

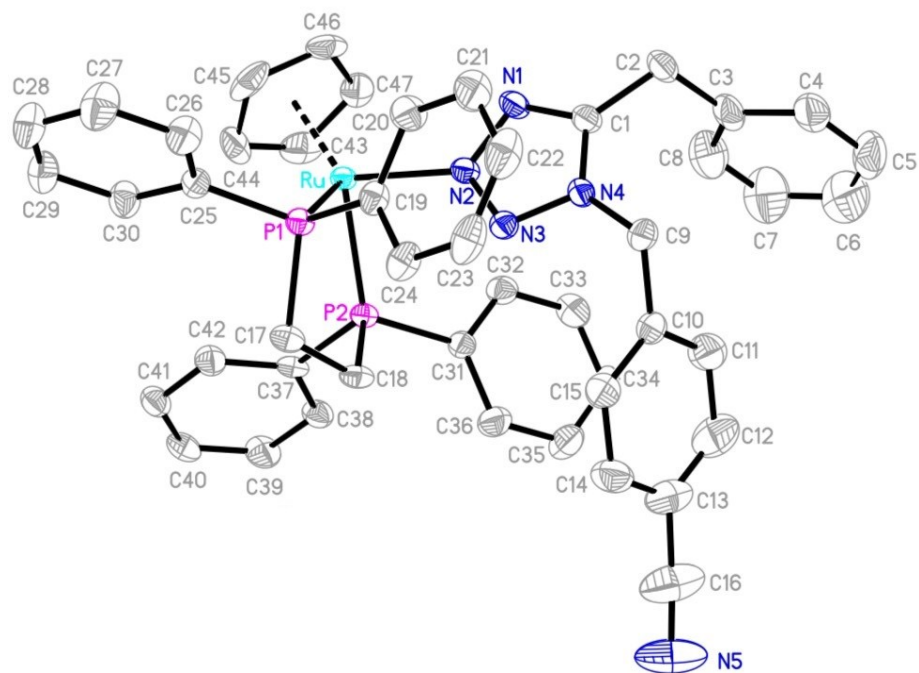
## Supporting Information

### Facile synthesis of 1,5-disubstituted tetrazoles by reacting a ruthenium acetylide complex with trimethylsilyl azide

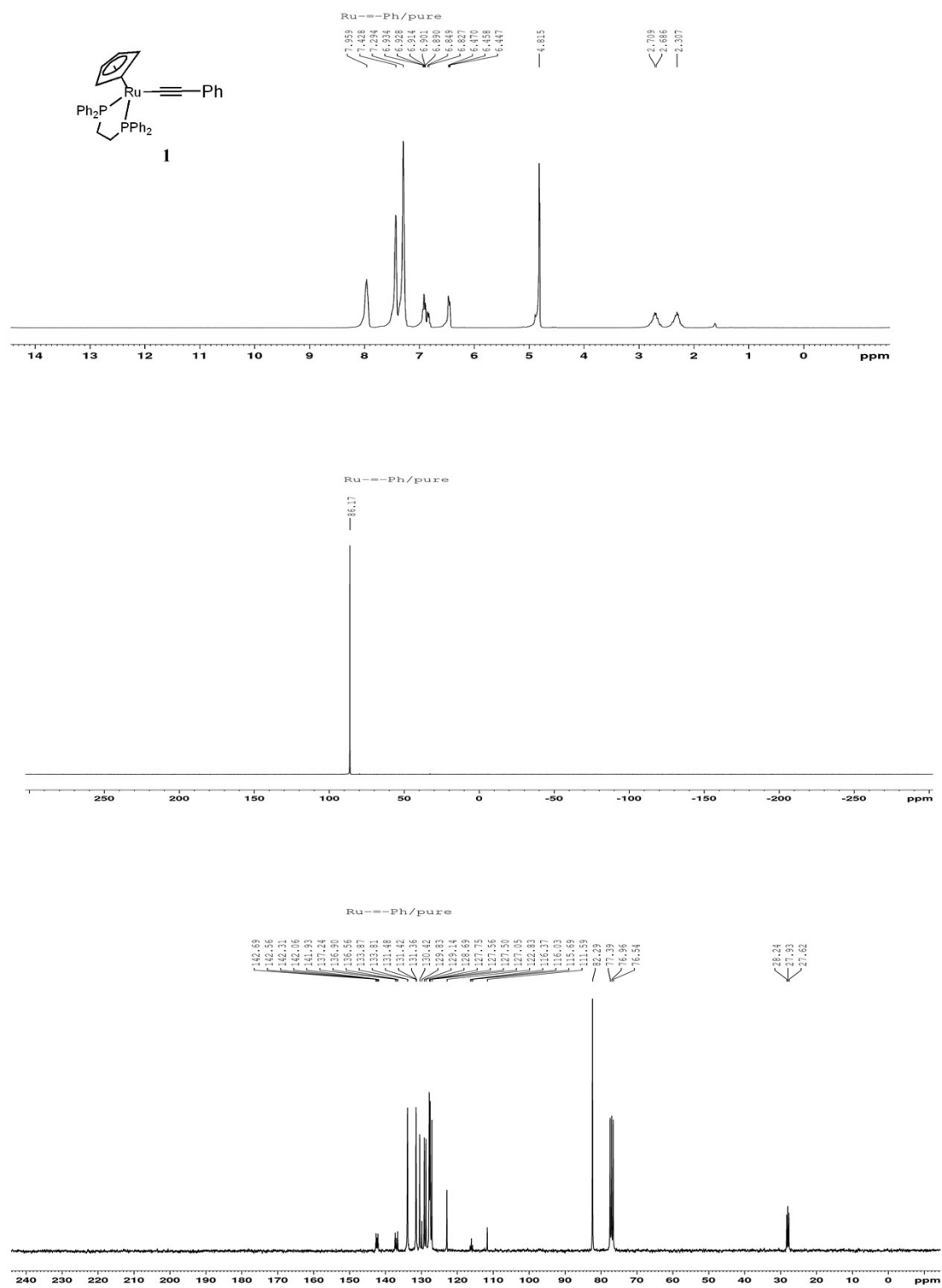
Chao-Wan Chang<sup>\*,a</sup>, Ming-Chuan Cheng<sup>b,c</sup>, Gene-Hsiang Lee<sup>d</sup> and Shie-Ming Peng<sup>b,c</sup>

#### Content:

1. Fig. S1 ORTEP drawing of **4c**
2. NMR spectra of all relevant compounds



**Fig. S1** ORTEP drawing of **4c** with thermal ellipsoids shown at a 50% probability level. Hydrogen atoms and counter ions have been omitted for clarity. Selected distances (Å) and angles (°): Ru–N2 2.0749(19), N1–N2 1.363(3), N2–N3 1.304(3), N3–N4 1.342(3), N4–C1 1.347(3), N1–C1 1.319(3); N1–N2–N3 111.93(19), N2–N3–N4 105.21(18), N3–N4–C1 109.24(19), N4–C1–N1 108.6(2), C1–N1–N2 104.98(19).



**Fig. S3**  $^1\text{H}$ ,  $^{31}\text{P}$  and  $^{13}\text{C}$  NMR spectra of compound **1**.

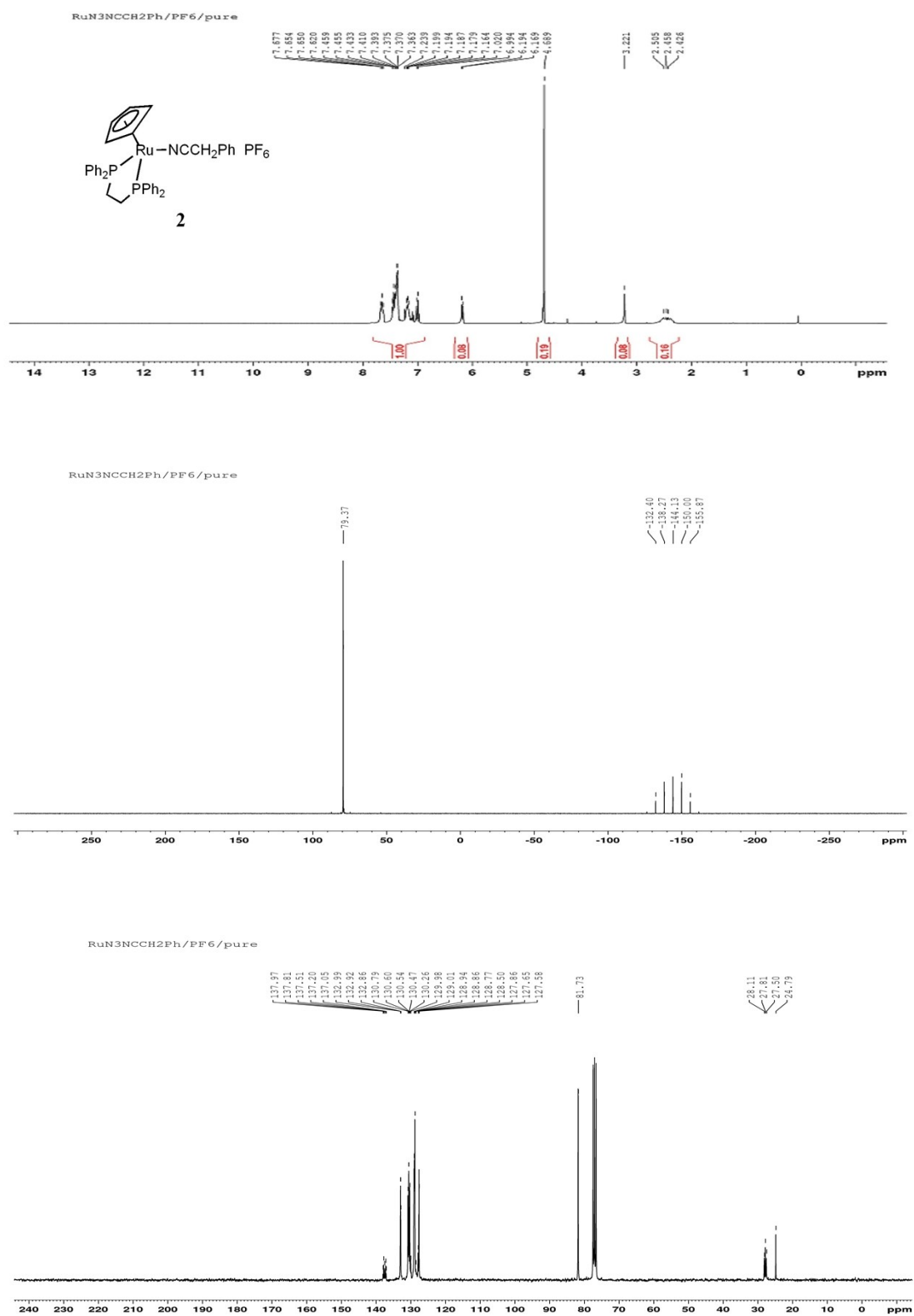


Fig. S4 <sup>1</sup>H, <sup>31</sup>P and <sup>13</sup>C NMR spectra of compound 2.

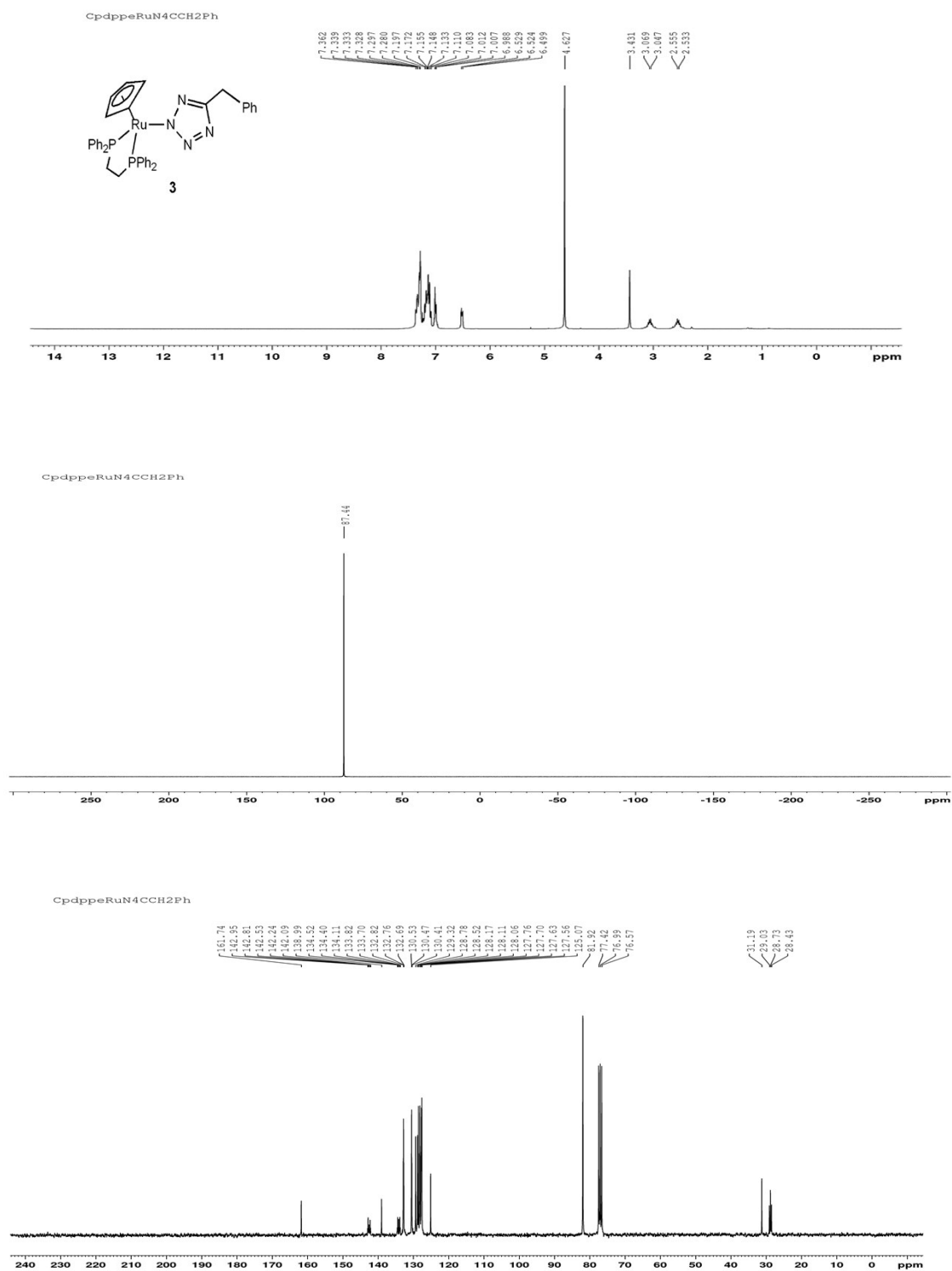


Fig. S5 <sup>1</sup>H, <sup>31</sup>P and <sup>13</sup>C NMR spectra of compound 3.

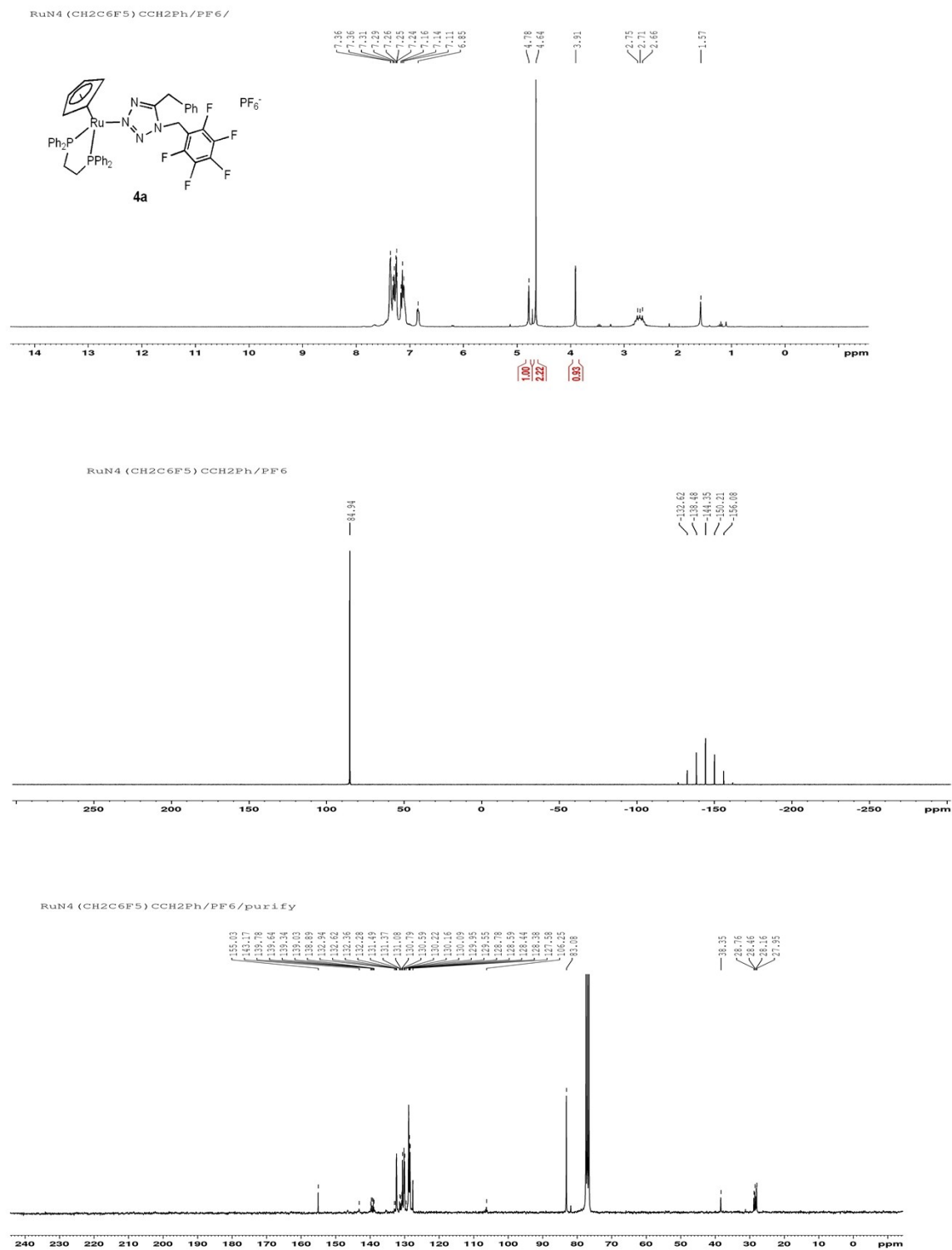


Fig. S6 <sup>1</sup>H, <sup>31</sup>P and <sup>13</sup>C NMR spectra of compound **4a**·[PF<sub>6</sub>].



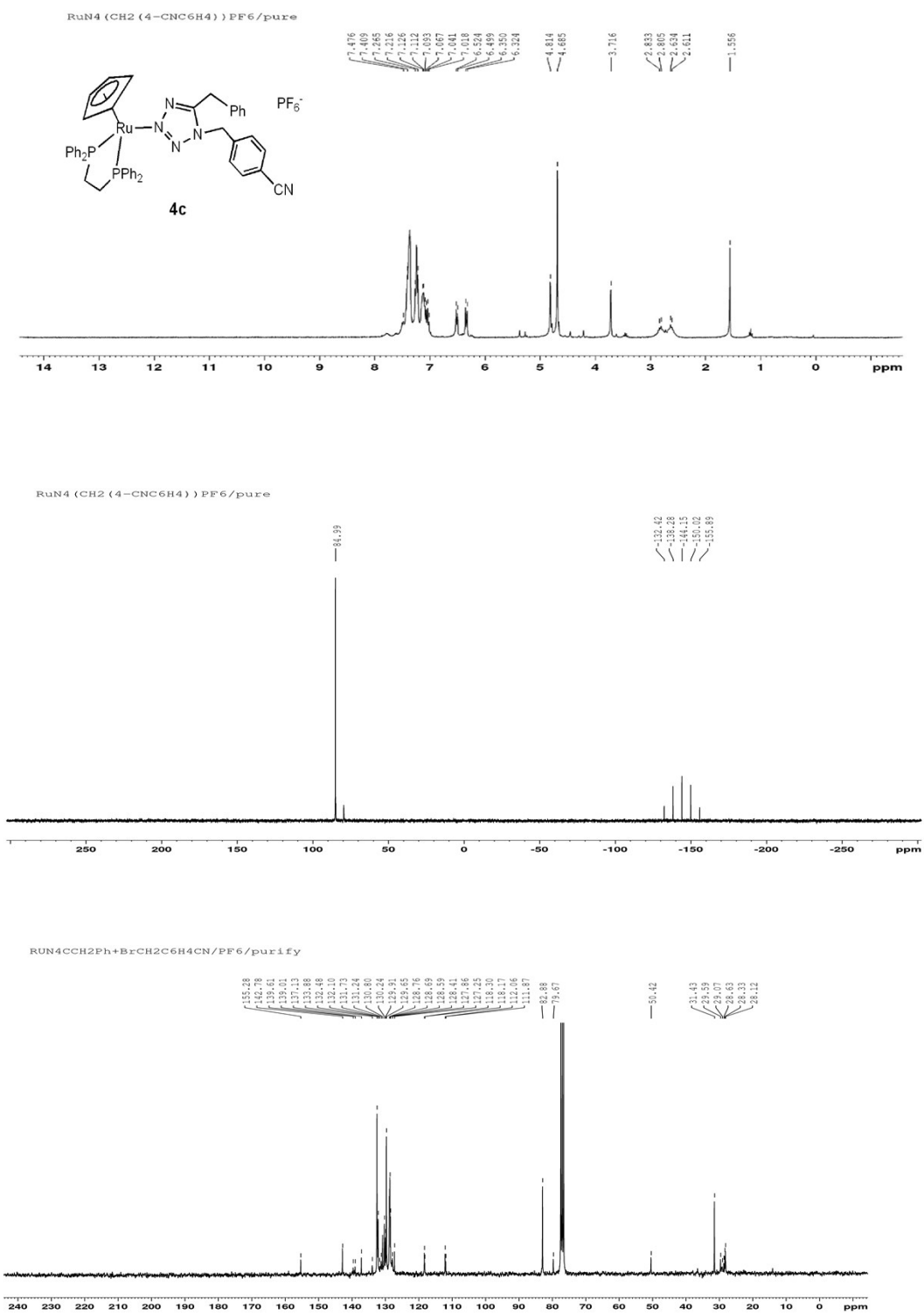


Fig. S8  $^1\text{H}$ ,  $^{31}\text{P}$  and  $^{13}\text{C}$  NMR spectra of compound **4c**·[PF<sub>6</sub>].



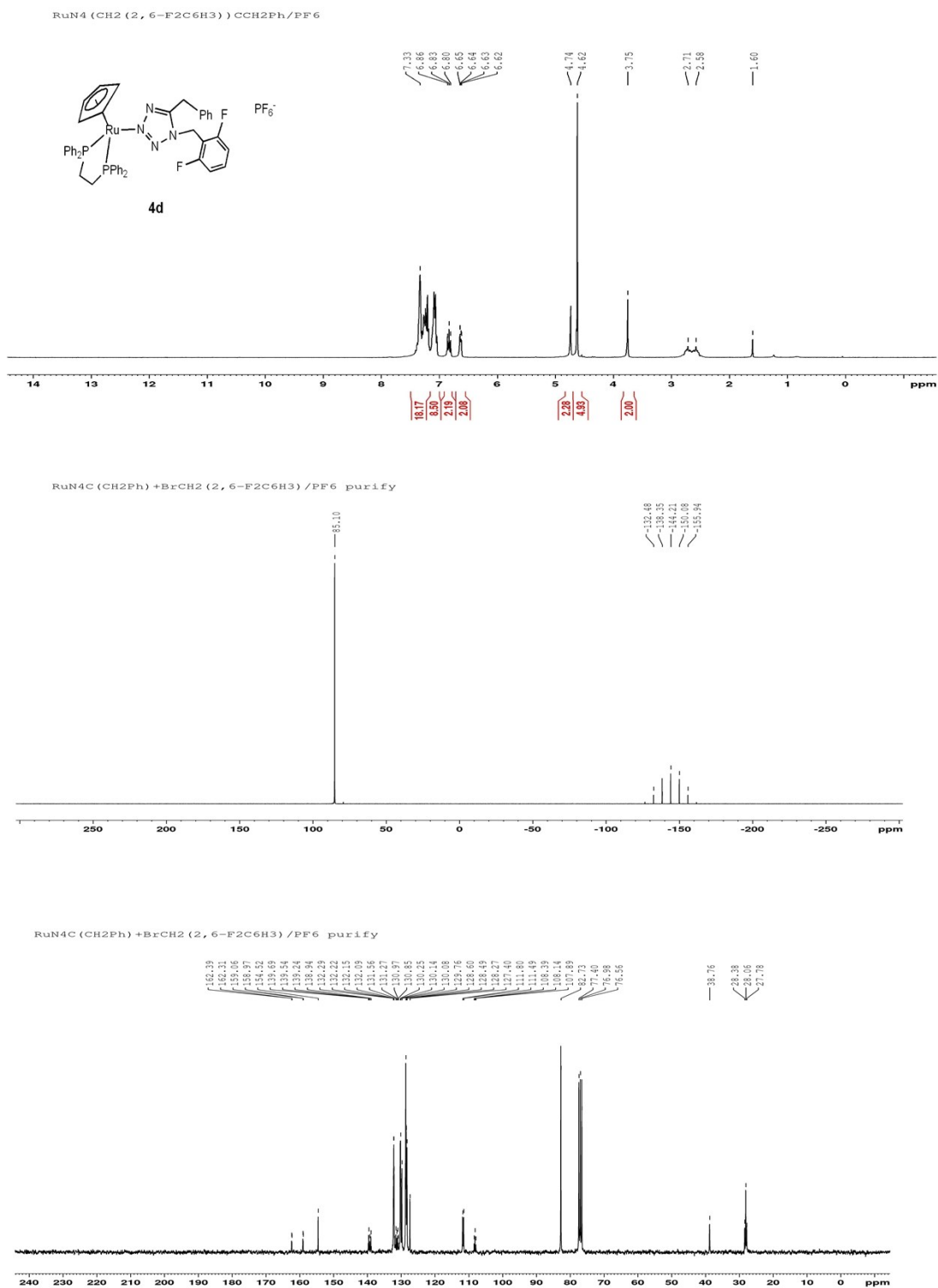


Fig. S9 <sup>1</sup>H, <sup>31</sup>P and <sup>13</sup>C NMR spectra of compound **4d**·[PF<sub>6</sub>].

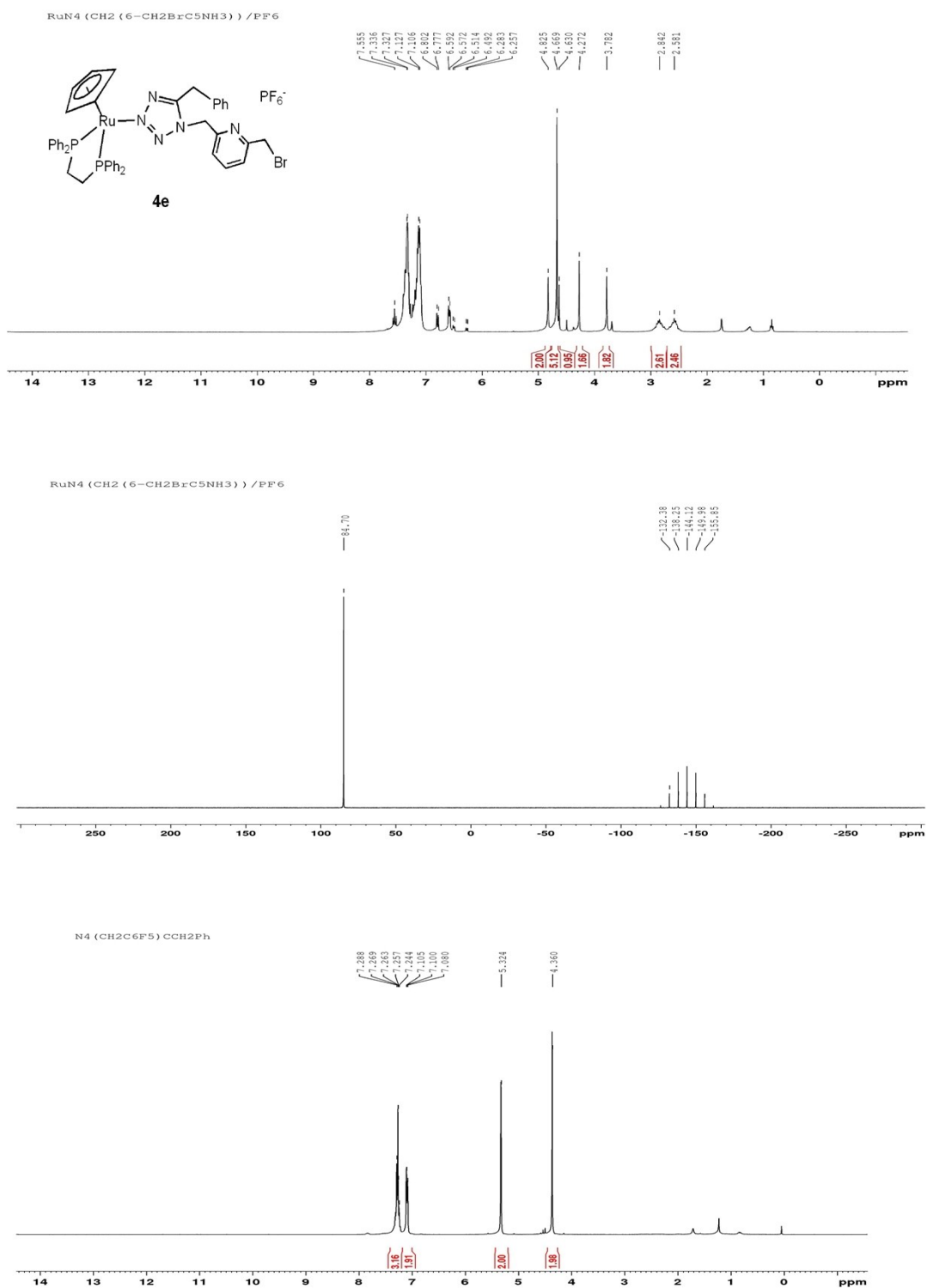
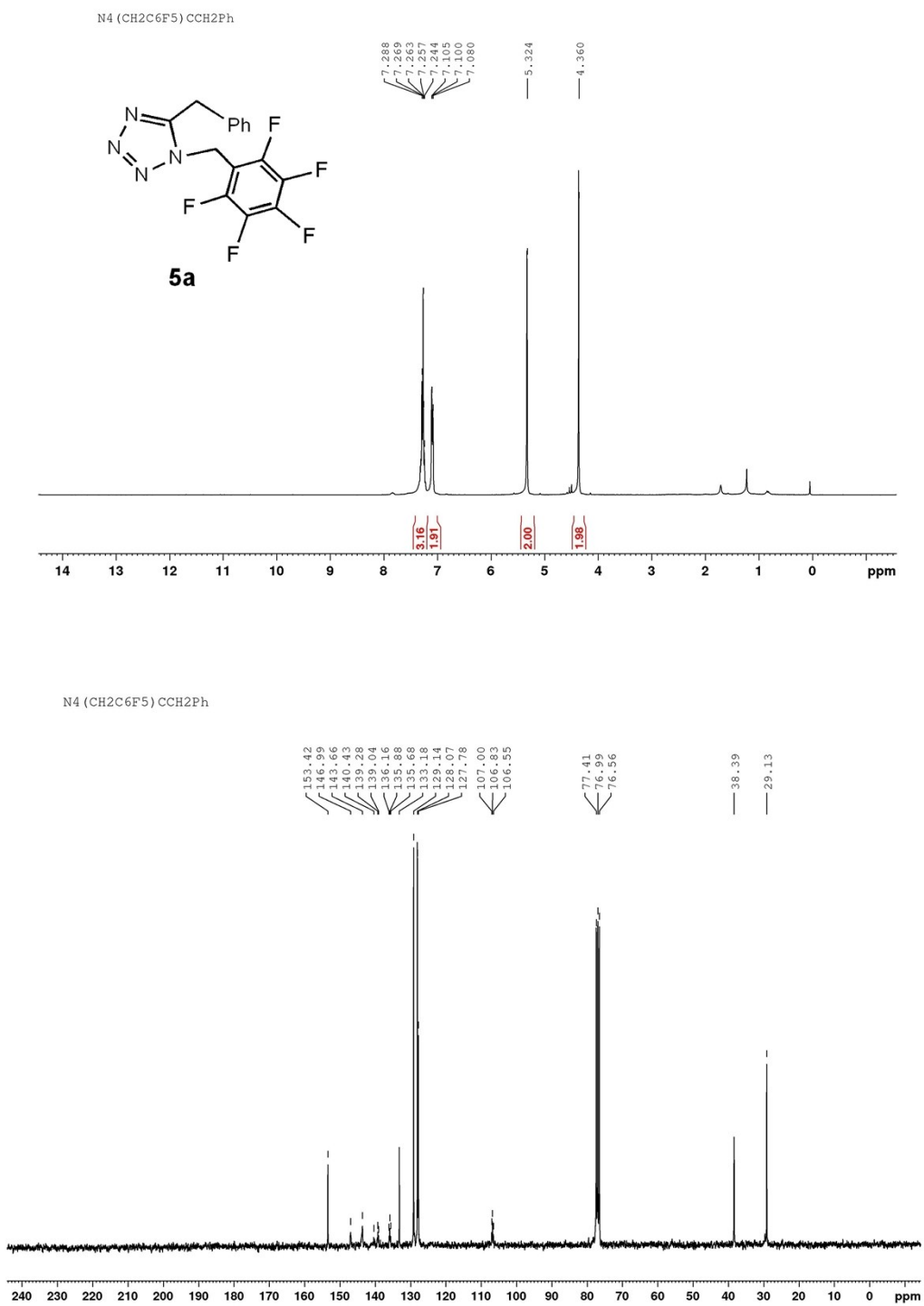


Fig. S10 <sup>1</sup>H, <sup>31</sup>P and <sup>13</sup>C NMR spectra of compound **4e**·[PF<sub>6</sub>].



**Fig. S11** <sup>1</sup>H and <sup>13</sup>C NMR spectra of compound **5a**.

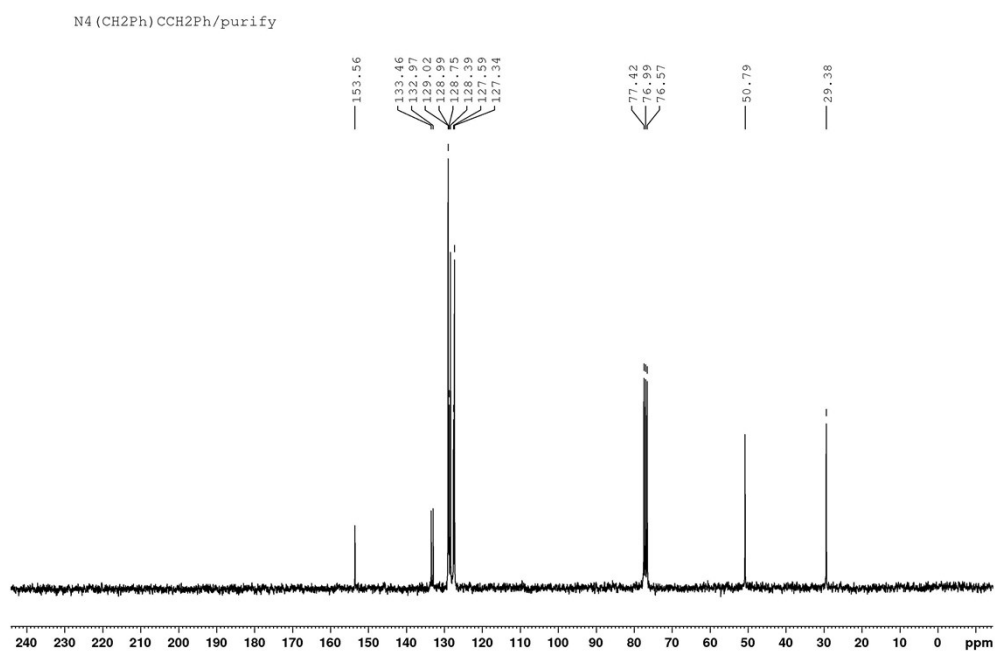
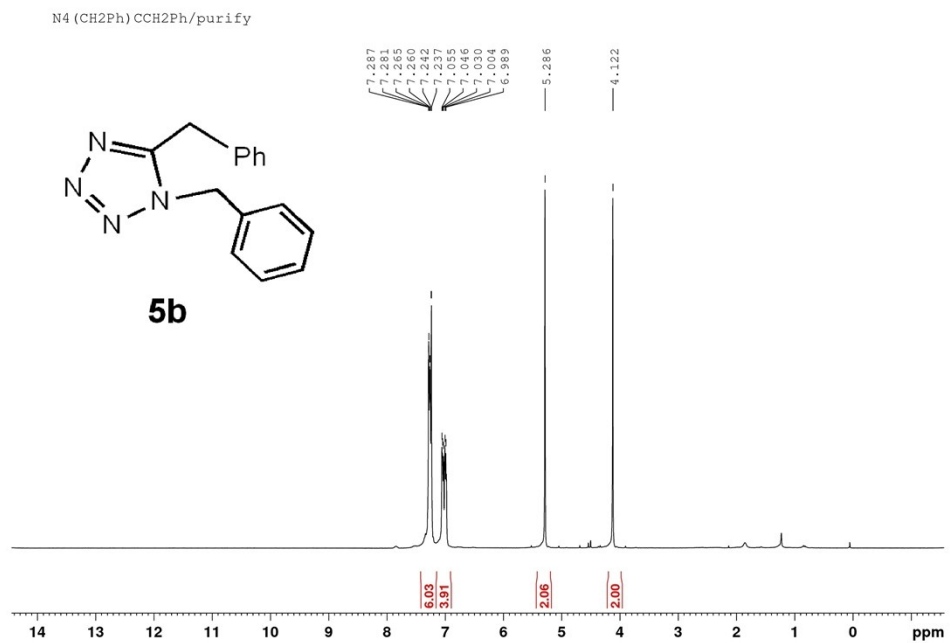
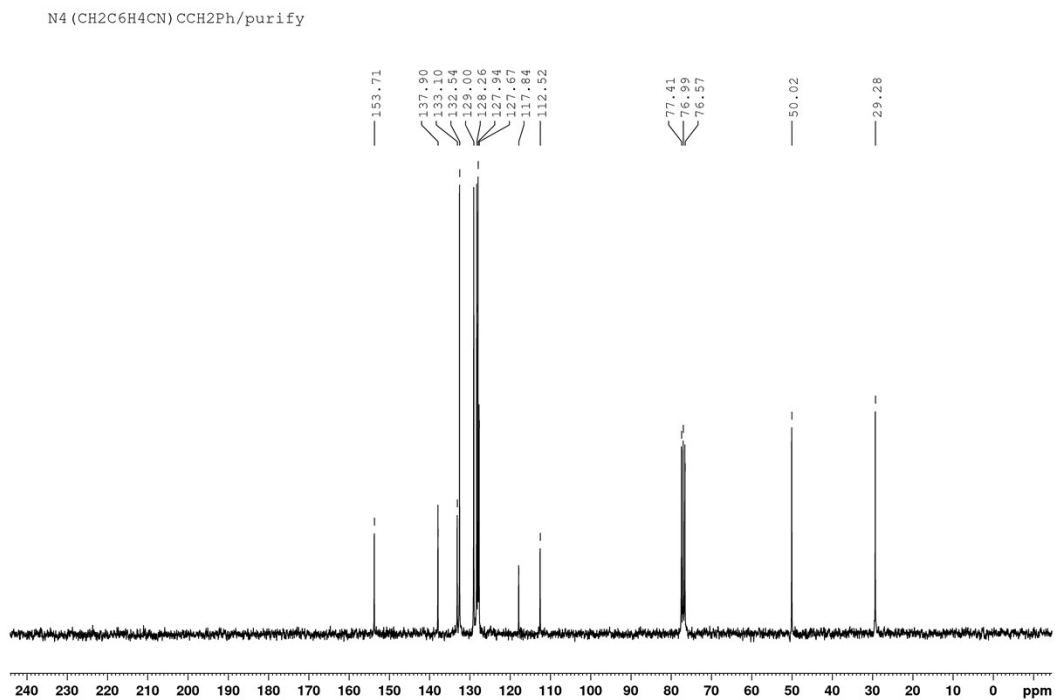
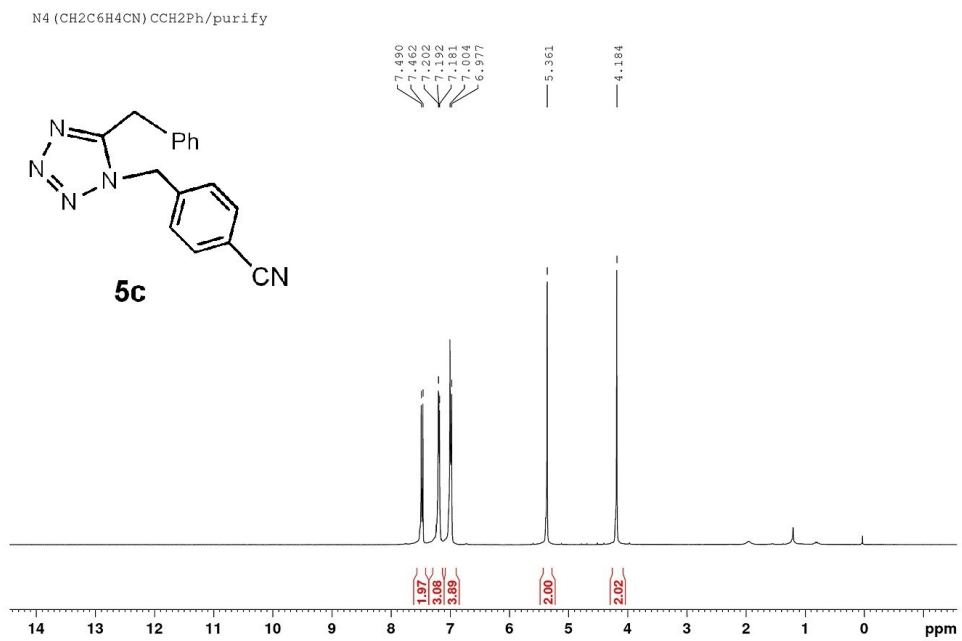
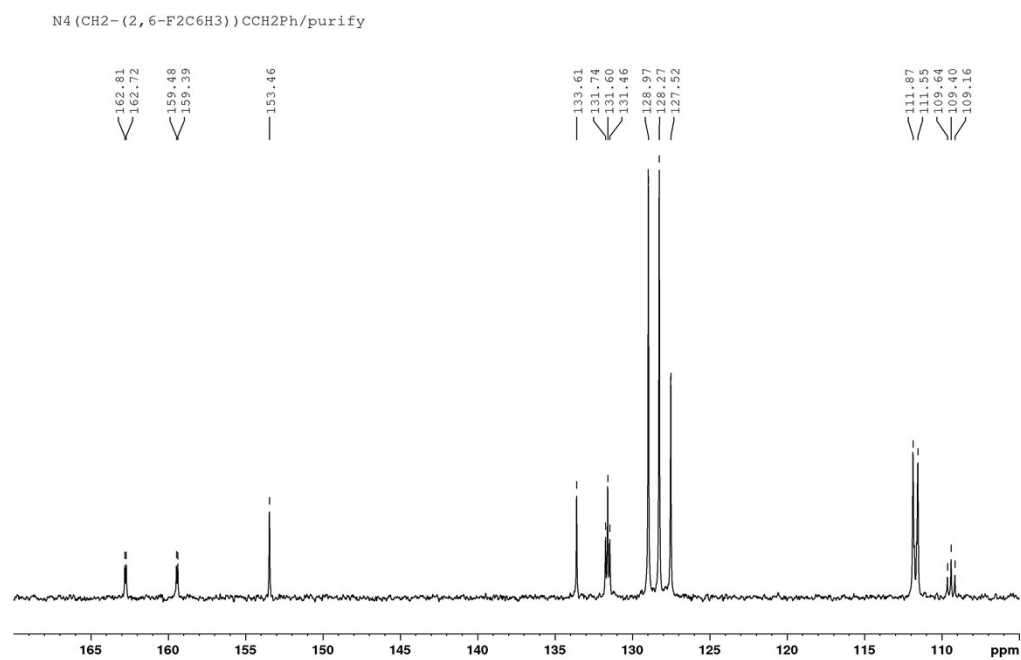
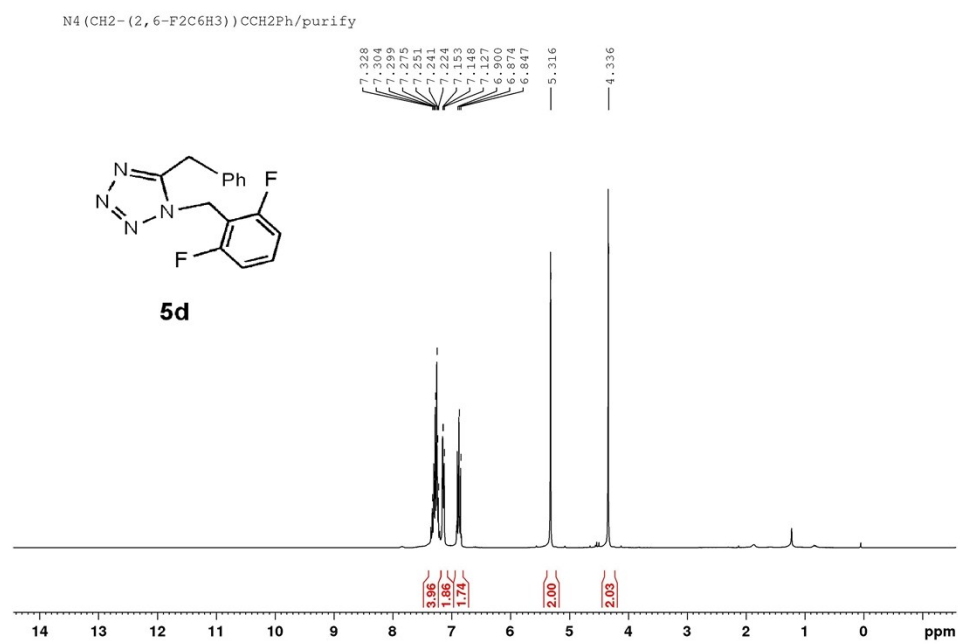


Fig. S12 <sup>1</sup>H and <sup>13</sup>C NMR spectra of compound **5b**.



**Fig. S13** <sup>1</sup>H and <sup>13</sup>C NMR spectra of compound **5c**.



**Fig. S14**  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of compound **5d**.

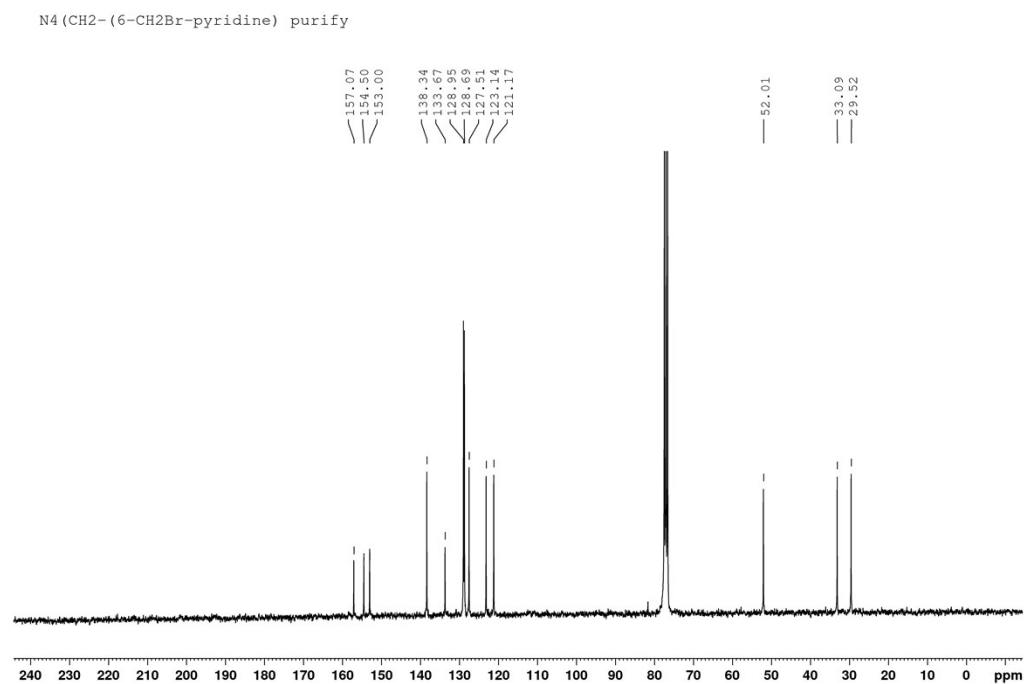
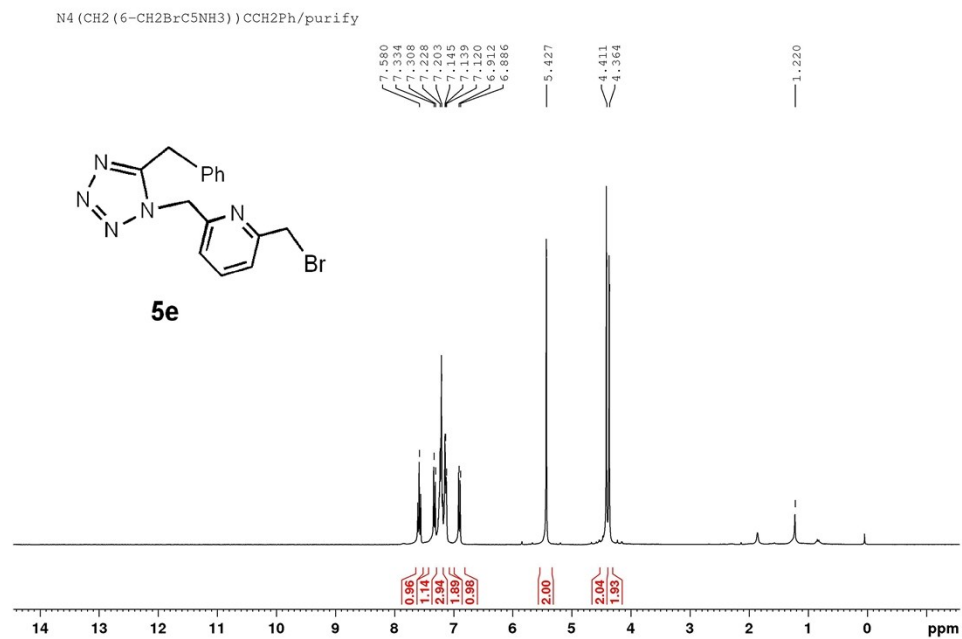


Fig. S15 <sup>1</sup>H and <sup>13</sup>C NMR spectra of compound **5e**.

