

## Supplementary Material

# Metal-free sequential reaction *via* a propargylation, annulation and isomerization sequence for the one-pot synthesis of 2,3-disubstituted benzofurans

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## Contents

<b>Experimental Section</b> .....	<b>S2</b>
General.....	S2
General procedure for the one-pot sequential synthesis of benzofuran <b>4</b> (Table 4).....	S2
<b>Reference</b> .....	<b>S10</b>
<b>NMR and MS spectra</b> .....	<b>S11</b>
2-benzyl-5-( <i>tert</i> -butyl)-3-(4-methoxyphenyl)benzofuran (4aa).....	S11
2-benzyl-5-( <i>tert</i> -butyl)-3-( <i>p</i> -tolyl)benzofuran (4ab).....	S13
2-benzyl-5-( <i>tert</i> -butyl)-3-phenylbenzofuran (4ac).....	S14
2-benzyl-5-( <i>tert</i> -butyl)-3-(naphthalen-1-yl)benzofuran (4ad).....	S15
2-benzyl-3-(4-bromophenyl)-5-( <i>tert</i> -butyl)benzofuran (4ae).....	S17
2-benzyl-5-methoxy-3-(4-methoxyphenyl)benzofuran (4ba).....	S18
2-benzyl-5-methoxy-3-( <i>p</i> -tolyl)benzofuran (4bb).....	S19
2-benzyl-5-methoxy-3-phenylbenzofuran (4bc).....	S21
2-benzyl-1-(4-methoxyphenyl)naphtho[2,1- <i>b</i> ]furan (4ca).....	S22
2-benzyl-1-( <i>p</i> -tolyl)naphtho[2,1- <i>b</i> ]furan (4cb).....	S23
2-benzyl-1-phenylnaphtho[2,1- <i>b</i> ]furan (4cc).....	S25
2-benzyl-1-(naphthalen-1-yl)naphtho[2,1- <i>b</i> ]furan (4cd).....	S26
2-benzyl-3-(4-methoxyphenyl)-5-methylbenzofuran (4da).....	S27
2-benzyl-5-methyl-3-( <i>p</i> -tolyl)benzofuran (4db).....	S29
2-benzyl-5-methyl-3-phenylbenzofuran (4dc).....	S30
2-benzyl-4,6-dimethyl-3-( <i>p</i> -tolyl)benzofuran (4eb).....	S31
2-benzyl-4,6-dimethyl-3-phenylbenzofuran (4ec).....	S33
2-benzyl-3-(4-bromophenyl)-4,6-dimethylbenzofuran (4ee).....	S34
2-benzyl-3-(4-methoxyphenyl)-5-phenylbenzofuran (4fa).....	S36
2-benzyl-5-phenyl-3-( <i>p</i> -tolyl)benzofuran (4fb).....	S37
2-benzyl-3,5-diphenylbenzofuran (4fc).....	S39
2-benzyl-5-chloro-3-(4-methoxyphenyl)benzofuran (4ga).....	S40
2-benzyl-5-chloro-3-phenylbenzofuran (4gc).....	S41
<i>N</i> -(2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)acetamide (4ha).....	S42
<i>N</i> -(2-benzyl-3-phenylbenzofuran-5-yl)acetamide (4hc).....	S44
<i>tert</i> -butyl (2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)carbamate (4ia).....	S45
<i>tert</i> -butyl (3-(4-methoxyphenyl)-2-pentylbenzofuran-5-yl)carbamate (4if).....	S48
1-(4-methoxyphenyl)-2-pentyl-naphtho[2,1- <i>b</i> ]furan (4cf).....	S50

## Experimental Section

### General.

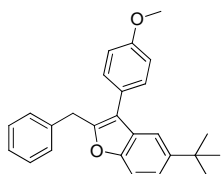
Commercially available reagents were used as received. *t*-BuOK (98%) was purchased from Aladdin® Reagent (Shanghai, China). Solvents for reactions were dried with standard procedures and stored with Schlenk flasks over molecular sieves if not noted otherwise. All solvents for chromatographic separations were distilled before use. Column chromatography was carried out with Haiyang 200–300 mesh silica gel (Qingdao, China). <sup>1</sup>H and <sup>13</sup>C NMR spectra were recorded on a 300 MHz or 600 MHz spectrometer (Bruker) at 293 K and the chemical shifts ( $\delta$ ) were internally referenced by the residual solvent signals relative to tetramethylsilane (CDCl<sub>3</sub> at 7.26 ppm for <sup>1</sup>H, and at 77.00 ppm for <sup>13</sup>C). Data are reported as (s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet; coupling constant(s) in Hz; integration). High resolution mass spectra (HRMS) of **4aa**, **4ee**, **4ga** and **4ia** were obtained on a APEXIII 7.0 TESLA FTMS (Bruker Daltonics) or Micromass GCT Premier (Waters) mass spectrometer at the Department of Analytical Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences (CAS), and those of the rest were on a LCMS TOF 6224 (Agilent) mass spectrometer at National Center for Drug Screening, Shanghai Institute of Materia Medica, CAS. All the known products were confirmed by comparison with spectroscopic analysis of the authentic samples. The yields in Tables 1–4 refer to isolated yields of compounds (average of two runs).

### General procedure for the one-pot sequential synthesis of benzofuran **4** from phenol **1** with propargyl alcohol **2** (Table 4).

In a typical run, a 25 mL reaction flask was charged with the solution of 4-toluenesulphonic acid monohydrate (TsOH·H<sub>2</sub>O, 19 mg, 0.1 mmol) in CH<sub>2</sub>Cl<sub>2</sub> (4 mL). Then propargyl alcohol **2** (0.5 mmol) and phenol **1** (1 mmol) were added in sequential order, and the mixture was stirred at ambient temperature until **2** had disappeared as monitored by TLC (typically, for 2–5 h). For the reactions that need to be heated, the flask was equipped with a condenser and the mixture was stirred at the indicated temperature until **2** had disappeared as monitored by TLC (similarly hereinafter). Then potassium *tert*-butoxide (153 mg, 1.25 mmol) was recharged *in situ*. The reaction mixture was continually stirred at ambient temperature until the new component that generated at the first stage had fully transformed as monitored by TLC (typically, for 5–8 h), then diluted with CH<sub>2</sub>Cl<sub>2</sub> (10 mL) and washed with brine (10 mL). The

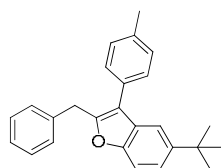
aqueous phase was extracted with CH<sub>2</sub>Cl<sub>2</sub> (two portions of 10 mL each). The combined organic phase was washed with deionized water and brine, dried over anhydrous MgSO<sub>4</sub>, and then filtered and concentrated. The crude product was purified by column chromatography (silica, hexane or hexane/EtOAc mixture as eluent). Any deviations from this procedure are noted in Table 4.

**2-benzyl-5-(*tert*-butyl)-3-(4-methoxyphenyl)benzofuran (4aa).**



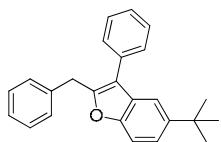
A white amorphous solid (166 mg, 90% yield). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz): δ 7.46 (d, *J* = 1.2 Hz, 1H), 7.39–7.10 (m, 9H), 6.95 (d, *J* = 8.7 Hz, 2H), 4.08 (s, 2H), 3.78 (s, 3H), 1.27 (s, 9H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz): δ 158.8, 152.5, 152.4, 145.7, 138.1, 130.2, 128.5, 128.45, 128.42, 126.5, 124.9, 121.7, 118.0, 115.7, 114.3, 110.4, 55.3, 34.7, 32.8, 31.9. HRMS (ESI-FTMS) calcd for C<sub>26</sub>H<sub>26</sub>NaO<sub>2</sub> (M<sup>+</sup>+Na): 393.1825; found: 393.1814.

**2-benzyl-5-(*tert*-butyl)-3-(*p*-tolyl)benzofuran (4ab).**



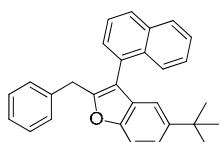
A white amorphous solid (132 mg, 74% yield). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz): δ 7.56 (d, *J* = 1.2 Hz, 1H), 7.41 (d, *J* = 8.0 Hz, 2H), 7.37–7.18 (m, 9H), 4.18 (s, 2H), 2.43 (s, 3H), 1.35 (s, 9H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz): δ 152.54, 152.50, 145.8, 138.1, 136.9, 129.65, 129.58, 129.0, 128.54, 128.45, 128.3, 126.5, 121.7, 118.3, 115.8, 110.4, 34.8, 32.8, 31.9, 24.3. HRMS (ESI-TOF) calcd for C<sub>26</sub>H<sub>27</sub>O (M<sup>+</sup>+H): 355.2056; found: 355.2053.

**2-benzyl-5-(*tert*-butyl)-3-phenylbenzofuran (4ac).<sup>1</sup>**



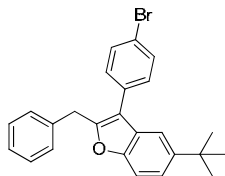
A white amorphous solid (134 mg, 79% yield). <sup>1</sup>H NMR (CDCl<sub>3</sub>, 300 MHz): δ 7.60–7.45 (m, 5H), 7.41–7.16 (m, 8H), 4.18 (s, 2H), 1.35 (s, 9H). <sup>13</sup>C NMR (CDCl<sub>3</sub>, 75 MHz): δ 152.7, 152.5, 145.8, 138.0, 132.7, 129.1, 128.9, 128.6, 128.4, 128.2, 127.2, 126.5, 121.8, 118.4, 115.7, 110.4, 34.8, 32.8, 31.9.

**2-benzyl-5-(*tert*-butyl)-3-(naphthalen-1-yl)benzofuran (4ad).**



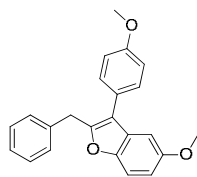
A white amorphous solid (167 mg, 86% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.94 (d,  $J = 8.5$  Hz, 2H), 7.81 (d,  $J = 8.4$  Hz, 1H), 7.60–7.48 (m, 3H), 7.46–7.31 (m, 3H), 7.25–7.12 (m, 6H), 4.07 (d,  $J = 15.7$  Hz, 1H), 3.96 (d,  $J = 15.7$  Hz, 1H), 1.25 (s, 9H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  155.1, 152.5, 145.8, 137.7, 133.7, 132.5, 130.07, 129.5, 128.6, 128.4, 128.34, 128.32, 128.2, 126.4, 126.3, 126.01, 125.98, 125.6, 121.7, 116.7, 116.5, 110.3, 34.7, 33.1, 31.8. HRMS (ESI-TOF) calcd for  $\text{C}_{29}\text{H}_{27}\text{O}$  ( $\text{M}^+\text{H}$ ): 391.2056; found: 391.2048.

**2-benzyl-3-(4-bromophenyl)-5-(*tert*-butyl)benzofuran (4ae).**<sup>1</sup>



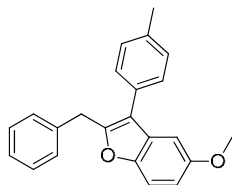
A white amorphous solid (132 mg, 63% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.61 (d,  $J = 8.3$  Hz, 2H), 7.50 (s, 1H), 7.41–7.32 (m, 4H), 7.31–7.17 (m, 5H), 4.15 (s, 2H), 1.35 (s, 9H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  152.9, 152.5, 146.0, 137.7, 132.0, 131.6, 130.7, 128.6, 128.4, 127.8, 126.6, 122.1, 121.2, 117.4, 115.4, 110.5, 34.8, 32.8, 31.8.

**2-benzyl-5-methoxy-3-(4-methoxyphenyl)benzofuran (4ba).**



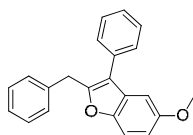
A white amorphous solid (137 mg, 80% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.42 (d,  $J = 8.7$  Hz, 2H), 7.35–7.18 (m, 6H), 7.05–6.98 (m, 3H), 6.86 (dd,  $J = 2.6$  Hz, 8.8 Hz, 1H), 4.15 (s, 2H), 3.85 (s, 3H), 3.80 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  158.9, 156.0, 153.1, 149.2, 138.0, 130.1, 129.4, 128.6, 128.4, 126.5, 124.7, 118.0, 114.3, 112.3, 111.5, 102.4, 56.0, 55.3, 32.9. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{21}\text{O}_3$  ( $\text{M}^+\text{H}$ ): 345.1485; found: 345.1481.

**2-benzyl-5-methoxy-3-(*p*-tolyl)benzofuran (4bb).**



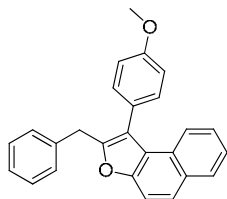
A white amorphous solid (123 mg, 75% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.40 (d,  $J = 8.0$  Hz, 2H), 7.36–7.18 (m, 8H), 7.02 (d,  $J = 2.5$  Hz, 1H), 6.86 (dd,  $J = 2.6$  Hz, 8.8 Hz, 1H), 4.17 (s, 2H), 3.80 (s, 3H), 2.42 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  156.0, 153.2, 149.2, 138.0, 137.0, 129.6, 129.5, 129.3, 128.8, 128.6, 128.5, 126.5, 118.3, 112.4, 111.5, 102.3, 56.0, 32.9, 21.3. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{21}\text{O}_2$  ( $\text{M}^+\text{H}$ ): 329.1536; found: 329.1533.

**2-benzyl-5-methoxy-3-phenylbenzofuran (4bc).**<sup>1</sup>



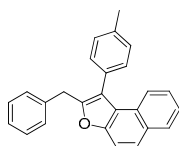
A white amorphous solid (116 mg, 74% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.53–7.45 (m, 4H), 7.43–7.19 (m, 7H), 7.03 (d,  $J = 2.4$  Hz, 1H), 6.87 (dd,  $J = 2.5$  Hz, 8.9 Hz, 1H), 4.18 (s, 2H), 3.81 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  155.9, 153.3, 149.1, 137.8, 132.4, 129.0, 128.9, 128.8, 128.5, 128.3, 127.2, 126.4, 118.3, 112.4, 111.4, 102.2, 55.9, 32.8.

**2-benzyl-1-(4-methoxyphenyl)naphtho[2,1-*b*]furan (4ca).**



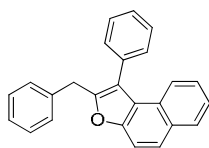
A white amorphous solid (127 mg, 70% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.90 (d,  $J = 8.0$  Hz, 1H), 7.77 (d,  $J = 8.2$  Hz, 1H), 7.68 (d,  $J = 8.9$  Hz, 1H), 7.61 (d,  $J = 8.9$  Hz, 1H), 7.43 (d,  $J = 8.6$  Hz, 2H), 7.38 (t,  $J = 7.5$  Hz, 1H), 7.33–7.18 (m, 6H), 7.06 (d,  $J = 8.6$  Hz, 2H), 4.07 (s, 2H), 3.92 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  159.2, 152.7, 151.6, 138.2, 131.6, 130.7, 128.8, 128.53, 128.51, 128.1, 126.4, 126.4, 125.8, 125.7, 124.8, 124.0, 123.1, 122.4, 119.5, 114.1, 112.3, 55.3, 32.6. HRMS (ESI-TOF) calcd for  $\text{C}_{26}\text{H}_{21}\text{O}_2$  ( $\text{M}^+\text{+H}$ ): 365.1536; found: 365.1519.

**2-benzyl-1-(*p*-tolyl)naphtho[2,1-*b*]furan (4cb).<sup>2</sup>**



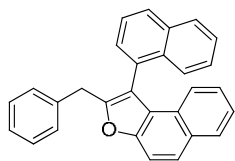
A white amorphous solid (139 mg, 80% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 600 MHz):  $\delta$  7.86 (d,  $J = 8.1$  Hz, 1H), 7.78 (d,  $J = 8.3$  Hz, 1H), 7.64 (d,  $J = 8.9$  Hz, 1H), 7.59 (d,  $J = 8.9$  Hz, 1H), 7.39 (d,  $J = 8.0$  Hz, 2H), 7.34 (dt,  $J = 1.1$  Hz, 7.5 Hz, 4H), 7.30 (d,  $J = 8.0$  Hz, 2H), 7.28–7.23 (m, 3H), 7.22–7.20 (m, 2H), 7.19–7.14 (m, 1H), 4.04 (s, 2H), 2.45 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz):  $\delta$  152.7, 151.7, 138.3, 137.5, 130.8, 130.4, 129.4, 128.8, 128.53, 128.51, 128.2, 126.4, 125.7, 124.8, 124.0, 123.2, 122.3, 112.3, 32.6, 21.3. HRMS (ESI-TOF) calcd for  $\text{C}_{26}\text{H}_{21}\text{O}$  ( $\text{M}^+\text{+H}$ ): 349.1587; found: 349.1587.

**2-benzyl-1-phenylnaphtho[2,1-*b*]furan (4cc).<sup>1</sup>**



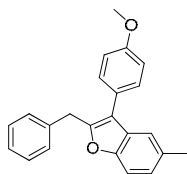
A white amorphous solid (136 mg, 81% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.87 (d,  $J = 8.1$  Hz, 1H), 7.74 (d,  $J = 8.3$  Hz, 1H), 7.66 (d,  $J = 9.0$  Hz, 1H), 7.60 (d,  $J = 8.9$  Hz, 1H), 7.54–7.42 (m, 5H), 7.35 (t,  $J = 7.2$  Hz, 1H), 7.29–7.14 (m, 6H), 4.05 (s, 2H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  152.7, 151.6, 138.1, 133.8, 130.7, 130.5, 128.8, 128.7, 128.52, 128.49, 128.0, 127.8, 126.5, 125.7, 124.5, 124.0, 123.1, 122.1, 119.9, 112.3, 32.6.

**2-benzyl-1-(naphthalen-1-yl)naphtho[2,1-*b*]furan (4cd).**



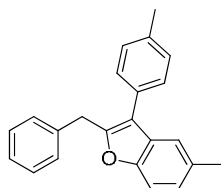
A white amorphous solid (140 mg, 73% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  8.04–7.95 (m, 2H), 7.87 (d,  $J$  = 8.1 Hz, 1H), 7.75–7.57 (m, 5H), 7.50 (t,  $J$  = 7.1 Hz, 1H), 7.33–7.10 (m, 8H), 7.05–6.99 (m, 1H), 4.03 (d,  $J$  = 15.7 Hz, 1H), 3.92 (d,  $J$  = 15.7 Hz, 1H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  153.5, 151.8, 137.8, 133.8, 133.1, 131.2, 130.6, 128.67, 128.63, 128.56, 128.43, 128.3, 127.9, 126.5, 126.4, 126.21, 126.17, 125.8, 125.7, 125.0, 124.0, 123.23, 123.16, 117.4, 112.3, 32.9. HRMS (ESI-TOF) calcd for  $\text{C}_{29}\text{H}_{21}\text{O}$  ( $\text{M}^+\text{H}$ ): 385.1587; found: 385.1581.

**2-benzyl-3-(4-methoxyphenyl)-5-methylbenzofuran (4da).**



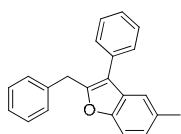
A white amorphous solid (118 mg, 72% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.42 (d,  $J$  = 8.7 Hz, 2H), 7.36–7.18 (m, 7H), 7.07 (dd,  $J$  = 1.0 Hz, 8.3 Hz, 1H), 7.01 (d,  $J$  = 8.7 Hz, 2H), 4.17 (s, 2H), 3.86 (s, 3H), 2.42 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz):  $\delta$  158.9, 152.7, 152.3, 138.1, 132.1, 130.2, 129.0, 128.6, 128.4, 126.5, 125.0, 124.9, 119.5, 117.6, 114.3, 55.3, 32.9, 21.3. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{21}\text{O}_2$  ( $\text{M}^+\text{H}$ ): 329.1536; found: 329.1531.

**2-benzyl-5-methyl-3-(*p*-tolyl)benzofuran (4db).**



A white amorphous solid (117 mg, 75% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.50–7.43 (m, 3H), 7.41–7.24 (m, 8H), 7.13 (d,  $J$  = 8.2 Hz, 1H), 4.24 (s, 2H), 2.48 (s, 6H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  152.7, 152.4, 138.0, 136.9, 132.0, 129.6, 129.5, 128.9, 128.8, 128.5, 128.4, 126.5, 125.0, 119.6, 117.9, 110.6, 32.8, 21.3, 21.2. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{21}\text{O}$  ( $\text{M}^+\text{H}$ ): 313.1587; found: 313.1587.

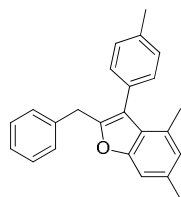
**2-benzyl-5-methyl-3-phenylbenzofuran (4dc).<sup>1</sup>**



A white amorphous solid (111 mg, 74% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.49 (d,  $J$  = 7.1 Hz, 2H), 7.43 (t,  $J$  = 7.5 Hz, 2H), 7.38–7.14 (m, 8H), 7.04 (d,  $J$  = 8.2 Hz, 1H), 4.15 (s, 2H), 2.38 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ ,

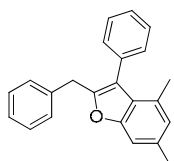
75 MHz):  $\delta$  152.7, 152.6, 137.9, 132.6, 132.1, 129.0, 128.8, 128.64, 128.55, 128.4, 127.2, 126.5, 125.1, 119.5, 118.0, 110.6, 32.8, 21.3.

**2-benzyl-4,6-dimethyl-3-(*p*-tolyl)benzofuran (4eb).**



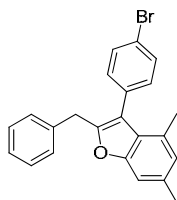
A white amorphous solid (115 mg, 70% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.35–7.19 (m, 9H), 7.15 (s, 1H), 6.82 (s, 1H), 4.00 (s, 2H), 2.46 (s, 3H), 2.44 (s, 3H), 2.16 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  154.6, 152.2, 138.3, 137.0, 133.7, 130.9, 130.6, 128.8, 128.57, 128.47, 128.41, 126.3, 125.5, 125.0, 118.6, 109.0, 32.5, 21.4, 21.3, 19.3. HRMS (ESI-TOF) calcd for  $\text{C}_{24}\text{H}_{23}\text{O}$  ( $\text{M}^+\text{H}$ ): 327.1743; found: 327.1741.

**2-benzyl-4,6-dimethyl-3-phenylbenzofuran (4ec).**



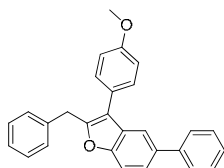
A white amorphous solid (110 mg, 70% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.42–7.30 (m, 5H), 7.26–7.12 (m, 5H), 7.09 (s, 1H), 6.76 (s, 1H), 3.93 (s, 2H), 2.37 (s, 3H), 2.07 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  154.6, 152.2, 138.1, 133.9, 133.7, 130.8, 130.7, 128.45, 128.42, 128.0, 127.3, 126.3, 125.6, 124.9, 118.7, 109.0, 32.5, 21.4, 19.3. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{21}\text{O}$  ( $\text{M}^+\text{H}$ ): 313.1587; found: 313.1585.

**2-benzyl-3-(4-bromophenyl)-4,6-dimethylbenzofuran (4ee).**



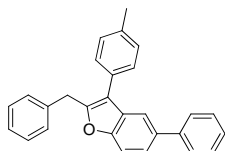
A white amorphous solid (117 mg, 60% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.60 (d,  $J$  = 8.1 Hz, 2H), 7.36–7.19 (m, 7H), 7.17 (s, 1H), 6.84 (s, 1H), 3.99 (s, 2H), 2.46 (s, 3H), 2.14 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  154.6, 152.4, 137.9, 134.0, 132.9, 132.3, 131.2, 130.6, 128.5, 128.4, 126.5, 125.7, 124.6, 121.6, 117.5, 109.1, 32.5, 21.4, 19.4. HRMS (EI-TOF) calcd for  $\text{C}_{23}\text{H}_{19}\text{BrO}$  ( $\text{M}^+$ ): 390.0619; found: 390.0622.

**2-benzyl-3-(4-methoxyphenyl)-5-phenylbenzofuran (4fa).**



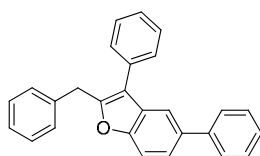
A white amorphous solid (151 mg, 77% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.74 (s, 1H), 7.59 (d,  $J = 7.4$  Hz, 2H), 7.51–7.38 (m, 6H), 7.35–7.20 (m, 6H), 7.03 (d,  $J = 8.6$  Hz, 2H), 4.21 (s, 2H), 3.86 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CD}_3\text{OD}$ , 75 MHz):  $\delta$  158.9, 153.9, 152.9, 141.8, 137.9, 136.4, 130.2, 129.4, 128.66, 128.62, 128.4, 127.5, 126.8, 126.6, 124.5, 123.5, 118.3, 118.1, 114.4, 111.2, 55.3, 32.9. HRMS (ESI-TOF) calcd for  $\text{C}_{28}\text{H}_{23}\text{O}_2$  ( $\text{M}^++\text{H}$ ): 391.1693; found: 391.1676.

**2-benzyl-5-phenyl-3-(*p*-tolyl)benzofuran (4fb).**



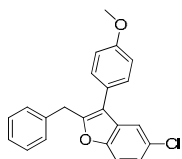
A white amorphous solid (132 mg, 70% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.82 (s, 1H), 7.64 (d,  $J = 7.4$  Hz, 2H), 7.56–7.41 (m, 6H), 7.39–7.22 (m, 8H), 4.26 (s, 2H), 2.47 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  153.9, 153.1, 141.8, 137.9, 137.1, 136.4, 129.6, 129.3, 128.9, 128.65, 128.61, 128.5, 127.44, 127.40, 126.8, 126.6, 123.5, 118.36, 118.32, 111.2, 32.9, 21.3. HRMS (ESI-TOF) calcd for  $\text{C}_{28}\text{H}_{23}\text{O}$  ( $\text{M}^++\text{H}$ ): 375.1743; found: 375.1741.

**2-benzyl-3,5-diphenylbenzofuran (4fc).<sup>1</sup>**



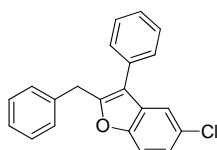
A white amorphous solid (122 mg, 68% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.76 (s, 1H), 7.50–7.08 (m, 17H), 4.22 (s, 2H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  153.9, 153.3, 141.7, 137.8, 136.5, 132.3, 129.14, 129.08, 128.9, 128.67, 128.63, 128.5, 127.5, 127.4, 126.8, 126.6, 123.6, 118.5, 118.3, 111.2, 32.9.

**2-benzyl-5-chloro-3-(4-methoxyphenyl)benzofuran (4ga).**



A white amorphous solid (78 mg, 45% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.51 (d,  $J = 1.9$  Hz, 1H), 7.42–7.18 (m, 9H), 7.02 (d,  $J = 8.7$  Hz, 2H), 4.17 (s, 2H), 3.86 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  159.1, 153.7, 152.6, 137.6, 130.3, 130.1, 128.6, 128.4, 128.3, 126.6, 124.0, 123.8, 119.4, 117.6, 114.4, 112.0, 55.3, 32.8. HRMS (EI-TOF) calcd for  $\text{C}_{22}\text{H}_{17}\text{ClO}_2$  ( $\text{M}^+$ ): 348.0917; found: 348.0913.

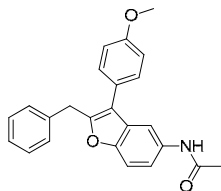
**2-benzyl-5-chloro-3-phenylbenzofuran (4gc).<sup>1</sup>**





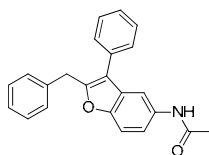
A white amorphous solid (87 mg, 55% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.62 (d,  $J = 1.7$  Hz, 1H), 7.55 (d,  $J = 4.4$  Hz, 4H), 7.49–7.24 (m, 8H), 4.26 (s, 2H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  154.0, 152.6, 137.4, 131.7, 130.3, 128.94, 128.91, 128.6, 128.42, 128.37, 127.6, 126.7, 124.1, 119.4, 118.0, 112.0, 32.8.

***N*-(2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)acetamide (4ha).**



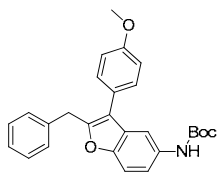
A brownish amorphous solid (90 mg, 49% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 600 MHz):  $\delta$  7.73 (d,  $J = 2.0$  Hz, 1H), 7.40 (d,  $J = 8.7$  Hz, 2H), 7.35 (d,  $J = 8.6$  Hz, 2H), 7.32–7.26 (m, 3H), 7.25–7.21 (m, 3H), 6.99 (d,  $J = 8.6$  Hz, 2H), 4.17 (s, 2H), 3.85 (s, 3H), 2.15 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz):  $\delta$  168.3, 159.0, 153.2, 151.4, 137.9, 133.0, 130.1, 129.3, 128.6, 128.5, 126.6, 124.4, 118.1, 117.5, 114.4, 112.0, 111.1, 55.3, 32.9, 24.3. HRMS (ESI-TOF) calcd for  $\text{C}_{24}\text{H}_{22}\text{NO}_3$  ( $\text{M}^+\text{H}$ ): 372.1594; found: 372.1592.

***N*-(2-benzyl-3-phenylbenzofuran-5-yl)acetamide (4hc).**



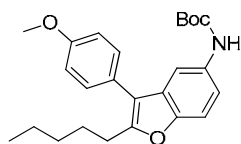
A brownish amorphous solid (86 mg, 50% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 600 MHz):  $\delta$  7.73 (d,  $J = 1.9$  Hz, 1H), 7.47 (d,  $J = 7.0$  Hz, 2H), 7.44 (t,  $J = 7.6$  Hz, 2H), 7.39–7.33 (m, 3H), 7.31–7.27 (m, 3H), 7.25–7.21 (m, 3H), 4.18 (s, 2H), 2.13 (s, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 150 MHz):  $\delta$  168.3, 153.6, 151.5, 137.8, 133.1, 132.2, 129.1, 129.0, 128.9, 128.6, 128.5, 127.4, 126.6, 118.5, 117.7, 112.0, 111.1, 32.9, 24.3. HRMS (ESI-TOF) calcd for  $\text{C}_{23}\text{H}_{20}\text{NO}_2$  ( $\text{M}^+\text{H}$ ): 342.1489; found: 342.1488.

***tert*-butyl (2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)carbamate (4ia).**



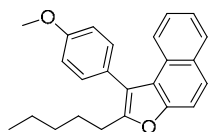
A light yellow amorphous solid (112 mg, 52% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.61 (s, 1H), 7.43 (dt,  $J = 8.8$  Hz, 2.1 Hz, 2H), 7.38–7.17 (m, 7H), 7.02 (dt,  $J = 8.8$  Hz, 2.5 Hz, 2H), 6.52 (s, 1H), 4.18 (s, 2H), 3.88 (s, 3H), 1.53 (s, 9H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  158.9, 153.2, 153.0, 150.8, 137.9, 133.5, 130.1, 129.3, 128.6, 128.4, 126.5, 124.5, 118.0, 116.3, 114.3, 111.0, 110.2, 80.2, 55.3, 32.9, 28.4. HRMS (ESI-FTMS) calcd for  $\text{C}_{27}\text{H}_{27}\text{NNaO}_4$  ( $\text{M}^+\text{Na}$ ): 452.1832; found: 452.1840.

***tert*-butyl (3-(4-methoxyphenyl)-2-pentylbenzofuran-5-yl)carbamate (4if).**



Light yellow oil (114 mg, 56% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.56 (s, 1H), 7.37 (t,  $J = 8.4$  Hz, 3H), 7.19 (d,  $J = 8.2$  Hz, 1H), 7.01 (d,  $J = 8.6$  Hz, 2H), 3.86 (s, 3H), 2.80 (t,  $J = 7.6$  Hz, 4H), 1.82–1.68 (m, 2H), 1.37–1.27 (m, 4H), 0.89 (t,  $J = 6.7$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  158.8, 155.8, 153.2, 150.4, 133.4, 130.1, 129.5, 124.9, 116.4, 115.9, 114.2, 110.7, 109.9, 80.1, 55.2, 31.4, 28.3, 28.0, 26.7, 22.3, 13.9. HRMS (ESI-TOF) calcd for  $\text{C}_{25}\text{H}_{31}\text{NNaO}_4$  ( $\text{M}^+\text{Na}$ ): 432.2145; found: 432.2145.

#### 1-(4-methoxyphenyl)-2-pentyl-naphtho[2,1-*b*]furan (4cf).



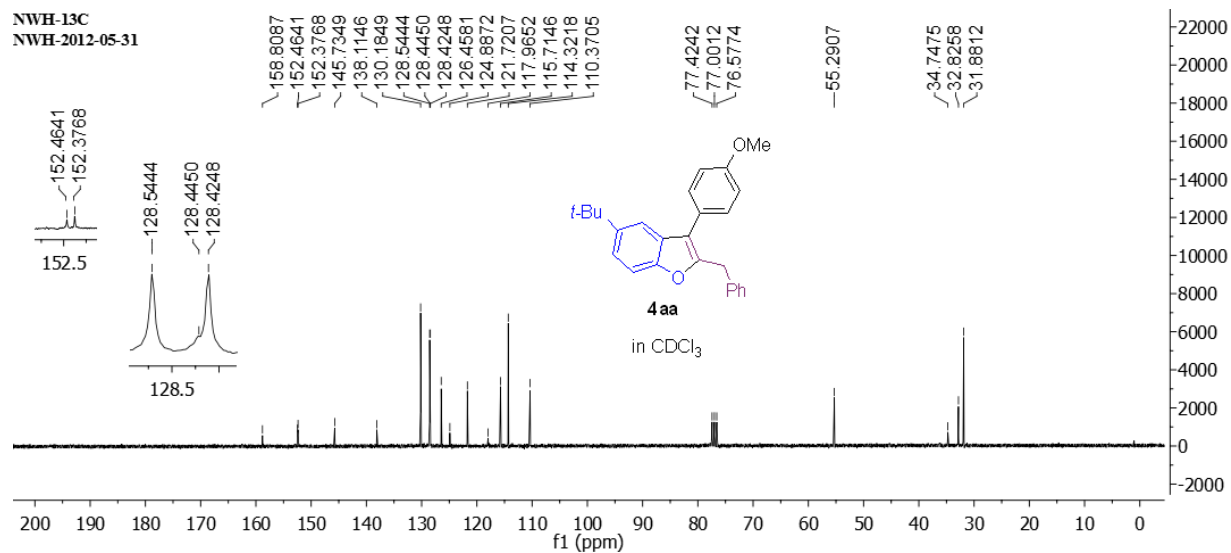
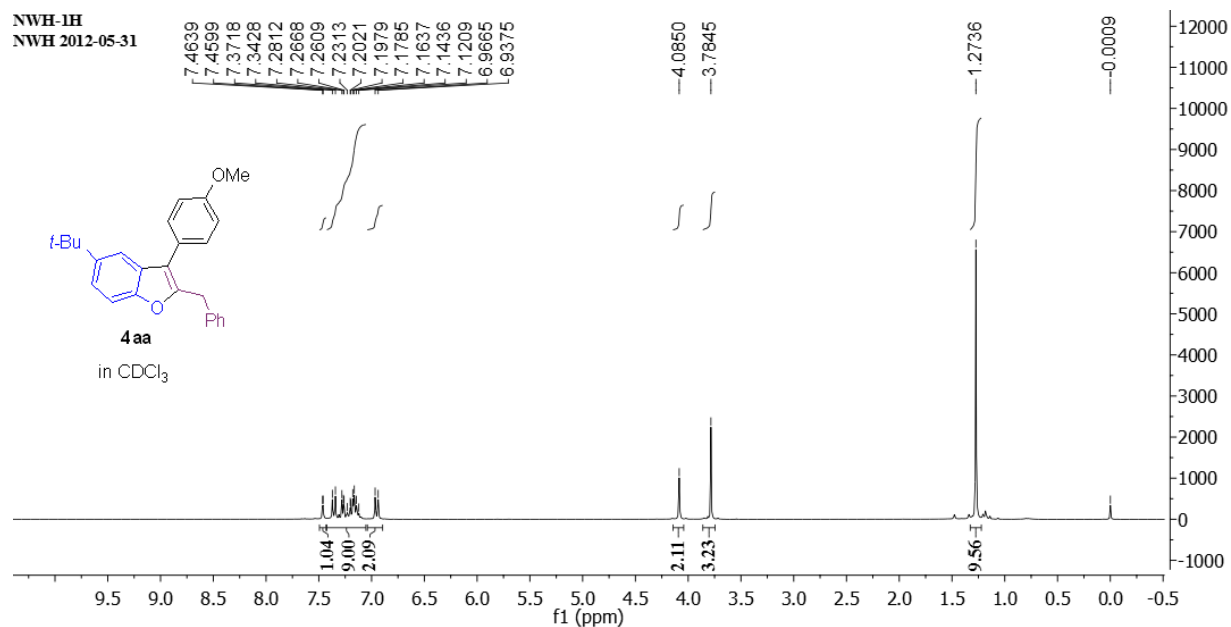
Light yellow oil (87 mg, 51% yield).  $^1\text{H}$  NMR ( $\text{CDCl}_3$ , 300 MHz):  $\delta$  7.87 (d,  $J = 8.0$  Hz, 1H), 7.74 (d,  $J = 8.2$  Hz, 1H), 7.65 (d,  $J = 9.0$  Hz, 1H), 7.61 (d,  $J = 8.9$  Hz, 1H), 7.40–7.10 (m, 4H), 7.02 (d,  $J = 8.5$  Hz, 2H), 3.88 (s, 3H), 2.69 (t,  $J = 7.5$  Hz, 4H), 1.77–1.65 (m, 2H), 1.35–1.20 (m, 4H), 0.84 (t,  $J = 6.5$  Hz, 3H).  $^{13}\text{C}$  NMR ( $\text{CDCl}_3$ , 75 MHz):  $\delta$  159.0, 155.3, 151.1, 131.6, 130.7, 128.7, 128.0, 126.2, 125.5, 124.3, 123.9, 123.1, 122.6, 118.3, 114.0, 112.1, 55.2, 31.3, 28.3, 26.3, 22.3, 14.0. HRMS (ESI-TOF) calcd for  $\text{C}_{24}\text{H}_{25}\text{O}_2$  ( $\text{M}^+\text{H}$ ): 345.1849; found: 345.1844.

## Reference

1. F.-Q. Yuan and F.-S. Han, *Adv. Synth. Catal.*, 2013, **355**, 537–547.
2. J. Hu, L. Liu, X. Wang, Y. Hu, S. Yang, Y. Liang, *Green Sustain. Chem.*, 2011, **1**, 165–169.

## NMR and MS spectra

### 2-benzyl-5-(*tert*-butyl)-3-(4-methoxyphenyl)benzofuran (4aa).



Shanghai Mass Spectrometry Center  
 Shanghai Institute of Organic Chemistry  
 Chinese Academy of Sciences  
 High Resolution MS Data Report

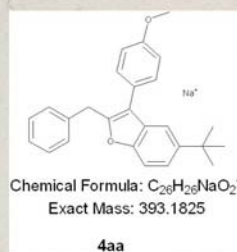


Instrument



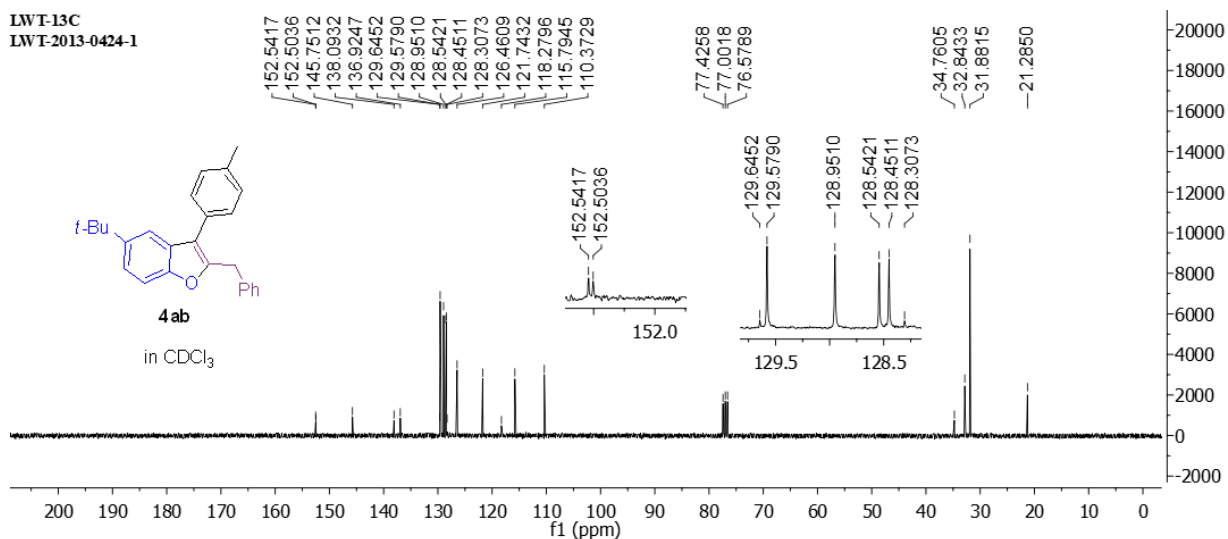
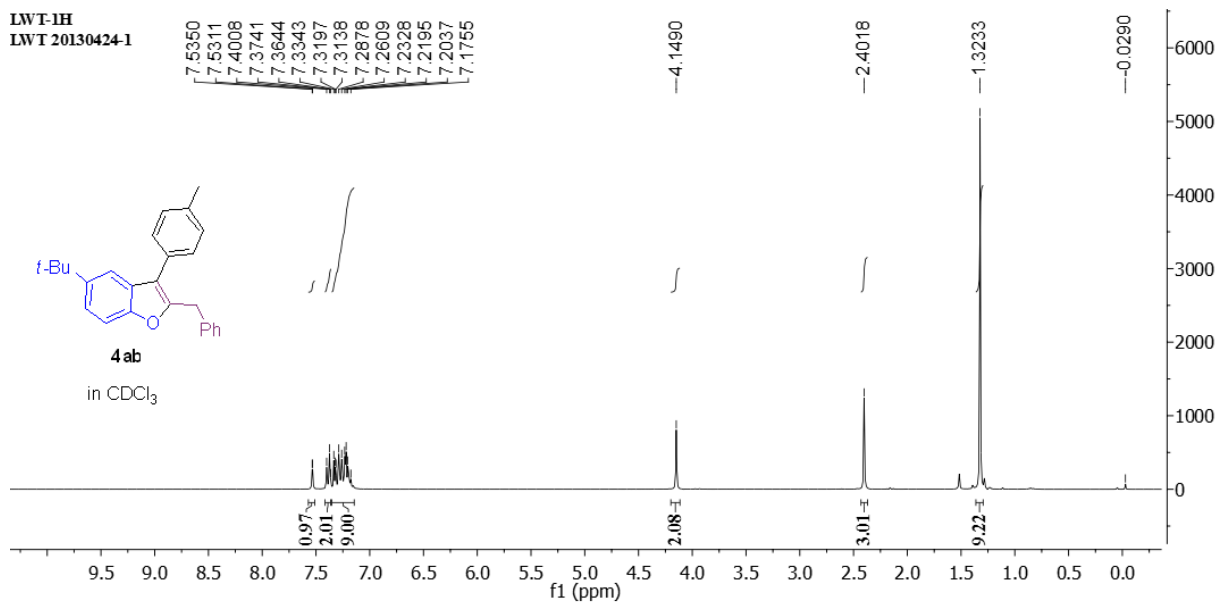
Bruker Daltonics, Inc. APEXIII 7.0 TESLA FTMS

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 Ion Mass (Measured) 393.1814

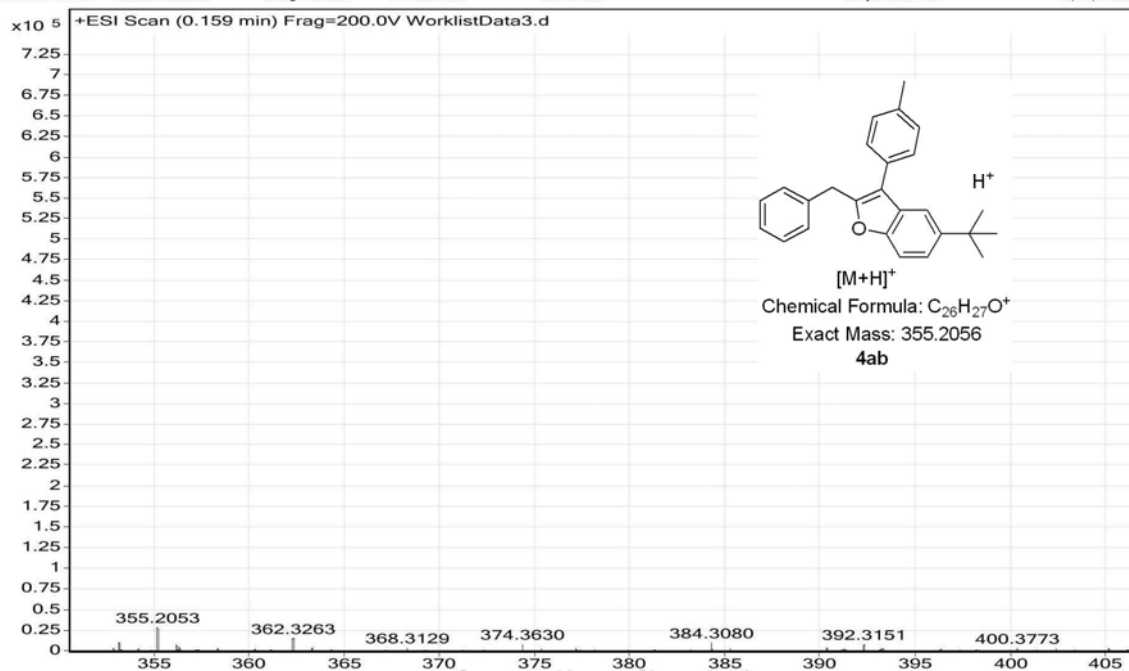


Sum Formula	Sigma	m/z	Err [ppm]	Mean Err [ppm]	Err [mDa]	rdB	N Rule	e <sup>-</sup>
C 23 H 25 N 2 O 4	0.152	393.1809	-1.29	-1.29	-0.51	12.50	ok	even
C 24 H 24 N 3 Na 1 O 1	0.160	393.1812	-0.59	-0.59	-0.23	14.00	ok	odd
C 26 H 26 Na 1 O 2	0.166	393.1825	2.83	2.83	1.11	13.50	ok	even

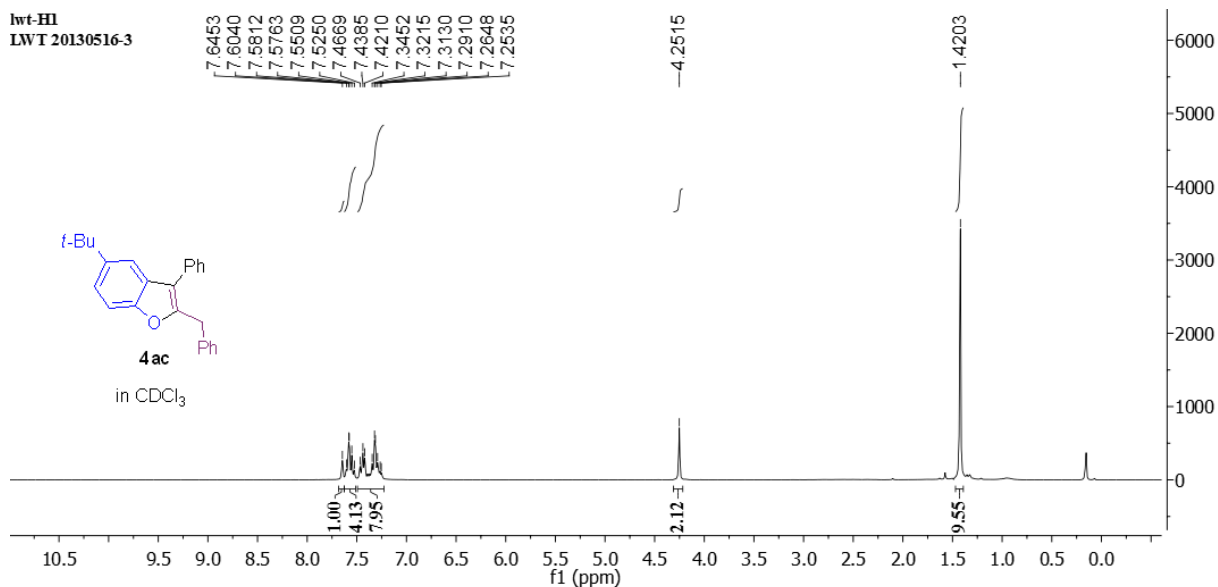
## 2-benzyl-5-(*tert*-butyl)-3-(*p*-tolyl)benzofuran (4ab).

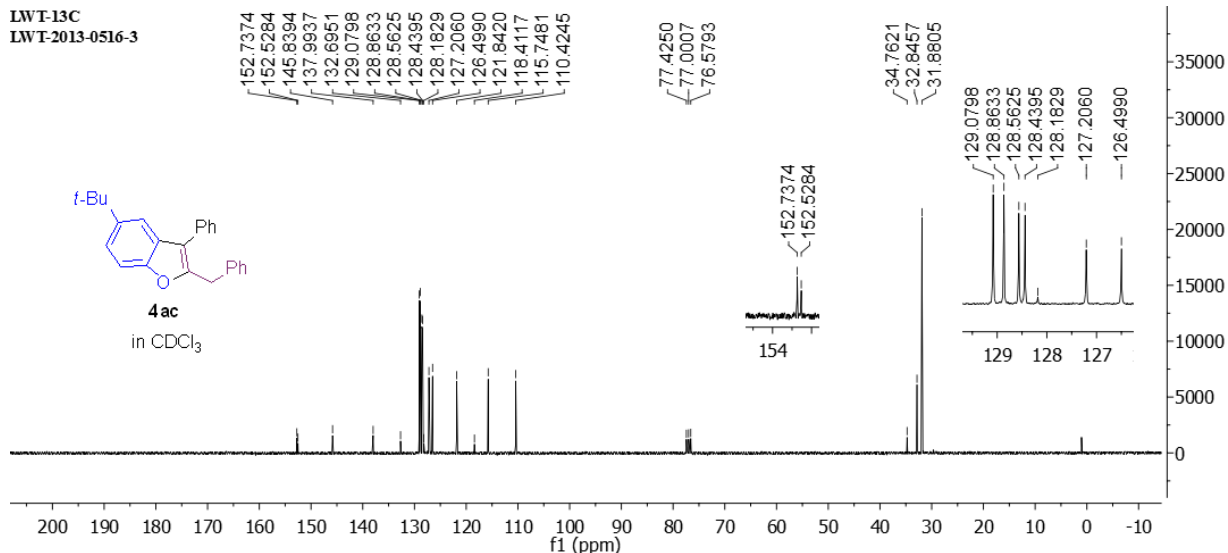


Sample Name	LWT-3	Position	P1-A3	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData3.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 9:56:34 AM

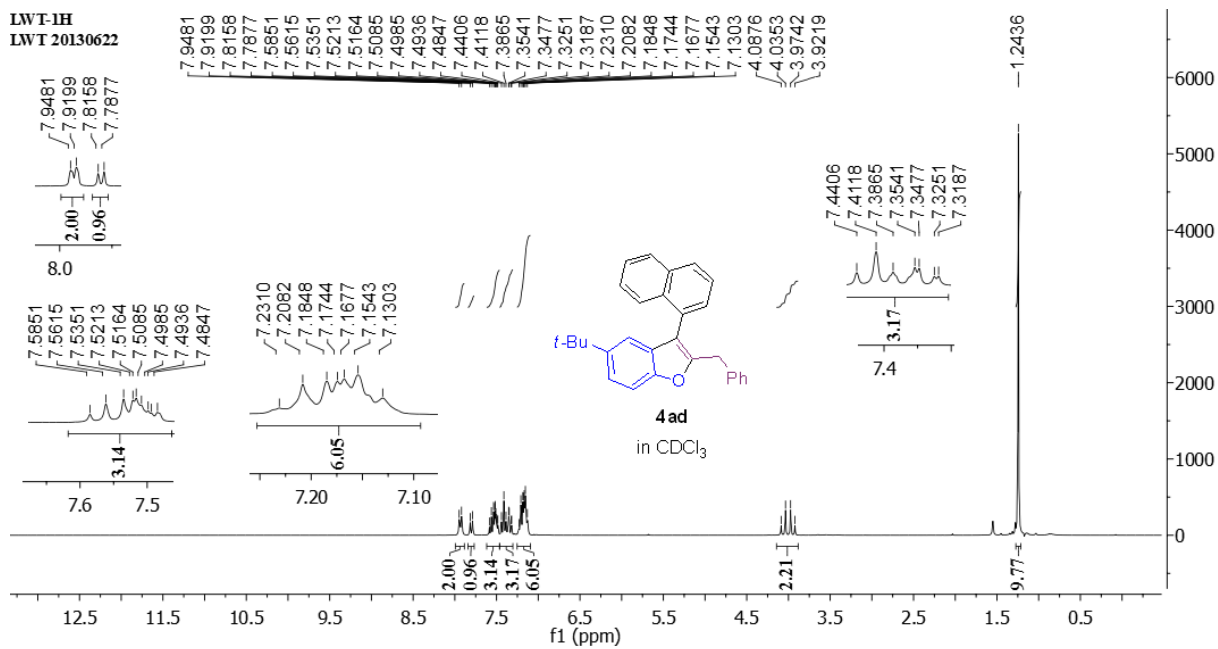


## 2-benzyl-5-(*tert*-butyl)-3-phenylbenzofuran (4ac)

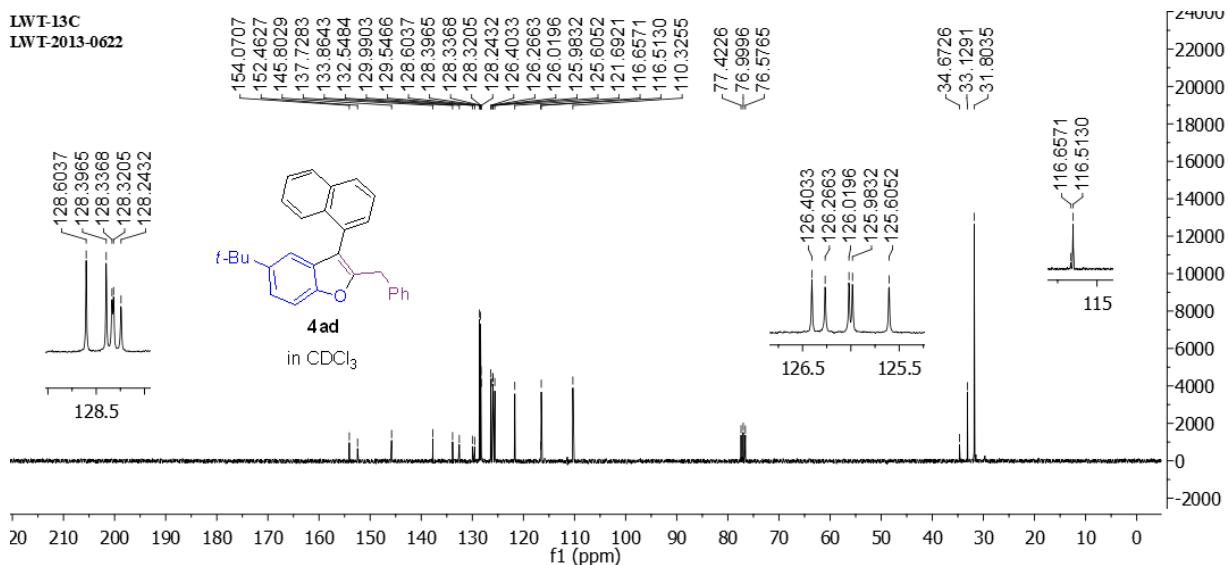




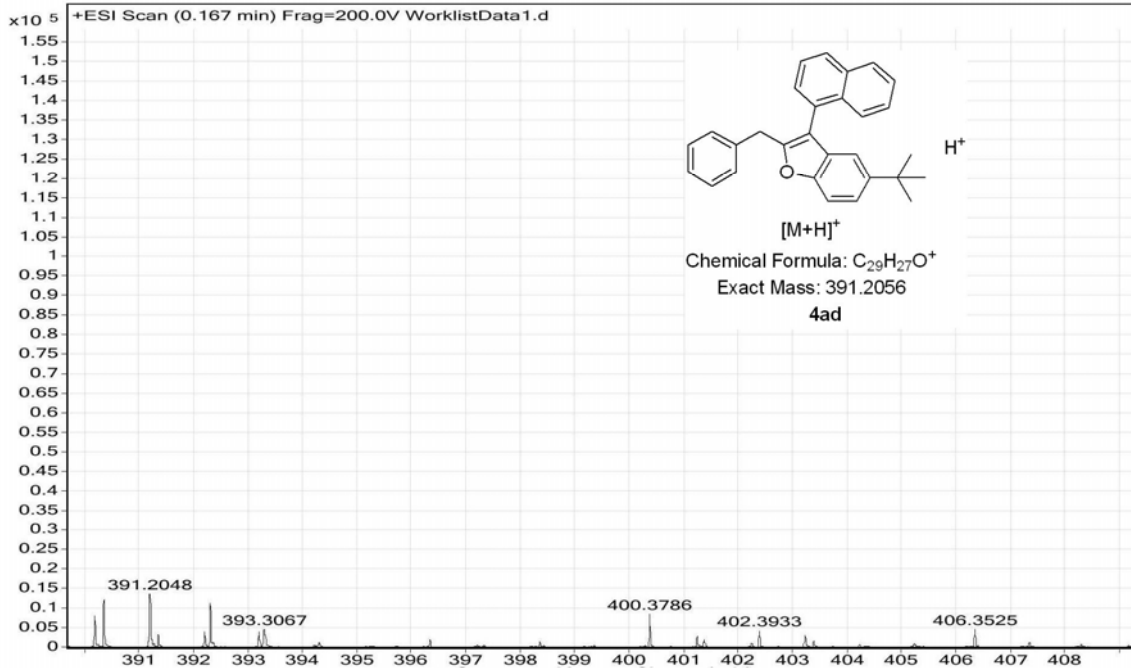
## 2-benzyl-5-(*tert*-butyl)-3-(naphthalen-1-yl)benzofuran (4ad)



LWT-13C  
LWT-2013-0622

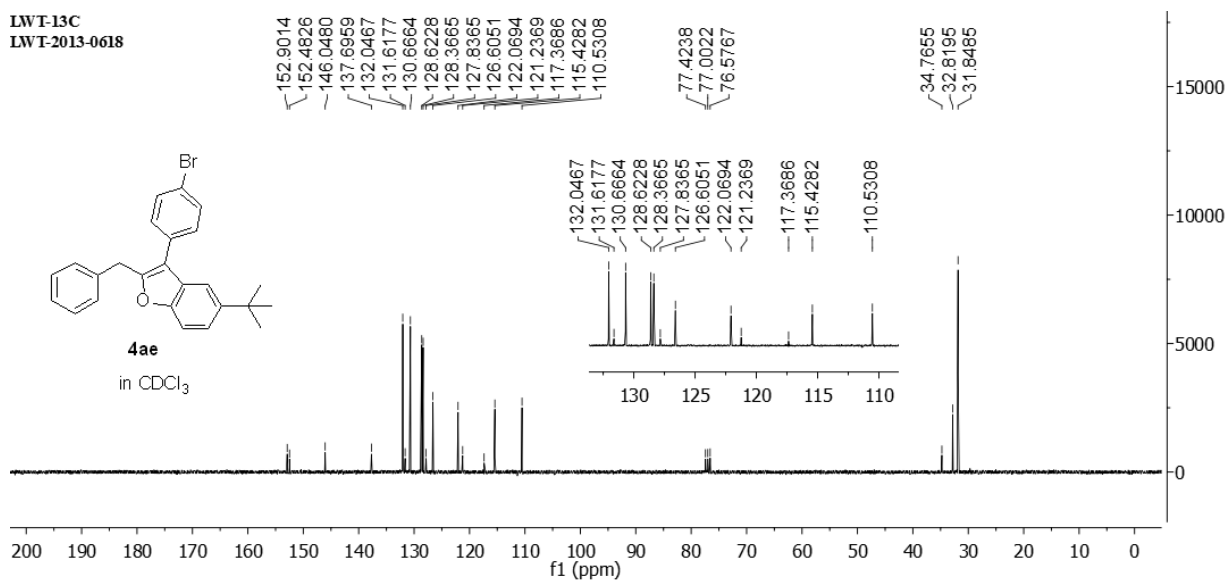
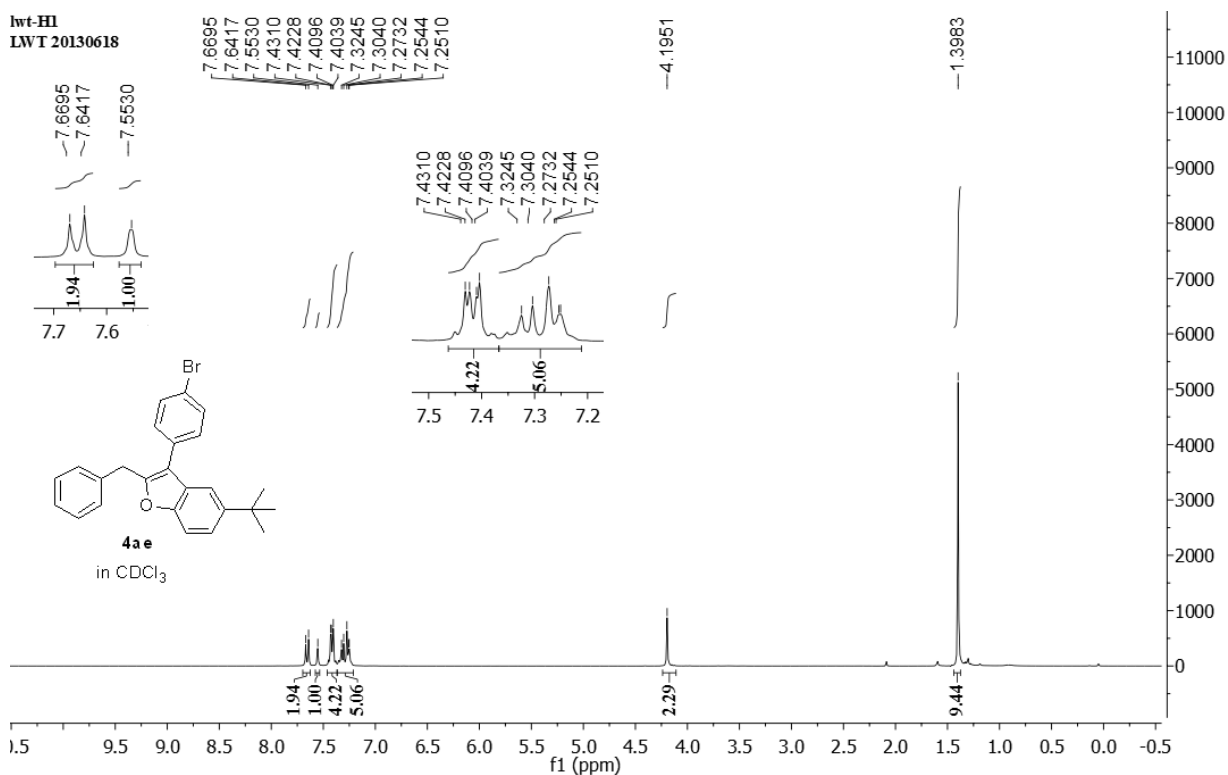


Sample Name	LWT-1	Position	PI-A1	Instrument Name	Instrument 1	User Name	
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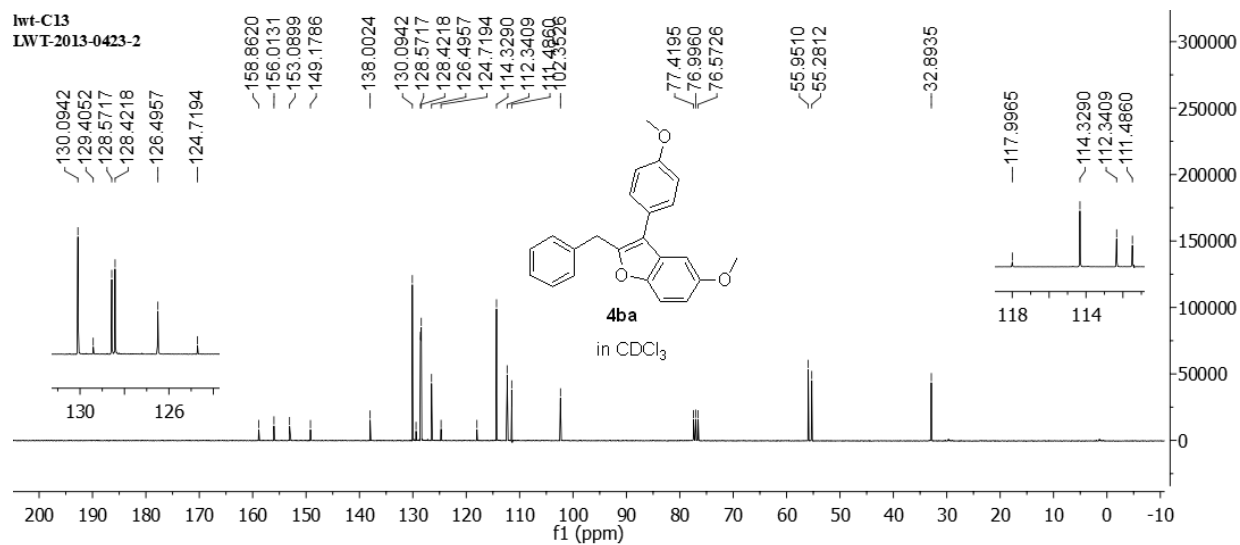
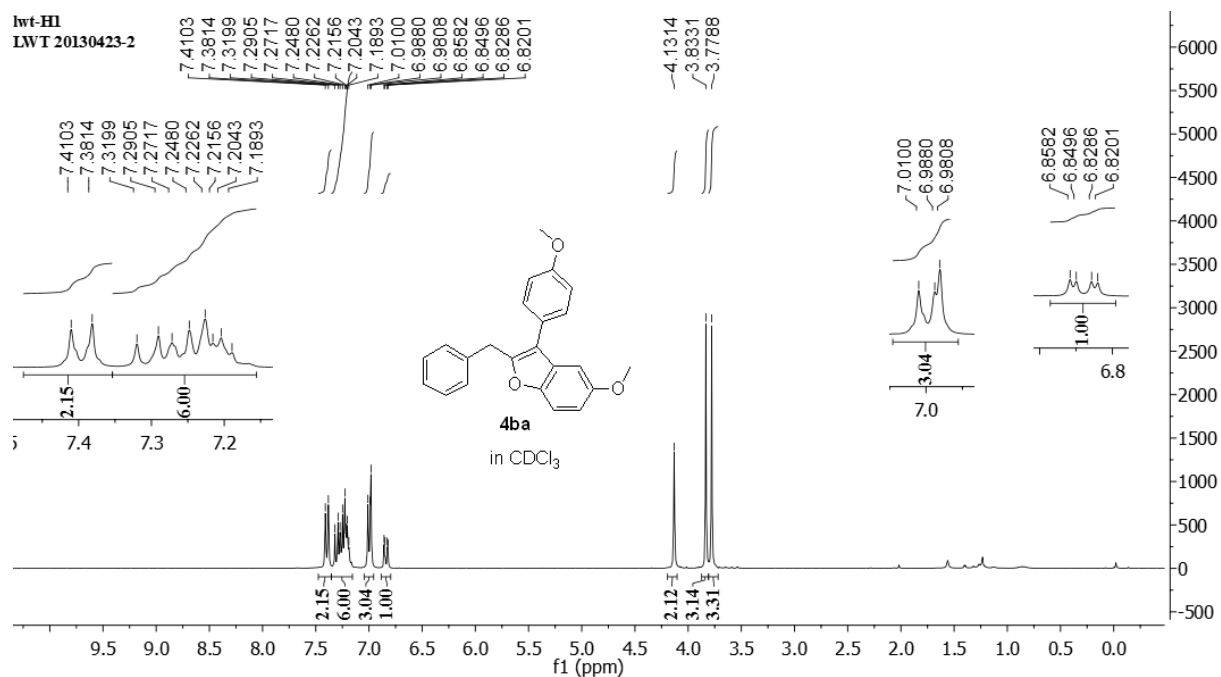




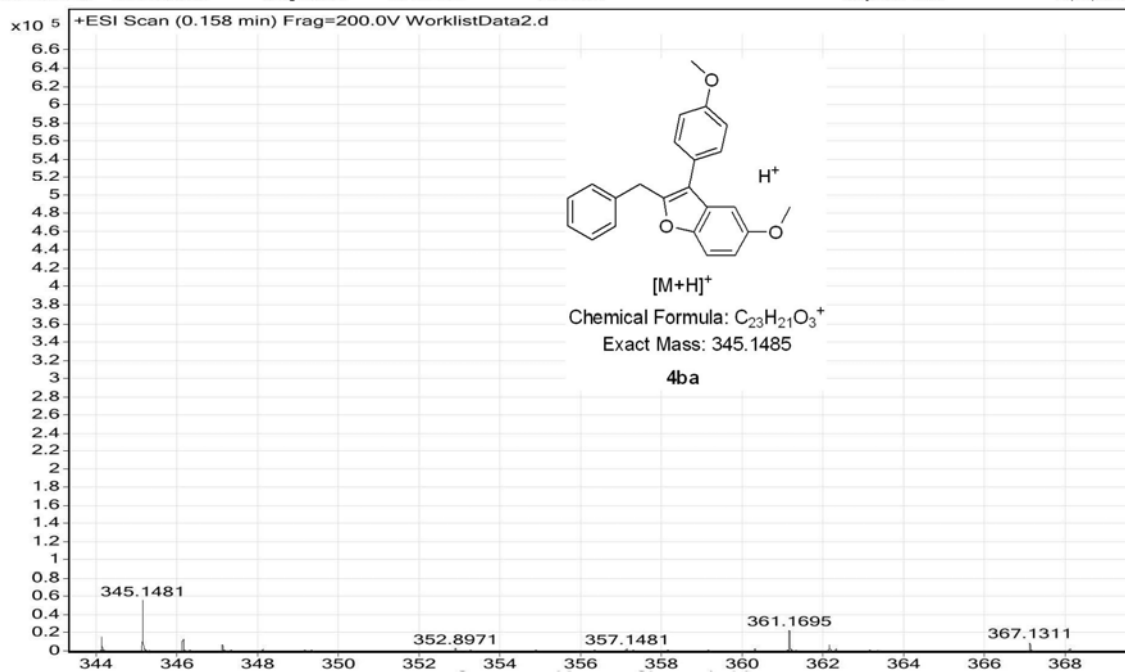
## 2-benzyl-3-(4-bromophenyl)-5-(*tert*-butyl)benzofuran (4ae)



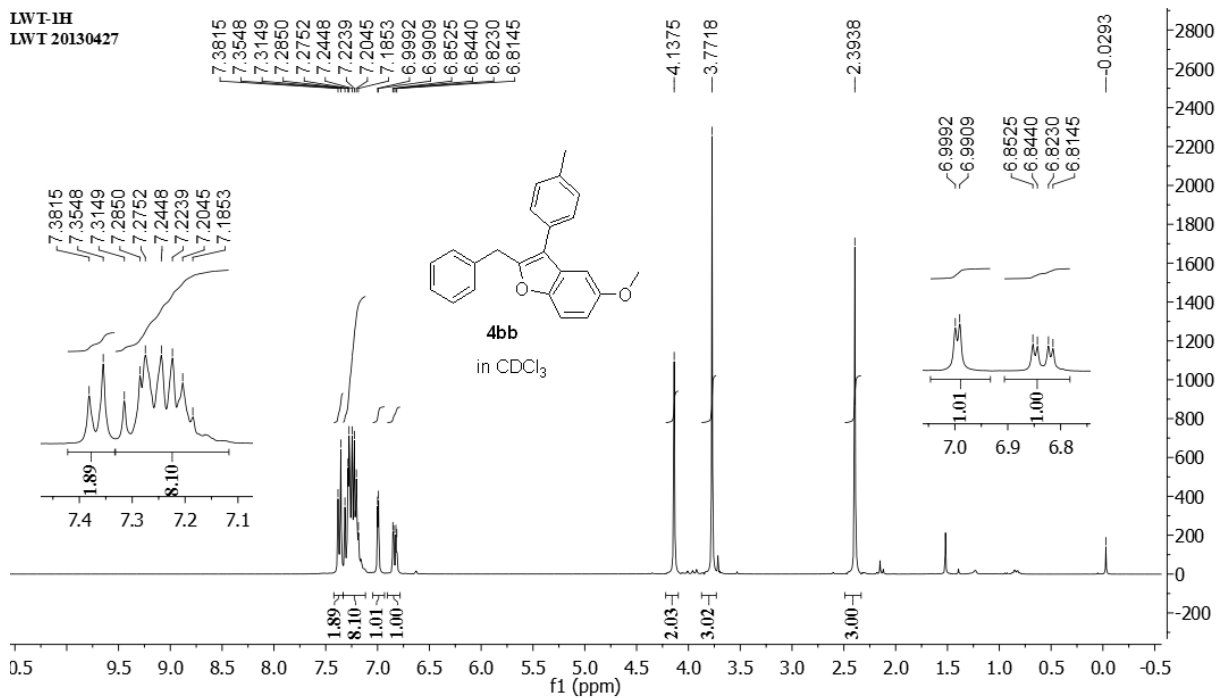
## 2-benzyl-5-methoxy-3-(4-methoxyphenyl)benzofuran (4ba)



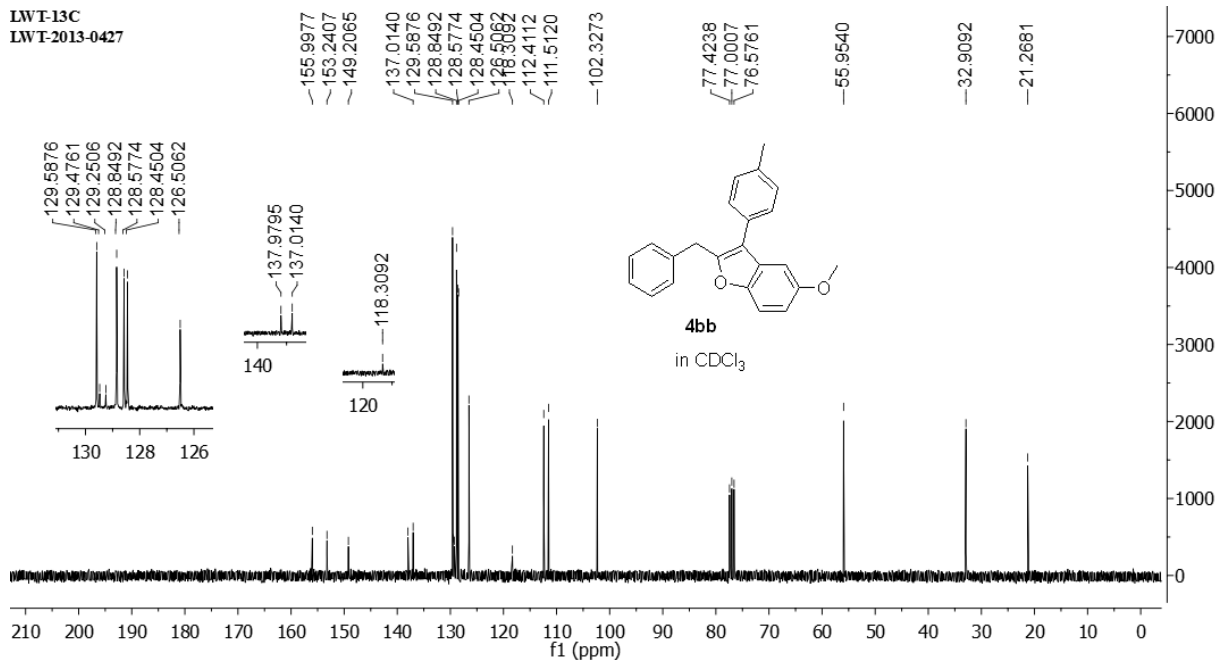
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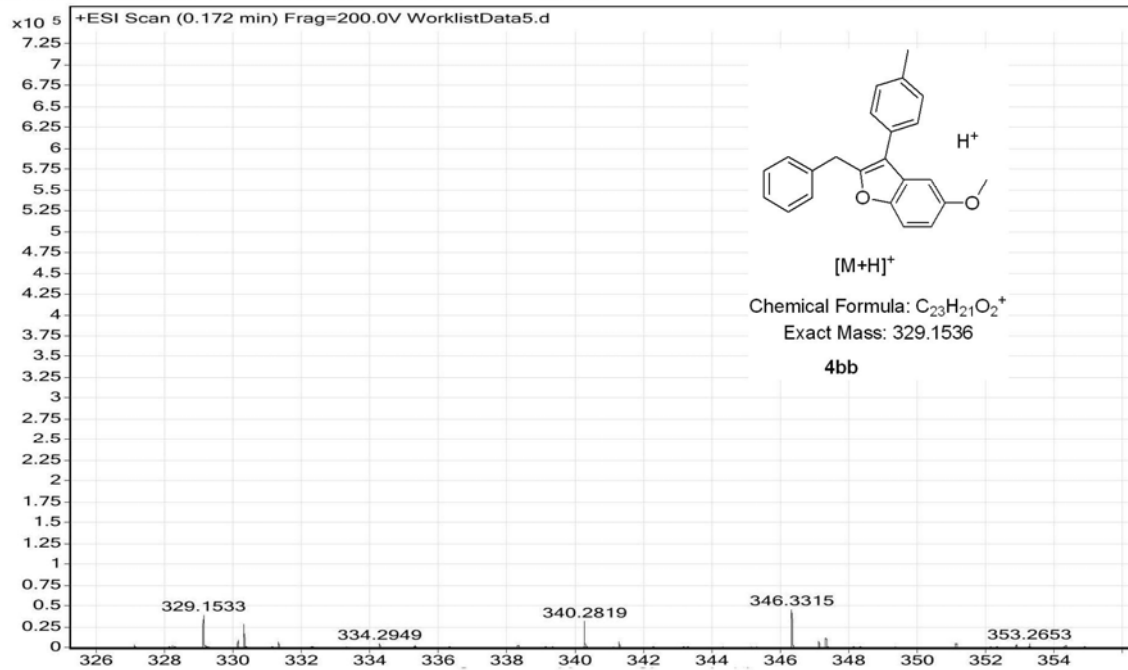
## 2-benzyl-5-methoxy-3-(*p*-tolyl)benzofuran (4bb)



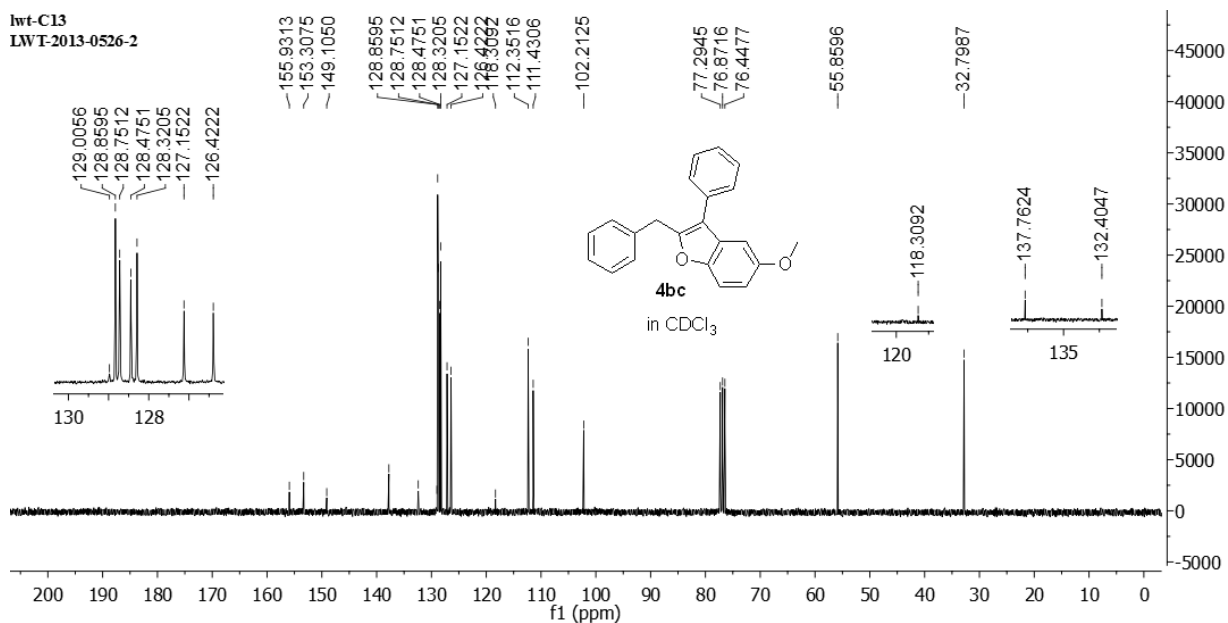
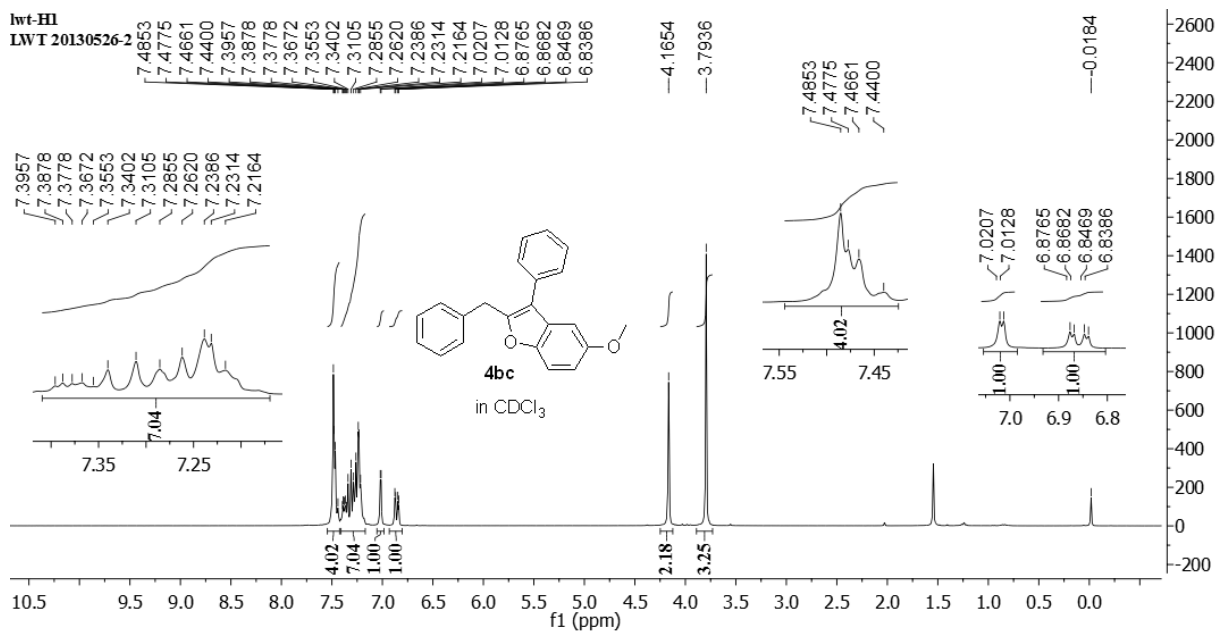
LWT-13C  
LWT-2013-0427



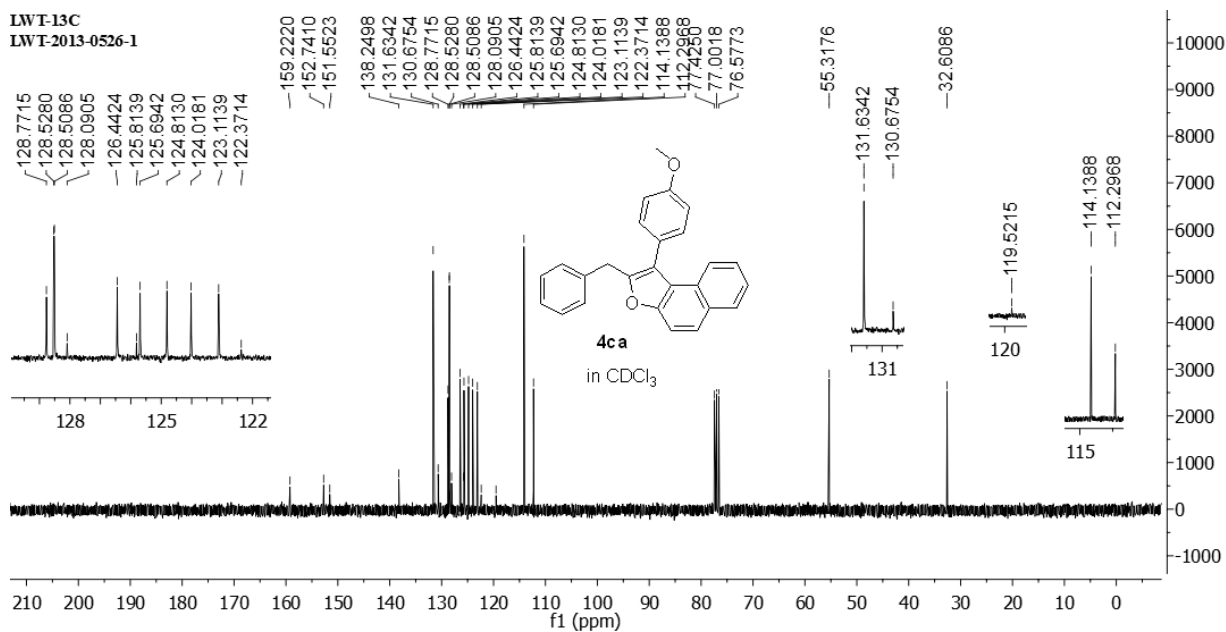
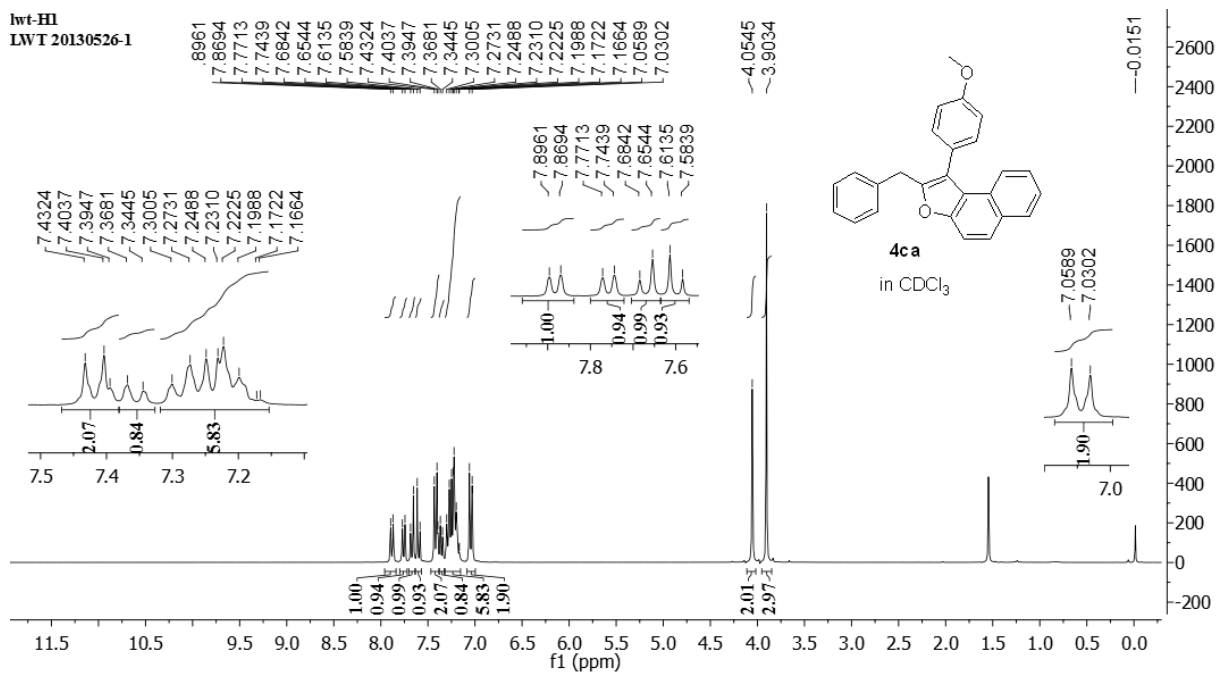
Sample Name	Position	Instrument Name	User Name
LWT-5	PI-A5	Instrument 1	
Inj Vol	InjPosition	SampleType	IRM Calibration Status
10		Sample	Success
Data Filename	ACQ Method	Comment	Acquired Time
WorklistData5.d	YLF-AMPK.m		10/10/2013 10:01:26 AM



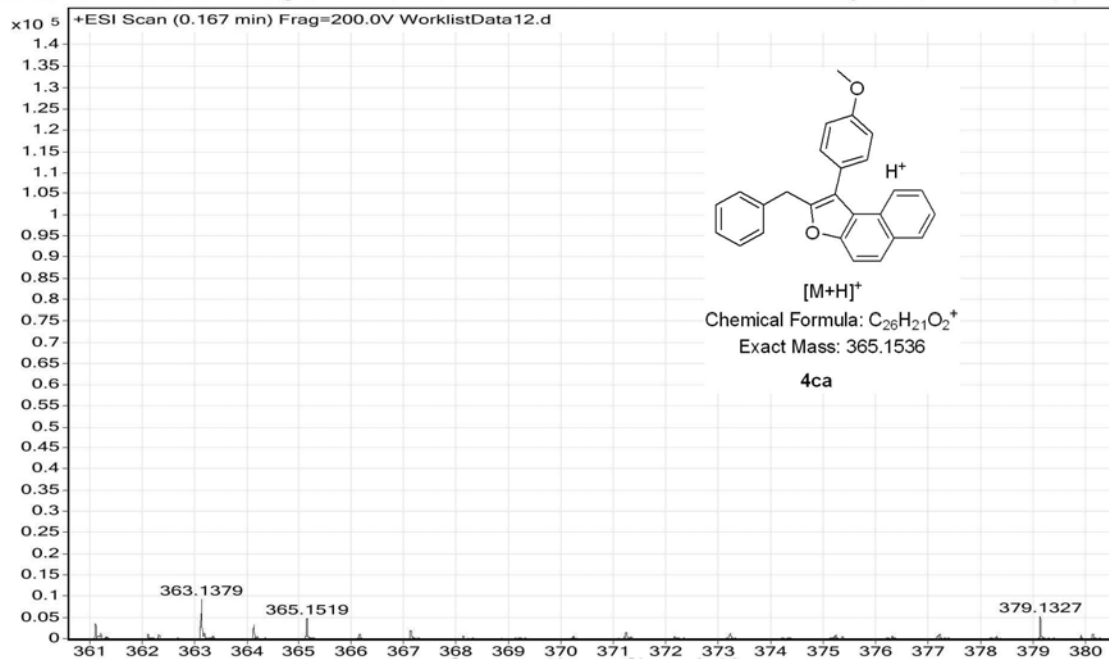
## 2-benzyl-5-methoxy-3-phenylbenzofuran (4bc)



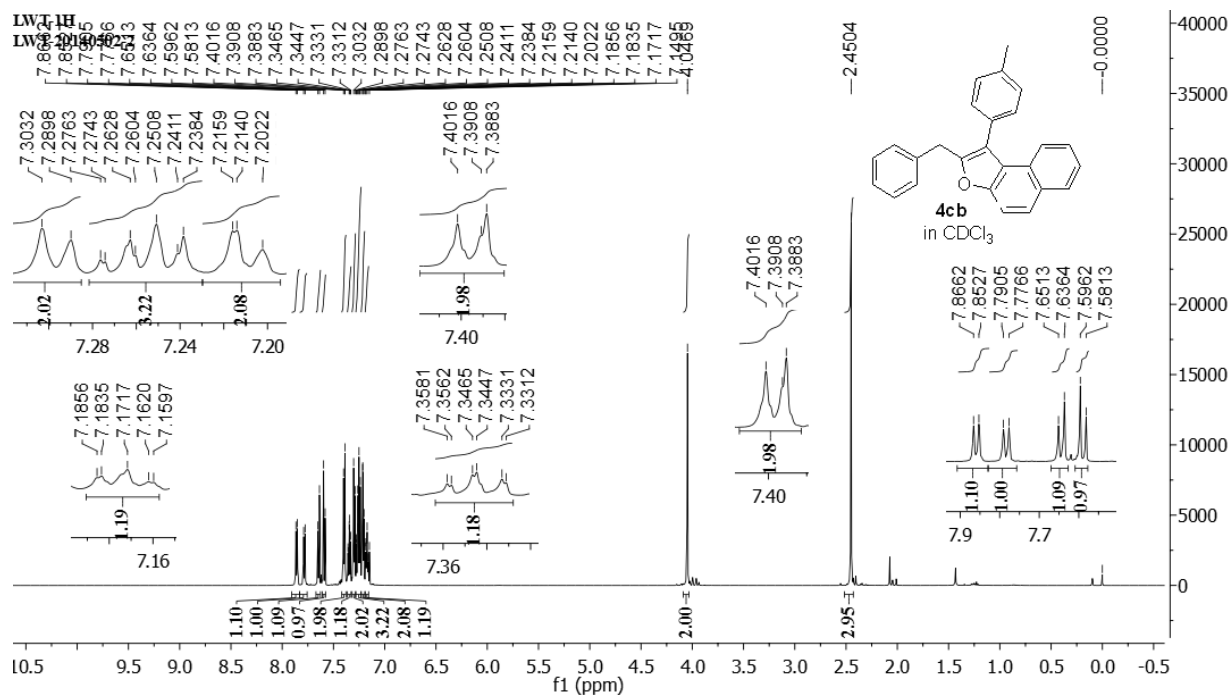
# 2-benzyl-1-(4-methoxyphenyl)naphtho[2,1-b]furan (4ca)



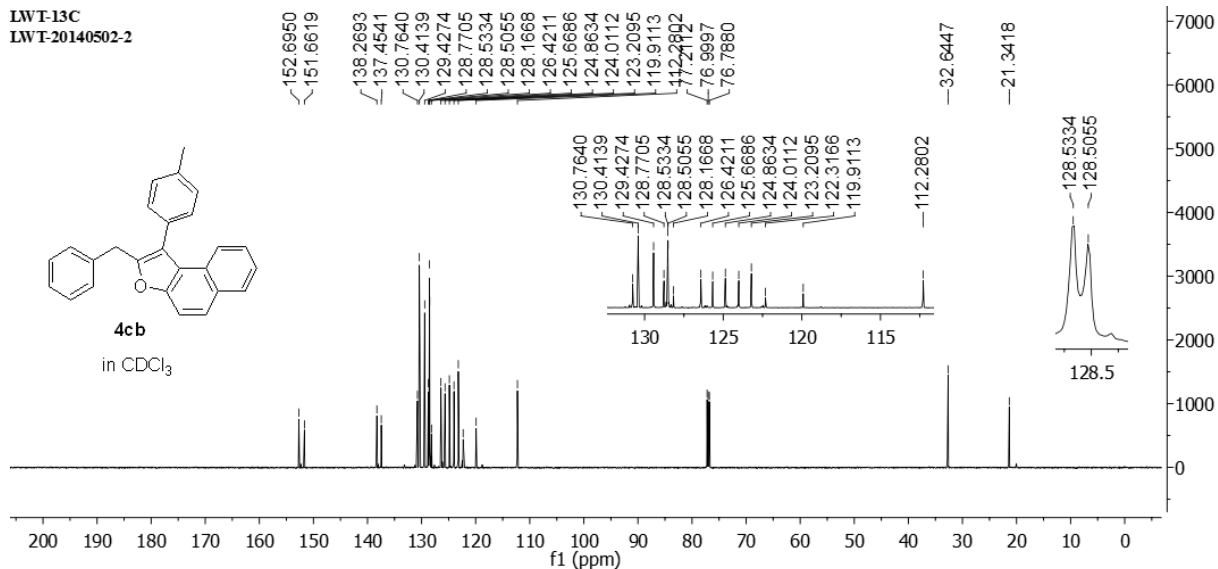
Sample Name	LWT-12	Position	P1-B3	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData12.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:18:25 AM



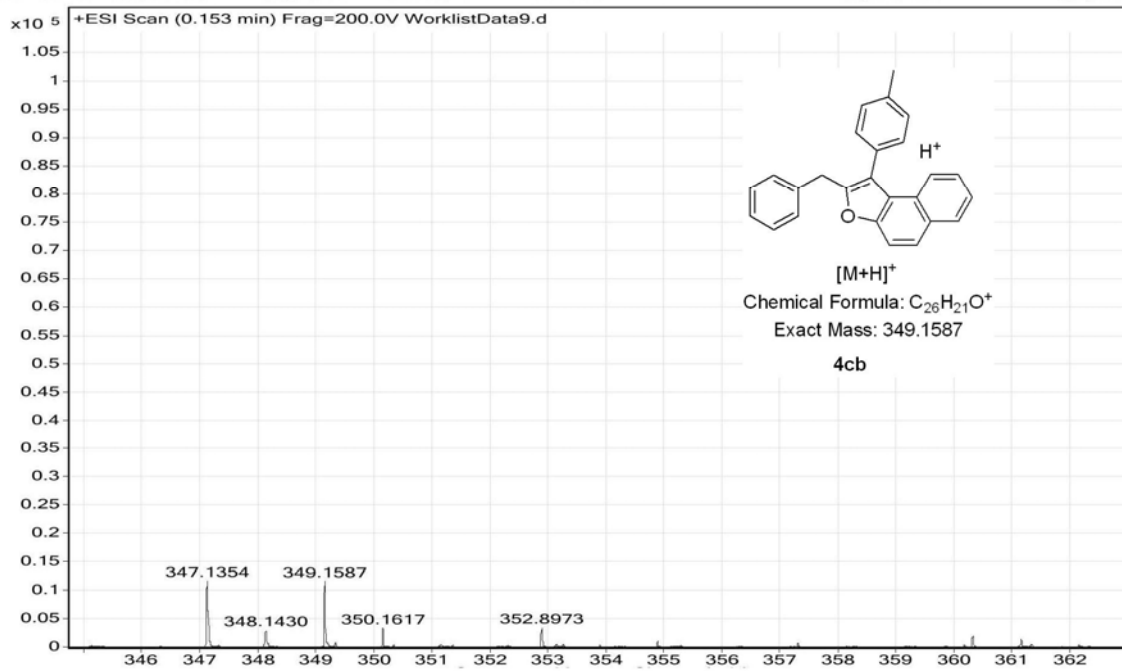
## 2-benzyl-1-(p-tolyl)naphtho[2,1-b]furan (4cb)



LWT-13C  
LWT-20140502-2

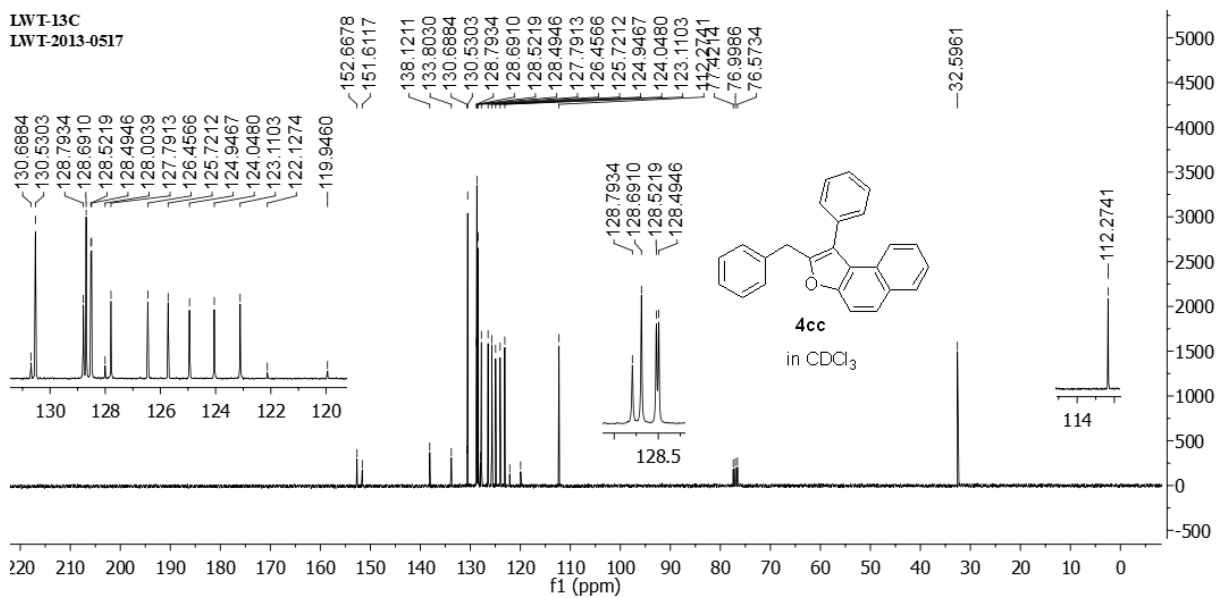
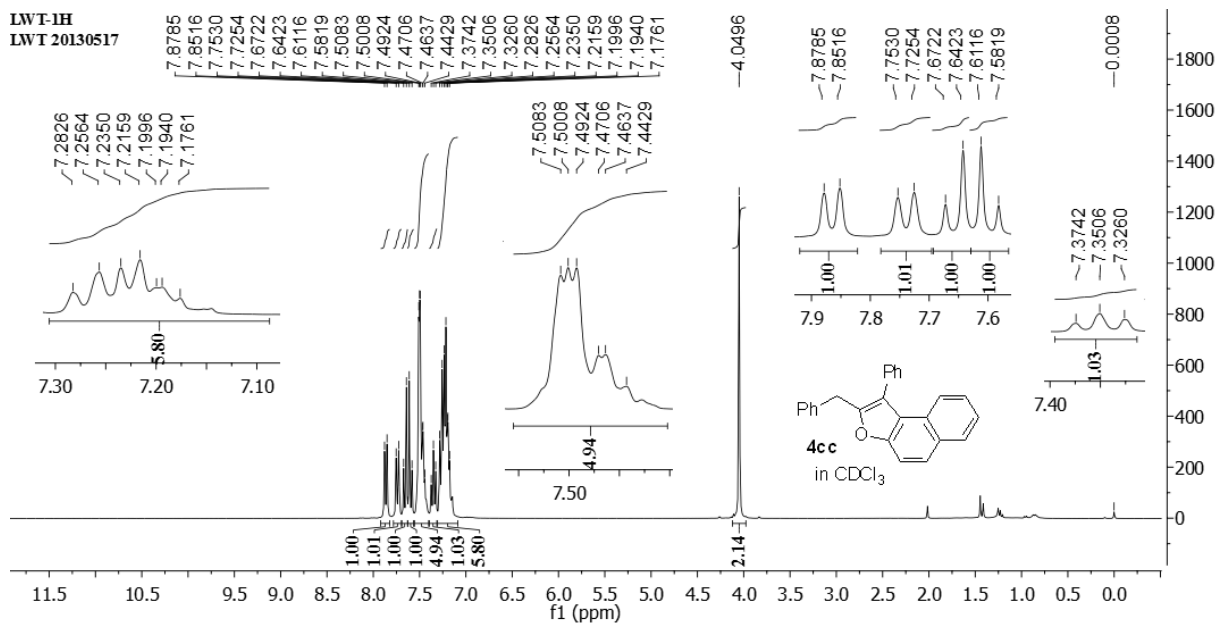


Sample Name	LWT-9	Position	P1-A9	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData9.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:11:08 AM



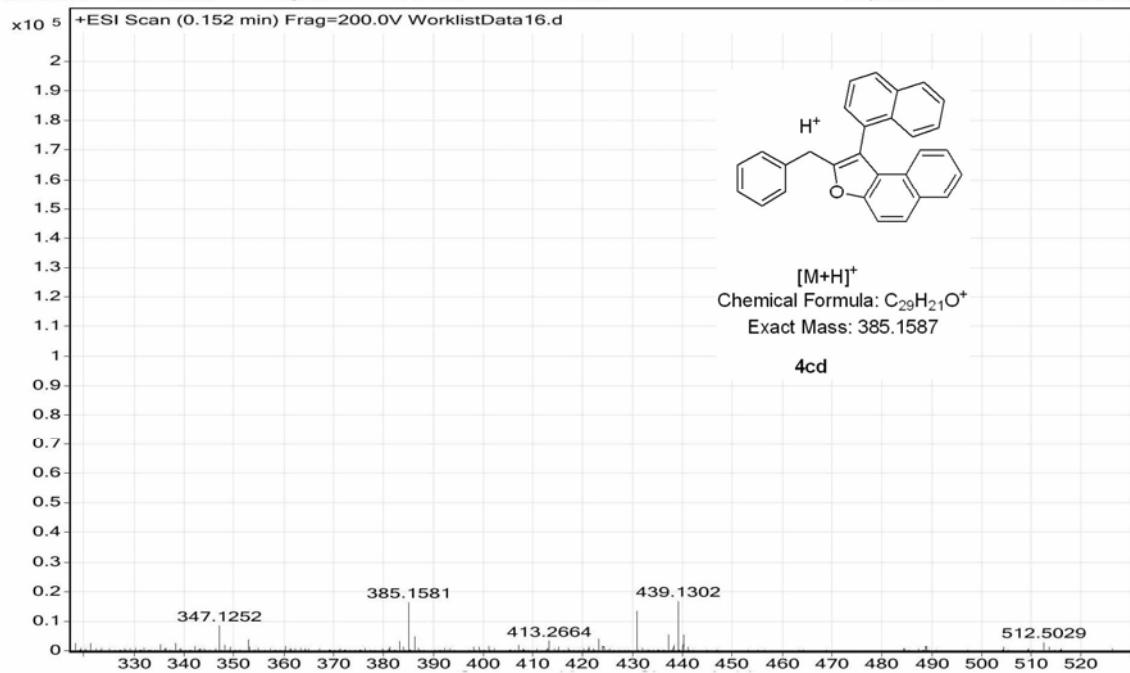


# 2-benzyl-1-phenylnaphtho[2,1-b]furan (4cc)

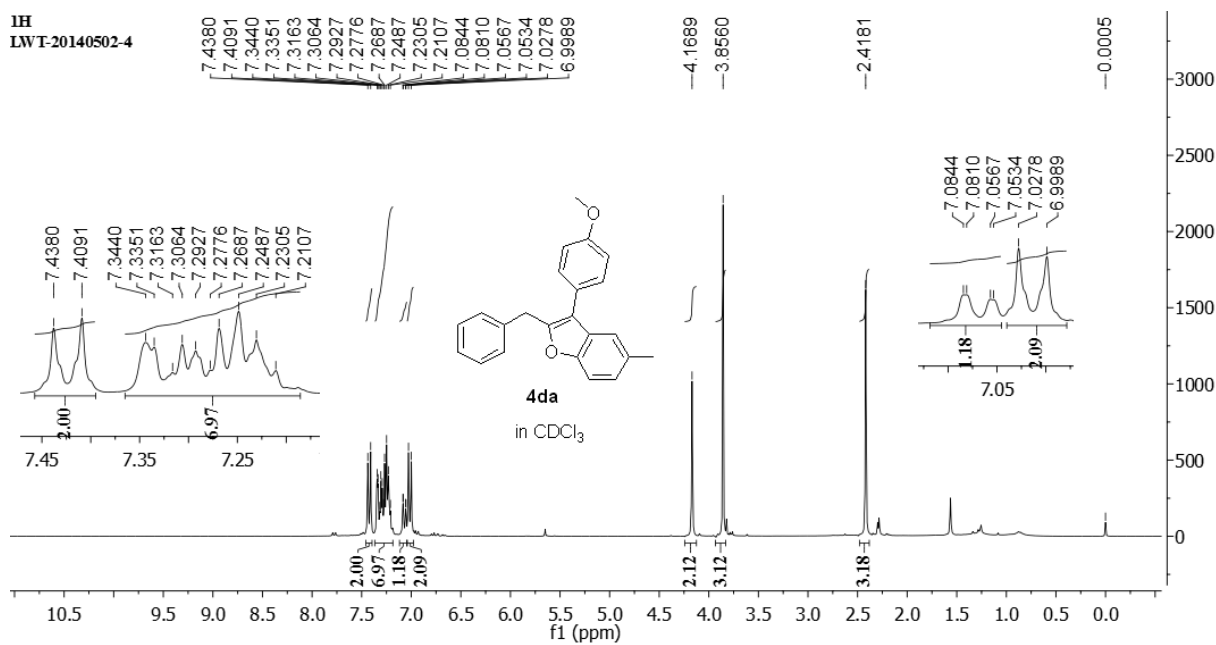




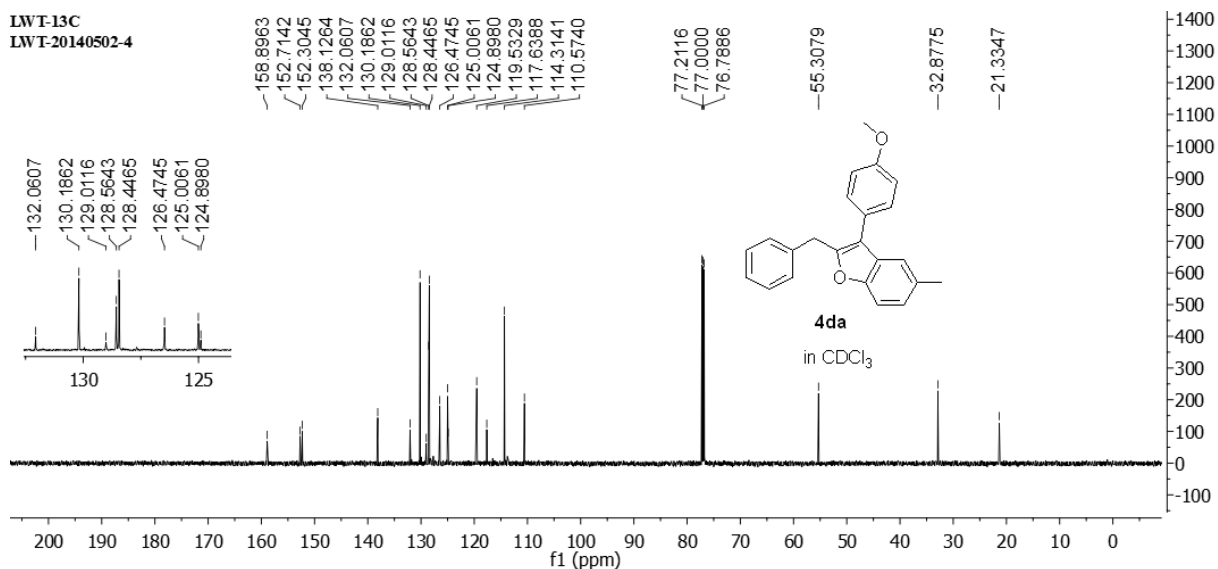
Sample Name	LWT-16	Position	P1-B7	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData16.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:28:08 AM



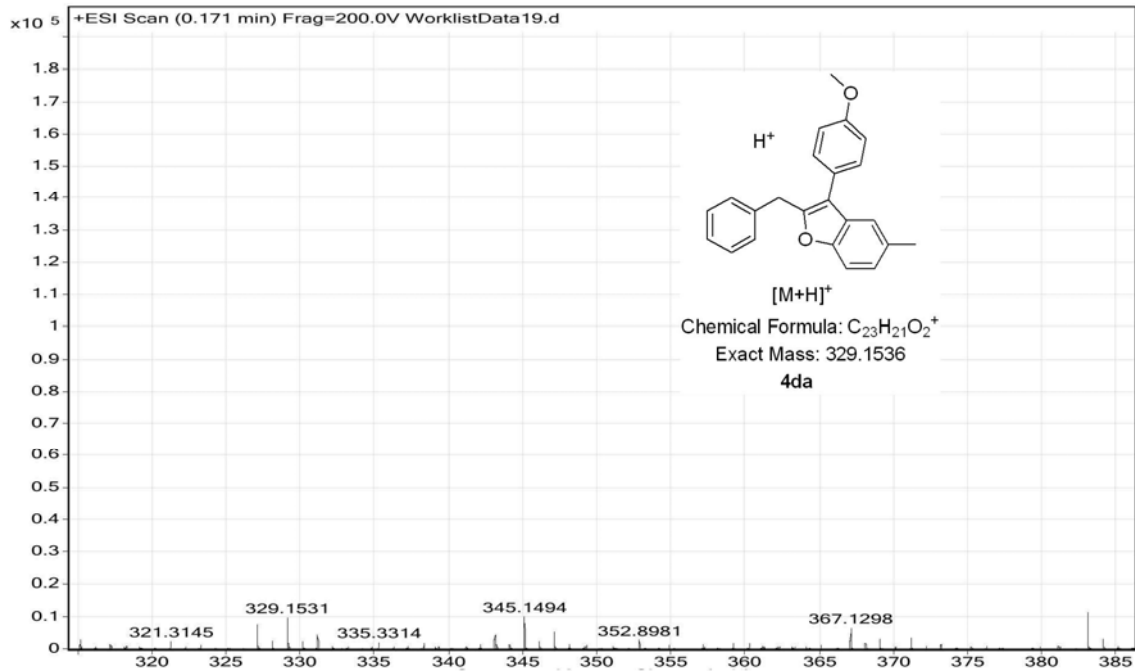
## 2-benzyl-3-(4-methoxyphenyl)-5-methylbenzofuran (4da)



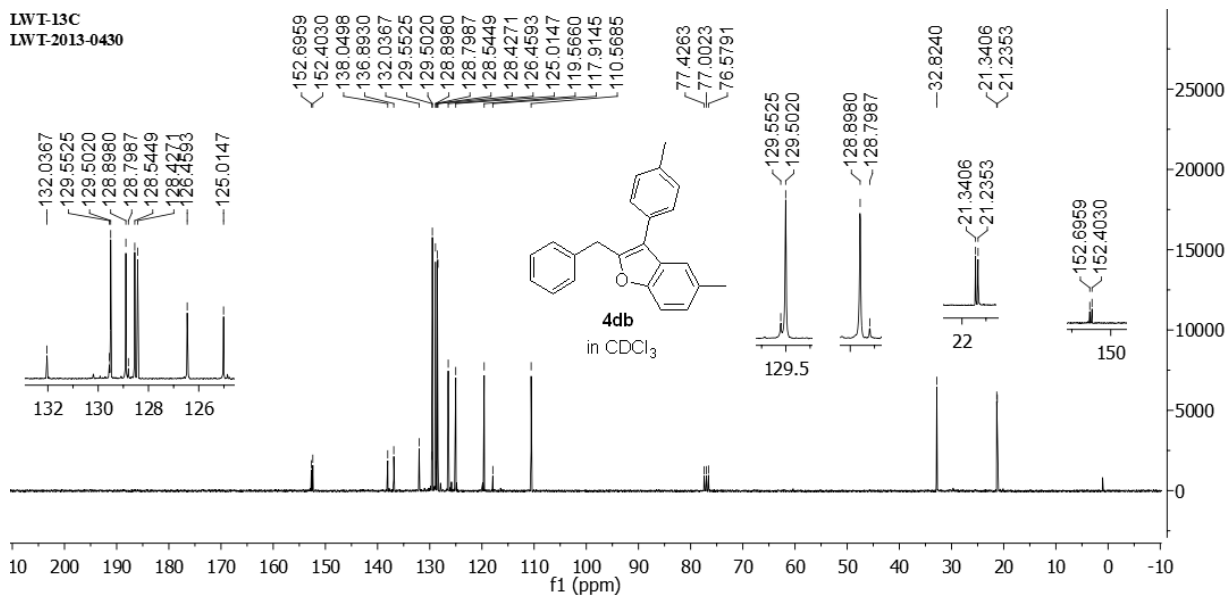
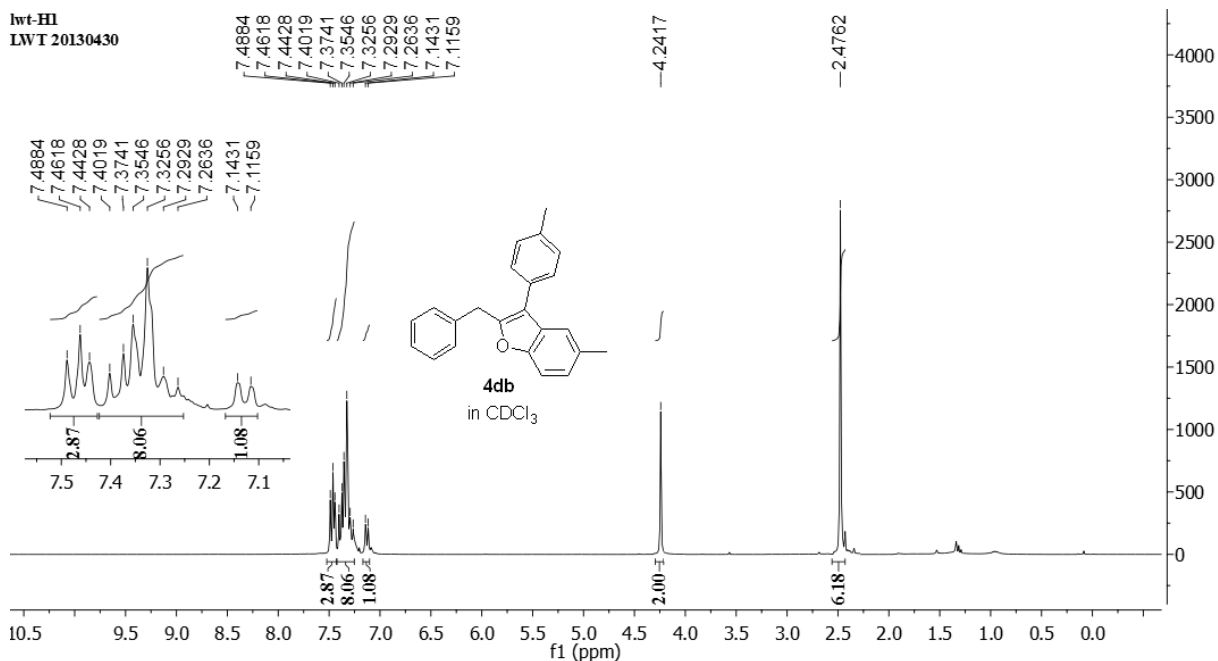
LWT-13C  
LWT-20140502-4



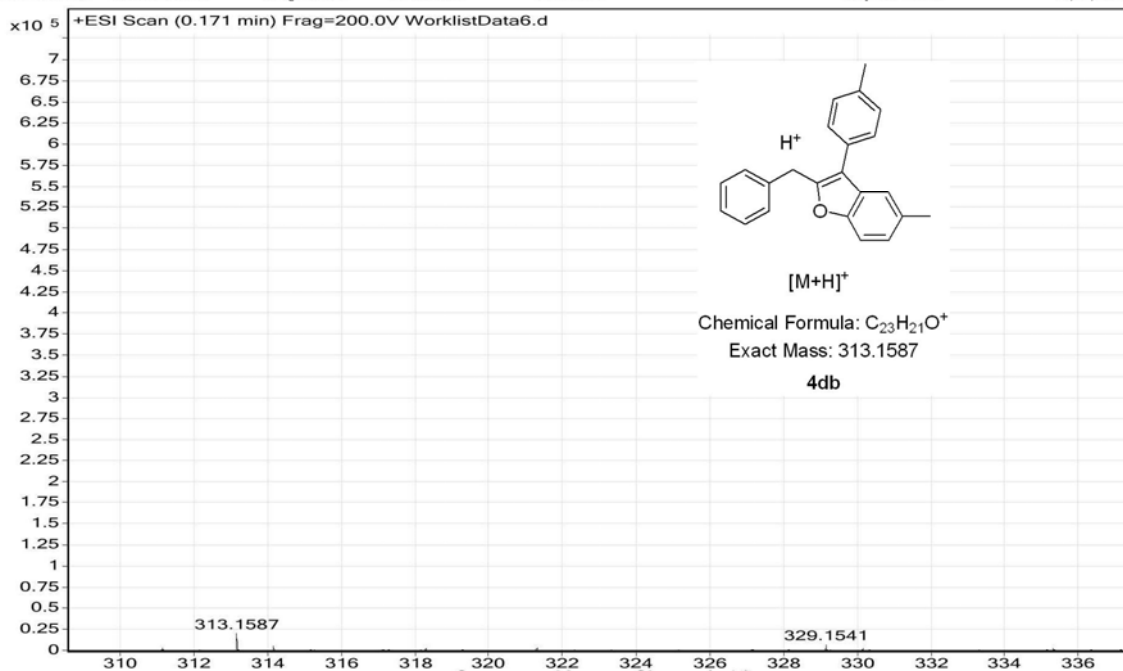
Sample Name	LWT-19	Position	P1-C1	Instrument Name	Instrument 1	User Name
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status
Data Filename	WorklistData19.d	ACQ Method	YLF-AMPK.m	Comment		Success
						Acquired Time



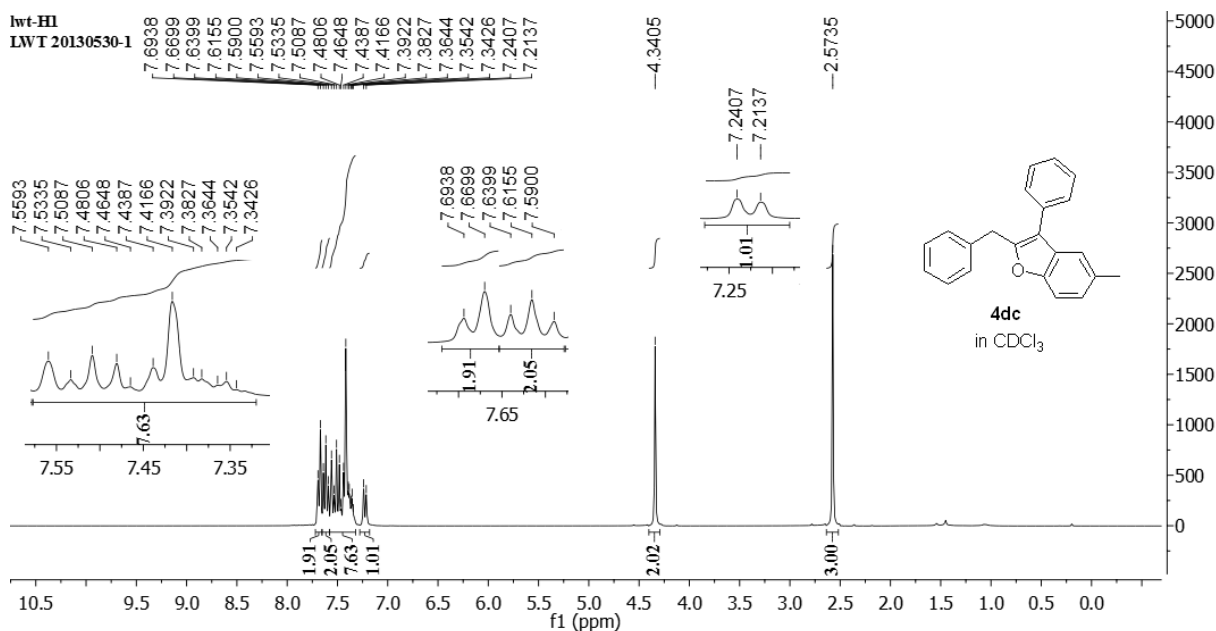
# 2-benzyl-5-methyl-3-(*p*-tolyl)benzofuran (4db)

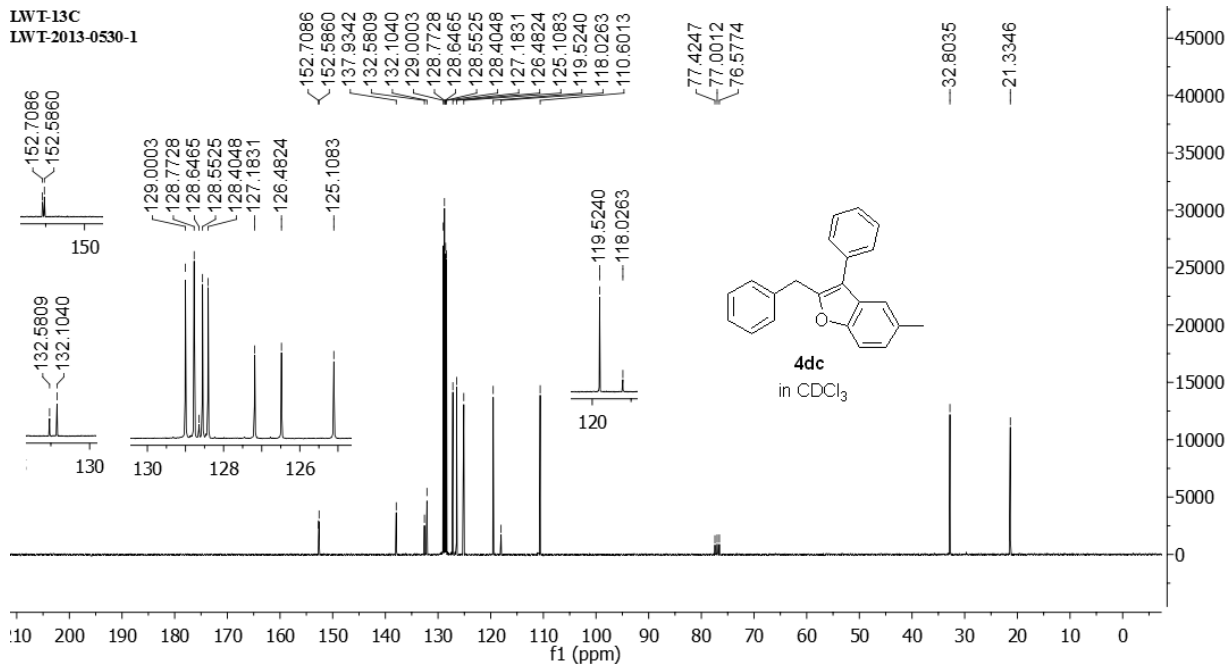


Sample Name	LWT-6	Position	P1-A6	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData6.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:03:52 AM

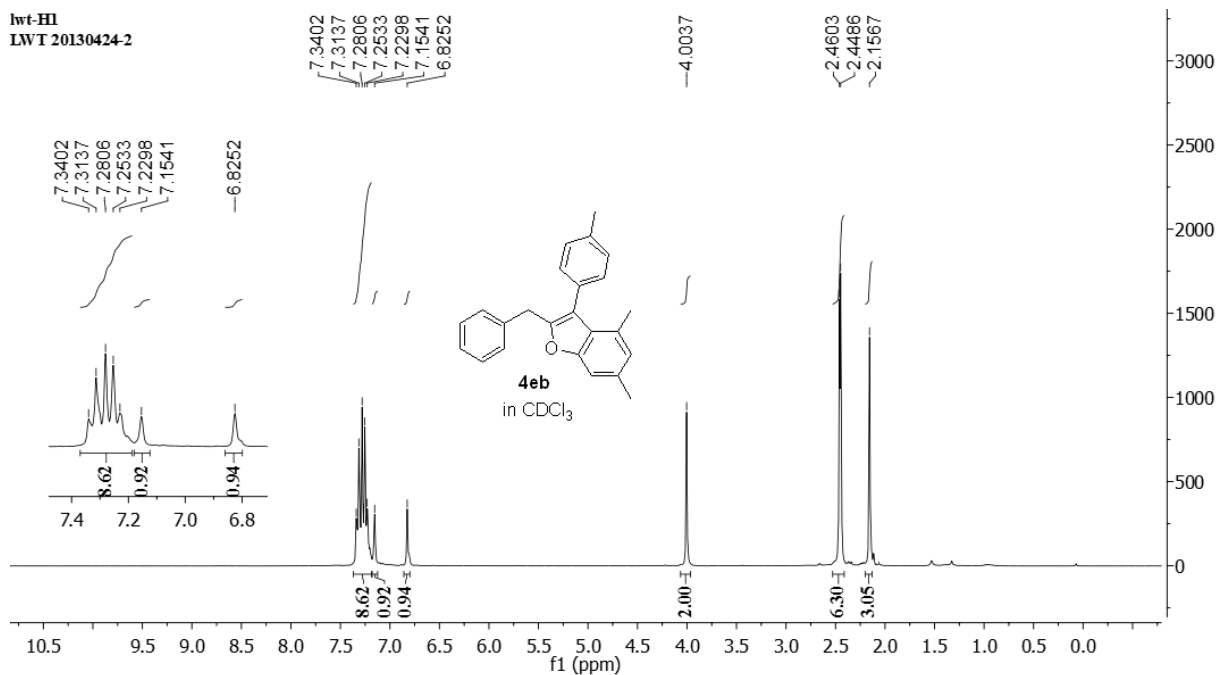


## 2-benzyl-5-methyl-3-phenylbenzofuran (4dc)

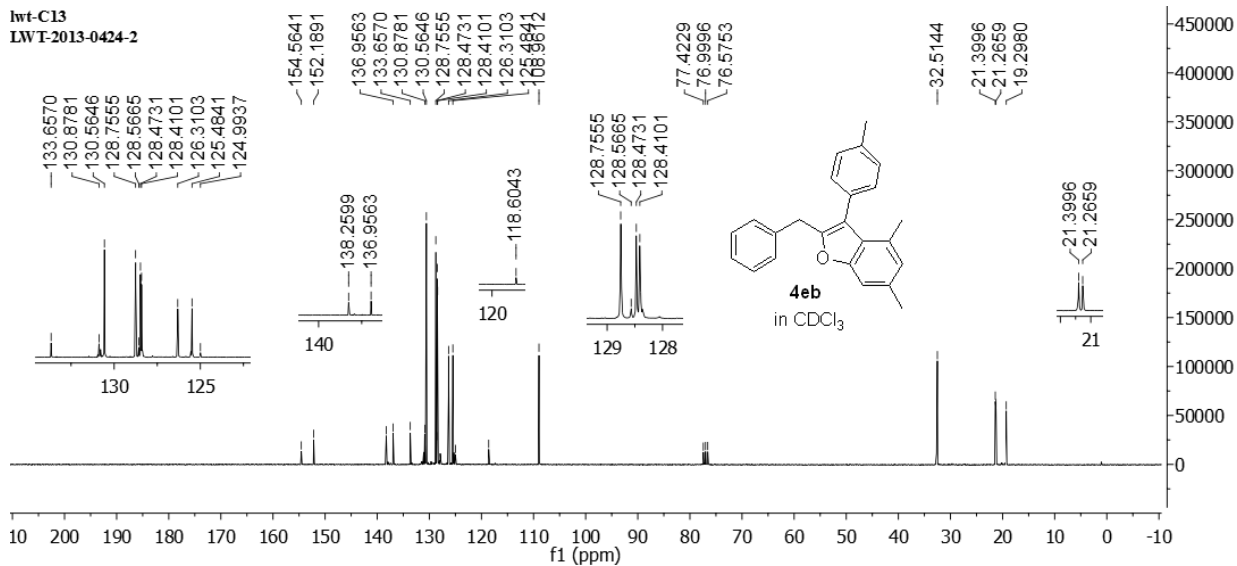




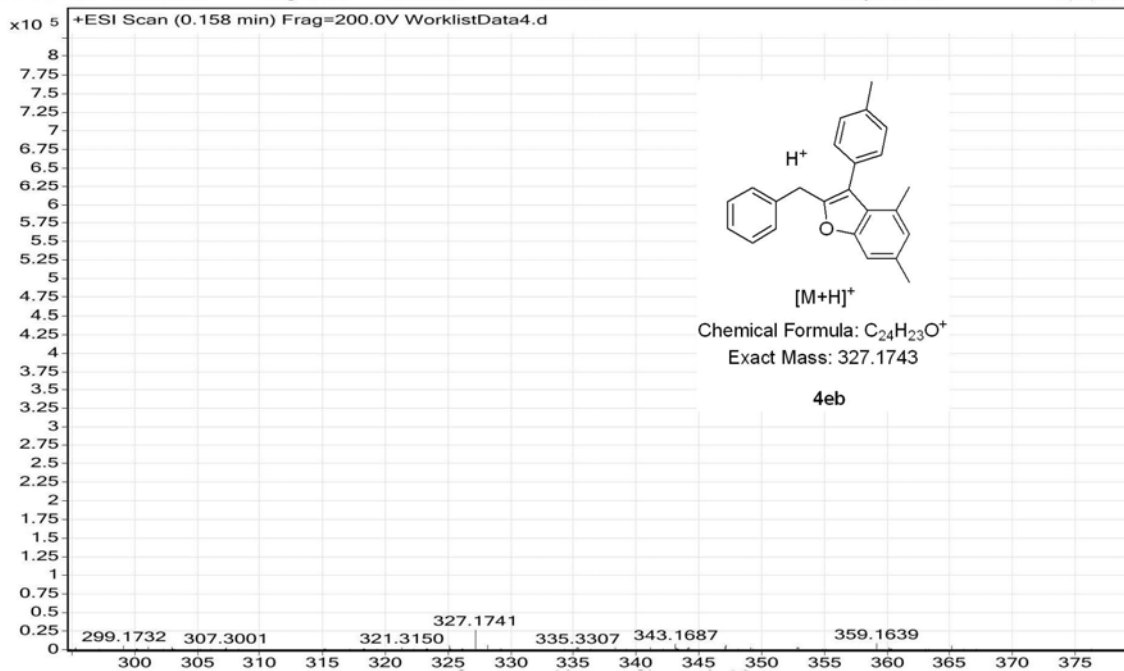
## 2-benzyl-4,6-dimethyl-3-(*p*-tolyl)benzofuran (**4eb**)



lwt-C13  
LWT-2013-0424-2

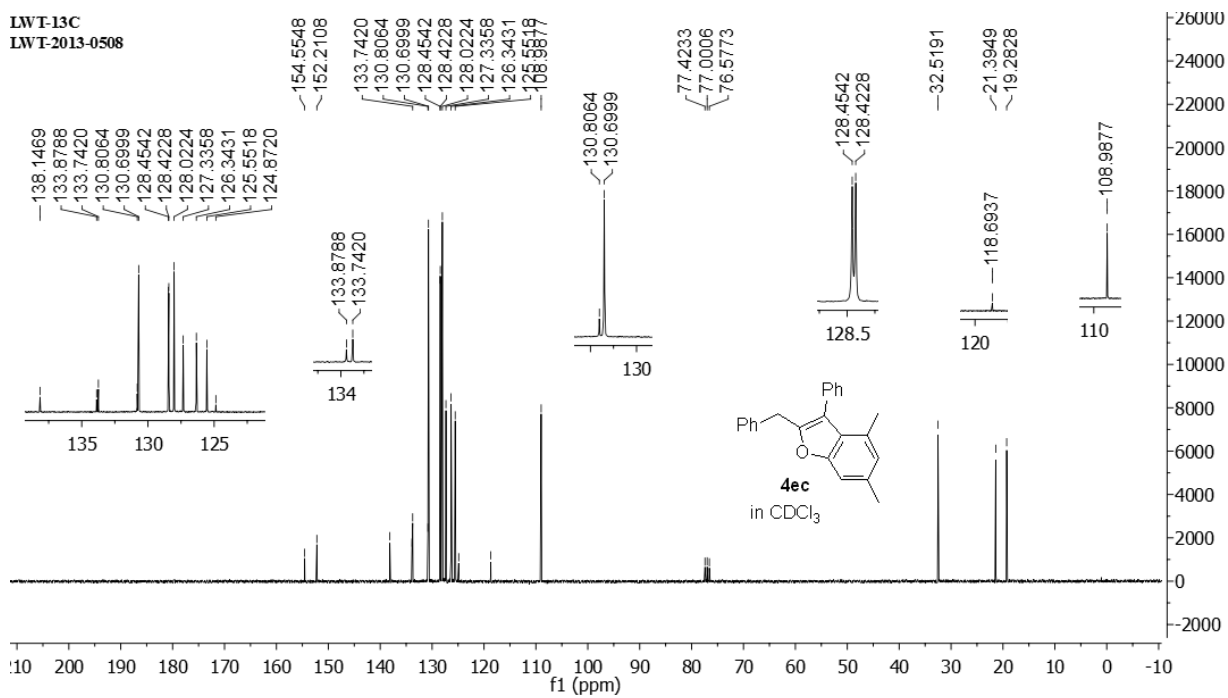
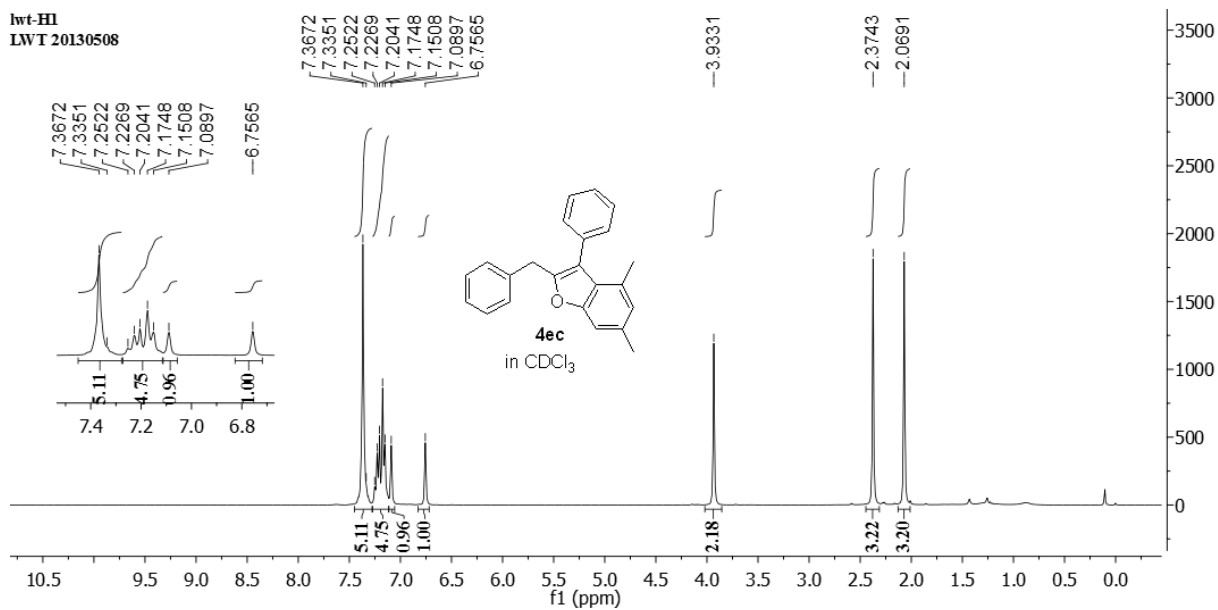


Sample Name	LWT-4	Position	P1-A1	Instrument Name	Instrument 1	User Name
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status
Data Filename	WorklistData4.d	ACQ Method	YLF-AMPK.m	Comment		Success
						Acquired Time
						10/10/2013 9:59:00 AM

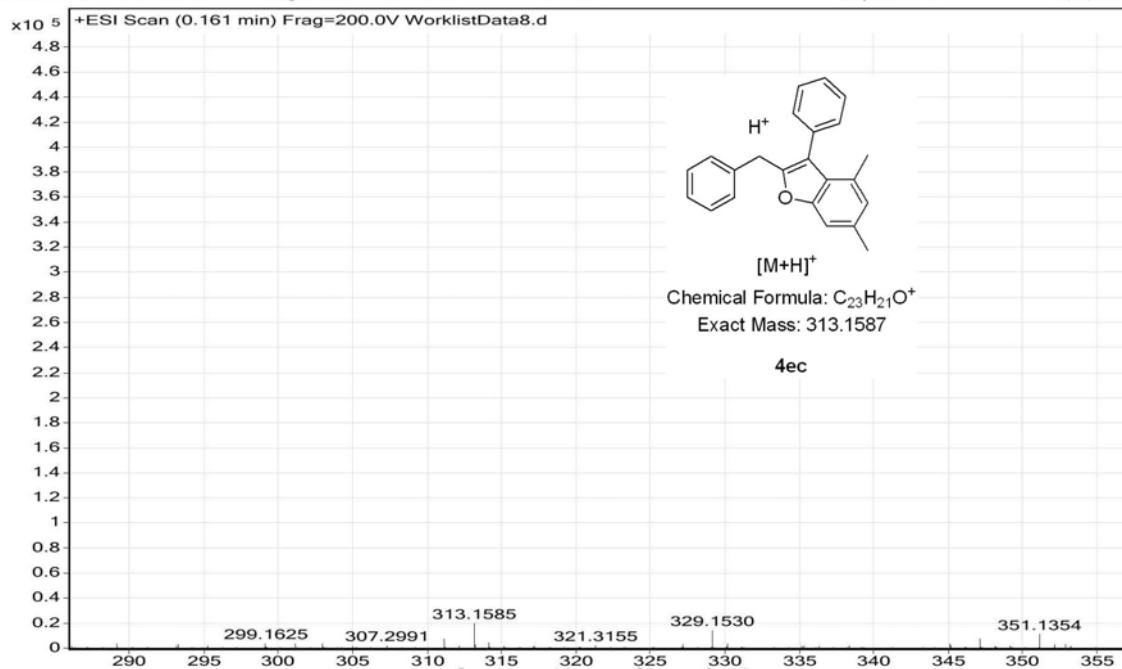




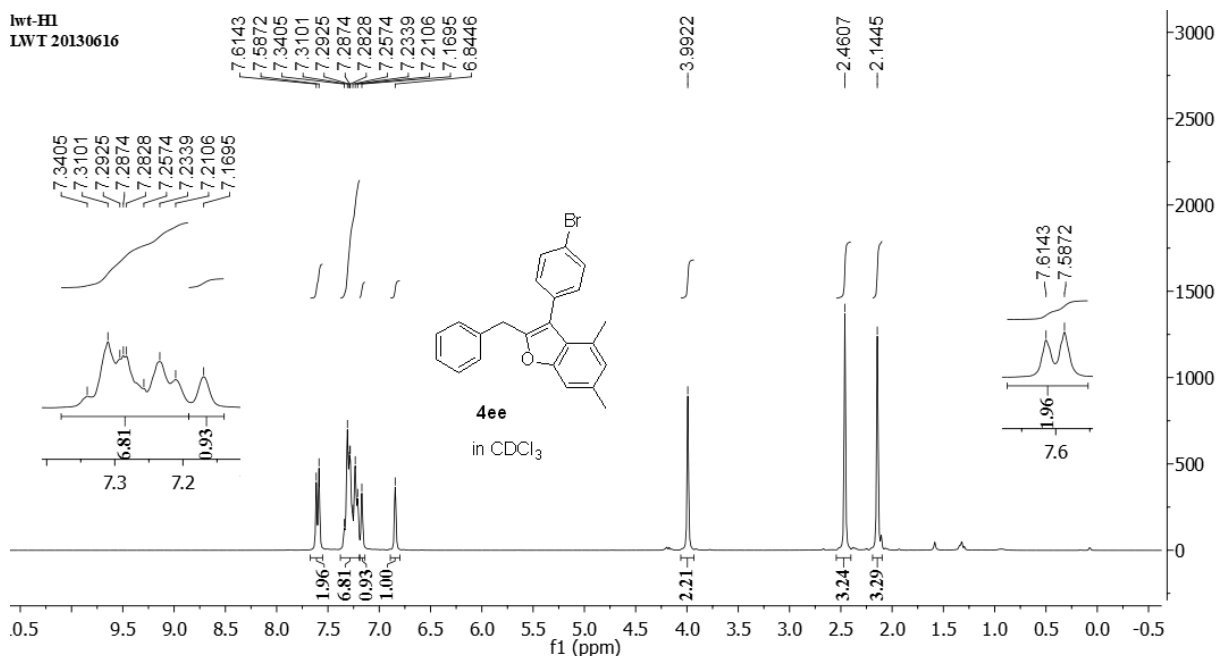
# 2-benzyl-4,6-dimethyl-3-phenylbenzofuran (4ec)



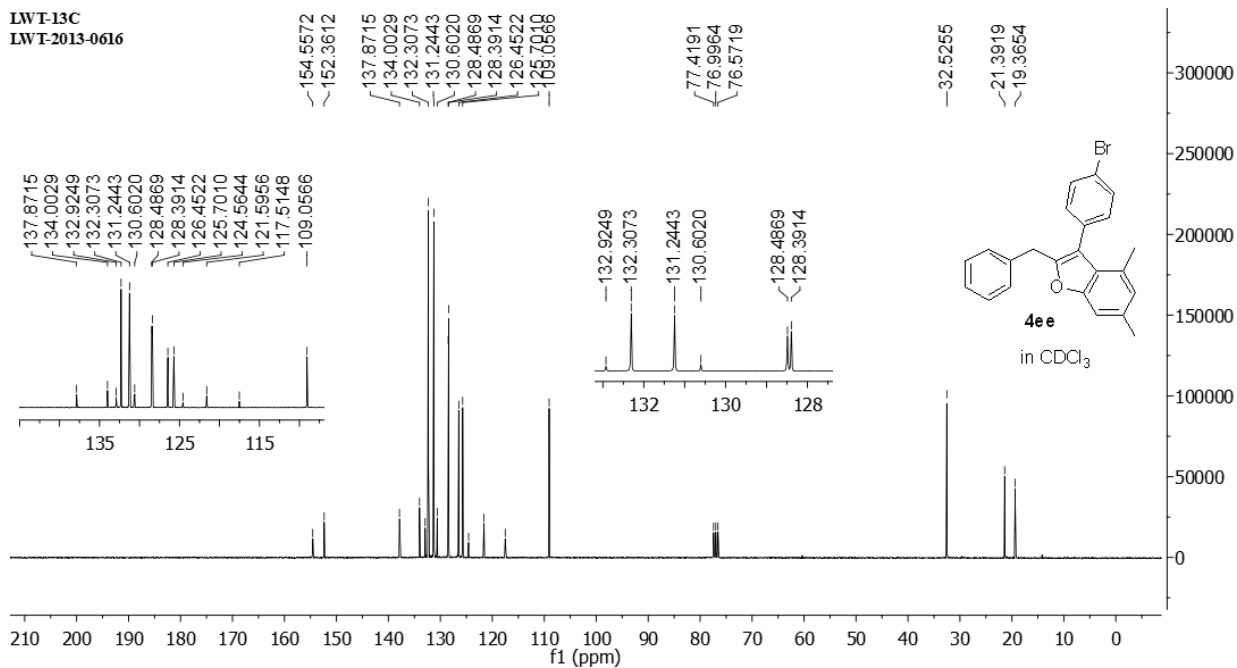
Sample Name	LWT-8	Position	P1-A8	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData8.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:08:43 AM



## 2-benzyl-3-(4-bromophenyl)-4,6-dimethylbenzofuran (4ee)



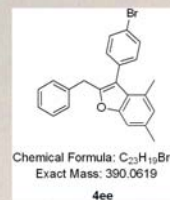
LWT-13C  
LWT-2013-0616



Shanghai Mass Spectrometry Center  
Shanghai Institute of Organic Chemistry  
Chinese Academy of Sciences  
High Resolution MS Data Report

Instrument: Waters Micromass GCT Premier    Ionisation Mode: EI+    Electron Energy: 70eV

Card Serial Number: GCT-P-T14-05-1536  
Sample Serial Number: 2009146-10-24-63-4ee  
Operator: Li  
Date: 2014/05/16



Elemental Composition Report

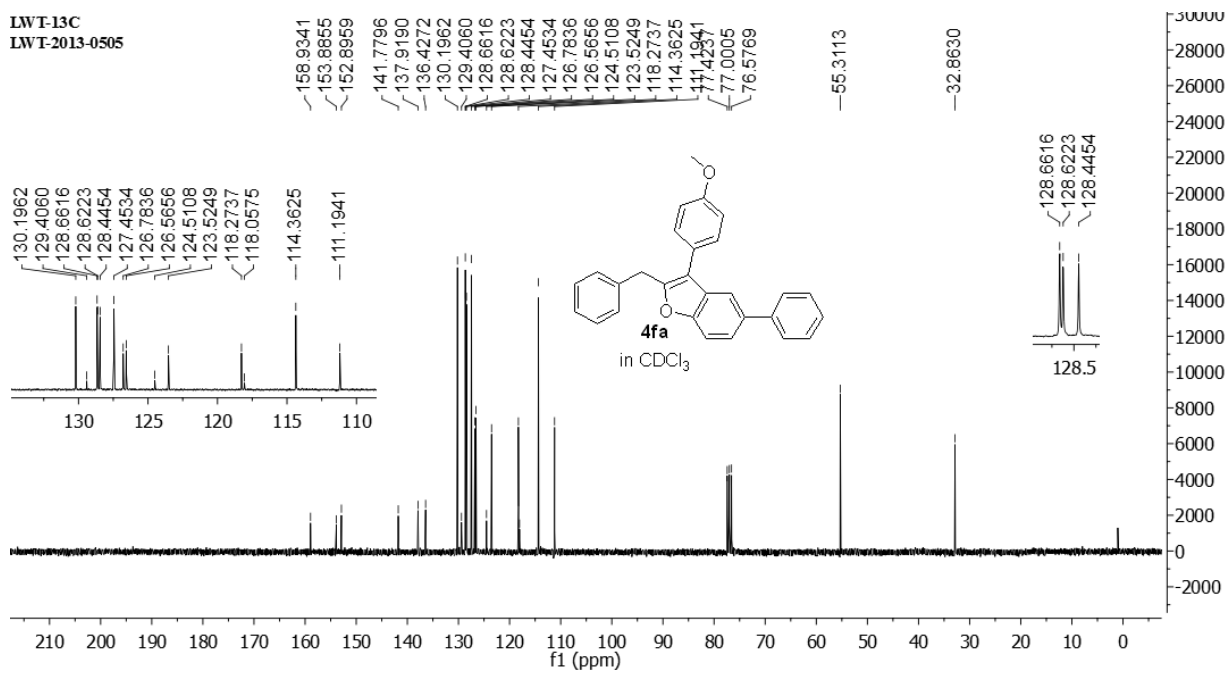
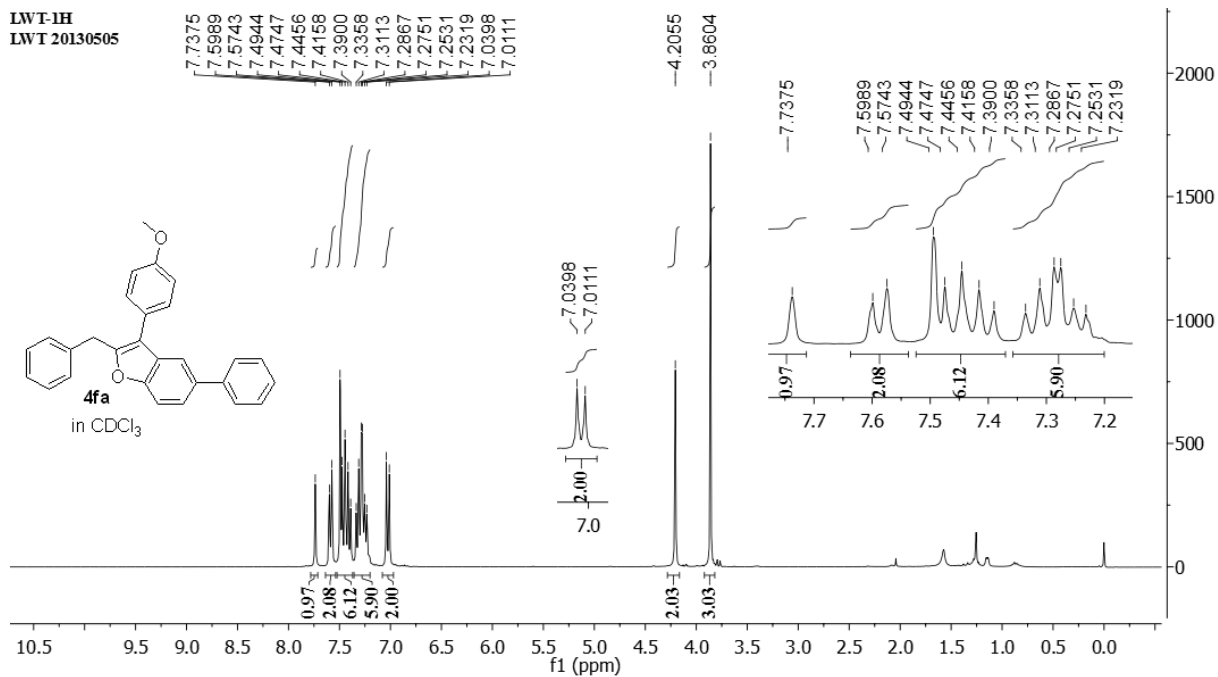
Single Mass Analysis  
Tolerance = 5.0 PPM / DBE: min = -1.5, max = 50.0  
Element prediction: Off

Monoisotopic Mass, Odd and Even Electron Ions  
271 formula(e) evaluated with 3 results within limits (all results (up to 1000) for each mass)

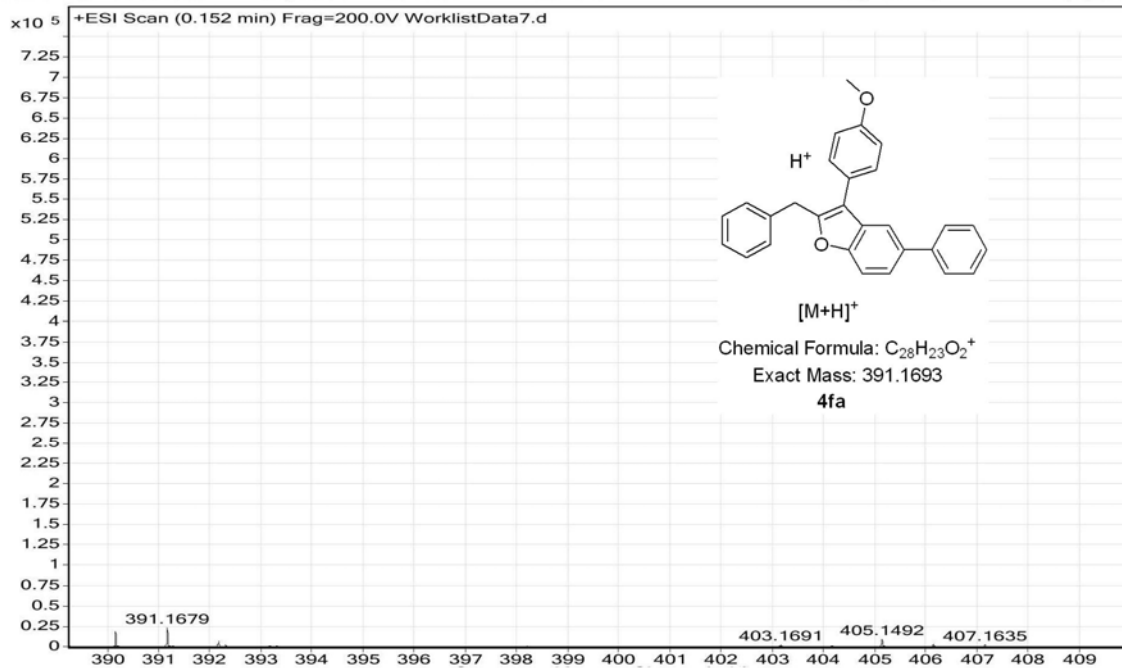
Elements Used:

Mass	Calc. Mass	mDa	PPM	DBE	i-FIT	Formula
390.0622	390.0619	0.3	0.8	14.0	9.6	C <sub>23</sub> H <sub>19</sub> O Br
	390.0613	0.9	2.3	5.0	29.6	C <sub>15</sub> H <sub>23</sub> N <sub>2</sub> O <sub>3</sub> S Br
	390.0641	-1.9	-4.9	21.0	295.2	C <sub>24</sub> H <sub>10</sub> N <sub>2</sub> O <sub>4</sub>

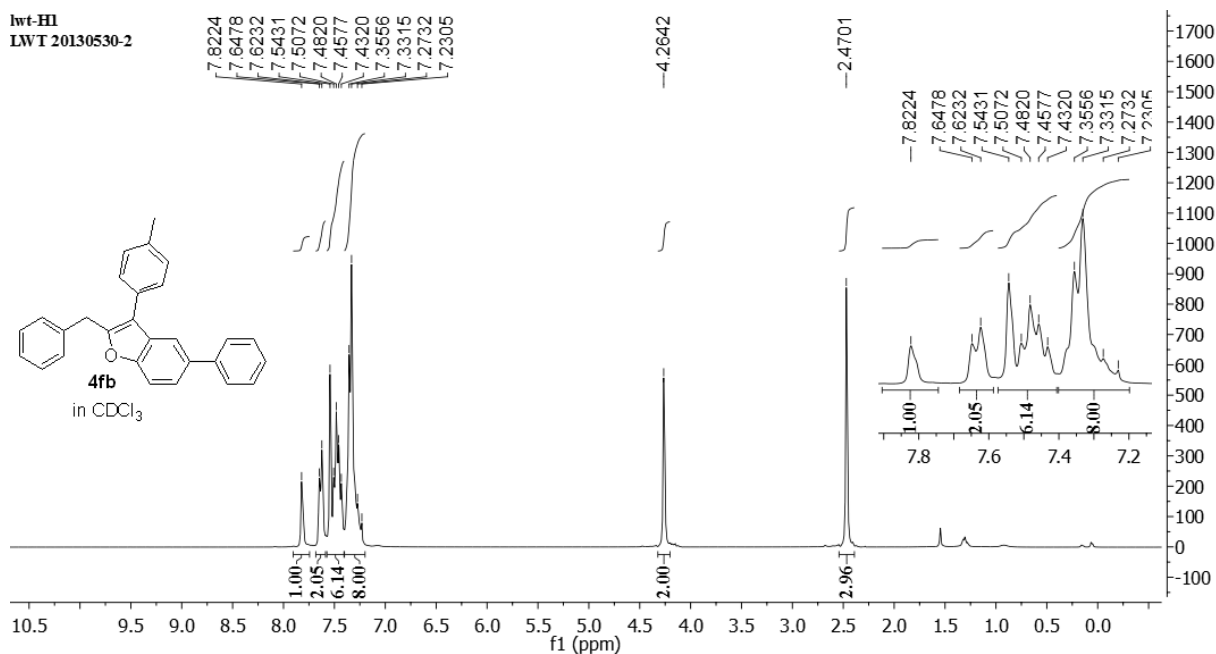
## 2-benzyl-3-(4-methoxyphenyl)-5-phenylbenzofuran (4fa)



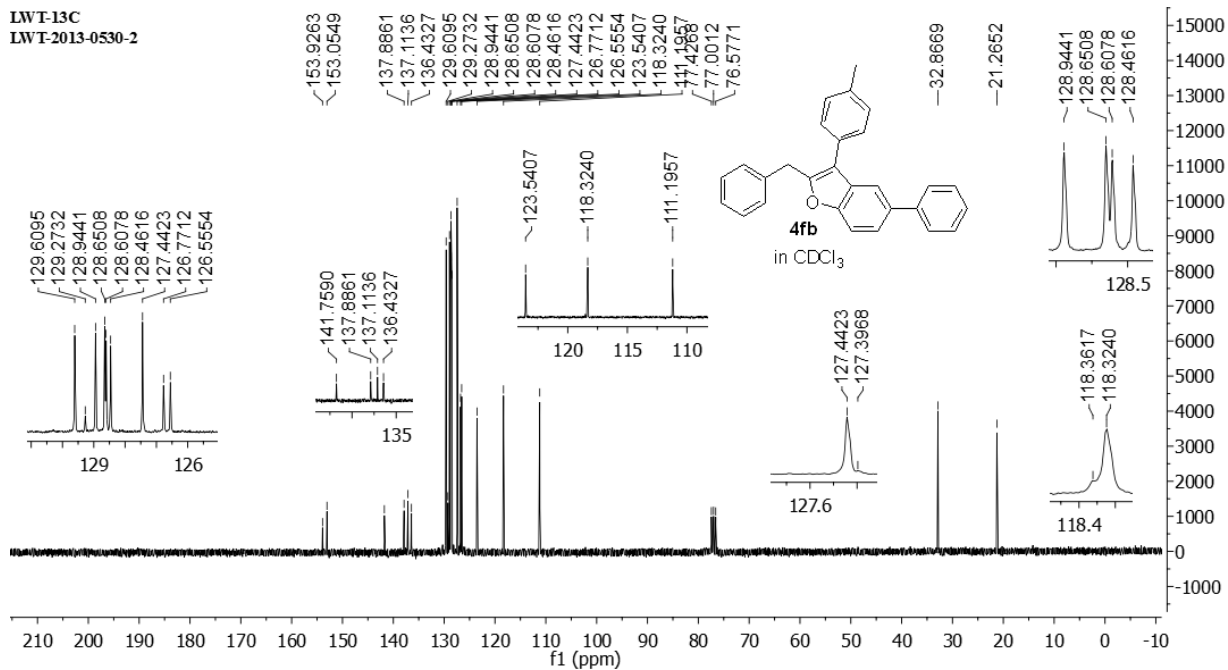
Sample Name	LWT-7	Position	P1-A7	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData7.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:06:17 AM



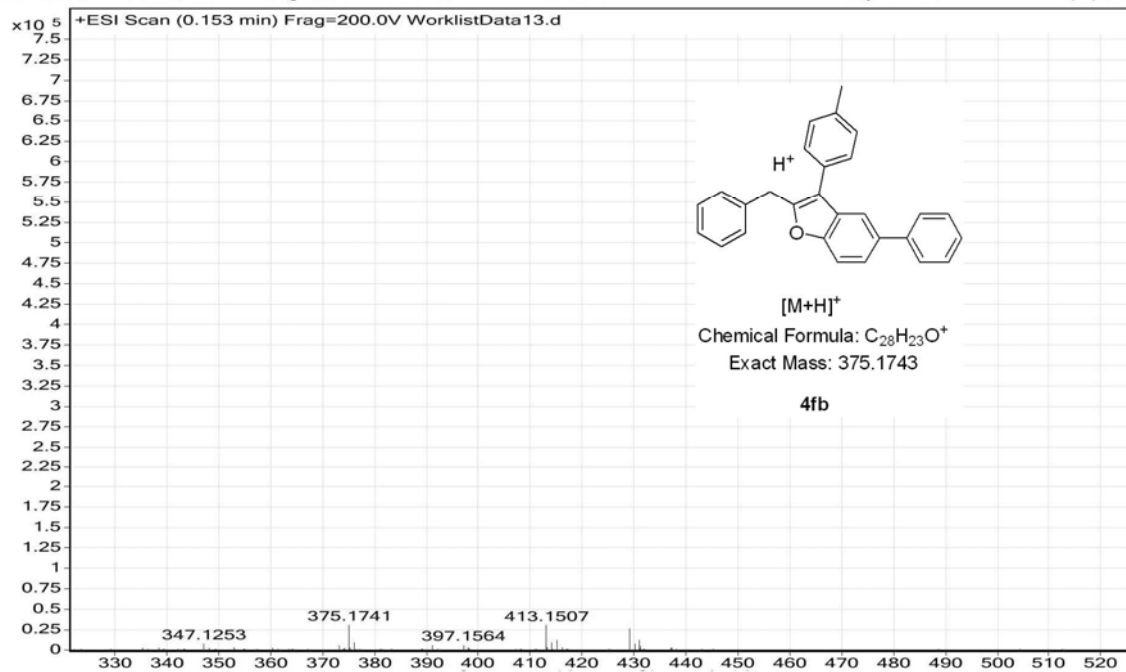
## 2-benzyl-5-phenyl-3-(p-tolyl)benzofuran (4fb)



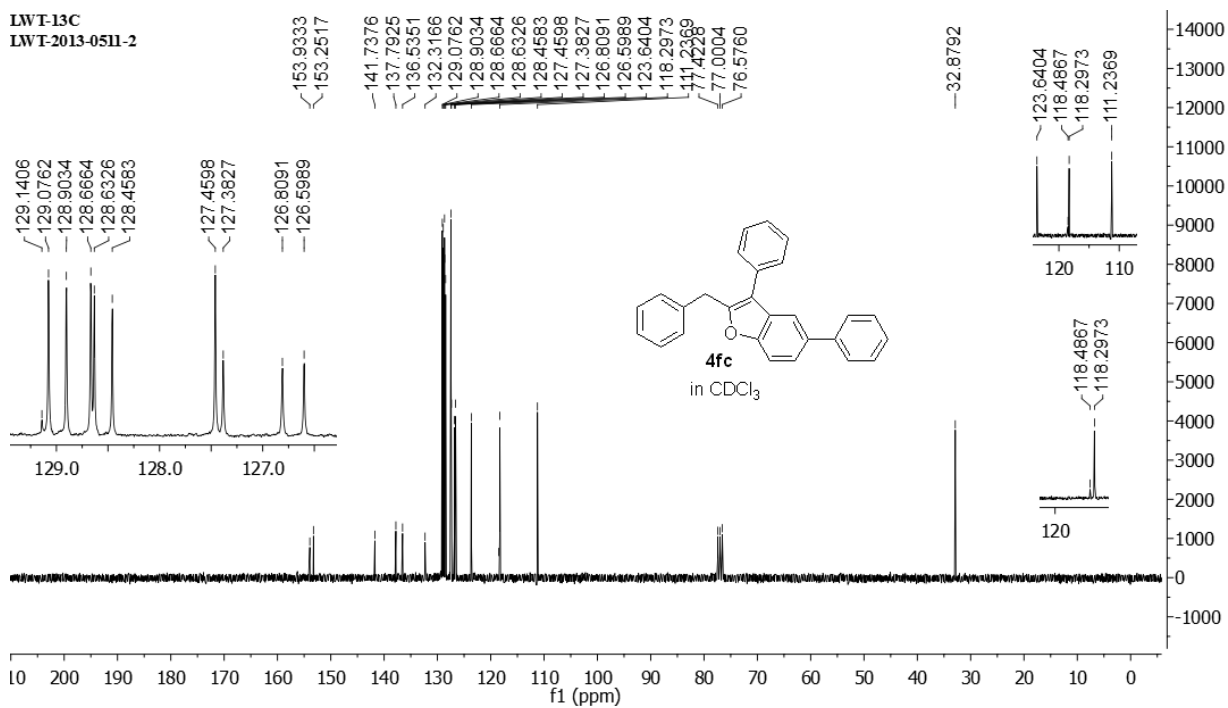
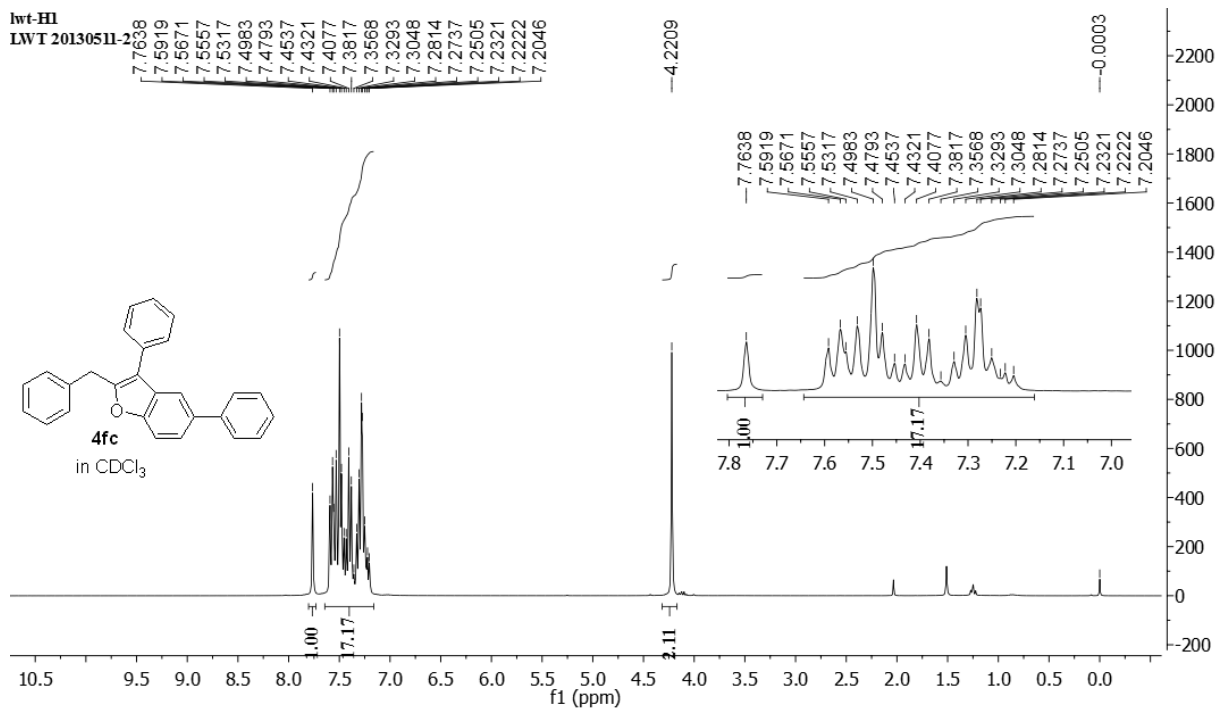
LWT-13C  
LWT-2013-0530-2



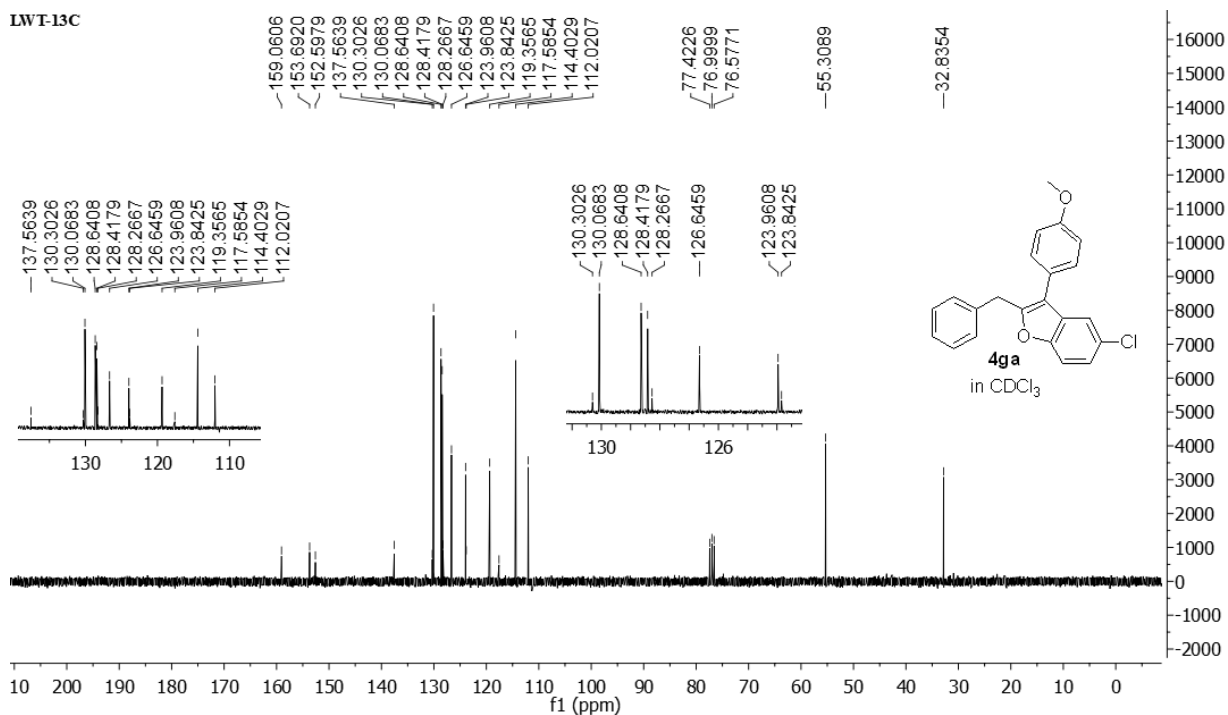
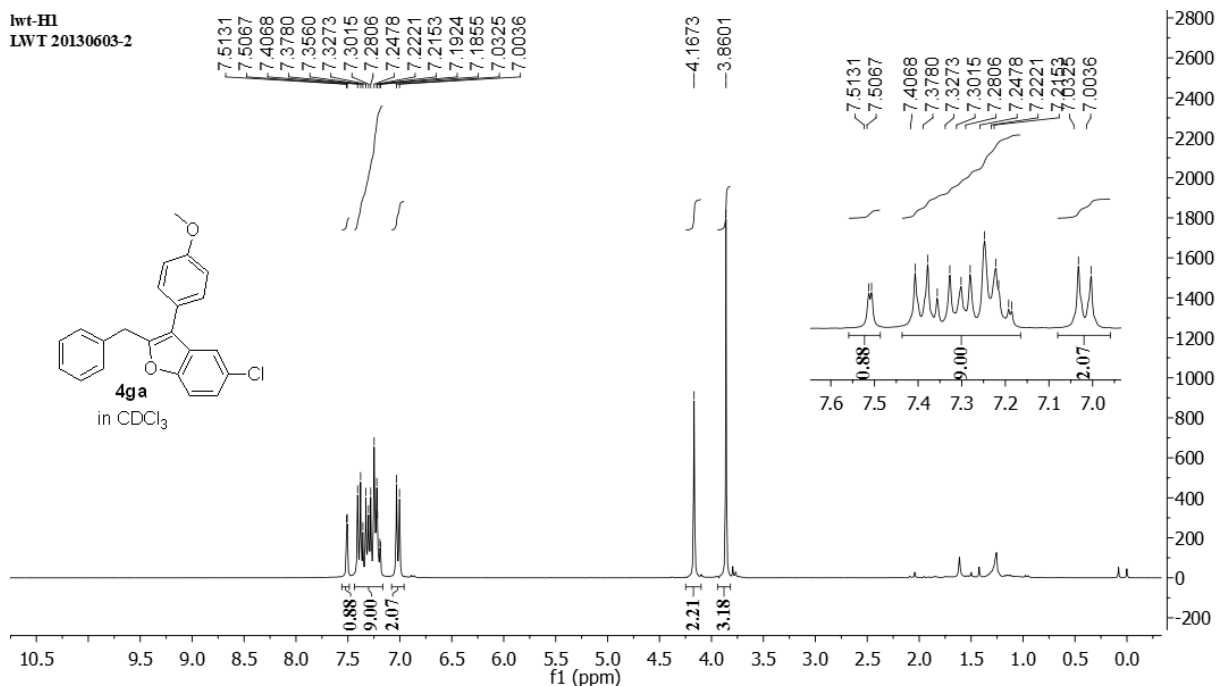
Sample Name	LWT-13	Position	P1-B4	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData13.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:20:51 AM



# 2-benzyl-3,5-diphenylbenzofuran (4fc)



# 2-benzyl-5-chloro-3-(4-methoxyphenyl)benzofuran (4ga)





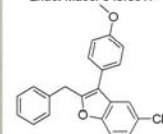


Shanghai Mass Spectrometry Center  
Shanghai Institute of Organic Chemistry  
Chinese Academic of Sciences  
High Resolution MS Data Report

Instrument: Waters Micromass GCT Premier    Ionisation Mode: EI+    Electron Energy: 70eV

Card Serial Number: GCT-P-T14-05-1537  
Sample Serial Number: 2009146-10-24-63-4ga  
Operator: Li  
Date: 2014/05/16

Chemical Formula: C<sub>22</sub>H<sub>17</sub>ClO<sub>2</sub>  
Exact Mass: 348.0917



Chemical Formula: C<sub>22</sub>H<sub>17</sub>ClO<sub>2</sub>  
Exact Mass: 348.0917  
**4ga**

#### Elemental Composition Report

Single Mass Analysis  
Tolerance = 5.0 PPM / DBE: min = -1.5, max = 50.0  
Element prediction: Off

Monoisotopic Mass, Odd and Even Electron Ions  
449 formula(e) evaluated with 3 results within limits (all results (up to 1000) for each mass)

#### Elements Used:

C: 0-60    H: 0-80    N: 0-2    O: 0-4    S: 0-1    Cl: 0-1    Br: 0-1

Minimum:

Maximum:

Mass

348.0913

Calc. Mass

348.0911

348.0917

348.0899

mDa

0.2

-0.4

1.4

PPM

0.6

-1.1

4.0

DBE

-1.5

5.0

19.0

i-FIT

5.8

3.7

3.4

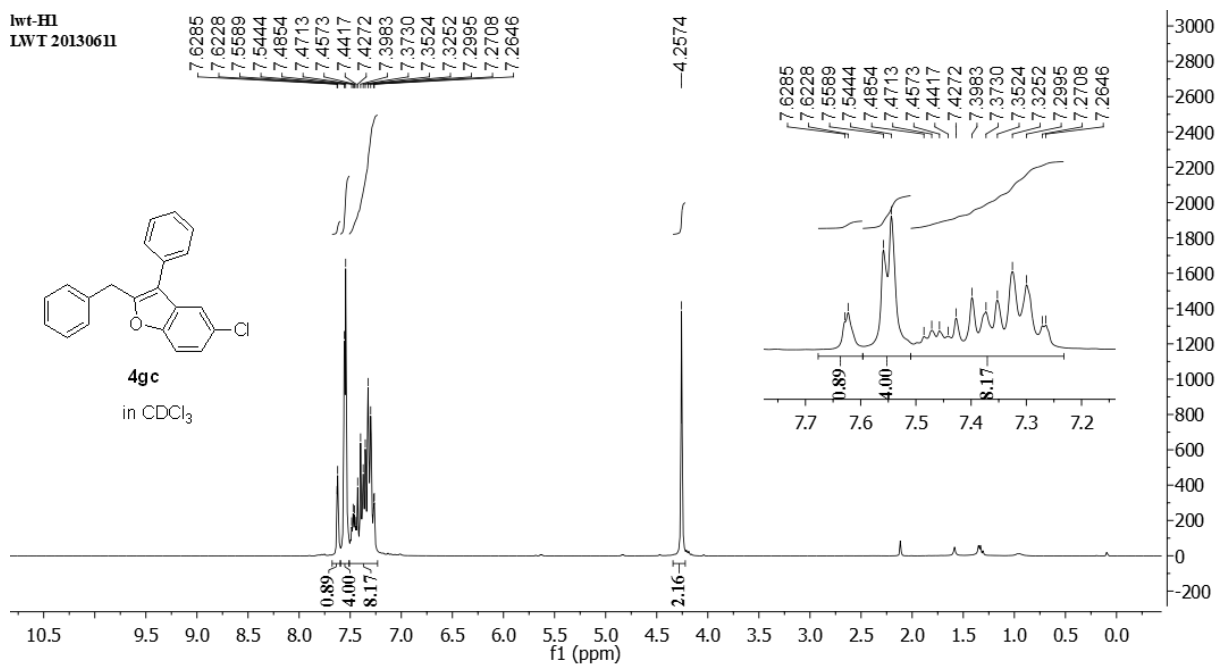
Formula

C14 H21 N2 O4 S Cl

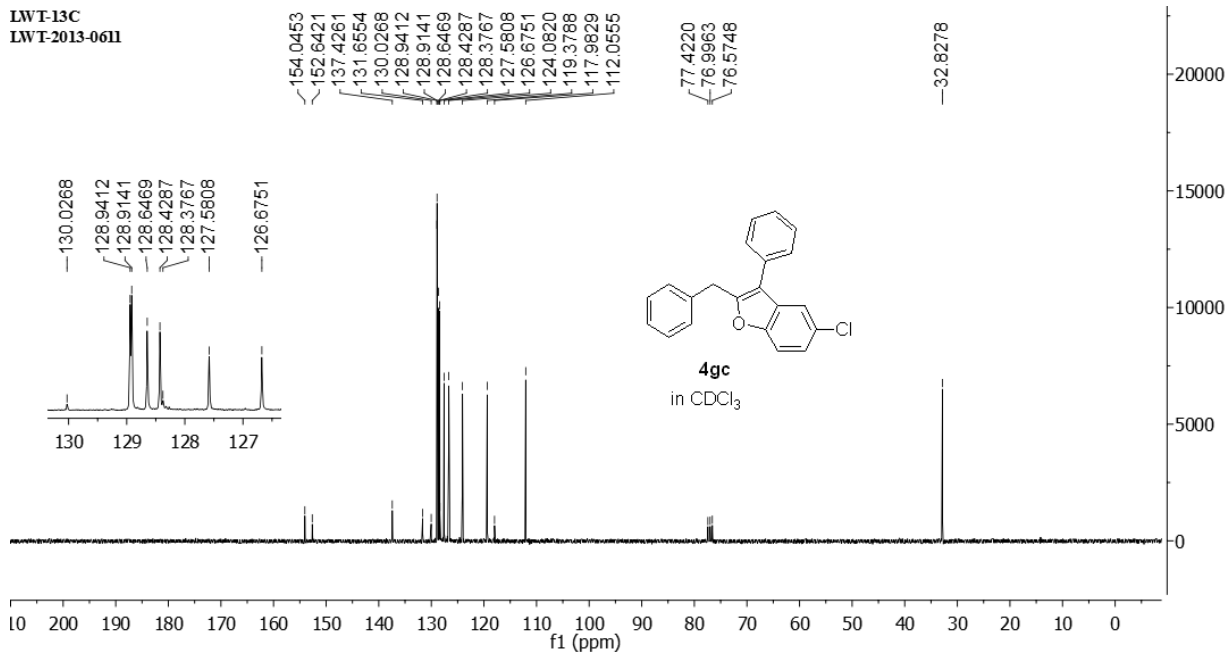
C22 H17 O2 Cl

C23 H12 N2 O2

## 2-benzyl-5-chloro-3-phenylbenzofuran (4gc)

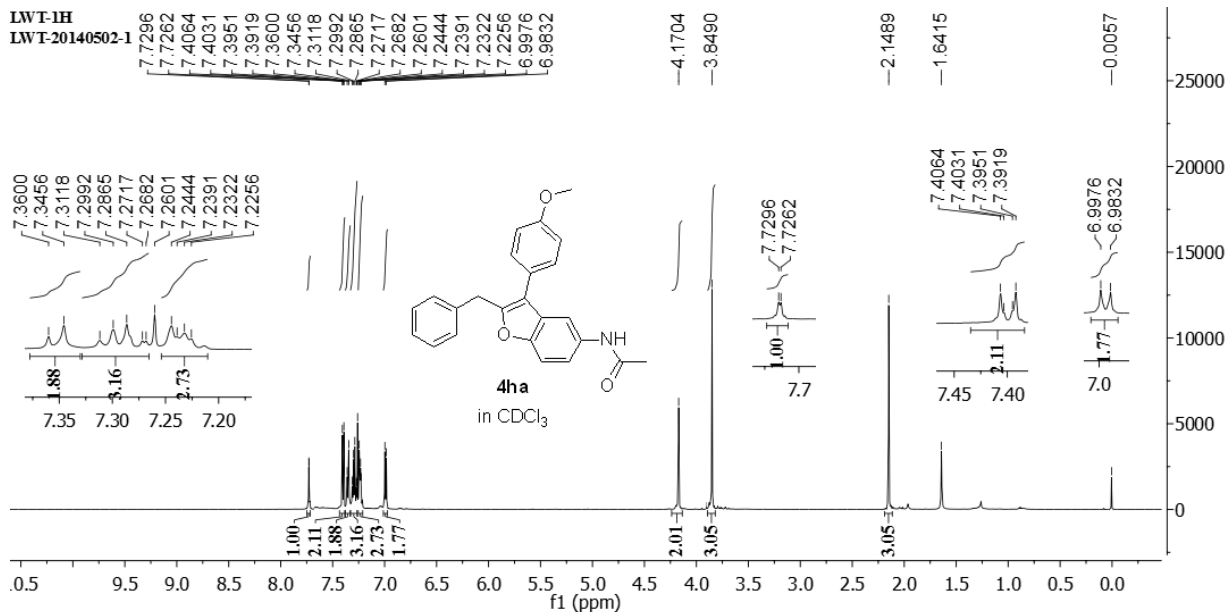


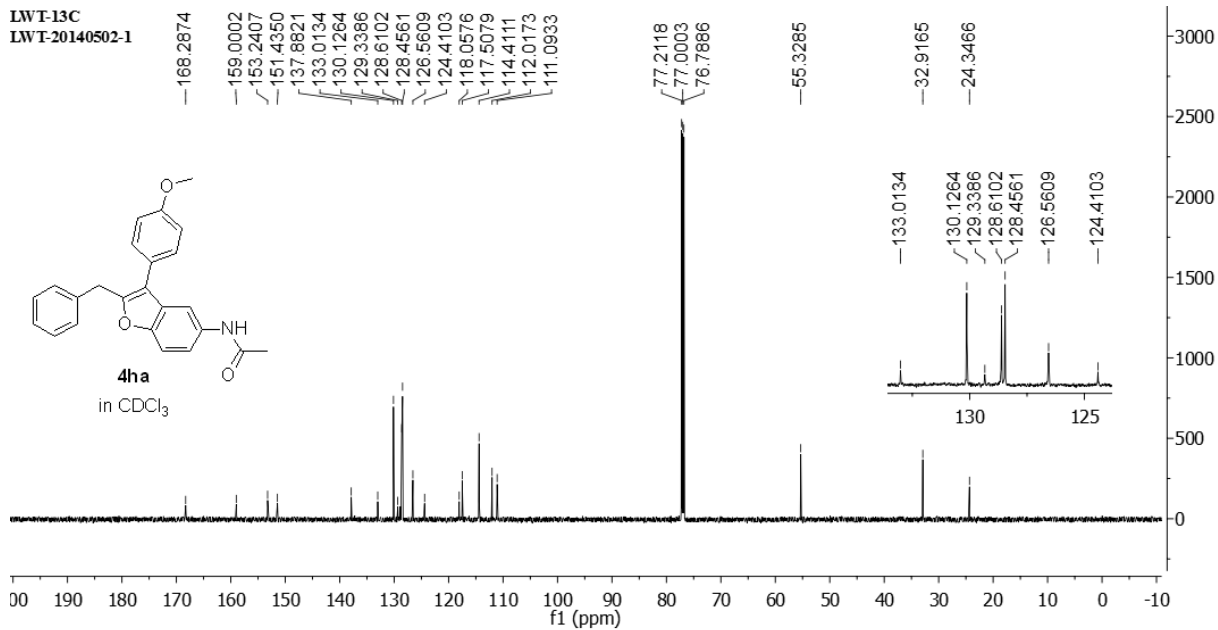
LWT-13C  
LWT-2013-0611



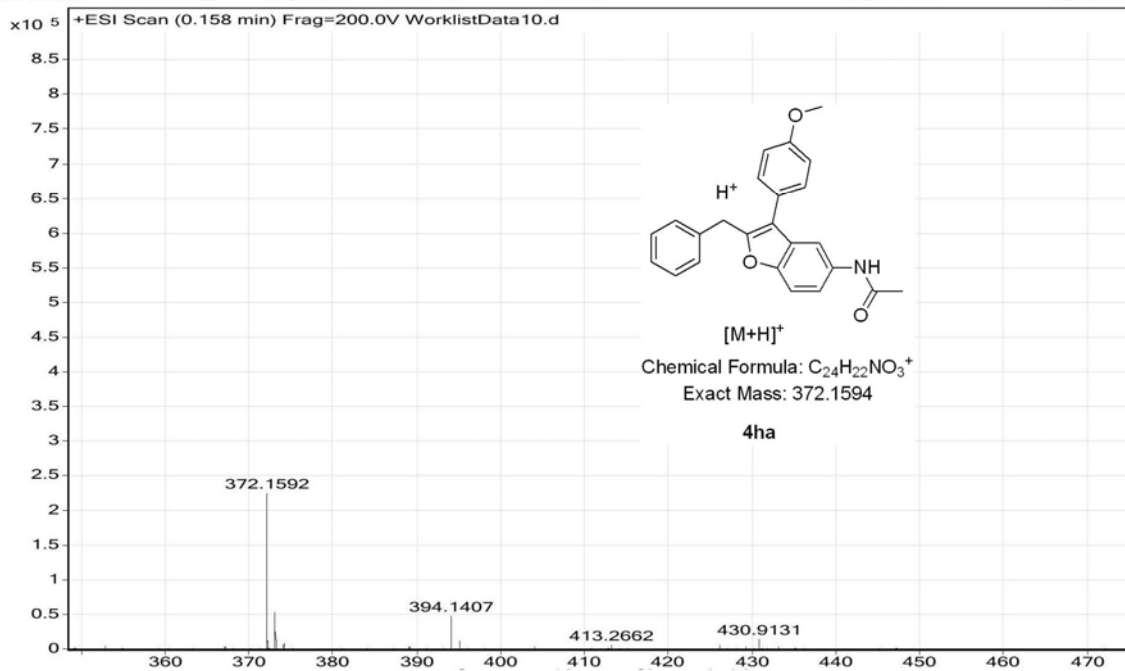
### N-(2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)acetamide (4ha)

LWT-1H  
LWT-20140502-1

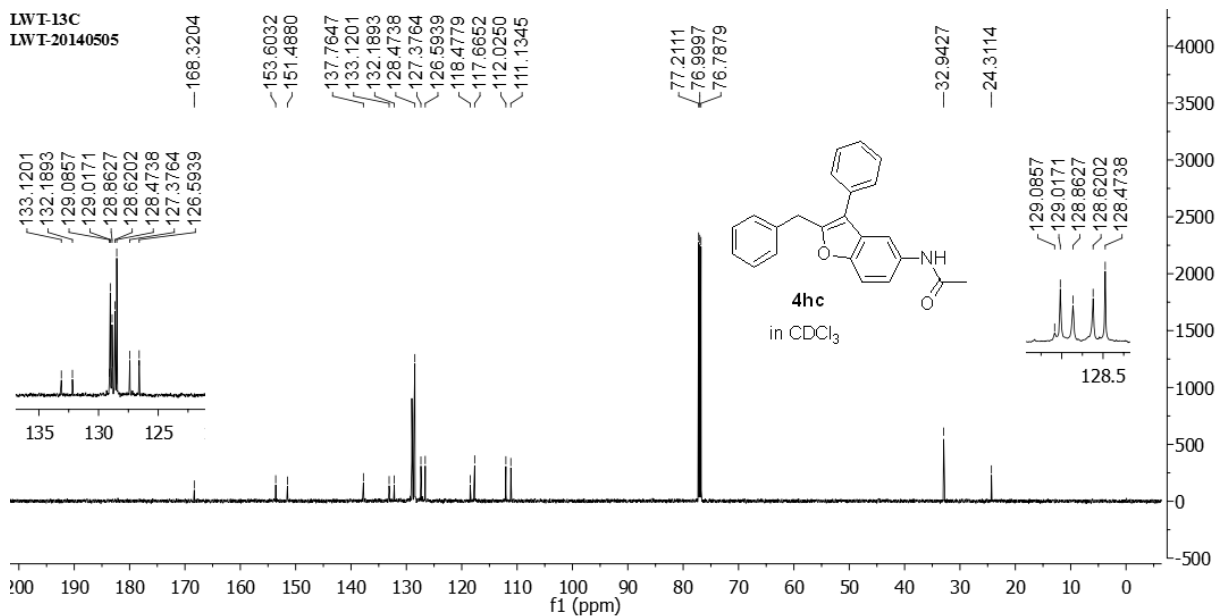
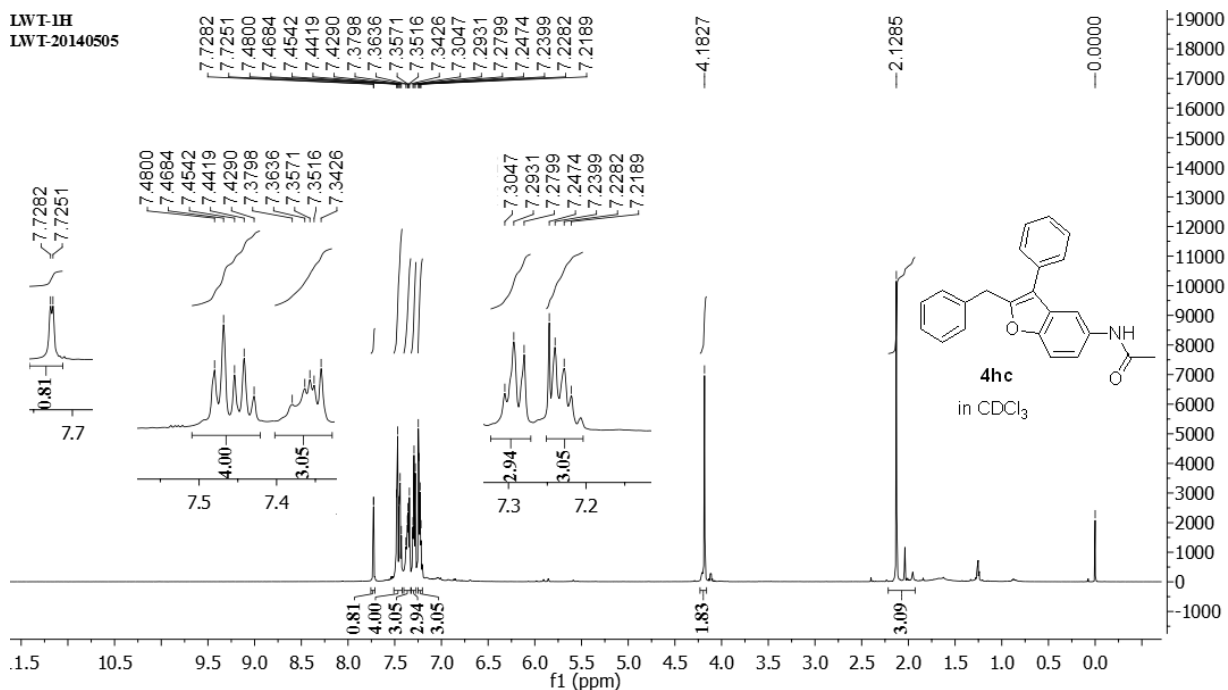




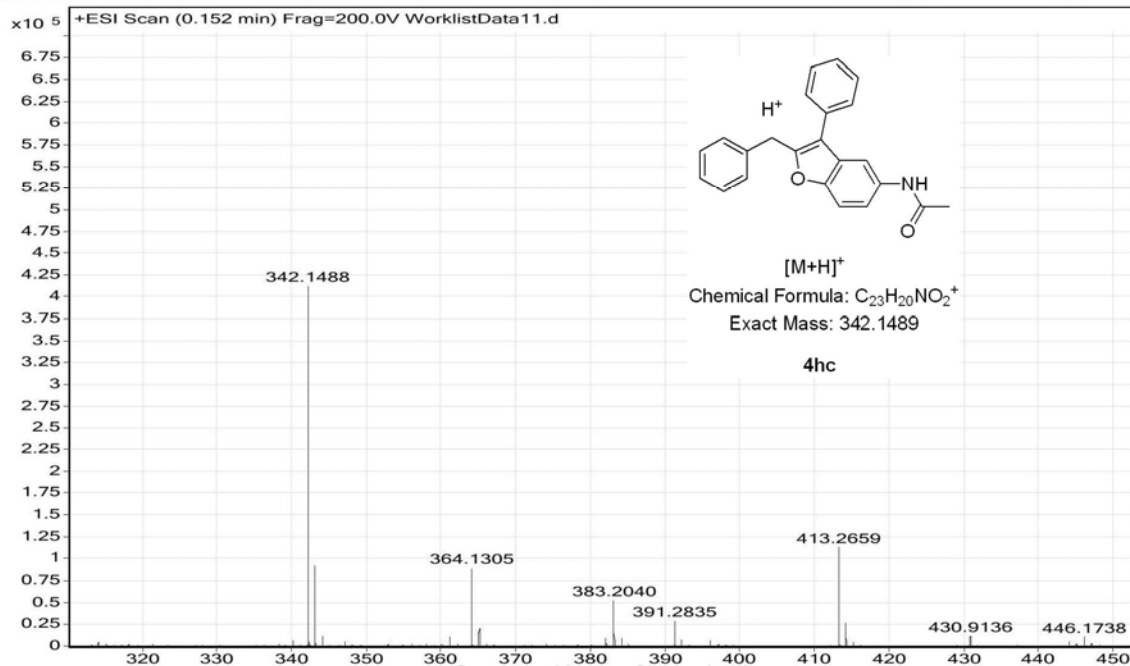
Sample Name	Position	Instrument Name	User Name
LWT-10	PI-B1	Instrument 1	
Inj Vol	InjPosition	SampleType	IRM Calibration Status
10		Sample	Success
Data Filename	ACQ Method	Comment	Acquired Time
WorklistData10.d	YLF-AMPK.m		10/10/2013 10:13:34 AM



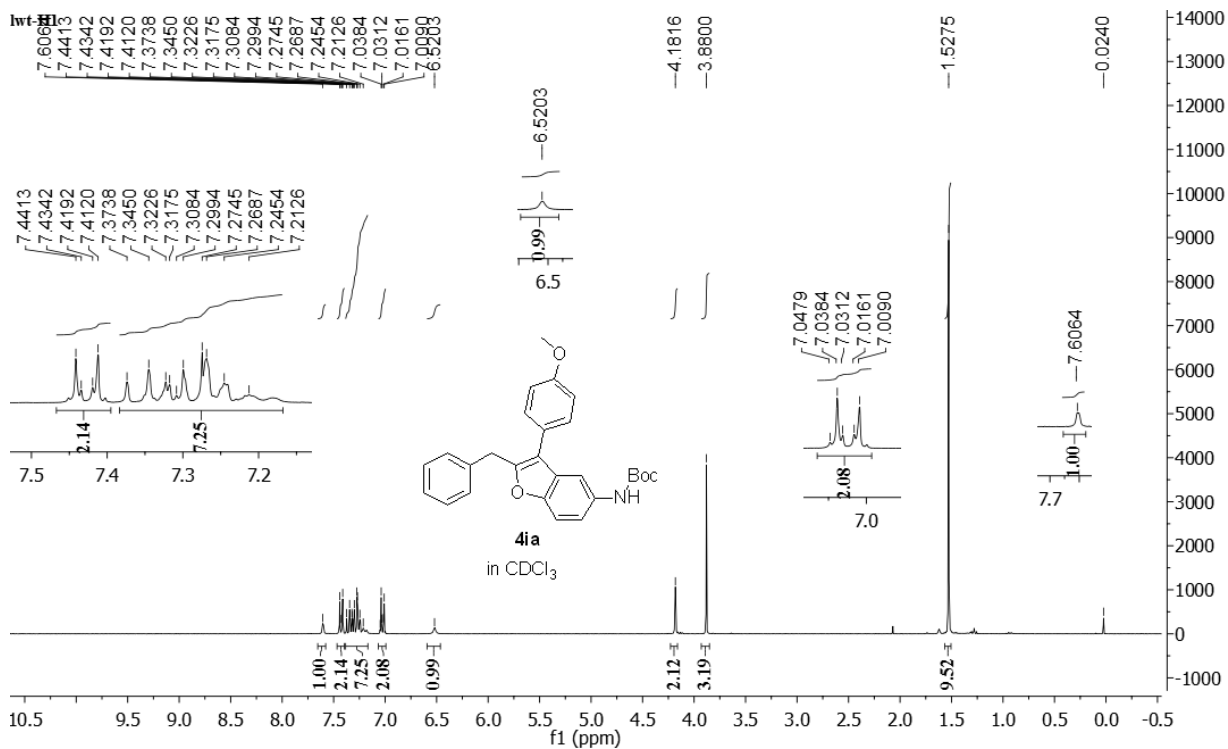
# N-(2-benzyl-3-phenylbenzofuran-5-yl)acetamide (4hc)



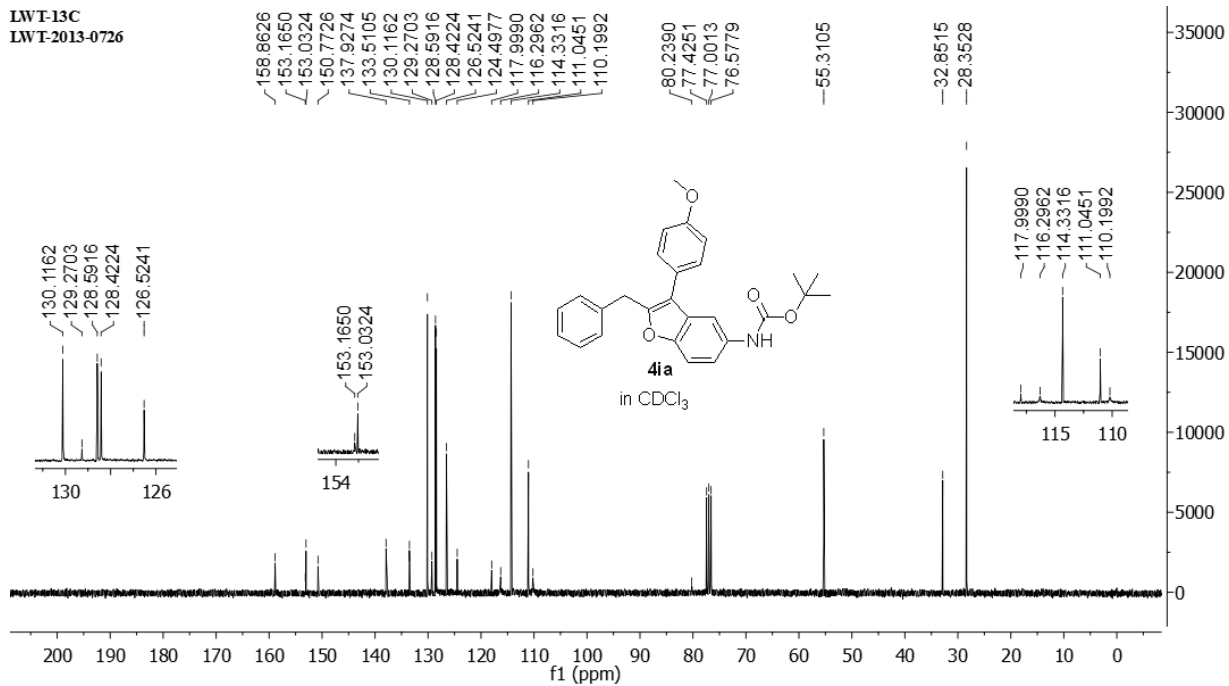
Sample Name	LWT-11	Position	P1-B2	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData11.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:16:00 AM



### **tert-butyl (2-benzyl-3-(4-methoxyphenyl)benzofuran-5-yl)carbamate (4ia)**



LWT-13C  
LWT-2013-0726



Shanghai Mass Spectrometry Center  
 Shanghai Institute of Organic Chemistry  
 Chinese Academy of Sciences  
 High Resolution MS Data Report

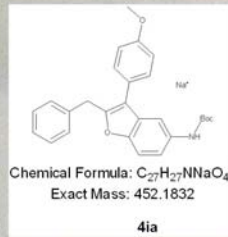


Instrument



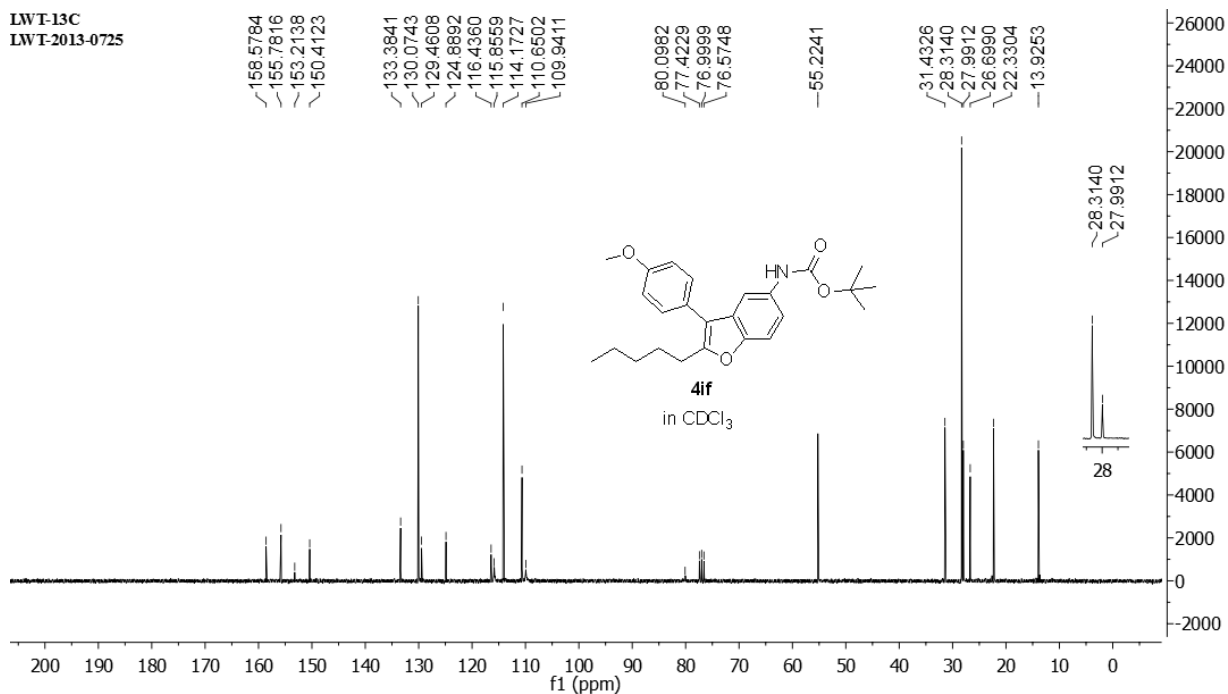
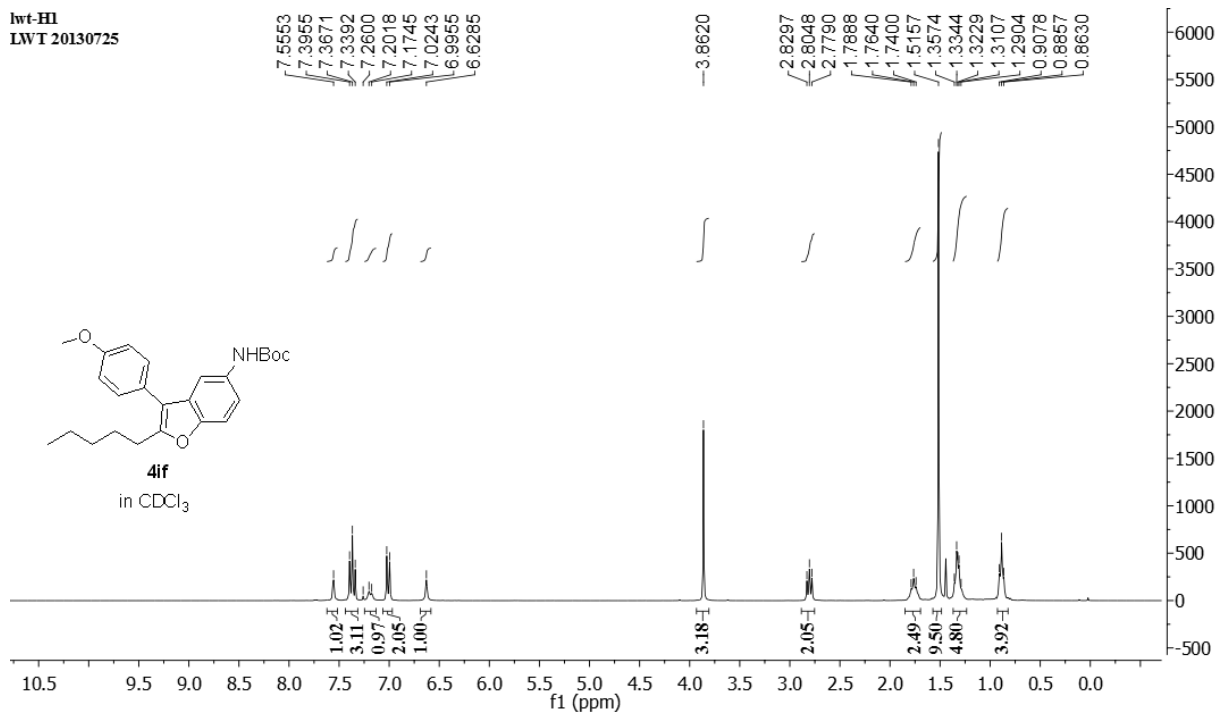
Bruker Daltonics, Inc. APEXIII 7.0 TESLA FTMS

Card Serial Number E140741  
 Analysis Name D:\Data\zjf\2014\20140513\_000012.d  
 Sample Name 2009146-10-24-63-4IA  
 Acquisition Date 5/11/2014 1:53:10 PM  
 Operator: zjf  
 Ionization Mode ESI-Positive  
 Ion Mass (Measured) 452.1840



Sum Formula	Sigma	m/z	Err [ppm]	Mean Err [ppm]	Err [mDa]	rdb	N Rule	e <sup>-</sup>
C 27 H 27 N 1 Na 1 O 4	0.006	452.1832	-1.64	-2.06	-0.74	14.50	ok	even
C 26 H 28 O 7	0.010	452.1830	-2.25	-2.63	-1.02	13.00	ok	odd
C 29 H 26 N 1 O 4	0.012	452.1856	3.67	3.22	1.66	17.50	ok	even
C 30 H 25 N 2 Na 1 O 1	0.019	452.1859	4.28	3.79	1.94	19.00	ok	odd
C 21 H 30 N 3 O 6 S 1	0.029	452.1850	2.23	1.10	1.01	8.50	ok	even
C 21 H 33 Na 1 O 7 S 1	0.034	452.1839	-0.12	-1.08	-0.05	5.00	ok	odd

# tert-butyl (3-(4-methoxyphenyl)-2-pentylbenzofuran-5-yl)carbamate (4if)



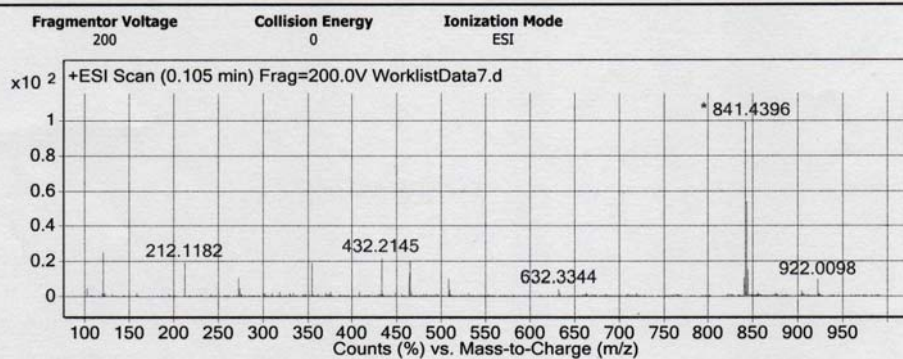


## Qualitative Analysis Report

<b>Data Filename</b>	WorklistData7.d	<b>Sample Name</b>	NC
<b>Sample Type</b>	Sample	<b>Position</b>	P1-A7
<b>Instrument Name</b>	Instrument 1	<b>User Name</b>	
<b>Acq Method</b>		<b>Acquired Time</b>	1/29/2013 1:06:41 PM
<b>IRM Calibration Status</b>	Success	<b>DA Method</b>	test-1.m
<b>Comment</b>			

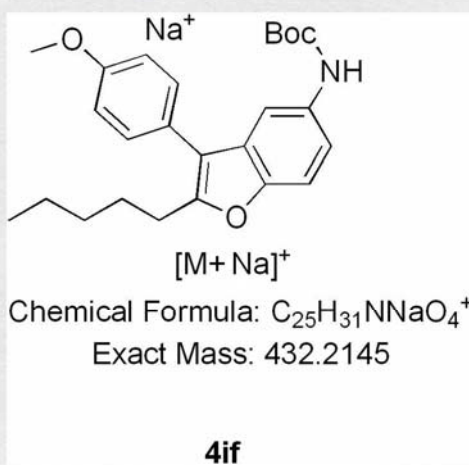
<b>Sample Group</b>		<b>Info.</b>
<b>Acquisition SW Version</b>	6200 series TOF/6500 series Q-TOF B.05.00 (B5042.2)	

### User Spectra

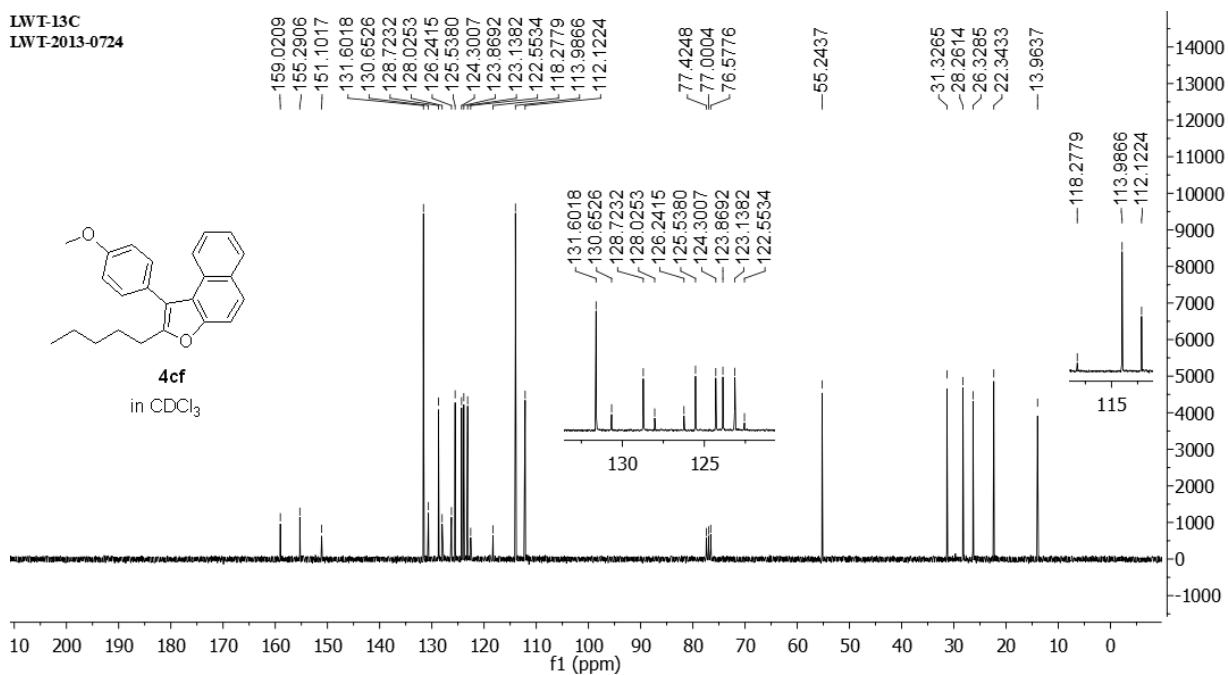
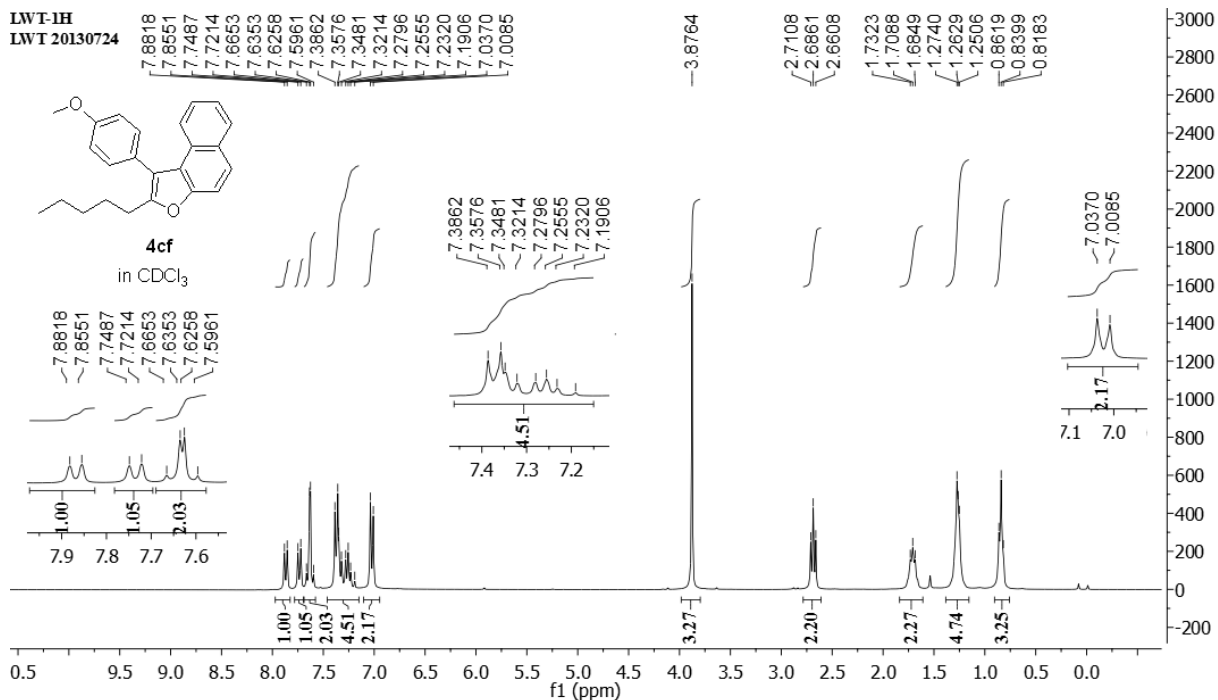


#### Peak List

<i>m/z</i>	<i>z</i>	Abund
121.0509	1	375985.77
212.1182	1	286070.17
273.0513	1	165855.94
354.1699	1	286933.21
432.2145	1	335504.08
464.204	1	301068.62
839.4236	1	154811.95
841.4396	1	1476907.22
842.4427	1	800336.08
843.445	1	225525.79



# 1-(4-methoxyphenyl)-2-pentyl-naphtho[2,1-b]furan (4cf)



Sample Name	LWT-18	Position	P1-B9	Instrument Name	Instrument 1	User Name	
Inj Vol	10	InjPosition		SampleType	Sample	IRM Calibration Status	Success
Data Filename	WorklistData18.d	ACQ Method	YLF-AMPK.m	Comment		Acquired Time	10/10/2013 10:33:00 AM

