Electronic Supplementary Material (ESI) for Chemical Communications

Supporting Information

Synthesis of Allene Triazole through Iron Catalyzed Regioselective Addition to Propargyl Alcohols

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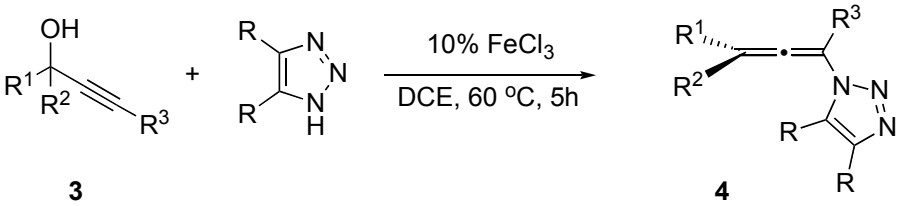
I. General Methods and Materials

All of the reactions dealing with air and/or moisture-sensitive reactions were carried out under an atmosphere of nitrogen using oven/flame-dried glassware and standard syringe/septa techniques. Unless otherwise noted, all commercial reagents and solvents were obtained from the commercial provider and used without further purification. ^{1}H NMR and ^{13}C NMR spectra were recorded on Varian 600 MHz spectrometers. Chemical shifts were reported relative to internal tetramethylsilane (δ 0.00 ppm) or $CDCl_3$ (δ 7.26 ppm) for ^{1}H and $CDCl_3$ (δ 77.0 ppm) for ^{13}C. Melting points were measured on a Mel-Temp 1001D apparatus and uncorrected. Infrared (IR) spectra were obtained on a FT-IR spectrometer.Flash column chromatography was performed on 230-430 mesh silica gel. Analytical thin layer chromatography was performed with precoated glass baked plates (250μ) and visualized by fluorescence and by charring after treatment with *p*-anisaldehyde or potassium permanganate stain. HRMS were recorded on LTQ-FTUHRA spectrometer. UV-visible spectra were obtained on a Shimadzu UV-2550.

Propargylic alcohols **3** were synthesized according to the literatures as below:
Yan, W.; Wang, Q.; Chen, Y.; Petersen, J.; Shi, X. *Org. Lett.* **2010**, *12*, 3308-3311.

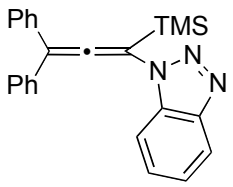
Representative procedure for propargylation of 4 with triazoles



3 **4**

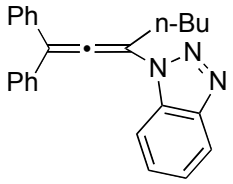
A solution of triazole (1.3 mmol) with catalyst iron(III) chloride (0.1 mmol) in 1,2-dichlorethane(DCE) (5 ml) was stirred at 60 ^{o}C for one hour, then propargyl alcohol **3** (1.0 mmol) was added. The reaction mixture was quenched with 10 ml distilled water and then extracted with EtOAc (3 x 10 mL) after 5 hours. The combined organic phases were washed with water and brine, dried with anhydrous $MgSO_4$, and filtered. The filtrate was concentrated under reduced pressure and the residue was purified by flash chromatography on silica gel (hexanes/ethyl acetate, V/V, 20/1) to produce the desired product.

II. Compounds Characterization



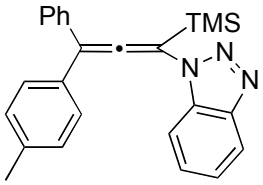
4a

1-(1-(trimethylsilyl)-3,3-diphenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4a) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 84%; m. p. 127-129 ^{o}C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.49; UV absorption: 232(0.182), 263(0.134), 295(0.126); IR (neat), 2957, 1598, 1489, 1447, 1285, 1245, 1062, 936, 833, 767, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.09 (d, *J* = 7.8 Hz, 1H), 7.82 (d, *J* = 7.8 Hz, 1H), 7.50-7.47 (m, 4H), 7.43-7.38 (m, 5H), 7.37-7.32 (m, 3H), 0.50 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.4 (C), 146.2 (C), 135.8 (C), 132.5 (C), 128.7 (CH), 128.4 (CH), 128.1 (CH), 127.9 (CH), 124.3 (CH), 118.0 (CH), 115.3 (C), 111.9 (CH), 108.8 (C), -0.5 (CH_3); HRMS Calculated for $C_{24}H_{24}N_3Si$ $[M+H]^+$: 382.1734, Found: 382.1735.



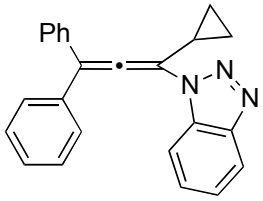
4b

1-(1,1-diphenylhepta-1,2-dien-3-yl)-1*H*-benzo[*d*][1,2,3]triazole (4b) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 74%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.45; UV absorption: 233(0.160), 259(0.129), 295(0.100); IR (neat), 2935, 1603, 1485, 1447, 1281, 1244, 1056, 957, 785, 744, 691; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.08 (d, *J* = 7.8 Hz, 1H), 7.54 (d, *J* = 7.8 Hz, 1H), 7.46-7.43 (m, 4H), 7.42-7.30 (m, 8H), 3.22 (t, *J* = 7.8 Hz, 2H), 1.75 (quin, *J* = 7.8 Hz, 2H), 1.47 (sex, *J* = 7.8 Hz, 2H), 0.93 (t, *J* = 7.8 Hz, 3H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 197.0 (C), 146.3 (C), 135.9 (C), 132.1 (C), 128.7 (CH), 128.6 (CH), 128.4 (CH), 127.9 (CH), 124.3 (CH), 120.0 (CH), 119.8 (C), 113.5 (C), 111.6 (CH), 31.2 (CH_2), 29.2 (CH_2), 22.3 (CH_2), 13.8 (CH_3); HRMS Calculated for $C_{25}H_{24}N_3$ $[M+H]^+$: 366.1965, Found: 366.1964.



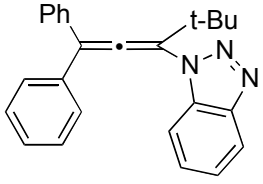
4c

1-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4c) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 80%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.51; UV absorption: 234(0.301), 263(0.209), 299(0.195); IR (neat), 2930, 1600, 1485, 1449, 1281, 1246, 1068, 935, 838, 764, 693; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.07 (d, *J* = 7.8 Hz, 1H), 7.79 (d, *J* = 7.8 Hz, 1H), 7.44 (d, *J* = 7.8 Hz, 2H), 7.40-7.36 (m, 4H), 7.35-7.32 (m, 3H), 7.20 (d, *J* = 7.8 Hz, 2H), 2.38 (s, 3H), 0.46 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.4 (C), 146.2 (C), 138.0 (C), 136.0 (C), 132.8 (C), 132.5 (C), 129.5 (CH), 128.7 (CH), 128.5 (CH), 128.4 (CH), 128.0 (CH), 127.8 (CH), 124.3 (CH), 120.0 (CH), 115.2 (C), 112.0 (CH), 108.7 (C), 21.2 (CH_3), -0.5 (CH_3); HRMS Calculated for $C_{25}H_{26}N_3Si$ $[M+H]^+$: 396.1887, Found: 396.1883.



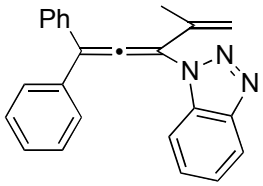
4d

1-(1-cyclopropyl-3,3-diphenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4d) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 82%; m. p. 107-109 ^{o}C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.48; UV absorption: 229(0.205), 260(0.146), 295(0.102); IR (neat), 3008, 1598, 1490, 1449, 1278, 1161, 1078, 977, 853, 747, 692; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.09-8.07 (m, 1H), 7.54-7.51 (m, 1H), 7.41-7.32 (m, 12H), 2.51-2.45 (m, 1H), 1.13-1.09 (m, 2H), 0.85-0.81 (m, 2H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 196.4 (C), 146.4 (C), 135.7 (C), 132.0 (C), 128.7 (CH), 128.6 (CH), 128.5 (CH), 127.9 (CH), 124.3 (CH), 120.9 (C), 120.0 (CH), 116.6 (C), 111.4 (CH), 11.8 (CH), 7.7 (CH_2); HRMS Calculated for $C_{24}H_{20}N_3$ $[M+H]^+$: 350.1652, Found: 350.1653.



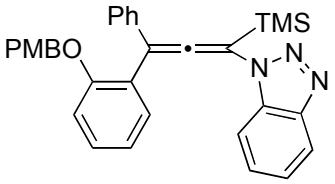
4e

1-(4,4-dimethyl-1,1-diphenylpenta-1,2-dien-3-yl)-1*H*-benzo[*d*][1,2,3]triazole (4e) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 91%; m. p. 81-83 ^{o}C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.47; UV absorption: 236(0.193), 265(0.215); IR (neat), 2972, 1589, 1490, 1451, 1274, 1231, 1062, 947, 810, 766, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.06-8.02 (m, 1H), 7.39-7.33 (m, 10H), 7.31-7.28 (m, 2H), 7.18-7.16 (m, 1H), 1.38 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.6 (C), 145.0 (C), 135.2 (C), 134.3 (C), 128.6 (CH), 128.5 (CH), 128.3 (CH), 127.5 (CH), 123.8 (CH), 119.7 (CH), 119.1 (C), 117.2 (C), 110.6 (CH), 37.2 (C), 29.1 (CH_3); HRMS Calculated for $C_{25}H_{24}N_3$ $[M+H]^+$: 366.1965, Found: 366.1966.



4f

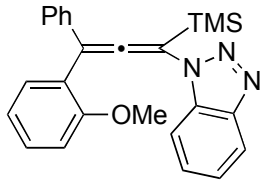
1-(4-methyl-1,1-diphenylpenta-1,2,4-trien-3-yl)-1*H*-benzo[*d*][1,2,3]triazole (4f) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 86%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.52; UV absorption: 235(0.165), 265(0.096), 297(0.062); IR (neat), 3057, 1597, 1490, 1448, 1278, 1160, 1065, 1002, 908, 743, 695; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.08 (d, *J* = 7.8 Hz, 1H), 7.45-7.34 (m, 12H), 7.29 (d, *J* = 7.8 Hz, 1H), 5.17 (s, 1H), 4.66 (s, 1H), 2.15 (s, 3H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 204.6 (C), 145.4 (C), 136.0 (C), 134.6 (C), 133.7 (C), 128.9 (CH), 128.8 (CH), 128.7 (CH), 127.7 (CH), 124.0 (CH), 120.0 (CH), 118.7 (C), 115.4 (CH), 113.4 (C), 110.4 (CH_2), 20.5 (CH_3); HRMS Calculated for $C_{24}H_{20}N_3$ $[M+H]^+$: 350.1651, Found: 350.1650.



4g

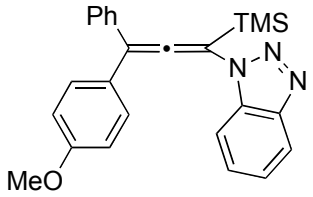
1-(3-(2-(4-methoxybenzyloxy)phenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4h) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 90%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.58; UV absorption: 231(0.186), 263(0.145), 299(0.128); IR (neat), 2976, 1583, 1493, 1450, 1286, 1240, 1063, 938, 831, 757, 692; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.05 (d, *J* = 8.4 Hz, 1H), 7.98 (d, *J* = 8.4 Hz, 1H), 7.42-7.31 (m, 7H), 7.24 (t, *J* = 8.4 Hz, 1H), 7.07-7.03 (m, 2H), 6.85 (d, *J* = 8.4 Hz, 2H), 6.81 (s, 1H), 6.69 (d, *J* = 8.4 Hz, 2H), 4.93 (q, *J* = 11.4 Hz, 2H), 3.78 (s, 3H), 0.5(s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.0 (C), 159.0

(C), 156.1 (C), 145.9 (C), 136.4 (C), 132.4 (C), 130.8 (C), 129.5 (C), 128.6 (CH), 128.5 (CH), 128.4 (CH), 127.5 (CH), 127.4 (CH), 127.0 (CH), 125.0 (CH), 124.1 (CH), 121.0 (CH), 119.4 (CH), 113.5 (CH), 112.8 (CH), 112.3 (CH), 111.8 (C), 108.4 (C), 69.5 (CH_2), 55.2 (CH_3), -0.4 (CH_3); HRMS Calculated for $C_{32}H_{32}N_3O_2Si$ $[M+H]^+$: 517.2179, Found: 517.5180.



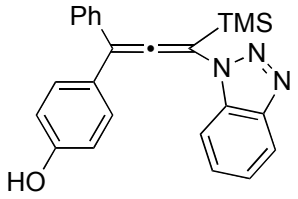
4h

1-(3-(2-methoxyphenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4h) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 90%; m. p. 131-133 ^oC; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.60; UV absorption: 230(0.200), 264(0.210), 295(0.173); IR (neat), 2957, 1599, 1490, 1453, 1286, 1245, 1066, 939, 829, 740, 691; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.15 (d, *J* = 7.8 Hz, 1H), 8.06 (d, *J* = 7.8 Hz, 1H), 7.42-7.32 (m, 8H), 7.28 (t, *J* = 7.8 Hz, 1H), 7.03 (t, *J* = 7.8 Hz, 1H), 6.98 (d, *J* = 7.8 Hz, 1H), 3.71 (s, 3H), 0.51(s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.0 (C), 157.1 (C), 146.1 (C), 136.0 (C), 132.5 (C), 130.8 (CH), 129.5 (CH), 128.5 (CH), 127.5 (CH), 127.4 (CH), 127.0 (CH), 124.5 (CH), 124.2 (CH), 120.8 (CH), 119.6 (CH), 112.7 (C), 111.3 (C), 111.2 (CH), 108.3 (C), 55.1 (CH_3), -0.4 (CH_3); HRMS Calculated for $C_{25}H_{26}N_3OSi$ $[M+H]^+$: 412.1840, Found: 412.1841.



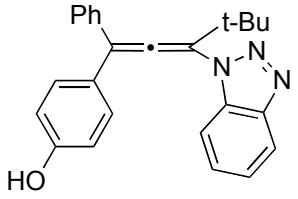
4i

1-(3-(4-methoxyphenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4i) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 91%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.64; UV absorption: 231(0.197), 262(0.184), 296(0.155); IR (neat), 2963, 1603, 1498, 1466, 1270, 1235, 1055, 930, 821, 747, 695; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.08 (d, *J* = 7.2 Hz, 1H), 7.80 (d, *J* = 7.2 Hz, 1H), 7.47 (d, *J* = 9.0 Hz, 2H), 7.41-7.32 (m, 7H), 6.94 (d, *J* = 9.0 Hz, 2H), 3.84 (s, 3H), 0.47 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.6 (C), 159.8 (C), 146.4 (C), 136.3 (C), 132.7 (C), 129.9 (CH), 129.0 (CH), 128.7 (CH), 128.3 (CH), 128.1 (CH), 124.6 (CH), 120.2 (CH), 115.3 (C), 114.5 (CH), 112.2 (CH), 108.9 (C), 55.6 (CH_3), -0.22 (CH_3); HRMS Calculated for $C_{25}H_{26}N_3OSi$ $[M+H]^+$: 412.1838, Found: 412.1840.



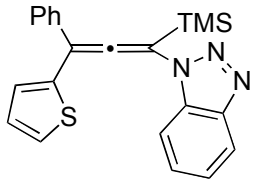
4j

4-(3-(1*H*-benzo[*d*][1,2,3]triazol-1-yl)-3-(trimethylsilyl)-1-phenylpropa-1,2-dienyl)phenol (4j) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 80%; R*f* (hexanes/ethyl acetate, V/V, 4/1) = 0.44; UV absorption: 233(0.217), 257(0.166), 271(0.187), 300(0.134); IR (neat), 3363, 2988, 1620, 1476, 1433, 1271, 1212, 1055, 938, 811, 745, 698; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.06 (d, *J* = 7.2 Hz, 1H), 7.80 (d, *J* = 7.2 Hz, 1H), 7.45 (d, *J* = 7.2 Hz, 2H), 7.41-7.37 (m, 4H), 7.36-7.30 (m, 3H), 6.95 (d, *J* = 7.2 Hz, 2H), 0.45 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.5 (C), 156.4 (C), 145.7 (C), 136.0 (C), 132.5 (C), 129.8 (CH), 128.7 (CH), 128.5 (CH), 128.0 (CH), 127.3 (CH), 124.7 (CH), 119.6 (CH), 115.9 (CH), 115.3 (C), 112.2 (CH), 108.6 (C), -0.51 (CH_3); HRMS Calculated for $C_{24}H_{24}N_3OSi$ $[M+H]^+$: 398.1681, Found: 398.1682.



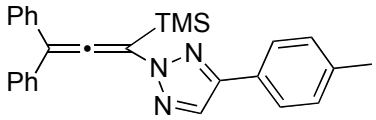
4k

4-(3-(1*H*-benzo[*d*][1,2,3]triazol-1-yl)-4,4-dimethyl-1-phenylpenta-1,2-dienyl)phenol (4k) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 83%; R*f* (hexanes/ethyl acetate, V/V, 4/1) = 0.43; UV absorption: 231(0.233), 270(0.209), 298(0.174); IR (neat), 3345, 2995, 1605, 1455, 1445, 1287, 1225, 1043, 936, 814, 748, 695; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.06-8.03 (m, 1H), 7.40-7.35 (m, 5H), 7.33-7.30 (m, 2H), 7.24 (d, *J* = 8.4 Hz, 2H), 7.20-7.17 (m, 1H), 6.93 (d, *J* = 8.4 Hz, 2H), 1.36 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.4 (C), 156.5 (C), 144.5 (C), 135.5 (C), 134.4 (C), 132.9 (CH), 130.0 (CH), 128.7 (CH), 128.6 (CH), 128.3 (CH), 128.2 (CH), 127.7 (CH), 124.1 (CH), 119.4 (CH), 115.7 (CH), 115.3 (C), 110.8 (C), 37.2 (C), 29.2 (CH_3); HRMS Calculated for $C_{25}H_{24}N_3O$ $[M+H]^+$: 382.1912, Found: 382.1910.



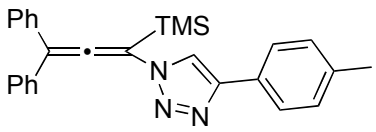
4l

1-(4,4-dimethyl-1-phenyl-1-(thiophen-2-yl)penta-1,2-dien-3-yl)-1*H*-benzo[*d*][1,2,3]triazole (4l) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 95%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.46; UV absorption: 236(0.189), 260(0.237), 289(0.125); IR (neat), 2988, 1621, 1490, 1454, 1268, 1221, 1034, 951, 830, 745, 688; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.09 (d, *J* = 8.4 Hz, 1H), 7.86 (d, *J* = 8.4 Hz, 1H), 7.57 (d, *J* = 7.2 Hz, 2H), 7.45-7.36 (m, 5H), 7.34 (dd, *J* = 5.4 Hz, 1.2 Hz, 1H), 7.12 (dd, *J* = 3.6 Hz, 1.2 Hz, 1H), 7.08 (dd, *J* = 5.4 Hz, 3.6 Hz, 1H), 0.50 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 199.9 (C), 146.2 (C), 139.4 (C), 135.5 (C), 132.4 (C), 128.8 (CH), 128.4 (CH), 128.2 (CH), 128.0 (CH), 127.8 (CH), 127.0 (CH), 126.4 (CH), 124.4 (CH), 120.0 (CH), 111.9 (CH), 110.5 (C), 109.0 (C), -0.57 (CH_3); HRMS Calculated for $C_{23}H_{22}N_3S$ $[M+H]^+$: 372.1528, Found: 372.1527.



N-2-4m

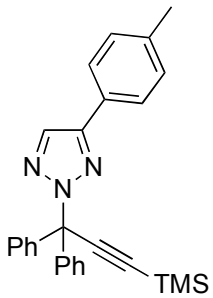
2-(1-(trimethylsilyl)-3,3-diphenylpropa-1,2-dienyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4m) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 60%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.62; UV absorption: 237(0.202), 264(0.153), 299(0.135); IR (neat), 2923, 1633, 1487, 1446, 1281, 1243, 1039, 931, 827, 779, 692; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.01 (s, 1H), 7.77 (d, *J* = 7.8 Hz, 2H), 7.45-7.40 (m, 8H), 7.39-7.36 (m, 2H), 7.24 (d, *J* = 7.8 Hz, 2H), 2.39 (s, 3H), 0.47 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 201.3 (C), 147.6 (C), 138.0 (C), 135.2 (C), 129.4 (CH), 128.7 (CH), 128.4 (CH), 128.3 (CH), 127.5 (C), 125.6 (CH), 117.0 (CH), 116.1 (C), 109.3 (C), 21.2 (CH_3), -0.62 (CH_3); HRMS Calculated for $C_{27}H_{28}N_3Si$ $[M+H]^+$: 422.2046, Found: 422.2044.



N-1-4m

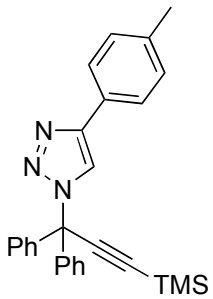
1-(1-(trimethylsilyl)-3,3-diphenylpropa-1,2-dienyl)-4-*p*-tolyl-1*H*-1,2,3-triazole (N-1-4m) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid.

Isolated yield 12%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.29; UV absorption: 236(0.179), 265(0.144), 297(0.114); IR (neat), 2928, 1635, 1469, 1433, 1287, 1222, 1032, 930, 816, 770, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.63 (s, 1H), 7.30-7.27 (m, 6H), 7.07 (d, *J* = 7.8 Hz, 2H), 7.05-7.03 (m, 4H), 6.73 (d, *J* = 7.8 Hz, 2H), 2.14 (s, 3H), 0.32 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 203.8 (C), 138.8 (C), 137.8 (C), 135.0 (C), 133.3 (C), 128.9 (CH), 128.7 (CH), 128.5 (CH), 128.3 (CH), 127.8 (CH), 124.3 (CH), 114.2 (C), 107.3 (C), 21.2 (CH_3), -0.66 (CH_3); HRMS Calculated for $C_{27}H_{28}N_3Si$ $[M+H]^+$: 422.2046, Found: 422.2045.



N-2-4m'

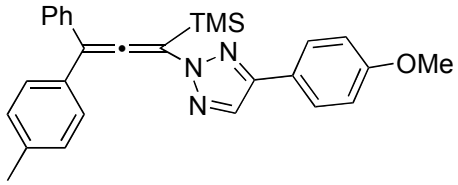
2-(3-(trimethylsilyl)-1,1-diphenylprop-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4m') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 13%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.48; UV absorption: 244(0.408), 255(0.418); IR (neat), 3108, 2960, 1490, 1456, 1354, 1296, 1071, 974, 833, 764, 734, 687; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.91 (s, 1H), 7.68 (d, *J* = 7.8 Hz, 2H), 7.36-7.33 (m, 6H), 7.32-7.29 (m, 4H), 7.21 (d, *J* = 7.8 Hz, 2H), 2.37 (s, 3H), 0.28 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 148.0 (C), 141.2 (C), 138.3 (C), 131.2 (CH), 129.4 (CH), 128.3 (CH), 128.2 (CH), 128.1 (CH), 127.5 (C), 126.0 (CH), 104.4 (C), 94.2 (C), 73.8 (C), 21.3 (CH_3), -0.28 (CH_3); HRMS Calculated for $C_{27}H_{28}N_3Si$ $[M+H]^+$: 422.2046, Found: 422.2047.



N-1-4m'

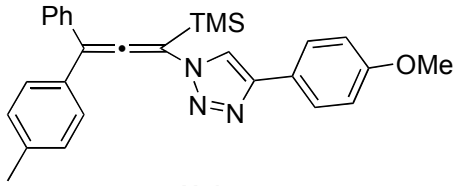
1-(3-(trimethylsilyl)-1,1-diphenylprop-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4m') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 5%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.24; UV absorption:

243(0.314), 253(0.298); IR (neat), 3083, 2936, 1490, 1456, 1425, 1156, 1073, 976, 833, 751, 730, 686; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.97 (s, 1H), 7.73 (d, *J* = 7.8 Hz, 2H), 7.37-7.35 (m, 6H), 7.32-7.29 (m, 4H), 7.22 (d, *J* = 7.8 Hz, 2H), 2.38 (s, 3H), 0.29 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 146.8 (C), 140.6 (C), 137.9 (C), 129.4 (CH), 128.7 (CH), 128.4 (CH), 128.0 (CH), 127.7 (C), 125.6 (CH), 120.2 (CH), 104.1 (C), 94.9 (C), 70.0 (C), 21.2 (CH_3), -0.37 (CH_3); HRMS Calculated for $C_{27}H_{28}N_3Si$ $[M+H]^+$: 422.2046, Found: 422.2049.



N-2-4n

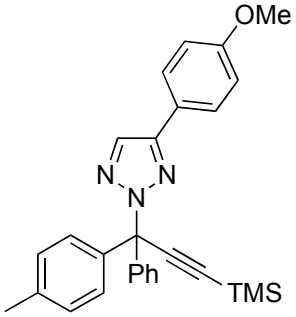
4-(4-methoxyphenyl)-2-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-2*H*-1,2,3-triazole (N-2-4n) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.66; Isolated yield 70%; UV absorption: 244(0.223), 271(0.189), 298(0.154); IR (neat), 2987, 1621, 1503, 1454, 1268, 1237, 1067, 941, 832, 754, 687; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.92 (s, 1H), 7.77 (d, *J* = 9.0 Hz, 2H), 7.39 (d, *J* = 9.0 Hz, 4H), 7.28 (d, *J* = 7.8 Hz, 2H), 7.21 (d, *J* = 7.8 Hz, 2H), 6.94 (d, *J* = 9.0 Hz, 2H), 3.84 (s, 3H), 2.39 (s, 3H), 0.42 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 201.3 (C), 159.7 (C), 147.4 (C), 138.3 (C), 135.4 (C), 132.2 (C), 129.5 (CH), 128.7 (CH), 128.4 (CH), 128.3 (CH), 128.2 (CH), 127.1 (CH), 123.1 (C), 116.6 (CH), 116.0 (C), 114.2 (CH), 109.2 (C), 55.3 (CH_3), 21.2 (CH_3), -0.59 (CH_3); HRMS Calculated for $C_{28}H_{30}N_3OSi$ $[M+H]^+$: 452.2153, Found: 452.2156.



N-1-4n

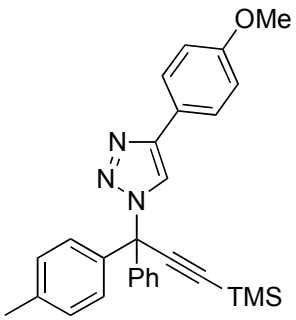
4-(4-methoxyphenyl)-1-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-1*H*-1,2,3-triazole (N-1-4n) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 14%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.30; UV absorption: 244(0.165), 273(0.132), 299(0.103); IR (neat), 2960, 1611, 1494, 1469, 1284, 1232, 1049, 938, 819, 732, 691; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.62 (s, 1H), 7.36-7.33 (m, 2H), 7.20-7.14 (m, 3H), 7.10 (d, *J* = 9.0 Hz, 4H), 7.07-7.05 (m, 2H), 6.46 (d, *J* = 7.8 Hz, 2H), 3.64 (s, 3H), 2.36 (s, 3H), 0.31 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 204.0 (C), 160.2 (C), 142.9 (C), 137.9 (C), 135.4 (C), 132.3 (C), 130.5 (CH), 129.3 (CH), 128.8 (CH), 128.5 (CH), 128.3 (CH), 128.2 (CH), 128.0 (C), 127.9 (CH), 120.0 (C), 113.9

(CH), 107.4 (C), 55.2 (CH_3), 21.3 (CH_3), -0.45 (CH_3); HRMS Calculated for $C_{28}H_{30}N_3OSi$ $[M+H]^+$: 452.2153, Found: 452.2150.



N-2-4n'

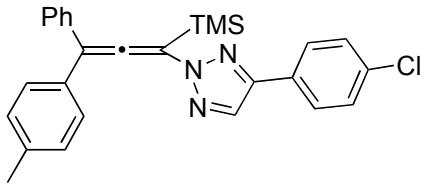
4-(4-methoxyphenyl)-2-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-2*H*-1,2,3-triazole (N-2-4n') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 10%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.51; UV absorption: 256(0.413), 269(0.424); IR (neat), 3096, 2943, 1482, 1423, 1368, 1299, 1065, 975, 830, 751, 724, 689; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.83 (s, 1H), 7.70 (d, *J* = 8.4 Hz, 2H), 7.32-7.29 (m, 2H), 7.25-7.23 (m, 2H), 7.18 (d, *J* = 8.4 Hz, 2H), 7.12 (t, *J* = 8.4 Hz, 3H), 6.91 (t, *J* = 8.4 Hz, 2H), 3.81 (s, 3H), 2.34 (s, 3H), 0.26 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 159.8 (C), 147.7 (C), 141.5 (C), 138.3 (C), 137.4 (C), 130.8 (CH), 128.8 (CH), 128.2 (CH), 128.1 (CH), 128.0 (CH), 127.9 (CH), 127.4 (CH), 123.1 (C), 114.1 (CH), 104.6 (C), 93.9 (C), 73.5 (C), 55.2 (CH_3), 21.1 (CH_3), -0.26 (CH_3); HRMS Calculated for $C_{28}H_{30}N_3OSi$ $[M+H]^+$: 452.2153, Found: 452.2150.



N-1-4n'

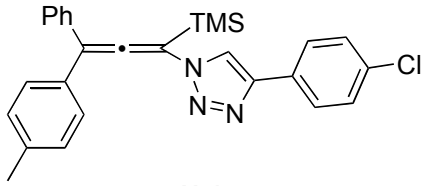
4-(4-methoxyphenyl)-1-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-1*H*-1,2,3-triazole (N-1-4n') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 4%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.33; UV absorption: 256(0.335), 266(0.356); IR (neat), 3090, 2955, 1498, 1453, 1434, 1149, 1068, 956, 837, 750, 721, 680; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.90 (s, 1H), 7.75 (d, *J* = 9.0 Hz, 2H), 7.36-7.34 (m, 3H), 7.29-7.25 (m, 2H), 7.19 (d, *J* = 8.4 Hz, 2H), 7.15 (d, *J* = 8.4 Hz, 2H), 6.94 (d, *J* = 9.0 Hz, 2H), 3.84 (s, 3H), 2.36 (s, 3H), 0.27 (s, 9H); ^{13}C-NMR (150

MHz, $CDCl_3$) δ 159.6 (C), 146.6 (C), 140.8 (C), 138.6 (C), 137.6 (C), 129.0 (CH), 128.6 (CH), 128.4 (CH), 128.0 (CH), 127.9 (CH), 127.0 (CH), 123.4 (C), 119.7 (CH), 114.2 (CH), 104.3 (C), 94.6 (C), 69.8 (C), 55.3 (CH_3), 21.1 (CH_3), -0.35 (CH_3); HRMS Calculated for $C_{28}H_{30}N_3OSi$ $[M+H]^+$: 452.2153, Found: 452.2151.



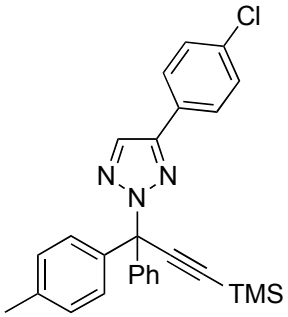
N-2-4o

4-(4-chlorophenyl)-2-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-2*H*-1,2,3-triazole (N-2-4o) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 57%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.57; UV absorption: 238(0.329), 269(0.254), 301(0.216); IR (neat), 2937, 1623, 1477, 1450, 1276, 1235, 1063, 932, 818, 745, 696; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.99 (s, 1H), 7.78 (d, *J* = 8.4 Hz, 2H), 7.40-7.38 (m, 5H), 7.37-7.35 (m, 2H), 7.28 (d, *J* = 7.8 Hz, 2H), 7.21 (d, *J* = 7.8 Hz, 2H), 2.39 (s, 3H), 0.43 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 201.3 (C), 146.5 (C), 138.4 (C), 135.3 (C), 134.0 (C), 132.1 (C), 129.5 (CH), 129.0 (CH), 128.9 (CH), 128.8 (CH), 128.4 (CH), 128.3 (CH), 128.2 (C), 127.0 (CH), 117.5 (CH), 116.2 (C), 109.2 (C), 21.2 (CH_3), -0.62 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1652.



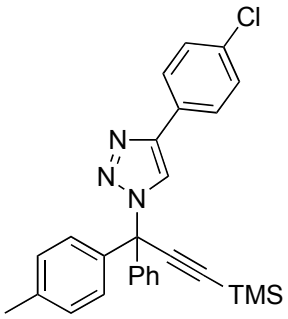
N-1-4o

4-(4-chlorophenyl)-1-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-1*H*-1,2,3-triazole (N-1-4o) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 15%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.29; UV absorption: 242(0.308), 261(0.249), 300(0.233); IR (neat), 2946, 1589, 1480, 1441, 1292, 1231, 1063, 939, 825, 756, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.65 (s, 1H), 7.32-7.28 (m, 3H), 7.11 (d, *J* = 8.4 Hz, 2H), 7.07 (d, *J* = 8.4 Hz, 2H), 7.05-7.02 (m, 2H), 6.92 (d, *J* = 8.4 Hz, 2H), 6.85 (d, *J* = 8.4 Hz, 2H), 2.38 (s, 3H), 0.34 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 204.0 (C), 138.0 (C), 136.6 (C), 135.0 (C), 134.8 (C), 133.5 (C), 131.6 (C), 129.9 (CH), 129.2 (CH), 128.5 (CH), 128.4 (CH), 128.3 (CH), 128.2 (CH), 128.0 (CH), 125.8 (CH), 114.5 (C), 107.2 (C), 21.2 (CH_3), -0.67 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1654.



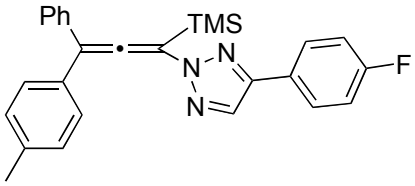
N-2-4o'

4-(4-chlorophenyl)-2-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-2*H*-1,2,3-triazole (N-2-4o') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 19%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.47; UV absorption: 250(0.378), 265(0.345); IR (neat), 3100, 2947, 1498, 1434, 1367, 1292, 1049, 967, 854, 788, 730, 691; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.90 (s, 1H), 7.71 (d, *J* = 8.4 Hz, 2H), 7.36 (d, *J* = 8.4 Hz, 2H), 7.35-7.33 (m, 3H), 7.27-7.24 (m, 2H), 7.18 (d, *J* = 8.4 Hz, 2H), 7.15 (t, *J* = 8.4 Hz, 2H), 2.36 (s, 3H), 0.27 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 146.9 (C), 141.3 (C), 138.3 (C), 138.1 (C), 134.2 (C), 131.2 (CH), 128.9 (CH), 128.8 (CH), 128.3 (CH), 128.2 (CH), 128.1 (CH), 128.0 (CH), 127.4 (CH), 104.4 (C), 94.2 (C), 73.8 (C), 21.1 (CH_3), -0.28 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1654.



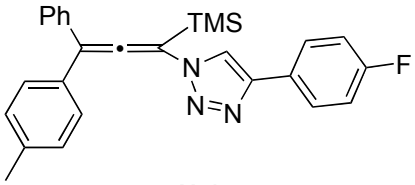
N-1-4o'

4-(4-chlorophenyl)-1-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-2*H*-1,2,3-triazole (N-1-4o') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 5%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.26; UV absorption: 248(0.268), 263(0.247); IR (neat), 3054, 2921, 1495, 1458, 1421, 1150, 1054, 971, 827, 749, 720, 688; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.95 (s, 1H), 7.75 (d, *J* = 8.4 Hz, 2H), 7.38-7.33 (m, 5H), 7.28-7.25 (m, 2H), 7.18 (d, *J* = 9.0 Hz, 2H), 7.15 (d, *J* = 9.0 Hz, 2H), 2.35 (s, 3H), 0.27 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 145.9 (C), 140.8 (C), 139.0 (C), 137.7 (C), 134.0 (C), 129.4 (CH), 129.2 (CH), 128.9 (CH), 128.6 (CH), 128.2 (CH), 128.1 (CH), 127.2 (CH), 120.8 (CH), 104.3 (C), 95.1 (C), 70.3 (C), 21.3 (CH_3), -0.13 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1655.



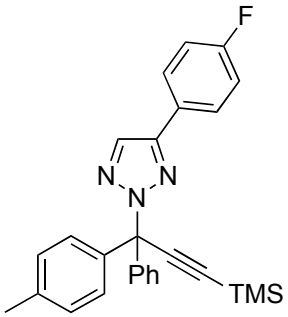
N-2-4p

4-(4-fluorophenyl)-2-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-2*H*-1,2,3-triazole (N-2-4p) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 62%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.55; UV absorption: 257(0.405), 263(0.353), 311(0.252); IR (neat), 2966, 1586, 1493, 1444, 1282, 1234, 1039, 933, 854, 756, 682; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.97 (s, 1H), 7.84-7.81 (m, 2H), 7.42-7.40 (m, 4H), 7.38-7.35 (m, 1H), 7.30 (d, *J* = 7.8 Hz, 2H), 7.22 (d, *J* = 7.8 Hz, 2H), 7.11 (t, *J* = 7.8 Hz, 2H), 2.40 (s, 3H), 0.44 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 201.3 (C), 163.5 (C), 161.9 (C), 146.6 (C), 138.4 (C), 135.3 (C), 132.1 (C), 129.5 (CH), 128.7 (CH), 128.4 (CH), 128.3 (CH), 128.2 (CH), 127.5 (CH), 127.4 (CH), 126.7 (C), 126.6 (C), 117.2 (CH), 116.1 (C), 115.8 (CH), 115.7 (CH), 109.2 (C), 21.2 (CH_3), -0.63 (CH_3); HRMS Calculated for $C_{27}H_{27}FN_3Si$ $[M+H]^+$: 440.1951, Found: 440.1950.



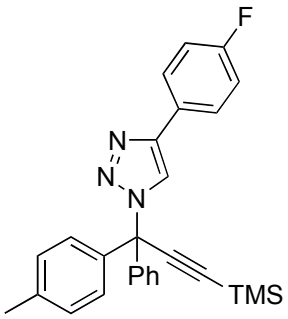
N-1-4p

4-(4-fluorophenyl)-1-(1-(trimethylsilyl)-3-phenyl-3-*p*-tolylpropa-1,2-dienyl)-1*H*-1,2,3-triazole (N-1-4p) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 14%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.25; UV absorption: 253(0.333), 261(0.279), 313(0.223); IR (neat), 2987, 1618, 1464, 1426, 1289, 1235, 1052, 946, 823, 745, 688; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.64 (s, 1H), 7.31-7.28 (m, 3H), 7.14-7.11 (m, 2H), 7.10 (d, *J* = 7.8 Hz, 2H), 7.06-7.03 (m, 2H), 6.94 (d, *J* = 7.8 Hz, 2H), 6.59 (t, *J* = 7.8 Hz, 2H), 2.37 (s, 3H), 0.32 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 203.8 (C), 163.7 (C), 163.0 (C), 162.0 (C), 138.0 (C), 136.8 (C), 134.9 (C), 133.5 (CH), 131.7 (CH), 130.8 (C), 130.7 (C), 129.2 (CH), 128.4 (CH), 128.4 (CH), 128.3 (CH), 128.0 (CH), 123.3 (CH), 115.4 (CH), 115.3 (CH), 114.4 (C), 107.2 (C), 21.2 (CH_3), -0.67 (CH_3); HRMS Calculated for $C_{27}H_{27}FN_3Si$ $[M+H]^+$: 440.1951, Found: 440.1954.



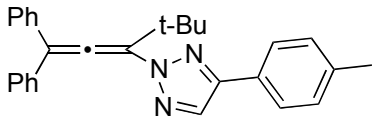
N-2-4p'

4-(4-fluorophenyl)-2-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-2*H*-1,2,3-triazole (N-2-4p') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 15%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.45; UV absorption: 271(0.513), 285(0.446); IR (neat), 3118, 2937, 1476, 1424, 1375, 1299, 1055, 963, 850, 781, 727, 690; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.87 (s, 1H), 7.77-7.74 (m, 2H), 7.35-7.32 (m, 3H), 7.28-7.24 (m, 2H), 7.19 (d, *J* = 8.4 Hz, 2H), 7.15 (d, *J* = 8.4 Hz, 2H), 7.08 (t, *J* = 8.4 Hz, 2H), 2.36 (s, 3H), 0.27 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 163.7 (C), 162.0 (C), 147.0 (C), 141.4 (C), 138.3 (C), 138.2 (C), 131.0 (CH), 128.9 (CH), 128.3 (CH), 128.2 (CH), 128.1 (CH), 128.0 (CH), 127.9 (CH), 127.8 (CH), 126.7 (C), 126.6 (C), 115.8 (CH), 115.6 (CH), 104.4 (C), 94.1 (C), 73.7 (C), 21.1 (CH_3), -0.27 (CH_3); HRMS Calculated for $C_{27}H_{27}FN_3Si$ $[M+H]^+$: 440.1951, Found: 440.1948.



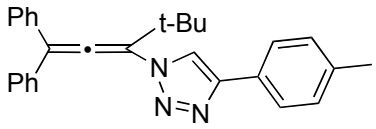
N-1-4p'

4-(4-fluorophenyl)-1-(3-(trimethylsilyl)-1-phenyl-1-*p*-tolylprop-2-ynyl)-2*H*-1,2,3-triazole (N-1-4p') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 4%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.28; UV absorption: 270(0.436), 283(0.389); IR (neat), 3089, 2931, 1488, 1433, 1363, 1281, 1042, 965, 864, 774, 735, 695; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.94 (s, 1H), 7.81-7.78 (m, 2H), 7.36-7.34 (m, 3H), 7.29-7.27 (m, 2H), 7.18 (d, *J* = 8.4 Hz, 2H), 7.16 (d, *J* = 8.4 Hz, 2H), 7.10 (t, *J* = 8.4 Hz, 2H), 2.36 (s, 3H), 0.28 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 163.5 (C), 161.8 (C), 145.9 (C), 140.6 (C), 138.7 (C), 137.5 (C), 129.1 (CH), 128.7 (CH), 128.4 (CH), 128.0 (CH), 127.9 (CH), 127.5 (CH), 127.4 (CH), 125.9 (C), 125.8 (C), 120.3 (CH), 115.8 (CH), 115.7 (CH), 104.1 (C), 94.8 (C), 70.0 (C), 21.0 (CH_3), -0.36 (CH_3); HRMS Calculated for $C_{27}H_{27}FN_3Si$ $[M+H]^+$: 440.1951, Found: 440.1953.



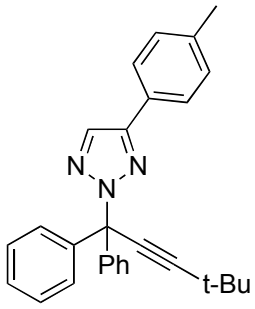
N-2-4q

2-(4,4-dimethyl-1,1-diphenylpenta-1,2-dien-3-yl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4q) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 65%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.60; UV absorption: 240(0.214), 258(0.182), 294(0.195); IR (neat), 2956, 1588, 1497, 1441, 1264, 1245, 1072, 958, 815, 760, 675; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.77 (s, 1H), 7.74 (d, *J* = 7.8 Hz, 2H), 7.44-7.39 (m, 8H), 7.38-7.34 (m, 2H), 7.22 (d, *J* = 7.8Hz, 2H), 2.37 (s, 3H), 1.39 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 199.4 (C), 146.8 (C), 138.0 (C), 135.2 (C), 129.4 (CH), 128.7 (CH), 128.5 (CH), 128.4 (CH), 127.6 (C), 125.6 (CH), 121.0 (C), 120.6 (CH), 117.6 (C), 36.3 (C), 29.1 (CH_3), 21.3 (CH_3); HRMS Calculated for $C_{28}H_{28}N_3$ $[M+H]^+$: 406.2280, Found: 406.2280.



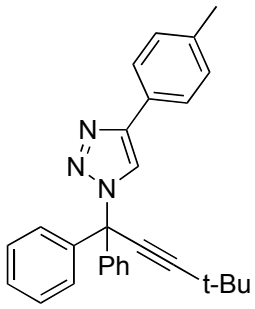
N-1-4q

1-(4,4-dimethyl-1,1-diphenylpenta-1,2-dien-3-yl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4q) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 11%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.28; UV absorption: 243(0.253), 259(0.298), 297(0.203); IR (neat), 2934, 1576, 1501, 1433, 1237, 1216, 1066, 939, 811, 773, 683; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.69 (s, 1H), 7.40-7.33 (m, 10H), 7.02 (d, *J* = 7.8 Hz, 2H), 6.84 (d, *J* = 7.8 Hz, 2H), 2.29 (s, 3H), 1.11 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 202.6 (C), 163.0 (C), 138.9 (C), 134.7 (C), 132.1 (CH), 129.1 (CH), 128.9 (CH), 128.7 (CH), 128.6 (CH), 128.3 (CH), 124.2 (C), 119.1 (C), 117.1 (C), 37.1 (C), 29.1 (CH_3), 21.3 (CH_3); HRMS Calculated for $C_{28}H_{28}N_3$ $[M+H]^+$: 406.2280, Found: 406.2285.



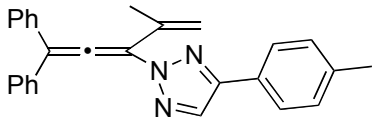
N-2-4q'

2-(4,4-dimethyl-1,1-diphenylpent-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4q') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 15%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.45; UV absorption: 240(0.267), 253(0.305); IR (neat), 3123, 2956, 1500, 1431, 1362, 1280, 1040, 968, 842, 781, 733, 701; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.88 (s, 1H), 7.67 (d, *J* = 7.8 Hz, 2H), 7.35-7.31 (m, 6H), 7.30-7.27 (m, 4H), 7.20 (d, *J* = 7.8 Hz, 2H), 2.37 (s, 3H), 1.35 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 147.7 (C), 142.1 (C), 138.1 (C), 131.0 (CH), 129.4 (CH), 128.1 (CH), 128.1 (CH), 128.0 (CH), 127.7 (C), 126.0 (CH), 97.7 (C), 79.0 (C), 73.4 (C), 30.6 (CH_3), 27.8 (C), 21.3 (CH_3); HRMS Calculated for $C_{28}H_{28}N_3$ $[M+H]^+$: 406.2280, Found: 406.2284.



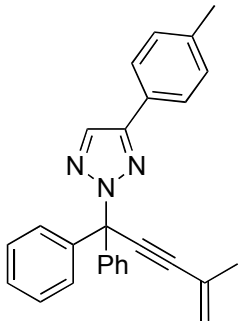
N-1-4q'

1-(4,4-dimethyl-1,1-diphenylpent-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4q') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 4%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.25; UV absorption: 242(0.253), 254(0.236); IR (neat), 3076, 2927, 1463, 1448, 1354, 1290, 1033, 985, 855, 793, 721, 698; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.96 (s, 1H), 7.71 (d, *J* = 7.8 Hz, 2H), 7.36-7.33 (m, 6H), 7.31-7.27 (m, 4H), 7.21 (d, *J* = 7.8 Hz, 2H), 2.37 (s, 3H), 1.35 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 163.0 (C), 146.7 (C), 141.3 (C), 137.9 (C), 129.4 (CH), 128.5 (CH), 128.3 (CH), 128.0 (CH), 125.6 (CH), 120.2 (CH), 98.3 (C), 78.9 (C), 69.7 (C), 30.6 (CH_3), 27.9 (C), 21.3 (CH_3); HRMS Calculated for $C_{28}H_{28}N_3$ $[M+H]^+$: 406.2280, Found: 406.2279.



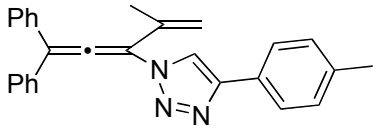
N-2-4r

2-(4-methyl-1,1-diphenylpenta-1,2,4-trien-3-yl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4r) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 70%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.64; UV absorption: 231(0.405), 263(0.353), 311(0.252); IR (neat), 3033, 1586, 1495, 1438, 1266, 1153, 1071, 992, 903, 734, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.86 (s, 1H), 7.74 (d, *J* = 8.4 Hz, 2H), 7.47-7.45 (m, 4H), 7.43-7.35 (m, 6H), 7.23 (d, *J* = 8.4 Hz, 2H), 5.21 (s, 1H), 4.88 (s, 1H), 2.38 (s, 3H), 2.09 (s, 3H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 203.5 (C), 147.3 (C), 138.1 (C), 136.2 (C), 134.6 (C), 129.5 (CH), 128.9 (CH), 128.7 (CH), 128.7 (CH), 127.5 (C), 125.7 (CH), 120.8 (CH), 119.0 (C), 115.4 (CH_2), 114.8 (C), 21.3 (CH_3), 20.7 (CH_3); HRMS Calculated for $C_{27}H_{24}N_3$ $[M+H]^+$: 390.1960, Found: 390.1962.



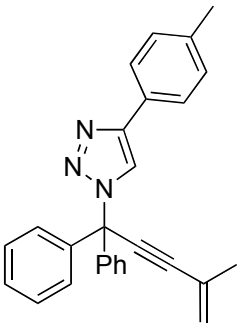
N-2-4r'

2-(4-methyl-1,1-diphenylpent-4-en-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4r') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 10%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.50; UV absorption: 248(0.231), 259(0.210); IR (neat), 3110, 2930, 1471, 1423, 1373, 1297, 1053, 960, 838, 779, 718, 679; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.91 (s, 1H), 7.67 (d, *J* = 7.8 Hz, 2H), 7.36-7.33 (m, 6H), 7.31-7.28 (m, 4H), 7.20 (d, *J* = 7.8 Hz, 2H), 5.48 (s, 1H), 5.35 (quin, *J* = 1.8 Hz, 1H), 2.37 (s, 3H), 2.01 (s, 3H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 148.0 (C), 141.5 (C), 138.4 (C), 131.2 (CH), 129.4 (CH), 128.3 (CH), 128.2 (CH), 128.1 (CH), 127.5 (C), 126.1 (C), 126.0 (CH), 123.1 (CH_2), 90.2 (C), 88.0 (C), 73.8 (C), 23.2 (CH_3), 21.3 (CH_3); HRMS Calculated for $C_{27}H_{24}N_3$ $[M+H]^+$: 390.1960, Found: 390.1962.



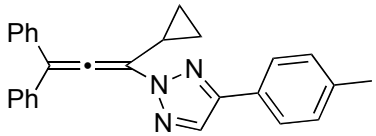
N-1-4r

&



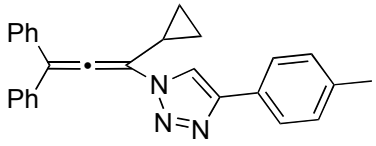
N-1-4r'

Mixture of 1-(4-methyl-1,1-diphenylpenta-1,2,4-trien-3-yl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4r) and **1-(4-methyl-1,1-diphenylpent-4-en-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4r')** couldn't separated by flash chromatography with different developing solvent systems which were Hexane-EtOAc (v/v: 20/1) and Hexane-ethylene chloride (v/v: 5/1) as yellow liquid. R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.29; Isolated yield 11%; UV absorption: 233(0.333), 245(0.200), 261(0.257), 313(0.163); IR (neat), 3066, 2935, 1589, 1477, 1448, 1350, 1284, 1165, 1049, 997, 913, 857 732, 688; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.88 (s, 1.00H), 7.57-7.54 (m, 3.47H), 7.38-7.34 (m, 3.88H), 7.33-7.28 (m, 7.77H), 7.25-7.23 (m, 4.18H), 7.19 (d, *J* = 7.8 Hz, 2.20H), 7.01 (d, *J* = 7.8 Hz, 2.10H), 2.41 (s, 2.62H), 2.34 (s, 3.00H), 2.01 (s, 3.03H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 205.3 (C), 163.0 (C), 143.2 (C), 139.2 (C), 138.8 (C), 137.0 (C), 134.0 (C), 131.7 (C), 129.4 (CH), 128.9 (CH), 128.6 (CH), 128.5 (CH), 128.5 (CH), 128.3 (CH), 127.9 (CH), 126.0 (CH), 123.7 (CH_2), 118.8 (C), 115.0 (CH_2), 113.9 (C), 92.4 (C), 85.8 (C), 74.5 (C), 32.7 (CH_3), 21.3 (CH_3), 20.2 (CH_3); HRMS Calculated for $C_{27}H_{24}N_3$ $[M+H]^+$: 390.1960, Found: 390.1962.



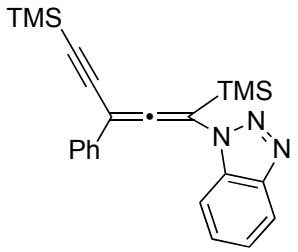
N-2-4s

2-(1-cyclopropyl-3,3-diphenylpropa-1,2-dienyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4s) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 87%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.61; UV absorption: 226(0.242), 257(0.166), 299(0.129); IR (neat), 2962, 1583, 1480, 1423, 1262, 1151, 1067, 956, 862, 742, 690; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.97 (s, 1H), 7.74 (d, *J* = 7.8 Hz, 2H), 7.42-7.36 (m, 10H), 7.23 (d, *J* = 7.8 Hz, 2H), 2.38 (s, 3H), 2.29-2.24 (m, 1H), 1.11-1.07 (m, 2H), 0.83-0.79 (m, 2H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 196.7 (C), 147.8 (C), 138.1 (C), 135.4 (C), 129.5 (CH), 128.7 (CH), 128.6 (CH), 128.6 (CH), 127.6 (C), 125.7 (CH), 121.2 (C), 117.4 (CH), 116.6 (C), 21.3 (CH_3), 10.8 (CH), 7.5 (CH_2); HRMS Calculated for $C_{27}H_{24}N_3$ $[M+H]^+$: 390.1960, Found: 390.1963.



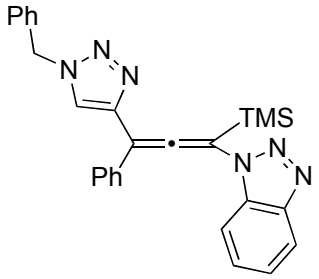
N-1-4s

1-(1-cyclopropyl-3,3-diphenylpropa-1,2-dienyl)-4-*p*-tolyl-1*H*-1,2,3-triazole (N-1-4s) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 9%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.30; UV absorption: 229(0.199), 258(0.113), 298(0.098); IR (neat), 3001, 1597, 1474, 1444, 1273, 1175, 1073, 976, 849, 737, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.69 (s, 1H), 7.32-7.27 (m, 6H), 7.17-7.13 (m, 6H), 6.88 (d, *J* = 7.8 Hz, 2H), 2.25 (s, 3H), 1.94-1.88 (m, 1H), 0.91-0.86 (m, 2H), 0.69-0.65 (m, 2H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.6 (C), 138.9 (C), 137.8 (C), 134.8 (C), 132.8 (CH), 129.2 (CH), 128.8 (CH), 128.4 (CH), 128.3 (CH), 128.2 (CH), 123.9 (C), 119.1 (C), 114.1 (C), 21.3 (CH_3), 13.3 (CH), 7.3 (CH_2); HRMS Calculated for $C_{27}H_{24}N_3$ $[M+H]^+$: 390.1960, Found: 390.1959.



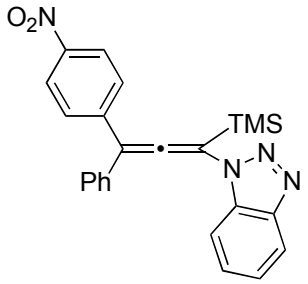
4t

1-(1,5-bis(trimethylsilyl)-3-phenylpenta-1,2-dien-4-ynyl)-1*H*-benzo[*d*][1,2,3]triazole (4t) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 76%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.46; UV absorption: 234(0.093), 250(0.077), 296(0.054); IR (neat), 3057, 2950, 1587, 1476, 1418, 1256, 1160, 1079, 987, 813, 710, 685; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.07 (d, *J* = 8.4 Hz, 1H), 7.79 (d, *J* = 8.4 Hz, 1H), 7.64 (d, *J* = 8.4 Hz, 2H), 7.44 (t, *J* = 8.4 Hz, 1H), 7.39 (t, *J* = 8.4 Hz, 3H), 7.32 (t, *J* = 8.4 Hz, 1H), 0.48 (s, 9H), 0.29 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 205.8 (C), 146.0 (C), 132.8 (C), 132.4 (C), 128.8 (CH), 128.4 (CH), 128.2 (CH), 126.3 (CH), 124.6 (CH), 119.9 (CH), 111.8 (CH), 110.2 (C), 102.1 (C), 99.1 (C), 96.9 (C), -0.10 (CH_3), -0.63 (CH_3); HRMS Calculated for $C_{23}H_{28}N_3Si_2$ $[M+H]^+$: 402.1820, Found: 402.1819.



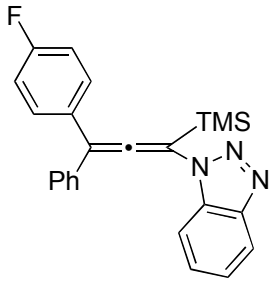
4u

1-(3-(1-benzyl-1*H*-1,2,3-triazol-4-yl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4u) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. R*f* (hexanes/ethyl acetate, V/V, 2/1) = 0.45; UV absorption: 233(0.081), 253(0.06), 295(0.071); IR (neat), 3150, 3030, 2951, 1448, 1286, 1241, 1108, 1048, 938, 835, 766, 697; Isolated yield 58%; m. p. 155-157 ^{o}C; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.05 (d, *J* = 7.2 Hz, 1H), 7.87 (d, *J* = 7.2 Hz, 1H), 7.59-7.56 (m, 2H), 7.48 (s, 1H), 7.41-7.29 (m, 10H), 5.57 (s, 2H), 0.44 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.9 (C), 146.1 (C), 143.6 (C), 134.4 (C), 134.3 (C), 132.6 (C), 129.2 (CH), 128.9 (CH), 128.4 (CH), 128.1 (CH), 128.0 (CH), 127.8 (CH), 124.4 (CH), 122.4 (CH), 119.9 (CH), 112.1 (CH), 109.4 (C), 106.0 (C), 54.4 (CH_2), -0.55 (CH_3); HRMS Calculated for $C_{27}H_{27}N_6Si$ $[M+H]^+$: 463.2056, Found: 46.04059.



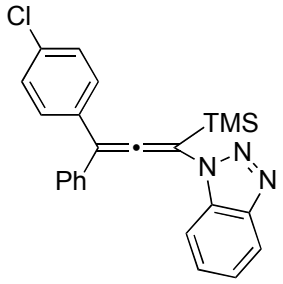
4v

1-(1-(trimethylsilyl)-3-(4-nitrophenyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4v) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 71%; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.48; UV absorption: 231(0.078), 256(0.059), 299(0.041); IR (neat), 2967, 1634, 1523, 1438, 1299, 1235, 1157, 1045, 933, 847, 722; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.24 (d, *J* = 8.4 Hz, 2H), 8.10 (d, *J* = 7.2 Hz, 1H), 7.70 (d, *J* = 7.2 Hz, 1H), 7.61 (d, *J* = 8.4 Hz, 2H), 7.46-7.38 (m, 7H), 0.48 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.9 (C), 147.4 (C), 146.3 (C), 143.0 (C), 134.6 (C), 132.4 (C), 129.2 (CH), 129.0 (CH), 128.7 (CH), 128.3 (CH), 128.2 (CH), 124.6 (CH), 124.1 (CH), 120.3 (CH), 114.0 (C), 111.4 (CH), 109.7 (C), -0.45 (CH_3); HRMS Calculated for $C_{24}H_{23}N_4O_2Si$ $[M+H]^+$: 427.1593, Found: 427.1590.



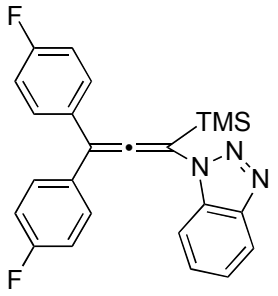
4w

1-(3-(4-fluorophenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4w) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 88%; m. p. 114-116 °C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.46; UV absorption: 234(0.203), 262(0.160), 300(0.141); IR (neat), 2955, 1603, 1504, 1447, 1285, 1248, 1155, 1066, 936, 833, 744, 692; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.08 (d, *J* = 7.2 Hz, 1H), 7.77 (d, *J* = 7.2 Hz, 1H), 7.46-7.34 (m, 9H), 7.12-7.06 (m, 2H), 0.47 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.2 (C), 163.4 (C), 161.7 (C), 146.2 (C), 135.7 (C), 132.4 (C), 131.82 (C), 131.80 (C), 130.1 (CH), 130.0 (CH), 128.8 (CH), 128.3 (CH), 128.2 (CH), 128.0 (CH), 124.4 (CH), 120.0 (CH), 115.9 (CH), 115.7 (CH), 114.5 (C), 111.8 (C), 109.0 (CH), -0.49 (CH_3); HRMS Calculated for $C_{24}H_{23}FN_3Si$ $[M+H]^+$: 400.1655, Found: 400.1658.



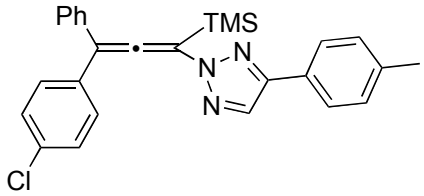
4x

1-(3-(4-chlorophenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4x) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 72%; m. p. 139-141 °C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.47; UV absorption: 238(0.229), 264(0.167), 299(0.156); IR (neat), 2957, 1485, 1448, 1285, 1248, 1156, 1069, 937, 876, 831, 743, 692; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.09 (d, *J* = 7.8 Hz, 1H), 7.76 (d, *J* = 7.8 Hz, 1H), 7.46-7.35 (m, 11H), 0.49 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.2 (C), 146.2 (C), 135.4 (C), 134.4 (C), 134.0 (C), 132.4 (C), 129.6 (CH), 129.0 (CH), 128.9 (CH), 128.3 (CH), 128.2 (CH), 128.0 (CH), 124.4 (CH), 120.0 (CH), 114.4 (C), 111.7 (CH), 109.1 (C), -0.49 (CH_3); HRMS Calculated for $C_{24}H_{23}ClN_3Si$ $[M+H]^+$: 416.1344, Found: 416.1346.



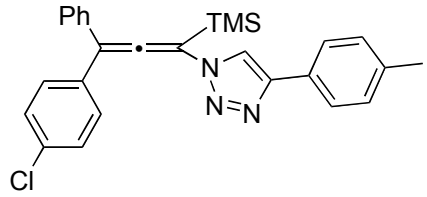
4y

1-(3,3-bis(4-fluorophenyl)-1-(trimethylsilyl)propa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (4y) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 84%; m. p. 118-120 ^{o}C; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.43; UV absorption: 235(0.175), 261(0.151), 299(0.127); IR (neat), 2964, 1602, 1504, 1450, 1282, 1223, 1157, 1069, 937, 836, 752; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.08 (d, *J* = 7.8 Hz, 1H), 7.75 (d, *J* = 7.8 Hz, 1H), 7.45-7.40 (m, 5H), 7.38 (t, *J* = 7.8 Hz, 1H), 7.13-7.08 (m, 4H), 0.48 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 200.0 (C), 163.4 (C), 161.7 (C), 146.2 (C), 132.4 (C), 131.7 (C), 131.6 (C), 130.0 (CH), 129.9 (CH), 128.0 (CH), 124.4 (CH), 120.1 (CH), 116.0 (CH), 115.8 (CH), 113.6 (C), 111.6 (CH), 109.1 (C), -0.53 (CH_3); HRMS Calculated for $C_{24}H_{22}F_2N_3Si$ $[M+H]^+$: 418.1546, Found: 418.1550.



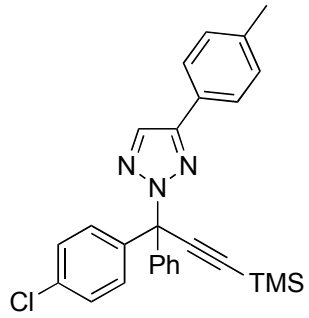
N-2-4z

2-(3-(4-chlorophenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4z) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 59%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.60; UV absorption: 243(0.318), 270(0.267), 295(0.116); IR (neat), 2917, 1613, 1457, 1443, 1278, 1233, 1073, 929, 816, 738, 699; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.94 (s, 1H), 7.74 (d, *J* = 8.4 Hz, 2H), 7.41 (d, *J* = 7.8 Hz, 2H), 7.39-7.36 (m, 5H), 7.34 (d, *J* = 7.8 Hz, 2H), 7.22 (d, *J* = 8.4 Hz, 2H), 2.16 (s, 3H), 0.43 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 201.2 (C), 147.7 (C), 138.2 (C), 134.8 (C), 134.3 (C), 133.8 (C), 129.6 (CH), 129.5 (CH), 129.0 (CH), 128.9 (CH), 128.5 (CH), 128.3 (CH), 127.4 (CH), 125.7 (CH), 117.0 (C), 115.2 (CH), 109.7 (C), 21.3 (CH_3), -0.60 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1652.



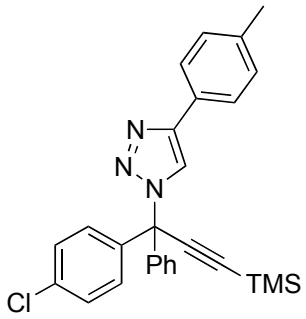
N-1-4z

1-(3-(4-chlorophenyl)-1-(trimethylsilyl)-3-phenylpropa-1,2-dienyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4z) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 15%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.33; UV absorption: 244(0.295), 264(0.244), 299(0.138); IR (neat), 2936, 1588, 1477, 1422, 1278, 1213, 1034, 932, 843, 771, 687; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.63 (s, 1H), 7.30-7.28 (m, 3H), 7.24 (d, *J* = 8.4 Hz, 2H), 7.05 (d, *J* = 7.8 Hz, 2H), 7.03-7.01 (m, 2H), 6.96 (d, *J* = 8.4 Hz, 2H), 6.76 (d, *J* = 7.8 Hz, 2H), 2.16 (s, 3H), 0.32 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 203.6 (C), 138.9 (C), 137.8 (C), 134.6 (C), 133.7 (C), 133.6 (C), 133.4 (C), 129.6 (CH), 129.0 (CH), 128.7 (CH), 128.5 (CH), 128.4 (CH), 128.3 (CH), 128.0 (CH), 124.3 (C), 113.2 (CH), 107.6 (C), 21.2 (CH_3), -0.68 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1659.



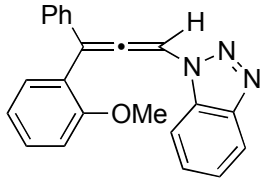
N-2-4z'

2-(1-(4-chlorophenyl)-3-(trimethylsilyl)-1-phenylprop-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-2-4z') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 15%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.49; UV absorption: 256(0.408), 271(0.393); IR (neat), 3077, 2934, 1483, 1446, 1343, 1297, 1041, 961, 852, 777, 739, 695; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 7.91 (s, 1H), 7.67 (d, *J* = 7.8 Hz, 2H), 7.37-7.34 (m, 3H), 7.33-7.31 (m, 2H), 7.29-7.26 (m, 4H), 7.21 (d, *J* = 7.8 Hz, 2H), 2.38 (s, 3H), 0.29 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 148.1 (C), 140.9 (C), 139.8 (C), 138.5 (C), 134.4 (C), 131.3 (CH), 129.8 (CH), 129.4 (CH), 128.5 (CH), 128.3 (CH), 128.2 (CH), 127.9 (CH), 127.4 (C), 126.0 (CH), 103.8 (C), 94.8 (C), 73.2 (C), 21.3 (CH_3), -0.32 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1652.



N-1-4z'

1-(1-(4-chlorophenyl)-3-(trimethylsilyl)-1-phenylprop-2-ynyl)-4-*p*-tolyl-2*H*-1,2,3-triazole (N-1-4z') was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as yellow liquid. Isolated yield 4%; R*f* (hexanes/ethyl acetate, V/V, 10/1) = 0.30; UV absorption: 255(0.358), 273(0.367); IR (neat), 3089, 2928, 1487, 1455, 1433, 1148, 1052, 989, 820, 734, 709, 679; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.01 (s, 1H), 7.73 (d, *J* = 7.8 Hz, 2H), 7.39-7.35 (m, 3H), 7.33 (d, *J* = 8.4 Hz, 2H), 7.29-7.27 (m, 2H), 7.25 (d, *J* = 8.4 Hz, 2H), 7.23 (d, *J* = 7.8 Hz, 2H), 2.38 (s, 3H), 0.29 (s, 9H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 147.0 (C), 140.2 (C), 139.1 (C), 138.0 (C), 134.8 (C), 129.6 (CH), 129.5 (CH), 128.9 (CH), 128.5 (CH), 128.3 (CH), 127.8 (CH), 127.6 (C), 125.6 (CH), 120.1 (CH), 103.5 (C), 95.6 (C), 69.5 (C), 21.3 (CH_3), -0.41 (CH_3); HRMS Calculated for $C_{27}H_{27}ClN_3Si$ $[M+H]^+$: 456.1655, Found: 456.1650.



7a

1-(3-(2-methoxyphenyl)-3-phenylpropa-1,2-dienyl)-1*H*-benzo[*d*][1,2,3]triazole (7a) was purified by flash chromatography (Hexane-EtOAc, v/v 20/1) as white solid. Isolated yield 98%; m. p. 173-175 °C; R*f* (hexanes/ethyl acetate, V/V, 6/1) = 0.42; UV absorption: 235(0.327), 299(0.206); IR (neat), 3056, 1596, 1491, 1443, 1278, 1172, 1061, 741, 694; ^{1}H-NMR (600 MHz, $CDCl_3$) δ 8.26 (s, 1H), 8.07 (d, *J* = 8.4 Hz, 1H), 8.00 (d, *J* = 8.4 Hz, 1H), 7.44-7.27 (m, 9H), 7.01 (t, *J* = 7.8 Hz, 1H), 6.96 (d, *J* = 8.4 Hz, 1H), 3.68 (s, 3H); ^{13}C-NMR (150 MHz, $CDCl_3$) δ 196.6 (C), 157.0 (C), 146.6 (C), 135.3 (C), 131.4 (C), 130.9 (CH), 130.0 (CH), 128.5 (CH), 128.4 (CH), 127.9 (CH), 127.6 (CH), 124.5 (CH), 124.1 (CH), 120.8 (CH), 119.9 (CH), 117.8 (C), 111.9 (CH), 111.3 (C), 99.4 (CH), 55.3 (CH_3); HRMS Calculated for $C_{22}H_{18}N_3O$ $[M+H]^+$: 340.1458, Found: 340.1455.

III. ORTEP Drawing of the Crystal Structure

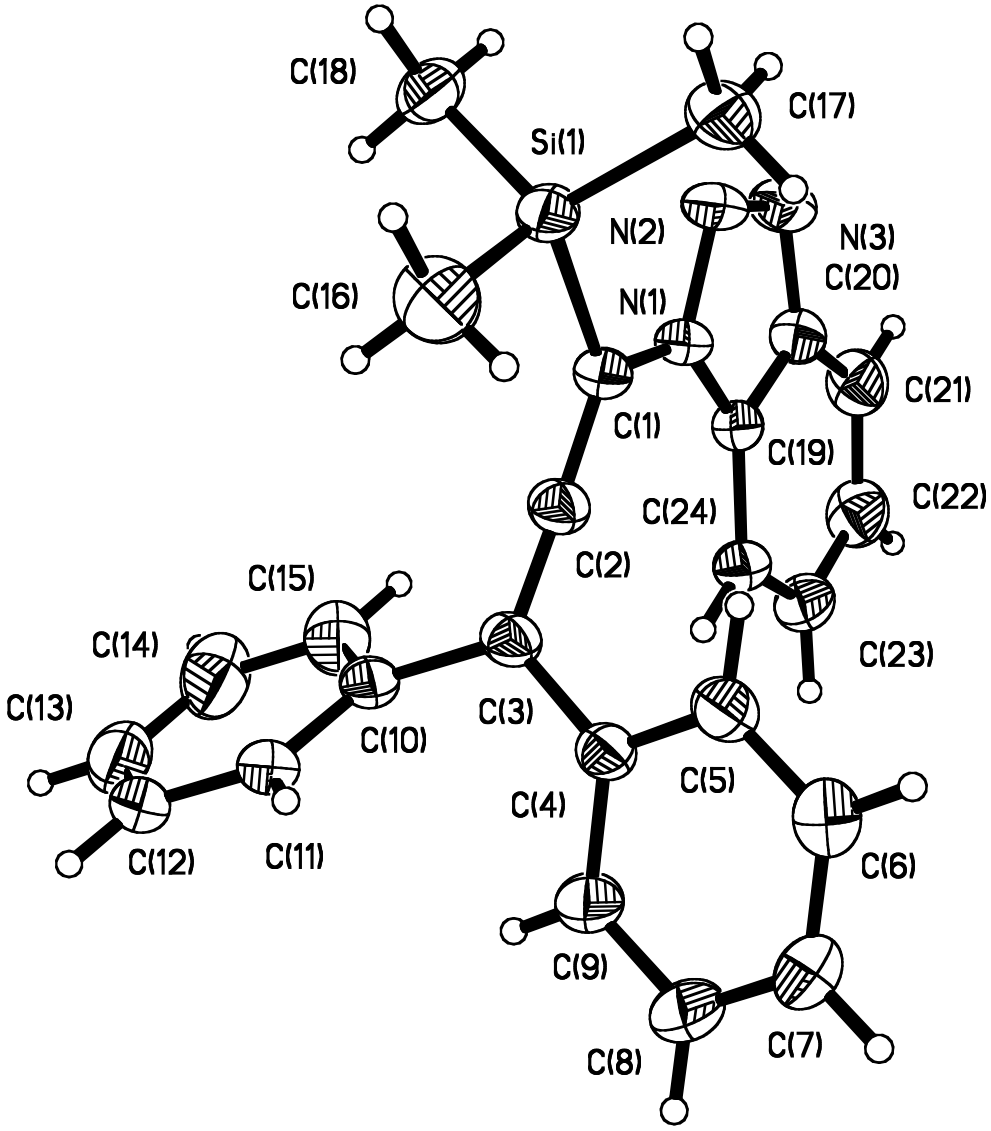


Figure 1. Perspective view of the molecular structure of **4a** ($C_{24}H_{23}N_3Si$) with the atom labeling scheme. The thermal ellipsoids are scaled to enclose 30% probability. CCDC number: 851290.

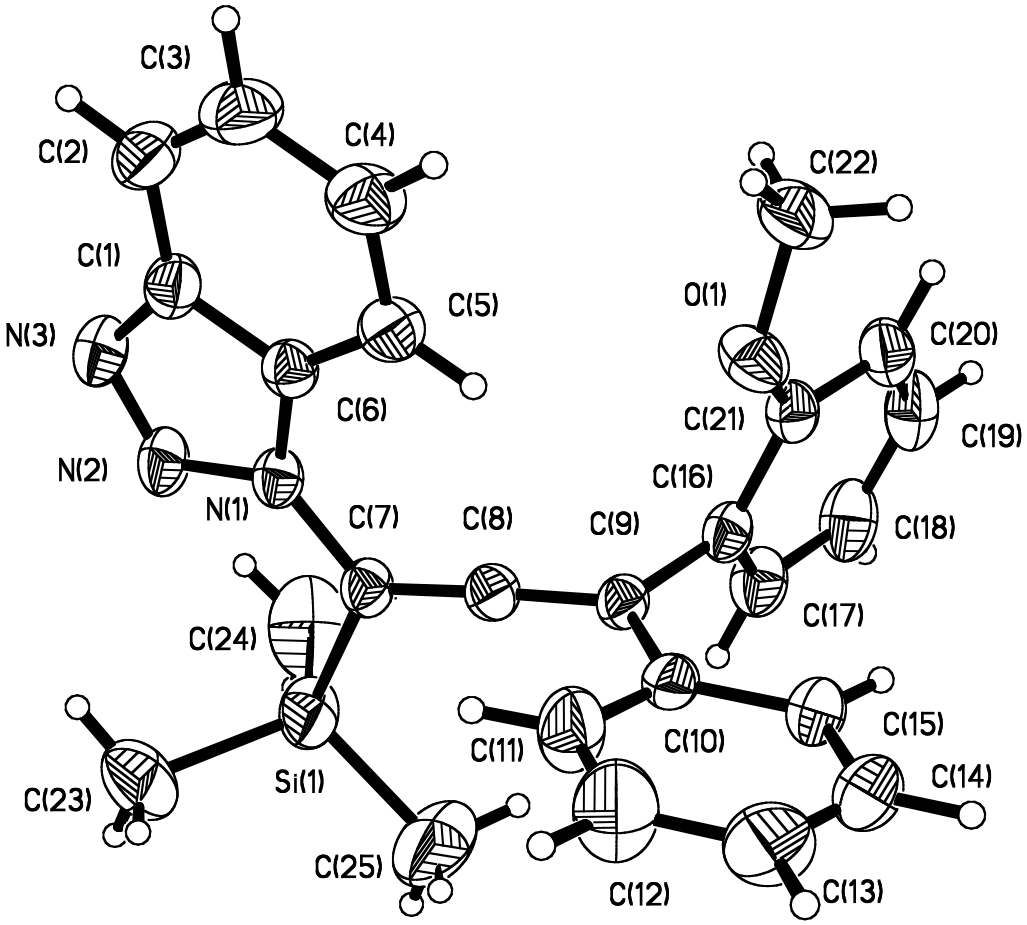


Figure 2. Perspective view of the molecular structure of **4g** ($C_{25}H_{25}N_3SiO$) with the atom labeling scheme. The thermal ellipsoids are scaled to enclose 30% probability. CCDC number: 851291.

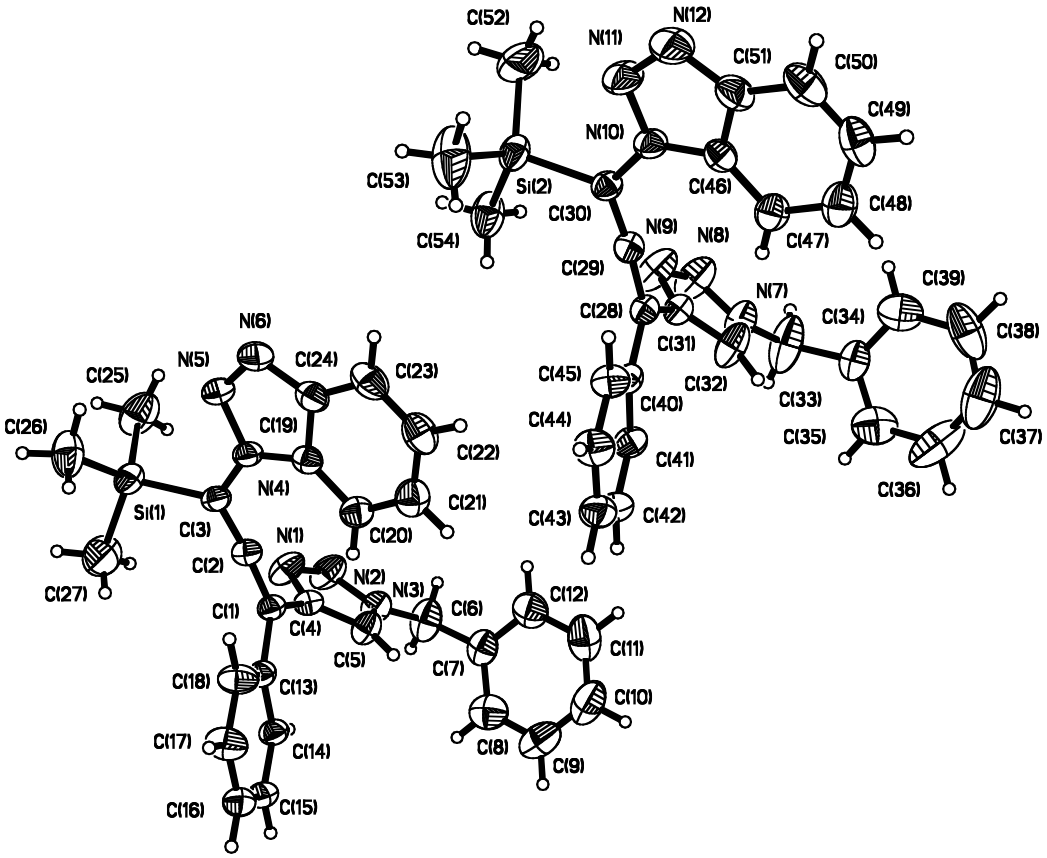


Figure 3. Perspective view of the molecular structure of **4u** ($C_{27}H_{26}N_6Si$) with the atom labeling scheme. The thermal ellipsoids are scaled to enclose 30% probability. CCDC number: 851293.

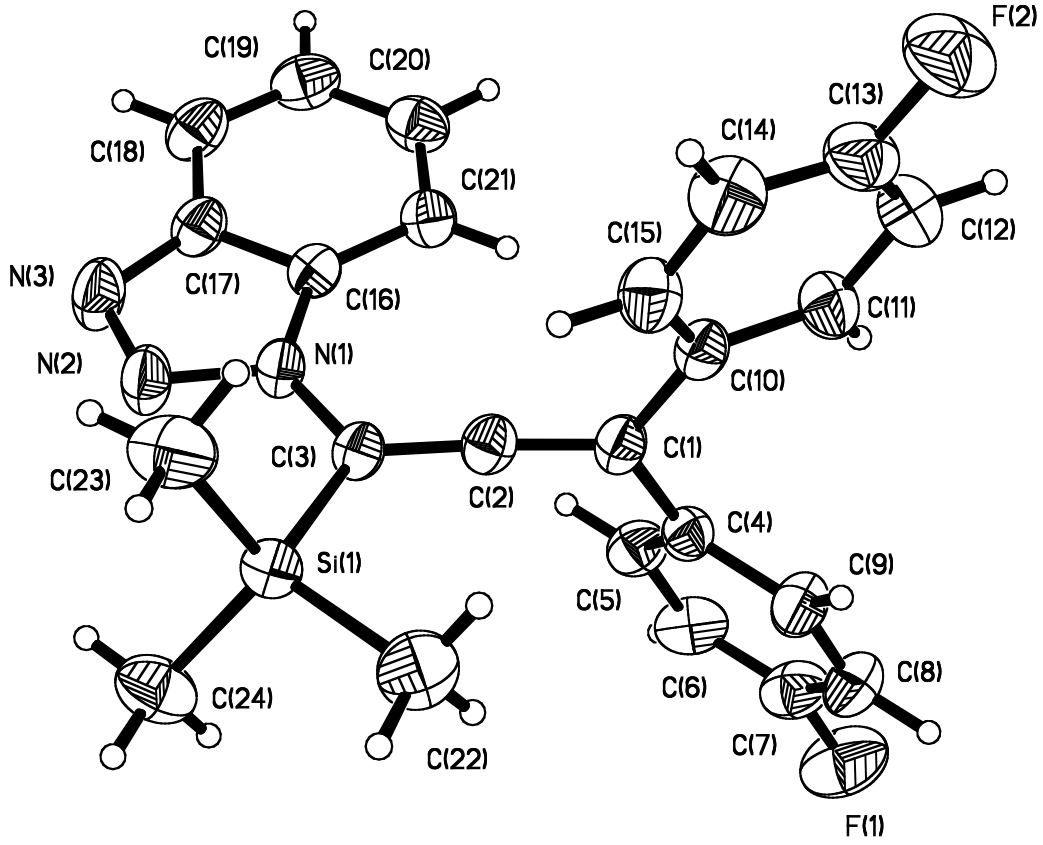


Figure 4. Perspective view of the molecular structure of **4y** ($C_{24}H_{21}F_2N_3Si$) with the atom labeling scheme. The thermal ellipsoids are scaled to enclose 30% probability. CCDC number: 851294.

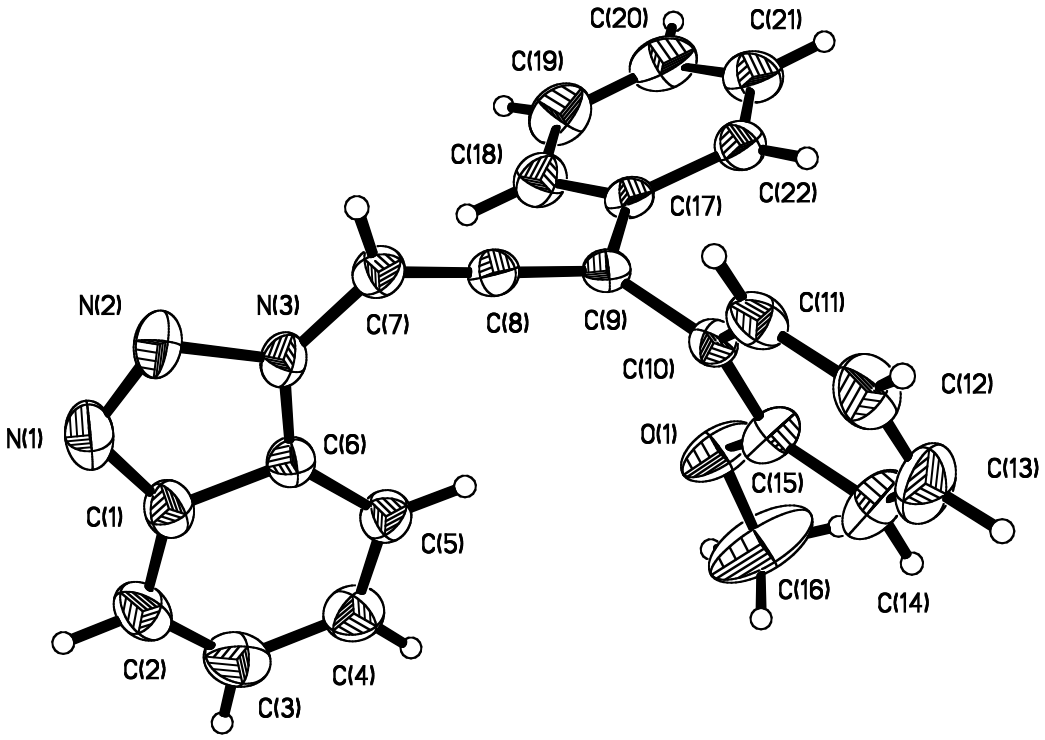
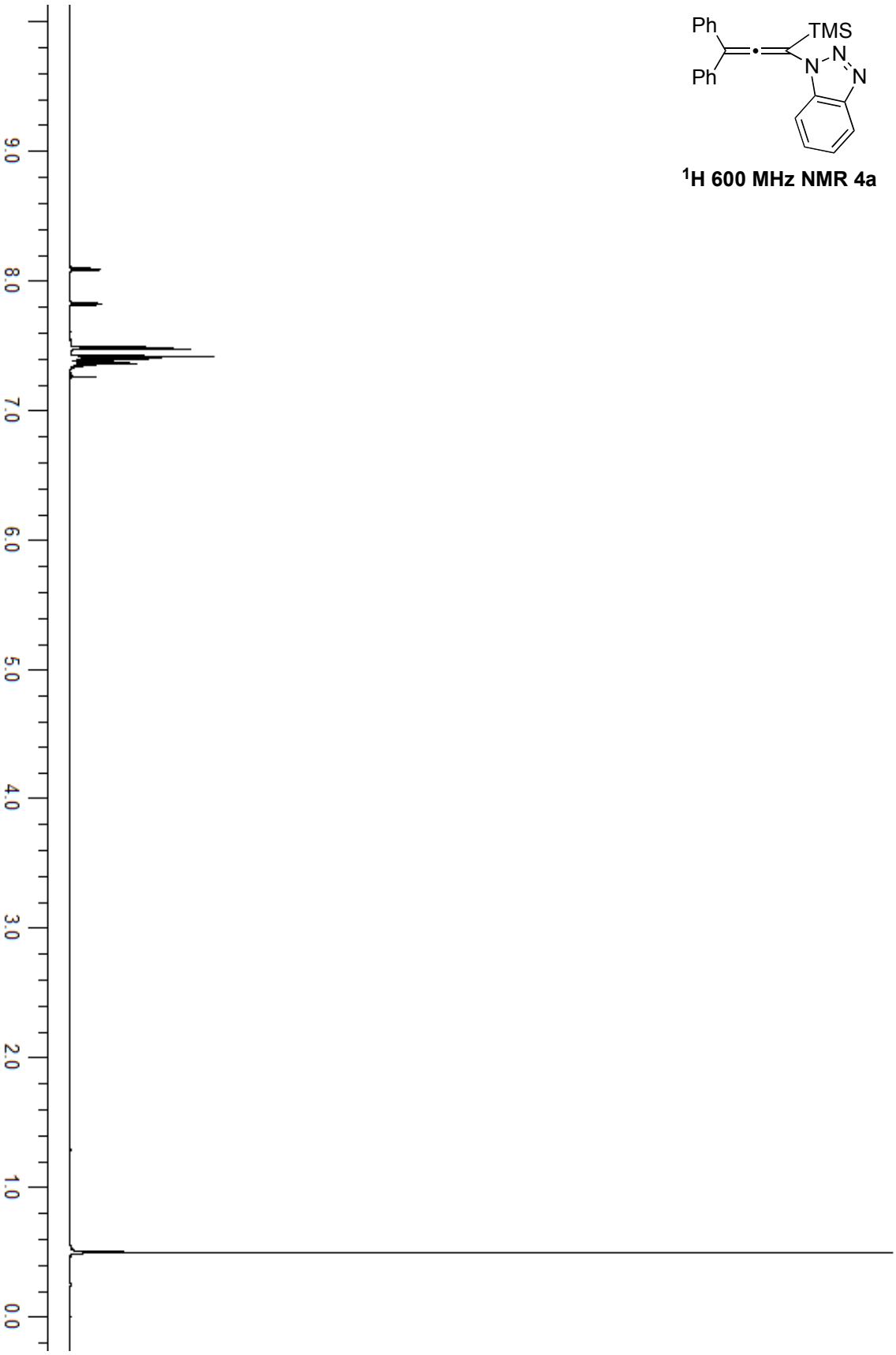
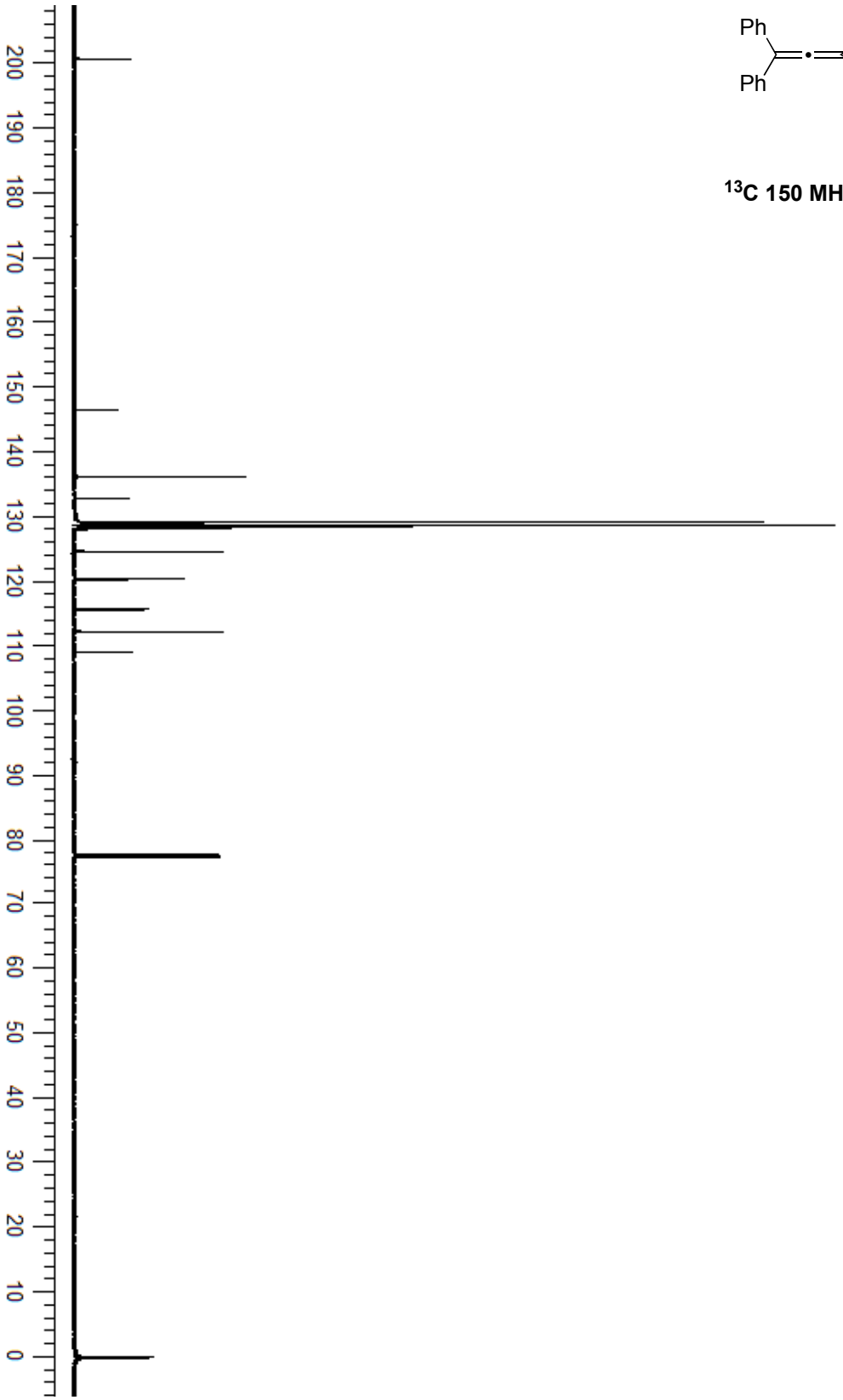


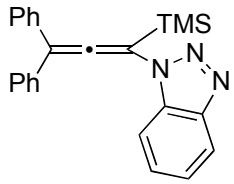
Figure 5. Perspective view of the molecular structure of **7a** ($C_{22}H_{17}N_3O$) with the atom labeling scheme. The thermal ellipsoids are scaled to enclose 30% probability. CCDC number: 851292.

VII. NMR Spectra Data

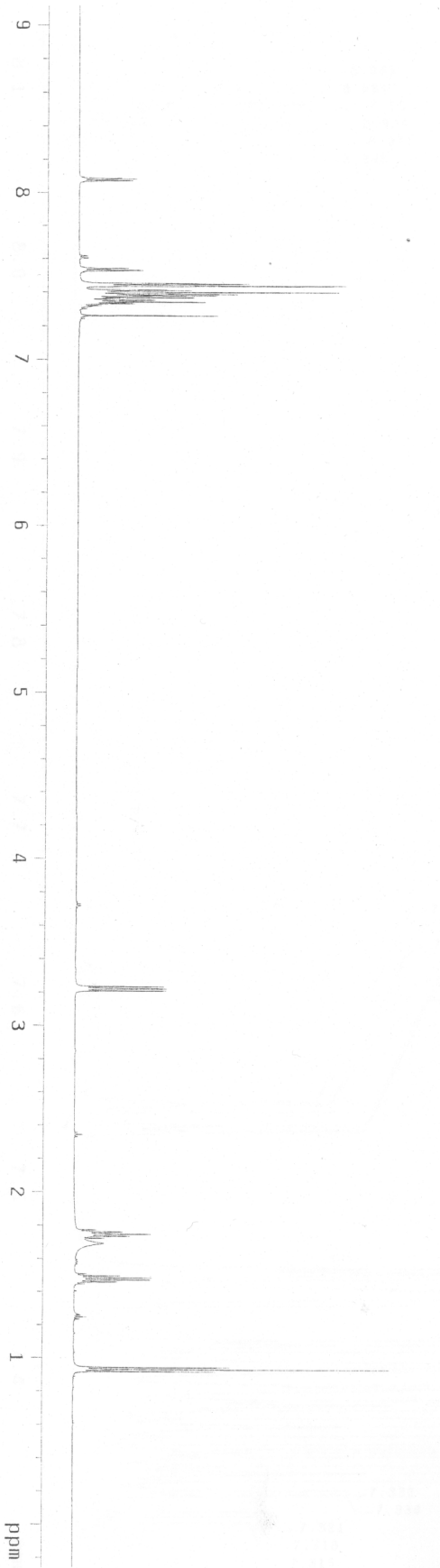


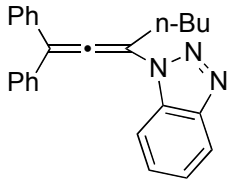
^{1}H 600 MHz NMR 4a



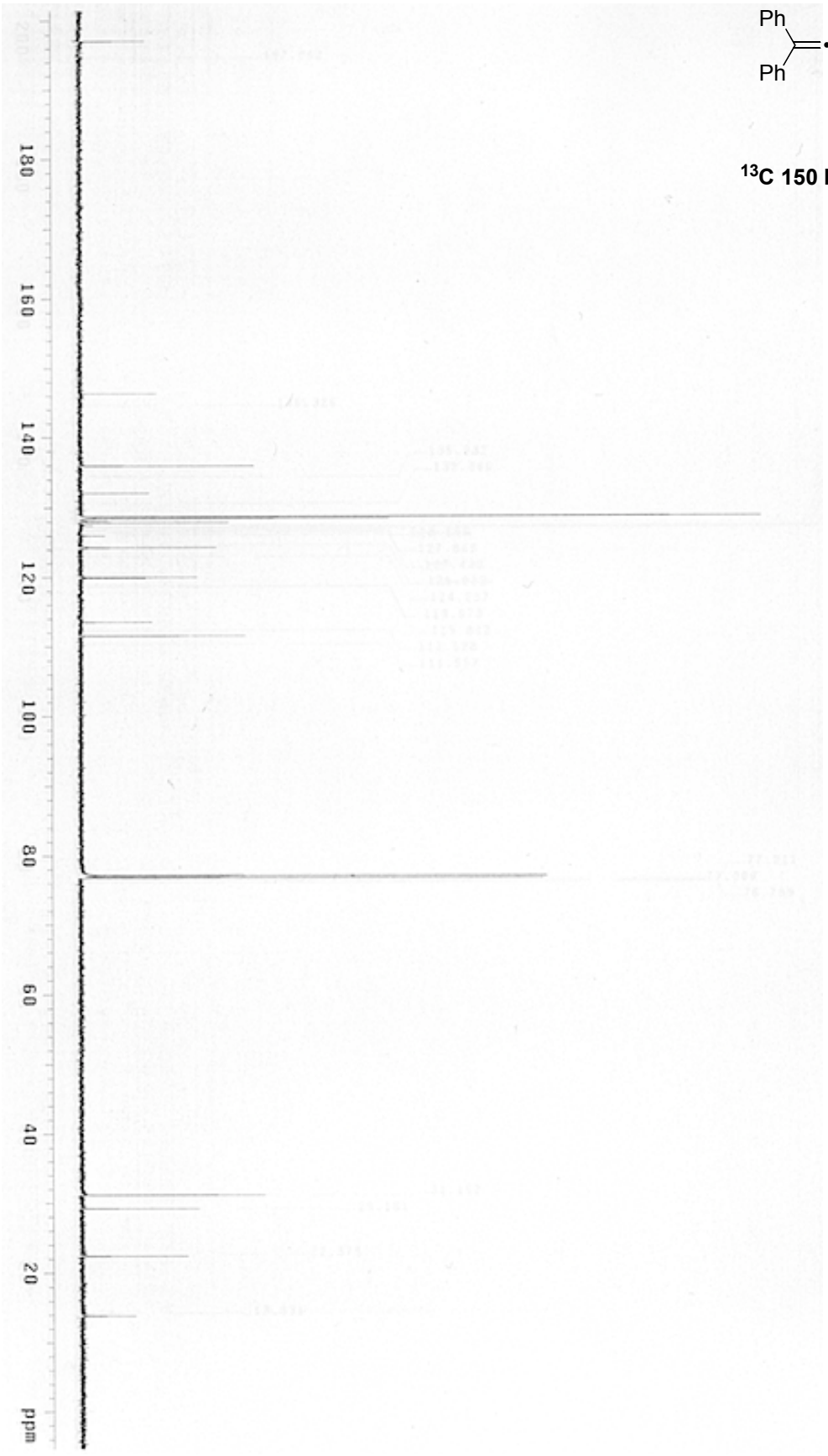


^{13}C 150 MHz NMR 4a



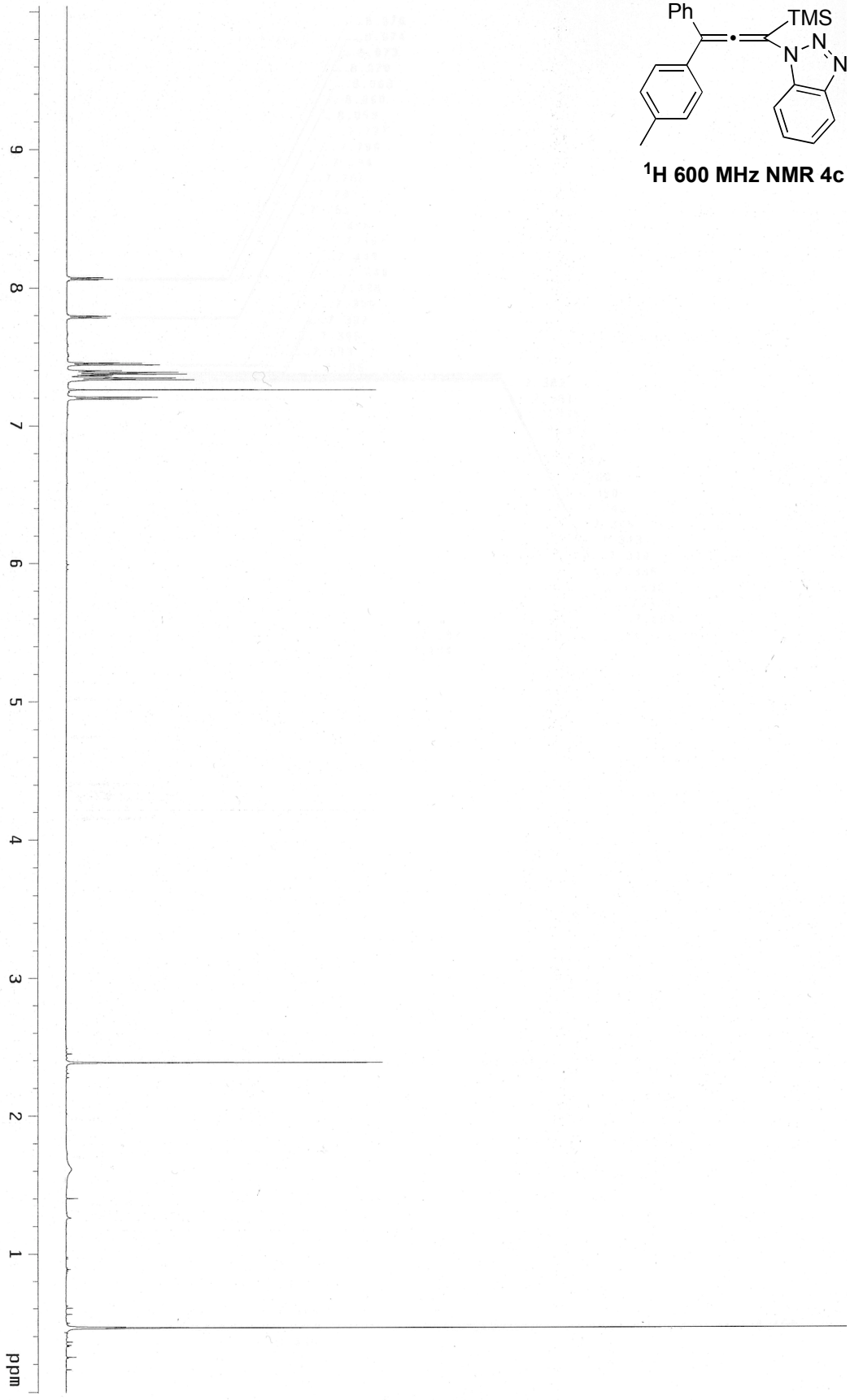


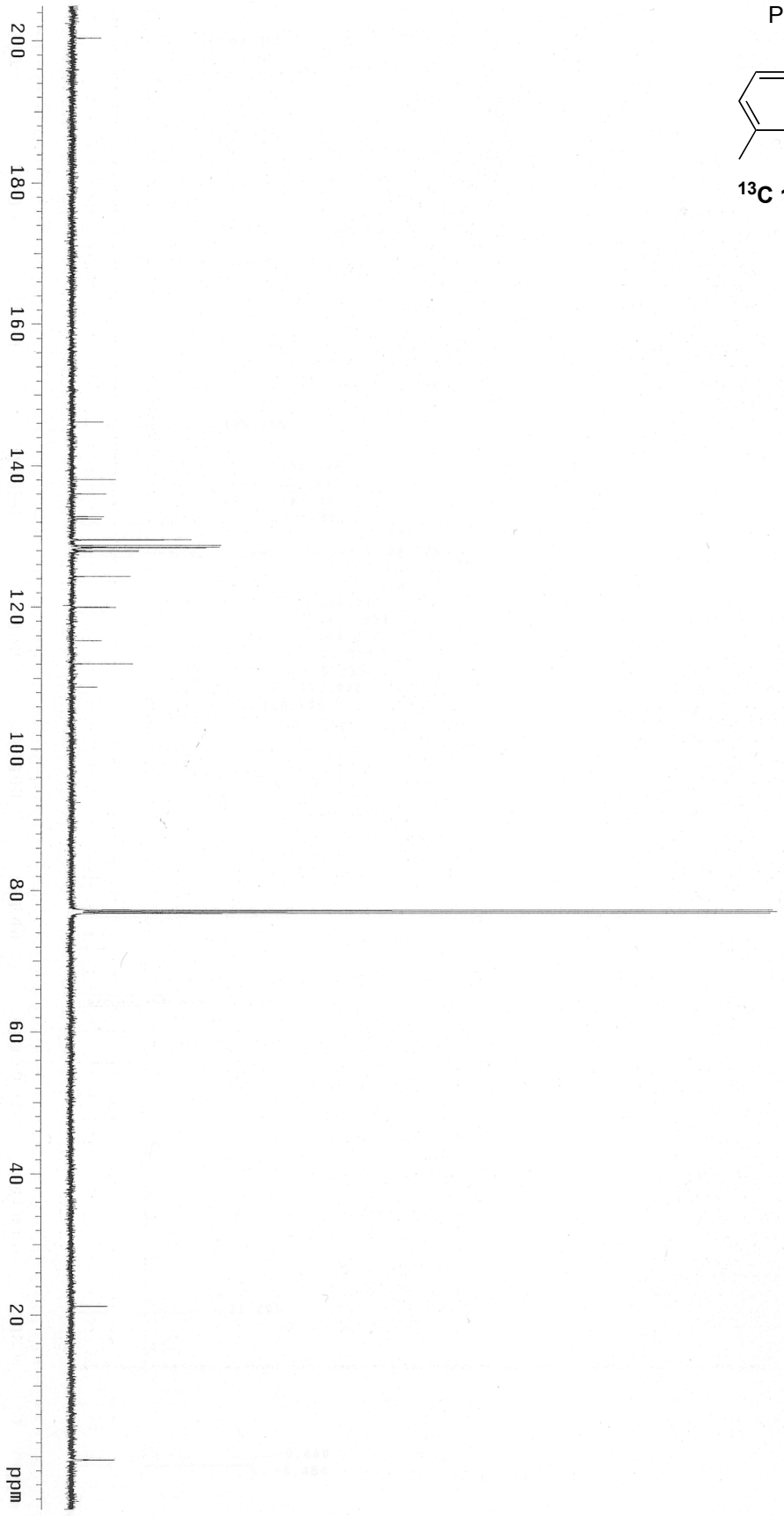
^{1}H 600 MHz NMR 4b

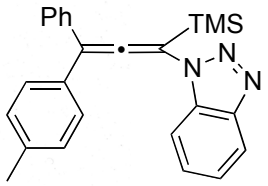


^{13}C 150 MHz NMR 4b

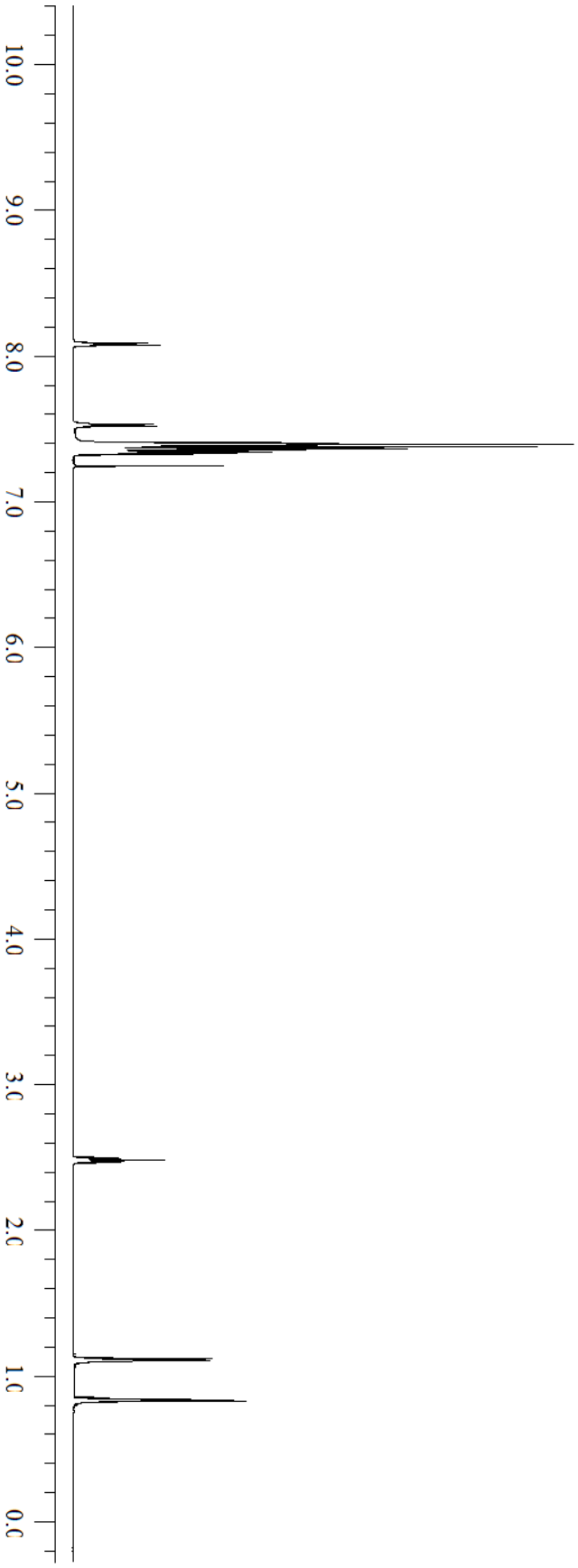
^{1}H 600 MHz NMR 4c

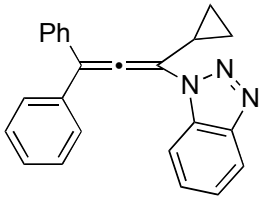




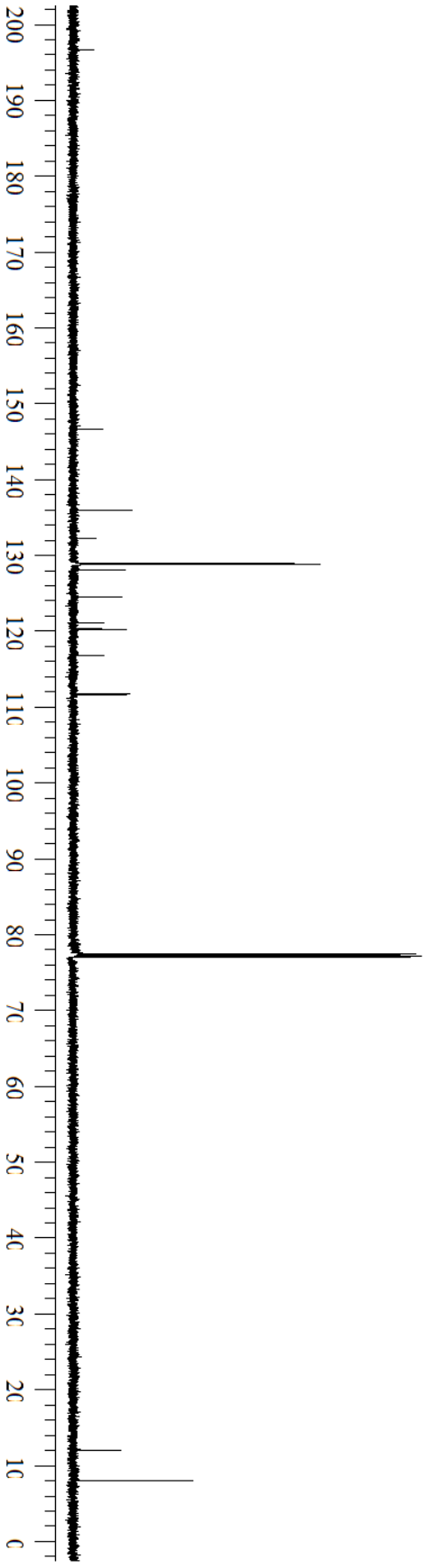


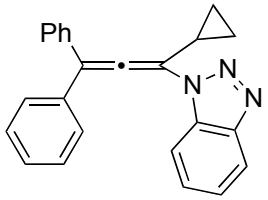
^{13}C 150 MHz NMR 4c





^{1}H 600 MHz NMR 4d





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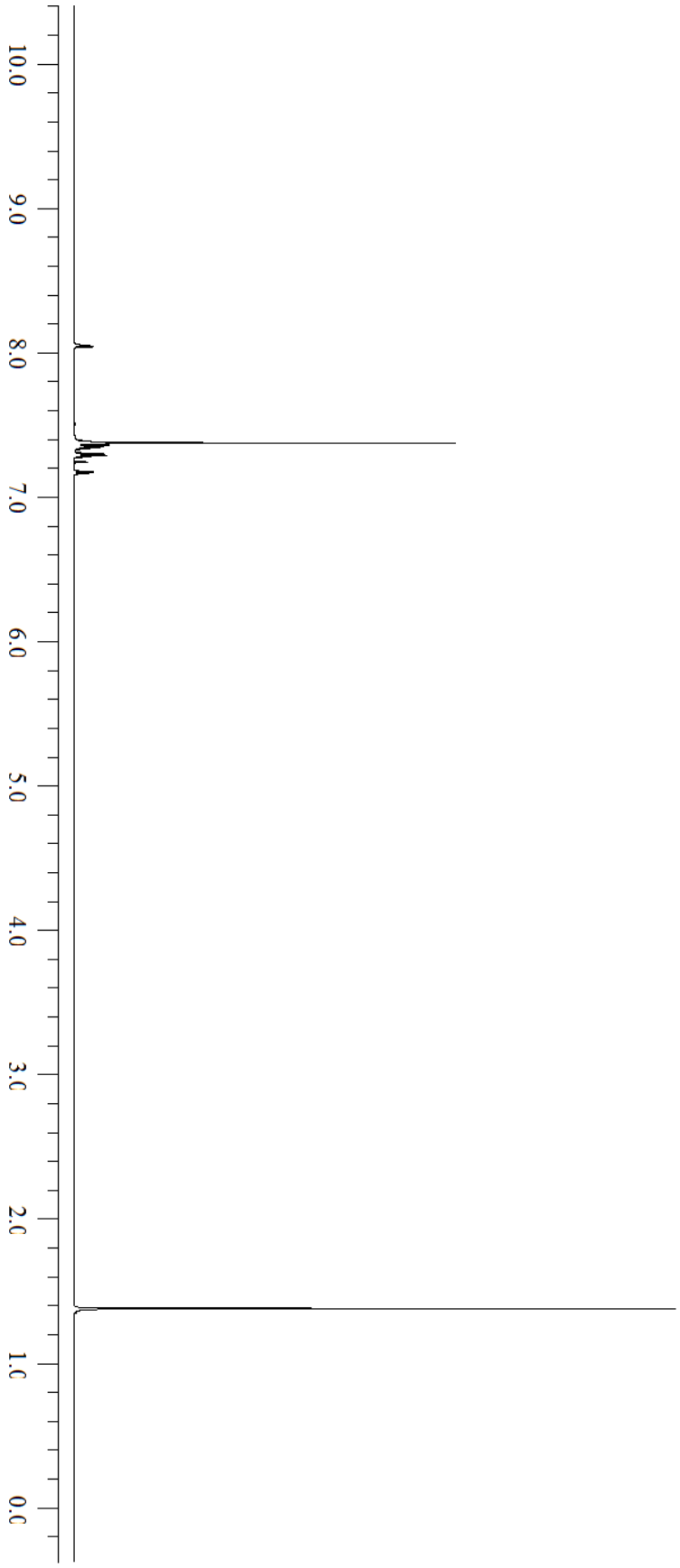

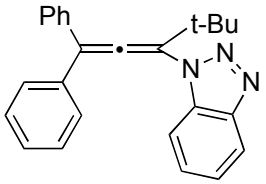

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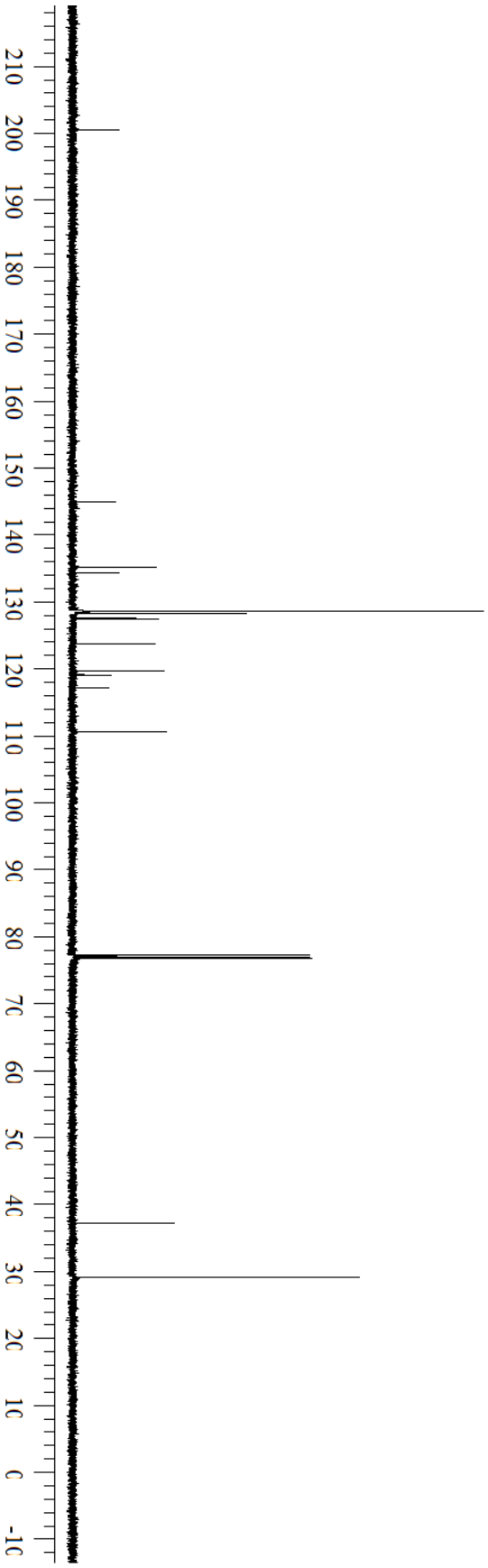
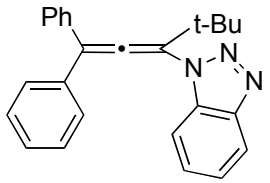
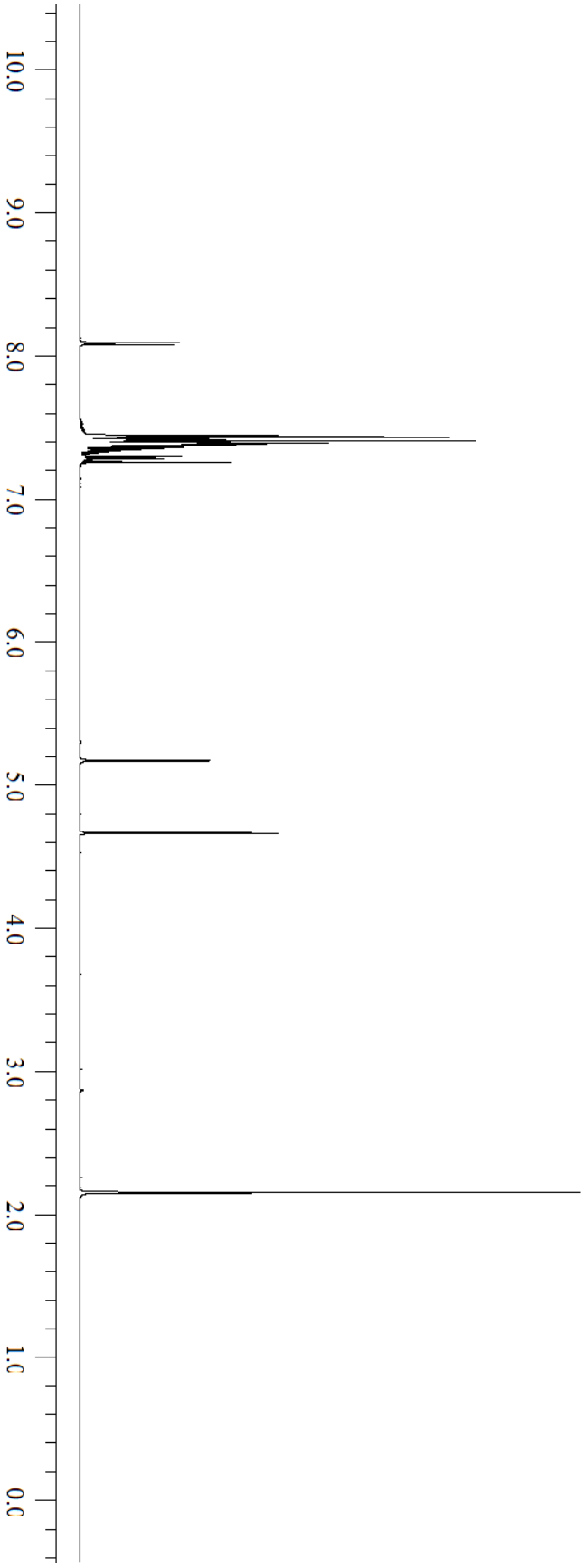
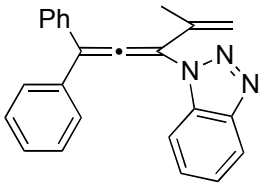


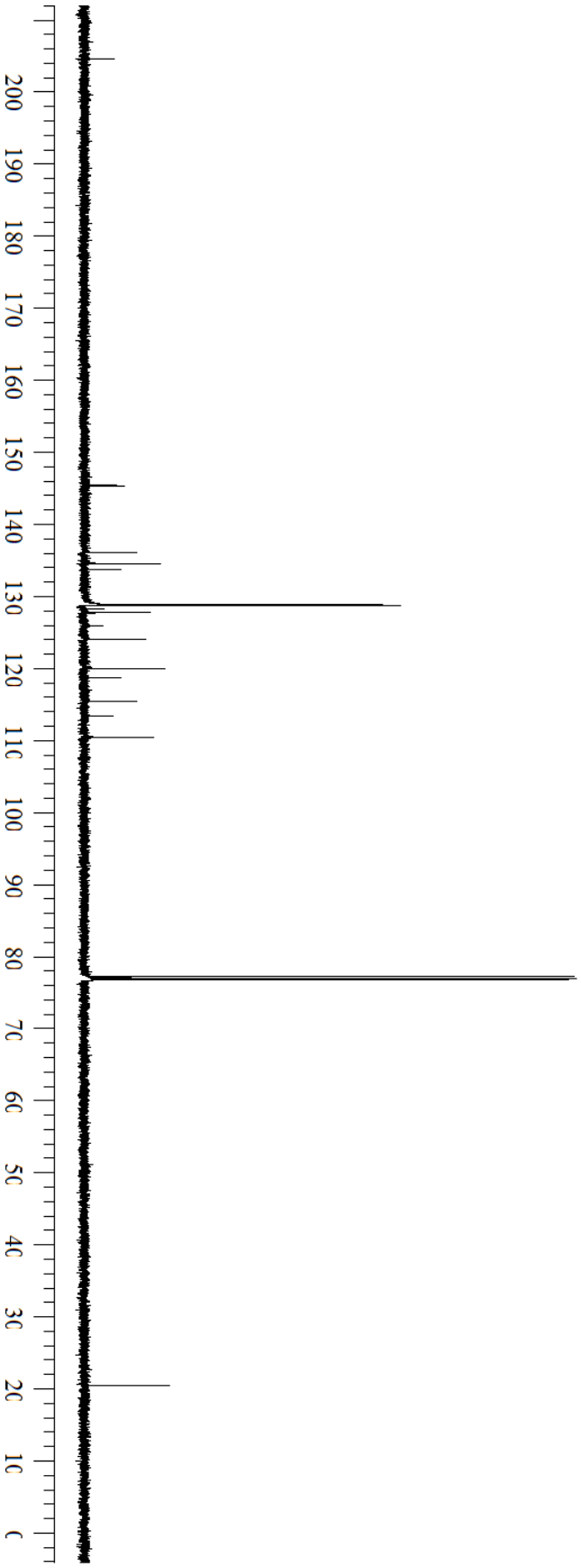


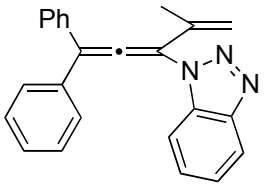
^{13}C 150 MHz NMR 4e



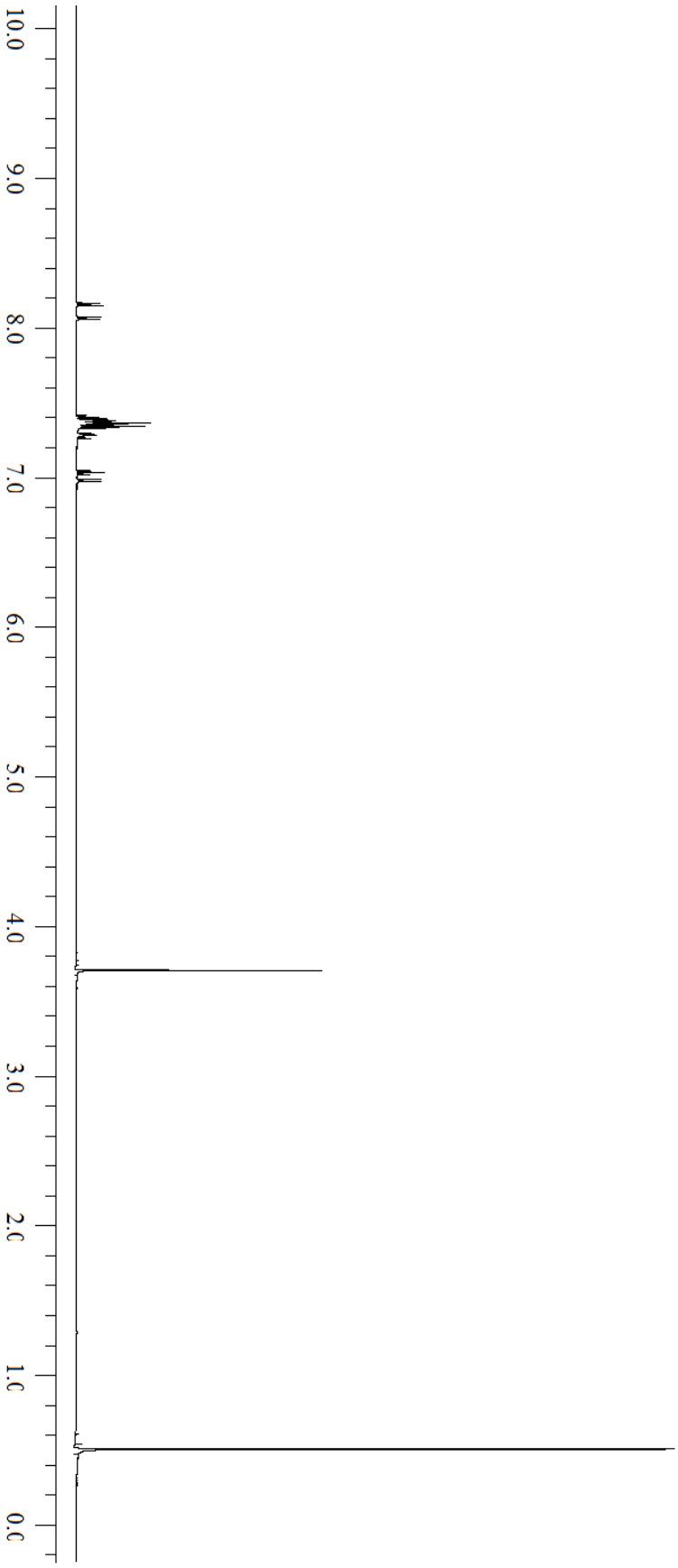


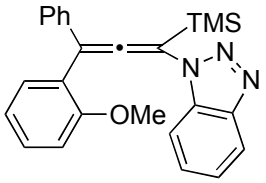
^{1}H 600 MHz NMR 4f



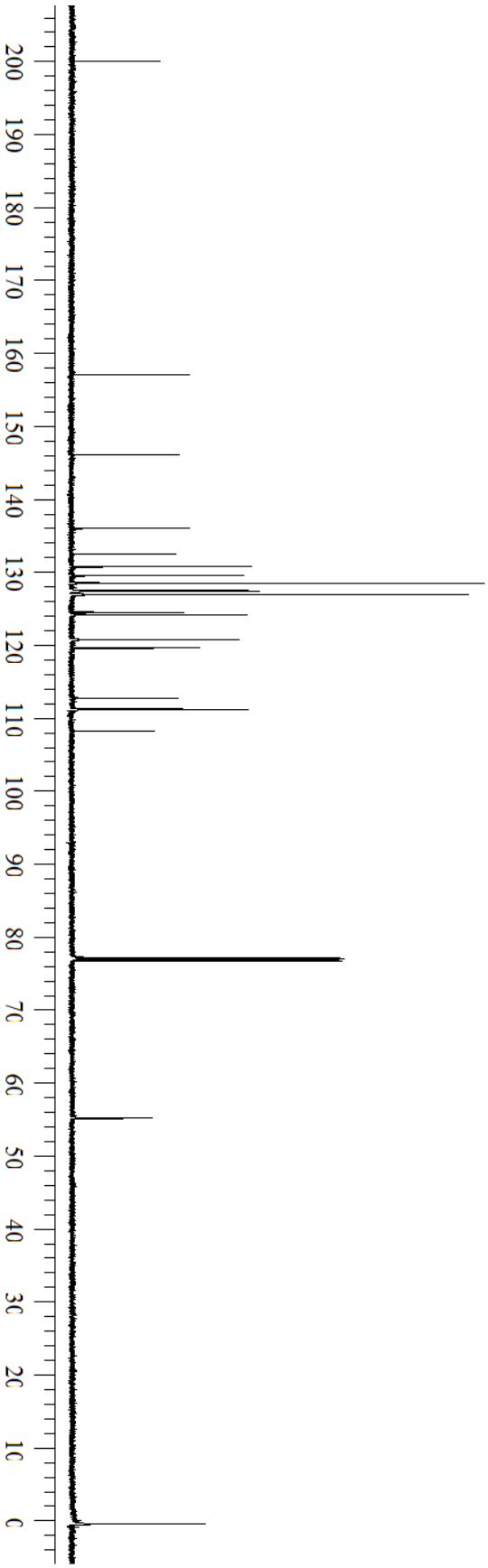


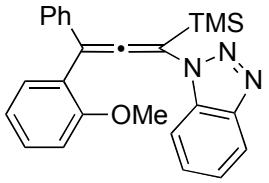
^{13}C 150 MHz NMR 4f





^{1}H 600 MHz NMR 4g





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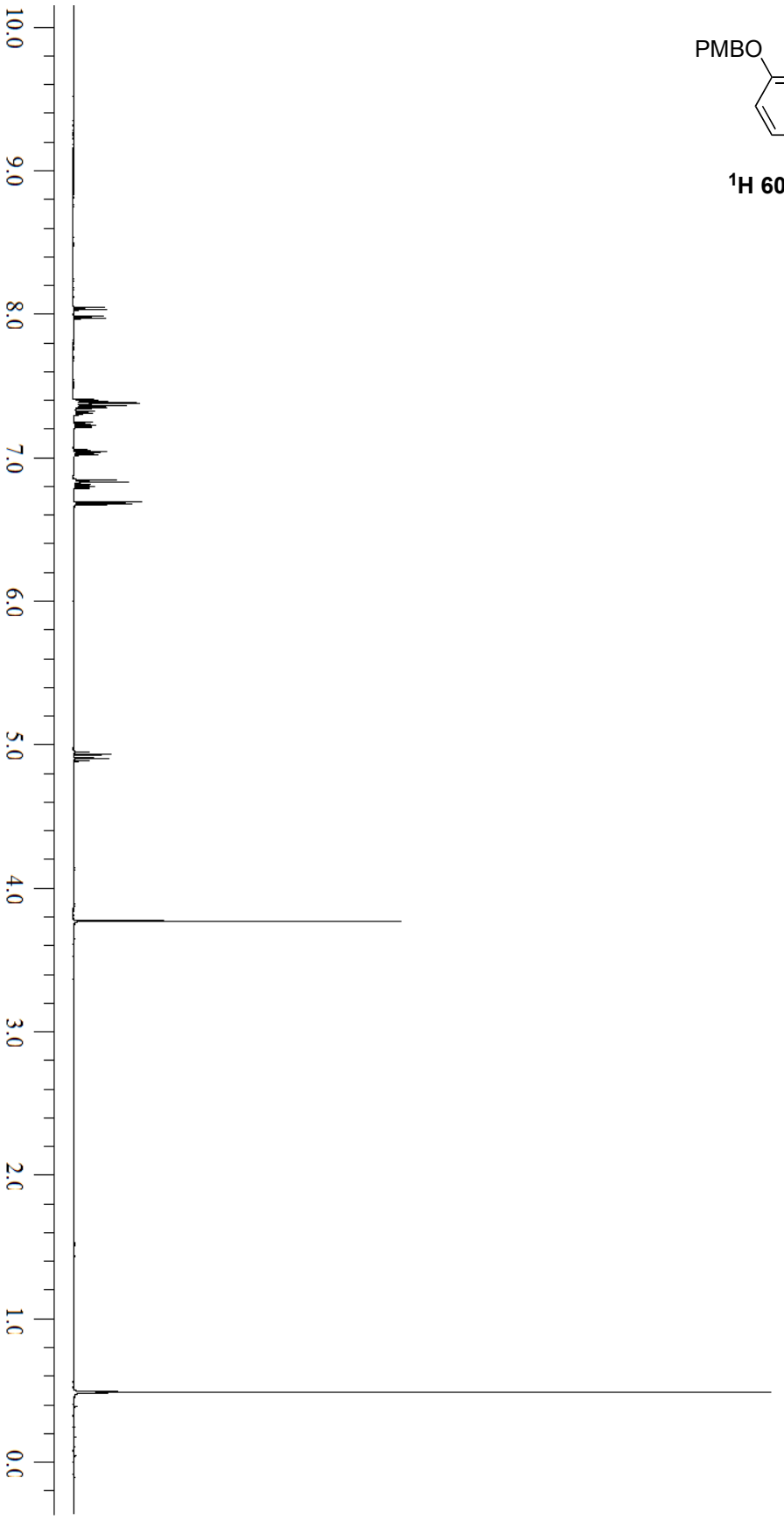

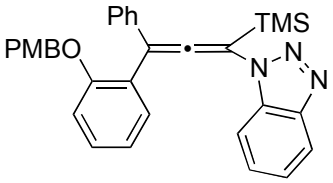

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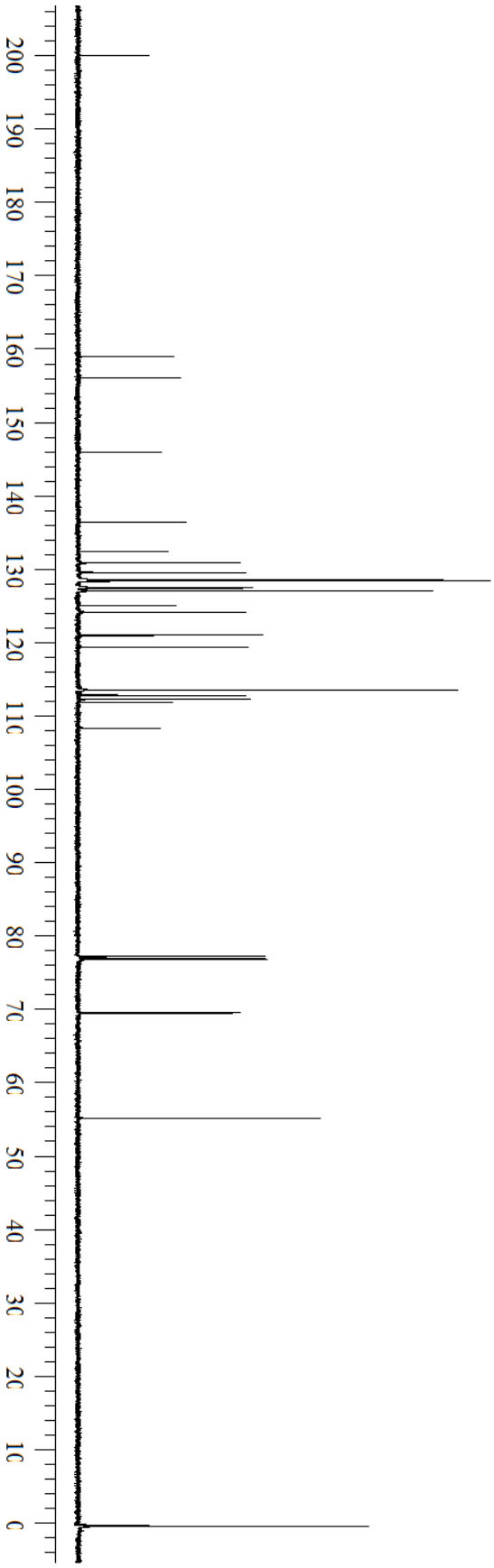

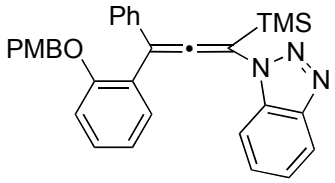

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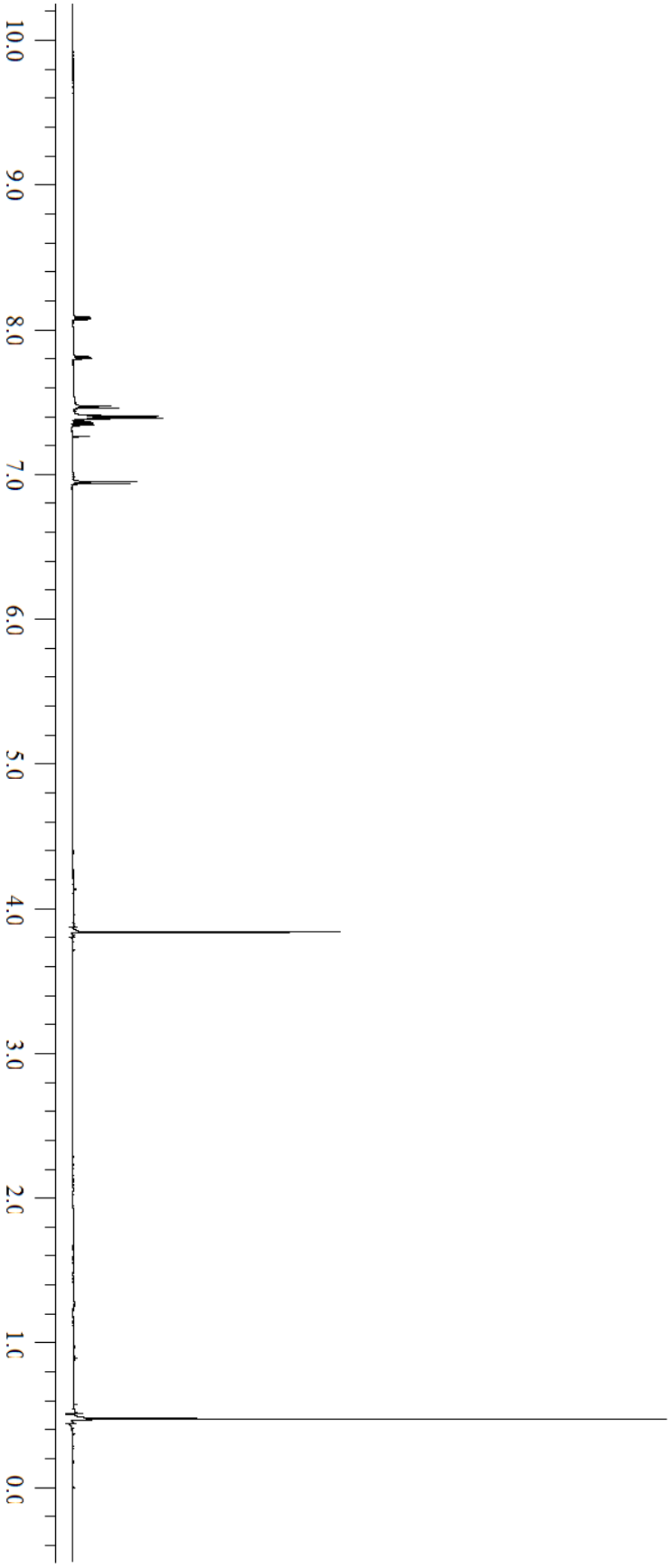
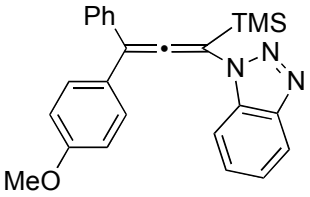
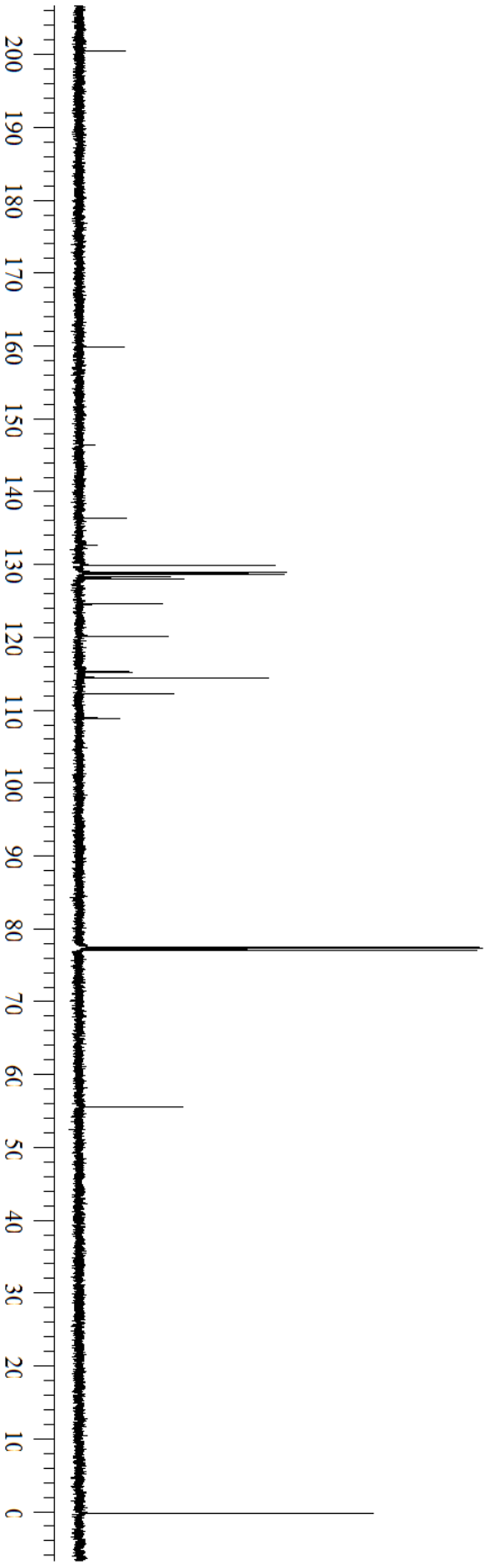
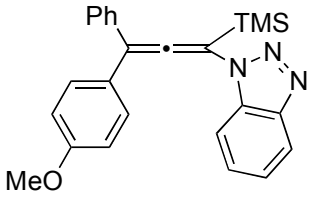


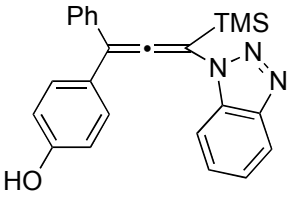


^{1}H 600 MHz NMR 4i





^{13}C 150 MHz NMR 4i



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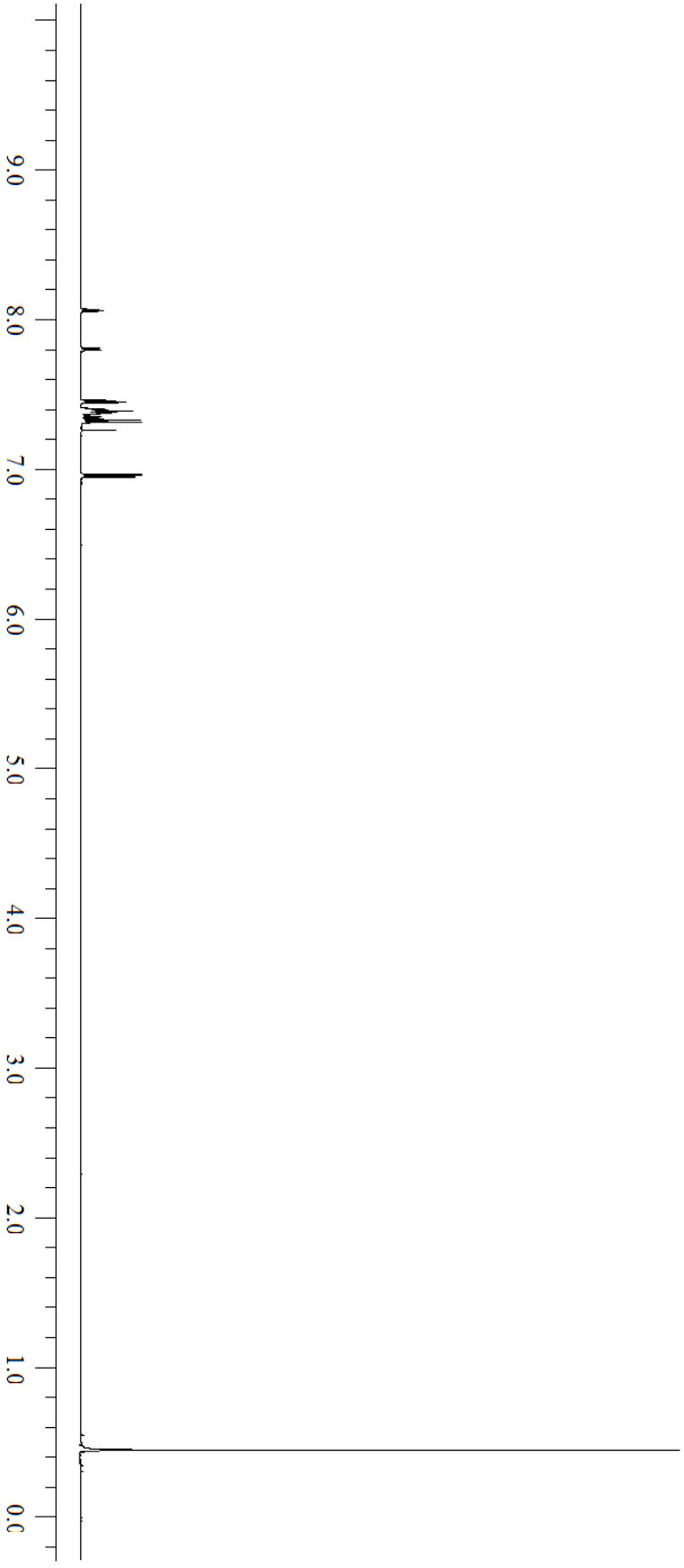

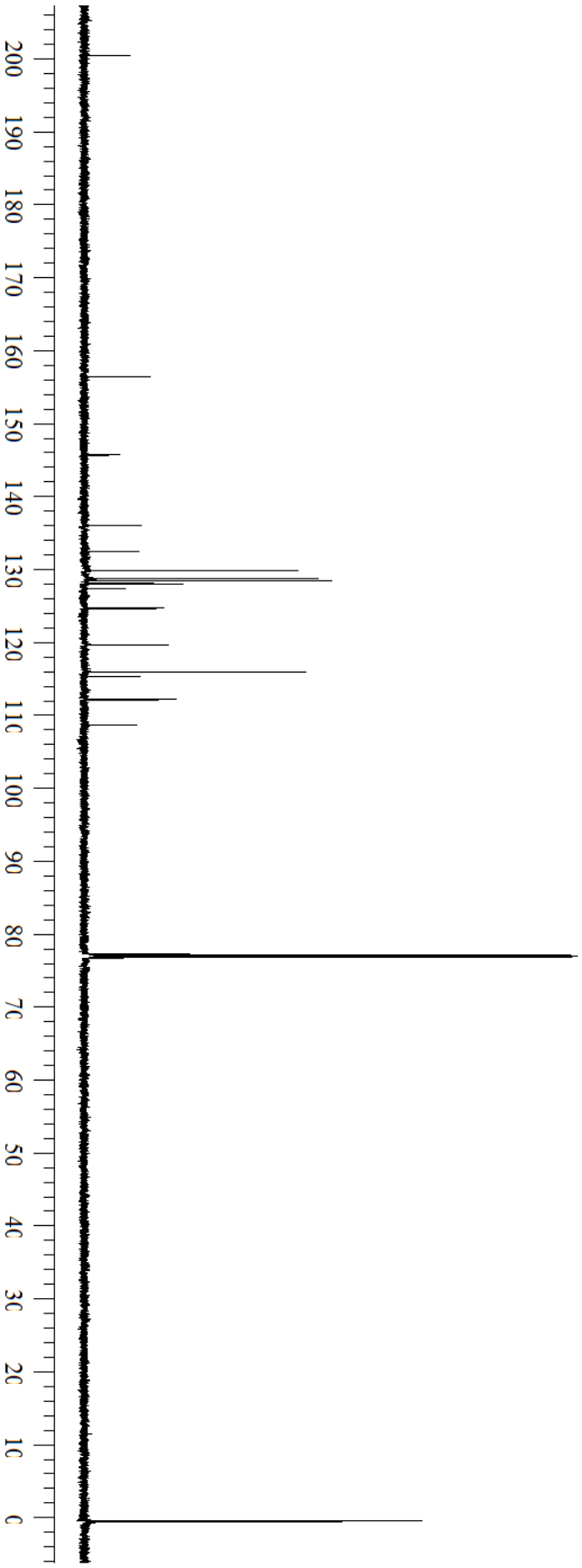

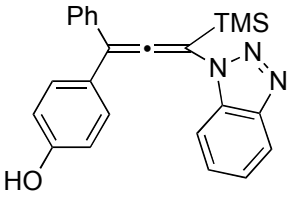

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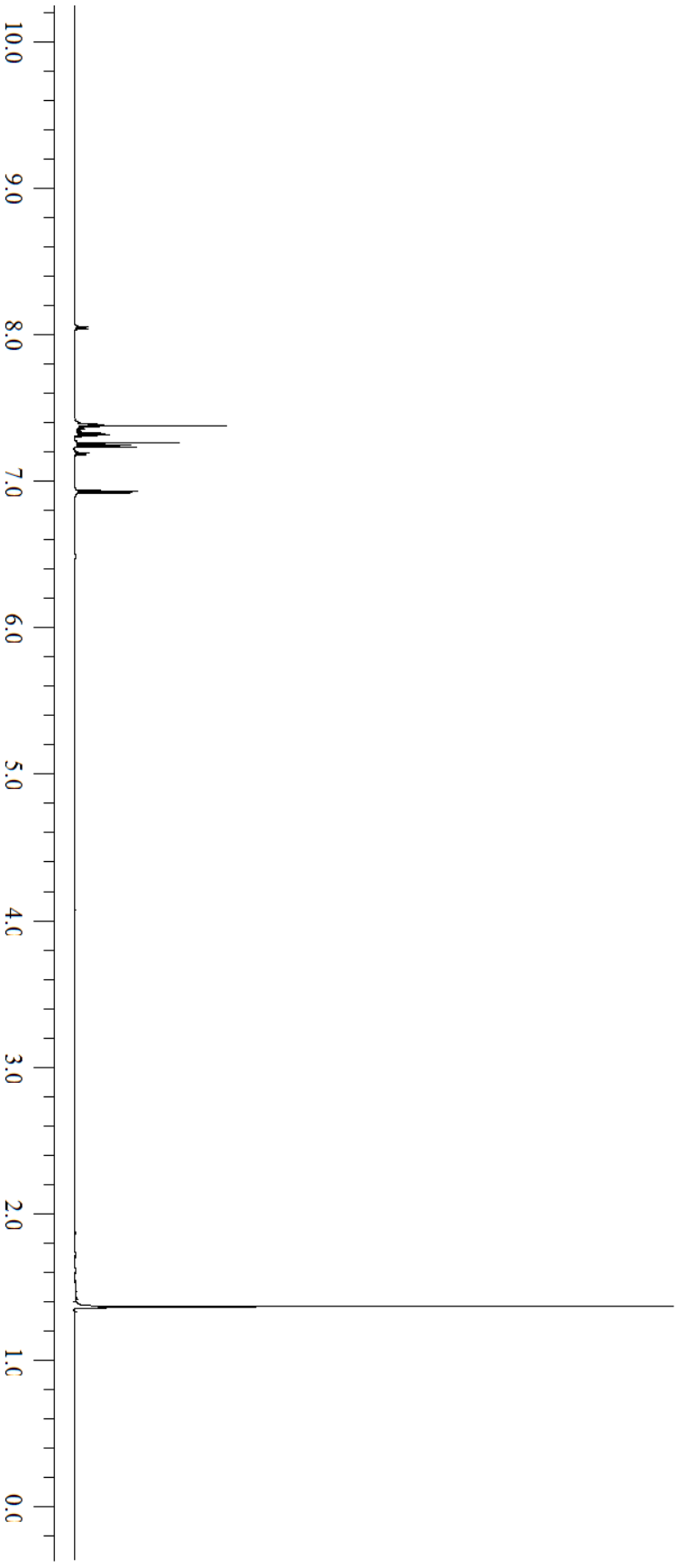

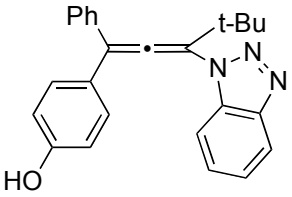

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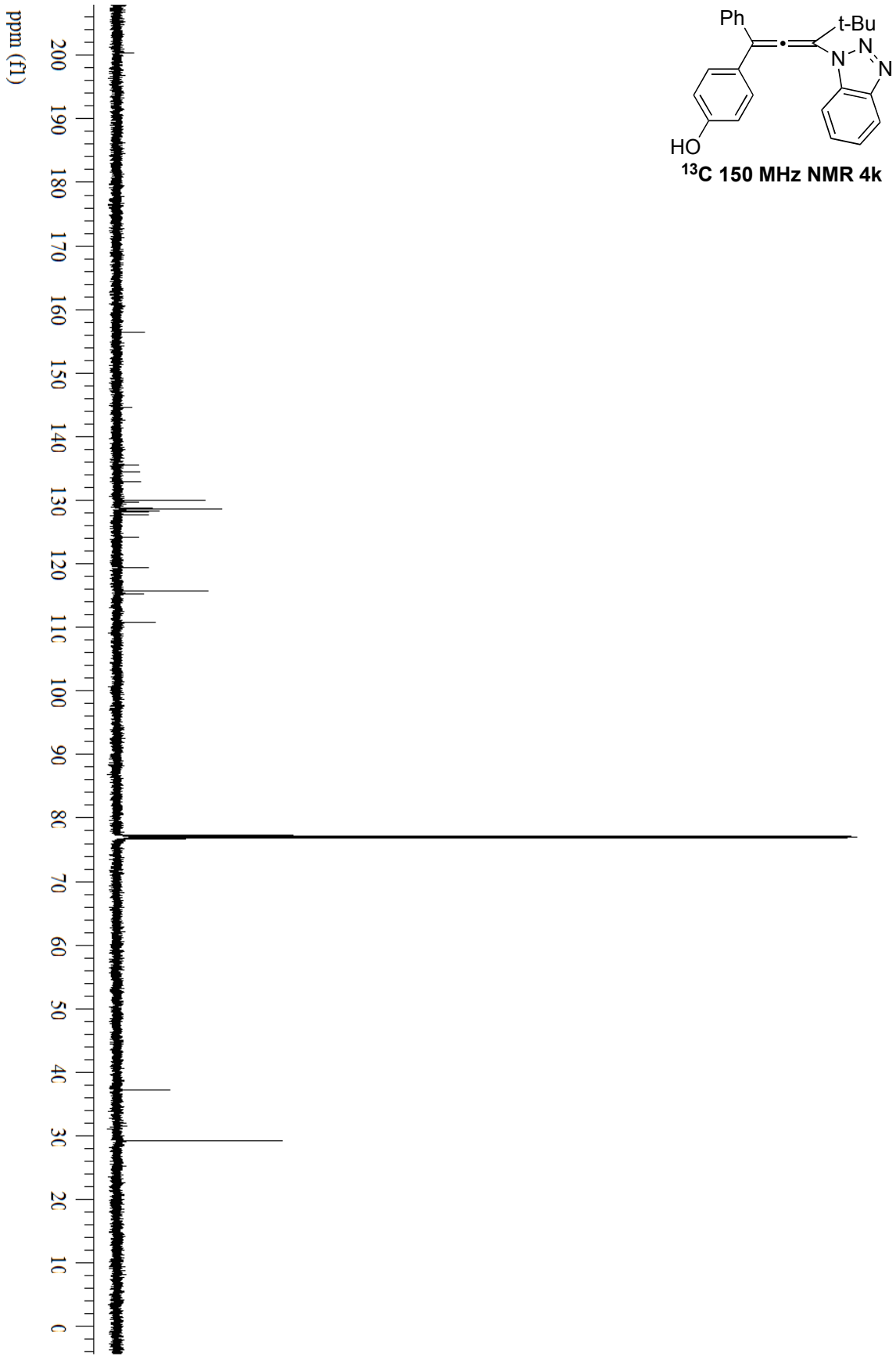

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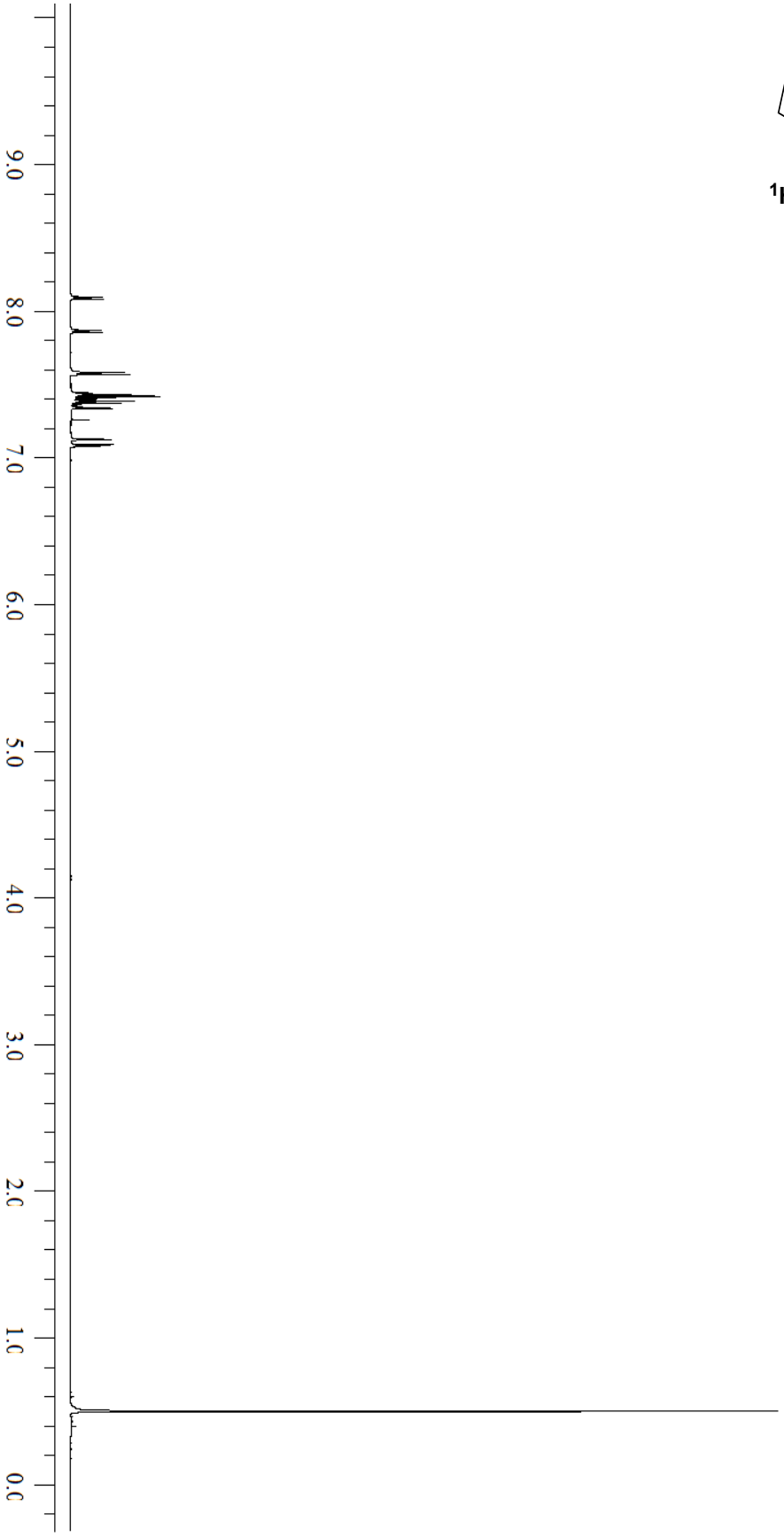

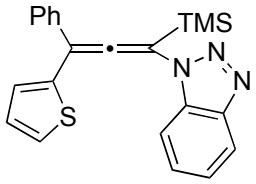

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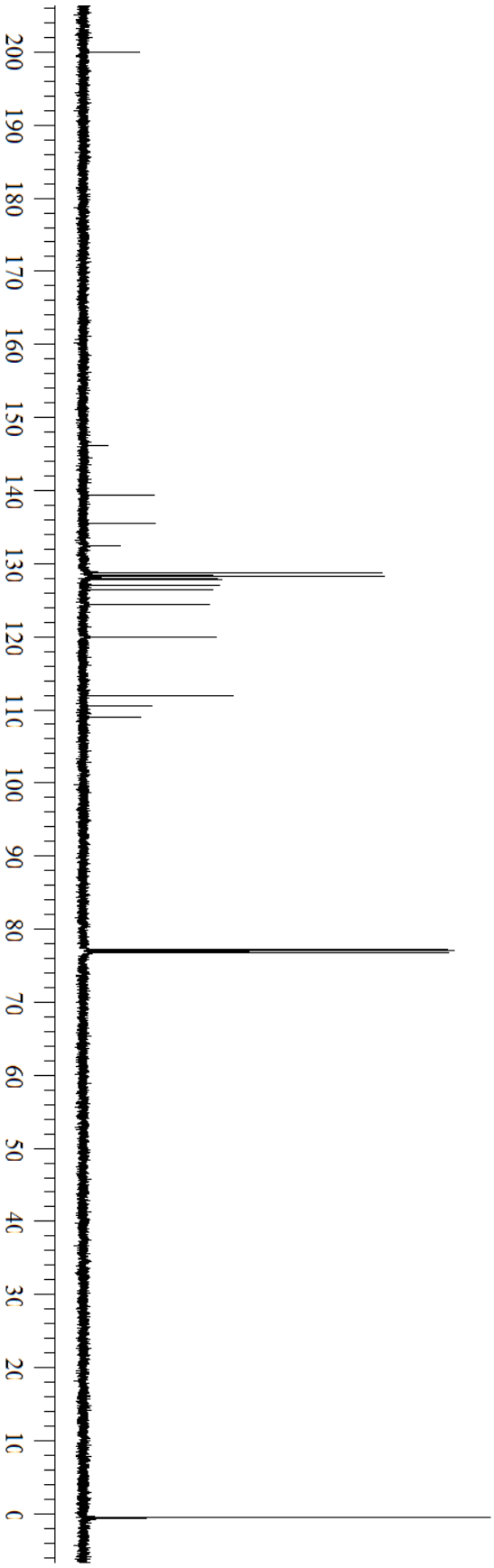

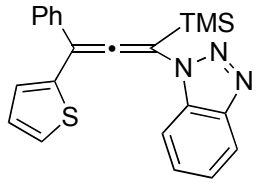

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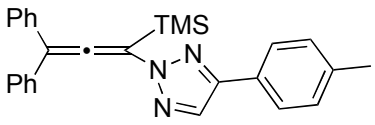
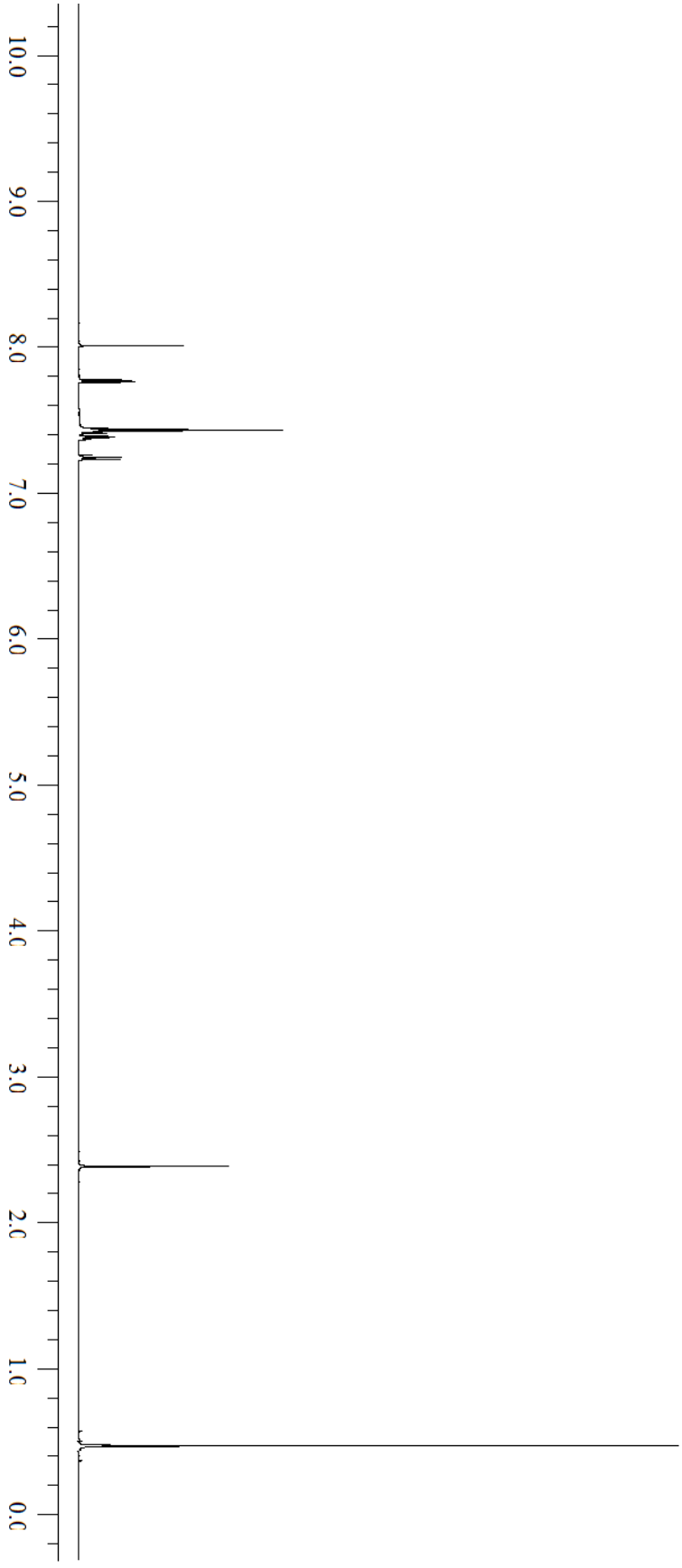
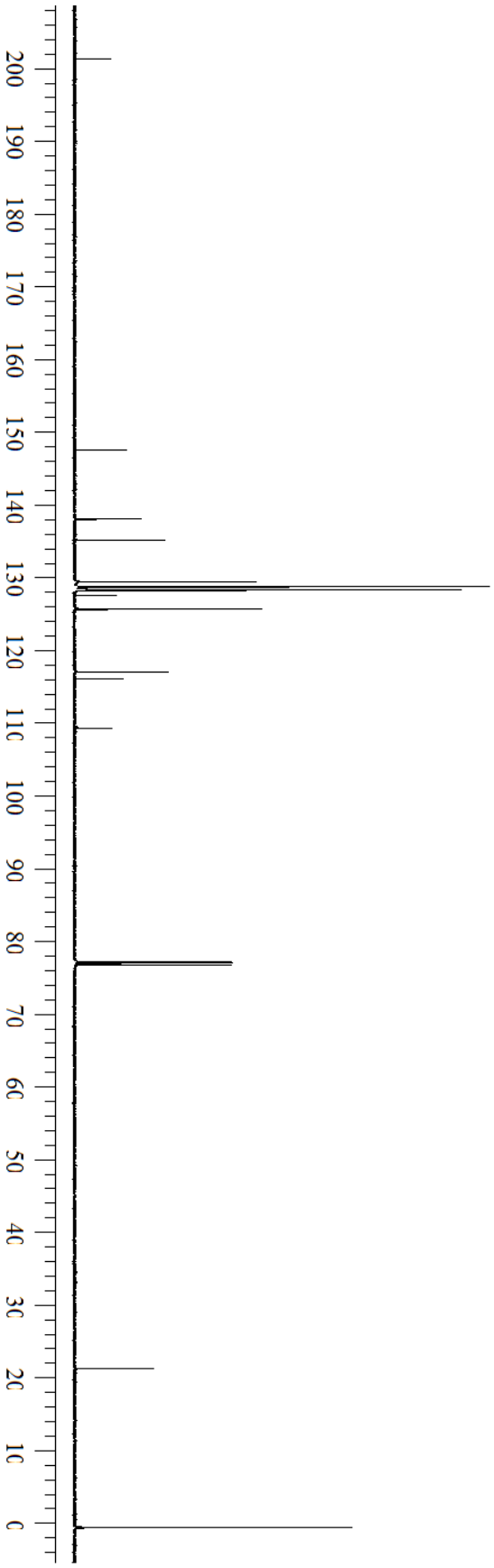
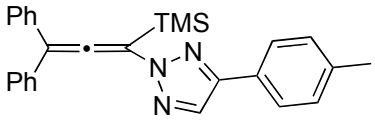


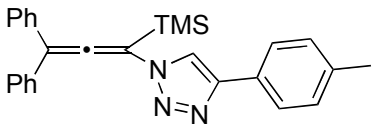
^{1}H 600 MHz NMR N-2-4m







^{13}C 150 MHz NMR N-2-4m



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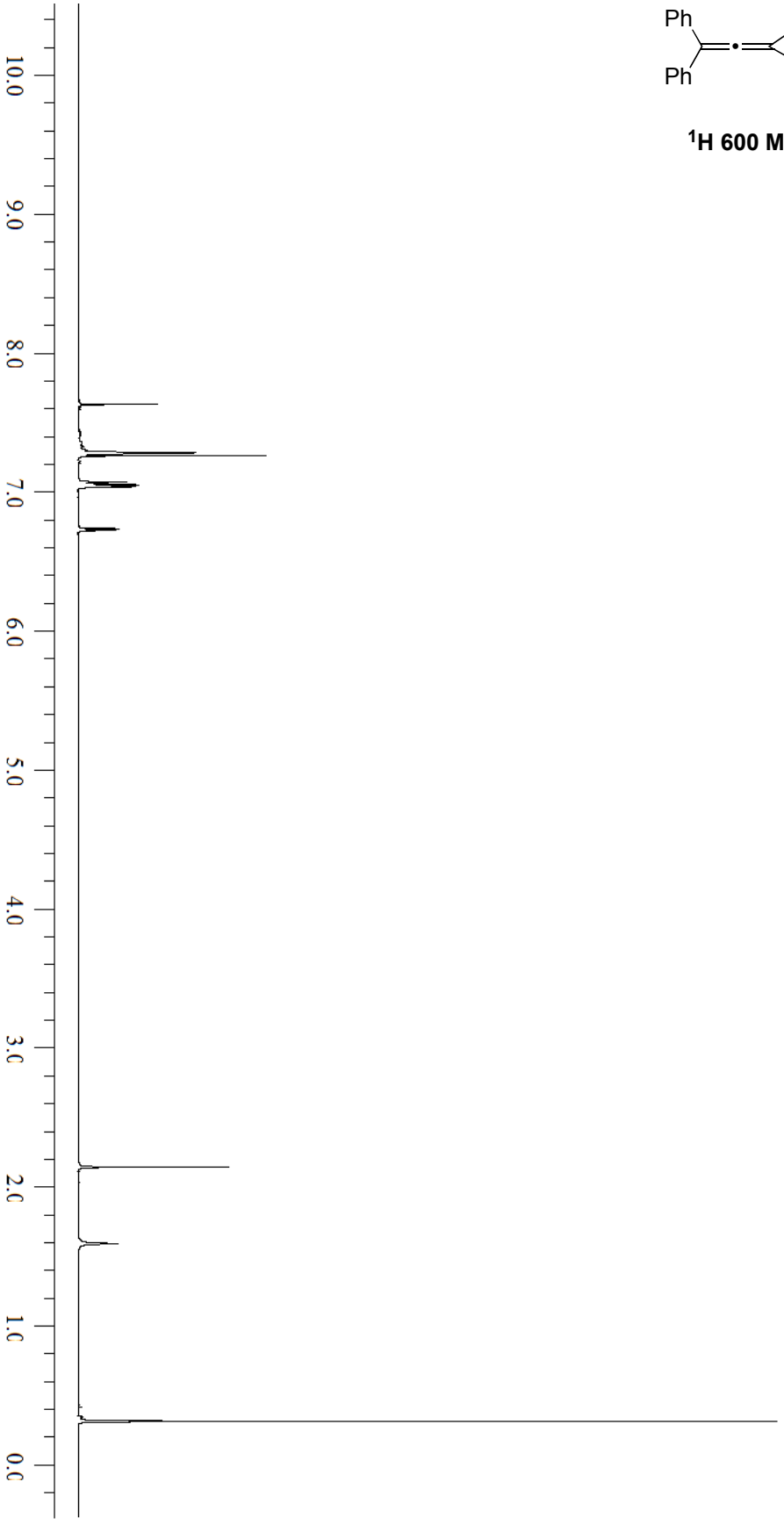

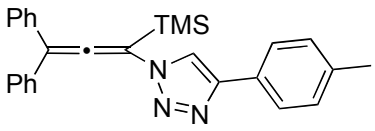

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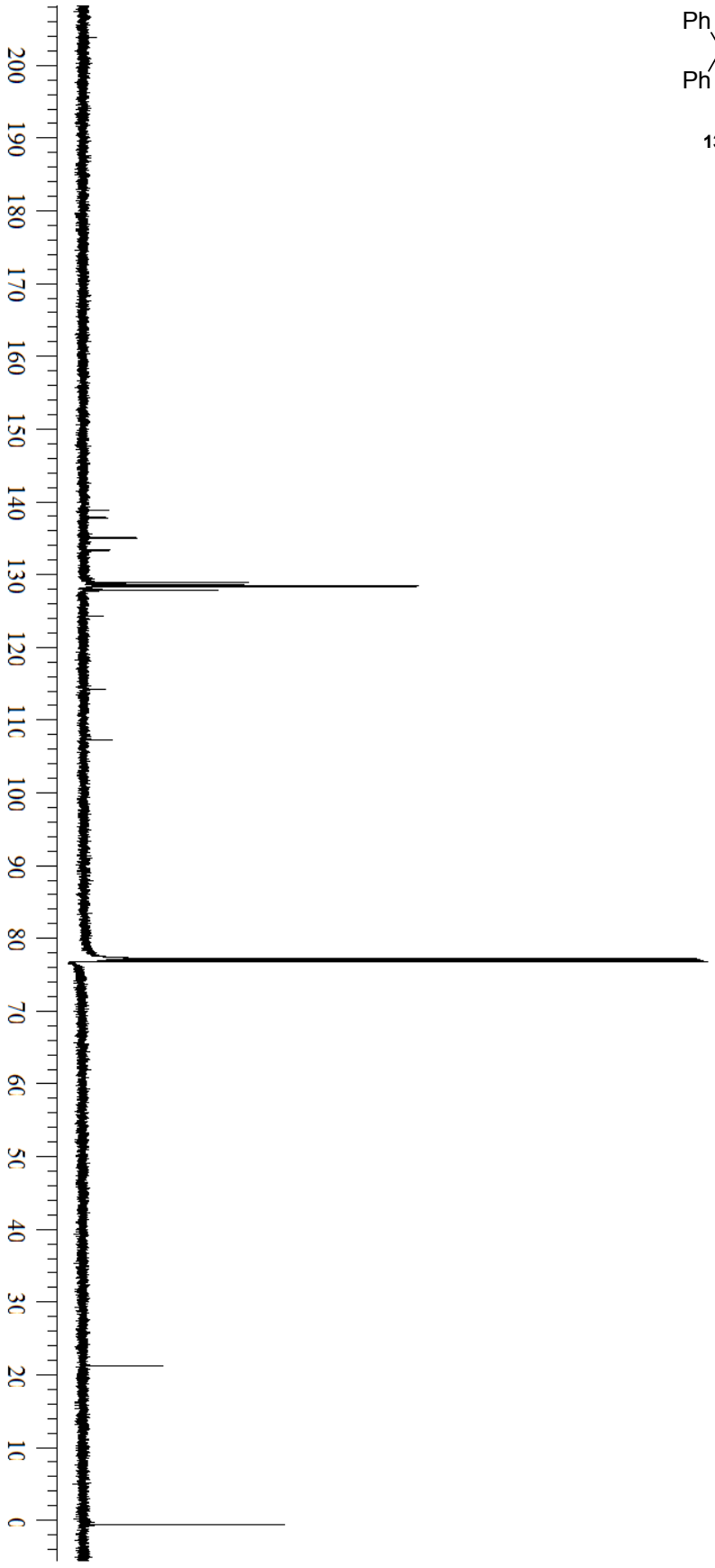

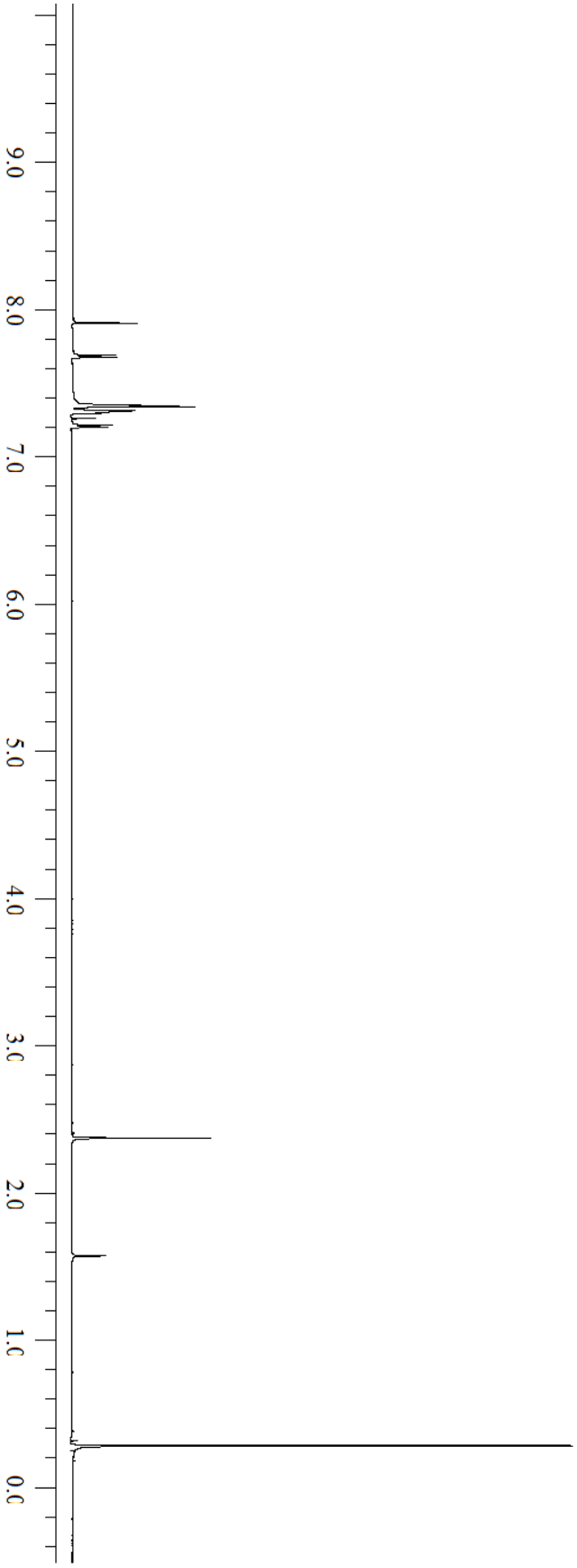

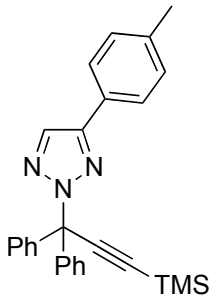

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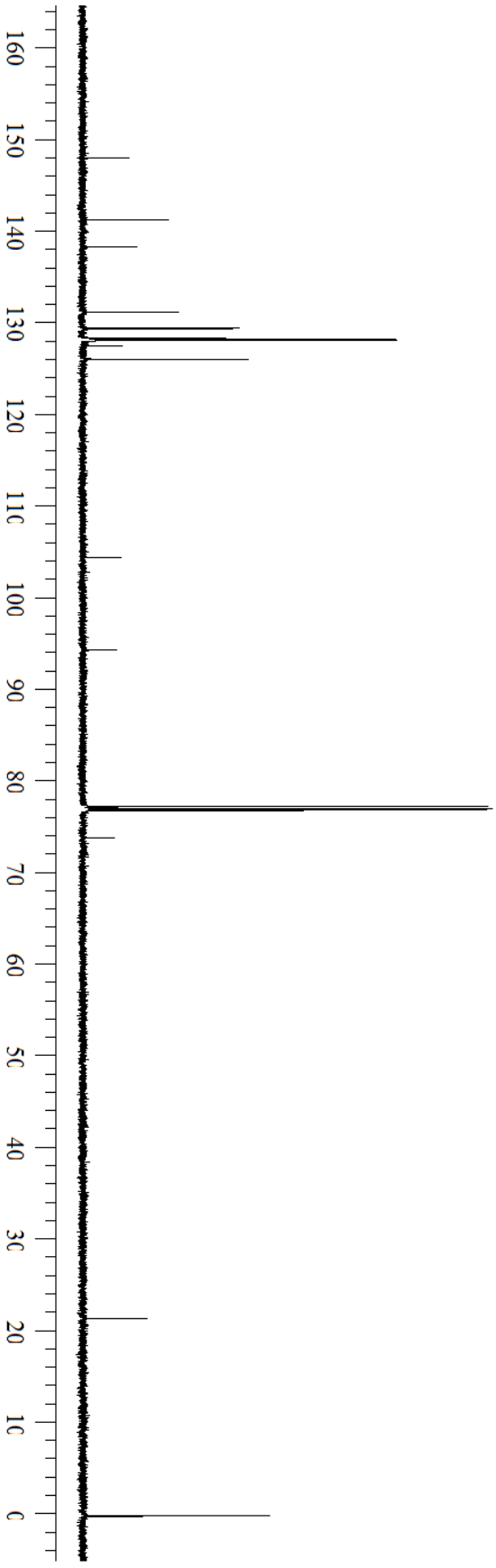

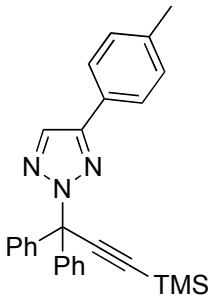

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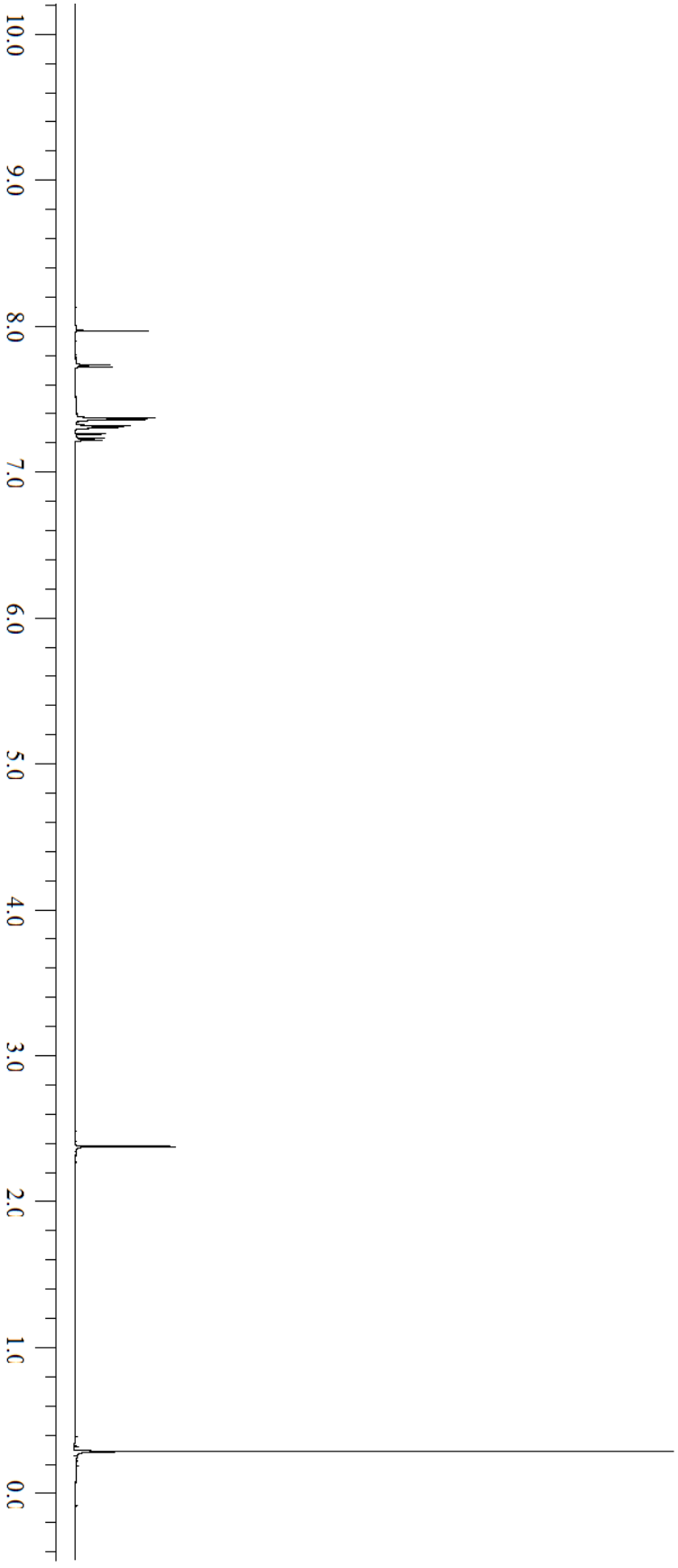

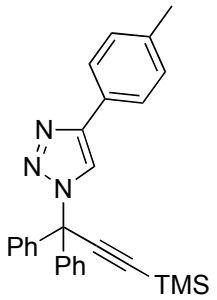

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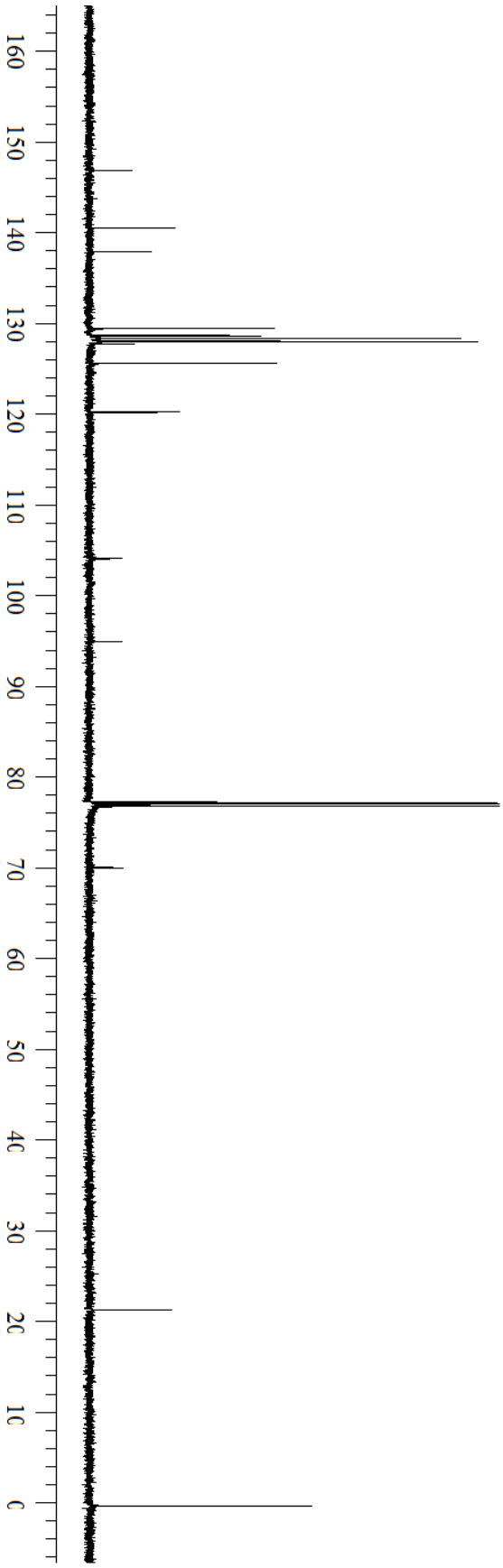

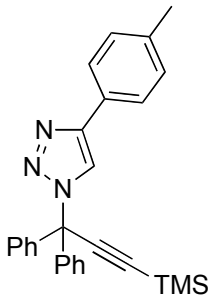

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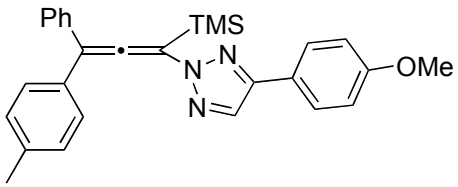

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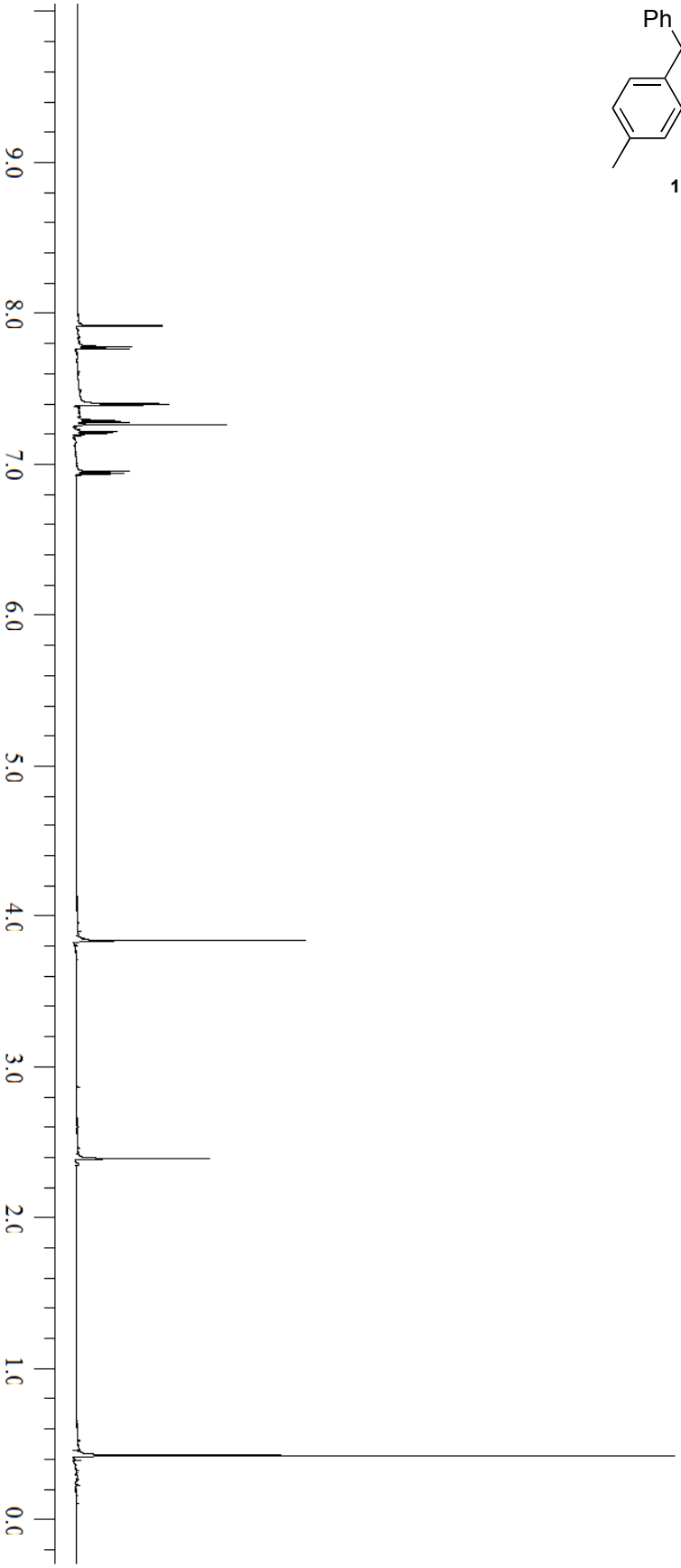

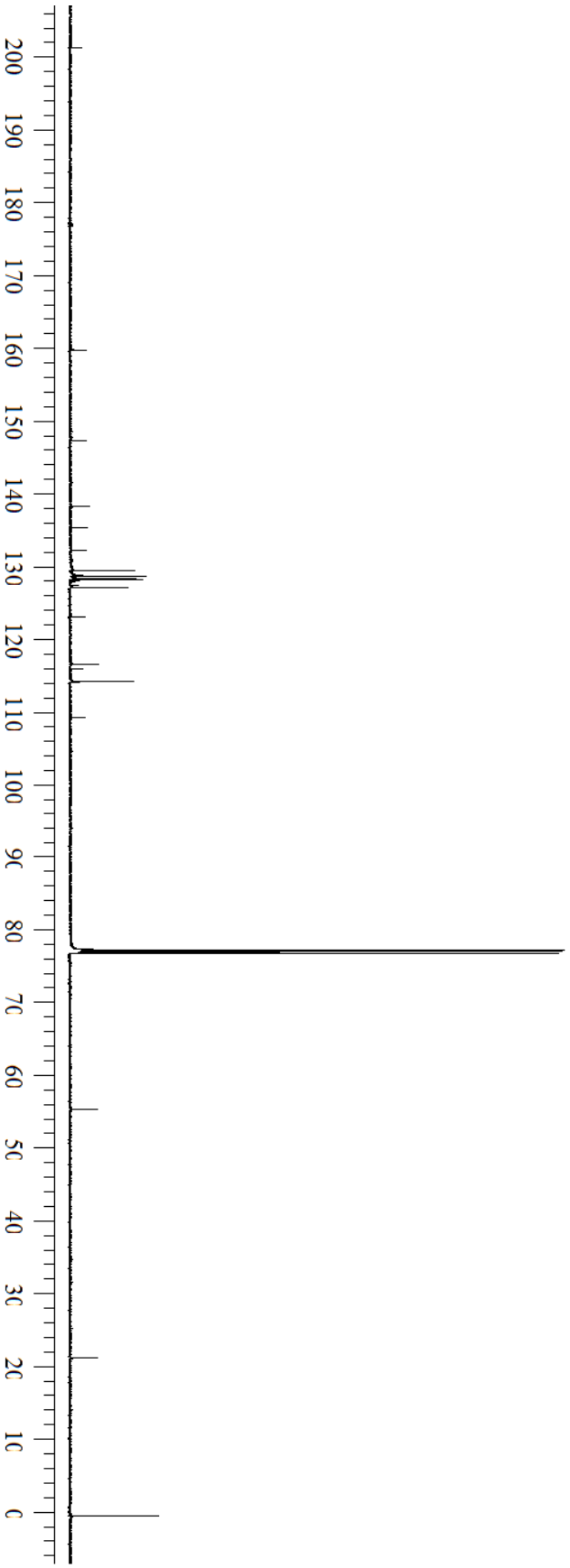

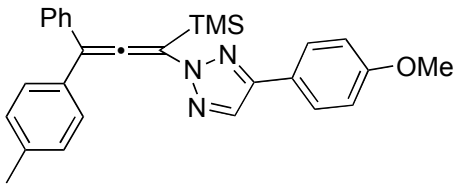

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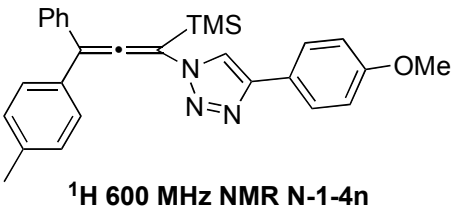
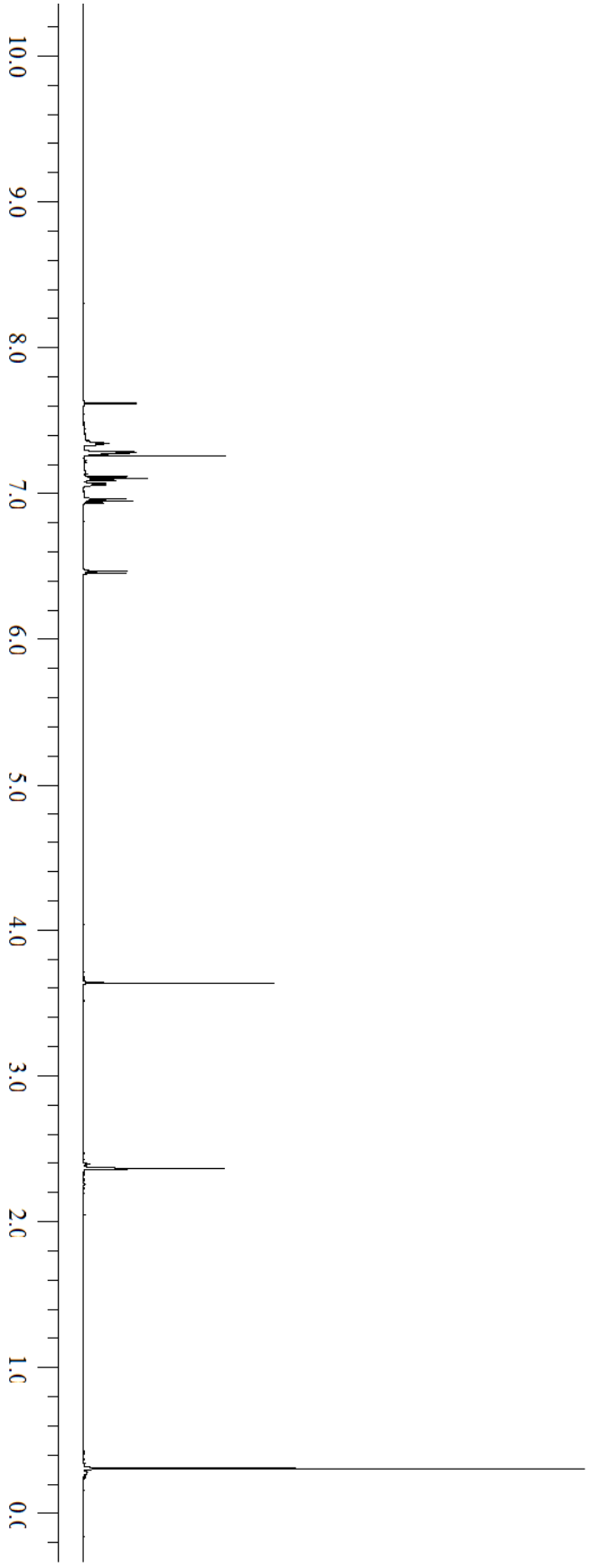
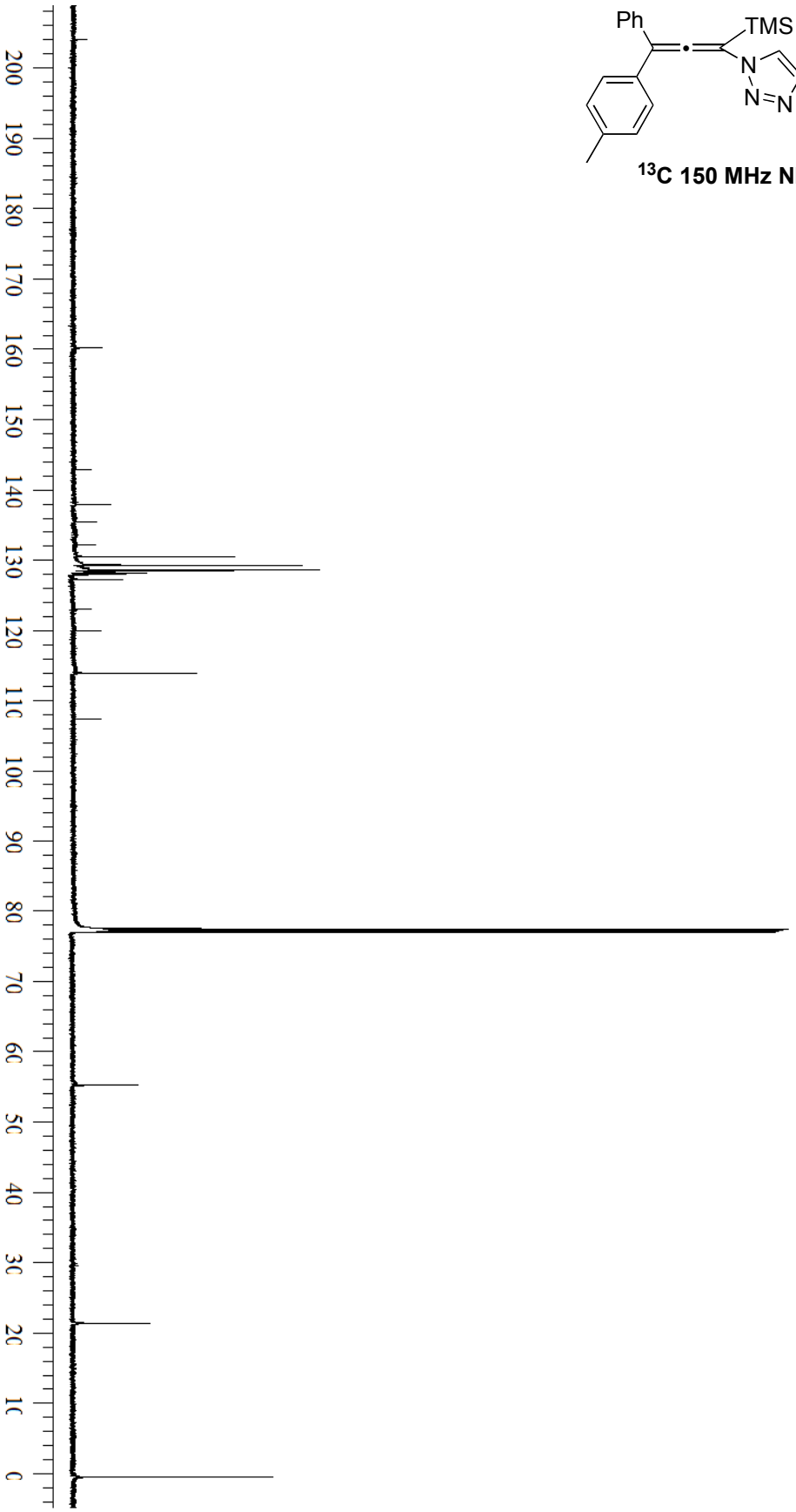
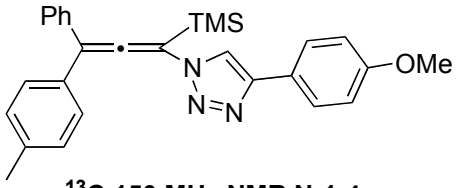


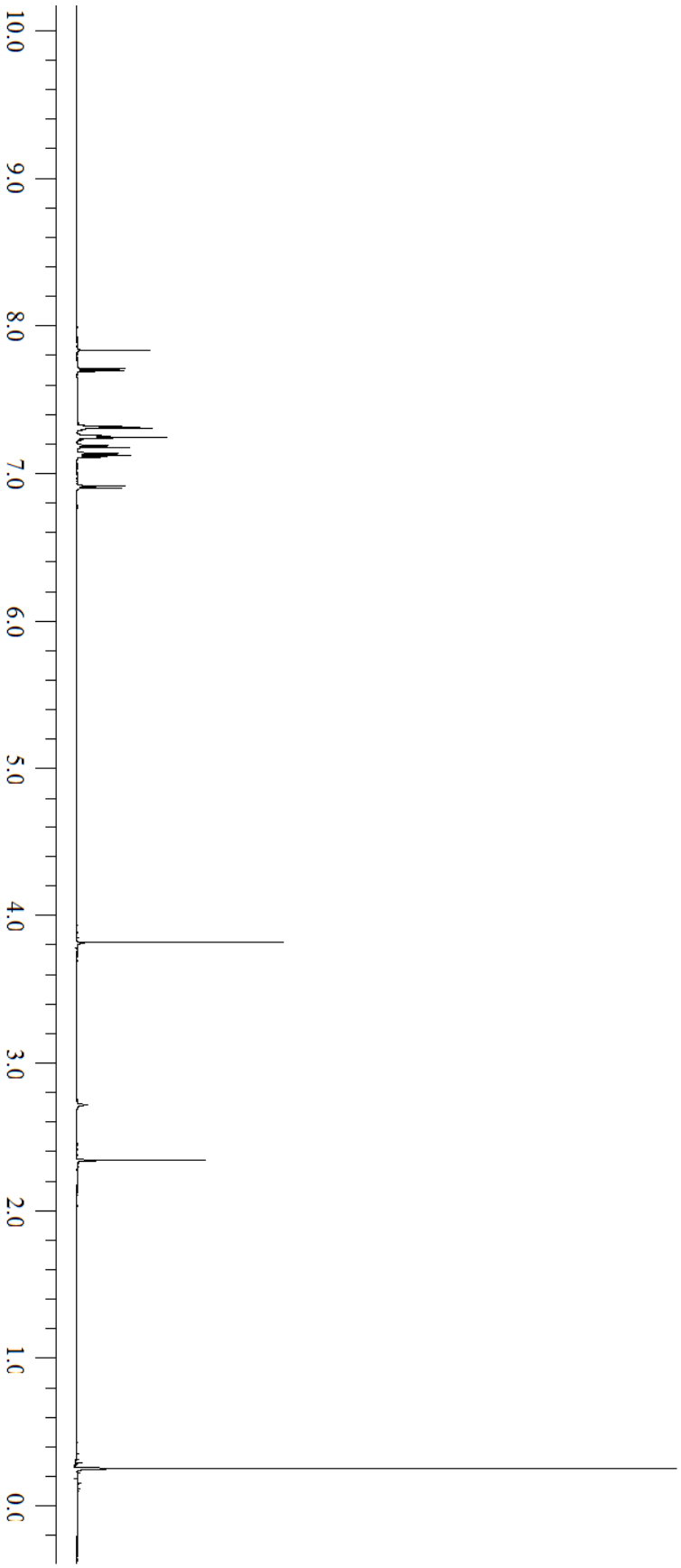
^{1}H 600 MHz NMR N-1-4n

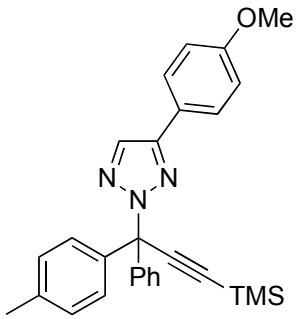




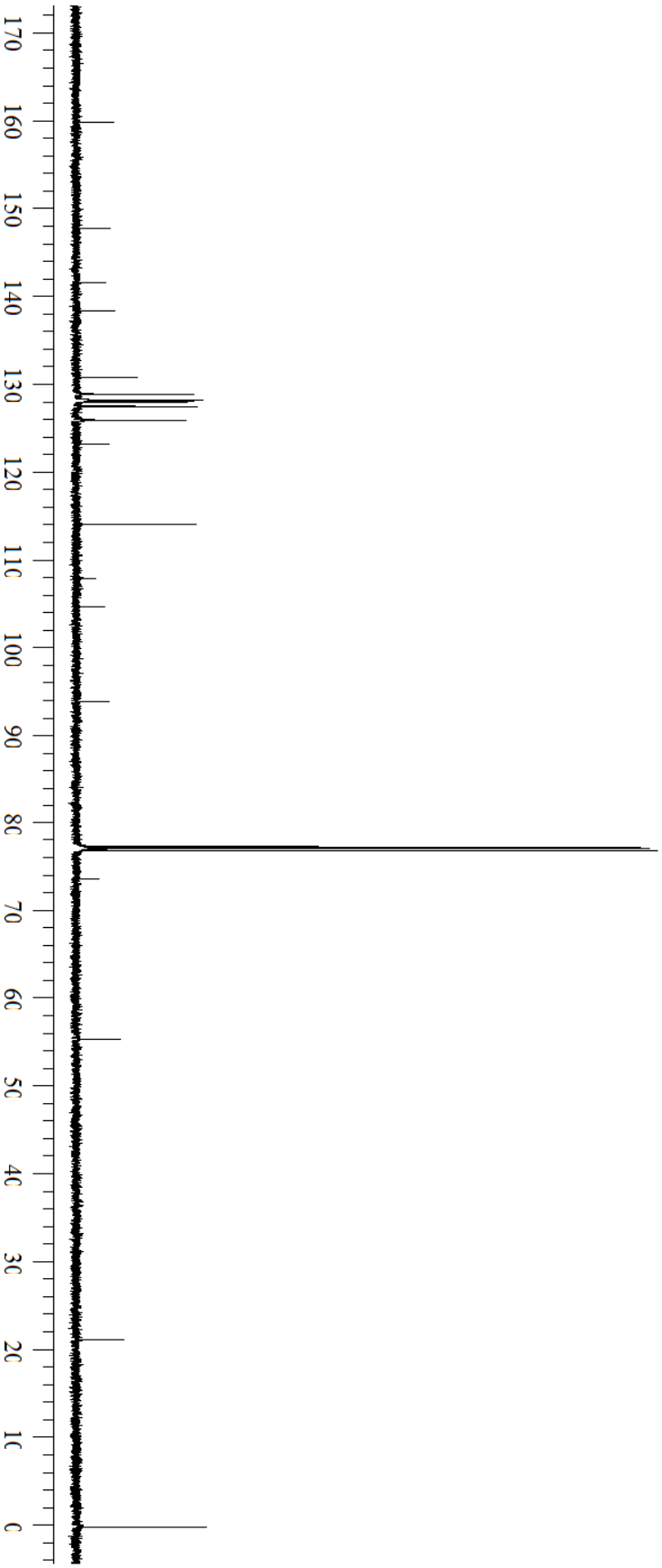


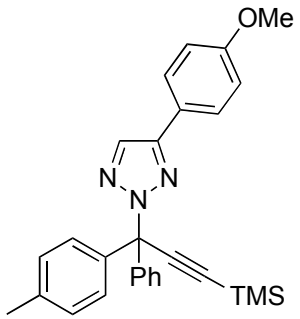
^{13}C 150 MHz NMR N-1-4n





^{1}H 600 MHz NMR N-2-4n'





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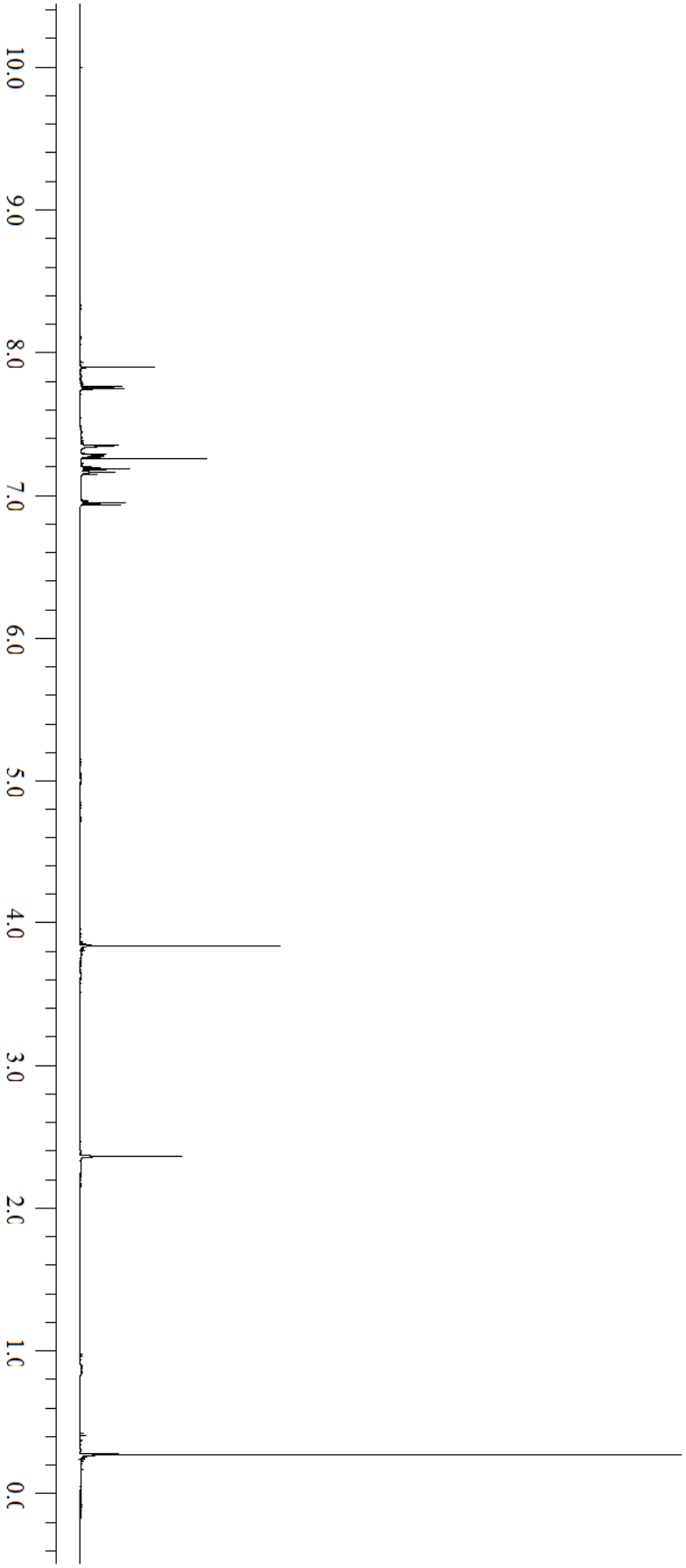

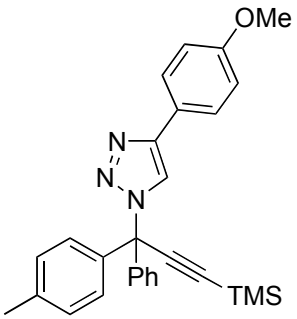

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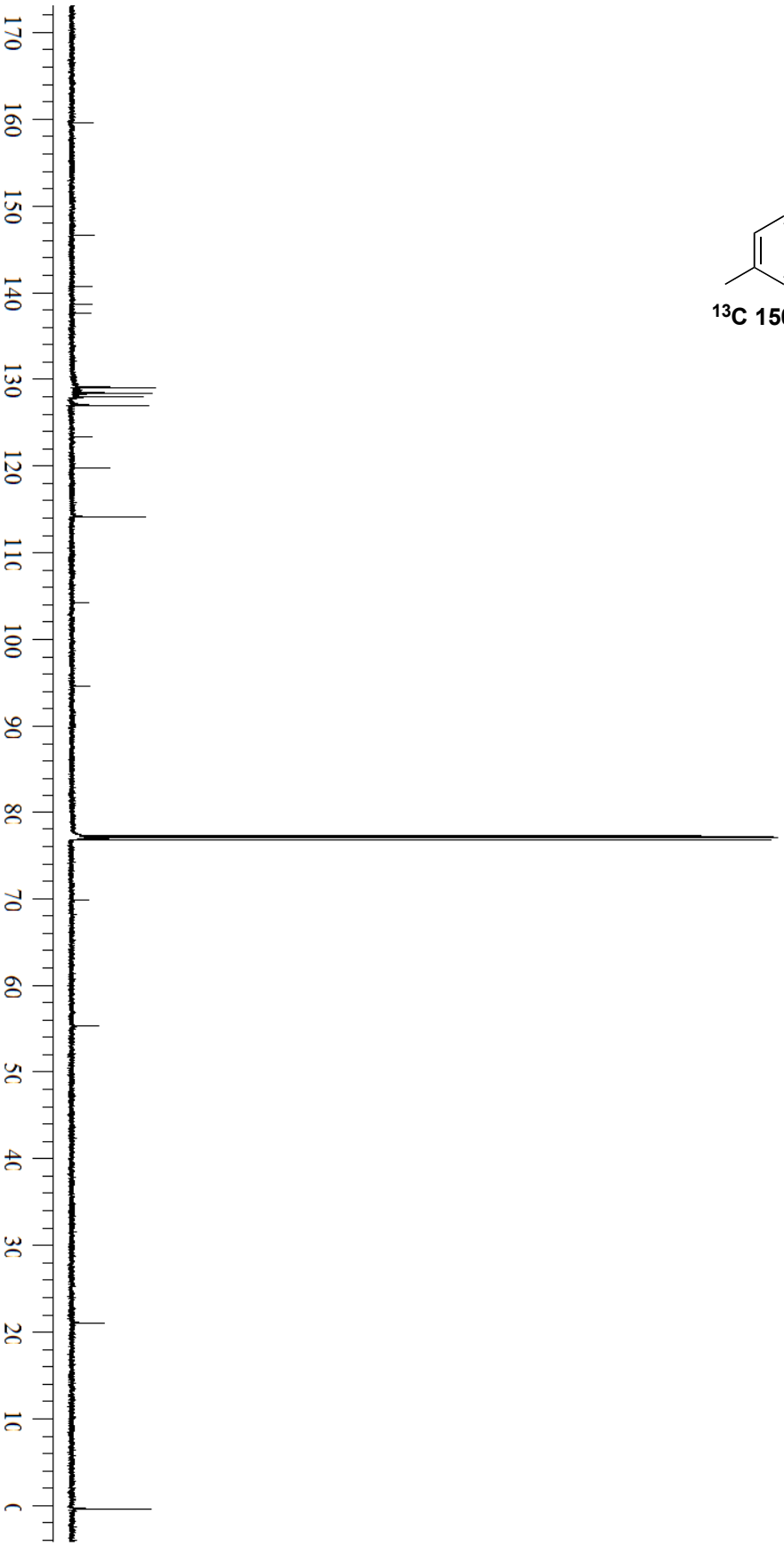
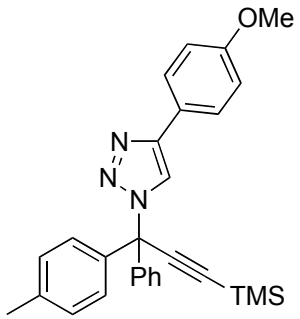
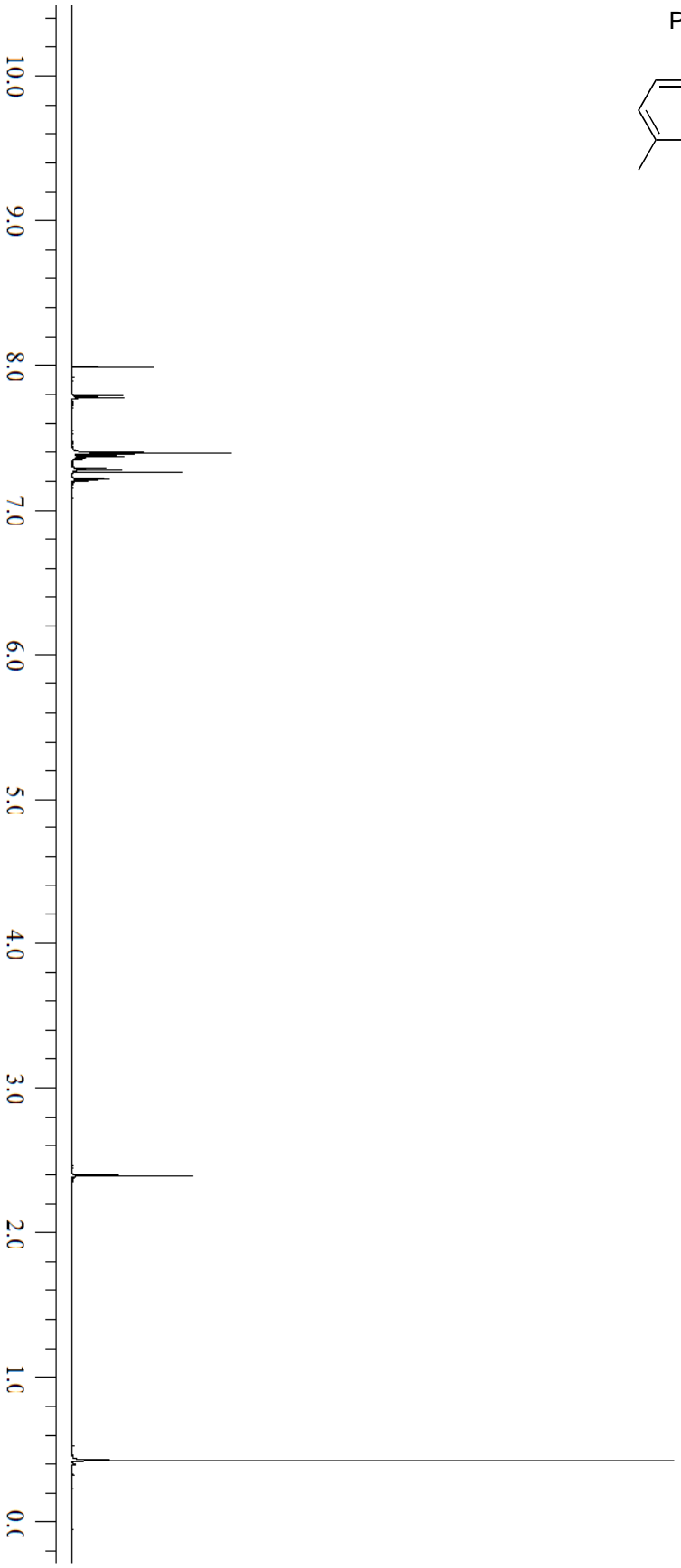
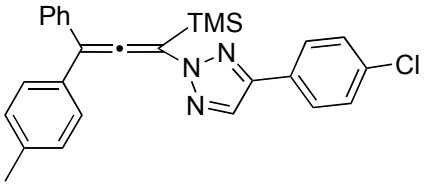


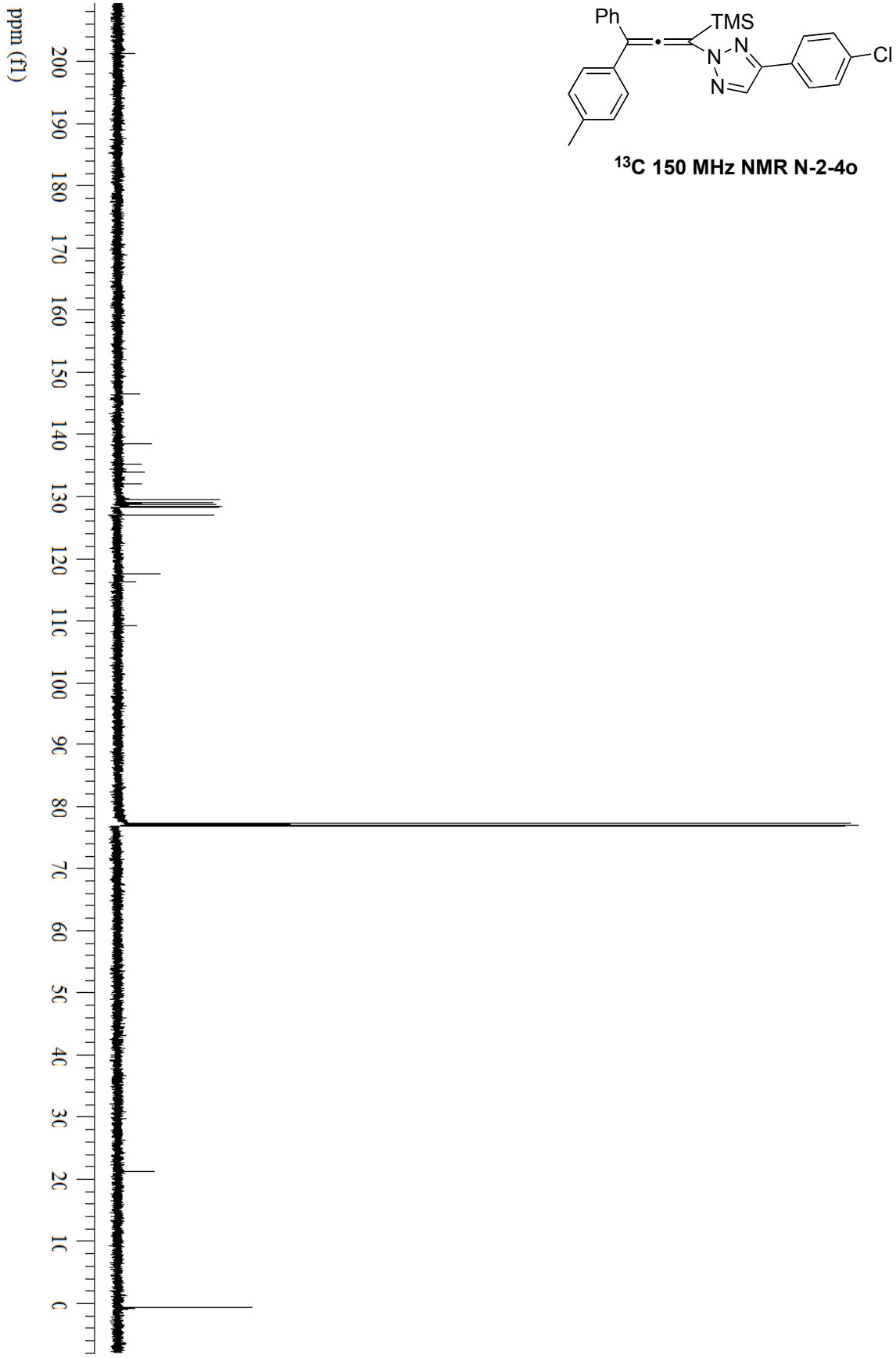


^{13}C 150 MHz NMR N-1-4n'





^{1}H 600 MHz NMR N-2-4o



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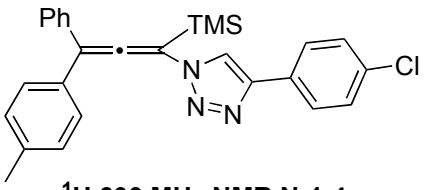
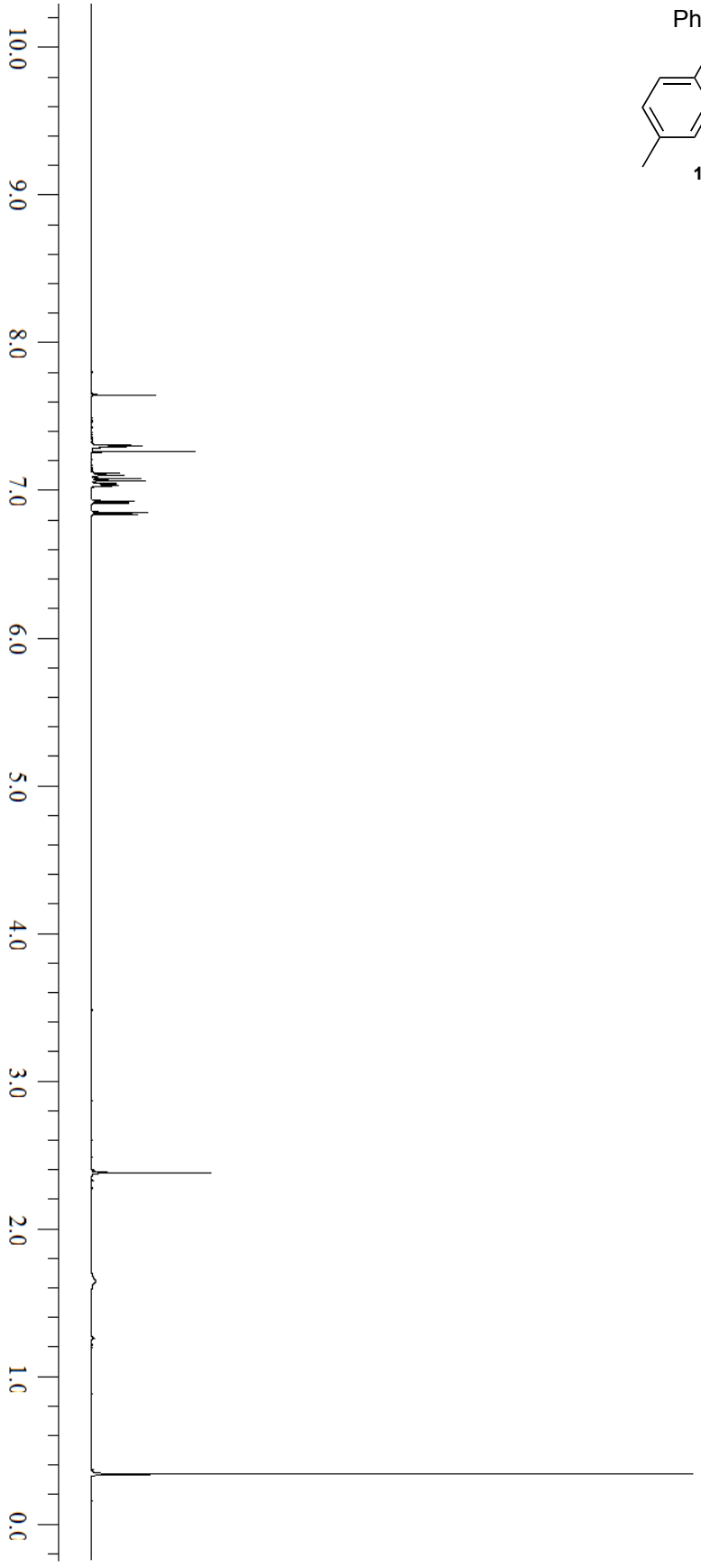
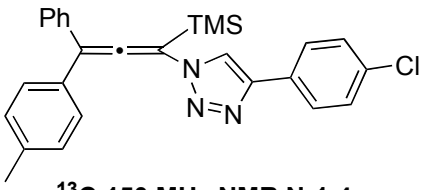
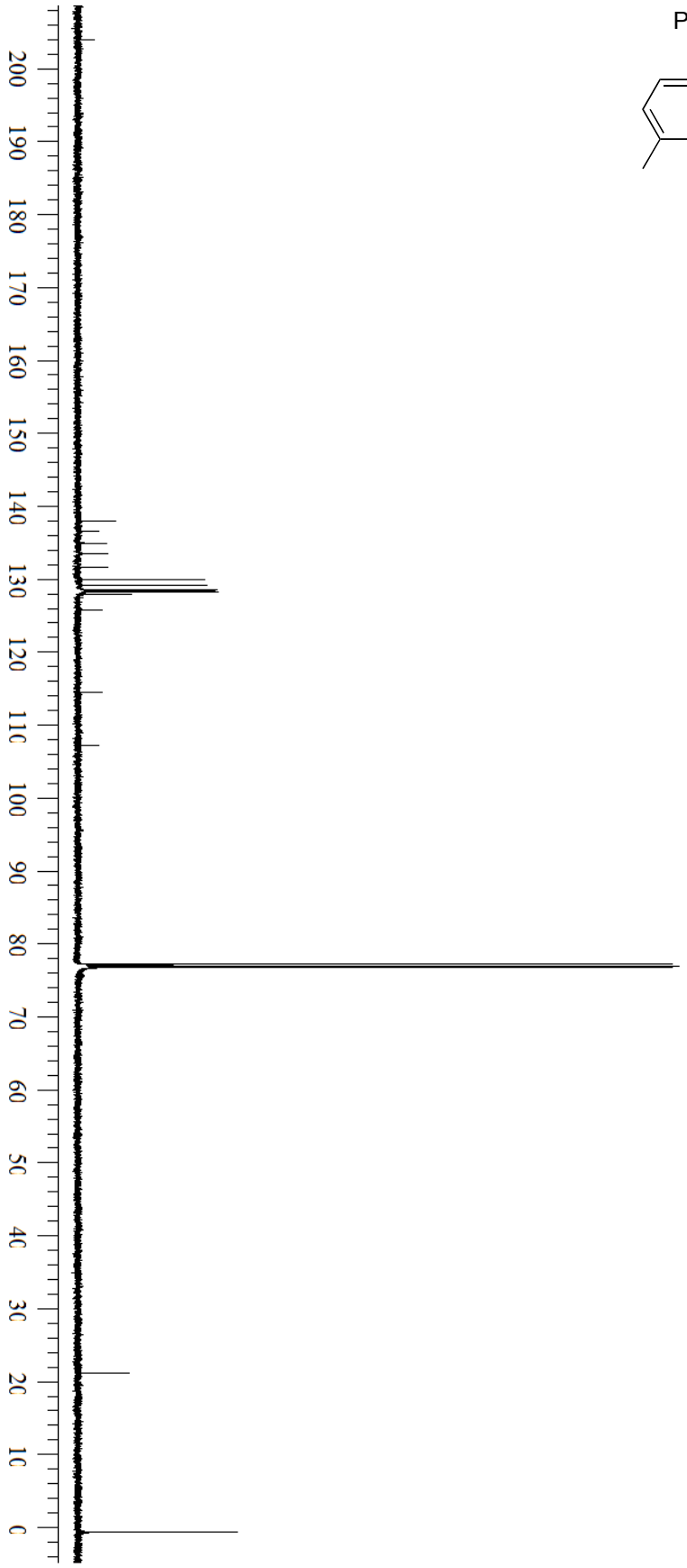


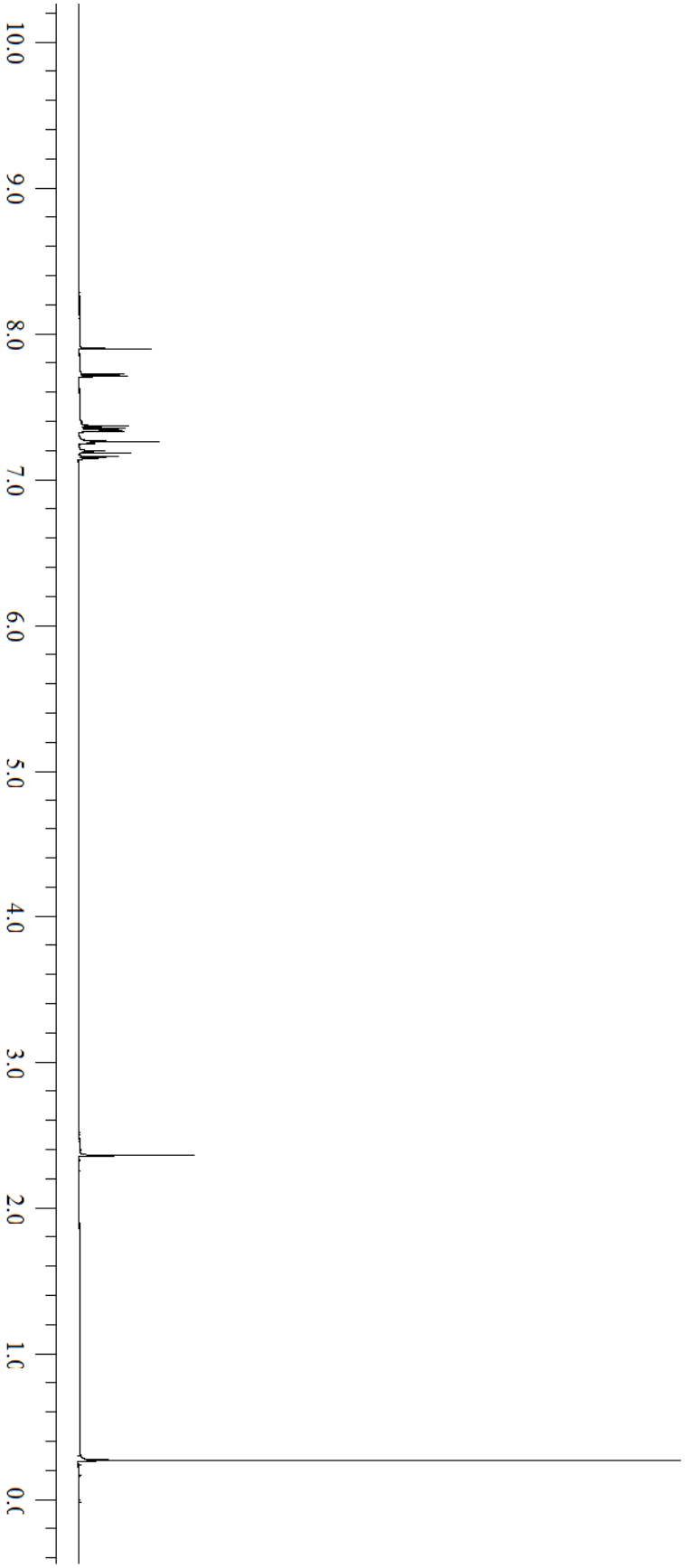
^{1}H 600 MHz NMR N-1-4o

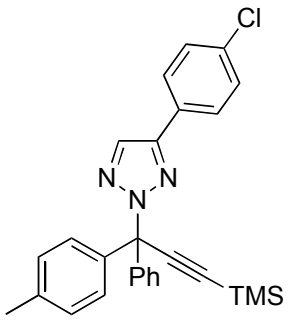




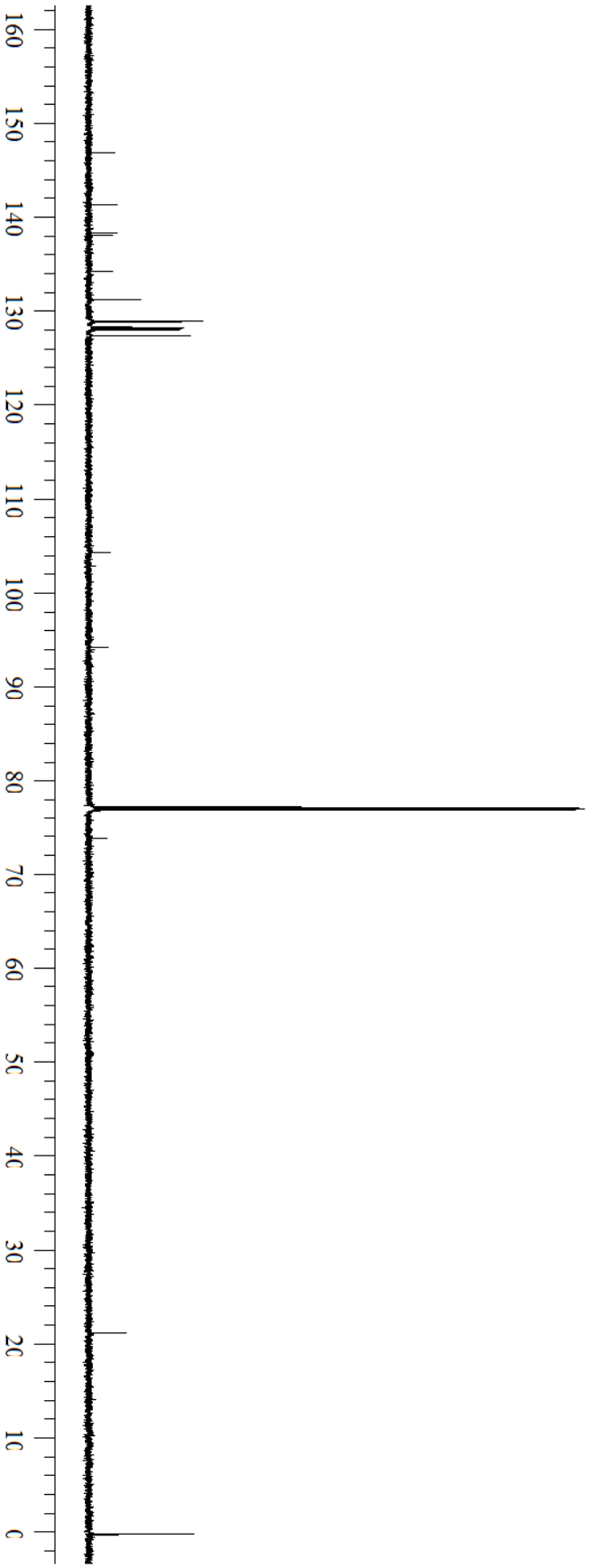
^{13}C 150 MHz NMR N-1-4o

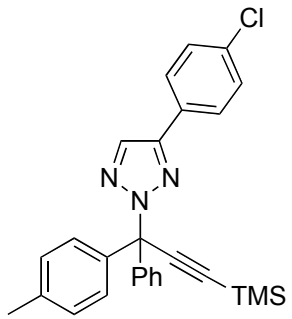






^{1}H 600 MHz NMR N-2-4o'





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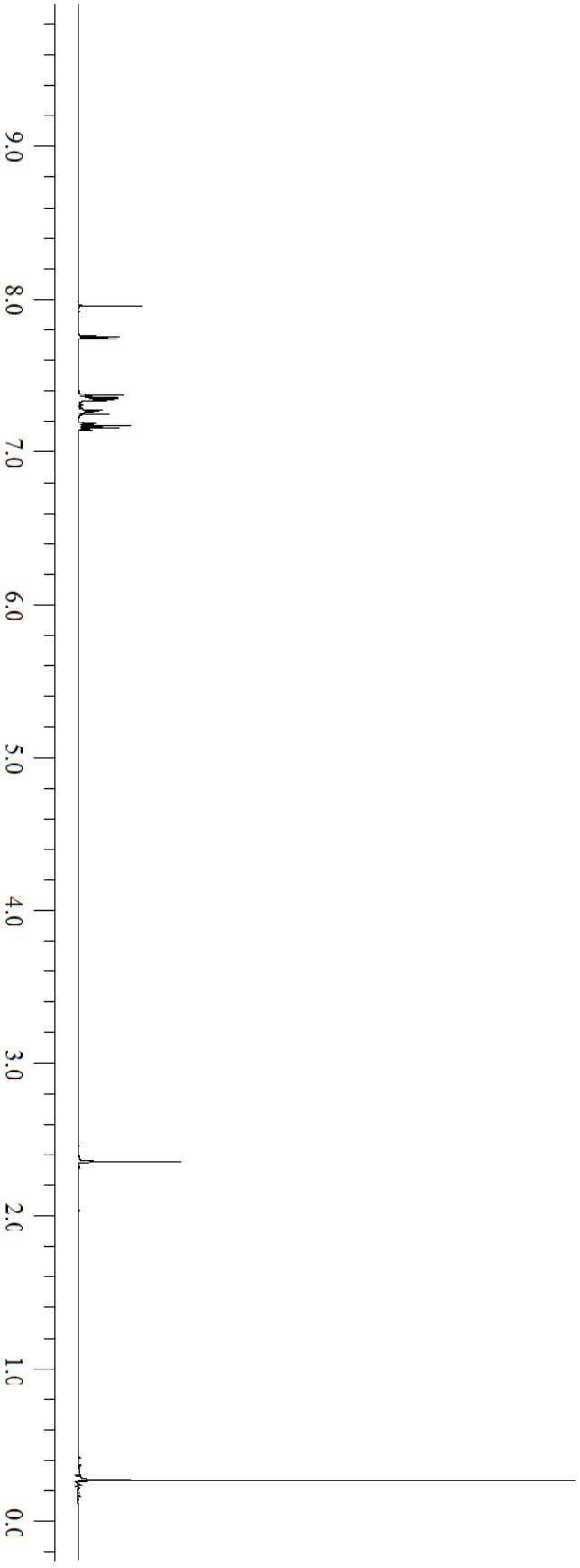

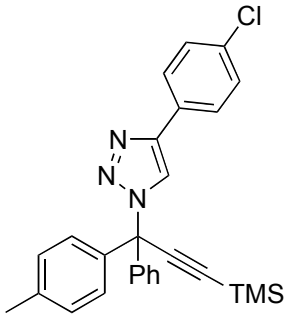

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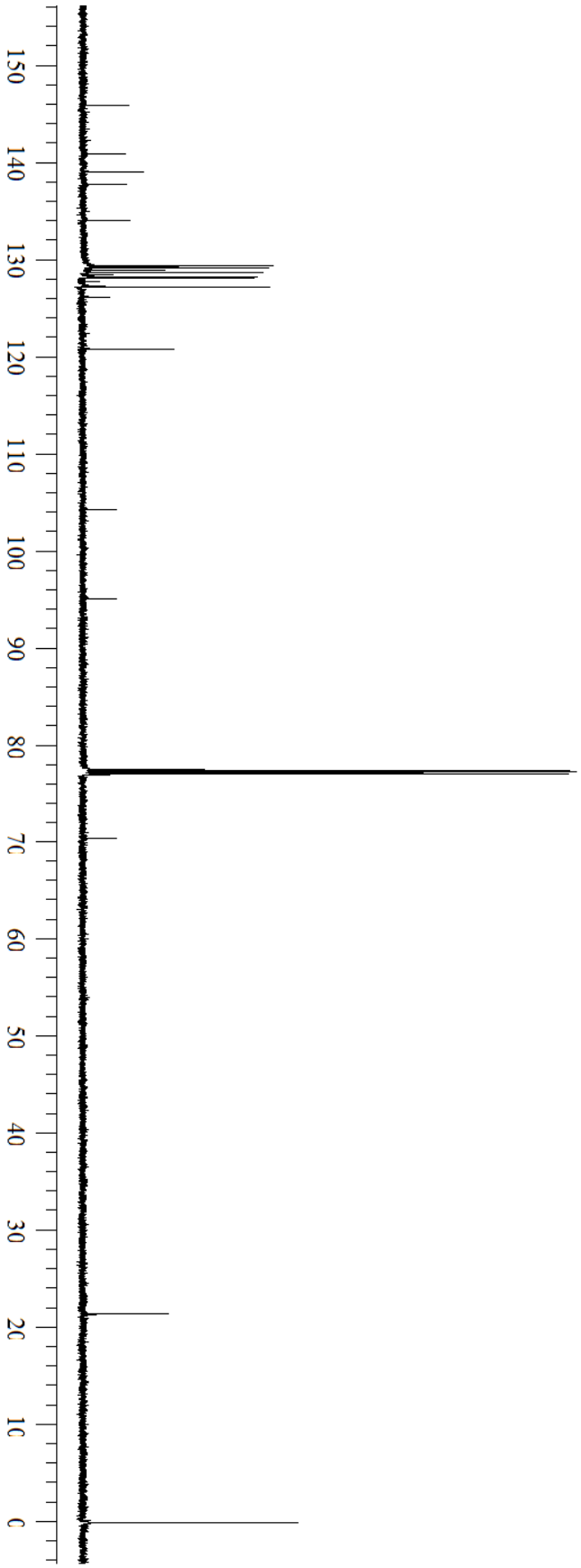

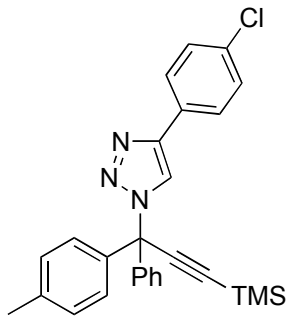

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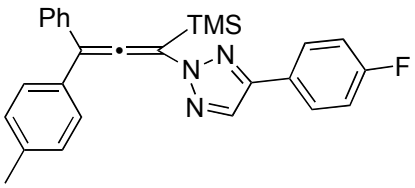
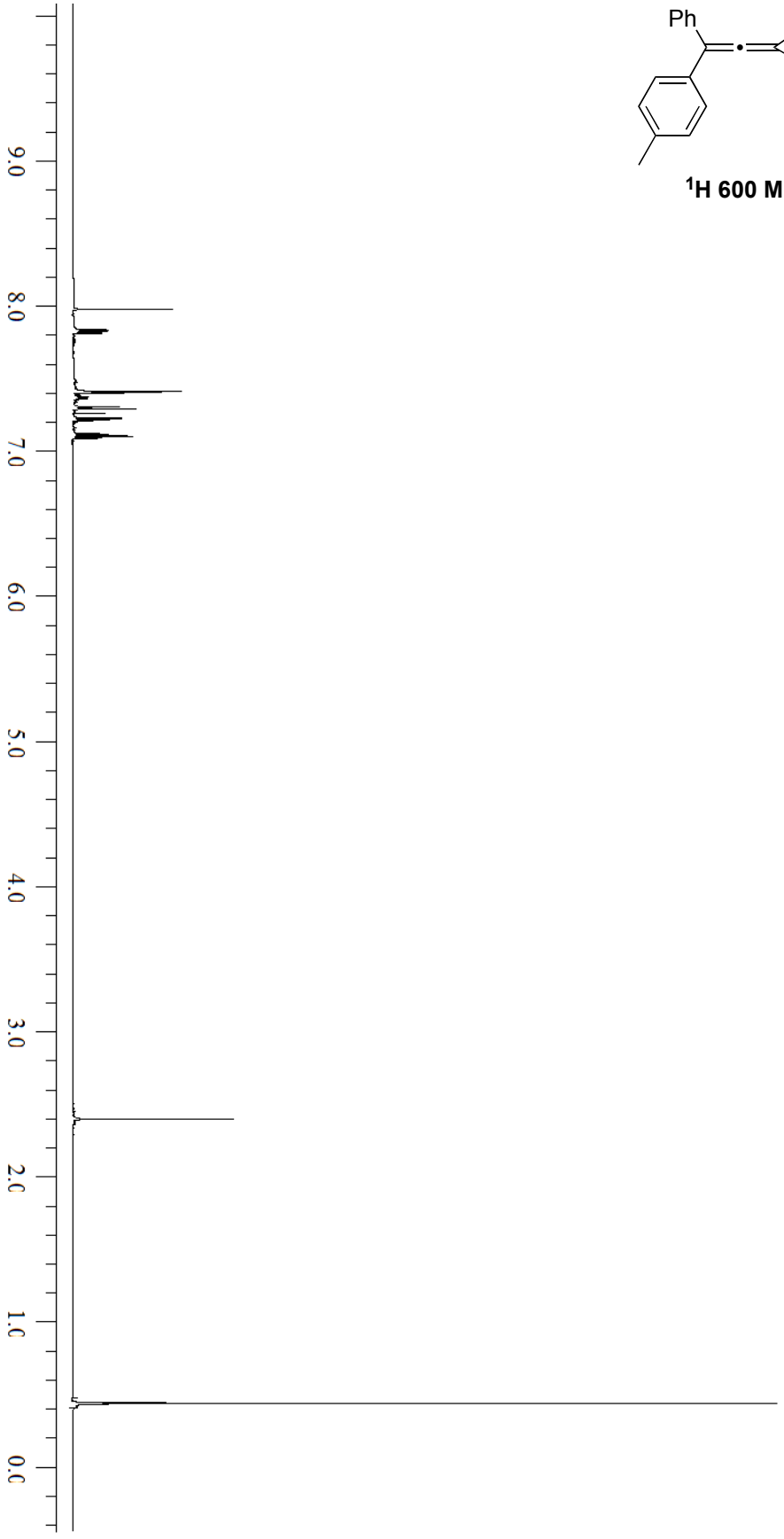
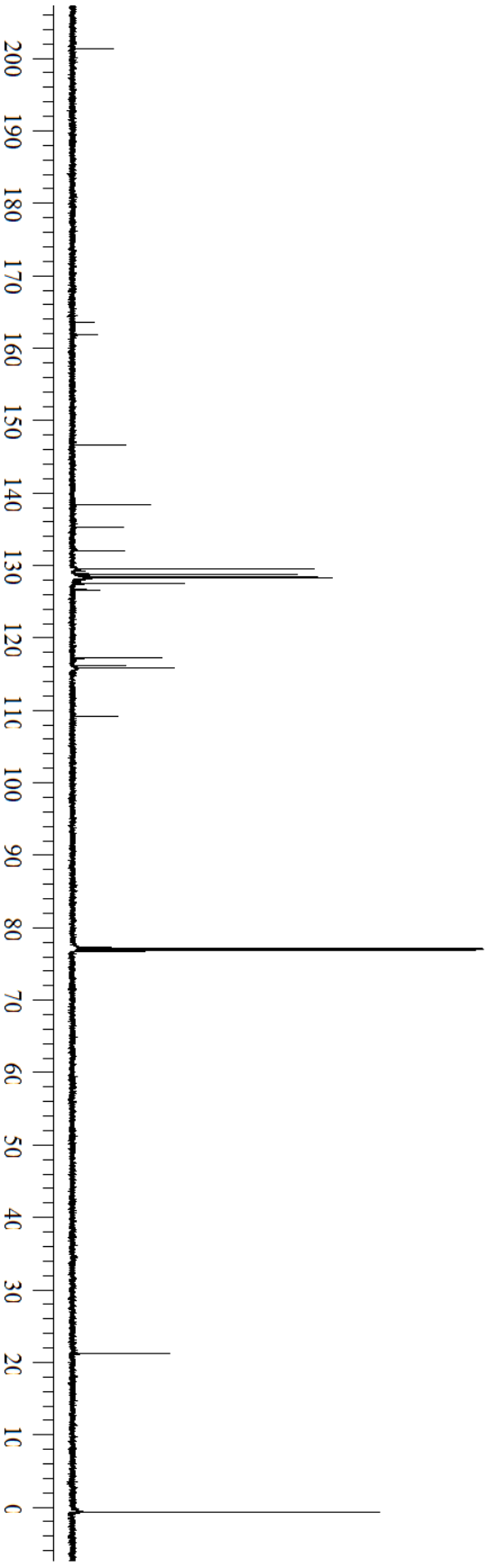
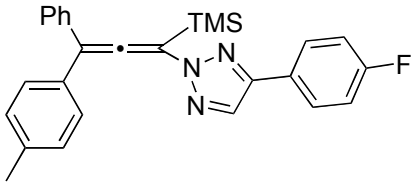


^{1}H 600 MHz NMR N-2-4p







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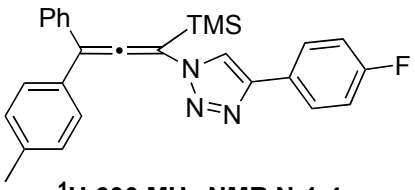

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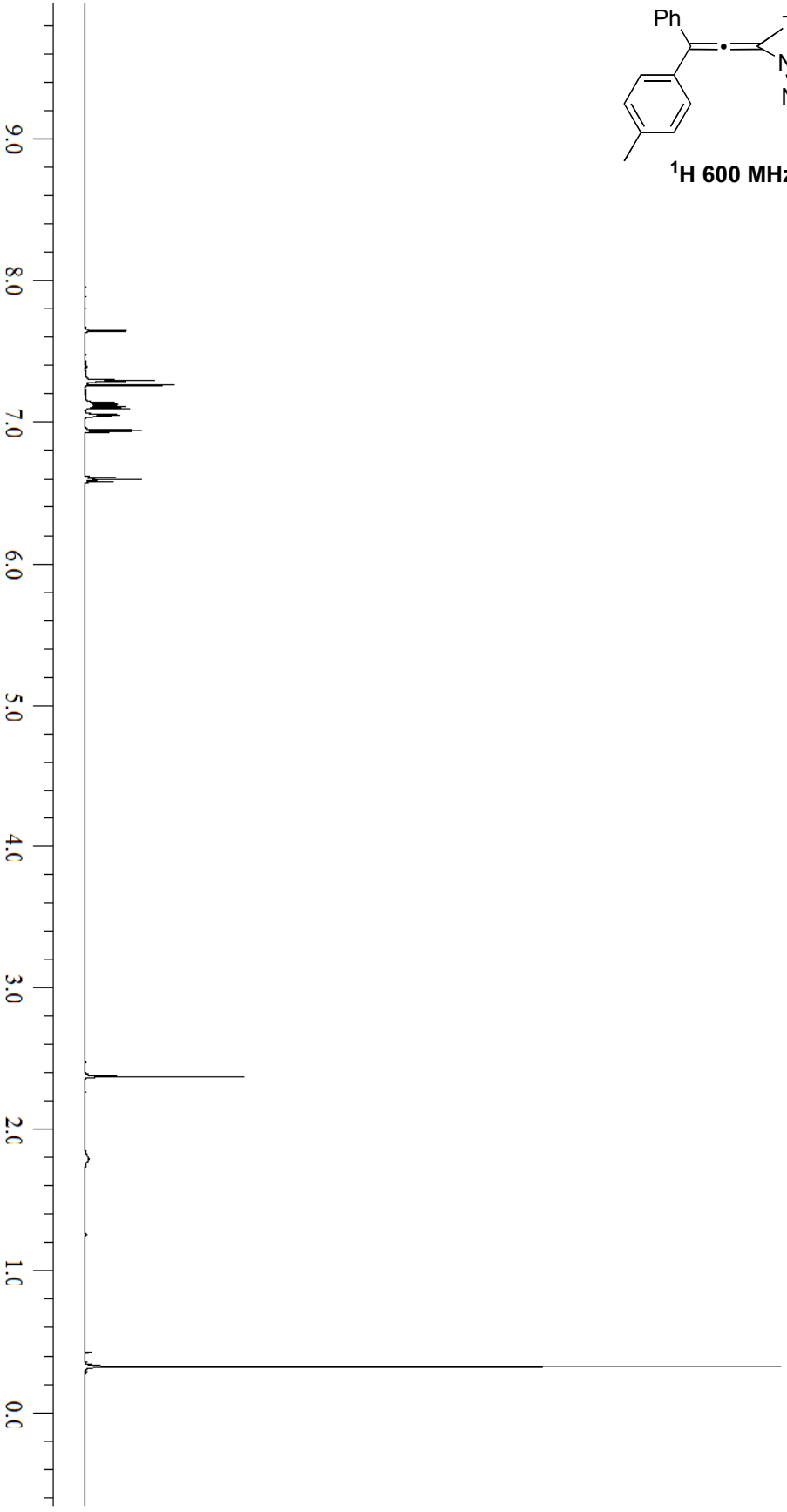

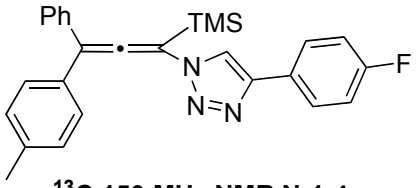

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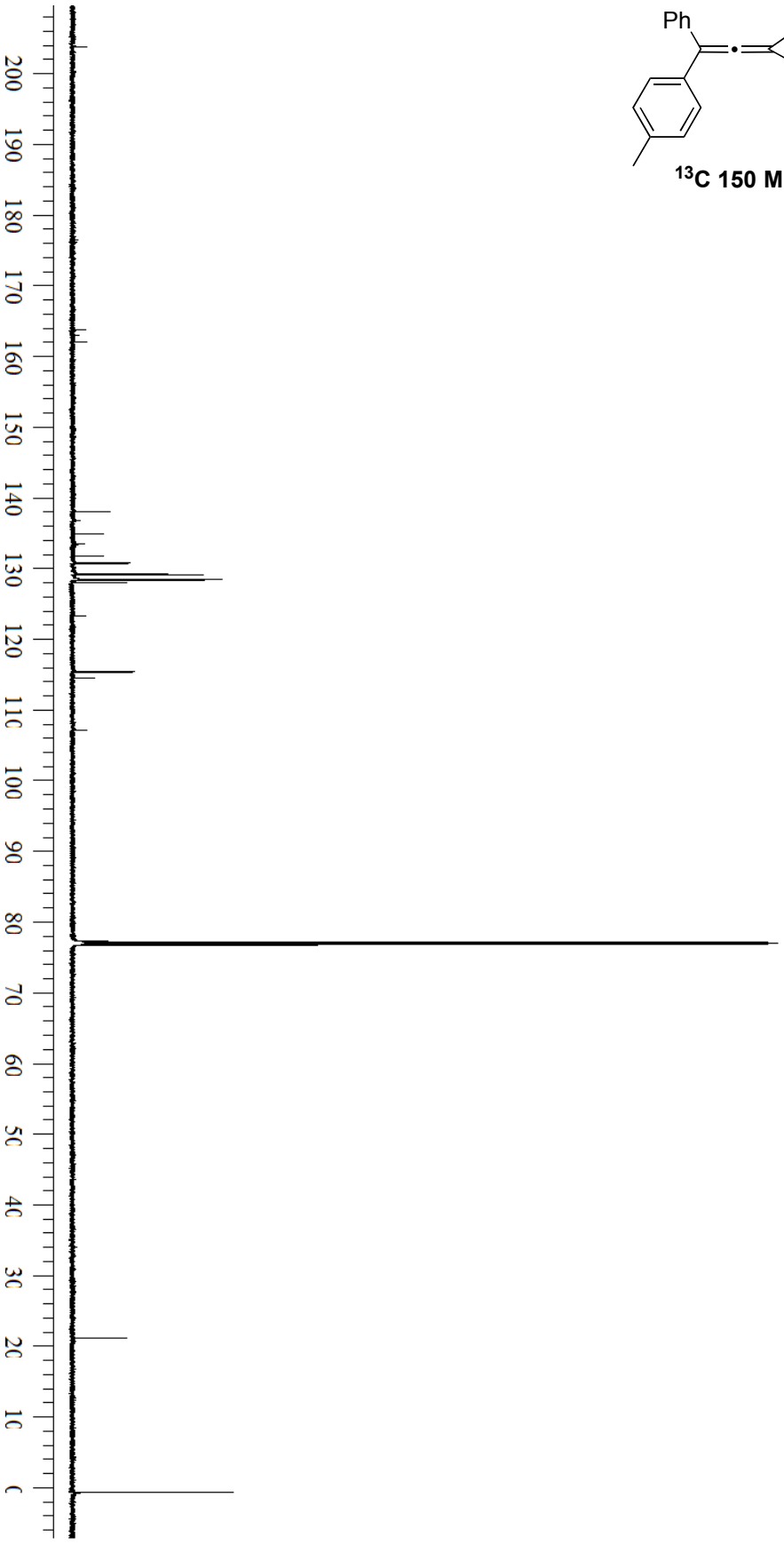

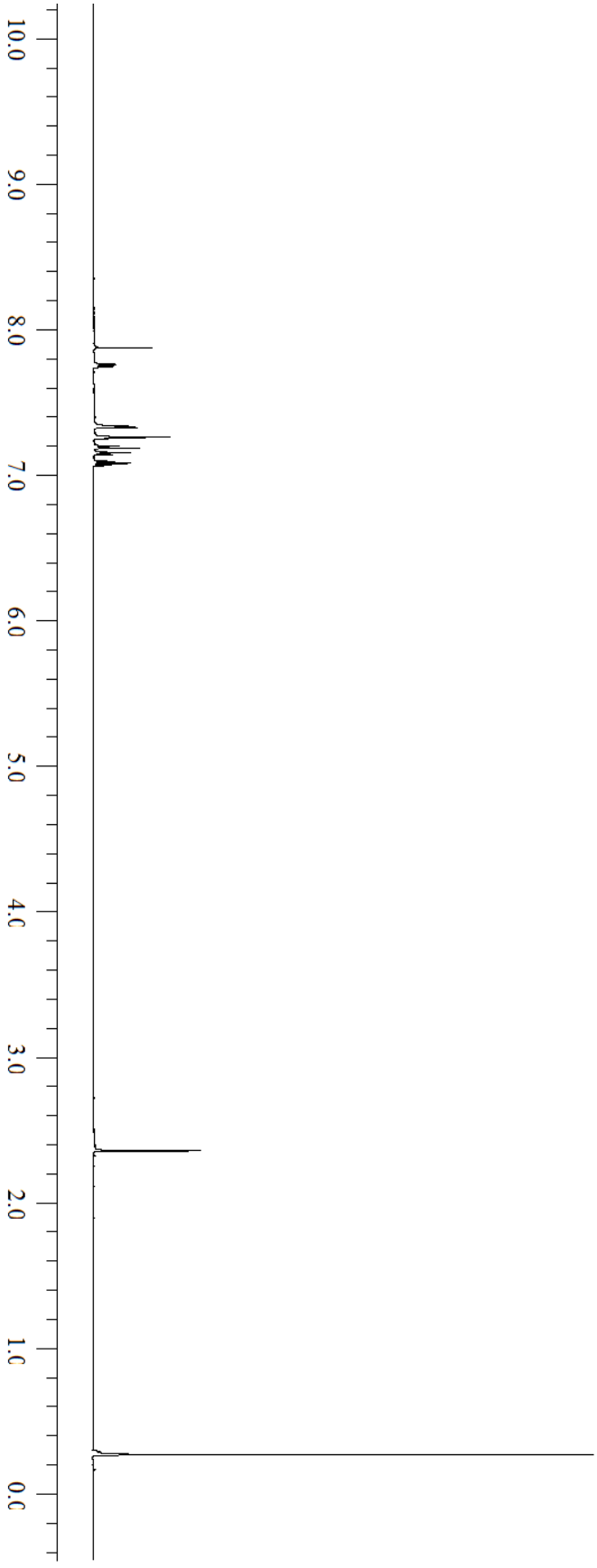

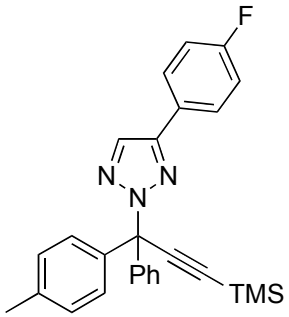

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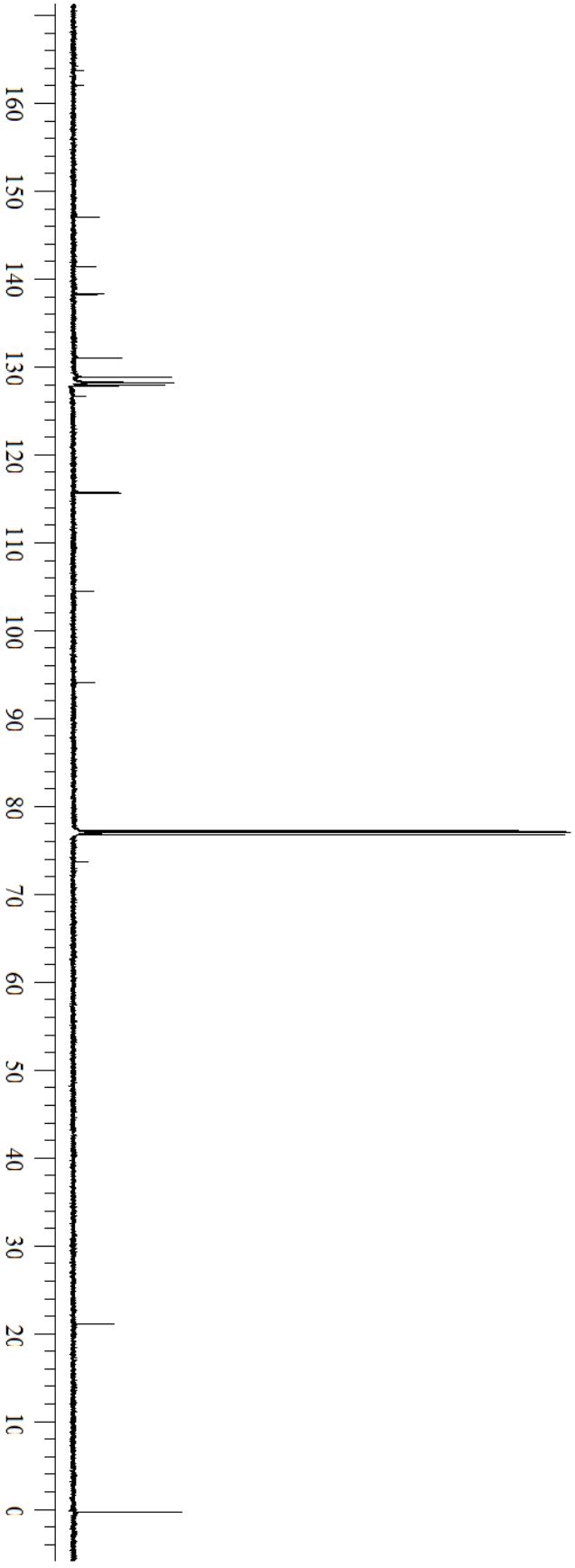

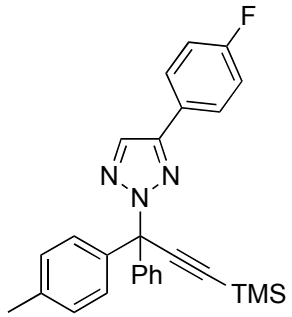

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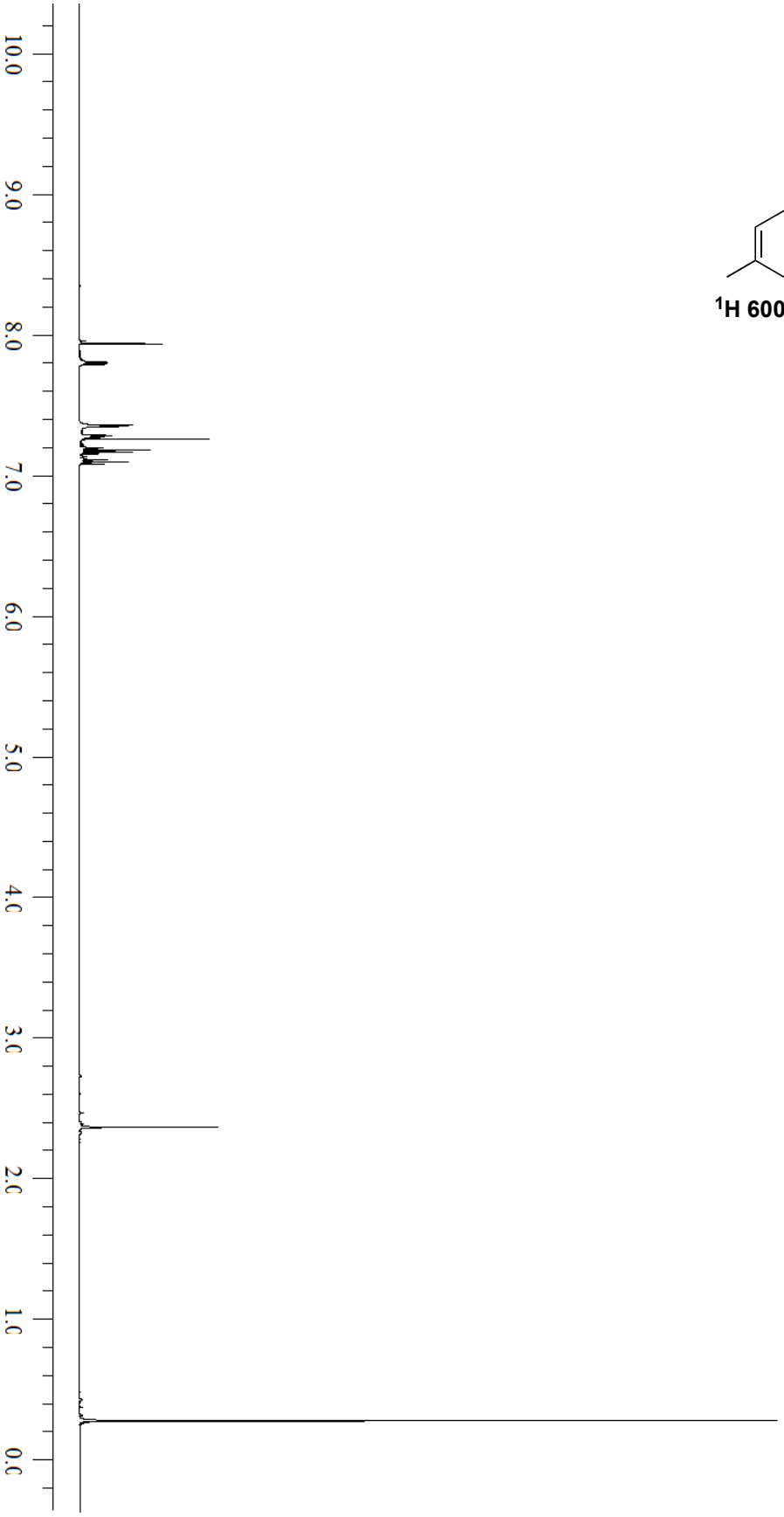

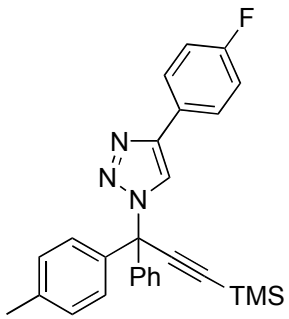

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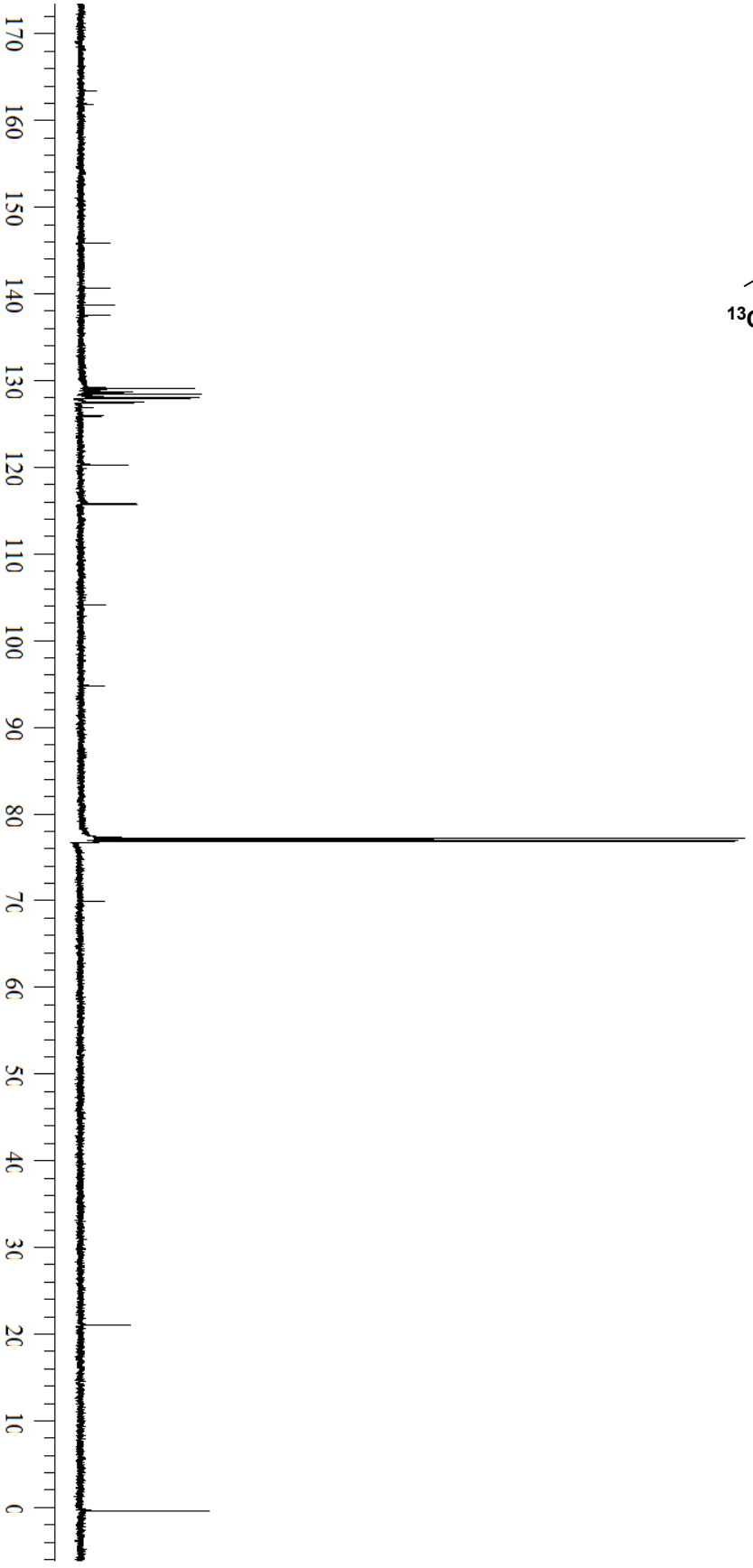

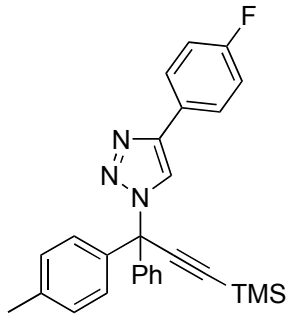

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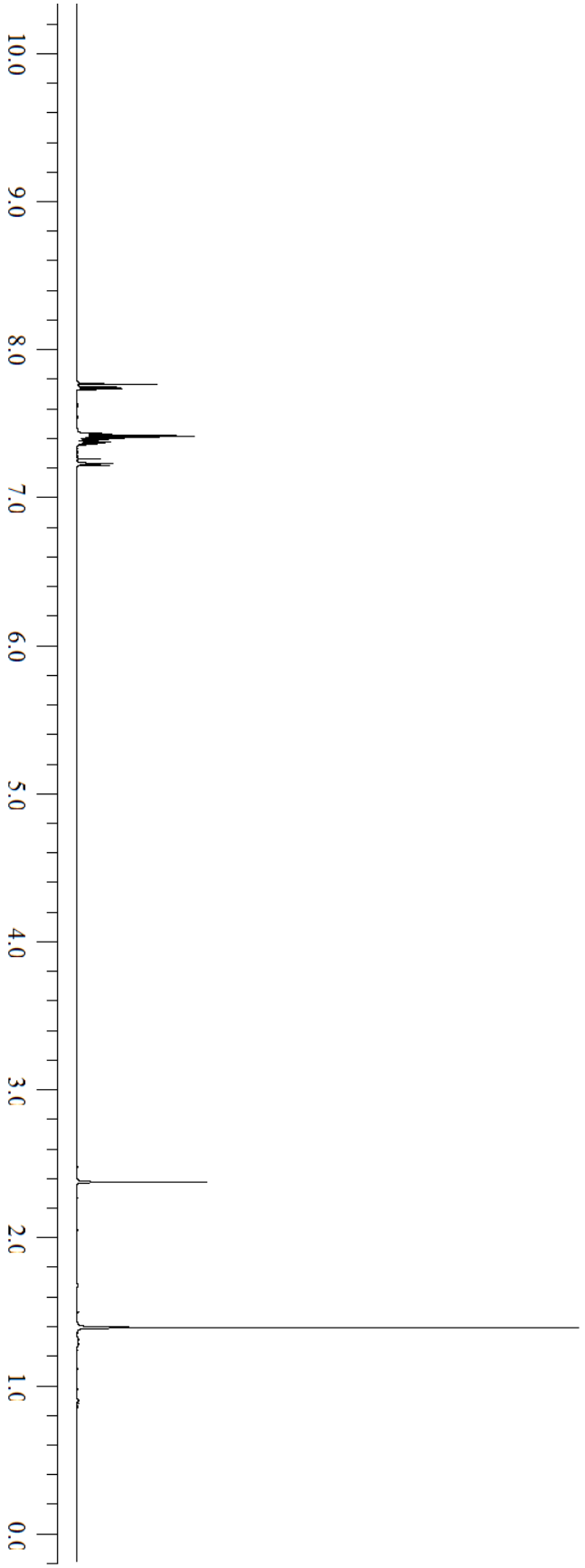

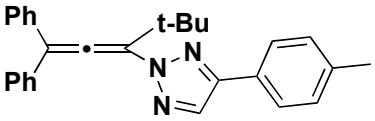

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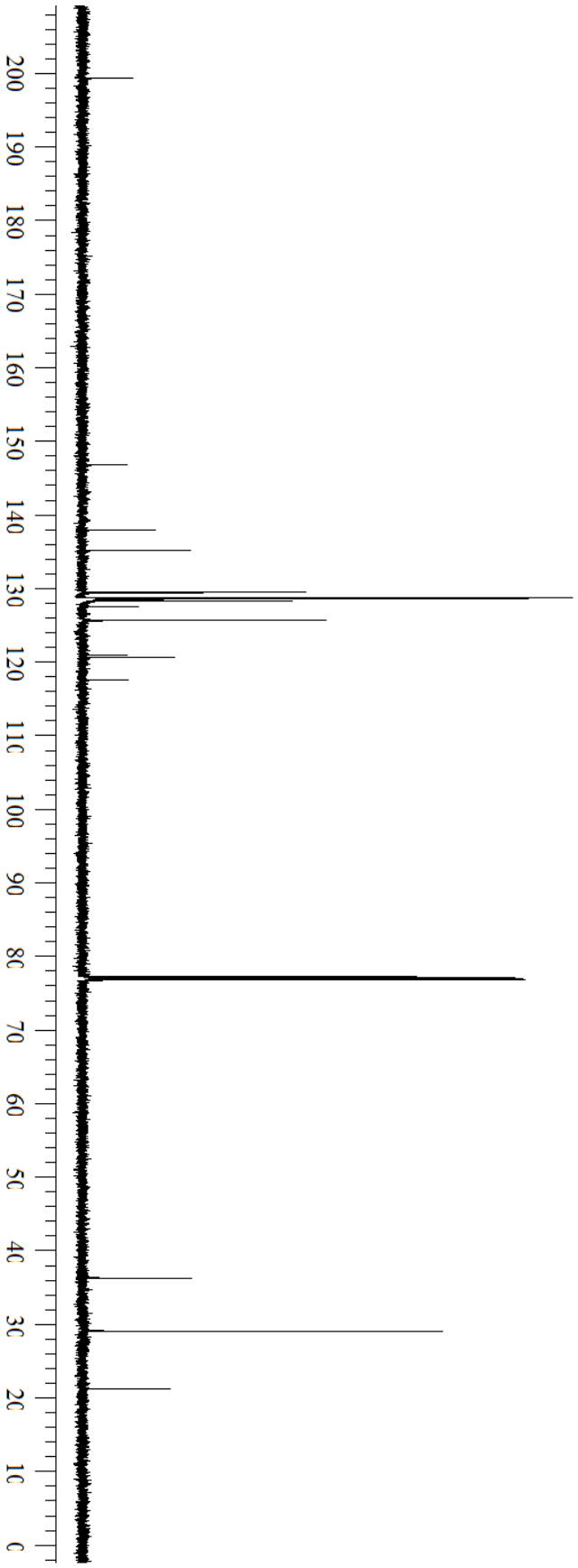

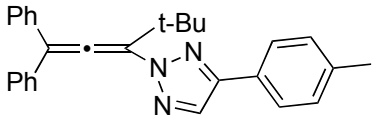

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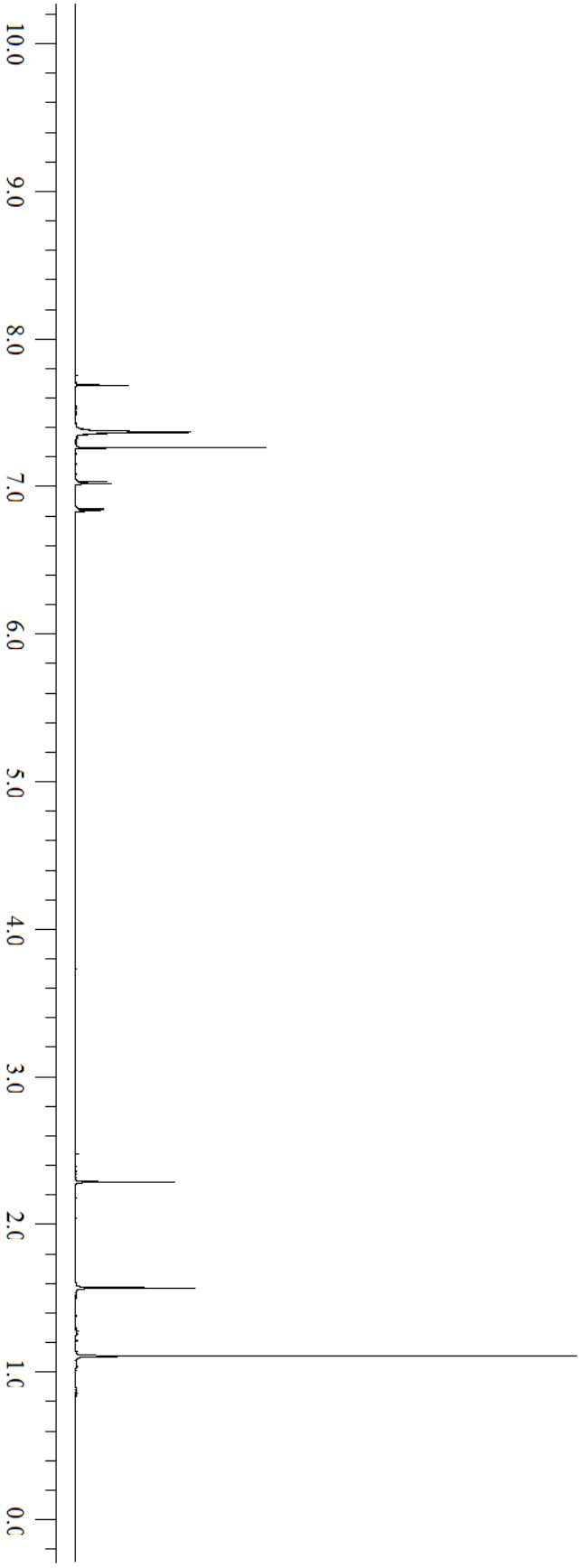

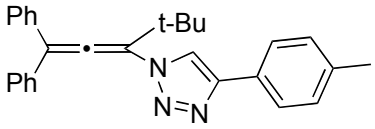

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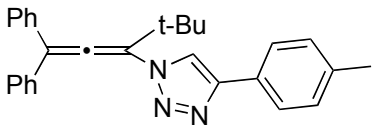

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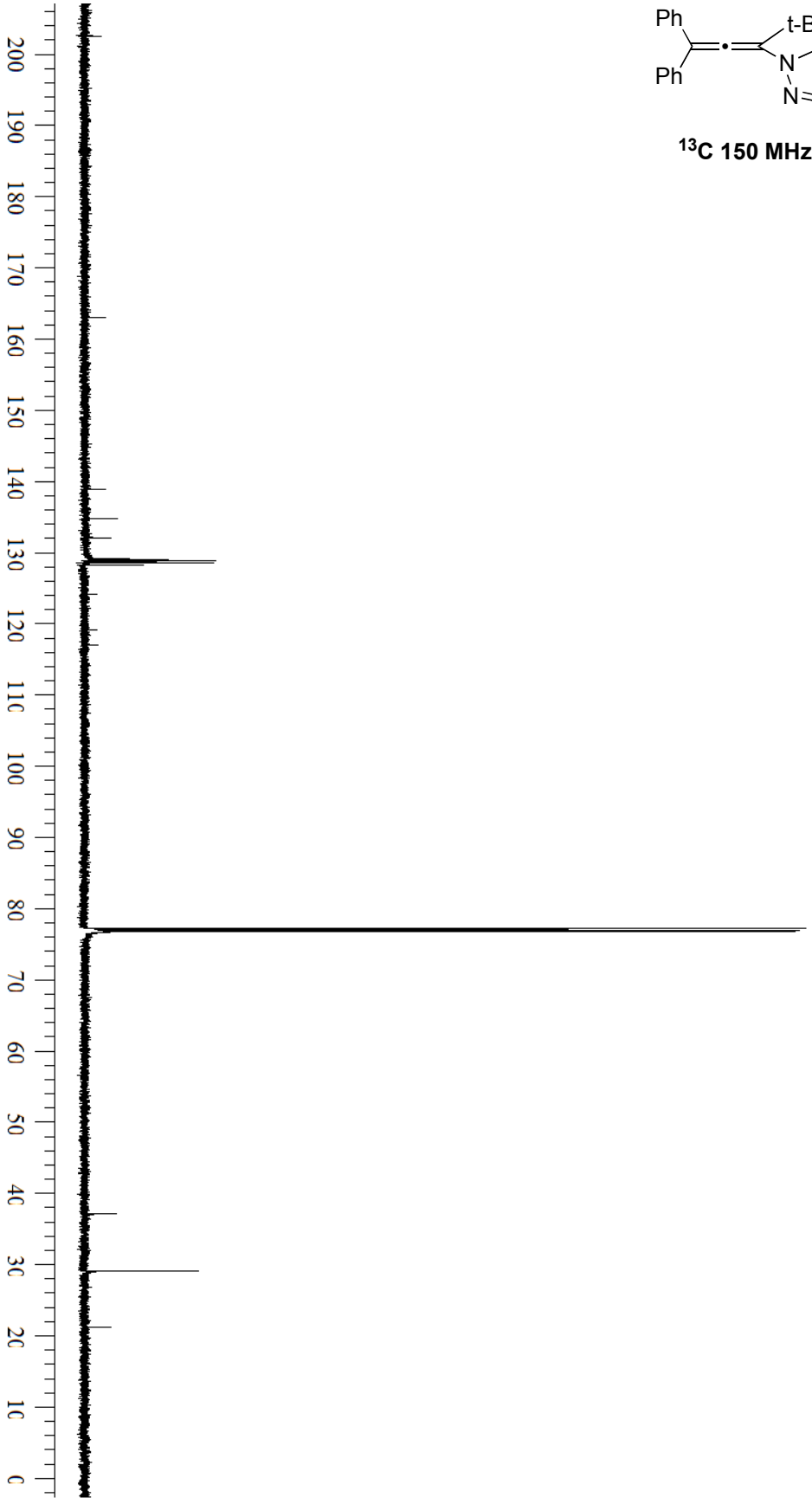
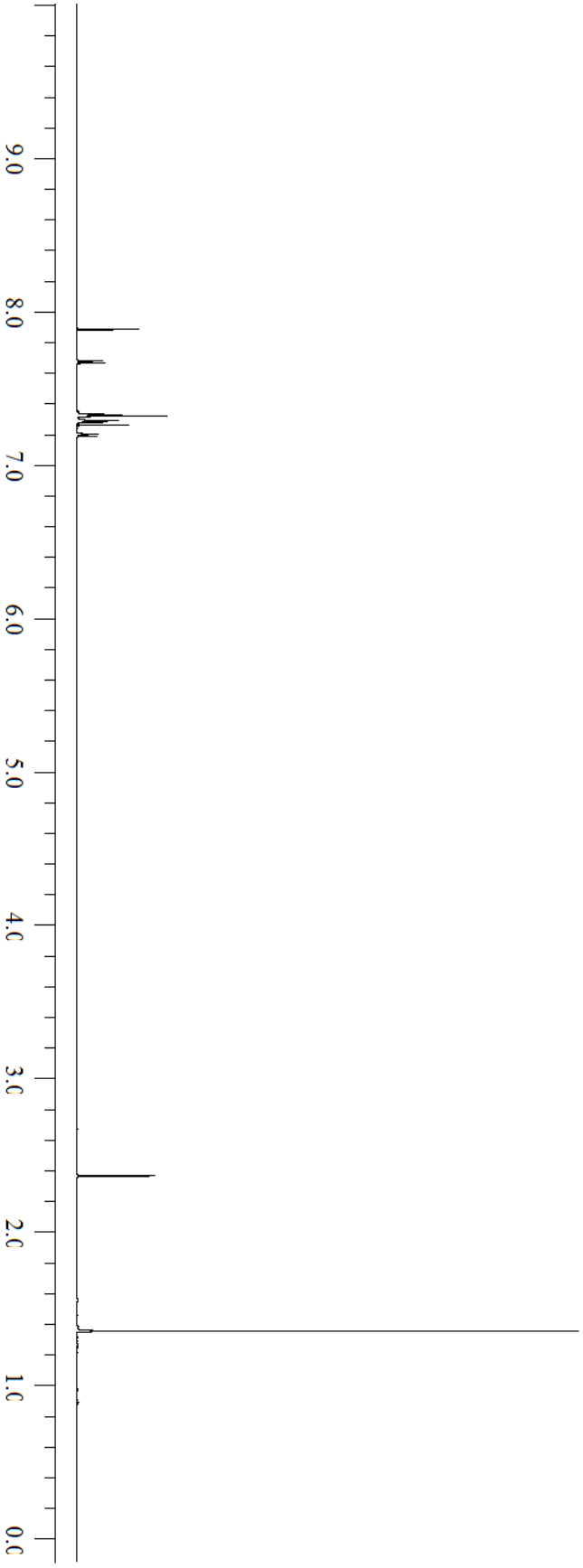
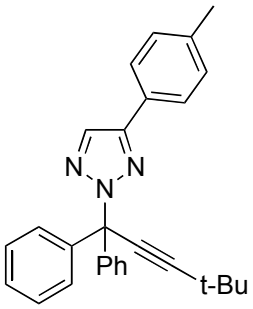
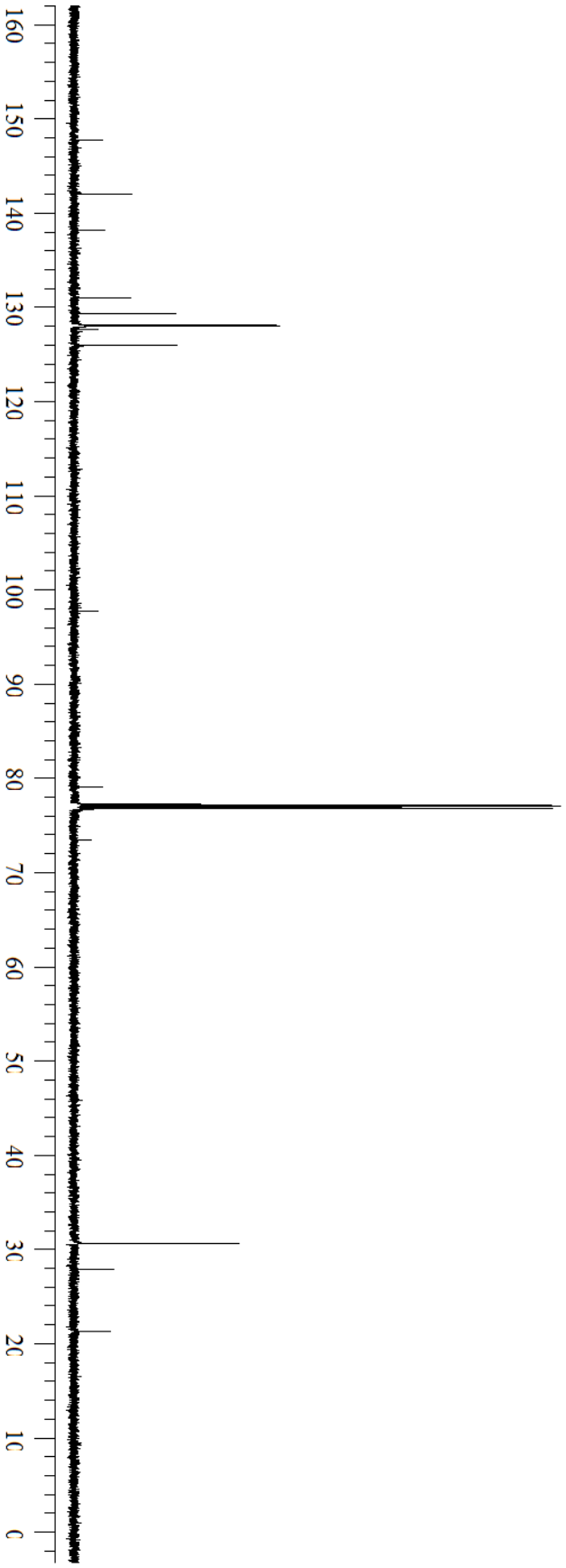
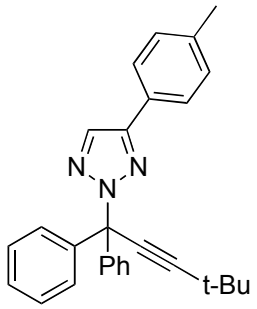




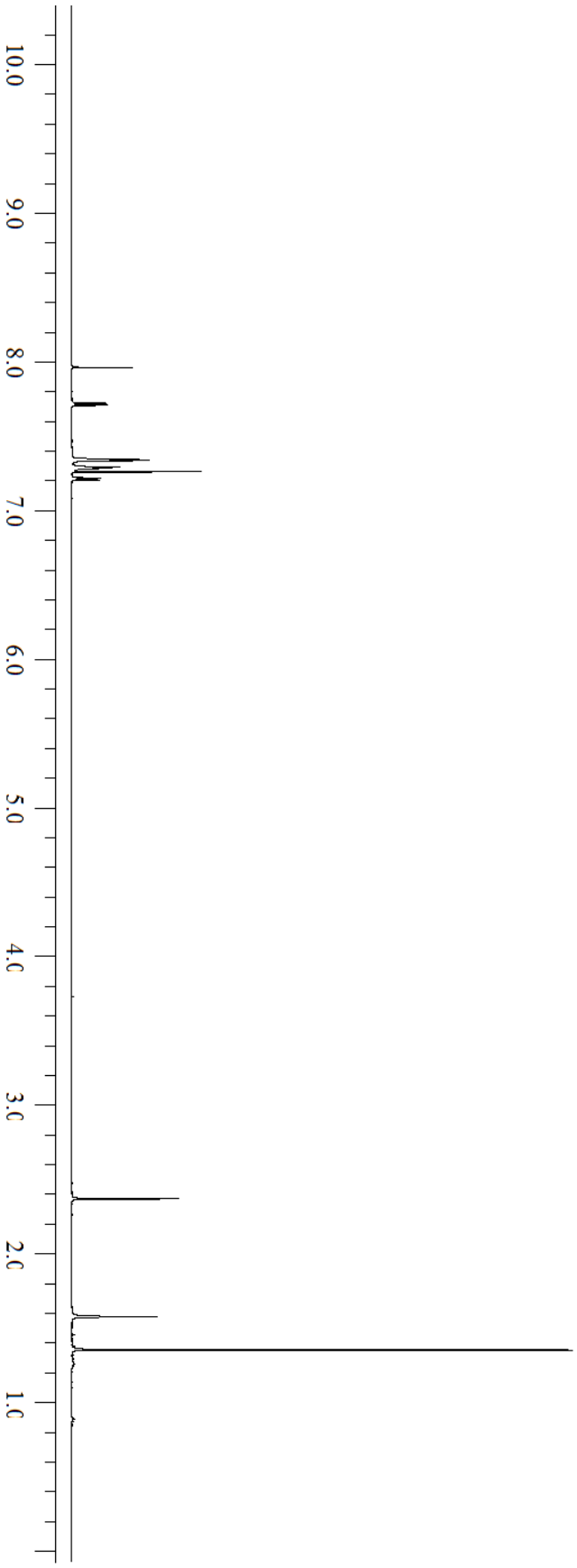


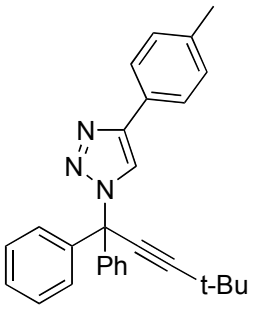
^{1}H 600 MHz NMR N-2-4q'



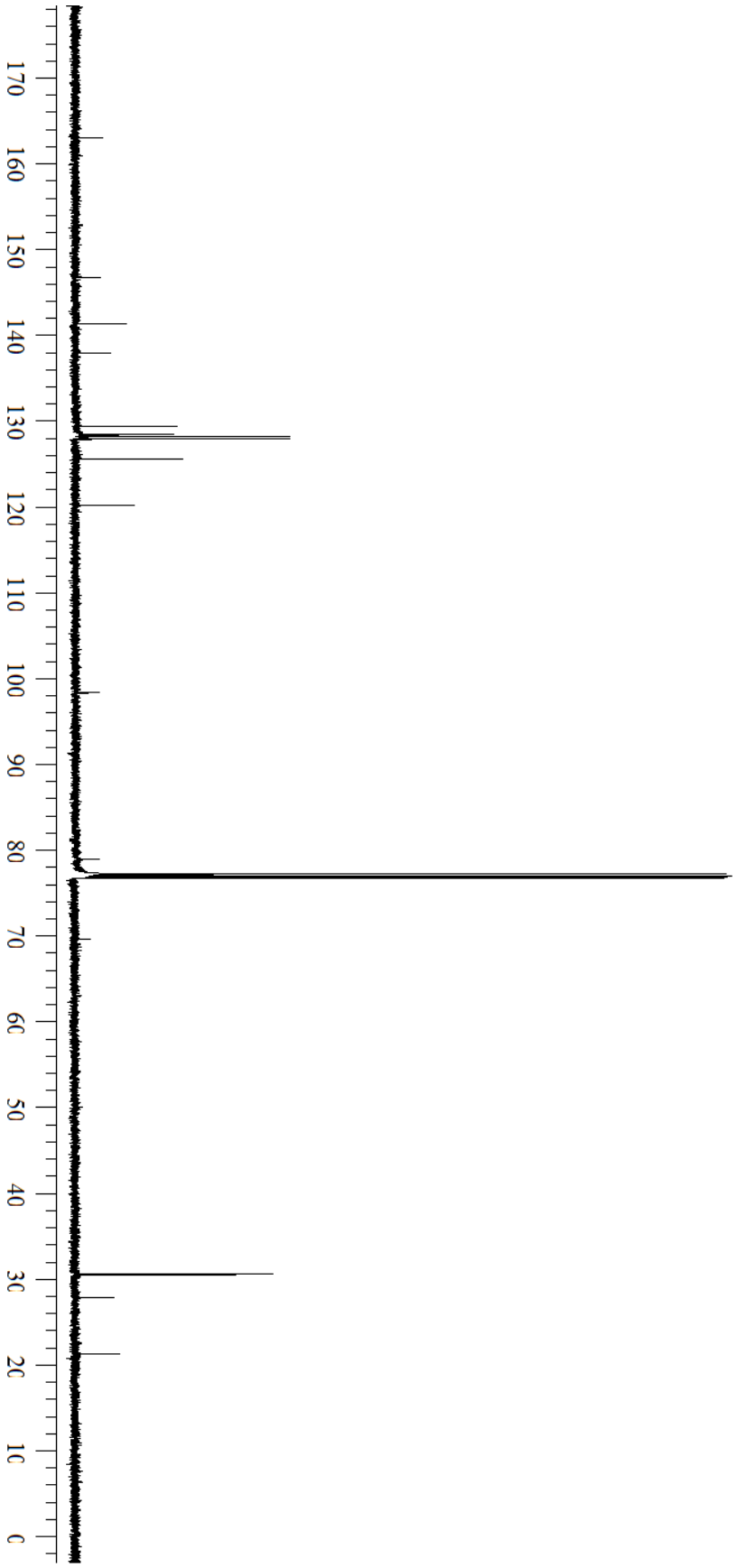


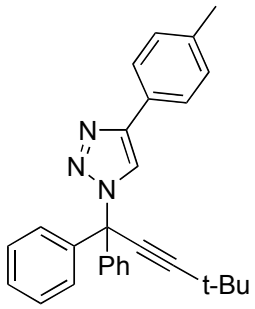
^{13}C 150 MHz NMR N-2-4q'



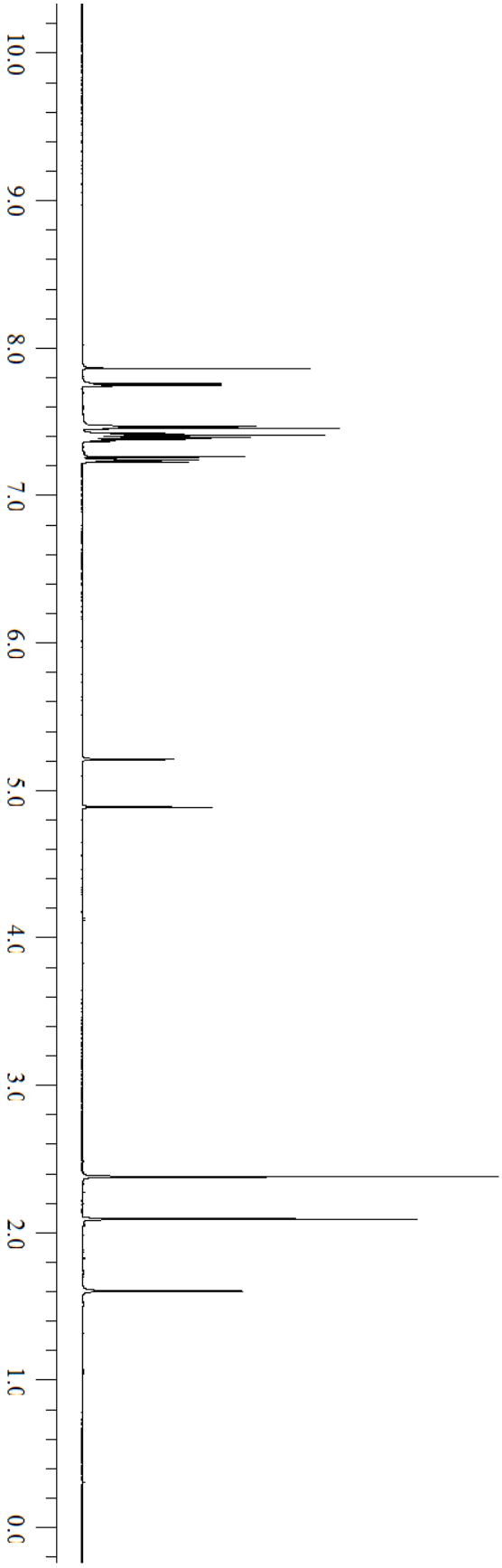


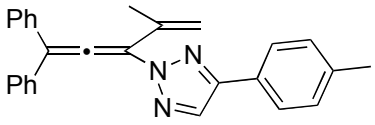
^{1}H 600 MHz NMR N-1-4q'



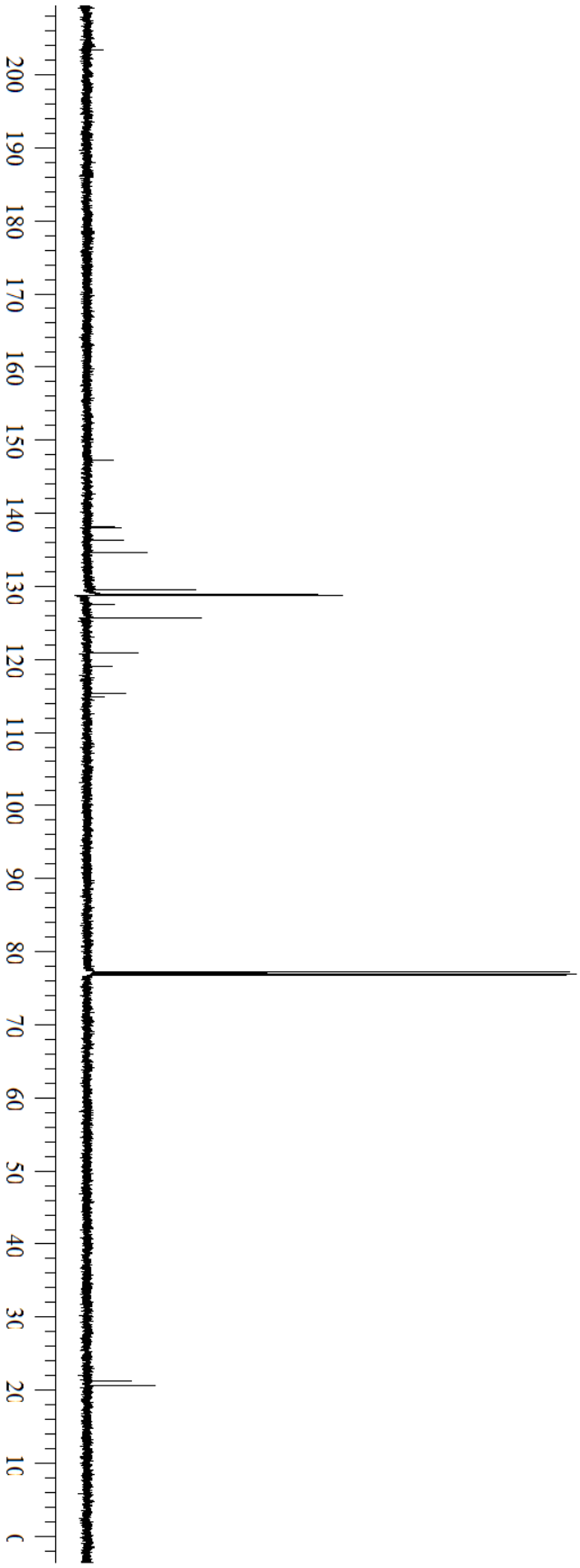


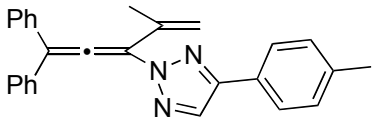
^{13}C 150 MHz NMR N-1-4q'



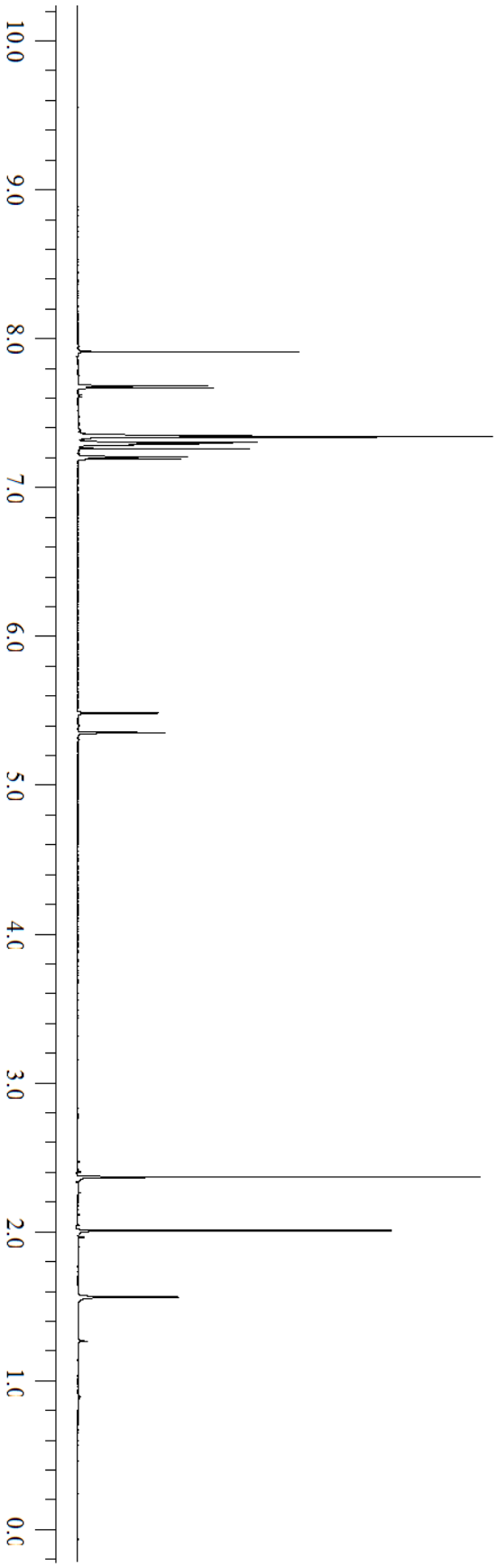


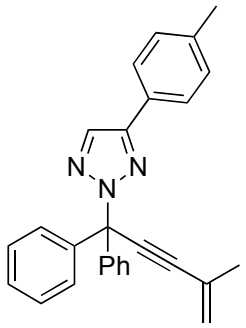
^{1}H 600 MHz NMR N-2-4r



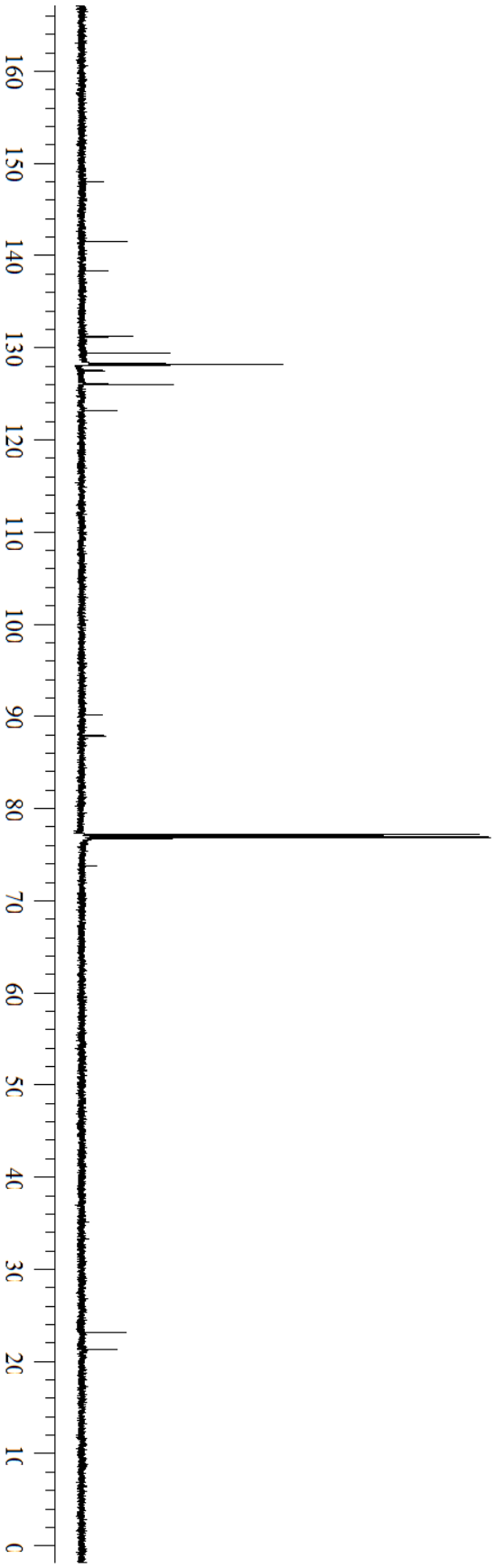


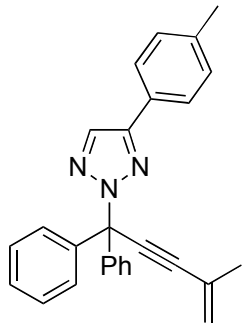
^{13}C 150 MHz NMR N-2-4r



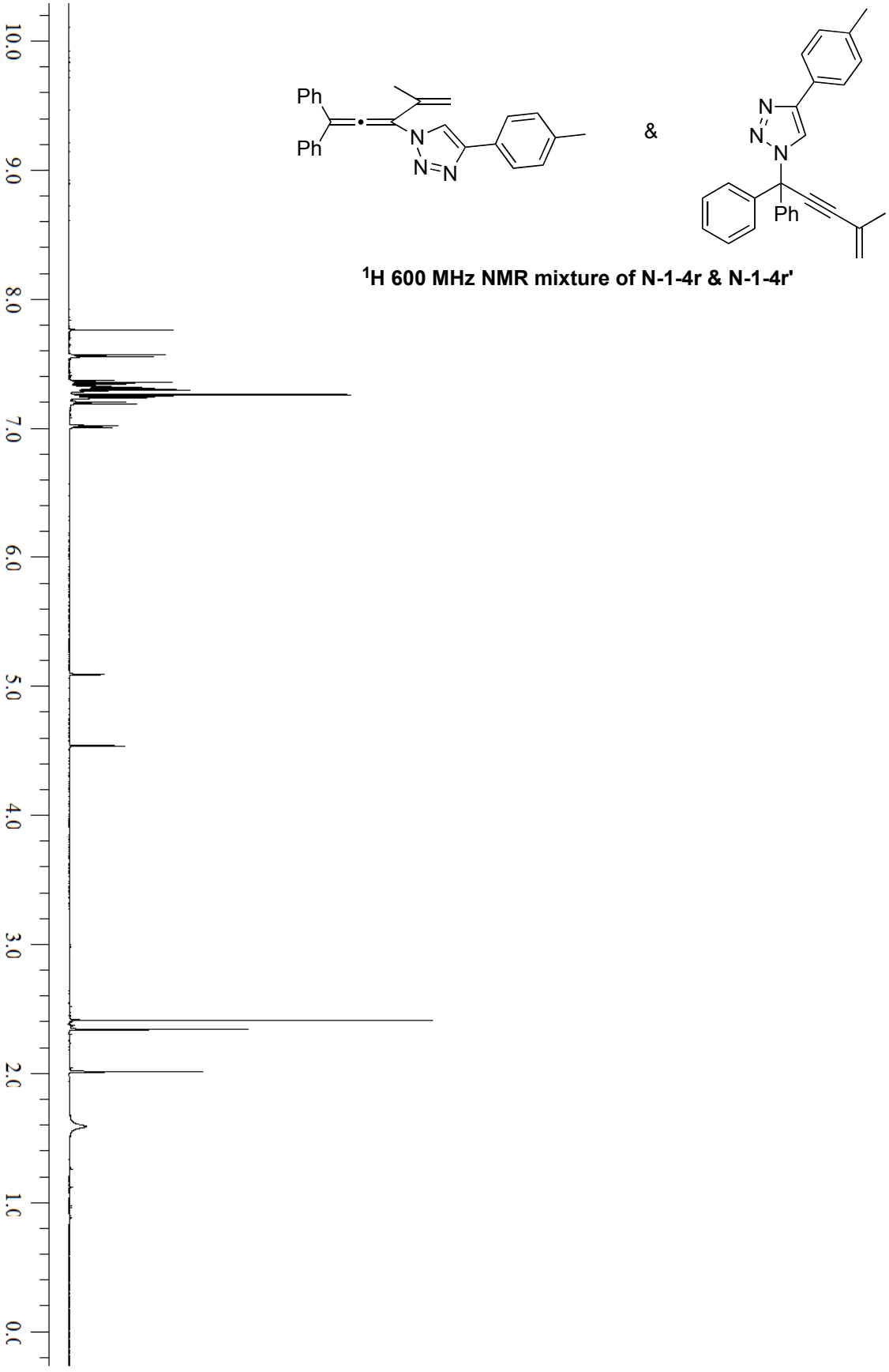


^{1}H 600 MHz NMR N-2-4r'

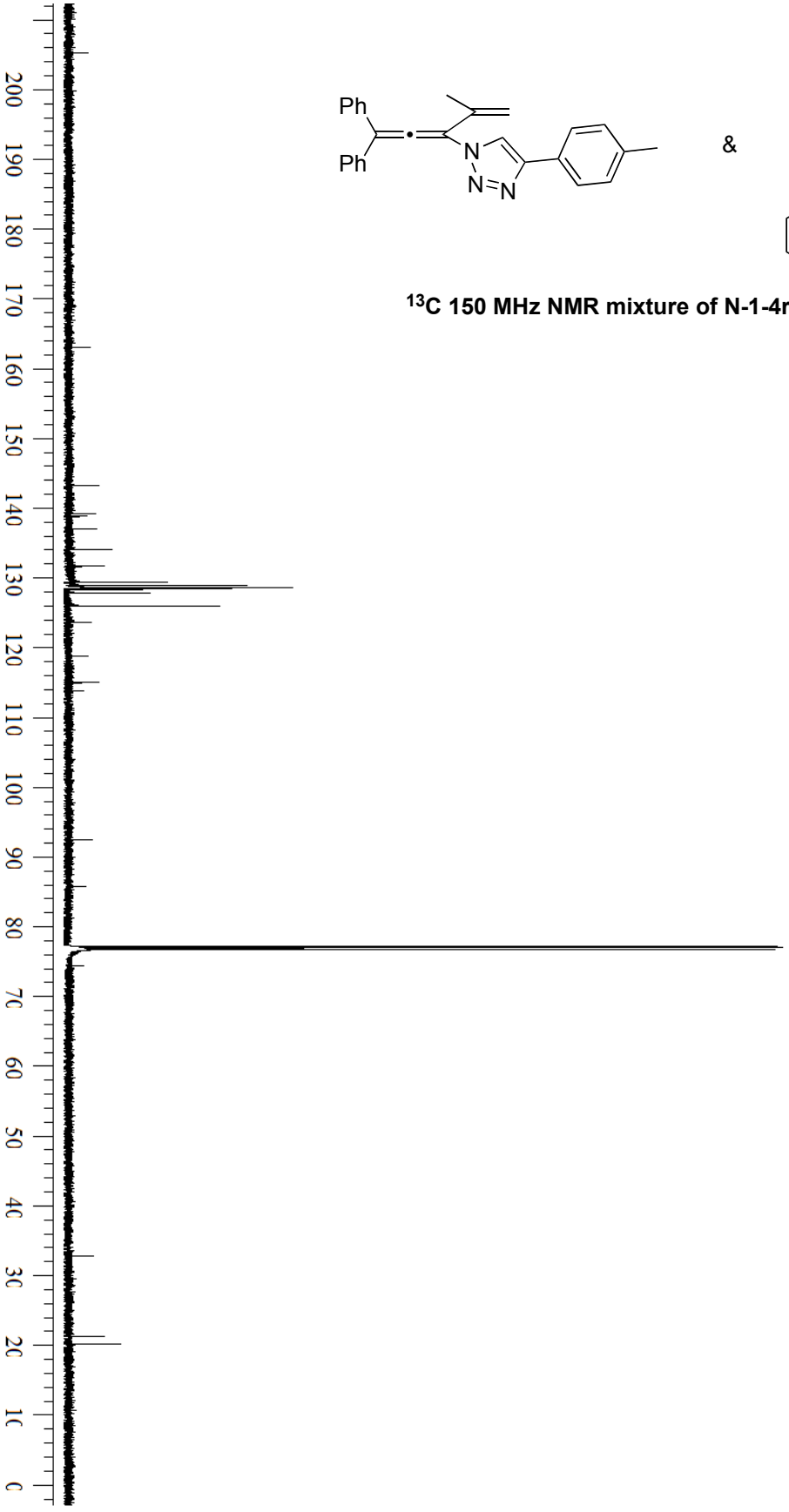




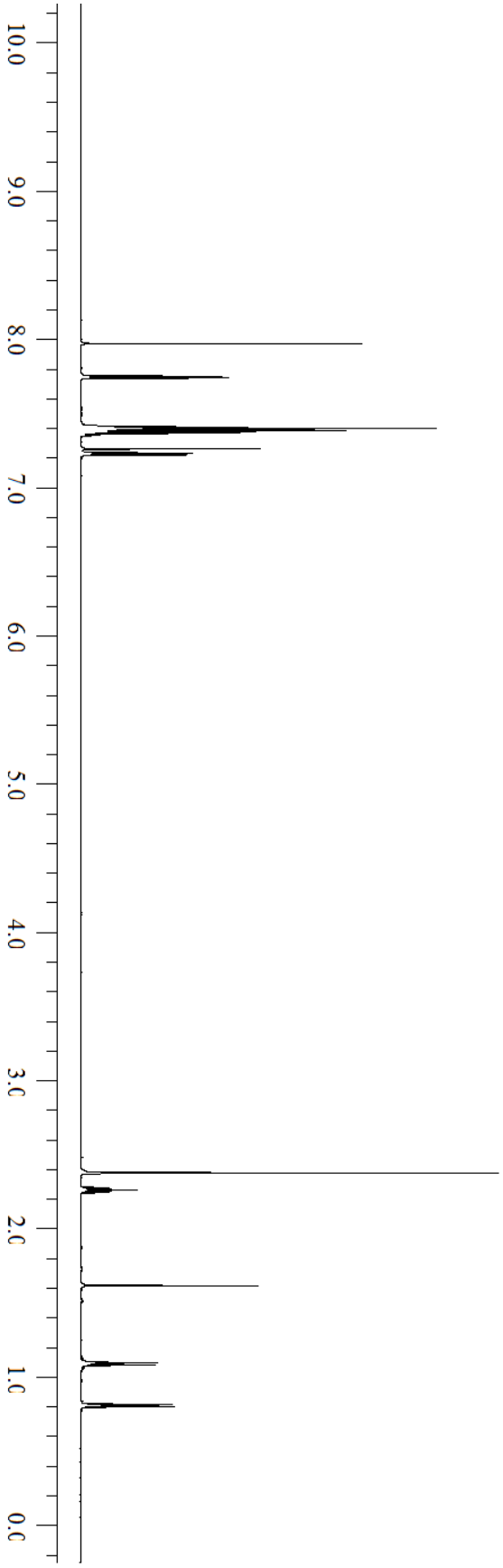
^{13}C 150 MHz NMR N-2-4r'

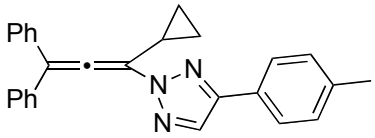


^{1}H 600 MHz NMR mixture of N-1-4r & N-1-4r'

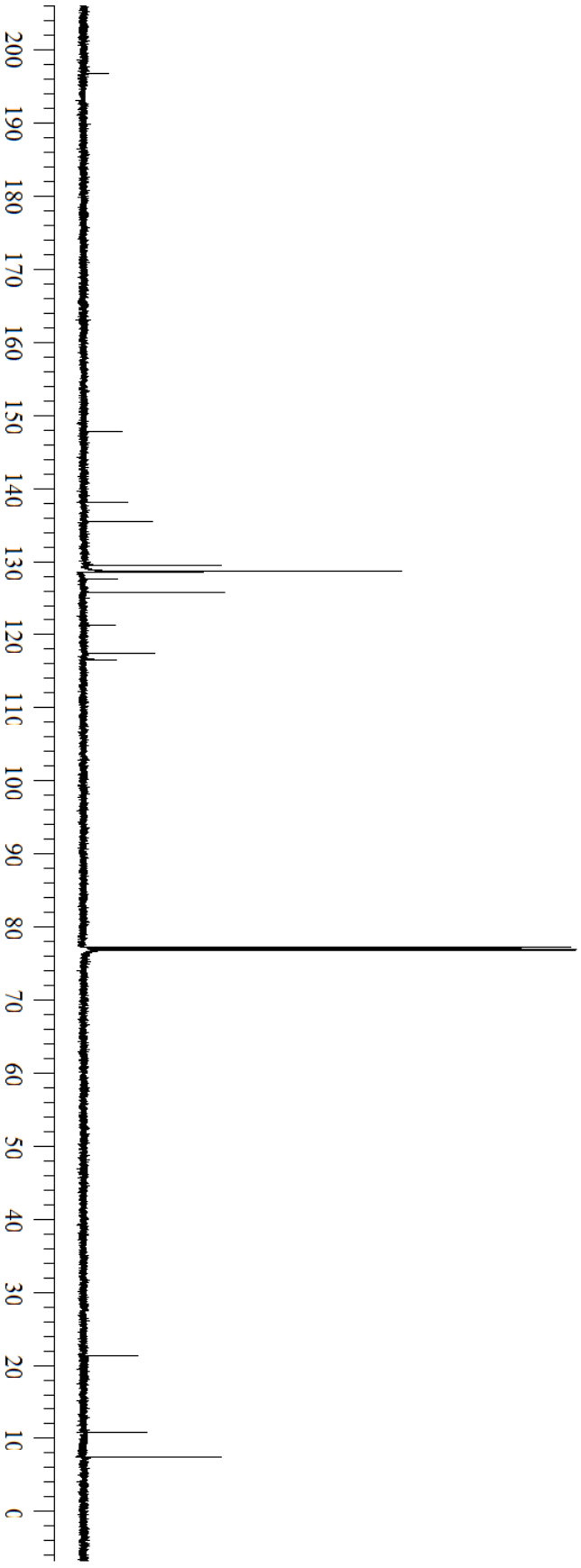


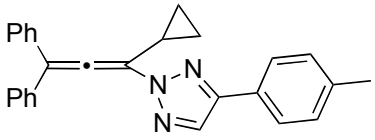
^{13}C 150 MHz NMR mixture of N-1-4r & N-1-4r'



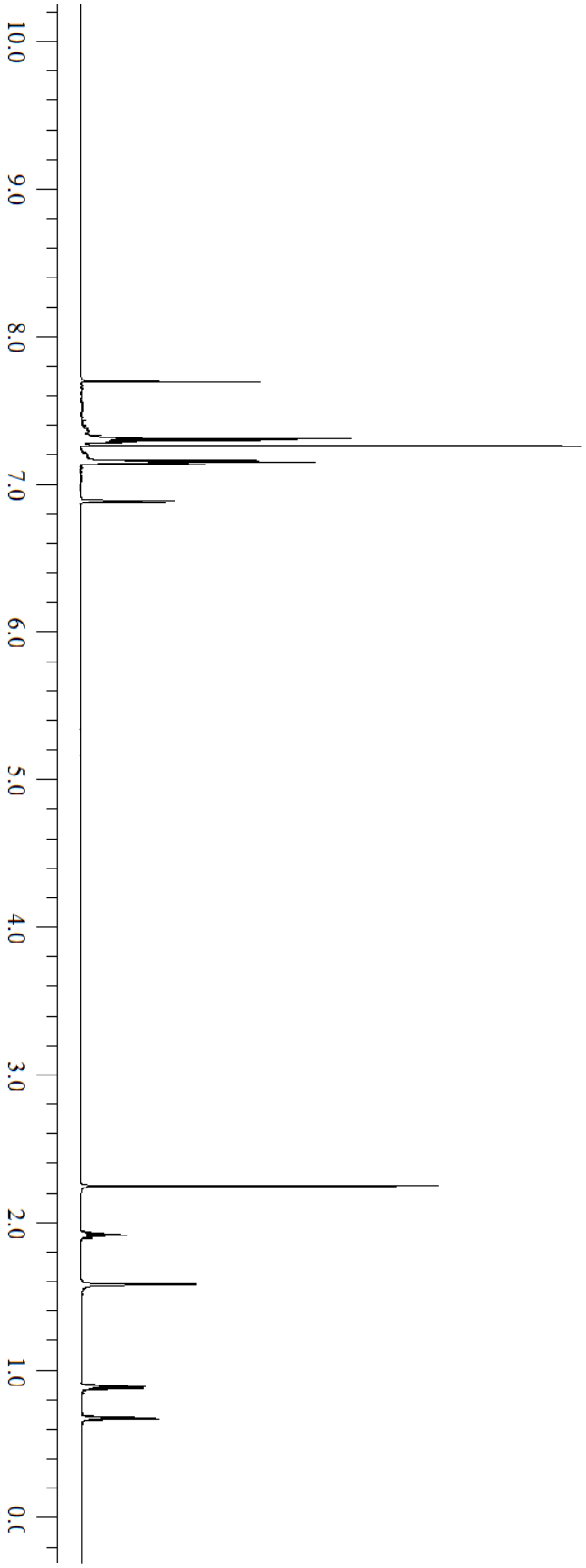


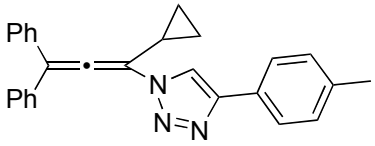
^{1}H 600 MHz NMR N-2-4s



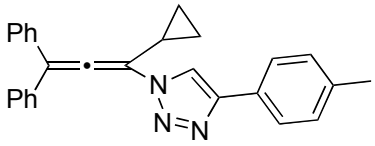


^{13}C 150 MHz NMR N-2-4s





^{1}H 600 MHz NMR N-1-4s



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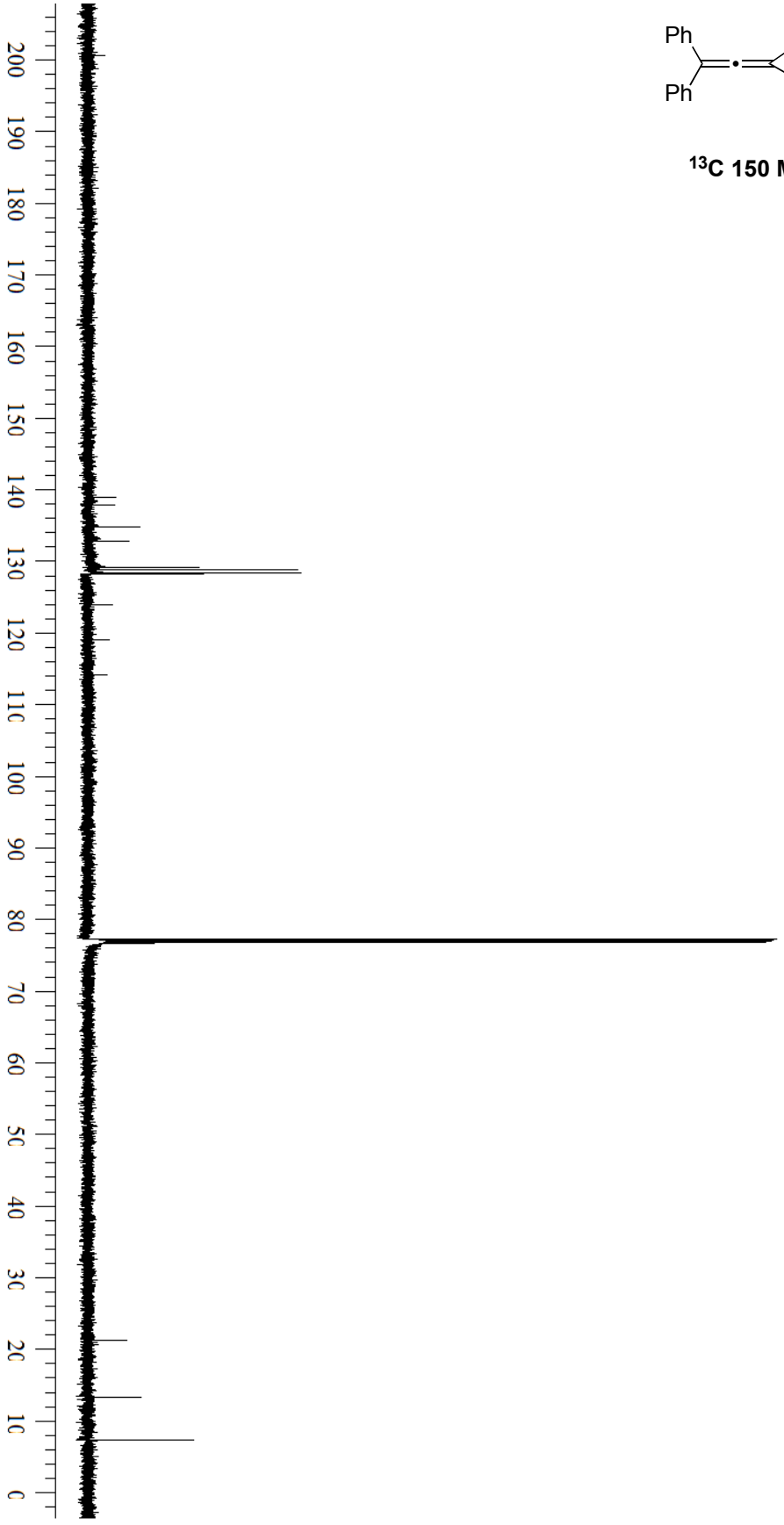
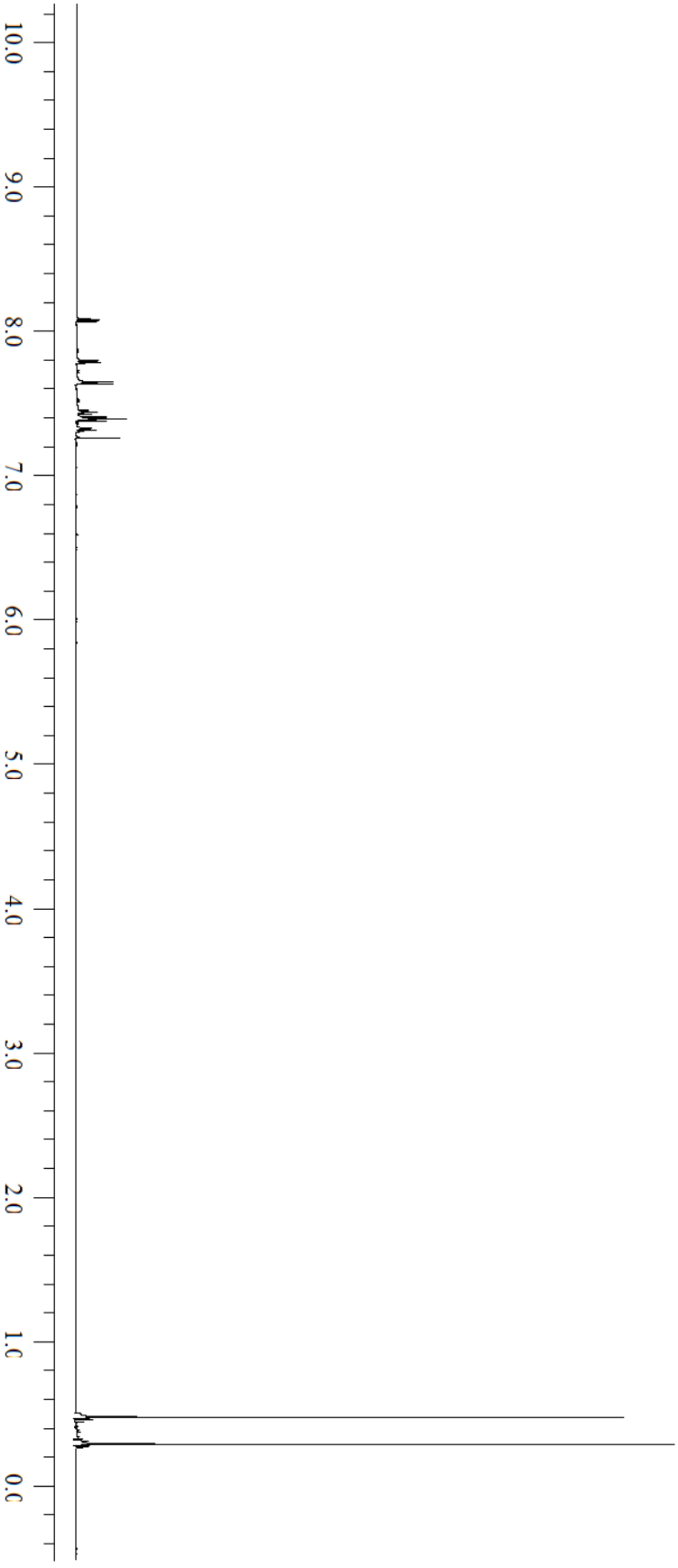
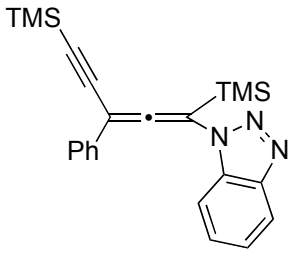
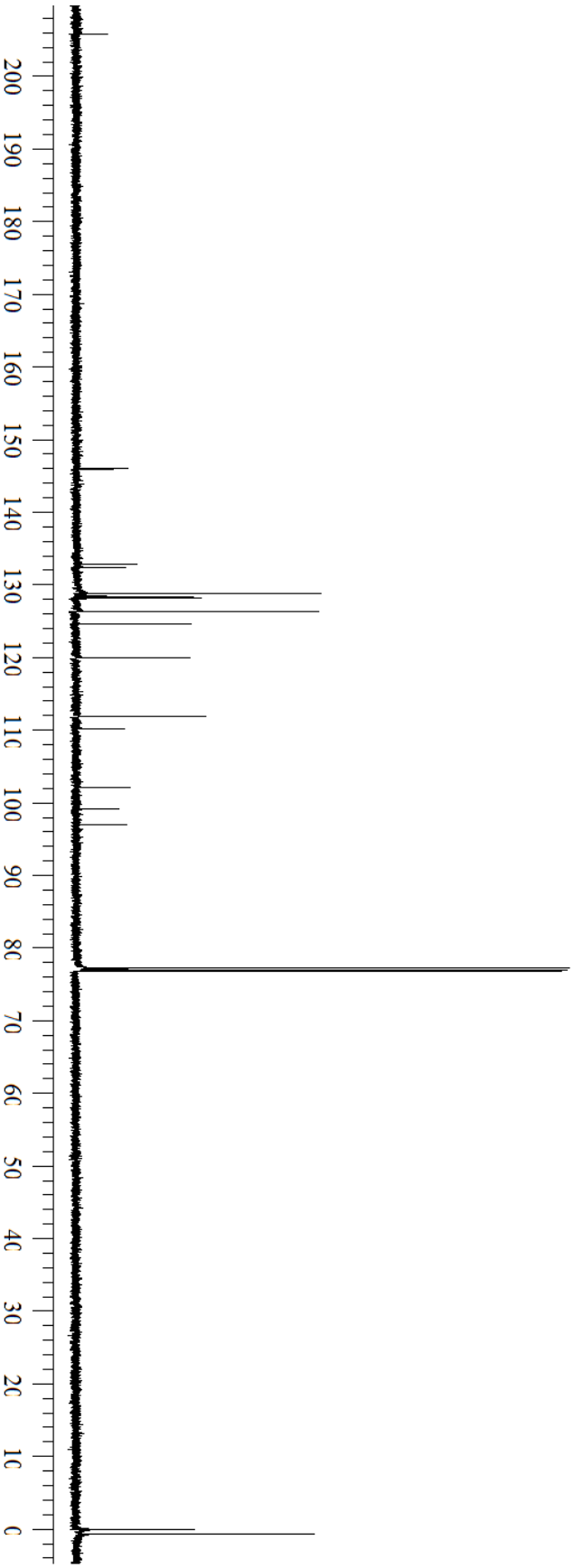
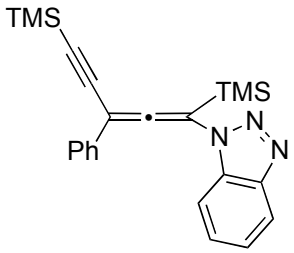






^{1}H 600 MHz NMR 4t





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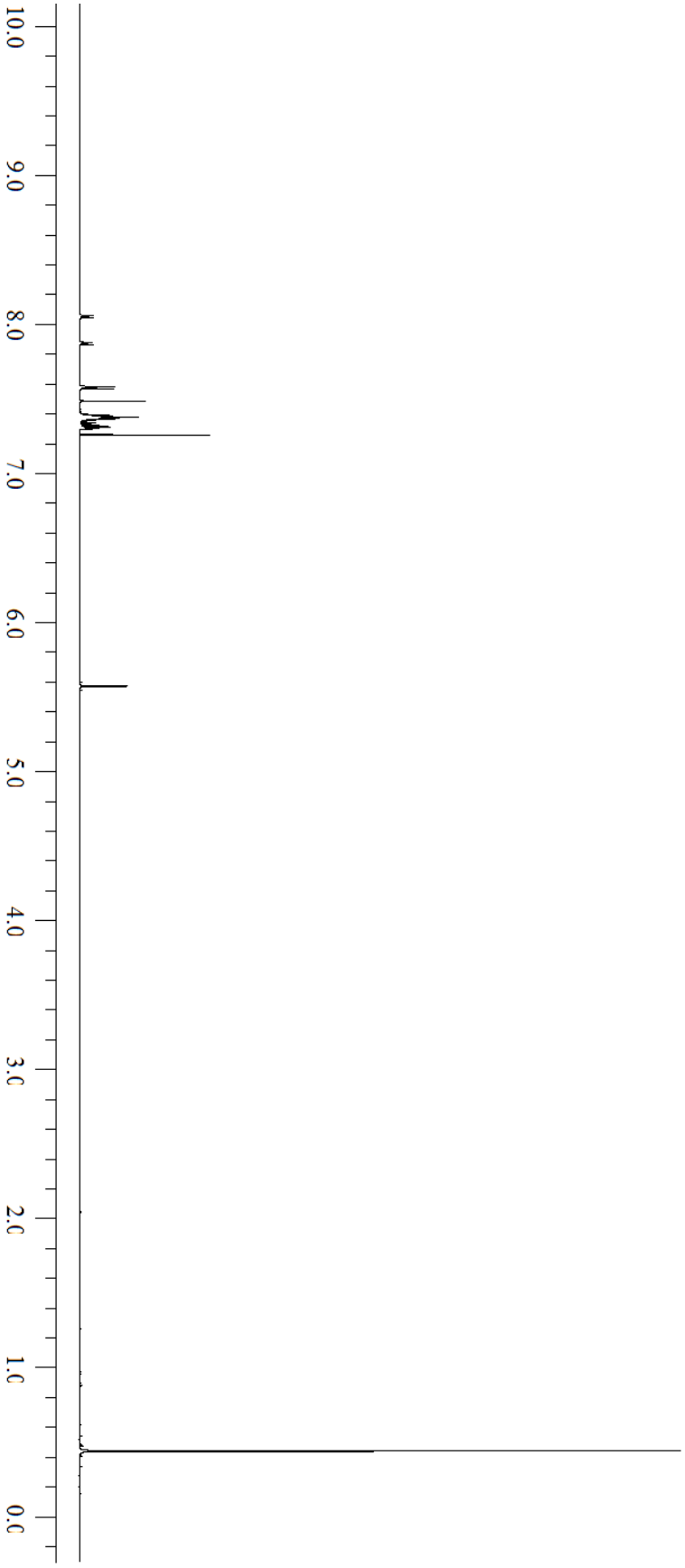
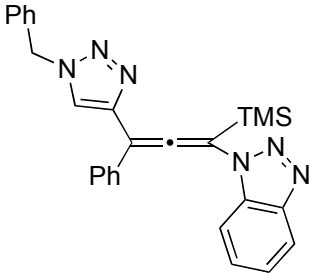
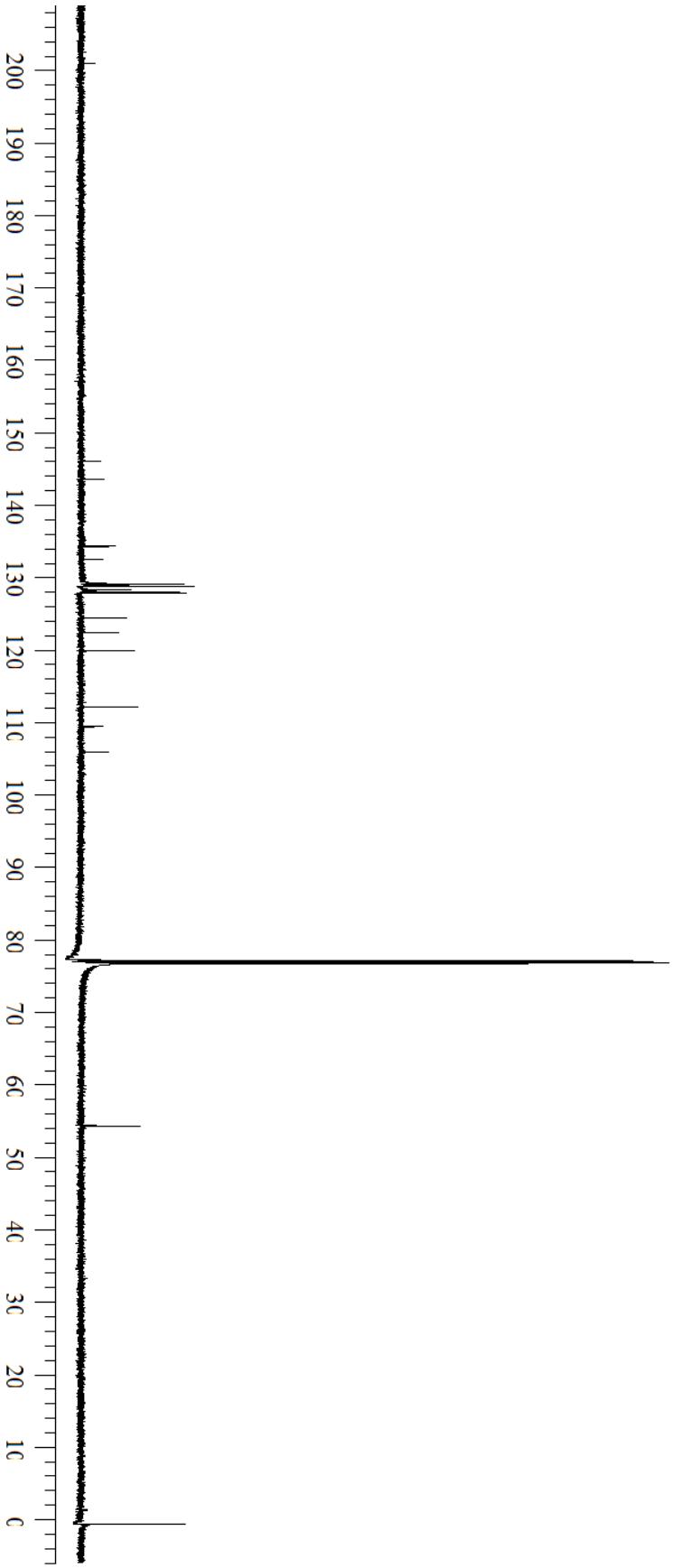
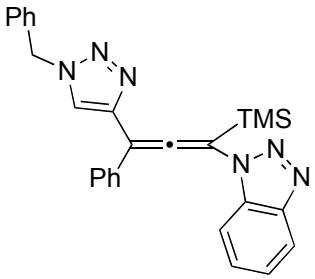




^{1}H 600 MHz NMR 4u





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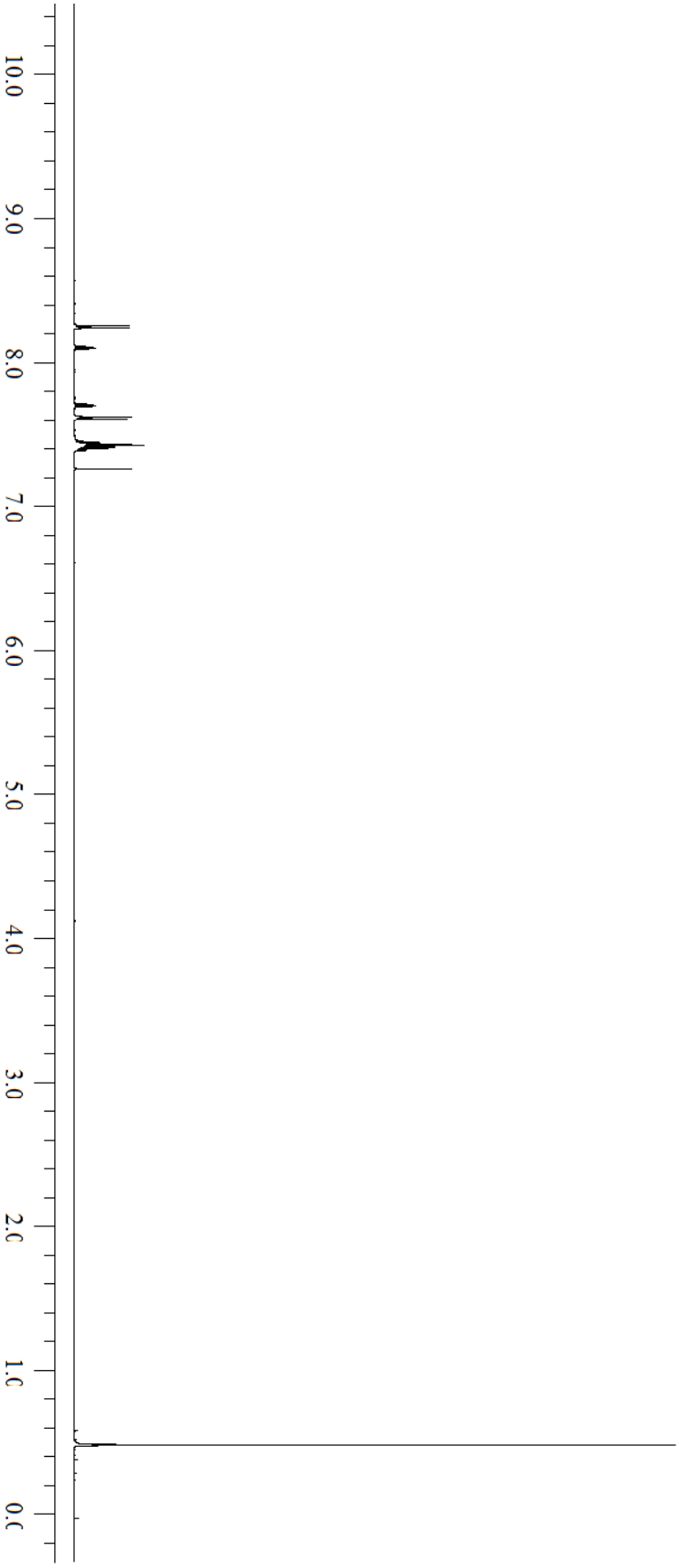
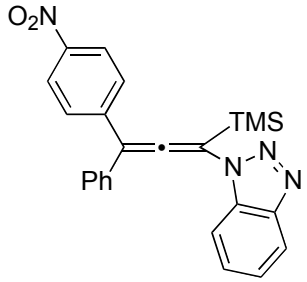
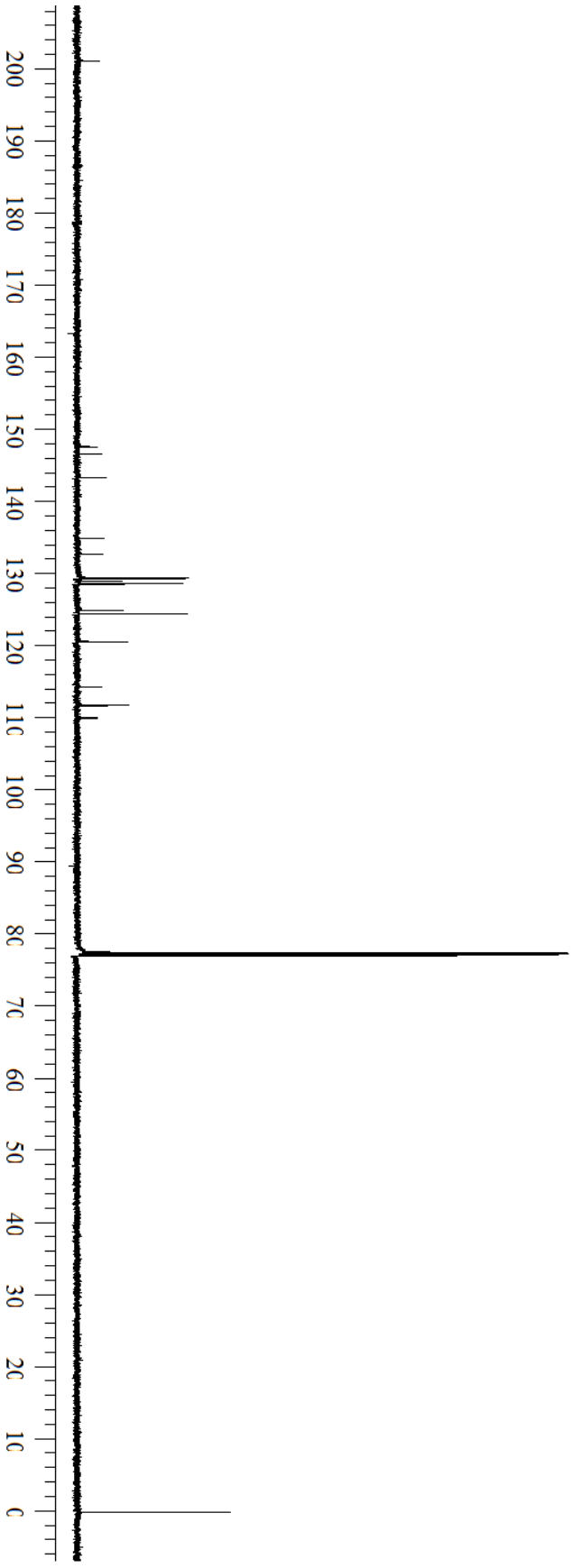
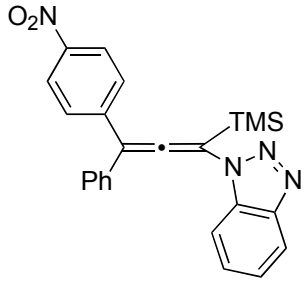


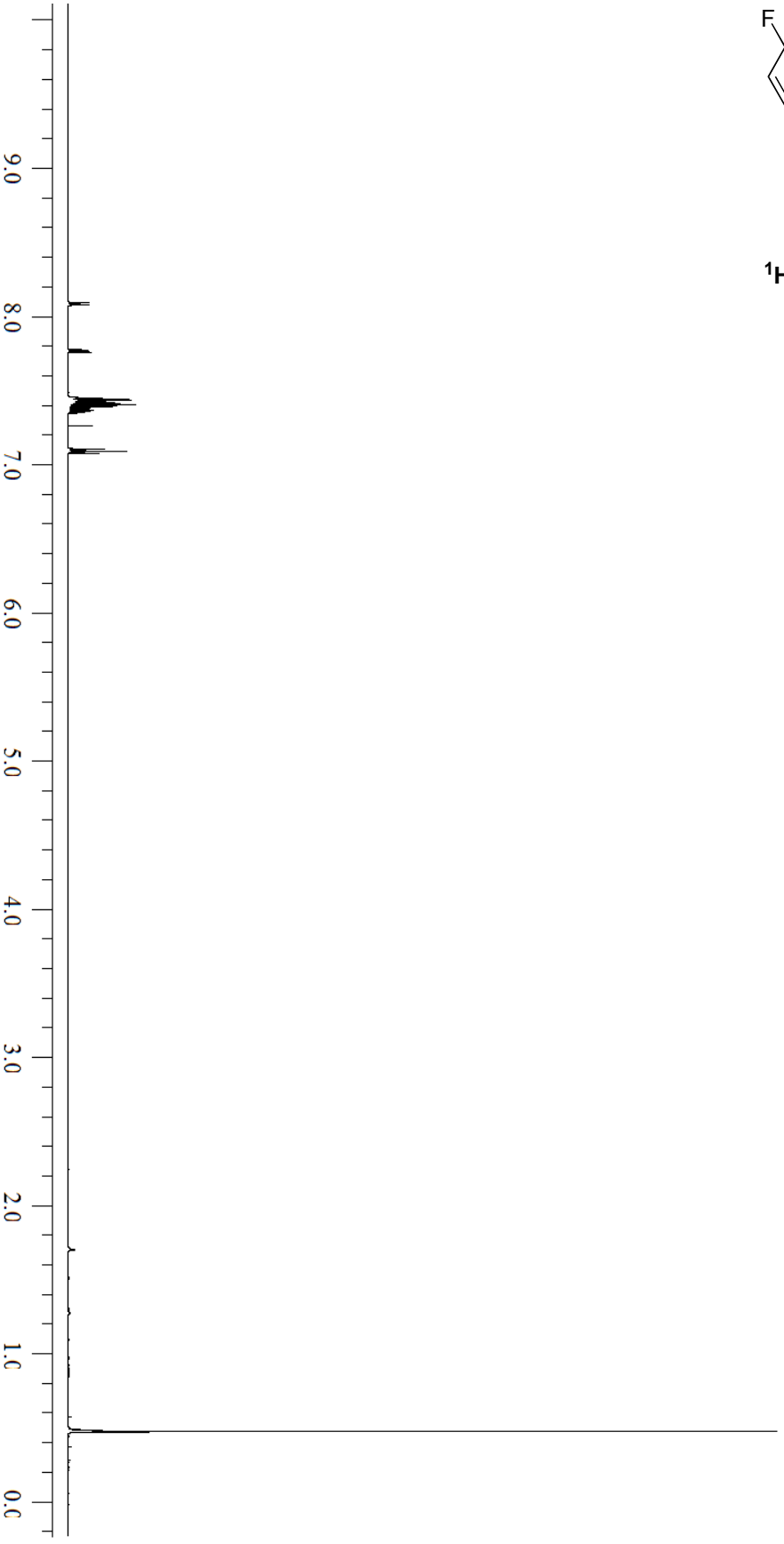


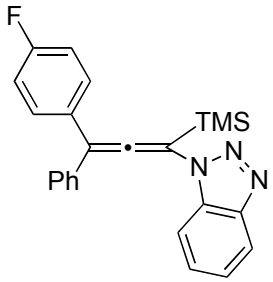
^{1}H 600 MHz NMR 4v





^{13}C 150 MHz NMR 4v





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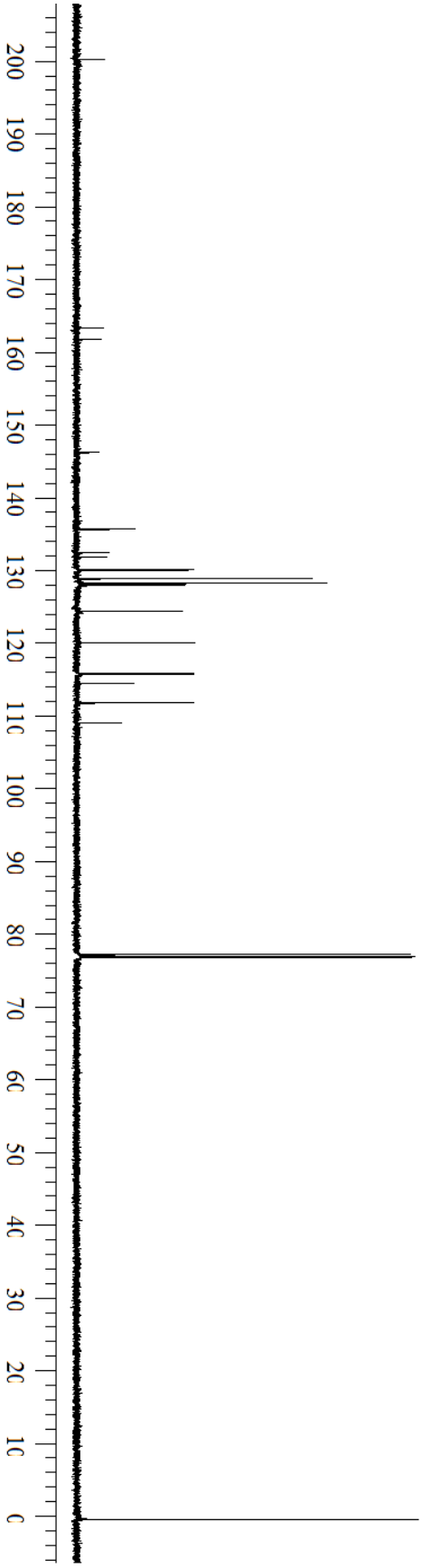
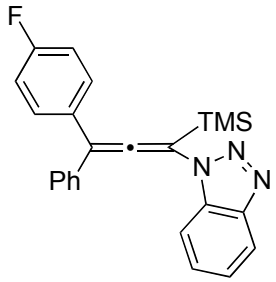
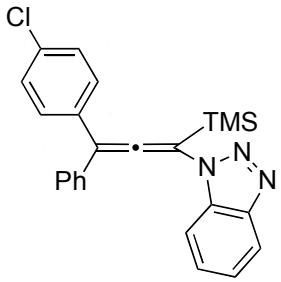




^{13}C 150 MHz NMR 4w



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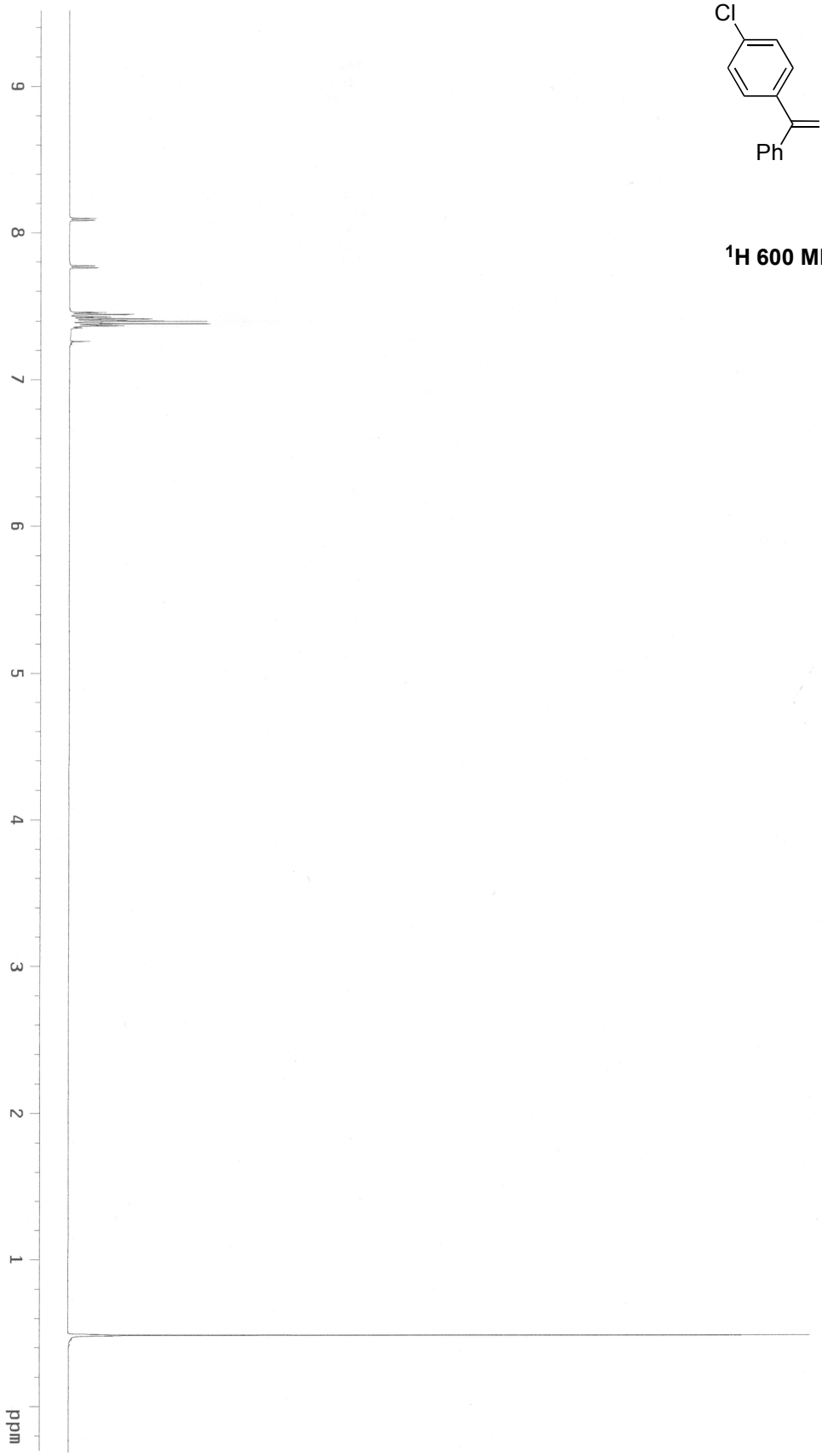

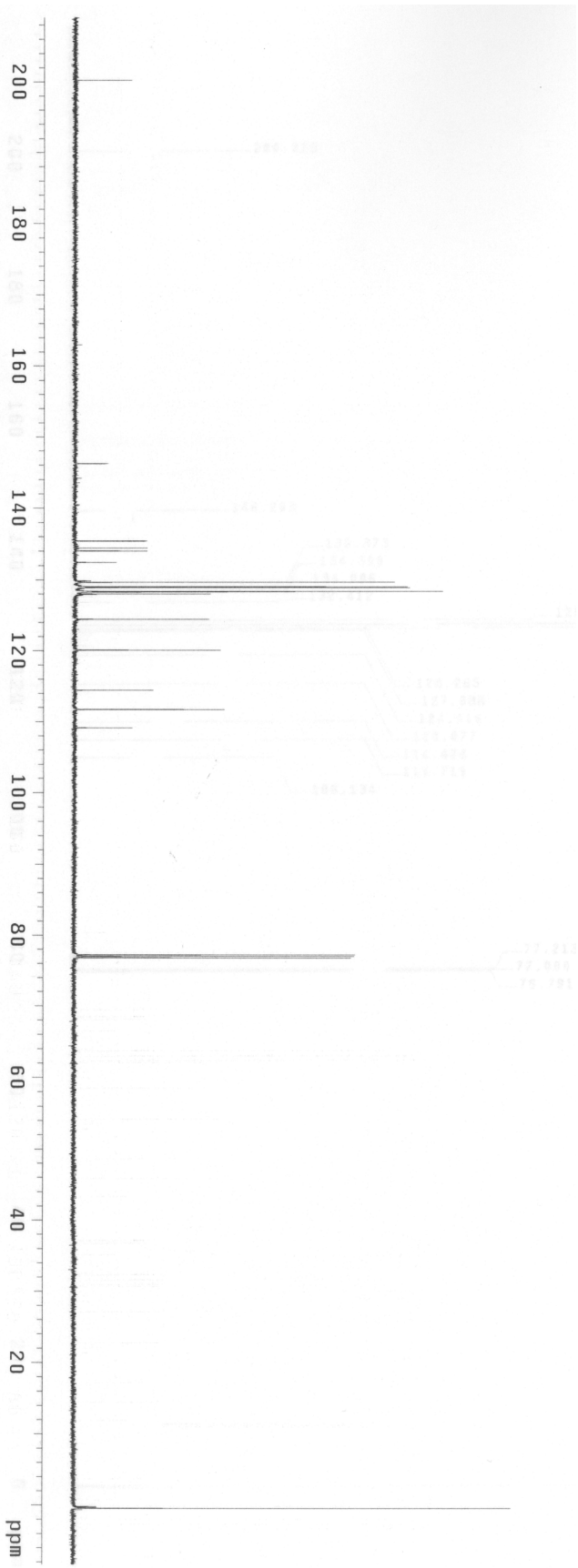

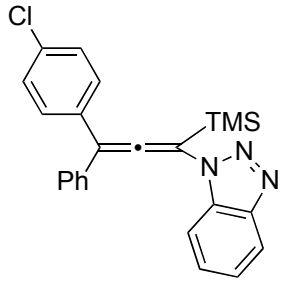

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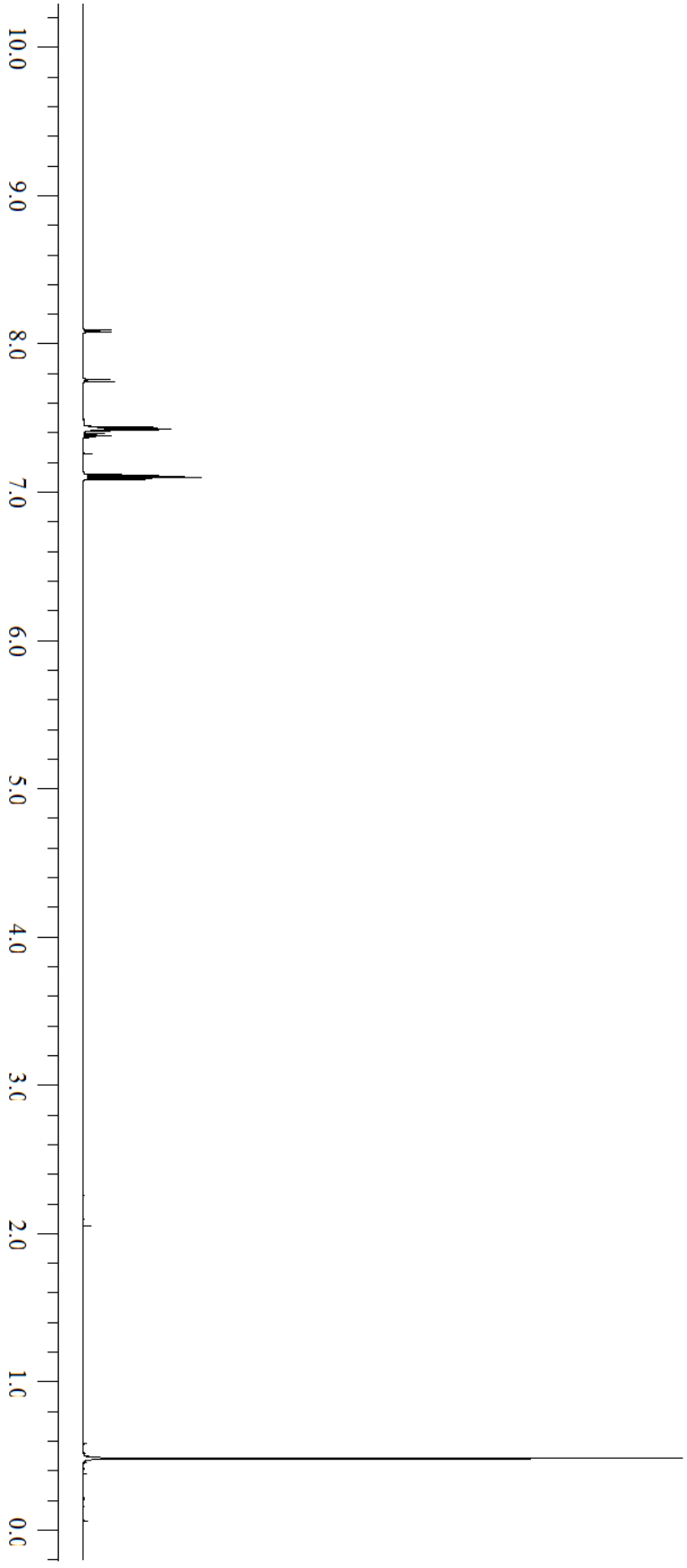
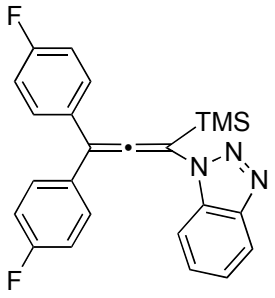
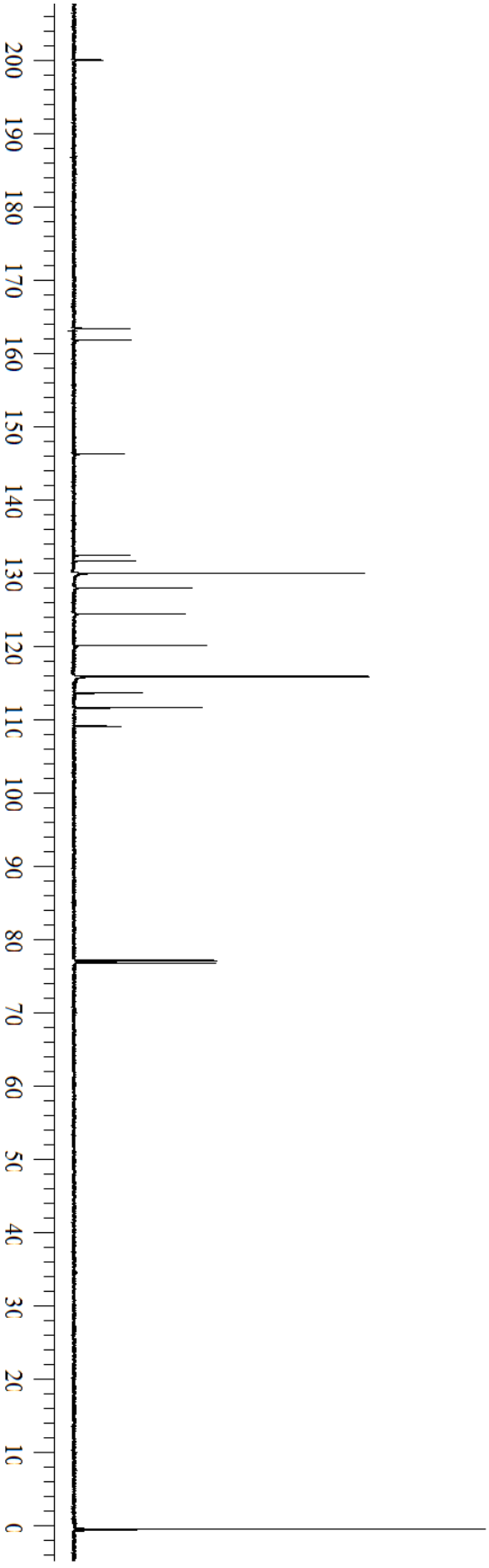
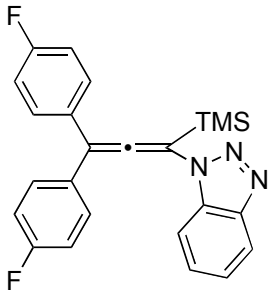


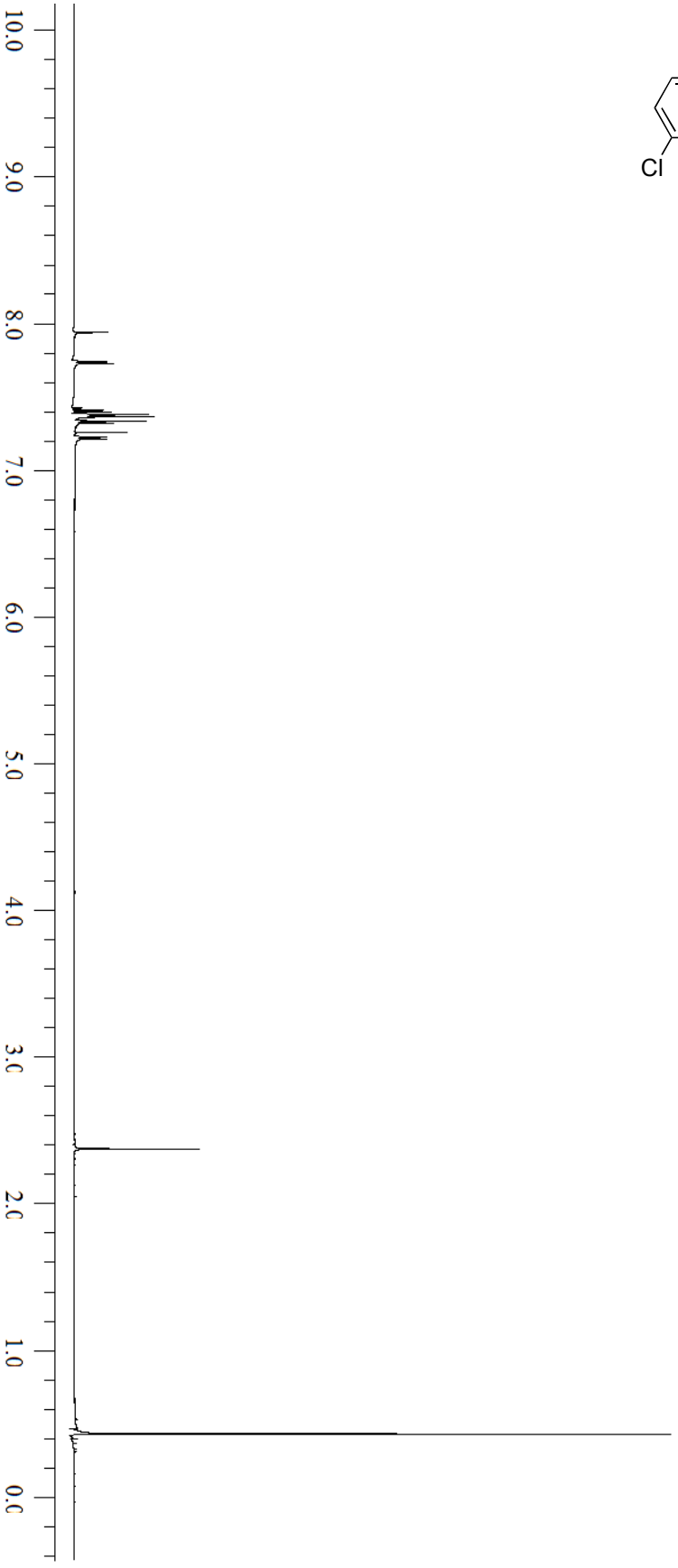


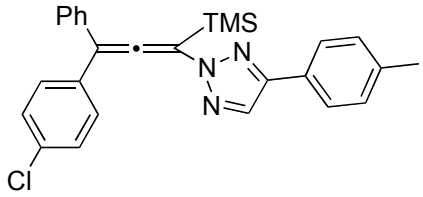
^{1}H 600 MHz NMR 4y



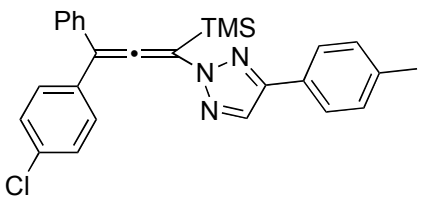


^{13}C 150 MHz NMR 4y

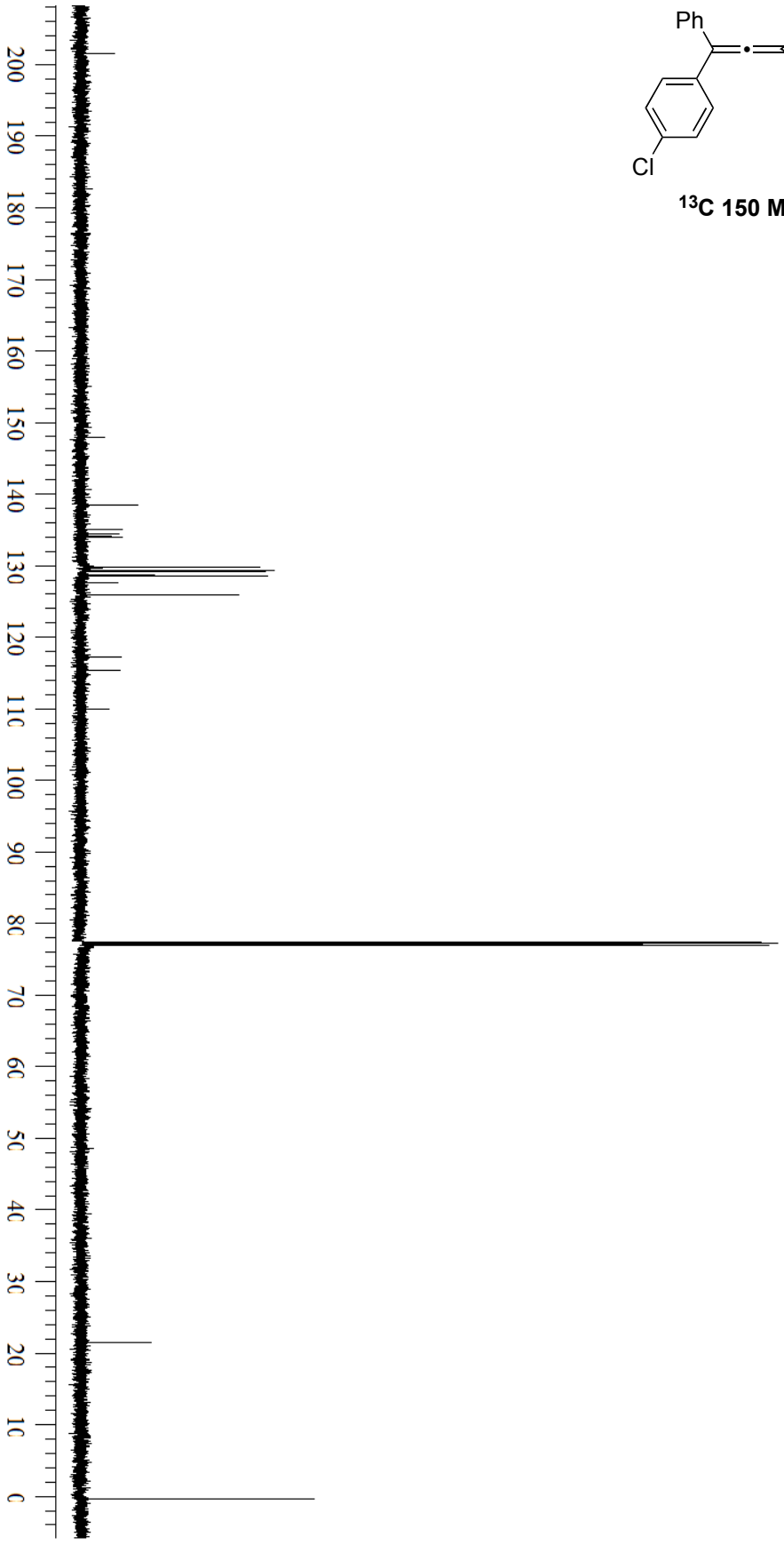


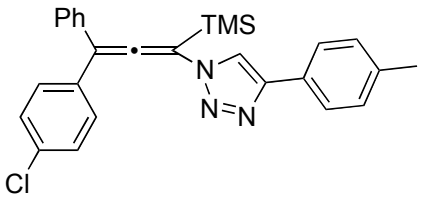


^{1}H 600 MHz NMR N-2-4z

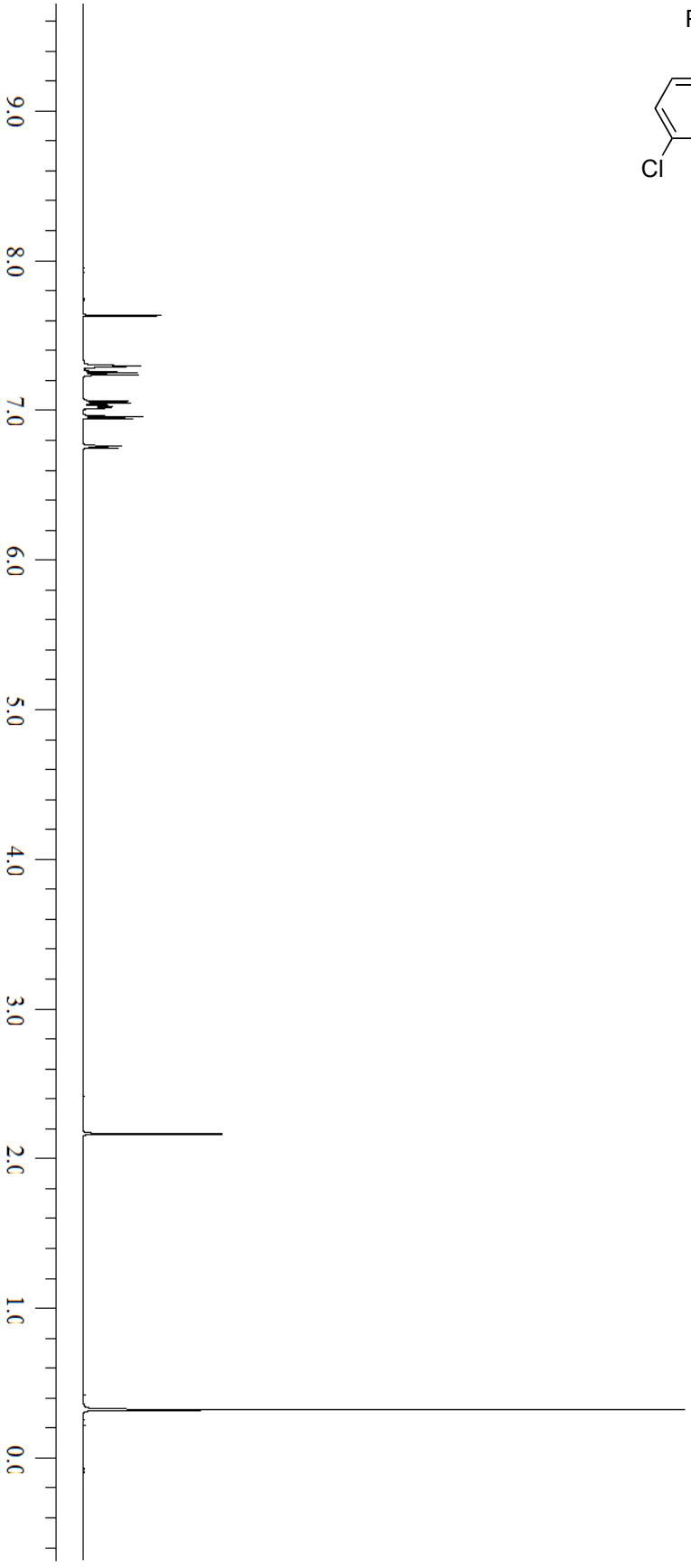


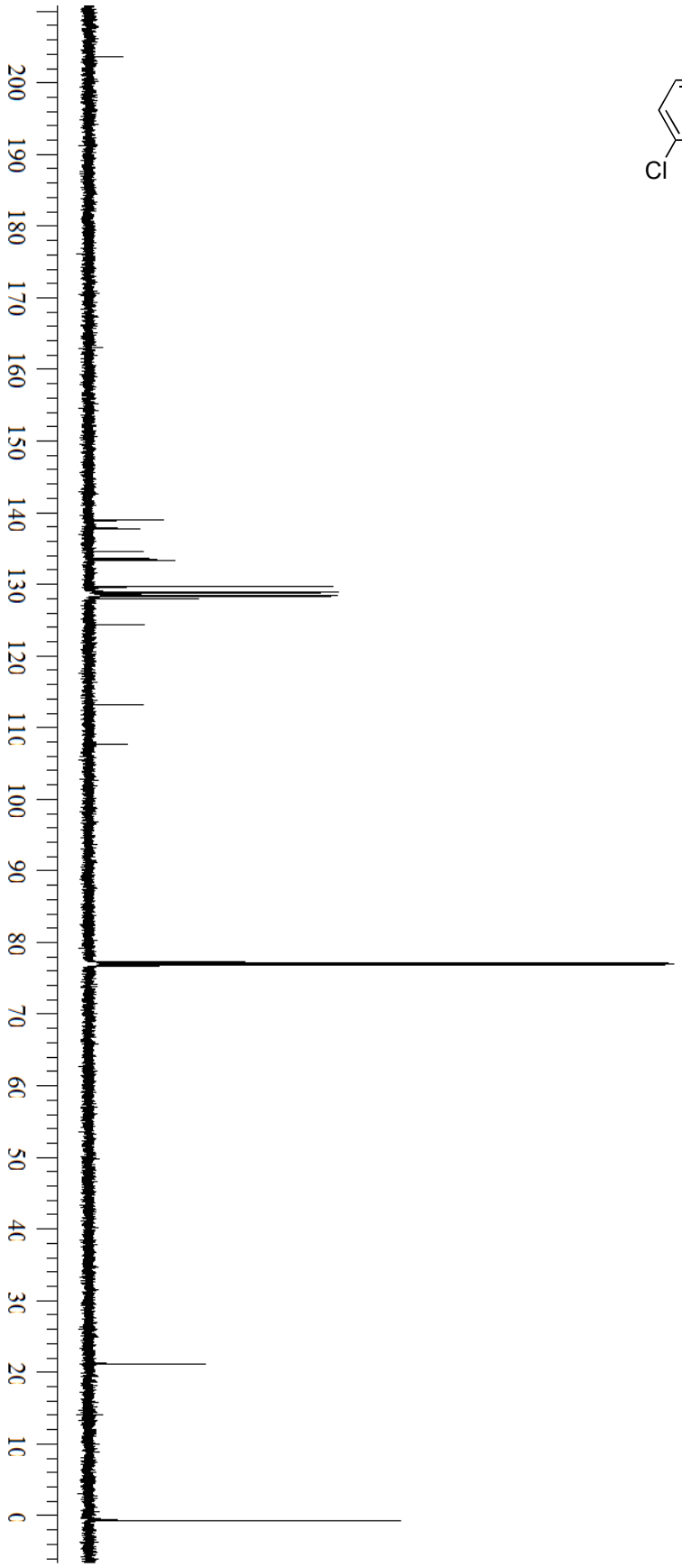
^{13}C 150 MHz NMR N-2-4z

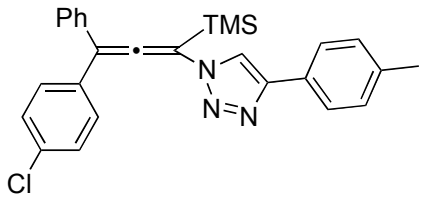




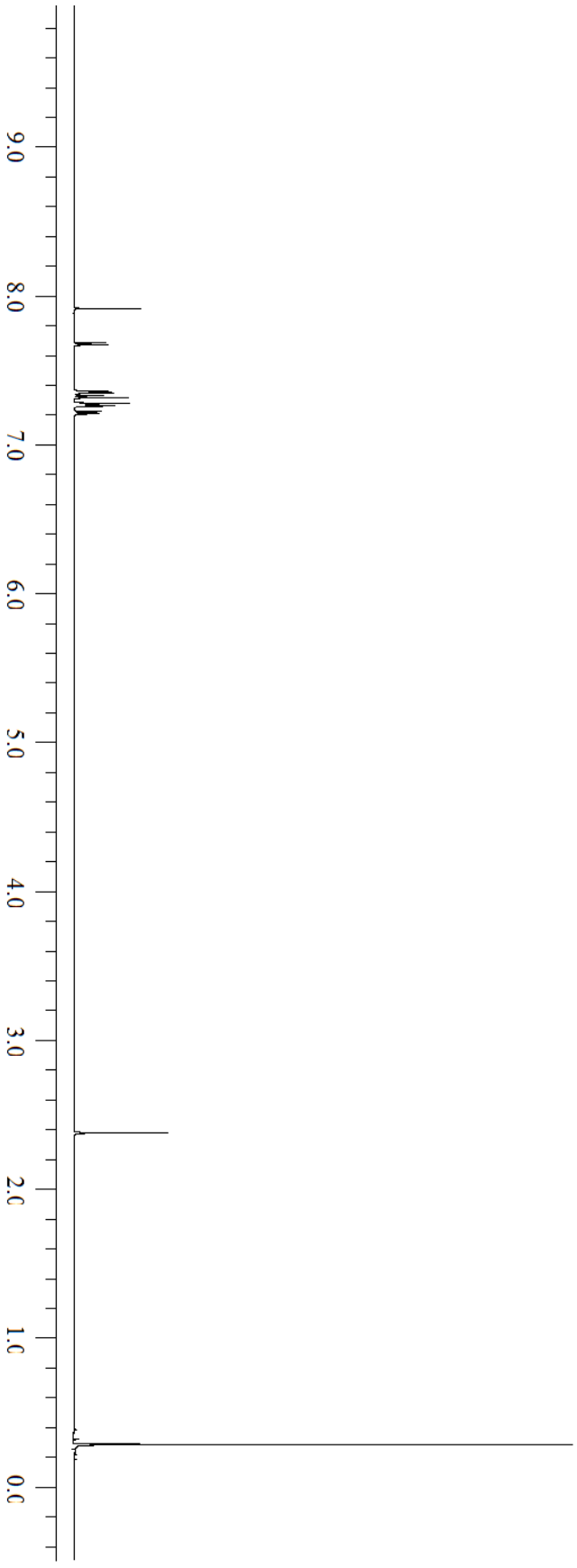
^{1}H 600 MHz NMR N-1-4z

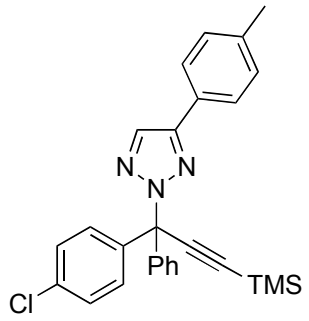




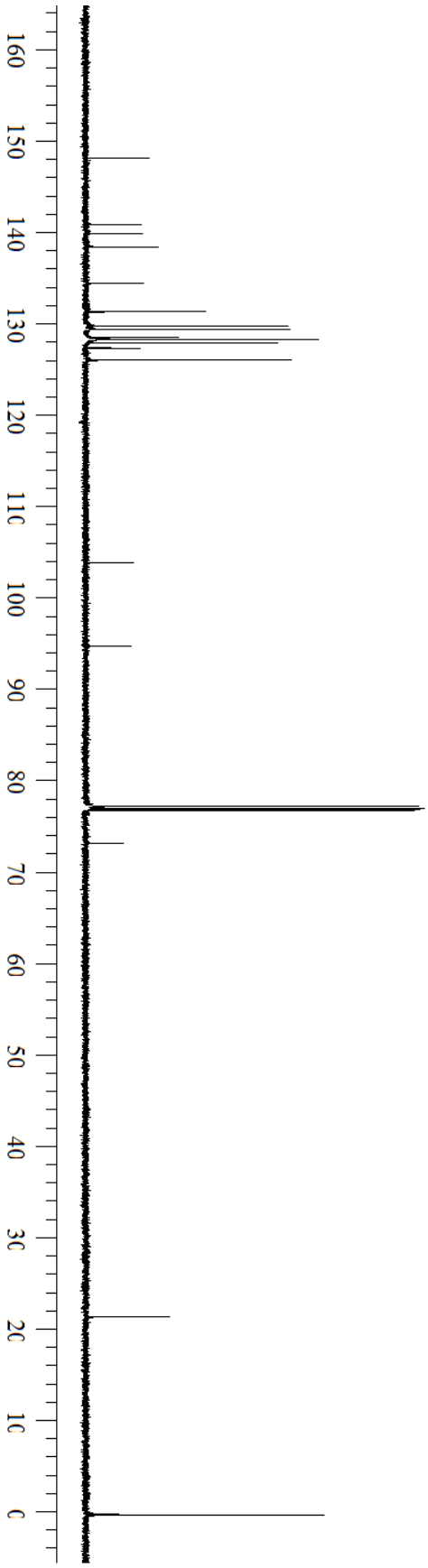


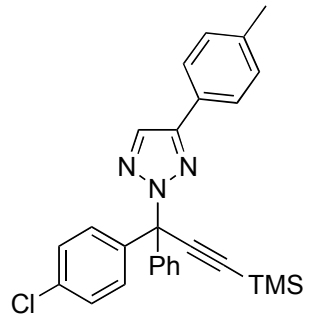
^{13}C 150 MHz NMR N-1-4z



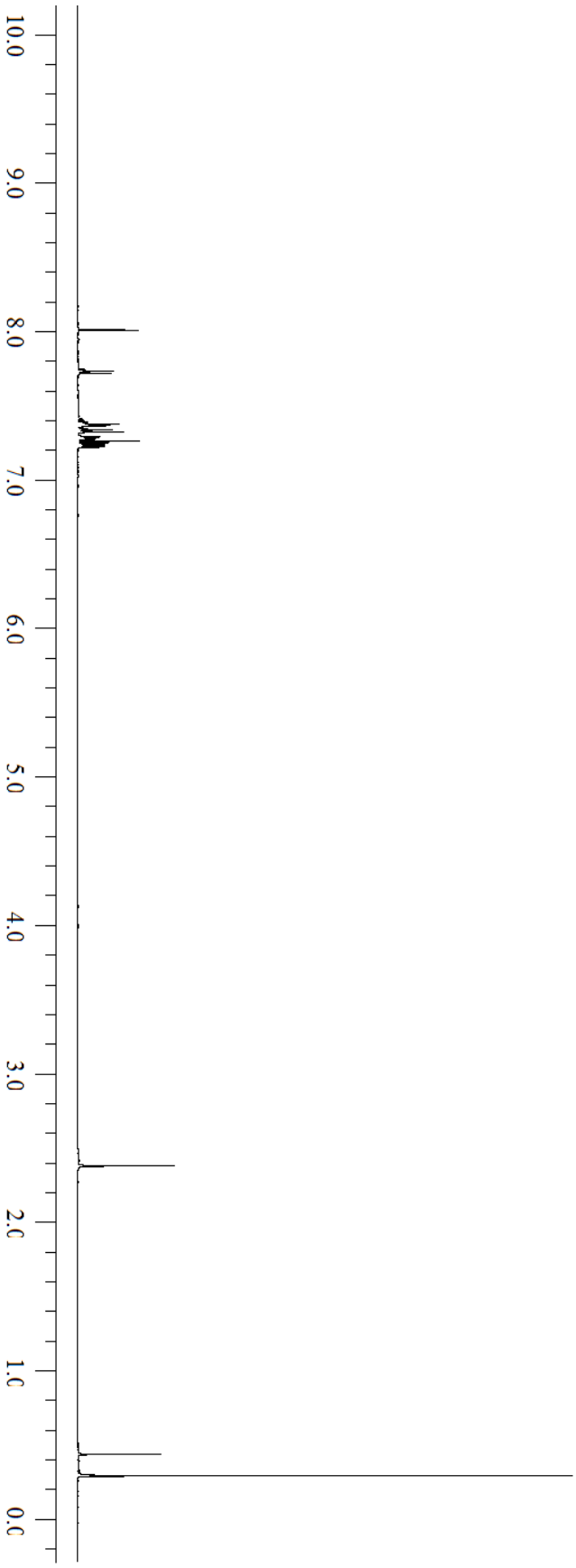


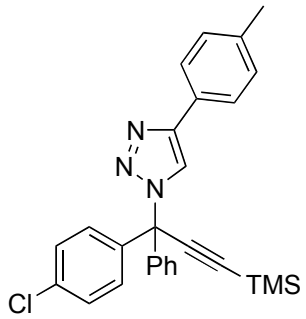
^{1}H 600 MHz NMR N-2-4z'



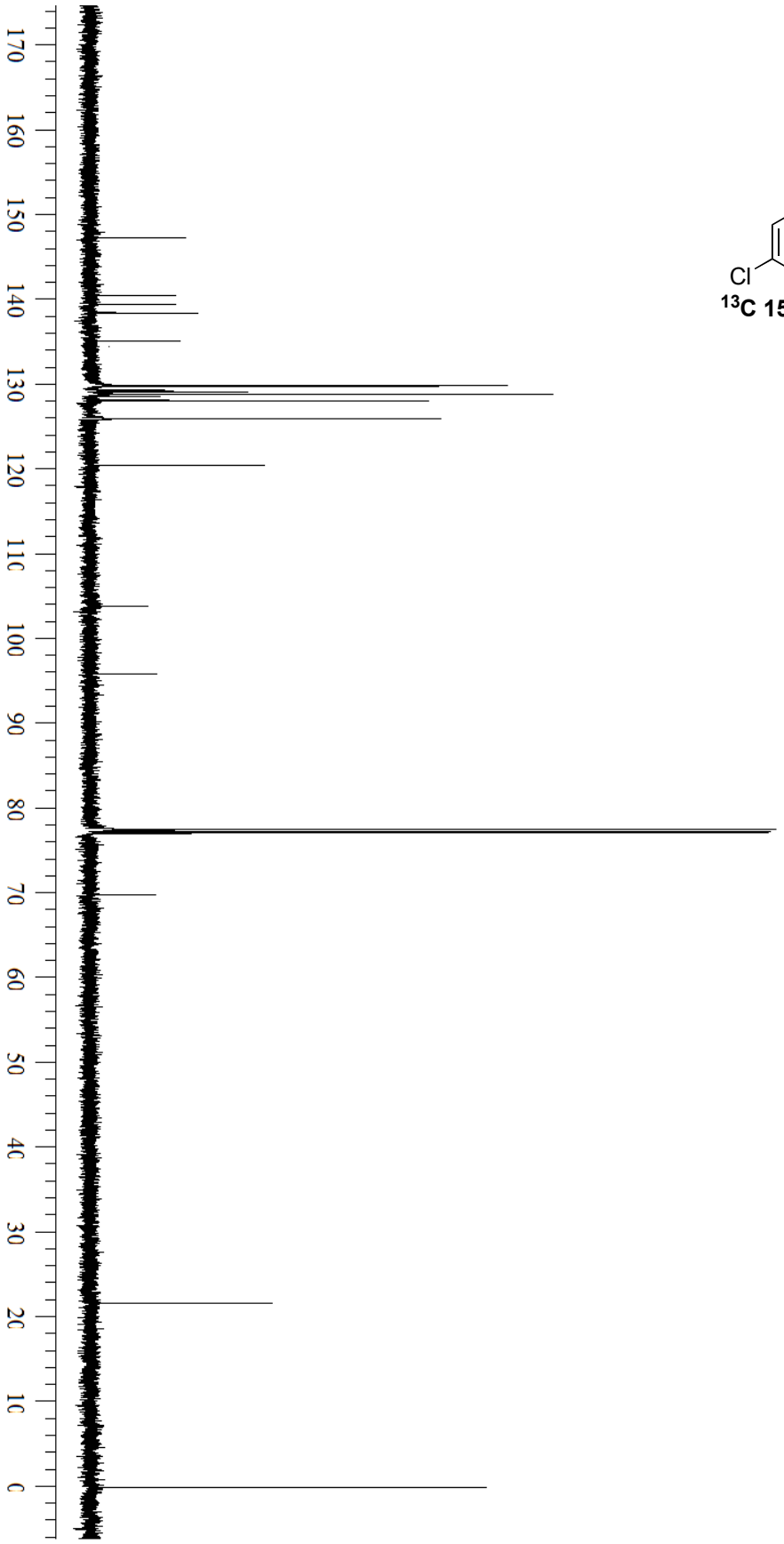


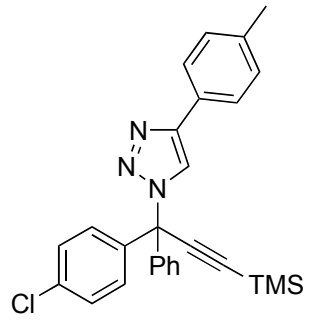
^{13}C 150 MHz NMR N-2-4z'



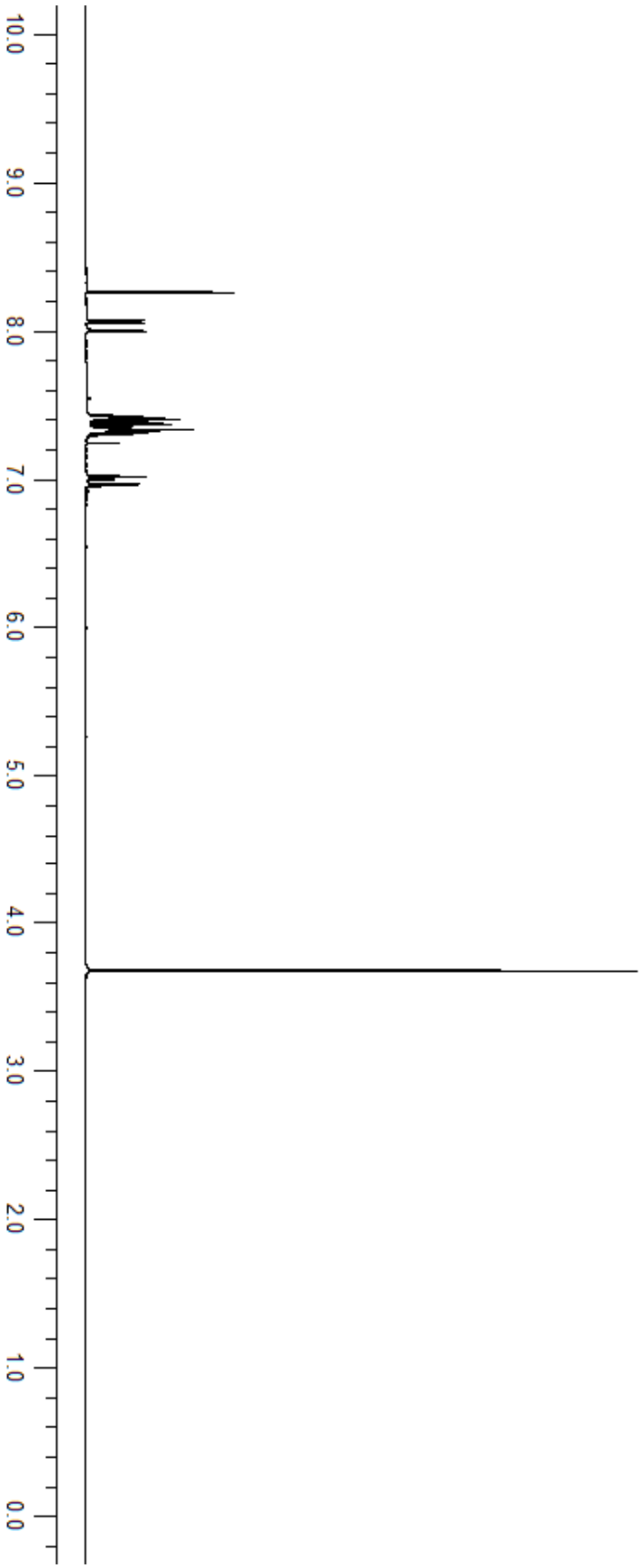


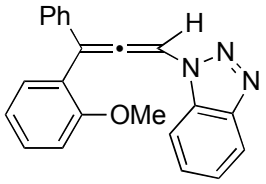
^{1}H 600 MHz NMR N-1-4z'



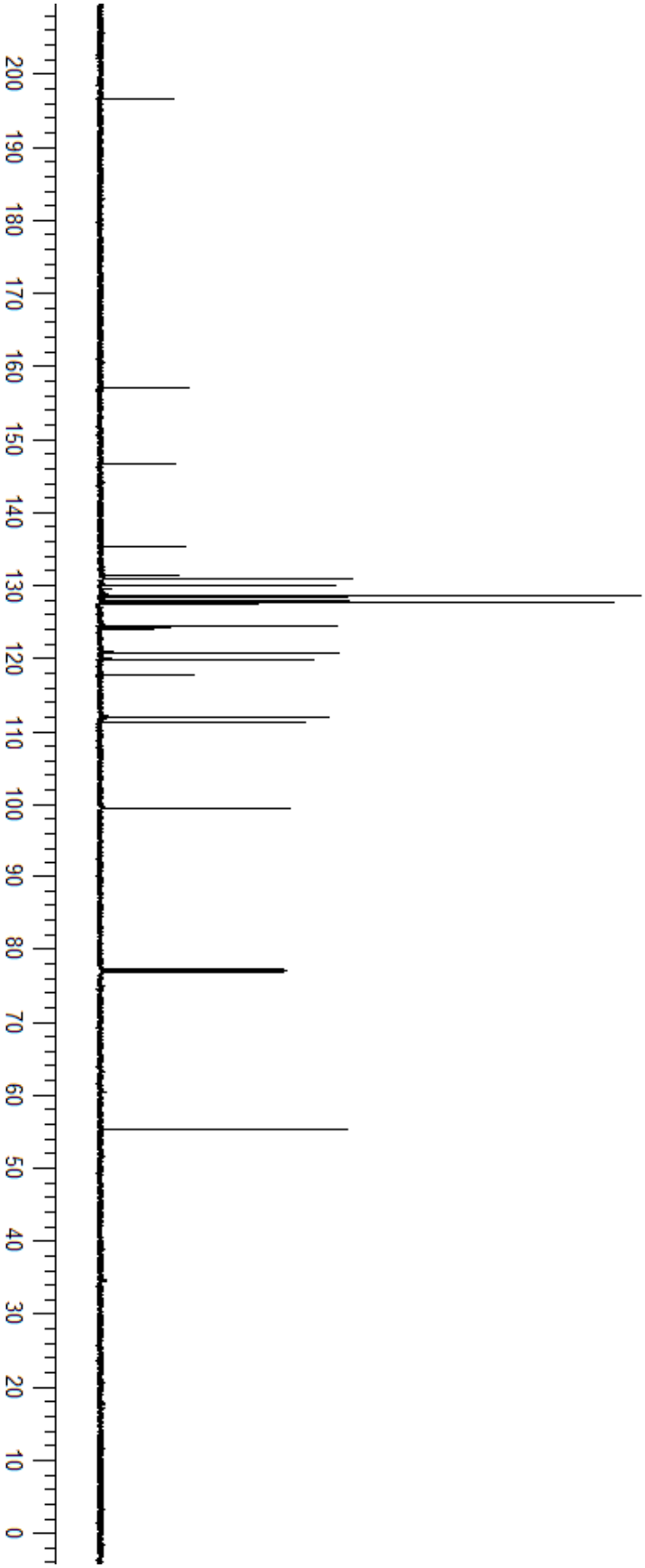


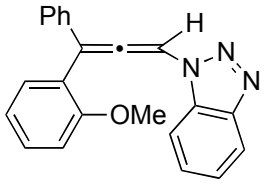
^{13}C 150 MHz NMR N-1-4z'





^{1}H 600 MHz NMR 7a





^{13}C 150 MHz NMR 7a