Supporting Information for

Ag(I)-Promoted homo-dimerization of 2-(alkynoyl)alkynylbenzenes *via* a [4+2] cycloaddition of benzopyrylium ions: Access to structurally unique naphthalenes

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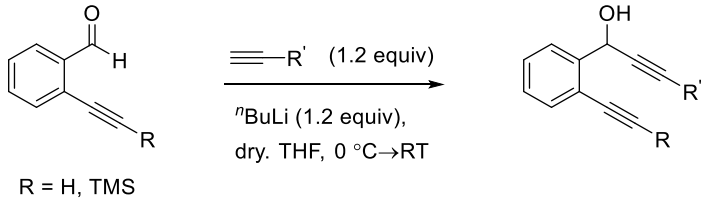
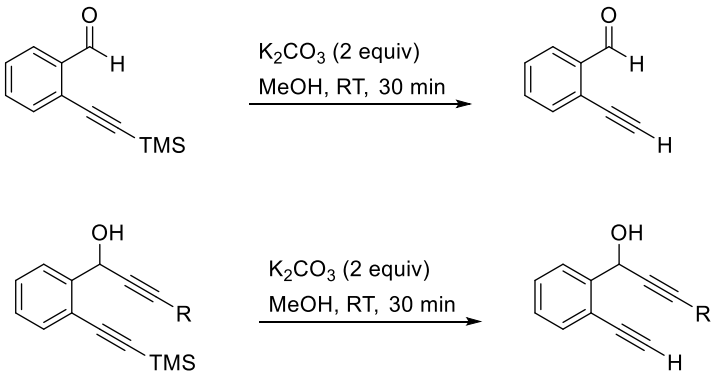
Experimental Section

General procedure A: For the Synthesis of (alkyl) diynol by treating with lithium acetylide



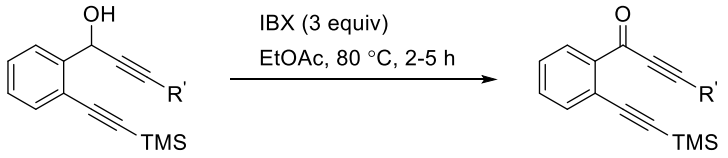
To an ice-cold solution of alkyne (1.2 equiv.) in anhydrous THF under nitrogen atmosphere was added ^{n}BuLi (1.2 equiv. in THF, 1.6 *M* in hexanes), after 30 minutes added 2-alkynylbenzaldehyde (1 equiv. in THF) at 0 °C and the reaction mixture was stirred for 1-3 h at 0 °C. Reaction progress was monitored by the thin layer chromatography (TLC) analysis. Reaction mixture was diluted with saturated aq. NH_4Cl solution (10 mL) and extracted with ethyl acetate (2 × 20 mL). The combined organic layer was washed with brine (10 mL) and dried over Na_2SO_4. Evaporation of the solvent and purification of the crude mixture by flash column chromatography (9:1, hexane: EtOAc) gave the corresponding secondary alcohols.

General procedure B: For trimethylsilane deprotection



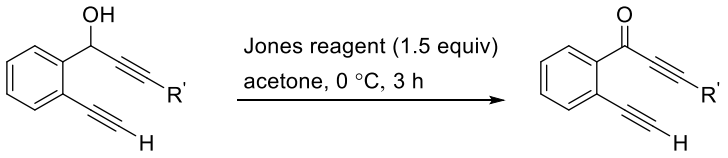
The corresponding TMS alcohol was taken in a round bottom flask equipped with stir bar. Then MeOH and Potassium carbonate (2 equiv.) was added, and stirred the reaction mixture for 30 min at RT. The reaction mixture was diluted with CH_2Cl_2 (10 mL) and water. Aqueous layer was extraxted with CH_2Cl_2 (2 x 10 mL). The combined organic layers were washed with brine, and dried over Na_2SO_4. The solvent was removed under reduced pressure. The crude material was purified by flash column chromatography using hexane/ethyl acetate mixture as eluent to yield (89-96%) the corresponding terminal alkyne.

General procedure C: For synthesis of alkynone by employing IBX reagent



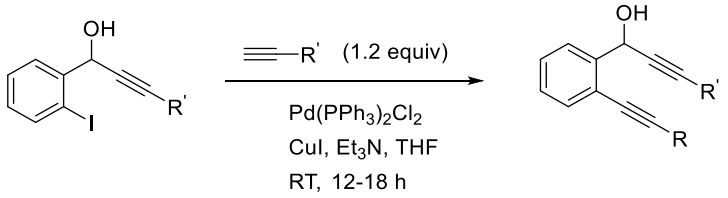
To the solution of alcohol (1 equiv.) dissolved in anhydrous EtOAc under nitrogen atmosphere, was added IBX (3 equiv.) and stirred the reaction mixture at 80 °C for 2-5 h. Reaction progress was monitored by the thin layer chromatography (TLC) analysis. The reaction was filtered through a plug of silica gel, using EtOAc as solvent to remove benzoic acid salts. The crude material was purified by flash column chromatography using hexane/ethyl acetate mixture as eluent to yield (80-90%) the corresponding ketones**.**

General procedure D: For synthesis of alkynone by employing Jones reagent



To an ice cold solution of alcohol (1 equiv.) dissolved in anhydrous acetone under nitrogen atmosphere, added Jones reagent (3 *M* solution in water and H_2SO_4), (1.5 equiv.) stirred the reaction mixture for 3 h at same temperature. Reaction progress was monitored by the thin layer chromatography (TLC) analysis. The reaction mixture was diluted with EtOAc (10 mL) and water. The crude material was purified by flash column chromatography using hexane/ethyl acetate mixture as eluent to yield (90-95%) the corresponding ketones.

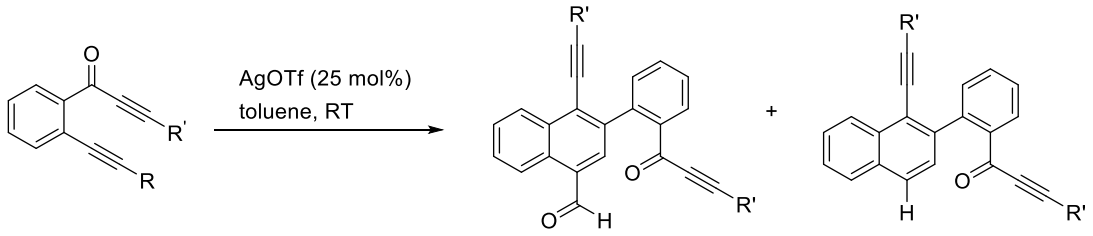
General procedure E: For synthesis of (aryl) diynols by employing Sonogashira cross coupling



The substituted 2-iodo compound (1 equiv.) and alkyne (1.2 equiv.) were taken in to a clean, anhydrous round bottom flask equipped with stir bar. Then anhydrous THF and Et_3N were added under nitrogen atmosphere and cooled the flask to 0 °C. Subsequently, CuI (15 mol%), and $Pd(PPh_3)_2Cl_2$ (1 mol%) were added to the reaction flask, and stirred the reaction mixture for 30 min at 0 °C. The reaction mixture was then allowed to warm to room temperature (RT) and continued the stirring for 14 h at RT. Reaction progress was monitored by the thin layer

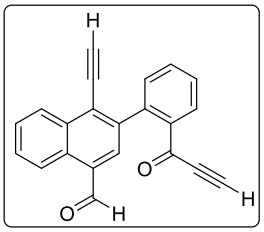
chromatography (TLC) analysis. The reaction was quenched with saturated aq. NH_4Cl solution and extracted with ethyl acetate (EtOAc). The combined organic layers were washed with brine, and dried (Na_2SO_4). The solvent was removed under reduced pressure. The crude material was purified by flash column chromatography using hexane/ethyl acetate mixture as eluent to yield the corresponding coupled product.

General procedure F: Ag-Promoted homo-dimerization of 2-(alkynonyl)alkynyl-benzenes *via* a [4+2]cycloaddition



To a solution of the 2-(alkynonyl)alkynylbenzene in anhydrous toluene (2 mL/0.1 mmol) was added silver triflate (AgOTf) 25 mol% then the reaction mixture was stirred at RT. After completion of the reaction (by TLC analysis), water and EtOAC were added to reaction mixture and extracted with EtOAC. The combined organic layers were washed with the brine, and dried (Na_2SO_4). Evaporation of the solvent under reduced pressure and purification of the crude material by flash column chromatography using hexane-ethyl acetate mixture as eluent yielded the corresponding naphthalene products.

4-[(Trimethylsilyl)ethynyl]-3-{2-[3-(trimethylsilyl)propioloyl]phenyl}-1-naphthaldehyde (6a)

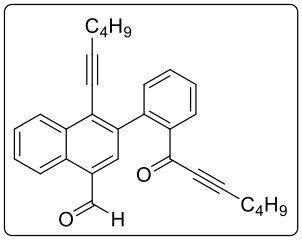


Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[1] **5a** (120 mg, 0.53 mmol), in toluene (10 mL) and AgOTf (34 mg, 0.13 mmol) were stirred for 6 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave inseparable mixture **6a TMS/6a** (81 mg) as a yellow liquid. Inseparable mixture **6a TMS/6a** (81 mg, 0.17 mmol), in anhydrous THF (10 mL) and TBAF (0.5 mL, 0.53 mmol) were stirred for 0.5 h at 0 °C. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **6a** (36 mg, 22%, 0.11 mmol) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.4 (1 H, s), 9.28 (1 H, d, *J* = 8.2 Hz), 8.50 (1 H, d, *J* = 8.2 Hz), 8.28 (1 H, d, *J* = 7.7 Hz), 7.89 (1 H, s), 7.76-7.67 (3 H, m), 7.65-7.55 (1 H, m), 7.45 (1 H, d, *J* = 7.5 Hz), 3.54 (1 H, s) and 3.16 (1 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9,

177.7, 142.0, 140.5, 136.9, 136.1, 134.1, 133.3, 131.9, 131.0, 129.5, 129.4, 128.6, 128.2, 127.1, 125.1, 124.9, 116.0, 89.7, 81.1, 80.8 and 80.1 ppm. **IR** (neat): 2924, 2856, 2091, 1682, 1642, 1234 and 638 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{13}O_2]^+ = [M+H]^+$ requires 309.0916; found 309.0910. **TLC**: R_f = 0.2 (4:1, hexane:EtOAc).

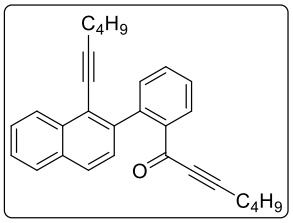
3-[2-(Hept-2-ynoyl)phenyl]-4-(hex-1-yn-1-yl)-1-naphthaldehyde (6b)



Followed general procedure F: The 2-(alkynonyl) alkynylbenzene[2] **5b** (80 mg, 0.38 mmol), in toluene (5 mL) and AgOTf (25 mg, 0.09 mmol) were stirred for 5 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **6b** (17 mg, 0.08 mmol, 23%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **7b** (52 mg, 0.247 mmol, 65%) as a yellow liquid.

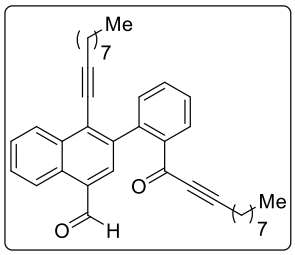
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1H, s), 9.28 (1 H, d, *J* = 8.2 Hz), 8.48 (1 H, d, *J* = 7.9 Hz), 8.12 (1 H, J = 6.9 Hz), 7.91 (1 H, s), 7.73-7.61 (3 H, m), 7.54 (1 H, t, *J* = 7.4 Hz), 7.42 (1 H, d, *J* = 7.3 Hz), 2.37 (2 H, t, *J* = 6.8 Hz), 1.92 (2 H, m), 1.58 (2 H, m), 1.45-1.37 (2 H, m), 1.16-1.10 (4 H, m), 0.82 (3 H, t, *J* = 7.3 Hz) and 0.79-0.71 (3 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 193.0, 178.8, 141.0, 137.8, 137.7, 134.0, 132.3, 131.6, 130.6, 129.9, 129.7, 129.2, 128.1, 127.9, 127.8, 127.4, 125.0, 104.8, 97.3, 81.2, 78.0, 30.3, 29.6, 22.0, 21.8, 19.7, 18.8, 13.7 and 13.5 ppm. **IR** (neat): 2957, 2928, 2210, 1690, 1644, 1554, 1507, 1255 and 914 cm^{-1}. **HR ESI-MS**: $[C_{30}H_{28}O_2]^+ = [M+H]^+$ requires 420.2089; found 420.2076. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

1-{2-[1-(Hex-1-yn-1-yl)naphthalen-2-yl]phenyl}hept-2-yn-1-one (7b)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.38 (1 H, dd, *J* = 8.2 & 0.69 Hz), 8.02 (1 H, dd, *J* = 7.7 & 1.3 Hz), 7.84 (1 H, d, *J* = 7.4 Hz), 7.80 (1 H, d, *J* = 8.3 Hz), 7.61-7.55 (2 H, m), 7.53 (1 H, dd, *J* = 7.3 & 1.3 Hz), 7.51-7.46 (2 H, m), 7.41 (1 H, m), 2.35 (2 H, t, *J* = 6.9 Hz), 1.87-1.78 (2 H, m), 1.45-1.37 (4 H, m), 1.21 (2 H, t, *J* = 7.1 Hz), 0.83 (4 H, t, *J* = 7.2 Hz), 0.72 and (4 H, t, *J* = 7.0 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.5, 142.4, 141.6, 138.1, 133.6, 132.6, 131.9, 131.7, 129.8, 128.0, 127.6, 127.5, 127.2, 127.0, 126.9, 126.4, 121.1, 100.1, 97.0, 81.3, 77.8, 30.5, 29.5, 22.0, 21.8, 19.5, 18.7, 13.7 and 13.5 ppm. **IR** (neat): 3058, 2958, 2210, 1643, 1265 and 737 cm^{-1}. **HR ESI-MS**: $[C_{29}H_{28}O]^+ = [M+H]^+$ requires 392.2140; found 392.2126. **TLC**: R_f = 0.5 (9:1, hexane:EtOAc).

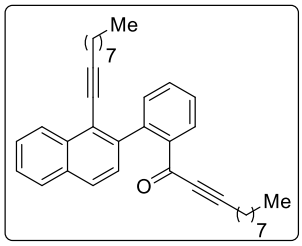
4-(Dec-1-yn-1-yl)-3-[2-(undec-2-ynoyl)phenyl]-1-naphthaldehyde (7c)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **5c** (60 mg, 0.22 mmol), in toluene (5 mL) and AgOTf (14 mg, 0.05 mmol) were stirred for 6 h at RT. Purification by flash column chromatography (19:1 hexane:EtOAc) gave **6c** (14 mg, 0.04 mmol, 25%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **7c** (24 mg, 0.09 mmol, 41 %) as a yellow liquid.

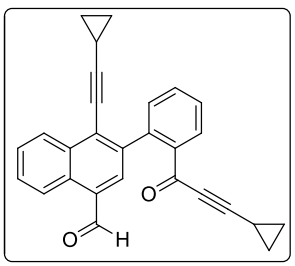
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1 H, s), 9.28 (1 H, d, *J* = 8.2 Hz), 8.48 (1 H, d, *J* = 7.9 Hz), 8.12 (1 H, d, *J* = 7.6 Hz), 7.91 (1 H, s), 7.75-7.59 (3 H, m), 7.53 (1 H, t, *J* = 7.2 Hz), 7.42 (1 H, d, *J* = 7.1 Hz), 2.37 (2 H, t, *J* = 6.3 Hz), 2.04-1.83 (2 H, m), 1.64-1.53 (2 H, m), 1.48-1.38 (2 H, m), 1.31-1.17 (19 H, m) and 0.93-0.83 (7 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 193.0, 178.8, 140.9, 137.8, 137.6, 133.9, 132.3, 131.5, 130.5, 129.8, 129.6, 129.2, 128.1, 127.7, 127.4, 125.0, 104.9, 97.3, 81.2, 78.0, 31.9, 31.8, 29.3, 29.2, 29.1, 29.0, 28.9, 28.8, 28.2, 27.5, 22.8, 22.7, 20.0, 19.1 and 14.2 ppm. **IR** (neat): 3059, 2928, 2213, 1695, 1639, 1460, 1262 and 739 cm^{-1}. **HR ESI-MS**: $[C_{38}H_{44}O_2]^+ = [M+H]^+$ requires 532.3392; found 532.3378. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

1-{2-[1-(Dec-1-yn-1-yl)naphthalen-2-yl]phenyl}undec-2-yn-1-one (7c)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.38 (1 H, d, *J* = 8.02 Hz), 8.02 (1 H, d, *J* = 7.4 Hz), 7.86-7.78 (2 H, m), 7.55-7.41 (5 H, m), 7.25 (1 H, s), 2.34 (2 H, t, *J* = 6.8 Hz), 1.30-1.24 (13 H, m), 1.24-1.16 (13 H, m) and 0.88 (6 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.4, 142.4, 141.5, 138.1, 133.5, 132.6, 131.9, 131.7, 129.8, 128.0, 127.6, 127.5, 127.2, 127.0, 126.8, 126.3, 121.0, 100.2, 97.1, 81.3, 77.8, 32.0, 31.9, 29.8, 29.3, 29.2, 29.1, 29.0, 28.9, 28.8, 28.5, 27.5, 22.8, 22.7, 19.8, 19.0 and 14.2 ppm. **IR** (neat): 3060, 2857, 2211, 1647, 1596, 1460, 1281 and 756 cm^{-1}. **HR ESI-MS**: $[C_{37}H_{44}O]^+ = [M+H]^+$ requires 504.3392; found 504.3378. **TLC**: R_f = 0.5 (19:1, hexane:EtOAc).

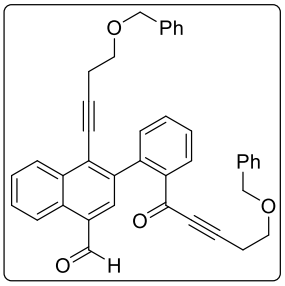
4-(Cyclopropylethynyl)-3-[2-(3-cyclopropylpropioloyl)phenyl]-1-naphthaldehyde (6d)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[3] **5d** (200 mg, 1.03 mmol), in toluene (20 mL) and AgOTf (66 mg, 0.25 mmol) were stirred for 3 days at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **6d** (75 mg, 0.38 mmol, 46%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.35 (1 H, s), 9.27 (1 H, d, *J* = 8.1 Hz), 8.44 (1 H, d, *J* = 8.0 Hz), 8.05 (1 H, d, *J* = 7.6 Hz), 7.90 (1 H, s), 7.74-7.58 (3 H, m), 7.52 (1 H, t, *J* = 7.4 Hz), 7.38 (1 H, d, *J* = 7.3 Hz), 1.42-1.34 (1 H, m), 0.97-0.88 (1 H, m), 0.83-0.77 (2 H, m), 0.73-0.49 (4 H, m) and 0.42-0.25 (2 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 193.0, 178.5, 140.7, 137.9, 137.7, 133.8, 132.2, 131.3, 130.1, 129.7, 129.6, 129.2, 128.1, 128.0, 127.7, 127.4, 125.0, 108.2, 101.8, 77.3, 73.0, 9.6, 9.58, 9.22, 9.13, 0.8 and -0.3 ppm. **IR** (neat): 2926, 2855, 2208, 1687, 1640, 1263, 1061, 1036 and 921 cm^{-1}. **HR ESI-MS**: $[C_{28}H_{21}O_2]^+ = [M+H]^+$ requires 389.1542; found 389.1529. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

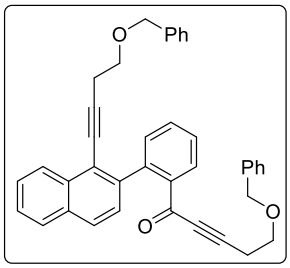
4-[4-(Benzyloxy)but-1-yn-1-yl]-3-{2-[5-(benzyloxy)pent-2-ynoyl]phenyl}-1-naphtha-ldehyde (6e)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **5e** (100 mg, 0.34 mmol), in dry toluene (8 mL) and AgOTf (22 mg, 0.08 mmol) were stirred for 24 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **6e** (20 mg, 0.07 mmol, 21%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **7e** (50 mg, 0.17 mmol, 50 %) as a yellow liquid.

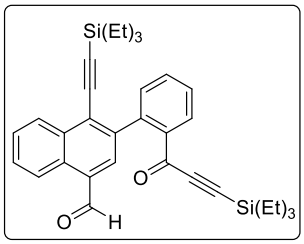
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1 H, s), 9.26 (1 H, d, *J* = 8.4 Hz), 8.47 (1 H, d, *J* = 8.2 Hz), 8.10 (1 H, d, *J* = 7.34 Hz), 7.88 (1 H, s), 7.69 (1 H, t, *J* = 7.2 Hz), 7.59 (2 H, t, *J* = 7.4 Hz), 7.47 (1 H, t, *J* = 7.0 Hz), 7.40 (1 H, d, *J* = 7.4 Hz), 7.32-7.24 (10 H, m), 4.46 (2 H, s), 4.35 (2 H, s), 3.59-3.38 (2 H, m), 3.26-3.15 (2 H, m), 2.67 (2 H, t, *J* = 6.8 Hz) and 2.26 (2 H, t, *J* = 6.8 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 193.0, 178.5, 140.9, 140.6, 138.0, 137.7, 137.6, 137.4, 133.8, 133.7, 132.5, 131.5, 130.6, 130.1, 130.0, 129.4, 129.3, 128.49, 128.47, 128.1, 127.9, 127.8, 127.75, 127.71, 127.4, 127.2, 124.9, 101.1, 93.4, 81.6, 78.7, 73.0, 72.9, 68.0, 66.9, 21.4 and 20.4 ppm. **IR** (neat): 2923, 2863, 2219, 1688, 1649, 1500, 1249, 1100 and 739 cm^{-1}. **HR ESI-MS**: $[C_{40}H_{32}O_4]^+ = [M+H]^+$ requires 576.2301; found 576.2287. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

5-{Benzyloxy)-1-{2-[1-(4-(benzyloxy)but-1-yn-1-yl]naphthalen-2-yl}phenyl}pent-2-yn-1-one (7e)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.37 (1 H, d, *J* = 7.7 Hz), 8.11 (4 H, d, *J* = 7.7 Hz), 7.99 (1 H, d, *J* = 7.6 Hz), 7.83-7.76 (2 H, m), 7.59 (2 H, t, *J* = 7.1 Hz), 7.52-7.44 (6 H, m), 7.41-7.38 (2 H, m), 7.30-7.28 (2 H, m), 4.47 (2 H, s), 4.28 (2 H, s), 3.56-3.44 (2 H, m), 3.12-2.97 (2 H, m), 2.65 (2 H, t, *J* = 7.0 Hz) and 2.14 (2 H, t, *J* = 6.3 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.2, 142.1, 141.5, 138.2, 137.9, 137.8, 133.7, 133.4, 132.4, 132.1, 131.6, 129.8, 128.54, 128.50, 1258.4, 128.0, 127.8, 127.77, 127.71, 127.6, 127.4, 127.0, 126.9, 126.5, 120.7, 96.5, 92.9, 81.7, 78.7, 73.0, 72.8, 68.3, 66.9, 21.2 and 20.3 ppm. **IR** (neat): 3058, 2926, 2862, 1701, 1645, 1595, 1273, 1101 and 705 cm^{-1}. **HR ESI-MS**: $[C_{39}H_{32}O_3]^+$ = $[M+H]^+$ requires 548.2351; found 548.2338. **TLC**: R_f = 0.6 (9:1, hexane:EtOAc).

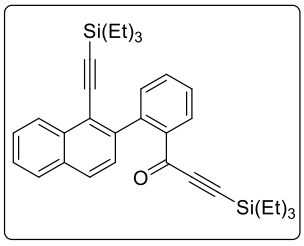
4-[(Triethylsilyl)ethynyl]-3-{2-[3-(triethylsilyl)propioloyl]phenyl}-1-naphthaldehyde (6f)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **5f** (145 mg, 0.541 mmol), in toluene (10 mL) and AgOTf (35 mg, 0.25 mmol) were stirred for 1 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **6f** (85 mg, 0.31 mmol, 59%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **7f** (38 mg, 0.14 mmol, 27%).

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.35 (1 H, s), 9.30 (1 H, d, *J* = 8.1 Hz), 8.52 (1 H, d, *J* = 8.05 Hz), 8.22 (1 H, d, *J* = 7.55 Hz), 7.87 (1 H, s), 7.74-7.66 (2 H, m), 7.64 (1 H, t, *J* = 7.4 Hz), 7.56 (1 H, t, *J* = 7.5 Hz), 7.45 (1 H, d, *J* = 7.44 Hz), 0.88 (9 H, t, *J* = 7.9 Hz), 0.83 (9 H, t, *J* = 7.8 Hz), 0.56 (6 H, q, *J* = 7.9 Hz) and 0.39 (6 H, q, *J* = 7.9 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9, 177.9, 141.9, 140.9, 137.5, 136.4, 133.9, 132.6, 131.8, 131.5, 130.3, 129.5, 129.3, 128.3, 128.0, 127.3, 126.4, 125.1, 106.5, 103.2, 102.3, 99.1, 7.50, 7.30, 4.20 and 3.73 ppm. **IR** (neat): 2951, 2885, 2146, 1689, 1645, 1582, 1461, 1235 and 1012 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{41}O_2Si_2]^+$ = $[M+H]^+$ requires 537.2645; found 537.2654. **TLC**: R_f = 0.4 (4:1, hexane:EtOAc).

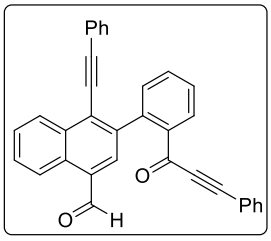
3-(Triethylsilyl)-1-{2-{1-[(triethylsilyl)ethynyl]naphthalen-2-yl}phenyl}prop-2-yn-1-one (7f)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.42 (1 H, d, *J* = 8.3 Hz), 8.10 (1 H, d, *J* = 7.7 Hz), 7.87-7.79 (3 H, m), 7.59 (2 H, t, *J* = 7.8 Hz), 7.50-7.46 (2 H, m), 7.36 (1 H, d, *J* = 8.4 Hz), 0.89 (9 H, t, *J* = 7.9 Hz), 0.79 (9 H, t, *J* = 7.9 Hz), 0.55 (6 H, q, *J* = 7.9 Hz) and 0.32 (6 H, q, *J* = 7.8 Hz) ppm. **^{13}C NMR**

(100 MHz, $CDCl_3$): δ = 178.6, 142.6, 142.3, 137.1, 133.5, 132.6, 132.1, 132.0, 130.8, 128.2, 128.1, 127.7, 127.6, 127.2, 126.9, 126.5, 119.9, 103.3, 102.9, 101.5, 98.6, 7.57, 7.31, 4.40 and 3.72 ppm. **IR** (neat): 2955, 2922, 2880, 2148, 1645, 1457, 1271, 1012 and 738 cm^{-1}. **HR ESI-MS**: $[C_{33}H_{41}OSi_2]^+$ = $[M+H]^+$ requires 509.2696; found 509.2705. **TLC**: R_f = 0.6 (4:1, hexane:EtOAc).

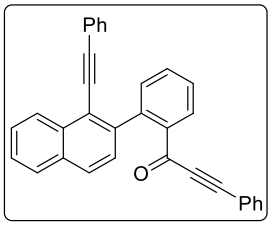
4-(Phenylethynyl)-3-[2-(3-phenylpropioloyl)phenyl]-1-naphthaldehyde (9a)



Followed general procedure F: The 2-(alkynonyl) alkynylbenzene[4] **8a** (70 mg, 0.23 mmol), in toluene (5 mL) and AgOTf (15 mg, 0.05 mmol) were stirred for 2 h at RT. Purification by flash column chromatography (19:1 hexane:EtOAc) gave **9a** (24 mg, 0.1 mmol, 25%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **10a** (21 mg, 0.08 mmol, 45%) as a yellow liquid.

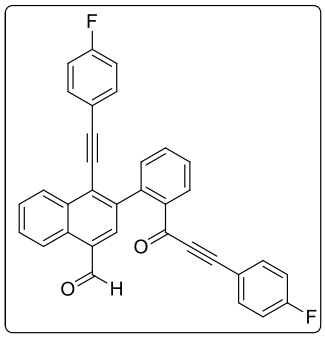
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1H, s), 9.24 (1 H, d, *J* = 6.7 Hz), 8.57 (1 H, d, *J* = 6.5 Hz), 8.27 (1 H, d, *J* = 7.2 Hz), 8.03 (1 H, s), 7.75-7.61 (4 H, m), 7.53 (1 H, d, *J* = 7.0 Hz), 7.36-7.23 (6 H, m), 7.16 (2 H, t, *J* = 6.9 Hz), 7.05 (2 H, d, *J* = 6.9 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9, 178.7, 141.1, 140.6, 137.9, 137.3, 133.6, 132.7, 132.6, 131.8, 130.6, 130.5, 130.4, 129.7, 129.4, 129.1, 128.5, 128.4, 128.3, 128.0, 127.3, 126.7, 125.1, 122.6, 119.8, 102.4, 93.6, 88.5 and 86.7 ppm. **IR** (neat): 3059, 2918, 2855, 2198, 1744, 1735, 1692, 1279 and 752 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{20}O_2]^+$ = $[M+H]^+$ requires 460.1463; found 460.1449.**TLC**: R_f = 0.2 (19:1, hexane:EtOAc). **M.P**: 117-120 ℃.

3-Phenyl-1-{2-[1-(phenylethynyl)naphthalen-2-yl]phenyl}prop-2-yn-1-one (10a)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.48 (1 H, d, *J* = 7.9 Hz), 8.18 (1 H, *J* = 7.5 Hz), 7.87 (1 H, d, *J* = 8.4 Hz), 7.83 (1 H, d, *J* = 8.0 Hz), 7.67 (1 H, t, *J* = 7.3 Hz), 7.61-7.49 (5 H, m), 7.37-7.31 (2 H, m), 7.27-7.22 (4 H, m), 7.12 (2 H, t, *J* = 7.3 Hz) and 6.97 (2 H, d, *J* = 7.3 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.2, 142.1, 141.9, 139.4, 138.2, 133.3, 132.7, 132.3, 131.9, 131.6, 130.15, 130.11, 128.5, 128.3, 128.26, 128.20, 127.9, 127.6, 127.2, 126.8, 126.6, 123.4, 120.1, 120.0, 114.2, 98.6, 93.2, 88.7 and 87.0 ppm. **IR** (neat): 3060, 2926, 2854, 2196, 1637, 1299 and 757 cm^{-1}. **HR ESI-MS**: $[C_{33}H_{21}O]^+$ = $[M+H]^+$ requires 433.1514; found 433.1502. **TLC**: R_f = 0.5 (19:1, hexane:EtOAc).

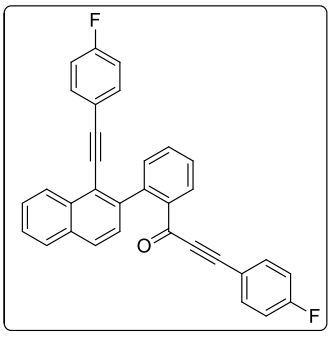
4-[(4-Fluorophenyl)ethynyl]-3-{2-[3-(4-fluorophenyl)propioloyl]phenyl}-1-naphth-aldehyde (9b)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[5] **8b** (100 mg, 0.31 mmol), in toluene (6 mL) and AgOTf (20 mg, 0.07 mmol) were stirred for 3.5 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **9b** (8 mg, 0.03 mmol, 11%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **10b** (52 mg, 0.20 mmol, 68%) as a yellow liquid.

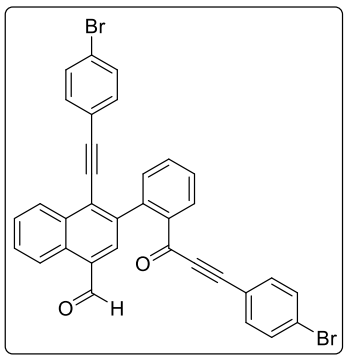
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1 H, s), 9.22 (1 H, d, *J* = 7.7 Hz), 8.52 (1 H, d, *J* = 7.6 Hz), 8.23 (1 H, d, *J* = 7.6 Hz), 8.03 (1 H, s), 7.73-7.61 (4 H, m), 7.52 (1 H, d, *J* = 7.3 Hz), 7.30 (2 H, t, *J* = 6.3 Hz), 7.00 (2 H, t, *J* = 5.5 Hz), 6.94 (2 H, t, *J* = 8.4 Hz) and 6.85 (2 H, t, *J* = 8.4 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.7, 178.5, 163.6 (d, *J* = 253.66 Hz), 162.9 (d, *J* = 251.3 Hz), 141.0, 140.6, 137.8, 137.1, 134.75 (d, *J* = 8.56 Hz), 133.75 (d, *J* = 8.53 Hz), 133.5, 132.8, 131.8, 130.6, 130.4, 129.7, 129.4, 128.5, 128.1, 127.1, 126.6, 125.1, 118.72 (d, *J* = 3.55 Hz), 115.81 (d, *J* = 22.08), 115.85 (d, *J* = 22.16 Hz), 101, 92.5, 88.4, 86.5 ppm. **IR** (neat): 3058, 2199, 1689, 1641, 1508, 1228, 840 and 738 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{18}F_2O_2]^+$ = $[M+H]^+$ requires 496.1275; found 496.1261. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc). **M.P**: 122-125 ℃.

(4-Fluorophenyl)-1-{2-{1-[(4-fluorophenyl)ethynyl]naphthalen-2-yl}phenyl}prop-2-yn-1-one (10b)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.44 (1 H, d, *J* = 8.1 Hz), 8.14 (1 H, d, *J* = 7.5 Hz), 7.87 (1 H, d, *J* = 8.3 Hz), 7.83 (1 H, d, *J* = 8.0 Hz), 7.68 (1 H, t, *J* = 7.1 Hz), 7.63-7.49 (5 H, m), 7.31 (2 H, t, *J* = 5.9 Hz), 7.02-6.8 (4 H, m) and 6.80 (2 H, t, *J* = 8.3 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.1, 163.58 (d, *J* = 252.50 Hz), 162.63 (d, *J* = 248.65 Hz), 142.0, 141.8, 138.2, 134.88 (d, *J* = 8.85 Hz), 133.48 (d, *J* = 8.38 Hz), 133.2, 132.7, 132.4, 131.9, 129.8, 128.5, 128.0, 127.6, 127.3, 126.75 (d, *J* = 3.72 Hz), 120.1, 119.51 (d, *J* = 3.58 Hz), 116.13 (d, *J* = 3.65 Hz), 115.69 (d, *J* = 22.19 Hz), 115.66 (22.03 Hz), 97.64, 92.2, 88.60, 86.71 ppm. **IR** (neat): 3057, 2927, 2854, 2199, 1643, 1596, 1507, 1265 and 1231 cm^{-1}. **HR ESI-MS**: $[C_{33}H_{18}F_2O]^+$ = $[M+H]^+$ requires 468.1306; found 468.1326. **TLC**: R_f = 0.6 (9:1, hexane:EtOAc).

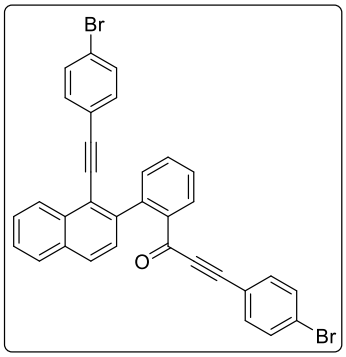
4-[(4-Bromophenyl)ethynyl]-3-{2-[3-(4-bromophenyl)propioloyl]phenyl}-1-naphthaldehyde (9c)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8c** (125 mg, 0.32 mmol), in dry toluene (6 mL) and AgOTf (21 mg, 0.08 mmol) were stirred for 6 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9c** (59 mg, 0.19 mmol, 60%) as a yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10c** (13 mg, 0.04 mmol, 18%) as a yellow liquid.

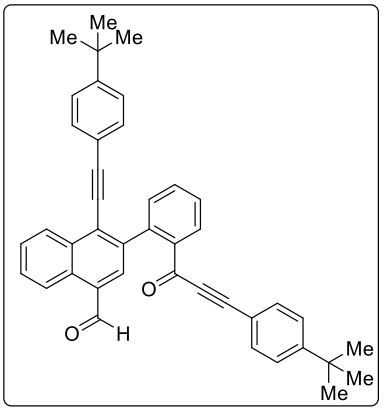
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.4 (1 H, s), 9.23 (1 H, d, *J* = 7.7 Hz), 8.50 (1 H, d, *J* = 7.6 Hz), 8.21 (1 H, d, *J* = 7.4 Hz), 8.03 (1 H, s), 7.74-7.61 (4 H, m), 7.52 (1 H, d, *J* = 7.1 Hz), 7.3 (2 H, d, *J* = 7.7 Hz), 7.30 (2 H, d, *J* = 7.8 Hz), 7.15 (2 H, d, *J* = 7.7 Hz), 6.84 (2 H, d, *J* = 7.7 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.7, 178.4, 141.1, 140.5, 137.8, 136.9, 133.7, 133.5, 133.1, 132.8, 131.8, 131.79, 131.76, 130.8, 130.4, 129.7, 129.5, 128.5, 128.2, 127.1, 126.3, 125.3, 125.1, 123.5, 121.5, 118.5, 101.2, 92.2, 89.2 and 87.8 ppm. **IR** (neat): 3057, 2985, 2927, 2199, 1713, 1644, 1485, 1423, 1264 and 740 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{19}Br_2O_2]^+$ = $[M+H]^+$ requires 616.9752; found 616.9729. **TLC**: R_f = 0.4 (4:1, hexane:EtOAc). **M.P**: 122-125 ℃.

3-(4-Bromophenyl)-1-{2-{1-[(4-bromophenyl)ethynyl]naphthalen-2-yl}phenyl}prop-2-yn-1-one (10c)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.41 (1 H, d, *J* = 8.0 Hz), 8.12 (1 H, d, *J* = 7.3 Hz), 7.93-7.77 (2 H, m), 7.67 (1 H, t, *J* = 7.0 Hz), 7.63-7.49 (5 H, m), 7.37 (2 H, d, *J* = 7.8 Hz), 7.24 (2 H, d, *J* = 6.8 Hz), 7.17 (2 H, d, *J* = 7.8 Hz) and 6.73 (2 H, d, *J* = 7.8 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.0, 142.0, 141.9, 138.2, 133.8, 133.1, 132.9, 132.7, 132.5, 131.9, 131.64, 131.60, 129.8, 128.8, 128.3, 128.0, 127.5, 127.4, 126.8, 126.7, 124.9, 122.7, 122.3, 119.9, 118.9, 97.6, 91.8, 89.4 and 88.2 ppm. **IR** (neat): 3056, 2925, 2859, 1642, 1471, 1268 and 740 cm^{-1}. **HR ESI-MS**: $[C_{33}H_{19}Br_2O]^+$ = $[M+H]^+$ requires 588.9803; found 588.9779.**TLC**: R_f = 0.6 (4:1, hexane:EtOAc). **M.P**: 208-210 ℃.

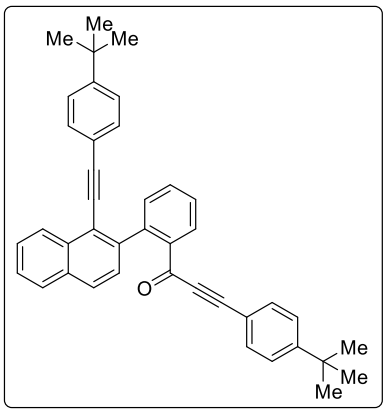
4-{[4-(*tert*-Butyl)phenyl]ethynyl-3-{2-{3-[4-(tert-butyl)phenyl]propioloyl}phenyl}-1-naphthaldehyde (9d)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8d** (67 mg, 0.18 mmol), in toluene (3 mL) and AgOTf (11 mg, 0.04 mmol) were stirred for 7 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **9d** (22 mg, 0.07 mmol, 44%) as a yellow liquid, **10d (**5 mg, 0.01 mmol, 5%).

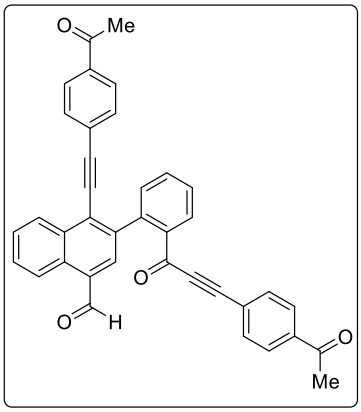
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.38 (1 H, s), 9.22 (1 H, d, *J* = 5.7 Hz), 8.56 (1 H, d, *J* = 5.2 Hz), 8.26 (1 H, d, *J* = 6.9 Hz), 8.02 (1 H, s), 7.72-7.61 (4 H, m), 7.54-7.50 (1 H, m), 7.33-7.24 (4 H, m), 7.18 (2 H, d, *J* = 7.6 Hz), 7.02 (2 H, d, *J* = 7.8 Hz) and 1.26 (18 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9, 178.8, 154.0, 152.5, 141.0, 140.7, 138.1, 137.5, 133.7, 132.5, 131.9, 131.6, 130.6, 130.4, 129.8, 129.3, 128.4, 127.9, 127.3, 127.0, 125.4, 125.1, 119.7, 116.8, 102.9, 94.3, 88.4, 86.3, 35.0, 34.9 31.2 and 31.1 ppm. **IR** (neat): 2963, 2861, 2196, 1688, 1509, 1300, 1268, 1013 and 749 cm^{-1}. **HR ESI-MS**: $[C_{41}H_{36}O]^+ = [M+H]^+$ requires 544.2766; found 544.2752. **TLC**: R_f = 0.3 (4:1, hexane:EtOAc).

3-[4-(*tert*-Butyl)phenyl]-1-{2-{1-{[4-(tert-butyl)phenyl]ethynyl}naphthalen-2-yl}phenyl} -prop-2-yn-1-one (10d)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.39 (1 H, d, *J* = 8.0 Hz), 8.09 (1 H, d, *J* = 7.6 Hz), 7.76 (2 H, t, *J* = 8.8 Hz), 7.56 (1 H, t, *J* = 7.2 Hz), 7.51-7.38 (5 H. m), 7.24-7.14 (4 H, m), 7.06 (2 H, d, *J* = 7.8 Hz), 6.88 (2 H, d, *J* = 7.8 Hz) and 1.19 ,1.16 (18 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.3, 153.7, 151.5, 142.1, 141.8, 138.3, 133.4, 132.6, 132.1, 132.0, 131.3, 128.25, 128.22, 127.8, 127.6, 127.1, 126.9, 126.5, 125.3, 125.2, 120.5, 120.1, 117.1, 114.2, 98.8, 93.9, 88.6, 86.5, 35.0, 34.8, 31.2 and 31.1 ppm. **IR** (neat): 3057, 2964, 2858, 2361, 2195, 1643 and 1267 cm^{-1}. **HR ESI-MS**: $[C_{41}H_{38}O]^+ = [M+H]^+$ requires 545.2844; found 545.2843. **TLC**: R_f = 0.5 (4:1, hexane:EtOAc).

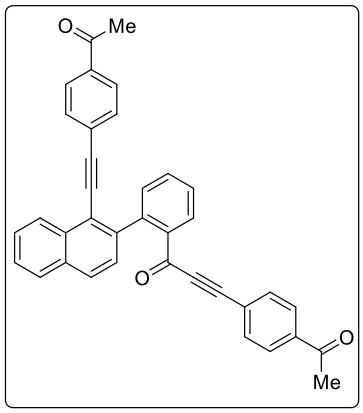
4-[(4-Acetylphenyl)ethynyl]-3-{2-[3-(4-acetylphenyl)propioloyl]phenyl}-1-naphth-aldehyde (9e)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8e** (120 mg, 0.34 mmol), in dry toluene (6 mL) and AgOTf (22 mg, 0.08mmol) were stirred for 13 h at RT. Purification by flash column chromatography (2:1 hexane:EtOAc) gave **9e** (60 mg, 0.22 mmol, 65%) as yellow liquid along with eluent (2:1 hexane:EtOAc) gave **10e** (22 mg, 0.08 mmol, 25%) as a yellow liquid.

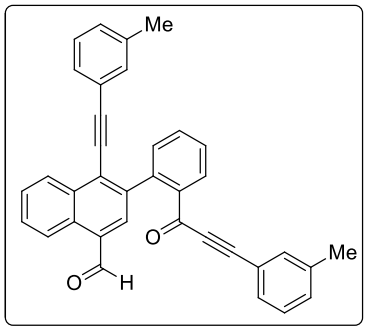
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.4 (1 H, s), 9.21 (1 H, s), 8.53 (1 H, s), 8.35-8.15 (1 H, m), 8.09-7.97 (1 H, m), 7.88-7.61 (8 H, m), 7.58-7.48 (1 H, m), 7.46-7.31 (2 H, m), 7.16-6.95 (2 H, m), 2.55 (3 H, s) and 2.53 (3 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 197.1, 197.0, 192.6, 178.3, 141.5, 140.5, 137.7, 137.6, 136.8, 136.7, 133.6, 133.0, 132.5, 131.8, 131.1, 130.5, 129.7, 129.6, 128.7, 128.3, 128.0, 127.2, 127.1, 126.0, 125.1, 124.2, 101.2, 91.8, 90.3, 89.7, 26.7 and 26.6 ppm. **IR** (neat): 2728, 2307, 2199, 1684, 1646, 1600, 1264, 1008 and 740 cm^{-1}. **HR ESI-MS**: $[C_{38}H_{24}NaO_4]^+$ = $[M+Na]^+$ requires 567.1572; found 567.1556. **TLC**: R_f = 0.4 (2:1, hexane:EtOAc).

4-[(4-Acetylphenyl)ethynyl]-3-{2-[3-(4-acetylphenyl)propioloyl]phenyl}-1-naphth-aldehyde (10e)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.62 (1 H, d, *J* = 7.5 Hz), 8.51 (1 H, d, *J* = 8.0 Hz), 8.14 (2 H, d, *J* = 7.6 Hz), 8.08 (2 H, d, *J* = 7.7 Hz), 7.84 (2 H, d, *J* = 7.8 Hz), 7.73-7.58 (4 H, m), 7.55 (2 H, d, *J* = 8.1 Hz), 7.50-7.41 (3 H, m), 7.39 (1 H, t, *J* = 7.1 Hz), 2.71 (3 H, s) and 2.68 (3 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 197.9, 197.3, 191.4, 143.9, 140.6, 140.3, 139.9, 137.0, 136.9, 136.5, 136.3, 135.1, 133.0, 132.5, 131.9, 131.6, 130.07, 130.03, 129.9, 129.1, 128.7, 128.4, 127.7, 126.9, 124.3, 123.8, 113.7, 99.3, 88.6 and 26.8 ppm. **HR ESI-MS**: $[C_{37}H_{24}NaO_3]^+$ = $[M+Na]^+$ requires 539.1623; found 539.1606. **TLC**: R_f = 0.6 (2:1, hexane:EtOAc). **M.P**: 267-270 ℃.

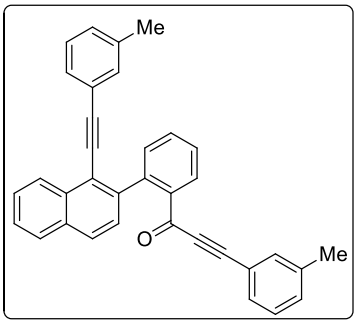
3-{2-[3-(*m*-Tolyl)propioloyl]phenyl}-4-(*m*-tolylethynyl)-1-naphthaldehyde (9f)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[6] **8f** (100 mg, 0.31 mmol), in toluene (6 mL) and AgOTf (21 mg, 0.07 mmol) were stirred for 1.5 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **9f** (11mg, 0.04 mmol, 8%) as a yellow liquid along with eluent (9:1 hexane:EtOAc) gave **10f** (50 mg, 0.20 mmol, 67%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.35 (1 H, s), 9.23 (1 H, d, *J* = 6.3 Hz), 8.56 (1 H, d, *J* = 6.0 Hz), 8.24 (1 H, d, *J* = 7.1 Hz), 8.00 (1 H, s), 7.72-7.56 (4 H, m), 7.50 (1 H, d, *J* = 6.9 Hz), 7.19-7.00 (6 H, m), 6.90 (1 H, d, *J* = 6.6 Hz), 6.73 (1 H, s), 2.22 (3 H, s) and 2.16 (3 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.8, 178.6, 141.0, 140.5, 138.0, 137.9, 137.4, 133.6, 132.9, 132.6, 132.2, 131.7, 131.3, 130.48, 130.45, 129.9, 129.7, 129.6, 129.3, 128.9, 128.3, 128.2, 128.1, 127.9, 127.2, 126.8, 125.0, 122.3, 119.5, 102.8, 94.0, 88.2, 86.4, 21.2 and 21.0 ppm. **IR** (neat): 3057, 2926, 2731, 2193, 1730, 1697, 1580, 905 and 720 cm^{-1}. **HR ESI-MS**: $[C_{36}H_{24}O_2]^+$ = $[M+Na]^+$ requires 488.1776; found 488.1767. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

3-(*m*-Tolyl)-1-{2-[1-(*m*-tolylethynyl)naphthalen-2-yl]phenyl}prop-2-yn-1-one (10f)

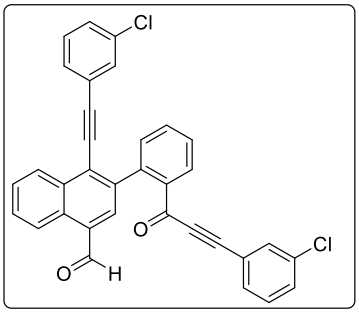


^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.51 (1 H, d, *J* = 8.0 Hz), 8.18 (1 H, d, *J* = 7.5 Hz), 7.86 (2 H, t, *J* = 8.8 Hz), 7.70-7.48 (6 H, m), 7.20-7.11 (3 H, m), 7.10-7.00 (3 H, m), 6.86 (1 H, d, *J* = 6.9 Hz), 6.69 (1 H, s), 2.26 (3 H, s) and 2.17 (3 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.3, 142.1, 141.8, 138.3, 137.9, 137.8, 133.4, 133.2, 132.7, 132.2, 132.1, 132.0, 131.1, 130.0, 129.8, 129.2, 128.7, 128.3, 128.24, 128.22, 128.0, 127.8, 127.7, 127.2, 126.8, 126.6, 123.2, 120.1, 119.9, 98.9, 93.7, 88.5, 86.7, 21.3 and 21.1 ppm. **IR** (neat): 3055, 2923, 2855, 2192, 1641, 1594, 1485, 1446, 1022 and 778 cm^{-1}. **HR ESI-MS**: $[C_{35}H_{24}O]^+$ = $[M+H]^+$ requires 460.1827; found 460.1811. **TLC**: R_f = 0.4 (9:1, hexane:EtOAc).

4-[(3-Chlorophenyl)ethynyl]-3-{2-[3-(3-chlorophenyl)propioloyl]phenyl}-1-naphth-aldehyde (9g)

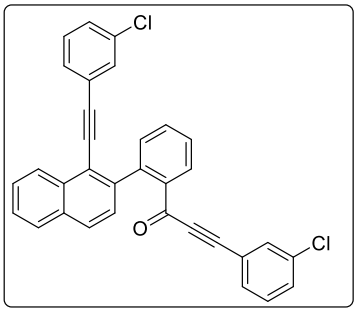
Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8g** (320 mg, 0.94 mmol), in toluene (18 mL) and AgOTf (60 mg, 0.23 mmol) were stirred for 3.5 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9g** (130 mg, 0.49 mmol, 52%) as

yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10g** (46 mg, 0.18 mmol, 19%) as a yellow liquid.



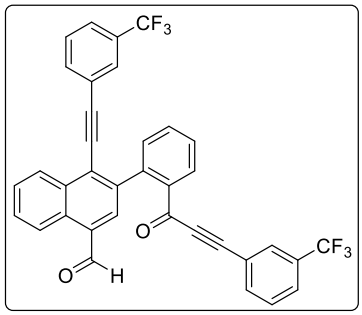
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.41 (1 H, s), 9.22 (1 H, d, *J* = 7.4 Hz), 8.51 (1 H, d, *J* = 7.2 Hz), 8.23 (1 H, d, *J* = 7.49 Hz), 8.03 (1 H, s), 7.76-7.65 (4 H, m), 7.52 (1 H, d, *J* = 7.4 Hz), 7.30-7.23 (3 H, m), 7.23-7.16 (2 H, m), 7.11 (1 H, t, *J* = 7.7 Hz) and 7.01-6.89 (2 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.7, 178.3, 141.3, 140.5, 137.8, 136.9, 134.34, 134.31, 133.6, 132.9, 132.1, 131.8, 131.5, 130.9, 130.7, 130.6, 130.5, 129.9, 129.7, 129.68, 129.64, 129.3, 128.6, 128.3, 127.6, 127.1, 126.1, 125.1, 124.2, 121.4, 100.7, 91.5, 88.8 and 87.8 ppm. **IR** (neat): 3059, 2983, 2926, 2201, 1696, 1642, 1472, 1264 and 742 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{19}Cl_2O_2]^+$ = $[M+H]^+$ requires 529.0762; found 529.0749. **TLC**: R_f = 0.4 (4:1, hexane:EtOAc).

3-(3-Chlorophenyl)-1-{2-{1-[(3-chlorophenyl)ethynyl]naphthalen-2-yl}phenyl}prop-2-yn-1-one (10g)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.58 (1 H, d, *J* = 7.7 Hz), 8.47 (1 H, d, *J* = 8.2 Hz), 7.76-7.70 (1 H, m), 7.70-7.56 (6 H, m), 7.53-7.44 (4 H, m), 7.44-7.33 (4 H, m) and 7.27-7.23 (1 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 191.3, 143.8, 139.7, 137.2, 136.5, 136.3, 135.1, 134.7, 134.2, 133.1, 131.6, 130.1, 129.96, 129.93, 129.8, 129.7, 129.58, 129.53, 129.1, 128.56, 128.50, 127.9, 127.7, 126.9, 124.6, 124.2, 123.8, 113.7, 98.7 and 86.6 ppm. **IR** (neat): 3050, 2010, 1654, 1567, 1212 and 750 cm^{-1}. **TLC**: R_f = 0.6 (4:1, hexane:EtOAc).

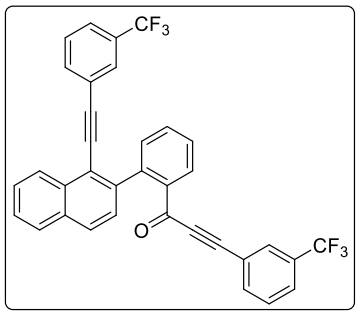
4-{[3-(Trifluoromethyl)phenyl]ethynyl}-3-{2-{3-[3(trifluoromethyl)phenyl]propioloyl}-phenyl}-1-naphthaldehyde (9h)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8h** (160 mg, 0.43 mmol), in toluene (8 mL) and AgOTf (28 mg, 0.10 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9h** (81 mg, 0.27 mmol, 63%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10h** (35 mg, 0.12 mmol, 28%) as a yellow liquid.

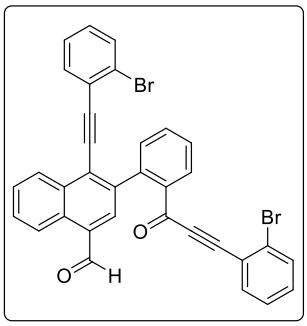
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.4 (1 H, s), 9.32-9.16 (1 H, m), 8.58-8.47 (1 H, m), 8.25 (1 H, d, *J* = 7.6 Hz), 8.0 (1 H, s), 7.75-7.66 (4 H, m), 7.59-7.47 (6 H, m), 7.40 (1 H, d, *J* = 7.5 Hz), 7.30 (1 H, t, *J* = 7.8 Hz) and 7.21 (1 H, d, *J* = 7.6 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.6, 178.3, 141.5, 140.5, 137.7, 136.8, 136.7, 135.5, 134.7, 133.6, 133.5, 133.1, 131.9, 131.1, 130.5, 129.7, 129.08, 129.01 (C, q, *J* = 3.6 Hz), 128.7, 128.6 (C, q, *J* = 4.2 Hz), 128.4, 127.08, 127.02 (C, q, *J* = 3.9 Hz), 126.7, 125.9, 125.6 (C, q, *J* = 3.4 Hz), 125.4, 125.1, 123.5, 120.7, 100.5, 91.1, 89.0 and 88.2 ppm. **^{19}F NMR** (282 MHz, CDCl3): δ = -63.00 (s, 3 F, CF_3) and -63.05 (s, 3 F, CF_3) ppm. **IR** (neat): 3062, 2926, 2856, 2202, 1692, 1644, 1594, 1333 and 903 cm^{-1}. **HR ESI-MS**: $[C_{36}H_{19}F_6O_2]^+$ = $[M+H]^+$ requires 597.1289; found 597.1275. **TLC**: R_f = 0.5 (4:1, hexane:EtOAc).

3-[3-(Trifluoromethyl)phenyl]-1-{2-{1-{[3-(trifluoromethyl)phenyl]ethynyl}naphthalen-2-yl}phenyl}prop-2-yn-1-one (10h)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.61 (1 H, d, *J* = 7.6 Hz), 8.52 (1 H, d, *J* = 8.3 Hz), 8.01 (1 H, s), 7.94 (1 H, d, *J* = 7.6 Hz), 7.80 (1 H, d, *J* = 7.7 Hz), 7.75-7.63 (8 H, m), 7.56 (2 H, t, *J* = 8.3 Hz), 7.48 (1 H, t, *J* = 7.6 Hz), 7.40 (1 H, t, *J* = 7.5 Hz) and 7.26 (1 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 191.3, 143.8, 139.9, 139.7, 136.6, 136.3, 136.1, 135.2, 134.9, 133.2, 133.1, 131.4, 130.0, 129.9, 129.5, 128.9, 128.8, 128.5 (q, C, *J* = 3.3 Hz), , 127.8, 126.9, 126.63 (q, C, *J* = 3.2 Hz), 125.8 (q, C, *J* = 3.2 Hz), 125.2 (q, C, *J* = 3.2 Hz), 124.3, 123.8, 113.7, 98.5, 86.9 and 76.7 ppm. **^{19}F NMR** (282 MHz, CDCl3): δ = -62.3 (s, 3 F, CF_3) and -62.8 (s, 3 F, CF_3) ppm. **IR** (neat): 3057, 2926, 2856, 1727, 1331, 1265, 1131 and 741 cm^{-1}. **HR ESI-MS**: $[C_{35}H_{19}F_6O]^+$ = $[M+H]^+$ requires 569.1340; found 569.1320. **TLC**: R_f = 0.6 (4:1, hexane:EtOAc). **M.P**: 187-190 ℃.

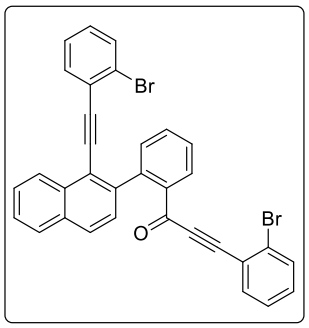
4-[(2-Bromophenyl)ethynyl]-3-{2-[3-(2-bromophenyl)propioloyl]phenyl}-1-naphth-aldehyde (9i)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8i** (280 mg, 0.73 mmol), in dry toluene (14 mL) and AgOTf (47 mg, 0.18 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9i** (100 mg, 0.32 mmol, 45%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10i** (56 mg, 0.19 mmol, 26%) as a yellow liquid.

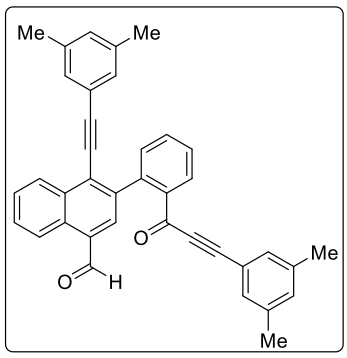
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1 H, s), 9.28-9.16 (1 H, m), 8.81-8.64 (1 H, m), 8.46 (1 H, d, *J* = 7.5 Hz), 7.99 (1 H, s), 7.73-7.63 (4 H, m), 7.53-7.45 (3 H, m), 7.24 (1 H, d, *J* = 7.7 Hz), 7.19-7.10 (4 H, m) and 7.05 (1 H, t, *J* = 7.3 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9, 178.2, 141.5, 140.6, 137.2, 137.1, 134.7, 133.9, 133.8, 133.0, 132.5, 132.4, 131.9, 131.7, 131.5, 130.7, 130.0, 129.6, 129.3, 128.5, 128.1, 127.4, 127.1, 127.0, 126.2, 125.8, 125.3, 125.0, 124.9, 122.4, 100.3, 91.5, 90.99 and 90.95 ppm. **IR** (neat): 3059, 2200, 1693, 1642, 1587, 1262 and 733 cm^{-1}. **HR ESI-MS**: $[C_{34}H_{19}Br_2O_2]^+$ = $[M+H]^+$ requires 616.9752; found 616.9729. **TLC**: R_f = 0.3 (4:1, hexane:EtOAc).

3-(2-Bromophenyl)-1-{2-{1-[(2-bromophenyl)ethynyl]naphthalen-2-yl}phenyl}prop-2-yn-1-one (10i)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.81 (1 H, d, *J* = 7.6 Hz), 8.70 (1 H, d, *J* = 8.2 Hz), 7.79 (2 H, d, *J* = 7.7 Hz), 7.74 (1 H, d, *J* = 8.0 Hz), 7.71-7.56 (4 H, m), 7.51-7.37 (7 H, m) and 7.33-7.27 (2 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 191.3, 144.1, 139.7, 139.6, 136.8, 136.3, 135.0, 133.8, 133.0, 132.8, 132.7, 130.8, 130.3, 129.9, 129.87, 129.85, 129.0, 128.7, 127.7, 127.5, 127.46, 127.41, 125.5, 125.3, 124.2, 124.1, 123.5, 114.0, 98.6 and 89.9 ppm. **IR** (neat): 3058, 2926, 2861, 2199, 1724, 1646, 1473 and 722 cm^{-1}. **HR ESI-MS**: $[C_{33}H_{19}Br_2O]^+$ = $[M+H]^+$ requires 588.9803; found 588.9779. **TLC**: R_f = 0.6 (4:1, hexane:EtOAc).

4-[(3,5-Dimethylphenyl)ethynyl]-3-{2-[3-(3,5-dimethylphenyl)propioloyl]phenyl}-1-naphthaldehyde (9j)

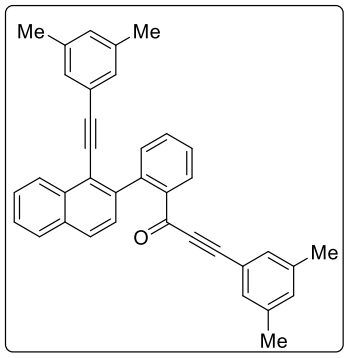


Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8j** (328 mg, 0.97 mmol), in toluene (18 mL) and AgOTf (62 mg, 0.24 mmol) were stirred for 13 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9j** (150 mg, 0.58 mmol, 60%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10j** (35 mg, 0.14 mmol, 15%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.34 (1 H, s), 9.24 (1 H, d, *J* = 7.4 Hz), 8.56 (1 H, d, *J* = 7.5 Hz), 8.23 (1 H, d, *J* = 7.5 Hz), 7.99 (1 H, s), 7.70-7.56 (4 H, m), 7.49 (1 H, d, *J* = 7.3 Hz), 6.94 (2 H, s), 6.87 (2 H, s), 6.60 (2 H, s), 2.1 (6 H, s) and 2.1 (6 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.8, 178.6, 140.9, 140.6, 138.0, 137.8, 137.5, 133.6, 132.5, 132.3, 131.7,

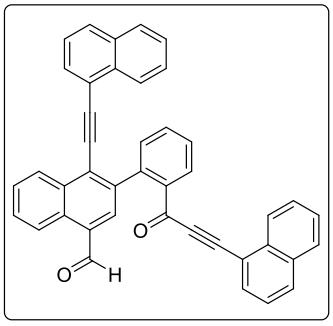
130.9, 130.3, 130.2, 129.6, 129.4, 129.2, 128.2, 127.8, 127.2, 126.9, 125.0, 122.2, 119.3, 103.1, 94.4, 88.0, 86.1, 21.0 and 20.9 ppm. **IR** (neat): 2955, 2924, 2726, 2192, 1736, 1690, 1636, 1240, 1060 and 751 cm^{-1}. **HR ESI-MS**: $[C_{38}H_{29}O_2]^+$ = $[M+H]^+$requires 517.2168; found 517.2157. **TLC**: R_f = 0.4 (4:1, hexane:EtOAc).

3-(3,5-Dimethylphenyl)-1-{2-{1-[(3,5-dimethylphenyl)ethynyl]naphthalen-2-yl}phenyl}-prop-2-yn-1-one (10j)



^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.53 (1 H, d, *J* = 8.2 Hz), 8.19 (1 H, d, *J* = 7.5 Hz), 7.86 (2 H, t, *J* = 5.9 Hz), 7.69-7.50 (6 H, m), 6.99 (2 H, s), 6.89 (2 H, s), 6.59 (2 H, s), 2.24 (6 H, s) and 2.15 (6 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 179.3, 142.1, 141.8, 138.3, 137.79, 137.73, 133.4, 132.7, 132.16, 132.12, 132.0, 130.4, 130.2, 130.0, 129.2, 128.2, 127.7, 127.1, 126.9, 126.5, 123.1, 120.1, 119.7, 99.1, 94.1, 88.2, 86.4, 21.1 and 20.9 ppm. **IR** (neat): 3051, 2926, 2191, 1637, 1599, 1263 and 742 cm^{-1}. **HR ESI-MS**: $[C_{37}H_{29}O]^+$ = $[M+H]^+$ requires 489.2218; found 489.2229. **TLC**: R_f = 0.6 (4:1, hexane:EtOAc).

3-{2-[3-(Naphthalen-1-yl)propioloyl]phenyl}-4-(naphthalen-1-ylethynyl)-1-naphth-aldehyde (9k)

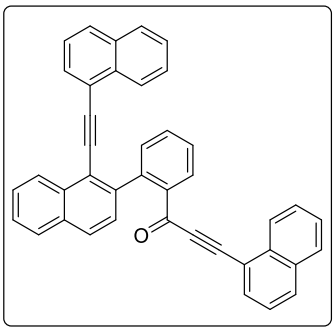


Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8k** (333 mg, 0.94 mmol), in dry toluene (18 mL) and AgOTf (60 mg, 0.23 mmol) were stirred for 10 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9k** (130 mg, 0.46 mmmol, 50%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10k** (77 mg, 0.28 mmol, 30%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.32 (1 H, s), 9.24-9.11 (1 H, m), 8.67-8.59 (1 H, m), 8.36 (1 H, d, *J* = 7.5 Hz), 8.02 (1 H, s), 7.87 (1 H, d, *J* = 8.3 Hz), 7.80-7.69 (5 H, m), 7.65-7.59 (5 H, m), 7.54 (1 H, d, *J* = 8.1 Hz), 7.41-7.37 (2 H, m), 7.34-7.29 (2 H, m), 7.23-7.18 (1 H, m), 7.15 (1 H, t, *J* = 7.8 Hz) and 7.09 (1 H, d, *J* = 7.0 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.8, 178.6, 141.1, 140.9, 137.8, 137.3, 133.7, 133.1, 133.0, 132.9, 132.7, 132.5, 131.8, 131.1, 130.4, 129.7, 129.5, 129.2, 128.5, 128.3, 128.2, 128.0, 127.4, 127.1, 126.9, 126.7, 126.5, 126.4, 126.0, 125.6, 125.1, 125.0, 124.8, 120.3, 117.2, 100.9, 93.0, 92.2 and 91.5 ppm. **IR** (neat):

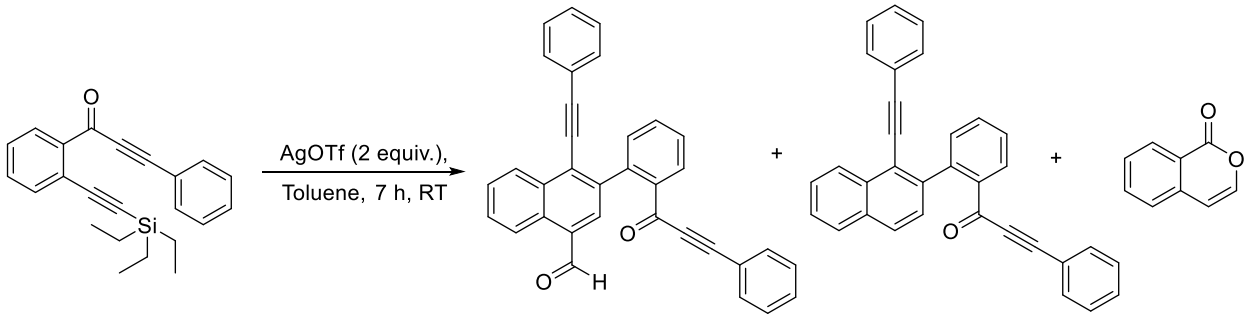
3057, 2923, 2859, 2188, 1688, 1637, 1586, 1292 and 743 cm^{-1}. **HR ESI-MS**: $[C_{42}H_{25}O_2]^+$ = $[M+H]^+$ requires 561.1855; found 561.1800. **TLC**: R_f = 0.4 (4:1, hexane:EtOAc).

3-(Naphthalen-1-yl)-1-{2-[1-(naphthalen-1-ylethynyl)naphthalen-2-yl]phenyl}prop-2-yn-1-one (10k)



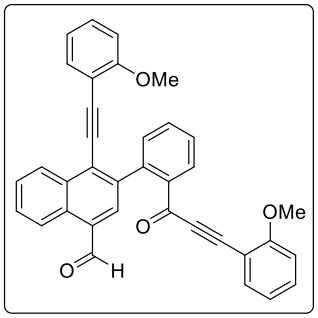
^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.78 (1 H, d, *J* = 7.6 Hz), 8.69 (1 H, d, *J* = 8.5 Hz), 8.66 (1 H, d, *J* = 8.4 Hz), 8.04-7.94 (4 H, m), 7.71 (1 H, t, *J* = 7.7 Hz), 7.68-7.62 (4 H, m), 7.62-7.55 (4 H, m), 7.53 (1 H, t, *J* = 7.7 Hz), 7.47-7.43 (2 H, m) and 7.36-7.21 (5 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 191.3, 144.1, 139.7, 136.7, 136.4, 134.9, 134.1, 133.6, 133.5, 133.4, 132.5, 131.1, 129.8, 129.77, 129.71, 129.6, 128.7, 128.6, 128.5, 127.5, 127.4, 127.1, 127.0, 126.8, 126.2, 126.0, 125.6, 125.5, 125.4, 124.1, 123.9, 120.6, 114.3, 107.1, 98.5, 91.9 and 90.2 ppm. **IR** (neat): 3056, 2929, 2861, 2187, 1729, 1638, cm^{-1}. **HR ESI-MS**: $[C_{41}H_{25}O]^+$ = $[M+H]^+$ requires 533.1905; found 533.1883. **TLC**: R_f = 0.5 (4:1, hexane:EtOAc).

1*H*-isochromen-1-one (4a):



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **8l** (60 mg, 0.174 mmol), in dry toluene (4 mL) and AgOTf (89 mg, 0.34 mmol) were stirred for 7 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) gave **9a** (20 mg, 0.08 mmmol, 50%) as yellow liquid along with eluent (4:1 hexane:EtOAc) gave **10a** (9 mg, 0.03 mmol, 23%) as a yellow liquid, and isocoumarin **4a** (3 mg, 0.02 mmol, 14%).

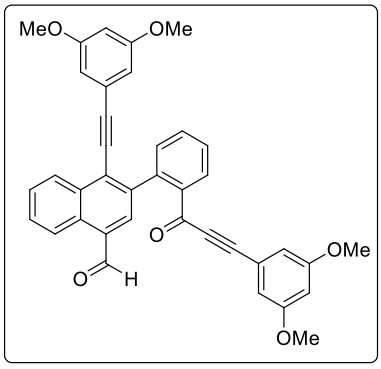
4-[(2-Methoxyphenyl)ethynyl]-3-{2-[3-(2-methoxyphenyl)propioloyl]phenyl}-1-naphthaldehyde (9m)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[4] **8m** (180 mg, 0.54 mmol), in toluene (10 mL) and AgOTf (35 mg, 0.13 mmol) were stirred for 5 h at RT. Purification by flash column chromatography (3:1 hexane:EtOAc) gave **9m** (45 mg, 0.17 mmol, 39%) as yellow liquid.

^{1}H NMR (400 MHz, CDCl3): δ = 10.33 (1 H, s), 9.32-9.09 (1 H, m), 8.86-8.67 (1 H, m), 8.41 (1 H, d, *J* = 7.6 Hz), 7.96 (1 H, s), 7.72-7.58 (4 H, m), 7.53 (1 H, d, *J* = 7.4 Hz), 7.31-7.24 (1 H, m), 7.23-7.17 (2 H, m), 7.01 (1 H, d, *J* = 7.5 Hz), 6.82-6.70 (4 H, m), 3.82 (3 H, s) and 3.77 (3 H, s) ppm. **^{13}C NMR** (100 MHz, CDCl3): δ = 193.0, 178.6, 161.3, 160.4, 140.7, 137.8, 137.6, 134.5, 133.8, 133.5, 132.4, 132.2, 132.0, 131.4, 130.5, 130.1, 129.1, 128.2, 127.7, 127.6, 126.9, 124.9, 120.4, 112.1, 110.6, 109.2, 99.2, 92.6, 90.9, 90.7 and 55.2 ppm. **IR (neat):** 3070, 2927, 2846, 2194, 1685, 1639, 1492, 1276 and 740 cm -1. **TLC:** Rf = 0.2 (3:1, hexane:EtOAc).

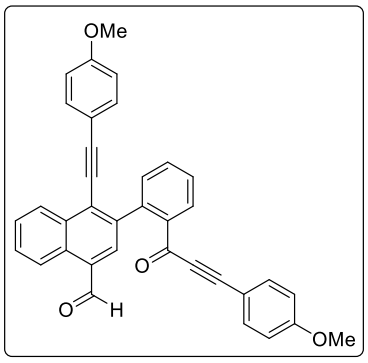
4-[(3,5-Dimethoxyphenyl)ethynyl]-3-{2-[3-(3,5-dimethoxyphenyl)propioloyl]phenyl}-1-naphthaldehyde (9n)



Followed general procedure F: The 2-(alkynonyl)alkynyl-benzene **8n** (137 mg, 0.37 mmol), in toluene (7 mL) and AgOTf (24 mg, 0.09 mmol) were stirred for 8 h at RT. Purification by flash column chromatography (3:1 hexane:EtOAc) gave **9n** (48 mg, 0.16 mmol, 45%) as yellow liquid.

^{1}H NMR (400 MHz, CDCl3): δ = 10.31 (1 H, s), 9.14 (1 H, d, *J* = 8.1 Hz), 8.45 (1 H, d, *J* = 8.0 Hz), 8.16 (1 H, d, *J* = 7.7 Hz), 7.94 (1 H, s), 7.65-7.57 (3 H, m), 7.53 (1 H, t, *J* = 7.5 Hz), 7.43 (1 H, d, *J* = 7.4 Hz), 6.38 (2 H, s), 6.34-6.27 (2 H, m), 6.17 (2 H, s), 3.65 (6 H, s), 3.58 (6 H, s) ppm. **^{13}C NMR** (100 MHz, CDCl3): δ = 192.8, 178.6, 160.5, 160.4, 141.3, 140.6, 138.0, 137.1, 133.6, 132.7, 131.9, 130.6, 130.5, 129.7, 129.4, 128.4, 128.0, 127.2, 126.5, 125.1, 123.8, 121.0, 110.1, 109.6, 104.1, 102.5, 102.4, 93.7, 87.8, 86.3, 55.5 and 55.4 ppm. **IR (neat):** 2985, 2356, 1735, 1670, 1373, 1234 and 1045 cm-1. **TLC**: Rf = 0.4 (3:1, hexane:EtOAc).

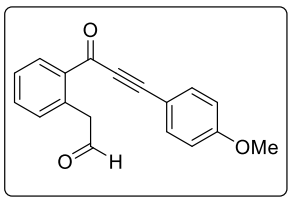
4-[(4-Methoxyphenyl)ethynyl]-3-{2-[3-(4-methoxyphenyl)propioloyl]phenyl}-1-naphthaldehyde (9o)



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene[5] **8o** (100 mg, 0.30 mmol), in toluene (6 mL) and AgOTf (39 mg, 0.15 mmol) were stirred for 24 h at RT. Purification by flash column chromatography (5:1 hexane:EtOAc) gave **9o** (9 mg, 0. 03 mmol, 10%) as a yellow liquid and **11** (49 mg, 0.17 mmol, 60%) as pale yellow liquid.

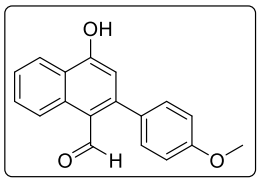
^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.3 (1 H, s), 9.17 (1 H, d, *J* = 7.3 Hz), 8.49 (1 H, d, *J* = 6.8 Hz), 8.16 (1 H, d, *J* = 7.4 Hz), 7.9 (1 H, s), 7.67-7.57 (3 H, m), 7.57-7.51 (1 H, m), 7.45 (1 H, d, *J* = 7.1 Hz), 7.19 (2 H, d, *J* = 8.8 Hz), 6.94 (2 H, d, *J* = 8.4 Hz), 6.69 (2 H, d, *J* = 8.4 Hz), 6.59 (2 H, d, *J* = 8.4 Hz) and 3.69 (6 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 192.9, 178.8, 161.4, 160.3, 140.8, 140.7, 139.4, 138.2, 137.6, 134.8, 133.6, 133.4, 132.4, 131.9, 130.4, 130.2, 129.8, 129.34, 128.37, 127.9, 127.4, 127.2, 125.1, 114.8, 114.1, 111.7, 103.1, 94.8, 88.7, 85.9, 55.48 and 55.40 ppm. **IR** (neat): 3063, 2978, 2883, 2243, 1765, 1735, 1692, 1289 and 710 cm^{-1}. **HR ESI-MS**: $[C_{36}H_{25}O_4]^+ = [M+H]^+$ requires 521.1753; found 521.1740. **TLC**: R_f = 0.3 (5:1, hexane:EtOAc).

2-{2-[3-(4-Methoxyphenyl)propioloyl]phenyl}acetaldehyde (11):



^{1}H NMR (400 MHz, CDCl3): δ = 9.81 (1 H, s), 8.42 (1 H, d, *J* = 7.5 Hz), 7.61 (2 H, d, *J* = 8.2 Hz), 7.57-749 (2 H, m), 7.27-7.24 (1 H, m), 6.92 (2 H, d, *J* = 8.1 Hz), 4.10 (2 H, s) and 3.84 (3 H, s) ppm. **^{13}C NMR** (100 MHz, CDCl3): δ = 198.8, 179.4, 161.9, 135.6, 135.2, 134.6, 133.9, 133.5, 133.1, 127.8, 114.5, 111.8, 94.4, 87.9, 55.5 and 49.3 ppm. **IR (neat):** 2981, 2190, 1735, 1600, 1257 and 755 cm-1. **TLC:** Rf = 0.4 (5:1, hexane:EtOAc).

4-Hydroxy-2-(4-methoxyphenyl)-1-naphthaldehyde (14)

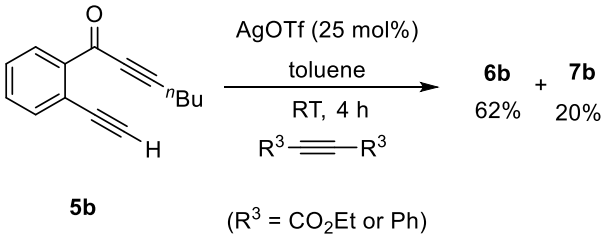


Followed general procedure F: The 1,5-diketone **11** (15 mg, 0.05 mmol), in toluene (1 mL) and AgOTf (4 mg, 0.01 mmol) were stirred for 1 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **14** (13 mg, 0.04 mmol, 87%) as yellow semi solid.

^{1}H NMR (400 MHz, CDCl3): δ = 13.9 (1 H, s), 8.51 (1 H, d, *J* = 8.2 Hz), 7.76 (3 H, t, *J* = 7.7 Hz), 7.68-7.59 (2 H, m), 7.55 (1 H, t, *J* = 7.2 Hz), 7.27-7.21 (1 H, m), 7.02 (2 H, d, *J* = 8.1 Hz)

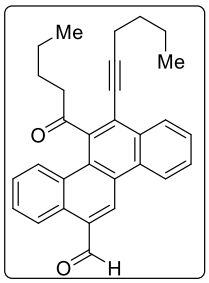
and 3.90 (3 H, s) ppm. **^{13}C NMR** (100 MHz, CDCl3): δ = 200.1, 163.6, 162.8, 137.2, 131.8, 130.8, 130.2, 127.5, 126.0, 125.5, 124.5, 117.8, 113.8, 112.8 and 55.6 ppm. **IR** (neat): 3050, 2923, 2850, 1596, 1465, 1261, 1172 and 736 cm-1. **TLC**: Rf = 0.2 (4:1, hexane:EtOAc).

failure of the cross [4+2] cycloaddition of pyrylium ion with alkyne:



Followed general procedure F: The 2-(alkynonyl)alkynylbenzene **5b** (50 mg, 0.23 mmol), and diphenylacetylene or diethylacetylene dicarboxylate (external alkyne-1.2 equiv.) (in case of diethyl but-2-ynedioate, 46 mg, 0.27 mmol and in case of diphenyl acetylene 49 mg, 0.27 mmol) in toluene (5 mL) and AgOTf (14 mg, 0.05 mmol) were stirred for 4 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave **6b** (30 mg, 0.14 mmol, 62%) as a yellow liquid and **7b** (9 mg, 0.04 mmol, 20%) as pale yellow liquid.

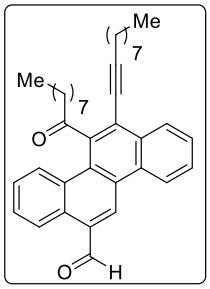
12-(Hex-1-yn-1-yl)-11-pentanoylchrysene-6-carbaldehyde (22)



The carbonylated naphthalene **6b** (30 mg, 0.07 mmol), in 1, 2-DCB (3 mL) were stirred for 21 h at 150 ˚C. Purification by flash column chromatography (4:1 hexane:EtOAc) gave the chrysene derivative **22** (19 mg, 0.04 mmol, 65%) as a red solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.5 (1 H, s), 9.39 (1 H, d, *J* = 7.5 Hz), 9.1 (1 H, s), 8.77 (1 H, d, *J* = 7.4 Hz), 8.58 (1 H, d, *J* = 7.4 Hz), 8.43 (1 H, d, *J* = 7.4 Hz), 7.86-7.70 (3 H, m), 7.65 (1 H, t, *J* = 6.5 Hz), 2.76-2.57 (4 H, m), 1.80-1.69 (4 H, m), 1.63-1.56 (2 H, m), 1.38-1.31 (2 H, m), 1.02 (3 H, t, *J* = 6.1 Hz) and 0.86 (3 H, t, *J* = 6.5 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 209.6, 193.2, 141.6, 133.7, 131.4, 130.7, 130.16, 131.10, 129.5, 128.8, 128.6, 128.5, 128.1, 128.0, 127.6, 127.2, 126.6, 125.6, 122.9, 122.1, 104.2, 77.0, 44.3, 30.8, 26.1, 22.29, 22.23, 19.9, 14.0 and 13.8 ppm. **IR** (neat): 3060, 2929, 2864, 2216, 1696, 1577, 1263 and 742 cm^{-1}. **HR ESI-MS**: $[C_{30}H_{28}O_2]^+ = [M+H]^+$ requires 420.2089; found 420.2071. **TLC**: R_f = 0.5 (4:1, hexane:EtOAc). **M.P**: 93-95 ℃.

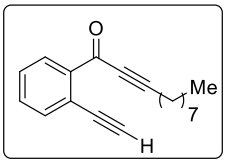
12-(Dec-1-yn-1-yl)-11-nonanoylchrysene-6-carbaldehyde (23)



The carbonylated naphthalene **6c** (30 mg, 0.05 mmol), in 1,2-DCB (3 mL) were stirred for 28 h at 150 ˚C. Purification by flash column chromatography (4:1 hexane:EtOAc) gave the chrysene derivative **23** (12 mg, 0.02 mmol, 45%) as a red solid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 10.5 (1 H, s), 9.41 (1 H, d, *J* = 8.1 Hz), 9.18 (1 H, s), 8.81 (1 H, d, *J* = 8.3 Hz), 8.61 (1 H, d, *J* = 8.0 Hz), 8.45 (1 H, d, *J* = 8.5 Hz), 7.83 (1 H, t, *J* = 7.7 Hz), 7.77 (2 H, t, *J* = 8.0 Hz), 7.66 (1 H, t, *J* = 7.4 Hz), 2.69 (2 H, t, *J* = 7.3 Hz), 2.63 (2 H, t, *J* = 7.0 Hz), 1.80-1.71 (4 H, m), 1.62-1.53 (5 H, m), 1.33-1.28 (9 H, m) and 0.91-0.84 (12 H, m) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 209.6, 193.3, 141.6, 133.8, 131.4, 130.7, 130.18, 130.13, 129.5, 128.8, 128.6, 128.5, 128.1, 128.0, 127.6, 125.6, 123.0, 122.1, 114.2, 104.3, 44.6, 32.0, 31.9, 29.54, 29.50, 29.41, 29.3, 29.29, 29.26, 29.1, 28.7, 24.1, 22.8, 20.2 and 14.2 ppm. **IR** (neat): 3061, 2926, 2858, 2219, 1740, 1698, 1462, 1265 and 756 cm^{-1}. **HR ESI-MS**: $[C_{38}H_{46}O_2]^+ = [M+H]^+$ requires 533.3420; found 533.3395. **TLC**: R_f = 0.5 (4:1, hexane:EtOAc).

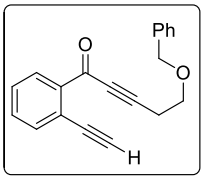
1-(2-Ethynylphenyl)undec-2-yn-1-one (5c)



Followed general procedure D: Alcohol **S1** (400 mg, 1.49 mmol), Jones reagent (3 *M* solution in water and H_2SO_4) (0.6 mL, 1.79 mmol), anhydrous acetone (4 mL) was stirred for 2 h at 0 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the 2-(alkynonyl)alkynyl-benzene **5c** (350 mg, 1.3 mmol, 88%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.10 (1 H, d, *J* = 7.8 Hz), 7.61 (1 H, d, *J* = 7.5 Hz), 7.53-7.40 (2 H, m), 3.39 (1 H, s), 2.45 (2 H, t, *J* = 7.2 Hz), 1.67-1.60 (2 H, m), 1.50-1.37 (2 H, m), 1.31-1.24 (8 H, m) and 0.87 (3 H, t, *J* = 7.0 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.4, 139.1, 135.5, 132.3, 131.8, 128.5, 121.6, 97.4, 82.8, 82.0, 80.7, 31.9, 29.2, 29.1, 29.0, 27.7, 22.7, 19.4 and 14.2 ppm. **IR** (neat): 3298, 2934, 2858, 2212, 1647, 1464, 1257 and 737 cm^{-1}. **HR ESI-MS**: $[C_{19}H_{23}O]^+ = [M+H]^+$ requires 267.1749; found 267.1735. **TLC**: R_f = 0.6 (19:1, hexane:EtOAc).

5-(Benzyloxy)-1-(2-ethynylphenyl)pent-2-yn-1-one (5e)

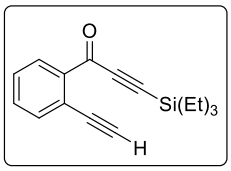


Followed general procedure D: Alcohol **S2** (320 mg, 1.1 mmol), Jones reagent (3 *M* solution in water and H_2SO_4) (0.4 mL, 1.32 mmol), anhydrous acetone (4 mL) was stirred for 2 h at 0 °C. Purification by flash column

chromatography (19:1 hexane:EtOAc) gave the 2-(alkynonyl)alkynyl-benzene **5e** (181 mg, 1.11 mmol, 57%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.12 (1 H, t, *J* = 8.2 Hz), 7.61 (1 H, d, *J* = 7.4 Hz), 7.51-7.47 (1 H, m), 7.41-7.26 (6 H, m), 4.58 (2 H, s), 3.71 (2 H, t, *J* = 6.5 Hz), 3.38 (1 H, s) and 2.78 (2 H, t, *J* = 6.5 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.7, 138.7, 137.8, 135.5, 132.4, 132.1, 130.2, 128.6, 127.9, 127.8, 121.6, 93.7, 83.0, 82.0, 81.1, 73.2, 67.3 and 20.9 ppm. **IR** (neat): 3300, 2930, 2858, 2207, 1648, 1261 and 880 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{17}O_2]^+ = [M+H]^+$ requires 289.1307; found 289.1306. **TLC**: R_f = 0.5 (19:1, hexane:EtOAc).

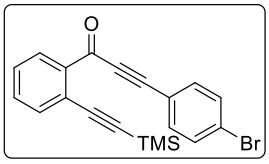
1-(2-Ethynylphenyl)-3-(triethylsilyl)prop-2-yn-1-one (5f)



Followed general procedure D: Alcohol **S3** (200 mg, 0.7 mmol), Jones reagent (3 *M* solution in water and H_2SO_4) (0.3 mL, 0.88 mmol), anhydrous acetone (4 mL) was stirred for 2 h at 0 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the 2-(alkynonyl)-alkynylbenzene **5f** (180 mg, 0.6 mmol, 91%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.15 (1 H, d, *J* = 7.5 Hz), 7.61 (1 H, d, *J* = 7.4 Hz), 7.50 (1 H, t, *J* = 7.5 Hz), 7.45 (1 H, t, *J* = 7.5 Hz), 3.38 (1 H, s), 1.04 (9 H, t, *J* = 7.9 Hz) and 0.72 (6 H, q, *J* = 7.9 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 176.7, 138.5, 135.5, 132.6, 132.1, 128.5, 121.7, 102.7, 99.1, 83.0, 81.9, 7.48 and 3.98 ppm. **IR** (neat): 3292, 2953, 2885, 2149, 1651, 1467, 1234, 1012 and 743 cm^{-1}. **HR ESI-MS**: $[C_{17}H_{21}OSi]^+ = [M+H]^+$ requires 269.1362; found 269.1354. **TLC**: R_f = 0.6 (19:1, hexane:EtOAc).

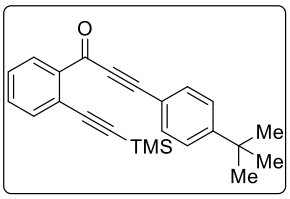
3-(4-Bromophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8c)



Followed general procedure C: Alcohol **S4** (415 mg, 1.08 mmol), IBX (393 mg, 1.40 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (9:1 hexane:EtOAc) gave the ketone **8c** (350 mg, 0.91 mmol, 84%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.06 (1 H, d, *J* = 7.7 Hz), 7.62 (1 H, d, *J* = 7.5 Hz), 7.57-7.48 (5 H, m), 7.47-7.37 (1 H, m) and 0.21 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.5, 138.9, 135.2, 134.5, 132.5, 132.1, 131.2, 128.3, 125.7, 122.8, 119.3, 102.9, 101.7, 92.0, 88.9 and 0.00 ppm. **IR** (neat): 2959, 2926, 2199, 1647, 1586, 1481, 1275 and 846 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{18}BrOSi]^+ = [M+H]^+$ requires 381.0310; found 381.0305. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc). **M. P.**: 73-75 °C.

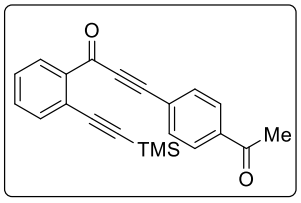
3-[4-(*tert*-Butyl)phenyl]-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8d)



Followed general procedure C: Alcohol **S5** (85 mg, 0.22 mmol), IBX (185 mg, 0.66 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8d** (71 mg, 0.18 mmol, 82%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.11 (1 H, d, *J* = 7.7 Hz), 7.60 (3 H, t, *J* = 8.8 Hz), 7.52-7.39 (4 H, m), 1.32 (9 H, s) and 0.21 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.7, 154.6, 139.2, 135.1, 133.2, 132.2, 131.3, 128.3, 125.8, 122.7, 117.3, 103.1, 101.4, 94.1, 88.0, 35.2, 31.1 and -0.11 ppm. **IR** (neat): 3060, 2963, 2197, 2155, 1646, 1305 and 745 cm^{-1}. **HR ESI-MS**: $[C_{24}H_{27}OSi]^+$ = $[M+H]^+$ requires 359.1831; found 359.1832. **TLC**: R_f = 0.5 (19:1, hexane:EtOAc).

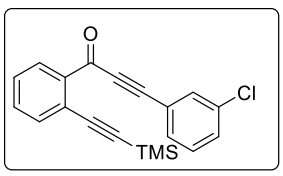
3-(4-Acetylphenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8e)



Followed general procedure C: Alcohol **S6** (300 mg, 0.86 mmol), IBX (315 mg, 1.12 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (9:1 hexane:EtOAc) gave the ketone **8e** (240 mg, 0.70 mmol, 81%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.09 (1 H, d, *J* = 7.6 Hz), 7.98 (2 H, d, *J* = 7.9 Hz), 7.73 (2 H, d, *J* = 7.9), 7.63 (1 H, d, *J* = 7.5 Hz), 7.52 (1 H, t, *J* = 7.5 Hz), 7.45 (1 H, t, *J* = 7.5 Hz), 2.63 (3 H, s) and 0.21 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 197.2, 177.3, 138.7, 138.1, 135.2, 133.3, 132.6, 131.3, 128.48, 128.42, 125.0, 122.9, 102.8, 101.9, 91.4, 89.9, 26.8 and 0.10 ppm. **IR** (neat): 2961, 2200, 2156, 1687, 1648, 1601, 1298, 1259 and 859 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{21}O_2Si]^+$ = $[M+H]^+$ requires 345.1311; found 345.1306. **TLC**: R_f = 0.4 (9:1, hexane:EtOAc). **M.P**: 65-68 ℃.

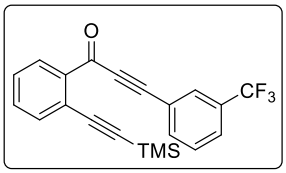
3-(3-Chlorophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8g)



Followed general procedure C: Alcohol **S7** (370 mg, 1.0 mmol), IBX (396 mg, 1.41 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8g** (340 mg, 0.91 mmol, 93%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.07 (1 H, d, *J* = 7.6 Hz), 7.67-7.57 (2 H, m), 7.56-7.48 (2 H, m), 7.45 (2 H, t, *J* = 7.1 Hz), 7.34 (1 H, t, *J* = 7.8 Hz) and 0.021 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.3, 138.8, 135.2, 134.7, 132.9, 132.5, 131.3, 131.2, 131.1, 130.0, 128.4, 122.9, 122.1, 102.9, 101.8, 91.2, 88.6 and 0.10 ppm. **IR** (neat): 2961, 2900, 2203, 2157, 1646, 1591, 1562, 1475, 1266, 1012 and 874 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{18}ClOSi]^+$ = $[M+H]^+$ requires 337.0815; found 337.0806. **TLC**: R_f = 0.2 (19:1, hexane:EtOAc).

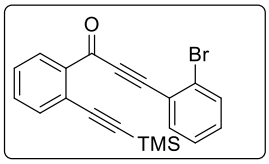
3-[3-(Trifluoromethyl)phenyl]-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8h)



Followed general procedure C: Alcohol **S8** (480 mg, 1.29 mmol), IBX (469 mg, 1.67 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8h** (356 mg, 0.96 mmol, 75%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.08 (1 H, d, *J* = 7.6 Hz), 7.89 (1 H, s), 7.82 (1 H, d, *J* = 7.7 Hz), 7.71 (1 H, d, *J* = 7.8 Hz), 7.63 (1 H, d, *J* = 7.6 Hz), 7.58-7.49 (2 H, m), 7.46 (1 H, t, *J* = 7.6 Hz) and 0.20 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.3, 138.6, 136.2, 135.2, 132.6, 131.3, 129.8 (C, q, *J* = 3.6 Hz), 129.4, 128.4, 127.3 (C, q, *J* = 3.6 Hz), 122.9, 121.4, 102.8, 101.9, 90.8, 88.7 and 0.14 ppm. **^{19}F NMR** (282 MHz, CDCl3): δ = -63.0 (s, 3 F, CF_3) ppm. **IR** (neat): 2961, 2204, 2158, 1650, 1480, 1436, 1334, 1010 and 873 cm^{-1}. **HR ESI-MS**: $[C_{21}H_{18}F_3OSi]^+$ = $[M+H]^+$ requires 371.1079; found 371.1077. **TLC**: R_f = 0.2 (19:1, hexane:EtOAc). **M. P.**: 187-190 °C.

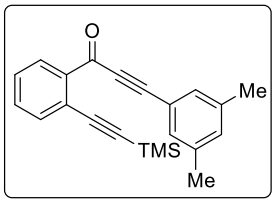
3-(2-Bromophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8i)



Followed general procedure C: Alcohol **S9** (311 mg, 0.80 mmol), IBX (294 mg, 1.0 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8i** (280 mg, 0.73 mmol, 91%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.34 (1 H, d, *J* = 7.4 Hz), 7.72-7.57 (3 H, m), 7.57-7.41 (2 H, m), 7.41-7.27 (2 H, m) and 0.25 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.0, 138.5, 135.4, 135.2, 132.9, 132.6, 132.3, 131.9, 128.3, 127.4, 126.9, 122.9, 122.8, 103.2, 101.4, 91.2, 90.6 and 0.07 ppm. **IR** (neat): 3026, 2920, 1997, 1653, 1664, 1365, 1170 and 846 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{18}BrOSi]^+$ = $[M+H]^+$ requires 381.0310; found 381.0305. **TLC**: R_f = 0.2 (19:1, hexane:EtOAc).

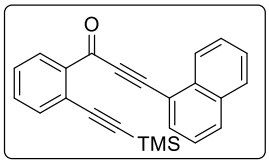
3-(3,5-Dimethylphenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8j)



Followed general procedure C: Alcohol **S10** (400 mg, 1.20 mmol), IBX (438 mg, 1.56 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8j** (360 mg, 1.09 mmol, 91%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.96 (1 H, d, *J* = 7.5 Hz), 7.48 (1 H, d, *J* = 7.4 Hz), 7.38-7.28 (2 H, m), 7.16-7.10 (2 H, m), 6.96 (1 H, s), 2.19 (6 H, s) and 0.08 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.7, 139.2, 138.4, 135.1, 132.9, 132.2, 131.3, 131.0, 128.3, 122.7, 120.0, 103.0, 101.4, 94.2, 87.7, 21.1 and 0.10 ppm. **IR** (neat): 2960, 2922, 2192, 2159, 1645, 1596, 1473, 1261, 1053 and 875 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{23}OSi]^+$ = $[M+H]^+$ requires 331.1518; found 331.1409. **TLC**: R_f = 0.4 (19:1, hexane:EtOAc). **M.P.**: 60-63 °C.

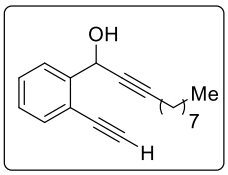
3-(Naphthalen-1-yl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-one (8k)



Followed general procedure C: Alcohol **S11** (400 mg, 1.29 mmol), IBX (411 mg, 1.46 mmol), dry EtOAc (4 mL) were stirred for 3 h at 80 °C. Purification by flash column chromatography (19:1 hexane:EtOAc) gave the ketone **8k** (370 mg, 1.0 mmol, 81%) as a red oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.42 (1 H, d, *J* = 8.1 Hz), 8.19 (1 H, d, *J* = 7.4 Hz), 8.02-7.82 (3 H, m), 7.71-7.43 (6 H, m) and 0.15 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 177.7, 139.4, 135.2, 133.8, 133.5, 133.2, 132.3, 131.6, 131.2, 128.6, 128.4, 127.8, 127.0, 126.1, 125.3, 122.8, 118.0, 103.0, 101.8, 92.9, 91.9 and 0.17 ppm. **IR** (neat): 3058, 2961, 2901, 2190, 1642, 1300 and 864 cm^{-1}. **HR ESI-MS**: $[C_{24}H_{21}OSi]^+$ = $[M+H]^+$ requires 353.1362; found 353.1356. **TLC**: R_f = 0.5 (19:1, hexane:EtOAc). **M. P.**: 82-85 °C.

1-(2-Ethynylphenyl)undec-2-yn-1-ol (S1)

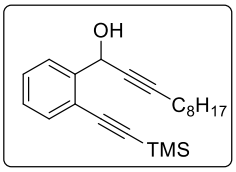


Followed procedure B: The TMS Protected alkyne **S1-a** (200 mg, 0.58 mmol), in MeOH (5 mL) and Potassium carbonate (162 mg, 1.17 mmol) were stirred for 15 min RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave the Terminal alkyne **S1** (140 mg, 0.52 mmol, 89%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.72 (1 H, d, *J* = 7.6 Hz), 7.50 (1 H, d, *J* = 7.7 Hz), 7.38 (1 H, t, *J* = 7.7 Hz), 7.27 (1 H, t, *J* = 7.5 Hz), 5.87 (1 H, s), 3.36 (1 H, s), 2.63 (1 H, br s), 2.25 (2

H, td, *J* = 7.1 & 1.6 Hz), 1.52 (2 H, pent, *J* = 7.4 Hz), 1.43-1.33 (2 H, m), 1.26 (8 H, m) and 0.87 (3 H, t, *J* = 6.9 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.6, 133.1, 129.4, 128.1, 126.8, 120.4, 87.9, 82.5, 81.2, 79.2, 63.1, 31.9, 29.2, 29.1, 28.9, 28.6, 22.7, 18.9 and 14.2 ppm. **IR** (neat): 3298, 3064, 2952, 2912, 2858, 2226, 1458, 999 and 763 cm^{-1}. **HR ESI-MS**: $[C_{19}H_{25}O]^+ = [M+H]^+$ requires 269.1905; found 269.1907. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

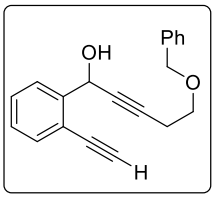
1-{2-[(Trimethylsilyl)ethynyl]phenyl}undec-2-yn-1-ol (S1-a)



Followed general procedure A: To an ice-cold solution of dec-1-yne (0.44 mL, 2.47 mmol), in anhydrous THF stirred for 15 min at 0 °C. Later added ^{n}BuLi (1.6 *M* in hexane) (1.5 mL, 2.47 mmol), stirred for 15 min. added 2-[(trimethylsilyl)ethynyl]benzaldehyde[4] (200 mg, 1.23 mmol) drop wise. Then, warmed to rt for 3 h. Reaction mixture was diluted with aq. NH_4Cl solution (10 mL), extracted with ethyl acetate, dried ($MgSO_4$), concentrated, purification of the crude reaction mixture by flash column chromatography (9:1 Hexane:EtOAc) gave the aryl alcohol **S1-a** (350 mg, 1.02 mmol, 84%) as a yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.67 (1 H, d, *J* = 7.5 Hz), 7.46 (1 H, d, *J* = 7.4 Hz), 7.34 (1 H, t, *J* = 7.5 Hz), 7.28-7.20 (1 H, m), 5.83 (1 H, s), 2.92-2.70 (1 H, m), 2.35-2.20 (2 H, m), 1.60-1.48 (2 H, m), 1.41-1.34 (2 H, m), 1.31-1.23 (8 H, m), 0.91-0.84 (3 H, m) and 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.6, 132.7, 129.1, 128.0, 126.6, 121.2, 102.5, 100.4, 87.7, 79.1, 63.5, 31.9, 29.2, 29.1, 29.0, 28.6, 22.7, 18.9, 14.2 and -0.02 ppm. **IR** (neat): 3414, 2927, 2859, 2155, 1010 and 846 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{33}OSi]^+ = [M+H]^+$ requires 341.2301; found 341.2290. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

5-(Benzyloxy)-1-(2-ethynylphenyl)pent-2-yn-1-ol (S2)

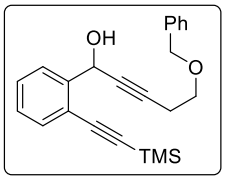


Followed general procedure B: The TMS Protected alkyne **S2-a** (250 mg, 0.69 mmol), in MeOH (5 mL) and Potassium carbonate (190 mg, 1.38 mmol) were stirred for 15 min RT. Purification by flash column chromatography (9:1 hexane:EtOAc) gave the Terminal alkyne **S2 (**192 mg, 0.66 mmol, 96%) as a yellow liquid.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.71 (1 H, d, *J* = 7.6 Hz), 7.49 (1 H, d, *J* = 7.4 Hz), 7.36-7.26 (7 H, m), 5.86 (1 H, s), 4.53 (2 H, s), 3.61 (2 H, t, *J* = 6.9 Hz), 3.34 (1 H, s), 2.57 (2 H, t, *J* = 6.6 Hz) and 2.15 (1 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.3, 138.1, 133.1, 129.5, 128.5, 128.2, 127.8, 126.8, 120.4, 84.3, 82.6, 81.1, 80.5, 73.0, 68.3, 63.0 and 20.4 ppm. **IR**

(neat): 3350, 2826, 2687, 2115, 150, 1220 and 840 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{19}O_2]^+ = [M+H]^+$ requires 291.1307; found 291.1309. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

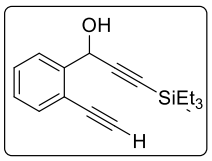
5-(Benzyloxy)-1-{2-[(trimethylsilyl)ethynyl]phenyl}pent-2-yn-1-ol (S2-a)



Followed general procedure A: To an ice-cold solution of dec-1-yne The [(*but*-3-yn-1-yloxy)methyl]benzene (395 mg, 2.45 mmol), in dry THF stirred for 15 min at 0 °C. Later added ^{n}BuLi (1.6 *M* in hexane) (1.5 mL, 2.47 mmol), stirred for 15 min. added 2-[(trimethylsilyl)ethynyl]-benzaldehyde[4] (250 mg, 1.23 mmol) drop wise. Then, warmed to rt for 2 h. Reaction mixture was diluted with aq. NH_4Cl solution (10 mL), extracted with ethyl acetate, dried ($MgSO_4$), concentrated, purification of the crude reaction mixture by flash column chromatography (9:1 Hexane:EtOAc) gave the aryl alcohol **S2-a** (420 mg, 1.02 mmol, 94%) as a yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.66 (1 H, d, *J* = 7.4 Hz), 7.46 (1 H, d, *J* = 7.2 Hz), 7.35-7.26 (7 H, m), 5.83 (1 H, s), 4.53 (2 H, s), 3.61 (2 H, t, *J* = 6.8 Hz), 2.58 (2 H, t, *J* = 5.5 Hz) and 0.26 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.3, 138.1, 132.7, 129.1, 128.6, 128.5, 128.0, 127.8, 126.7, 121.2, 102.4, 100.5, 84.0, 80.4, 73.0, 68.3, 63.3, 20.4 and -0.01 ppm. **IR** (neat): 3449, 2922, 2857, 1726, 1455, 1266 and 735 cm^{-1}. **HR ESI-MS**: $[C_{23}H_{26}O_2NaSi]^+ = [M+Na]^+$ requires 385.1600; found 385.1586. **TLC**: R_f = 0.4 (9:1, hexane:EtOAc).

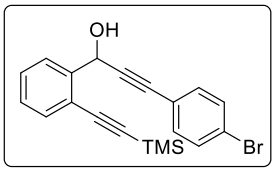
1-(2-Ethynylphenyl)-3-(triethylsilyl)prop-2-yn-1-ol (S3)



Followed general procedure A: To an ice-cold solution of triethylsilylacetylene (0.6 mL, 3.36 mmol), in dry THF stirred for 15 min at 0 °C. Later added ^{n}BuLi (1.6 *M* in hexanes 2 mL, 3.36 mmol) stirred for 15 min. added 2-ethynylbenzaldehyde (366 mg, 2.8 mmol) drop wise. Then, warmed to rt for 3 h. Reaction mixture was diluted with aq. NH_4Cl solution (10 mL), extracted with ethyl acetate, dried ($MgSO_4$), concentrated, purification of the crude reaction mixture by flash column chromatography (9:1 Hexane:EtOAc) gave the (2-ethynylphenyl)-3-(triethylsilyl)propargyl alcohol **S3** (400 mg, 1.48 mmol, 53%) as a dark yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.74 (1 H, d, *J* = 7.6 Hz), 7.51 (1 H, d, *J* = 7.4 Hz), 7.39 (1 H, t, *J* = 7.4 Hz), 7.29 (1 H, t, *J* = 7.2 Hz), 5.89 (1 H, d, *J* = 4.8 Hz), 3.36 (1 H, s), 2.63 (1 H, br s), 0.99 (9 H, t, *J* = 7.8 Hz) and 0.62 (6 H, q, *J* = 7.8 Hz) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 142.8, 133.2, 129.4, 128.3, 126.9, 120.7, 105.5, 89.3, 82.7, 81.1, 63.5, 7.5 and 4.3 ppm. **IR** (neat): 3400, 2951, 2884, 2172, 1465, 1238, 1034 and 726 cm^{-1}. **HR ESI-MS**: $[C_{17}H_{23}OSi]^+ = [M+H]^+$ requires 271.1518; found 271.1514. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

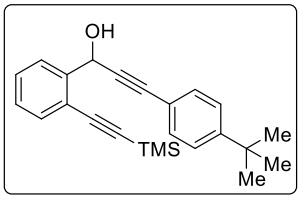
3-(4-Bromophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S4)



Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]-propargyl alcohol[7] (300 mg, 1.31 mmol), 1-bromo-4-iodobenzene (554 mg, 1.97 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (37 mg, 0.19 mmol) and $PdCl_2(PPh_3)_2$ (9 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S4** (450 mg, 1.17 mmol, 89%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.68 (1 H, d, *J* = 7.7 Hz), 7.50 (1 H, d, *J* = 7.5 Hz), 7.44 (2 H, d, *J* = 8.2 Hz), 7.38 (1 H, t, *J* = 7.41 Hz), 7.34-7.26 (3 H, m), 6.01 (1 H, d, *J* = 2.3 Hz), 2.98 (1 H, br s), and 0.26 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 142.7, 133.3, 133.0, 131.6, 129.3, 128.3, 126.7, 122.9, 121.6, 121.3, 102.3, 101.0, 89.3, 85.5, 63.9 and 0.00 ppm. **IR** (neat): 3432, 3056, 2927, 2854, 2155, 1484, 1446, 1263 and 753 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{18}ClOSi]^+$ = $[M+H]^+$ requires 337.0815; found 337.0806. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc). **M. P.**: 1107-110 ℃.

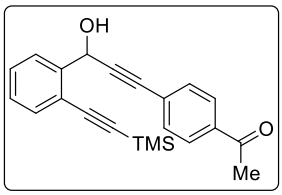
3-[4-(*tert*-Butyl)phenyl]-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S5)



Followed general procedure A: To an ice-cold solution of 1-(*tert*-butyl)-4-ethynylbenzene (0.44 mL, 2.47 mmol), in anhydrous THF stirred for 15 min at 0 °C. Later added ^{n}BuLi (1.6 *M* in hexane) (1.5 mL, 2.47 mmol), stirred for 15 min. added 2-[(trimethylsilyl)-ethynyl]benzaldehyde[4] (200 mg, 1.23 mmol) drop wise. Then, warmed to rt for 3 h. Reaction mixture was diluted with aq. NH_4Cl solution (10 mL), extracted with ethyl acetate, dried ($MgSO_4$), concentrated, purification of the crude reaction mixture by flash column chromatography (9:1 Hexane:EtOAc) gave the aryl alcohol **S5** (240 mg, 0.62 mmol, 64%) as a yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ= 7.77 (1 H, d, *J* = 7.4 Hz), 7.53 (1 H, d, *J* = 7.2 Hz), 7.47-7.25 (6 H, m), 6.10 (1 H, s), 3.05 (1 H, br s), 1.34 (9 H, s) and 0.32 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 151.8, 143.1, 132.8, 131.6, 129.2, 128.1, 126.8, 125.3, 121.3, 119.6, 102.5, 100.6, 87.5, 86.7, 63.8, 34.8, 31.2 and 0.00 ppm. **HR ESI-MS**: $[C_{24}H_{28}NaOSi]^+$ = $[M+Na]^+$ requires 383.1807; found 383.1801. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

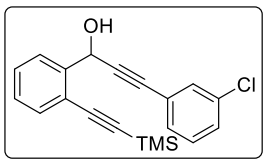
1-{4-{3-Hydroxy-3-{2-[(trimethylsilyl)ethynyl]phenyl}prop-1-yn-1-yl}phenyl}ethan-1-one (S6)



Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]-propargyl alcohol[7] (300 mg, 1.31mmol), 4-iodoacetophenone (485 mg, 1.9 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (40 mg, 0.19 mmol) and $PdCl_2(PPh_3)_2$ (10 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S6** (450 mg, 1.30 mmol, 99%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.88 (2 H, d, *J* = 8.0 Hz), 7.70 (1 H, d, *J* = 7.7 Hz), 7.57-7.46 (3 H, m), 7.38 (1 H, t, *J* = 7.5 Hz), 7.29 (1 H, t, *J* = 7.5 Hz), 6.06 (1 H, s), 3.26 (1 H, br s), 2.57 (3 H, s), 0.26 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 197.5, 142.6, 136.4, 132.9, 131.9, 129.2, 128.3, 128.2, 127.5, 126.6, 121.2, 102.3, 101.0, 91.7, 85.4, 63.7, 26.6 and 0.03 ppm. **IR** (neat): 3435, 2925, 2858, 2154, 1683, 1602, 1262 and 858 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{23}O_2Si]^+$ = $[M+H]^+$ requires 347.1467; found 347.1512. **TLC**: R_f = 0.3 (4:1, hexane:EtOAc).

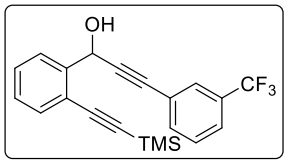
3-(3-Chlorophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S7)



Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]-propargyl alcohol[7] (360 mg, 1.57mmol), 1-chloro-3-iodobenzene (567 mg, 2.36 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (44 mg, 0.23 mmol) and $PdCl_2(PPh_3)_2$ (11 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S7** (400 mg, 1.18 mmol, 75%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.68 (1 H, d, *J* = 7.6 Hz), 7.51 (1 H, d, *J* = 7.5 Hz), 7.44 (1 H, s), 7.41-7.26 (4 H, m), 7.26-7.19 (1 H, m), 6.02 (1 H, d, *J* = 5.3 Hz), 2.99 (1 H, s), 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 142.6, 134.2, 133.0, 131.8, 130.0, 129.6, 129.3, 128.9, 128.4, 126.7, 124.3, 121.3, 102.3, 101.0, 89.4, 85.1, 63.9 and 0.00 ppm. **HR ESI-MS**: $[C_{20}H_{19}ClNaOSi]^+$ = $[M+Na]^+$ requires 361.0791; found 361.0780. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

3-[3-(Trifluoromethyl)phenyl]-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S8)

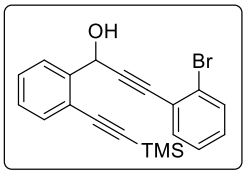


Followed general procedure E: The [2-(trimethylsilylethynyl)-phenyl]propargyl alcohol[7] (360 mg, 1.57 mmol), 1-iodo-3-(trifluoromethyl)benzene (644 mg, 2.36 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (45 mg, 0.23 mmol) and $PdCl_2(PPh_3)_2$ (11 mg, 0.01 mmol)

were stirred for 12 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S8** (513 mg, 1.37 mmol, 88%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.72 (1 H, s), 7.69 (1 H, d, *J* = 7.7 Hz), 7.62 (1 H, d, *J* = 7.7 Hz), 7.56 (1 H, d, *J* = 7.8 Hz), 7.52 (1 H, d, *J* = 7.5 Hz), 7.44 (1 H, d, *J* = 7.8 Hz), 7.39 (1 H, t, *J* = 7.5 Hz), 7.30 (1 H, t, *J* = 7.4 Hz), 6.04 (1 H, d, *J* = 5.7 Hz), 3.21-2.99 (1 H, m) and 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 142.6, 134.9, 133.0, 129.3, 128.9, 128.7 (C, q, *J* = 3.9 Hz), 128.4, 126.7, 125.2 (C, q, *J* = 3.7 Hz), 123.6, 121.2, 102.3, 101.1, 89.9, 84.9, 63.8 and 0.05 ppm. **^{19}F NMR** (282 MHz, CDCl3): δ = -62.96 (s, 3 F, CF_3) ppm. **IR** (neat): 3373, 2962, 2155, 1481, 1333, 1133 and 871 cm^{-1}. **TLC**: R_f = 0.2 (4:1, hexane:EtOAc).

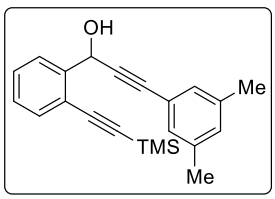
3-(2-Bromophenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S9)



Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]propargyl alcohol[7] (360 mg, 1.57 mmol), 1-bromo-4-iodobenzene (674 mg, 2.36 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (44 mg, 0.23 mmol) and $PdCl_2(PPh_3)_2$ (11 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S9** (340 mg, 0.89 mmol, 57%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.83 (1 H, d, *J* = 7.6 Hz), 7.57 (1 H, d, *J* = 7.9 Hz), 7.54-7.46 (2 H, m), 7.38 (1 H, t, *J* = 7.5 Hz), 7.31-7.22 (2 H, m), 7.16 (1 H, td, *J* = 1.2 & 7.7 Hz), 6.11 (1 H, d, *J* = 5.6 Hz), 3.06-2.82 (1 H, m) and 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 142.6, 133.8, 132.9, 132.5, 129.8, 129.2, 128.3, 127.1, 127.0, 125.7, 124.8, 121.4, 102.4, 100.8, 92.7, 85.2, 63.9 and 0.01 ppm. **IR** (neat): 3425, 3056, 2959, 2926, 2154, 1470, 1434 and 740 cm^{-1}. **HR ESI-MS**: $[C_{20}H_{18}ClOSi]^+ = [M+H]^+$ requires 337.0815; found 337.0806. **TLC**: R_f = 0.2 (9:1, hexane:EtOAc).

3-(3,5-Dimethylphenyl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S10)

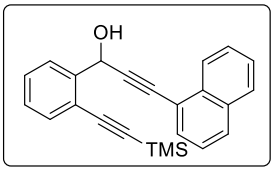


Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]-propargyl alcohol[7] (360 mg, 1.57 mmol), 1-iodobenzene-3,5-dimethylbenzene (551 mg, 2.36 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (44 mg, 0.23 mmol) and $PdCl_2(PPh_3)_2$ (11 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (4:1 hexane:EtOAc)

mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S10** (450 mg, 1.35 mmol, 86%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 7.71 (1 H, d, *J* = 7.7 Hz), 7.50 (1 H, d, *J* = 7.5 Hz), 7.37 (1 H, t, *J* = 7.5 Hz), 7.27 (1 H, t, *J* = 9.5 Hz), 7.10 (2 H, s), 6.95 (1 H, s), 6.03 (1 H, d, *J* = 5.7 Hz), 2.95-2.87 (1 H, m), 2.27 (6 H, s) and 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.1, 137.9, 132.9, 130.5, 129.6, 129.2, 128.2, 126.8, 122.2, 121.3, 102.5, 100.8, 87.4, 87.0, 63.9, 21.1 and 0.00 ppm. **IR** (neat): 3573, 3453, 2962, 2154, 1598, 1261 and 853 cm^{-1}. **HR ESI-MS**: $[C_{22}H_{25}OSi]^+$ = $[M+H]^+$ requires 333.1675; found 333.1626.**TLC**: R_f = 0.3 (4:1, hexane:EtOAc).

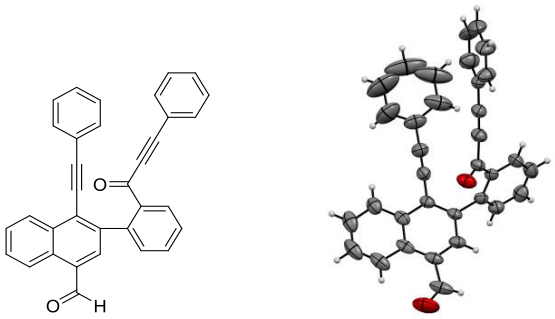
3-(Naphthalen-1-yl)-1-{2-[(trimethylsilyl)ethynyl]phenyl}prop-2-yn-1-ol (S11)



Followed procedure E: The [2-(trimethylsilylethynyl)phenyl]-propargyl alcohol[7] (360 mg, 1.57 mmol), 1-iodonaphthalene (603 mg, 2.36 mmol), dry THF (7 mL), Et_3N (1 mL), CuI (45 mg, 0.23 mmol) and $PdCl_2(PPh_3)_2$ (11 mg, 0.01 mmol) were stirred for 12 h at RT. Purification by flash column chromatography (9:1 hexane:EtOAc) mixture as eluent to yield coupled product [2-(alkynyl)phenyl]propargyl alcohol **S11** (440 mg, 1.24mmol, 79%) as a pale yellow oil.

^{1}H NMR (400 MHz, $CDCl_3$): δ = 8.33 (1 H, d, *J* = 8.0 Hz), 7.87-7.78 (3 H, m), 7.71 (1 H, d, *J* = 7.1 Hz), 7.59-7.47 (3 H, m), 7.45-7.37 (2 H, m), 7.31 (1 H, t, *J* = 7.4 Hz), 6.21 (1 H, d, *J* = 5.8 Hz), 3.06 (1 H, d, *J* = 5.5 Hz) and 0.27 (9 H, s) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ = 143.1, 133.4, 133.2, 133.0, 130.8, 129.3, 129.1, 128.3, 126.9, 126.8, 126.5, 126.3, 125.2, 121.3, 120.3, 102.5, 101.0, 93.1, 84.8, 64.2 and 0.00 ppm. **IR** (neat): 3420, 2959, 2154, 1396, 1254, 1020 and 861 cm^{-1}. **HR ESI-MS**: $[C_{24}H_{23}OSi]^+$ = $[M+H]^+$ requires 355.1518; found 355.1495. **TLC**: R_f = 0.3 (9:1, hexane:EtOAc).

Crystallographic Data and Structure Refinements Summary for Compound **9a**

Molecular Structure (ORTEP Diagram)	
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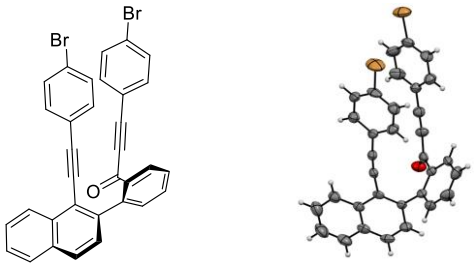
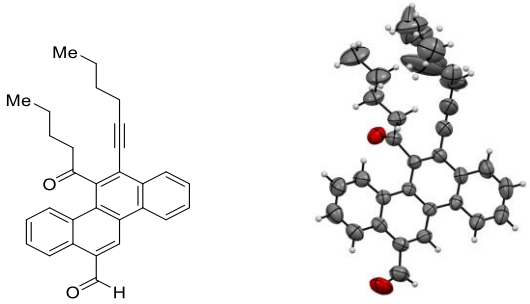
Formula	$C_{34}H_{20}O_2$
Formula weight	460.50
Color	Light Yellow
Temperature/K	296(2) K
Radiation	MoK\a
Wavelength/Å	0.71073 Å
Crystal system	Monoclinic
Space group	C2/c
a (Å)	31.9258 (15)
b (Å)	18.7977 (9)
c (Å)	8.2450(4) Å
α (°)	90
β (°)	96.472 (2)
γ (°)	90
Volume(Å3)	4916.6 (4)
Z	8
Density (g/cm^3)	1.244
μ (1/mm)	0.076
F (000)	1920.0
θ (min, max)	3.16, 26.63
No. of unique reflns	4306 [R(int) = 0.0414]
No. of parameters	325
R_obs, wR2_obs	0.0644, 0.1611
GooF	1.083

Crystallographic data and structure refinements summary for compound **10c**

Molecular Structure (ORTEP Diagram)	
CCDC number	CCDC 1965357
Formula	C_{33} $H_{18}Br_2O$
Formula weight	590.29
Color	Light Yellow
Temperature/K	296(2) K
Radiation	MoK\a
Wavelength/Å	0.71073 A
Crystal system	Monoclinic
Space group	C 1 c 1
a (Å)	13.5539(7)
b (Å)	17.8625(8)
c (Å)	12.4649(9)
α (°)	90
β (°)	122.657(2)
γ (°)	90
Volume(Å3)	2540.8(3)
Z	4
Density (g/cm^3)	1.543
μ (1/mm)	3.215
F (000)	1176
θ (min, max)	2.12 to 24.83
No. of unique reflns	3604
No. of parameters	325
R_obs, wR2_obs	R1 = 0.0635, wR2 = 0.0.835
Δρmin, Δρmax (eÅ-3)	0.322 and -0.359
GooF	0.954

Crystallographic Data and Structure Refinements Summary for Compound **22**

Molecular Structure (ORTEP Diagram)	
CCDC number	CCDC 1878983
Formula	$C_{30}H_{28}O_2$
Formula weight	420.20
Color	clear light brown
Temperature/K	296(2) K
Radiation	MoK\a
Wavelength/Å	0.71073 A
Crystal system	triclinic unit
a (Å)	8.9341(4) Å
b (Å)	10.7311(5)
c (Å)	12.8284(5)
α (°)	73.101(2)°
β (°)	82.359(2)°
γ (°)	83.312(2)°
Volume(Å3)	1162.40(9) $Å^3$
Density (g/cm^3)	1.201 g/cm^3
μ (1/mm)	3.215
F (000)	448 e^-
θ (min, max)	of 25.00° (0.84 Å resolution),
No. of unique reflns	4096
No. of parameters	325
R_obs, wR2_obs	5.46%,18.33%
Δρmin, Δρmax (eÅ-3)	0.9820 and 0.9930
GooF	1.016.

References:

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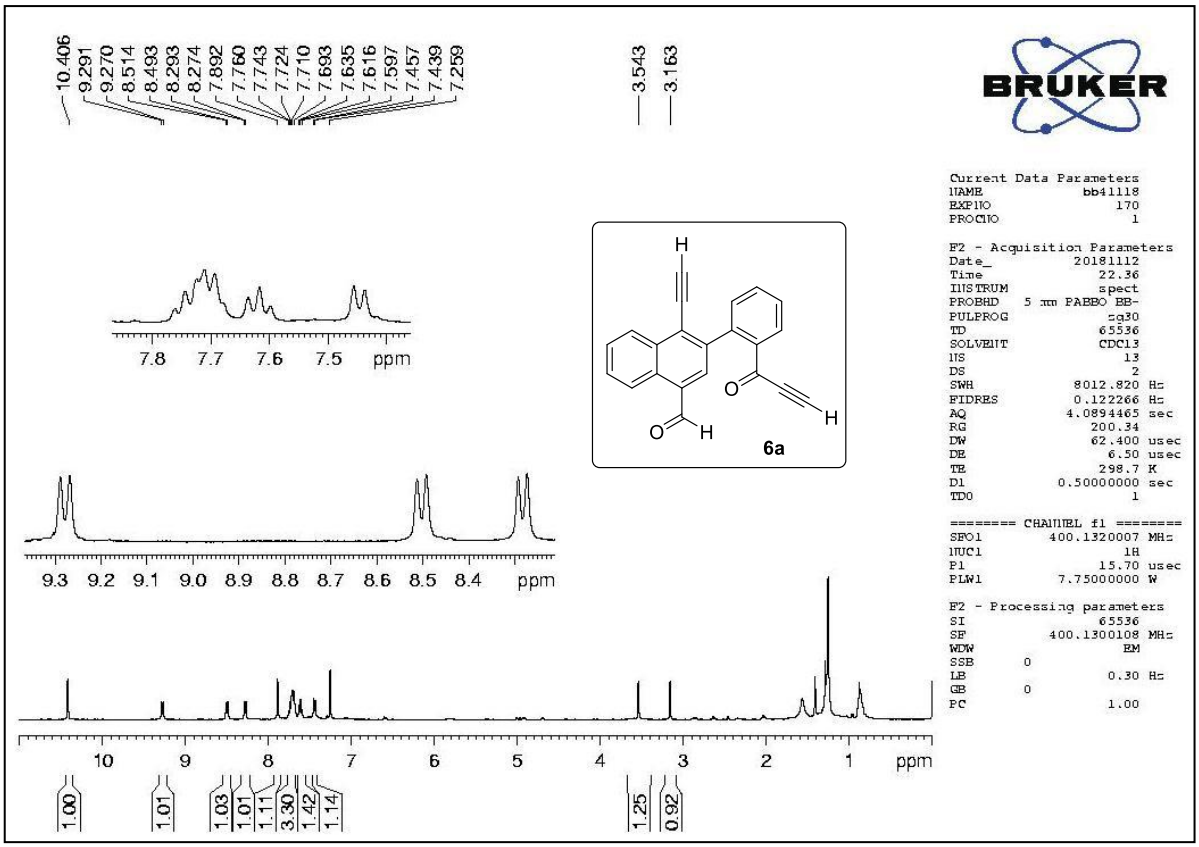
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P1 15.70 usec
PLW1 7.75000000 W
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SF 400.1300108 MHz
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LB 0.30 Hz
GB 0
PC 1.00
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9.3 9.2 9.1 9.0 8.9 8.8 8.7 8.6 8.5 8.4 ppm
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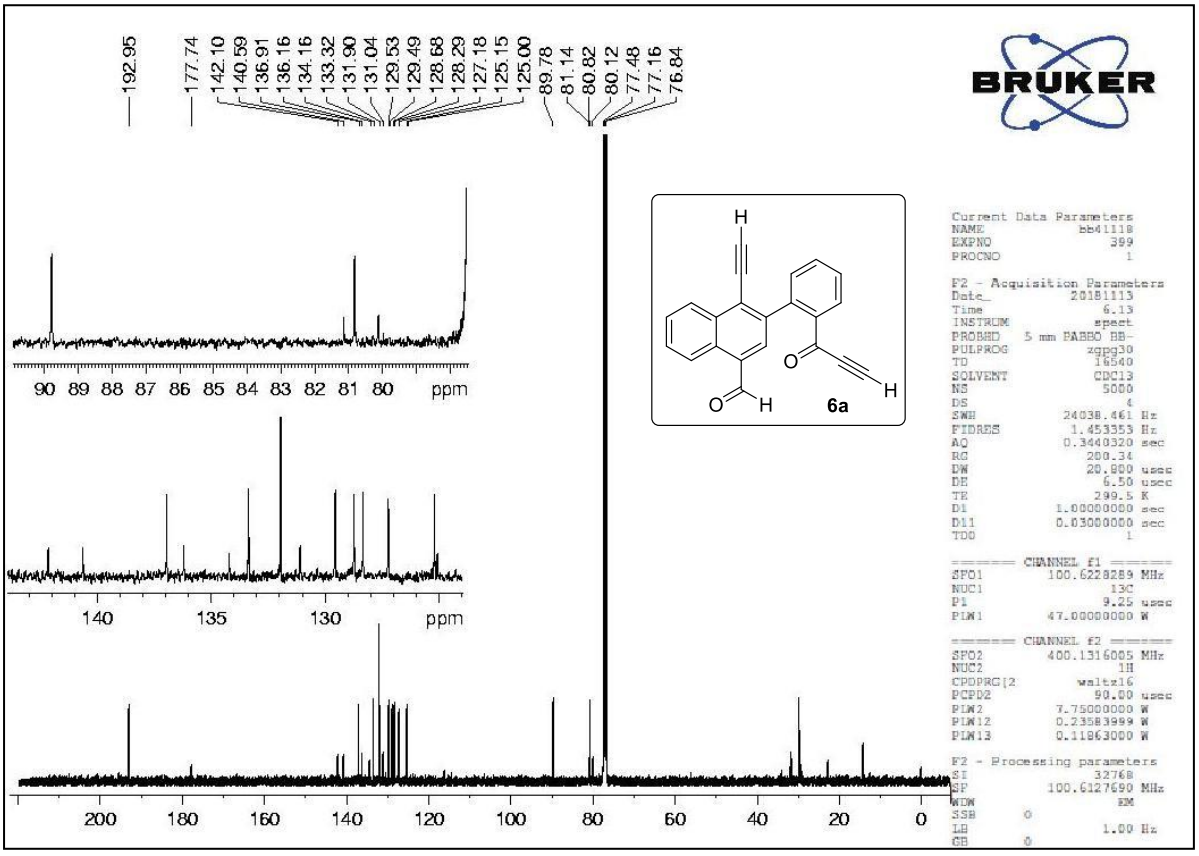
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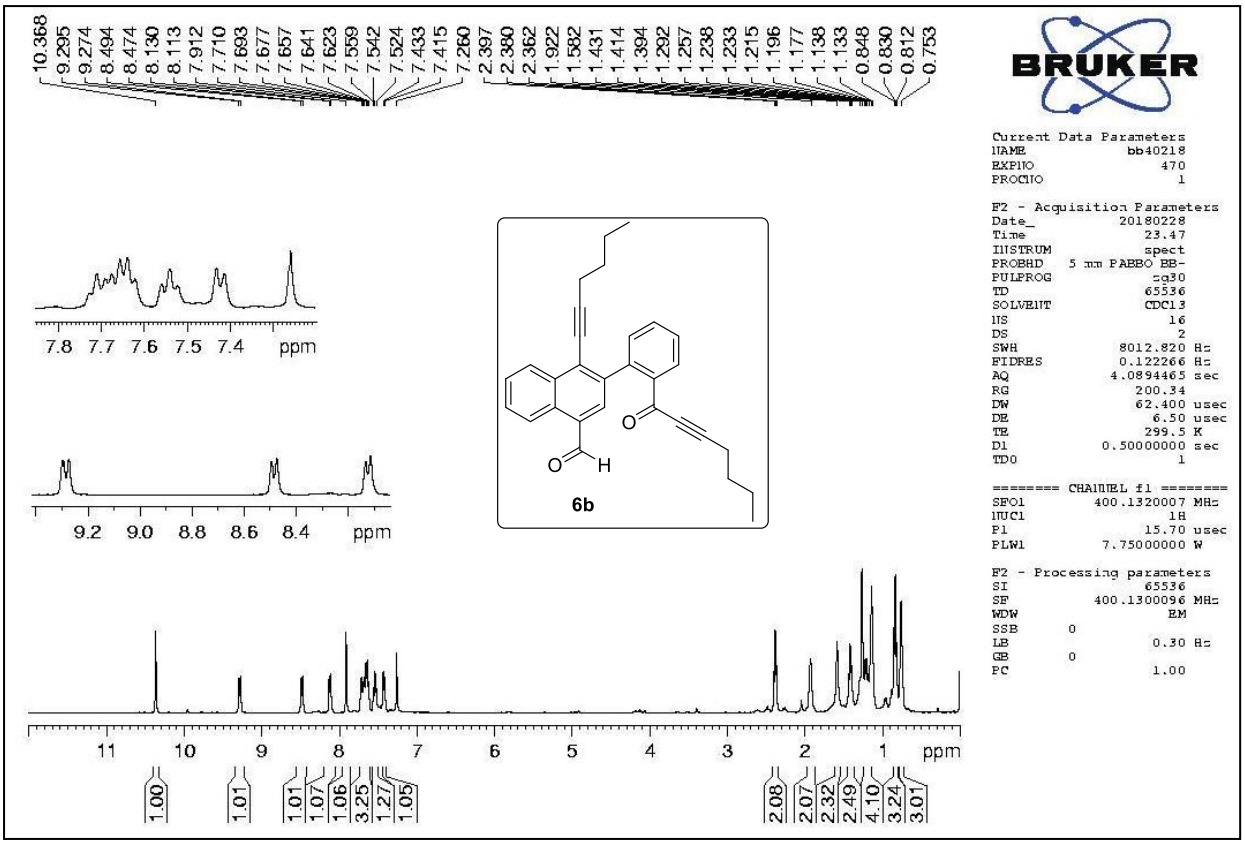
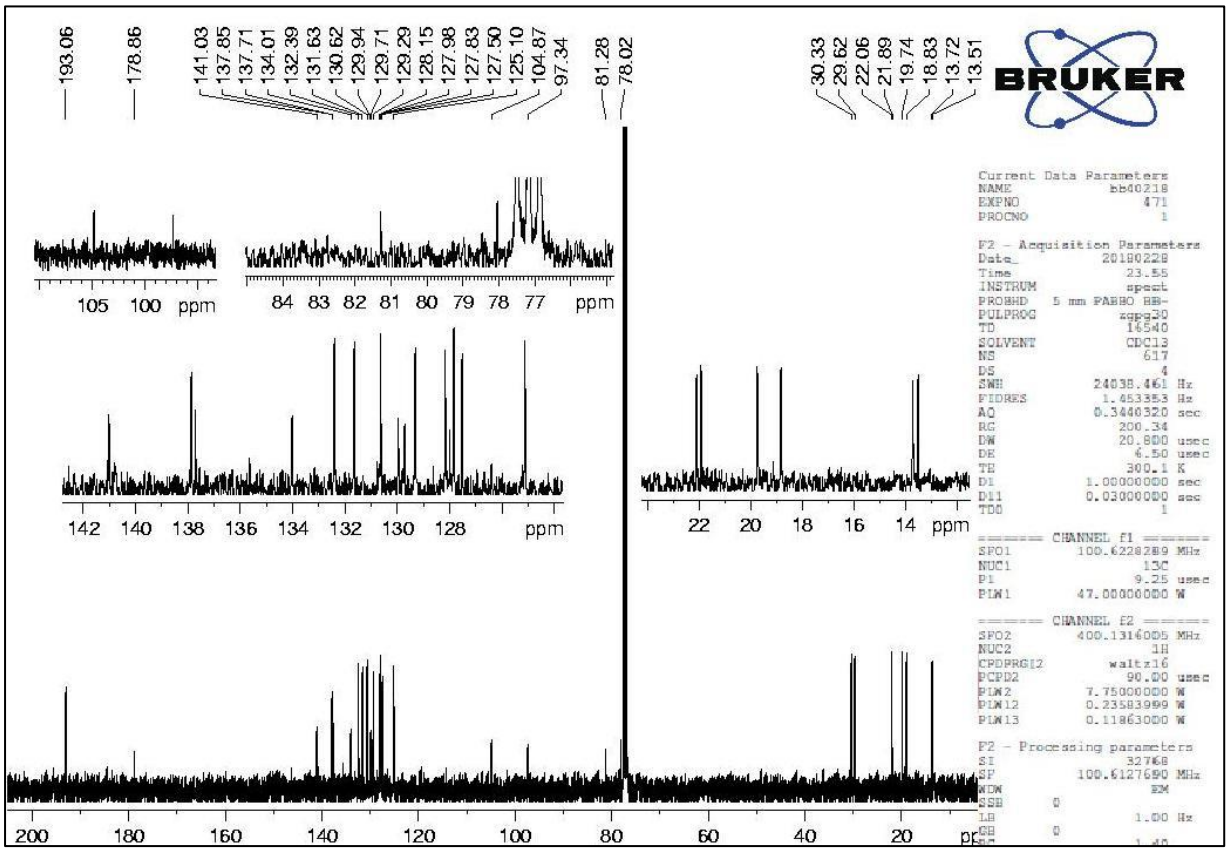
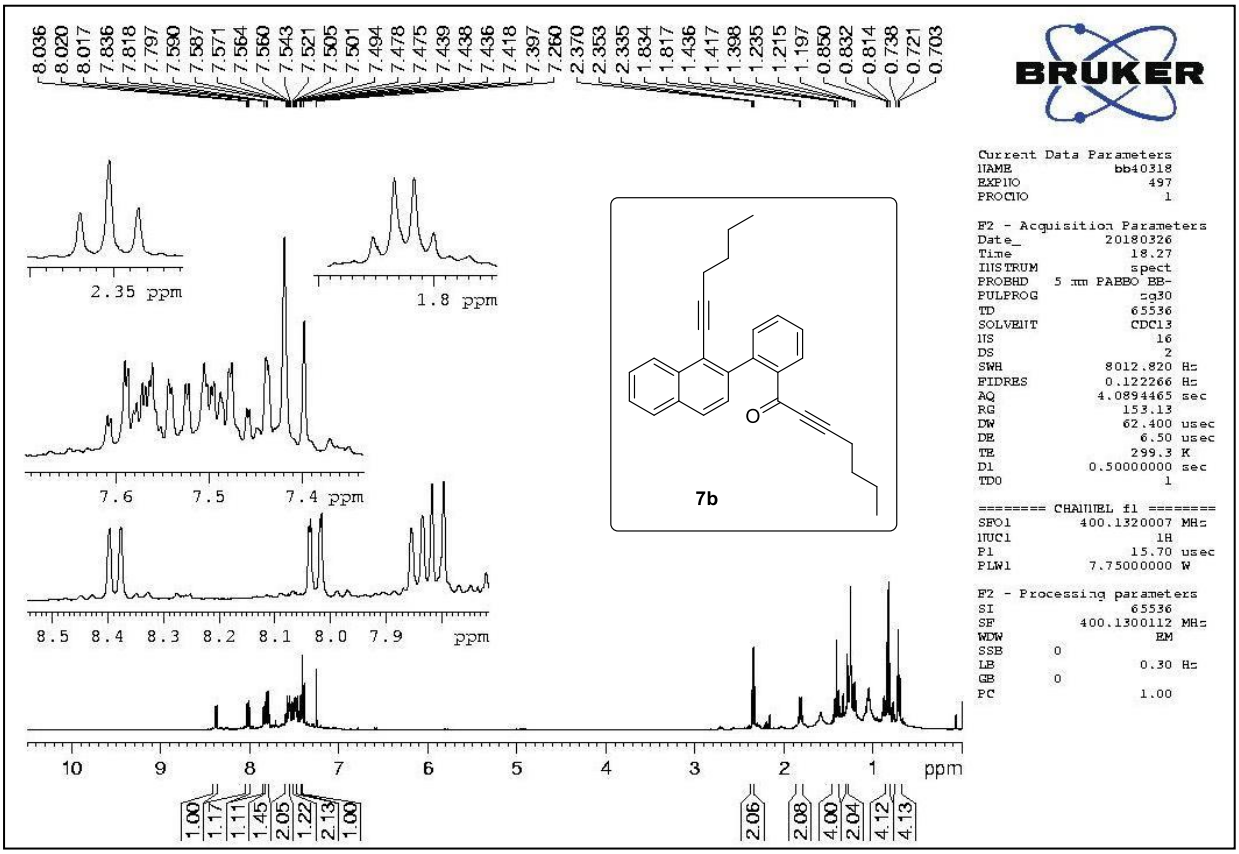
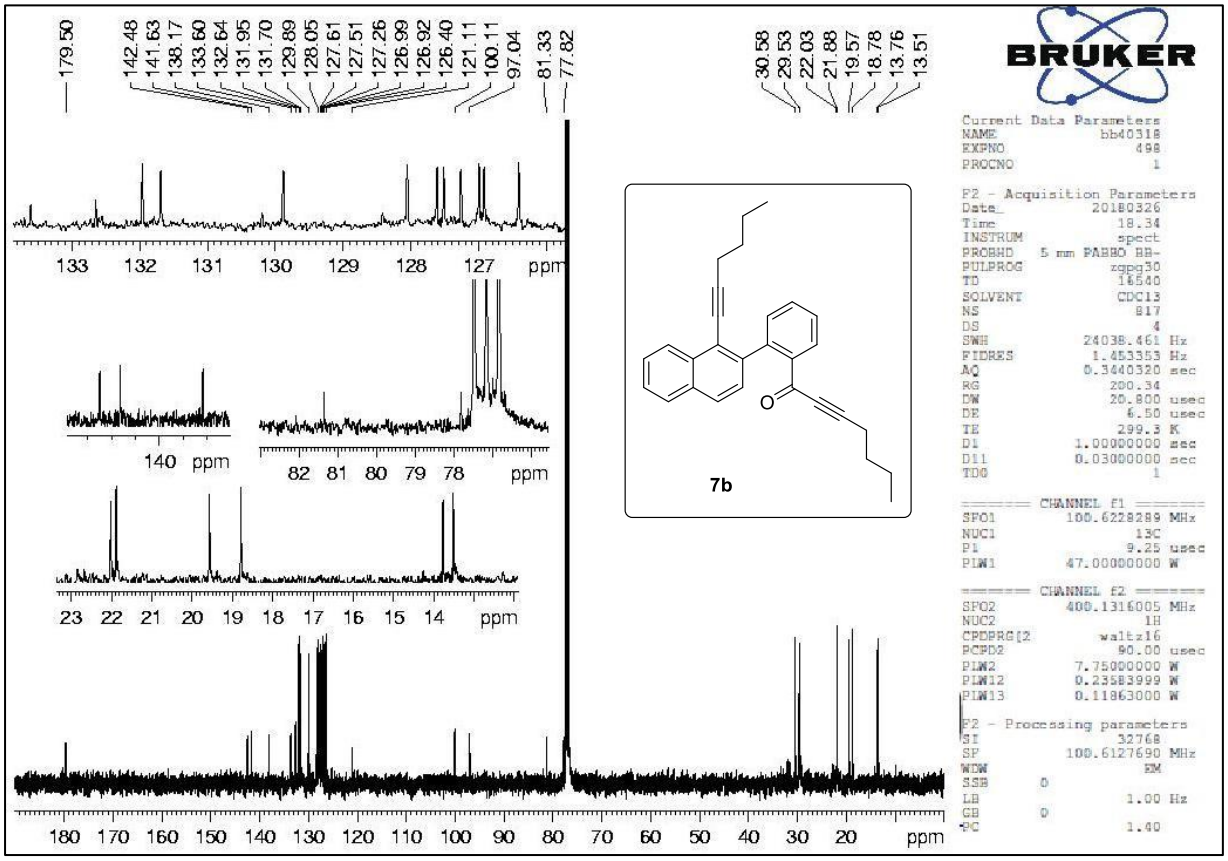
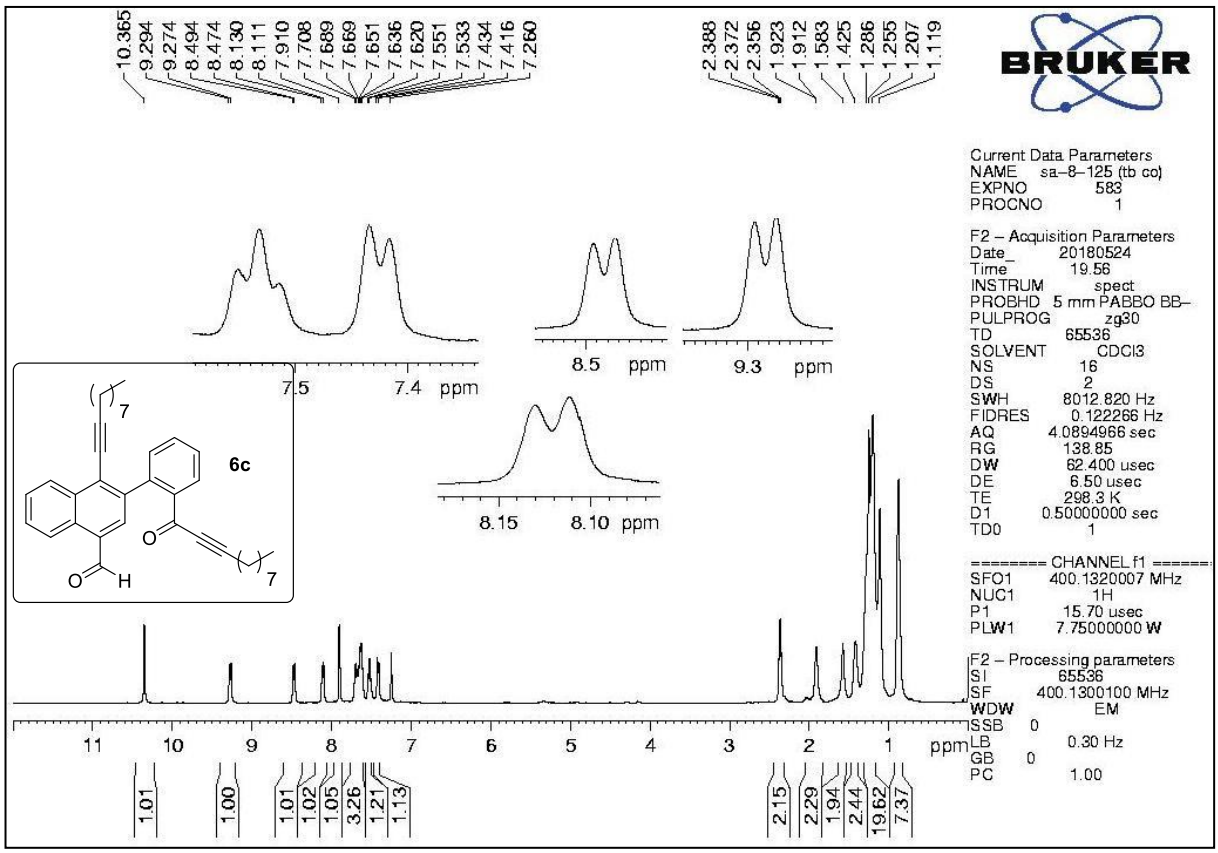
F2 - Acquisition Parameters
Date_ 20181113
Time 6.13
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 5000
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
90 89 88 87 86 85 84 83 82 81 80 ppm
140 135 130 ppm
200 180 160 140 120 100 80 60 40 20 0

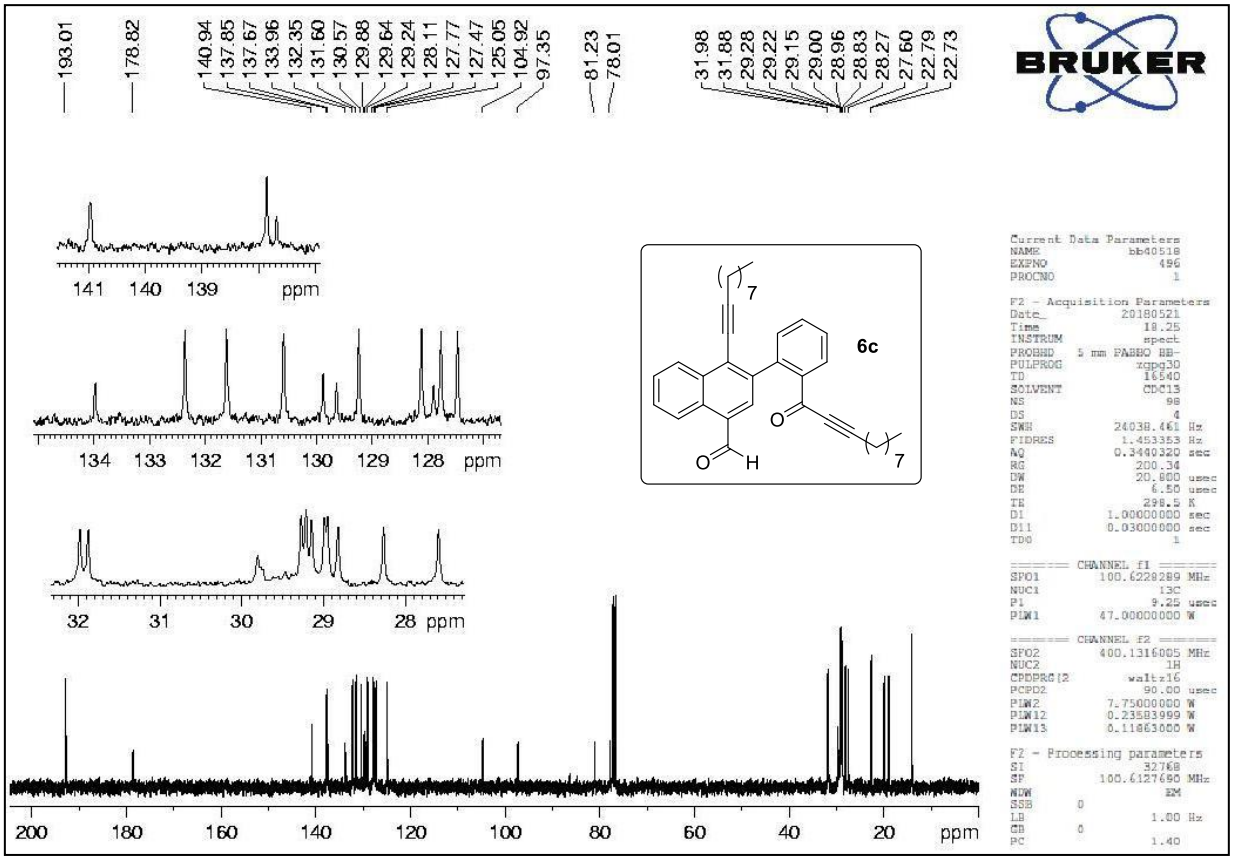

10.368
9.295
9.274
8.494
8.474
8.130
8.113
7.912
7.710
7.693
7.677
7.657
7.641
7.623
7.559
7.542
7.524
7.433
7.415
7.260
2.397
2.380
2.362
1.922
1.582
1.431
1.414
1.394
1.292
1.257
1.238
1.233
1.215
1.196
1.177
1.138
1.133
0.848
0.830
0.812
0.753
BRUKER
Current Data Parameters
NAME bb40218
EXPNO 470
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180228
Time 23.47
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 200.34
DW 62.400 usec
DE 6.50 usec
TE 299.5 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300096 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7.8 7.7 7.6 7.5 7.4 ppm
9.2 9.0 8.8 8.6 8.4 ppm
O
O H
6b
11 10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.01 1.01 1.07 1.06 3.25 1.27 1.05 2.08 2.07 2.32 2.49 4.10 3.24 3.01

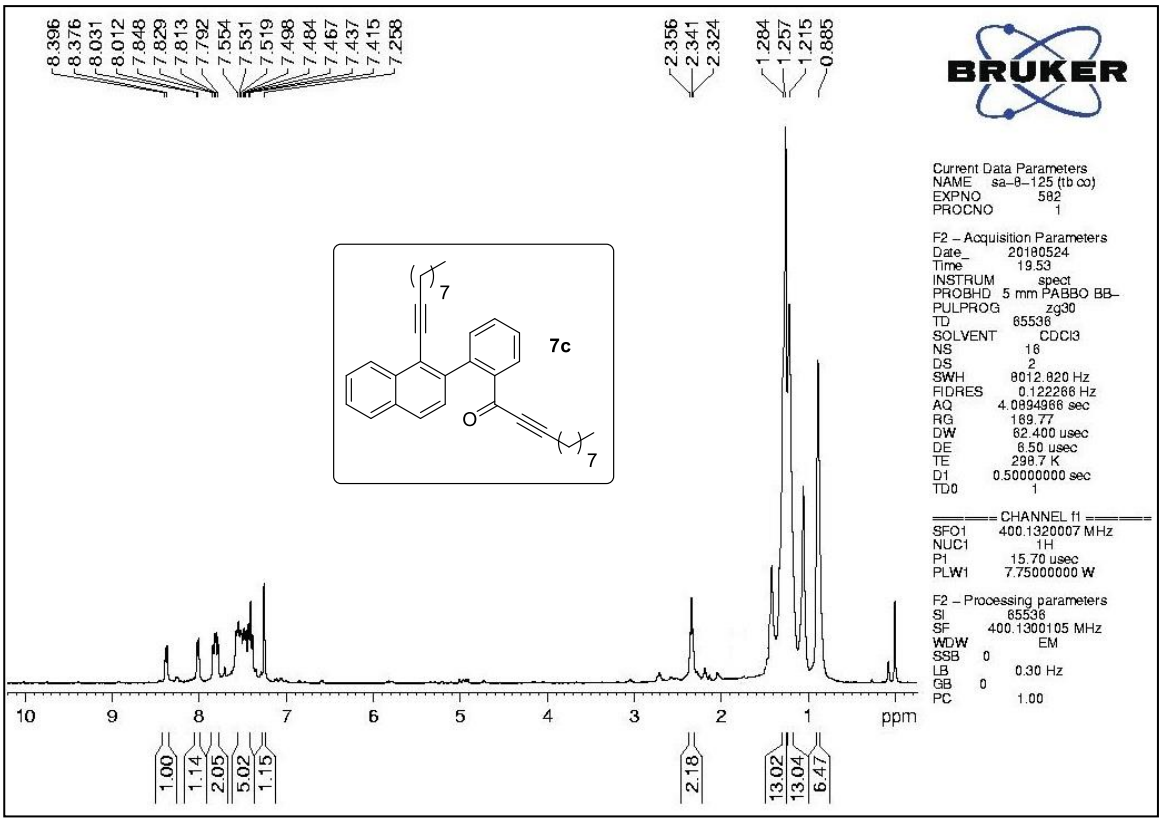

193.06
178.86
141.03
137.85
137.71
134.01
132.39
131.63
130.62
129.94
129.71
129.29
128.15
127.98
127.83
127.50
125.10
104.87
97.34
81.28
78.02
30.33
29.62
22.06
21.89
19.74
18.83
13.72
13.51
BRUKER
Current Data Parameters
NAME bb40218
EXPNO 471
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180228
Time 23.55
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 617
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 300.1 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
105 100 ppm
84 83 82 81 80 79 78 77 ppm
142 140 138 136 134 132 130 128 ppm
22 20 18 16 14 ppm
200 180 160 140 120 100 80 60 40 20 ppm

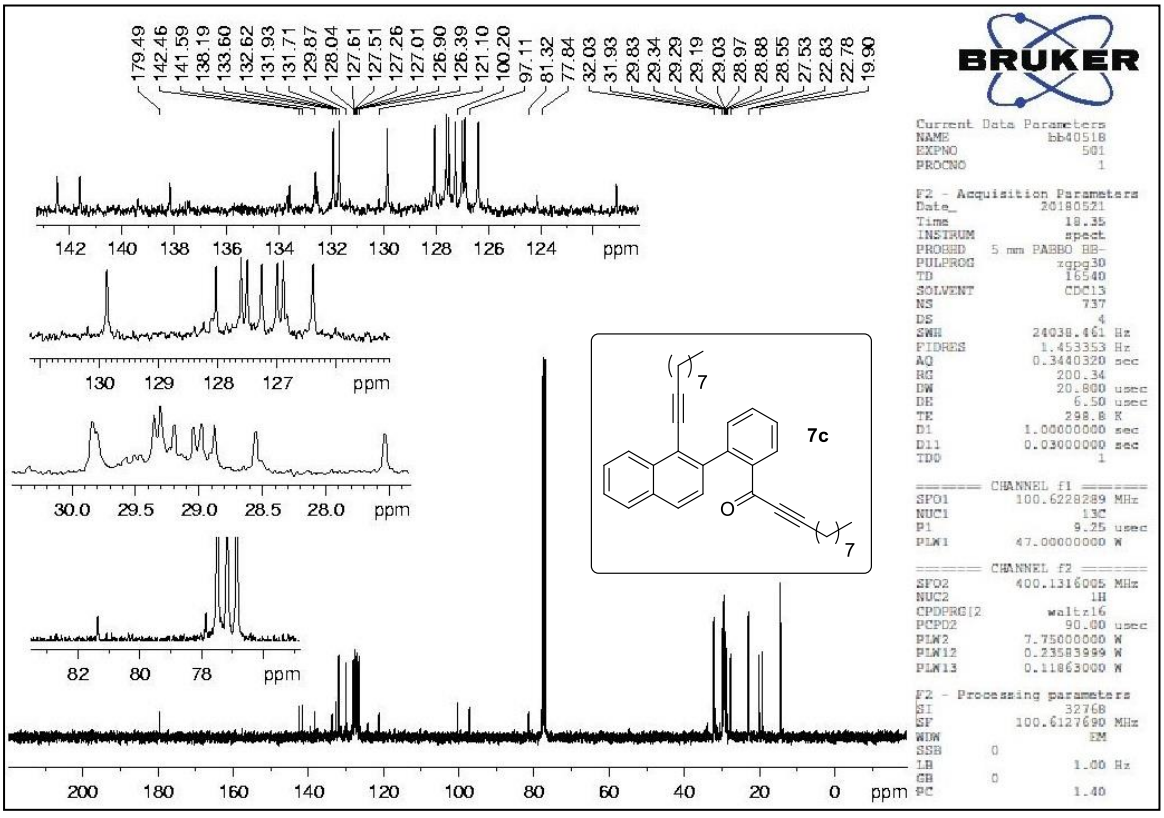

8.036 8.020 8.017 7.836 7.818 7.797 7.590 7.587 7.571 7.564 7.560 7.543 7.521 7.505 7.501 7.494 7.478 7.475 7.439 7.438 7.436 7.418 7.397 7.260 2.370 2.353 2.335 1.834 1.817 1.436 1.417 1.398 1.235 1.215 1.197 0.850 0.832 0.814 0.738 0.721 0.703
2.35 ppm
1.8 ppm
7.6 7.5 7.4 ppm
8.5 8.4 8.3 8.2 8.1 8.0 7.9 ppm
10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.17 1.11 1.45 2.05 1.22 2.13 1.00
2.06 2.08 4.00 2.04 4.12 4.13
7b
BRUKER
Current Data Parameters
NAME bb40318
EXPNO 497
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180326
Time 18.27
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 299.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300112 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

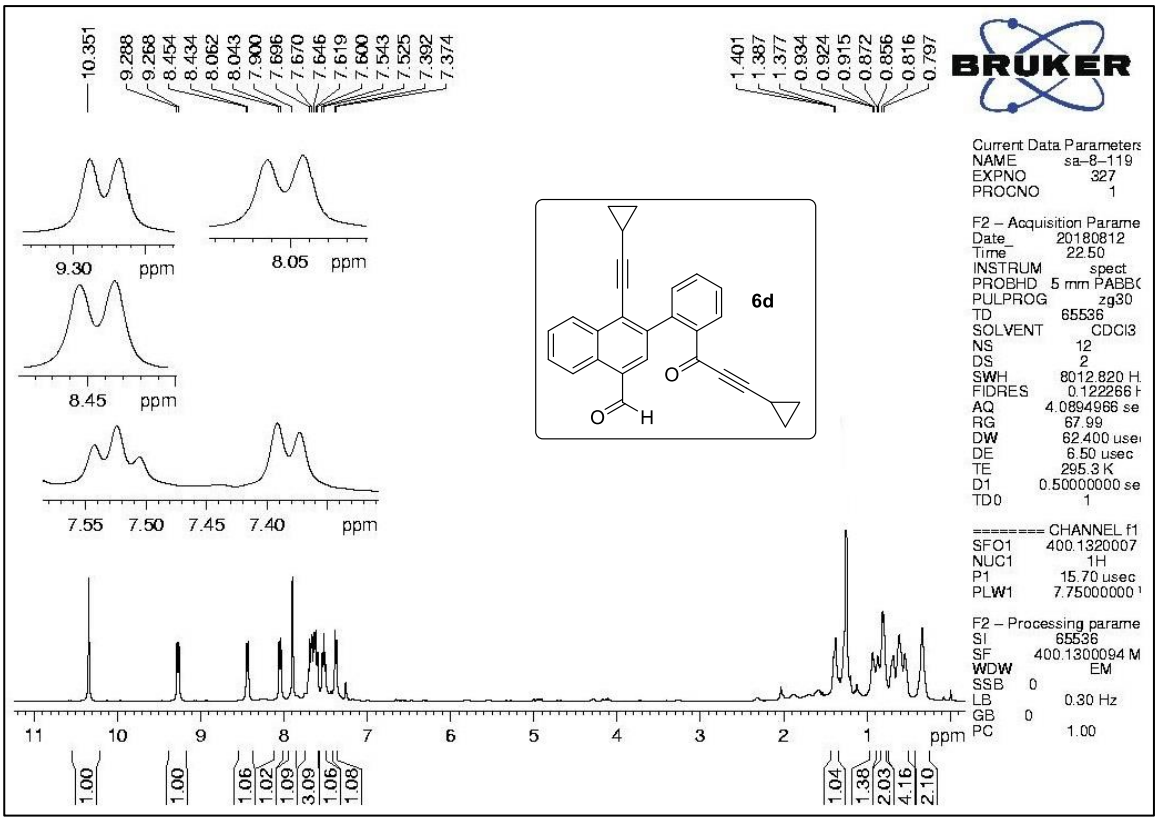

179.50 142.48 141.63 138.17 133.60 132.64 131.95 131.70 129.89 128.05 127.61 127.51 127.26 126.99 126.92 126.40 121.11 100.11 97.04 81.33 77.82
30.58 29.53 22.03 21.88 19.57 18.78 13.76 13.51
133 132 131 130 129 128 127 ppm
140 ppm
82 81 80 79 78 ppm
23 22 21 20 19 18 17 16 15 14 ppm
180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm
7b
BRUKER
Current Data Parameters
NAME bb40318
EXPNO 498
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180326
Time 18.34
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 817
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.3 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

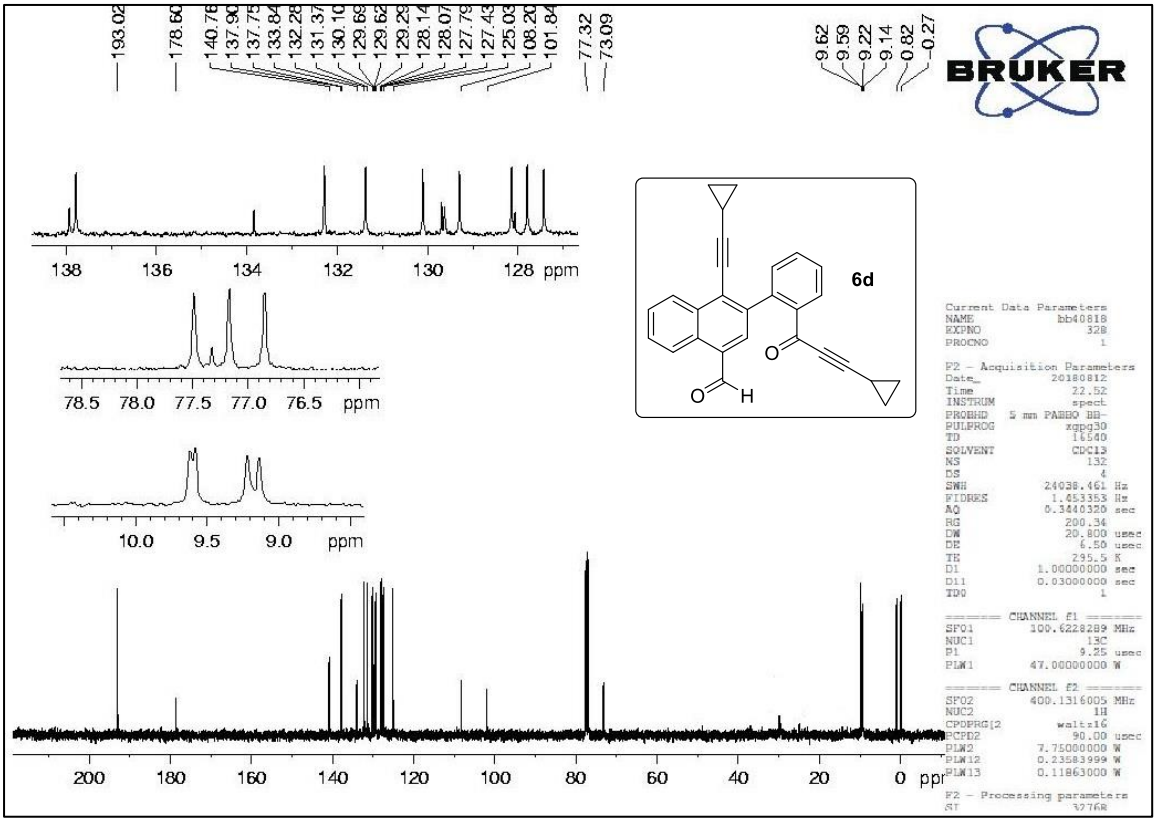

10.365
9.294
9.274
8.494
8.474
8.130
8.111
7.910
7.708
7.689
7.669
7.651
7.636
7.620
7.551
7.533
7.434
7.416
7.260
2.388
2.372
2.356
1.923
1.912
1.583
1.425
1.286
1.255
1.207
1.119
BRUKER
6c
Current Data Parameters
NAME sa–8–125 (tb co)
EXPNO 583
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180524
Time 19.56
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 298.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 – Processing parameters
SI 65536
SF 400.1300100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1.01
1.00
1.01
1.02
1.05
3.26
1.21
1.13
2.15
2.29
1.94
2.44
19.62
7.37

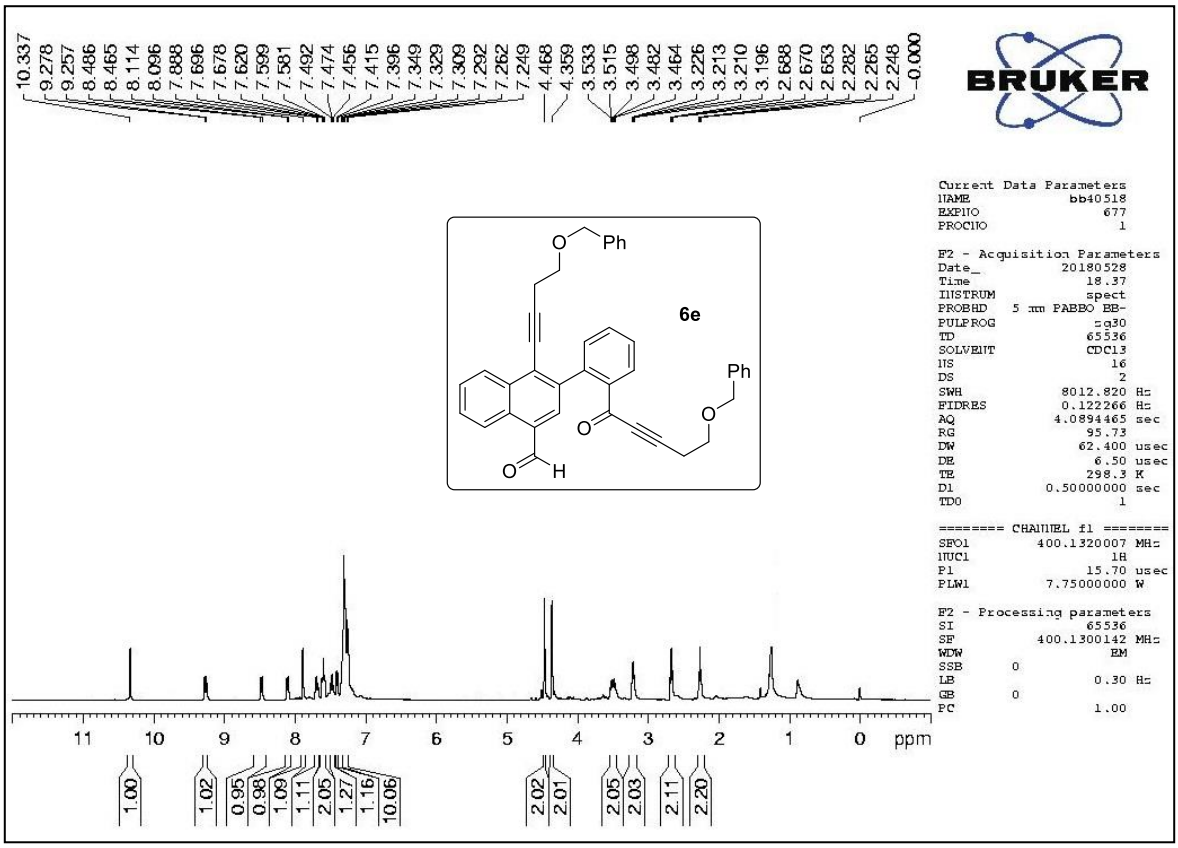

193.01
178.82
140.94
137.85
137.67
133.96
132.35
131.60
130.57
129.88
129.64
129.24
128.11
127.77
127.47
125.05
104.92
97.35
81.23
78.01
31.98
31.88
29.28
29.22
29.15
29.00
28.96
28.83
28.27
27.60
22.79
22.73
BRUKER
6c
Current Data Parameters
NAME bb40518
EXPNO 496
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180521
Time 18.25
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 98
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

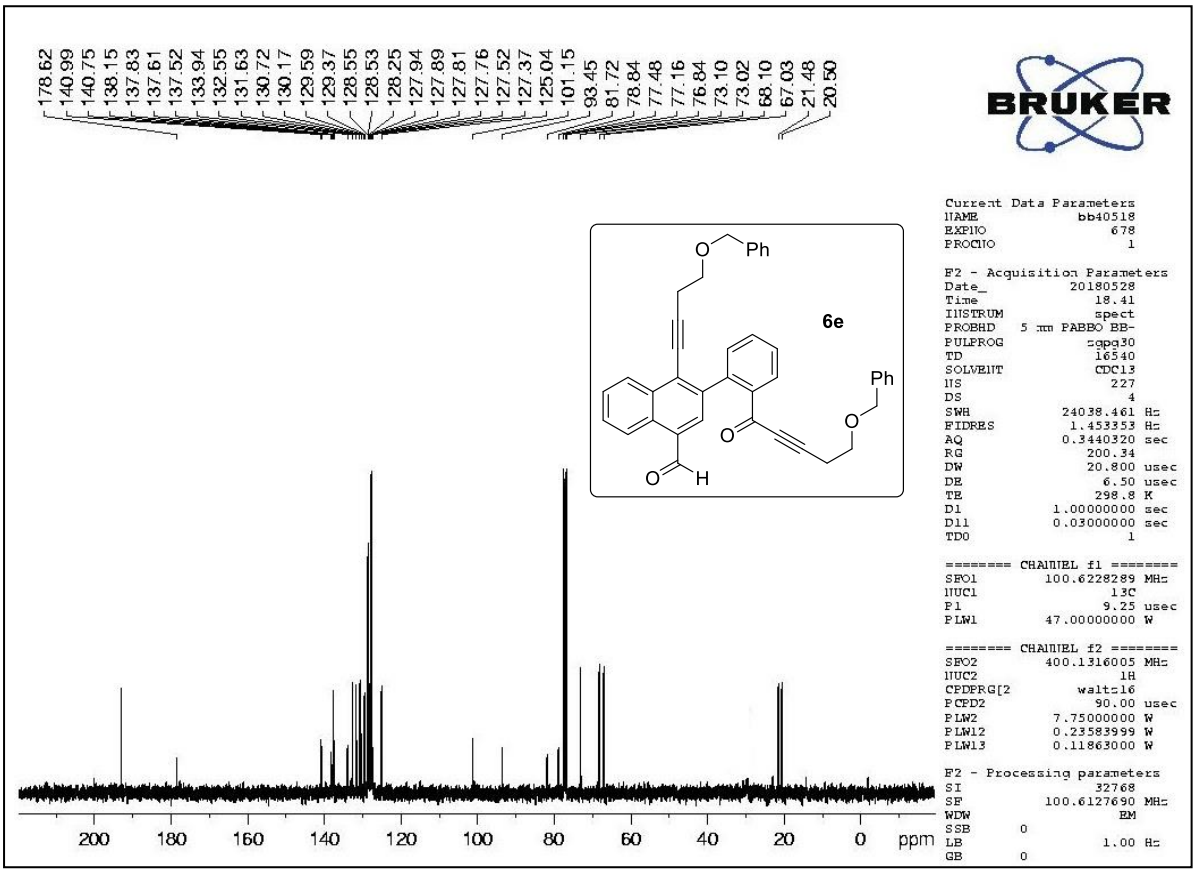

8.396
8.376
8.031
8.012
7.848
7.829
7.813
7.792
7.554
7.531
7.519
7.498
7.484
7.467
7.437
7.415
7.258
2.356
2.341
2.324
1.284
1.257
1.215
0.885
7c
Current Data Parameters
NAME sa-8-125 (tb co)
EXPNO 502
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180524
Time 19.53
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 169.77
DW 62.400 usec
DE 6.50 usec
TE 298.7 K
D1 0.50000000 sec
TD0 1
CHANNEL f1
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300105 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.14 2.05 5.02 1.15 2.18 13.02 13.04 6.47

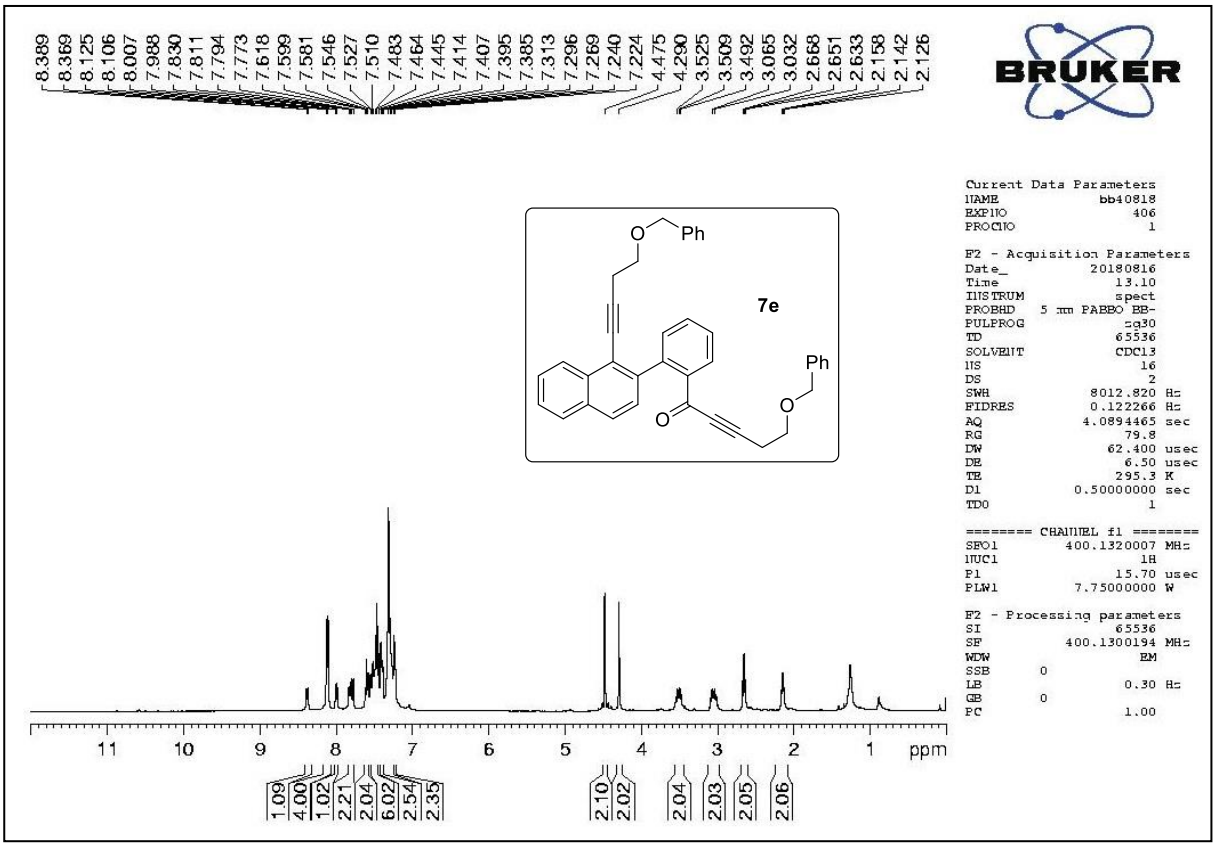

179.49
142.46
141.59
138.19
133.60
132.62
131.93
131.71
129.87
128.04
127.61
127.51
127.26
127.01
126.90
126.39
121.10
100.20
97.11
81.32
77.84
32.03
31.93
29.83
29.34
29.29
29.19
29.03
28.97
28.88
28.55
27.53
22.83
22.78
19.90
7c
Current Data Parameters
NAME bb40518
EXPNO 501
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180521
Time 18.35
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 737
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
CHANNEL f2
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
142 140 138 136 134 132 130 128 126 124 ppm
130 129 128 127 ppm
30.0 29.5 29.0 28.5 28.0 ppm
82 80 78 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm

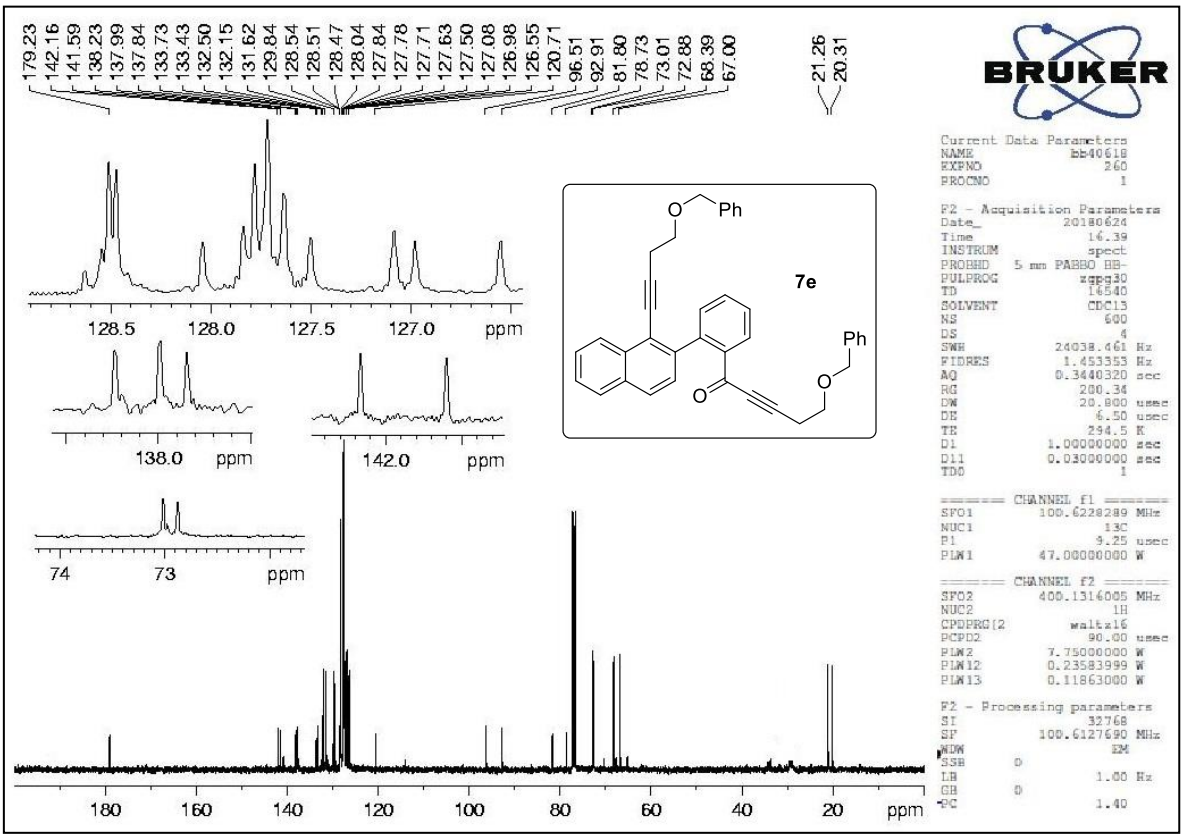

10.351
9.288
9.268
8.454
8.434
8.062
8.043
7.900
7.696
7.670
7.646
7.619
7.600
7.543
7.525
7.392
7.374
1.401
1.387
1.377
0.934
0.924
0.915
0.872
0.856
0.816
0.797
BRUKER
9.30 ppm
8.05 ppm
8.45 ppm
7.55 7.50 7.45 7.40 ppm
6d
O
O
H
11 10 9 8 7 6 5 4 3 2 1 ppm
1.00
1.00
1.06
1.02
1.09
3.09
1.06
1.08
1.04
1.38
2.03
4.16
2.10
Current Data Parameters
NAME sa-8-119
EXPNO 327
PROCNO 1
F2 - Acquisition Parame
Date_ 20180812
Time 22.50
INSTRUM spect
PROBHD 5 mm PABB(
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 12
DS 2
SWH 8012.820 H
FIDRES 0.122266 H
AQ 4.0894986 se
RG 67.99
DW 62.400 use
DE 6.50 usec
TE 295.3 K
D1 0.50000000 se
TD0 1
======== CHANNEL f1
SFO1 400.1320007
NUC1 1H
P1 15.70 usec
PLW1 7.75000000
F2 - Processing parame
SI 65536
SF 400.1300094 M
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

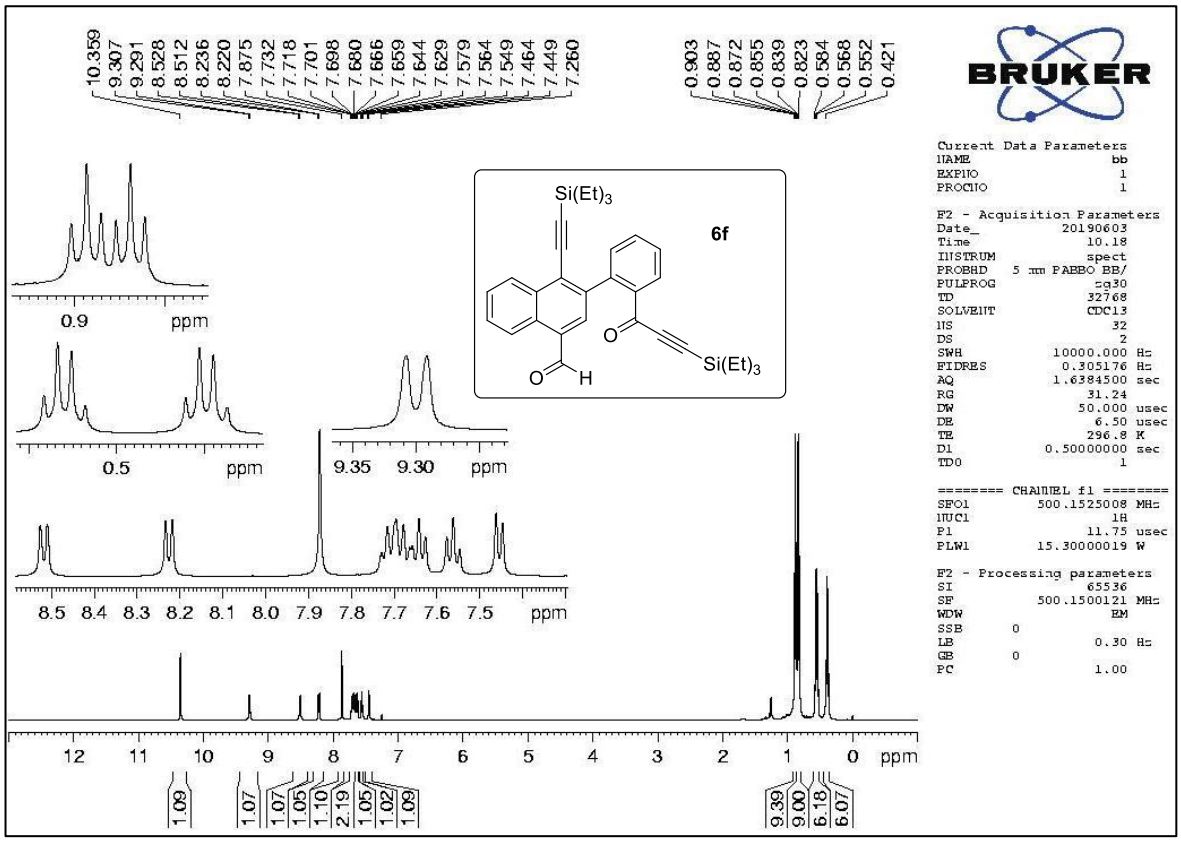

193.02
178.60
140.76
137.90
137.75
133.84
132.28
131.37
130.10
129.69
129.62
129.29
128.14
128.07
127.79
127.43
125.03
108.20
101.84
77.32
73.09
9.62
9.59
9.22
9.14
0.82
-0.27
BRUKER
138 136 134 132 130 128 ppm
78.5 78.0 77.5 77.0 76.5 ppm
10.0 9.5 9.0 ppm
6d
O
O
H
200 180 160 140 120 100 80 60 40 20 0 ppm
Current Data Parameters
NAME bb40818
EXPNO 328
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180812
Time 22.52
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG xgpg30
TD 16540
SOLVENT CDCl3
NS 132
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 295.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768

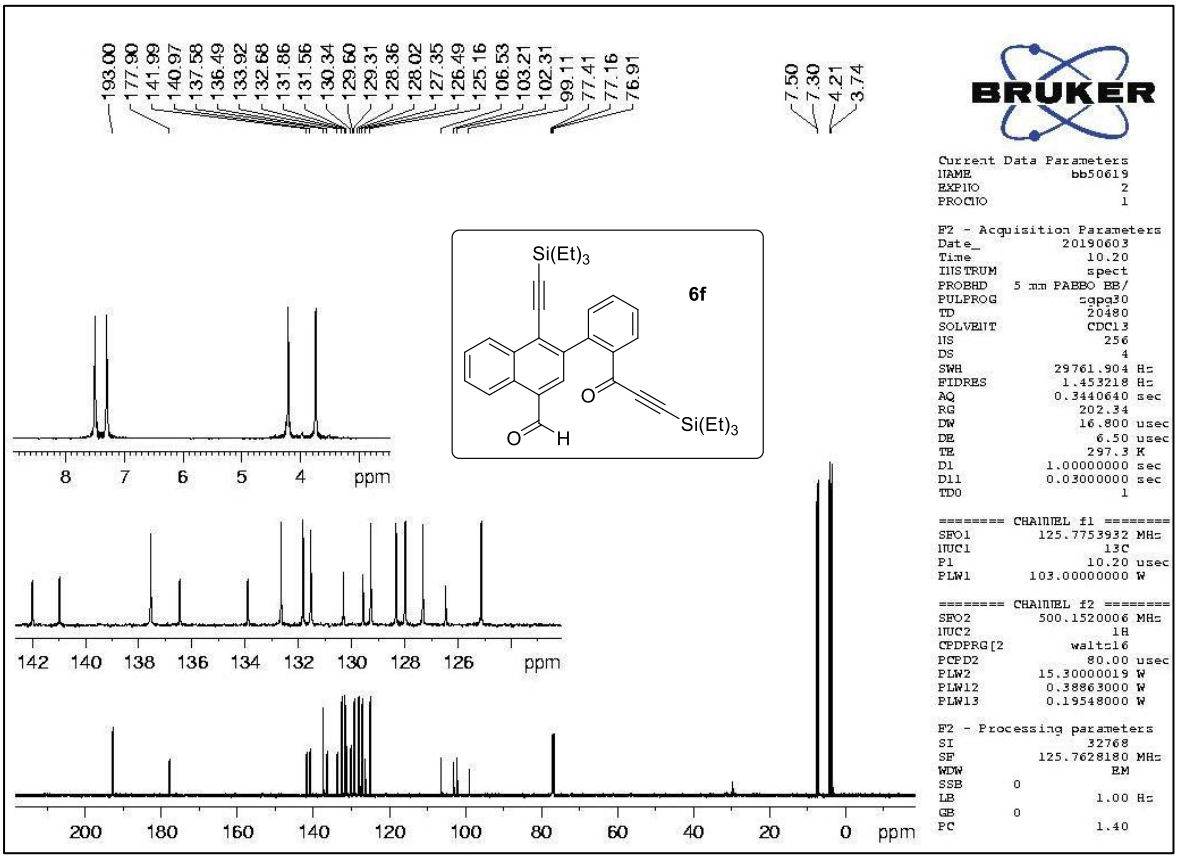

10.337
9.278
9.257
8.486
8.465
8.114
8.096
7.888
7.696
7.678
7.620
7.599
7.581
7.492
7.474
7.456
7.415
7.396
7.349
7.329
7.309
7.292
7.262
7.249
4.468
4.359
3.533
3.515
3.498
3.482
3.464
3.226
3.213
3.210
3.196
2.688
2.670
2.653
2.282
2.265
2.248
0.000
BRUKER
6e
Current Data Parameters
NAME bb40518
EXPNO 677
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180528
Time 18.37
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 95.73
DW 62.400 usec
DE 6.50 usec
TE 298.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300142 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.02 0.95 0.98 1.09 1.11 2.05 1.27 1.16 10.06 2.02 2.01 2.05 2.03 2.11 2.20

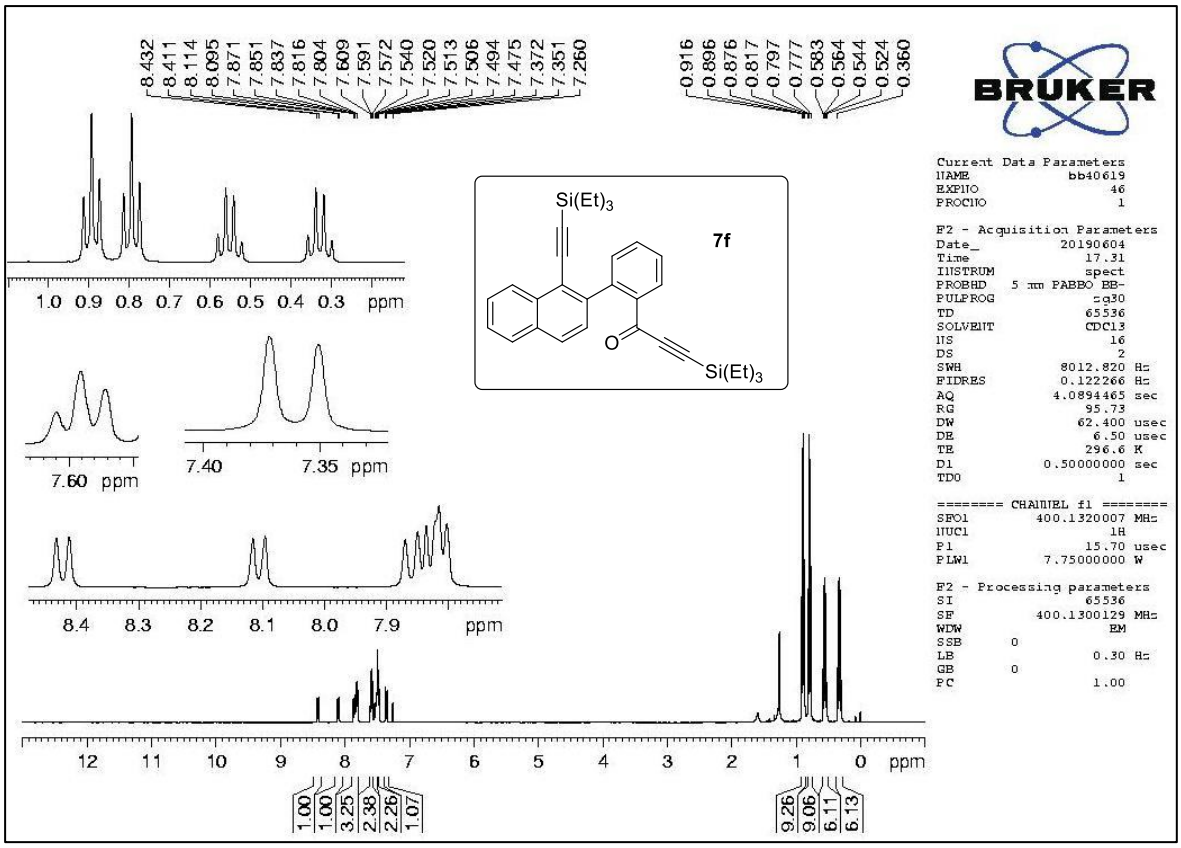

178.62
140.99
140.75
138.15
137.83
137.61
137.52
133.94
132.55
131.63
130.72
130.17
129.59
129.37
128.55
128.53
128.25
127.94
127.89
127.81
127.76
127.52
127.37
125.04
101.15
93.45
81.72
78.84
77.48
77.16
76.84
73.10
73.02
68.10
67.03
21.48
20.50
BRUKER
6e
Current Data Parameters
NAME bb40518
EXPNO 678
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180528
Time 18.41
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 227
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
200 180 160 140 120 100 80 60 40 20 0 ppm

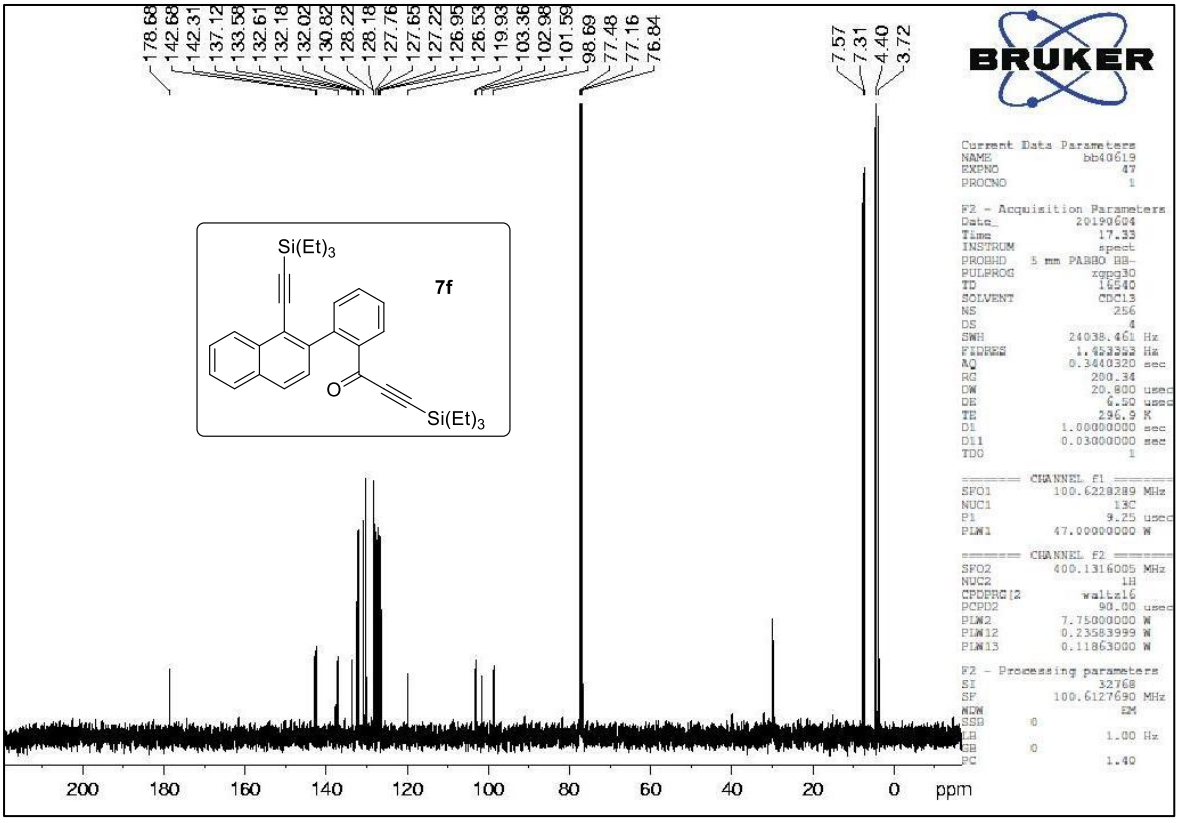

8.389
8.369
8.125
8.106
8.007
7.988
7.830
7.811
7.794
7.773
7.618
7.599
7.581
7.546
7.527
7.510
7.483
7.464
7.445
7.414
7.407
7.395
7.385
7.313
7.296
7.269
7.240
7.224
4.475
4.290
3.525
3.509
3.492
3.065
3.032
2.668
2.651
2.633
2.158
2.142
2.126
BRUKER
O
Ph
7e
Ph
O
O
Current Data Parameters
NAME bb40818
EXPNO 406
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180816
Time 13.10
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 79.8
DW 62.400 usec
DE 6.50 usec
TE 295.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300194 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11
10
9
8
7
6
5
4
3
2
1
ppm
1.09
4.00
1.02
2.21
2.04
6.02
2.54
2.35
2.10
2.02
2.04
2.03
2.05
2.06

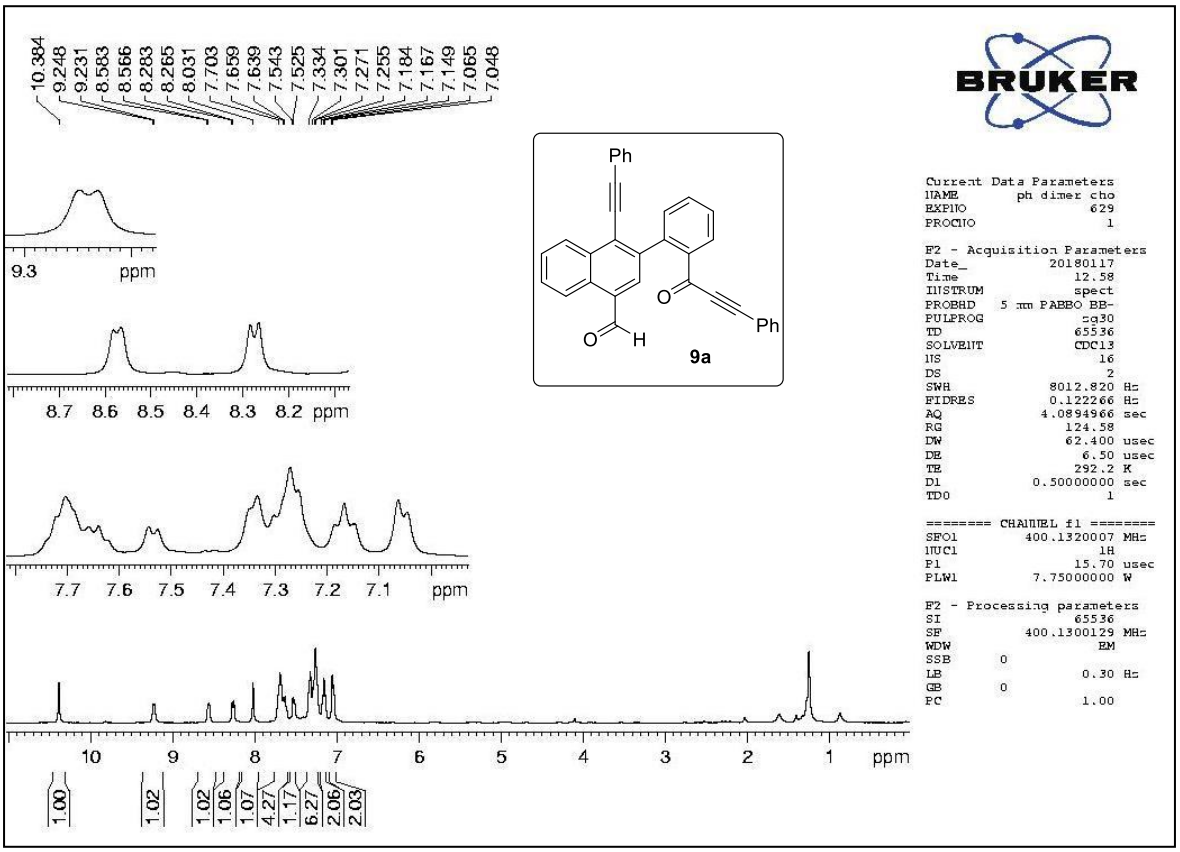

179.23
142.16
141.59
138.23
137.99
137.84
133.73
133.43
132.50
132.15
131.62
129.84
128.54
128.51
128.47
128.04
127.84
127.78
127.71
127.63
127.50
127.08
126.98
126.55
120.71
96.51
92.91
81.80
78.73
73.01
72.88
68.39
67.00
21.26
20.31
BRUKER
O
Ph
7e
Ph
O
O
128.5
128.0
127.5
127.0
ppm
138.0
ppm
142.0
ppm
74
73
ppm
Current Data Parameters
NAME bb40618
EXPNO 260
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180624
Time 16.39
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 600
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 294.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
180
160
140
120
100
80
60
40
20
ppm

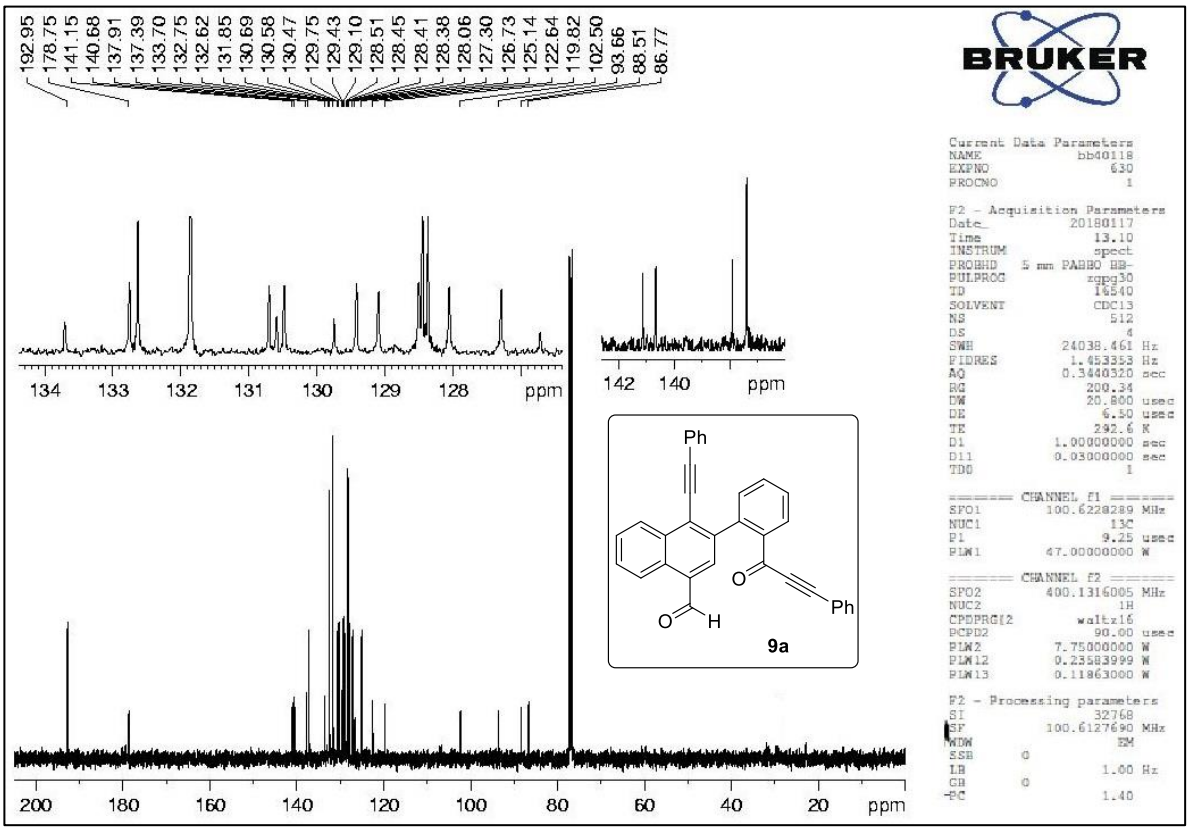

10.359
9.307
9.291
8.528
8.512
8.236
8.220
7.875
7.732
7.718
7.701
7.698
7.680
7.666
7.659
7.644
7.629
7.579
7.564
7.549
7.464
7.449
7.260
0.903
0.887
0.872
0.855
0.839
0.823
0.584
0.568
0.552
0.421
Si(Et)3
6f
O
O
H
Si(Et)3
0.9 ppm
0.5 ppm
9.35 9.30 ppm
8.5 8.4 8.3 8.2 8.1 8.0 7.9 7.8 7.7 7.6 7.5 ppm
12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.09
1.07
1.07
1.05
1.10
2.19
1.05
1.02
1.09
9.39
9.00
6.18
6.07
BRUKER
Current Data Parameters
NAME bb
EXPNO 1
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190603
Time 10.18
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384500 sec
RG 31.24
DW 50.000 usec
DE 6.50 usec
TE 296.8 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500121 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

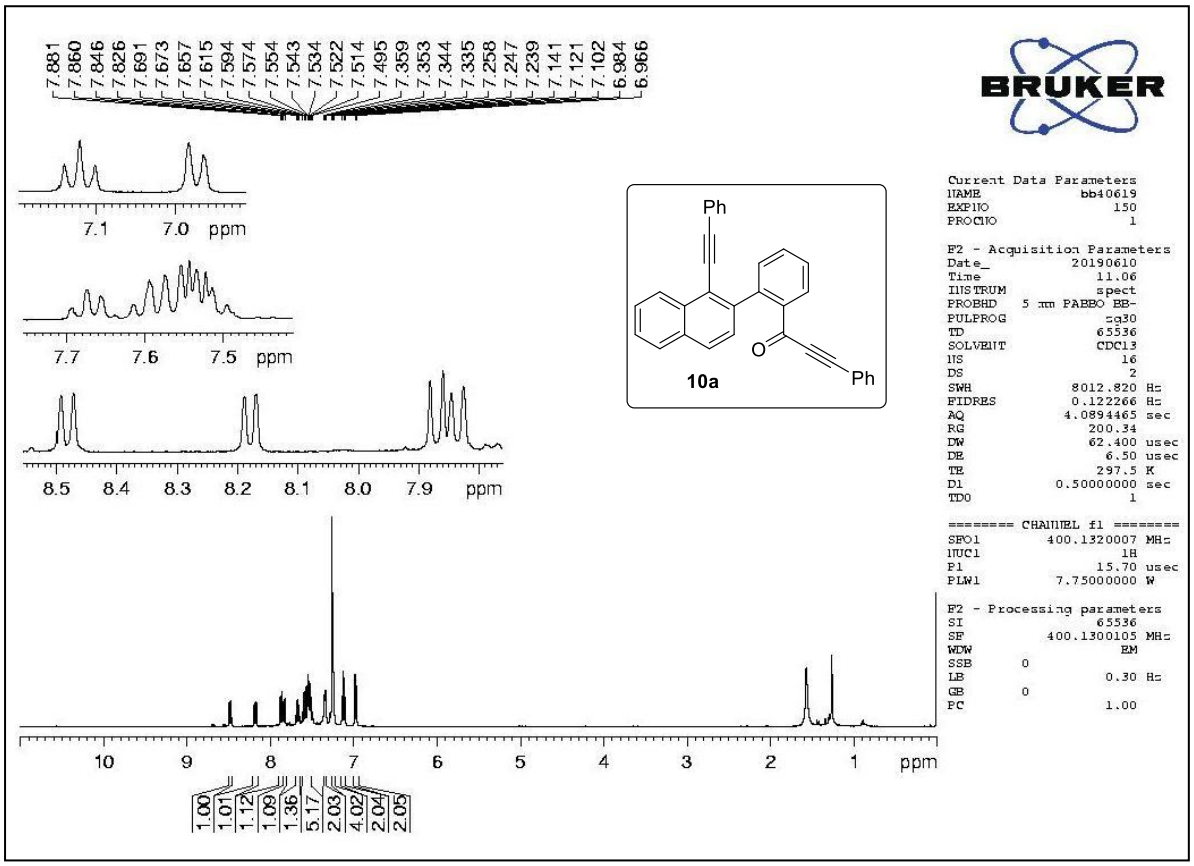

193.00
177.90
141.99
140.97
137.58
136.49
133.92
132.68
131.86
131.56
130.34
129.60
129.31
128.36
128.02
127.35
126.49
125.16
106.53
103.21
102.31
99.11
77.41
77.16
76.91
7.50
7.30
4.21
3.74
Si(Et)3
6f
O
O
H
Si(Et)3
8 7 6 5 4 ppm
142 140 138 136 134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb50619
EXPNO 2
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190603
Time 10.20
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 256
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 297.3 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

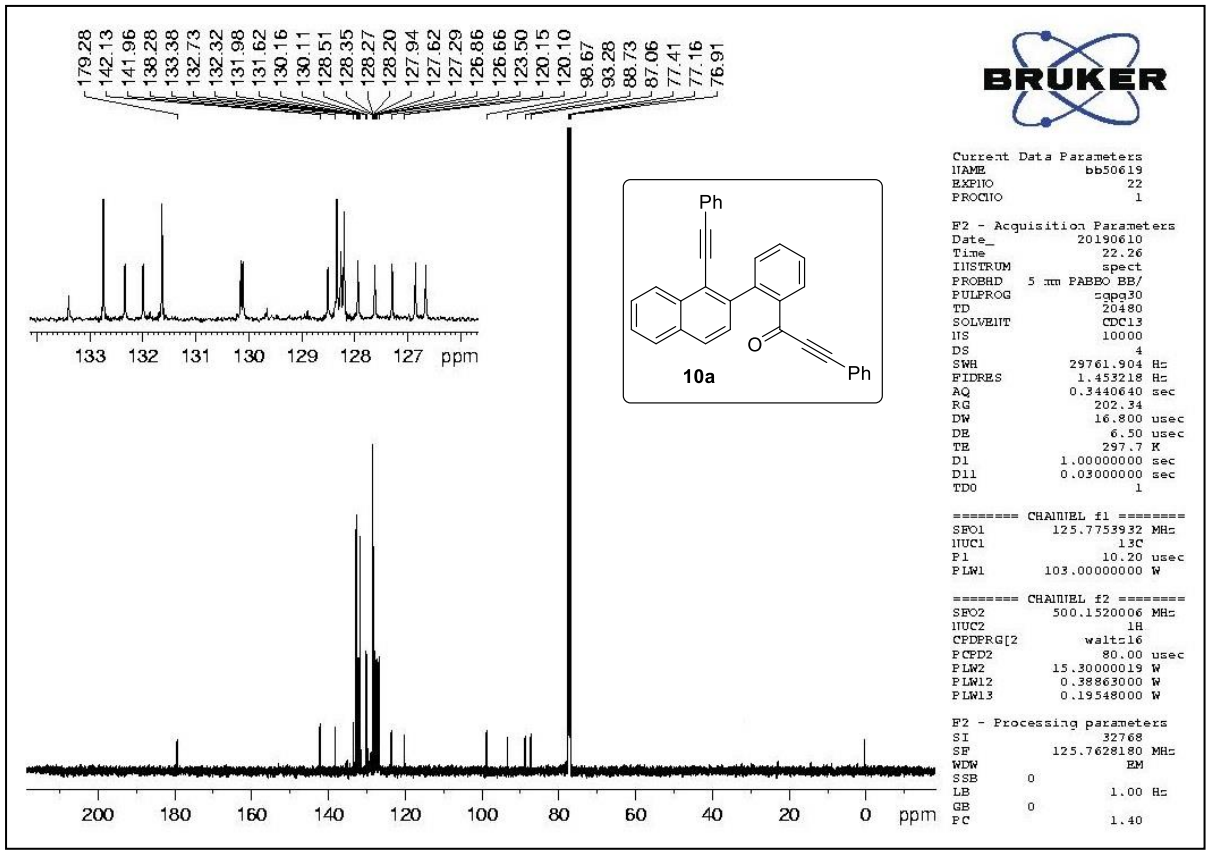

8.432 8.411 8.114 8.095 7.871 7.851 7.837 7.816 7.804 7.609 7.591 7.572 7.540 7.520 7.513 7.506 7.494 7.475 7.372 7.351 7.260
0.916 0.896 0.876 0.817 0.797 0.777 0.583 0.564 0.544 0.524 0.360
Si(Et)3
7f
O
Si(Et)3
1.0 0.9 0.8 0.7 0.6 0.5 0.4 0.3 ppm
7.60 ppm
7.40 7.35 ppm
8.4 8.3 8.2 8.1 8.0 7.9 ppm
12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.00 3.25 2.38 2.26 1.07
9.26 9.06 6.11 6.13
BRUKER
Current Data Parameters
NAME bb40619
EXPNO 46
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190604
Time 17.31
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 95.73
DW 62.400 usec
DE 6.50 usec
TE 296.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300129 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

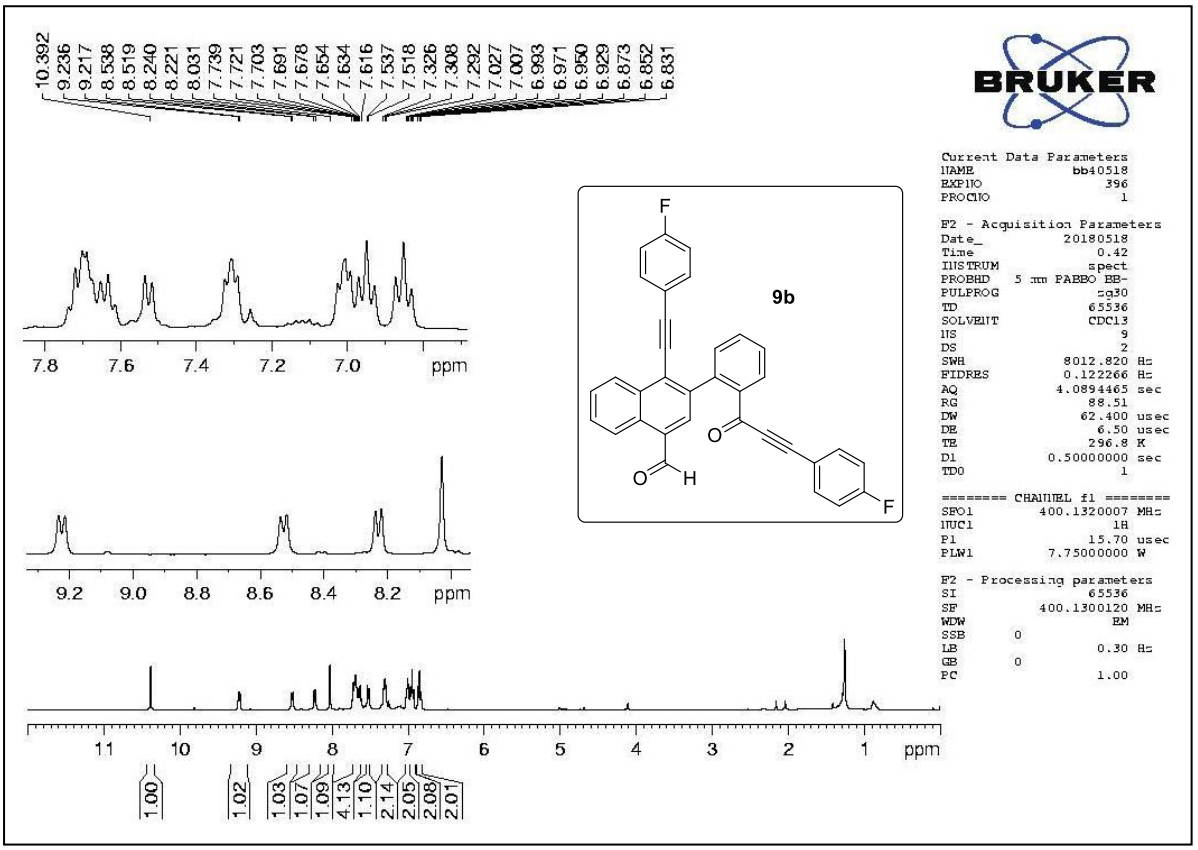

178.68 142.68 142.31 137.12 133.58 132.61 132.18 132.02 130.82 128.22 128.18 127.76 127.65 127.22 126.95 126.53 119.93 103.36 102.98 101.59 98.69 77.48 77.16 76.84
7.57 7.31 4.40 3.72
Si(Et)3
7f
O
Si(Et)3
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40619
EXPNO 47
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190604
Time 17.33
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16640
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.443853 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

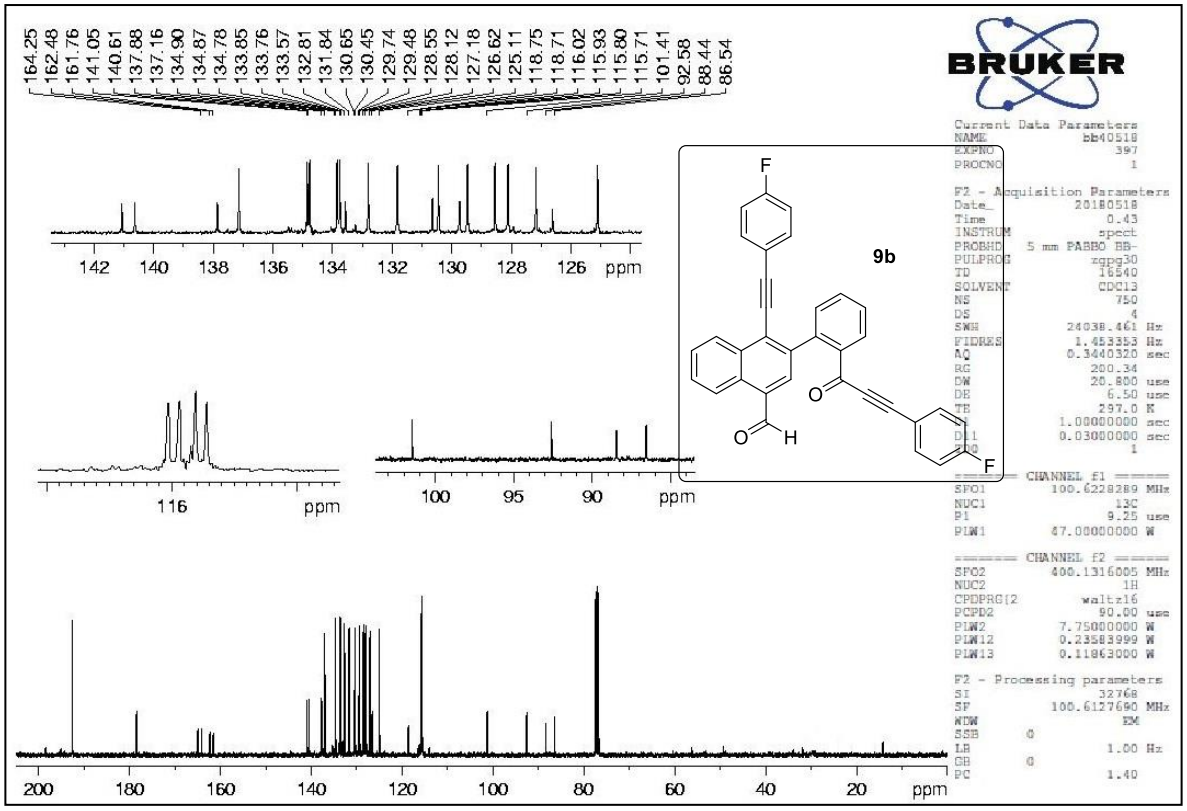

10.384
9.248
9.231
8.583
8.566
8.283
8.265
8.031
7.703
7.659
7.639
7.543
7.525
7.334
7.301
7.271
7.255
7.184
7.167
7.149
7.065
7.048
Ph
O
H
O
Ph
9a
9.3 ppm
8.7 8.6 8.5 8.4 8.3 8.2 ppm
7.7 7.6 7.5 7.4 7.3 7.2 7.1 ppm
10 9 8 7 6 5 4 3 2 1 ppm
1.00
1.02
1.02
1.06
1.07
4.27
1.17
6.27
2.06
2.03
BRUKER
Current Data Parameters
NAME ph dimer cho
EXPNO 629
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180117
Time 12.58
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 124.58
DW 62.400 usec
DE 6.50 usec
TE 292.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300129 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

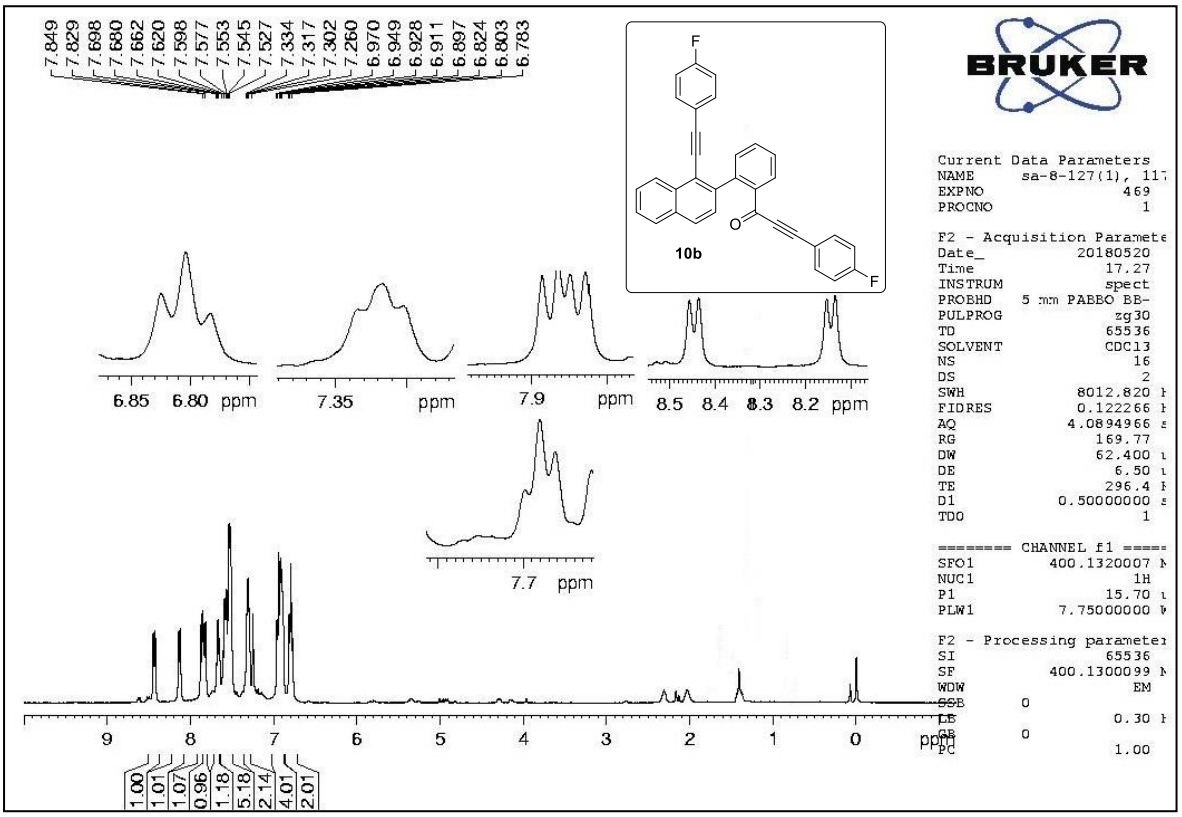

192.95
178.75
141.15
140.68
137.91
137.39
133.70
132.75
132.62
131.85
130.69
130.58
130.47
129.75
129.43
129.10
128.51
128.45
128.41
128.38
128.06
127.30
126.73
125.14
122.64
119.82
102.50
93.66
88.51
86.77
134 133 132 131 130 129 128 ppm
142 140 ppm
Ph
O
H
O
Ph
9a
200 180 160 140 120 100 80 60 40 20 ppm
BRUKER
Current Data Parameters
NAME bb40118
EXPNO 630
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180117
Time 13.10
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 146540
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 292.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

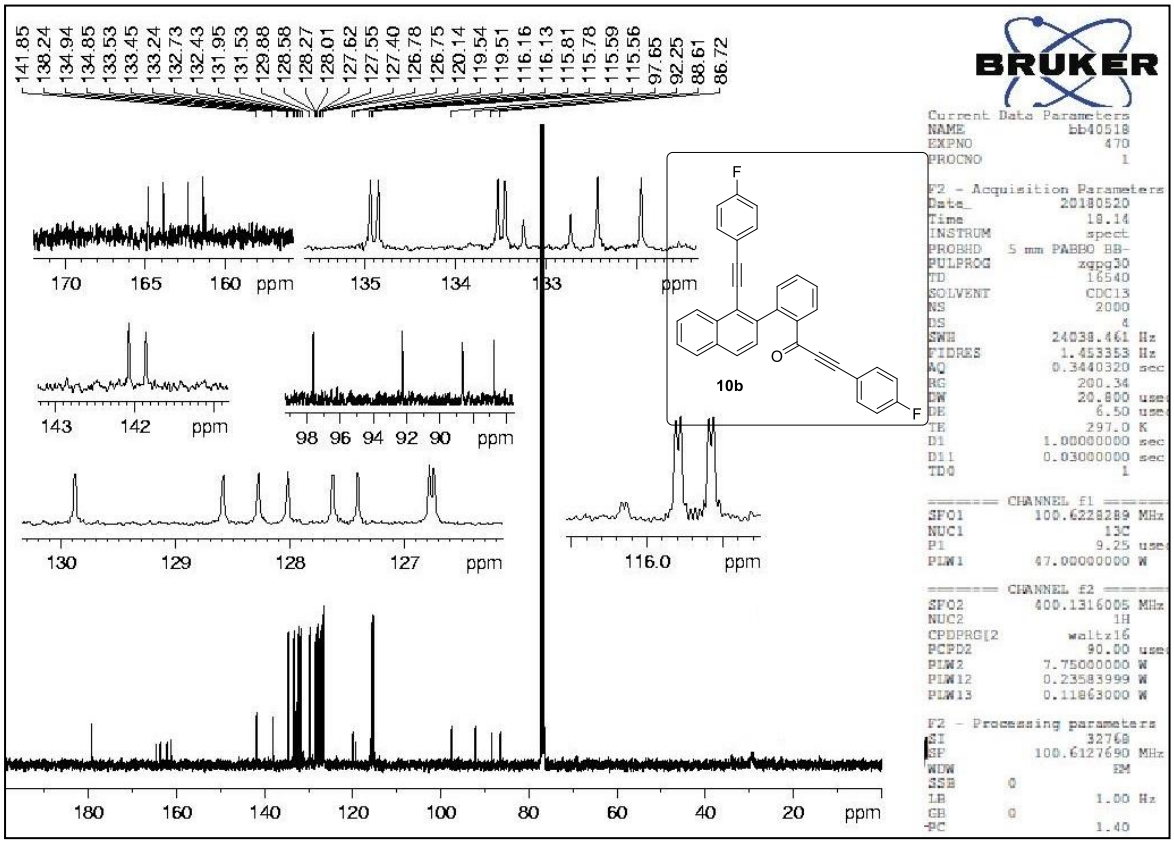

7.881 7.860 7.846 7.826 7.691 7.673 7.657 7.615 7.594 7.574 7.554 7.543 7.534 7.522 7.514 7.495 7.359 7.353 7.344 7.335 7.258 7.247 7.239 7.141 7.121 7.102 6.984 6.966
7.1 7.0 ppm
7.7 7.6 7.5 ppm
8.5 8.4 8.3 8.2 8.1 8.0 7.9 ppm
10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.01 1.12 1.09 1.36 5.17 2.03 4.02 2.04 2.05
Ph
O
Ph
10a
BRUKER
Current Data Parameters
NAME bb40619
EXPNO 150
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190610
Time 11.06
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 200.34
DW 62.400 usec
DE 6.50 usec
TE 297.5 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300105 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

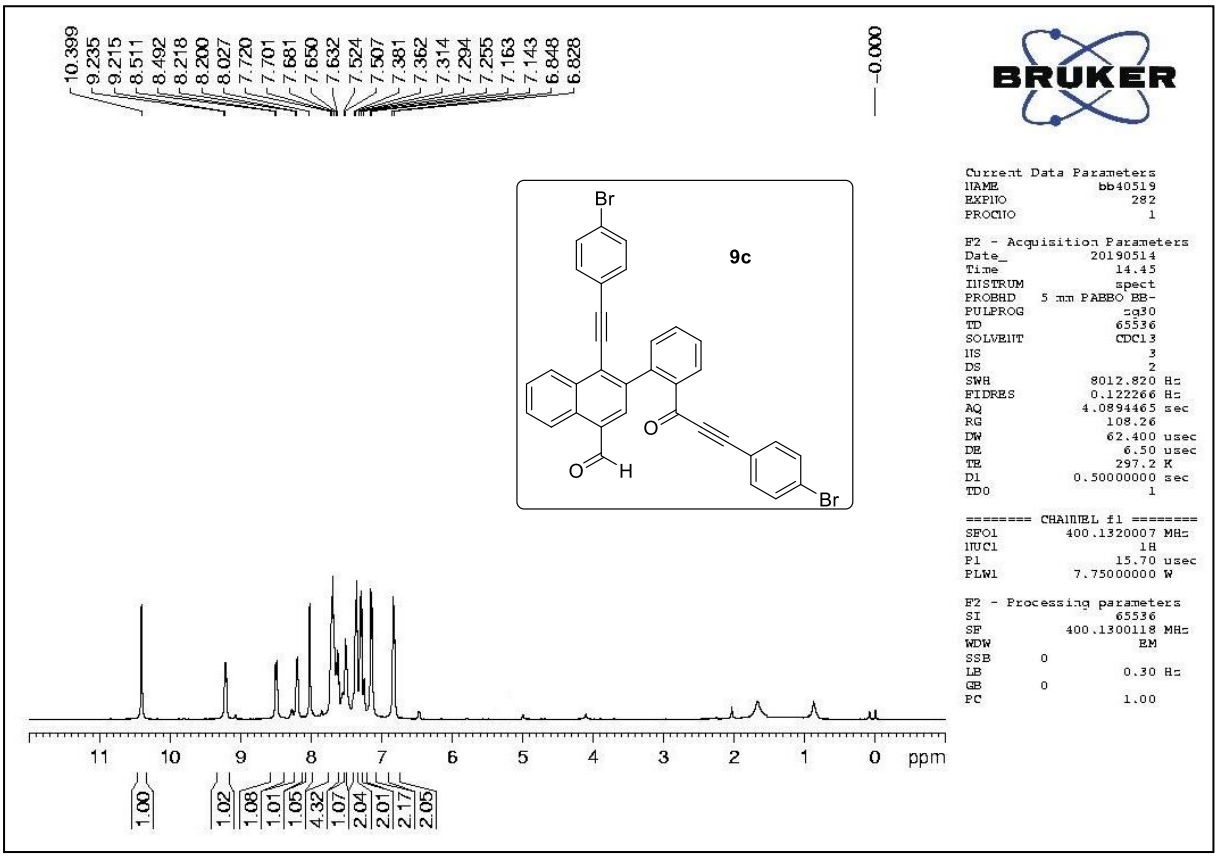

179.28 142.13 141.96 138.28 133.38 132.73 132.32 131.98 131.62 130.16 130.11 128.51 128.35 128.27 128.20 127.94 127.62 127.29 126.86 126.66 123.50 120.15 120.10 98.67 93.28 88.73 87.06 77.41 77.16 76.91
133 132 131 130 129 128 127 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
Ph
O
Ph
10a
BRUKER
Current Data Parameters
NAME bb50619
EXPNO 22
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190610
Time 22.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 10000
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 297.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

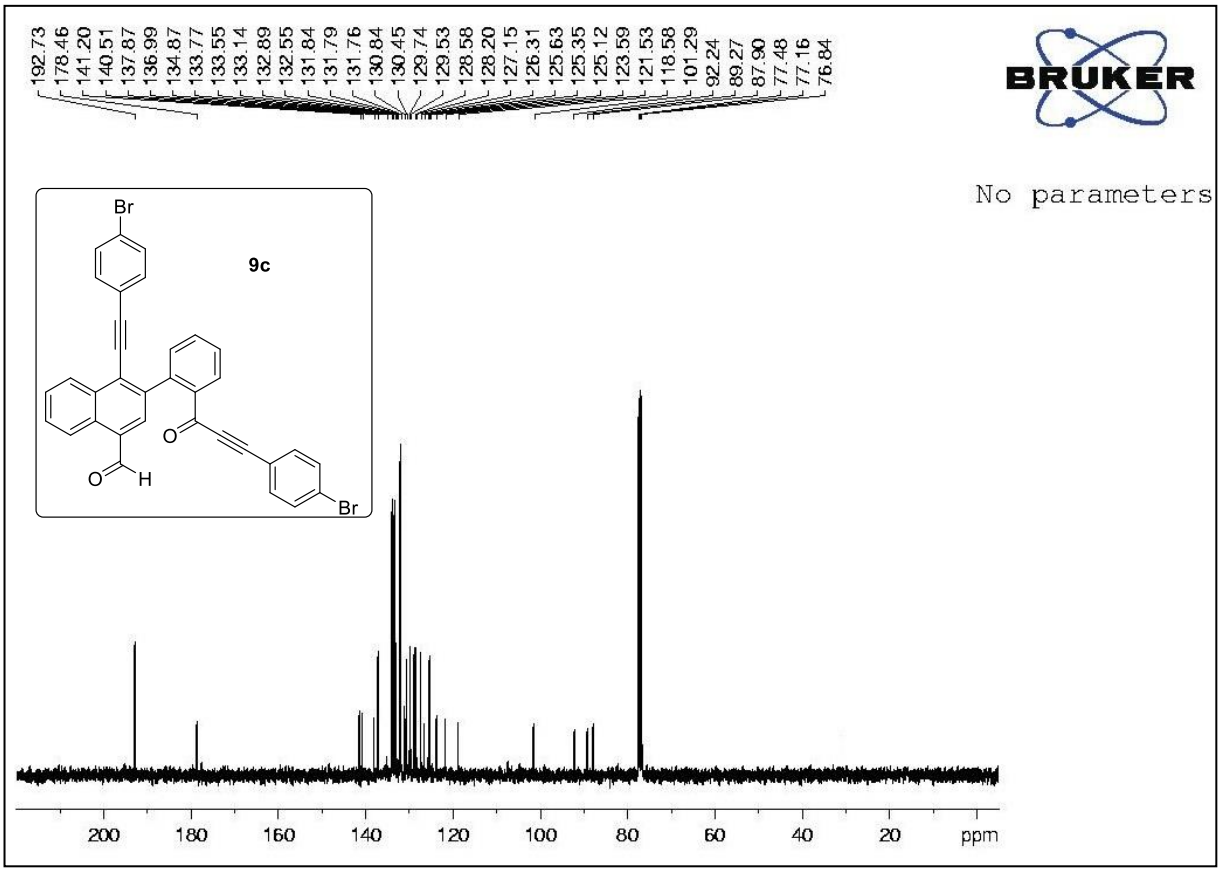

10.392
9.236
9.217
8.538
8.519
8.240
8.221
8.031
7.739
7.721
7.703
7.691
7.678
7.654
7.634
7.616
7.537
7.518
7.326
7.308
7.292
7.027
7.007
6.993
6.971
6.950
6.929
6.873
6.852
6.831
9b
Current Data Parameters
NAME bb40518
EXPNO 396
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 0.42
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 9
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 88.51
DW 62.400 usec
DE 6.50 usec
TE 296.8 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300120 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
1.00
1.02
1.03
1.07
1.09
4.13
1.10
2.14
2.05
2.08
2.01

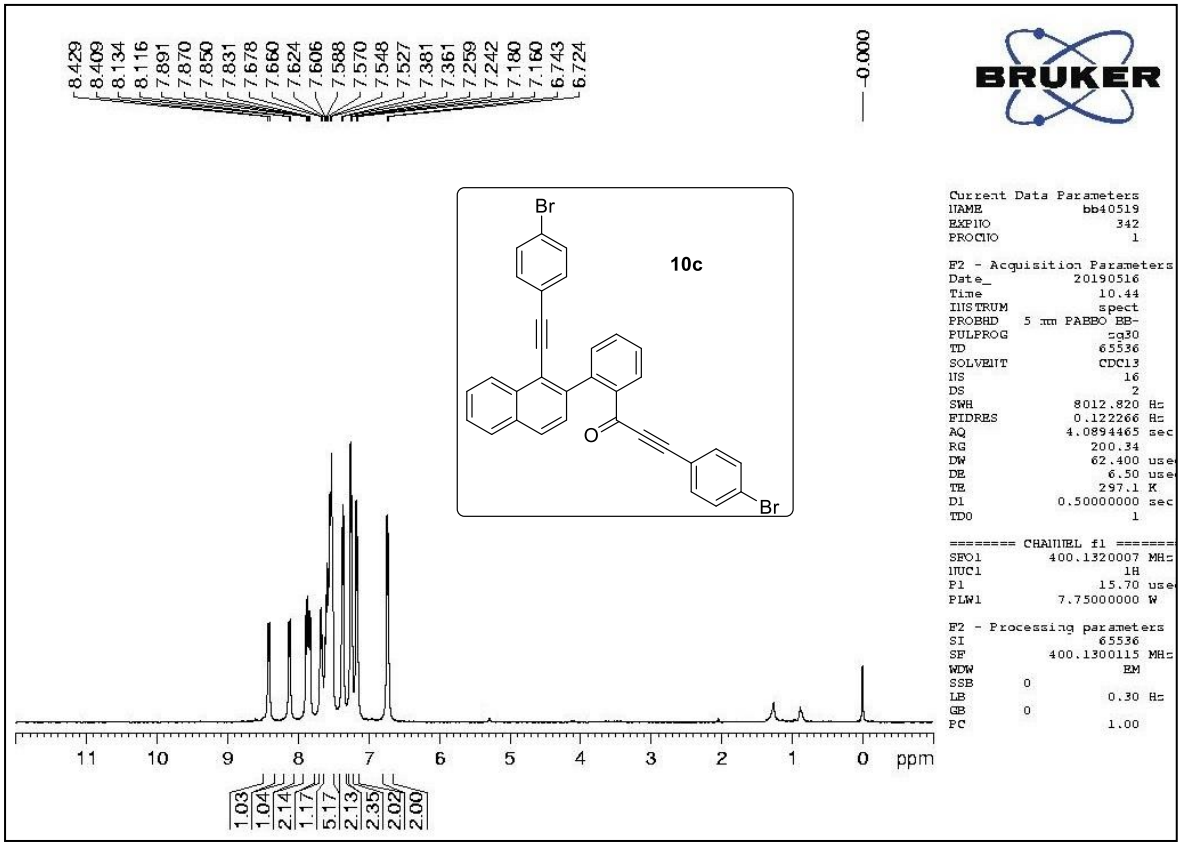

164.25
162.48
161.76
141.05
140.61
137.88
137.16
134.90
134.87
134.78
133.85
133.76
133.57
132.81
131.84
130.65
130.45
129.74
129.48
128.55
128.12
127.18
126.62
125.11
118.75
118.71
116.02
115.93
115.80
115.71
101.41
92.58
88.44
86.54
9b
Current Data Parameters
NAME bb40518
EXPNO 397
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 0.43
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 750
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

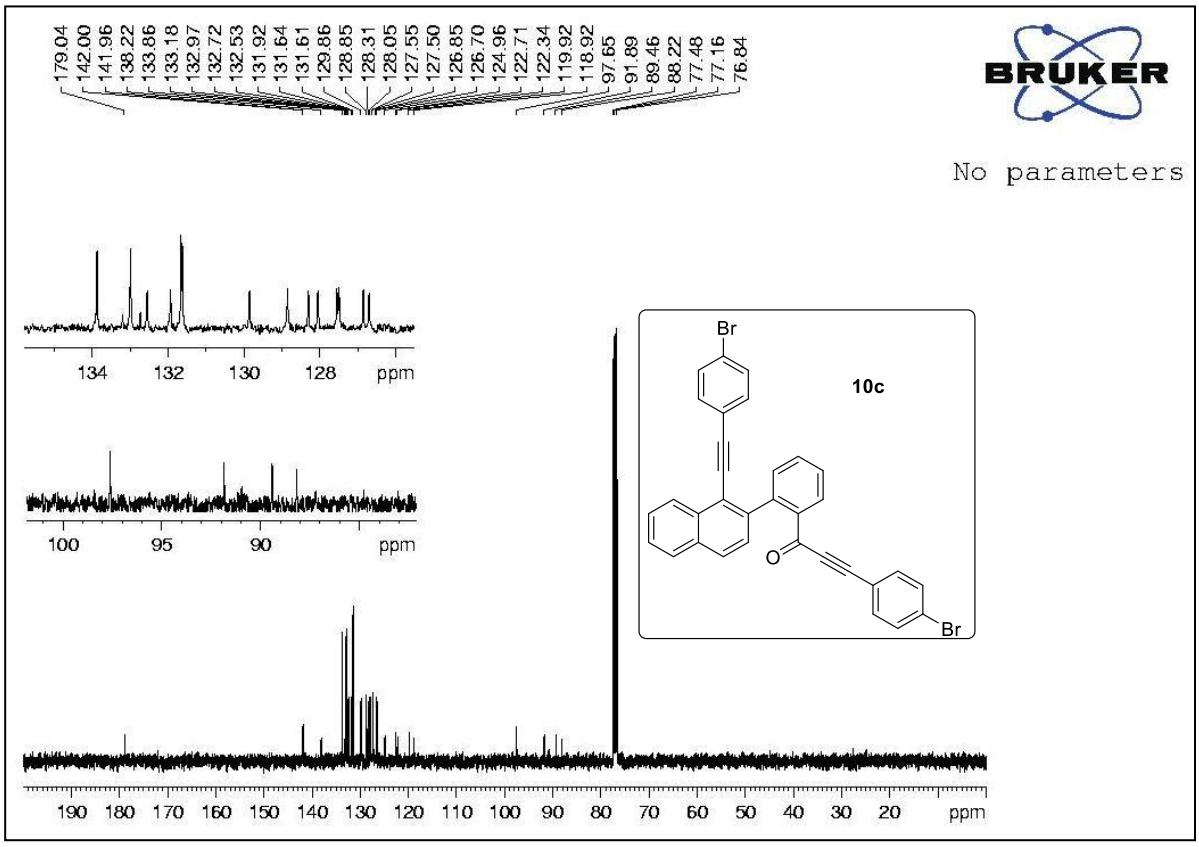

7.849
7.829
7.698
7.680
7.662
7.620
7.598
7.577
7.553
7.545
7.527
7.334
7.317
7.302
7.260
6.970
6.949
6.928
6.911
6.897
6.824
6.803
6.783
10b
F
O
F
6.85 6.80 ppm
7.35 ppm
7.9 ppm
8.5 8.4 8.3 8.2 ppm
7.7 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.01
1.07
0.96
1.18
5.18
2.14
4.01
2.01
BRUKER
Current Data Parameters
NAME sa-8-127(1), 117
EXPNO 469
PROCNO 1
F2 - Acquisition Parameter
Date_ 20180520
Time 17.27
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 H
FIDRES 0.122266 H
AQ 4.0894966 s
RG 169.77
DW 62.400 u
DE 6.50 u
TE 296.4 K
D1 0.50000000 s
TD0 1
======== CHANNEL f1 =====
SFO1 400.1320007 M
NUC1 1H
P1 15.70 u
PLW1 7.75000000 W
F2 - Processing parameter
SI 65536
SF 400.1300099 M
WDW EM
SSB 0
LB 0.30 H
GB 0
PC 1.00

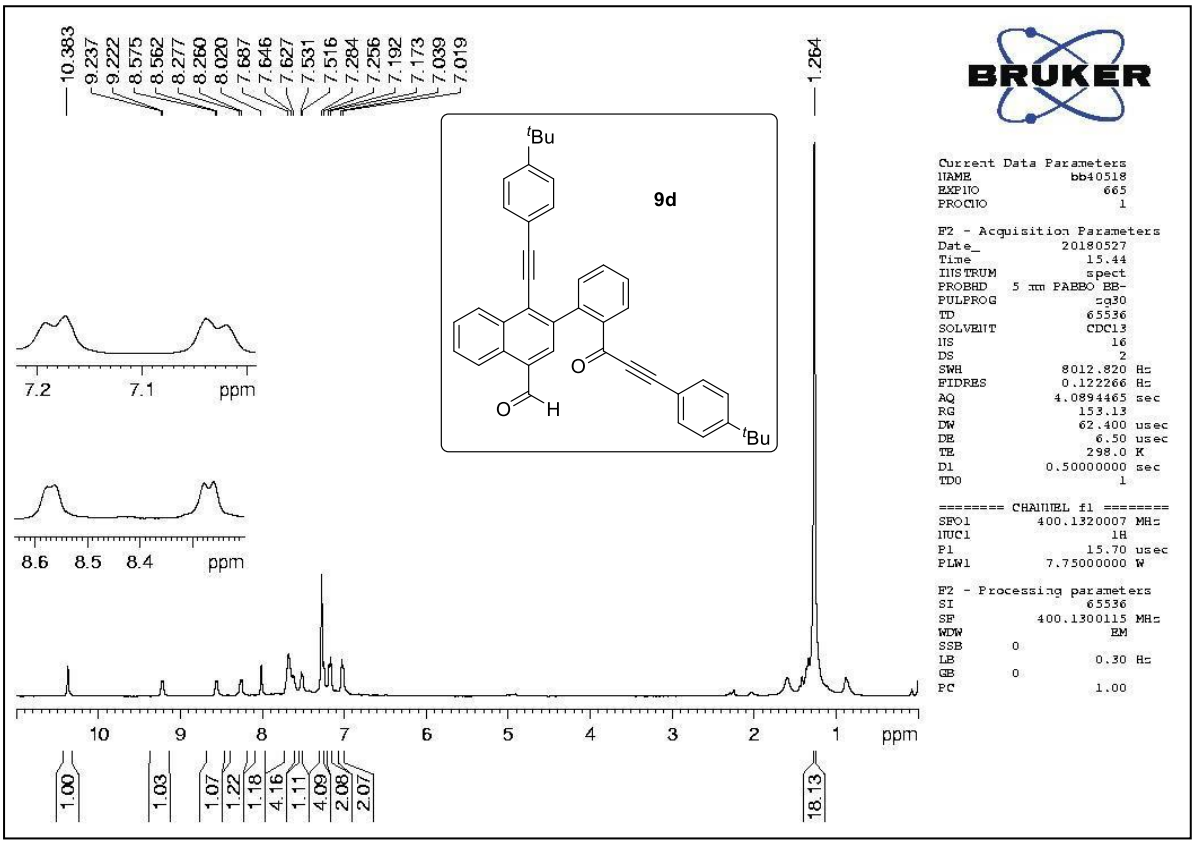

141.85
138.24
134.94
134.85
133.53
133.45
133.24
132.73
132.43
131.95
131.53
129.88
128.58
128.27
128.01
127.62
127.55
127.40
126.78
126.75
120.14
119.54
119.51
116.16
116.13
115.81
115.78
115.59
115.56
97.65
92.25
88.61
86.72
10b
F
O
F
170 165 160 ppm
135 134 133 ppm
143 142 ppm
98 96 94 92 90 ppm
130 129 128 127 ppm
116.0 ppm
180 160 140 120 100 80 60 40 20 ppm
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 470
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180520
Time 18.14
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 2000
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

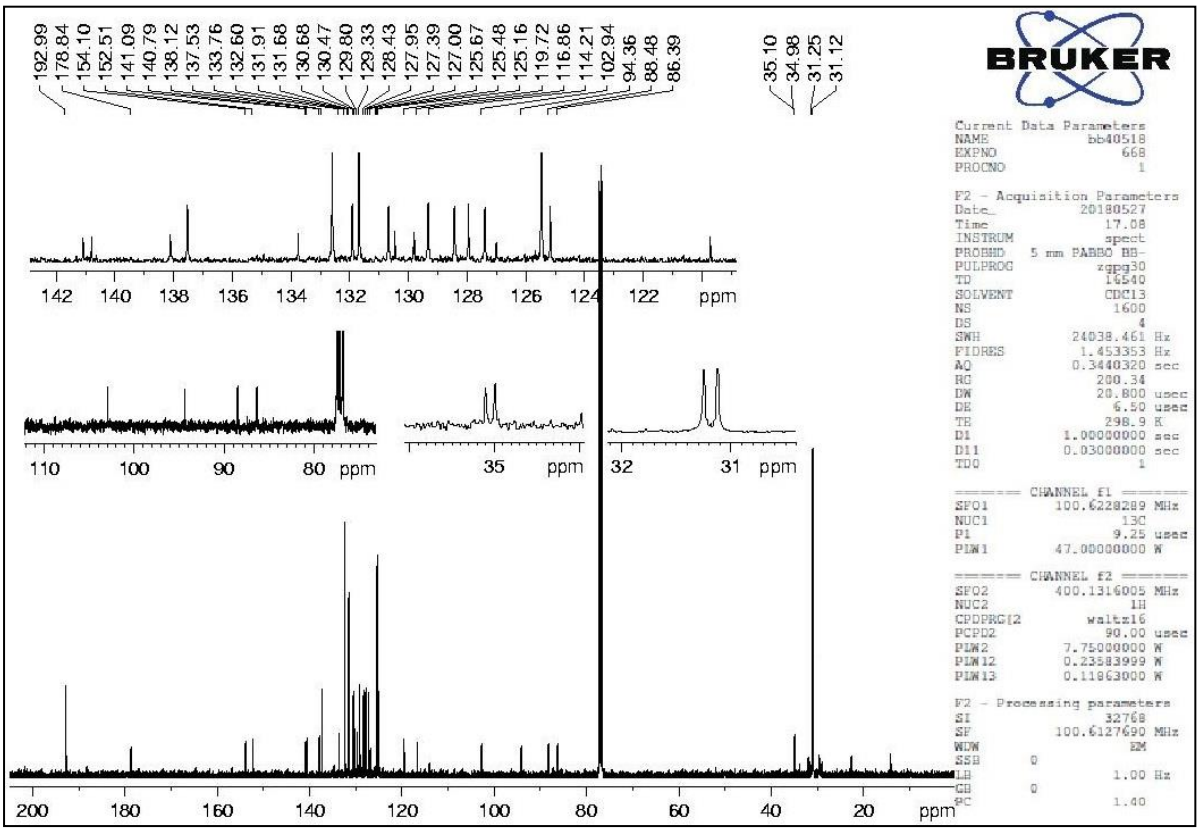

10.399
9.235
9.215
8.511
8.492
8.218
8.200
8.027
7.720
7.701
7.681
7.650
7.632
7.524
7.507
7.381
7.362
7.314
7.294
7.255
7.163
7.143
6.848
6.828
0.000
BRUKER
Br
9c
O
H
O
Br
Current Data Parameters
NAME bb40519
EXPNO 282
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190514
Time 14.45
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 3
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300118 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.02 1.08 1.01 1.05 4.32 1.07 2.04 2.01 2.17 2.05

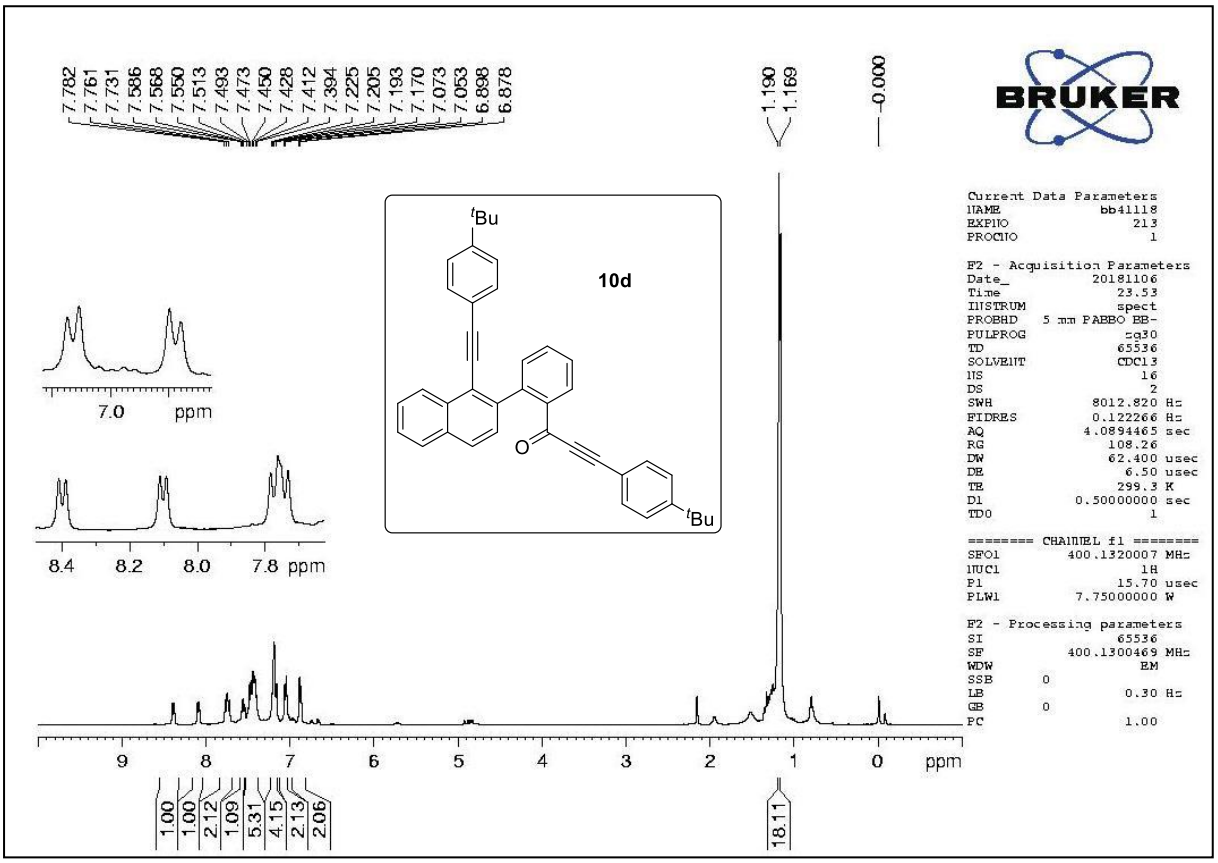

192.73
178.46
141.20
140.51
137.87
136.99
134.87
133.77
133.55
133.14
132.89
132.55
131.84
131.79
131.76
130.84
130.45
129.74
129.53
128.58
128.20
127.15
126.31
125.63
125.35
125.12
123.59
121.53
118.58
101.29
92.24
89.27
87.90
77.48
77.16
76.84
BRUKER
No parameters
Br
9c
O
O
H
Br
200 180 160 140 120 100 80 60 40 20 ppm

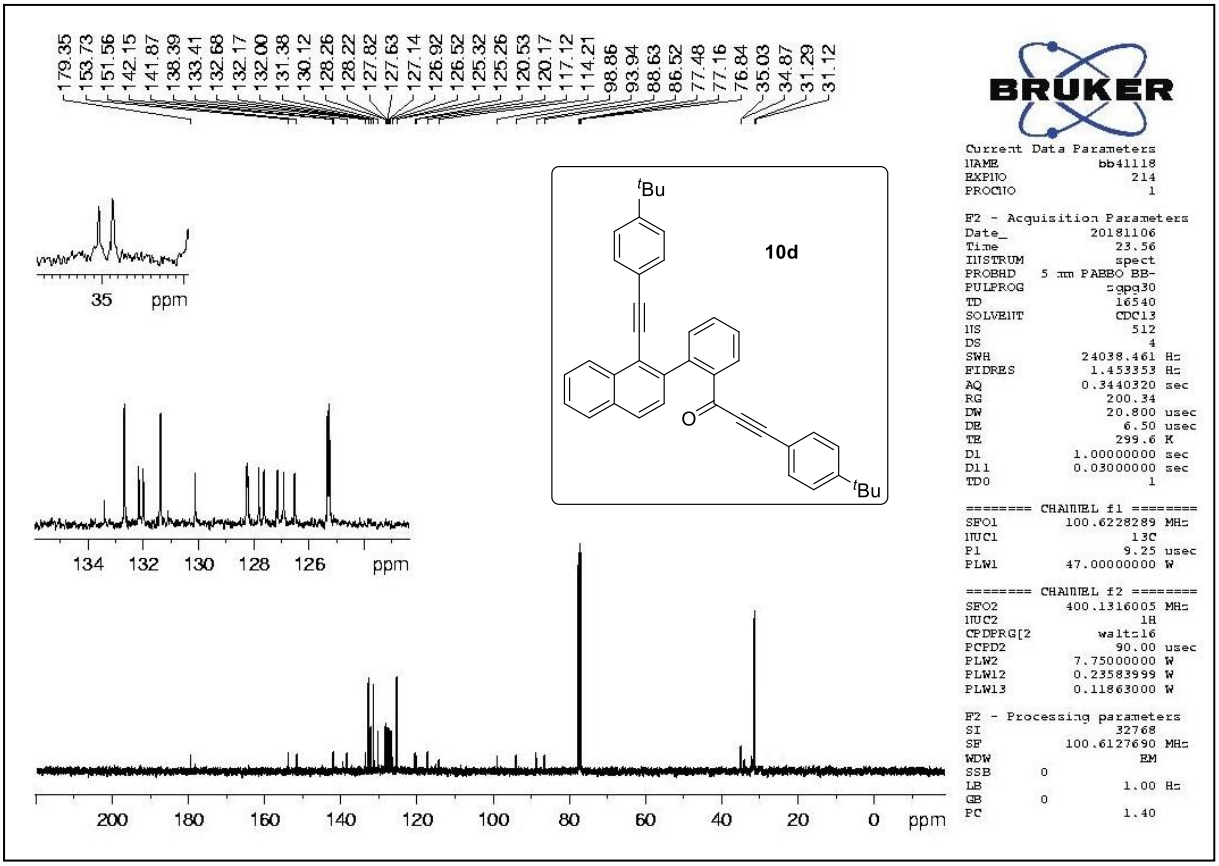

8.429
8.409
8.134
8.116
7.891
7.870
7.850
7.831
7.678
7.660
7.624
7.606
7.588
7.570
7.548
7.527
7.381
7.361
7.259
7.242
7.180
7.160
6.743
6.724
0.000
Br
10c
O
Br
Current Data Parameters
NAME bb40519
EXPNO 342
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190516
Time 10.44
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 200.34
DW 62.400 use
DE 6.50 use
TE 297.1 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 =======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 use
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300115 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.03 1.04 2.14 1.17 5.17 2.13 2.35 2.02 2.00

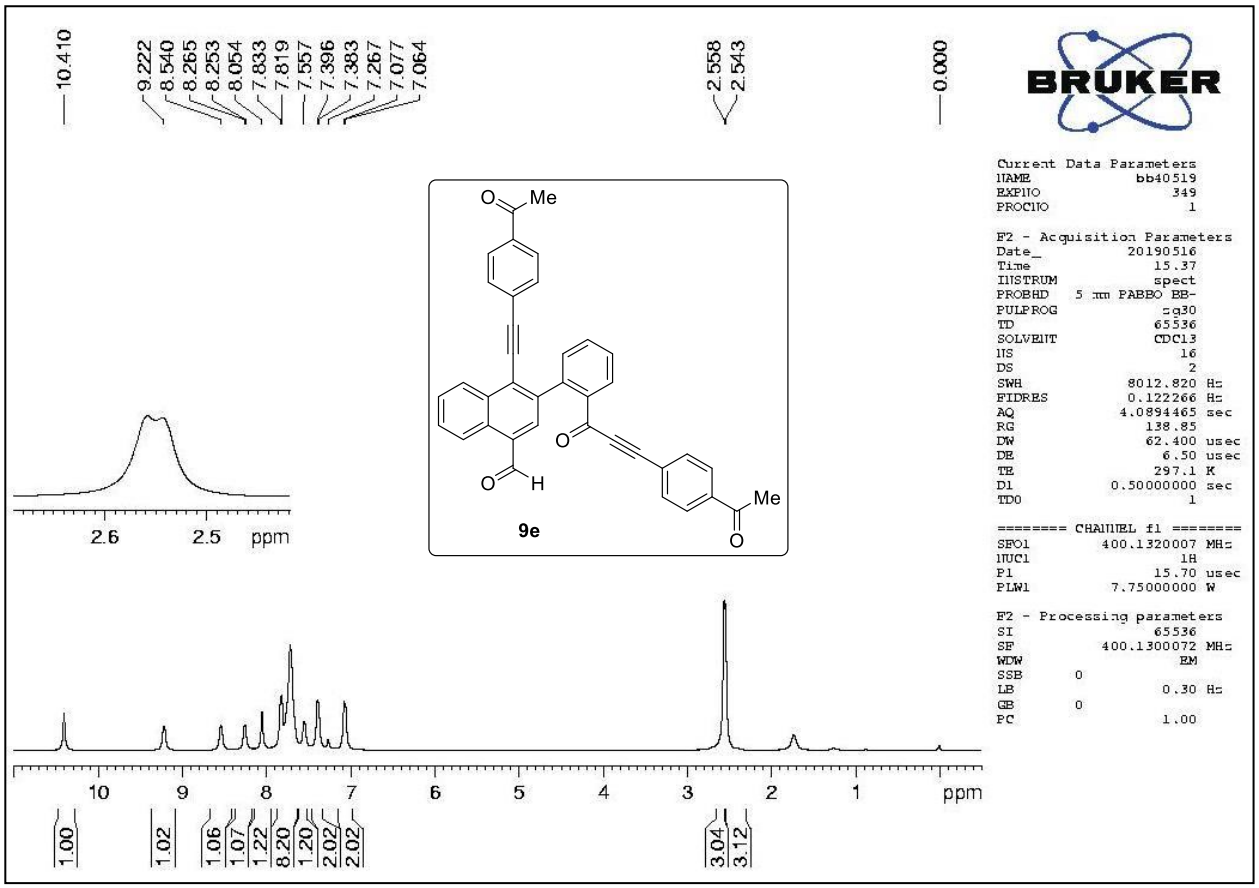

179.04
142.00
141.96
138.22
133.86
133.18
132.97
132.72
132.53
131.92
131.64
131.61
129.86
128.85
128.31
128.05
127.55
127.50
126.85
126.70
124.96
122.71
122.34
119.92
118.92
97.65
91.89
89.46
88.22
77.48
77.16
76.84
No parameters
134 132 130 128 ppm
100 95 90 ppm
Br
10c
O
Br
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm

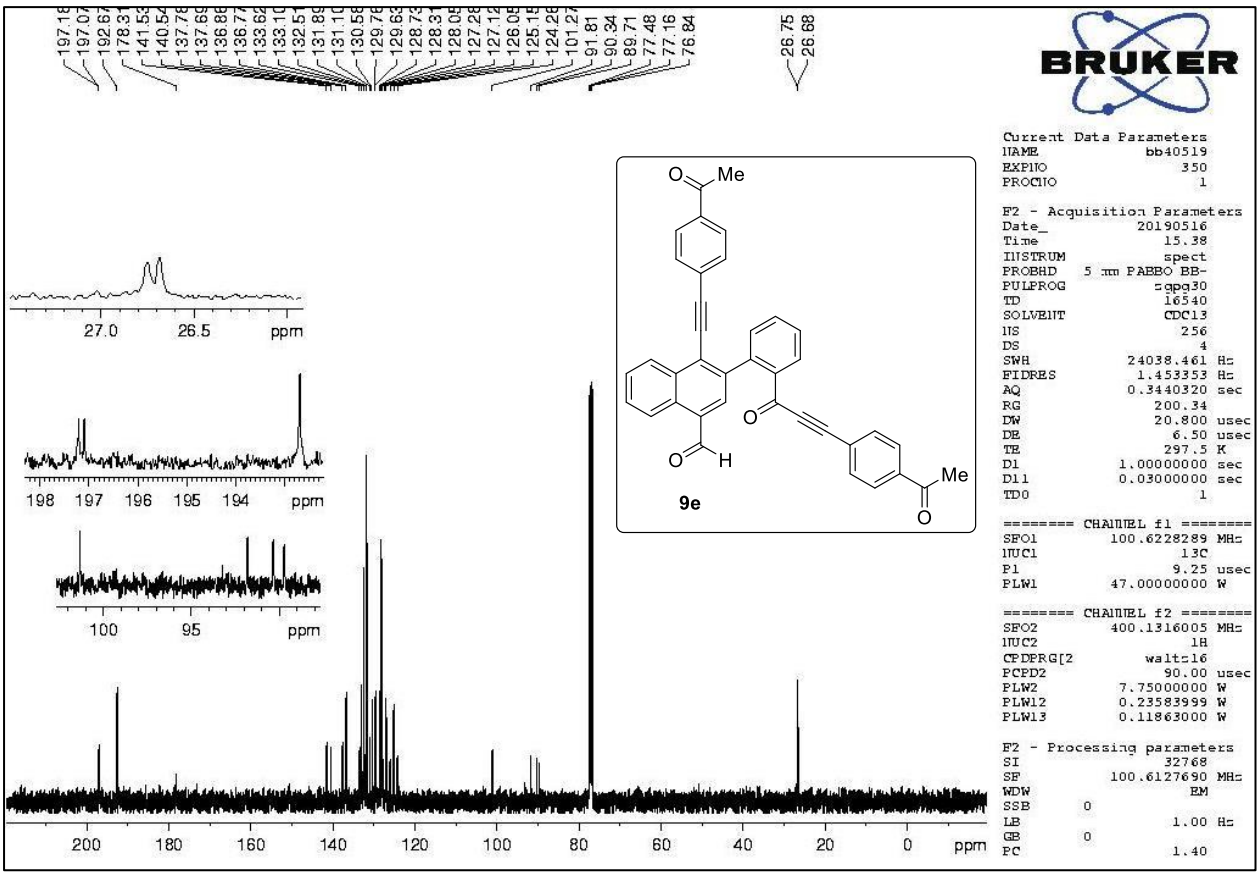

10.383
9.237
9.222
8.575
8.562
8.277
8.260
8.020
7.687
7.646
7.627
7.531
7.516
7.284
7.256
7.192
7.173
7.039
7.019
1.264
9d
tBu
tBu
O
O
H
7.2
7.1
ppm
8.6
8.5
8.4
ppm
10
9
8
7
6
5
4
3
2
1
ppm
1.00
1.03
1.07
1.22
1.18
4.16
1.11
4.09
2.08
2.07
18.13
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 665
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180527
Time 15.44
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 298.0 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300115 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

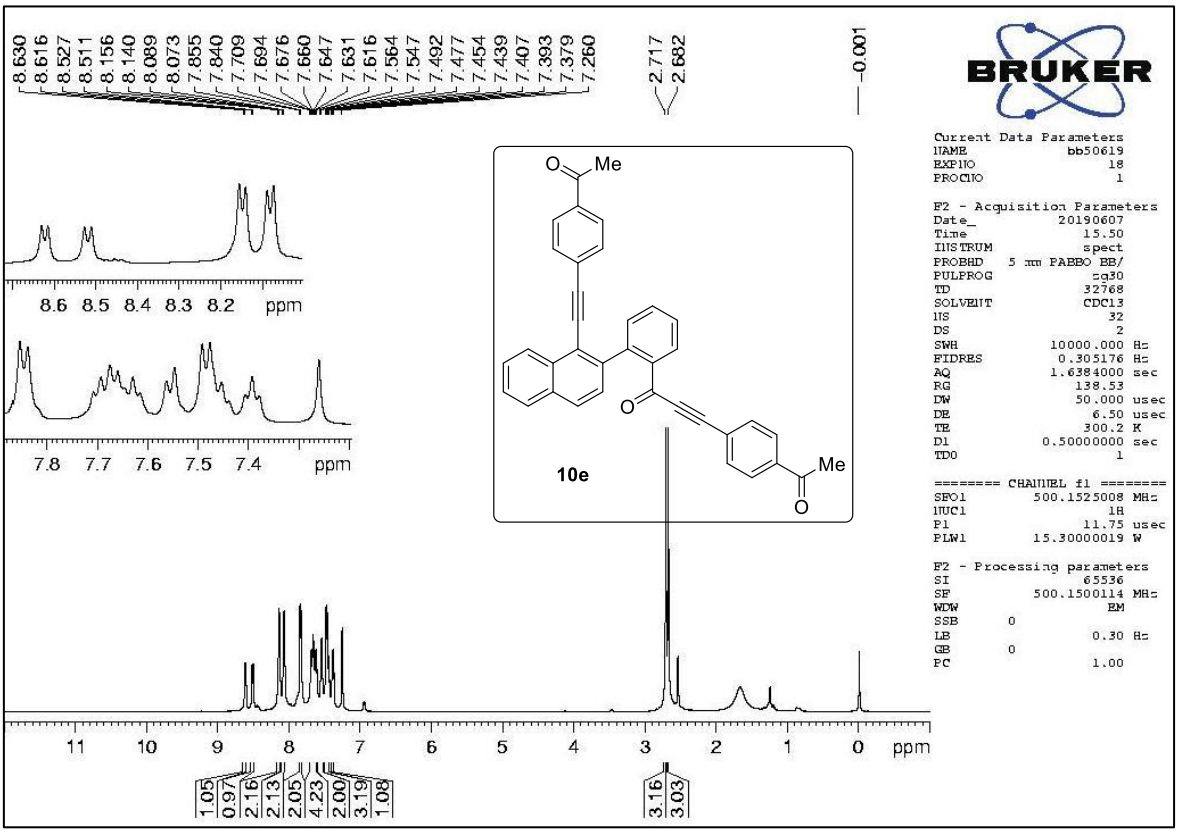

192.99
178.84
154.10
152.51
141.09
140.79
138.12
137.53
133.76
132.60
131.91
131.68
130.68
130.47
129.80
129.33
128.43
127.95
127.39
127.00
125.67
125.48
125.16
119.72
116.86
114.21
102.94
94.36
88.48
86.39
35.10
34.98
31.25
31.12
142
140
138
136
134
132
130
128
126
124
122
ppm
110
100
90
80
ppm
35
ppm
32
31
ppm
200
180
160
140
120
100
80
60
40
20
ppm
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 668
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180527
Time 17.08
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 1600
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

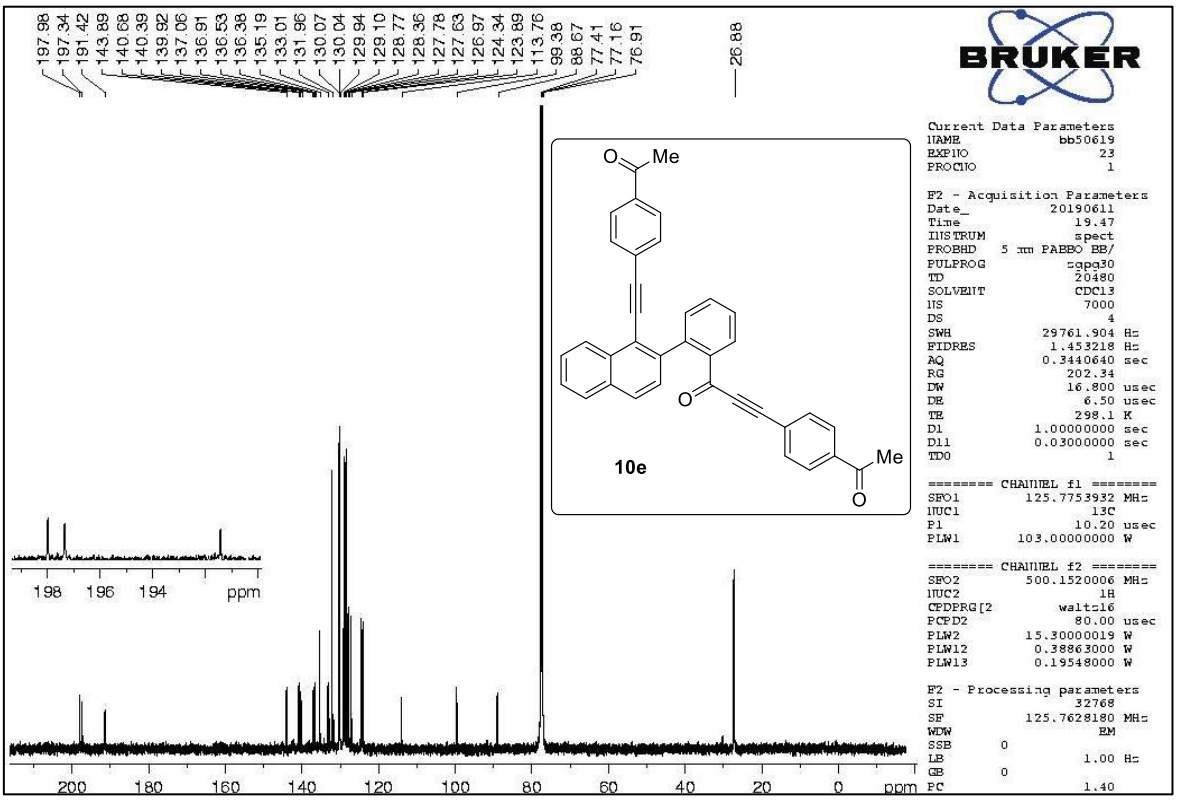

7.782
7.761
7.731
7.586
7.568
7.550
7.513
7.493
7.473
7.450
7.428
7.412
7.394
7.225
7.205
7.193
7.170
7.073
7.053
6.898
6.878
1.190
1.169
0.000
10d
tBu
tBu
O
7.0 ppm
8.4 8.2 8.0 7.8 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.00 2.12 1.09 5.31 4.15 2.13 2.06
18.11
BRUKER
Current Data Parameters
NAME bb41118
EXPNO 213
PROCNO 1
F2 - Acquisition Parameters
Date_ 20181106
Time 23.53
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 299.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300469 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

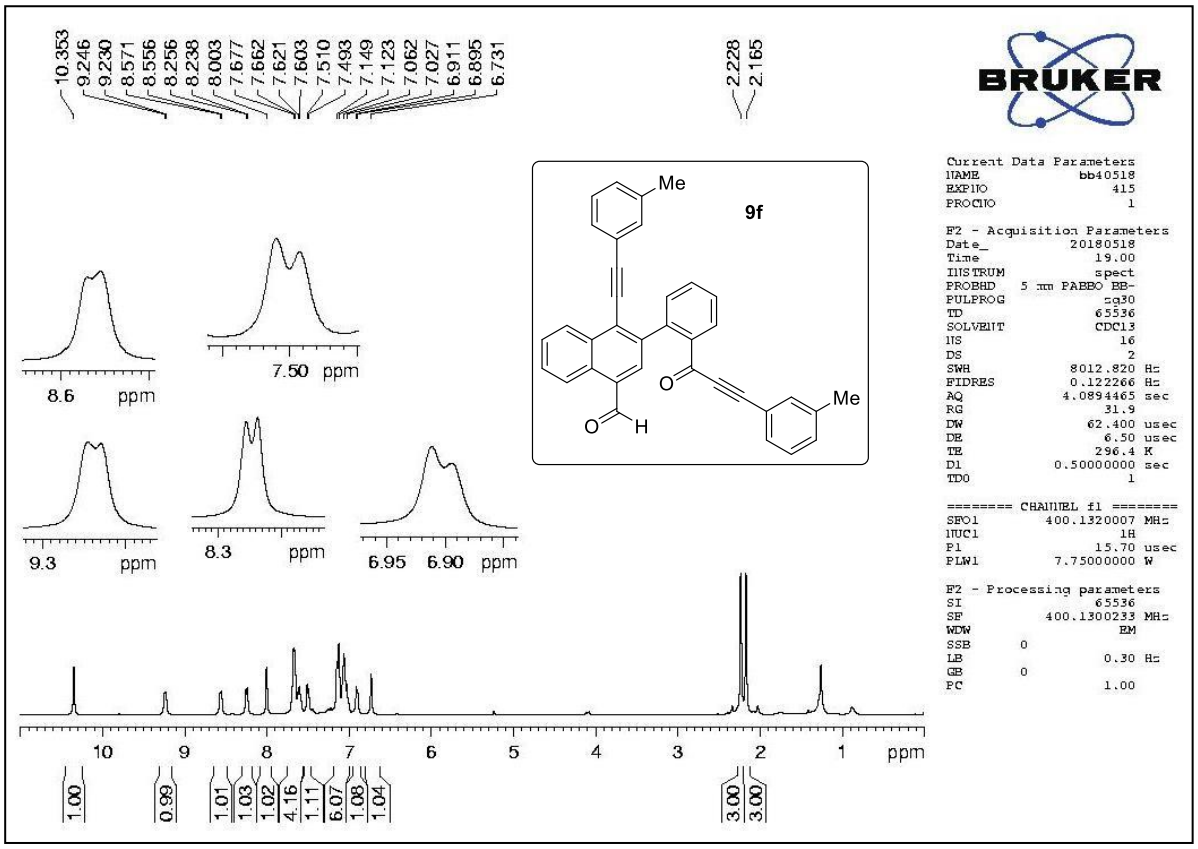

179.35
153.73
151.56
142.15
141.87
138.39
133.41
132.68
132.17
132.00
131.38
130.12
128.26
128.22
127.82
127.63
127.14
126.92
126.52
125.32
125.26
120.53
120.17
117.12
114.21
98.86
93.94
88.63
86.52
77.48
77.16
76.84
35.03
34.87
31.29
31.12
10d
tBu
tBu
O
35 ppm
134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb41118
EXPNO 214
PROCNO 1
F2 - Acquisition Parameters
Date_ 20181106
Time 23.56
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 512
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

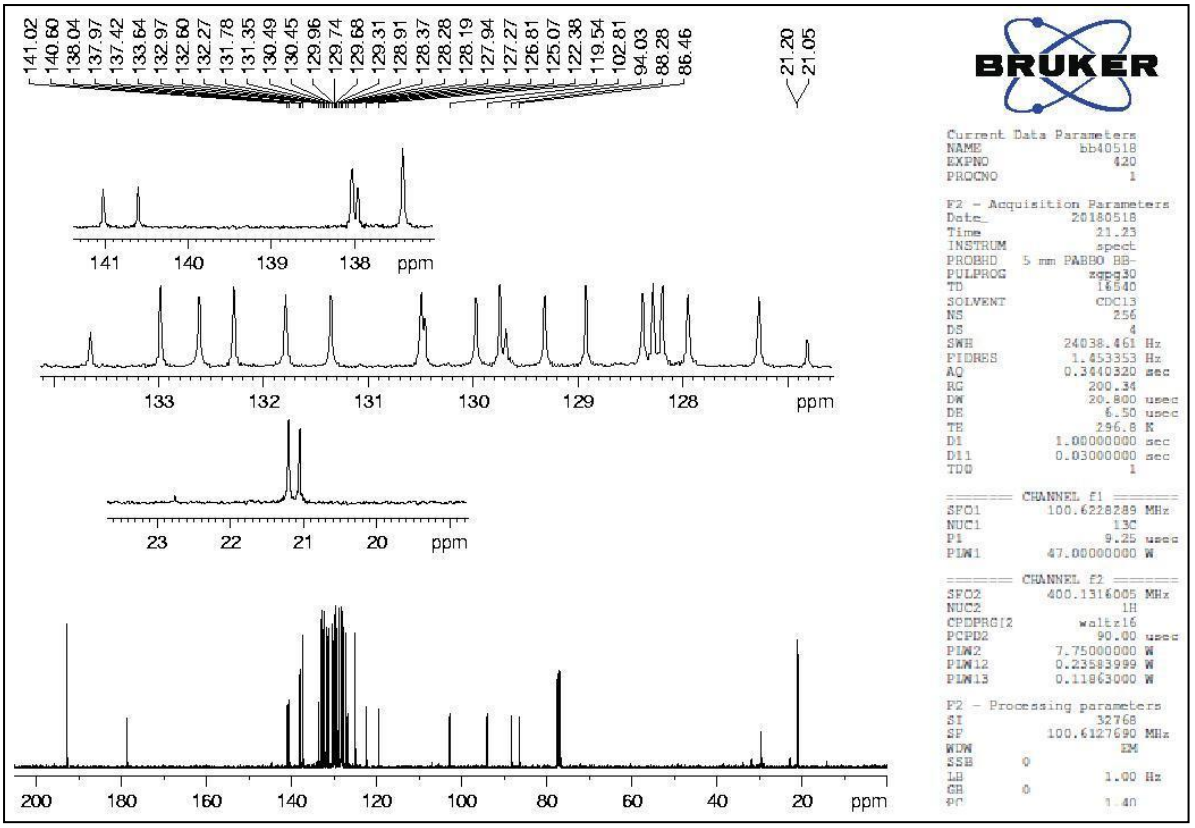

10.410
9.222
8.540
8.265
8.253
8.054
7.833
7.819
7.557
7.396
7.383
7.267
7.077
7.064
2.558
2.543
0.000
Me
O
H
9e
2.6
2.5
ppm
10
9
8
7
6
5
4
3
2
1
ppm
1.00
1.02
1.06
1.07
1.22
8.20
1.20
2.02
2.02
3.04
3.12
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 349
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190516
Time 15.37
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 297.1 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300072 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

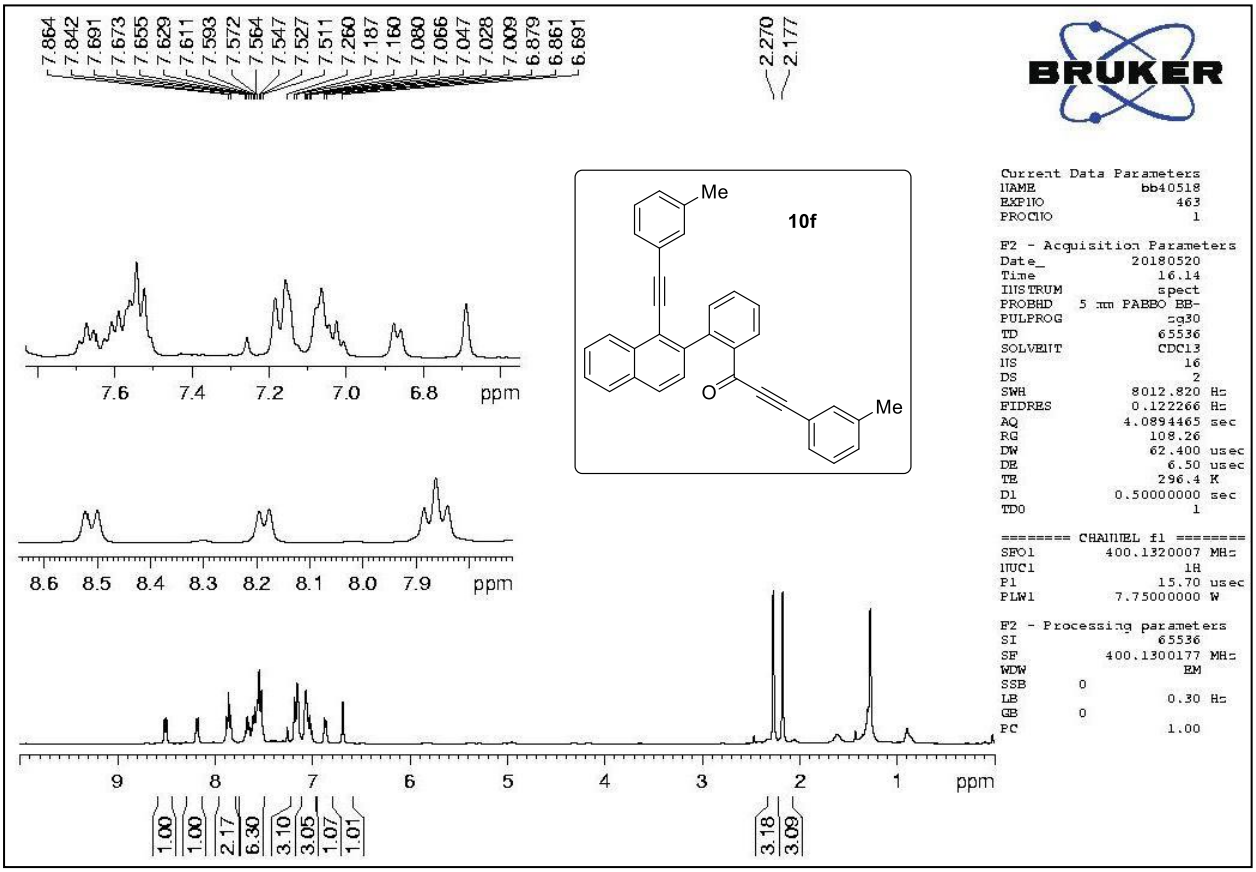

197.18
197.07
192.67
178.31
141.53
140.54
137.78
137.69
136.86
136.77
133.62
133.10
132.51
131.89
131.10
130.58
129.78
129.63
128.73
128.31
128.05
127.28
127.12
126.05
125.15
124.26
101.27
91.81
90.34
89.71
77.48
77.16
76.84
26.75
26.68
Me
O
H
9e
27.0
26.5
ppm
198
197
196
195
194
ppm
100
95
ppm
200
180
160
140
120
100
80
60
40
20
0
ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 350
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190516
Time 15.38
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

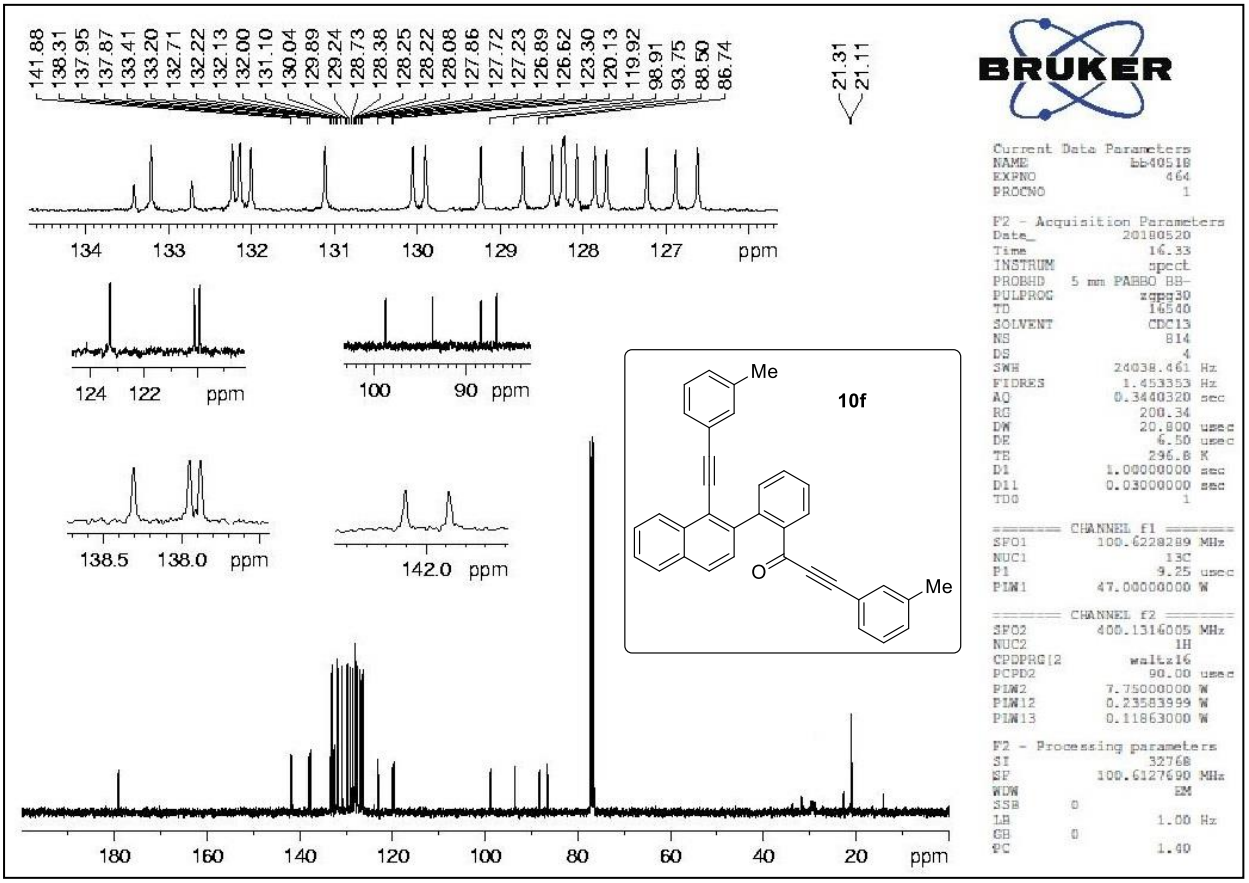

8.630 8.616 8.527 8.511 8.156 8.140 8.089 8.073 7.855 7.840 7.709 7.694 7.676 7.660 7.647 7.631 7.616 7.564 7.547 7.492 7.477 7.454 7.439 7.407 7.393 7.379 7.260
2.717 2.682
-0.001
8.6 8.5 8.4 8.3 8.2 ppm
7.8 7.7 7.6 7.5 7.4 ppm
O Me
O
Me
O
10e
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.05 0.97 2.16 2.13 2.05 4.23 2.00 3.19 1.08
3.16 3.03
BRUKER
Current Data Parameters
NAME bb50619
EXPNO 18
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190607
Time 15.50
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384000 sec
RG 138.53
DW 50.000 usec
DE 6.50 usec
TE 300.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500114 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

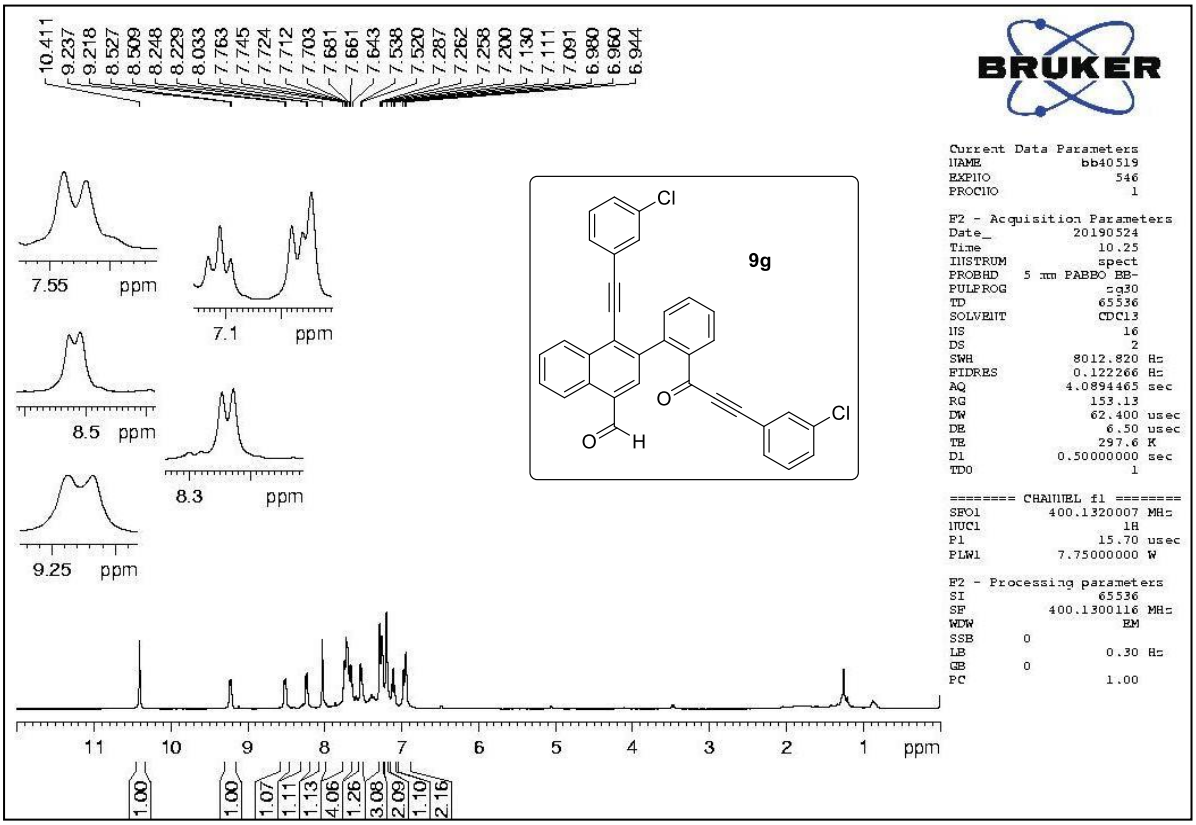

197.98 197.34 191.42 143.89 140.68 140.39 139.92 137.06 136.91 136.53 136.38 135.19 133.01 131.96 130.07 130.04 129.94 129.10 128.77 128.36 127.78 127.63 126.97 124.34 123.89 113.76 99.38 88.67 77.41 77.16 76.91
26.88
198 196 194 ppm
O Me
O
Me
O
10e
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb50619
EXPNO 23
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190611
Time 19.47
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 7000
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

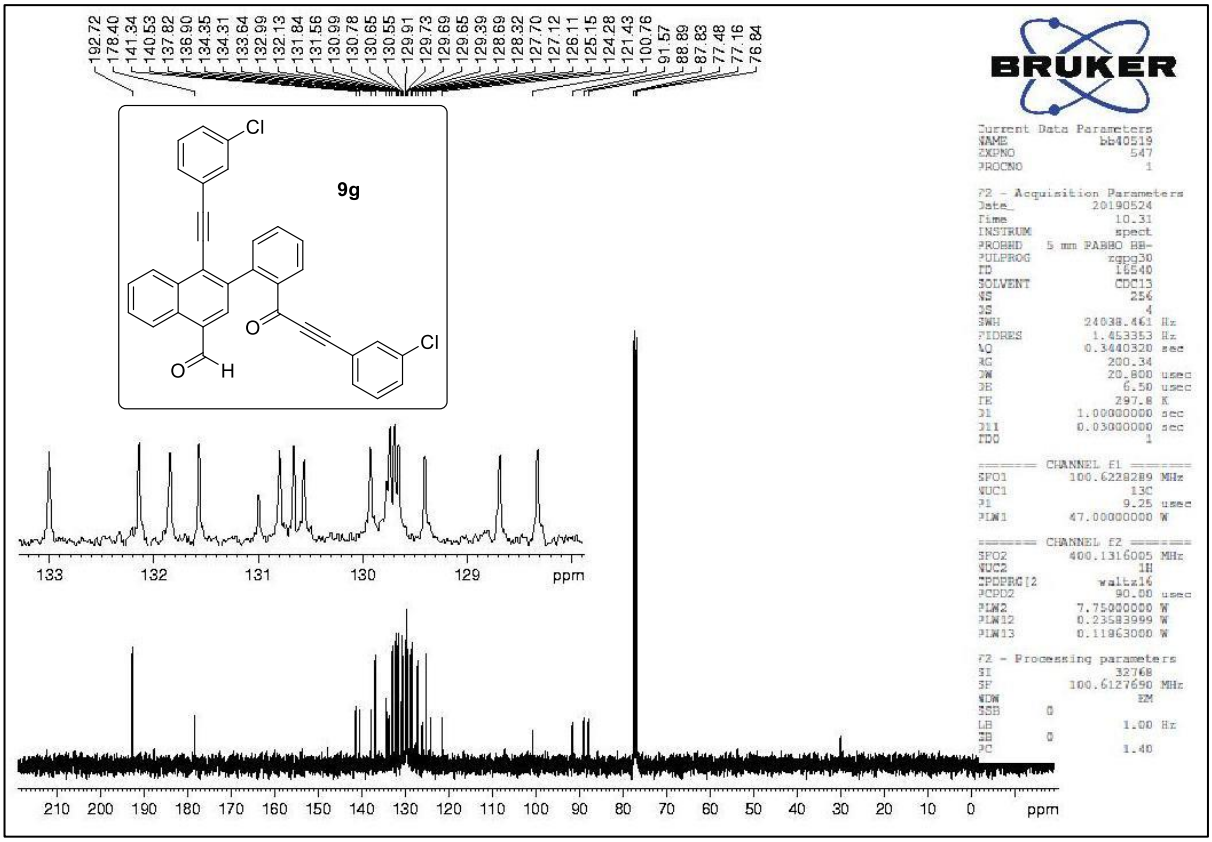

10.353
9.246
9.230
8.571
8.556
8.256
8.238
8.003
7.677
7.662
7.621
7.603
7.510
7.493
7.149
7.123
7.062
7.027
6.911
6.895
6.731
2.228
2.165
9f
Me
O
O
H
Me
8.6 ppm
7.50 ppm
9.3 ppm
8.3 ppm
6.95 6.90 ppm
10 9 8 7 6 5 4 3 2 1 ppm
1.00
0.99
1.01
1.03
1.02
4.16
1.11
6.07
1.08
1.04
3.00
3.00
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 415
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 19.00
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 31.9
DW 62.400 usec
DE 6.50 usec
TE 296.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300233 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

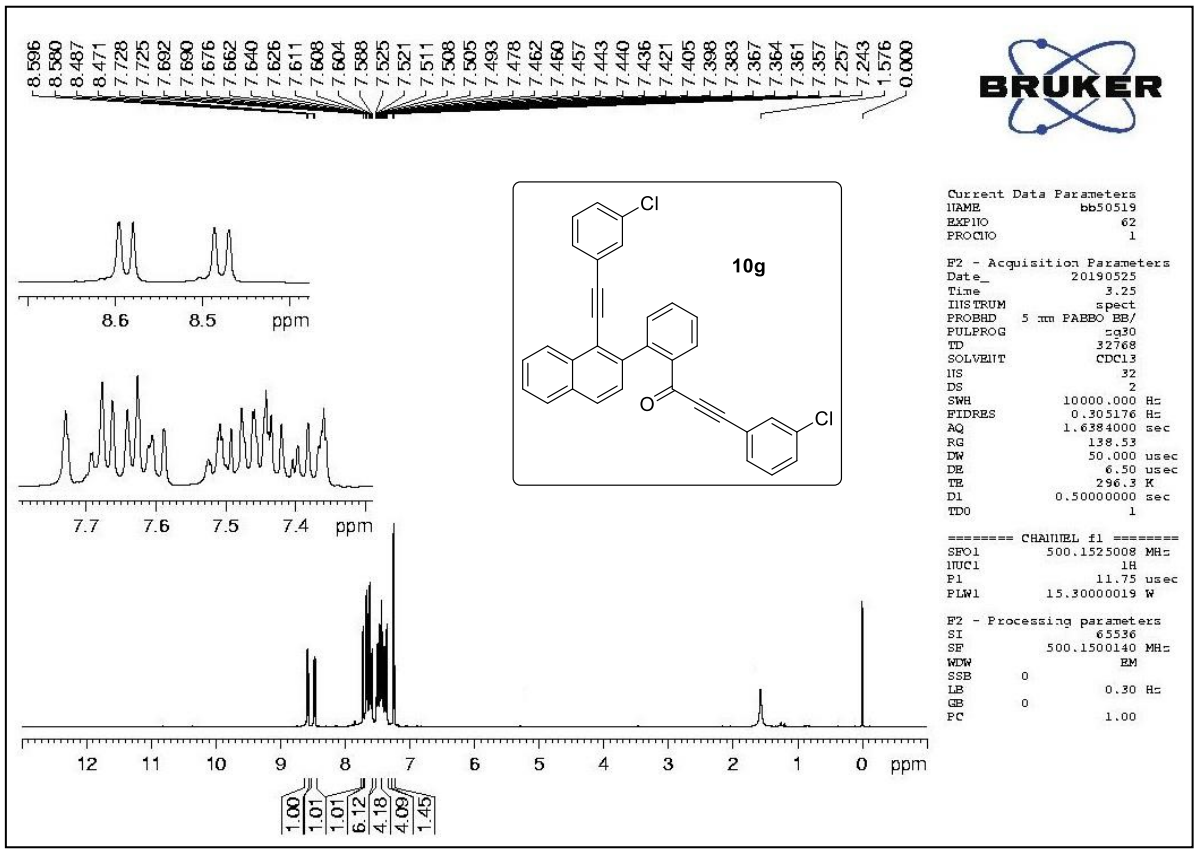

141.02
140.60
138.04
137.97
137.42
133.64
132.97
132.60
132.27
131.78
131.35
130.49
130.45
129.96
129.74
129.68
129.31
128.91
128.37
128.28
128.19
127.94
127.27
126.81
125.07
122.38
119.54
102.81
94.03
88.28
86.46
21.20
21.05
141 140 139 138 ppm
133 132 131 130 129 128 ppm
23 22 21 20 ppm
200 180 160 140 120 100 80 60 40 20 ppm
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 420
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 21.23
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

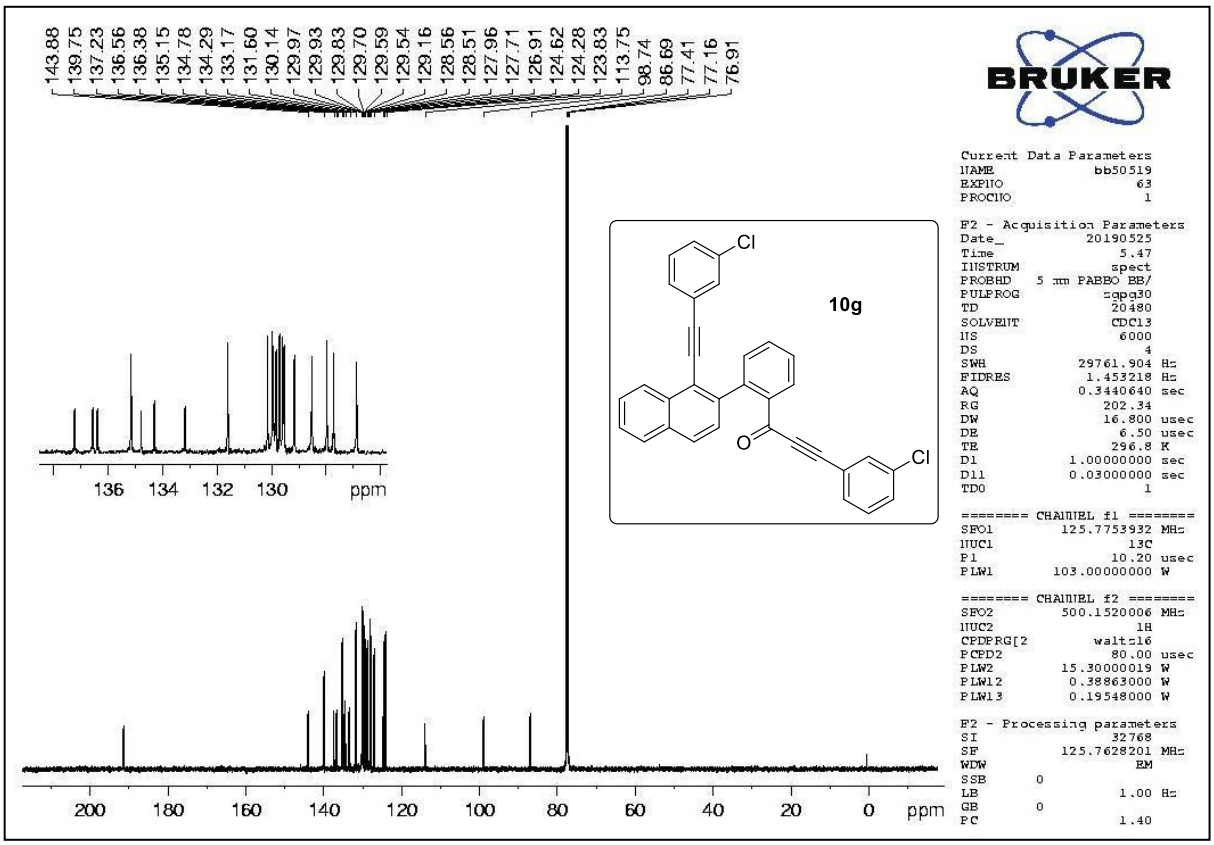

7.864
7.842
7.691
7.673
7.655
7.629
7.611
7.593
7.572
7.564
7.547
7.527
7.511
7.260
7.187
7.160
7.080
7.066
7.047
7.028
7.009
6.879
6.861
6.691
2.270
2.177
BRUKER
Me
10f
O
Me
Current Data Parameters
NAME bb40518
EXPNO 463
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180520
Time 16.14
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDC13
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 296.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300177 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
7.6 7.4 7.2 7.0 6.8 ppm
8.6 8.5 8.4 8.3 8.2 8.1 8.0 7.9 ppm
9 8 7 6 5 4 3 2 1 ppm
1.00 1.00 2.17 6.30 3.10 3.05 1.07 1.01
3.18 3.09

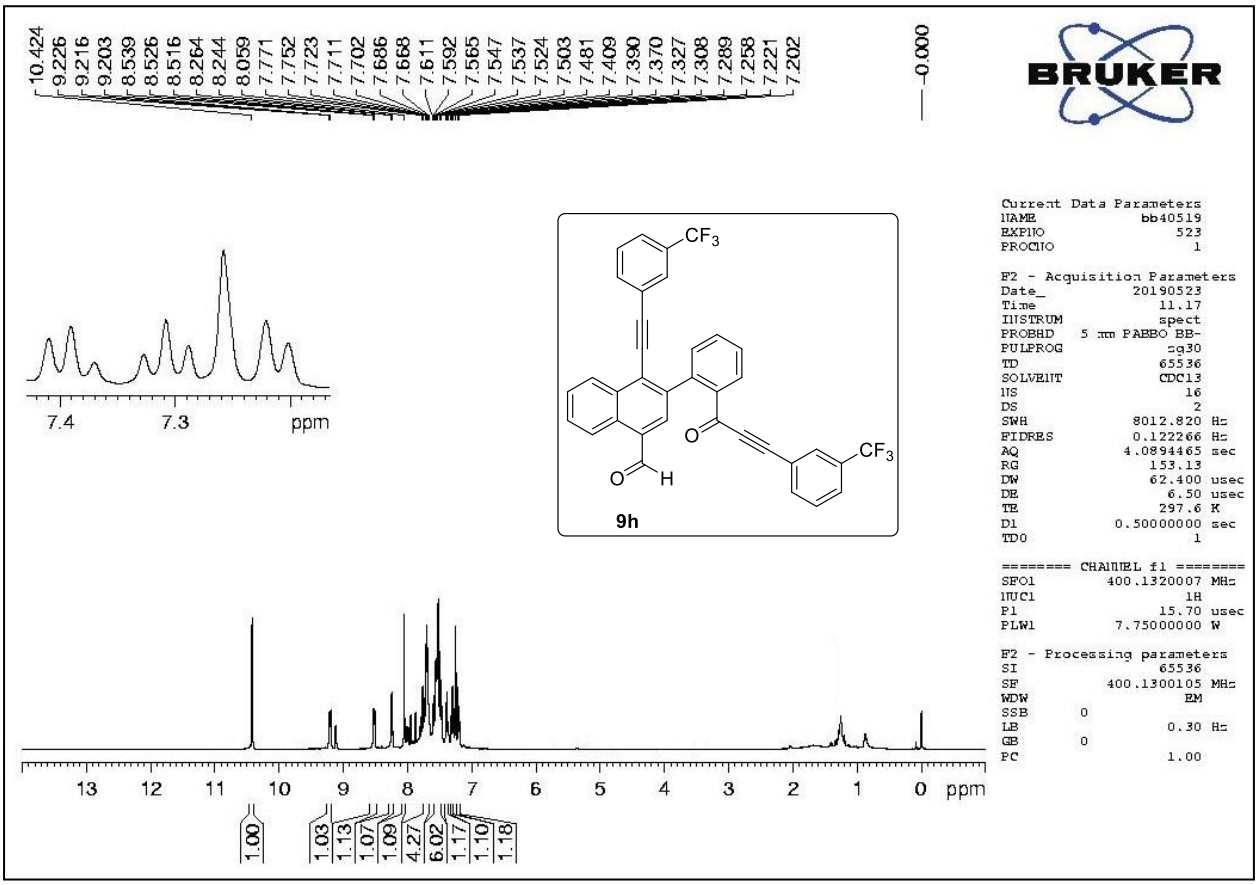

141.88
138.31
137.95
137.87
133.41
133.20
132.71
132.22
132.13
132.00
131.10
130.04
129.89
129.24
128.73
128.38
128.25
128.22
128.08
127.86
127.72
127.23
126.89
126.62
123.30
120.13
119.92
98.91
93.75
88.50
86.74
21.31
21.11
BRUKER
Me
10f
O
Me
Current Data Parameters
NAME bb40518
EXPNO 464
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180520
Time 16.33
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDC13
NS 814
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
134 133 132 131 130 129 128 127 ppm
124 122 ppm
100 90 ppm
138.5 138.0 ppm
142.0 ppm
180 160 140 120 100 80 60 40 20 ppm

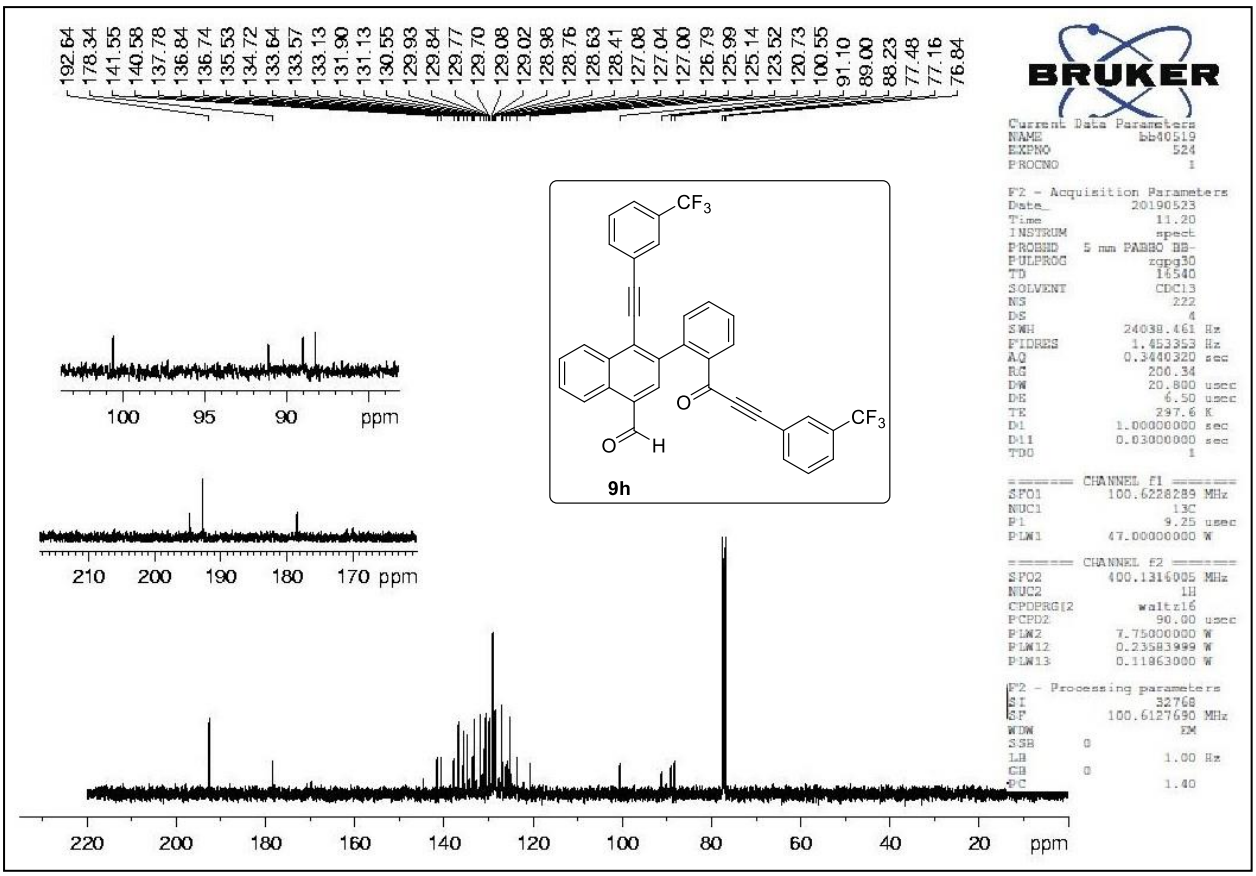

10.411
9.237
9.218
8.527
8.509
8.248
8.229
8.033
7.763
7.745
7.724
7.712
7.703
7.681
7.661
7.643
7.538
7.520
7.287
7.262
7.258
7.200
7.130
7.111
7.091
6.980
6.960
6.944
7.55 ppm
7.1 ppm
8.5 ppm
8.3 ppm
9.25 ppm
9g
Cl
O
H
Cl
11 10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.00 1.07 1.11 1.13 4.06 1.26 3.08 2.09 1.10 2.16
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 546
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 10.25
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300116 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

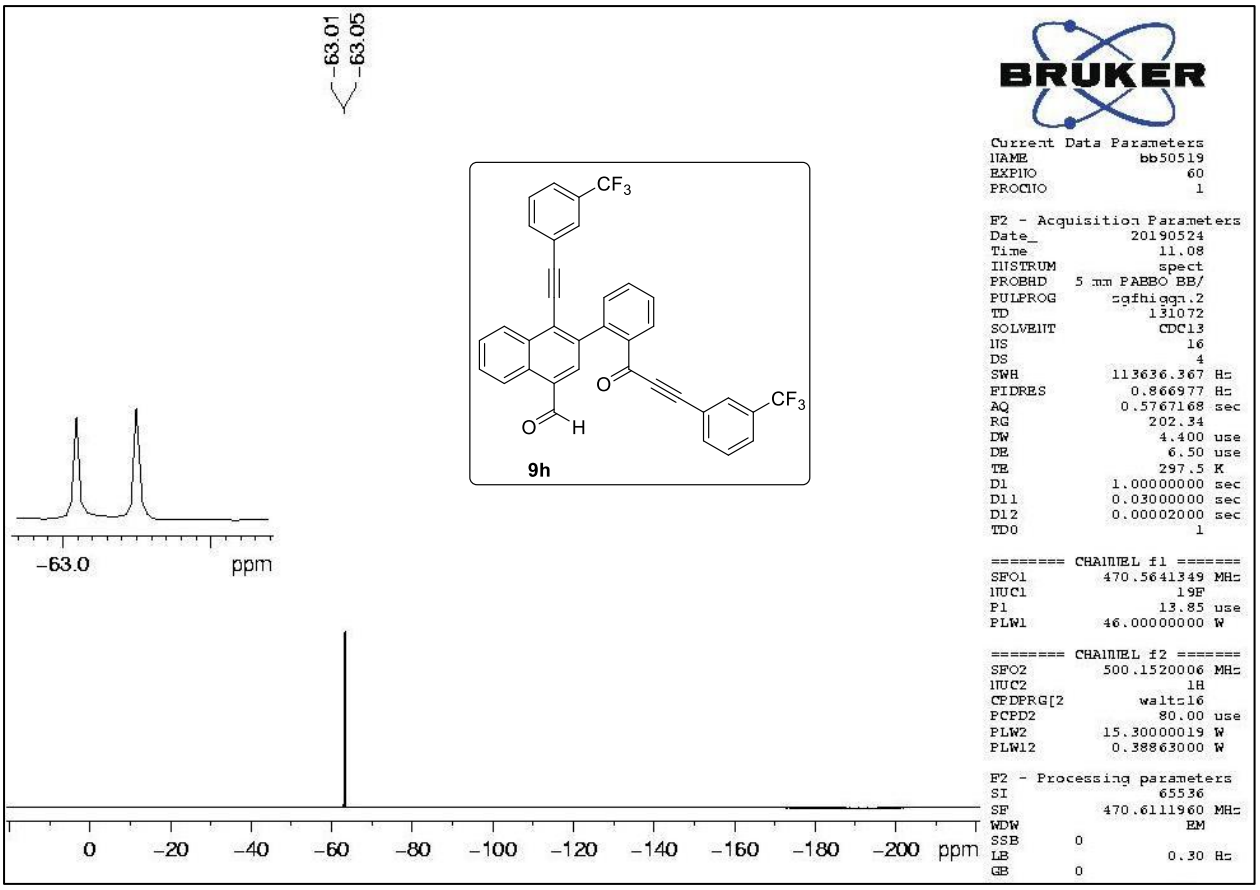

192.72
178.40
141.34
140.53
137.82
136.90
134.35
134.31
133.64
132.99
132.13
131.84
131.56
130.99
130.78
130.65
130.55
129.91
129.73
129.69
129.65
129.39
128.69
128.32
127.70
127.12
126.11
125.15
124.28
121.43
100.76
91.57
88.89
87.83
77.48
77.16
76.84
9g
Cl
O
H
Cl
133 132 131 130 129 ppm
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 547
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 10.31
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

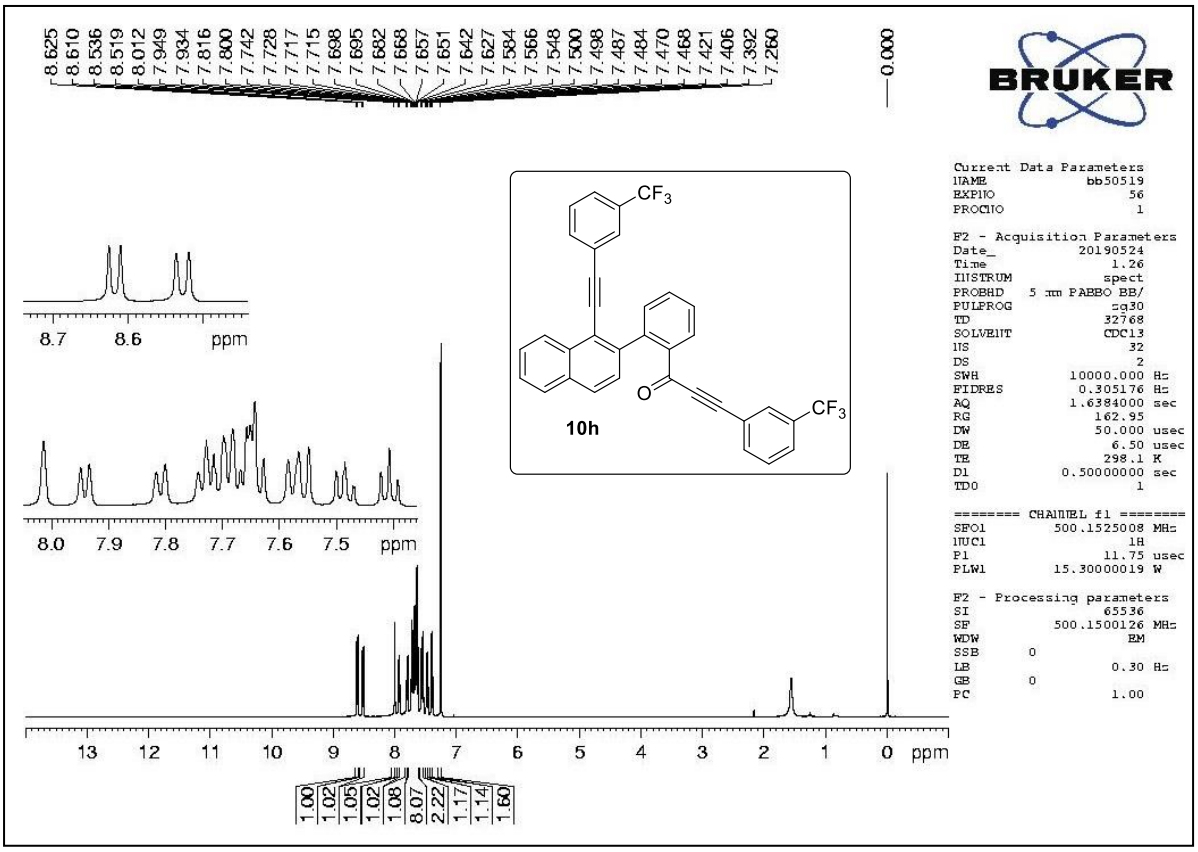

8.596 8.580 8.487 8.471 7.728 7.725 7.692 7.690 7.676 7.662 7.640 7.626 7.611 7.608 7.604 7.588 7.525 7.521 7.511 7.508 7.505 7.493 7.478 7.462 7.460 7.457 7.443 7.440 7.436 7.421 7.405 7.398 7.383 7.367 7.364 7.361 7.357 7.257 7.243 1.576 0.000
BRUKER
Cl
10g
O
Cl
8.6 8.5 ppm
7.7 7.6 7.5 7.4 ppm
12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.01 1.01 6.12 4.18 4.09 1.45
Current Data Parameters
NAME bb50519
EXPNO 62
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 3.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384000 sec
RG 138.53
DW 50.000 usec
DE 6.50 usec
TE 296.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500140 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

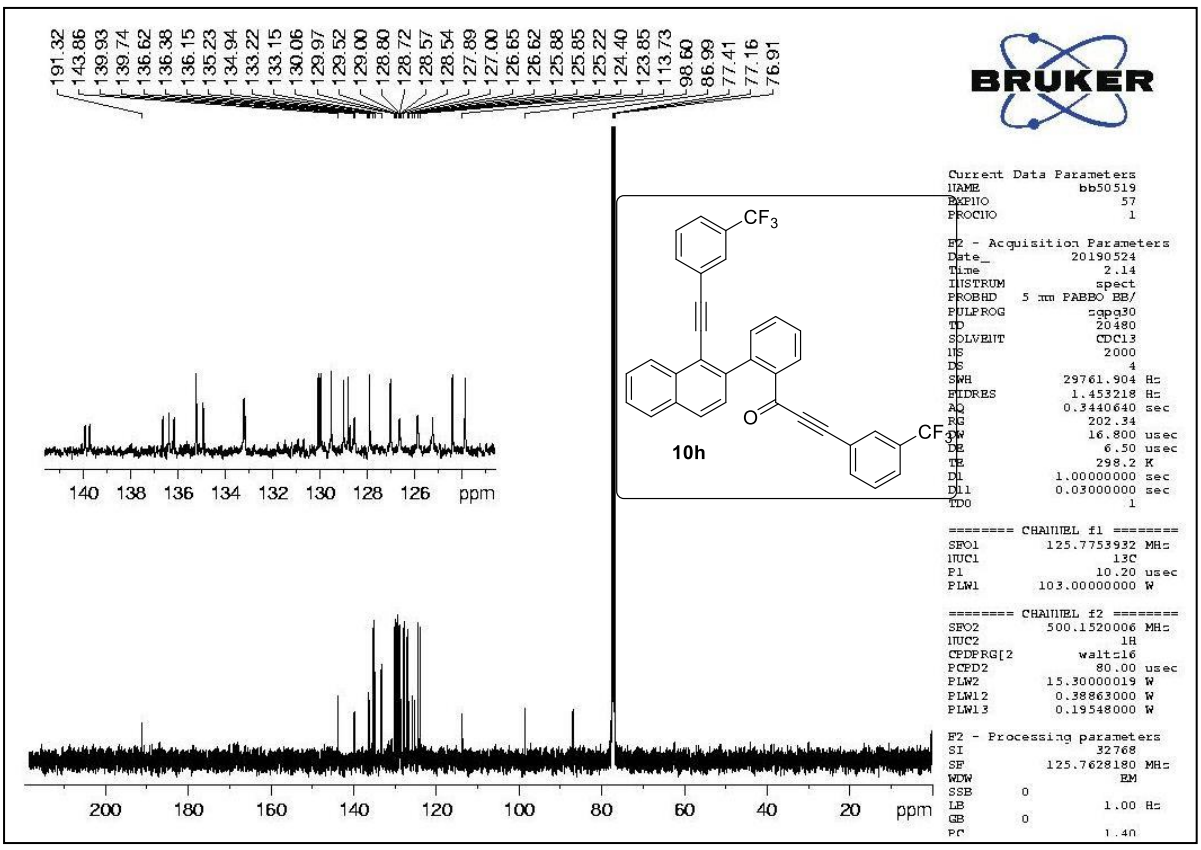

143.88 139.75 137.23 136.56 136.38 135.15 134.78 134.29 133.17 131.60 130.14 129.97 129.93 129.83 129.70 129.59 129.54 129.16 128.56 128.51 127.96 127.71 126.91 124.62 124.28 123.83 113.75 98.74 86.69 77.41 77.16 76.91
BRUKER
Cl
10g
O
Cl
136 134 132 130 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
Current Data Parameters
NAME bb50519
EXPNO 63
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 5.47
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 6000
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 296.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628201 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

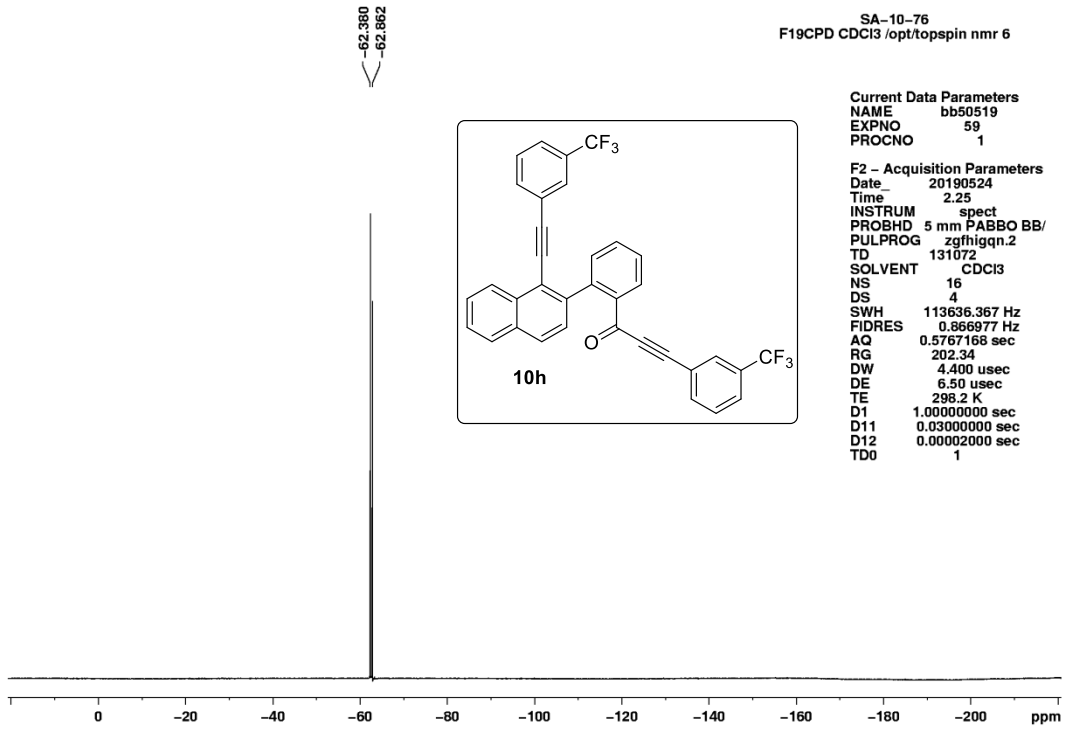

10.424
9.226
9.216
9.203
8.539
8.526
8.516
8.264
8.244
8.059
7.771
7.752
7.723
7.711
7.702
7.686
7.668
7.611
7.592
7.565
7.547
7.537
7.524
7.503
7.481
7.409
7.390
7.370
7.327
7.308
7.289
7.258
7.221
7.202
0.000
BRUKER
CF3
O
O
H
CF3
9h
7.4
7.3
ppm
Current Data Parameters
NAME bb40519
EXPNO 523
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190523
Time 11.17
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300105 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
13 12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.03
1.13
1.07
1.09
4.27
6.02
1.17
1.10
1.18

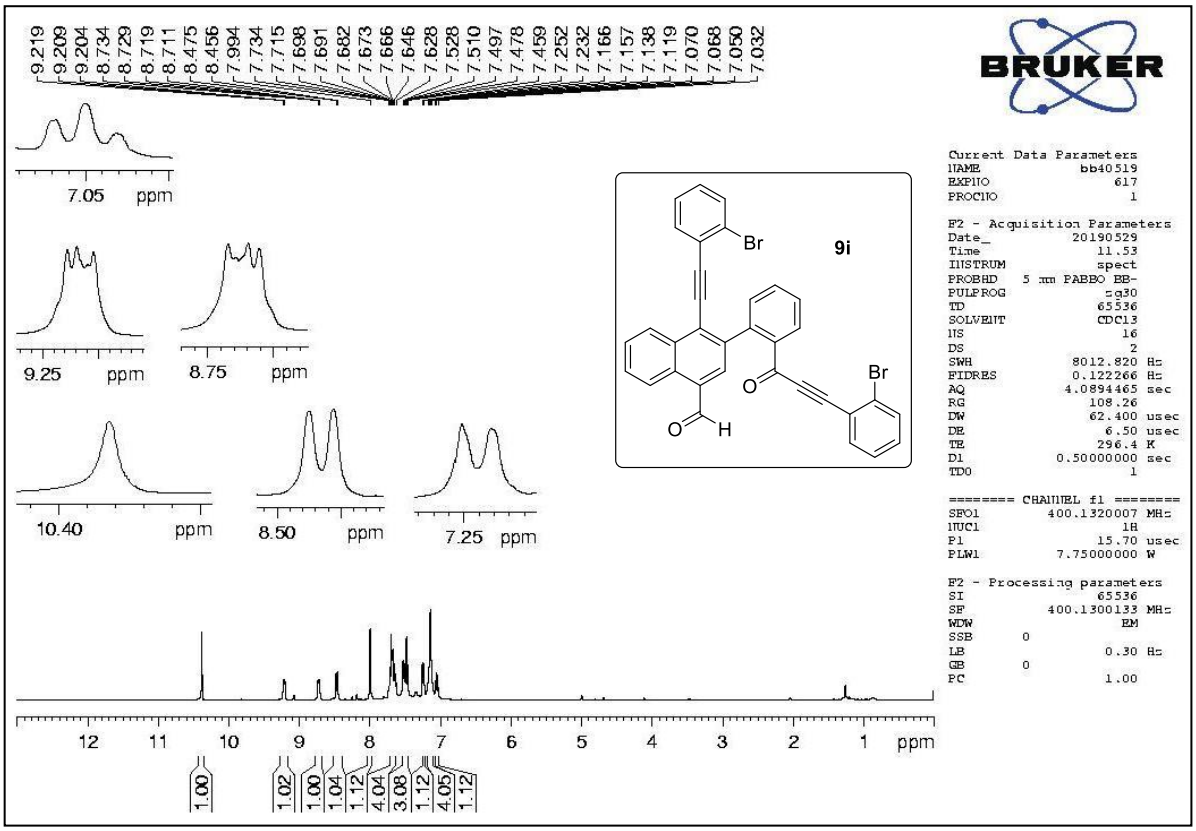

192.64
178.34
141.55
140.58
137.78
136.84
136.74
135.53
134.72
133.64
133.57
133.13
131.90
131.13
130.55
129.93
129.84
129.77
129.70
129.08
129.02
128.98
128.76
128.63
128.41
127.08
127.04
127.00
126.79
125.99
125.14
123.52
120.73
100.55
91.10
89.00
88.23
77.48
77.16
76.84
BRUKER
CF3
O
O
H
CF3
9h
100
95
90
ppm
210
200
190
180
170 ppm
Current Data Parameters
NAME bb40519
EXPNO 524
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190523
Time 11.20
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 222
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11963000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
220 200 180 160 140 120 100 80 60 40 20 ppm

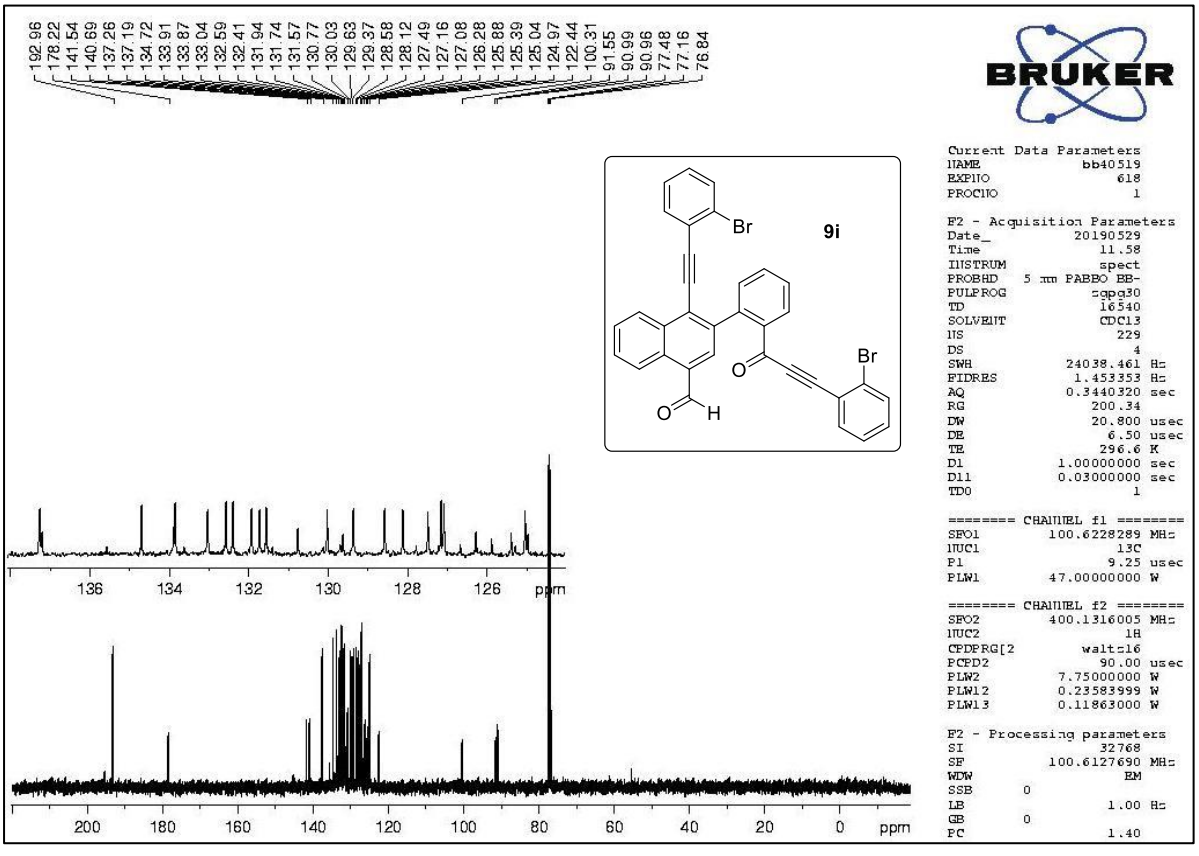

-63.01
-63.05
CF3
O
O
H
CF3
9h
-63.0
ppm
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm
BRUKER
Current Data Parameters
NAME bb50519
EXPNO 60
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 11.08
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgfhigqn.2
TD 131072
SOLVENT CDCl3
NS 16
DS 4
SWH 113636.367 Hz
FIDRES 0.866977 Hz
AQ 0.5767168 sec
RG 202.34
DW 4.400 use
DE 6.50 use
TE 297.5 K
D1 1.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec
TD0 1
======== CHANNEL f1 =======
SFO1 470.5641349 MHz
NUC1 19F
P1 13.85 use
PLW1 46.00000000 W
======== CHANNEL f2 =======
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 use
PLW2 15.30000019 W
PLW12 0.38863000 W
F2 - Processing parameters
SI 65536
SF 470.6111960 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0

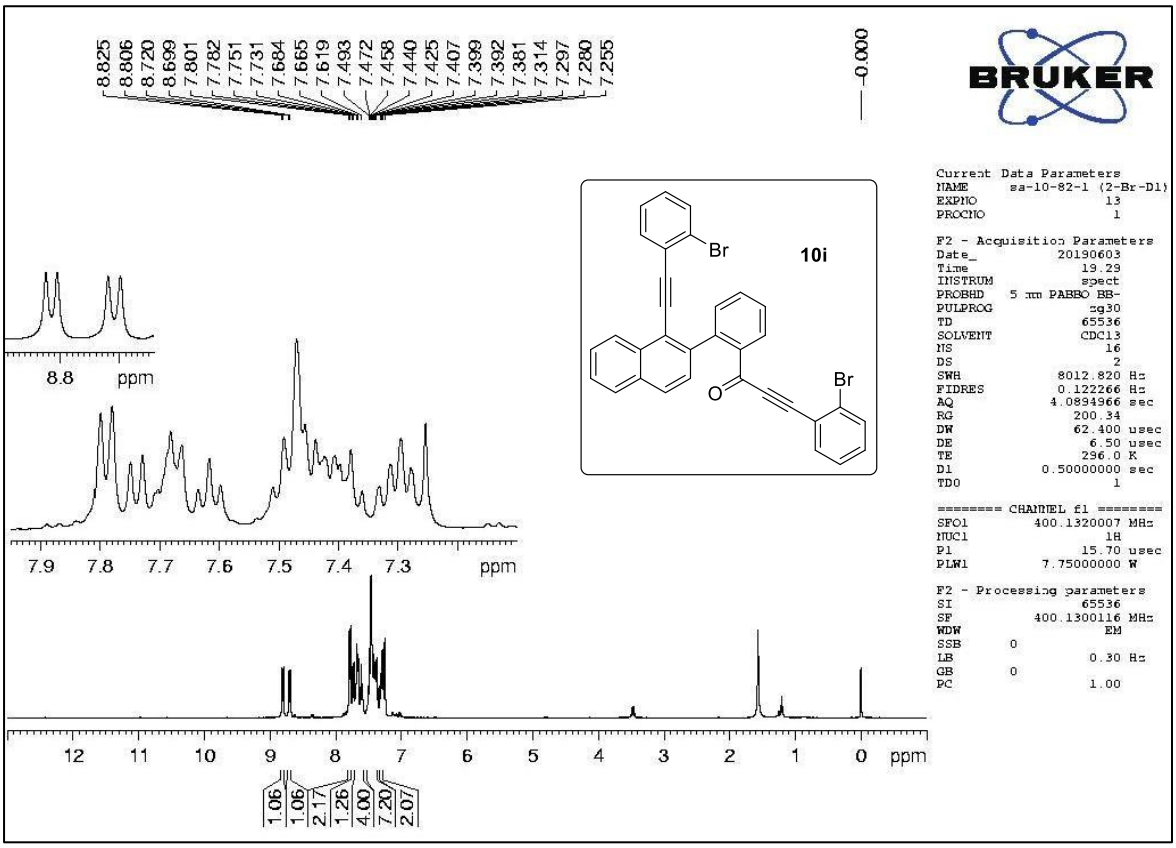

8.625
8.610
8.536
8.519
8.012
7.949
7.934
7.816
7.800
7.742
7.728
7.717
7.715
7.698
7.695
7.682
7.668
7.657
7.651
7.642
7.627
7.584
7.566
7.548
7.500
7.498
7.487
7.484
7.470
7.468
7.421
7.406
7.392
7.260
0.000
BRUKER
CF3
O
CF3
10h
8.7
8.6
ppm
8.0
7.9
7.8
7.7
7.6
7.5
ppm
13
12
11
10
9
8
7
6
5
4
3
2
1
0
ppm
1.00
1.02
1.05
1.02
1.08
8.07
2.22
1.17
1.14
1.60
Current Data Parameters
NAME bb50519
EXPNO 56
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 1.26
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384000 sec
RG 162.95
DW 50.000 usec
DE 6.50 usec
TE 298.1 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500126 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

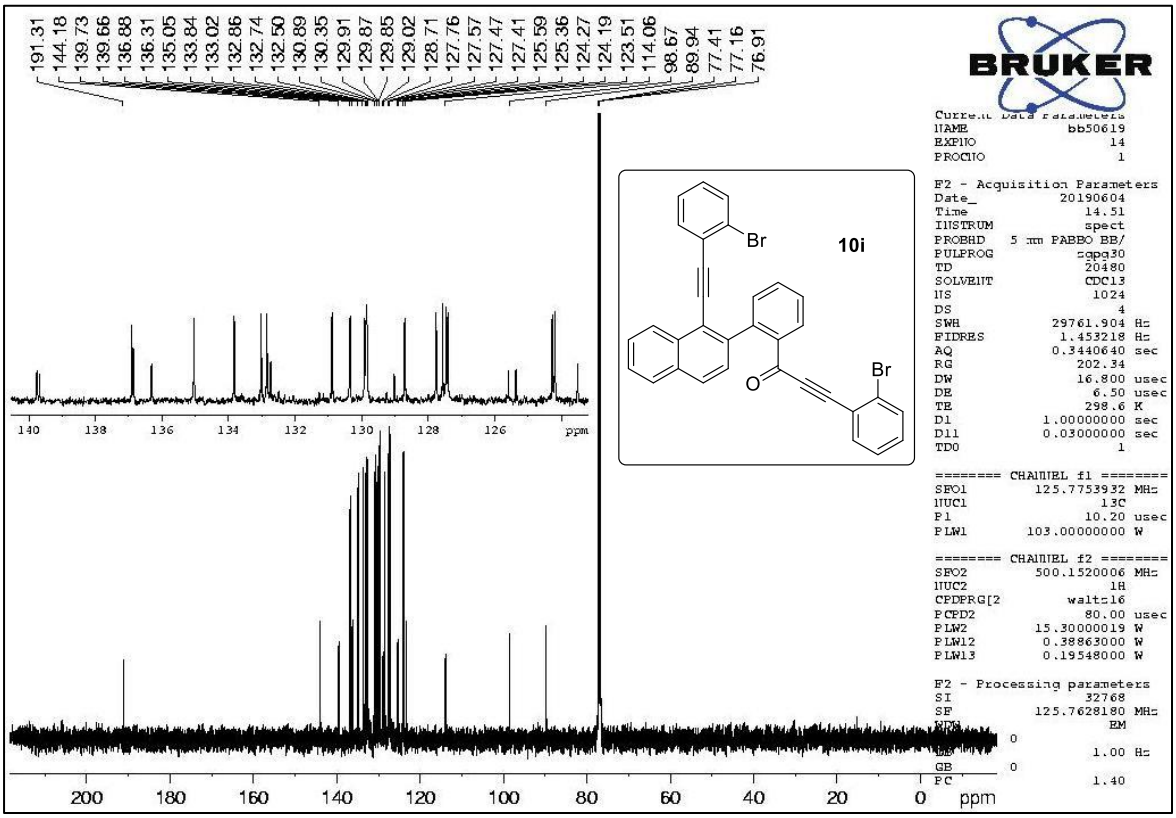

191.32
143.86
139.93
139.74
136.62
136.38
136.15
135.23
134.94
133.22
133.15
130.06
129.97
129.52
129.00
128.80
128.72
128.57
128.54
127.89
127.00
126.65
126.62
125.88
125.85
125.22
124.40
123.85
113.73
98.60
86.99
77.41
77.16
76.91
BRUKER
CF3
O
CF3
10h
140
138
136
134
132
130
128
126
ppm
200
180
160
140
120
100
80
60
40
20
ppm
Current Data Parameters
NAME bb50519
EXPNO 57
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 2.14
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 2000
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

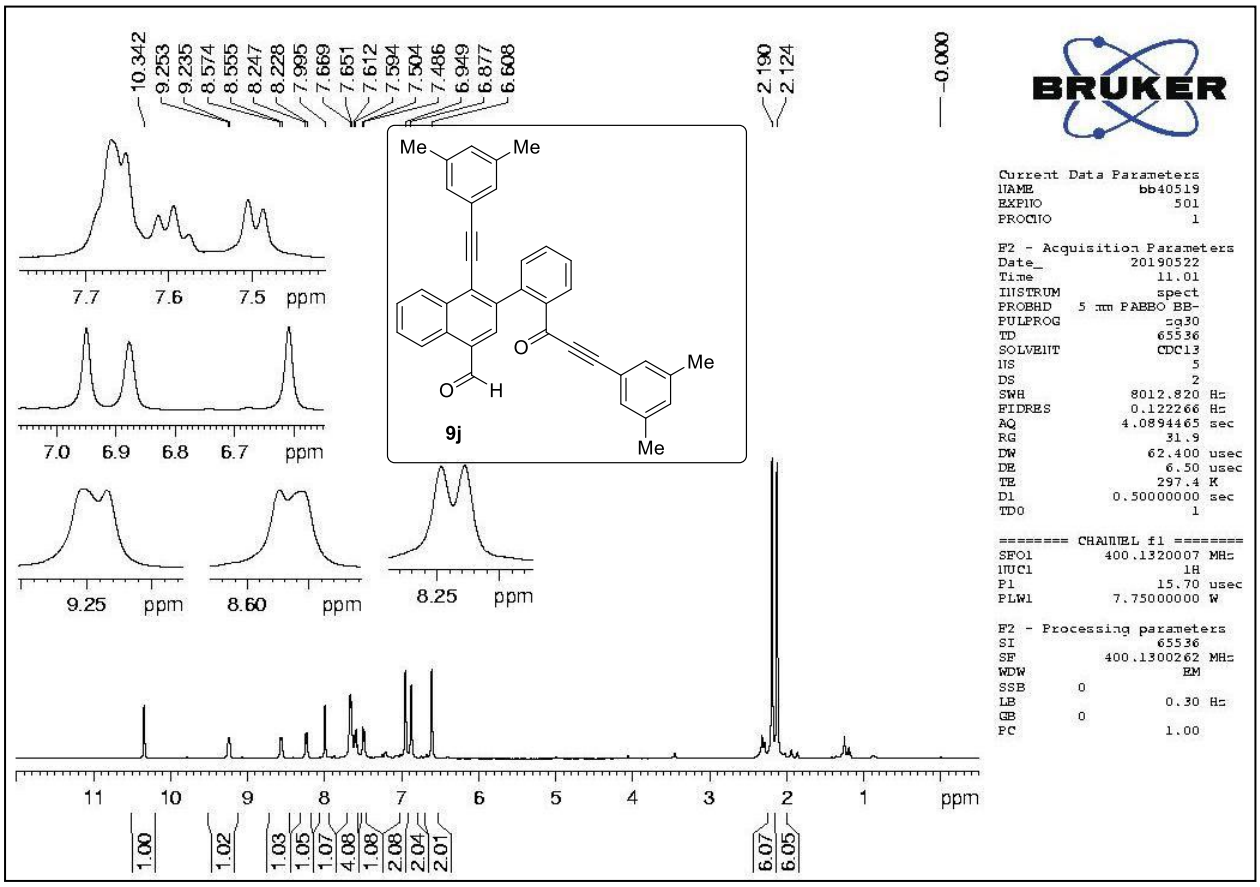

-62.380
-62.862
SA-10-76
F19CPD CDCl3 /opt/topspin nmr 6
Current Data Parameters
NAME bb50519
EXPNO 59
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190524
Time 2.25
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgfhigqn.2
TD 131072
SOLVENT CDCl3
NS 16
DS 4
SWH 113636.367 Hz
FIDRES 0.866977 Hz
AQ 0.5767168 sec
RG 202.34
DW 4.400 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec
TD0 1
CF3
O
CF3
10h
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm


9.219
9.209
9.204
8.734
8.729
8.719
8.711
8.475
8.456
7.994
7.734
7.715
7.698
7.691
7.682
7.673
7.666
7.646
7.628
7.528
7.510
7.497
7.478
7.459
7.252
7.232
7.166
7.157
7.138
7.119
7.070
7.068
7.050
7.032
7.05 ppm
9.25 ppm
8.75 ppm
10.40 ppm
8.50 ppm
7.25 ppm
12 11 10 9 8 7 6 5 4 3 2 1 ppm
1.00 1.02 1.00 1.04 1.12 4.04 3.08 1.12 4.05 1.12
Br
9i
O
H
Br
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 617
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190529
Time 11.53
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 296.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300133 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00


192.96
178.22
141.54
140.69
137.26
137.19
134.72
133.91
133.87
133.04
132.59
132.41
131.94
131.74
131.57
130.77
130.03
129.83
129.37
128.58
128.12
127.49
127.16
127.08
126.28
125.88
125.39
125.04
124.97
122.44
100.31
91.55
90.99
90.96
77.48
77.16
76.84
136 134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
Br
9i
O
H
Br
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 618
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190529
Time 11.58
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 229
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

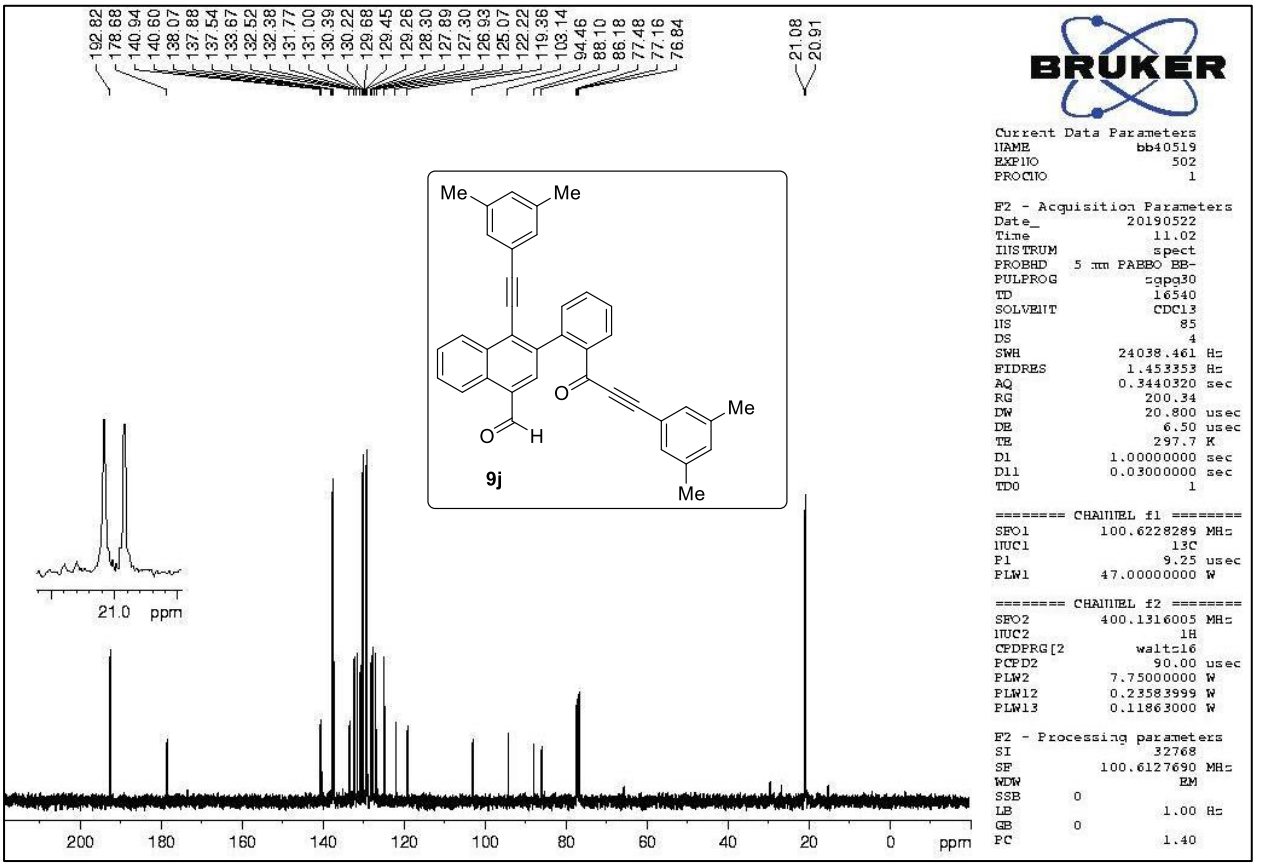

8.825
8.806
8.720
8.699
7.801
7.782
7.751
7.731
7.684
7.665
7.619
7.493
7.472
7.458
7.440
7.425
7.407
7.399
7.392
7.381
7.314
7.297
7.280
7.255
0.000
BRUKER
10i
Br
Br
O
Current Data Parameters
NAME sa-10-82-1 (2-Br-D1)
EXPNO 13
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190603
Time 19.29
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 200.34
DW 62.400 usec
DE 6.50 usec
TE 296.0 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300116 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
8.8 ppm
7.9 7.8 7.7 7.6 7.5 7.4 7.3 ppm
12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.06
1.06
2.17
1.26
4.00
7.20
2.07


191.31
144.18
139.73
139.66
136.88
136.31
135.05
133.84
133.02
132.86
132.74
132.50
130.89
130.35
129.91
129.87
129.85
129.02
128.71
127.76
127.57
127.47
127.41
125.59
125.36
124.27
124.19
123.51
114.06
98.67
89.94
77.41
77.16
76.91
BRUKER
10i
Br
Br
O
NAME bb50619
EXPNO 14
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190604
Time 14.51
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 1024
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 298.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
0
1.00 Hz
GB 0
PC 1.40
140 138 136 134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm



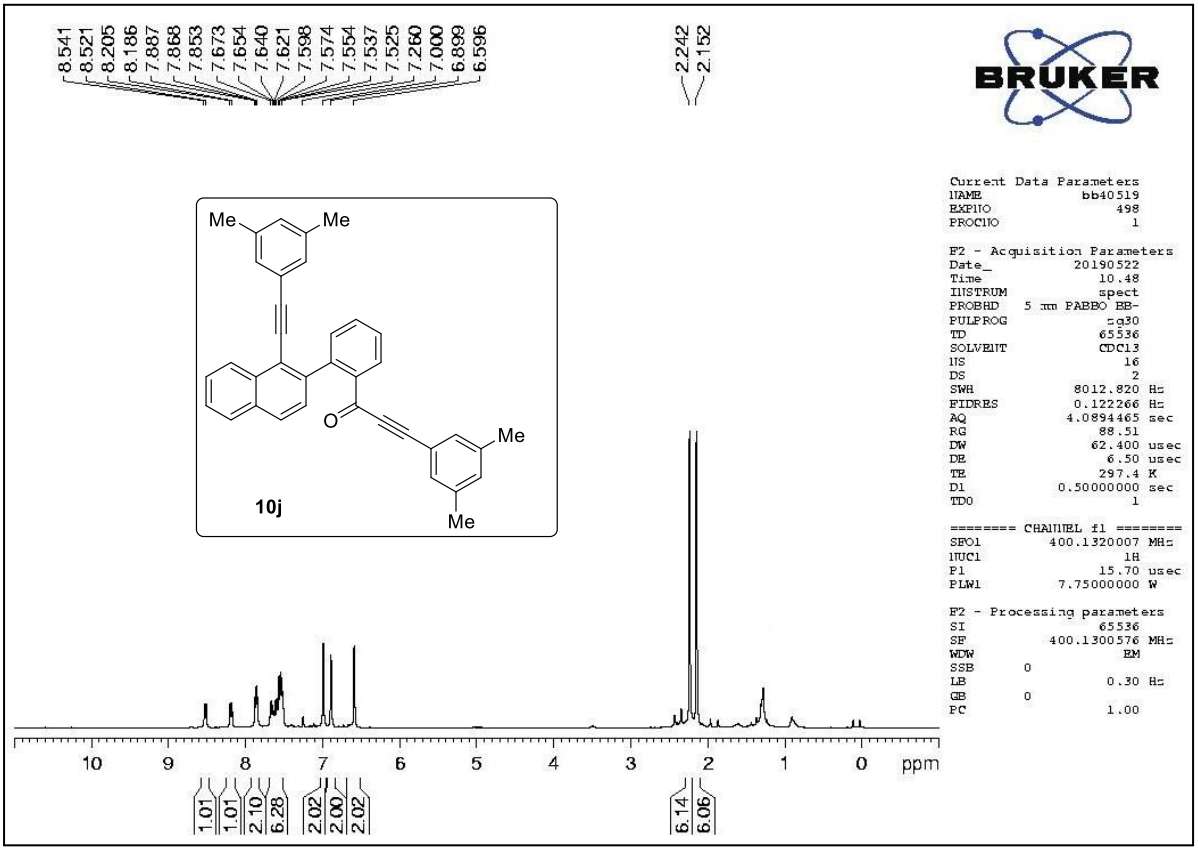
BRUKER

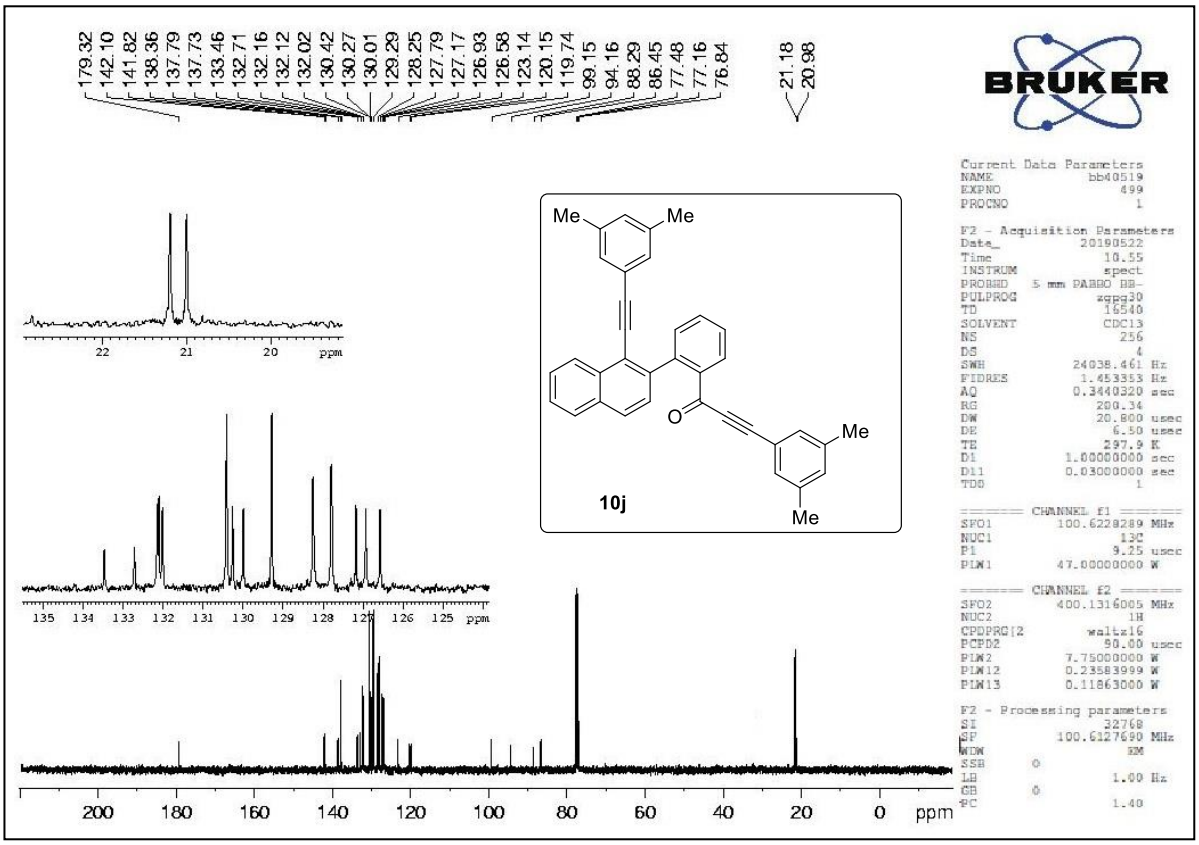
```
Current Data Parameters
NAME                  bb40519
EXPNO                     501
PROCNO                      1

F2 - Acquisition Parameters
Date_              20190522
Time                  11.01
INSTRUM               spect
PROBHD     5 mm PABBO BB-
PULPROG               zg30
TD                   65536
SOLVENT              CDCl3
NS                       5
DS                       2
SWH                8012.820 Hz
FIDRES             0.122266 Hz
AQ                 4.0894465 sec
RG                      31.9
DW                    62.400 usec
DE                     6.50 usec
TE                    297.4 K
D1                 0.50000000 sec
TD0                         1

======== CHANNEL f1 ========
SFO1             400.1320007 MHz
NUC1                      1H
P1                     15.70 usec
PLW1             7.75000000 W

F2 - Processing parameters
SI                       65536
SF               400.1300262 MHz
WDW                         EM
SSB          0
LB                      0.30 Hz
GB           0
PC                      1.00
```

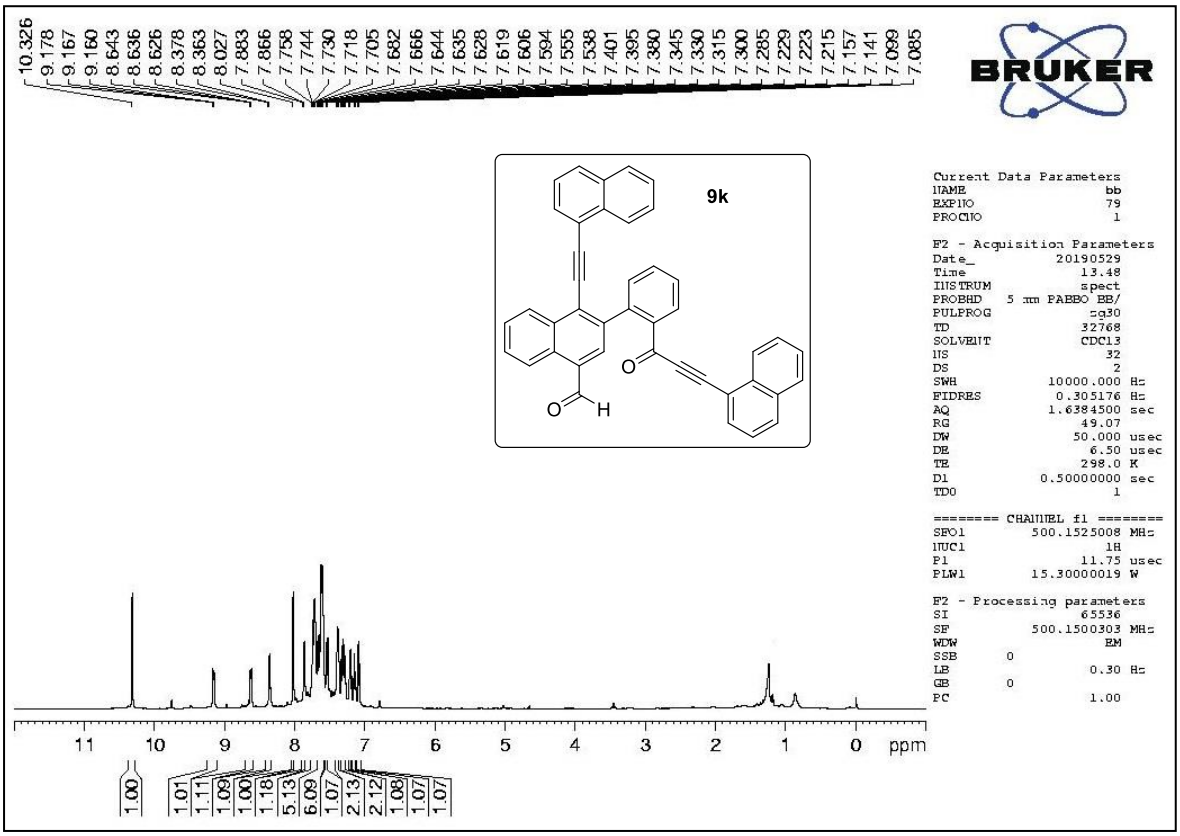


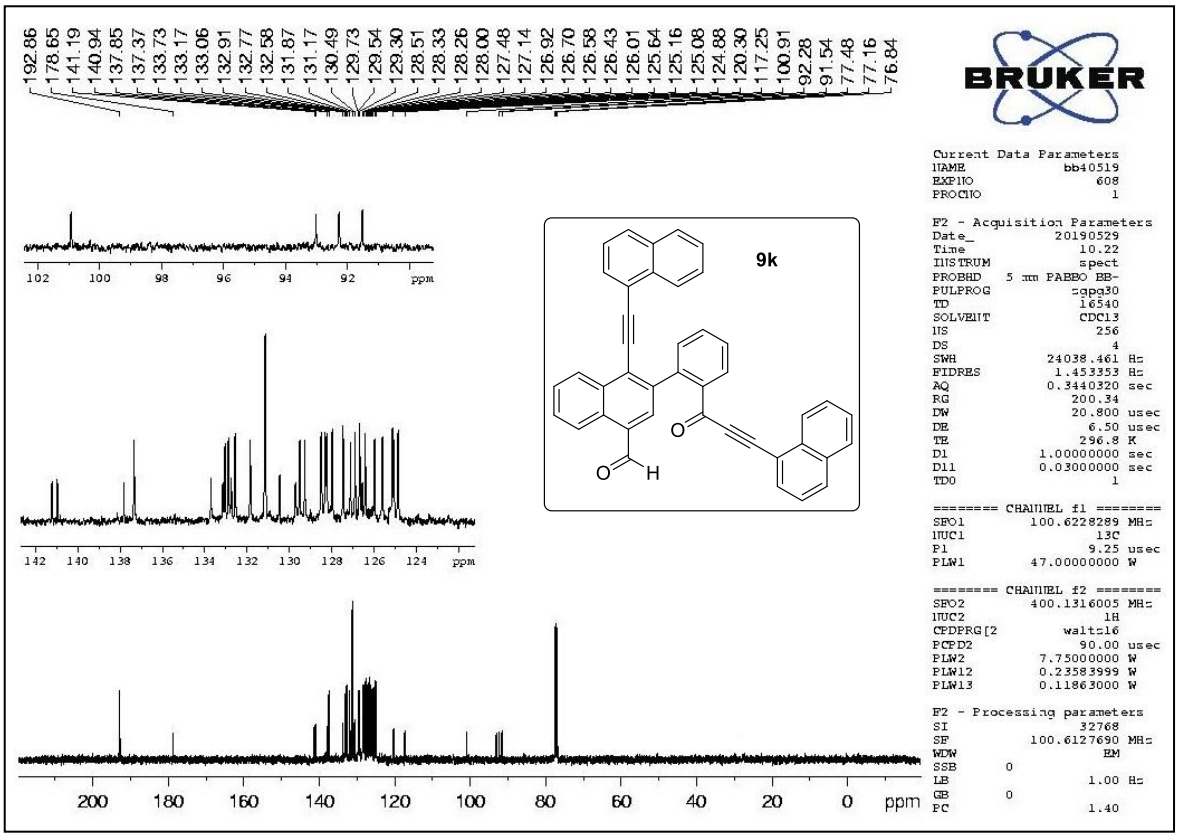
BRUKER

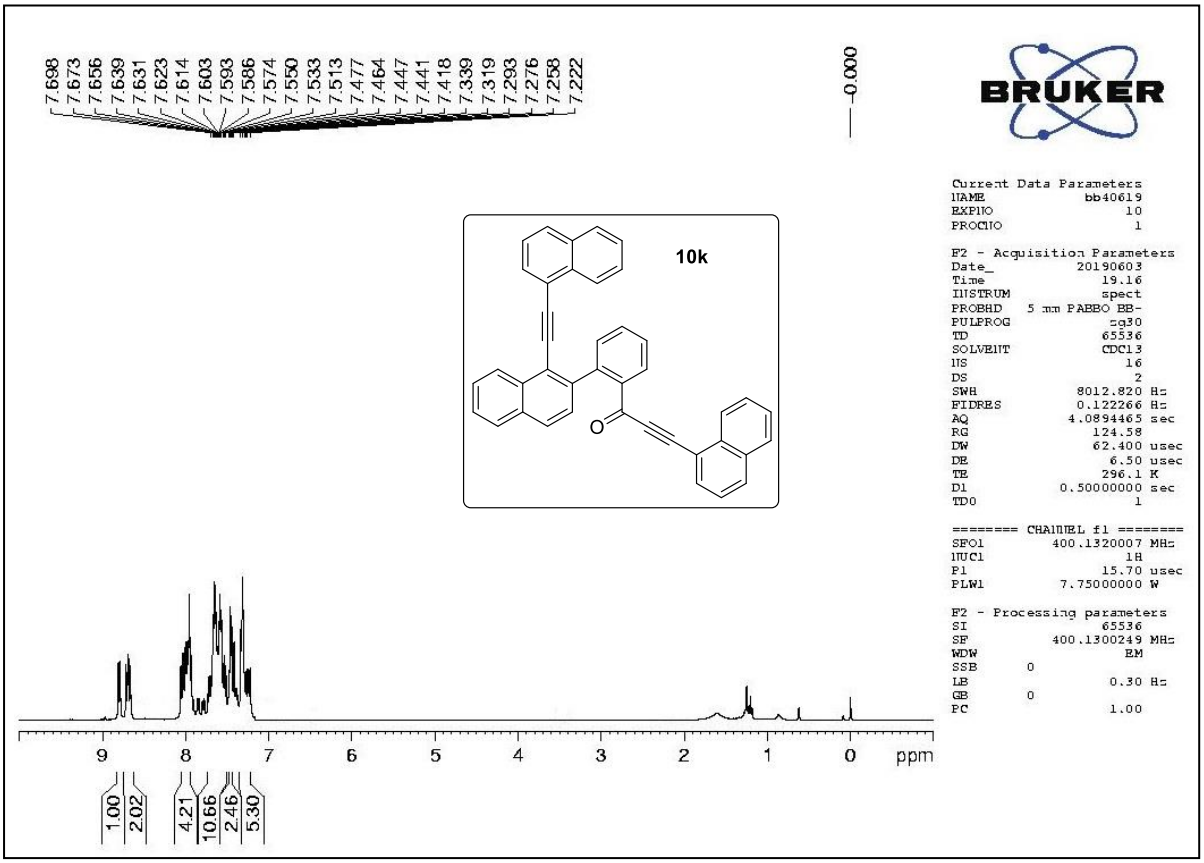
```
Current Data Parameters
NAME                  bb40519
EXPNO                     502
PROCNO                      1

F2 - Acquisition Parameters
Date_              20190522
Time                  11.02
INSTRUM               spect
PROBHD     5 mm PABBO BB-
PULPROG             zgpg30
TD                   16540
SOLVENT              CDCl3
NS                      85
DS                       4
SWH               24038.461 Hz
FIDRES             1.453353 Hz
AQ                 0.3440320 sec
RG                    200.34
DW                    20.800 usec
DE                     6.50 usec
TE                    297.7 K
D1                 1.00000000 sec
D11                0.03000000 sec
TD0                         1

======== CHANNEL f1 ========
SFO1             100.6228289 MHz
NUC1                      13C
P1                     9.25 usec
PLW1            47.00000000 W

======== CHANNEL f2 ========
SFO2             400.1316005 MHz
NUC2                      1H
CPDPRG[2             waltz16
PCPD2                 90.00 usec
PLW2             7.75000000 W
PLW12            0.23583999 W
PLW13            0.11863000 W

F2 - Processing parameters
SI                       32768
SF               100.6127690 MHz
WDW                         EM
SSB          0
LB                      1.00 Hz
GB           0
PC                      1.40
```

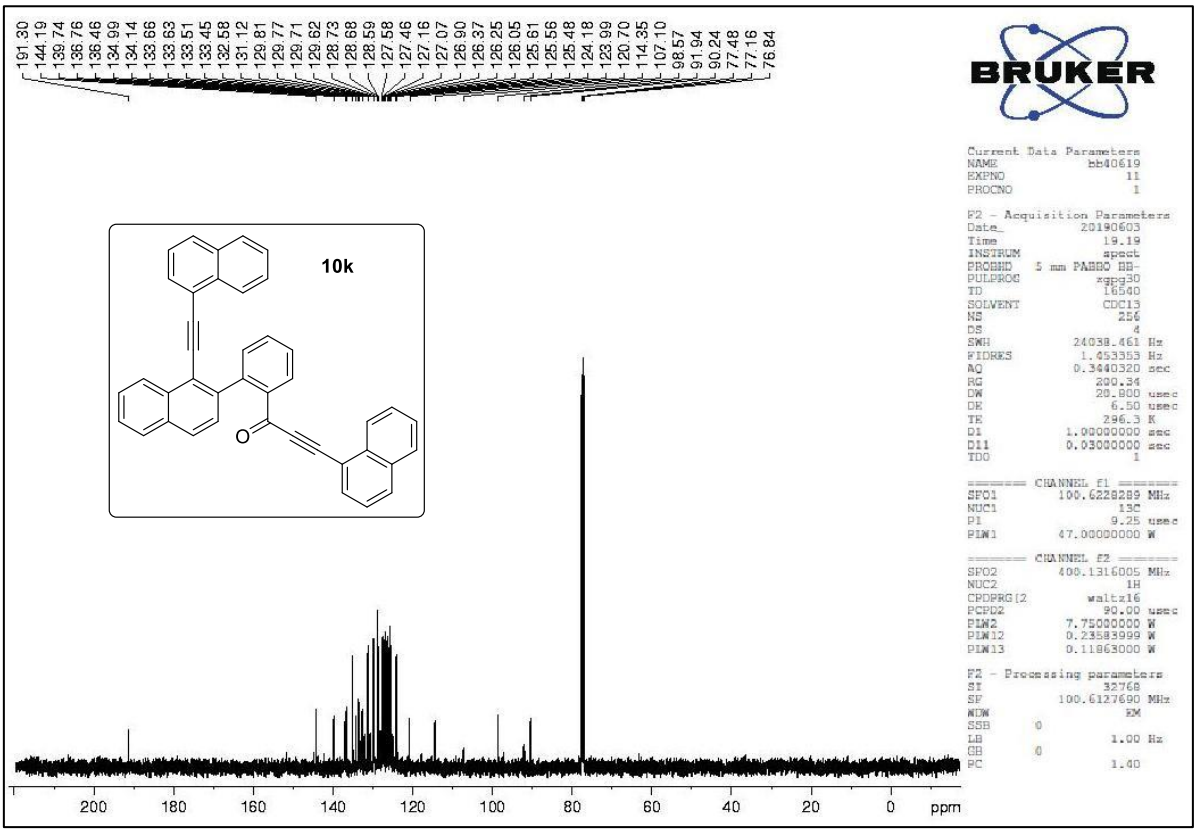

8.541
8.521
8.205
8.186
7.887
7.868
7.853
7.673
7.654
7.640
7.621
7.598
7.574
7.554
7.537
7.525
7.260
7.000
6.899
6.596
2.242
2.152
Me
Me
O
Me
Me
10j
10
9
8
7
6
5
4
3
2
1
0
ppm
1.01
1.01
2.10
6.28
2.02
2.00
2.02
6.14
6.06
Current Data Parameters
NAME bb40519
EXPNO 498
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190522
Time 10.48
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 88.51
DW 62.400 usec
DE 6.50 usec
TE 297.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300576 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

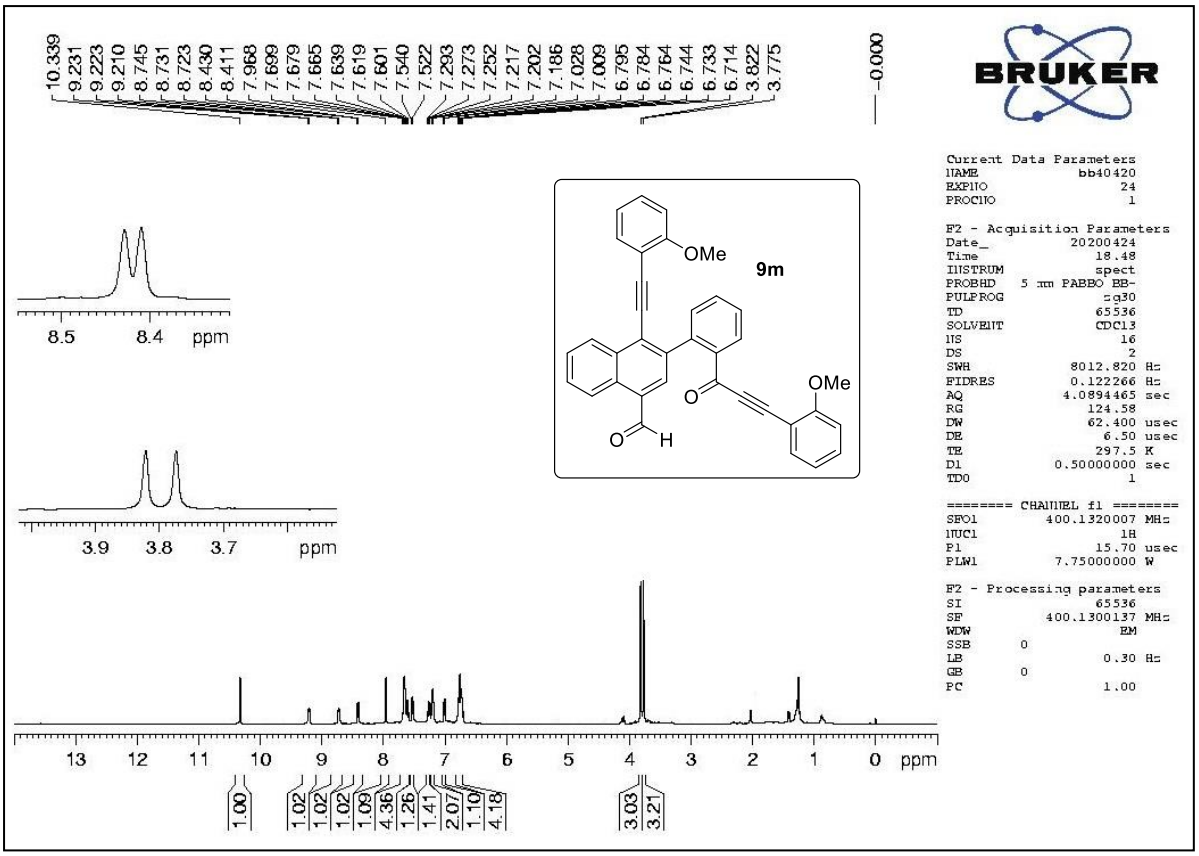

179.32
142.10
141.82
138.36
137.79
137.73
133.46
132.71
132.16
132.12
132.02
130.42
130.27
130.01
129.29
128.25
127.79
127.17
126.93
126.58
123.14
120.15
119.74
99.15
94.16
88.29
86.45
77.48
77.16
76.84
21.18
20.98
Me
Me
O
Me
Me
10j
22
21
20
ppm
135
134
133
132
131
130
129
128
126
125
ppm
200
180
160
140
120
100
80
60
40
20
0
ppm
Current Data Parameters
NAME bb40519
EXPNO 499
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190522
Time 10.55
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

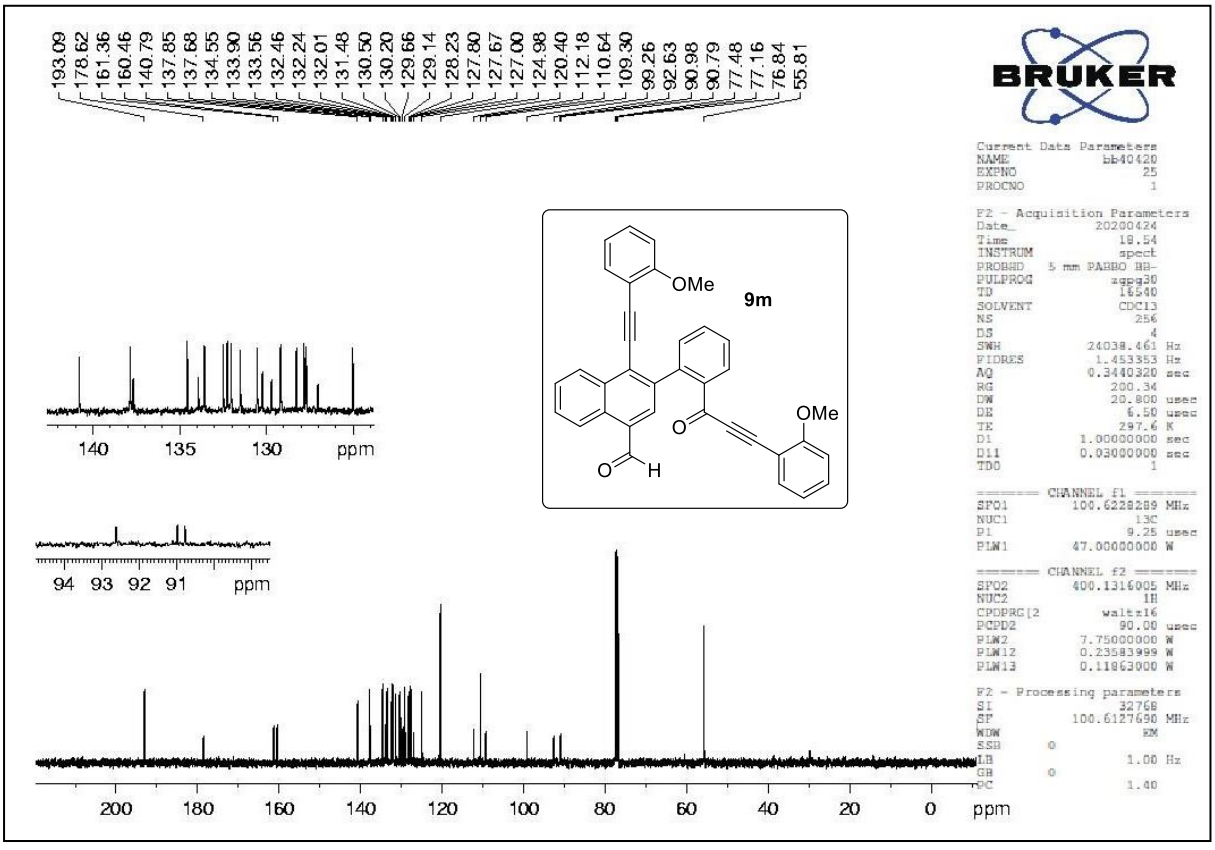

10.326
9.178
9.167
9.160
8.643
8.636
8.626
8.378
8.363
8.027
7.883
7.866
7.758
7.744
7.730
7.718
7.705
7.682
7.666
7.644
7.635
7.628
7.619
7.606
7.594
7.555
7.538
7.401
7.395
7.380
7.345
7.330
7.315
7.300
7.285
7.229
7.223
7.215
7.157
7.141
7.099
7.085
BRUKER
9k
O
O
H
Current Data Parameters
NAME bb
EXPNO 79
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190529
Time 13.48
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384500 sec
RG 49.07
DW 50.000 usec
DE 6.50 usec
TE 298.0 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500303 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.01 1.11 1.09 1.00 1.18 5.13 6.09 1.07 2.13 2.12 1.08 1.07 1.07

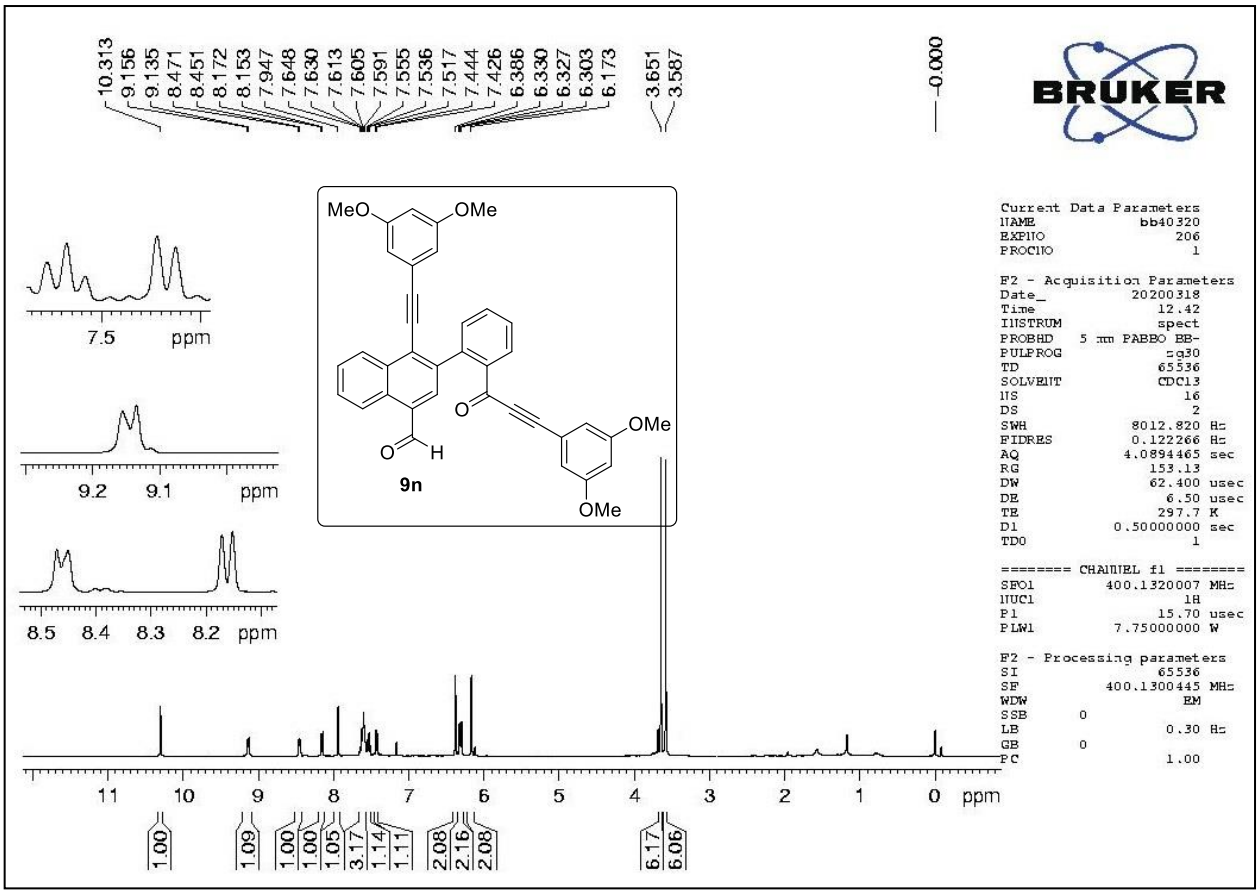

192.86
178.65
141.19
140.94
137.85
137.37
133.73
133.17
133.06
132.91
132.77
132.58
131.87
131.17
130.49
129.73
129.54
129.30
128.51
128.33
128.26
128.00
127.48
127.14
126.92
126.70
126.58
126.43
126.01
125.64
125.16
125.08
124.88
120.30
117.25
100.91
92.28
91.54
77.48
77.16
76.84
BRUKER
9k
O
O
H
Current Data Parameters
NAME bb40519
EXPNO 608
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190529
Time 10.22
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
102 100 98 96 94 92 ppm
142 140 138 136 134 132 130 128 126 124 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm

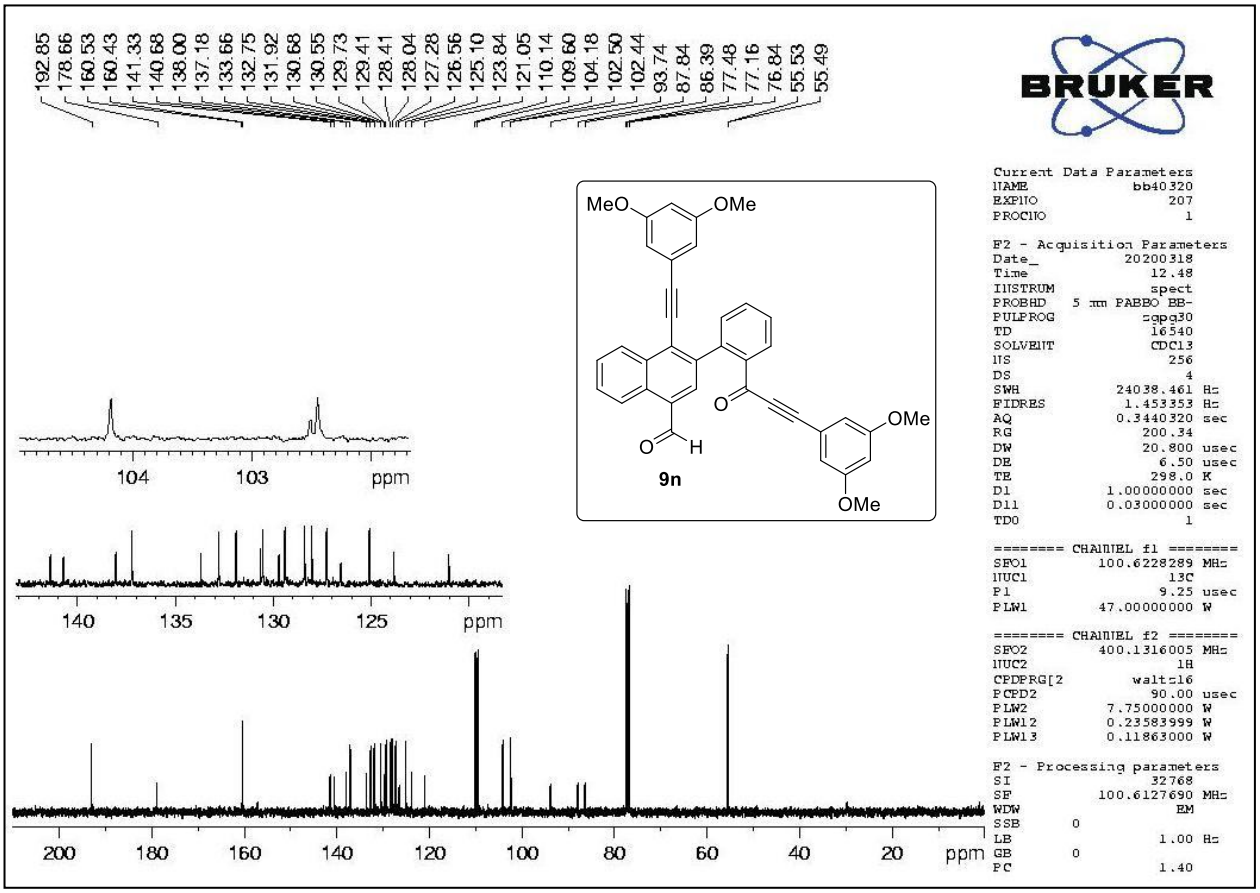

7.698
7.673
7.656
7.639
7.631
7.623
7.614
7.603
7.593
7.586
7.574
7.550
7.533
7.513
7.477
7.464
7.447
7.441
7.418
7.339
7.319
7.293
7.276
7.258
7.222
0.000
BRUKER
10k
O
Current Data Parameters
NAME bb40619
EXPNO 10
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190603
Time 19.16
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 124.58
DW 62.400 usec
DE 6.50 usec
TE 296.1 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300249 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9 8 7 6 5 4 3 2 1 0 ppm
1.00 2.02 4.21 10.66 2.46 5.30

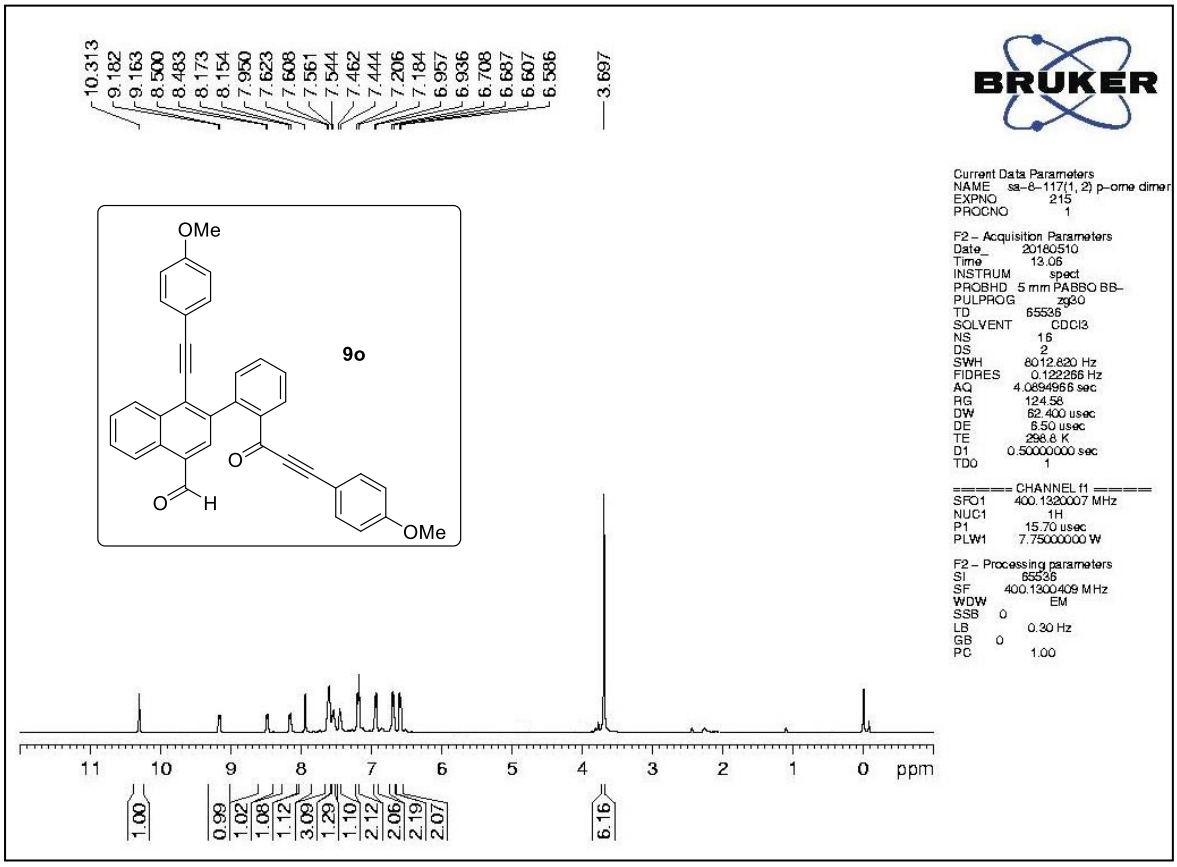

191.30
144.19
139.74
136.76
136.46
134.99
134.14
133.66
133.63
133.51
133.45
132.58
131.12
129.81
129.77
129.71
129.62
128.73
128.68
128.59
127.58
127.46
127.16
127.07
126.90
126.37
126.25
126.05
125.61
125.56
125.48
124.18
123.99
120.70
114.35
107.10
98.57
91.94
90.24
77.48
77.16
76.84
BRUKER
10k
O
Current Data Parameters
NAME bb40619
EXPNO 11
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190603
Time 19.19
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.3 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 180 160 140 120 100 80 60 40 20 0 ppm


10.339
9.231
9.223
9.210
8.745
8.731
8.723
8.430
8.411
7.968
7.699
7.679
7.665
7.639
7.619
7.601
7.540
7.522
7.293
7.273
7.252
7.217
7.202
7.186
7.028
7.009
6.795
6.784
6.764
6.744
6.733
6.714
3.822
3.775
0.000
OMe
9m
OMe
O
O
H
8.5
8.4
ppm
3.9
3.8
3.7
ppm
13
12
11
10
9
8
7
6
5
4
3
2
1
0
ppm
1.00
1.02
1.02
1.02
1.09
4.36
1.26
1.41
2.07
1.10
4.18
3.03
3.21
BRUKER
Current Data Parameters
NAME bb40420
EXPNO 24
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200424
Time 18.48
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 124.58
DW 62.400 usec
DE 6.50 usec
TE 297.5 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300137 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

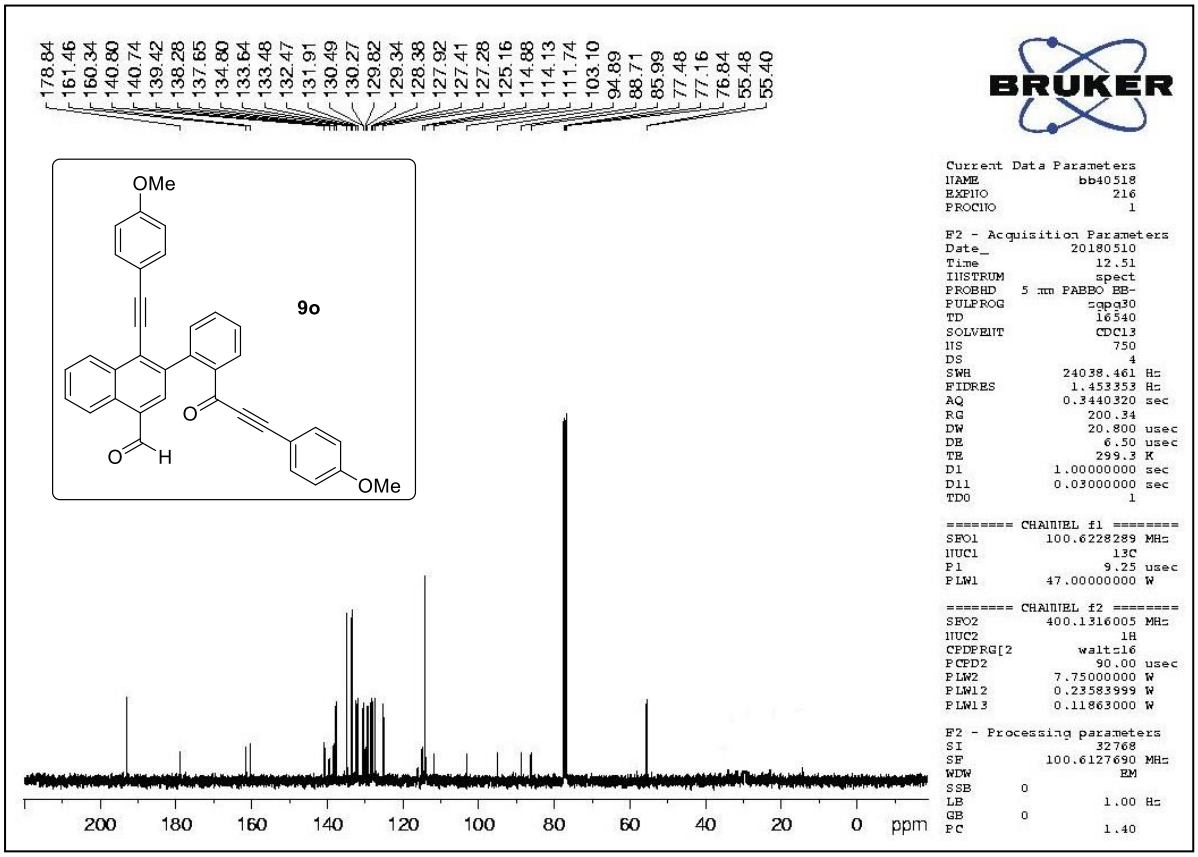

193.09
178.62
161.36
160.46
140.79
137.85
137.68
134.55
133.90
133.56
132.46
132.24
132.01
131.48
130.50
130.20
129.66
129.14
128.23
127.80
127.67
127.00
124.98
120.40
112.18
110.64
109.30
99.26
92.63
90.98
90.79
77.48
77.16
76.84
55.81
OMe
9m
OMe
O
O
H
140
135
130
ppm
94
93
92
91
ppm
200
180
160
140
120
100
80
60
40
20
0
ppm
BRUKER
Current Data Parameters
NAME bb40420
EXPNO 25
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200424
Time 18.54
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.6 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


10.313
9.156
9.135
8.471
8.451
8.172
8.153
7.947
7.648
7.630
7.613
7.605
7.591
7.555
7.536
7.517
7.444
7.426
6.386
6.330
6.327
6.303
6.173
3.651
3.587
0.000
MeO
OMe
OMe
OMe
O
O
H
9n
7.5 ppm
9.2 9.1 ppm
8.5 8.4 8.3 8.2 ppm
11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.09 1.00 1.00 1.05 3.17 1.14 1.11 2.08 2.16 2.08 6.17 6.06
Current Data Parameters
NAME bb40320
EXPNO 206
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200318
Time 12.42
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.7 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300445 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

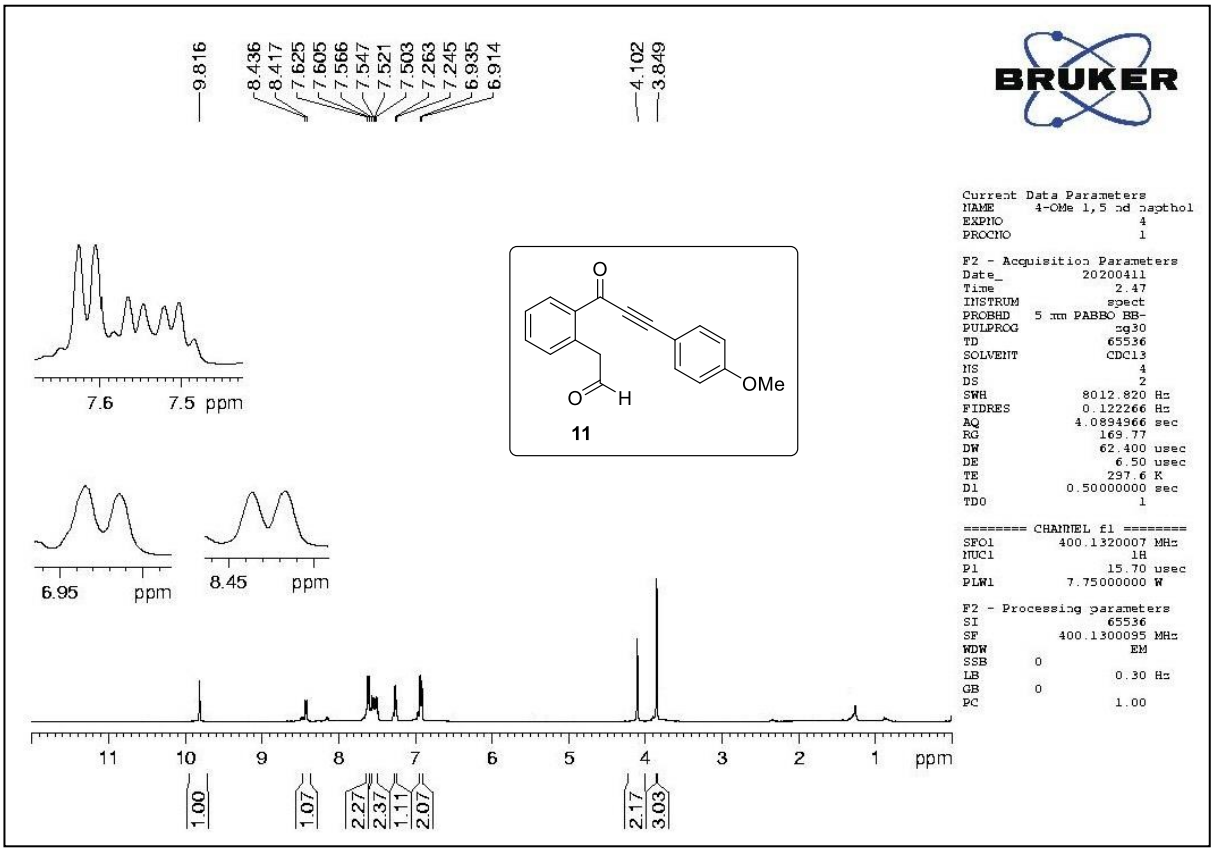

192.85
178.66
160.53
160.43
141.33
140.68
138.00
137.18
133.66
132.75
131.92
130.68
130.55
129.73
129.41
128.41
128.04
127.28
126.56
125.10
123.84
121.05
110.14
109.60
104.18
102.50
102.44
93.74
87.84
86.39
77.48
77.16
76.84
55.53
55.49
MeO
OMe
OMe
OMe
O
O
H
9n
104 103 ppm
140 135 130 125 ppm
200 180 160 140 120 100 80 60 40 20 ppm
Current Data Parameters
NAME bb40320
EXPNO 207
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200318
Time 12.48
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

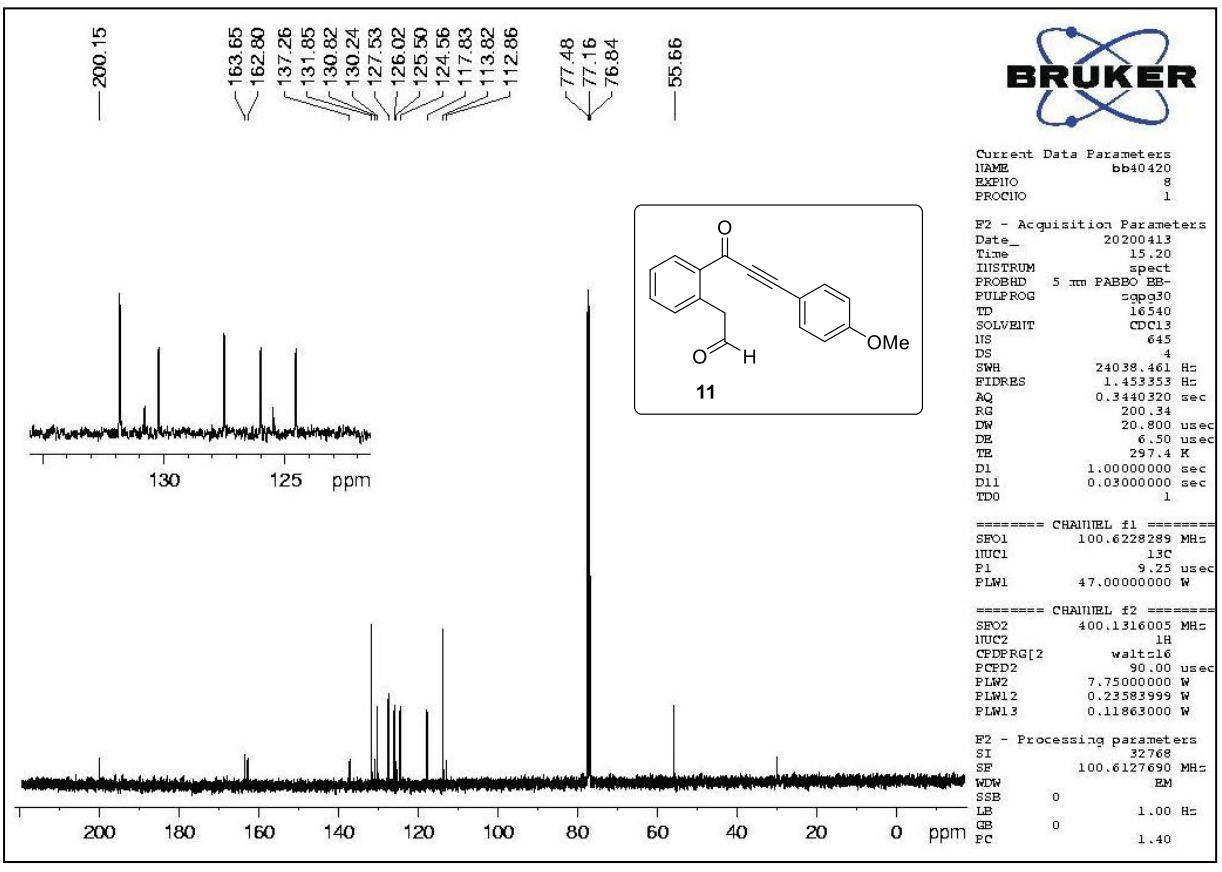


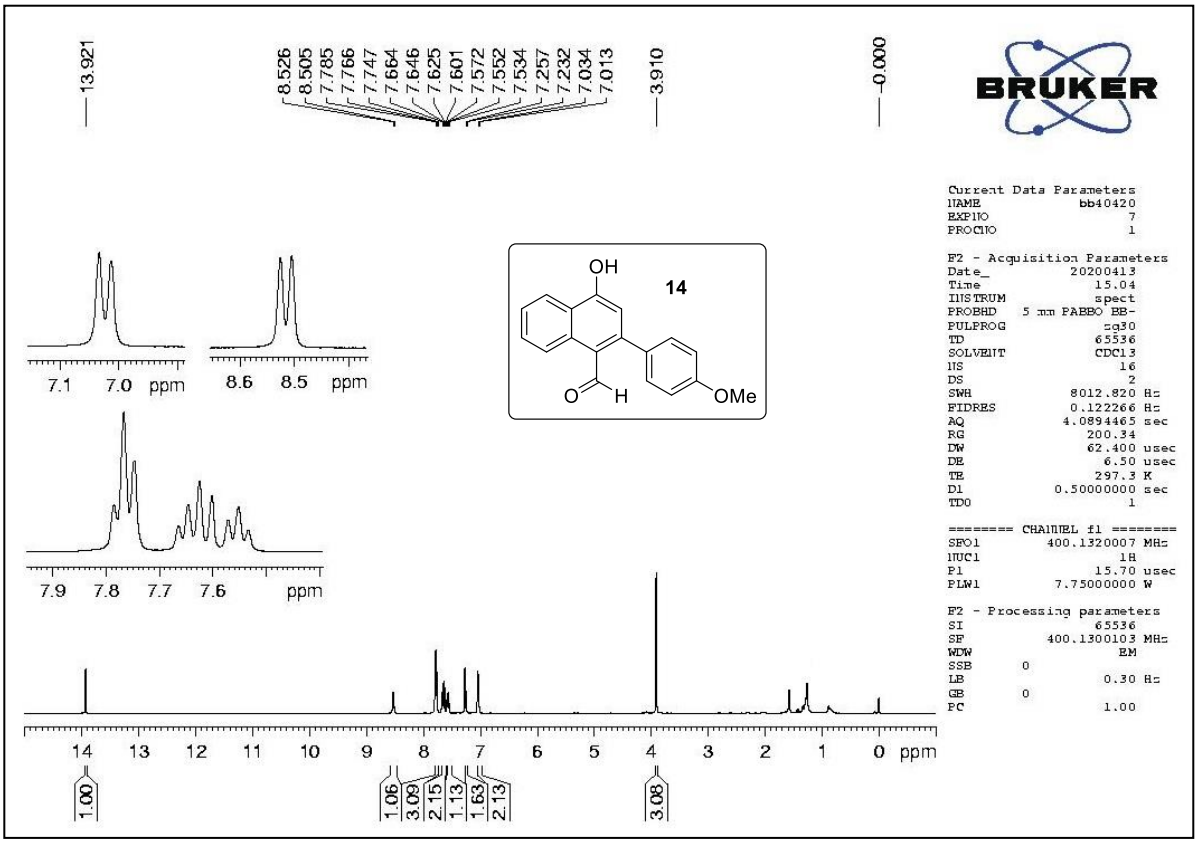

```
Current Data Parameters
NAME    sa-8-117(1,2) p-ome dimer
EXPNO          215
PROCNO           1

F2 - Acquisition Parameters
Date_        20180510
Time            13.06
INSTRUM          spect
PROBHD  5 mm PABBO BB-
PULPROG          zg30
TD              65536
SOLVENT          CDCl3
NS                  16
DS                   2
SWH           8012.820 Hz
FIDRES        0.122266 Hz
AQ            4.0894966 sec
RG                124.58
DW               62.400 usec
DE                6.50 usec
TE               298.8 K
D1            0.50000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1         400.1320007 MHz
NUC1               1H
P1               15.70 usec
PLW1          7.75000000 W

F2 - Processing parameters
SI              65536
SF         400.1300409 MHz
WDW                EM
SSB     0
LB             0.30 Hz
GB      0
PC             1.00
```

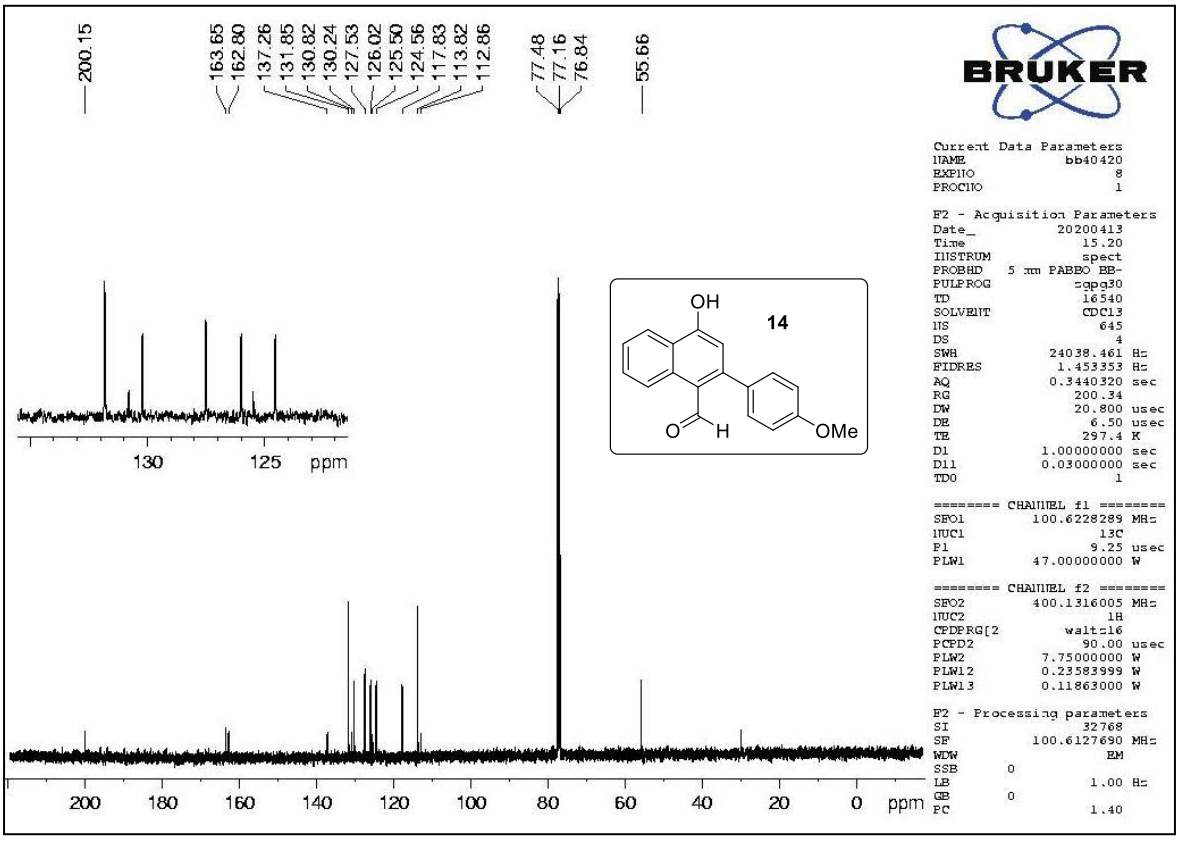


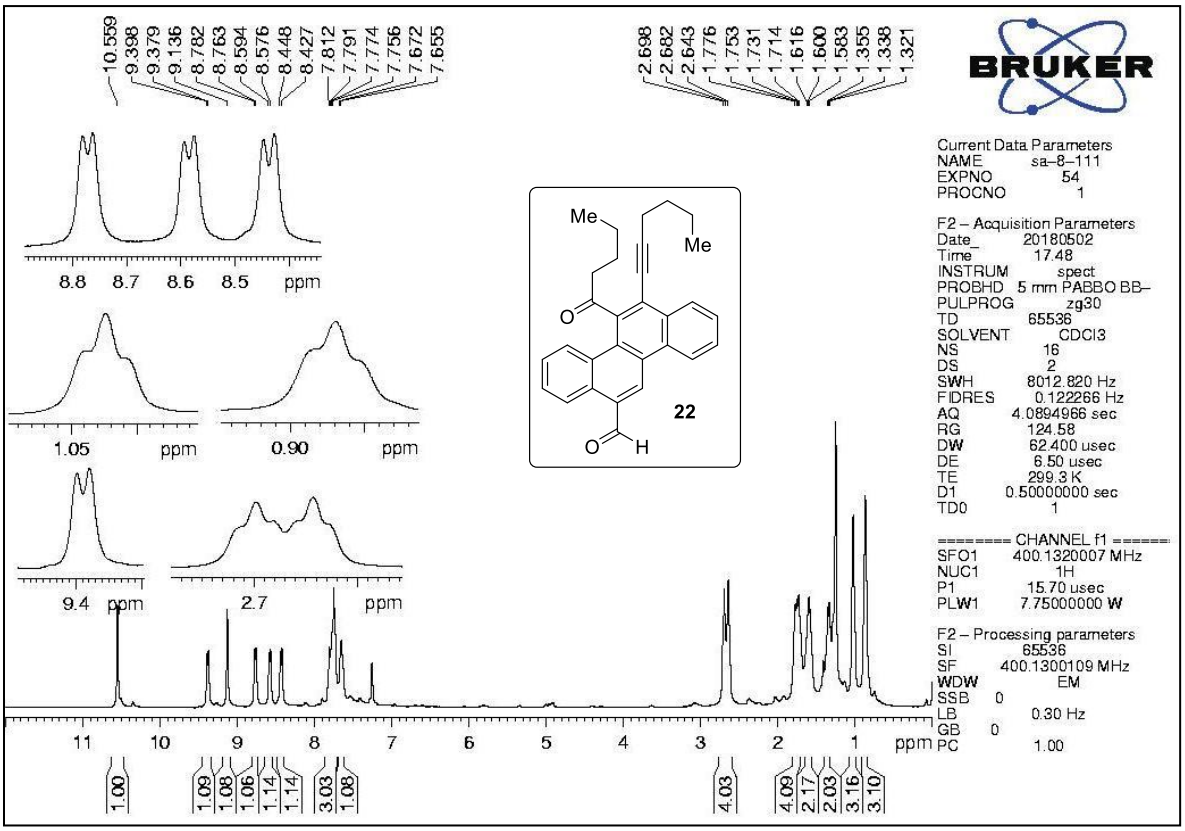

```
Current Data Parameters
NAME            bb40518
EXPNO               216
PROCNO                1

F2 - Acquisition Parameters
Date_          20180510
Time              12.51
INSTRUM           spect
PROBHD   5 mm PABBO BB-
PULPROG         zgpg30
TD               16540
SOLVENT          CDCl3
NS                 750
DS                   4
SWH           24038.461 Hz
FIDRES         1.453353 Hz
AQ             0.3440320 sec
RG                200.34
DW               20.800 usec
DE                6.50 usec
TE               299.3 K
D1            1.00000000 sec
D11           0.03000000 sec
TD0                  1

======== CHANNEL f1 ========
SFO1         100.6228289 MHz
NUC1               13C
P1                9.25 usec
PLW1         47.00000000 W

======== CHANNEL f2 ========
SFO2         400.1316005 MHz
NUC2               1H
CPDPRG[2         waltz16
PCPD2             90.00 usec
PLW2          7.75000000 W
PLW12         0.23583999 W
PLW13         0.11863000 W

F2 - Processing parameters
SI                32768
SF           100.6127690 MHz
WDW                EM
SSB       0
LB                1.00 Hz
GB        0
PC                1.40
```

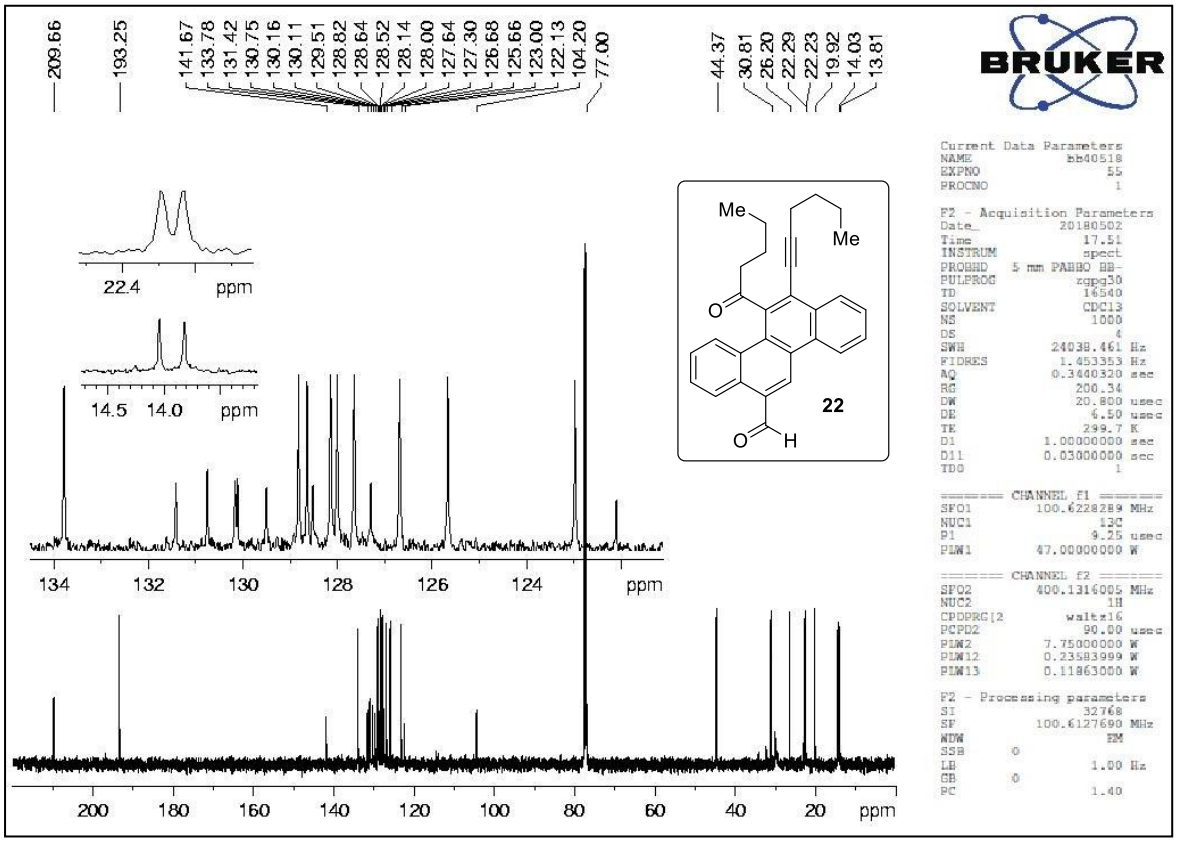

9.816
8.436
8.417
7.625
7.605
7.566
7.547
7.521
7.503
7.263
7.245
6.935
6.914
4.102
3.849
BRUKER
7.6
7.5 ppm
6.95
ppm
8.45
ppm
O
O
H
OMe
11
11
10
9
8
7
6
5
4
3
2
1
ppm
1.00
1.07
2.27
2.37
1.11
2.07
2.17
3.03
Current Data Parameters
NAME 4-OMe 1,5 nd napthol
EXPNO 4
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200411
Time 2.47
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 4
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 169.77
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300095 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

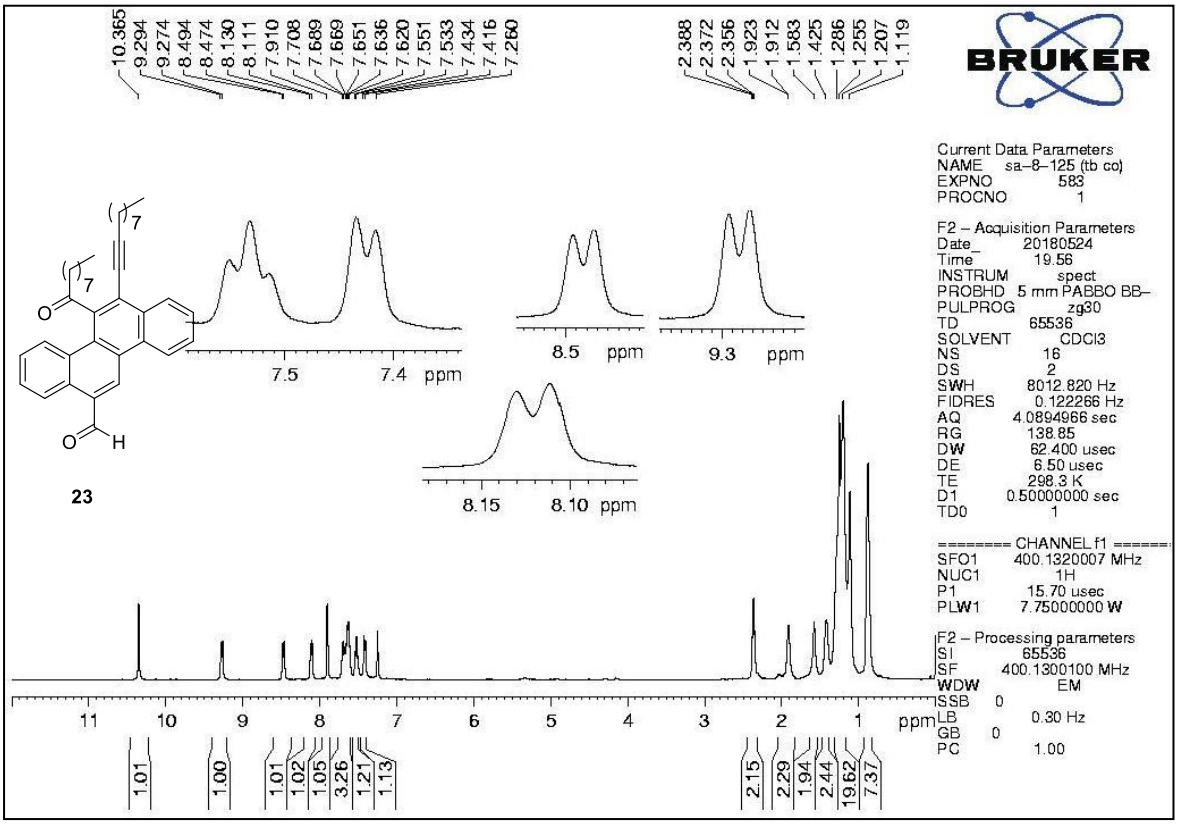

200.15
163.65
162.80
137.26
131.85
130.82
130.24
127.53
126.02
125.50
124.56
117.83
113.82
112.86
77.48
77.16
76.84
55.66
BRUKER
130
125
ppm
O
O
H
OMe
11
200
180
160
140
120
100
80
60
40
20
0
ppm
Current Data Parameters
NAME bb40420
EXPNO 8
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200413
Time 15.20
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 645
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.4 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

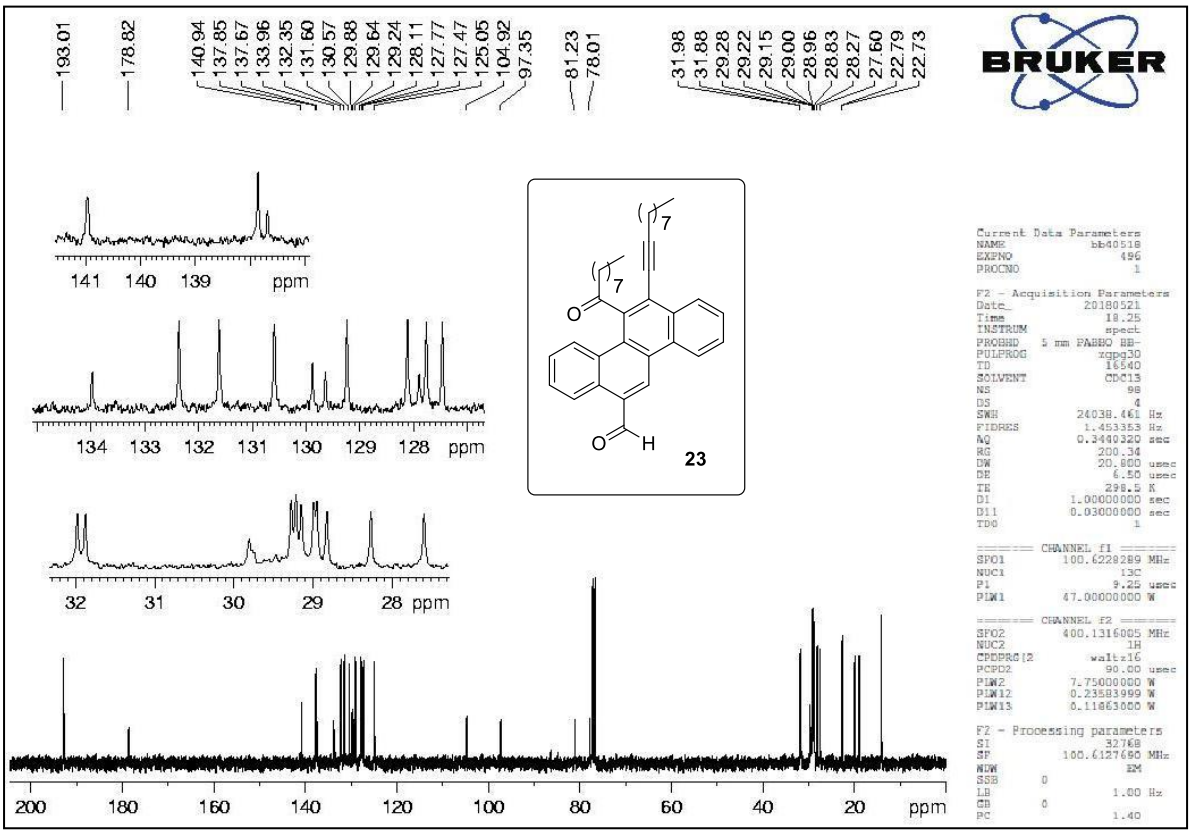

13.921
8.526
8.505
7.785
7.766
7.747
7.664
7.646
7.625
7.601
7.572
7.552
7.534
7.257
7.232
7.034
7.013
3.910
-0.000
BRUKER
OH
14
O
H
OMe
7.1 7.0 ppm
8.6 8.5 ppm
7.9 7.8 7.7 7.6 ppm
14 13 12 11 10 9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.06
3.09
2.15
1.13
1.63
2.13
3.08
Current Data Parameters
NAME bb40420
EXPNO 7
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200413
Time 15.04
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 200.34
DW 62.400 usec
DE 6.50 usec
TE 297.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300103 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

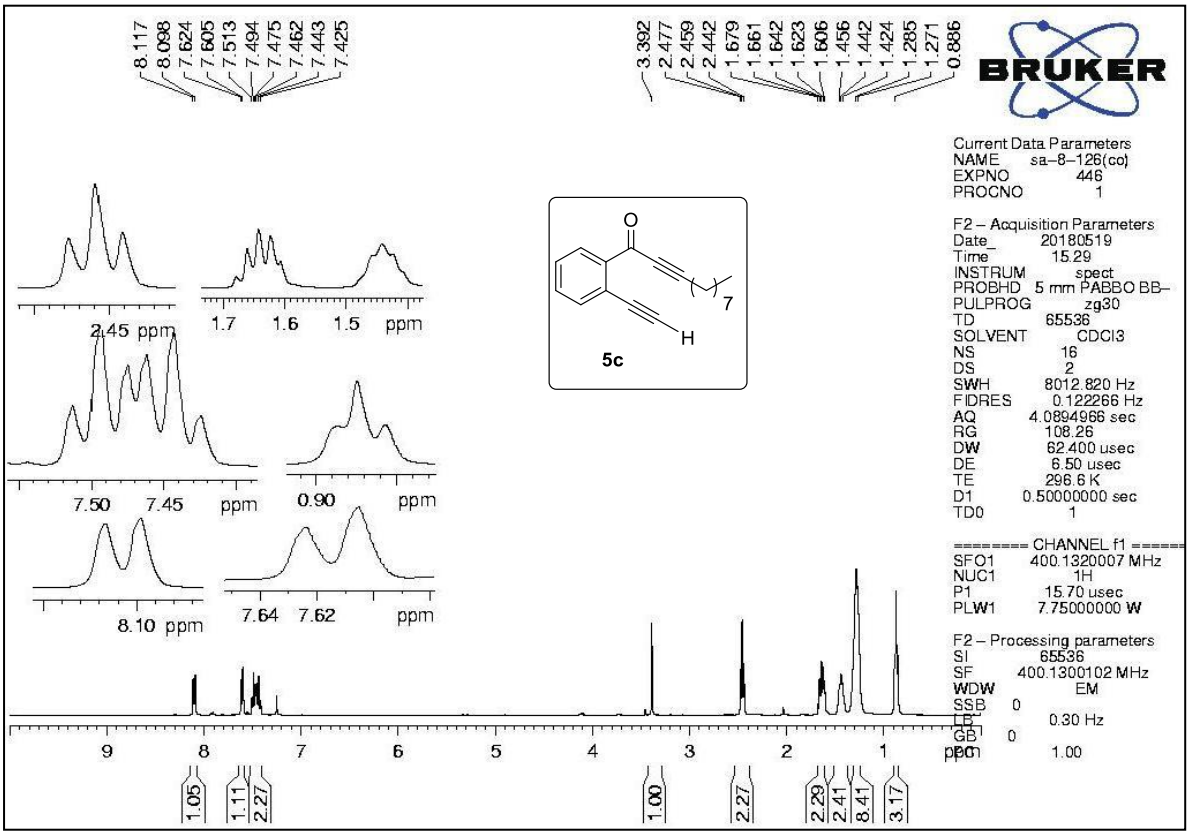

200.15
163.65
162.80
137.26
131.85
130.82
130.24
127.53
126.02
125.50
124.56
117.83
113.82
112.86
77.48
77.16
76.84
55.66
BRUKER
OH
14
O
H
OMe
130 125 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
Current Data Parameters
NAME bb40420
EXPNO 8
PROCNO 1
F2 - Acquisition Parameters
Date_ 20200413
Time 15.20
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 645
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.4 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

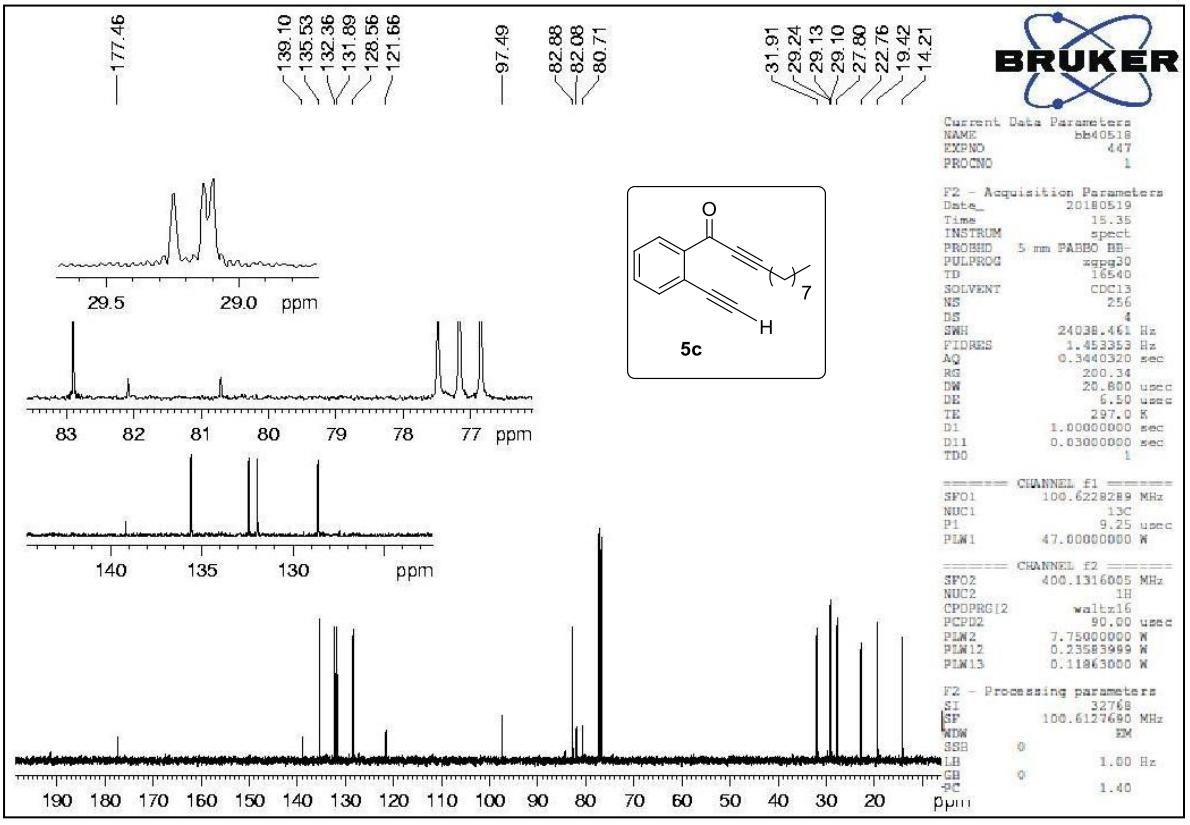

10.559
9.398
9.379
9.136
8.782
8.763
8.594
8.576
8.448
8.427
7.812
7.791
7.774
7.756
7.672
7.655
2.698
2.682
2.643
1.776
1.753
1.731
1.714
1.616
1.600
1.583
1.355
1.338
1.321
BRUKER
Me
Me
O
22
O
H
8.8 8.7 8.6 8.5 ppm
1.05 ppm
0.90 ppm
9.4 ppm
2.7 ppm
11 10 9 8 7 6 5 4 3 2 1 ppm
1.00
1.09
1.08
1.06
1.14
1.14
3.03
1.08
4.03
4.09
2.17
2.03
3.16
3.10
Current Data Parameters
NAME sa–8–111
EXPNO 54
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180502
Time 17.48
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 124.58
DW 62.400 usec
DE 6.50 usec
TE 299.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 – Processing parameters
SI 65536
SF 400.1300109 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

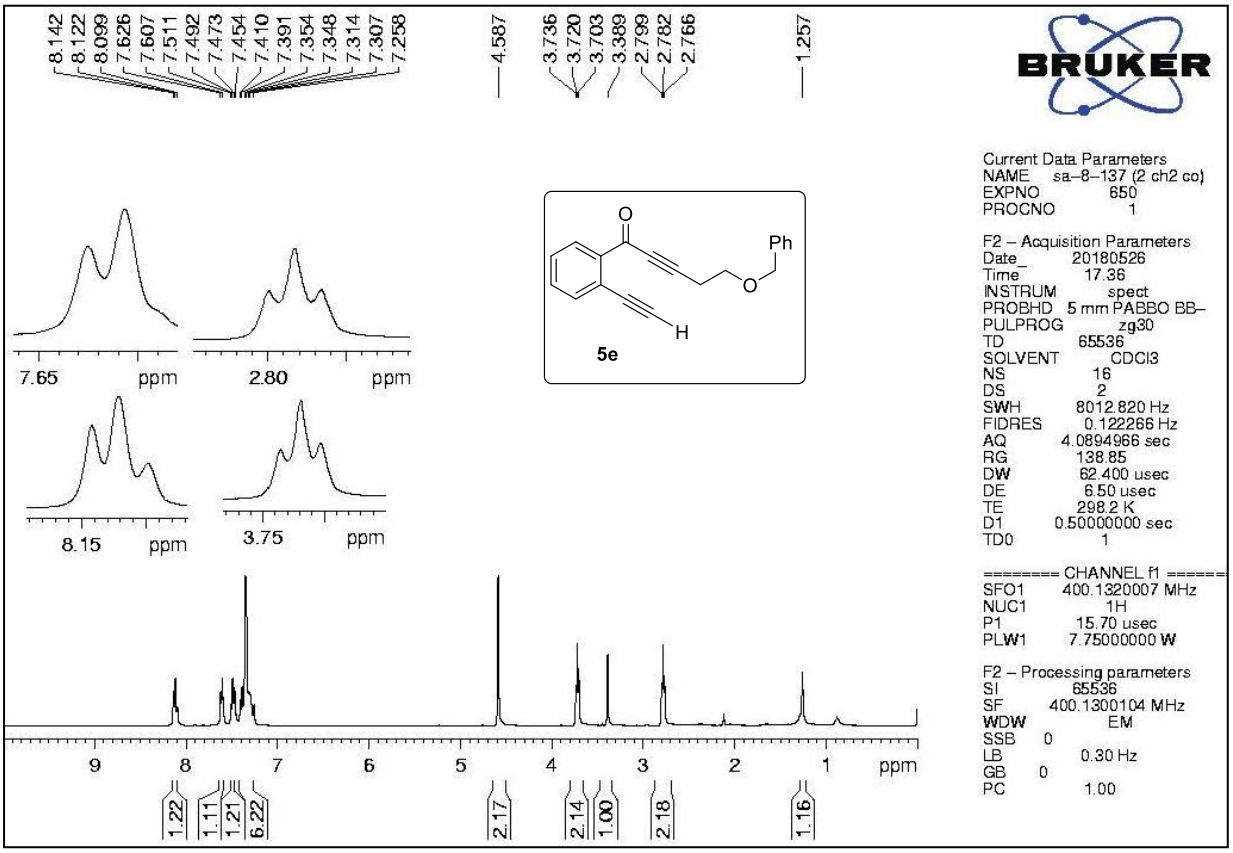

209.66
193.25
141.67
133.78
131.42
130.75
130.16
130.11
129.51
128.82
128.64
128.52
128.14
128.00
127.64
127.30
126.68
125.66
123.00
122.13
104.20
77.00
44.37
30.81
26.20
22.29
22.23
19.92
14.03
13.81
BRUKER
Me
Me
O
22
O
H
22.4 ppm
14.5 14.0 ppm
134 132 130 128 126 124 ppm
200 180 160 140 120 100 80 60 40 20 ppm
Current Data Parameters
NAME bb40518
EXPNO 55
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180502
Time 17.51
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 1000
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

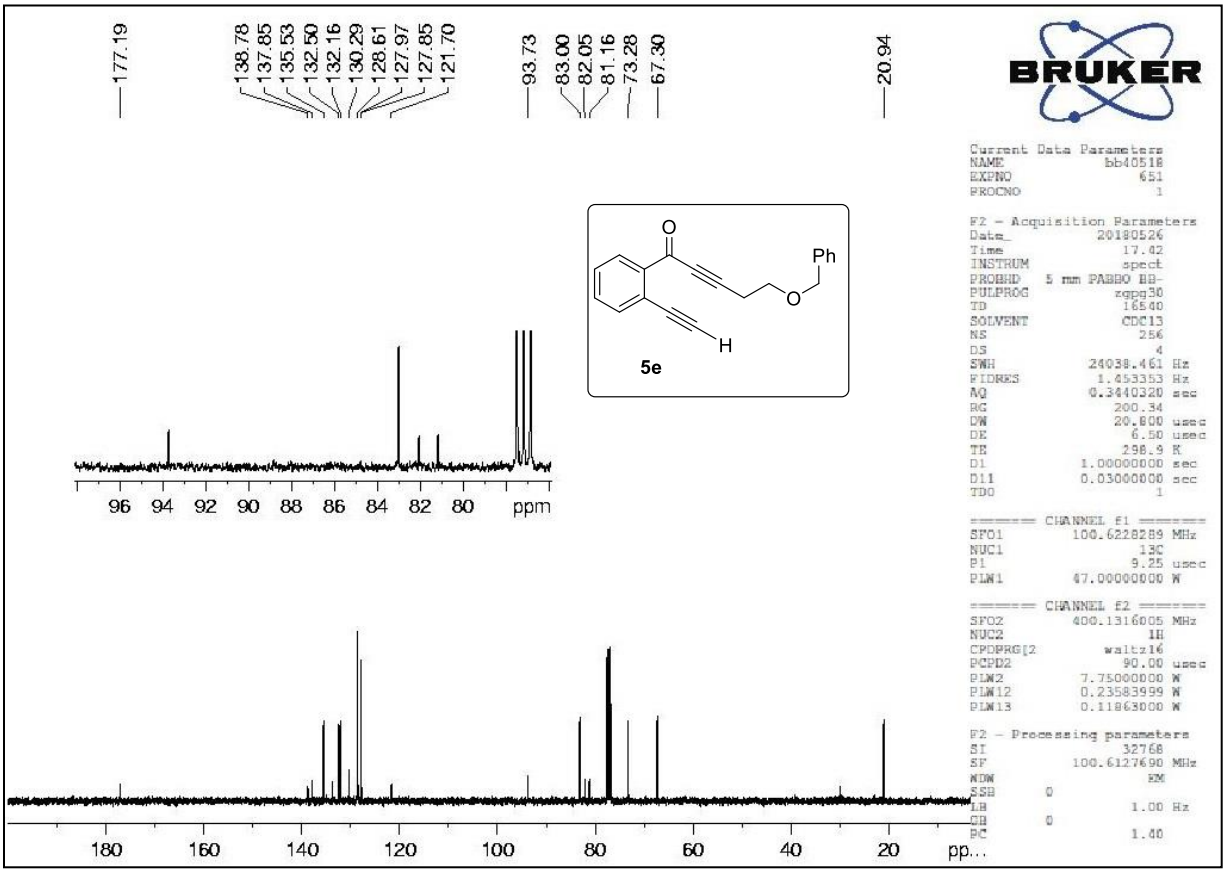

10.365
9.294
9.274
8.494
8.474
8.130
8.111
7.910
7.708
7.689
7.669
7.651
7.636
7.620
7.551
7.533
7.434
7.416
7.260
2.388
2.372
2.356
1.923
1.912
1.583
1.425
1.286
1.255
1.207
1.119
BRUKER
Current Data Parameters
NAME sa–8–125 (tb co)
EXPNO 583
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180524
Time 19.56
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 298.3 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 – Processing parameters
SI 65536
SF 400.1300100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
23
7.5
7.4 ppm
8.5 ppm
9.3 ppm
8.15
8.10 ppm
11 10 9 8 7 6 5 4 3 2 1 ppm
1.01
1.00
1.01
1.02
1.05
3.26
1.21
1.13
2.15
2.29
1.94
2.44
19.62
7.37

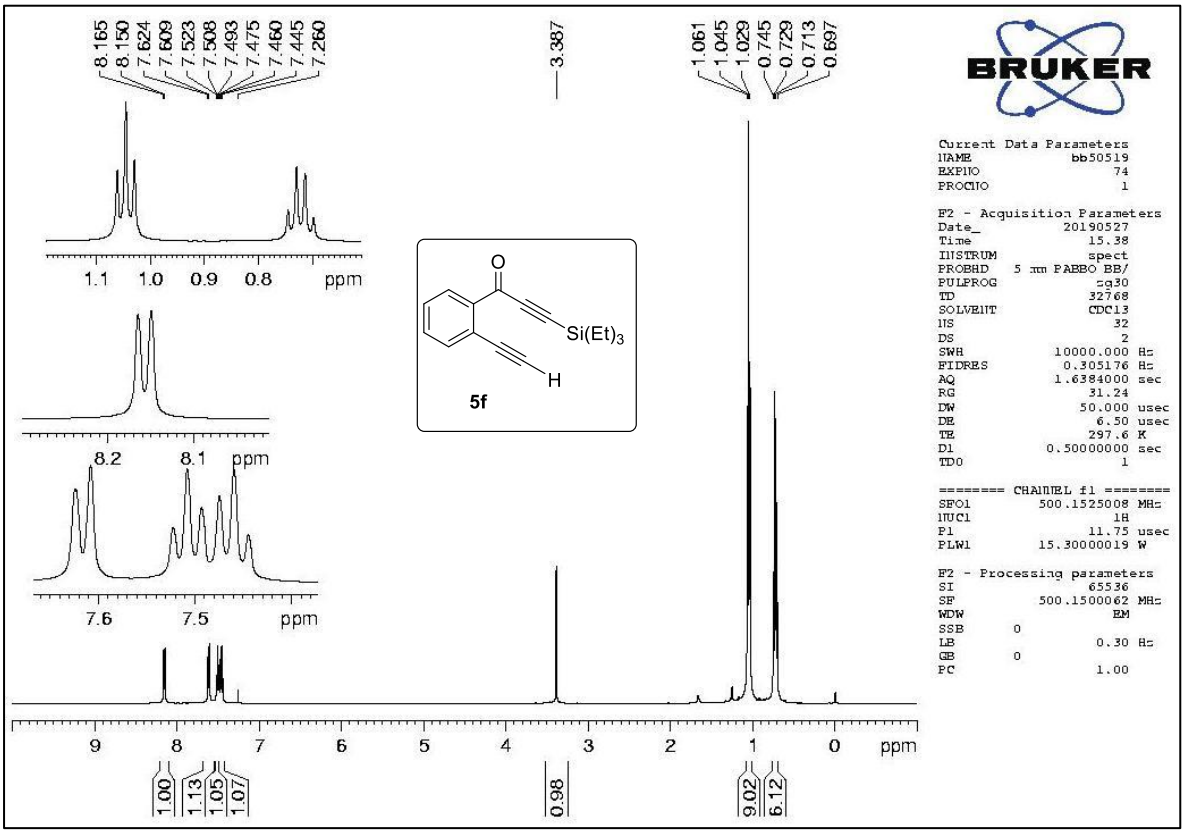

193.01
178.82
140.94
137.85
137.67
133.96
132.35
131.60
130.57
129.88
129.64
129.24
128.11
127.77
127.47
125.05
104.92
97.35
81.23
78.01
31.98
31.88
29.28
29.22
29.15
29.00
28.96
28.83
28.27
27.60
22.79
22.73
BRUKER
141 140 139 ppm
134 133 132 131 130 129 128 ppm
32 31 30 29 28 ppm
23
Current Data Parameters
NAME bb40518
EXPNO 496
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180521
Time 18.25
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 98
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 – Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 180 160 140 120 100 80 60 40 20 ppm

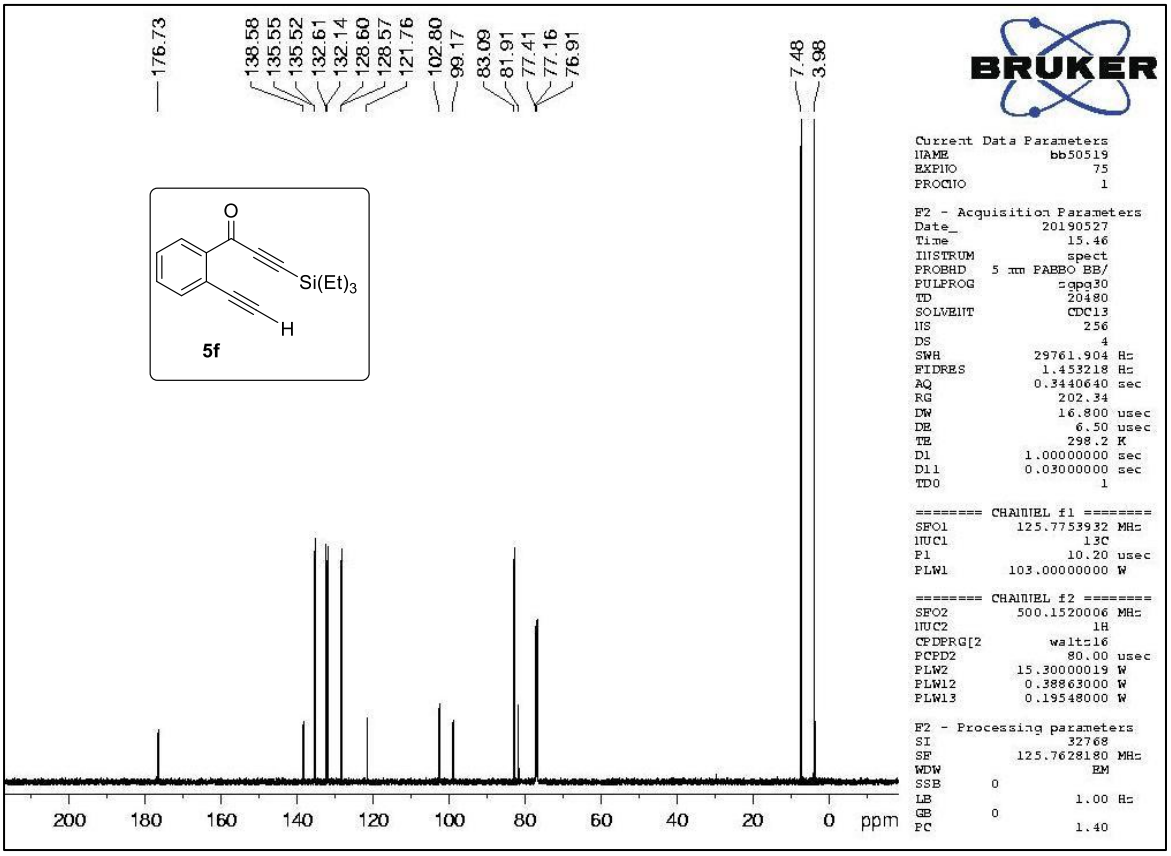

8.117
8.098
7.624
7.605
7.513
7.494
7.475
7.462
7.443
7.425
3.392
2.477
2.459
2.442
1.679
1.661
1.642
1.623
1.606
1.456
1.442
1.424
1.285
1.271
0.886
BRUKER
Current Data Parameters
NAME sa–8–126(co)
EXPNO 446
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180519
Time 15.29
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 296.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 – Processing parameters
SI 65536
SF 400.1300102 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
O
7
H
5c
2.45 ppm
1.7 1.6 1.5 ppm
7.50 7.45 ppm
0.90 ppm
8.10 ppm
7.64 7.62 ppm
9 8 7 6 5 4 3 2 1 ppm
1.05
1.11
2.27
1.00
2.27
2.29
2.41
8.41
3.17

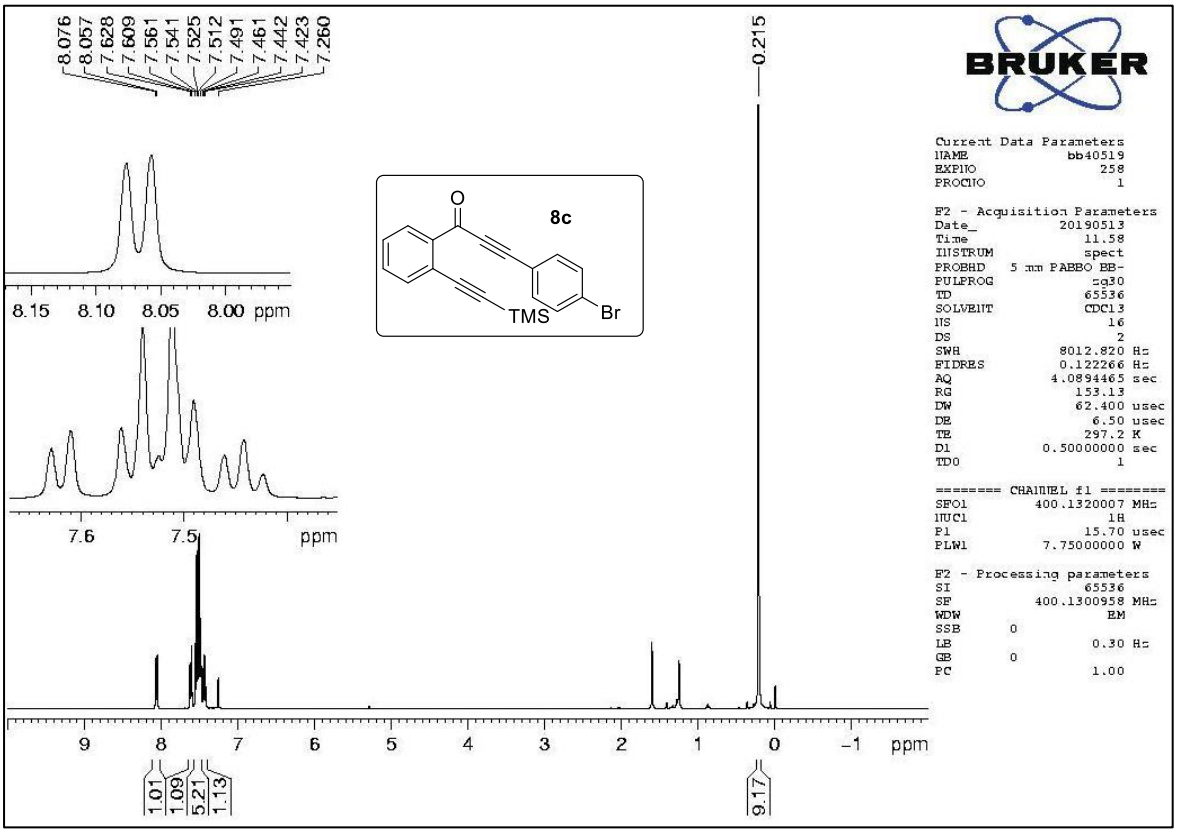

177.46
139.10
135.53
132.36
131.89
128.56
121.66
97.49
82.88
82.08
80.71
31.91
29.24
29.13
29.10
27.80
22.76
19.42
14.21
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 447
PROCNO 1
F2 – Acquisition Parameters
Date_ 20180519
Time 15.35
INSTRUM spect
PROBHD 5 mm PABBO BB–
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 – Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
O
7
H
5c
29.5 29.0 ppm
83 82 81 80 79 78 77 ppm
140 135 130 ppm
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 ppm

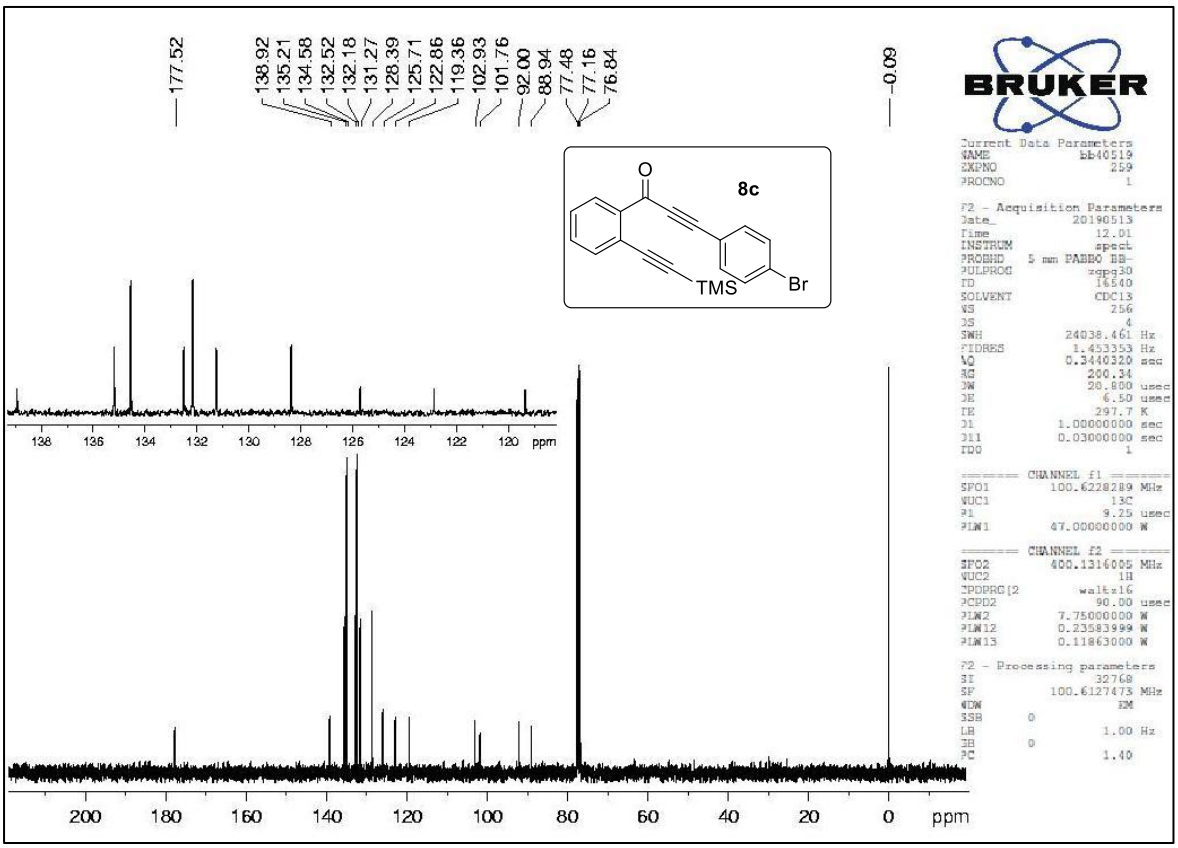

8.142
8.122
8.099
7.626
7.607
7.511
7.492
7.473
7.454
7.410
7.391
7.354
7.348
7.314
7.307
7.258
4.587
3.736
3.720
3.703
3.389
2.799
2.782
2.766
1.257
BRUKER
Current Data Parameters
NAME sa--8--137 (2 ch2 co)
EXPNO 650
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180526
Time 17.36
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 298.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300104 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
O
Ph
O
H
5e
7.65 ppm
2.80 ppm
8.15 ppm
3.75 ppm
9 8 7 6 5 4 3 2 1 ppm
1.22
1.11
1.21
6.22
2.17
2.14
1.00
2.18
1.16

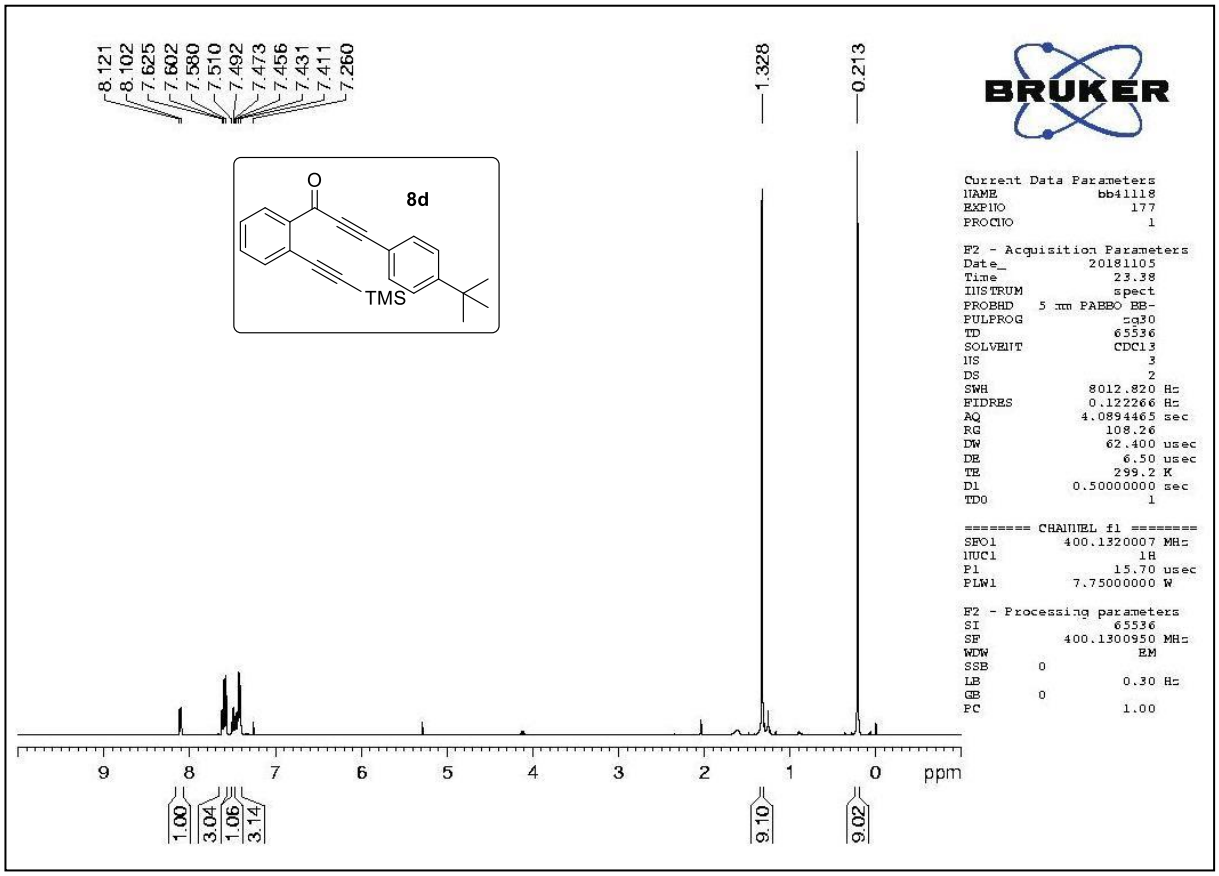

177.19
138.78
137.85
135.53
132.50
132.16
130.29
128.61
127.97
127.85
121.70
93.73
83.00
82.05
81.16
73.28
67.30
20.94
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 651
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180526
Time 17.42
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
O
Ph
O
H
5e
96 94 92 90 88 86 84 82 80 ppm
180 160 140 120 100 80 60 40 20 pp...

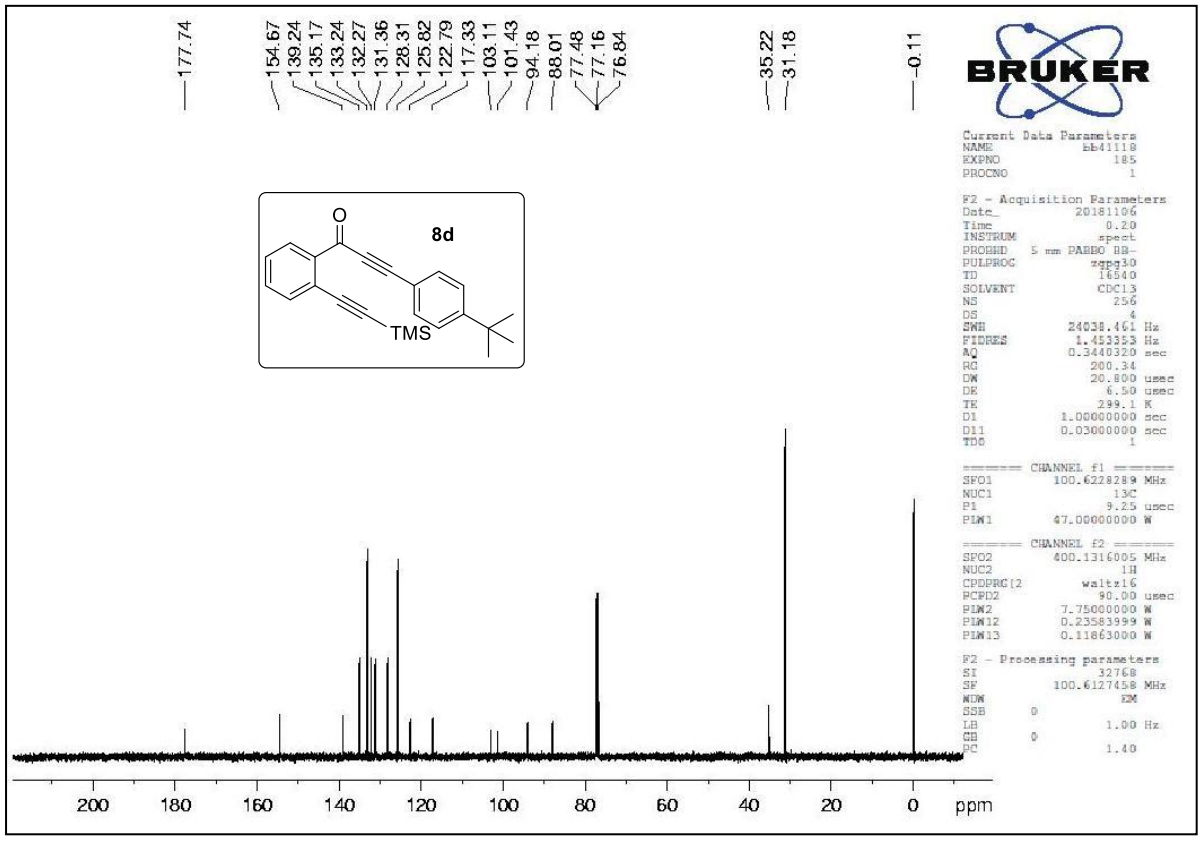

8.165
8.150
7.624
7.609
7.523
7.508
7.493
7.475
7.460
7.445
7.260
3.387
1.061
1.045
1.029
0.745
0.729
0.713
0.697
1.1 1.0 0.9 0.8 ppm
8.2 8.1 ppm
7.6 7.5 ppm
O
Si(Et)3
H
5f
9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.13
1.05
1.07
0.98
9.02
6.12
BRUKER
Current Data Parameters
NAME bb50519
EXPNO 74
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190527
Time 15.38
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 32
DS 2
SWH 10000.000 Hz
FIDRES 0.305176 Hz
AQ 1.6384000 sec
RG 31.24
DW 50.000 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 500.1525008 MHz
NUC1 1H
P1 11.75 usec
PLW1 15.30000019 W
F2 - Processing parameters
SI 65536
SF 500.1500062 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

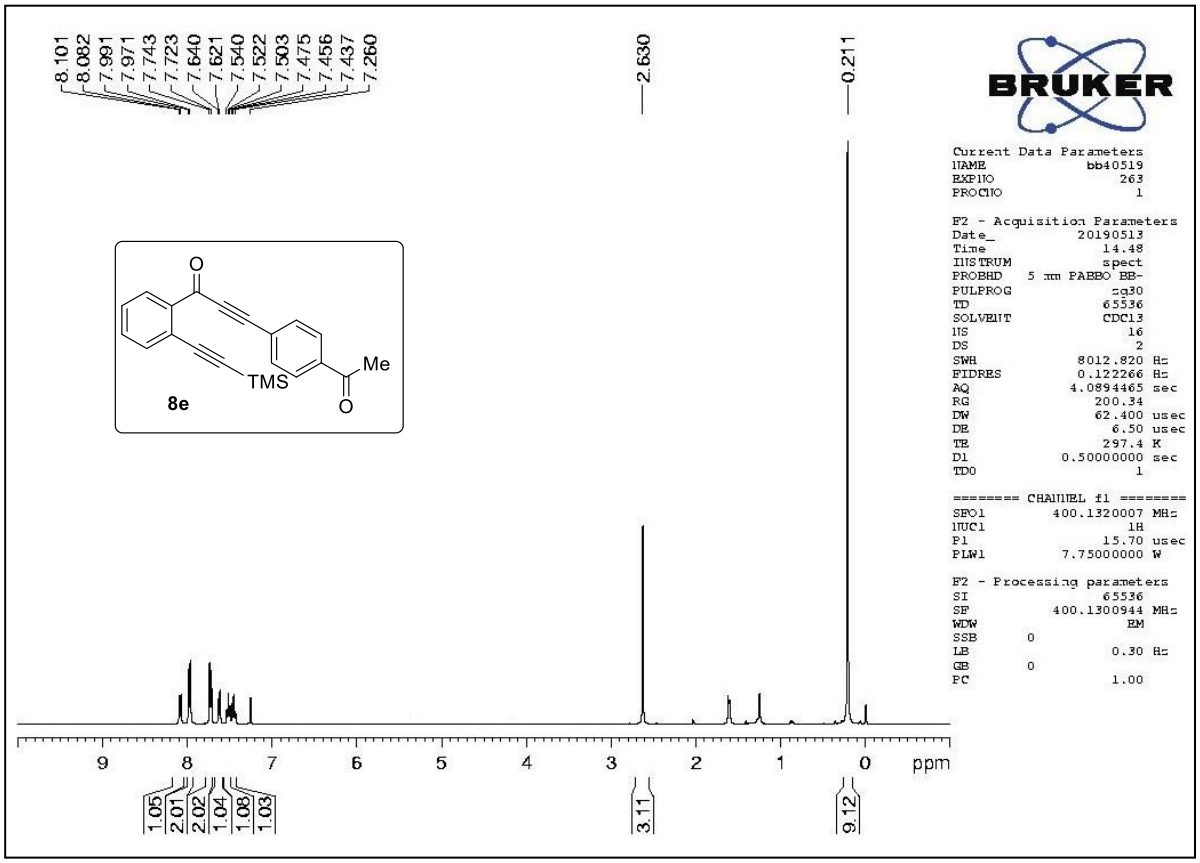

176.73
138.58
135.55
135.52
132.61
132.14
128.60
128.57
121.76
102.80
99.17
83.09
81.91
77.41
77.16
76.91
7.48
3.98
O
Si(Et)3
H
5f
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb50519
EXPNO 75
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190527
Time 15.46
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgpg30
TD 20480
SOLVENT CDCl3
NS 256
DS 4
SWH 29761.904 Hz
FIDRES 1.453218 Hz
AQ 0.3440640 sec
RG 202.34
DW 16.800 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 125.7753932 MHz
NUC1 13C
P1 10.20 usec
PLW1 103.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
PLW13 0.19548000 W
F2 - Processing parameters
SI 32768
SF 125.7628180 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

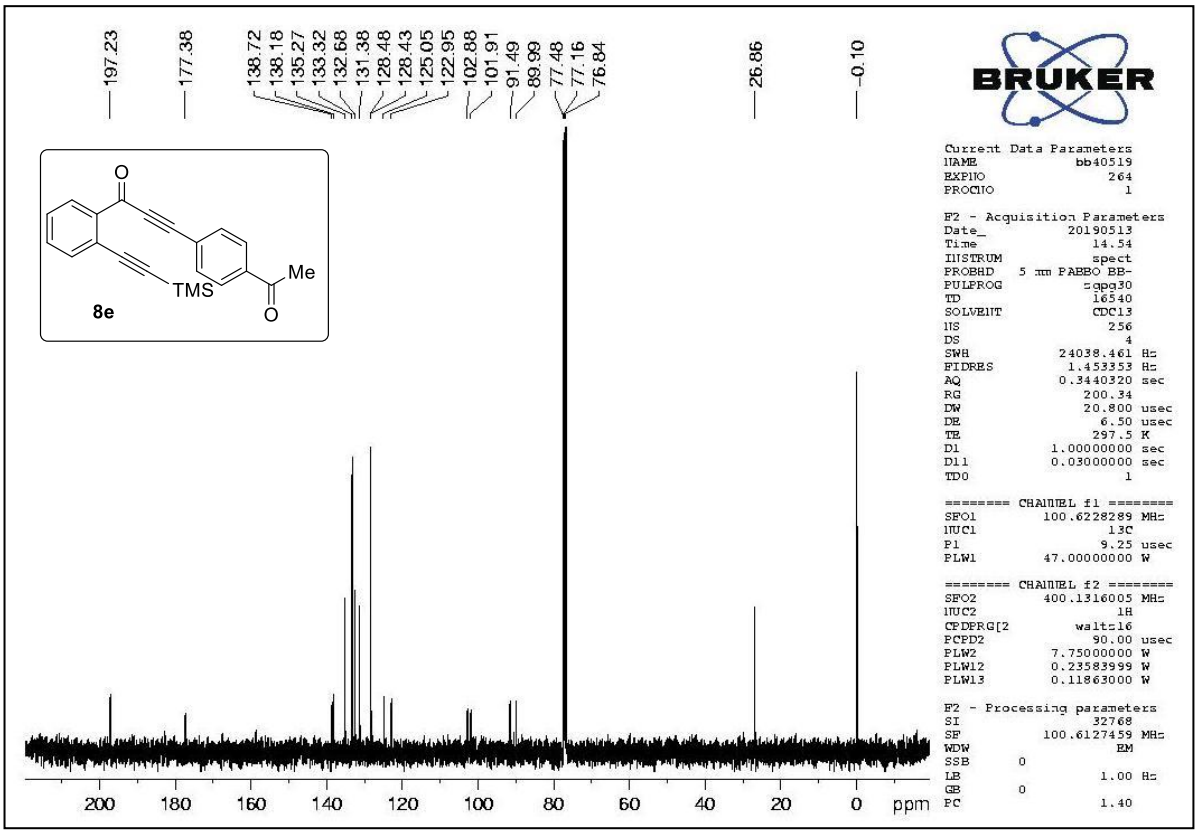

8.076
8.057
7.628
7.609
7.561
7.541
7.525
7.512
7.491
7.461
7.442
7.423
7.260
0.215
8c
TMS
Br
8.15 8.10 8.05 8.00 ppm
7.6 7.5 ppm
9 8 7 6 5 4 3 2 1 0 −1 ppm
1.01
1.09
5.21
1.13
9.17
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 258
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190513
Time 11.58
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300958 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

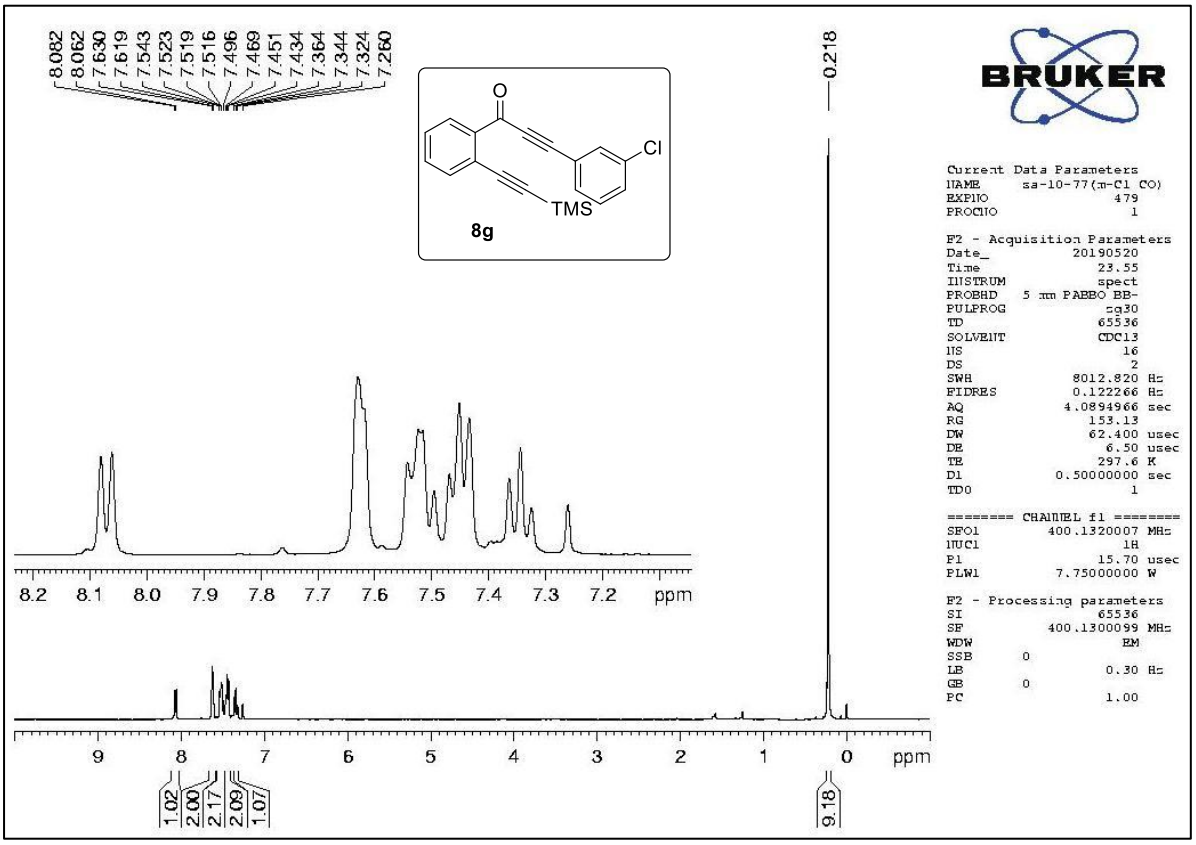

177.52
138.92
135.21
134.58
132.52
132.18
131.27
128.39
125.71
122.86
119.36
102.93
101.76
92.00
88.94
77.48
77.16
76.84
0.09
8c
TMS
Br
138 136 134 132 130 128 126 124 122 120 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 259
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190513
Time 12.01
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127473 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

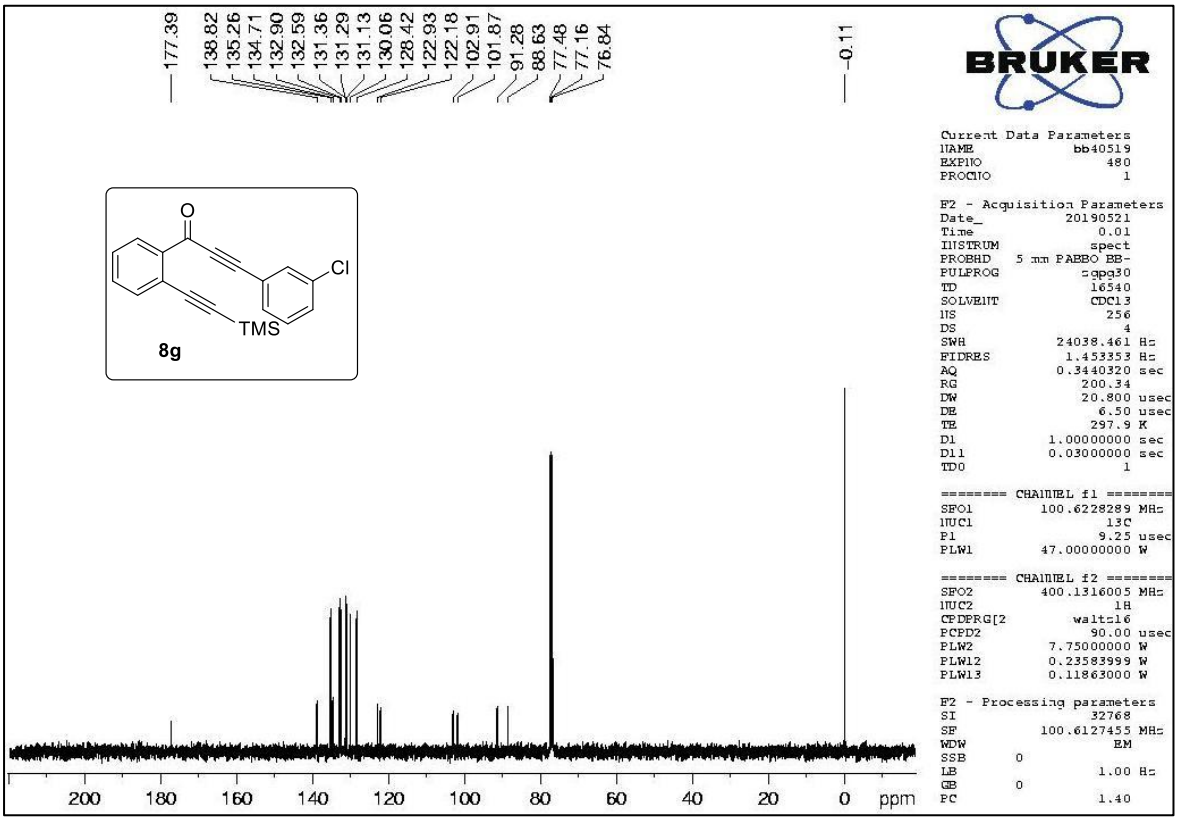

8.121
8.102
7.625
7.602
7.580
7.510
7.492
7.473
7.456
7.431
7.411
7.260
1.328
0.213
8d
TMS
BRUKER
Current Data Parameters
NAME bb41118
EXPNO 177
PROCNO 1
F2 - Acquisition Parameters
Date_ 20181105
Time 23.38
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 3
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 108.26
DW 62.400 usec
DE 6.50 usec
TE 299.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300950 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9 8 7 6 5 4 3 2 1 0 ppm
1.00
3.04
1.06
3.14
9.10
9.02

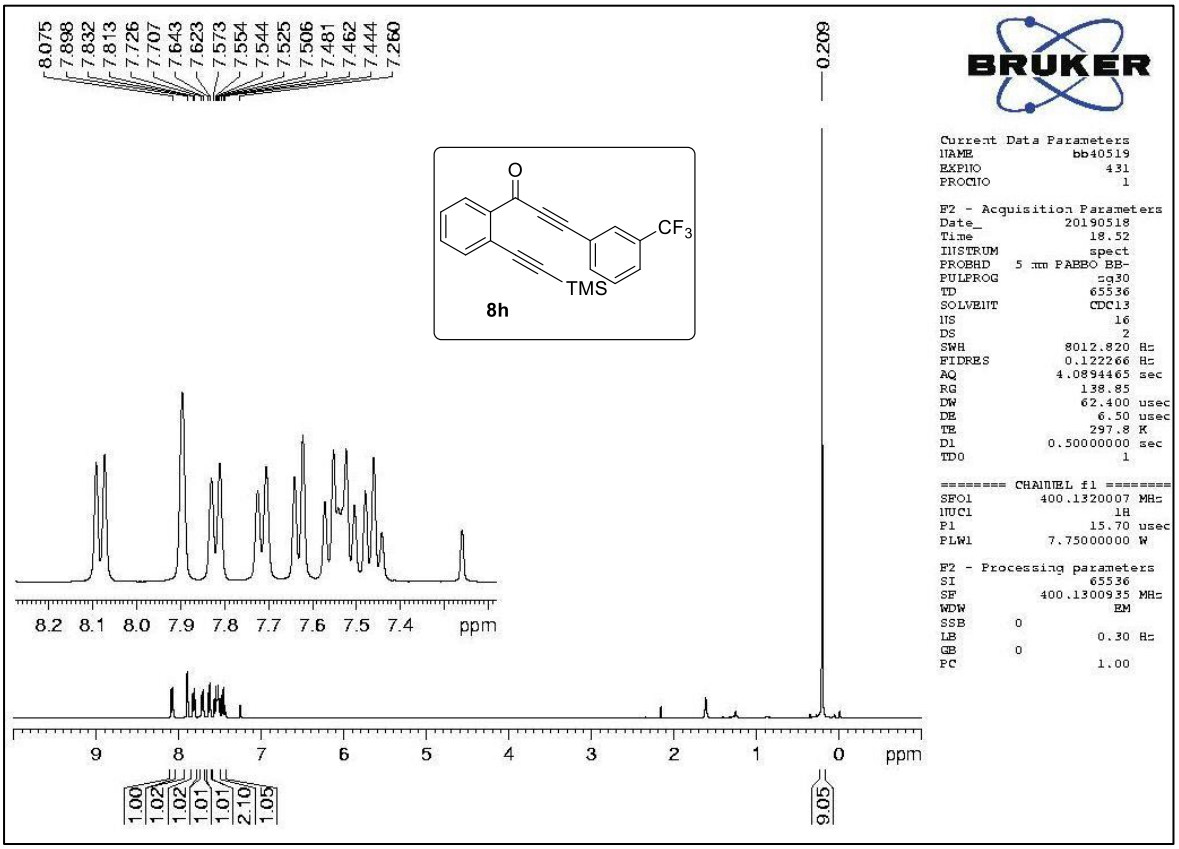

177.74
154.67
139.24
135.17
133.24
132.27
131.36
128.31
125.82
122.79
117.33
103.11
101.43
94.18
88.01
77.48
77.16
76.84
35.22
31.18
0.11
8d
TMS
BRUKER
Current Data Parameters
NAME bb41118
EXPNO 185
PROCNO 1
F2 - Acquisition Parameters
Date_ 20181106
Time 0.20
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.1 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127458 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
200 180 160 140 120 100 80 60 40 20 0 ppm

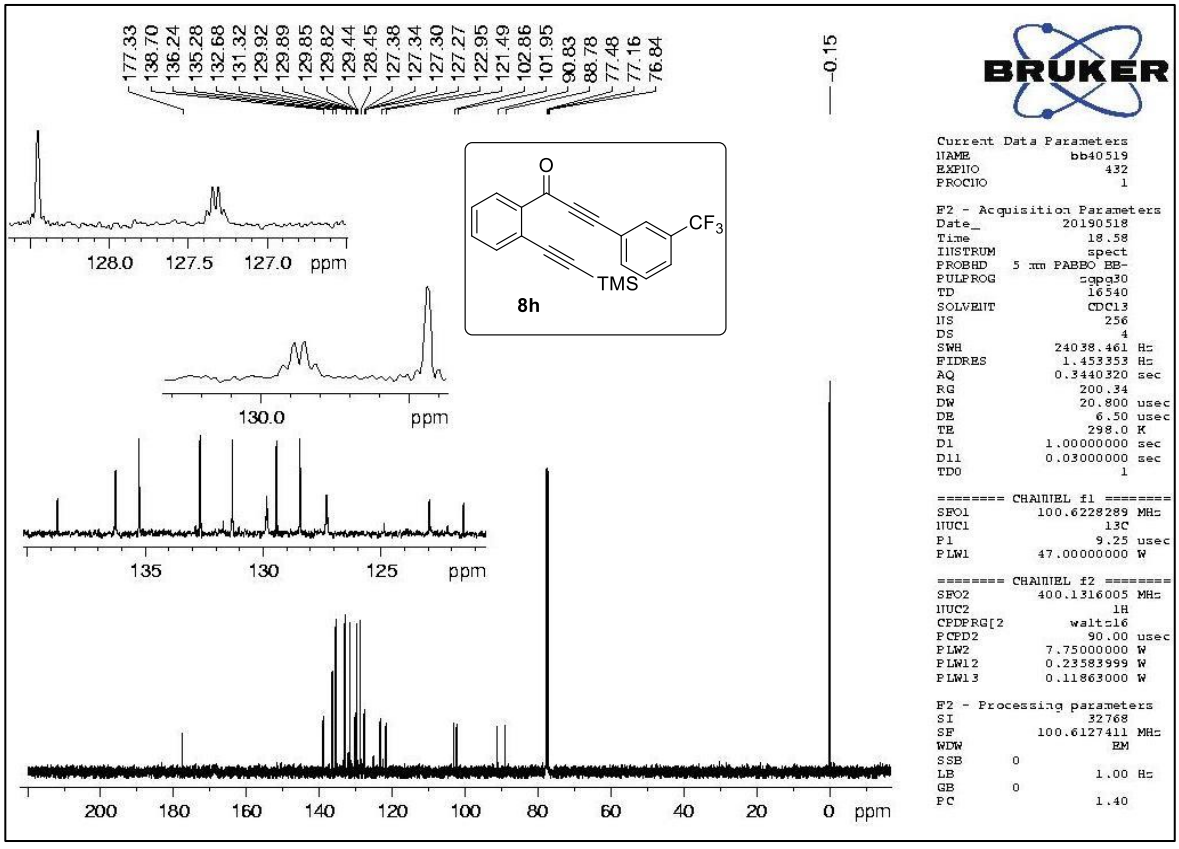

8.101
8.082
7.991
7.971
7.743
7.723
7.640
7.621
7.540
7.522
7.503
7.475
7.456
7.437
7.260
2.630
0.211
O
TMS
Me
O
8e
9
8
7
6
5
4
3
2
1
0
ppm
1.05
2.01
2.02
1.04
1.08
1.03
3.11
9.12
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 263
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190513
Time 14.48
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 200.34
DW 62.400 usec
DE 6.50 usec
TE 297.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300944 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

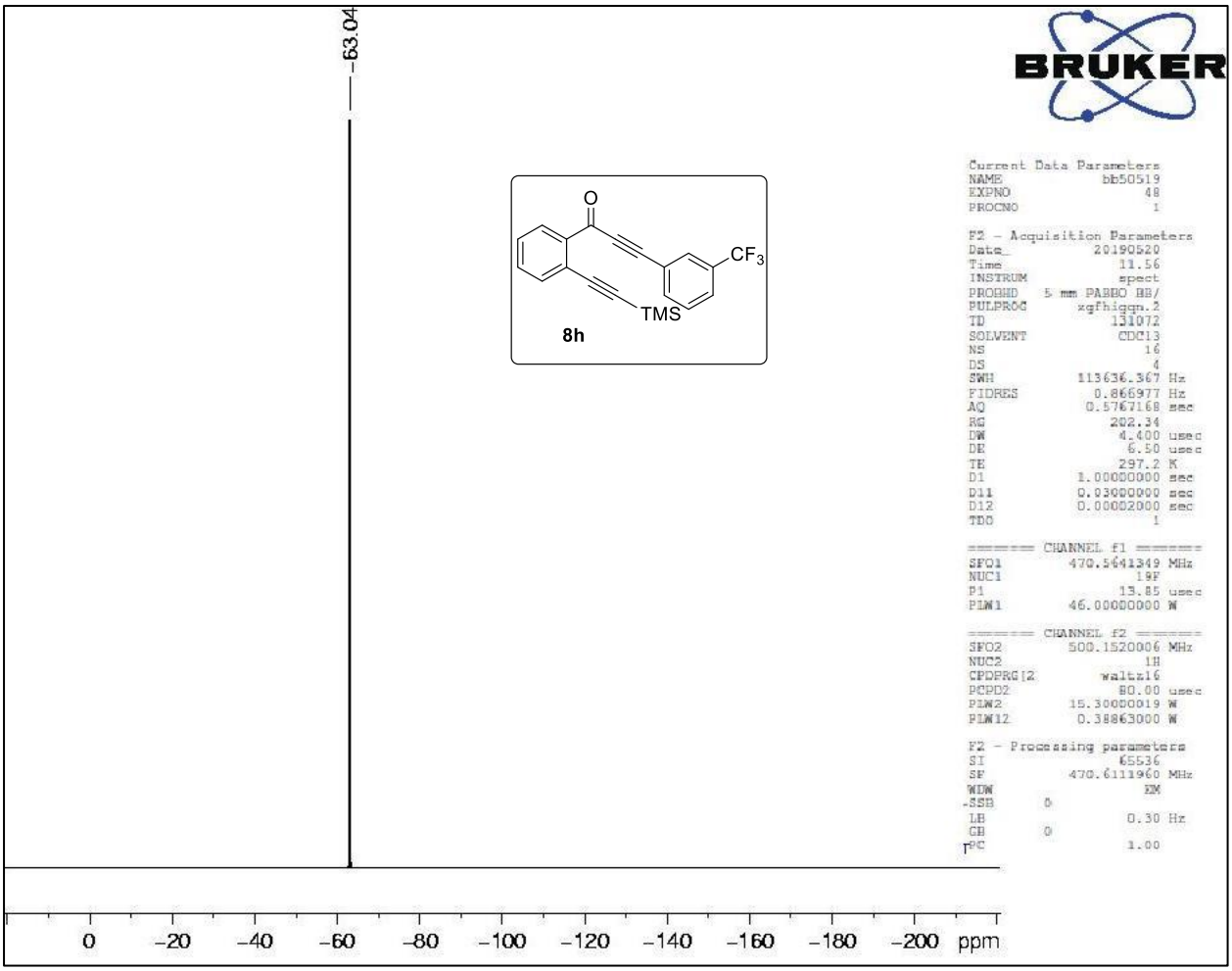

197.23
177.38
138.72
138.18
135.27
133.32
132.68
131.38
128.48
128.43
125.05
122.95
102.88
101.91
91.49
89.99
77.48
77.16
76.84
26.86
-0.10
O
TMS
Me
O
8e
200
180
160
140
120
100
80
60
40
20
0
ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 264
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190513
Time 14.54
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127459 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

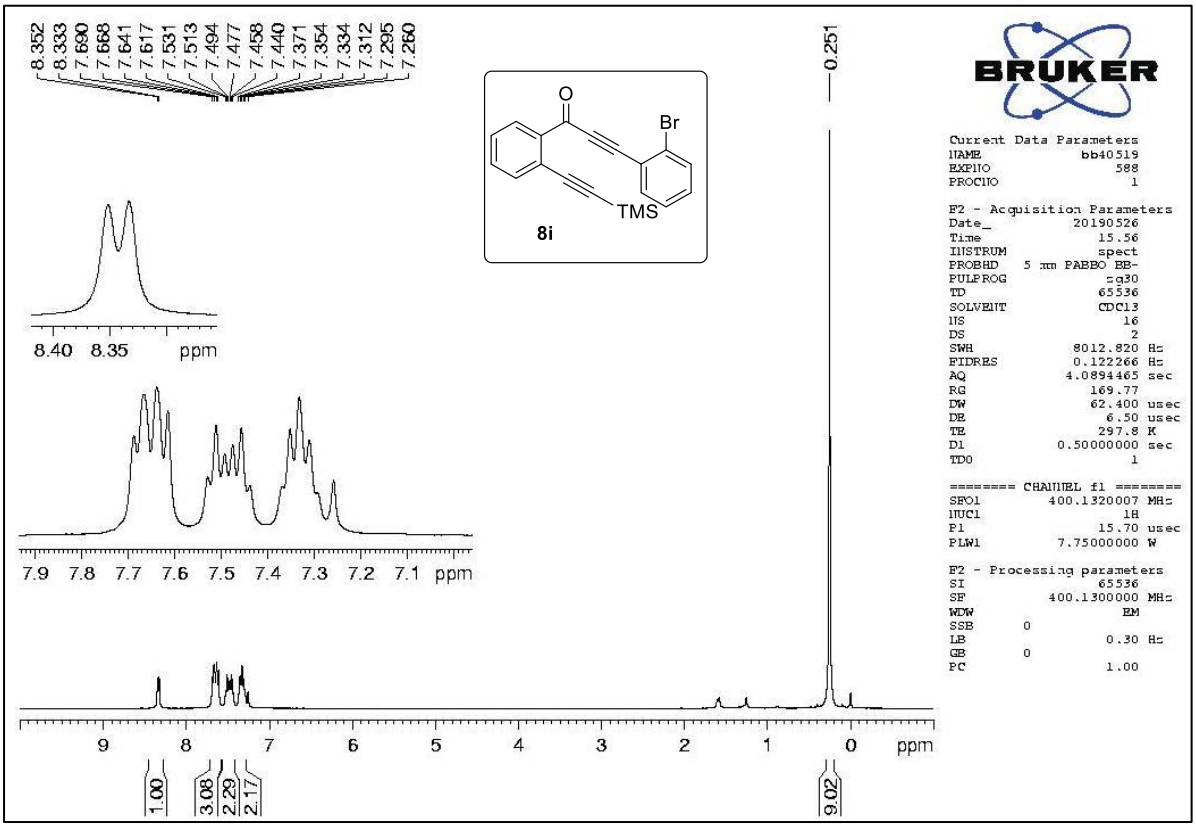

8.082
8.062
7.630
7.619
7.543
7.523
7.519
7.516
7.496
7.469
7.451
7.434
7.364
7.344
7.324
7.260
0.218
O
Cl
TMS
8g
8.2 8.1 8.0 7.9 7.8 7.7 7.6 7.5 7.4 7.3 7.2 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.02
2.00
2.17
2.09
1.07
9.18
BRUKER
Current Data Parameters
NAME sa-10-77(m-Cl CO)
EXPNO 479
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 23.55
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

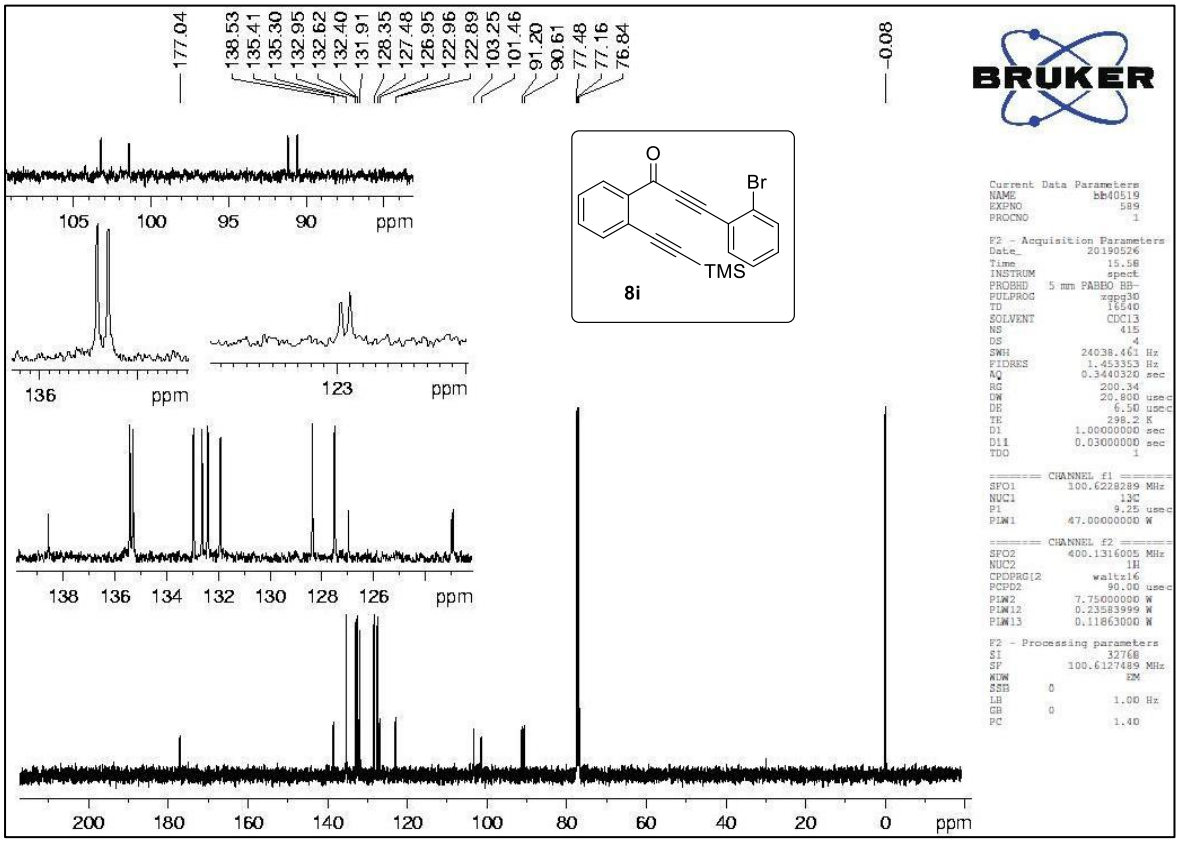

177.39
138.82
135.26
134.71
132.90
132.59
131.36
131.29
131.13
130.06
128.42
122.93
122.18
102.91
101.87
91.28
88.63
77.48
77.16
76.84
0.11
O
Cl
TMS
8g
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 480
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190521
Time 0.01
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127455 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

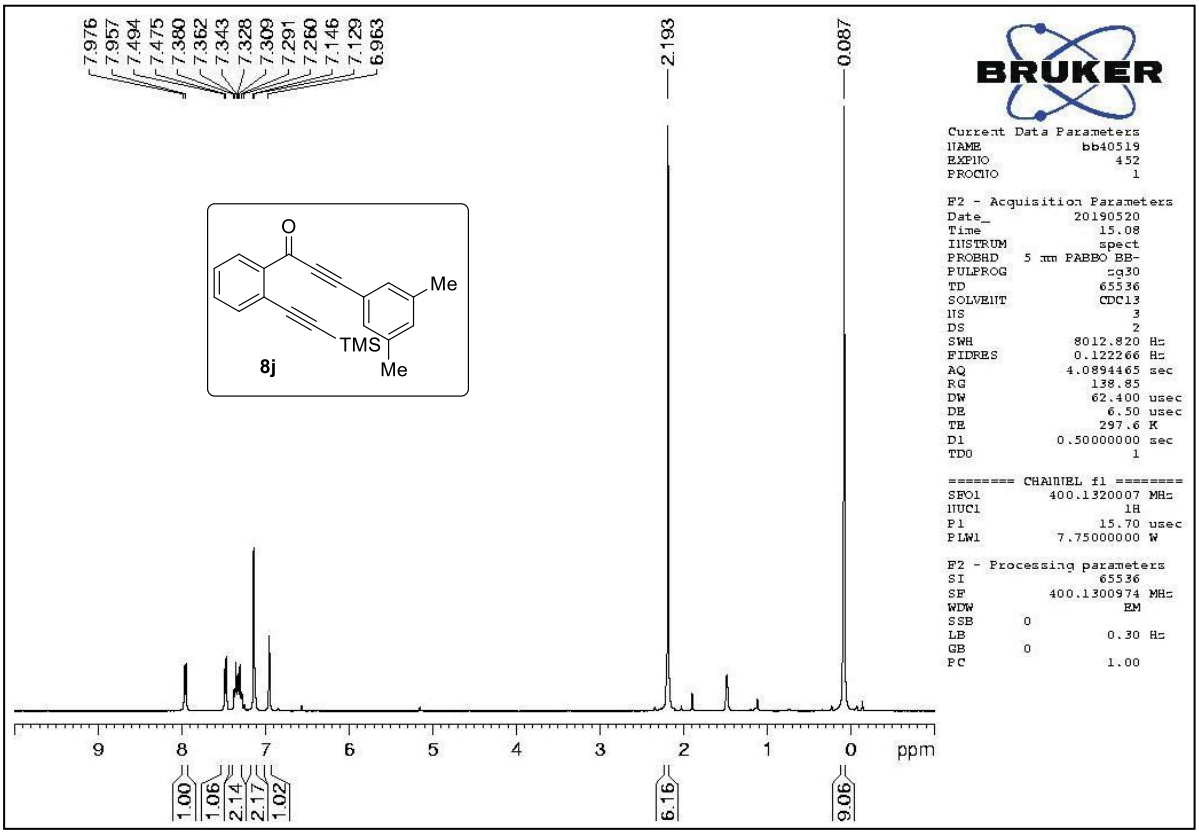

8.075
7.898
7.832
7.813
7.726
7.707
7.643
7.623
7.573
7.554
7.544
7.525
7.506
7.481
7.462
7.444
7.260
0.209
O
CF3
TMS
8h
8.2 8.1 8.0 7.9 7.8 7.7 7.6 7.5 7.4 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.02 1.02 1.01 1.01 2.10 1.05
9.05
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 431
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190518
Time 18.52
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 297.8 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300935 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

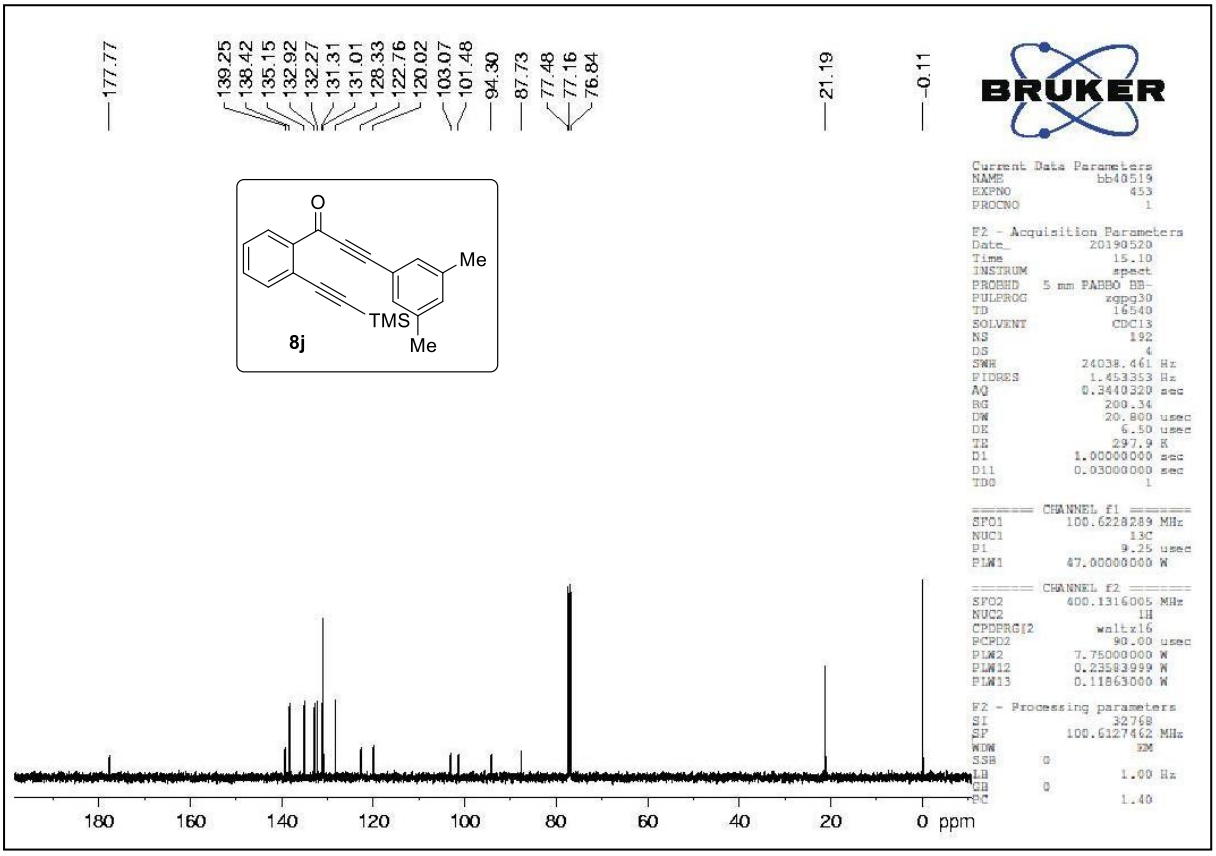

177.33
138.70
136.24
135.28
132.68
131.32
129.92
129.89
129.85
129.82
129.44
128.45
127.38
127.34
127.30
127.27
122.95
121.49
102.86
101.95
90.83
88.78
77.48
77.16
76.84
0.15
O
CF3
TMS
8h
128.0 127.5 127.0 ppm
130.0 ppm
135 130 125 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 432
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190518
Time 18.58
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127411 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

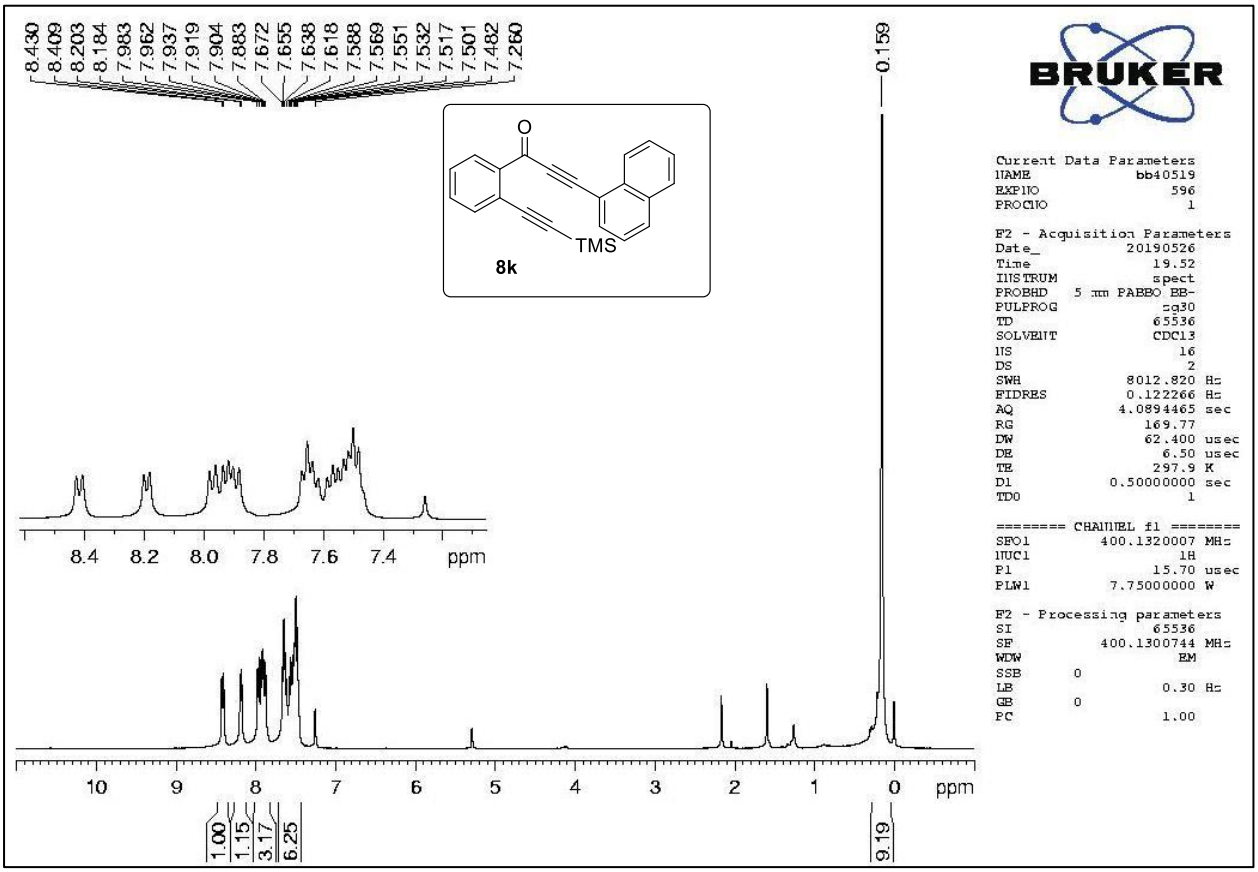

-63.04
O
CF3
TMS
8h
BRUKER
Current Data Parameters
NAME bb50519
EXPNO 48
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 11.56
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG xgfhigqn.2
TD 131072
SOLVENT CDCl3
NS 16
DS 4
SWH 113636.367 Hz
FIDRES 0.866977 Hz
AQ 0.5767168 sec
RG 202.34
DW 4.400 usec
DE 6.50 usec
TE 297.2 K
D1 1.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 470.5441349 MHz
NUC1 19F
P1 13.85 usec
PLW1 46.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
F2 - Processing parameters
SI 65536
SF 470.6111960 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
0 -20 -40 -60 -80 -100 -120 -140 -160 -180 -200 ppm

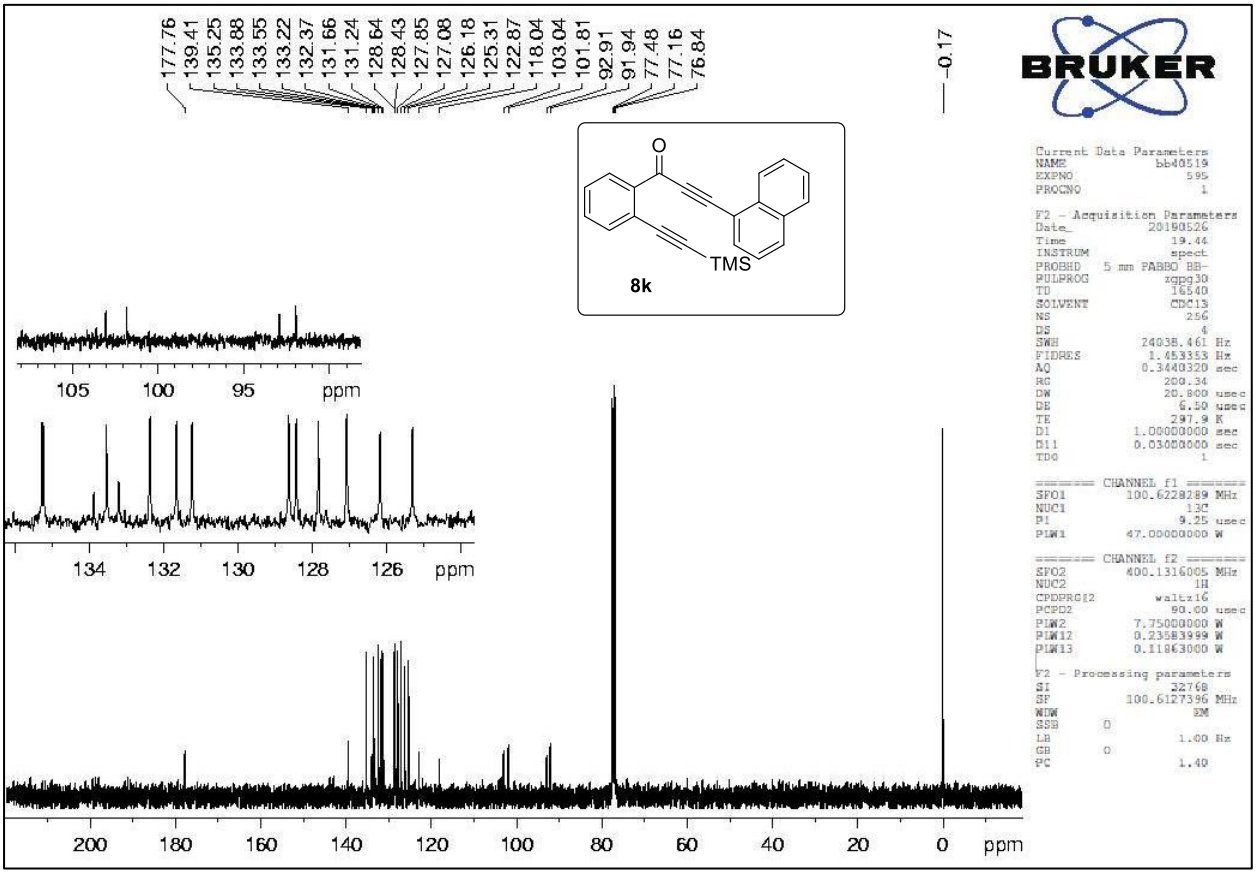

8.352
8.333
7.690
7.668
7.641
7.617
7.531
7.513
7.494
7.477
7.458
7.440
7.371
7.354
7.334
7.312
7.295
7.260
0.251
O
Br
TMS
8i
8.40 8.35 ppm
7.9 7.8 7.7 7.6 7.5 7.4 7.3 7.2 7.1 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.00
3.08
2.29
2.17
9.02
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 588
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 15.56
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 169.77
DW 62.400 usec
DE 6.50 usec
TE 297.8 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

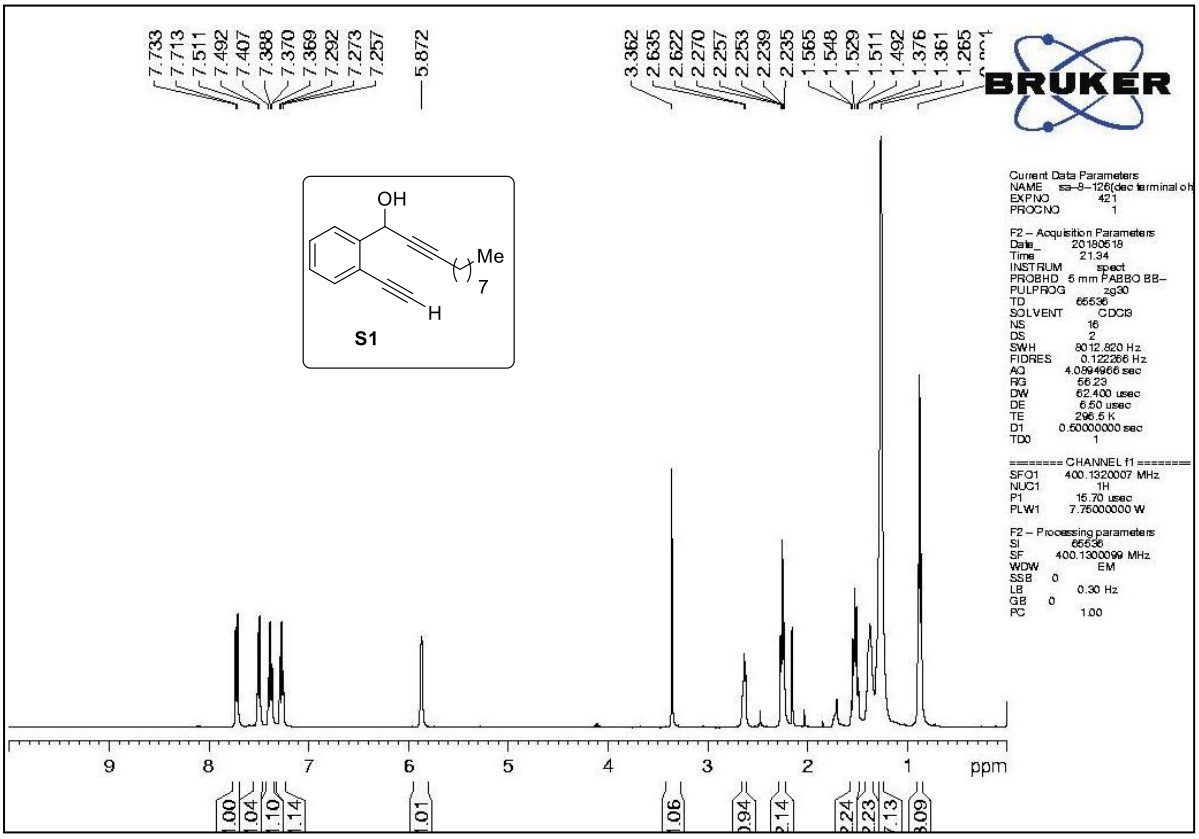

177.04
138.53
135.41
135.30
132.95
132.62
132.40
131.91
128.35
127.48
126.95
122.96
122.89
103.25
101.46
91.20
90.61
77.48
77.16
76.84
0.08
O
Br
TMS
8i
105 100 95 90 ppm
136 ppm
123 ppm
138 136 134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 589
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 15.58
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 415
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.2 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127489 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

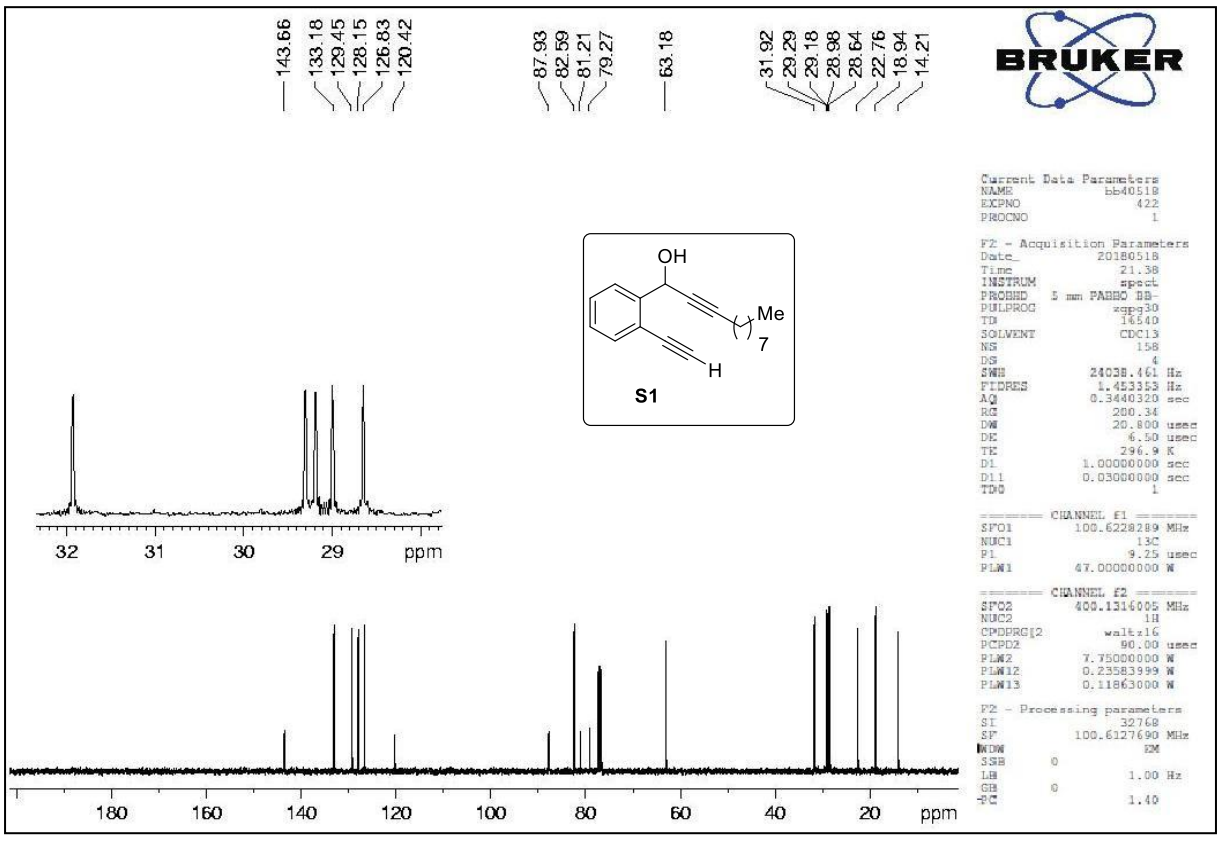

7.976
7.957
7.494
7.475
7.380
7.362
7.343
7.328
7.309
7.291
7.260
7.146
7.129
6.963
2.193
0.087
O
Me
TMS
Me
8j
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 452
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 15.08
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 3
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300974 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.06 2.14 2.17 1.02 6.16 9.06

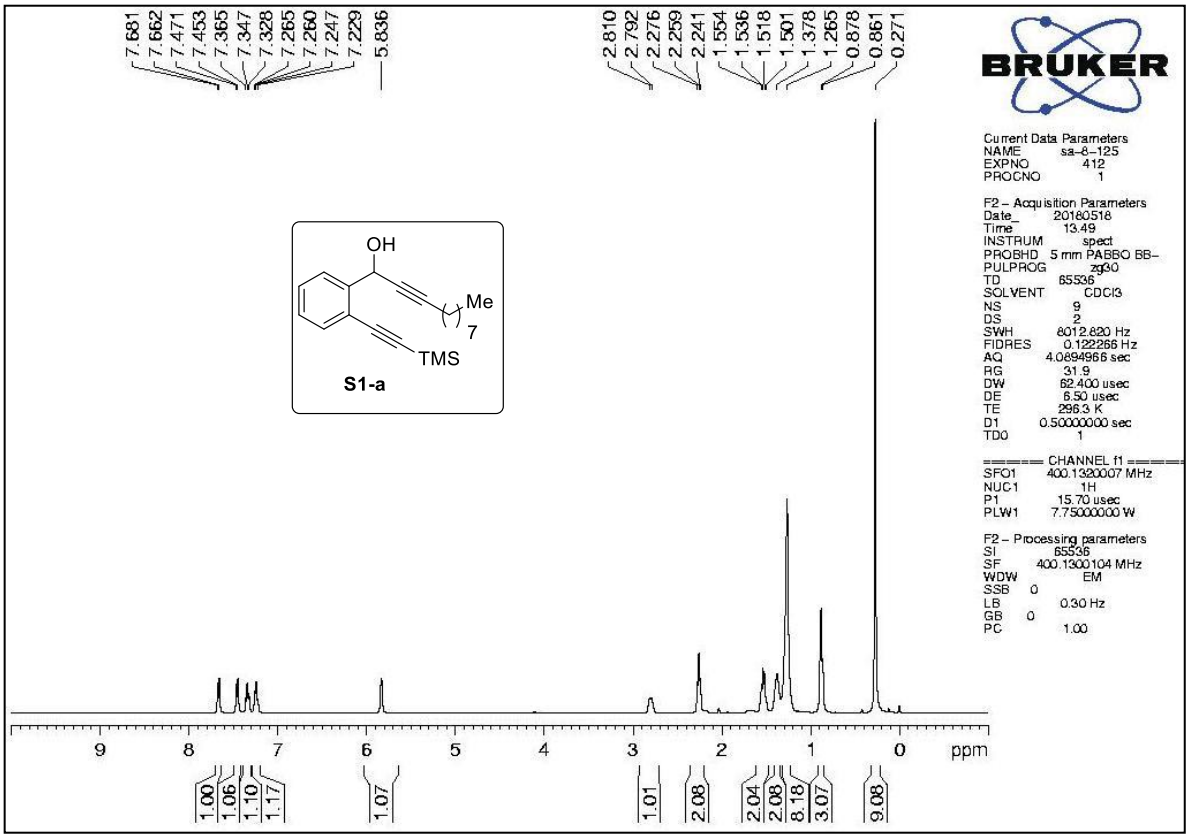

177.77
139.25
138.42
135.15
132.92
132.27
131.31
131.01
128.33
122.76
120.02
103.07
101.48
94.30
87.73
77.48
77.16
76.84
21.19
-0.11
O
Me
TMS
Me
8j
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 453
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 15.10
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 192
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127462 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
180 160 140 120 100 80 60 40 20 0 ppm

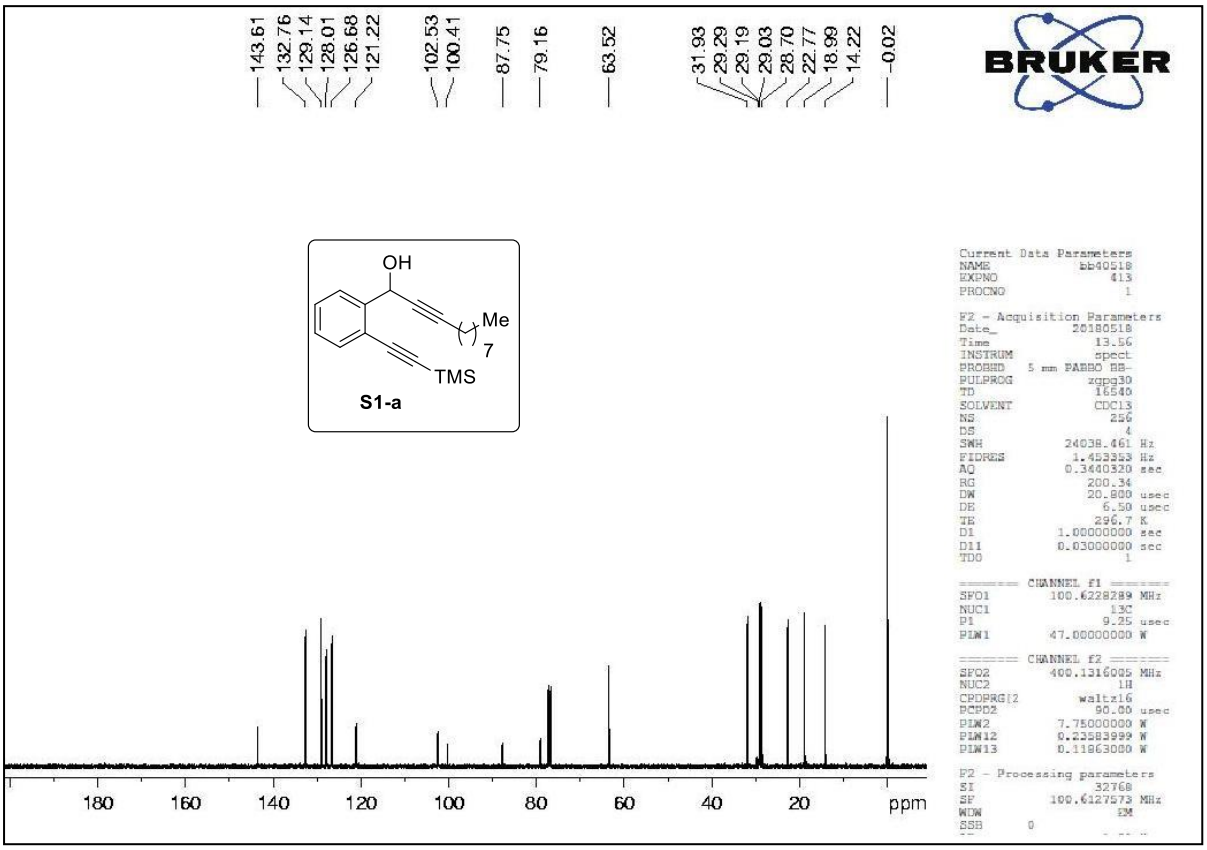

8.430
8.409
8.203
8.184
7.983
7.962
7.937
7.919
7.904
7.883
7.672
7.655
7.638
7.618
7.588
7.569
7.551
7.532
7.517
7.501
7.482
7.260
0.159
O
TMS
8k
8.4 8.2 8.0 7.8 7.6 7.4 ppm
10 9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.15
3.17
6.25
9.19
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 596
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 19.52
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 169.77
DW 62.400 usec
DE 6.50 usec
TE 297.9 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300744 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

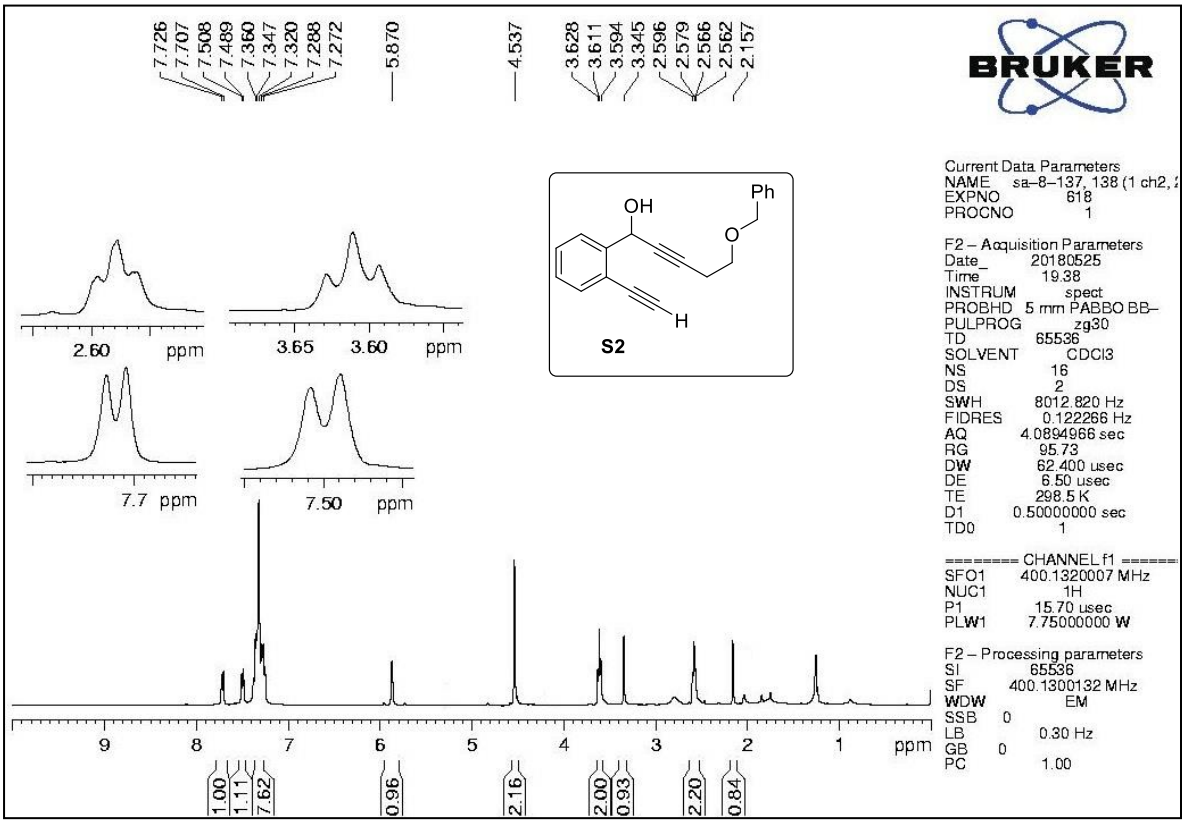

177.76
139.41
135.25
133.88
133.55
133.22
132.37
131.66
131.24
128.64
128.43
127.85
127.08
126.18
125.31
122.87
118.04
103.04
101.81
92.91
91.94
77.48
77.16
76.84
-0.17
O
TMS
8k
105 100 95 ppm
134 132 130 128 126 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 595
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 19.44
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127396 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

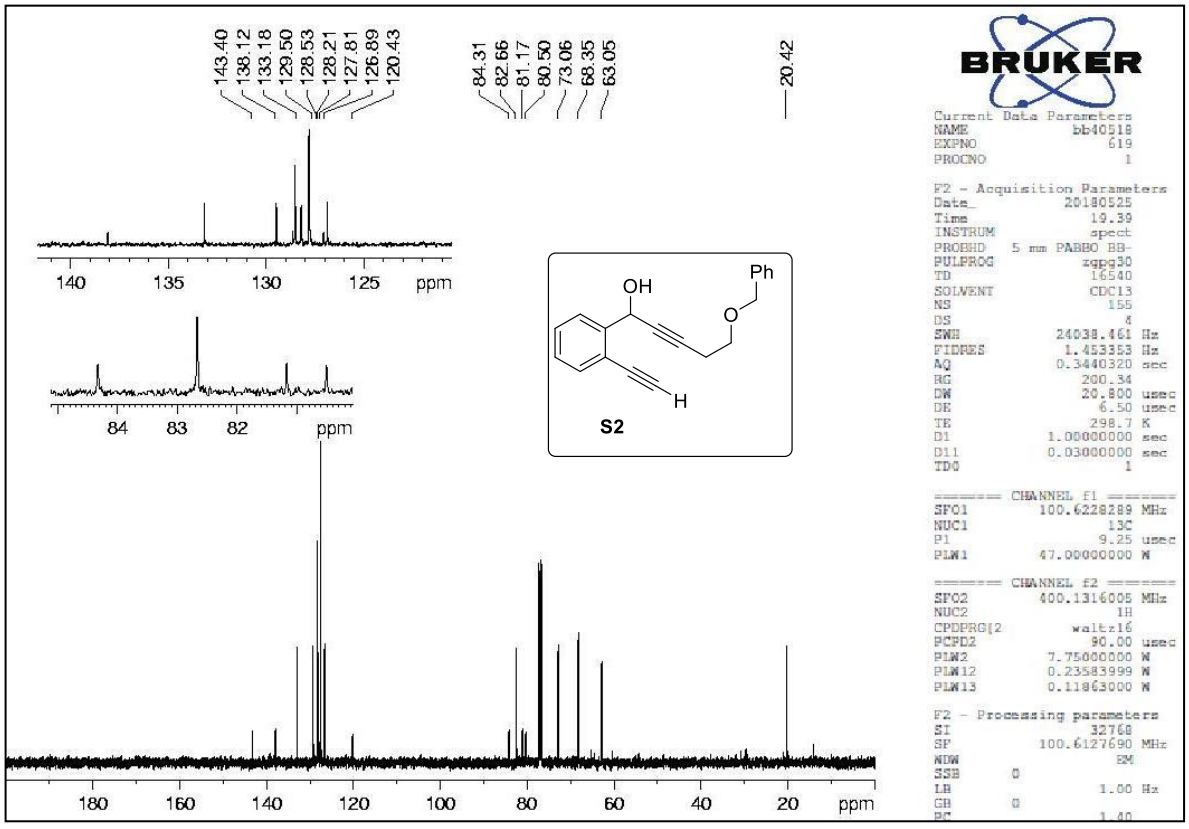

7.733
7.713
7.511
7.492
7.407
7.388
7.370
7.369
7.292
7.273
7.257
5.872
3.362
2.635
2.622
2.270
2.257
2.253
2.239
2.235
1.565
1.548
1.529
1.511
1.492
1.376
1.361
1.265
OH
Me
7
H
S1
BRUKER
Current Data Parameters
NAME sa-8-126(dec terminal oh
EXPNO 421
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 21.34
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 56.23
DW 62.400 usec
DE 6.50 usec
TE 296.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300099 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
ppm
1.00
1.04
1.10
1.14
1.01
1.06
0.94
2.14
2.24
2.23
7.13
3.09

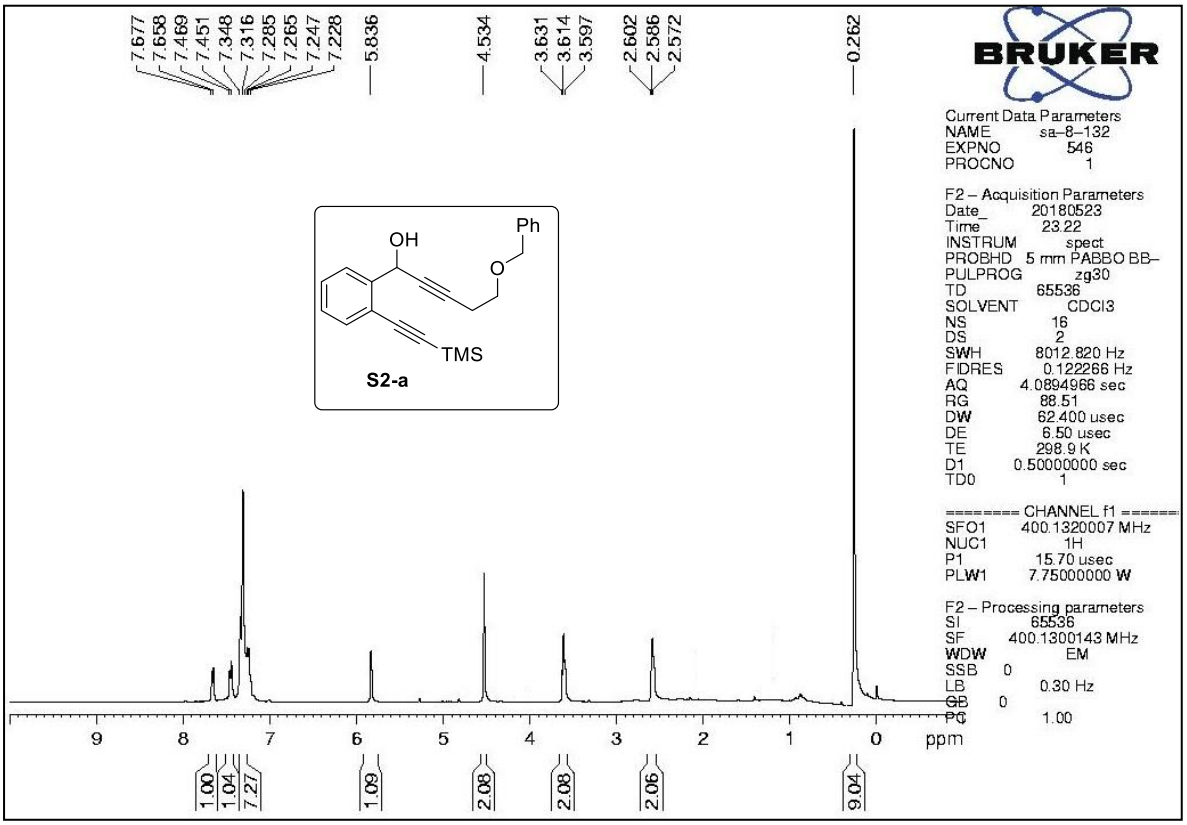

143.66
133.18
129.45
128.15
126.83
120.42
87.93
82.59
81.21
79.27
63.18
31.92
29.29
29.18
28.98
28.64
22.76
18.94
14.21
OH
Me
7
H
S1
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 422
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 21.38
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 147540
SOLVENT CDCl3
NS 158
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40
32
31
30
29
ppm
180
160
140
120
100
80
60
40
20
ppm

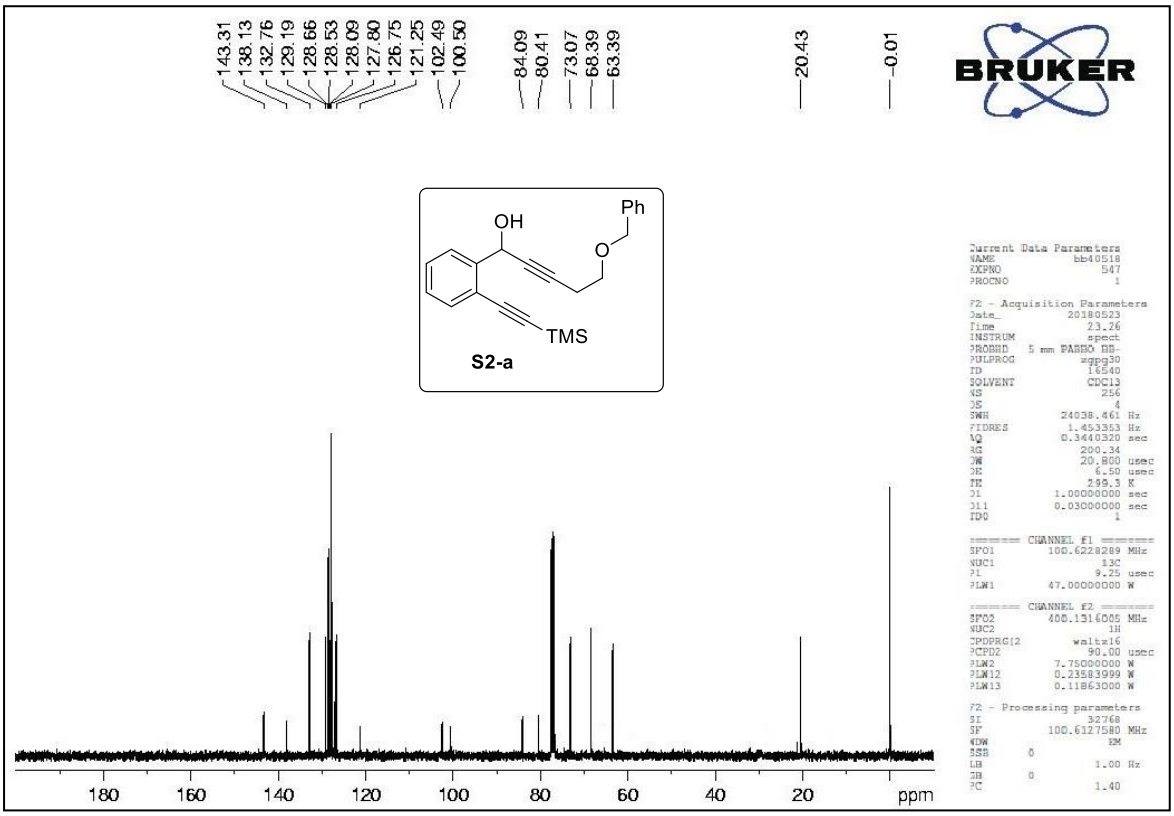

7.681
7.662
7.471
7.453
7.365
7.347
7.328
7.265
7.260
7.247
7.229
5.836
2.810
2.792
2.276
2.259
2.241
1.554
1.536
1.518
1.501
1.378
1.265
0.878
0.861
0.271
OH
Me
7
TMS
S1-a
BRUKER
Current Data Parameters
NAME sa-8-125
EXPNO 412
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 13.49
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 9
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894965 sec
RG 31.9
DW 62.400 usec
DE 6.50 usec
TE 296.3 K
D1 0.50000000 sec
TD0 1
====== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300104 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9
8
7
6
5
4
3
2
1
0
ppm
1.00
1.06
1.10
1.17
1.07
1.01
2.08
2.04
2.08
8.18
3.07
9.08

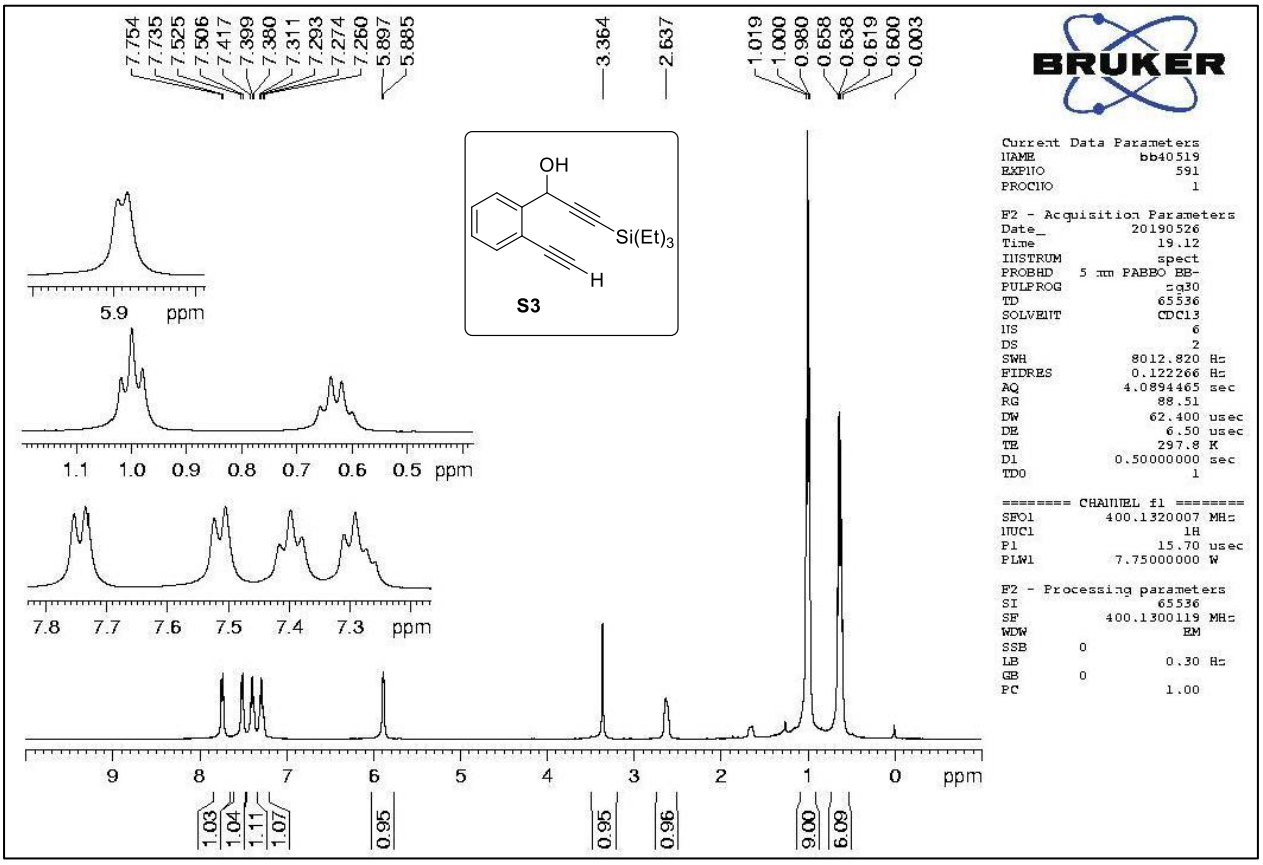

143.61
132.76
129.14
128.01
126.68
121.22
102.53
100.41
87.75
79.16
63.52
31.93
29.29
29.19
29.03
28.70
22.77
18.99
14.22
-0.02
OH
Me
7
TMS
S1-a
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 413
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180518
Time 13.56
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 296.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
====== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
====== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127573 MHz
WDW EM
SSB 0
180
160
140
120
100
80
60
40
20
ppm

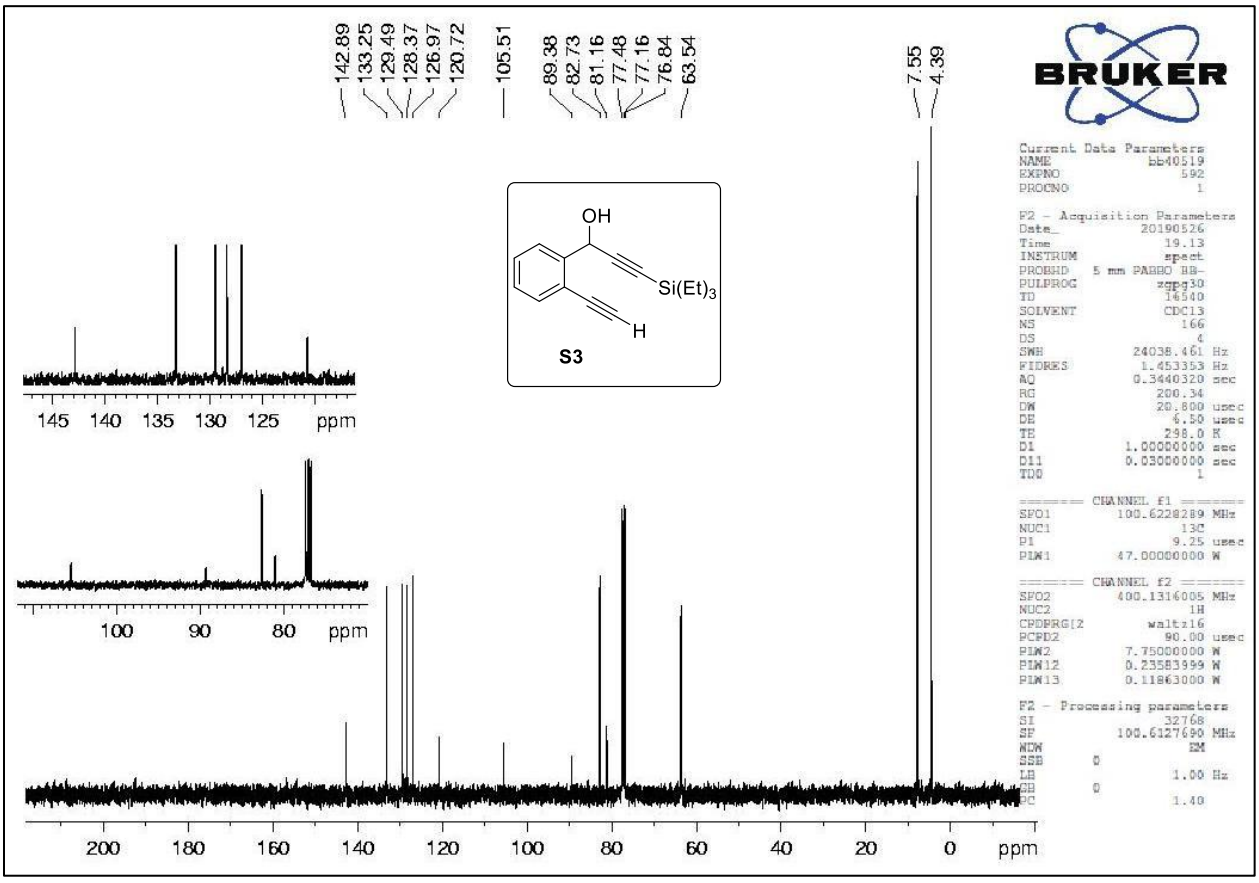

7.726
7.707
7.508
7.489
7.360
7.347
7.320
7.288
7.272
5.870
4.537
3.628
3.611
3.594
3.345
2.596
2.579
2.566
2.562
2.157
OH
Ph
O
H
S2
2.60 ppm
3.65 3.60 ppm
7.7 ppm
7.50 ppm
9 8 7 6 5 4 3 2 1 ppm
1.00 1.11 7.62 0.96 2.16 2.00 0.93 2.20 0.84
BRUKER
Current Data Parameters
NAME sa-8-137, 138 (1 ch2, 2
EXPNO 618
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180525
Time 19.38
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 95.73
DW 62.400 usec
DE 6.50 usec
TE 298.5 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300132 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

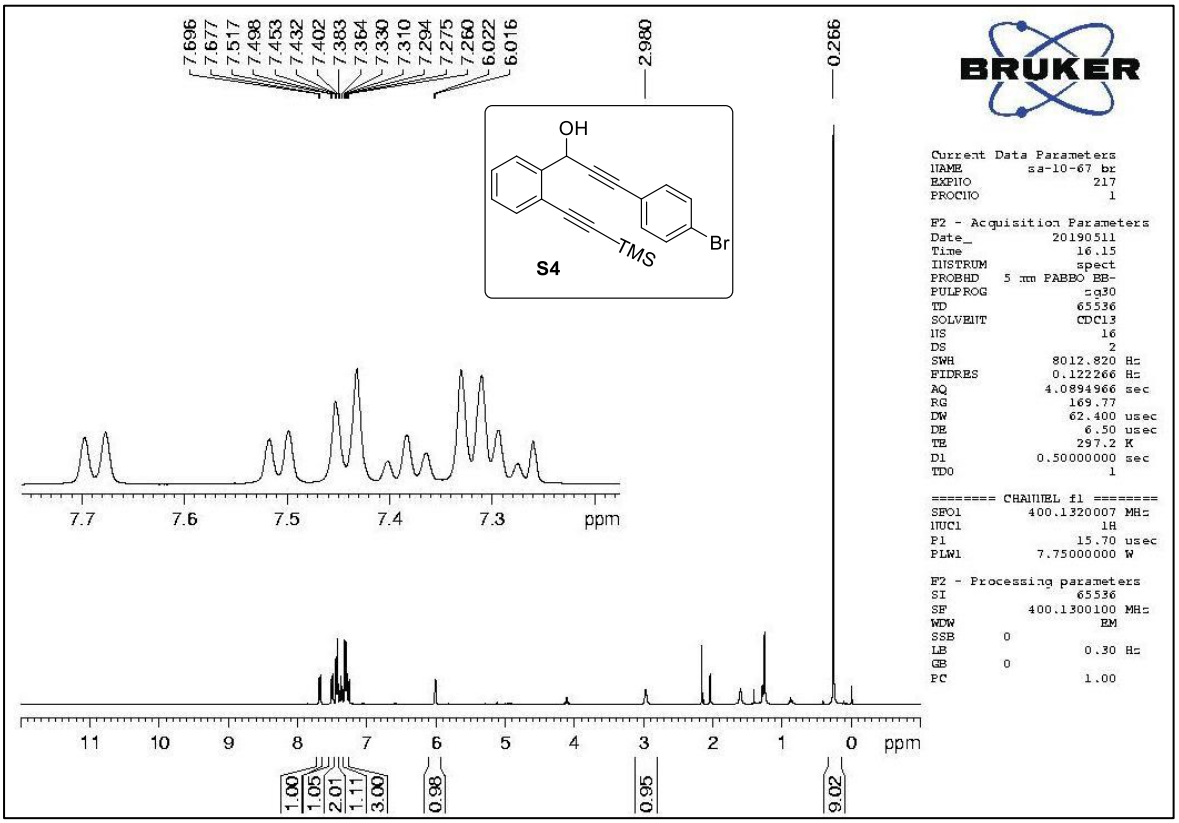

143.40
138.12
133.18
129.50
128.53
128.21
127.81
126.89
120.43
84.31
82.66
81.17
80.50
73.06
68.35
63.05
20.42
OH
Ph
O
H
S2
140 135 130 125 ppm
84 83 82 ppm
180 160 140 120 100 80 60 40 20 ppm
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 619
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180525
Time 19.39
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 155
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.7 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ======
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

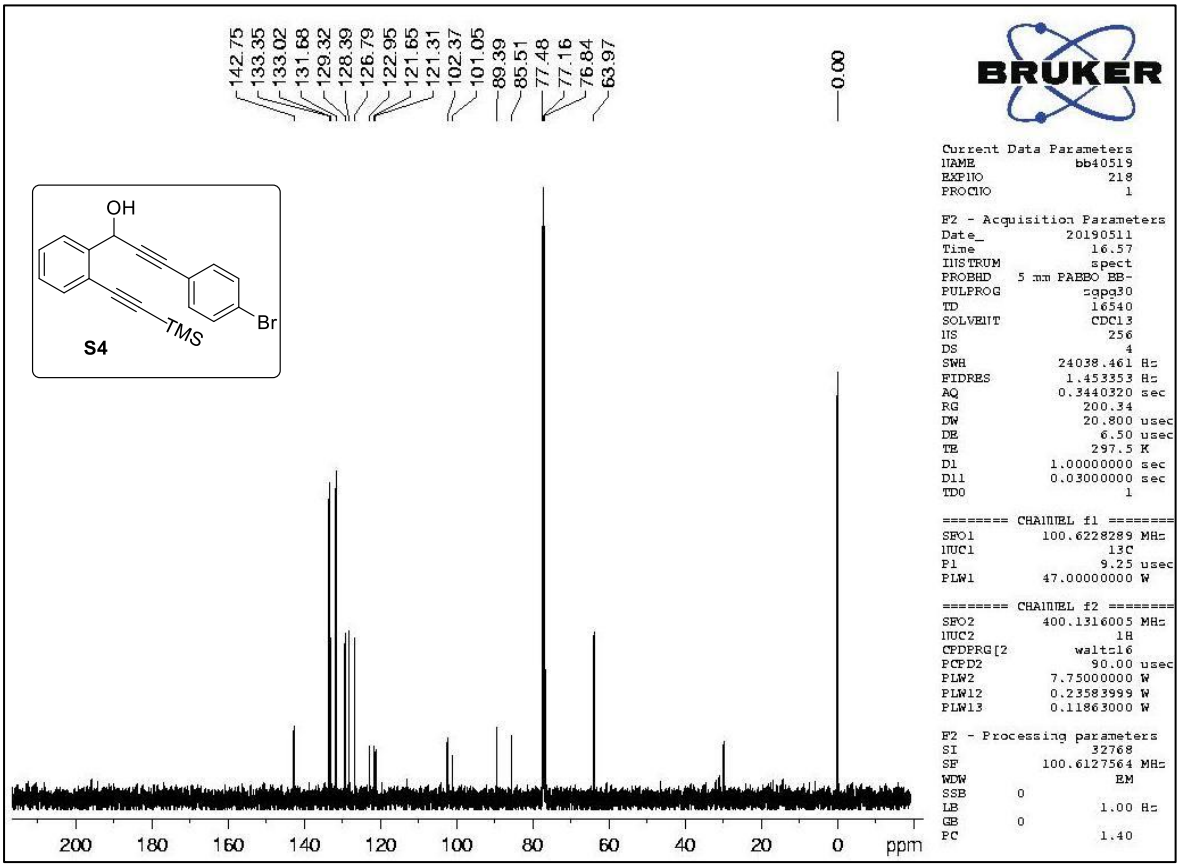

7.677
7.658
7.469
7.451
7.348
7.316
7.285
7.265
7.247
7.228
5.836
4.534
3.631
3.614
3.597
2.602
2.586
2.572
0.262
OH
Ph
O
TMS
S2-a
BRUKER
Current Data Parameters
NAME sa-8-132
EXPNO 546
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180523
Time 23.22
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 88.51
DW 62.400 usec
DE 6.50 usec
TE 298.9 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ======
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300143 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
9 8 7 6 5 4 3 2 1 0 ppm
1.00 1.04 7.27 1.09 2.08 2.08 2.06 9.04

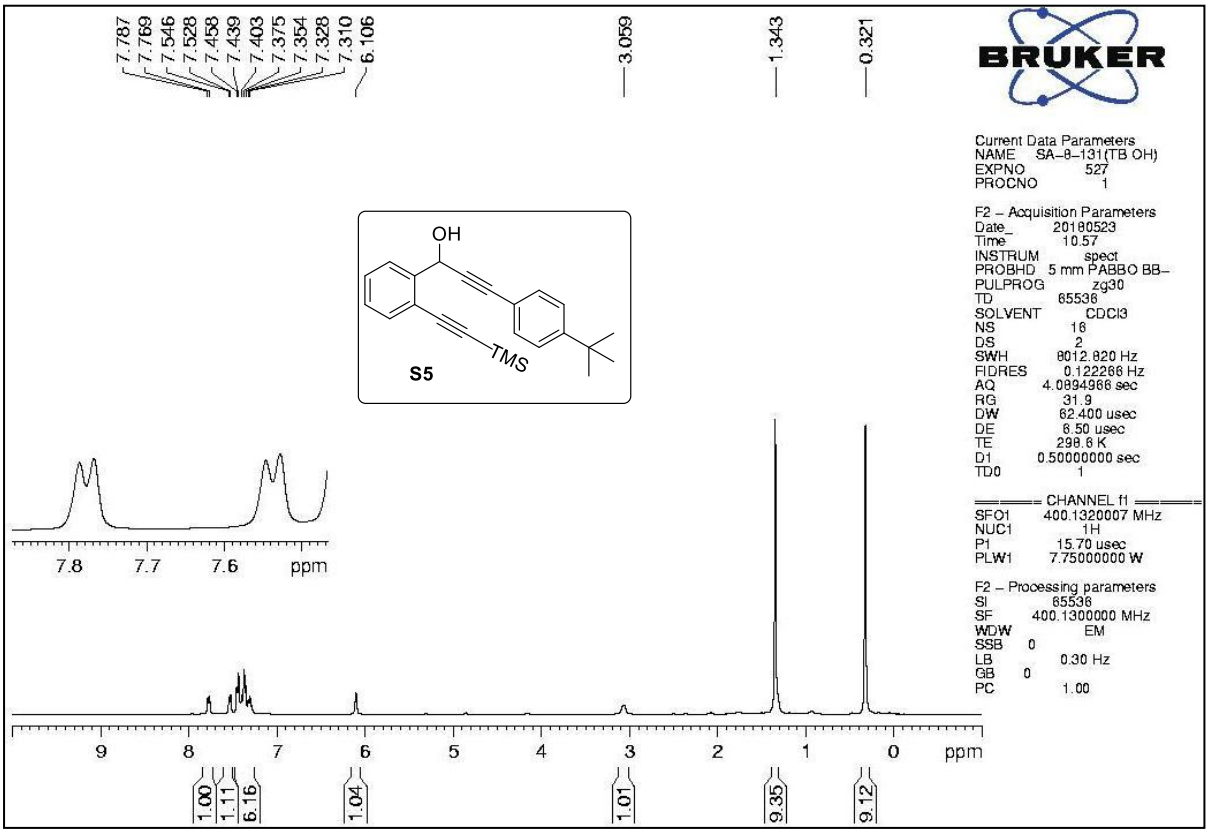

143.31
138.13
132.76
129.19
128.66
128.53
128.09
127.80
126.75
121.25
102.49
100.50
84.09
80.41
73.07
68.39
63.39
20.43
-0.01
OH
Ph
O
TMS
S2-a
BRUKER
180 160 140 120 100 80 60 40 20 ppm

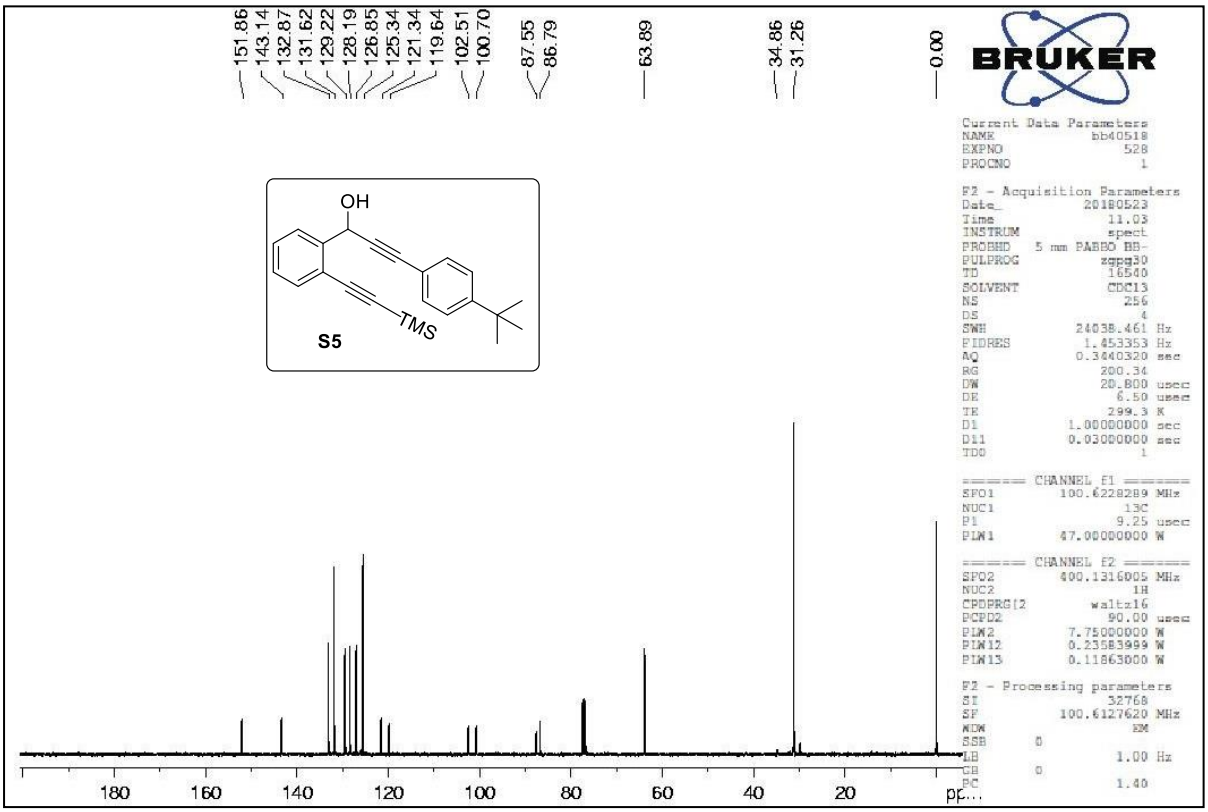

7.754
7.735
7.525
7.506
7.417
7.399
7.380
7.311
7.293
7.274
7.260
5.897
5.885
3.364
2.637
1.019
1.000
0.980
0.658
0.638
0.619
0.600
0.003
OH
Si(Et)3
H
S3
5.9 ppm
1.1 1.0 0.9 0.8 0.7 0.6 0.5 ppm
7.8 7.7 7.6 7.5 7.4 7.3 ppm
9 8 7 6 5 4 3 2 1 0 ppm
1.03
1.04
1.11
1.07
0.95
0.95
0.96
9.00
6.09
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 591
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 19.12
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 6
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 88.51
DW 62.400 usec
DE 6.50 usec
TE 297.8 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300119 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

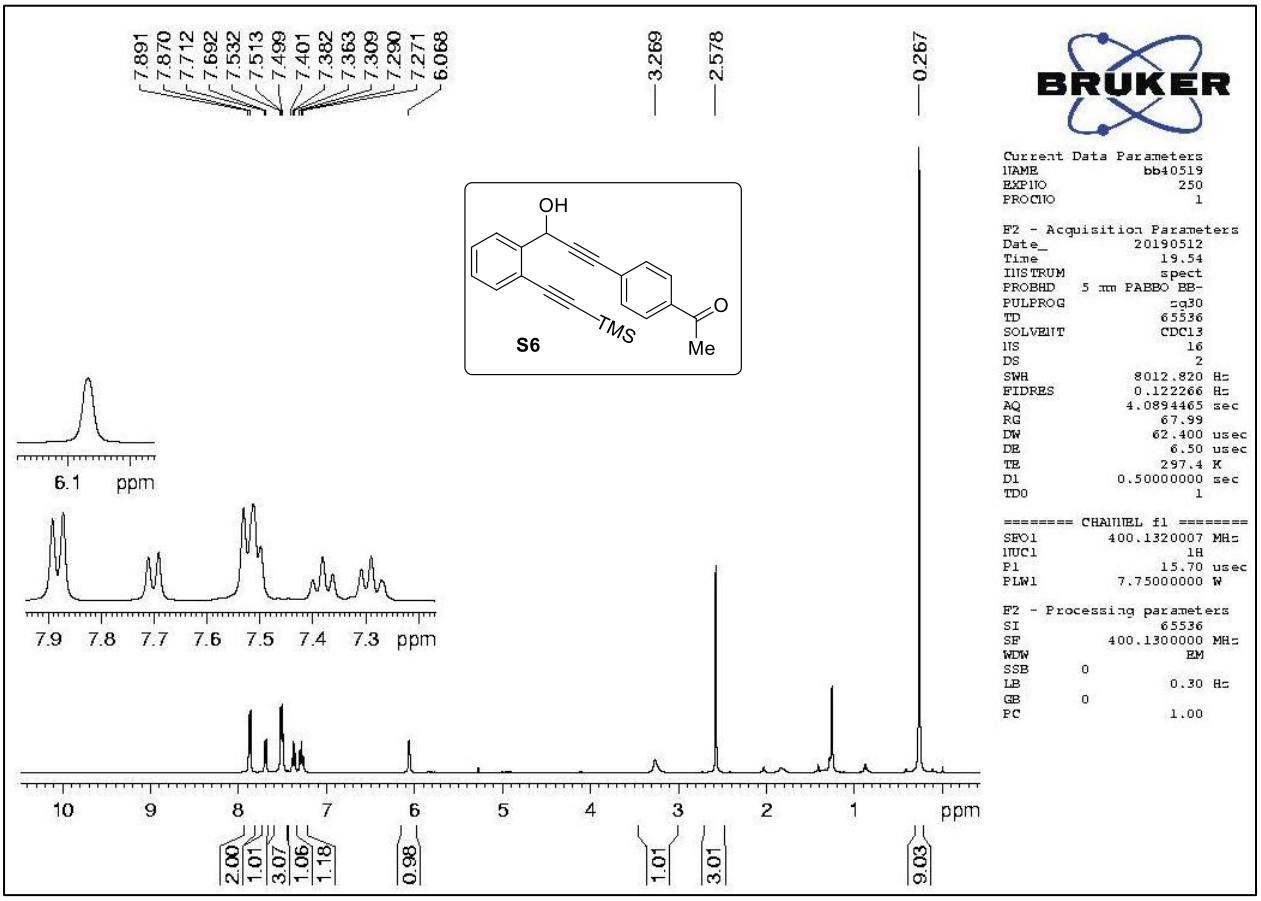

142.89
133.25
129.49
128.37
126.97
120.72
105.51
89.38
82.73
81.16
77.48
77.16
76.84
63.54
7.55
4.39
OH
Si(Et)3
H
S3
145 140 135 130 125 ppm
100 90 80 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 592
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190526
Time 19.13
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 166
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127690 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

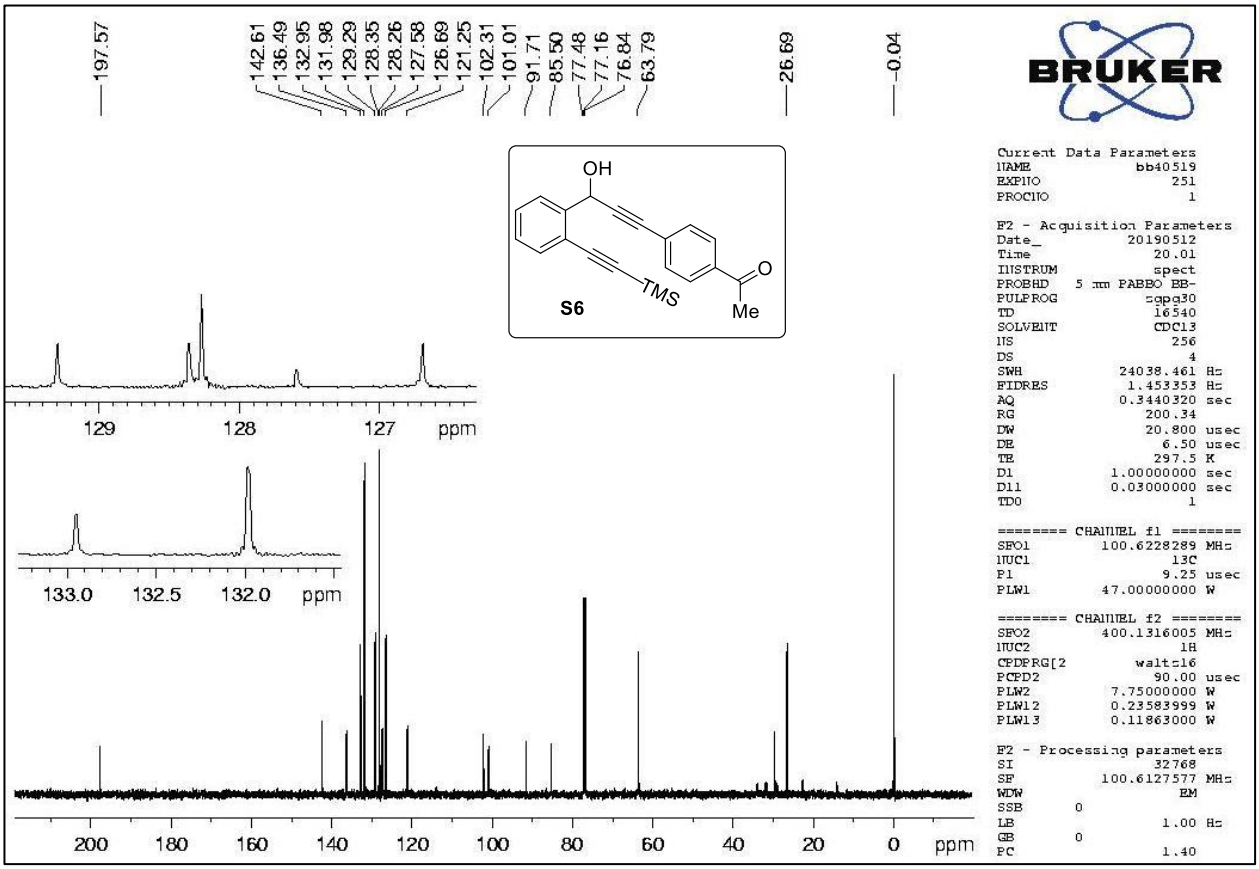

7.696
7.677
7.517
7.498
7.453
7.432
7.402
7.383
7.364
7.330
7.310
7.294
7.275
7.260
6.022
6.016
2.980
0.266
OH
TMS
Br
S4
7.7
7.6
7.5
7.4
7.3
ppm
11
10
9
8
7
6
5
4
3
2
1
0
ppm
1.00
1.05
2.01
1.11
3.00
0.98
0.95
9.02
BRUKER
Current Data Parameters
NAME sa-10-67 br
EXPNO 217
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190511
Time 16.15
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 169.77
DW 62.400 usec
DE 6.50 usec
TE 297.2 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300100 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

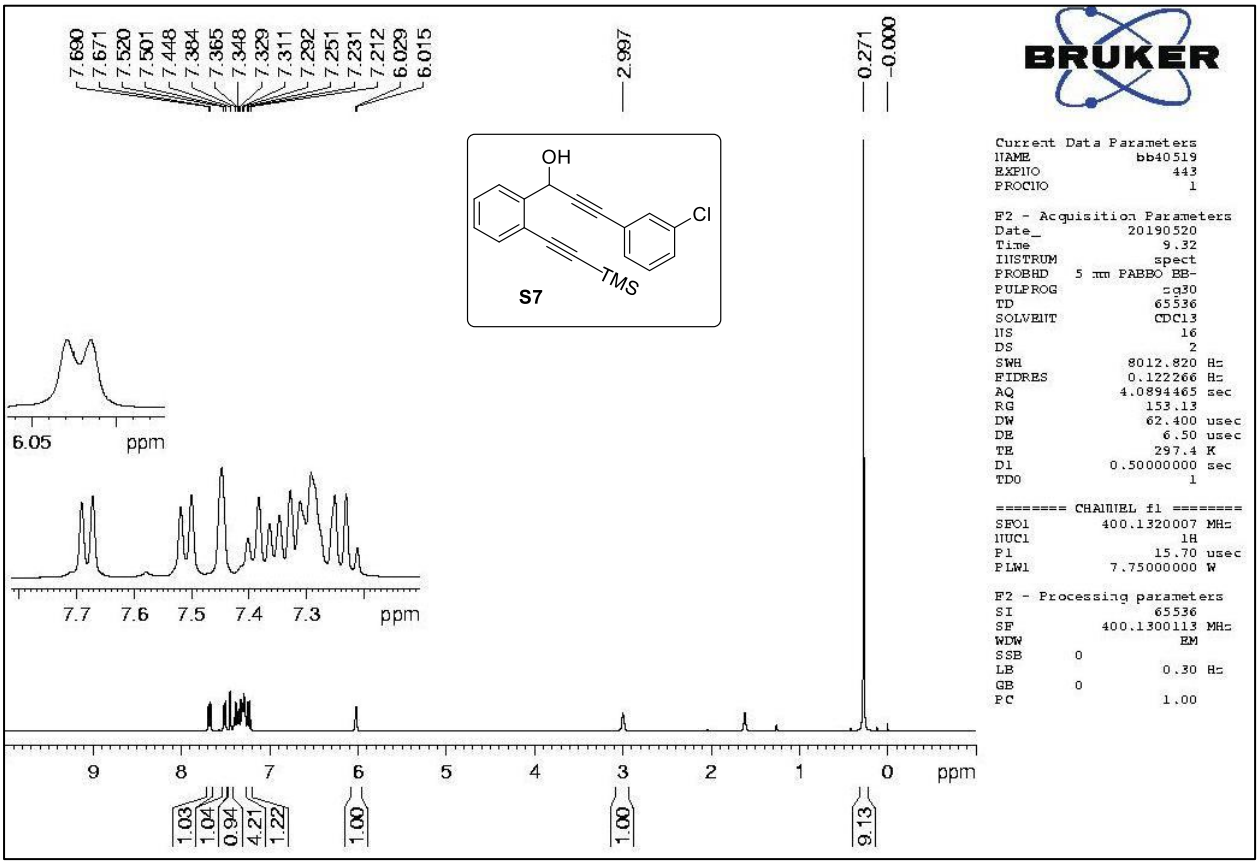

142.75
133.35
133.02
131.68
129.32
128.39
126.79
122.95
121.65
121.31
102.37
101.05
89.39
85.51
77.48
77.16
76.84
63.97
0.00
OH
TMS
Br
S4
200
180
160
140
120
100
80
60
40
20
0
ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 218
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190511
Time 16.57
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127564 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

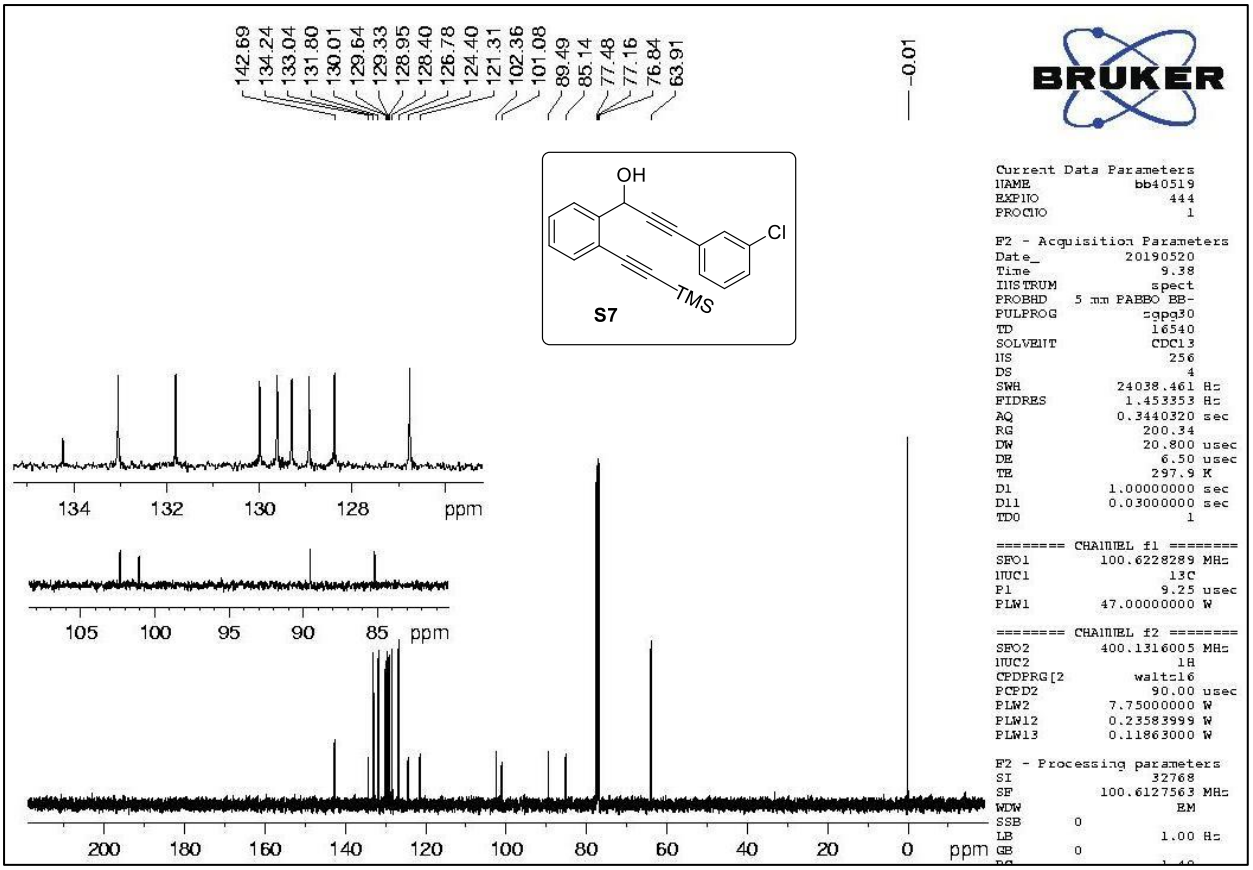

7.787
7.769
7.546
7.528
7.458
7.439
7.403
7.375
7.354
7.328
7.310
6.106
3.059
1.343
0.321
OH
TMS
S5
7.8
7.7
7.6
ppm
9
8
7
6
5
4
3
2
1
0
ppm
1.00
1.11
6.16
1.04
1.01
9.35
9.12
BRUKER
Current Data Parameters
NAME SA-8-131(TB OH)
EXPNO 527
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180523
Time 10.57
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 31.9
DW 62.400 usec
DE 6.50 usec
TE 298.6 K
D1 0.50000000 sec
TD0 1
CHANNEL f1
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

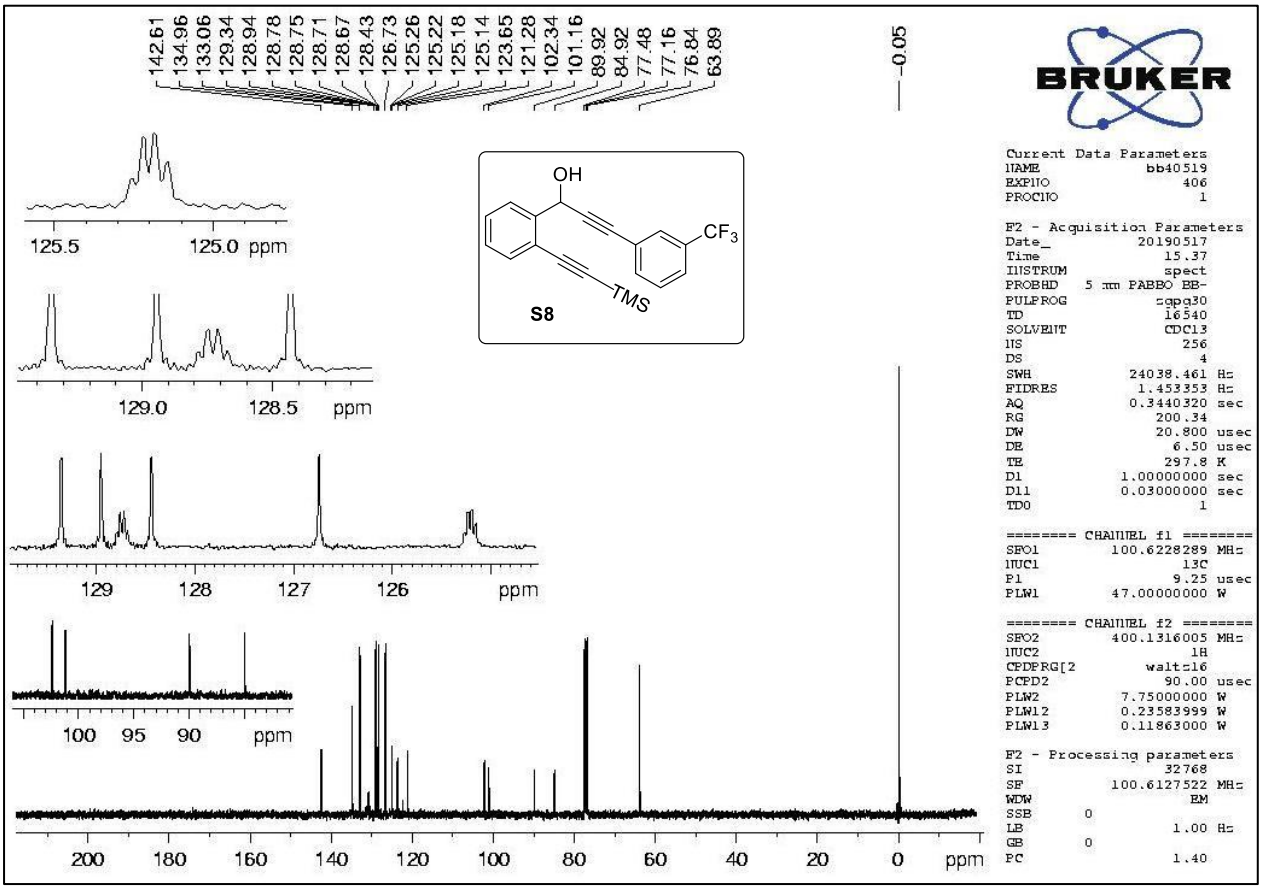

151.86
143.14
132.87
131.62
129.22
128.19
126.85
125.34
121.34
119.64
102.51
100.70
87.55
86.79
63.89
34.86
31.26
0.00
OH
TMS
S5
180
160
140
120
100
80
60
40
20
BRUKER
Current Data Parameters
NAME bb40518
EXPNO 528
PROCNO 1
F2 - Acquisition Parameters
Date_ 20180523
Time 11.03
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 299.3 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
CHANNEL f1
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
CHANNEL f2
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127620 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

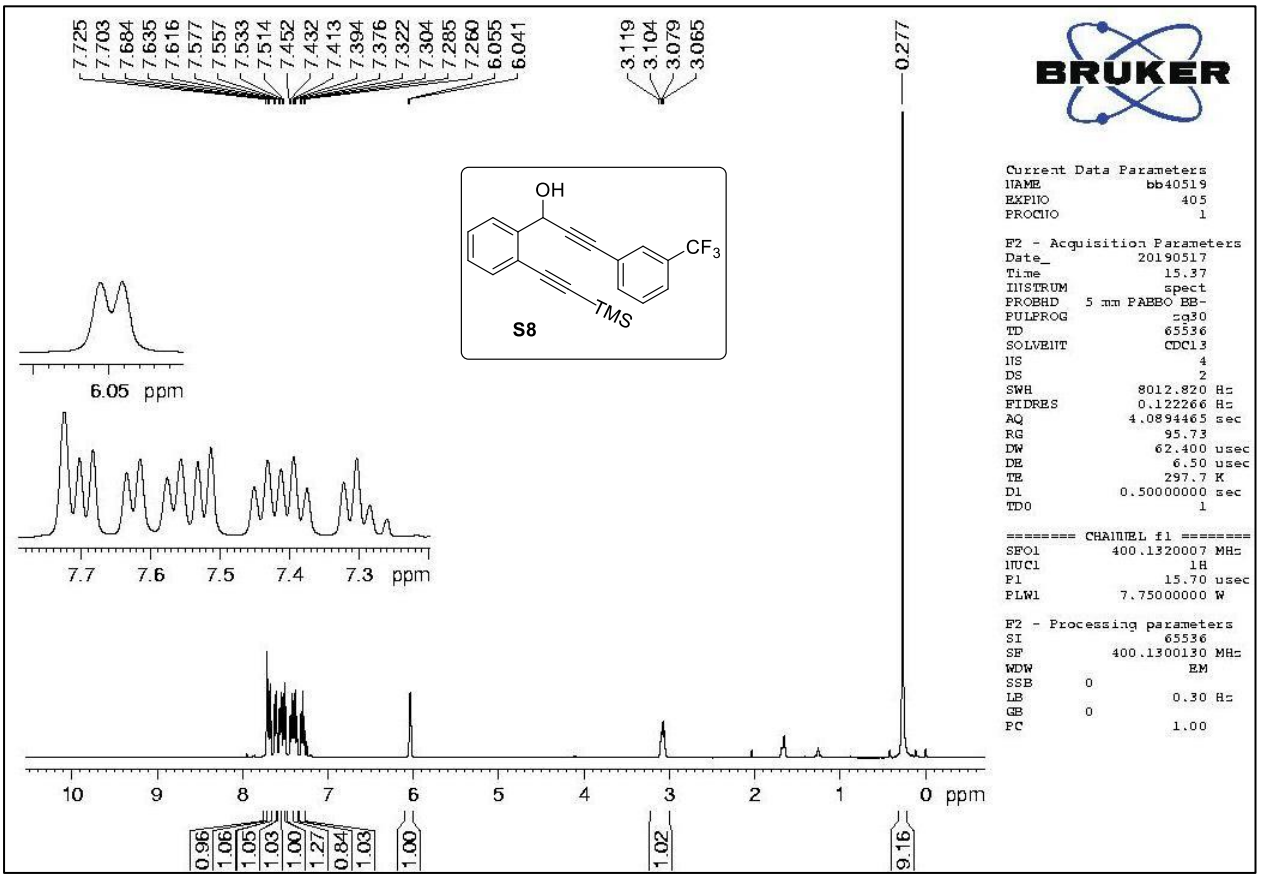

7.891
7.870
7.712
7.692
7.532
7.513
7.499
7.401
7.382
7.363
7.309
7.290
7.271
6.068
3.269
2.578
0.267
OH
TMS
O
Me
S6
6.1 ppm
7.9 7.8 7.7 7.6 7.5 7.4 7.3 ppm
10 9 8 7 6 5 4 3 2 1 ppm
2.00
1.01
3.07
1.06
1.18
0.98
1.01
3.01
9.03
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 250
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190512
Time 19.54
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 67.99
DW 62.400 usec
DE 6.50 usec
TE 297.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

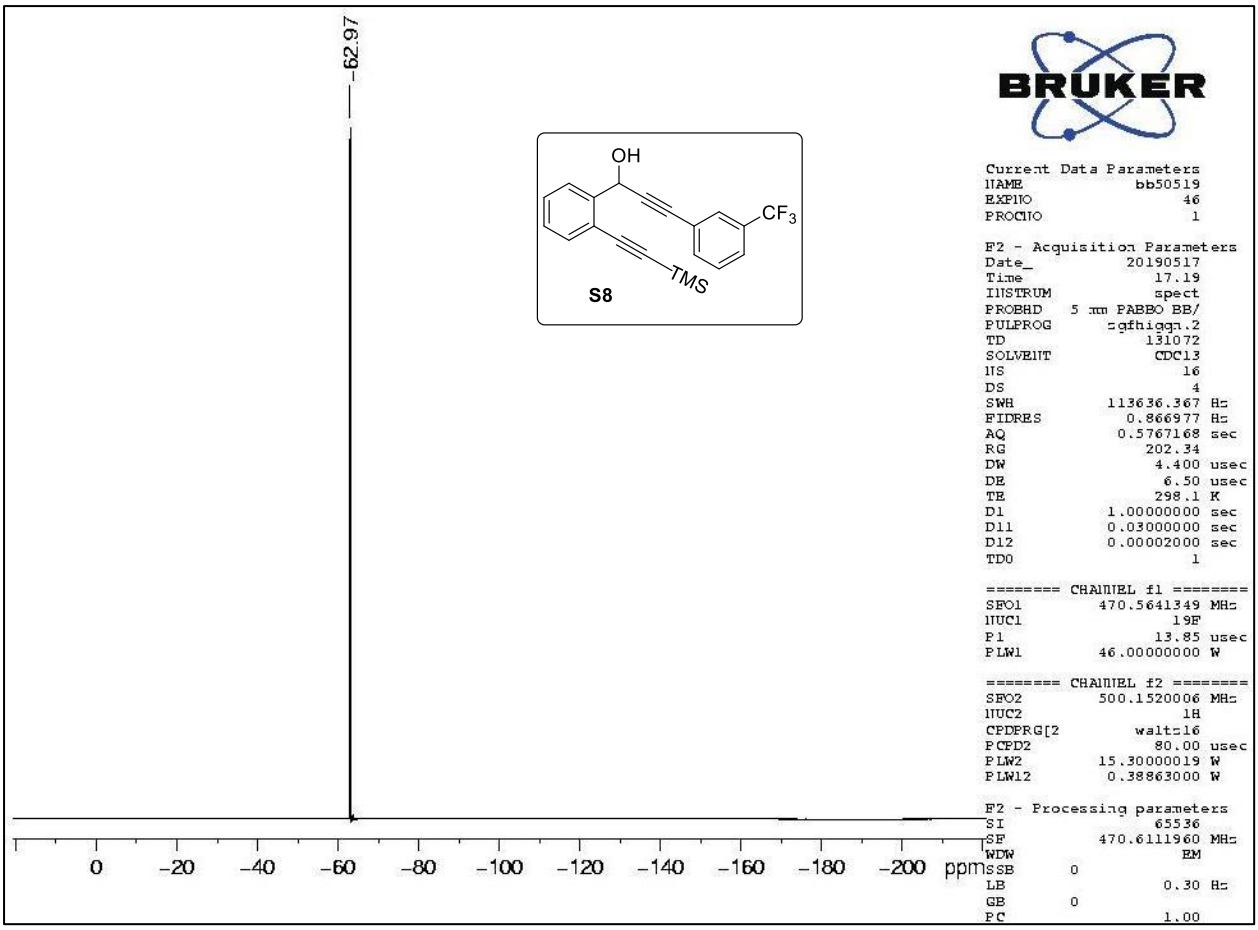

197.57
142.61
136.49
132.95
131.98
129.29
128.35
128.26
127.58
126.69
121.25
102.31
101.01
91.71
85.50
77.48
77.16
76.84
63.79
26.69
-0.04
OH
TMS
O
Me
S6
129 128 127 ppm
133.0 132.5 132.0 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 251
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190512
Time 20.01
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127577 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

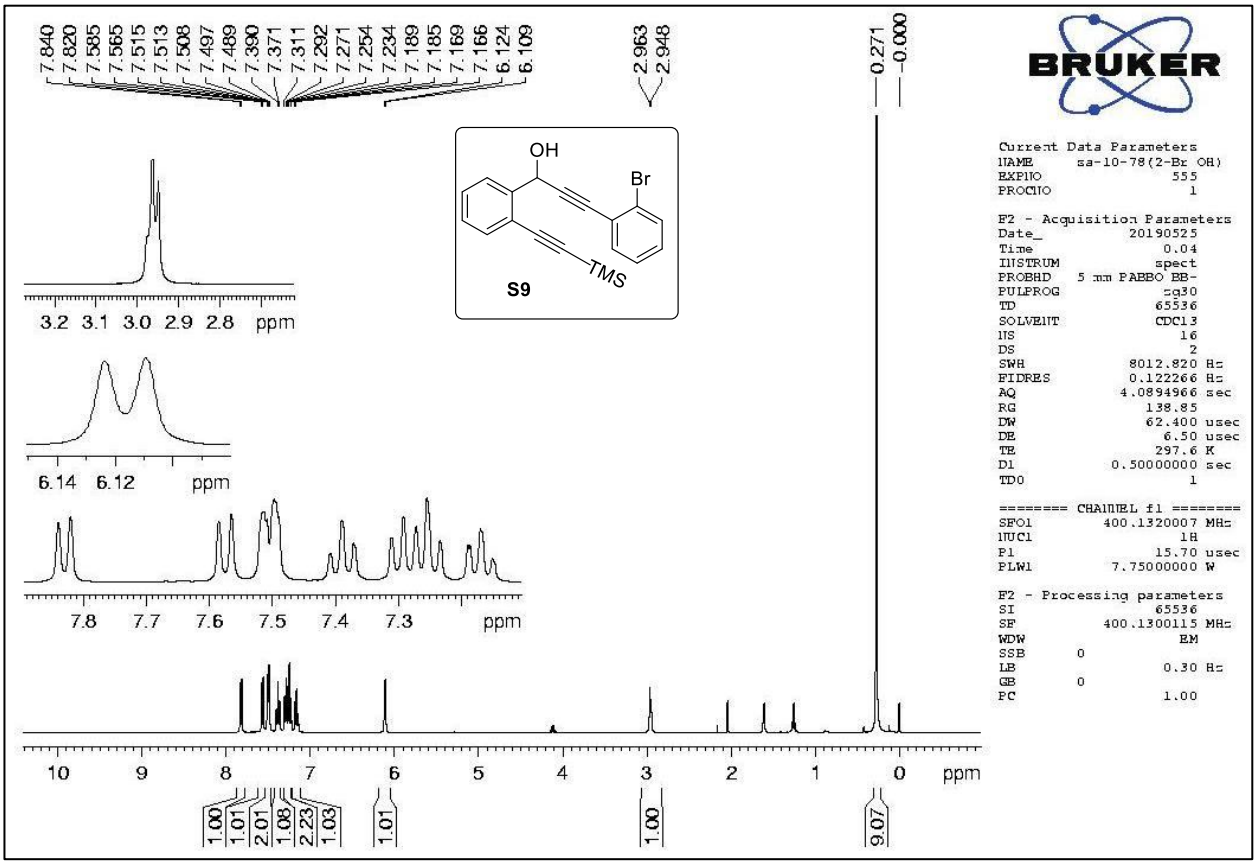

7.690
7.671
7.520
7.501
7.448
7.384
7.365
7.348
7.329
7.311
7.292
7.251
7.231
7.212
6.029
6.015
2.997
0.271
0.000
OH
Cl
TMS
S7
6.05
ppm
7.7
7.6
7.5
7.4
7.3
ppm
9
8
7
6
5
4
3
2
1
0
ppm
1.03
1.04
0.94
4.21
1.22
1.00
1.00
9.13
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 443
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 9.32
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.4 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300113 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

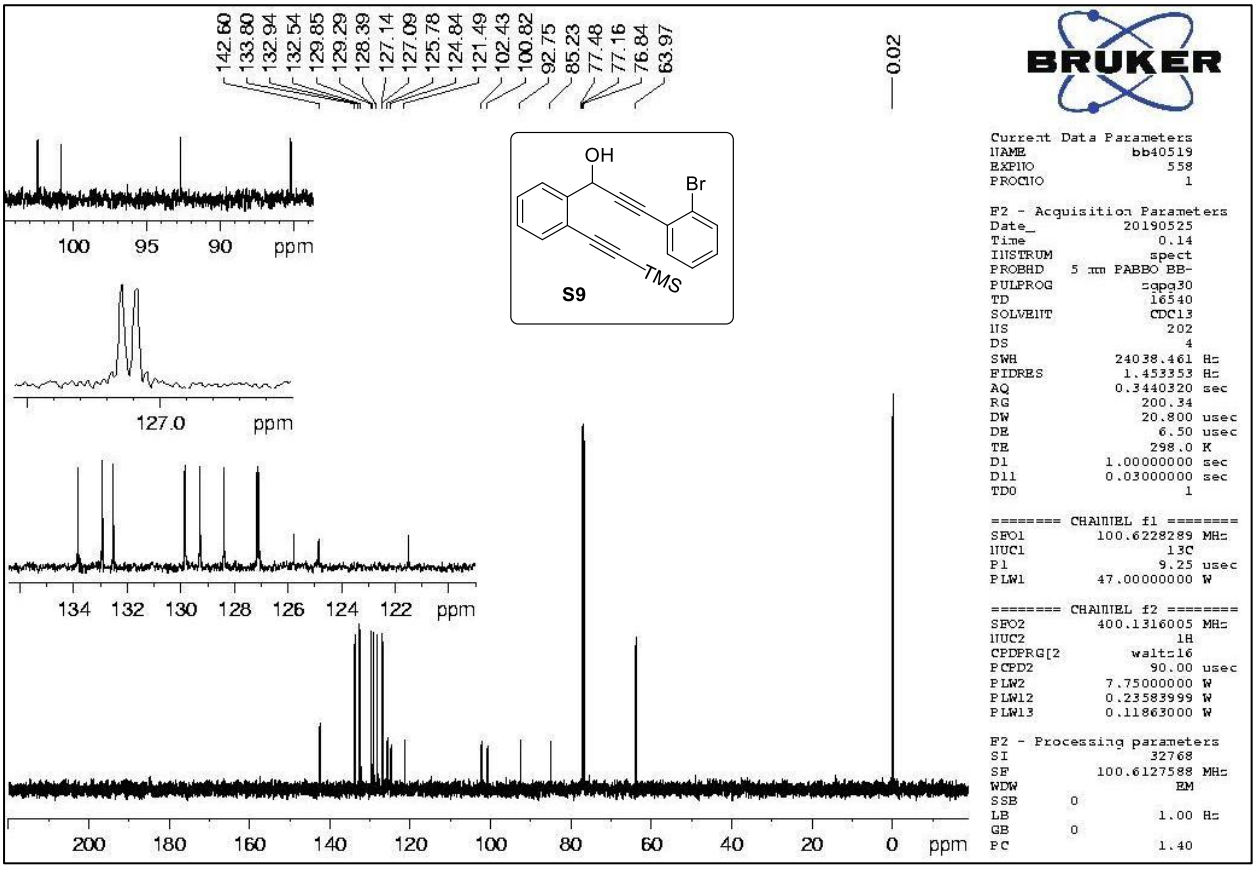

142.69
134.24
133.04
131.80
130.01
129.64
129.33
128.95
128.40
126.78
124.40
121.31
102.36
101.08
89.49
85.14
77.48
77.16
76.84
63.91
0.01
OH
Cl
TMS
S7
134
132
130
128
ppm
105
100
95
90
85
ppm
200
180
160
140
120
100
80
60
40
20
0
ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 444
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190520
Time 9.38
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.9 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127563 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0

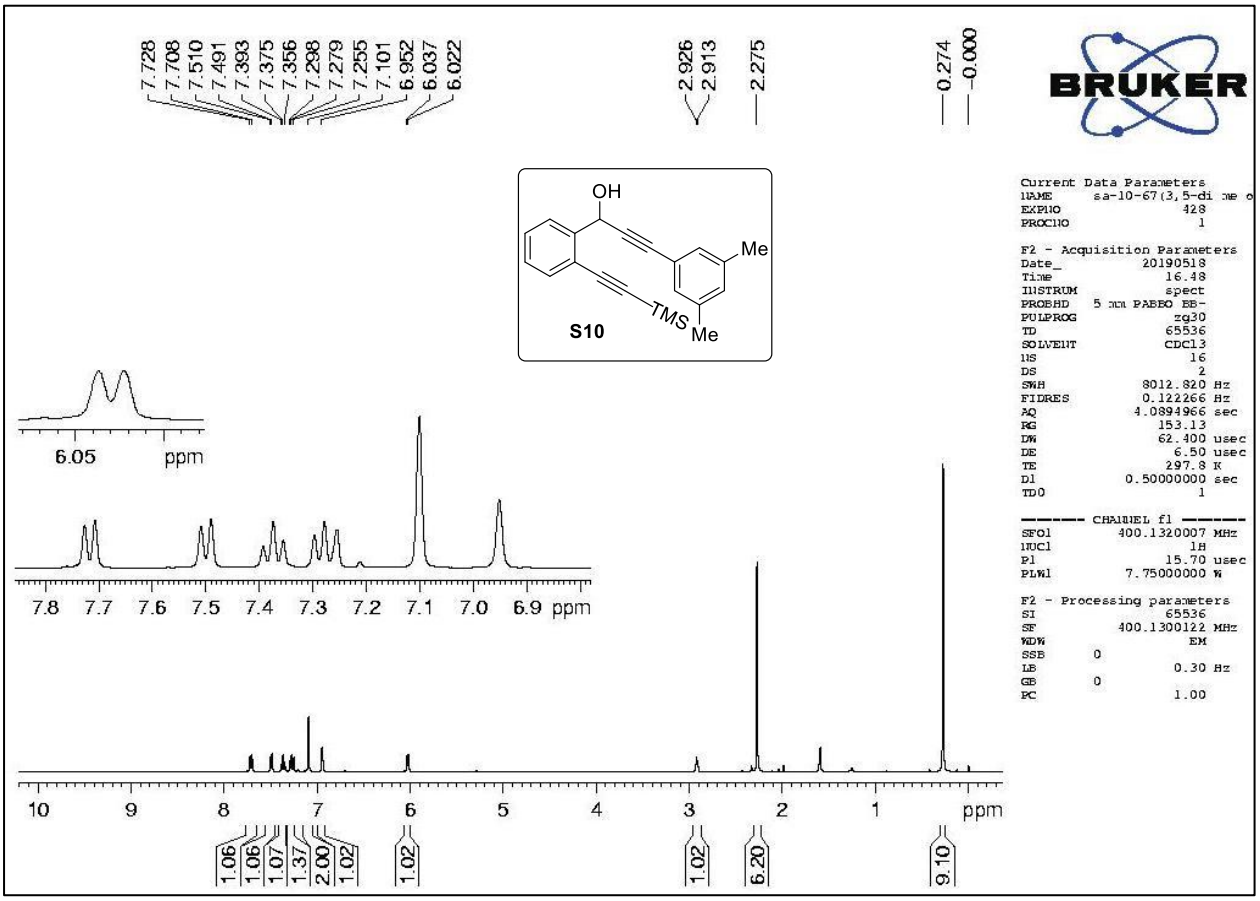

142.61
134.96
133.06
129.34
128.94
128.78
128.75
128.71
128.67
128.43
126.73
125.26
125.22
125.18
125.14
123.65
121.28
102.34
101.16
89.92
84.92
77.48
77.16
76.84
63.89
0.05
OH
CF3
TMS
S8
125.5
125.0 ppm
129.0
128.5 ppm
129
128
127
126 ppm
100
95
90 ppm
200
180
160
140
120
100
80
60
40
20
0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 406
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190517
Time 15.37
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127522 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

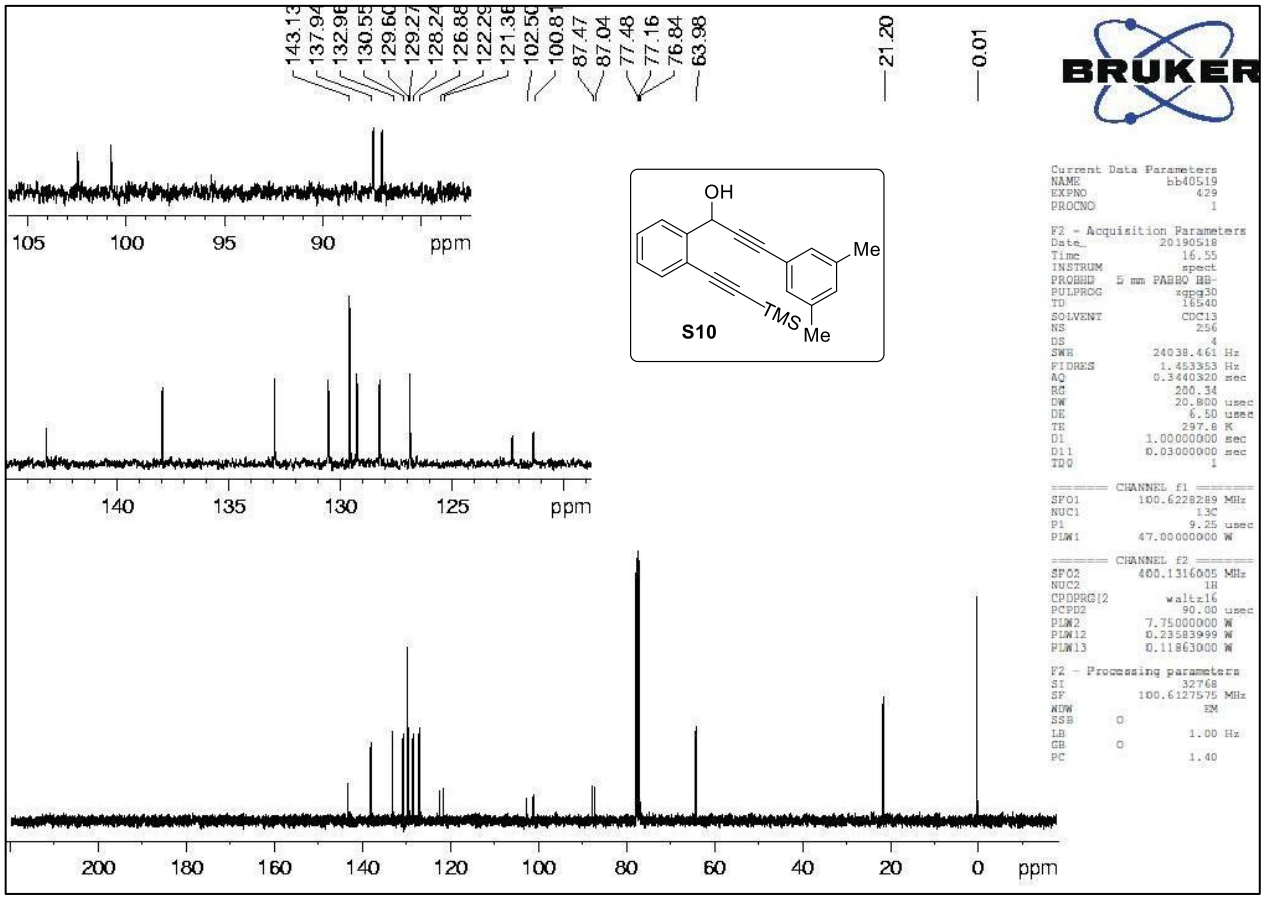

7.725
7.703
7.684
7.635
7.616
7.577
7.557
7.533
7.514
7.452
7.432
7.413
7.394
7.376
7.322
7.304
7.285
7.260
6.055
6.041
3.119
3.104
3.079
3.065
0.277
OH
CF3
TMS
S8
6.05 ppm
7.7
7.6
7.5
7.4
7.3 ppm
10
9
8
7
6
5
4
3
2
1
0 ppm
0.96
1.06
1.05
1.03
1.00
1.27
0.84
1.03
1.00
1.02
9.16
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 405
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190517
Time 15.37
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 4
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894465 sec
RG 95.73
DW 62.400 usec
DE 6.50 usec
TE 297.7 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300130 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

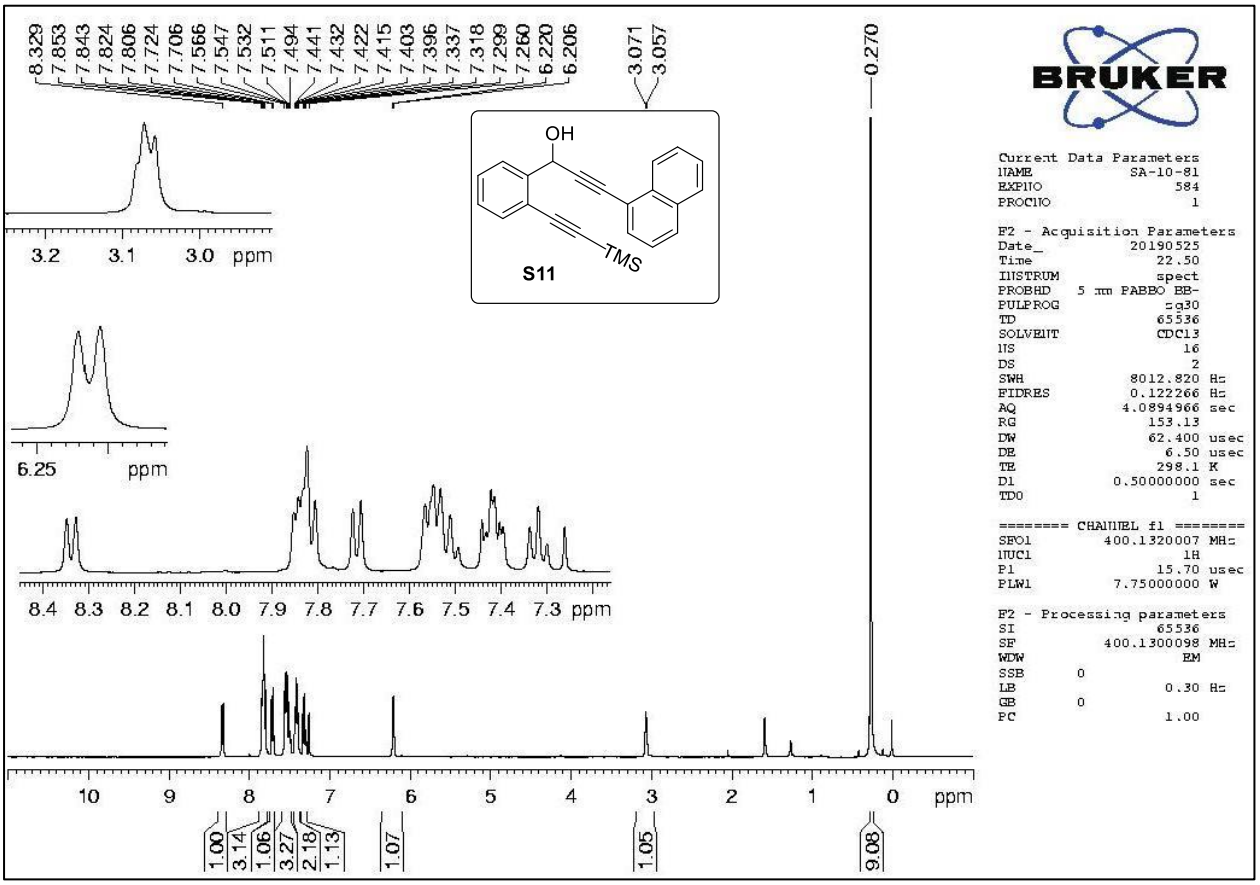

-62.97
OH
CF3
TMS
S8
0
-20
-40
-60
-80
-100
-120
-140
-160
-180
-200
ppm
Current Data Parameters
NAME bb50519
EXPNO 46
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190517
Time 17.19
INSTRUM spect
PROBHD 5 mm PABBO BB/
PULPROG zgfhigqn.2
TD 131072
SOLVENT CDCl3
NS 16
DS 4
SWH 113636.367 Hz
FIDRES 0.866977 Hz
AQ 0.5767168 sec
RG 202.34
DW 4.400 usec
DE 6.50 usec
TE 298.1 K
D1 1.00000000 sec
D11 0.03000000 sec
D12 0.00002000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 470.5641349 MHz
NUC1 19F
P1 13.85 usec
PLW1 46.00000000 W
======== CHANNEL f2 ========
SFO2 500.1520006 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 80.00 usec
PLW2 15.30000019 W
PLW12 0.38863000 W
F2 - Processing parameters
SI 65536
SF 470.6111960 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

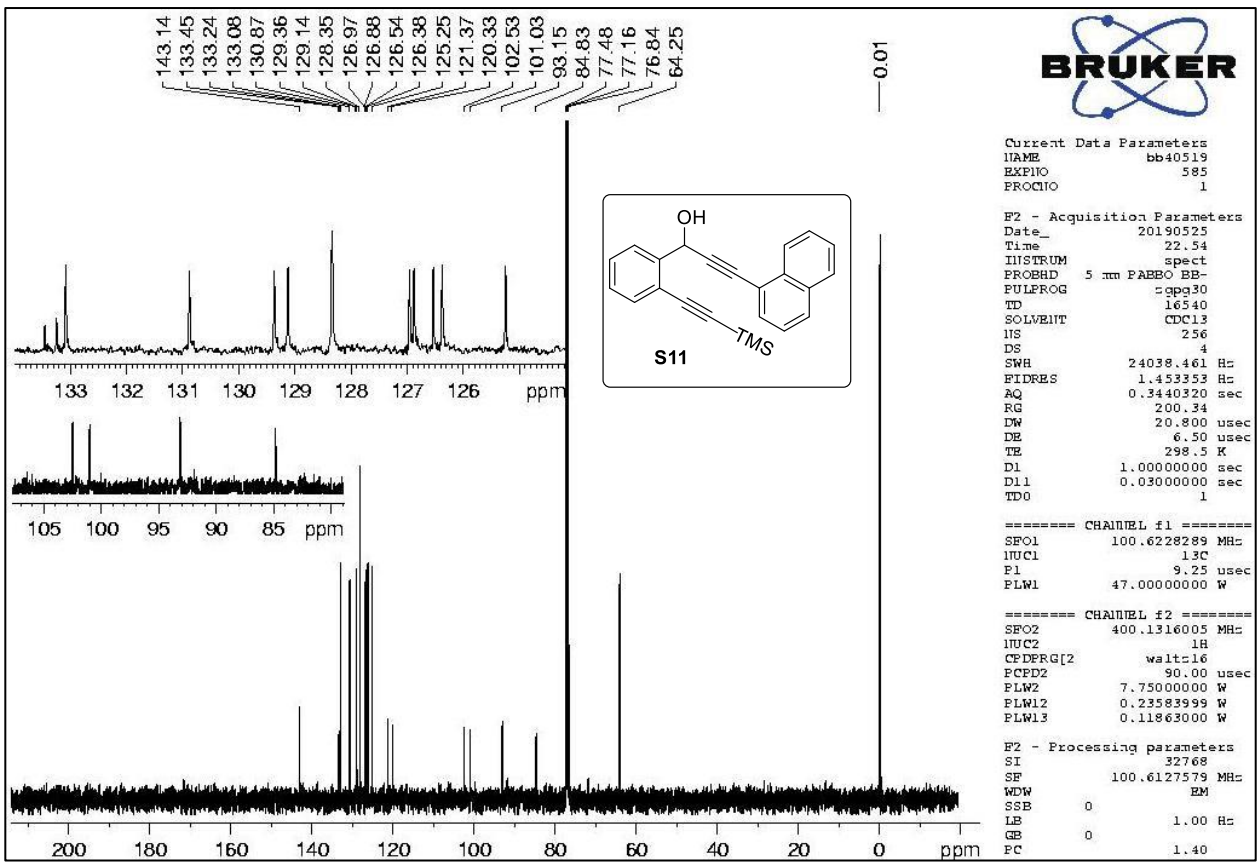

7.840
7.820
7.585
7.565
7.515
7.513
7.508
7.497
7.489
7.390
7.371
7.311
7.292
7.271
7.254
7.234
7.189
7.185
7.169
7.166
6.124
6.109
2.963
2.948
0.271
0.000
OH
Br
TMS
S9
3.2 3.1 3.0 2.9 2.8 ppm
6.14 6.12 ppm
7.8 7.7 7.6 7.5 7.4 7.3 ppm
10 9 8 7 6 5 4 3 2 1 0 ppm
1.00
1.01
2.01
1.08
2.23
1.03
1.01
1.00
9.07
BRUKER
Current Data Parameters
NAME sa-10-78(2-Br OH)
EXPNO 555
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 0.04
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 138.85
DW 62.400 usec
DE 6.50 usec
TE 297.6 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300115 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00


142.60
133.80
132.94
132.54
129.85
129.29
128.39
127.14
127.09
125.78
124.84
121.49
102.43
100.82
92.75
85.23
77.48
77.16
76.84
63.97
0.02
OH
Br
TMS
S9
100 95 90 ppm
127.0 ppm
134 132 130 128 126 124 122 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 558
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 0.14
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 202
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.0 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127588 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


7.728
7.708
7.510
7.491
7.393
7.375
7.356
7.298
7.279
7.255
7.101
6.952
6.037
6.022
2.926
2.913
2.275
0.274
0.000
OH
Me
TMS
Me
S10
6.05
ppm
7.8 7.7 7.6 7.5 7.4 7.3 7.2 7.1 7.0 6.9 ppm
10 9 8 7 6 5 4 3 2 1 ppm
1.06
1.06
1.07
1.37
2.00
1.02
1.02
1.02
6.20
9.10
BRUKER
Current Data Parameters
NAME sa-10-67(3,5-di me o
EXPNO 428
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190518
Time 16.48
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 297.8 K
D1 0.50000000 sec
TD0 1
------ CHANNEL f1 ------
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300122 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00


143.13
137.94
132.96
130.55
129.60
129.27
128.24
126.88
122.29
121.36
102.50
100.81
87.47
87.04
77.48
77.16
76.84
63.98
21.20
0.01
105 100 95 90 ppm
140 135 130 125 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
OH
Me
TMS
Me
S10
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 429
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190518
Time 16.55
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 297.8 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127575 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40


8.329
7.853
7.843
7.824
7.806
7.724
7.706
7.566
7.547
7.532
7.511
7.494
7.441
7.432
7.422
7.415
7.403
7.396
7.337
7.318
7.299
7.260
6.220
6.206
3.071
3.057
0.270
OH
TMS
S11
3.2 3.1 3.0 ppm
6.25 ppm
8.4 8.3 8.2 8.1 8.0 7.9 7.8 7.7 7.6 7.5 7.4 7.3 ppm
10 9 8 7 6 5 4 3 2 1 0 ppm
1.00
3.14
1.06
3.27
2.18
1.13
1.07
1.05
9.08
BRUKER
Current Data Parameters
NAME SA-10-81
EXPNO 584
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 22.50
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 8012.820 Hz
FIDRES 0.122266 Hz
AQ 4.0894966 sec
RG 153.13
DW 62.400 usec
DE 6.50 usec
TE 298.1 K
D1 0.50000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 400.1320007 MHz
NUC1 1H
P1 15.70 usec
PLW1 7.75000000 W
F2 - Processing parameters
SI 65536
SF 400.1300098 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00


143.14
133.45
133.24
133.08
130.87
129.36
129.14
128.35
126.97
126.88
126.54
126.38
125.25
121.37
120.33
102.53
101.03
93.15
84.83
77.48
77.16
76.84
64.25
0.01
OH
TMS
S11
133 132 131 130 129 128 127 126 ppm
105 100 95 90 85 ppm
200 180 160 140 120 100 80 60 40 20 0 ppm
BRUKER
Current Data Parameters
NAME bb40519
EXPNO 585
PROCNO 1
F2 - Acquisition Parameters
Date_ 20190525
Time 22.54
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG zgpg30
TD 16540
SOLVENT CDCl3
NS 256
DS 4
SWH 24038.461 Hz
FIDRES 1.453353 Hz
AQ 0.3440320 sec
RG 200.34
DW 20.800 usec
DE 6.50 usec
TE 298.5 K
D1 1.00000000 sec
D11 0.03000000 sec
TD0 1
======== CHANNEL f1 ========
SFO1 100.6228289 MHz
NUC1 13C
P1 9.25 usec
PLW1 47.00000000 W
======== CHANNEL f2 ========
SFO2 400.1316005 MHz
NUC2 1H
CPDPRG[2 waltz16
PCPD2 90.00 usec
PLW2 7.75000000 W
PLW12 0.23583999 W
PLW13 0.11863000 W
F2 - Processing parameters
SI 32768
SF 100.6127579 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40