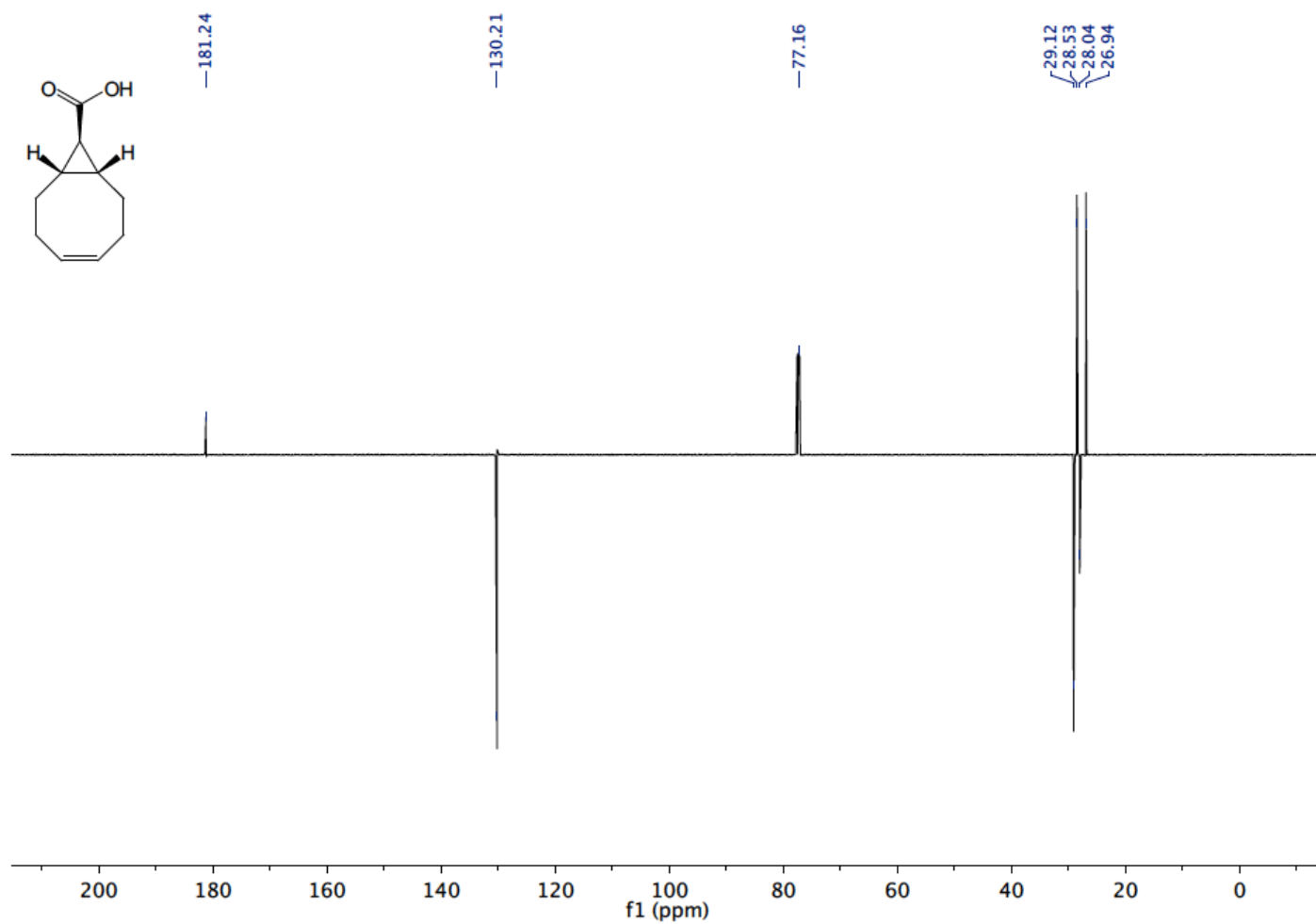


$^1\text{H}$  NMR spectrum of **6** (600 MHz,  $\text{CDCl}_3$ )

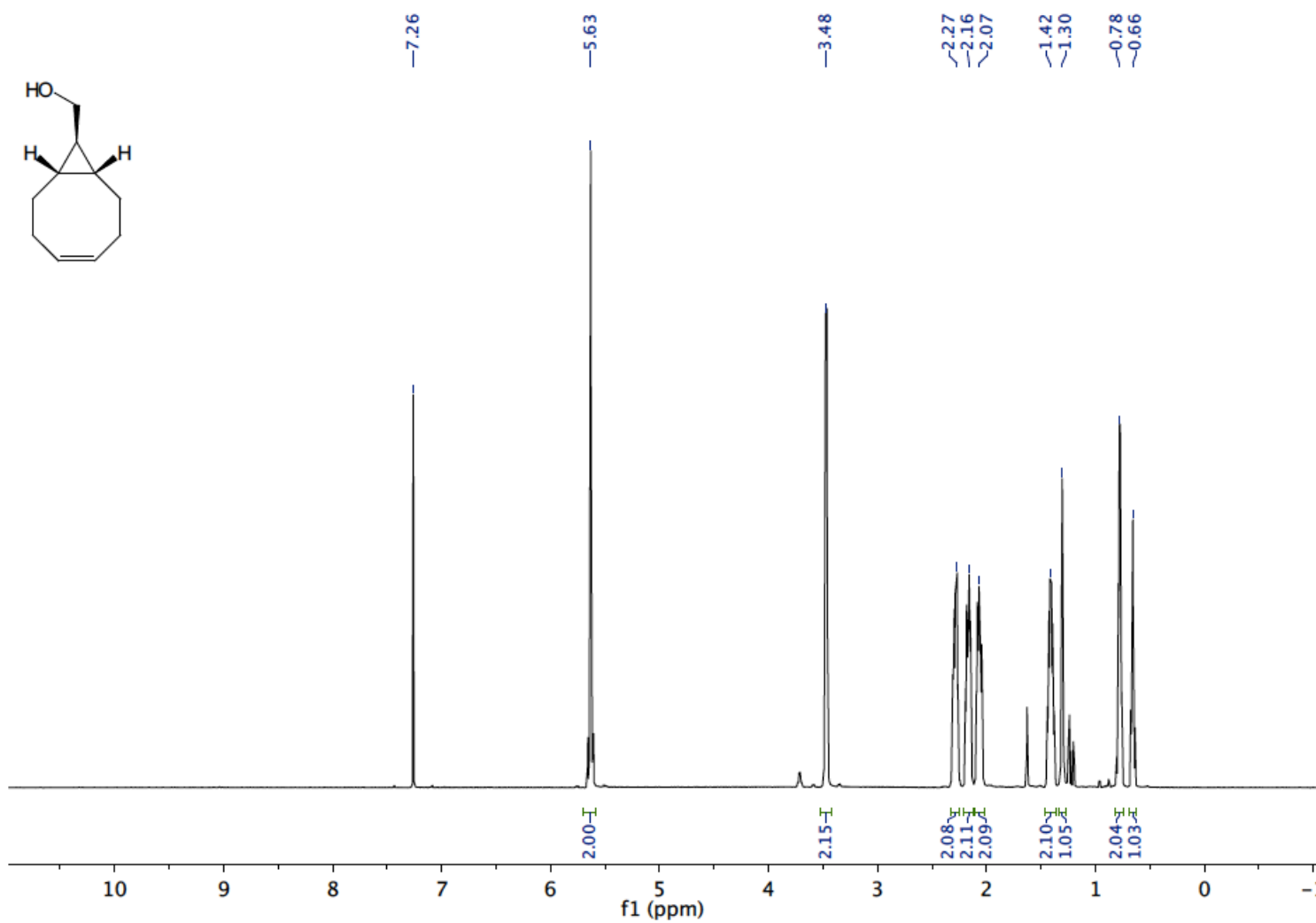




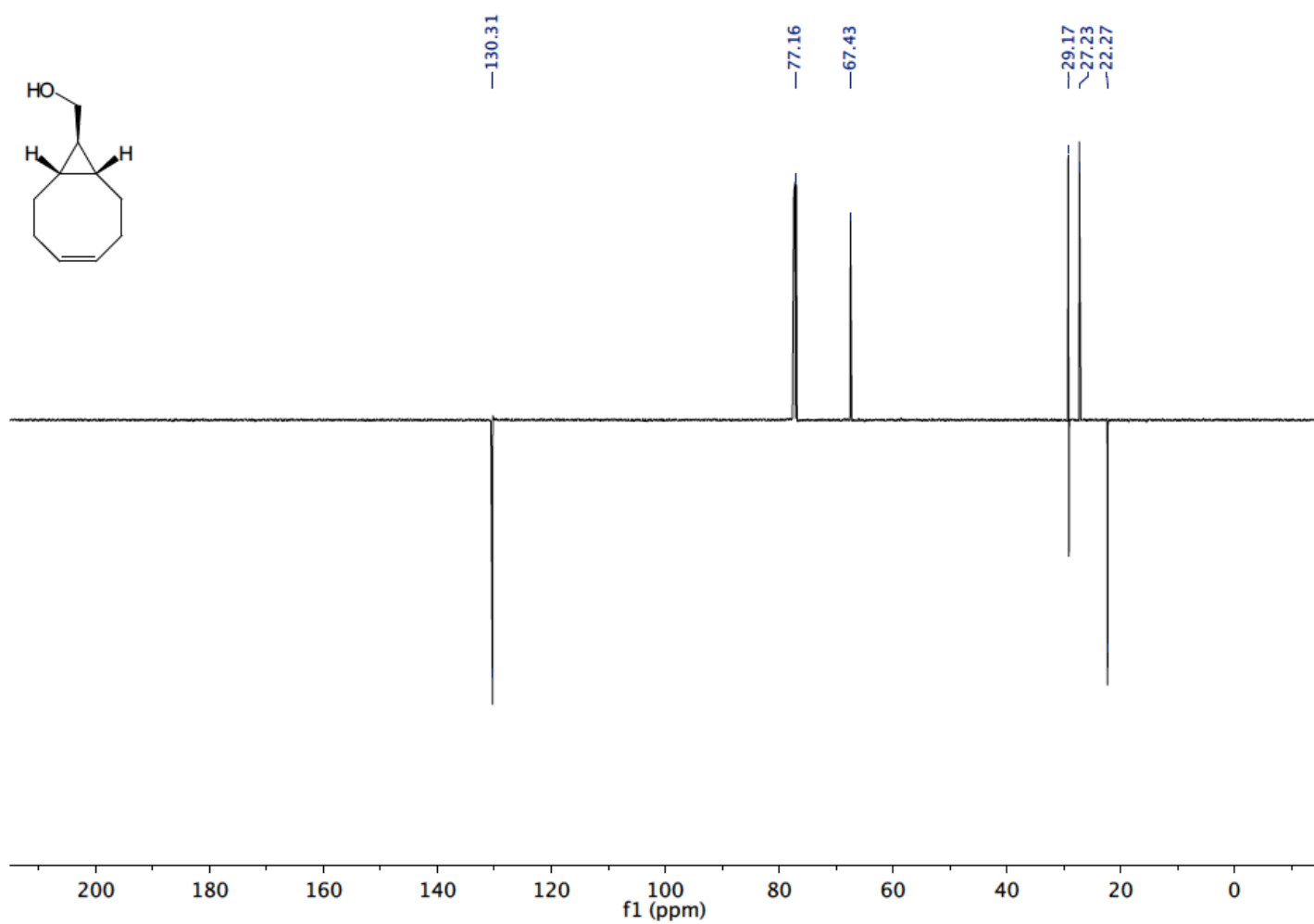
$^{13}\text{C}$  NMR spectrum of **6** (150 MHz,  $\text{CDCl}_3$ )



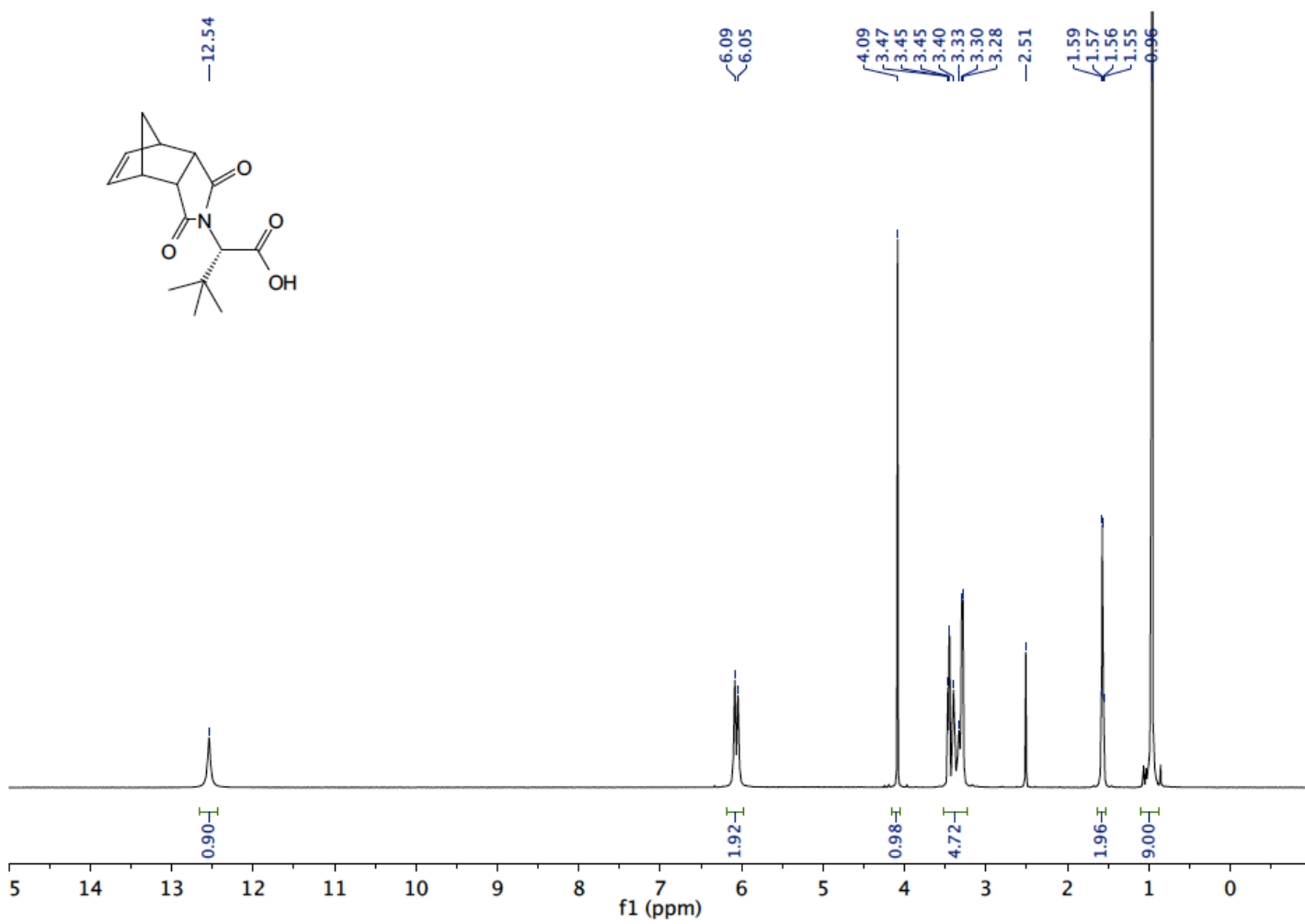
<sup>1</sup>H NMR spectrum of **4** (600 MHz, CDCl<sub>3</sub>)



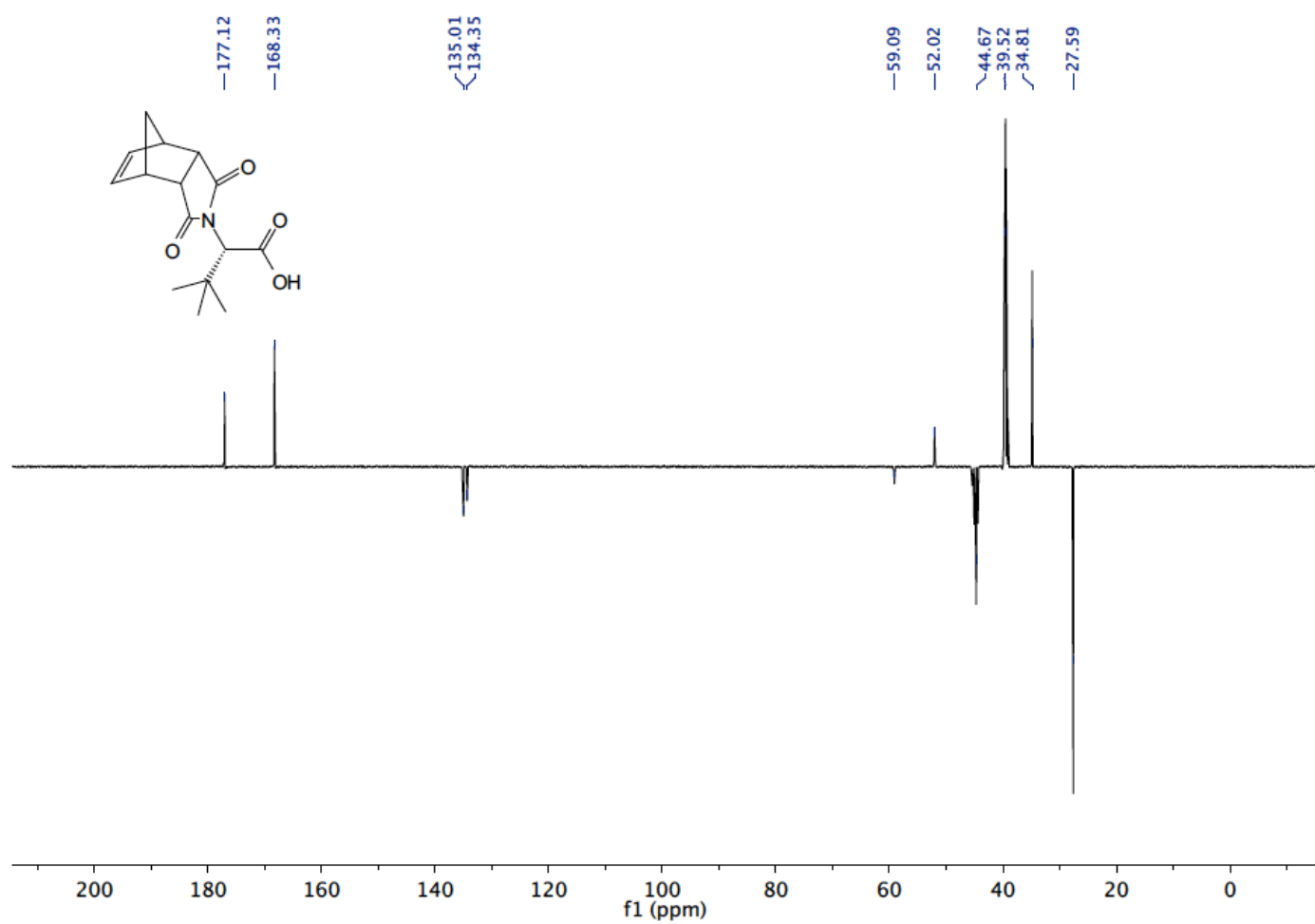
<sup>13</sup>C NMR spectrum of **4** (150 MHz, CDCl<sub>3</sub>)



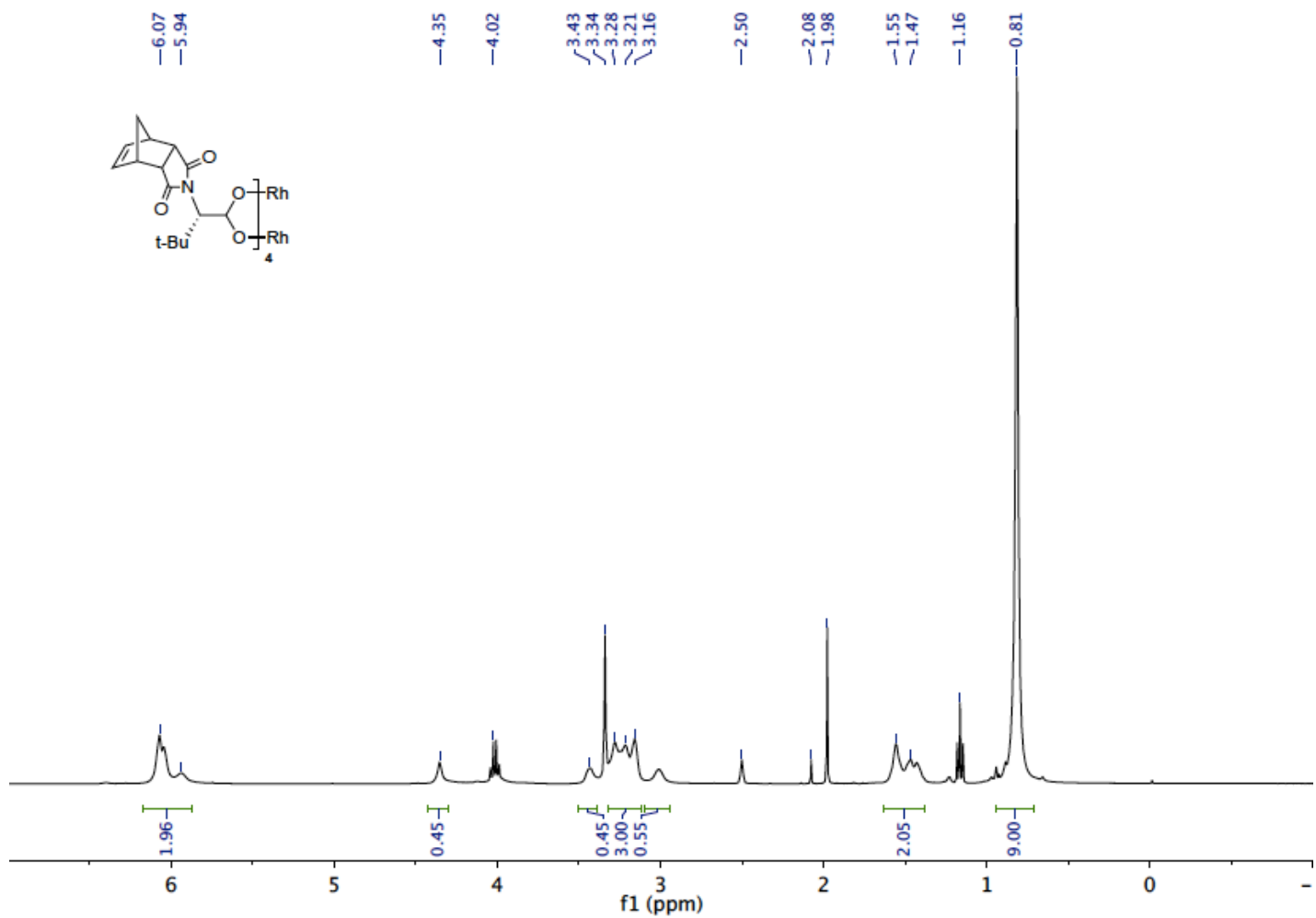
$^1\text{H}$  NMR spectrum of (*S*)-**BHTL** (600 MHz,  $(\text{CD}_3)_2\text{SO}$ )



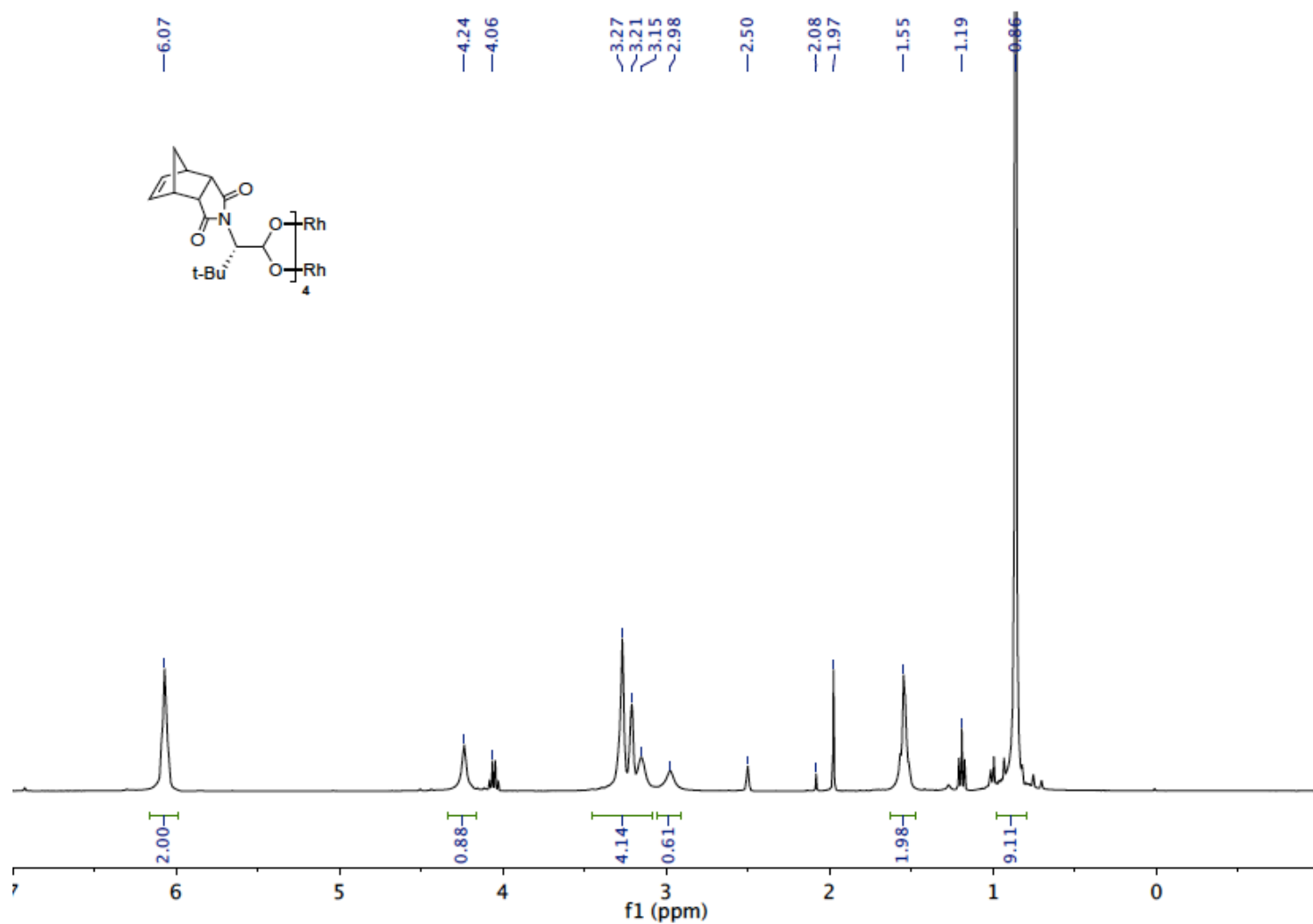
<sup>13</sup>C NMR spectrum of (*S*)-**BHTL** (150 MHz, (CD<sub>3</sub>)<sub>2</sub>SO)



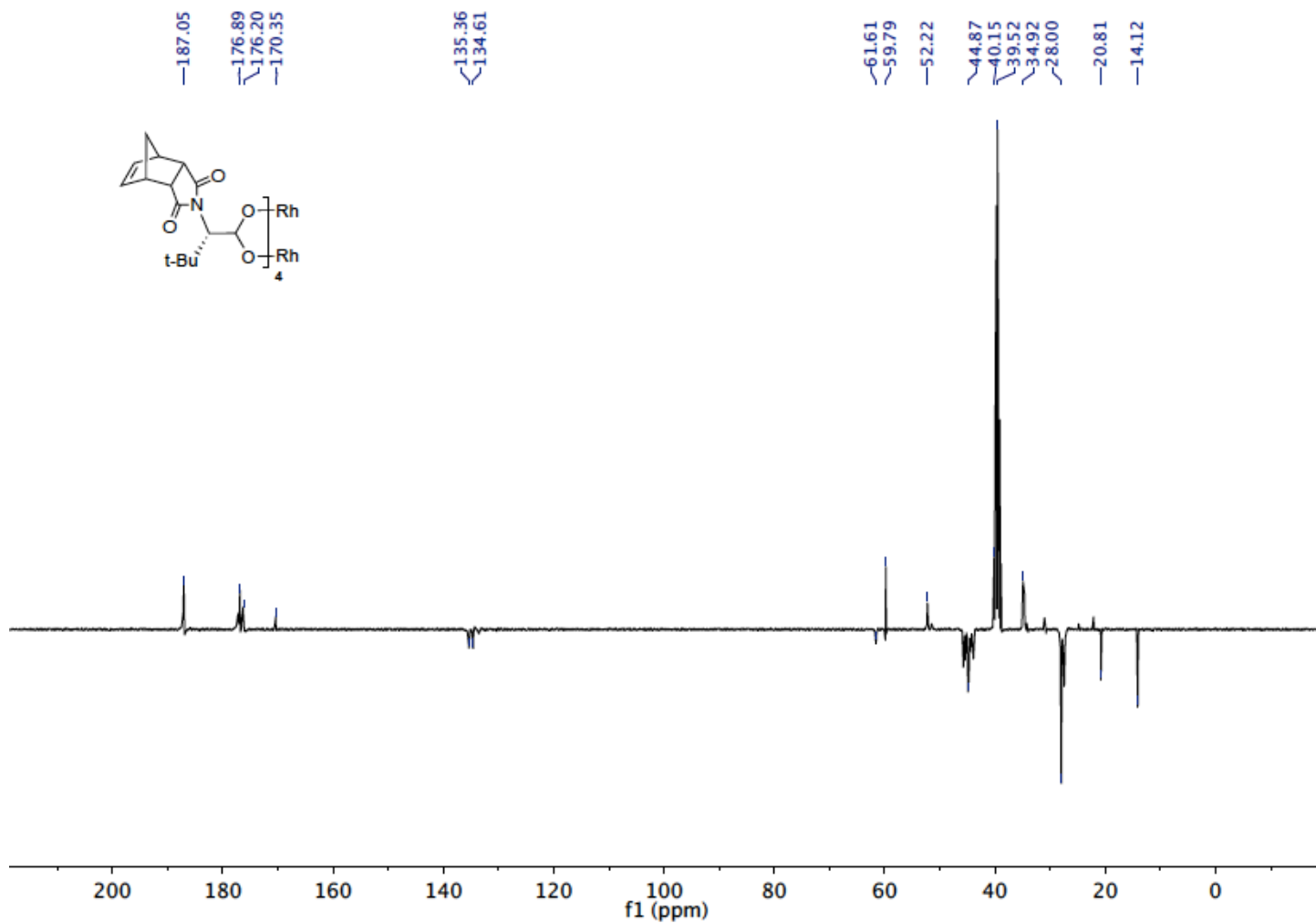
$^1\text{H}$  NMR spectrum of  $\text{Rh}_2(\text{S-BHTL})_4$ , room temperature (400 MHz,  $(\text{CD}_3)_2\text{SO}$ )



$^1\text{H}$  NMR spectrum of  $\text{Rh}_2(\text{S-BHTL})_4$  360K (400MHz,  $(\text{CD}_3)_2\text{SO}$ )



$^{13}\text{C}$  NMR spectrum of  $\text{Rh}_2(\text{S-BHTL})_4$  (600MHz,  $(\text{CD}_3)_2\text{SO}$ )





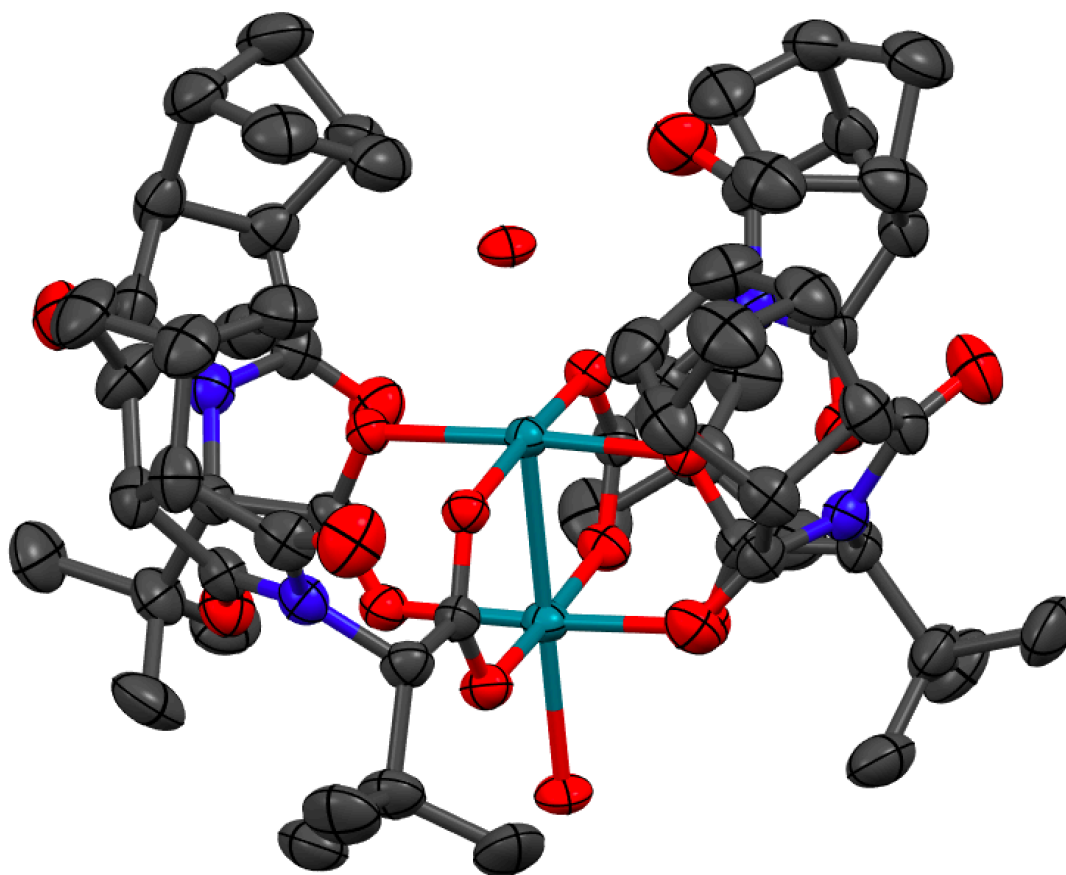


Fig S1. X-ray structure of Rh<sub>2</sub>(S-BHTL)<sub>4</sub> (50% probability ellipsoids)