Supporting Information

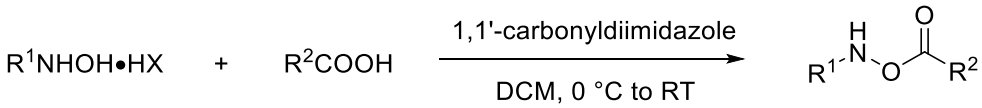
Contents

1. General information

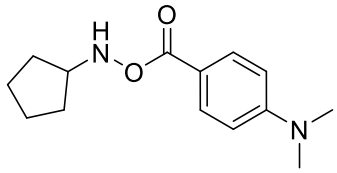
All commercial reagents were purchased from Sigma-Aldrich, Strem, Acros, TCI or Alfa Aesar and used as such unless stated otherwise. Solvents (Anhydrous and under inert atmosphere) were collected from The Solvent purification system by M BRAUN and used under standard schlenk technique. NMR spectra were recorded on Bruker Avance 300 MHz and Bruker ARX 400 MHz spectrometers. Multiplets were assigned as s(singlet), d (doublet), t (triplet), q (quartet), dd (doublet of doublet), m (multiplet) and br. s (broad singlet). Coupling constants reported to 0.5 or 1.0 Hz accuracy. GC-yields were calculated using hexadecane as internal standard. All measurements were carried out at room temperature unless otherwise stated. Electron impact (EI) mass spectra were recorded on AMD 402 mass spectrometer (70 eV). The data are given as mass units per charge (m/z). Gas chromatography analysis was performed on an Agilent HP-7890A instrument with an FID detector and HP-5 capillary column (polydimethylsiloxane with 5% phenyl groups, 30 m, 0.32 mm i.d., 0.25 μm film thickness) using argon as carrier gas. The products were isolated from the reaction mixture by column chromatography on silica gel 60, 0.063-0.2 mm, 70-230 mesh (Merck). For chiral HPLC-analysis a device Agilent 1100 Series was used.

2. General Procedures

2.1 General Procedure I for the Preparation of Amine Electrophiles[1]



To a solution of benzoic acid (1.2 equiv) in CH_2Cl_2 (0.3 M) was added CDI (1.2 equiv) at 0 °C. After gas generation was over, hydroxyl amine was added and the mixture was stirred at room temperature for 12 h. The reaction mixture was monitored by TLC. After disappearance of starting material, the reaction mixture was quenched with distilled water and extracted with CH_2Cl_2 (3 times). The combined organic layer was washed with aqueous $NaHCO_3$ (2 times) and brine (1 time), dried over Na_2SO_4. After removal of solvent, the residue was purified by flash chromatography on silica gel to give a corresponding desired product compound. Hydroxylamine was prepared from estrone by procedure reported by Qiu Wang.[2]

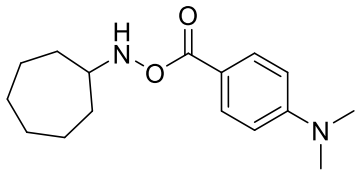


4-(((Cyclopentylamino)oxy)carbonyl)-*N*,*N*-dimethylaniline (2f)

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.99 – 7.80 (m, 2H), 6.71 – 6.43 (m, 2H), 3.64 (tt, *J* = 6.5, 3.0 Hz, 1H), 3.02 (s, 6H), 1.94 – 1.46 (m, 8H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.5, 153.5, 131.1, 114.9, 110.7, 62.2, 40.0, 30.4, 24.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{14}H_{20}N_2O_2$ $[M+H]^+$: 249.1603, Found: 249.1609.

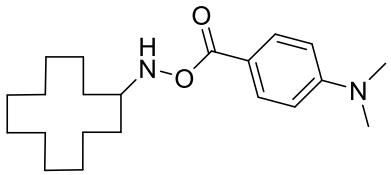


4-(((Cycloheptylamino)oxy)carbonyl)-*N*,*N*-dimethylaniline (2g)

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.97 – 7.74 (m, 2H), 6.65 – 6.48 (m, 2H), 3.18 – 3.03 (m, 1H), 2.96 (s, 6H), 1.95 – 1.81 (m, 2H), 1.70 – 1.57 (m, 2H), 1.54 – 1.33 (m, 8H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.5, 153.5, 131.1, 115.0, 110.8, 61.9, 40.0, 31.6, 28.7, 24.3.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{24}N_2O_2$ $[M+H]^+$: 277.1916, Found: 277.1912.

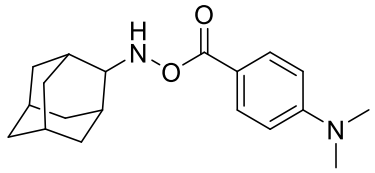


4-(((Cyclododecylamino)oxy)carbonyl)-*N*,*N*-dimethylaniline (2h)

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.93 – 7.85 (m, 2H), 7.79 (s, 1H), 6.69 – 6.53 (m, 2H), 3.19 (s, 1H), 3.03 (s, 6H), 1.68 – 1.16 (m, 22H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.5, 153.5, 131.0, 115.0, 110.8, 58.0, 40.0, 27.5, 24.4, 23.7, 23.5, 23.4, 21.5.

HRMS (ESI-TOF) m/z: Calcd. for $C_{21}H_{34}N_2O_2$ $[M+H]^+$: 347.2698, Found: 347.2702.

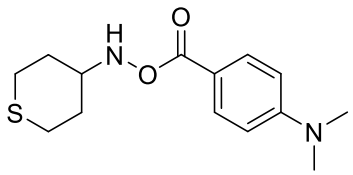


4-(((Adamantan-2-yl)amino)oxy)carbonyl)-*N,N*-dimethylaniline (2i)

^{1}H NMR (300 MHz, $CDCl_3$) δ 8.05 (s, 1H), 7.97 – 7.86 (m, 2H), 6.72 – 6.61 (m, 2H), 3.36 – 3.24 (m, 1H), 3.06 (s, 6H), 2.28 – 2.02 (m, 4H), 1.97 – 1.84 (m, 4H), 1.76 (s, 4H), 1.64 – 1.52 (m, 2H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.5, 153.5, 131.1, 115.1, 110.7, 64.6, 40.0, 37.7, 37.2, 31.5, 30.4, 27.7, 27.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{26}N_2O_2$ $[M+H]^+$: 315.2072, Found: 315.2079.

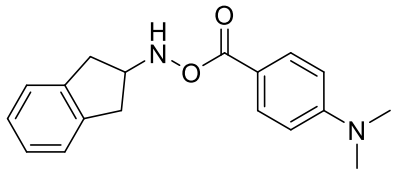


***N,N*-Dimethyl-4-((((tetrahydro-2H-thiopyran-4-yl)amino)oxy)carbonyl)aniline (2j)**

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.87 (d, *J* = 9.0 Hz, 2H), 6.64 (d, *J* = 9.0 Hz, 2H), 3.09 – 2.93 (m, 7H), 2.79 – 2.57 (m, 4H), 2.32 – 2.18 (m, 2H), 1.81 – 1.63 (m, 2H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.4, 153.6, 131.1, 114.4, 110.8, 59.1, 40.0, 31.6, 27.1.

HRMS (ESI-TOF) m/z: Calcd. for $C_{14}H_{20}N_2O_2S$ $[M+H]^+$: 303.1143, Found: 303.1141.

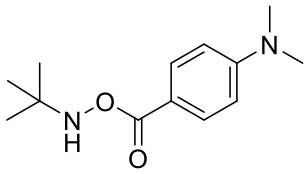


4-((((2,3-Dihydro-*1H*-inden-2-yl)amino)oxy)carbonyl)-*N,N*-dimethylaniline (2k)

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.99 – 7.82 (m, 2H), 7.33 – 7.10 (m, 4H), 6.80 – 6.60 (m, 2H), 4.20 (tt, *J* = 7.0, 5.0 Hz, 1H), 3.25 (dd, *J* = 16.5, 7.0 Hz, 2H), 3.14 – 2.95 (m, 8H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.3, 153.6, 141.0, 131.1, 126.7, 124.8, 114.6, 110.8, 61.5, 40.1, 37.3.

HRMS (ESI-TOF) m/z: Calcd. for $C_{18}H_{20}N_2O_2$ $[M+H]^+$: 297.1603, Found: 297.1607.

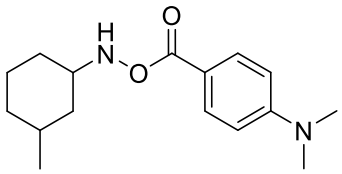


4-(((*tert*-Butylamino)oxy)carbonyl)-*N*,*N*-dimethylaniline (2l)

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.82 (d, *J* = 9.0 Hz, 2H), 6.57 (d, *J* = 9.0 Hz, 3H), 2.95 (s, 6H), 1.13 (s, 9H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.3, 153.5, 131.0, 114.8, 110.8, 55.9, 40.0, 26.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{13}H_{20}N_2O_2$ $[M+H]^+$: 237.1603, Found: 237.1605.

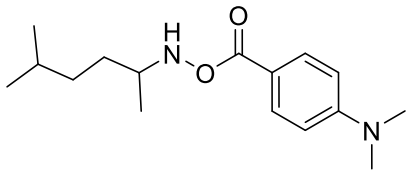


***N*,*N*-Dimethyl-4-((((3-methylcyclohexyl)amino)oxy)carbonyl)aniline (2m)**

^{1}H NMR (300 MHz, $CDCl_3$) δ 8.02 – 7.83 (m, 2H), 6.70 – 6.49 (m, 2H), 3.34 (dd, *J* = 6.0, 2.5 Hz, 1H), 3.04 (d, *J* = 1.0 Hz, 6H), 1.98 – 1.04 (m, 8H), 0.93 (dd, *J* = 6.5, 5.5 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 167.5, 167.5, 153.5, 153.5, 131.1, 131.0, 114.9, 114.9, 110.7, 60.2, 55.8, 40.0, 39.0, 36.6, 34.6, 33.9, 31.4, 30.1, 28.8, 26.9, 24.4, 22.6, 21.5, 20.3, 14.2.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{24}N_2O_2$ $[M+H]^+$: 277.1916, Found: 277.1919.

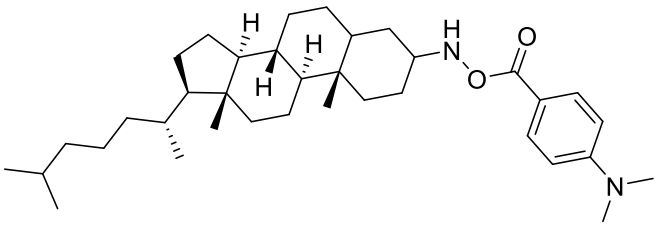


***N*,*N*-Dimethyl-4-((((5-methylhexan-2-yl)amino)oxy)carbonyl)aniline (2n)**

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.91 (d, *J* = 9.0 Hz, 2H), 6.67 (d, *J* = 9.0 Hz, 2H), 3.14 (q, *J* = 6.5 Hz, 1H), 3.06 (s, 6H), 1.69 – 1.52 (m, 2H), 1.43 – 1.36 (m, 1H), 1.34 – 1.26 (m, 2H), 1.19 (d, *J* = 6.5 Hz, 3H), 0.91 (dd, *J* = 65, 1.0 Hz, 6H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 167.5, 153.5, 131.0, 114.9, 110.8, 57.0, 40.0, 35.0, 31.9, 28.2, 26.9, 22.6, 22.5, 18.2.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{26}N_2O_2$ $[M+H]^+$: 279.2072, Found: 279.2072.



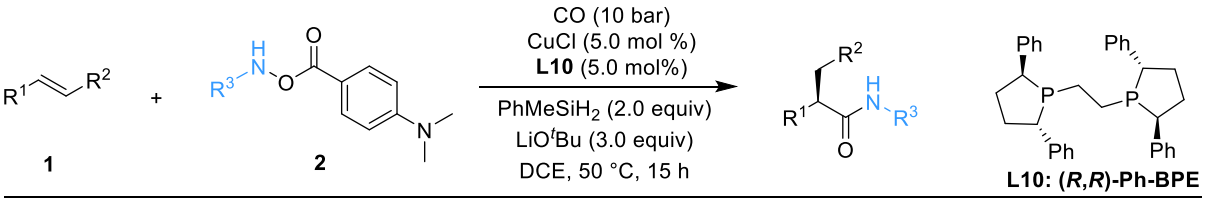
4-(((((*8R,9S,10S,13R,14S,17R*)-10,13-Dimethyl-17-((R)-6-methylheptan-2-yl)hexadecahydro-1H-cyclopenta[a]phenanthren-3-yl)amino)oxy)carbonyl)-*N*,*N*-dimethylaniline (2o)

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.92 (d, *J* = 9.0 Hz, 2H), 6.67 (dd, *J* = 9.0, 1.5 Hz, 2H), 3.06 (d, *J* = 1.0 Hz, 6H), 1.98 (d, *J* = 12.5 Hz, 1H), 1.87 – 1.75 (m, 3H), 1.71 – 1.48 (m, 7H), 1.45 (s, 3H), 1.40 – 1.23 (m, 9H), 1.19 – 1.08 (m, 6H), 1.06 – 0.97 (m, 3H), 0.92 (dd, *J* = 6.5, 2.0 Hz, 3H), 0.88 (dt, *J* = 6.5, 2.0 Hz, 7H), 0.83 (d, *J* = 2.0 Hz, 3H), 0.67 (d, *J* = 1.0 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 167.5, 167.5, 153.5, 153.5, 131.1, 115.0, 114.9, 110.8, 110.7, 60.5, 56.5, 56.5, 56.3, 56.2, 55.6, 54.4, 54.2, 45.0, 42.6, 40.0, 39.8, 39.5, 39.5, 37.0, 36.2, 36.0, 35.8, 35.8, 35.5, 32.8, 32.7, 32.1, 31.9, 31.1, 28.8, 28.7, 28.3, 28.0, 26.9, 26.0, 24.2, 23.9, 23.8, 22.8, 22.6, 21.2, 20.8, 18.7, 12.3, 12.1, 12.1, 11.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{36}H_{58}N_2O_2$ $[M+H]^+$: 551.4576, Found: 551.4580.

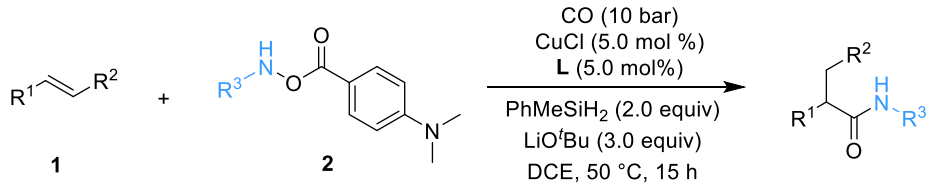
2.2 General Procedure II for Cu-catalyzed Asymmetric Hydroaminocarbonylation Reaction



A vial (4 mL) was charged with CuCl (5.0 mol%), (*R*, *R*)-Ph-BPE (5.0 mol%), LiO^tBu (24 mg, 3.0 equiv), and a stirring bar. The vial was closed by PTFE/white rubber septum (Wheaton 13 mm Septa) and phenolic cap and connected with atmosphere with a needle. The vial was evacuated under vacuum and recharged with argon for three times. Then, DCE (0.25 mL) were injected under argon by using a syringe, and stirred for 5 min at RT. After that, vinylarenes **1** (0.12 mmol, 1.2 equiv), $MePhSiH_2$ (0.2 mmol, 28 μL, 2.0 equiv) were added, then hydroxylamines **2** (0.1 mmol, 1.0 equiv) dissolved in 0.25 mL DCE was added by using a syringe, the vial (or several vials) was placed in an alloy plate, which was transferred into a 300 mL autoclave of the 4560 series from Parr Instruments. After flushing the autoclave three times

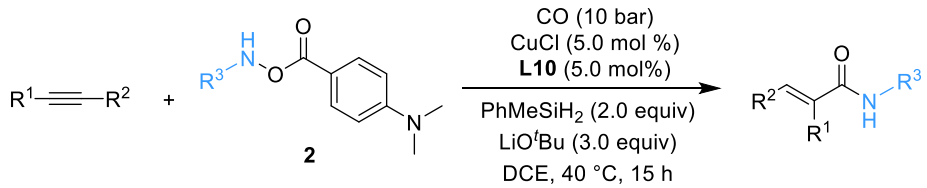
with CO, a pressure of 10 bar of CO was adjusted at ambient temperature. Then, the reaction was performed for 15 h at indicated temperature. After 15 hours, the autoclave was cooled down with ice water to room temperature and the pressure was released carefully. The solution was then filtered through celite and concentrated in vacuo. After that the residue was purified by column chromatography to afford the corresponding products. The resulting products was used to determine the enantiomeric excess by HPLC analysis using chiral stationary phases.

2.3 General Procedure III for Cu-catalyzed Racemic Hydroaminocarbonylation Reaction



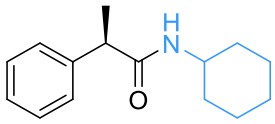
A vial (4 mL) was charged with CuCl (5.0 mol%), Xantphos (5.0 mol%) or racemic Ph-BPE phos (5.0 mol%), LiO^{t}Bu (24 mg, 3.0 equiv), and a stirring bar. The vial was closed by PTFE/white rubber septum (Wheaton 13 mm Septa) and phenolic cap and connected with atmosphere with a needle. The vial was evacuated under vacuum and recharged with argon for three times. Then, DCE (0.5 mL) were injected under argon by using a syringe. After that, styrenes **1** (0.12 mmol, 1.2 equiv), hydroxylamines **2** (0.1 mmol, 1.0 equiv) and MePhSiH$_2$ (0.2 mmol, 28 µL, 2.0 equiv) were added, and the vial (or several vials) was placed in an alloy plate, which was transferred into a 300 mL autoclave of the 4560 series from Parr Instruments. After flushing the autoclave three times with CO, a pressure of 10 bar of CO was adjusted at ambient temperature. Then, the reaction was performed for 15 h at 50 °C. After 15 hours, the autoclave was cooled down with ice water to room temperature and the pressure was released carefully. The solution was then filtered through celite and concentrated *in vacuo*. After that the residue was purified by column chromatography to afford the corresponding racemic products.

2.4 General Procedure IV for Cu-catalyzed Hydroaminocarbonylation of Alkynes



A vial (4 mL) was charged with CuCl (5.0 mol%), Ph-BPE (5.0 mol%), LiO^{t}Bu (24 mg, 3.0 equiv), and a stirring bar. The vial was closed by PTFE/white rubber septum (Wheaton 13 mm Septa) and phenolic cap and connected with atmosphere with a needle. The vial was evacuated under vacuum and recharged with argon for three times. Then, DCE (0.5 mL) were injected under argon by using a syringe. After that, alkynes (0.1 mmol, 1.0 equiv), hydroxylamines **2** (0.12 mmol, 1.2 equiv) and $MePhSiH_2$ (0.2 mmol, 28 µL, 2.0 equiv) were added, and the vial (or several vials) was placed in an alloy plate, which was transferred into a 300 mL autoclave of the 4560 series from Parr Instruments. After flushing the autoclave three times with CO, a pressure of 10 bar of CO was adjusted at ambient temperature. Then, the reaction was performed for 15 h at 40 °C. After 15 hours, the autoclave was cooled down with ice water to room temperature and the pressure was released carefully. The solution was then filtered through celite and concentrated *in vacuo*. After that the residue was purified by column chromatography to afford the corresponding products.

3. Characterization Data



***(R)*-*N*-Cyclohexyl-2-phenylpropanamide (4)**

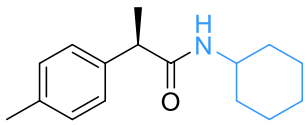
21.0 mg, 91% yield, 98:2 er, white solid, $[\alpha]_D^{24}$ = -7.9 (c = 0.67, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.36 – 7.09 (m, 5H), 5.12 (s, 1H), 3.77 – 3.56 (m, 1H), 3.44 (q, *J* = 7.0 Hz, 1H), 1.89 – 1.65 (m, 2H), 1.59 – 1.47 (m, 2H), 1.43 (d, *J* = 7.0 Hz, 3H), 1.28 – 1.15 (m, 3H), 1.08 – 0.83 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.2, 141.7, 128.8, 127.6, 127.1, 48.1, 47.2, 32.9, 32.9, 25.5, 24.8, 24.7, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{15}H_{21}NO$ $[M+H]^+$: 232.1701, Found: 232.1704.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 6.141 min, t_R (minor) = 7.272 min.



***(R)*-*N*-Cyclohexyl-2-(p-tolyl)propanamide (5)**

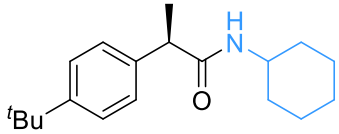
19.2 mg, 78% yield, 99.5:0.5 er, white solid, $[\alpha]_D^{24}$ = -6.9 (c = 0.67, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.22 – 7.09 (m, 4H), 5.17 (s, 1H), 3.72 (m, 1H), 3.47 (q, *J* = 7.2 Hz, 1H), 2.33 (s, 3H), 1.91 – 1.72 (m, 2H), 1.65 – 1.53 (m, 3H), 1.48 (d, *J* = 7.0 Hz, 3H), 1.39 – 1.20 (m, 2H), 1.12 – 0.91 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.5, 138.6, 136.8, 133.4, 129.6, 127.8, 127.5, 48.1, 46.8, 32.9, 32.9, 25.5, 24.8, 24.7, 21.1, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO$ $[M+H]^+$: 246.1858, Found: 246.1856.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 12.000 min, t_R (minor) = 14.959 min.



***(R)*-2-(4-(*tert*-Butyl)phenyl)-*N*-cyclohexylpropanamide (6)**

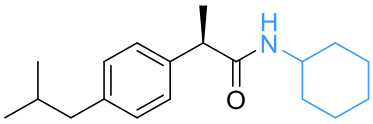
24.1 mg, 84% yield, 98:2 er, white solid, $[\alpha]_D^{24}$ = -7.9 (c = 0.67, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.39 – 7.31 (m, 2H), 7.20 (d, *J* = 8.0 Hz, 2H), 5.18 (s, 1H), 3.82 – 3.62 (m, 1H), 3.48 (q, *J* = 7.0 Hz, 1H), 1.82 – 1.89 (m, 2H), 1.69 – 1.52 (m, 3H), 1.49 (d, *J* = 7.0 Hz, 2H), 1.31 – 1.38 (m, 11H), 1.14 – 0.90 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 150.0, 138.5, 127.2, 125.7, 48.1, 46.7, 34.5, 33.0, 32.9, 31.3, 25.5, 24.8, 24.7, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{29}NO$ $[M+H]^+$: 288.2327, Found: 288.2327.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 9.830 min, t_R (minor) = 12.114 min.



***(R)*-*N*-Cyclohexyl-2-(4-isobutylphenyl)propanamide (7)**

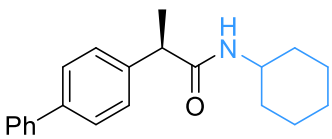
24.4 mg, 85% yield, 98:2 er, white solid, $[\alpha]_D^{24}$ = -8.6 (c = 1.43, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.21 – 7.00 (m, 4H), 5.14 (s, 1H), 3.89 – 3.65 (m, 1H), 3.49 (q, *J* = 7.0 Hz, 1H), 2.45 (d, *J* = 7.0 Hz, 2H), 1.92 – 1.73 (m, 3H), 1.67 – 1.52 (m, 3H), 1.50 (d, *J* = 7.0 Hz, 3H), 1.39 – 1.24 (m, 2H), 1.15 – 0.94 (m, 3H), 0.89 (d, *J* = 6.6 Hz, 6H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.5, 140.6, 138.8, 129.6, 127.3, 48.0, 46.9, 45.0, 32.9, 32.8, 30.2, 25.5, 24.7, 24.6, 22.4, 18.5.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{29}NO$ $[M+H]^+$: 288.2327, Found: 288.2332.

The enantiomeric excess was determined by Chiralcel OJ column, heptane/EtOH = 99:1 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 8.540 min, t_R (minor) = 12.889 min.



***(R)*-2-([1,1'-Biphenyl]-4-yl)-*N*-cyclohexylpropanamide (8)**

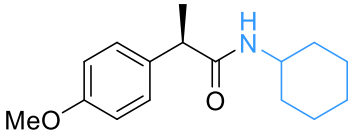
26.1 mg, 85% yield, 93:7 er, white solid, $[\alpha]_D^{24}$ = -12.7 (c = 0.57, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.64 – 7.53 (m, 4H), 7.50 – 7.38 (m, 2H), 7.41 – 7.30 (m, 3H), 5.25 (d, *J* = 7.5 Hz, 1H), 3.85 – 3.68 (m, 1H), 3.56 (q, *J* = 7.0 Hz, 1H), 1.94 – 1.76 (m, 2H), 1.68 – 1.55 (m, 3H), 1.54 (d, *J* = 7.0 Hz, 3H), 1.42 – 1.21 (m, 2H), 1.18 – 0.95 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 140.7, 140.6, 140.0, 128.8, 128.0, 127.5, 127.3, 127.0, 48.2, 46.9, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{21}H_{25}NO$ $[M+H]^+$: 308.2014, Found: 308.2016.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 99:1 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 35.029 min, t_R (minor) = 41.613 min.



***(R)-N*-Cyclohexyl-2-(4-methoxyphenyl)propanamide (9)**

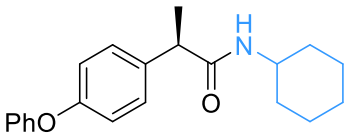
20.1 mg, 77% yield, 97:3 er, white solid, $[\alpha]_D^{24}$ = -3.9 (c = 0.87, $CHCl_3$). Eluent: pentane/ethyl acetate = 5/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.16 – 7.05 (m, 2H), 6.84 – 6.62 (m, 2H), 5.14 (d, *J* = 6.5 Hz, 1H), 3.73 (s, 3H), 3.69 – 3.58 (m, 1H), 3.39 (q, *J* = 7.0 Hz, 1H), 1.83 – 1.63 (m, 2H), 1.51 (ddd, *J* = 10.5, 8.0, 2.5 Hz, 3H), 1.40 (d, *J* = 7.0 Hz, 3H), 1.28 – 1.21 (m, 2H), 1.08 – 0.84 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.6, 158.7, 133.7, 128.6, 114.2, 55.3, 48.1, 46.4, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO_2$ $[M+H]^+$: 262.1807, Found: 262.1803.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 8.801 min, t_R (major) = 9.676 min.



***(R)-N*-Cyclohexyl-2-(4-phenoxyphenyl)propanamide (10)**

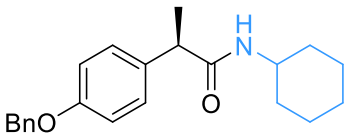
24.6mg, 76% yield, 96:4 er, white solid, $[\alpha]_D^{24}$ = -5.7 (c = 0.8, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.41 – 7.31 (m, 2H), 7.31 – 7.23 (m, 2H), 7.18 – 7.09 (m, 1H), 7.07 – 6.97 (m, 4H), 5.25 (d, *J* = 7.5 Hz, 1H), 3.91 – 3.68 (m, 1H), 3.51 (q, *J* = 7.0 Hz, 1H), 1.95 – 1.76 (m, 2H), 1.72 – 1.56 (m, 3H), 1.52 (d, *J* = 7.0 Hz, 3H), 1.44 – 1.27 (m, 2H), 1.22 – 0.92 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 157.1, 156.4, 136.4, 133.4, 129.8, 128.9, 127.8, 123.4, 119.0, 118.9, 48.2, 46.6, 33.0, 32.9, 25.5, 24.7, 24.7, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{21}H_{25}NO_2$ $[M+H]^+$: 324.1964, Found: 324.1960.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 8.545 min, t_R (major) = 10.925 min.



***(R)*-2-(4-(Benzyloxy)phenyl)-*N*-cyclohexylpropanamide (11)**

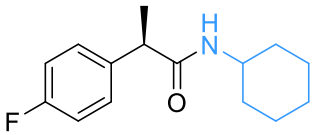
27.9 mg, 83% yield, 98:2 er, slight yellow solid, $[\alpha]_D^{24}$ = -12.0 (c = 0.53, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.73 – 7.64 (m, 1H), 7.52 – 7.33 (m, 6H), 7.24 – 7.19 (m, 2H), 7.05 – 6.92 (m, 2H), 5.18 (d, *J* = 8.1 Hz, 1H), 5.08 (s, 2H), 3.86 – 3.65 (m, 1H), 3.48 (q, *J* = 7.0 Hz, 1H), 1.93 – 1.75 (m, 2H), 1.72 – 1.54 (m, 3H), 1.50 (d, *J* = 7.0 Hz, 3H), 1.41 – 1.28 (m, 2H), 1.18 – 0.89 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 157.9, 136.9, 133.9, 133.4, 130.0, 128.7, 128.6, 128.0, 127.9, 127.5, 115.2, 70.1, 48.1, 46.4, 32.9, 32.9, 25.5, 24.7, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{22}H_{27}NO_2$ $[M+H]^+$: 338.2120, Found: 338.2123.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 11.384 min, t_R (major) = 17.706 min.



***(R)*-*N*-Cyclohexyl-2-(4-fluorophenyl)propanamide (12)**

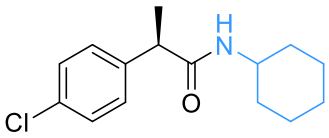
19.0 mg, 77% yield, 97:3 er, white solid, $[\alpha]_D^{24}$ = -1.5 (c = 0.83, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.36 – 7.22 (m, 2H), 7.04 (t, *J* = 8.7 Hz, 2H), 5.17 (s, 1H), 3.96 – 3.62 (m, 1H), 3.50 (q, *J* = 7.0 Hz, 1H), 1.94 – 1.76 (m, 2H), 1.73 – 1.54 (m, 3H), 1.50 (d, *J* = 7.0 Hz, 3H), 1.39 – 1.28 (m, 2H), 1.17 – 0.96 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.04, 160.69 (d, *J* = 245.0 Hz), 135.40 (d, *J* = 3.0 Hz), 129.96, 129.06 (d, *J* = 8.0 Hz), 127.84, 115.65 (d, *J* = 21.5 Hz).

HRMS (ESI-TOF) m/z: Calcd. for $C_{15}H_{20}NFO$ $[M+H]^+$: 250.1607, Found: 250.1610.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (major) = 24.800 min, t_R (minor) = 29.149 min.



***(R)*-2-(4-Chlorophenyl)-*N*-cyclohexylpropanamide (13)**

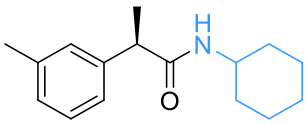
19.3 mg, 73% yield, 92:8 er, white solid, $[\alpha]_D^{24}$ = -11.8 (c = 0.63, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.37 – 7.02 (m, 4H), 5.11 (s, 1H), 3.79 – 3.56 (m, 1H), 3.39 (q, *J* = 7.0 Hz, 1H), 1.85 – 1.65 (m, 2H), 1.62 – 1.45 (m, 3H), 1.40 (d, *J* = 7.0 Hz, 3H), 1.33 – 1.16 (m, 2H), 1.09 – 0.87 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.6, 140.2, 132.9, 128.9, 128.9, 48.3, 46.6, 33.0, 32.9, 25.5, 24.8, 24.7, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{15}H_{20}NOCl$ $[M+H]^+$: 266.1312, Found: 266.1315.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 0.8 mL/min, λ= 210 nm, t_R (major) = 12.790 min, t_R (minor) = 14.384 min.



***(R)*-*N*-Cyclohexyl-2-(m-tolyl)propanamide (14)**

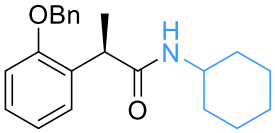
22.8 mg, 93% yield, 97:3 er, slight yellow solid, $[\alpha]_D^{24}$ = -17.0 (c = 0.60, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.29 – 7.16 (m, 1H), 7.12 – 7.02 (m, 3H), 5.16 (s, 1H), 3.83 – 3.63 (m, 1H), 3.47 (q, *J* = 7.0 Hz, 1H), 2.34 (s, 3H), 1.92 – 1.72 (m, 3H), 1.68 – 1.50 (m, 3H), 1.49 (d, *J* = 7.2 Hz, 3H), 1.38 – 1.24 (m, 2H), 1.14 – 0.93 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 141.6, 138.5, 128.7, 128.4, 127.9, 124.6, 48.1, 47.2, 33.0, 32.9, 25.5, 24.8, 24.7, 21.5, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO$ $[M+H]^+$: 246.1858, Found: 246.1859.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 11.198 min, t_R (minor) = 13.769 min.



***(R)*-2-(2-(Benzyloxy)phenyl)-*N*-cyclohexylpropanamide (15)**

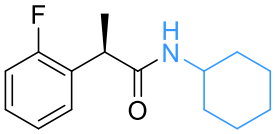
28.0 mg, 83% yield, 99:1 er, white solid, $[\alpha]_D^{24}$ = -75 (c = 0.74, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.46 – 7.31 (m, 6H), 7.28 – 7.17 (m, 1H), 7.07 – 6.88 (m, 2H), 5.50 (d, *J* = 8.1 Hz, 1H), 5.11 (s, 2H), 3.99 (q, *J* = 7.2 Hz, 1H), 3.75 – 3.56 (m, 1H), 1.85 – 1.61 (m, 2H), 1.48 (d, *J* = 7.2 Hz, 6H), 1.35 – 1.19 (m, 2H), 1.12 – 0.78 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 155.7, 136.8, 130.2, 128.7, 128.2, 128.0, 127.9, 127.4, 121.5, 111.7, 70.2, 47.8, 39.6, 32.9, 32.7, 25.5, 24.7, 24.6, 16.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{22}H_{27}NO_2$ $[M+H]^+$: 338.2120, Found: 338.2120.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 8.468 min, t_R (minor) = 12.413 min.



***(R)*-*N*-Cyclohexyl-2-(2-fluorophenyl)propanamide (16)**

15.9 mg, 64% yield, 98:2 er, white solid, $[\alpha]_D^{24}$ = -19.2 (c = 0.33, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

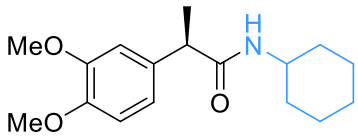
^{1}H NMR (300 MHz, $CDCl_3$) δ 7.38 (td, *J* = 7.5, 2.0 Hz, 1H), 7.26 – 7.19 (m, 1H), 7.13 (td, *J* = 7.5, 1.5 Hz, 1H), 7.04 (ddd, *J* = 10.5, 8.0, 1.5 Hz, 1H), 5.29 (s, 1H), 3.90 – 3.62 (m, 2H), 1.97 – 1.73 (m, 2H), 1.71 – 1.52 (m, 3H), 1.49 (d, *J* = 7.0 Hz, 3H), 1.40 – 1.23 (m, 2H), 1.17 – 0.93 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.1, 160.3 (d, *J* = 245.0 Hz), 128.7, 128.6 (d, *J* = 12.5 Hz), 124.6 (d, *J* = 3.5 Hz), 115.5, 115.2, 48.2, 39.4, 33.0, 32.8, 25.5, 24.8, 24.7, 17.2.

^{19}F NMR (282 MHz, $CDCl_3$) δ -118.42.

HRMS (ESI-TOF) m/z: Calcd. for $C_{15}H_{20}NFO$ $[M+H]^+$: 250.1607, Found: 250.1611.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (major) = 10.456 min, t_R (minor) = 11.795 min.



***(R)*-*N*-Cyclohexyl-2-(3,4-dimethoxyphenyl)propanamide (17)**

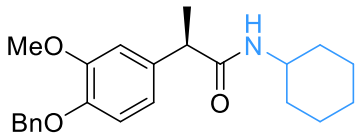
21.5 mg, 74% yield, 96.5:3.5 er, slight yellow solid, $[\alpha]_D^{24}$ = -10.7 (c = 0.47, $CHCl_3$). Eluent: pentane/ethyl acetate = 5/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 6.80 (dd, *J* = 4.0, 2.0 Hz, 3H), 5.19 (d, *J* = 7.5 Hz, 1H), 3.86 (d, *J* = 1.5 Hz, 6H), 3.81 – 3.59 (m, 1H), 3.45 (q, *J* = 7.0 Hz, 1H), 1.90 – 1.71 (m, 2H), 1.67 – 1.49 (m, 3H), 1.48 (d, *J* = 7.2 Hz, 3H), 1.41 – 1.21 (m, 2H), 1.16 – 0.91 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.5, 149.2, 148.1, 134.2, 119.6, 111.3, 110.6, 55.9, 48.1, 46.8, 33.0, 32.9, 25.5, 24.7, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{17}H_{25}NO_3$ $[M+H]^+$: 292.1913, Found: 292.1915.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 9.009 min, t_R (major) = 10.294 min.



***(R)*-2-(4-(Benzyloxy)-3-methoxyphenyl)-*N*-cyclohexylpropanamide (18)**

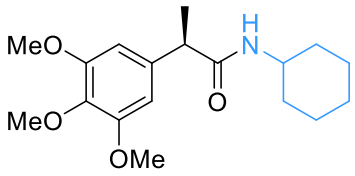
26.4 mg, 72% yield, 95:5 er, white solid, $[\alpha]_D^{24}$ = -6.3 (c = 0.7, $CHCl_3$). Eluent: pentane/ethyl acetate = 5/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.48 – 7.41 (m, 2H), 7.39 – 7.29 (m, 3H), 6.87 – 6.79 (m, 2H), 6.74 (dd, *J* = 8.5, 2.0 Hz, 1H), 5.14 (s, 3H), 3.88 (s, 3H), 3.78 – 3.65 (m, 1H), 3.44 (q, *J* = 7.0 Hz, 1H), 1.90 – 1.72 (m, 2H), 1.67 – 1.52 (m, 3H), 1.48 (d, *J* = 7.0 Hz, 3H), 1.41 – 1.26 (m, 2H), 1.16 – 0.89 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 149.9, 147.3, 137.1, 134.8, 128.6, 127.9, 127.3, 119.6, 114.1, 111.2, 71.1, 56.0, 48.1, 46.8, 32.9, 32.9, 25.5, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{23}H_{29}NO_3$ $[M+H]^+$: 368.2226, Found: 368.2224.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 5.680 min, t_R (major) = 7.218 min.



***(R)-N*-Cyclohexyl-2-(3,4,5-trimethoxyphenyl)propanamide (19)**

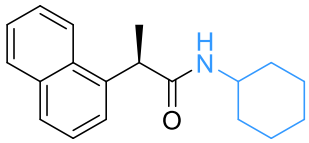
24.1 mg, 75% yield, 99.5:0.5 er, slight yellow solid, $[\alpha]_D^{24}$ = -12.5 (c = 0.57, $CHCl_3$). Eluent: DCM/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 6.49 (s, 2H), 5.21 (s, 1H), 3.85 (s, 6H), 3.83 (s, 3H), 3.80 – 3.65 (m, 1H), 3.43 (q, *J* = 7.0 Hz, 1H), 1.90 – 1.73 (m, 2H), 1.69 – 1.53 (m, 3H), 1.48 (d, *J* = 7.0 Hz, 3H), 1.38 – 1.26 (m, 2H), 1.19 – 0.96 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.0, 153.4, 137.4, 104.5, 60.9, 56.2, 48.2, 47.5, 33.0, 32.9, 25.5, 24.7, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{18}H_{27}NO_4$ $[M+H]^+$: 322.2018, Found: 322.2020.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 4.359 min, t_R (major) = 7.000 min.



***(R)-N*-Cyclohexyl-2-(naphthalen-1-yl)propanamide (20)**

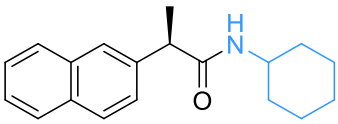
21.4 mg, 56% yield, 90:10 er, white solid, $[\alpha]_D^{24}$ = -43.4 (c = 0.43, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 8.07 – 7.98 (m, 1H), 7.91 – 7.85 (m, 1H), 7.80 (dd, *J* = 6.7, 2.3 Hz, 1H), 7.56 – 7.44 (m, 4H), 5.05 (d, *J* = 7.4 Hz, 1H), 4.27 (q, *J* = 7.2 Hz, 1H), 3.71 – 3.75 (m, 1H), 1.65 – 1.75 (m, 5H), 1.54 – 1.41 (m, 3H), 1.32 – 1.20 (m, 2H), 1.04 – 0.75 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 137.3, 134.0, 131.5, 129.0, 128.1, 126.5, 125.9, 125.6, 124.9, 123.4, 48.1, 43.9, 32.7, 25.4, 24.6, 18.0.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{23}NO$ $[M+H]^+$: 282.1858, Found: 282.1853.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 98:2 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 19.189 min, t_R (major) = 20.675 min.



***(R)-N*-Cyclohexyl-2-(naphthalen-2-yl)propanamide (21)**

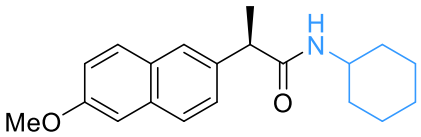
18.0 mg, 64% yield, 92.5:7.5 er, slight yellow solid, $[\alpha]_D^{24}$ = -21.3 (c = 0.37, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.87 – 7.79 (m, 3H), 7.73 (d, *J* = 1.5 Hz, 1H), 7.52 – 7.45 (m, 2H), 7.41 (dd, *J* = 8.5, 1.8 Hz, 1H), 5.18 (s, 1H), 3.84 – 3.61 (m, 2H), 1.97 – 1.71 (m, 2H), 1.71 – 1.48 (m, 6H), 1.42 – 1.17 (m, 2H), 1.09 – 0.79 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 139.2, 133.5, 132.6, 128.7, 127.8, 127.7, 126.3, 126.2, 125.9, 125.8, 48.3, 47.4, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{23}NO$ $[M+H]^+$: 282.1858, Found: 282.1862.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 17.505 min, t_R (major) = 19.761 min.



***(R)-N*-Cyclohexyl-2-(6-methoxynaphthalen-2-yl)propanamide (22)**

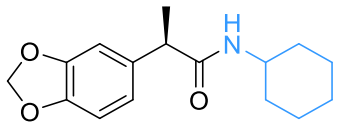
22.7 mg, 73% yield, 95:5 er, white solid, $[\alpha]_D^{24}$ = -9.7 (c = 1.23, $CHCl_3$). Eluent: pentane/ethyl acetate = 8/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.76 – 7.63 (m, 3H), 7.37 (dd, *J* = 8.5, 2.0 Hz, 1H), 7.20 – 7.10 (m, 2H), 5.21 (d, *J* = 7.5 Hz, 1H), 3.92 (s, 3H), 3.83 – 3.59 (m, 2H), 1.90 – 1.71 (m, 2H), 1.67 – 1.46 (m, 6H), 1.37 – 1.23 (m, 2H), 1.13 – 0.82 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 157.7, 136.8, 133.7, 129.2, 129.0, 127.5, 126.3, 126.1, 119.1, 105.7, 55.3, 48.2, 47.2, 33.0, 32.9, 25.5, 24.8, 24.7, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{20}H_{25}NO_2$ $[M+H]^+$: 312.1964, Found: 312.1967.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, *v* = 2.0 mL/min, λ= 210 nm, t_R (major) = 13.075 min, t_R (minor) = 23.115 min.



***(R)*-2-(Benzo[d][1,3]dioxol-5-yl)-*N*-cyclohexylpropanamide (23)**

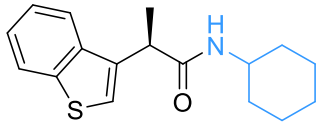
21.2 mg, 77% yield, 95:5 er, pale yellow solid, $[\alpha]_D^{24}$ = -4.9 (c = 0.5, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 6.90 – 6.62 (m, 3H), 5.95 (s, 2H), 5.18 (s, 1H), 3.89 – 3.61 (m, 1H), 3.42 (q, *J* = 7.0 Hz, 1H), 1.92 – 1.73 (m, 2H), 1.68 – 1.52 (m, 3H), 1.45 (d, *J* = 7.0 Hz, 3H), 1.38 – 1.25 (m, 2H), 1.14 – 0.92 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 148.0, 146.7, 135.4, 133.4, 130.0, 127.8, 120.8, 108.4, 107.9, 101.1, 48.2, 46.9, 33.0, 32.9, 25.5, 24.8, 24.7, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{21}NO_3$ $[M+H]^+$: 276.1599, Found: 276.1601.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 2.0 mL/min, λ= 210 nm, t_R (minor) = 23.301 min, t_R (major) = 24.670 min.



***(R)*-2-(Benzo[b]thiophen-3-yl)-*N*-cyclohexylpropanamide (24)**

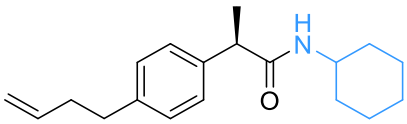
20.1 mg, 70% yield, 94:6 er, white solid, $[\alpha]_D^{24}$ = -28.9 (c = 0.47, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.93 – 7.82 (m, 1H), 7.79 – 7.73 (m, 1H), 7.40 – 7.34 (m, 3H), 5.21 (d, *J* = 7.5 Hz, 1H), 3.93 (qd, *J* = 7.0, 1.0 Hz, 1H), 3.84 – 3.63 (m, 1H), 1.81 – 1.69 (m, 2H), 1.66 (d, *J* = 7.0 Hz, 3H), 1.57 – 1.45 (m, 3H), 1.33 – 1.20 (m, 2H), 1.12 – 0.81 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.6, 140.6, 137.9, 136.0, 124.7, 124.3, 123.0, 122.9, 121.9, 48.1, 41.7, 32.8, 25.4, 24.7, 17.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{17}H_{21}NOS$ $[M+H]^+$: 288.1422, Found: 288.1426.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 7.686 min, t_R (minor) = 9.330 min.



***(R)*-2-(4-(but-3-en-1-yl)phenyl)-*N*-cyclohexylpropanamide (25)**

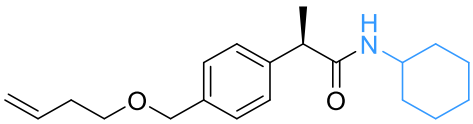
27.1 mg, 95% yield, 97:3 er, white solid, $[\alpha]_D^{24}$ = -9.5 (c = 0.63, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.24 – 7.10 (m, 4H), 5.97 – 5.74 (m, 1H), 5.14 (s, 1H), 5.10 – 4.92 (m, 2H), 3.80 – 3.63 (m, 1H), 3.48 (q, *J* = 7.2 Hz, 1H), 2.75 – 2.63 (m, 2H), 2.45 – 2.31 (m, 2H), 1.89 – 1.72 (m, 2H), 1.67 – 1.53 (m, 3H), 1.49 (d, *J* = 7.2 Hz, 3H), 1.39 – 1.22 (m, 2H), 1.14 – 0.90 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.4, 140.7, 139.1, 138.0, 128.9, 127.5, 115.0, 48.1, 46.9, 35.4, 34.9, 32.9, 32.9, 25.5, 24.7, 24.7, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{27}NO$ $[M+H]^+$: 286.2171, Found: 286.2172.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 98:2 v/v, *v* = 1.5 mL/min, λ= 210 nm, t_R (major) = 7.188 min, t_R (minor) = 8.811 min.



***(R)*-2-(4-((But-3-en-1-yloxy)methyl)phenyl)-*N*-cyclohexylpropanamide (26)**

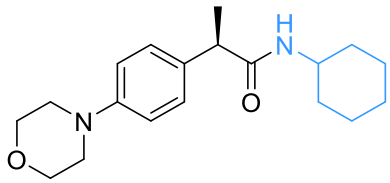
22.1 mg, 70% yield, 96:4 er, pale yellow solid, $[\alpha]_D^{24}$ = -9.4 (c = 0.57, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.31 (d, *J* = 8.5 Hz, 2H), 7.29 – 7.21 (m, 2H), 5.89 – 5.80 (m, 1H), 5.21 – 4.99 (m, 3H), 4.50 (s, 2H), 3.80 – 3.64 (m, 1H), 3.60 – 3.42 (m, 3H), 2.47 – 2.32 (m, 2H), 1.90 – 1.72 (m, 2H), 1.67 – 1.53 (m, 3H), 1.49 (d, *J* = 7.0 Hz, 3H), 1.41 – 1.22 (m, 2H), 1.14 – 0.91 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 140.9, 137.4, 135.2, 133.4, 130.0, 128.2, 127.9, 127.7, 116.4, 72.6, 69.8, 48.2, 47.0, 34.2, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{20}H_{29}NO_2$ $[M+H]^+$: 316.2276, Found: 316.2279.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/*i*PrOH = 95:5 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 19.626 min, t_R (major) = 23.788 min.



***(R)*-*N*-Cyclohexyl-2-(4-morpholinophenyl)propanamide (27)**

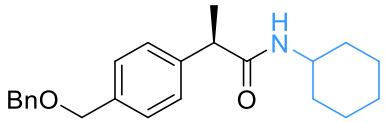
26.9 mg, 81% yield, 97.5:2.5 er, white solid, $[\alpha]_D^{24}$ = -7.2 (c = 0.5, $CHCl_3$). Eluent: DCM/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.23 – 7.13 (m, 2H), 6.93 – 6.84 (m, 2H), 5.15 (d, *J* = 7.5 Hz, 1H), 3.91 – 3.82 (m, 4H), 3.79 – 3.65 (m, 1H), 3.44 (q, *J* = 7.0 Hz, 1H), 3.20 – 3.10 (m, 4H), 1.90 – 1.74 (m, 2H), 1.70 – 1.51 (m, 3H), 1.47 (d, *J* = 7.0 Hz, 3H), 1.37 – 1.23 (m, 2H), 1.15 – 0.87 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.7, 150.3, 132.9, 128.4, 115.9, 66.9, 49.3, 48.1, 46.4, 33.1, 33.0, 25.5, 24.8, 24.7, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{28}N_2O_2$ $[M+H]^+$: 317.2229, Found: 317.2229.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 6.840 min, t_R (major) = 7.591 min.



***(R)*-2-(4-((Benzyloxy)methyl)phenyl)-*N*-cyclohexylpropanamide (28)**

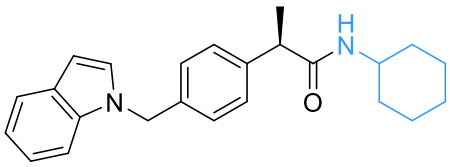
25.3 mg, 72% yield, 96:3 er, pale yellow solid, $[\alpha]_D^{24}$ = -11.4 (c = 0.53, $CHCl_3$). Eluent: pentane/ethyl acetate = 8/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.44 – 7.22 (m, 9H), 5.17 (d, *J* = 7.5 Hz, 1H), 4.58 (s, 2H), 4.54 (s, 2H), 3.83 – 3.65 (m, 1H), 3.51 (q, *J* = 7.0 Hz, 1H), 1.92 – 1.73 (m, 2H), 1.69 – 1.53 (m, 3H), 1.50 (d, *J* = 7.0 Hz, 3H), 1.37 – 1.27 (m, 2H), 1.14 – 0.87 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.2, 141.1, 138.2, 137.2, 133.4, 130.0, 128.5, 128.3, 127.8, 127.74, 127.72, 72.3, 71.8, 48.2, 47.0, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{23}H_{29}NO_2$ $[M+H]^+$: 352.2276, Found: 352.2271.

The enantiomeric excess was determined by Cellulose4 column, heptane/*i*PrOH = 95:5 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (major) = 29.114 min, t_R (minor) = 33.019 min.



***(R)*-2-(4-((*1H*-Indol-1-yl)methyl)phenyl)-*N*-cyclohexylpropanamide (29)**

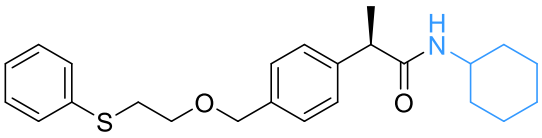
29.2 mg, 81% yield, 93:7 er, white solid, $[\alpha]_D^{24}$ = -24.2 (c = 0.5, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.71 – 7.61 (m, 1H), 7.32 – 7.04 (m, 8H), 6.56 (dd, *J* = 3.0, 1.0 Hz, 1H), 5.31 (s, 2H), 5.16 (d, *J* = 7.5 Hz, 1H), 3.82 – 3.64 (m, 1H), 3.46 (q, *J* = 7.0 Hz, 1H), 1.91 – 1.71 (m, 2H), 1.65 – 1.52 (m, 3H), 1.46 (d, *J* = 7.0 Hz, 3H), 1.37 – 1.26 (m, 2H), 1.17 – 0.93 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.0, 141.1, 136.5, 128.7, 128.2, 128.0, 127.3, 121.7, 121.0, 119.6, 109.7, 101.7, 49.8, 48.2, 46.9, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{24}H_{28}N_2O$ $[M+H]^+$: 361.2280, Found: 361.2277.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, *v* = 2.0 mL/min, λ= 210 nm, t_R (major) = 29.265 min, t_R (minor) = 37.592 min.



***(R)*-*N*-Cyclohexyl-2-(4-((2-(phenylthio)ethoxy)methyl)phenyl)propanamide (30)**

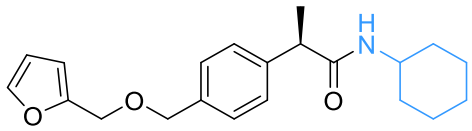
24.6 mg, 62% yield, 93:7 er, white solid, $[\alpha]_D^{24}$ = -8.8 (c = 0.97, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.41 – 7.18 (m, 9H), 5.21 (d, *J* = 7.5 Hz, 1H), 4.53 (s, 2H), 3.82 – 3.66 (m, 3H), 3.52 (q, *J* = 7.0 Hz, 1H), 3.17 (t, *J* = 7.0 Hz, 2H), 1.94 – 1.74 (m, 2H), 1.69 – 1.55 (m, 3H), 1.51 (d, *J* = 7.0 Hz, 3H), 1.40 – 1.27 (m, 2H), 1.18 – 0.92 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 141.2, 136.9, 136.0, 129.4, 129.0, 128.2, 127.7, 126.2, 72.8, 69.0, 48.2, 47.0, 33.3, 33.0, 32.9, 25.5, 24.8, 24.7, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{24}H_{31}NO_2S$ $[M+H]^+$: 398.2154, Found: 398.2159.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 11.764 min, t_R (major) = 13.987 min.



***(R)-N*-Cyclohexyl-2-(4-((furan-2-ylmethoxy)methyl)phenyl)propanamide (31)**

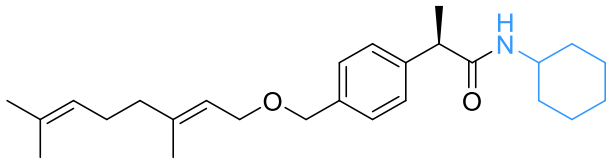
30.0 mg, 88% yield, 93:7 er, slight yellow oil, $[\alpha]_D^{24}$ = -10.3 (c = 0.83, $CHCl_3$). Eluent: pentane/ethyl acetate = 5/1-3/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.42 (dd, *J* = 2.0, 1.0 Hz, 1H), 7.34 – 7.29 (m, 2H), 7.28 – 7.23 (m, 2H), 6.41 – 6.31 (m, 2H), 5.16 (d, *J* = 7.0 Hz, 1H), 4.51 (d, *J* = 7.5 Hz, 4H), 3.78 – 3.65 (m, 1H), 3.50 (q, *J* = 7.0 Hz, 1H), 1.89 – 1.72 (m, 2H), 1.69 – 1.51 (m, 3H), 1.49 (d, *J* = 7.0 Hz, 3H), 1.36 – 1.22 (m, 2H), 1.15 – 0.89 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 151.7, 142.9, 141.2, 136.8, 128.4, 127.7, 110.3, 109.5, 71.6, 64.0, 48.2, 47.0, 33.0, 32.9, 25.5, 24.8, 24.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{21}H_{27}NO_3$ $[M+H]^+$: 342.2069, Found: 342.2066.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 10.396 min, t_R (major) = 12.918 min.



***(R)*-N-Cyclohexyl-2-(4-(((3,7-dimethylocta-2,6-dien-1-yl)oxy)methyl)phenyl)propanamide (32)**

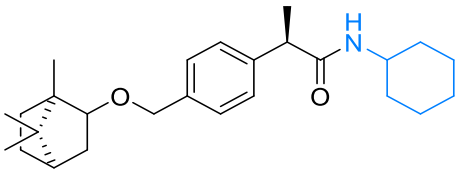
20.2 mg, 51% yield, 95:5 er, colorless oil, $[\alpha]_D^{24}$ = -12.0 (c = 0.4, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.32 (d, *J* = 8.5 Hz, 2H), 7.25 (d, *J* = 8.5 Hz, 2H), 5.41 (td, *J* = 7.0, 1.5 Hz, 1H), 5.16 – 5.02 (m, 2H), 4.47 (s, 2H), 4.02 (dd, *J* = 7.0, 1.0 Hz, 2H), 3.80 – 3.64 (m, 1H), 3.50 (q, *J* = 7.0 Hz, 1H), 2.07 (d, *J* = 3.0 Hz, 4H), 1.89 – 1.73 (m, 5H), 1.70 – 1.66 (m, 3H), 1.65 – 1.53 (m, 6H), 1.49 (d, *J* = 7.5 Hz, 3H), 1.35 – 1.25 (m, 2H), 1.13 – 0.89 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.2, 140.9, 140.7, 137.5, 132.0, 128.4, 127.6, 123.8, 121.8, 71.8, 66.6, 48.2, 47.0, 33.0, 32.9, 32.3, 26.7, 25.7, 25.5, 24.8, 24.7, 23.5, 18.7, 17.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{26}H_{39}NO_2$ $[M+H]^+$: 398.3059, Found: 398.3063.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 6.378 min, t_R (major) = 7.423 min.



(*2R*)-*N*-cyclohexyl-2-(4-((((*1S,4S*)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-yl)oxy)methyl)phenyl)propanamide (33)

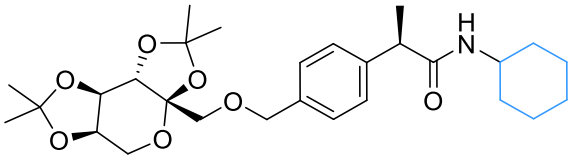
28.1 mg, 71% yield, 97:3 er, pale yellow oil, $[\alpha]_D^{24}$ = -40.0 (c = 0.8, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.15 – 6.98 (m, 4H), 4.94 (d, *J* = 7.5 Hz, 1H), 4.44 – 4.16 (m, 2H), 3.62 – 3.44 (m, 2H), 3.29 (q, *J* = 7.0 Hz, 1H), 1.99 – 1.81 (m, 2H), 1.67 – 1.33 (m, 6H), 1.28 (d, *J* = 7.0 Hz, 3H), 1.14 – 0.99 (m, 4H), 0.95 – 0.71 (m, 3H), 0.69 (s, 3H), 0.63 (d, *J* = 6.5 Hz, 6H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 140.5, 138.5, 127.7, 127.5, 84.5, 71.3, 49.3, 48.2, 47.9, 47.0, 45.0, 36.2, 33.0, 32.9, 28.3, 26.8, 25.5, 24.8, 24.7, 19.8, 18.9, 18.7, 14.1.

HRMS (ESI-TOF) m/z: Calcd. for $C_{26}H_{39}NO_2$ $[M+H]^+$: 398.3059, Found: 398.3059.

The enantiomeric excess was determined by Cellulose4 column, heptane/*i*PrOH = 95:5 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (major) = 11.179 min, t_R (minor) = 13.100 min.



***(2R)-N*-Cyclohexyl-2-(4-((((*5aR,8aR,8bS*)-2,2,7,7-tetramethyltetrahydro-3aH-bis([1,3]dioxolo)[4,5-b:4',5'-d]pyran-3a-yl)methoxy)methyl)phenyl)propanamide (34)**

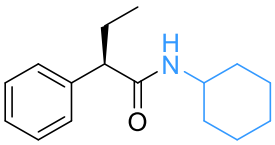
35.8 mg, 71% yield, 99.5:0.5 er, pale yellow oil, $[\alpha]_D^{24}$ = -16.7 (c = 0.87, $CHCl_3$). Eluent: pentane/ethyl acetate = 5/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.43 – 7.12 (m, 4H), 5.14 (d, *J* = 7.5 Hz, 1H), 4.70 – 4.51 (m, 3H), 4.43 (dd, *J* = 2.5, 1.0 Hz, 1H), 4.27 – 4.18 (m, 1H), 3.91 (dd, *J* = 13.0, 2.0 Hz, 1H), 3.79 – 3.67 (m, 2H), 3.68 – 3.54 (m, 1H), 3.49 (q, *J* = 7.0 Hz, 1H), 1.90 – 1.71 (m, 2H), 1.66 – 1.51 (m, 6H), 1.48 (d, *J* = 7.0 Hz, 3H), 1.41 (s, 6H), 1.34 – 1.23 (m, 5H), 1.10 – 0.80 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.1, 140.9, 137.1, 128.0, 127.5, 108.9, 108.6, 102.7, 73.4, 71.7, 71.0, 70.2, 70.2, 61.0, 48.1, 47.0, 32.9, 32.9, 26.6, 25.9, 25.5, 25.4, 24.8, 24.7, 24.0, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{28}H_{41}NO_7Na$ $[M+Na]^+$: 526.2786, Found: 526.2789.

The enantiomeric excess was determined by Chiralcel OJ column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 11.469 min.



***(R)*-*N*-Cyclohexyl-2-phenylbutanamide (35)**

From *trans*-*β*-methylstyrene: 14.5 mg, 59% yield, 98.5:1.5 er, white solid, $[\alpha]_D^{24}$ = -26.2 (c = 0.33, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-6/1.

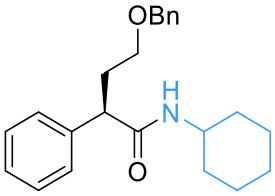
From *cis*-*β*-methylstyrene: 13.3 mg, 50% yield, >99.5:0.5 er, white solid, $[\alpha]_D^{24}$ = -34.5 (c = 0.33, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-6/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.14 – 6.97 (m, 5H), 5.02 (d, *J* = 7.0 Hz, 1H), 3.50 – 3.55 (m, 1H), 2.95 (t, *J* = 7.5 Hz, 1H), 1.96 (dt, *J* = 13.5, 7.5 Hz, 1H), 1.70 – 1.49 (m, 3H), 1.45 – 1.28 (m, 3H), 1.16 – 1.01 (m, 3H), 0.93 – 0.74 (m, 2H), 0.66 (t, *J* = 7.5 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.5, 140.3, 128.7, 128.0, 127.1, 55.4, 48.1, 33.1, 32.9, 26.5, 25.5, 24.8, 24.7, 12.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO$ $[M+H]^+$: 246.1858, Found: 246.1859.

The enantiomeric excess was determined by Amylose2 column, heptane/EtOH = 90:10 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 7.949 min, t_R (major) = 9.778 min.



***(R)*-4-(Benzyloxy)-*N*-cyclohexyl-2-phenylbutanamide (36)**

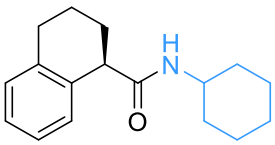
21.1 mg, 60% yield, white solid, $[\alpha]_D^{24}$ = -39.0 (c = 0.67, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.35 – 7.18 (m, 10H), 5.27 (d, *J* = 8.5 Hz, 1H), 4.40 (s, 2H), 3.76 – 3.60 (m, 1H), 3.52 (t, *J* = 7.5 Hz, 1H), 3.51 – 3.38 (m, 1H), 3.39 – 3.22 (m, 1H), 2.52 – 2.30 (m, 1H), 2.07 – 1.91 (m, 1H), 1.87 – 1.66 (m, 2H), 1.65 – 1.46 (m, 3H), 1.37 – 1.17 (m, 2H), 1.10 – 0.82 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.2, 140.0, 138.4, 128.7, 128.4, 128.0, 127.8, 127.6, 127.1, 73.0, 67.8, 49.6, 48.2, 33.5, 33.1, 32.8, 25.5, 24.8, 24.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{23}H_{29}NO_2$ $[M+H]^+$: 352.2276, Found: 352.2274.

The enantiomeric excess was determined by Amylose2 column, heptane/EtOH = 90:10 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (major) = 6.181 min, t_R (minor) = 9.581 min.



***(R)-N*-Cyclohexyl-1,2,3,4-tetrahydronaphthalene-1-carboxamide (37)**

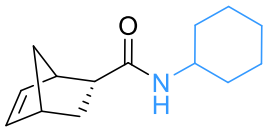
16.0 mg, 62% yield, 93:7 er, white solid, $[\alpha]_D^{24}$ = -6.3 (c = 0.37, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.23 – 7.06 (m, 4H), 5.13 (d, *J* = 7.0 Hz, 1H), 3.87 – 3.69 (m, 1H), 3.64 (t, *J* = 5.5 Hz, 1H), 2.80 (q, *J* = 7.5, 6.5 Hz, 2H), 2.35 – 2.21 (m, 1H), 2.06 – 1.89 (m, 1H), 1.78 (ddd, *J* = 7.0, 6.0, 3.5 Hz, 4H), 1.65 – 1.47 (m, 3H), 1.42 – 1.22 (m, 2H), 1.16 – 0.92 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 174.0, 137.9, 134.2, 130.0, 129.8, 127.3, 126.1, 48.1, 47.2, 33.1, 32.7, 29.3, 27.4, 25.5, 24.6, 20.3.

HRMS (ESI-TOF) m/z: Calcd. for $C_{17}H_{23}NO$ $[M+H]^+$: 258.1858, Found: 258.1865.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 6.121 min, t_R (major) = 7.617 min.



***(4R)-N*-Cyclohexylbicyclo*[2.2.1]*hept-5-ene-2-carboxamide (38)**

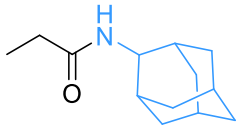
13.8 mg, 63% yield, 78.5:21.5 er, white solid, $[\alpha]_D^{24}$ = -21.6 (c = 0.5, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-6/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 6.11 (qd, *J* = 5.5, 3.5 Hz, 2H), 5.34 (s, 1H), 3.90 – 3.62 (m, 1H), 2.89 (d, *J* = 1.5 Hz, 2H), 1.97 – 1.85 (m, 4H), 1.80 – 1.56 (m, 4H), 1.46 – 1.03 (m, 8H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 174.6, 138.2, 136.1, 48.1, 47.3, 46.3, 44.9, 41.6, 33.4, 33.3, 30.5, 25.6, 24.9.

HRMS (ESI-TOF) m/z: Calcd. for $C_{14}H_{21}NO$ $[M+H]^+$: 220.1701, Found: 220.1700.

The enantiomeric excess was determined by Amylose2 column, heptane/EtOH = 90:10 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 6.202 min, t_R (major) = 6.589 min.



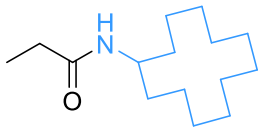
***N*-(Adamantan-2-yl)propionamide (39)**

16.8 mg, 81% yield, white solid. Eluent: pentane/ethyl acetate = 5/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 5.75 (s, 1H), 4.09 – 4.00 (m, 1H), 2.22 (q, *J* = 7.5 Hz, 2H), 1.99 – 1.58 (m, 14H), 1.16 (t, *J* = 7.5 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 172.8, 53.0, 37.5, 37.1, 32.0, 31.9, 30.1, 27.2, 27.1, 10.1.

HRMS (ESI-TOF) m/z: Calcd. for $C_{13}H_{21}NO$ $[M+H]^+$: 208.1701, Found: 208.1704.



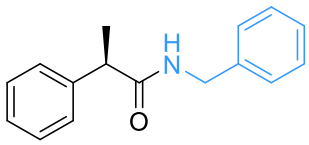
***N*-Cyclododecylpropionamide (40)**

20.6 mg, 86% yield, white solid. Eluent: pentane/ethyl acetate = 5/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 5.20 (s, 1H), 4.16 – 3.88 (m, 1H), 2.16 (q, *J* = 7.5 Hz, 2H), 1.61 – 1.23 (m, 22H), 1.14 (t, *J* = 7.5 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.0, 45.9, 30.3, 29.9, 24.0, 23.7, 23.5, 23.3, 21.4, 9.9.

HRMS (ESI-TOF) m/z: Calcd. for $C_{15}H_{29}NO$ $[M+H]^+$: 240.2327, Found: 240.2329.



***(R)-N-b*enzyl-2-phenylpropanamide (3)**

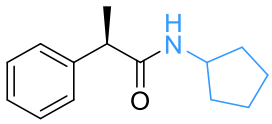
14.8 mg, 62% yield, 99.5:0.5 er, white solid, $[\alpha]_D^{24}$ = -8.6 (c = 0.5, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.39 – 7.25 (m, 8H), 7.17 (m, 2H), 5.73 (s, 1H), 4.41 (dd, *J* = 6.0, 4.0 Hz, 2H), 3.63 (q, *J* = 7.0 Hz, 1H), 1.58 (d, *J* = 7.0 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 174.1, 141.3, 138.3, 129.0, 128.6, 127.7, 127.5, 127.4, 127.3, 47.2, 43.6, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{18}NO$ $[M+H]^+$: 240.1383, Found: 240.1380.

The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 13.230 min, t_R (major) = 17.448 min.



***(R)-N*-Cyclopentyl-2-phenylpropanamide (41)**

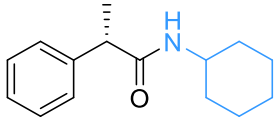
16.1 mg, 74% yield, 94:6 er, white solid, $[\alpha]_D^{24}$ = -12.2 (c = 0.5, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.31 – 7.17 (m, 5H), 5.15 (s, 1H), 4.08 (h, *J* = 7.0 Hz, 1H), 3.43 (q, *J* = 7.0 Hz, 1H), 1.95 – 1.76 (m, 2H), 1.52 – 1.42 (m, 4H), 1.43 (d, *J* = 7.0 Hz, 3H), 1.22 – 1.04 (m, 2H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 173.7, 141.6, 128.9, 127.6, 127.2, 51.3, 47.2, 33.1, 33.0, 23.7, 23.6, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{14}H_{19}NO$ $[M+H]^+$: 218.1545, Found: 218.1542.

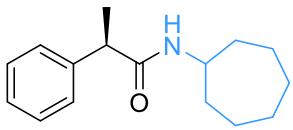
The enantiomeric excess was determined by Chiralpak AD-H column, heptane/EtOH = 80:20 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 7.364 min, t_R (major) = 7.822 min.



***(S)-N*-Cyclohexyl-2-phenylpropanamide (42)**

19.2 mg, 83% yield, 95:5 er, white solid, $[\alpha]_D^{24}$ = +3.75 (c = 0.4, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

The enantiomeric excess was determined by Cellulose4 column, heptane/*i*PrOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 9.008 min, t_R (major) = 10.194 min.



***(R)-N*-Cycloheptyl-2-phenylpropanamide (43)**

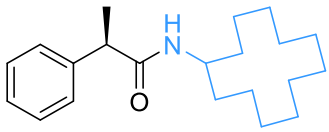
17.2 mg, 70% yield, 95:5 er, white solid, $[\alpha]_D^{24}$ = -13.9 (c = 0.63, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.30 – 7.24 (m, 2H), 7.23 – 7.17 (m, 3H), 5.16 (s, 1H), 3.94 – 3.76 (m, 1H), 3.43 (q, *J* = 7.0 Hz, 1H), 1.83 – 1.64 (m, 2H), 1.52 – 1.31 (m, 11H), 1.28 – 1.14 (m, 2H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 172.9, 141.7, 128.9, 127.6, 127.2, 50.4, 47.2, 34.9, 34.8, 27.8, 24.1, 24.0, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO$ $[M+H]^+$: 246.1858, Found: 246.1857.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, v = 1.0 mL/min, λ= 210 nm, t_R (major) = 8.087 min, t_R (minor) = 9.675 min.



***(R)-N*-Cyclododecyl-2-phenylpropanamide (44)**

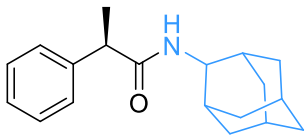
29.0 mg, 73% yield, 96.5:3.5 er, white solid, $[\alpha]_D^{24}$ = -19.1 (c = 0.8, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.30 – 7.17 (m, 5H), 5.02 (d, J = 8.0 Hz, 1H), 3.91 – 3.98 (m, 1H), 3.44 (q, J = 7.0 Hz, 1H), 1.44 (d, J = 7.0 Hz, 3H), 1.41 – 1.09 (m, 23H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 173.4, 141.7, 128.9, 127.6, 127.1, 47.2, 46.0, 30.2, 30.0, 23.93, 23.91, 23.7, 23.5, 23.5, 23.4, 23.3, 21.4, 21.2, 18.6.

HRMS (ESI-TOF) m/z: Calcd. for $C_{21}H_{33}NO$ $[M+H]^+$: 316.2640, Found: 316.2643.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, v = 0.6 mL/min, λ= 210 nm, t_R (major) = 8.077 min, t_R (minor) = 8.495 min.



***(R)-N*-(Adamantan-2-yl)-2-phenylpropanamide (45)**

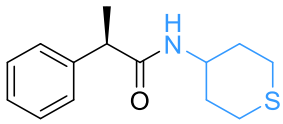
27.2 mg, 96% yield, 99:1 er, white solid, $[\alpha]_D^{24}$ = -10.7 (c = 0.97, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.43 – 7.26 (m, 5H), 5.65 (s, 1H), 4.00 (d, J = 8.0 Hz, 1H), 3.61 (q, J = 7.0 Hz, 1H), 1.87 – 1.77 (m, 7H), 1.75 – 1.66 (m, 3H), 1.57 (d, J = 7.0 Hz, 3H), 1.54 – 1.32 (m, 4H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 173.2, 141.6, 128.9, 127.7, 127.3, 53.1, 47.4, 37.5, 37.1, 37.0, 31.83, 31.79, 31.7, 27.1, 27.0, 18.3.

HRMS (ESI-TOF) m/z: Calcd. for $C_{19}H_{25}NO$ $[M+Na]^+$: 284.2014, Found: 284.2017.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, v = 1.0 mL/min, λ= 210 nm, t_R (major) = 7.079 min, t_R (minor) = 8.602 min.



***(R)*-2-phenyl-*N*-(tetrahydro-2*H*-thiopyran-4-yl)propanamide (46)**

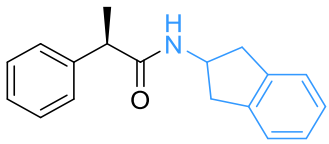
22.4 mg, 90% yield, 93.5:6.5 er, white solid, $[\alpha]_D^{24}$ = -15.0 (c = 0.47, $CHCl_3$). Eluent: pentane/ethyl acetate = 6/1-2/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.40 – 7.10 (m, 5H), 5.20 (d, *J* = 7.0 Hz, 1H), 3.85 – 3.68 (m, 1H), 3.51 (q, *J* = 7.0 Hz, 1H), 2.78 – 2.45 (m, 4H), 2.27 – 1.98 (m, 2H), 1.50 (d, *J* = 7.0 Hz, 3H), 1.45 – 1.34 (m, 2H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.2, 141.4, 129.0, 127.5, 127.3, 47.5, 47.2, 34.0, 33.9, 27.7, 27.6, 18.5.

HRMS (ESI-TOF) m/z: Calcd. for $C_{14}H_{19}NOS$ $[M+H]^+$: 250.1265, Found: 250.1263.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 9.014 min, t_R (minor) = 10.639 min.



***(R)*-*N*-(2,3-Dihydro-1*H*-inden-2-yl)-2-phenylpropanamide (47)**

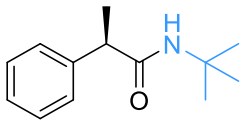
16.4 mg, 62% yield, 91.5:8.5 er, pale yellow solid, $[\alpha]_D^{24}$ = -9.0 (c = 0.4, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.35 – 7.11 (m, 9H), 5.56 (d, *J* = 6.5 Hz, 1H), 4.77 – 4.65 (m, 1H), 3.48 (q, *J* = 7.0 Hz, 1H), 3.28 (ddd, *J* = 16.5, 9.5, 7.5 Hz, 2H), 2.66 (ddd, *J* = 36.0, 16.0, 5.0 Hz, 2H), 1.50 (d, *J* = 7.0 Hz, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.9, 141.4, 140.8, 140.8, 128.9, 127.5, 127.2, 126.7, 124.7, 50.6, 47.1, 40.1, 40.0, 18.8.

HRMS (ESI-TOF) m/z: Calcd. for $C_{18}H_{19}NO$ $[M+H]^+$: 266.1545, Found: 266.1544.

The enantiomeric excess was determined by Cellulose4 column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (minor) = 21.228 min, t_R (major) = 26.005 min.



***(R)*-*N*-(*tert*-Butyl)-2-phenylpropanamide (48)**

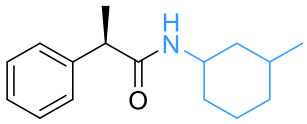
15.6 mg, 76% yield, 95.5:4.5 er, white solid, $[\alpha]_D^{24}$ = -23.2 (c = 0.67, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.15 – 7.09 (m, 2H), 7.08 – 7.01 (m, 3H), 4.92 (s, 1H), 3.23 (q, *J* = 7.0 Hz, 1H), 1.26 (d, *J* = 7.0 Hz, 3H), 1.05 (s, 9H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 173.4, 142.0, 128.8, 127.5, 127.0, 51.1, 47.8, 28.7, 18.7.

HRMS (ESI-TOF) m/z: Calcd. for $C_{13}H_{19}NO$ $[M+H]^+$: 206.1545, Found: 206.1550.

The enantiomeric excess was determined by Chiralcel OJ-H column, heptane/EtOH = 95:5 v/v, *v* = 1.0 mL/min, λ= 210 nm, t_R (major) = 8.003 min, t_R (minor) = 10.066 min.



***(2R)*-*N*-(3-Methylcyclohexyl)-2-phenylpropanamide (49)**

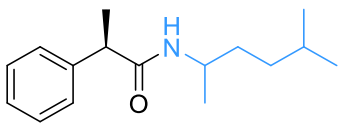
18.2 mg, 74% yield, *dr* 1.5:1, colorless oil, $[\alpha]_D^{24}$ = -10.9 (c = 0.36, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

Mixture of two stereoisomers.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.33 – 7.16 (m, 5H), 5.31 (s, 0.6H), 5.03 (s, 0.4H), 4.09 – 3.93 (m, 0.6H), 3.74 – 3.56 (m, 0.4H), 3.52 – 3.37 (m, 1H), 1.88 – 1.54 (m, 2H), 1.52 – 1.36 (m, 6H), 1.27 – 1.09 (m, 3H), 0.85 – 0.73 (m, 3H), 0.72 – 0.45 (m, 1H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.2, 141.7, 128.9, 128.9, 127.6, 127.2, 127.1, 48.5, 47.3, 47.2, 44.7, 41.7, 38.5, 38.5, 34.2, 33.6, 32.8, 31.8, 30.4, 27.4, 27.4, 24.8, 22.4, 21.7, 20.63, 20.61, 18.7, 18.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{23}NO$ $[M+H]^+$: 246.1858, Found: 246.1857.



***(2R)*-*N*-(5-Methylhexan-2-yl)-2-phenylpropanamide (50)**

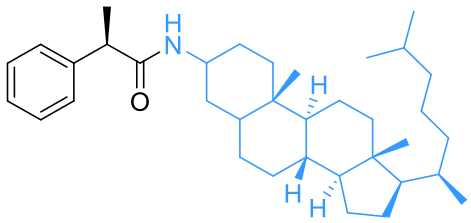
18.8 mg, 76% yield, *dr* 1:1, colorless oil, $[\alpha]_D^{24}$ = -13.5 (c = 0.73, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

Mixture of two stereoisomers.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.39 – 7.10 (m, 5H), 5.01 (s, 1H), 3.92 – 3.70 (m, 1H), 3.45 (dq, *J* = 12.0, 7.0 Hz, 1H), 1.44 (dd, *J* = 7.0, 2.5 Hz, 3H), 1.42 – 1.11 (m, 3H), 1.06 – 0.85 (m, 5H), 0.76 (dd, *J* = 6.5, 3.5 Hz, 3H), 0.70 (dd, *J* = 6.5, 4.5 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 173.5, 173.3, 141.8, 141.6, 128.9, 127.64, 127.61, 127.2, 47.3, 47.2, 45.5, 45.3, 35.0, 34.8, 34.6, 27.9, 27.7, 22.6, 22.54, 22.53, 22.4, 21.0, 20.8, 18.6, 18.5.

HRMS (ESI-TOF) m/z: Calcd. for $C_{16}H_{25}NO$ $[M+H]^+$: 248.2014, Found: 248.2018.



***(2R)-N-((8R,9S,10S,13R,14S,17R)*-10,13-dimethyl-17-((*R*)-6-methylheptan-2-yl)hexadecahydro-*1H*-cyclopenta[a]phenanthren-3-yl)-2-phenylpropanamide (51)**

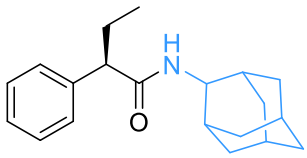
43.7 mg, 84% yield, *dr* 1:1, white solid, $[\alpha]_D^{24}$ = +14.3 (c = 1.4, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-4/1.

Mixture of two stereoisomers.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.29 – 7.01 (m, 5H), 5.39 (d, *J* = 7.5 Hz, 1H), 3.89 (d, *J* = 3.5 Hz, 1H), 3.42 (q, *J* = 7.0 Hz, 1H), 1.82 (dt, *J* = 12.5, 3.0 Hz, 1H), 1.75 – 1.61 (m, 1H), 1.53 – 1.34 (m, 8H), 1.31 – 0.82 (m, 20H), 0.78 – 0.72 (m, 9H), 0.64 – 0.45 (m, 9H), 0.34 – 0.23 (m, 1H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 173.3, 173.2, 141.9, 141.7, 133.4, 128.94, 128.91, 127.64, 127.62, 127.3, 127.1, 56.6, 56.4, 56.34, 56.32, 54.6, 54.2, 49.0, 47.3, 45.3, 44.7, 42.6, 40.8, 40.1, 40.0, 39.5, 37.3, 36.2, 35.9, 35.8, 35.5, 35.4, 35.4, 35.3, 33.2, 32.5, 31.9, 28.6, 28.6, 28.4, 28.2, 28.0, 25.8, 24.2, 23.9, 22.9, 22.6, 21.1, 20.7, 18.7, 18.1, 12.3, 12.1, 11.4.

HRMS (ESI-TOF) m/z: Calcd. for $C_{36}H_{57}NO$ $[M+H]^+$: 520.4518, Found: 520.4510.



(*R*)-*N*-adamantan-2-yl)-2-phenylbutanamide (52)

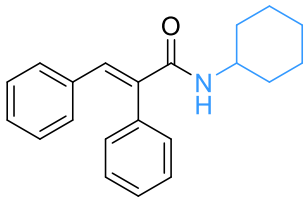
20.5 mg, 69% yield, 98:2 er, white solid, $[\alpha]_D^{24}$ = -21.4 (c = 0.27, $CHCl_3$). Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (400 MHz, $CDCl_3$) δ 7.42 – 7.20 (m, 5H), 5.68 (s, 1H), 4.01 (d, *J* = 7.5 Hz, 1H), 3.41 – 3.20 (m, 1H), 2.25 (dt, *J* = 14.0, 7.0 Hz, 1H), 1.96 – 1.77 (m, 6H), 1.72 (d, *J* = 16.0 Hz, 3H), 1.60 – 1.43 (m, 3H), 1.38 – 1.23 (m, 3H), 0.92 (t, *J* = 7.5 Hz, 3H).

^{13}C NMR (101 MHz, $CDCl_3$) δ 172.6, 140.2, 128.8, 128.0, 127.2, 55.5, 53.1, 37.5, 37.0, 36.9, 31.83, 31.81, 31.78, 31.7, 27.2, 27.1, 26.2, 12.5.

The enantiomeric excess was determined by Amylose2 column, heptane/EtOH = 90:10 v/v, *v* = 0.5 mL/min, λ= 210 nm, t_R (minor) = 7.343 min, t_R (major) = 9.026 min.

HRMS (EI) m/z: Calcd. for $C_{20}H_{27}NO$ [M]: 297.20293, Found: 297.20276.



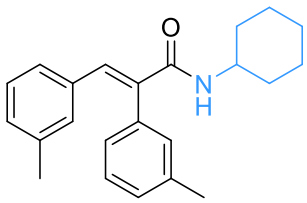
(*E*)-*N*-Cyclohexyl-2,3-diphenylacrylamide (53)

12.5 mg, 41% yield, white solid. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.76 (s, 1H), 7.41 – 7.32 (m, 3H), 7.24 – 7.13 (m, 2H), 7.11 – 7.00 (m, 3H), 6.96 – 6.87 (m, 2H), 5.27 (d, *J* = 8.0 Hz, 1H), 3.98 – 3.64 (m, 1H), 1.86 – 1.74 (m, 2H), 1.60 – 1.43 (m, 3H), 1.37 – 1.22 (m, 2H), 1.09 – 0.89 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 166.1, 136.8, 136.4, 135.1, 134.7, 130.3, 129.9, 129.5, 128.5, 128.4, 128.1, 48.5, 32.8, 25.5, 24.6.

HRMS (EI) m/z: Calcd. for $C_{21}H_{23}NO$ [M]: 305.17742, Found: 305.17728.



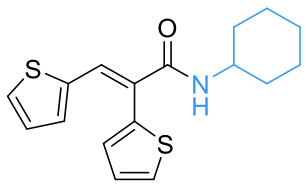
(*E*)-*N*-Cyclohexyl-2,3-di-*m*-tolylacrylamide (54)

14.3 mg, 43% yield, colorless oil solid. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.78 (s, 1H), 7.37 – 7.28 (m, 1H), 7.24 – 7.17 (m, 1H), 7.05 – 6.97 (m, 4H), 6.87 – 6.83 (m, 1H), 6.80 – 6.69 (m, 1H), 5.38 (d, *J* = 8.0 Hz, 1H), 4.09 – 3.65 (m, 1H), 2.35 (s, 3H), 2.17 (s, 3H), 1.93 – 1.80 (m, 3H), 1.57 (td, *J* = 9.0, 5.0 Hz, 3H), 1.40 – 1.28 (m, 2H), 1.17 – 0.95 (m, 2H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 166.2, 139.2, 137.6, 136.6, 136.4, 135.1, 134.6, 131.4, 130.3, 129.3, 129.1, 129.1, 127.9, 127.2, 126.8, 48.5, 32.8, 25.5, 24.6, 21.4, 21.3.

HRMS (EI) m/z: Calcd. for $C_{23}H_{27}NO$ [M]: 333.20872, Found: 333.20832.



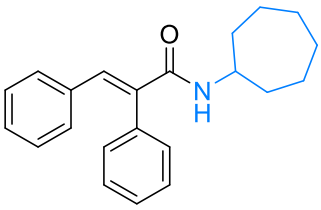
(*Z*)-*N*-Cyclohexyl-2,3-di(thiophen-2-yl)acrylamide (55)

15.2 mg, 48% yield, slight yellow oil. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 8.19 (s, 1H), 7.59 (dd, *J* = 5.0, 1.0 Hz, 1H), 7.30 – 7.25 (m, 1H), 7.23 – 7.15 (m, 2H), 7.03 (dd, *J* = 3.5, 1.0 Hz, 1H), 6.95 (dd, *J* = 5.0, 3.5 Hz, 1H), 5.58 (d, *J* = 8.0 Hz, 1H), 4.05 – 3.67 (m, 1H), 1.96 – 1.79 (m, 2H), 1.71 – 1.50 (m, 3H), 1.40 – 1.31 (m, 2H), 1.20 – 0.98 (m, 3H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 165.1, 138.7, 135.2, 134.1, 133.4, 130.5, 129.7, 129.1, 128.4, 126.7, 48.5, 32.8, 25.5, 24.6.

HRMS (EI) m/z: Calcd. for $C_{17}H_{19}NOS_2$ [M]: 317.09026, Found: 317.08984.



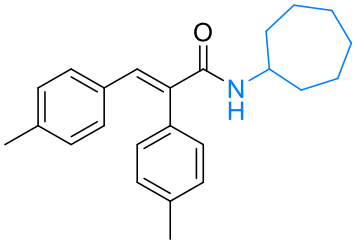
***(E)-N*-Cycloheptyl-2,3-diphenylacrylamide (56)**

13.1 mg, 41% yield, colorless oil. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.62 (s, 1H), 7.27 – 7.17 (m, 3H), 7.07 – 6.99 (m, 2H), 6.96 – 6.86 (m, 3H), 6.81 – 6.72 (m, 2H), 5.20 (d, *J* = 8.0 Hz, 1H), 3.95 – 3.70 (m, 1H), 1.71 – 1.54 (m, 2H), 1.41 – 1.08 (m, 10H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 165.9, 136.7, 136.4, 135.1, 134.7, 130.3, 129.8, 129.5, 128.5, 128.4, 128.1, 50.7, 34.7, 27.8, 24.0.

HRMS (EI) m/z: Calcd. for $C_{22}H_{25}NO$ [M]: 319.19307, Found: 319.19276.



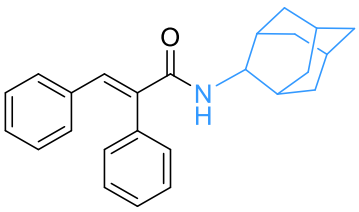
***(E)-N*-Cycloheptyl-2,3-di-*p*-tolylacrylamide (57)**

16.0 mg, 46% yield, colorless oil. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.80 (s, 1H), 7.30 – 7.23 (m, 2H), 7.18 – 7.10 (m, 2H), 7.00 – 6.87 (m, 4H), 5.45 (d, *J* = 8.0 Hz, 1H), 4.24 – 3.91 (m, 1H), 2.44 (s, 3H), 2.28 (s, 3H), 1.95 – 1.78 (m, 2H), 1.63 – 1.27 (m, 10H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 166.2, 138.4, 138.1, 136.5, 133.7, 133.4, 132.4, 130.3, 130.2, 129.7, 128.9, 50.7, 34.8, 27.8, 24.1, 21.4, 21.3.

HRMS (EI) m/z: Calcd. for $C_{24}H_{29}NO$ [M]: 347.22437, Found: 347.22358.



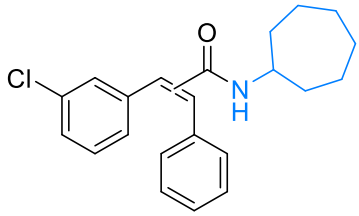
***(E)-N*-(Adamantan-2-yl)-2,3-diphenylacrylamide (58)**

13.5 mg, 38% yield, white solid. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.85 (s, 1H), 7.49 – 7.40 (m, 3H), 7.33 – 7.27 (m, 2H), 7.19 – 7.12 (m, 3H), 7.07 – 7.00 (m, 2H), 5.85 (d, *J* = 8.0 Hz, 1H), 4.12 (d, *J* = 8.5 Hz, 1H), 1.84 (d, *J* = 13.5 Hz, 7H), 1.67 (s, 3H), 1.50 (d, *J* = 13.0 Hz, 2H), 1.38 – 1.20 (m, 2H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 165.9, 136.6, 136.5, 135.1, 134.8, 130.4, 129.8, 129.6, 128.5, 128.4, 128.1, 53.6, 37.5, 37.0, 31.9, 31.8, 27.1, 27.0.

HRMS (EI) m/z: Calcd. for $C_{25}H_{27}NO$ [M]: 357.20872, Found: 357.20778.



***(E)*-3-(3-Chlorophenyl)-*N*-cycloheptyl-2-phenylacrylamide (59)**

15.9 mg, 45% yield, mixture (1.5:1), colorless oil. Eluent: pentane/ethyl acetate = 10/1-5/1.

^{1}H NMR (300 MHz, $CDCl_3$) δ 7.79 (d, J = 14.0 Hz, 1H), 7.49 – 7.38 (m, 2H), 7.27 – 7.06 (m, 5H), 7.01 – 6.84 (m, 2H), 5.37 (dd, J = 22.5, 8.0 Hz, 1H), 4.35 – 3.89 (m, 1H), 1.95 – 1.77 (m, 2H), 1.64 – 1.31 (m, 10H).

^{13}C NMR (75 MHz, $CDCl_3$) δ 165.6, 165.5, 137.4, 136.0, 135.4, 135.3, 134.81, 134.77, 134.5, 134.2, 133.7, 133.6, 131.43, 131.35, 130.2, 129.8, 129.70, 129.67, 128.7, 128.6, 128.4, 128.3, 50.9, 50.8, 34.8, 34.7, 27.8, 27.8, 24.1, 24.0.

HRMS (EI) m/z: Calcd. for $C_{22}H_{24}NOCl$ [M]: 353.15409, Found: 353.15315.

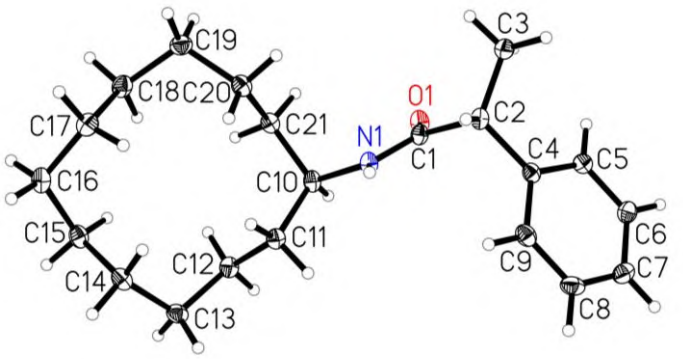
4. X-Ray Crystal Structures of 44

Data were collected on a Bruker Kappa APEX II Duo diffractometer. The structure was solved by direct methods (SHELXS-97: Sheldrick, G. M. *Acta Cryst.* **2008**, *A64*, 112.) and refined by full-matrix least-squares procedures on F^2 (SHELXL-2018: Sheldrick, G. M. *Acta Cryst.* **2015**, *C71*, 3.). XP (Bruker AXS) was used for graphical representations.

CCDC 2084474 contains the supplementary crystallographic data for this paper. These data are provided free of charge by the joint Cambridge Crystallographic Data Centre and Fachinformationszentrum Karlsruhe Access Structures service www.ccdc.cam.ac.uk/structures.

Crystal data of **44**: $C_{21}H_{33}NO$, M = 315.48, monoclinic, space group $P2_1$, a = 5.0832(1), b = 22.6617(7), c = 8.1122(2) Å, b = 103.2538(17)°, V = 909.59(4) Å^3, T = 150(2) K, Z = 2, 9911 reflections measured, 3203 independent reflections (R_{int} = 0.0316), final R values ($I > 2\sigma(I)$): R_1 = 0.0329, wR_2 = 0.0831, final R values (all data): R_1 = 0.0346, wR_2 = 0.0847, 213 parameters, largest diff. peak/hole: 0.13/-0.16 eÅ^{-3}.

The absolute configuration was assigned as ***R*** which is consistent with the determined Flack parameter [0.01(12)].



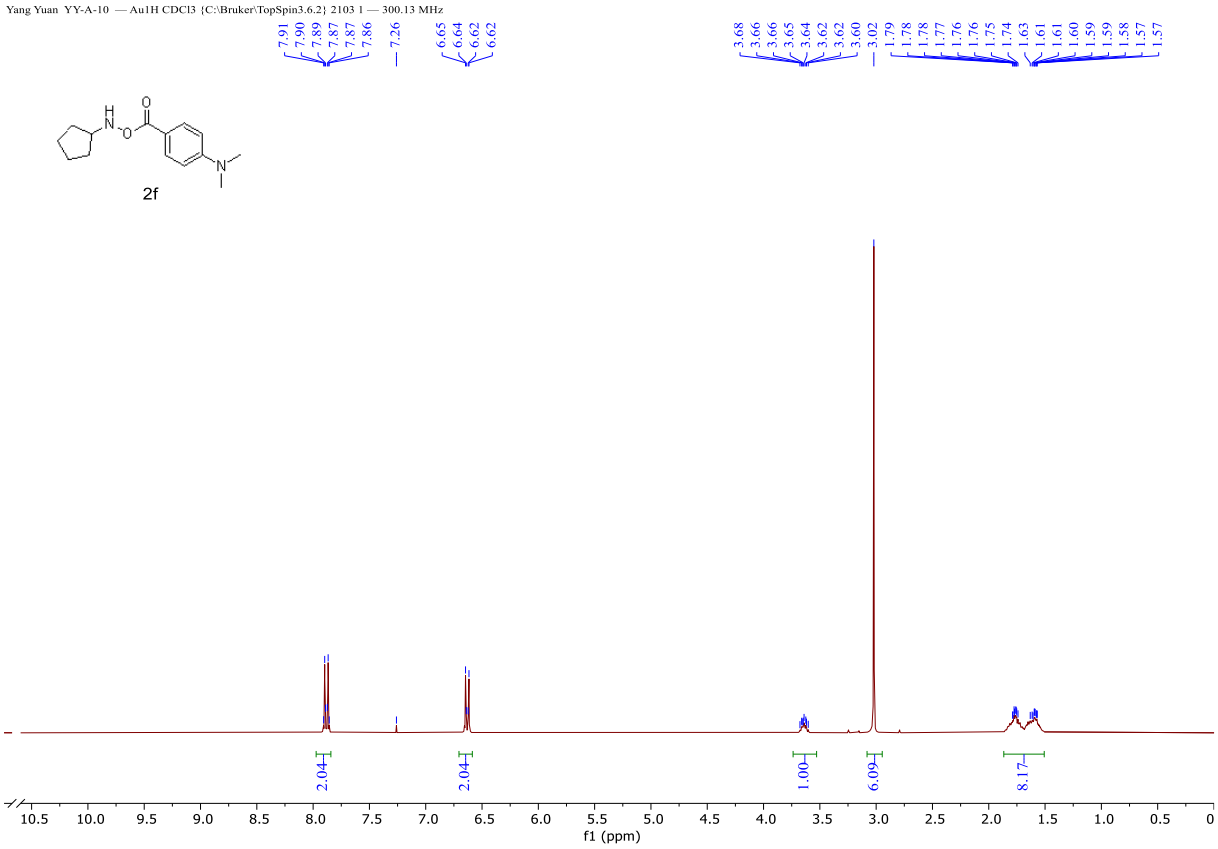
ORTEP representation of **44**. Displacement ellipsoids correspond to 30% probability.

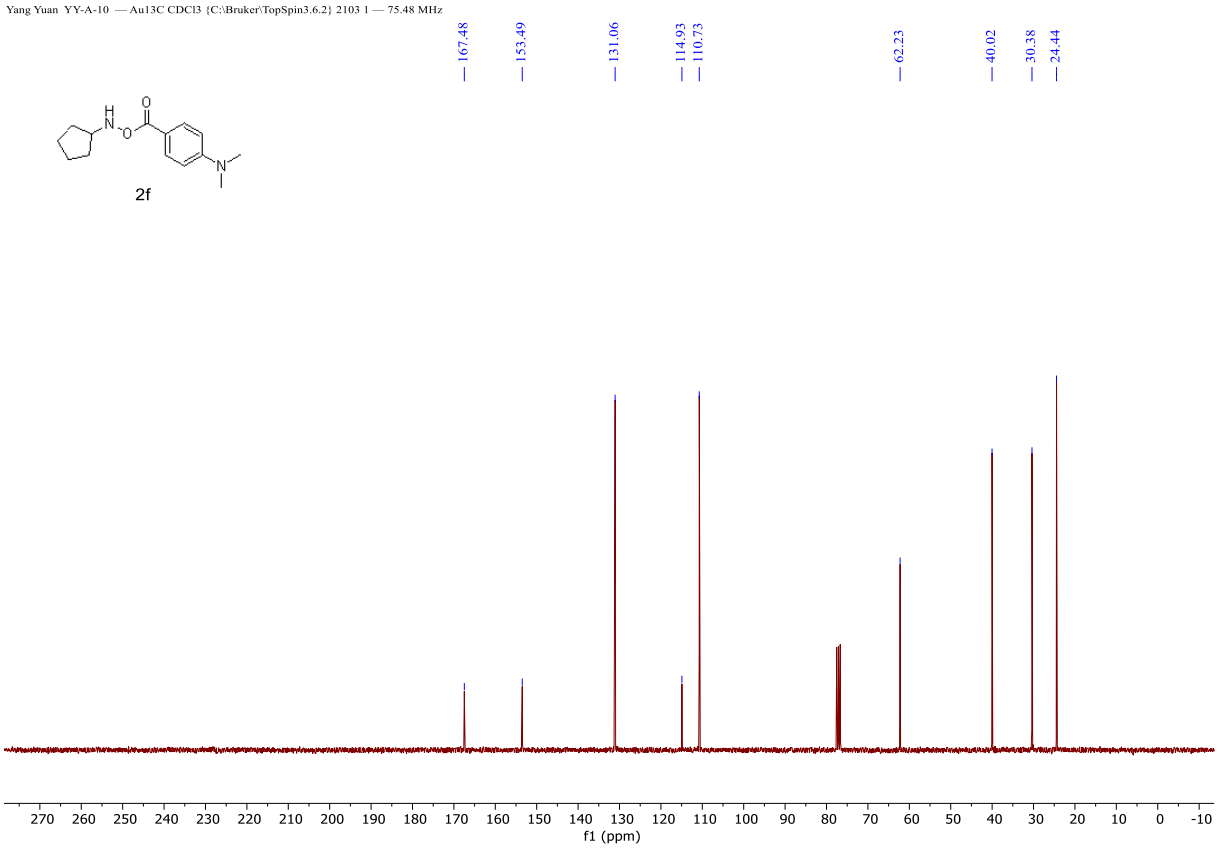
5. References

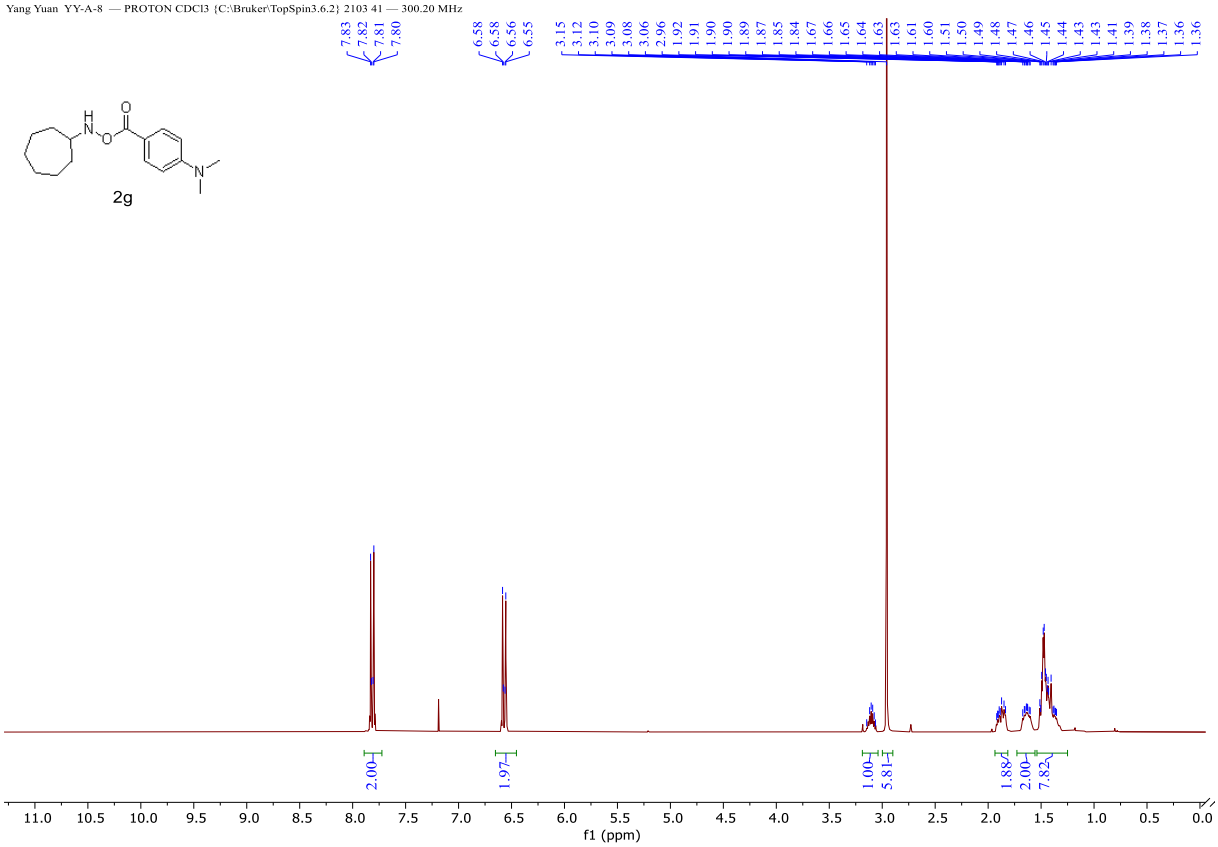
(1) D. Niu, S. L. Buchwald, *J. Am. Chem. Soc.* **2015**, *137*, 9716-9721.

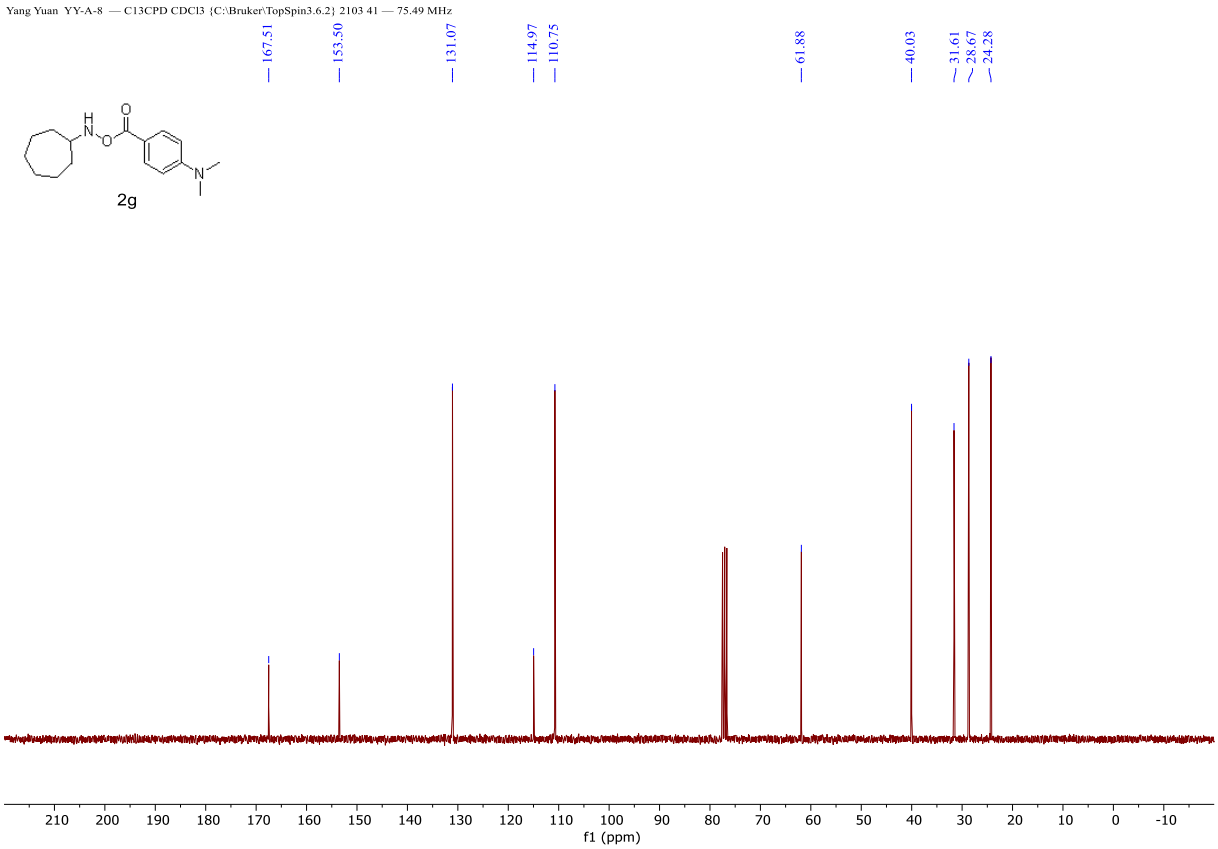
(1) G. X. Ortiz, B. N. Hemric, Q. Wang, *Org. Lett.* **2017**, *19*, 1314-1317.

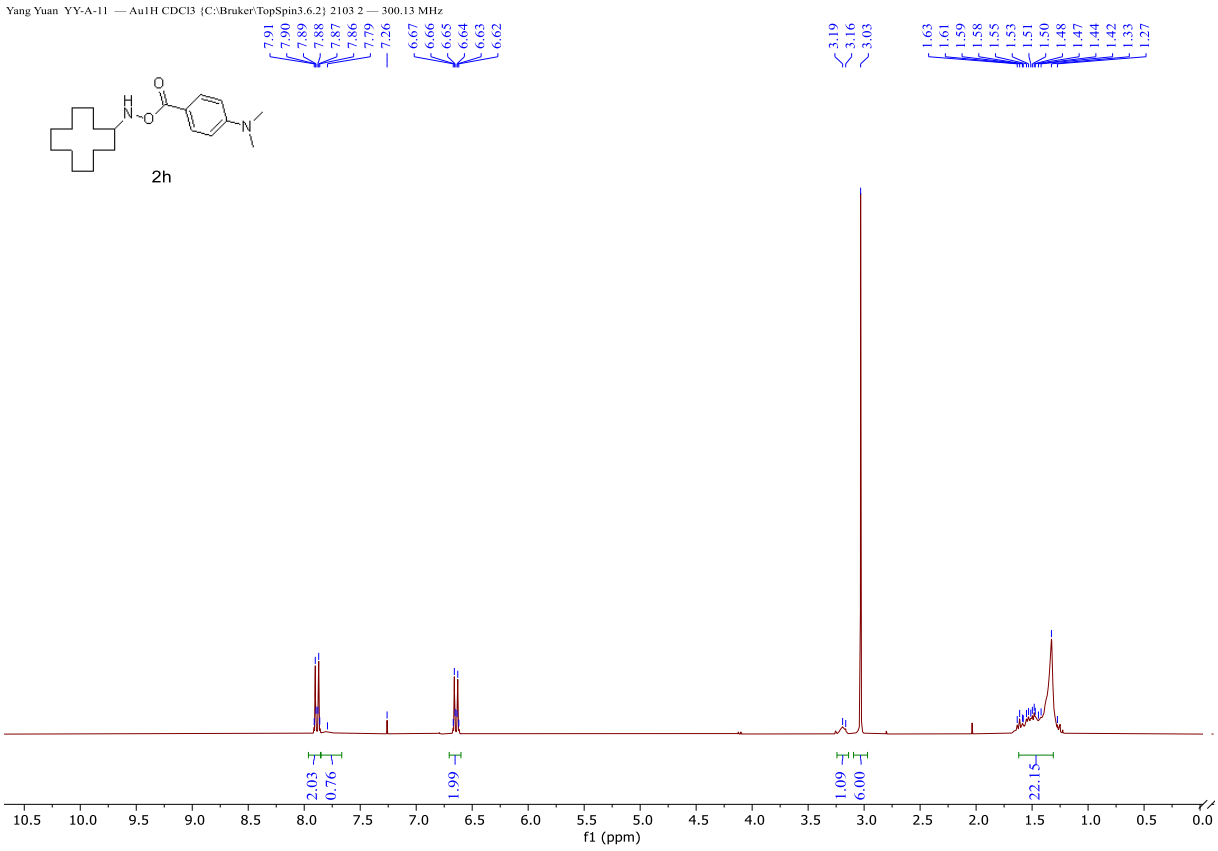
6. NMR Spectra

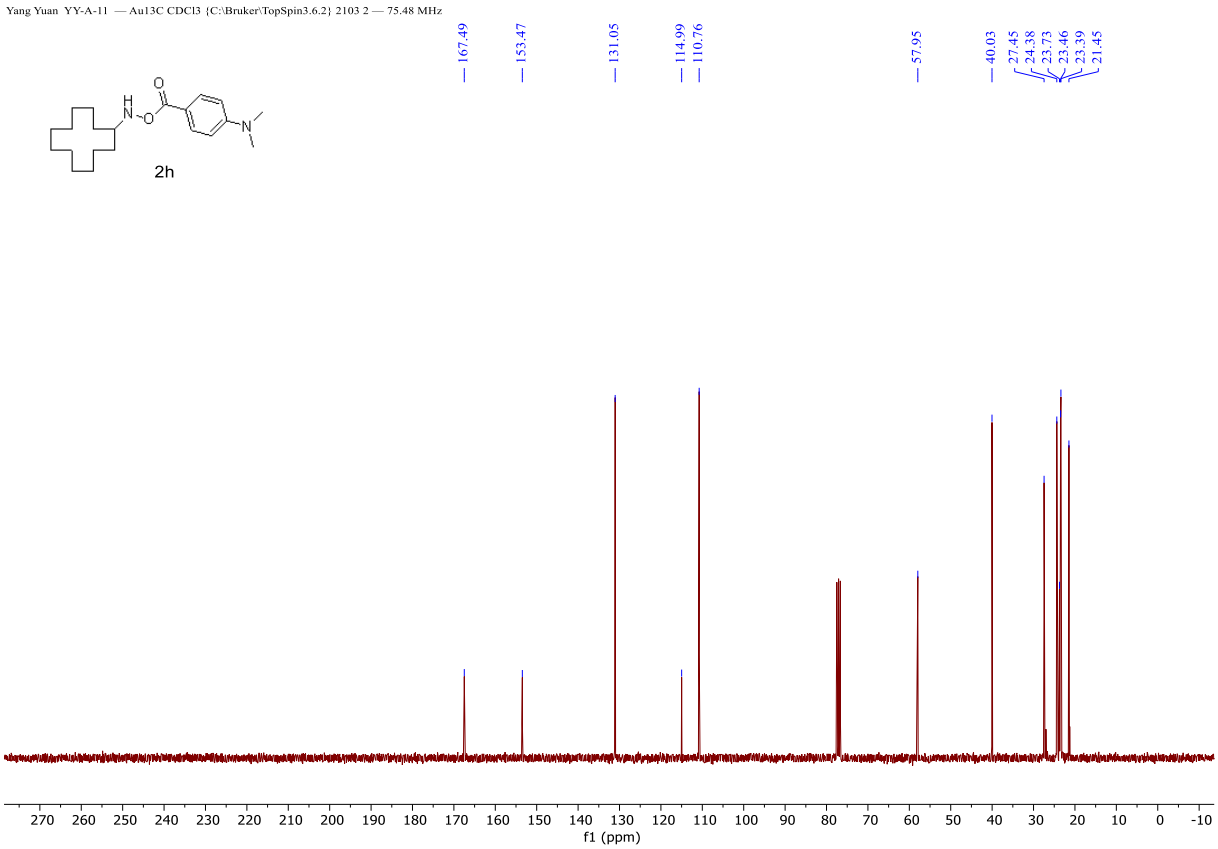


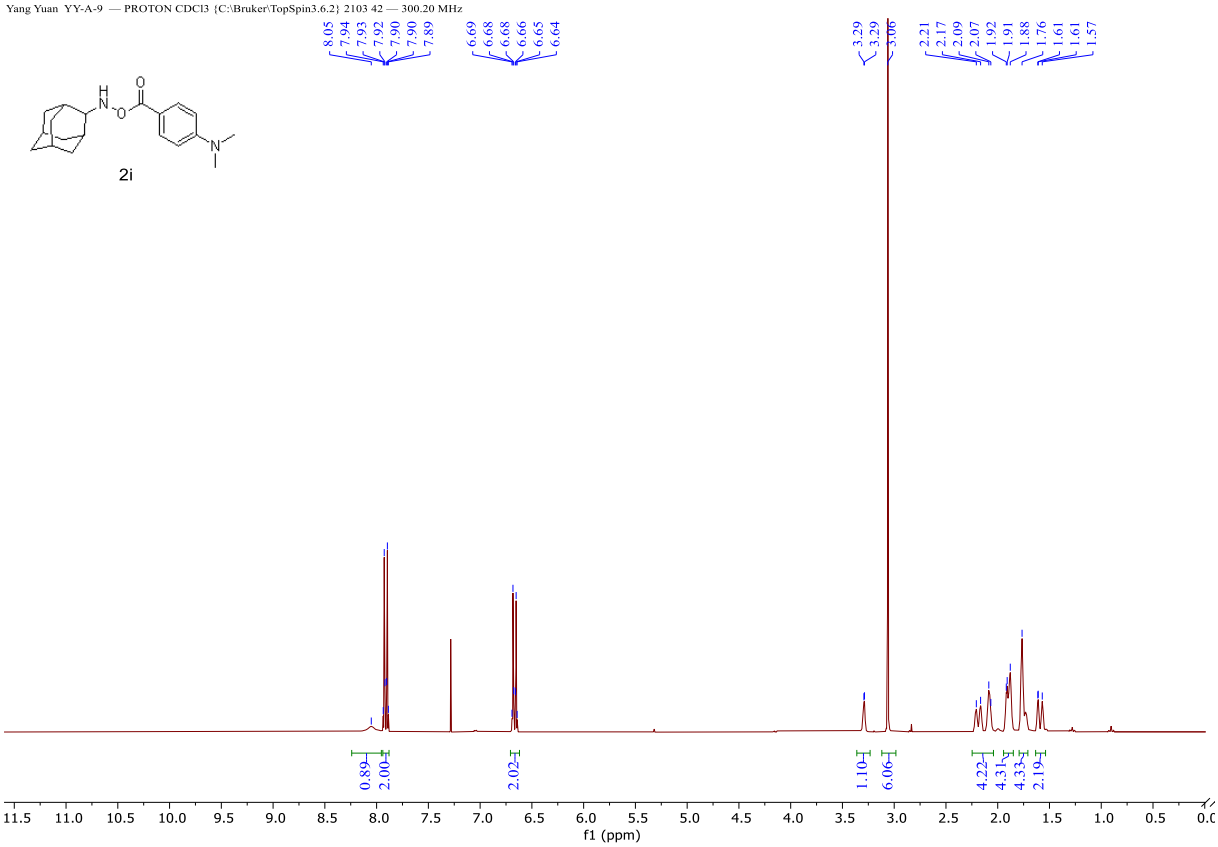



Yang Yuan YY-A-8 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 41 — 300.20 MHz
7.83
7.82
7.81
7.80
6.58
6.58
6.56
6.55
3.15
3.12
3.10
3.09
3.08
3.06
2.96
1.92
1.91
1.90
1.90
1.89
1.87
1.85
1.84
1.67
1.66
1.65
1.64
1.63
1.63
1.61
1.60
1.51
1.50
1.49
1.48
1.47
1.46
1.45
1.44
1.43
1.43
1.41
1.39
1.38
1.37
1.36
1.36
2g
2.00
1.97
1.00
5.81
1.88
2.00
7.82
11.0
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

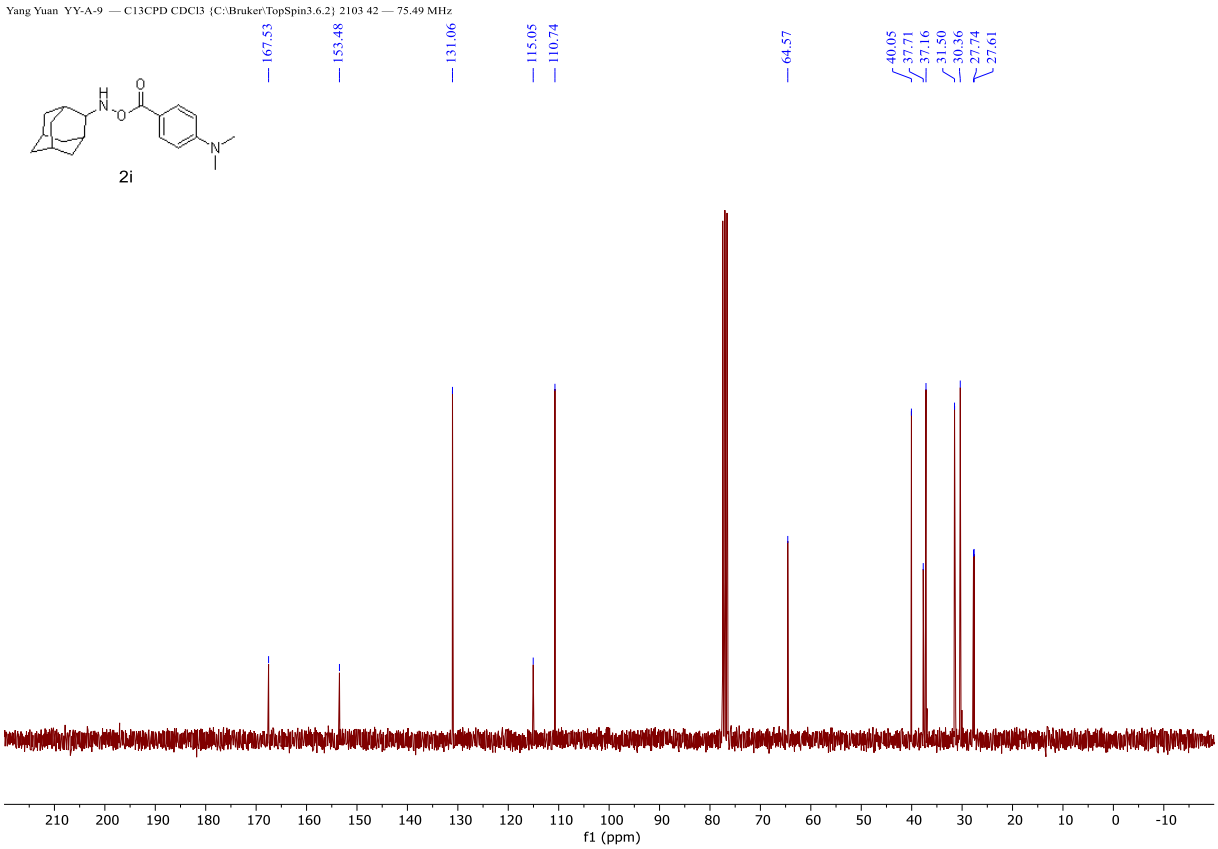

Yang Yuan YY-A-8 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 41 — 75.49 MHz
167.51
153.50
131.07
114.97
110.75
61.88
40.03
31.61
28.67
24.28
2g
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)


Yang Yuan YY-A-11 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 2 — 300.13 MHz
7.91
7.90
7.89
7.88
7.87
7.86
7.79
7.26
6.67
6.66
6.65
6.64
6.63
6.62
3.19
3.16
3.03
1.63
1.61
1.59
1.58
1.55
1.53
1.51
1.50
1.48
1.47
1.44
1.42
1.33
1.27
2h
2.03
0.76
1.99
1.09
6.00
22.15
f1 (ppm)

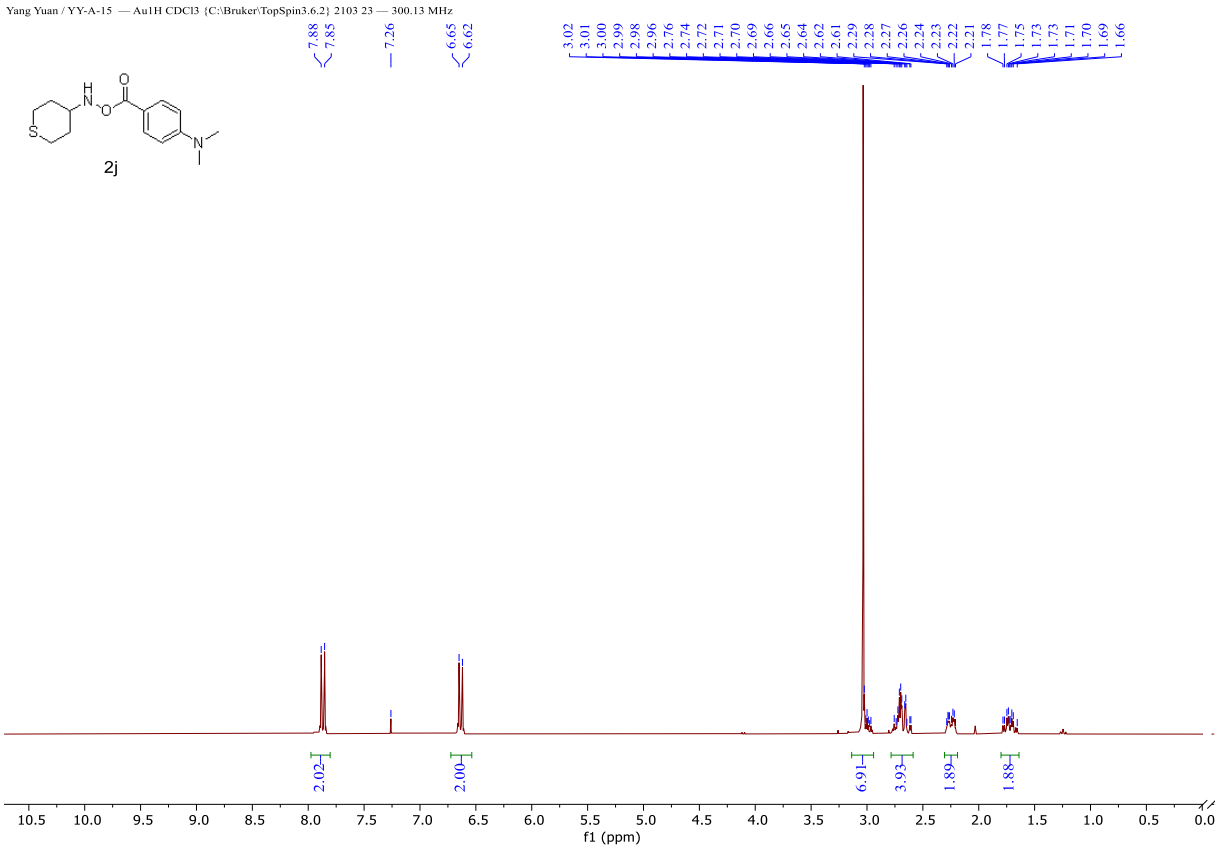

Yang Yuan YY-A-11 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 2 — 75.48 MHz
167.49
153.47
131.05
114.99
110.76
57.95
40.03
27.45
24.38
23.73
23.46
23.39
21.45
2h
f1 (ppm)

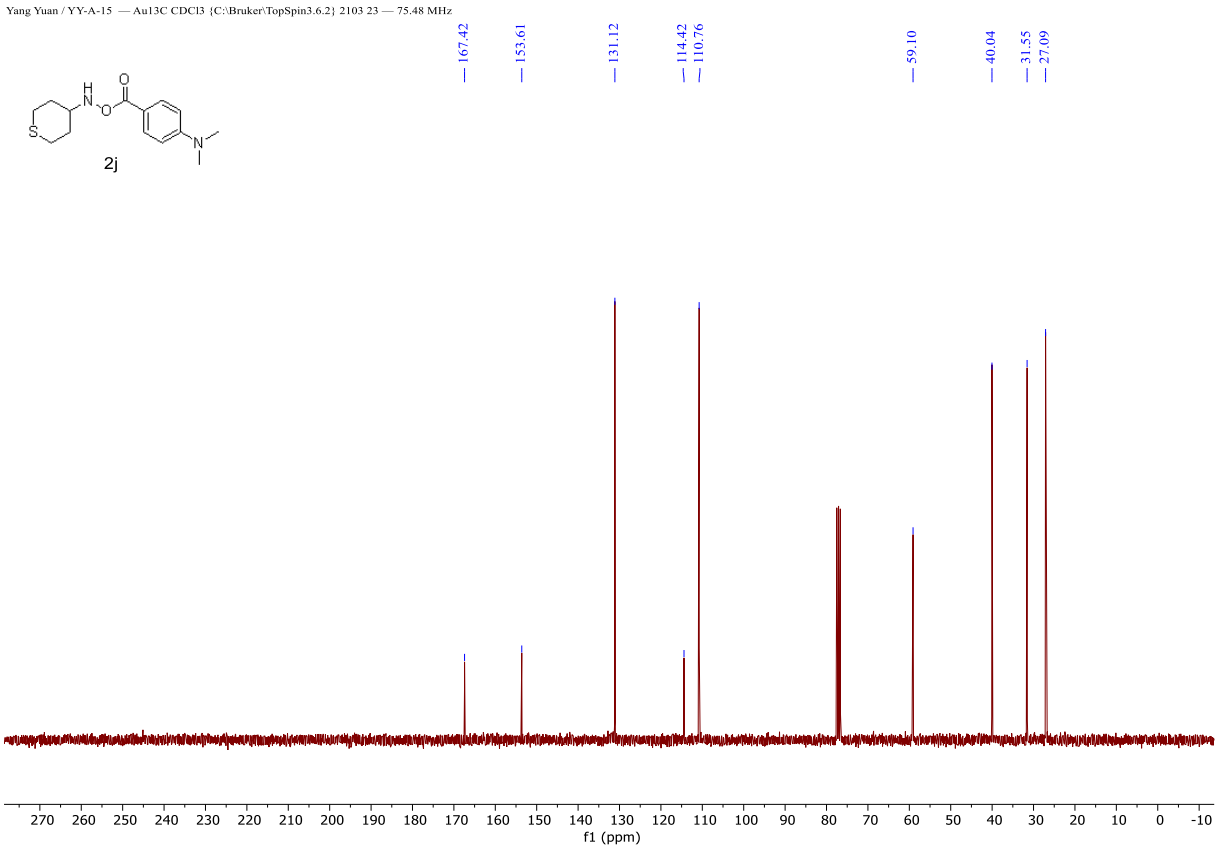

Yang Yuan YY-A-9 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 42 — 300.20 MHz
8.05
7.94
7.93
7.92
7.90
7.90
7.89
6.69
6.68
6.68
6.66
6.65
6.64
3.29
3.29
3.06
2.21
2.17
2.09
2.07
1.92
1.91
1.88
1.76
1.61
1.61
1.57
0.89
2.00
2.02
1.10
6.06
4.22
4.31
4.33
2.19
f1 (ppm)

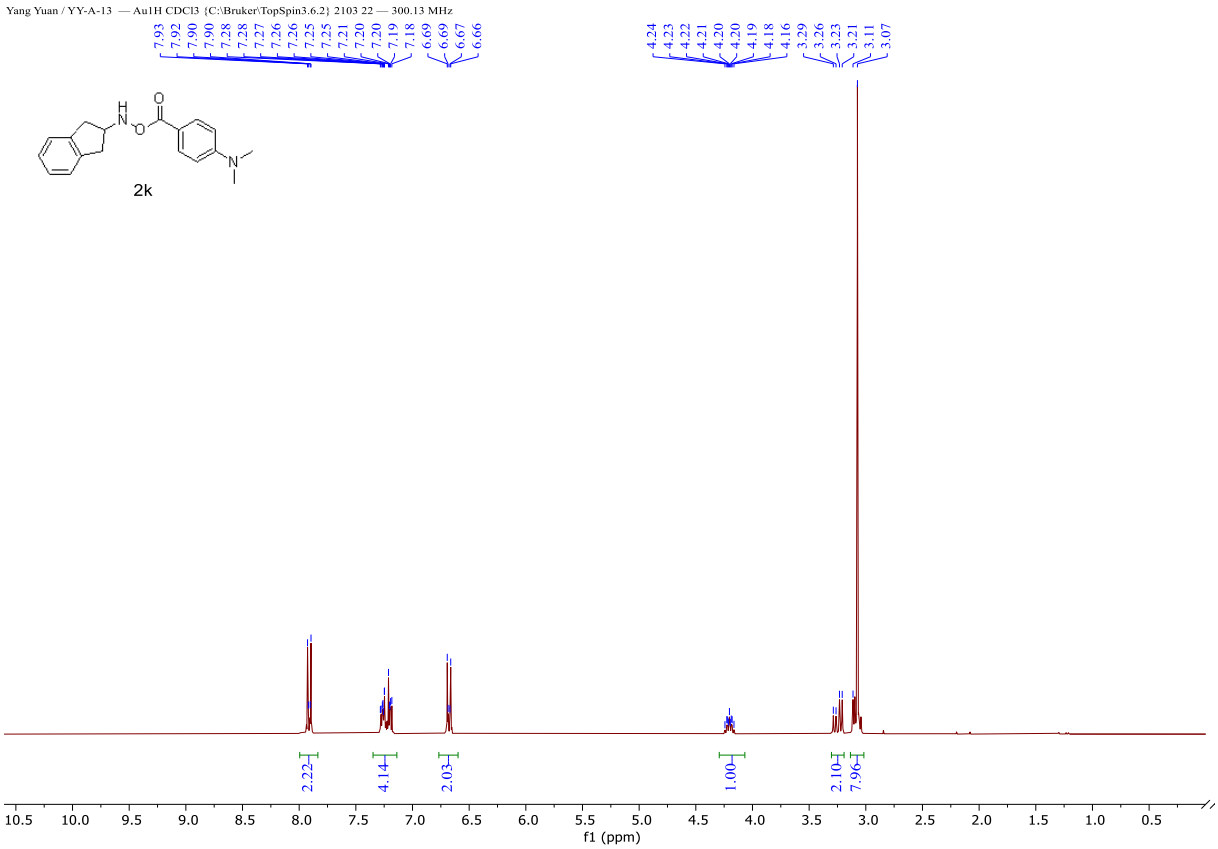
2i

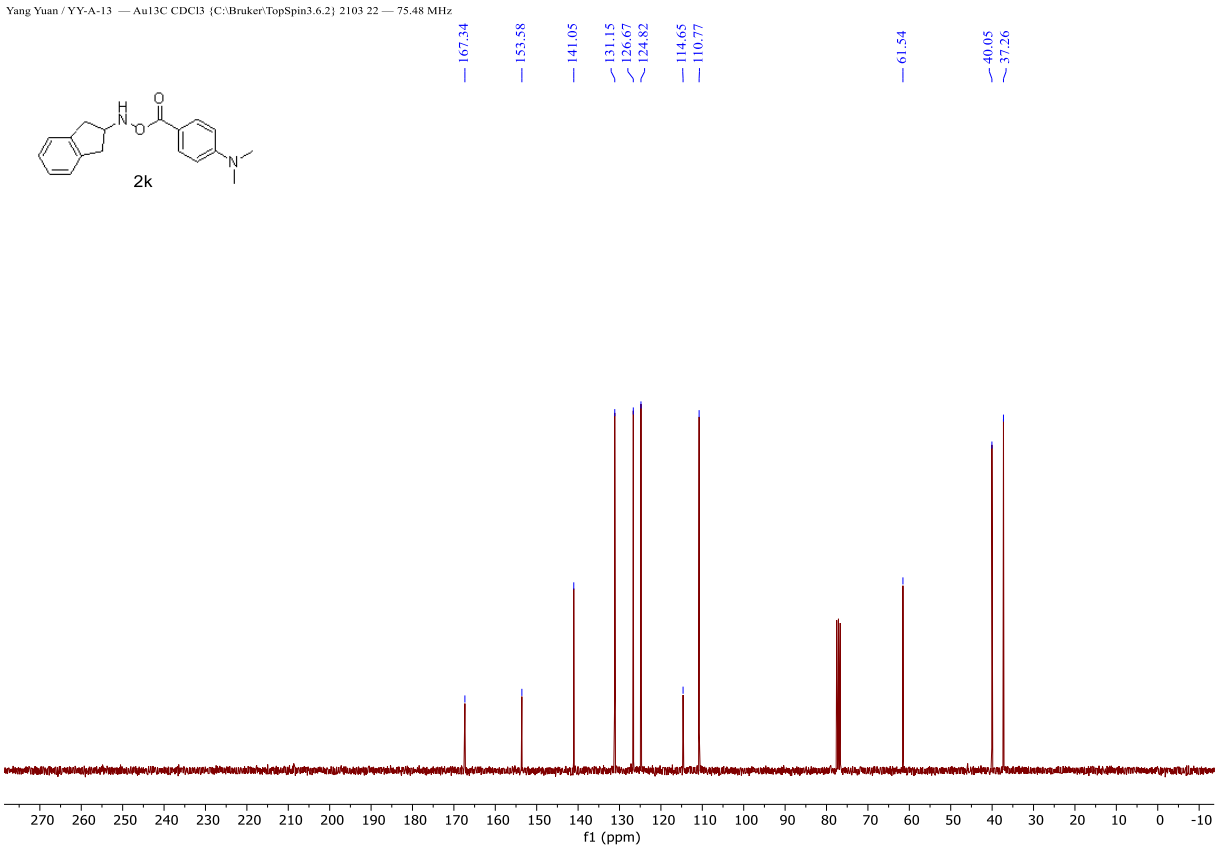

Yang Yuan YY-A-9 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 42 — 75.49 MHz
167.53
153.48
131.06
115.05
110.74
64.57
40.05
37.71
37.16
31.50
30.36
27.74
27.61
f1 (ppm)

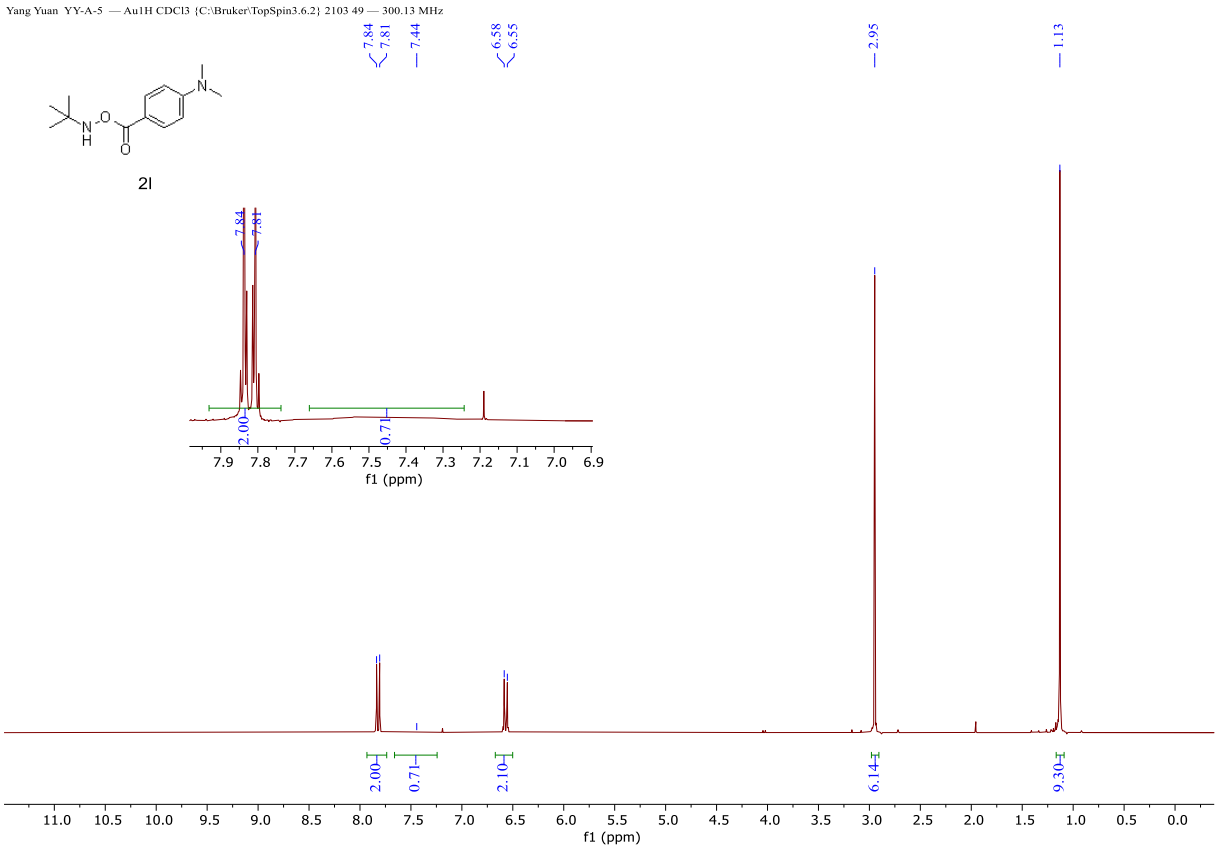
2i

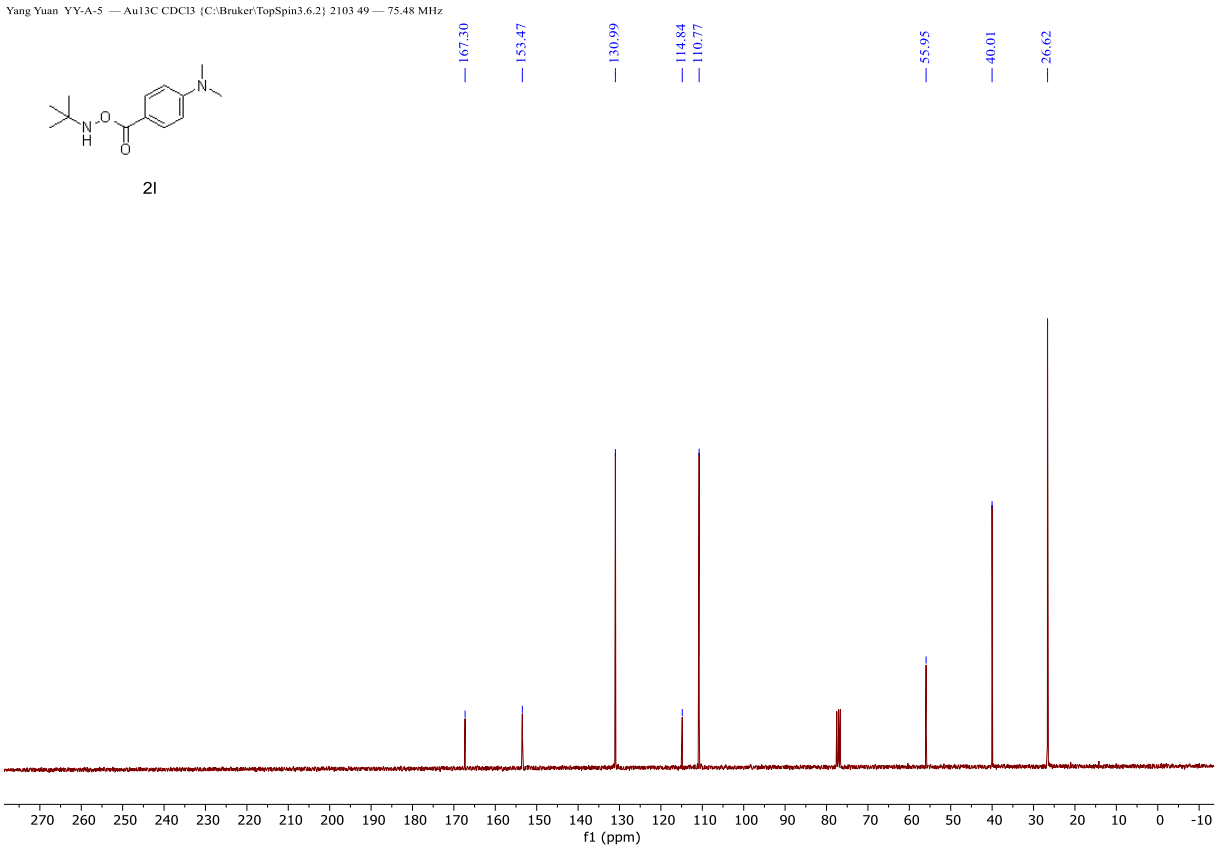

Yang Yuan / YY-A-15 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 23 — 300.13 MHz
7.88
7.85
7.26
6.65
6.62
3.02
3.01
3.00
2.99
2.98
2.96
2.76
2.74
2.72
2.71
2.70
2.69
2.66
2.65
2.64
2.62
2.61
2.29
2.28
2.27
2.26
2.24
2.23
2.22
2.21
1.78
1.77
1.75
1.73
1.73
1.71
1.70
1.69
1.66
2j
2.02
2.00
6.91
3.93
1.89
1.88
f1 (ppm)

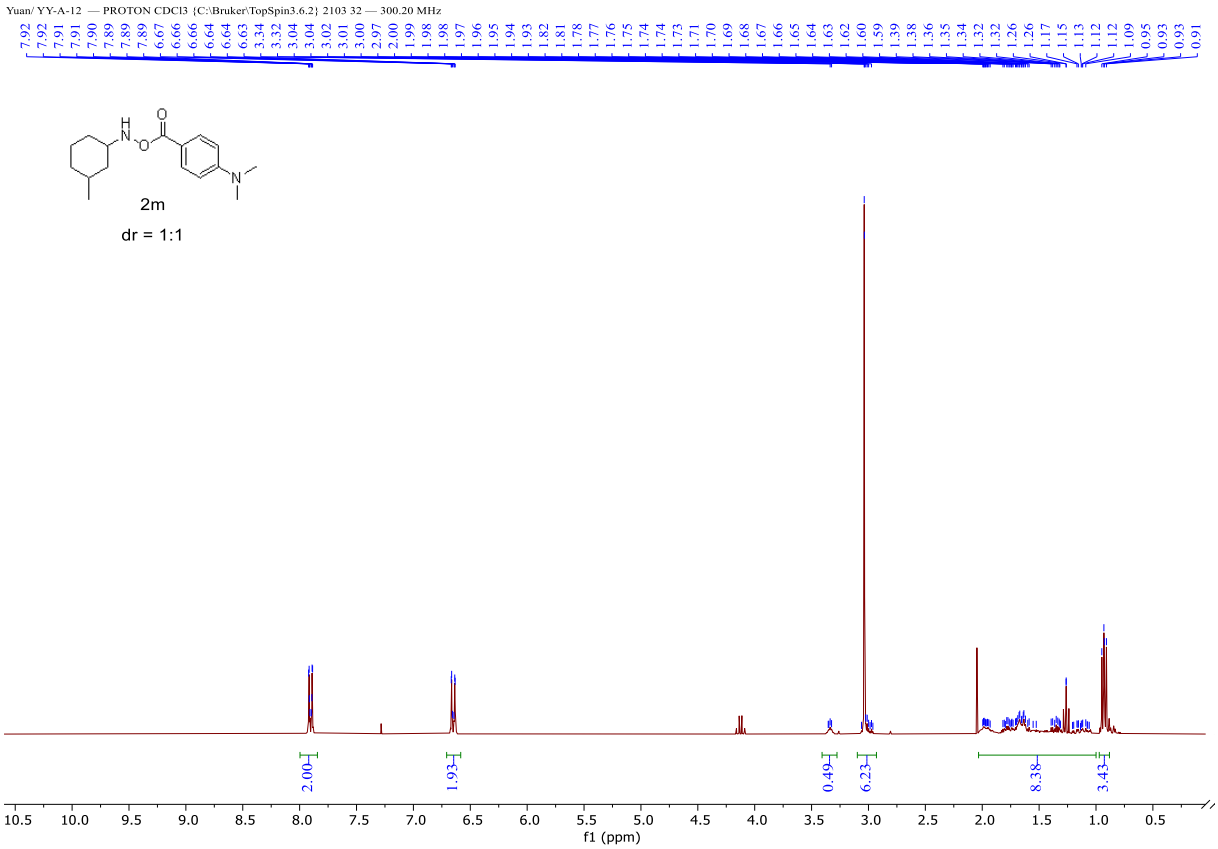

Yang Yuan / YY-A-15 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 23 — 75.48 MHz
167.42
153.61
131.12
114.42
110.76
59.10
40.04
31.55
27.09
2j
f1 (ppm)

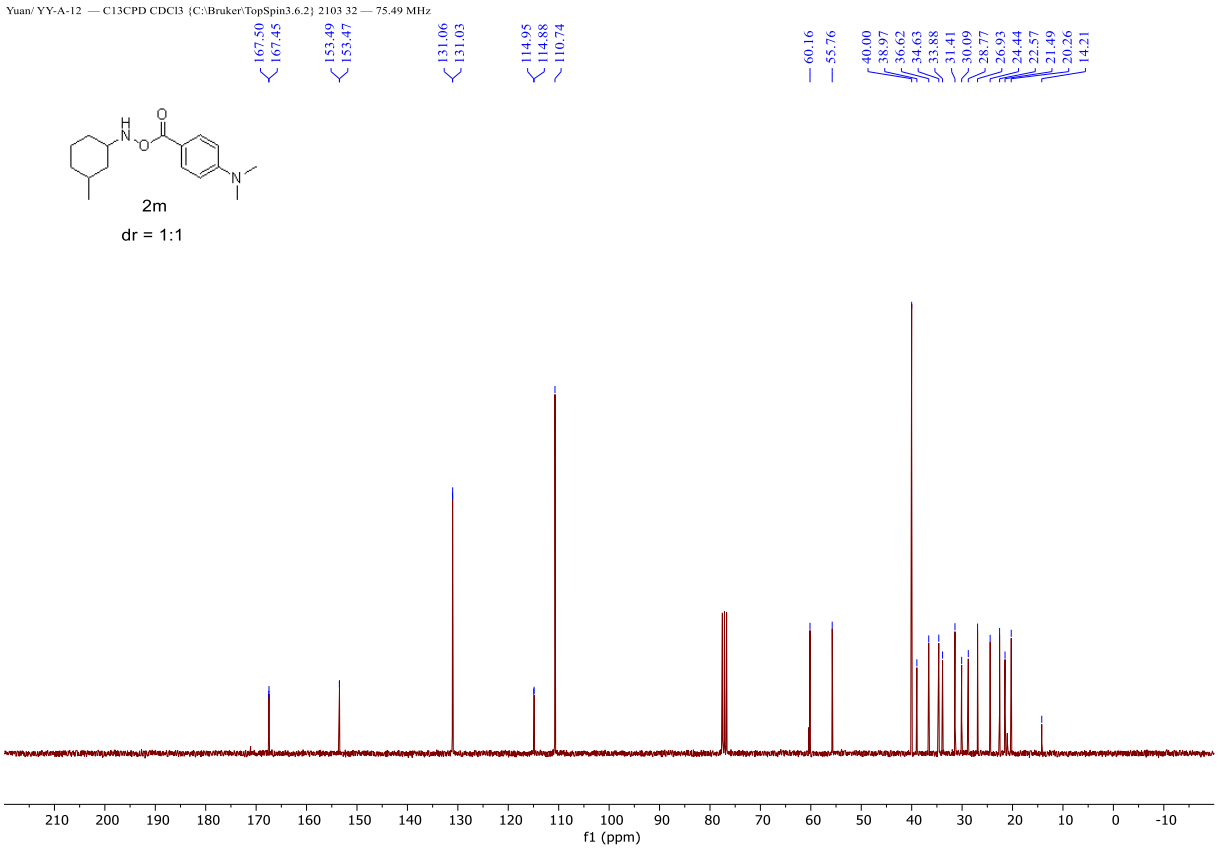

Yang Yuan / YY-A-13 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 22 — 300.13 MHz
7.93
7.92
7.90
7.90
7.28
7.28
7.27
7.26
7.26
7.25
7.25
7.21
7.20
7.20
7.19
7.18
6.69
6.69
6.67
6.66
4.24
4.23
4.22
4.21
4.20
4.20
4.19
4.18
4.16
3.29
3.26
3.23
3.21
3.11
3.07
2k
2.22
4.14
2.03
1.00
2.10
7.96
f1 (ppm)

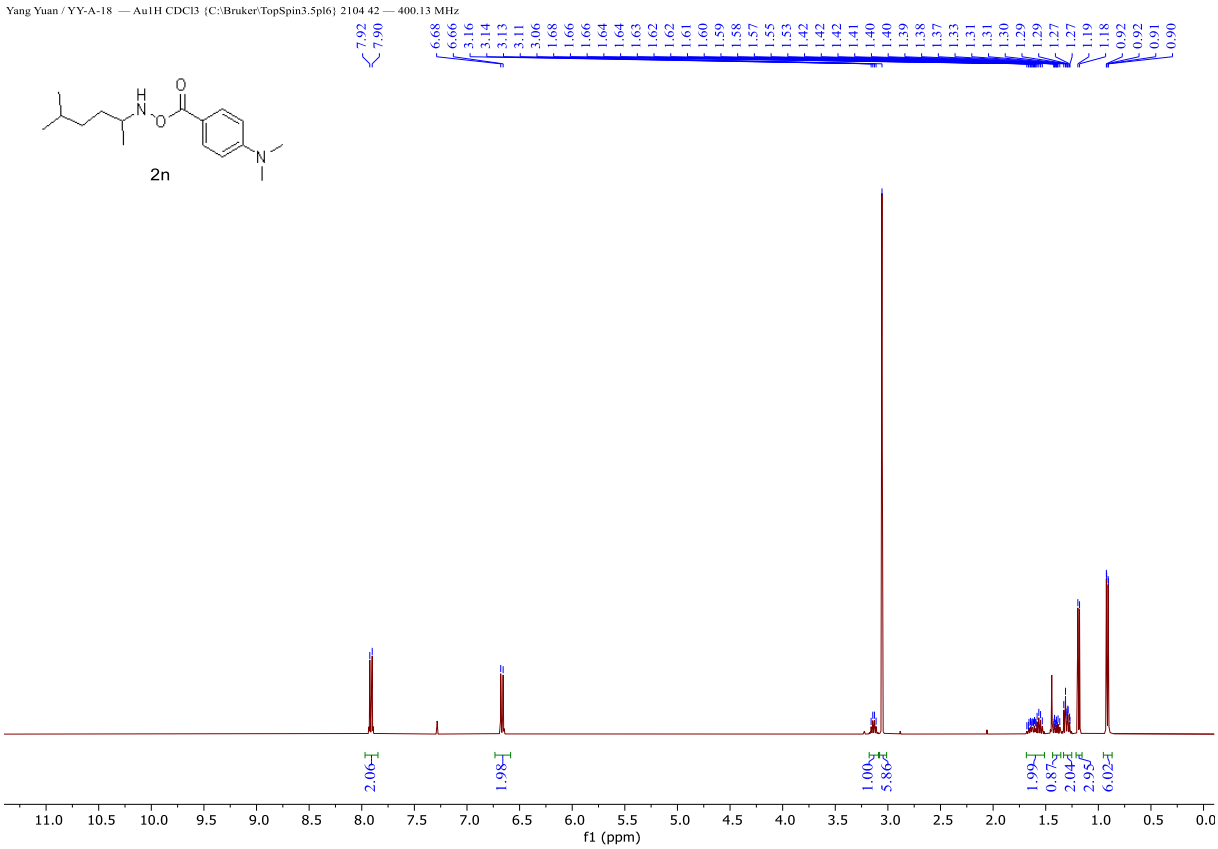

Yang Yuan / YY-A-13 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 22 — 75.48 MHz
167.34
153.58
141.05
131.15
126.67
124.82
114.65
110.77
61.54
40.05
37.26
2k
f1 (ppm)

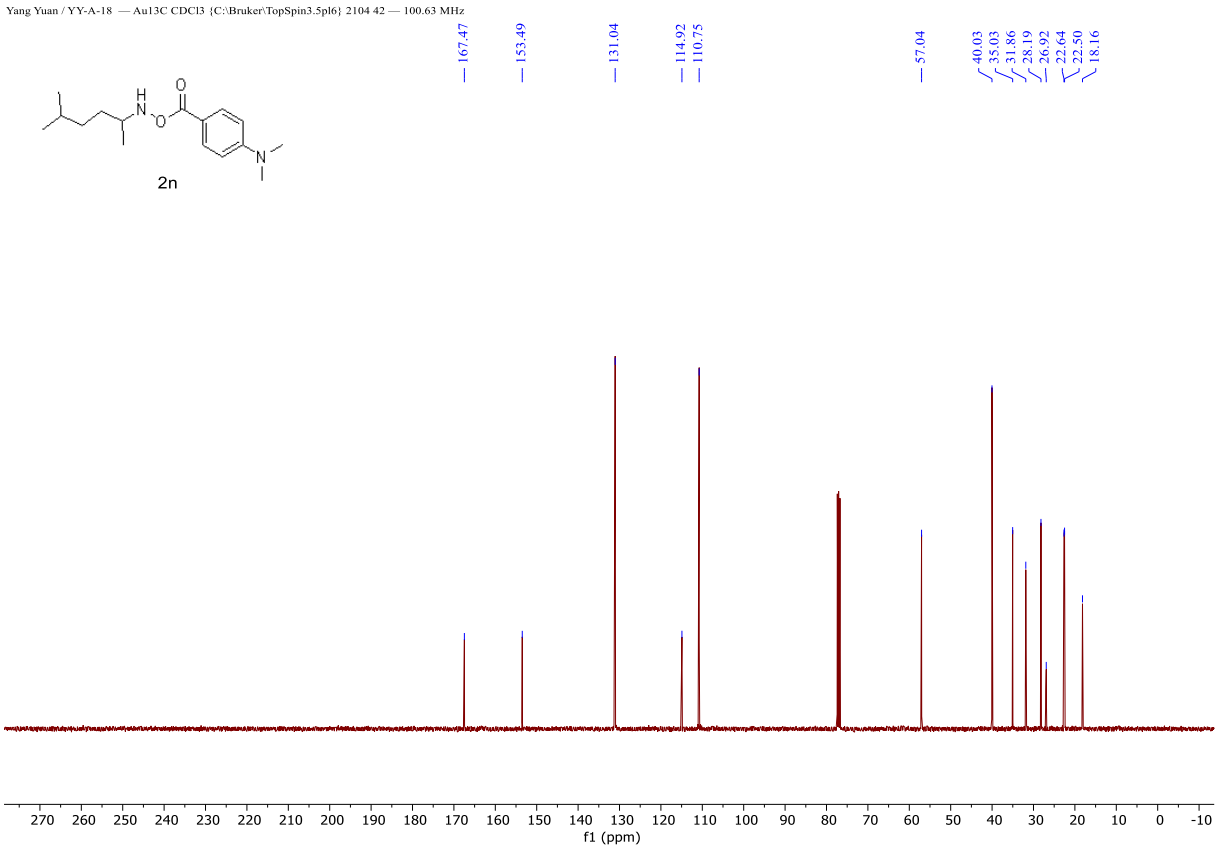

Yang Yuan YY-A-5 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 49 — 300.13 MHz
7.84
7.81
7.44
6.58
6.55
2.95
1.13
2l
2.00
0.71
2.10
6.14
9.30
f1 (ppm)

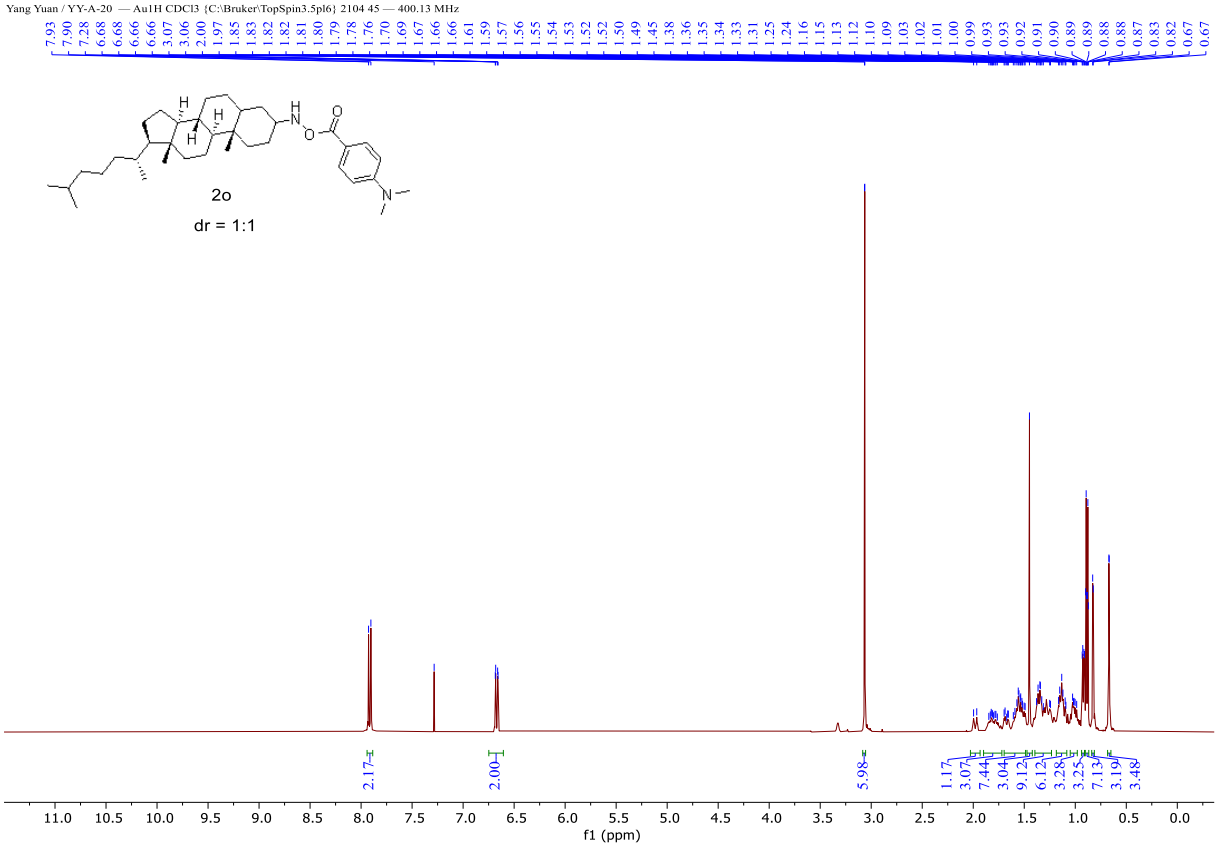

Yang Yuan YY-A-5 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 49 — 75.48 MHz
167.30
153.47
130.99
114.84
110.77
55.95
40.01
26.62
2l
f1 (ppm)

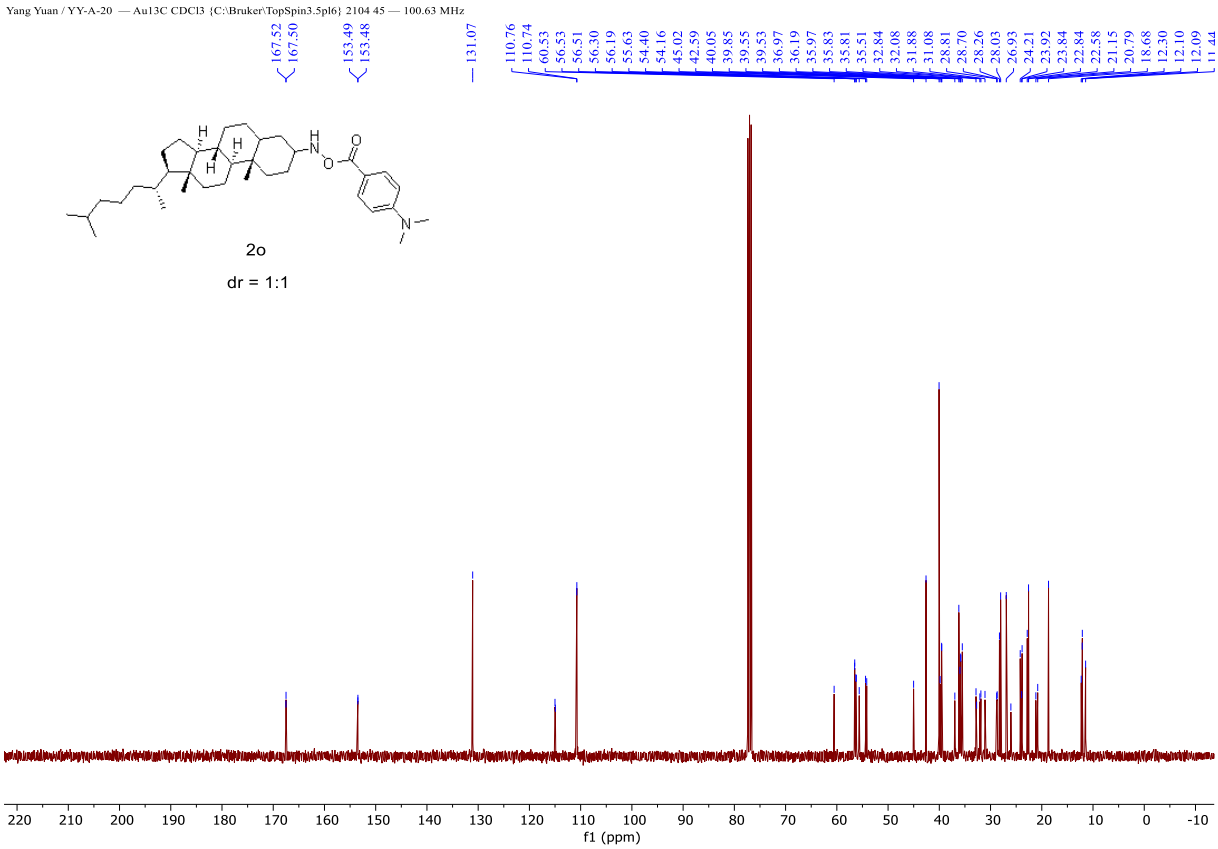

Yuan/ YY-A-12 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 32 — 300.20 MHz
7.92 7.92 7.91 7.91 7.90 7.89 7.89 7.89 6.67 6.66 6.66 6.64 6.64 6.63 3.34 3.32 3.04 3.04 3.02 3.01 3.00 2.97 2.00 1.99 1.98 1.98 1.97 1.96 1.95 1.94 1.93 1.82 1.81 1.78 1.77 1.76 1.75 1.74 1.74 1.73 1.71 1.70 1.69 1.68 1.67 1.66 1.65 1.64 1.63 1.62 1.60 1.59 1.39 1.38 1.36 1.35 1.34 1.32 1.26 1.26 1.17 1.15 1.13 1.12 1.12 1.09 0.95 0.93 0.93 0.91
2m
dr = 1:1
2.00
1.93
0.49
6.23
8.38
3.43
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

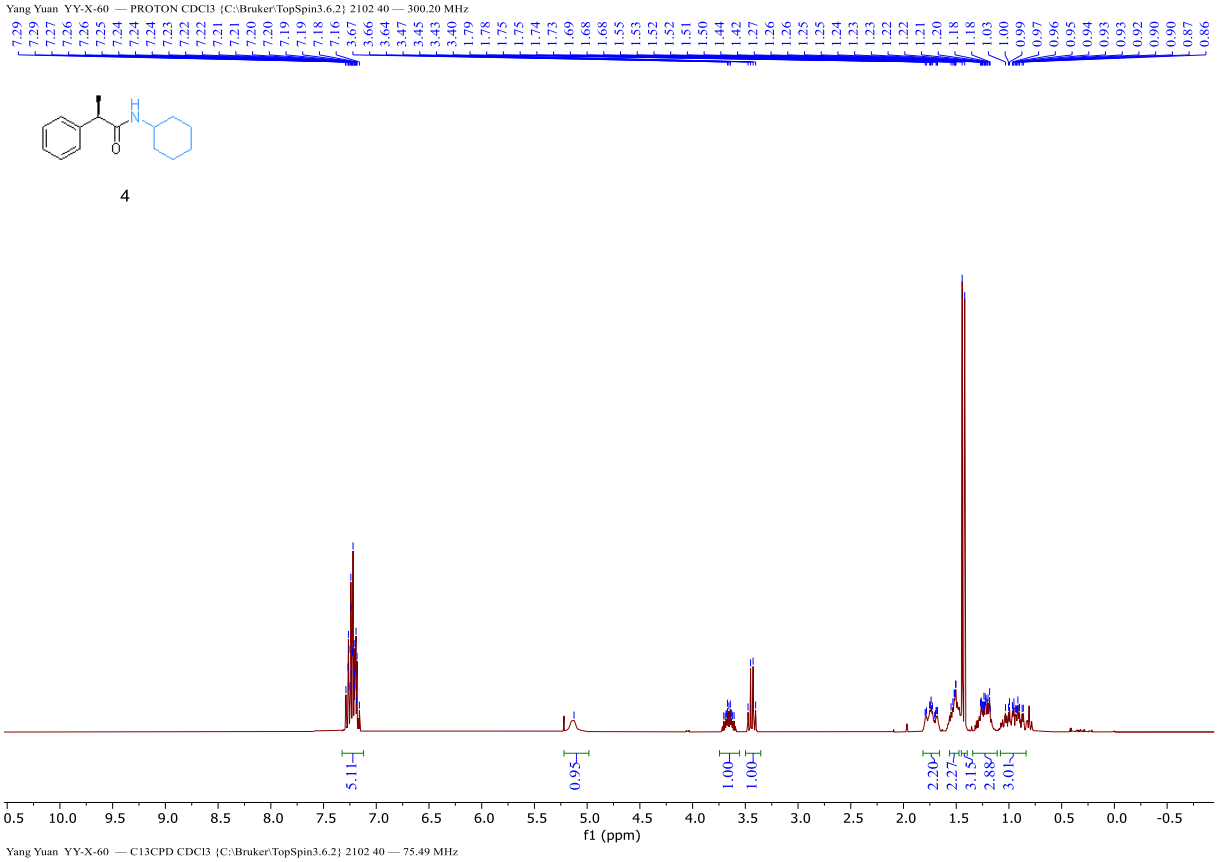

Yuan/ YY-A-12 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 32 — 75.49 MHz
167.50 167.45 153.49 153.47 131.06 131.03 114.95 114.88 110.74 60.16 55.76 40.00 38.97 36.62 34.63 33.88 31.41 30.09 28.77 26.93 24.44 22.57 21.49 20.26 14.21
2m
dr = 1:1
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

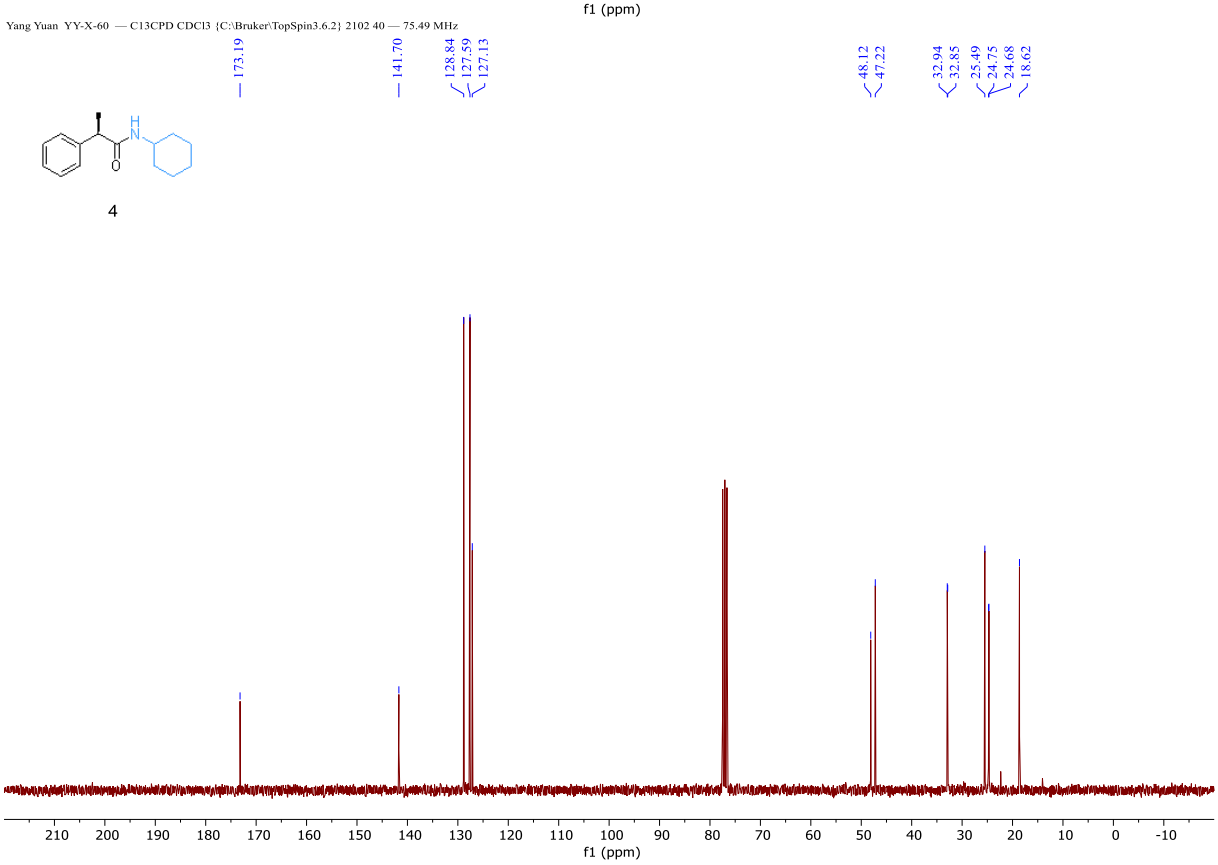

Yang Yuan / YY-A-18 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2104 42 — 400.13 MHz
7.92
7.90
6.68
6.66
3.16
3.14
3.13
3.11
3.06
1.68
1.66
1.66
1.64
1.64
1.63
1.62
1.62
1.61
1.60
1.59
1.58
1.57
1.55
1.53
1.42
1.42
1.42
1.41
1.40
1.40
1.39
1.38
1.37
1.33
1.31
1.31
1.30
1.29
1.29
1.27
1.27
1.19
1.18
0.92
0.92
0.91
0.90
2n
2.06
1.98
1.00
5.86
1.99
0.87
2.04
2.95
6.02
f1 (ppm)

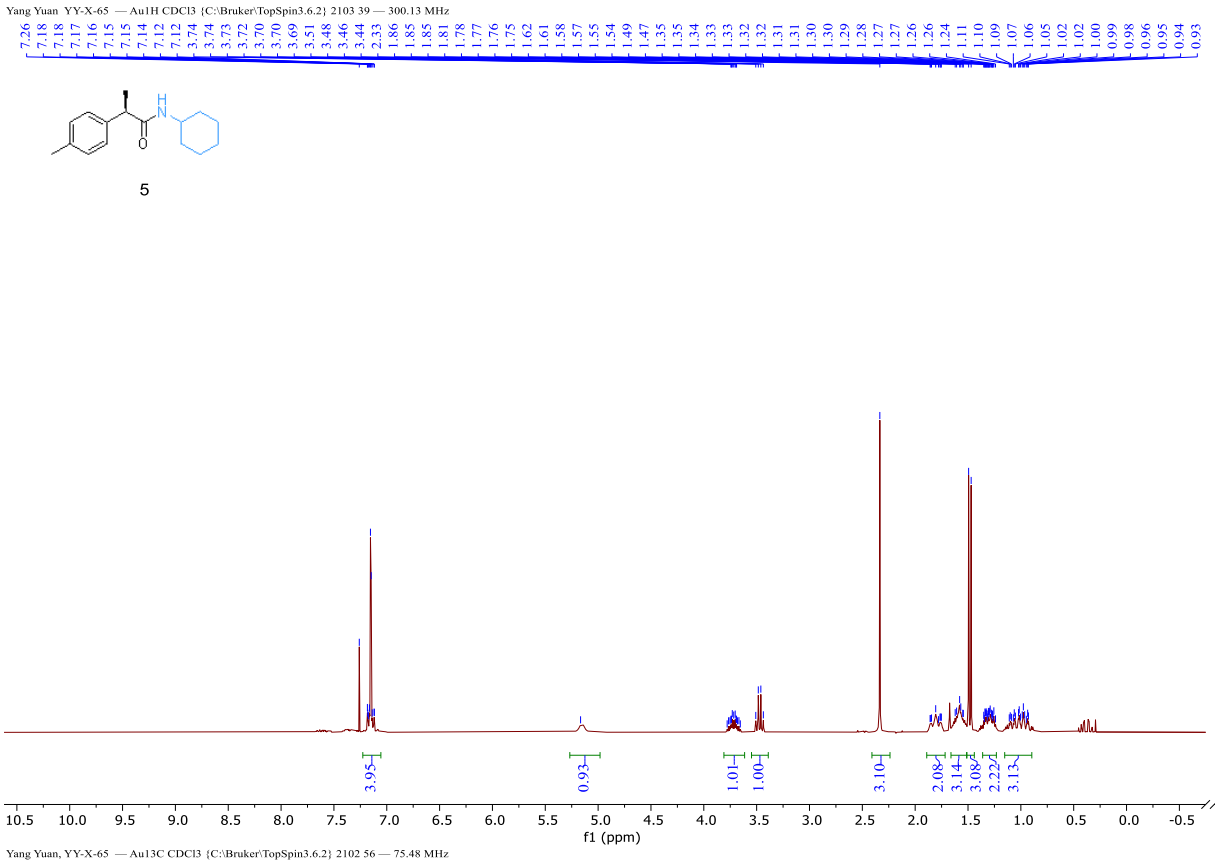

Yang Yuan / YY-A-18 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2104 42 — 100.63 MHz
167.47
153.49
131.04
114.92
110.75
57.04
40.03
35.03
31.86
28.19
26.92
22.64
22.50
18.16
2n
f1 (ppm)

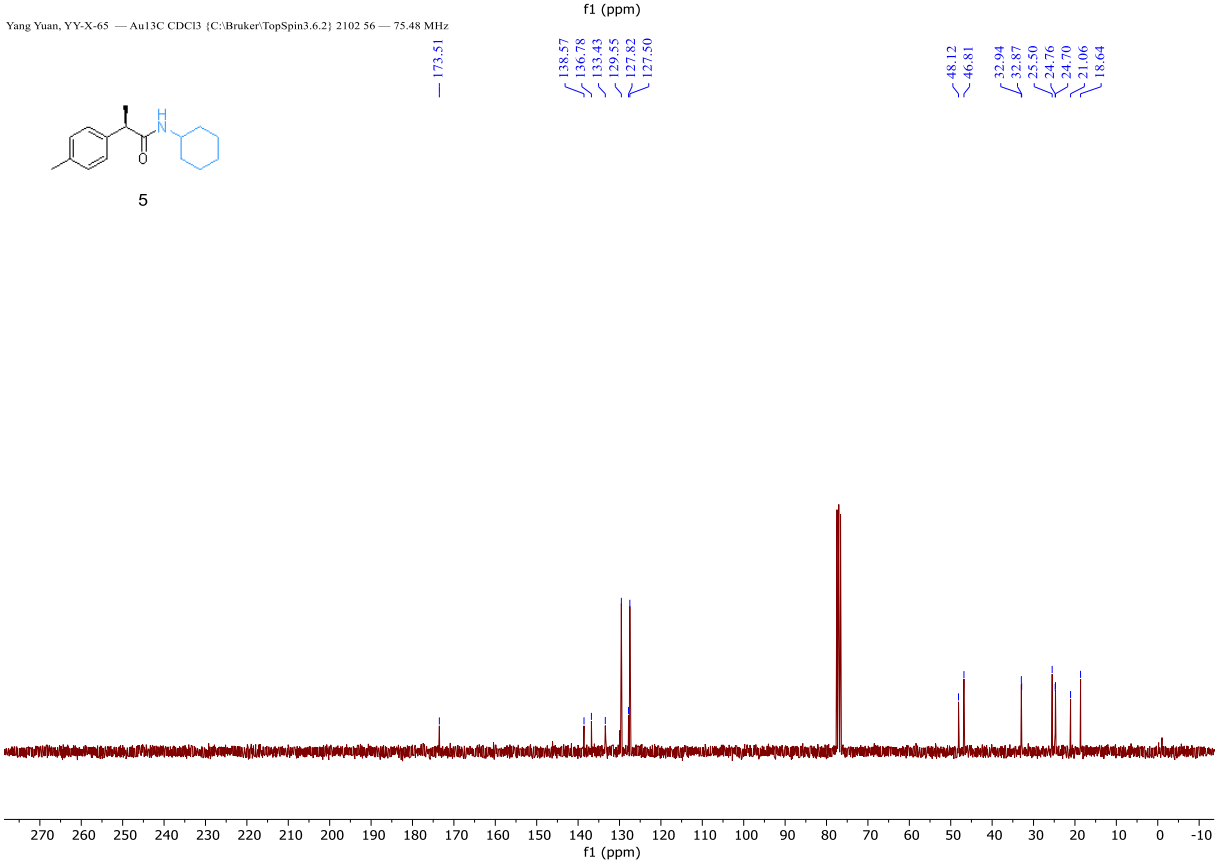

Yang Yuan / YY-A-20 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2104 45 — 400.13 MHz
2o
dr = 1:1
f1 (ppm)

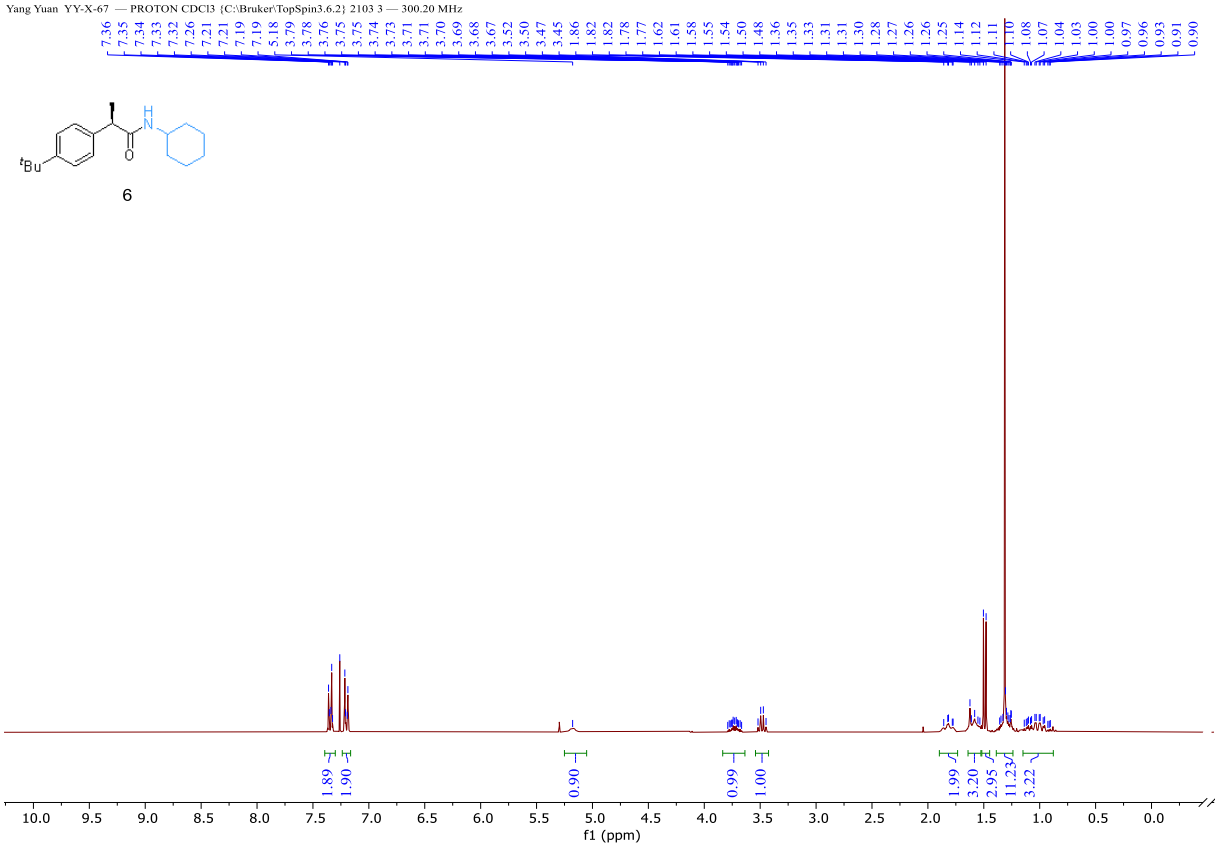

Yang Yuan / YY-A-20 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2104 45 — 100.63 MHz
2o
dr = 1:1
f1 (ppm)

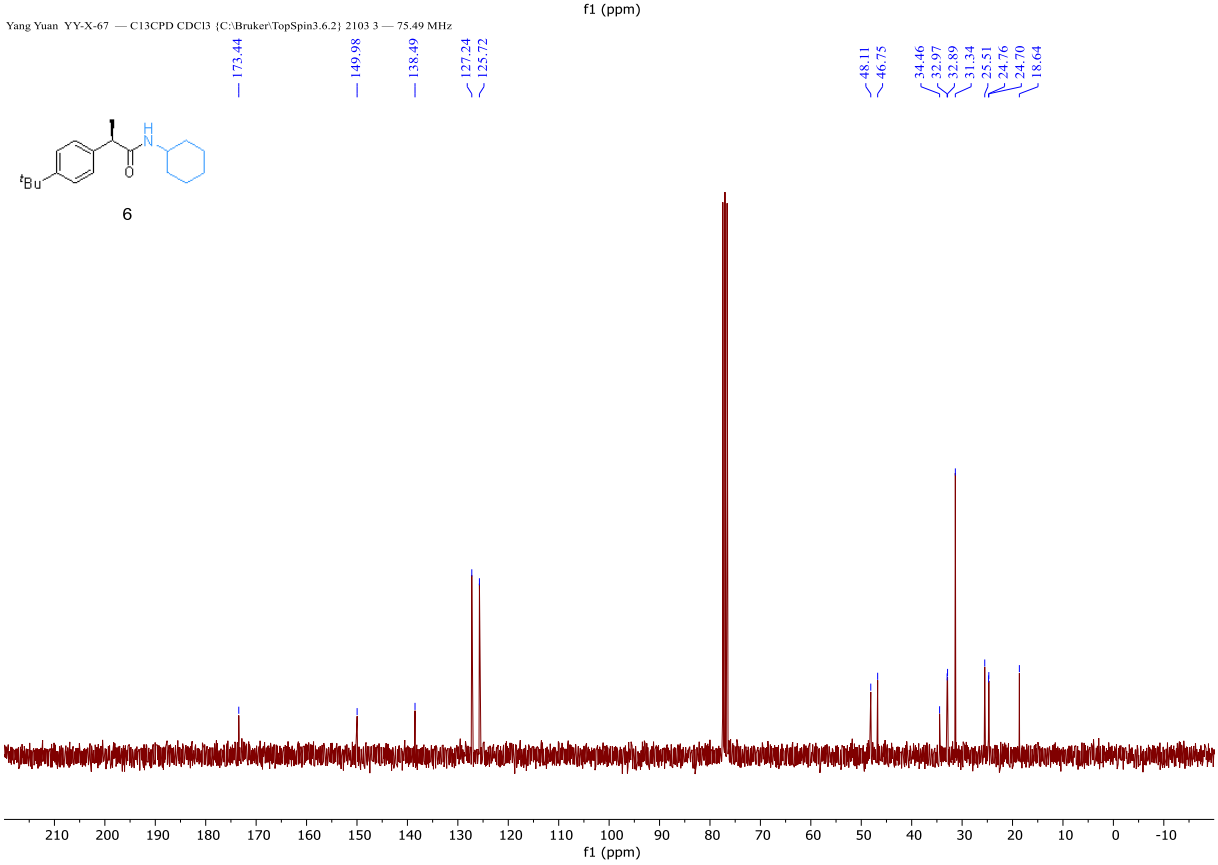

Yang Yuan YY-X-60 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 40 — 300.20 MHz
7.29 7.29 7.27 7.26 7.26 7.25 7.24 7.24 7.24 7.23 7.22 7.22 7.21 7.21 7.20 7.20 7.19 7.19 7.18 7.16 3.67 3.66 3.64 3.47 3.45 3.43 3.40 3.40 1.79 1.78 1.75 1.75 1.74 1.73 1.69 1.68 1.68 1.55 1.53 1.52 1.52 1.51 1.50 1.44 1.42 1.27 1.26 1.26 1.25 1.25 1.24 1.23 1.23 1.22 1.22 1.21 1.20 1.18 1.18 1.03 1.00 0.99 0.97 0.96 0.95 0.94 0.93 0.93 0.92 0.90 0.90 0.87 0.86
4
5.11
0.95
1.00
1.00
2.20
2.27
3.15
2.88
3.01
f1 (ppm)

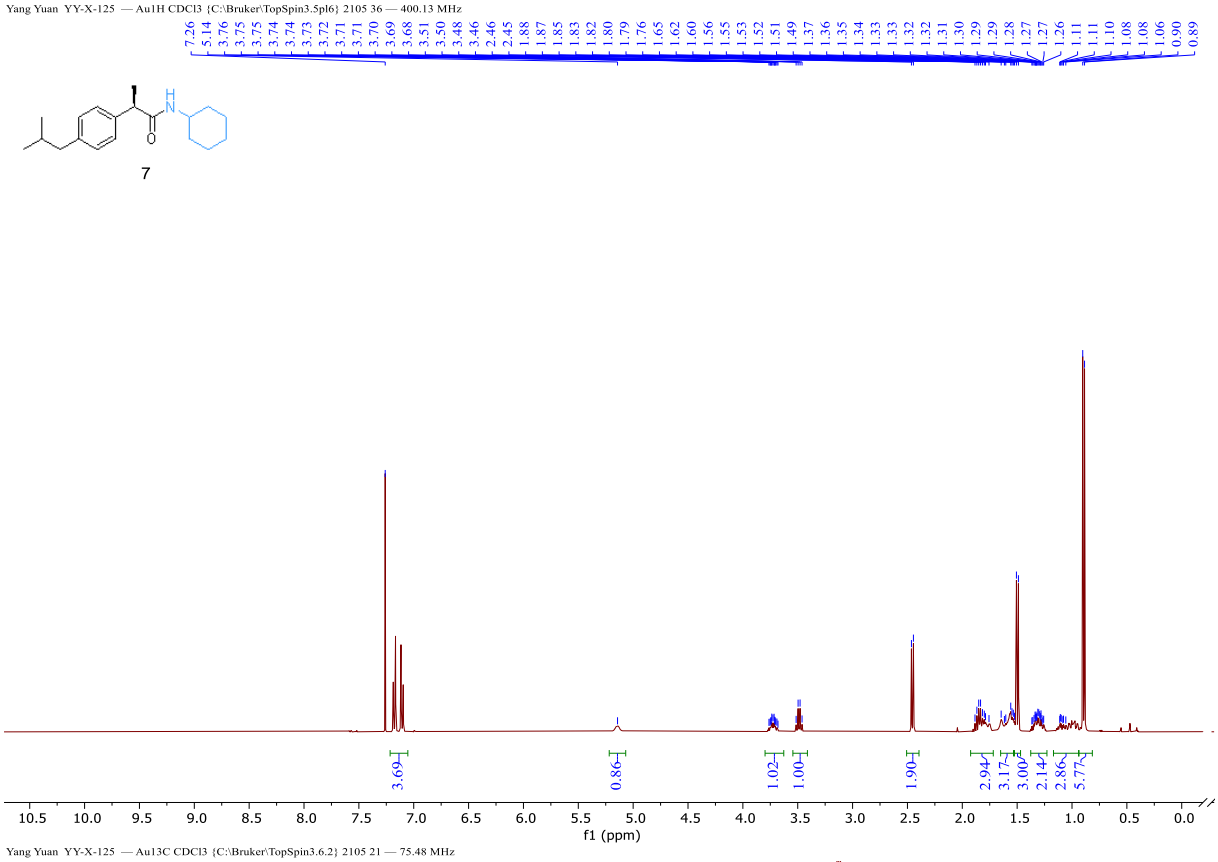

Yang Yuan YY-X-60 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 40 — 75.49 MHz
173.19
141.70
128.84
127.59
127.13
48.12
47.22
32.94
32.85
25.49
24.75
24.68
18.62
4
f1 (ppm)

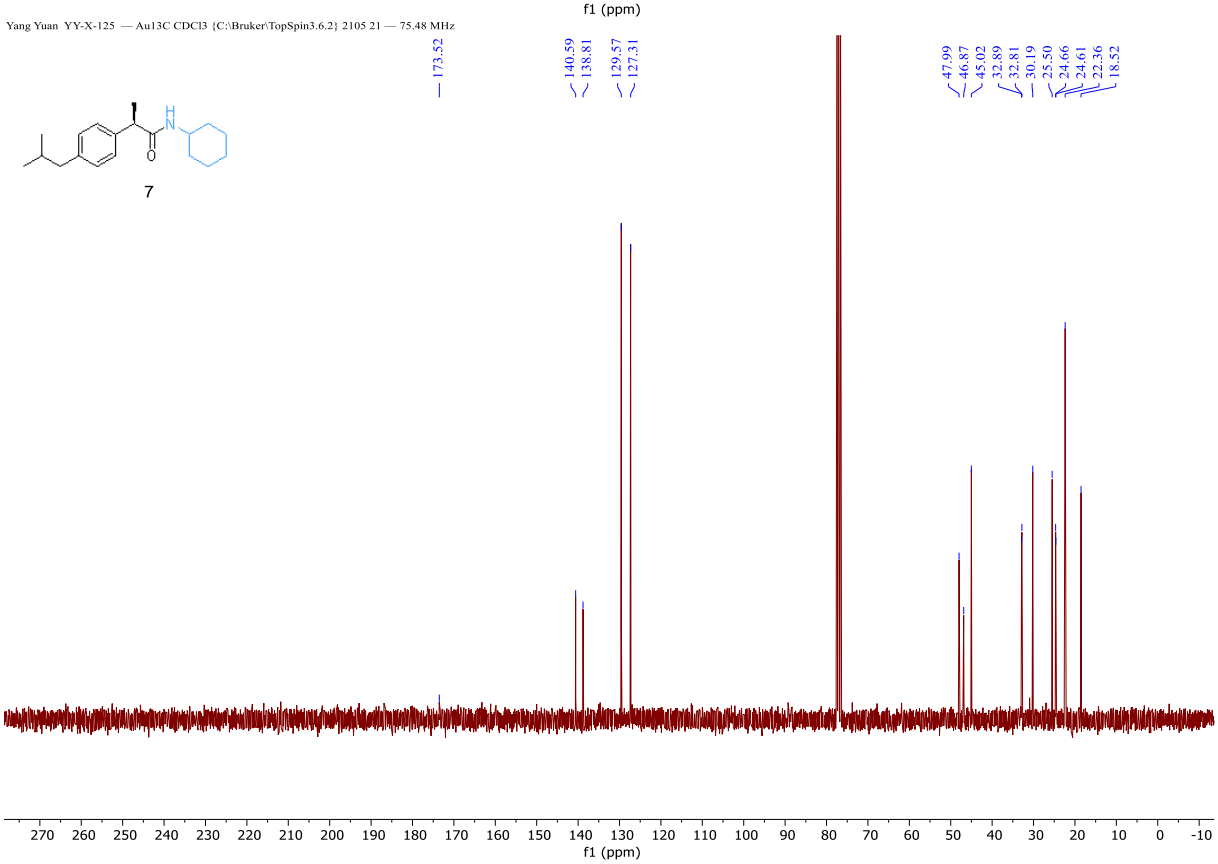

Yang Yuan YY-X-65 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 39 — 300.13 MHz
7.26 7.18 7.18 7.17 7.16 7.15 7.15 7.14 7.12 7.12 3.74 3.74 3.73 3.72 3.70 3.70 3.69 3.51 3.48 3.46 3.44 2.33 1.86 1.85 1.85 1.81 1.78 1.77 1.76 1.75 1.62 1.61 1.58 1.57 1.55 1.54 1.49 1.47 1.35 1.35 1.34 1.33 1.33 1.32 1.32 1.31 1.31 1.30 1.30 1.29 1.28 1.27 1.27 1.26 1.26 1.24 1.11 1.10 1.09 1.07 1.06 1.05 1.02 1.02 1.00 0.99 0.98 0.96 0.95 0.94 0.93
5
3.95 0.93 1.01 1.00 3.10 2.08 3.14 3.08 2.22 3.13
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)

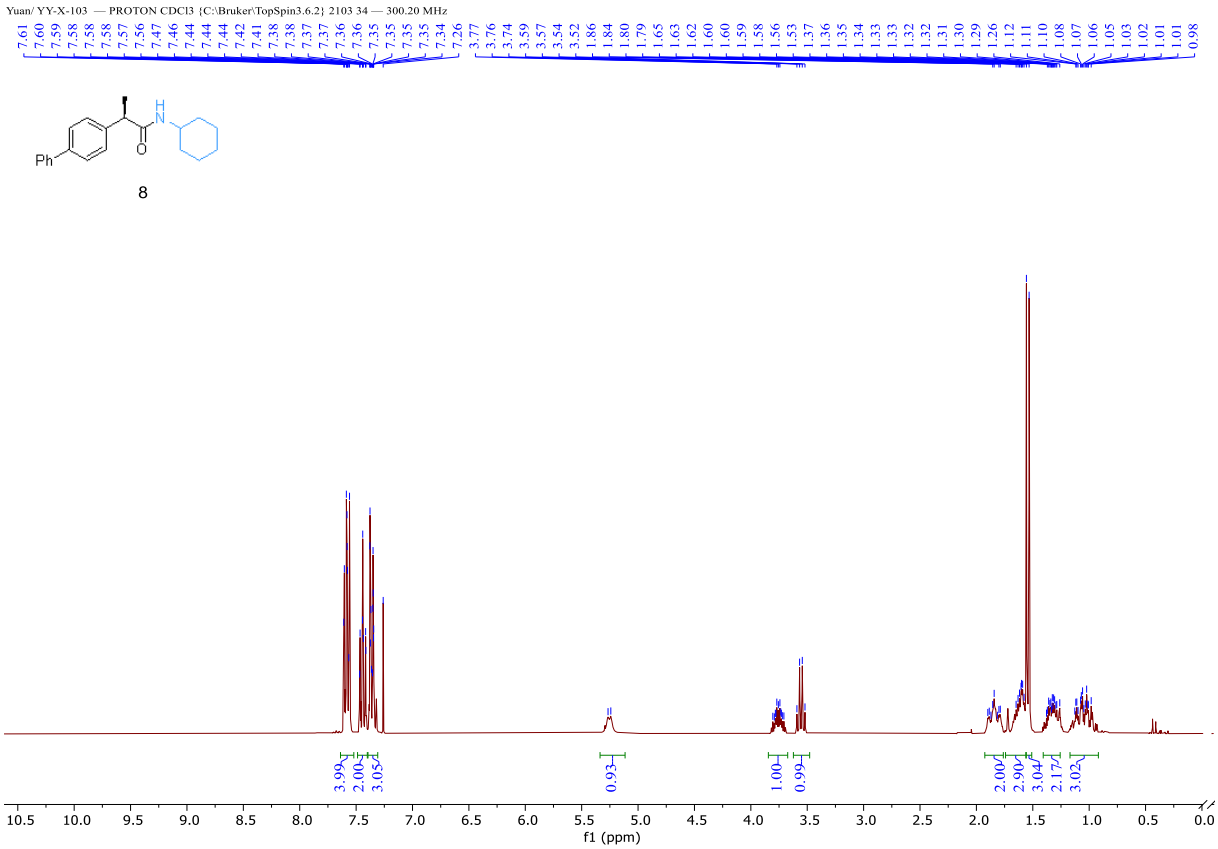

Yang Yuan, YY-X-65 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 56 — 75.48 MHz
173.51
138.57 136.78 133.43 129.55 127.82 127.50
48.12 46.81
32.94 32.87 25.50 24.76 24.70 21.06 18.64
5
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

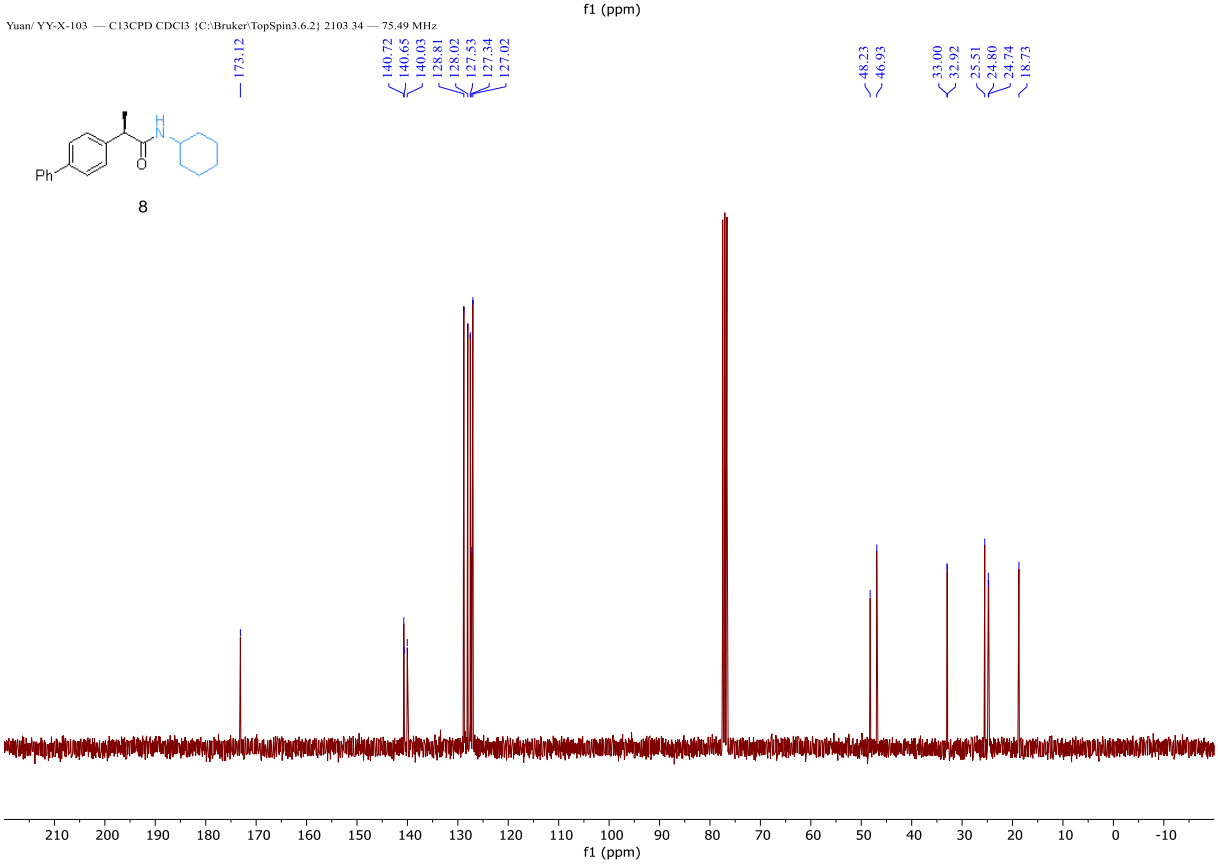

Yang Yuan YY-X-67 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 3 — 300.20 MHz
7.36 7.35 7.34 7.33 7.32 7.26 7.21 7.21 7.19 7.19 5.18 3.79 3.78 3.76 3.75 3.75 3.74 3.73 3.71 3.71 3.70 3.69 3.68 3.67 3.52 3.50 3.47 3.45 1.86 1.82 1.82 1.78 1.77 1.62 1.61 1.58 1.55 1.54 1.50 1.48 1.36 1.35 1.33 1.31 1.31 1.30 1.28 1.27 1.26 1.26 1.25 1.14 1.12 1.11 1.10 1.08 1.07 1.04 1.03 1.00 1.00 0.97 0.96 0.93 0.91 0.90
tBu
N
H
O
6
1.89 1.90 0.90 0.99 1.00 1.99 3.20 2.95 11.23 3.22
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

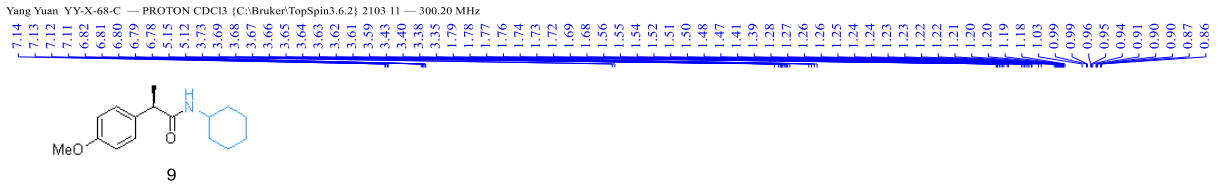

Yang Yuan YY-X-67 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 3 — 75.49 MHz
173.44 149.98 138.49 127.24 125.72 48.11 46.75 34.46 32.97 32.89 31.34 25.51 24.76 24.70 18.64
tBu
N
H
O
6
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)


Yang Yuan YY-X-125 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 36 — 400.13 MHz
7.26 5.14 3.76 3.75 3.75 3.74 3.74 3.73 3.72 3.71 3.71 3.70 3.69 3.68 3.51 3.50 3.48 3.46 2.46 2.45 1.88 1.87 1.85 1.83 1.82 1.80 1.79 1.76 1.65 1.62 1.60 1.56 1.55 1.53 1.52 1.51 1.49 1.37 1.36 1.35 1.34 1.33 1.33 1.32 1.32 1.31 1.30 1.29 1.29 1.28 1.27 1.27 1.26 1.11 1.11 1.10 1.08 1.08 1.06 0.90 0.89
7
3.69 0.86 1.02 1.00 1.90 2.94 3.17 3.00 2.14 2.86 5.77
f1 (ppm)

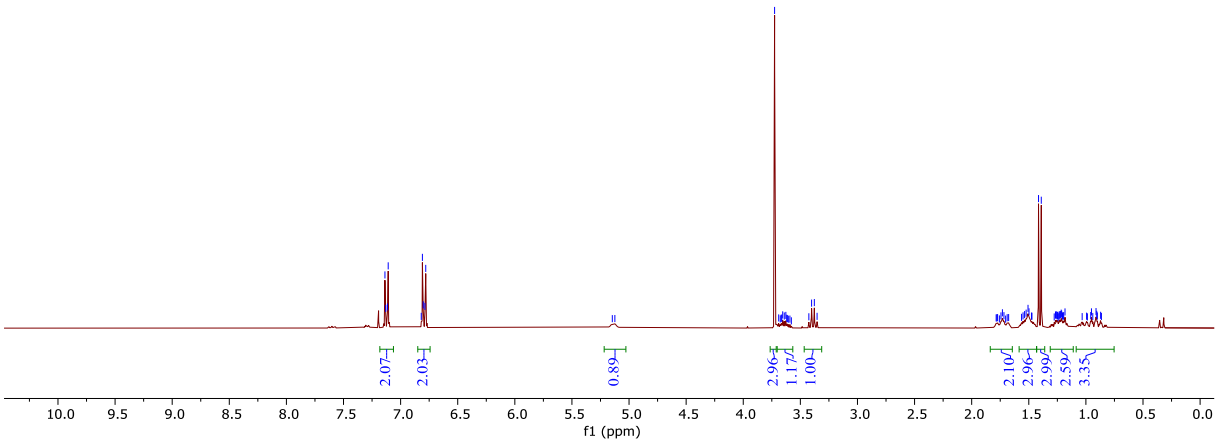

Yang Yuan YY-X-125 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 21 — 75.48 MHz
173.52 140.59 138.81 129.57 127.31 47.99 46.87 45.02 32.89 32.81 30.19 25.50 24.66 24.61 22.36 18.52
7
f1 (ppm)

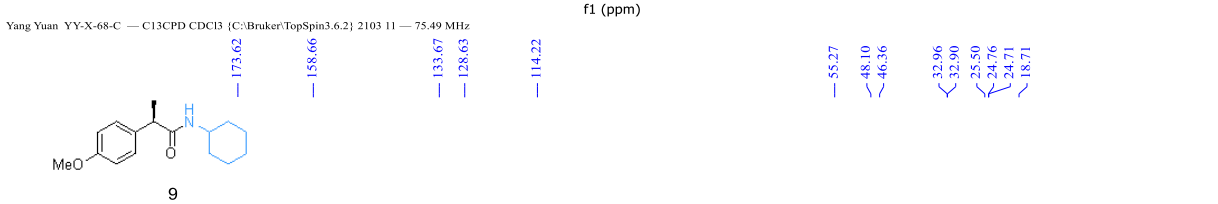

Yuan/ YY-X-103 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 34 — 300.20 MHz
7.61 7.60 7.59 7.58 7.58 7.58 7.57 7.56 7.47 7.46 7.44 7.44 7.44 7.42 7.41 7.38 7.38 7.37 7.37 7.36 7.36 7.35 7.35 7.35 7.35 7.34 7.26
3.77 3.76 3.74 3.59 3.57 3.54 3.52 1.86 1.84 1.80 1.79 1.65 1.63 1.62 1.60 1.60 1.59 1.58 1.56 1.53 1.37 1.36 1.35 1.34 1.33 1.33 1.32 1.32 1.31 1.30 1.29 1.26 1.12 1.11 1.10 1.08 1.07 1.06 1.05 1.03 1.02 1.01 1.01 0.98
Ph
O
H
N
8
3.99 2.00 3.05 0.93 1.00 0.99 2.00 2.90 3.04 2.17 3.02
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)


Yuan/ YY-X-103 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 34 — 75.49 MHz
173.12
140.72 140.65 140.03 128.81 128.02 127.53 127.34 127.02
48.23 46.93
33.00 32.92 25.51 24.80 24.74 18.73
Ph
O
H
N
8
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

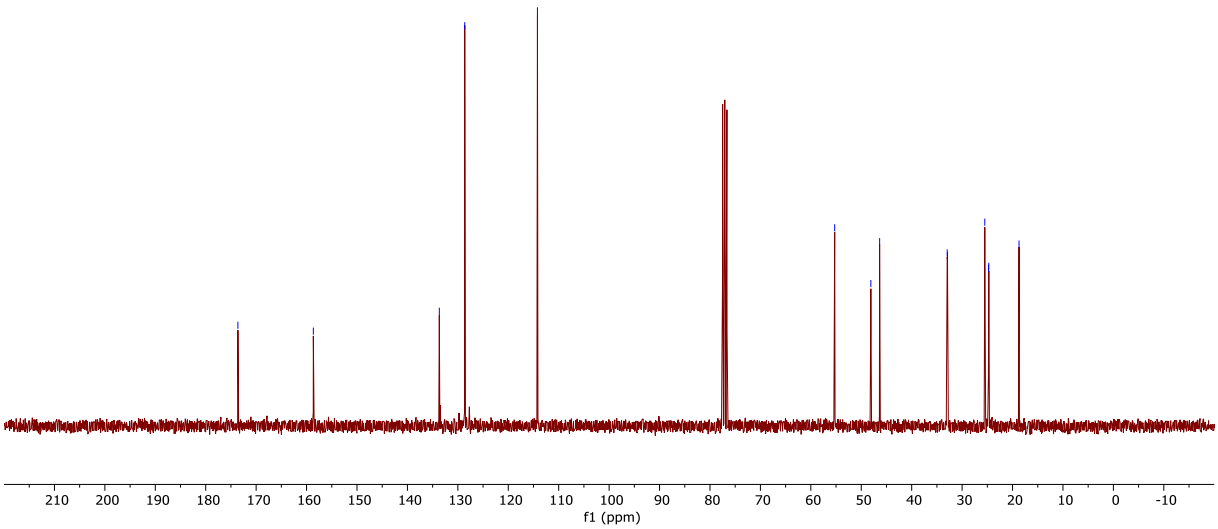

Yang Yuan YY-X-68-C — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 11 — 300.20 MHz
7.14 7.13 7.12 7.11 6.82 6.81 6.80 6.79 6.78 5.15 5.12 3.73 3.69 3.68 3.67 3.66 3.65 3.64 3.63 3.62 3.61 3.59 3.43 3.40 3.38 3.35 1.79 1.78 1.77 1.76 1.74 1.73 1.72 1.69 1.68 1.56 1.55 1.54 1.52 1.51 1.50 1.48 1.47 1.41 1.39 1.28 1.27 1.26 1.26 1.25 1.24 1.24 1.23 1.23 1.22 1.22 1.21 1.20 1.20 1.19 1.18 1.03 0.99 0.99 0.96 0.95 0.94 0.91 0.90 0.90 0.87 0.86
MeO
H
N
O

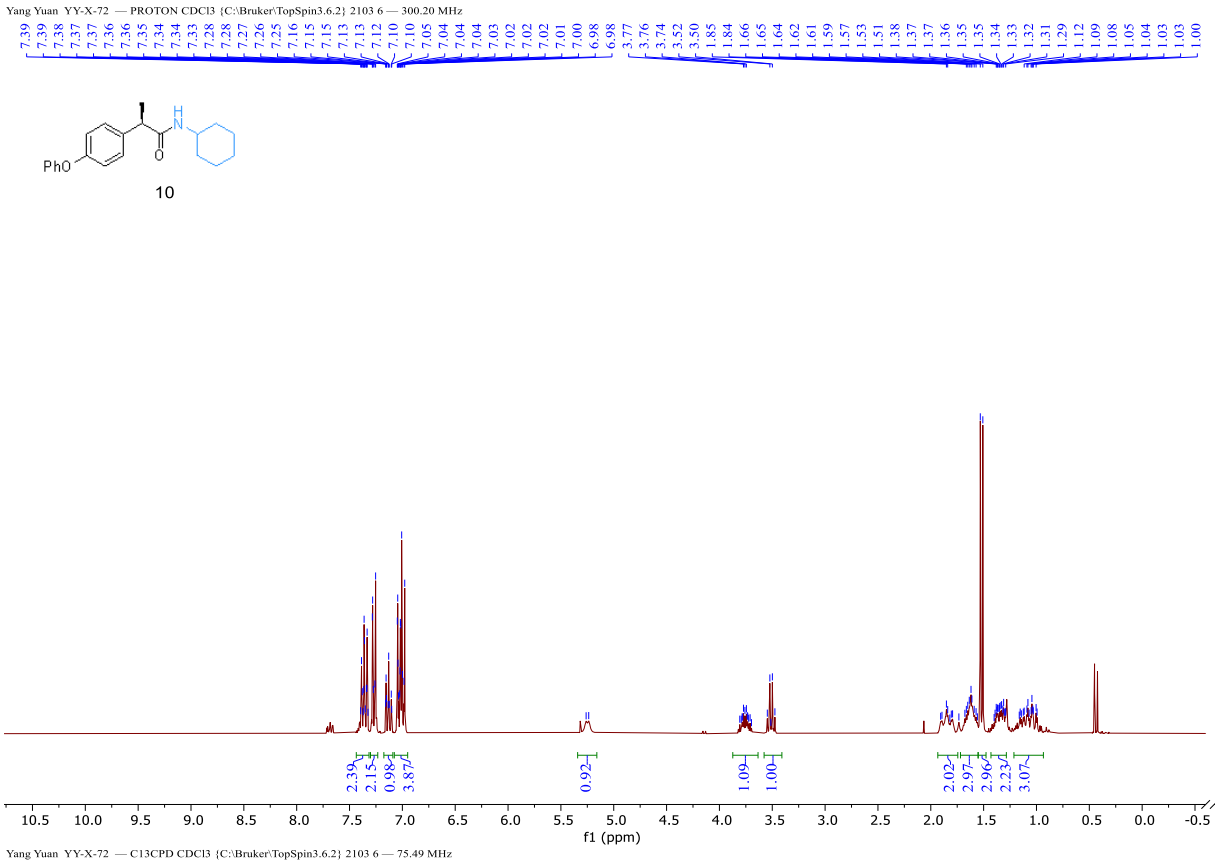
9

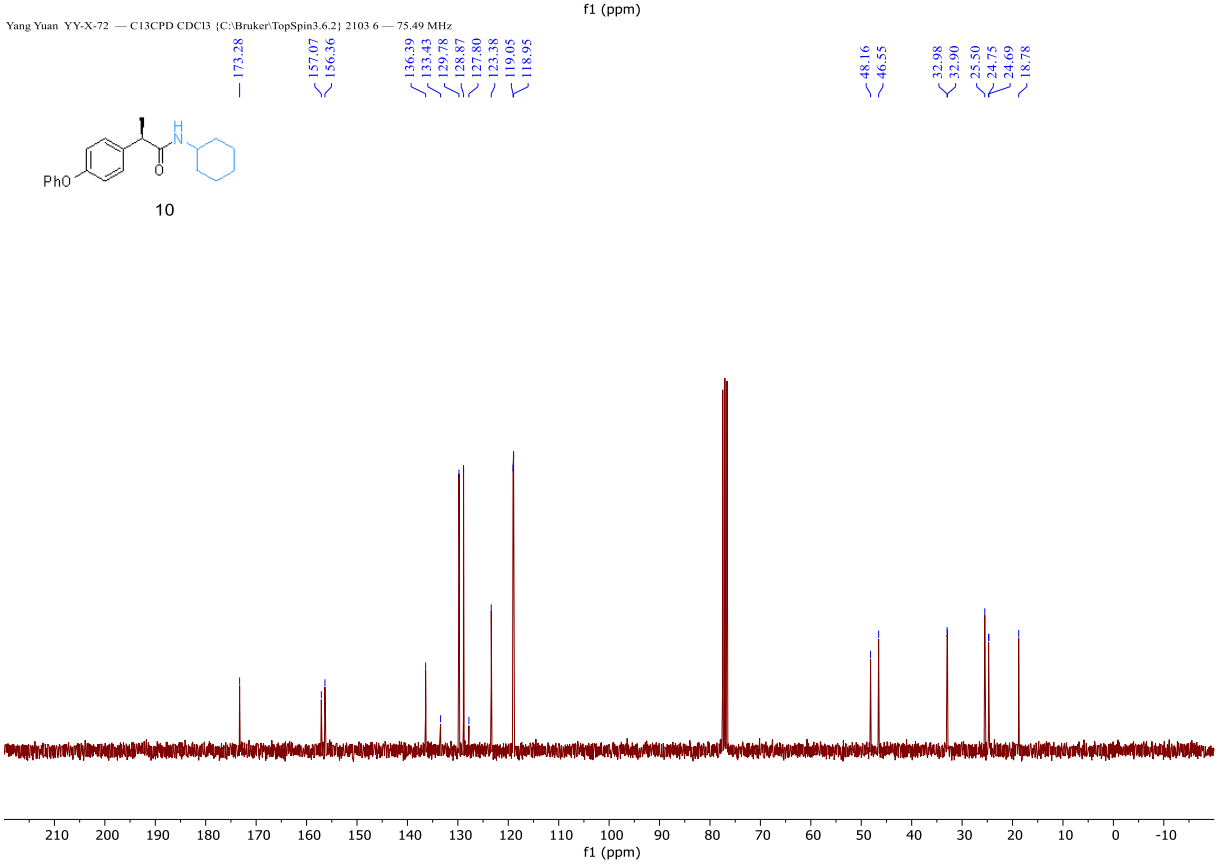

2.07
2.03
0.89
2.96
1.17
1.00
2.10
2.96
2.99
2.59
3.35
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

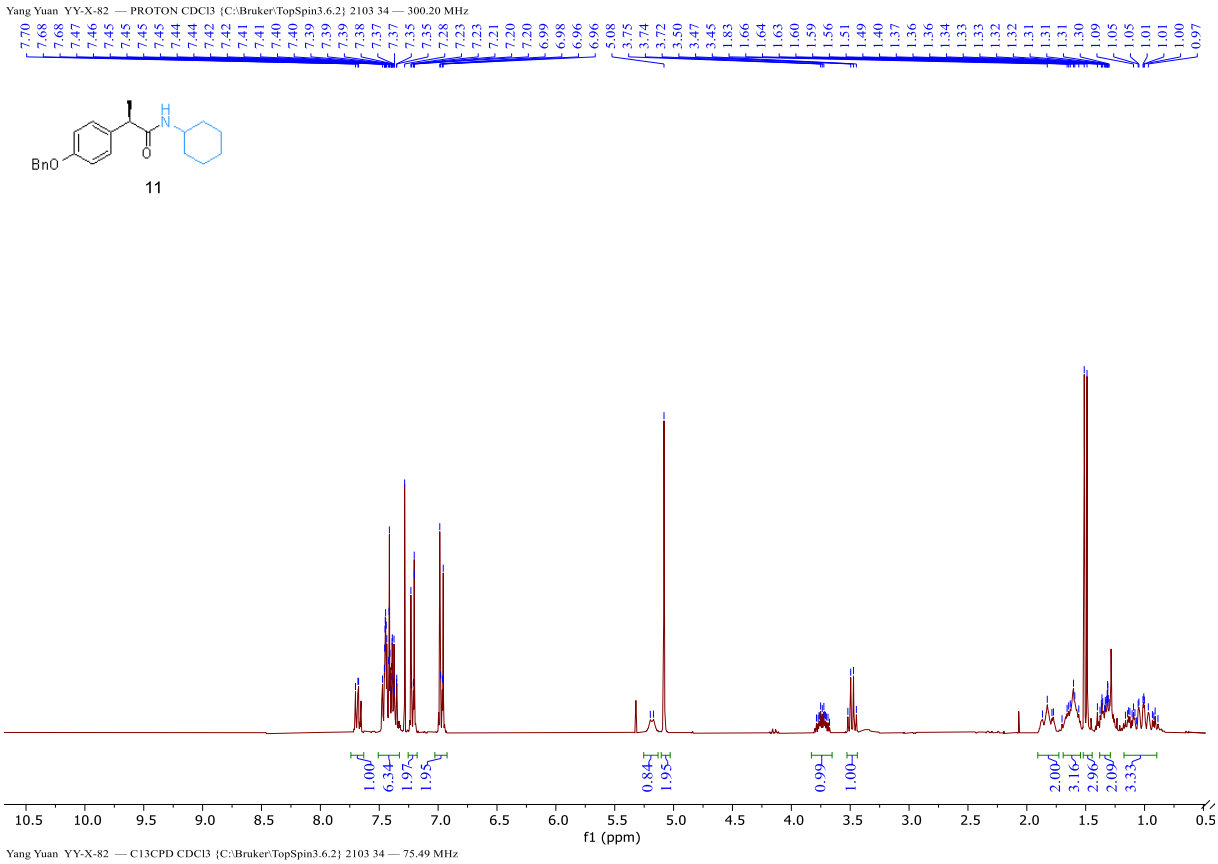

Yang Yuan YY-X-68-C — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 11 — 75.49 MHz
173.62 158.66 133.67 128.63 114.22 55.27 48.10 46.36 32.96 32.90 25.50 24.76 24.71 18.71
MeO
H
N
O

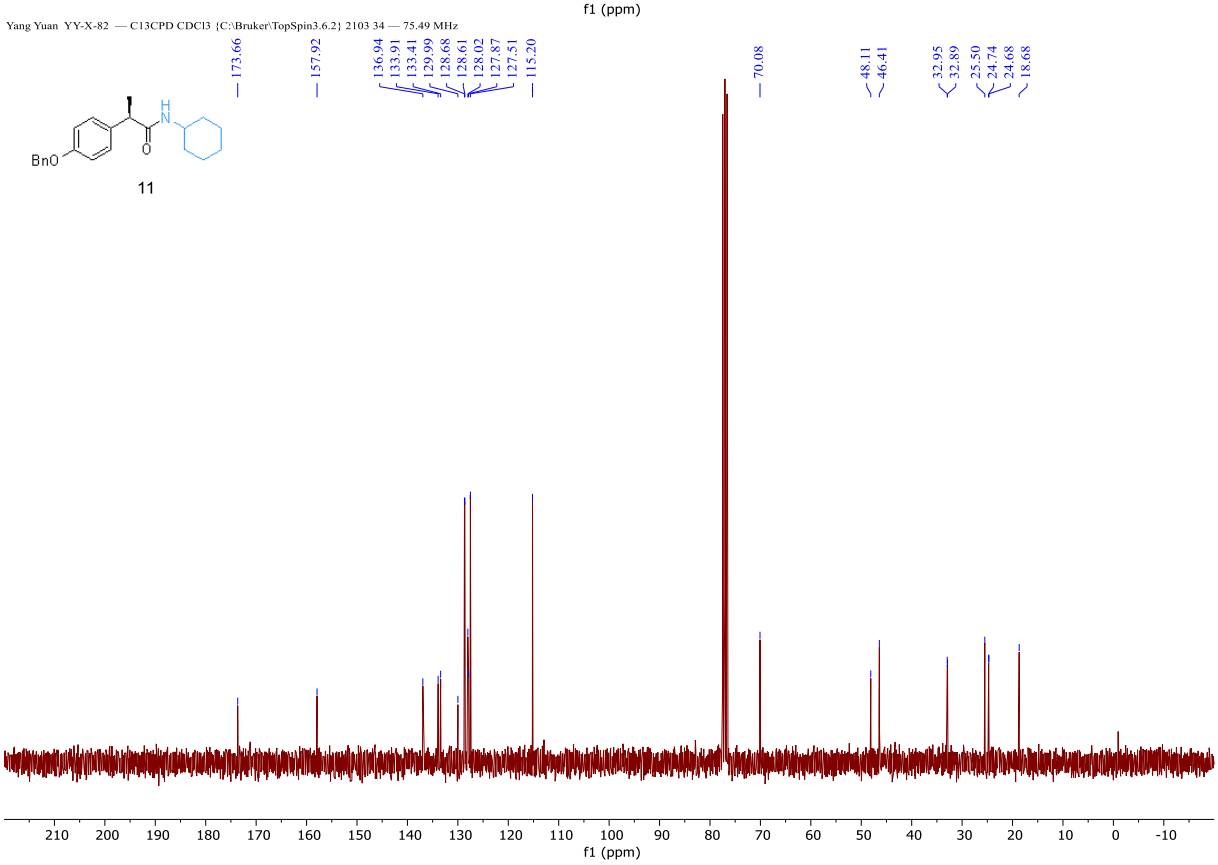
9

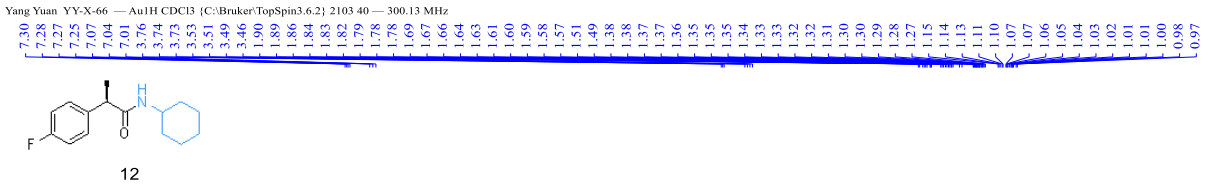

210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)


Yang Yuan YY-X-72 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 6 — 300.20 MHz
PhO
10
f1 (ppm)


Yang Yuan YY-X-72 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 6 — 75.49 MHz
PhO
10
f1 (ppm)

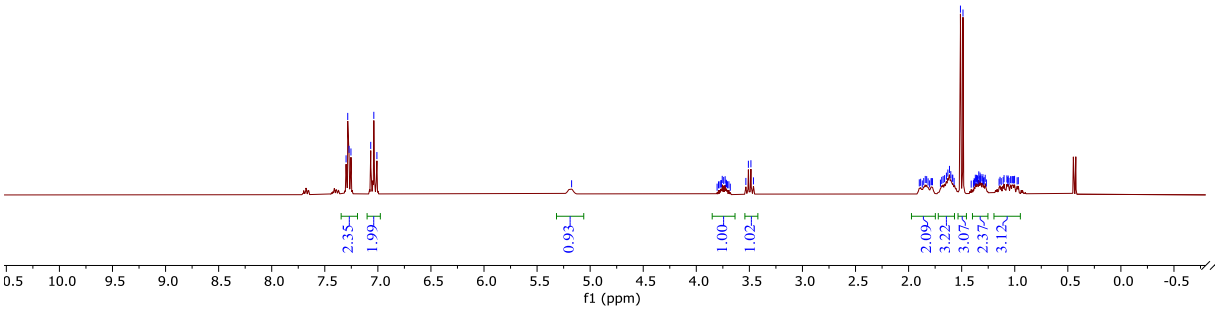

Yang Yuan YY-X-82 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 34 — 300.20 MHz
BnO
11
f1 (ppm)

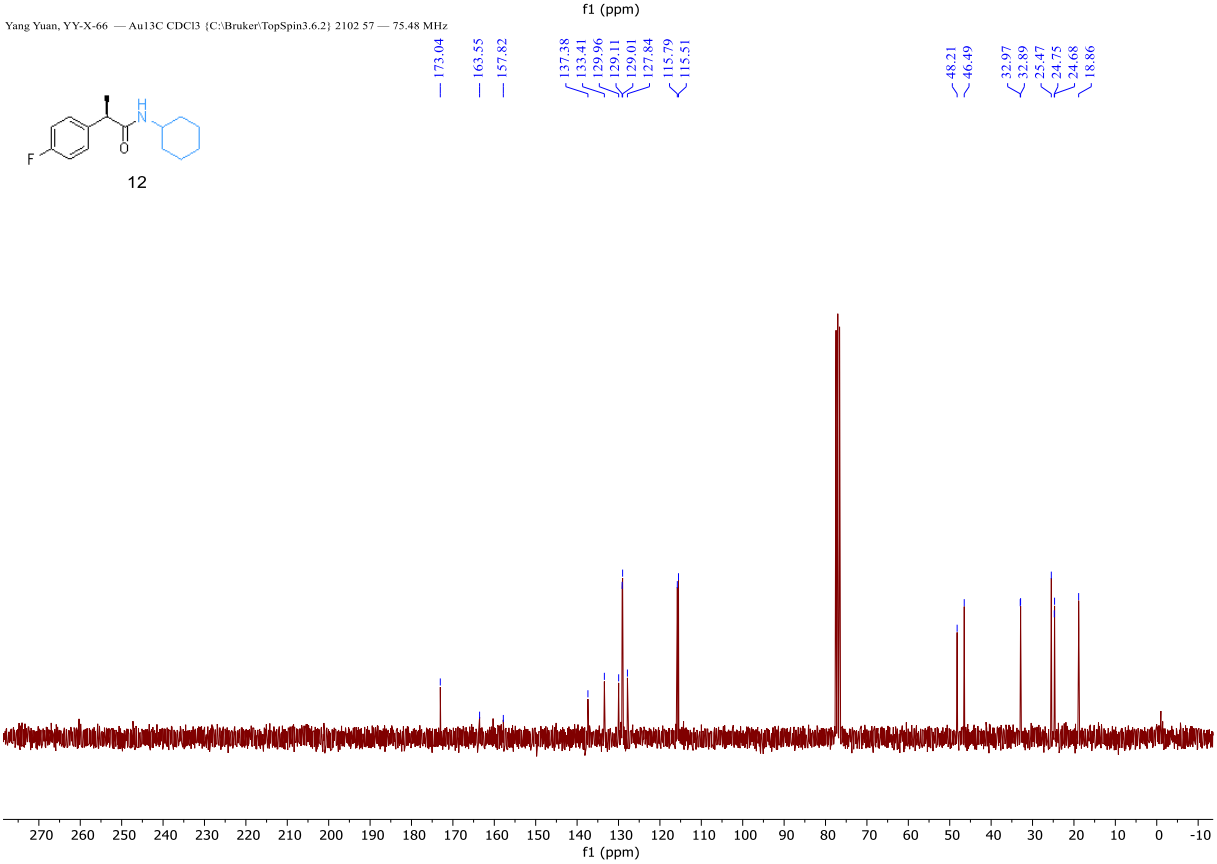

Yang Yuan YY-X-82 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 34 — 75.49 MHz
BnO
11
f1 (ppm)


Yang Yuan YY-X-66 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 40 — 300.13 MHz
7.30 7.28 7.27 7.25 7.07 7.04 7.01 3.76 3.74 3.73 3.53 3.51 3.49 3.46 1.90 1.89 1.86 1.84 1.83 1.82 1.79 1.78 1.78 1.78 1.69 1.67 1.66 1.64 1.63 1.61 1.60 1.59 1.58 1.57 1.51 1.49 1.38 1.38 1.37 1.37 1.36 1.35 1.35 1.35 1.34 1.33 1.33 1.32 1.32 1.31 1.30 1.30 1.29 1.28 1.27 1.15 1.14 1.13 1.11 1.10 1.07 1.07 1.06 1.05 1.04 1.03 1.02 1.01 1.01 1.00 0.98 0.97

F
NH
O

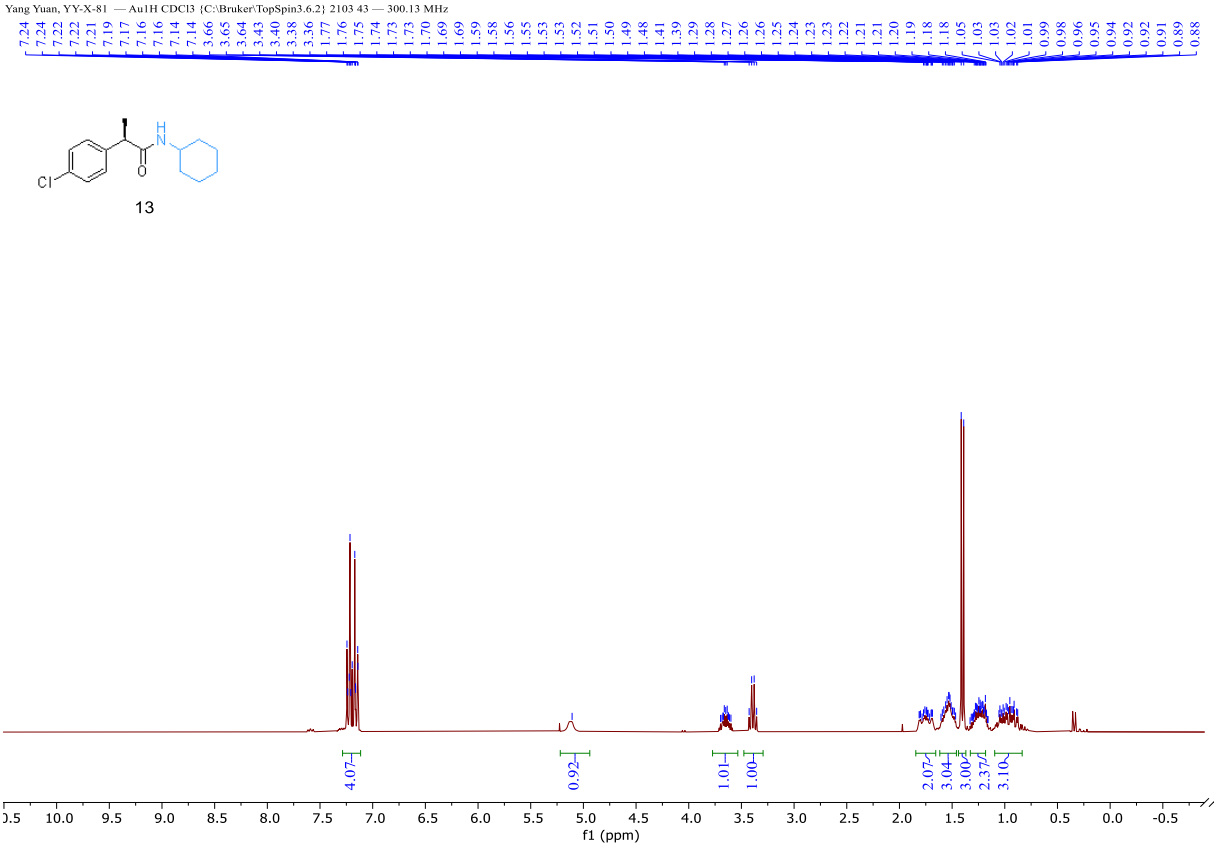
12

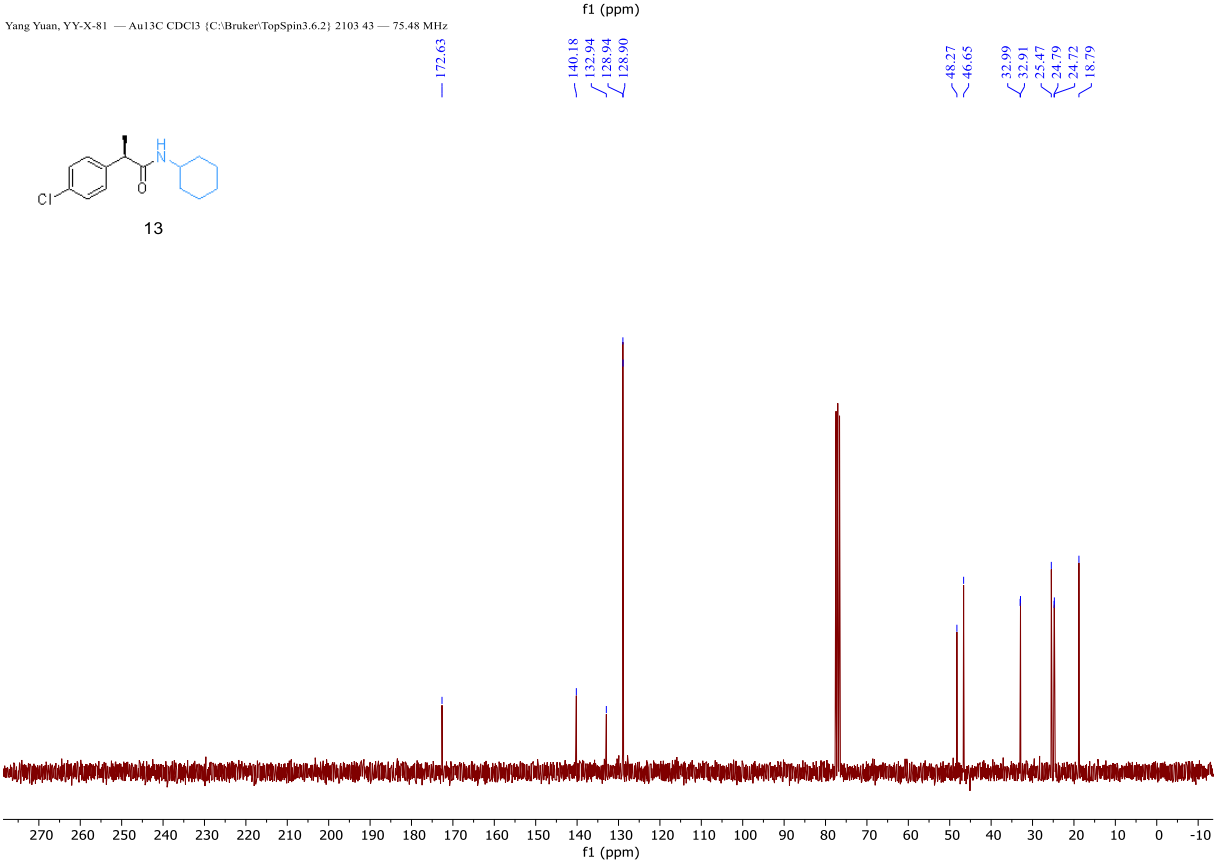

2.35
1.99
0.93
1.00
1.02
2.09
3.22
3.07
2.37
3.12
0.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)

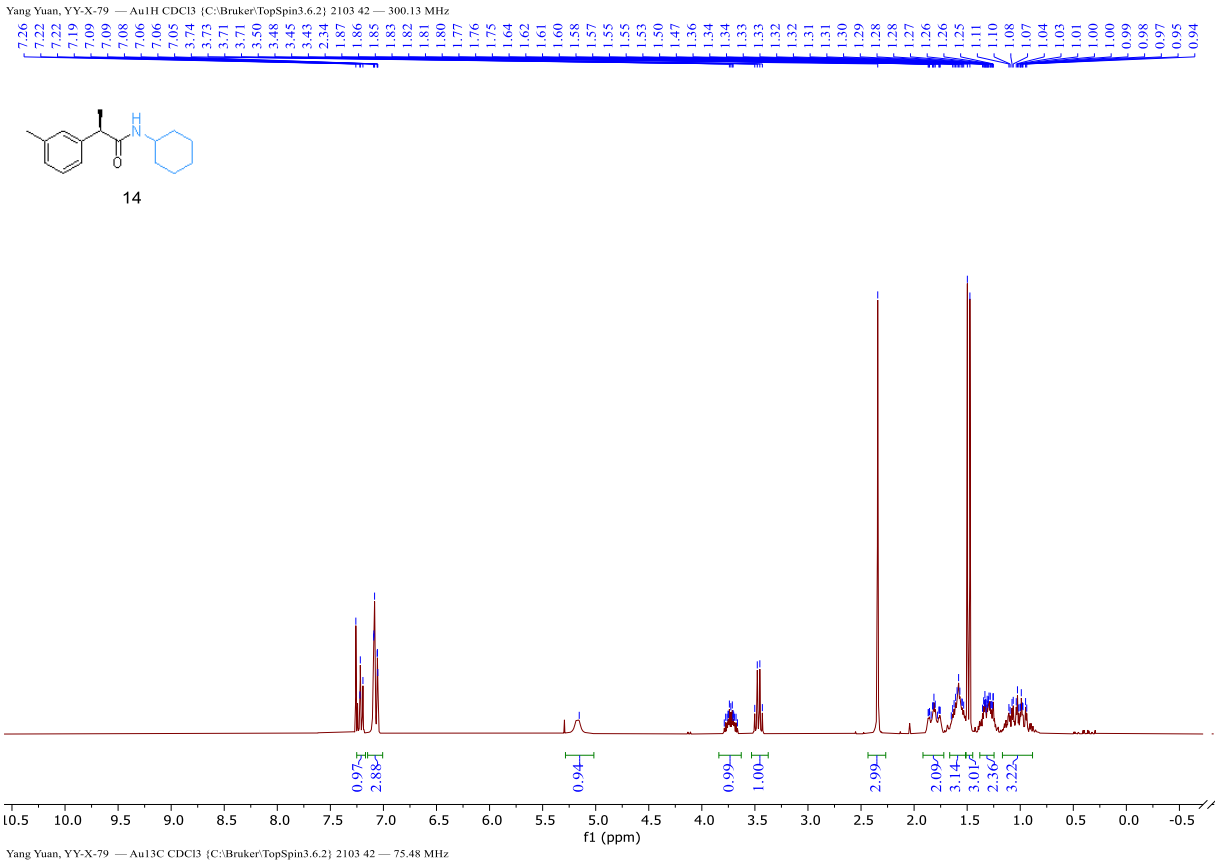

Yang Yuan, YY-X-66 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 57 — 75.48 MHz
173.04
163.55
157.82
137.38
133.41
129.96
129.11
129.01
127.84
115.79
115.51
48.21
46.49
32.97
32.89
25.47
24.75
24.68
18.86
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

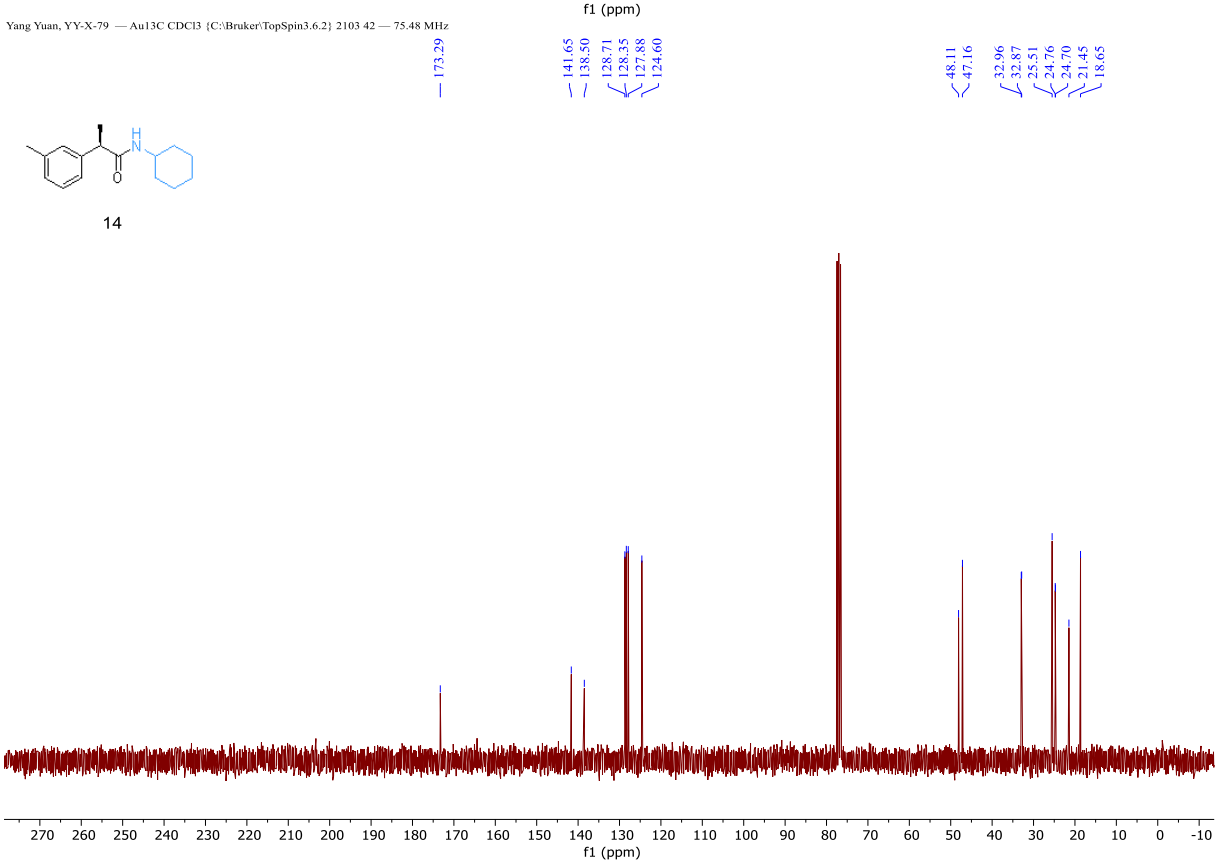
F
NH
O

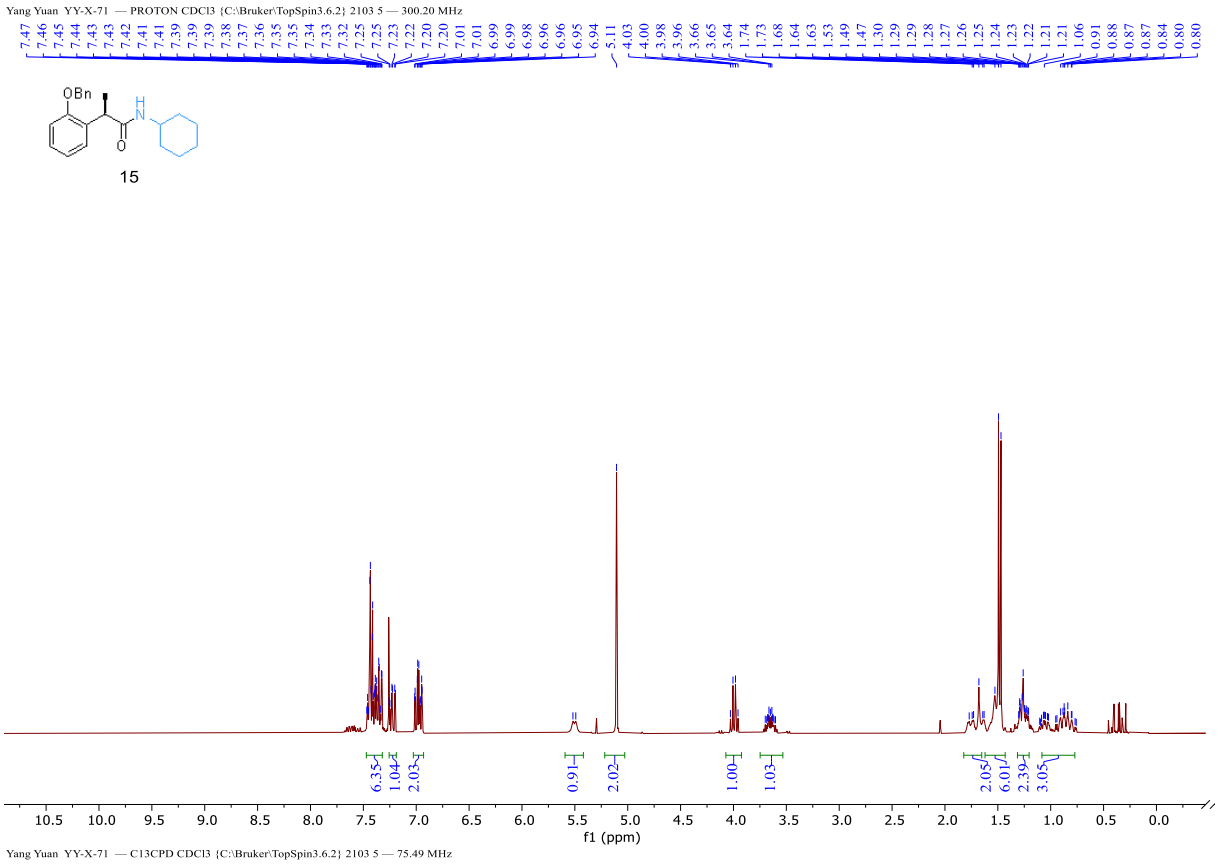
12

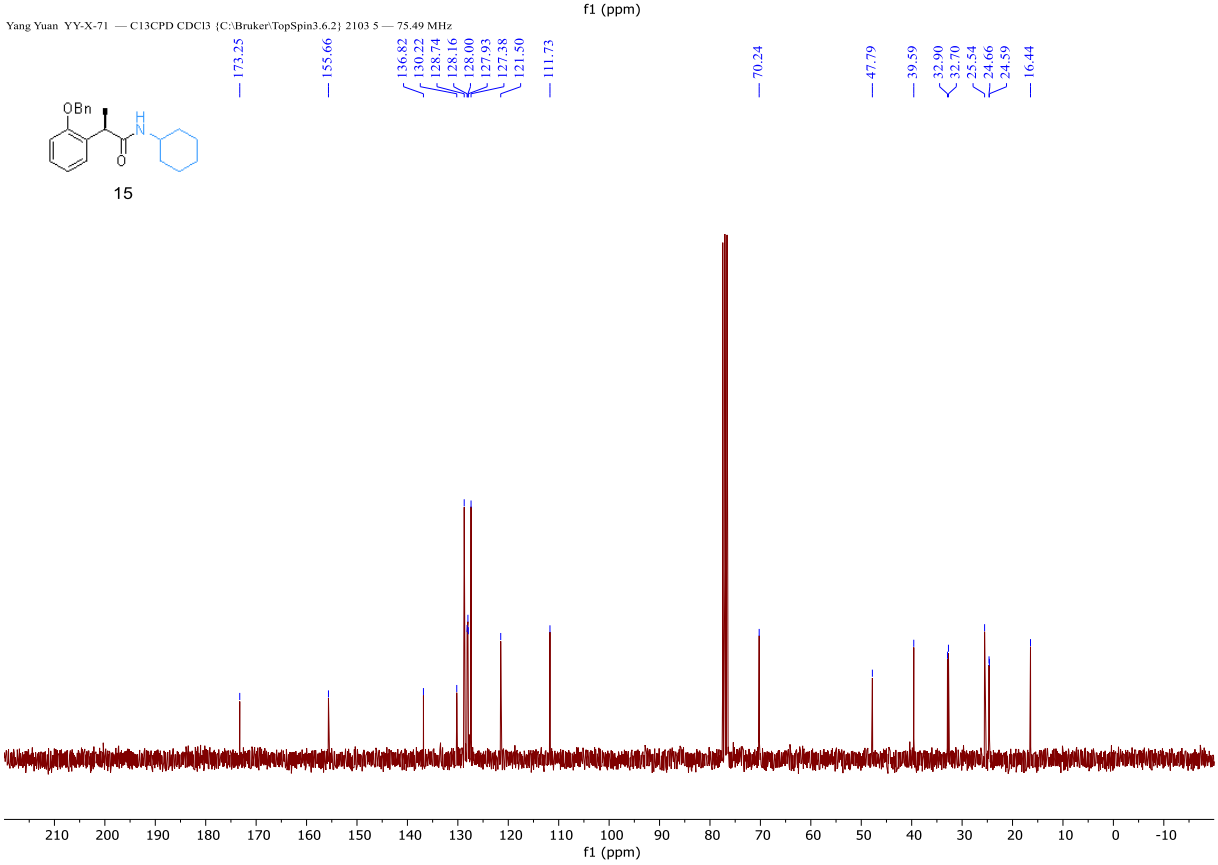

Yang Yuan, YY-X-81 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 43 — 300.13 MHz
7.24 7.24 7.22 7.22 7.21 7.19 7.17 7.16 7.16 7.14 7.14 3.66 3.65 3.64 3.43 3.40 3.38 3.36 1.77 1.76 1.75 1.74 1.73 1.73 1.70 1.69 1.69 1.59 1.58 1.56 1.55 1.53 1.53 1.52 1.51 1.50 1.49 1.48 1.41 1.39 1.29 1.28 1.27 1.26 1.26 1.25 1.24 1.23 1.23 1.22 1.21 1.21 1.20 1.19 1.18 1.18 1.05 1.03 1.03 1.02 1.01 0.99 0.98 0.96 0.95 0.94 0.92 0.92 0.91 0.89 0.88
Cl
N
H
O
13
4.07
0.92
1.01
1.00
2.07
3.04
3.00
2.37
3.10
f1 (ppm)

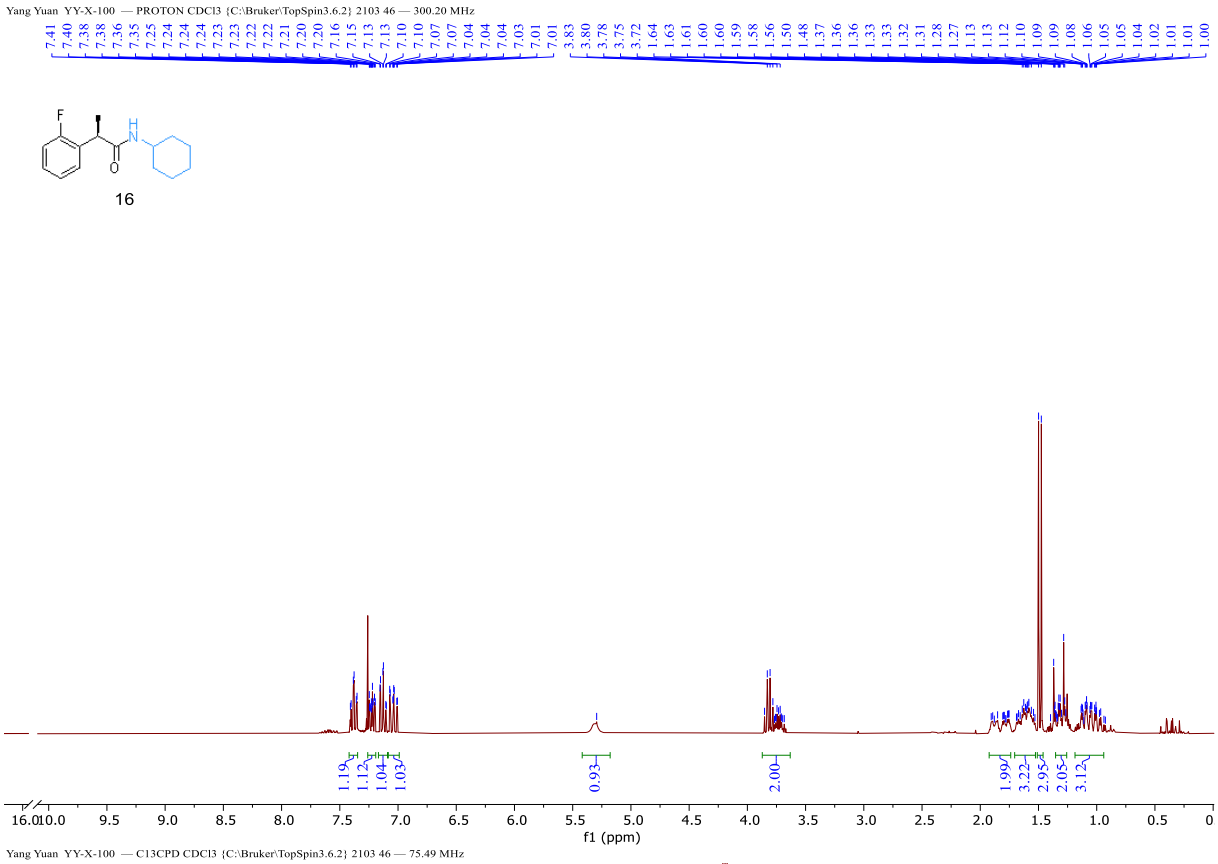

Yang Yuan, YY-X-81 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 43 — 75.48 MHz
172.63
140.18
132.94
128.94
128.90
48.27
46.65
32.99
32.91
25.47
24.79
24.72
18.79
Cl
N
H
O
13
f1 (ppm)

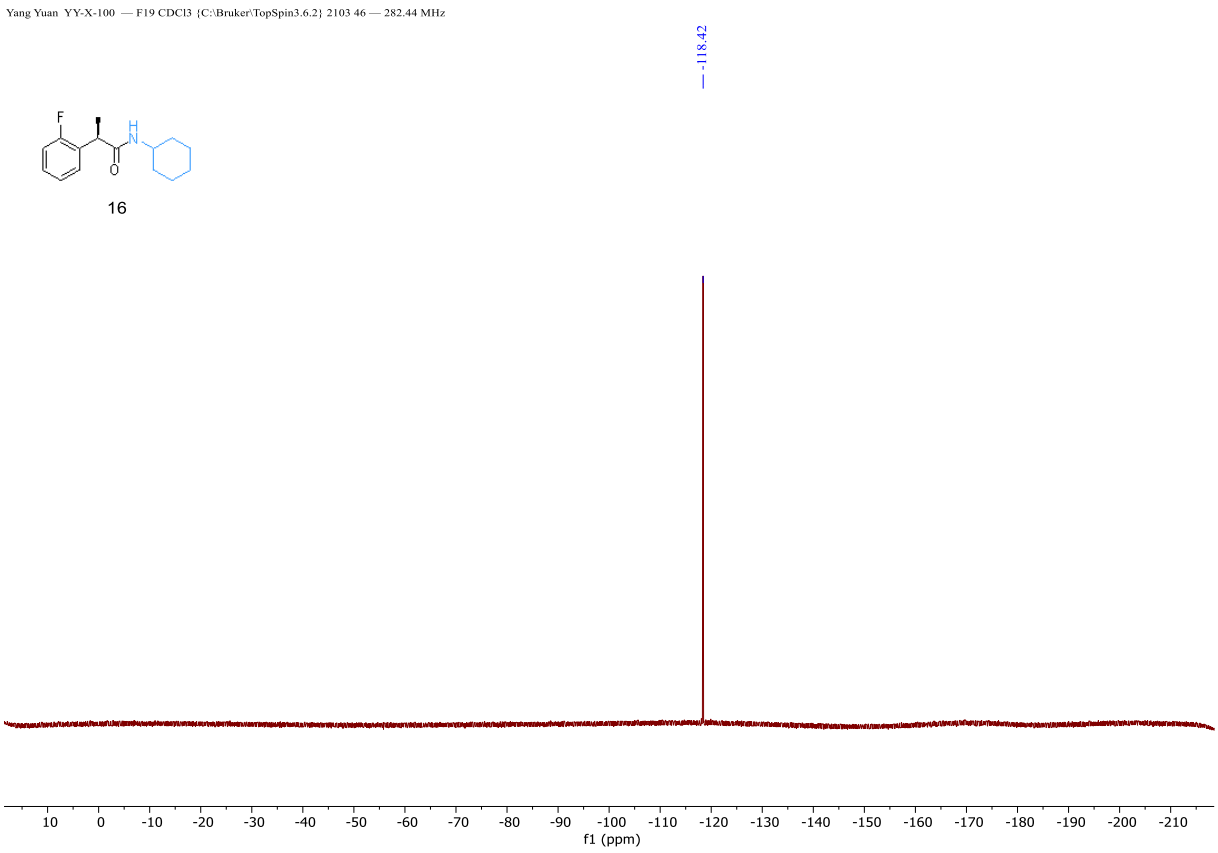

Yang Yuan, YY-X-79 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 42 — 300.13 MHz
7.26 7.22 7.22 7.19 7.09 7.09 7.08 7.06 7.06 7.05 3.74 3.73 3.71 3.71 3.50 3.48 3.45 3.43 2.34 1.87 1.86 1.85 1.83 1.82 1.81 1.80 1.77 1.76 1.75 1.64 1.62 1.61 1.60 1.58 1.57 1.55 1.55 1.53 1.50 1.47 1.36 1.34 1.34 1.33 1.33 1.32 1.32 1.31 1.31 1.30 1.29 1.28 1.28 1.27 1.26 1.26 1.25 1.11 1.10 1.08 1.07 1.04 1.03 1.01 1.00 1.00 0.99 0.98 0.97 0.95 0.94
14
0.97 2.88 0.94 0.99 1.00 2.99 2.09 3.14 3.01 2.36 3.22
f1 (ppm)

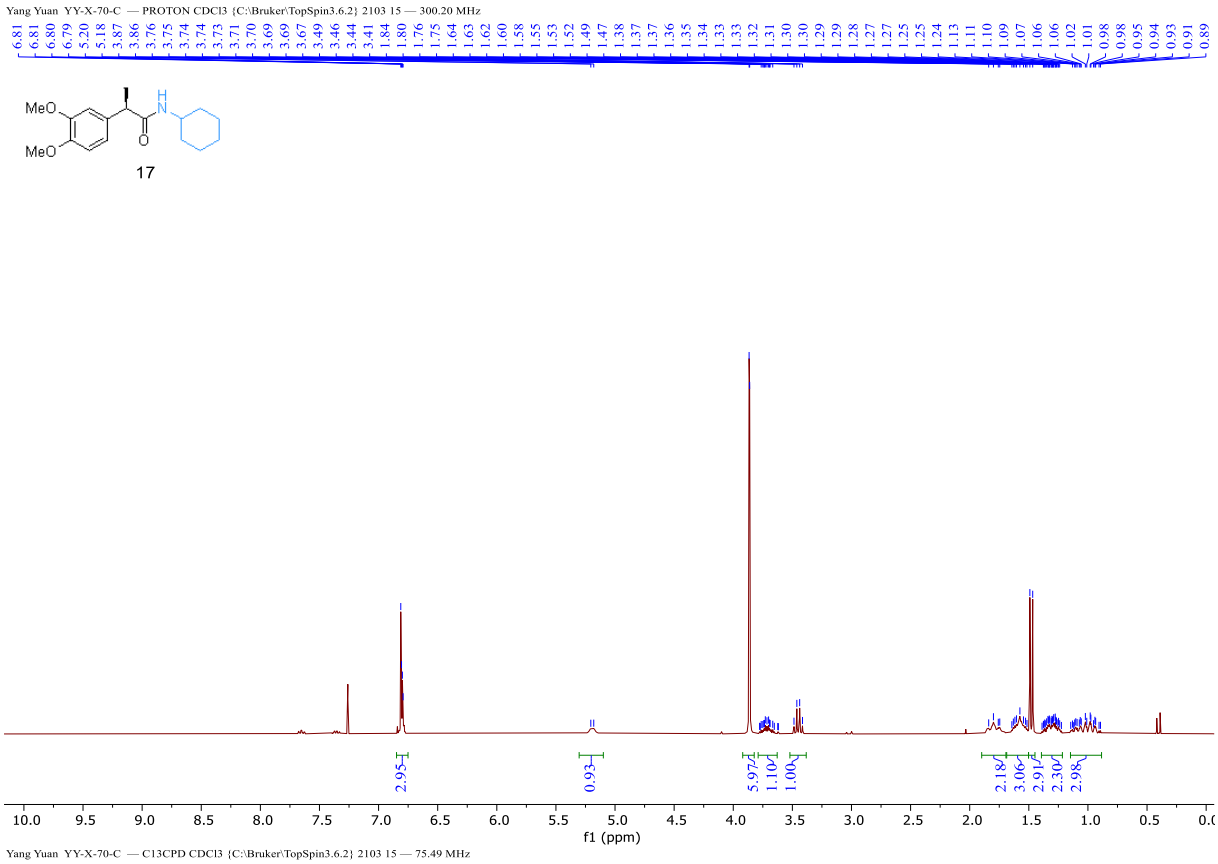

Yang Yuan, YY-X-79 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 42 — 75.48 MHz
173.29
141.65 138.50 128.71 128.35 127.88 124.60
48.11 47.16 32.96 32.87 25.51 24.76 24.70 21.45 18.65
14
f1 (ppm)

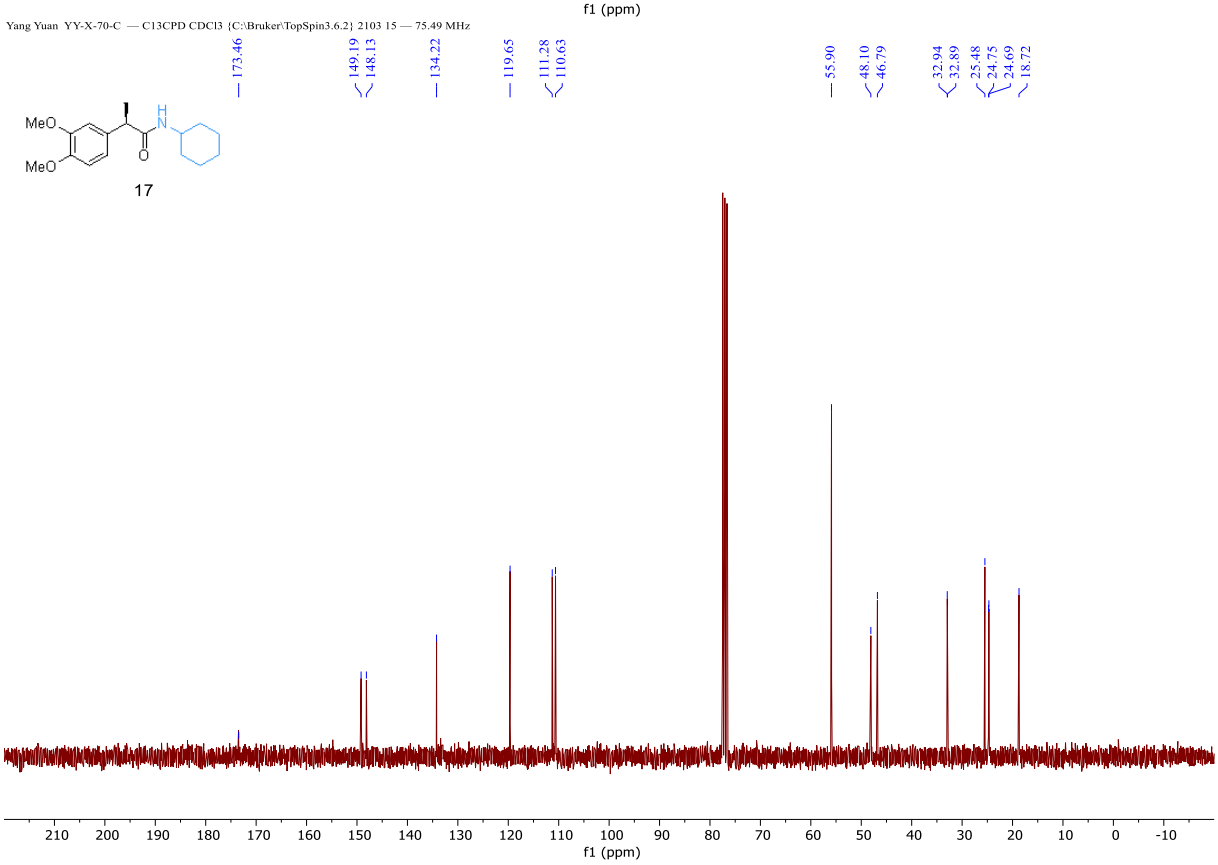

Yang Yuan YY-X-71 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 5 — 300.20 MHz
7.47 7.46 7.45 7.44 7.43 7.43 7.42 7.41 7.41 7.39 7.39 7.39 7.38 7.37 7.36 7.35 7.35 7.34 7.33 7.32 7.25 7.25 7.23 7.22 7.20 7.20 7.01 7.01 6.99 6.99 6.98 6.96 6.96 6.95 6.94 5.11 4.03 4.00 3.98 3.96 3.66 3.65 3.64 1.74 1.73 1.68 1.64 1.63 1.53 1.49 1.47 1.30 1.29 1.29 1.28 1.27 1.26 1.25 1.24 1.23 1.22 1.21 1.21 1.06 0.91 0.88 0.87 0.87 0.84 0.80 0.80
OBn
NH
O
15
6.35 1.04 2.03 0.91 2.02 1.00 1.03 2.05 6.01 2.39 3.05
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

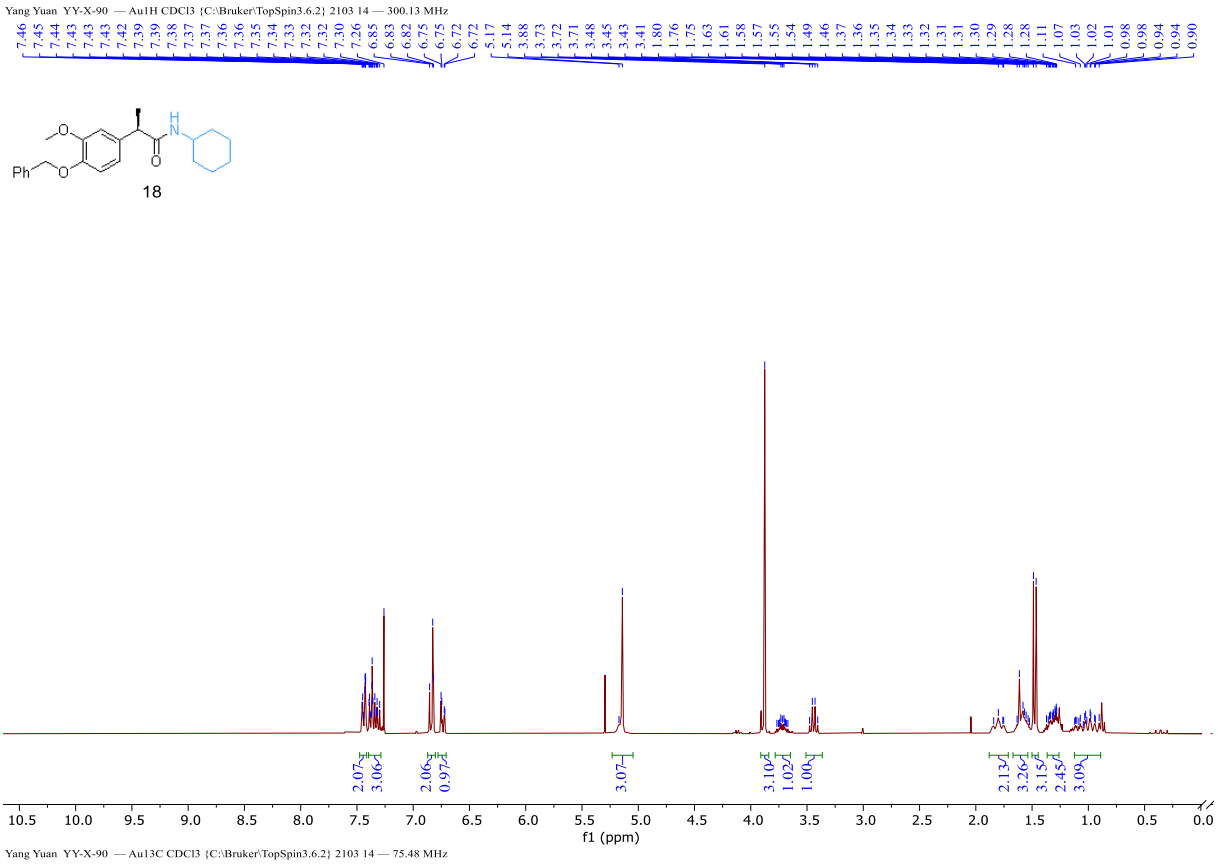

Yang Yuan YY-X-71 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 5 — 75.49 MHz
173.25 155.66 136.82 130.22 128.74 128.16 128.00 127.93 127.38 121.50 111.73 70.24 47.79 39.59 32.90 32.70 25.54 24.66 24.59 16.44
OBn
NH
O
15
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

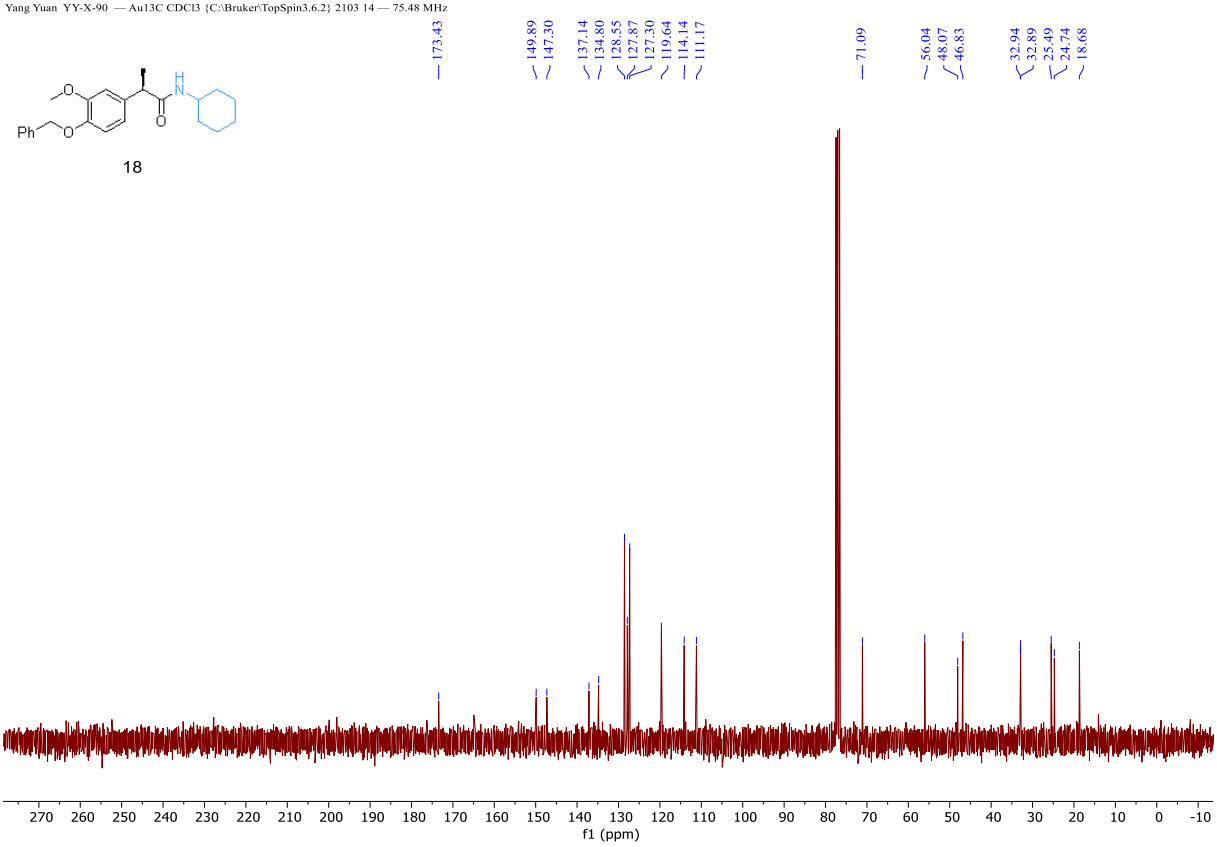

Yang Yuan YY-X-100 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 46 — 300.20 MHz
7.41 7.40 7.38 7.38 7.36 7.35 7.25 7.24 7.24 7.24 7.23 7.23 7.22 7.22 7.21 7.20 7.20 7.16 7.15 7.13 7.13 7.10 7.10 7.07 7.07 7.04 7.04 7.04 7.03 7.01 7.01
3.83 3.80 3.78 3.75 3.72 1.64 1.63 1.61 1.60 1.60 1.59 1.58 1.56 1.50 1.48 1.37 1.36 1.36 1.33 1.33 1.32 1.31 1.28 1.27 1.13 1.13 1.12 1.10 1.09 1.09 1.08 1.06 1.05 1.05 1.04 1.02 1.01 1.01 1.00
F
H
N
O
16
1.19 1.12 1.04 1.03 0.93 2.00 1.99 3.22 2.95 2.05 3.12
16.0 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0
f1 (ppm)
Yang Yuan YY-X-100 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 46 — 75.49 MHz
172.13 161.94 158.69 128.72 128.67 128.55 124.65 124.60 115.50 115.20 48.20 39.35 32.99 32.83 25.50 24.76 24.68 17.18
F
H
N
O
16
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

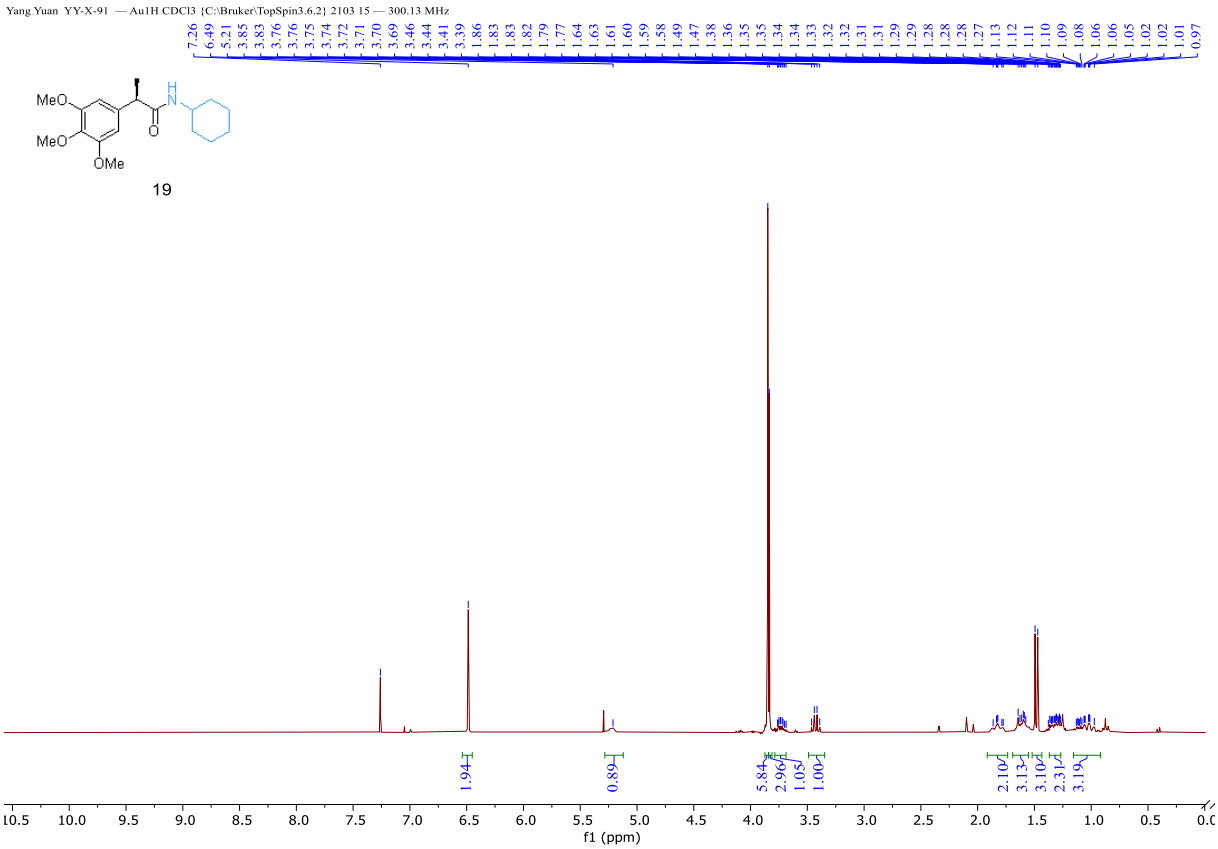

Yang Yuan YY-X-100 — F19 CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 46 — 282.44 MHz
— -118.42
F
H
N
O
16
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200 -210
f1 (ppm)

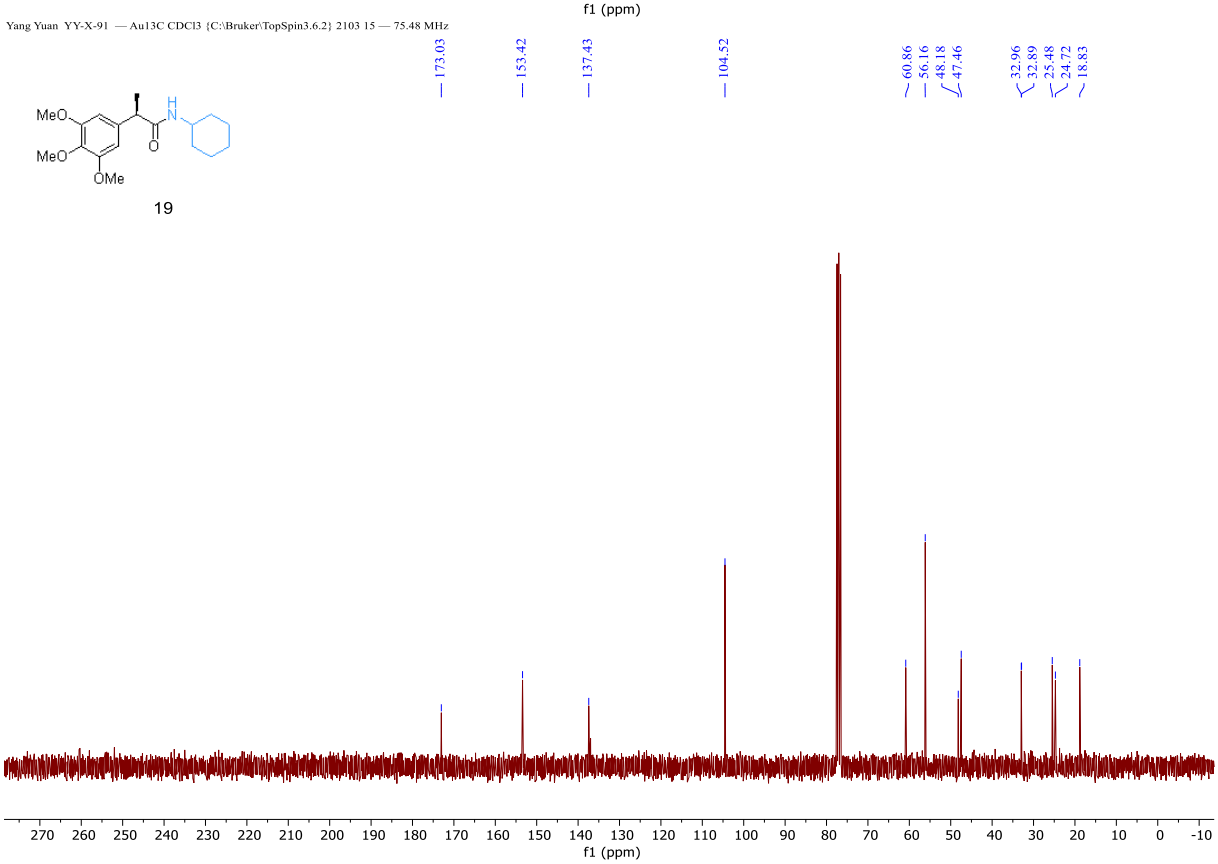

Yang Yuan YY-X-70-C — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 15 — 300.20 MHz
MeO
MeO
17
2.95
0.93
5.97
1.10
1.00
2.18
3.06
2.91
2.30
2.98
f1 (ppm)

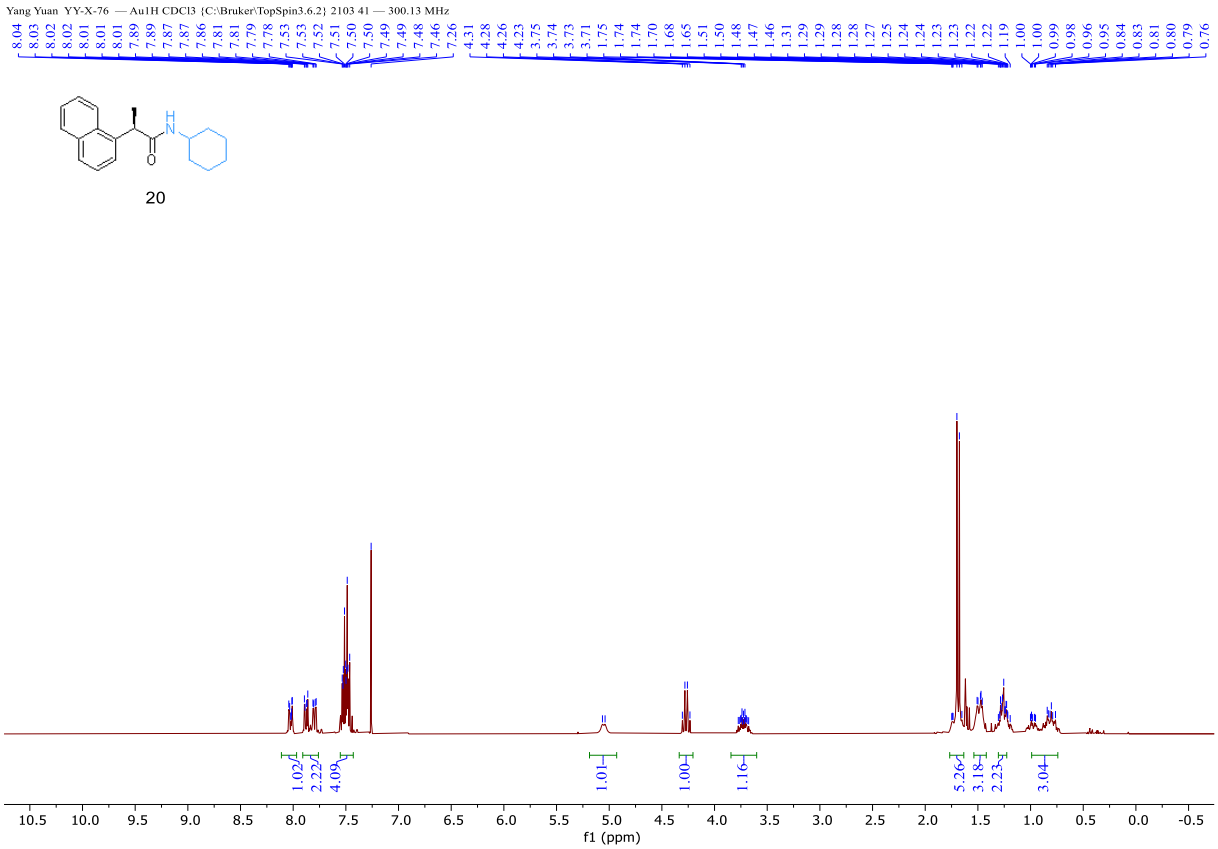

Yang Yuan YY-X-70-C — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 15 — 75.49 MHz
173.46
149.19
148.13
134.22
119.65
111.28
110.63
55.90
48.10
46.79
32.94
32.89
25.48
24.75
24.69
18.72
MeO
MeO
17
f1 (ppm)

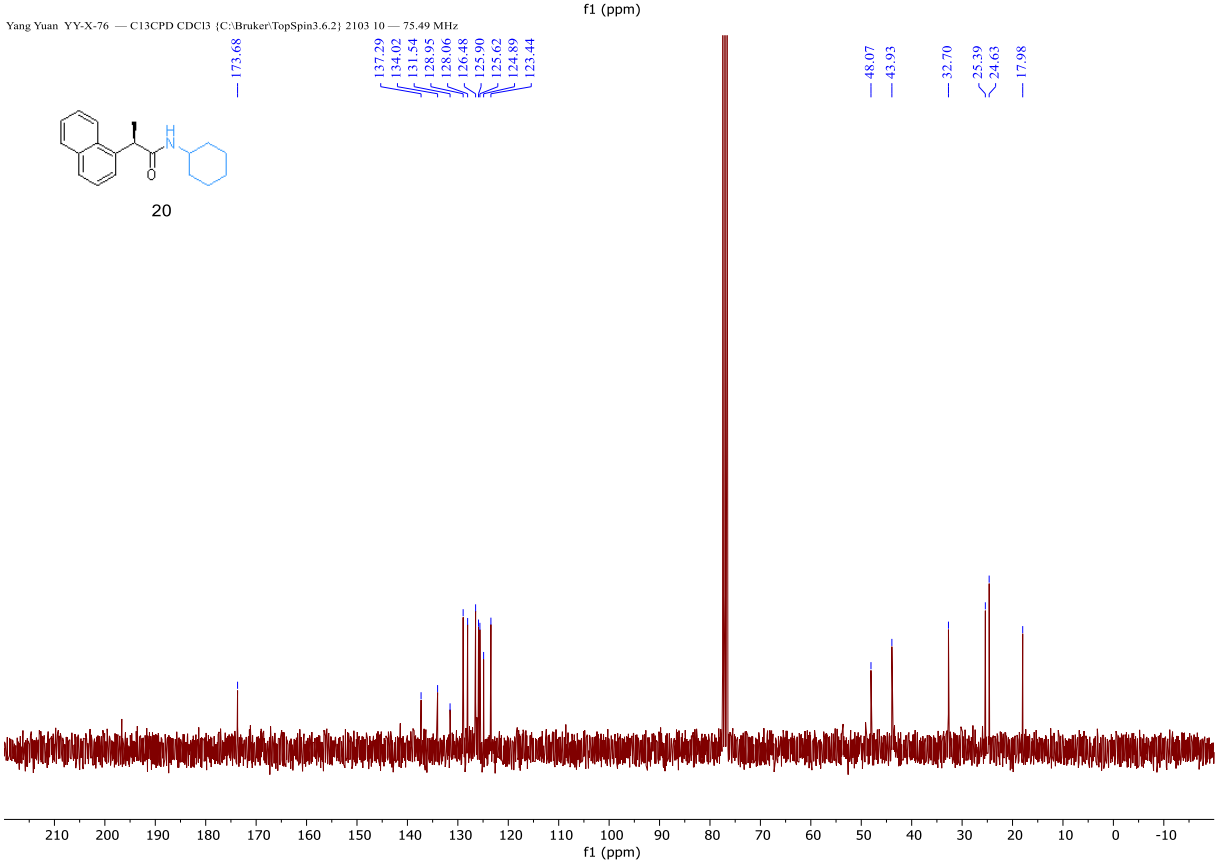

Yang Yuan YY-X-90 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 14 — 300.13 MHz
7.46 7.45 7.44 7.43 7.43 7.43 7.42 7.39 7.39 7.38 7.37 7.37 7.36 7.36 7.35 7.34 7.33 7.32 7.32 7.30 7.26 6.85 6.83 6.82 6.75 6.75 6.72 6.72 5.17 5.14 3.88 3.73 3.72 3.71 3.48 3.45 3.43 3.41 1.80 1.76 1.75 1.63 1.61 1.58 1.57 1.55 1.54 1.49 1.46 1.37 1.36 1.35 1.34 1.33 1.32 1.31 1.31 1.30 1.29 1.28 1.28 1.11 1.07 1.03 1.02 1.01 0.98 0.98 0.94 0.94 0.90
O
N
H
O
Ph
O
18
2.07
3.06
2.06
0.97
3.07
3.10
1.02
1.00
2.13
3.26
3.15
2.45
3.09
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

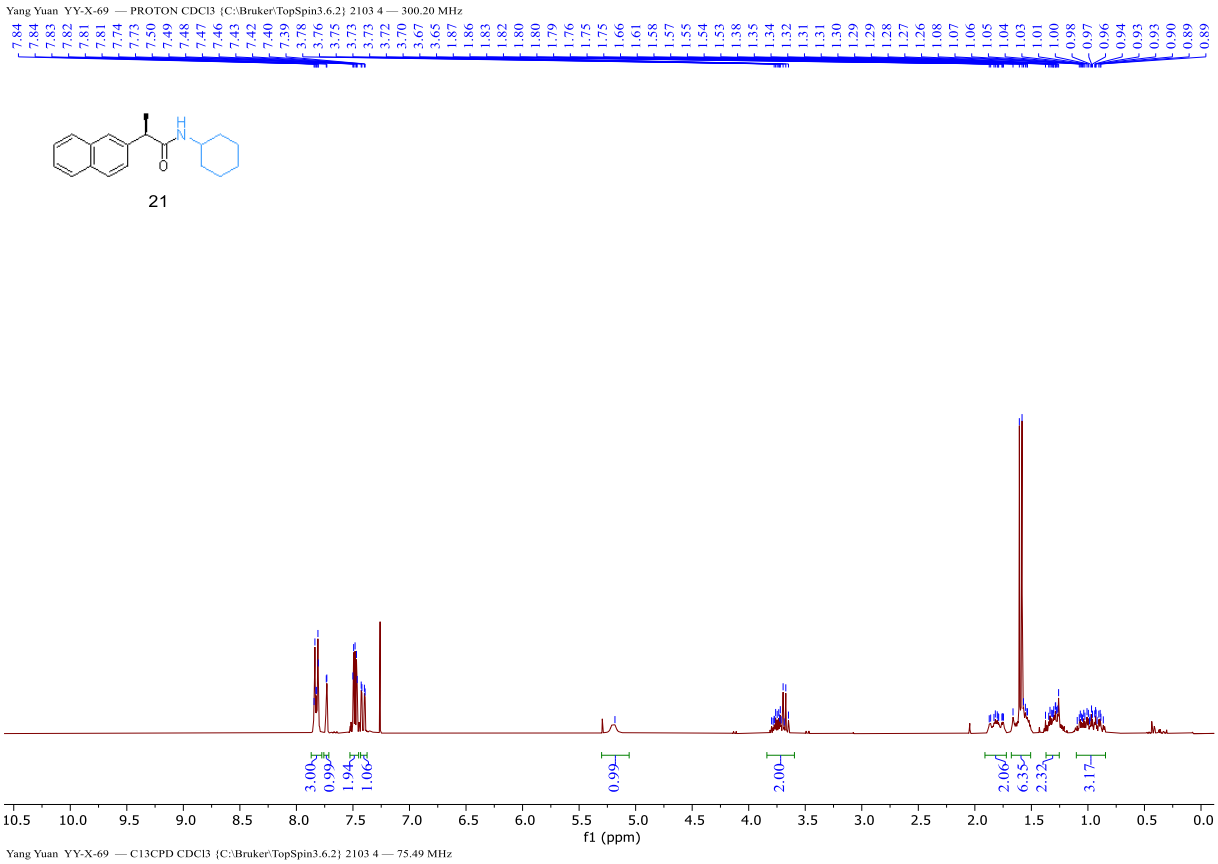

Yang Yuan YY-X-90 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 14 — 75.48 MHz
173.43
149.89
147.30
137.14
134.80
128.55
127.87
127.30
119.64
114.14
111.17
71.09
56.04
48.07
46.83
32.94
32.89
25.49
24.74
18.68
O
N
H
O
Ph
O
18
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

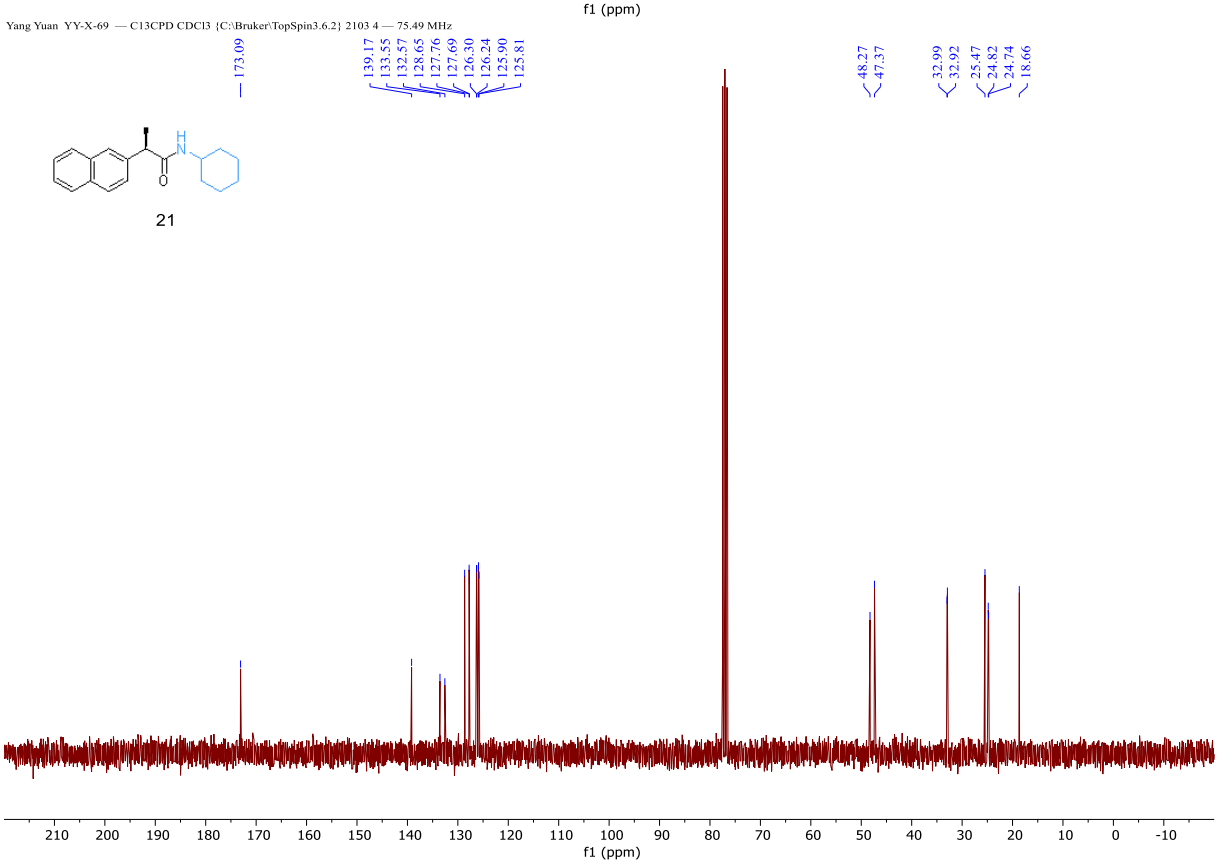

Yang Yuan YY-X-91 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 15 — 300.13 MHz
MeO
MeO
OMe
H
N
O
19
f1 (ppm)

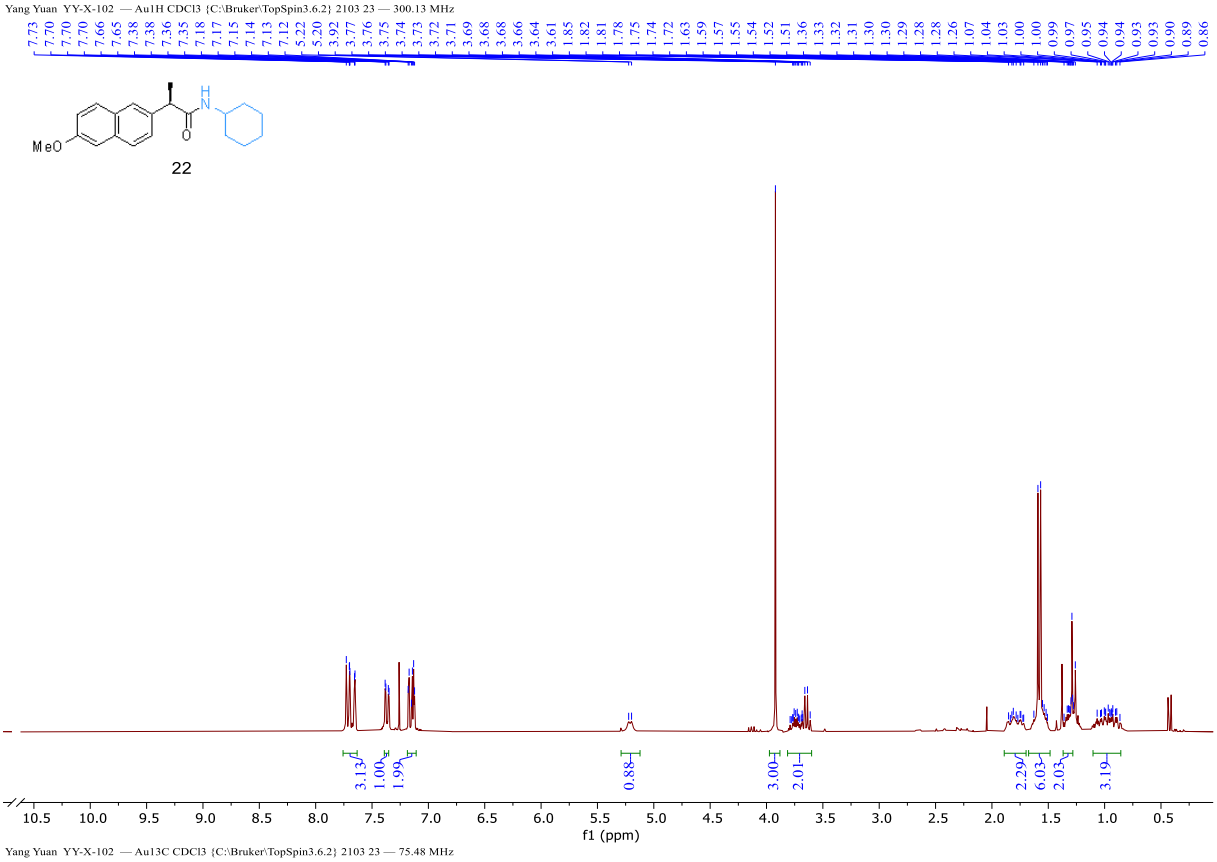

Yang Yuan YY-X-91 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 15 — 75.48 MHz
MeO
MeO
OMe
H
N
O
19
f1 (ppm)

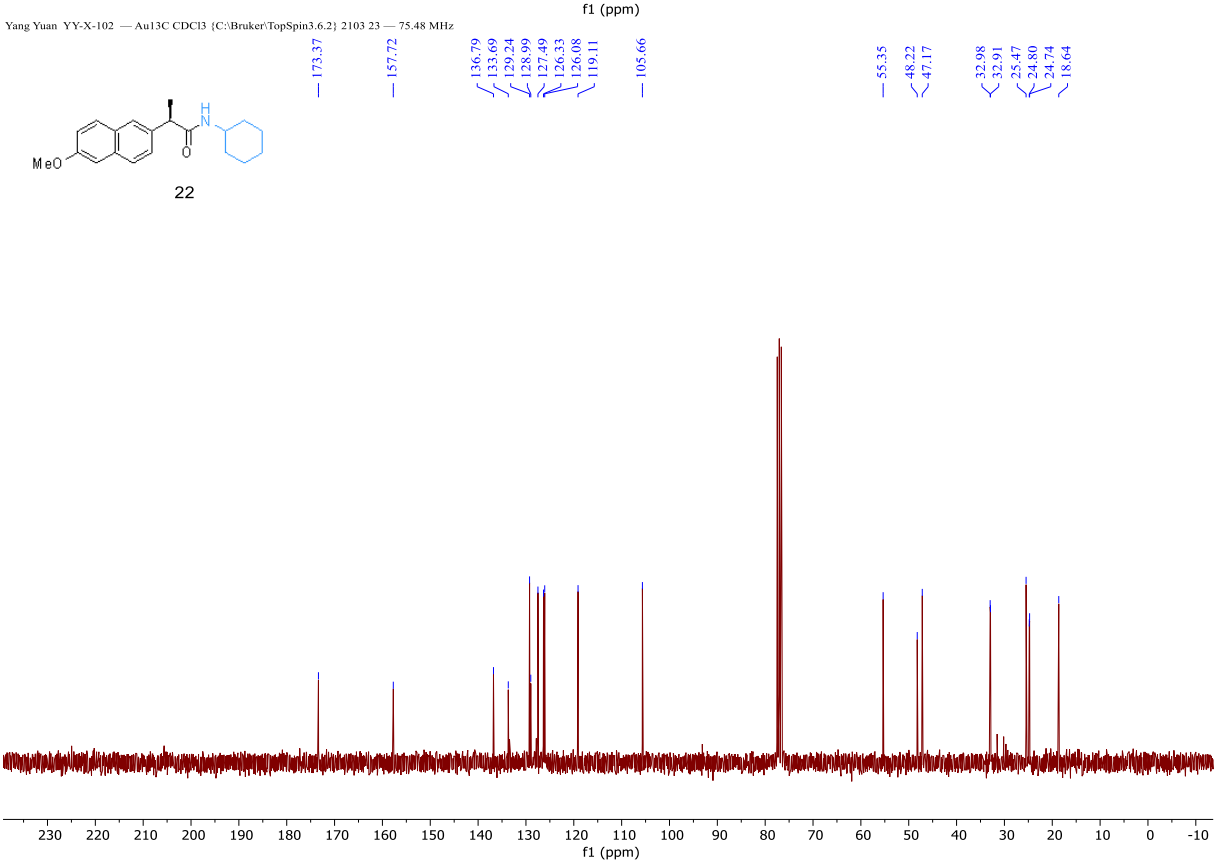

Yang Yuan YY-X-76 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 41 — 300.13 MHz
8.04 8.03 8.02 8.02 8.01 8.01 8.01 8.01 7.89 7.89 7.87 7.87 7.86 7.81 7.81 7.79 7.78 7.53 7.53 7.52 7.51 7.50 7.50 7.49 7.49 7.48 7.46 7.26
4.31 4.28 4.26 4.23 3.75 3.74 3.73 3.71 1.75 1.74 1.74 1.70 1.68 1.65 1.51 1.50 1.48 1.47 1.46 1.31 1.29 1.29 1.28 1.28 1.27 1.25 1.24 1.24 1.23 1.23 1.22 1.22 1.19 1.00 1.00 0.99 0.98 0.96 0.95 0.84 0.83 0.81 0.80 0.79 0.76
20
1.02 2.22 4.09 1.01 1.00 1.16 5.26 3.18 2.23 3.04
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)

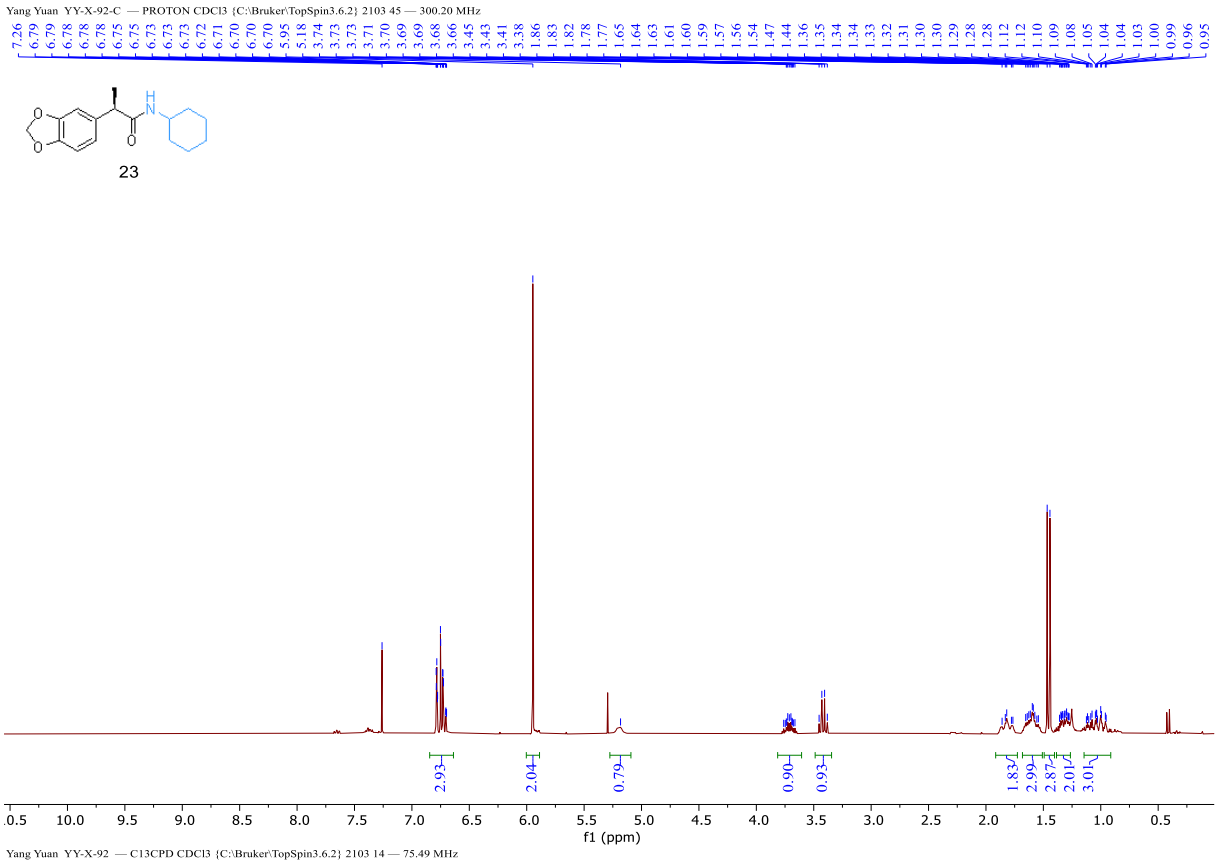

Yang Yuan YY-X-76 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 10 — 75.49 MHz
173.68
137.29 134.02 131.54 128.95 128.06 126.48 125.90 125.62 124.89 123.44
48.07 43.93 32.70 25.39 24.63 17.98
20
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

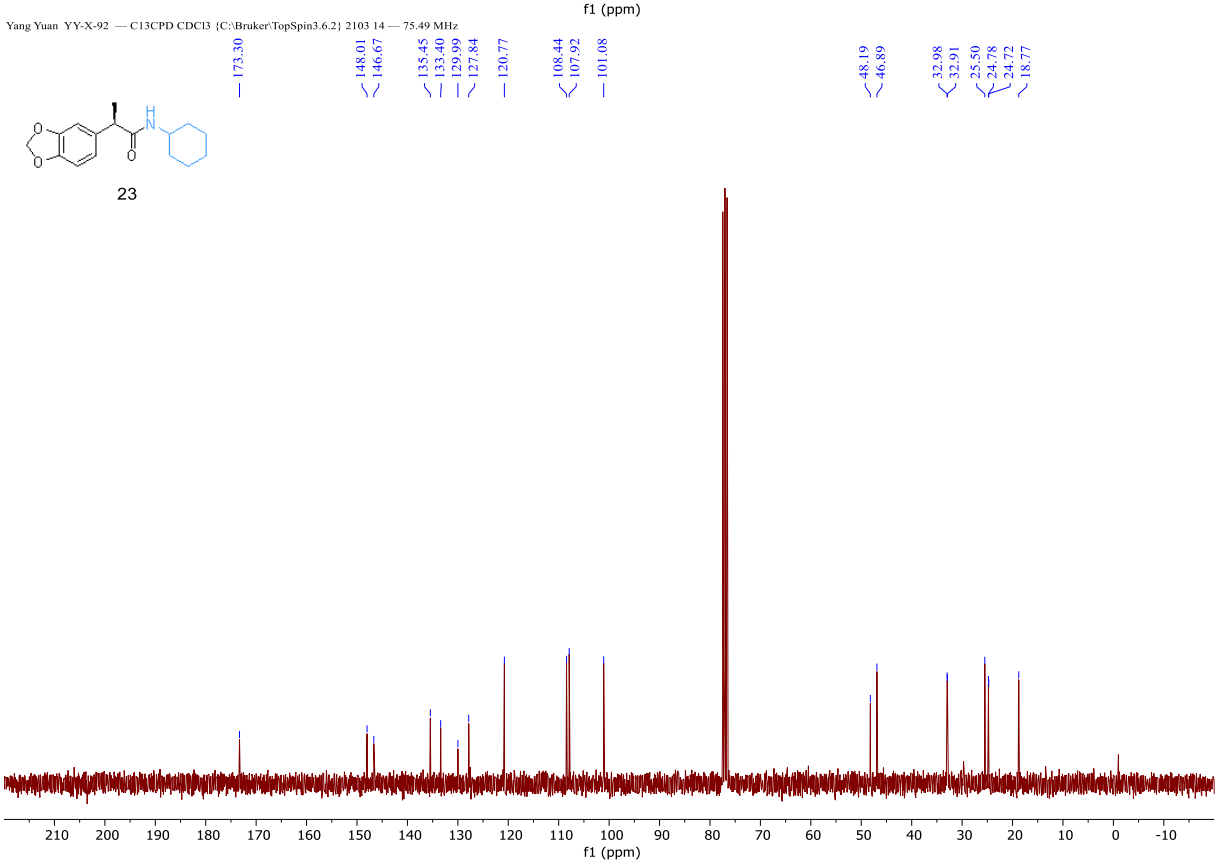

Yang Yuan YY-X-69 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 4 — 300.20 MHz
7.84 7.84 7.83 7.82 7.81 7.81 7.81 7.74 7.73 7.50 7.49 7.48 7.47 7.46 7.43 7.42 7.40 7.39 3.78 3.76 3.75 3.73 3.73 3.72 3.70 3.67 3.65 1.87 1.86 1.83 1.82 1.80 1.80 1.79 1.76 1.75 1.75 1.66 1.61 1.58 1.57 1.55 1.54 1.53 1.38 1.35 1.34 1.32 1.31 1.31 1.30 1.29 1.29 1.28 1.27 1.26 1.08 1.07 1.06 1.05 1.04 1.03 1.01 1.00 0.98 0.97 0.96 0.94 0.93 0.93 0.90 0.89 0.89
21
3.00 0.99 1.94 1.06 0.99 2.00 2.06 6.35 2.32 3.17
f1 (ppm)

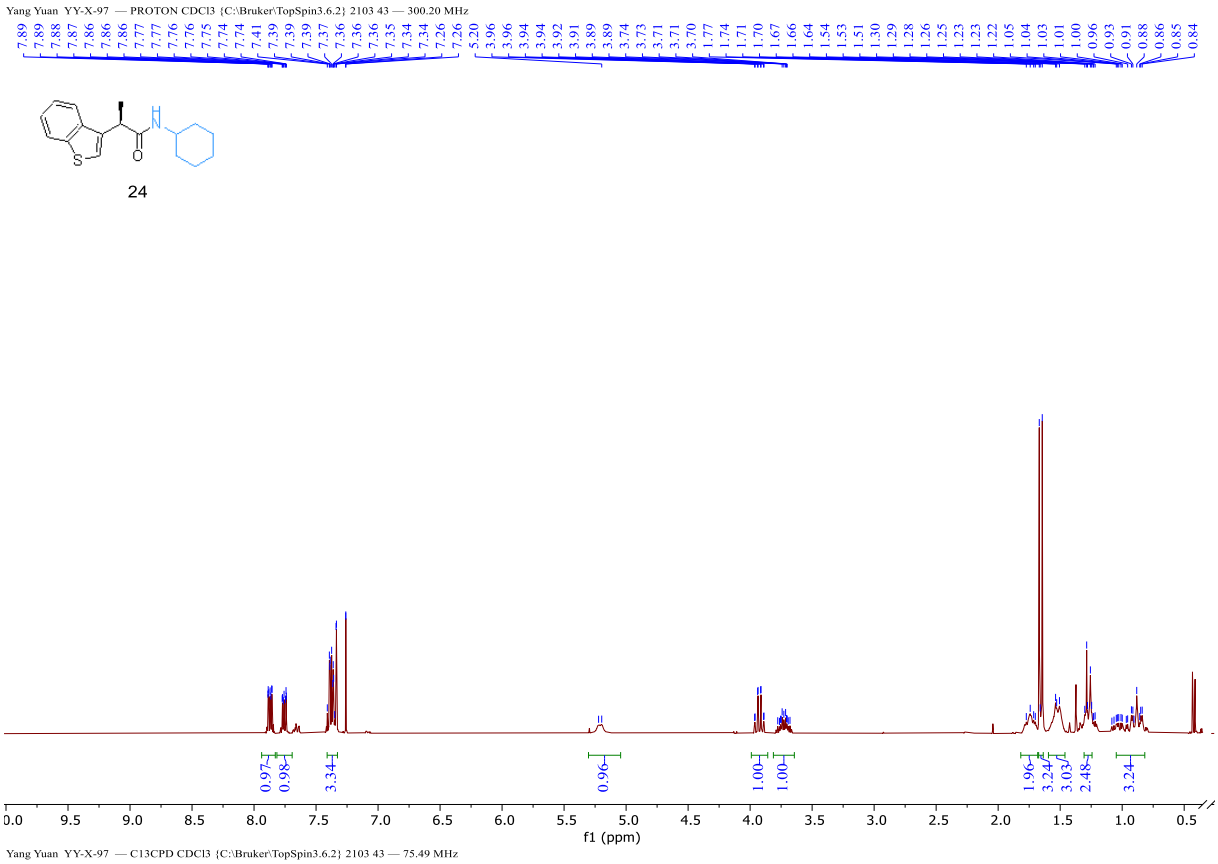

Yang Yuan YY-X-69 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 4 — 75.49 MHz
173.09
139.17 133.55 132.57 128.65 127.76 127.69 126.30 126.24 125.90 125.81
48.27 47.37
32.99 32.92 25.47 24.82 24.74 18.66
21
f1 (ppm)

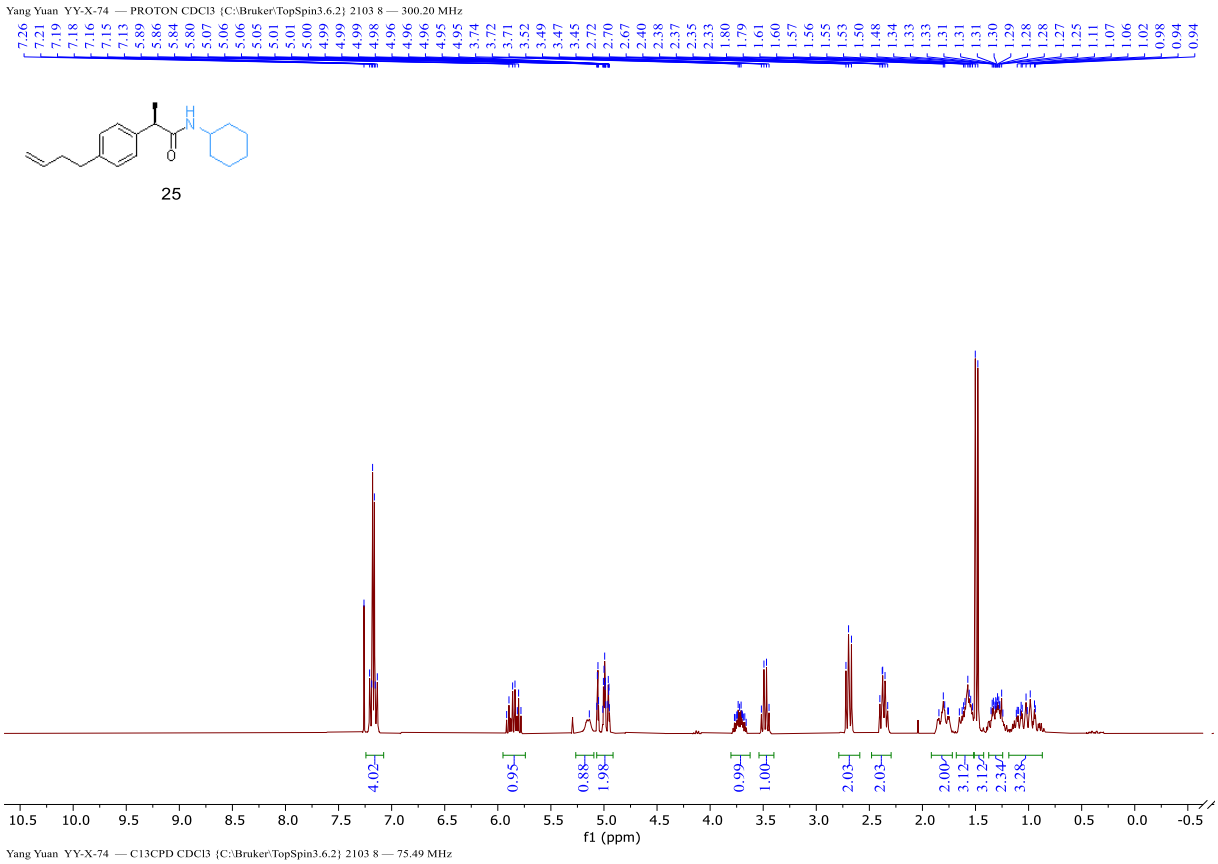

Yang Yuan YY-X-102 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 23 — 300.13 MHz
MeO
22
f1 (ppm)

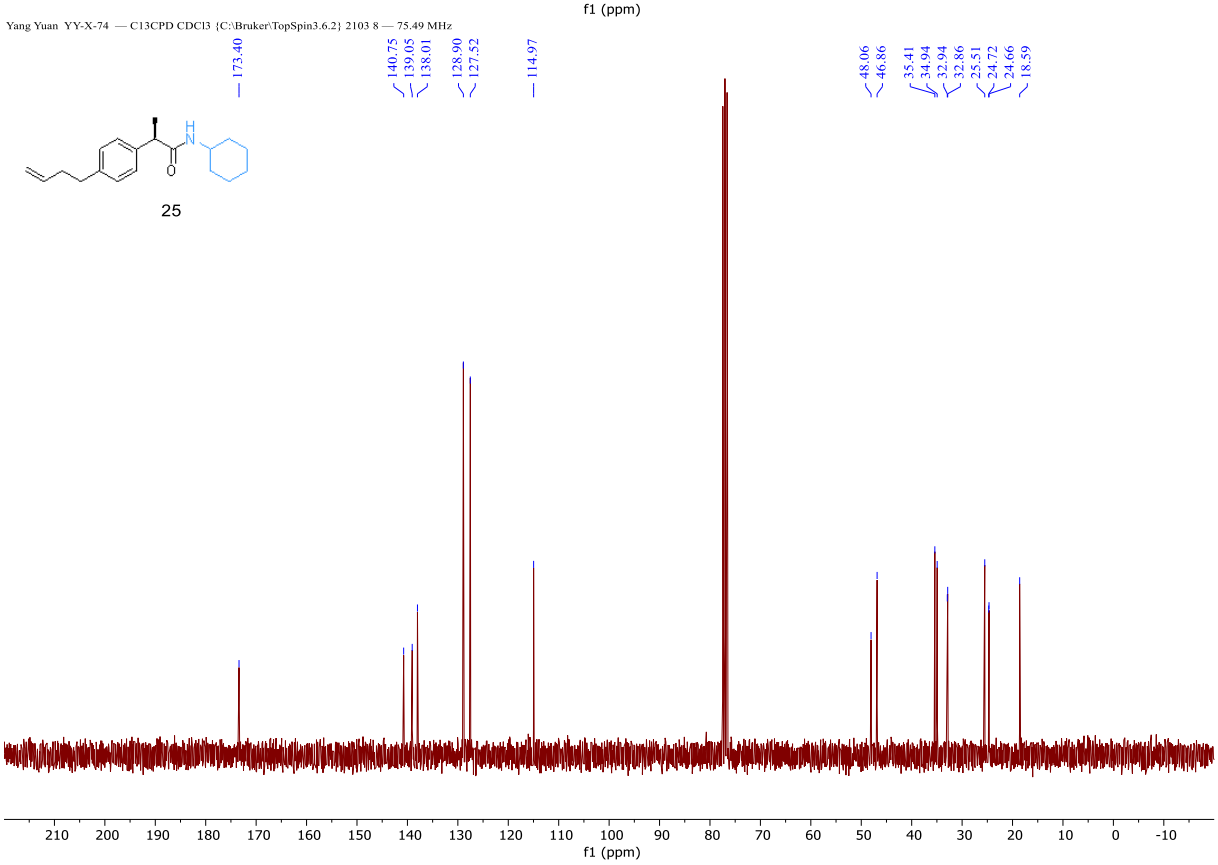

Yang Yuan YY-X-102 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 23 — 75.48 MHz
MeO
22
f1 (ppm)

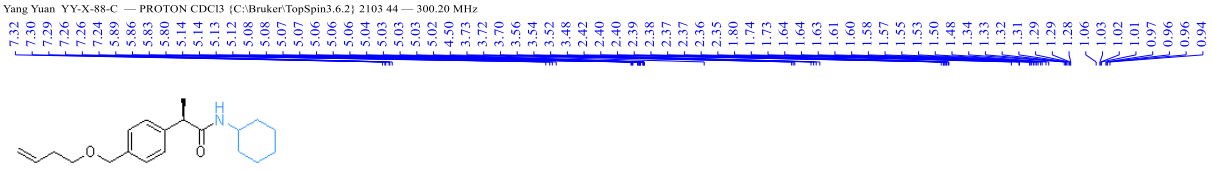

Yang Yuan YY-X-92-C — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 45 — 300.20 MHz
7.26 6.79 6.79 6.78 6.78 6.78 6.75 6.75 6.73 6.73 6.73 6.72 6.71 6.70 6.70 6.70 5.95 5.18 3.74 3.73 3.73 3.71 3.70 3.69 3.69 3.68 3.66 3.45 3.43 3.41 3.38 1.86 1.83 1.82 1.78 1.77 1.65 1.64 1.63 1.61 1.60 1.59 1.57 1.56 1.54 1.47 1.44 1.36 1.35 1.34 1.34 1.33 1.32 1.31 1.30 1.30 1.29 1.28 1.28 1.12 1.12 1.10 1.09 1.08 1.05 1.04 1.04 1.03 1.00 0.99 0.96 0.95
23
2.93 2.04 0.79 0.90 0.93 1.83 2.99 2.87 2.01 3.01
f1 (ppm)


Yang Yuan YY-X-92 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 14 — 75.49 MHz
173.30 148.01 146.67 135.45 133.40 129.99 127.84 120.77 108.44 107.92 101.08 48.19 46.89 32.98 32.91 25.50 24.78 24.72 18.77
23
f1 (ppm)

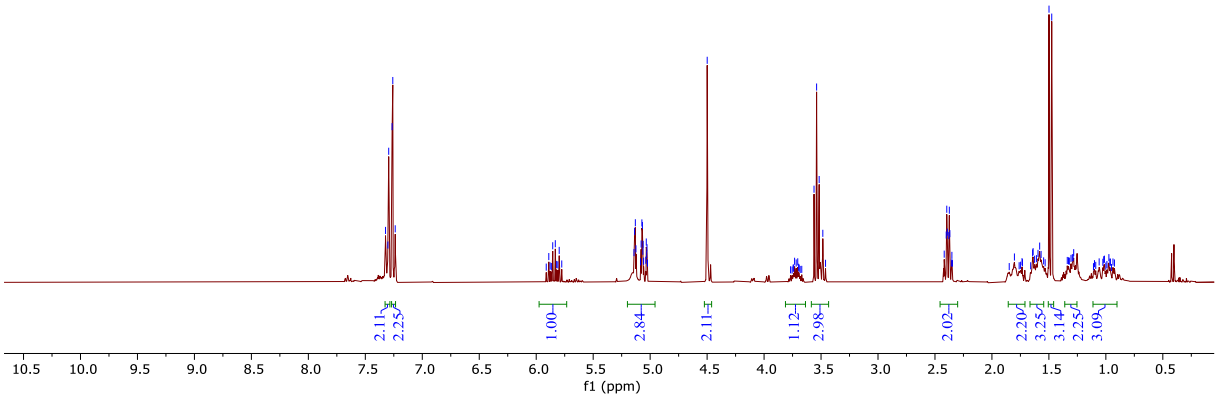

Yang Yuan YY-X-97 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 43 — 300.20 MHz
7.89 7.89 7.88 7.87 7.86 7.86 7.86 7.77 7.77 7.77 7.76 7.76 7.75 7.74 7.74 7.41 7.39 7.39 7.39 7.37 7.36 7.36 7.36 7.35 7.34 7.34 7.26 7.26
5.20 3.96 3.96 3.94 3.94 3.92 3.91 3.89 3.89 3.74 3.73 3.71 3.71 3.70 1.77 1.74 1.71 1.70 1.67 1.66 1.64 1.54 1.53 1.51 1.30 1.29 1.28 1.26 1.25 1.23 1.23 1.22 1.05 1.04 1.03 1.01 1.00 0.96 0.93 0.91 0.88 0.86 0.85 0.84
24
0.97 0.98 3.34 0.96 1.00 1.00 1.96 3.24 3.03 2.48 3.24
f1 (ppm)
Yang Yuan YY-X-97 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 43 — 75.49 MHz
172.57 140.62 137.91 136.01 124.72 124.30 122.98 122.92 121.93 48.15 41.65 32.76 25.40 24.66 17.68
24
f1 (ppm)

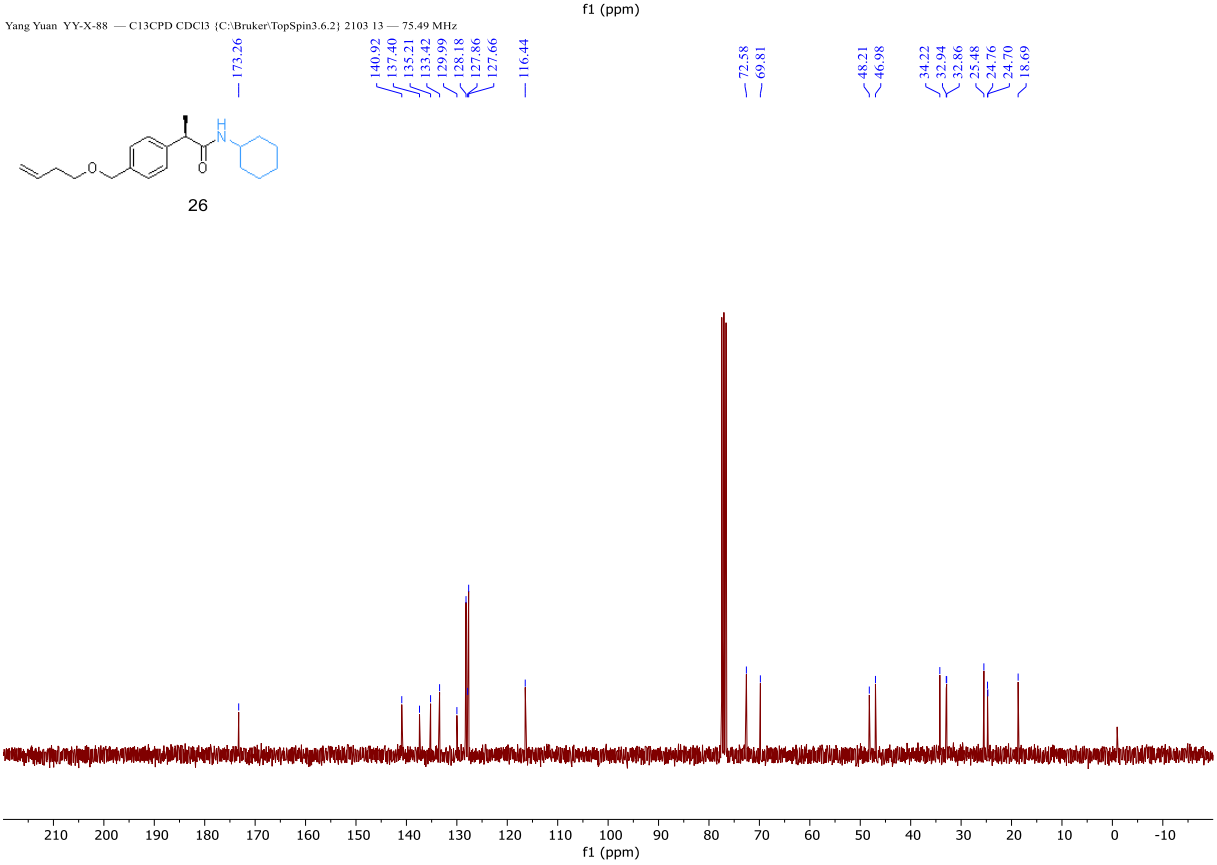

Yang Yuan YY-X-74 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 8 — 300.20 MHz
7.26 7.21 7.19 7.18 7.16 7.15 7.13 5.89 5.86 5.84 5.80 5.07 5.06 5.06 5.05 5.01 5.01 5.00 4.99 4.99 4.99 4.98 4.96 4.96 4.96 4.96 4.95 4.95 3.74 3.72 3.71 3.52 3.49 3.47 3.45 2.72 2.70 2.67 2.40 2.38 2.37 2.35 2.33 1.80 1.79 1.61 1.60 1.57 1.56 1.55 1.53 1.50 1.48 1.34 1.33 1.33 1.31 1.31 1.31 1.30 1.29 1.28 1.28 1.27 1.25 1.11 1.07 1.06 1.02 0.98 0.94 0.94
H
N
O
25
4.02 0.95 0.88 1.98 0.99 1.00 2.03 2.03 2.00 3.12 3.12 2.34 3.28
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5
f1 (ppm)


Yang Yuan YY-X-74 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 8 — 75.49 MHz
173.40 140.75 139.05 138.01 128.90 127.52 114.97 48.06 46.86 35.41 34.94 32.94 32.86 25.51 24.72 24.66 18.59
H
N
O
25
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

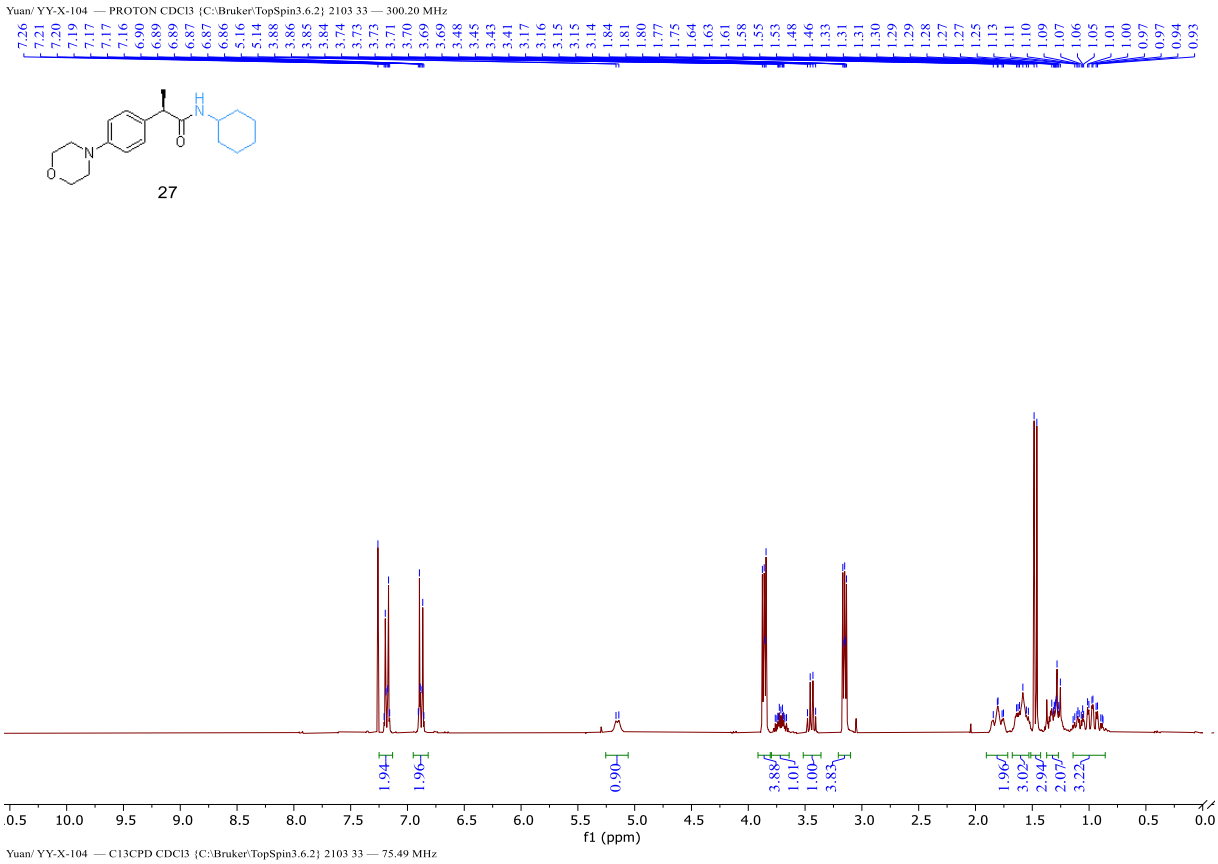

Yang Yuan YY-X-88-C — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 44 — 300.20 MHz
7.32 7.30 7.29 7.26 7.26 7.24 5.89 5.86 5.83 5.80 5.14 5.14 5.13 5.12 5.08 5.08 5.07 5.07 5.06 5.06 5.06 5.04 5.03 5.03 5.03 5.02 4.50 3.73 3.72 3.70 3.56 3.54 3.52 3.48 2.42 2.40 2.40 2.39 2.38 2.37 2.37 2.36 2.35 1.80 1.74 1.73 1.64 1.64 1.63 1.61 1.60 1.58 1.57 1.55 1.53 1.50 1.48 1.34 1.33 1.32 1.31 1.29 1.29 1.28 1.06 1.03 1.02 1.01 0.97 0.96 0.96 0.94

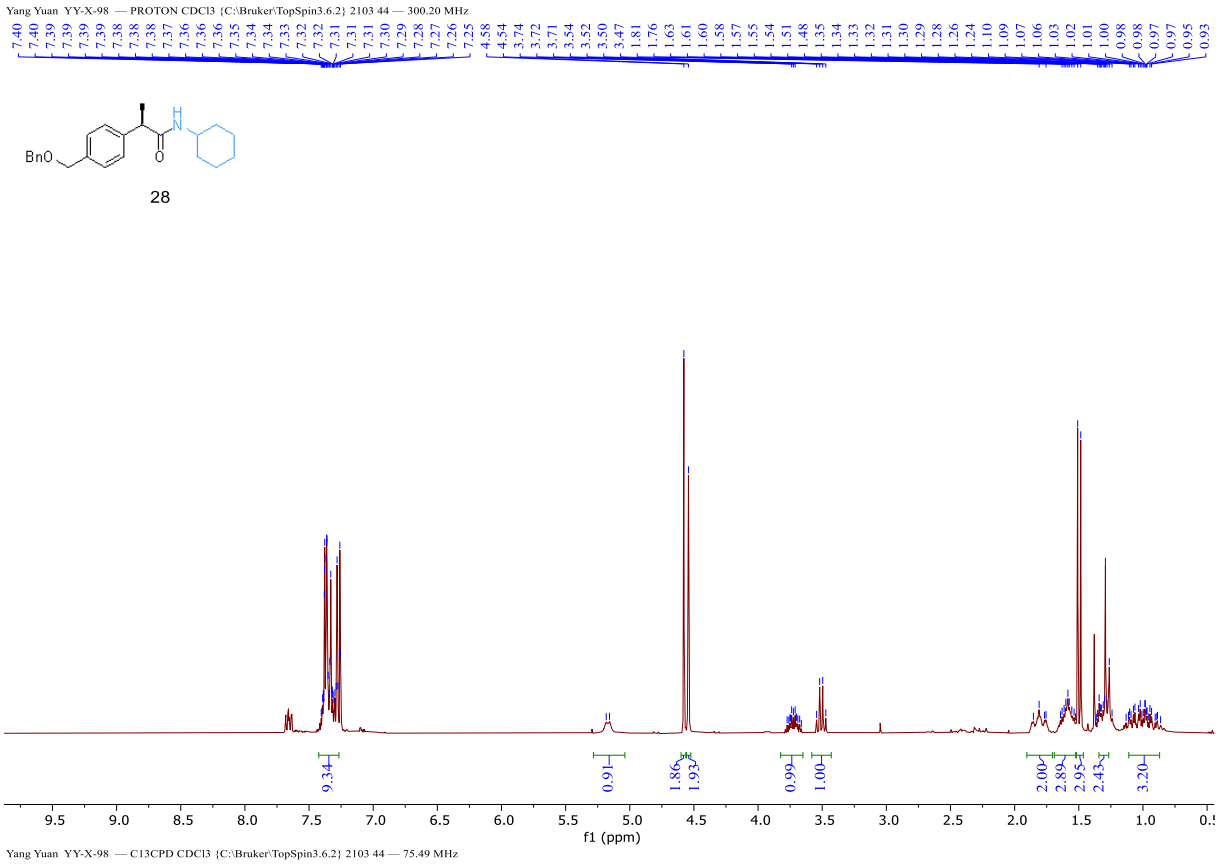
26

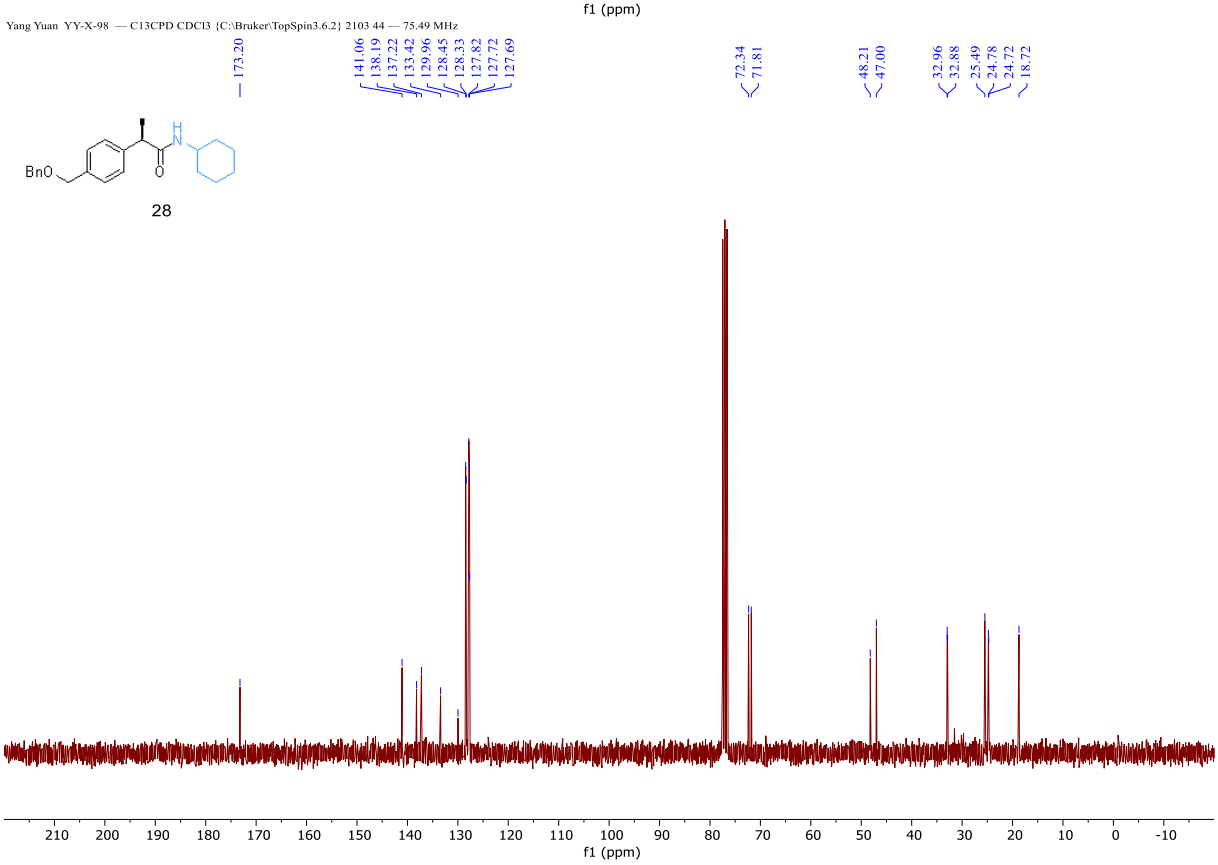

2.11 2.25 1.00 2.84 2.11 1.12 2.98 2.02 2.20 3.25 3.14 2.25 3.09
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

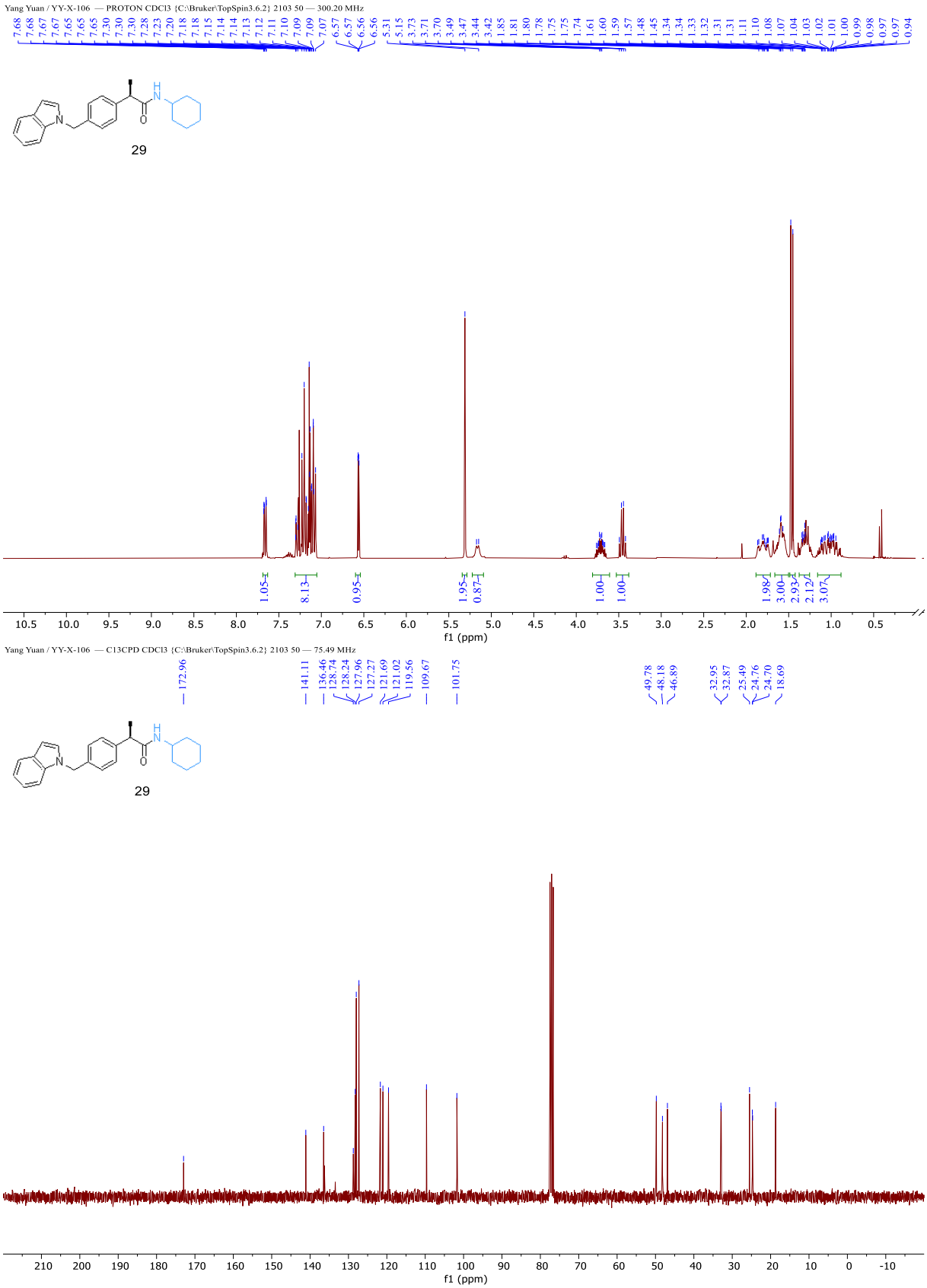

Yang Yuan YY-X-88 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 13 — 75.49 MHz
173.26 140.92 137.40 135.21 133.42 129.99 128.18 127.86 127.66 116.44 72.58 69.81 48.21 46.98 34.22 32.94 32.86 25.48 24.76 24.70 18.69
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

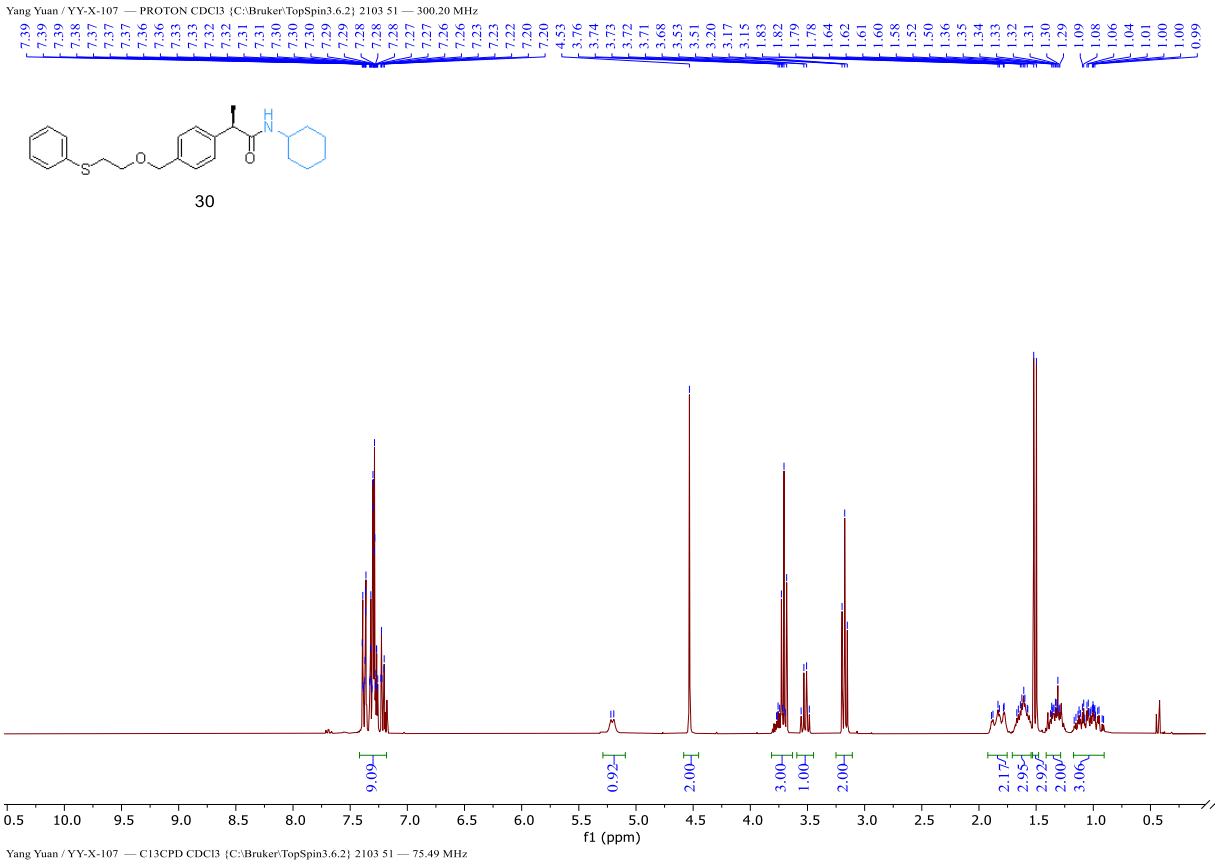
26

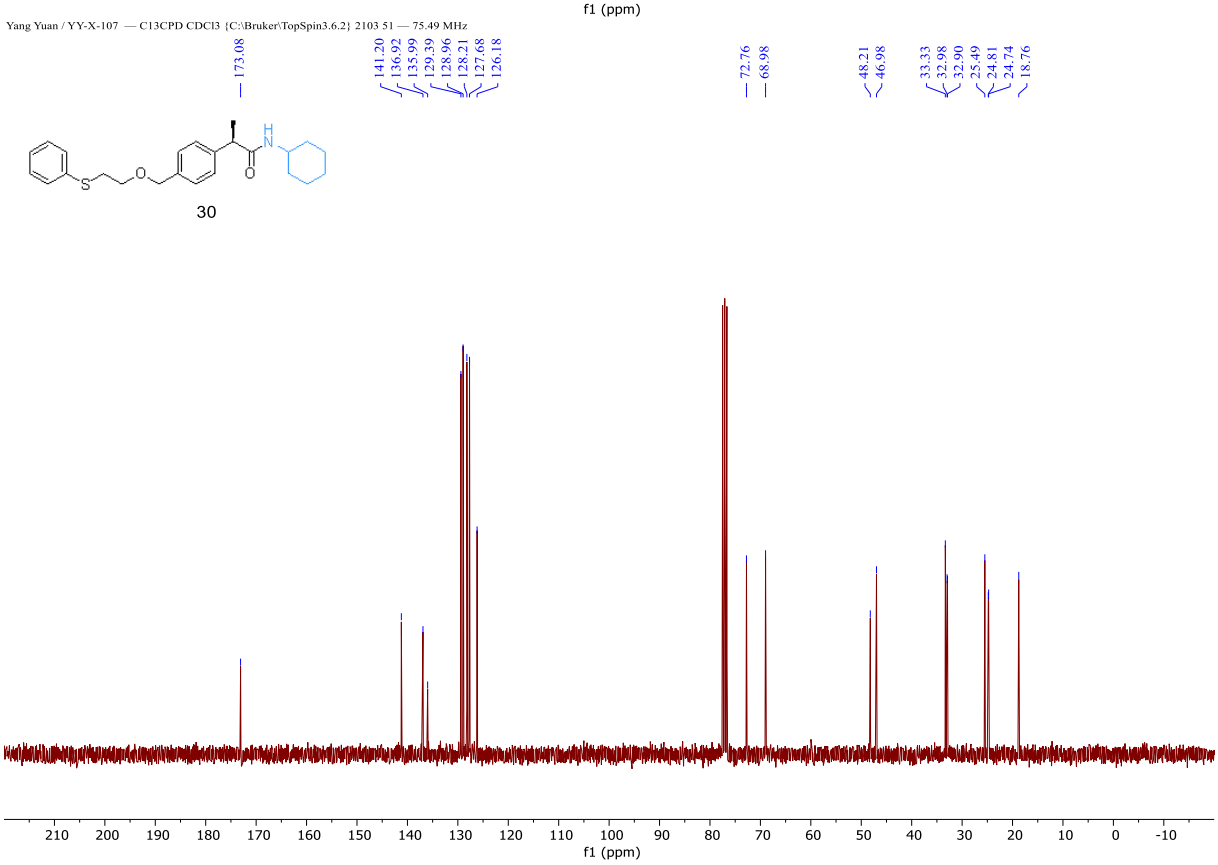

Yuan/ YY-X-104 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 33 — 300.20 MHz
7.26 7.21 7.20 7.19 7.17 7.17 7.16 6.90 6.89 6.89 6.87 6.87 6.86 5.16 5.14 3.88 3.86 3.85 3.84 3.74 3.73 3.73 3.71 3.70 3.69 3.69 3.48 3.45 3.43 3.41 3.17 3.16 3.15 3.15 3.14 1.84 1.81 1.80 1.77 1.75 1.64 1.63 1.61 1.58 1.55 1.53 1.48 1.46 1.33 1.31 1.31 1.30 1.29 1.29 1.28 1.27 1.27 1.25 1.13 1.11 1.10 1.09 1.07 1.06 1.05 1.01 1.00 0.97 0.97 0.94 0.93
27
1.94 1.96 0.90 3.88 1.01 1.00 3.83 1.96 3.02 2.94 2.07 3.22
f1 (ppm)
Yuan/ YY-X-104 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 33 — 75.49 MHz
173.65 150.27 132.89 128.42 115.93 66.92 49.28 48.10 46.36 33.00 32.95 25.51 24.79 24.74 18.62
27
f1 (ppm)

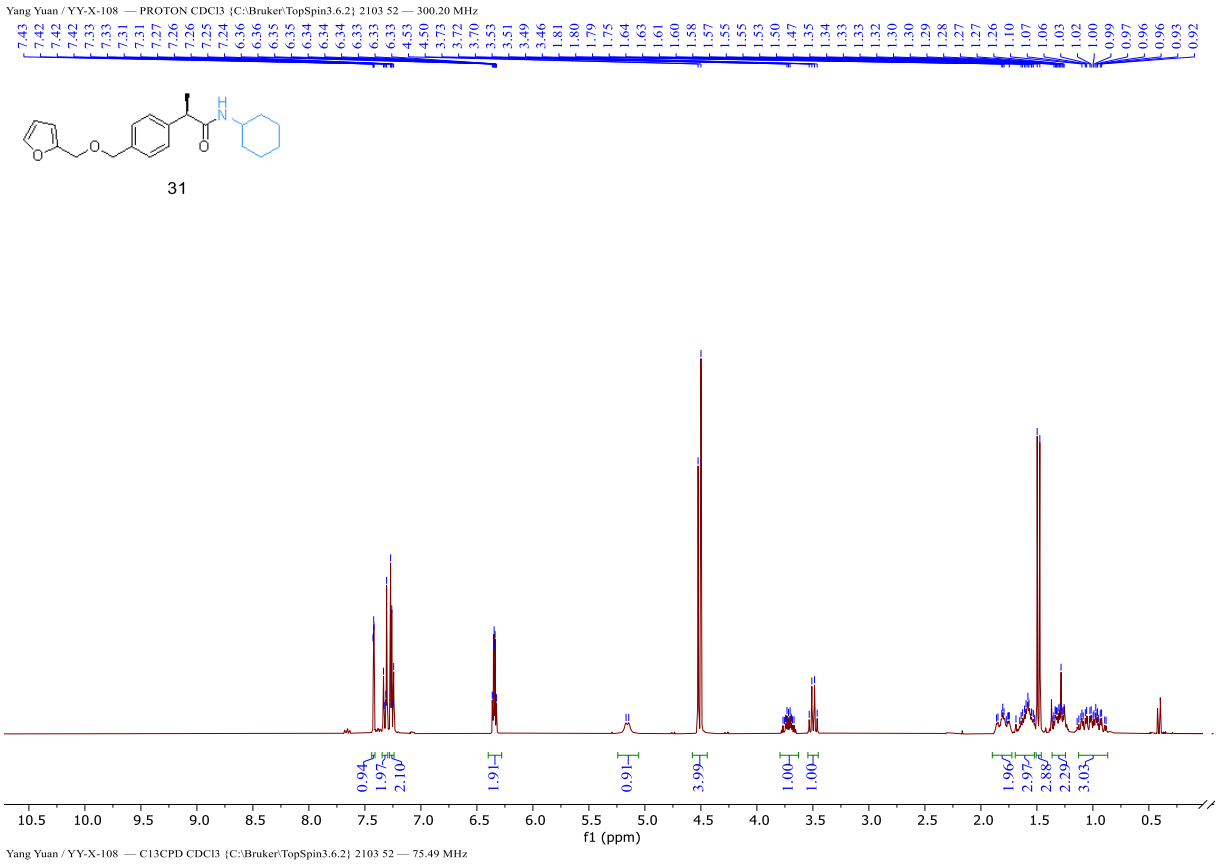

Yang Yuan YY-X-98 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 44 — 300.20 MHz
7.40 7.40 7.39 7.39 7.39 7.39 7.38 7.38 7.38 7.37 7.36 7.36 7.36 7.35 7.34 7.34 7.33 7.32 7.32 7.31 7.31 7.31 7.30 7.29 7.28 7.27 7.26 7.25 4.58 4.54 3.74 3.72 3.71 3.54 3.52 3.50 3.47 1.81 1.76 1.63 1.61 1.60 1.58 1.57 1.55 1.54 1.51 1.48 1.35 1.34 1.33 1.32 1.31 1.30 1.29 1.28 1.26 1.24 1.10 1.09 1.07 1.06 1.03 1.02 1.01 1.00 0.98 0.98 0.97 0.97 0.95 0.93
BnO
N
H
O
28
9.34 0.91 1.86 1.93 0.99 1.00 2.00 2.89 2.95 2.43 3.20
9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0
f1 (ppm)

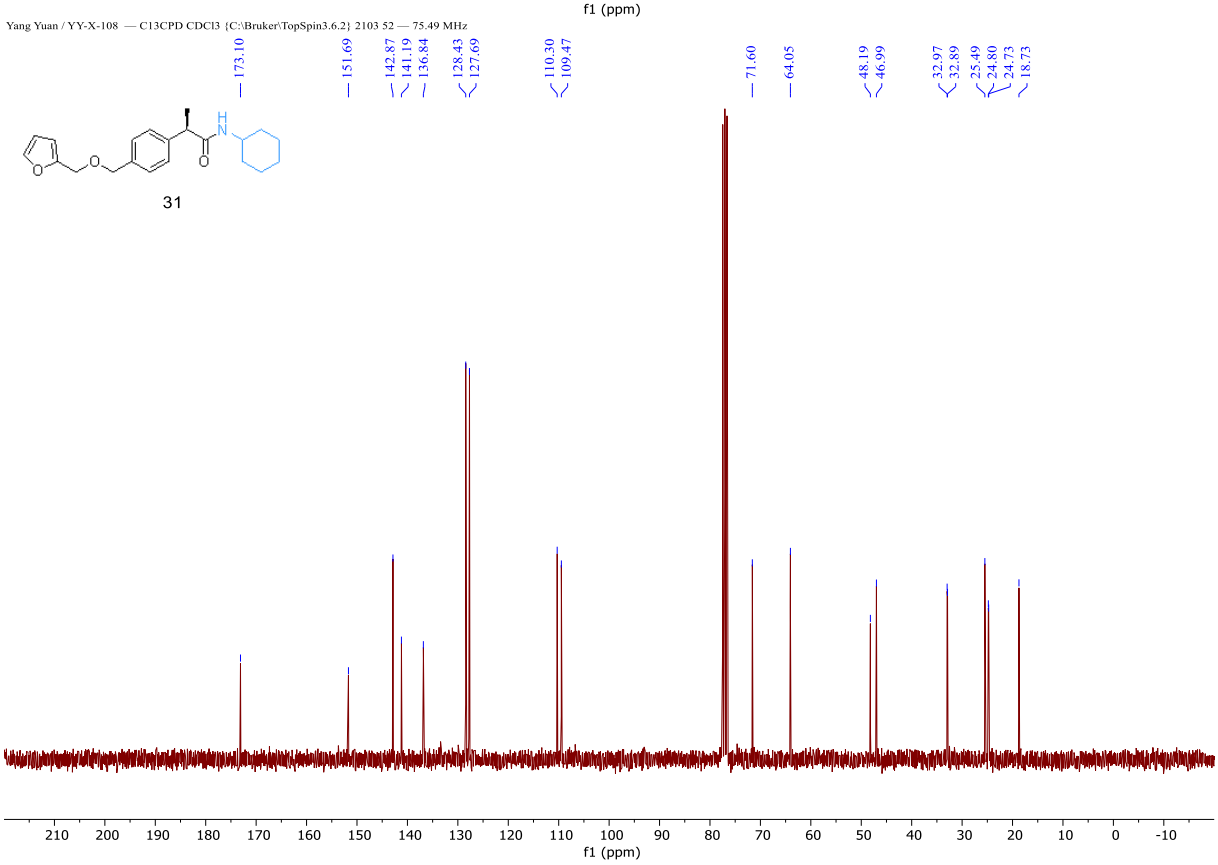

Yang Yuan YY-X-98 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 44 — 75.49 MHz
173.20
141.06 138.19 137.22 133.42 129.96 128.45 128.33 127.82 127.72 127.69
72.34 71.81
48.21 47.00
32.96 32.88 25.49 24.78 24.72 18.72
BnO
N
H
O
28
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

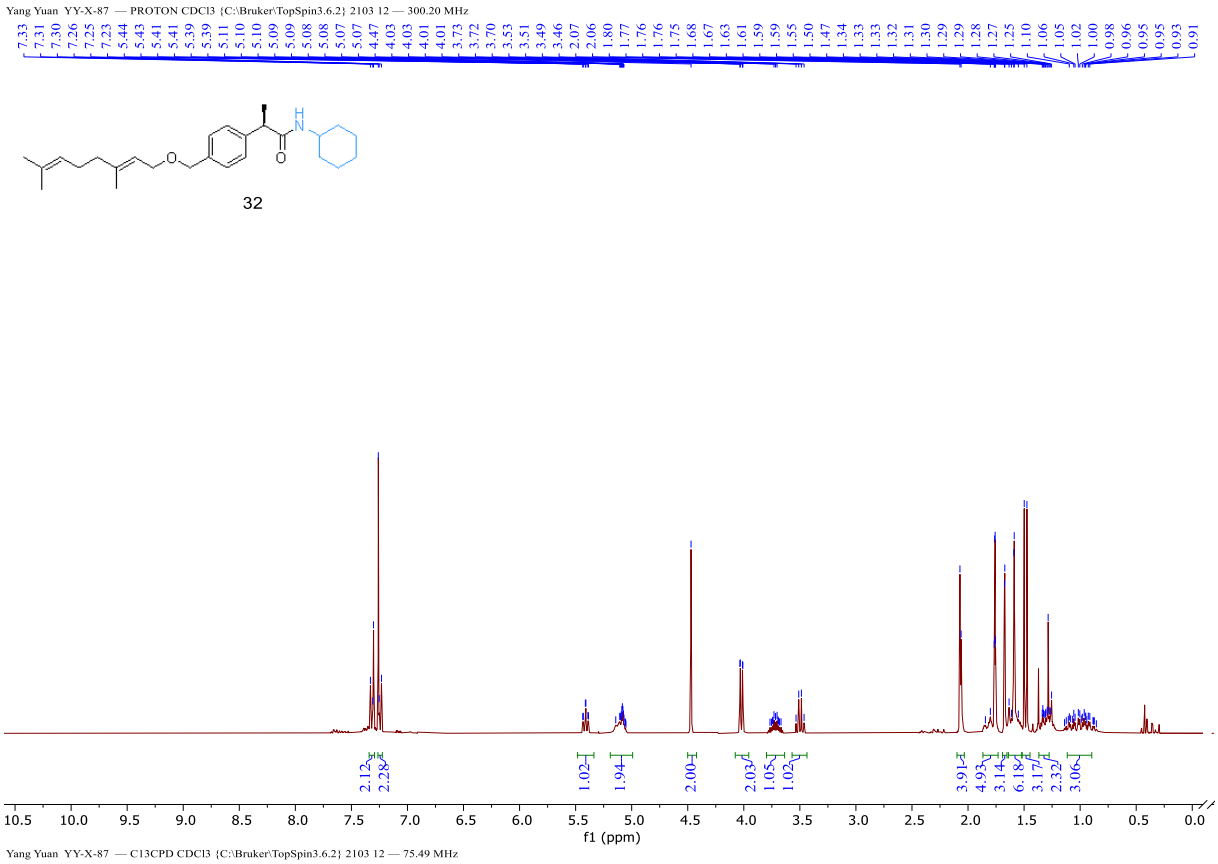

Yang Yuan / YY-X-106 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 50 — 300.20 MHz
7.68 7.68 7.67 7.67 7.65 7.65 7.65 7.30 7.30 7.30 7.28 7.23 7.20 7.18 7.18 7.15 7.14 7.14 7.13 7.12 7.11 7.10 7.09 7.09 7.07 6.57 6.57 6.56 6.56 5.31 5.15 3.73 3.71 3.70 3.49 3.47 3.44 3.42 1.85 1.81 1.80 1.78 1.75 1.75 1.74 1.61 1.60 1.59 1.57 1.48 1.45 1.34 1.34 1.33 1.32 1.31 1.31 1.11 1.10 1.08 1.07 1.04 1.03 1.02 1.01 1.00 0.99 0.98 0.97 0.97 0.94
29
1.05 8.13 0.95 1.95 0.87 1.00 1.00 1.98 3.00 2.93 2.12 3.07
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)
Yang Yuan / YY-X-106 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 50 — 75.49 MHz
172.96 141.11 136.46 128.74 128.24 127.96 127.27 121.69 121.02 119.56 109.67 101.75 49.78 48.18 46.89 32.95 32.87 25.49 24.76 24.70 18.69
29
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

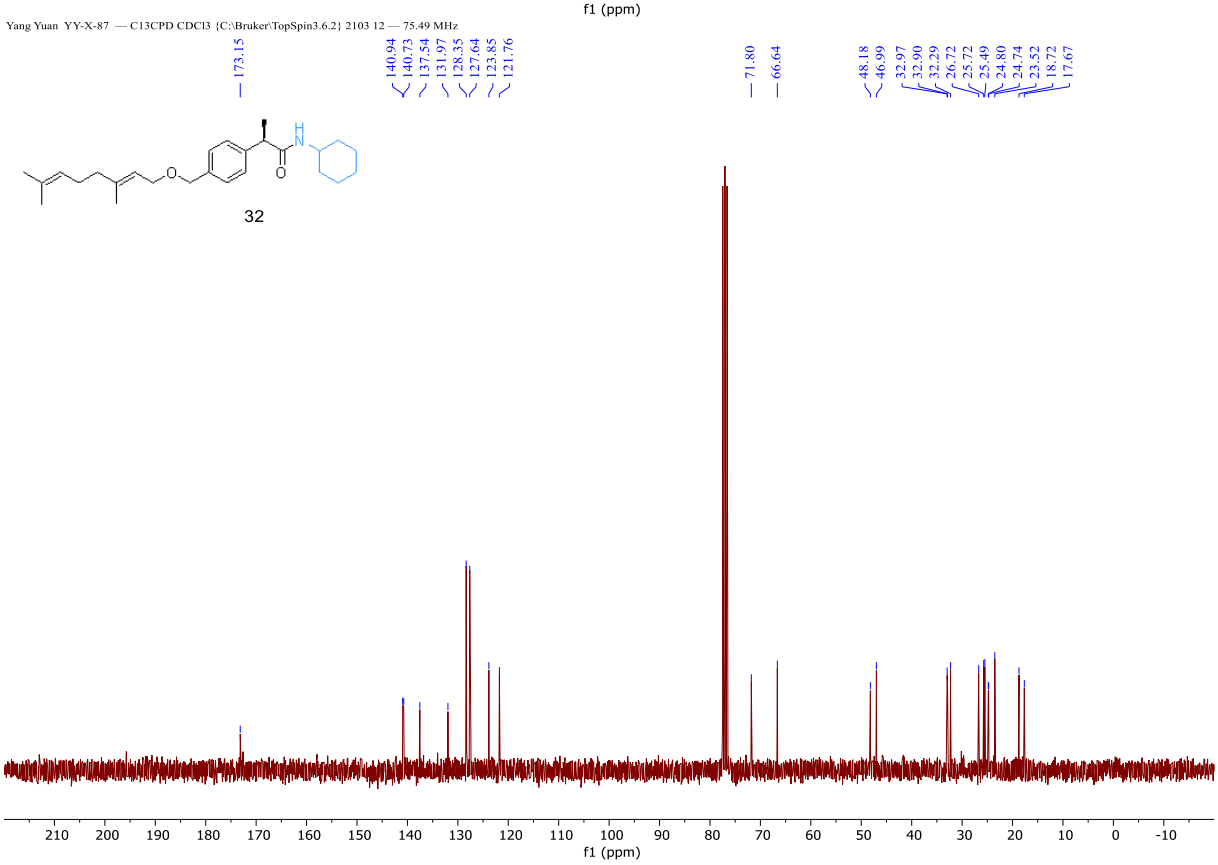

Yang Yuan / YY-X-107 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 51 — 300.20 MHz
7.39 7.39 7.39 7.38 7.37 7.37 7.37 7.36 7.36 7.33 7.33 7.32 7.32 7.31 7.31 7.30 7.30 7.30 7.29 7.29 7.28 7.28 7.28 7.27 7.27 7.26 7.26 7.23 7.23 7.22 7.20 7.20
4.53 3.76 3.74 3.73 3.72 3.71 3.68 3.53 3.51 3.20 3.17 3.15 1.83 1.82 1.79 1.78 1.64 1.62 1.61 1.60 1.58 1.52 1.50 1.36 1.35 1.34 1.33 1.32 1.31 1.30 1.29 1.09 1.08 1.06 1.04 1.01 1.00 1.00 0.99
S
O
O
H
N
30
9.09
0.92
2.00
3.00
1.00
2.00
2.17
2.95
2.92
2.00
3.06
0.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

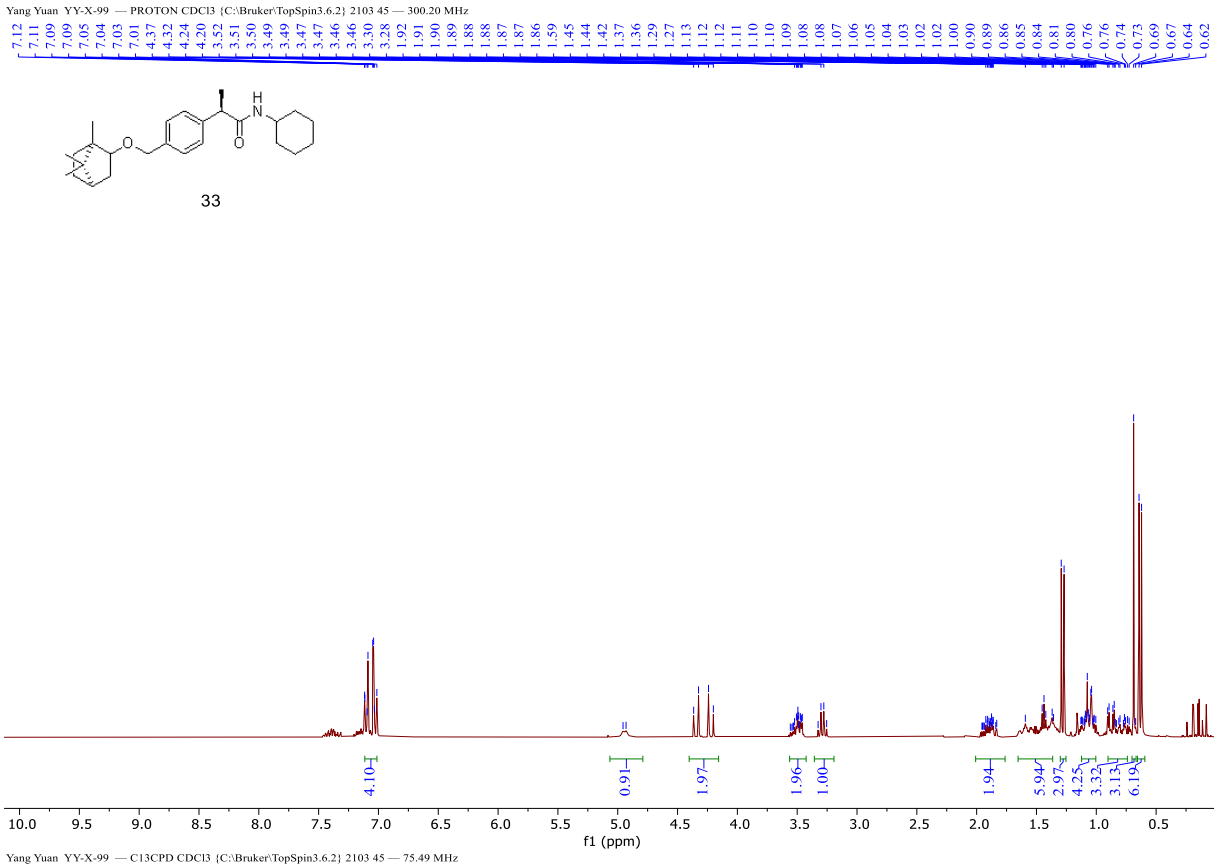

Yang Yuan / YY-X-107 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 51 — 75.49 MHz
173.08
141.20 136.92 135.99 129.39 128.96 128.21 127.68 126.18
72.76 68.98
48.21 46.98
33.33 32.98 32.90 25.49 24.81 24.74 18.76
S
O
O
H
N
30
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

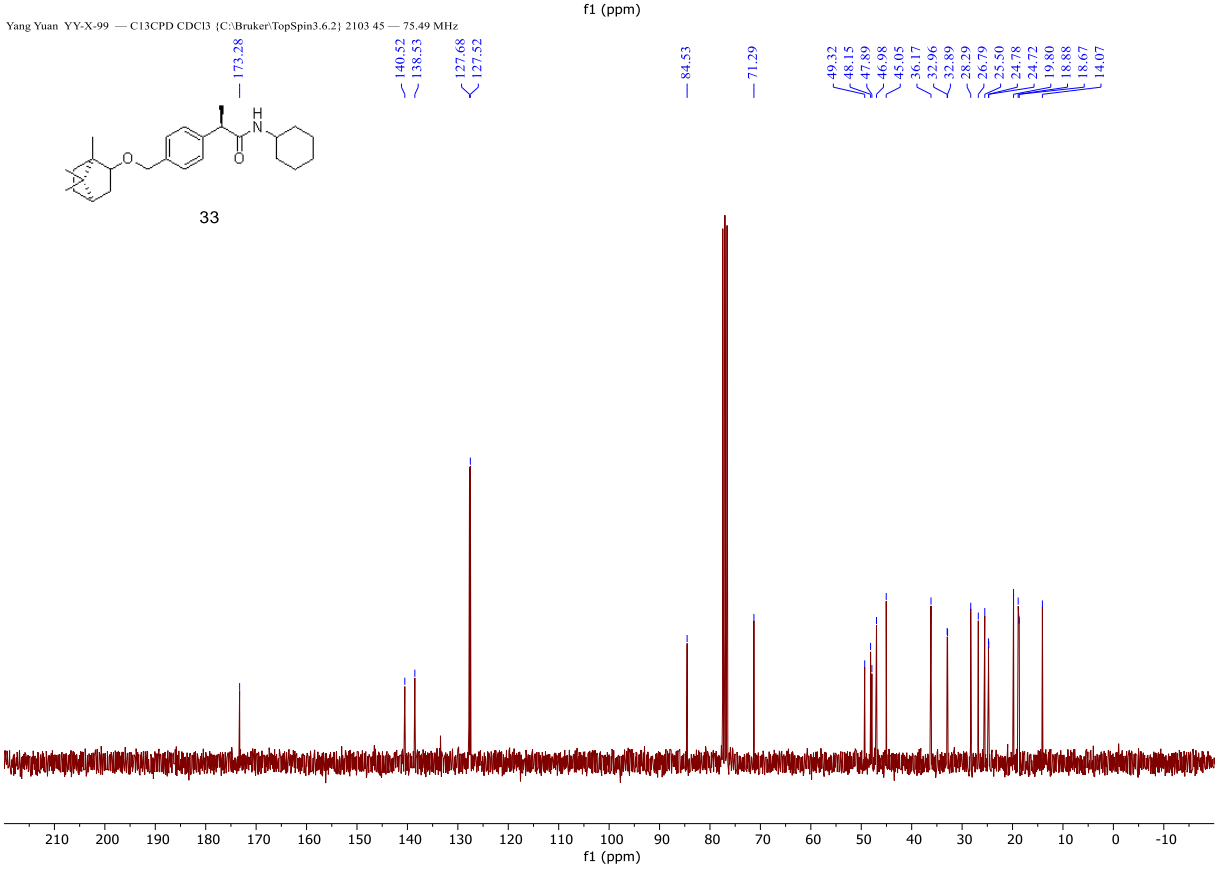

Yang Yuan / YY-X-108 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 52 — 300.20 MHz
7.43 7.42 7.42 7.42 7.33 7.33 7.31 7.31 7.27 7.26 7.26 7.25 7.24 6.36 6.36 6.35 6.35 6.34 6.34 6.34 6.33 6.33 6.33 4.53 4.50 3.73 3.72 3.70 3.53 3.51 3.49 3.46 1.81 1.80 1.79 1.75 1.64 1.63 1.61 1.60 1.58 1.57 1.55 1.55 1.53 1.50 1.47 1.35 1.34 1.33 1.33 1.32 1.30 1.30 1.29 1.28 1.27 1.27 1.26 1.10 1.07 1.06 1.03 1.02 1.00 0.99 0.97 0.96 0.96 0.93 0.92
31
0.94 1.97 2.10 1.91 0.91 3.99 1.00 1.00 1.96 2.97 2.88 2.29 3.03
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

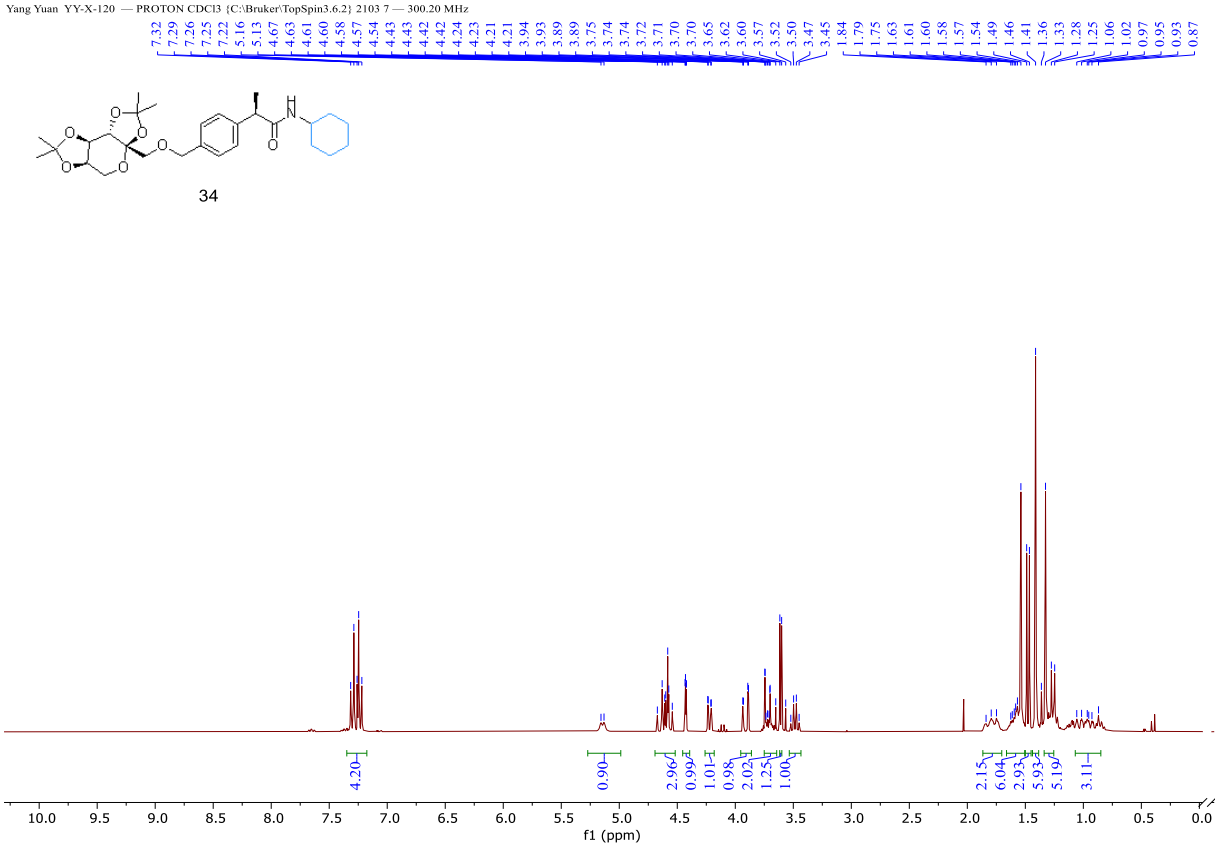

Yang Yuan / YY-X-108 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 52 — 75.49 MHz
173.10 151.69 142.87 141.19 136.84 128.43 127.69 110.30 109.47 71.60 64.05 48.19 46.99 32.97 32.89 25.49 24.80 24.73 18.73
31
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

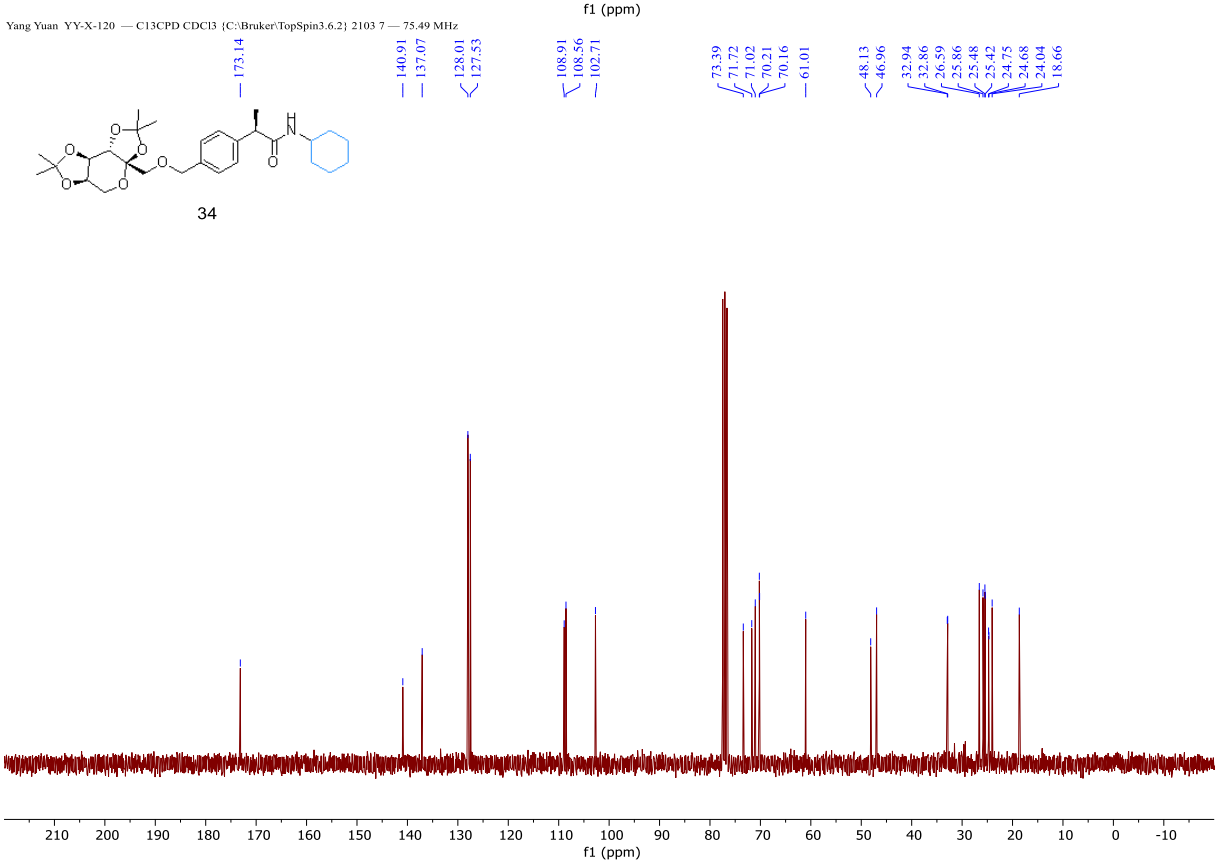

Yang Yuan YY-X-87 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 12 — 300.20 MHz
7.33 7.31 7.30 7.26 7.25 7.23 5.44 5.43 5.41 5.41 5.39 5.39 5.11 5.10 5.10 5.09 5.09 5.08 5.08 5.07 5.07 4.47 4.03 4.03 4.01 4.01 3.73 3.72 3.70 3.53 3.51 3.49 3.46 2.07 2.06 1.80 1.77 1.76 1.76 1.75 1.68 1.67 1.63 1.61 1.59 1.59 1.55 1.50 1.47 1.34 1.33 1.33 1.32 1.31 1.30 1.29 1.29 1.28 1.27 1.25 1.10 1.06 1.05 1.02 1.00 0.98 0.96 0.95 0.95 0.93 0.91
H
N
O
O
32
2.12 2.28 1.02 1.94 2.00 2.03 1.05 1.02 3.91 4.93 3.14 6.18 3.17 2.32 3.06
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

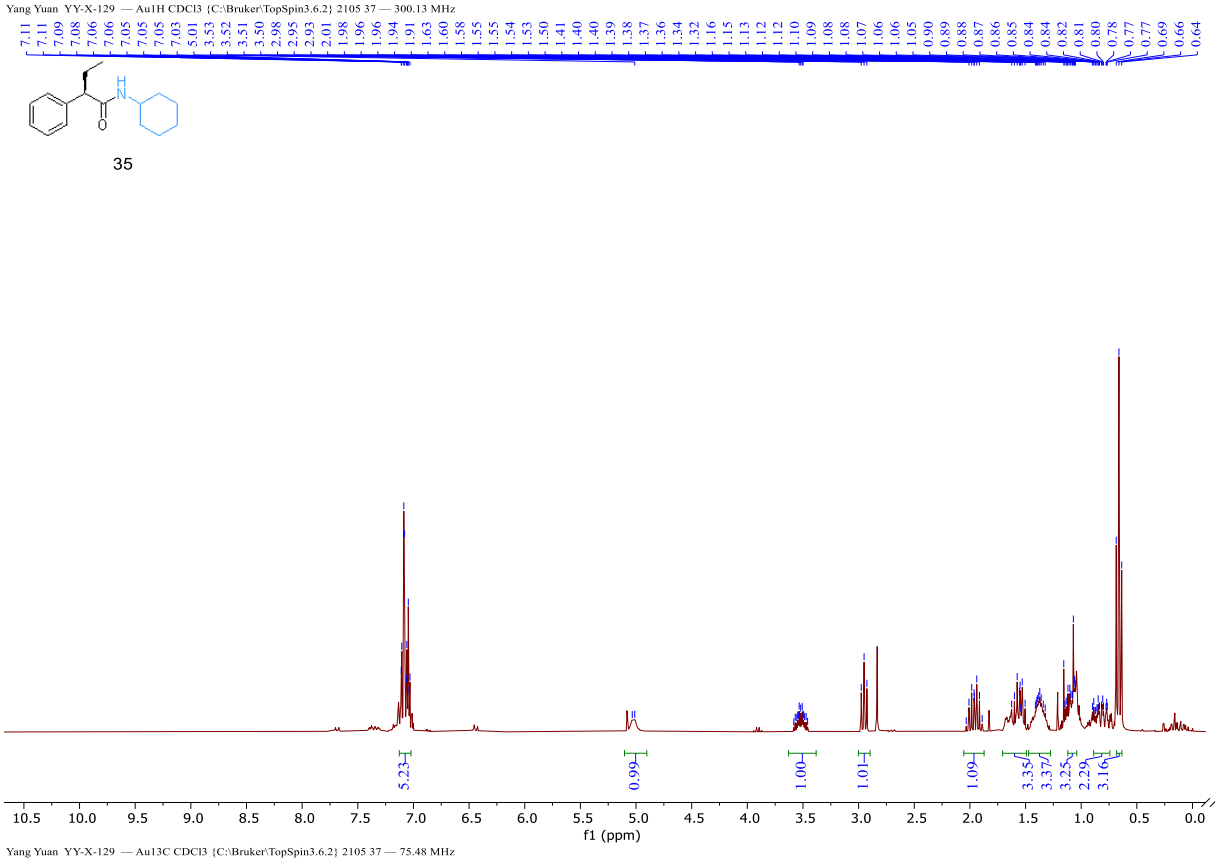

Yang Yuan YY-X-87 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 12 — 75.49 MHz
173.15
140.94 140.73 137.54 131.97 128.35 127.64 123.85 121.76
71.80 66.64
48.18 46.99 32.97 32.90 32.29 26.72 25.72 25.49 24.80 24.74 23.52 18.72 17.67
H
N
O
O
32
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

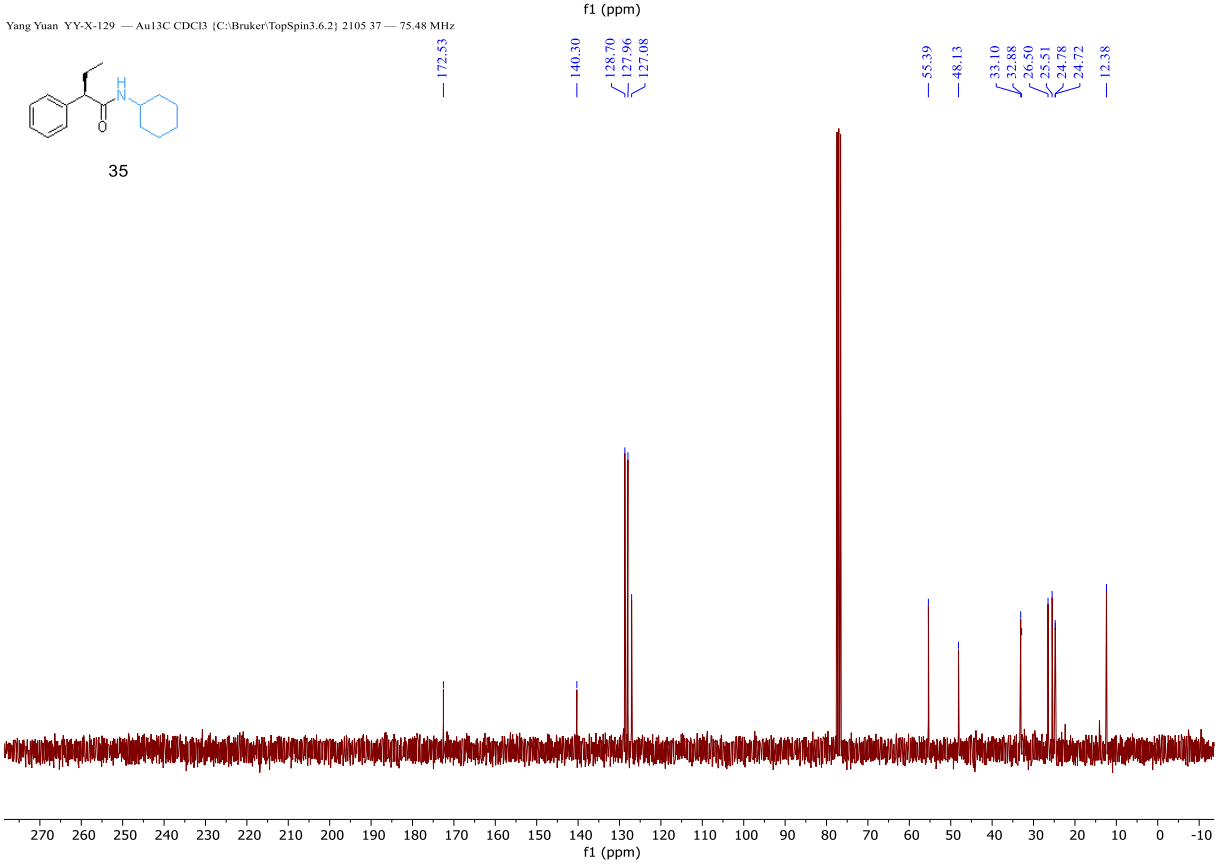

Yang Yuan YY-X-99 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 45 — 300.20 MHz
7.12 7.11 7.09 7.09 7.05 7.04 7.03 7.01 4.37 4.32 4.24 4.20 3.52 3.51 3.50 3.49 3.49 3.47 3.47 3.46 3.46 3.30 3.28 1.92 1.91 1.90 1.89 1.88 1.88 1.87 1.87 1.86 1.59 1.45 1.44 1.42 1.37 1.36 1.29 1.27 1.13 1.12 1.12 1.11 1.10 1.10 1.09 1.08 1.08 1.07 1.06 1.05 1.04 1.03 1.02 1.02 1.00 0.90 0.89 0.86 0.85 0.84 0.81 0.80 0.76 0.76 0.74 0.73 0.69 0.67 0.64 0.62
H
N
O
O
33
4.10 0.91 1.97 1.96 1.00 1.94 5.94 2.97 4.25 3.32 3.13 6.19
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

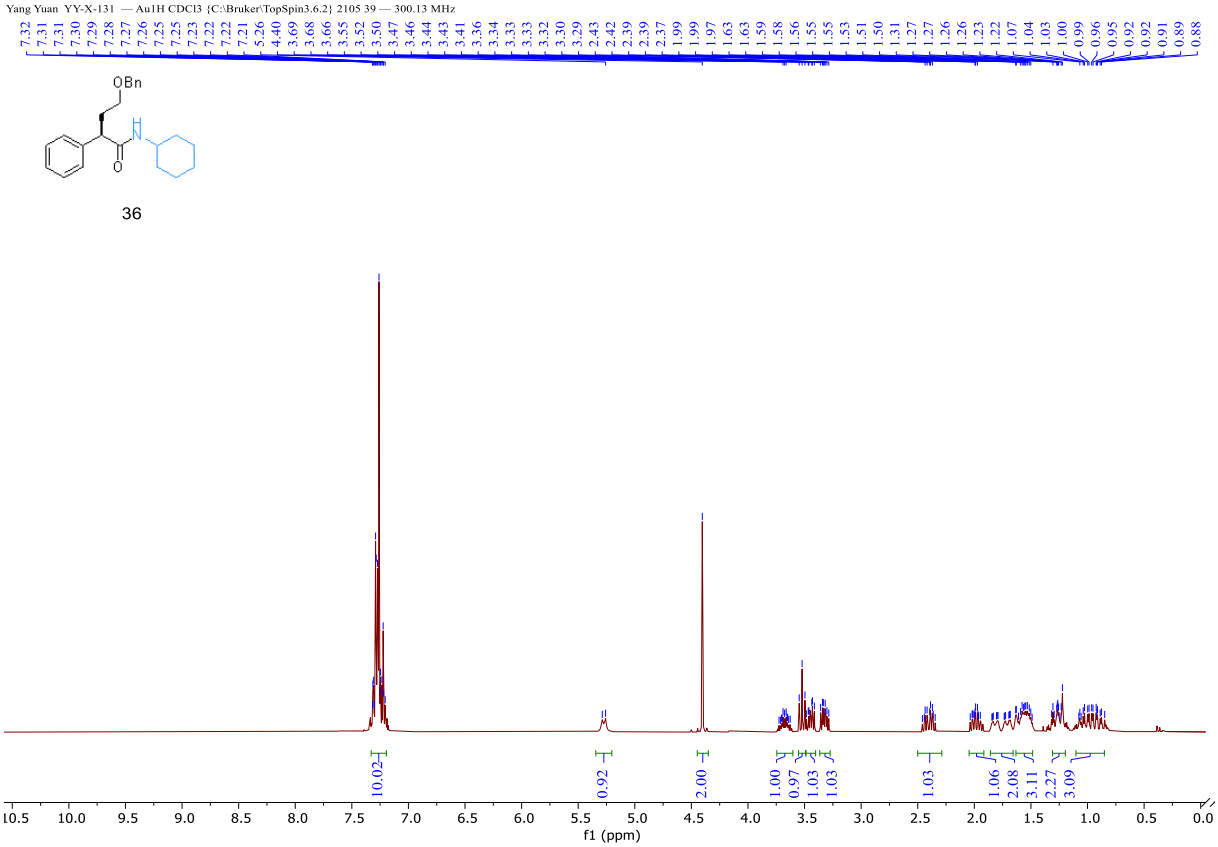

Yang Yuan YY-X-99 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 45 — 75.49 MHz
173.28 140.52 138.53 127.68 127.52 84.53 71.29 49.32 48.15 47.89 46.98 45.05 36.17 32.96 32.89 28.29 26.79 25.50 24.78 24.72 19.80 18.88 18.67 14.07
H
N
O
O
33
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

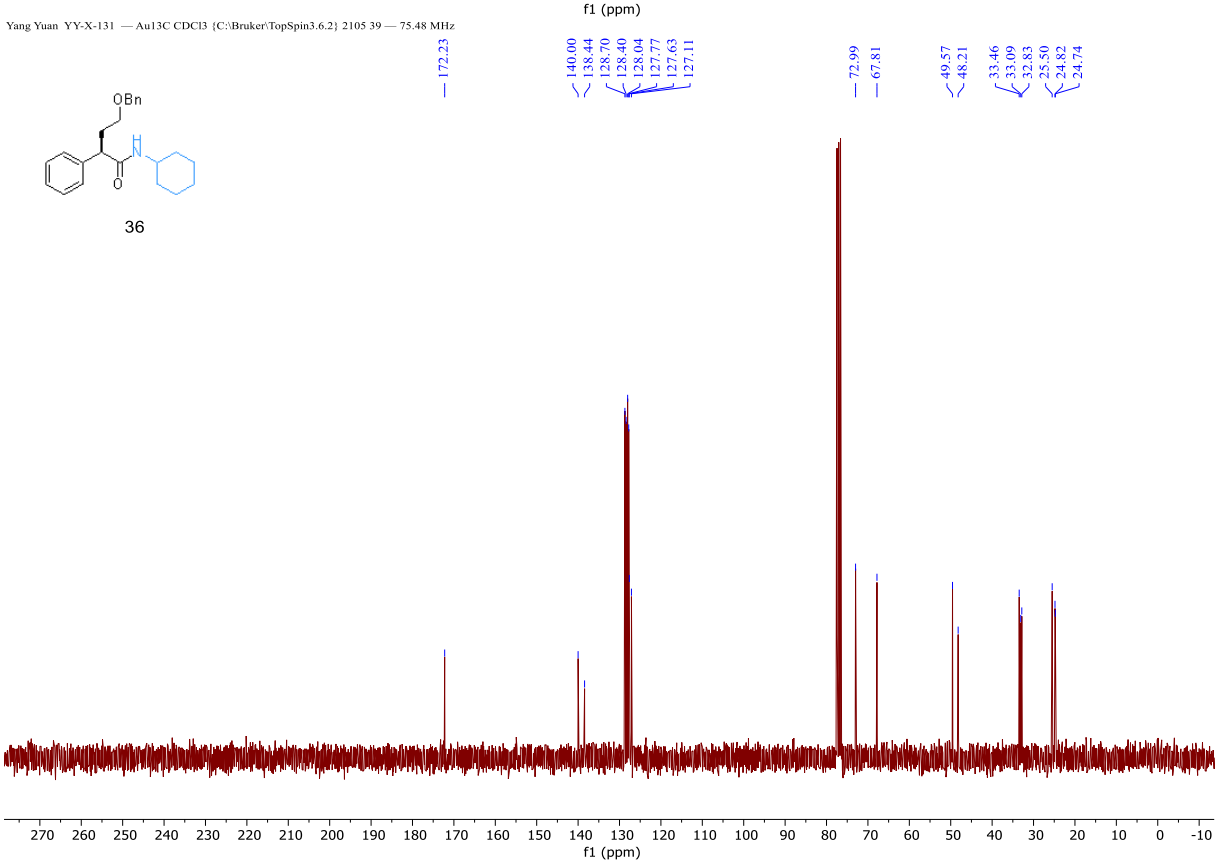

Yang Yuan YY-X-120 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 7 — 300.20 MHz
7.32 7.29 7.26 7.25 7.22 5.16 5.13 4.67 4.63 4.61 4.60 4.58 4.57 4.54 4.43 4.42 4.42 4.24 4.23 4.21 4.21 3.94 3.93 3.89 3.89 3.75 3.74 3.74 3.72 3.71 3.70 3.70 3.65 3.62 3.60 3.57 3.52 3.50 3.47 3.45 1.84 1.79 1.75 1.63 1.61 1.60 1.58 1.57 1.54 1.49 1.46 1.41 1.36 1.33 1.28 1.25 1.06 1.02 0.97 0.95 0.93 0.87
34
4.20 0.90 2.96 0.99 1.01 0.98 2.02 1.25 1.00 2.15 6.04 2.93 5.93 5.19 3.11
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

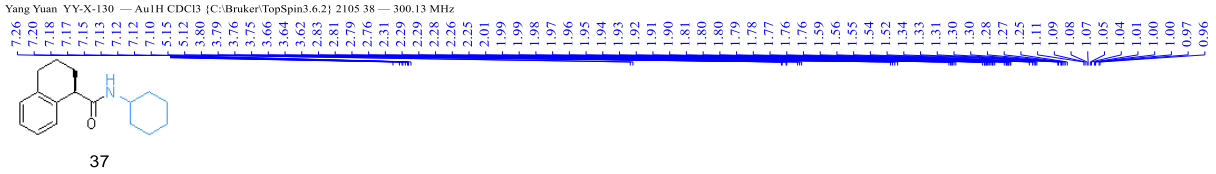

Yang Yuan YY-X-120 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 7 — 75.49 MHz
173.14 140.91 137.07 128.01 127.53 108.91 108.56 102.71 73.39 71.72 71.02 70.21 70.16 61.01 48.13 46.96 32.94 32.86 26.59 25.86 25.48 25.42 24.75 24.68 24.04 18.66
34
210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)


Yang Yuan YY-X-129 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 37 — 300.13 MHz
35
5.23
0.99
1.00
1.01
1.09
3.35
3.37
3.25
2.29
3.16
f1 (ppm)

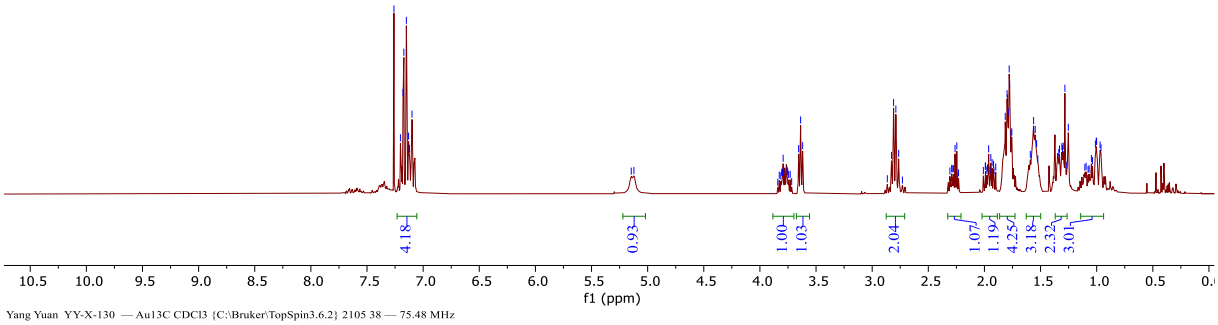

Yang Yuan YY-X-129 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 37 — 75.48 MHz
35
172.53
140.30
128.70
127.96
127.08
55.39
48.13
33.10
32.88
26.50
25.51
24.78
24.72
12.38
f1 (ppm)

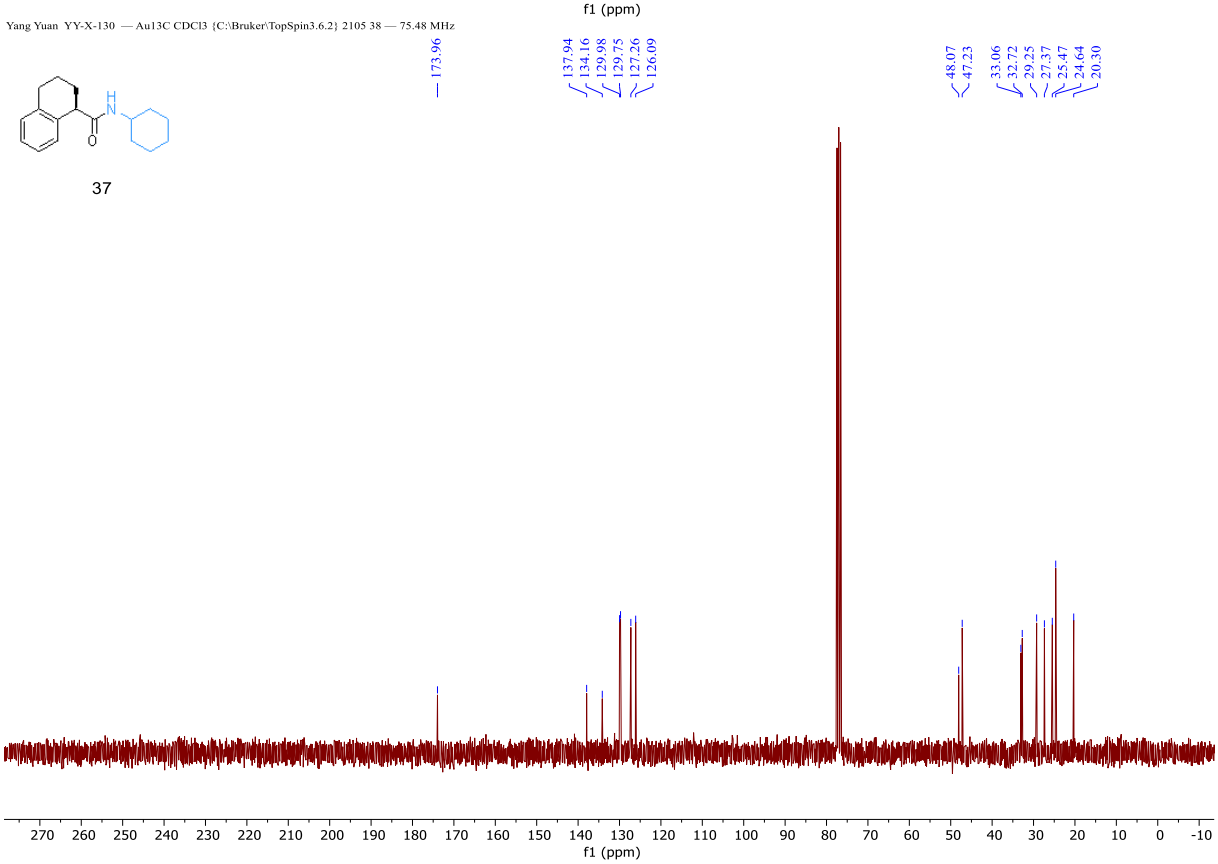

Yang Yuan YY-X-131 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 39 — 300.13 MHz
OBn
N
H
O
36
10.02
0.92
2.00
1.00
0.97
1.03
1.03
1.03
1.06
2.08
3.11
2.27
3.09
f1 (ppm)


Yang Yuan YY-X-131 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 39 — 75.48 MHz
OBn
N
H
O
36
172.23
140.00
138.44
128.70
128.40
128.04
127.77
127.63
127.11
72.99
67.81
49.57
48.21
33.46
33.09
32.83
25.50
24.82
24.74
f1 (ppm)


Yang Yuan YY-X-130 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 38 — 300.13 MHz
7.26 7.20 7.18 7.17 7.15 7.13 7.12 7.12 7.10 5.15 5.12 3.80 3.79 3.76 3.75 3.66 3.64 3.62 2.83 2.81 2.79 2.76 2.31 2.29 2.29 2.28 2.26 2.25 2.01 1.99 1.99 1.98 1.97 1.96 1.95 1.94 1.93 1.92 1.91 1.90 1.81 1.80 1.80 1.79 1.78 1.77 1.76 1.76 1.59 1.56 1.55 1.54 1.52 1.34 1.33 1.31 1.30 1.30 1.28 1.27 1.25 1.11 1.09 1.08 1.07 1.05 1.04 1.01 1.00 1.00 0.97 0.96

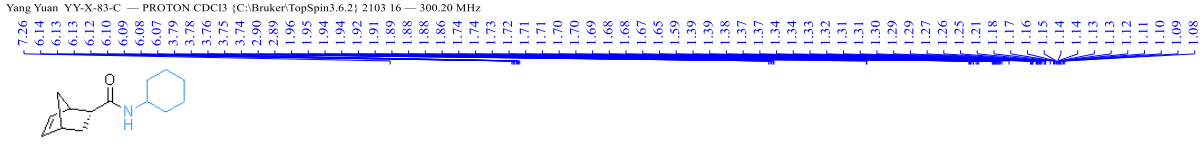
37


4.18
0.93
1.00
1.03
2.04
1.07
1.19
4.25
3.18
2.32
3.01
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

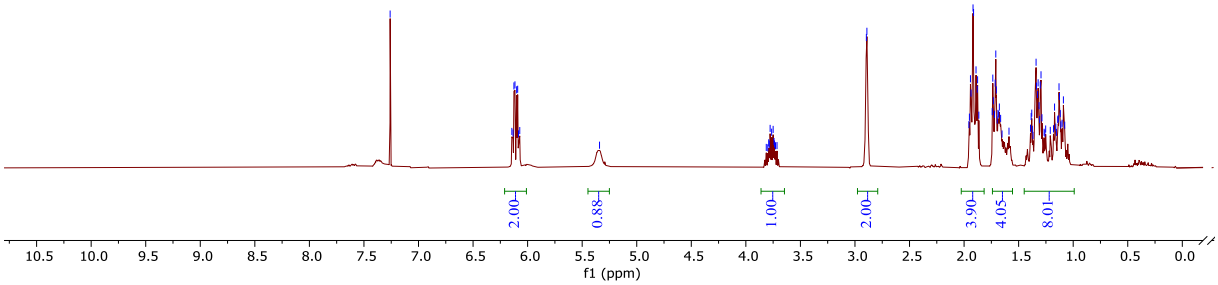

Yang Yuan YY-X-130 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 38 — 75.48 MHz
173.96
137.94
134.16
129.98
129.75
127.26
126.09
48.07
47.23
33.06
32.72
29.25
27.37
25.47
24.64
20.30
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

37

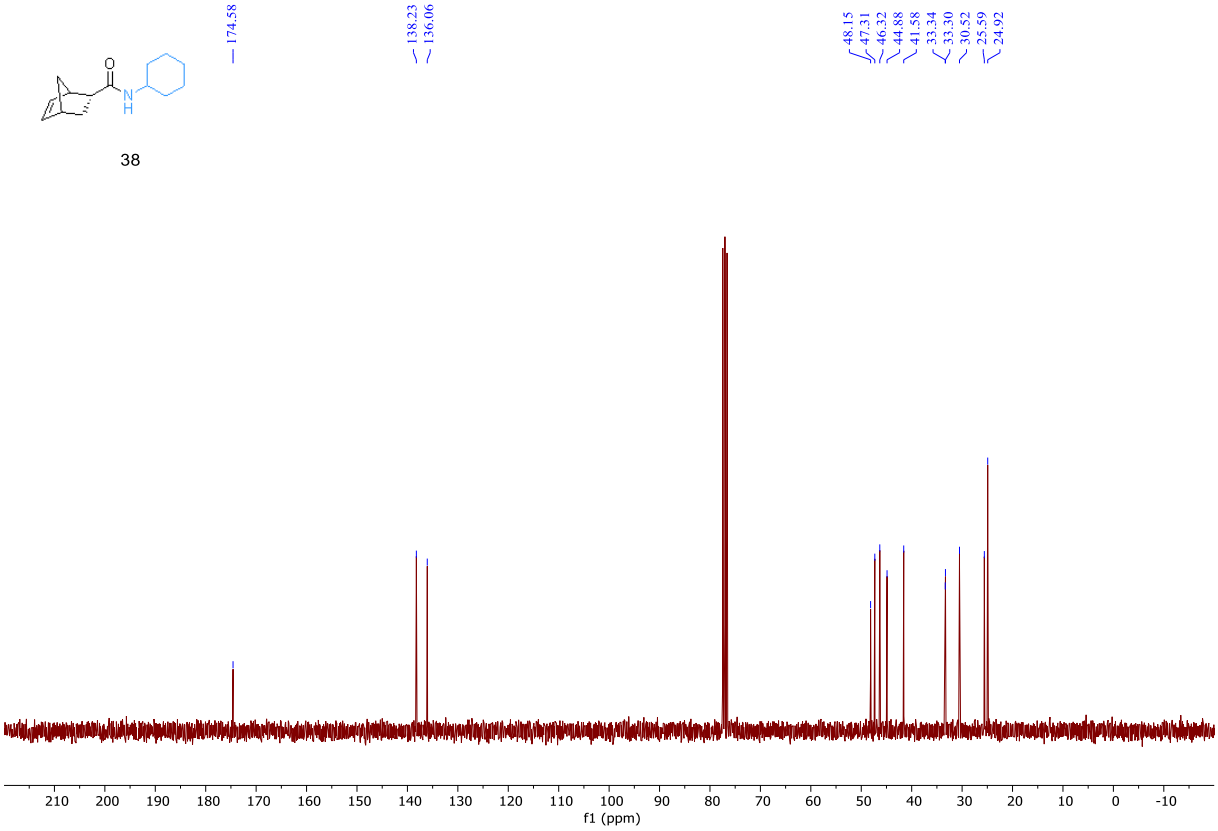
Yang Yuan YY-X-83-C — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 16 — 300.20 MHz



38



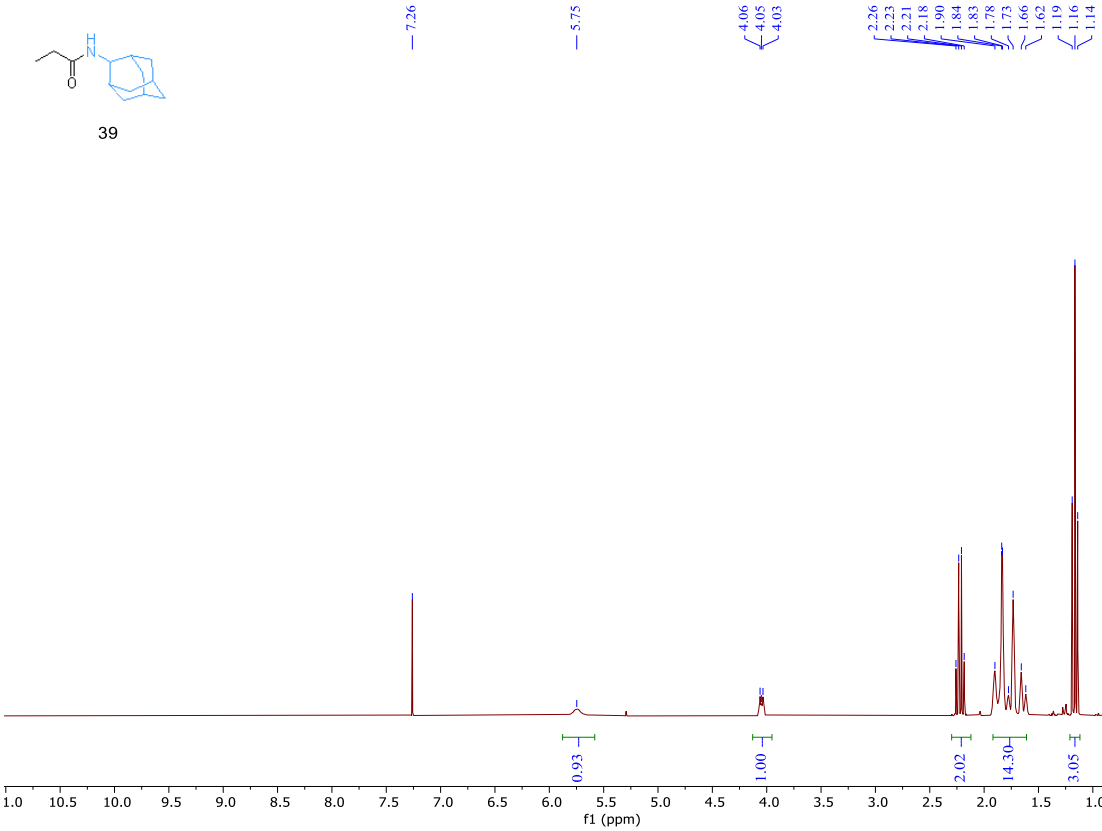
Yang Yuan YY-X-83-C — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 16 — 75.49 MHz



38

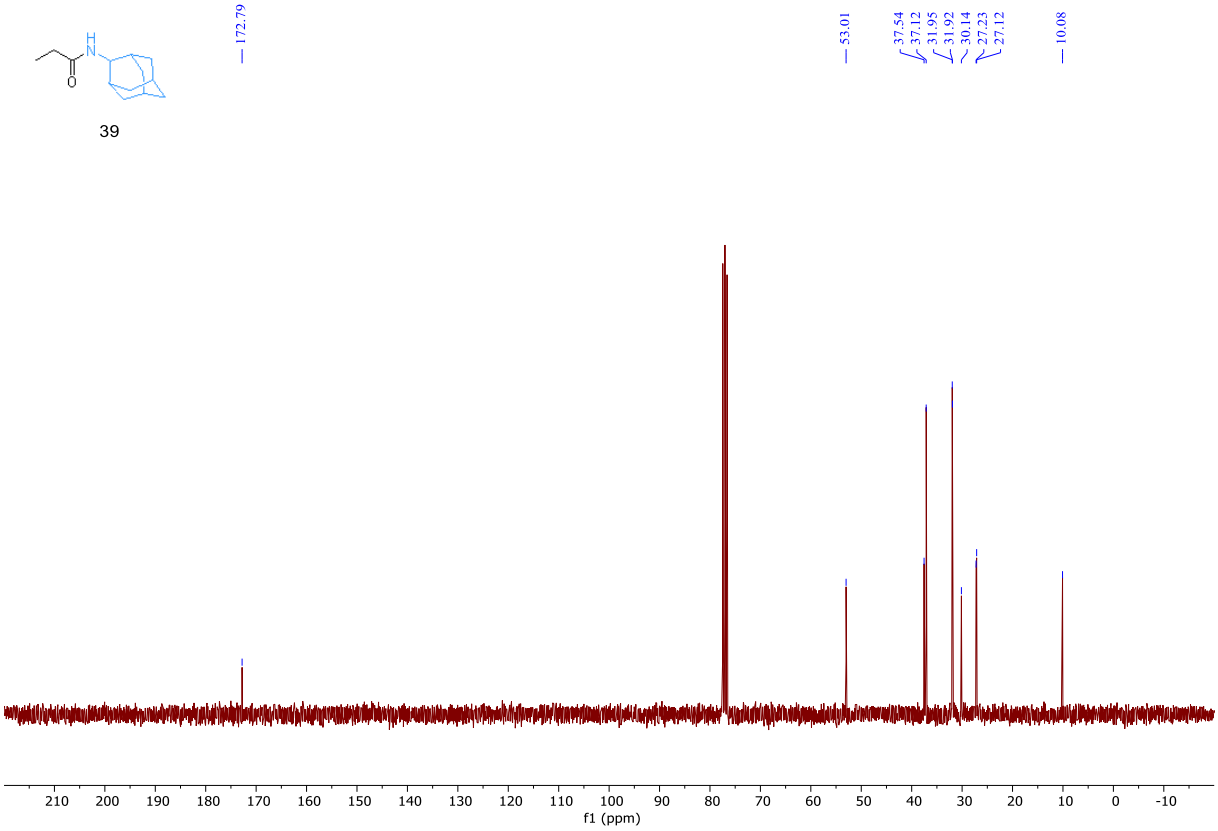
Yang Yuan YY-X-118 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 18 — 300.20 MHz

39

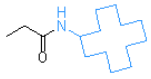


Yang Yuan YY-X-118 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 18 — 75.49 MHz

39

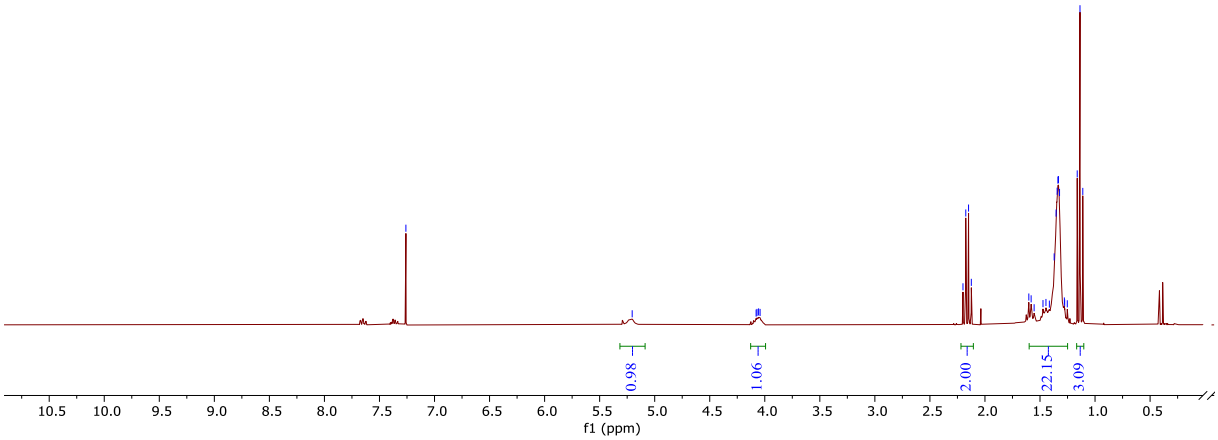


Yang Yuan YY-X-119 — PROTON CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 19 — 300.20 MHz

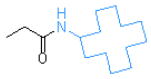


40

7.26 5.20 4.08 4.07 4.06 4.04 2.20 2.17 2.15 2.12 1.60 1.58 1.55 1.47 1.45 1.41 1.37 1.35 1.34 1.34 1.33 1.32 1.28 1.28 1.25 1.16 1.14 1.11

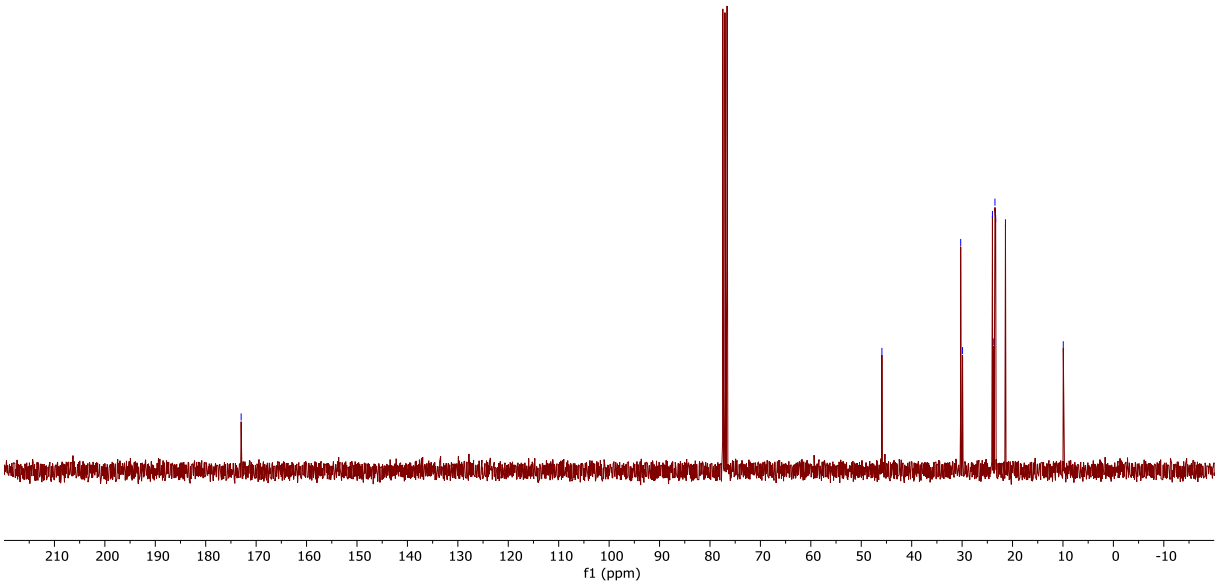


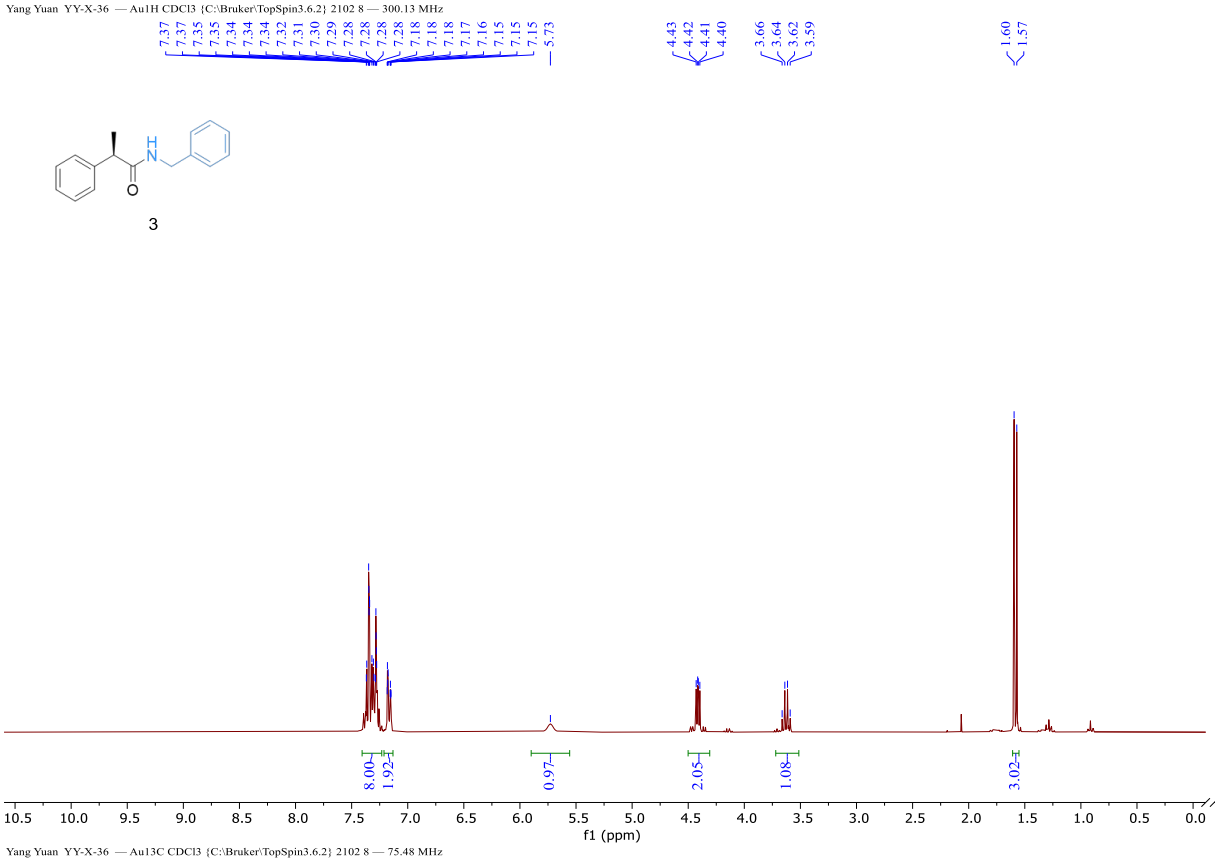
Yang Yuan YY-X-119 — C13CPD CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 19 — 75.49 MHz

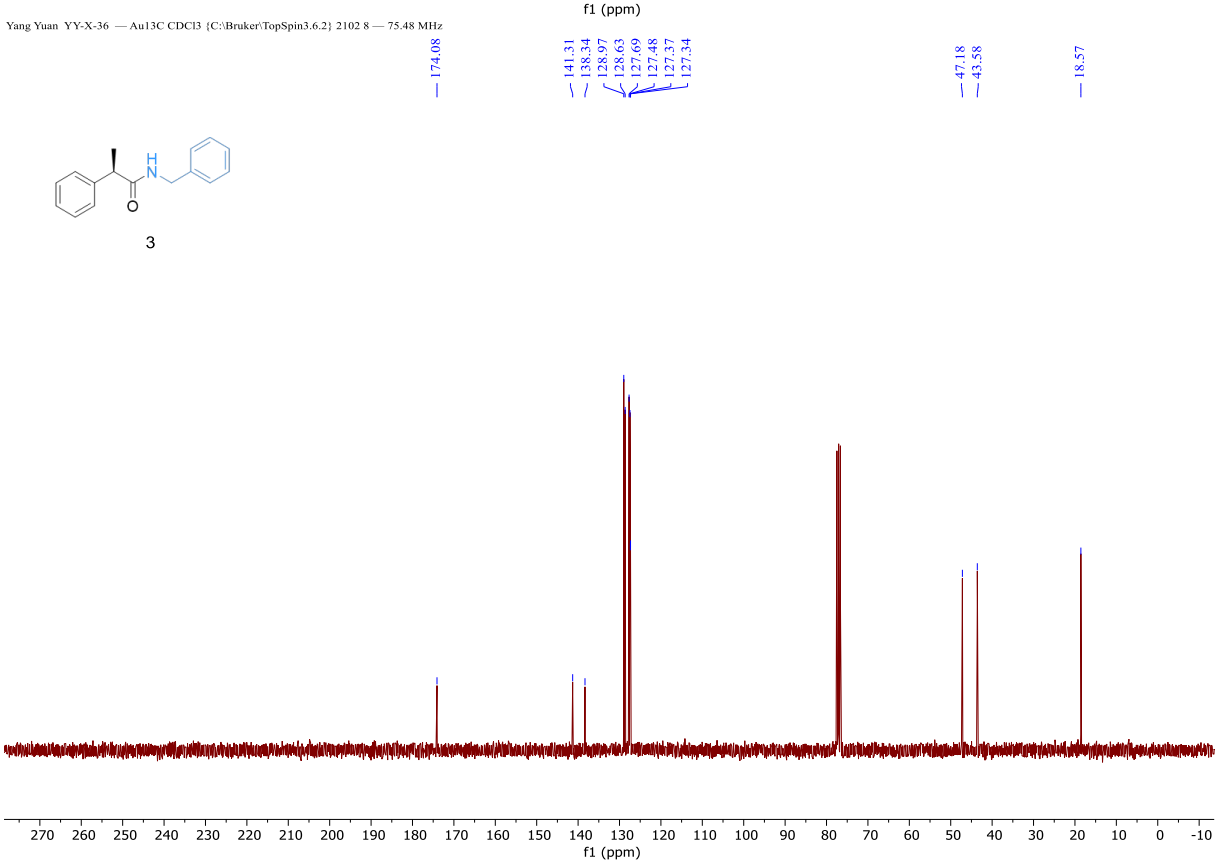


40

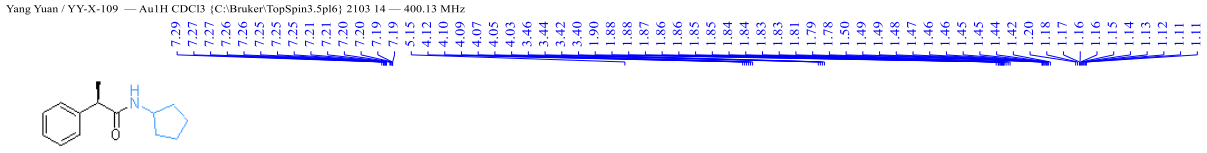
172.98 45.90 30.28 29.91 23.99 23.73 23.49 23.35 21.40 9.94



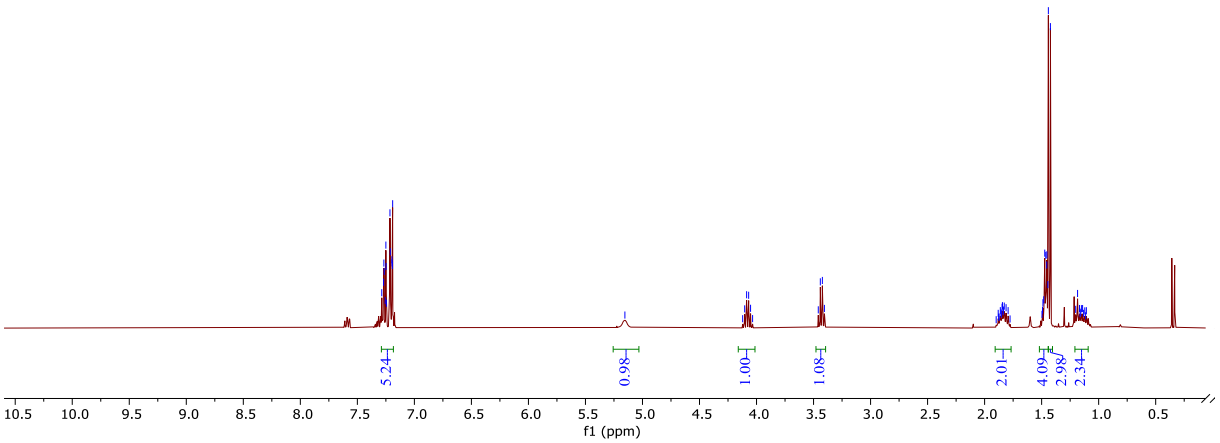

Yang Yuan YY-X-36 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 8 — 300.13 MHz
7.37
7.37
7.35
7.35
7.34
7.34
7.34
7.32
7.31
7.30
7.29
7.28
7.28
7.28
7.28
7.18
7.18
7.18
7.17
7.16
7.15
7.15
7.15
5.73
4.43
4.42
4.41
4.40
3.66
3.64
3.62
3.59
1.60
1.57
H
N
O
3
8.00
1.92
0.97
2.05
1.08
3.02
10.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


Yang Yuan YY-X-36 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2102 8 — 75.48 MHz
174.08
141.31
138.34
128.97
128.63
127.69
127.48
127.37
127.34
47.18
43.58
18.57
H
N
O
3
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

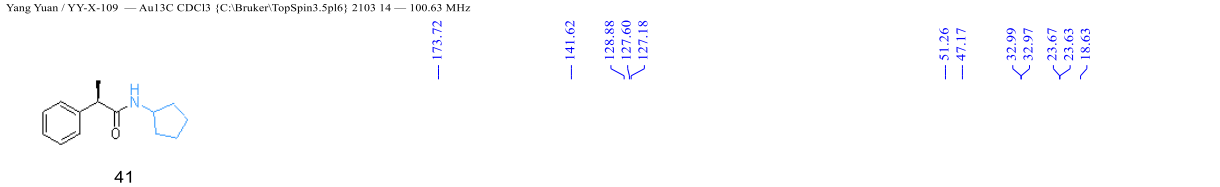
Yang Yuan / YY-X-109 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 14 — 400.13 MHz



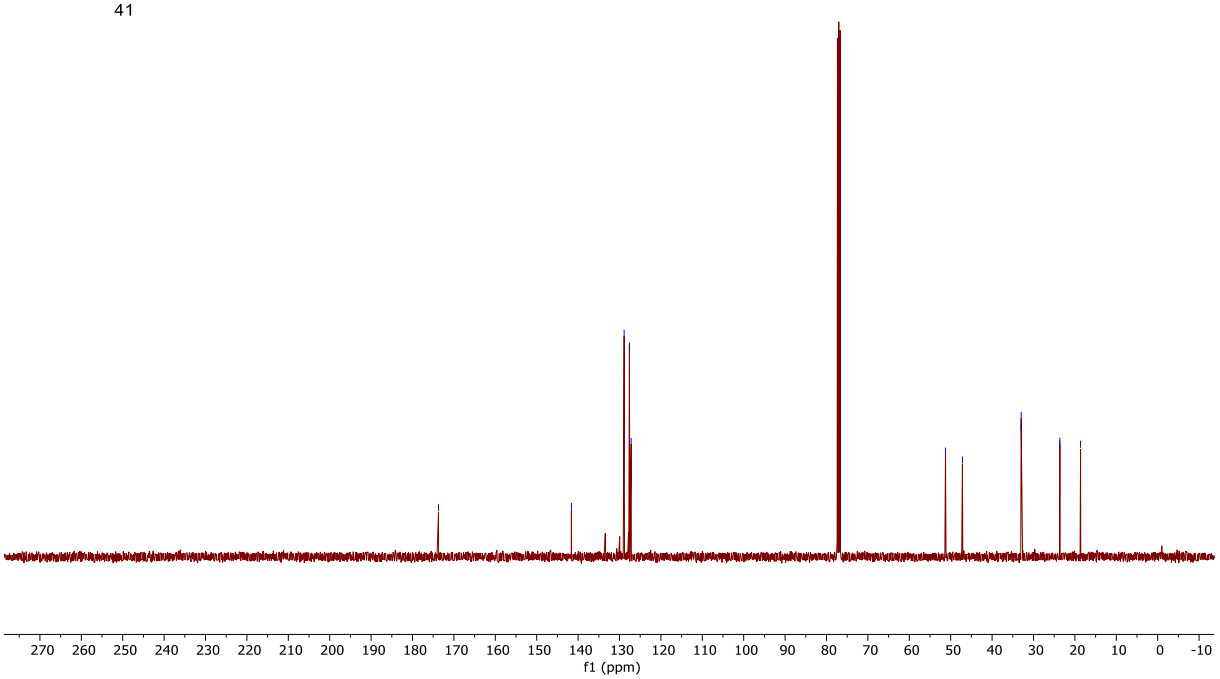
41

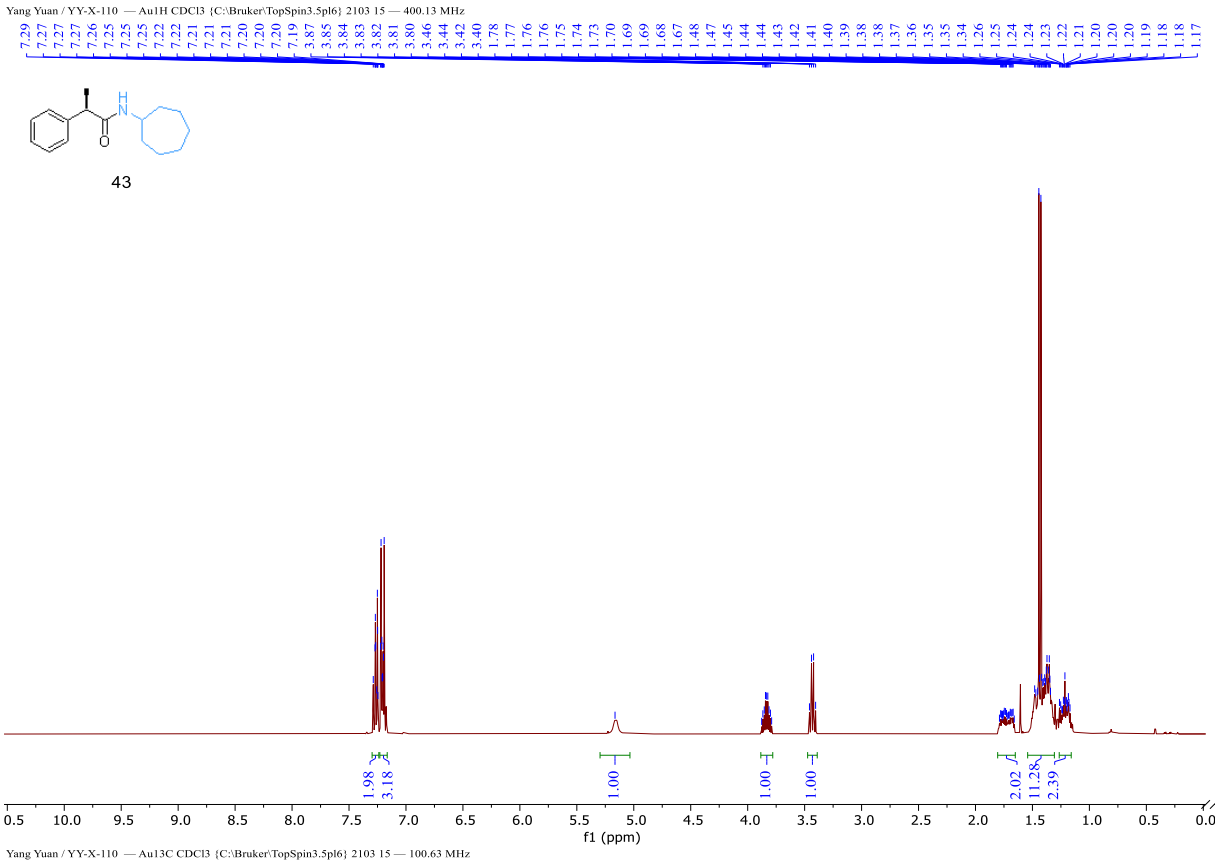


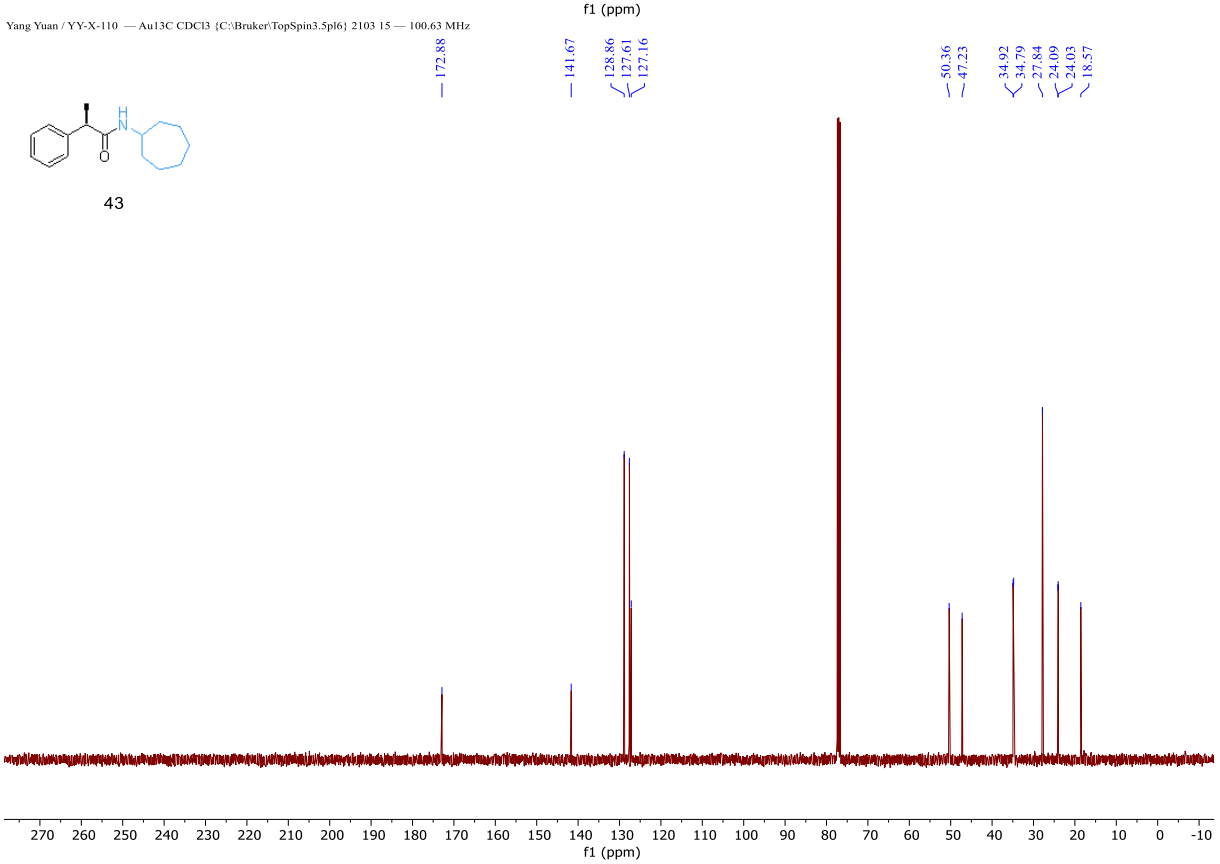
Yang Yuan / YY-X-109 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 14 — 100.63 MHz

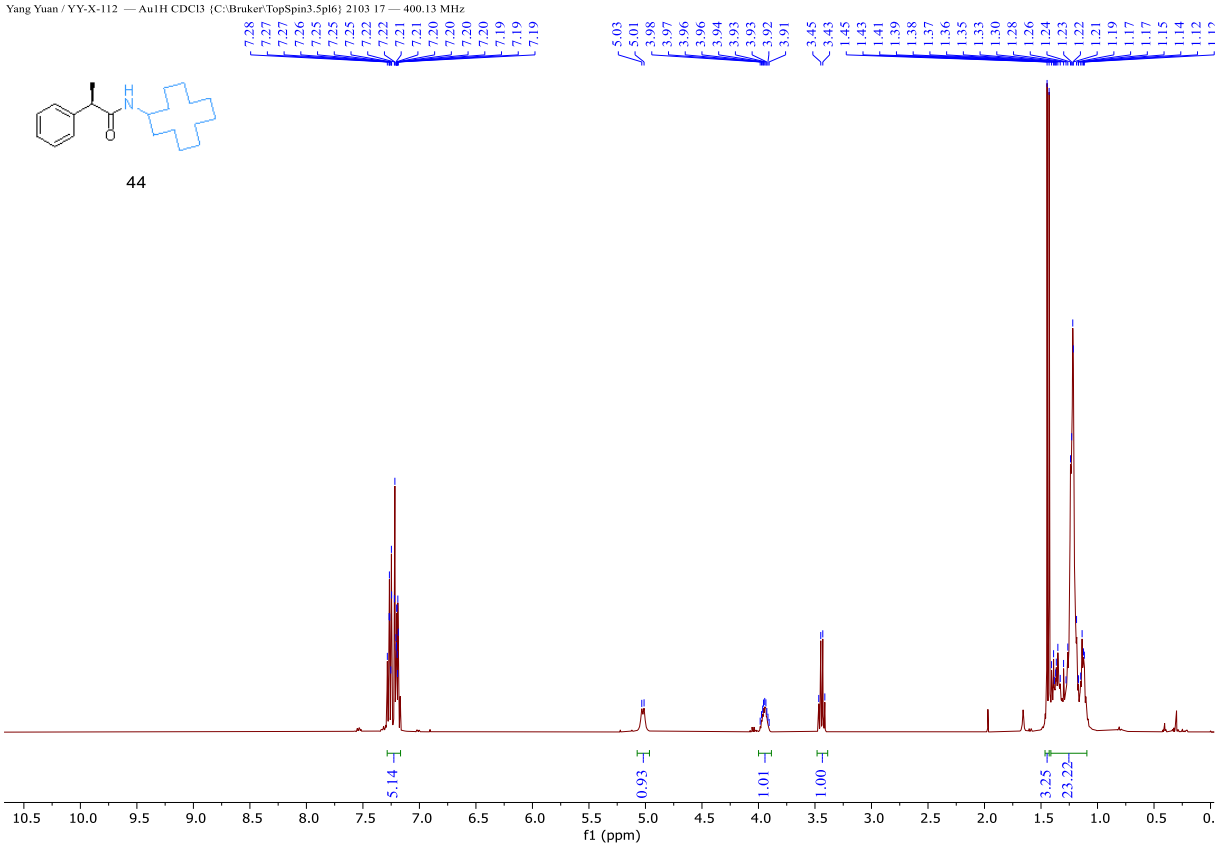


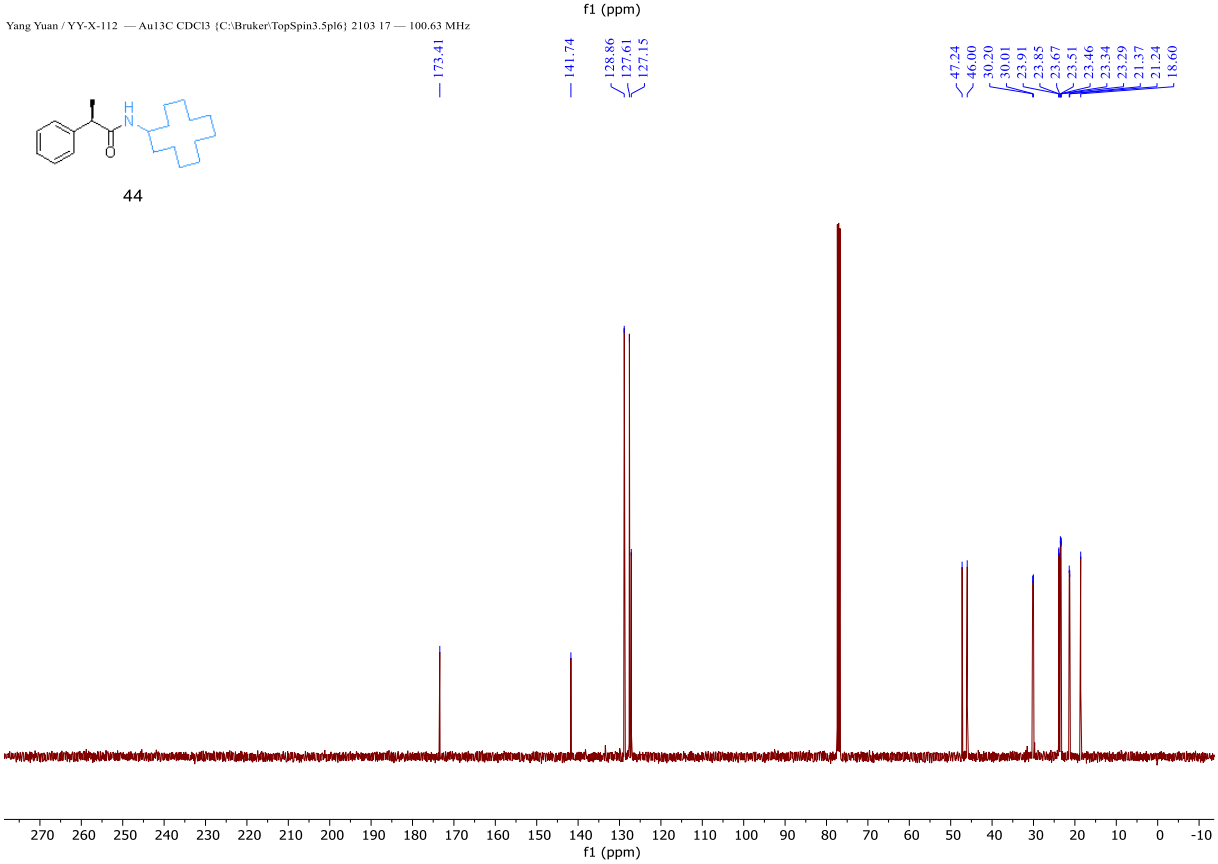
41

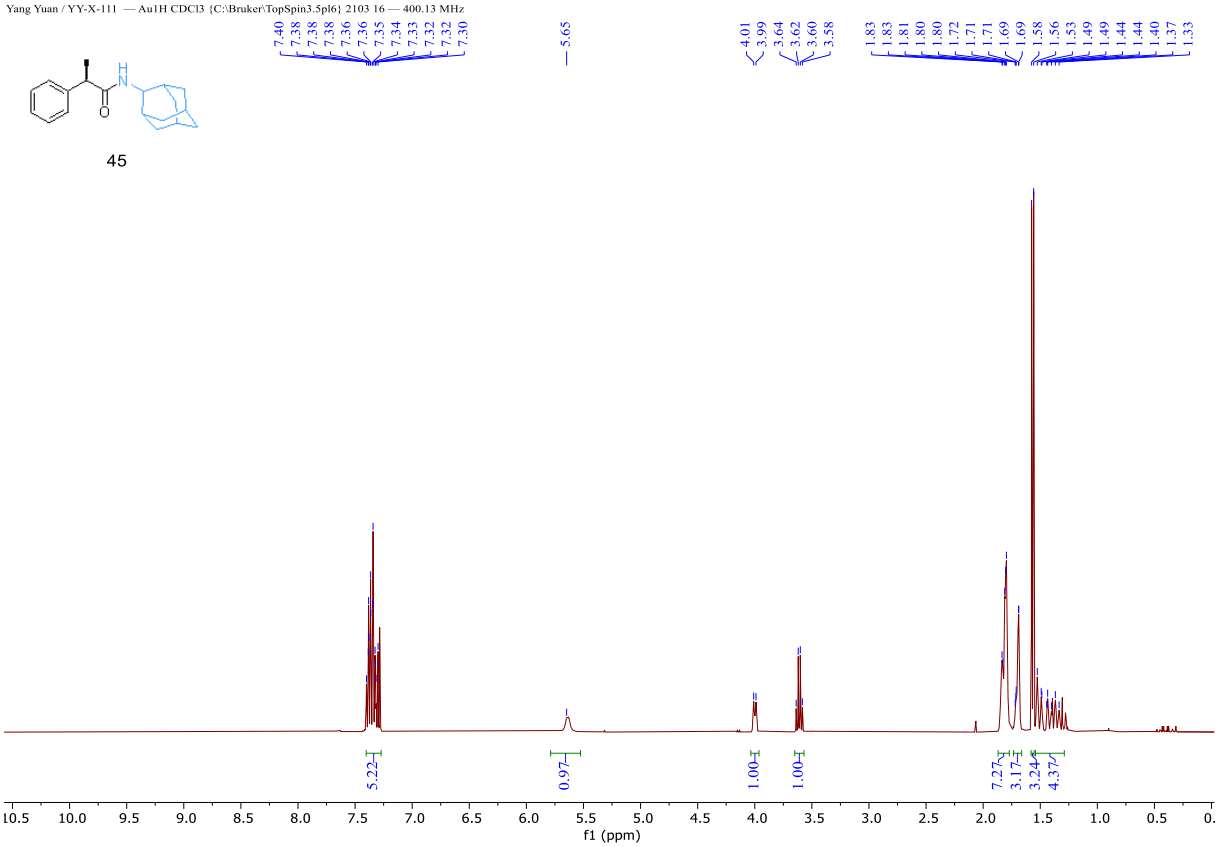


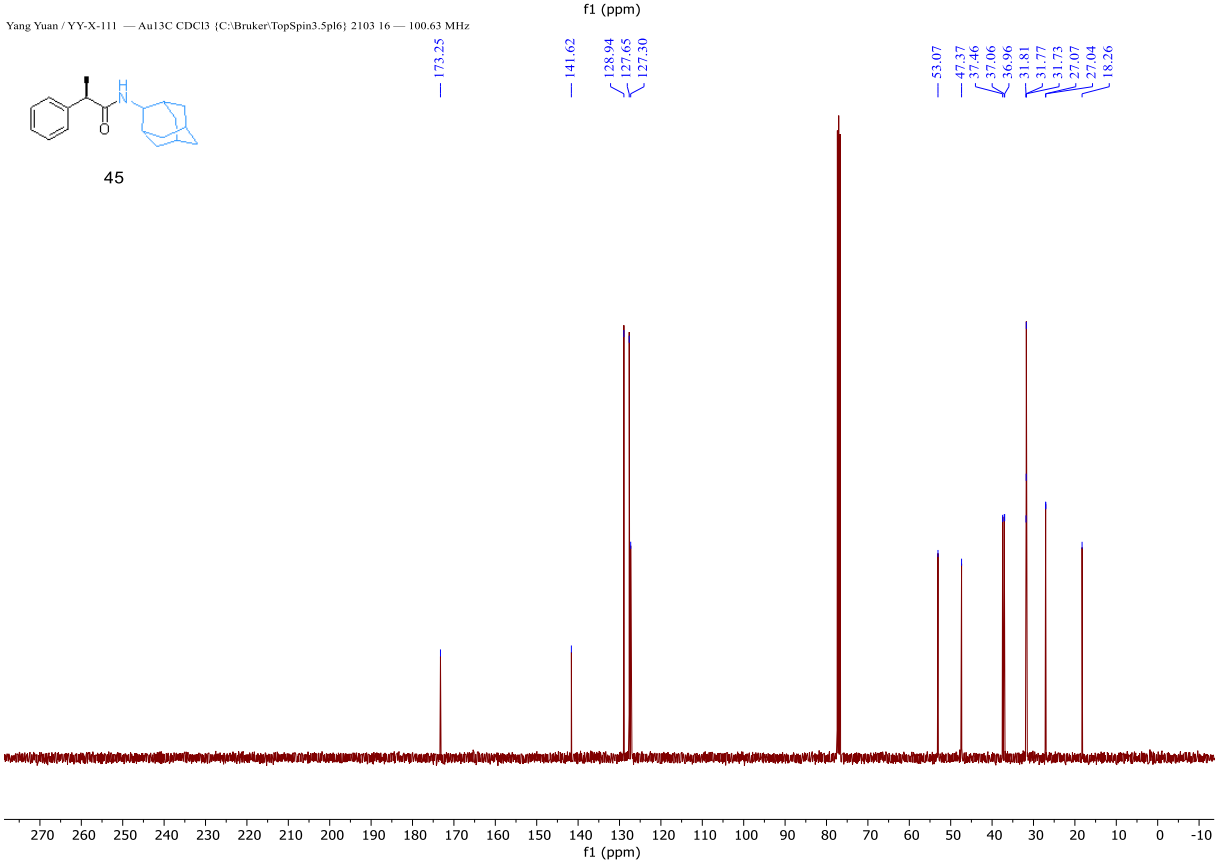

Yang Yuan / YY-X-110 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 15 — 400.13 MHz
7.29 7.27 7.27 7.27 7.26 7.25 7.25 7.25 7.22 7.22 7.22 7.21 7.21 7.21 7.20 7.20 7.20 7.19 3.87 3.85 3.84 3.83 3.82 3.81 3.80 3.46 3.44 3.42 3.40 1.78 1.77 1.76 1.76 1.75 1.74 1.73 1.70 1.69 1.69 1.68 1.67 1.48 1.47 1.45 1.44 1.44 1.43 1.42 1.41 1.40 1.39 1.38 1.38 1.37 1.36 1.35 1.35 1.34 1.26 1.25 1.24 1.24 1.23 1.22 1.21 1.20 1.20 1.20 1.19 1.18 1.18 1.17
43
1.98
3.18
1.00
1.00
1.00
2.02
11.28
2.39
f1 (ppm)

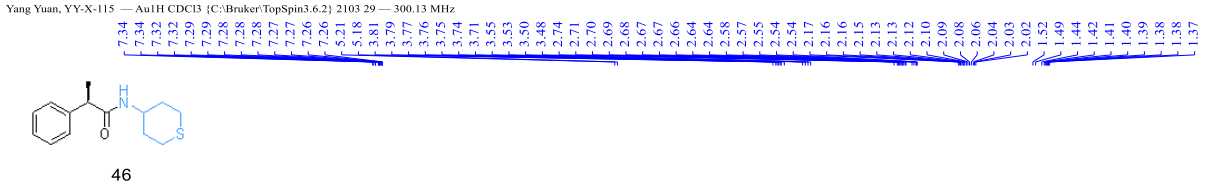

Yang Yuan / YY-X-110 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 15 — 100.63 MHz
172.88
141.67
128.86
127.61
127.16
50.36
47.23
34.92
34.79
27.84
24.09
24.03
18.57
43
f1 (ppm)


Yang Yuan / YY-X-112 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 17 — 400.13 MHz
44
f1 (ppm)

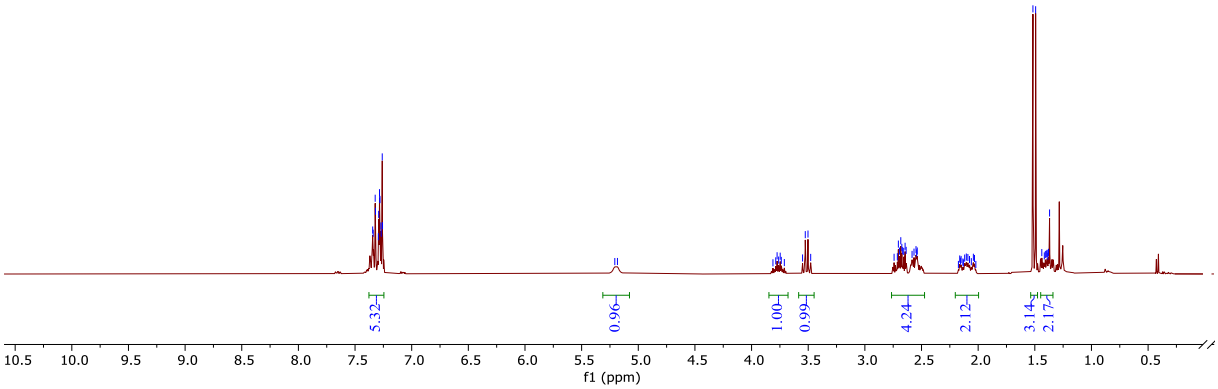

Yang Yuan / YY-X-112 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 17 — 100.63 MHz
44
f1 (ppm)

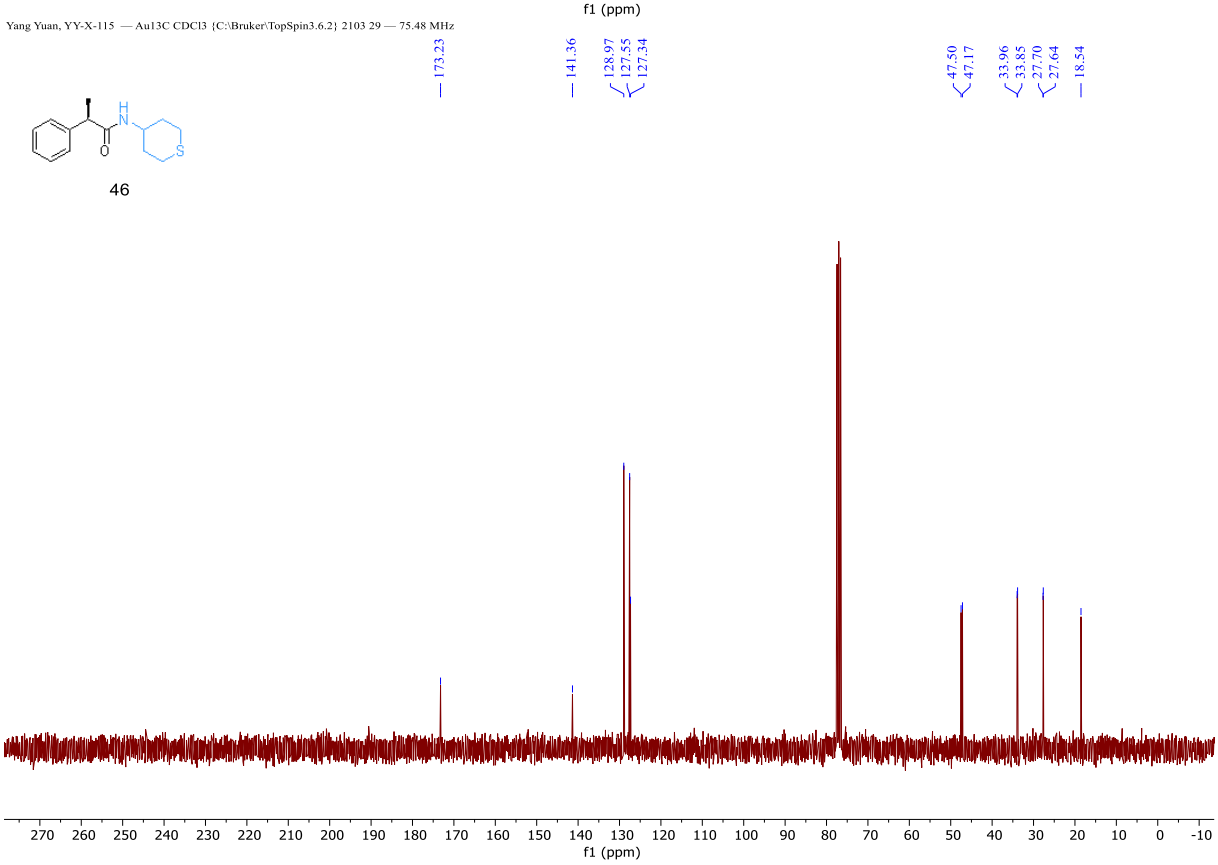

Yang Yuan / YY-X-111 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 16 — 400.13 MHz
7.40 7.38 7.38 7.36 7.36 7.35 7.34 7.33 7.32 7.32 7.30
5.65
4.01 3.99 3.64 3.62 3.60 3.58
1.83 1.83 1.81 1.80 1.80 1.72 1.71 1.71 1.69 1.69 1.58 1.56 1.53 1.49 1.49 1.44 1.44 1.40 1.37 1.33
45
5.22 0.97 1.00 1.00 7.27 3.17 3.24 4.37
f1 (ppm)


Yang Yuan / YY-X-111 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2103 16 — 100.63 MHz
173.25
141.62
128.94 127.65 127.30
53.07 47.37 37.46 37.06 36.96 31.81 31.77 31.73 27.07 27.04 18.26
45
f1 (ppm)


Yang Yuan, YY-X-115 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 29 — 300.13 MHz
7.34 7.34 7.32 7.32 7.29 7.28 7.28 7.28 7.27 7.27 7.26 7.26 5.21 5.18 3.81 3.79 3.77 3.76 3.75 3.74 3.71 3.55 3.53 3.50 3.48 2.74 2.71 2.70 2.69 2.68 2.67 2.67 2.66 2.64 2.64 2.58 2.57 2.55 2.54 2.54 2.17 2.16 2.16 2.15 2.13 2.13 2.12 2.10 2.09 2.08 2.06 2.04 2.03 2.02 1.52 1.49 1.44 1.42 1.41 1.40 1.39 1.38 1.38 1.37
H
N
O
S

46

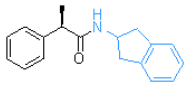

5.32
0.96
1.00
0.99
4.24
2.12
3.14
2.17
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)


Yang Yuan, YY-X-115 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 29 — 75.48 MHz
173.23
141.36
128.97
127.55
127.34
47.50
47.17
33.96
33.85
27.70
27.64
18.54
H
N
O
S

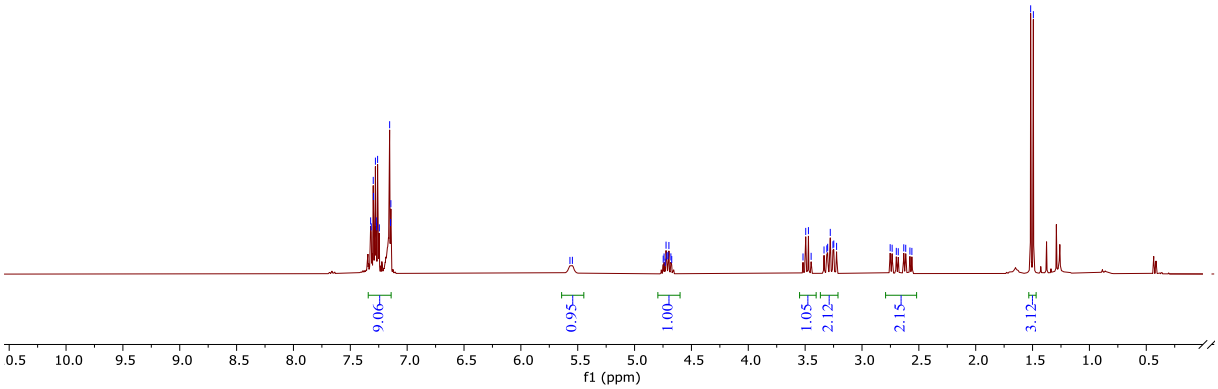
46

270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

Yang Yuan, YY-X-114 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 28 — 300.13 MHz

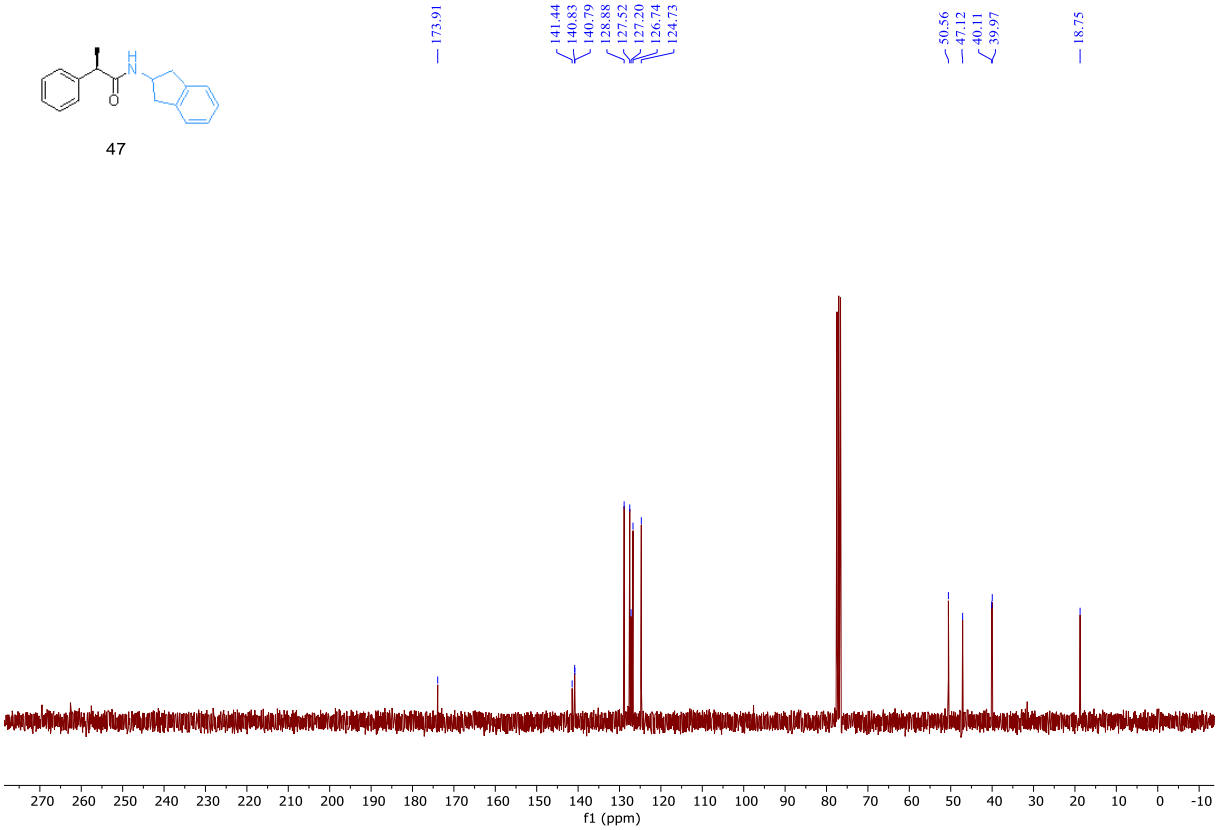


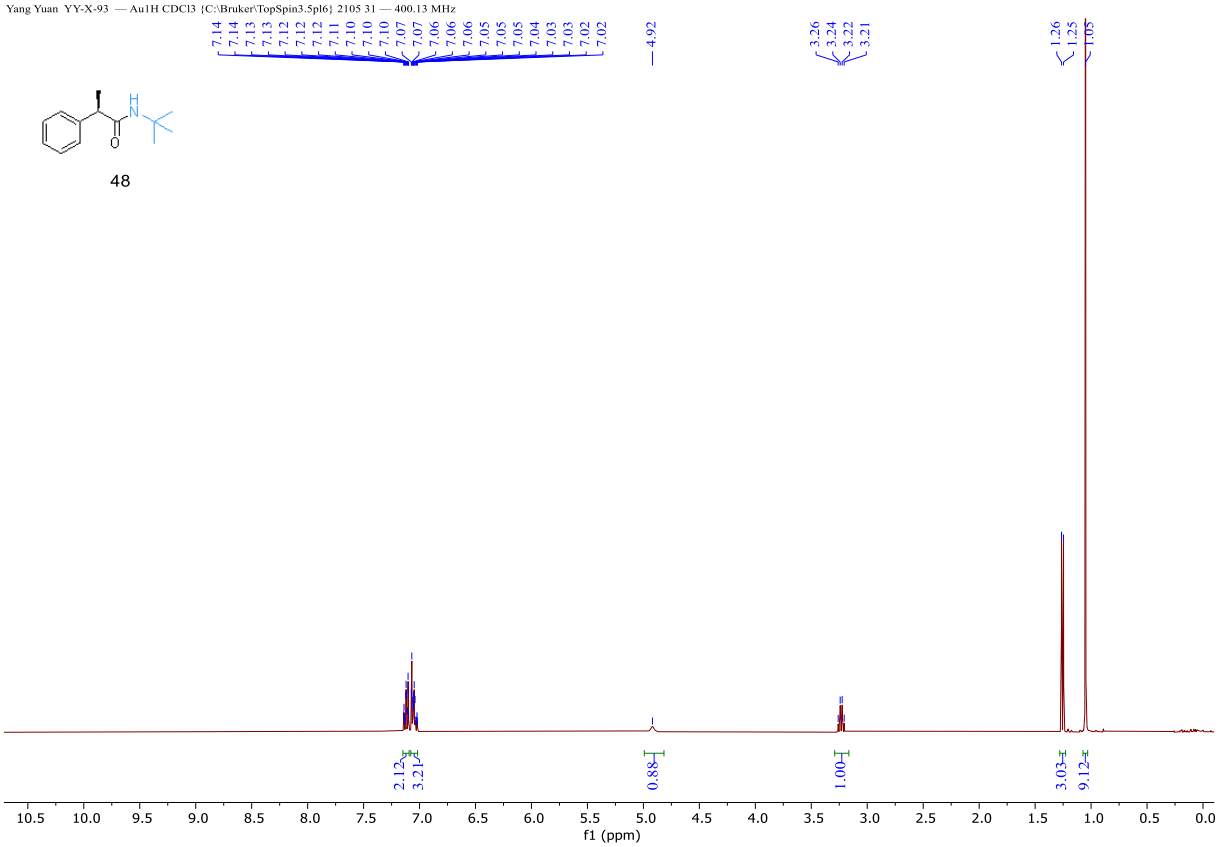
47

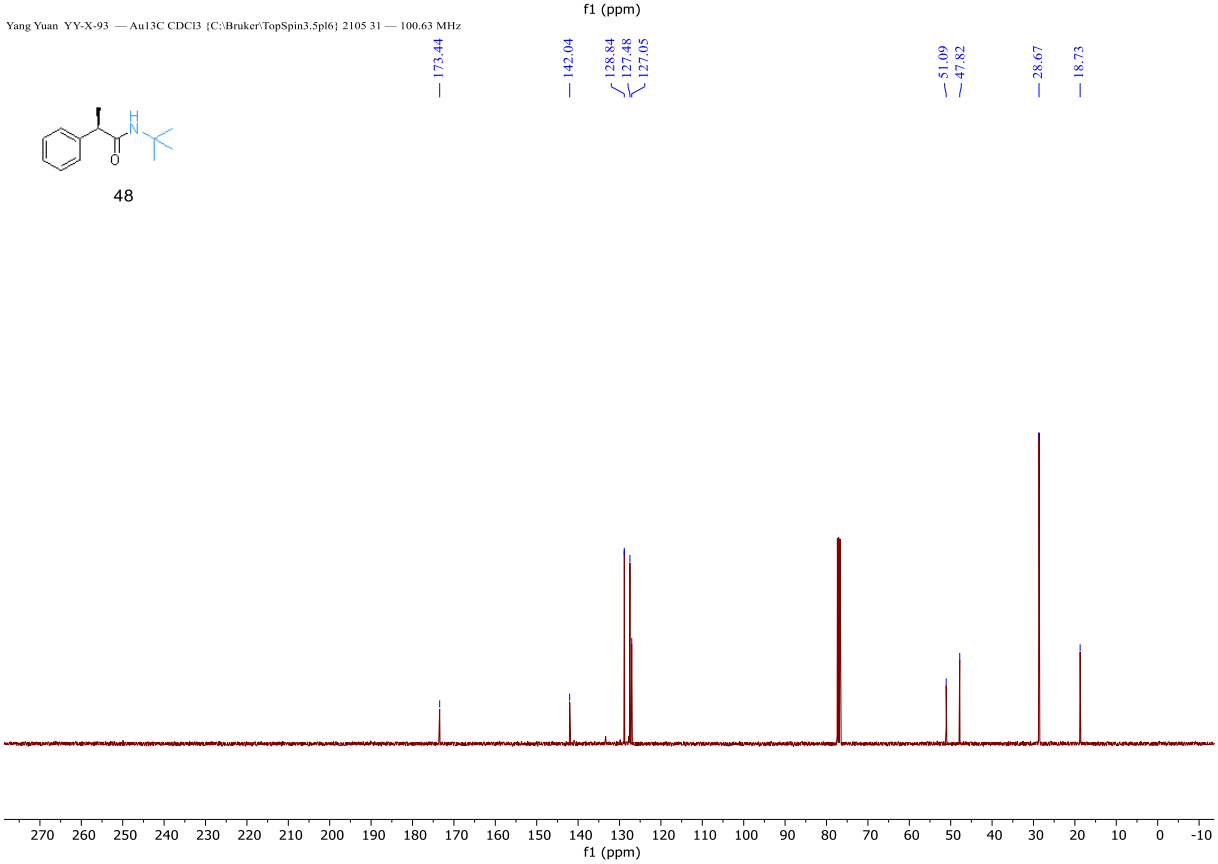


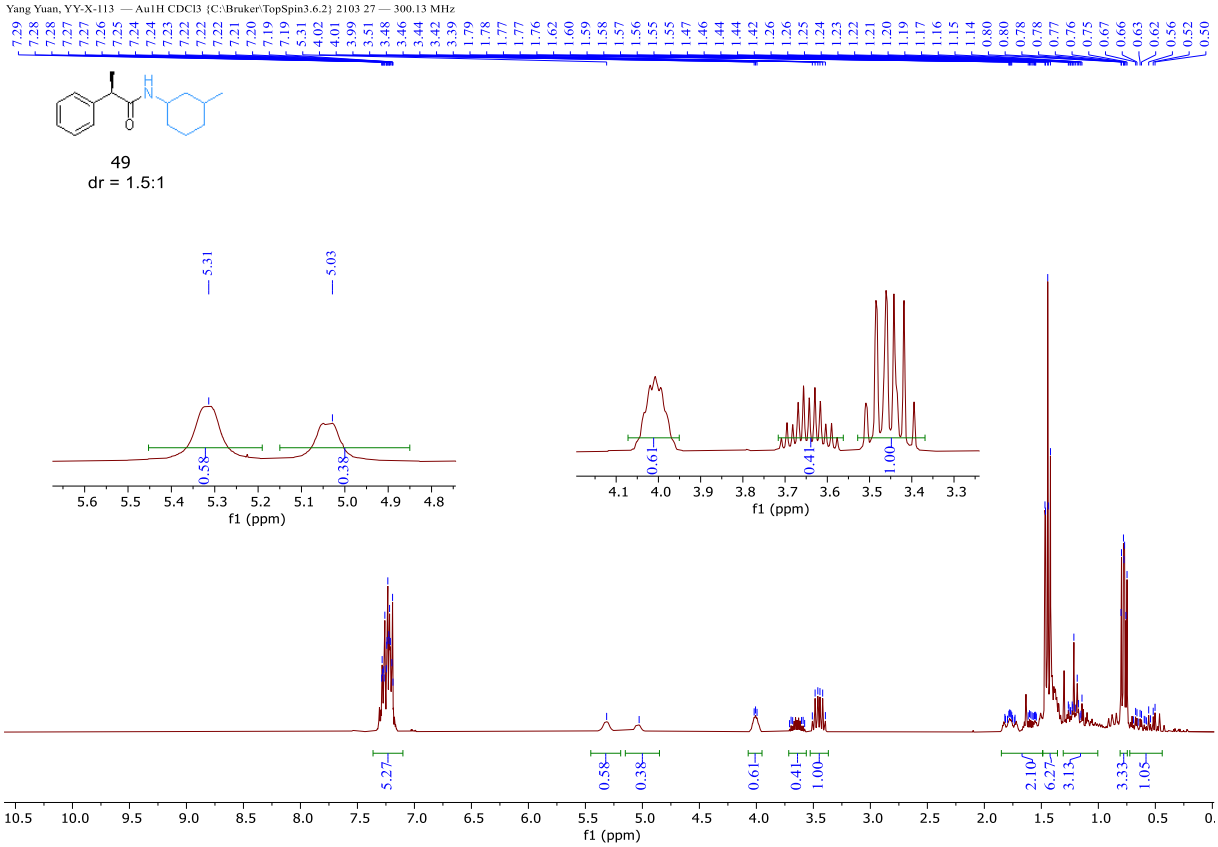
Yang Yuan, YY-X-114 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 28 — 75.48 MHz

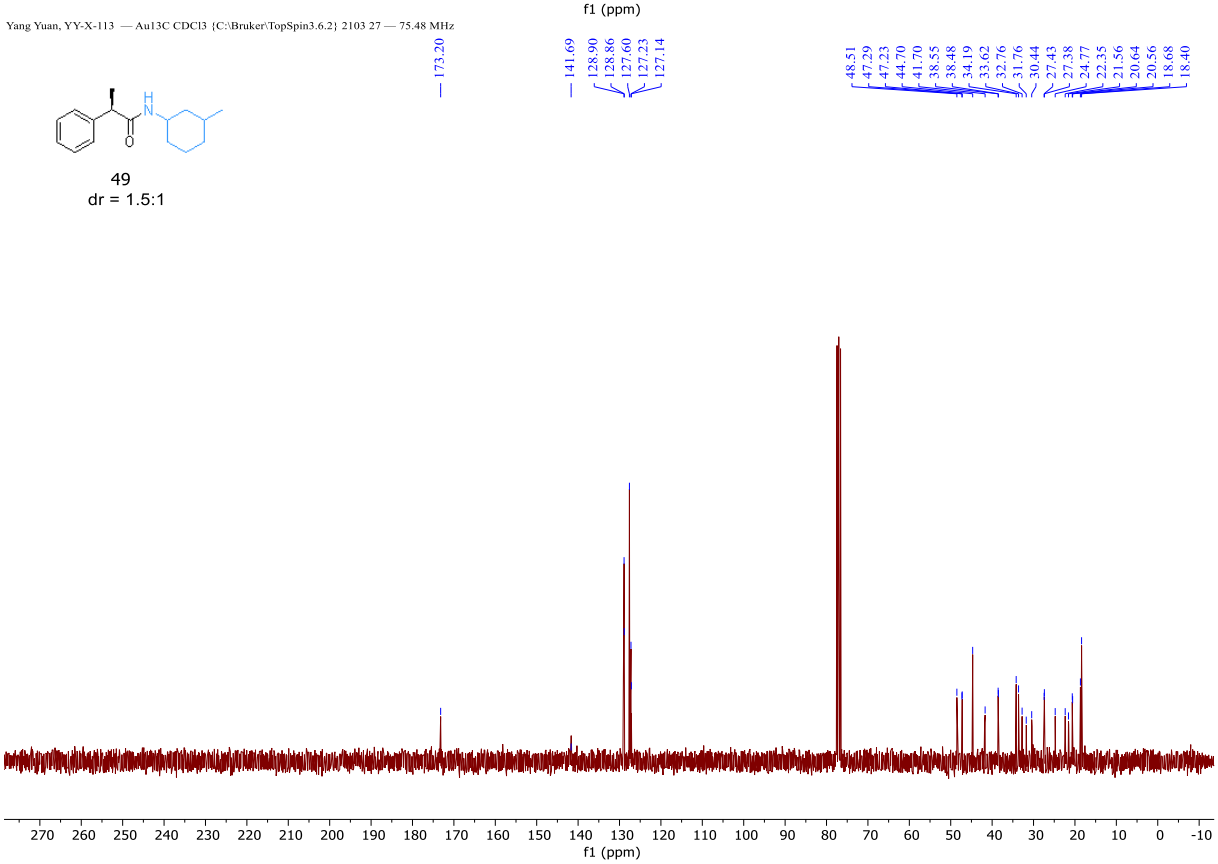
47

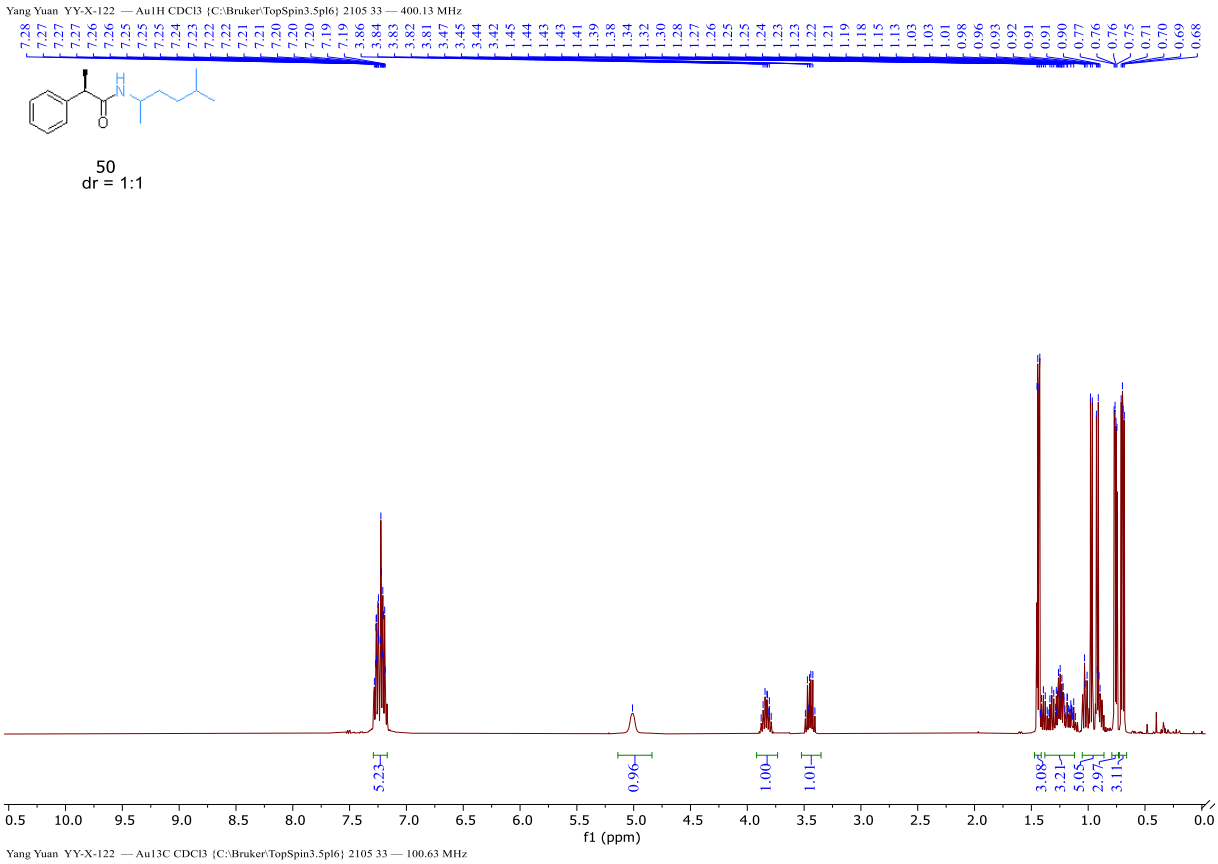


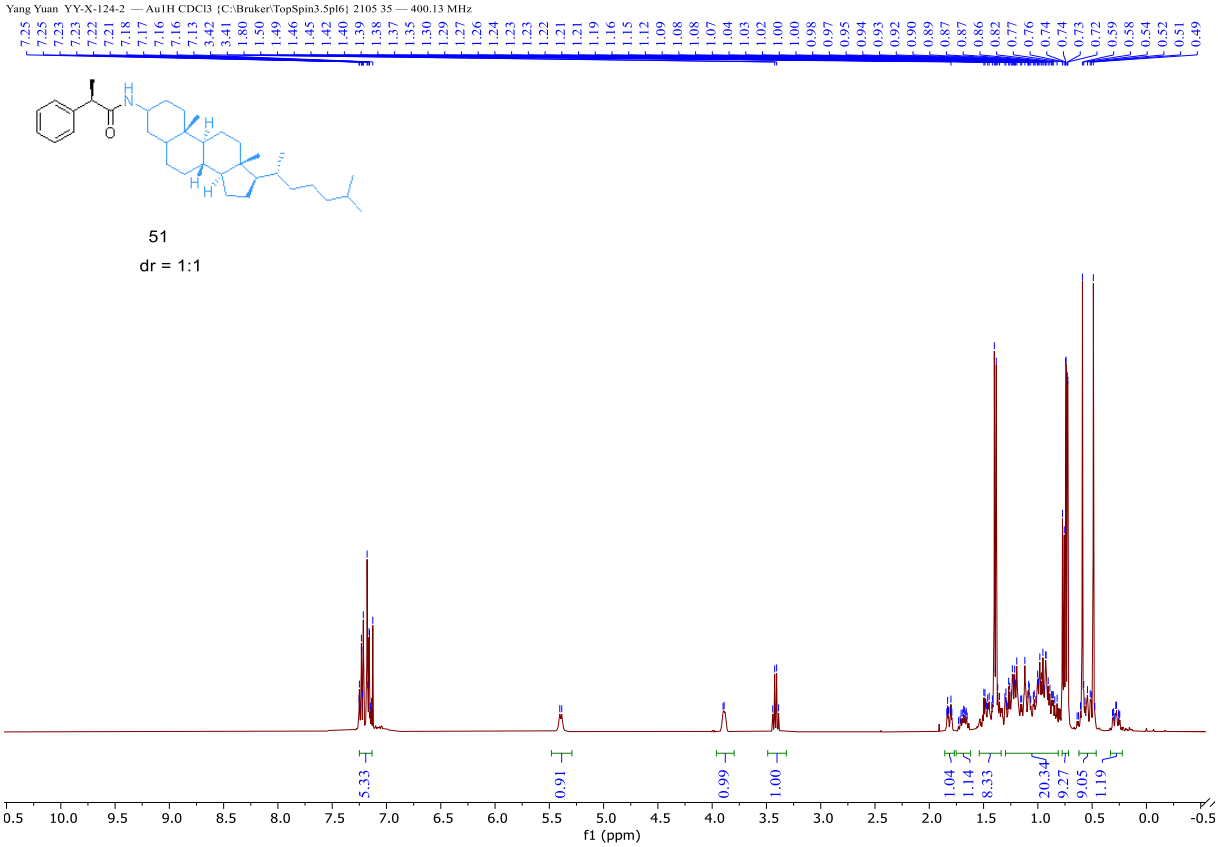

Yang Yuan YY-X-93 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 31 — 400.13 MHz
7.14
7.14
7.13
7.13
7.12
7.12
7.12
7.11
7.10
7.10
7.10
7.07
7.07
7.06
7.06
7.06
7.05
7.05
7.05
7.04
7.03
7.03
7.02
7.02
4.92
3.26
3.24
3.22
3.21
1.26
1.25
1.05
48
2.12
3.21
0.88
1.00
3.03
9.12
f1 (ppm)

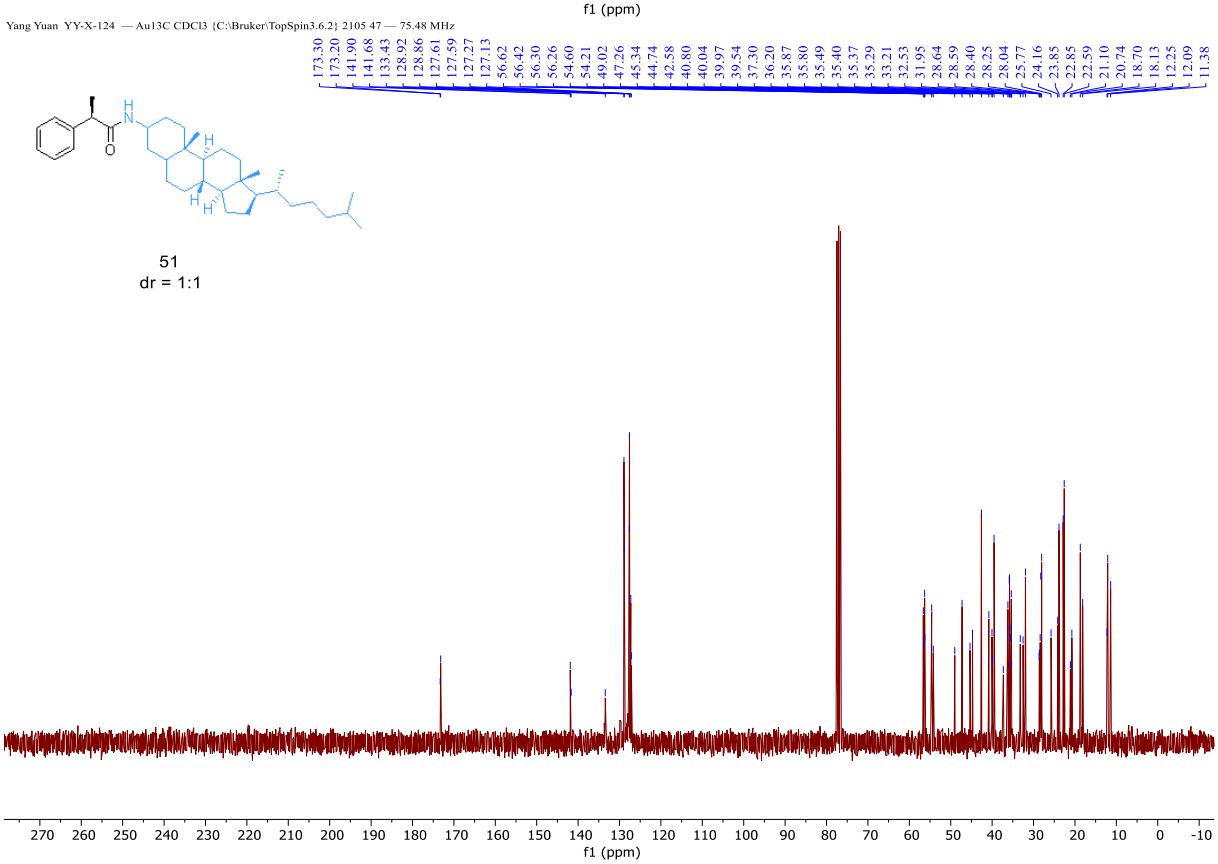

Yang Yuan YY-X-93 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 31 — 100.63 MHz
173.44
142.04
128.84
127.48
127.05
51.09
47.82
28.67
18.73
48
f1 (ppm)


Yang Yuan, YY-X-113 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 27 — 300.13 MHz
49
dr = 1.5:1
f1 (ppm)

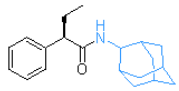

Yang Yuan, YY-X-113 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2103 27 — 75.48 MHz
49
dr = 1.5:1
f1 (ppm)


Yang Yuan YY-X-122 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 33 — 400.13 MHz
50
dr = 1:1
f1 (ppm)
Yang Yuan YY-X-122 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 33 — 100.63 MHz
50
dr = 1:1
f1 (ppm)

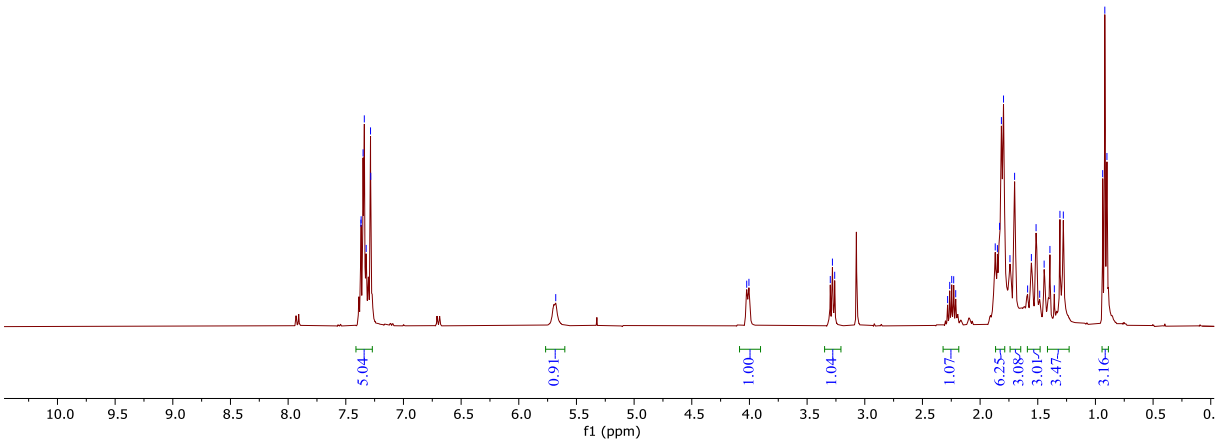

Yang Yuan YY-X-124-2 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 35 — 400.13 MHz
7.25 7.25 7.23 7.23 7.23 7.22 7.21 7.18 7.17 7.16 7.16 7.13 3.42 3.41 1.80 1.50 1.49 1.46 1.45 1.42 1.40 1.39 1.38 1.37 1.35 1.30 1.29 1.27 1.26 1.24 1.23 1.23 1.22 1.21 1.21 1.19 1.16 1.15 1.12 1.09 1.08 1.08 1.07 1.04 1.03 1.02 1.00 1.00 0.98 0.97 0.95 0.94 0.93 0.92 0.90 0.89 0.87 0.87 0.86 0.82 0.77 0.76 0.74 0.74 0.73 0.72 0.59 0.58 0.54 0.52 0.51 0.49
51
dr = 1:1
5.33
0.91
0.99
1.00
1.04
1.14
8.33
20.34
9.27
9.05
1.19
f1 (ppm)


Yang Yuan YY-X-124 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2105 47 — 75.48 MHz
173.30 173.20 141.90 141.68 133.43 128.92 128.86 127.61 127.59 127.27 127.13 56.62 56.42 56.30 56.26 54.60 54.21 49.02 47.26 45.34 44.74 42.58 40.80 40.04 39.97 39.54 37.30 36.20 35.87 35.80 35.49 35.40 35.37 35.29 33.21 32.53 31.95 28.64 28.59 28.40 28.25 28.04 25.77 24.16 23.85 22.85 22.59 21.10 20.74 18.70 18.13 12.25 12.09 11.38
51
dr = 1:1
f1 (ppm)

Yuan/ YY-137-2 — Au1H CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 41 — 400.13 MHz

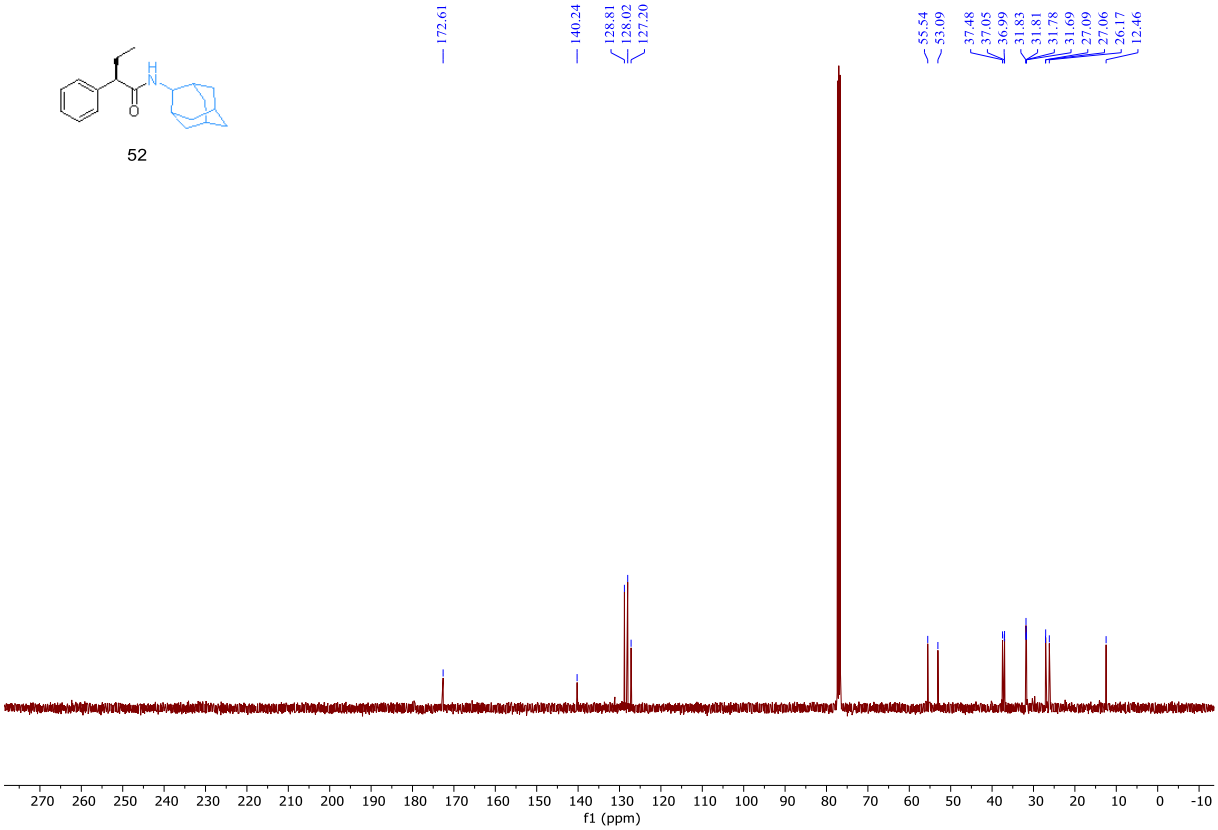


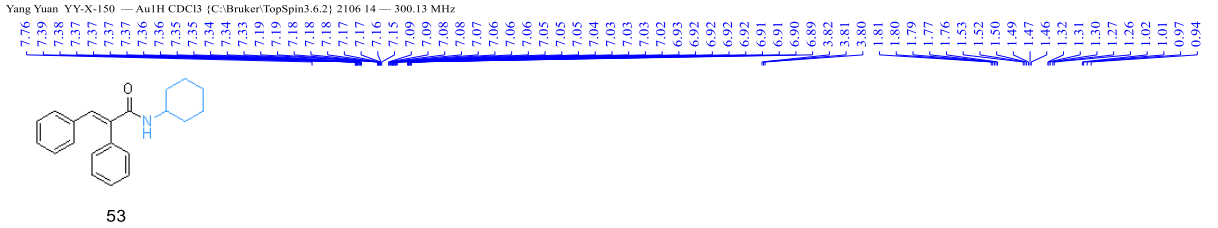
52



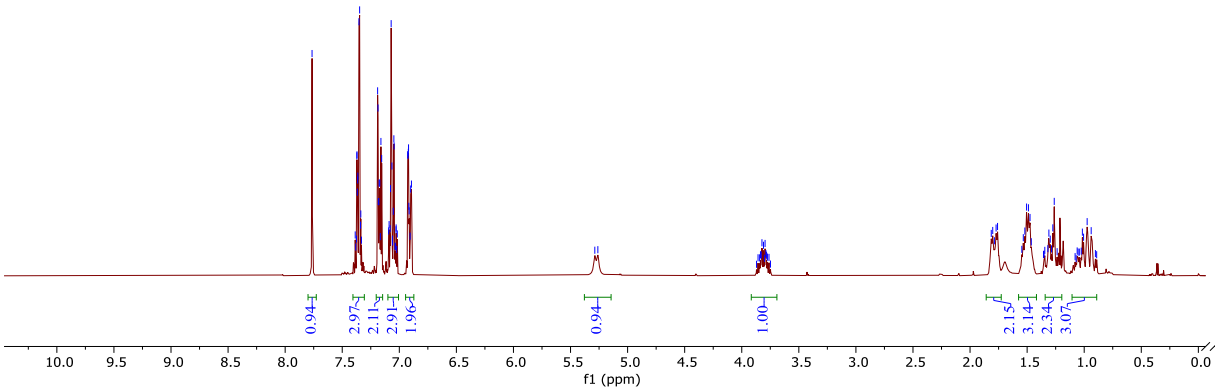
Yuan/ YY-137-2 — Au13C CDCl3 {C:\Bruker\TopSpin3.5pl6} 2105 41 — 100.63 MHz

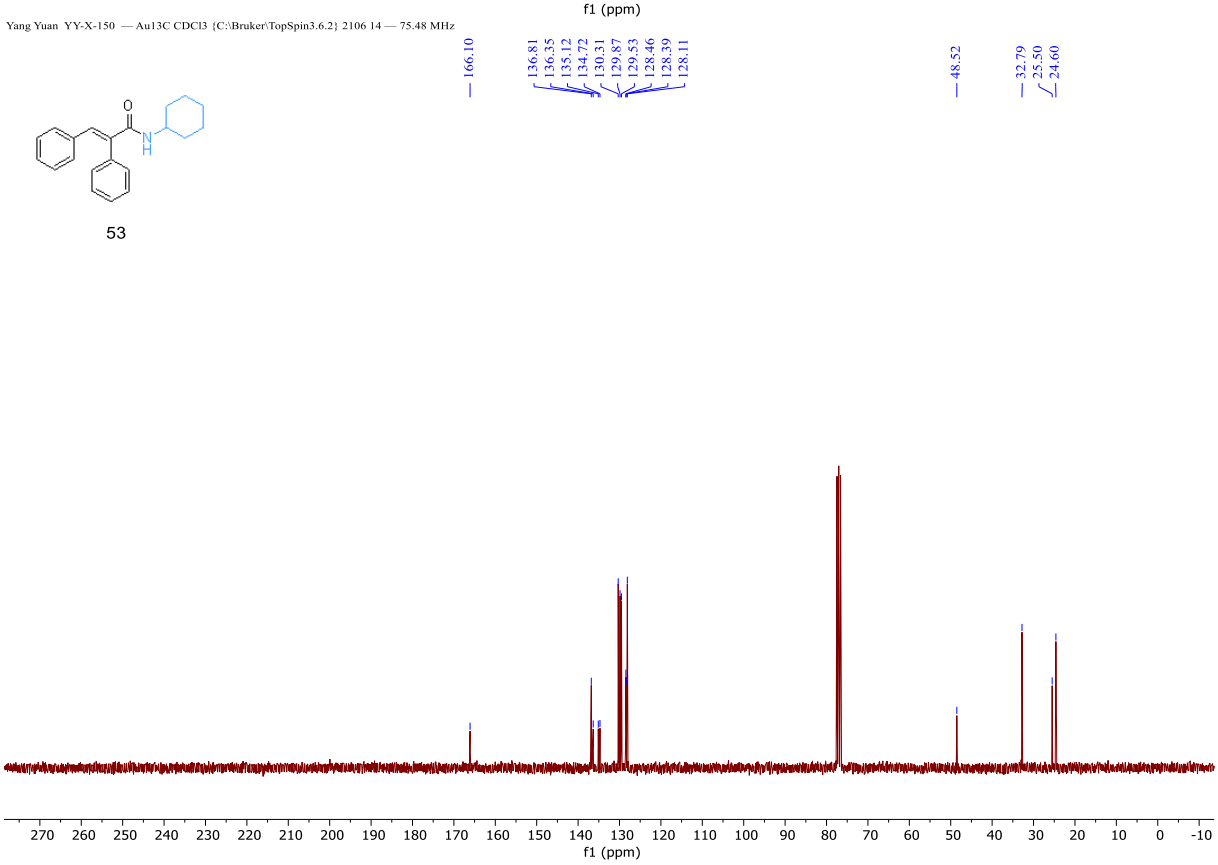
52



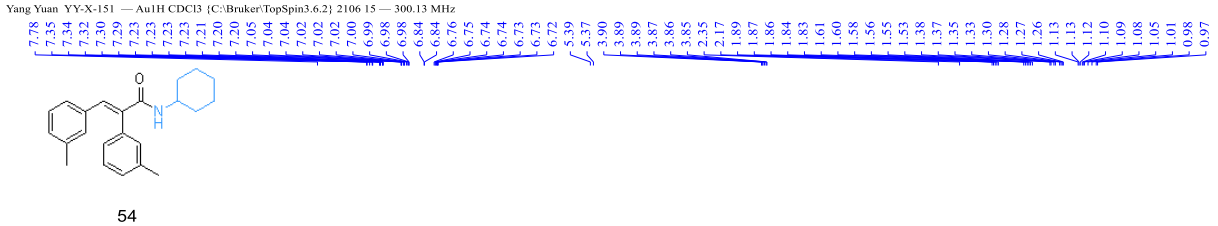

Yang Yuan YY-X-150 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 14 — 300.13 MHz
7.76 7.39 7.38 7.37 7.37 7.37 7.37 7.36 7.36 7.35 7.35 7.34 7.34 7.33 7.19 7.19 7.18 7.18 7.18 7.17 7.17 7.16 7.15 7.09 7.09 7.08 7.08 7.07 7.06 7.06 7.06 7.05 7.05 7.05 7.04 7.03 7.03 7.03 7.02 6.93 6.92 6.92 6.92 6.92 6.91 6.91 6.90 6.89 3.82 3.81 3.80 1.81 1.80 1.79 1.77 1.76 1.53 1.52 1.50 1.49 1.47 1.46 1.32 1.31 1.30 1.27 1.26 1.02 1.01 0.97 0.94
O
N
H

53

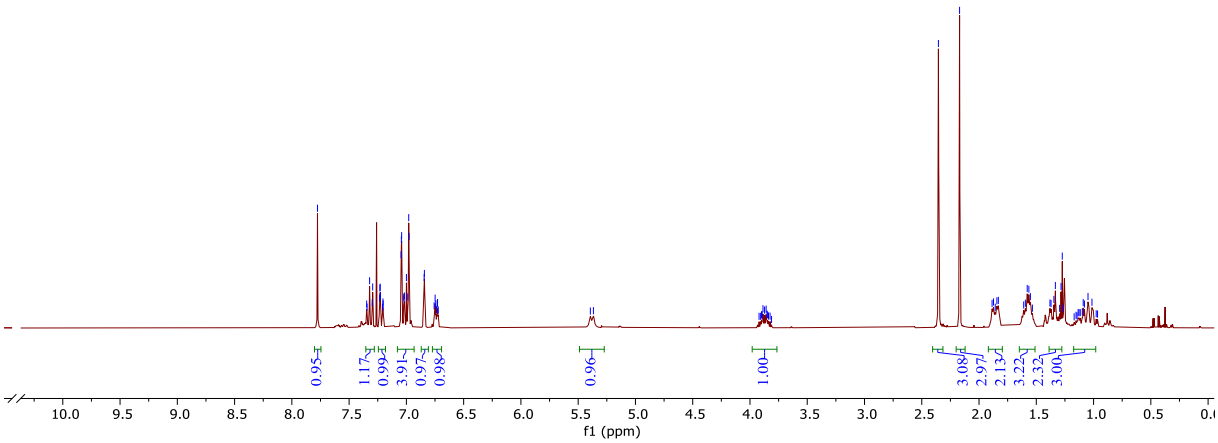

0.94
2.97
2.11
2.91
1.96
0.94
1.00
2.15
3.14
2.34
3.07
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.0
f1 (ppm)

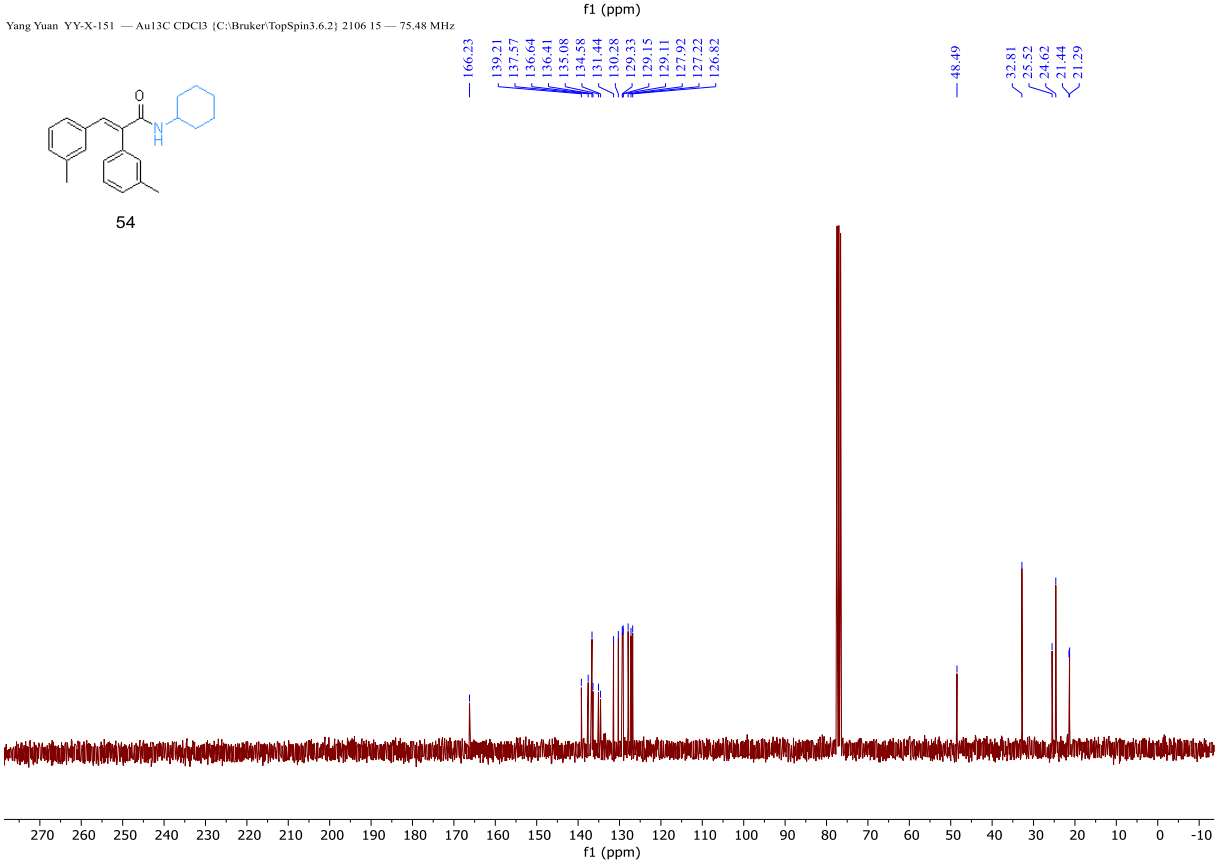

Yang Yuan YY-X-150 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 14 — 75.48 MHz
166.10
136.81
136.35
135.12
134.72
130.31
129.87
129.53
128.46
128.39
128.11
48.52
32.79
25.50
24.60
O
N
H
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

53

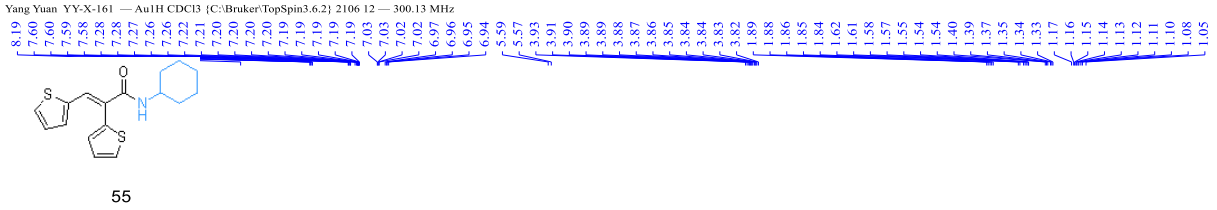

Yang Yuan YY-X-151 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 15 — 300.13 MHz
7.78 7.35 7.34 7.32 7.30 7.29 7.23 7.23 7.23 7.23 7.21 7.20 7.20 7.05 7.04 7.04 7.02 7.02 7.02 7.00 6.99 6.98 6.98 6.84 6.84 6.76 6.75 6.74 6.74 6.73 6.73 6.72 5.39 5.37 3.90 3.89 3.89 3.87 3.86 3.85 2.35 2.17 1.89 1.87 1.86 1.84 1.83 1.61 1.60 1.58 1.56 1.55 1.53 1.38 1.37 1.35 1.33 1.30 1.28 1.27 1.26 1.13 1.13 1.12 1.10 1.09 1.08 1.05 1.01 0.98 0.97
O
N
H

54

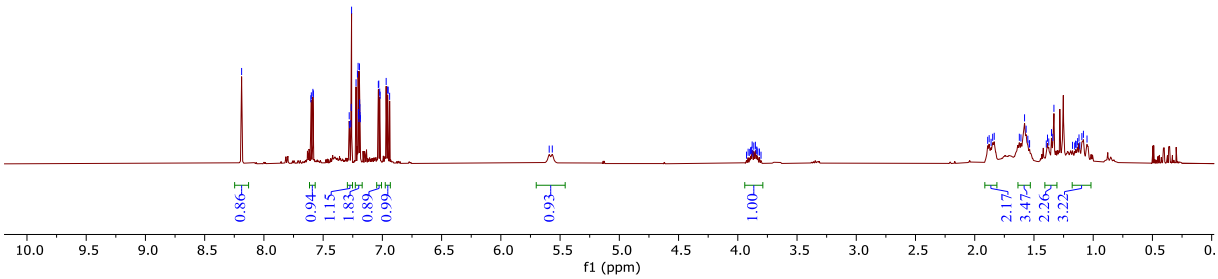

0.95 1.17 0.99 3.91 0.97 0.98 0.96 1.00 3.08 2.97 2.13 3.22 2.32 3.00
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)

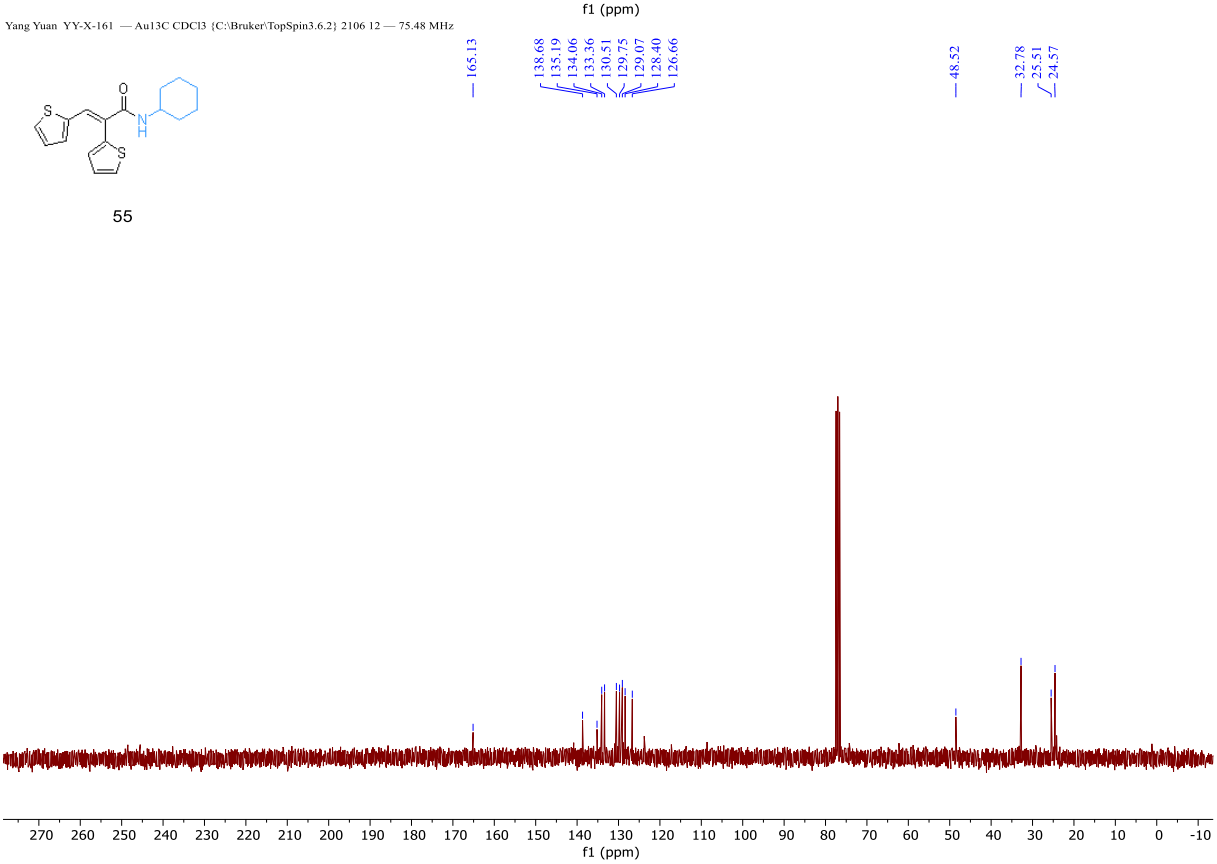

Yang Yuan YY-X-151 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 15 — 75.48 MHz
166.23 139.21 137.57 136.64 136.41 135.08 134.58 131.44 130.28 129.33 129.15 129.11 127.92 127.22 126.82 48.49 32.81 25.52 24.62 21.44 21.29
O
N
H
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

54

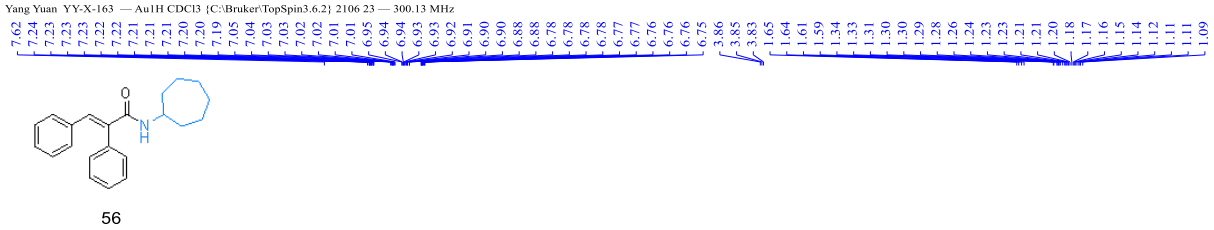

Yang Yuan YY-X-161 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 12 — 300.13 MHz
8.19 7.60 7.60 7.59 7.58 7.28 7.28 7.27 7.26 7.26 7.22 7.21 7.20 7.20 7.20 7.19 7.19 7.19 7.19 7.03 7.03 7.02 7.02 6.97 6.96 6.95 6.94 5.59 5.57 3.93 3.91 3.90 3.89 3.89 3.88 3.87 3.86 3.85 3.84 3.84 3.83 3.82 1.89 1.88 1.86 1.85 1.84 1.62 1.61 1.58 1.57 1.55 1.54 1.54 1.40 1.39 1.37 1.35 1.34 1.33 1.17 1.16 1.15 1.14 1.13 1.12 1.11 1.10 1.08 1.05
O
N
H
S
S

55

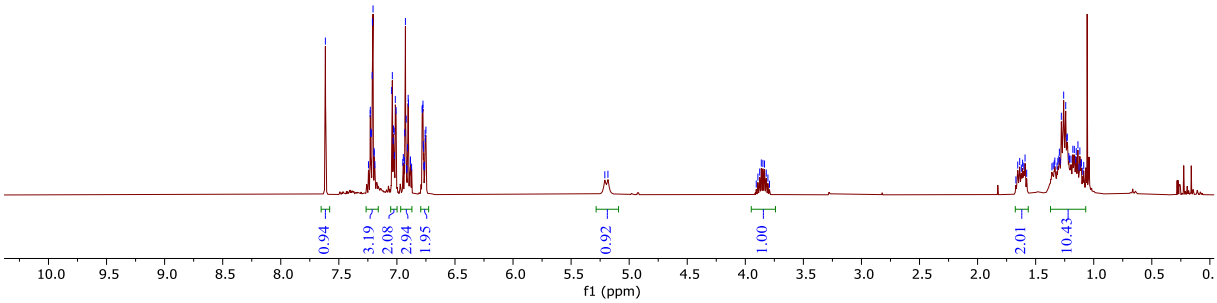

0.86 0.94 1.15 1.83 0.89 0.99 0.93 1.00 2.17 3.47 2.26 3.22
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.
f1 (ppm)

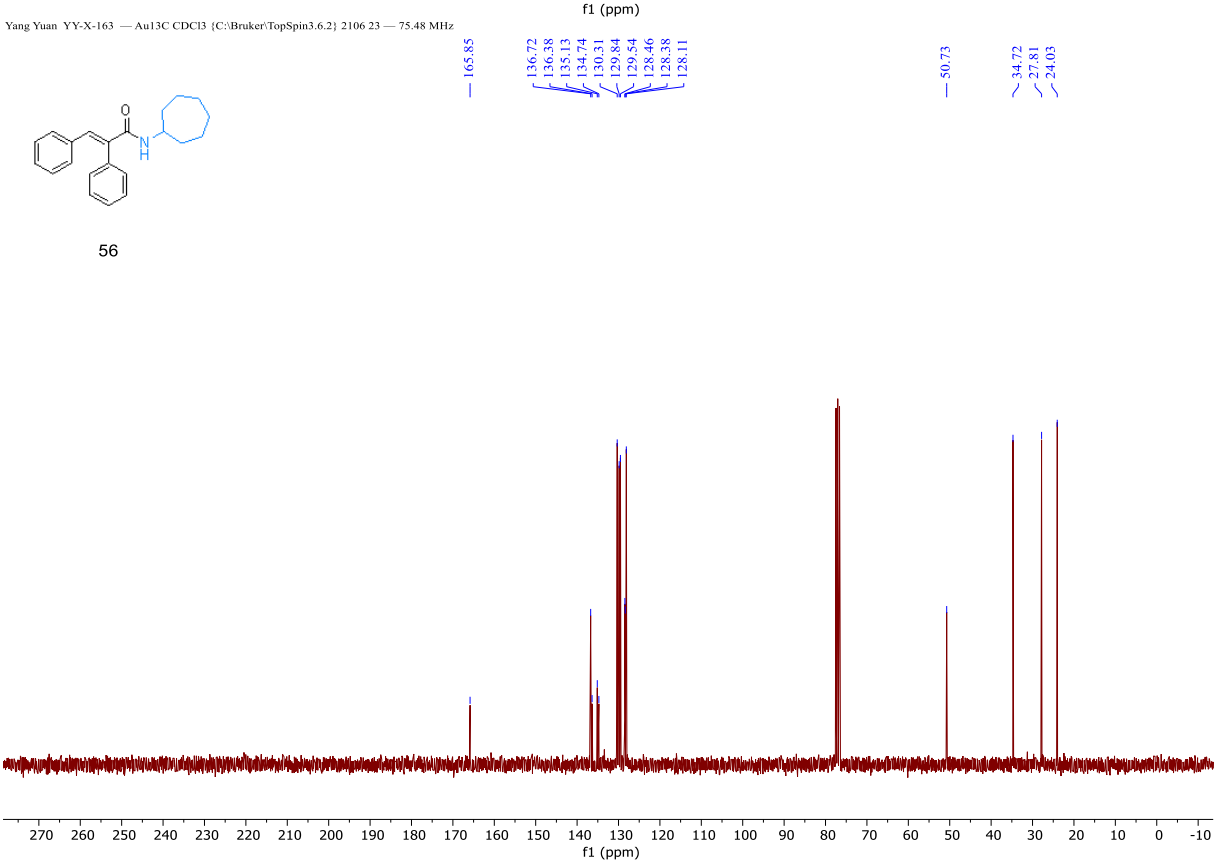

Yang Yuan YY-X-161 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 12 — 75.48 MHz
165.13 138.68 135.19 134.06 133.36 130.51 129.75 129.07 128.40 126.66 48.52 32.78 25.51 24.57
O
N
H
S
S
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

55

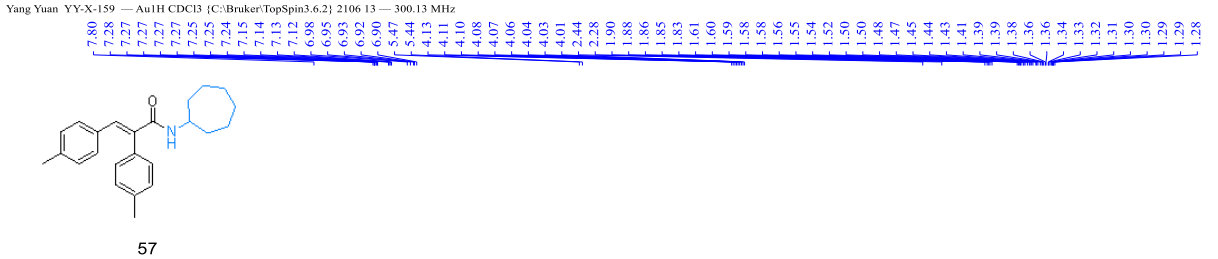

Yang Yuan YY-X-163 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 23 — 300.13 MHz
7.62 7.24 7.23 7.23 7.23 7.22 7.22 7.21 7.21 7.21 7.20 7.20 7.19 7.05 7.04 7.03 7.03 7.02 7.02 7.01 7.01 6.95 6.94 6.94 6.93 6.93 6.92 6.91 6.90 6.90 6.88 6.88 6.78 6.78 6.78 6.77 6.77 6.76 6.76 6.76 6.75 3.86 3.85 3.83 1.65 1.64 1.61 1.59 1.34 1.33 1.31 1.30 1.30 1.29 1.28 1.26 1.24 1.23 1.23 1.21 1.21 1.20 1.18 1.17 1.16 1.15 1.14 1.12 1.11 1.11 1.09
O
N
H

56

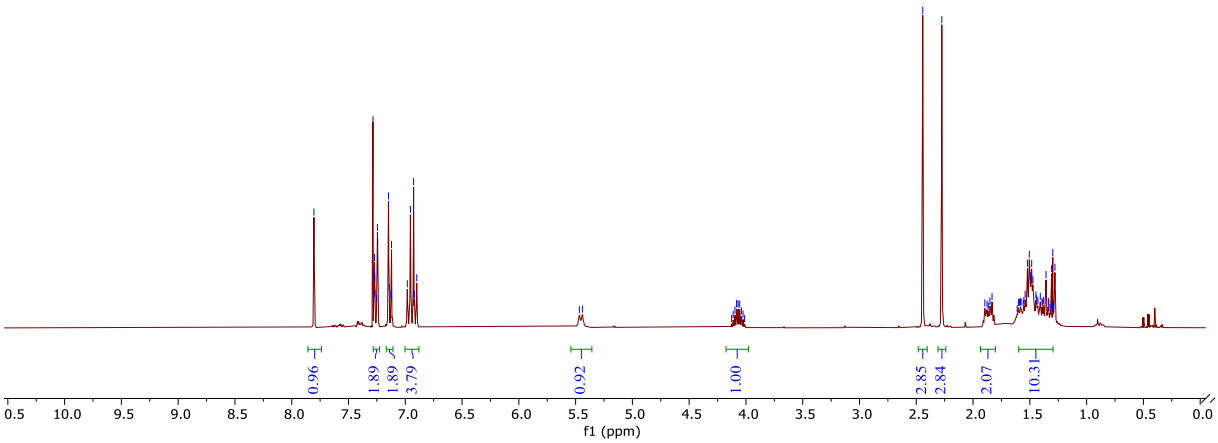

0.94
3.19
2.08
2.94
1.95
0.92
1.00
2.01
10.43
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.
f1 (ppm)

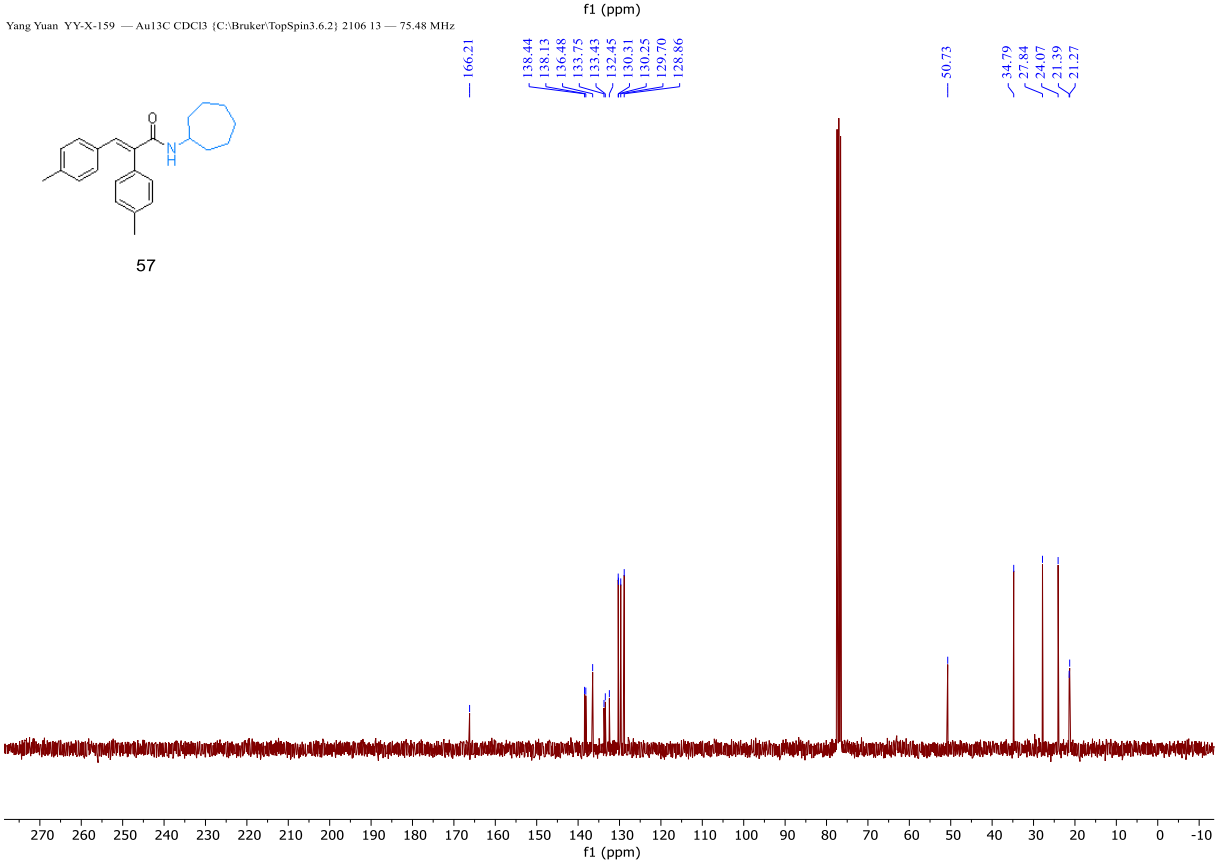

Yang Yuan YY-X-163 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 23 — 75.48 MHz
165.85
136.72
136.38
135.13
134.74
130.31
129.84
129.54
128.46
128.38
128.11
50.73
34.72
27.81
24.03
O
N
H
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

56

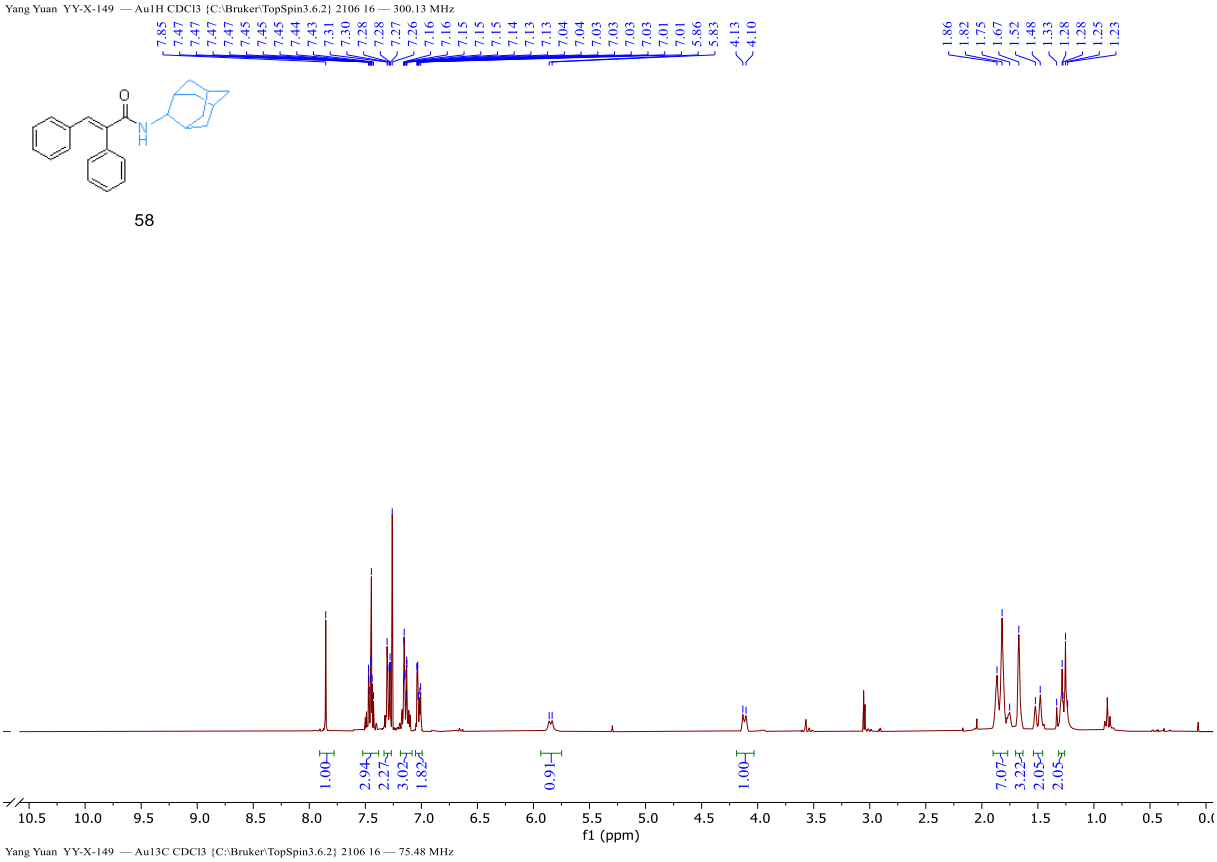

Yang Yuan YY-X-159 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 13 — 300.13 MHz
7.80
7.28
7.27
7.27
7.27
7.27
7.27
7.25
7.25
7.24
7.15
7.14
7.13
7.12
6.98
6.95
6.93
6.92
6.90
5.47
5.44
4.13
4.11
4.10
4.08
4.07
4.06
4.04
4.03
4.01
2.44
2.28
1.90
1.88
1.86
1.85
1.83
1.61
1.60
1.59
1.58
1.58
1.56
1.55
1.54
1.52
1.50
1.50
1.48
1.47
1.45
1.44
1.43
1.41
1.39
1.39
1.38
1.36
1.36
1.34
1.33
1.32
1.31
1.30
1.30
1.29
1.29
1.28
O
N
H

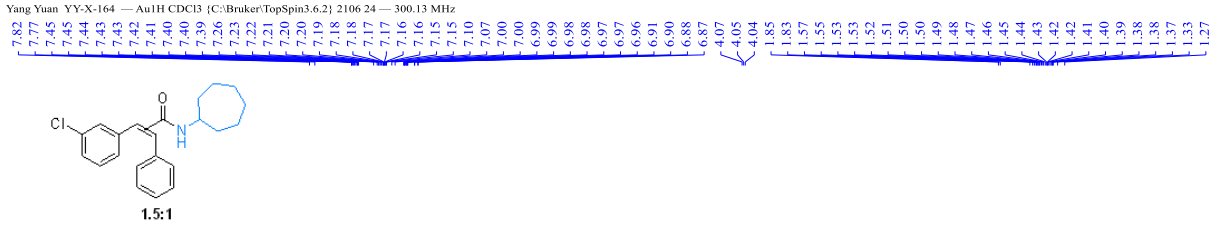
57


0.96
1.89
1.89
3.79
0.92
1.00
2.85
2.84
2.07
10.31
0.5
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)


Yang Yuan YY-X-159 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 13 — 75.48 MHz
166.21
138.44
138.13
136.48
133.75
133.43
132.45
130.31
130.25
129.70
128.86
50.73
34.79
27.84
24.07
21.39
21.27
O
N
H
270
260
250
240
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

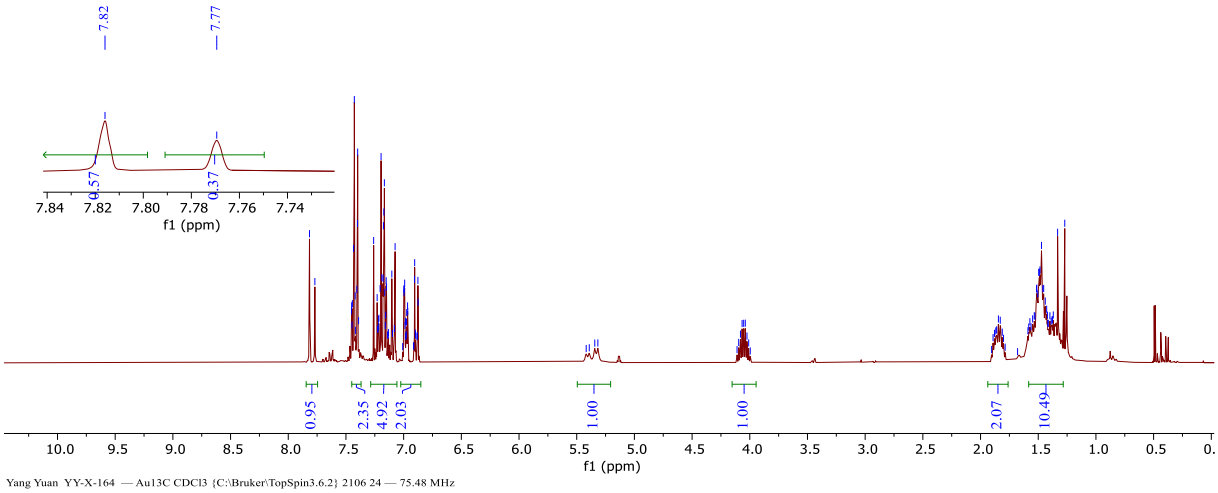
57

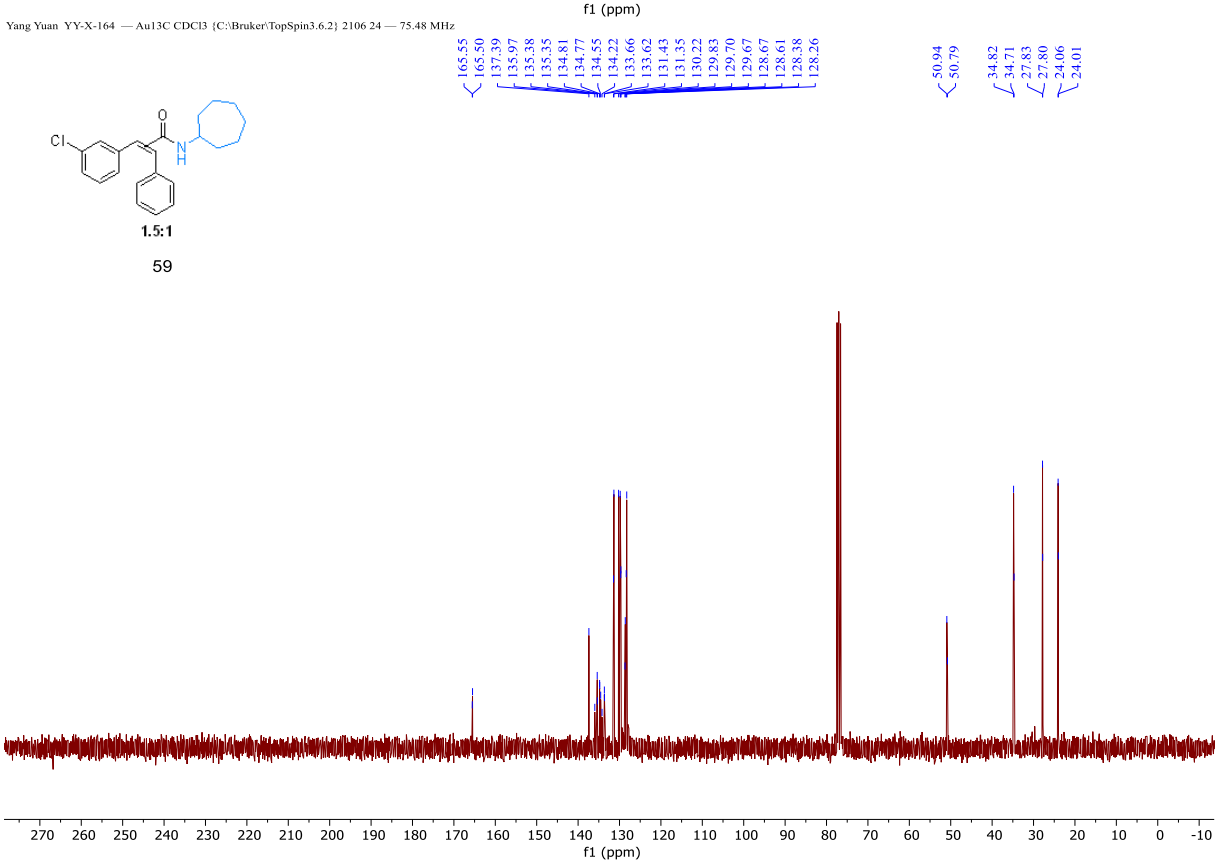

Yang Yuan YY-X-149 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 16 — 300.13 MHz
7.85 7.47 7.47 7.47 7.47 7.45 7.45 7.45 7.44 7.43 7.31 7.30 7.28 7.28 7.27 7.26 7.16 7.16 7.15 7.15 7.15 7.14 7.13 7.13 7.04 7.04 7.03 7.03 7.03 7.03 7.01 7.01 5.86 5.83 4.13 4.10
1.86 1.82 1.75 1.67 1.52 1.48 1.33 1.28 1.28 1.25 1.23
O
N
H
58
1.00 2.94 2.27 3.02 1.82 0.91 1.00 7.07 3.22 2.05 2.05
10.5 10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
f1 (ppm)
Yang Yuan YY-X-149 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 16 — 75.48 MHz
165.90 136.60 136.52 135.12 134.83 130.35 129.76 129.58 128.51 128.42 128.13 53.57 37.45 36.98 31.88 31.84 27.07 27.04
O
N
H
58
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)


Yang Yuan YY-X-164 — Au1H CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 24 — 300.13 MHz
7.82 7.77 7.45 7.45 7.44 7.43 7.43 7.42 7.41 7.40 7.40 7.39 7.26 7.23 7.22 7.21 7.20 7.20 7.19 7.18 7.18 7.17 7.17 7.16 7.16 7.15 7.15 7.10 7.07 7.00 7.00 6.99 6.99 6.98 6.98 6.97 6.97 6.96 6.91 6.90 6.88 6.87 4.07 4.05 4.04 1.85 1.83 1.57 1.55 1.53 1.53 1.52 1.51 1.50 1.50 1.49 1.48 1.47 1.46 1.45 1.44 1.43 1.42 1.42 1.41 1.40 1.39 1.38 1.38 1.37 1.33 1.27
Cl
O
N
H

1.5:1

59


7.82
7.77
0.57
0.37
7.84 7.82 7.80 7.78 7.76 7.74
f1 (ppm)
0.95
2.35
4.92
2.03
1.00
1.00
2.07
10.49
10.0 9.5 9.0 8.5 8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5 0.
f1 (ppm)

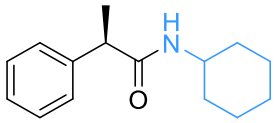

Yang Yuan YY-X-164 — Au13C CDCl3 {C:\Bruker\TopSpin3.6.2} 2106 24 — 75.48 MHz
165.55 165.50 137.39 135.97 135.38 135.35 134.81 134.77 134.55 134.22 133.66 133.62 131.43 131.35 130.22 129.83 129.70 129.67 128.67 128.61 128.38 128.26
50.94 50.79
34.82 34.71 27.83 27.80 24.06 24.01
Cl
O
N
H

1.5:1

59

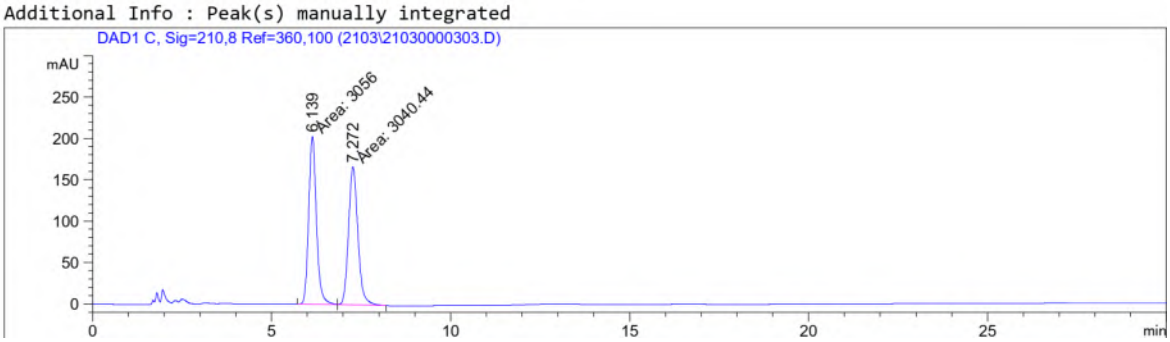
270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10
f1 (ppm)

7. HPLC Spectra



(R)-N-Cyclohexyl-2-phenylpropanamide (4)

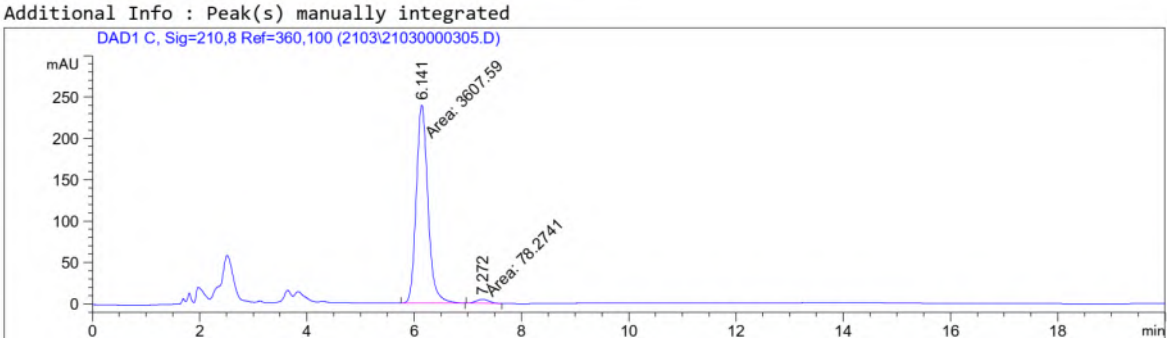
```
Data File D:\CHEM32\1\DATA\2103\21030000303.D
Sample Name: YY-x-59 race

    ======================================================================
    Acq. Operator   : Analytik                       Seq. Line :   4
    Acq. Instrument : LC5                            Location : Vial 31
    Injection Date  : 3/3/2021 1:22:36 PM                 Inj :   1
                                                  Inj Volume : 0.5 µl
    Different Inj Volume from Sequence !     Actual Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
    Last changed    : 3/3/2021 1:55:14 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
    Last changed    : 3/3/2021 2:51:01 PM by Analytik
                      (modified after loading)
    Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

    Additional Info : Peak(s) manually integrated
```



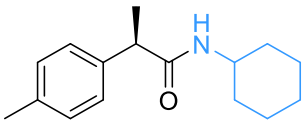

```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   6.139 MM    0.2514 3055.99780  202.62683  50.1276
       2   7.272 MM    0.3038 3040.44189  166.78253  49.8724

LC5 3/3/2021 2:52:04 PM Analytik                              Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030000305.D
Sample Name: YY-x-59

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   6
Acq. Instrument : LC5                             Location : Vial 32
Injection Date  : 3/3/2021 2:16:43 PM                 Inj :   1
                                                 Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/3/2021 1:55:14 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/3/2021 2:53:32 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```

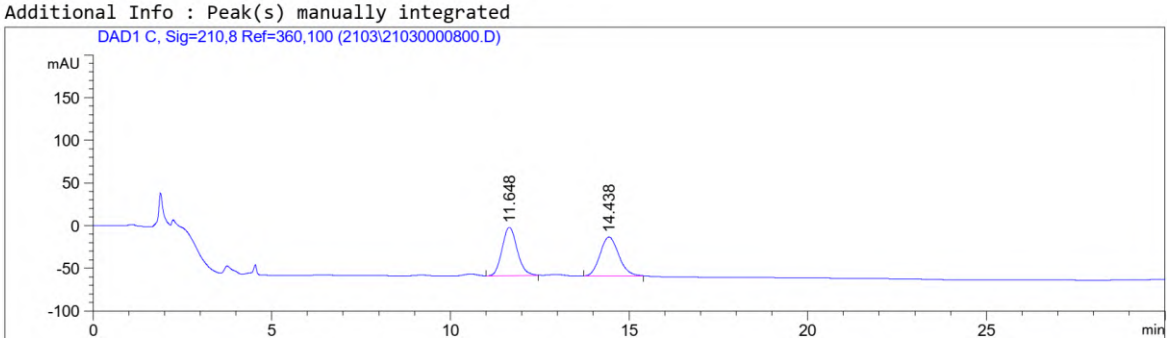



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.141 MM    0.2512 3607.59473  239.39899  97.8764
   2   7.272 MM    0.2740   78.27406    4.76138   2.1236
```



Data File D:\CHEM32\1\DATA\2103\21030000800.D
Sample Name: YY-X-65-Race

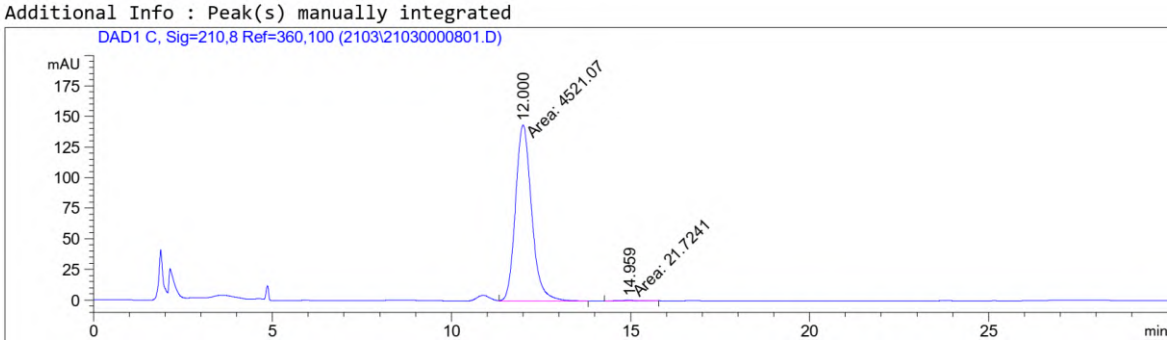
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   1
Acq. Instrument : LC5                           Location : Vial 31
Injection Date  : 3/8/2021 3:18:21 PM               Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/8/2021 3:18:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 11:26:21 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



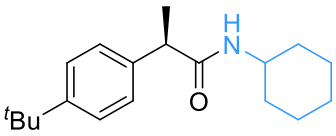

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.648 VB    0.4575 1665.84277   56.57780  49.8275
   2  14.438 BB    0.5678 1677.37830   45.74106  50.1725

Totals :                  3343.22107  102.31886
```

Data File D:\CHEM32\1\DATA\2103\21030000801.D
Sample Name: YY-X-65-C

```
=====================================================================
Acq. Operator   : Analytik                      Seq. Line :   2
Acq. Instrument : LC5                            Location : Vial 41
Injection Date  : 3/8/2021 3:59:27 PM                 Inj :   1
                                                Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 2.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/8/2021 3:18:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 11:27:44 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



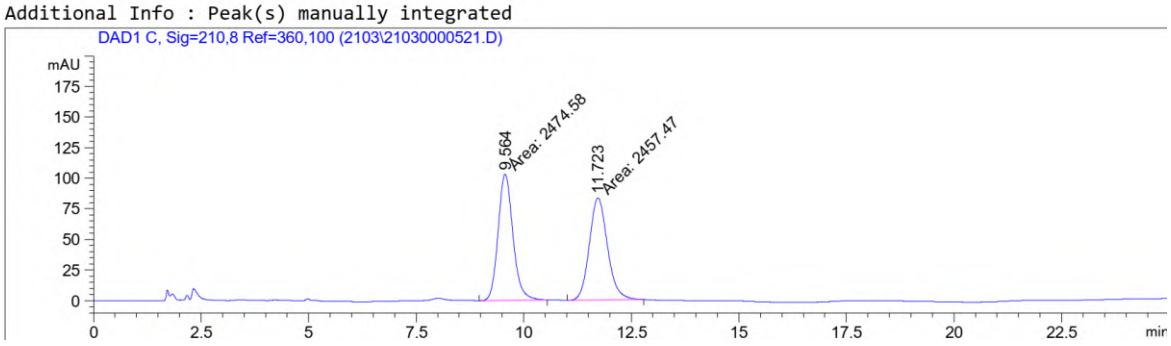

```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  12.000 FM    0.5233 4521.06836  143.98621  99.5218
   2  14.959 MM    0.6906   21.72414 5.24294e-1   0.4782

Totals :                  4542.79250  144.51050
```



(R)-2-(4-(*tert*-Butyl)phenyl)-*N*-cyclohexylpropanamide (6)

Data File D:\CHEM32\1\DATA\2103\21030000521.D
Sample Name: YY-X-67-Race

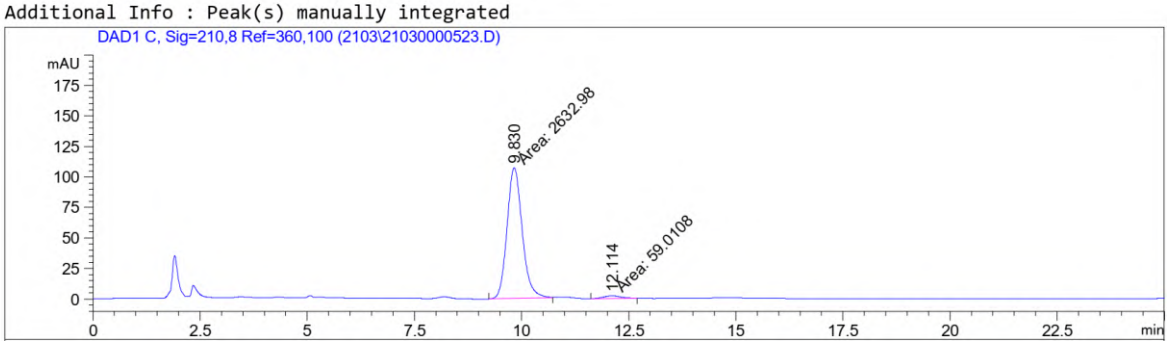
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :   5
Acq. Instrument : LC5                          Location : Vial 33
Injection Date  : 3/5/2021 9:32:12 PM              Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/5/2021 4:03:06 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/8/2021 12:36:39 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



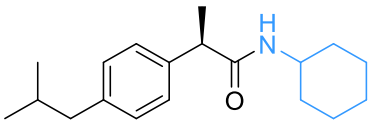

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.564 MM    0.3996 2474.57935  103.22060  50.1734
   2  11.723 MM    0.4906 2457.47388   83.47901  49.8266

Totals :                  4932.05322  186.69961
```

Data File D:\CHEM32\1\DATA\2103\21030000523.D
Sample Name: YY-X-67-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   6
Acq. Instrument : LC5                             Location : Vial 43
Injection Date  : 3/5/2021 10:54:26 PM                 Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/5/2021 4:03:06 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/8/2021 12:36:39 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



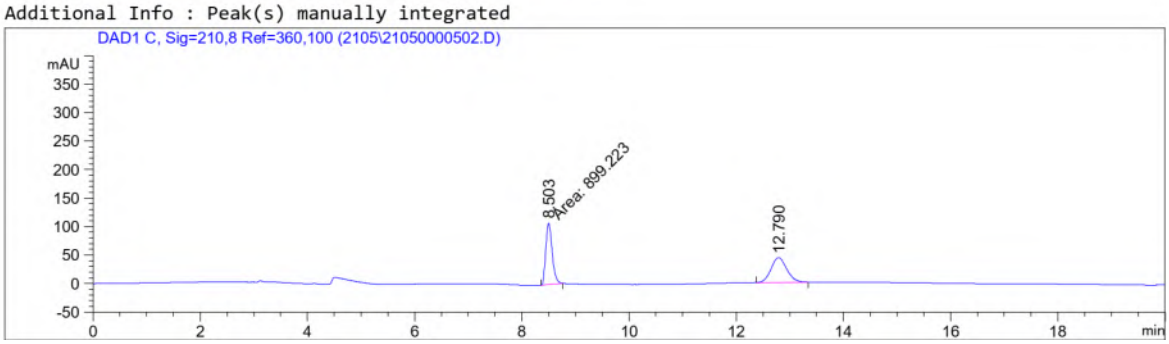

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.830 MM    0.4098 2632.97778  107.08657  97.8079
   2  12.114 MM    0.4480   59.01076    2.19550   2.1921

Totals :                  2691.98854  109.28207
```



(R)-*N*-Cyclohexyl-2-(4-isobutylphenyl)propanamide (7)

Data File D:\CHEM32\1\DATA\2105\21050000502.D
Sample Name: YY-X-125 Race

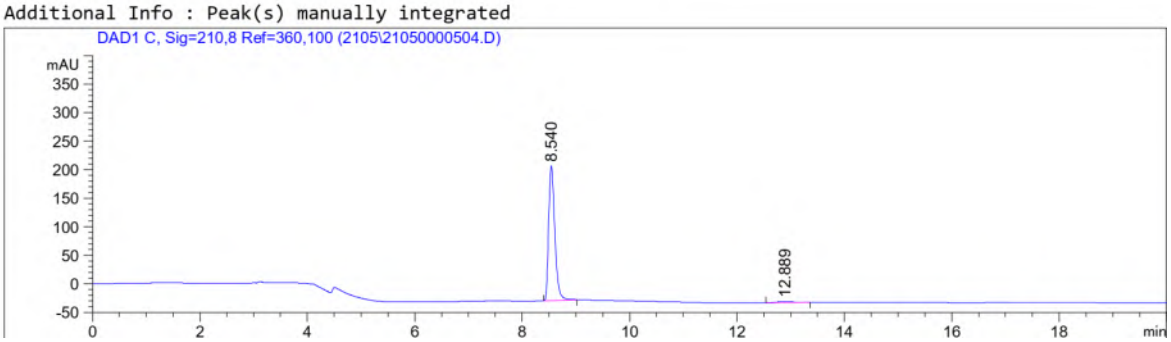
```
======================================================================
Acq. Operator   : Analytik                      Seq. Line :   3
Acq. Instrument : LC5                           Location : Vial 9
Injection Date  : 5/5/2021 11:16:14 AM               Inj :   1
                                               Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 11:15:50 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 2:13:26 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 99:1, 1.0ml/min

Additional Info : Peak(s) manually integrated
```



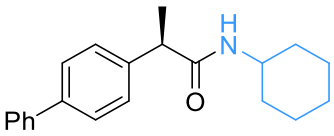

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.503 MM    0.1383  899.22321  108.37066  50.2277
   2  12.790 BB    0.3163  891.06921   43.61647  49.7723

Totals :                  1790.29242  151.98713
```

Data File D:\CHEM32\1\DATA\2105\21050000504.D
Sample Name: YY-X-125 -C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   5
Acq. Instrument : LC5                             Location : Vial 8
Injection Date  : 5/5/2021 12:38:43 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 10:03:49 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 2:13:26 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 99:1, 1.0ml/min

Additional Info : Peak(s) manually integrated
```



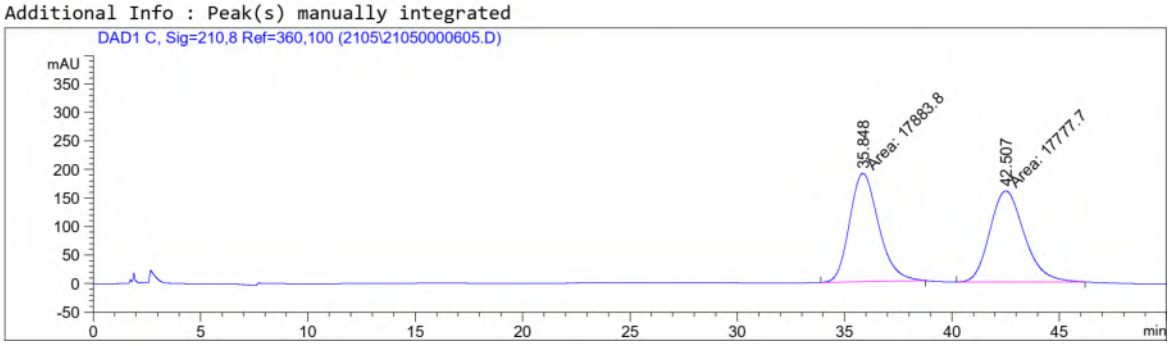

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.540 BB    0.1236 1893.06592  235.96875  98.2875
   2  12.889 BB    0.3045   32.98305    1.62707   1.7125

Totals :                  1926.04897  237.59582
```



(R)-2-([1,1'-Biphenyl]-4-yl)-*N*-cyclohexylpropanamide (8)

Data File D:\CHEM32\1\DATA\2105\21050000605.D
Sample Name: YY-X-103 Race

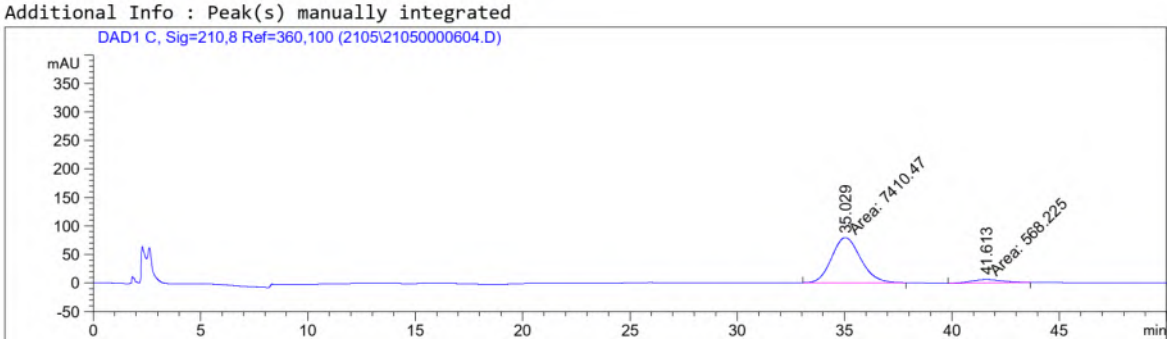
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   5
Acq. Instrument : LC5                            Location : Vial 21
Injection Date  : 5/6/2021 4:06:09 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/6/2021 1:51:06 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/7/2021 10:54:22 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 99:1, 1ml/min

Additional Info : Peak(s) manually integrated
```



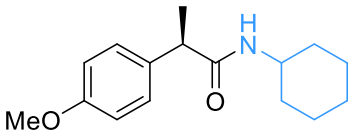

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  35.848 MM    1.5683 1.78838e4   190.05756  50.1488
   2  42.507 MM    1.8571 1.77777e4   159.55045  49.8512

Totals :                  3.56615e4   349.60800
```

Data File D:\CHEM32\1\DATA\2105\21050000604.D
Sample Name: YY-X-103 rt

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 22
Injection Date  : 5/6/2021 3:10:00 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/6/2021 1:51:06 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/7/2021 10:54:22 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 99:1, 1ml/min

Additional Info : Peak(s) manually integrated
```



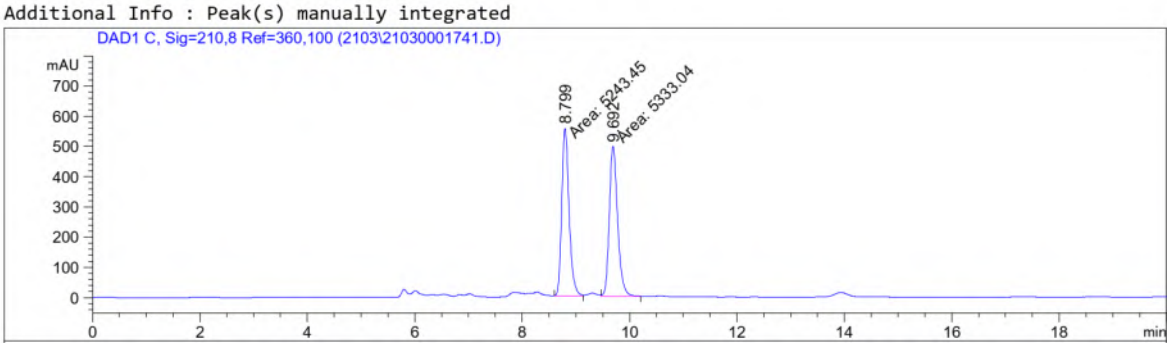

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  35.029 MM    1.5630 7410.47363   79.01877  92.8782
   2  41.613 MM    1.1961  568.22485    5.72760   7.1218
```



(R)-N-Cyclohexyl-2-(4-methoxyphenyl)propanamide (9)

Data File D:\CHEM32\1\DATA\2103\21030001741.D
Sample Name: YY-X-68 Race

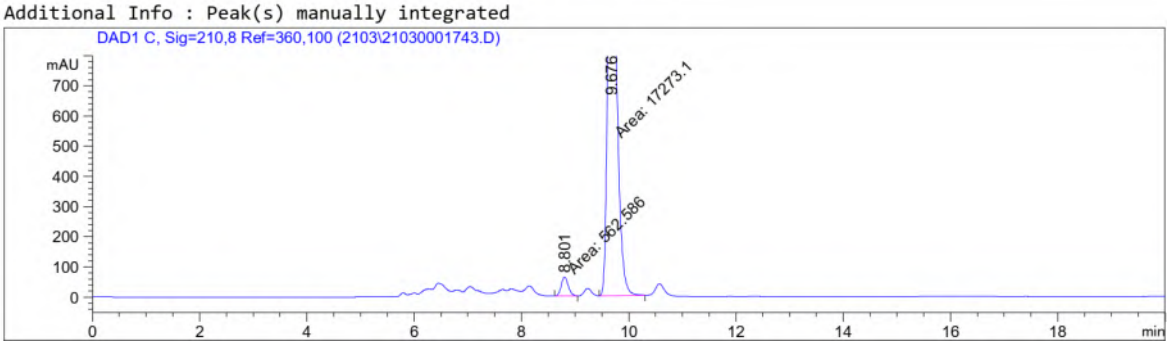
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :  18
Acq. Instrument : LC5                          Location : Vial 34
Injection Date  : 3/18/2021 10:29:55 AM            Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 2:33:11 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/18/2021 11:12:55 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



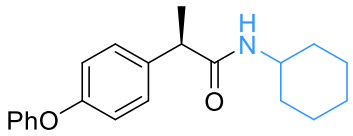

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.799 MF    0.1577 5243.45264  554.05408  49.5765
   2   9.692 FM    0.1792 5333.03906  496.12857  50.4235

Totals :                  1.05765e4  1050.18265
```

Data File D:\CHEM32\1\DATA\2103\21030001743.D
Sample Name: YY-X-68 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  19
Acq. Instrument : LC5                            Location : Vial 44
Injection Date  : 3/18/2021 11:12:07 AM              Inj :   2
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 2:33:11 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/18/2021 11:12:55 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```

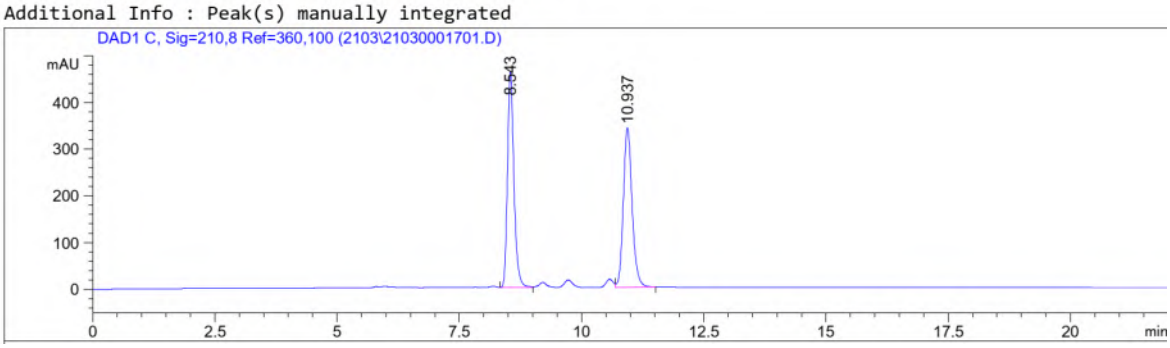



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.801 MM    0.1498  562.58582   62.57995   3.1543
   2   9.676 MM    0.1842 1.72731e4  1563.02771  96.8457

Totals :                  1.78357e4  1625.60766
```



(R)-N-Cyclohexyl-2-(4-phenoxyphenyl)propanamide (10)

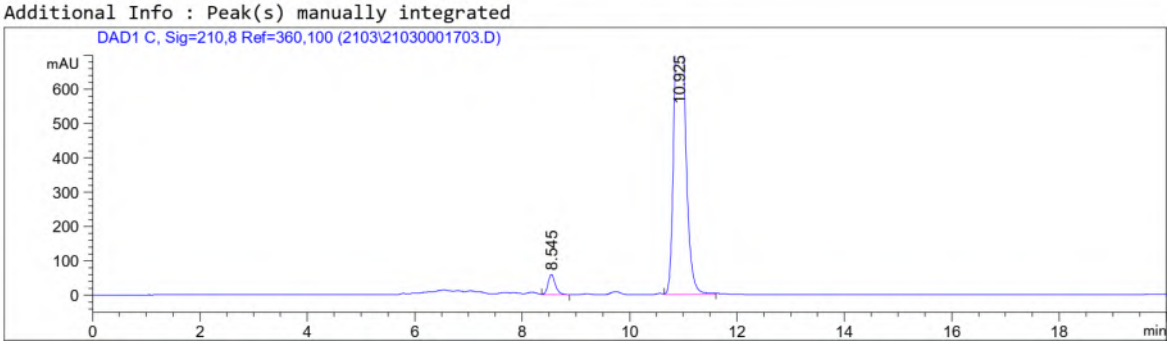
```
Data File D:\CHEM32\1\DATA\2103\21030001701.D
Sample Name: YY-X-72 Race

    ======================================================================
    Acq. Operator   : Analytik                       Seq. Line :   1
    Acq. Instrument : LC5                            Location : Vial 31
    Injection Date  : 3/17/2021 11:42:23 AM               Inj :   1
                                                   Inj Volume : 0.5 µl
    Different Inj Volume from Sequence !     Actual Inj Volume : 0.1 µl
    Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
    Last changed    : 3/17/2021 12:16:02 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
    Last changed    : 3/17/2021 12:41:09 PM by Analytik
                      (modified after loading)
    Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

    Additional Info : Peak(s) manually integrated
```



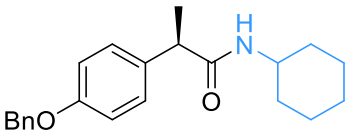

```
    ======================================================================
                              Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   8.543 VV    0.1407 4295.44385  461.12308  49.9743
       2  10.937 VB    0.1931 4299.86230  341.02795  50.0257

LC5 3/17/2021 12:41:43 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030001703.D
Sample Name: YY-X-72 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 41
Injection Date  : 3/17/2021 12:37:30 PM               Inj :   2
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 12:16:02 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 2:27:03 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```

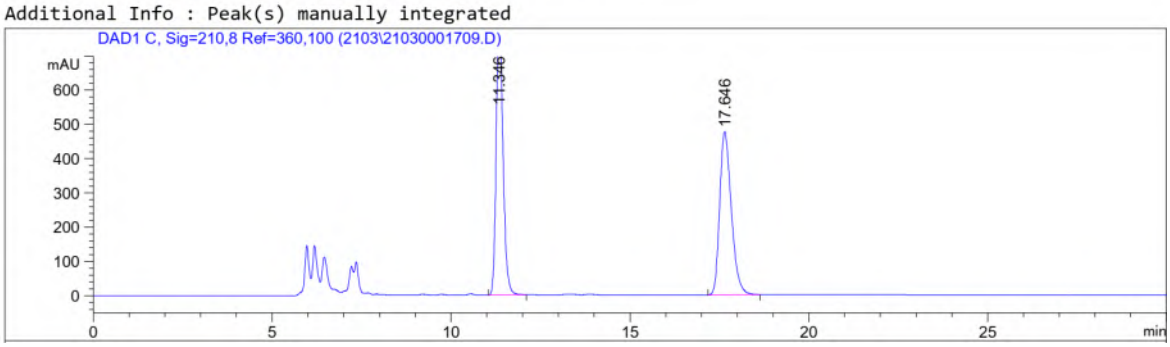



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.545 VB    0.1442  573.69867   59.66669   3.8028
   2  10.925 VB    0.1980 1.45124e4  1128.56689  96.1972

Totals :                  1.50861e4  1188.23359
```



(R)-2-(4-(Benzyloxy)phenyl)-*N*-cyclohexylpropanamide (11)

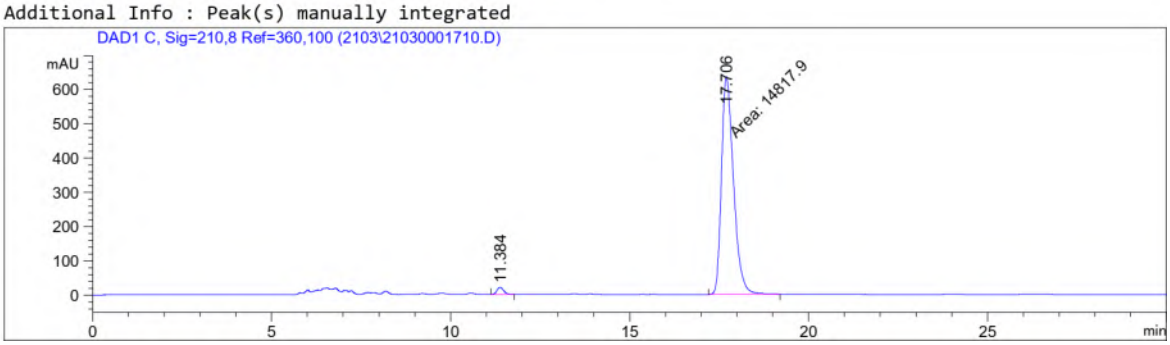
```
Data File D:\CHEM32\1\DATA\2103\21030001709.D
Sample Name: YY-X-82-Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 33
Injection Date  : 3/17/2021 2:54:40 PM             Inj :   2
                                              Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 3:03:43 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 3:48:02 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



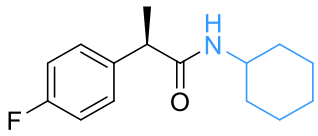

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.346 BB    0.2025 1.06880e4   807.14893  49.7251
   2  17.646 BB    0.3458 1.08062e4   477.85327  50.2749

Totals :                  2.14942e4  1285.00220

LC5 3/17/2021 3:48:50 PM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030001710.D
Sample Name: YY-X-82-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 43
Injection Date  : 3/17/2021 3:35:48 PM                Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 3:03:43 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 3:48:02 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



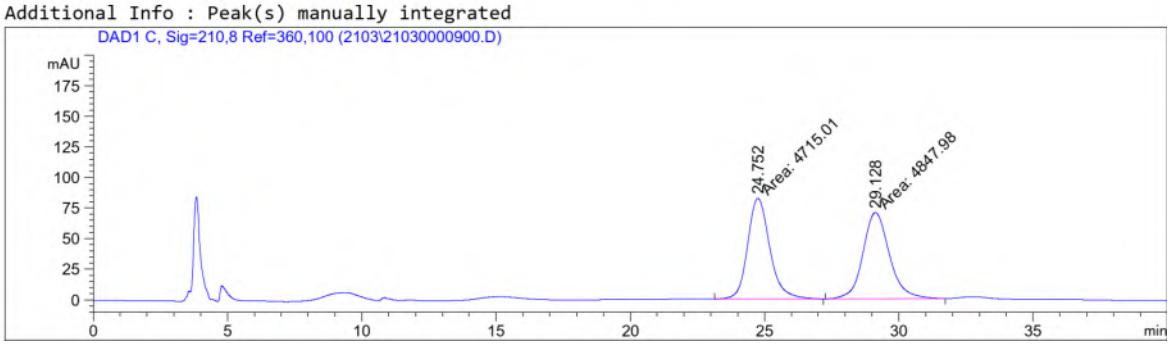

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.384 BB    0.2019  272.90213   20.68949   1.8084
   2  17.706 MM    0.3878 1.48179e4   636.76093  98.1916

Totals :                  1.50908e4   657.45041
```



(R)-*N*-Cyclohexyl-2-(4-fluorophenyl)propanamide (12)

Data File D:\CHEM32\1\DATA\2103\21030000900.D
Sample Name: YY-X-66-Race

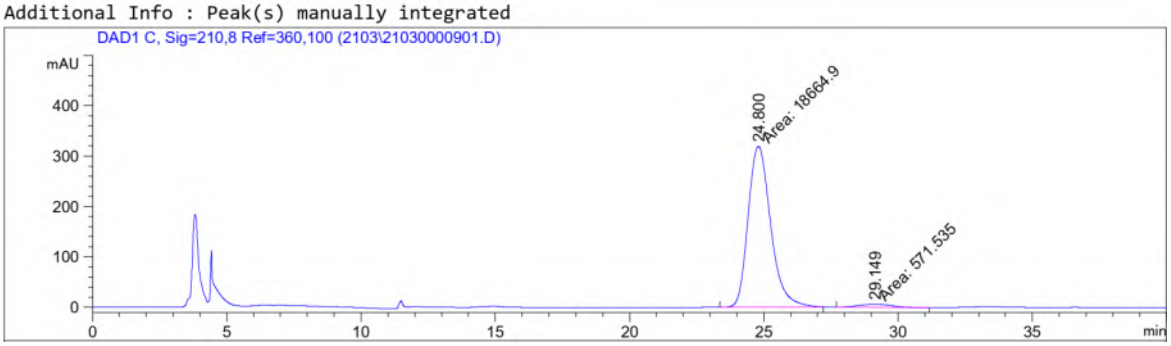
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 32
Injection Date  : 3/9/2021 11:50:50 AM             Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 11:50:29 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 12:38:01 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 0,5ml/min

Additional Info : Peak(s) manually integrated
```



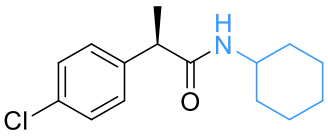

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  24.752 MM    0.9558 4715.00537   82.21693  49.3048
   2  29.128 MM    1.1476 4847.97754   70.40529  50.6952

Totals :                  9562.98291  152.62222
```

Data File D:\CHEM32\1\DATA\2103\21030000901.D
Sample Name: YY-X-66-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 42
Injection Date  : 3/9/2021 12:31:56 PM                Inj :   1
                                                 Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 2.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 11:50:29 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/9/2021 2:05:42 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 0,5ml/min

Additional Info : Peak(s) manually integrated
```



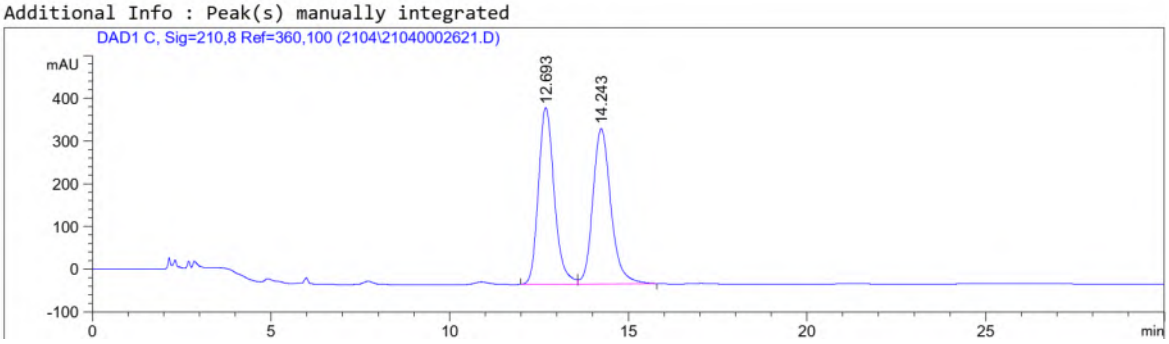

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  24.800 MM    0.9744 1.86649e4   319.26517  97.0289
   2  29.149 MM    1.4684  571.53461    6.48698   2.9711

Totals :                  1.92365e4   325.75215
```



(R)-2-(4-Chlorophenyl)-*N*-cyclohexylpropanamide (13)

Data File D:\CHEM32\1\DATA\2104\21040002621.D
Sample Name: YY-X-81 Race

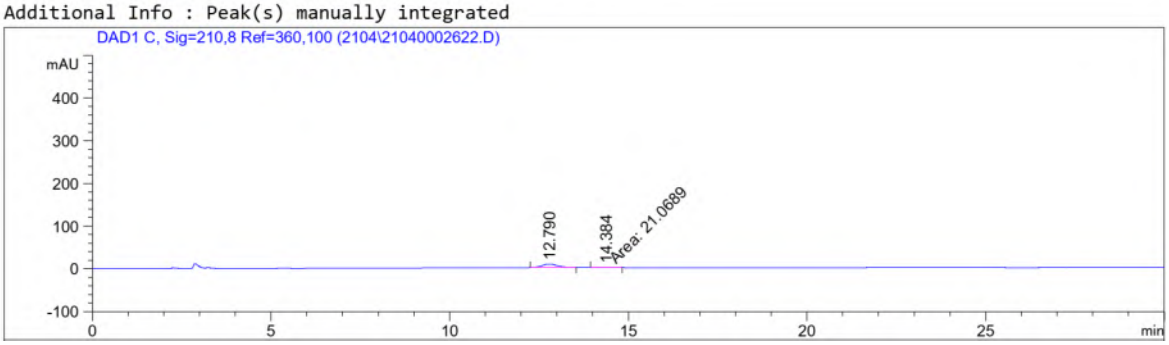
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :  13
Acq. Instrument : LC5                          Location : Vial 26
Injection Date  : 4/27/2021 1:21:35 AM              Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0,8.M
Last changed    : 4/26/2021 4:26:28 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY 0,8.M
Last changed    : 4/27/2021 11:09:04 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 0.8ml/min

Additional Info : Peak(s) manually integrated
```



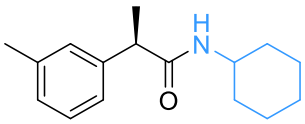

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  12.693 BV    0.4763 1.27643e4   413.30167  49.9141
   2  14.243 VB    0.5402 1.28083e4   364.24915  50.0859

Totals :                  2.55726e4   777.55081
```

Data File D:\CHEM32\1\DATA\2104\21040002622.D
Sample Name: YY-X-81 rt

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  14
Acq. Instrument : LC5                             Location : Vial 36
Injection Date  : 4/27/2021 1:52:39 AM                 Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0,8.M
Last changed    : 4/26/2021 4:26:28 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY 0,8.M
Last changed    : 4/27/2021 11:09:04 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 0.8ml/min

Additional Info : Peak(s) manually integrated
```

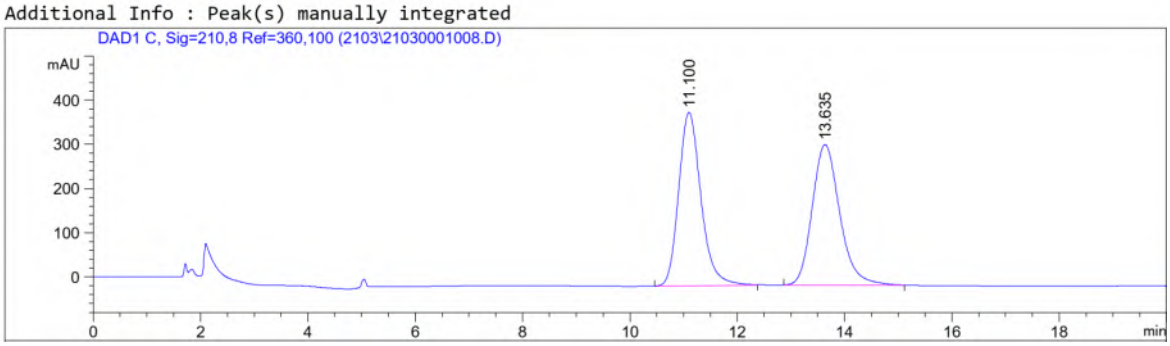



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  12.790 BB    0.4517  234.26813    7.95322  91.7486
   2  14.384 MM    0.4592   21.06885 7.64721e-1   8.2514

Totals :                   255.33698    8.71794
```



(R)-N-Cyclohexyl-2-(m-tolyl)propanamide (14)

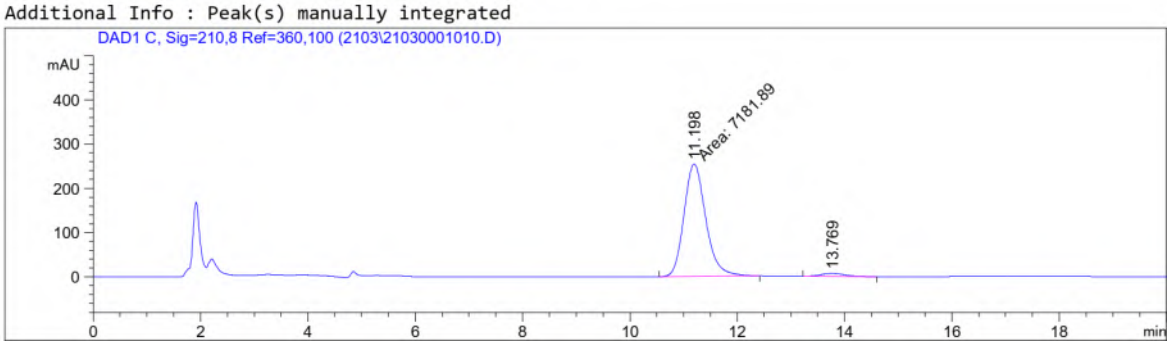
```
Data File D:\CHEM32\1\DATA\2103\21030001008.D
Sample Name: YY-X-79 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 56
Injection Date  : 3/10/2021 2:23:16 PM             Inj :   1
                                              Inj Volume : 3.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 2:36:58 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 3:00:22 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



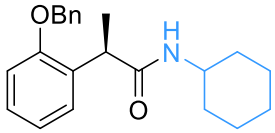

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.100 BB    0.4443 1.12971e4   391.91498  49.9120
   2  13.635 BB    0.5503 1.13369e4   317.72333  50.0880

Totals :                  2.26340e4   709.63831
```

Data File D:\CHEM32\1\DATA\2103\21030001010.D
Sample Name: YY-X-79 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 63
Injection Date  : 3/10/2021 3:25:33 PM                Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 2:36:58 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-81.M
Last changed    : 3/10/2021 3:58:18 PM by Analytik
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



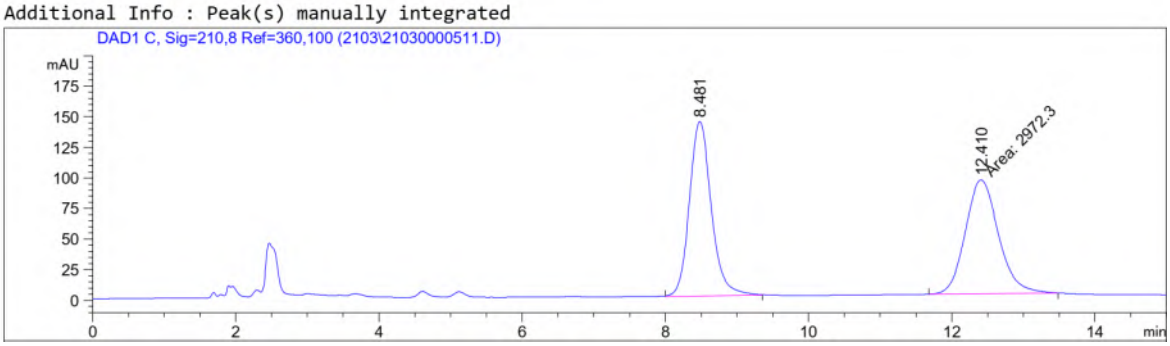

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.198 MM    0.4714 7181.89014  253.90724  97.1749
   2  13.769 BB    0.4857  208.79301    6.73403   2.8251

Totals :                  7390.68315  260.64127
```



(R)-2-(2-(Benzyloxy)phenyl)-*N*-cyclohexylpropanamide (15)

Data File D:\CHEM32\1\DATA\2103\21030000511.D
Sample Name: YY-X-71-Race

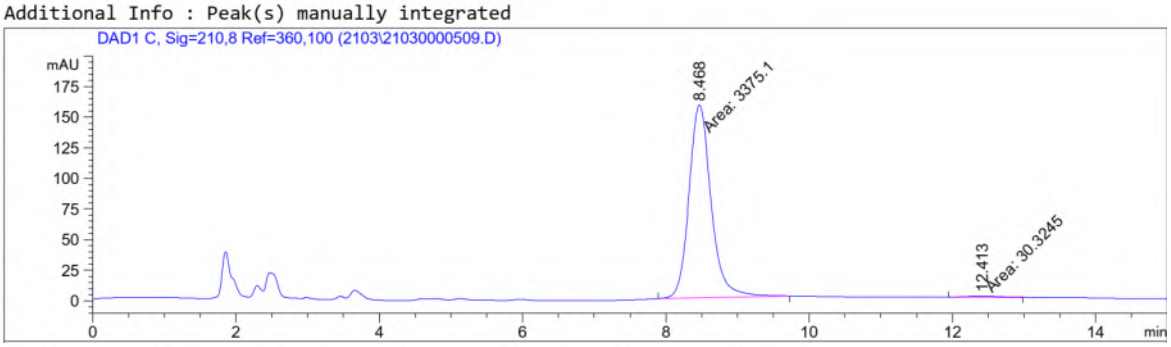
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :   5
Acq. Instrument : LC5                          Location : Vial 35
Injection Date  : 3/5/2021 3:01:55 PM               Inj :   1
                                              Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/5/2021 3:10:59 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/8/2021 12:27:53 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



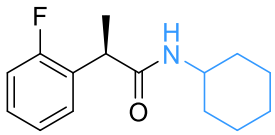

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.481 BB    0.3262 3034.06128  142.62895  50.5141
   2  12.410 MM    0.5333 2972.30225   92.89326  49.4859

Totals :                  6006.36353  235.52221
```

Data File D:\CHEM32\1\DATA\2103\21030000509.D
Sample Name: YY-X-71-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 41
Injection Date  : 3/5/2021 2:29:46 PM                 Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/5/2021 2:13:16 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/8/2021 12:27:53 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



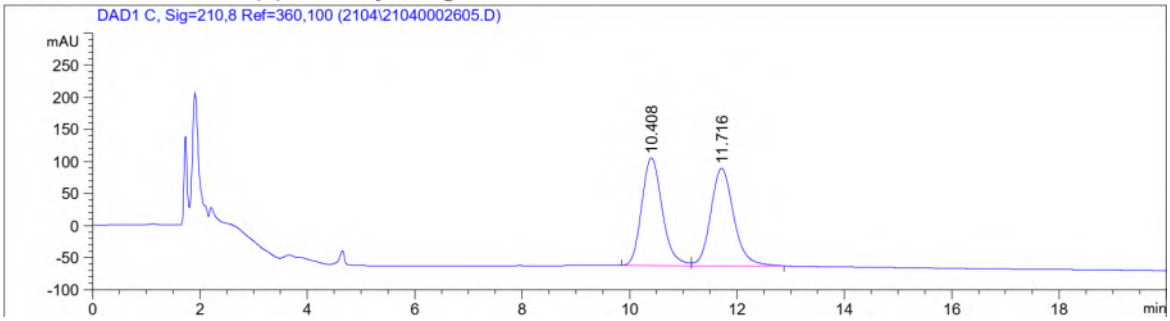

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.468 MM    0.3574 3375.10303  157.39024  99.1095
   2  12.413 MM    0.5100   30.32452 9.90925e-1   0.8905

Totals :                  3405.42755  158.38117
```



(R)-N-Cyclohexyl-2-(2-fluorophenyl)propanamide (16)

Data File D:\CHEM32\1\DATA\2104\21040002605.D
Sample Name: YY-X-100 Race

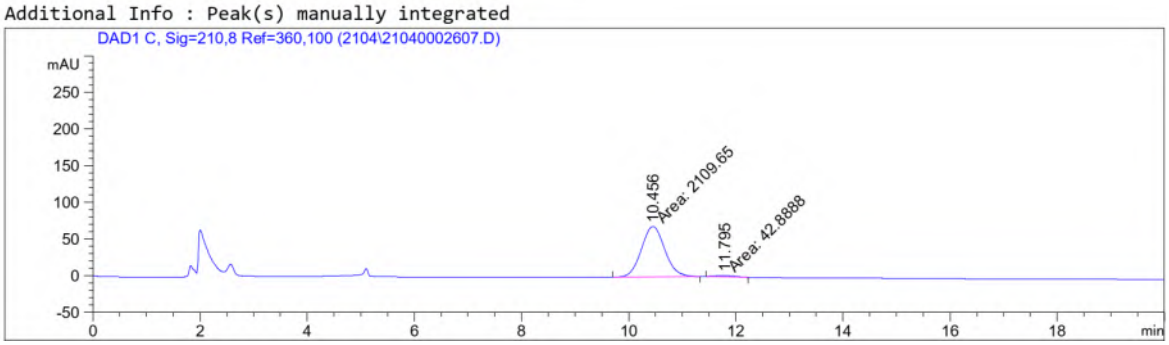
```
==========================================================================
Acq. Operator   : Analytik                     Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 21
Injection Date  : 4/26/2021 2:58:27 PM              Inj :   1
                                               Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/26/2021 3:13:39 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/27/2021 10:24:10 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



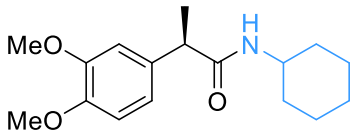

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  10.408 BV    0.4134 4476.12646  167.71735  49.6773
   2  11.716 VB    0.4602 4534.28613  151.91861  50.3227

Totals :                  9010.41260  319.63596
```

Data File D:\CHEM32\1\DATA\2104\21040002607.D
Sample Name: YY-X-100-30

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 31
Injection Date  : 4/26/2021 3:40:40 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 8.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/26/2021 3:13:39 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/27/2021 10:26:28 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```

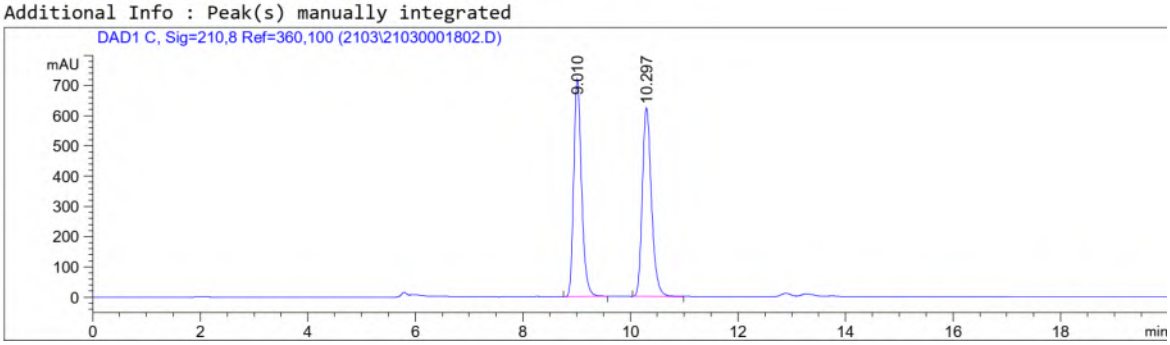



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  10.456 MM    0.5097 2109.65234   68.97826  98.0075
   2  11.795 MM    0.4103   42.88883    1.74197   1.9925
```



(R)-N-Cyclohexyl-2-(3,4-dimethoxyphenyl)propanamide (17)

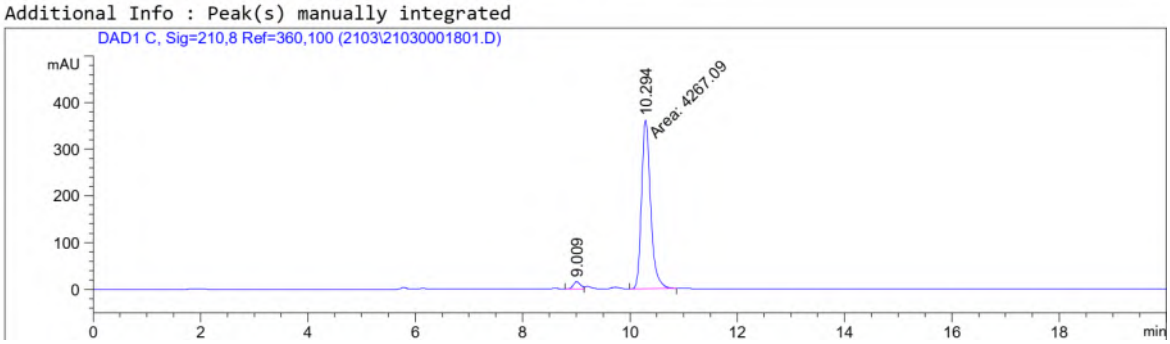
```
Data File D:\CHEM32\1\DATA\2103\21030001802.D
Sample Name: YY-X-70 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   3
Acq. Instrument : LC5                          Location : Vial 35
Injection Date  : 3/18/2021 1:14:07 PM             Inj :   1
                                              Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 2:33:11 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/18/2021 3:12:26 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



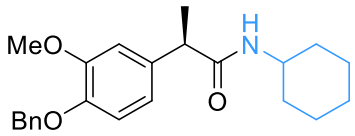

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.010 VB    0.1542 7298.84277  720.39355  49.6158
   2  10.297 BB    0.1826 7411.88623  624.03900  50.3842

Totals :                  1.47107e4  1344.43256

LC5 3/18/2021 3:12:29 PM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030001801.D
Sample Name: YY-X-70 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 45
Injection Date  : 3/18/2021 12:52:58 PM               Inj :   1
                                                 Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 0.1 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/17/2021 2:33:11 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-72.M
Last changed    : 3/18/2021 3:07:31 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



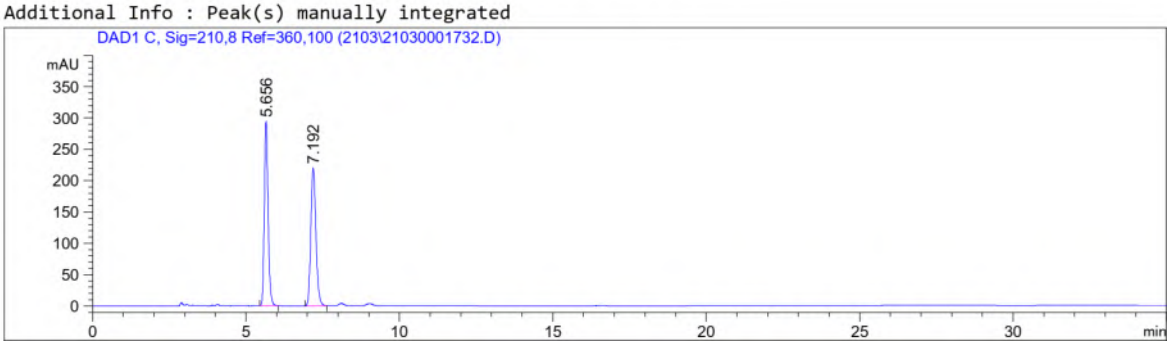

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.009 VV    0.1447  147.89467   15.58652   3.3498
   2  10.294 MM    0.1970 4267.08740  360.97736  96.6502

Totals :                  4414.98207  376.56387
```



(R)-2-(4-(Benzyloxy)-3-methoxyphenyl)-*N*-cyclohexylpropanamide (18)

Data File D:\CHEM32\1\DATA\2103\21030001732.D
Sample Name: YY-X-90 Race

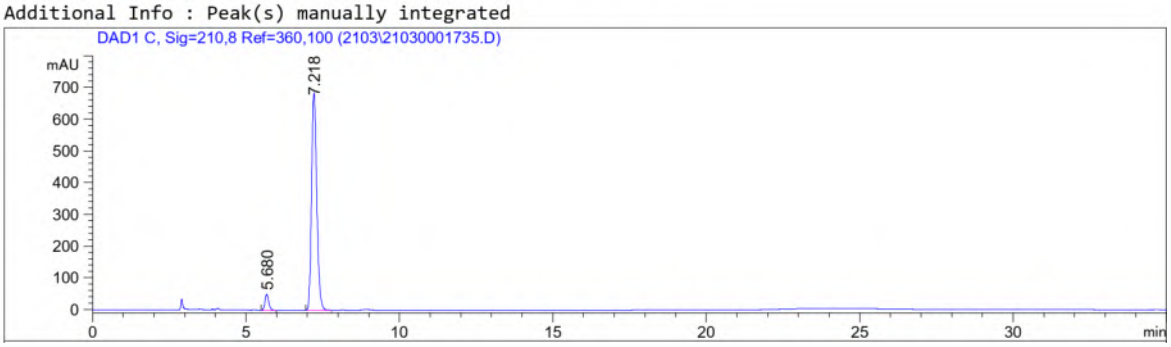
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :  13
Acq. Instrument : LC5                          Location : Vial 38
Injection Date  : 3/18/2021 5:20:04 AM              Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/17/2021 4:50:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/18/2021 9:27:13 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```



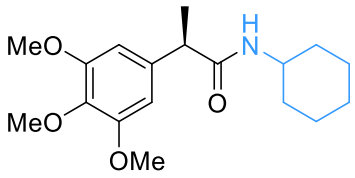

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   5.656 BB    0.1307 2532.93750  293.43527  49.9898
   2   7.192 BB    0.1787 2533.97144  219.47058  50.0102

Totals :                  5066.90894  512.90585
```

Data File D:\CHEM32\1\DATA\2103\21030001735.D
Sample Name: YY-X-90 C

```
======================================================================
Acq. Operator   : Analytik                       Seq. Line :  14
Acq. Instrument : LC5                             Location : Vial 48
Injection Date  : 3/18/2021 7:23:18 AM                 Inj :   2
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/17/2021 4:50:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/18/2021 9:28:48 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```

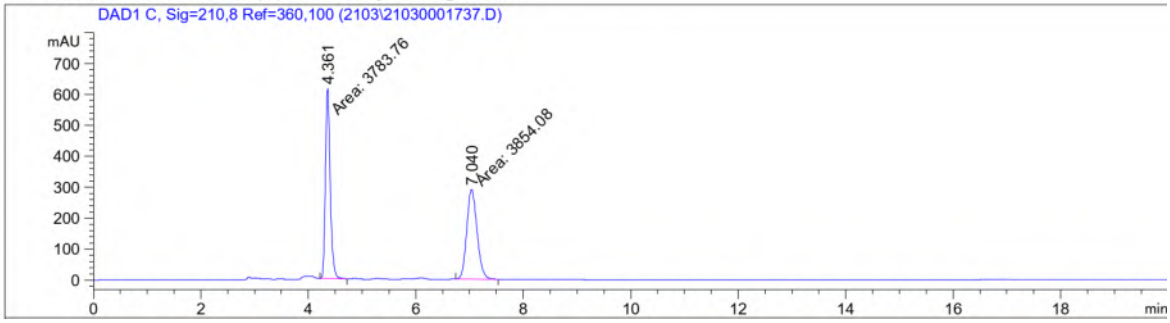



```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   5.680 BB    0.1330  434.48895   50.17144   5.0875
   2   7.218 BB    0.1821 8105.78857  685.00366  94.9125

Totals :                   8540.27753  735.17511
```



(R)-N-Cyclohexyl-2-(3,4,5-trimethoxyphenyl)propanamide (19)

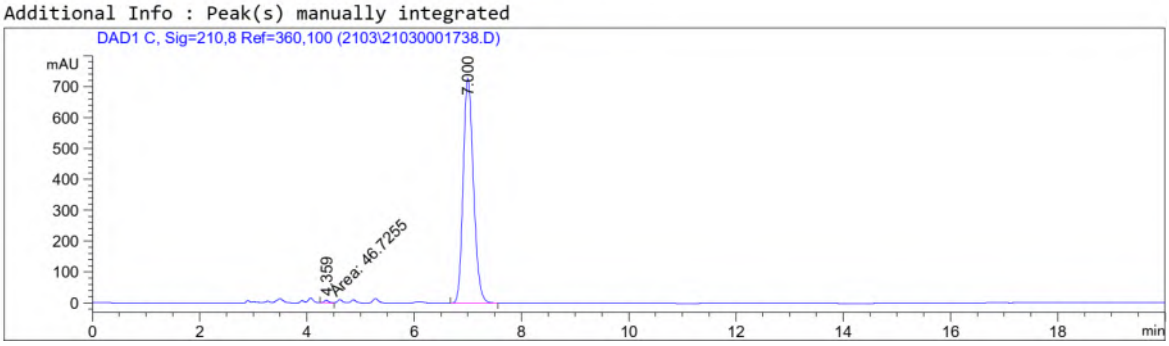
```
Data File D:\CHEM32\1\DATA\2103\21030001737.D
Sample Name: YY-X-91 Race

================================================================================
Acq. Operator   : Analytik                       Seq. Line :  15
Acq. Instrument : LC5                            Location : Vial 39
Injection Date  : 3/18/2021 8:45:29 AM                Inj :   2
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/17/2021 4:50:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/18/2021 9:53:49 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```



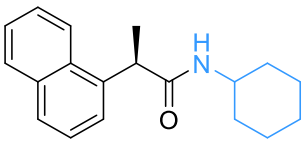

```
================================================================================
                          Area Percent Report
================================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   4.361 MM    0.1028 3783.76318  613.43744  49.5397
   2   7.040 MM    0.2219 3854.08301  289.43216  50.4603

Totals :                  7637.84619  902.86960

LC5 3/18/2021 9:55:43 AM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030001738.D
Sample Name: YY-X-91 C

```
==================================================================
Acq. Operator   : Analytik                      Seq. Line :  16
Acq. Instrument : LC5                           Location : Vial 49
Injection Date  : 3/18/2021 9:26:33 AM              Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/18/2021 9:37:46 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 3/18/2021 9:53:49 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```



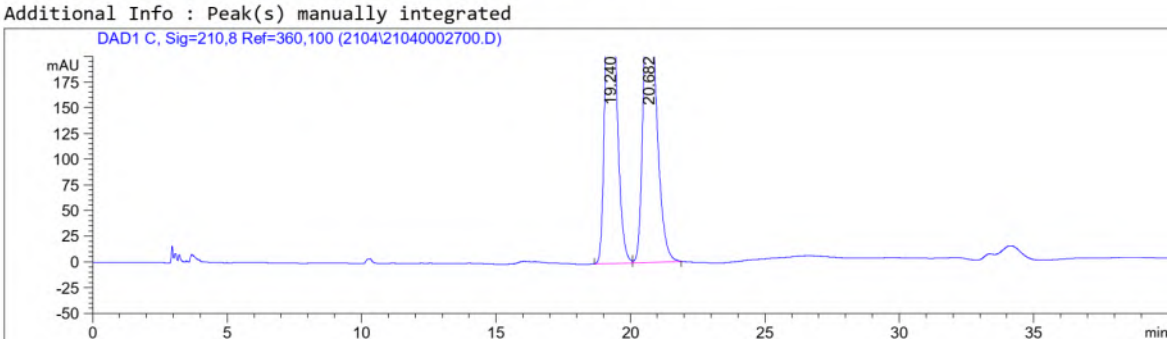

```
==================================================================
                        Area Percent Report
==================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   4.359 MM    0.0971   46.72552    8.01900   0.4806
   2   7.000 BB    0.2074 9676.38086  726.53180  99.5194

Totals :                  9723.10638  734.55080
```



(R)-N-Cyclohexyl-2-(naphthalen-1-yl)propanamide (20)

Data File D:\CHEM32\1\DATA\2104\21040002700.D
Sample Name: YY-X-76 Race

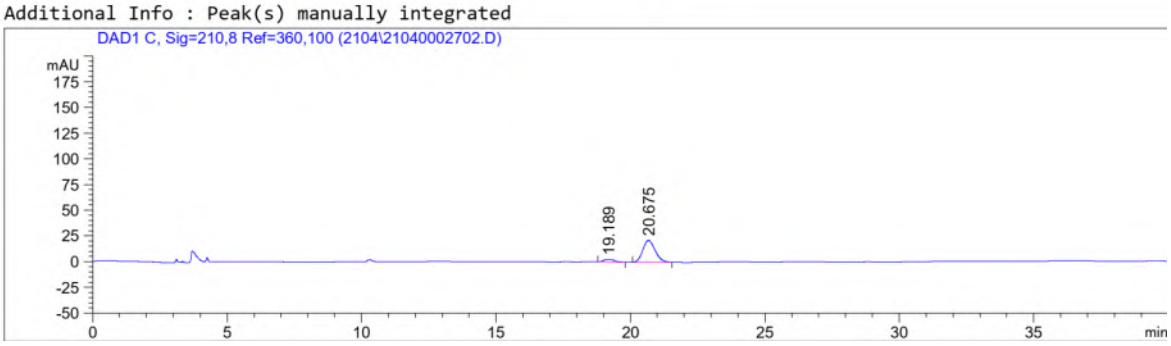
```
==================================================================
Acq. Operator   : Analytik                    Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 1
Injection Date  : 4/27/2021 12:20:29 PM            Inj :   1
                                             Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/26/2021 2:58:10 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/27/2021 2:51:41 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



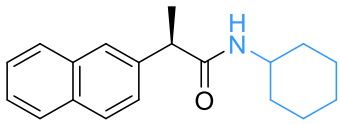

```
==================================================================
                        Area Percent Report
==================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  19.240 BV    0.4226 9755.81445  357.19949  49.9461
   2  20.682 VB    0.5035 9776.88086  299.01672  50.0539

Totals :                  1.95327e4   656.21622
```

Data File D:\CHEM32\1\DATA\2104\21040002702.D
Sample Name: YY-X-76 rt

```
======================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 2
Injection Date  : 4/27/2021 1:52:40 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/26/2021 2:58:10 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/27/2021 2:51:41 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```

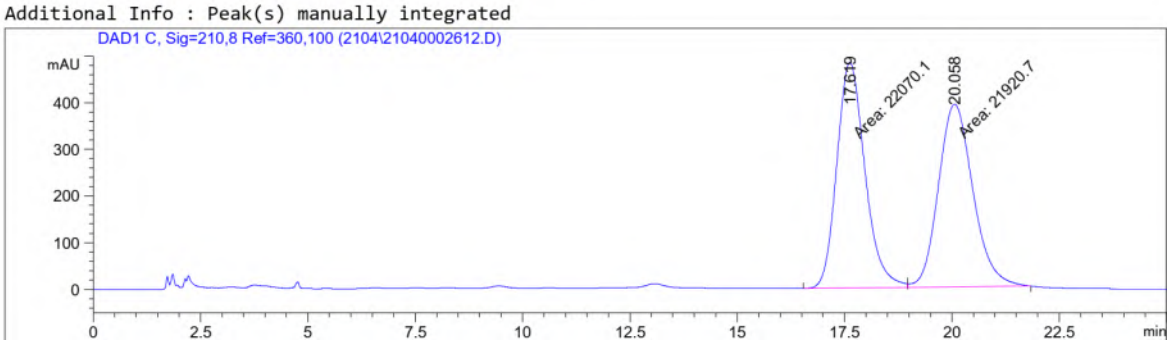



```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  19.189 BB    0.3731   74.15709    2.87334   9.7107
   2  20.675 BB    0.5057  689.50793   21.40855  90.2893

Totals :                   763.66502   24.28189
```



(R)-N-Cyclohexyl-2-(naphthalen-2-yl)propanamide (21)

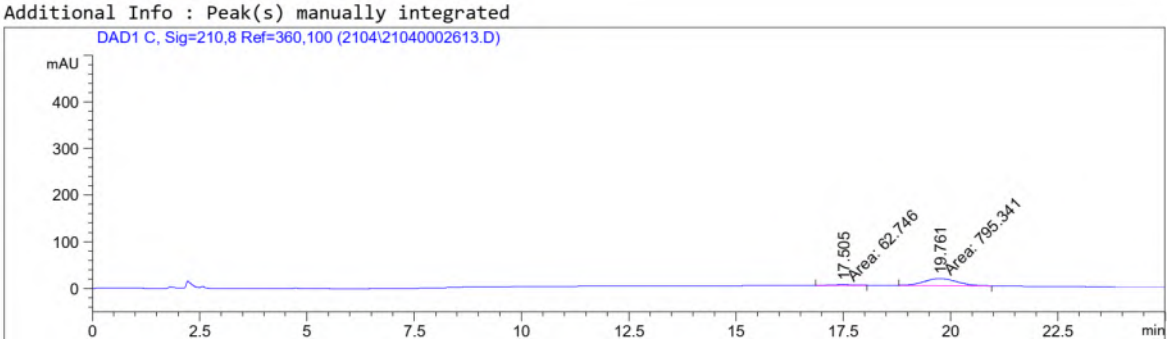
```
Data File D:\CHEM32\1\DATA\2104\21040002612.D
Sample Name: YY-X-69 Race

    ======================================================================
    Acq. Operator   : Analytik                      Seq. Line :   7
    Acq. Instrument : LC5                           Location : Vial 23
    Injection Date  : 4/26/2021 6:26:31 PM             Inj :   1
                                                   Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\YY.M
    Last changed    : 4/26/2021 4:24:04 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\YY.M
    Last changed    : 4/27/2021 10:44:39 AM by Analytik
                      (modified after loading)
    Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

    Additional Info : Peak(s) manually integrated
```



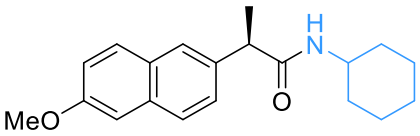

```
    ======================================================================
                           Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1  17.619 MF    0.7615 2.20701e4   483.05246  50.1698
       2  20.058 FM    0.9332 2.19207e4   391.48169  49.8302

    Totals :                  4.39908e4   874.53415

LC5 4/27/2021 10:45:05 AM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\21040002613.D
Sample Name: YY-X-69 rt

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   8
Acq. Instrument : LC5                             Location : Vial 33
Injection Date  : 4/26/2021 7:07:36 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/26/2021 4:24:04 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/27/2021 10:44:39 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1ml/min

Additional Info : Peak(s) manually integrated
```



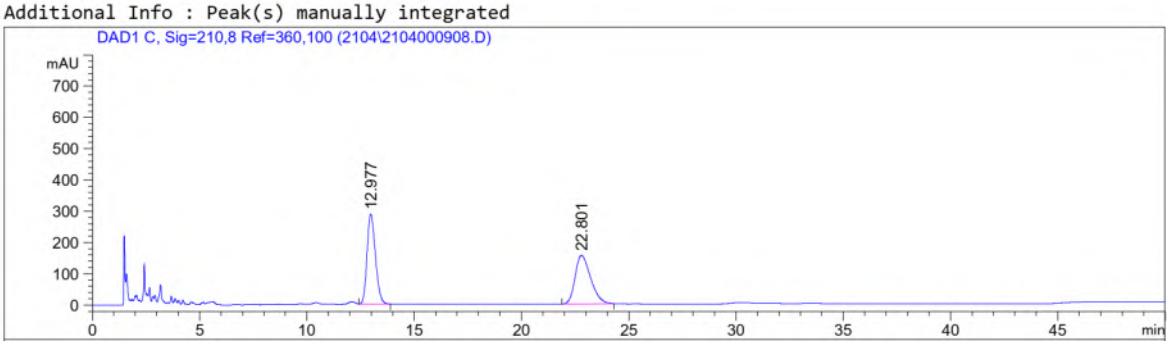

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  17.505 MM    0.5005   62.74595    1.60821   7.3123
   2  19.761 MM    0.8804  795.34088   15.05666  92.6877

Totals :                   858.08683   16.66487
```



(R)-N-Cyclohexyl-2-(6-methoxynaphthalen-2-yl)propanamide (22)

Data File D:\CHEM32\1\DATA\2104\2104000908.D
Sample Name: YY-X-102 Race

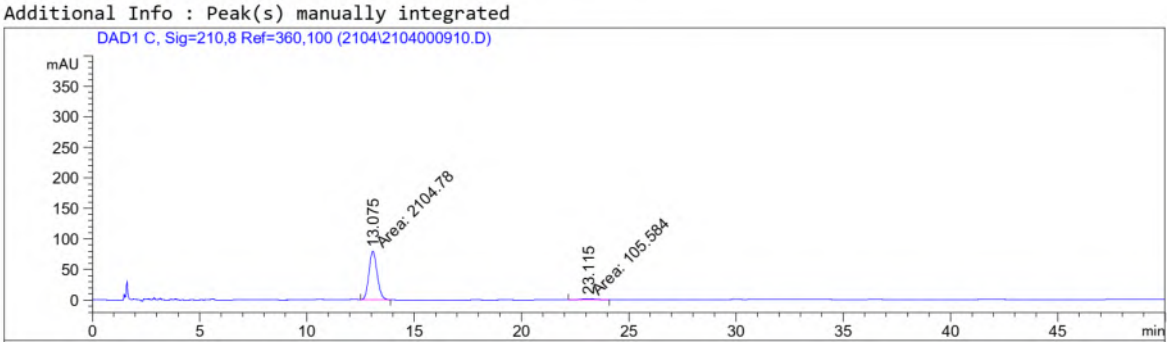
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   8
Acq. Instrument : LC5                           Location : Vial 11
Injection Date  : 4/9/2021 8:49:38 PM                Inj :   1
                                               Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/9/2021 4:22:35 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/12/2021 12:41:25 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 2.0 ml/min

Additional Info : Peak(s) manually integrated
```



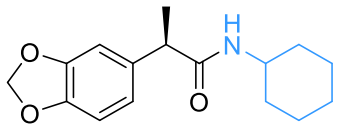

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  12.977 VB    0.4207 7830.07422  288.43195  50.0303
   2  22.801 BB    0.7677 7820.59229  155.76659  49.9697
```

Data File D:\CHEM32\1\DATA\2104\2104000910.D
Sample Name: YY-X-102 C

```
=====================================================================
Acq. Operator   : Analytik                      Seq. Line :   9
Acq. Instrument : LC5                            Location : Vial 31
Injection Date  : 4/9/2021 10:31:53 PM               Inj :   2
                                                Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 2.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/9/2021 4:22:35 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/12/2021 12:42:19 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 2.0 ml/min

Additional Info : Peak(s) manually integrated
```



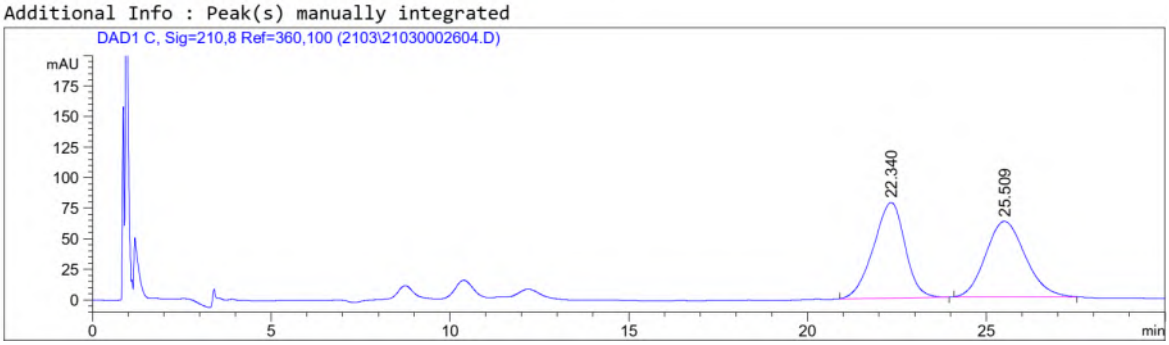

```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  13.075 MM    0.4434 2104.77808   79.11703  95.2232
   2  23.115 MM    0.8175  105.58363    2.15261   4.7768
```



(R)-2-(Benzo[d][1,3]dioxol-5-yl)-*N*-cyclohexylpropanamide (23)

Data File D:\CHEM32\1\DATA\2103\21030002604.D
Sample Name: YY-X-92-Race

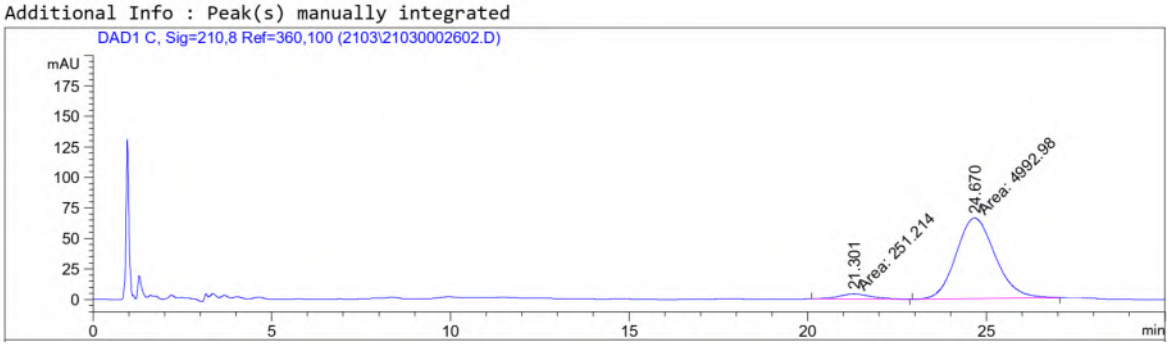
```
==================================================================
Acq. Operator   : Analytik                     Seq. Line :   4
Acq. Instrument : LC5                           Location : Vial 11
Injection Date  : 3/26/2021 2:11:10 PM               Inj :   1
                                               Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 2.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/26/2021 1:34:42 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 3/26/2021 1:53:02 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./EtOH 98:2, 2.0ml/min

Additional Info : Peak(s) manually integrated
```



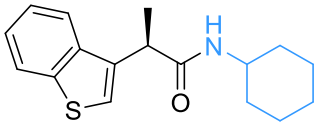

```
==================================================================
                        Area Percent Report
==================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  22.340 BB    0.9401 4817.88672   78.27844  50.1406
   2  25.509 BB    1.1761 4790.86963   61.95966  49.8594
```

Data File D:\CHEM32\1\DATA\2103\21030002602.D
Sample Name: YY-X-92-C

```
=====================================================================
Acq. Operator   : Analytik                      Seq. Line :   2
Acq. Instrument : LC5                            Location : Vial 21
Injection Date  : 3/26/2021 12:55:57 PM               Inj :   1
                                                Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/26/2021 1:34:42 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 3/26/2021 1:53:02 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./EtOH 98:2, 2.0ml/min

Additional Info : Peak(s) manually integrated
```

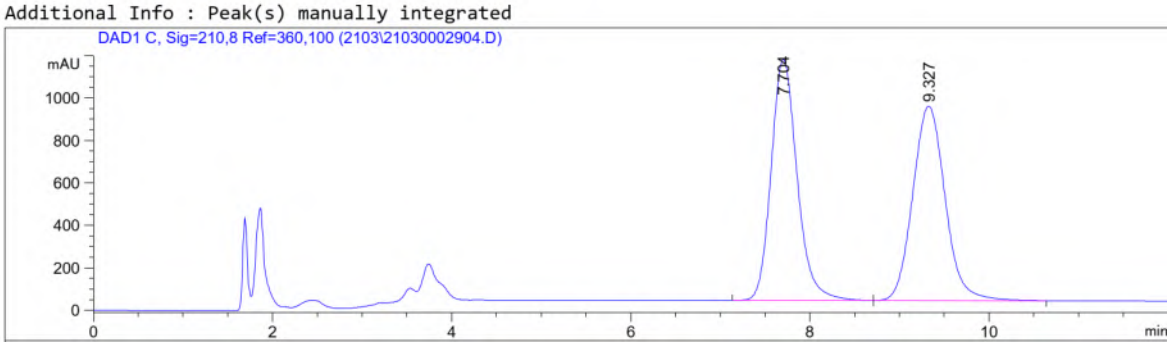



```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  21.301 MM    1.0427  251.21382    4.01560   4.7903
   2  24.670 MM    1.2628 4992.97900   65.89839  95.2097

Totals :                  5244.19283   69.91399
```



(R)-2-(Benzo[b]thiophen-3-yl)-*N*-cyclohexylpropanamide (24)

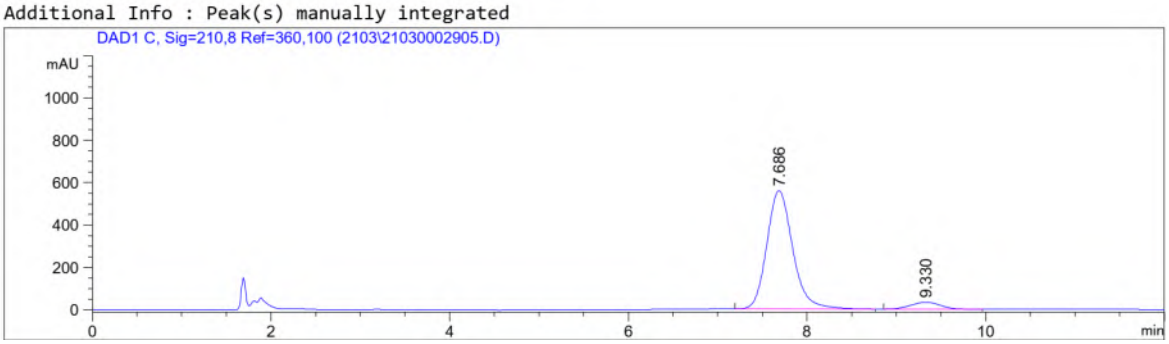
```
Data File D:\CHEM32\1\DATA\2103\21030002904.D
Sample Name: YY-X-97-Race

    ======================================================================
    Acq. Operator   : Analytik                      Seq. Line :   5
    Acq. Instrument : LC5                           Location : Vial 12
    Injection Date  : 3/29/2021 12:07:30 PM            Inj :   1
                                                   Inj Volume : 3.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\YY.M
    Last changed    : 3/29/2021 12:19:00 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\YY.M
    Last changed    : 3/29/2021 12:39:26 PM by Analytik
                      (modified after loading)
    Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

    Additional Info : Peak(s) manually integrated
```



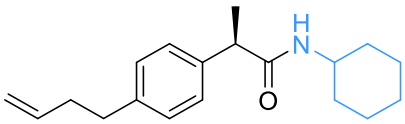

```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   7.704 BV    0.3120 2.29718e4  1135.46838  49.9078
       2   9.327 VB    0.3935 2.30566e4   916.47522  50.0922

    Totals :                  4.60284e4  2051.94360

LC5 3/29/2021 12:39:31 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030002905.D
Sample Name: YY-X-97-C-35

```
=====================================================================
Acq. Operator   : Analytik                      Seq. Line :   6
Acq. Instrument : LC5                            Location : Vial 22
Injection Date  : 3/29/2021 12:23:35 PM               Inj :   1
                                                Inj Volume : 3.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/29/2021 12:19:00 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/29/2021 12:39:26 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```

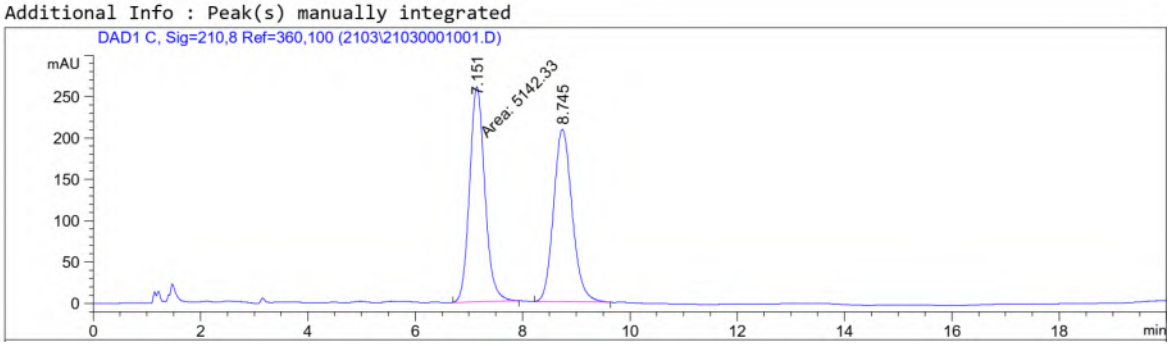



```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.686 BB    0.3116 1.12752e4   558.27411  93.6905
   2   9.330 BB    0.3654  759.31665   32.64115   6.3095

Totals :                  1.20345e4   590.91526
```



(R)-2-(4-(but-3-en-1-yl)phenyl)-*N*-cyclohexylpropanamide (25)

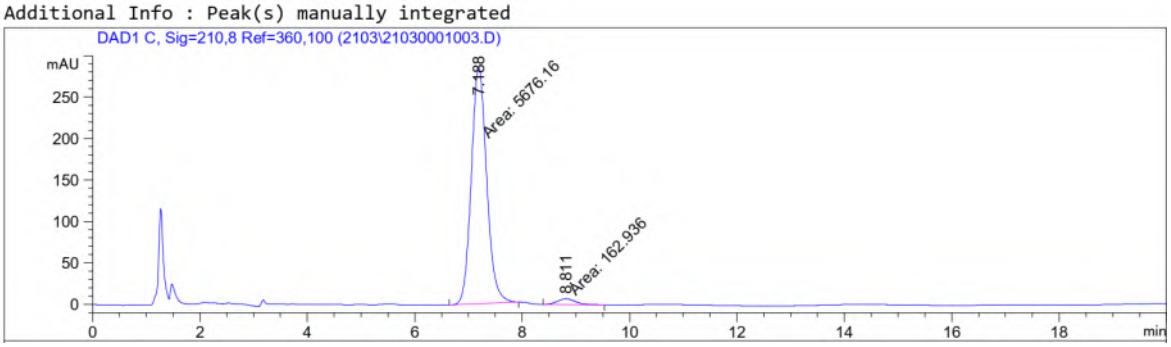
```
Data File D:\CHEM32\1\DATA\2103\21030001001.D
Sample Name: YY-X-74 Race

======================================================================
Acq. Operator   : Analytik                      Seq. Line :   2
Acq. Instrument : LC5                          Location : Vial 53
Injection Date  : 3/10/2021 11:24:23 AM            Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 11:23:59 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 2:13:47 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1.5ml/min

Additional Info : Peak(s) manually integrated
```



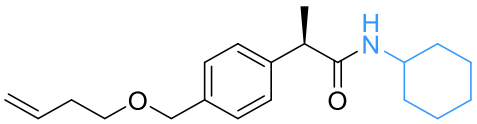

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.151 MM    0.3299 5142.32764  259.77167  50.6281
   2   8.745 BB    0.3703 5014.73730  208.76010  49.3719

Totals :                  1.01571e4   468.53177
```

Data File D:\CHEM32\1\DATA\2103\21030001003.D
Sample Name: YY-X-74 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 61
Injection Date  : 3/10/2021 12:06:41 PM               Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 11:23:59 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 3/10/2021 2:13:47 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 98:2, 1.5ml/min

Additional Info : Peak(s) manually integrated
```

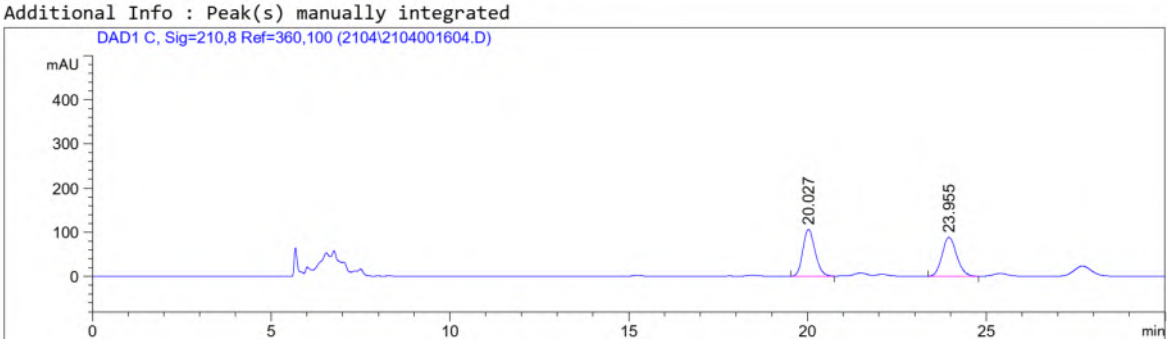



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.188 MM    0.3316 5676.15723  285.30203  97.2096
   2   8.811 MM    0.3925  162.93628    6.91835   2.7904

Totals :                  5839.09351  292.22038
```



(R)-2-(4-((But-3-en-1-yloxy)methyl)phenyl)-*N*-cyclohexylpropanamide (26)

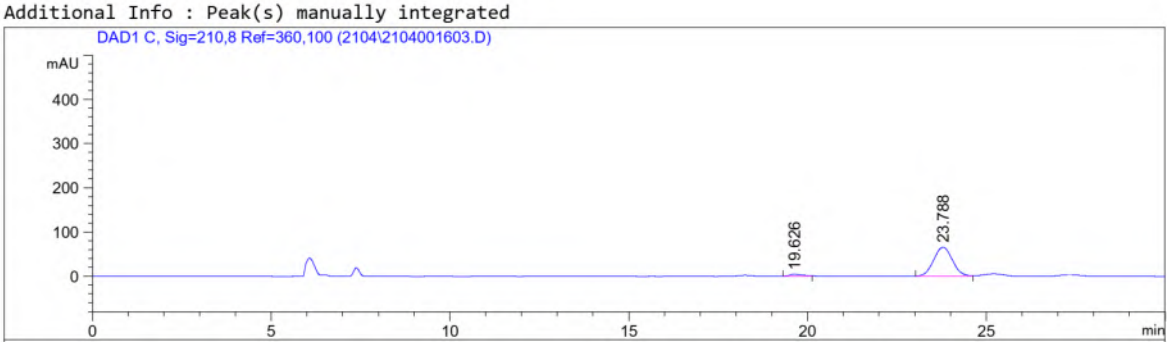
```
Data File D:\CHEM32\1\DATA\2104\2104001604.D
Sample Name: YY-X-88 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   4
Acq. Instrument : LC5                         Location : Vial 1
Injection Date  : 4/16/2021 2:46:18 PM             Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 3/29/2021 10:16:57 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/16/2021 2:49:17 PM by Analytik
                  (modified after loading)
Method Info     : AD-H, Hept./Isoprop 95:5 0,5ml/min

Additional Info : Peak(s) manually integrated
```



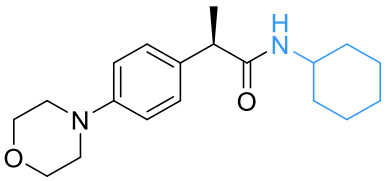

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  20.027 BB    0.3694 2527.19849  106.28359  49.9057
   2  23.955 BB    0.4434 2536.74609   88.23108  50.0943

Totals :                  5063.94458  194.51467

LC5 4/19/2021 11:12:36 AM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\2104001603.D
Sample Name: YY-X-88 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 2
Injection Date  : 4/16/2021 2:00:10 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 3/29/2021 10:16:57 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/16/2021 2:49:17 PM by Analytik
                  (modified after loading)
Method Info     : AD-H, Hept./Isoprop 95:5 0,5ml/min

Additional Info : Peak(s) manually integrated
```



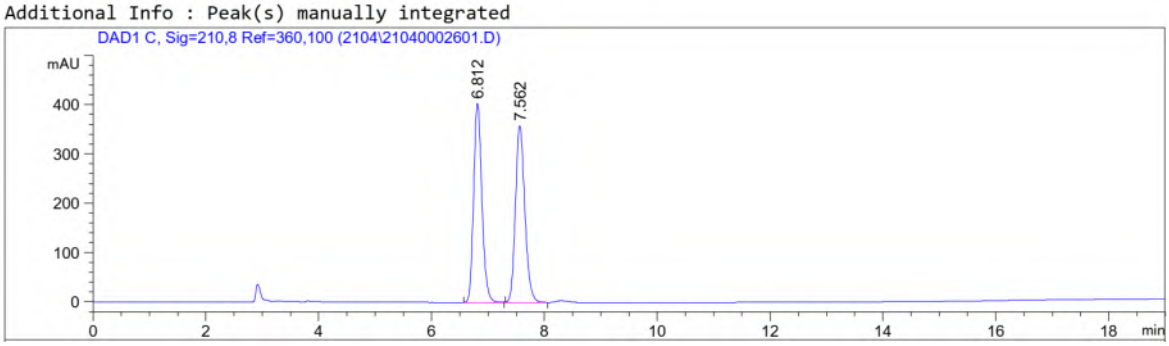

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  19.626 BB    0.3003   99.83392    4.69176   3.9910
   2  23.788 BV    0.5776 2401.64136   65.53313  96.0090

Totals :                  2501.47528   70.22488
```



(R)-N-Cyclohexyl-2-(4-morpholinophenyl)propanamide (27)

Data File D:\CHEM32\1\DATA\2104\21040002601.D
Sample Name: YY-X-104 Race

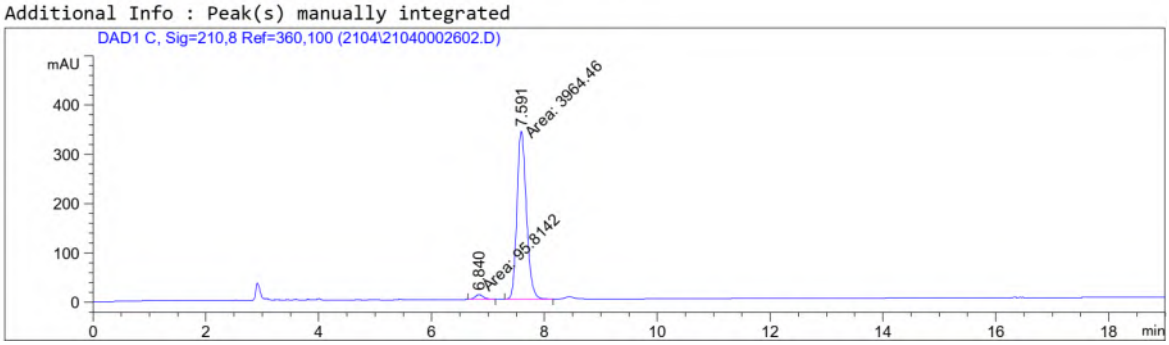
```
==========================================================================
Acq. Operator   : Analytik                      Seq. Line :   1
Acq. Instrument : LC5                           Location : Vial 27
Injection Date  : 4/26/2021 12:47:30 PM             Inj :   1
                                               Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 4/26/2021 12:58:28 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 4/26/2021 2:07:05 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```



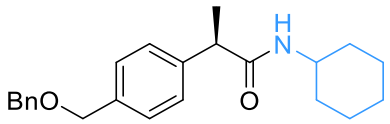

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.812 BB    0.1571 4121.67480  403.83118  49.8126
   2   7.562 BB    0.1791 4152.68066  358.53961  50.1874

Totals :                  8274.35547  762.37079
```

Data File D:\CHEM32\1\DATA\2104\21040002602.D
Sample Name: YY-X-104 -C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 11
Injection Date  : 4/26/2021 1:08:35 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 4/26/2021 12:58:28 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 4/26/2021 2:07:05 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 1ml/min

Additional Info : Peak(s) manually integrated
```

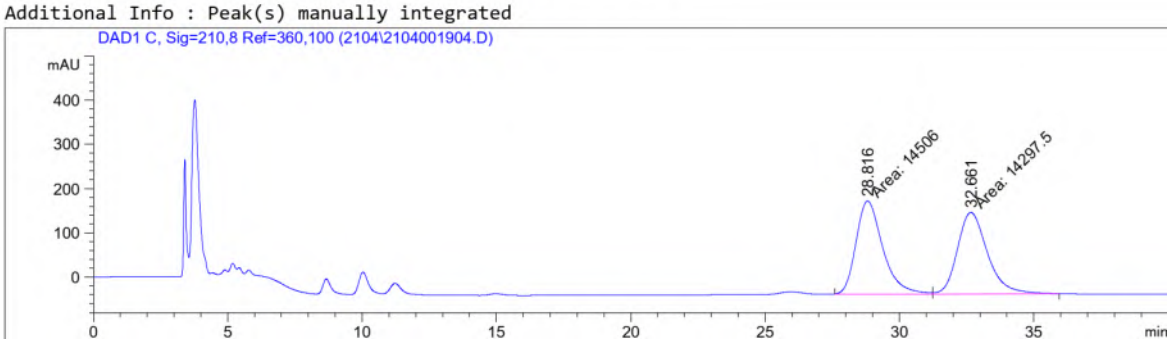



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.840 MM    0.1691   95.81420    9.44570   2.3598
   2   7.591 MM    0.1939 3964.45776  340.69324  97.6402

Totals :                  4060.27197  350.13894
```



(R)-2-(4-((Benzyloxy)methyl)phenyl)-*N*-cyclohexylpropanamide (28)

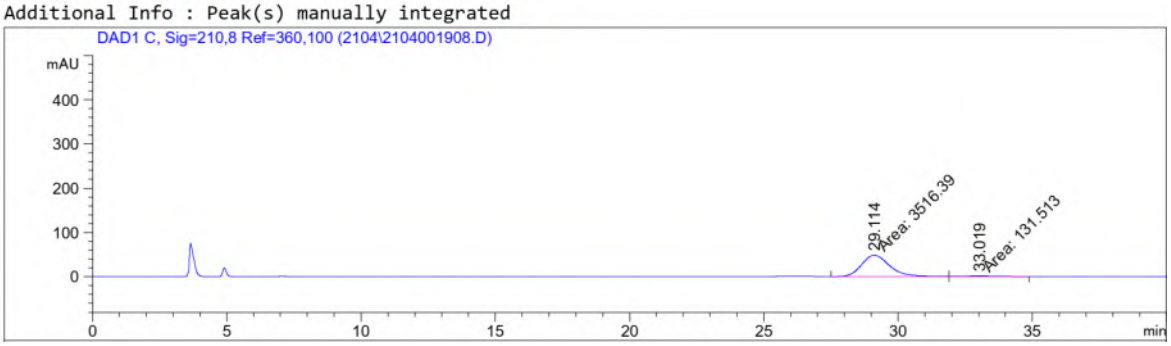
```
Data File D:\CHEM32\1\DATA\2104\2104001904.D
Sample Name: YY-X-98 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   3
Acq. Instrument : LC5                         Location : Vial 11
Injection Date  : 4/19/2021 1:58:13 PM             Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 3/29/2021 10:16:57 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/19/2021 4:06:36 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./Isoprop. 95:5, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



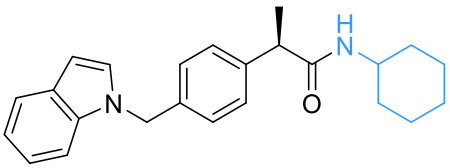

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  28.816 MF    1.1532 1.45060e4   209.65520  50.3619
   2  32.661 FM    1.2953 1.42975e4   183.97166  49.6381

Totals :                  2.88035e4   393.62686
```

Data File D:\CHEM32\1\DATA\2104\2104001908.D
Sample Name: YY-X-98 -30

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   6
Acq. Instrument : LC5                             Location : Vial 12
Injection Date  : 4/19/2021 5:02:32 PM                 Inj :   1
                                                 Inj Volume : 2.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 4/19/2021 4:10:16 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/19/2021 4:06:36 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./Isoprop. 95:5, 0.5ml/min

Additional Info : Peak(s) manually integrated
```

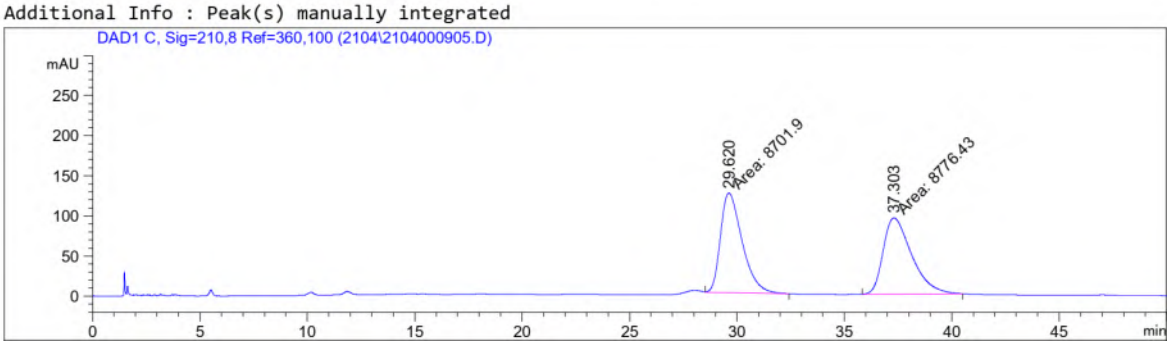



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  29.114 MF    1.2179 3516.38525   48.12136  96.3948
   2  33.019 FM    1.4214  131.51259    1.54204   3.6052
```



(R)-2-(4-((*1H*-Indol-1-yl)methyl)phenyl)-*N*-cyclohexylpropanamide (29)

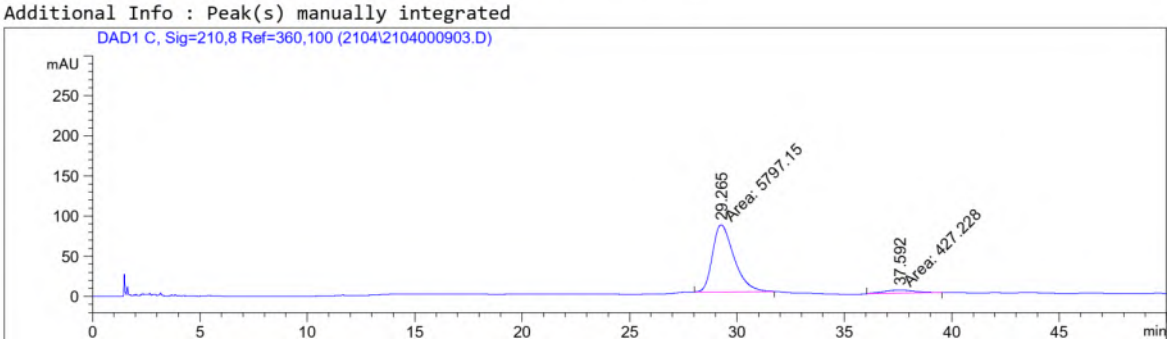
```
Data File D:\CHEM32\1\DATA\2104\2104000905.D
Sample Name: YY-X-106 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   5
Acq. Instrument : LC5                         Location : Vial 12
Injection Date  : 4/9/2021 6:16:24 PM              Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/9/2021 4:22:35 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/12/2021 12:16:26 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 2.0 ml/min

Additional Info : Peak(s) manually integrated
```



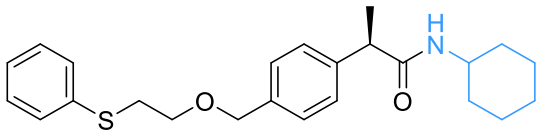

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  29.620 MM    1.1673 8701.90430  124.24153  49.7868
   2  37.303 MM    1.5391 8776.43066   95.03600  50.2132

Totals :                  1.74783e4   219.27753

LC5 4/12/2021 12:19:10 PM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\2104000903.D
Sample Name: YY-X-106 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 23
Injection Date  : 4/9/2021 4:34:12 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/9/2021 4:22:35 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H-2.0.M
Last changed    : 4/12/2021 12:16:26 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 2.0 ml/min

Additional Info : Peak(s) manually integrated
```

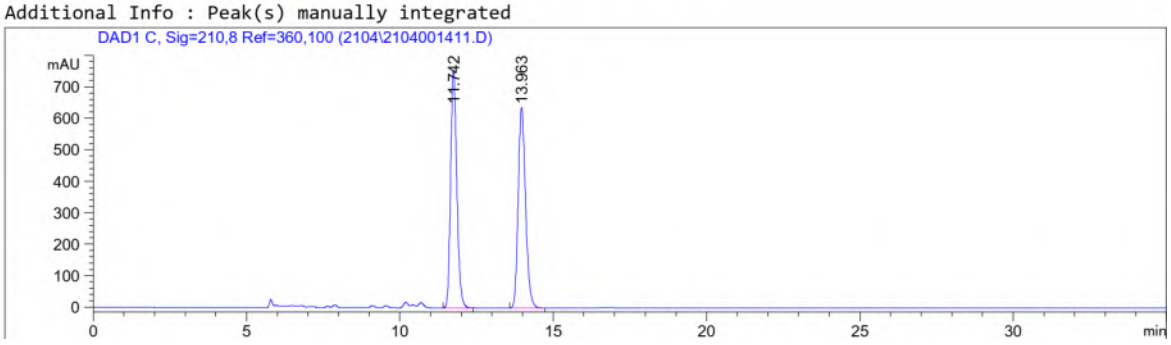



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  29.265 MM    1.1567 5797.14600   83.53152  93.1362
   2  37.592 MM    1.6934  427.22800    4.20484   6.8638

Totals :                  6224.37399   87.73636
```



(R)-N-Cyclohexyl-2-(4-((2-(phenylthio)ethoxy)methyl)phenyl)propanamide (30)

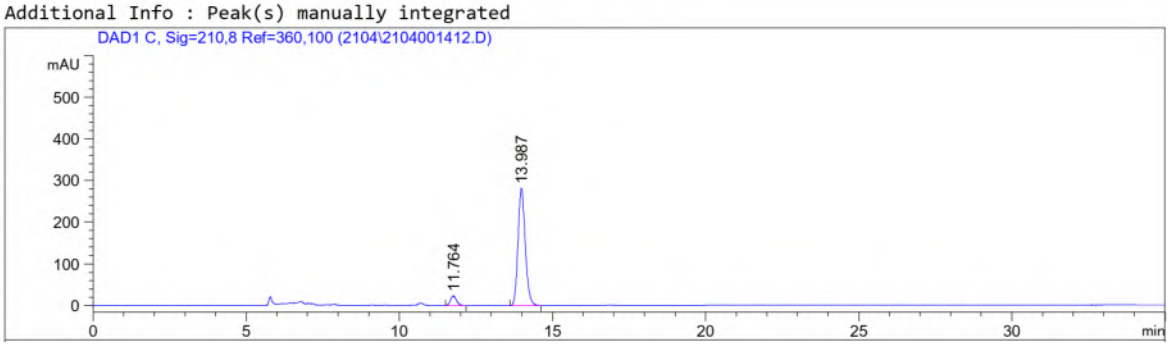
```
Data File D:\CHEM32\1\DATA\2104\2104001411.D
Sample Name: YY-X-107 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   3
Acq. Instrument : LC5                          Location : Vial 11
Injection Date  : 4/14/2021 5:12:19 PM             Inj :   2
                                              Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/14/2021 11:19:56 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/15/2021 11:14:11 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



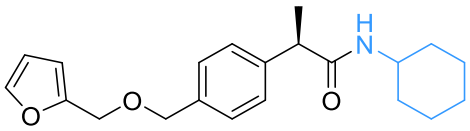

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.742 BB    0.2156 1.05899e4   755.02643  49.9776
   2  13.963 BB    0.2561 1.05993e4   637.07794  50.0224

Totals :                  2.11892e4  1392.10437

LC5 4/15/2021 11:14:14 AM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\2104001412.D
Sample Name: YY-X-107 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 21
Injection Date  : 4/14/2021 5:58:21 PM                 Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/14/2021 11:19:56 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/15/2021 11:16:29 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



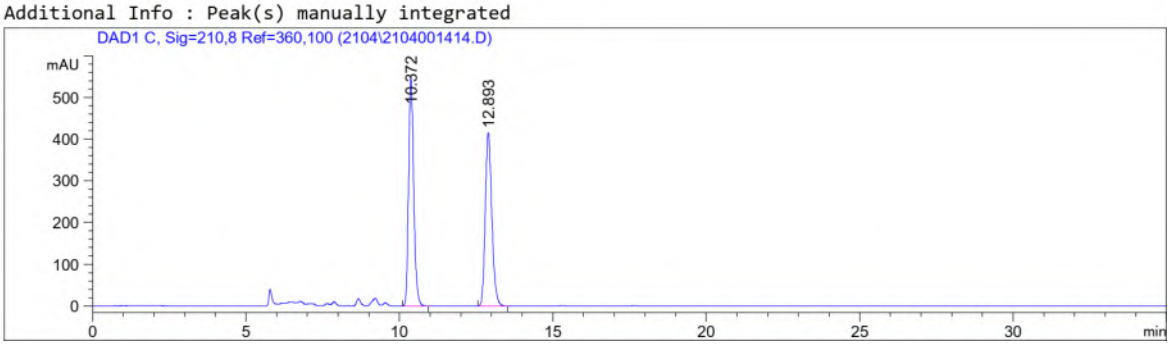

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.764 BB    0.2114  325.37738   23.52243   6.5601
   2  13.987 BB    0.2543 4634.57861  281.16498  93.4399

Totals :                  4959.95599  304.68741
```



(R)-*N*-Cyclohexyl-2-(4-((furan-2-ylmethoxy)methyl)phenyl)propanamide (31)

Data File D:\CHEM32\1\DATA\2104\2104001414.D
Sample Name: YY-X-108 Race

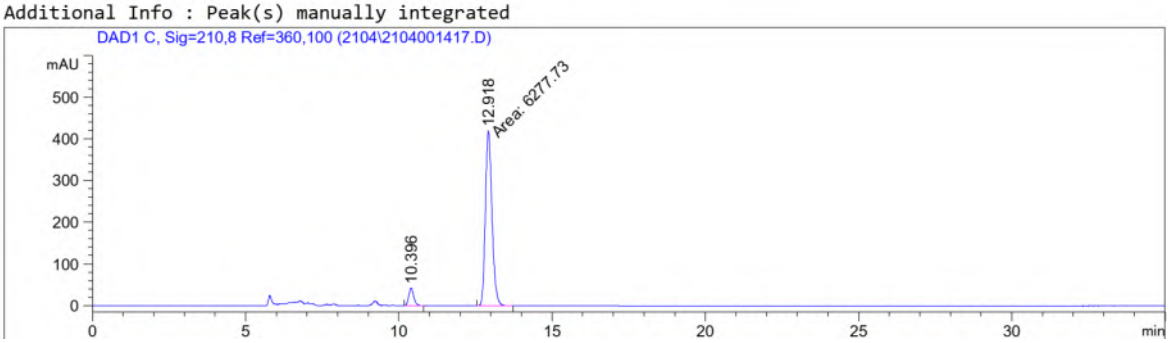
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   5
Acq. Instrument : LC5                           Location : Vial 12
Injection Date  : 4/14/2021 7:30:28 PM               Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/14/2021 11:19:56 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/15/2021 11:16:29 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



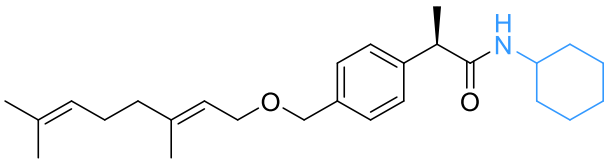

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  10.372 BB    0.1767 6303.33350  546.02582  50.4632
   2  12.893 BB    0.2294 6187.61523  416.30707  49.5368

Totals :                  1.24909e4   962.33289
```

Data File D:\CHEM32\1\DATA\2104\2104001417.D
Sample Name: YY-X-108 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   6
Acq. Instrument : LC5                             Location : Vial 22
Injection Date  : 4/14/2021 9:48:40 PM                 Inj :   2
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/14/2021 11:19:56 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 4/15/2021 11:16:29 AM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



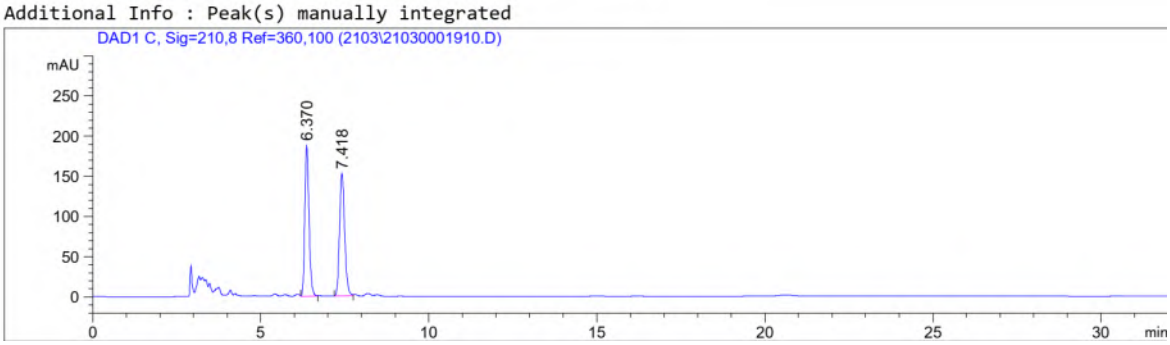

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  10.396 BB    0.1769  491.24588   42.47208   7.2573
   2  12.918 MM    0.2493 6277.73389  419.64307  92.7427

Totals :                  6768.97977  462.11514
```



(*R*)-N-Cyclohexyl-2-(4-(((3,7-dimethylocta-2,6-dien-1-yl)oxy)methyl)phenyl)propanamide (32)

Data File D:\CHEM32\1\DATA\2103\21030001910.D
Sample Name: YY-X-87 Race

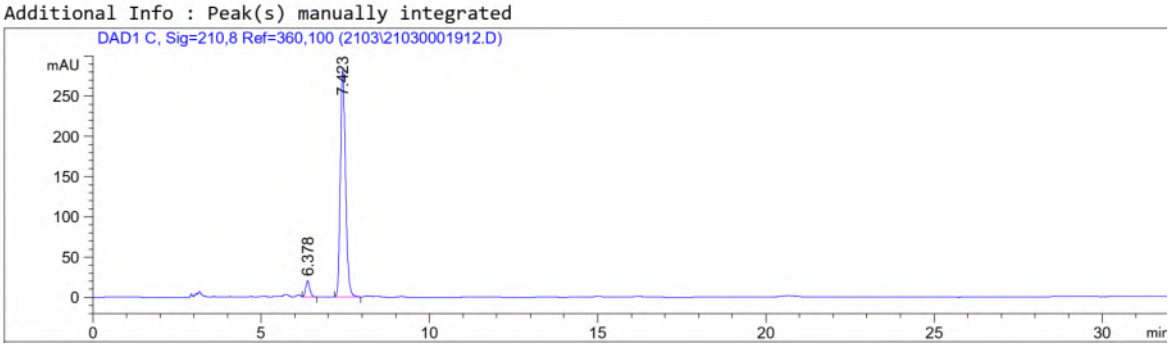
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                           Location : Vial 36
Injection Date  : 3/19/2021 4:10:45 PM               Inj :   1
                                               Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/19/2021 3:02:19 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/19/2021 3:59:49 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



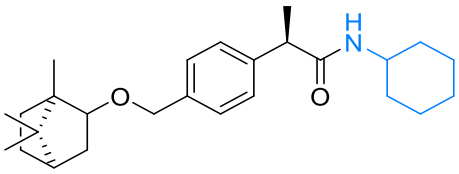

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.370 VB    0.1307 1625.06848  188.24072  50.0614
   2   7.418 BB    0.1640 1621.08081  152.46329  49.9386

Totals :                  3246.14929  340.70401

LC5 3/22/2021 11:57:12 AM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2103\21030001912.D
Sample Name: YY-X-87 C

```
==========================================================================
Acq. Operator    : Analytik                      Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 46
Injection Date  : 3/19/2021 5:18:59 PM                Inj :   1
                                                 Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/19/2021 3:02:19 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\TEST RAC.M
Last changed    : 3/19/2021 3:59:49 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```

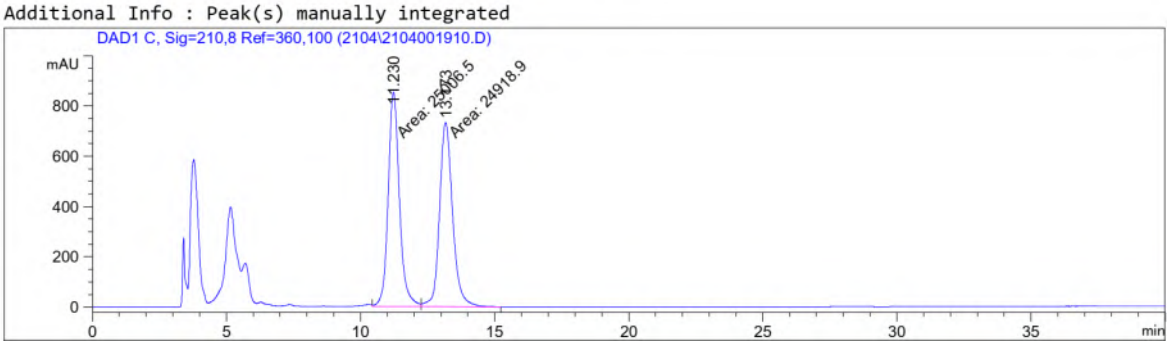



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.378 VB    0.1301  172.23213   20.08257   5.3616
   2   7.423 BB    0.1659 3040.10889  281.81577  94.6384

Totals :                   3212.34102  301.89834
```



(*2R*)-*N*-cyclohexyl-2-(4-((((*1S,4S*)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-yl)oxy)methyl)phenyl)propanamide (33)

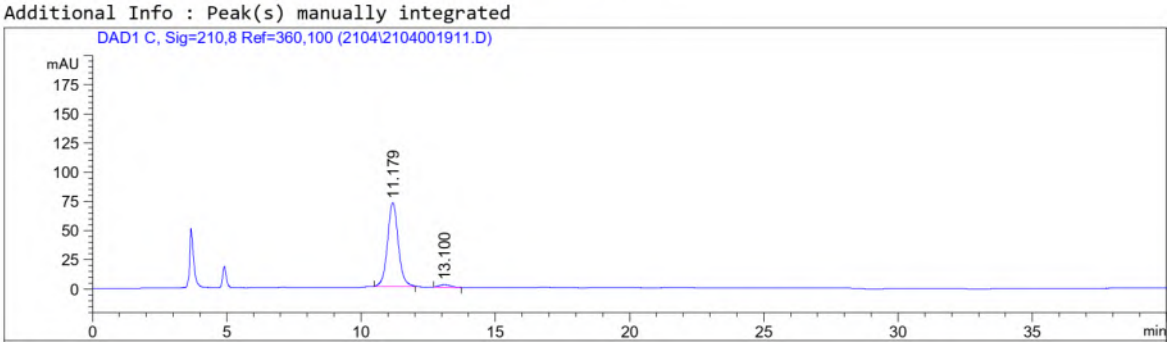
```
Data File D:\CHEM32\1\DATA\2104\2104001910.D
Sample Name: YY-X-99 Race

=====================================================================
Acq. Operator   : Analytik                     Seq. Line :   7
Acq. Instrument : LC5                          Location : Vial 13
Injection Date  : 4/19/2021 6:34:49 PM              Inj :   1
                                              Inj Volume : 2.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 4/19/2021 4:10:16 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/20/2021 9:16:17 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./Isoprop. 95:5, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



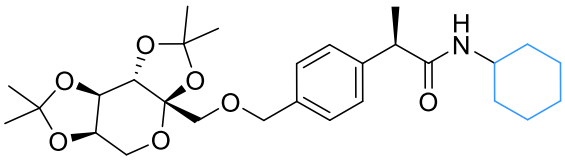

```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.230 MF    0.4888 2.50065e4   852.73309  50.0878
   2  13.173 FM    0.5672 2.49189e4   732.23187  49.9122

Totals :                  4.99254e4  1584.96497

LC5 4/20/2021 9:16:39 AM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\2104001911.D
Sample Name: YY-X-99 -30

```
=====================================================================
Acq. Operator   : Analytik                      Seq. Line :   8
Acq. Instrument : LC5                           Location : Vial 14
Injection Date  : 4/19/2021 7:20:59 PM              Inj :   1
                                               Inj Volume : 2.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY 0.5.M
Last changed    : 4/19/2021 4:10:16 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY-0,5.M
Last changed    : 4/20/2021 9:18:11 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose 4, Hept./Isoprop. 95:5, 0.5ml/min

Additional Info : Peak(s) manually integrated
```

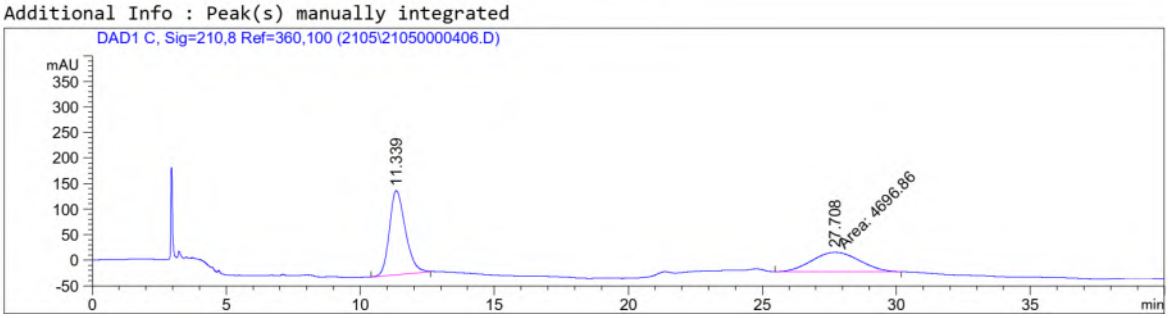



```
=====================================================================
                        Area Percent Report
=====================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.179 BB    0.4282 2013.56116   72.00964  97.1110
   2  13.100 BB    0.3655   59.90166    2.08332   2.8890

Totals :                  2073.46281   74.09295
```



(2*R*)-*N*-Cyclohexyl-2-(4-((((5*aR*,8*aR*,8*bS*)-2,2,7,7-tetramethyltetrahydro-3aH-bis([1,3]dioxolo)[4,5-b:4',5'-d]pyran-3a-yl)methoxy)methyl)phenyl)propanamide (34)

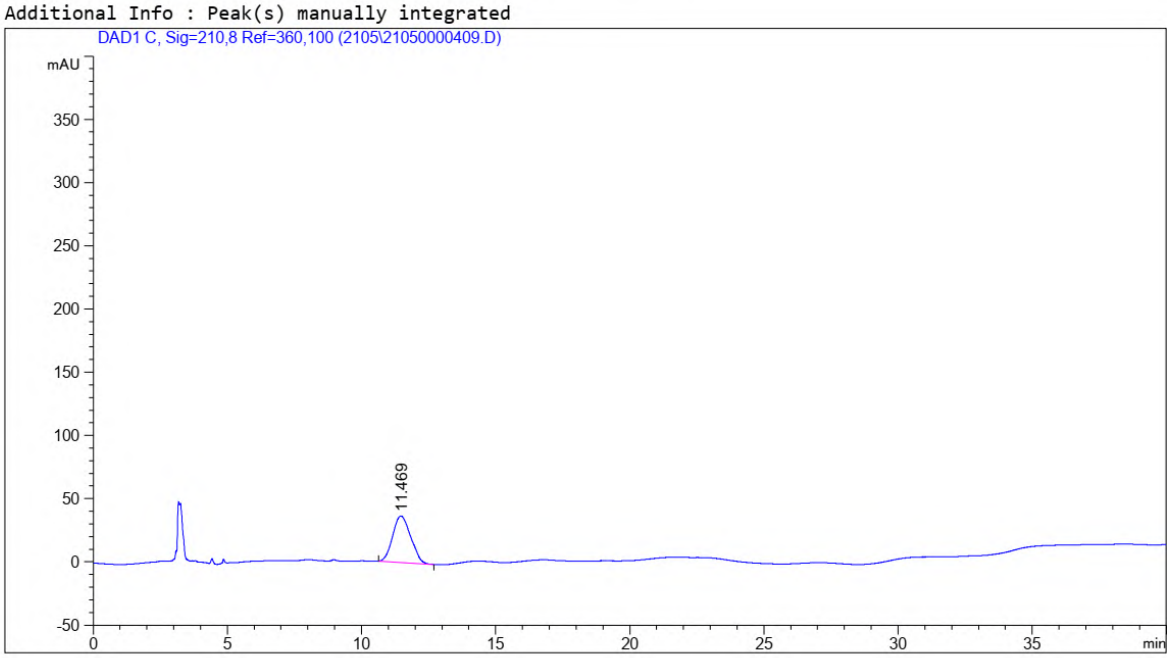
```
Data File D:\CHEM32\1\DATA\2105\21050000406.D
Sample Name: YY-X-120 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   5
Acq. Instrument : LC5                         Location : Vial 4
Injection Date  : 5/4/2021 1:23:00 PM              Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/4/2021 10:03:07 AM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 9:00:26 AM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 1.0ml/min

Additional Info : Peak(s) manually integrated
```



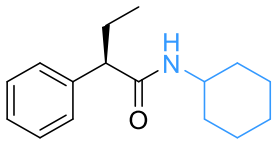

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.339 BB    0.6303 6831.67432  164.56416  59.2588
   2  27.708 MM    2.0619 4696.86230   37.96592  40.7412

Totals :                  1.15285e4   202.53009
```

Data File D:\CHEM32\1\DATA\2105\21050000409.D
Sample Name: YY-X-120-30

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   8
Acq. Instrument : LC5                             Location : Vial 44
Injection Date  : 5/4/2021 4:22:31 PM                  Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 5.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/4/2021 4:22:07 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 9:00:26 AM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 1.0ml/min

Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  11.469 BB    0.7228 1718.49609   36.79789 100.0000

Totals :                  1718.49609   36.79789
```

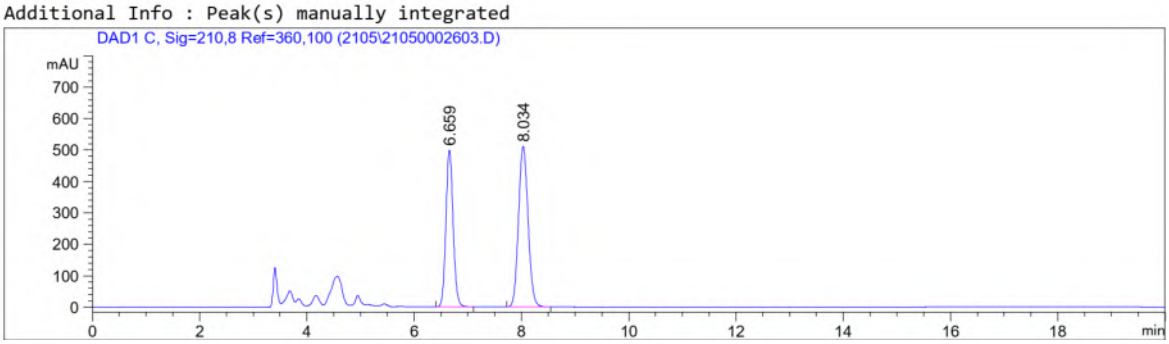


(*R*)-*N*-Cyclohexyl-2-phenylbutanamide (35)

from *trans*-*β*-methylstyrene

*Due to the use of ligand mixture [(*R*,*R*)-Ph-BPE & (*S*,*S*)-Ph-BPE] as the racemic ligand, the ratio of enantiomeric isomer in this case is not 50:50 er.

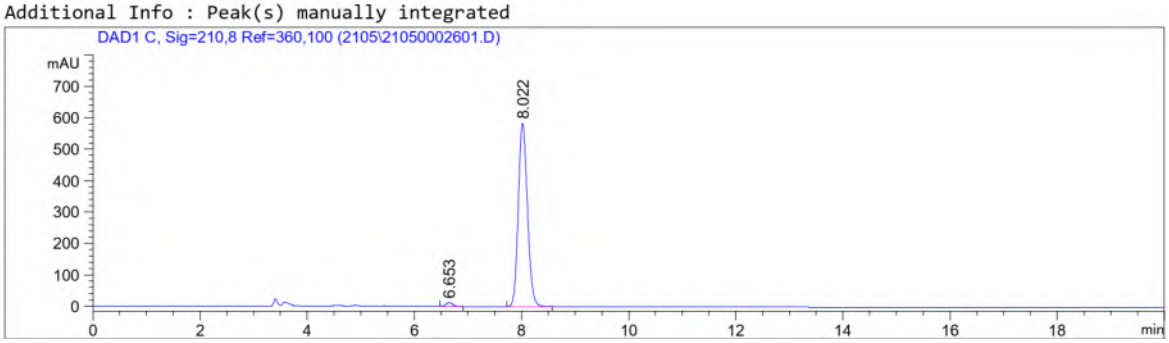
```
Data File D:\CHEM32\1\DATA\2105\21050002603.D
Sample Name: YY-X-129 Race

    ======================================================================
    Acq. Operator   : Analytik                     Seq. Line :   4
    Acq. Instrument : LC5                          Location : Vial 1
    Injection Date  : 5/26/2021 4:47:12 PM              Inj :   1
                                                  Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
    Last changed    : 5/26/2021 4:26:29 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
    Last changed    : 5/26/2021 4:16:50 PM by Analytik
                      (modified after loading)
    Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

    Additional Info : Peak(s) manually integrated
```




```
    ======================================================================
                          Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   6.659 BB    0.1450 4665.87354  499.49747  42.4692
       2   8.034 BB    0.1925 6320.62500  510.16016  57.5308

    Totals :                  1.09865e4  1009.65762

LC5 5/27/2021 9:30:30 AM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050002601.D
Sample Name: YY-X-127-C

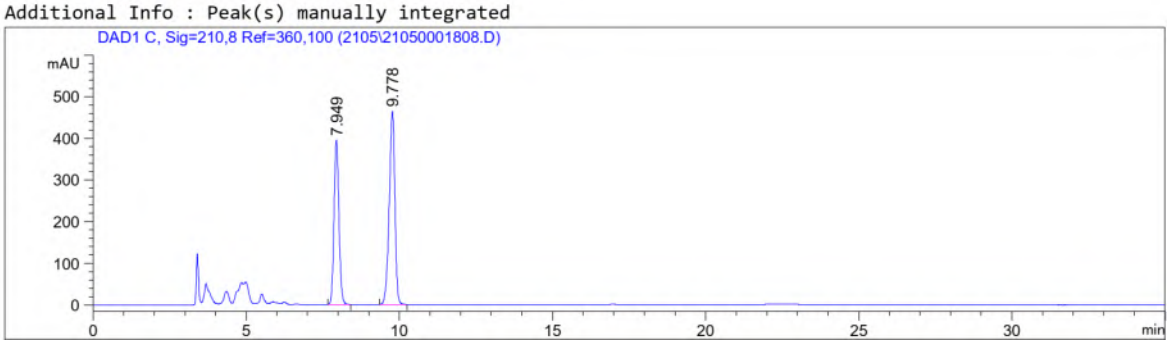
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 2
Injection Date  : 5/26/2021 3:50:05 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/26/2021 3:49:41 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/26/2021 4:16:50 PM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.653 BB    0.1439  114.01968   12.32931   1.6266
   2   8.022 BB    0.1841 6895.87354  582.56409  98.3734

Totals :                   7009.89321  594.89340
```

from *cis*-*β*-methylstyrene

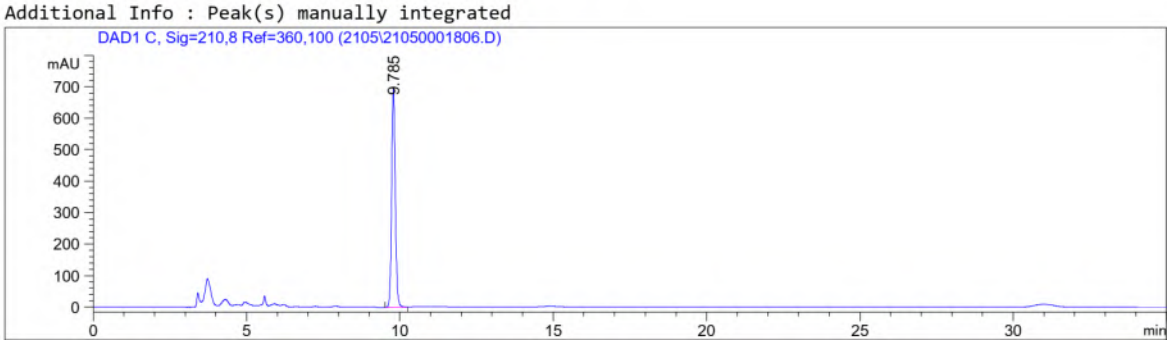
```
Data File D:\CHEM32\1\DATA\2105\21050001808.D
Sample Name: YY-X-129 Race

    ======================================================================
    Acq. Operator   : Analytik                      Seq. Line :   6
    Acq. Instrument : LC5                           Location : Vial 11
    Injection Date  : 5/18/2021 1:46:04 PM               Inj :   1
                                                  Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
    Last changed    : 5/18/2021 12:46:25 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2.M
    Last changed    : 5/25/2021 3:04:44 PM by Analytik
                      (modified after loading)
    Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

    Additional Info : Peak(s) manually integrated
```



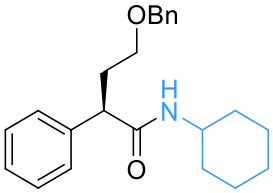

```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   7.949 BB    0.1721 4397.89844  394.51910  42.4912
       2   9.778 BB    0.1957 5952.24609  463.77136  57.5088

    Totals :                  1.03501e4   858.29047

LC5 5/25/2021 3:31:18 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050001806.D
Sample Name: YY-X-129- C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 21
Injection Date  : 5/18/2021 12:33:54 PM               Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 3.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/18/2021 12:46:25 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2.M
Last changed    : 5/25/2021 3:32:38 PM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



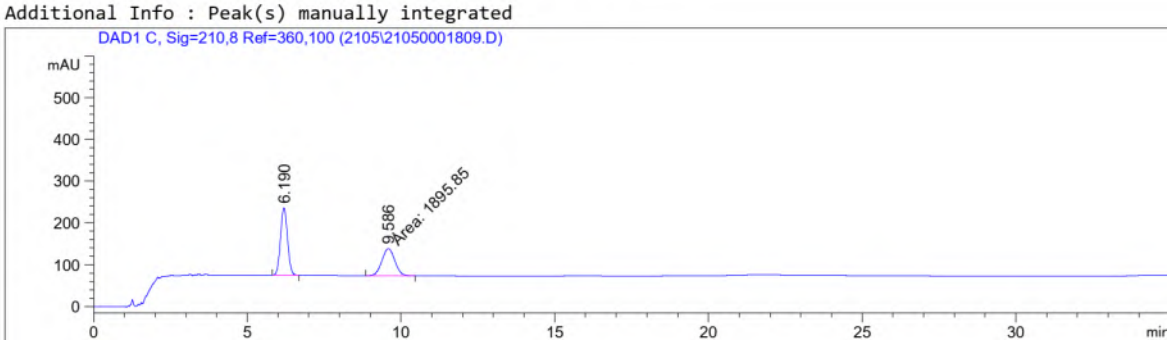

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.785 BB    0.1265 5787.76855  699.40259 100.0000

Totals :                  5787.76855  699.40259
```



(*R*)-4-(Benzyloxy)-*N*-cyclohexyl-2-phenylbutanamide (36)

*Due to the use of ligand mixture [(*R*,*R*)-Ph-BPE & (*S*,*S*)-Ph-BPE] as the racemic ligand, the ratio of enantiomeric isomer in this case is not 50:50 er.

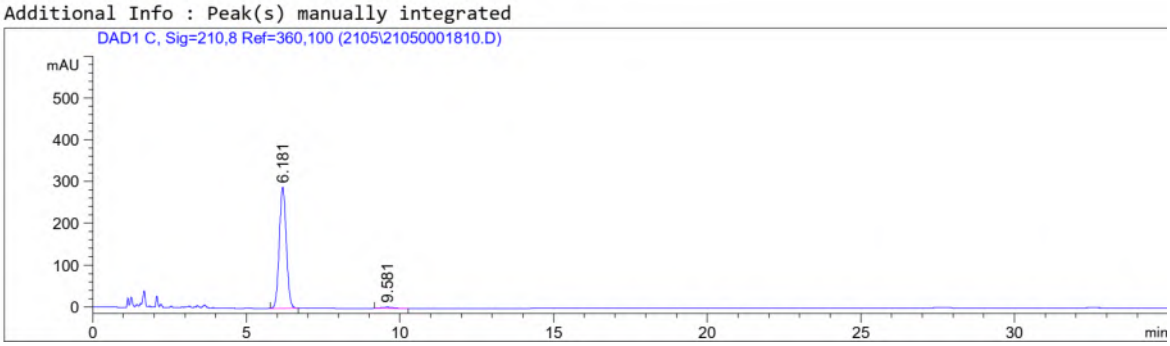
```
Data File D:\CHEM32\1\DATA\2105\21050001809.D
Sample Name: YY-X-131 Race

    ======================================================================
    Acq. Operator   : Analytik                     Seq. Line :   7
    Acq. Instrument : LC5                         Location : Vial 12
    Injection Date  : 5/18/2021 2:22:13 PM             Inj :   1
                                                  Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2.M
    Last changed    : 5/17/2021 3:03:04 PM by Analytik
    Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2.M
    Last changed    : 5/25/2021 3:04:44 PM by Analytik
                      (modified after loading)
    Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

    Additional Info : Peak(s) manually integrated
```



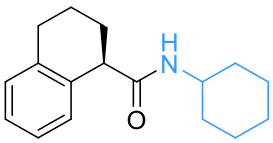

```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   6.190 BB    0.2472 2558.36670  161.13013  57.4369
       2   9.586 MM    0.4878 1895.85291   64.77711  42.5631

    Totals :                   4454.21960  225.90724

LC5 5/25/2021 3:07:14 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050001810.D
Sample Name: YY-X-131 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   8
Acq. Instrument : LC5                             Location : Vial 22
Injection Date  : 5/18/2021 2:58:16 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2.M
Last changed    : 5/17/2021 3:03:04 PM by Analytik
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2.M
Last changed    : 5/25/2021 3:04:44 PM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```

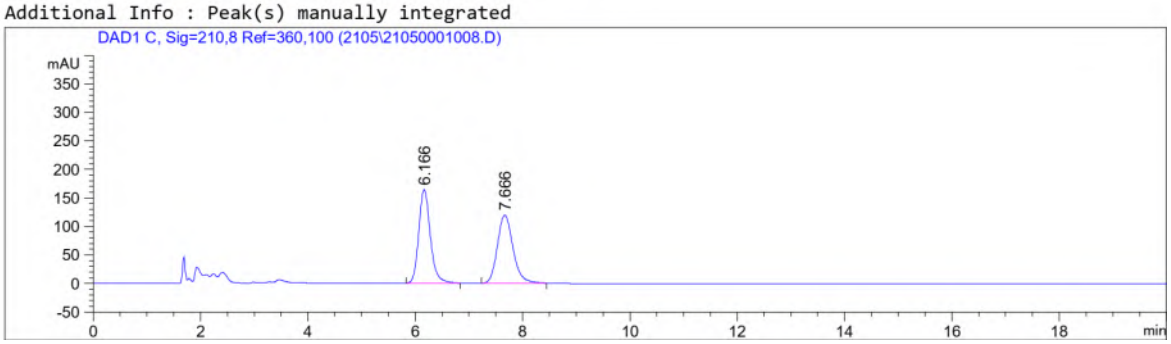



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.181 BB    0.2466 4581.46045  289.61316  98.4100
   2   9.581 BB    0.3748   74.02377    2.70918   1.5900

Totals :                  4655.48421  292.32234
```



(R)-N-Cyclohexyl-1,2,3,4-tetrahydronaphthalene-1-carboxamide (37)

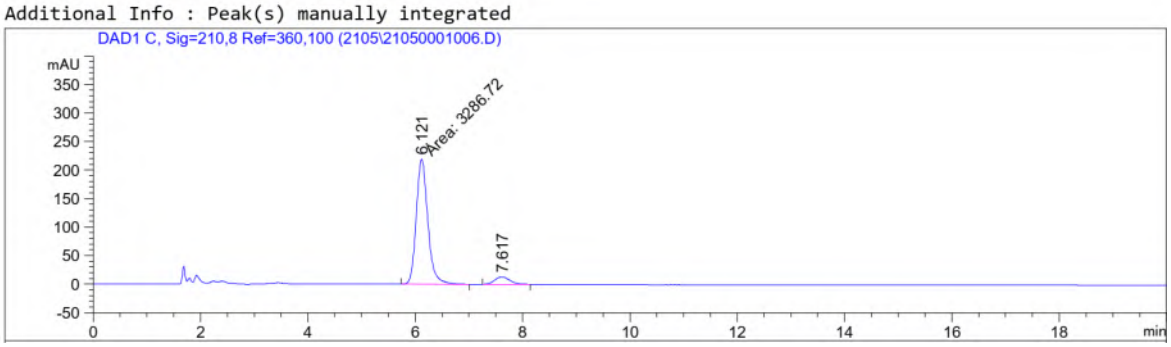
```
Data File D:\CHEM32\1\DATA\2105\21050001008.D
Sample Name: YY-X-130 Race

    ======================================================================
    Acq. Operator   : Analytik                     Seq. Line :   9
    Acq. Instrument : LC5                          Location : Vial 13
    Injection Date  : 5/10/2021 4:33:33 PM              Inj :   1
                                                  Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
    Last changed    : 5/10/2021 2:26:33 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\SDC.M
    Last changed    : 5/10/2021 3:10:59 PM by Analytik
                      (modified after loading)
    Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

    Additional Info : Peak(s) manually integrated
```



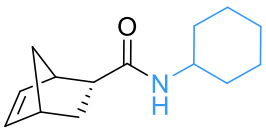

```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   6.166 BB    0.2290 2468.32031  164.50887  50.4445
       2   7.666 BB    0.3122 2424.81909  119.77151  49.5555

    Totals :                   4893.13940  284.28038

LC5 5/11/2021 12:36:45 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050001006.D
Sample Name: YY-X-130-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   7
Acq. Instrument : LC5                             Location : Vial 23
Injection Date  : 5/10/2021 3:51:23 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/10/2021 2:26:33 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/10/2021 3:10:59 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



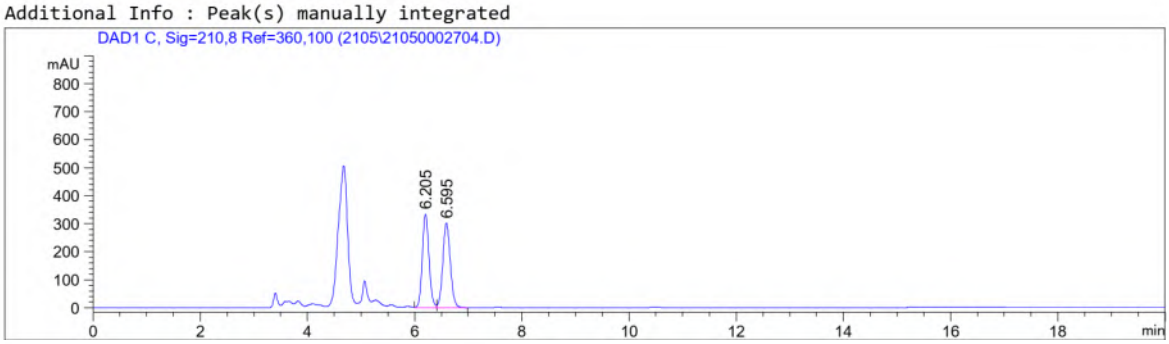

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.121 MM    0.2500 3286.71509  219.09990  92.7491
   2   7.617 BB    0.3041  256.94687   13.02880   7.2509

Totals :                  3543.66196  232.12870
```



(4R)-N-Cyclohexylbicyclo*[2.2.1]*hept-5-ene-2-carboxamide (38)

Data File D:\CHEM32\1\DATA\2105\21050002704.D
Sample Name: YY-X-83 Race

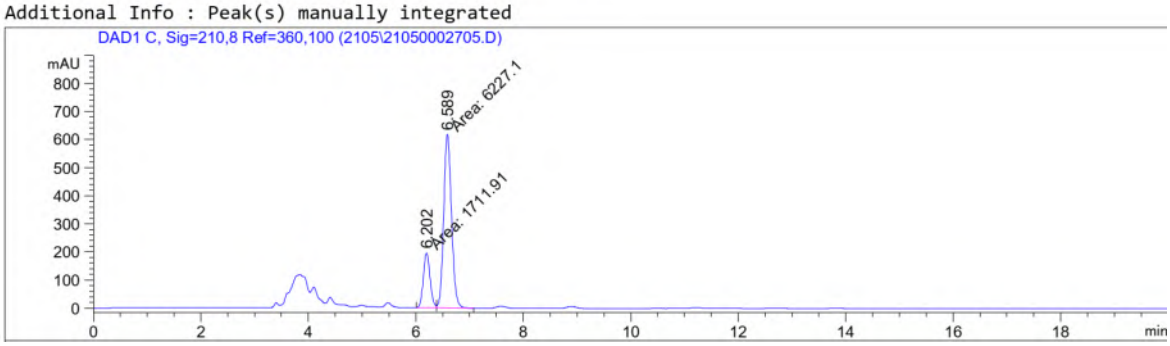
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :   4
Acq. Instrument : LC5                           Location : Vial 24
Injection Date  : 5/27/2021 11:32:49 AM              Inj :   1
                                               Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 11:56:29 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 11:11:12 AM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



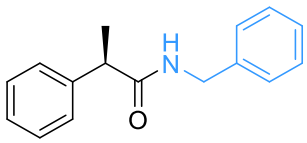

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.205 VV    0.1336 2913.05566  334.43451  49.7039
   2   6.595 VB    0.1517 2947.76514  302.45889  50.2961

Totals :                  5860.82080  636.89340
```

Data File D:\CHEM32\1\DATA\2105\21050002705.D
Sample Name: YY-X-83 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   5
Acq. Instrument : LC5                             Location : Vial 34
Injection Date  : 5/27/2021 11:56:52 AM               Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 11:56:29 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 11:11:12 AM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



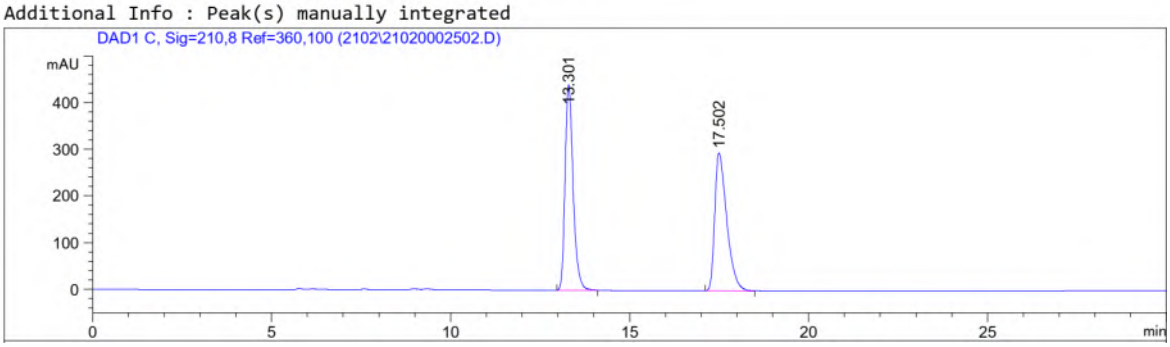

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   6.202 MF    0.1466 1711.90796  194.62668  21.5633
   2   6.589 FM    0.1681 6227.09521  617.23059  78.4367

Totals :                  7939.00317  811.85727
```



*(R)-N-b*enzyl-2-phenylpropanamide (3)

Data File D:\CHEM32\1\DATA\2102\21020002502.D
Sample Name: YY-x-race

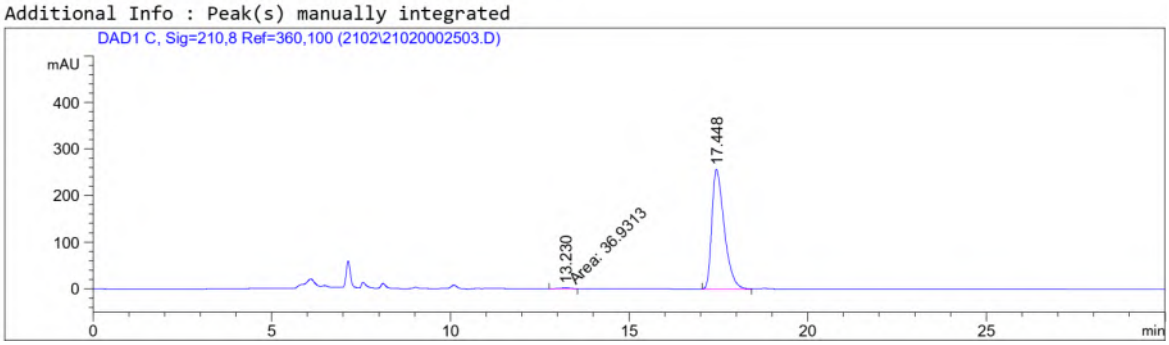
```
==========================================================================
Acq. Operator   : Analytik                     Seq. Line :   3
Acq. Instrument : LC5                         Location : Vial 51
Injection Date  : 2/25/2021 10:56:38 AM            Inj :   1
                                              Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 2/25/2021 11:41:45 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 2/25/2021 12:30:47 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



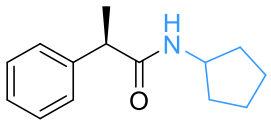

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  13.301 BB    0.2385 6881.00146  439.86713  49.9153
   2  17.502 BB    0.3547 6904.35840  295.35629  50.0847

Totals :                  1.37854e4   735.22342
```

Data File D:\CHEM32\1\DATA\2102\21020002503.D
Sample Name: YY-x-53

```
======================================================================
Acq. Operator   : Analytik                      Seq. Line :   4
Acq. Instrument : LC5                            Location : Vial 53
Injection Date  : 2/25/2021 11:42:09 AM               Inj :   1
                                                 Inj Volume : 0.5 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 3.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 2/25/2021 11:41:45 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ.M
Last changed    : 2/25/2021 12:30:47 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



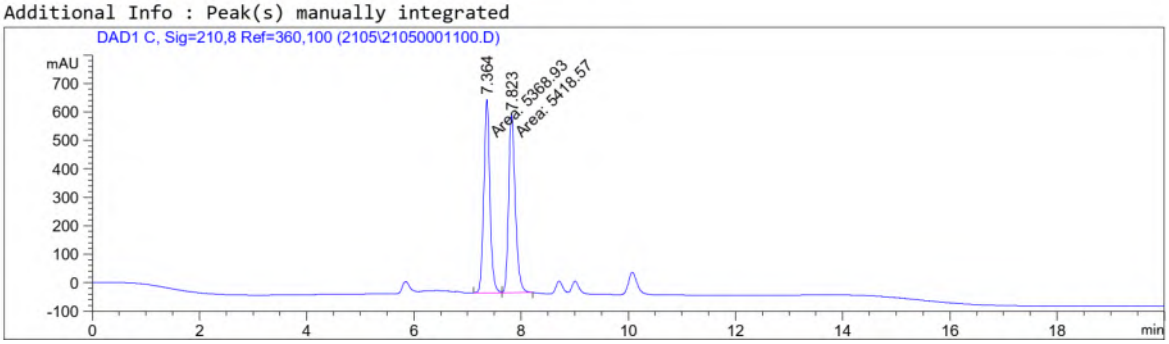

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  13.230 MM    0.3222   36.93130    1.91056   0.5913
   2  17.448 BB    0.3662 6208.45605  256.65204  99.4087
```



(R)-*N*-Cyclopentyl-2-phenylpropanamide (41)

Data File D:\CHEM32\1\DATA\2105\21050001100.D
Sample Name: YY-X-109 Race

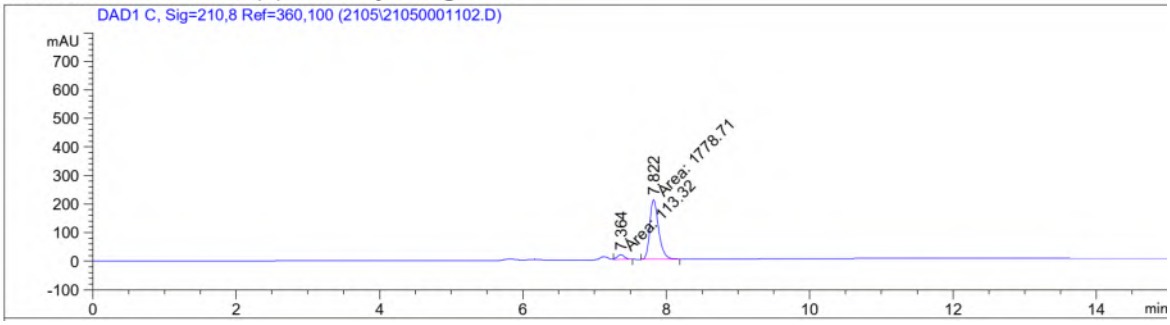
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   1
Acq. Instrument : LC5                            Location : Vial 1
Injection Date  : 5/11/2021 2:42:53 PM               Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 5/11/2021 3:25:19 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 5/12/2021 12:08:42 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



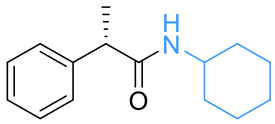

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.364 MF    0.1316 5368.93311  680.12775  49.7699
   2   7.823 FM    0.1450 5418.57129  622.89972  50.2301

Totals :                  1.07875e4  1303.02747
```

Data File D:\CHEM32\1\DATA\2105\21050001102.D
Sample Name: YY-X-109-rt

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   3
Acq. Instrument : LC5                             Location : Vial 2
Injection Date  : 5/11/2021 3:41:47 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 5/11/2021 3:25:19 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\HOLZ 0.5.M
Last changed    : 5/12/2021 12:11:18 PM by Analytik
                  (modified after loading)
Method Info     : Chiralpak AD-H, Hept./EtOH 80:20, 0.5ml/min

Additional Info : Peak(s) manually integrated
```



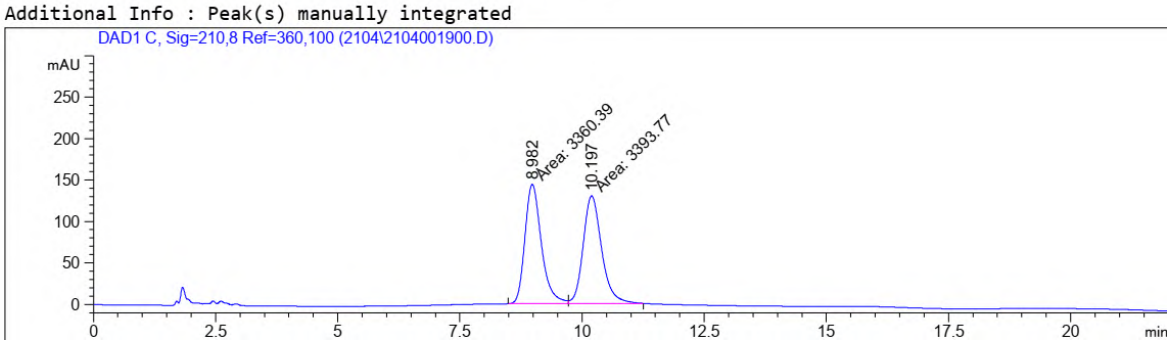

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.364 MM    0.1145  113.32011   16.49935   5.9893
   2   7.822 MM    0.1424 1778.70959  208.19086  94.0107

Totals :                  1892.02970  224.69020
```



(S)-*N*-Cyclohexyl-2-phenylpropanamide (42)

Data File D:\CHEM32\1\DATA\2104\2104001900.D
Sample Name: YY-X-59 Race

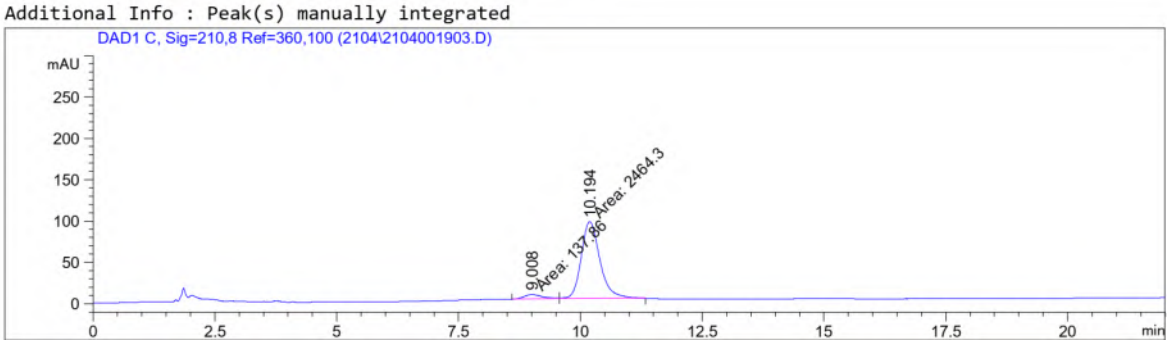
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :   1
Acq. Instrument : LC5                          Location : Vial 1
Injection Date  : 4/19/2021 12:11:17 PM            Inj :   1
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/19/2021 12:39:33 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/19/2021 3:57:24 PM by Analytik
                  (modified after loading)
Method Info     : Cellulse4, Hept./Isoprop 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



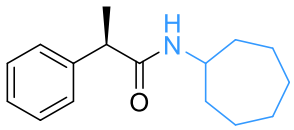

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.982 MF    0.3893 3360.39331  143.85008  49.7529
   2  10.197 FM    0.4359 3393.76636  129.77121  50.2471

Totals :                  6754.15967  273.62129
```

Data File D:\CHEM32\1\DATA\2104\2104001903.D
Sample Name: YY-X-59 S

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 2
Injection Date  : 4/19/2021 1:32:05 PM                 Inj :   2
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/19/2021 12:39:33 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/19/2021 3:57:24 PM by Analytik
                  (modified after loading)
Method Info     : Cellulse4, Hept./Isoprop 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



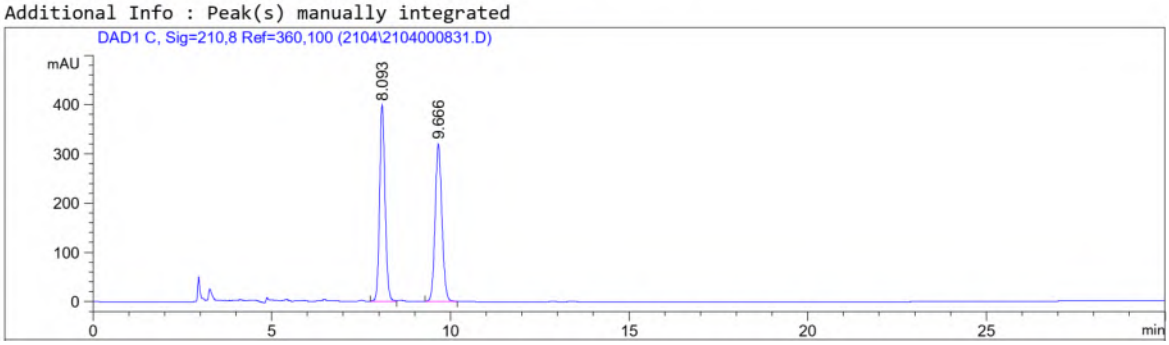

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.008 MF    0.4393  137.85976    5.22978   5.2979
   2  10.194 FM    0.4421 2464.29565   92.90602  94.7021

Totals :                  2602.15541   98.13580
```



(R)-*N*-Cycloheptyl-2-phenylpropanamide (43)

Data File D:\CHEM32\1\DATA\2104\2104000831.D
Sample Name: YY-X-110 Race

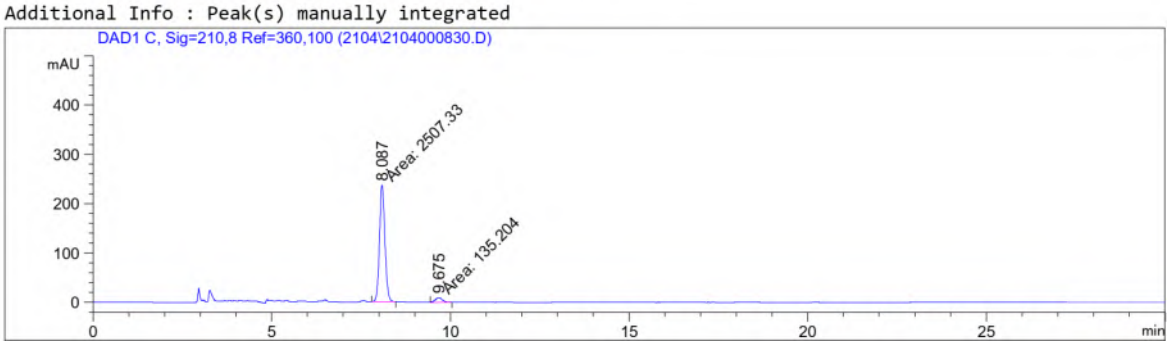
```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  22
Acq. Instrument : LC5                            Location : Vial 19
Injection Date  : 4/9/2021 8:58:04 AM                 Inj :  1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 7:24:13 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 12:12:40 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 1.0 ml/min

Additional Info : Peak(s) manually integrated
```



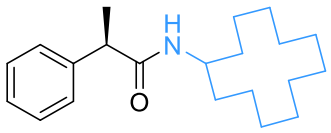

```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.093 BB    0.1648 4254.18652  397.81912  50.1203
   2   9.666 BB    0.2045 4233.75977  319.66937  49.8797

Totals :                  8487.94629  717.48849
```

Data File D:\CHEM32\1\DATA\2104\2104000830.D
Sample Name: YY-X-110 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  21
Acq. Instrument : LC5                             Location : Vial 53
Injection Date  : 4/9/2021 8:26:54 AM                  Inj :   2
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 7:24:13 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 12:12:40 PM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 1.0 ml/min

Additional Info : Peak(s) manually integrated
```



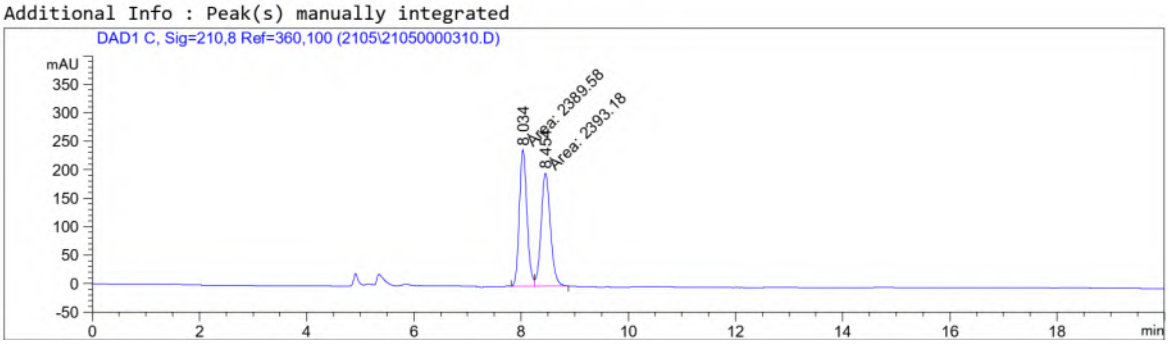

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.087 MM    0.1766 2507.33276  236.58972  94.8835
   2   9.675 MM    0.2309  135.20445    9.75895   5.1165

Totals :                  2642.53722  246.34867
```



(R)-N-Cyclododecyl-2-phenylpropanamide (44)

Data File D:\CHEM32\1\DATA\2105\21050000310.D
Sample Name: YY-X-112 Race

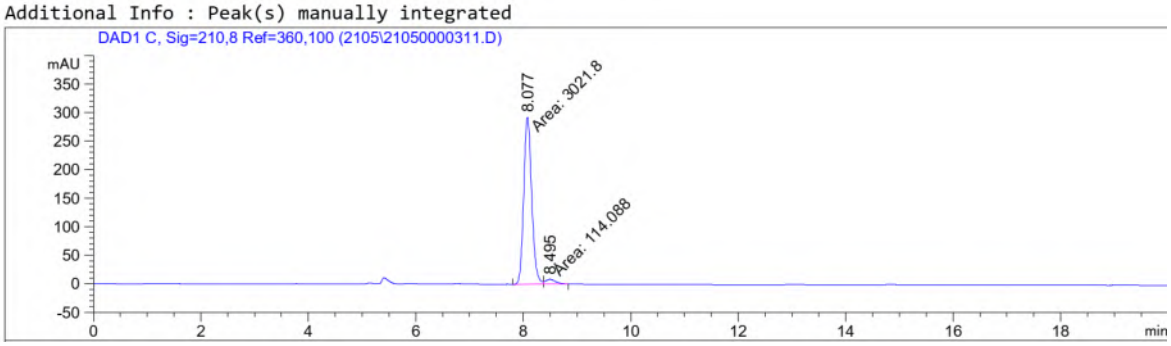
```
======================================================================
Acq. Operator   : Analytik                       Seq. Line :  10
Acq. Instrument : LC5                            Location : Vial 5
Injection Date  : 5/3/2021 3:56:06 PM                 Inj :   1
                                                Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC 0.6.M
Last changed    : 5/3/2021 3:13:28 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC 0.6.M
Last changed    : 5/4/2021 9:21:06 AM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 0.6ml/min

Additional Info : Peak(s) manually integrated
```



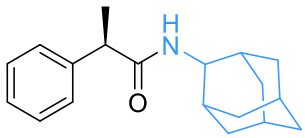

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.034 MF    0.1659 2389.58105  240.03227  49.9624
   2   8.454 FM    0.2009 2393.17578  198.51573  50.0376

Totals :                  4782.75684  438.54800
```

Data File D:\CHEM32\1\DATA\2105\21050000311.D
Sample Name: YY-X-112 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  11
Acq. Instrument : LC5                             Location : Vial 15
Injection Date  : 5/3/2021 4:17:15 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Different Inj Volume from Sequence !     Actual Inj Volume : 0.5 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC 0.6.M
Last changed    : 5/3/2021 3:13:28 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC 0.6.M
Last changed    : 5/4/2021 9:21:06 AM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 0.6ml/min

Additional Info : Peak(s) manually integrated
```



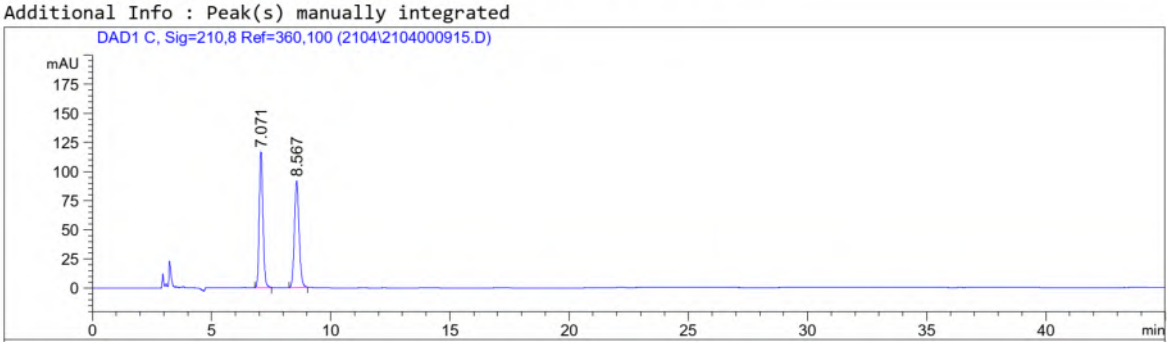

```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.077 MF    0.1719 3021.80005  292.93423  96.3619
   2   8.495 FM    0.2190  114.08807    8.68151   3.6381
```



(R)-N-(Adamantan-2-yl)-2-phenylpropanamide (45)

Data File D:\CHEM32\1\DATA\2104\2104000915.D
Sample Name: YY-X-111 Race

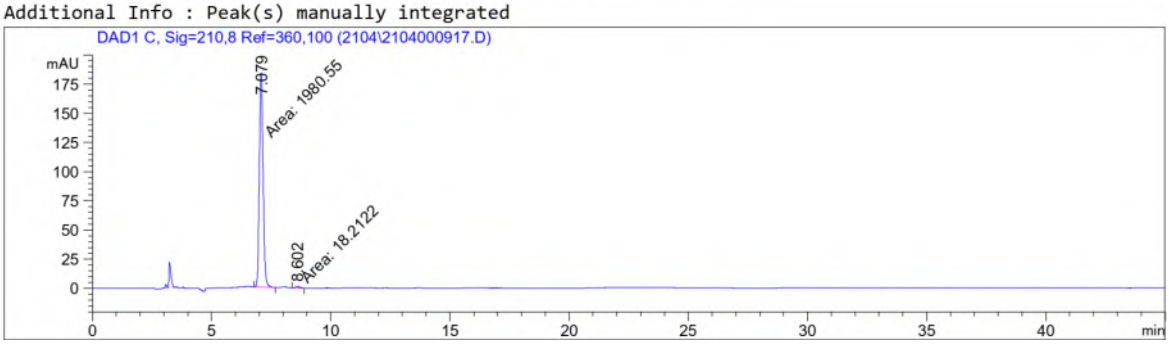
```
======================================================================
Acq. Operator   : Analytik                     Seq. Line :  12
Acq. Instrument : LC5                          Location : Vial 17
Injection Date  : 4/10/2021 2:27:24 AM             Inj :   1
                                               Inj Volume : 1.0 µl
Method          : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 2:37:18 PM by Analytik
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 1.0 ml/min

Additional Info : Peak(s) manually integrated
```



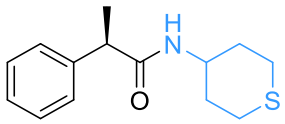

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.071 BB    0.1684 1260.41406  116.35311  50.1350
   2   8.567 BB    0.2123 1253.62427   91.25807  49.8650

Totals :                  2514.03833  207.61118
```

Data File D:\CHEM32\1\DATA\2104\2104000917.D
Sample Name: YY-X-111 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  13
Acq. Instrument : LC5                            Location : Vial 18
Injection Date  : 4/10/2021 3:59:34 AM               Inj :   1
                                                 Inj Volume : 1.0 µl
Method          : C:\CHEM32\1\METHODS\CHIRAL OJ-H.M
Last changed    : 4/9/2021 2:37:18 PM by Analytik
Method Info     : Chiralcel OJ-H , Hept./EtOH 95:5 , 1.0 ml/min

Additional Info : Peak(s) manually integrated
```

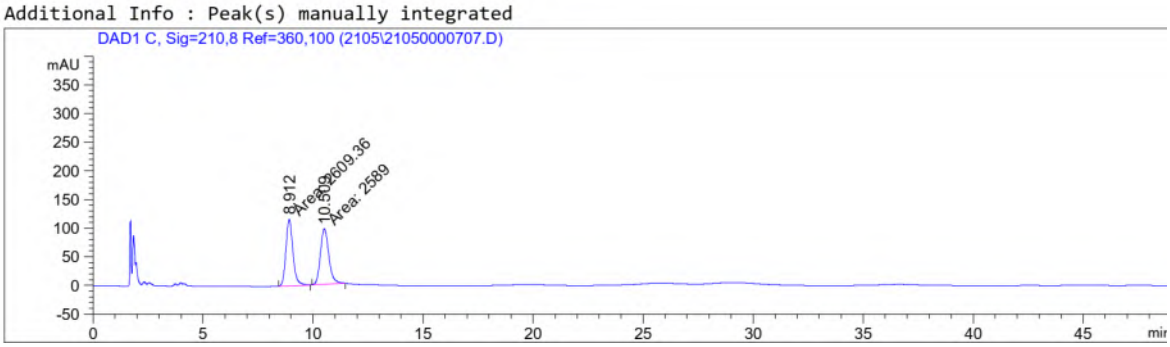



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.079 MM    0.1799 1980.55469  183.48459  99.0888
   2   8.602 MM    0.2110   18.21221    1.43874   0.9112

Totals :                  1998.76690  184.92333
```



(R)-2-phenyl-*N*-(tetrahydro-2*H*-thiopyran-4-yl)propanamide (46)

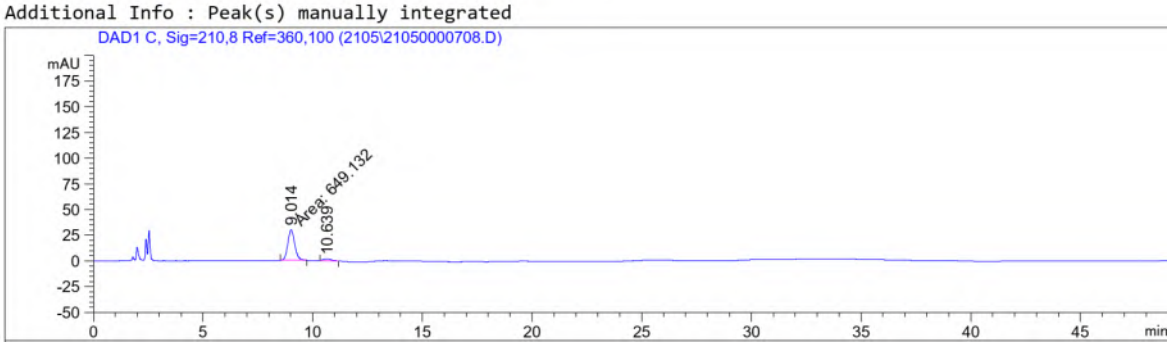
```
Data File D:\CHEM32\1\DATA\2105\21050000707.D
Sample Name: YY-X-115-Race

    ======================================================================
    Acq. Operator   : Analytik                     Seq. Line :   8
    Acq. Instrument : LC5                          Location : Vial 23
    Injection Date  : 5/7/2021 5:01:28 PM              Inj :   1
                                                   Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
    Last changed    : 5/7/2021 3:44:32 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\SDC 1.2.M
    Last changed    : 5/10/2021 11:54:58 AM by Analytik
                      (modified after loading)
    Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

    Additional Info : Peak(s) manually integrated
```



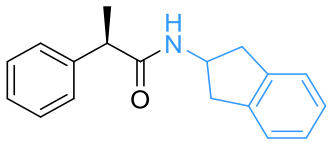

```
    ======================================================================
                              Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   8.912 MM    0.3747 2609.35938  116.07904  50.1958
       2  10.509 MM    0.4453 2589.00293   96.90015  49.8042

    Totals :                  5198.36230  212.97919

LC5 5/10/2021 12:27:16 PM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050000708.D
Sample Name: YY-X-115-rt

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   9
Acq. Instrument : LC5                             Location : Vial 24
Injection Date  : 5/7/2021 6:02:34 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/7/2021 3:44:32 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC 1.2.M
Last changed    : 5/10/2021 12:27:50 PM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./EtOH 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```

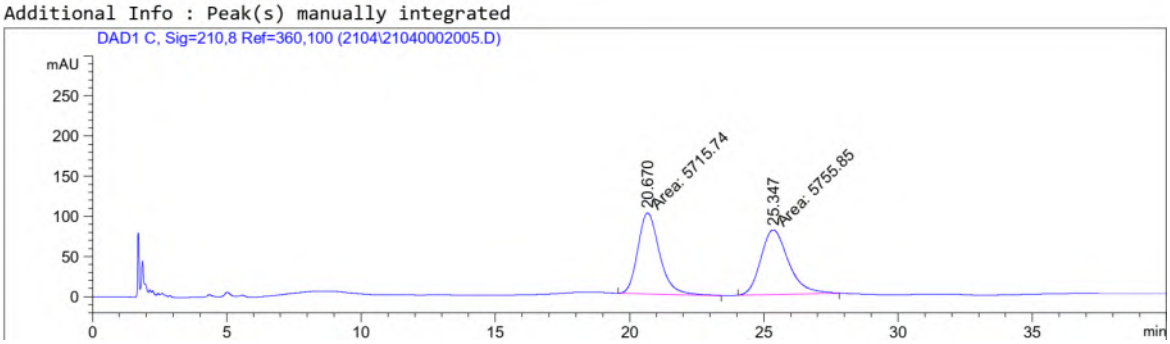



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   9.014 MM    0.3655  649.13165   29.60283  93.4663
   2  10.639 BB    0.3298   45.37730    1.74266   6.5337

Totals :                   694.50896   31.34549
```



(R)-*N*-(2,3-Dihydro-1*H*-inden-2-yl)-2-phenylpropanamide (47)

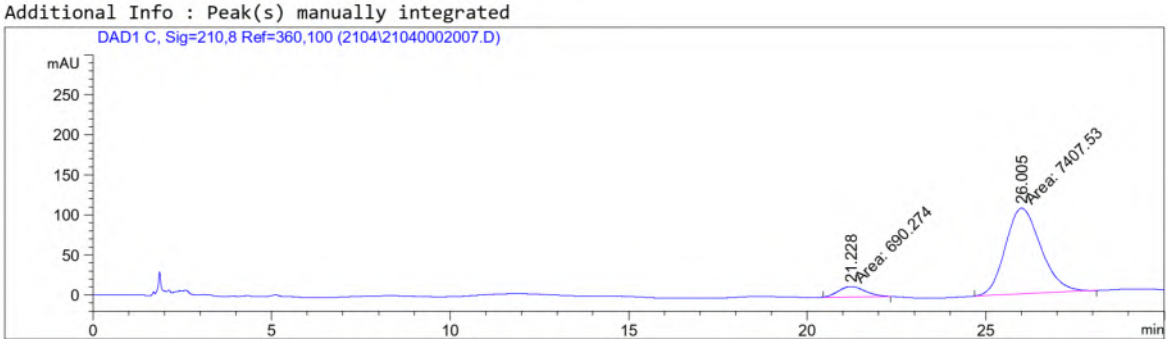
```
Data File D:\CHEM32\1\DATA\2104\21040002005.D
Sample Name: YY-X-114 Race

======================================================================
Acq. Operator   : Analytik                     Seq. Line :   3
Acq. Instrument : LC5                          Location : Vial 22
Injection Date  : 4/20/2021 2:30:26 PM             Inj :   2
                                              Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/20/2021 2:27:56 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/21/2021 8:56:35 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./Isoprop 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```



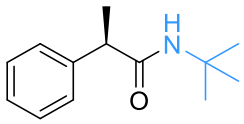

```
======================================================================
                        Area Percent Report
======================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  20.670 MM    0.9431 5715.73584  101.01209  49.8251
   2  25.347 MM    1.1921 5755.85498   80.47052  50.1749

Totals :                  1.14716e4   181.48261

LC5 4/21/2021 8:57:46 AM Analytik                    Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2104\21040002007.D
Sample Name: YY-X-114 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   4
Acq. Instrument : LC5                             Location : Vial 32
Injection Date  : 4/20/2021 3:42:37 PM                 Inj :   2
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/20/2021 3:52:53 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\YY.M
Last changed    : 4/21/2021 8:58:19 AM by Analytik
                  (modified after loading)
Method Info     : Cellulose4, Hept./Isoprop 95:5, 1ml/min

Additional Info : Peak(s) manually integrated
```

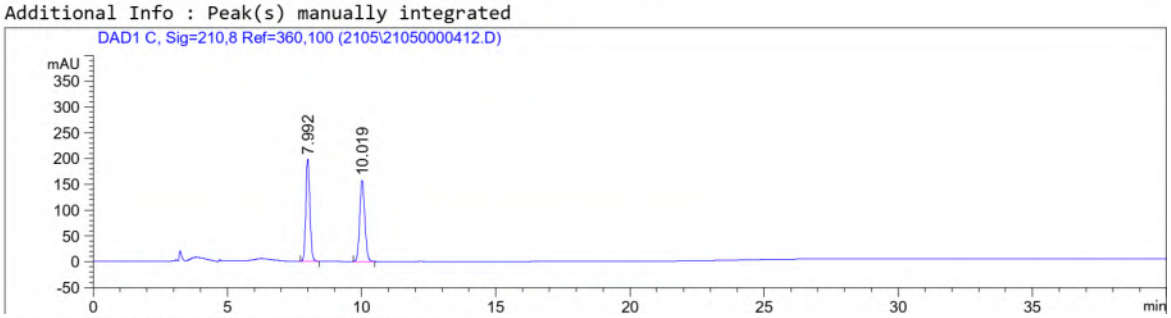



```
==========================================================================
                          Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1  21.228 MM    0.8752  690.27374   13.14580   8.5242
   2  26.005 MM    1.1516 7407.52930  107.20650  91.4758

Totals :                  8097.80304  120.35230
```



(R)-*N*-(*tert*-Butyl)-2-phenylpropanamide (48)

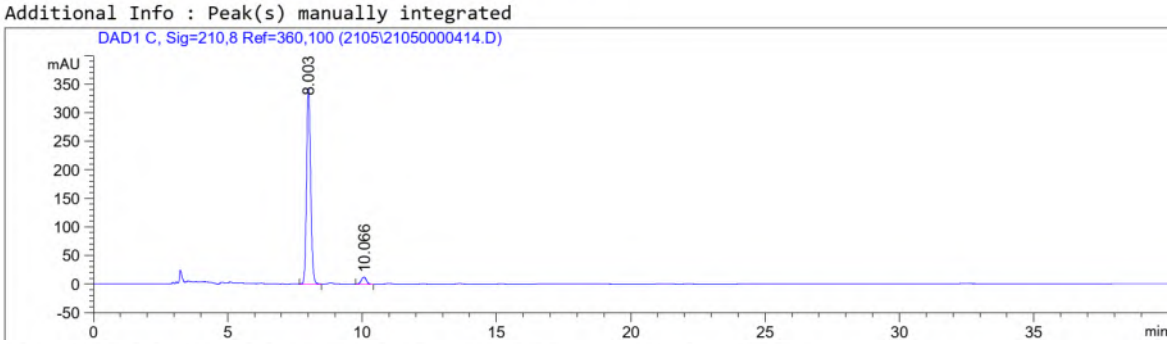
```
Data File D:\CHEM32\1\DATA\2105\21050000412.D
Sample Name: YY-X-93 Race

    ======================================================================
    Acq. Operator   : Analytik                      Seq. Line :  11
    Acq. Instrument : LC5                          Location : Vial 8
    Injection Date  : 5/4/2021 6:26:00 PM              Inj :   1
                                                   Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
    Last changed    : 5/4/2021 4:22:07 PM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\SDC.M
    Last changed    : 5/5/2021 9:00:26 AM by Analytik
                      (modified after loading)
    Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 1.0ml/min

    Additional Info : Peak(s) manually integrated
```



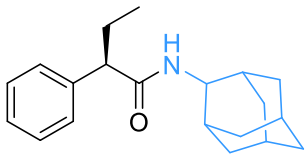

```
Data File D:\CHEM32\1\DATA\2105\21050000412.D
Sample Name: YY-X-93 Race


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   7.992 BB    0.1620 2078.37427  198.67500  50.0101
       2  10.019 BB    0.2037 2077.53784  157.69313  49.9899

    Totals :                  4155.91211  356.36813
```

Data File D:\CHEM32\1\DATA\2105\21050000414.D
Sample Name: YY-X-93-C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :  13
Acq. Instrument : LC5                             Location : Vial 18
Injection Date  : 5/4/2021 7:48:12 PM                 Inj :   1
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/4/2021 4:22:07 PM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\SDC.M
Last changed    : 5/5/2021 9:00:26 AM by Analytik
                  (modified after loading)
Method Info     : Chiralcel OJ, Hept./EtOH 95:5, 1.0ml/min

Additional Info : Peak(s) manually integrated
```

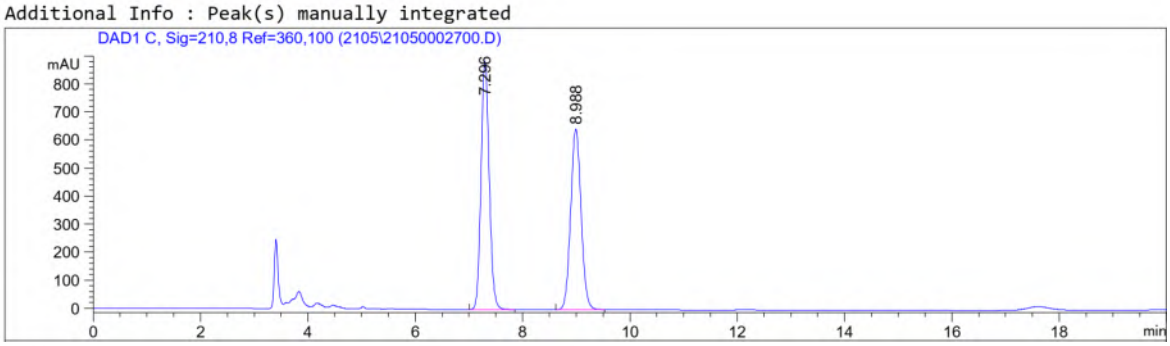



```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   8.003 VB    0.1632 3628.12646  343.66391  95.3171
   2  10.066 BB    0.2097  178.25041   13.02036   4.6829

Totals :                  3806.37688  356.68427
```



(*R*)-N-Adamantan-2-yl)-2-phenylbutanamide (52)

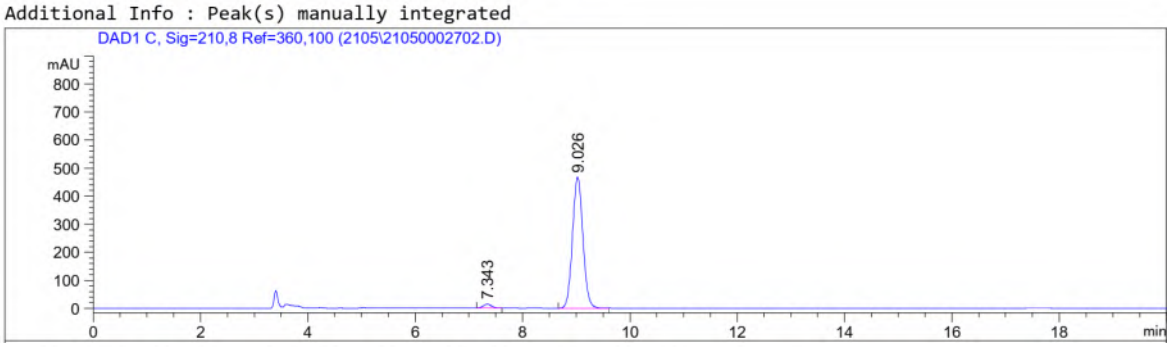
```
Data File D:\CHEM32\1\DATA\2105\21050002700.D
Sample Name: YY-X-137 Race

    ======================================================================
    Acq. Operator   : Analytik                       Seq. Line :   1
    Acq. Instrument : LC5                           Location : Vial 23
    Injection Date  : 5/27/2021 9:48:32 AM               Inj :   1
                                                  Inj Volume : 1.0 µl
    Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
    Last changed    : 5/27/2021 10:07:58 AM by Analytik
                      (modified after loading)
    Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
    Last changed    : 5/27/2021 11:11:12 AM by Analytik
                      (modified after loading)
    Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

    Additional Info : Peak(s) manually integrated
```




```
    ======================================================================
                            Area Percent Report
    ======================================================================

    Sorted By             :      Signal
    Multiplier            :      1.0000
    Dilution              :      1.0000
    Use Multiplier & Dilution Factor with ISTDs


    Signal 1: DAD1 C, Sig=210,8 Ref=360,100

    Peak RetTime Type  Width     Area      Height     Area
      #   [min]        [min]   [mAU*s]     [mAU]       %
    ----|-------|----|-------|----------|----------|--------|
       1   7.296 BB    0.1661 9407.94336  884.61633  51.8692
       2   8.988 BB    0.2102 8729.88574  643.98096  48.1308

    Totals :                  1.81378e4  1528.59729

LC5 5/27/2021 11:11:31 AM Analytik                          Page   1 of 2
```

Data File D:\CHEM32\1\DATA\2105\21050002702.D
Sample Name: YY-X-137 C

```
==========================================================================
Acq. Operator   : Analytik                       Seq. Line :   2
Acq. Instrument : LC5                             Location : Vial 33
Injection Date  : 5/27/2021 10:40:42 AM               Inj :   2
                                                 Inj Volume : 1.0 µl
Acq. Method     : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 10:07:58 AM by Analytik
                  (modified after loading)
Analysis Method : C:\CHEM32\1\METHODS\AMYLOSE2-0.5.M
Last changed    : 5/27/2021 11:11:12 AM by Analytik
                  (modified after loading)
Method Info     : Amylose2, Hept./EtOH 90:10, 0.5ml/min

Additional Info : Peak(s) manually integrated
```




```
==========================================================================
                        Area Percent Report
==========================================================================

Sorted By             :      Signal
Multiplier            :      1.0000
Dilution              :      1.0000
Use Multiplier & Dilution Factor with ISTDs


Signal 1: DAD1 C, Sig=210,8 Ref=360,100

Peak RetTime Type  Width     Area      Height     Area
  #   [min]        [min]   [mAU*s]     [mAU]       %
----|-------|----|-------|----------|----------|--------|
   1   7.343 BB    0.1618  141.78105   13.58352   2.1886
   2   9.026 BB    0.2101 6336.25293  467.71741  97.8114

Totals :                   6478.03398  481.30093
```