

## Supporting Information

### Continuous direct anodic oxidation of aromatic hydrocarbons to benzyl amides

Mikhail A. Kabeshov,<sup>a</sup> Biagia Musio,<sup>a</sup> Steven V. Ley,<sup>a</sup>

<sup>a</sup> Department of Chemistry, University of Cambridge, Cambridge, CB21EW, UK.

\*[svl1000cam.ac.uk](mailto:svl1000cam.ac.uk)

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## S1. General

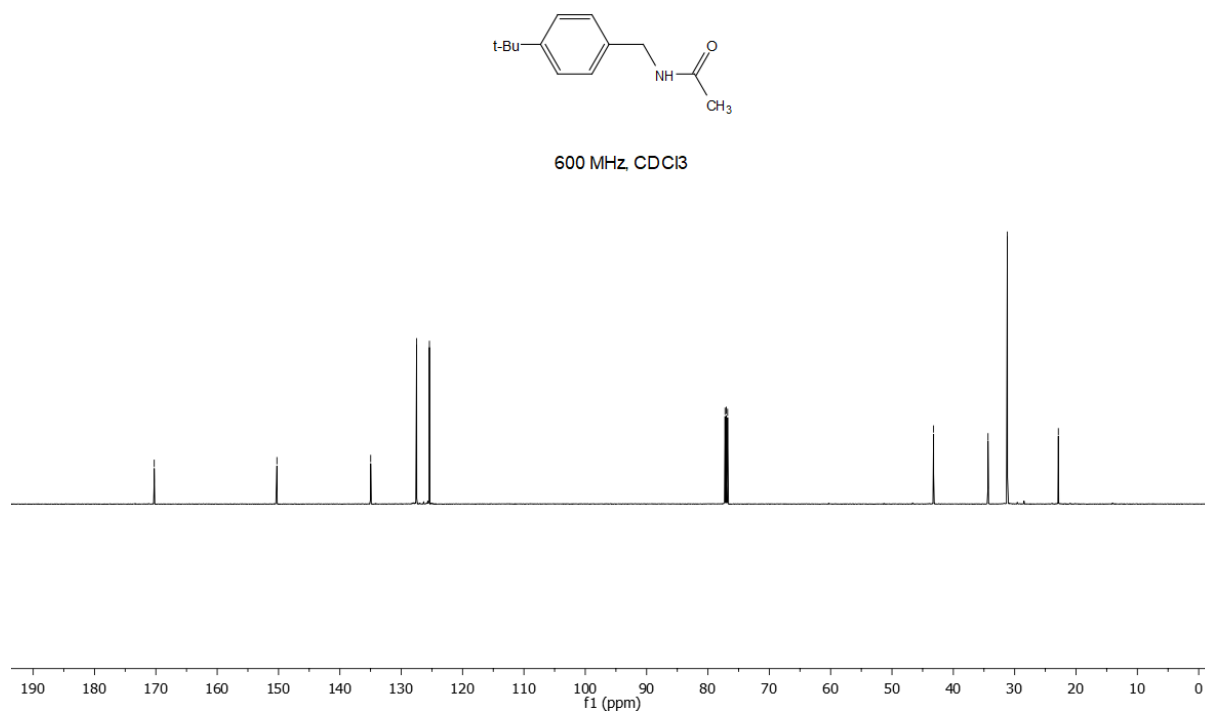
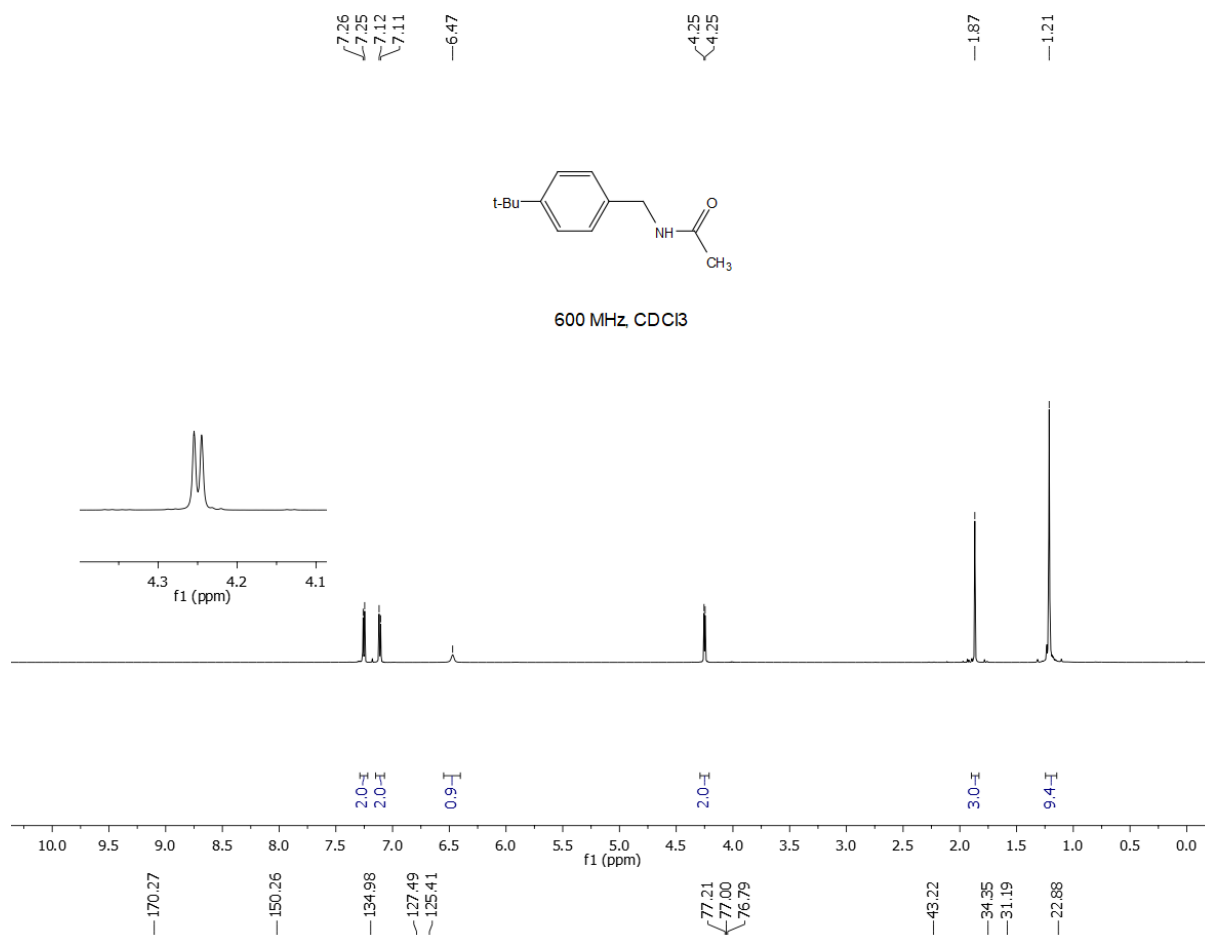
All reagents and solvents were obtained from commercial sources and used without further purification. Flash column chromatography was performed using high-purity grade silica gel (Merck grade 9385) with a pore size 60 Å and 230–400 mesh particle size under air pressure. Analytical thin layer chromatography (TLC) was performed using silica gel 60 F254 pre-coated glass backed plates and visualized by ultraviolet radiation (254 nm) and/or potassium permanganate solution as appropriate. <sup>1</sup>H NMR spectra were recorded on a 600 MHz Avance 600 BBI Spectrometer as indicated. Chemical shifts are reported in ppm with the resonance resulting from incomplete deuteration of the solvent as the internal standard (CDCl<sub>3</sub>: 7.26 ppm; CD<sub>3</sub>OD: 3.35, 4.78). <sup>13</sup>C NMR spectra were recorded on the same spectrometer with complete proton decoupling. Chemical shifts are reported in ppm with the solvent resonance as the internal standard (CDCl<sub>3</sub>: 77.16 ppm, t; CD<sub>3</sub>OD: 49.3 septet). <sup>19</sup>F NMR spectra were recorded on a 376 MHz Avance III HD Spectrometer with complete proton decoupling. Chemical shifts are reported in ppm with CFCI<sub>3</sub> as the external standard (CFCI<sub>3</sub>: 0.00 ppm).

## S2. General procedure for the anodic oxidation of aromatic hydrocarbons 1a-1l in flow.

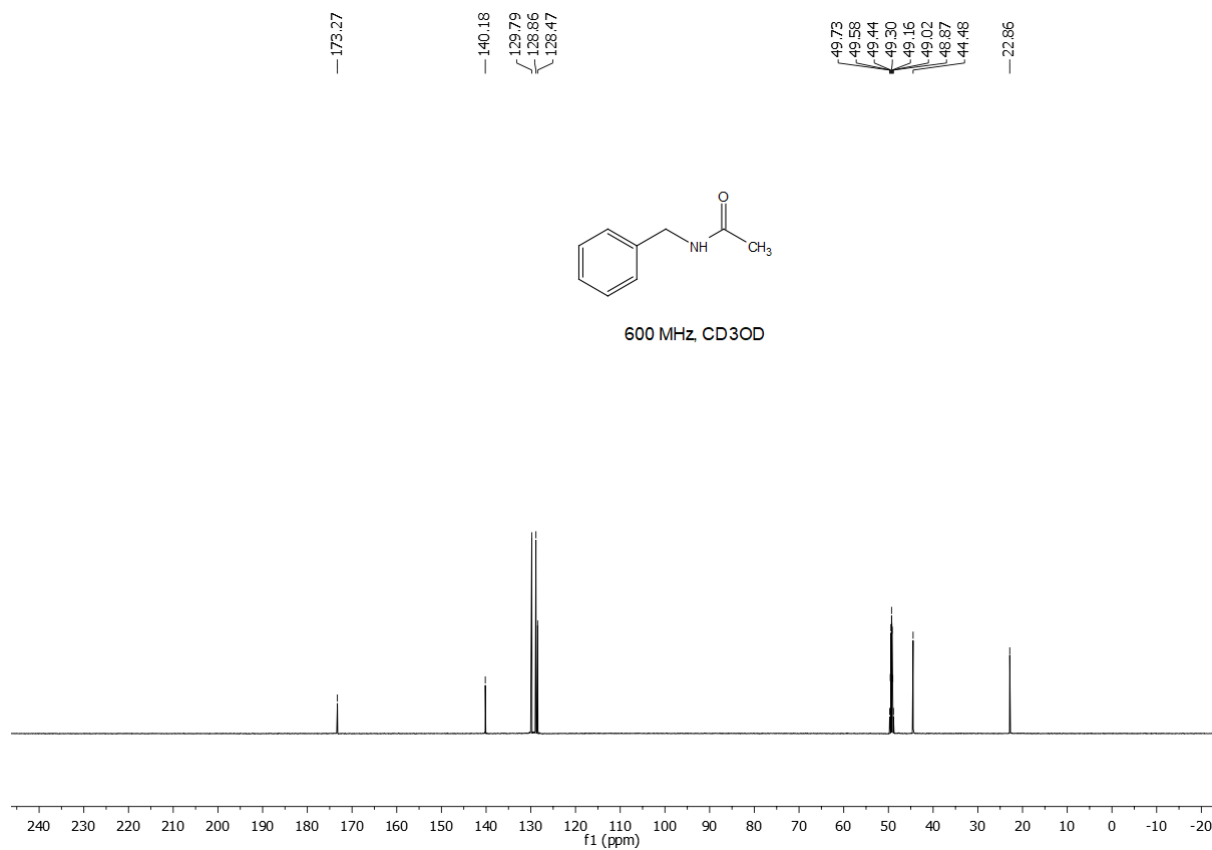
A solution of the aromatic hydrocarbon (0.1 M), Bu<sub>4</sub>NPF<sub>6</sub> (10 %mol) in acetonitrile was pumped (flow rate 500 μl/min) through the Ammonite®8 reactor equipped with the platinum disk anode, circular stainless steel cathode, and FFKM perfluoroelastomer gasket (1 cm<sup>3</sup> volume, 0.5 mm channel depth). The efflux was mixed with a second stream containing a solution of ammonia in methanol (0.7 M, flow rate 500 μl/min). The resulting mixture was passed through a continuous stirring tank (10 ml). The collected solution was directly concentrated *in vacuo*. The crude was purified by flash chromatography as described for each compound.

### S3. Spectral characterization of compounds 3a-3l.

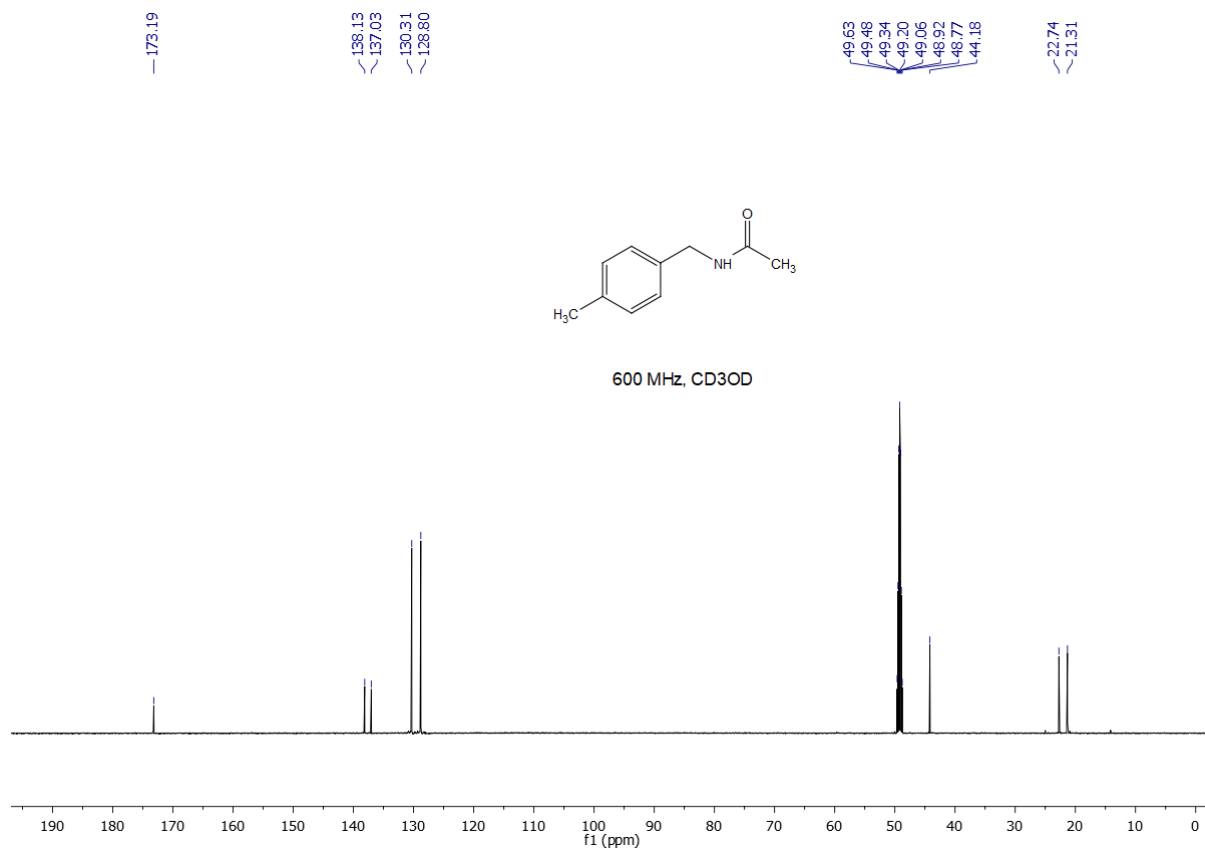
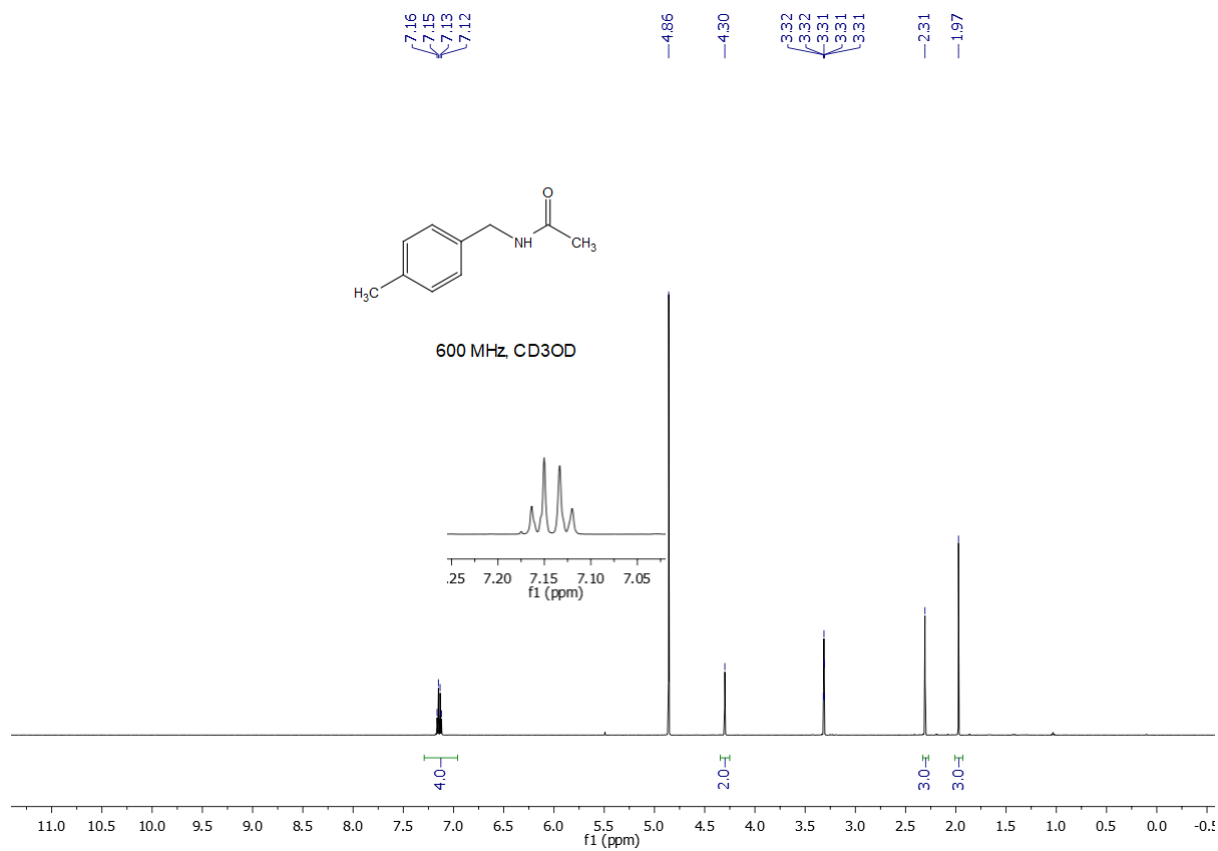
***N*-(4-*tert*-Butylbenzyl)acetamide, 3a.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 63% yield. The NMR spectra are in accordance with the reported data.<sup>1</sup>



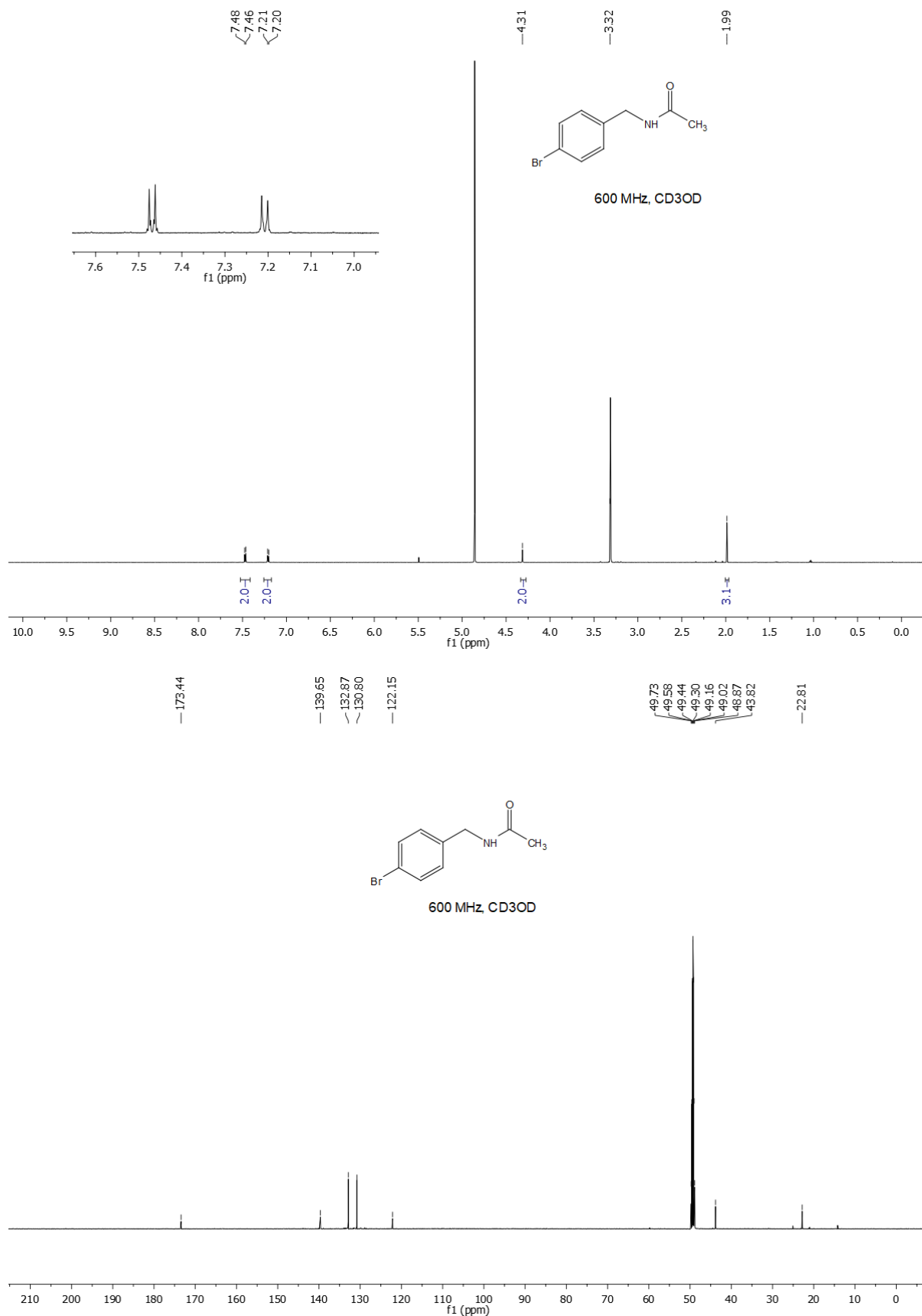
**N-Benzylacetamide, 3b.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 64% yield. The NMR spectra are in accordance with the reported data.<sup>2</sup>



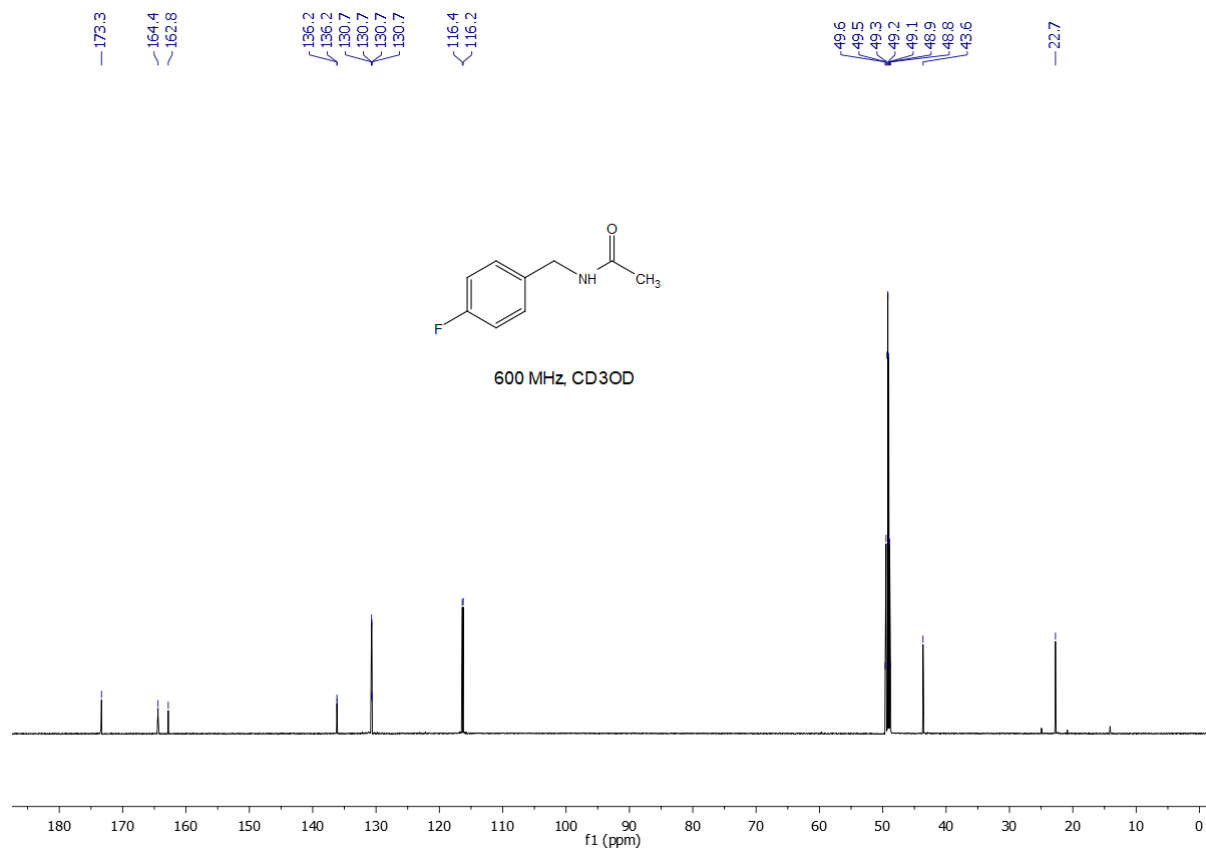
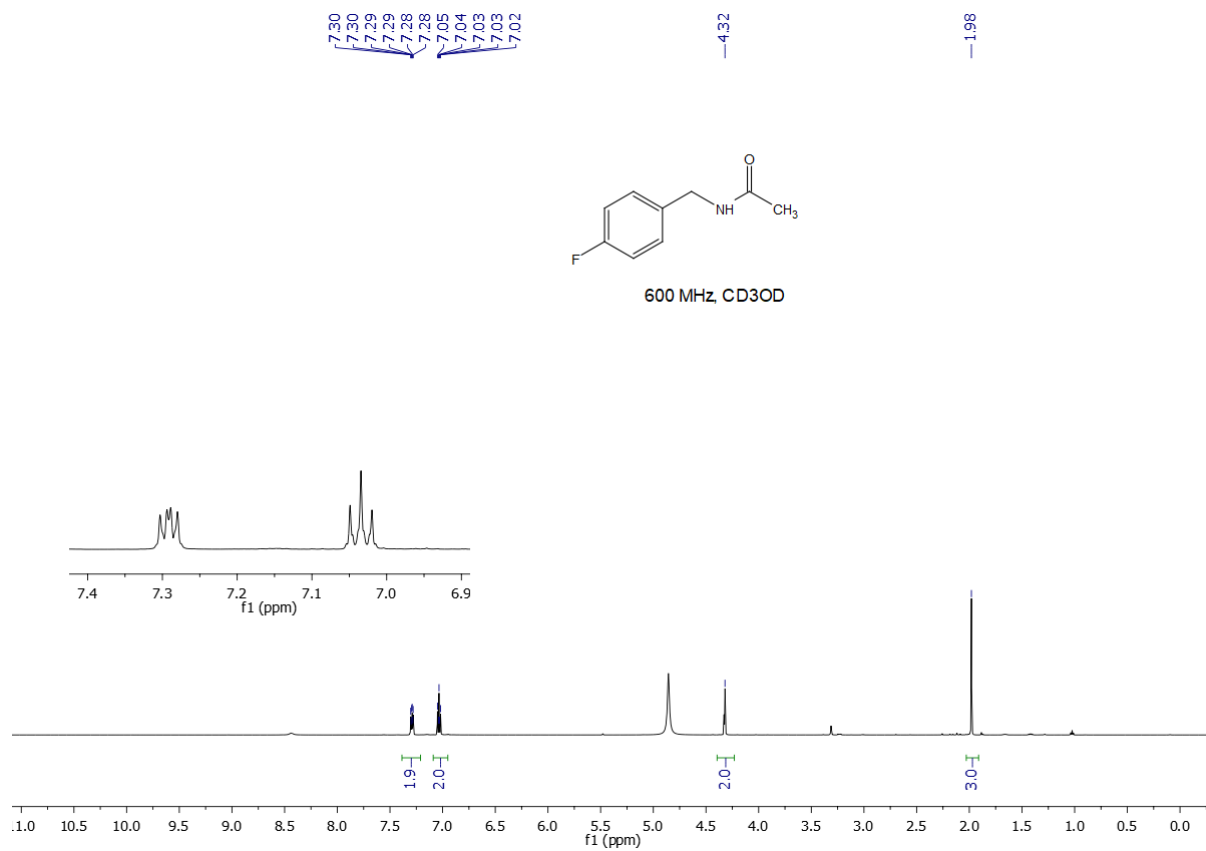
**N-(4-Methylbenzyl)acetamide, 3c.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 53% yield. The NMR spectra are in accordance with the reported data.<sup>3</sup>

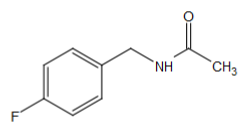


**N-(4-Bromobenzyl)acetamide, 3d.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 53% yield. The NMR spectra are in accordance with the reported data.<sup>2</sup>



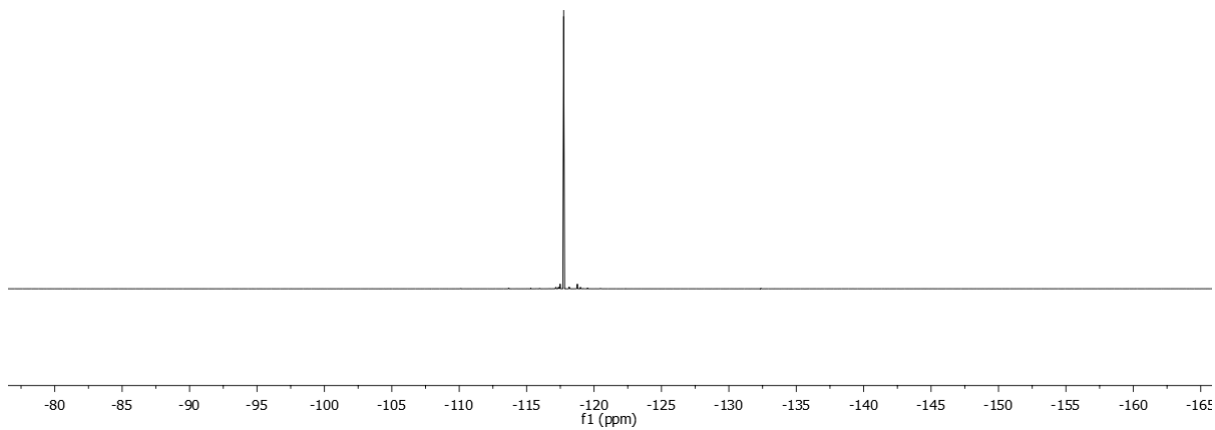
**N-(4-Fluorobenzyl)acetamide, 3e.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 61% yield. The NMR spectra are in accordance with the reported data.<sup>4</sup>





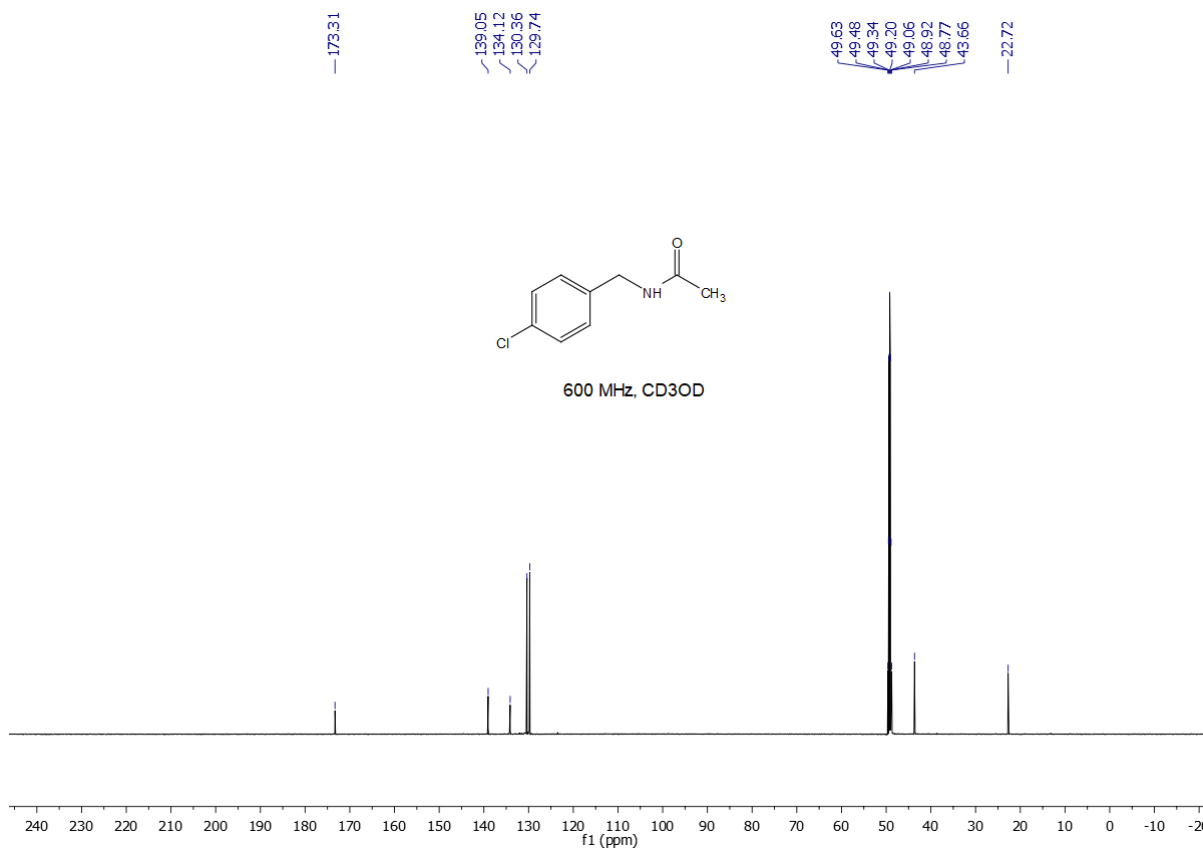
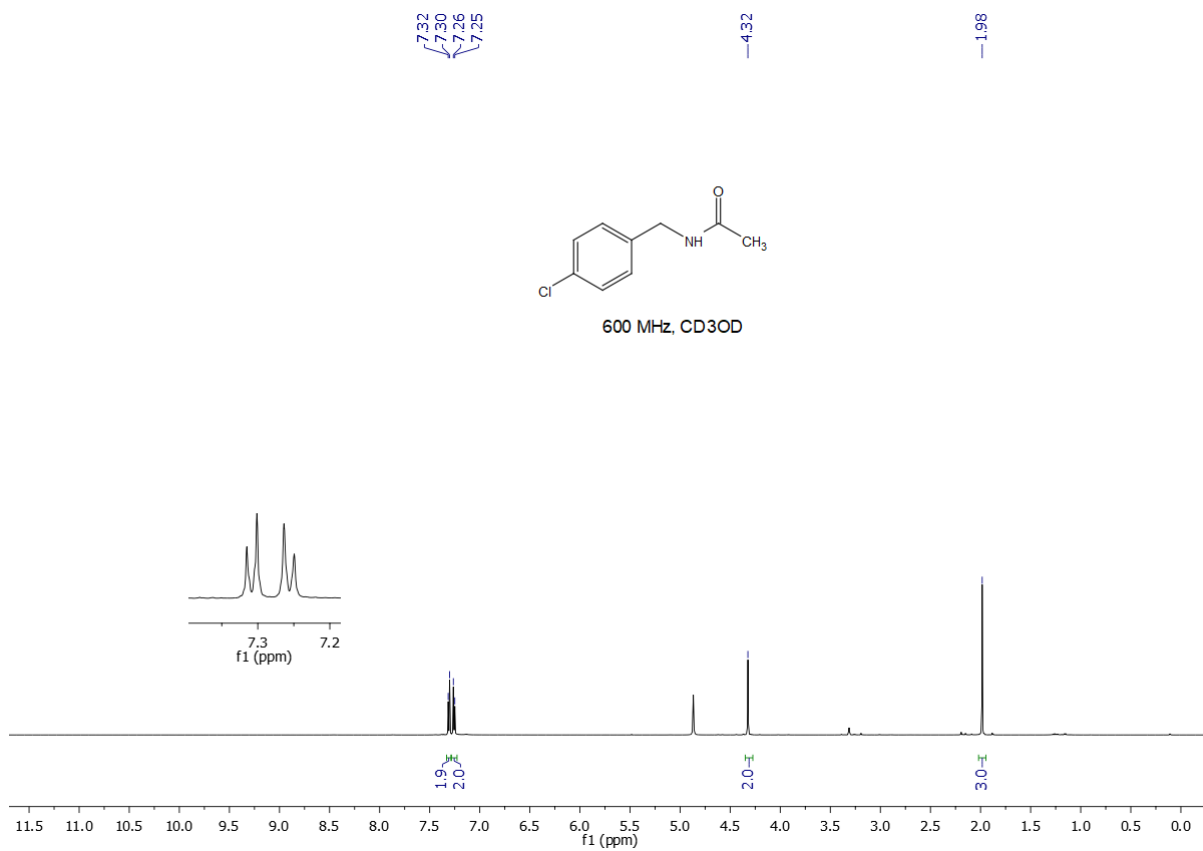
100 MHz, CD3OD

-117.75

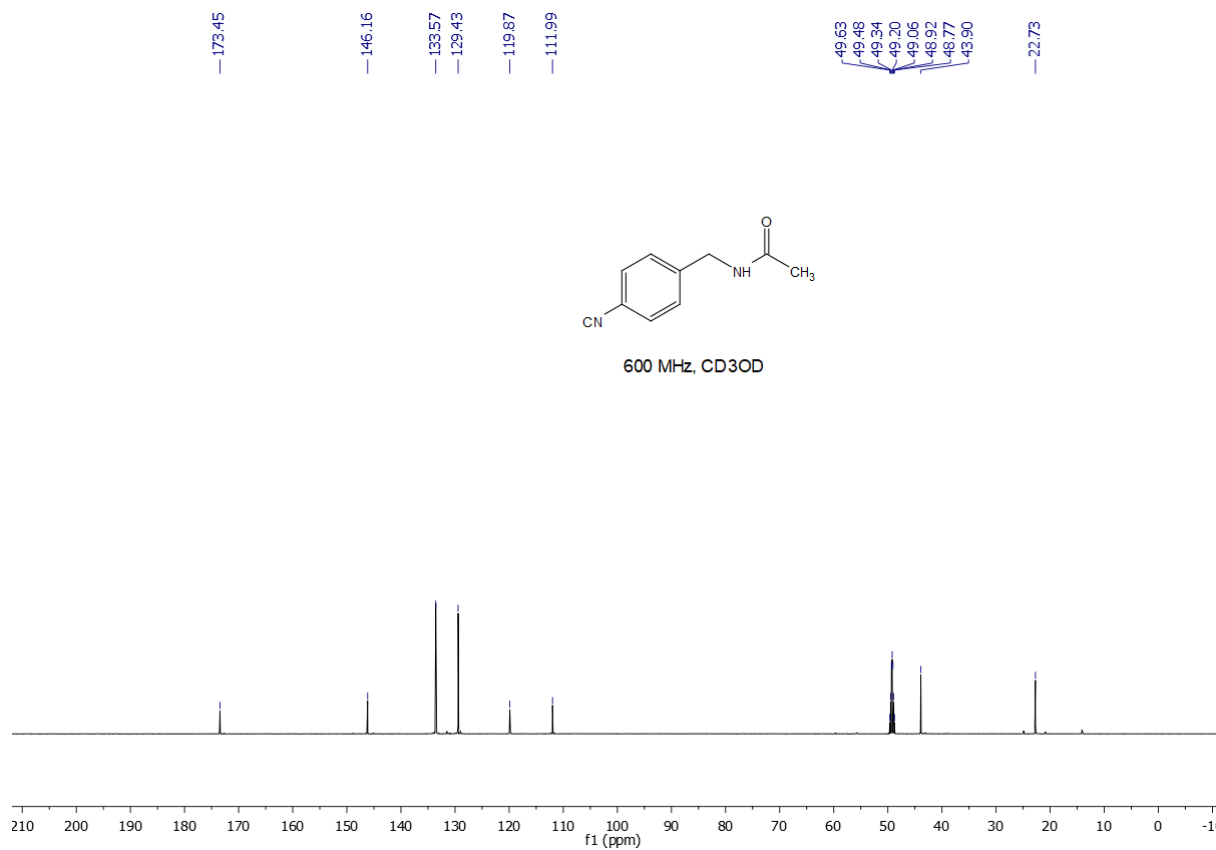
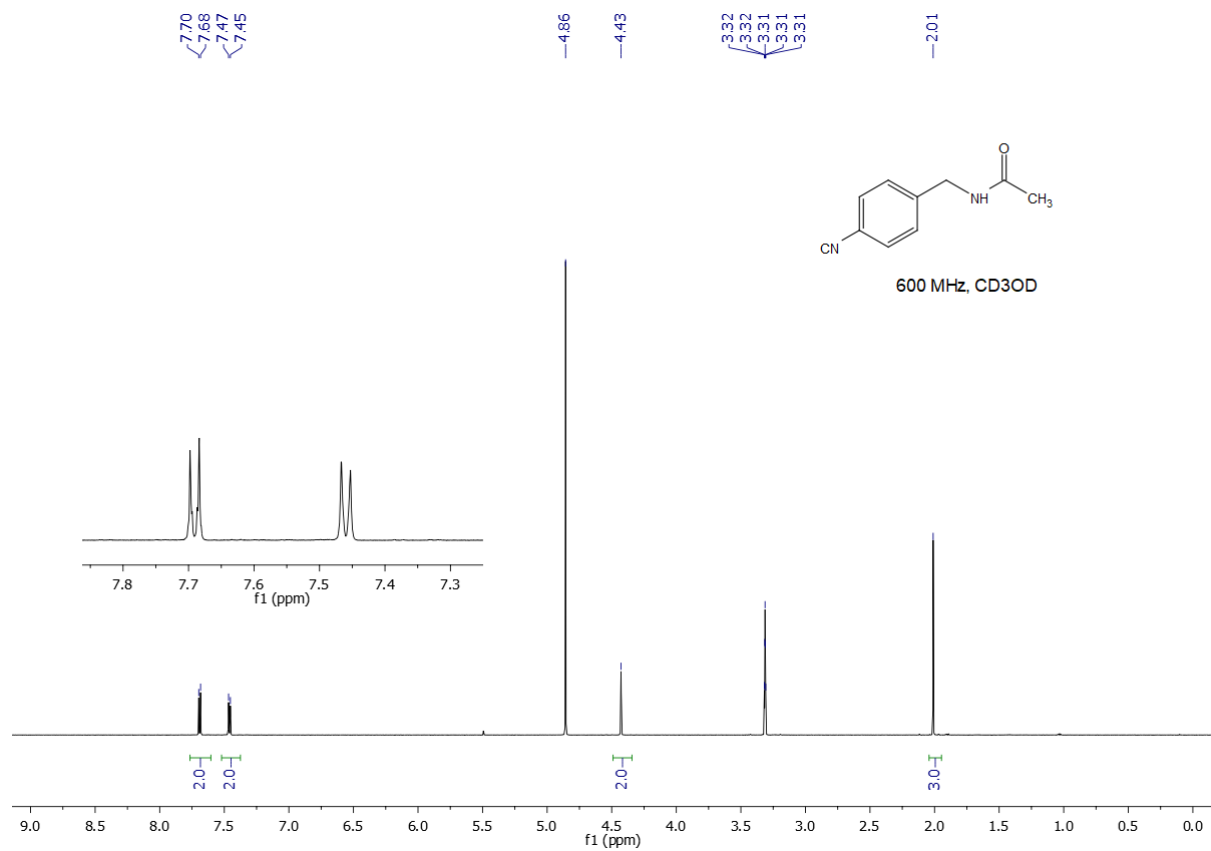




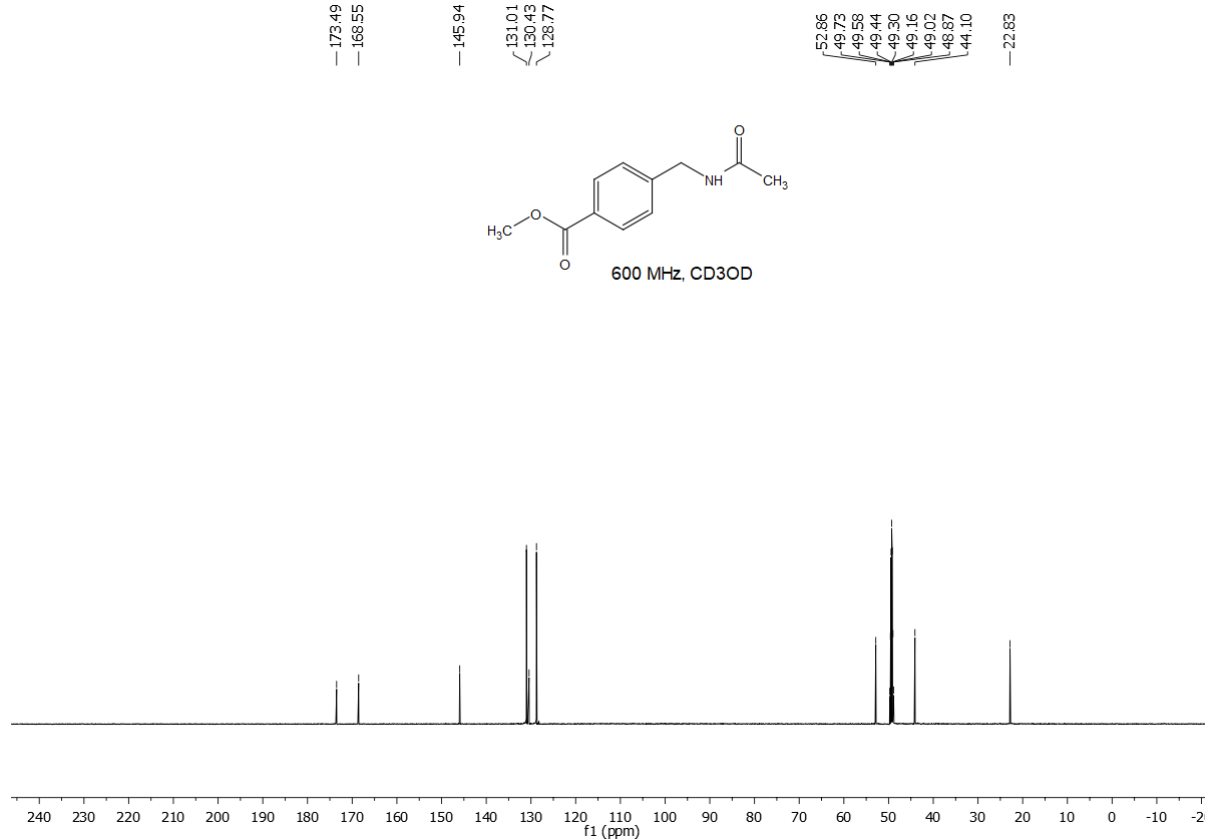
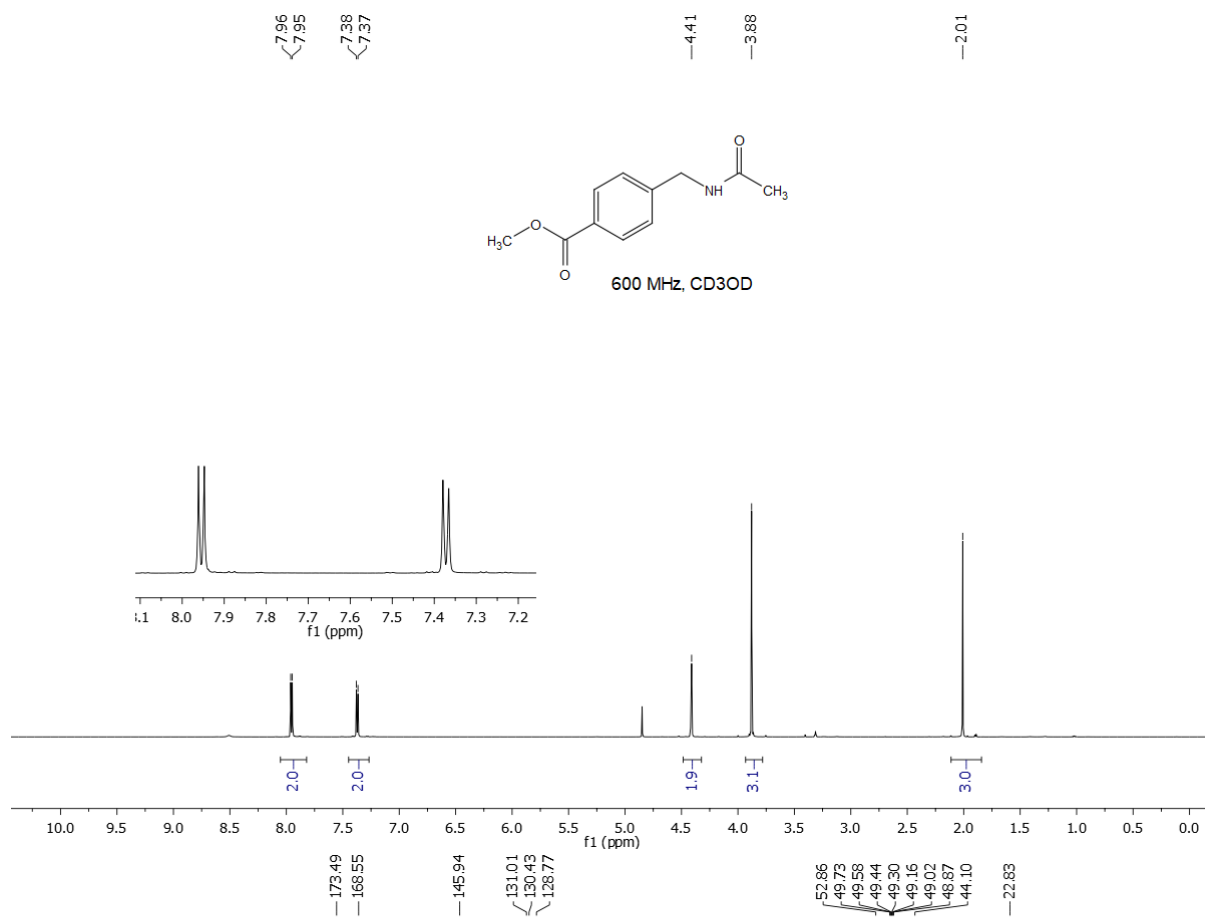
**N-(4-Chlorobenzyl)acetamide, 3f.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 60% yield. The NMR spectra are in accordance with the reported data.<sup>3</sup>



**N-(4-Cyanobenzyl)acetamide, 3g.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 58% yield. The NMR spectra are in accordance with the reported data.<sup>1</sup>



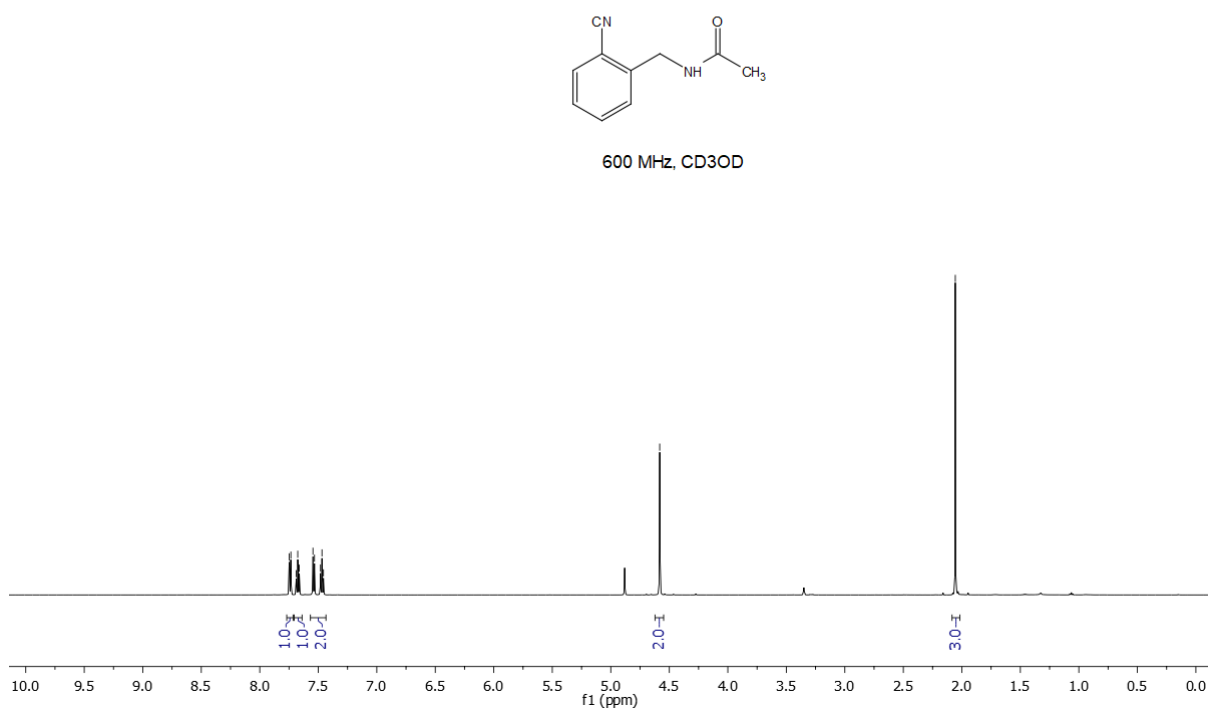
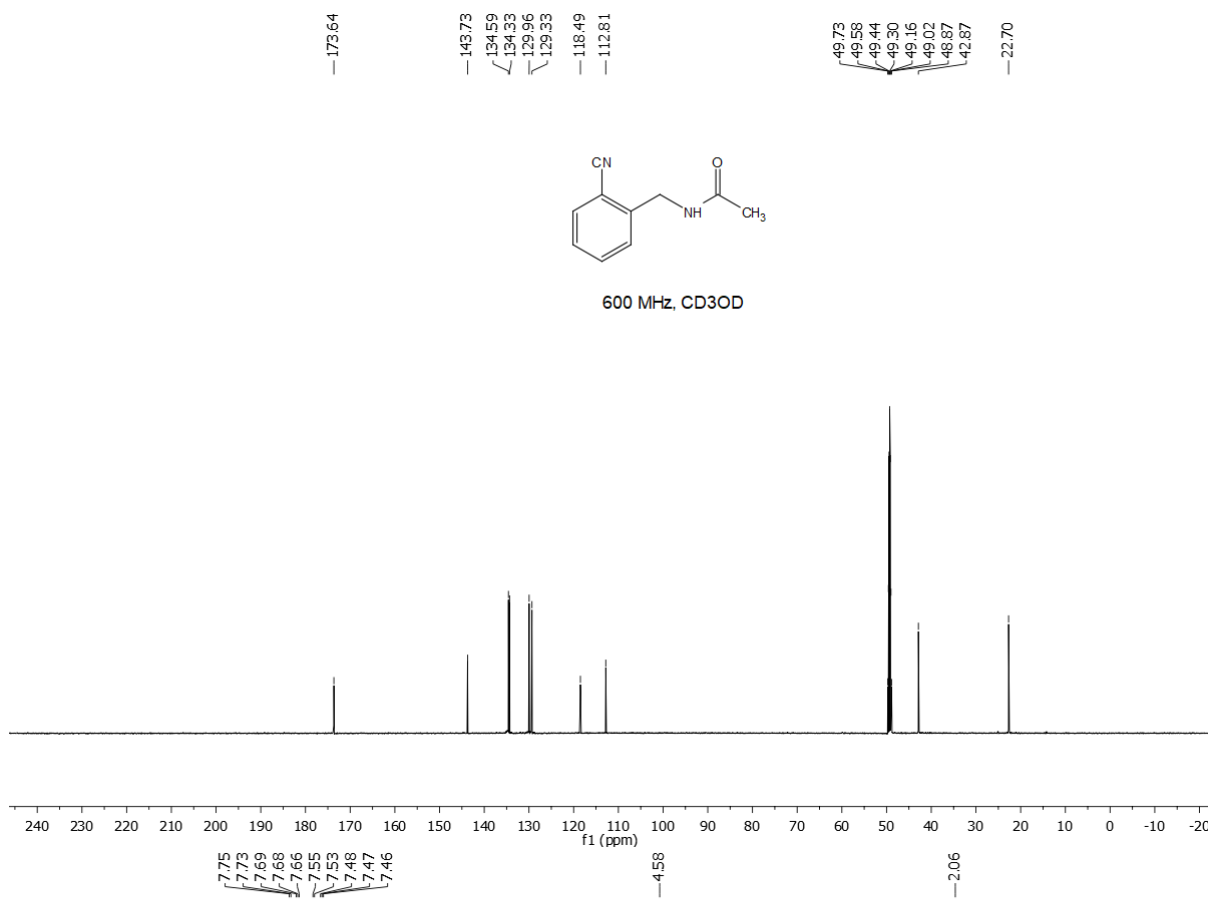
**Methyl 4-(acetamidomethyl)benzoate, 3h.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 60% yield. The NMR spectra are in accordance with the reported data.<sup>5</sup>



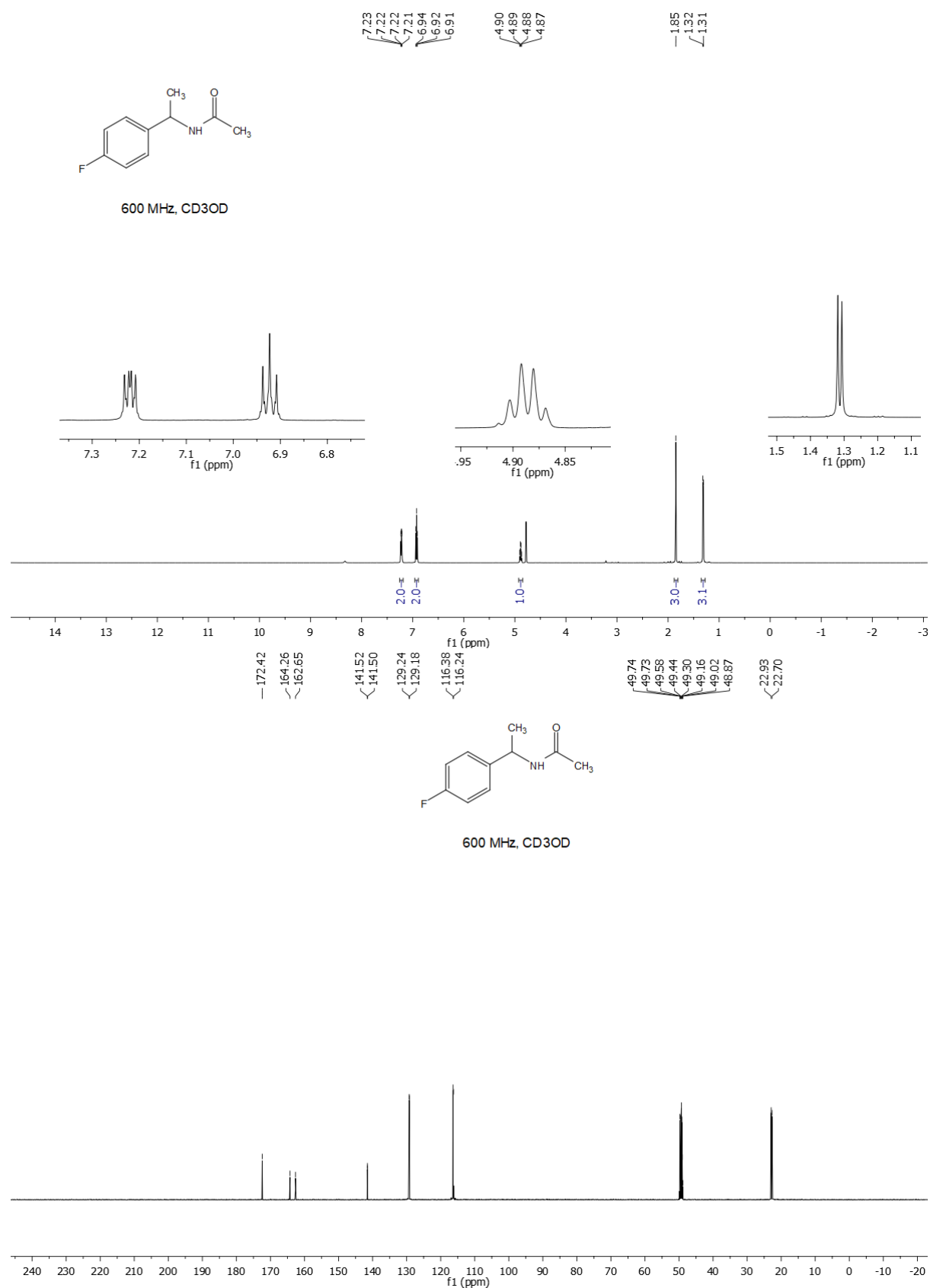
**N-(3-Acetylbenzyl)acetamide, 3i.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 61% yield. The NMR spectra are in accordance with the reported data.<sup>6</sup>

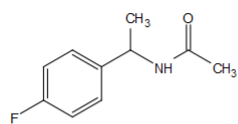


**N-(2-Cyanobenzyl)acetamide, 3j.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 54% yield. The NMR spectra are in accordance with the reported data.<sup>7</sup>

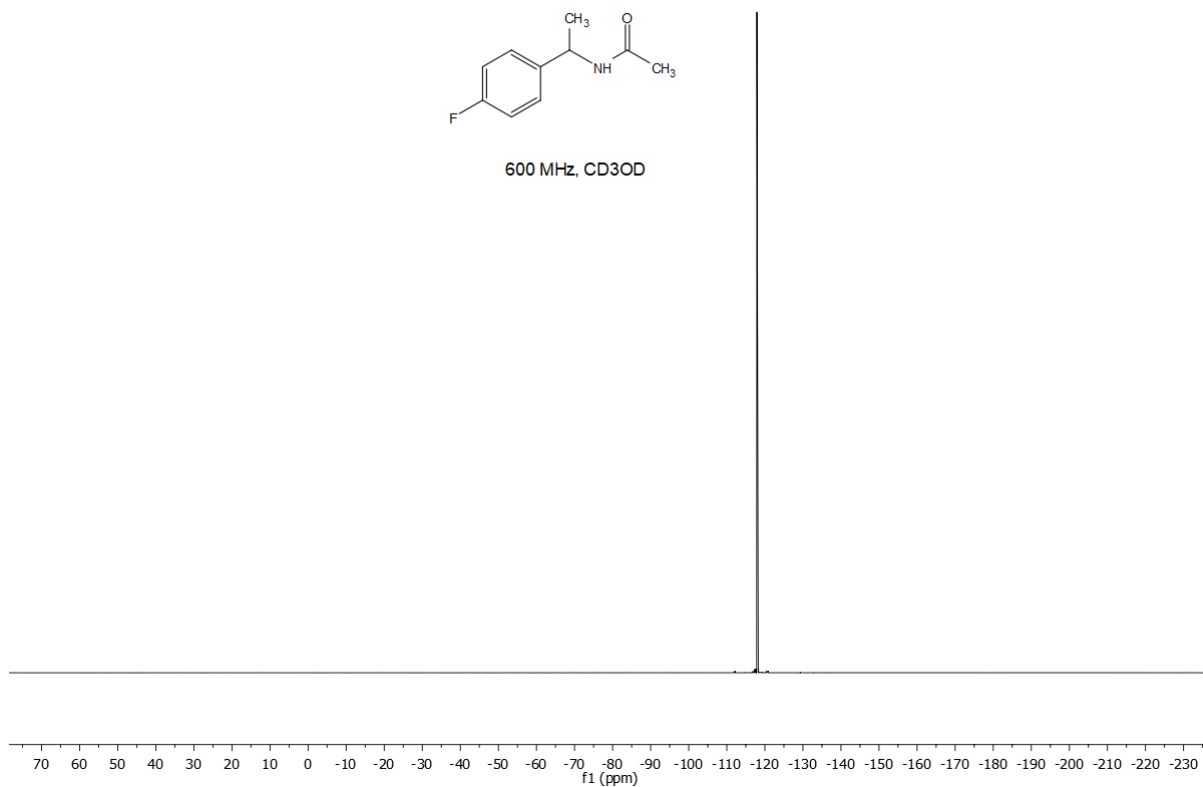


**N-(1-(4-Fluorophenyl)ethyl)acetamide, 3k.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 64% yield. The NMR spectra are in accordance with the reported data.<sup>8</sup>

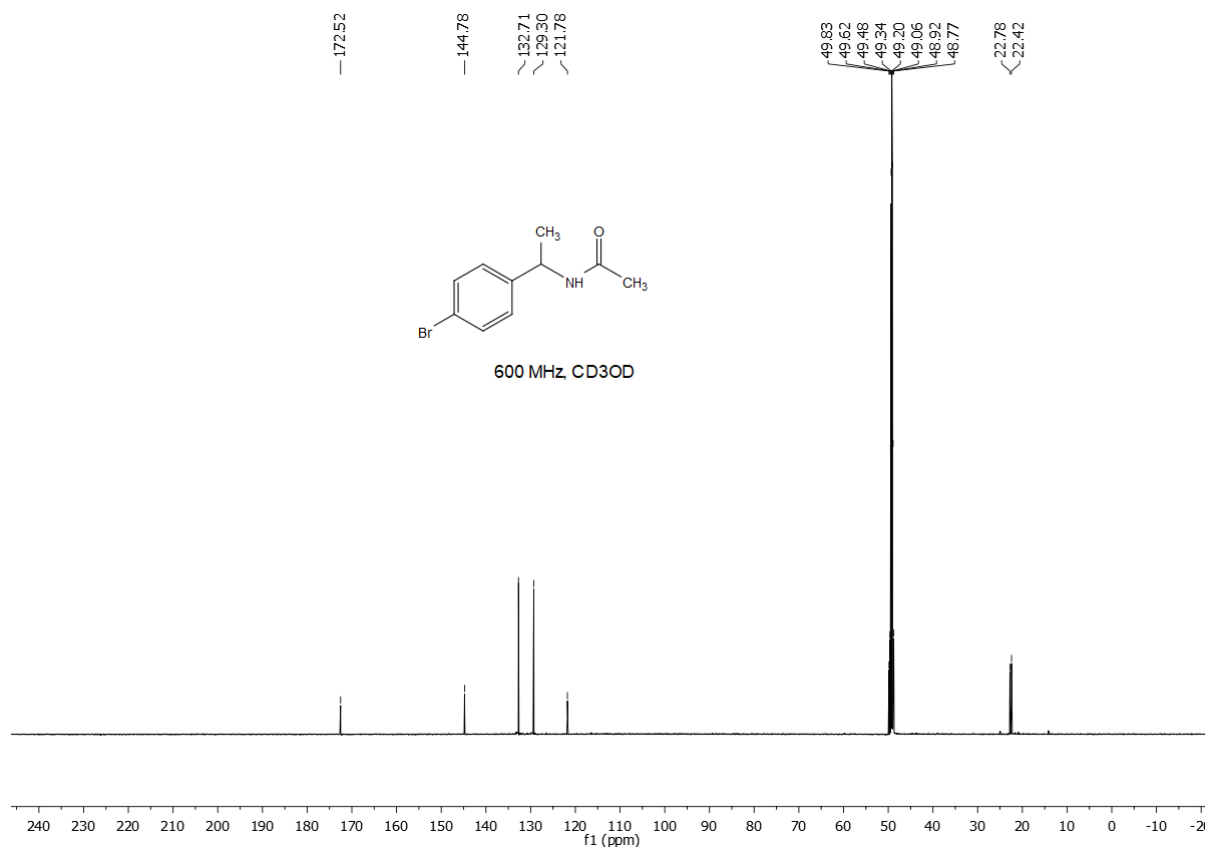
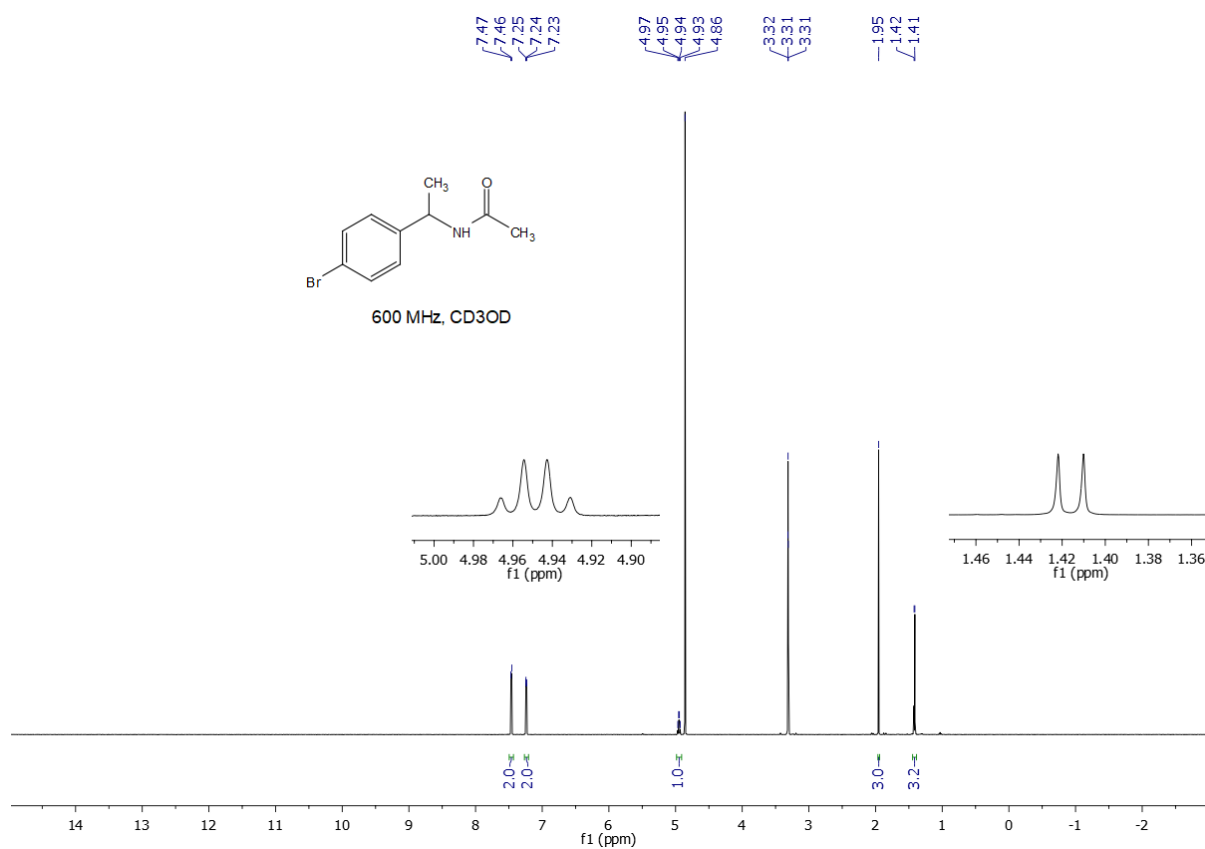




600 MHz, CD3OD



**N-(1-(4-Bromophenyl)ethyl)acetamide, 3I.** Isolated by flash chromatography (dichloromethane/methanol 90/10), 53% yield. The NMR spectra are in accordance with the reported data.<sup>2</sup>





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- <sup>1</sup> Rubio-Pérez, L.; Sharma, P.; Pérez-Flores, F. J.; Velasco, L.; Arias, J. L.; Cabrera, A. *Tetrahedron* **2012**, *68* (10), 2342–2348.
- <sup>2</sup> Li, Y.; Wang, C.; Zhu, F.; Wang, Z.; François Soulé, J.; Dixneuf, P. H.; Wu, X.-F. *Chem. Commun.* **2017**, *53*, 142–144.
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- <sup>4</sup> Pfaff, D.; Nemecek, G.; Podlech, J. *Beilstein J. Org. Chem.* **2013**, *9*, 1572–1577.
- <sup>5</sup> Häring, A. P.; Biallas, P.; Kirsch, S. F. *European J. Org. Chem.* **2017**, *2017* (11), 1526–1539.
- <sup>6</sup> Katsura, Y.; Tomishi, T.; Inoue, Y.; Sakane, K.; Matsumoto, Y.; Morinaga, C.; Ishikawa, H.; Takasugi, H. *J. Med. Chem.* **2000**, *43* (17), 3315–3321.
- <sup>7</sup> Servais, A.; Azzouz, M.; Lopes, D.; Courillon, C.; Malacria, M. *Angew. Chemie - Int. Ed.* **2007**, *46* (4), 576–579.
- <sup>8</sup> Li, G.; Antilla, J. C. *Org. Lett.* **2009**, *11* (5), 1075–1078.