Supplementary Information

Palladium-Catalyzed Decarboxylative Acylation of *O*-Methyl Ketoximes with α-Keto Acids

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General methods

Commercially available reagents were used without additional purification, unless otherwise stated. Sealed tubes (13 x100 mm^2) were purchased from Fischer Scientific and dried in oven for overnight and cooled at room temperature prior to use. Thin layer chromatography was carried out using plates coated with Kieselgel $60F_{254}$ (Merck). For flash column chromatography, E. Merck Kieselgel 60 (230-400 mesh) was used. Nuclear magnetic resonance spectra (^1H and ^{13}C NMR) were recorded on a Bruker Unity 400, 500 and 700 MHz spectrometers for $CDCl_3$ solutions and chemical shifts are reported as parts per million (ppm) relative to, respectively, residual $CHCl_3$ δ_H (7.24 ppm) and $CDCl_3$ δ_C (77.0 ppm) as internal standards. Resonance patterns are reported with the notations s (singlet), d (doublet), t (triplet), q (quartet), and m (multiplet). In addition, the notation br is used to indicate a broad signal. Coupling constants (*J*) are reported in hertz (Hz). IR spectra were recorded on a Varian 2000 Infrared spectrophotometer and are reported as cm^{-1}. High-resolution mass spectra (HRMS) were recorded on a JEOL JMS-600 spectrometer.

General procedure for the synthesis of *O*-methyl ketoximes

O-Methyl ketoximes were prepared from the corresponding methyl ketones and methoxyl amine hydrochloride according to the reported procedure.[1]

General procedure for the synthesis of *O*-methyl aldoximes

A solution of methoxylamine hydrochloride (1.34 g, 0.016 mol) in a mixture of water (15 mL) and THF (5 mL) was treated with sodium acetate (1.12 g, 0.014 mol) followed by the aldehydes (9.32 mmol, 1 equiv.) and the resulting mixture was stirred at room temperature for 4 h. The reaction mixture was then diluted with EtOAc, washed with brine, dried over Mg_2SO_4 and concentrated in vacuo. The residue was purified by flash column chromatography (*n*-hexanes/EtOAc) to afford *O*-methyl aldoximes **5a** and **5b**.

General procedure for the synthesis of α-keto acids

α-Keto acids were prepared from the oxidation of corresponding aryl methyl ketones with SeO_2 and pyridine according to the reported procedure.[2]

(1) Tsai, A. S.; Brasse, M.; Bergman, R. G.; Ellman, J. A. *Org. Lett.* **2011**, *13*, 540.

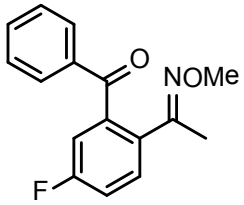
(2) Wadhwa, K.; Yang, C.-X.; West, P. R.; Deming, K. C.; Chemburkar, S. R.; Reddy, R. E. *Synth. Commun.* **2008**, *38*, 4434.

Typical procedure for the acylation of *O*-methyl ketoximes or *O*-methyl aldoximes

To an oven-dried sealed tube charged with 4-fluoroacetophenone *O*-methyl oxime (**1a**) (50.2 mg, 0.3 mmol, 1.0 equiv.), $Pd(OAc)_2$ (6.7 mg, 0.03 mmol, 10 mol %), and $(NH_4)_2S_2O_8$ (102.6 mg, 0.45 mmol, 1.5 equiv.) in diglyme (1 mL) was added phenylglyoxylic acid (**2a**) (67.6 mg, 0.45 mmol, 1.5 equiv.). The reaction mixture was allowed to stir at 70 ^oC for 3 h, and cooled to room temperature. The reaction mixture was diluted with EtOAc (3 mL) and concentrated in vacuo. The residue was purified by flash column chromatography (*n*-hexanes/EtOAc) to afford 58.9 mg of the acylated product **3a** in 72% yield.

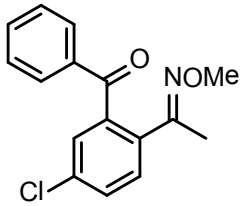
Characterization data for all products (3a-k, 4b-m, 6a and 6b)

(5-Fluoro-2-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3a)



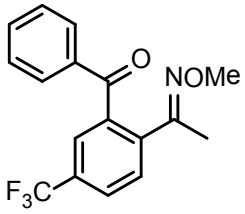
R_f = 0.43 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.72 (d, J = 7.6 Hz, 2H), 7.56-7.42 (m, 4H), 7.25-7.19 (m, 2H), 3.68 (s, 3H), 2.04 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 195.9, 162.5 (d, $J_{C\text{-}F}$ = 249.5 Hz), 152.9, 140.9 (d, $J_{C\text{-}F}$ = 6.4 Hz), 137.5, 132.6 (d, $J_{C\text{-}F}$ = 3.9 Hz), 142.4, 129.6 (d, $J_{C\text{-}F}$ = 8.0 Hz), 129.2, 128.3, 117.0 (d, $J_{C\text{-}F}$ = 21.5 Hz), 116.1 (d, $J_{C\text{-}F}$ = 22.4 Hz), 61.7, 14.3; IR (KBr) υ 2937, 1671, 1600, 1578, 1492, 1408, 1369, 1318, 1274, 1177, 1069, 976, 828 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{14}FNO_2$ $[M]^+$ 271.1009, found 271.1011.

(5-Chloro-2-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3b)



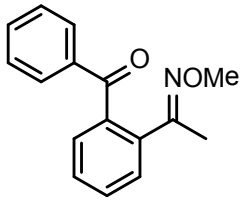
R_f = 0.50 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.67 (d, J = 7.8 Hz, 2H), 7.51-7.37 (m, 6H), 3.62 (s, 3H), 1.99 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 195.9, 152.7, 140.4, 137.6, 134.8, 134.6, 132.8, 130.1, 129.2, 128.9, 128.8, 128.3, 61.7, 14.1; IR (KBr) υ 2936, 1671, 1594, 1479, 1449, 1369, 1315, 1283, 1179, 1105, 1048, 827 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{14}ClNO_2$ $[M]^+$ 287.0713, found 287.0713.

(2-(1-(Methoxyimino)ethyl)-5-(trifluoromethyl)phenyl)(phenyl)methanone (3c)



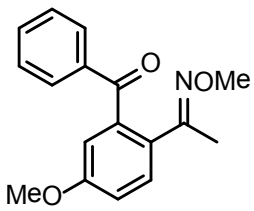
R_f = 0.44 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.76 (d, *J* = 8.2 Hz, 1H), 7.70-7.67 (m, 3H), 7.61 (d, *J* = 8.2 Hz, 1H), 7.53-7.51 (m, 1H), 7.42-7.38 (m, 2H), 3.65 (s, 3H), 2.03 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.0, 152.6, 139.5, 137.4, 132.9, 130.5 (q, J_{C-F} = 32.8 Hz), 129.2, 128.4, 128.1, 126.8, 125.7, 124.9, 122.2 (q, J_{C-F} = 290.2 Hz), 61.9, 14.1; IR (KBr) υ 2939, 1673, 1450, 1338, 1268, 1175, 1130, 1092, 1048, 840 cm^{-1}; HRMS (EI) Calcd for $C_{17}H_{14}F_3NO_2$ $[M]^+$ 321.0977, found 321.0972.

(2-(1-(Methoxyimino)ethyl)phenyl)(phenyl)methanone (3d)



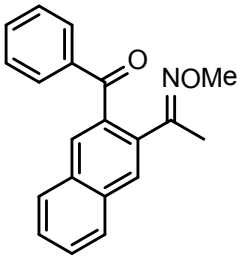
R_f = 0.44 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.67 (d, *J* = 7.6 Hz, 2H), 7.36-7.51 (m, 7H), 3.66 (s, 3H), 2.01 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.5, 154.0, 138.9, 138.2, 136.4, 132.5, 130.1, 129.3, 129.0, 128.5, 128.2, 127.6, 61.6, 14.4; IR (KBr) υ 2935, 1668, 1597, 1449, 1367, 1314, 1286, 1154, 1048, 928 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{15}NO_2$ $[M]^+$ 253.1103, found 253.1103.

(5-Methoxy-2-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3e)



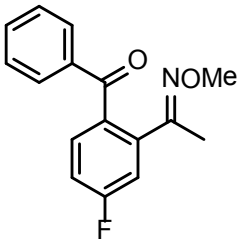
R_f = 0.30 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.69 (d, *J* = 7.6 Hz, 2H), 7.47-7.51 (m, 1H), 7.35-7.42 (m, 3H), 7.02 (d, *J* = 8.6 Hz, 1H), 6.97 (s, 1H), 3.83 (s, 3H), 3.61 (s, 3H), 1.97 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.2, 159.8, 153.3, 140.3, 138.1, 132.5, 129.2, 128.9, 128.6, 128.2, 115.9, 114.0, 61.5, 55.5, 14.1; IR (KBr) υ 2937, 1669, 1601, 1497, 1414, 1367, 1288, 1177, 1122, 1040, 896 cm^{-1}; HRMS (EI) Calcd for $C_{17}H_{17}NO_3$ $[M]^+$ 283.1208, found 283.1212.

(3-(1-(Methoxyimino)ethyl)naphthalen-2-yl)(phenyl)methanone (3f)



R_f = 0.40 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.85-7.95 (m, 3H), 7.75 (d, *J* = 7.6 Hz, 2H), 7.50-7.59 (m, 4H), 7.37-7.41 (m, 2H), 3.69 (s, 3H), 2.13 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.2, 153.8, 138.4, 136.6, 133.6, 133.5, 132.5, 132.4, 129.4, 129.3, 128.4, 128.2, 128.1, 127.8, 127.5, 127.4, 61.7, 14.2; IR (KBr) υ 2935, 1742, 1681, 1597, 1451, 1365, 1282, 1193, 1053, 872 cm^{-1}; HRMS (EI) Calcd for $C_{20}H_{17}NO_2$ $[M]^+$ 303.1259, found 303.1261.

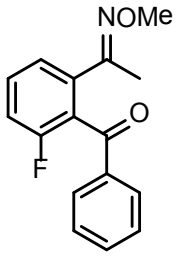
(4-Fluoro-2-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3g)



R_f = 0.50 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.61 (d, *J* = 7.8 Hz, 2H), 7.46-7.39 (m, 2H), 7.33 (t, *J* = 7.4 Hz, 2H), 7.19-7.08 (m, 2H), 3.62 (s, 3H), 1.93 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.4, 163.4 (d, $J_{C\text{-}F}$ = 248.7 Hz), 153.1, 139.2 (d, $J_{C\text{-}F}$ =

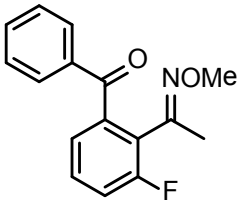
8.0 Hz), 138.1, 134.9 (d, J_{C-F} = 3.2 Hz), 132.6, 131.3 (d, J_{C-F} = 8.7 Hz), 129.2, 128.3, 115.4 (d, J_{C-F} = 21.3 Hz), 114.9 (d, J_{C-F} = 23.0 Hz), 61.8, 14.3; IR (KBr) υ 2937, 1669, 1604, 1448, 1369, 1283, 1203, 1148, 1047, 874 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{14}FO_2$ $[M]^+$ 271.1009, found 271.1002.

(2-Fluoro-6-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3gg)



R_f = 0.37 (*n*-hexanes/EtOAc = 6:1); ^1H NMR (400 MHz, $CDCl_3$) δ 7.73 (d, *J* = 7.6 Hz, 2H), 7.33-7.47 (m, 4H), 7.24 (d, *J* = 7.8 Hz, 1H), 7.06-7.11 (m, 1H), 3.49 (s, 3H), 2.01 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 193.1, 160.9, 158.4 (d, J_{C-F} = 246.4 Hz), 138.0, 137.5, 137.4 (d, J_{C-F} = 4.1 Hz), 133.0, 132.9 (d, J_{C-F} = 2.8 Hz), 130.7, 130.6 (d, J_{C-F} = 8.5 Hz), 130.2, 129.0, 128.4, 123.3, 123.2 (d, J_{C-F} = 3.1 Hz), 116.3, 116.1 (d, J_{C-F} = 22.0 Hz), 61.6, 13.6; IR (KBr) υ 2937, 1677, 1605, 1567, 1448, 1369, 1317, 1268, 1144, 1049, 945, 877 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{14}FO_2$ $[M]^+$ 271.1009, found 271.1008.

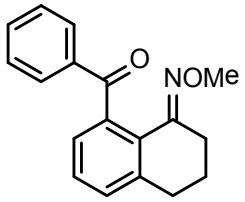
(3-Fluoro-2-(1-(methoxyimino)ethyl)phenyl)(phenyl)methanone (3h)



R_f = 0.47 (*n*-hexanes/EtOAc = 6:1); ^1H NMR (400 MHz, $CDCl_3$) δ 7.73 (d, *J* = 7.7 Hz, 2H), 7.55-7.59 (m, 1H), 7.43-7.49 (m, 3H), 7.25-7.32 (m, 2H) 3.70 (s, 3H), 2.06 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.1, 196.0 (d, J_{C-F} = 2.7 Hz), 161.9, 159.4 (d, J_{C-F} = 249.2 Hz), 151.7, 141.7, 141.6 (d, J_{C-F} = 2.9 Hz), 137.9, 132.8, 130.3, 130.0, 129.9 (d, J_{C-F} = 8.6 Hz), 129.4,

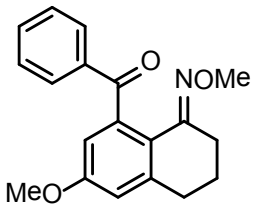
128.3, 124.5, 124.4 (d, $J_{C\text{-}F}$ = 3.2 Hz), 118.0, 117.8 (d, $J_{C\text{-}F}$ = 22.0 Hz), 61.8, 16.1, 16.0 (d, $J_{C\text{-}F}$ = 4.3 Hz); IR (KBr) υ 2937, 1671, 1599, 1451, 1367, 1315, 1284, 1177, 1059, 852 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{14}FO_2$ $[M]^+$ 271.1009, found 271.1010.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(phenyl)methanone (3i)



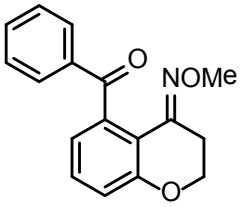
R_f = 0.61 (*n*-hexanes/EtOAc = 6:1); ^1H NMR (500 MHz, $CDCl_3$) δ 7.71 (d, *J* = 7.8 Hz, 2H), 7.47 (t, *J* = 7.4 Hz, 1H), 7.39-7.33 (m, 3H), 7.27 (d, *J* = 8.7 Hz, 1H), 7.20 (d, *J* = 7.4 Hz, 1H), 3.54 (s, 3H), 2.81-2.78 (m, 2H), 2.59-2.56 (m, 2H), 1.88-1.84 (m, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 198.1, 151.9, 140.8, 138.9, 138.5, 132.2, 129.8, 129.1, 129.0, 128.6, 128.3, 126.5, 61.8, 30.6, 24.4, 21.3; IR (KBr) υ 2932, 1666, 1596, 1446, 1313, 1280, 1166, 1040, 933, 808 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{17}NO_2$ $[M]^+$ 279.1259, found 279.1257.

(3-Methoxy-8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(phenyl)methanone (3j)



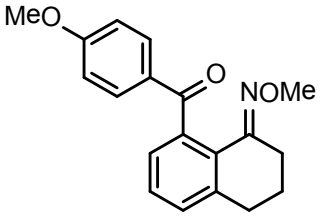
R_f = 0.34 (*n*-hexanes/EtOAc = 6:1); ^1H NMR (400 MHz, $CDCl_3$) δ 7.70 (d, *J* = 7.8 Hz, 2H), 7.43-7.47 (m, 1H), 7.32-7.36 (m, 2H), 7.74 (d, *J* = 16.32 Hz, 2H), 3.79 (s, 3H), 3.48 (s, 3H), 2.72-2.75 (m, 2H), 2.50-2.53 (m, 2H), 1.79-1.84 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.3, 159.5, 151.4, 142.3, 140.2, 138.1, 132.0, 128.9, 128.1, 121.5, 114.6, 112.1, 61.3, 55.4, 30.6, 24.0, 21.1; IR (KBr) υ 2936, 1671, 1595, 1470, 1354, 1289, 1214, 1175, 1087, 1013, 879 cm^{-1}; HRMS (EI) Calcd for $C_{19}H_{19}NO_3$ $[M]^+$ 309.1365, found 309.1370.

(4-(Methoxyimino)chroman-5-yl)(phenyl)methanone (3k)



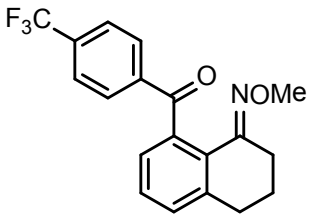
R_f = 0.39 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.73 (d, *J* = 7.8 Hz, 2H), 7.48-7.29 (m, 4H), 6.99 (d, *J* = 8.2 Hz, 1H), 6.87 (d, *J* = 7.4 Hz, 1H), 4.19 (t, *J* = 6.2 Hz, 2H), 3.49 (s, 3H), 2.77 (t, *J* = 6.2 Hz, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.2, 156.8, 145.9, 138.8, 137.9, 132.3, 130.3, 129.0, 128.2, 120.9, 118.7, 116.2, 74.9, 71.7, 23.9; IR (KBr) υ 2937, 1673, 1595, 1469, 1318, 1279, 1145, 1079, 945, 850 cm^{-1}; HRMS (EI) Calcd for $C_{17}H_{15}NO_3$ $[M]^+$ 281.1052, found 281.1049.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(4-methoxyphenyl)methanone (4b)



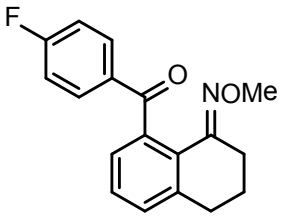
R_f = 0.23 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.70 (d, *J* = 8.2 Hz, 2H), 7.36-7.25 (m, 2H), 7.18 (d, *J* = 7.4 Hz, 1H), 6.87 (d, *J* = 8.2 Hz, 2H), 3.85 (s, 3H), 3.57 (s, 3H), 2.82-2.79 (m, 2H), 2.62-2.59 (m, 2H), 1.90-1.83 (m, 2H); ^{13}C NMR (175 MHz, $CDCl_3$) δ 196.9, 162.7, 151.7, 140.5, 138.9, 131.3, 131.1, 129.3, 128.6, 128.3, 126.2, 113.3, 61.6, 55.4, 30.4, 24.2, 21.1; IR (KBr) υ 2937, 1663, 1578, 1460, 1419, 1311, 1256, 1169, 1049, 880 cm^{-1}; HRMS (EI) Calcd for $C_{19}H_{19}NO_3$ $[M]^+$ 309.1365, found 309.1379.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(4-(trifluoromethyl)phenyl)methanone (4c)



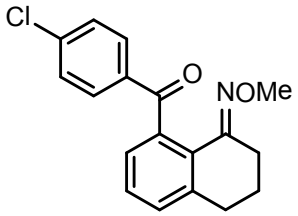
R_f = 0.41 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.79 (d, *J* = 8.1 Hz, 2H), 7.61 (d, *J* = 8.1 Hz, 2H), 7.37-7.27 (m, 2H), 7.17 (d, *J* = 7.4 Hz, 1H), 3.51 (s, 3H), 2.79 (t, *J* = 5.9 Hz, 2H), 2.55 (t, *J* = 5.9 Hz, 2H), 1.97-1.80 (m, 2H); ^{13}C NMR (175 MHz, $CDCl_3$) δ 196.5, 151.8, 141.2, 140.7, 137.7, 133.5 (q, J_{C-F} = 32.2 Hz), 130.1, 129.0, 128.7, 128.6, 126.3, 125.2 (q, J_{C-F} = 3.5 Hz), 123.7 (q, J_{C-F} = 272.2 Hz), 61.6, 30.3, 24.2, 20.9; IR (KBr) υ 2939, 1677, 1584, 1460, 1326, 1279, 1180, 1108, 1051, 857 cm^{-1}; HRMS (EI) Calcd for $C_{19}H_{16}F_3NO_2$ $[M]^+$ 347.1133, found 347.1134.

(4-Fluorophenyl)(8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)methanone (4d)



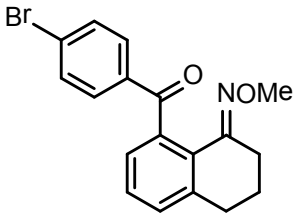
R_f = 0.38 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.66-7.63 (m, 2H), 7.25 (d, *J* = 7.4 Hz, 1H), 7.19 (d, *J* = 7.2 Hz, 1H), 7.09 (d, *J* = 7.4 Hz, 1H), 6.96 (t, *J* = 8.4 Hz, 2H), 3.46 (s, 3H), 2.71 (t, *J* = 5.9 Hz, 2H), 2.50 (t, *J* = 6.6 Hz, 2H), 1.80-1.73 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.3, 165.0 (d, J_{C-F} = 251.6 Hz), 151.7, 140.6, 138.3, 134.8 (d, J_{C-F} = 2.9 Hz), 131.4 (d, J_{C-F} = 9.1 Hz), 129.7, 128.6, 128.4, 126.2, 115.2 (d, J_{C-F} = 21.7 Hz), 61.5, 30.3, 24.2, 21.0; IR (KBr) υ 2938, 1672, 1597, 1460, 1280, 1192, 1050, 1009, 850 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}FNO_2$ $[M]^+$ 297.1165, found 297.1162.

(4-Chlorophenyl)(8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)methanone (4e)



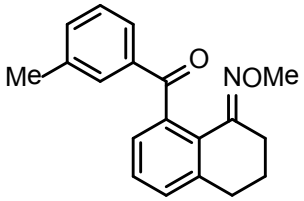
R_f = 0.61 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.67 (d, *J* = 7.8 Hz, 2H), 7.38-7.30 (m, 4H), 7.19 (d, *J* = 7.4 Hz, 1H), 3.58 (s, 3H), 2.83-2.80 (m, 2H), 2.60 (t, *J* = 6.6 Hz, 2H), 1.89-1.85 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.6, 151.7, 140.6, 138.3, 138.1, 136.7, 130.2, 129.8, 128.7, 128.5, 128.4, 126.2, 71.6, 30.3, 24.2, 21.0; IR (KBr) υ 2937, 1673, 1587, 1459, 1399, 1281, 1171, 1050, 1008, 845 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}ClNO_2$ $[M]^+$ 313.0870, found 313.0874.

(4-Bromophenyl)(8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)methanone (4f)



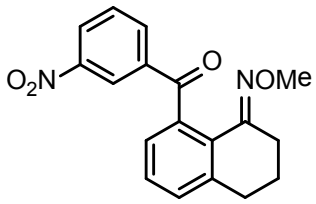
R_f = 0.61 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.60-7.52 (m, 4H), 7.37-7.29 (m, 2H), 7.19 (d, *J* = 7.4 Hz, 1H), 3.58 (s, 3H), 2.83-2.80 (m, 2H), 2.60 (t, *J* = 6.6 Hz, 2H), 1.89-1.86 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.8, 151.7, 140.7, 138.0, 137.2, 131.4, 130.4, 129.8, 128.7, 128.5, 127.0, 126.2, 71.6, 30.3, 24.2, 21.0; IR (KBr) υ 2936, 1673, 1586, 1459, 1352, 1280, 1172, 1105, 1050, 842 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}BrNO_2$ $[M]^+$ 357.0364, found 357.0363.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(m-tolyl)methanone (4g)



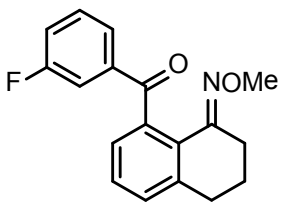
R_f = 0.39 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.60 (s, 1H), 7.48 (d, *J* = 7.4 Hz, 1H), 7.39-7.21 (m, 5H), 3.58 (s, 3H), 2.83-2.80 (m, 2H), 2.59 (t, *J* = 6.6 Hz, 2H), 2.37 (s, 3H), 1.89-1.86 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 198.1, 151.7, 140.5, 138.8, 138.3, 137.8, 132.8, 129.5, 129.4, 128.8, 128.3, 127.9, 126.4, 126.3, 61.5, 30.3, 24.2, 21.3, 21.1; IR (KBr) υ 2937, 1670, 1585, 1458, 1283, 1143, 1050, 860 cm^{-1}; HRMS (EI) Calcd for $C_{19}H_{19}NO_2$ $[M]^+$ 293.1416, found 293.1418.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(3-nitrophenyl)methanone (4h)



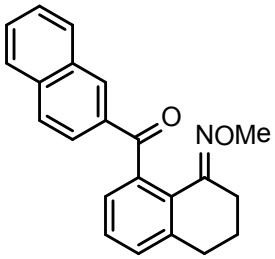
R_f = 0.31 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.37 (s, 1H), 8.25 (d, *J* = 8.2 Hz, 1H), 8.01 (d, *J* = 8.2 Hz, 1H), 7.51 (t, *J* = 7.9 Hz, 1H), 7.35-7.26 (m, 2H), 7.18-7.15 (m, 1H), 3.45 (s, 3H), 2.77-2.74 (m, 2H), 2.48 (t, *J* = 6.6 Hz, 2H), 1.83-1.77 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 195.1, 152.0, 148.3, 141.0, 140.0, 137.0, 134.1, 130.5, 129.4, 128.9, 128.8, 126.5, 126.3, 123.6, 61.6, 30.2, 24.3, 20.9; IR (KBr) υ 2937, 1679, 1583, 1502, 1437, 1350, 1192, 1086, 1049, 887 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}N_2O_4$ $[M]^+$ 324.1110, found 324.1118.

(3-Fluorophenyl)(8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)methanone (4i)



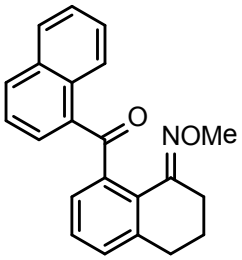
R_f = 0.61 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.38-7.36 (m, 2H), 7.28-7.22 (m, 3H), 7.11 (d, *J* = 7.8 Hz, 2H), 3.49 (s, 3H), 2.72 (t, *J* = 5.9 Hz, 2H), 2.50 (t, *J* = 6.6 Hz, 2H), 1.80-1.76 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.4, 162.6 (d, J_{C-F} = 245.5 Hz), 151.7, 140.6 (d, J_{C-F} = 5.9 Hz), 137.9, 129.9, 129.7, 128.7, 128.5, 126.3, 124.6 (d, J_{C-F} = 2.8 Hz), 119.0 (d, J_{C-F} = 21.3 Hz), 115.4 (d, J_{C-F} = 22.0 Hz), 61.6, 30.3, 24.2, 21.0; IR (KBr) υ 2937, 1675, 1609, 1588, 1442, 1284, 1172, 1131, 1050, 862 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}FNO_2$ $[M]^+$ 297.1165, found 297.1162.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(naphthalen-2-yl)methanone (4j)



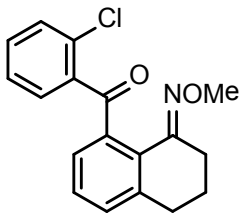
R_f = 0.38 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.06 (s, 1H), 8.00 (d, *J* = 8.6 Hz, 1H), 7.89-7.82 (m, 3H), 7.58 (t, *J* = 7.0 Hz, 1H), 7.50 (t, *J* = 7.0 Hz, 1H), 7.41 (t, *J* = 7.4 Hz, 1H), 7.35-7.28 (m, 2H), 3.53 (s, 3H), 2.87-2.84 (m, 2H), 2.58 (t, *J* = 6.6 Hz, 2H), 1.90-1.87 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.9, 151.7, 140.6, 138.7, 135.8, 135.2, 132.5, 130.2, 129.7, 129.4, 128.9, 128.4, 128.0, 127.9, 127.7, 126.5, 126.4, 125.0, 61.6, 30.4, 24.2, 21.1; IR (KBr) υ 2936, 1666, 1467, 1353, 1290, 1177, 1121, 1050, 866 cm^{-1}; HRMS (EI) Calcd for $C_{22}H_{19}NO_2$ $[M]^+$ 329.1416, found 329.1417.

(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(naphthalen-1-yl)methanone (4k)



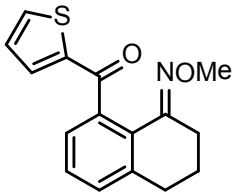
R_f = 0.36 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 9.22 (d, *J* = 8.6 Hz, 1H), 7.89-7.96 (m, 2H), 7.67-7.71 (m, 1H), 7.56-7.59 (m, 1H), 7.28-7.48 (m, 5H), 3.35 (s, 3H), 2.78-2.81 (m, 2H), 2.46-2.50 (m, 2H), 1.79-1.85 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 199.3, 152.8, 141.0, 140.2, 135.5, 133.9, 132.7, 131.4, 129.7, 129.6, 129.5, 128.3, 128.2, 127.7, 127.6, 127.1, 126.2, 123.9, 61.6, 30.4, 24.4, 21.1; IR (KBr) υ 2937, 1646, 1591, 1437, 1309, 1249, 1152, 1074, 980, 883 cm^{-1}; HRMS (EI) Calcd for $C_{22}H_{19}NO_2$ $[M]^+$ 329.1416, found 329.1415.

(2-Chlorophenyl)(8-(methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)methanone (4l)



R_f = 0.33 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.48 (d, *J* = 7.8 Hz, 1H), 7.81-7.42 (m, 5H), 7.20-7.23 (m, 1H), 3.77 (s, 3H), 2.74-2.77 (m, 2H), 2.52-2.55 (m, 2H), 1.81-1.86 (m, 2H); ^{13}C NMR (125 MHz, $CDCl_3$) δ 195.6, 152.7, 140.9, 139.1, 137.0, 133.3, 131.9, 131.8, 131.2, 130.0, 129.7, 128.5, 127.6, 126.0, 61.9, 30.3, 24.4, 21.1; IR (KBr) υ 2937, 1676, 1587, 1472, 1351, 1294, 1160, 1051, 1004, 824 cm^{-1}; HRMS (EI) Calcd for $C_{18}H_{16}ClNO_2$ $[M]^+$ 313.0865, found 313.0874.

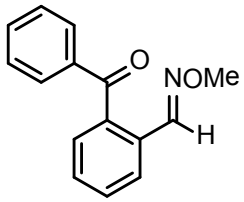
(8-(Methoxyimino)-5,6,7,8-tetrahydronaphthalen-1-yl)(thiophen-2-yl)methanone (4m)



R_f = 0.37 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 7.59 (d, *J* = 4.8 Hz, 1H), 7.22-7.36 (m, 4H), 7.01-7.03 (m, 1H), 3.68 (s, 3H), 2.79-2.82 (m, 2H), 2.63-2.66 (m, 2H), 1.86-1.91 (m, 2H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 190.4, 151.6, 145.8, 140.8, 138.3, 132.6,

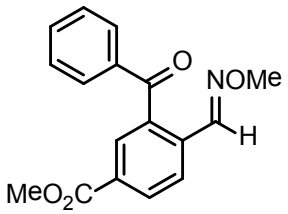
132.5, 129.7, 128.6, 128.2, 127.5, 126.1, 61.7, 30.3, 24.3, 21.0; IR (KBr) υ 2936, 1652, 1459, 1355, 1289, 1155, 1048, 854 cm^{-1}; HRMS (EI) Calcd for $C_{16}H_{15}NO_2S$ $[M]^+$ 285.0824, found 285.0829.

2-Benzoylbenzaldehyde *O*-methyl oxime (6a)

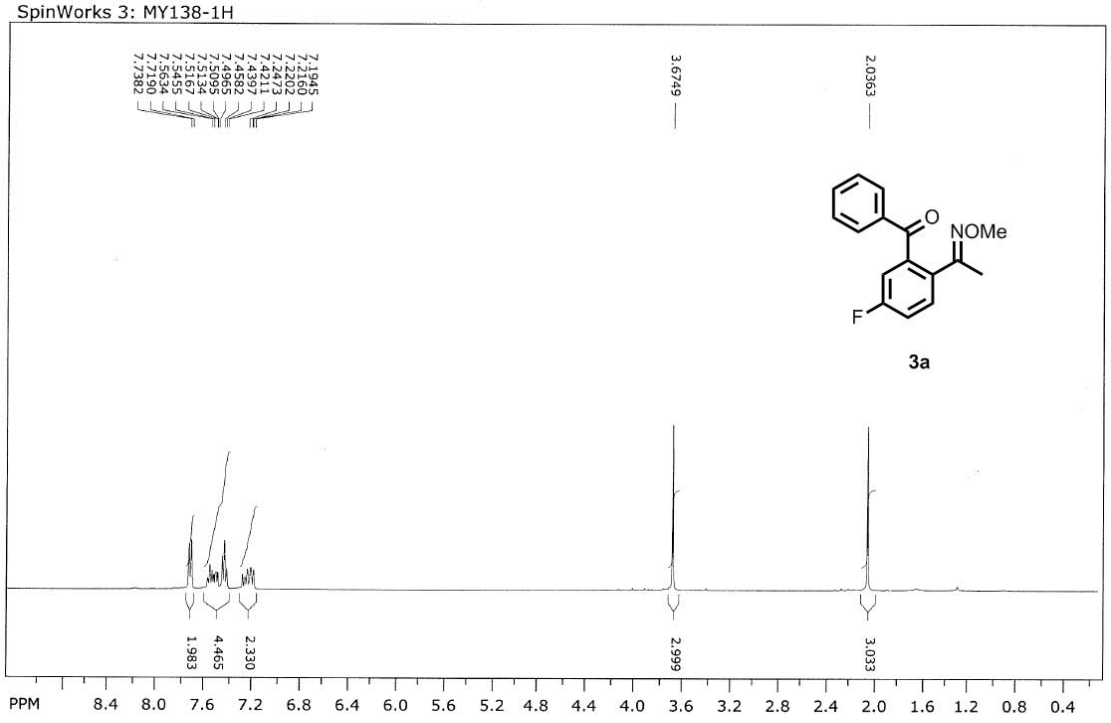


R_f = 0.41 (*n*-hexanes/EtOAc = 6:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.17 (s, 1H), 7.93 (d, *J* = 7.8 Hz, 1H), 7.80 (d, *J* = 7.7 Hz, 2H), 7.47-7.61 (m, 6H), 3.88 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 197.0, 146.3, 138.3, 137.5, 133.3, 131.0, 130.5, 130.1, 129.0, 128.9, 128.5, 127.2, 62.0; IR (KBr) υ 2937, 1663, 1597, 1448, 1315, 1268, 1180, 1054, 1001, 846 cm^{-1}; HRMS (EI) Calcd for $C_{15}H_{13}NO_2$ $[M]^+$ 239.0946, found 239.0943.

Methyl 3-benzoyl-4-((methoxyimino)methyl)benzoate (6b)



R_f = 0.28 (*n*-hexanes/EtOAc = 3:1); ^{1}H NMR (400 MHz, $CDCl_3$) δ 8.13-8.14 (m, 1H), 8.05, (s, 1H), 7.98 (d, *J* = 8.2 Hz, 1H), 7.75 (d, *J* = 7.8 Hz, 1H), 7.56-7.60 (m, 1H), 7.42-7.46 (m, 2H), 3.89 (s, 3H), 3.86 (s, 3H); ^{13}C NMR (100 MHz, $CDCl_3$) δ 196.1, 165.9, 145.5, 138.4, 137.0, 135.1, 133.6, 131.2, 130.4, 130.1, 130.0, 128.7, 127.3, 62.4, 52.4; IR (KBr) υ 2951, 1726, 1666, 1596, 1437, 1303, 1345, 1156, 1098, 1051, 860 cm^{-1}; HRMS (EI) Calcd for $C_{17}H_{15}NO_4$ $[M]^+$ 297.1001, found 297.0999.



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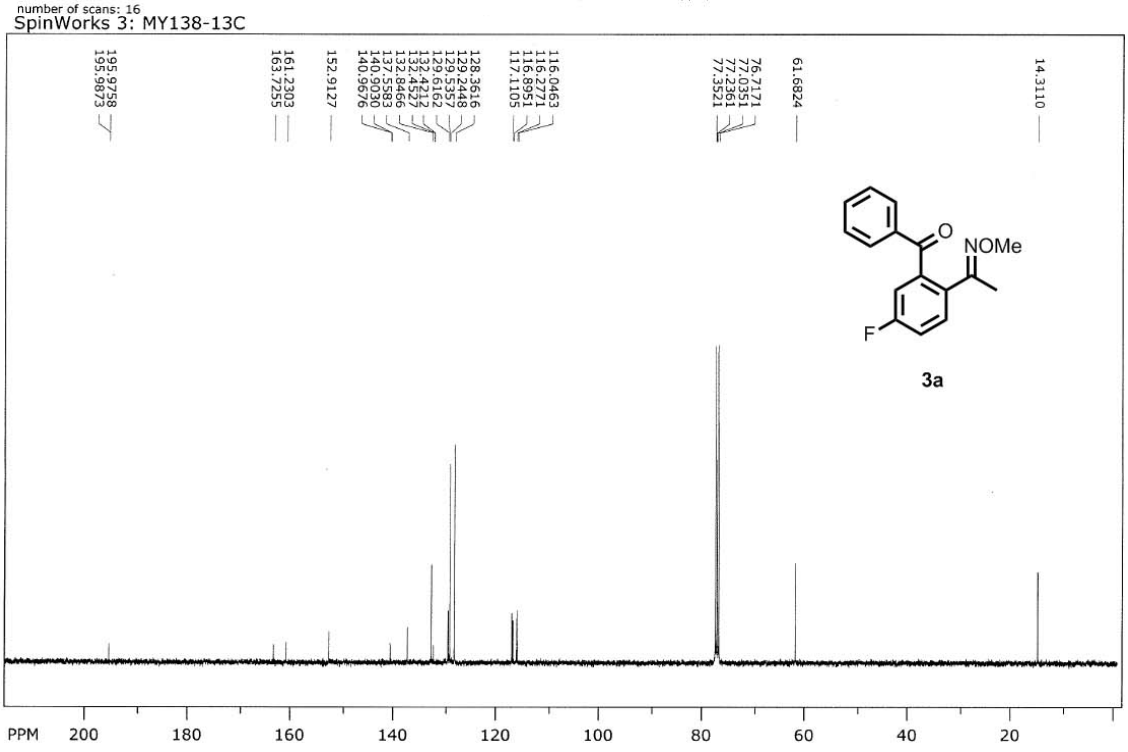
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

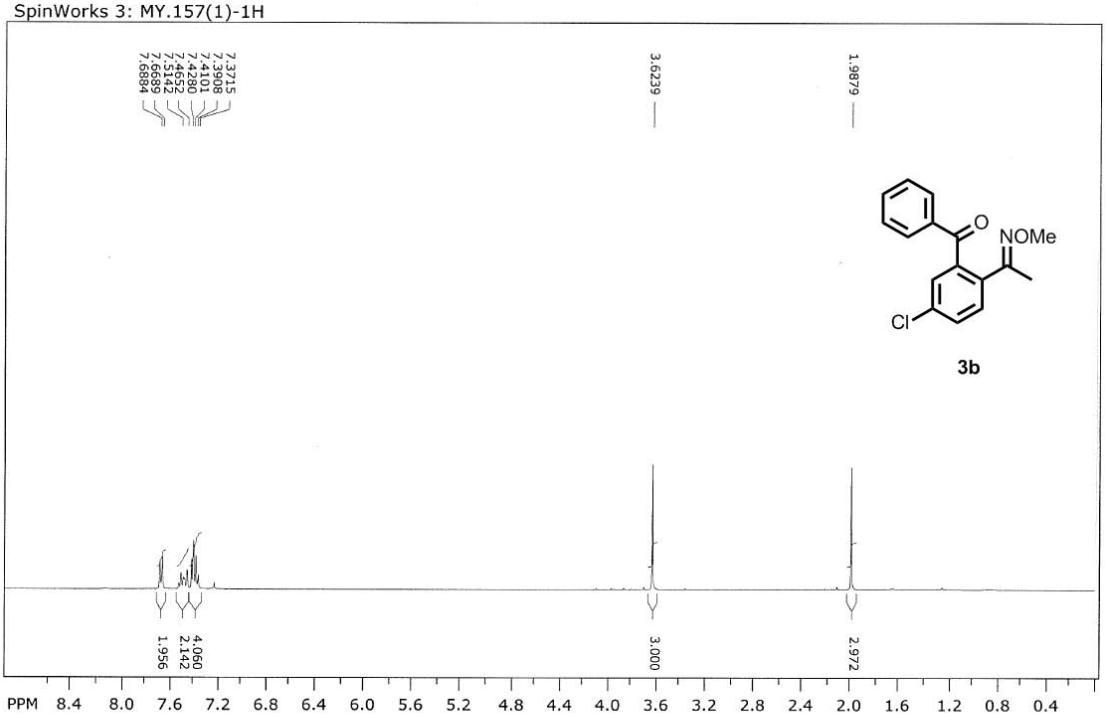
freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 146.974 ppm/cm: 0.36731



file: ... activation\SKK_KIS (4)\192C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 876.620 ppm/cm: 8.71194

SpinWorks 3: MY.157(1)-1H



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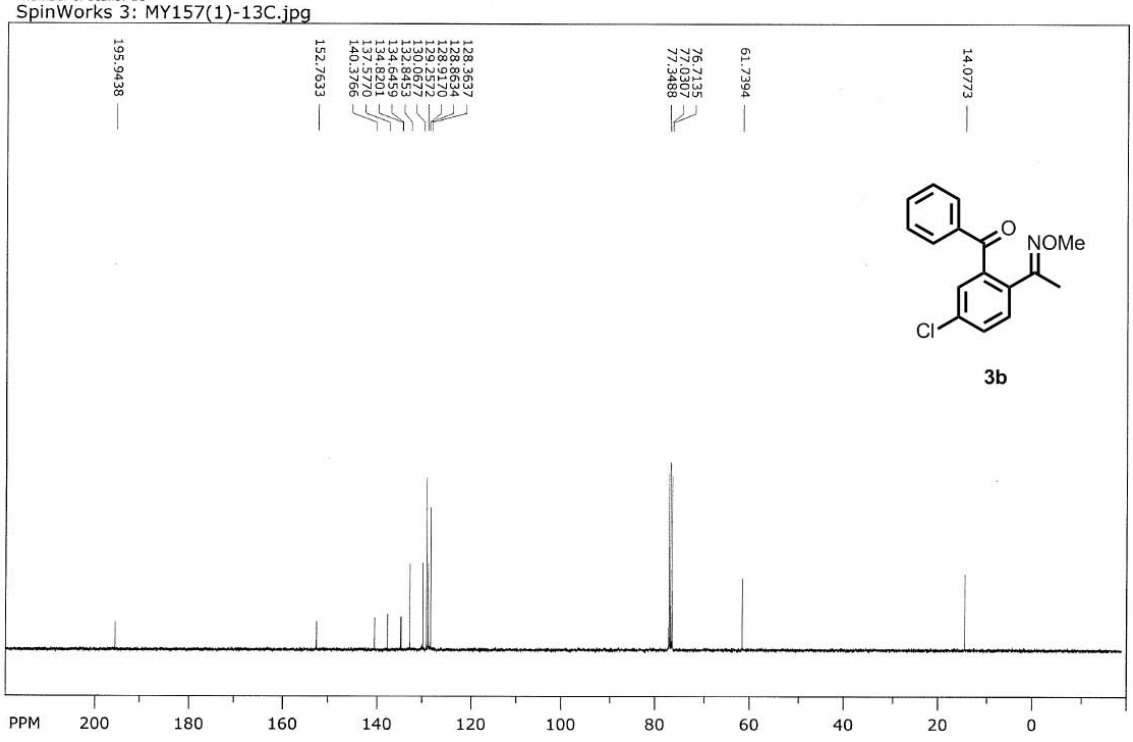
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

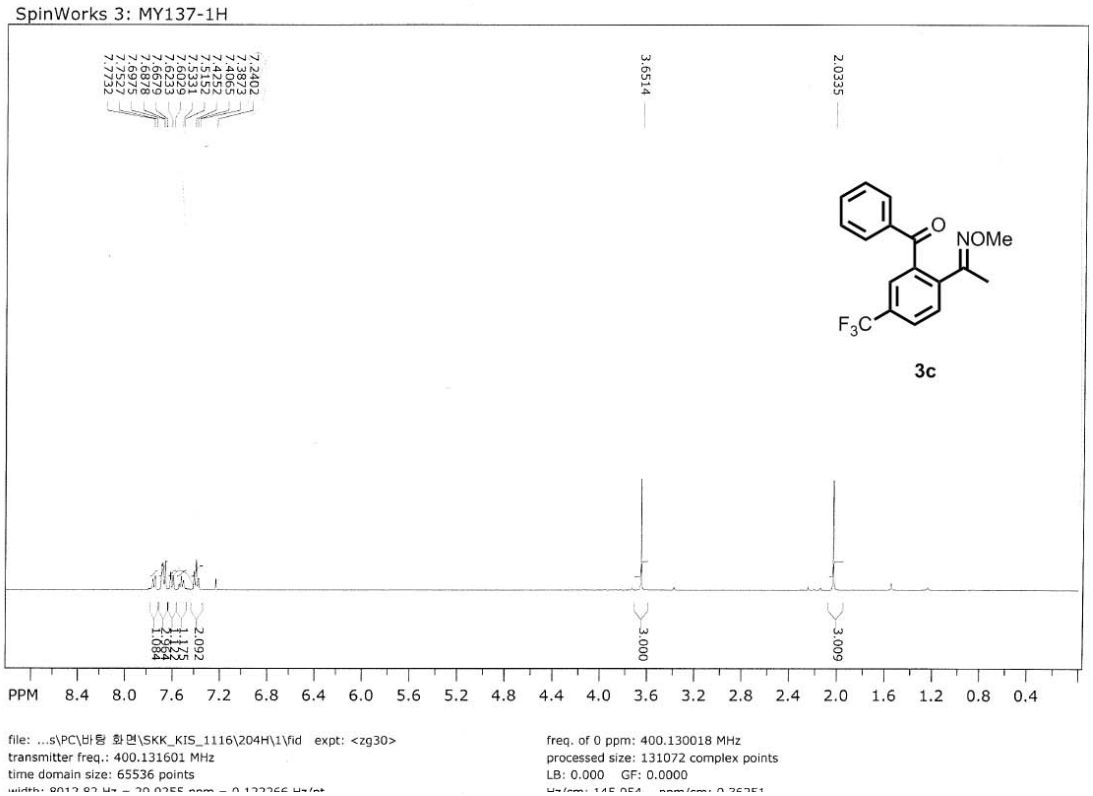
freq. of 0 ppm: 400.130019 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 143.926 ppm/cm: 0.35970

SpinWorks 3: MY157(1)-13C.jpg



file: ... activation\SKK_KIS (3)\211C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 961.538 ppm/cm: 9.55587


SpinWorks 3: MY137-1H
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7.6975
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7.5331
7.5152
7.4252
7.3865
7.2402
3.6514
2.0335
O
NOMe
F3C
3c
1.084
1.125
2.092
3.000
3.009
PPM 8.4 8.0 7.6 7.2 6.8 6.4 6.0 5.6 5.2 4.8 4.4 4.0 3.6 3.2 2.8 2.4 2.0 1.6 1.2 0.8 0.4
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time domain size: 65536 points
freq. of 0 ppm: 400.130018 MHz
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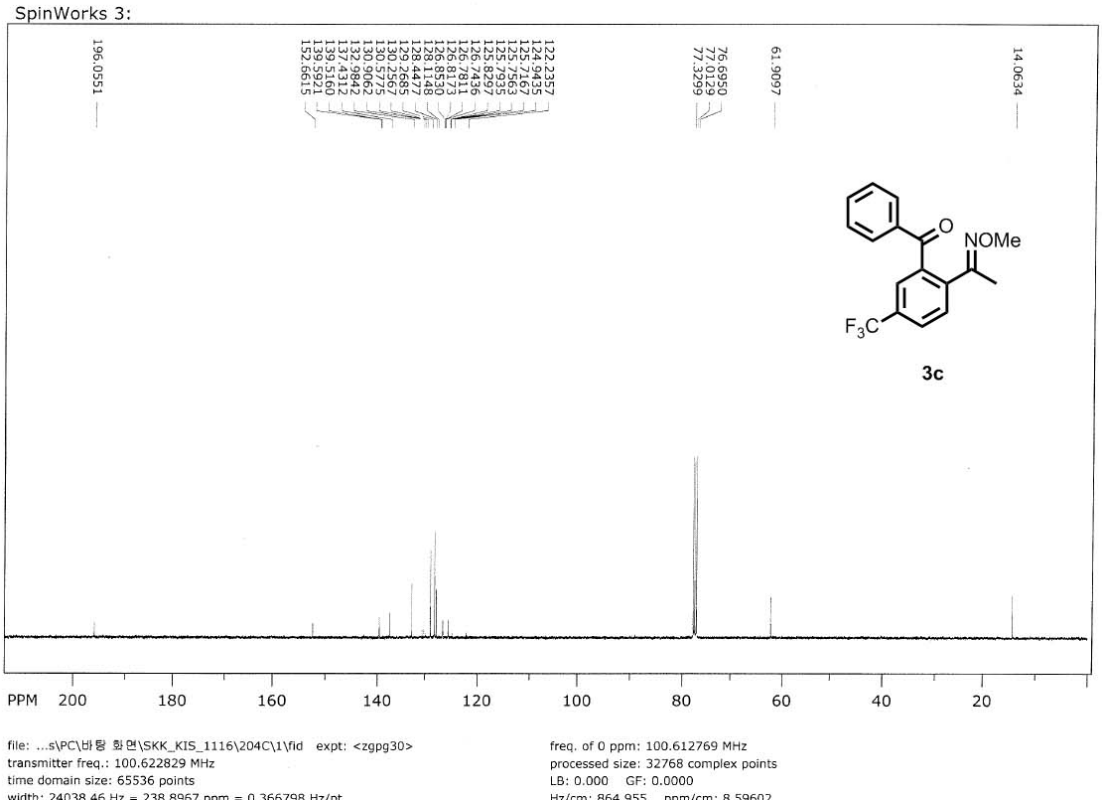
LB: 0.000 GF: 0.0000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O
NOMe
F3C
3c
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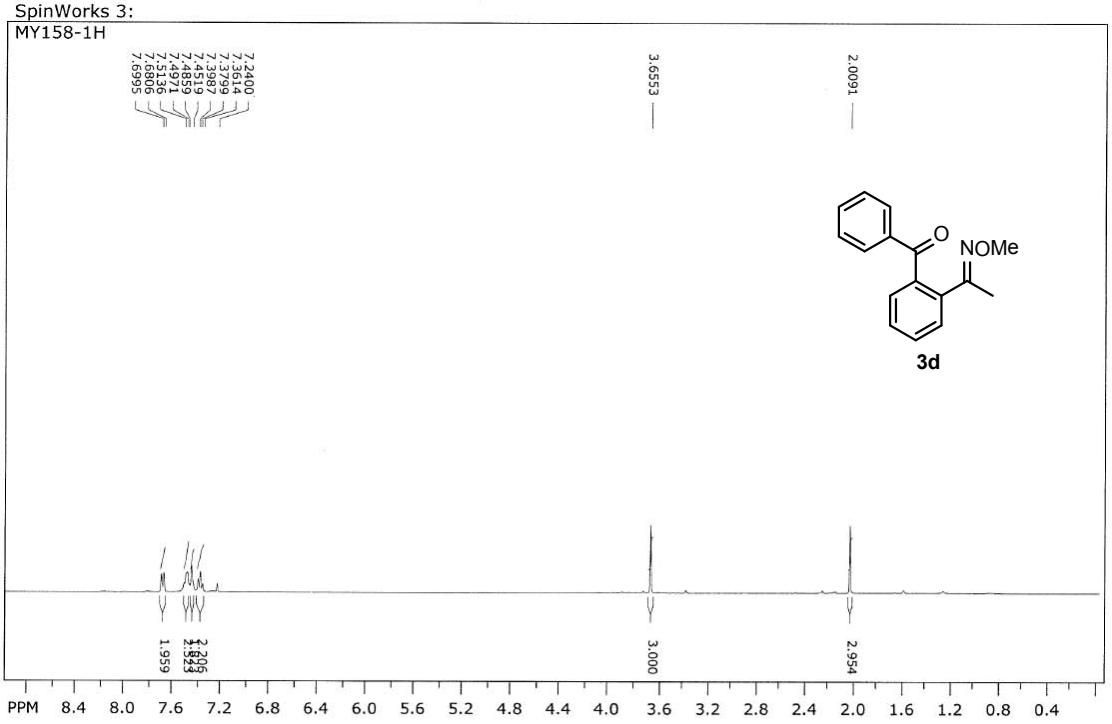
time domain size: 65536 points
freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000

SpinWorks 3:
MY158-1H



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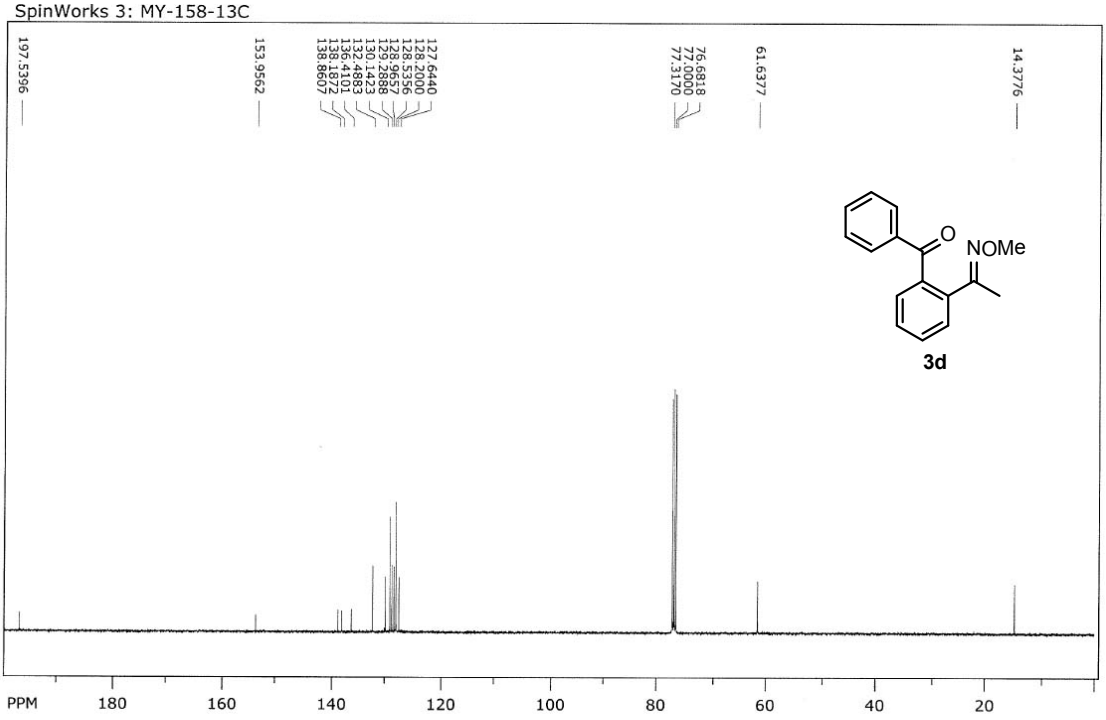
freq. of 0 ppm: 400.130019 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 145.015 ppm/cm: 0.36242

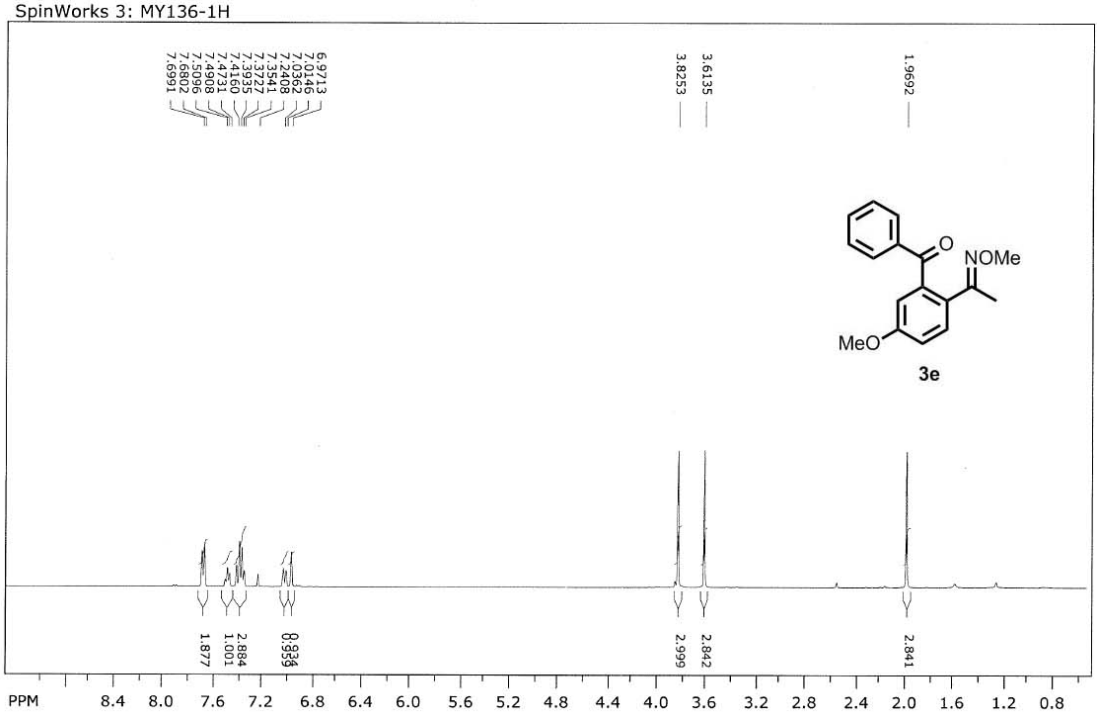
SpinWorks 3: MY-158-13C



file: ...ettings\aj\Desktop\nmr1\217C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612770 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 808.032 ppm/cm: 8.03030

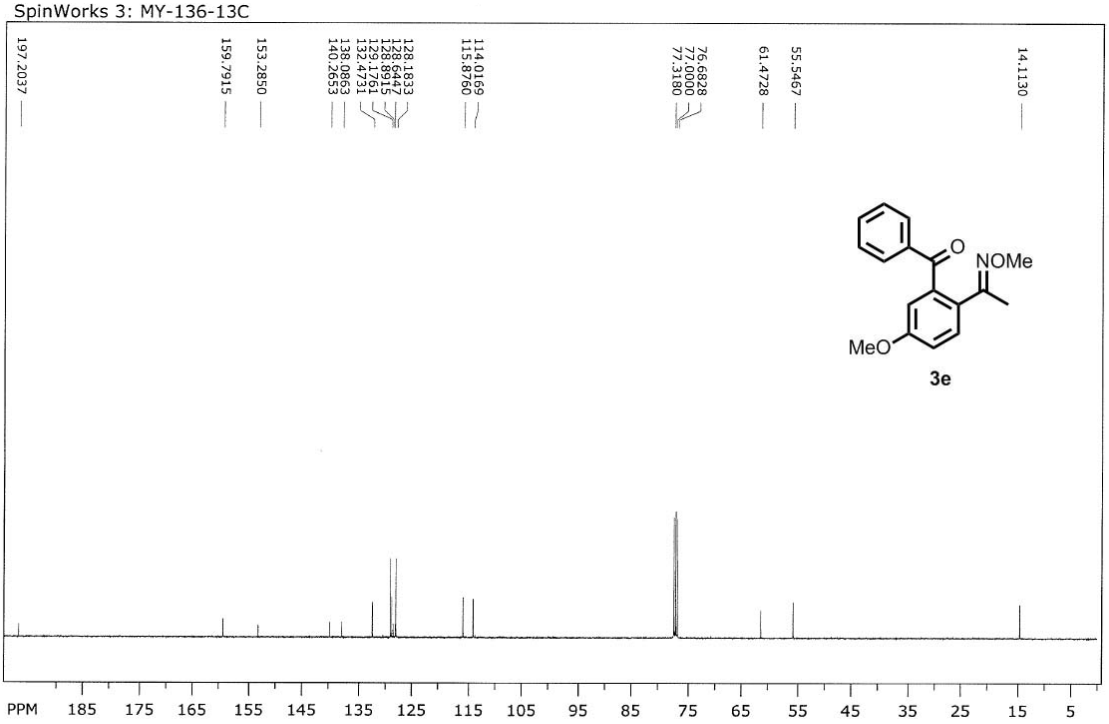
SpinWorks 3: MY136-1H



file: ... activation\SKK_KIS (5)\214H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130018 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 140.878 ppm/cm: 0.35208

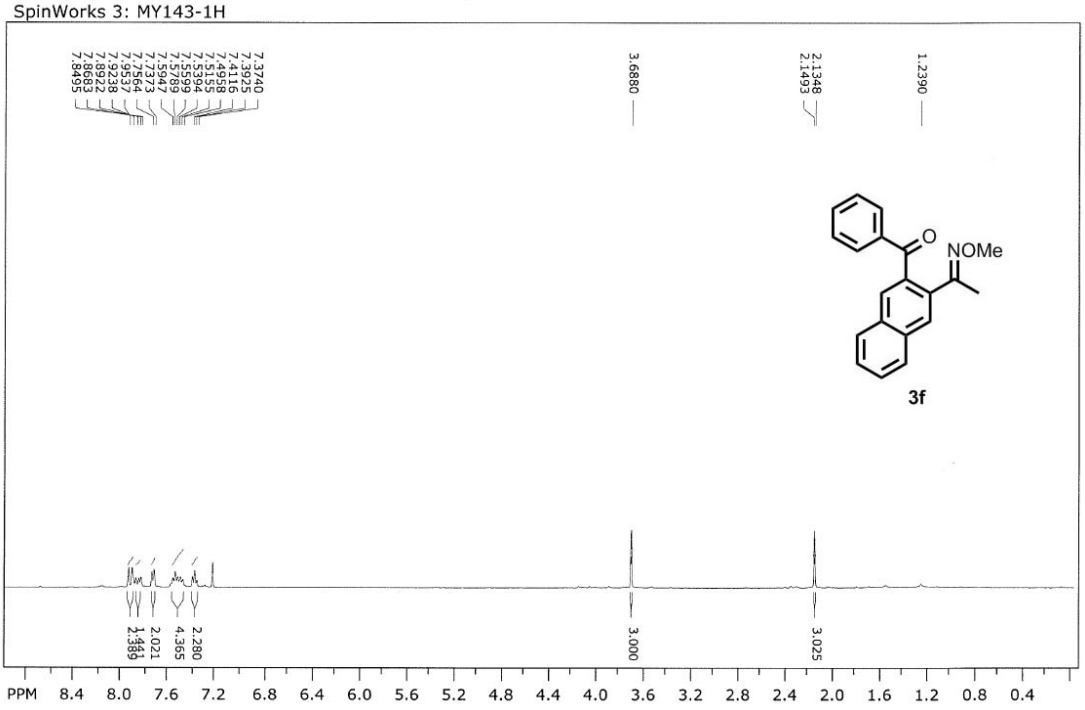
SpinWorks 3: MY-136-13C



file: ...ettings\aj\Desktop\nmr1\214C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612770 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 804.766 ppm/cm: 7.99785

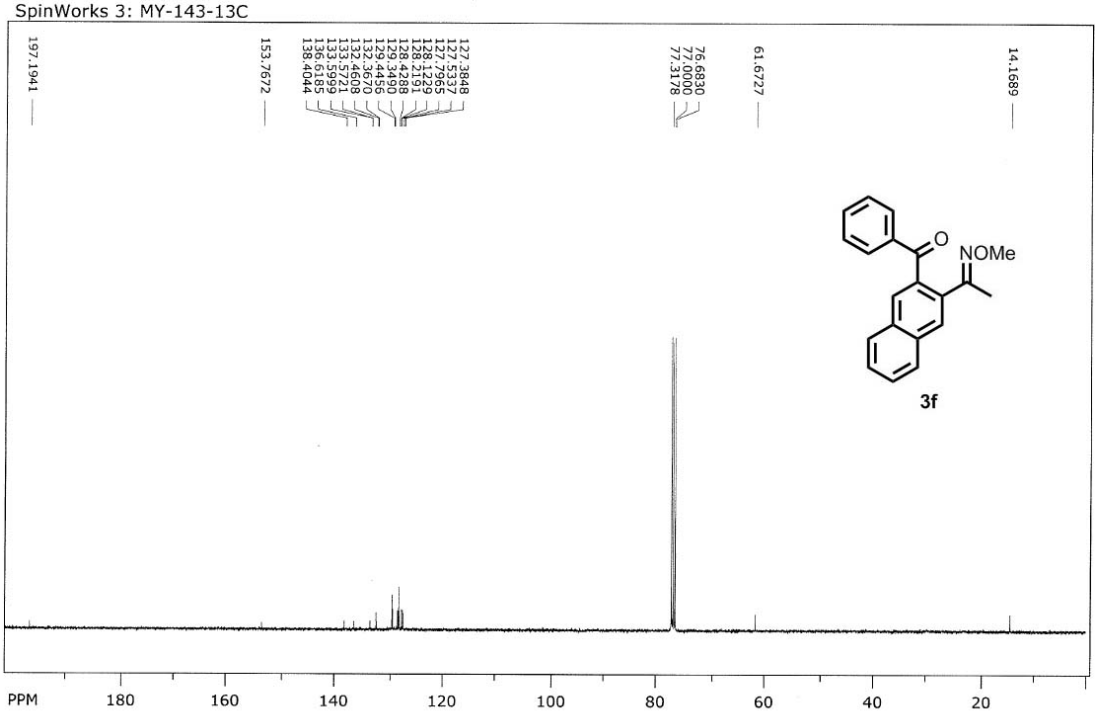
SpinWorks 3: MY143-1H



file: ... activation\SKK_KIS (5)\215H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130019 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 145.232 ppm/cm: 0.36296

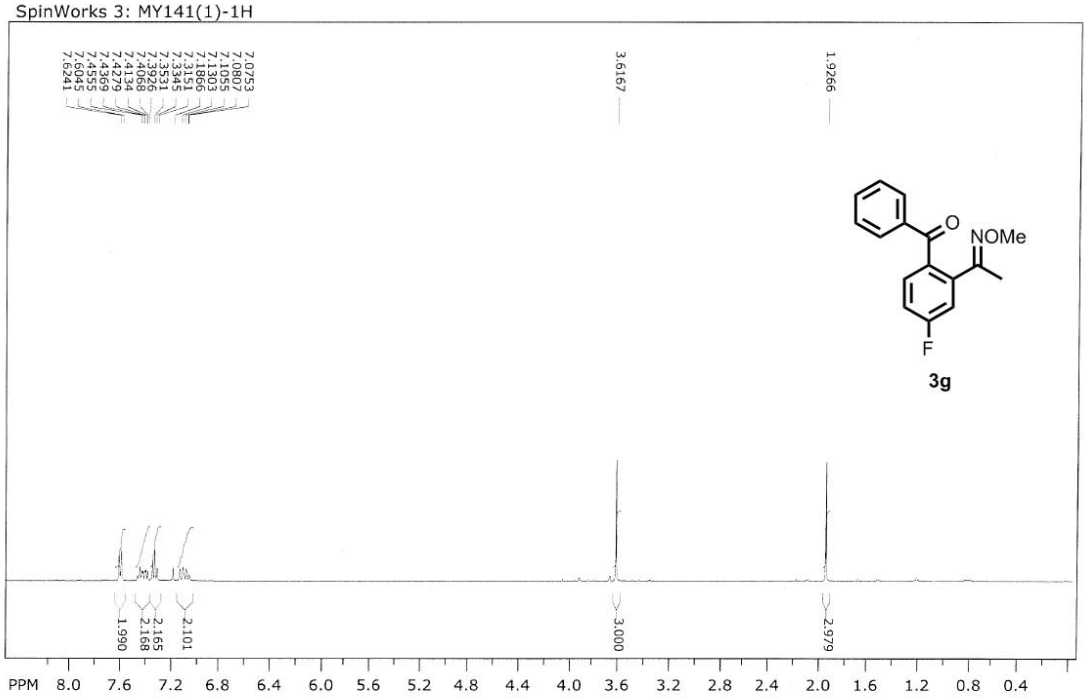
SpinWorks 3: MY-143-13C



file: ...ettings\aj\Desktop\nmr1\215C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 1024

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 812.605 ppm/cm: 8.07575

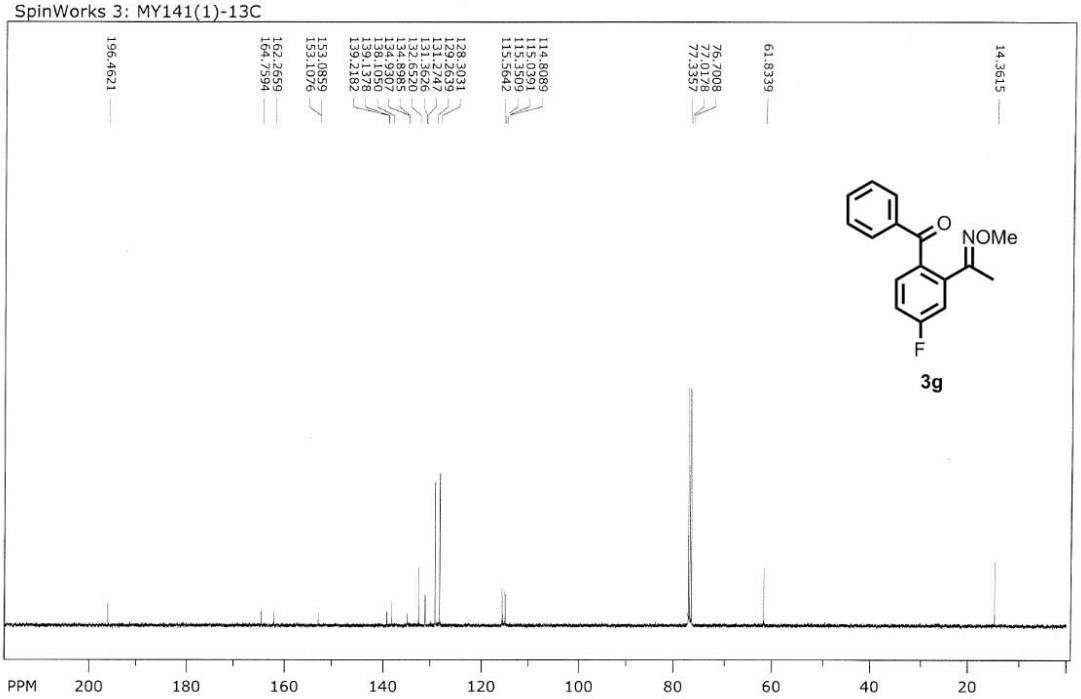
SpinWorks 3: MY141(1)-1H



file: ...s\PC\바탕 화면\SKK_KIS_1116\196h\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

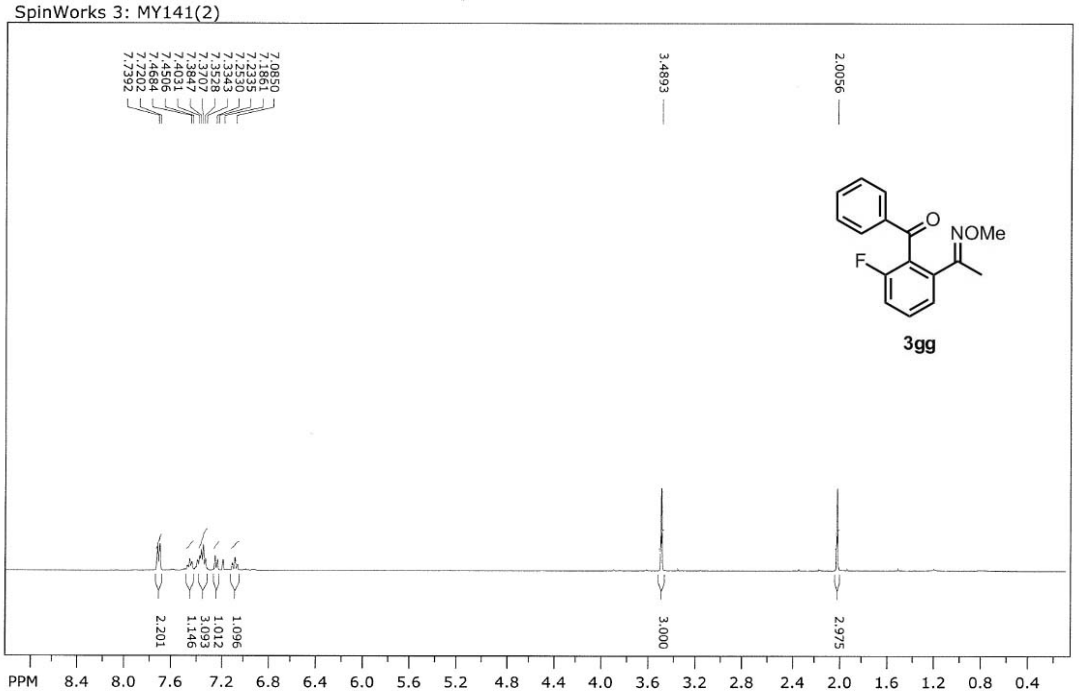
freq. of 0 ppm: 400.130040 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 137.720 ppm/cm: 0.34419

SpinWorks 3: MY141(1)-13C



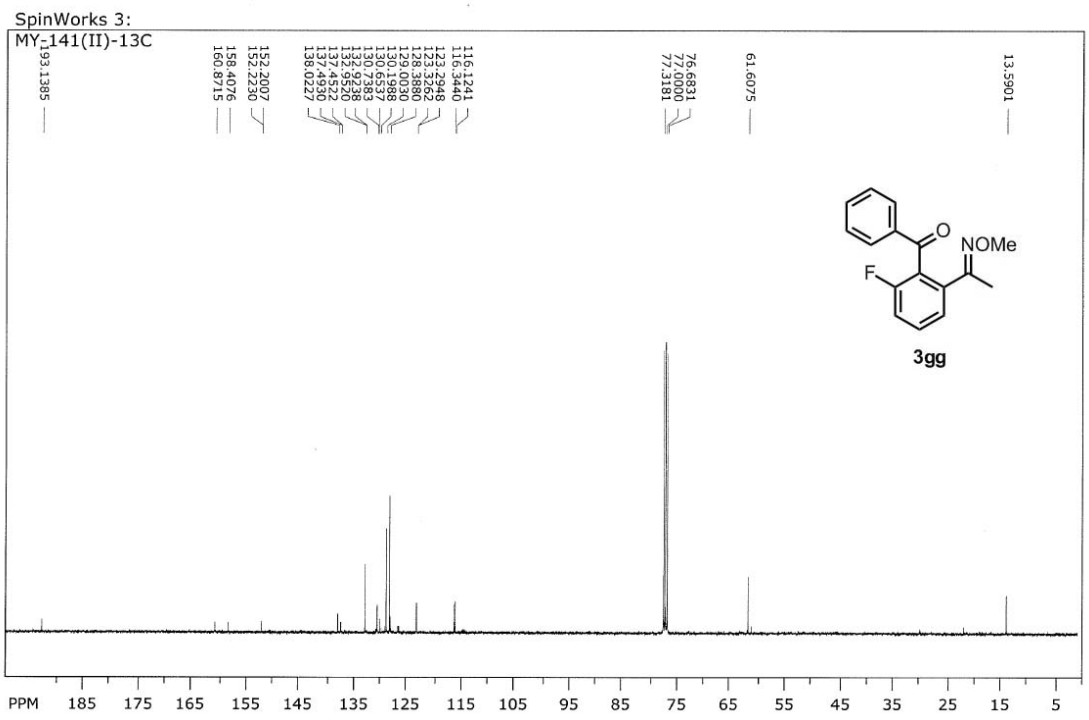
file: ...s\PC\바탕 화면\SKK_KIS_1116\196c\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 256

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 877.833 ppm/cm: 8.72400



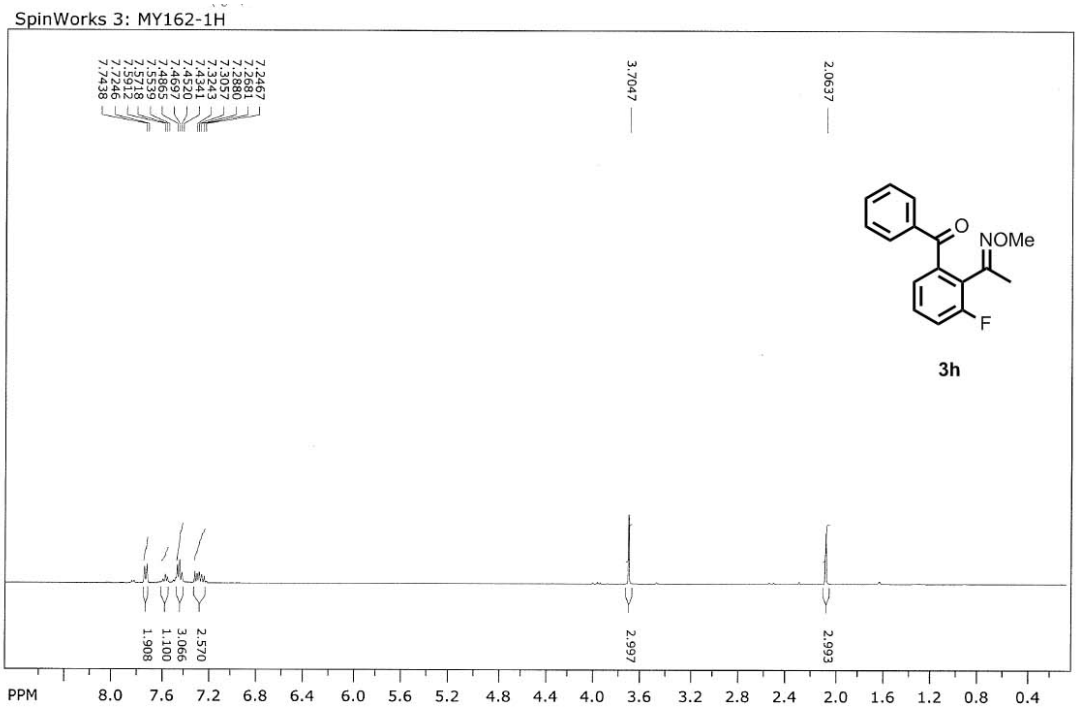
file: ... activation\SKK_KIS (5)\216H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

freq. of 0 ppm: 400.130040 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 143.273 ppm/cm: 0.35806



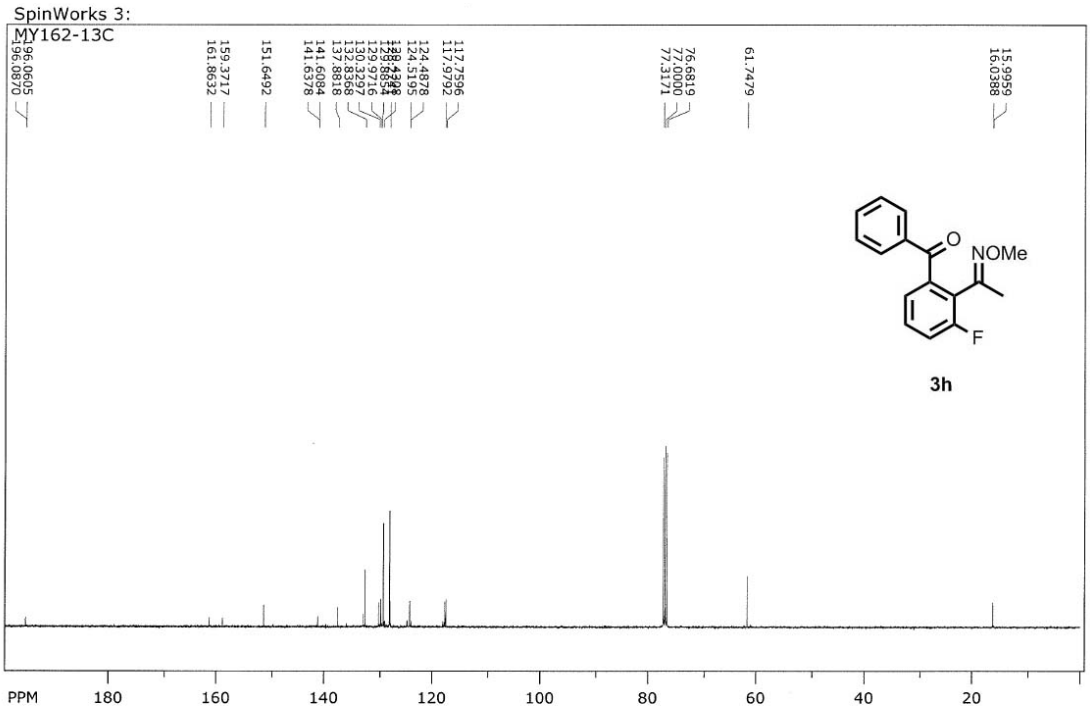
file: ...ettings\aj\Desktop\nmr1\216C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 1024

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 803.459 ppm/cm: 7.98486



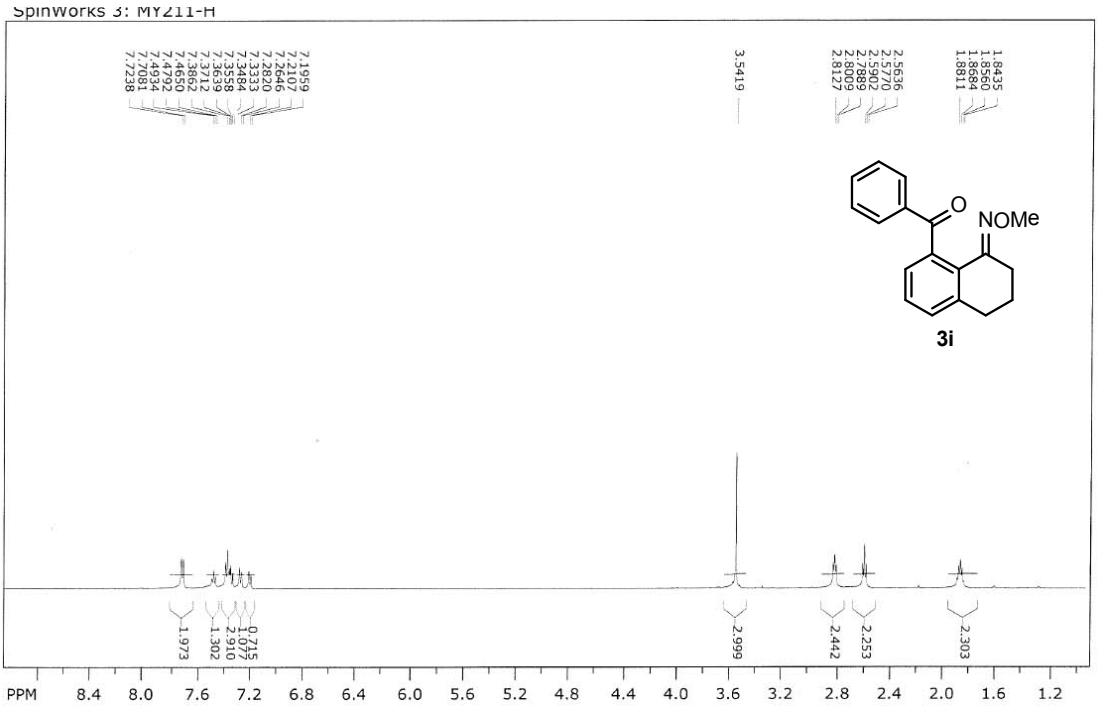
file: ... activation\SKK_KIS (5)\219H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

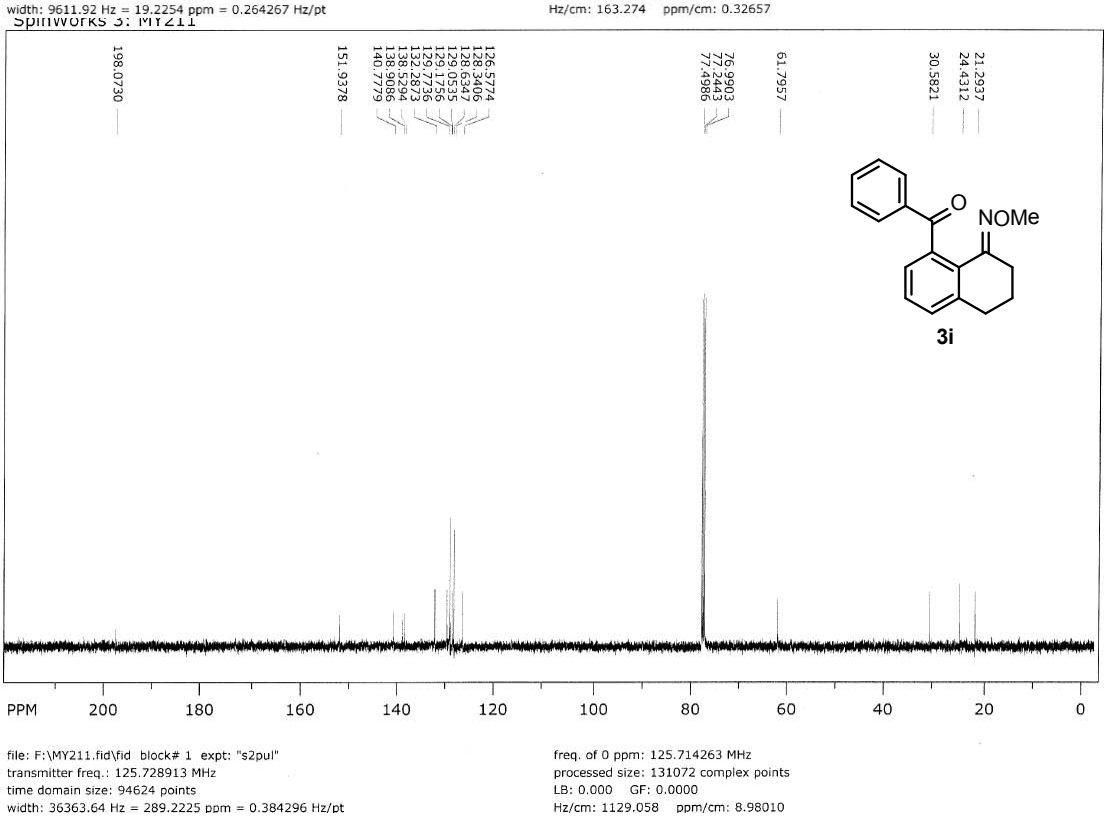
freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 141.749 ppm/cm: 0.35425



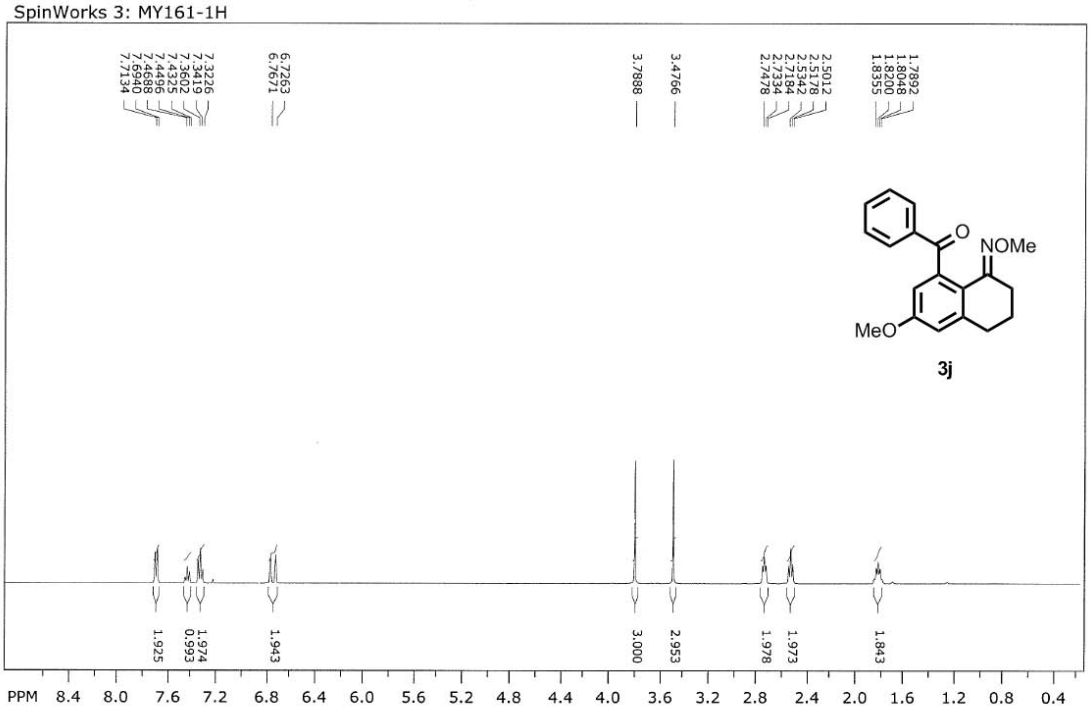
file: ...ettings\aj\Desktop\nmr1\219C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612770 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 805.419 ppm/cm: 8.00434


SpinWorks 3: MY211-H
7.7238
7.7081
7.4934
7.4750
7.3862
7.3712
7.3639
7.3558
7.3484
7.3333
7.2820
7.2607
7.1959
3.5419
2.8127
2.8009
2.7889
2.5902
2.5770
2.5636
1.8811
1.8684
1.8560
1.8435
O
NOMe
3i
1.973
1.302
2.910
1.077
0.715
2.999
2.442
2.253
2.303
PPM
8.4
8.0
7.6
7.2
6.8
6.4
6.0
5.6
5.2
4.8
4.4
4.0
3.6
3.2
2.8
2.4
2.0
1.6
1.2
file: F:\MY211-H.fid\fid block# 1 expt: "s2pul"
transmitter freq.: 499.960210 MHz
time domain size: 36372 points
width: 9611.92 Hz = 19.2254 ppm = 0.264267 Hz/pt
freq. of 0 ppm: 499.957020 MHz
processed size: 65536 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 163.274 ppm/cm: 0.32657


SpinWorks 3: MY211
198.0730
151.9378
140.7779
138.9986
138.5294
132.2873
129.7736
129.1756
129.0535
128.6347
128.3406
126.5774
77.4986
77.2443
76.9903
61.7957
30.5821
24.4312
21.2937
O
NOMe
3i
PPM
200
180
160
140
120
100
80
60
40
20
0
file: F:\MY211.fid\fid block# 1 expt: "s2pul"
transmitter freq.: 125.728913 MHz
time domain size: 94624 points
width: 36363.64 Hz = 289.2225 ppm = 0.384296 Hz/pt
freq. of 0 ppm: 125.714263 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 1129.058 ppm/cm: 8.98010

SpinWorks 3: MY161-1H

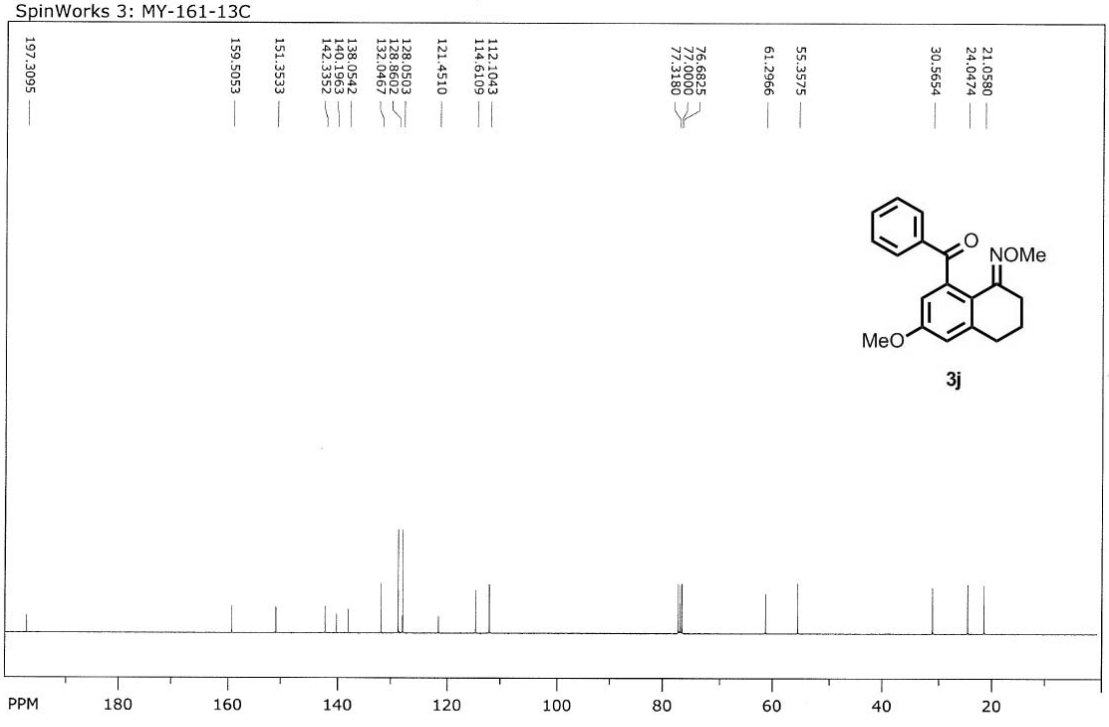


3j

file: ... activation\SKK_KIS (5)\218H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130019 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 140.660 ppm/cm: 0.35153

SpinWorks 3: MY-161-13C

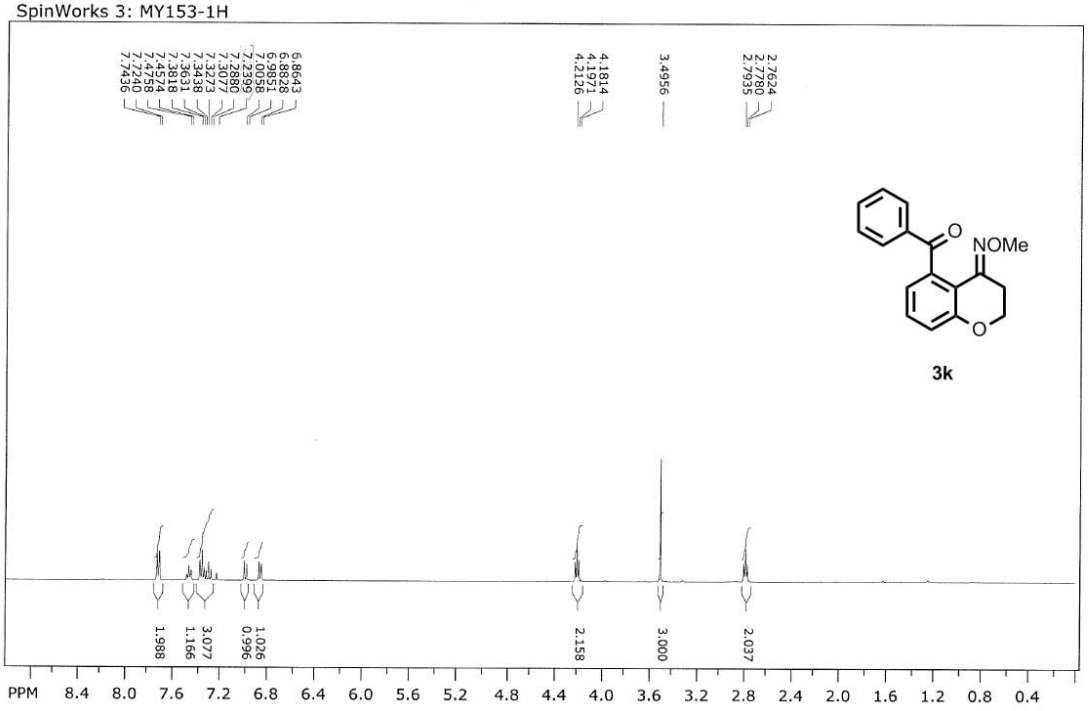


3j

file: ...ettings\aj\Desktop\nmr1\218C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612776 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 809.338 ppm/cm: 8.04329

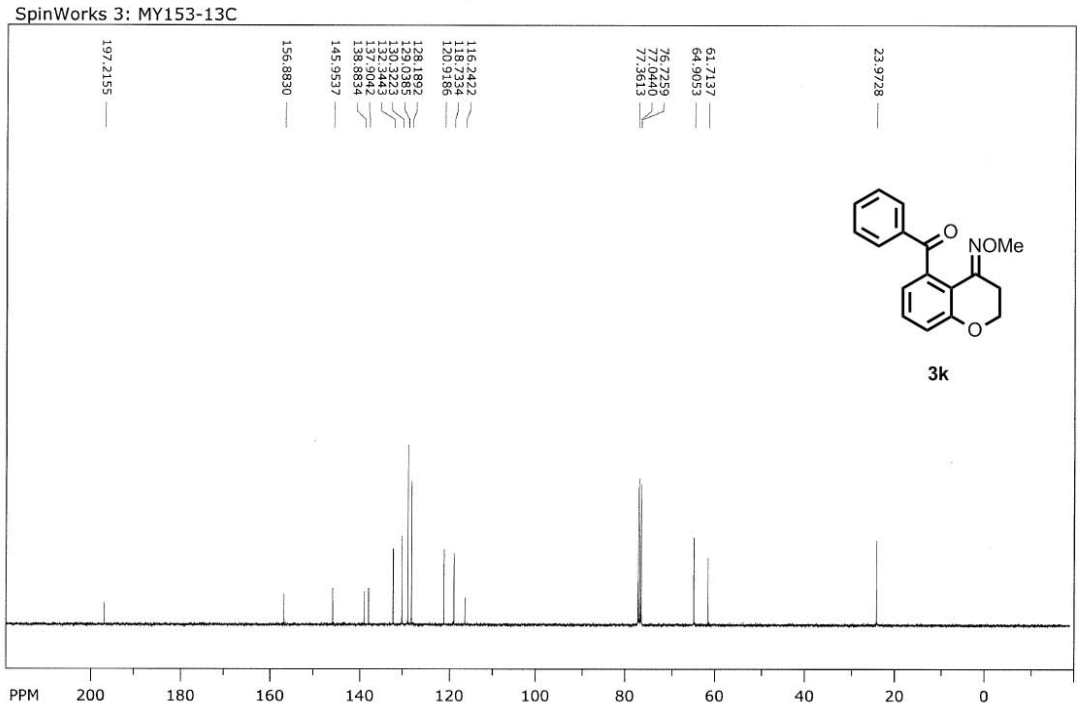
SpinWorks 3: MY153-1H



file: ... activation\SKK_KIS (3)\207H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

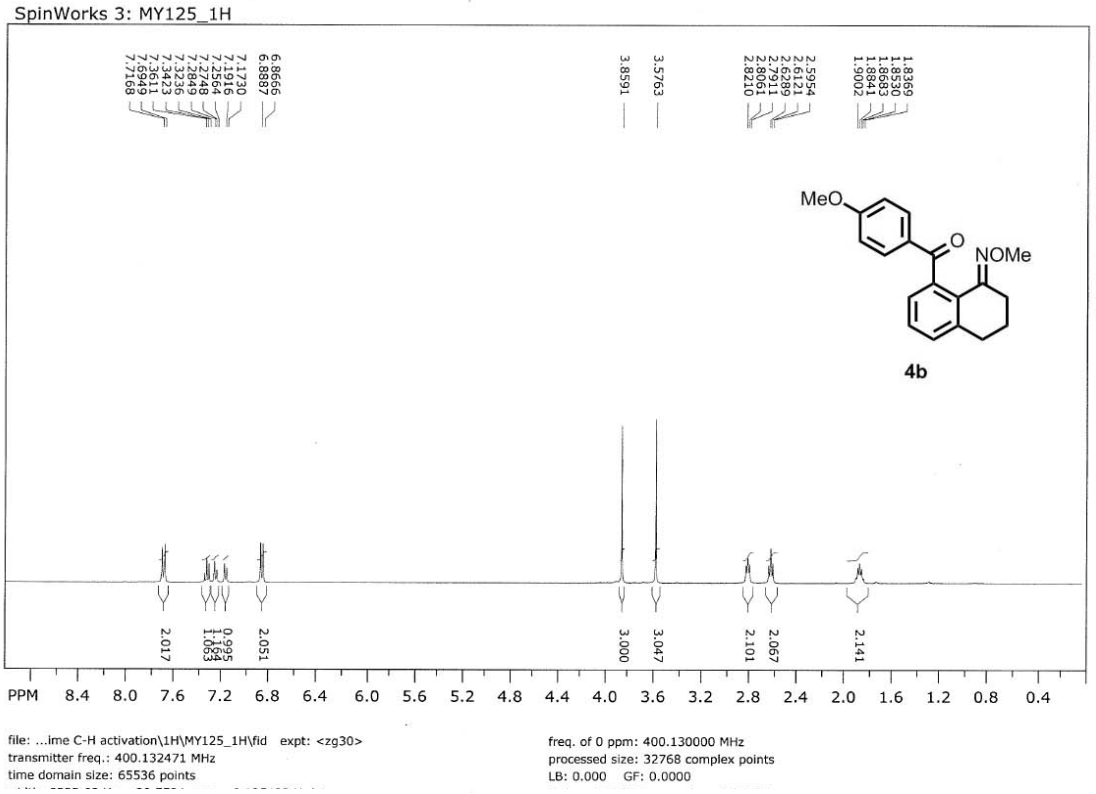
freq. of 0 ppm: 400.130019 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 144.579 ppm/cm: 0.36133

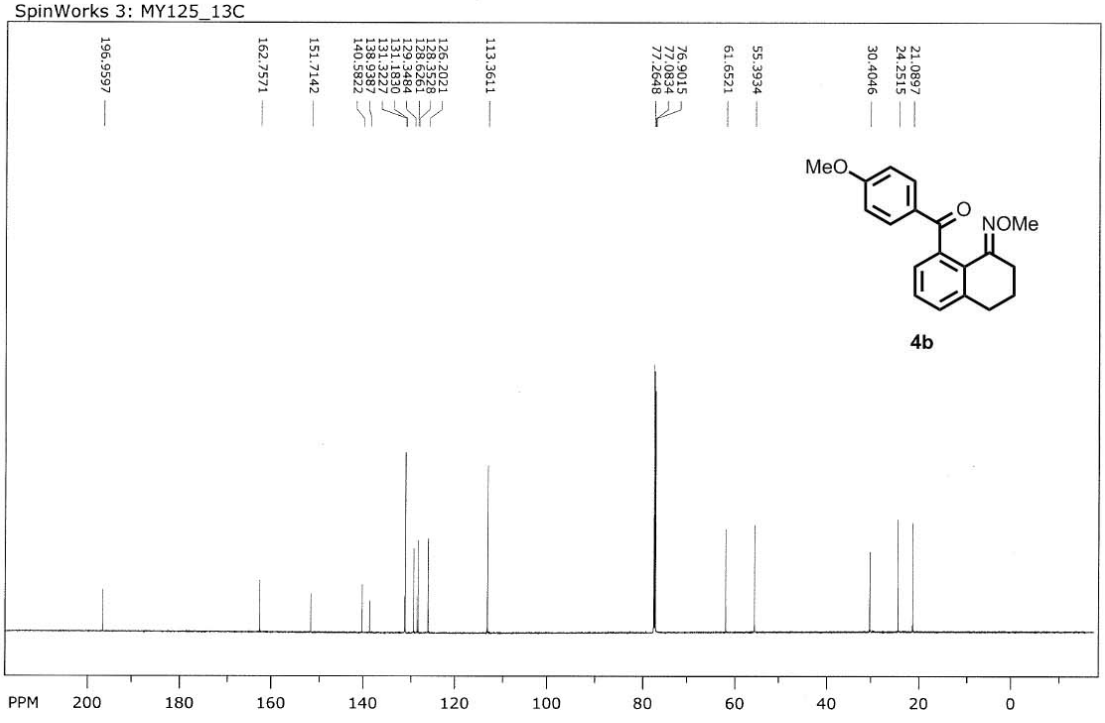
SpinWorks 3: MY153-13C



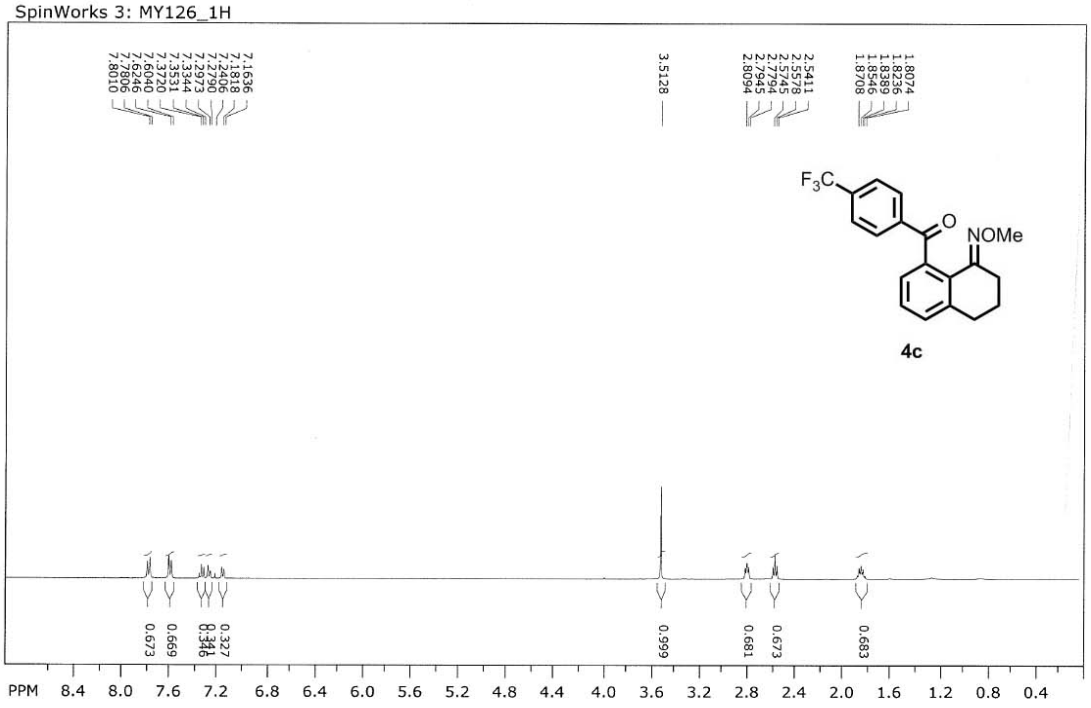
file: ... activation\SKK_KIS (3)\207C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 961.538 ppm/cm: 9.55587


SpinWorks 3: MY125_1H
7.7168
7.6949
7.3611
7.3423
7.3236
7.2849
7.2568
7.1916
7.1730
6.8887
6.8666
3.8591
3.5763
2.8210
2.8061
2.7911
2.6289
2.6121
2.5954
1.9002
1.8841
1.8683
1.8530
1.8369
MeO
O
NOMe
4b
2.017
1.063
0.995
2.051
3.000
3.047
2.101
2.067
2.141
PPM 8.4 8.0 7.6 7.2 6.8 6.4 6.0 5.6 5.2 4.8 4.4 4.0 3.6 3.2 2.8 2.4 2.0 1.6 1.2 0.8 0.4
file: ...ime C-H activation\1H\MY125_1H\fid expt: <zg30>
transmitter freq.: 400.132471 MHz
time domain size: 65536 points
freq. of 0 ppm: 400.130000 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000


SpinWorks 3: MY125_13C
196.9597
162.7571
151.7142
140.5822
138.9387
131.3227
131.1830
129.3484
128.3528
128.0203
126.2021
113.3611
77.2648
77.0834
76.9015
61.6521
55.3934
30.4046
24.2515
21.0897
MeO
O
NOMe
4b
PPM 200 180 160 140 120 100 80 60 40 20 0
file: ...1107\SU_20121107\13C\MY125_13C\fid expt: <zgpg30>
transmitter freq.: 176.166023 MHz
time domain size: 65536 points
width: 41666.67 Hz = 236.5193 ppm = 0.635783 Hz/pt
number of scans: 32
freq. of 0 ppm: 176.148409 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 1666.667 ppm/cm: 9.46077

SpinWorks 3: MY126_1H

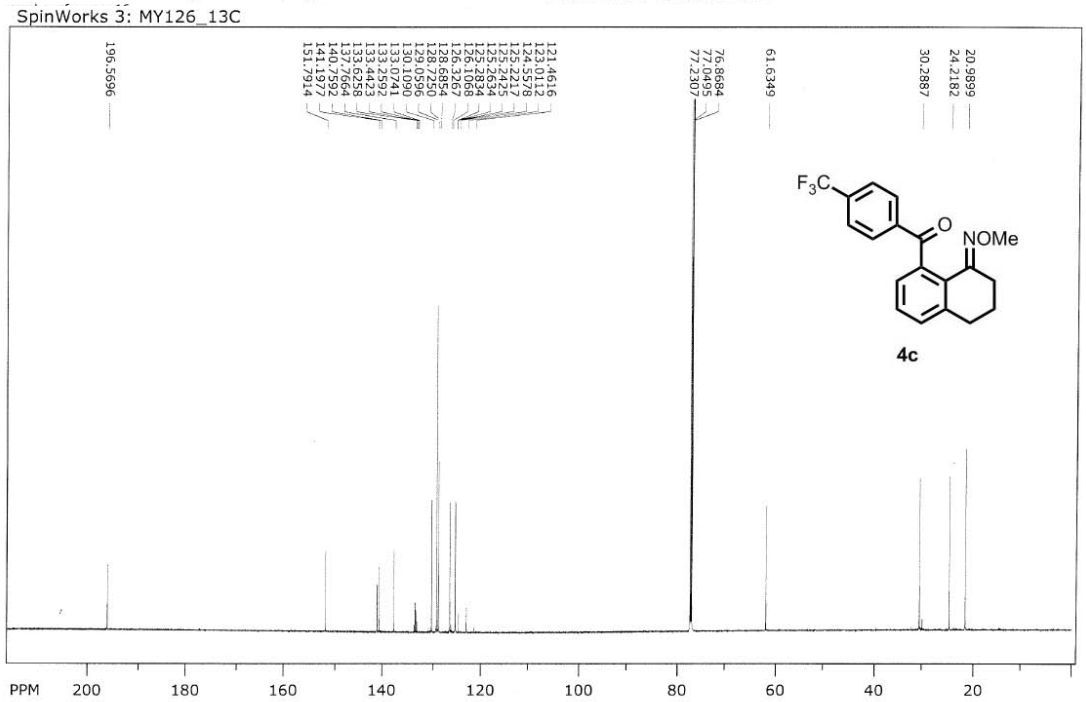


4c

file: ...ime C-H activation\1H\MY126_1H\fid expt: <zg30>
transmitter freq.: 400.132471 MHz
time domain size: 65536 points
width: 8223.68 Hz = 20.5524 ppm = 0.125483 Hz/pt

freq. of 0 ppm: 400.130018 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 143.691 ppm/cm: 0.35911

SpinWorks 3: MY126_13C

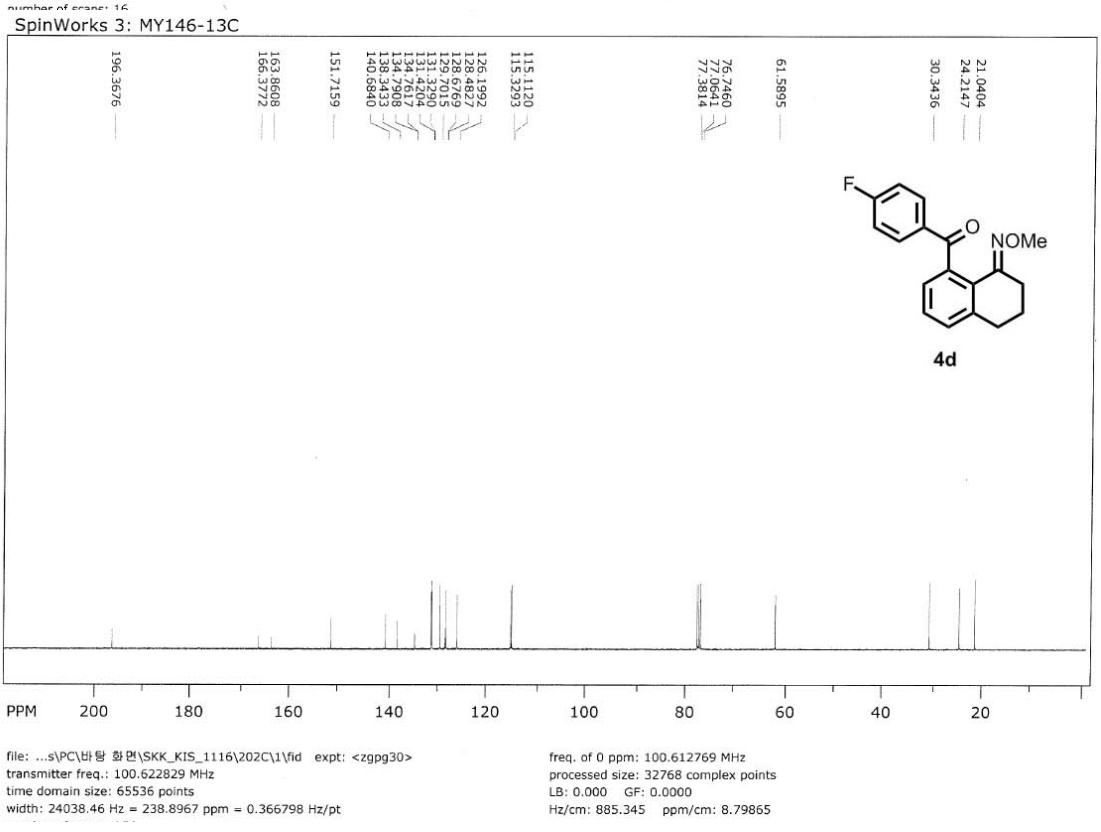


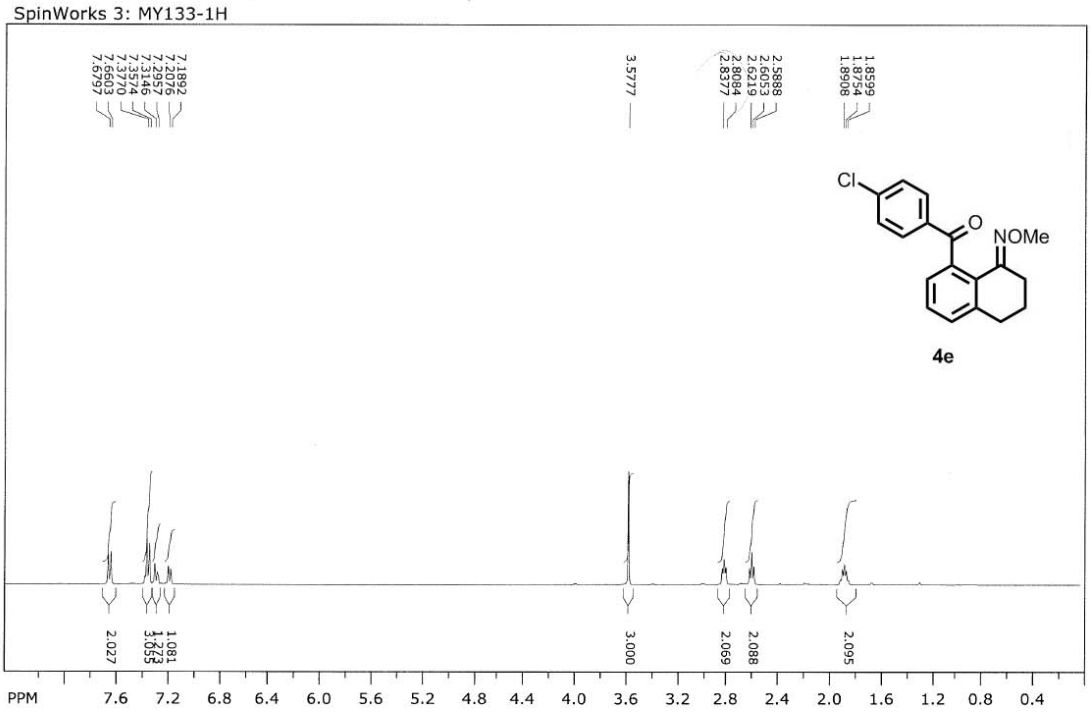
4c

file: ...1107\SU_20121107\13C\MY126_13C\fid expt: <zgpg30>
transmitter freq.: 176.166023 MHz
time domain size: 65536 points
width: 41666.67 Hz = 236.5193 ppm = 0.635783 Hz/pt

freq. of 0 ppm: 176.148409 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 1537.388 ppm/cm: 8.72693

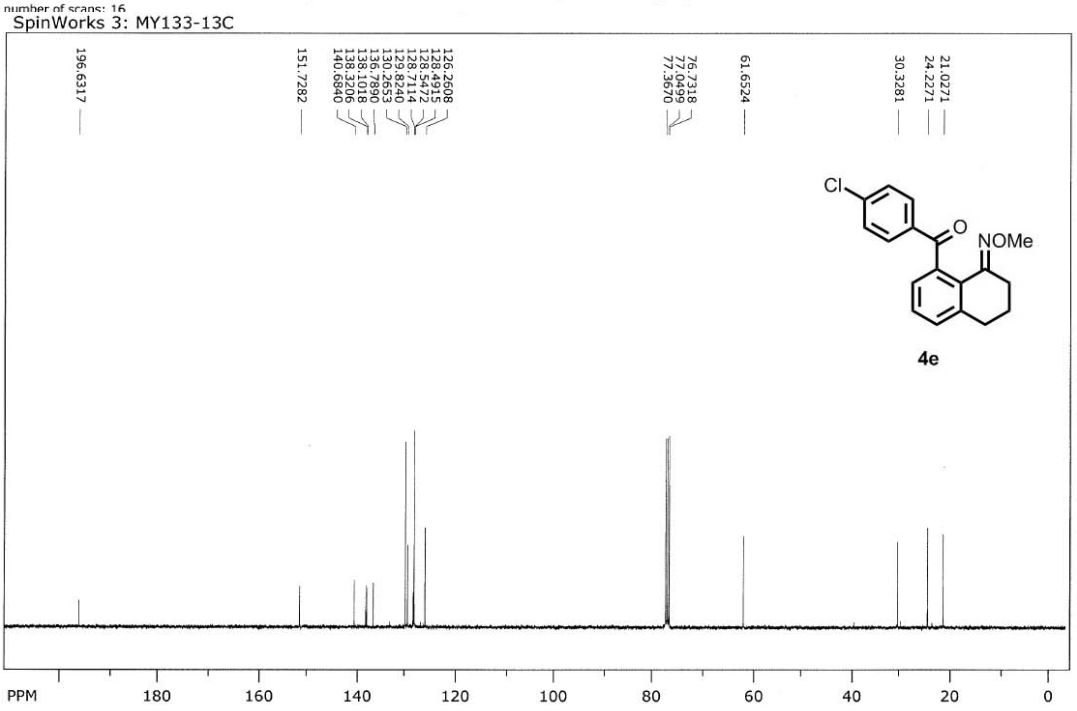

SpinWorks 3: MY146-1H
7.6645
7.6502
7.6249
7.6094
7.2775
7.2587
7.2400
7.1982
7.1804
7.0989
7.0802
6.9590
6.9376
3.4621
2.7267
2.7121
2.6970
2.5182
2.5015
2.4847
1.7978
1.7819
1.7664
1.7508
1.7348
1.985
1.033
1.052
2.040
3.000
2.129
2.120
2.094
F
O
NOMe
4d
PPM
8.4 8.0 7.6 7.2 6.8 6.4 6.0 5.6 5.2 4.8 4.4 4.0 3.6 3.2 2.8 2.4 2.0 1.6 1.2 0.8 0.4
file: ...s\PC\바탕 화면\SKK_KIS_1116\202H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
freq. of 0 ppm: 400.130042 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 145.411 ppm/cm: 0.36341


SpinWorks 3: MY146-13C
196.3676
166.3772
163.8608
151.7159
140.6840
138.3433
134.7908
134.7617
131.4204
131.3290
129.7015
128.6769
126.1992
115.3293
115.1120
77.3814
77.0641
76.7460
61.5895
30.3436
24.2147
21.0404
F
O
NOMe
4d
PPM
200 180 160 140 120 100 80 60 40 20
file: ...s\PC\바탕 화면\SKK_KIS_1116\202C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 885.345 ppm/cm: 8.79865



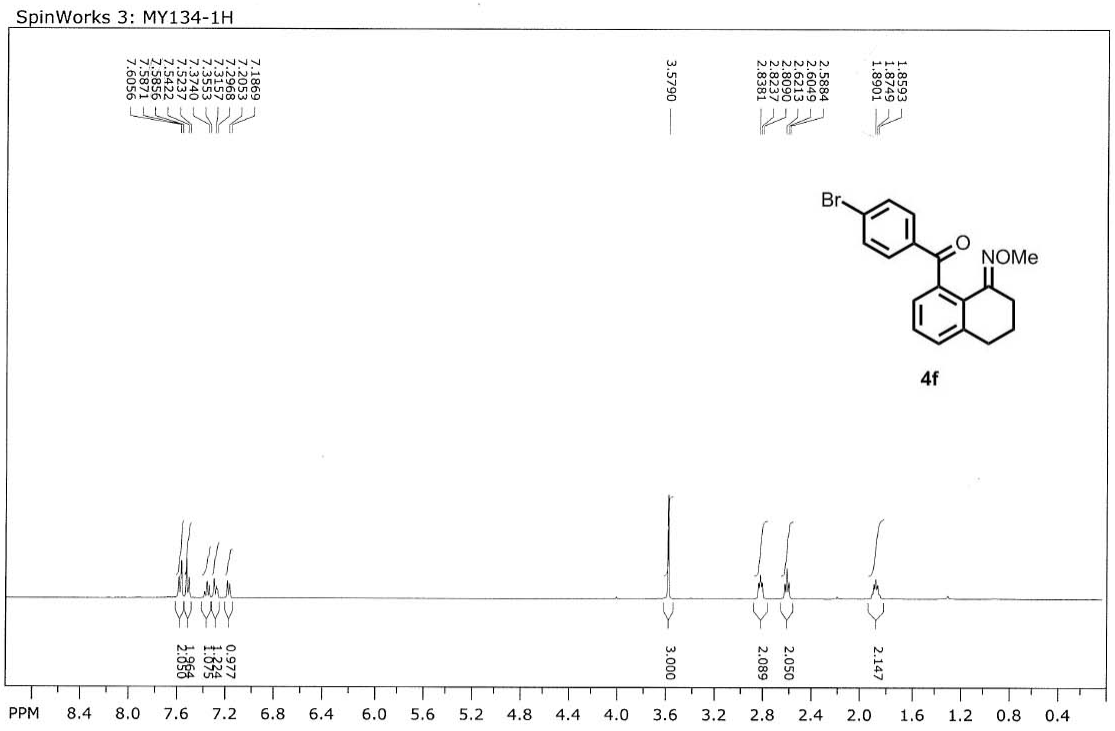
file: ... activation\SKK_KIS (4)\189H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 135.870 ppm/cm: 0.33956



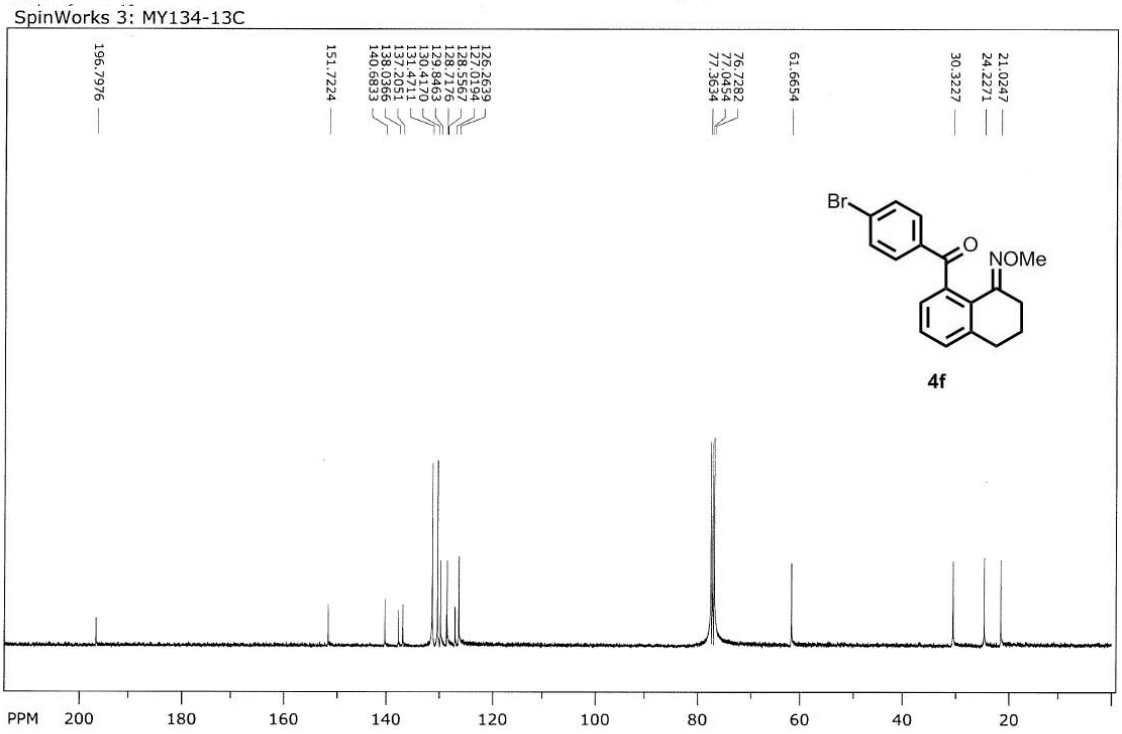
file: ... activation\SKK_KIS (4)\189C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 867.475 ppm/cm: 8.62105



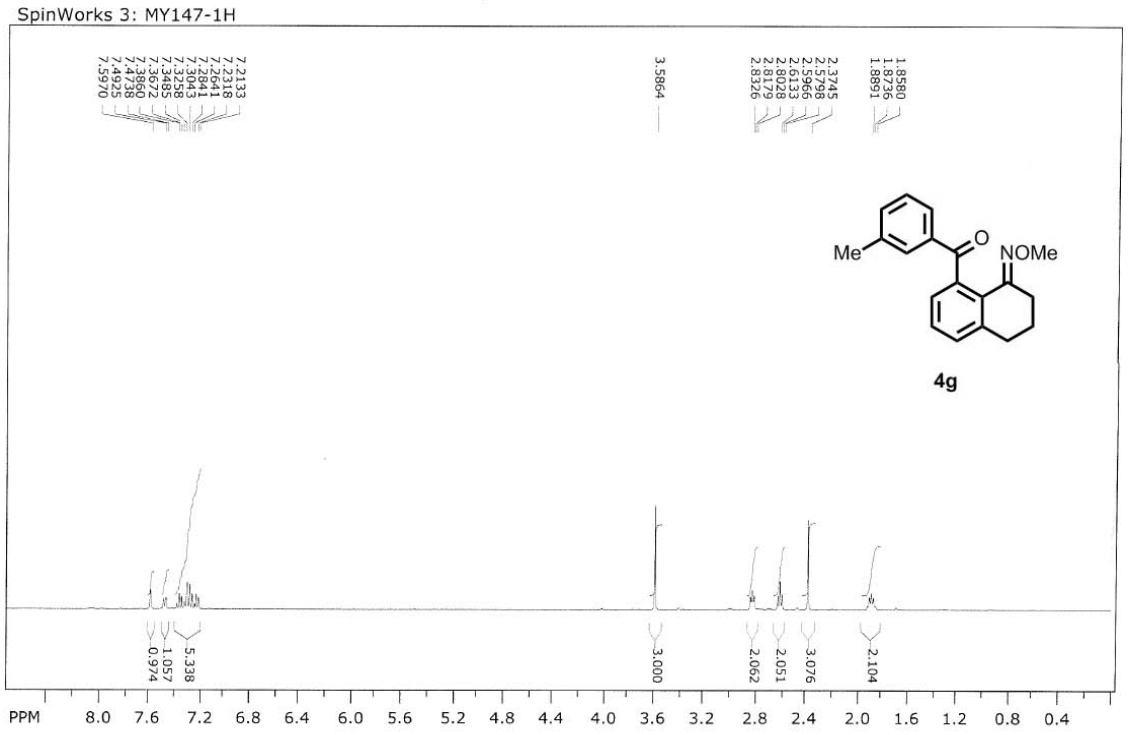
file: ... activation\SKK_KIS (4)\190H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 144.361 ppm/cm: 0.36078



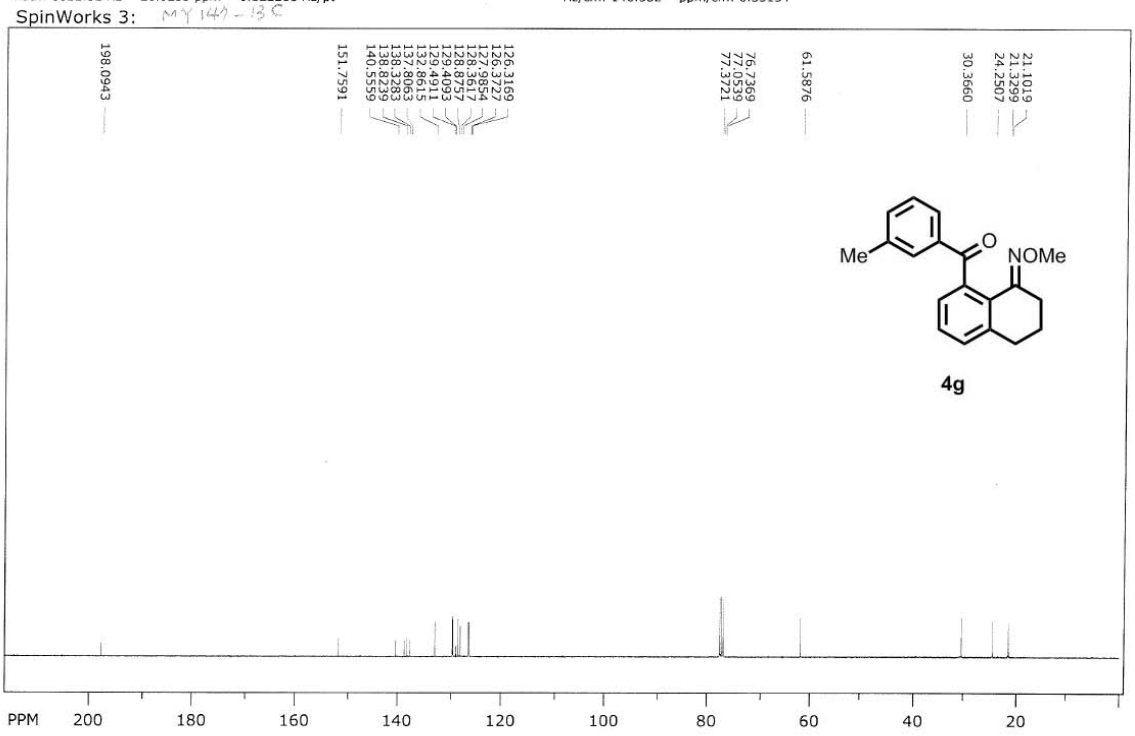
file: ... activation\SKK_KIS (4)\190C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 256

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 866.168 ppm/cm: 8.60807



file: ...s\PC\바탕 화면\SKK_KIS_1116\195h\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

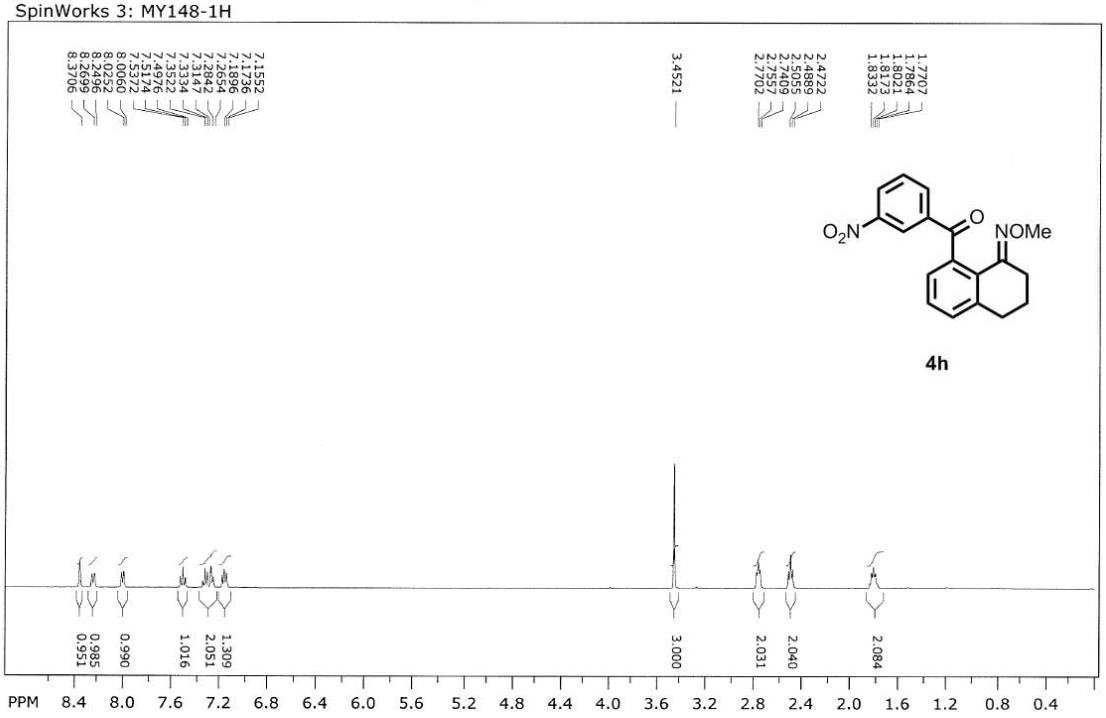
freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 140.582 ppm/cm: 0.35134



file: ...s\PC\바탕 화면\SKK_KIS_1116\195c\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 876.223 ppm/cm: 8.70800

SpinWorks 3: MY148-1H

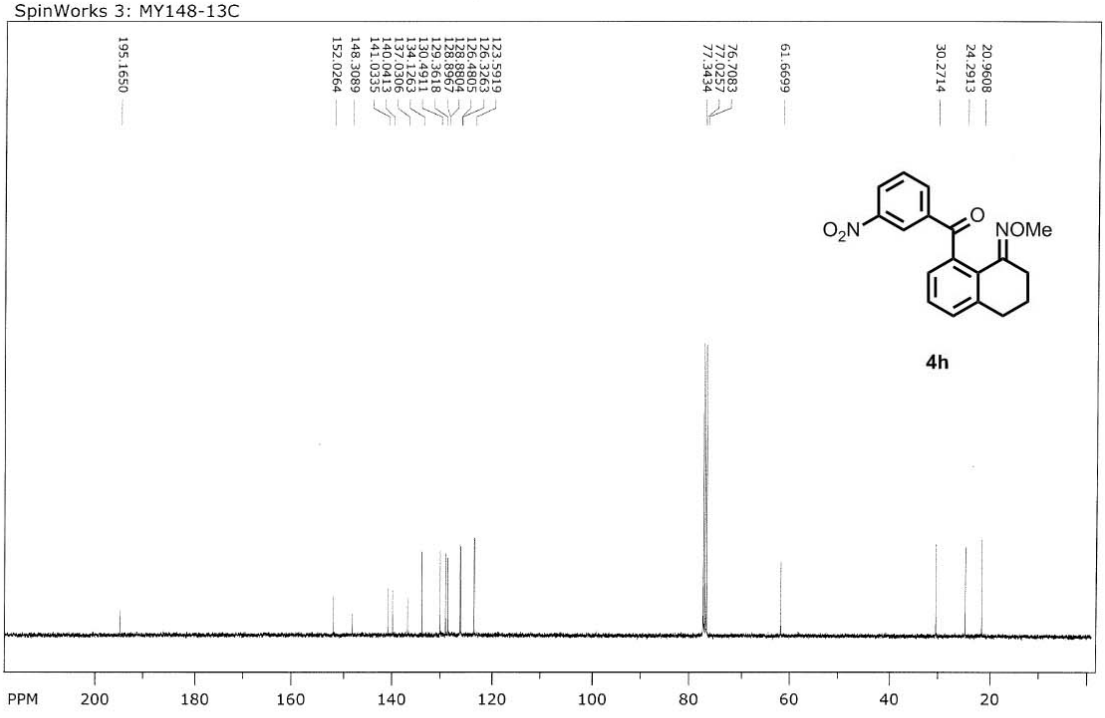


4h

file: ... activation\SKK_KIS (1)\199H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130039 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 144.361 ppm/cm: 0.36078

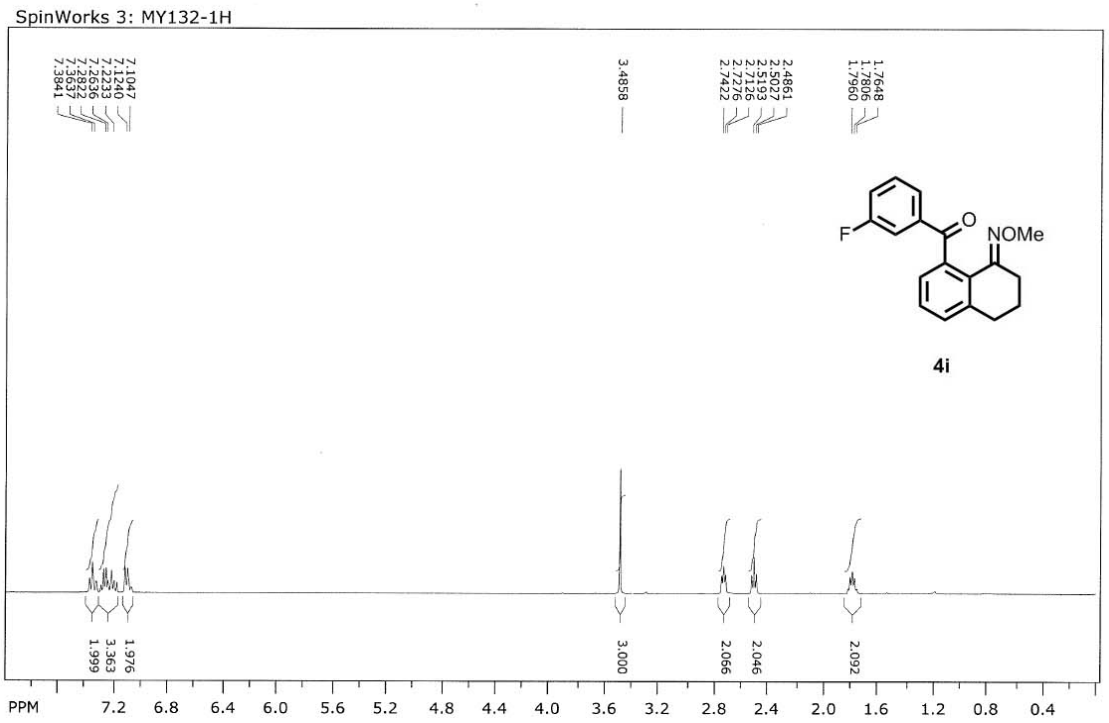
SpinWorks 3: MY148-13C



4h

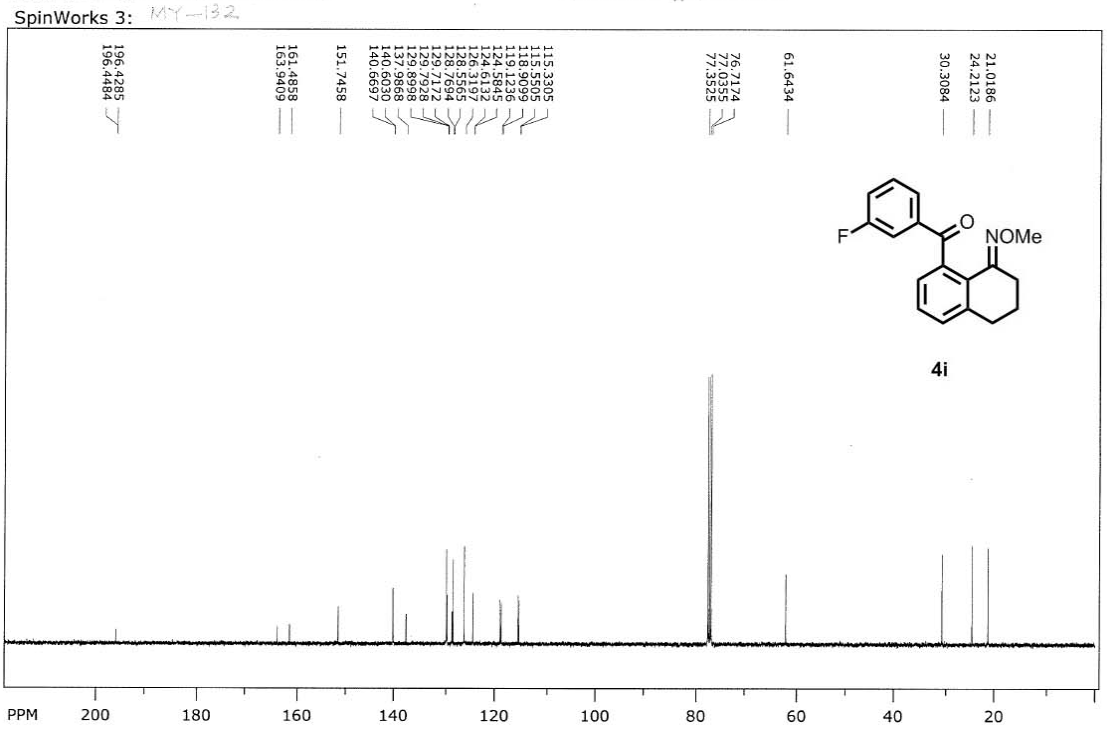
file: ...s\PC\바탕 화면\SKK_KIS_1116\199C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 884.809 ppm/cm: 8.79332



file: ... activation\SKK_KIS (4)\188H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

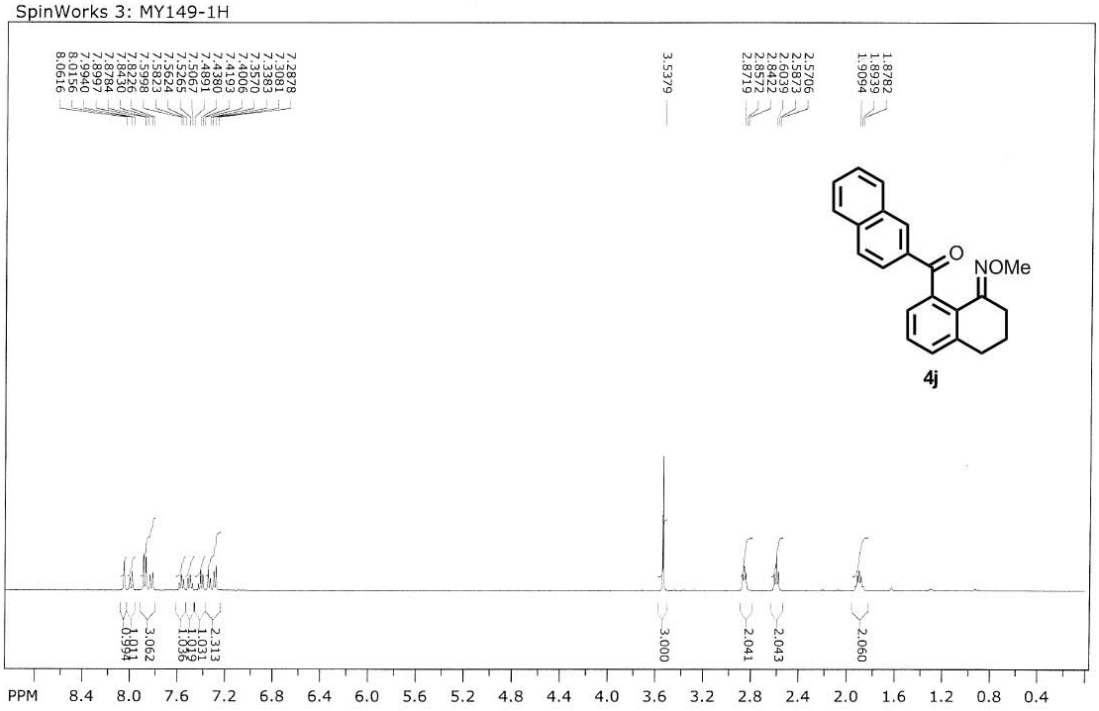
freq. of 0 ppm: 400.130041 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 128.249 ppm/cm: 0.32052



file: ... activation\SKK_KIS (4)\188C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 883.152 ppm/cm: 8.77686

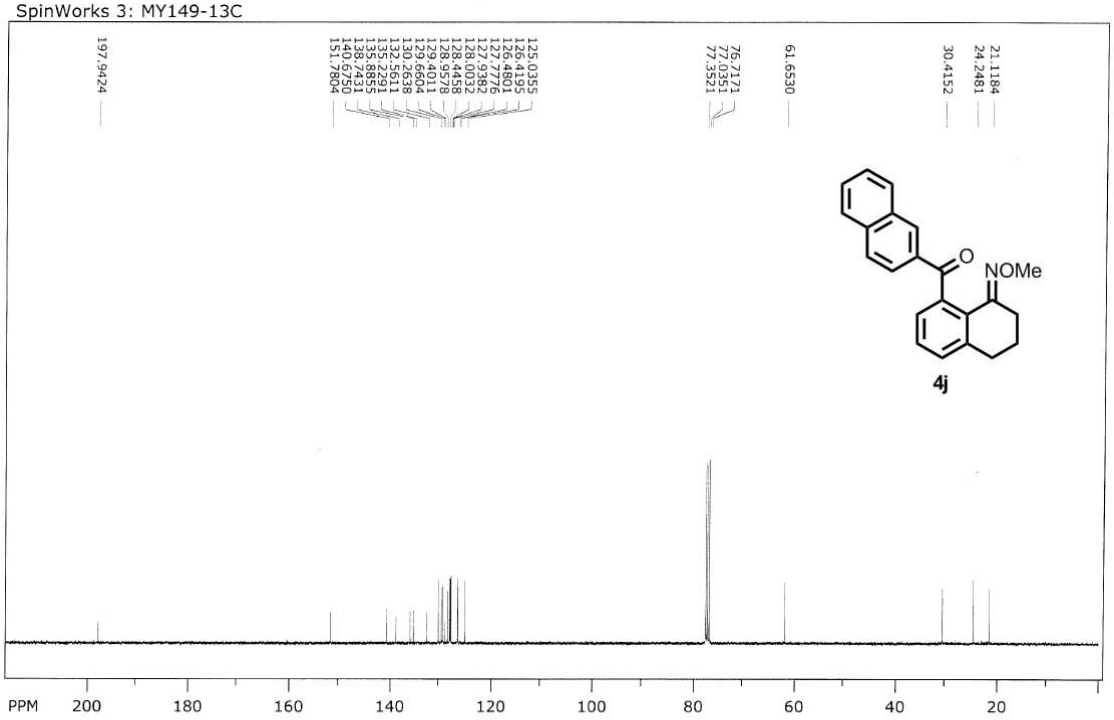
SpinWorks 3: MY149-1H



file: ...s\PC\바탕 화면\SKK_KIS_1116\197H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 145.323 ppm/cm: 0.36319

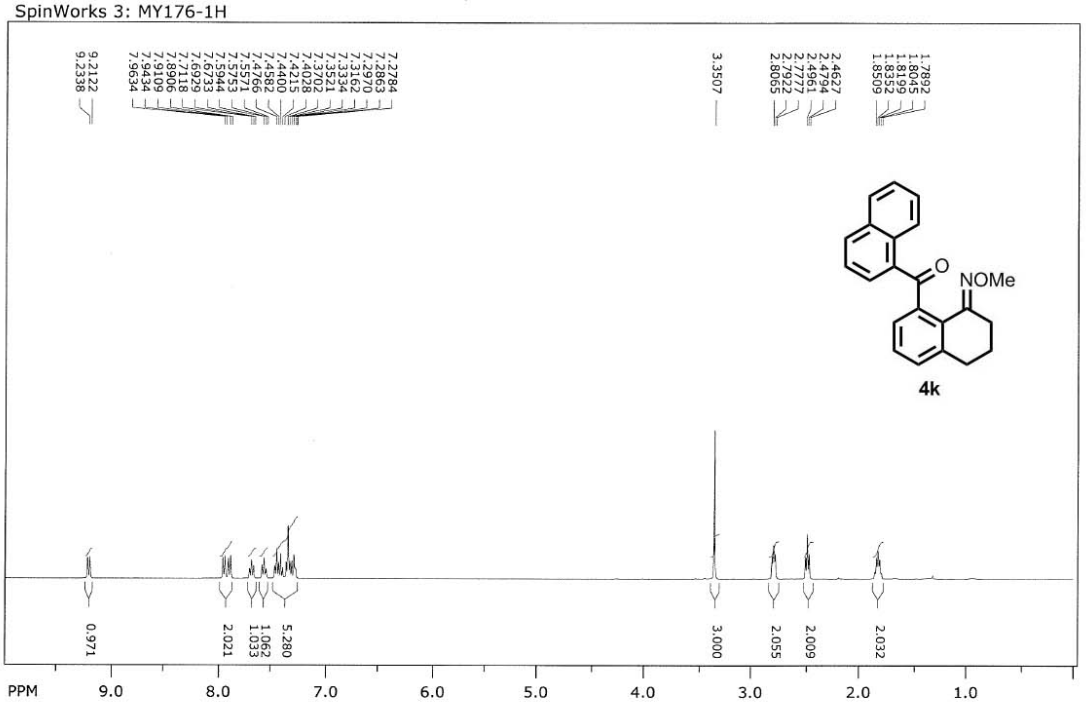
SpinWorks 3: MY149-13C



file: ...s\PC\바탕 화면\SKK_KIS_1116\197C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 256

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 874.077 ppm/cm: 8.68667

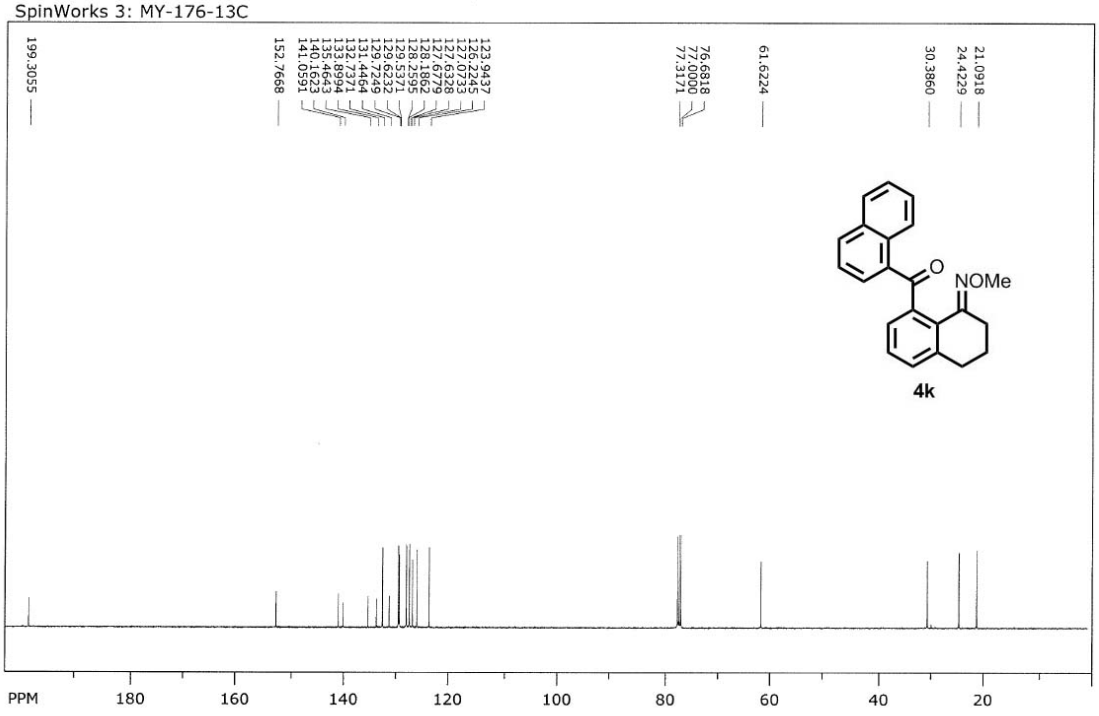
SpinWorks 3: MY176-1H



file: ... activation\SKK_KIS (5)\221H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 160.474 ppm/cm: 0.40105

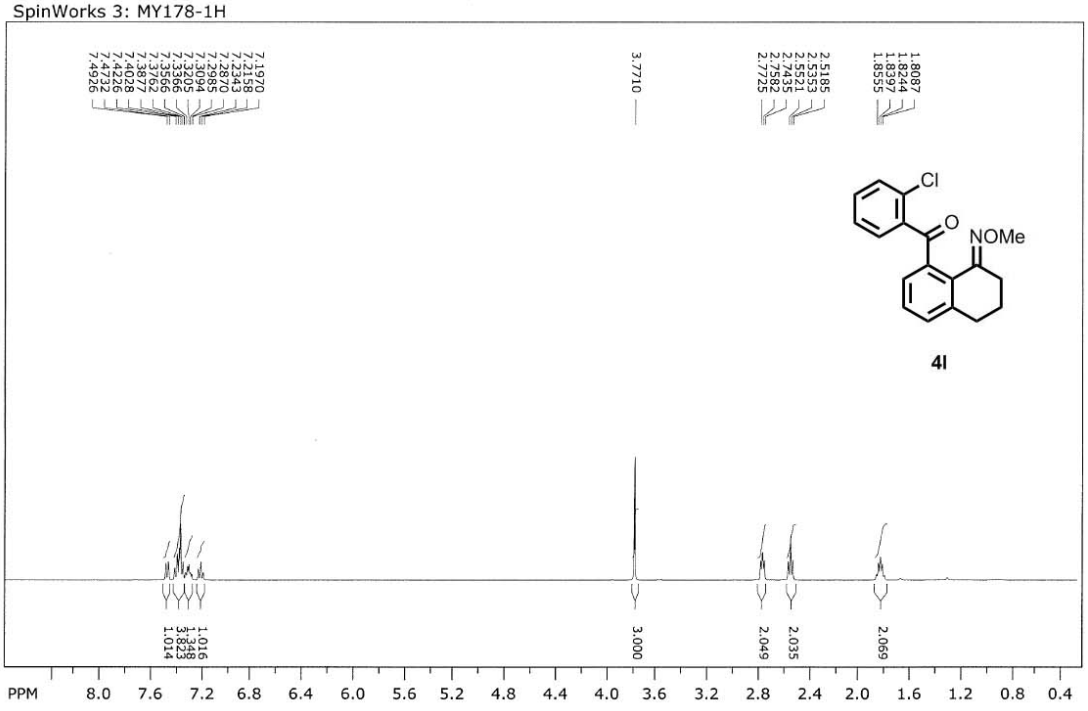
SpinWorks 3: MY-176-13C



file: ...ettings\aj\Desktop\nmr1\221C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612775 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 819.137 ppm/cm: 8.14066

SpinWorks 3: MY178-1H

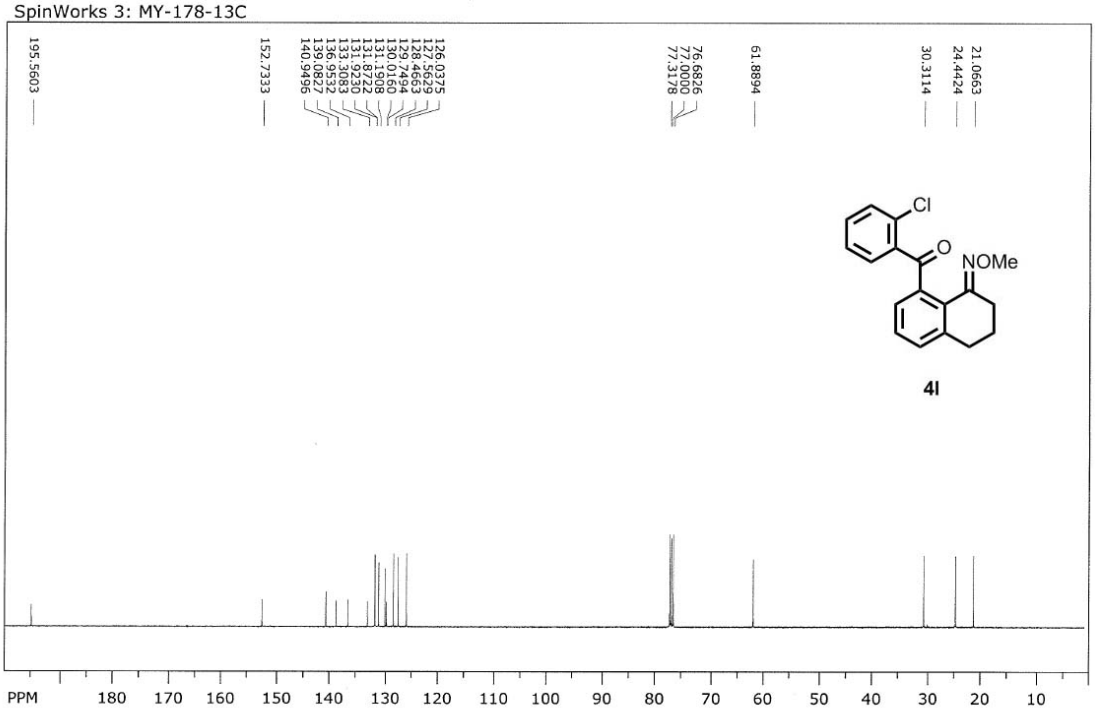


4l

file: ... activation\SKK_KIS (5)\222H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 136.305 ppm/cm: 0.34065

SpinWorks 3: MY-178-13C

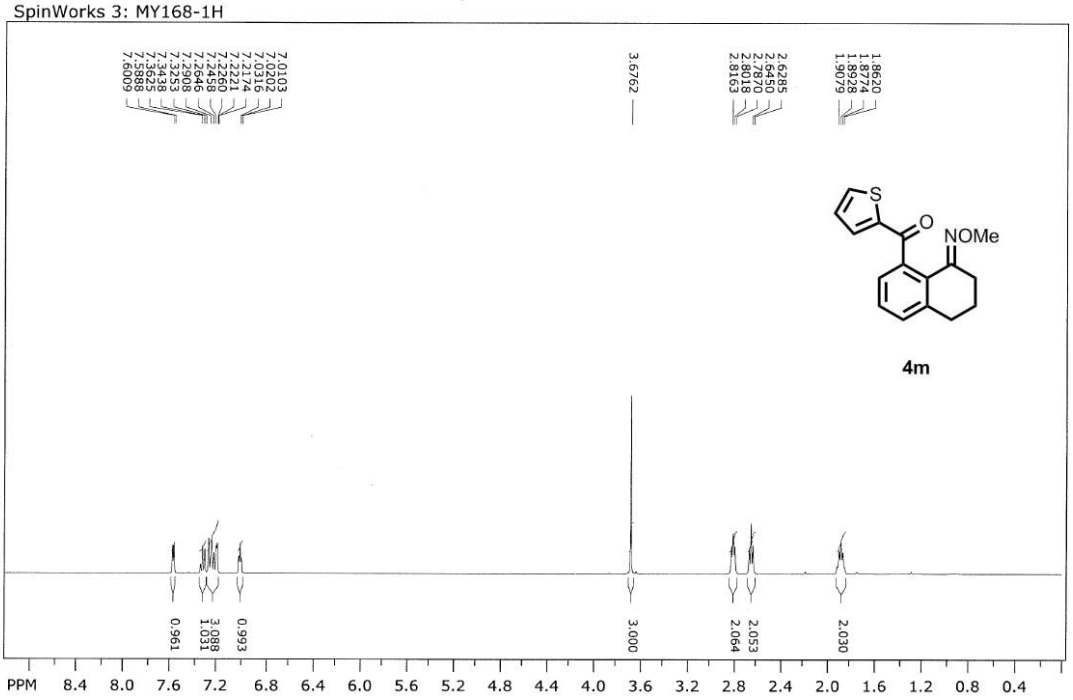


4l

file: ...ettings\aj\Desktop\nmr1\222C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612773 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 804.766 ppm/cm: 7.99785

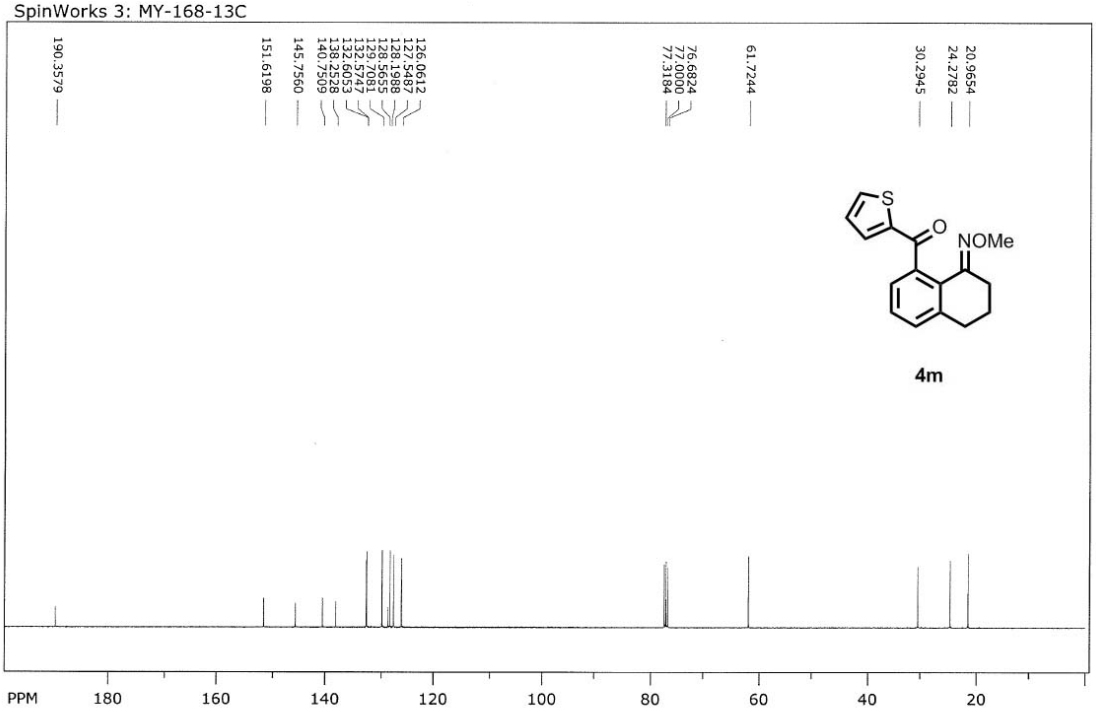
SpinWorks 3: MY168-1H



file: ... activation\SKK_KIS (5)\220H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

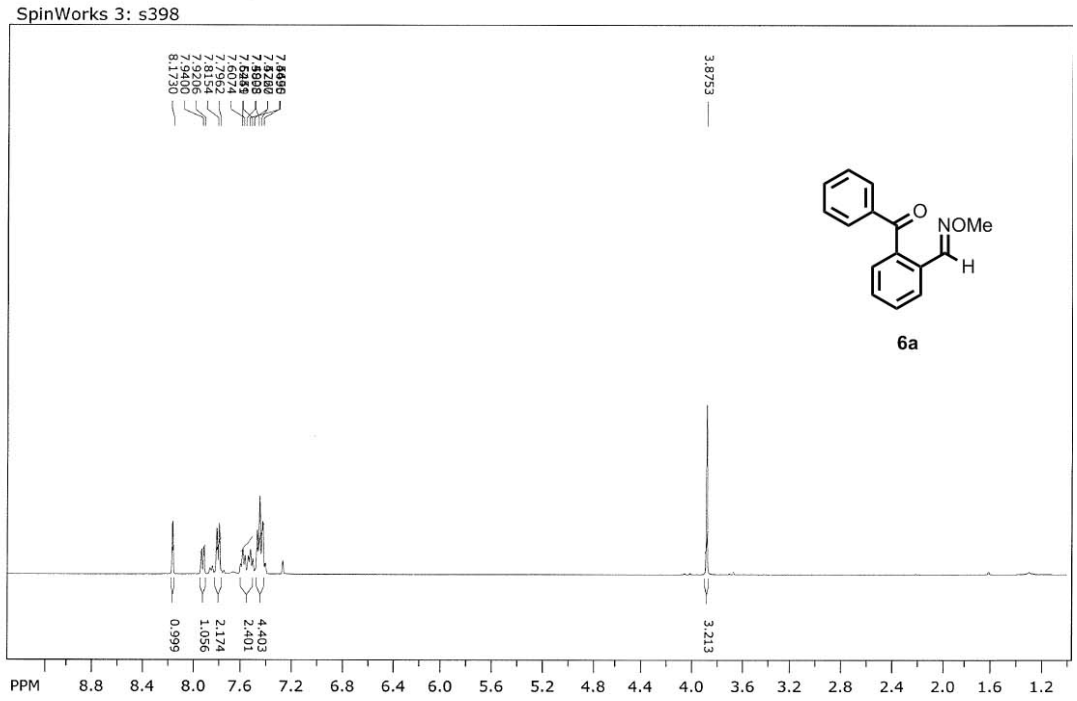
freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 145.015 ppm/cm: 0.36242

SpinWorks 3: MY-168-13C



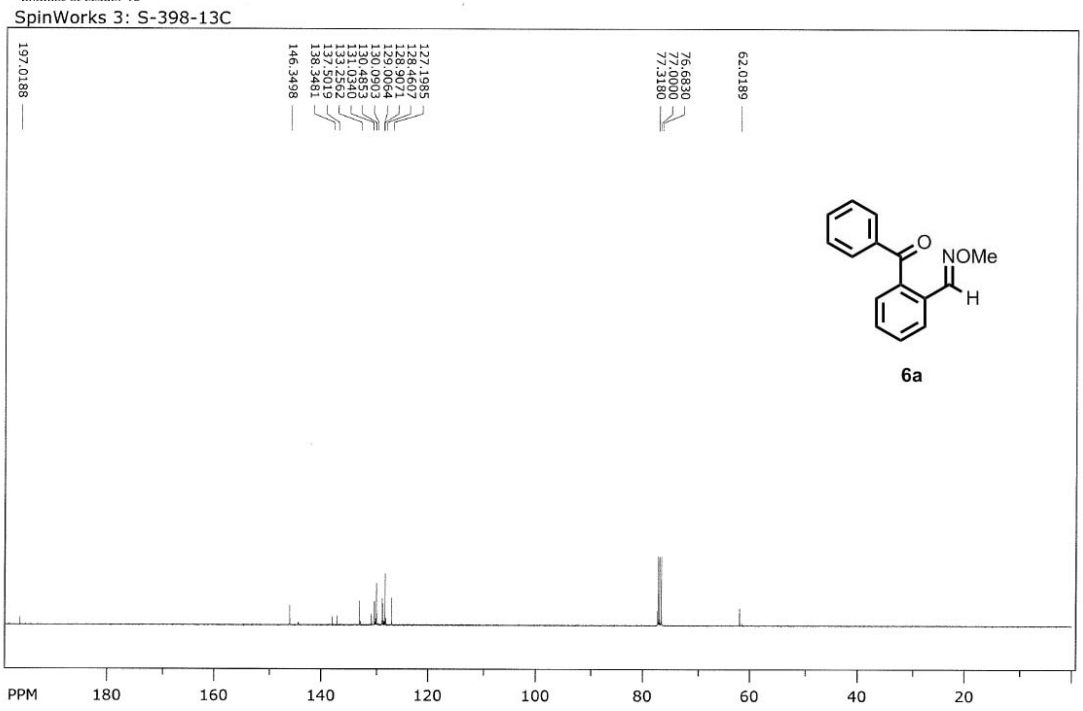
file: ...ettings\aj\Desktop\nmr1\220C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 1024

freq. of 0 ppm: 100.612777 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 807.379 ppm/cm: 8.02381



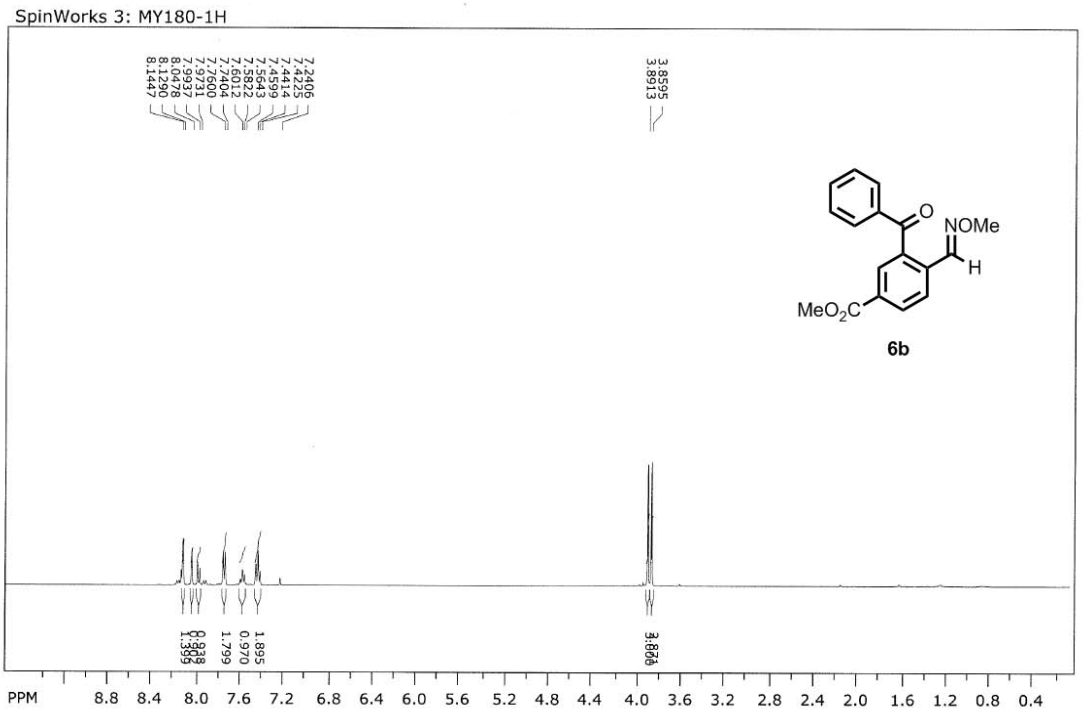
file: ... activation\SKK_KIS (5)\213h\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt

freq. of 0 ppm: 400.130000 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 136.523 ppm/cm: 0.34119



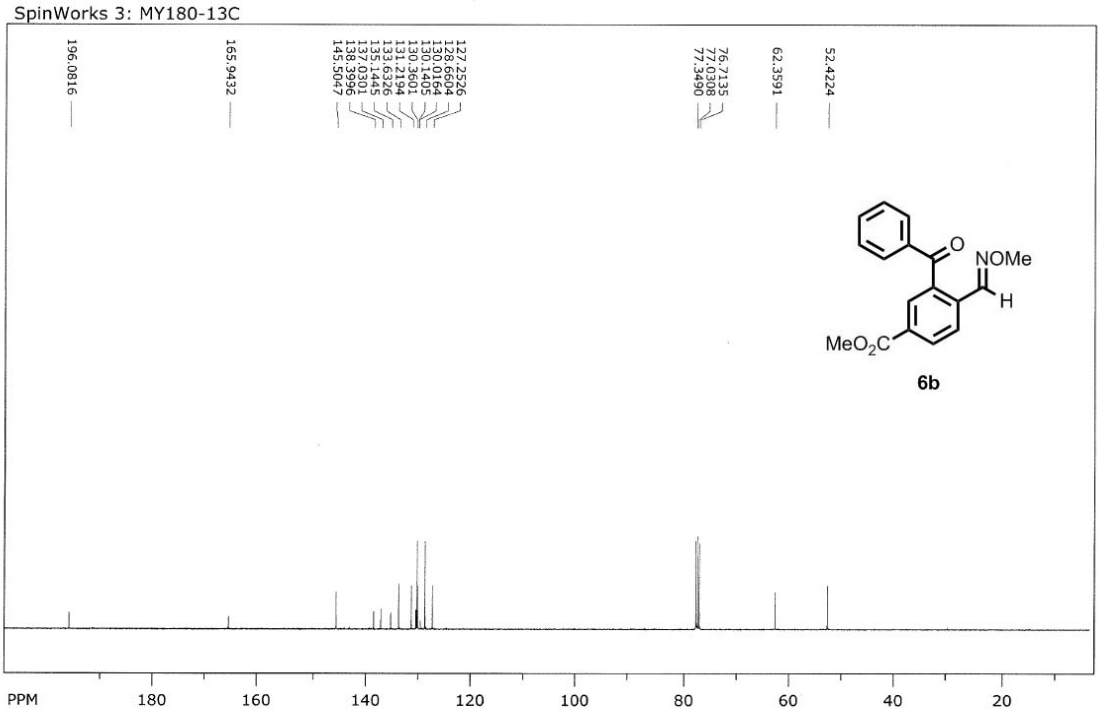
file: ...ettings\aj\Desktop\nmr1\213C\1\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt

freq. of 0 ppm: 100.612770 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 805.419 ppm/cm: 8.00434



file: ... activation\SKK_KIS (5)\223H\1\fid expt: <zg30>
transmitter freq.: 400.131601 MHz
time domain size: 65536 points
width: 8012.82 Hz = 20.0255 ppm = 0.122266 Hz/pt
number of scans: 16

freq. of 0 ppm: 400.130018 MHz
processed size: 131072 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 155.248 ppm/cm: 0.38799



file: ... activation\SKK_KIS (6)\223C\2\fid expt: <zgpg30>
transmitter freq.: 100.622829 MHz
time domain size: 65536 points
width: 24038.46 Hz = 238.8967 ppm = 0.366798 Hz/pt
number of scans: 1024

freq. of 0 ppm: 100.612769 MHz
processed size: 32768 complex points
LB: 0.000 GF: 0.0000
Hz/cm: 827.629 ppm/cm: 8.22506