

Supporting Information

Transition-Metal-Free Synthesis of Oxadiazole-Tethered 1,2,3-Triazoles from α -Trifluoromethyl Ketones, Hydrazides and Azides

Yahui Ma, Wenhao Liu, Jiping Sheng*, Leiyang Lv* and Zhiping Li*

Key Laboratory of Advanced Light Conversion Materials and Biophotonics, School of Chemistry and Life Resources, Renmin University of China, Beijing 100872, China

School of Agricultural Economics and Rural Development, Renmin University of China, Beijing 100872, China

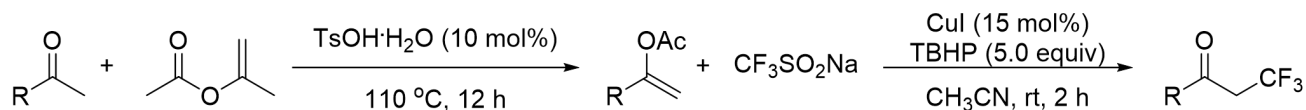
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1. General information

^1H NMR spectra were recorded on Bruker 400 or 600 MHz spectrometer and the chemical shifts were reported in parts per million (δ) relative to internal standard TMS (0 ppm) for CDCl_3 . The peak patterns are indicated as follows: s, singlet; d, doublet; t, triplet; q, quartet; m, multiplet. The coupling constants, J , are reported in Hertz (Hz). ^{13}C NMR spectra were obtained at Bruker 100 or 150 MHz and referenced to the internal solvent signals. ^{19}F NMR spectra were obtained at Bruker 564 MHz. CDCl_3 or $\text{DMSO}-d_6$ was used as the NMR solvent. High resolution mass spectra (HRMS) were acquired on Thermo Q-Exactive instrument (quadrupole mass analyzer) using electrospray ionization mode (ESI). Flash column chromatography was performed over silica gel 200-300. All other reagents were purchased from Alfa, Aldrich, TCI, Energy, Innochem and used without further purification.

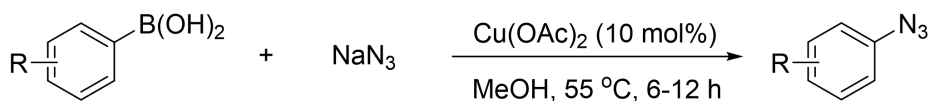
2. General procedure for the synthesis of substrate 1



Step 1: To a mixture of the ketone (5.0 mmol, 1.0 equiv) and isopropenyl acetate (25.0 mmol, 5.0 equiv) was added $\text{TsOH}\cdot\text{H}_2\text{O}$ (0.5 mmol, 10 mol%). The resulting mixture was refluxed overnight. The acetone formed was continuously distilled off. The reaction mixture was cooled to room temperature and diluted with EtOAc (20.0 mL) and water (30.0 mL). The aqueous layer was extracted with EtOAc (2 x 20.0 mL). The combined organic layers were dried over Na_2SO_4 and the solvent was evaporated in vacuo. The resulting crude mixture was purified by column chromatography using silica gel (200-300 mesh size) and PE / EtOAc (30:1 to 2:1) as the eluent.

Step 2: A flame-dried reaction vessel with a magnetic stirring bar was charged with $\text{CF}_3\text{SO}_2\text{Na}$ (124.8 mg, 0.8 mmol, 4.0 equiv.), cuprous iodide (5.7 mg, 0.03 mmol, 0.15 equiv.), enol acetates (0.2 mmol, 1.0 equiv.) and MeCN (1.0 mL) in sequence. After the reaction mixture was cooled to 0 °C using an ice bath, an aqueous solution of TBHP (70% solution in water, 1.0 mmol, 5.0 equiv.) was slowly added dropwise with stirring. The mixture was stirred at room temperature under air for 2 h. The resulting mixture was concentrated under reduced pressure. After evaporation, the residue was purified by column chromatography using silica gel (200-300 mesh size) and PE / CH_2Cl_2 as the eluent. The characterization data were consistent with the literature^[1-2].

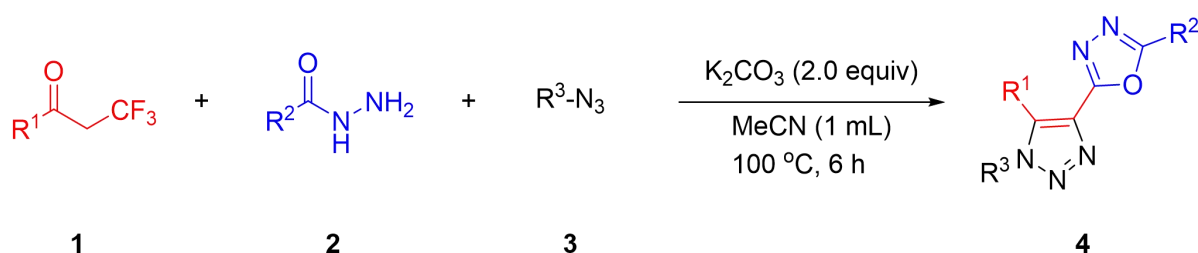
3. General procedure for the synthesis of substrate 3



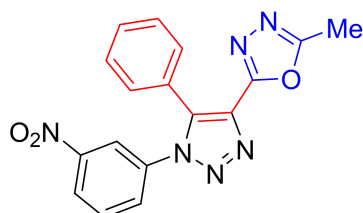
To the boronic acid (1 mmol, 1.0 equiv) in MeOH (5.0 mL) were added NaN_3 (1.5 mmol, 1.5 equiv) and

Cu(OAc)₂ (0.1 mmol, 0.1 equiv). The mixture was stirred in a Schlenk tube (25.0 mL) vial at 55 °C under air for 6-12 h. The progress of the reaction was monitored by TLC. After completion of the reaction, the mixture was cooled to room temperature and quenching the reaction with water (10.0 mL). The mixture was diluted with DCM (5.0 mL x 3). The organic layers were dried over Na₂SO₄ and evaporated in vacuo to get the crude products. The residue was purified by column chromatography on silica gel to give the pure products. The characterization data were consistent with the literature^[3].

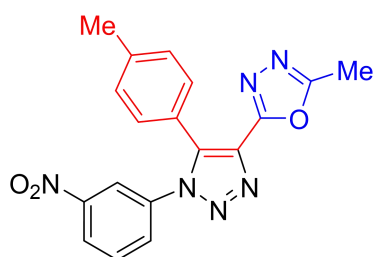
4. General procedure and characterization data for the product 4



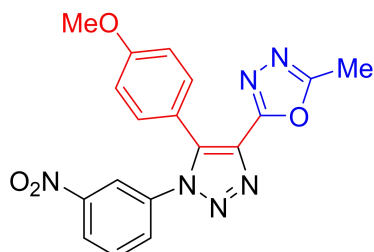
A Schlenk tube (10.0 mL) equipped with a cap and a magnetic stir bar was charged with 3,3,3-trifluoroketone **1** (0.1 mmol, 1.0 equiv), hydrazide **2** (0.3 mmol, 3.0 equiv), azide **3** (0.2 mmol, 2.0 equiv), K₂CO₃ (0.2 mmol, 2.0 equiv), and MeCN (1.0 mL) under air atmosphere. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the solvent was evaporated in vacuo to give the crude product. The residue was purified by column chromatography on silica gel to give the pure product **4**.



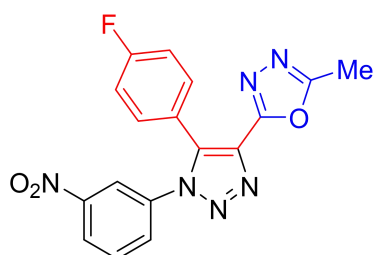
2-Methyl-5-(1-(3-nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4a). (33.1 mg, 95%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, *R_f* = 0.5); white solid; ¹H NMR (600 MHz, CDCl₃) δ 8.31 (d, *J* = 8.4 Hz, 1H), 8.29-8.27 (m, 1H), 7.69-7.65 (m, 1H), 7.65-7.61 (m, 1H), 7.53-7.48 (m, 1H), 7.47-7.42 (m, 4H), 2.61 (s, 3H); ¹³C NMR (150 MHz, CDCl₃) δ 164.0, 157.8, 148.4, 138.0, 136.6, 132.2, 130.8, 130.4, 130.3, 130.2, 129.0, 124.2, 123.9, 120.1, 10.9; HRMS (ESI) *m/z* [M+Na]⁺ Calcd for C₁₇H₁₂N₆NaO₃⁺: 371.0863; Found: 371.0863.



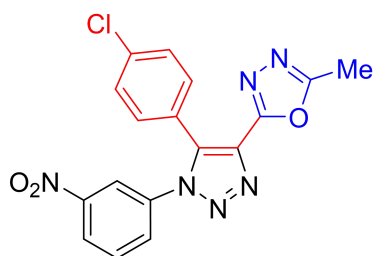
2-Methyl-5-(1-(3-nitrophenyl)-5-(p-tolyl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4b). (24.3 mg, 67%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.33-8.30 (m, 2H), 7.68-7.66 (m, 1H), 7.66-7.63 (m, 1H), 7.32 (d, J = 8.1 Hz, 2H), 7.24 (d, J = 7.9 Hz, 2H), 2.61 (s, 3H), 2.39 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.9, 157.8, 148.4, 141.1, 138.2, 136.6, 132.0, 130.4, 130.4, 130.0, 129.7, 124.0, 120.7, 120.1, 21.4, 10.8; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{14}\text{N}_6\text{NaO}_3^+$: 385.1020; Found: 385.1016.



2-(5-(4-Methoxyphenyl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4c). (22.7 mg, 60%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.34-8.29 (m, 2H), 7.69-7.62 (m, 2H), 7.37 (d, J = 8.8 Hz, 2H), 6.94 (d, J = 8.8 Hz, 2H), 3.84 (s, 3H), 2.62 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.9, 161.3, 158.0, 148.5, 138.1, 136.8, 131.9, 131.7, 130.4, 130.4, 124.1, 120.2, 115.5, 114.6, 55.3, 10.9; HRMS (ESI) m/z $[\text{M}+\text{H}]^+$ Calcd for $\text{C}_{18}\text{H}_{15}\text{N}_6\text{O}_4^+$: 379.1149; Found: 379.1144.

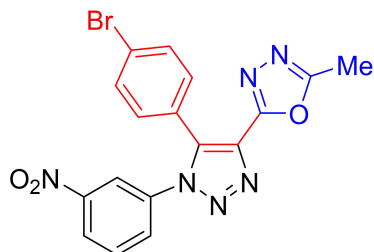


2-(5-(4-Fluorophenyl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4d). (28.2 mg, 77%). Isolated by flash chromatography (dichloromethane / methanol = 50 : 1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.35-8.32 (m, 1H), 8.32-8.29 (m, 1H), 7.68-7.64 (m, 2H), 7.48-7.44 (m, 2H), 7.15 (t, J = 8.5 Hz, 2H), 2.63 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.1, 163.9 (d, $J_{\text{C-F}}$ = 255.4 Hz), 157.7, 148.5, 137.1, 136.4, 132.5 (d, $J_{\text{C-F}}$ = 8.8 Hz), 132.3, 130.6, 130.4, 124.3, 120.2, 119.9 (d, $J_{\text{C-F}}$ = 3.3 Hz), 116.5 (d, $J_{\text{C-F}}$ = 21.9 Hz), 10.9; ^{19}F NMR (564 MHz, CDCl_3) δ -107.7 (1F). HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{17}\text{H}_{11}\text{FN}_6\text{NaO}_3^+$: 389.0769; Found: 389.0762.

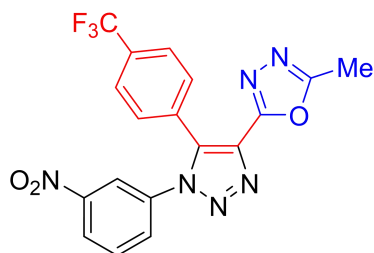


2-(5-(4-Chlorophenyl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4e). (34.8 mg,

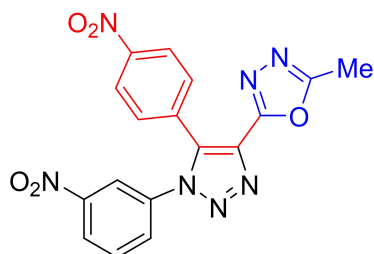
91%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); white solid; ^1H NMR (600 MHz, CDCl_3) δ 8.36-8.33 (m, 2H), 7.68-7.62 (m, 2H), 7.44-7.39 (m, 4H), 2.63 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.2, 157.6, 148.6, 137.3, 137.0, 136.4, 132.3, 131.6, 130.6, 130.4, 129.5, 124.4, 122.3, 120.2, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{17}\text{H}_{11}\text{ClN}_6\text{NaO}_3$: 405.0473; Found: 405.0473.



2-(5-(4-Bromophenyl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4f). (39.7 mg, 93%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); white solid; ^1H NMR (400 MHz, CDCl_3) δ 8.37-8.33 (m, 2H), 7.69-7.64 (m, 1H), 7.64-7.61 (m, 1H), 7.59 (d, J = 8.5 Hz, 2H), 7.33 (d, J = 8.5 Hz, 2H), 2.64 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3) δ 164.2, 157.6, 148.6, 137.0, 136.4, 132.4, 132.3, 131.7, 130.6, 130.4, 125.7, 124.5, 122.7, 120.3, 10.9; HRMS (ESI) m/z $[\text{M}+\text{H}]^+$ Calcd for $\text{C}_{17}\text{H}_{12}\text{BrN}_6\text{O}_3$: 427.0149; Found: 427.0148.

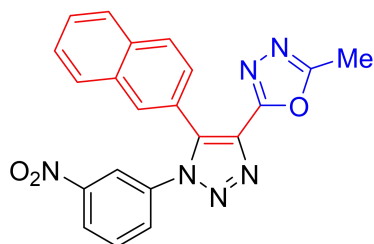


2-Methyl-5-(1-(3-nitrophenyl)-5-(4-(trifluoromethyl)phenyl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4g). (33.4 mg, 80%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.38-8.33 (m, 2H), 7.72 (d, J = 8.3 Hz, 2H), 7.67 (t, J = 8.2 Hz, 1H), 7.64-7.59 (m, 3H), 2.64 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.3, 157.5, 148.6, 136.6, 136.2, 132.7 (q, $J_{\text{C-F}}$ = 32.8 Hz), 132.6, 130.8, 130.7, 130.4, 127.7, 126.0 (q, $J_{\text{C-F}}$ = 4.4 Hz), 124.6, 123.4 (q, $J_{\text{C-F}}$ = 276.2 Hz), 120.3, 10.9; ^{19}F NMR (564 MHz, CDCl_3) δ -63.1 (3F). HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{11}\text{F}_3\text{N}_6\text{NaO}_3$: 439.0737; Found: 439.0730.

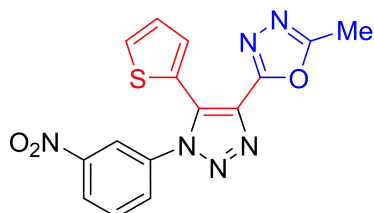


2-Methyl-5-(1-(3-nitrophenyl)-5-(4-nitrophenyl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4h). (18.9 mg, 48%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); yellow solid; ^1H NMR (400 MHz, $\text{DMSO}-d_6$) δ 8.47-8.44 (m, 1H), 8.41-8.37 (m, 1H), 8.29 (d, J = 8.9 Hz, 2H), 7.91-7.87 (m, 1H), 7.84-7.78 (m, 3H), 2.58 (s, 3H); ^{13}C NMR (100 MHz, $\text{DMSO}-d_6$) δ 164.7, 157.7, 148.8, 148.4, 137.3, 136.1, 132.7,

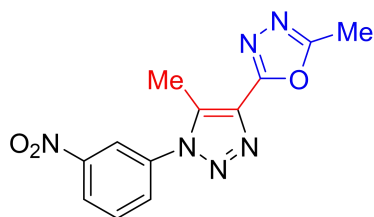
132.1, 131.7, 131.5, 130.1, 125.5, 124.0, 121.7, 10.9; HRMS (ESI) m/z $[M+H]^+$ Calcd for $C_{17}H_{12}N_7O_5^+$: 394.0894; Found: 394.0894.



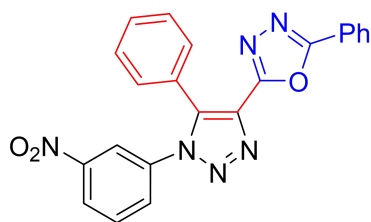
2-Methyl-5-(5-(naphthalen-2-yl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4i). (24.3 mg, 61%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; 1H NMR (600 MHz, $CDCl_3$) δ 8.44-8.39 (m, 1H), 8.28 (d, J = 8.5 Hz, 1H), 8.09 (s, 1H), 7.87 (s, 1H), 7.86-7.83 (m, 2H), 7.61-7.57 (m, 2H), 7.55 (t, J = 8.2 Hz, 2H), 7.35-7.31 (m, 1H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, $CDCl_3$) δ 164.1, 157.9, 148.5, 138.1, 136.7, 133.8, 132.7, 132.4, 131.1, 130.4, 130.3, 129.0, 128.5, 128.0, 127.8, 127.1, 125.9, 124.2, 121.0, 120.2, 10.9; HRMS (ESI) m/z $[M+Na]^+$ Calcd for $C_{21}H_{14}N_6NaO_3^+$: 421.1020; Found: 421.1015.



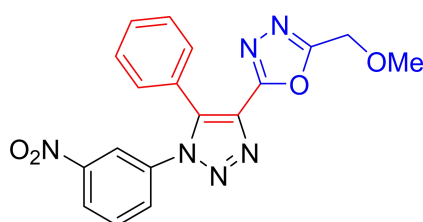
2-Methyl-5-(1-(3-nitrophenyl)-5-(thiophen-2-yl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4j). (7.1 mg, 20%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; 1H NMR (600 MHz, $CDCl_3$) δ 8.43-8.38 (m, 1H), 8.38-8.34 (m, 1H), 7.83-7.79 (m, 1H), 7.79-7.76 (m, 1H), 7.73 (t, J = 8.1 Hz, 1H), 7.58-7.49 (m, 1H), 7.19-7.13 (m, 1H), 2.65 (s, 3H); ^{13}C NMR (150 MHz, $CDCl_3$) δ 164.2, 157.7, 148.6, 136.5, 133.4, 132.8, 132.2, 131.3, 130.7, 130.6, 128.1, 124.8, 122.8, 121.0, 11.0; HRMS (ESI) m/z $[M+H]^+$ Calcd for $C_{15}H_{11}N_6O_3S^+$: 355.0608; Found: 355.0603.



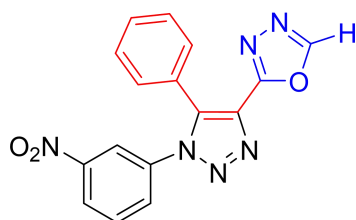
2-Methyl-5-(5-methyl-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4k). (22.0 mg, 77%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); yellow solid; 1H NMR (600 MHz, $CDCl_3$) δ 8.50-8.44 (m, 2H), 7.96 (d, J = 8.2 Hz, 1H), 7.86 (t, J = 8.4 Hz, 1H), 2.80 (s, 3H), 2.68 (s, 3H); ^{13}C NMR (150 MHz, $CDCl_3$) δ 163.6, 158.3, 148.7, 136.2, 135.5, 132.5, 130.9, 130.6, 124.7, 120.1, 10.9, 10.1; HRMS (ESI) m/z $[M+H]^+$ Calcd for $C_{12}H_{11}N_6O_3^+$: 287.0887; Found: 287.0882.



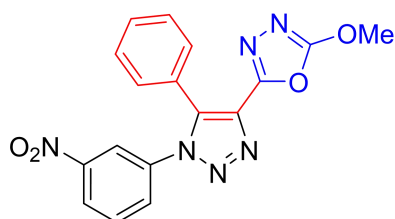
2-(1-(3-Nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-5-phenyl-1,3,4-oxadiazole (4l). (39.8 mg, 97%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.35-8.28 (m, 2H), 8.08 (d, J = 7.4 Hz, 2H), 7.72-7.68 (m, 1H), 7.64 (t, J = 7.8 Hz, 1H), 7.56-7.47 (m, 8H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.8, 157.5, 148.5, 138.3, 136.6, 132.3, 132.0, 130.9, 130.5, 130.3, 130.2, 129.1, 129.0, 127.1, 124.2, 124.0, 123.3, 120.0; HRMS (ESI) m/z $[\text{M}+\text{H}]^+$ Calcd for $\text{C}_{22}\text{H}_{15}\text{N}_6\text{O}_3^+$: 411.1200; Found: 411.1200.



2-(Methoxymethyl)-5-(1-(3-nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4m). (36.8 mg, 97%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); white solid; ^1H NMR (600 MHz, CDCl_3) δ 8.33-8.30 (m, 1H), 8.29-8.27 (m, 1H), 7.69-7.67 (m, 1H), 7.64 (t, J = 7.9 Hz, 1H), 7.53-7.49 (m, 1H), 7.48-7.43 (m, 4H), 4.71 (s, 2H), 3.47 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.4, 158.4, 148.4, 138.4, 136.5, 131.9, 130.9, 130.5, 130.3, 130.2, 129.1, 124.2, 123.8, 120.0, 63.6, 59.1; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{14}\text{N}_6\text{NaO}_4^+$: 401.0969; Found: 401.0960.

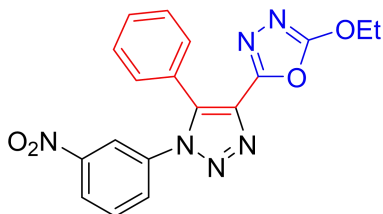


2-(1-(3-Nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4n). (21.7 mg, 65%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, $\text{DMSO}-d_6$) δ 9.37 (s, 1H), 8.39-8.34 (m, 2H), 7.91-7.86 (m, 1H), 7.79 (t, J = 8.6 Hz, 1H), 7.53-7.47 (m, 3H), 7.47-7.43 (m, 2H); ^{13}C NMR (150 MHz, $\text{DMSO}-d_6$) δ 157.8, 154.9, 148.3, 139.4, 136.4, 132.6, 131.5, 131.5, 130.9, 130.9, 129.1, 125.2, 124.7, 121.4; HRMS (ESI) m/z $[\text{M}+\text{H}]^+$ Calcd for $\text{C}_{16}\text{H}_{11}\text{N}_6\text{O}_3^+$: 335.0887; Found: 335.0886.

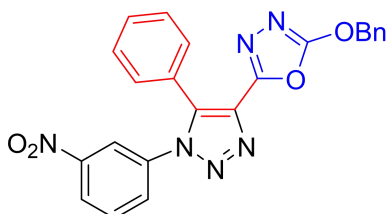


2-Methoxy-5-(1-(3-nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4o). (16.4 mg, 45%).

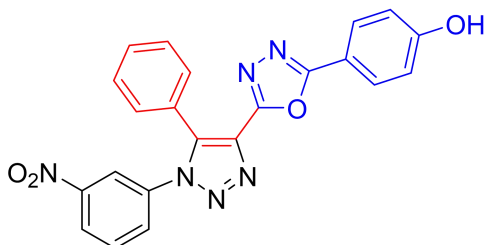
Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); yellow solid; ^1H NMR (600 MHz, DMSO- d_6) δ 8.36-8.34 (m, 1H), 8.33-8.31 (m, 1H), 7.87-7.82 (m, 1H), 7.77 (t, J = 8.0 Hz, 1H), 7.50-7.46 (m, 3H), 7.45-7.42 (m, 2H), 3.34 (s, 3H); ^{13}C NMR (100 MHz, DMSO- d_6) δ 153.1, 148.3, 146.7, 138.5, 136.4, 132.5, 131.5, 131.5, 130.9, 130.8, 129.1, 125.2, 124.6, 121.4, 33.1; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{17}\text{H}_{12}\text{N}_6\text{NaO}_4^+$: 387.0812; Found: 387.0803.



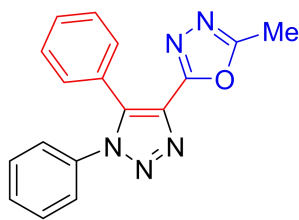
2-Ethoxy-5-(1-(3-nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4p). (23.4 mg, 62%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); red solid; ^1H NMR (600 MHz, CDCl_3) δ 8.30 (d, J = 8.4 Hz, 1H), 8.28-8.26 (m, 1H), 7.68-7.66 (m, 1H), 7.62 (t, J = 8.1 Hz, 1H), 7.50-7.47 (m, 1H), 7.45-7.41 (m, 4H), 4.59 (q, J = 7.0 Hz, 2H), 1.50 (t, J = 7.0 Hz, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 165.8, 153.4, 148.4, 137.6, 136.6, 132.2, 130.7, 130.4, 130.3, 130.2, 129.0, 124.1, 123.9, 120.0, 69.5, 14.2; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{14}\text{N}_6\text{NaO}_4^+$: 401.0969; Found: 401.0968.



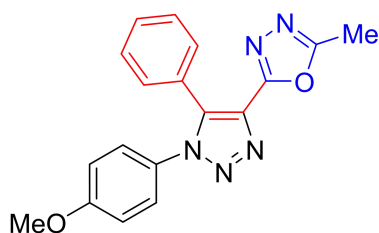
2-(Benzyloxy)-5-(1-(3-nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4q). (25.5 mg, 58%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.30-8.27 (m, 1H), 8.21-8.18 (m, 1H), 7.65-7.62 (m, 1H), 7.60 (t, J = 8.2 Hz, 1H), 7.52-7.49 (m, 1H), 7.42 (t, J = 7.8 Hz, 2H), 7.37-7.32 (m, 5H), 7.30-7.28 (m, 2H), 4.90 (s, 2H); ^{13}C NMR (150 MHz, CDCl_3) δ 152.6, 148.4, 146.8, 137.7, 136.4, 134.5, 132.0, 130.9, 130.5, 130.2, 130.0, 129.1, 128.7, 128.5, 128.4, 124.2, 123.8, 119.9, 49.8; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{23}\text{H}_{16}\text{N}_6\text{NaO}_4^+$: 463.1125; Found: 463.1118.



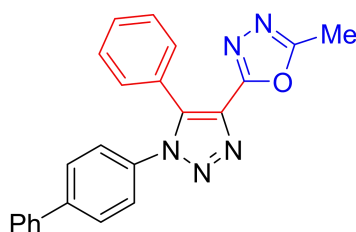
4-(5-(1-(3-Nitrophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazol-2-yl)phenol (4r). (37.1 mg, 87%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); white solid; ^1H NMR (600 MHz, DMSO- d_6) δ 10.38 (br, 1H), 8.39-8.36 (m, 2H), 7.91-7.87 (m, 1H), 7.80 (t, J = 7.9 Hz, 1H), 7.73 (d, J = 8.4 Hz, 2H), 7.58-7.55 (m, 2H), 7.54-7.51 (m, 1H), 7.50-7.47 (m, 2H), 6.94 (d, J = 8.6 Hz, 2H); ^{13}C NMR (150 MHz, DMSO- d_6) δ 164.5, 161.5, 157.3, 148.3, 139.1, 136.5, 132.5, 131.8, 131.5, 131.0, 130.9, 129.0, 129.0, 125.2, 124.9, 121.4, 116.7, 114.0; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{22}\text{H}_{14}\text{N}_6\text{NaO}_4^+$: 449.0969; Found: 449.0965.



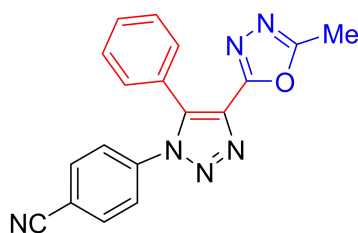
2-(1,5-Diphenyl-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4t). (28.2 mg, 93%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 7.46-7.39 (m, 7H), 7.39-7.38 (m, 1H), 7.33 (d, J = 8.2 Hz, 2H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.8, 158.2, 137.9, 135.7, 131.6, 130.2, 130.2, 129.6, 129.3, 128.6, 125.1, 124.6, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{17}\text{H}_{13}\text{N}_5\text{NaO}^+$: 326.1012; Found: 326.1006.



2-(1-(4-Methoxyphenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4u). (28.3 mg, 85%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 7.44-7.37 (m, 5H), 7.24 (d, J = 9.0 Hz, 2H), 6.90 (d, J = 9.0 Hz, 2H), 3.82 (s, 3H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.7, 160.2, 158.3, 137.9, 131.4, 130.3, 130.1, 128.6, 128.5, 126.5, 124.7, 114.4, 55.5, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{15}\text{N}_5\text{NaO}_2^+$: 356.1118; Found: 356.1116.

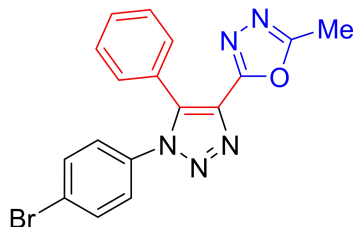


2-(1-([1,1'-Biphenyl]-4-yl)-5-phenyl-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4v). (35.6 mg, 94%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 7.62 (d, J = 8.5 Hz, 2H), 7.57 (d, J = 7.6 Hz, 2H), 7.48-7.42 (m, 6H), 7.42-7.37 (m, 4H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.8, 158.2, 142.4, 139.2, 137.8, 134.7, 131.7, 130.3, 130.2, 128.9, 128.6, 128.0, 127.9, 127.0, 125.3, 124.7, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{23}\text{H}_{17}\text{N}_5\text{NaO}^+$: 402.1325; Found: 402.1324.

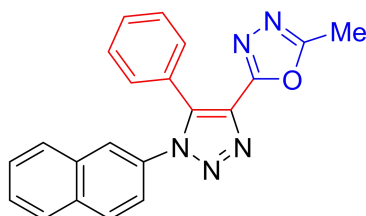


4-(5-Methyl-1,3,4-oxadiazol-2-yl)-5-phenyl-1H-1,2,3-triazol-1-ylbenzonitrile (4w). (23.9 mg, 73%).

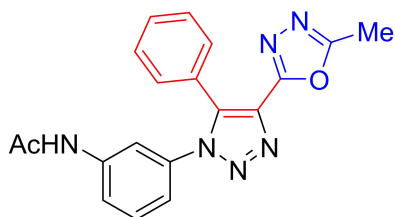
Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.4); white solid; ^1H NMR (600 MHz, CDCl_3) δ 7.73 (d, J = 8.6 Hz, 2H), 7.50 (d, J = 8.0 Hz, 3H), 7.47-7.43 (m, 2H), 7.43-7.40 (m, 2H), 2.61 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.0, 157.7, 138.9, 137.9, 133.3, 132.2, 130.7, 130.2, 129.0, 125.3, 124.0, 117.3, 113.4, 10.9; HRMS (ESI) m/z $[\text{M}+\text{H}]^+$ Calcd for $\text{C}_{18}\text{H}_{13}\text{N}_6\text{O}^+$: 329.1145; Found: 329.1145.



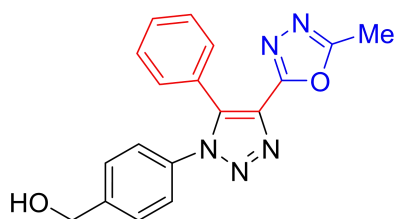
2-(1-(4-Bromophenyl)-5-phenyl-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (4x). (37.0 mg, 97%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); white solid; ^1H NMR (600 MHz, CDCl_3) δ 7.55 (d, J = 8.4 Hz, 2H), 7.49-7.44 (m, 1H), 7.44-7.39 (m, 4H), 7.22 (d, J = 8.5 Hz, 2H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.9, 158.0, 137.8, 134.7, 132.6, 131.8, 130.4, 130.2, 128.8, 126.4, 124.3, 123.7, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{17}\text{H}_{12}\text{BrN}_5\text{NaO}^+$: 406.0097; Found: 406.0091.



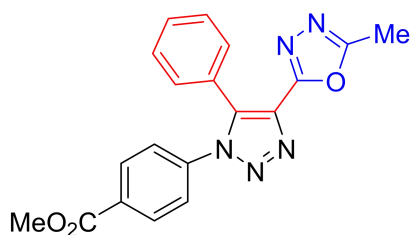
2-Methyl-5-(1-(naphthalen-2-yl)-5-phenyl-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4y). (26.5 mg, 75%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.6); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 7.95-7.92 (m, 1H), 7.88-7.85 (m, 1H), 7.85-7.79 (m, 2H), 7.59-7.53 (m, 2H), 7.45 (d, J = 7.5 Hz, 2H), 7.43-7.40 (m, 1H), 7.39-7.34 (m, 2H), 7.32-7.28 (m, 1H), 2.61 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.8, 158.2, 138.0, 133.1, 133.0, 132.8, 131.7, 130.3, 130.2, 129.4, 128.6, 128.3, 127.8, 127.5, 127.3, 124.6, 124.2, 122.2, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{21}\text{H}_{15}\text{N}_5\text{NaO}^+$: 376.1169; Found: 376.1161.



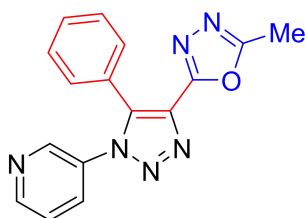
N-(3-(4-(5-Methyl-1,3,4-oxadiazol-2-yl)-5-phenyl-1H-1,2,3-triazol-1-yl)phenyl)acetamide (4z). (27.3 mg, 76%). Isolated by flash chromatography (dichloromethane / methanol = 30:1, R_f = 0.5); white solid; ^1H NMR (600 MHz, CDCl_3) δ 8.68 (br, 1H), 7.77-7.71 (m, 2H), 7.41-7.36 (m, 2H), 7.36-7.32 (m, 3H), 7.27-7.23 (m, 1H), 6.84 (d, J = 8.2 Hz, 1H), 2.57 (s, 3H), 2.14 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 169.1, 163.9, 158.2, 139.6, 138.1, 135.8, 131.4, 130.2, 130.1, 129.6, 128.6, 124.4, 120.7, 120.0, 116.5, 24.3, 10.8; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{19}\text{H}_{16}\text{N}_6\text{NaO}_2^+$: 383.1227; Found: 383.1220.



(4-(4-(5-Methyl-1,3,4-oxadiazol-2-yl)-5-phenyl-1H-1,2,3-triazol-1-yl)phenyl)methanol (4aa). (27.6 mg, 83%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.3); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 7.44-7.39 (m, 4H), 7.39-7.36 (m, 3H), 7.30 (d, J = 8.0 Hz, 2H), 4.73 (s, 2H), 2.59 (s, 3H), 2.51 (br, 1H); ^{13}C NMR (150 MHz, CDCl_3) δ 163.8, 158.2, 142.8, 137.9, 134.7, 131.6, 130.2, 130.2, 128.6, 127.5, 125.1, 124.6, 64.0, 10.8; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{18}\text{H}_{15}\text{N}_5\text{NaO}_2^+$: 356.1118; Found: 356.1116.



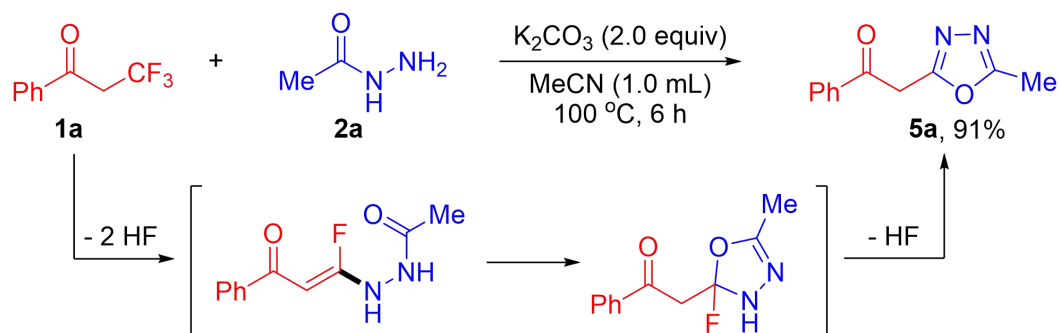
Methyl 4-(4-(5-methyl-1,3,4-oxadiazol-2-yl)-5-phenyl-1H-1,2,3-triazol-1-yl)benzoate (4ab). (33.6 mg, 93%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, R_f = 0.5); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.13-8.04 (m, 2H), 7.50-7.37 (m, 7H), 3.93 (s, 3H), 2.60 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 165.6, 163.9, 158.0, 139.1, 137.9, 132.0, 131.0, 130.7, 130.4, 130.2, 128.8, 124.8, 124.4, 52.4, 10.8; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{19}\text{H}_{15}\text{N}_5\text{NaO}_3^+$: 384.1067; Found: 384.1064.



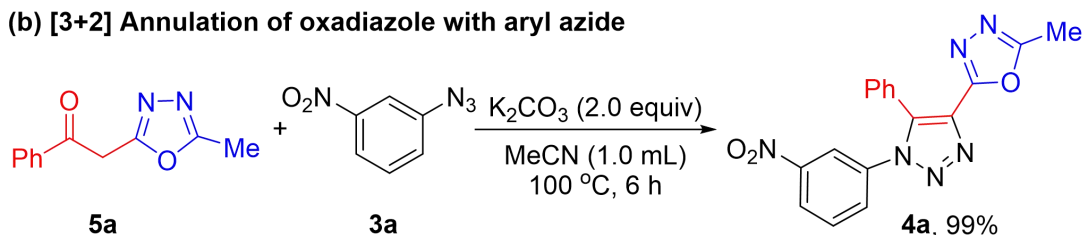
2-Methyl-5-(5-phenyl-1-(pyridin-3-yl)-1H-1,2,3-triazol-4-yl)-1,3,4-oxadiazole (4ac). (29.2 mg, 96%). Isolated by flash chromatography (dichloromethane / methanol = 30:1, R_f = 0.5); yellow solid; ^1H NMR (600 MHz, CDCl_3) δ 8.66 (d, J = 38.2 Hz, 2H), 7.72 (d, J = 8.2 Hz, 1H), 7.49-7.39 (m, 6H), 2.61 (s, 3H); ^{13}C NMR (150 MHz, CDCl_3) δ 164.0, 157.9, 150.5, 145.7, 138.2, 132.6, 132.2, 132.0, 130.6, 130.2, 128.9, 124.0, 123.8, 10.9; HRMS (ESI) m/z $[\text{M}+\text{Na}]^+$ Calcd for $\text{C}_{16}\text{H}_{12}\text{N}_6\text{NaO}^+$: 327.0965; Found: 327.0964.

5. Control experiments

(a) Formal [4+1] cyclization of α -trifluoromethyl ketone with hydrazide



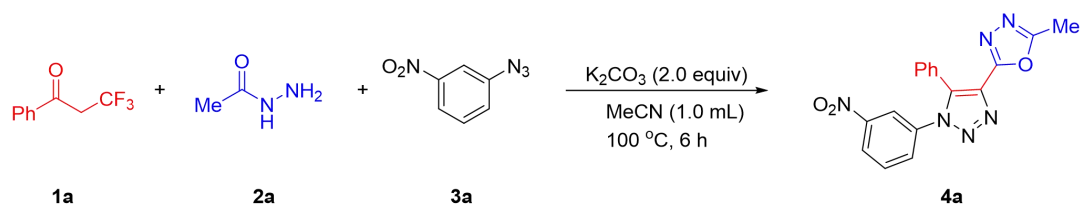
(b) [3+2] Annulation of oxadiazole with aryl azide



Control experiment A: A Schlenk tube (10.0 mL) equipped with a magnetic stir bar was charged with 3,3,3-trifluoro-1-phenylpropan-1-one **1a** (19.8 mg, 0.1 mmol), acetyl hydrazide **2a** (22.7 mg, 0.3 mmol, 3.0 equiv), K_2CO_3 (28.0 mg, 0.2 mmol, 2.0 equiv), and MeCN (10.0 mL) under air atmosphere. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the solvent was evaporated in vacuo to give the crude products. The residue was purified by column chromatography on silica gel to give the pure product **5a**. (18.4 mg, 91%). **2-(5-Methyl-1,3,4-oxadiazol-2-yl)-1-phenylethan-1-one (5a)**. Isolated by flash chromatography (dichloromethane / methanol = 30:1, R_f = 0.5); yellow solid; 1H NMR (600 MHz, $CDCl_3$) δ 8.00 (d, J = 7.7 Hz, 2H), 7.66-7.61 (m, 1H), 7.55-7.48 (m, 2H), 4.56 (s, 2H), 2.54 (s, 3H); ^{13}C NMR (150 MHz, $CDCl_3$) δ 191.7, 164.7, 161.2, 135.2, 134.1, 128.9, 128.4, 36.0, 10.9; HRMS (ESI) m/z $[M+Na]^+$ Calcd for $C_{11}H_{10}N_2NaO_2^+$: 225.0634; Found: 225.0632.

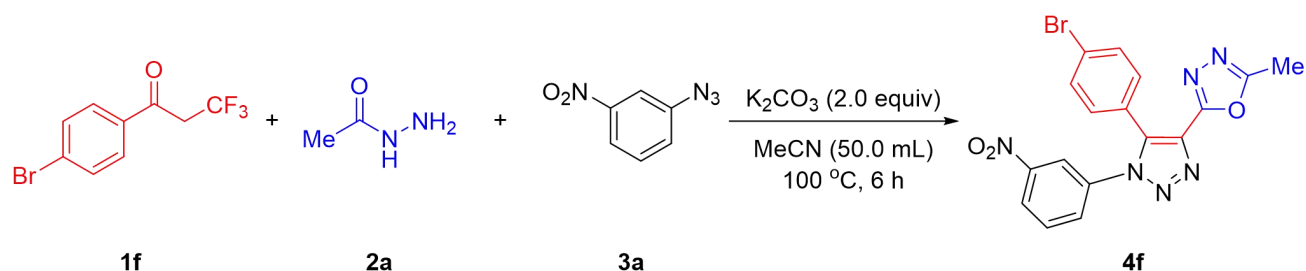
Control experiment B: A Schlenk tube (10.0 mL) equipped with a magnetic stir bar was charged with **5a** (10.7 mg, 0.05 mmol), *m*-nitrophenyl azide **3a** (34.6 mg, 0.1 mmol, 2.0 equiv), K_2CO_3 (28.0 mg, 0.1 mmol, 2.0 equiv), and MeCN (1.0 mL) under air atmospheres. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the reaction solution was transferred to a flask (50.0 mL) with ethyl acetate (3.0 mL). The solvent was evaporated *in vacuo* to give the crude product. The residue was purified by column chromatography on silica gel to give the pure product **4a** (17.2 mg, 99% yield).

6. 1.0 mmol-Scale synthesis of **4a**



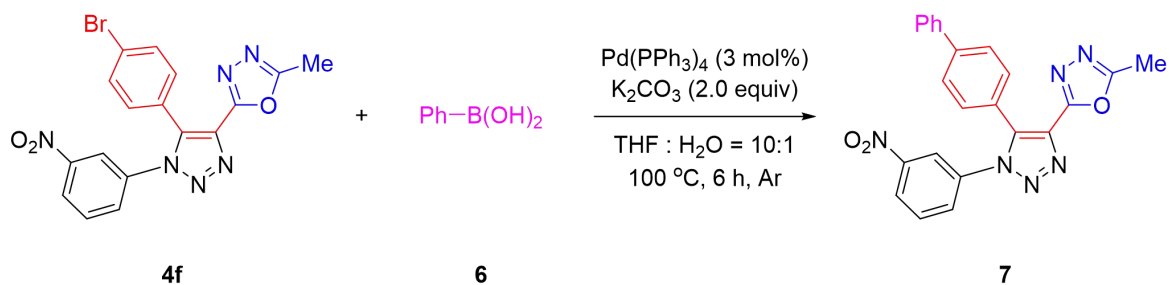
A Schlenk tube (50.0 mL) equipped with a cap and a magnetic stir bar was charged with 3,3,3-trifluoro-1-phenylpropan-1-one **1a** (198.0 mg, 1.0 mmol, 1.0 equiv), acetyl hydrazide **2a** (227.0 mg, 3.0 mmol, 3.0 equiv), *m*-nitrophenyl azide **3a** (346 mg, 2.0 mmol, 2.0 equiv), K_2CO_3 (280 mg, 2.0 mmol, 2.0 equiv), and MeCN (10.0 mL) under air atmospheres. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the solvent was evaporated *in vacuo* to give the crude product. The residue was purified by column chromatography on silica gel to give the pure product **4a** (320 mg, 92% yield).

7. Scale-up reaction



A Schlenk tube (250.0 mL) equipped with a cap and a magnetic stir bar was charged with 1-(4-bromophenyl)-3,3,3-trifluoropropan-1-one **1f** (2.80 g, 10.0 mmol, 1.0 equiv), acetyl hydrazide **2a** (2.27 g, 30.0 mmol, 3.0 equiv), *m*-nitrophenyl azide **3a** (3.46 g, 20.0 mmol, 2.0 equiv), K_2CO_3 (2.80 g, 20.0 mmol, 2.0 equiv), and MeCN (50.0 mL) under air atmospheres. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the solvent was evaporated *in vacuo* to give the crude product. The residue was purified by column chromatography on silica gel to give the pure product **4f** (3.01 g, 70% yield).

8. Derivatization of 4f

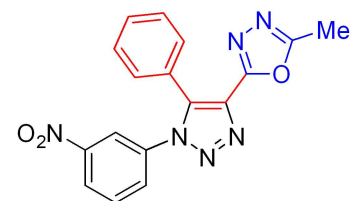


A Schlenk tube (10.0 mL) equipped with a cap and a magnetic stir bar was charged with 2-(5-(4-bromophenyl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole **4f** (0.1 mmol, 1.0 equiv), phenylboronic acid (0.2 mmol, 2.0 equiv), Pd(PPh₃)₄ (3 mol%), K₂CO₃ (0.2 mmol, 2.0 equiv), and THF : H₂O (10:1) under argon atmosphere. The reaction mixture was stirred at 100 °C in an oil bath for 6 h. After the mixture was cooled to room temperature, the solvent was evaporated *in vacuo* to give the crude product. The residue was purified by column chromatography on silica gel to give the pure product **7**. **2-(5-([1,1'-Biphenyl]-4-yl)-1-(3-nitrophenyl)-1H-1,2,3-triazol-4-yl)-5-methyl-1,3,4-oxadiazole (7)**. (38.2 mg, 90%). Isolated by flash chromatography (dichloromethane / methanol = 50:1, *R_f* = 0.5); yellow solid; ¹H NMR (400 MHz, CDCl₃) δ 8.41-8.29 (m, 2H), 8.25-8.23 (m, 1H), 7.74-7.62 (m, 2H), 7.62-7.57 (m, 3H), 7.57-7.48 (m, 2H), 7.48-7.38 (m, 1H), 7.38-7.30 (m, 2H), 2.63 (s, 3H); ¹³C NMR (100 MHz, CDCl₃) δ 164.31, 157.7, 148.6, 136.4, 135.6, 132.7, 132.5, 131.8, 130.7, 130.4, 129.0, 128.0, 127.7, 127.1, 125.7, 124.5, 122.8, 120.3, 11.0; HRMS (ESI) *m/z* [M+Na]⁺ Calcd for C₂₃H₁₆N₆NaO₃⁺: 447.1176; Found: 447.1181.

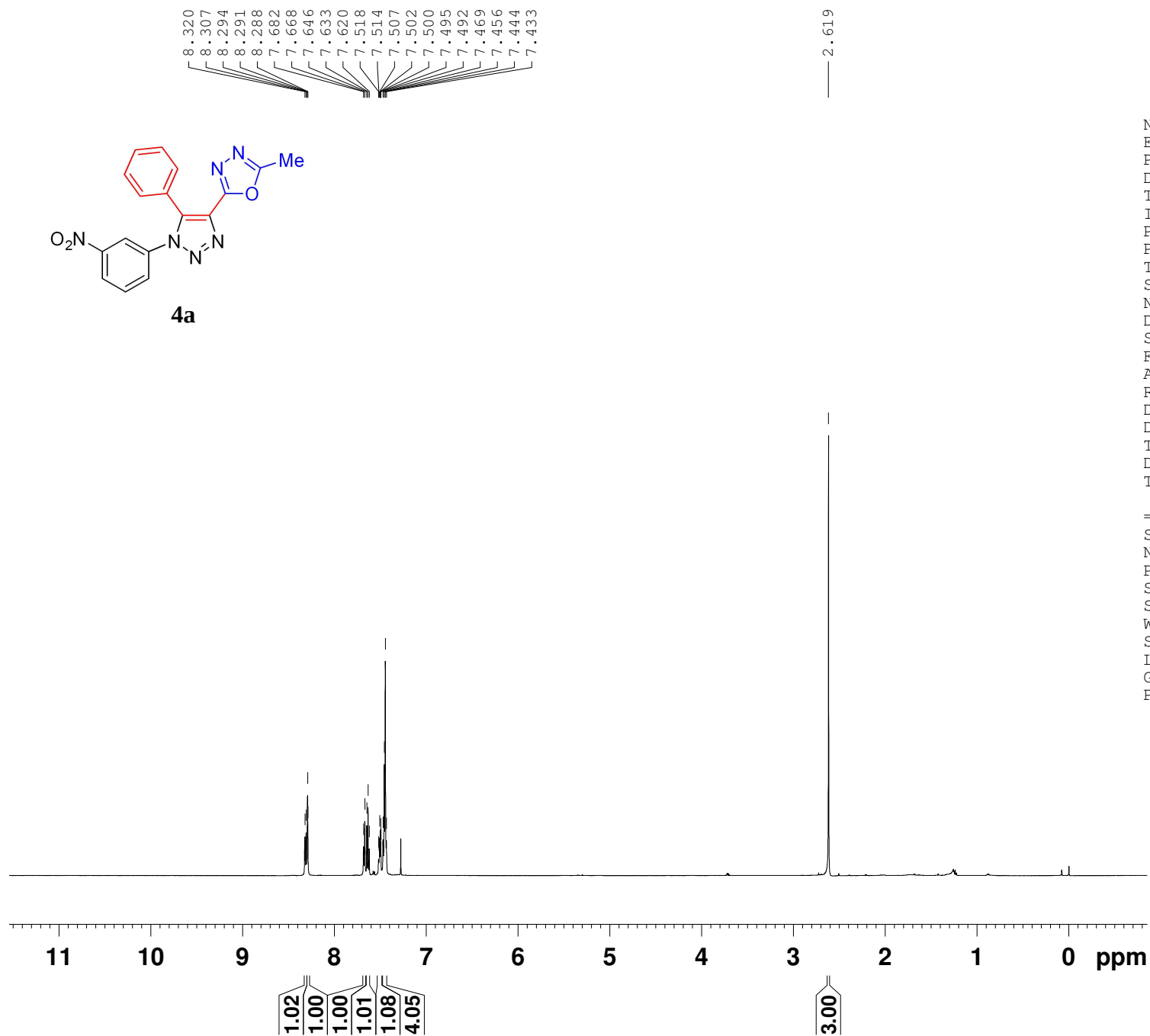
9. References

- [1] (a) Y. Lu, Y. Li, R. Zhang, K. Jin, C. Duan, *J. Fluorine Chem.* 2014, **161**, 128-133; (b) A. Deb, S. Manna, A. Modak, T. Patra, S. Maity, D. Maiti, *Angew. Chem. Int. Ed.* 2013, **52**, 9747-9750.
- [2] (a) L. Lv, G. Gao, Y. Luo, K. Mao, Z. Li, *J. Org. Chem.* 2021, **86**, 17197-17212; (b) K. Mao, Y. Ma, L. Lv, Z. Li, *Asian J. Org. Chem.* 2022, **11**, e202200334.
- [3] K. D. Grimes, A. Gupte, C. C. Aldrich, *Synthesis*, 2010, **9**, 1441-1448.

10. Copies of ¹H NMR and ¹³C NMR spectra for all products



4a

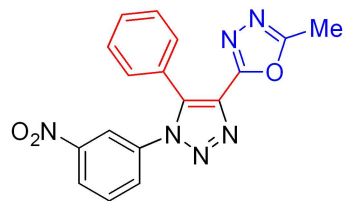


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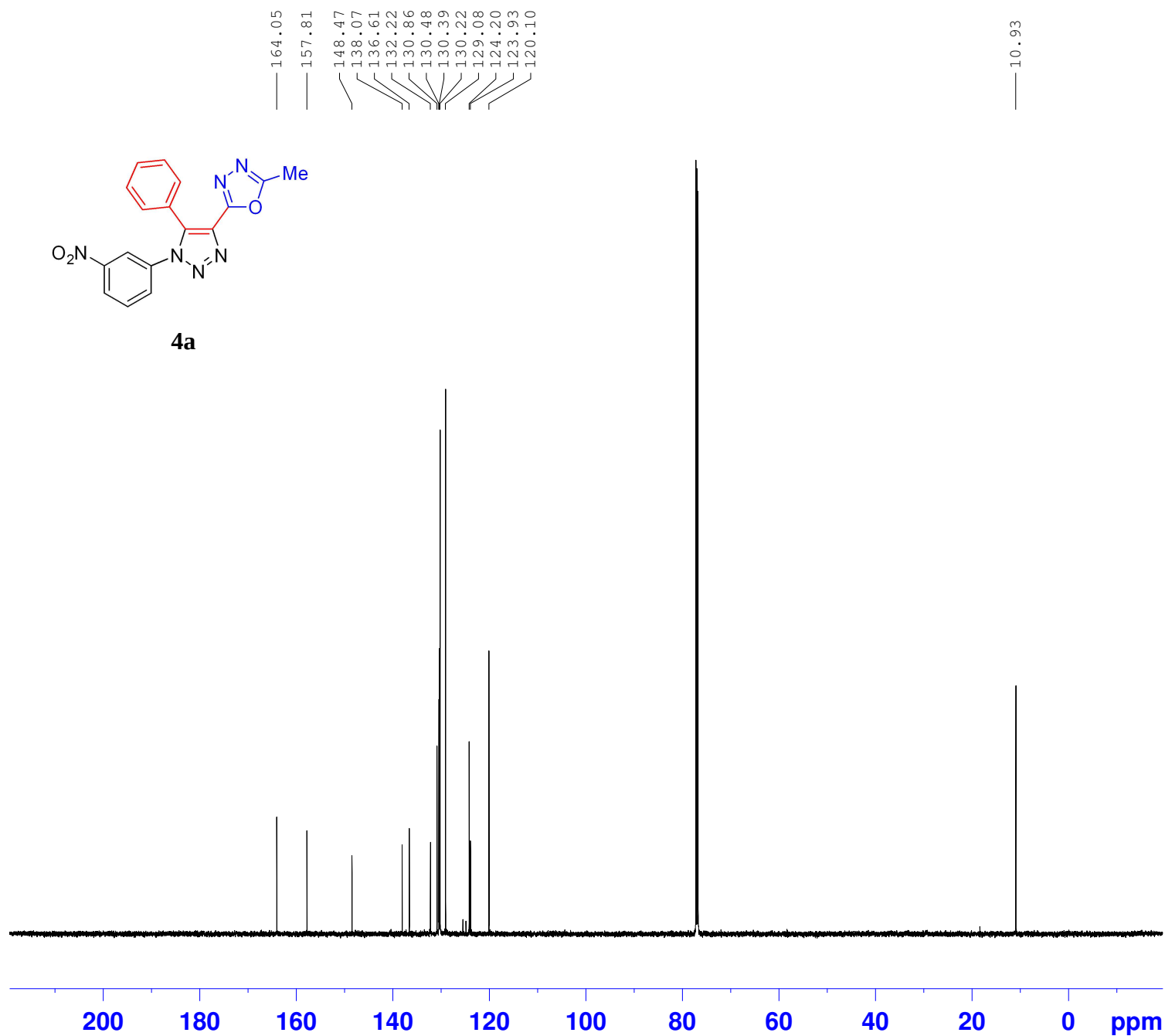
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TD        65536
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DS         0
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FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         69.87
DW         52.000 usec
DE         6.50 usec
TE         298.1 K
D1         1.00000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1       1H
P1         9.96 usec
SI         65536
SF         600.1700054 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```



4a

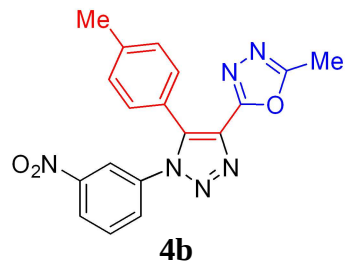


```

NAME      LV-MYH-80P-20250304
EXPNO      2
PROCNO     1
Date_      20250304
Time       22.36
INSTRUM    spect
PROBHD     5 mm PABBO BB/
PULPROG    zgpg30
TD         65536
SOLVENT    CDCl3
NS         600
DS         4
SWH        36057.691 Hz
FIDRES     0.550197 Hz
AQ         0.9088159 sec
RG         190.02
DW         13.867 usec
DE         6.50 usec
TE         298.0 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      150.9279571 MHz
NUC1      13C
P1        11.90 usec
SI        32768
SF        150.9128775 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```

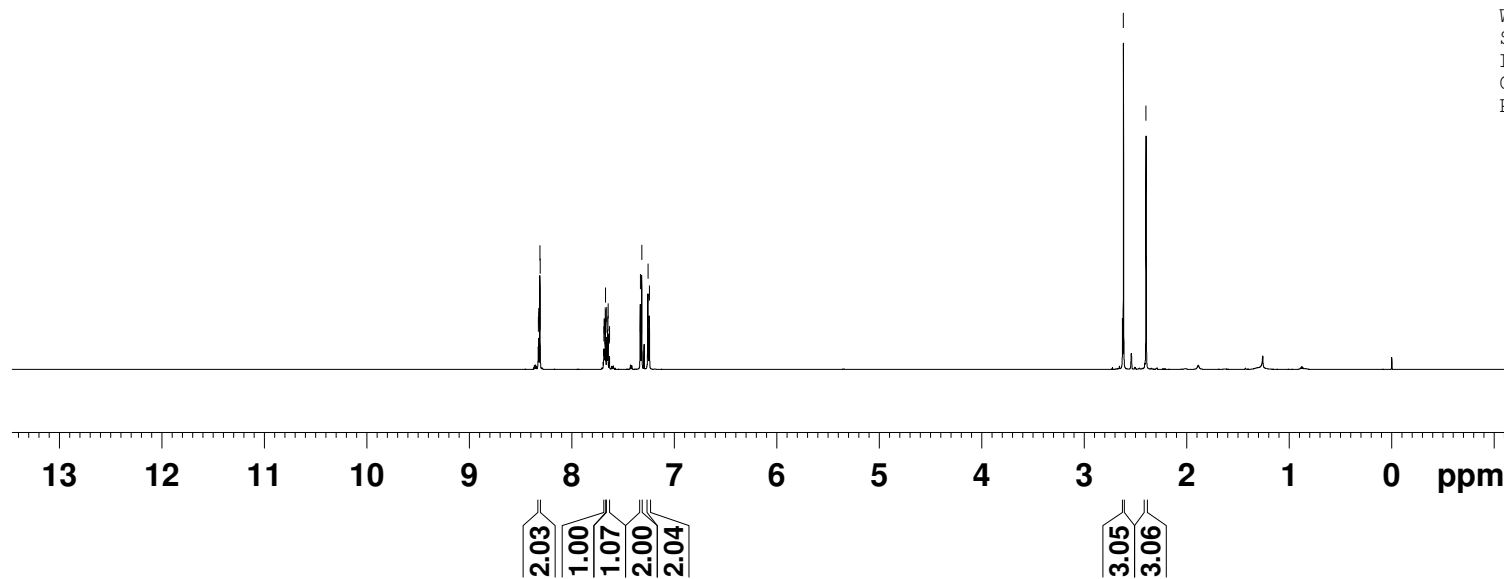



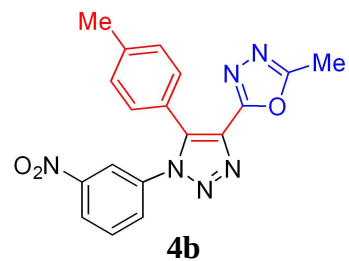
8.327
8.323
8.321
8.311
8.309
7.688
7.685
7.682
7.678
7.674
7.672
7.669
7.660
7.657
7.652
7.648
7.646
7.634
7.632
7.331
7.317
7.256
7.243

2.619
2.398

NAME LV-MYH-189P-20251014
EXPNO 1
PROCNO 1
Date_ 20251014
Time 22.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 44.5
DW 52.000 usec
DE 6.50 usec
TE 0.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1699948 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





— 163.93
 — 157.89
 — 148.43
 — 141.18
 — 138.23
 — 136.69
 — 132.02
 — 130.43
 — 130.41
 — 130.02
 — 129.74
 — 124.08
 — 120.78
 — 120.11

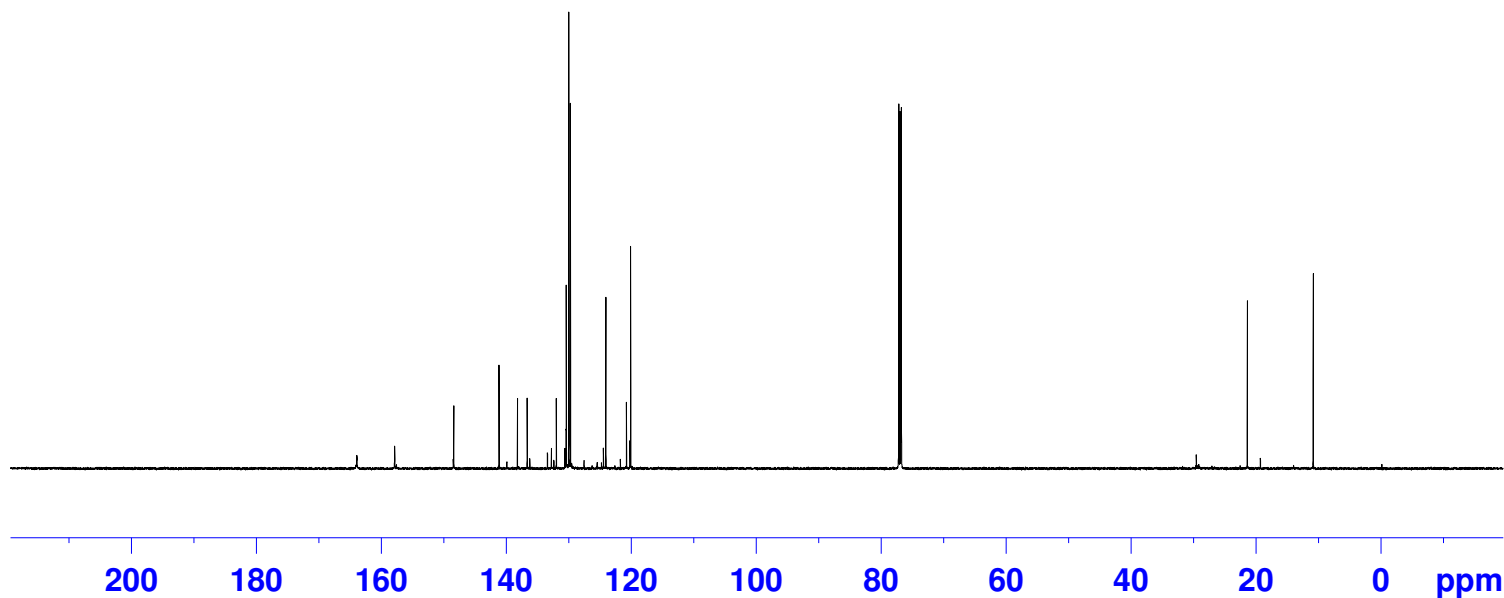
— 21.40
 — 10.85

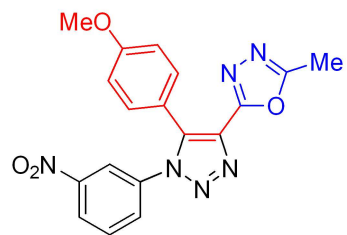
```

NAME      LV-MYH-189P-20251014
EXPNO     2
PROCNO    1
Date_     20251014
Time      23.04
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        1024
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        0.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

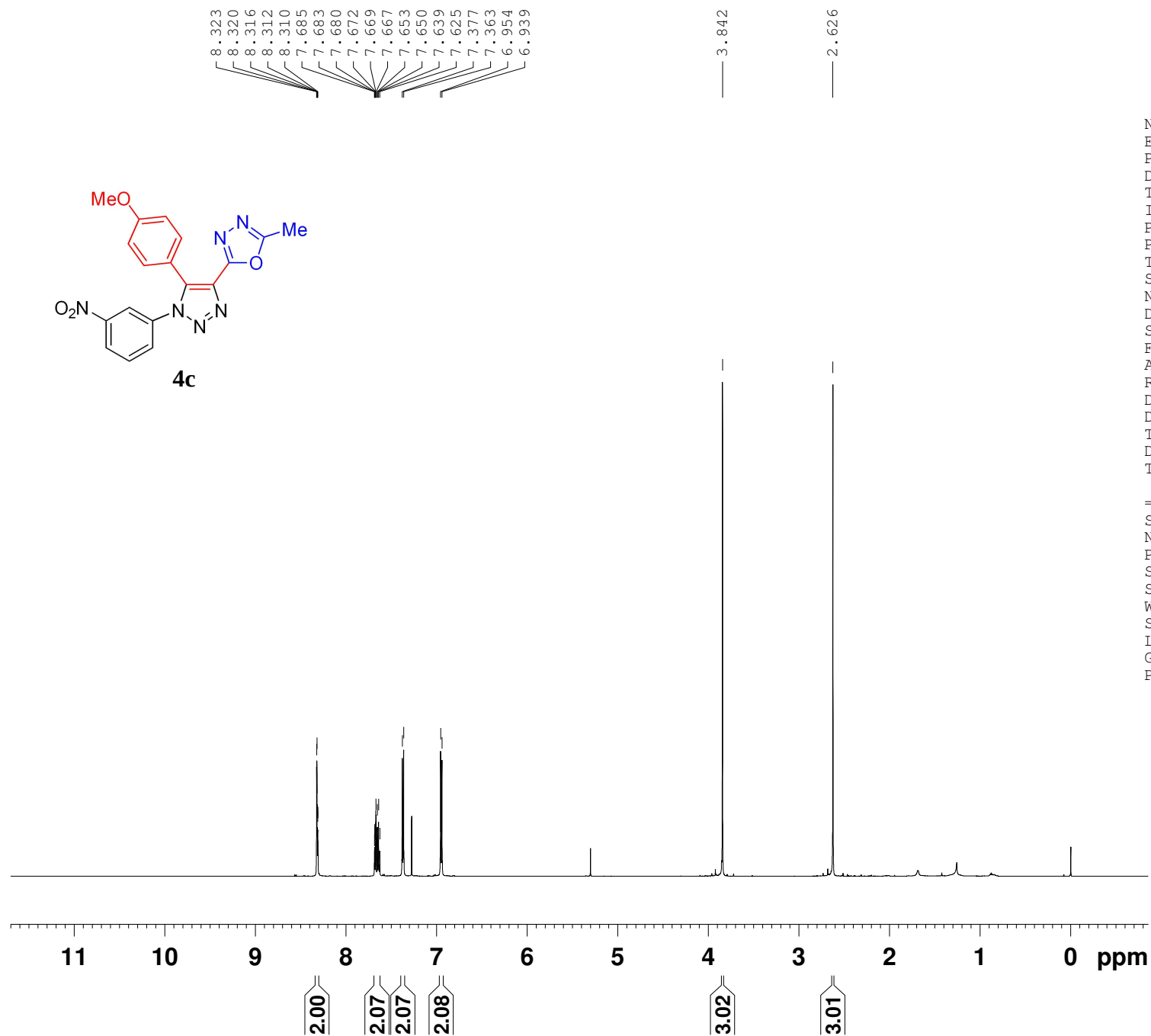
```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128818 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```





4c

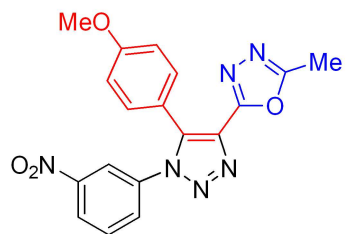


```

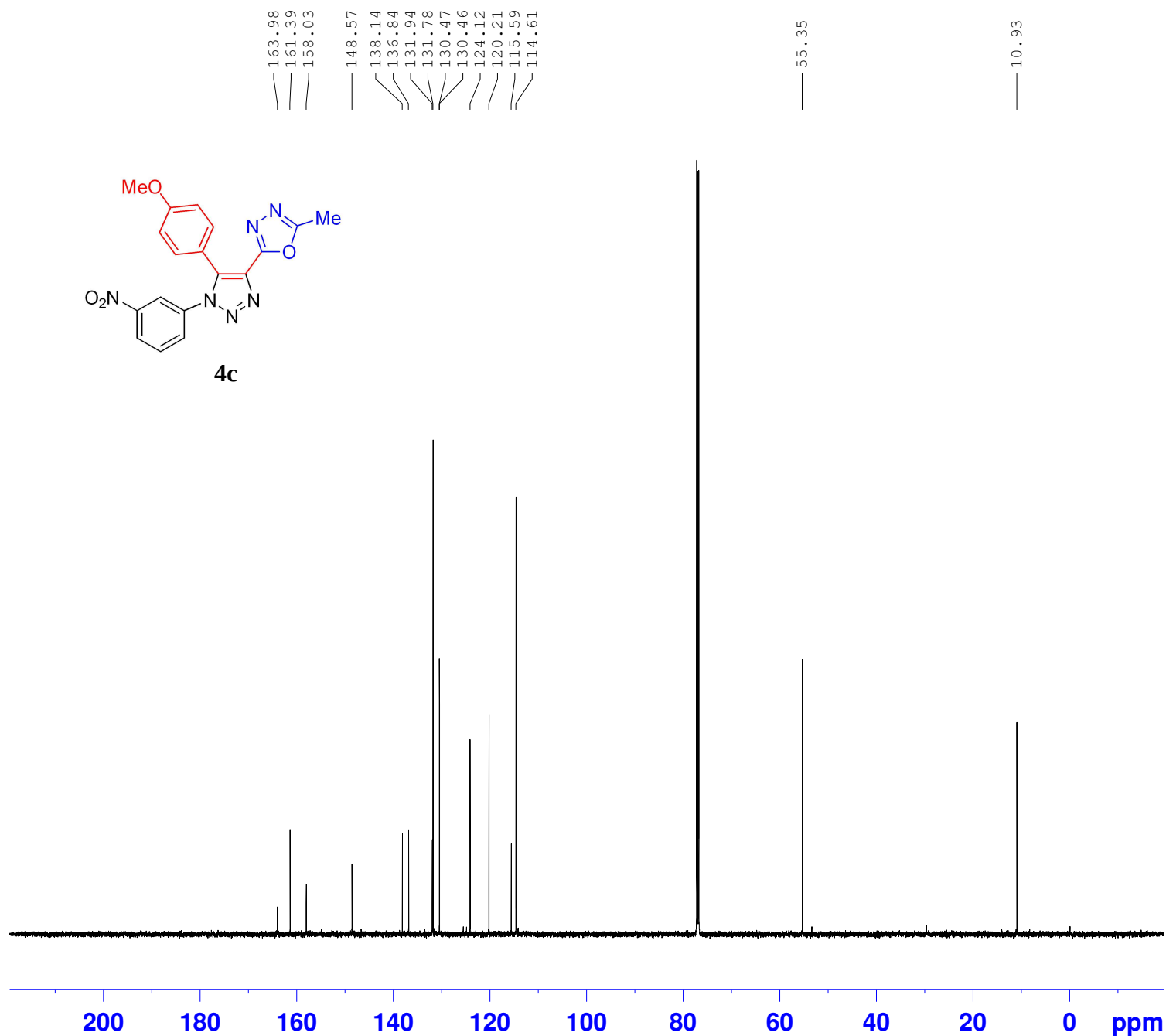
NAME      LV-MYH-191P-20250606
EXPNO     1
PROCNO    1
Date_     20250607
Time      0.18
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS         8
DS         0
SWH        9615.385 Hz
FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         87.54
DW         52.000 usec
DE         6.50 usec
TE         302.4 K
D1         1.00000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1         9.96 usec
SI        65536
SF         600.1700062 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```



4c

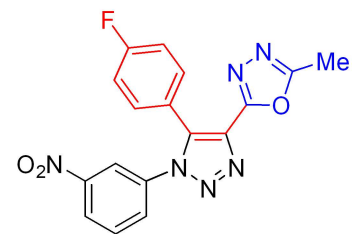


```

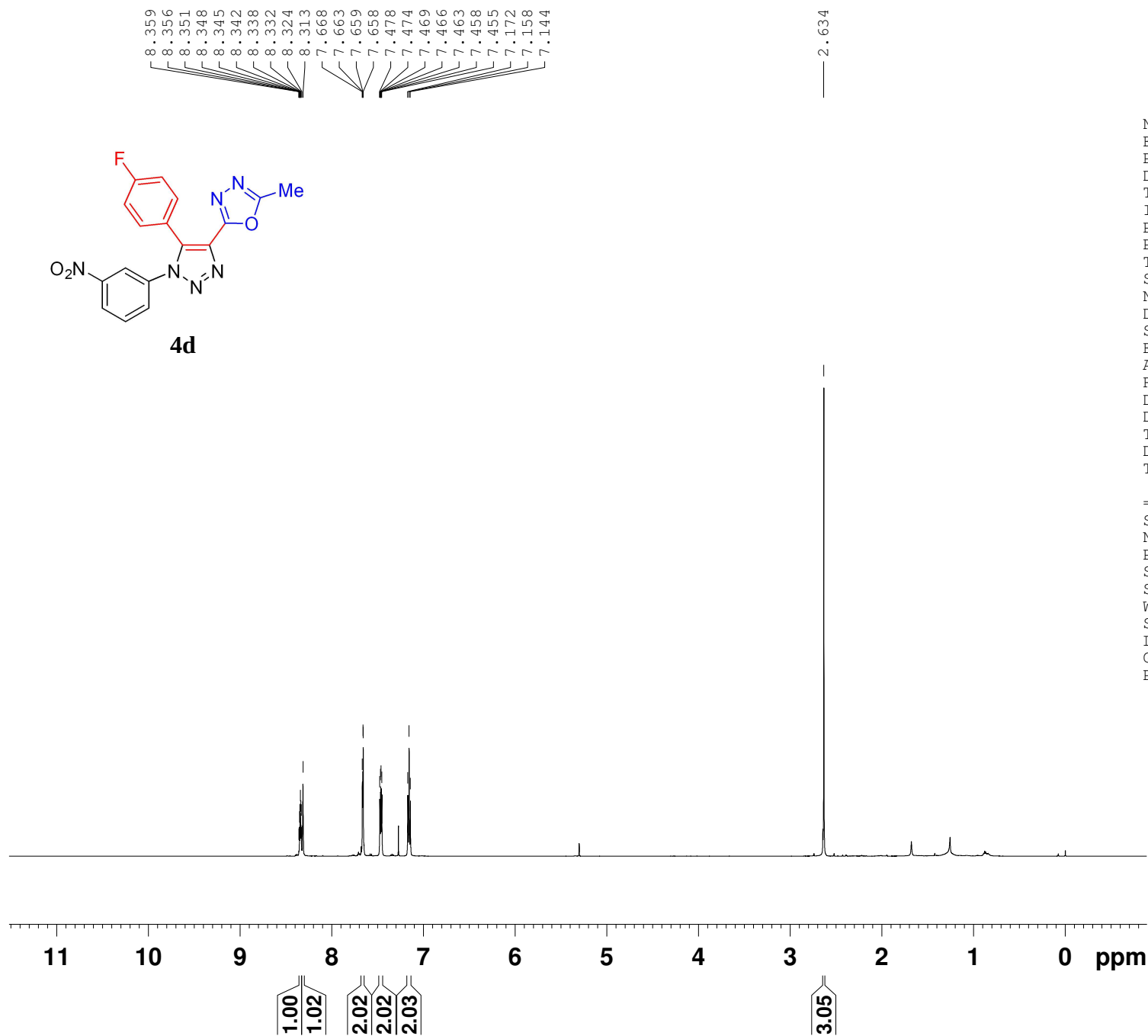
NAME      LV-MYH-191P-20250606
EXPNO      2
PROCNO     1
Date_      20250607
Time       0.59
INSTRUM    spect
PROBHD     5 mm PABBO BB/
PULPROG    zgpg30
TD         65536
SOLVENT    CDCl3
NS         800
DS         4
SWH        36057.691 Hz
FIDRES     0.550197 Hz
AQ         0.9088159 sec
RG         190.02
DW         13.867 usec
DE         6.50 usec
TE         303.3 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SF01      150.9279571 MHz
NUC1       13C
P1         11.90 usec
SI         32768
SF         150.9128729 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```



4d

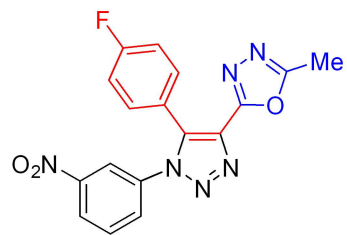


```

NAME      LV-MYH-159P-20250429
EXPNO     1
PROCNO    1
Date_     20250429
Time      12.15
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS         8
DS         0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG         87.54
DW        52.000 usec
DE         6.50 usec
TE        298.1 K
D1        1.00000000 sec
TD0       1
  
```

```

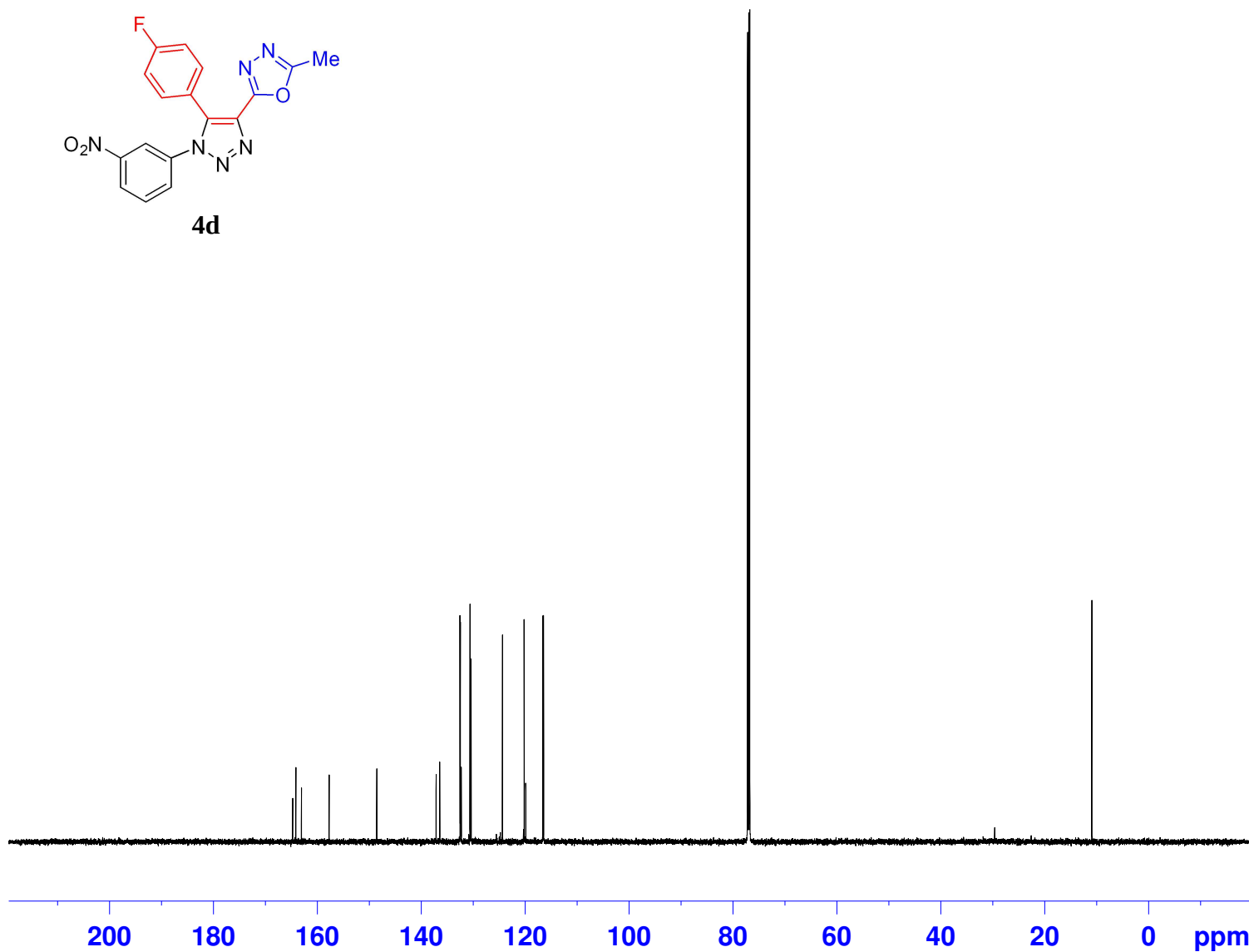
===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700059 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```



4d

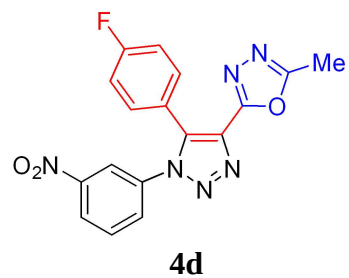
164.77
164.16
163.09
157.74
148.58
137.16
136.47
132.55
132.49
132.32
130.63
130.41
124.39
120.21
119.92
119.89
116.61
116.47

10.95



NAME LV-MYH-159P-20250429
EXPNO 2
PROCNO 1
Date_ 20250429
Time 12.46
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128749 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



— -107.71

```

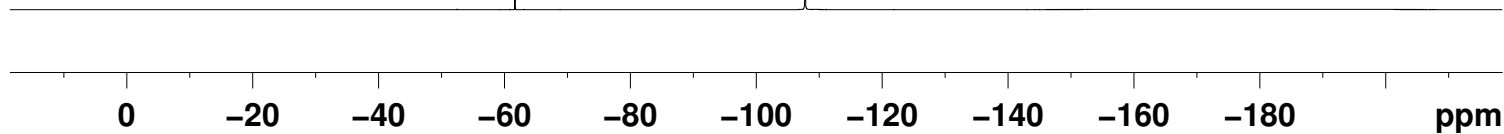
NAME      LV-MYH-159P-20250506
EXPNO     1
PROCNO    1
Date_     20250506
Time      21.50
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgfhigqn.2
TD        131072
SOLVENT   CDC13
NS        16
DS        4
SWH       133928.578 Hz
FIDRES    1.021794 Hz
AQ        0.4893855 sec
RG        190.02
DW        3.733 usec
DE        6.50 usec
TE        298.1 K
D1        1.00000000 sec
D11       0.03000000 sec
D12       0.00002000 sec
TD0       1

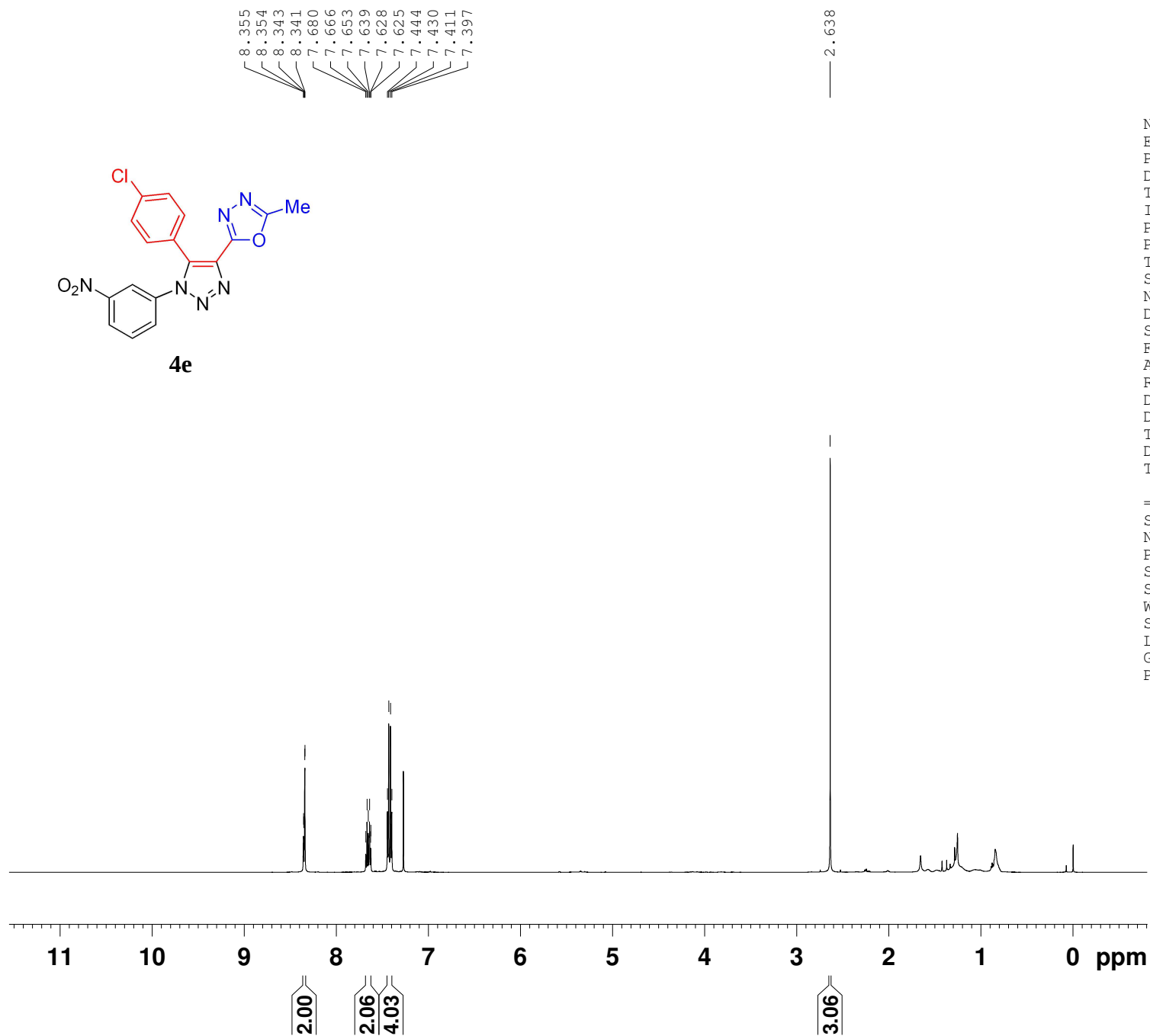
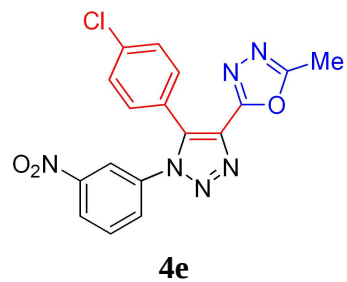
```

```

===== CHANNEL f1 =====
SFO1      564.6675534 MHz
NUC1      19F
P1        12.00 usec
SI        65536
SF        564.7240258 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00

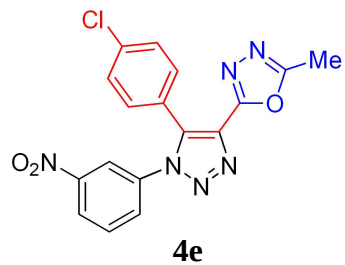
```





NAME LV-MYH-163P-20250623
 EXPNO 1
 PROCNO 1
 Date_ 20250623
 Time 22.26
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 9615.385 Hz
 FIDRES 0.146719 Hz
 AQ 3.4079220 sec
 RG 87.54
 DW 52.000 usec
 DE 6.50 usec
 TE 298.0 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 600.1739011 MHz
 NUC1 1H
 P1 9.96 usec
 SI 65536
 SF 600.1700088 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

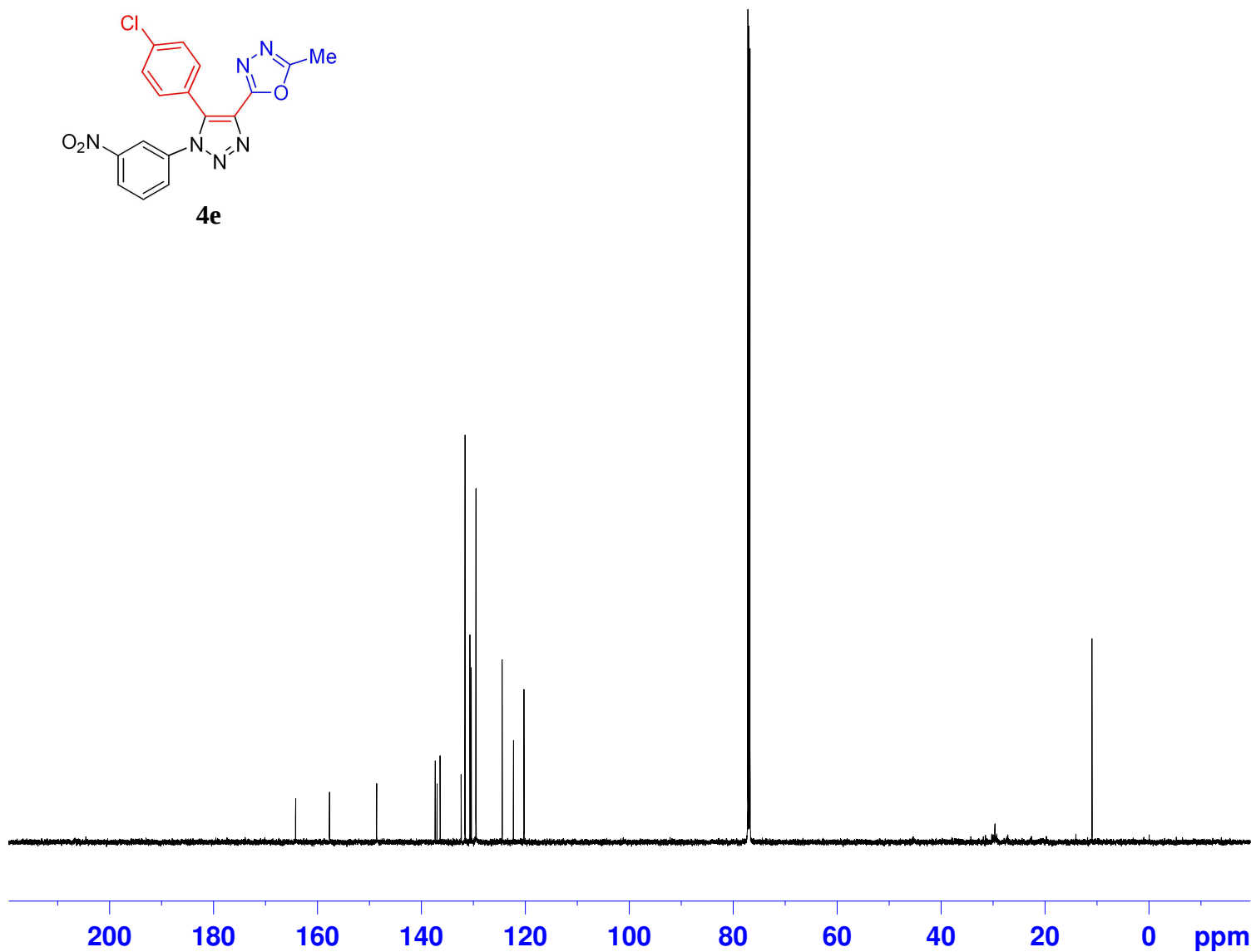


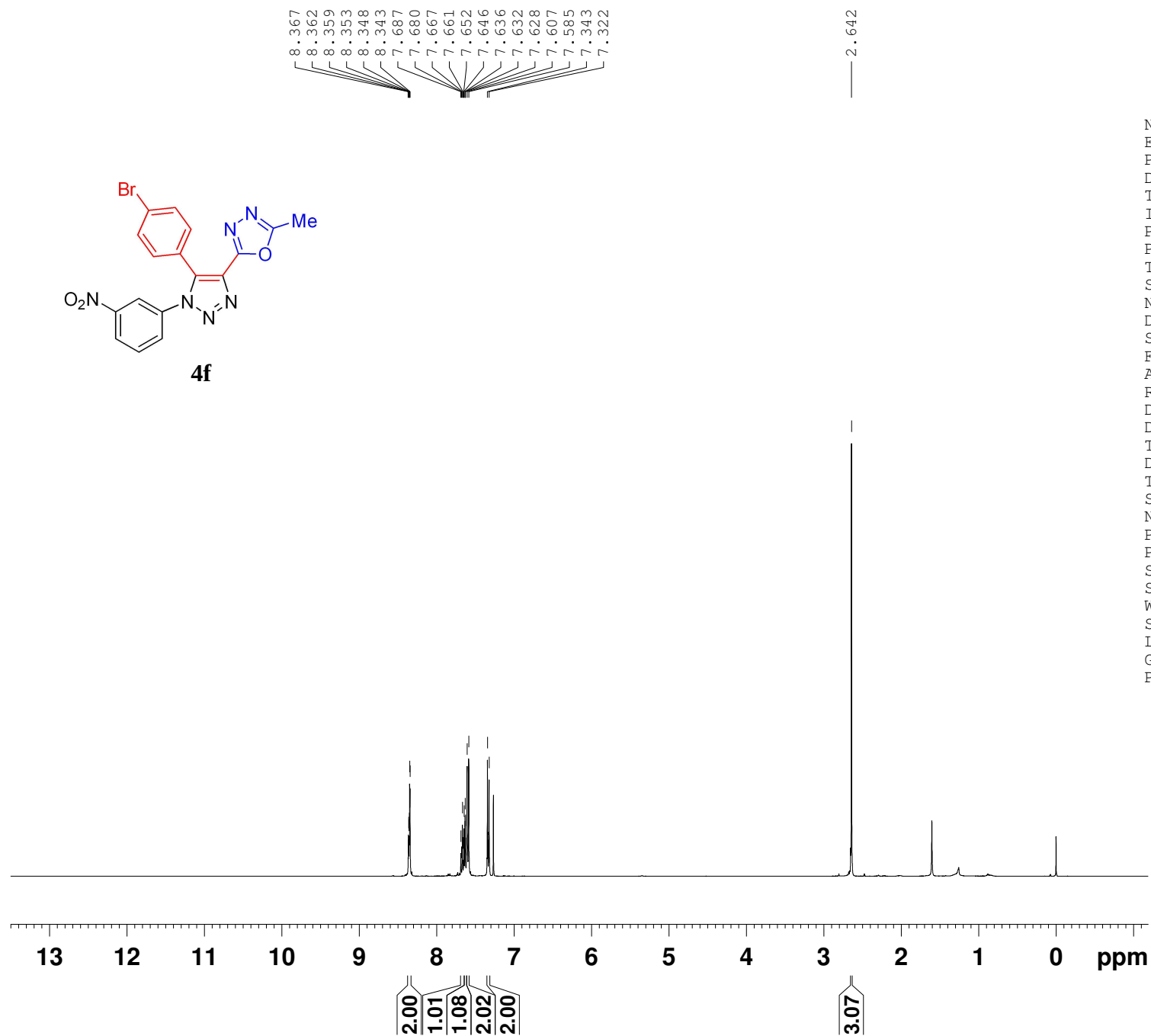
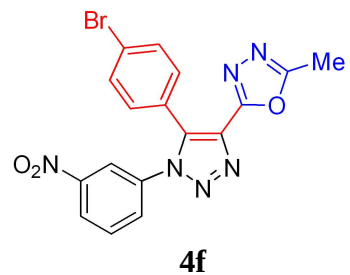
— 164.21
 — 157.69
 — 148.63
 — 137.35
 — 137.01
 — 136.41
 — 132.37
 — 131.62
 — 130.67
 — 130.41
 — 129.51
 — 124.48
 — 122.30
 — 120.28

— 10.97

NAME LV-MYH-163P-20250623
 EXPNO 2
 PROCNO 1
 Date_ 20250623
 Time 23.07
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 800
 DS 4
 SWH 36057.691 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 190.02
 DW 13.867 usec
 DE 6.50 usec
 TE 298.0 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 TD0 1

===== CHANNEL f1 =====
 SF01 150.9279571 MHz
 NUC1 13C
 P1 11.90 usec
 SI 32768
 SF 150.9128742 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

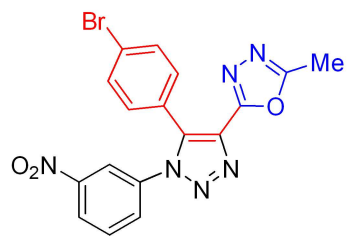




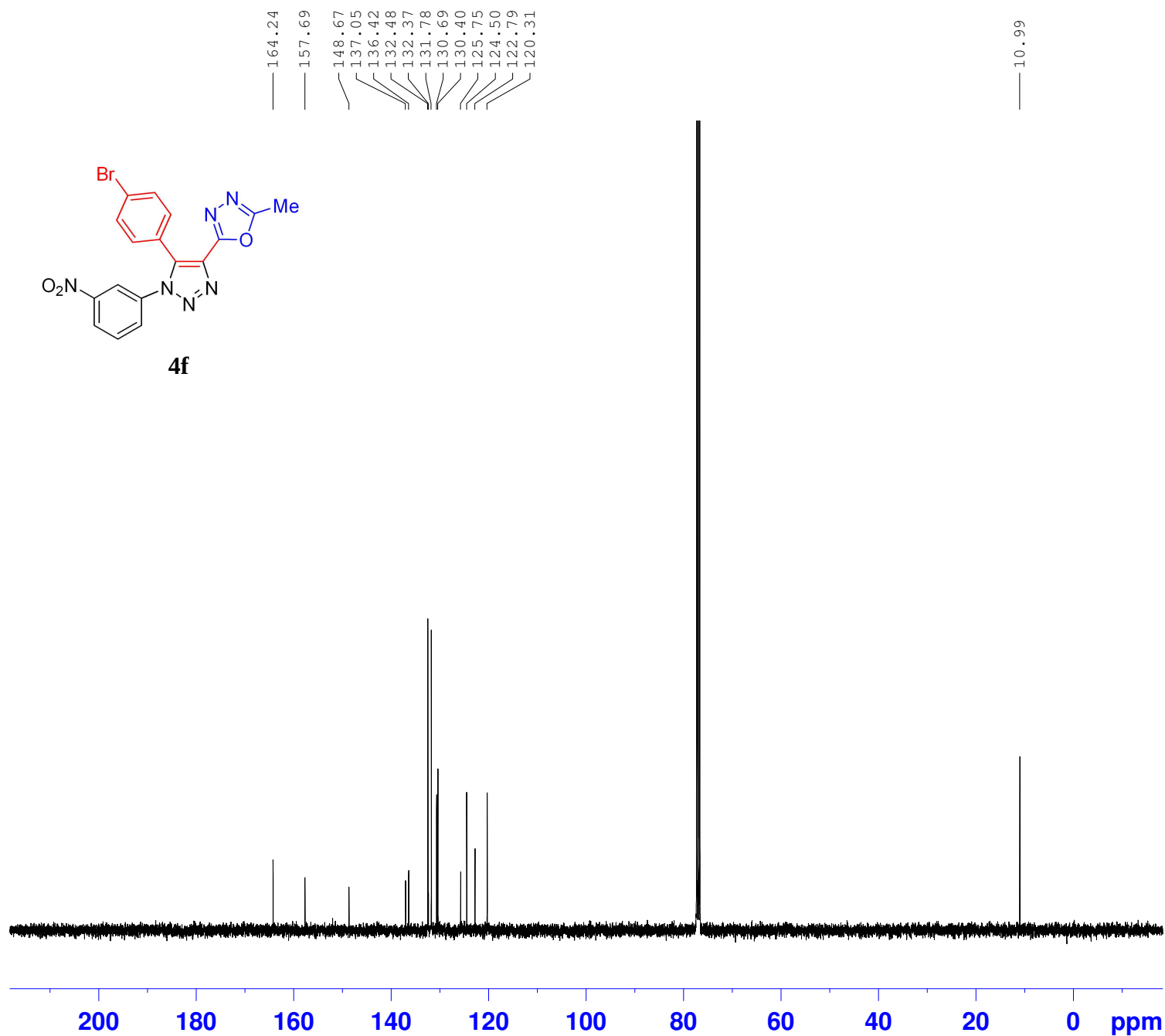
```

NAME      LV-MYH-77P-20250301
EXPNO     10
PROCNO    1
Date_     20250301
Time      23.27 h
INSTRUM   Avance
PROBHD    Z163739_0744 (
PULPROG   zg30
TD        65536
SOLVENT   CDCl3
NS         16
DS         2
SWH        8196.722 Hz
FIDRES     0.250144 Hz
AQ         3.9977460 sec
RG         101
DW         61.000 usec
DE         13.89 usec
TE         298.0 K
D1         1.00000000 sec
TD0        1
SFO1       400.1324708 MHz
NUC1       1H
P0         2.67 usec
P1         8.00 usec
SI         65536
SF         400.1300076 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00

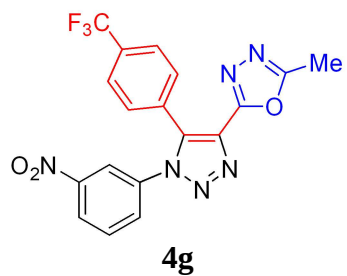
```



4f



NAME	LV-MYH-77P-20250301
EXPNO	11
PROCNO	1
Date_	20250301
Time	23.51 h
INSTRUM	Avance
PROBHD	Z163739_0744 (
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	400
DS	4
SWH	23809.523 Hz
FIDRES	0.726609 Hz
AQ	1.3763061 sec
RG	101
DW	21.000 usec
DE	6.50 usec
TE	298.0 K
D1	2.00000000 sec
D11	0.03000000 sec
TD0	1
SFO1	100.6228298 MHz
NUC1	13C
P0	2.67 usec
P1	8.00 usec
SI	32768
SF	100.6127725 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40



8.370
8.357
8.355
8.351
8.347
8.344
7.733
7.719
7.686
7.673
7.659
7.627
7.622
7.620
7.616
7.614
7.609
7.607

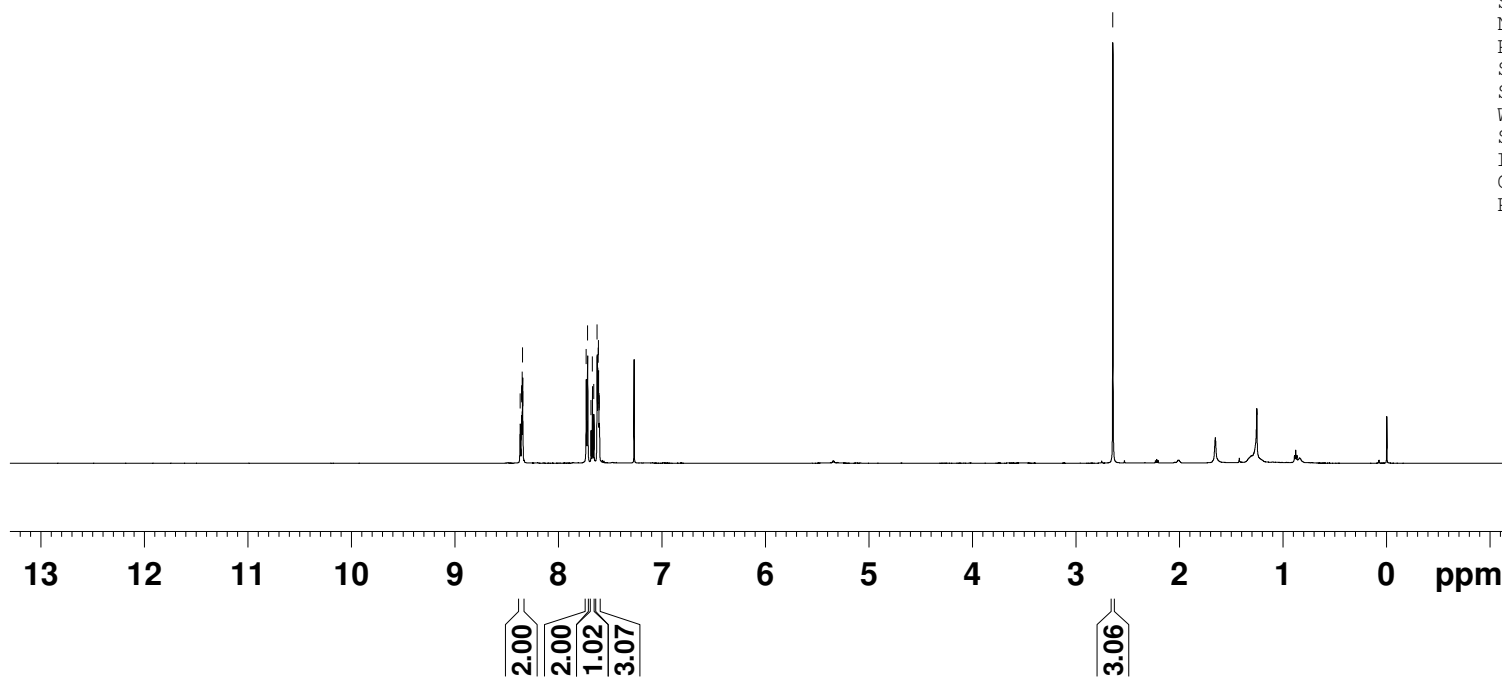
— 2.645

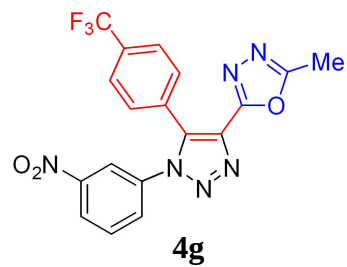
```

NAME      LV-MYH-153P-20251013
EXPNO     1
PROCNO    1
Date_     20251013
Time      22.21
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS        8
DS        0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG        87.54
DW        52.000 usec
DE        6.50 usec
TE        0.0 K
D1        1.00000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SFO1    600.1739011 MHz
NUC1     1H
P1       9.96 usec
SI      65536
SF    600.1700087 MHz
WDW      EM
SSB      0
LB      0.30 Hz
GB      0
PC      1.00
  
```



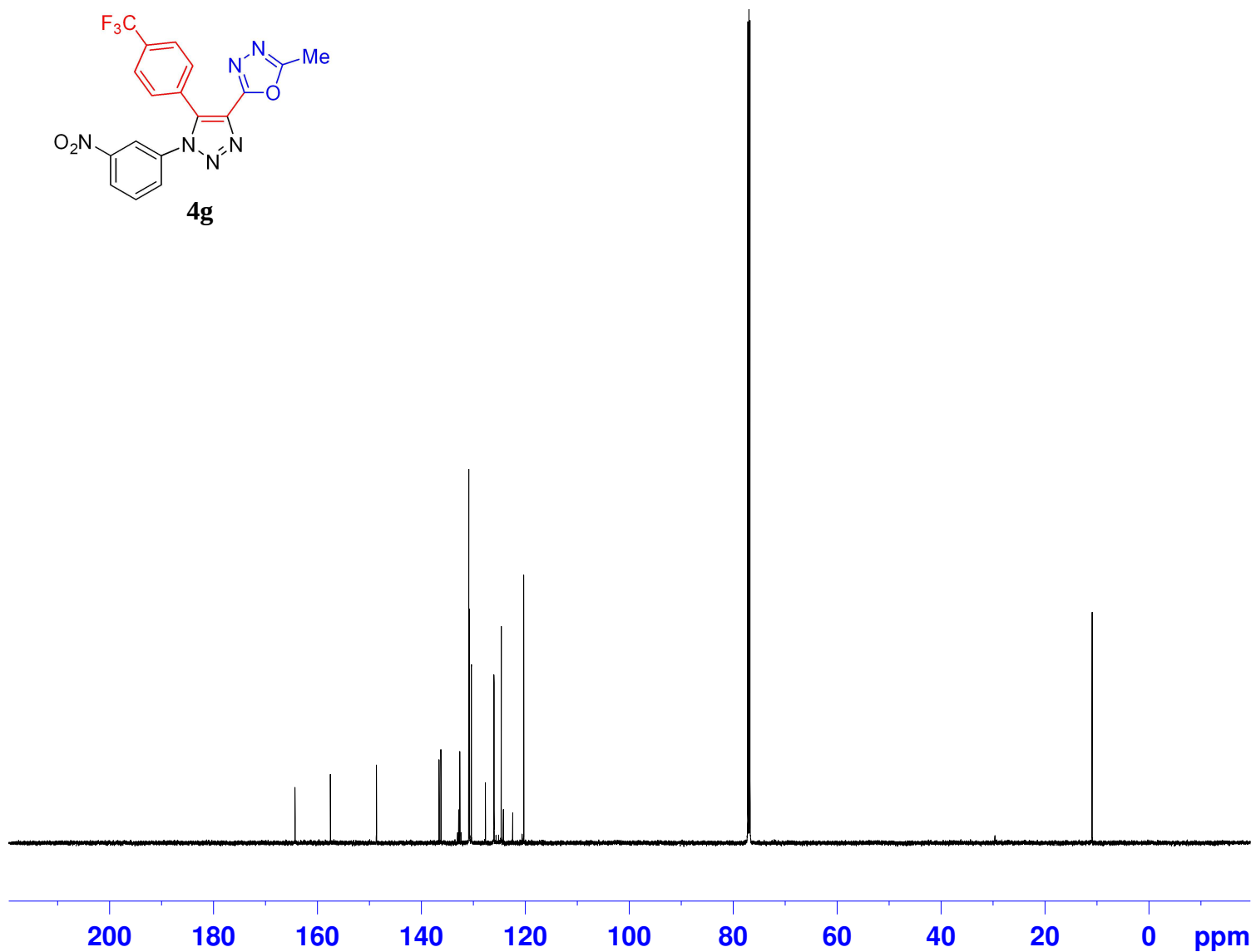


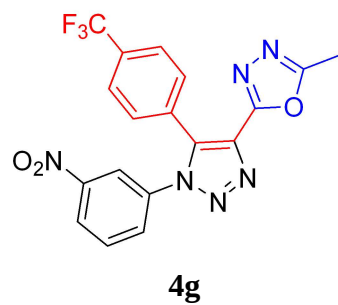
164.34
157.55
148.66
136.61
136.24
133.05
132.84
132.63
132.61
132.39
130.89
130.76
130.40
127.70
126.08
126.06
126.03
126.00
124.65
124.25
122.44
120.63
120.32

10.94

NAME LV-MYH-153P-20250424
EXPNO 2
PROCNO 1
Date_ 20250425
Time 0.28
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 800
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128745 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40





-63.109

```

NAME      LV-MYH-153P-20250506
EXPNO     1
PROCNO    1
Date_     20250506
Time      21.44
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgfhigqn.2
TD        131072
SOLVENT   CDC13
NS        16
DS        4
SWH       133928.578 Hz
FIDRES    1.021794 Hz
AQ        0.4893855 sec
RG        190.02
DW        3.733 usec
DE        6.50 usec
TE        298.1 K
D1        1.00000000 sec
D11       0.03000000 sec
D12       0.00002000 sec
TD0       1

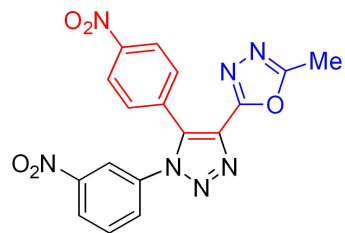
```

```

===== CHANNEL f1 =====
SFO1      564.6675534 MHz
NUC1      19F
P1        12.00 usec
SI        65536
SF        564.7240258 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00

```

0 -20 -40 -60 -80 -100 -120 -140 -160 -180 ppm

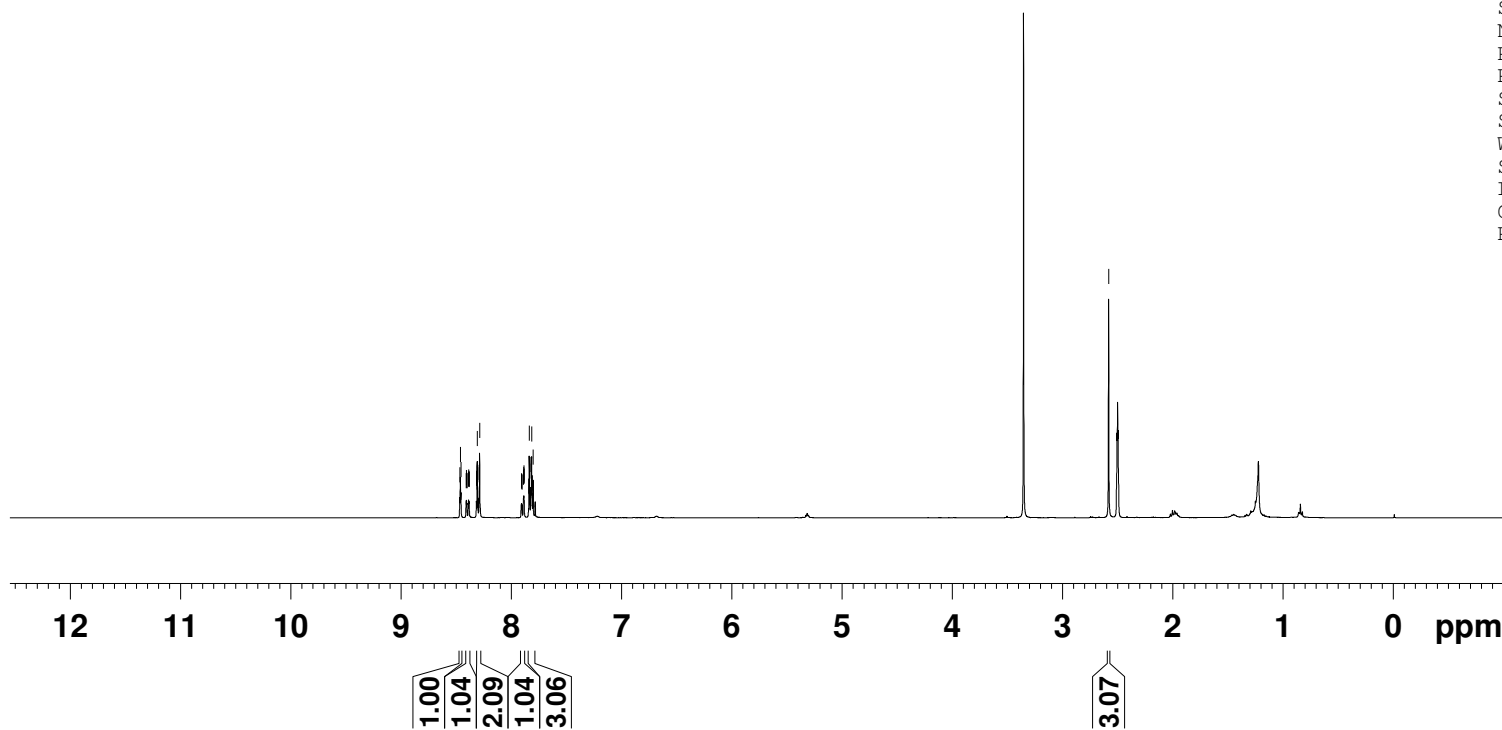


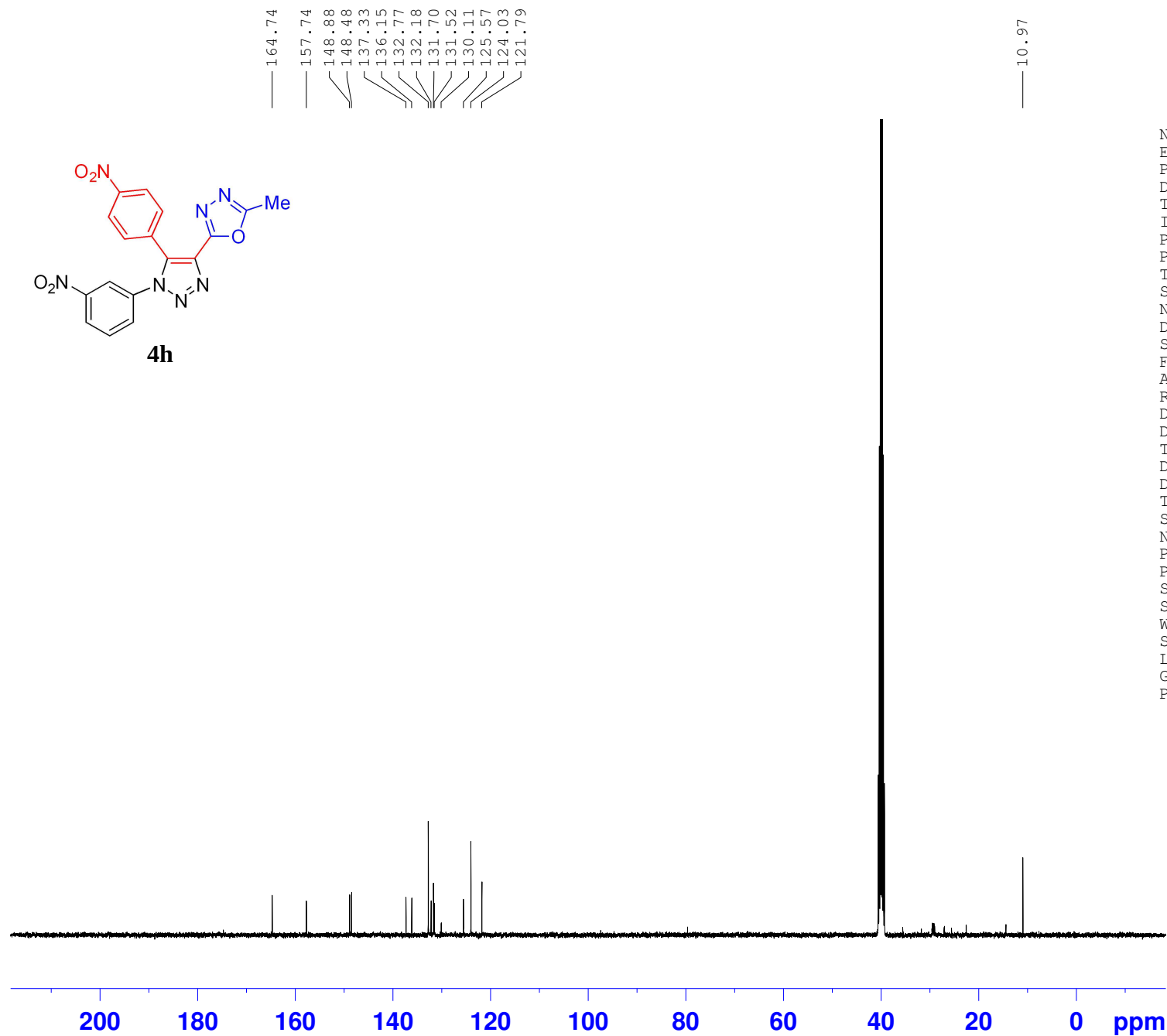
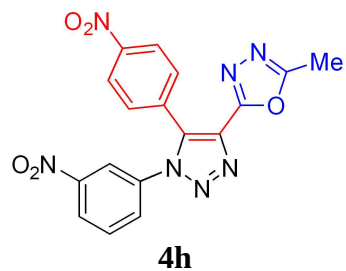
4h

8.467
8.461
8.456
8.409
8.407
8.404
8.402
8.389
8.387
8.384
8.381
8.316
8.309
8.304
8.291
8.287
7.908
7.906
7.903
7.890
7.888
7.885
7.883
7.843
7.837
7.832
7.822
7.815
7.809
7.802

— 2.581

NAME	LV-MYH-164P-20251016
EXPNO	10
PROCNO	1
Date_	20251016
Time	12.11 h
INSTRUM	Avance
PROBHD	Z163739_0744 (
PULPROG	zg30
TD	65536
SOLVENT	DMSO
NS	8
DS	0
SWH	6250.000 Hz
FIDRES	0.190735 Hz
AQ	5.2429299 sec
RG	101
DW	80.000 usec
DE	8.64 usec
TE	292.8 K
D1	1.00000000 sec
TD0	1
SFO1	400.1326008 MHz
NUC1	¹ H
P0	2.67 usec
P1	8.00 usec
SI	65536
SF	400.1300043 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

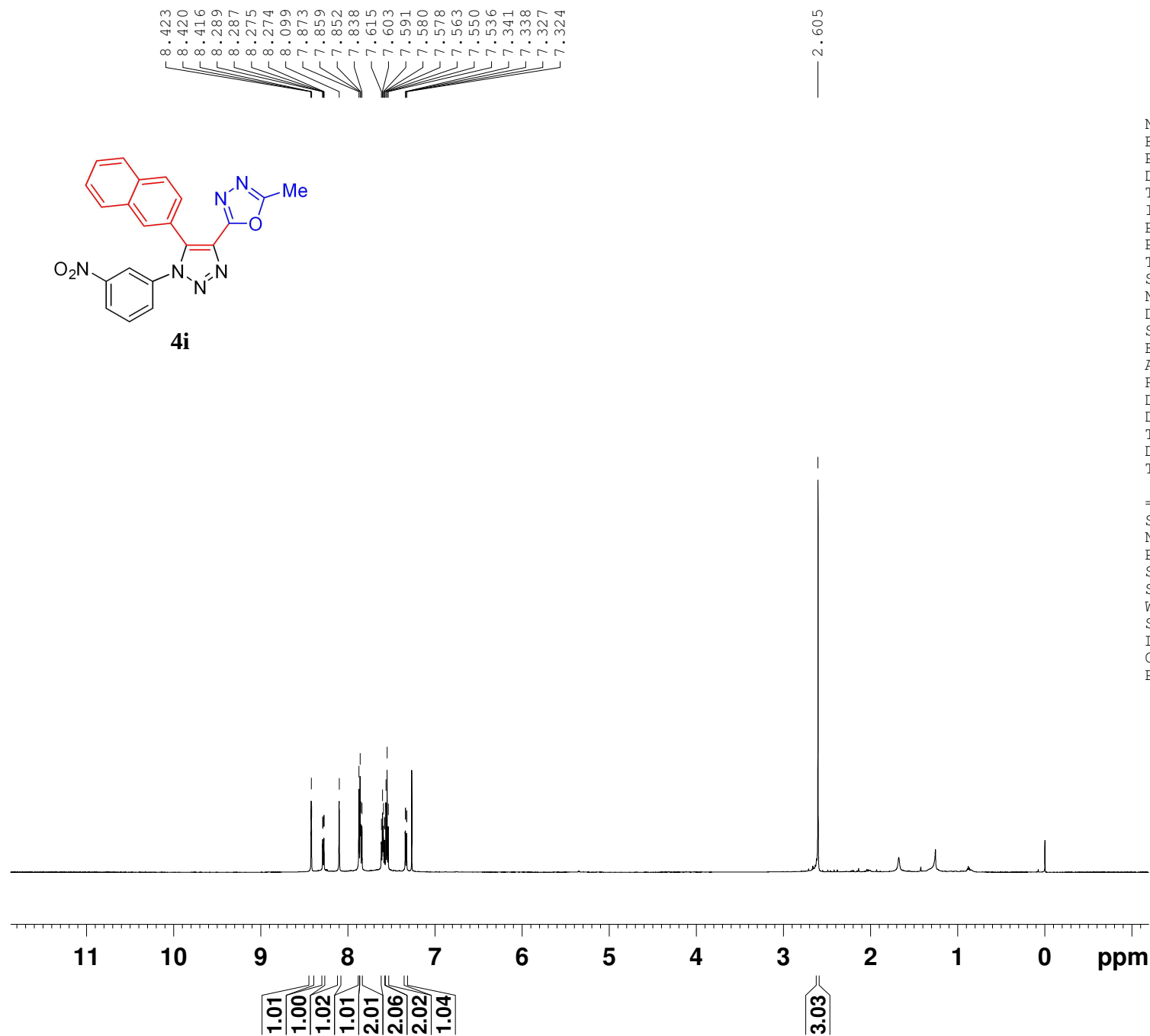


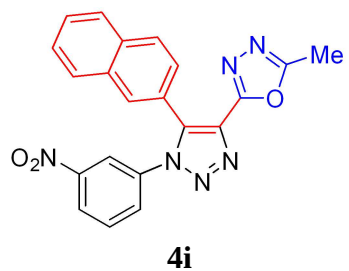


NAME	LV-MYH-164P-20251016
EXPNO	11
PROCNO	1
Date_	20251016
Time	12.47 h
INSTRUM	Avance
PROBHD	Z163739_0744 (
PULPROG	zgpg30
TD	65536
SOLVENT	DMSO
NS	600
DS	4
SWH	23809.523 Hz
FIDRES	0.726609 Hz
AQ	1.3763061 sec
RG	101
DW	21.000 usec
DE	6.50 usec
TE	293.4 K
D1	2.00000000 sec
D11	0.03000000 sec
TD0	1
SFO1	100.6228298 MHz
NUC1	13C
P0	2.67 usec
P1	8.00 usec
SI	32768
SF	100.6127685 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40

NAME LV-MYH-198P-20250616
EXPNO 1
PROCNO 1
Date_ 20250616
Time 22.57
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 76.92
DW 52.000 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700110 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





164.11
157.91
148.58
138.19
136.70
133.80
132.70
132.44
131.10
130.47
130.35
129.00
128.58
128.06
127.88
127.19
125.95
124.24
121.03
120.24

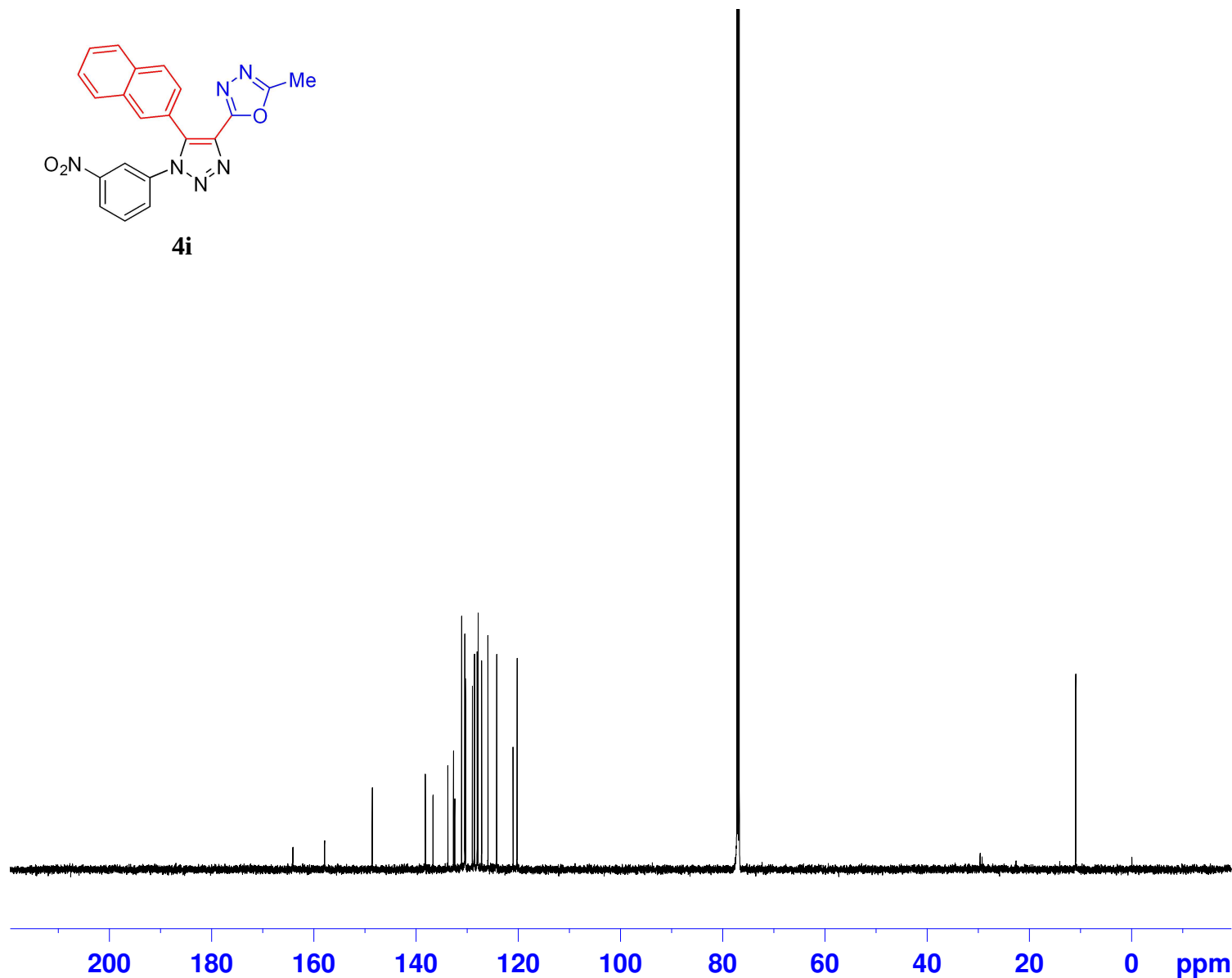
10.95

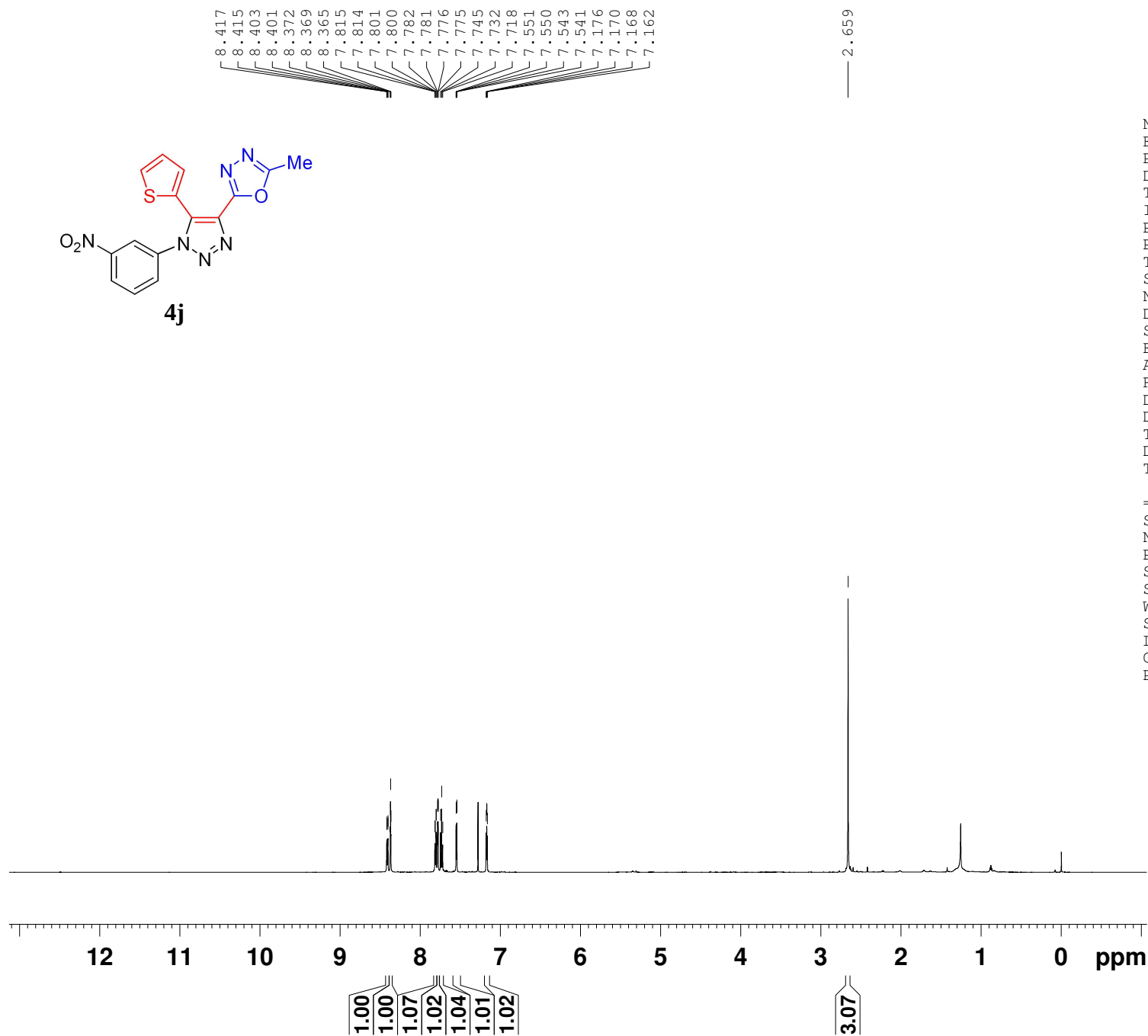
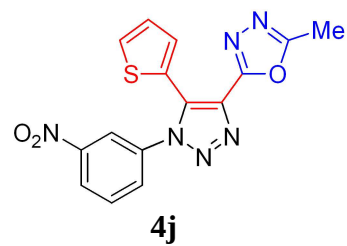
```

NAME      LV-MYH-198P-20250616
EXPNO     2
PROCNO    1
Date_     20250616
Time      23.37
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128750 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```



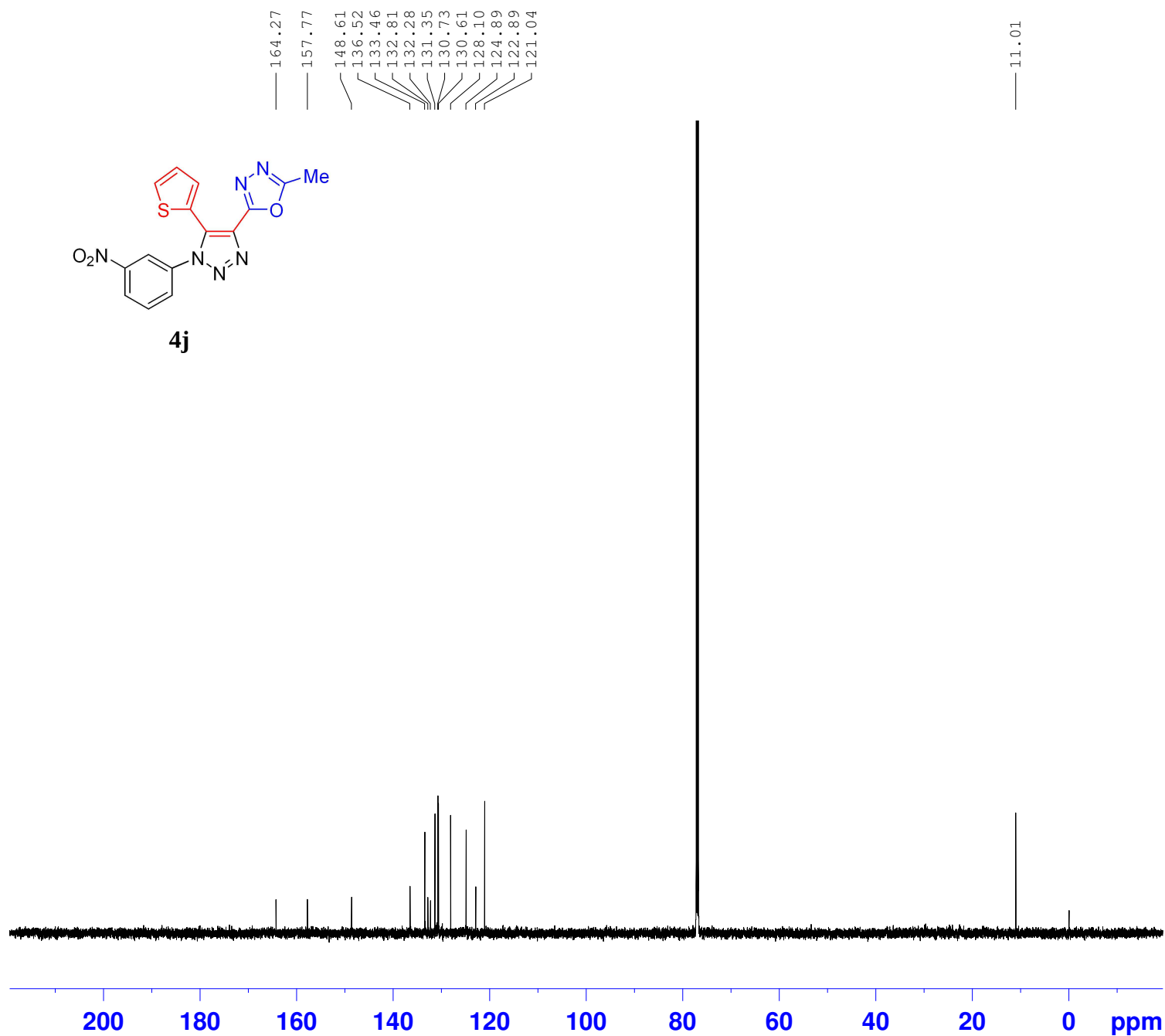
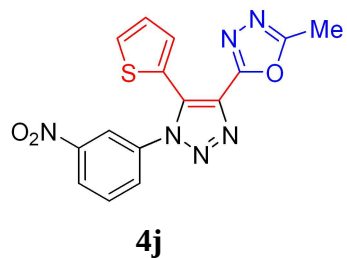


```

NAME      LV-MYH-291P-20251019
EXPNO     1
PROCNO    1
Date_     20251019
Time      19.57
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDCl3
NS        8
DS        0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG        76.92
DW        52.000 usec
DE        6.50 usec
TE        0.0 K
D1        1.00000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700047 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```

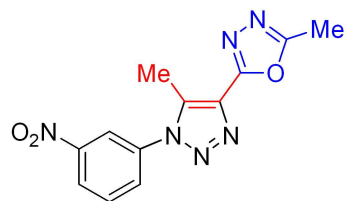


```

NAME      LV-MYH-192P-20250606
EXPNO     2
PROCNO    1
Date_     20250607
Time      1.46
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        303.3 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128685 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```



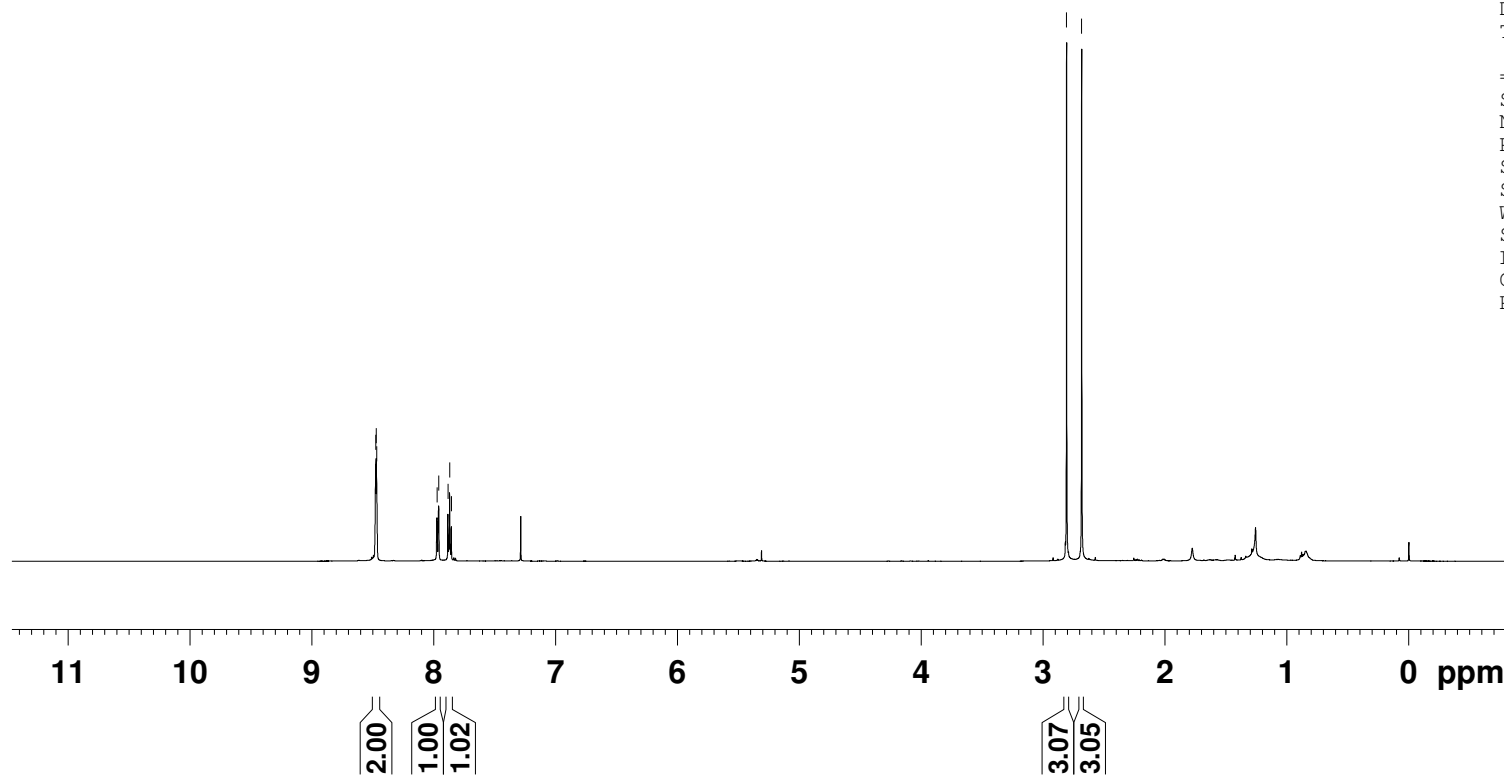
4k

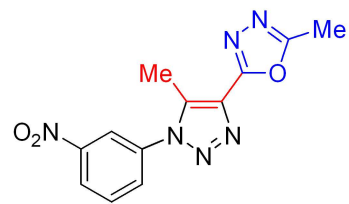
8.476
8.472
8.468
7.972
7.959
7.883
7.869
7.855

2.808
2.684

NAME LV-MYH-177P-20250613
EXPNO 2
PROCNO 1
Date_ 20250613
Time 16.53
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 69.87
DW 52.000 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1699995 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





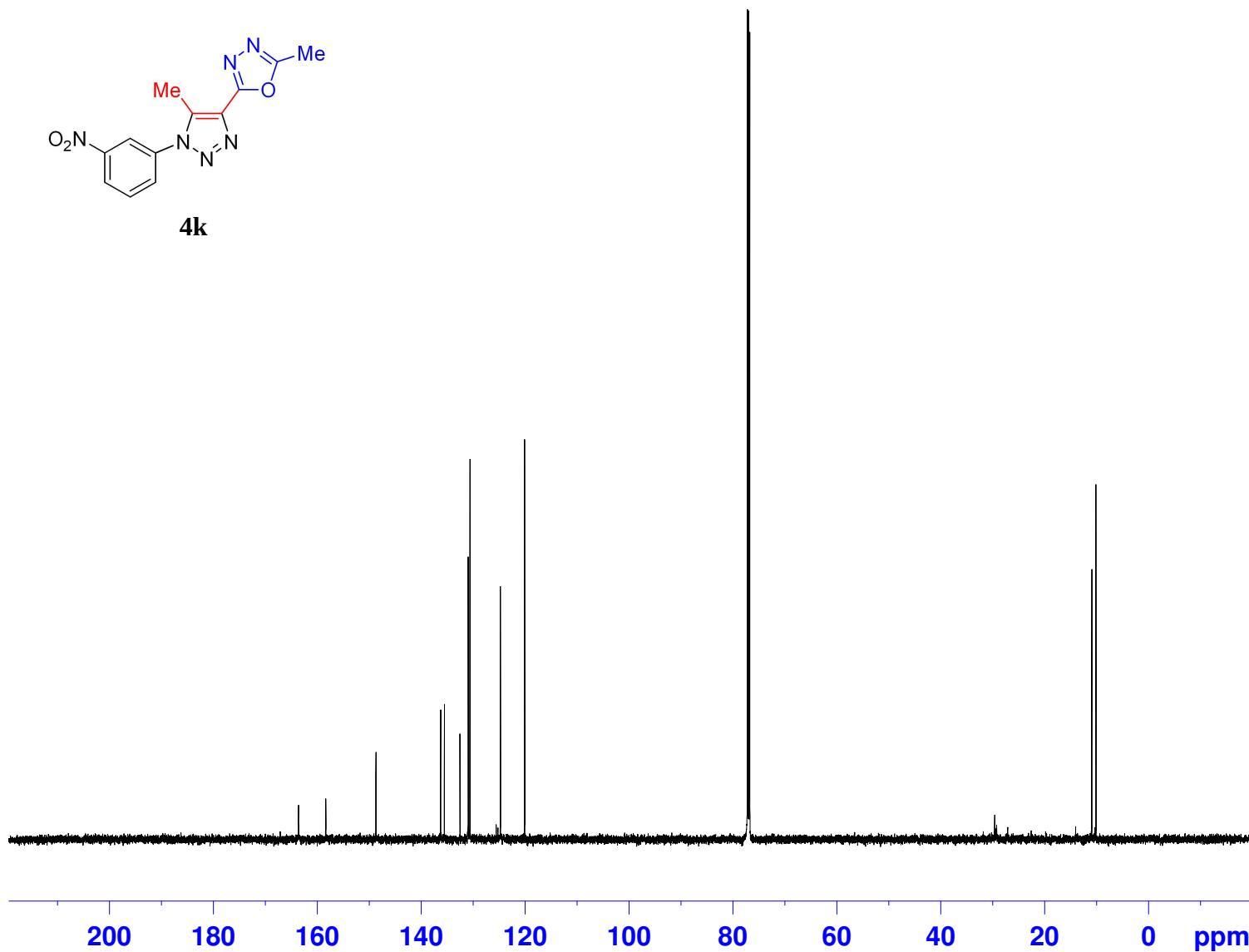
4k

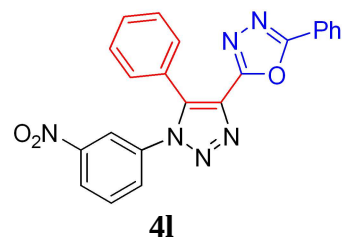
— 163.62
— 158.38
— 148.73
— 136.27
— 135.56
— 132.55
— 130.97
— 130.63
— 124.76
— 120.11

— 10.94
— 10.13

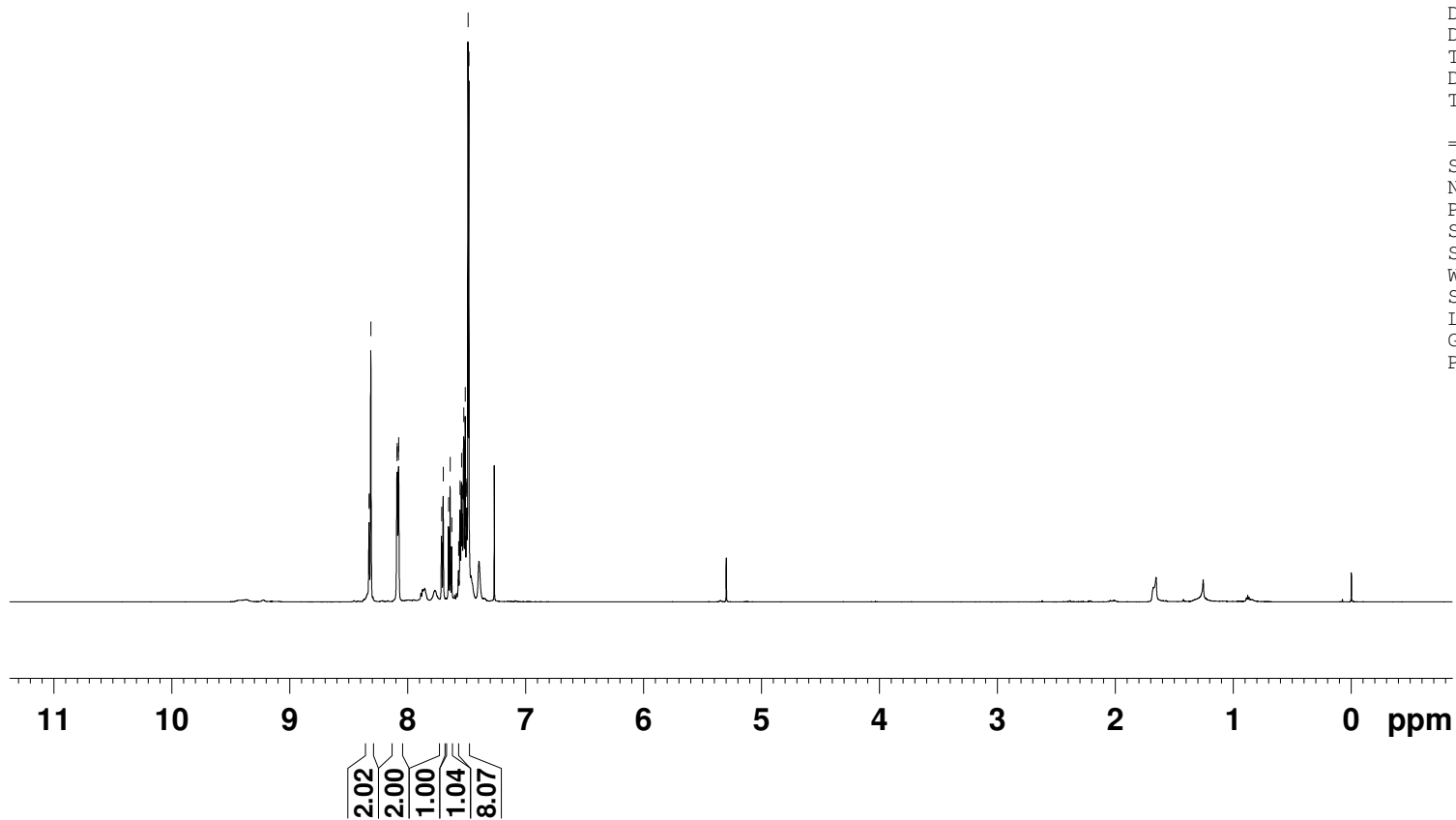
NAME LV-MYH-177P-20250613
EXPNO 3
PROCNO 1
Date_ 20250613
Time 17.31
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 400
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128767 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



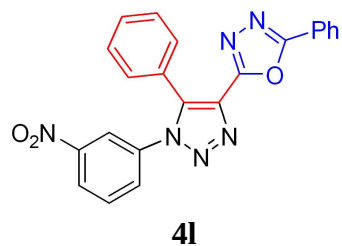


8.326
8.325
8.312
8.090
8.089
8.078
8.077
7.712
7.698
7.653
7.640
7.626
7.568
7.556
7.543
7.535
7.525
7.512
7.500
7.499
7.488
7.481

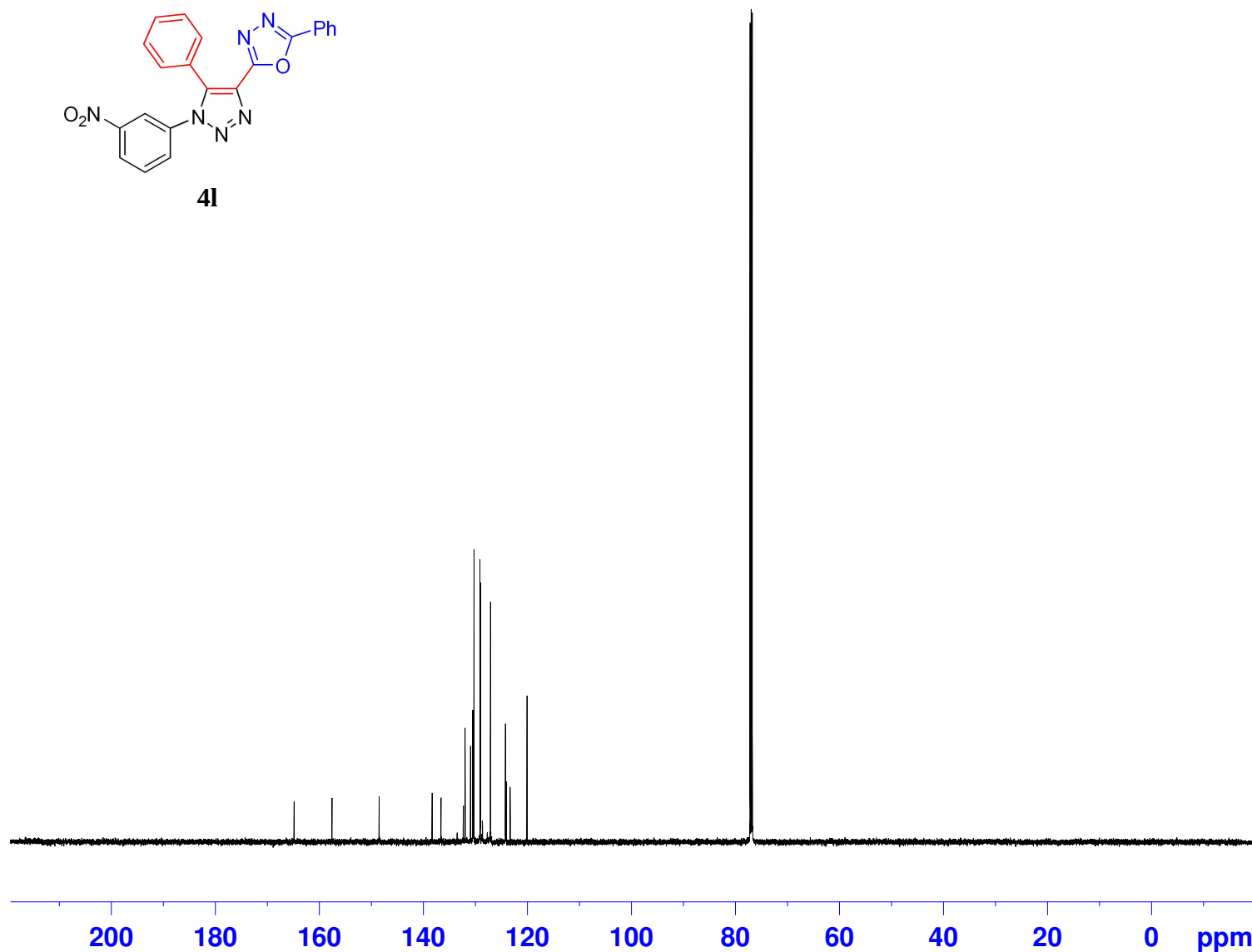


NAME LV-MYH-158P-20250429
EXPNO 1
PROCNO 1
Date_ 20250429
Time 11.38
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 96.28
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700113 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



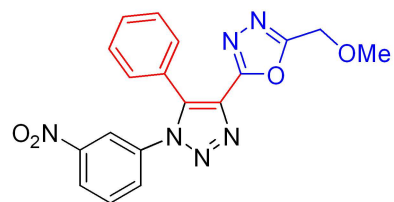
164.87
157.58
148.52
138.34
136.63
132.34
132.00
130.95
130.52
130.38
130.29
129.14
129.07
127.10
124.23
124.08
123.34
120.09



NAME LV-MYH-158P-20250429
EXPNO 2
PROCNO 1
Date_ 20250429
Time 12.09
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128742 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

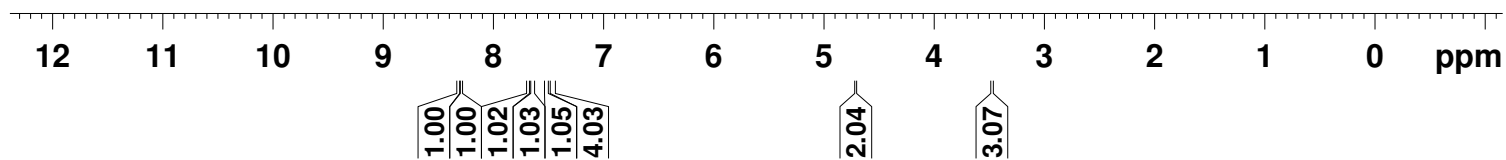
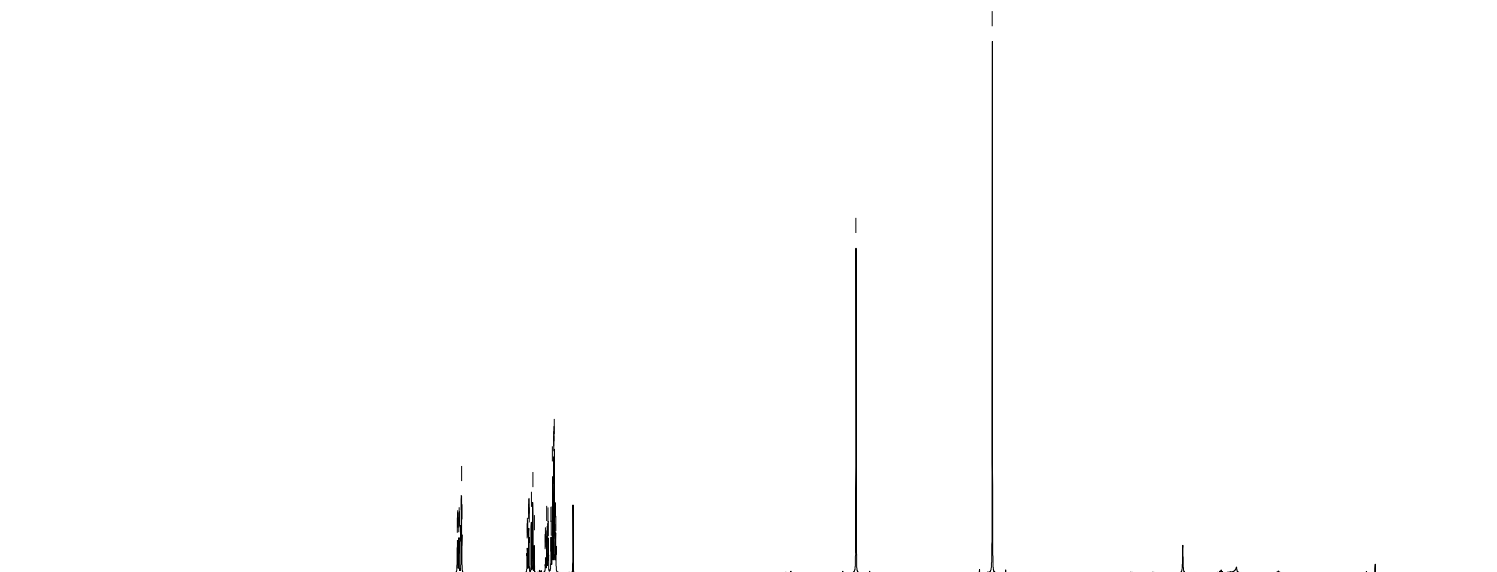
8.328
8.326
8.324
8.322
8.314
8.312
8.311
8.309
8.292
8.289
8.285
7.694
7.692
7.691
7.689
7.680
7.678
7.677
7.675
7.655
7.642
7.628
7.531
7.528
7.526
7.521
7.517
7.512
7.508
7.505
7.502
7.478
7.476
7.468
7.465
7.457
7.453
7.452
7.451
7.448
7.440
7.437
7.434
4.711
3.474

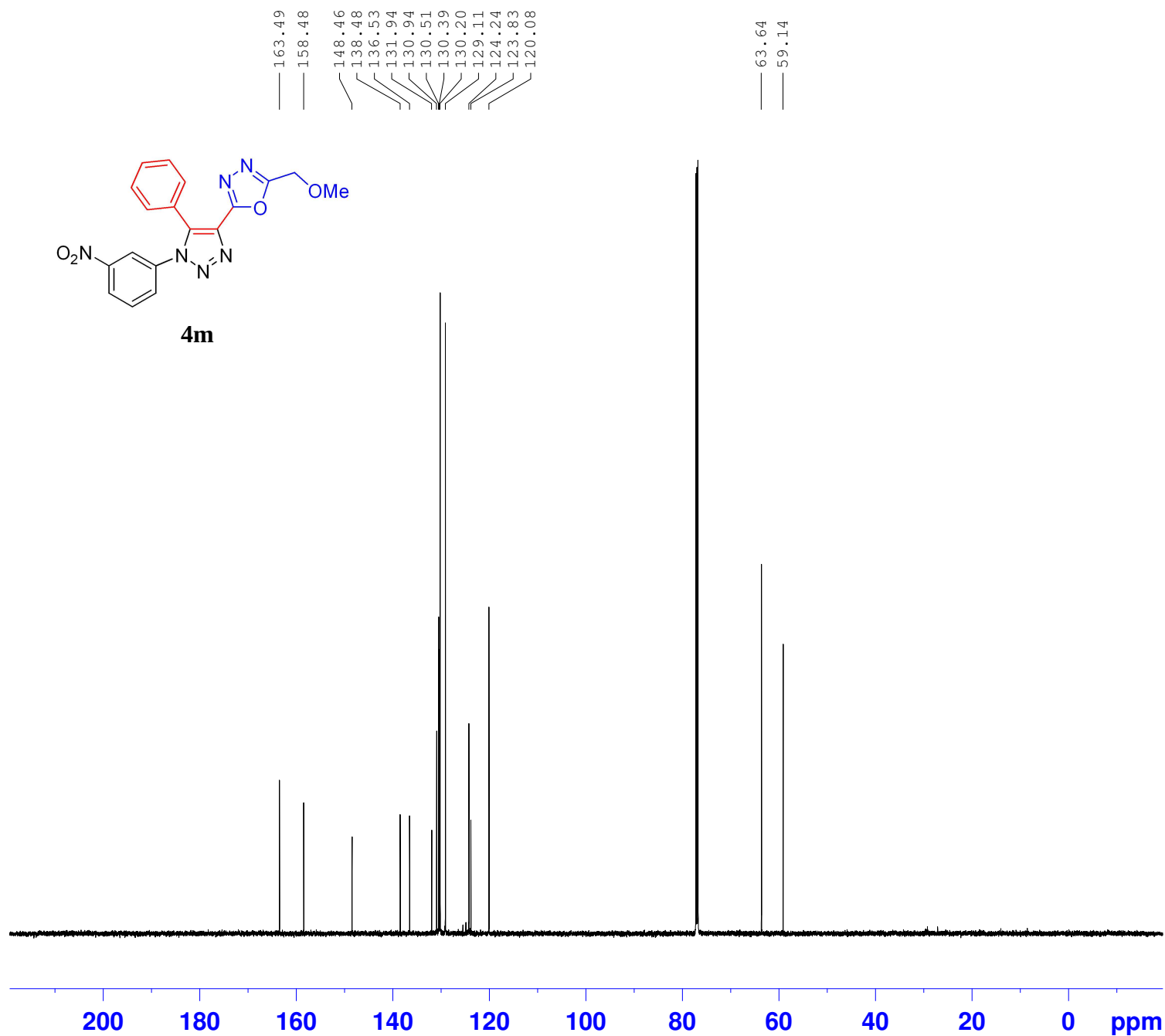
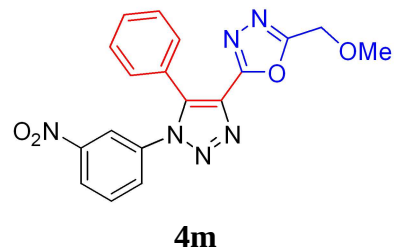


4m

NAME LV-MYH-147P-20250418
EXPNO 1
PROCNO 1
Date_ 20250418
Time 22.44
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 69.87
DW 52.000 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1

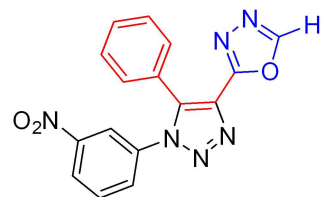
===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700029 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





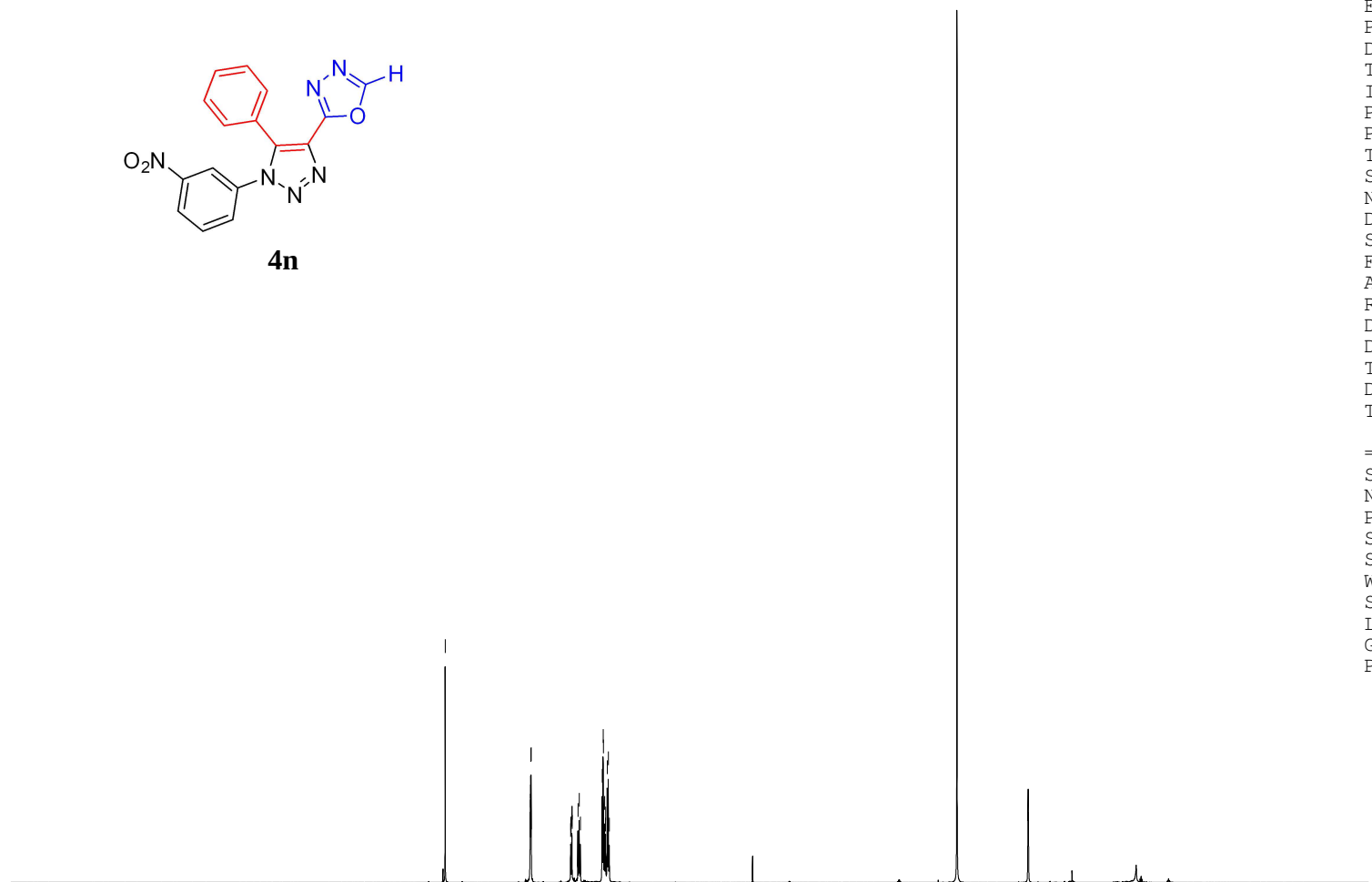
NAME LV-MYH-147P-20250418
 EXPNO 2
 PROCNO 1
 Date_ 20250418
 Time 23.15
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 600
 DS 4
 SWH 36057.691 Hz
 FIDRES 0.550197 Hz
 AQ 0.9088159 sec
 RG 190.02
 DW 13.867 usec
 DE 6.50 usec
 TE 298.1 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 TD0 1

===== CHANNEL f1 =====
 SF01 150.9279571 MHz
 NUC1 13C
 P1 11.90 usec
 SI 32768
 SF 150.9128778 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40



4n

9.378
8.375
8.373
8.372
8.368
8.364
7.899
7.897
7.896
7.894
7.885
7.883
7.882
7.881
7.812
7.797
7.784
7.526
7.515
7.512
7.498
7.488
7.486
7.466
7.456
7.454
7.442

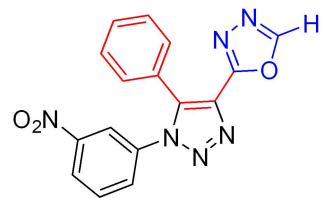


1.01
2.00
1.05
1.05
3.02
2.03

NAME LV-MYH-97P-20250526
EXPNO 1
PROCNO 1
Date_ 20250526
Time 22.12
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 87.54
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

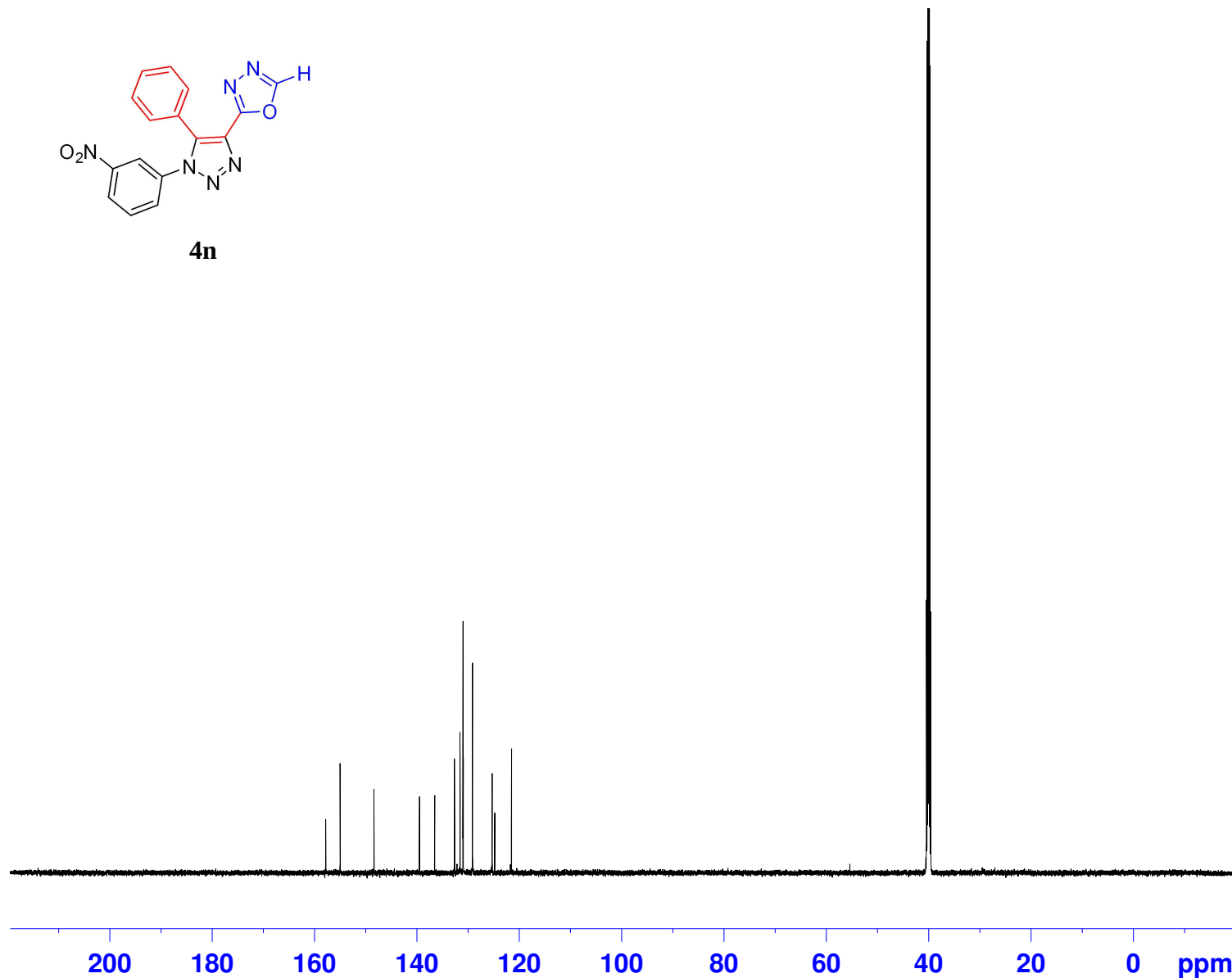
===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700046 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 ppm



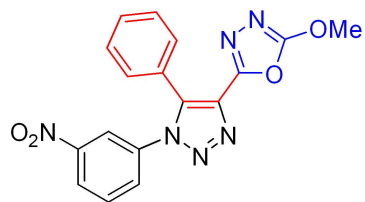
4n

157.80
154.97
148.36
139.47
136.49
132.62
131.54
131.51
130.96
130.92
129.10
125.26
124.76
121.49



NAME LV-MYH-97P-20250526
EXPNO 2
PROCNO 1
Date_ 20250526
Time 22.53
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 800
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128665 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



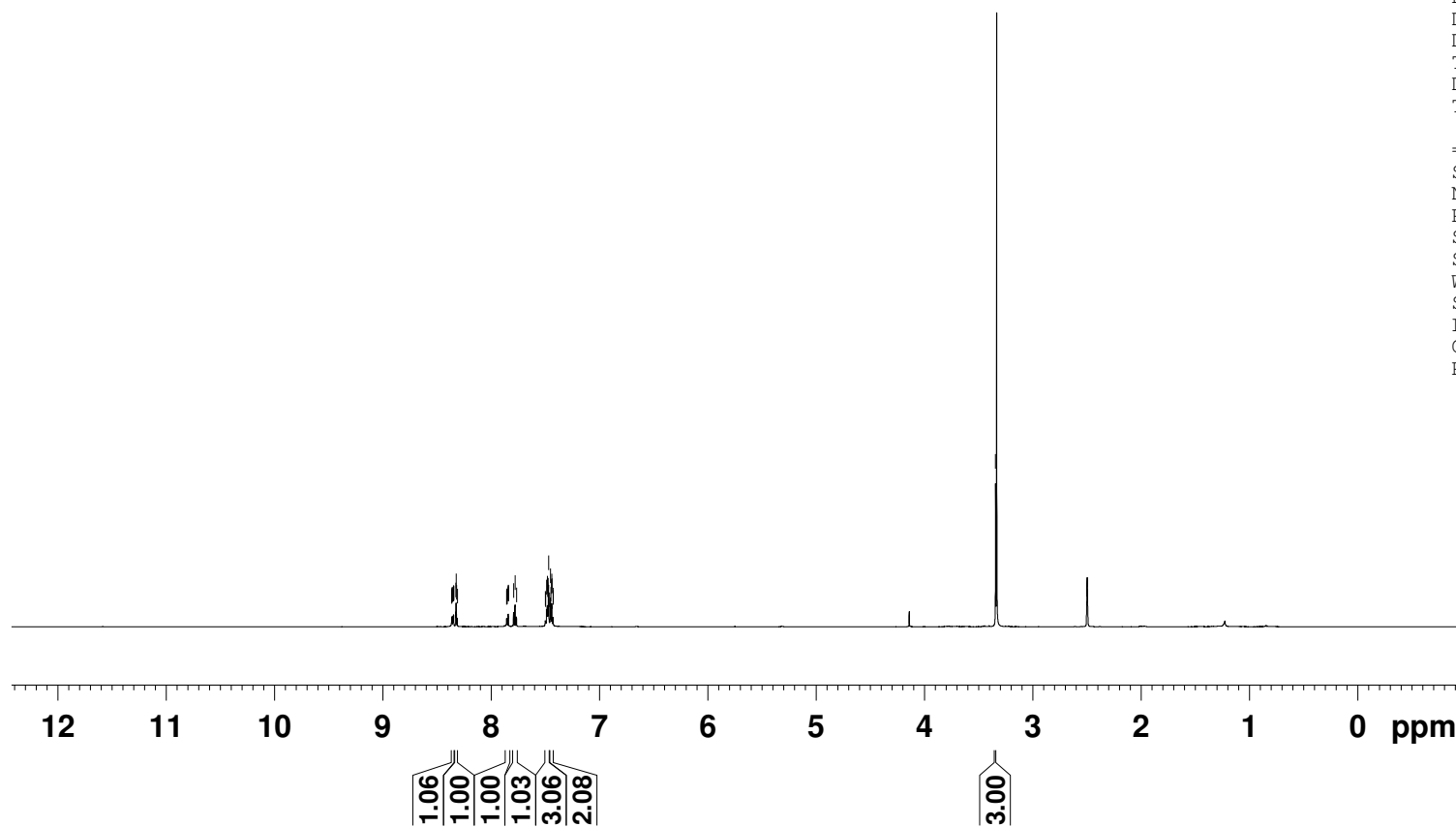
4o

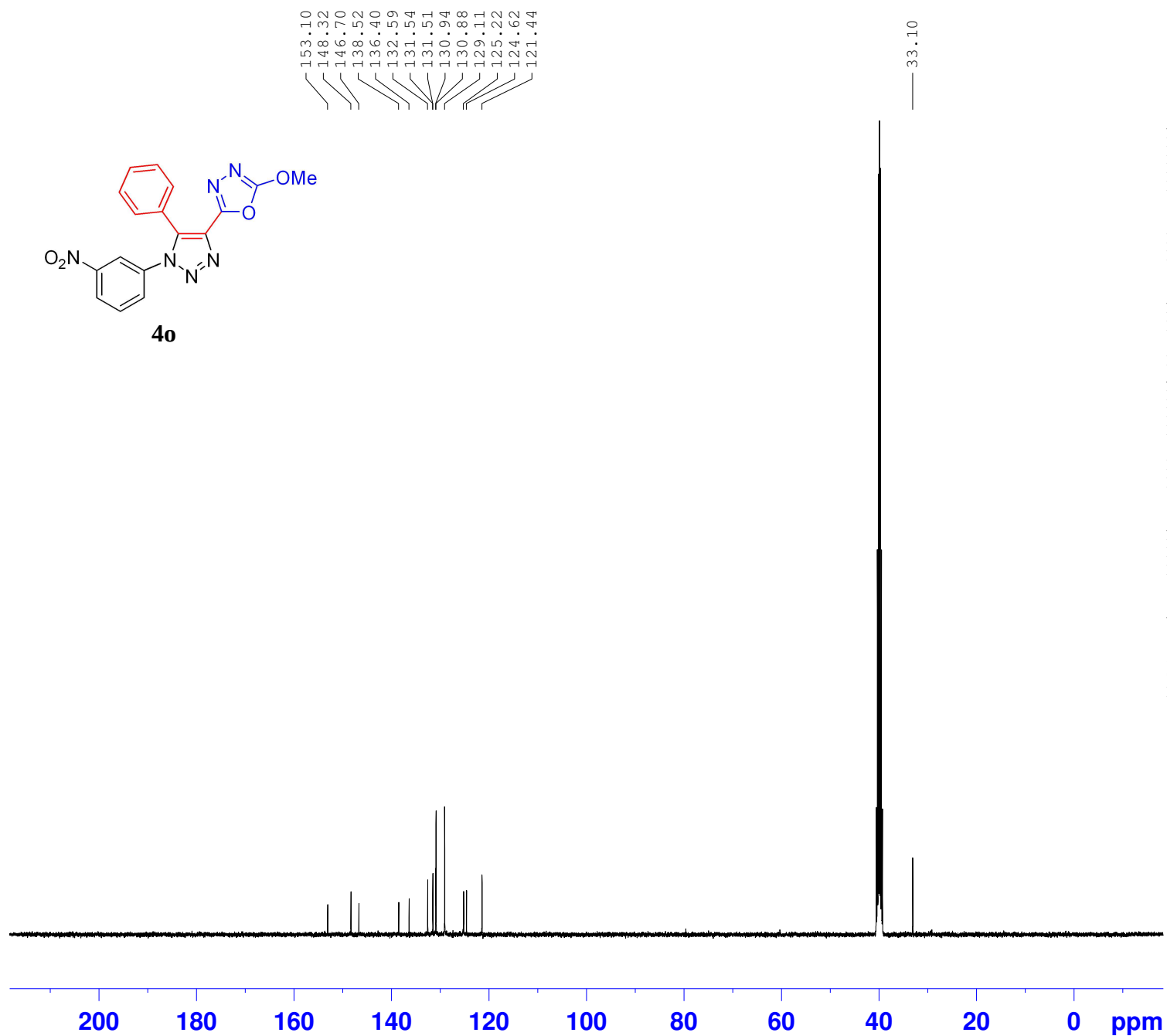
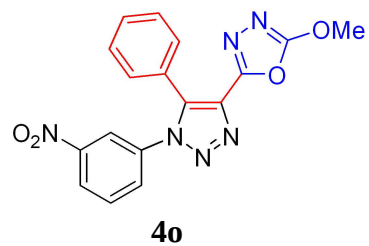
8.364
8.363
8.361
8.359
8.351
8.349
8.347
8.345
8.327
8.323
8.320
8.312
7.858
7.856
7.855
7.853
7.845
7.843
7.842
7.840
7.793
7.779
7.766
7.500
7.497
7.488
7.484
7.481
7.479
7.474
7.470
7.462
7.453
7.449
7.443
7.441
7.439
7.429
7.427

3.346

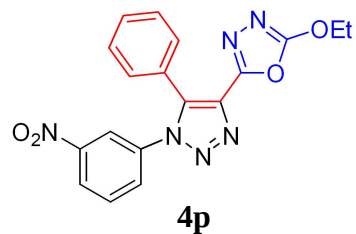
NAME LV-MYH-207P-20250623
EXPNO 1
PROCNO 1
Date_ 20250624
Time 1.01
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT DMSO
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 109.27
DW 52.000 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700048 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





NAME	LV-MYH-294P-20251-16
EXPNO	11
PROCNO	1
Date_	20251016
Time	12.07 h
INSTRUM	Avance
PROBHD	Z163739_0744 (
PULPROG	zgpg30
TD	65536
SOLVENT	DMSO
NS	600
DS	4
SWH	23809.523 Hz
FIDRES	0.726609 Hz
AQ	1.3763061 sec
RG	101
DW	21.000 usec
DE	6.50 usec
TE	293.5 K
D1	2.00000000 sec
D11	0.03000000 sec
TD0	1
SFO1	100.6228298 MHz
NUC1	13C
P0	2.67 usec
P1	8.00 usec
SI	32768
SF	100.6127685 MHz
WDW	EM
SSB	0
LB	1.00 Hz
GB	0
PC	1.40



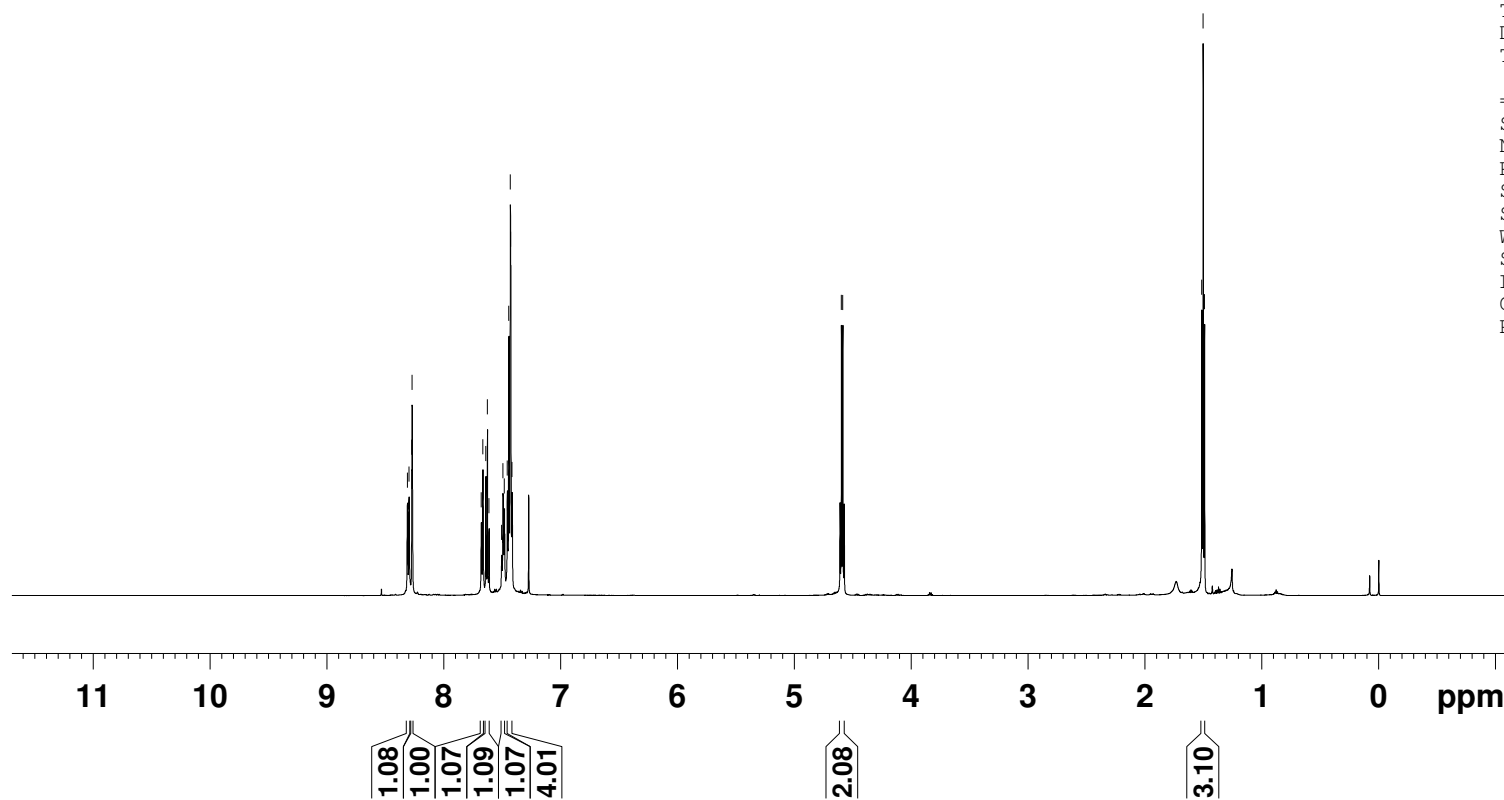
8.311
8.298
8.275
8.272
7.680
7.666
7.641
7.627
7.614
7.506
7.494
7.483
7.457
7.444
7.431
7.428
7.417

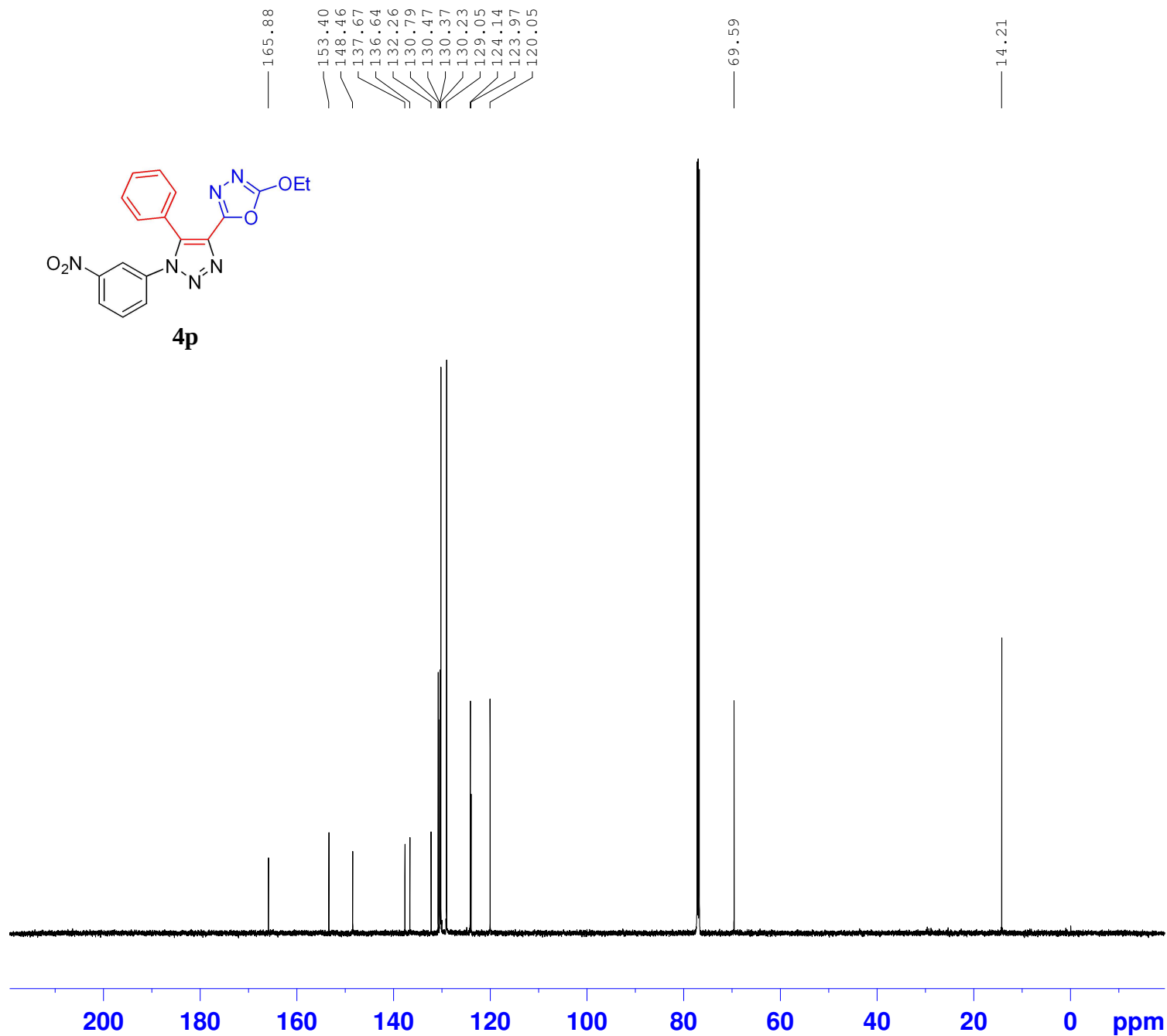
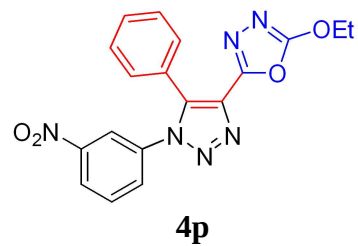
4.598
4.586

1.514
1.502
1.490

NAME LV-MYH-184P-20250526
EXPNO 1
PROCNO 1
Date_ 20250526
Time 23.01
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 76.92
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700057 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





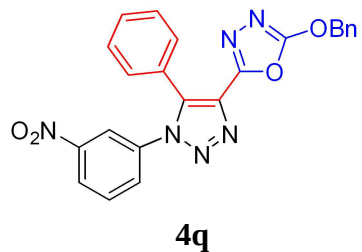
```

NAME      LV-MYH-184P-20250526
EXPNO     2
PROCNO    1
Date_     20250526
Time      23.42
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

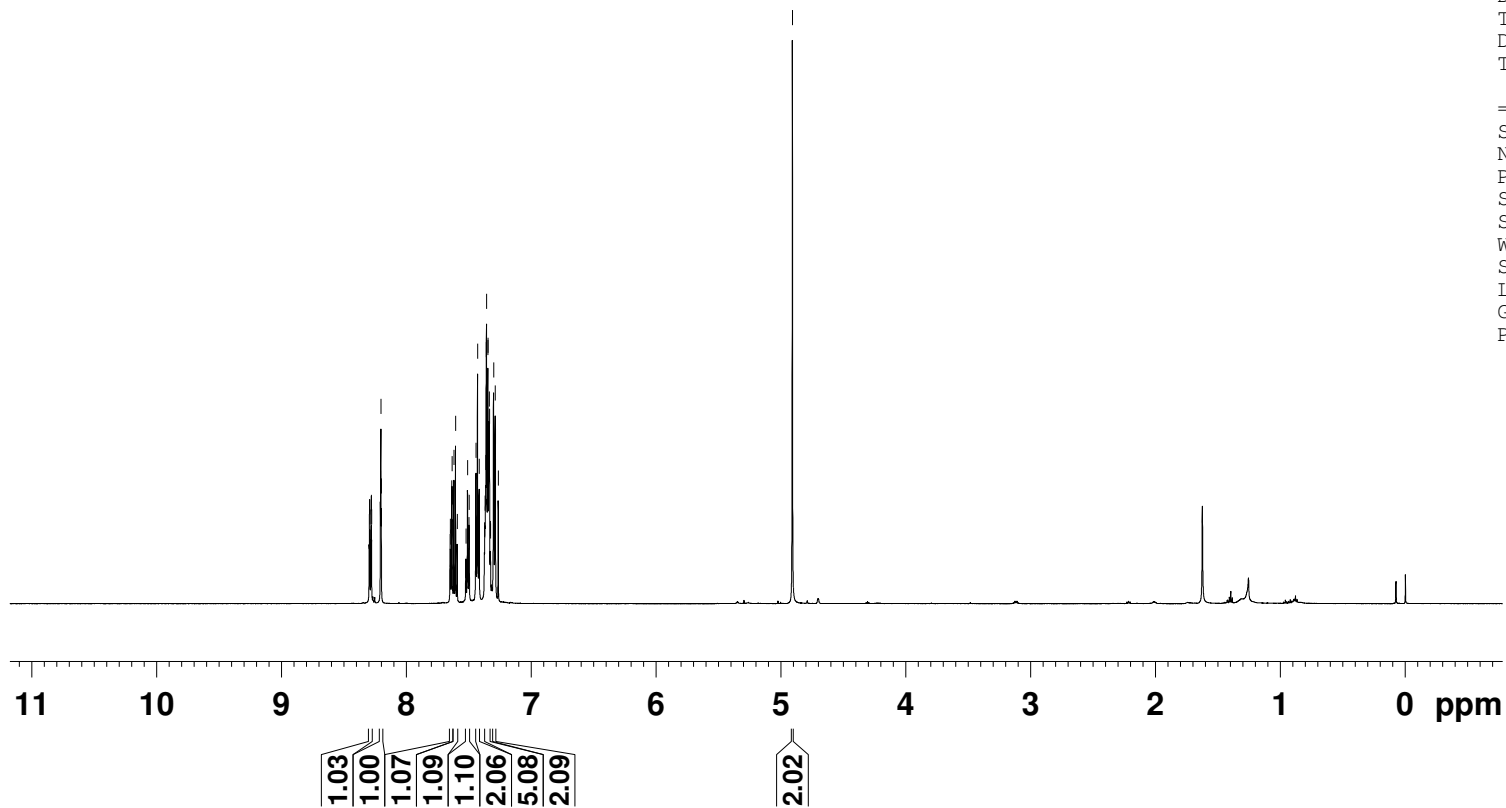
===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128754 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```

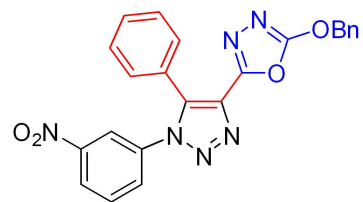

8.283
8.281
8.280
8.278
8.207
8.203
8.200
7.650
7.648
7.645
7.636
7.634
7.631
7.619
7.605
7.592
7.522
7.510
7.499
7.497
7.442
7.429
7.419
7.416
7.374
7.369
7.364
7.360
7.357
7.351
7.347
7.346
7.342
7.340
7.335
7.334
7.327
7.326
7.300
7.288
7.286
7.263
4.907



NAME LV-MYH-148P-20250418
EXPNO 1
PROCNO 1
Date_ 20250419
Time 1.05
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 87.54
DW 52.000 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700123 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00





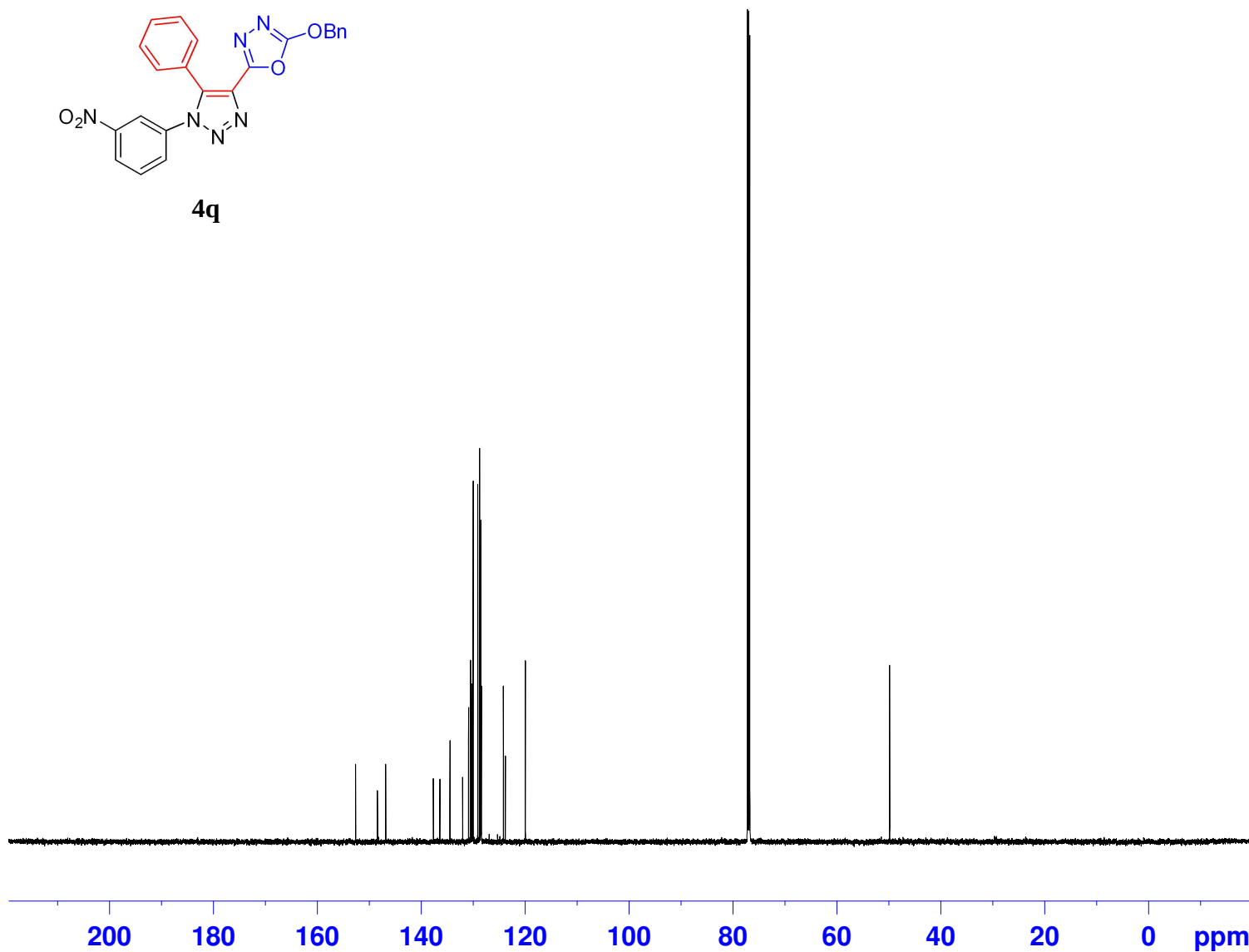
4q

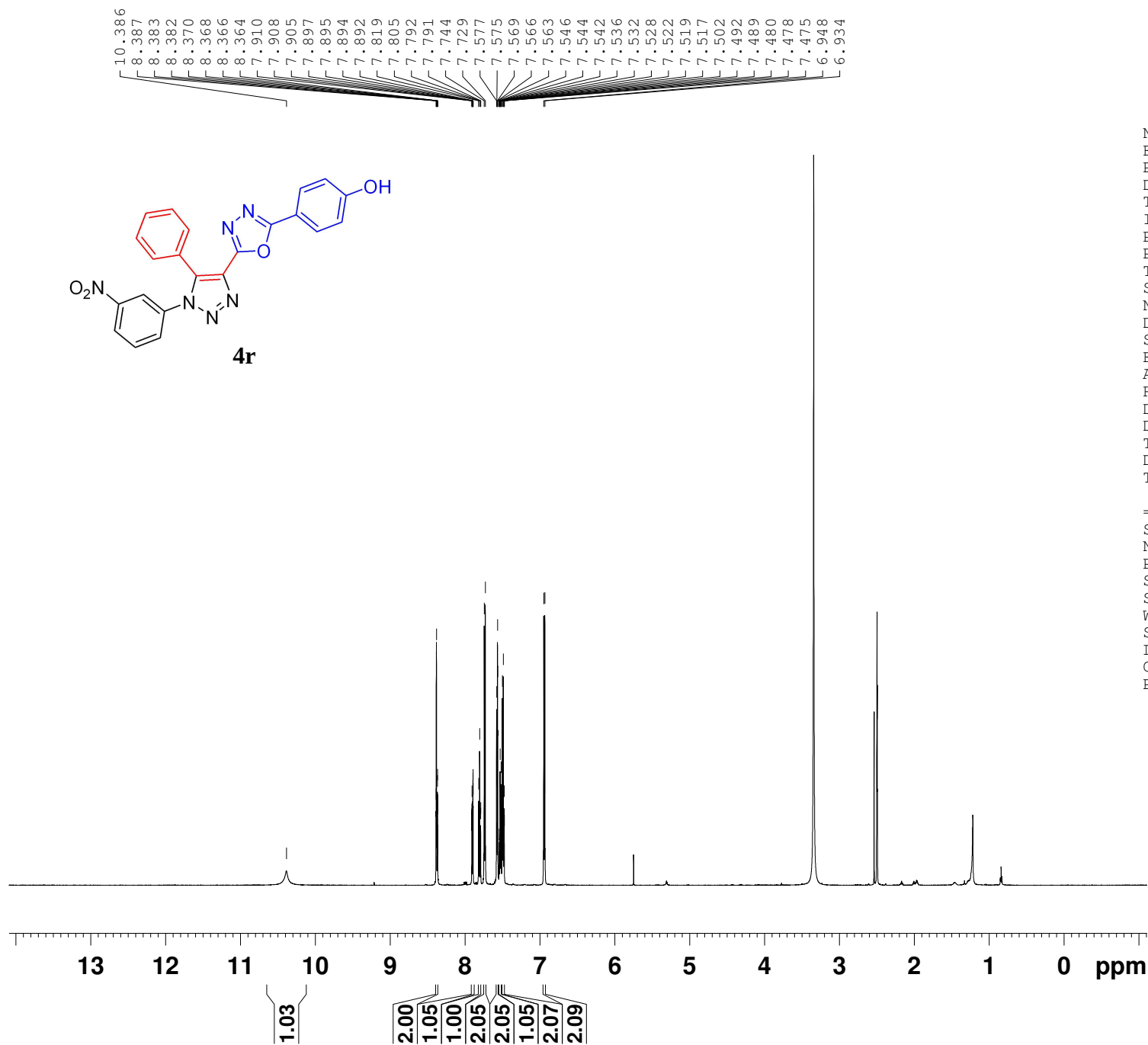
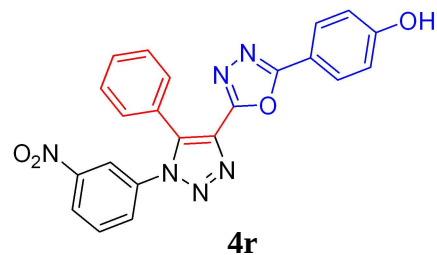
152.65
148.44
146.86
137.70
136.44
134.50
132.06
130.91
130.50
130.28
130.03
129.12
128.78
128.53
128.44
124.20
123.83
119.97

— 49.87

NAME LV-MYH-148P-20250418
EXPNO 2
PROCNO 1
Date_ 20250419
Time 1.36
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

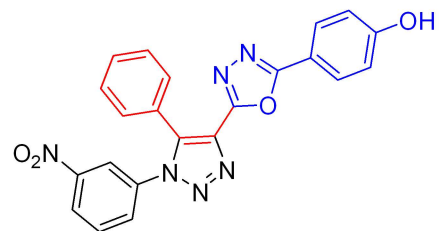
===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128750 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40





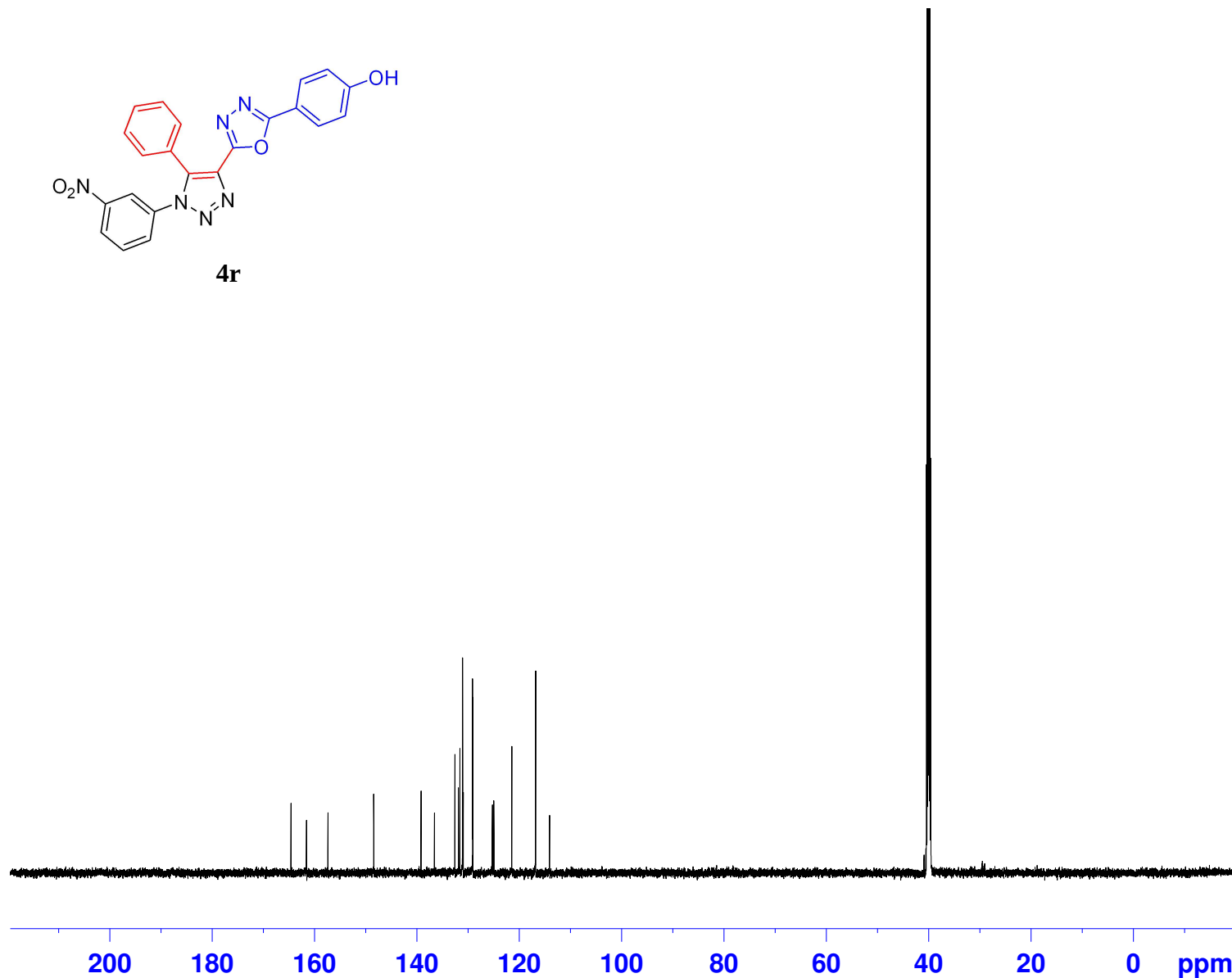
NAME LV-MYH-183P-20250528
 EXPNO 1
 PROCNO 1
 Date_ 20250528
 Time 23.45
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT DMSO
 NS 8
 DS 0
 SWH 9615.385 Hz
 FIDRES 0.146719 Hz
 AQ 3.4079220 sec
 RG 96.28
 DW 52.000 usec
 DE 6.50 usec
 TE 298.1 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 600.1739011 MHz
 NUC1 1H
 P1 9.96 usec
 SI 65536
 SF 600.1700048 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



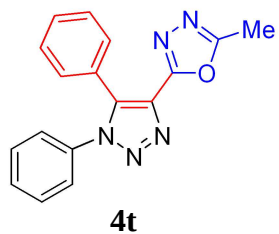
4r

164.55
161.53
157.35
148.39
139.16
136.53
132.55
131.85
131.56
131.03
130.91
129.08
129.03
125.23
124.93
121.41
116.76
114.04



NAME LV-MYH-183P-20250528
EXPNO 2
PROCNO 1
Date_ 20250529
Time 0.27
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT DMSO
NS 800
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128665 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

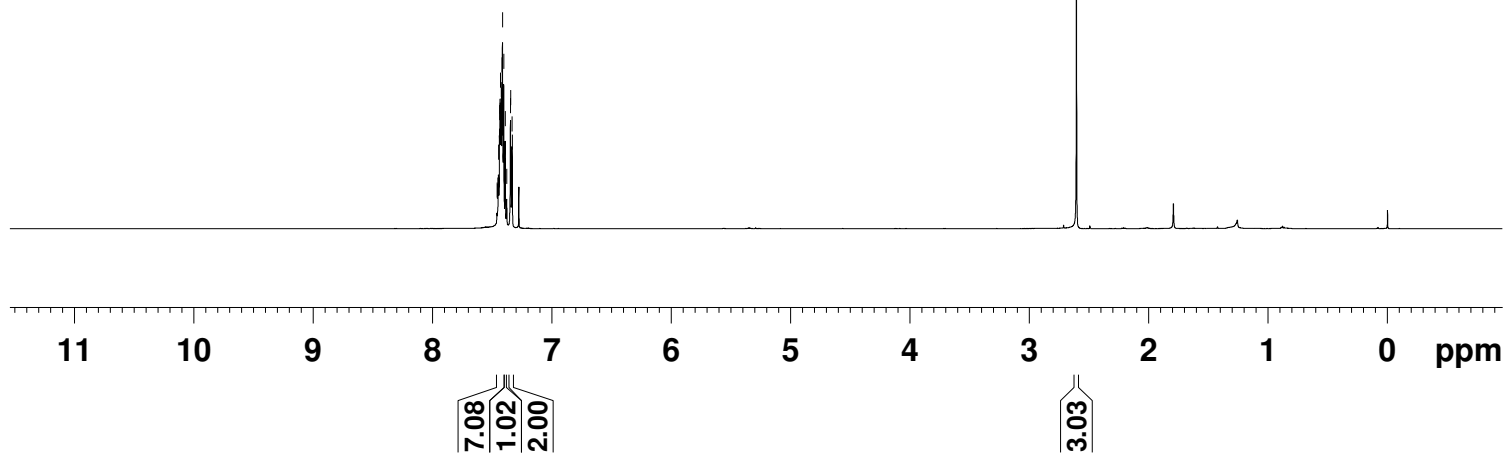


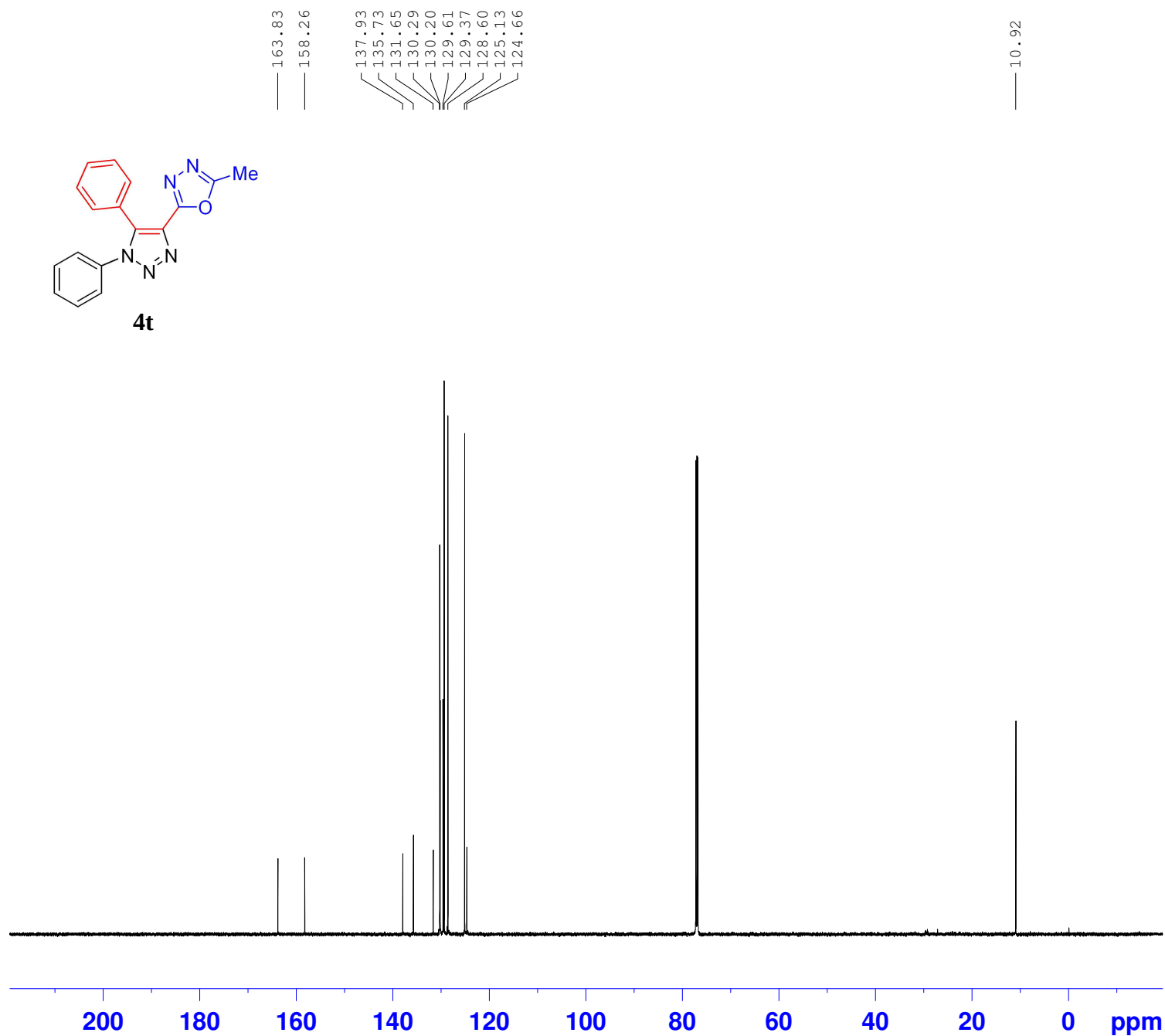
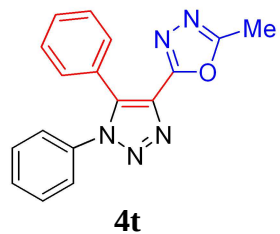
7.459
7.457
7.453
7.447
7.438
7.435
7.431
7.428
7.424
7.418
7.413
7.403
7.391
7.378
7.347
7.345
7.334
7.331

— 2.606

NAME LV-MYH-197P-20250616
EXPNO 1
PROCNO 1
Date_ 20250616
Time 22.07
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 62.22
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700051 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



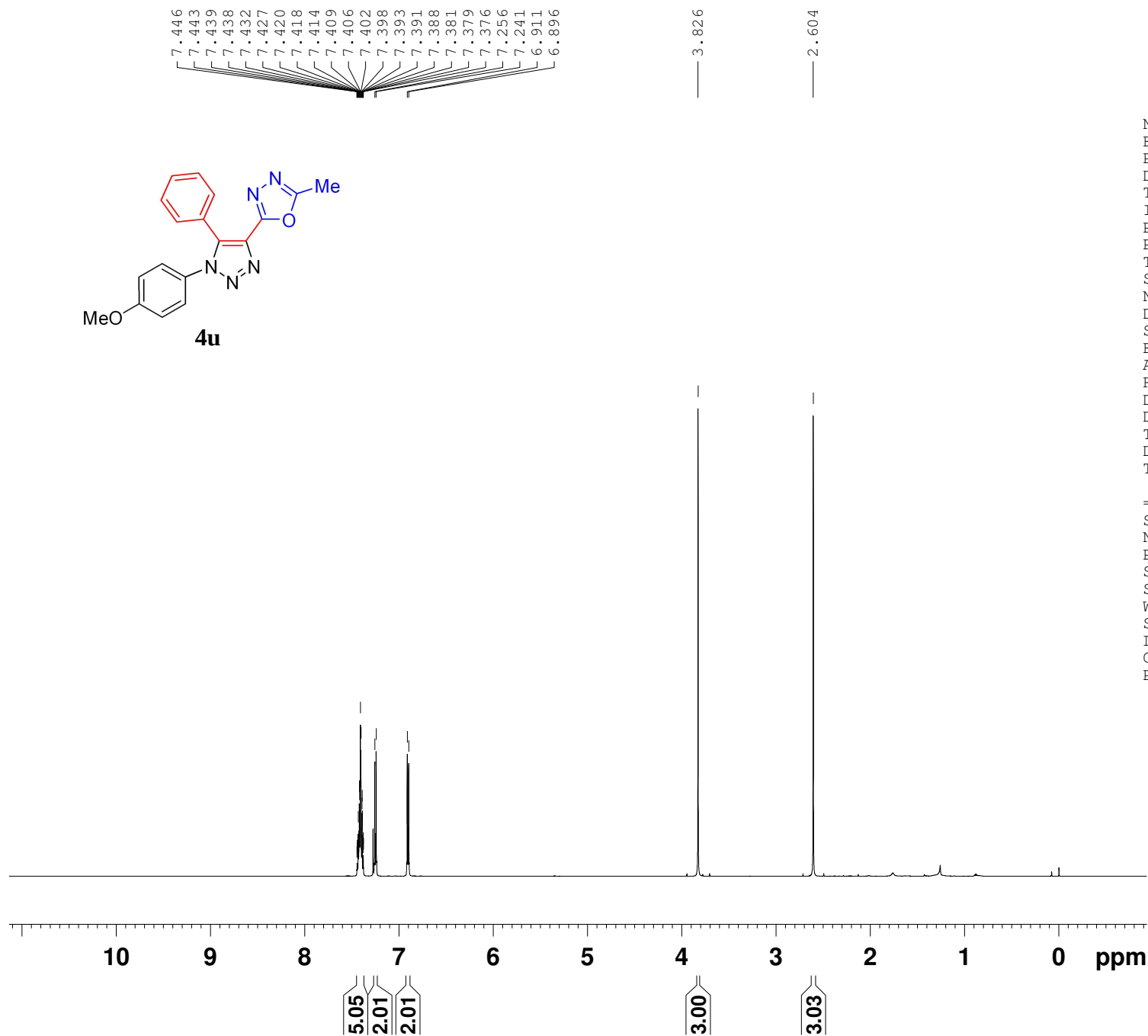
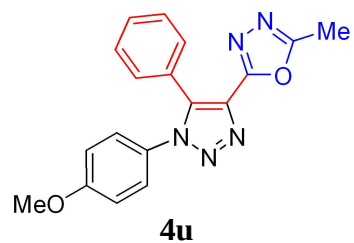


```

NAME      LV-MYH-197P-20250616
EXPNO     2
PROCNO    1
Date_     20250616
Time      22.48
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128789 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```

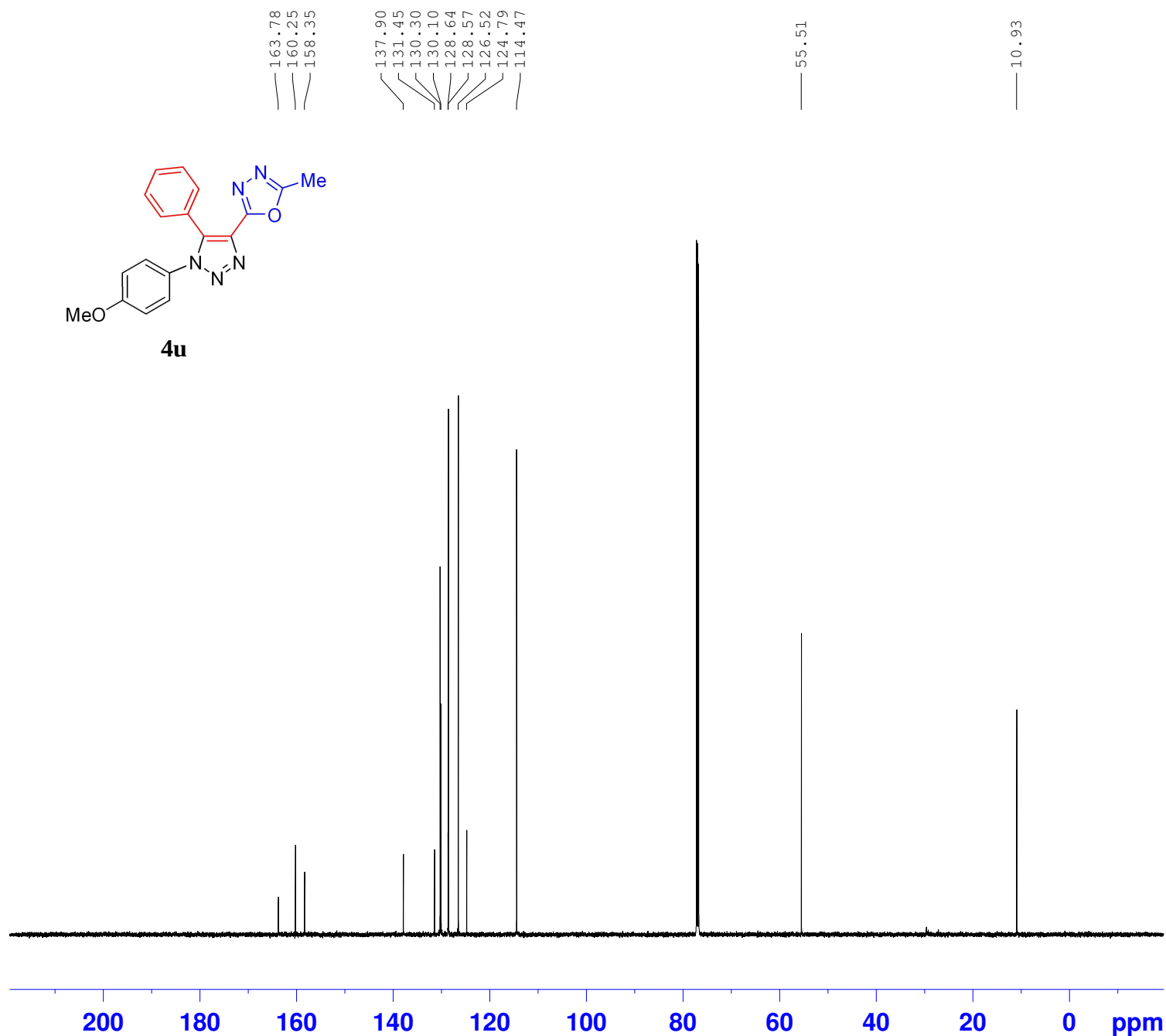
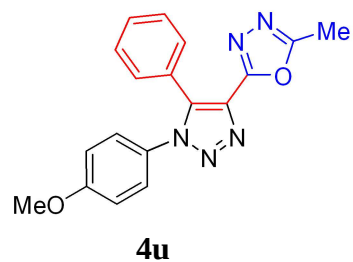


```

NAME      LV-MYH-141P-20250415
EXPNO     1
PROCNO    1
Date_     20250415
Time      22.20
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS         8
DS         0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG         69.87
DW        52.000 usec
DE         6.50 usec
TE        298.0 K
D1        1.00000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SFO1    600.1739011 MHz
NUC1     1H
P1       9.96 usec
SI      65536
SF      600.1700065 MHz
WDW      EM
SSB      0
LB       0.30 Hz
GB       0
PC       1.00
  
```

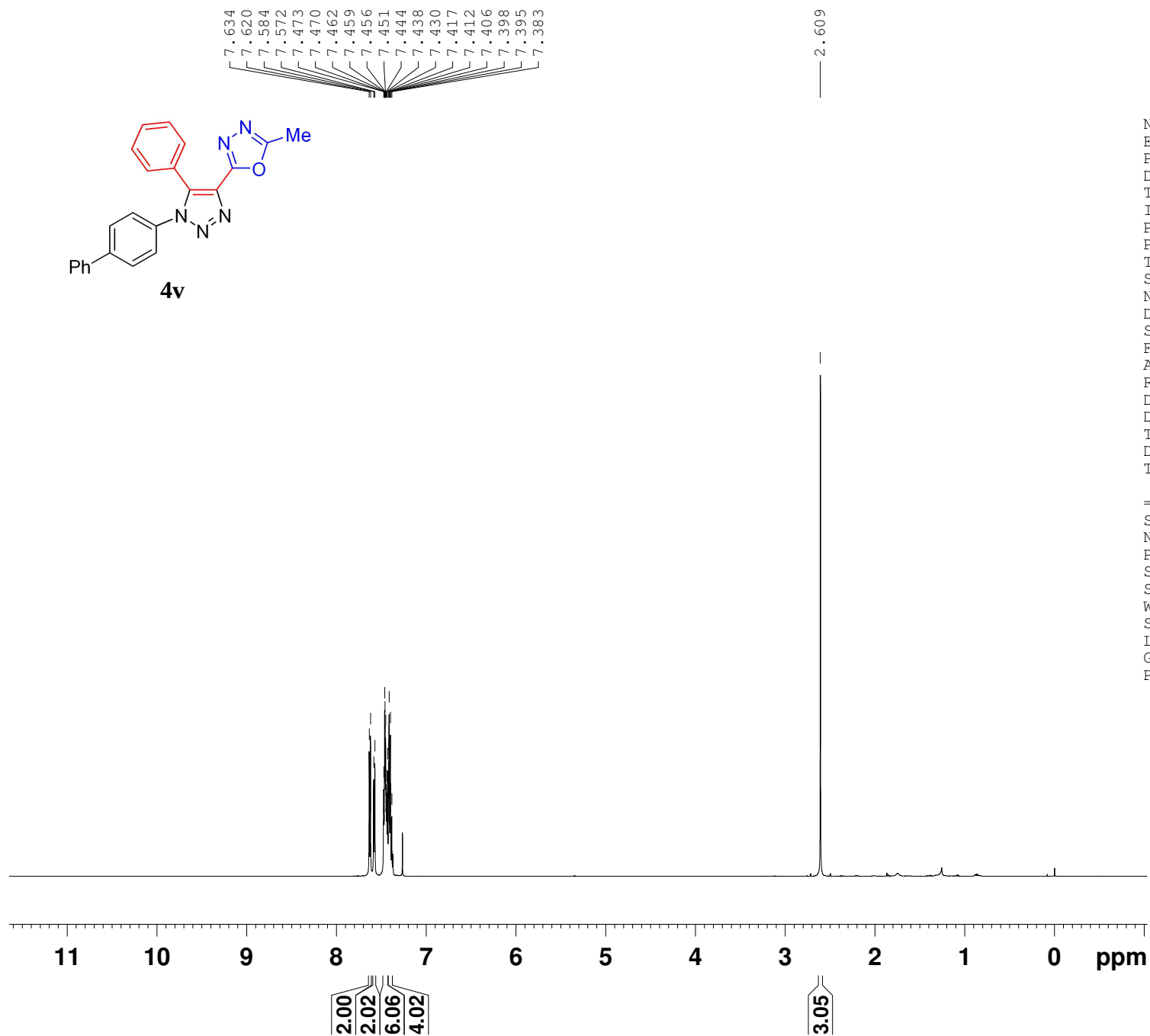
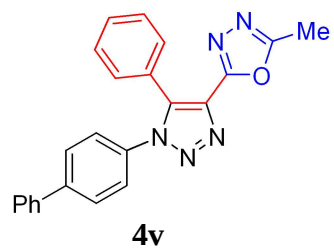


```

NAME      LV-MYH-141P-20250415
EXPNO     2
PROCNO    1
Date_     20250415
Time      22.51
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        600
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.1 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01      150.9279571 MHz
NUC1      13C
P1        11.90 usec
SI        32768
SF        150.9128776 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```

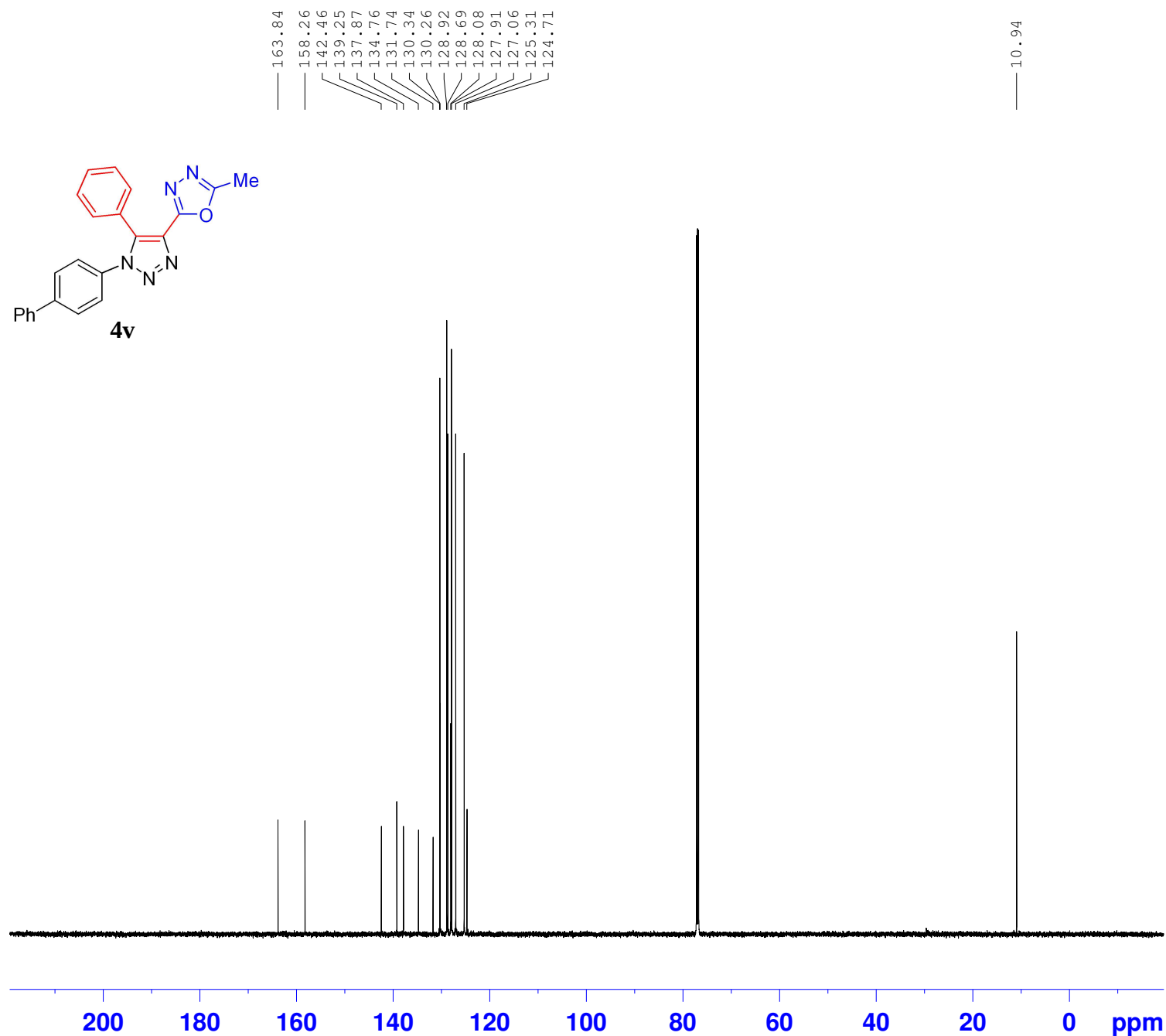
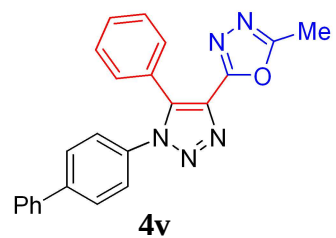



```

NAME      LV-MYH-140P-20250410
EXPNO     1
PROCNO    1
Date_     20250410
Time      21.32
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDCl3
NS         8
DS         0
SWH        9615.385 Hz
FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         62.22
DW         52.000 usec
DE         6.50 usec
TE         298.0 K
D1         1.00000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1       1H
P1         9.96 usec
SI         65536
SF         600.1700124 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```

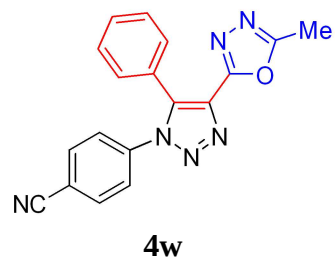


```

NAME      LV-MYH-140P-20250410
EXPNO     2
PROCNO    1
Date_     20250410
Time      22.03
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        600
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.0 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128792 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```

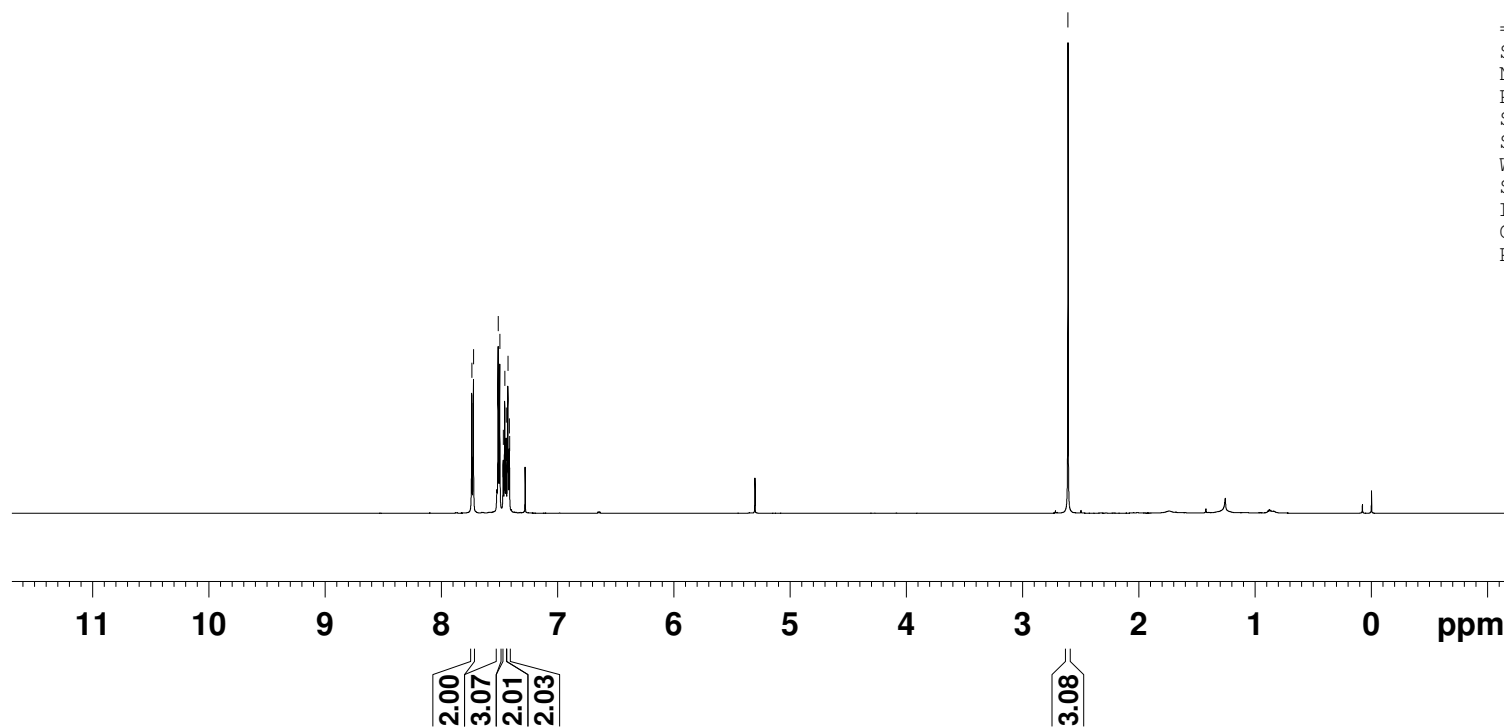


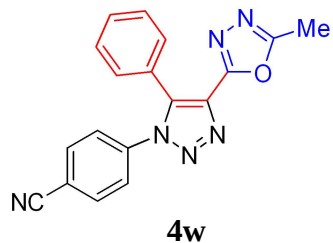
7.738
7.723
7.511
7.497
7.467
7.454
7.442
7.427
7.415
7.413

2.611

NAME LV-MYH-165P-20250509
EXPNO 1
PROCNO 1
Date_ 20250509
Time 22.56
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 69.87
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700036 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



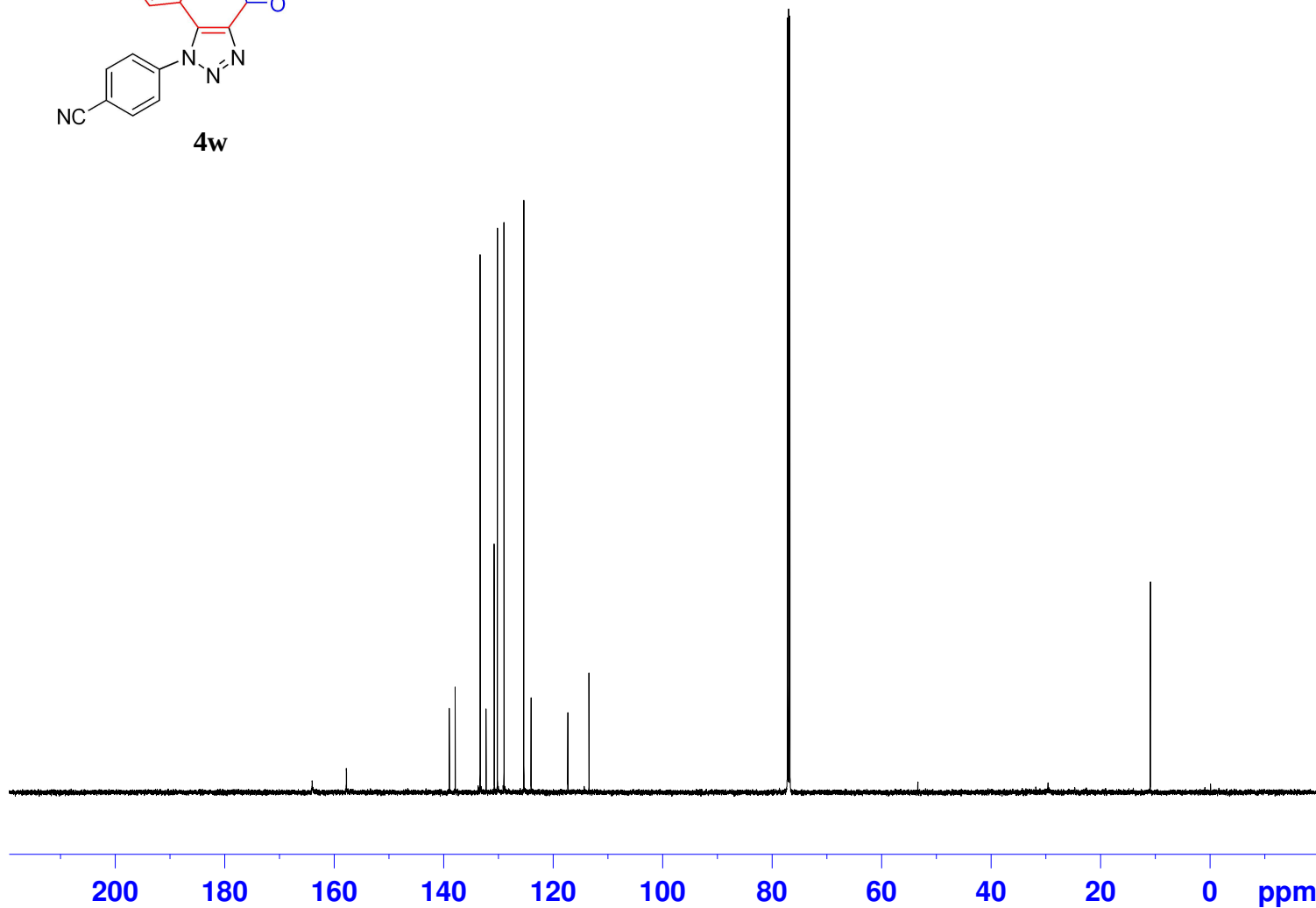


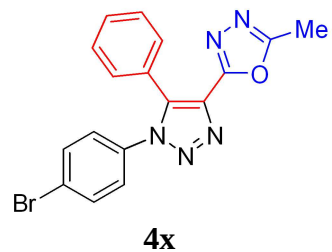
164.04
157.79
138.98
137.91
133.36
132.27
130.79
130.21
129.01
125.38
124.04
117.33
113.48

10.91

NAME LV-MYH-165P-20250509
EXPNO 2
PROCNO 1
Date_ 20250509
Time 23.27
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.1 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128798 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



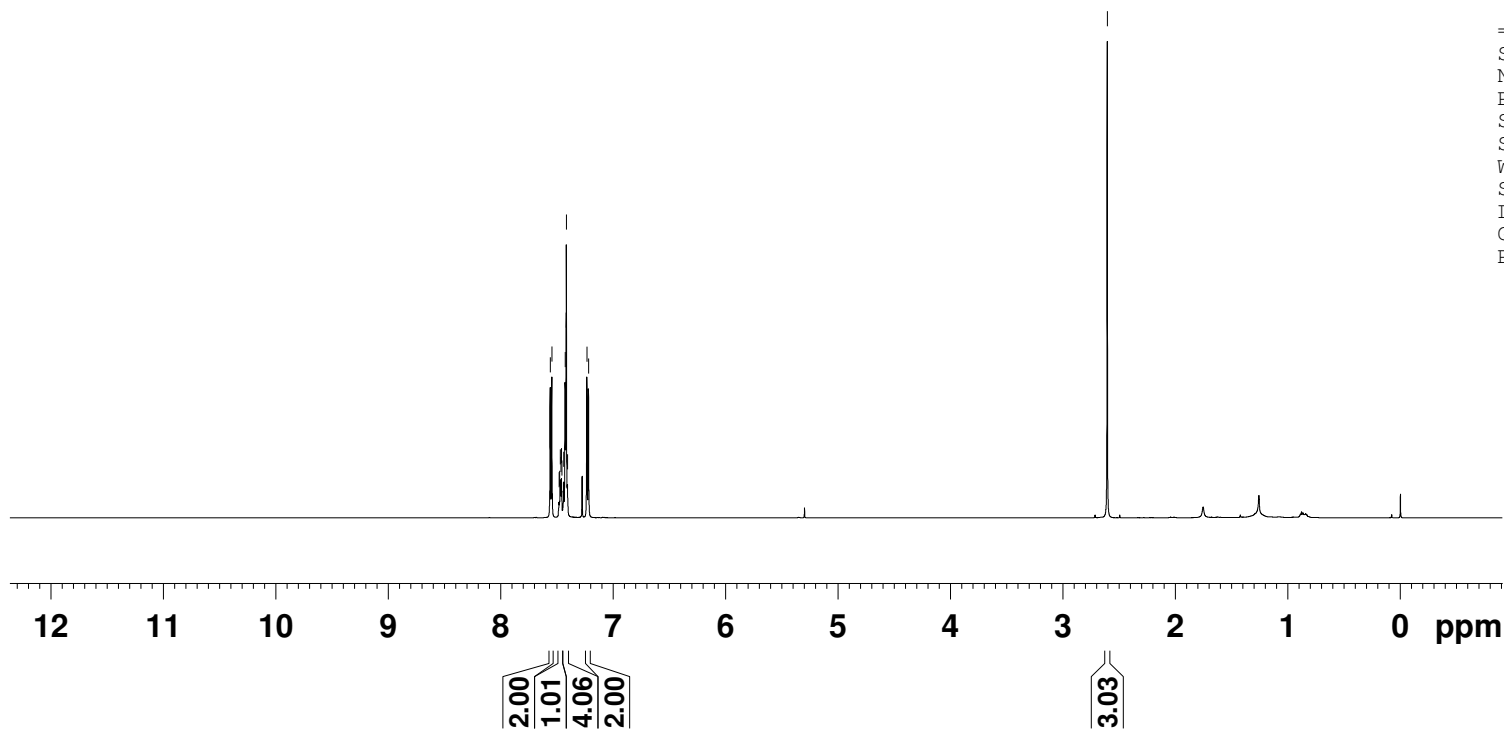


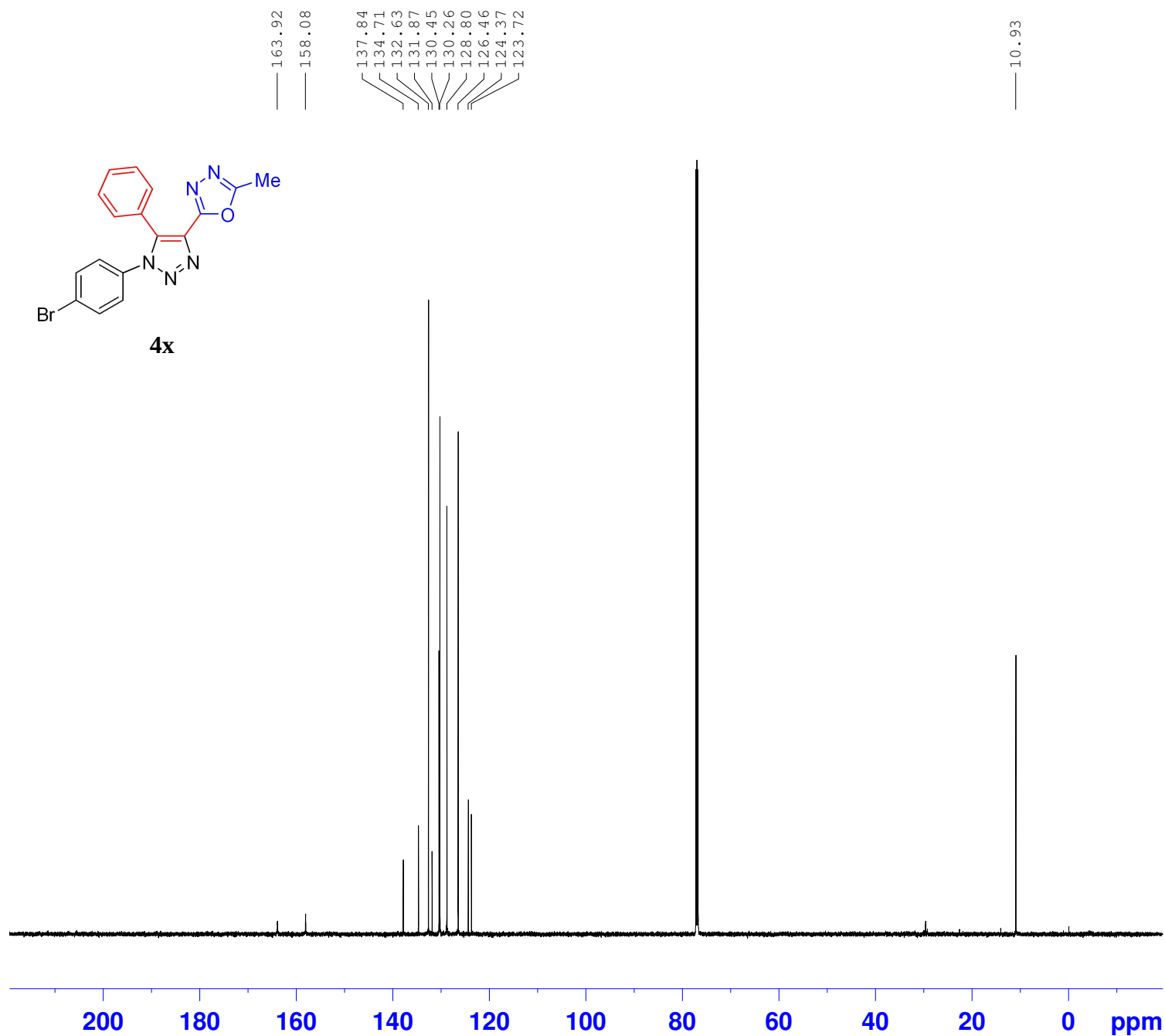
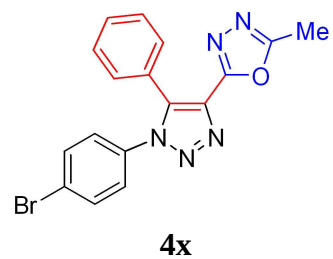
7.559
7.545
7.481
7.476
7.470
7.465
7.460
7.456
7.440
7.426
7.419
7.416
7.406
7.233
7.218

2.605

NAME LV-MYH-172P-20250516
EXPNO 1
PROCNO 1
Date_ 20250516
Time 22.15
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 8
DS 0
SWH 9615.385 Hz
FIDRES 0.146719 Hz
AQ 3.4079220 sec
RG 69.87
DW 52.000 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
TD0 1

===== CHANNEL f1 =====
SFO1 600.1739011 MHz
NUC1 1H
P1 9.96 usec
SI 65536
SF 600.1700055 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00



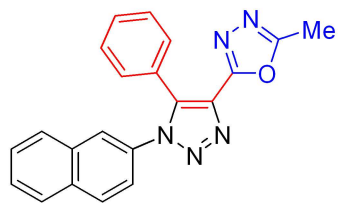


```

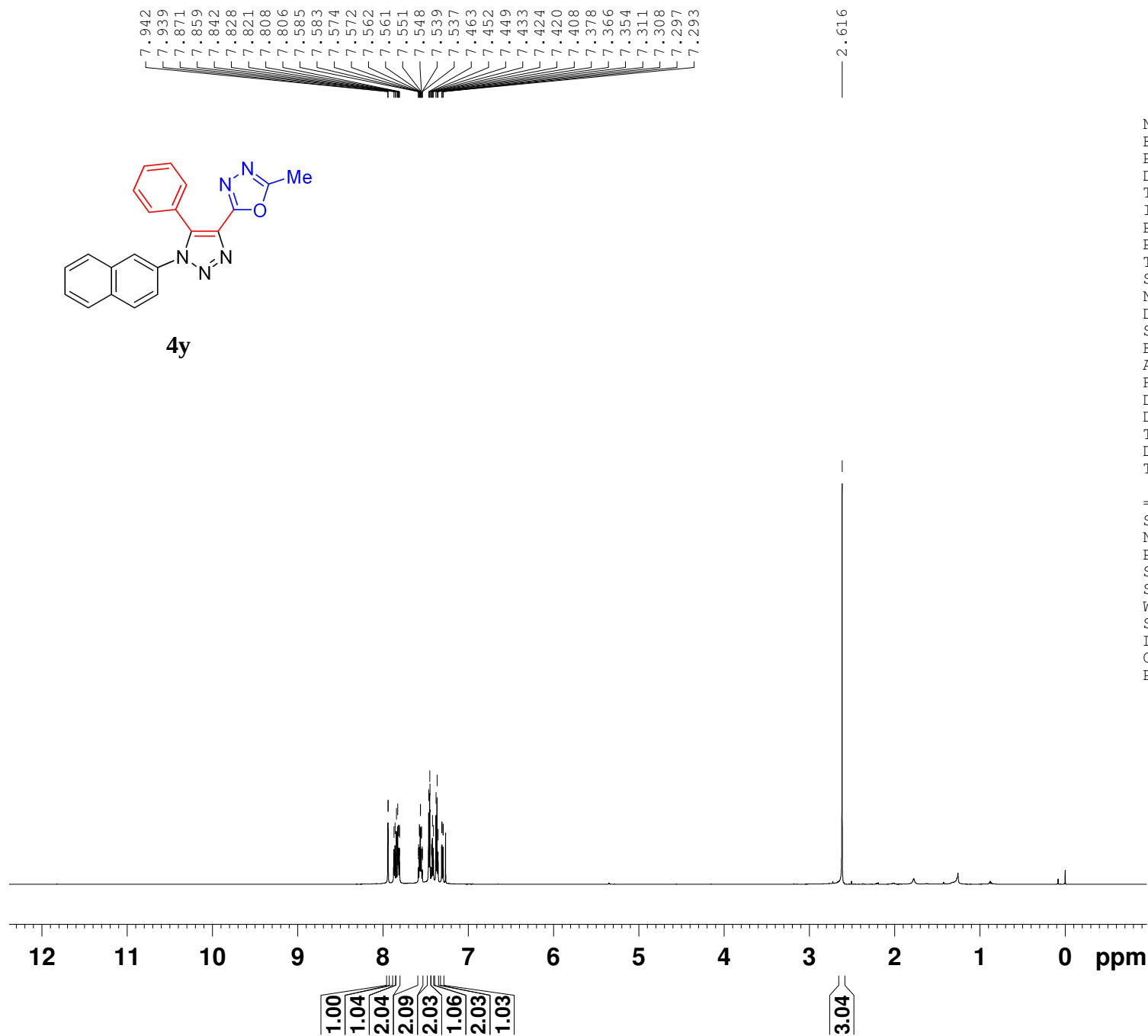
NAME      LV-MYH-172P-20250516
EXPNO     2
PROCNO    1
Date_     20250516
Time      22.55
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.1 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128780 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```



4y

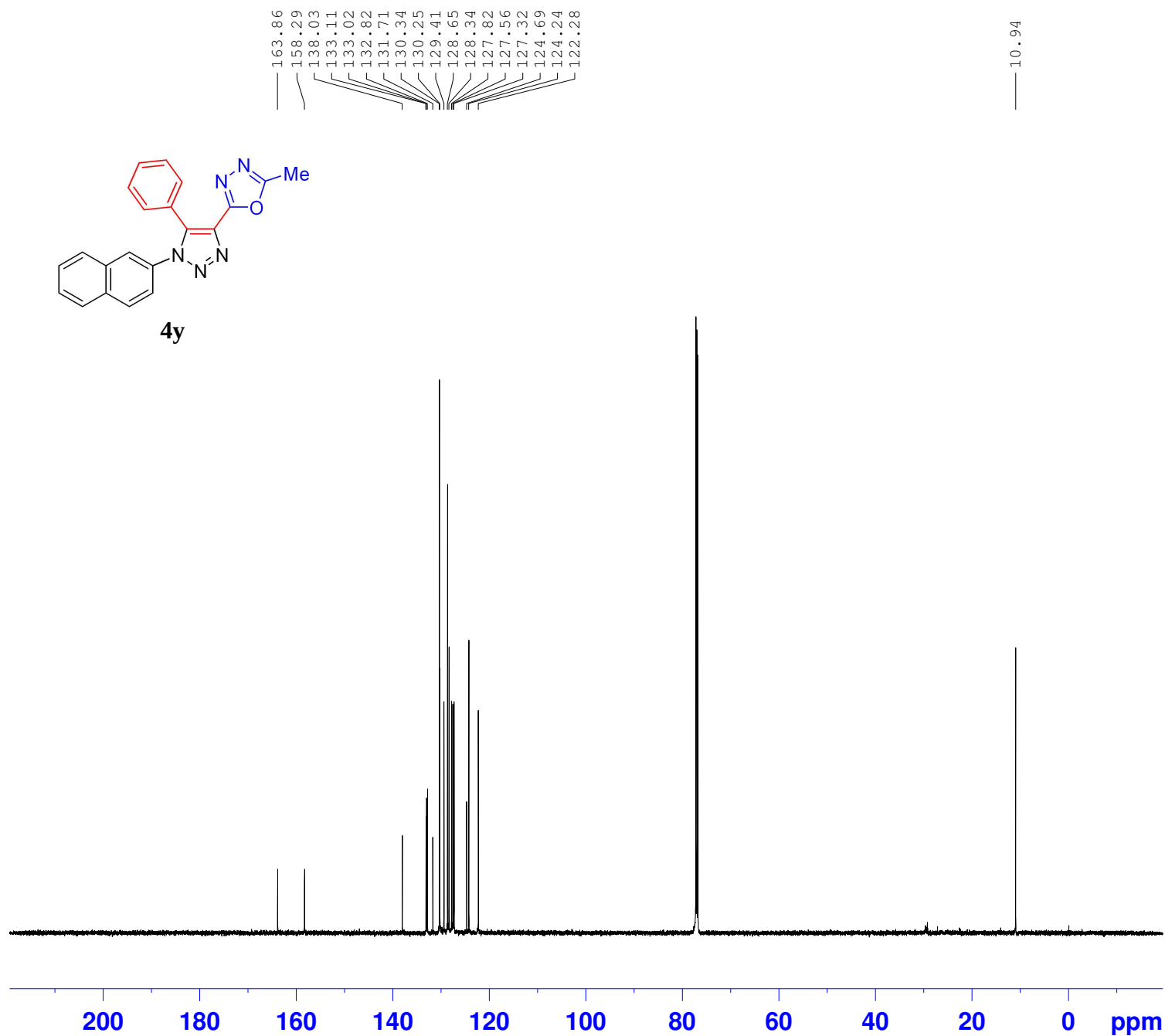
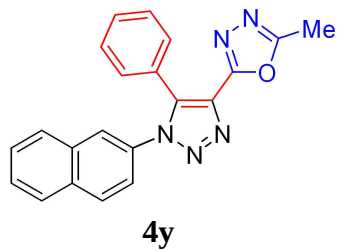


```

NAME      LV-MYH-200P-20250617
EXPNO      1
PROCNO     1
Date_      20250617
Time       23.07
INSTRUM    spect
PROBHD     5 mm PABBO BB/
PULPROG    zg30
TD         65536
SOLVENT    CDC13
NS         8
DS         0
SWH        9615.385 Hz
FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         62.22
DW         52.000 usec
DE         6.50 usec
TE         298.0 K
D1         1.00000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700116 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```

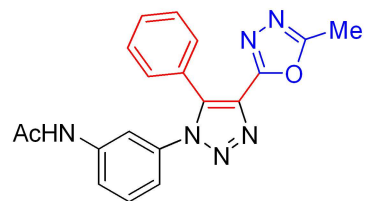


```

NAME      LV-MYH-200P-20250617
EXPNO     2
PROCNO    1
Date_     20250617
Time      23.48
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        298.1 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

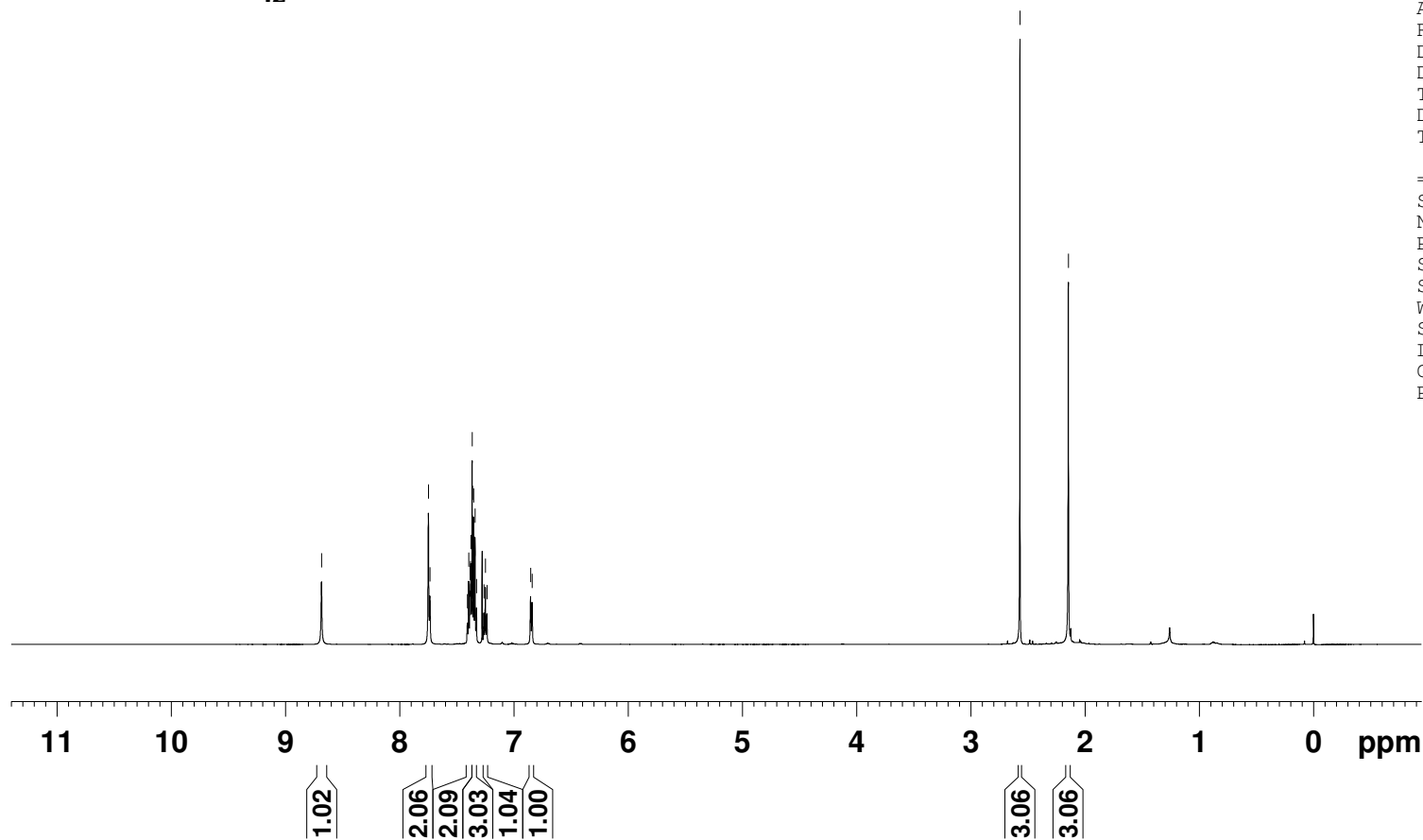
===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128796 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```

4z

8.685
7.749
7.736
7.408
7.396
7.384
7.382
7.377
7.366
7.364
7.353
7.341
7.328
7.263
7.250
7.236
6.854
6.841

2.570
2.146

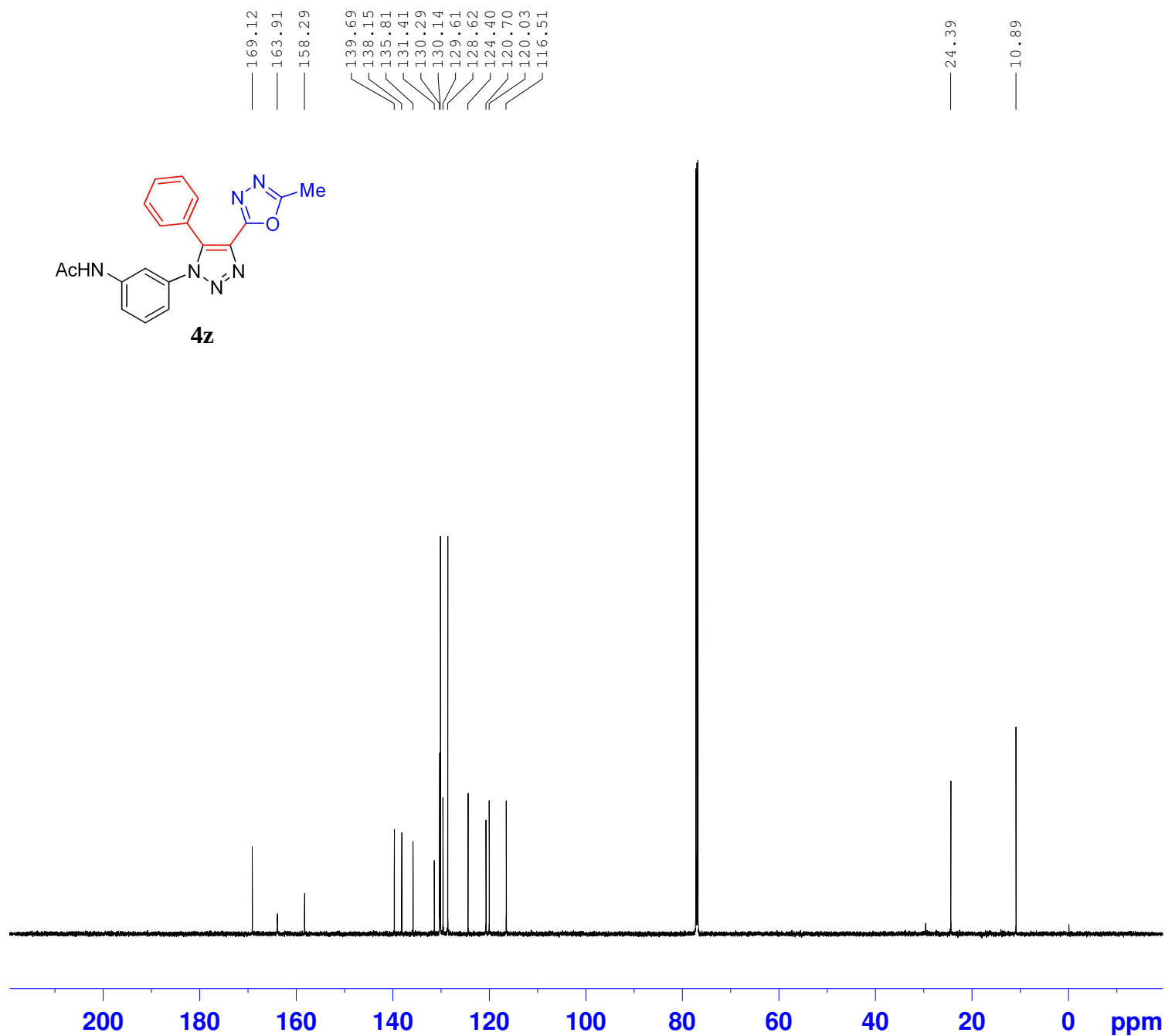
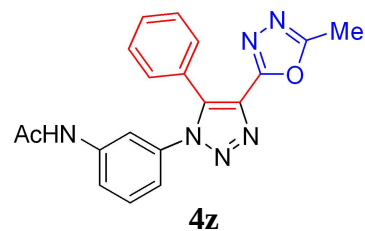


```

NAME      LV-MYH-196P-20250612
EXPNO     1
PROCNO    1
Date_     20250612
Time      23.22
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS         8
DS         0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG         62.22
DW        52.000 usec
DE         6.50 usec
TE        298.1 K
D1        1.00000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700040 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```

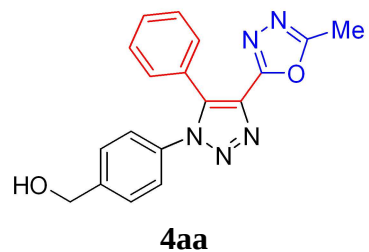


```

NAME      LV-MYH-196P-20250612
EXPNO     2
PROCNO    1
Date_     20250613
Time      0.02
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS         800
DS         4
SWH        36057.691 Hz
FIDRES     0.550197 Hz
AQ         0.9088159 sec
RG         190.02
DW         13.867 usec
DE         6.50 usec
TE         298.1 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SF01      150.9279571 MHz
NUC1       13C
P1         11.90 usec
SI         32768
SF         150.9128790 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```



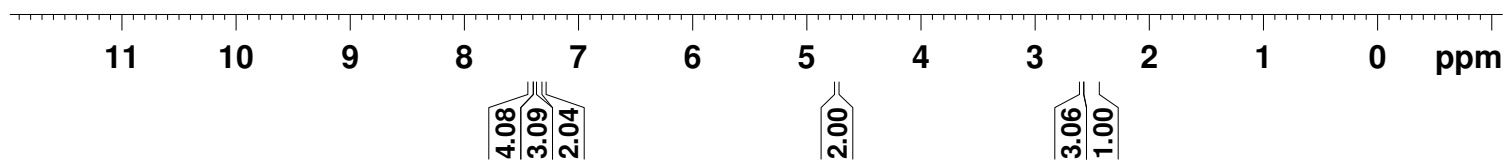
7.442
 7.439
 7.435
 7.428
 7.423
 7.421
 7.416
 7.413
 7.408
 7.394
 7.391
 7.380
 7.307
 7.293

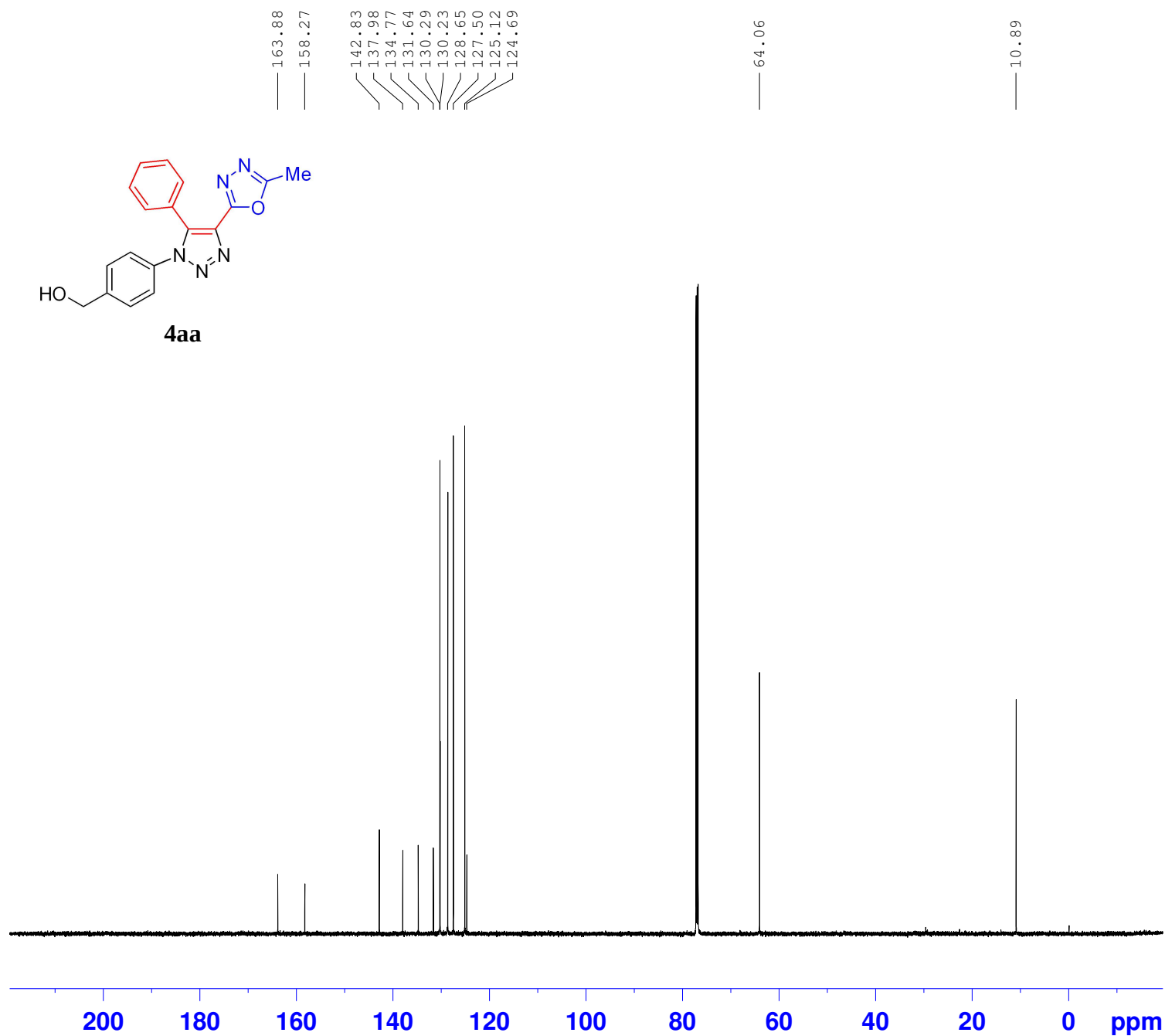
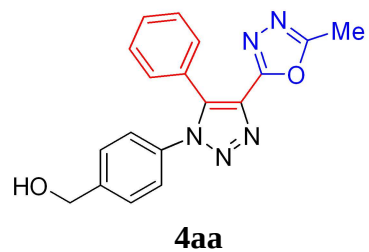
— 4.737

2.591
 2.514

NAME LV-MYH-188P-20250606
 EXPNO 1
 PROCNO 1
 Date_ 20250606
 Time 22.43
 INSTRUM spect
 PROBHD 5 mm PABBO BB/
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 9615.385 Hz
 FIDRES 0.146719 Hz
 AQ 3.4079220 sec
 RG 69.87
 DW 52.000 usec
 DE 6.50 usec
 TE 302.3 K
 D1 1.00000000 sec
 TD0 1

===== CHANNEL f1 =====
 SFO1 600.1739011 MHz
 NUC1 1H
 P1 9.96 usec
 SI 65536
 SF 600.1700065 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00



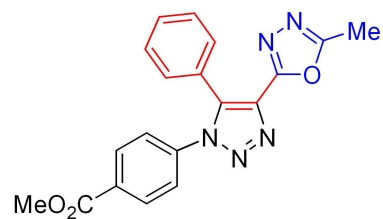


```

NAME      LV-MYH-188P-20250606
EXPNO     2
PROCNO    1
Date_     20250606
Time      23.24
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        303.3 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SF01      150.9279571 MHz
NUC1       13C
P1        11.90 usec
SI        32768
SF        150.9128745 MHz
WDW       EM
SSB       0
LB        1.00 Hz
GB        0
PC        1.40
  
```



4ab

8.098
8.094
8.084
8.080
7.477
7.472
7.468
7.467
7.463
7.461
7.460
7.454
7.444
7.442
7.439
7.430
7.427
7.424
7.421
7.417
7.415

— 3.934

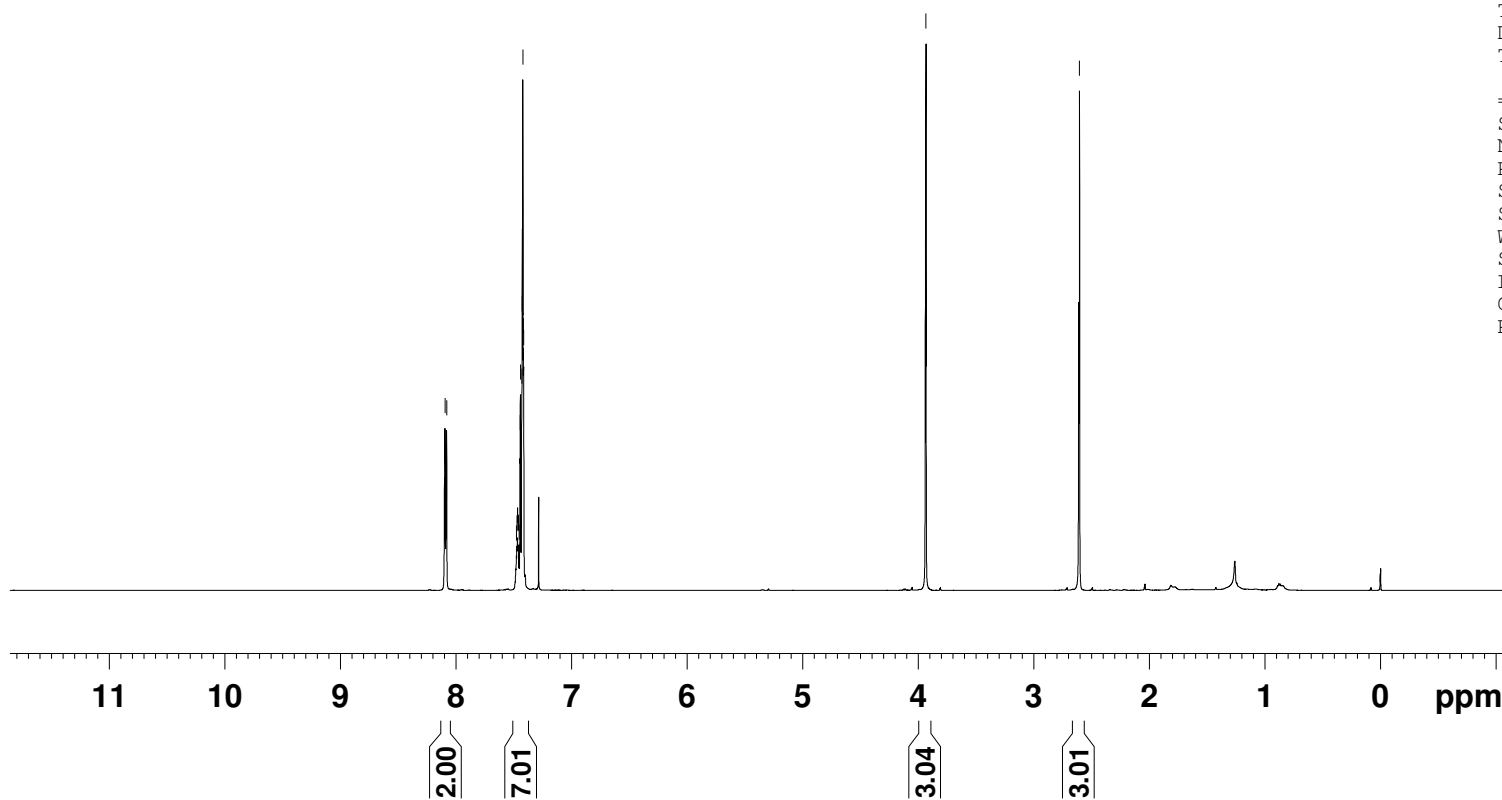
— 2.606

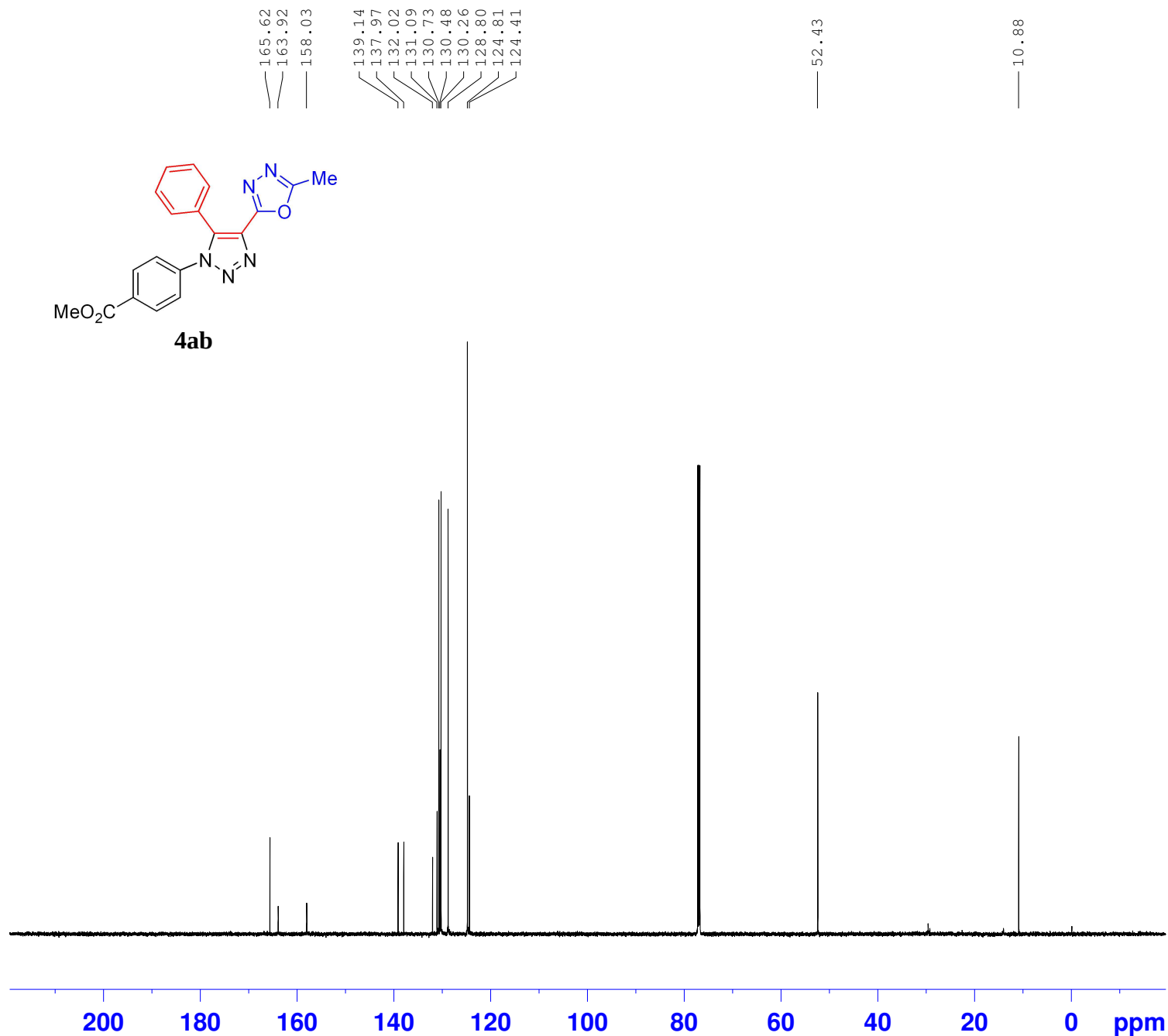
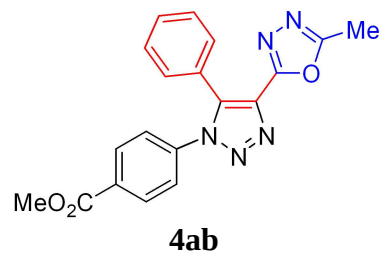
```

NAME      LV-MYH-187P-20250606
EXPNO     1
PROCNO    1
Date_     20250606
Time      21.56
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS         8
DS         0
SWH        9615.385 Hz
FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         62.22
DW         52.000 usec
DE         6.50 usec
TE         302.0 K
D1         1.00000000 sec
TD0        1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1       1H
P1         9.96 usec
SI         65536
SF         600.1700001 MHz
WDW        EM
SSB        0
LB         0.30 Hz
GB         0
PC         1.00
  
```



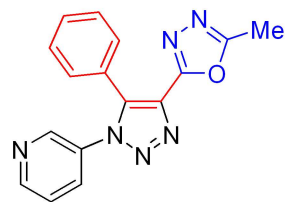


```

NAME      LV-MYH-187P-20250606
EXPNO     2
PROCNO    1
Date_     20250606
Time      22.37
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zgpg30
TD        65536
SOLVENT   CDCl3
NS        800
DS        4
SWH       36057.691 Hz
FIDRES    0.550197 Hz
AQ        0.9088159 sec
RG        190.02
DW        13.867 usec
DE        6.50 usec
TE        303.2 K
D1        2.00000000 sec
D11       0.03000000 sec
TD0       1
  
```

```

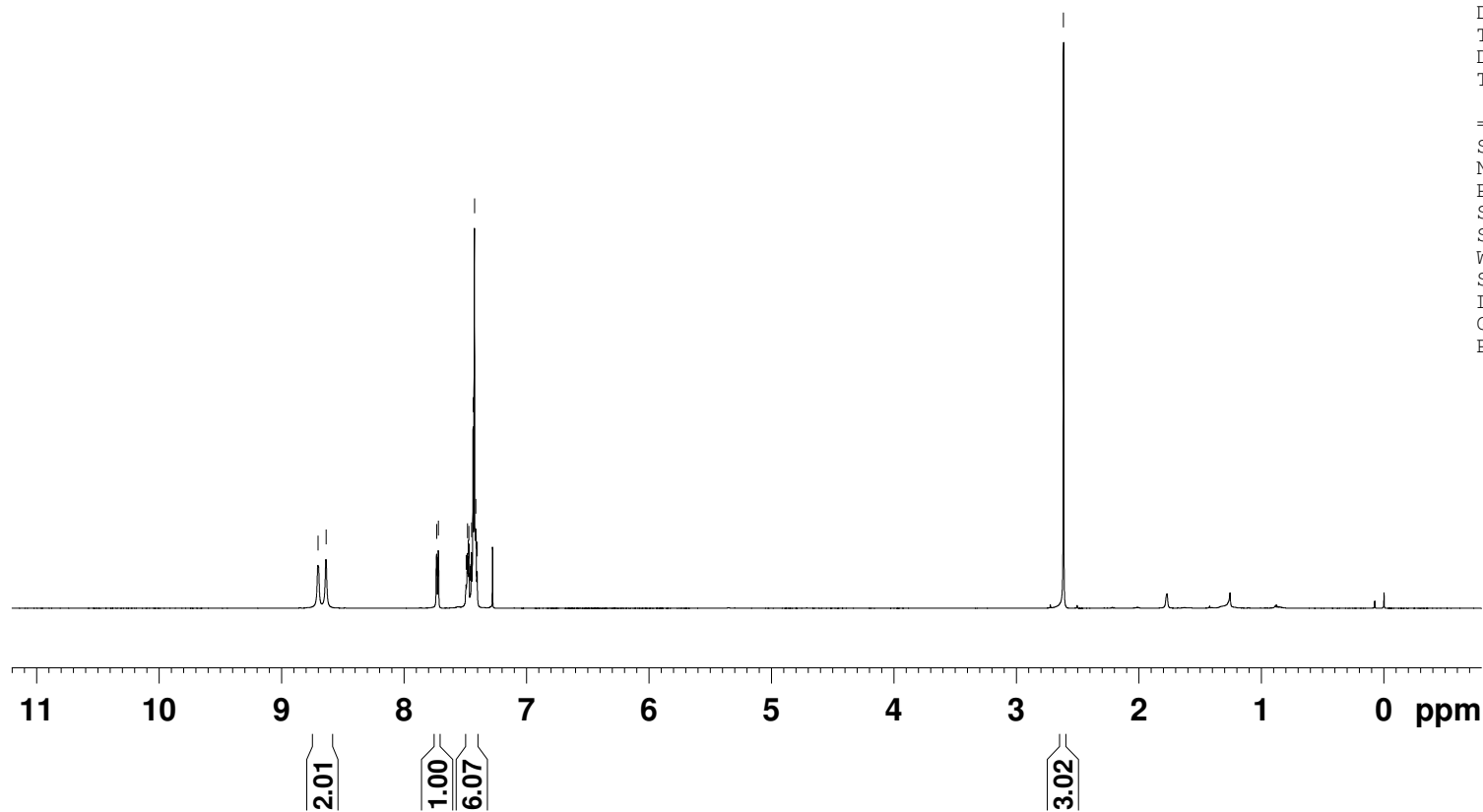
===== CHANNEL f1 =====
SF01    150.9279571 MHz
NUC1     13C
P1       11.90 usec
SI       32768
SF       150.9128767 MHz
WDW      EM
SSB      0
LB       1.00 Hz
GB       0
PC       1.40
  
```



4ac

8.703
8.636
7.734
7.720
7.493
7.482
7.476
7.471
7.468
7.460
7.456
7.449
7.436
7.424
7.415
7.403

— 2.617

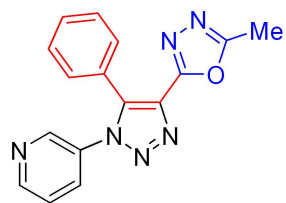


```

NAME      LV-MYH-144P-20250415
EXPNO      1
PROCNO     1
Date_      20250415
Time       22.57
INSTRUM    spect
PROBHD     5 mm PABBO BB/
PULPROG    zg30
TD         65536
SOLVENT    CDCl3
NS         8
DS         0
SWH        9615.385 Hz
FIDRES     0.146719 Hz
AQ         3.4079220 sec
RG         87.54
DW         52.000 usec
DE         6.50 usec
TE         298.1 K
D1         1.00000000 sec
TD0        1
  
```

```

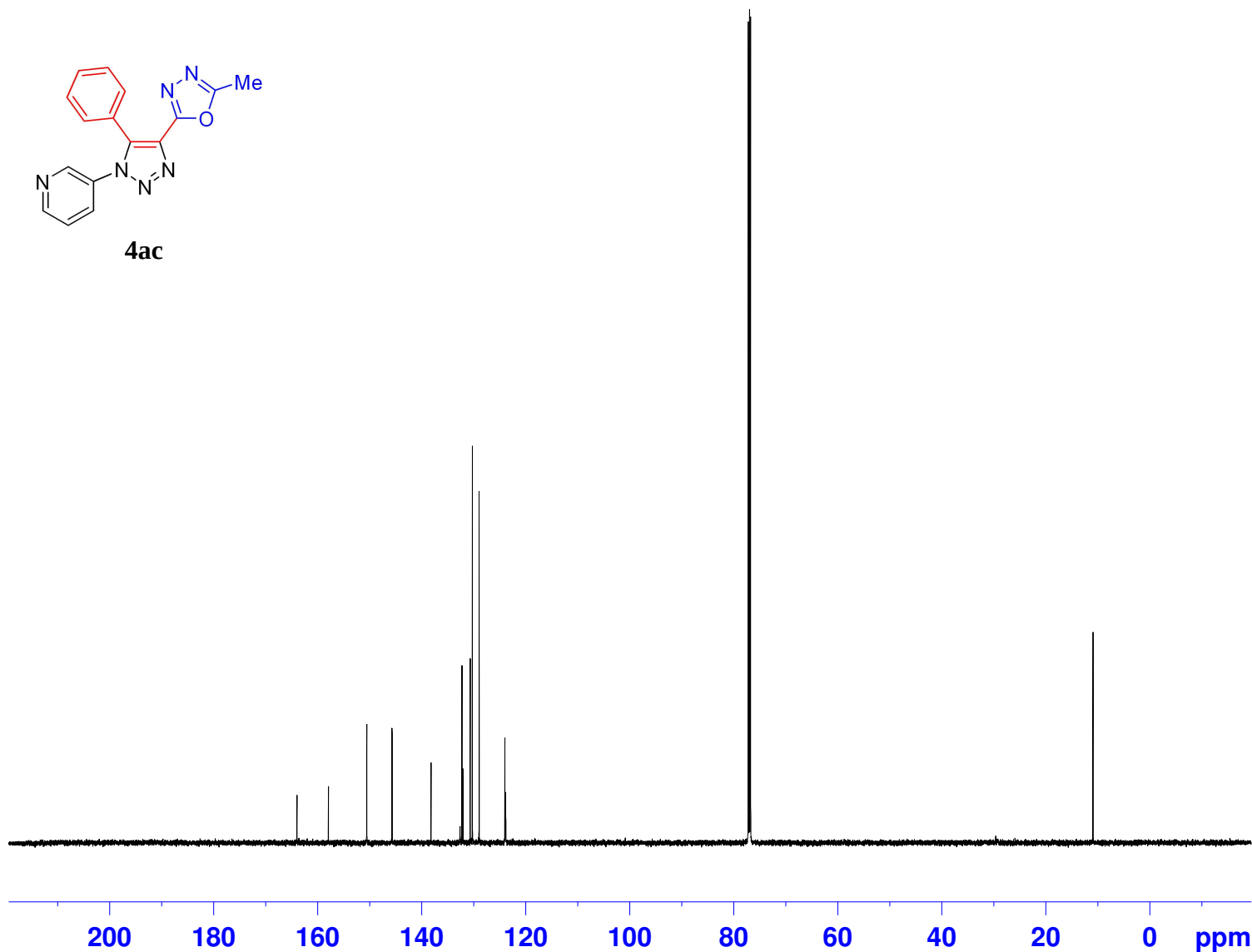
===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700043 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```



4ac

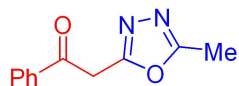
164.00
157.95
150.58
145.72
138.22
132.64
132.27
132.09
130.69
130.28
128.97
124.02
123.87

10.95



NAME LV-MYH-144P-20250415
EXPNO 2
PROCNO 1
Date_ 20250415
Time 23.28
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 36057.691 Hz
FIDRES 0.550197 Hz
AQ 0.9088159 sec
RG 190.02
DW 13.867 usec
DE 6.50 usec
TE 298.0 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1

===== CHANNEL f1 =====
SF01 150.9279571 MHz
NUC1 13C
P1 11.90 usec
SI 32768
SF 150.9128753 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



5a

8.015
8.002
7.651
7.639
7.627
7.530
7.517
7.505

4.564

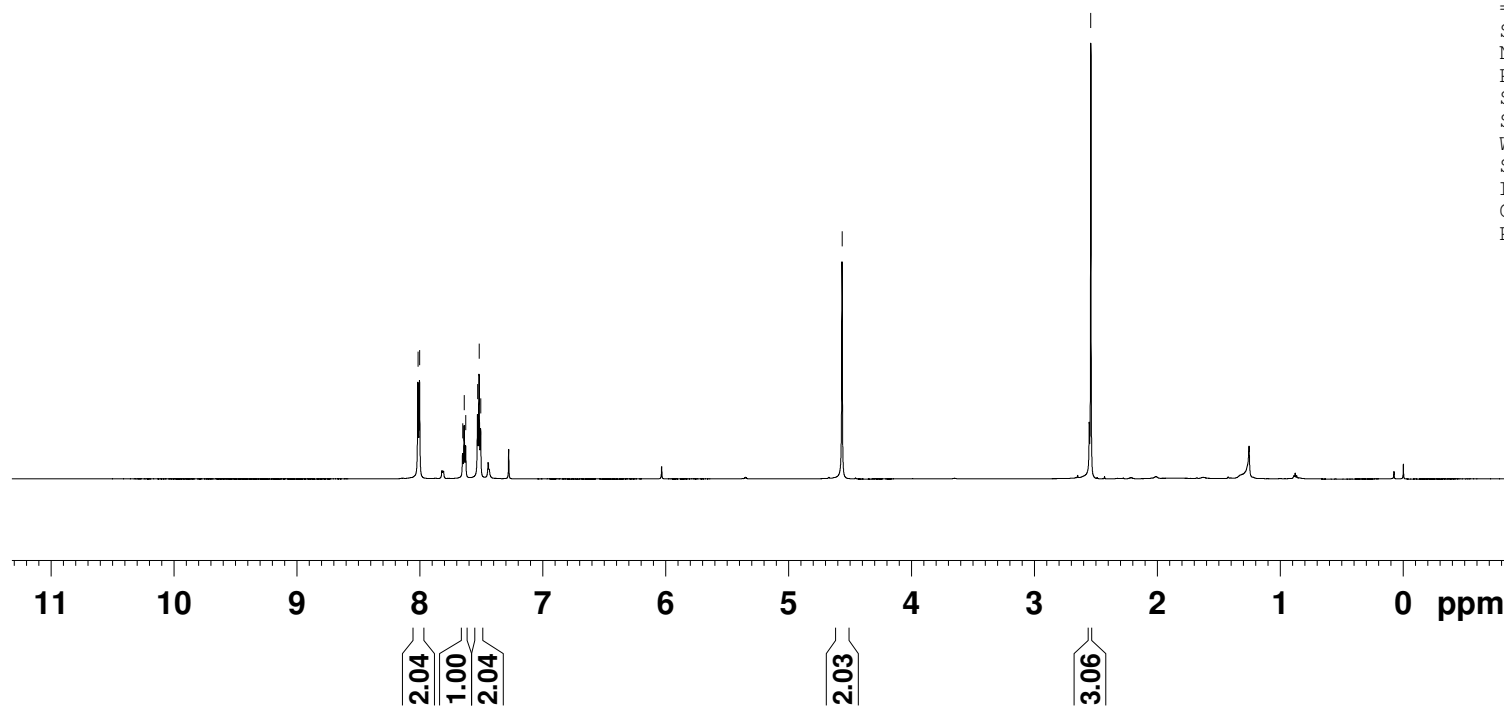
2.543

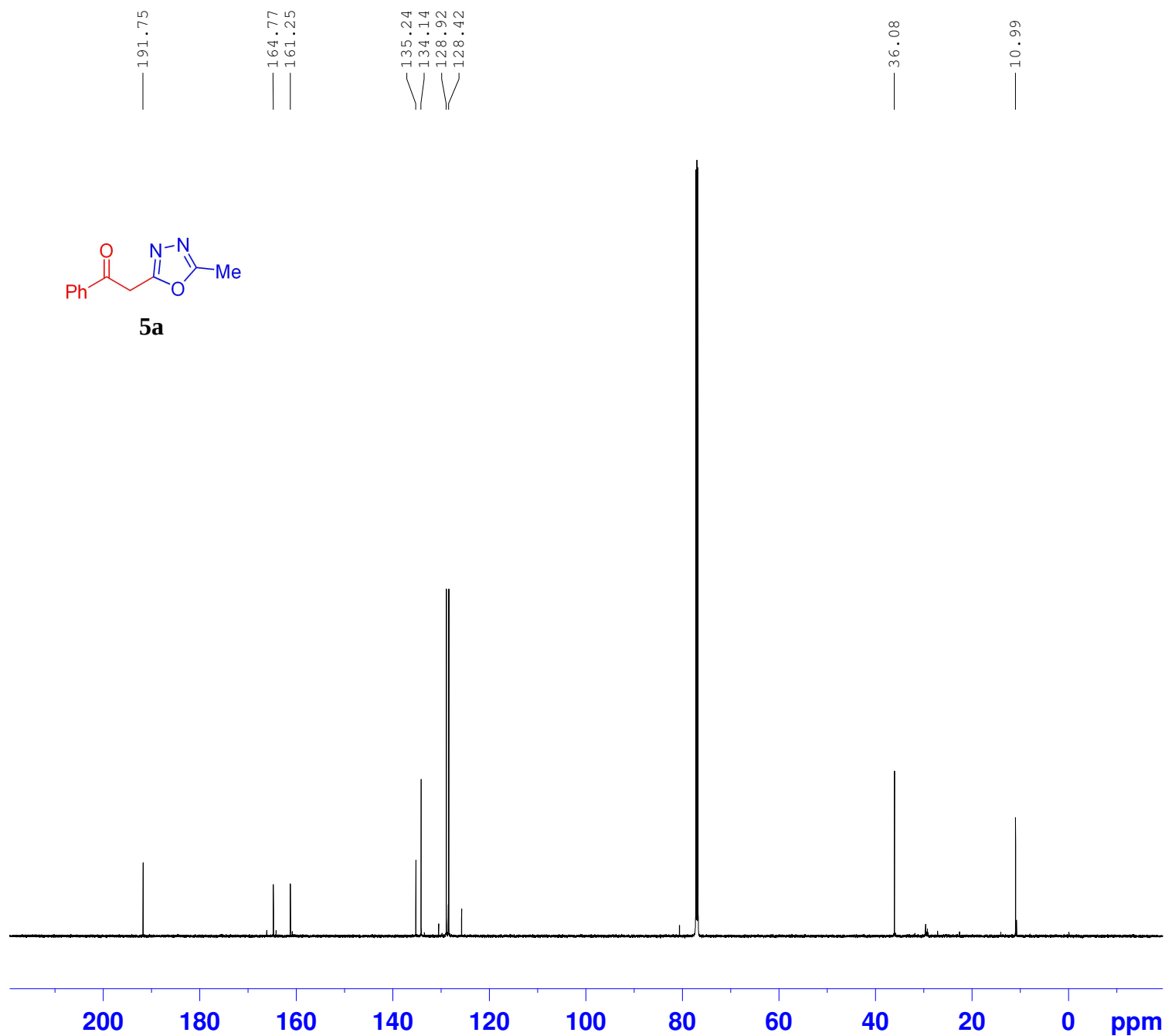
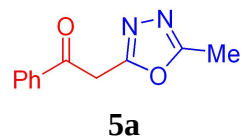
```

NAME      LV-MYH-201P-20250618
EXPNO     1
PROCNO    1
Date_     20250618
Time      22.08
INSTRUM   spect
PROBHD    5 mm PABBO BB/
PULPROG   zg30
TD        65536
SOLVENT   CDC13
NS        8
DS        0
SWH       9615.385 Hz
FIDRES    0.146719 Hz
AQ        3.4079220 sec
RG        62.22
DW        52.000 usec
DE        6.50 usec
TE        298.0 K
D1        1.00000000 sec
TD0       1
  
```

```

===== CHANNEL f1 =====
SFO1      600.1739011 MHz
NUC1      1H
P1        9.96 usec
SI        65536
SF        600.1700049 MHz
WDW       EM
SSB       0
LB        0.30 Hz
GB        0
PC        1.00
  
```



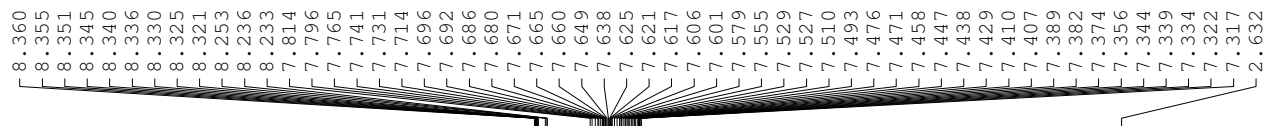


```

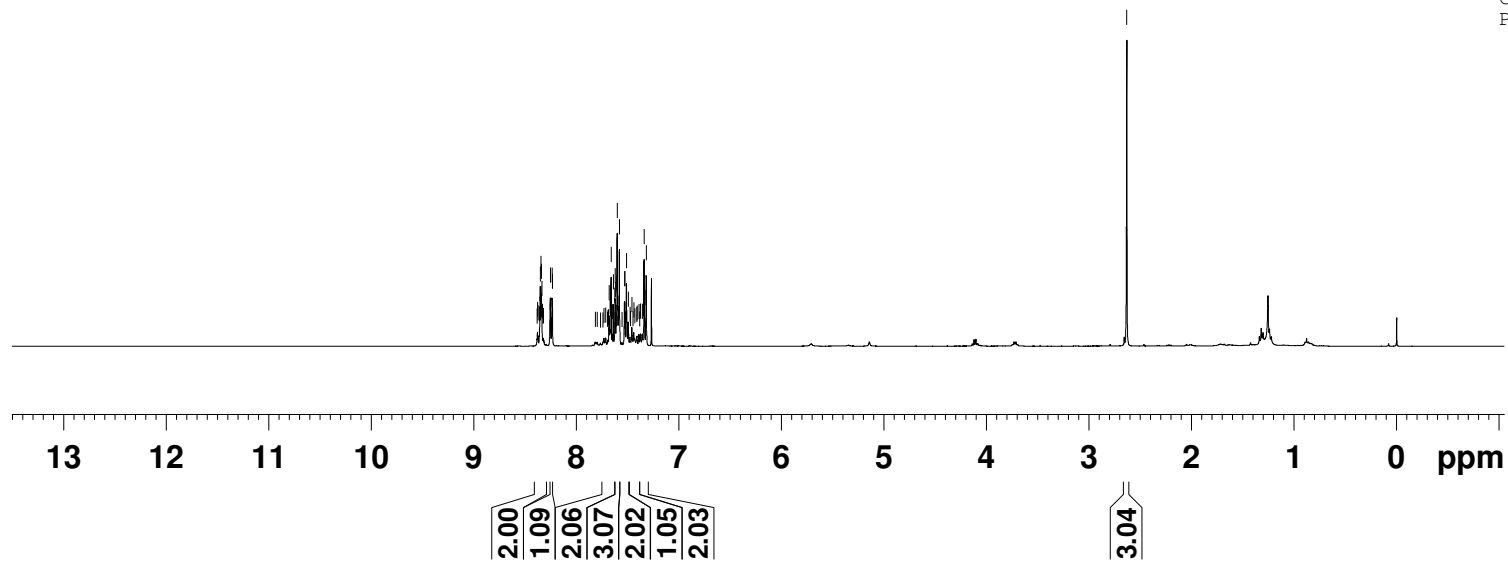
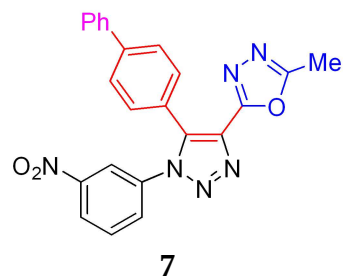
NAME      LV-MYH-201P-20250618
EXPNO      2
PROCNO     1
Date_      20250618
Time       22.49
INSTRUM    spect
PROBHD     5 mm PABBO BB/
PULPROG    zgpg30
TD         65536
SOLVENT    CDCl3
NS         800
DS         4
SWH        36057.691 Hz
FIDRES     0.550197 Hz
AQ         0.9088159 sec
RG         190.02
DW         13.867 usec
DE         6.50 usec
TE         298.1 K
D1         2.00000000 sec
D11        0.03000000 sec
TD0        1
  
```

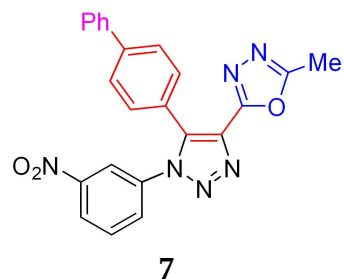
```

===== CHANNEL f1 =====
SF01      150.9279571 MHz
NUC1       13C
P1         11.90 usec
SI         32768
SF         150.9128778 MHz
WDW        EM
SSB        0
LB         1.00 Hz
GB         0
PC         1.40
  
```



NAME LV-MYH-297P-20251020-1
 EXPNO 10
 PROCNO 1
 Date_ 20251021
 Time 0.11 h
 INSTRUM Avance
 PROBHD Z163739_0744 (
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SWH 6250.000 Hz
 FIDRES 0.190735 Hz
 AQ 5.2429299 sec
 RG 101
 DW 80.000 usec
 DE 8.64 usec
 TE 292.5 K
 D1 1.00000000 sec
 TD0 1
 SFO1 400.1326008 MHz
 NUC1 1H
 P0 2.67 usec
 P1 8.00 usec
 SI 65536
 SF 400.1300078 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00





164.31
157.74
148.67
136.42
135.64
132.70
132.52
131.83
130.75
130.48
129.01
128.00
127.72
127.18
125.79
124.57
122.81
120.36

11.04

NAME LV-MYH-297P-20251020-1
EXPNO 11
PROCNO 1
Date_ 20251021
Time 0.47 h
INSTRUM Avance
PROBHD z163739_0744 (
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 600
DS 4
SWH 23809.523 Hz
FIDRES 0.726609 Hz
AQ 1.3763061 sec
RG 101
DW 21.000 usec
DE 6.50 usec
TE 295.2 K
D1 2.00000000 sec
D11 0.03000000 sec
TD0 1
SF01 100.6228298 MHz
NUC1 13C
P0 2.67 usec
P1 8.00 usec
SI 32768
SF 100.6127685 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

