Supporting Information

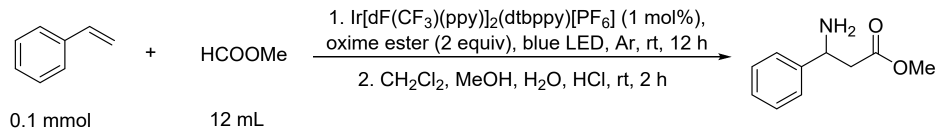
Contents

1. General Information

Unless otherwise noted, all the Chemicals and solvents were purchased from commercial suppliers and used as received. [1]H NMR, [13]C NMR spectra were recorded on a Bruker AVANCE III 500MHz spectrometer. Chemical shifts were calibrated using residual undeuterated solvent as an internal reference ($CDCl_3$: 7.26 ppm [1]H NMR, 77.16 ppm [13]C NMR). Multiplicity was indicated as follows: s (singlet), d (doublet), t (triplet), q (quartet), m (multiplet), dd (doublet of doublet), brs (broad singlet). All high-resolution mass spectra (HRMS) were obtained on an AB Sciex TripleTOF 4600 spectrometer. Alkenes (**1e**,[1] **1f**,[2] **1d**,[2] **1ab**,[3] **1ac**,[4] **1ad**[1,5]) and Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6][6] were all prepared following reported literature protocols. All ketoximes and ketoxime esters were prepared according to the reported literature procedure.[7,8] Light source: blue LED strips, (12 W, 440 nm) were purchased from Xiao Xiang Lighting Company, Limited. Reactions were monitored using thin layer chromatography (TLC) on aluminium backed plates and visualised by UV radiation at a wavelength of 254 nm. Column chromatography was carried out over 200-300 mesh silica gel.

2. General procedures

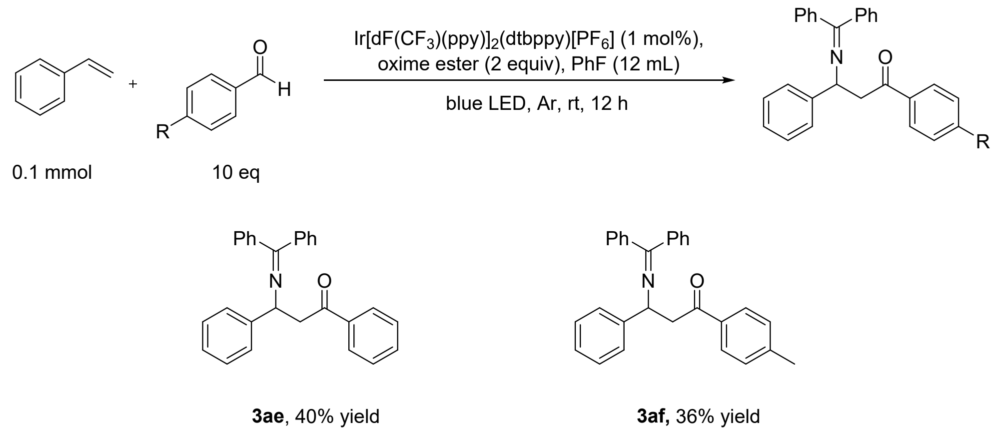
2.1 General procedure for aminoesterification of alkenes



A 25 mL Schlenk tube equipped with a magnetic stirring bar was added with the appropriate oxime ester (2.0 equiv) and Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (1.0 mol%). Then the tube was evacuated and re-filled with argon for three times. Anhydrous HCOOMe (12 mL) was added under argon counterflow, followed by the appropriate alkene (1.0 equiv). The reaction was stirred and irradiated with a 12 W blue LED Light strip at rt for 12 h. After irradiation, the resulting mixture were concentrated under reduced pressure, followed by HCl (33.6 μL, 4 equiv), H_2O (240 μL, 130 equiv),

CH_2Cl_2 (1.5 mL), MeOH (1.5 mL). After stirring at room temperature for 2 hours, saturated $NaHCO_3$ solution was added and adjusted the pH to 7. Then the resulting mixture was extracted with EtOAc three times. The combined organic layers were dried over anhydrous Na_2SO_4, then were concentrated under reduced pressure. The residue was purified by flash column chromatography on SiO_2, prebasified with Et_3N (petroleum ether: ethyl acetate, 1/2), afforded the corresponding amino acid esters product.

2.2 General procedure for aminoacylation of alkenes

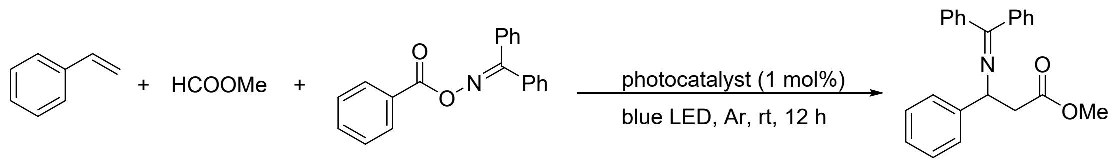


Scheme S1 Aminoacylation of alkenes

A 25 mL Schlenk tube equipped with a magnetic stirring bar was added with the appropriate oxime ester (2.0 equiv) and $Ir[dF(CF_3)(ppy)]_2(dtbppy)[PF_6]$ (1.0 mol%). Then the tube was evacuated and re-filled with argon for three times. PhF (12 mL) was added under argon counterflow, followed by the appropriate alkene (0.1 mmol) and benzaldehyde (10 equiv). The reaction was stirred and irradiated with a 12 W blue LED Light strip at rt for 12 h. After irradiation, the resulting homogenous solution was transferred to a 50 mL round bottom flask and concentrated under reduced pressure. The crude products were purified by column chromatography silica gel to yield the desired compound.

3. Complementary reaction optimization data

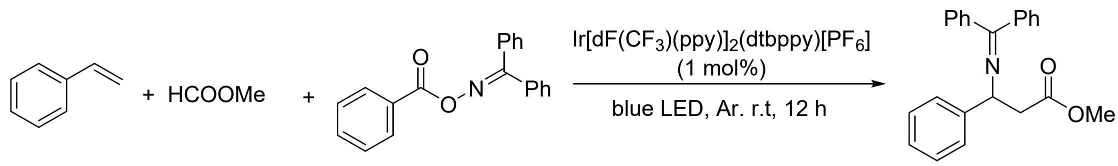
Table S1 Screening of the photocatalyst[a]



Entry	Photocatalyst	**2a** Yield (%)[b]
1	Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6]	50
2	[Ir(dtbbpy)(ppy)$_2$][PF_6]	12
3	[Ru(bpy)$_3$]Cl_2	N.D.
4	Ru(bpy)$_3$(PF_6)$_2$	N.D.
5	4CzIPN	45
6	*fac*-Ir(ppy)$_3$	N.D.
7	EoSinY	N.D.
8	Acr-Mes$^+$$ClO_4^-$	N.D.
9	3CzClIPN	42
10	4DPAIPN	trace

[a] Reaction conditions: **1a** (0.1 mmol, 1 equiv), **A** (0.2 mmol, 2 equiv), photocatalyst (1 mol%), HCOOMe (6 mL), Ar, 12 W blue LED, rt, 12 h. [b] Detected by ^{1}H NMR using 1,3,5-trimethoxybenzene as the internal standard. N.D. = not detected.

Table S2 Screening of the concentration[a]

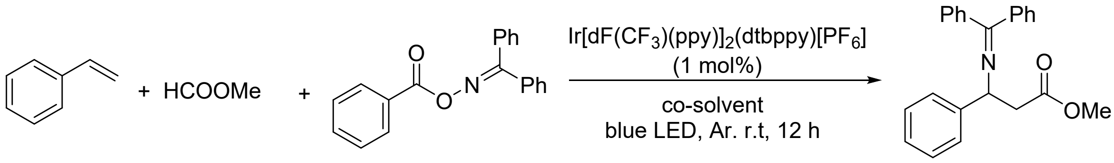


Entry	HCOOMe (n mL)	**2a** Yield (%)[b]
1	6	50
2	8	50
3	10	51
4	12	57

5[c]	8	58

[a] Reaction conditions: **1a** (0.1 mmol, 1 equiv), **A** (0.2 mmol, 2 equiv), Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (1 mol%), HCOOMe (n mL), Ar, 12 W blue LED, rt, 12 h. [b] Detected by ^{1}H NMR using 1,3,5-trimethoxybenzene as the internal standard. N.D. = not detected. [c] **1a** (0.05 mmol).

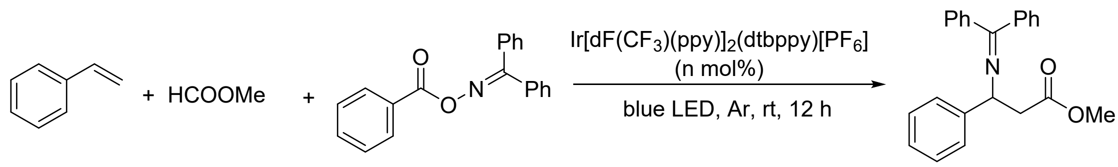
Table S3 Screening of the co-solvent[a]



Entry	Co-solvent (n mL)	**2a** Yield (%)[b]
1	EtOAc (0.5 mL)	42
2	$PhCF_3$ (0.5 mL)	40
3	PhF (0.5 mL)	51
4	HFIP (0.5 mL)	36
5	CF_3CH_2OH (0.5 mL)	41
6	Acetone (0.5 mL)	42
7	PhF (1 mL)	55
8	PhF (2 mL)	54
9	HCOOMe (2 equiv) + PhF (3 mL)	N.D.
10	HCOOMe (10 equiv) + PhF (12 mL)	N.D.
11	HCOOMe (100 equiv) + PhF (12 mL)	N.D.
12	HCOOMe (400 equiv) + PhF (12 mL)	10%
13	HCOOMe (6 mL) + PhF (6 mL)	35%

[a] Reaction conditions: **1a** (0.1 mmol, 1 equiv), **A** (0.2 mmol, 2 equiv), Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (1 mol%), HCOOMe (12 mL), co-solvent (n mL), Ar, 12 W blue LED, rt, 12 h. [b] Detected by ^{1}H NMR using 1,3,5-trimethoxybenzene as the internal standard. N.D. = not detected.

Table S4 Screening of the amount of photocatalyst and oxime ester[a]

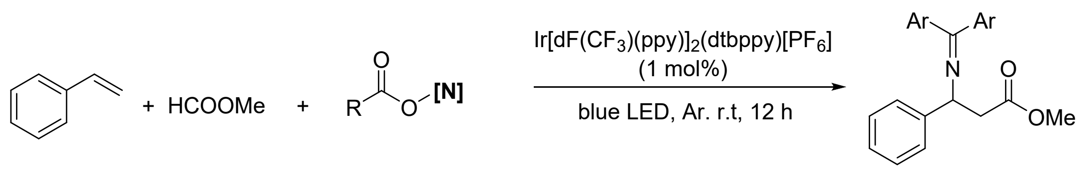


1a **A** **2a**

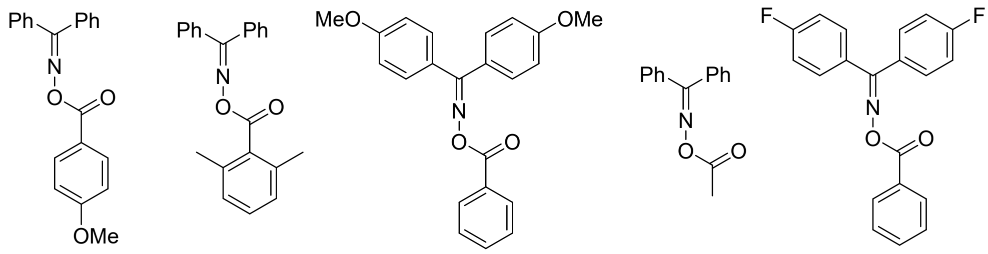
Entry	$Ir[dF(CF_3)(ppy)]_2(dtbppy)[PF_6]$ (n mol%)	**A** (m equiv)	**2a** Yield (%)[b]
1	0.5	2.0	54
2	1	2.0	57
3	2	2.0	57
4	3	2.0	51
5	1	1.0	42
6	1	1.5	54
7	1	2.5	51
8	1	3.0	48

[a] Reaction conditions: **1a** (0.1 mmol, 1 equiv), **A** (m equiv), $Ir[dF(CF_3)(ppy)]_2(dtbppy)[PF_6]$ (n mol%), HCOOMe **(**12 mL), Ar, 12 W blue LED, rt, 12 h. [b] Detected by ^{1}H NMR using 1,3,5-trimethoxybenzene as the internal standard.

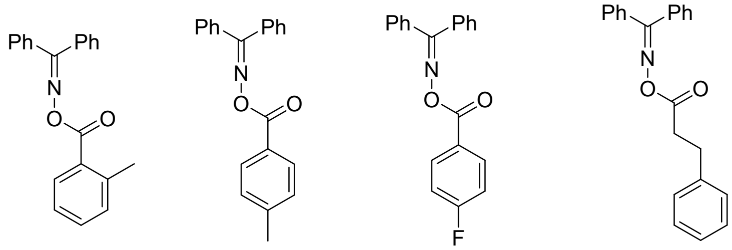
Table S5 Screen of the oxime ester[a]



1a **2**



B C D E F

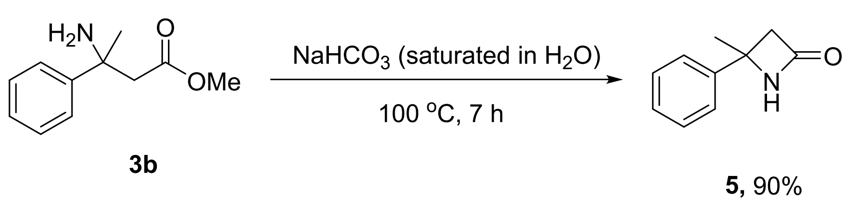


G H I J

Entry	Oxime ester (2 equiv)	**2** Yield (%)[b]
1	**B**	37
2	**C**	63
3	**D**	42
4	**E**	45
5	**F**	48
6	**G**	18
7	**H**	57
8	**I**	47
9	**J**	30

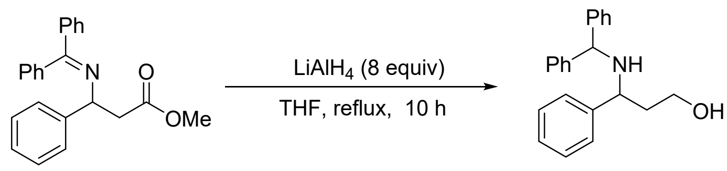
[a] Reaction conditions: **1a** (0.1 mmol, 1 equiv), oxime ester (0.2 mmol, 2 equiv), Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (1 mol%), HCOOMe **(**12 mL), Ar, 12 W blue LED, rt, 12 h. [b] Detected by ^{1}H NMR using 1,3,5-trimethoxybenzene as the internal standard.

4. Transformation of products



A 20 mL vial was charged with compound **3b** (19.3 mg, 0.1 mmol) and a saturated of

$NaHCO_3$ in H_2O (10 mL). The resulting mixture was heated to 100°C and reflux. After 7 h, the reaction was allowed to cool to room temperature, then the reaction mixture was added H_2O (10 mL) and extracted with EtOAc (10 mL x 3). The combined organic layers were washed with brine, dried over anhydrous sodium sulfate and concentrated in vacuo. The crude mixture was purified by column chromatography on SiO_2 (petroleum ether: ethyl acetate = 10:1, v/v) to give the target
product as a white solid (14.5 mg, 90 % yield). ^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.46 – 7.36 (m, 5H), 6.71 (s, 1H), 4.07 (d, *J* =11.9, 1H), 3.74 (d, *J* =11.8, 1H), 1.81 (s, 3H). The spectral data were in accordance with those reported in the literature[14].



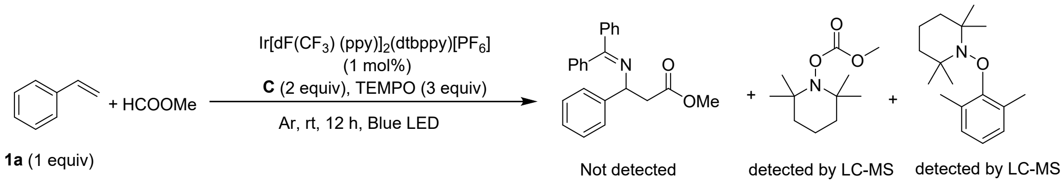
2a **4a**, 69%

A 10 mL Schlenk tube was charged with imine (34.3 mg, 0.1 mmol), then the tube was evacuated and re-filled with argon for three times. Subsequently, THF (2.0 mL) was added through injection port. Then 2 mL of 0.4 M $LiAlH_4$ solution in THF (30.4 mg, 0.8 mmol) was added dropwise to this solution over a period of 5 min at 0°C. Then the reaction mixture was allowed to warm to 70 °C. The resulting mixture was stirred 10 h. After consumption of the starting material was confirmed by TLC analysis, the reaction was quenched by H_2O (100 μL). The resulting homogenous solution was transferred to a 25 mL round bottom flask. SiO_2 was added to this solution and the volatiles were removed under reduced pressure, affording a powder which was loaded on column. Purification by flash column chromatography on SiO_2, pre-basified with NEt_3 using petroleum ether: ethyl acetate (2:1, v/v) mixtures afforded the corresponding β-amino alcohol as a white solid (21.9 mg, 69% yield). ^{1}H NMR (500 MHz, $CDCl_3$) δ 7.54 – 7.13 (m, 15H), 4.65 (s, 1H), 3.95 – 3.85 (m, 2H), 3.79 (dd, *J* = 10.5, 3.1 Hz, 1H), 2.17 – 2.04 (m, 1H), 1.81 (dd, *J* = 14.6, 3.0 Hz, 1H). The spectral data were in accordance with those reported in the literature[15].

5. Mechanistic investigations

5.1 Radical trapping experiment

a)



A 25 mL vial tube equipped with a magnetic stir was charged with oxime ester (0.2 mmol), Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (1.0 mol%), TEMPO (3 equiv, 0.3 mmol). The tube was then evacuated and back-filled with argon (Ar) for 3 times. Subsequently, **1a** (0.1 mmol, 1 equiv.) and then anhydrous methyl formate (12 mL) was added. The reaction was stirred and irradiated with a 12 W blue LED Light strip at rt for 12 h. After the reaction was completed, the mixture was detected by LC-MS, the formation of **3a** was completely inhibited.

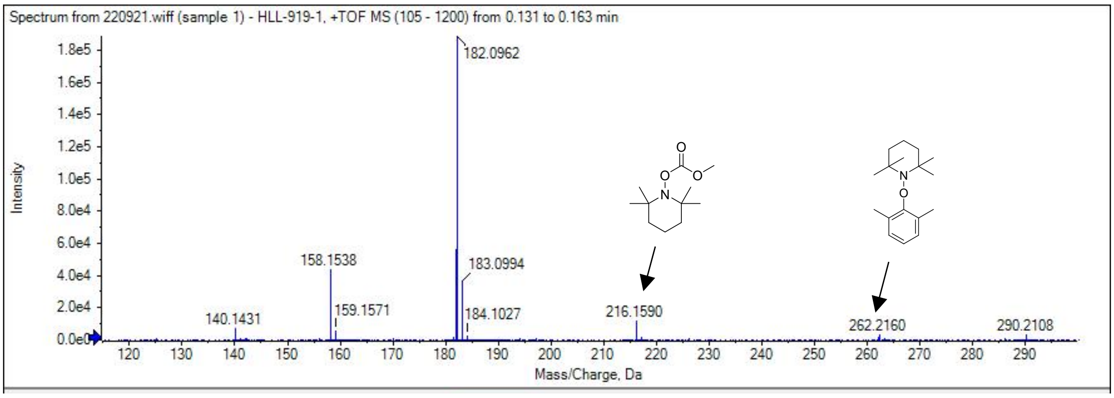
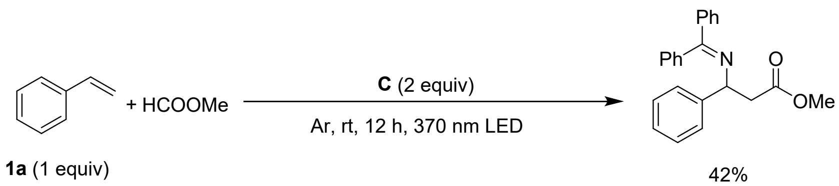


Figure S1. LC-MS spectrum

b)



A 25 mL vial tube equipped with a magnetic stir was charged with oxime ester (0.2 mmol). The tube was then evacuated and back-filled with argon (Ar) for 3 times. Subsequently, **1a** (0.1 mmol, 1 equiv.) and then anhydrous methyl formate (12 mL) was added. The reaction was stirred and irradiated with a 370nm UV Lamp strip at rt for 12 h. After the reaction was completed, the target imide product is obtained (42% yield). Since no catalyst is added, it is further proved that this is an energy transfer process of the photocatalyst triplet state rather than a single-electron reduction process

5.2 Stern-Volmer fluorescence quenching experiments

A solution of Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] in anhydrous CH_3CN (0.01 mM) was added with an appropriate amount of oxime ester in a quartz cuvette. Then the emission of the sample was collected. The emission intensity at 380 nm was collected with excited wavelength of 474 nm.

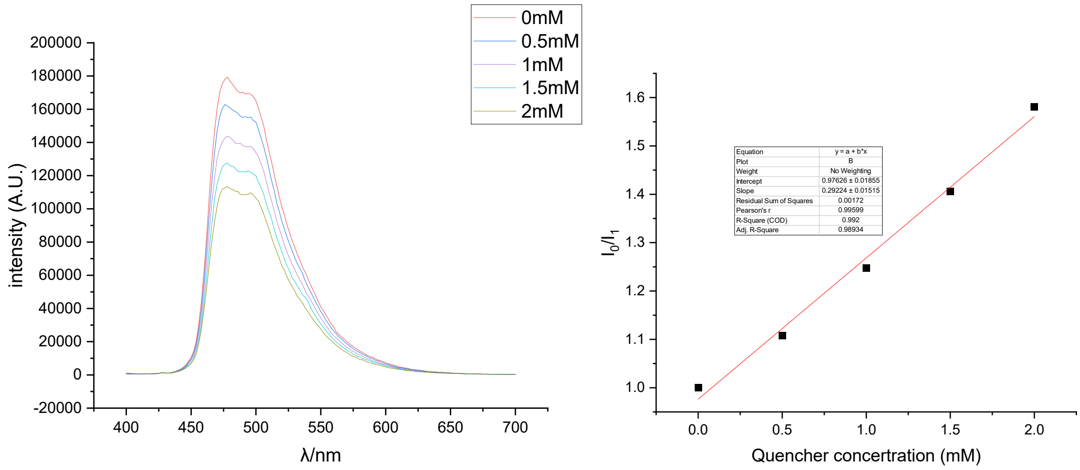


Figure S2. Stern-Volmer quenching by oxime ester

5.3 Cyclic voltammetry study

Cyclic voltammetry experiments were performed on a CH Instruments Electrochemical Analyzer at room temperature under a nitrogen atmosphere. Sample 1 mM and tetrabutylammonium hexafluorophosphate ($TBAPF_6$) in acetonitrile were used for tests. Measurements were run using glassy carbon working electrode, a Pt counter electrode, and a Hg/$HgCl_2$ reference electrode in a scan rate of 0.1 V/s.

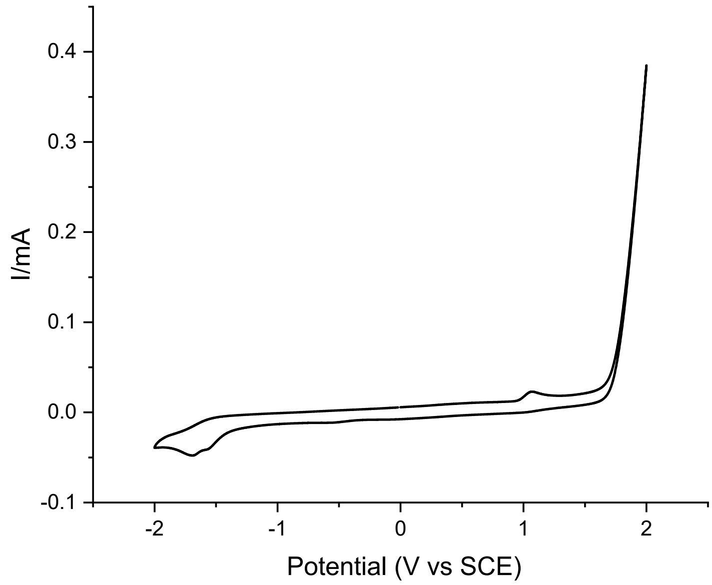
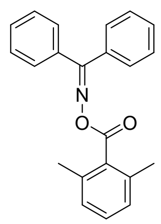


Figure S3. Cyclic voltammetry of oxime ester (**C**) in CH_3CN

6. General procedure for continuous-flow synthesis

Under argon atmosphere, a solution of **1h** (5 mmol, 900 mg), **C** (10 mmol, 3.29 g), and Ir[dF(CF_3)(ppy)]$_2$(dtbppy)[PF_6] (0.05 mmol, 56 mg) in anhydrous methyl formate (300 mL) was mixed in a round bottom flask. A syringe pump was filled with the mixture and then attached to the flow apparatus. The stream was introduced to a reactor (PFA, OD 1/16'', ID 0.075 cm, 18 m, volume = 8 mL). The tubing reactor was placed under a blue LED. The flow apparatus itself was set up with T_R = 20 min (the pump was set with 0.4 mL/min). After equilibration with 20 min to reach the steady state, the solution was continuously collected for 10 h, affording 663 mg product (65% yield).

7. Characterization date of oxime esters and products

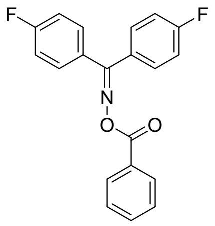


Diphenylmethanone O-(2,6-dimethylbenzoyl) oxime (C) : white solid, 513.20 mg, 52% yield.

¹H NMR (500 MHz, $CDCl_3$) δ = 7.64 (d, *J* = 6.6 Hz, 2H), 7.49 – 7.45 (m, 1H), 7.43 – 7.37 (m, 5H), 7.32 (dt, *J* = 7.4, 2.1 Hz, 2H), 7.16 (t, *J* = 7.6 Hz, 1H), 6.97 (d, *J* = 7.7 Hz, 2H), 2.23 (s, 6H).

¹³C NMR (126 MHz, $CDCl_3$) δ = 167.56, 166.13, 135.80, 134.70, 132.78, 132.04, 131.15, 129.72, 129.64, 129.13, 128.67, 128.51, 128.33, 127.59, 19.86.

HRMS (ESI-TOF): m/z calculated for $[C_{22}H_{20}NO_2]^+$ $[M+H]^+$: 330.1489, found: 330.1483.

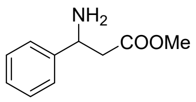


bis(4-Fluorophenyl)methanone O-benzoyloxime (F) : white solid, 1.31 g, 78% yield.

¹H NMR (500 MHz, $CDCl_3$) δ = 7.82 (d, *J* = 7.7 Hz, 2H), 7.66 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.44 – 7.38 (m, 4H), 7.22 (t, *J* = 8.5 Hz, 2H), 7.10 (t, *J*=8.5 Hz, 2H).

¹³C NMR (126 MHz, $CDCl_3$) δ = 165.77, 164.15 (d, *J* = 84.5 Hz), 163.76, 163.06 (d, *J* = 143.0 Hz), 133.55, 131.34 (d, *J* = 8.8 Hz), 131.24 (d, *J* = 8.5 Hz), 130.81 (d, *J* = 3.2 Hz), 129.73, 128.70, 128.65, 128.56 (d, *J* = 3.9 Hz), 115.90 (d, *J* = 7.5 Hz), 115.73 (d, *J* = 7.5 Hz).

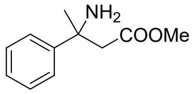
HRMS (ESI-TOF): m/z calculated for $[C_{20}H_{14}F_2NO_2]^+$ $[M+H]^+$: 338.0987, found: 338.0988.



3-Amino-3-phenylpropionic acid methyl ester (3a): white solid, 9.6 mg, 54% yield.

¹H NMR (500 MHz, $CDCl_3$) δ 7.38 – 7.31 (m, 4H), 7.29 – 7.26 (m, 1H), 4.43 (t, *J* = 6.8 Hz, 1H), 3.69 (s, 3H), 2.69 (d, *J* = 6.8 Hz, 2H), 2.00 (brs, 2H).

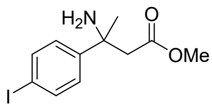
The spectral data were in accordance with those reported in the literature.[9]



Methyl β-amino-β-methylbenzenepropanoate (3b): white solid, 11.6 mg, 61% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.48 (d, *J* = 7.8 Hz, 2H), 7.33 (t, *J* = 7.7 Hz, 2H), 7.22 (t, *J* = 7.3 Hz, 1H), 3.57 (s, 3H), 2.86 (d, *J* = 15.2 Hz, 1H), 2.73 (d, *J* = 15.2 Hz, 1H), 2.04 (brs, 2H), 1.53 (s, 3H).

The spectral data were in accordance with those reported in the literature.[10]

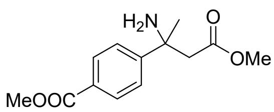


Methyl 3-amino-3-(4-iodophenyl) butanoate (3c): white solid, 22.0 mg, 69% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.64 (d, *J* = 7.0 Hz, 2H), 7.23 (d, *J* = 8.5 Hz, 2H), 3.57 (s, 3H), 2.83 (d, *J* = 15.5 Hz, 1H), 2.69 (d, *J* = 15.5 Hz, 1H), 1.95 (brs, 2H) 1.48 (s, 3H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 171.88, 147.85, 137.42, 127.32, 92.24, 54.12, 51.62, 48.32, 31.56.

HRMS (ESI-TOF): m/z calculated for $[C_{11}H_{14}INO_2]^+$ $[M+H]^+$: 320.0142, found: 320.0147.

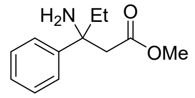


Methyl 4-(2-amino-4-methoxy-4-oxobutan-2-yl) benzoate (3d): yellow solid, 18.0 mg, 72% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 8.00 (d, *J* = 8.5 Hz, 2H), 7.56 (d, *J* = 8.6 Hz, 2H), 3.90 (s, 3H), 3.55 (s, 3H), 2.90 (d, *J* = 15.5 Hz, 1H), 2.74 (d, *J* = 15.5 Hz, 1H), 2.01 (brs, 2H), 1.53 (s, 3H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 171.79, 167.02, 153.10, 129.75, 128.61, 125.16, 54.46, 52.16, 51.59, 48.26, 31.46.

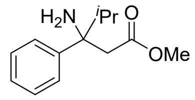
HRMS (ESI-TOF): m/z calculated for $[C_{13}H_{17}NO_4]^+$ $[M+H]^+$: 252.1236, found: 252.1230.



Methyl 3-amino-3-phenylpentanoate (3e): white solid, 12.5 mg, 60% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.41 (d, *J* = 7.7 Hz, 2H), 7.32 (t, *J* = 7.6 Hz, 2H), 7.21 (t, *J* = 7.3 Hz, 1H), 3.52 (s, 3H), 2.88 (d, *J* = 15.2 Hz, 1H), 2.73 (d, *J* = 15.2 Hz, 1H), 2.08 (brs, 2H), 1.81 (ddt, *J* = 33.9, 13.9, 7.0 Hz, 2H), 0.70 (t, *J* = 7.4 Hz, 3H). **^{13}C NMR** (126 MHz, $CDCl_3$) δ= 172.25, 145.94, 128.26, 126.51, 125.64, 57.27, 51.47, 47.40, 36.40, 8.11.

HRMS (ESI-TOF): m/z calculated for $[C_{12}H_{17}NO_2]^+$ $[M+H]^+$: 208.1338, found: 208.1335.

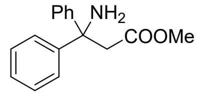


Methyl 3-amino-4-methyl-3-phenylpentanoate (3f): white solid, 12.0 mg, 54% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ=7.39 (d, *J* = 7.7 Hz, 2H), 7.30 (t, *J* = 7.6 Hz, 2H), 7.20 (t, *J* = 7.3 Hz, 1H), 3.43 (s, 3H), 2.95 (d, *J* = 15.2 Hz, 1H), 2.78 (d, *J* = 15.2 Hz, 1H), 2.03 – 1.96 (m, 3H), 0.95 (d, *J* = 6.8 Hz, 3H), 0.69 (d, *J* = 6.9 Hz, 3H).

^{13}C NMR (126 MHz, $CDCl_3$) δ=172.70, 145.98, 127.95, 126.38, 126.01, 59.70, 51.37, 45.30, 38.94, 17.35, 17.13.

HRMS (ESI-TOF): m/z calculated for $[C_{13}H_{19}NO_2]^+$ $[M+H]^+$: 221.1489, found: 221.1485.

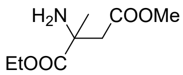


Methyl 3-amino-3,3-diphenylpropanoate(3g): white solid, 18.5 mg, 72% yield.

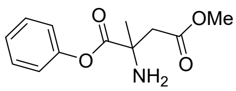
^{1}H NMR (500 MHz, $CDCl_3$) δ 7.34 (d, *J* = 7.5 Hz, 4H), 7.30 (t, *J* = 7.7 Hz, 4H), 7.22 (t, *J* = 7.2 Hz, 2H), 3.53 (s, 3H), 3.29 (s, 2H), 2.23 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 172.15, 147.28, 128.38, 126.95, 126.47, 60.33, 51.68, 47.03.

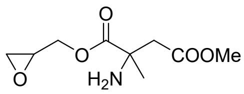
HRMS (ESI-TOF): m/z calculated for $[C_{16}H_{18}NO_2]^+$ $[M+H]^+$: 256.1332, found: 256.1335.



1-ethyl 4-methyl 2-amino-2-methylsuccinate (3h): colorless oil, 14.1 mg, 75% yield.
^{1}H NMR (500 MHz, $CDCl_3$) δ 4.19 – 4.12 (m, 2H), 3.65 (s, 3H), 2.93 (d, *J* = 16.7 Hz, 1H), 2.53 (d, *J* = 16.7 Hz, 1H), 2.06 (brs, 2H), 1.31 (s, 3H), 1.23 (t, *J* = 7.1 Hz, 3H).
^{13}C NMR (126 MHz, $CDCl_3$) δ 176.92, 172.01, 61.40, 55.92, 51.75, 44.16, 27.17, 14.20. **HRMS (ESI-TOF)**: m/z calculated for $[C_8H_{16}NO_4]^+$ $[M+H]^+$: 190.1074, found: 190.1077.



1-phenyl 4-methyl 2-amino-2-methylbutanedioate (3i): white solid, 16.2 mg, 69% yield.
^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.38 (t, *J* = 7.9 Hz, 2H), 7.24 (t, *J* = 7.4 Hz, 1H), 7.08 (d, *J* = 9.2 Hz, 2H), 3.72 (s, 3H), 3.13 (d, *J* = 16.9 Hz, 1H), 2.69 (dd, *J* = 16.9 Hz, 1H), 1.93 (brs, 2H), 1.51 (s, 3H).
^{13}C NMR (126 MHz, $CDCl_3$) δ = 175.94, 172.04, 151.03, 129.61, 126.09, 121.44, 56.28, 52.01, 44.53, 27.09.
HRMS (ESI-TOF): m/z calculated for $[C_{12}H_{16}NO_4]^+$ $[M+H]^+$: 238.1074, found: 238.1070.

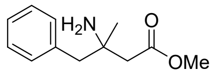


4-methyl 1-(oxiran-2-ylmethyl) 2-amino-2-methylsuccinate (3j): colorless oil, 11.0 mg, 51% yield.
^{1}H NMR (500 MHz, $CDCl_3$) δ = 4.39 (dd, *J*=11.5, 4.0 Hz, 0.49H), 4.35 – 4.27 (m, 0.90H), 4.21 (dd, *J* = 11.4, 6.1 Hz, 0.52H), 4.16 – 4.05 (m, 0.92H), 3.69 (s, 3H), 3.63 –

3.55 (m, 2H), 2.99 (dd, *J*=16.7, 1.7 Hz, 1H), 2.60 (dd, *J*=16.7, 1.7 Hz, 1H), 1.37 (s, 3H).

^{13}C NMR (126 MHz, $CDCl_3$) δ = 178.04, 173.75, 70.76, 67.66, 57.54, 53.46, 46.80, 45.85, 28.42.

HRMS (ESI-TOF): m/z calculated for $[C_9H_{16}NO_5]^+$ $[M+H]^+$: 218.1023, found: 218.1027.

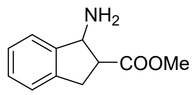


Methyl 3-amino-3-methyl-4-phenylbutanoate (3k): white solid, 7.5 mg, 36% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.30 (t, *J* = 7.4 Hz, 2H), 7.26 – 7.22 (m, 1H), 7.20 (d, *J* = 7.4 Hz, 2H), 3.69 (s, 3H), 2.78 (s, 2H), 2.46 – 2.34 (m, 2H), 1.74 (brs, 2H), 1.16 (s, 3H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 172.65, 137.52, 130.73, 128.31, 126.70, 51.75, 51.54, 49.11, 46.08, 28.19.

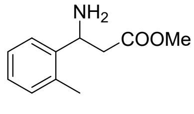
HRMS (ESI-TOF): m/z calculated for $[C_{12}H_{17}NO_2]^+$ $[M+H]^+$: 208.1333, found: 208.1328.



Methyl 1-amino-2,3-dihydro-1H-indene-2-carboxylate (3l): colorless oil, 6.8 mg, 35% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.35 (d, *J* = 7.0 Hz, 1H), 7.28 – 7.19 (m, 3H), 4.64 (d, *J* = 6.6 Hz, 0.25H), 4.59 (d, *J* = 8.7 Hz, 0.75H), 3.79 (s, 2.25H), 3.76 (s, 0.72H), 3.48 – 3.38 (m, 0.47H), 3.22 – 3.11 (m, 1.55H), 3.09 – 3.00 (m, 0.25H), 2.92 (q, *J* = 9.1 Hz, 0.75H), 1.75 (brs, 2H).

The spectral data were in accordance with those reported in the literature [11]

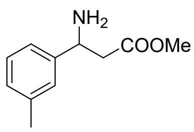


3-Amino-3-(2-methyl) phenylpropionic acid methyl ester (3m): white solid, 8.6 mg, 45% yield.

¹H NMR (500 MHz, $CDCl_3$) δ 7.45 (d, J = 7.7 Hz, 1H), 7.24 – 7.20 (m, 1H), 7.18 – 7.12 (m, 2H), 4.66 (dd, J = 8.8, 4.7 Hz, 1H), 3.70 (s, 3H), 2.68 – 2.57 (m, 2H), 2.38 (s, 3H), 1.86 (brs, 2H).

¹³C NMR (126 MHz, $CDCl_3$) δ = 172.82, 142.61, 134.83, 130.73, 127.25, 126.66, 125.14, 51.87, 48.24, 42.95, 19.30.

HRMS (ESI-TOF): m/z calculated for $[C_{11}H_{15}NO_2]^+$ $[M+H]^+$: 194.1181, found: 194.1180.

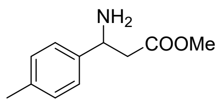


3-Amino-3-(3-methyl) phenylpropionic acid methyl ester (3n): white solid, 11.6 mg, 60% yield.

¹H NMR (500 MHz, $CDCl_3$) δ 7.25 – 7.20 (m, 1H), 7.14 (dd, J = 18.1, 10.6 Hz, 2H), 7.08 (t, J = 7.1 Hz, 1H), 4.40 – 4.35 (m, 1H), 3.69 (s, 3H), 2.69 – 2.61 (m, 2H), 2.35 (s, 3H), 1.86 (brs, 2H).

¹³C NMR (126 MHz, $CDCl_3$) δ = 172.65, 144.40, 138.50, 128.72, 128.38, 127.06, 123.35, 52.69, 51.84, 43.85, 21.58.

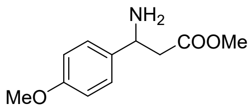
HRMS (ESI-TOF): m/z calculated for $[C_{11}H_{15}NO_2]^+$ $[M+H]^+$: 194.1176, found: 194.1175.



3-Amino-3-(4-methyl) phenylpropionic acid methyl ester (3o): white solid, 9.3 mg, 48% yield.

¹H NMR (500 MHz, $CDCl_3$) δ 7.24 (d, J = 8.0 Hz, 2H), 7.15 (d, J = 7.9 Hz, 2H), 4.39 (t, J = 6.9 Hz, 1H), 3.68 (s, 3H), 2.66 (d, J = 6.9 Hz, 2H), 2.33 (s, 3H), 1.75 (brs, 2H).

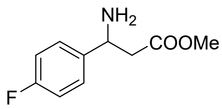
The spectral data were in accordance with those reported in the literature.[9]



3-Amino-3-(4-methoxy) phenylpropionic acid methyl ester (3p): white solid, 8.4 mg, 40% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.28 (d, *J* = 8.6 Hz, 2H), 6.87 (d, *J* = 8.6 Hz, 2H), 4.42 – 4.35 (m, 1H), 3.79 (s, 3H), 3.68 (s, 3H), 2.72 – 2.63 (m, 2H), 2.02 (brs, 2H).

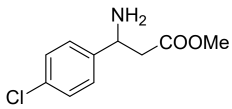
The spectral data were in accordance with those reported in the literature.[9]



3-Amino-3-(4-fluoro) phenylpropionic acid methyl ester (3q): yellow solid, 11.0 mg, 56% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.33 (dd, *J* = 8.5, 5.4 Hz, 2H), 7.02 (t, *J* = 8.7 Hz, 2H), 4.45 – 4.41 (m, 1H), 3.68 (s, 3H), 2.68 – 2.63 (m, 2H), 1.83 (brs, 2H).

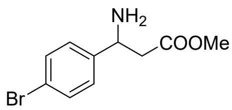
The spectral data were in accordance with those reported in the literature.[9]



3-Amino-3-(4-chloro) phenylpropionic acid methyl ester (3r): yellow solid, 10.7 mg, 50% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.30 (s, 4H), 4.42 (t, *J* = 6.8 Hz, 1H), 3.68 (s, 3H), 2.66 (d, *J* = 6.5 Hz, 2H), 1.99 (brs, 2H).

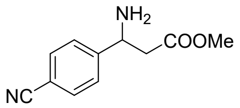
The spectral data were in accordance with those reported in the literature.[9]



3-Amino-3-(4-bromo) phenylpropionic acid methyl ester (3s): white solid, 13.2 mg, 52% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.46 (d, *J* = 8.4 Hz, 2H), 7.24 (d, *J* = 8.4 Hz, 2H), 4.39 (t, *J* = 6.8 Hz, 1H), 3.68 (s, 3H), 2.64 (d, *J* = 6.8 Hz, 2H), 1.82 (brs, 2H).

The spectral data were in accordance with those reported in the literature.[9]

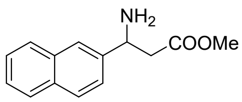


3-Amino-3-(4-cyano) phenylpropionic acid methyl ester (3t): white solid, 10.8 mg, 53% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.62 (d, *J* = 8.2 Hz, 2H), 7.49 (d, *J* = 8.2 Hz, 2H), 4.47 (dd, *J* = 7.2, 6.3 Hz, 1H), 3.67 (s, 3H), 2.67 – 2.58 (m, 2H), 1.83 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 171.92, 149.95, 132.61, 127.27, 118.83, 111.42, 52.46, 51.96, 43.64.

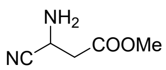
HRMS (ESI-TOF): m/z calculated for $[C_{11}H_{12}N_2O_2]^+$ $[M+H]^+$: 205.0977, found: 205.0969.



2-Naphthalenepropanoic acid, β-amino-methyl ester (3u): red solid, 11.6 mg, 51% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.82 (dt, *J* = 7.3, 2.9 Hz, 4H), 7.50 – 7.43 (m, 3H), 4.60 (dd, *J* = 8.1, 5.6 Hz, 1H), 3.69 (s, 3H), 2.77 (s, 1H), 2.75 (d, *J* = 3.5 Hz, 1H), 1.86 (brs, 2H).

The spectral data were in accordance with those reported in the literature.[12]

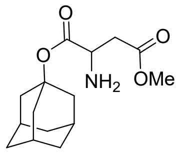


Cyano-β-alanine methyl ester (3v): colorless oil, 6.0 mg, 47% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 4.06 (t, *J* = 6.2 Hz, 1H), 3.73 (s, 3H), 2.77 (qd, *J* = 16.8, 6.2 Hz, 2H), 1.92 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 169.85, 121.00, 52.36, 39.67, 39.35.

HRMS (ESI-TOF): m/z calculated for $[C_5H_8N_2O_2]^+$ $[M+H]^+$: 129.0664, found: 129.0668.

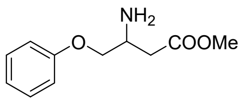


1-((3s,5s,7s)-adamantan-1-yl) 4-methyl aspartate (3w): white solid, 11.2 mg, 40% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ =3.73 – 3.67 (m, 4H), 2.75 (dd, *J* = 16.2, 4.8 Hz, 1H), 2.65 (dd, *J* = 16.2, 7.3 Hz, 1H), 2.17 (brs, 3H), 2.10 (s, 6H), 1.74 (brs, 2H), 1.66 (s, 6H).

^{13}C NMR (126 MHz, $CDCl_3$) δ = 173.22, 171.95, 81.79, 52.01, 51.92, 41.35, 39.25, 36.24, 30.97.

HRMS (ESI-TOF): m/z calculated for $[C_{15}H_{24}NO_4]^+$ $[M+H]^+$: 282.1700, found: 282.1695.

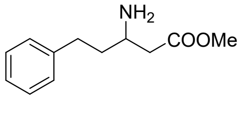


Methyl 3-amino-4-phenoxybutanoate (3x): white solid, 8.2 mg, 39% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.28 (t, *J* = 7.8 Hz, 2H), 6.95 (t, *J* = 7.3 Hz, 1H), 6.90 (d, *J* = 8.2 Hz, 2H), 3.93 (dd, *J* = 9.0, 4.8 Hz, 1H), 3.86 (dd, *J* = 8.7, 6.6 Hz, 1H), 3.71 (s, 3H), 3.62 (dq, *J* = 10.6, 5.2 Hz, 1H), 2.65 (dd, *J* = 16.1, 4.5 Hz, 1H), 2.48 (dd, *J* = 16.1, 8.4 Hz, 1H), 1.73 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 172.55, 158.72, 129.63, 121.17, 114.65, 77.41, 77.16, 76.91, 72.07, 51.85, 47.96, 39.01.

HRMS (ESI-TOF): m/z calculated for $[C_{11}H_{15}NO_3]^+$ $[M+H]^+$: 210.1130, found: 210.1128.

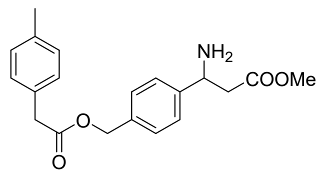


Methyl β-aminobenzenepentanoate (3y): white solid, 6.8 mg, 33% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.31 – 7.26 (m, 2H), 7.21 – 7.17 (m, 3H), 3.69 (s, 3H), 3.32 – 3.24 (m, 1H), 2.79 – 2.72 (m, 1H), 2.70 – 2.63 (m, 1H), 2.56 (dd, *J* = 16.1, 3.9

Hz, 1H), 2.42 (dd, J = 16.1, 8.7 Hz, 1H), 2.34 (brs, 2H), 1.84 – 1.74 (m, 2H).

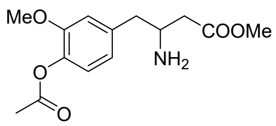
The spectral data were in accordance with those reported in the literature.[13]



Methyl 3-amino-3-(4-((2-(*p*-tolyl)acetoxy)methyl)phenyl)propanoate (3z): white solid, 18.3 mg, 54% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.34 (d, J = 7.8 Hz, 2H), 7.29 (d, J = 7.8 Hz, 2H), 7.17 (d, J = 7.7 Hz, 2H), 7.13 (d, J = 7.7 Hz, 2H), 5.10 (s, 2H), 4.43 (t, J = 6.7 Hz, 1H), 3.68 (s, 3H), 3.62 (s, 2H), 2.67 (d, J = 6.7 Hz, 2H), 2.33 (s, 3H), 1.97 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 172.46, 171.74, 144.49, 136.90, 135.32, 130.90, 129.40, 129.28, 128.61, 126.55, 77.41, 77.16, 76.91, 66.36, 52.46, 51.86, 43.76, 41.03, 21.21. **HRMS (ESI-TOF)**: m/z calculated for $[C_{20}H_{24}NO_4]^+$ $[M+H]^+$: 342.1700, found: 342.1695.

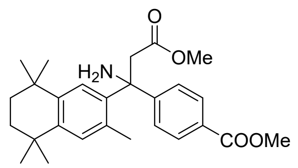


Methyl 4-(4-acetoxy-3-methoxyphenyl)-3-aminobutanoate (3aa): white solid, 11.7 mg, 42% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 6.96 (d, J = 8.0 Hz, 1H), 6.82 (s, 1H), 6.78 (dd, J = 8.0, 0.6 Hz, 1H), 3.82 (s, 3H), 3.69 (s, 3H), 3.54 – 3.48 (m, 1H), 2.77 (dd, J = 13.5, 5.6 Hz, 1H), 2.65 (dd, J = 13.4, 8.2 Hz, 1H), 2.55 (dd, J = 16.2, 4.0 Hz, 1H), 2.41 (dd, J = 16.1, 8.5 Hz, 1H), 2.30 (s, 3H), 2.13 (brs, 2H).

^{13}C NMR (126 MHz, $CDCl_3$) δ 172.85, 169.31, 151.20, 138.60, 137.29, 122.94, 121.54, 113.52, 56.03, 51.85, 49.75, 43.39, 41.13, 20.82.

HRMS (ESI-TOF): m/z calculated for $[C_{14}H_{20}NO_5]^+$ $[M+H]^+$: 282.1336, found: 282.1331.

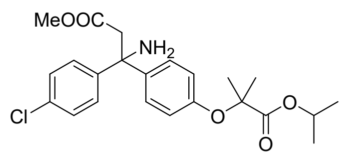


Methyl-4-(1-amino-3-methoxy-3-oxo-1-(3,5,5,8,8-pentamethyl-5,6,7,8-tetrahydronaphthalen-2-yl) propyl)benzoate (3ab): white solid, 30.0 mg, 69% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 8.26 (d, J = 8.4 Hz, 2H), 7.75 – 7.62 (m, 3H), 7.26 (s, 1H), 4.20 (s, 3H), 3.81 (s, 3H), 3.56 (d, J = 14.5 Hz, 1H), 3.38 (d, J = 14.5 Hz, 1H), 2.79 (brs, 2H), 2.15 (s, 3H), 1.99 (s, 4H), 1.61 (d, J = 12.3 Hz, 6H), 1.55 (d, J = 3.5 Hz, 6H).

^{13}C NMR (126 MHz, $CDCl_3$) δ = 172.10, 167.04, 152.68, 143.88, 141.72, 140.57, 133.21, 130.99, 129.54, 128.40, 126.35, 123.78, 61.15, 52.11, 51.68, 47.83, 35.29, 35.20, 34.14, 33.81, 32.11, 31.89, 31.79, 31.72, 21.37.

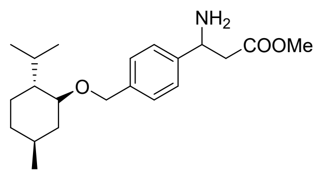
HRMS (ESI-TOF): m/z calculated for $[C_{27}H_{36}NO_4]^+$ $[M+H]^+$: 438.2639, found: 438.2640.



Methyl-3-amino-3-(4-chlorophenyl)-3-(4-((1-isopropoxy-2-methyl-1-oxopropan-2-yl)oxy)phenyl)propanoate (3ac): white solid, 30.1 mg, 70% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ = 7.28 – 7.23 (m, 4H), 7.18 – 7.11 (m, 2H), 6.78 – 6.71 (m, 2H), 5.05 (h, J = 6.2 Hz, 1H), 3.52 (s, 3H), 3.25 – 3.13 (m, 2H), 2.23 (brs, 2H), 1.56 (s, 6H), 1.19 (dd, J = 6.2, 1.3 Hz, 6H).

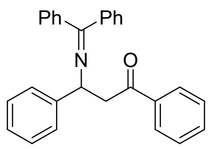
^{13}C NMR (126 MHz, $CDCl_3$) δ = 173.75, 171.94, 154.58, 146.00, 140.31, 132.70, 128.37, 128.00, 127.14, 118.57, 79.21, 69.06, 59.58, 51.70, 47.15, 25.51, 21.67. **HRMS (ESI-TOF)**: m/z calculated for $[C_{23}H_{29}ClNO_5]^+$ $[M+H]^+$: 434.1729, found: 434.1675.



Methyl-3-(4-((((1R,2R,5S)-2-isopropyl-5-methylcyclohexyl)oxy)methyl)phenyl)-3-aminopropanoate (3ad): colorless oil, 17.2 mg, 50% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.37 – 7.26 (m, 4H), 4.62 (d, *J* = 11.4 Hz, 1H), 4.48 – 4.27 (m, 2H), 3.67 (s, 3H), 3.21 – 3.11 (m, 1H), 2.68 (d, *J* = 6.6 Hz, 2H), 2.33 – 2.23 (m, 1H), 2.18 (d, *J* = 11.6 Hz, 1H), 2.00 (brs, 2H), 1.69 – 1.59 (m, 2H), 1.31 – 1.25 (m, 1H), 1.06 – 0.80 (m, 10H), 0.70 (d, *J* = 6.8 Hz, 3H).

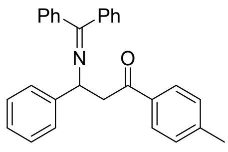
^{13}C NMR (126 MHz, $CDCl_3$) δ 172.54, 143.45, 138.66, 128.39, 126.33, 78.98, 70.25, 52.54, 51.85, 48.44, 43.66, 40.45, 34.70, 31.72, 25.66, 23.39, 22.51, 21.15, 16.19.



3-((diphenylmethylene)amino)-1,3-diphenylpropan-1-one (3ae): solid, 15.5 mg, 40% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.92 (d, *J* = 7.7 Hz, 2H), 7.57 (d, *J* = 7.8 Hz, 2H), 7.53 – 7.47 (m, 1H), 7.44 – 7.35 (m, 5H), 7.35 – 7.17 (m, 8H), 7.03 (d, *J* = 6.5 Hz, 2H), 5.08 (dd, *J* = 8.9, 4.1 Hz, 1H), 3.87 (dd, *J* = 16.1, 8.7 Hz, 1H), 3.30 (dd, *J* = 16.0, 4.1 Hz, 1H).

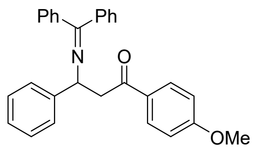
The spectral data were in accordance with those reported in the literature.[16]



3-((diphenylmethylene)amino)-3-phenyl-1-(p-tolyl)propan-1-one (3af): oil, 14.5 mg, 36% yield.

^{1}H NMR (500 MHz, $CDCl_3$) δ 7.82 (d, *J* = 8.2 Hz, 2H), 7.57 (d, *J* = 7.2 Hz, 2H), 7.41 – 7.37 (m, 3H), 7.33 – 7.17 (m, 10H), 7.06 – 7.02 (m, 2H), 5.08 (dd, *J* = 8.7, 4.2 Hz, 1H), 3.84 (dd, *J* = 16.0, 8.7 Hz, 1H), 3.27 (dd, *J* = 16.0, 4.2 Hz, 1H), 2.37 (s, 3H).

The spectral data were in accordance with those reported in the literature.[16]



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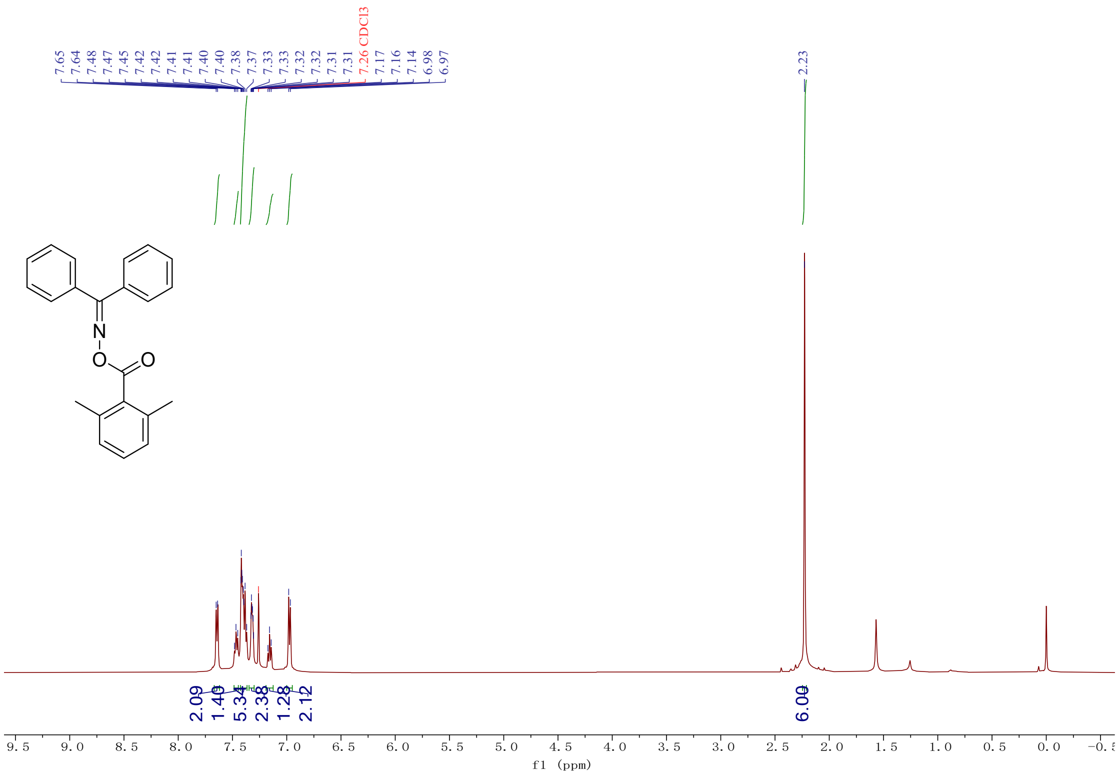
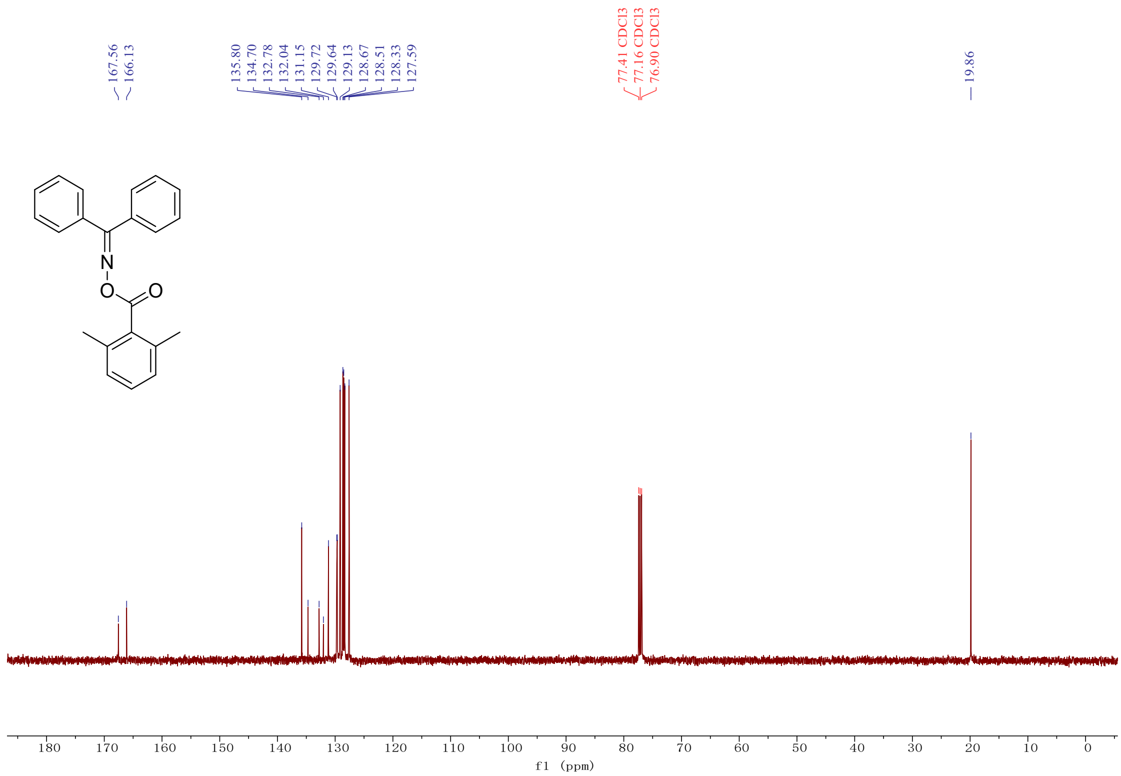
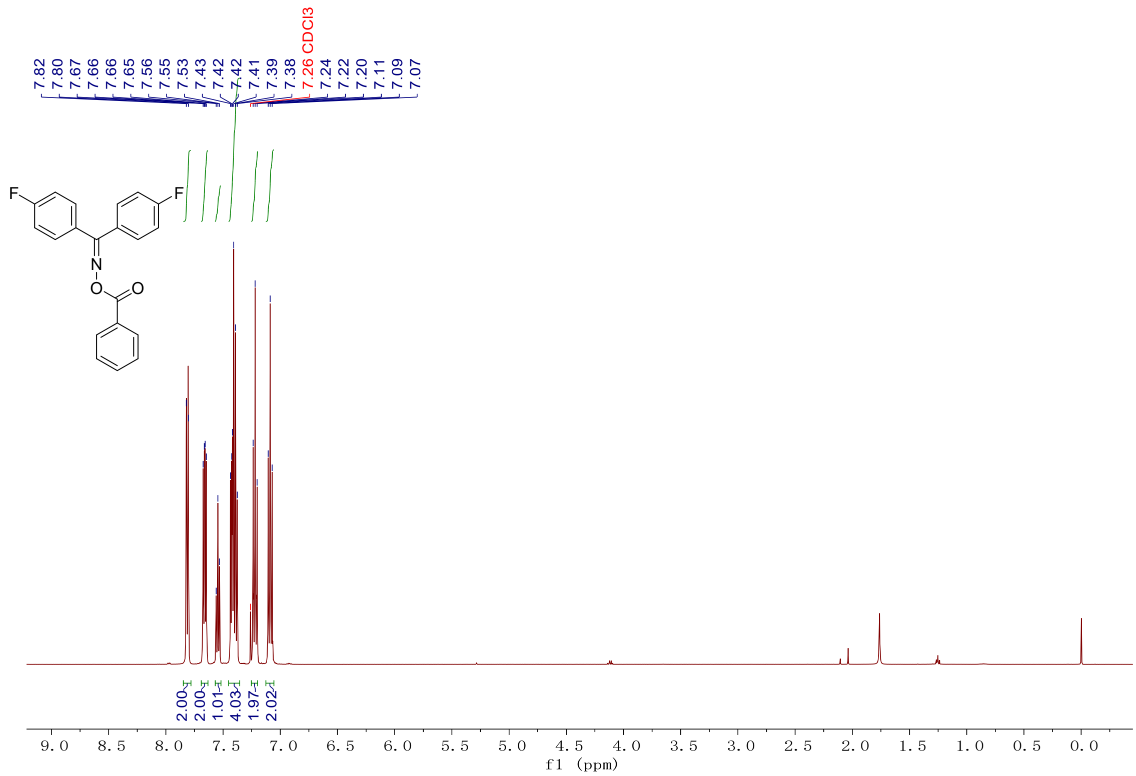
8. ^{1}H and ^{13}C NMR speactra



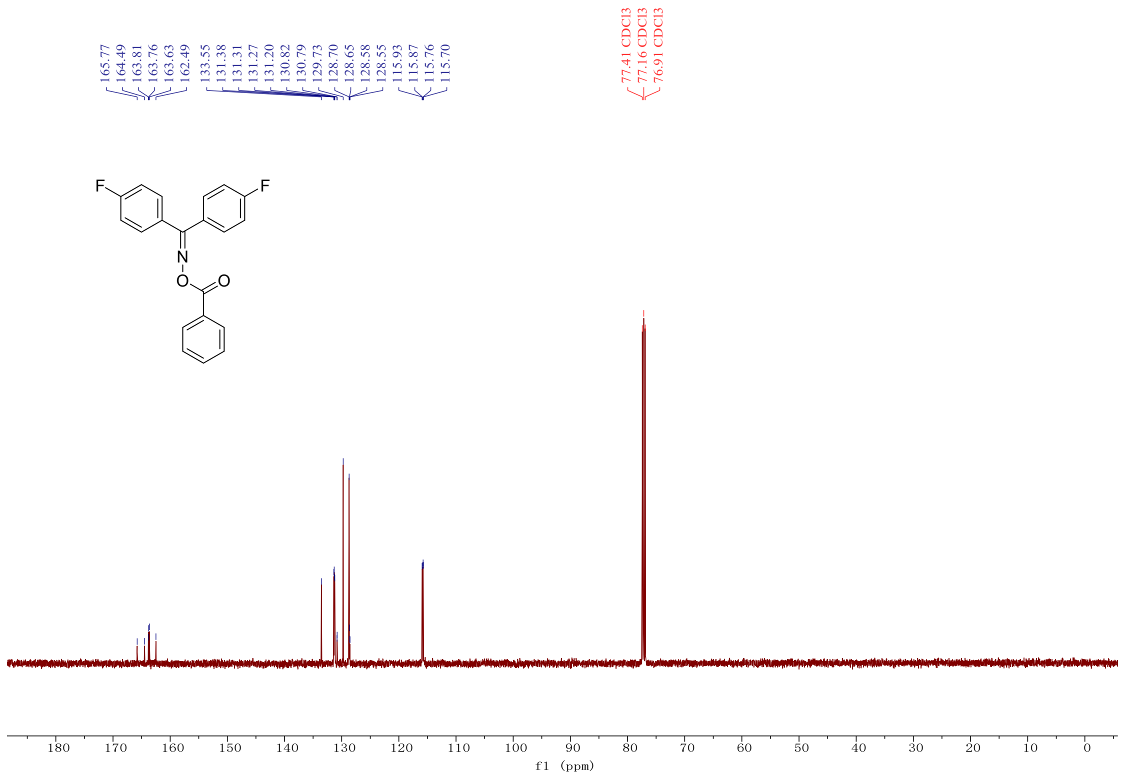
^{1}H NMR of **(C)** (500 MHz, $CDCl_3$)



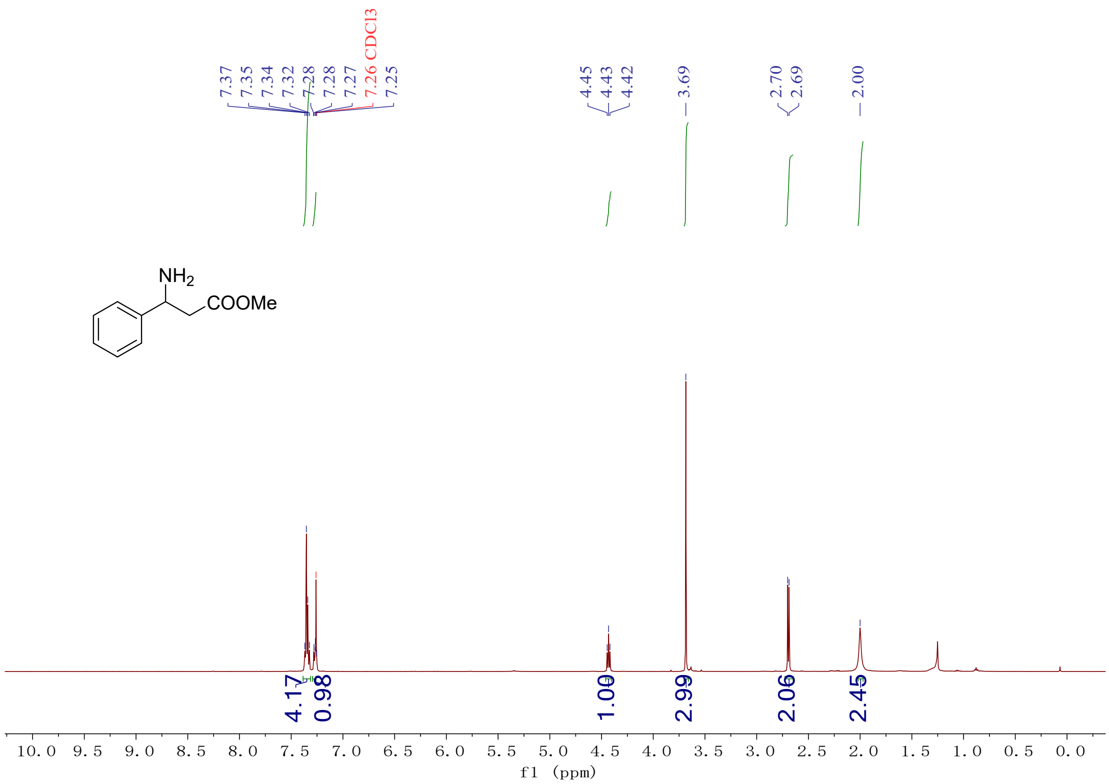
^{13}C NMR of **(C)** (126 MHz, $CDCl_3$)



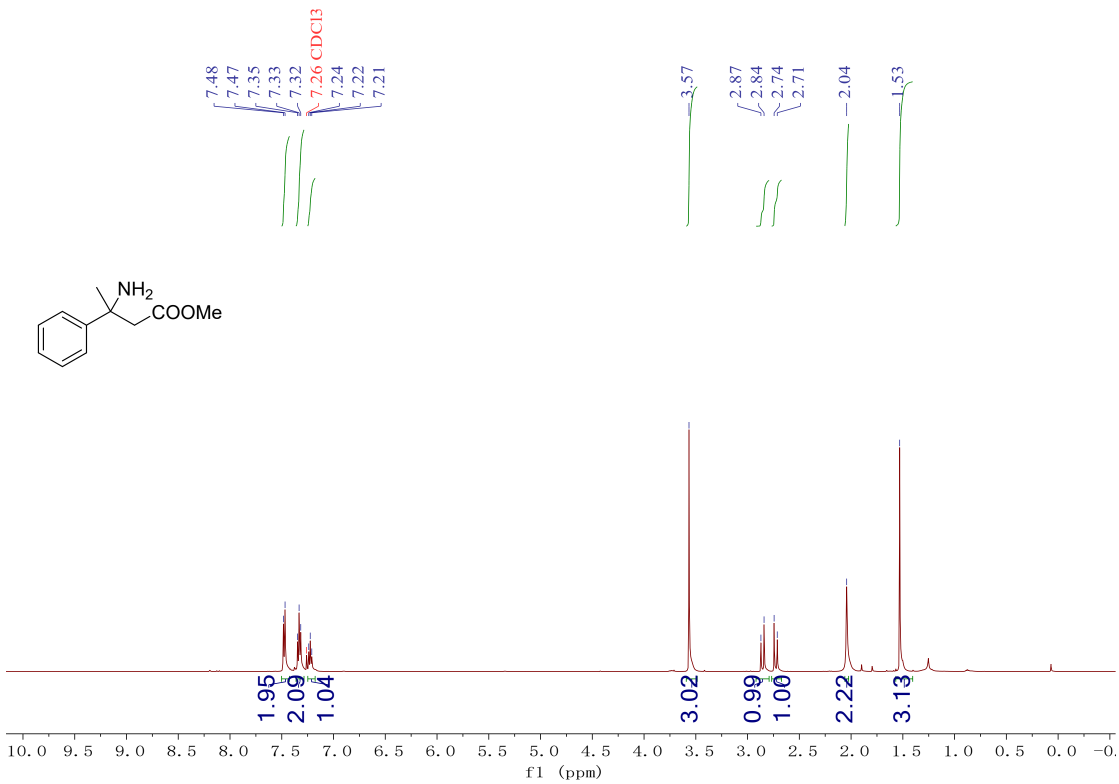
^{1}H NMR of **(F)** (500 MHz, $CDCl_3$)



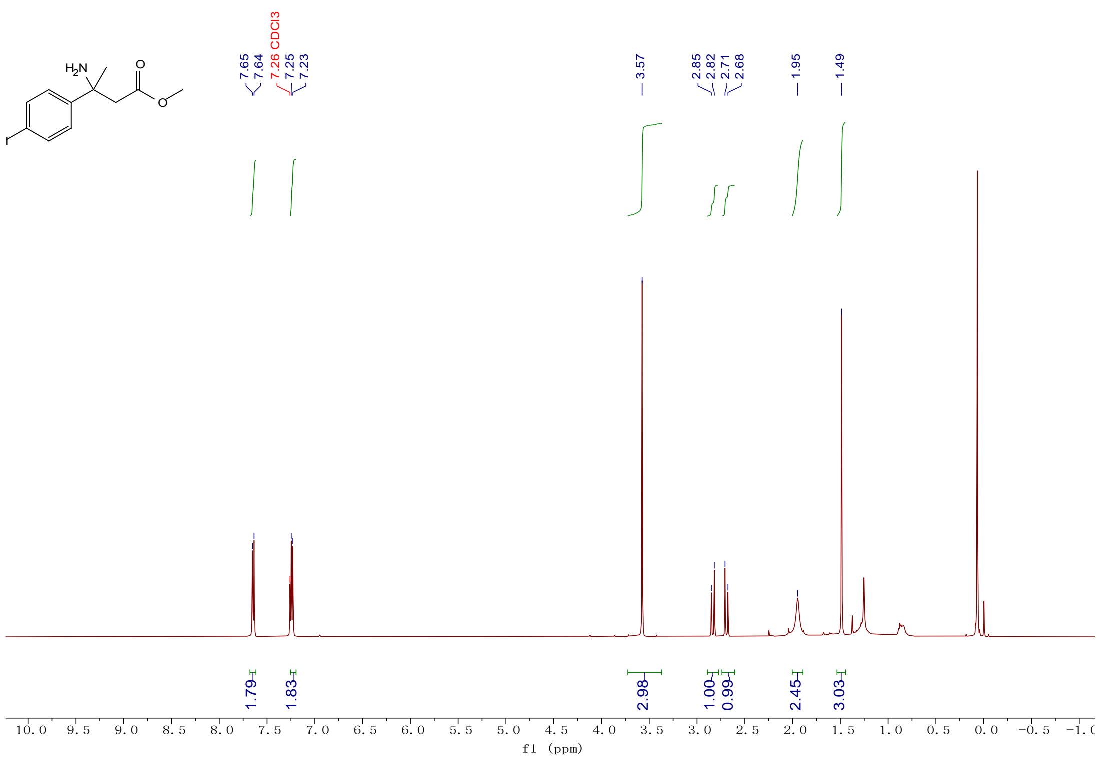
^{13}C NMR of **(F)** (126 MHz, $CDCl_3$)



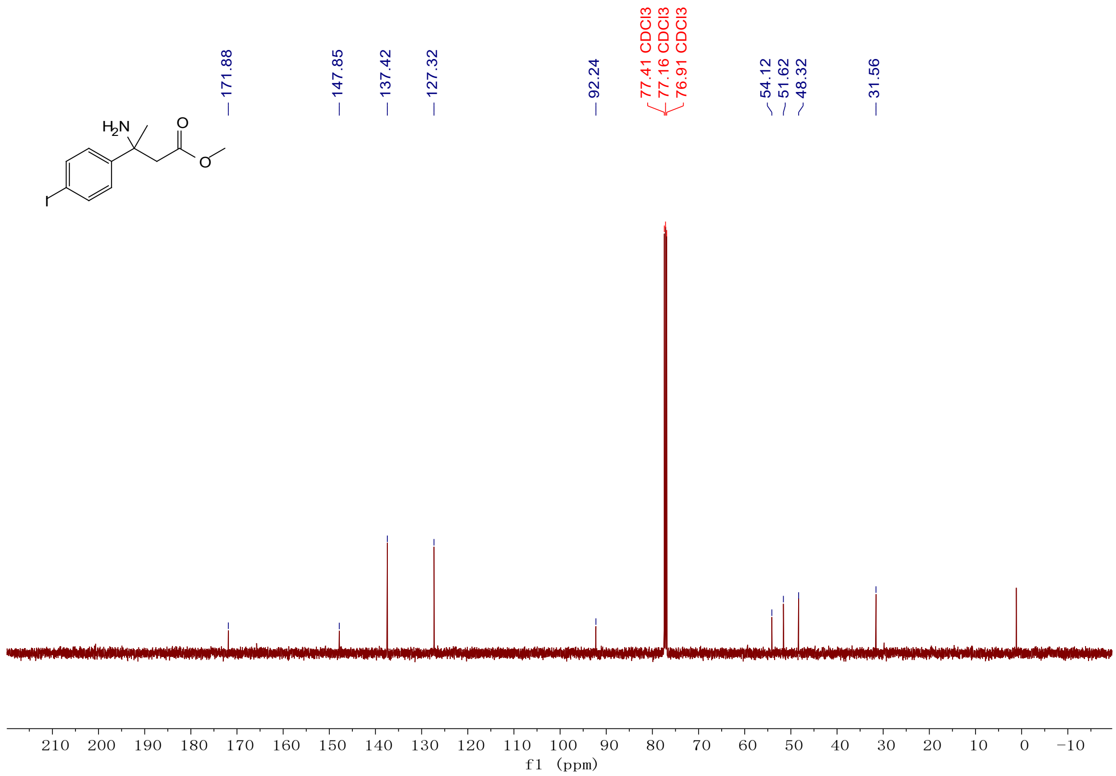
^{1}H NMR of **(3a)** (500 MHz, $CDCl_3$)



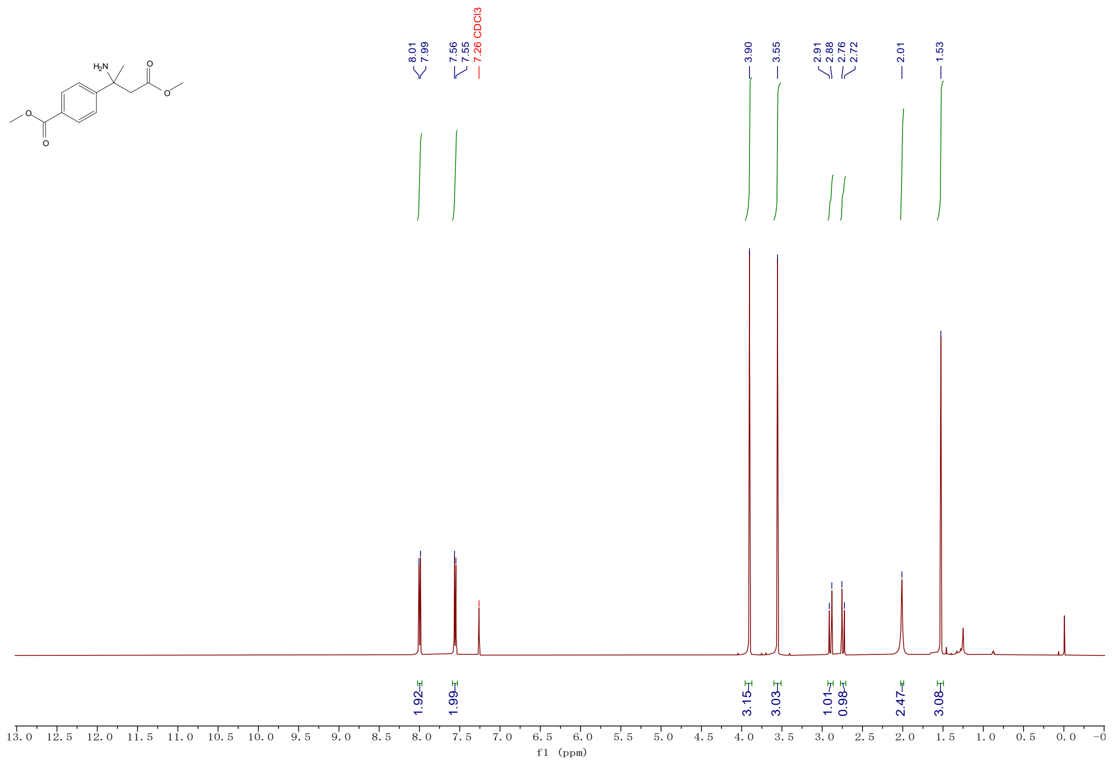
^{1}H NMR of **(3b)** (500 MHz, $CDCl_3$)



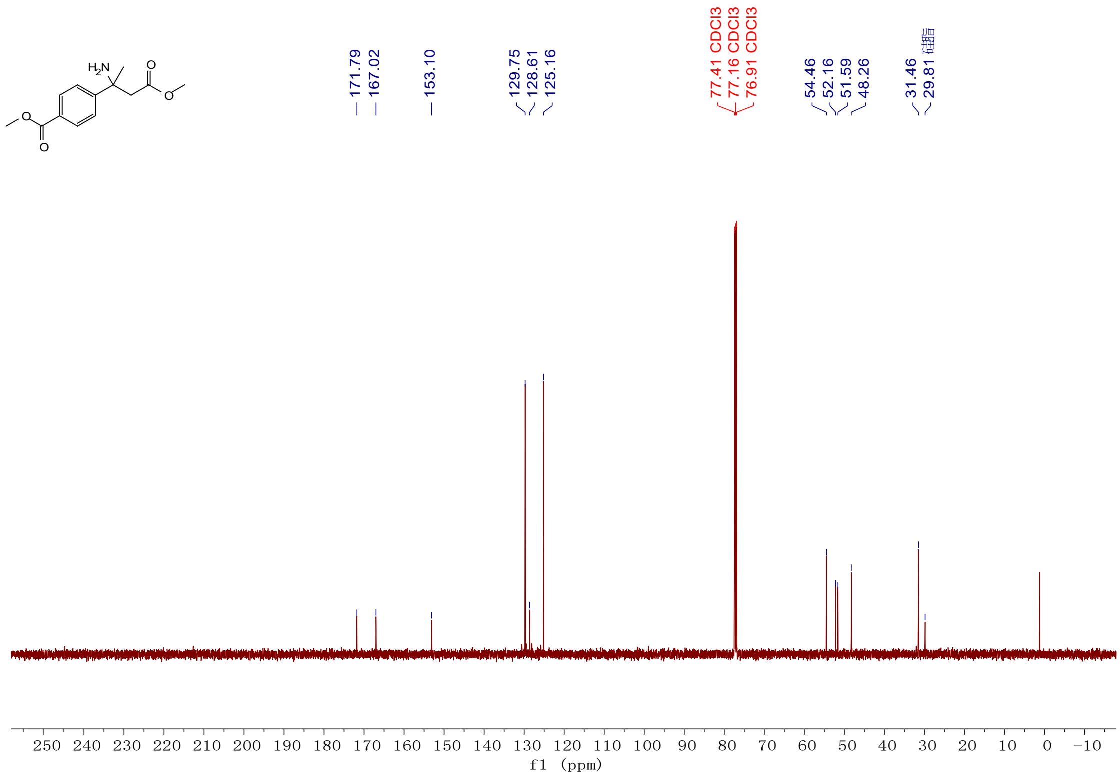
^{1}H NMR of **(3c)** (500 MHz, $CDCl_3$)



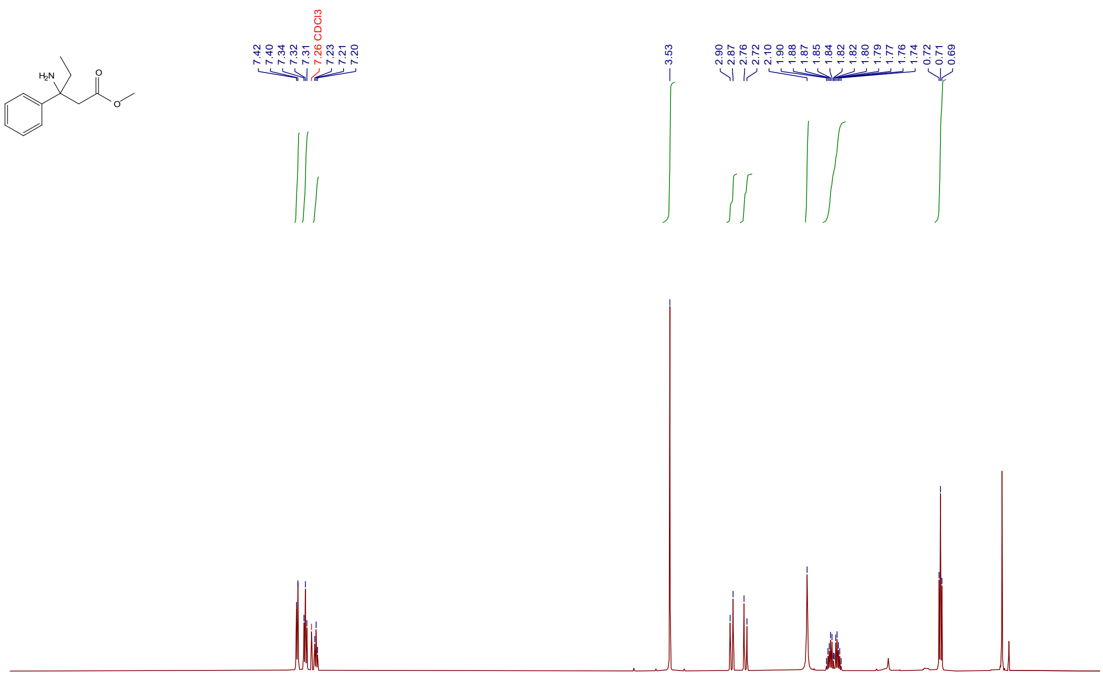
^{13}C NMR of **(3c)** (126 MHz, $CDCl_3$)



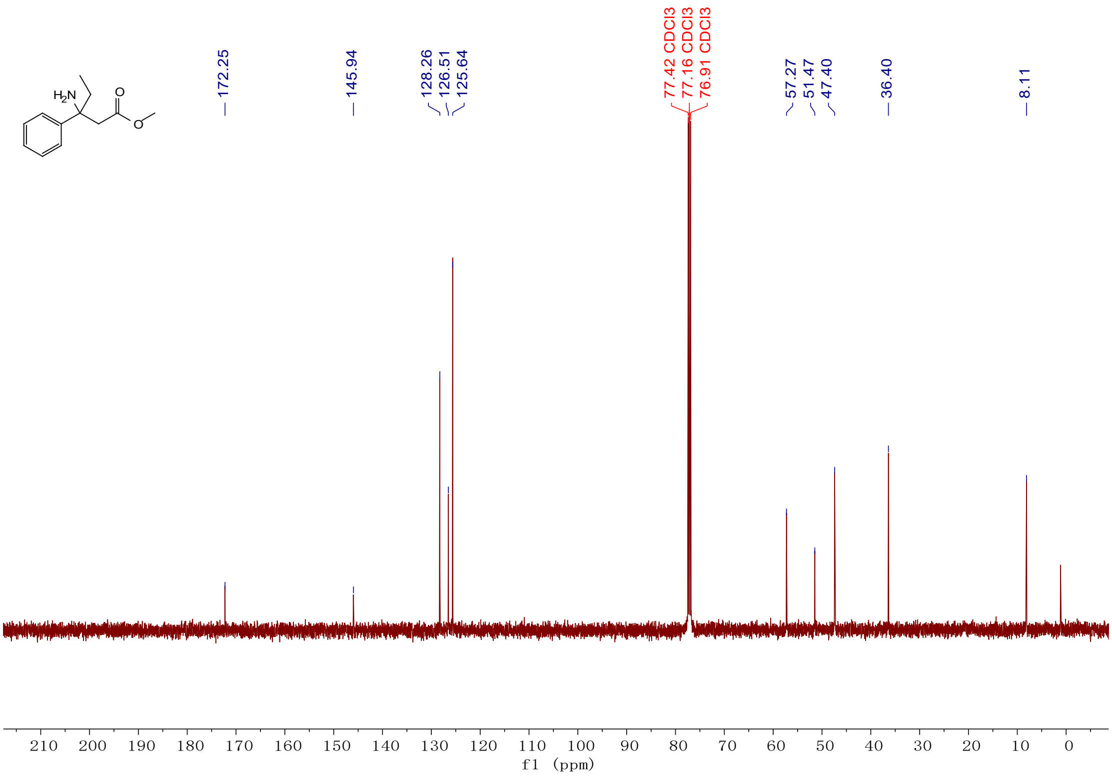
^{1}H NMR of **(3d)** (500 MHz, $CDCl_3$)



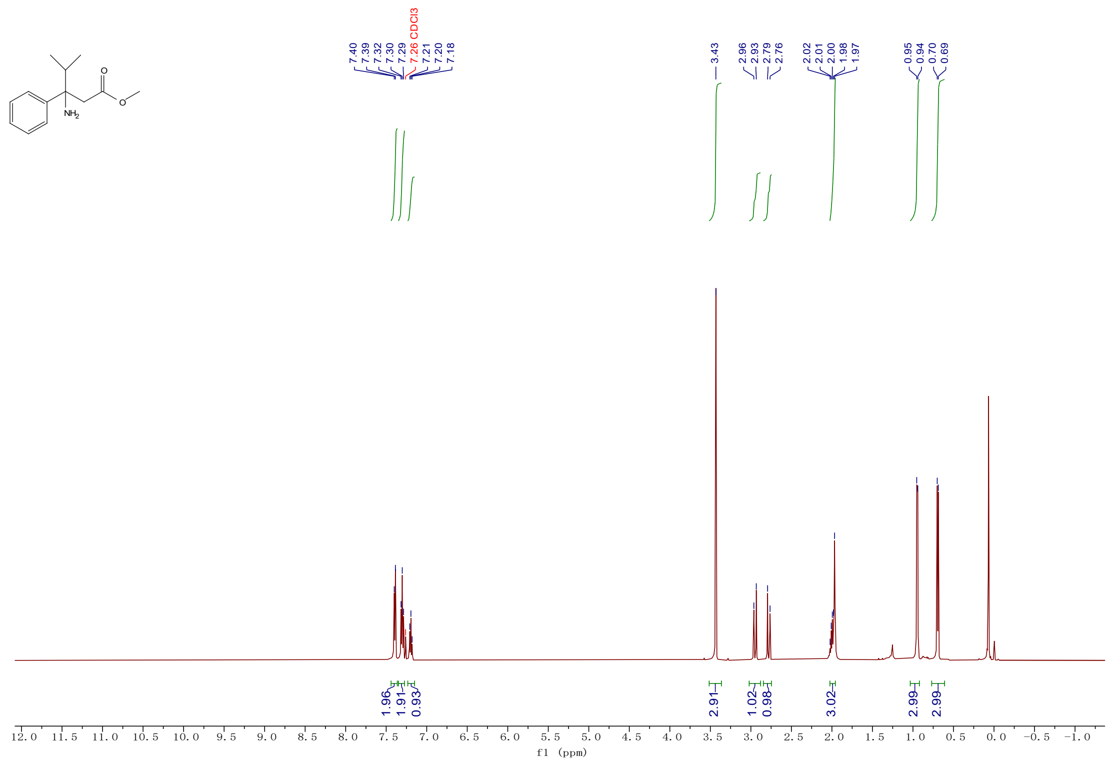
^{13}C NMR of **(3d)** (126 MHz, $CDCl_3$)



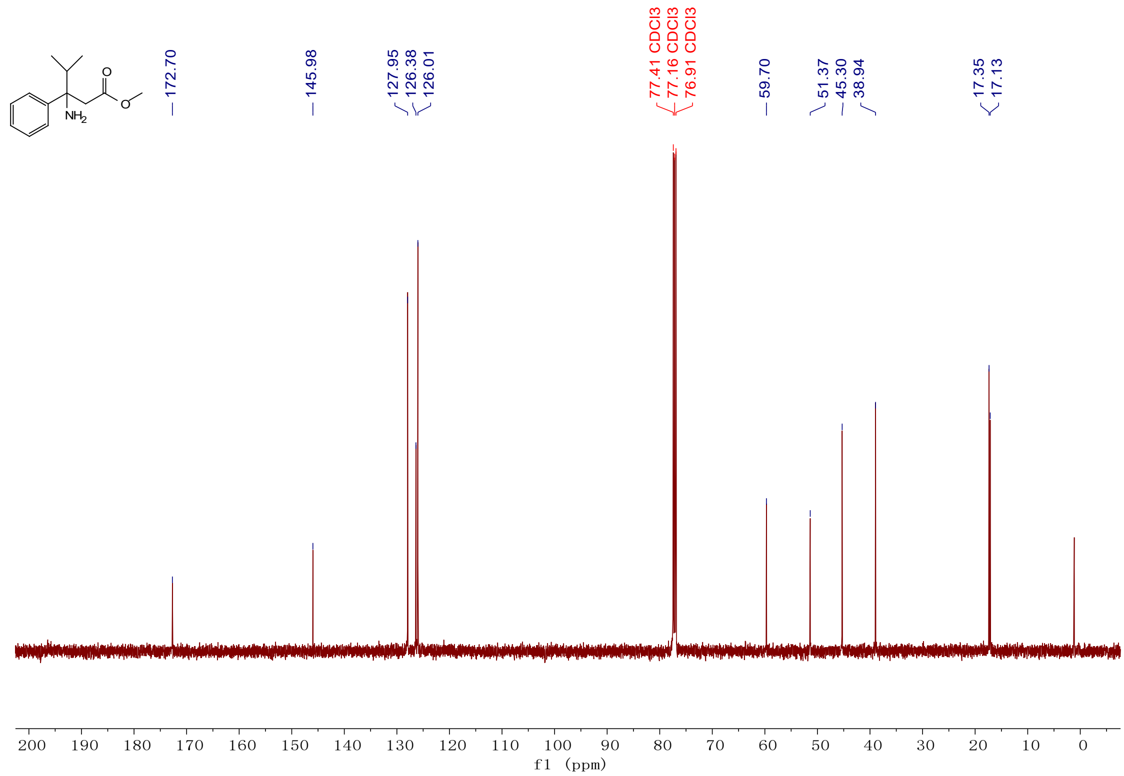
^{1}H NMR of **(3e)** (500 MHz, $CDCl_3$)



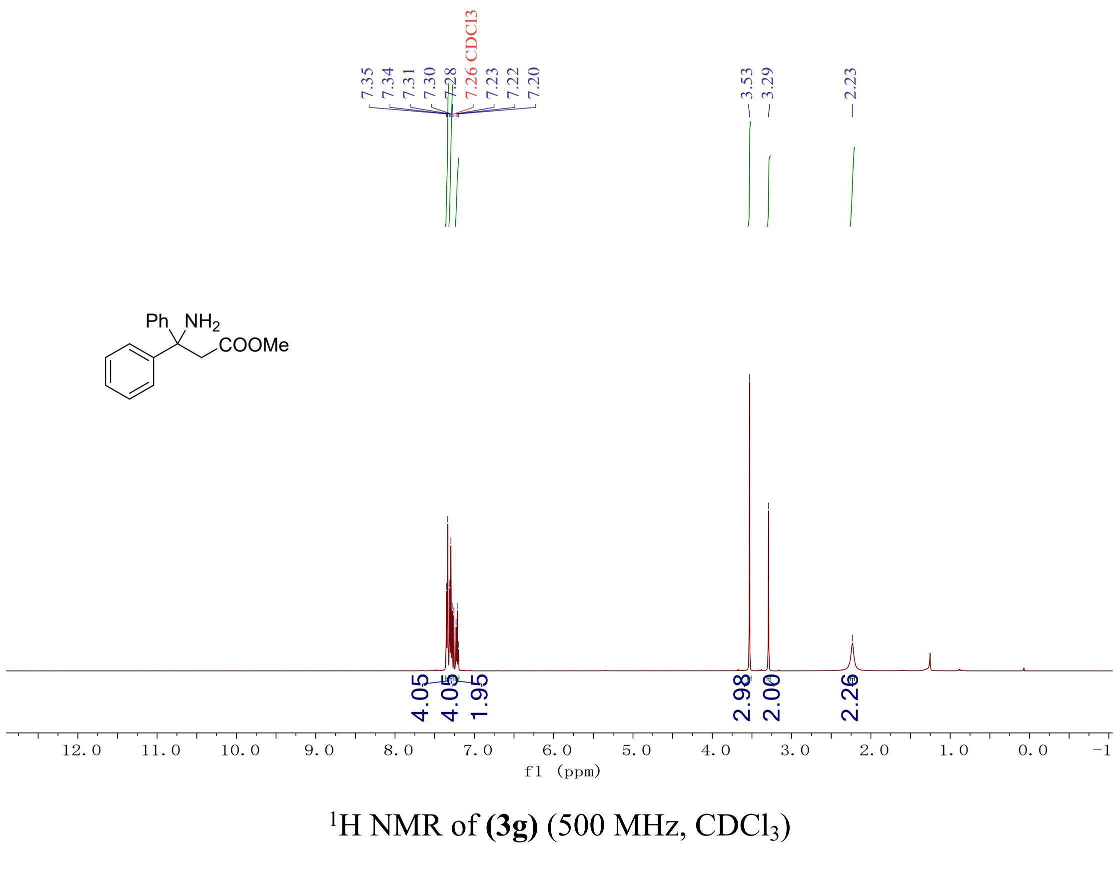
^{13}C NMR of **(3e)** (126 MHz, $CDCl_3$)



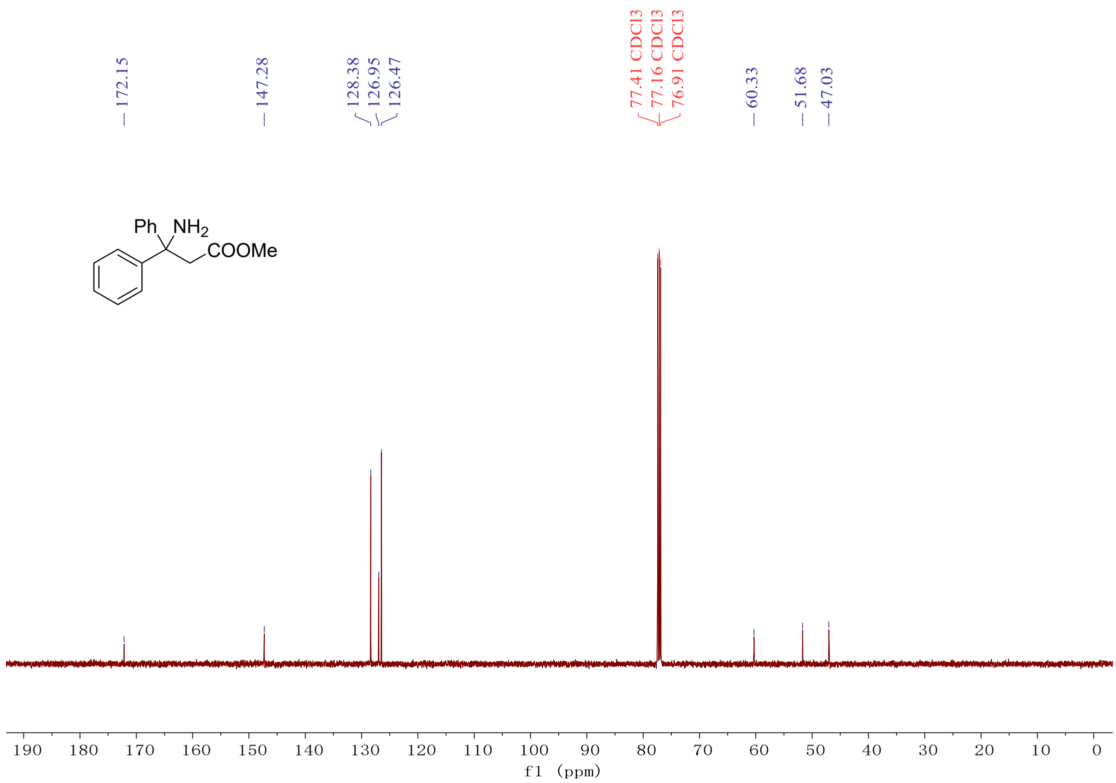
^{1}H NMR of **(3f)** (500 MHz, $CDCl_3$)



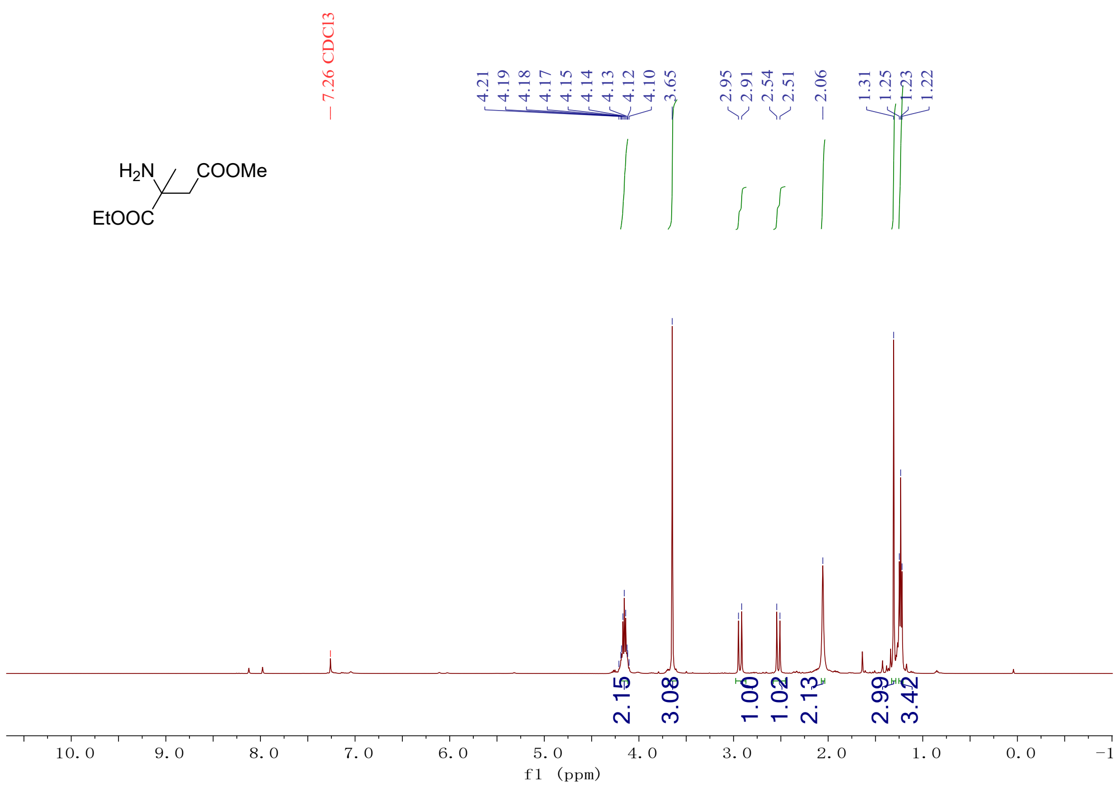
^{13}C NMR of **(3f)** (126 MHz, $CDCl_3$)



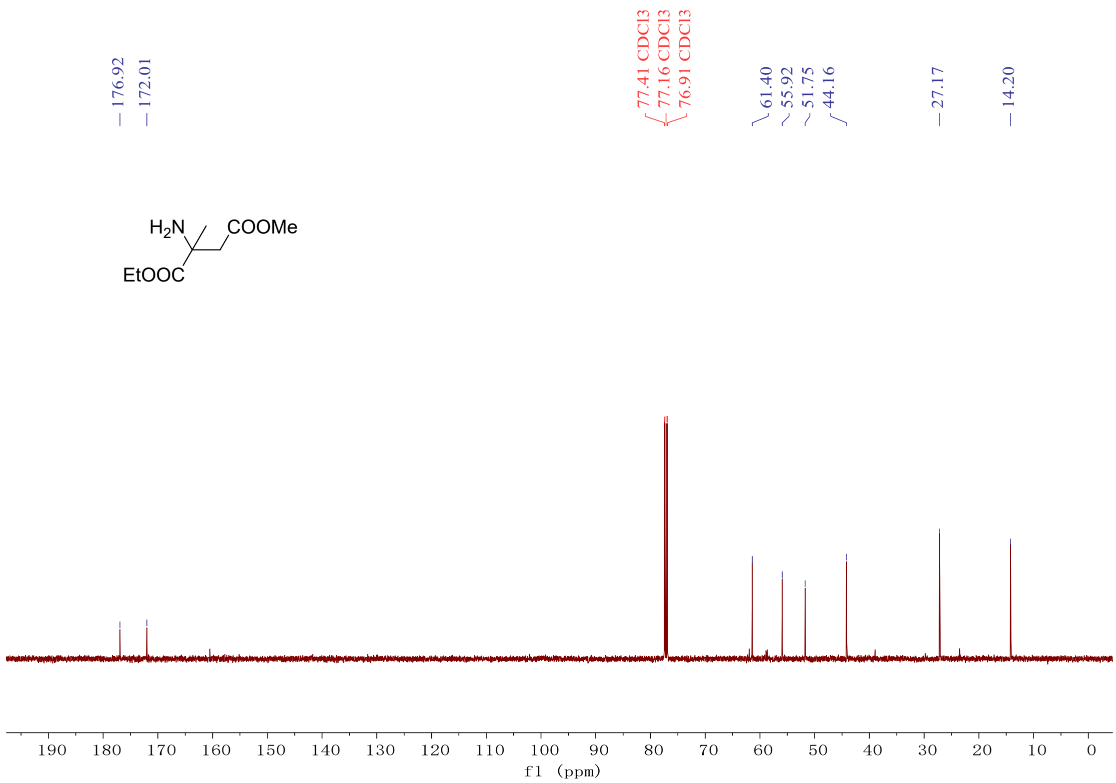
^{1}H NMR of **(3g)** (500 MHz, $CDCl_3$)



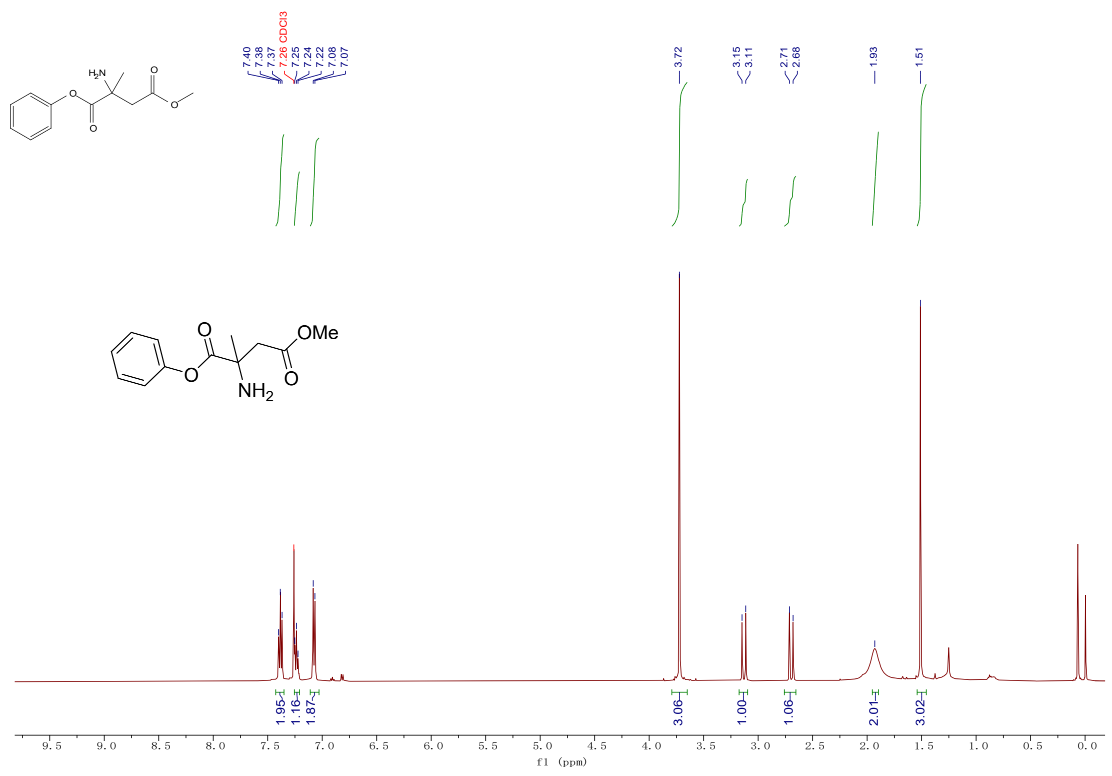
^{13}C NMR of **(3g)** (126 MHz, $CDCl_3$)



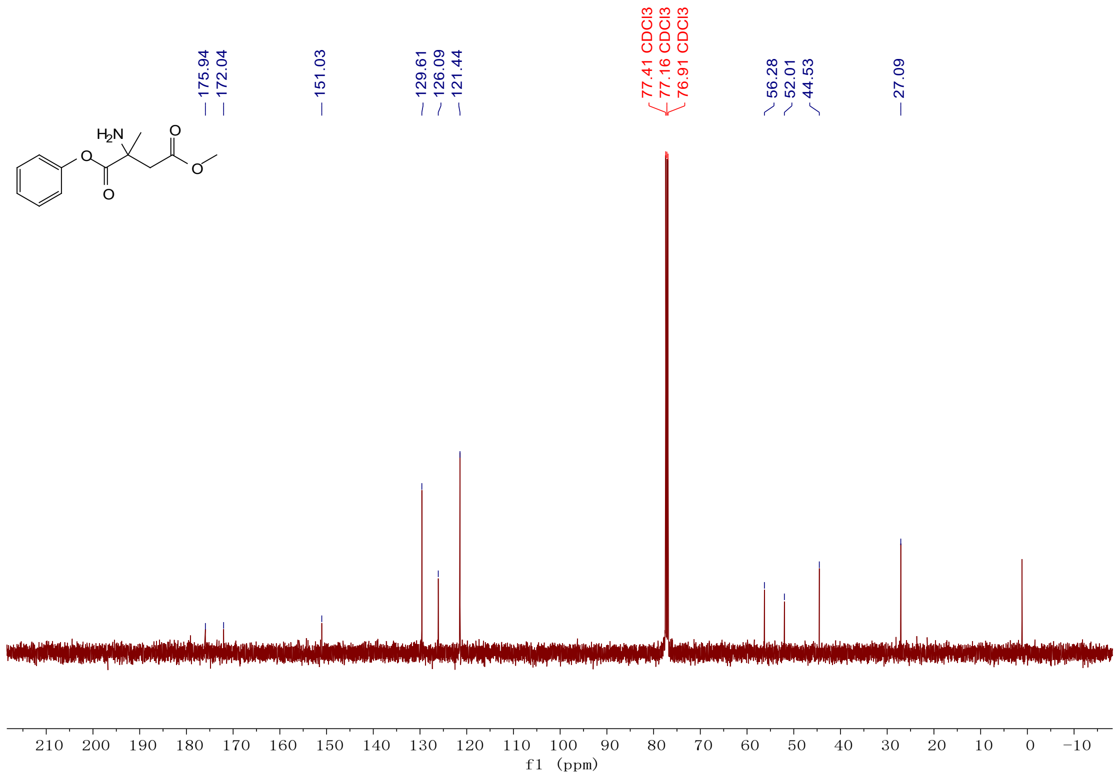
^{1}H NMR of **(3h)** (500 MHz, $CDCl_3$)



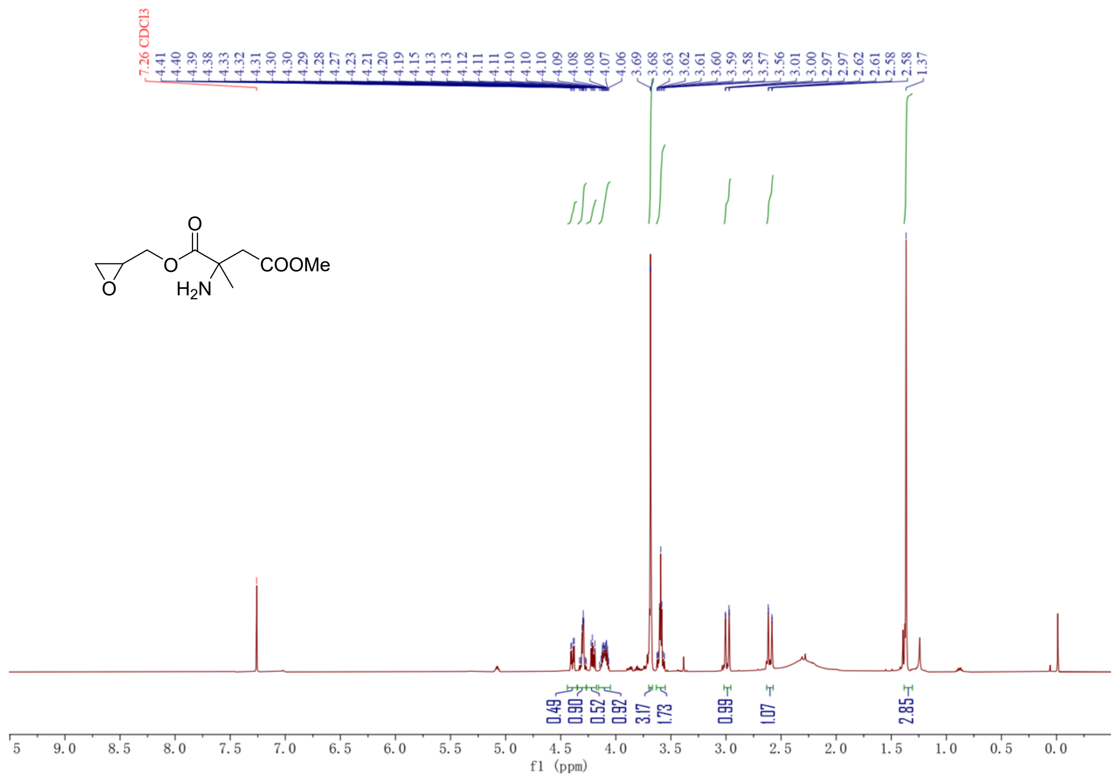
^{13}C NMR of **(3h)** (126 MHz, $CDCl_3$)



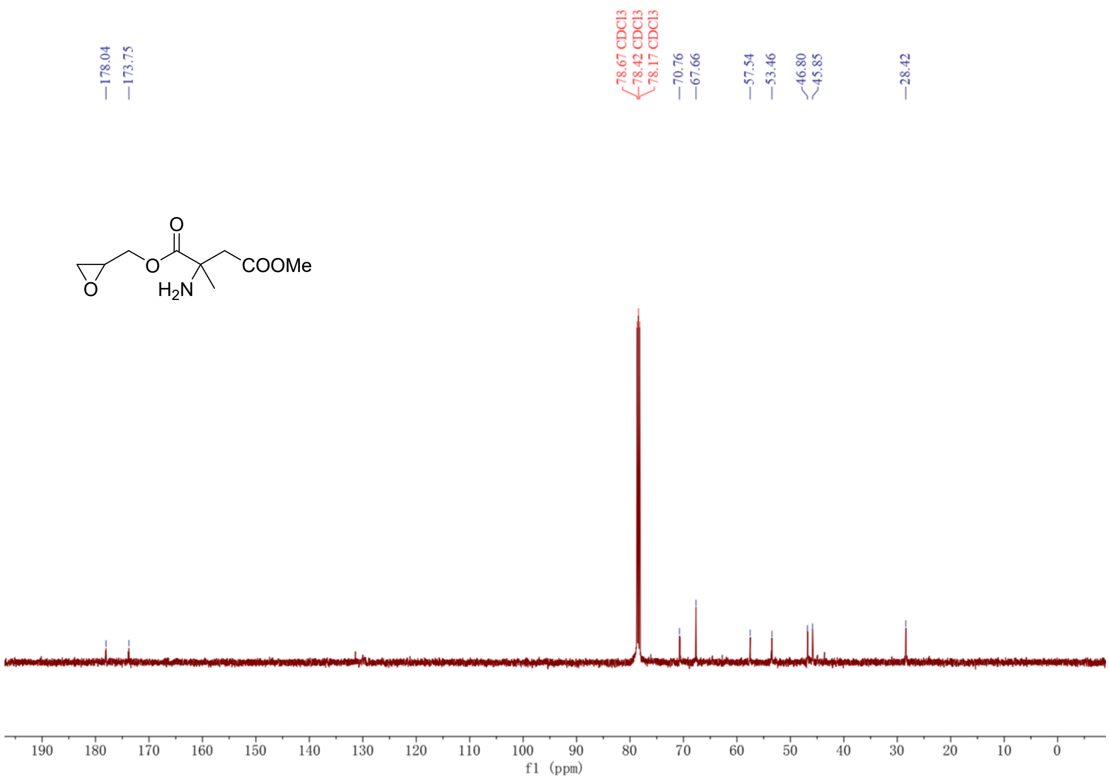
^{1}H NMR of **(3i)** (500 MHz, $CDCl_3$)



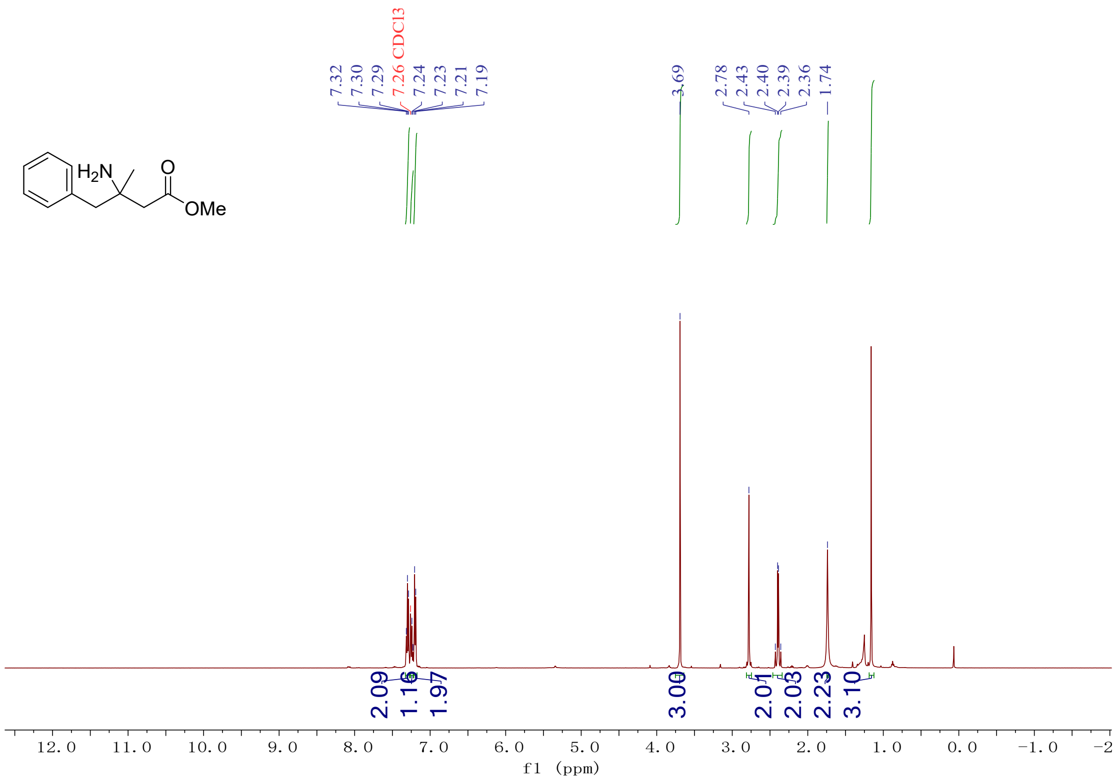
^{13}C NMR of **(3i)** (126 MHz, $CDCl_3$)



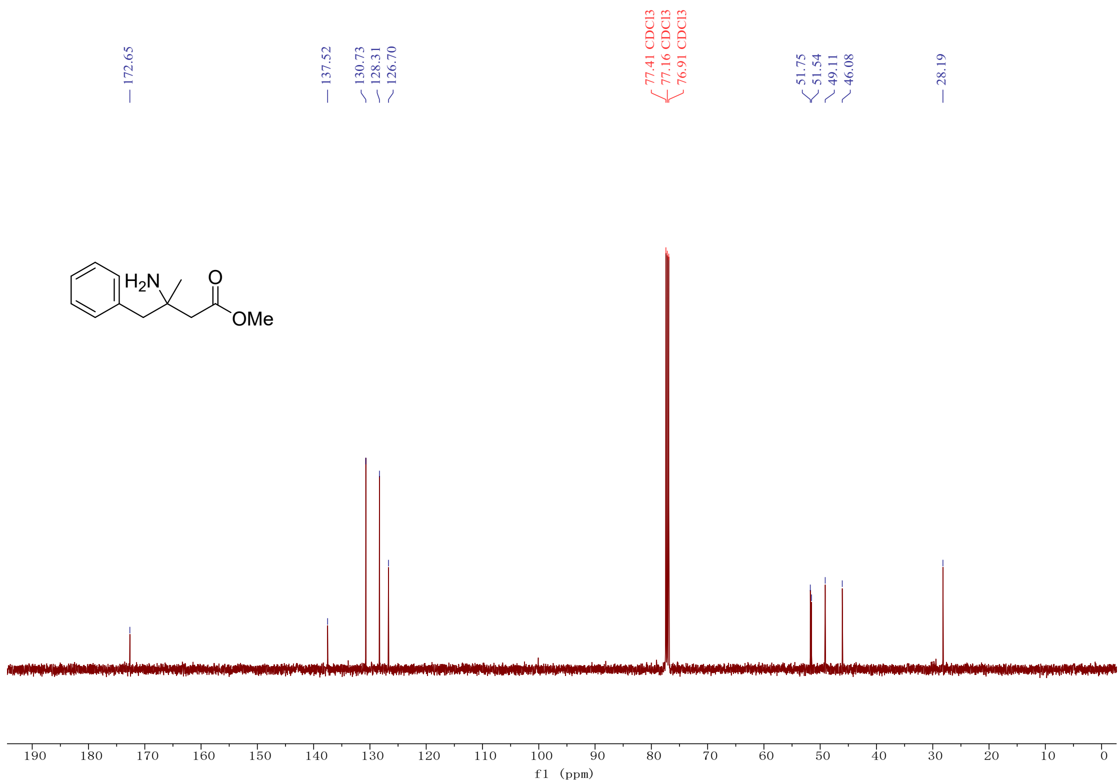
^{1}H NMR of **(3j)** (500 MHz, $CDCl_3$)



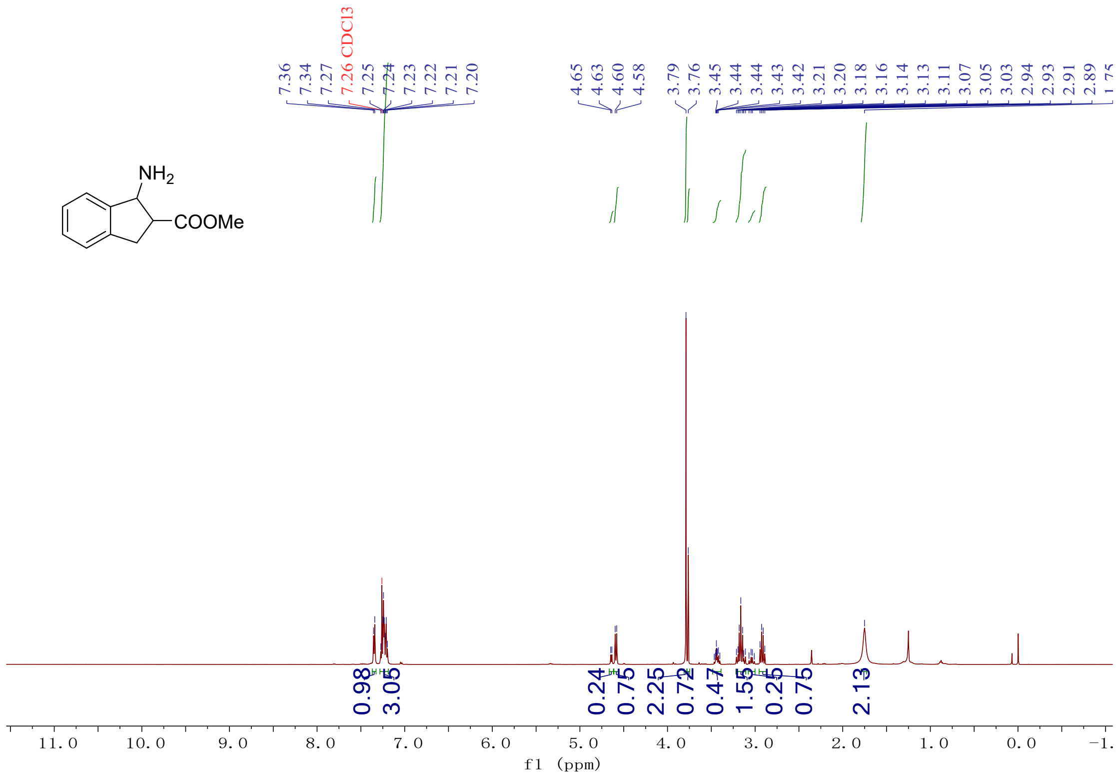
^{13}C NMR of **(3j)** (126 MHz, $CDCl_3$)



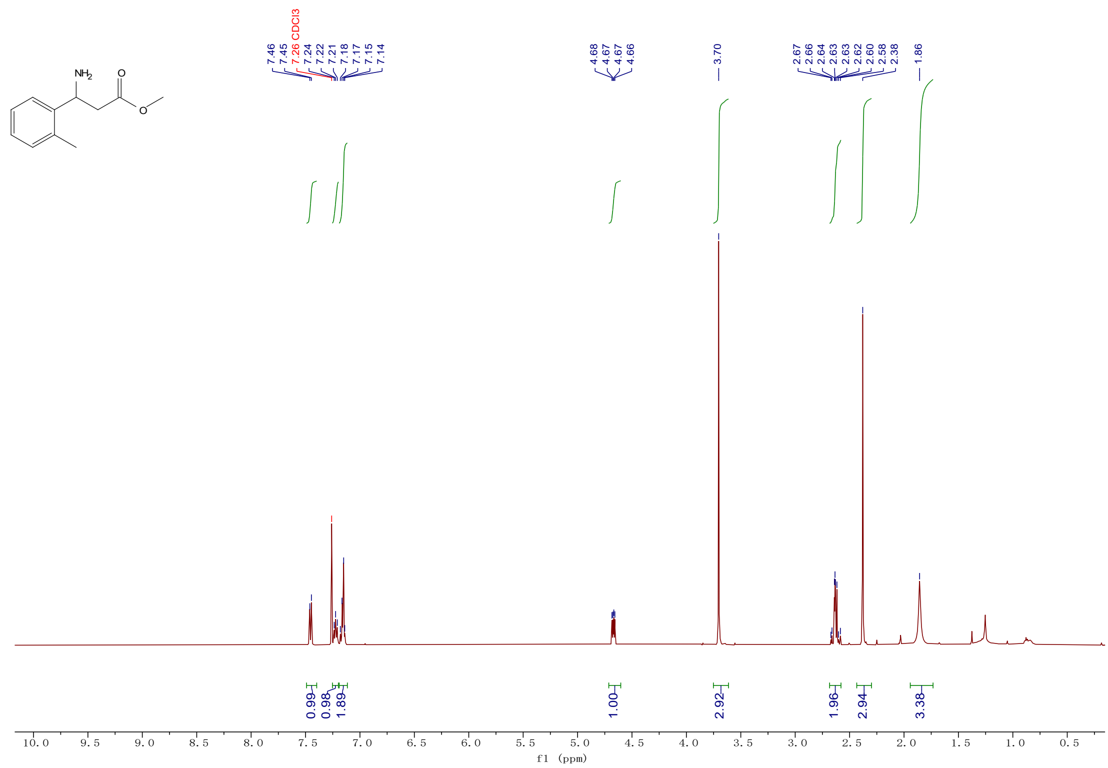
^{1}H NMR of **(3k)** (500 MHz, $CDCl_3$)



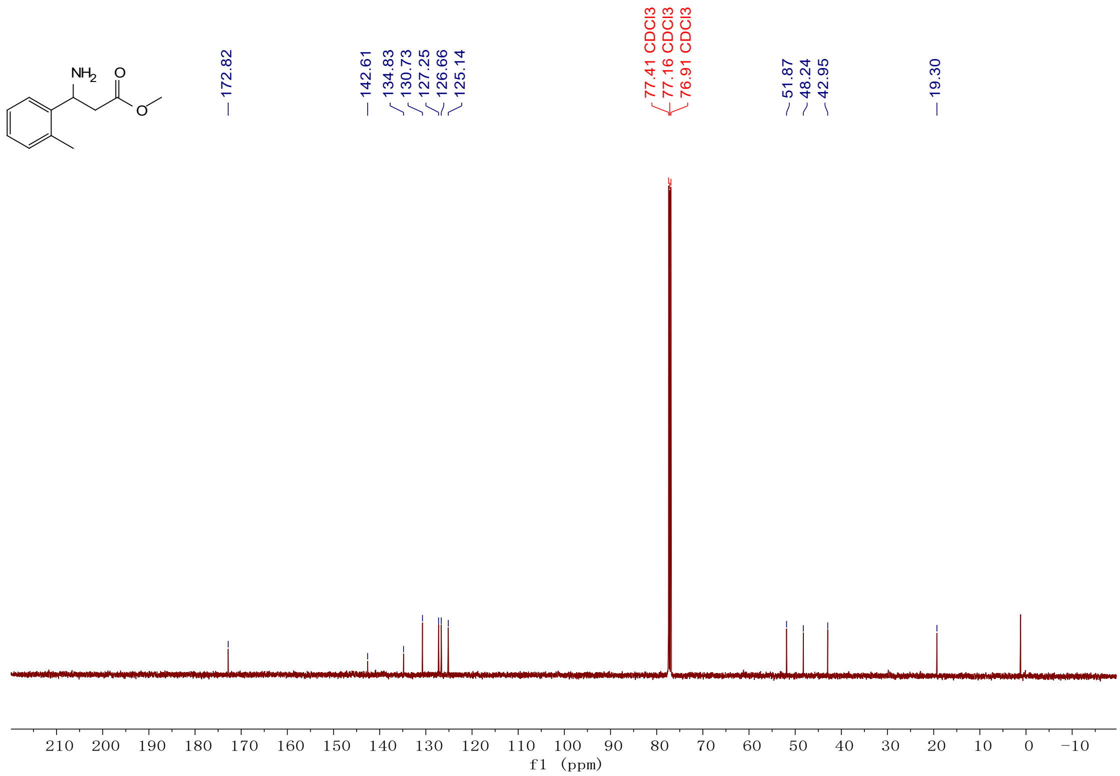
^{13}C NMR of **(3k)** (126 MHz, $CDCl_3$)



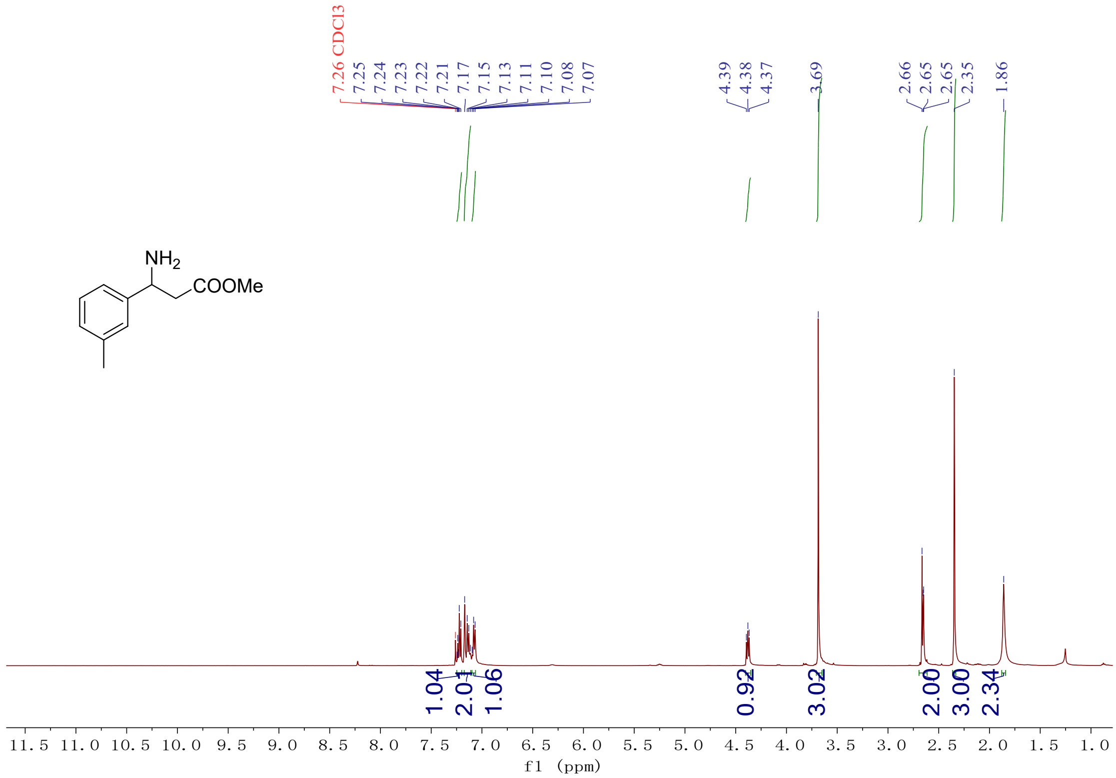
^{1}H NMR of **(3l)** (500 MHz, $CDCl_3$)



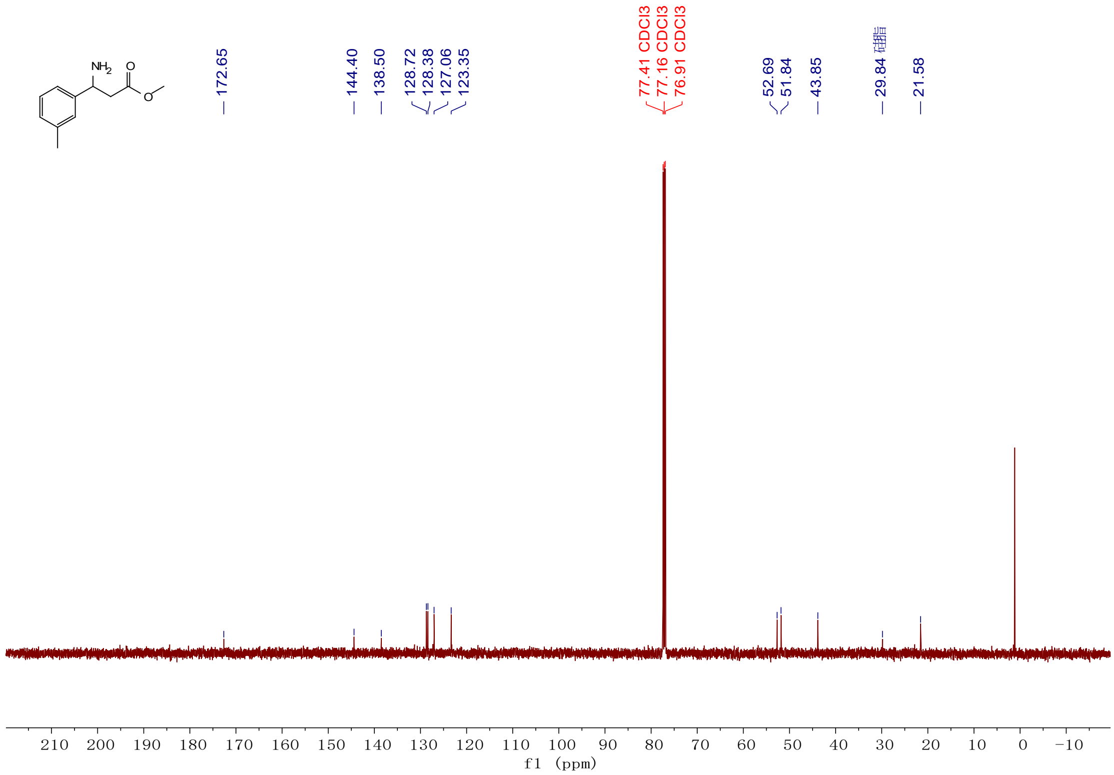
^{1}H NMR of **(3m)** (500 MHz, $CDCl_3$)



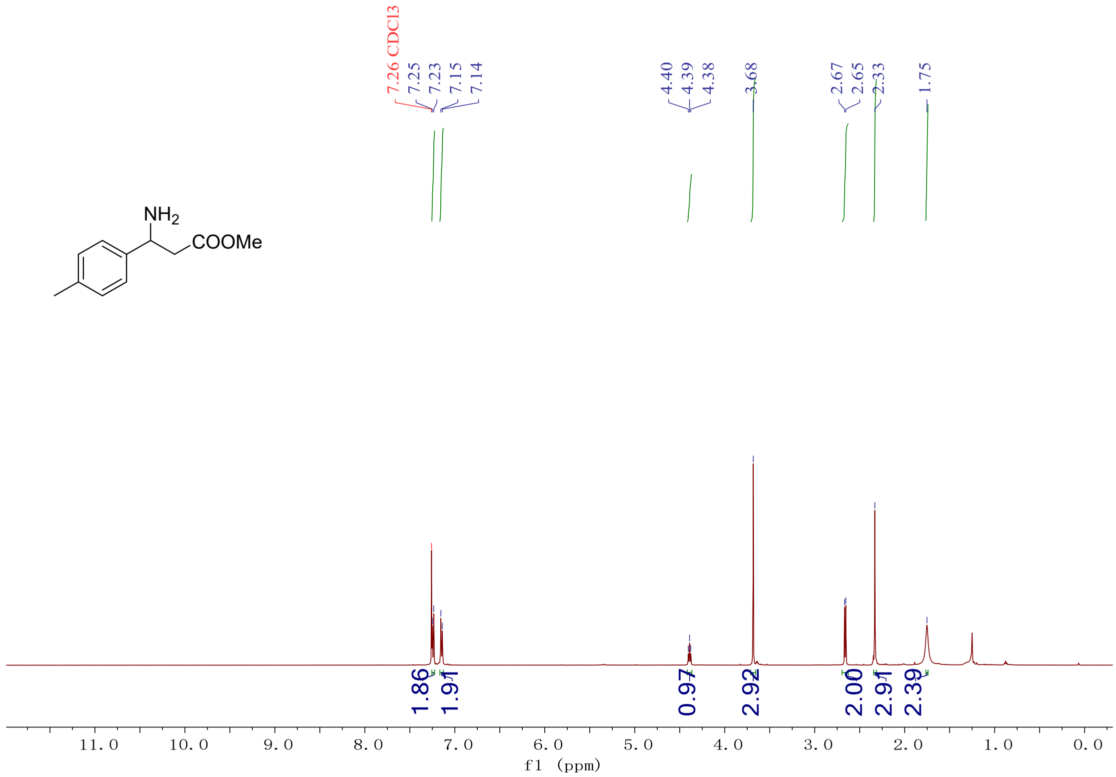
^{13}C NMR of **(3m)** (126 MHz, $CDCl_3$)



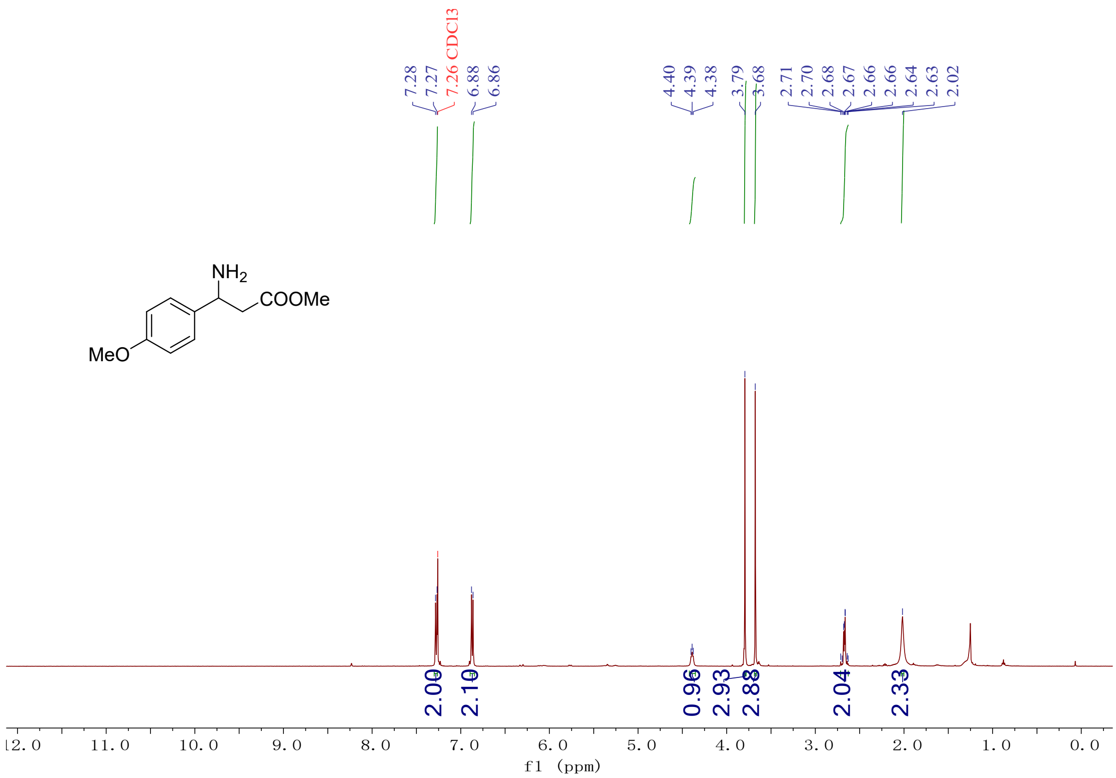
^{1}H NMR of **(3n)** (500 MHz, $CDCl_3$)



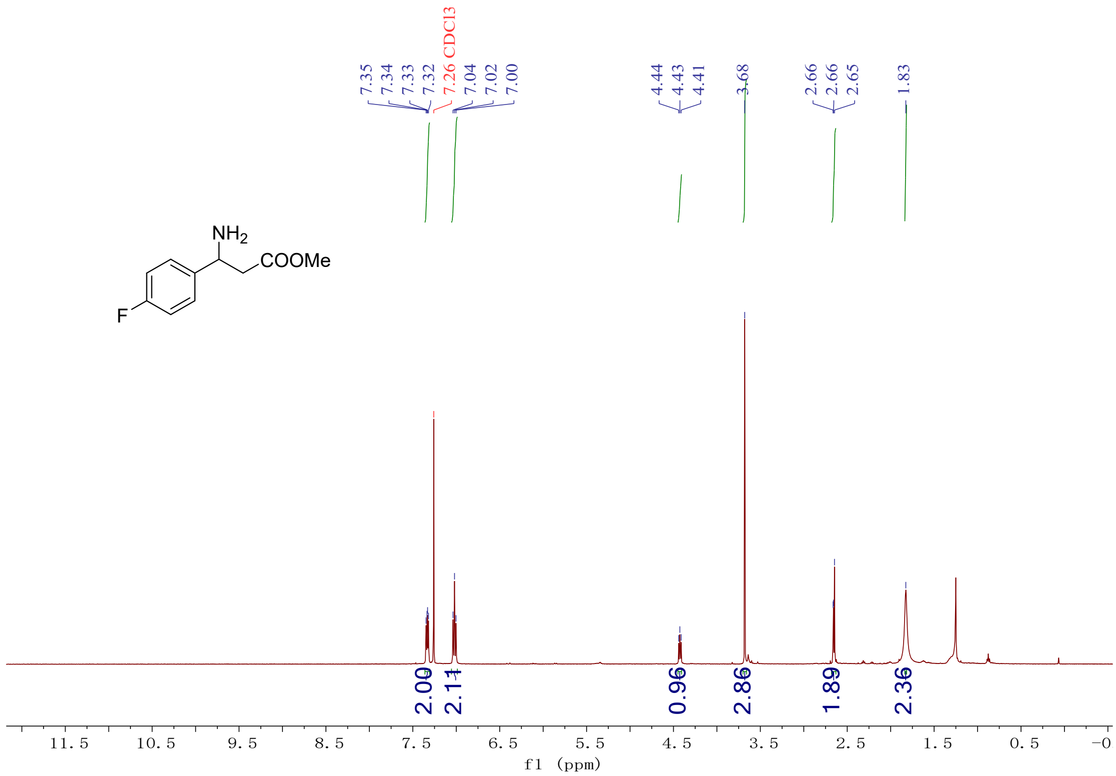
^{13}C NMR of **(3n)** (126 MHz, $CDCl_3$)



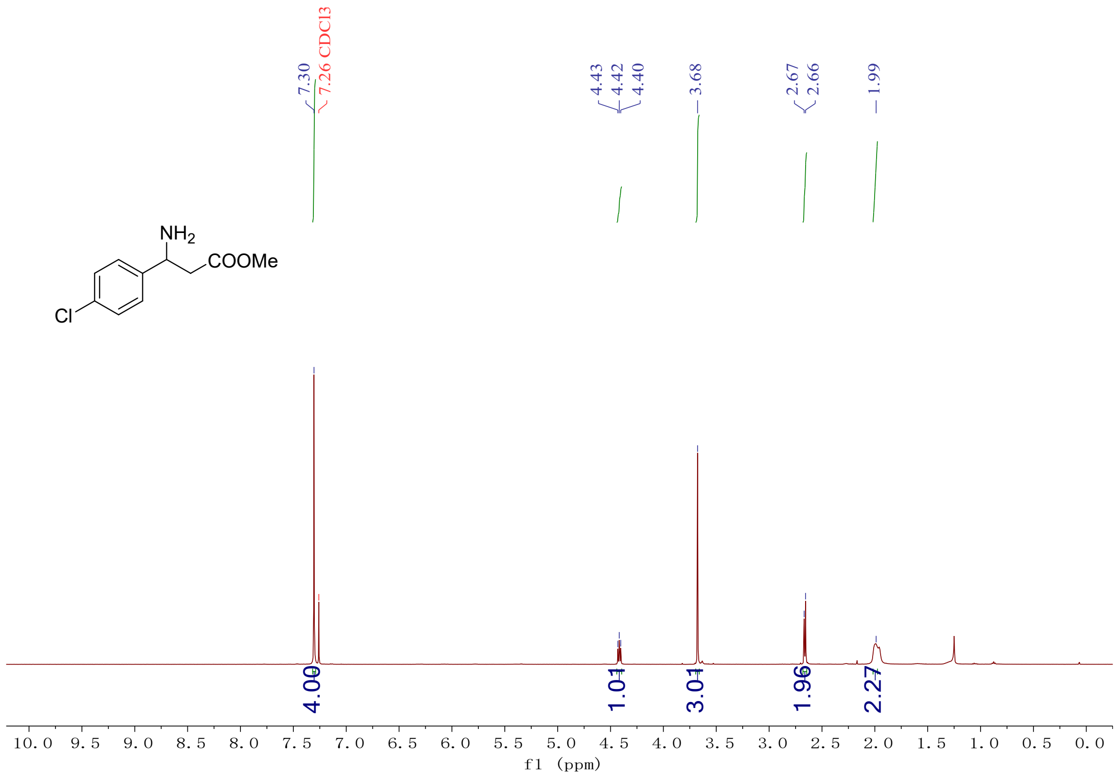
[1]H NMR of **(3o)** (500 MHz, $CDCl_3$)



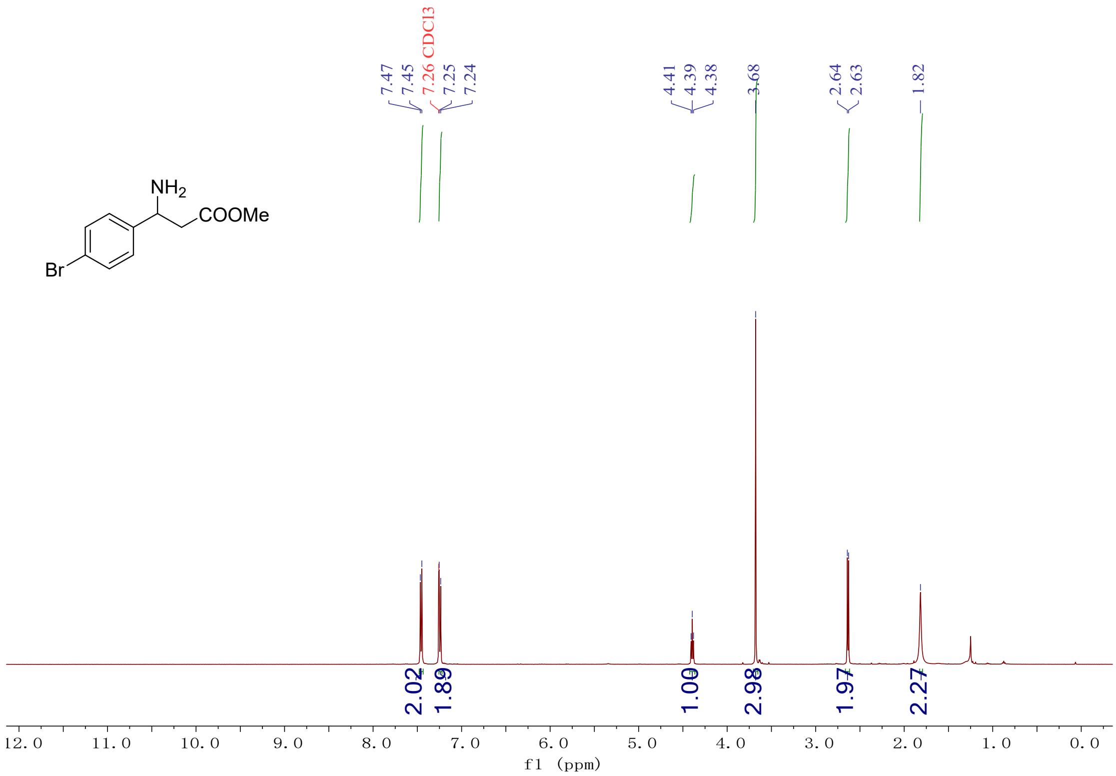
[1]H NMR of **(3p)** (500 MHz, $CDCl_3$)



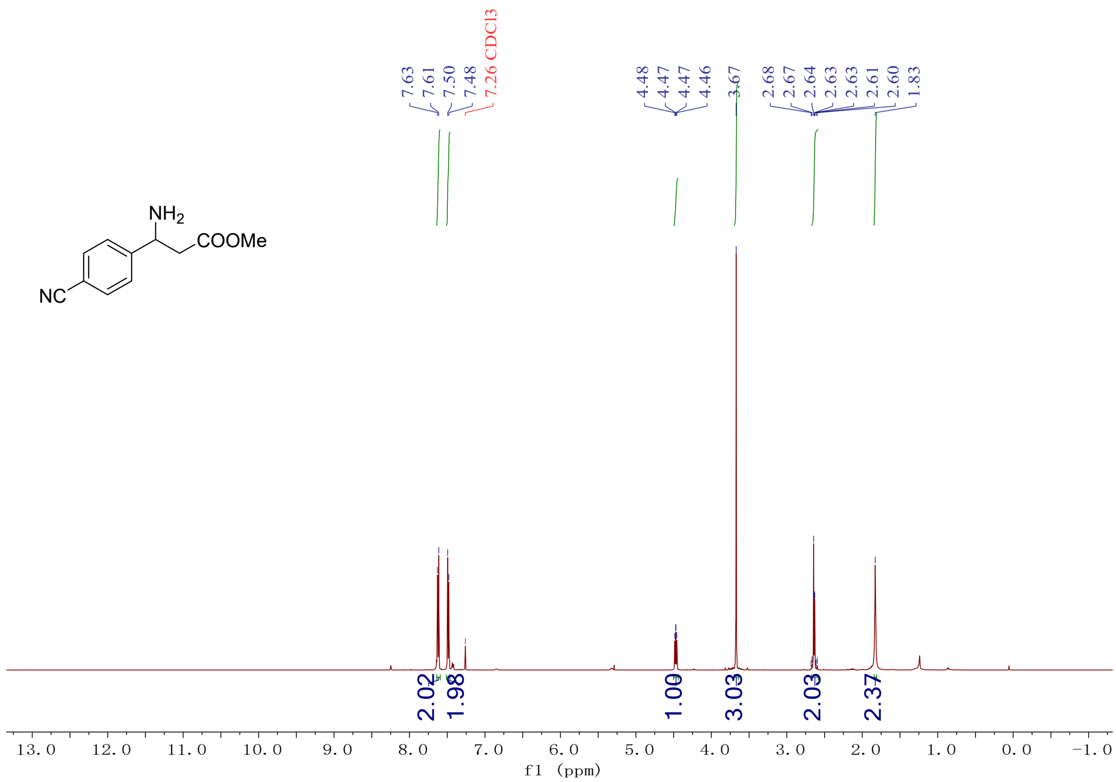
[1]H NMR of **(3q)** (500 MHz, $CDCl_3$)



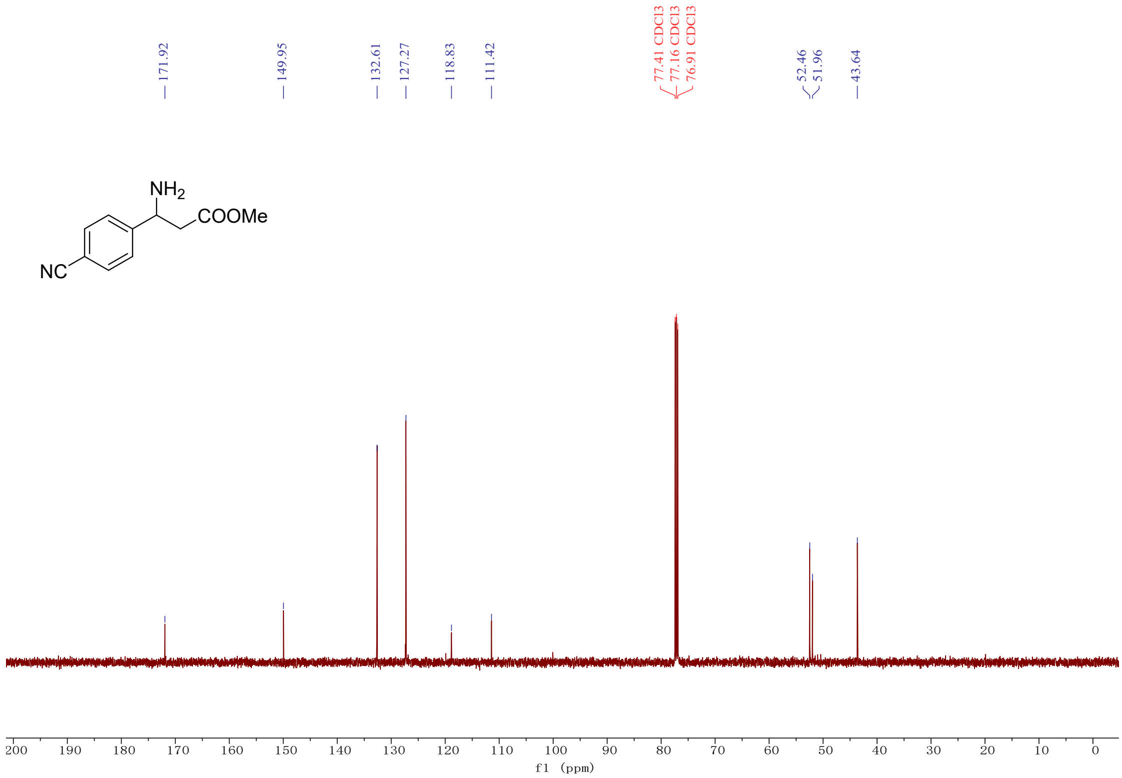
[1]H NMR of **(3r)** (500 MHz, $CDCl_3$)



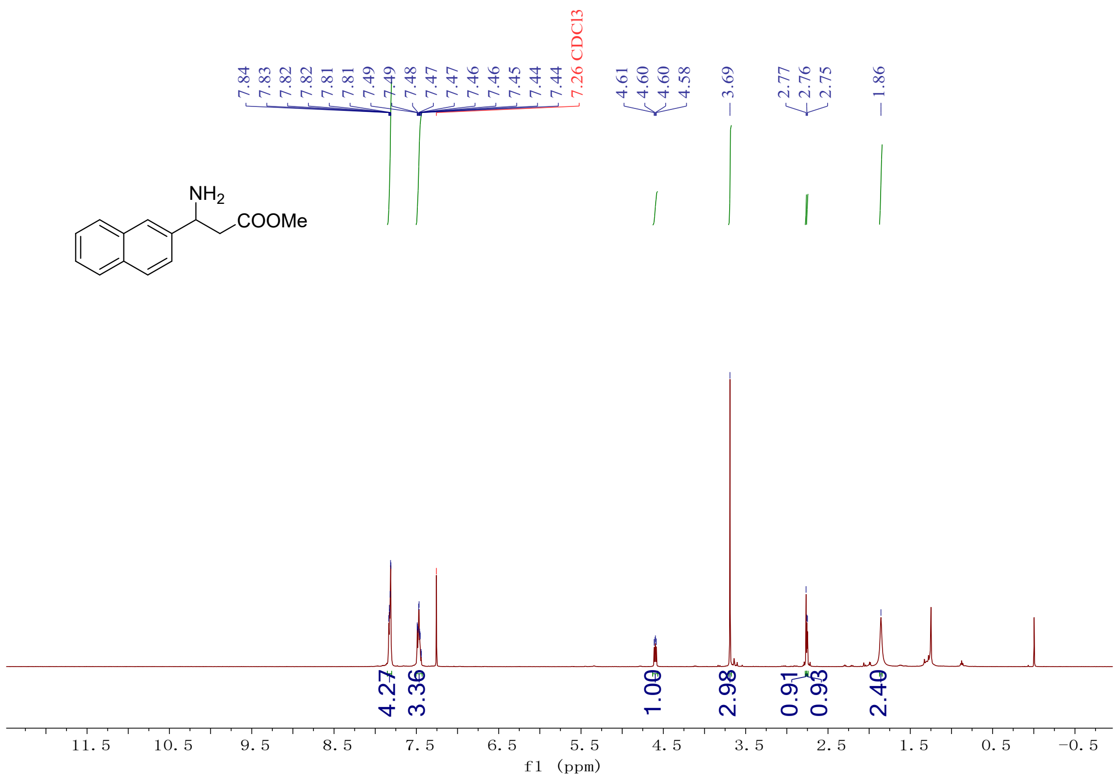
^{1}H NMR of **(3s)** (500 MHz, $CDCl_3$)



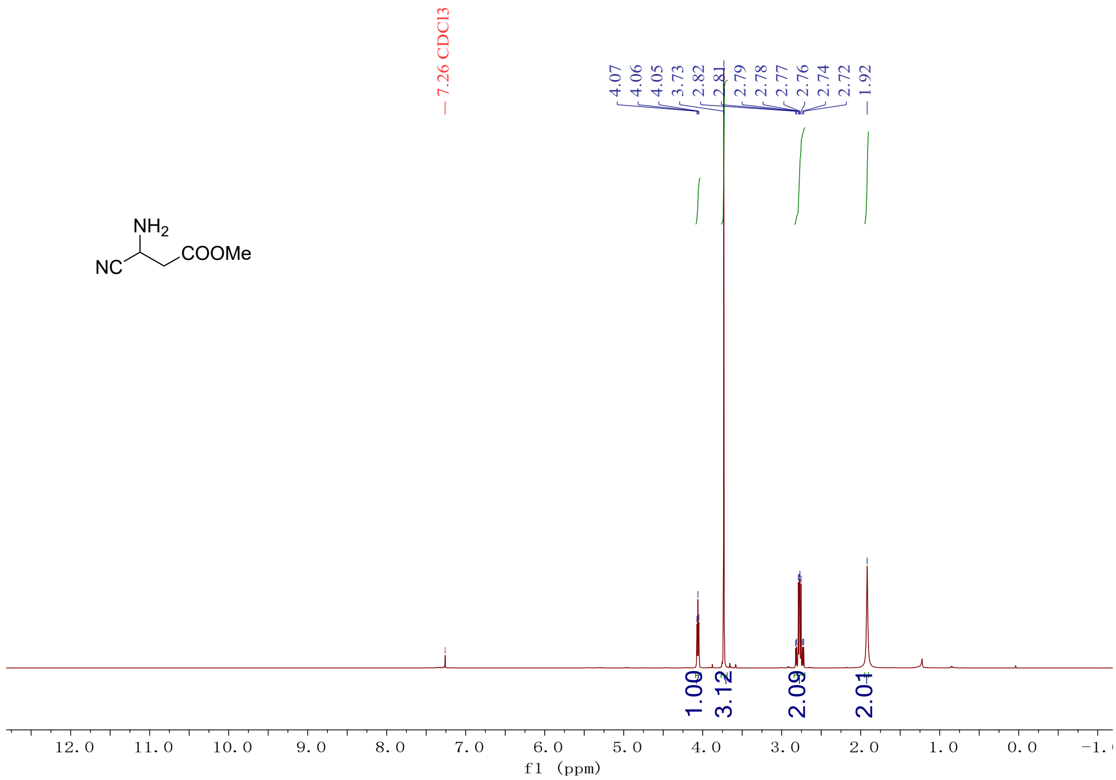
^{1}H NMR of **(3t)** (500 MHz, $CDCl_3$)



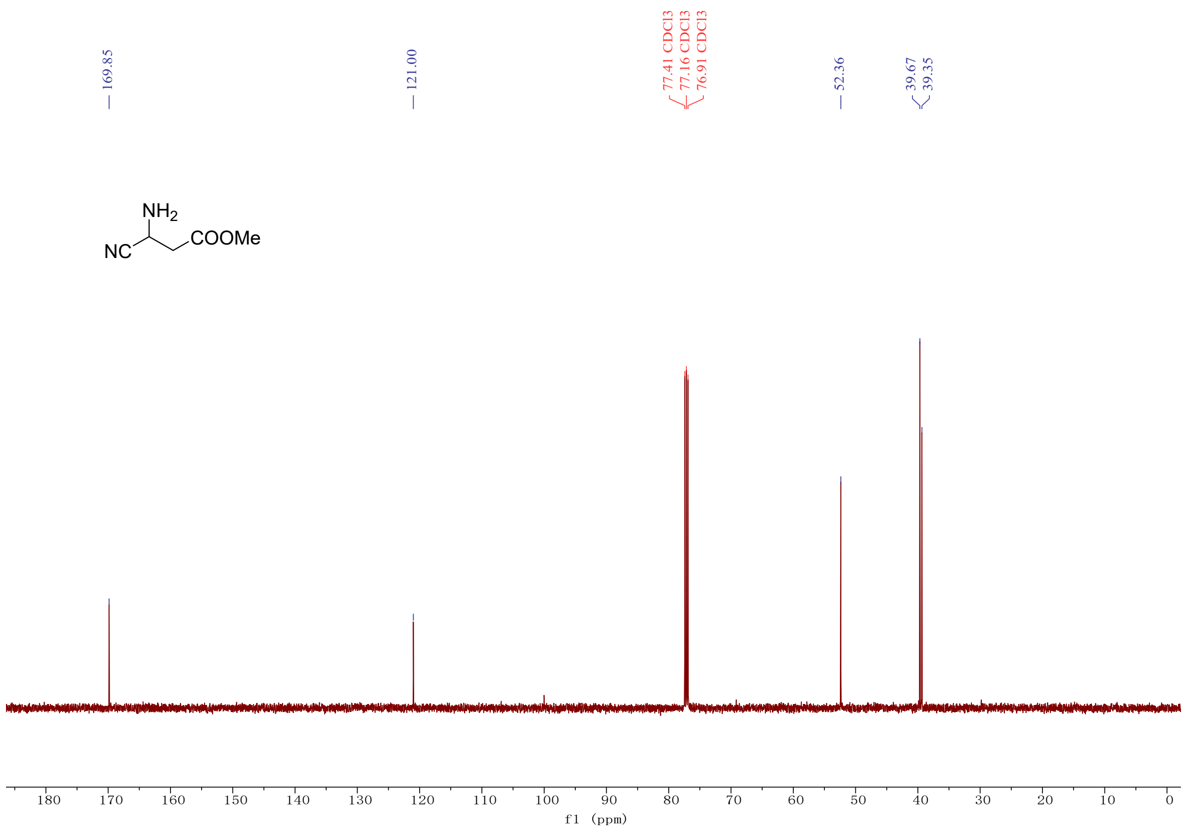
^{13}C NMR of **(3t)** (126 MHz, $CDCl_3$)



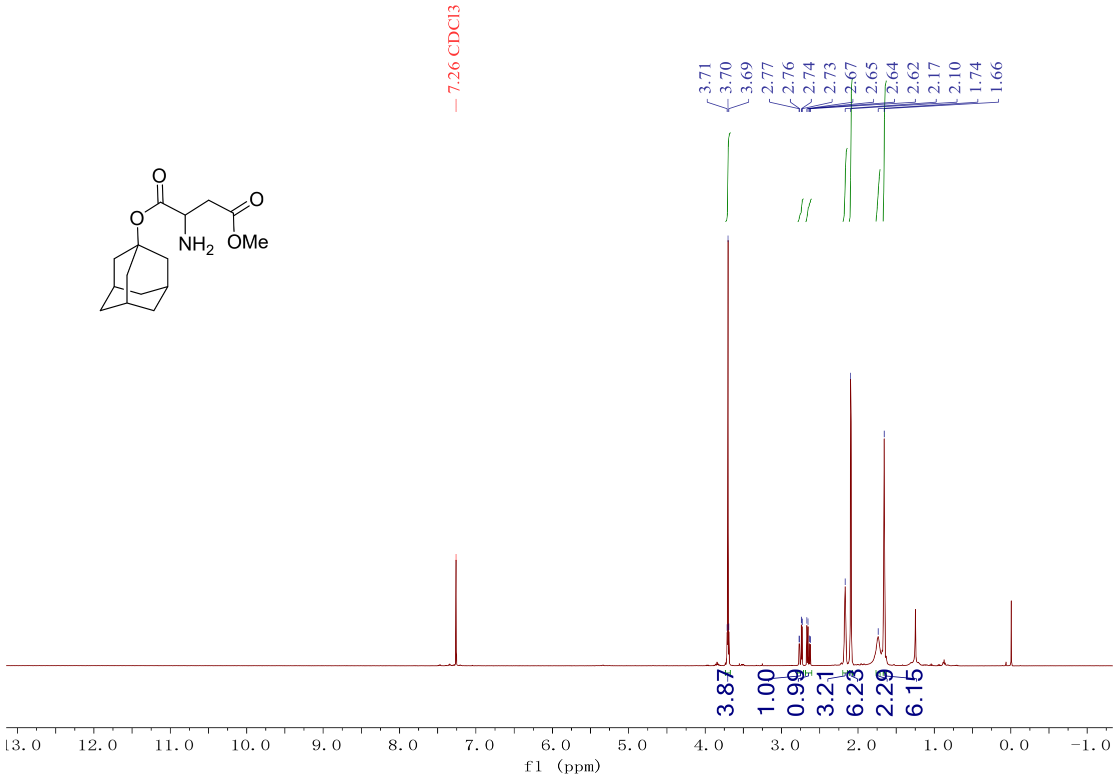
^{1}H NMR of **(3u)** (500 MHz, $CDCl_3$)



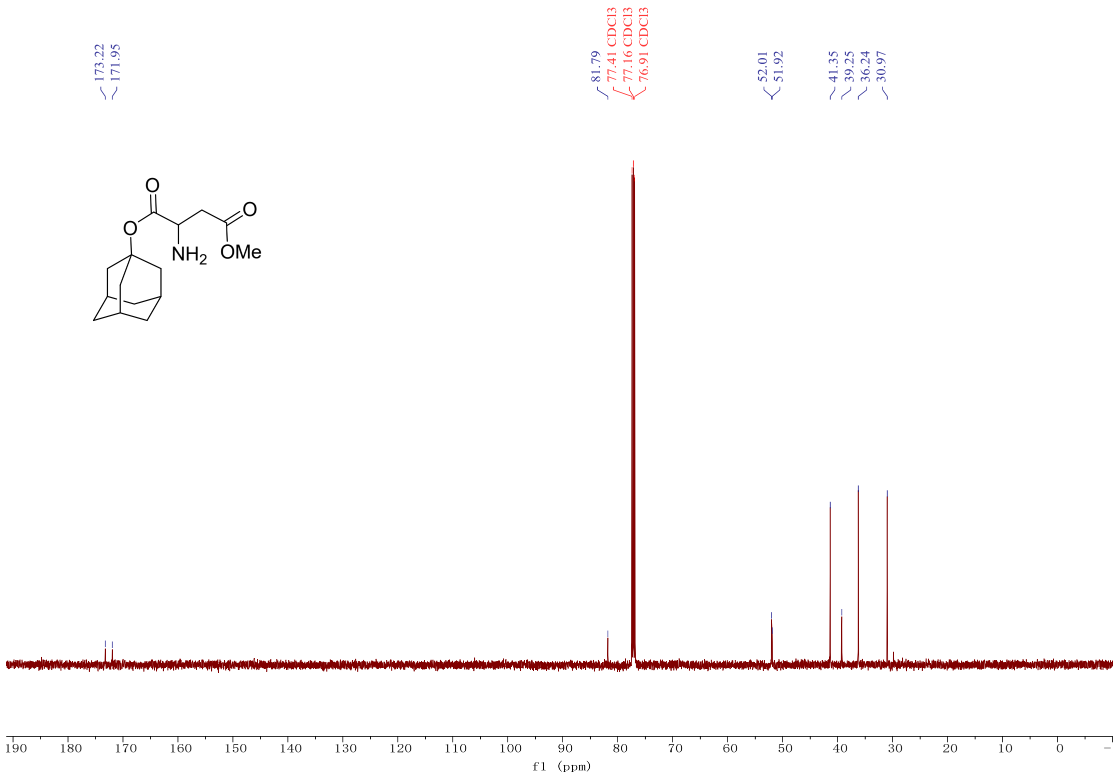
^{1}H NMR of **(3v)** (500 MHz, $CDCl_3$)



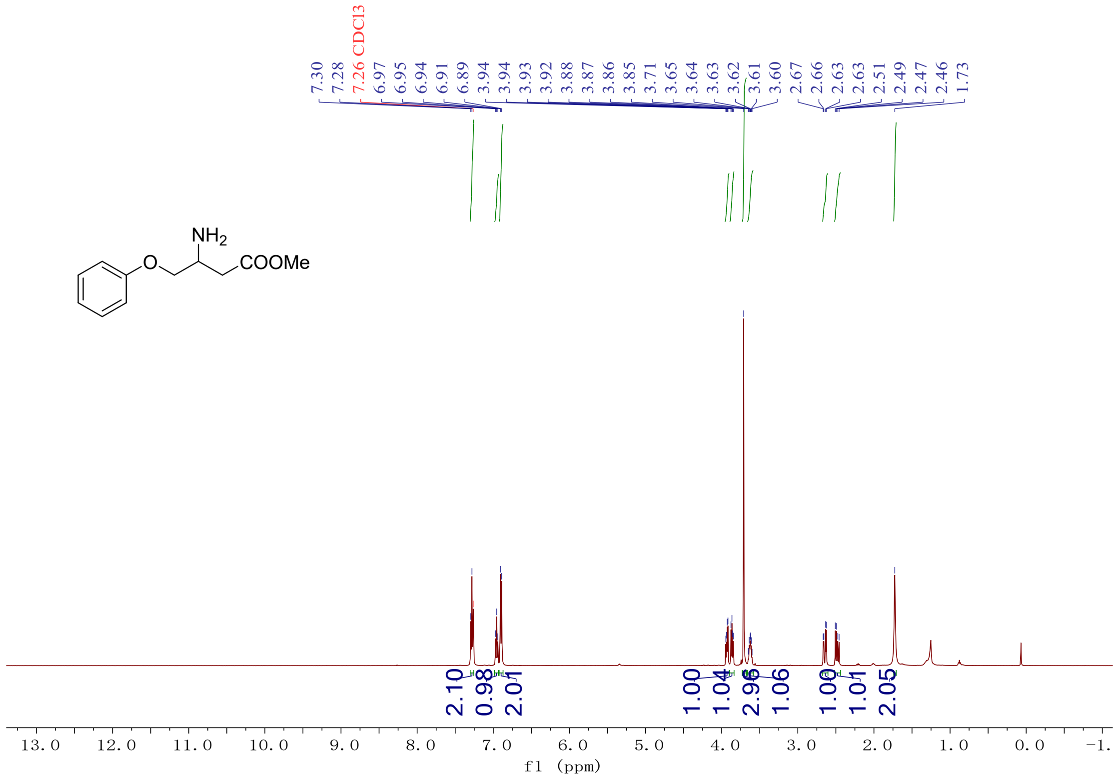
^{13}C NMR of **(3v)** (126 MHz, $CDCl_3$)



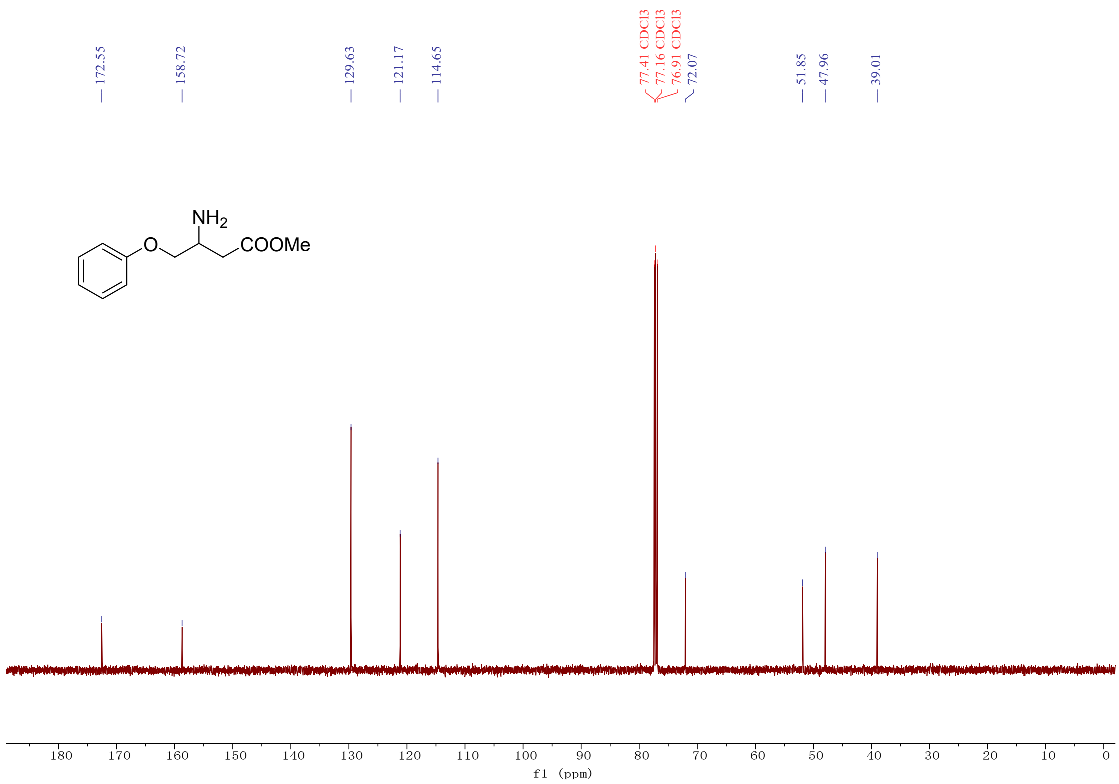
^{1}H NMR of **(3w)** (500 MHz, $CDCl_3$)



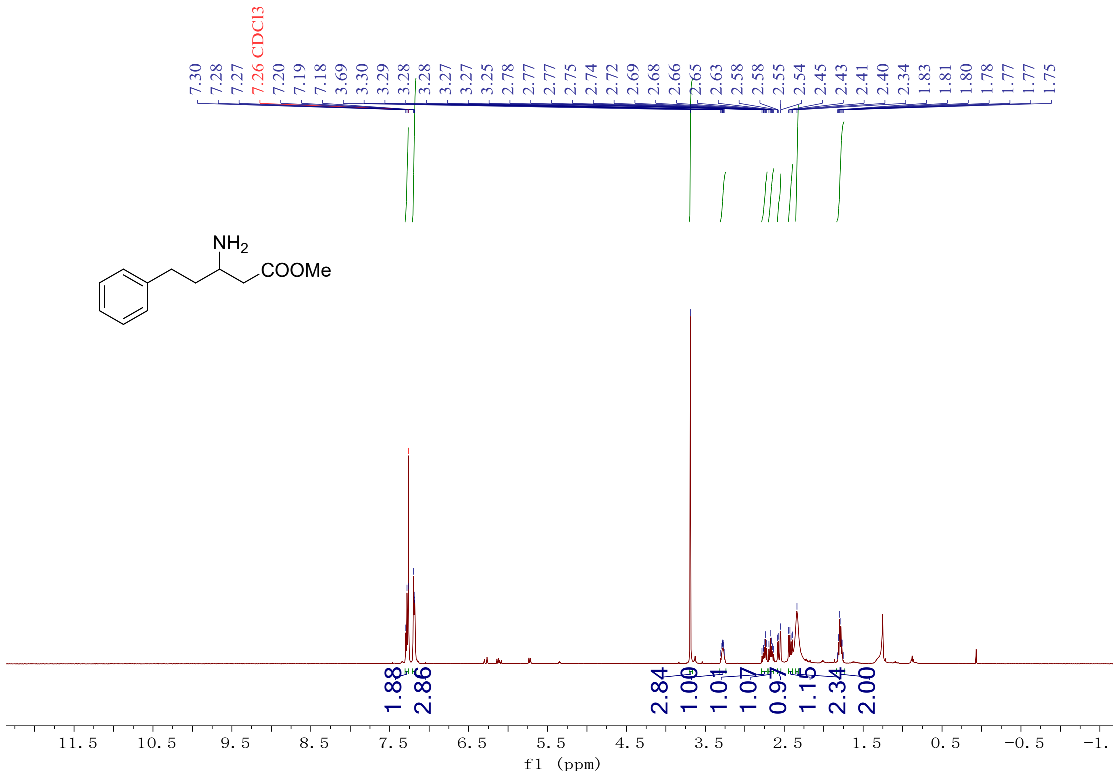
^{13}C NMR of **(3w)** (126 MHz, $CDCl_3$)



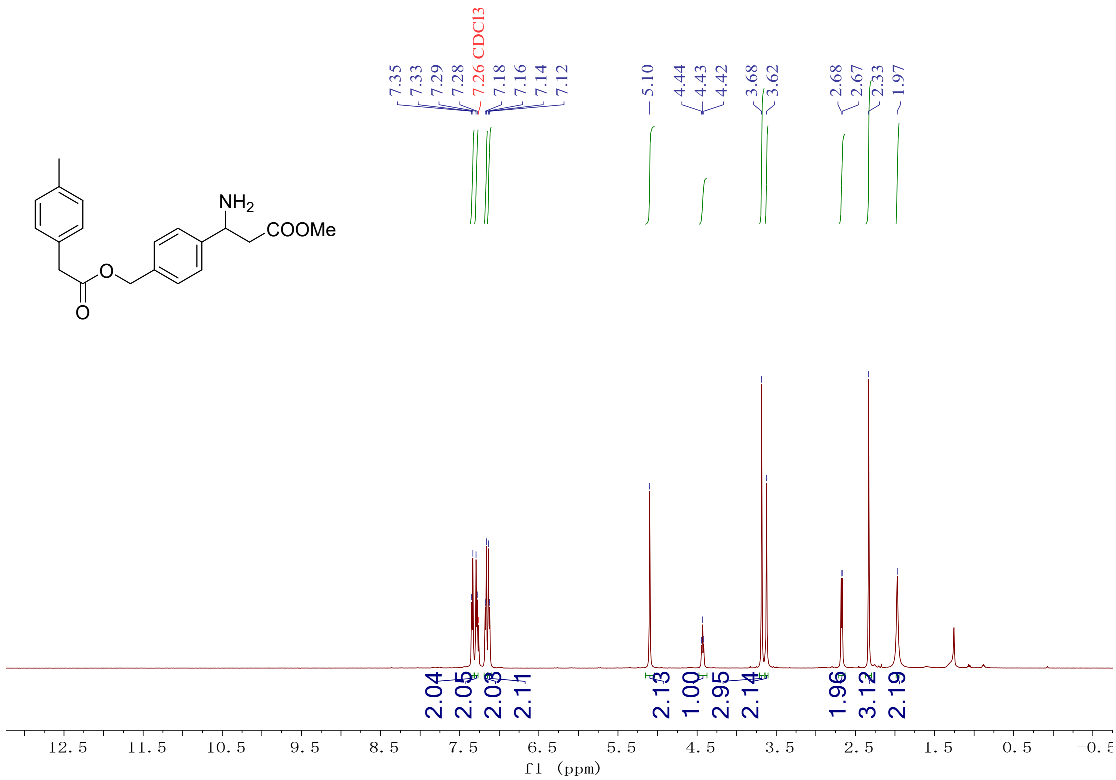
^{1}H NMR of **(3x)** (500 MHz, $CDCl_3$)



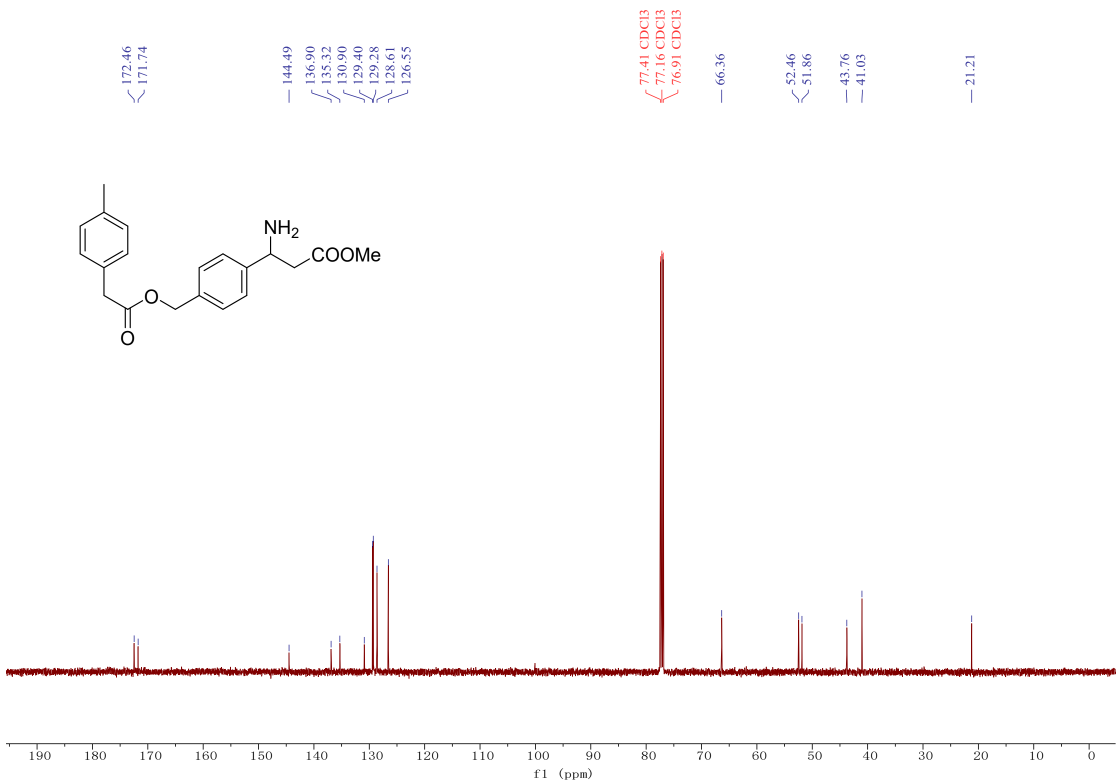
^{13}C NMR of **(3x)** (126 MHz, $CDCl_3$)



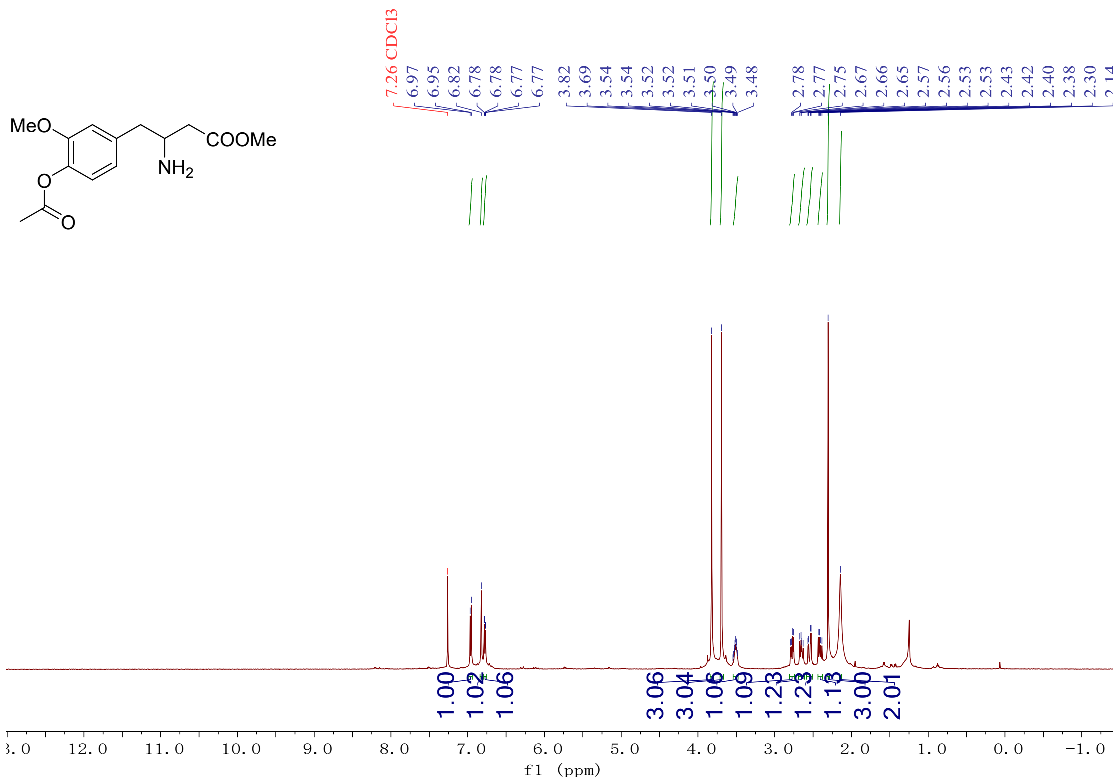
^{1}H NMR of **(3y)** (500 MHz, $CDCl_3$)



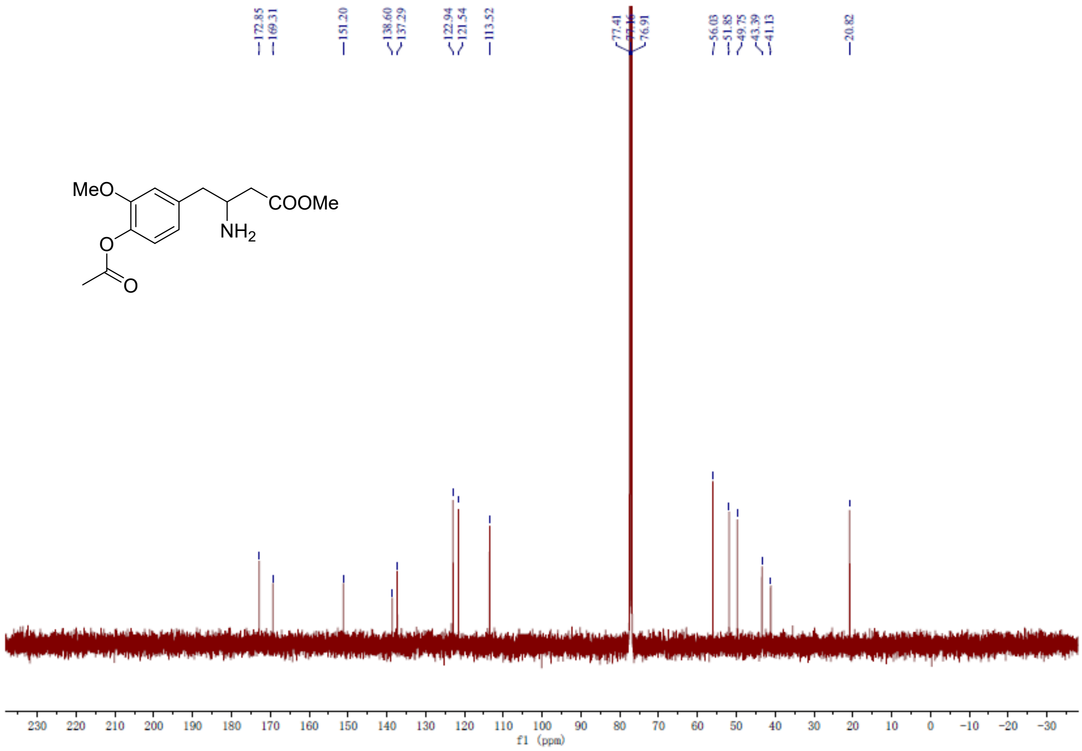
^{1}H NMR of **(3z)** (500 MHz, $CDCl_3$)



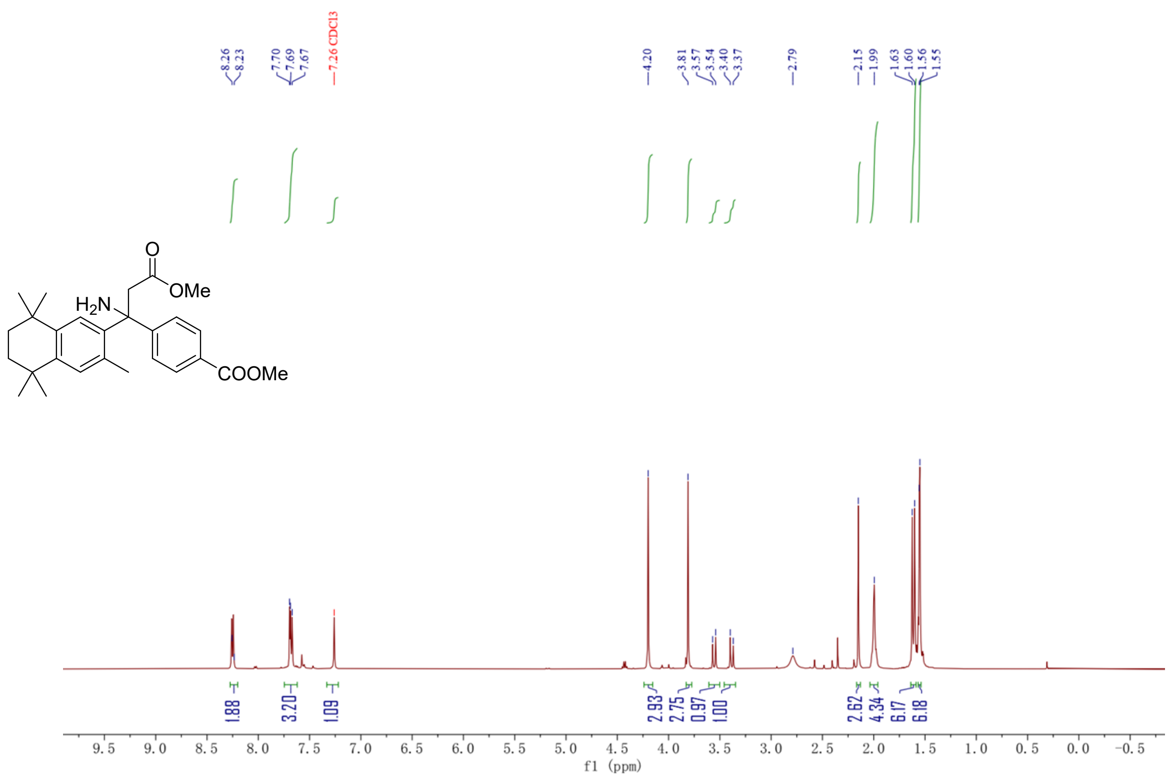
^{13}C NMR of **(3z)** (126 MHz, $CDCl_3$)



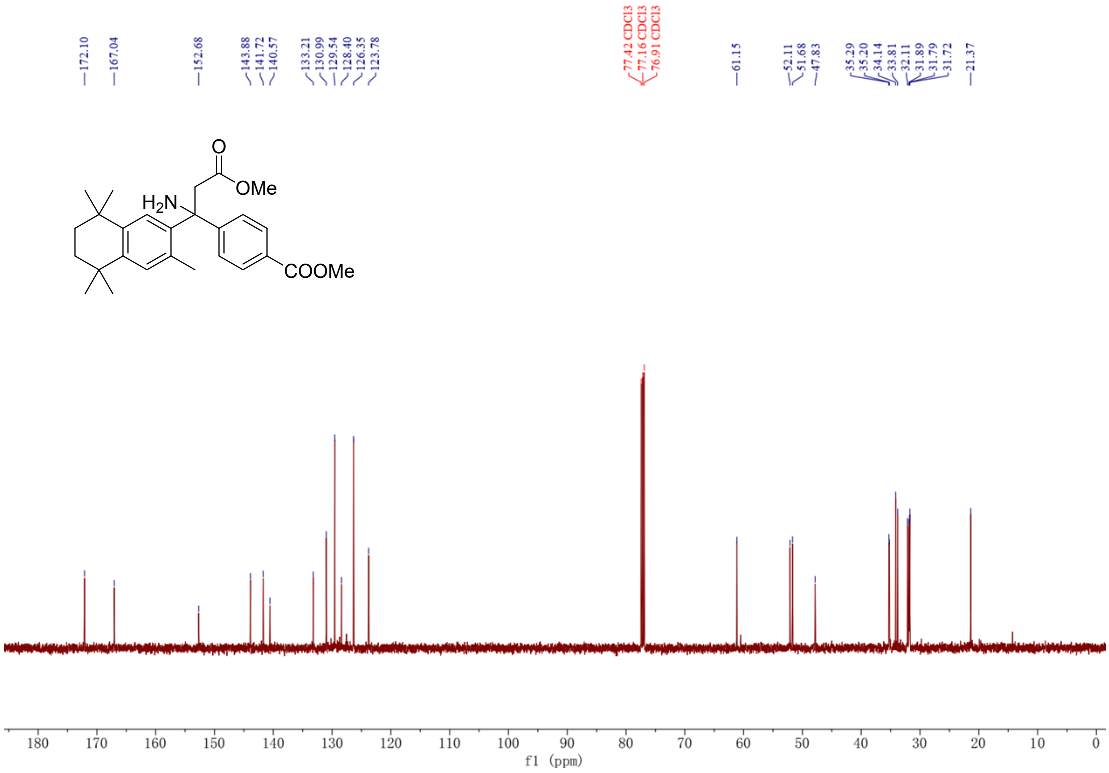
^{1}H NMR of **(3aa)** (500 MHz, $CDCl_3$)



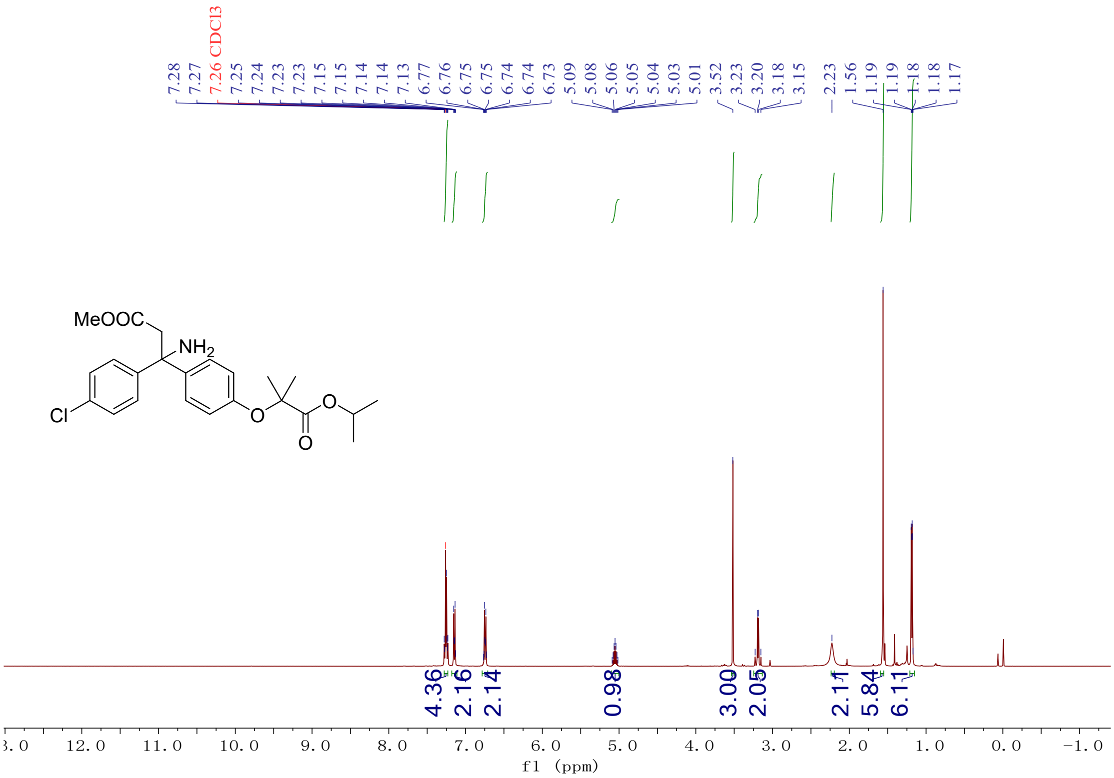
^{13}C NMR of **(3aa)** (126 MHz, $CDCl_3$)



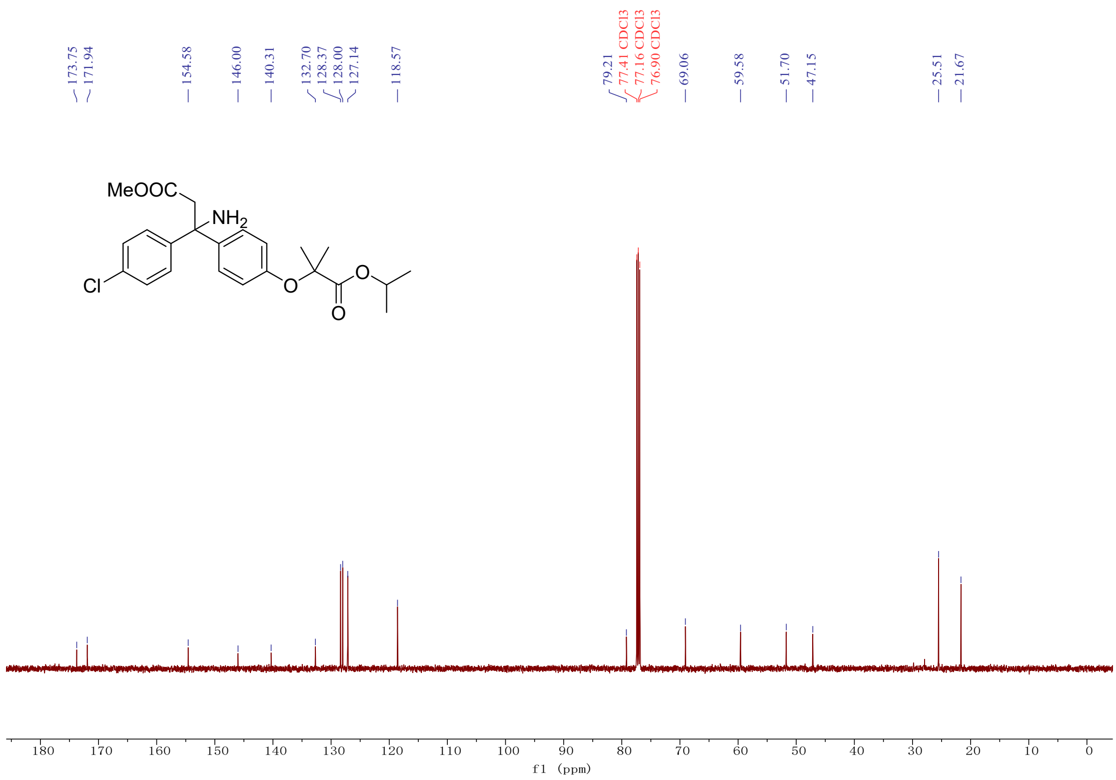
^{1}H NMR of **(3ab)** (500 MHz, $CDCl_3$)



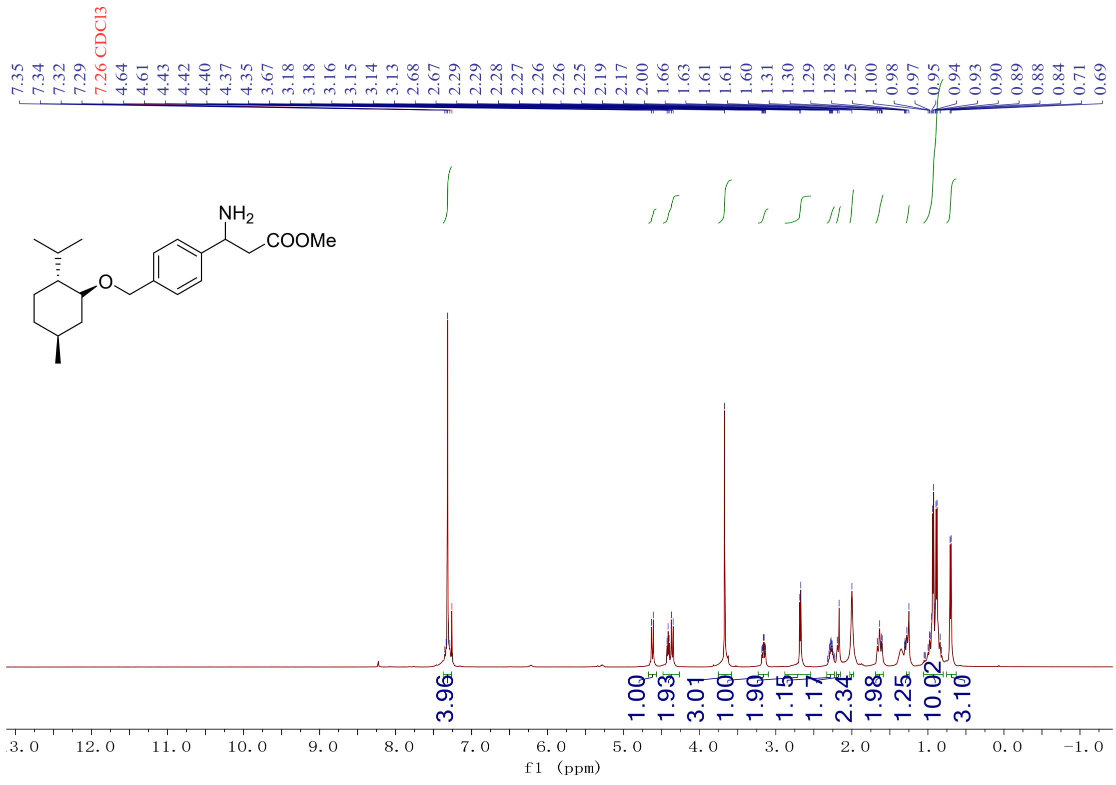
^{13}C NMR of **(3ab)** (126 MHz, $CDCl_3$)



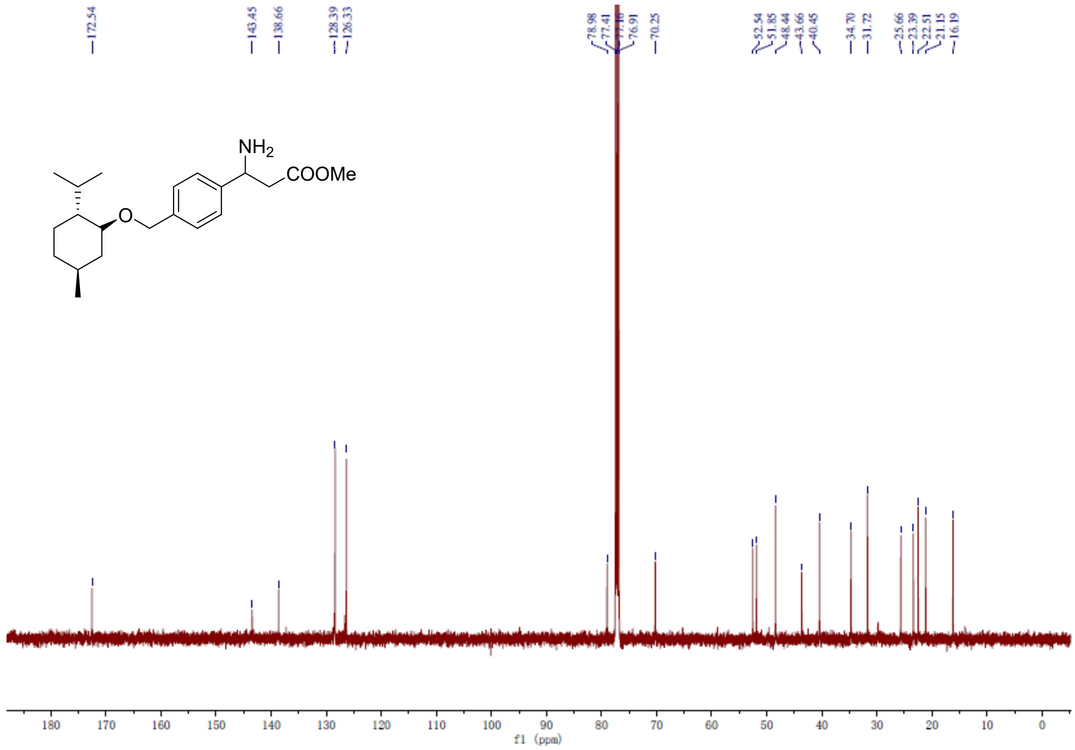
^{1}H NMR of **(3ac)** (500 MHz, $CDCl_3$)



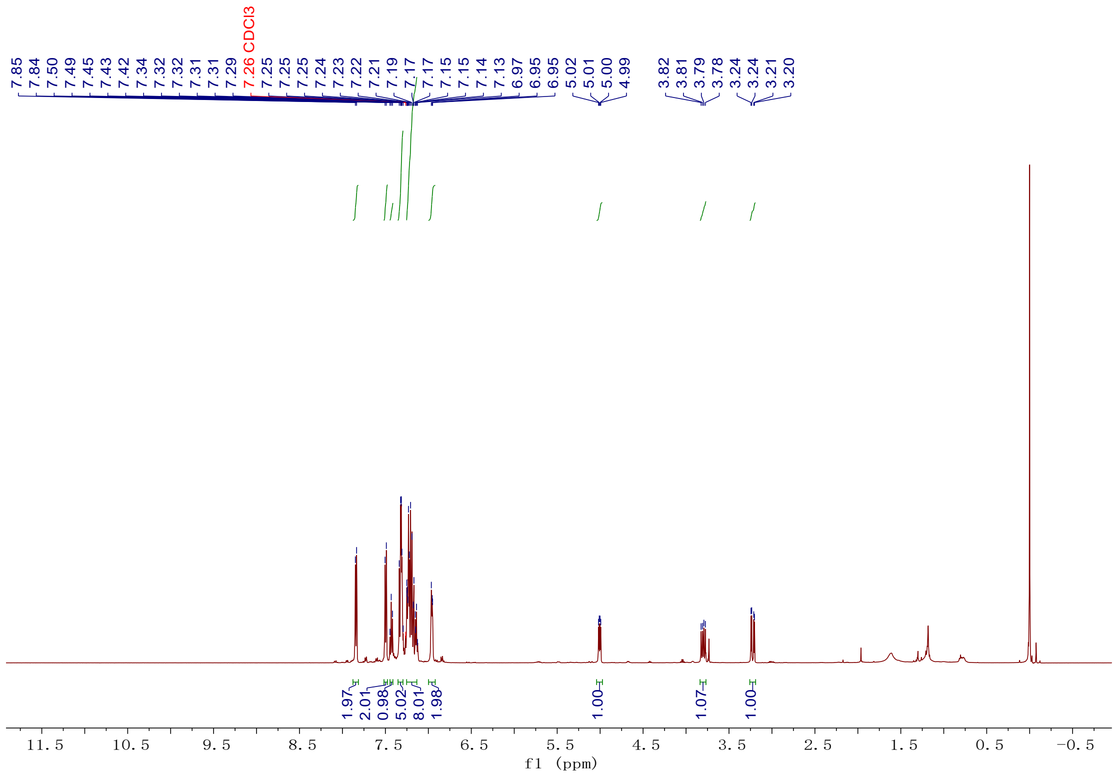
^{13}C NMR of **(3ac)** (126 MHz, $CDCl_3$)



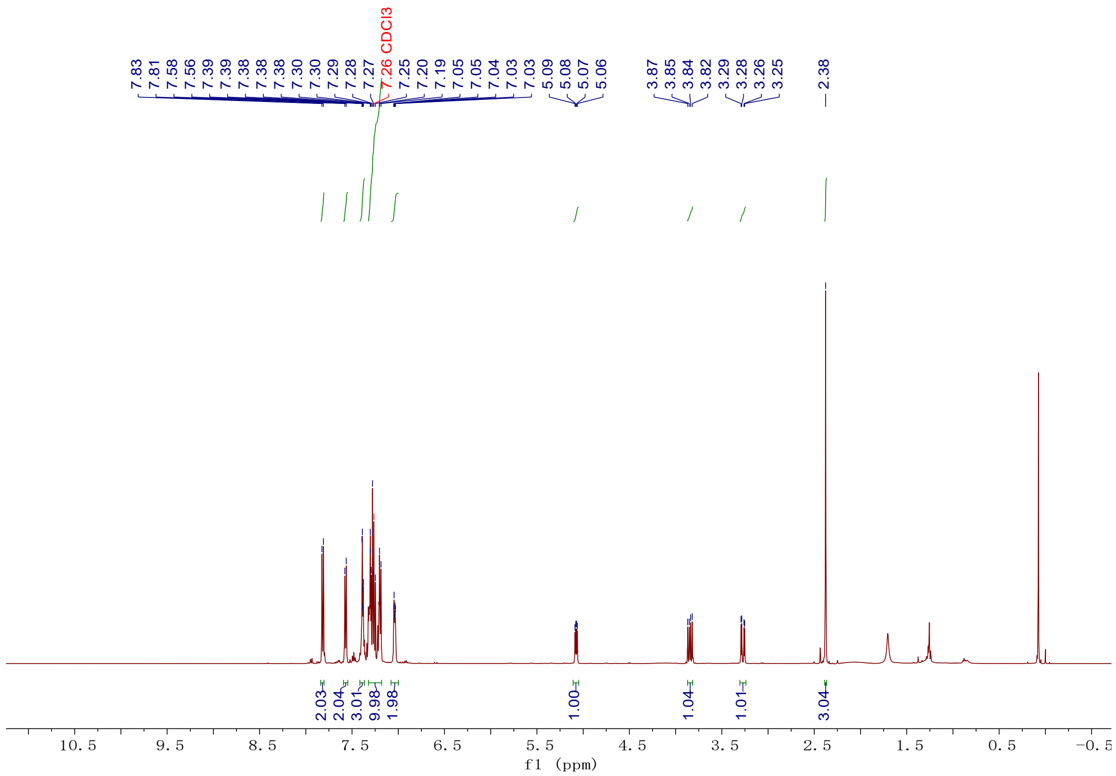
^{1}H NMR of **(3ad)** (500 MHz, $CDCl_3$)



^{13}C NMR of **(3ad)** (126 MHz, $CDCl_3$)



^{1}H NMR of **(3ae)** (500 MHz, $CDCl_3$)



^{1}H NMR of **(3af)** (500 MHz, $CDCl_3$)