

Supporting Information

for

Fates of imine intermediates in radical cyclizations of *N*-sulfonylindoles and ene-sulfonamides

Hanmo Zhang, E. Ben Hay, Stephen J. Geib and Dennis P. Curran*

Address: Department of Chemistry, University of Pittsburgh, Pittsburgh, PA 15260, USA

Email: Dennis P. Curran - curran@pitt.edu

*Corresponding author

Experimental procedures, compound characterization data, and copies of NMR spectra

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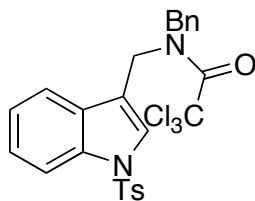
General Remarks: Chemicals and solvents were purchased from commercial suppliers and used as received, except as follows. Dichloromethane, THF, ether, and toluene were dried by passing through an activated alumina column. All reactions were carried out under an inert atmosphere of dry argon, unless otherwise indicated.

All reactions were followed by TLC or ^1H NMR spectroscopy. TLC visualizations were performed by illumination with a UV lamp (254 nm) or staining with a phosphomolybdic acid solution in ethanol and heating. Flash chromatographies were performed with a automated flash chromatography instrument and prepacked columns containing 230-400 mesh silica gel.

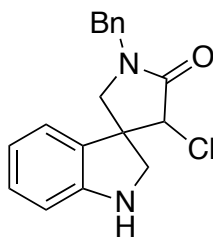
^1H NMR spectra were recorded at 300, 400, 500 and 600 MHz in CDCl_3 , and chemical shifts were measured relative to tetramethylsilane (δ 0.00 ppm) or residual solvent peak (δ 7.26 ppm). ^{13}C NMR spectra were recorded at 75, 100, 125, 150 MHz in CDCl_3 , and chemical shifts were measured relative to residual solvent peak (δ 77.0 ppm). Unless otherwise noted, NMR spectra were recorded at 293 K. The following abbreviations were used to describe coupling: s = singlet, d = doublet, t = triplet, q = quartet, m = multiplet, br = broad. IR spectra were recorded as thin films (CHCl_3) or neat on NaCl plates on an FTIR spectrometer.

Aldehyde **6** was prepared using published procedures, and the spectral data matched the reported ones.¹ 1-(Phenylsulfonyl)-2,3-dihydro-1*H*-pyrrole **20** was prepared using published procedures.²

Experimental Procedures and Compound Characterization

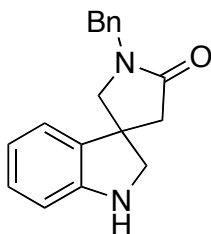


***N*-Benzyl-2,2,2-trichloro-*N*-((1-tosyl-1*H*-indol-3-yl)methyl)acetamide (3):** The title compound was prepared as a mixture of 2.5:1 rotamers: ^1H NMR (300 MHz, CDCl_3) δ major rotamer: 4.87 (s, 2H), 4.73 (s, 2H); minor rotamer: 4.99 (s, 2H), 4.66 (s, 2H); overlapping signals: 8.04 (d, $J = 7.8$ Hz, 1H), 7.78 (d, $J = 7.8$ Hz, 2H), 7.45–7.12 (m, 10H), 2.37 (s, 3H). The above spectral data were identical to those reported.³

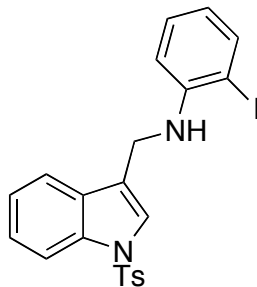


1'-Benzyl-4'-chlorospiro[indoline-3,3'-pyrrolidin]-5'-one (5b): A mixture of tin hydride (110 μL , 0.411 mmol), AIBN (17 mg, 0.102 mmol), and trichloroacetamide **3** (110 mg, 0.205 mmol) in benzene (10 mL) was refluxed for 30 min. The solvent was evaporated and the residue was purified by flash chromatography (silica gel, 30% EtOAc/hexanes) to provide the title compound (33 mg, 51%) as a colorless oil: ^1H NMR (300 MHz, CDCl_3) δ 7.39–7.26 (m, 5H), 7.18–7.10 (m, 2H), 6.74 (td, $J = 7.5$ Hz, 1.0 Hz, 1H), 6.68 (d, $J = 7.5$ Hz, 1H), 4.63 (d, $J = 14.4$ Hz, 1H), 4.53 (d, $J = 14.4$ Hz, 1H), 4.45 (s, 1H), 3.77 (brs, 1H), 3.75 (d, $J = 10.2$ Hz, 1H), 3.63 (d, $J = 9.6$ Hz, 1H), 3.48 (d, $J = 9.6$ Hz, 1H), 3.25 (d, $J = 10.2$ Hz, 1H); ^{13}C NMR (75 MHz, CDCl_3) δ

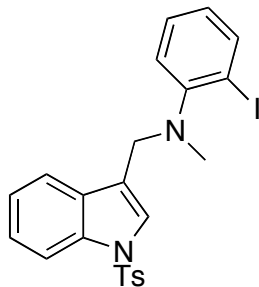
169.3, 151.6, 135.4, 129.5, 128.9, 128.3, 128.1, 126.6, 125.6, 118.8, 110.1, 61.5, 58.6, 55.0, 52.2, 47.2; FTIR (thin film, CH₂Cl₂, cm⁻¹) 3334, 3030, 2922, 2856, 1701, 1607, 1486, 1465, 1257, 742; HRMS (TOF ES) *m/z* calcd for C₁₈H₁₇N₂ONaCl, 335.0927 [M+Na]⁺, found: 335.0916.



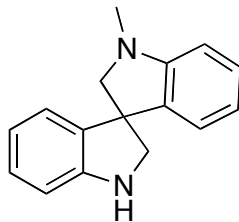
1'-Benzylspiro[indoline-3,3'-pyrrolidin]-5'-one (5c): A mixture of tin hydride (150 μ L, 0.560 mmol), AIBN (4 mg, 0.023 mmol), and trichloroacetamide **3** (50 mg, 0.093 mmol) in benzene (10 mL) was refluxed for 30 min. The solvent was evaporated and the residue was purified by flash chromatography (silica gel, 75% EtOAc/hexanes) to provide the title compound (20 mg, 78%) as a colorless oil: ¹H NMR (300 MHz, CDCl₃) δ 7.37–7.25 (m, 5H), 7.06 (d, *J* = 8.4 Hz, 2H), 6.75 (t, *J* = 7.8 Hz, 1H), 6.65 (d, *J* = 7.8 Hz, 1H), 4.62 (d, *J* = 14.4 Hz, 1H), 4.41 (d, *J* = 14.4 Hz, 1H), 3.75 (brs, 1H), 3.50 (d, *J* = 14.4 Hz, 1H), 3.48 (d, *J* = 14.4 Hz, 1H), 3.39 (d, *J* = 13.8 Hz, 1H), 3.36 (d, *J* = 13.8 Hz, 1H), 2.87 (d, *J* = 16.8 Hz, 1H), 2.65 (d, *J* = 16.8 Hz, 1H); ¹³C NMR (75 MHz, CDCl₃) δ 173.0, 150.7, 136.2, 132.5, 128.8, 128.6, 128.3, 127.8, 122.1, 119.3, 110.0, 60.6, 58.3, 46.7, 45.8, 44.0; FTIR (thin film, CH₂Cl₂, cm⁻¹) 3336, 2920, 2855, 1680, 1608, 1488, 1256, 745, 702; HRMS (TOF ES) *m/z* calcd for C₁₈H₁₈N₂ONa, 301.1317 [M+Na]⁺, found: 301.1304.



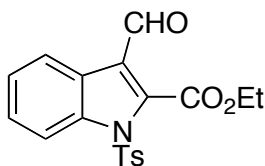
2-Iodo-N-((1-tosyl-1H-indol-3-yl)methyl)aniline (S1): 2-Iodoaniline (241 mg, 1.10 mmol), acetic acid (60 mg, 1.00 mmol), and sodium triacetoxyborohydride (637 mg, 3.00 mmol) were added to a stirred solution of 1-tosyl-1H-indole-3-carbaldehyde **6** (300 mg, 1.00 mmol) in 1,2-dichloroethane (8 mL). After 12 h, the reaction was quenched with a saturated NaHCO₃ solution and the aqueous layer was extracted with 1,2-dichloroethane. The combined organic layer was washed with brine, dried with MgSO₄, and concentrated *in vacuo*. The residue was purified by flash chromatography (silica gel, 15% EtOAc/hexanes) to give the title compound (330 mg, 66%) as a colorless oil: ¹H NMR (300 MHz, CDCl₃) δ 8.01 (d, *J* = 8.1 Hz, 1H), 7.73–7.69 (m, 3H), 7.58 (d, *J* = 7.8 Hz, 1H), 7.51 (s, 1H), 7.36 (td, *J* = 7.8 Hz, 1.2 Hz, 1H), 7.27 (m, 1H), 7.22–7.14 (m, 3H), 6.58 (dd, *J* = 8.1 Hz, 1.2 Hz, 1H), 6.50 (td, *J* = 7.5 Hz, 1.2 Hz, 1H), 4.54–4.47 (m, 3H), 2.35 (s, 3H); ¹³C NMR (75 MHz, CDCl₃) δ 146.9, 145.0, 139.1, 135.6, 135.1, 129.9, 129.6, 126.9, 125.1, 124.2, 123.4, 119.9, 119.6, 119.2, 114.0, 111.1, 85.6, 40.2, 21.6; FTIR (thin film, CH₂Cl₂, cm⁻¹) 3394, 3061, 2921, 1589, 1502, 1448, 1367, 1277, 1173, 1121, 1005, 970, 810, 744; HRMS (EI) *m/z* calcd for C₂₂H₁₉N₂O₂SI, 502.0212 [M]⁺, found: 502.0198.



2-Iodo-N-methyl-N-((1-tosyl-1H-indol-3-yl)methyl)aniline (7): A NaHMDS solution (450 μ L, 1M in THF) was added dropwise to a solution of aniline **S1** (150 mg, 0.30 mmol) in THF (5 mL) at -78 $^{\circ}$ C. After 30 min, iodomethane (46 μ L, 0.75 mmol) was added dropwise at this temperature. The reaction mixture was then stirred at room temperature for 12 h. A saturated aqueous NaHCO₃ solution was added, and the aqueous layer was extracted with diethyl ether. The combined organic layer was washed with brine, dried over MgSO₄, and concentrated *in vacuo*. The residue was purified by flash chromatography (silica gel, 20% EtOAc/hexanes) to afford the title compound (140 mg, 91%) as a colorless oil: ¹H NMR (300 MHz, CDCl₃) δ 7.97 (d, J = 8.1 Hz, 1H), 7.88 (dd, J = 7.8 Hz, 1.2 Hz, 1H), 7.70 (d, J = 8.1 Hz, 2H), 7.60–7.54 (m, 2H), 7.32–7.17 (m, 5H), 7.02 (dd, J = 8.1 Hz, 1.2 Hz, 1H), 6.80 (t, J = 7.8 Hz, 1H), 4.24 (s, 2H), 2.67 (s, 3H), 2.33 (s, 3H); ¹³C NMR (75 MHz, CDCl₃) δ 153.8, 144.8, 140.3, 135.4, 135.3, 130.6, 129.9, 129.1, 126.8, 125.7, 125.4, 124.8, 123.1, 122.2, 120.6, 119.5, 113.7, 98.6, 51.7, 42.4, 21.7; FTIR (thin film, CH₂Cl₂, cm⁻¹) 3053, 2947, 1596, 1470, 1446, 1367, 1173, 1119, 1093, 978, 812, 747, 702; HRMS (TOF ES) m/z calcd for C₂₃H₂₂N₂O₂SI, 517.0447 [M+H]⁺, found: 517.0460.

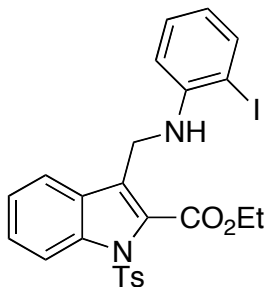


1-Methyl-3,3'-spirobi[indoline] (8): A mixture of aryl iodide **7** (70 mg, 0.136 mmol), tributyltin hydride (91 μL , 0.340 mmol) and AIBN (7 mg, 0.040 mmol) in benzene (13 mL) was refluxed for 20 min. TLC suggested the starting material was not completely consumed. Tin hydride (163 μL , 0.610 mmol) was added in two portions with a catalytic amount of AIBN. After 20 min, the solvent was evaporated, and the residue was purified by flash chromatography (silica gel, 20% EtOAc/hexanes) to provide the title compound (15 mg, 47%) as a colorless oil: ^1H NMR (600 MHz, CDCl_3) δ 7.18 (t, $J = 7.8$ Hz, 1H), 7.11 (t, $J = 7.8$ Hz, 1H), 7.04 (d, $J = 7.8$ Hz, 1H), 7.01 (d, $J = 7.8$ Hz, 1H), 6.77–6.72 (m, 3H), 6.60 (d, $J = 7.8$ Hz, 1H), 3.78 (d, $J = 9.0$ Hz, 1H), 3.63 (d, $J = 9.0$ Hz, 1H), 3.62 (d, $J = 9.0$ Hz, 1H), 3.27 (d, $J = 9.0$ Hz, 1H), 2.82 (s, 3H); ^{13}C NMR (75 MHz, CDCl_3) δ 153.1, 151.4, 135.3, 134.1, 128.4, 128.2, 124.1, 123.6, 119.3, 118.6, 109.7, 107.5, 68.9, 60.3, 54.5, 36.1; FTIR (thin film, CH_2Cl_2 , cm^{-1}) 3374, 3046, 2949, 2853, 2805, 1606, 1487, 1463, 1295, 1252, 1151, 1121, 1021, 745; HRMS (EI) m/z calcd for $\text{C}_{16}\text{H}_{16}\text{N}_2$, 236.1313 $[\text{M}]^+$, found: 236.1313.



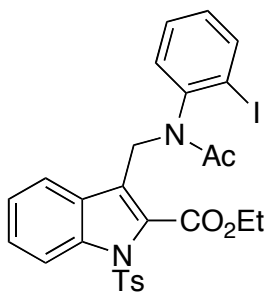
Ethyl 3-formyl-1-tosyl-1H-indole-2-carboxylate (9): Ethyl 3-formyl-1H-indole-2-carboxylate (150 mg, 0.69 mmol) and tosyl chloride (197 mg, 1.04 mmol) were added to a stirred suspension of Cs_2CO_3 (675 mg, 2.07 mmol) in DMF (4 mL). After 30 min, the reaction was quenched with a

saturated aqueous NH_4Cl solution, and the aqueous layer was extracted with EtOAc. The combined organic layer was washed with brine, dried over MgSO_4 , and concentrated *in vacuo*. The crude product was purified by flash chromatography (silica gel, 15% EtOAc/hexanes) to afford the title compound (75 mg, 29%) as a colorless oil: ^1H NMR (400 MHz, CDCl_3) δ 10.16 (s, 1H), 8.29 (d, $J = 8.0$ Hz, 1H), 8.02–7.98 (m, 3H), 7.46 (td, $J = 7.6$ Hz, 1.2 Hz, 1H), 7.38 (td, $J = 7.6$ Hz, 1.2 Hz, 1H), 7.32 (d, $J = 8.0$ Hz, 2H), 4.61 (q, $J = 7.2$ Hz, 2H), 2.39 (s, 3H), 1.50 (t, $J = 7.2$ Hz, 3H); ^{13}C NMR (100 MHz, CDCl_3) δ 185.3, 161.1, 146.4, 139.3, 135.3, 134.4, 130.2, 127.9, 127.8, 127.4, 125.7, 125.3, 123.1, 120.9, 114.2, 63.7, 21.9, 14.2; FTIR (thin film, CH_2Cl_2 , cm^{-1}) 2924, 2360, 1734, 1680, 1545, 1380, 1321, 1268, 1206, 1179, 1141, 1111, 1086, 1015, 986, 817, 749; HRMS (TOF ES) m/z calcd for $\text{C}_{19}\text{H}_{17}\text{NO}_5\text{NaS}$, 394.0725 $[\text{M}+\text{Na}]^+$, found: 394.0699.



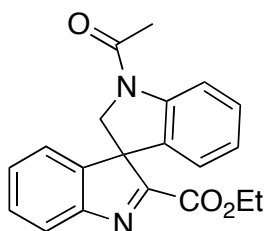
Ethyl 3-((2-iodophenylamino)methyl)-1-tosyl-1H-indole-2-carboxylate (S2): A mixture of aldehyde **9** (66 mg, 0.178 mmol), 2-iodoaniline (43 mg, 0.195 mmol), anhydrous MgSO_4 (64 mg, 0.533 mmol), and pyridinium *p*-toluenesulfonate (13 mg, 0.053 mmol) in CH_2Cl_2 (2 mL) was stirred for 12 h. The reaction was quenched with a saturated aqueous NaHCO_3 solution, and the aqueous layer was extracted with CH_2Cl_2 . The combined organic layer was washed with brine, dried over MgSO_4 , and concentrated *in vacuo*. The resulting crude imine was dissolved in EtOH (3 mL), and NaBH_4 (20 mg, 0.533 mmol) was added in one portion. After 3 h, the reaction

was quenched with a saturated aqueous NaHCO₃ solution, and the aqueous layer was extracted with EtOAc. The combined organic layer was washed with brine, dried over MgSO₄, and concentrated *in vacuo*. The crude product was purified by flash chromatography (silica gel, 15% EtOAc/Hexane) to afford the title compound (65 mg, 64%) as a colorless oil: ¹H NMR (500 MHz, CDCl₃) δ 8.07 (dd, *J* = 8.0 Hz, 1.0 Hz, 1H), 7.81 (m, 2H), 7.67 (m, 2H), 7.43 (td, *J* = 7.5 Hz, 1.5 Hz, 1H), 7.30 (m, 1H), 7.21 (m, 3H), 6.72 (dd, *J* = 8.0 Hz, 1.5 Hz, 1H), 6.49 (td, *J* = 7.5 Hz, 1.5 Hz, 1H), 4.53 (s, 1H), 4.48 (q, *J* = 7.0 Hz, 1H), 2.34 (s, 3H), 1.39 (t, *J* = 7.0 Hz, 1H); ¹³C NMR (100 MHz, CDCl₃) δ 162.4, 146.8, 145.1, 139.1, 136.8, 134.4, 129.7, 129.6, 129.5, 128.9, 127.2, 126.9, 124.4, 124.3, 120.8, 119.3, 115.5, 110.9, 85.5, 62.6, 39.0, 21.6, 14.0; FTIR (thin film, CH₂Cl₂, cm⁻¹) 3395, 2982, 1724, 1590, 1503, 1451, 1371, 1312, 1266, 1177, 1006, 814, 746; HRMS (EI) calcd for C₂₅H₂₃N₂O₄SI, 574.0423 [M]⁺, found: 574.0408.



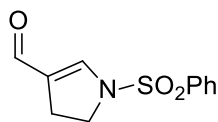
Ethyl 3-((N-(2-iodophenyl)acetamido)methyl)-1-tosyl-1H-indole-2-carboxylate (10): DMAP (4 mg, 0.03 mmol), pyridine (19 μL, 0.23 mmol), and acetyl chloride (8 μL, 0.11 mmol) were added to a stirred solution of aniline **S2** (33 mg, 0.057 mmol) in CH₂Cl₂ (2 mL) at 0 °C. The reaction mixture was then stirred at room temperature for 12 h. It was diluted with CH₂Cl₂ and a saturated aqueous NaHCO₃ solution was added. The aqueous layer was extracted with EtOAc, and the combined organic layer was washed with brine, dried over MgSO₄, and concentrated *in vacuo*. The crude product was purified by flash chromatography (silica gel, 25%

EtOAc/hexanes) to afford the title compound (29 mg, 80%) as a colorless oil: ^1H NMR (400 MHz, CDCl_3) δ 8.00 (d, $J = 8.0$ Hz, 1H), 7.91 (dd, $J = 8.0$ Hz, 1.2 Hz, 1H), 7.82 (d, $J = 8.0$ Hz, 1H), 7.70 (d, $J = 8.0$ Hz, 2H), 7.41 (t, $J = 8.0$ Hz, 1H), 7.30-7.27 (m, 1H), 7.19 (d, $J = 8.0$ Hz, 2H), 7.10 (td, $J = 7.6$ Hz, 1.2 Hz, 1H), 7.02 (td, $J = 7.6$ Hz, 1.2 Hz, 1H), 6.40 (dd, $J = 7.6$ Hz, 1.2 Hz, 1H), 5.74 (d, $J = 14.4$ Hz, 1H), 4.52 (d, $J = 14.4$ Hz, 1H), 4.17-4.01 (m, 2H), 2.35 (s, 3H), 1.78 (s, 3H), 1.24 (t, $J = 7.2$ Hz, 3H); ^{13}C NMR (100 MHz, CDCl_3) δ major rotamer: 62.3, 21.6, 13.9; minor rotamer: 60.4, 21.1, 14.2; overlapping signals: 169.9, 161.4, 145.0, 143.0, 140.1, 136.5, 134.5, 131.3, 130.6, 130.0, 129.6, 129.5, 129.0, 127.3, 126.9, 124.6, 122.6, 121.9, 115.1, 100.0, 39.4, 22.8; FTIR (thin film, CH_2Cl_2 , cm^{-1}) 2982, 1723, 1664, 1469, 1372, 1313, 1267, 1177, 1017, 762; HRMS (TOF ES) m/z calcd for $\text{C}_{27}\text{H}_{25}\text{N}_2\text{O}_5\text{NaSI}$, 639.0427 $[\text{M}+\text{Na}]^+$, found: 639.0479.

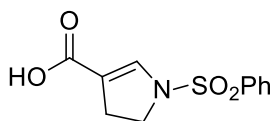


Ethyl 1'-acetylspiro[indole-3,3'-indoline]-2-carboxylate (11): In a sealed tube, a mixture of tin hydride (28 μL , 0.11 mmol), AIBN (1 mg, 0.0060 mmol), and aryl iodide **10** (13 mg, 0.021 mmol) in benzene (2 mL) was refluxed for 30 min. The solvent was evaporated and the residue was purified by flash chromatography (silica gel, 60% EtOAc/hexanes) to provide the title compound (5 mg, 71%) as a colorless oil, in a 5:1 ratio of rotamers: ^1H NMR (400 MHz, CDCl_3) δ major rotamer: 4.73 (d, $J = 12.0$ Hz, 1H), 2.28 (s, 3H); minor rotamer: 4.80 (d, $J = 12.0$ Hz, 1H), 2.59 (s, 3H); overlapping signals: 8.36 (d, $J = 8.0$ Hz, 1H), 7.90 (d, $J = 7.6$ Hz, 1H), 7.49 (t, $J = 7.6$ Hz, 1H), 7.40 (t, $J = 7.2$ Hz, 1H), 7.32-7.27 (m, 2 H), 6.89 (t, $J = 7.6$ Hz, 1H), 6.42 (d, J

= 7.6 Hz, 1H), 4.31–4.29 (m, 3H), 1.26 (t, $J = 7.2$ Hz, 3H); ^{13}C NMR (100 MHz, CDCl_3) δ 171.3, 168.2, 160.7, 152.6, 145.2, 144.2, 129.8, 129.5, 128.9, 124.0, 123.9, 122.7, 122.3, 118.1, 64.2, 62.3, 55.4, 24.4. 14.0; FTIR (thin film, CH_2Cl_2 , cm^{-1}) 2923, 1722, 1665, 1593, 1482, 1402, 1339, 1267, 1146, 1106, 1021, 754; HRMS (TOF ES) m/z calcd for $\text{C}_{20}\text{H}_{18}\text{N}_2\text{O}_3\text{Na}$, 357.1215 $[\text{M}+\text{Na}]^+$, found: 357.1239.

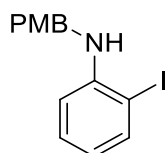


1-(Phenylsulfonyl)-4,5-dihydro-1H-pyrrole-3-carbaldehyde (S3): Phosphorous oxychloride (1.21 mL, 12.9 mmol) was added to a solution of DMF (8.4 mL, 10.8 mmol) in CH₂Cl₂ (8.4 mL) at 0 °C. The solution as stirred at 0 °C for 10 min, then ene-sulfonamide **20** (2.50 g, 10.8mmol) in CH₂Cl₂ (10 mL) was added. After 10 min, the solution was poured into saturated aqueous K₂CO₃ (100 mL) and the mixture was stirred vigorously for 1 h. The organic layer was separated, and the aqueous layer was extracted with CH₂Cl₂. The combined extracts were dried over MgSO₄ and concentrated. The residue was purification by flash chromatography (20% EtOAc in hexanes) to give the title compound (2.40 g, 94%) as a crystalline solid: mp 76–79 °C. ¹H NMR (500 MHz, CDCl₃) δ 9.55 (s, 1H), 7.82 (d, *J* = 7.5 Hz, 2H), 7.66 (t, *J* = 7.0 Hz, 1H), 7.57 (t, *J* = 7.5 Hz, 2H), 7.39 (s, 1H), 3.73 (t, *J* = 9.5 Hz, 2H), 2.78 (t, *J* = 9.5 Hz, 2H); ¹³C NMR (125 MHz, CDCl₃) δ 185.4, 147.1, 136.1, 133.9, 129.6, 127.2, 125.8, 48.6, 25.9; HRMS (APCI) *m/z* calcd for C₁₁H₁₂NO₃S [M+H]⁺ 238.0538, found 238.0552.

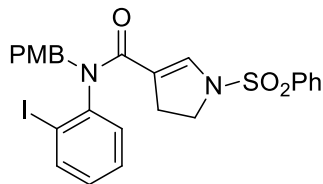


1-(Phenylsulfonyl)-4,5-dihydro-1H-pyrrole-3-carboxylic acid (21): NaClO₂ (0.97 g, 8.60 mmol) was added in one portion to a mixture of aldehyde **S3** (3.00 g, 12.6 mmol), 2-methyl-2-butene (25.3 mL, 2M in THF), and NaH₂PO₄ (7.59 g, 63.22 mmol) in 1,4-dioxane/H₂O (3:1; 80 mL). The reaction mixture was stirred for 1 h at room temperature. A saturated NaHCO₃ solution (50 mL) was added with precaution to the solution and the final mixture was stirred vigorously

for 30 min. The mixture was concentrated and the residue was dissolved in EtOAc. The organic mixture was washed with 10% HCl and H₂O, then evaporated under vacuum. The residue was purified by flash chromatography (50% EtOAc in hexanes) to give the title compound (3.02 g, 95%) as a white crystalline solid: mp 145–147 °C; ¹H NMR (400 MHz, CDCl₃) δ 7.82 (d, *J* = 8.0 Hz, 2H), 7.67 (t, *J* = 7.6 Hz, 1H), 7.58 (t, *J* = 7.6 Hz, 2H), 7.46 (s, 1H), 3.72 (t, *J* = 9.6 Hz, 2H), 2.79 (t, *J* = 9.2 Hz, 2H); ¹³C NMR (100 MHz, CDCl₃) δ 169.2, 142.7, 136.2, 133.8, 129.5, 127.4, 113.5, 48.7, 27.8; HRMS (APCI) *m/z* calcd for C₁₁H₁₂NO₄S [M+H]⁺ 254.0487, found 254.0510.

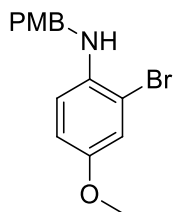


2-Iodo-*N*-(4-methoxybenzyl)aniline (S4): NaBH(OAc)₃ (9.67 g, 45.6 mmol) was added to a solution of *p*-anisaldehyde (1.53 mL, 12.6 mmol), 2-iodoaniline (2.5 g, 11.4 mmol) and AcOH (0.11 mL, 0.11 mmol) in 1,2-DCE (60 mL). The mixture was stirred 24 h, then saturated aqueous KHCO₃ (30 mL) was slowly added while stirring vigorously. The aqueous layer was extracted with EtOAc, the combined organic layer was washed with brine, dried over MgSO₄, and volatile compounds were removed under vacuum. The residue was subjected to flash chromatography (20% EtOAc in hexanes) to give the title compound (3.53 g, 91%). ¹H NMR (400 MHz, CDCl₃) δ 7.68 (dd, *J* = 8.0 Hz, 1.2 Hz, 1H), 7.29 (d, *J* = 8.8 Hz, 2H), 7.17 (td, *J* = 8.0 Hz, 1.2 Hz, 1H), 6.90 (d, *J* = 8.8 Hz, 2H), 6.56 (dd, *J* = 8.4 Hz, 1.2 Hz, 1H), 6.45 (td, *J* = 8.0 Hz, 1.2 Hz, 1H), 4.54 (s, 1H), 4.33 (s, 2H), 3.81 (s, 3H); ¹³C NMR (100 MHz, CDCl₃) δ 158.9, 147.1, 139.0, 130.5, 129.4, 128.8, 118.7, 114.1, 110.1, 85.3, 55.3, 47.8; HRMS (APCI) *m/z* calcd for C₁₄H₁₃INO [M-H]⁺ 338.0084, found 338.0070.

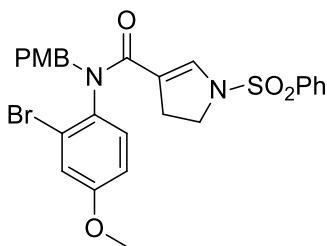


***N*-(2-Iodophenyl)-*N*-(4-methoxybenzyl)-1-(phenylsulfonyl)-4,5-dihydro-1*H*-pyrrole-3-**

carboxamide (22): Ghosez reagent (0.15 mL, 1.25 mmol) was added to a suspension of carboxylic acid **21** (317 mg, 1.25 mmol) in toluene (12.5 mL), the mixture was stirred for 1 h. NaHMDS (0.93 mL, 1M in THF) was added to a solution of aniline **S4** (315 mg, 0.93 mmol) in THF (9 mL) at $-78\text{ }^{\circ}\text{C}$. The mixture was stirred 30 minutes then cannulated into the stirring acid chloride solution. The mixture was stirred to rt for 3 h. The reaction was quenched with aqueous KHCO_3 , the aqueous layer was extracted with EtOAc. The combined organic layer was washed with brine, dried over MgSO_4 , volatile compounds were removed under vacuum. The residue was subjected to flash chromatography (20% EtOAc in hexanes) to give the title compound (320 mg, 60%) as a colorless solid: mp $53\text{--}56\text{ }^{\circ}\text{C}$. ^1H NMR (500 MHz, CDCl_3) δ 7.94 (dd, $J = 8.0$ Hz, 1.5 Hz, 1H), 7.60–7.57 (m, 1H), 7.49–7.48 (m, 4H), 7.28 (td, $J = 8.0$ Hz, 1.5 Hz, 1H), 7.18–7.09 (m, 2H), 6.79–6.76 (m, 3H), 5.83 (s, 1H), 5.49 (d, $J = 14.0$ Hz, 1H), 4.02 (d, $J = 14.0$ Hz, 1H), 3.75 (s, 3H), 3.45–3.41 (m, 1H), 3.29–3.29 (m, 1H), 2.65 (m, 1H), 2.55 (m, 1H); ^{13}C NMR (125 MHz, CDCl_3) δ 164.0, 159.0, 144.1, 140.2, 136.7, 135.7, 133.2, 131.1, 130.8, 128.0, 129.3, 129.2, 128.6, 118.1, 113.6, 101.0, 55.1, 52.0, 47.0, 30.8; HRMS (ESI) m/z calcd for $\text{C}_{25}\text{H}_{25}\text{IN}_2\text{O}_4\text{S}$ $[\text{M}+\text{H}]^+$ 575.2502, found 575.0508.

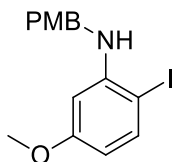


2-Bromo-4-methoxy-N-(4-methoxybenzyl)aniline (S5): NaBH(OAc)₃ (5.10 g, 24.1 mmol) was added to a solution of *p*-anisaldehyde (0.41 mL, 6.63 mmol), 2-bromo-4-methoxyaniline⁴ (1.5 g, 6.02 mmol) and AcOH (0.11 mL, 1.91 mmol) in 1,2-DCE (30 mL). The mixture was stirred 24 h, then saturated aqueous KHCO₃ (15 mL) was slowly added while stirring vigorously. The aqueous layer was extracted with EtOAc, the combined organic layer was washed with brine, dried over MgSO₄, and volatile compounds were removed under vacuum. The residue was subjected to flash chromatography (20% EtOAc in hexanes) to give the title compound (2.14 g, 91%) as a white solid: mp 63–64 °C. ¹H NMR (400 MHz, CDCl₃) δ 7.29 (d, *J* = 6.8 Hz, 2H), 7.08 (d, *J* = 2.4 Hz, 1H), 6.89 (d, *J* = 6.8 Hz 2H), 6.77 (dd, *J* = 7.2 Hz, 2.4 Hz, 1H), 6.58 (d, *J* = 7.2 Hz, 1H), 4.33 (s, 1H), 4.28 (s, 2H), 3.81 (s, 3H), 3.73 (s, 3H).



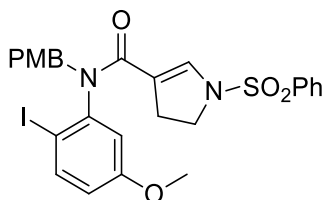
N-(2-Bromo-4-methoxyphenyl)-N-(4-methoxybenzyl)-1-(phenylsulfonyl)-4,5-dihydro-1H-pyrrole-3-carboxamide (23): Ghosez reagent (75 μL, 0.57 mmol) was added to a suspension of carboxylic acid **21** (144 mg, 0.57 mmol) in toluene (5.7 mL), the mixture was stirred for 1 h. NaHMDS (0.38 mL, 1M in THF) was added to a solution of protected aniline **S5** (140 mg, 0.38 mmol) at –78 °C. The mixture was stirred 30 minutes, then cannulated into the stirring acid

chloride solution, the mixture was stirred to r.t. for 3 h. The reaction was quenched with KHCO_3 , and the aqueous layer was extracted with EtOAc. The combined organic layer was washed with brine, dried over MgSO_4 , volatile compounds were removed under vacuum. Flash chromatography (20% EtOAc in hexanes) gave the title compound (158 mg, 69%). ^1H NMR (500 MHz, CDCl_3) δ 7.61 (tt, $J = 7.0$ Hz, 1.8 Hz, 1H) 7.54–7.48 (m, 4H) 7.19 (d, $J = 3.0$ Hz, 1H), 7.10 (d, $J = 8.5$ Hz, 2H), 6.77 (d, $J = 8.5$ Hz, 2H), 6.74 (dd, $J = 9.0$ Hz, 3.0 Hz, 1H), 6.66 (d, $J = 9.0$ Hz, 1H), 6.02 (s, 1H), 5.47 (d, $J = 14.0$ Hz, 1H), 4.02 (d, $J = 14.0$ Hz, 1H), 3.84 (s, 3H), 3.78 (s, 3H), 3.38 (ddd, $J = 50.0$ Hz, 10.0 Hz, 7.5 Hz, 2H), 2.67–2.48 (m, 2H); ^{13}C NMR (125 MHz, CDCl_3) δ 164.7, 159.8, 159.0, 136.7, 135.9, 133.6, 133.3, 132.0, 130.8, 129.2, 129.0, 127.3, 124.6, 119.0, 118.2, 113.8, 113.7, 55.9, 55.2, 47.3, 30.7; HRMS (ESI) m/z calcd for $\text{C}_{26}\text{H}_{25}\text{BrNaN}_2\text{O}_5\text{S}$ $[\text{M}+\text{Na}]^+$ 579.0565, found 579.0604.

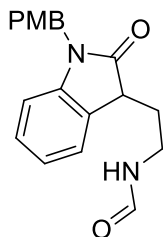


2-Iodo-5-methoxy-N-(4-methoxybenzyl)aniline (S6): $\text{NaBH}(\text{OAc})_3$ (5.10 g, 24.1 mmol) was added to a solution of *p*-anisaldehyde (0.41 mL, 6.63 mmol), 2-iodo-5-methoxyaniline⁵ (1.5 g, 6.02 mmol) and AcOH (0.11 mL, 0.11 mmol) in 1,2-DCE (30 mL). The mixture was stirred 24 h, then saturated aq. KHCO_3 (15 mL) was slowly added while stirring vigorously. The aqueous layer was extracted with EtOAc, the combined organic layer was washed with brine, dried over MgSO_4 , and volatile compounds were removed under vacuum. The residue was subjected to flash chromatography (20% EtOAc in hexanes) to give the title compound (1.80 g, 81%). ^1H NMR (400 MHz, CDCl_3) δ 7.50 (d, $J = 8.6$ Hz, 1H), 7.26 (d, $J = 8.6$ Hz, 2H), 6.87 (d, $J = 8.6$ Hz, 2H), 6.14 (d, $J = 2.8$ Hz, 1H), 6.07 (dd, $J = 8.6$ Hz, 2.8 Hz, 1H), 4.49 (s, 1H), 4.27 (s, 1H), 4.26

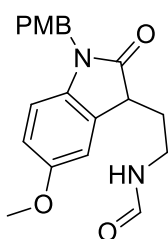
(s, 1H), 3.78 (s, 3H), 3.69 (s, 3H); ^{13}C NMR (100 MHz, CDCl_3) δ 161.2, 158.8, 147.9, 138.9, 130.3, 128.5, 114.0, 104.0, 97.9, 74.5, 55.2, 47.8.



***N*-(2-Iodo-5-methoxyphenyl)-*N*-(4-methoxybenzyl)-1-(phenylsulfonyl)-4,5-dihydro-1*H*-pyrrole-3-carboxamide (24):** Ghosez reagent (0.12 mL, 0.93 mmol) was added to a suspension of carboxylic acid **21** (236 mg, 0.93 mmol) in toluene (7 mL), the mixture was stirred for 1 h. NaHMDS (0.72 mL, 1M in THF) was added to a solution of aniline **S6** (265 mg, 0.72 mmol) in THF (7 mL) at -78 °C. The mixture was stirred 30 minutes, then added by cannula into the stirring acid chloride solution, the mixture was warmed to room temperature and stirred for 3 h. The reaction was quenched with KHCO_3 , and the aqueous layer was extracted with EtOAc. The combined organic layer was washed with brine and dried over MgSO_4 ; volatiles were removed under vacuum. The residue was purified by flash chromatography (20% EtOAc in hexanes) to give the title compound (235 mg, 54%) as a colorless oil: ^1H NMR (500 MHz, CDCl_3) δ 7.79 (d, $J = 9.0$ Hz, 1H), 7.61 (tt, $J = 6.5$ Hz, 2.0 Hz, 1H), 7.53–7.50 (m, 3H), 7.13 (d, $J = 8.5$ Hz, 2H), 6.78 (d, $J = 8.5$ Hz, 2H), 6.74 (dd, $J = 9.0$ Hz, 3.0 Hz, 1H), 6.29 (d, $J = 3.0$ Hz, 1H), 5.92 (s, 1H), 5.52 (d, $J = 14.5$ Hz, 1H), 3.98 (d, $J = 14.5$ Hz, 1H), 3.77 (s, 3H), 3.61 (s, 3H), 3.42 (td, $J = 10.0$ Hz, 7.5 Hz, 1H), 3.34 (td, $J = 10.0$ Hz, 7.5 Hz, 1H), 2.72–2.58 (m, 2H); ^{13}C NMR (125 MHz, CDCl_3) δ 163.9, 160.5, 159.1, 144.9, 140.2, 136.9, 135.3, 133.3, 130.9, 129.3, 128.9, 127.3, 118.1, 117.0, 116.6, 113.7, 89.0, 55.6, 55.2, 52.0, 57.1, 30.9; HRMS (ESI) m/z calcd for $\text{C}_{26}\text{H}_{26}\text{IN}_2\text{O}_5\text{S}$ $[\text{M}+\text{H}]^+$ 605.0607, found 605.0616.

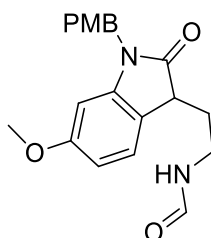


***N*-(2-(1-(4-Methoxybenzyl)-2-oxoindolin-3-yl)ethyl)formamide (25):** A solution of Bu_3SnH (0.24 mL, 0.83 mmol) and AIBN (14 mg, 0.014 mmol) in degassed benzene (4 mL) were added via syringe pump to a refluxing solution of iodoaniline **22** (98 mg, 0.17 mmol) in degassed benzene (8 mL) to afford the title compound (34 mg, 65%) as a colorless solid: mp >220 °C. ^1H NMR (400 MHz, CDCl_3) δ 8.14 (s, 1H), 7.28 (d, $J = 7.6$ Hz, 1H), 7.23 (d, $J = 7.2$ Hz, 2H), 7.20 (t, $J = 7.6$ Hz, 1H), 7.05 (t, $J = 7.6$ Hz, 1H), 6.84 (d, $J = 7.6$ Hz, 2H), 6.78 (d, $J = 7.6$ Hz, 1H), 6.52 (s, 1H), 4.84 (s, 2H), 3.77 (s, 3H), 3.59–3.54 (m, 3H), 2.32 (dq, $J = 14.0$ Hz, 6.0 Hz, 1H), 2.03 (hex, $J = 7.2$ Hz, 1H); ^{13}C NMR (100 MHz, CDCl_3) δ 178.0, 161.3, 159.1, 143.0, 128.7, 128.6, 128.4, 128.2, 127.7, 123.9, 122.9, 114.2, 109.2, 55.3, 44.1, 43.3, 36.0, 30.1; HRMS (TOF ES) m/z calcd for $\text{C}_{19}\text{H}_{21}\text{N}_2\text{O}_3$ $[\text{M}+\text{H}]^+$ 325.1552, found 325.1562.



***N*-(2-(5-Methoxy-1-(4-methoxybenzyl)-2-oxoindolin-3-yl)ethyl)formamide (26):** A solution of Bu_3SnH (0.24 mL, 0.83 mmol) and AIBN (14 mg, 0.014 mmol) in degassed benzene (4 mL) were added via syringe pump to a refluxing solution of bromoaniline **23** (100 mg, 0.17 mmol) in degassed benzene (8 mL). After 2 h, the mixture was cooled to r.t. and the volatile compounds were removed under vacuum. Flash chromatography (0–5 % MeOH in CH_2Cl_2) gives the title

compound (25 mg, 42%) as a white solid, mp >220 °C. ¹H NMR (500 MHz, CDCl₃) δ 8.15 (s, 1H), 7.21 (dt, *J* = 10.0 Hz, 2.5 Hz, 2H), 6.91 (dd, *J* = 2.5 Hz, 0.9 Hz, 1H), 6.84 (dt, *J* = 10.0 Hz, 2.5 Hz, 2H), 6.71 (dd, *J* = 8.0 Hz, 2.5 Hz, 1H), 6.66 (d, *J* = 8.5 Hz, 1H), 4.82 (s, 2H), 3.77 (s, 3H), 3.76 (s, 3H), 3.58–3.53 (m, 2H), 2.31 (dq, *J* = 15.0 Hz, 6.0 Hz, 1H), 2.06–1.98 (m, 1H); ¹³C NMR (125 MHz, CDCl₃) δ 177.6, 161.3, 159.1, 156.2, 136.4, 129.7, 128.6, 127.7, 114.2, 112.6, 111.2, 109.6, 55.7, 55.2, 44.4, 43.3, 35.9, 30.1; HRMS (ESI) *m/z* calcd for C₂₀H₂₁N₂O₃ [M+H]⁺ 337.1552, found 337.1558.



***N*-(2-(6-Methoxy-1-(4-methoxybenzyl)-2-oxoindolin-3-yl)ethyl)formamide (27):** A solution of Bu₃SnH (0.06 mL, 0.40 mmol) and AIBN (3 mg, 0.003 mmol) in degassed benzene (1 mL) were added via syringe pump to a refluxing solution of iodoanilide **24** (20 mg, 0.03 mmol) in degassed benzene (1.5 mL). After heating an additional 2 h, the mixture was cooled to room temperature and volatile compounds were removed under vacuum. The residue was purified by flash chromatography (5% MeOH in CH₂Cl₂) to give the title compound (6 mg, 54%) as a white solid: mp >220 °C. ¹H NMR (500 MHz, CDCl₃) δ 8.13 (s, 1H), 7.22 (dt, *J* = 10.0 Hz, 2.5 Hz, 2H), 7.17 (d, *J* = 8.5 Hz, 1H), 6.84 (dt, *J* = 10.0 Hz, 2.5 Hz, 2H), 6.54 (dd, *J* = 8.0 Hz, 2.5 Hz, 1H), 6.37 (d, *J* = 2.5 Hz, 1H), 4.81 (s, 2H), 3.77 (s, 3H), 3.75 (s, 3H), 3.56–3.49 (m, 2H), 2.26 (dq, *J* = 14.5 Hz, 6.0 Hz, 1H), 2.04–1.97 (m, 1H); ¹³C NMR (125 MHz, CDCl₃) δ 178.7, 161.3, 160.1, 159.2, 144.2, 128.7, 127.7, 124.4, 120.2, 114.3, 106.4, 97.6, 55.5, 55.3, 43.5, 43.3, 36.0, 30.3; HRMS (ESI) *m/z* calcd for C₂₀H₂₁N₂O₃ [M+H]⁺ 337.1552, found 337.1558.

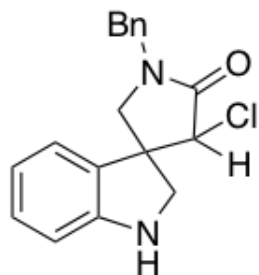
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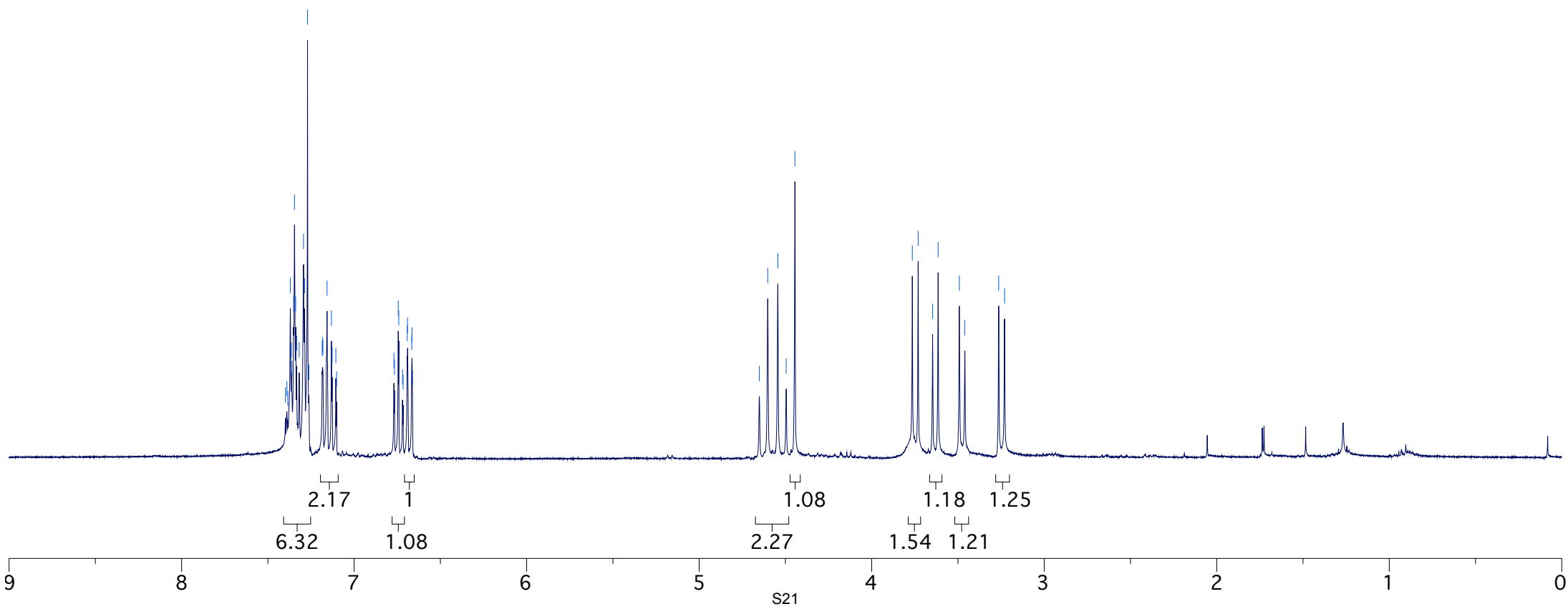
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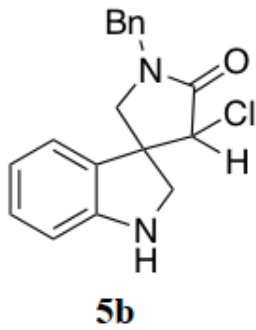
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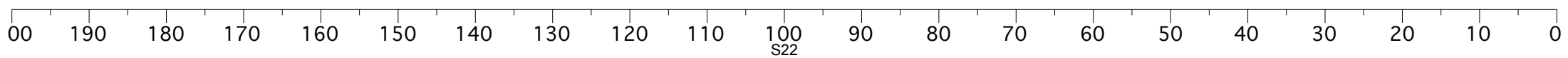
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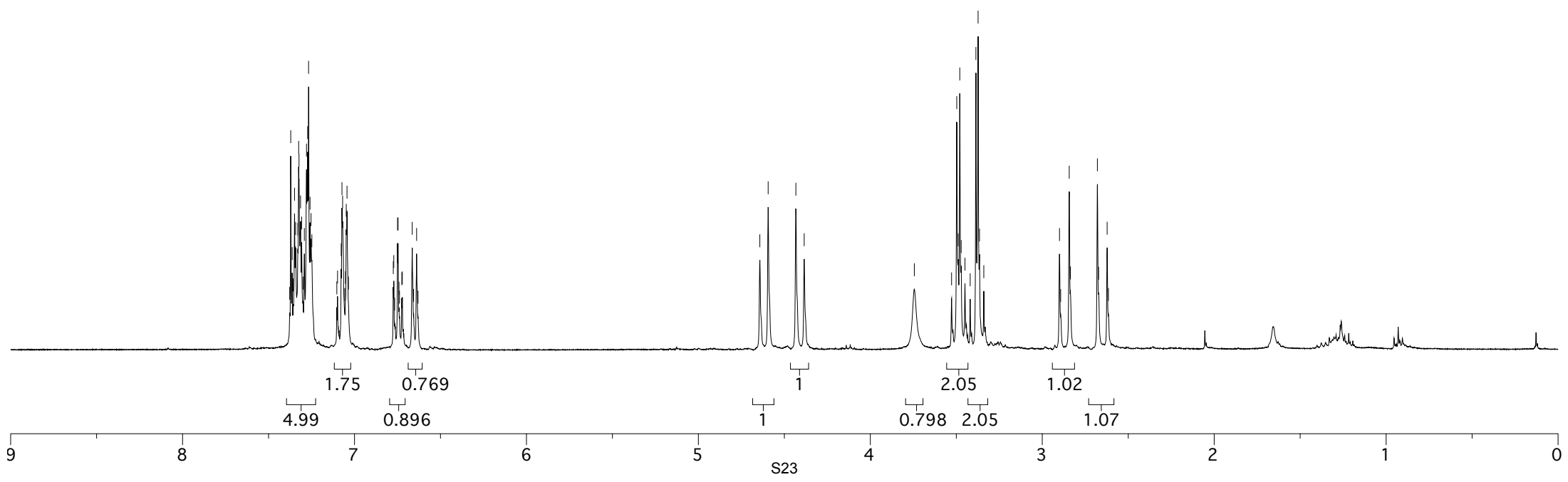
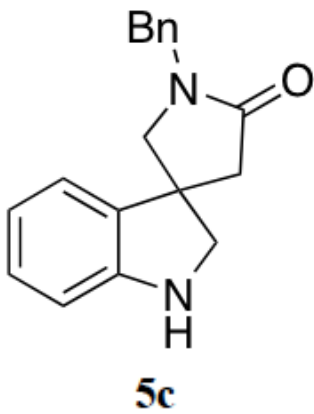
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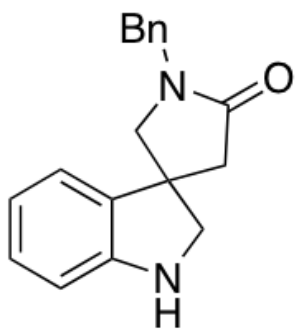


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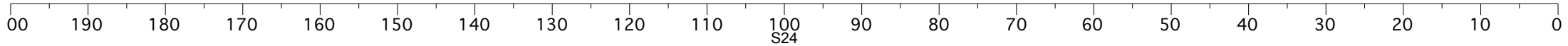
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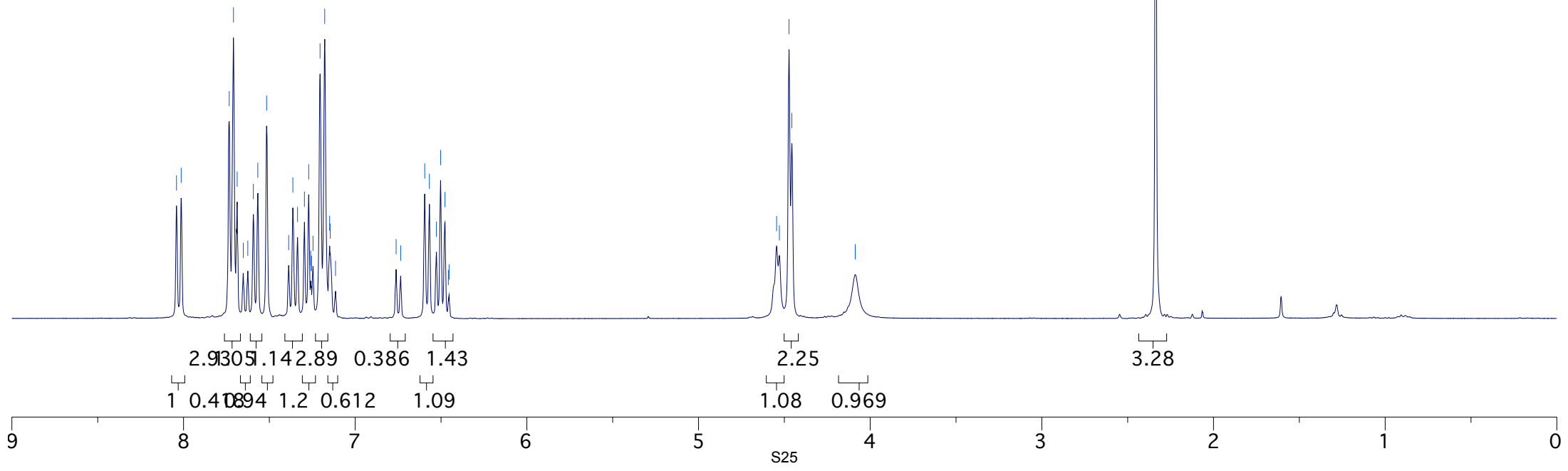
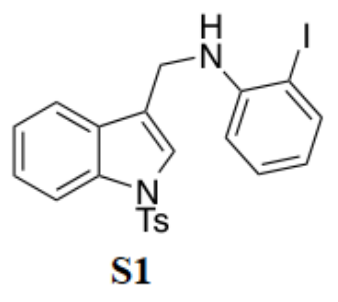


S24

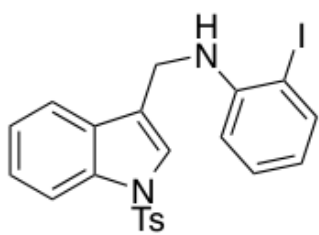
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2.337



S25



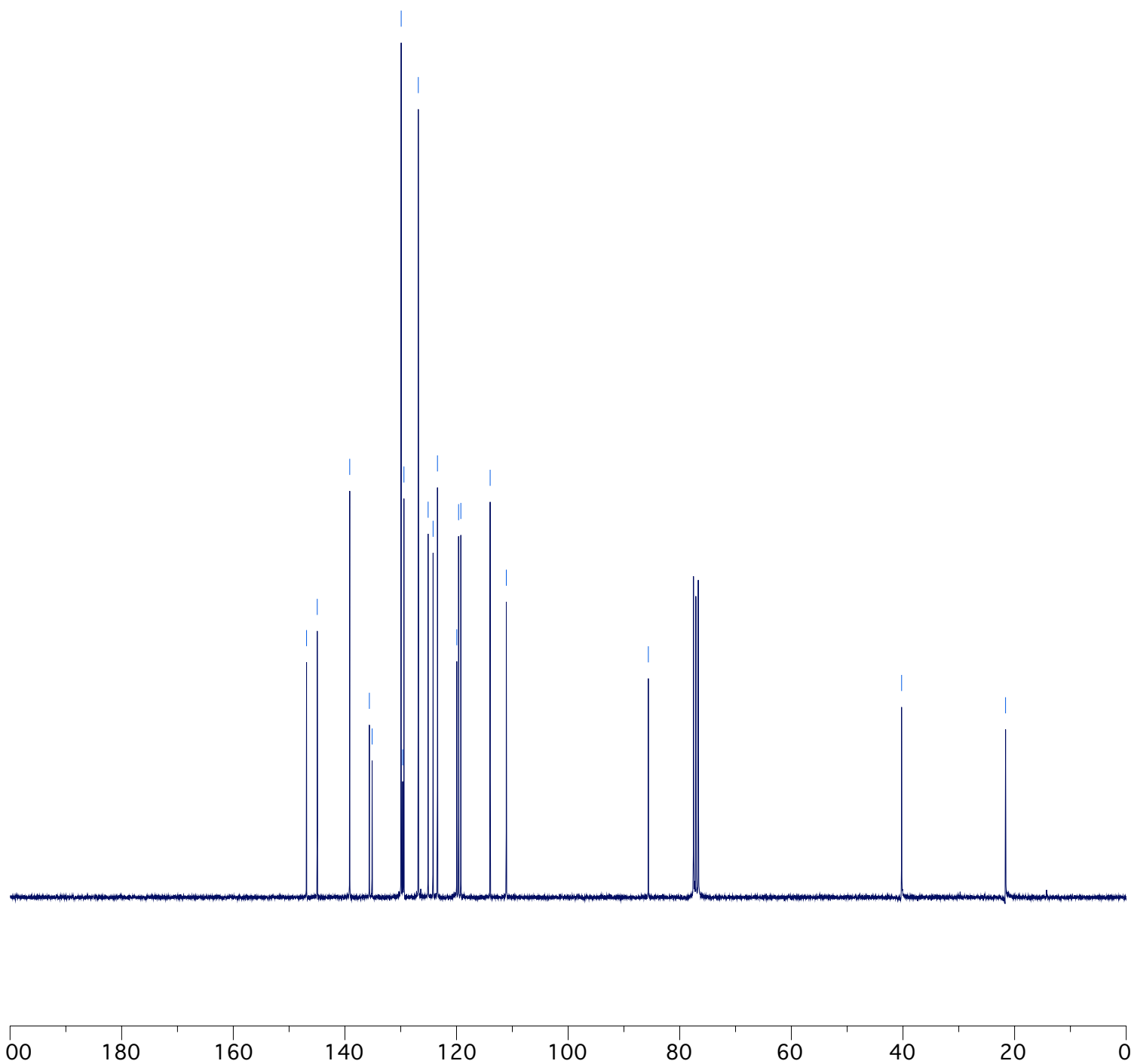
S1

146.873
144.954
139.136
135.617
135.124
129.915
129.646
129.420
126.847
125.087
124.200
123.414
119.951
119.631
119.225
113.974
111.077

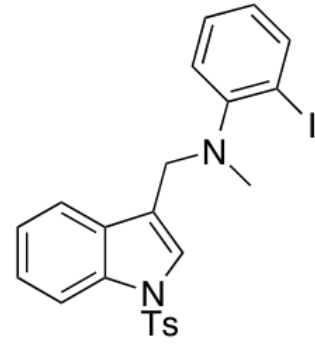
85.627

40.245

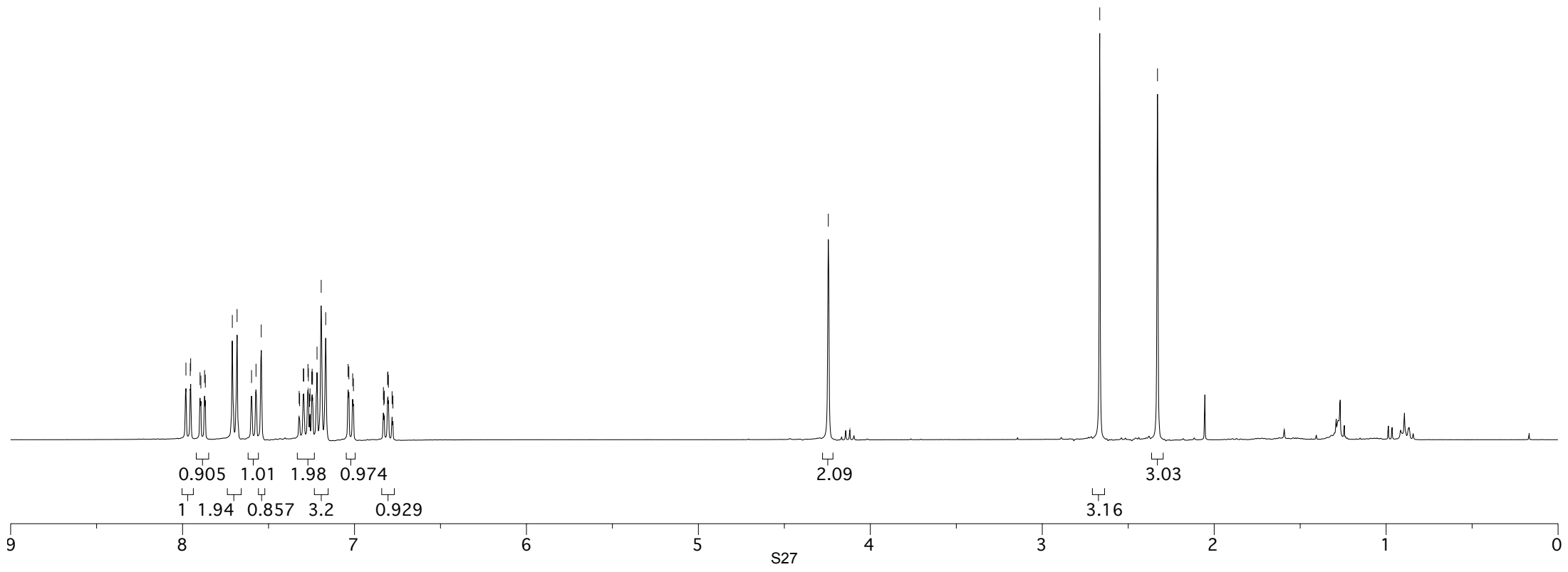
21.622

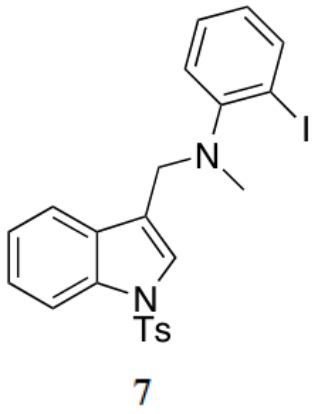


7.981
7.955
7.953
7.898
7.894
7.872
7.868
7.711
7.683
7.599
7.573
7.542
7.322
7.319
7.298
7.295
7.271
7.268
7.261
7.259
7.249
7.247
7.244
7.218
7.194
7.168
7.037
7.033
7.011
7.006
6.832
6.829
6.827
6.808
6.806
6.803
6.782
6.777



7





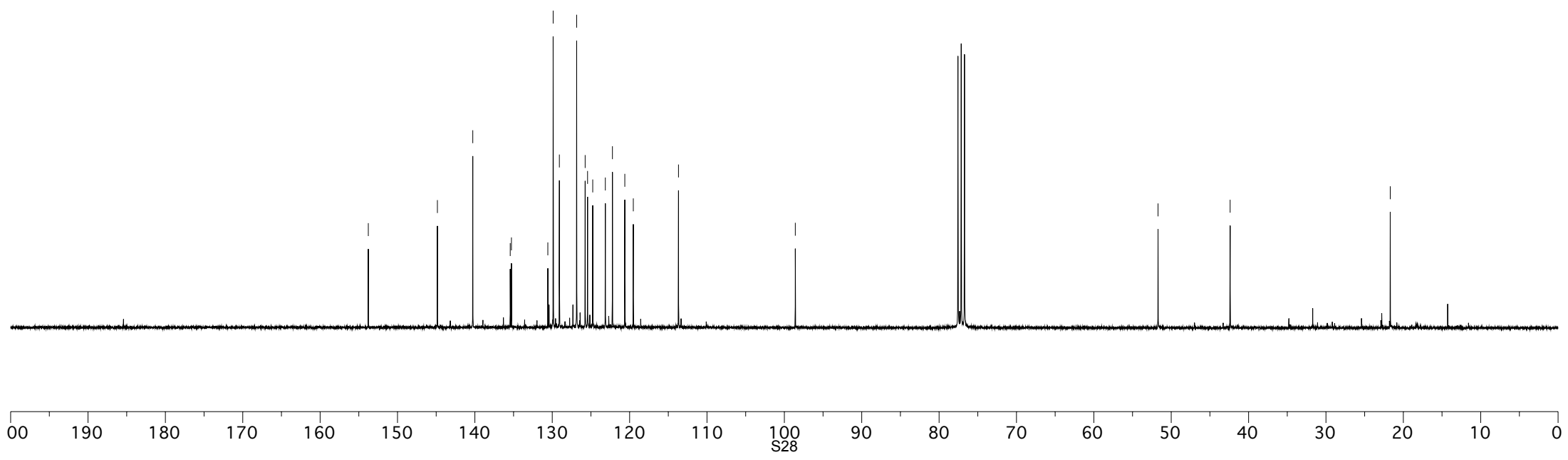
153.773
144.843
140.270
135.432
135.274
130.570
129.882
129.079
126.842
125.747
125.436
124.767
123.139
122.221
120.621
119.522
113.683

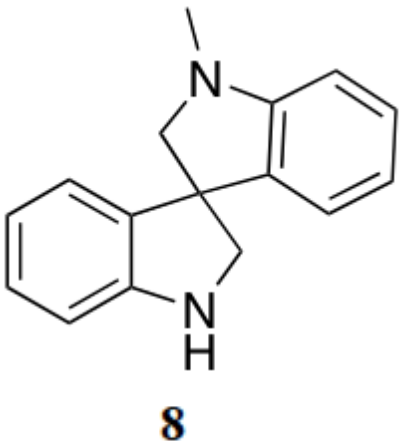
98.586

51.704

42.385

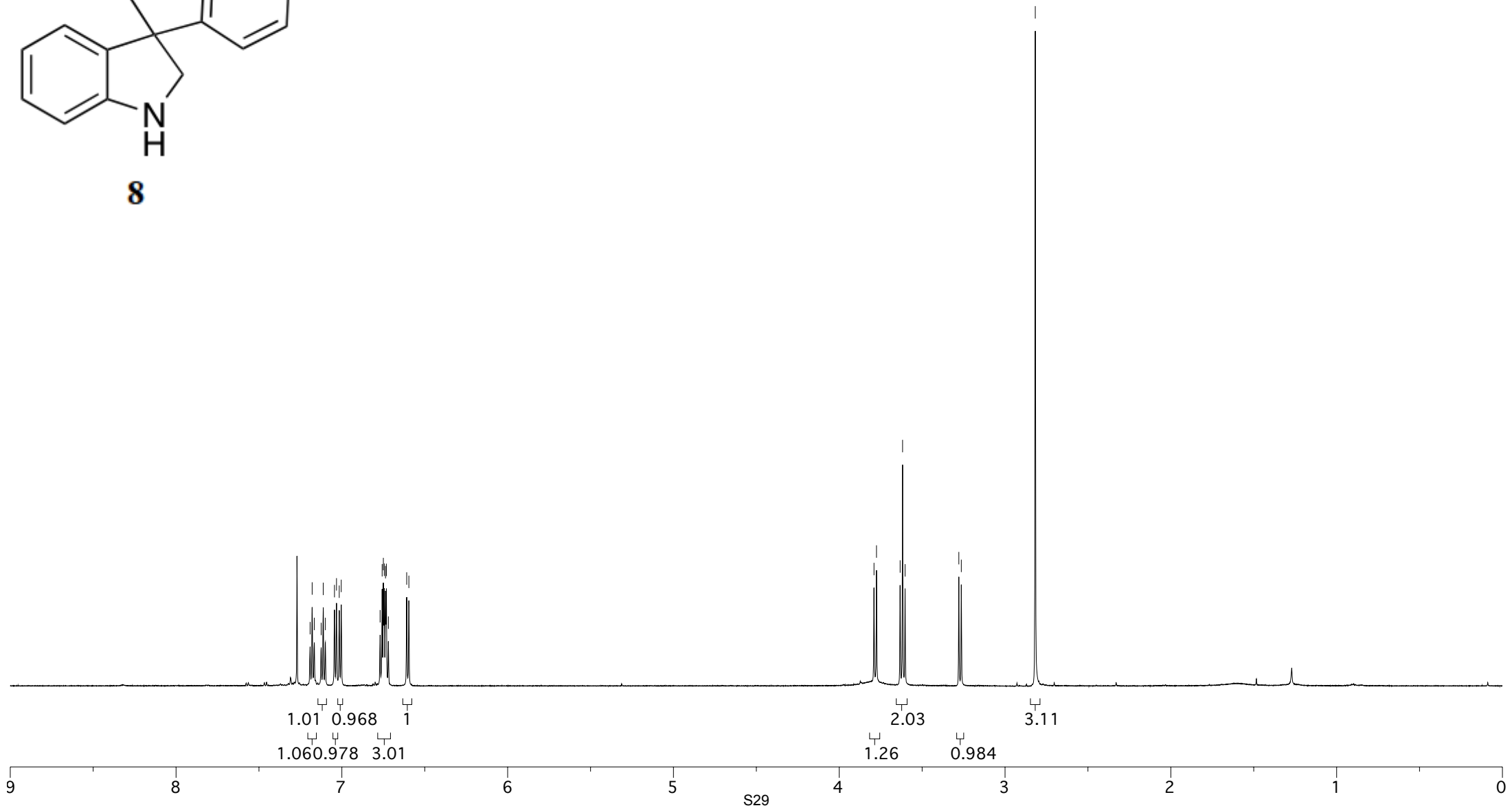
21.689

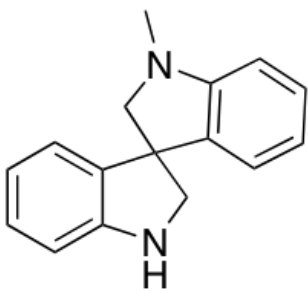




7.191
7.179
7.166
7.125
7.112
7.099
7.045
7.032
7.016
7.004
6.769
6.757
6.750
6.744
6.737
6.732
6.719
6.609
6.596

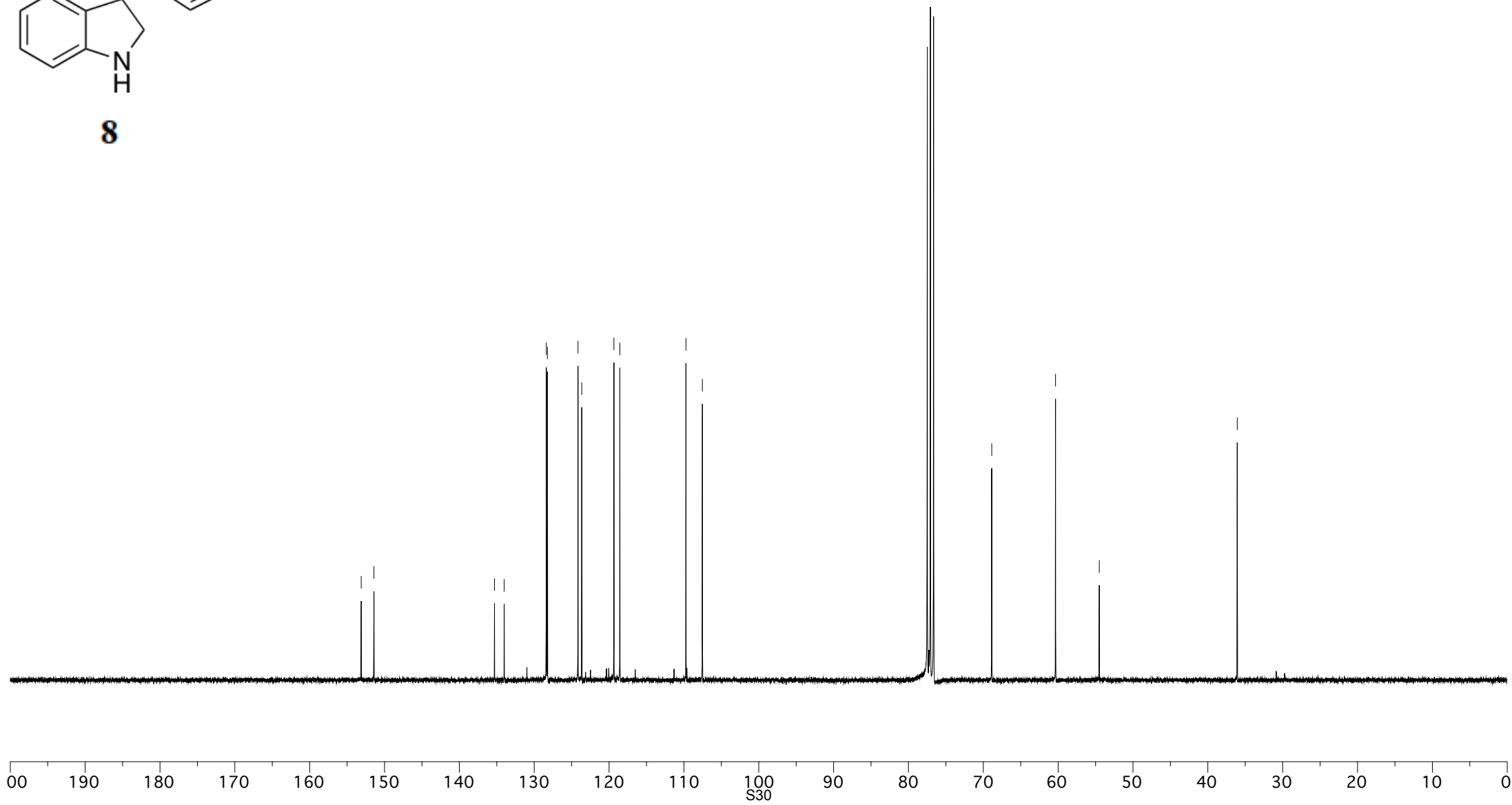
3.790
3.775
3.633
3.618
3.603
3.279
3.264
2.818

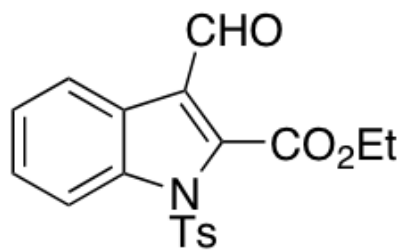




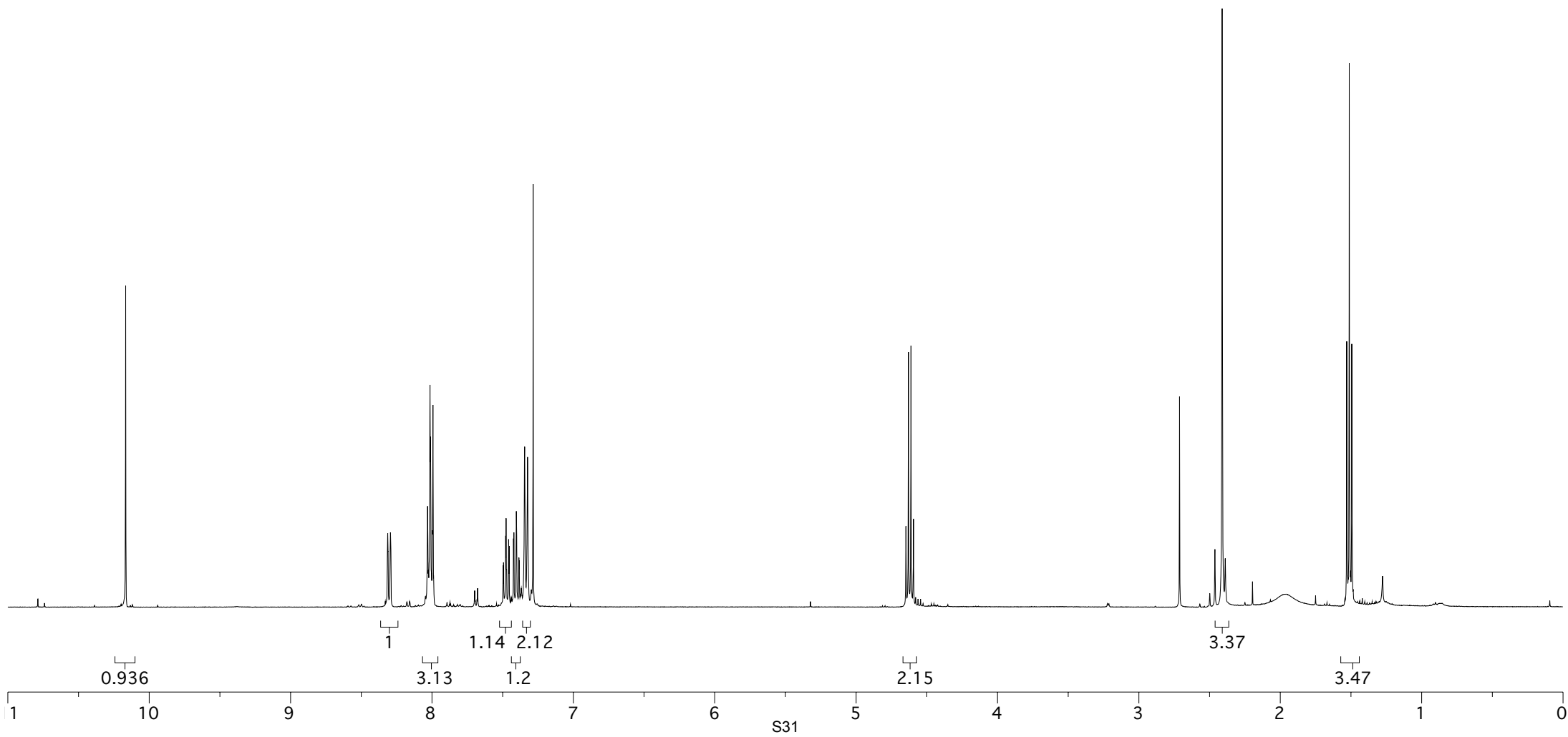
8

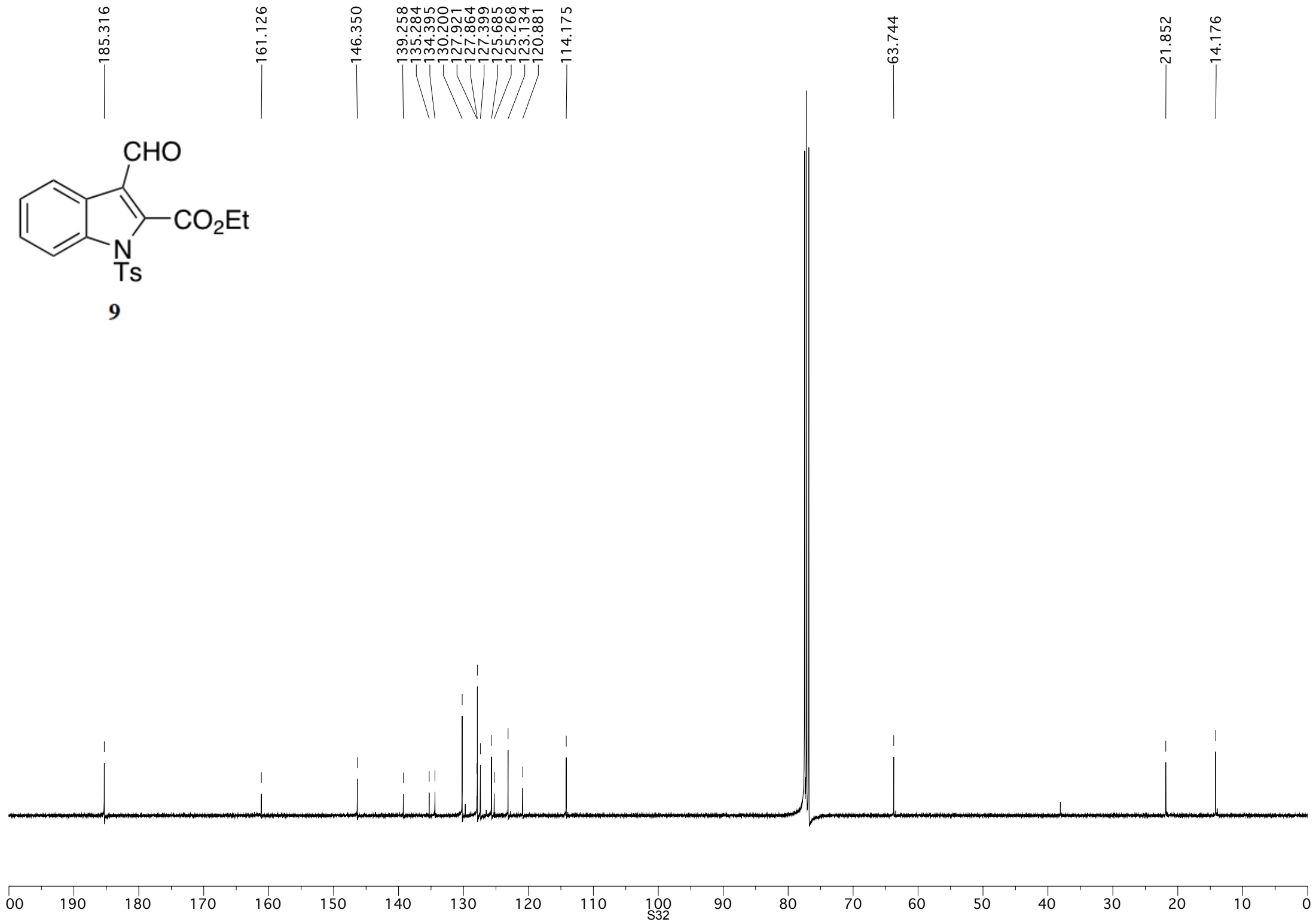
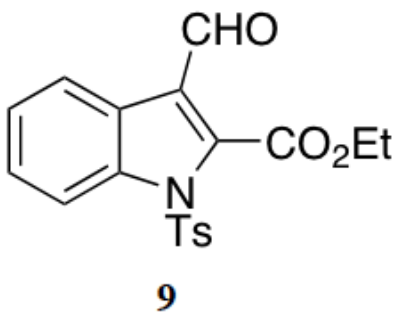
153.115
151.414
135.309
134.014
128.385
128.240
124.151
123.647
119.352
118.558
109.729
107.534
68.871
60.350
54.502
36.071

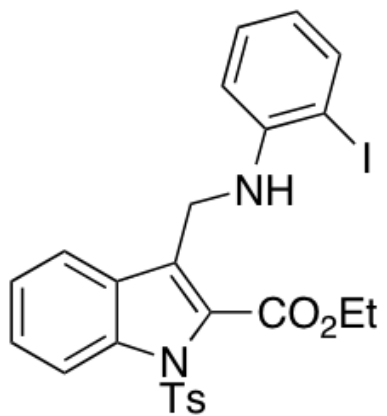




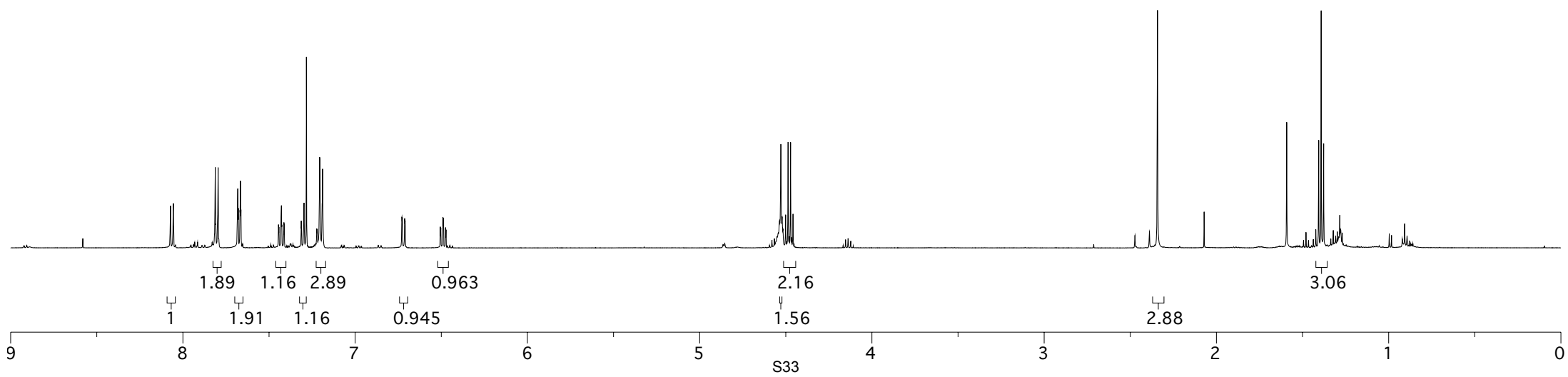
9

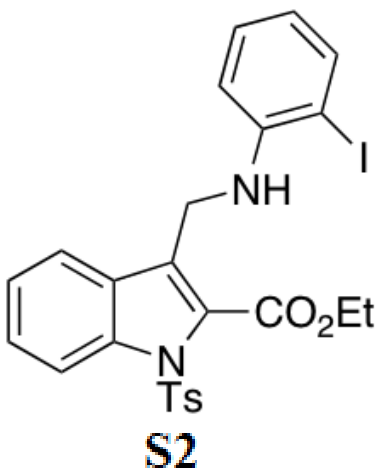






S2





162.382
146.802
145.075
139.081
136.776
134.404
129.737
129.611
129.450
128.859
127.241
126.927
124.354
124.272
120.777
119.279
115.488
110.948

85.477

62.640

39.045

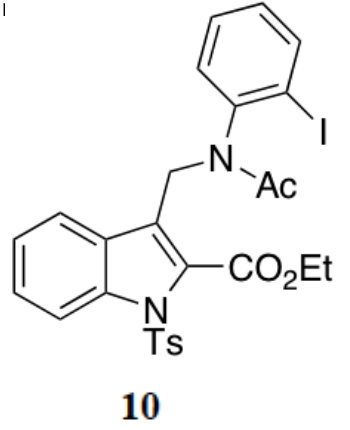
21.646

14.042

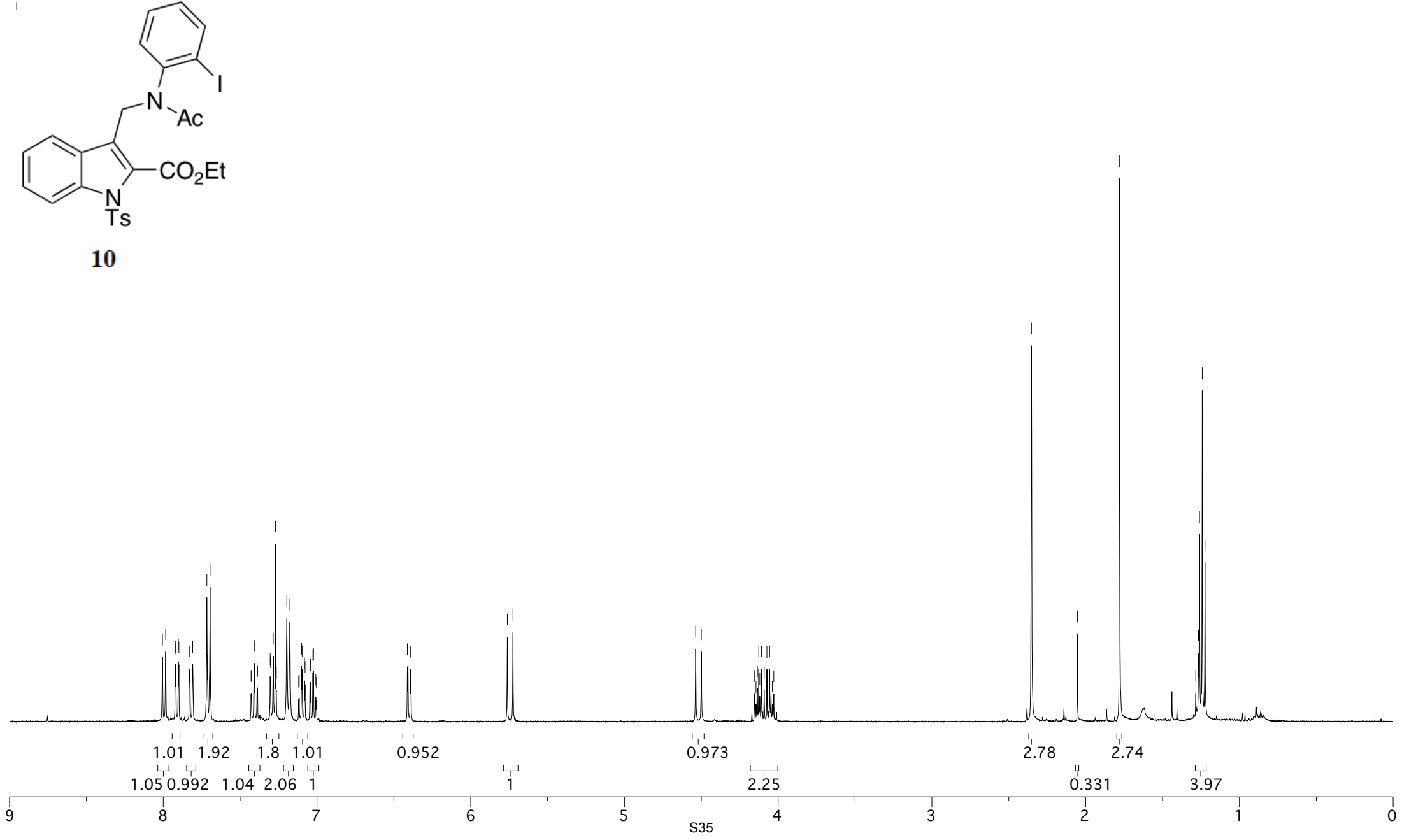
00 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0

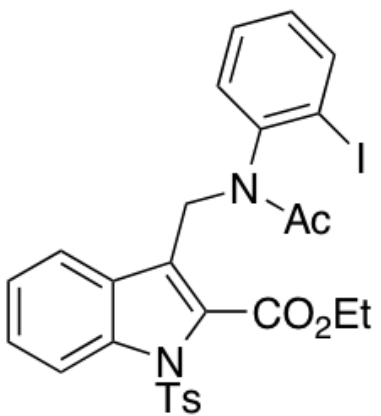
S34

8.005
7.984
7.921
7.918
7.902
7.898
7.828
7.808
7.716
7.712
7.695
7.691
7.429
7.426
7.411
7.408
7.405
7.390
7.387
7.304
7.302
7.284
7.270
7.267
7.264
7.196
7.176
7.119
7.115
7.100
7.097
7.081
7.078
7.046
7.042
7.027
7.022
7.008
7.003
6.412
6.408
6.393
6.389
5.762
5.725
4.537
4.500
4.153
4.144
4.137
4.135
4.126
4.119
4.108
4.091
4.073
4.055
4.046
4.038
4.029

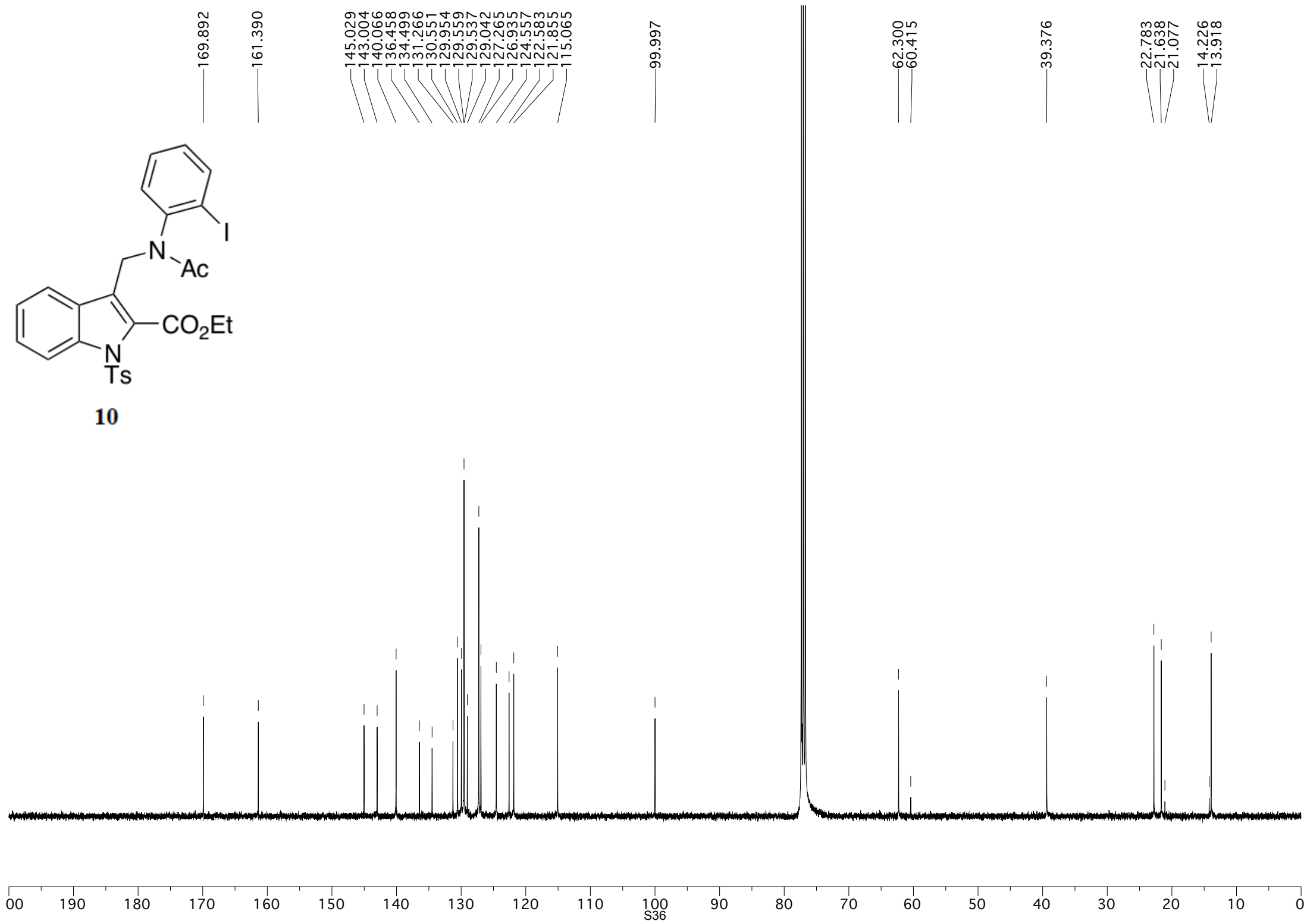


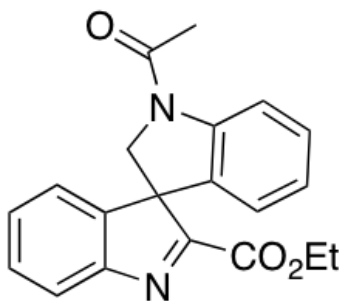
2.353
2.053
1.779
1.284
1.266
1.260
1.248
1.242
1.224





10





11

8.370
8.350

7.909
7.890
7.504
7.485
7.467
7.419
7.401
7.383
7.315
7.295
7.271

6.905
6.886
6.867

6.433
6.414

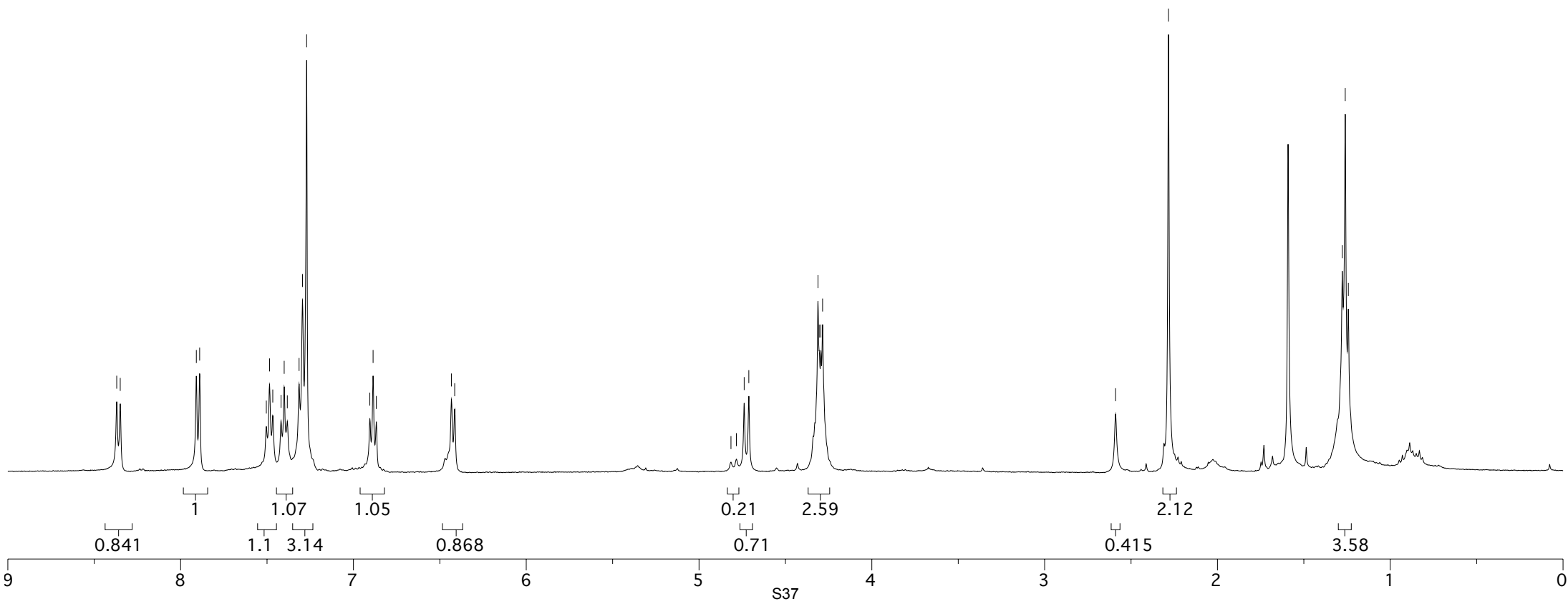
4.815
4.784
4.739
4.712

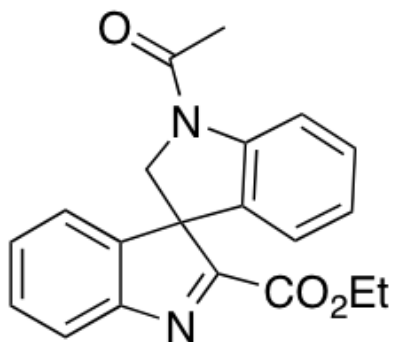
4.312
4.305
4.295
4.285

2.590

2.283

1.278
1.260
1.242

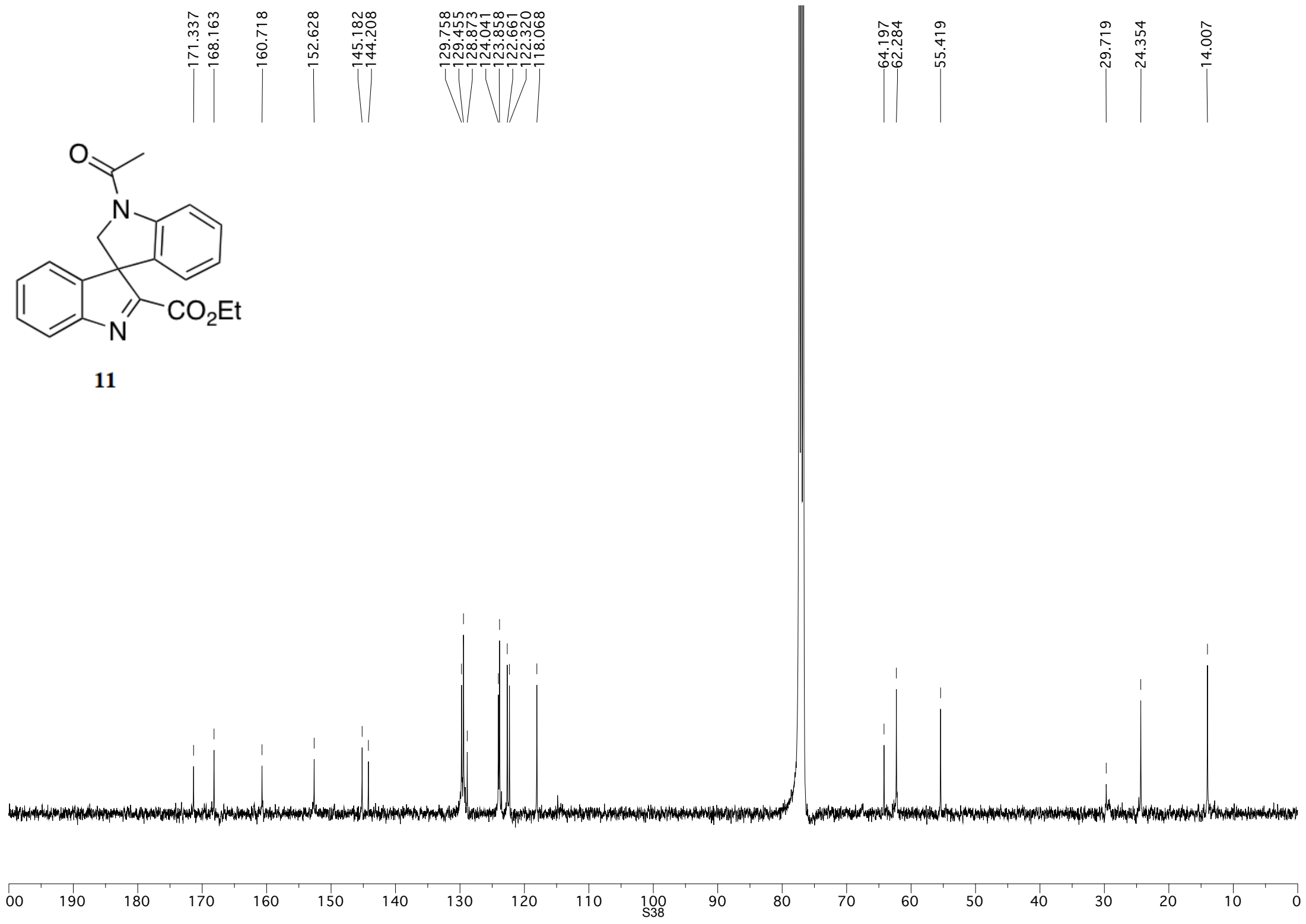




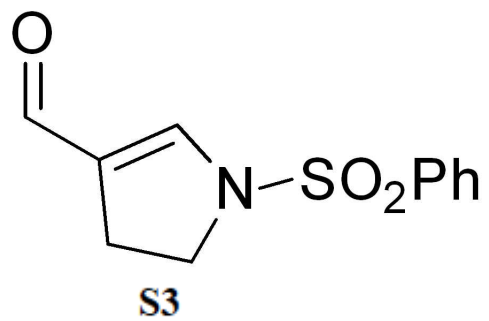
11

171.337
168.163
160.718
152.628
145.182
144.208
129.758
129.455
128.873
124.041
123.858
122.661
122.320
118.068

64.197
62.284
55.419
29.719
24.354
14.007



oh069.026 500

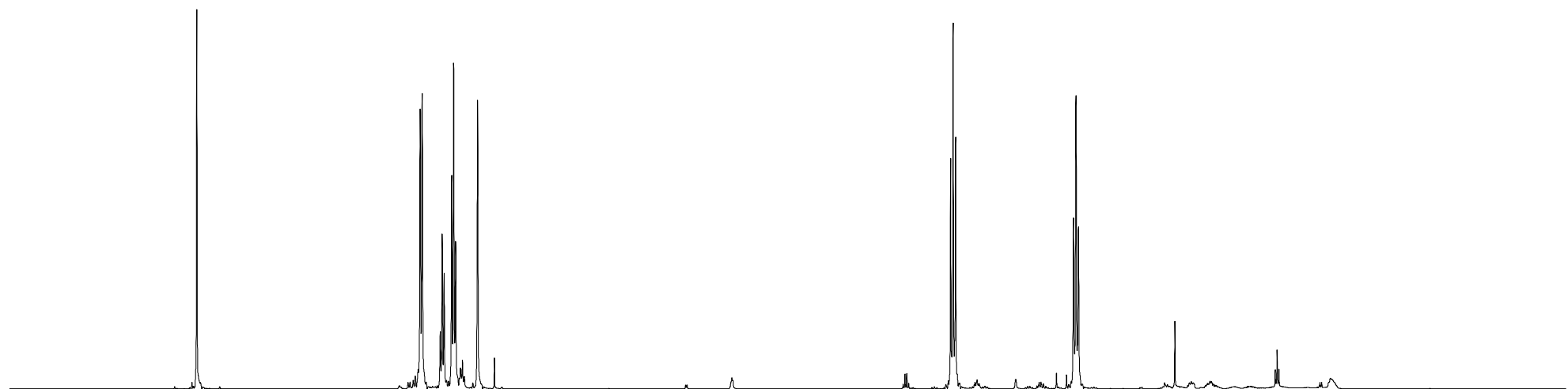


9.554

7.832
7.817
7.678
7.662
7.648
7.590
7.574
7.559
7.390

3.746
3.727
3.708

2.799
2.780
2.761



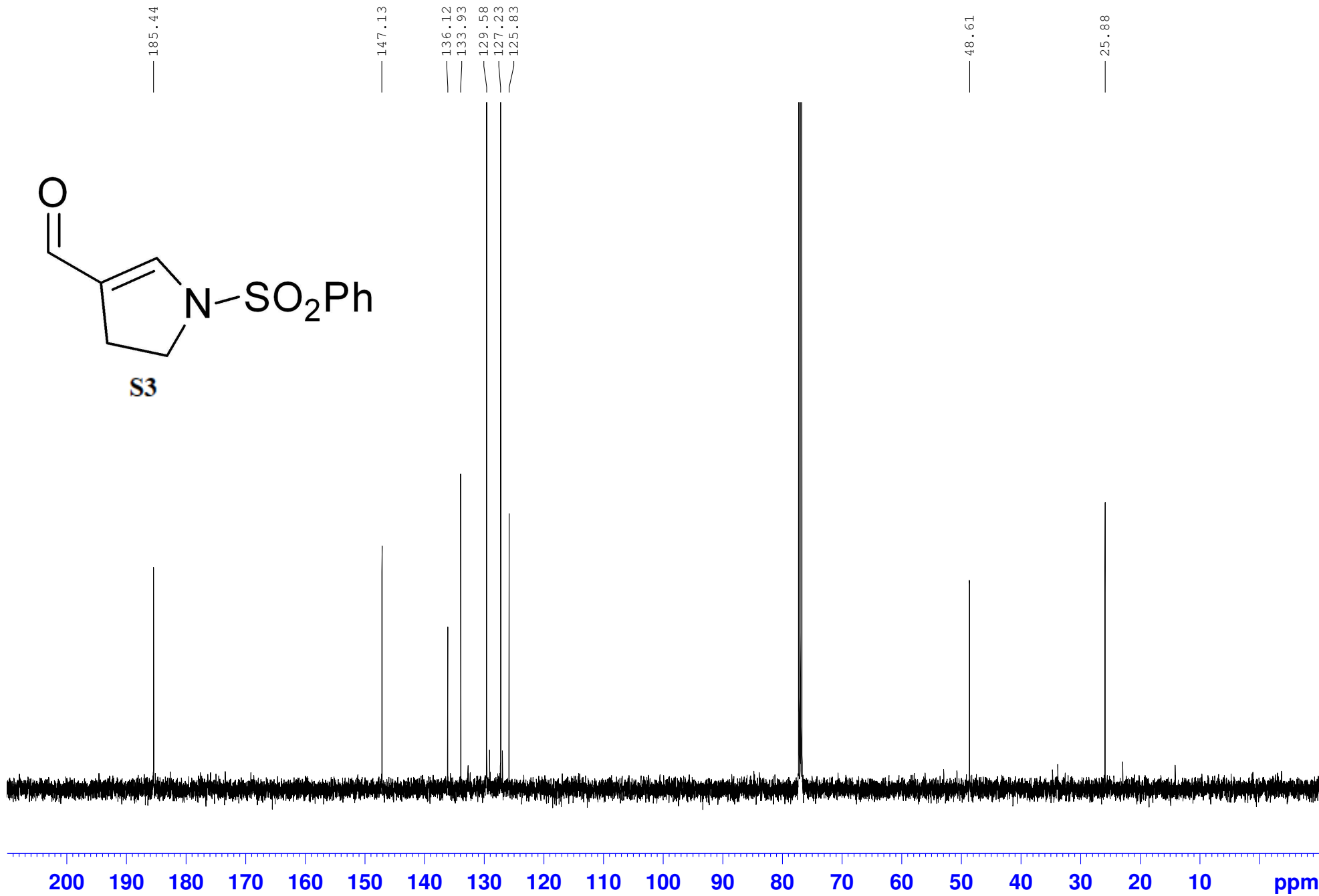
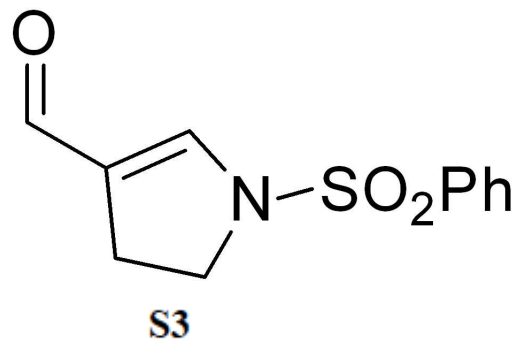
1.00

2.16
1.06
2.23

2.28

2.24

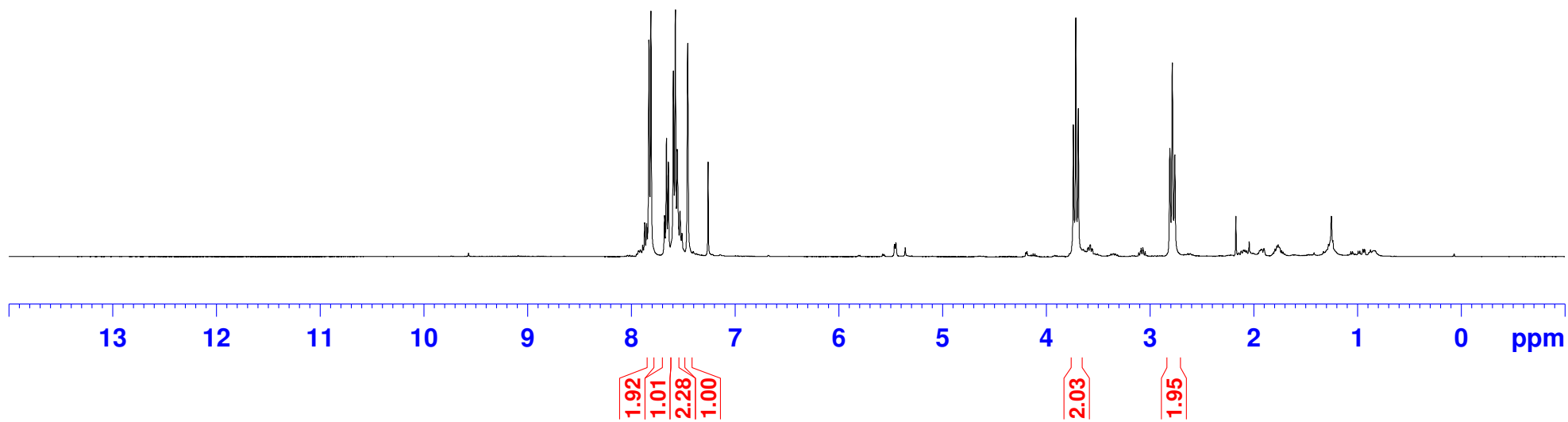
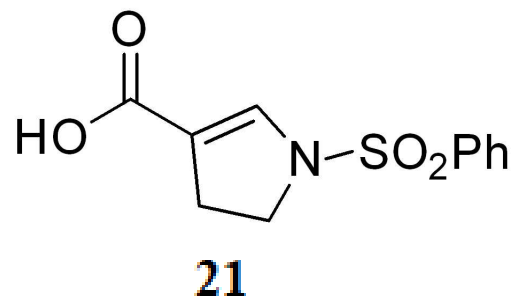
bh069.026_C 500



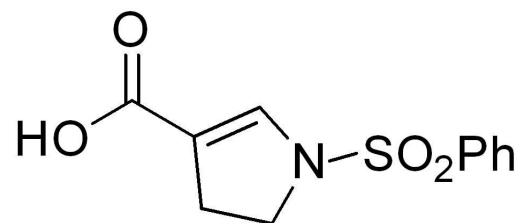
bh069.028.15-40 400b

7.831
7.811
7.680
7.662
7.643
7.595
7.575
7.556
7.457

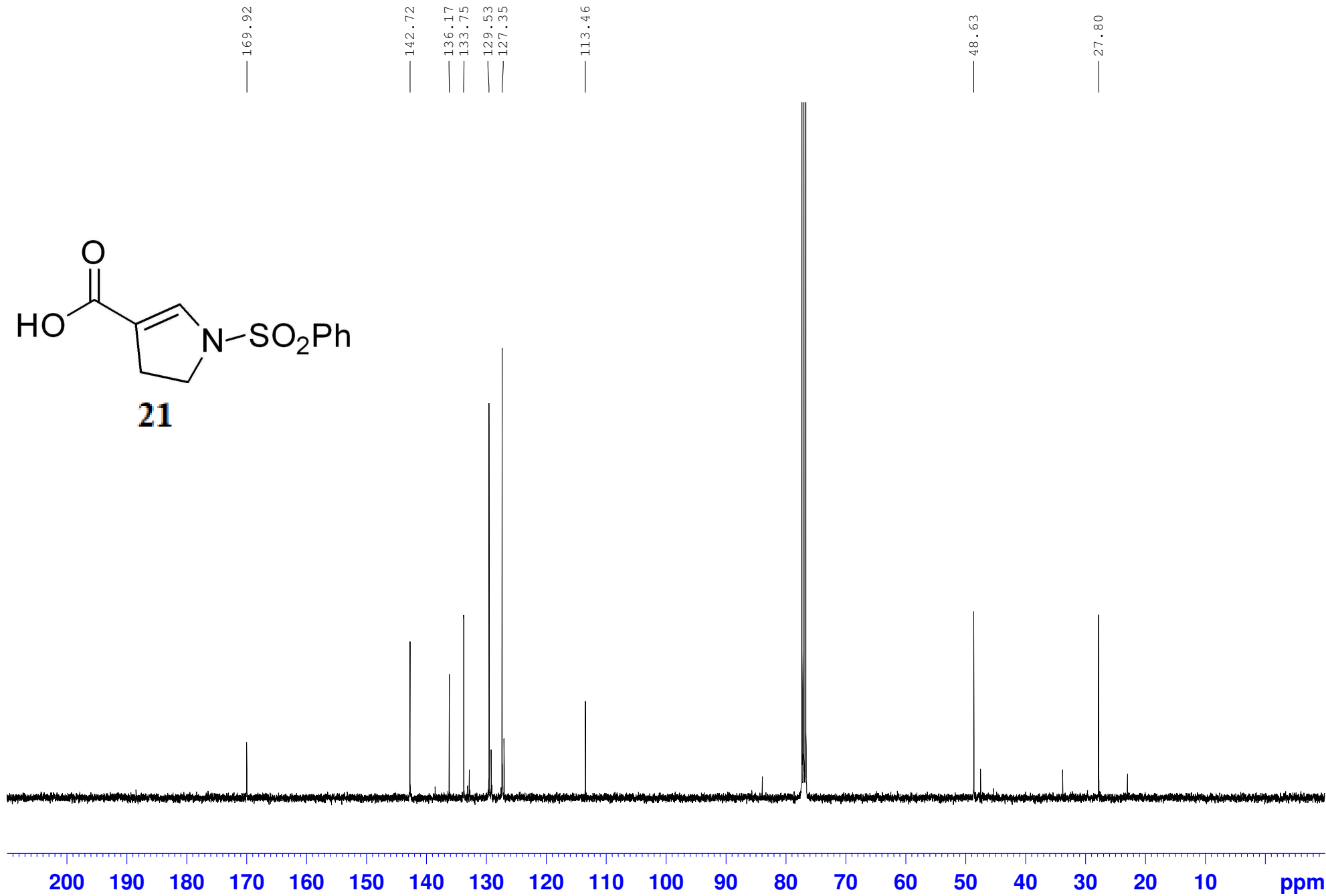
3.738
3.715
3.691
2.808
2.784
2.761



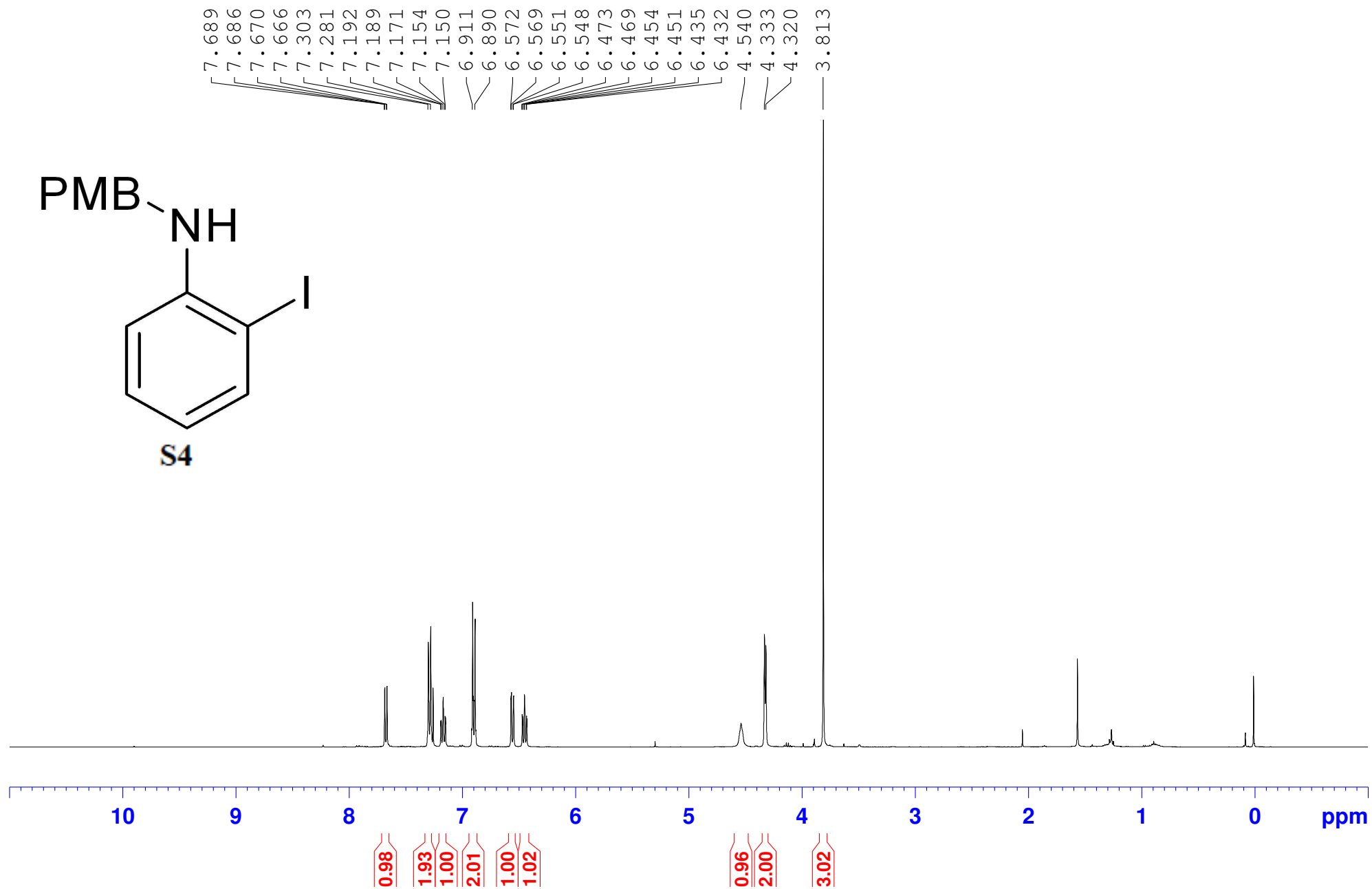
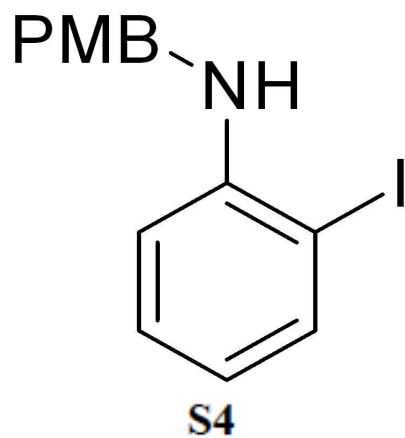
bh069.028.15-40_C 400b



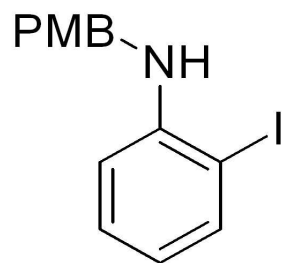
21



bh090.040 400B

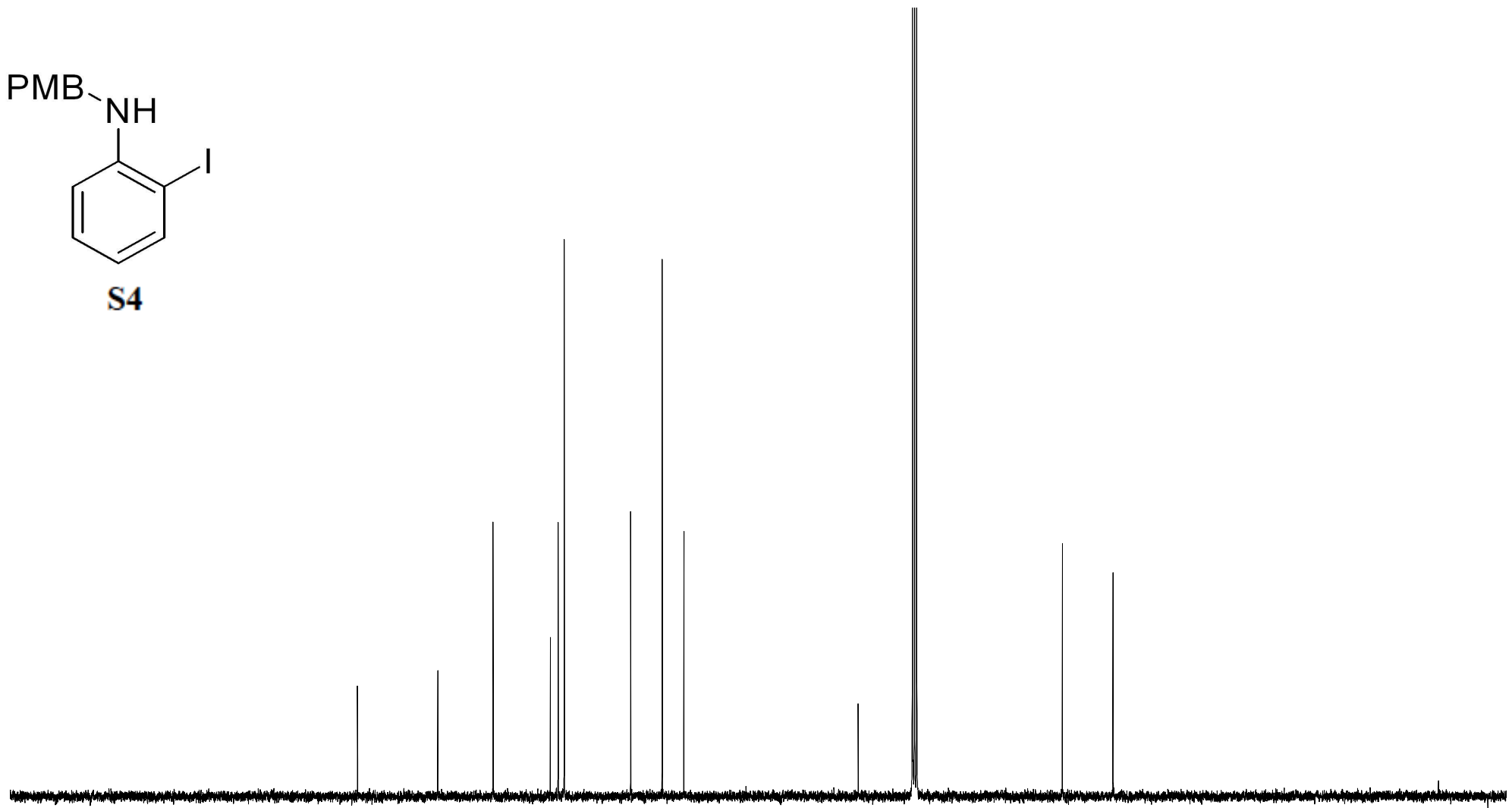


bh090.040_C 400B



S4

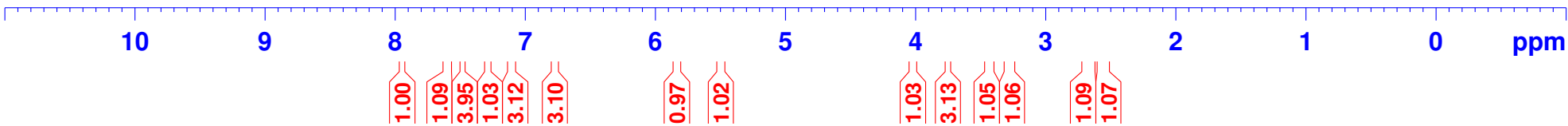
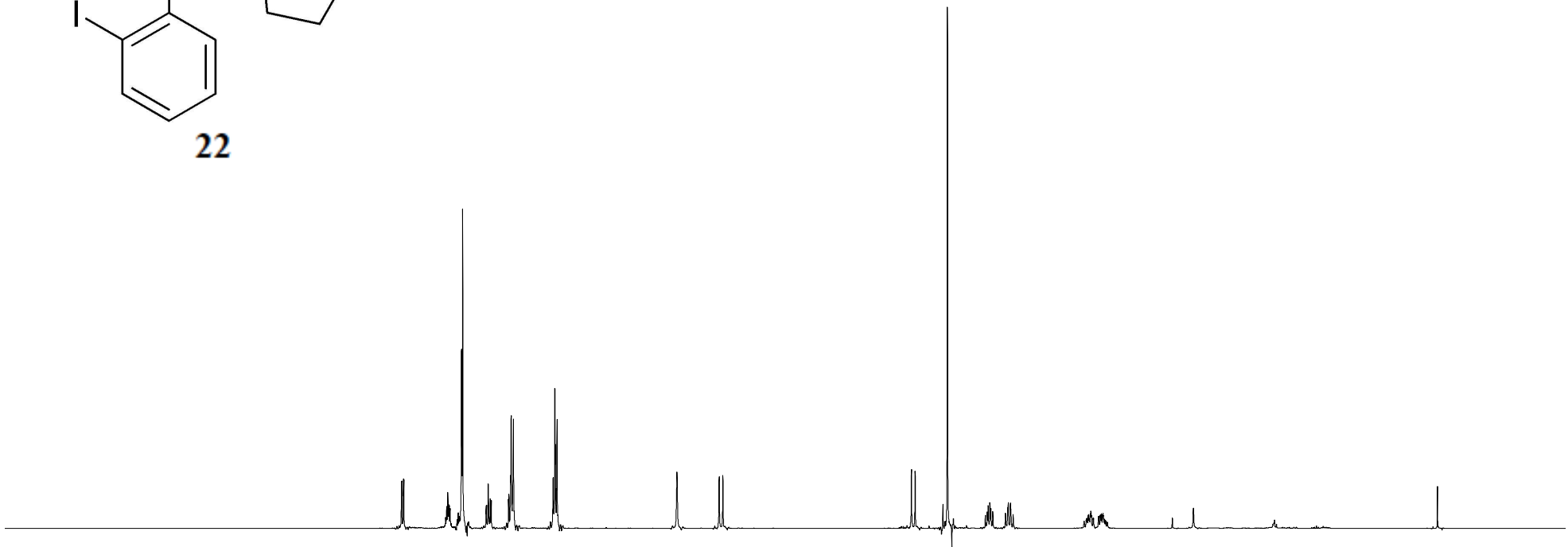
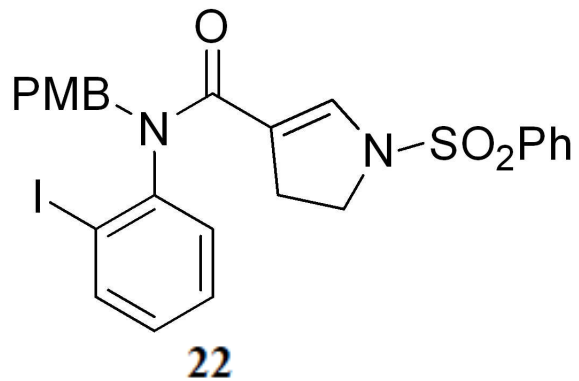
- 158.88
- 147.08
- 138.95
- 130.54
- 129.39
- 128.49
- 118.74
- 114.09
- 110.91
- 85.28
- 55.27
- 47.82



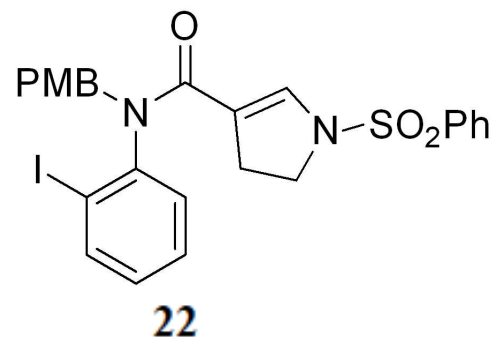
200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ppm

bh090.050 500

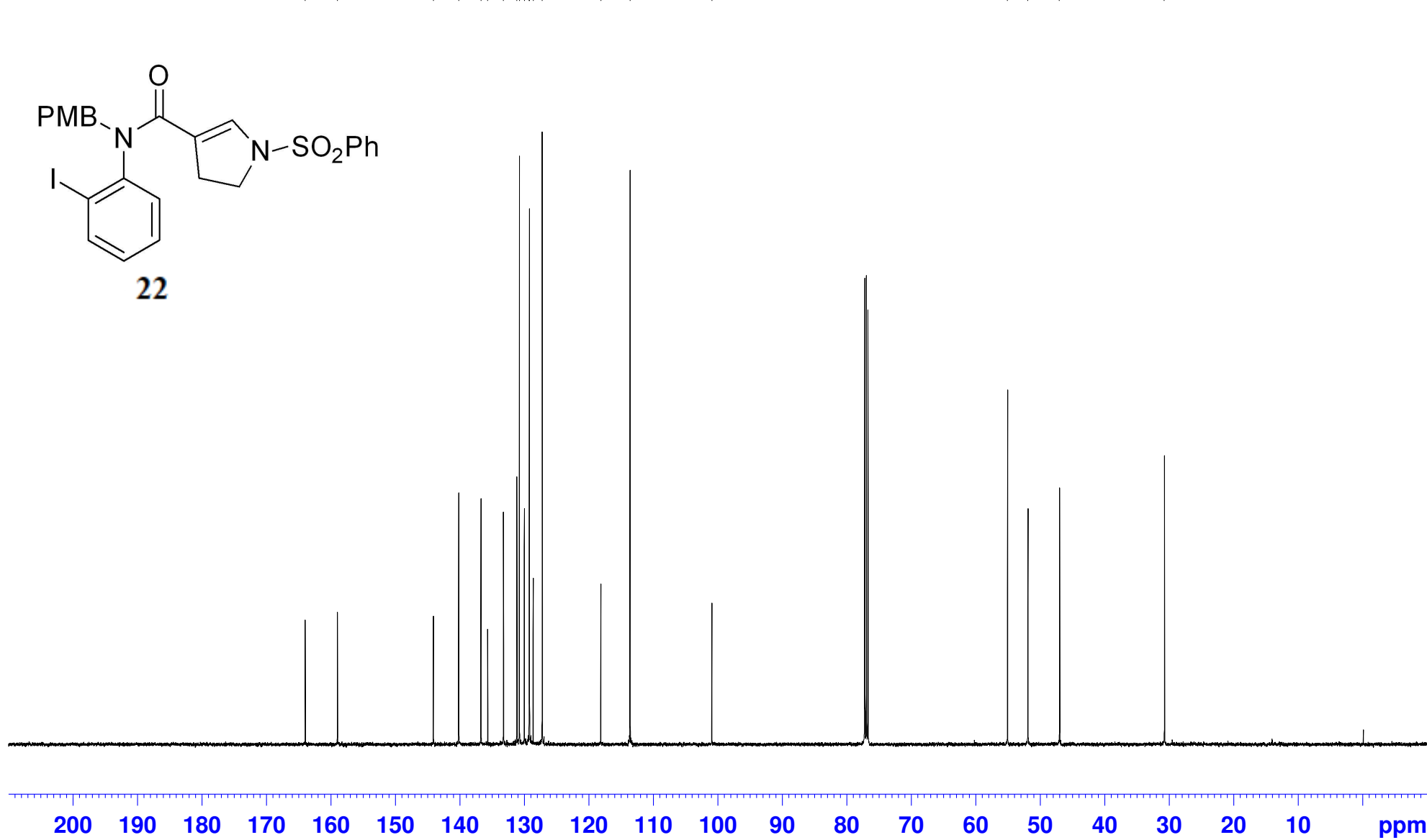
7.951
7.949
7.936
7.933
7.602
7.595
7.592
7.587
7.585
7.577
7.490
7.488
7.480
7.300
7.297
7.285
7.282
7.269
7.266
7.127
7.124
7.112
7.107
7.103
7.097
7.094
7.090
6.786
6.783
6.772
6.768
6.758
6.755
5.833
5.508
5.480
4.031
4.002
3.754
3.448
3.442
3.440
3.428
3.426
3.420
3.406
3.308
3.291
3.288
3.285
3.271
3.269
3.265
2.657
2.653
2.651
2.571
2.557



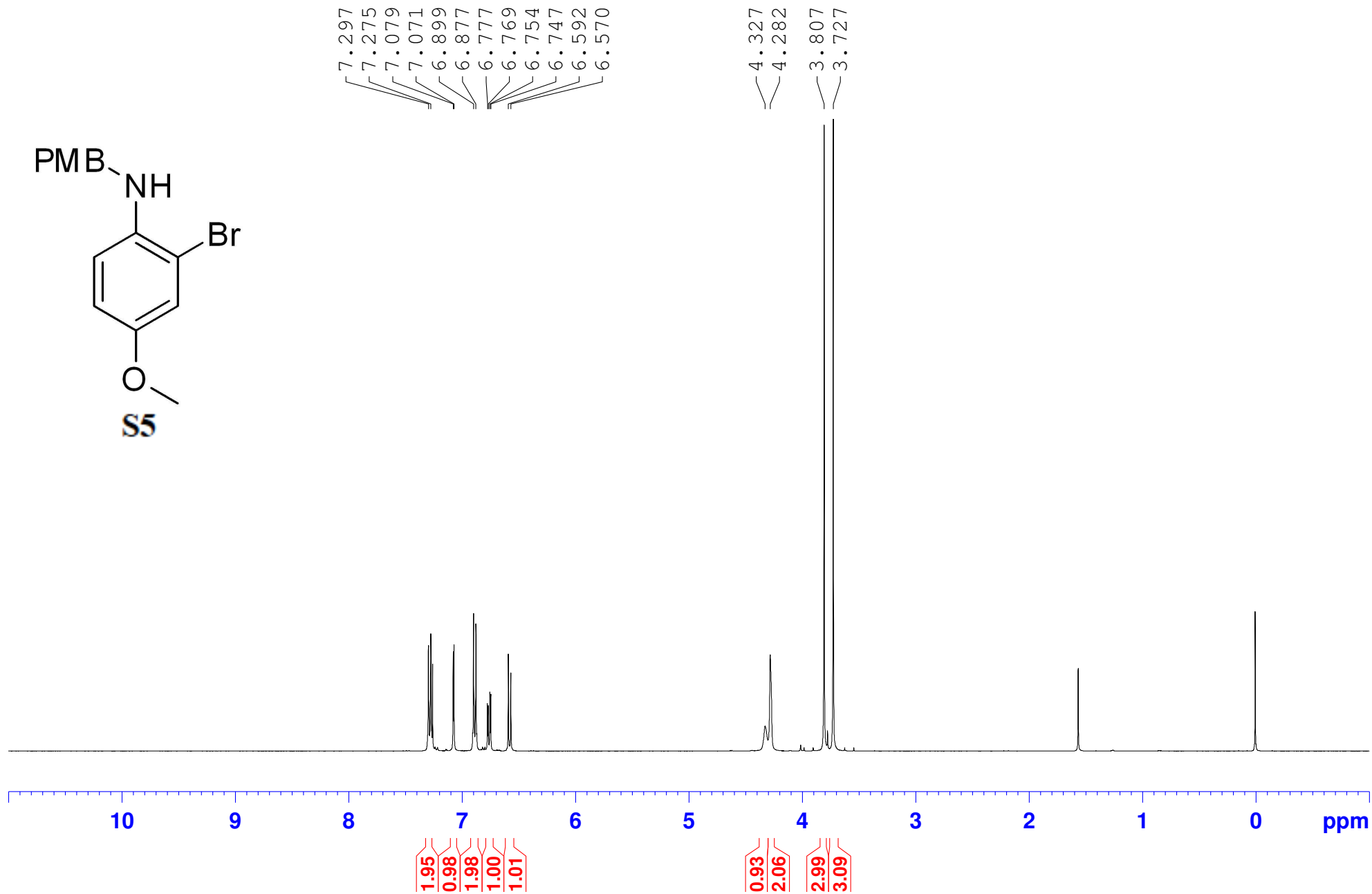
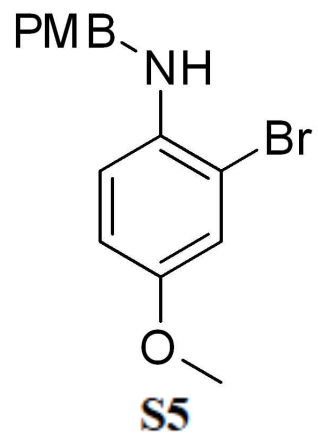
bh090.050_C 500

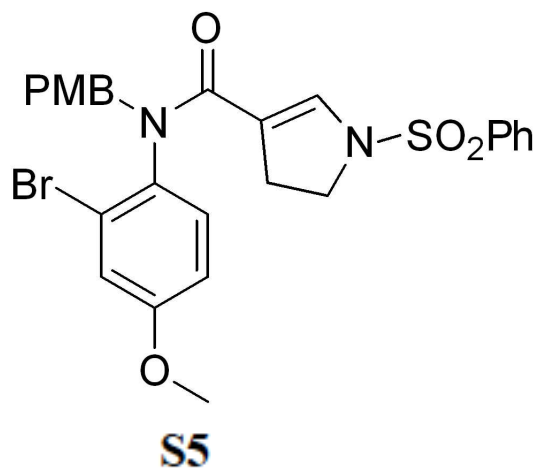


163.97
158.98
144.09
140.17
136.72
135.67
133.22
131.14
130.76
129.99
129.24
129.19
128.62
127.21
118.13
113.60
100.91
55.10
51.95
47.03
30.77



bh090.020.7-11 400b





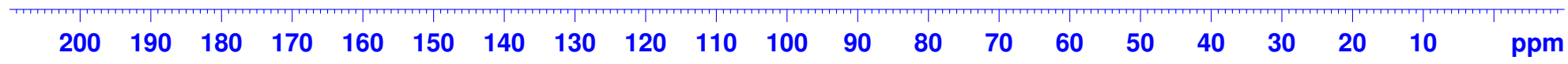
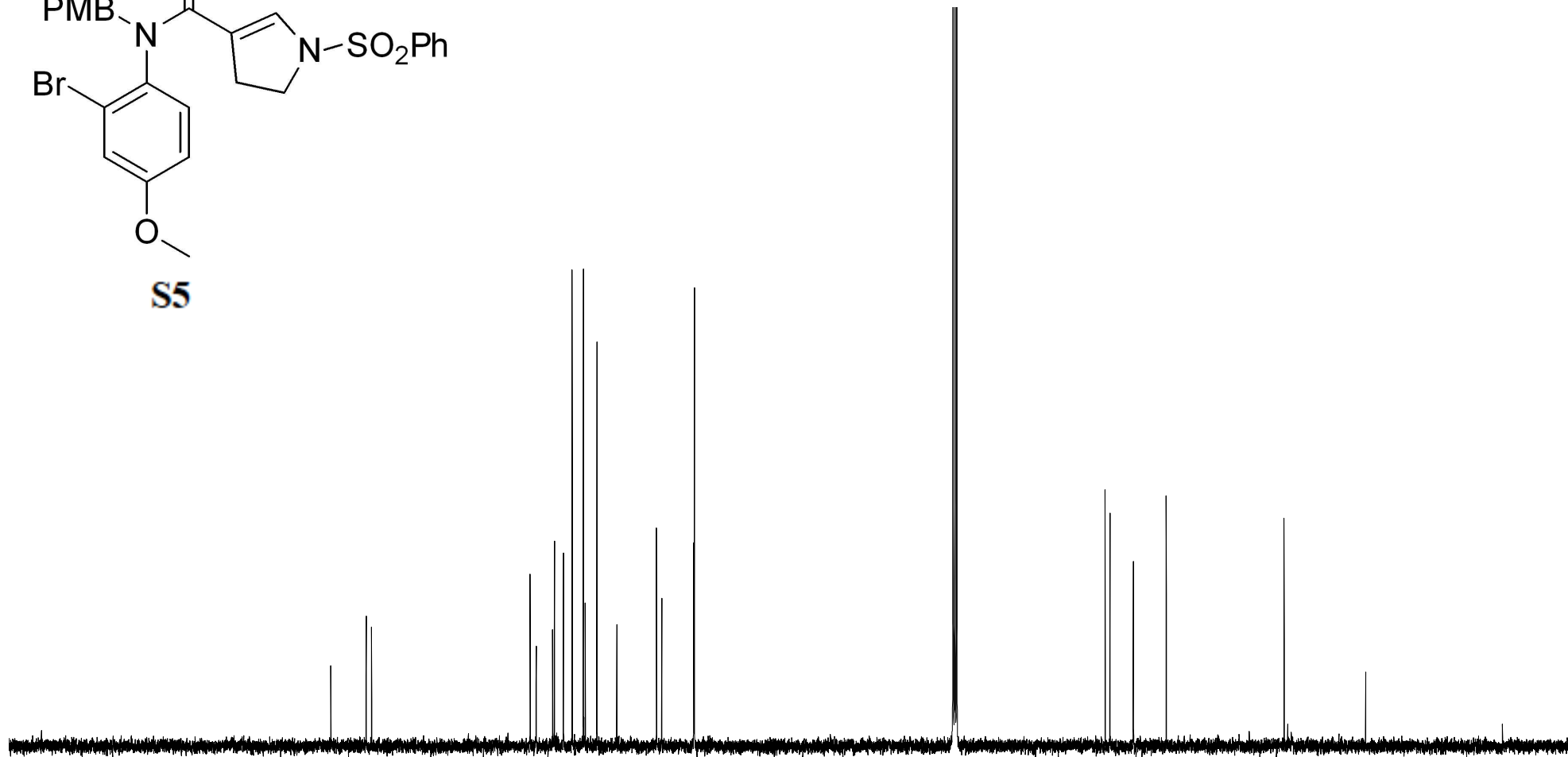
4.75
9.78
9.00

136.71
135.85
133.56
133.28
132.00
130.79
129.20
128.95
127.30
124.57
118.99
118.24
113.75
113.65

55.86
55.19
51.90
47.27

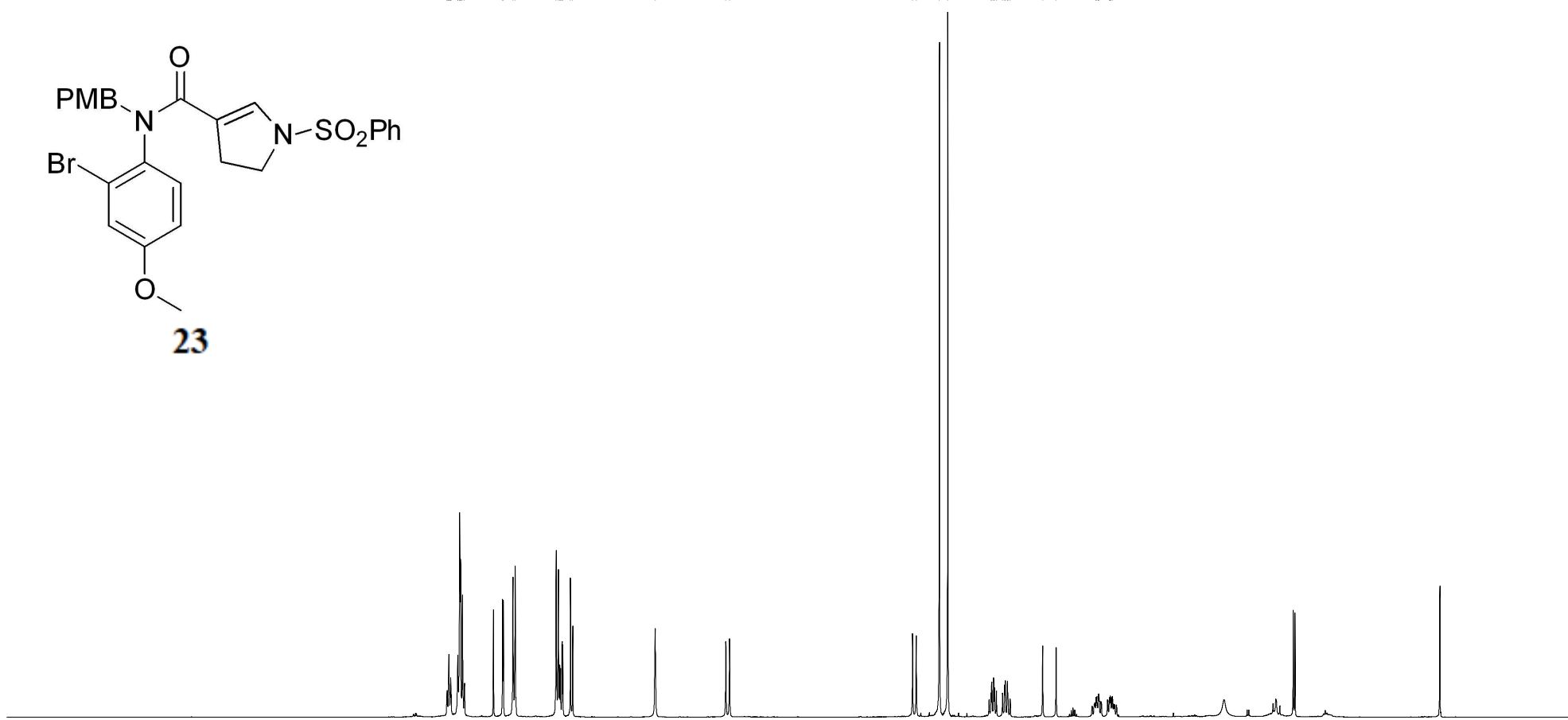
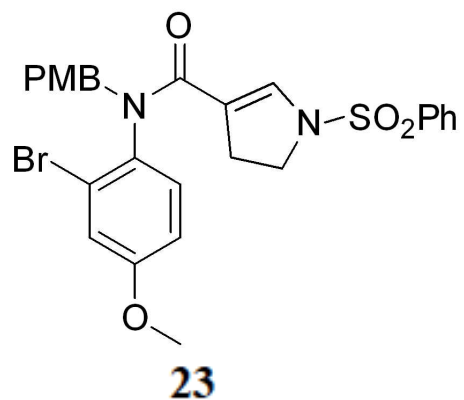
30.69

19.22



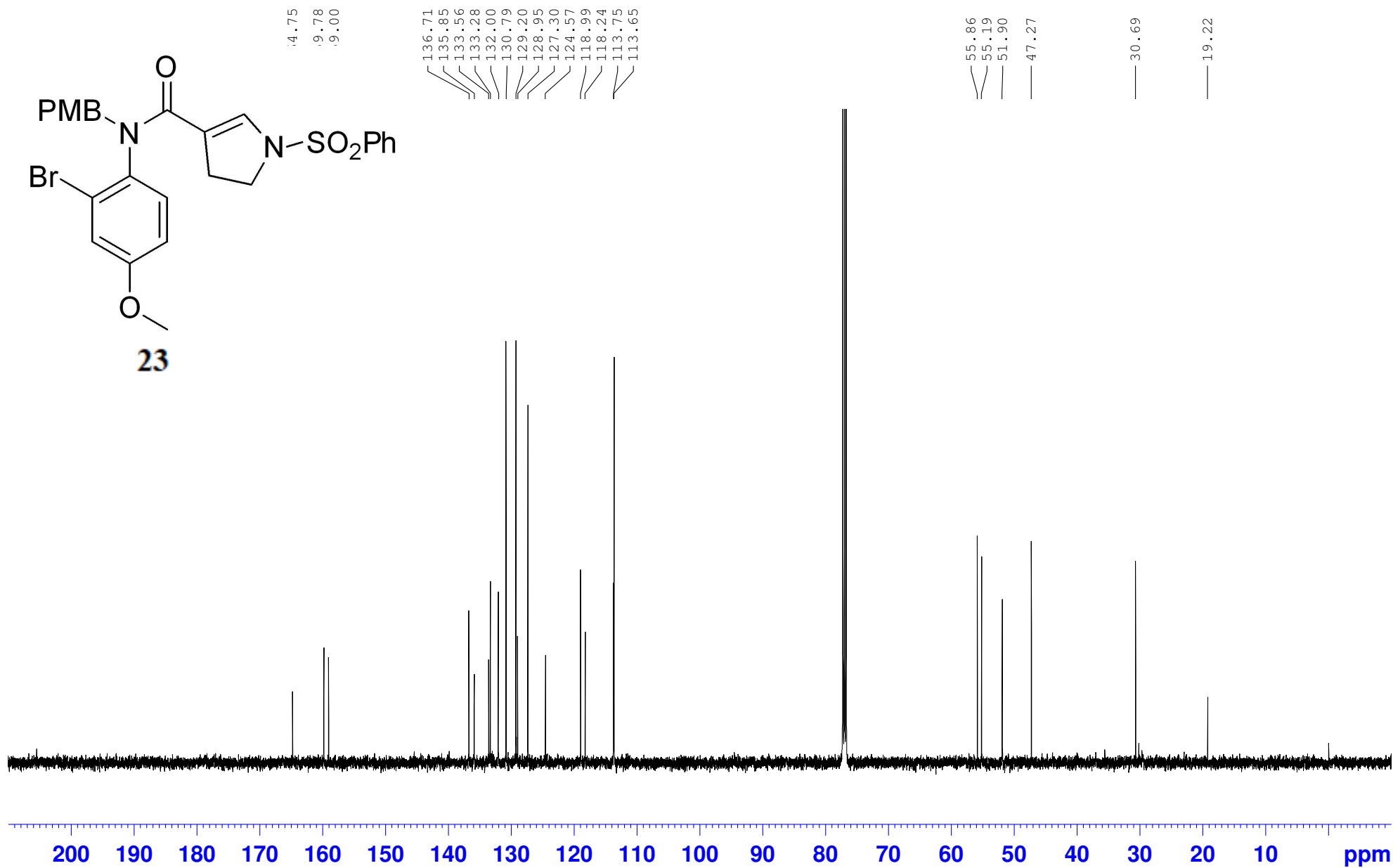
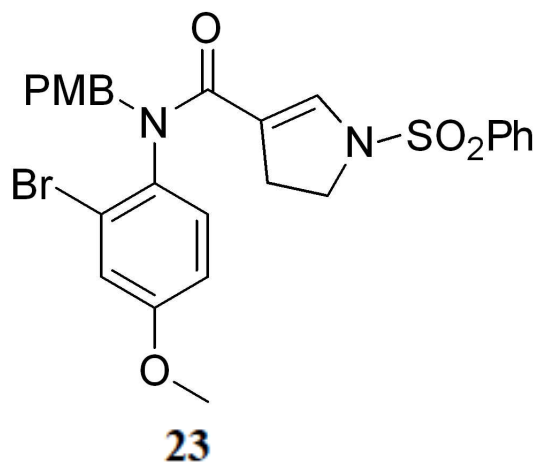
bh090.012.36-42 500

7.621
7.617
7.611
7.607
7.604
7.597
7.593
7.589
7.538
7.536
7.525
7.521
7.518
7.512
7.503
7.487
7.195
7.189
7.115
7.098
6.783
6.766
6.756
6.750
6.738
6.733
6.674
6.656
6.023
5.481
5.453
4.048
4.019
3.841
3.777
3.446
3.440
3.426
3.418
3.404
3.357
3.341
3.335
3.319
3.315
3.299
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2.620
2.617
2.537
2.534
2.529
2.526
2.515

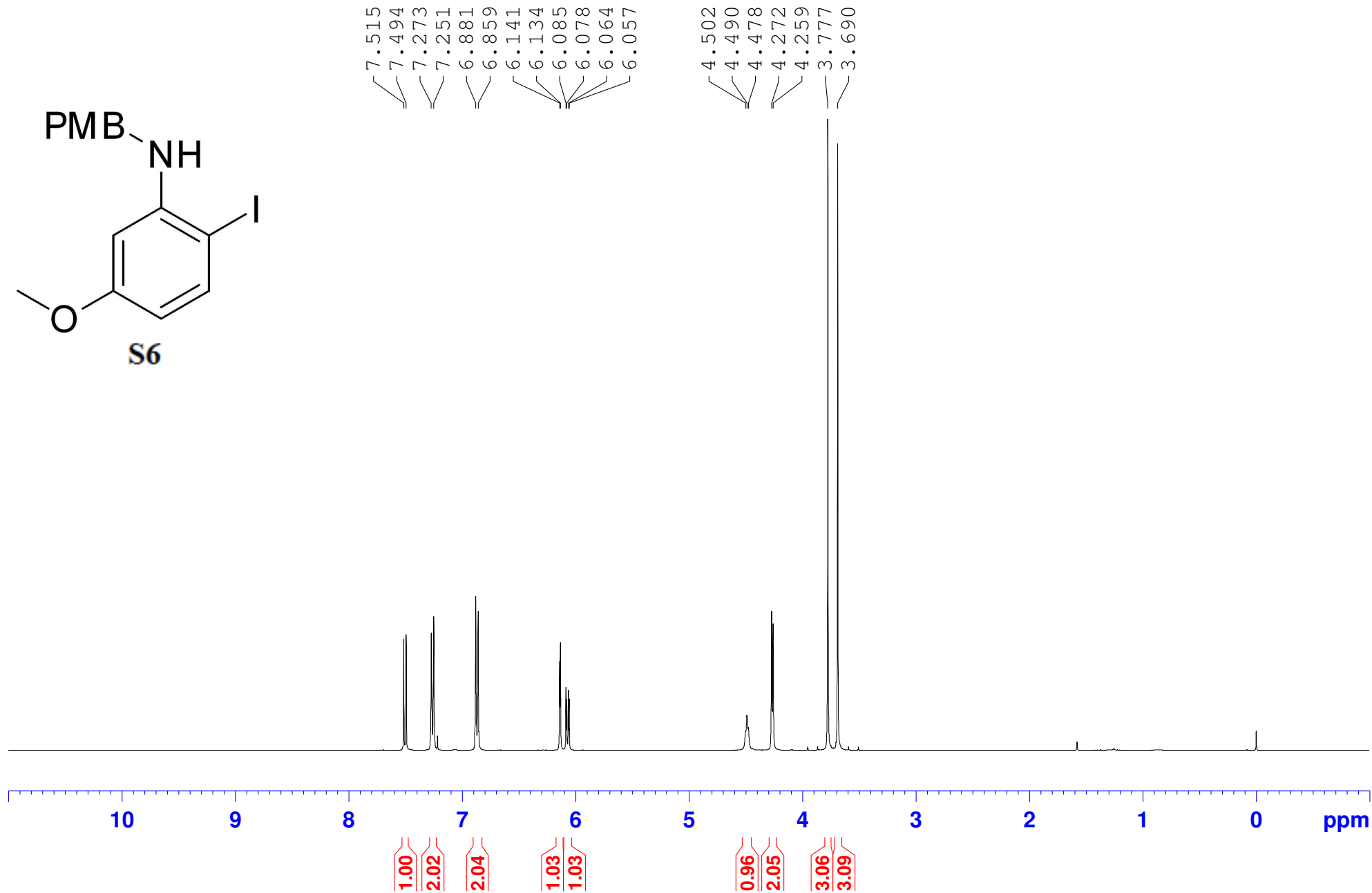
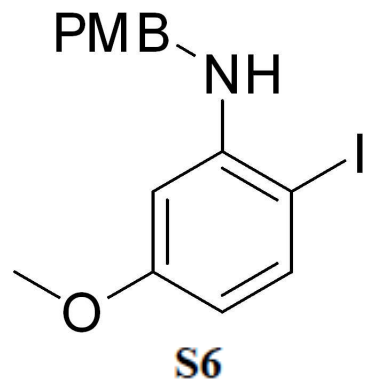


10 9 8 7 6 5 4 3 2 1 0 ppm

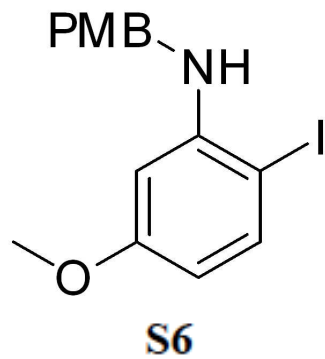
1.20
4.28
1.05
2.11
2.01
1.07
1.06
1.00
1.09
1.13
3.29
3.26
1.15
1.09
0.88
1.11
1.14



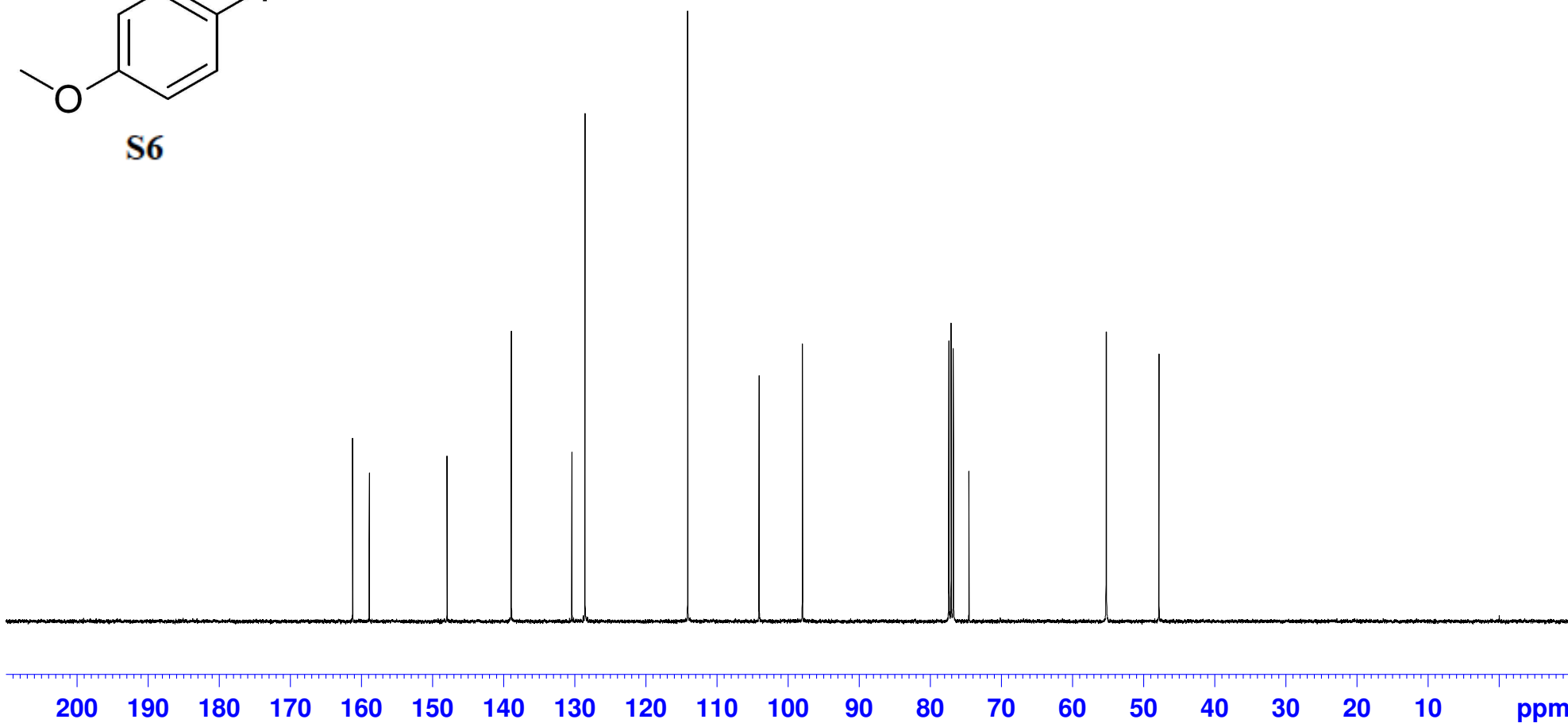
bh090.01.14-17 400b



bh090.01.14-17_C 400b

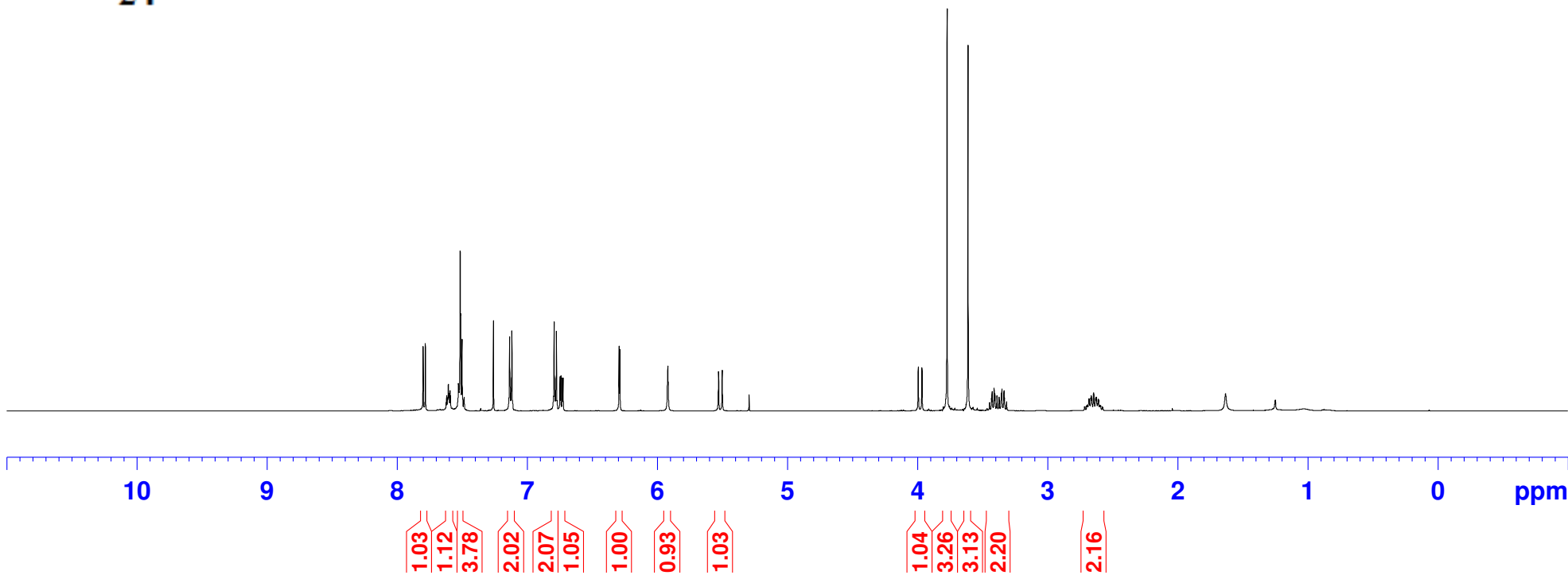
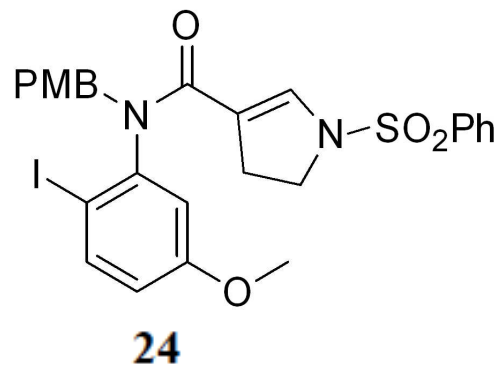


161.19
158.83
147.90
138.86
130.34
128.50
114.04
104.01
97.91
74.50
55.20
55.15
47.76

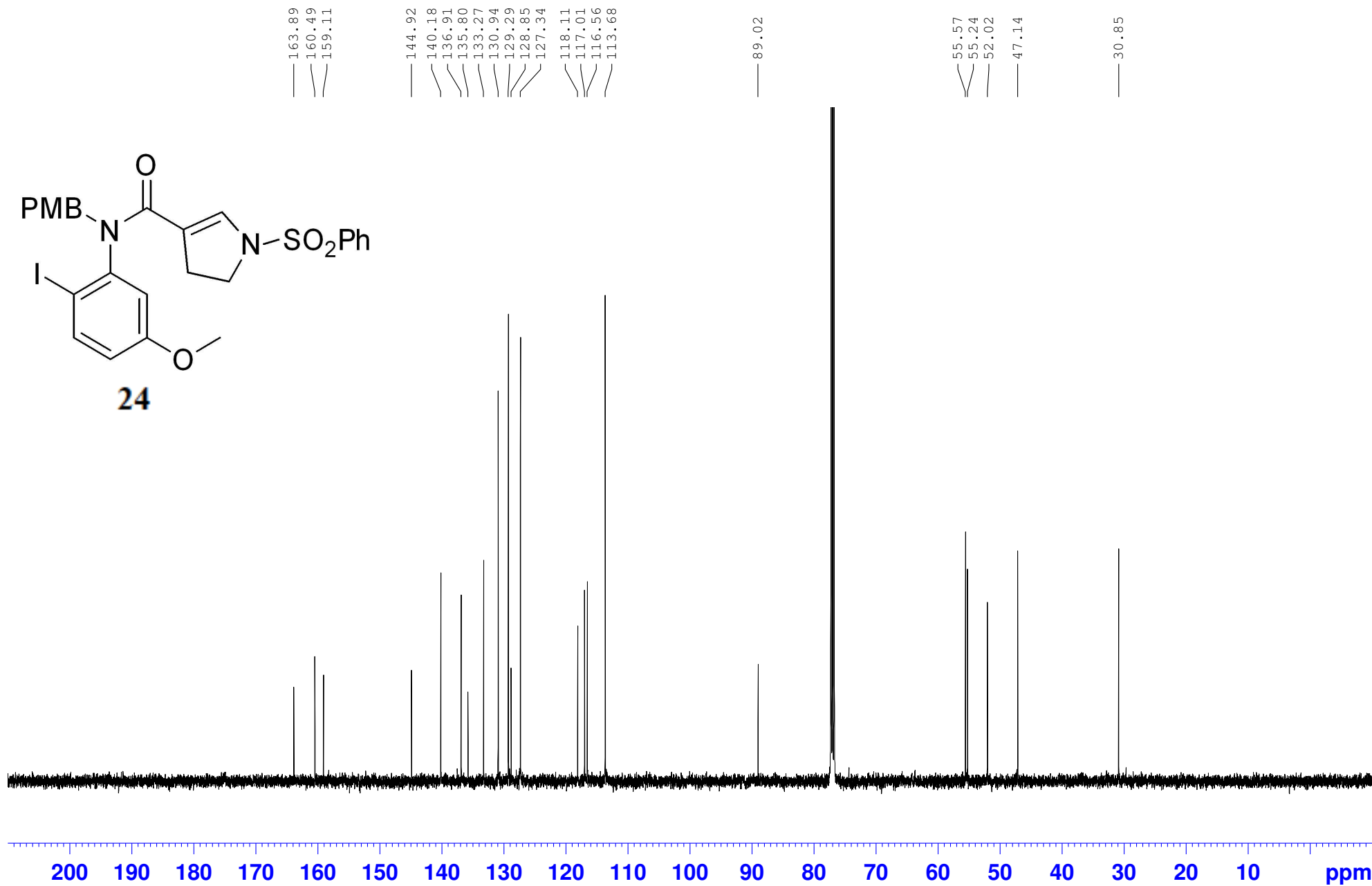
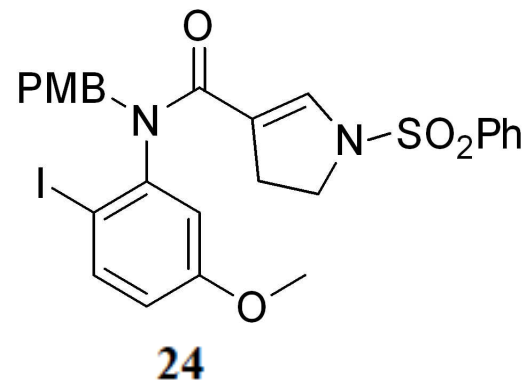


bh090.019 500

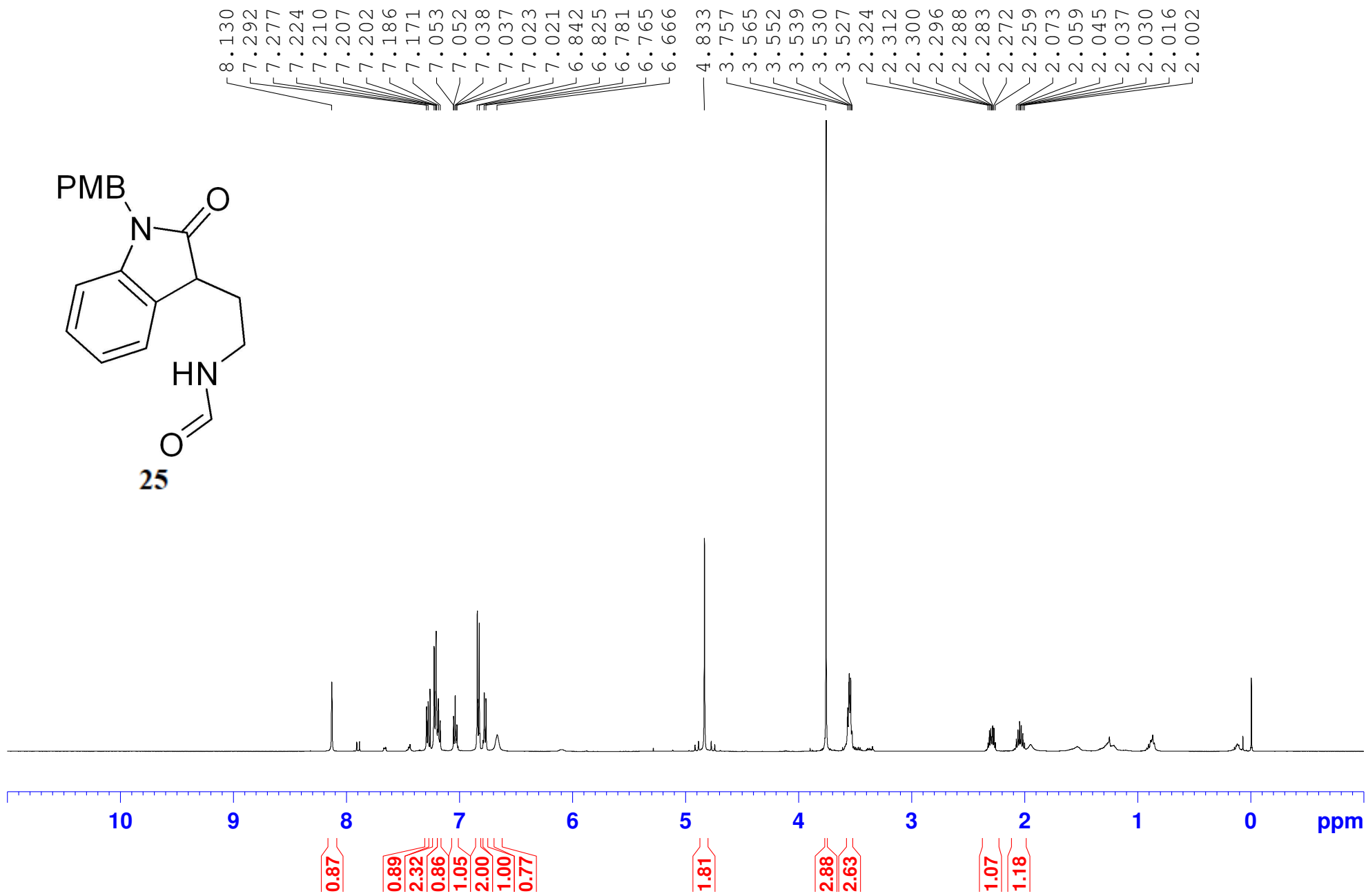
7.801
7.783
7.620
7.614
7.612
7.609
7.607
7.603
7.602
7.599
7.594
7.589
7.529
7.526
7.516
7.515
7.512
7.502
7.497
7.136
7.132
7.122
7.118
6.793
6.789
6.780
6.776
6.748
6.742
6.731
6.724
6.294
6.288
5.919
5.530
5.501
3.995
3.966
3.773
3.612
3.432
3.427
3.412
3.405
3.390
3.373
3.357
3.351
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3.331
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2.665
2.663
2.646
2.633
2.630
2.626
2.623



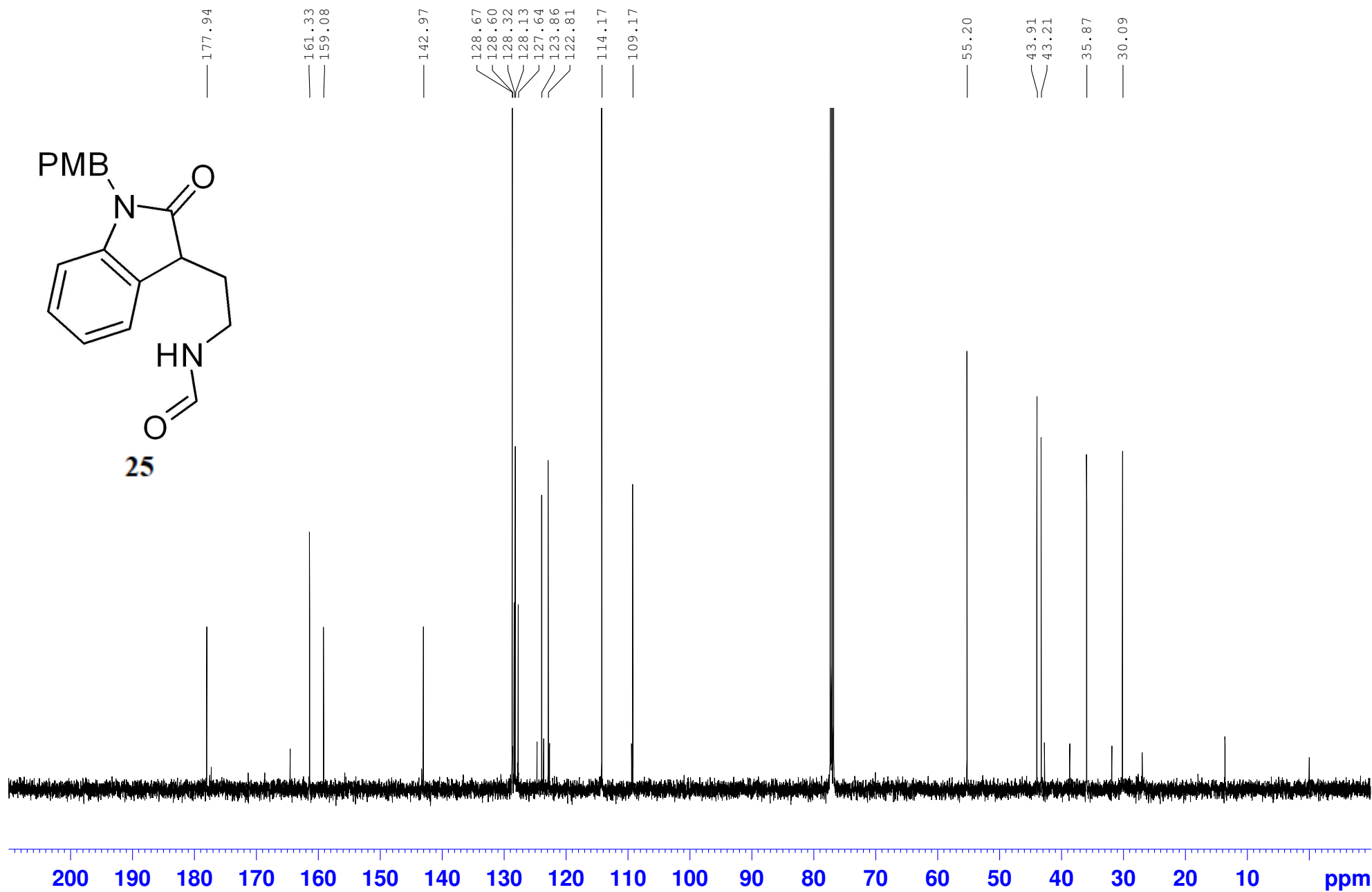
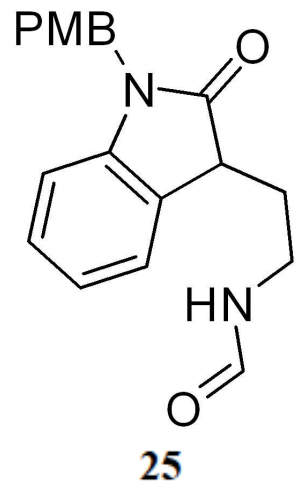
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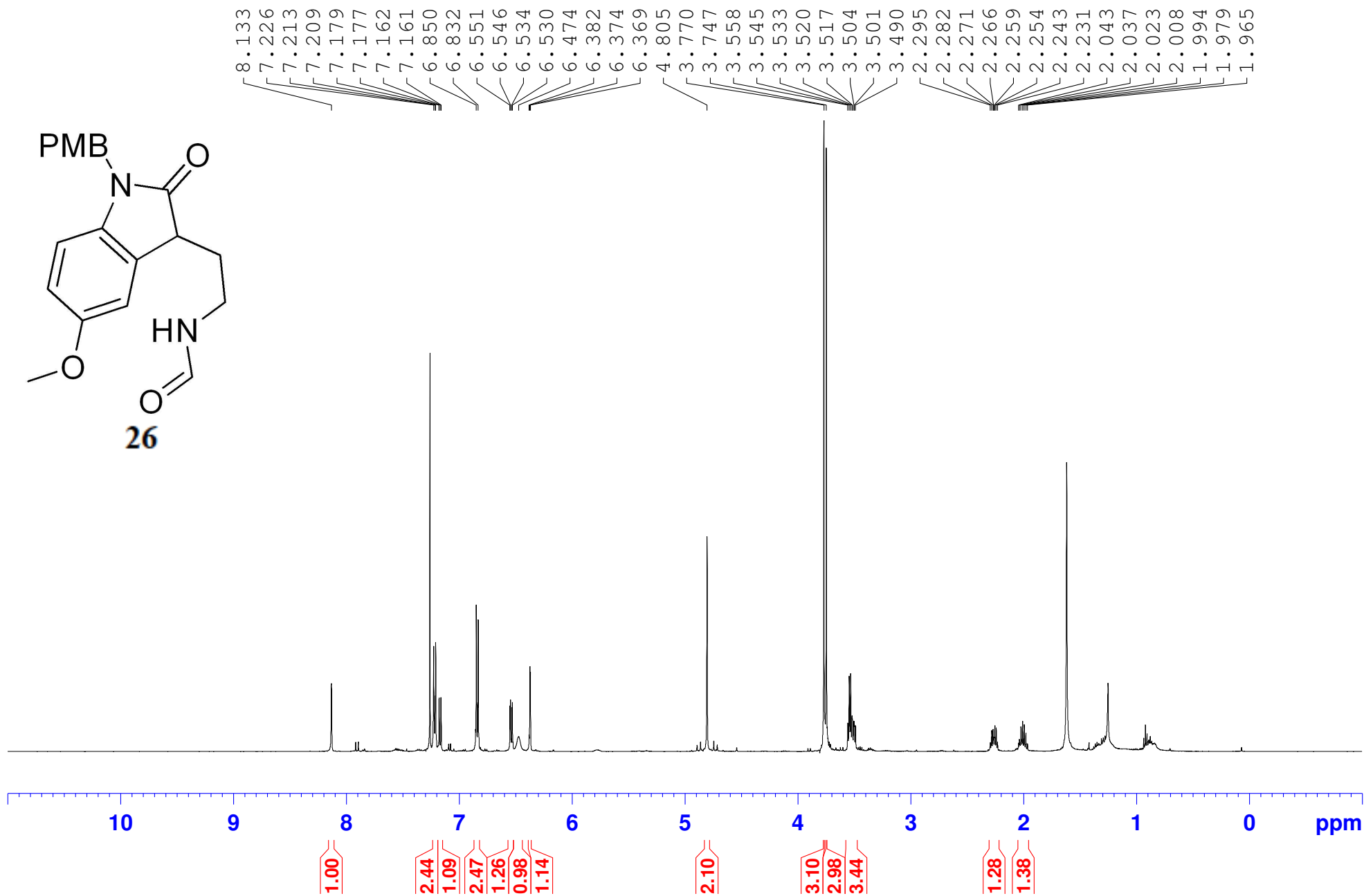


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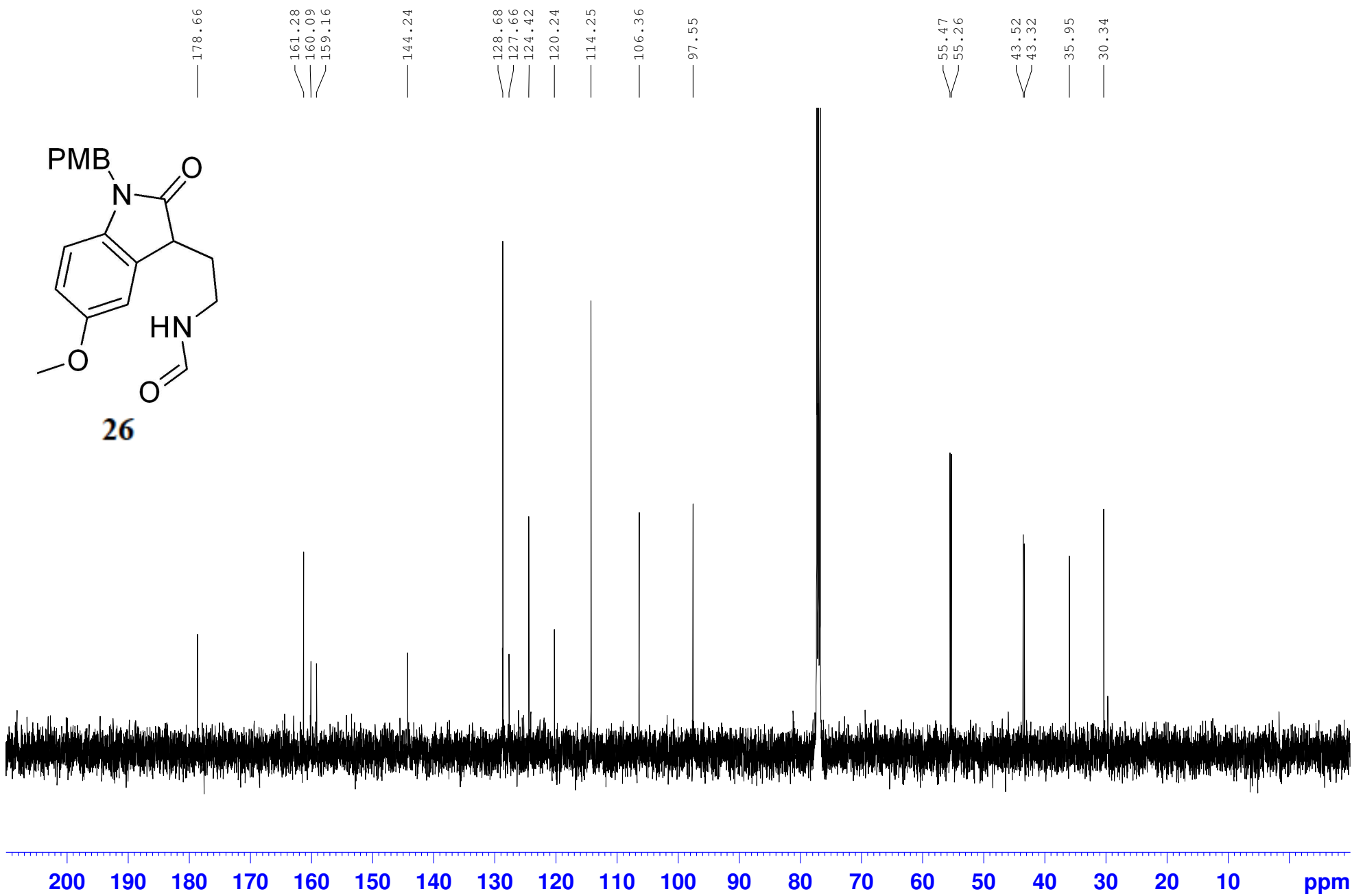


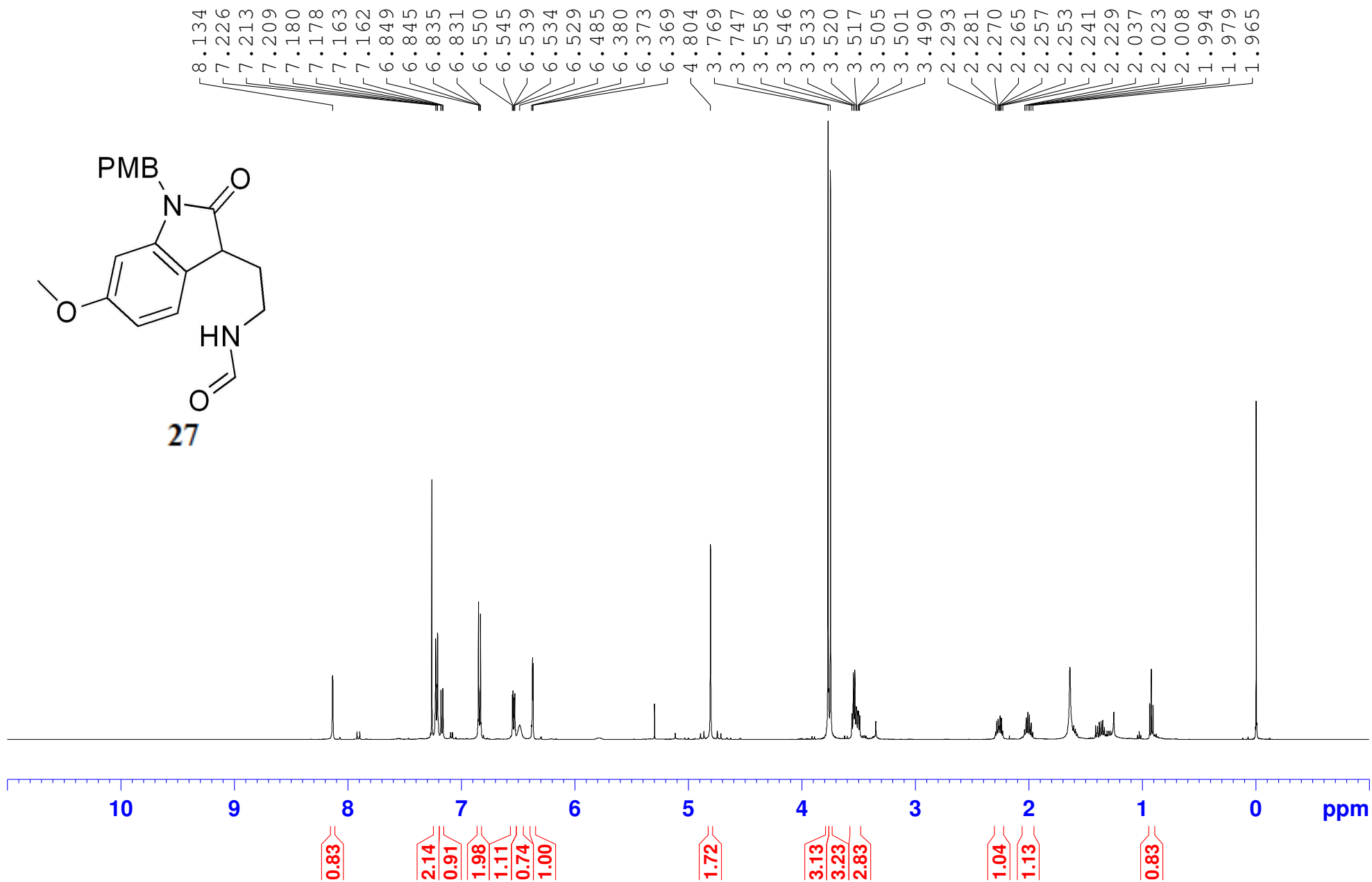
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