Atom-economic and stereoselective catalytic synthesis of fully substituted enol esters/carbonates of amides in acyclic systems enabled by boron Lewis acid catalysis

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Electronic Supplementary Information

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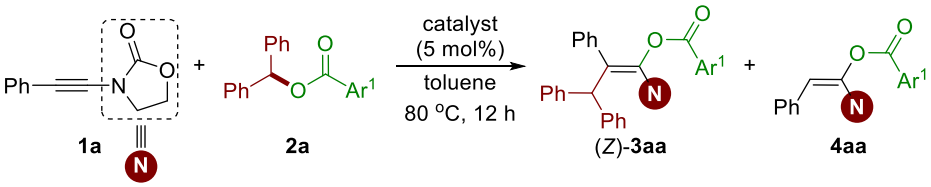
1 General Information

All reactions were performed in flame-dried glassware using conventional Schlenk techniques under a static pressure of nitrogen unless otherwise stated. Liquids and solutions were transferred with syringes. Ynamides[1], esters[2] and carbonates[3] were prepared according to reported procedures. Tris(pentafluorophenyl)borane ($B(C_5F_5)_3$, 98%, *Energy Chemical*) was purchased from commercial suppliers and used as received. Other commercially available reagents were purchased from *Sigma-Adrich*, *Leyan* and *Bide* Chemical Company. Chlorobenzene (PhCl) and Benzotrifluoride ($PhCF_3$) were purchased from *Energy Chemical* (99%, Extra Dry) and used as received. All other solvents (CH_2Cl_2, toluene, and 1,2-dichloroethane *etc*.) were dried and purified following standard procedures. Technical grade solvents for extraction or chromatography (Petroleum ether, CH_2Cl_2, and ethyl acetate) were distilled prior to use. Analytical thin layer chromatography (TLC) was performed on silica gel 60 F254 glass plates by *Merck*. Flash column chromatography was performed on silica gel 60 (40–63 μm, 230–400 mesh, ASTM) by *Grace* using the indicated solvents. ^1H, ^{13}C NMR spectra were recorded in $CDCl_3$ on Bruker AV400 instruments. Chemical shifts are reported in parts per million (ppm) and are referenced to the residual solvent resonance as the internal standard ($CHCl_3$: δ = 7.26 ppm for ^1H NMR and $CDCl_3$: δ = 77.0 ppm for ^{13}C NMR). Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplett, q = quartet, m = multiplet), coupling constants (Hz), and integration. The full-scan mass spectra were taken on a hybrid quadrupole-orbitrap mass spectrometer equipped with a heated electrospray ionization source (ThermoFischer Scientific, Bremen, Germany). X-ray data were taken on a Bruker SMART APEX II X-Ray diffractometer equipped with a large area CCD detector.

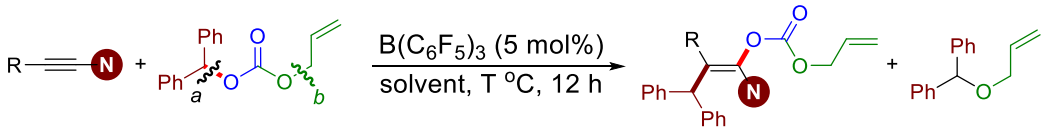
2 Table S1. Optimization of the alkyl acyloxylations of ynamides



entry	catalyst	solvent	conv. (%)[b]	yield of (*Z*)-**3aa** (%)[b]	yield of **4aa** (%)[b]	*Z*/*E* [b]
1	**$B(C_6F_5)_3$**	**toluene**	**100**	**95(88)**	**5**	**>96:4**
2[c]	$B(C_6F_5)_3$	toluene	100	95	5	>96:4
3[d]	$B(C_6F_5)_3$	toluene	94	88	5	95:5
4	$Cu(OTf)_2$	toluene	0	0	0	–
5	$Sc(OTf)_3$	toluene	25	3	10	75:25
6	$Zn(OTf)_2$	toluene	0	0	0	–
7	$ZnCl_2$	toluene	0	0	0	–
8	TfOH	toluene	100	0	15	–
9	$BF_3{\cdot}Et_2O$	toluene	20	12	8	79:21
10	BCl_3	toluene	0	0	0	–
11[e]	$B(C_6F_5)_3$	toluene	100	75	17	92:8
12[f]	$B(C_6F_5)_3$	toluene	100	69	20	92:8
13[g]	$B(C_6F_5)_3$	toluene	13	9	3	90:10
14	$B(C_6F_5)_3$	$PhCF_3$	100	66	25	>96:4
15	$B(C_6F_5)_3$	PhCl	100	73	23	>96:4
16	$B(C_6F_5)_3$	MeCN	0	0	0	–
17	$B(C_6F_5)_3$	DMF	0	0	0	–
18	$B(C_6F_5)_3$	DCE	75	26	38	90:10
19	$B(C_6F_5)_3$	Hexane	40	8	21	80:20
20	$B(C_6F_5)_3$	$MeNO_2$	5	0	5	–
21	$B(C_6F_5)_3$	HFIP	100	4	27	>96:4
22[h]	$B(C_6F_5)_3$	toluene	80	64	8	93:7

[a]Reaction conditions: **1a** (0.24 mmol), **2a** (0.20 mmol), catalyst (5.0 mol %), solvent (2 mL), 80 ℃, under N_2 for 12 h. Abbreviations: Tf = trifluoromethanesulfonyl; DMF = *N*, *N*-Dimethylformamide; DCE = 1,2-dichloroethane. [b]The yields of (*Z*)-**3aa** and *Z*/*E* ratio were determined by ^{1}H NMR spectroscopy using CH_2Br_2 as the internal standard. The number in the parentheses is the isolated yield of (*Z*)-**3aa**. [c]**1a** (0.30 mmol), **2a** (0.20 mmol). [d]**1a** (0.20 mmol), **2a** (0.24 mmol). [e]The reaction was run at 90 ℃. [f]The reaction was run at 100 ℃. [g]The reaction was run at 60 ℃. [h]2.5 mol % catalyst.

3 Table S2. Optimization of the Alkyl Carboacyloxylation of Ynamides



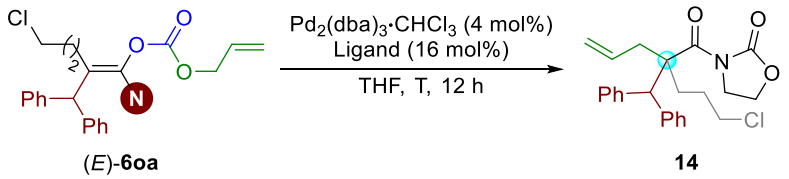
1o **5a** (*E*)-**6oa** **7**

R = $CH_2CH_2CH_2Cl$

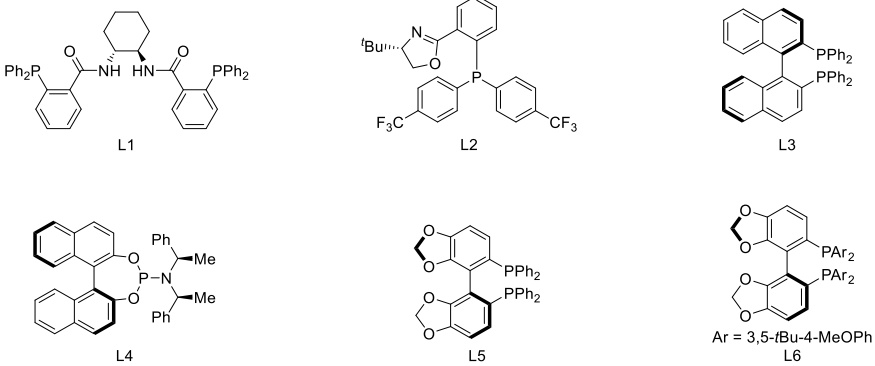
entry	solvent	T (℃)	conv. (%)[b]	yield of (*E*)-**6oa** (%)[b]	yield of **7** (%)[b]	*E*/*Z* [b]
1	toluene	100	100	49	15	60:40
2	toluene	80	100	50	23	69:31
3[c]	toluene	80	100	50	25	67:33
4	toluene	60	100	80	5	84:16
5	toluene	40	97	80	3	84:16
6	toluene	25	97	76	5	83:17
7	PhCl	80	100	72	1	73:27
8	PhCl	60	100	82	3	85:15
9	PhCl	40	100	84	2	86:14
10	PhCl	25	100	90	0	90:10
11	PhCl	10	98	80	2	83:7
12	DCE	25	100	60	35	92:8
13	DCM	25	100	76	17	92:8
14	HFIP	25	100	45	42	>96:4
15	^{i}PrOH	25	93	0	18	-
16	^{t}BuOH	25	74	10	24	78:22
17	PhCl/HFIP(1:1)	25	100	48	13	>96:4
18	PhCl/HFIP(1:4)	25	100	55	10	>96:4
19	PhCl/HFIP(4:1)	25	100	70	19	>96:4
20	PhCl/HFIP(6:1)	25	100	78	21	>96:4
21	**PhCl/HFIP(10:1)**	**25**	**100**	**80(74)**	**17**	**>96:4**
22	PhCl/HFIP(15:1)	25	100	77	17	93:7
23	PhCl/HFIP(20:1)	25	100	80	13	92:8
24[d]	PhCl/HFIP(10:1)	25	100	62	59	>96:4
25[e]	PhCl/HFIP(10:1)	25	100	70	60	>96:4
26[f]	PhCl/HFIP(10:1)	25	100	75	23	>96:4
27[g]	PhCl/HFIP(10:1)	25	100	81	16	>96:4

[a]Reaction conditions: **1o** (0.24 mmol), **5a** (0.20 mmol), catalyst (5.0 mol %), solvent (2 mL), 80 ℃, under N_2 for 12 h. Abbreviations: DCE = 1,2-dichloroethane. [b]The yields of (*E*)-**6oa** and *E*/*Z* ratio were determined by ^{1}H NMR spectroscopy using CH_2Br_2 as the internal standard. The number in the parentheses is the isolated yield of (*E*)-**6oa**. [c]10 mol% catalyst. [d]**1o** (0.20 mmol), **5a** (0.30 mmol). [e]**1o** (0.20 mmol), **5a** (0.40 mmol). [f]**1o** (0.3 mmol), **5a** (0.2 mmol). [g]**1o** (0.4 mmol), **5a** (0.2 mmol).

4 Table S3. Optimization of the Decarboxylative Allylation Reaction



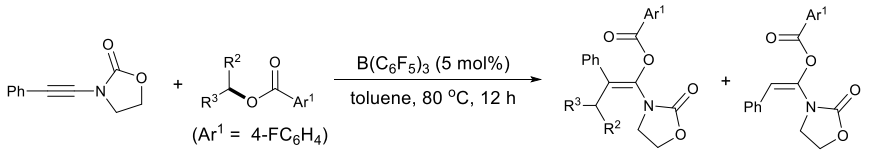
(*E*)-**6oa** **14**



entry	Ligand	T (℃)	conv. (%)[b]	yield of 14 (%)[b]	*er*[c]
1	L1	rt	100	55	59.5:40.5
2	L2	rt	100	93	55:45
3[c]	L3	rt	100	100	78:22
4	L4	rt	100	100	75.5:24.5
5	L5	rt	75	74	81:19
6	L6	rt	100	100	87:13
7	L6	0	100	100	92:8
8	**L6**	**-20**	**97**	**95**	**94.5:5.5**

[a]Reaction conditions: (*E*)-6**oa** (0.24 mmol), $Pa_2(dba)_3$·$CHCl_3$ (4.0 mol %), Ligand (16 mol%), THF (2 mL),under N_2 for 12 h. [b]The yields of **14** was determined by ^1H NMR spectroscopy using Mesitylene as the internal standard. [c]Enantiomeric excess was determined by HPLC.

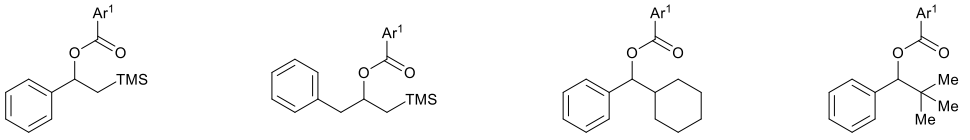
5 Unsuccessful Substrates & More Details About the Scope the Reactions



1a 0.24 mmol

2 0.2 mmol

3 **4aa**

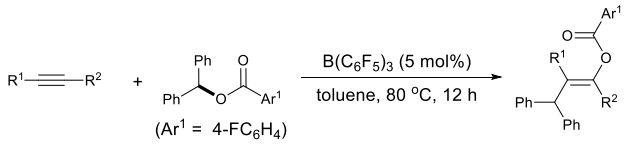


2at
100% conversion of **2at**
3aat, 0% NMR yield
4aa, 27% NMR yield

2au
100% conversion of **2au**
3aau, 0% NMR yield
4aa, 25% NMR yield

2av
10% conversion of **2av**
3aav, 0% NMR yield
4aa, 10% NMR yield

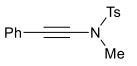
2aw
0% conversion of **2aw**



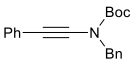
1
0.24 mmol

2a
0.2 mmol

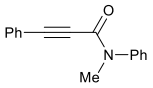
3



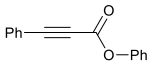
1w
60% conversion of **2a**
complex mixtures



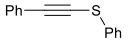
1x
0% conversion of **2a**



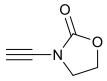
1y
0% conversion of **2a**



1z
0% conversion of **2a**



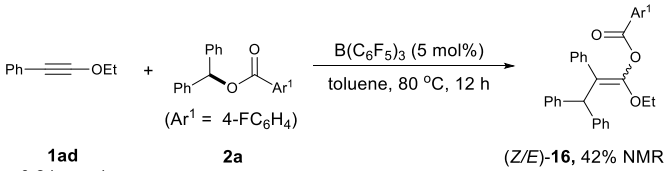
1aa
0% conversion of **2a**



1ab
0% conversion of **2a**

1ac
2% conversion of **2a**
1% NMR yield of C_{sp3}-C_{sp}
cross-coupled product

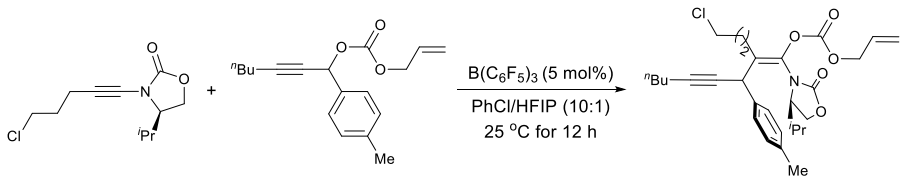
The reactions of other alkynes (**1w-1ac**) with esters **2a** have been examined. When these substrates were tested under the standard alkyl acyloxylations reaction condition (GP1), the ynamide **1w** with **2a** gave complex mixtures. Other alkynes (**1x-1ab**) were all gave results with 0% conversion of **2a**. Subjecting ethynylbenzene (**1ac**) and **2a** to the standard conditions yield a Csp^3-Csp cross-coupled product as reported by Prof. Melen (*J. Am. Chem. Soc.* 2021, **143**, 4451-4464). However, the carboacyloxylation of ynol ether **1ad** with ester **2a** gave the desired product (*Z*/*E*)-**16** in 42% NMR yield.



1ad
0.24 mmol

2a
0.2 mmol

(*Z*/*E*)-**16,** 42% NMR yield
major:minor = 56:44

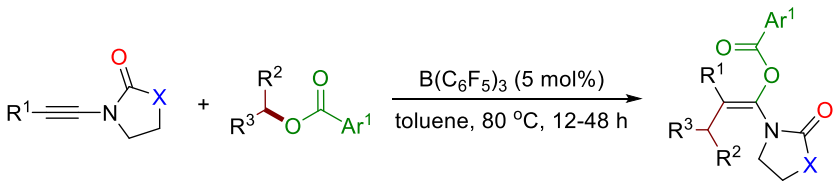


1v

5h

(*E*)-**6vh**
49% yield
dr = 67:33
de = 34%

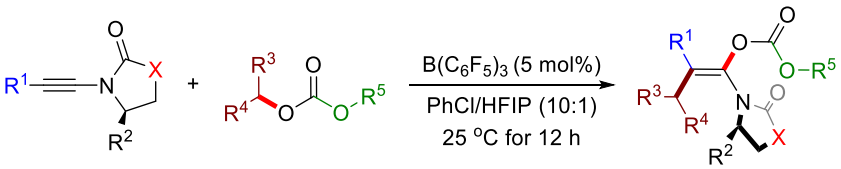
6 General Procedure for the Alkyl Acyloxylations of Ynamides (GP1)



1 2 3

In glove box, to a flame-dried Schlenk tube is charged with the ynamides **1** (0.24 mmol, 1.2 equiv), esters **2** (0.2 mmol), and $B(C_6F_5)_3$ (5.1 mg, 10 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (2 mL). The reaction mixture is stirred at 80 ℃ for 12-48 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. Purification by flash column chromatography using the indicated mixtures of solvents as eluent yields the analytical pure fully substituted acyclic enol esters **3**.

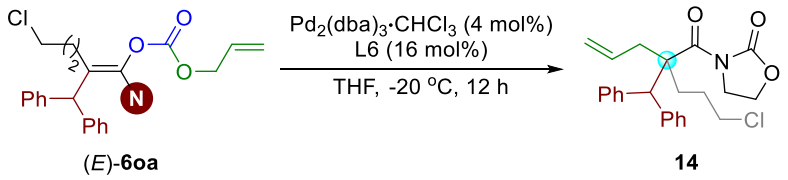
7 General Procedure for the Alkyl Carboacyloxylation of Ynamides (GP2)



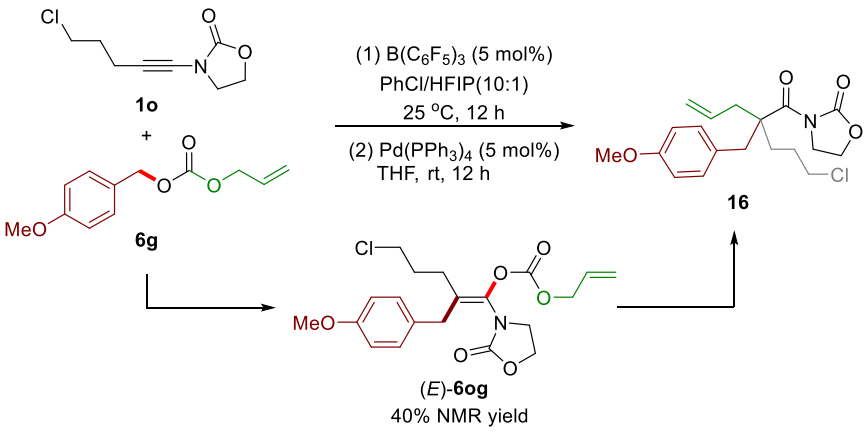
1 5 6

In glove box, to a flame-dried Schlenk tube is charged with the ynamides **1** (0.24 mmol, 1.2 equiv), $B(C_6F_5)_3$ (5.1 mg, 10 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the PhCl/HFIP (1 mL), then the carbonates were dissolved in PhCl/HFIP (1 mL) and added to the reaction tube at ambient temperature. The reaction mixture is stirred at 25 ℃ for 12 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. Purification by flash column chromatography using the indicated mixtures of solvents as eluent yields the analytical pure carboacyloxylation products **6**.

8 Procedure for the Decarboxylative Allylic Alkylation



To a solution of $Pd_2(dba)_3{\cdot}CHCl_3$ (8.2 mg, 8 μmol, 4 mol%) in THF (1 mL) at room temperature was added **L6** ligand (36.6 mg, 32 μmol, 16 mol%) and the mixture was stirred for 1 h. This solution was then cooled to -20 ℃ and transferred via cannula to a flask containing of (*E*)-**6oa** (91.2 mg, 0.2 mmol, 1.0 equiv) in THF (1 mL). The reaction mixture was then stirred at the same temperature for 12 h. A saturated aqueous solution of brine was then added and the aqueous phase was extracted with EtOAc (3 x 2 mL). The combined organic phases were washed with brine, dried over anhydrous $MgSO_4$, filtered and evaporated under reduced pressure to afford a crude residue, which was purified by flash chromatography on silica gel using petroleum ether/EtOAc (10/1) afforded **14** as a white solid (72.5 mg, 88% yield).

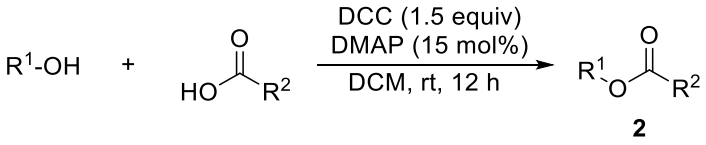


Synthesis of (16): In glove box, to a flame-dried Schlenk tube is charged with the 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one **1o** (45.0 mg, 0.24 mmol, 1.2 equiv), $B(C_6F_5)_3$ (5.1 mg, 5 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the PhCl/HFIP (1 mL), then, the allyl (4-methoxybenzyl) carbonate (44.4 mg, 0.2 mmol, 1.0 equiv) was dissolved in PhCl/HFIP (1 mL) and added to the reaction tube at ambient temperature The reaction mixture is stirred at 25 ℃ for 12 h. Evaporation of the solvents under

reduced pressure and filtered through a short silica gel column using petroleum ether/ EtOAc (5/1) afforded crude mixture (*E*)-**6og** which was used in decarboxylative allylic alkylation (**Note:** Product (*E*)-**6og** was obtained along with a trace amount of unidentified mixtures; 40% NMR yield of (*E*)-**6og** was estimated by ^{1}HNMR spectroscopy).

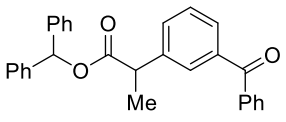
To a flame-dried Schlenk tube is charged with the crude mixture (*E*)-**6og**, $Pd(PPh_3)_4$ (11.5 mg, 10 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the THF (2 mL), then the reaction mixture is stirred at 25 ℃ for 12 h. After removal of the solvent, the residue was purification by flash chromatography on silica gel using petroleum ether/ EtOAc (10/1) afforded **16** as a colorless oil (23.4 mg, 32% yield)

9 General Procedure for the Synthesis of Esters 2u-2ab (GP3)



2

Acid (1.2 equiv), 4-dimethylaminopyridine (DMAP, 15 mol%) and dicyclohexylcarbodiimide (DCC, 1.5 equiv) were dissolved in dichloromethane and stirred at rt for 10 min. Alcohol (1.0 equiv) was slowly added to the reaction mixture that was then stirred at rt for 12 h. The resulting precipitate was removed by filtration. The filtrate was evaporated under reduced pressure. The crude residue was purified by flash column chromatography to give esters **2**.



2u

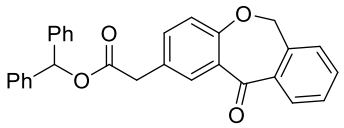
$C_{29}H_{24}O_3$

M = 420.51 g/mol

Benzhydryl 2-(3-benzoylphenyl)propanoate: (**2u**) Prepared from diphenylmethanol (368.5 mg, 2 mmol, 1.0 equiv) and 2-(3-benzoylphenyl)propanoic acid (610.3 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel

using petroleum ether/EtOAc (20/1) afforded **2u** as a white solid (832.5 mg, 99% yield).

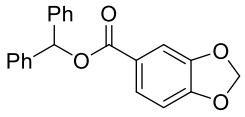
R_f = 0.60 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.73-7.67 (m, 4H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.50 (d, *J* = 7.6 Hz, 1H), 7.43 (t, *J* = 7.0 Hz, 3H), 7.32-7.17 (m, 8H), 7.13-7.07 (m, 2H), 6.84 (s, 1H), 3.91 (q, *J* = 7.2 Hz, 1H), 1.55 (d, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 196.3, 172.7, 140.5, 140.0, 139.9, 138.0, 137.5, 132.4, 131.6, 130.0, 129.3, 128.9, 128.53, 128.47, 128.34, 128.26, 127.9, 127.8, 127.1, 126.7, 77.3, 45.6, 18.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{29}H_{24}O_3Na$: 443.1623; found: 443.1622.



2v
$C_{29}H_{22}O_4$
M = 434.49 g/mol

Benzhydryl 2-(11-oxo-6,11-dihydrodibenzo[*b*,*e*]oxepin-2-yl)acetate: (**2v**) Prepared from diphenylmethanol (368.5 mg, 2 mmol, 1.0 equiv) and 2-(11-oxo-6,11-dihydrodibenzo[*b*,*e*]oxepin-2-yl)acetic acid (643.8 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (30/1) afforded **2v** as a white solid (832.5 mg, 99% yield).

R_f = 0.60 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.15 (d, J = 1.2 Hz, 1H), 7.89 (d, *J* = 7.6 Hz, 1H), 7.56 (t, *J* = 7.2 Hz, 1H), 7.47 (t, *J* = 7.6 Hz, 1H), 7.42-7.35 (m, 2H), 7.33-7.23 (m, 10H), 7.01 (d, *J* = 8.4 Hz, 1H), 6.88 (s, 1H), 5.18 (s, 2H), 3.75 (s, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 190.8, 170.3, 160.5, 140.4, 139.9, 136.4, 135.5, 132.7, 132.6, 129.5, 129.3, 128.5, 127.9, 127.8, 127.5, 127.0, 125.1, 121.0, 77.4, 73.6, 40.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. For $C_{29}H_{22}O_4Na$: 457.1416; found: 457.1417.



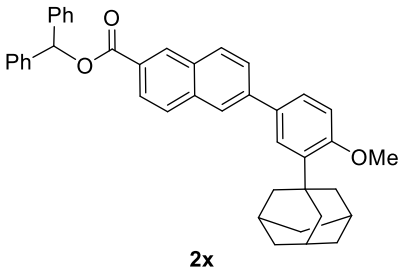
2w

$C_{21}H_{16}O_4$

M = 332.36 g/mol

Benzhydryl benzo[*d*][1,3]dioxole-5-carboxylate: (**2w**) Prepared from diphenylmethanol (368.5 mg, 2 mmol, 1.0 equiv) and benzo[*d*][1,3]dioxole-5-carboxylic acid (398.7 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (30/1) afforded **2w** as a white solid (651.4 mg, 98% yield).

R_f = 0.60 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (d, *J* = 8.0 Hz, 1H), 7.55 (s, 1H), 7.41 (d, *J* = 7.6 Hz, 4H), 7.34 (t, *J* = 7.4 Hz, 4H), 7.29-7.23 (m, 2H), 7.08 (s, 1H), 6.84 (d, *J* = 8.4 Hz, 1H), 6.00 (s, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.8, 151.8, 147.8, 140.3, 128.5, 127.9, 127.1, 125.6, 124.2, 109.6, 108.0, 101.8, 77.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{21}H_{16}O_4Na$: 355.0947; found: 355.0946.



2x

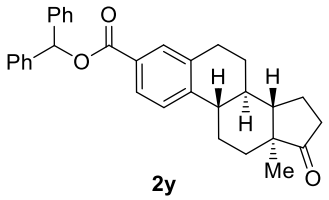
$C_{41}H_{38}O_3$

M = 578.75 g/mol

Benzhydryl 6-(3-(adamantan-1-yl)-4-methoxyphenyl)-2-naphthoate: (**2x**) Prepared from diphenylmethanol (368.5 mg, 2 mmol, 1.0 equiv) and 6-(3-(adamantan-1-yl)-4-methoxyphenyl)-2-naphthoic acid (990.1 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (20/1) afforded **2x** as a white solid (651.4 mg, 98% yield).

R_f = 0.55 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.70 (s, 1H), 8.15 (d, *J* = 8.8 Hz, 1H), 8.00 (d, *J* = 9.2 Hz, 2H), 7.92 (d, *J* = 8.4 Hz, 1H), 7.80 (d, *J*

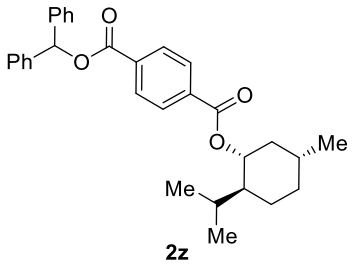
= 8.4 Hz, 1H), 7.60 (s, 1H), 7.56-7.46 (m, 5H), 7.38 (t, *J* = 7.4 Hz, 4H), 7.30 (t, *J* = 7.4 Hz, 2H), 7.20 (s, 1H), 6.99 (d, *J* = 8.4 Hz, 1H), 3.90 (s, 3H), 2.19 (s, 6H), 2.10 (s, 3H), 1.81 (s, 6H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.8, 159.0, 141.5, 140.4, 139.0, 136.1, 132.5, 131.3, 131.1, 129.7, 128.6, 128.3, 128.0, 127.2, 127.0, 126.5, 126.0, 125.7, 125.69, 124.7, 112.2, 77.5, 55.2, 40.7, 37.3, 37.2, 29.1 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{41}H_{38}O_3Na$: 601.2719; found: 601.2708.



2y
$C_{32}H_{32}O_3$
M = 464.61 g/mol

Benzhydryl (8*R*,9*S*,13*S*,14*S*)-13-methyl-17-oxo-7,8,9,11,12,13,14,15,16,17-decahydro-6*H*-cyclopenta[*a*]phenanthrene-3-carboxylate: (**2y**) Prepared from diphenylmethanol (368.5 mg, 2 mmol, 1.0 equiv) and (8*R*,9*S*,13*S*,14*S*)-13-methyl-17-oxo-7,8,9,11,12,13,14,15,16,17-decahydro-6*H*-cyclopenta[*a*]phenanthrene-3-carboxylic acid (716.1 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (20/1) afforded **2y** as a white solid (557.5 mg, 60% yield).

R_f = 0.50 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.91 (d, *J* = 8.4 Hz, 1H), 7.85 (s, 1H), 7.42 (d, *J* = 7.2 Hz, 4H), 7.34(t, *J* = 7.8 Hz, 5H), 7.29-7.24 (m, 2H), 7.11 (s, 1H), 3.00-2.89 (m, 2H), 2.56-2.40 (m, 2H), 2.33 (t, *J* = 10.6 Hz, 1H), 2.19-1.96 (m, 4H), 1.76-1.36 (m, 6H), 0.91 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.6, 145.4, 140.4, 136.8, 130.4, 128.5, 127.9, 127.13, 127.11, 127.07, 125.5, 77.2, 50.5, 47.8, 44.7, 37.8, 35.8, 31.6, 29.2, 26.2, 25.6, 21.7, 13.8 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{32}O_3Na$: 487.2249; found: 487.2251.



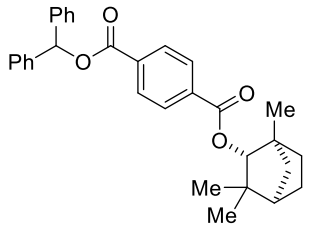
2z

$C_{31}H_{34}O_4$

M = 470.61 g/mol

Benzhydryl ((1*R*,2*S*,5*R*)-2-isopropyl-5-methylcyclohexyl) terephthalate: (**2z**) Prepared from (1*R*,2*S*,5*R*)-2-isopropyl-5-methylcyclohexan-1-ol (312.5 mg, 2 mmol, 1.0 equiv) and (4-((benzhydryloxy)carbonyl)benzoic acid (797.7 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (30/1) afforded **2z** as a colorless oil (665.4 mg, 70% yield).

R_f = 0.65 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.19 (d, *J* = 8.4 Hz, 2H), 8.12 (d, *J* = 8.4 Hz, 2H), 7.43 (d, *J* = 7.2 Hz, 4H), 7.35 (t, *J* = 7.2 Hz, 4H), 7.32-7.26 (m, 2H), 7.13 (s, 1H), 4.99-4.92 (m, 1H), 2.14 (d, *J* = 12.0 Hz, 1H), 1.98-1.88 (m, 1H), 1.73 (d, *J* = 12.0 Hz, 2H), 1.59-1.53 (m, 2H), 1.18-1.07 (m, 2H), 0.98-0.90 (m, 7H), 0.80 (d, *J* = 6.8 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.2, 164.8, 140.0, 134.9, 133.8, 129.7, 129.6, 128.6, 128.0, 127.1, 77.9, 75.5, 47.3, 40.9, 34.3, 31.4, 26.6, 23.7, 22.0, 20.7, 16.6 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{34}O_4Na$: 493.2355; found: 493.2358.



2aa

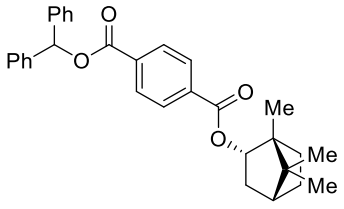
$C_{31}H_{32}O_4$

M = 468.59 g/mol

Benzhydryl (1,3,3-trimethylbicyclo[2.2.1]heptan-2-yl) terephthalate: (**2aa**) Prepared from 1,3,3-trimethylbicyclo[2.2.1]heptan-2-ol (308.5 mg, 2 mmol, 1.0 equiv) and (4-((benzhydryloxy)carbonyl)benzoic acid (797.7 mg, 2.4 mmol, 1.2 equiv) according to

the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (30/1) afforded **2aa** as a colorless oil (871.6 mg, 93% yield).

R_f = 0.60 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.22 (d, *J* = 8.4 Hz, 2H), 8.14 (d, *J* = 8.0 Hz, 2H), 7.44 (d, *J* = 8.0 Hz, 4H), 7.37 (t, *J* = 7.4 Hz, 4H), 7.31 (d, *J* = 6.8 Hz, 2H), 7.13 (s, 1H), 4.64 (s, 1H), 1.95-1.88 (m, 1H), 1.79-1.75 (m, 2H), 1.67 (d, *J* = 10.4 Hz, 1H), 1.60-1.47 (m, 2H), 1.27 (d, *J* = 10.4 Hz, 1H), 1.19 (s, 3H), 1.11 (s, 3H), 0.84 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0, 164.8, 139.9, 134.6, 133.8, 129.8, 129.5, 128.6, 128.1, 127.1, 87.2, 77.9, 48.6, 48.4, 41.4, 39.9, 29.7, 26.8, 25.9, 20.3, 19.5 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{32}O_4Na$: 491.2199; found: 491.2199.

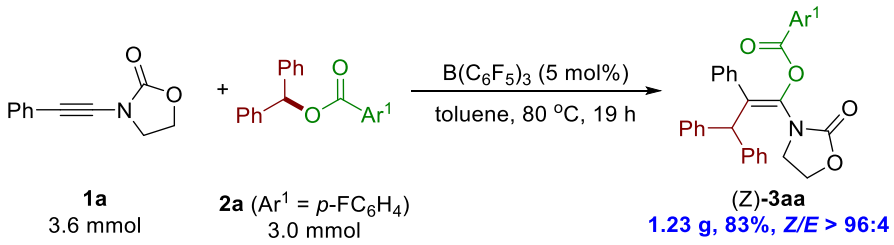


2ab
$C_{31}H_{32}O_4$
M = 468.59 g/mol

Benzhydryl ((1*R*,2*S*,4*R*)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-yl) terephthalate: (**2ab**) Prepared from (1*R*,2*S*,4*R*)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-ol (308.5 mg, 2 mmol, 1.0 equiv) and (4-((benzhydryloxy)carbonyl)benzoic acid (797.7 mg, 2.4 mmol, 1.2 equiv) according to the **GP3**. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (30/1) afforded **2ab** as a colorless oil (851.1 mg, 91% yield).

R_f = 0.60 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.21 (d, *J* = 8.0 Hz, 2H), 8.14 (d, *J* = 8.4 Hz, 2H), 7.44 (d, *J* = 7.2 Hz, 4H), 7.36 (t, *J* = 7.4 Hz, 4H), 7.30 (t, *J* = 7.0 Hz, 2H), 7.13 (s, 1H), 5.14 (d, *J* = 9.6 Hz, 1H), 2.53-2.45 (m, 1H), 2.15-2.07 (m, 1H), 1.85-1.73 (m, 2H), 1.46-1.38 (m, 1H), 1.34-1.28 (m, 1H), 1.13 (dd, *J* = 13.6, 3.2 Hz, 1H), 0.97 (s, 3H), 0.92 (s, 6H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.9, 164.8, 139.9, 134.8, 133.8, 129.7, 129.5, 128.6, 128.1, 127.1, 81.1, 77.9, 49.1, 47.9, 44.9, 36.8, 28.0, 27.3, 19.7, 18.9, 13.6 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{32}O_4Na$: 491.2199; found: 491.2200.

10 Scale-Up Experiment

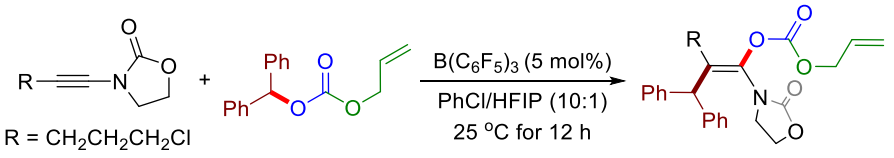


1a
3.6 mmol

2a (Ar^1 = *p*-FC_6H_4)
3.0 mmol

(Z)-**3aa**
1.23 g, 83%, *Z*/*E* > 96:4

In glove box, to a flame-dried Schlenk tube is charged with the 3-(phenylethynyl)oxazolidin-2-one **1a** (673.9 mg, 3.6 mmol, 1.2 equiv), benzhydryl 4-fluorobenzoate **2a** (919.0 mg, 3.0 mmol, 1.0 equiv) and $B(C_6F_5)_3$ (76.8 mg, 0.15 mmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (30 mL). The reaction mixture is stirred at 80 ℃ for 19 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aa** as a white solid (1.23 g, 83% yield, *Z*:*E* > 96:4).



R = $CH_2CH_2CH_2Cl$

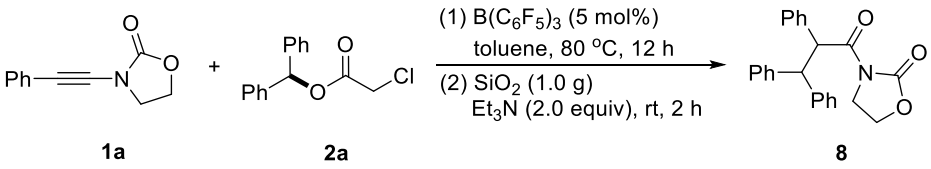
1o
1.2 mmol

5a
1.0 mmol

(*E*)-**6oa**
378.0 mg, 83%, *E*/*Z* >96:4

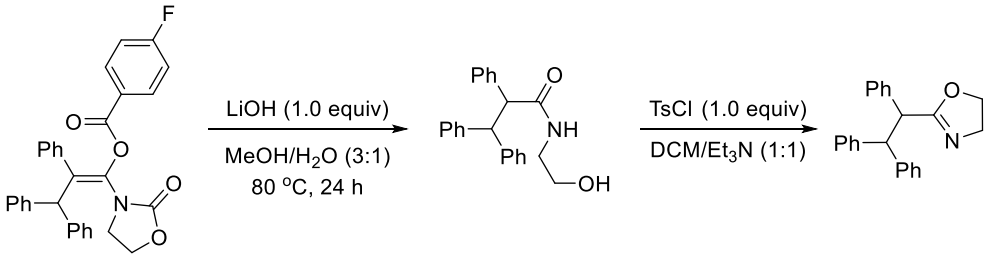
In glove box, to a flame-dried Schlenk tube is charged with the 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one **1o** (225.1 mg, 1.2 mmol, 1.2 equiv), $B(C_6F_5)_3$ (25.6 mg, 50 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the PhCl/HFIP (5 mL), then, the carbonates were dissolved in PhCl/HFIP (5 mL) and added to the reaction tube at ambient temperature The reaction mixture is stirred at 25 ℃ for 12 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oa** as a white solid (378.0 mg, 83% yield, *E*:*Z* > 96:4).

11 Synthetic Transformations



1a **2a** **8**

Synthesis of (8): In glove box, to a flame-dried Schlenk tube is charged with the 3-(phenylethynyl)oxazolidin-2-one **1a** (44.9 mg, 0.2 mmol, 1.2 equiv), benzhydryl 2-chloroacetate **2a** (52.1 mg, 0.2 mmol, 1.0 equiv) and $B(C_6F_5)_3$ (5.1 mg, 10 μmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (2 mL). The reaction mixture is stirred at 80 ℃ for 12 h. After cooling down to room temperature, silica power (1.0 g) and Et_3N (40.5 mg, 0.4 mmol, 2.0 equiv) was added sequentially. The resulting mixture was stirred at room temperature for 2 hours. Then the resulting solution was directly filtered through a pad of silica by EtOAc. The solvent was evaporated in vacuum to give the crude product. Purification by flash chromatography on silica gel using petroleum ether/ EtOAc (10/1 to 5/1) afforded **8** as a colorless oil (68.3 g, 92% yield).

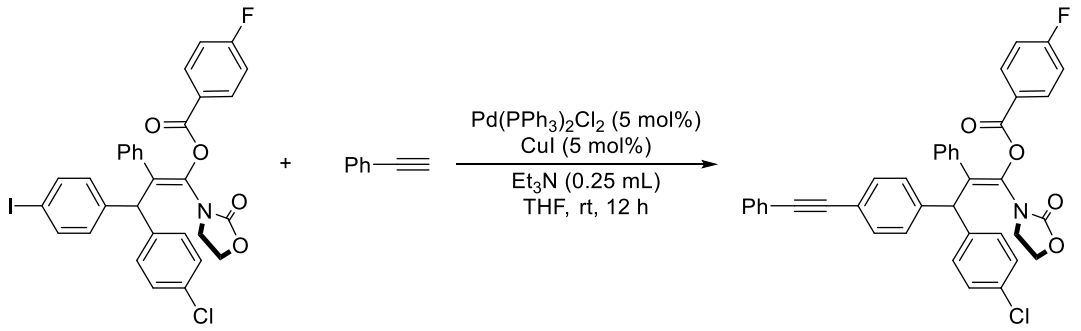


(*Z*)-**3aa** **9** **10**

Synthesis of (9): Compound (*Z*)-**3aa** (49.4 mg, 0.1 mmol, 1.0 equiv), LiOH (2.4 mg, 0.1 mmol, 1.0 equiv) and $MeOH/H_2O$ (300 μL/100 μL) were added into a 10 mL glass vial, and the vial was sealed with a PTFE cap. The reaction mixture was stirred at room temperature for 10 min, then heated at 80 ℃ for 24 hours. After being cooled to room temperature, the mixture was filtered through a pad of celite and concentrated in vacuo. The residue was diluted with EtOAc (5 mL) and washed with $NaHCO_3$ (5 mL×2) and brine (5 mL), dried over Na_2SO_4 and concentrated in vacuo. The resulting

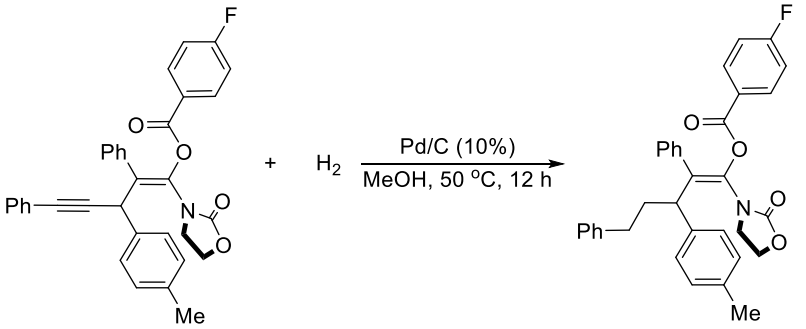
residue was purification by flash chromatography on silica gel using petroleum ether/ EtOAc (3/1) afforded **9** as a colorless oil (24.5 mg, 71% yield).

Synthesis of (10): To a solution of **9** (34.5 mg, 0.1 mmol, 1.0 equiv) in anhydrous dichloromethane (1 mL) and Et_3N (1 mL) was added *p*-toluenesulfonylchloride (19.1 mg, 0.1 mmol, 1.0 equiv). After the reaction mixture was refluxed for 24 h, the solvent was evaporated. To the residue was added water (2 mL), and the aqueous layer was extracted with dichloromethane (3 × 3 mL). The combined organic layer was washed with brine and dried over anhydrous Na_2SO_4. After removal of the solvent, the residue was purification by flash chromatography on silica gel using petroleum ether/ EtOAc (5/1) afforded **10** as a colorless oil (20.2 mg, 61% yield).



(*Z*)-**3aaf** **11**

Synthesis of (11): To an oven-dried sealed tube were added (*Z*)-**3aaf** (57.2 mg, 0.1 mmol, 1.0 equiv), $PdCl_2(PPh_3)_2$ (3.5 mg, 5 μmol, 5 mol%), CuI (1.0 mg, 5 μmol, 5 mol%), DMF (1.5 mL), phenylacetylene (12.3 mg, 0.12 mmol, 1.2 equiv) and NEt_3 (0.25 mL) in sequence. The reaction mixture was stirred at room temperature for 12 h, After consumption of the starting material, the mixture was filtered through a pad of celite and concentrated in vacuo. The residue was diluted with EtOAc (5 mL) and washed with $NaHCO_3$ and brine, dried over Na_2SO_4 and concentrated in vacuo. Purification by flash chromatography on silica gel using petroleum ether/ EtOAc (10/1) afforded **11** as a colorless oil (53.3 mg, 85% yield, *Z/E* = 89:11).



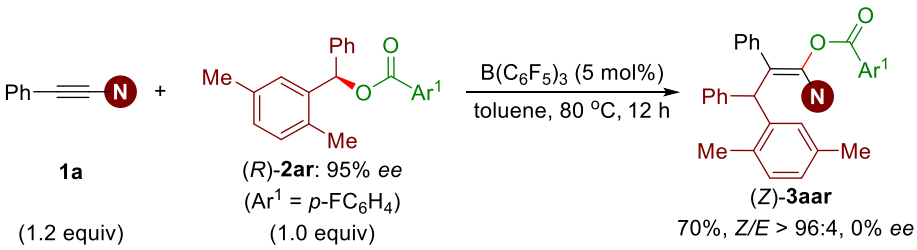
(*Z*)-**3aan** (*Z*)-**12**

Synthesis of ((*Z*)-12): (Z)-**3aan** (53.2 mg, 0.1 mmol) was reduced to (*Z*)-**12** in the presence of Pd/C (10.6 mg) in MeOH (2 mL) under H_2 (1 atm) at 50 ℃ and stirred for 12 h. The resulting mixture was filtered through a Celite pad and concentrated in vacuo. The residue was purified by flash chromatography on silica gel using petroleum ether/ EtOAc (10/1) afforded (*Z*)-**12** as a colorless oil (48.3 mg, 90% yield, *Z/E* > 96:4).

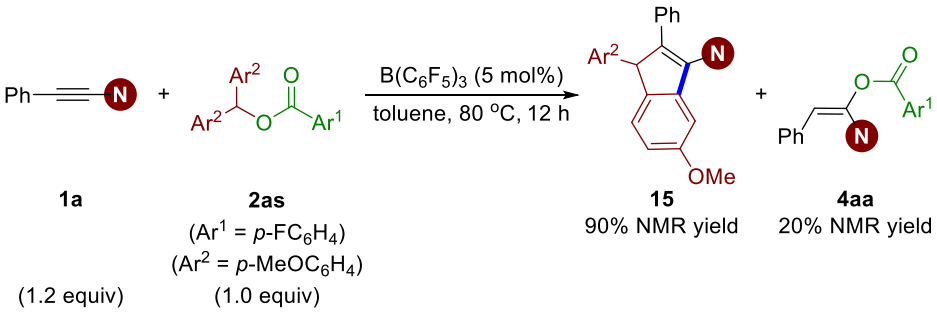
(*Z*)-**3aan** (*Z*)-**13**

Synthesis of ((*Z*)-13): An oven dried, screw cap equipped reaction vial with a magnetic stir bar was charged with (*Z*)-**3aan** (53.2 mg, 0.1 mmol, 1.0 equiv), B_2pin_2 (30.5 mg, 0.12 mmol. 1.2 equiv), P(*o*-Tol)$_3$ (3.0 mg, 0.01 mmol, 10 mol%), H_2O (9.0 mg, 0.5 mmol, 5 equiv) and $Pd(OAc)_2$ (1.1 mg, 5 μmol, 5 mol%). The reaction mixture was then dissolved in toluene solvent (1.0 mL) and stirred at 80 ℃ for 12 h. The crude mixture was then filtered through a pad of celite and then concentrated. The residue was purified by flash chromatography on silica gel using petroleum ether/ EtOAc (10/1) afforded (*Z*)-**13** as a colorless oil (36.2 mg, 68% yield, *Z/E* > 96:4).

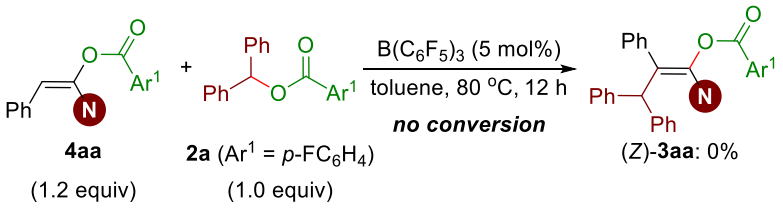
12 Mechanistic Control Experiments



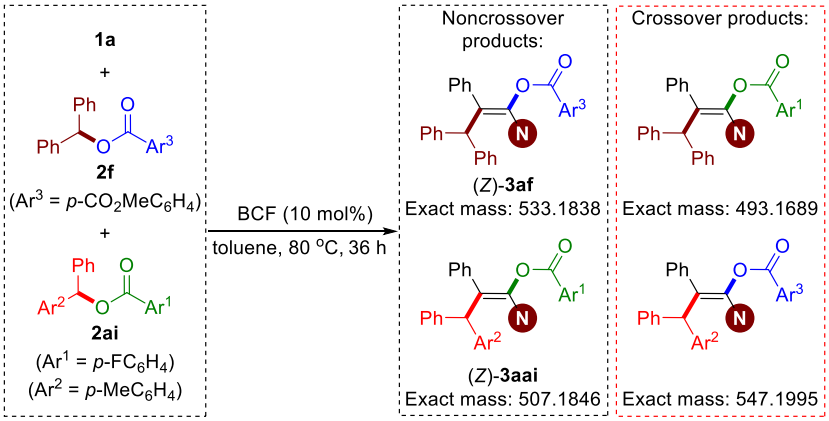
In glove box, to a flame-dried Schlenk tube is charged with the 3-(phenylethynyl)oxazolidin-2-one **1a** (44.9 mg, 0.24 mmol, 1.2 equiv), (*R*)-(2,5-dimethylphenyl)(phenyl)methyl 4-fluorobenzoate (*R*)-**2ar** (66.9 mg, 0.2 mmol, 1.0 equiv, 95% *ee*) and $B(C_6F_5)_3$ (5.1 mg, 0.01 mmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (2 mL). The reaction mixture is stirred at 80 ℃ for 12 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aar** as a white solid (73.0 mg, 70% yield, *Z*:*E* > 96:4, 0% *ee*).



In glove box, to a flame-dried Schlenk tube is charged with the 3-(phenylethynyl)oxazolidin-2-one **1a** (44.9 mg, 0.24 mmol, 1.2 equiv), bis(4-methoxyphenyl)methyl 4-fluorobenzoate **2as** (73.3 mg, 0.2 mmol, 1.0 equiv) and $B(C_6F_5)_3$ (5.1 mg, 0.01 mmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (2 mL). The reaction mixture is stirred at 80 ℃ for 12 h. Evaporation of the solvents under reduced pressure afforded the crude title compound (the NMR yield was determined by ^1H NMR spectroscopy of the crude reaction mixture with CH_2Br_2 as an internal standard). Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded **15** as a white solid (64.5 mg, 78%).



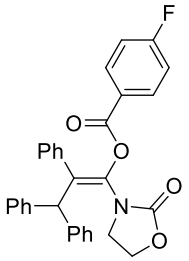
In glove box, to a flame-dried Schlenk tube is charged with the (*E*)-1-(2-oxooxazolidin-3-yl)-2-phenylvinyl 4-fluorobenzoate **4aa** (78.6 mg, 0.24 mmol, 1.2 equiv), benzhydryl 4-fluorobenzoate **2a** (61.3 mg, 0.2 mmol, 1.0 equiv) and $B(C_6F_5)_3$ (5.1 mg, 0.01 mmol, 5 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (2 mL). The reaction mixture is stirred at 80 ℃ for 12 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. The yield of products are determined by ^1H NMR analysis with CH_2Br_2 as the internal standard.



Mass	533	507	493	547
Relative Abundance	35.45%	57.75%	3.37%	3.43%

In glove box, to a flame-dried Schlenk tube is charged with the 3-(phenylethynyl)oxazolidin-2-one **1a** (74.9 mg, 0.4 mmol, 2.0 equiv), benzhydryl methyl terephthalate **2f** (69.3 mg, 0.2 mmol, 1.0 equiv), phenyl(p-tolyl)methyl 4-fluorobenzoate **2ai** (64.1 mg, 0.2 mmol, 1.0 equiv) and $B(C_6F_5)_3$ (10.2 mg, 0.02 mmol, 10 mol%). The tube is evacuated and backfilled with N_2 (3 times) followed by the addition of the toluene (4 mL). The reaction mixture is stirred at 80 ℃ for 36 h. Evaporation of the solvents under reduced pressure afforded the crude title compound. The crude mixture solution was then measured by ESI-MS.

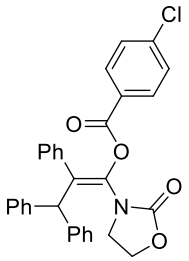
13 Characterization Data of the Products



(*Z*)-**3aa**
$C_{31}H_{24}FNO_4$
M = 493.53 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aa**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aa** as a white solid (86.9 mg, 88% yield, *Z*:*E* > 96:4).

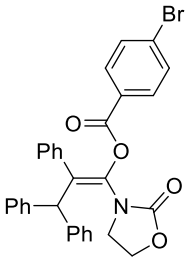
(*Z*)-**3aa**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.33 (d, *J* = 7.2 Hz, 4H), 7.26 (t, *J* = 7.6 Hz, 4H), 7.20 (d, *J* = 7.2 Hz, 2H), 7.04-6.94 (m, 7H), 5.58 (s, 1H), 4.02 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.0 Hz), 164.6, 155.8, 140.6, 136.1, 135.1, 134.0, 132.6 (d, *J* = 9.5 Hz), 129.8, 128.9, 128.2, 127.5, 127.3, 126.7, 124.4 (d, *J* = 2.8 Hz), 115.6 (d, *J* = 22.0 Hz), 62.8, 54.0, 45.3 ppm. ^{19}F NMR (376 MHz, $CDCl_3$) δ -103.86. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}FNO_4Na$: 516.1587; found: 516.1592.



(*Z*)-**3ab**
$C_{31}H_{24}ClNO_4$
M = 509.99 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-chlorobenzoate ((*Z*)-**3ab**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-chlorobenzoate (**2b**, 64.6 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ab** as a white solid (85.7 mg, 84% yield, *Z*:*E* = 95:5).

(*Z*)-**3ab**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.67 (d, *J* = 8.8 Hz, 2H), 7.33 (d, *J* = 7.6 Hz, 4H), 7.30-7.24 (m, 6H), 7.22-7.18 (m, 2H), 7.03 -6.98(m, 5H), 5.58 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.8, 155.8, 140.5, 140.2, 136.0, 135.0, 134.1, 131.3, 129.6, 128.9, 128.7, 128.2, 127.5, 127.3, 126.7, 126.6, 62.8, 54.0, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}ClNO_4Na$: 532.1292; found: 532.1303.

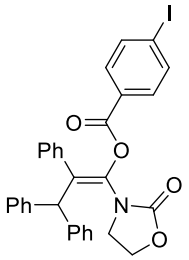


(*Z*)-**3ac**
$C_{31}H_{24}BrNO_4$
M = 554.44 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-bromobenzoate: ((*Z*)-**3ac**) Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-bromobenzoate (**2c**, 73.4 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ac** as a white solid (82.7 mg, 75% yield,*Z*:*E* = 94:6).

(*Z*)-**3ac**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.59 (d, *J* = 8.4 Hz, 2H), 7.45 (d, *J* = 8.4 Hz, 2H), 7.33 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.6 Hz, 4H), 7.21 (t, *J* = 7.2 Hz, 2H), 7.03-6.99 (m, 5H), 5.57 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.4, 155.8, 140.5,

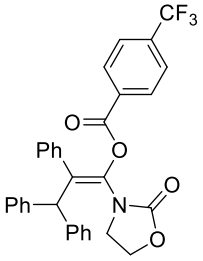
136.0, 135.0, 134.4, 131.5, 130.3, 129.6, 128.8, 128.2, 127.6, 127.4, 126.7, 125.40, 125.36, 62.8, 54.1, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}BrNO_4Na$: 576.0790; found: 576.0792.



(*Z*)-**3ad**
$C_{31}H_{24}INO_4$
M = 601.44 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-iodobenzoate: ((*Z*)-**3ad**) Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-iodobenzoate (**2d**, 82.8 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ad** as a white solid (101.7 mg, 85% yield, *Z*:*E* = 94:6).

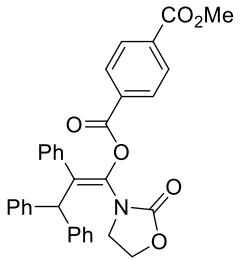
(*Z*)-**3ad**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.66 (d, *J* = 8.4 Hz, 2H), 7.43 (d, *J* = 8.0 Hz, 2H), 7.32 (d, *J* = 7.6 Hz, 4H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.20 (t, *J* = 7.2 Hz, 2H), 7.02-6.96 (m, 5H), 5.57 (s, 1H), 4.02 (t, *J* = 8.0 Hz, 2H), 3.57 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.1, 155.7, 140.5, 137.7, 136.0, 135.0, 134.1, 131.2, 129.6, 128.9, 128.2, 127.6, 127.5, 127.3, 126.7, 101.8, 62.8, 54.0, 45.2 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}INO_4Na$: 624.0648; found: 624.0655.



(*Z*)-**3ae**
$C_{32}H_{24}F_3NO_4$
M = 543.54 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-(trifluoromethyl)benzoate: ((*Z*)-**3ae**) Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-(trifluoromethyl)benzoate (**2e**, 71.3 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ae** as a white solid (84.3 mg, 78% yield, *Z*:*E* > 96:4).

(*Z*)-**3ae**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.66 (d, *J* = 8.4 Hz, 2H), 7.43 (d, *J* = 8.0 Hz, 2H), 7.32 (d, *J* = 7.6 Hz, 4H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.20 (t, *J* = 7.2 Hz, 2H), 7.02-6.96 (m, 5H), 5.58 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.60 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.4, 155.7, 140.5, 136.0, 135.1, 135.0 (q, *J* = 32.5 Hz), 131.5, 130.3, 129.7, 128.9, 128.2, 127.6, 127.4, 126.8, 125.4 (q, *J* = 3.7 Hz), 123.4 (q, *J* = 271.2 Hz), 62.8, 54.1, 45.3 ppm. ^{19}F NMR (376 MHz, $CDCl_3$) δ -63.29. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{24}F_3NO_4Na$: 566.1555; found: 566.1559.

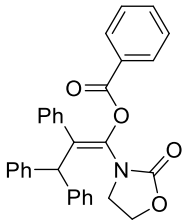


(*Z*)-**3af**
$C_{33}H_{27}NO_6$
M = 533.58 g/mol

(*Z*)-methyl (1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl) terephthalate: ((*Z*)-**3af**) Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl methyl terephthalate (**2f**, 69.3 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3af** as a white solid (90.7 mg, 85% yield, *Z*:*E* > 96:4).

(*Z*)-**3af**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.96 (d, *J* = 8.4 Hz, 2H), 7.78 (d, *J* = 8.4 Hz, 2H), 7.33 (d, *J* = 7.2 Hz, 4H), 7.27 (t, *J* = 7.4

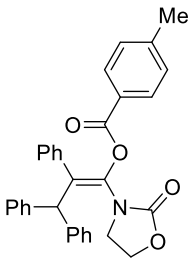
Hz, 4H), 7.21 (t, *J* = 7.2 Hz, 2H), 7.05-6.95 (m, 5H), 5.58 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.90 (s, 3H), 3.60 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.9, 164.8, 155.8, 140.5, 136.0, 135.1, 134.5, 134.2, 131.9, 129.8, 129.6, 129.4, 128.9, 128.2, 127.5, 127.3, 126.7, 62.8, 54.0, 52.4, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{27}NO_6Na$: 556.1736; found: 556.1739.



(*Z*)-**3ag**
$C_{31}H_{25}NO_4$
M = 475.54 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl benzoate ((*Z*)-**3ag**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl benzoate (**2g**, 57.7 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ag** as a white solid (63.7 mg, 67% yield, *Z*:*E* = 94:6).

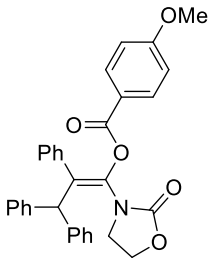
(*Z*)-**3ag**: **R_f** = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (d, *J* = 7.6 Hz, 2H), 7.48 (t, *J* = 7.4 Hz, 1H), 7.35-7.24 (m, 10H), 7.20 (t, *J* = 7.0 Hz, 2H), 7.06-6.95 (m, 5H), 5.60 (s, 1H), 4.02 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H). ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.6, 155.8, 140.7, 136.1, 135.1, 133.9, 133.6, 129.9, 129.7, 129.0, 128.3, 128.2, 127.5, 127.2, 126.6, 62.8, 54.0, 45.2 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{25}NO_4Na$: 498.1682; found: 498.1684.



(*Z*)-**3ah**
$C_{32}H_{27}NO_4$
M = 489.57 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-methylbenzoate ((*Z*)-**3ah**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-methylbenzoate (**2h**, 60.5 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 100 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z/E*)-**3ah** as a white solid (66.6 mg, 68% yield, *Z*:*E* = 88:12).

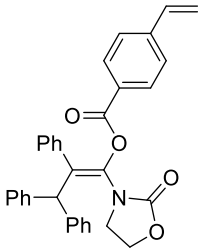
(*Z/E*)-**3ah**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). (*Z*)-**3ah: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.64 (d, *J* = 8.0 Hz, 2H), 7.34 (d, *J* = 7.2 Hz, 4H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.19 (d, *J* = 7.2 Hz, 2H), 7.09 (d, *J* = 8.0 Hz, 2H), 7.05 (d, *J* = 6.4 Hz, 2H), 7.01-6.93 (m, 3H), 5.60 (s, 1H), 4.02-3.95 (m, 2H), 3.57 (t, *J* = 8.0 Hz, 2H), 2.31 (s, 3H) ppm. (*E*)-**3ah**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (d, *J* = 8.0 Hz, 2H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.19 (d, *J* = 7.2 Hz, 2H), 7.17-7.12 (m, 9H), 7.09 (d, *J* = 8.0 Hz, 2H), 5.42 (s, 1H), 4.02-3.95 (m, 2H), 3.47 (t, *J* = 8.0 Hz, 2H), 2.38 (s, 3H) ppm. (*Z*/*E*)-**3ah: ^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.6, 164.6, 156.2, 155.9, 144.7, 144.6, 140.8, 140.2, 136.8, 136.6, 136.2, 135.2, 133.8, 131.5, 130.4, 130.1, 129.8, 129.5, 129.12, 129.09, 129.05, 129.0, 128.4, 128.3, 128.2, 127.9, 127.5, 127.2, 126.7, 126.6, 125.45, 125.39, 63.0, 62.8, 54.3, 54.0, 45.7, 45.3, 21.8, 21.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{25}NO_4Na$: 512.1838; found: 512.1839.



(*Z*)-**3ai**
$C_{32}H_{27}NO_5$
M = 505.57 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-methoxybenzoate ((*Z*)-**3ai**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-methoxybenzoate (**2i**, 63.7 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*/*E*)-**3ai** as a white solid (75.0 mg, 70% yield, *Z*:*E* = 89:11).

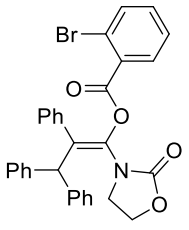
(*Z*/*E*)-**3ai**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). (*Z*)-**3ai: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.71 (d, *J* = 8.8 Hz, 2H), 7.34 (d, *J* = 7.6 Hz, 4H), 7.28-7.22 (m, 4H), 7.21-7.16 (m, 3H), 7.10-6.94 (m, 4H), 6.77 (d, *J* = 9.2 Hz, 2H), 5.59 (s, 1H), 4.03-3.95 (m, 2H), 3.78 (s, 3H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. (*E*)-**3ai**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.82 (d, *J* = 8.8 Hz, 2H), 7.28-7.22 (m, 4H), 7.21-7.16 (m, 3H), 7.14-7.09 (m, 4H), 7.05-6.94 (m, 4H), 6.84 (d, *J* = 8.8 Hz, 2H), 5.41 (s, 1H), 4.03-3.95 (m, 2H), 3.83 (s, 3H), 3.47 (t, *J* = 8.0 Hz, 2H) ppm. (*Z*/*E*)-**3ai: ^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.2, 164.2, 164.0, 163.9, 156.1, 155.8, 140.8, 140.2, 136.8, 136.6, 136.2, 135.2, 133.6, 132.4, 132.1, 131.3, 129.7, 129.4, 129.0, 128.9, 128.3, 128.2, 128.1, 127.4, 127.1, 126.6, 126.5, 120.5, 120.4, 113.61, 113.58, 63.0, 62.7, 55.43, 55.36, 54.2, 53.9, 45.6, 45.2 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{27}NO_5Na$: 528.1787; found: 528.1788.



(*Z*)-**3aj**
$C_{33}H_{27}NO_4$
M = 501.58 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-vinylbenzoate ((*Z*)-**3aj**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 4-vinylbenzoate (**2j**, 62.9 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z/E*)-**3aj** as a white solid (67.1 mg, 67% yield, *Z*:*E* = 92:8).

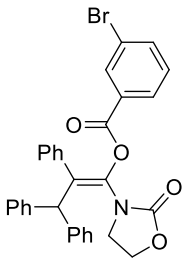
(*Z/E*)-**3aj**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). (*Z*)-**3aj: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.70 (d, *J* = 8.4 Hz, 2H), 7.40-7.16 (m, 12H), 7.14-6.93 (m, 5H), 6.66 (dd, *J* = 17.6, 11.2 Hz, 1H), 5.80 (d, *J* = 17.6 Hz, 1H), 5.59 (s, 1H), 5.35 (d, *J* = 10.8 Hz, 1H), 4.03-3.97 (m, 2H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. (*E*)-**3aj**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.81 (d, *J* = 8.4 Hz, 2H), 7.40-7.16 (m, 12H), 7.14-6.93 (m, 5H), 6.72 (dd, *J* = 17.6, 11.2 Hz, 1H), 5.86 (d, *J* = 17.6 Hz, 1H), 5.41 (s, 1H), 5.39 (d, *J* = 10.8 Hz, 1H), 4.03-3.97 (m, 2H), 3.47 (t, *J* = 8.0 Hz, 2H) ppm. (*Z*/*E*)-**3aj: ^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.3, 155.8, 142.6, 140.7, 140.1, 136.1, 135.8, 135.7, 135.1, 133.8, 130.6, 130.3, 129.7, 129.4, 128.93, 128.85, 128.4, 128.2, 128.1, 127.5, 127.17, 127.15, 126.6, 126.6, 126.0, 125.96 117.0, 63.0, 62.7, 54.4, 54.0, 45.6, 45.2 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{27}NO_4Na$: 524.1838; found: 524.1845.



(*Z*)-**3ak**
$C_{31}H_{24}BrNO_4$
M = 554.44 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2-bromobenzoate ((*Z*)-**3ak**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2-bromobenzoate (**2k**, 73.4 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ak** as a white solid (73.9mg, 67% yield, *Z*:*E* > 96:4).

(*Z*)-**3ak**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.55 (d, *J* = 8.0 Hz, 1H), 7.34 (d, *J* = 7.2 Hz, 4H), 7.27 (t, *J* = 7.2 Hz, 4H), 7.22-7.18 (m, 3H), 7.14-7.08 (m, 6H), 6.96 (d, *J* = 8.0 Hz, 1H), 5.57 (s, 1H), 4.04 (t, *J* = 7.6 Hz, 2H), 3.65 (t, *J* = 7.6 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.8, 155.8, 140.4, 136.2, 134.8, 134.4, 134.0, 133.0, 131.2, 130.3, 129.7, 129.0, 128.2, 127.7, 127.4, 127.0, 126.7, 121.6, 62.9, 54.2, 45.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}BrNO_4Na$: 576.0787; found: 576.0790.

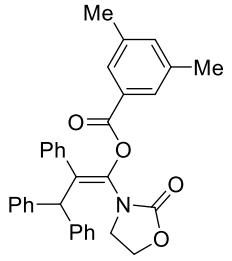


(*Z*)-**3al**
$C_{31}H_{24}BrNO_4$
M = 554.44 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 3-bromobenzoate ((*Z*)-**3al**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 3-bromobenzoate (**2l**, 73.4 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3al** as a white solid (92.2 mg, 84% yield, *Z*:*E* = 95:5).

(*Z*)-**3al**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.84 (s, 1H), 7.65 (d, *J* = 7.6 Hz, 1H), 7.59 (d, *J* = 8.4 Hz, 1H), 7.33 (d, *J* = 7.6 Hz, 4H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.22-7.14 (m, 3H), 7.08-6.95 (m, 5H), 5.58 (s, 1H), 4.02 (t, *J*

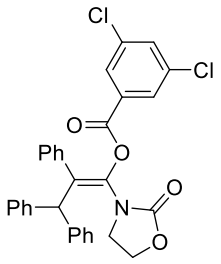
= 8.0 Hz, 2H), 3.57 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.3, 155.7, 140.5, 136.5, 136.0, 135.0, 134.2, 132.8, 130.1, 129.9, 129.6, 128.9, 128.4, 128.2, 127.6, 127.3, 126.7, 122.3, 62.8, 54.0, 45.2 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}BrNO_4Na$: 576.0787; found: 576.0795.



(*Z*)-**3am**
$C_{33}H_{29}NO_4$
M = 503.60 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 3,5-dimethylbenzoate ((*Z*)-**3am**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 3,5-dimethylbenzoate (**2m**, 63.3 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 100 ℃ for 40 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*/*E*)-**3am** as a white solid (72.5 mg, 72% yield, *Z*:*E* = 90:10).

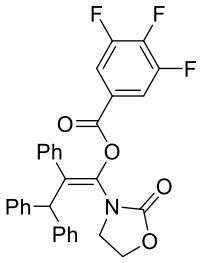
(*Z*/*E*)-**3am**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). (*Z*)-**3am: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.34 (d, *J* = 8.0 Hz, 5H), 7.29-7.16 (m, 7H), 7.14-6.94 (m, 6H), 5.59 (s, 1H), 4.00 (t, *J* = 8.0 Hz, 2H), 3.57 (t, *J* = 8.0 Hz, 2H), 2.23 (s, 6H) ppm. (*E*)-**3am: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.48 (s, 2H), δ 7.34 (d, *J* = 8.0 Hz, 3H), 7.29-7.16 (m, 7H), 7.14-6.94 (m, 6H), 5.43 (s, 1H), 4.00 (t, *J* = 8.0 Hz, 2H), 3.48 (t, *J* = 8.0 Hz, 2H), 2.31 (s, 6H) ppm.**^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.9, 165.0, 155.8, 155.5, 140.7, 140.2, 138.0, 137.9, 136.1, 135.3, 135.1, 133.7, 129.7, 129.4, 129.01, 128.96, 128.3, 128.2, 128.1, 127.99, 127.97, 127.7, 127.4, 127.1, 126.6, 126.4, 62.9, 62.7, 54.2, 54.0, 45.7, 45.2, 21.0, 20.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{29}NO_4Na$: 526.1995; found: 526.1996.



(*Z*)-**3an**
$C_{31}H_{23}Cl_2NO_4$
M = 544.43 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 3,5-dichlorobenzoate ((*Z*)-**3an**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 3,5-dichlorobenzoate (**2n**, 71.4 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z/E*)-**3an** as a white solid (89.3 mg, 82% yield, *Z*:*E* > 96:4).

(*Z*)-**3an**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.59-7.56 (m, 2H), 7.45 (t, *J* = 2.0 Hz, 1H), 7.32 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.6 Hz, 4H), 7.23-7.18 (m, 2H), 7.08-7.00 (m, 5H), 5.56 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.56 (t, *J* = 8.0 Hz, 2H) ppm.**^{13}C NMR** (100 MHz, $CDCl_3$): δ 163.4, 155.7, 140.4, 135.9, 135.2, 135.0, 134.6, 133.4, 131.0, 129.6, 128.8, 128.23, 128.19, 127.7, 127.5, 126.8, 62.8, 54.1, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}Cl_2NO_4Na$: 566.0902; found: 566.0902.

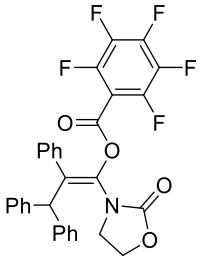


(*Z*)-**3ao**
$C_{31}H_{22}F_3NO_4$
M = 529.52 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 3,4,5-trifluorobenzoate ((*Z*)-**3ao**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 3,4,5-trifluorobenzoate (**2o**, 68.5 mg, 0.2 mmol) according to the **GP1**

with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ao** as a white solid (80.0 mg, 76% yield, *Z*:*E* > 96:4).

(*Z*)-**3ao**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.37 (t, *J* = 7.0 Hz, 2H), 7.33-7.25 (m, 8H), 7.23-7.19 (m, 2H), 7.07-6.99 (m, 5H), 5.55 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.57 (t, *J* = 8.0 Hz, 2H) ppm.**^{13}C NMR** (100 MHz, $CDCl_3$): δ 162.9, 155.7, 152.1 (dd, *J* = 10.3, 3.3 Hz), 149.6 (dd, *J* = 10.4, 3.4 Hz), 140.3, 135.9, 135.0, 134.6, 129.6, 128.8, 128.3, 127.7, 127.5, 126.8, 114.5(dd, *J* = 16.4, 6.6 Hz), 62.8, 54.1, 45.3 ppm. ^{19}F NMR (376 MHz, $CDCl_3$) δ -132.1– -132.2 (m, 2F), -150.8– -150.9 (m, 1F) ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{22}F_3NO_4Na$: 552.1399; found: 552.1405.

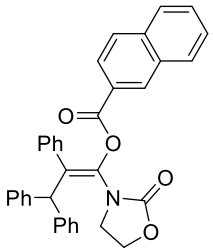


(*Z*)-**3ap**
$C_{31}H_{20}F_5NO_4$
M = 565.50 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2,3,4,5,6-pentafluorobenzoate ((*Z*)-**3ap**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2,3,4,5,6-pentafluorobenzoate (**2p**, 75.7 mg, 0.2 mmol) according to the **GP1** with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ap** as a white solid (92.8 mg, 84% yield, *Z*:*E* > 96:4).

(*Z*)-**3ap**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.31 (d, *J* = 7.6 Hz, 4H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.22-7.17 (m, 2H), 7.12-7.07 (m, 3H), 7.05-7.02 (m, 2H), 5.56 (s, 1H), 4.01 (t, *J* = 8.0 Hz, 2H), 3.51 (t, *J* = 8.0 Hz, 2H). ppm.**^{13}C NMR** (100 MHz, $CDCl_3$): δ 157.6, 155.4, 145.3 (dm, *J* = 266.0 Hz),143.6 (dm, *J* = 250.2 Hz), 140.3, 137.5 (dm, *J* = 249.7 Hz), 135.63, 135.61, 134.1, 129.6,

128.7, 128.2, 127.7, 126.8, 106.5 (m), 62.7, 54.3, 44.9 ppm. ^{19}F NMR (376 MHz, $CDCl_3$): -136.9– -137.0 (m, 2F), -146.8 (tt, *J* = 21.1, 5.3 Hz, 1F), δ -159.8– -160.0 (m, 2F) ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{20}F_5NO_4Na$: 588.1210; found: 588.1219.



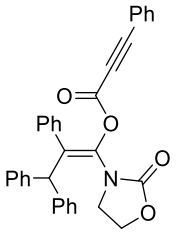
(*Z*)-**3aq**
$C_{35}H_{27}NO_4$
M = 525.60 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2-naphthoate ((*Z*)-**3aq**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2-naphthoate (**2q**, 67.7 mg, 0.2 mmol) according to the **GP1** with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*/*E*)-**3aq** as a white solid (87.0 mg, 83% yield, *Z*:*E* = 91:9).

(*Z*/*E*)-**3aq**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). (*Z*)-**3aq**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.29 (s, 1H), 7.90-7.72 (m, 4H), 7.54 (t, *J* = 7.4 Hz, 1H), 7.48 (t, *J* = 7.0 Hz, 1H), 7.37 (d, *J* = 7.6 Hz, 3H), 7.30-7.15 (m, 7H), 7.10 (d, *J* = 7.6 Hz, 2H), 6.99 (t, *J* = 7.4 Hz, 2H), 6.93 (t, *J* = 7.2 Hz, 1H), 5.63 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.63 (t, *J* = 8.0 Hz, 2H) ppm. (*E*)-**3aq**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.39 (s, 1H), 7.90-7.72 (m, 4H), 7.59 (d, *J* = 7.2 Hz, 1H), 7.54 (t, *J* = 7.4 Hz, 1H), 7.48 (t, *J* = 7.0 Hz, 1H), 7.37 (d, *J* = 7.6 Hz, 4H), 7.30-7.15(m, 7H), 7.10 (d, *J* = 7.6 Hz, 2H), 6.99 (t, *J* = 7.4 Hz, 1H), 5.45 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.52 (t, *J* = 8.0 Hz, 2H) ppm.

(*Z*/*E*)-**3aq**: **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.7, 156.2, 155.9, 140.7, 140.2, 136.6, 136.1, 135.8, 135.7, 135.2, 134.0, 132.3, 132.2, 132.0, 129.7, 129.5, 129.39, 129.37, 129.0, 128.9, 128.4, 128.6, 128.4, 128.23, 128.17, 128.1 127.6, 127.5, 127.2, 126.7,

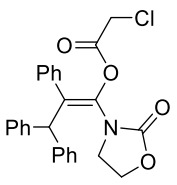
126.6, 126.5, 125.3, 125.0, 63.0, 62.8, 54.5, 54.0, 45.7, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{35}H_{27}NO_4Na$: 548.1838; found: 548.1849.



(*Z*)-**3ar**
$C_{33}H_{25}NO_4$
M = 499.57 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 3-phenylpropiolate ((*Z*)-**3ar**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 3-phenylpropiolate (**2r**, 62.5 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 14 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*/*E*)-**3ar** as a white solid (82.9 mg, 83% yield, *Z*:*E* = 83:17).

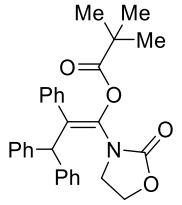
(*Z*/*E*)-**3ar**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). (*Z*)-**3ar**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.46 (d, *J* = 7.2 Hz, 2H), 7.44-7.36 (m, 2H), 7.35-7.15 (m, 11H), 7.15-7.09 (m, 3H), 7.08-7.02 (m, 2H), 5.56 (s, 1H), 3.99 (t, *J* = 8.0 Hz, 2H), 3.48 (t, *J* = 8.0 Hz, 2H) ppm. (*E*)-**3ar**: **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.55 (d, *J* = 7.2 Hz, 2H), 7.35-7.15 (m, 14H), 7.15-7.09 (m, 3H), 7.08-7.02 (m, 1H), 5.46 (s, 1H), 3.99 (t, *J* = 8.0 Hz, 2H), 3.41 (t, *J* = 8.0 Hz, 2H) ppm. (*Z*/*E*)-**3ar**: **^{13}C NMR** (100 MHz, $CDCl_3$): δ 156.0, 155.5, 152.1, 151.4, 140.5, 139.7, 136.2, 135.7, 135.6, 134.8, 134.0, 133.11, 133.07, 132.5, 131.0, 129.6, 129.5, 128.8, 128.7, 128.54, 128.49, 128.32, 128.28, 128.1, 127.6, 127.5, 126.7, 126.6, 119.0, 118.8, 89.2, 79.4, 79.2, 63.0, 62.7, 54.3, 54.1, 45.4, 44.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{25}NO_4Na$: 522.1682; found: 522.1685.



(*Z*)-**3as**
$C_{26}H_{22}ClNO_4$
M = 447.92 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2-chloroacetate ((*Z*)-**3as**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2-chloroacetate (**2s**, 52.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3as** as a colorless oil (*Z*:*E* = 95:5). Product **3as** was found to be unstable and was expected to hydrolysis on column during the purification. 95% NMR yield of (*Z*)-**3as** was estimated by ^{1}HNMR spectroscopy.

(*Z*)-**3as**: $\mathbf{R_f}$ = 0.45 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.30-7.18 (m, 10H), 7.13-7.08 (m, 3H), 7.02-6.96 (m, 2H), 5.50 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.68 (s, 2H), 3.52 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.6, 155.7, 140.2, 135.8, 134.8, 134.7, 129.6, 128.8, 128.2, 127.8, 127.6, 126.8, 62.8, 54.0, 45.1, 40.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{22}ClNO_4Na$: 470.1135; Found: 470.1140.

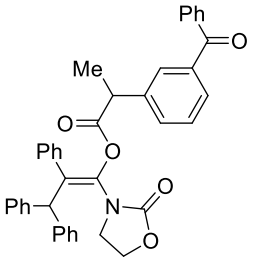


(*Z*)-**3at**
$C_{29}H_{29}NO_4$
M = 455.55 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl pivalate ((*Z*)-**3at**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl pivalate (**2t**, 53.7 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3at** as a colorless oil (*Z*:*E* > 96:4). The desired product containing a trace amount hydroacyloxylation side product. 59% NMR yield of (*Z*)-**3at** was estimated by ^{1}HNMR spectroscopy.

(*Z*)-**3at**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.29 (d, *J* = 7.2 Hz, 4H), 7.23 (t, *J* = 7.2 Hz, 4H), 7.17 (t, *J* = 7.0 Hz, 2H), 7.10-7.05 (m,

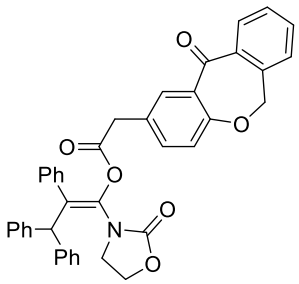
3H), 6.98-6.95 (m, 2H), 5.51 (s, 1H), 4.00 (t, *J* = 8.0 Hz, 2H), 3.49 (t, *J* = 8.0 Hz, 2H), 0.85 (s, 9H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 177.4, 155.6, 140.7, 136.2, 134.8, 133.2, 129.7, 129.2, 128.7, 128.1, 128.0, 127.4, 127.1, 126.5, 115.1, 62.6, 53.9, 45.1, 38.6, 26.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{29}H_{29}NO_4Na$: 478.1995; found: 478.1995.



(*Z*)-**3au**
$C_{40}H_{33}NO_5$
M = 607.71 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2-(3-benzoylphenyl)propanoate ((*Z*)-**3au**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2-(3-benzoylphenyl)propanoate (**2u**, 84.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3au** as a white solid (89.9 mg, 74% yield, *Z*:*E* = 95:5).

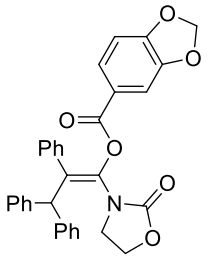
(*Z*)-**3au**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (d, *J* = 7.6 Hz, 2H), 7.65-7.57 (m, 2H), 7.52-7.46 (m, 2H), 7.35-7.13 (m, 13H), 7.05-6.96 (m, 3H), 6.91 (d, *J* = 6.8 Hz, 2H), 5.49 (s, 1H), 3.96 (t, *J* = 8.0 Hz, 2H), 3.53 (q, *J* = 7.2 Hz, 1H), 3.38 (t, *J* = 8.0 Hz, 2H), 1.16 (d, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 196.2, 172.9, 155.6, 140.49, 140.47, 139.2, 137.7, 137.3, 135.9, 134.6, 133.9, 132.5, 131.4, 123.0, 129.6, 129.57, 129.1, 129.0, 128.9, 128.6, 128.3, 128.1, 128.09, 127.5, 127.3, 126.59, 126.58, 62.7, 54.0, 44.9, 44.6, 17.8 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{40}H_{33}NO_5Na$: 630.2257; Found: 630.2257.



(*Z*)-**3av**
$C_{40}H_{31}NO_6$
M = 621.69 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 2-(11-oxo-6,11-dihydrodibenzo[*b*,*e*]oxepin-2-yl)acetate ((*Z*)-**3av**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 2-(3-benzoylphenyl)propanoate (**2v**, 86.9 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3av** as a white solid (101.9 mg, 82% yield, *Z*:*E* > 96:4).

(*Z*)-**3av**: $\mathbf{R_f}$ = 0.25 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.90-7.83 (m, 2H), 7.56 (t, *J* = 7.4 Hz, 1H), 7.47 (t, *J* = 7.6 Hz, 1H), 7.36 (d, *J* = 7.2 Hz, 1H), 7.28-7.16 (m, 10H), 7.09-7.04 (m, 3H), 6.97-6.92 (m, 3H), 6.89 (d, *J* = 8.4 Hz, 1H), 5.50 (s, 1H), 5.16 (s, 2H), 4.01 (t, *J* = 8.0 Hz, 2H), 3.48 (t, *J* = 8.0 Hz, 2H), 3.32 (s, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 190.6, 170.6, 160.4, 155.7, 140.5, 140.3, 136.1, 136.0, 135.4, 134.8, 134.0, 132.8, 132.4, 129.6, 129.4, 129.2, 128.9, 128.1, 127.8, 127.6, 127.3, 126.6, 126.2, 125.0, 121.1, 73.5, 62.8, 53.9, 45.0, 39.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{40}H_{31}NO_6Na$: 644.2049; Found: 644.2051.

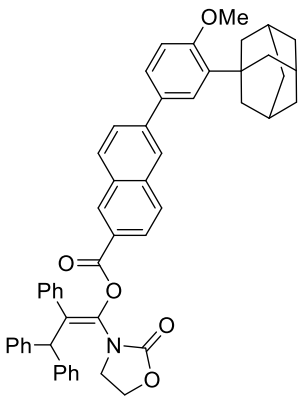


(*Z*)-**3aw**
$C_{32}H_{25}NO_6$
M = 519.55 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl benzo[*d*][1,3]dioxole-5-carboxylate ((*Z*)-**3aw**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and

benzhydryl benzo[*d*][1,3]dioxole-5-carboxylate (**2w**, 66.5 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aw** as a white solid (91.0 mg, 88% yield, *Z*:*E* = 92:8).

(*Z*)-**3aw**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.39-7.31 (m, 5H), 7.26 (t, *J* = 7.6 Hz, 4H), 7.23-7.15 (m, 3H), 7.04-6.09 (m, 5H), 6.70 (d, *J* = 8.0 Hz, 1H), 5.97 (s, 2H), 5.58 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 164.9, 155.8, 152.3, 147.6, 140.7, 136.1, 135.1, 133.7, 129.7, 129.0, 128.2, 127.5, 127.2, 126.6, 126.2, 121.9, 109.6, 108.0, 101.9, 62.8, 54.0, 45.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{25}NO_6Na$: 542.1580; Found: 542.1583.

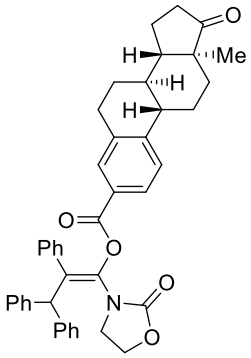


(*Z*)-**3ax**
$C_{52}H_{47}NO_5$
M = 765.95 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 6-(3-(adamantan-1-yl)-4-methoxyphenyl)-2-naphthoate ((*Z*)-**3ax**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl 6-(3-(adamantan-1-yl)-4-methoxyphenyl)-2-naphthoate (**2x**, 115.8 mg, 0.2 mmol) according to the GP1 with 20 mol% $B(C_6F_5)_3$ at 100 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ax** as a white solid (114.9 mg, 75% yield, *Z*:*E* = 95:5).

(*Z*)-**3ax**: **R_f** = 0.25 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.29 (s, 1H), 7.93 (s, 1H), 7.85 (d, *J* = 8.4 Hz, 1H), 7.80-7.73 (m, 3H), 7.56 (d, *J* = 2.0 Hz,

1H), 7.50 (dd, *J* = 8.4, 2.4 Hz, 1H), 7.37 (d, *J* = 7.6 Hz, 4H), 7.30-7.19 (m, 6H), 7.10 (d, *J* = 7.2 Hz, 2H), 7.02-6.91 (m, 4H), 5.63 (s, 1H), 4.06 (t, *J* = 8.0 Hz, 2H), 3.89 (s, 3H), 3.65 (t, *J* = 8.0 Hz, 2H), 2.16 (s, 6H), 2.09 (s, 3H), 1.79 (s, 6H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.8, 159.0, 156.0, 141.8, 140.7, 139.0, 136.2, 135.2, 134.0, 132.3, 131.8, 130.9, 129.8, 129.7, 129.0, 128.2, 127.5, 127.2, 126.6, 126.56, 125.9, 125.7, 125.4, 124.8, 124.6, 112.1, 62.8, 55.1, 54.0, 45.3, 40.6, 37.2, 37.1, 29.1 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{52}H_{47}NO_5Na$: 788.3352; Found: 788.3363.

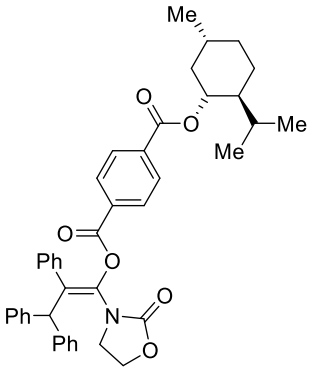


(*Z*)-**3ay**
$C_{43}H_{41}NO_5$
M = 651.80 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl (8*R*,9*S*,13*S*,14*S*)-13-methyl-17-oxo-7,8,9,11,12,13,14,15,16,17-decahydro-6*H*-cyclopenta[*a*]phenanthrene-3-carboxylate ((*Z*)-**3ay**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 74.9 mg, 0.4 mmol) and benzhydryl (8*R*,9*S*,13*S*,14*S*)-13-methyl-17-oxo-7,8,9,11,12,13,14,15,16,17-decahydro-6*H*-cyclopenta[a]phenanthrene-3-carboxylate (**2y**, 92.8 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ay** as a white solid (104.3 mg, 80% yield, *Z*:*E* = 89:11).

(*Z*)-**3ay**: **R_f** = 0.25 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.53 (d, *J* = 8.0 Hz, 1H), 7.48 (s, 1H), 7.34 (d, *J* = 7.6 Hz, 4H), 7.29-7.17 (m, 7H), 7.07-6.97 (m, 5H), 5.59 (s, 1H), 4.02 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H), 2.86-2.81 (m, 2H), 2.50 (dd, *J* = 18.8, 8.6 Hz, 1H), 2.41-2.34 (m, 1H), 2.29-2.25 (m, 1H), 2.15-1.93 (m, 4H), 1.63-1.37 (m, 6H), 0.88 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.6, 155.9, 146.1, 140.7, 136.8, 136.1, 135.0, 133.8, 130.6, 129.7, 129.0, 128.1,

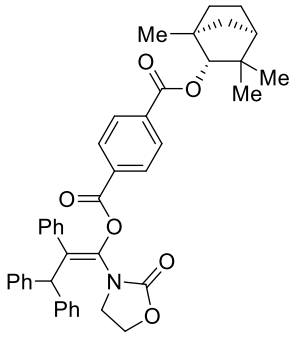
127.4, 127.2, 127.1, 126.6, 125.5, 125.4, 62.8, 54.0, 50.4, 47.8, 45.3, 44.6, 37.6, 35.7, 31.4, 23.0, 26.1, 25.4, 21.5, 13.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{43}H_{41}NO_5Na$: 594.0692; Found: 594.0697.



(*Z*)-**3az**
$C_{42}H_{43}NO_6$
M = 657.81 g/mol

(1*R*,2*S*,5*R*)-2-isopropyl-5-methylcyclohexyl ((*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl) terephthalate ((*Z*)-**3az**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl ((1*R*,2*S*,5*R*)-2-isopropyl-5-methylcyclohexyl) terephthalate (**2z**, 94.1 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3az** as a white solid (98.6 mg, 75% yield, *Z*:*E* = 95:5).

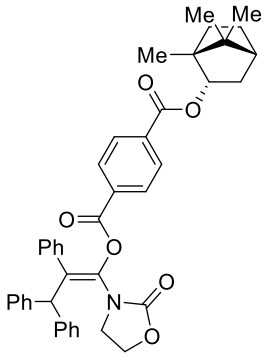
(*Z*)-**3az**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.96 (d, *J* = 8.0 Hz, 2H), 7.79 (d, *J* = 8.4 Hz, 2H), 7.34 (d, *J* = 8.0 Hz, 4H), 7.28 (t, *J* = 7.0 Hz, 4H), 7.21 (d, *J* = 6.8 Hz, 2H), 7.06-6.96 (m, 5H), 5.59 (s, 1H), 4.95-4.88 (m, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H), 2.08 (d, *J* = 12.0 Hz, 1H), 1.92-1.85 (m, 1H), 1.72 (d, *J* = 11.6 Hz, 2H), 1.53 (t, *J* = 11.4 Hz, 2H), 1.17-1.03 (m, 2H), 0.91 (t, *J* = 7.0 Hz, 7H), 0.76 (d, *J* = 6.8 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.0, 164.9, 155.8, 140.5, 136.0, 135.2, 135.0, 134.2, 131.7, 129.8, 129.6, 129.4, 128.9, 128.2, 127.6, 127.3, 126.7, 75.5, 62.8, 54.0, 47.1, 45.2, 40.8, 34.2, 31.4, 26.4, 23.5, 22.0, 20.7, 16.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{42}H_{43}NO_6Na$: 680.2988; Found: 680.2996.



(*Z*)-**3aaa**
$C_{42}H_{41}NO_6$
M = 655.79 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl((1*S*,2*R*,4*R*)-1,3,3-trimethylbicyclo [2.2.1]heptan-2-yl) terephthalate ((*Z*)-**3aaa**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl ((1*S*,2*R*,4*R*)-1,3,3-trimethylbicyclo[2.2.1]heptan-2-yl) terephthalate (**2aa**, 93.7 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aaa** as a white solid (91.8 mg, 70% yield, *Z*:*E* = 93:7).

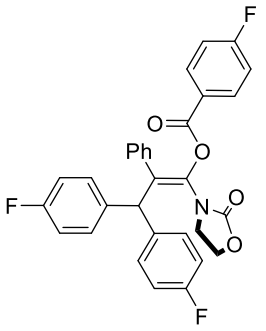
(*Z*)-**3aaa**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.98 (d, *J* = 8.4 Hz, 2H), 7.81 (d, *J* = 8.4 Hz, 2H), 7.34 (d, *J* = 7.6 Hz, 4H), 7.30-7.25 (m, 4H), 7.22 (d, *J* = 7.2 Hz, 2H), 7.06-6.97 (m, 5H), 5.59 (s, 1H), 4.59 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H), 1.91-1.83 (m, 1H), 1.78-1.73 (dm, 2H), 1.64 (s, 1H), 1.56-1.47 (m, 1H), 1.27-1.18 (m, 2H), 1.16 (s, 3H), 1.08 (s, 3H), 0.80 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.8, 164.8, 155.7, 140.5, 136.0, 135.0, 134.97, 134.2, 131.7, 129.9, 129.6, 129.4, 128.8, 128.2, 127.6, 127.3, 126.7, 87.3, 62.8, 54.0, 48.6, 48.3, 45.2, 41.4, 39.8, 29.7, 26.8, 25.8, 20.2, 19.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{42}H_{41}NO_6Na$: 678.2832; Found: 678.2836.



(*Z*)-**3aab**
$C_{42}H_{41}NO_6$
M = 655.79 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl-((1*R*,2*S*,4*R*)-1,7,7-trimethylbicyclo [2.2.1]heptan-2-yl) terephthalate ((*Z*)-**3aab**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and benzhydryl ((1*R*,2*S*,4*R*)-1,7,7-trimethylbicyclo[2.2.1]heptan-2-yl) terephthalate (**2ab**, 93.7 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aab** as a white solid (91.8 mg, 70% yield, *Z*:*E* = 95:5).

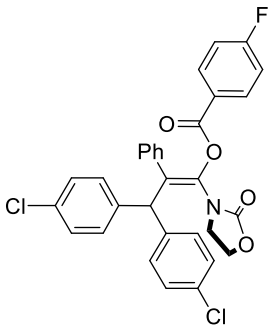
(*Z*)-**3aab**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.97 (d, *J* = 8.4 Hz, 2H), 7.80 (d, *J* = 8.4 Hz, 2H), 7.34 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.4 Hz, 4H), 7.21 (d, *J* = 7.2 Hz, 2H), 7.06-6.96 (m, 5H), 5.59 (s, 1H), 5.09 (d, *J* = 9.2 Hz, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.60 (t, *J* = 8.0 Hz, 2H), 2.50-2.42 (m, 1H), 2.09-2.02 (m, 1H), 1.87-1.70 (m, 2H), 1.43-1.36 (m, 1H), 1.32-1.25 (m, 1H), 1.08 (dd, *J* = 13.8, 3.4 Hz, 1H), 0.95 (s, 3H), 0.91 (s, 3H), 0.89 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.7, 164.8, 155.8, 140.5, 136.0, 135.2, 135.0, 134.2, 131.7, 129.8, 129.6, 129.3, 128.8, 128.2, 127.5, 127.3, 126.7, 81.2, 62.8, 54.0, 49.0, 47.9, 45.2, 44.9, 36.8, 28.0, 27.3, 19.6, 18.8, 13.6. ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{42}H_{41}NO_6Na$: 678.2832; Found: 678.2857.



(*Z*)-**3aac**
$C_{31}H_{22}F_3NO_4$
M = 529.52 g/mol

(*Z*)-3,3-bis(4-fluorophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aac**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and bis(4-fluorophenyl)methyl 4-fluorobenzoate (**2ac**, 68.5 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aac** as a white solid (86.8 mg, 82% yield, *Z*:*E* = 91:9).

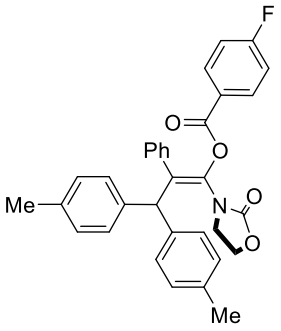
(*Z*)-**3aac**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 10/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.31-7.25 (m, 4H), 7.06-6.91 (m, 11H), 5.56 (s, 1H), 4.16 (t, *J* = 8.0 Hz, 2H), 3.64 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.3 Hz), 164.6, 161.6 (d, *J* = 244.5 Hz), 155.9, 136.2 (d, *J* = 3.2 Hz), 135.4, 135.1, 133.5, 132.6 (d, *J* = 9.5 Hz), 131.1 (d, *J* = 7.8 Hz), 128.9, 127.7, 127.5, 124.2 (d, *J* = 3.0 Hz), 115.7 (d, *J* = 22.0 Hz) 115.1 (d, *J* = 21.1 Hz), 62.8, 52.1, 45.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.53, -115.82 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{22}F_3NO_4Na$: 552.1399; Found: 552.1404.



(*Z*)-**3aad**
$C_{31}H_{22}Cl_2FNO_4$
M = 562.42 g/mol

***(Z)*-3,3-bis(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenylprop-1-en-1-yl 4-fluorobenzoate** ((*Z*)-**3aad**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and bis(4-chlorophenyl)methyl 4-fluorobenzoate (**2ad**, 75.0 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 40 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aad** as a white solid (67.5 mg, 60% yield, *Z*:*E* = 88:12).

(*Z*)-**3aad**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.26-7.22 (m, 8H), 7.05-6.96 (m, 7H), 5.54 (s, 1H), 4.14 (t, *J* = 8.0 Hz, 2H), 3.62 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.4 Hz), 164.5, 155.8, 138.8, 135.3, 135.26, 132.9, 132.7, 132.6 (d, *J* = 9.6 Hz), 130.9, 128.9, 128.4, 127.7, 127.6, 124.1 (d, *J* = 2.9 Hz), 115.7 (d, *J* = 22.0 Hz), 62.8, 52.4, 44.9 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.46 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{22}Cl_2FNO_4Na$: 584.0808; Found: 584.0813.

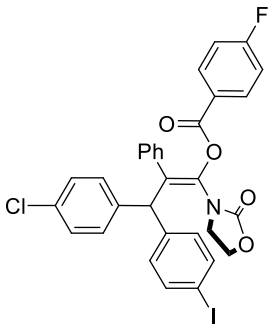


(*Z*)-**3aae**
$C_{33}H_{28}FNO_4$
M = 521.59 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2-phenyl-3,3-di-p-tolylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aae**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and di-*p*-tolylmethyl 4-fluorobenzoate (**2ae**, 66.9 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aae** as a white solid (79.4 mg, 76% yield, *Z*:*E* = 94:6).

(*Z*)-**3aae**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.4, 5.6 Hz, 2H), 7.19 (d, *J* = 8.0 Hz, 4H), 7.07 (d, *J* = 7.6 Hz, 4H), 7.03-

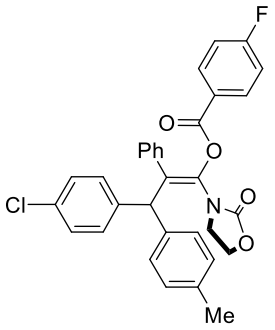
6.94 (m, 7H), 5.48 (s, 1H), 4.06 (t, *J* = 8.0 Hz, 2H), 3.65 (t, *J* = 8.0 Hz, 2H), 2.30 (s, 6H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 253.9 Hz), 164.6, 155.9, 137.6, 136.2, 136.1, 134.9, 134.2, 132.6 (d, *J* = 9.4 Hz), 129.5, 129.0, 128.8, 127.5, 127.2, 124.5 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 53.3, 45.6, 21.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.99 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{28}FNO_4Na$: 544.1902; Found: 544.1902.



(*Z*)-**3aaf**
$C_{31}H_{22}ClFINO_4$
M = 653.87 g/mol

(*Z*)-3-(4-chlorophenyl)-3-(4-iodophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aaf**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (4-chlorophenyl)(4-iodophenyl)methyl 4-fluorobenzoate (**2af**, 93.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aaf** as a white solid (85.8 mg, 66% yield, *Z*:*E* = 89:11).

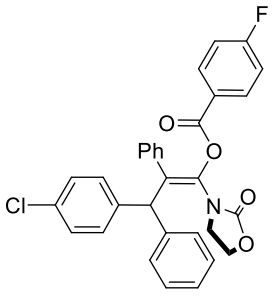
(*Z*)-**3aaf**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.8, 5.2 Hz, 2H), 7.60 (d, *J* = 8.0 Hz, 2H), 7.23 (s, 4H), 7.07 (d, *J* = 8.4 Hz, 2H), 7.05-6.95 (m, 7H), 5.51 (s, 1H), 4.13 (t, *J* = 8.0 Hz, 2H), 3.61 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.4 Hz), 164.4, 155.8, 140.0, 138.6, 137.3, 135.3, 135.2, 132.8, 132.7, 132.6 (d, *J* = 9.5 Hz), 131.6, 131.0, 128.9, 128.4, 127.7, 127.6, 124.1 (d, *J* = 2.9 Hz), 115.7 (d, *J* = 22.0 Hz), 92.4, 62.8, 52.6, 44.9 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.43 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{21}ClFINO_4Na$: 676.0164; Found: 676.0171.



(*Z*)-**3aag**
$C_{32}H_{25}ClFNO_4$
M = 542.00 g/mol

(Z)-3-(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenyl-3-(p-tolyl)prop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aag**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (4-chlorophenyl)(p-tolyl)methyl 4-fluorobenzoate (**2ag**, 71.0 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aag** as a white solid (80.0 mg, 73% yield, *Z*:*E* = 94:6).

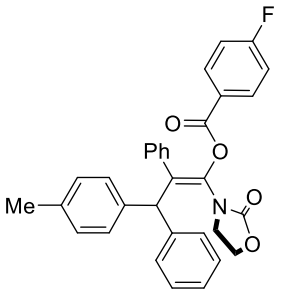
(*Z*)-**3aag**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 9.0, 5.4 Hz, 2H), 7.24-7.18 (m, 6H), 7.10 (d, *J* = 8.0 Hz, 2H), 7.04-6.94 (m, 7H), 5.51 (s, 1H), 4.09 (t, *J* = 7.6 Hz, 2H), 3.62 (t, *J* = 7.6 Hz, 2H), 2.32 (s, 3H). ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.2 Hz), 164.5, 155.9, 139.2, 137.2, 136.5, 135.7, 135.1, 133.6, 132.6 (d, *J* = 9.5 Hz), 132.4, 131.1, 129.3, 129.0, 128.9, 128.2, 127.6, 127.4, 124.3 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.0 Hz), 62.8, 52.9, 45.2, 21.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.71 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{25}ClFNO_4Na$: 564.1354; Found: 564.1358.



(*Z*)-**3aah**
$C_{31}H_{23}ClFNO_4$
M = 527.98 g/mol

(*Z*)-3-(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-2,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aah**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (4-chlorophenyl)(phenyl)methyl 4-fluorobenzoate (**2ah**, 68.2 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aah** as a white solid (80.0 mg, 73% yield, *Z*:*E* = 94:6).

(*Z*)-**3aah**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.34-7.20 (m, 9H), 7.05-6.96 (m, 7H), 5.56 (s, 1H), 4.08 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.1 Hz), 164.5, 155.8, 140.4, 139.0, 135.7,135.2, 133.5, 132.6 (d, *J* = 9.5 Hz), 132.5, 131.2, 129.4, 128.9, 128.3, 128.27, 127.6, 127.4, 126.9, 124.3 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.0 Hz), 62.8, 53.2, 45.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.66 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}ClFNO_4Na$: 550.1198; Found: 550.1204.

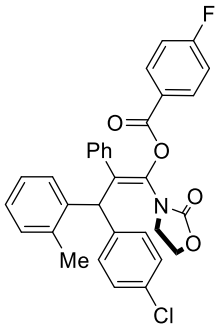


(*Z*)-**3aai**
$C_{32}H_{26}FNO_4$
M = 507.56 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3-diphenyl-3-(p-tolyl)prop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aai**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and phenyl(*p*-tolyl)methyl 4-fluorobenzoate (**2ai**, 64.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aai** as a white solid (86.3 mg, 85% yield, *Z*:*E* > 96:4).

(*Z*)-**3aai**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.4, 5.6 Hz, 2H), 7.31 (d, *J* = 7.6 Hz, 2H), 7.27-7.18 (m, 5H), 7.08 (d, *J* = 8.0

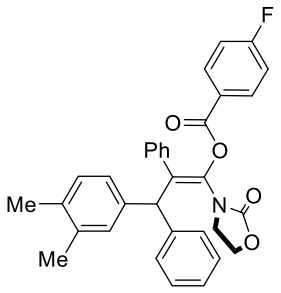
Hz, 2H), 7.03-6.93 (m, 7H), 5.53 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.61 (t, *J* = 8.0 Hz, 2H), 2.30 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 254.0 Hz), 164.6, 155.8, 140.8, 137.3, 136.2, 136.1, 135.0, 134.1, 132.6 (d, *J* = 8.9 Hz), 129.6, 129.5, 128.9, 128.86, 128.1, 127.5, 127.2, 126.6, 124.4 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 53.6, 45.4, 21.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.91 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{26}FNO_4Na$: 530.1744; Found: 530.1754.



(*Z*)-**3aaj**
$C_{32}H_{25}ClFNO_4$
M = 542.00 g/mol

(*Z*)-3-(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenyl-3-(*o*-tolyl)prop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aaj**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (4-chlorophenyl)(*o*-tolyl)methyl 4-fluorobenzoate (**2aj**, 71.0 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aaj** as a white solid (78.0 mg, 72% yield, *Z*:*E* > 96:4).

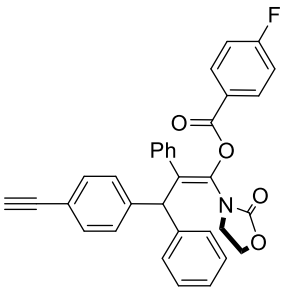
(*Z*)-**3aaj**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.36 (d, *J* = 8.0 Hz, 2H), 7.26-7.19 (m, 5H), 7.17-7.11 (m, 3H), 7.05 (t, *J* = 7.4Hz, 2H), 7.00-6.95 (m, 3H), 5.59 (s, 1H), 3.84 (q, *J* = 8.8 Hz, 1H), 3.70 (q, *J* = 8.4 Hz, 1H), 3.32 (q, *J* = 8.4 Hz, 1H), 3.18 (q, *J* = 8.8 Hz, 1H), 2.45 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.2 Hz), 164.3, 155.7, 139.6, 139.0, 136.8, 136.7, 135.2, 133.5, 132.6 (d, *J* = 9.5 Hz), 132.4, 131.3, 130.3, 129.5, 128.6, 128.4, 127.7, 127.4, 126.8, 125.9, 124.2 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.0 Hz), 62.7, 51.4, 44.4, 19.9 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.69 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{25}ClFNO_4Na$: 564.1354; Found: 564.1360.



(*Z*)-**3aak**
$C_{33}H_{28}FNO_4$
M = 521.59 g/mol

(*Z*)-3-(3,4-dimethylphenyl)-1-(2-oxooxazolidin-3-yl)-2,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aak**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (3,4-dimethylphenyl)(phenyl)methyl 4-fluorobenzoate (**2ak**, 66.9 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aak** as a white solid (76.1 mg, 73% yield, *Z*:*E* = 92:8).

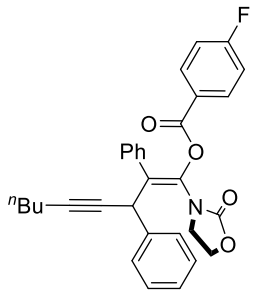
(*Z*)-**3aak**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.79-7.72 (m, 2H), 7.30 (d, *J* = 7.6 Hz, 2H), 7.25 (t, *J* = 7.4 Hz, 2H), 7.19 (d, *J* = 7.2 Hz, 1H), 7.10-6.94 (m, 10H), 5.49 (s, 1H), 4.03 (t, *J* = 8.0 Hz, 2H), 3.62 (t, *J* = 8.0 Hz, 2H), 2.22 (s, 3H), 2.20 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.9 Hz), 164.7, 155.9, 140.8, 137.7, 136.3, 136,26, 134,9, 134.85, 134.2, 132.6 (d, *J* = 9.5 Hz), 130.9, 129.7, 129.4, 128.9, 128.1, 127.4, 127.2, 126.9, 126.5, 124.5 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 53.7, 45.5, 19.7, 19.3 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.97 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{28}FNO_4Na$: 544.1900; Found: 544.1902.



(*Z*)-**3aal**
$C_{33}H_{24}FNO_4$
M = 517.56 g/mol

(*Z*)-3-(4-ethynylphenyl)-1-(2-oxooxazolidin-3-yl)-2,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aal**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (4-ethynylphenyl)(phenyl)methyl 4-fluorobenzoate (**2al**, 66.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aal** as a white solid (63.1 mg, 61% yield, *Z*:*E* = 90:10).

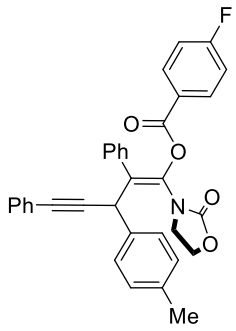
(*Z*)-**3aal**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.78 -7.73 (m, 2H), 7.38 (d, *J* = 8.4 Hz, 2H), 7.33-7.26 (m, 5H), 7.24-7.13 (m, 2H), 7.03-6.95 (m, 7H), 5.58 (s, 1H), 4.06 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H), 3.04 (s, 1H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.3 Hz), 164.5, 155.8, 141.5, 140.2, 135.7, 135.2, 133.5, 132.6 (d, *J* = 9.5 Hz), 131.9, 129.7, 129.5, 128.9, 128.3, 127.6, 127.4, 126.8, 124.3 (d, *J* = 3.0 Hz), 120.4, 115.6 (d, *J* = 22.0 Hz), 83.5, 77.2, 62.8, 53.7, 45.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.71 ppm (The desired product containing a trace amount hydroacyloxylation side product **4aa**). **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{24}FNO_4Na$: 540.1587; Found: 540.1589.



(*Z*)-**3aam**
$C_{31}H_{28}FNO_4$
M = 497.57 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,3-diphenylnon-1-en-4-yn-1-yl 4-fluorobenzoate ((*Z*)-**3aam**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and 1-phenylhept-2-yn-1-yl 4-fluorobenzoate (**2am**, 62.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aam** as a colorless oil (64.7 mg, 65% yield, *Z*:*E* = 71:29).

(*Z*)-**3aam**: **R_f** = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.18 (dd, *J* = 8.4, 5.6 Hz, 2H), 7.38 (d, *J* = 7.2 Hz, 2H), 7.29-7.14 (m, 8H), 7.13-7.07 (m, 2H), 5.18 (s, 1H), 4.08-3.98 (m, 2H), 3.54 (q, *J* = 8.4 Hz, 1H), 3.40 (q, *J* = 8.4 Hz, 1H), 2.15 (td, *J* = 7.2, 2.4 Hz, 2H), 1.44-1.37 (m, 2H), 1.34-1.26 (m, 2H), 0.86 (t, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.5 (d, *J* = 254.5 Hz), 164.0, 155.9, 138.0, 135.3, 134.4, 133.2 (d, *J* = 9.5 Hz), 129.8, 129.2, 128.3, 128.1, 128.0, 127.9, 126.9, 124.7 (d, *J* = 2.9 Hz), 115.9 (d, *J* = 22.0 Hz), 86.3, 77.2, 63.0, 45.9, 39.0, 30.7, 21.9, 18.5, 13.6 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.38 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{28}FNO_4Na$: 520.1900; Found: 520.1912.

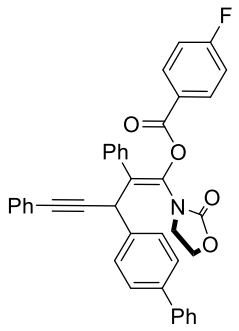


(*Z*)-**3aan**
$C_{34}H_{26}FNO_4$
M = 531.58 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-2,5-diphenyl-3-(*p*-tolyl)pent-1-en-4-yn-1-yl 4-fluorobenzoate ((*Z*)-**3aan**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and 3-phenyl-1-(*p*-tolyl)prop-2-yn-1-yl 4-fluorobenzoate (**2an**, 68.9 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aan** as a white solid (65.9 mg, 62% yield, *Z*:*E* = 75:25).

(*Z*)-**3aan**: **R_f** = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.77 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.44-7.41 (m, 2H), 7.37 (d, *J* = 8.0 Hz, 2H), 7.32-7.28 (m, 3H), 7.11-7.07 (m, 7H), 6.97 (t, *J* = 8.6 Hz, 2H), 5.34 (s, 1H), 4.50-4.37 (m, 2H), 4.18-4.08 (m, 2H), 2.31 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.0 Hz), 164.3, 156.1, 136.9, 134.5, 134.0, 133.8, 132.6 (d, *J* = 9.5 Hz), 131.6, 131.59, 129.1, 129.0, 128.2, 128.1, 128.09, 127.6, 127.4, 124.4 (d, *J* = 2.9 Hz), 123.1,

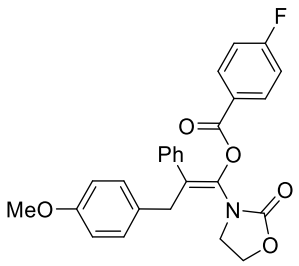
115.6 (d, *J* = 22.0 Hz), 87.2, 85.8, 63.1, 46.3, 39.7, 21.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.90 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{34}H_{26}FNO_4Na$: 554.1744; Found: 554.1760.



(*Z*)-**3aao**
$C_{39}H_{28}FNO_4$
M = 593.65 g/mol

(*Z*)-3-([1,1'-biphenyl]-4-yl)-1-(2-oxooxazolidin-3-yl)-2,5-diphenylpent-1-en-4-yn-1-yl-4-fluorobenzoate ((*Z*)-**3aao**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and 1-([1,1'-biphenyl]-4-yl)-3-phenylprop-2-yn-1-yl 4-fluorobenzoate (**2ao**, 81.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aao** as a white solid (80.7 mg, 68% yield, *Z*:*E* = 76:24).

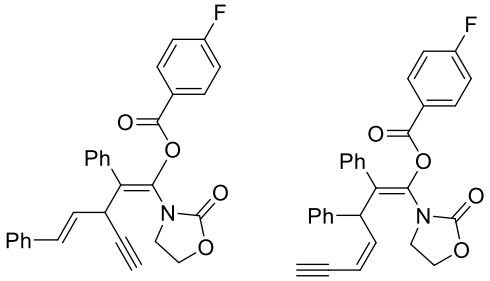
(*Z*)-**3aao**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.78 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.60-7.53 (m, 6H), 7.47-7.40 (m, 4H), 7.35-7.30 (m, 4H), 7.15-7.08 (m, 5H), 6.98 (t, *J* = 8.6 Hz, 2H), 5.42 (s, 1H), 4.52-4.38 (m, 2H), 4.19-4.09 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.0 Hz), 164.3, 156.0, 140.5, 140.1, 136.1, 134.7, 133.9, 132.6 (d, *J* = 9.4 Hz), 131.6, 131.4, 129.1, 128.7, 128.3, 128.2, 127.7, 127.4, 127.2, 127.0, 126.9, 124.4 (d, *J* = 2.9 Hz), 123.0, 115.6 (d, *J* = 22.0 Hz), 87.0, 86.1, 63.1, 46.2, 39.9 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.71 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{39}H_{28}FNO_4Na$: 616.1895; Found: 616.1899.



(*Z*)-**3aap**
$C_{26}H_{22}FNO_5$
M = 447.46 g/mol

(*Z*)-3-(4-methoxyphenyl)-1-(2-oxooxazolidin-3-yl)-2-phenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3aap**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and 4-methoxybenzyl 4-fluorobenzoate (**2ap**, 52.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aap** as a colorless oil (44.7 mg, 50% yield, *Z*:*E* > 96:4).

(*Z*)-**3aap**: $\mathbf{R_f}$ = 0.45 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.20-8.15 (m, 2H), 7.32-7.26 (m, 3H), 7.23-7.14 (m, 4H), 7.07 (d, *J* = 8.4 Hz, 2H), 6.75 (d, *J* = 8.8 Hz, 2H), 4.09 (t, *J* = 8.0 Hz 2H), 3.74 (s, 3H), 3.71 (s, 2H), 3.48 (t, *J* = 8.0 Hz 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.4 (d, *J* = 254.4 Hz), 164.3, 158.1, 156.2, 136.4, 134.9, 133.1 (d, *J* = 9.5 Hz), 129.7, 129.2, 129.19, 128.6, 128.0, 124.6 (d, *J* = 2.7 Hz), 116.0 (d, *J* = 22.0 Hz), 113.8, 63.0, 55.1, 45.6, 37.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.35 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{22}FNO_5Na$: 470.1380; Found: 470.1381.



(*Z*)-**3aaq**
$C_{29}H_{22}FNO_4$
M = 467.50 g/mol

(*Z*)-**3aaq'**
$C_{29}H_{22}FNO_4$
M = 467.50 g/mol

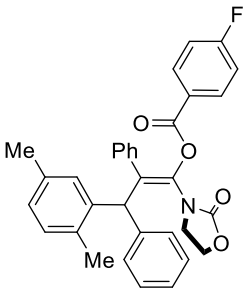
(1*Z*,4*E*)-3-ethynyl-1-(2-oxooxazolidin-3-yl)-2,5-diphenylpenta-1,4-dien-1-yl 4-fluorobenzoate ((*Z*)-**3aaq**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24

mmol) and (*E*)-1-phenylpent-1-en-4-yn-3-yl 4-fluorobenzoate (**2aq**, 56.1 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aaq** as a colorless oil (50.5 mg, 54% yield, *Z*:*E* > 96:4, the desired product containing regioisomer (*Z*-**3aaq'**) which cannot be separated by chromatography).

(*Z*)-**3aaq**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.4, 5.6 Hz, 2H), 7.38-7.29 (m, 4H), 7.24-7.22 (m, 1H), 7.13- 7.07 (m, 3H), 7.06-6.94 (m, 4H), 6.45 (dd, *J* = 16.0, 8.0 Hz, 1H), 5.72 (d, *J* = 16.0 Hz, 1H), 4.85 (d, *J* = 8.0 Hz, 1H), 4.32-4.22 (m, 2H), 3.73 (t, *J* = 8.0 Hz, 2H), 2.86 (s, 1H) ppm.

(*Z*)-**3aaq': $\mathbf{R_f}$** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.75 (dd, *J* = 8.4, 5.6 Hz, 2H), 7.38-7.29 (m, 4H), 7.24-7.22 (m, 1H), 7.13- 7.07 (m, 3H), 7.06-6.94 (m, 4H), 6.26 (t, *J* = 10.4 Hz, 1H), 5.68 (d, *J* = 10.4 Hz, 1H), 5.50 (d, *J* = 10.4 Hz, 1H), 4.32-4.22 (m, 2H), 3.94-3.88 (m, 2H), 3.16 (s, 1H) ppm.

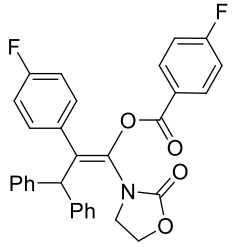
(*Z*)-**3aaq** and (*Z*)-**3aaq': ^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.11 (d, *J* = 254.1 Hz), δ 166.08 (d, *J* = 253.9 Hz) 164.5, 164.3, 156.1, 155.9, 144.1, 142.5, 139.7, 134.9, 134.7 (d, *J* = 8.5 Hz),133.1, 132.7, 132.6 (d, *J* = 9.5 Hz), 128.83, 128.80, 128.54, 128.50, 128.4, 128.1, 127.83, 127.76, 127.6, 127.0, 126.9, 129.8, 124.4 (d, *J* = 3.0 Hz), 124.3 (d, *J* = 2.9 Hz), 115.65 (d, *J* = 22.0 Hz), 115.60 (d, *J* = 22.0 Hz), 111.5, 110.1, 82.8, 81.8, 79.8, 77.8, 63.0, 62.8, 50.7, 47.4, 46.0, 45.3 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.71, -103.92 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{29}H_{22}FNO_4Na$: 490.1431; Found: 490.1429.



(*Z*)-**3aar**
$C_{33}H_{28}FNO_4$
M = 521.59 g/mol

(*Z*)-3-(2,5-dimethylphenyl)-1-(2-oxooxazolidin-3-yl)-2,3-diphenylprop-1-en-1-yl-4-fluorobenzoate ((*Z*)-**3aar**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and (*R*)-(2,5-dimethylphenyl)(phenyl)methyl 4-fluorobenzoate ((R)-**2ar**, 66.9 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3aar** as a white solid (73.0 mg, 70% yield, *Z*:*E* > 96:4).

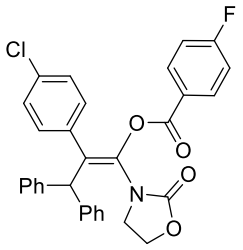
(*Z*)-**3aar**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.77 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.41 (d, *J* = 7.6 Hz, 2H), 7.27 (t, *J* = 7.4 Hz, 2H), 7.20 (t, *J* = 6.4 Hz, 3H), 7.10-7.00 (m, 4H), 6.99-6.92 (m, 4H), 5.57 (s, 1H), 3.84-3.78 (m, 1H), 3.73-3.66 (m, 1H), 3.36-3.29 (m, 1H), 3.25-3.17 (m, 1H), 2.35 (d, *J* = 10.4 Hz, 3H), 2.24 (d, *J* = 12.4 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.9 Hz), 164.4, 155.8, 140.6, 139.3, 137.2, 135.1, 135.06, 134.2, 133.6, 132.6 (d, *J* = 9.4 Hz), 130.5, 130.1, 129.8, 128.6, 128.2, 127.5, 127.3, 127.2, 126.5, 124.4 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 21.9 Hz), 62.7, 52.0, 44.7, 21.0, 19.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.98 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{28}FNO_4Na$: 544.1900; Found: 544.1904.



(*Z*)-**3ba**
$C_{31}H_{23}F_2NO_4$
M = 511.52 g/mol

(*Z*)-2-(4-fluorophenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ba**): Prepared from 3-((4-fluorophenyl)ethynyl)oxazolidin-2-one (**1b**, 49.2 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ba** as a white solid (81.8 mg, 80% yield, *Z*:*E* = 93:7).

(*Z*)-**3ba**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.80 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.32-7.25 (m, 8H), 7.22-7.18 (m, 2H), 7.03-6.97 (m, 4H), 6.70 (t, *J* = 8.6 Hz, 2H), 5.57 (s, 1H), 4.06 (t, *J* = 8.0 Hz, 2H), 3.60 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.4 Hz), 164.4, 161.8 (d, *J* = 245.3 Hz), 155.8, 140.4, 135.3, 133.1, 132.6 (d, *J* = 9.5 Hz), 131.8 (d, *J* = 3.4 Hz), 130.8 (d, *J* = 8.0 Hz), 129.6, 128.2, 126.7, 124.2 (d, *J* = 2.9 Hz), 115.7 (d, *J* = 22.0 Hz), 114.5 (d, *J* = 21.3 Hz), 62.8, 53.8, 45.2 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.44, -114.37 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}F_2NO_4Na$: 534.1493; Found: 534.1500.

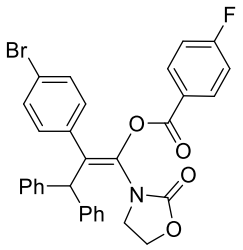


(*Z*)-**3ca**
$C_{31}H_{23}ClFNO_4$
M = 527.98 g/mol

(*Z*)-2-(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ca**): Prepared from 3-((4-chlorophenyl)ethynyl)oxazolidin-2-one (**1c**, 53.2 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ca** as a white solid (68.6 mg, 65% yield, *Z*:*E* = 95:5).

(*Z*)-**3ca**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.80 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.33-7.24 (m, 8H), 7.21 (t, *J* = 6.8 Hz, 2H), 7.04-6.94 (m,

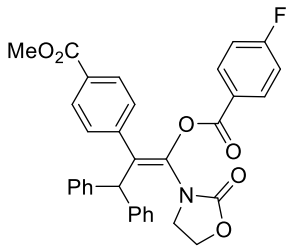
6H), 5.57 (s, 1H), 4.05 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.5 Hz), 164.4, 155.7, 140.3, 135.3, 134.5, 133.3, 132.9, 132.6 (d, *J* = 9.5 Hz), 130.4, 129.6, 128.3, 127.8, 126.8, 124.1 (d, *J* = 2.9 Hz), 115.8 (d, *J* = 22.1 Hz), 62.8, 53.8, 45.2 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -105.89 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}ClFNO_4Na$: 550.1198; Found: 550.1208.



(*Z*)-**3da**
$C_{31}H_{23}BrFNO_4$
M = 572.43 g/mol

(*Z*)-2-(4-bromophenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3da**): Prepared from 3-((4-chlorophenyl)ethynyl)oxazolidin-2-one (**1d**, 63.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 48 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3da** as a white solid (73.3 mg, 64% yield, *Z*:*E* > 96:4).

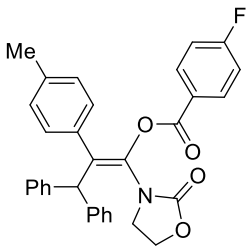
(*Z*)-**3da**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.82-7.78 (m, 2H), 7.32-7.25 (m, 8H), 7.24-7.19 (m, 2H), 7.15 (d, *J* = 8.4 Hz, 2H), 7.02 (t, *J* = 8.6 Hz, 2H), 6.89 (d, *J* = 8.4 Hz, 2H), 5.56 (s, 1H), 4.05 (t, *J* = 8.0 Hz, 2H), 3.59 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.3 (d, *J* = 254.5 Hz), 164.4, 155.7, 140.2, 135.2, 135.0, 133.0, 132.7 (d, *J* = 9.0 Hz), 130.7, 130.6, 129.6, 128.3, 126.8, 124.1 (d, *J* = 2.9 Hz), 121.5, 115.8 (d, *J* = 22.3 Hz), 62.8, 53.7, 45.3 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.30 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}BrFNO_4Na$: 594.0692; Found: 594.0701.



(*Z*)-**3ea**
$C_{32}H_{26}FNO_6$
M = 551.57 g/mol

(*Z*)-2-(4-(methoxycarbonyl)phenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ea**): Prepared from methyl 4-((2-oxooxazolidin-3-yl)ethynyl)benzoate (**1e**, 58.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ea** as a white solid (71.7 mg, 65% yield, *Z*:*E* = 89:11).

(*Z*)-**3ea**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.78 (dd, *J* = 8.8, 5.2 Hz, 2H), 7.69 (d, *J* = 8.4 Hz, 2H), 7.32 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.4 Hz, 4H), 7.21 (t, *J* = 7.0 Hz, 2H), 7.12 (d, *J* = 8.0 Hz, 2H), 6.99 (t, *J* = 8.6 Hz, 2H), 5.61 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.79 (s, 3H), 3.58 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.6 Hz), 166.6, 164.3, 155.6, 141.0, 140.2, 135.2, 133.2, 132.6 (d, *J* = 9.6 Hz), 129.5, 129.1, 128.9, 128.8, 128.3, 126.8, 124.0 (d, *J* = 2.8 Hz), 115.8 (d, *J* = 22.0 Hz), 62.8, 53.7, 52.0, 45.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.32 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{26}FNO_6Na$: 574.1642; Found: 574.1647.

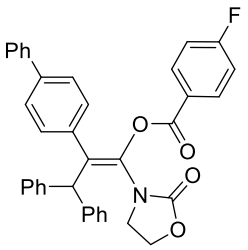


(*Z*)-**3fa**
$C_{32}H_{26}FNO_4$
M = 507.56 g/mol

(*Z*)-1-(2-oxooxazolidin-3-yl)-3,3-diphenyl-2-(p-tolyl)prop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3fa**): Prepared from methyl 3-(*p*-tolylethynyl)oxazolidin-2-one (**1f**, 48.3 mg, 0.24 mmol)

and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3fa** as a white solid (74.5 mg, 73% yield, *Z*:*E* = 94:6).

(*Z*)-**3fa**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.78 (dd, *J* = 8.0, 5.6 Hz, 2H), 7.33 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.4 Hz, 4H), 7.20 (d, *J* = 7.2 Hz, 2H), 6.98 (t, *J* = 8.6 Hz, 2H), 6.92 (d, *J* = 7.6 Hz, 2H), 6.81 (d, *J* = 8.0 Hz, 2H), 5.56 (s, 1H), 4.02 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H), 2.10 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 253.7 Hz), 164.6, 155.9, 140.6, 136.9, 135.0, 134.0, 133.1, 132.6 (d, *J* = 9.5 Hz), 129.7, 128.7, 128.2, 128.15, 126.6, 124.5 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 21.9 Hz), 62.8, 54.1, 45.4, 21.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.99 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{26}FNO_4Na$: 530.1744; Found: 530.1747.

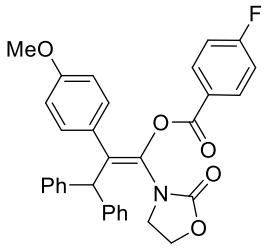


(*Z*)-**3ga**
$C_{37}H_{28}FNO_4$
M = 569.63 g/mol

(*Z*)-2-([1,1'-biphenyl]-4-yl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ga**): Prepared from methyl 3-([1,1'-biphenyl]-4-ylethynyl)oxazolidin-2-one (**1g**, 63.2 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ga** as a white solid (82.0 mg, 72% yield, *Z*:*E* = 94:6).

(*Z*)-**3ga**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.79 (dd, *J* = 8.8, 5.2 Hz, 2H), 7.46-7.18 (m, 17H), 7.10 (d, *J* = 8.4 Hz, 2H), 6.96 (t, *J* = 8.4

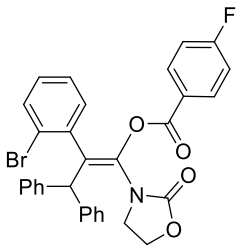
Hz, 2H), 5.62 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.61 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.1 Hz), 164.6, 155.8, 140.5, 140.3, 139.8, 135.2, 135.1, 133.7, 132.6 (d, *J* = 9.5 Hz), 129.7, 129.4, 128.6, 128.2, 127.2, 126.7, 126.1, 124.4 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.0 Hz), 62.8, 54.0, 45.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.74 ppm (The desired product containing a trace amount hydroacyloxylation side product). **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{37}H_{28}FNO_4Na$: 592.1900; Found: 592.1911.



(*Z*)-**3ha**
$C_{32}H_{26}FNO_5$
M = 523.56 g/mol

(*Z*)-2-(4-methoxyphenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ha**): Prepared from methyl 3-((4-methoxyphenyl)ethynyl)oxazolidin-2-one (**1h**, 52.1 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ha** as a white solid (66.0 mg, 63% yield, *Z*:*E* = 94:6).

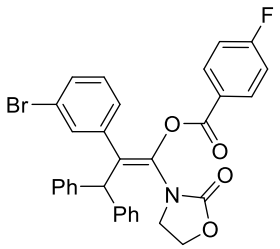
(*Z*)-**3ha**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.81 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.32-7.25 (m, 8H), 7.20 (t, *J* = 7.0 Hz, 2H), 7.00 (t, *J* = 8.6 Hz, 2H), 6.94 (d, *J* = 8.8 Hz, 2H), 6.54 (d, *J* = 8.4 Hz, 2H), 5.56 (s, 1H), 4.05 (t, *J* = 8.0 Hz, 2H), 3.60 (t, *J* = 8.0 Hz, 2H), 3.60 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 253.9 Hz), 164.6, 158.5, 155.9, 140.6, 134.9, 133.7, 132.6 (d, *J* = 9.5 Hz), 130.1, 129.6, 128.9, 128.2, 126.6, 124.4 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.0 Hz), 112.9, 62.8, 54.9, 54.0, 45.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.86 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{26}FNO_5Na$: 546.1693; Found: 546.1703.



(*Z*)-**3ia**
$C_{31}H_{23}BrFNO_4$
M = 572.43 g/mol

(*Z*)-2-(2-bromophenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ia**): Prepared from methyl 3-((2-bromophenyl)ethynyl)oxazolidin-2-one (**1i**, 63.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ia** as a white solid (99.5 mg, 87% yield, *Z*:*E* = 93:7).

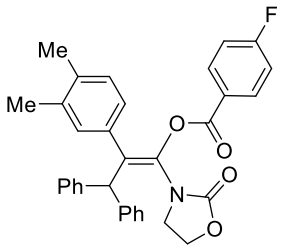
(*Z*)-**3ia**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.55 (d, *J* = 7.6 Hz, 2H), 7.37-7.29 (m, 5H), 7.25-7.16 (m, 3H), 7.12 (d, *J* = 7.2 Hz, 1H), 7.08-7.04 (m, 1H), 6.96 (t, *J* = 8.6 Hz, 2H), 6.91 (t, *J* = 7.6 Hz, 1H), 6.84-6.78 (m, 1H), 5.60 (s, 1H), 3.76 (t, *J* = 8.0 Hz, 2H), 3.44 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 254.1 Hz), 163.6, 154.7, 141.6, 139.7, 137.2, 135.8, 132.5 (d, *J* = 9.5 Hz), 132.3, 131.3, 131.0, 130.0, 129.0, 128.7, 128.2, 128.0, 126.6, 126.5, 126.3, 124.2 (d, *J* = 2.9 Hz), 123.6, 115.6 (d, *J* = 22.0 Hz), 62.5, 53.6, 44.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.71 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}BrFNO_4Na$: 594.0692; Found: 594.0706.



(*Z*)-**3ja**
$C_{31}H_{23}BrFNO_4$
M = 572.43 g/mol

(*Z*)-2-(3-bromophenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ja**): Prepared from 3-((3-bromophenyl)ethynyl)oxazolidin-2-one (**1j**, 63.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ja** as a white solid (89.3 mg, 78% yield, *Z*:*E* > 96:4).

(*Z*)-**3ja**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.83-7.79 (m, 2H), 7.33-7.26 (m, 8H), 7.23-7.20 (m, 3H), 7.11 (d, *J* = 8.0 Hz, 1H), 7.05-6.96 (m, 3H), 6.87 (t, *J* = 7.8 Hz, 1H), 5.57 (s, 1H), 4.03 (t, J = 8.0 Hz, 2H), 3.56 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.2 (d, *J* = 254.4 Hz), 164.4, 155.6, 140.3, 138.1, 135.6, 132.7 (d, *J* = 9.8 Hz), 132.1, 130.3, 129.6, 129.0, 128.3, 127.5, 126.8, 124.1 (d, *J* = 2.9 Hz), 121.4, 115.8 (d, *J* = 22.0 Hz), 62.8, 53.7, 45.1 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.37 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{23}BrFNO_4Na$: 594.0692; Found: 594.0697.

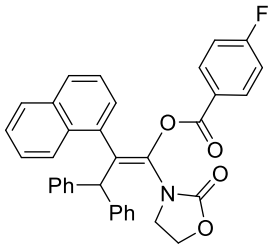


(*Z*)-**3ka**
$C_{33}H_{28}FNO_4$
M = 521.59 g/mol

(Z)-2-(3,4-dimethylphenyl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ka**): Prepared from 3-((3,4-dimethylphenyl)ethynyl)oxazolidin-2-one (**1k**, 51.7 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ka** as a white solid (76.1 mg, 73% yield, *Z*:*E* = 95:5).

(*Z*)-**3ka**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.78 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.33 (d, *J* = 7.6 Hz, 4H), 7.27 (t, *J* = 7.4 Hz, 4H), 7.20 (t, *J* =

7.2 Hz, 2H), 6.98 (t, *J* = 8.6 Hz, 2H), 6.77 (s, 3H), 5.55 (s, 1H), 4.00 (t, *J* = 8.0 Hz, 2H), 3.56 (t, *J* = 8.0 Hz, 2H), 2.01 (s, 3H), 1.96 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.8 Hz), 164.7, 155.9, 140.7, 135.5, 134.9, 134.1, 133.5, 132.6 (d, *J* = 9.8 Hz), 130.2, 129.7, 128.7, 128.1, 126.6, 126.1, 124.6 (d, *J* = 2.9 Hz), 121.4, 115.5 (d, *J* = 22.0 Hz), 62.8, 54.2, 45.4, 19.4, 19.3 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -104.09 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{33}H_{28}FNO_4Na$: 544.1900; Found: 544.1901.

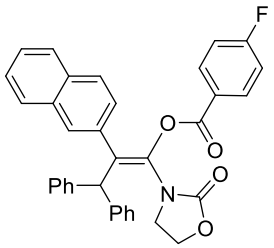


(*Z*)-**3la**
$C_{35}H_{26}FNO_4$
M = 543.59 g/mol

(*Z*)-2-(naphthalen-1-yl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3la**): Prepared from 3-(naphthalen-1-ylethynyl)oxazolidin-2-one (**1l**, 56.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z/E*)-**3la** as a white solid (96.7 mg, 89% yield, *Z*:*E* = 88:12).

(*Z/E*)-**3la**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). (*Z*)-**3la: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.31 (d, *J* = 8.4 Hz, 1H), 7.69 (d, *J* = 7.6 Hz, 2H), 7.57 (d, *J* = 8.4 Hz, 1H), 7.47-7.01 (m, 12H), 6.94-6.85 (m, 3H), 6.73 (t, *J* = 8.6 Hz, 2H), 5.76 (s, 1H), 4.19-4.13 (m, 1H), 3.90 (q, *J* = 8.8 Hz, 1H), 3.74-3.66 (m, 1H), 3.53-3.46 (m, 1H) ppm. (*E*)-**3la: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.12 (d, *J* = 7.2 Hz, 1H), 7.88(dd, *J* = 8.8, 5.6 Hz, 2H), 7.80 (d, *J* = 7.2 Hz, 2H), 7.75 (d, *J* = 7.6 Hz, 2H), 7.47-7.01 (m, 14H), 5.36 (s, 1H), 4.12-4.07 (m, 1H), 3.74-3.66 (m, 1H), 3.34-3.27 (m, 1H), 3.25-3.18 (m, 1H) ppm. (*Z/E*)-**3la: ^{13}C NMR** (100 MHz, $CDCl_3$): δ 165.8 (d, *J* = 253.9 Hz), 164.7, 155.7, 142.0, 140.9, 139.8, 136.8, 135.7, 133.5, 133.0, 132.2 (d, *J* = 9.5 Hz), 131.4, 130.7, 130.1,

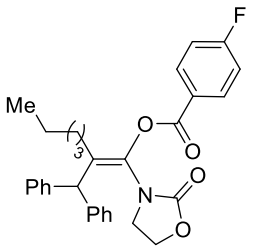
129.8, 129.0, 128.4, 128.3, 128.1, 127.7, 127.6, 127.5, 126.9, 126.7, 126.4, 126.3, 126.2, 126.0, 125.9, 125.5, 125.2, 125.1, 124.2, 124.0 (d, *J* = 2.9 Hz), 115.6, 115.3 (d, *J* = 22.0 Hz), 62.9, 62.87, 55.3, 54.0, 45.4, 44.4 ppm. (*Z/E*)-**3la: ^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.80, -104.10 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{35}H_{26}FNO_4Na$: 566.1744; Found: 566.1749.



(*Z*)-**3ma**
$C_{35}H_{26}FNO_4$
M = 543.59 g/mol

(Z)-2-(naphthalen-2-yl)-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ma**): Prepared from 3-(naphthalen-2-ylethynyl)oxazolidin-2-one (**1m**, 56.9 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ma** as a white solid (80.4 mg, 74% yield, *Z*:*E* = 93:7).

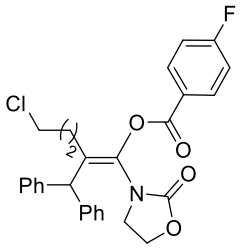
(*Z*)-**3ma**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.72 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.62-7.54 (m, 2H), 7.49 (d, *J* = 6.4 Hz, 2H), 7.37 (d, *J* = 7.6 Hz, 4H), 7.33-7.30 (m, 2H), 7.26 (t, *J* = 7.4 Hz, 4H), 7.19 (t, *J* = 7.4 Hz, 3H), 6.87 (t, *J* = 8.6 Hz, 2H), 5.68 (s, 1H), 4.04 (t, *J* = 8.0 Hz, 2H), 3.62 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 254.1 Hz), 164.6, 155.9, 140.5, 135.4, 133.9, 133.6, 132.6 (d, *J* = 9.5 Hz), 132.5, 132.2, 128.2, 128.1, 127.9, 127.3, 127.1, 126.7, 125.9, 125.7, 124.2 (d, *J* = 2.8 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 54.2, 45.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.78 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{35}H_{26}FNO_4Na$: 566.1744; Found: 566.1750.



(*E*)-**3na**
$C_{30}H_{30}FNO_4$
M = 487.57 g/mol

(*E*)-2-benzhydryl-1-(2-oxooxazolidin-3-yl)hept-1-en-1-yl 4-fluorobenzoate ((*E*)-**3na**): Prepared from 3-(hept-1-yn-1-yl)oxazolidin-2-one (**1n**, 43.5 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 36 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**3na** as a white solid (58.6 mg, 60% yield, *E*:*Z* > 96:4).

(*E*)-**3na**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.16 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.35-7.23 (m, 10H), 7.16 (t, *J* = 8.6 Hz, 2H), 5.29 (s, 1H), 4.09 (t, *J* = 8.0 Hz, 2H), 3.56 (t, *J* = 8.0 Hz, 2H), 1.99-1.94(m, 2H), 0.98-0.90 (m, 6H), 0.63 (t, *J* = 6.8 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.3 (d, *J* = 254.4 Hz), 164.5, 156.0, 141.0, 134.2, 133.0, 132.9 (d, *J* = 9.5 Hz), 129.4, 128.3, 126.7, 124.7 (d, *J* = 2.9 Hz), 115.9 (d, *J* = 22.0 Hz), 62.8, 51.9, 45.7, 31.9, 29.8, 27.9, 21.8, 13.7 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.48 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{30}H_{30}FNO_4Na$: 510.2057; Found: 510.2056.

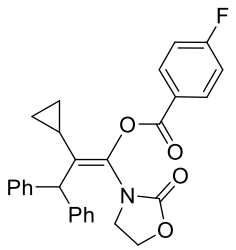


(*E*)-**3oa**
$C_{28}H_{25}ClFNO_4$
M = 493.96 g/mol

(*E*)-2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl 4-fluorobenzoate ((*E*)-**3oa**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol)

and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**3oa** as a white solid (75.1 mg, 76% yield, *E*:*Z* > 96:4).

(*E*)-**3oa**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.16 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.36-7.24 (m, 10H), 7.16 (t, *J* = 8.6 Hz, 2H), 5.32 (s, 1H), 4.13 (t, *J* = 8.0 Hz, 2H), 3.58 (t, *J* = 8.0 Hz, 2H), 3.15 (t, *J* = 6.0 Hz, 2H), 2.20-2.16 (m, 2H), 1.37-1.30 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.5 (d, *J* = 254.6 Hz), 164.5, 156.1, 140.8, 134.9, 133.1 (d, *J* = 9.5 Hz), 131.5, 129.4, 128.6, 127.0, 124.5 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 22.1 Hz), 62.9, 51.8, 45.7, 44.8, 31.1, 27.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.20 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{28}H_{25}ClFNO_4Na$: 516.1354; Found: 516.1352.

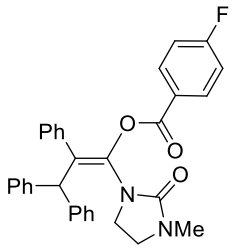


(*E*)-**3pa**
$C_{28}H_{24}FNO_4$
M = 457.50 g/mol

(*E*)-2-cyclopropyl-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl 4-fluorobenzoate ((*E*)-**3pa**): Prepared from 3-(cyclopropylethynyl)oxazolidin-2-one (**1p**, 36.3 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 10 mol% $B(C_6F_5)_3$ at 80 ℃ for 24 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**3pa** as a white solid (76.9 mg, 84% yield, *E*:*Z* > 96:4).

(*E*)-**3pa**: $\mathbf{R_f}$ = 0.45 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 8.18 (dd, *J* = 8.6, 5.4 Hz, 2H), 7.39-7.28 (m, 8H), 7.23 (t, *J* = 7.0 Hz, 2H), 7.16 (t, *J* = 8.6 Hz, 2H), 5.11 (s, 1H), 3.87 (t, *J* = 7.8 Hz, 2H), 3.36 (t, *J* = 7.6 Hz, 2H), 1.34-1.27 (m, 1H), 0.52-0.39 (m, 4H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.3 (d, *J* = 254.2 Hz),

164.1, 155.7, 141.6, 135.2, 132.9 (d, *J* = 9.5 Hz), 132.6, 129.3, 128.2, 125.5, 124.7 (d, *J* = 3.0 Hz), 115.9 (d, *J* = 21.9 Hz), 62.6, 52.3, 45.0, 12.7, 6.4 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.61 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{28}H_{24}FNO_4Na$: 480.1587; Found: 480.1588.

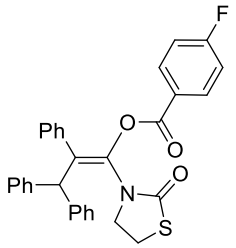


(*Z*)-**3qa**
$C_{32}H_{27}FN_2O_3$
M = 506.58 g/mol

(*Z*)-1-(3-methyl-2-oxoimidazolidin-1-yl)-2,3,3-triphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3qa**): Prepared from 1-methyl-3-(phenylethynyl)imidazolidin-2-one (**1q**, 48.1 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z/E*)-**3qa** as a white solid (91.1 mg, 90% yield, *Z:E* = 55:45).

(*Z/E*)-**3qa**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). (*Z*)-**3qa: ^{1}H NMR** (400 MHz, $CDCl_3$): δ7.75 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.34 (d, *J* = 7.2 Hz, 4H), 7.26-7.15 (m, 8H), 7.10 (d, *J* = 7.2 Hz, 1H), 7.06-6.92 (m, 4H), 5.65 (s, 1H), 3.44 (t, *J* = 8.0 Hz, 2H), 3.11-2.99 (m, 2H), 2.76 (s, 3H) ppm. (*E*)-**3qa: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.83 (dd, J = 8.4, 5.6 Hz, 2H), 7.26-7.15 (m, 12H), 7.10 (d, J = 7.2 Hz, 1H), 7.06-6.92 (m, 4H), 5.37 (s, 1H), 3.26 (t, *J* = 8.0 Hz, 2H), 3.11-2.99 (m, 2H), 2.65 (s, 3H) ppm. (*Z/E*)-**3qa: ^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.2 Hz), 165.9 (d, *J* = 253.1 Hz), 164.7, 163.5, 158.5, 158.1, 141.2, 140.7, 138.8, 137.7, 137.0, 136.6, 132.8 (d, *J* = 9.4 Hz), 132.5 (d, *J* = 9.4 Hz), 132.4, 129.8, 129.4, 129.3, 129.2, 129.1, 128.2, 128.1, 127.9, 127.4, 127.3, 126.9, 126.3, 124.9 (d, *J* = 3.1 Hz), 115.4 (d, *J* = 21.9 Hz), 115.3 (d, *J* = 21.9 Hz), 54.6, 53.7, 45.3, 44.9, 42.8, 42.6, 31.2, 30.9 ppm. (*Z/E*)-**3qa: ^{19}F NMR** (376

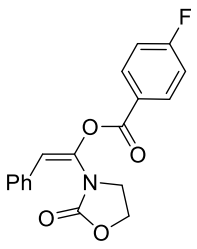
MHz, $CDCl_3$): δ -104.65, -104.75 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{32}H_{27}FN_2O_3Na$: 529.1904; Found: 529.1906.



(*Z*)-**3ra**
$C_{31}H_{24}FNO_3S$
M = 509.60 g/mol

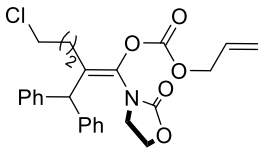
(*Z*)-1-(2-oxothiazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl 4-fluorobenzoate ((*Z*)-**3ra**): Prepared from 3-(phenylethynyl)thiazolidin-2-one (**1r**, 48.8 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**3ra** as a white solid (76.4 mg, 75% yield, *Z*:*E* = 94:6).

(*Z*)-**3ra**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.36-7.17 (m, 10H), 7.01-6.94 (m, 7H), 5.54 (s, 1H), 3.72 (s, 2H), 2.99 (t, *J* = 7.2 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 172.3, 166.0 (d, *J* = 253.8 Hz), 164.4, 140.7, 135.7, 135.5, 133.9, 132.6 (d, *J* = 9.4 Hz), 129.7, 129.1, 128.2, 127.4, 127.2, 126.6, 124.4 (d, *J* = 2.9 Hz), 115.6 (d, *J* = 21.9 Hz), 53.7, 48.9, 26.7 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -103.92 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{24}FNO_3SNa$: 532.1359; Found: 532.1365.



4aa
$C_{18}H_{14}FNO_4$
M = 327.31 g/mol

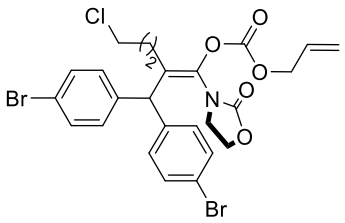
1-(2-oxooxazolidin-3-yl)-2-phenylvinyl 4-fluorobenzoate (**4aa**)**:** $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). ^{1}**H NMR** (400 MHz, $CDCl_3$): δ 8.17 (dd, *J* = 8.8, 5.6 Hz, 2H), 7.41-7.35 (m, 4H), 7.33-7.28 (m, 1H), 7.17 (t, *J* = 8.6 Hz, 2H), 6.39 (s, 1H), 4.37 (t, *J* = 8.0 Hz, 2H), 3.78 (t, *J* = 8.0 Hz, 2H) ppm. ^{13}**C NMR** (100 MHz, $CDCl_3$): δ 166.4 (d, *J* = 254.4 Hz), 164.2, 155.6, 137.6, 133.1 (d, *J* = 9.6 Hz), 131.9, 128.8, 128.2, 128.1, 124.7 (d, *J* = 2.9 Hz), 116.4, 115.9 (d, *J* = 22.0 Hz), 63.2, 44.6 ppm. ^{19}**F NMR** (376 MHz, $CDCl_3$): δ -103.44 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{18}H_{14}FNO_4Na$: 350.0805; Found: 350.0802.



(*E*)-**6oa**
$C_{25}H_{26}ClNO_5$
M = 455.94 g/mol

(*E*)-allyl (2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6oa**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 57.3 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oa** as a white solid (67.5 mg, 74% yield, *E*:*Z* > 96:4).

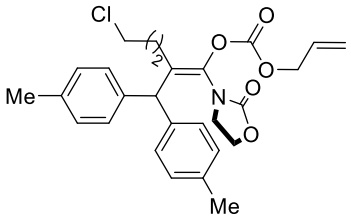
(*E*)-**6oa**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). ^{1}**H NMR** (400 MHz, $CDCl_3$): δ 7.33-7.29 (m, 4H), 7.25-7.23 (m, 6H), 6.01-5.91 (m, 1H), 5.41 (d, *J* = 17.2 Hz, 1H), 5.32 (d, *J* = 10.8 Hz, 1H), 5.24 (s, 1H), 4.72 (d, *J* = 5.6 Hz, 2H), 4.11 (t, *J* = 8.0 Hz, 2H), 3.49 (t, *J* = 8.0 Hz, 2H), 3.23 (t, *J* = 6.2 Hz, 2H), 2.22-2.18 (m, 2H), 1.38-1.31 (m, 2H) ppm. ^{13}**C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.2, 140.7, 140.0, 131.4, 130.7, 129.2, 128.4, 126.9, 119.6, 69.4, 62.7, 51.5, 45.2, 44.9, 30.7, 26.8 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{25}H_{26}ClNO_5Na$: 478.1398; Found: 478.1380.



(*E*)-**6ob**
$C_{25}H_{24}Br_2ClNO_5$
M = 613.73 g/mol

(*E*)-allyl (2-(bis(4-bromophenyl)methyl)-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6ob**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl (bis(4-bromophenyl)methyl) carbonate (**5b**, 85.2 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6ob** as a colorless oil (83.4 mg, 68% yield, *E*:*Z* > 96:4).

(*E*)-**6ob**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.44 (d, *J* = 8.4 Hz, 4H), 7.12 (d, *J* = 8.4 Hz, 4H), 6.01-5.91 (m, 1H), 5.42 (d, *J* = 17.2 Hz, 1H), 5.34 (d, *J* = 10.4 Hz, 1H), 5.14 (s, 1H), 4.72 (d, *J* = 6.0 Hz, 2H), 4.18 (t, *J* = 8.0 Hz, 2H), 3.50 (t, *J* = 8.0 Hz, 2H), 3.28 (t, *J* = 6.0 Hz, 2H), 2.18-2.14 (m, 2H), 1.40-1.33 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.1, 139.3, 135.3, 131.7, 130.9, 130.6, 130.3, 121.1, 112.0, 69.6, 62.6, 50.4, 44.9, 44.8, 30.7, 26.5 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{25}H_{24}Br_2ClNO_5Na$: 633.9602; Found: 633.9609.

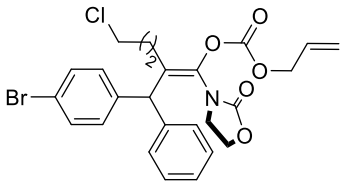


(*E*)-**6oc**
$C_{27}H_{30}ClNO_5$
M =488.99 g/mol

(*E*)-allyl (5-chloro-2-(di-p-tolylmethyl)-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6oc**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl (di-*p*-tolylmethyl) carbonate (**5c**, 59.3 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on

silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oc** as a white solid (58.7 mg, 60% yield, *E*:*Z* > 96:4).

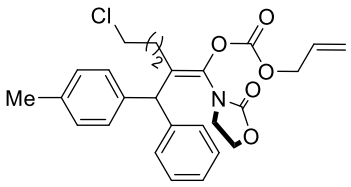
(*E*)-**6oc**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.14-7.09 (m, 8H), 6.01-5.91 (m, 1H), 5.41 (d, *J* = 17.2 Hz, 1H), 5.32 (d, *J* = 10.4 Hz, 1H), 5.14 (s, 1H), 4.71 (d, *J* = 5.6 Hz, 2H), 4.13 (t, *J* = 8.0 Hz, 2H), 3.52 (t, *J* = 8.0 Hz, 2H), 3.24 (t, *J* = 6.2 Hz, 2H), 2.32 (s, 6H), 2.20-2.16 (m, 2H), 1.39-1.32 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.7, 153.4, 137.8, 136.4, 134.7, 131.7, 130.8, 129.09, 129.08, 119.6, 69.4, 62.7, 50.8, 45.4, 45.0, 30.7, 26.8, 21.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{27}H_{30}ClNO_5Na$: 506.1711; Found: 506.1692.



(*E*)-**6od**
$C_{25}H_{25}BrClNO_5$
M =534.83 g/mol

(*E*)-allyl (2-((4-bromophenyl)(phenyl)methyl)-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6od**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl ((4-bromophenyl)(phenyl)methyl) carbonate (**5d**, 69.4 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6od** as a colorless oil (74.9 mg, 70% yield, *E*:*Z* > 96:4).

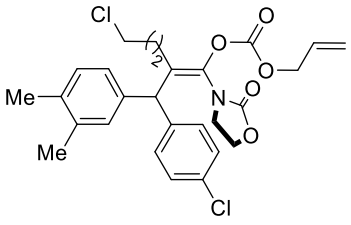
(*E*)-**6od**: **R_f** = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.44 (d, *J* = 8.4 Hz, 2H), 7.34-7.25 (m, 3H), 7.21 (d, *J* = 7.6 Hz, 2H), 7.15 (d, *J* = 8.4 Hz, 2H), 6.01-5.91 (m, 1H), 5.42 (d, *J* = 17.2 Hz, 1H), 5.33 (d, *J* = 10.4 Hz, 1H), 5.19 (s, 1H), 4.72 (d, *J* = 6.0 Hz, 2H), 4.15 (t, *J* = 8.0 Hz, 2H), 3.50 (t, *J* = 8.0 Hz, 2H), 3.25 (t, *J* = 6.0 Hz, 2H), 2.18 (t, *J* = 8.0 Hz, 2H), 1.42-1.29 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.2, 140.2, 139.8, 135.2, 131.5, 131.0, 130.9, 130.7, 129.1, 128.6, 127.1, 120.9, 119.8, 69.5, 62.7, 51.0, 45.0, 44.8, 30.7, 26.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{25}H_{25}BrClNO_5Na$: 556.0497; Found: 556.0499.



(*E*)-**6oe**
$C_{26}H_{28}ClNO_5$
M =469.96 g/mol

(*E*)-allyl (5-chloro-1-(2-oxooxazolidin-3-yl)-2-(phenyl(p-tolyl)methyl)pent-1-en-1-yl) carbonate ((*E*)-**6oe**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl (phenyl(p-tolyl)methyl) carbonate (**5e**, 56.5 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oe** as a white solid (67.7 mg, 72% yield, *E*:*Z* > 96:4).

(*E*)-**6oe**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.32-7.28 (m, 2H), 7.26-7.21 (m, 3H), 7.12 (s, 4H), 6.01-5.91 (m, 1H), 5.41 (d, *J* = 17.2 Hz, 1H), 5.32 (d, *J* = 10.4 Hz, 1H), 5.19 (s, 1H), 4.72 (d, *J* = 5.6 Hz, 2H), 4.12 (t, *J* = 8.0 Hz, 2H), 3.51 (t, *J* = 8.0 Hz, 2H), 3.23 (t, *J* = 6.4 Hz, 2H), 2.33 (s, 3H), 2.19 (t, *J* = 8.0 Hz, 2H), 1.41-1.30 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.7, 153.3, 140.9, 137.5, 136.5, 134.8, 131.6, 130.8, 129.2, 129.12, 129.08, 128.4, 126.8, 119.6, 69.4, 62.7, 51.2, 45.3, 44.9, 30.7, 26.8, 21.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{28}ClNO_5Na$: 492.1554; Found: 492.1535.

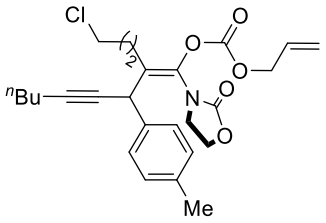


(*E*)-**6of**
$C_{27}H_{29}Cl_2NO_5$
M =518.43 g/mol

(*E*)-allyl (5-chloro-2-((4-chlorophenyl)(3,4-dimethylphenyl)methyl)-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6of**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl ((4-chlorophenyl)(3,4-dimethylphenyl)methyl) carbonate (**5f**, 66.2 mg, 0.2 mmol) according to the GP2 with

5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6of** as a colorless oil (51.8 mg, 50% yield, *E*:*Z* > 96:4).

(*E*)-**6of**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.27 (d, *J* = 8.4 Hz, 2H), 7.20 (d, *J* = 8.4 Hz, 2H), 7.07 (d, *J* = 7.6 Hz, 1H), 6.95-6.91 (m, 2H), 6.01-5.91 (m, 1H), 5.42 (d, *J* = 17.2 Hz, 1H), 5.33 (d, *J* = 10.4 Hz, 1H), 5.12 (s, 1H), 4.72 (d, *J* = 6.0 Hz, 2H), 4.14 (t, *J* = 8.4 Hz, 2H), 3.50 (t, *J* = 8.0 Hz, 2H), 3.26 (t, *J* = 6.0 Hz, 2H), 2.24-2.13 (m, 8H), 1.40-1.32 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.7, 153.3, 139.6, 137.5, 136.8, 135.4, 135.0, 132.6, 131.2, 130.8, 130.7, 130.4, 129.8, 128.5, 126.4, 119.7, 69.5, 62.7, 50.6, 45.2, 45.0, 30.8, 26.7, 19.8, 19.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{27}H_{29}Cl_2NO_5Na$: 540.1321; Found: 540.1304.

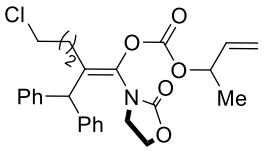


(*E*)-**6oh**
$C_{26}H_{32}ClNO_5$
M =473.99 g/mol

(*E*)-allyl (2-(3-chloropropyl)-1-(2-oxooxazolidin-3-yl)-3-(p-tolyl)non-1-en-4-yn-1-yl) carbonate ((*E*)-**6oh**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and allyl (1-(*p*-tolyl)hept-2-yn-1-yl) carbonate (**5h**, 57.3 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oh** as a colorless oil (72.0 mg, 76% yield, *E*:*Z* > 96:4).

(*E*)-**6oh**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.36 (d, *J* = 7.6 Hz, 2H), 7.13 (d, *J* = 7.6 Hz, 2H), 6.00-5.90 (m, 1H), 5.40 (d, *J* = 17.2 Hz, 1H), 5.31 (d, *J* = 10.4 Hz, 1H), 4.73 (s, 1H), 4.69 (d, *J* = 6.0 Hz, 2H), 4.44-4.31 (m, 2H), 3.96-3.86 (m, 2H), 3.44-3.36 (m, 2H), 2.33 (s, 3H), 2.27 (t, *J* = 6.8 Hz, 2H), 2.05-1.98 (m, 1H), 1.93-1.86 (m, 1H), 1.69-1.62 (m, 2H), 1.57-1.50 (m, 2H), 1.48-1.39 (m,

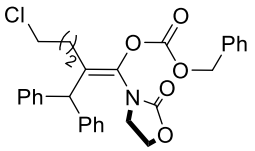
2H), 0.93 (t, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.7, 153.0, 136.9, 134.6, 134.4, 130.8, 129.8, 129.2, 127.7, 119.6, 85.6, 77.4, 69.4, 62.9, 46.0, 44.7, 37.8, 31.2, 30.8, 25.4, 22.0, 21.0, 18.5, 13.5 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{32}ClNO_5Na$: 496.1861; Found: 496.1868.



(*E*)-**6oi**
$C_{26}H_{28}ClNO_5$
M =469.96 g/mol

(*E*)-2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl but-3-en-2-yl carbonate ((*E*)-**6oi**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and benzhydryl but-3-en-2-yl carbonate (**5i**, 56.5 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oi** as a colorless oil (69.5 mg, 74% yield, *E*:*Z* > 96:4).

(*E*)-**6oi**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.33-7.29 (m, 4H), 7.25-7.22 (m, 6H), 5.94-5.85 (m, 1H), 5.35 (d, *J* = 17.2 Hz, 1H), 5.28-5.21 (m, 3H), 4.10 (t, *J* = 8.0 Hz, 2H), 3.47 (t, *J* = 8.0 Hz, 2H), 3.22 (t, *J* = 6.2 Hz, 2H), 2.21-2.17 (m, 2H), 1.43 (d, *J* = 6.8 Hz, 3H), 1.39-1.32 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 152.7, 140.8, 136.4, 135.0, 131.3, 129.3, 128.4, 126.9, 117.2, 76.7, 62.6, 51.6, 45.1, 44.9, 30.7, 26.9, 19.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{28}ClNO_5Na$: 492.1548; Found: 492.1557.

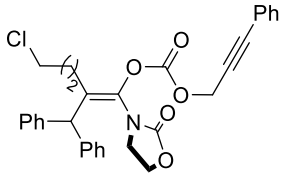


(*E*)-**6oj**
$C_{29}H_{28}ClNO_5$
M =506.00 g/mol

(*E*)-2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl benzyl carbonate ((*E*)-**6oj**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol)

and benzhydryl benzyl carbonate (**5j**, 63.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6oj** as a colorless oil (41.5 mg, 41% yield, *E*:*Z* > 96:4).

(*E*)-**6oj**: **R_f** = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.42-7.35 (m, 5H), 7.33-7.28 (m, 4H), 7.25-7.22 (m, 6H), 5.25 (s, 2H), 5.23 (s, 1H), 4.07 (t, *J* = 8.0 Hz, 2H), 3.44 (t, *J* = 8.0 Hz, 2H), 3.16 (t, *J* = 6.2 Hz, 2H), 2.18-2.14 (m, 2H), 1.34-1.26 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.4, 140.7, 135.0, 134.5, 131.4, 129.3, 128.8, 128.7, 128.4, 128.3, 126.9, 70.7, 62.6, 51.6, 45.1, 44.9, 30.7, 26.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{29}H_{28}ClNO_5Na$: 528.1554; Found: 528.1539.

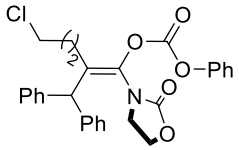


(*E*)-**6ok**
$C_{31}H_{28}ClNO_5$
M =530.02 g/mol

(*E*)-2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl (3-phenylprop-2-yn-1-yl) carbonate ((*E*)-**6ok**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and benzhydryl (3-phenylprop-2-yn-1-yl) carbonate (**5k**, 68.5 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6ok** as a colorless oil (42.4 mg, 40% yield, *E*:*Z* > 96:4).

(*E*)-**6ok**: **R_f** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.45 (d, *J* = 8.0 Hz, 1H), 7.35-7.29 (m, 7H), 7.26-7.21 (m, 7H), 5.24 (s, 1H), 5.05 (s, 2H), 4.09 (t, *J* = 8.0 Hz, 2H), 3.49 (t, *J* = 8.0 Hz, 2H), 3.22 (t, *J* = 6.0 Hz, 2H), 2.24-2.20 (m, 2H), 1.40-1.33 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.1, 140.7, 135.1, 131.9, 131.8, 129.3, 129.1, 128.5, 128.4, 127.0, 121.7, 88.0, 81.5, 62.7, 57.3,

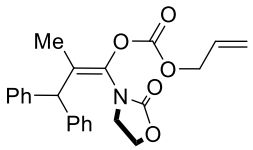
51.7, 45.2, 44.9, 30.8, 27.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{31}H_{28}ClNO_5Na$: 552.1548; Found: 552.1557.



(*E*)-**6ol**
$C_{28}H_{26}ClNO_5$
M =491.97 g/mol

(*E*)-2-benzhydryl-5-chloro-1-(2-oxooxazolidin-3-yl)pent-1-en-1-yl phenyl carbonate ((*E*)-**6ol**): Prepared from 3-(5-chloropent-1-yn-1-yl)oxazolidin-2-one (**1o**, 45.0 mg, 0.24 mmol) and benzhydryl phenyl carbonate (**5l**, 60.9 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6ol** as a colorless oil (62.9 mg, 64% yield, *E*:*Z* > 96:4).

(*E*)-**6ol**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.42 (t, *J* = 7.8 Hz, 2H), 7.33-7.24 (m, 13H), 5.26 (s, 1H), 4.15 (t, *J* = 8.0 Hz, 2H), 3.55 (t, *J* = 8.0 Hz, 2H), 3.27 (t, *J* = 6.0 Hz, 2H), 2.30-2.26 (m, 2H), 1.42-1.35 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.7, 152.4, 150.8, 140.5, 135.0, 132.1, 129.6, 129.2, 128.5, 127.0, 126.6, 120.8, 62.8, 51.6, 45.5, 45.0, 30.7, 27.0 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{28}H_{26}ClNO_5Na$: 514.1398; Found: 514.1382.

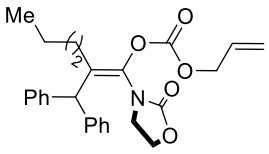


(*E*)-**6sa**
$C_{23}H_{23}NO_5$
M =393.44 g/mol

(*E*)-allyl (2-methyl-1-(2-oxooxazolidin-3-yl)-3,3-diphenylprop-1-en-1-yl) carbonate ((*E*)-**6sa**): Prepared from 3-(prop-1-yn-1-yl)oxazolidin-2-one (**1s**, 30.0 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using

petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6sa** as a white solid (63.0 mg, 80% yield, *E*:*Z* > 96:4).

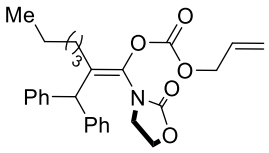
(*E*)-**6sa**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.33-7.29 (m, 4H), 7.26-7.22 (m, 6H), 6.01-5.91 (m, 1H), 5.41 (dd, *J* = 17.2, 1.2 Hz, 1H), 5.31 (dd, *J* = 10.4, 1.2 Hz, 1H), 5.22 (s, 1H), 4.71 (dt, *J* = 5.6, 1.2 Hz, 2H), 4.15 (t, *J* = 8.0 Hz, 2H), 3.50 (t, *J* = 8.0 Hz, 2H), 1.60 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.8, 153.2, 141.0, 133.8, 130.8, 129.1, 128.9, 128.4, 126.7, 119.4, 69.3, 62.7, 51.6, 45.1, 14.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{23}H_{23}NO_5Na$: 416.1474; Found: 416.1460.



(*E*)-**6ta**
$C_{26}H_{29}NO_5$
M =435.52 g/mol

(*E*)-allyl (2-benzhydryl-1-(2-oxooxazolidin-3-yl)hex-1-en-1-yl) carbonate ((*E*)-**6ta**): Prepared from 3-(hex-1-yn-1-yl)oxazolidin-2-one (**1t**, 40.1 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6ta** as a colorless oil (73.9 mg, 85% yield, *E*:*Z* > 96:4).

(*E*)-**6ta**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.32-7.28 (m, 4H), 7.25-7.21 (m, 6H), 6.01-5.91 (m, 1H), 5.41 (dd, *J* = 17.2, 1.2 Hz, 1H), 5.32 (dd, *J* = 10.4, 1.2 Hz, 1H), 5.21 (s, 1H), 4.71 (d, *J* = 5.6 Hz, 2H), 4.05 (t, *J* = 8.0 Hz, 2H), 3.45 (t, *J* = 8.0 Hz, 2H), 2.02-1.98 (m, 2H), 1.08-0.94 (m, 4H), 0.66 (t, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.5, 141.0, 134.3, 133.0, 130.9, 129.3, 128.3, 126.7, 119.4, 69.2, 62.6, 51.7, 45.2, 30.0, 29.3, 22.7, 13.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{29}NO_5Na$: 458.1944; Found: 458.1927.



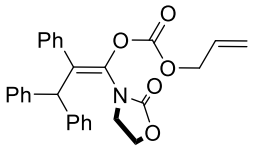
(*E*)-**6na**

$C_{27}H_{31}NO_5$

M =449.55 g/mol

(*E*)-allyl (2-benzhydryl-1-(2-oxooxazolidin-3-yl)hept-1-en-1-yl) carbonate ((*E*)-**6na**): Prepared from 3-(hept-1-yn-1-yl)oxazolidin-2-one (**1n**, 43.5 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6na** as a colorless oil (71.9 mg, 80% yield, *E*:*Z* > 96:4).

(*E*)-**6na**: $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.31-7.21 (m, 10H), 6.01-5.91 (m, 1H), 5.41 (d, *J* = 17.2 Hz, 1H), 5.31 (d, *J* = 10.4 Hz, 1H), 5.21 (s, 1H), 4.71 (d, *J* = 5.6 Hz, 2H), 4.05 (t, *J* = 8.0 Hz, 2H), 3.45 (t, *J* = 8.0 Hz, 2H), 2.01-1.97 (m, 2H), 1.09-0.99 (m, 6H), 0.72 (t, J = 6.8 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.6, 153.5, 141.1, 134.4, 133.1, 130.9, 129.4, 128.3, 126.7, 119.4, 69.3, 62.6, 51.8, 45.3, 31.9, 29.7, 27.6, 21.9, 13.8 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{27}H_{31}NO_5Na$: 472.2100; Found: 472.2088.



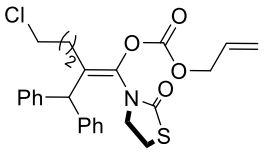
(*Z*)-**6aa**

$C_{28}H_{25}NO_5$

M =455.51 g/mol

(*Z*)-allyl (1-(2-oxooxazolidin-3-yl)-2,3,3-triphenylprop-1-en-1-yl) carbonate ((*Z*)-**6aa**): Prepared from 3-(phenylethynyl)oxazolidin-2-one (**1a**, 44.9 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*Z*)-**6aa** as a colorless oil (36.4 mg, 40% yield, *Z*:*E* > 96:4).

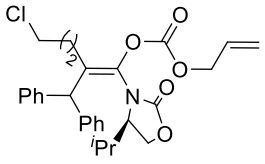
(*Z*)-**6aa**: **R*f*** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.29-7.22 (m, 8H), 7.19 (d, *J* = 7.2 Hz, 2H), 7.13-7.11 (m, 3H), 7.07-7.03 (m, 2H), 5.71-5.61 (m, 1H), 5.53 (s, 1H), 5.15-5.07 (m, 2H), 4.44 (d, *J* = 5.6 Hz, 2H), 4.00 (t, *J* = 8.0 Hz, 2H), 3.48 (t, *J* = 8.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 155.4, 153.1, 140.7, 135.7, 135.1, 134.0, 130.6, 129.6, 129.0, 128.2, 127.7, 127.4, 126.6, 118.9, 69.1, 62.6, 53.9, 44.6 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{28}H_{25}NO_5Na$: 478.1631; Found: 478.1617.



(*E*)-**6ua**
$C_{25}H_{26}ClNO_4S$
M =472.00 g/mol

(*E*)-allyl (2-benzhydryl-5-chloro-1-(2-oxothiazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6ua**): Prepared from 3-(5-chloropent-1-yn-1-yl)thiazolidin-2-one (**1u**, 48.9 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6ua** as a colorless oil (79.3 mg, 84% yield, *E*:*Z* > 96:4).

(*E*)-**6ua**: **R*f*** = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.32-7.28 (m, 4H), 7.26-7.21 (m, 6H), 6.01-5.91 (m, 1H), 5.41 (d, *J* = 17.2 Hz, 1H), 5.32 (d, *J* = 10.4 Hz, 1H), 5.18 (s, 1H), 4.71 (d, *J* = 5.6 Hz, 2H), 3.74-3.36 (m, 2H), 3.20 (t, *J* = 6.2 Hz, 2H), 3.04 (t, *J* = 6.8 Hz, 2H), 2.19 (s, 2H), 1.53-0.98 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 171.9, 153.2, 140.8, 135.4, 131.2, 130.8, 129.3, 128.5, 126.9, 119.5, 69.4, 51.5, 48.9, 44.9, 30.7, 26.8, 26.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{25}H_{26}ClNO_4Na$: 494.1163; Found: 494.1168.



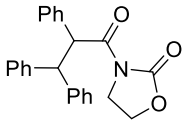
(*E*)-**6va**

$C_{28}H_{32}ClNO_5$

M =498.02 g/mol

(*R*,*E*)-allyl (2-benzhydryl-5-chloro-1-(4-isopropyl-2-oxooxazolidin-3-yl)pent-1-en-1-yl) carbonate ((*E*)-**6va**): Prepared from (*R*)-3-(5-chloropent-1-yn-1-yl)-4-isopropyloxazolidin-2-one (**1v**, 55.1 mg, 0.24 mmol) and allyl benzhydryl carbonate (**5a**, 53.7 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6va** as a colorless oil (49.8 mg, 50% yield, *E*:*Z* > 96:4).

(*E*)-**6va**: $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.36 (d, *J* = 7.6 Hz, 2H), 7.31-7.21 (m, 6H), 7.17 (d, *J* = 7.6 Hz, 2H), 6.02-5.91 (m, 1H), 5.43 (d, *J* = 16.4 Hz, 2H), 5.33 (d, *J* = 10.4 Hz, 1H), 4.72 (d, *J* = 6.0 Hz, 2H), 4.18 (d, *J* = 8.0 Hz, 1H), 4.05 (t, *J* = 7.4 Hz, 1H), 3.72 (s, 1H), 3.23-3.17 (m, 1H), 3.12-3.05 (m, 1H), 2.56-2.39 (m, 1H), 2.11 (s, 1H), 1.87-1.76 (m, 1H), 1.37-1.25 (m, 1H), 1.04-0.85 (m, 1H), 0.69 (d, *J* = 7.2 Hz, 3H), 0.41 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 156.0, 152.6, 141.5, 141.3, 134.5, 131.3, 130.8, 130.1, 129.0, 128.21, 128.19, 126.8, 126.6, 119.9, 69.5, 63.2, 59.8, 50.5, 45.0, 30.8, 28.6, 26.8, 18.3, 13.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{28}H_{32}ClNO_5Na$: 520.1861; Found: 520.1866.



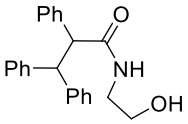
8

$C_{24}H_{21}NO_3$

M = 371.44 g/mol

3-(2,3,3-triphenylpropanoyl)oxazolidin-2-one (**8**): $\mathbf{R_f}$ = 0.50 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.44 (d, *J* = 7.2 Hz, 2H), 7.38 (d, *J* = 7.2 Hz, 2H), 7.28 (t, *J* = 7.6 Hz, 2H), 7.18-7.03 (m, 8H), 6.97 (t, *J* = 7.2 Hz, 1H), 6.19 (d, *J* = 12.0 Hz, 1H), 4.82 (d, *J* = 12.4 Hz, 1H), 4.14 (t, *J* = 8.0 Hz, 2H), 3.78-3.65 (m, 2H) ppm. **^{13}C**

NMR (100 MHz, $CDCl_3$): δ 173.0, 153.3, 143.1, 141.4, 136.5, 129.4, 128.7, 128.3, 128.3, 128.1, 127.6, 127.4, 126.6, 126.2, 61.6, 55.3, 52.3, 42.7 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{24}H_{21}NO_3Na$: 394.1419; Found: 394.1416.

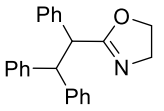


9

$C_{23}H_{23}NO_2$

M = 345.44 g/mol

***N*-(2-hydroxyethyl)-2,3,3-triphenylpropanamide** (**9**): $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 1/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.44 (d, *J* = 7.2 Hz, 2H), 7.35-7.26 (m, 4H), 7.22-7.07 (m, 8H), 7.01 (d, *J* = 5.6 Hz, 1H), 5.95 (s, 1H), 4.83 (d, *J* = 11.6 Hz, 1H), 4.13 (d, *J* = 12.4 Hz, 1H), 3.31-3.28 (m, 3H), 2.97-2.92 (m, 1H), 1.79 (s, 1H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 173.0, 143.3, 141.4, 137.7, 128.6, 128.4, 128.3, 128.2, 128.1, 127.2, 126.6, 126.2, 61.8, 58.8, 54.4, 42.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{23}H_{23}NO_2Na$: 368.1627; Found: 368.1626.

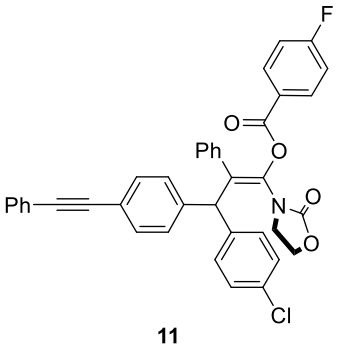


10

$C_{23}H_{21}NO$

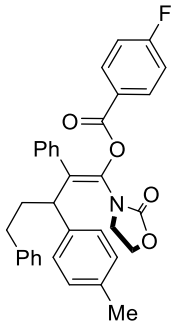
M = 327.43 g/mol

2-(1,2,2-triphenylethyl)-4,5-dihydrooxazole (**10**): $\mathbf{R_f}$ = 0.30 (petroleum ether/EtOAc = 3/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.42 (d, *J* = 7.6 Hz, 2H), 7.37-7.23 (m, 5H), 7.17 (t, *J* = 6.8 Hz, 3H), 7.12 (d, *J* = 7.2 Hz, 1H), 7.07 (d, *J* = 4.0 Hz, 3H), 7.01-6.96 (m, 1H), 4.71 (d, *J* = 12.4 Hz, 1H), 4.54 (d, *J* = 12.0 Hz, 1H), 4.09-4.03 (m, 1H), 3.97-3.90 (m, 1H), 3.58 (t, *J* = 9.0 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 168.0, 142.9, 141.9, 138.1, 128.7, 128.4, 128.3, 128.24, 128.16, 127.9, 127.0, 126.4, 126.1, 67.3, 54.9, 54.0, 50.3 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{23}H_{21}NONa$: 328.1701; Found: 328.1699.



11
$C_{39}H_{27}ClFNO_4$
M =628.10 g/mol

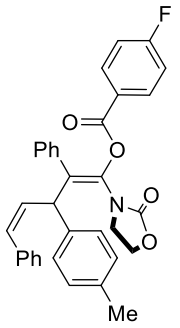
(*Z*)-3-(4-chlorophenyl)-1-(2-oxooxazolidin-3-yl)-2-phenyl-3-(4-(phenylethynyl)phenyl)prop-1-en-1-yl 4-fluorobenzoate (**11**): $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.76 (dd, *J* = 8.0, 5.6 Hz, 2H), 7.54-7.49 (m, 2H), 7.45 (d, *J* = 8.0 Hz, 2H), 7.36-7.30 (m, 5H), 7.28-7.22 (m, 4H), 7.02-6.96 (m, 7H), 5.58 (s, 1H), 4.11 (t, *J* = 8.0 Hz, 2H), 3.60 (t, *J* = 7.9 Hz, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.1 (d, *J* = 254.2 Hz), 164.4, 155.8, 140.7, 138.6, 135.3, 135.25, 133.0, 132.6 (d, *J* = 9.5 Hz), 132.59, 131.5, 131.46, 131.0, 129.5, 128.8, 128.31, 128.28, 128.2, 127.7, 127.5, 124.1 (d, *J* = 2.9 Hz), 123.0, 121.7, 115.6 (d, *J* = 22.0 Hz), 89.6, 89.0, 62.8, 53.0, 44.9 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): -103.43 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{39}H_{27}ClFNO_4Na$: 650.1511; Found: 650.1512.



(*Z*)-**12**
$C_{34}H_{30}FNO_4$
M =535.62 g/mol

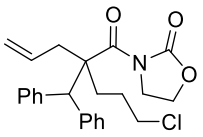
(*Z*)-1-(2-oxooxazolidin-3-yl)-2,5-diphenyl-3-(p-tolyl)pent-1-en-1-yl 4-fluorobenzoate ((*Z*)-**12**): $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.65 (dd, *J* = 8.8, 5.4 Hz, 2H), 7.30-7.25 (m, 2H), 7.20 (d, *J* = 7.2 Hz, 1H), 7.16-7.05 (m, 7H), 7.02 (d, *J* = 8.0 Hz, 2H), 6.92 (t, *J* = 8.6 Hz, 2H), 6.80-6.78 (m, 2H), 4.26-4.13 (m, 2H),

4.01 (dd, *J* = 9.4, 5.8 Hz, 1H), 3.99-3.80 (m, 1H), 3.60-3.54 (m, 1H), 2.74 -2.59 (m, 2H), 2.33 (s, 3H), 2.25-2.18 (m, 1H), 2.12-2.03 (m, 1H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.7 Hz), 164.6, 158.2, 141.8, 136.4, 136.3, 135.9, 134.3, 133.3, 132.5 (d, *J* = 9.5 Hz), 128.93, 128.89, 128.71, 128.67, 128.3, 127.4, 127.3, 125.8, 124.5 (d, *J* = 3.0 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 46.0, 44.8, 33.5, 33.3, 21.0 ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): -104.14 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{34}H_{30}FNO_4Na$: 558.2057; Found: 558.2063.



(*Z*)-**13**
$C_{34}H_{28}FNO_4$
M =533.60 g/mol

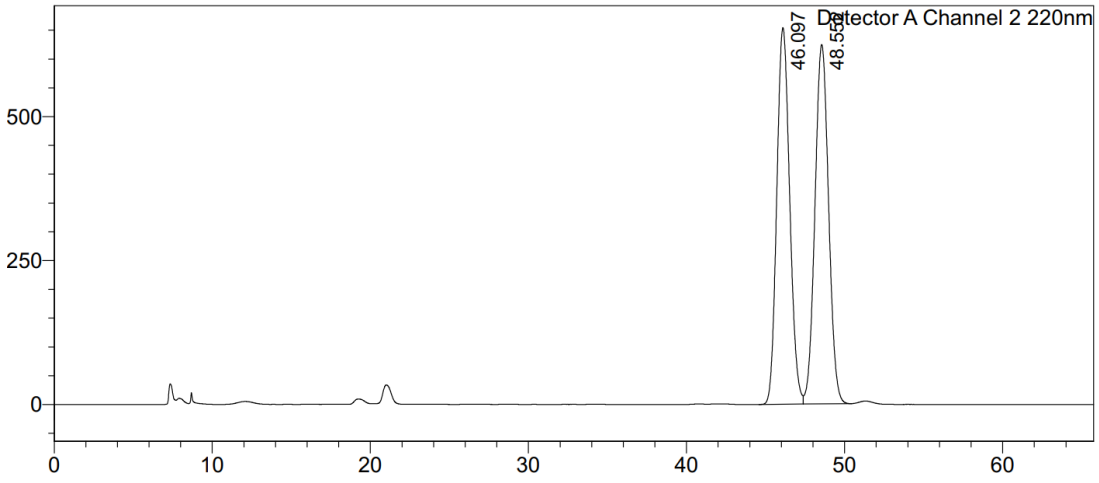
(1*Z*,4*Z*)-1-(2-oxooxazolidin-3-yl)-2,5-diphenyl-3-(p-tolyl)penta-1,4-dien-1-yl 4-fluorobenzoate ((*Z*)-**13**): **R_f** = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.73 (s, 2H), 7.34-7.24 (m, 7H), 7.16 (d, *J* = 6.8 Hz, 2H), 7.10 (s, 3H), 6.97-6.89 (m, 4H), 6.74 (d, *J* = 11.2 Hz, 1H), 5.92 (t, *J* = 11.0 Hz, 1H), 5.29 (d, *J* = 10.8 Hz, 1H), 3.99-3.97 (m, 1H), 3.81-3.75 (m, 1H), 3.58-3.52 (m, 1H), 3.25-3.23 (m, 1H), 2.36 (s, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.6 Hz), 164.7, 156.2, 137.0, 136.7, 136.6, 134.3, 134.2, 134.17, 132.6 (d, *J* = 9.5 Hz), 130.7, 129.7, 129.3, 128.9, 128.5, 128.48, 128.3, 127.6, 127.5, 127.2, 124.5 (d, *J* = 2.7 Hz), 115.5 (d, *J* = 22.0 Hz), 62.8, 46.5, 44.9, 21.1ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): -104.10 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{34}H_{28}FNO_4Na$: 556.1900; Found: 556.1900.



14
$C_{24}H_{26}ClNO_3$
M =411.93 g/mol

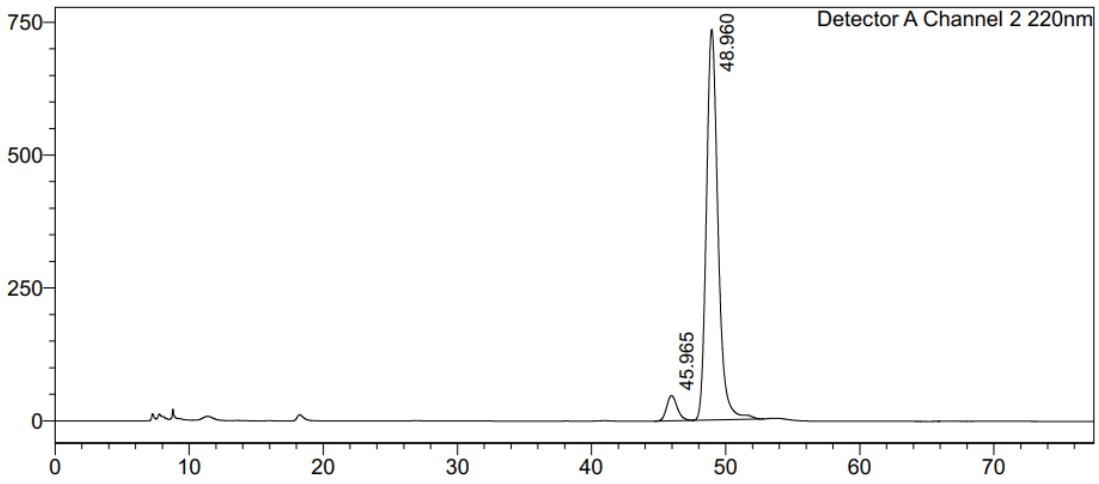
3-(2-benzhydryl-2-(3-chloropropyl)pent-4-enoyl)oxazolidin-2-one (**14**): **R_f** = 0.45 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.35-7.19 (m, 10H), 5.46-5.36 (m, 1H), 5.36 (s, 1H), 5.00 (d, *J* = 17.2 Hz, 1H), 4.91 (d, *J* = 10.0 Hz, 1H), 4.06-4.00 (m, 1H), 3.94-3.88 (m, 1H), 3.70-3.63 (m, 1H), 3.52-3.37 (m, 4H), 2.81-2.74 (m, 1H), 2.48 (dd, *J* = 14.6, 6.6 Hz, 1H), 1.81 (td, *J* = 12.8, 4.0 Hz, 1H), 1.65-1.47 (m, 2H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 175.1, 152.2, 141.4, 140.8, 135.1, 129.9, 129.5, 128.4, 128.3, 126.8, 126.7, 117.9, 62.1, 56.2, 55.3, 45.4, 45.0, 39.8, 32.9, 28.9 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{24}H_{26}ClNO_3Na$: 434.1499; Found: 434.1486.

$[\alpha]_D^{20.0}$ = -35.86 (c = 0.30, $CHCl_3$); *er* was determined to be 94.5:5.5 by HPLC analysis with a Chiralcel AD-H column (hexane/isopropyl alcohol = 98/2, flow rate = 0.4 mL/min, λ = 220 nm), t_r = 45.97 min (minor), t_r = 48.96min (major).



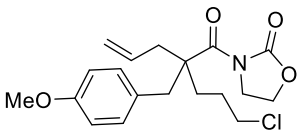
Detector A Channel 2 220nm

Peak#	Ret. Time	Area	Height	Peak Start	Area%	Width at 50% Height
1	46.097	37078585	653992	44.583	49.760	0.884
2	48.552	37435716	624233	47.383	50.240	0.934
Total		74514301	1278225		100.000	



Detector A Channel 2 220nm

Peak#	Ret. Time	Area	Height	Peak Start	Area%	Width at 50% Height
1	45.965	2606171	47580	44.692	5.555	0.833
2	48.960	44307669	735100	47.558	94.445	0.894
Total		46913840	782680		100.000	

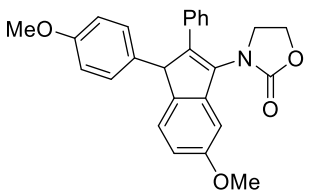


16

$C_{19}H_{24}ClNO_4$

M = 365.85 g/mol

3-(2-(3-chloropropyl)-2-(4-methoxybenzyl)pent-4-enoyl)oxazolidin-2-one (**16**): $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.04 (d, *J* = 8.4 Hz, 2H), 6.80 (d, *J* = 8.4 Hz, 2H), 5.85-5.74 (m, 1H), 5.17-5.13 (m, 2H), 4.40 (t, *J* = 8.0 Hz, 2H), 3.99 (t, *J* = 8.1 Hz, 2H), 3.78 (s, 3H), 3.50 (t, *J* = 6.6 Hz, 2H), 3.28 (d, *J* = 14.0 Hz, 1H), 3.14 (d, *J* = 14.4 Hz, 1H), 2.71-2.56 (m, 2H), 2.16-2.08 (m, 1H), 1.91-1.70 (m, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 175.9, 158.3, 152.5, 133.9, 131.0, 129.3, 118.6, 113.7, 62.3, 55.2, 53.2, 45.5, 45.0, 37.2, 36.8, 30.2, 28.1 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{19}H_{24}ClNO_4Na$: 388.1286; Found: 388.1293.

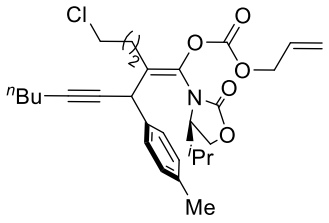


15

$C_{26}H_{23}NO_4$

M = 413.47 g/mol

3-(5-methoxy-1-(4-methoxyphenyl)-2-phenyl-1H-inden-3-yl)oxazolidin-2-one (**15**): $\mathbf{R_f}$ = 0.40 (petroleum ether/EtOAc = 5/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.34-7.25 (m, 5H), 7.18 (t, *J* = 7.2 Hz, 1H), 7.02 (d, *J* = 8.8 Hz, 2H), 6.85 (dd, *J* = 8.4, 2.2 Hz, 1H), 6.77 (s, 1H), 6.71 (d, *J* = 8.4 Hz, 2H), 4.89 (s, 1H), 4.50-4.39 (m, 2H), 3.76-3.62 (m, 8H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 159.1, 158.4, 156.7, 148.7, 141.6, 134.0, 133.5, 132.5, 130.4, 129.2, 128.5, 128.1, 127.6, 120.2, 114.1, 112.6, 110.6, 63.0, 55.5, 55.3, 55.0, 45.4 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{26}H_{23}NO_4Na$: 414.1705; Found: 414.1705.



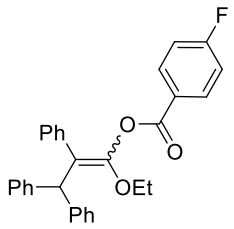
(*E*)-**6vh**
$C_{29}H_{38}ClNO_5$
M = 516.08 g/mol

(*R*,*E*)-allyl (2-(3-chloropropyl)-1-(4-isopropyl-2-oxooxazolidin-3-yl)-3-(*p*-tolyl)non-1-en-4-yn-1-yl) carbonate ((*E*)-**6vh**): Prepared from (*R*)-3-(5-chloropent-1-yn-1-yl)-4-isopropyloxazolidin-2-one (**1v**, 55.1 mg, 0.24 mmol) and allyl (1-(*p*-tolyl)hept-2-yn-1-yl) carbonate (**5h**, 57.3 mg, 0.2 mmol) according to the GP2 with 5 mol% $B(C_6F_5)_3$ at 25 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (10/1 to 5/1) afforded (*E*)-**6vh** as a colorless oil (50.6 mg, 49% yield, *dr* = 67:33, the diastereoisomers cannot be separated by chromatography).

(*E*)-**6vh**: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 5/1). The major isomer**: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.41-7.37 (m, 2H), 7.12 (d, *J* = 8.0 Hz, 2H), 5.98-5.84 (m, 1H), 5.37 (d, *J* = 17.2 Hz, 1H), 5.29 (d, *J* = 11.2 Hz, 1H), 4.94 (s, 1H), 4.64 (d, *J* = 6.0 Hz, 1H), 4.38-4.28 (m, 1H), 4.16-4.09 (m, 1H), 3.90-3.78 (m, 1H), 3.50-3.32 (m, 2H), 2.55-2.42 (m, 1H), 2.32 (s, 3H), 2.27 (td, *J* = 7.2, 2.0 Hz, 2H), 2.16-1.96 (m, 3H), 1.72-1.65 (m, 1H), 1.58-1.41 (m, 4H), 0.99-0.91 (m, 10H) ppm. The minor isomer**: ^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.41-7.37 (m, 2H), 7.12 (d, *J* = 8.0 Hz, 2H), 5.98-5.84 (m, 1H), 5.37 (d, *J* = 17.2 Hz, 1H), 5.29 (d, *J* = 11.2 Hz, 1H), 4.89 (s, 1H), 4.60 (d, *J* = 6.0 Hz, 1H),

4.38-4.28 (m, 1H), 4.16-4.09 (m, 1H), 3.90-3.78 (m, 1H), 3.50-3.32 (m, 2H), 2.55-2.42 (m, 1H), 2.32 (s, 3H), 2.27 (td, *J* = 7.2, 2.0 Hz, 2H), 2.16-1.96 (m, 3H), 1.72-1.65 (m, 1H), 1.58-1.41 (m, 4H), 0.99-0.91 (m, 10H) ppm.

^{13}C NMR (100 MHz, $CDCl_3$): δ 155.53, 155.49, 151.8, 151.7, 136.41, 136.39, 135.1, 133.81, 133.77, 130.74, 130.68, 129.1, 129.0, 128.9, 127.5, 127.4, 119.9, 119.8, 85.33, 85.26, 77.4, 77.2, 69.49, 69.46, 64.5, 64.1, 61.7, 59.6, 45.4, 43.6, 36.7, 34.7, 31.4, 30.9, 30.5, 30.1, 29.9, 29.0, 28.3, 26.8, 22.0, 21.6, 21.0, 18.5, 18.4, 18.2, 17.2, 16.1, 15.9, 15.0, 14.6, 13.6 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{29}H_{38}ClNO_5Na$: 538.2337; Found: 538.2334.



16
$C_{30}H_{25}FNO_3$
M = 452.53 g/mol

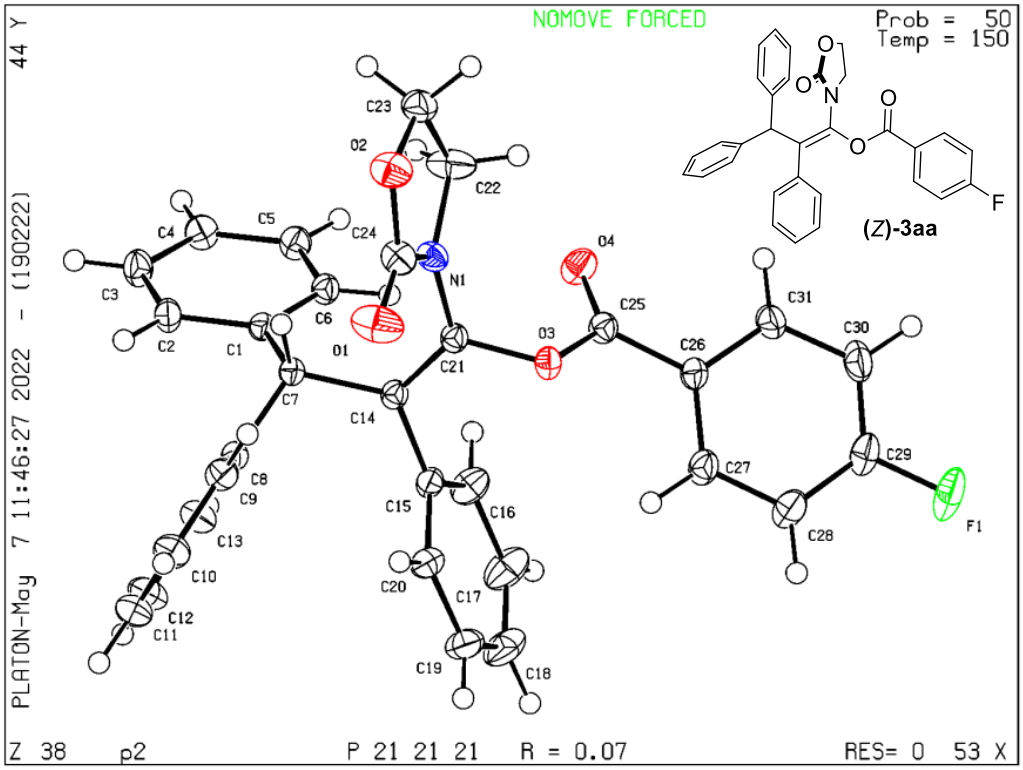
1-ethoxy-2,3,3-triphenylprop-1-en-1-yl 4-fluorobenzoate (**16**): Prepared from (ethoxyethynyl)benzene (**1ad**, 35.1 mg, 0.24 mmol) and benzhydryl 4-fluorobenzoate (**2a**, 61.3 mg, 0.2 mmol) according to the GP1 with 5 mol% $B(C_6F_5)_3$ at 80 ℃ for 12 h. Purification by flash chromatography on silica gel using petroleum ether/EtOAc (100/1 to 50/1) afforded the desired product **16.** The major stereoisomer was isolated as a colorless oil (19.4 mg, 21% yield).

For major stereoisomer: $\mathbf{R_f}$ = 0.35 (petroleum ether/EtOAc = 50/1). **^{1}H NMR** (400 MHz, $CDCl_3$): δ 7.82 (dd, *J* = 8.8, 5.2 Hz, 2H), 7.22-7.13 (m, 13H), 7.13-7.08 (m, 2H), 7.04 (t, *J* = 8.6 Hz, 2H), 5.26 (s, 1H), 3.78 (q, *J* = 7.2 Hz, 2H), 1.04 (t, *J* = 7.2 Hz, 3H) ppm. **^{13}C NMR** (100 MHz, $CDCl_3$): δ 166.0 (d, *J* = 253.5 Hz), 162.5, 150.2, 141.7, 137.8, 132.7 (d, *J* = 9.5 Hz), 129.8, 129.3, 128.0, 127.8, 126.7, 126.1, 124.7 (d, *J* = 2.9 Hz), 115.5 (d, *J* = 21.9 Hz), 113.4, 67.8, 53.6, 14.8. ppm. **^{19}F NMR** (376 MHz, $CDCl_3$): δ -104.28 ppm. **HRMS** (ESI) *m/z*: $[M+Na]^+$ calcd. for $C_{30}H_{25}FNO_3Na$: 475.1686; Found: 475.1683.

14 Crystal Structure of (*Z*)-3aa and (*E*)-6oa

Note: The thermal ellipsoids are 50% probability level. The crystals are grown by slow solvent (DCM/*n*-Hexane) evaporation at room temperature.

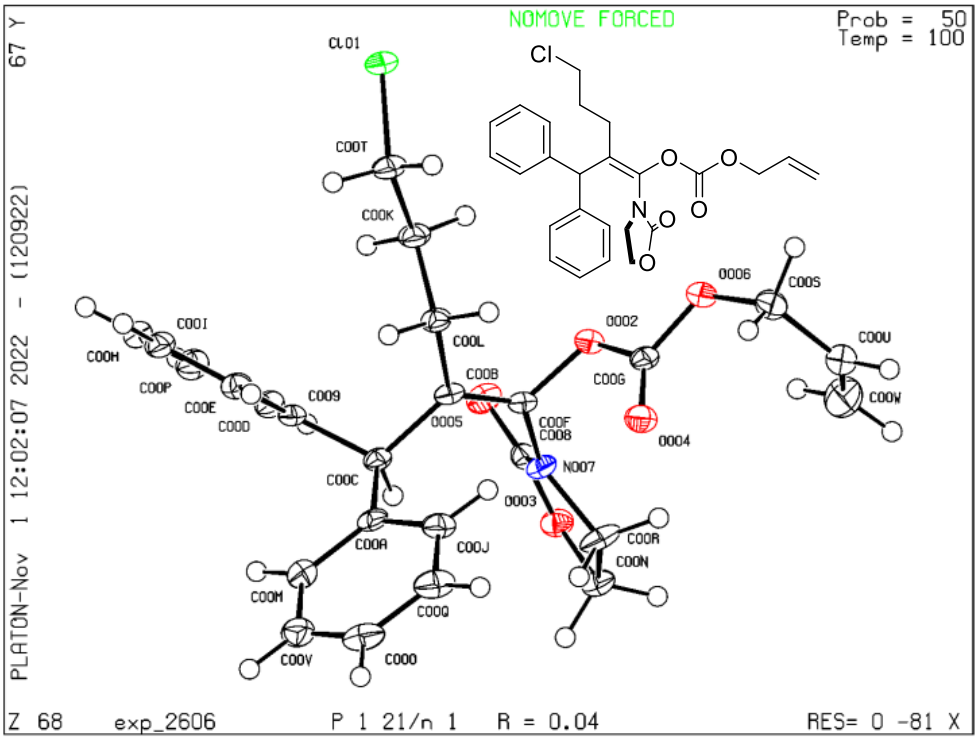
CCDC number of (*Z*)-**3aa** is 2236736.



Datablock: p2

```
Bond precision:   C-C = 0.0033 A          Wavelength=0.71073

Cell:             a=9.7830(18)      b=10.941(2)      c=22.744(4)
                  alpha=90          beta=90          gamma=90
Temperature:      150 K

                  Calculated                Reported
Volume            2434.4(8)                 2434.4(8)
Space group       P 21 21 21                P 21 21 21
Hall group        P 2ac 2ab                 P 2ac 2ab
Moiety formula    C31 H24 F N O4            C31 H24 F N O4
Sum formula       C31 H24 F N O4            C31 H24 F N O4
Mr                493.51                    493.51
Dx,g cm-3         1.347                     1.347
Z                 4                         4
Mu (mm-1)         0.094                     0.094
F000              1032.0                    1032.0
F000'             1032.53
h,k,lmax          15,17,36                  15,17,36
Nref              10691[ 5917]              10667
Tmin,Tmax         0.979,0.981
Tmin'             0.979

Correction method= Not given

Data completeness= 1.80/1.00        Theta(max)= 34.960

R(reflections)= 0.0714( 8426)                wR2(reflections)=
                                             0.1980( 10667)
S = 1.082                  Npar= 335
```

CCDC number of (*E*)-**6oa** is 2236734.



Datablock: exp_2606

Bond precision: C-C = 0.0022 A Wavelength=1.54184

Cell: a=9.5099(2) b=18.1304(3) c=14.0225(2)
alpha=90 beta=105.611(2) gamma=90
Temperature: 100 K

	Calculated	Reported
Volume	2328.55(7)	2328.55(7)
Space group	P 21/n	P 1 21/n 1
Hall group	-P 2yn	-P 2yn
Moiety formula	C25 H26 Cl N O5	C25 H26 Cl N O5
Sum formula	C25 H26 Cl N O5	C25 H26 Cl N O5
Mr	455.92	455.92
Dx,g cm-3	1.301	1.300
Z	4	4
Mu (mm-1)	1.752	1.752
F000	960.0	960.0
F000'	964.27	
h,k,lmax	11,21,16	11,21,16
Nref	4120	4118
Tmin,Tmax	0.521,0.496	0.345,1.000
Tmin'	0.473	

Correction method= # Reported T Limits: Tmin=0.345 Tmax=1.000
AbsCorr = MULTI-SCAN

Data completeness= 1.000 Theta(max)= 66.594

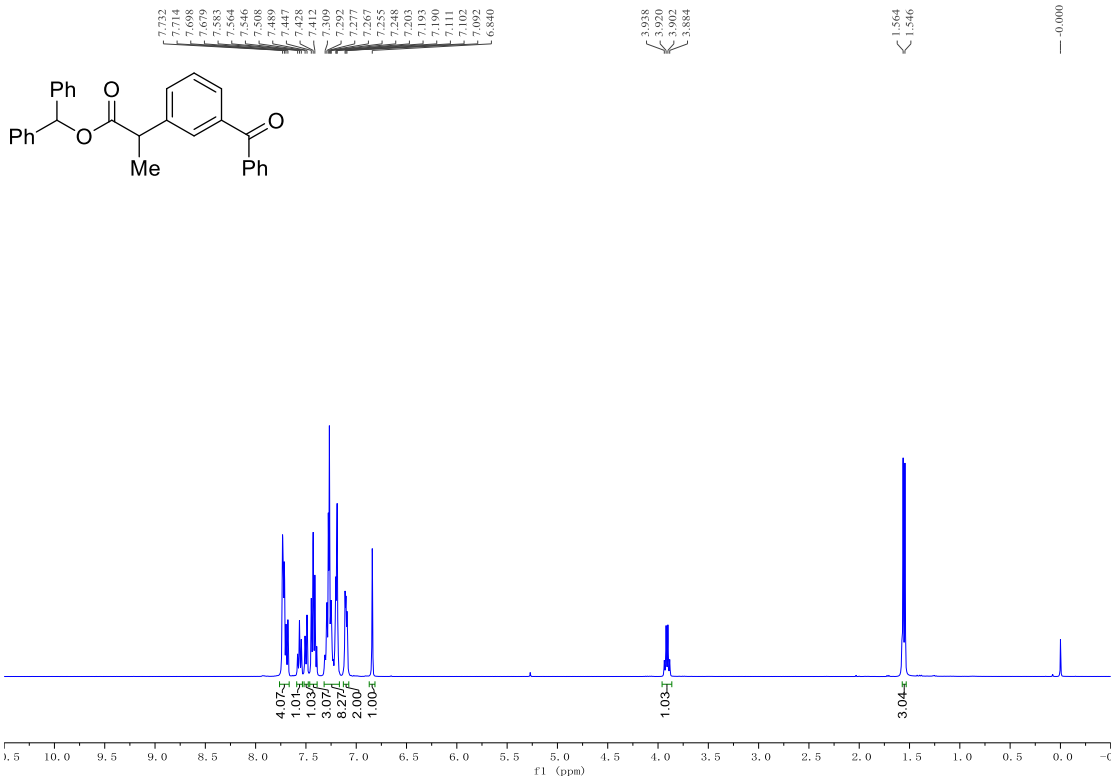
R(reflections)= 0.0363(3851) wR2(reflections)= 0.0918(4118)

S = 1.057 Npar= 297

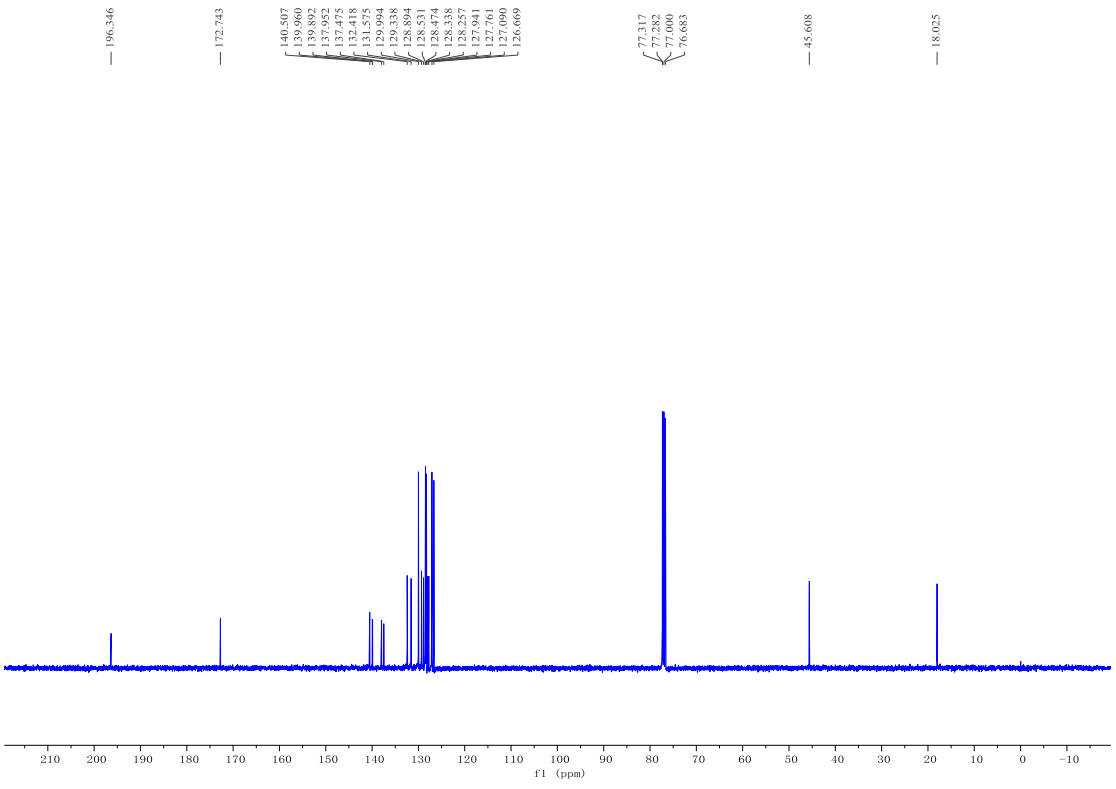
15 NMR Spectra

^{1}H and ^{13}C NMR Spectra for Compound 2u:

^{1}H NMR (400 MHz, $CDCl_3$)

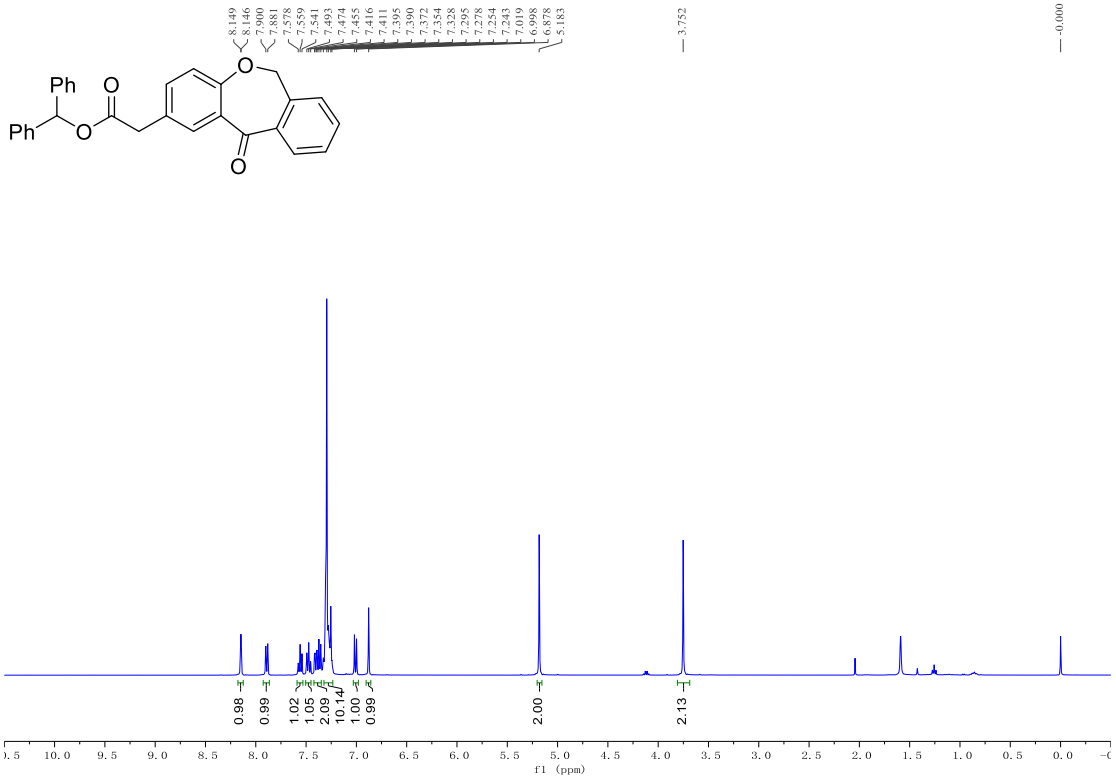


^{13}C NMR (100 MHz, $CDCl_3$)

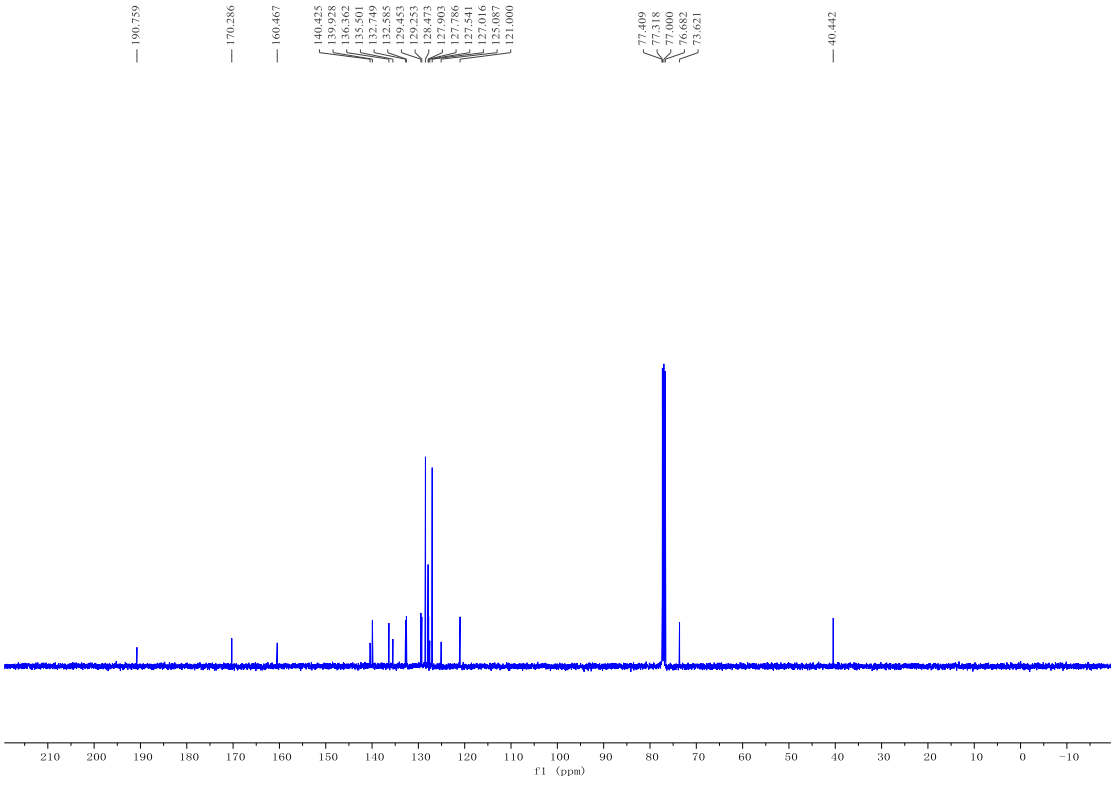


^{1}H and ^{13}C NMR Spectra for Compound 2v:

^{1}H NMR (400 MHz, $CDCl_3$)

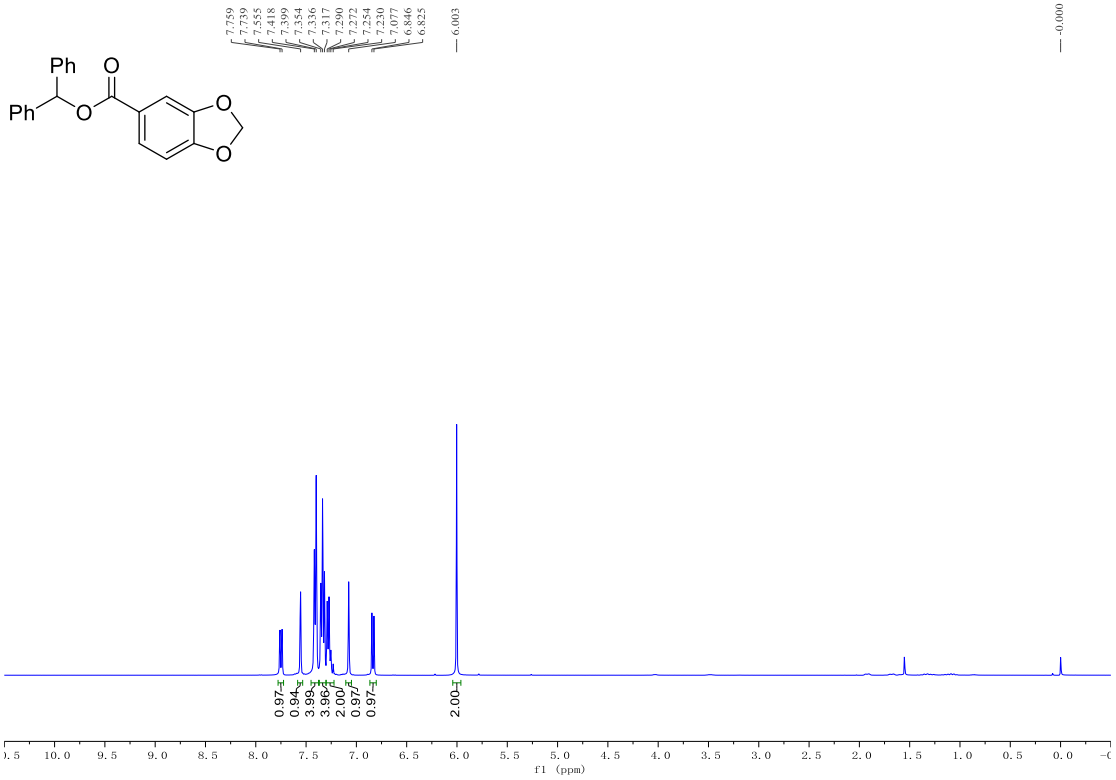


^{13}C NMR (100 MHz, $CDCl_3$)

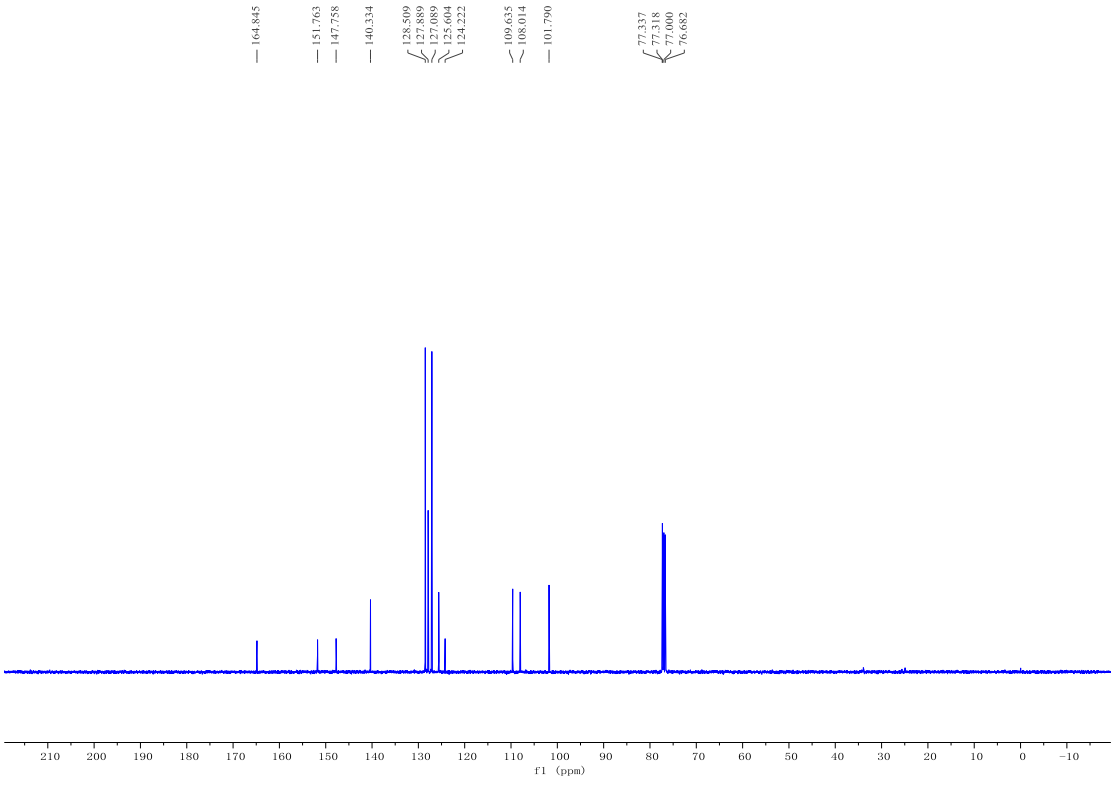


^{1}H and ^{13}C NMR Spectra for Compound 2w:

^{1}H NMR (400 MHz, $CDCl_3$)

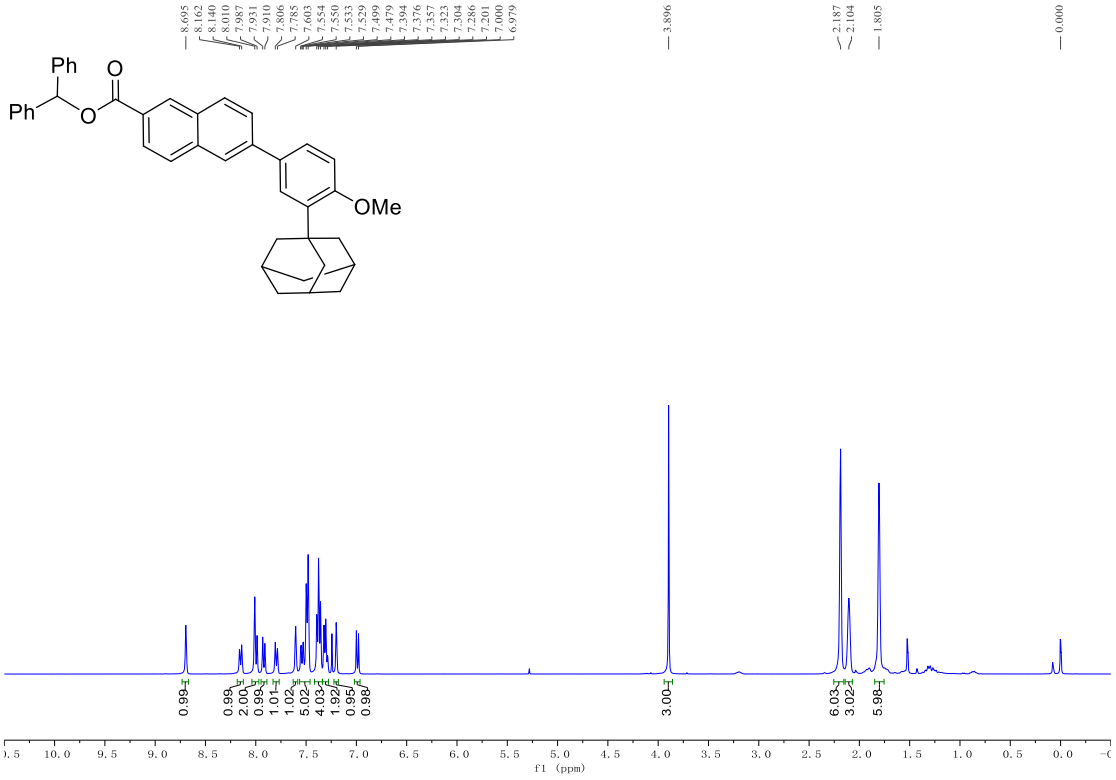


^{13}C NMR (100 MHz, $CDCl_3$)

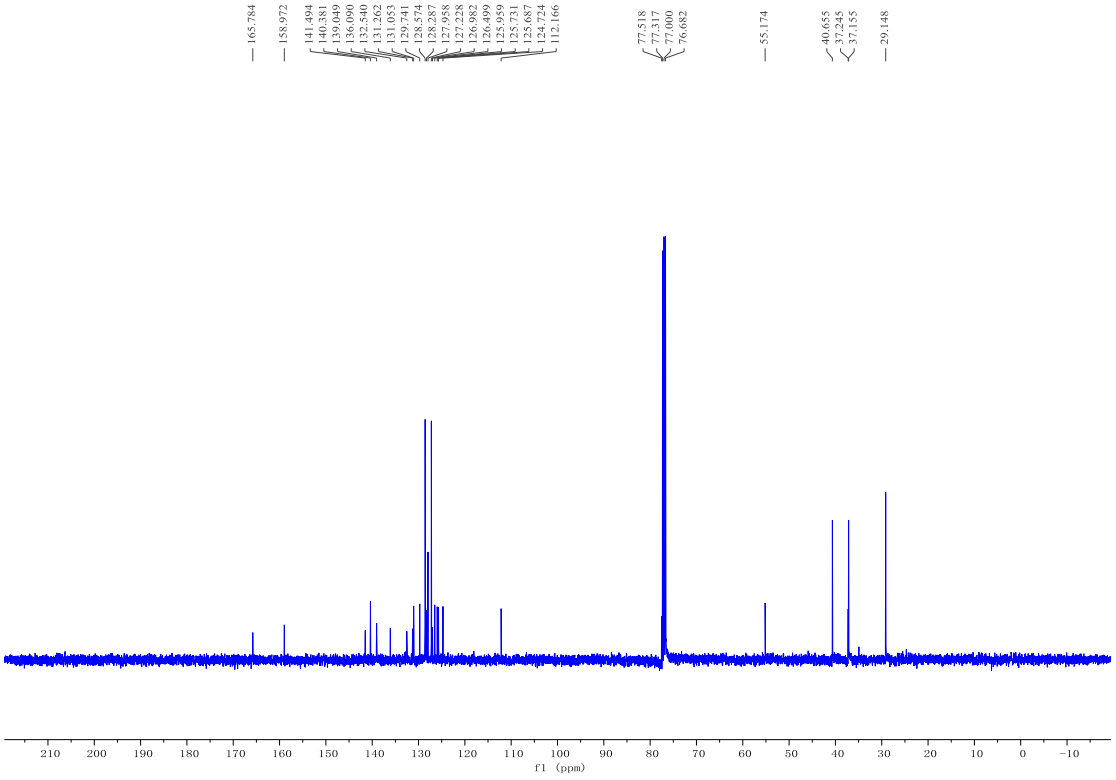


^{1}H and ^{13}C NMR Spectra for Compound 2x:

^{1}H NMR (400 MHz, $CDCl_3$)

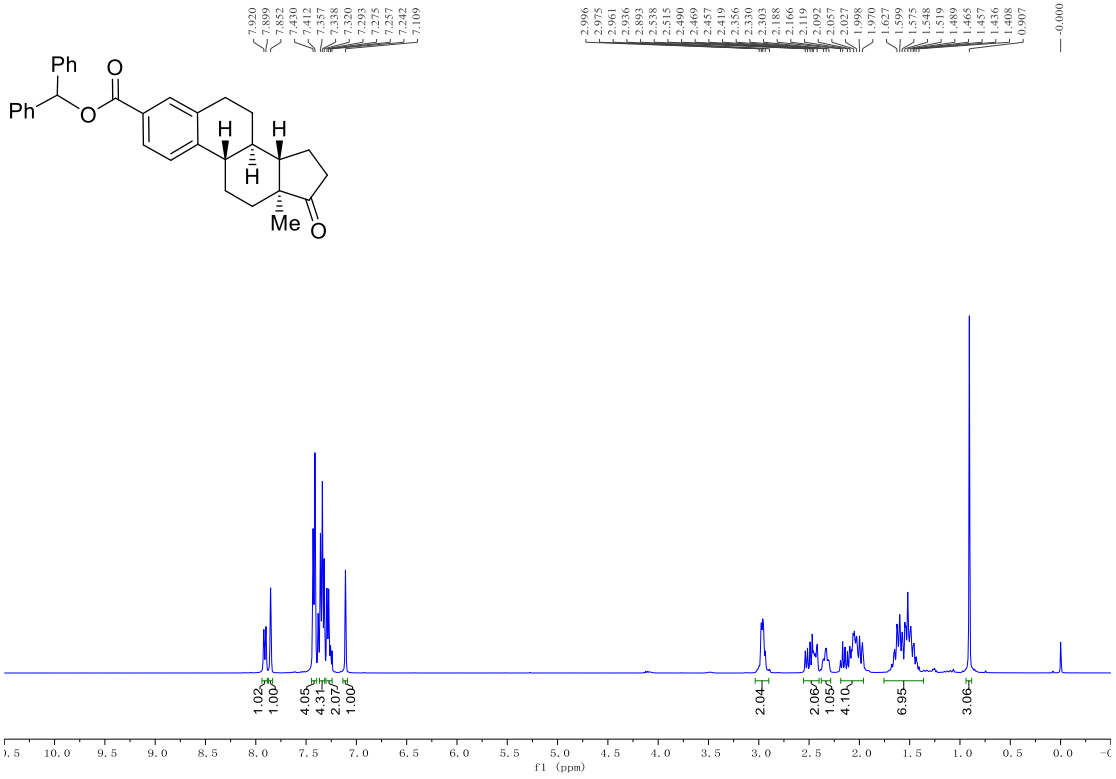


^{13}C NMR (100 MHz, $CDCl_3$)

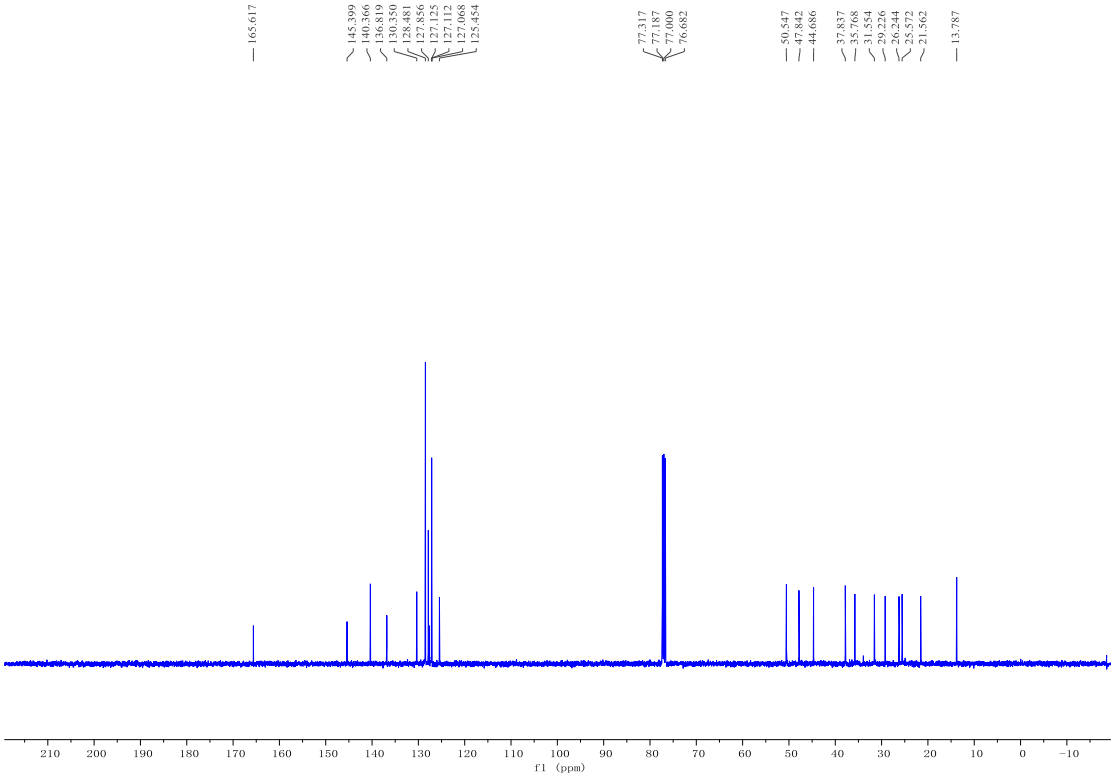


^{1}H and ^{13}C NMR Spectra for Compound 2y:

^{1}H NMR (400 MHz, $CDCl_3$)

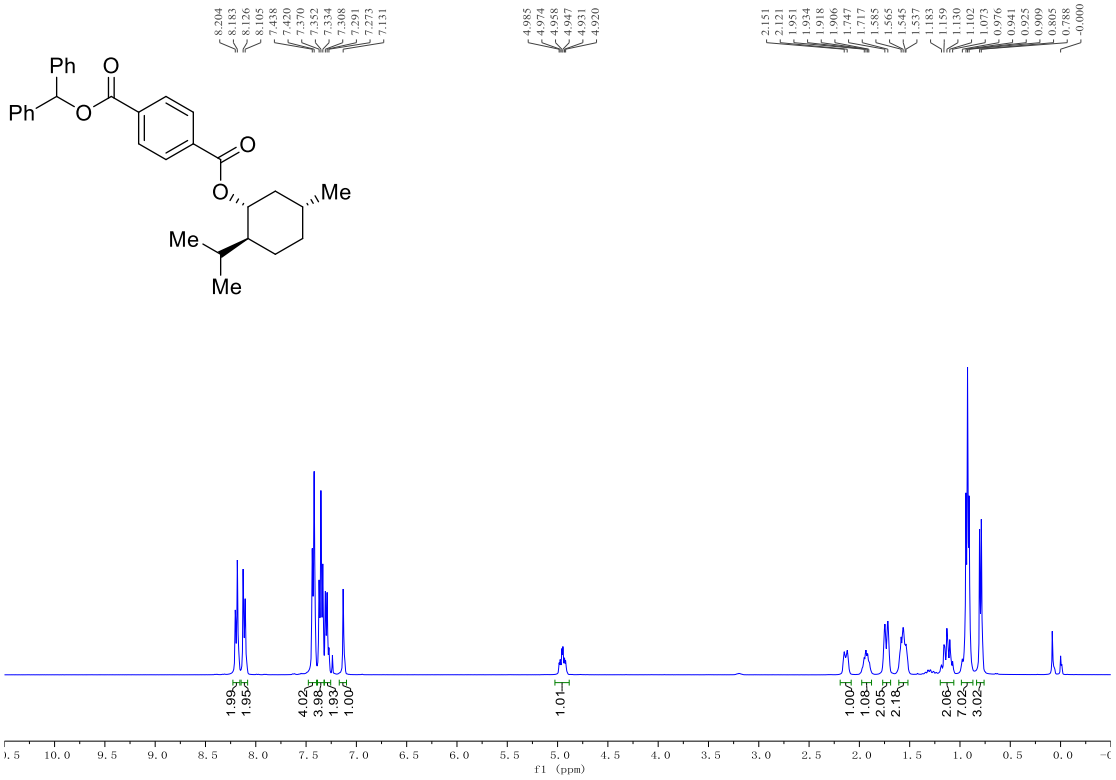


^{13}C NMR (100 MHz, $CDCl_3$)

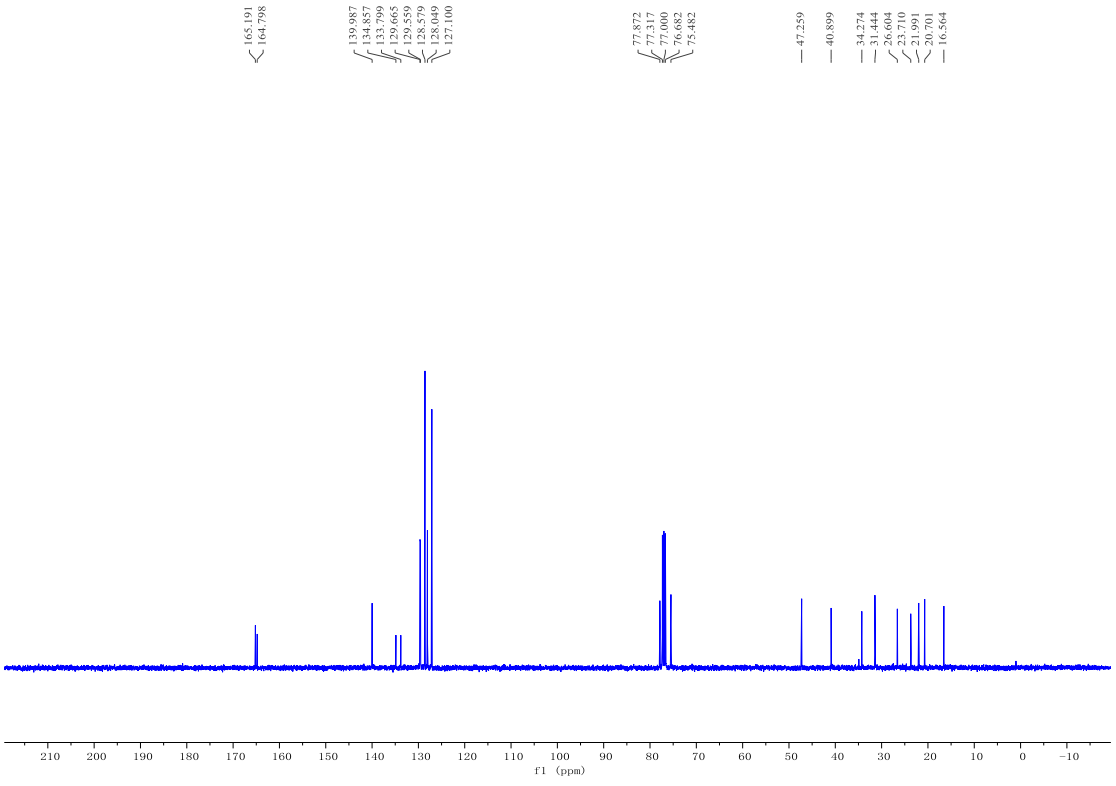


^{1}H and ^{13}C NMR Spectra for Compound 2z:

^{1}H NMR (400 MHz, $CDCl_3$)

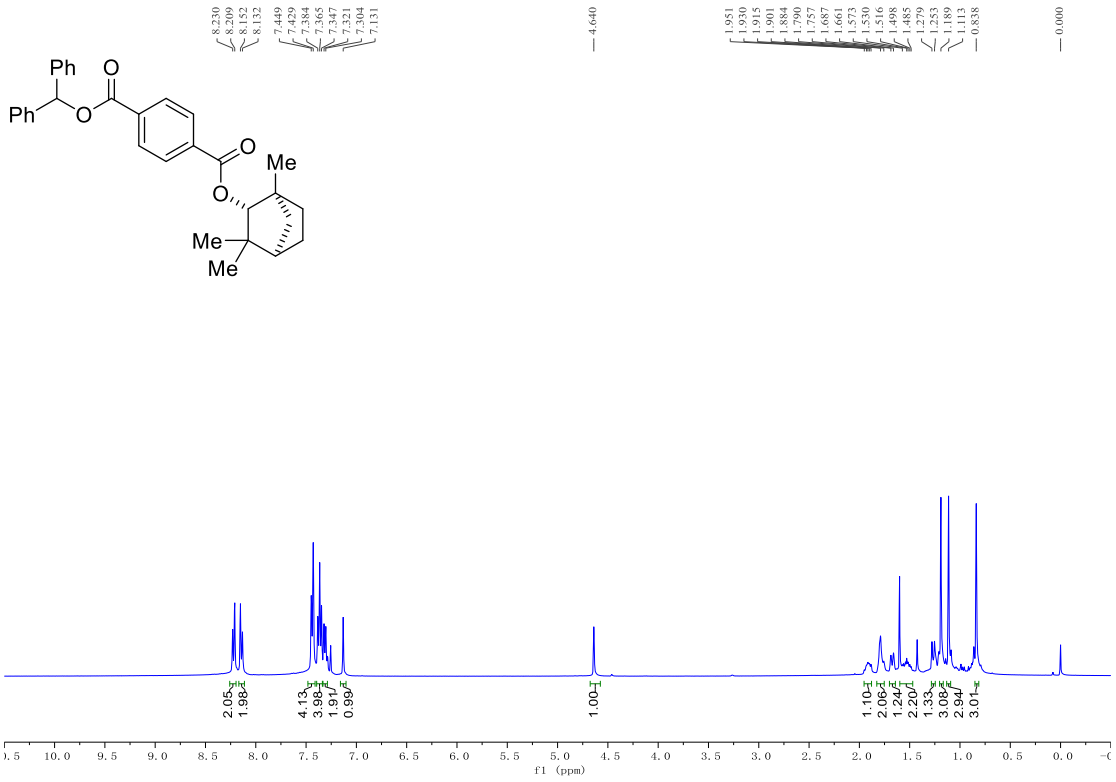


^{13}C NMR (100 MHz, $CDCl_3$)

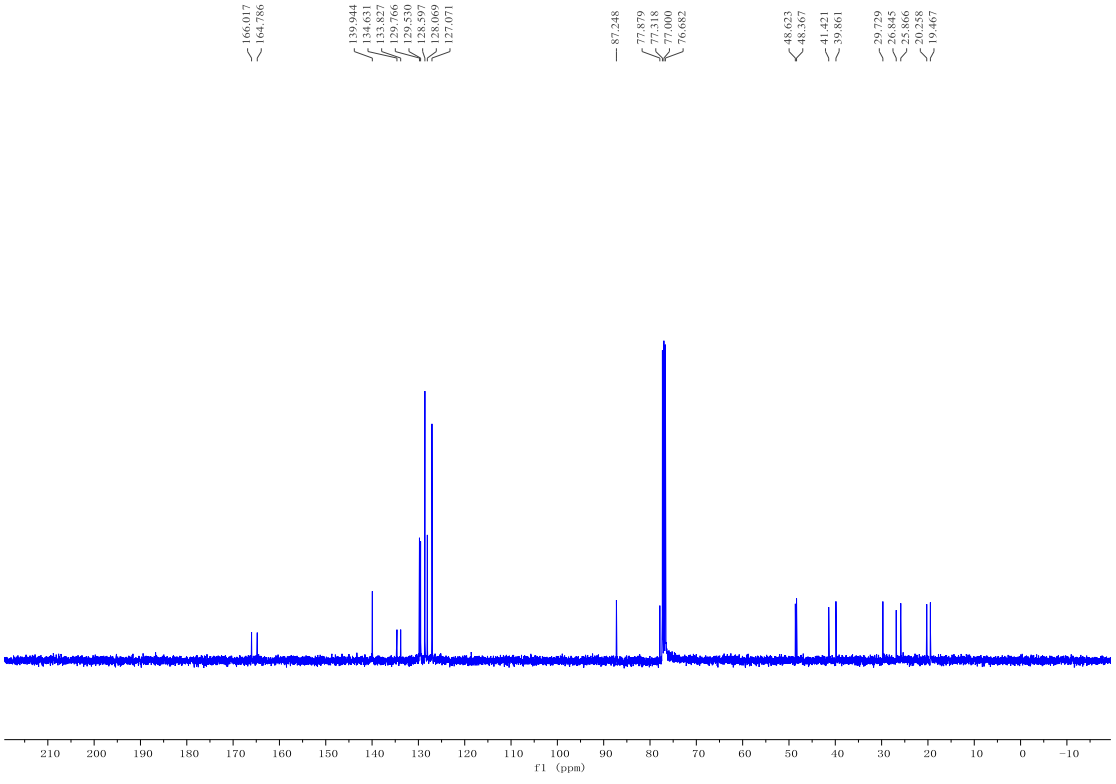


^{1}H and ^{13}C NMR Spectra for Compound 2aa:

^{1}H NMR (400 MHz, $CDCl_3$)

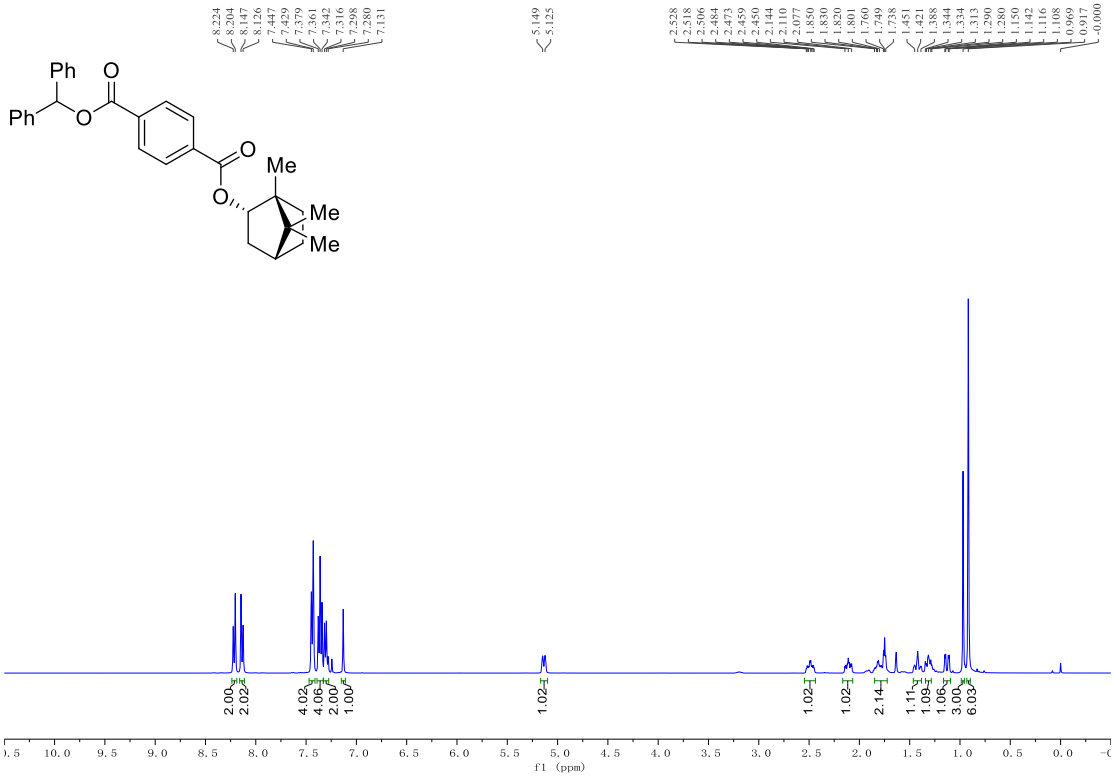


^{13}C NMR (100 MHz, $CDCl_3$)

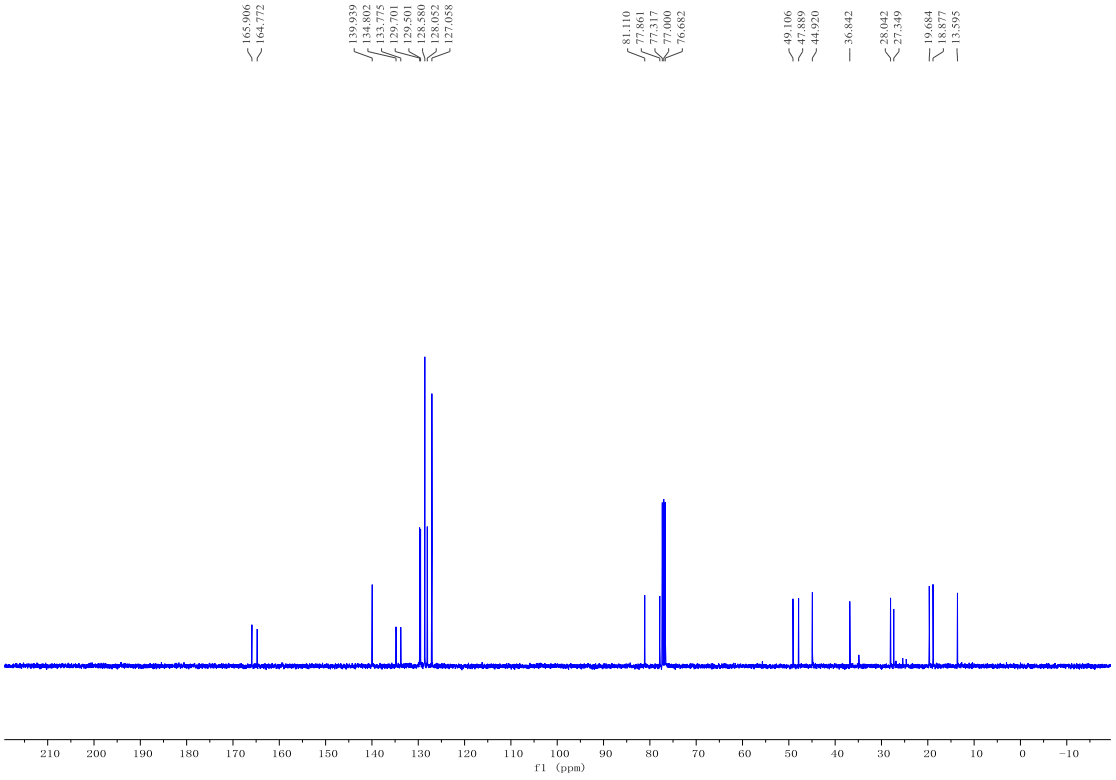


^{1}H and ^{13}C NMR Spectra for Compound 2ab:

^{1}H NMR (400 MHz, $CDCl_3$)

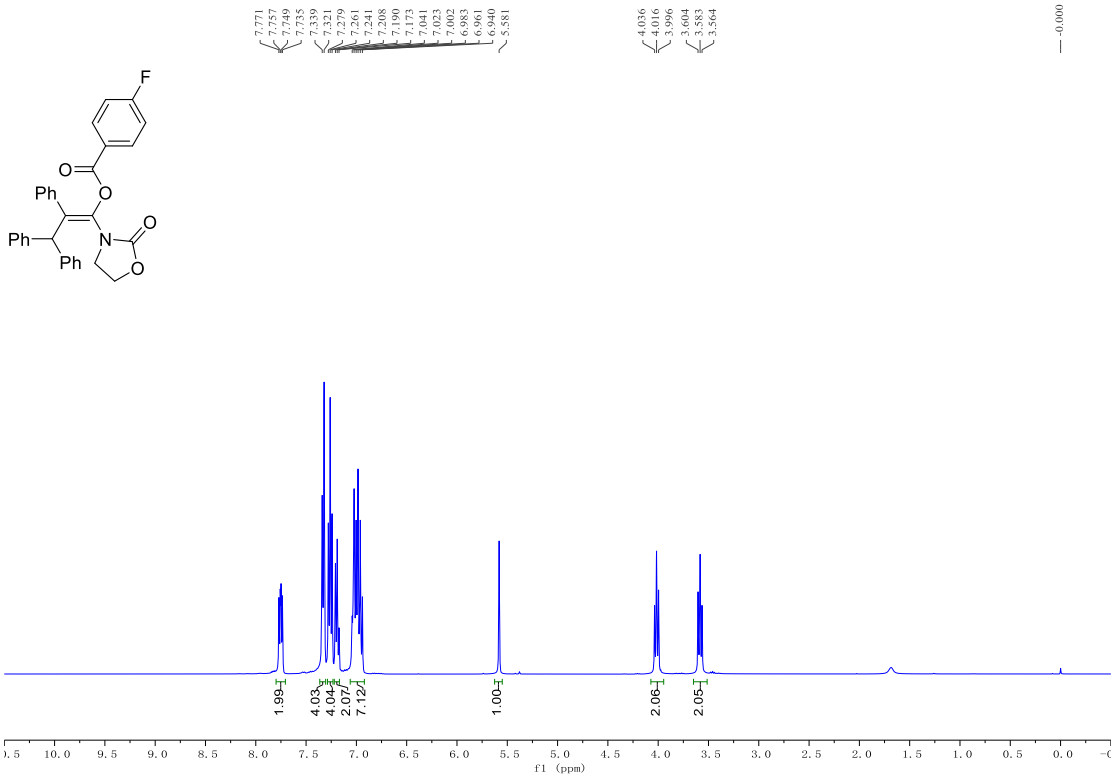


^{13}C NMR (100 MHz, $CDCl_3$)

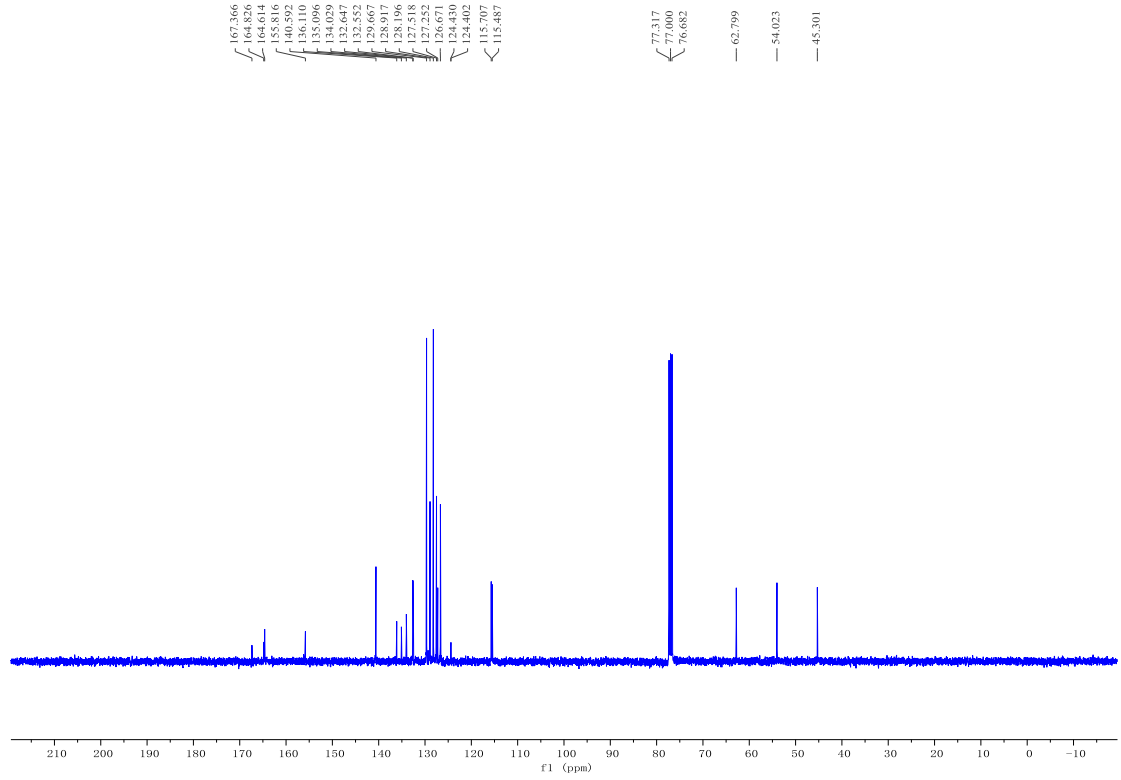


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3aa:

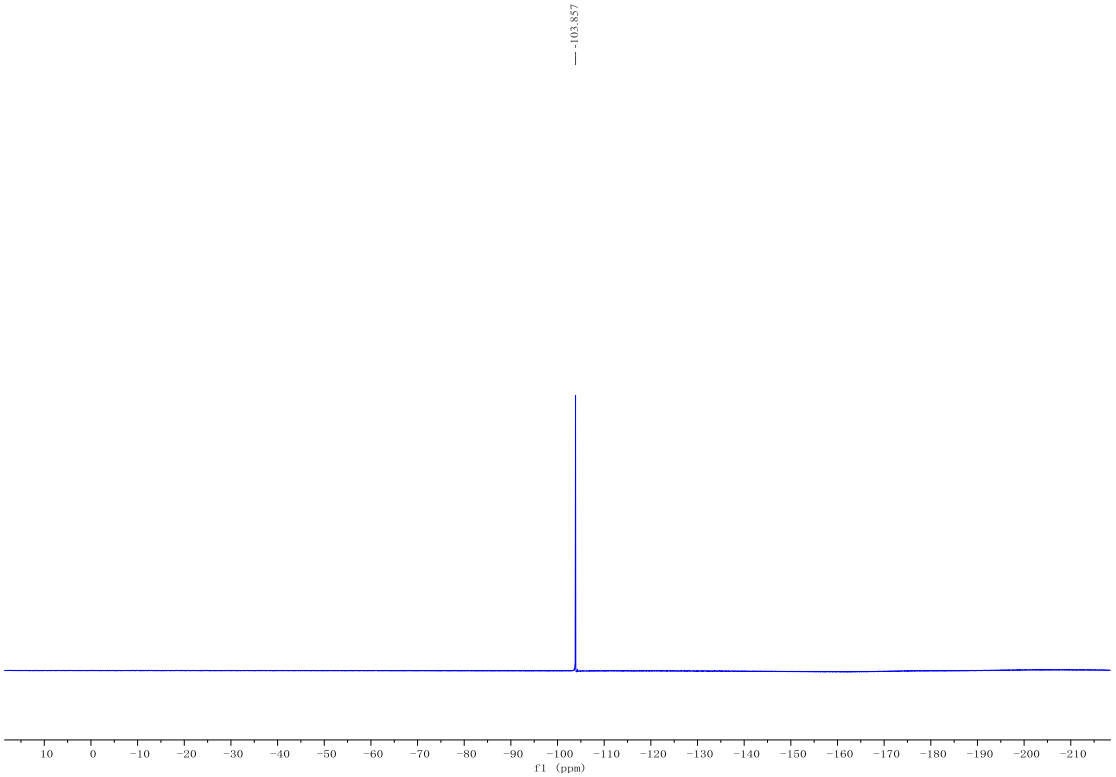
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

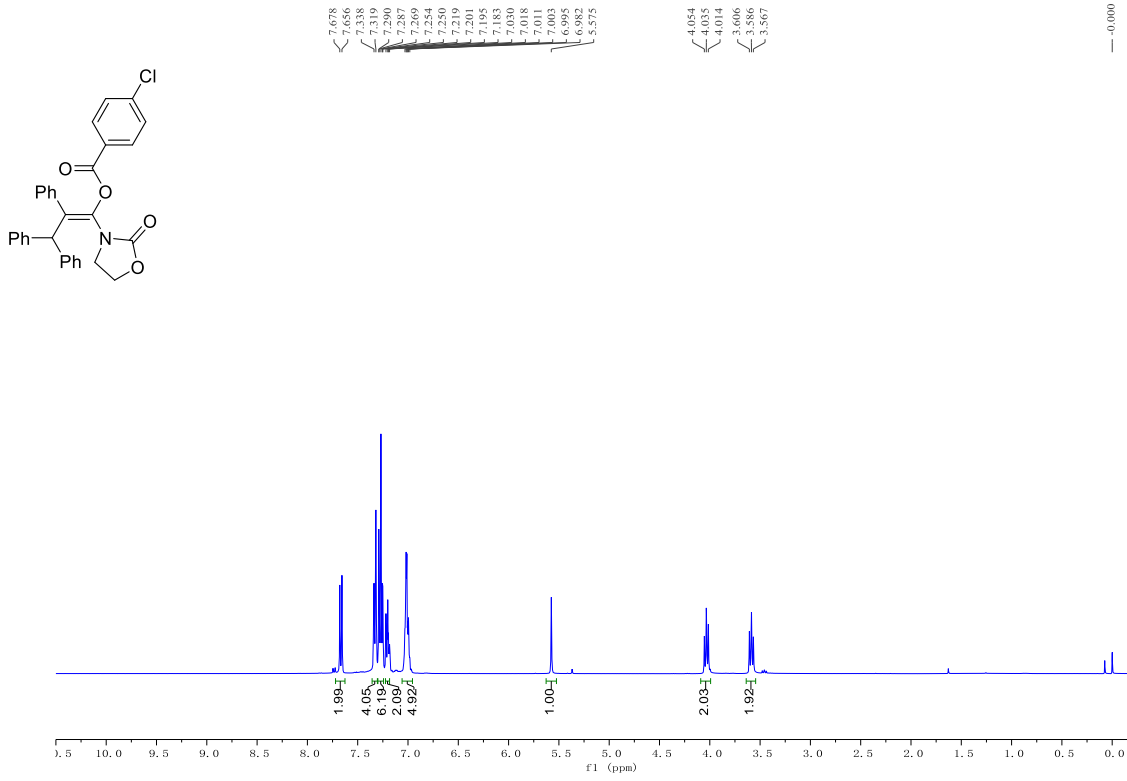


^{19}F NMR (400 MHz, $CDCl_3$)

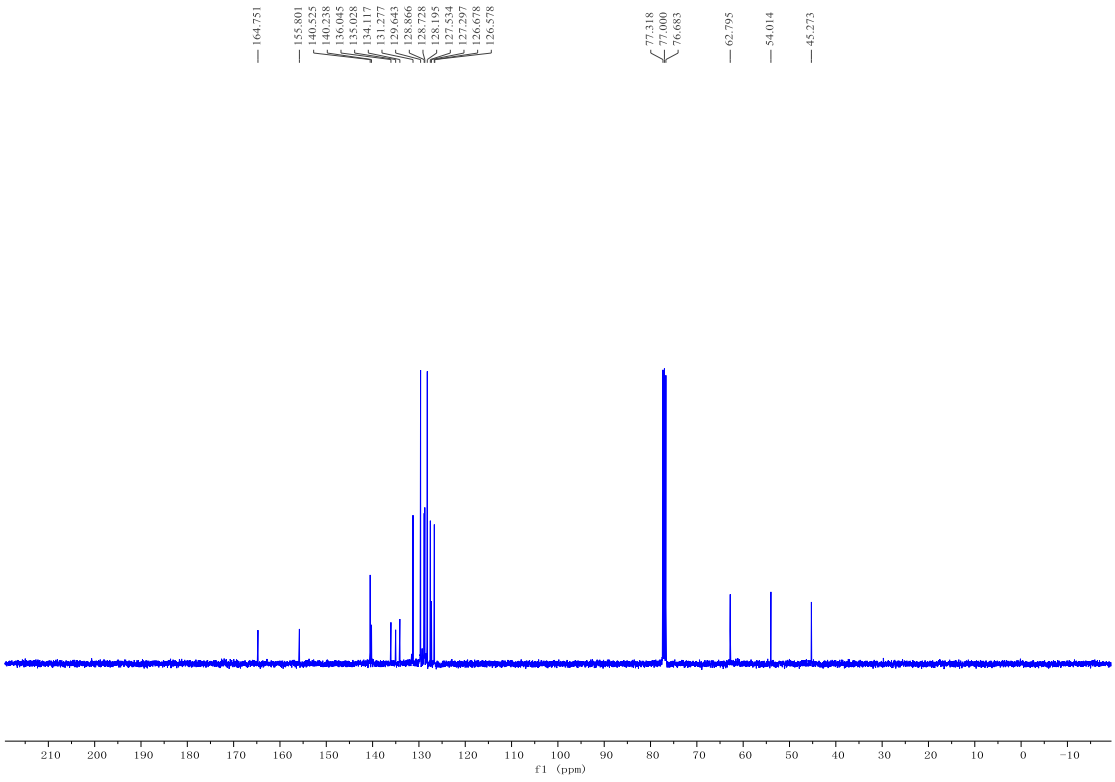


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ab:

^{1}H NMR (400 MHz, $CDCl_3$)

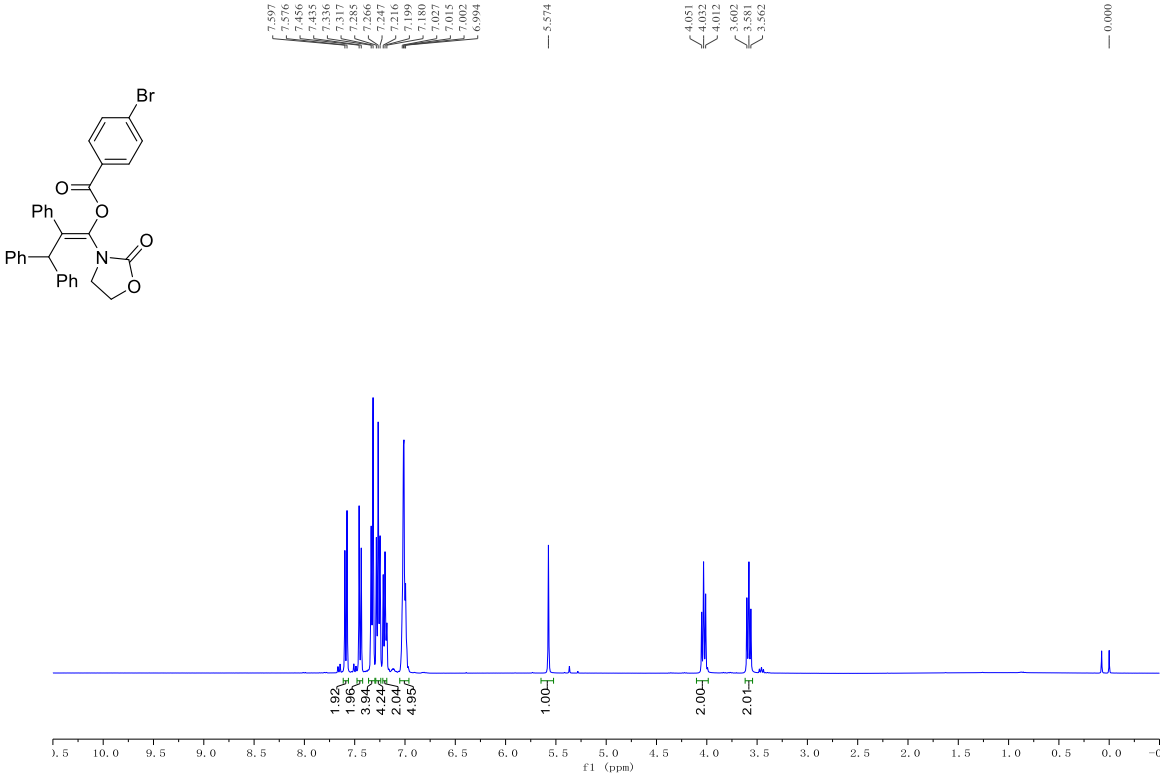


^{13}C NMR (100 MHz, $CDCl_3$)

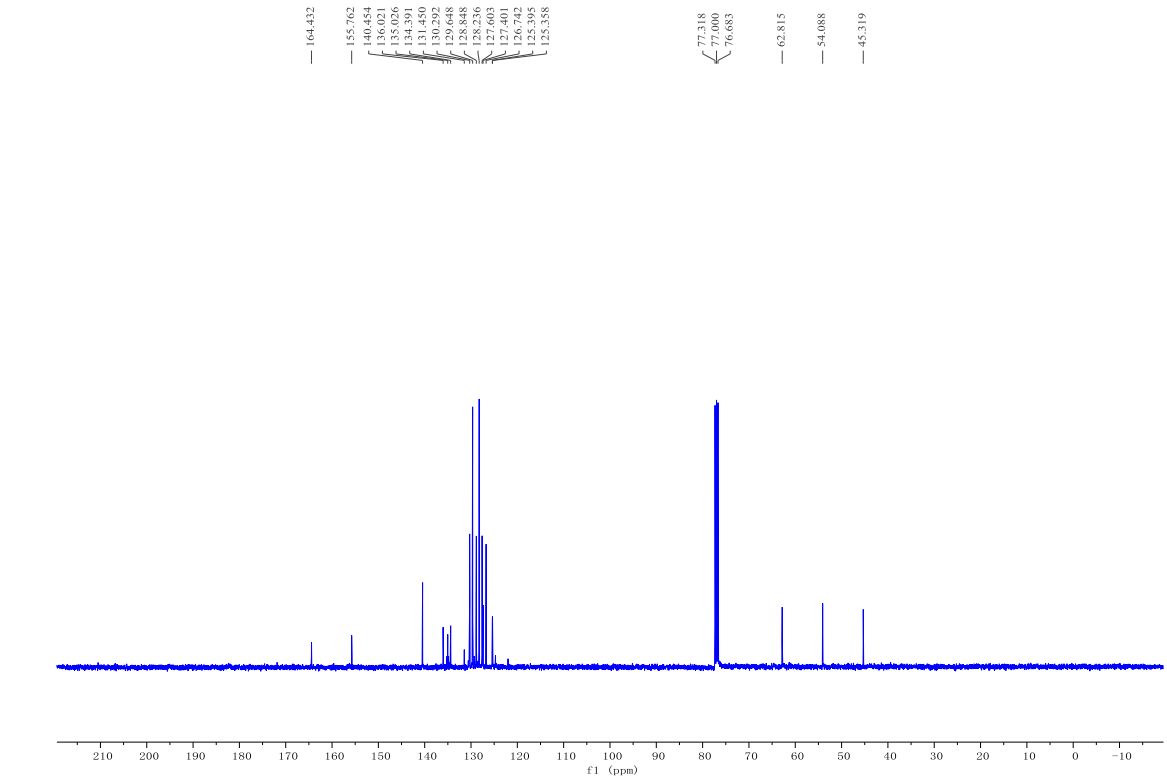


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ac:

^{1}H NMR (400 MHz, $CDCl_3$)

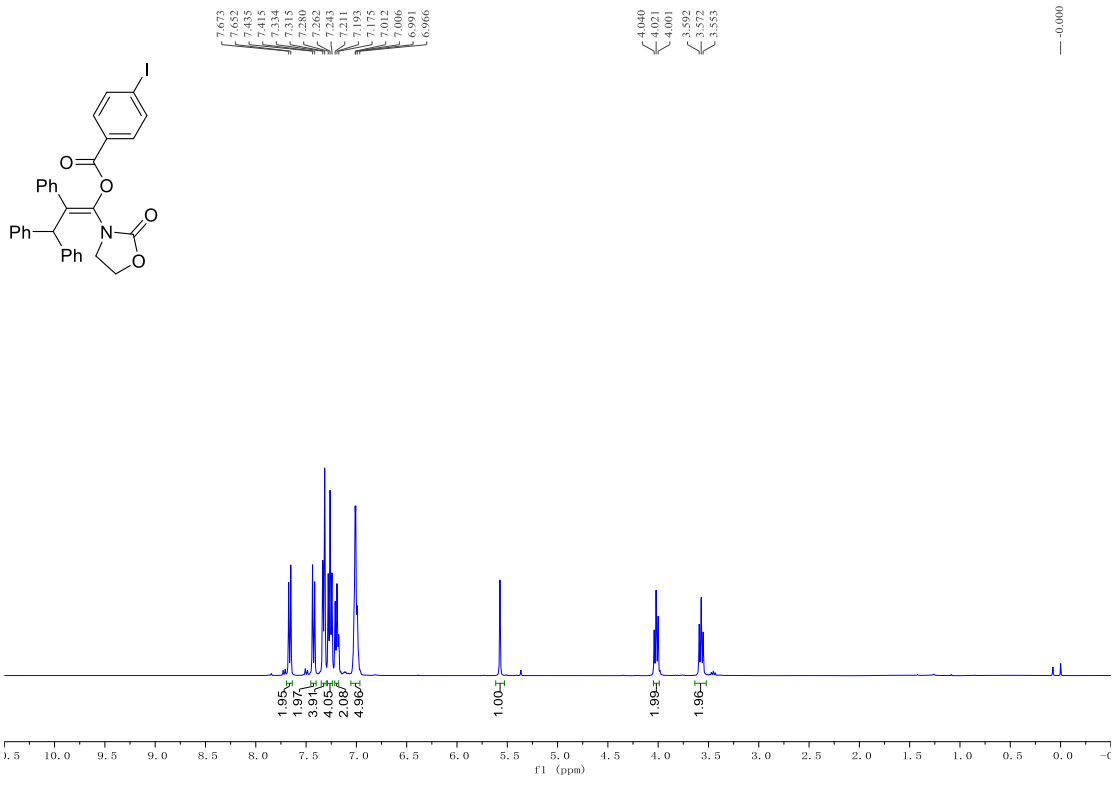


^{13}C NMR (100 MHz, $CDCl_3$)

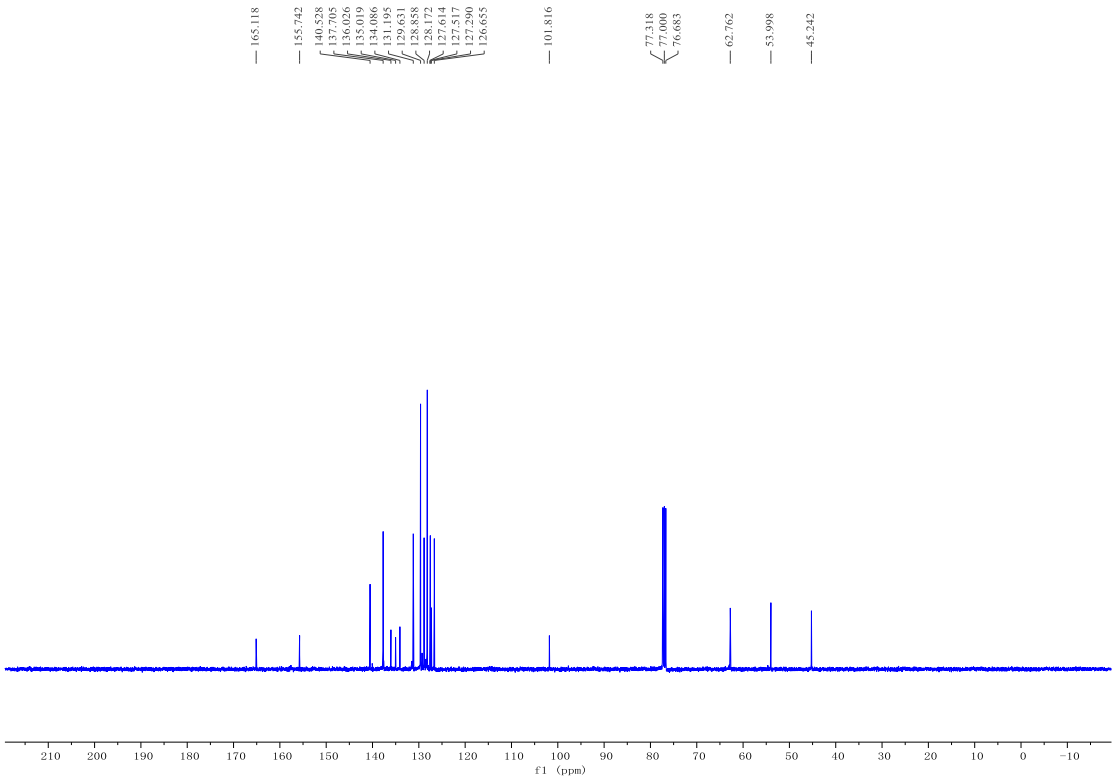


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ad:

^{1}H NMR (400 MHz, $CDCl_3$)

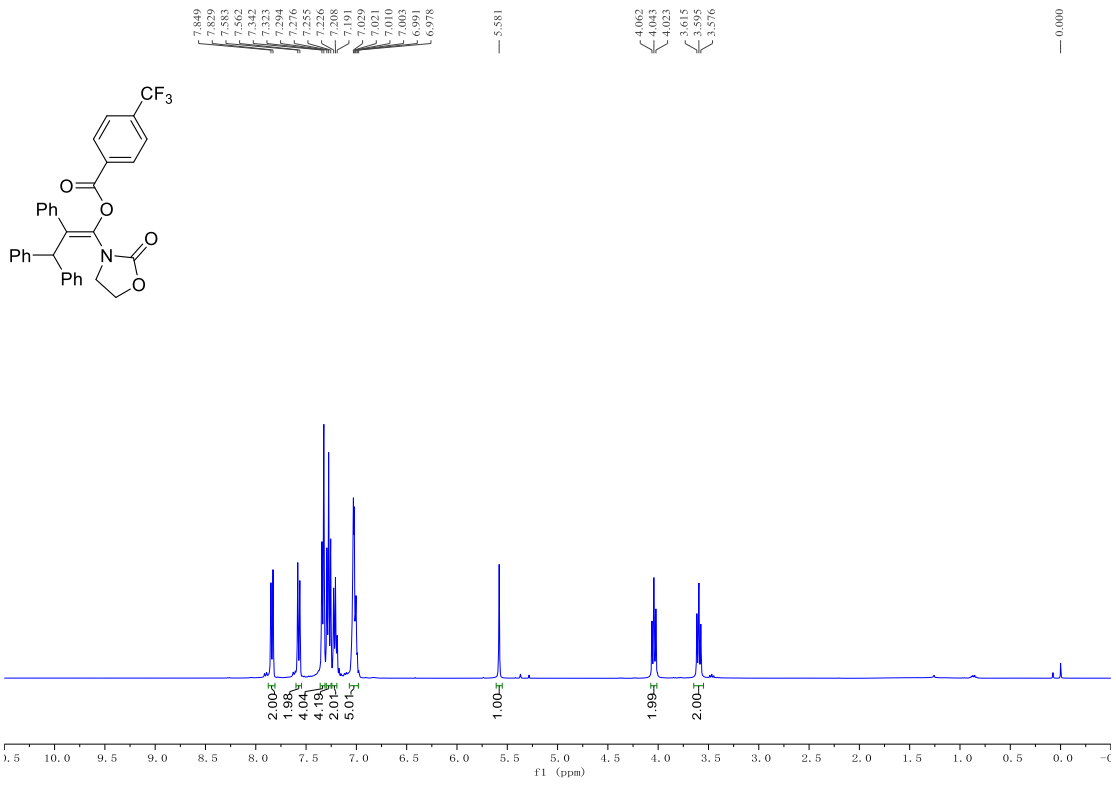


^{13}C NMR (100 MHz, $CDCl_3$)

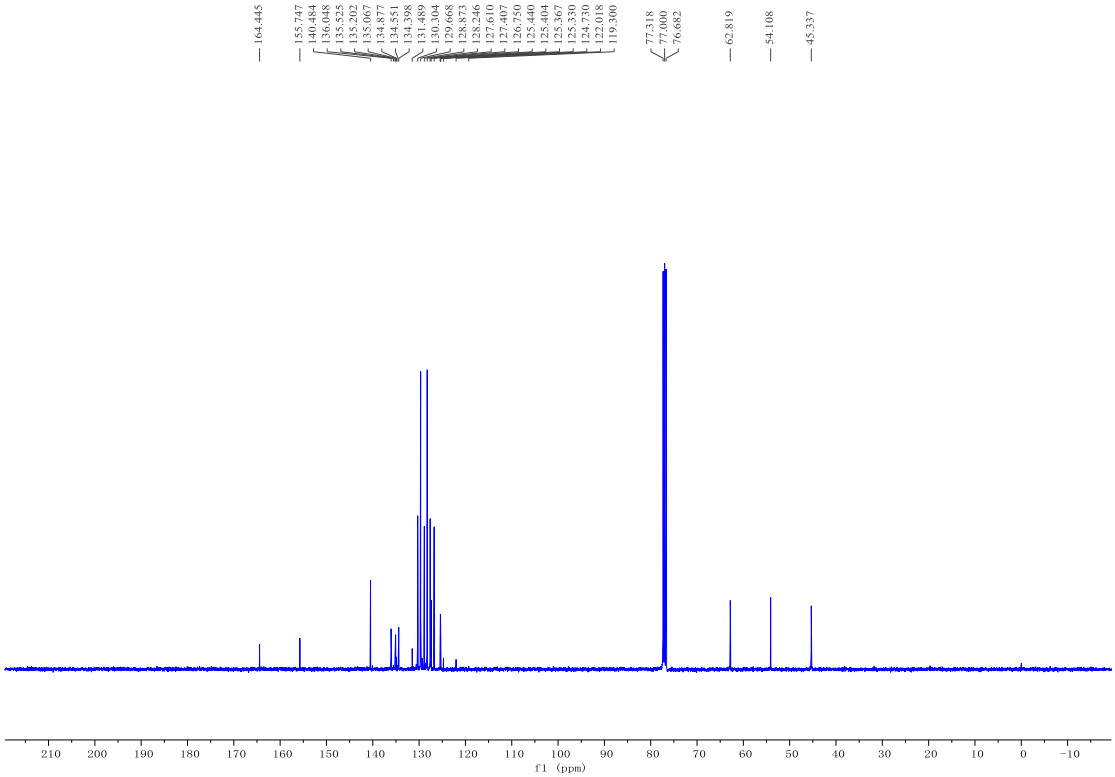


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ae:

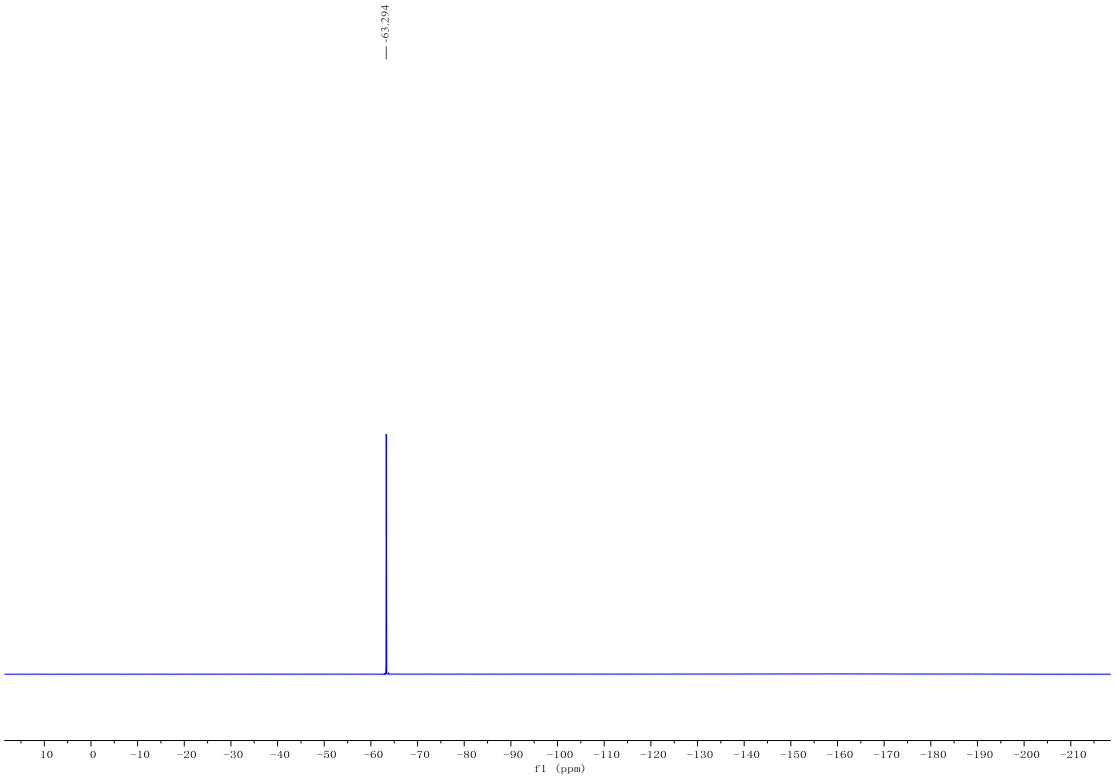
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

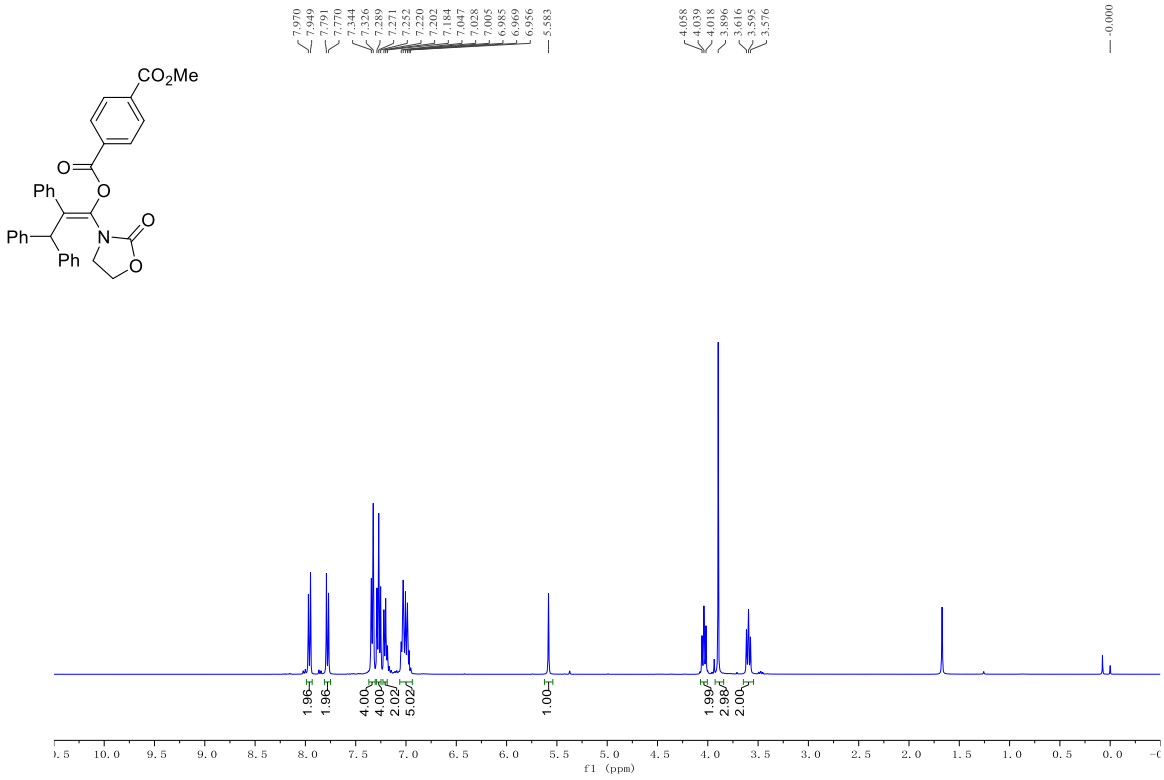


^{19}F NMR (376 MHz, $CDCl_3$)

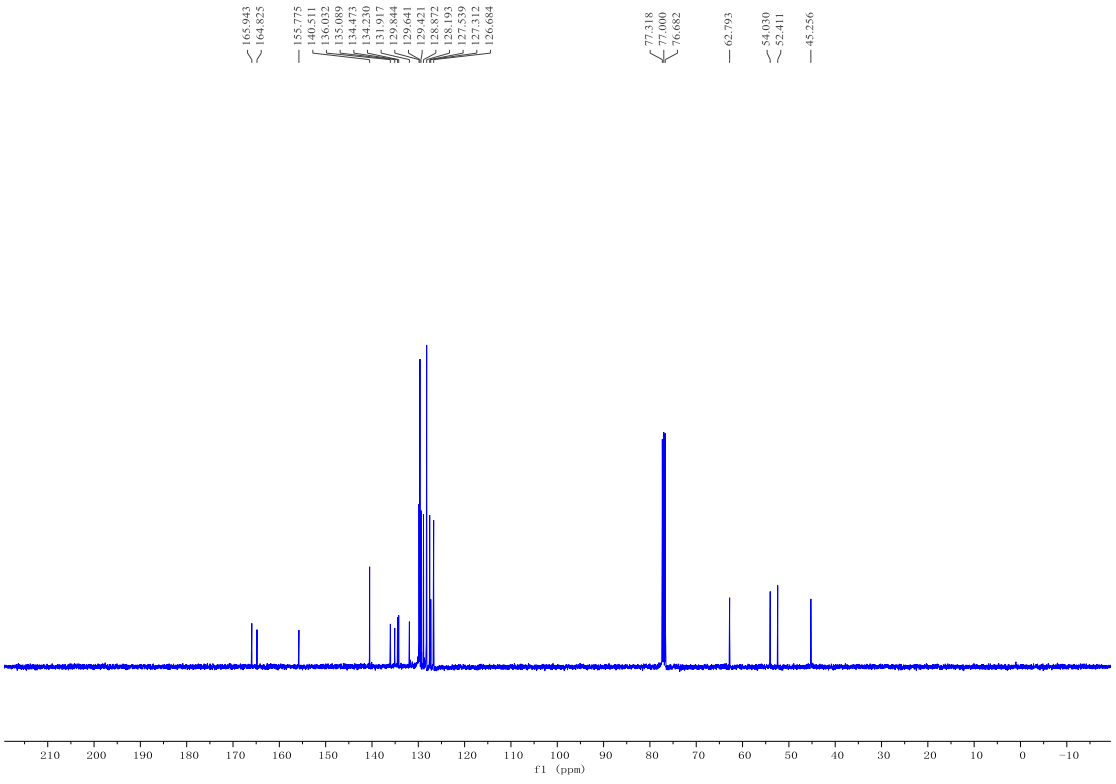


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3af:

^{1}H NMR (400 MHz, $CDCl_3$)

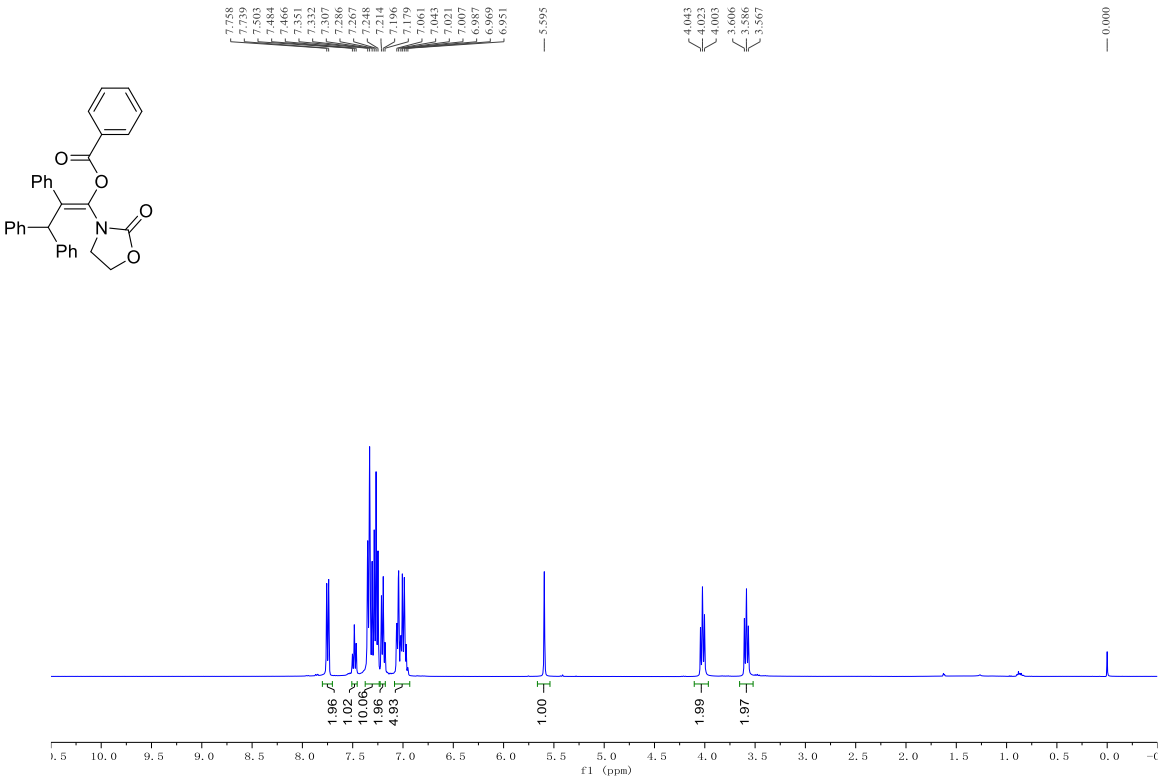


^{13}C NMR (100 MHz, $CDCl_3$)

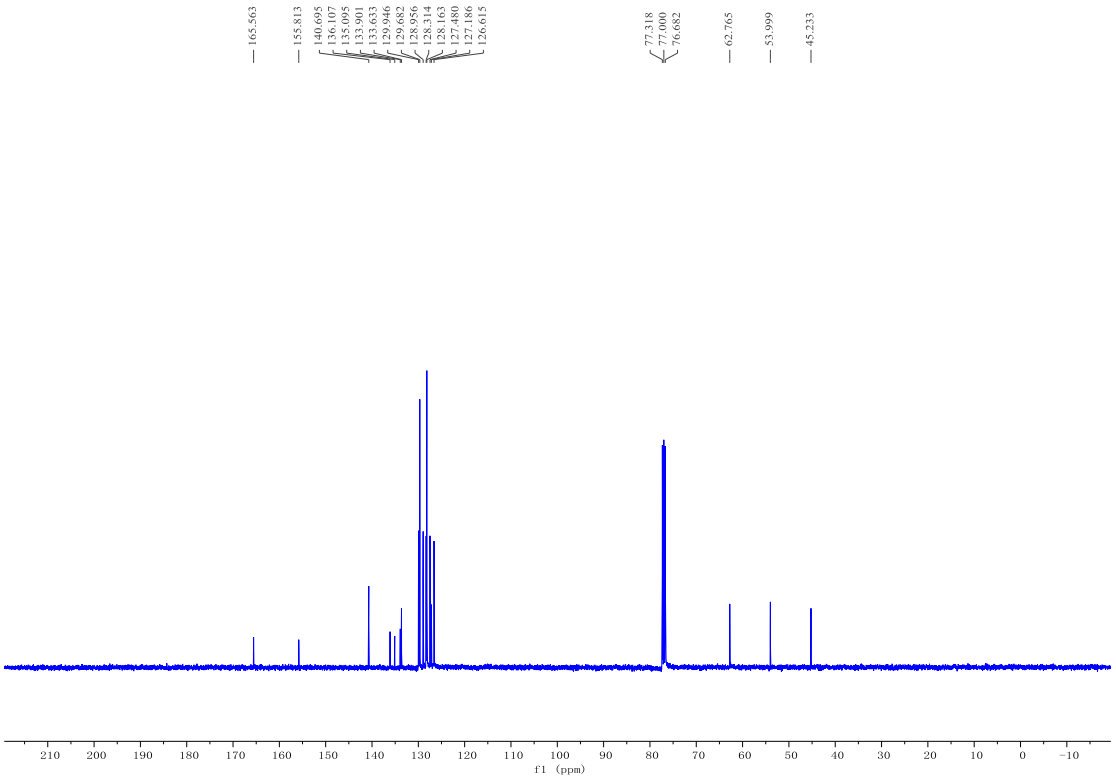


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ag:

^{1}H NMR (400 MHz, $CDCl_3$)

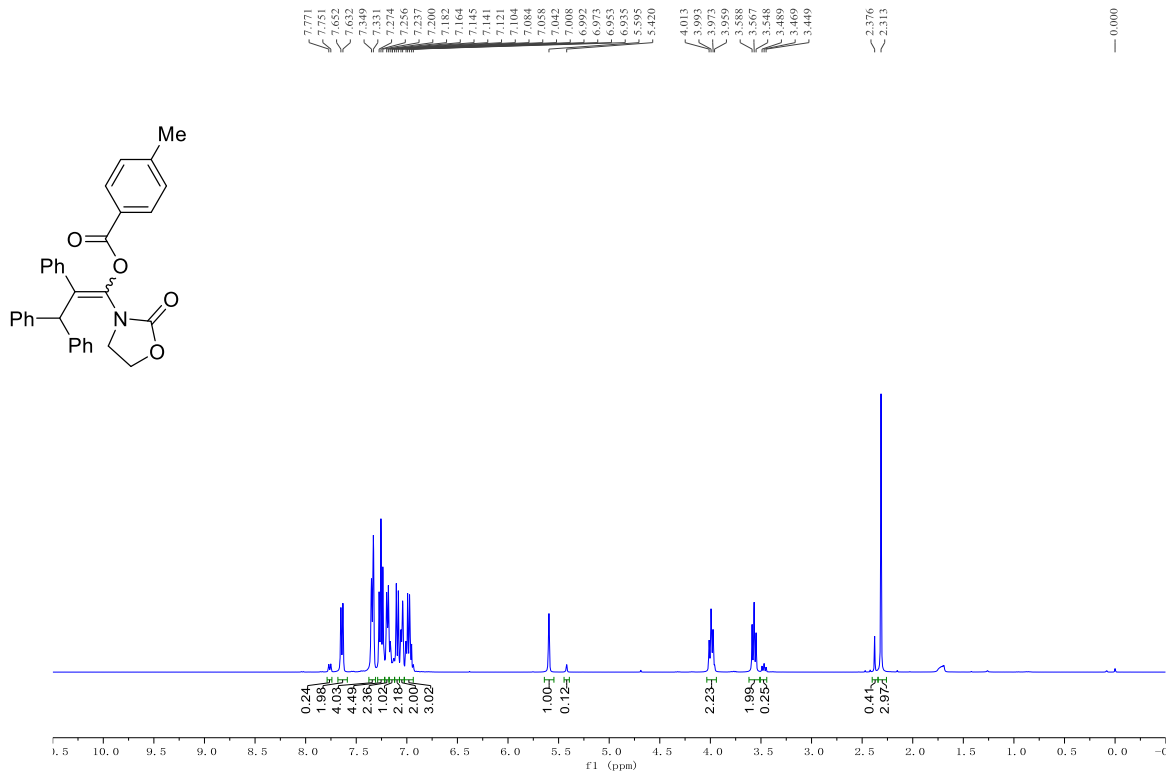


^{13}C NMR (100 MHz, $CDCl_3$)

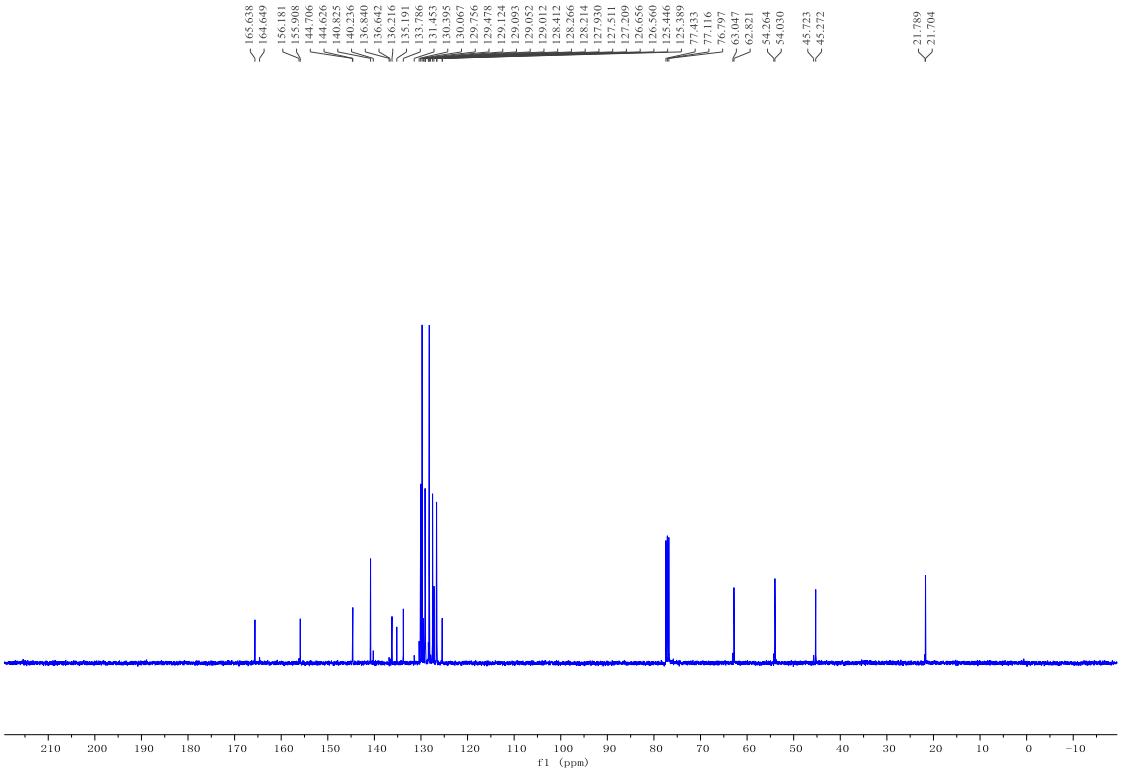


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3ah:

^{1}H NMR (400 MHz, $CDCl_3$)

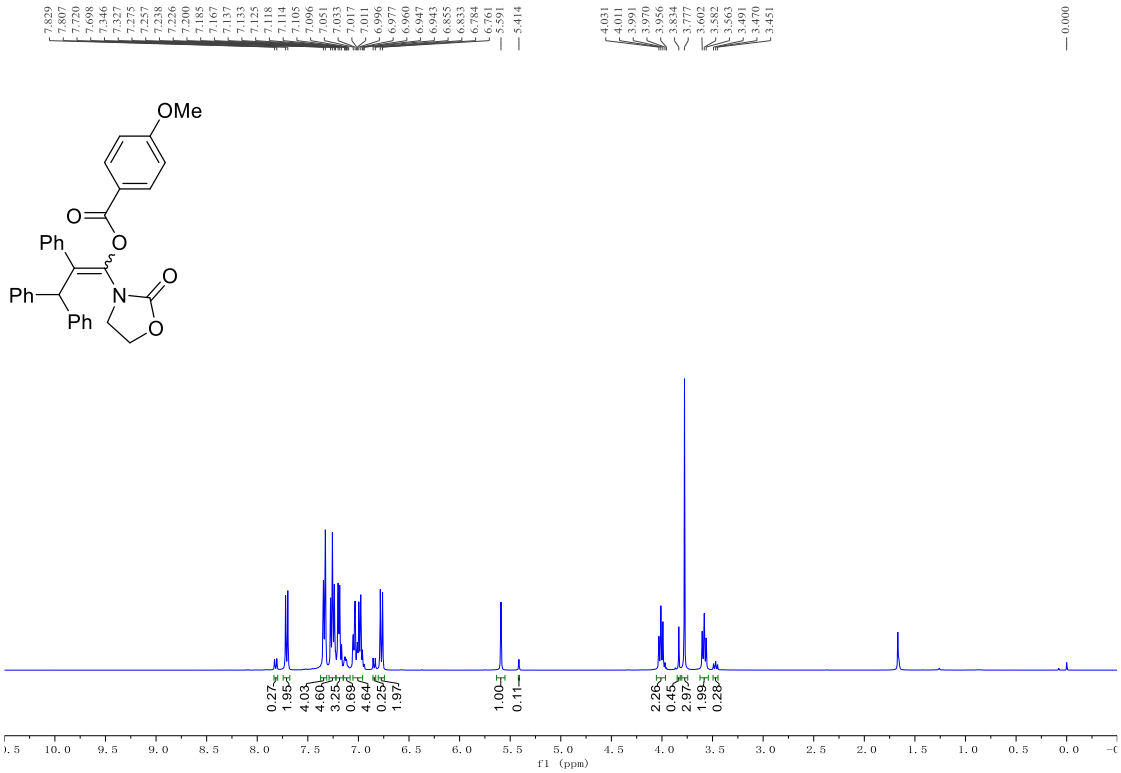


^{13}C NMR (100 MHz, $CDCl_3$)

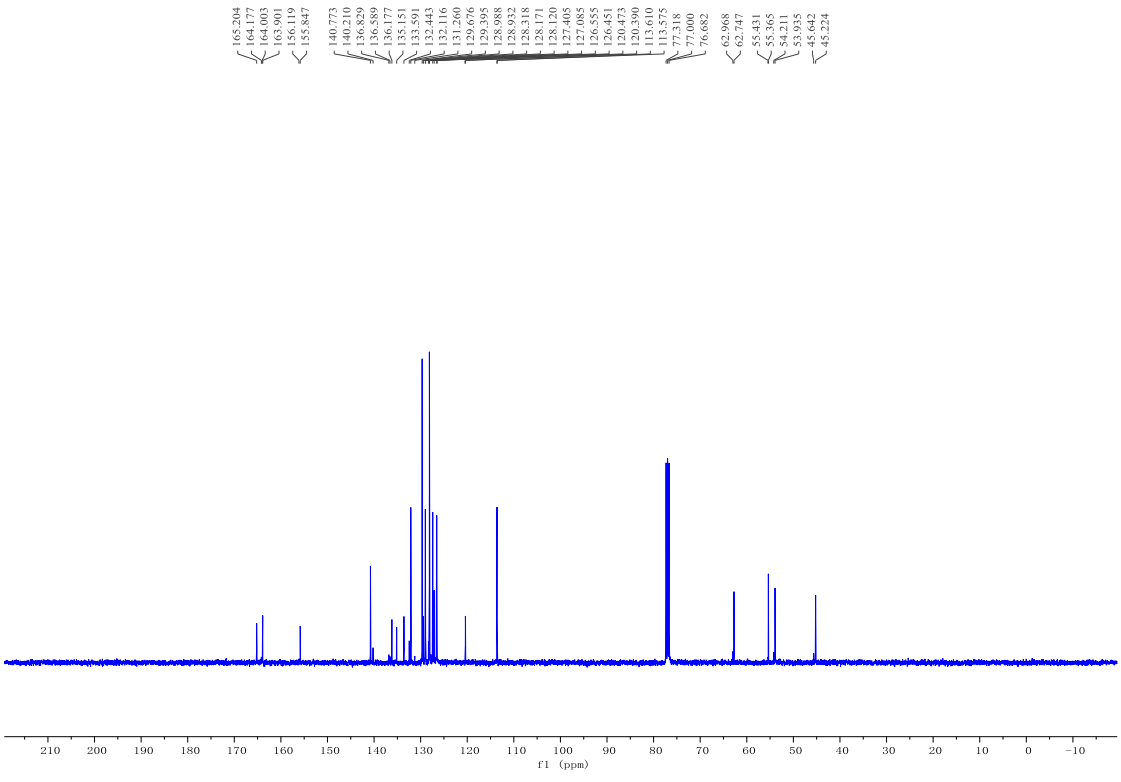


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3ai:

^{1}H NMR (400 MHz, $CDCl_3$)

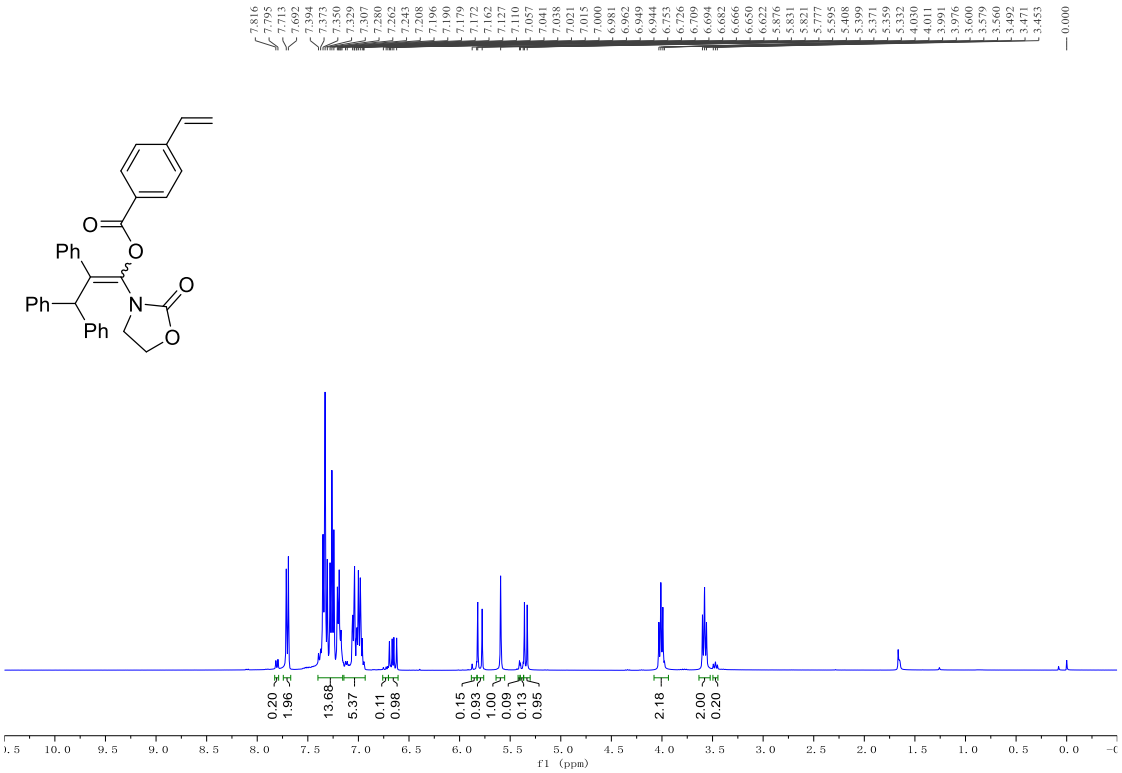


^{13}C NMR (100 MHz, $CDCl_3$)

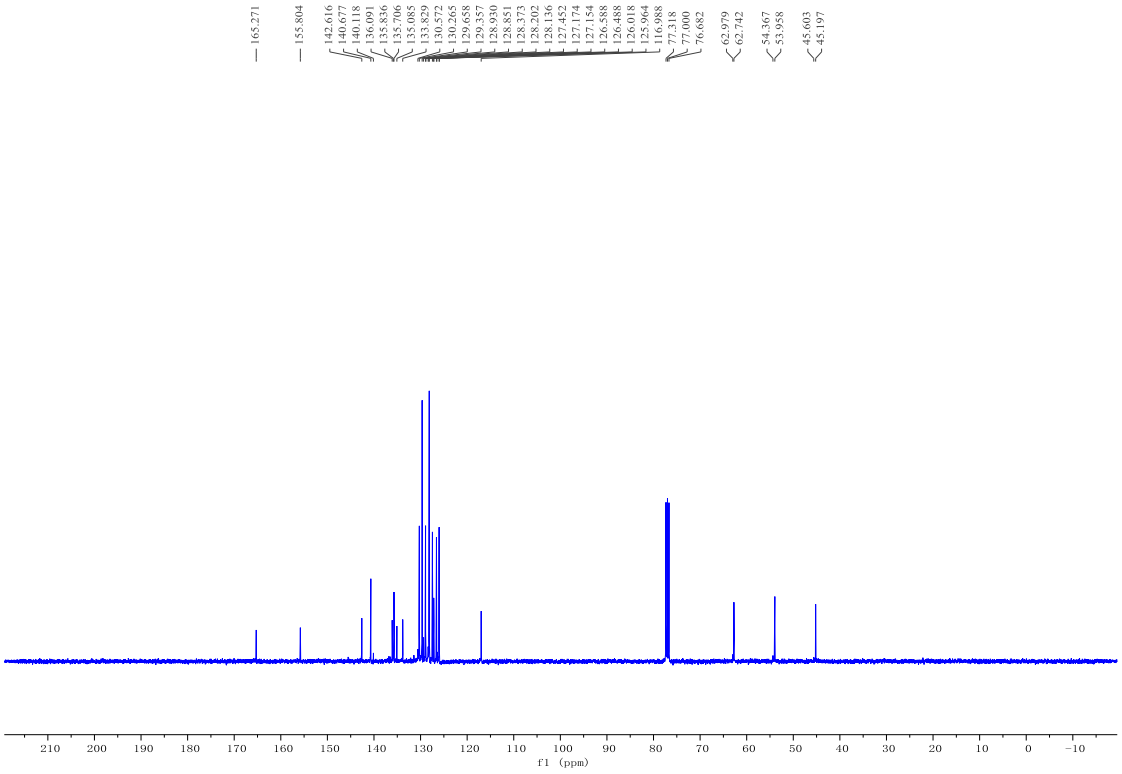


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3aj:

^{1}H NMR (400 MHz, $CDCl_3$)

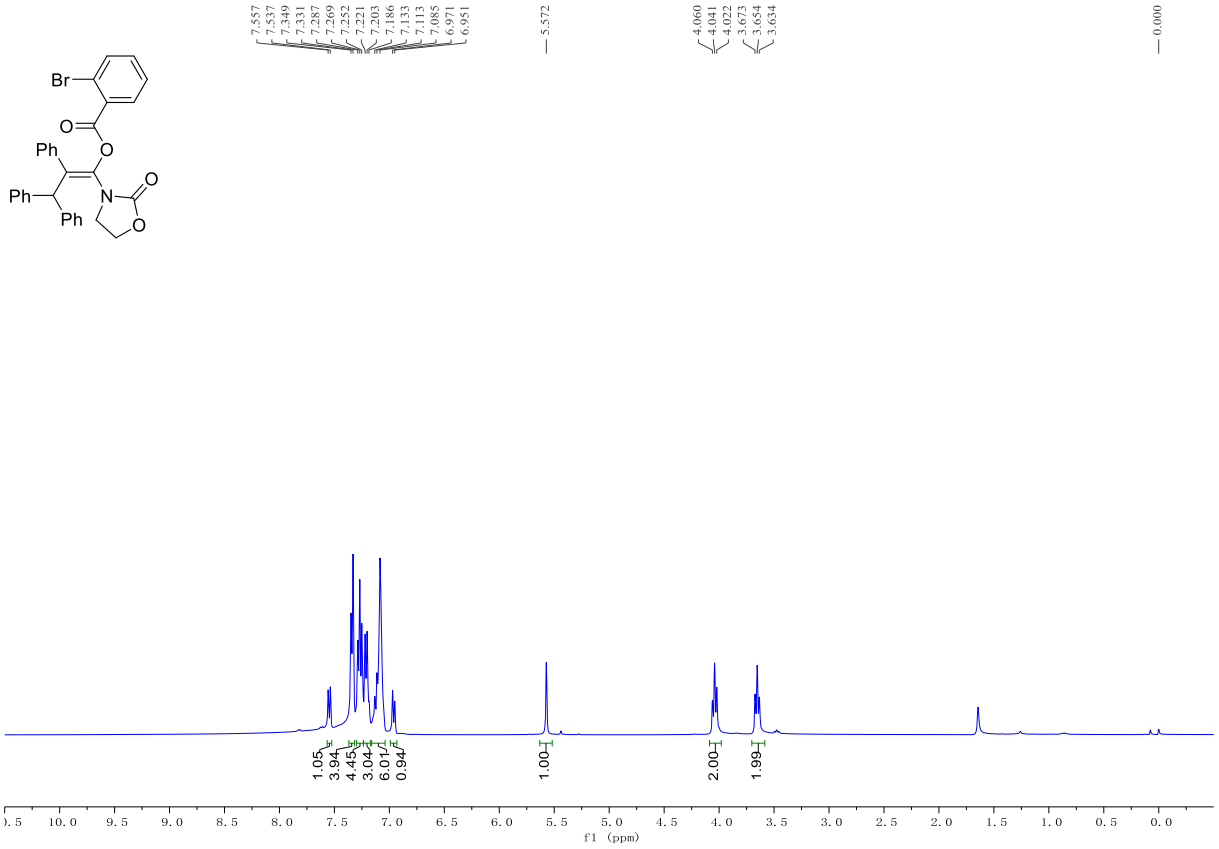


^{13}C NMR (100 MHz, $CDCl_3$)

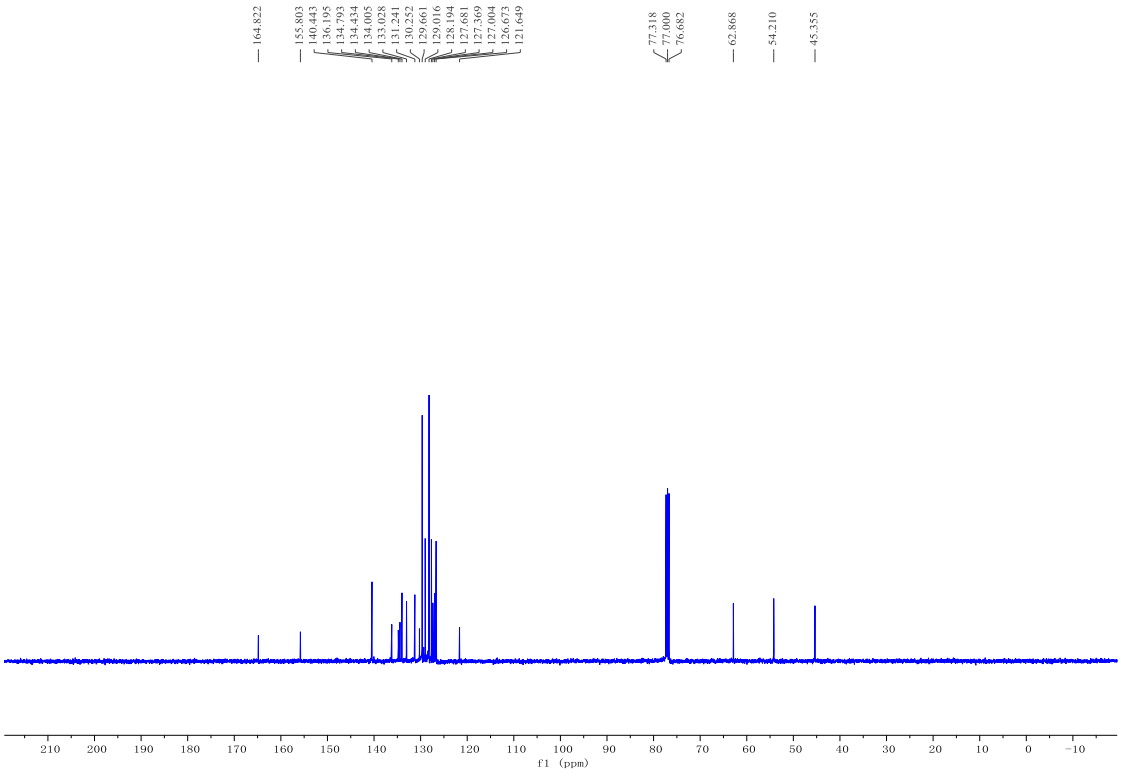


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ak:

^{1}H NMR (400 MHz, $CDCl_3$)

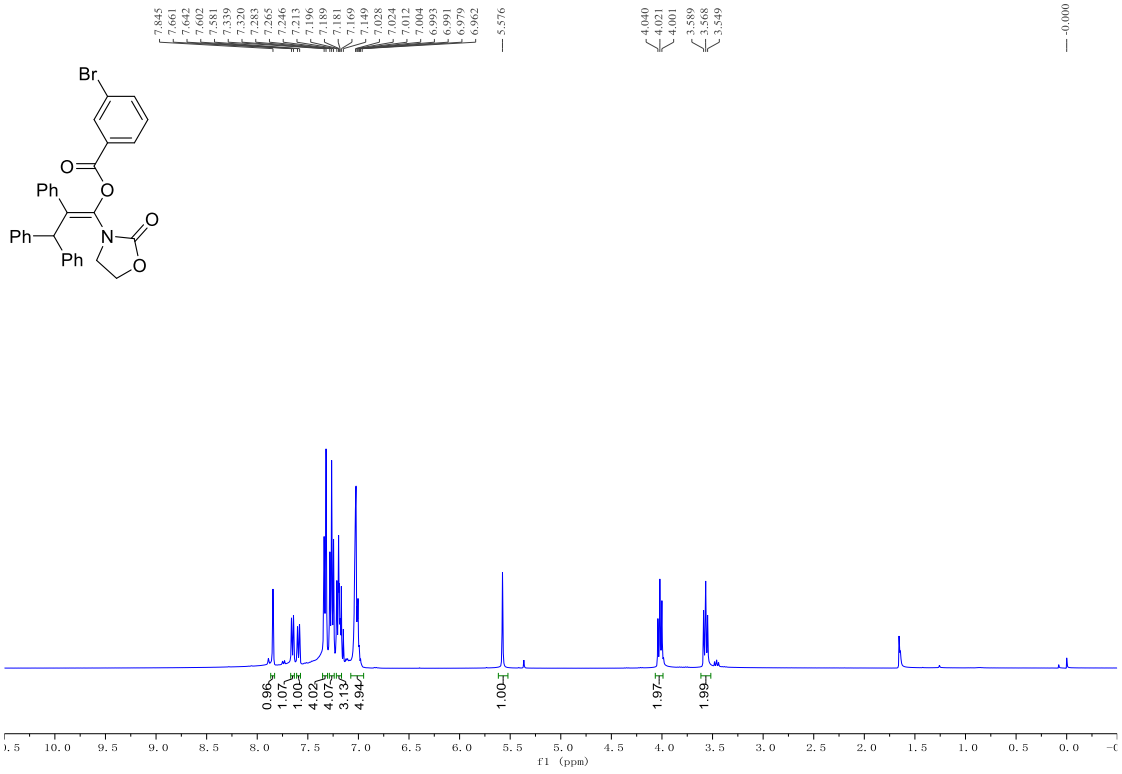


^{13}C NMR (100 MHz, $CDCl_3$)

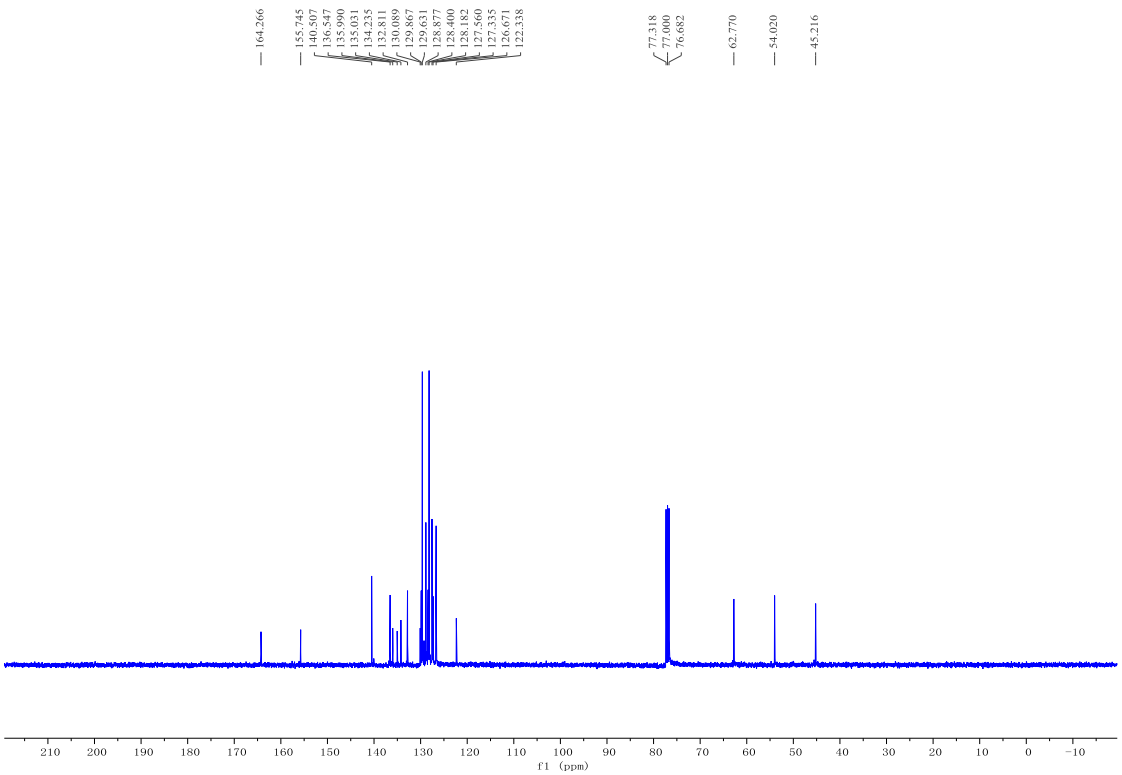


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3al:

^{1}H NMR (400 MHz, $CDCl_3$)

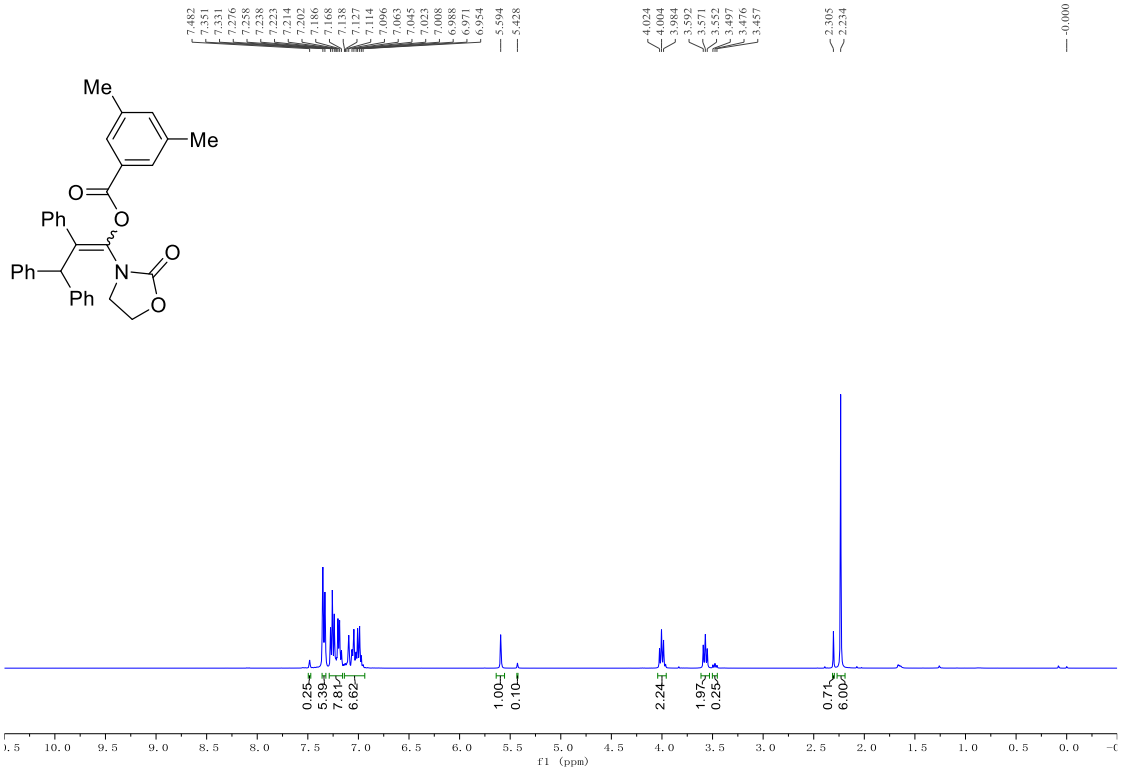


^{13}C NMR (100 MHz, $CDCl_3$)

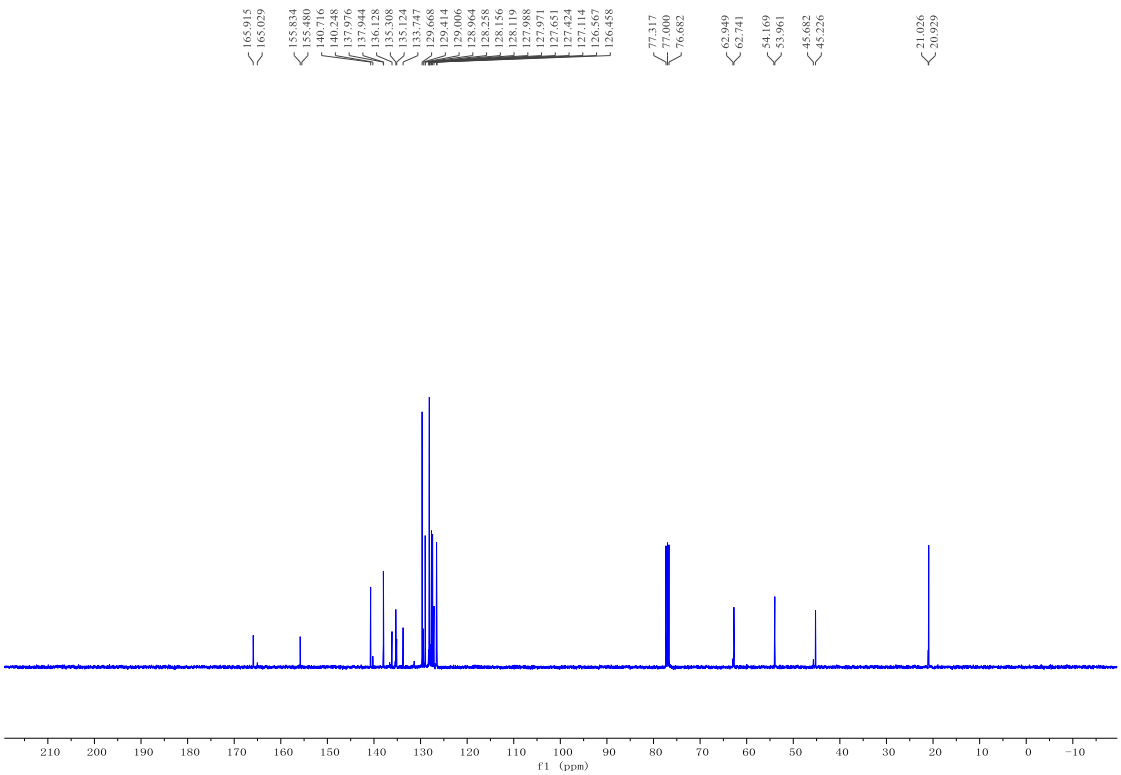


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3am:

^{1}H NMR (400 MHz, $CDCl_3$)

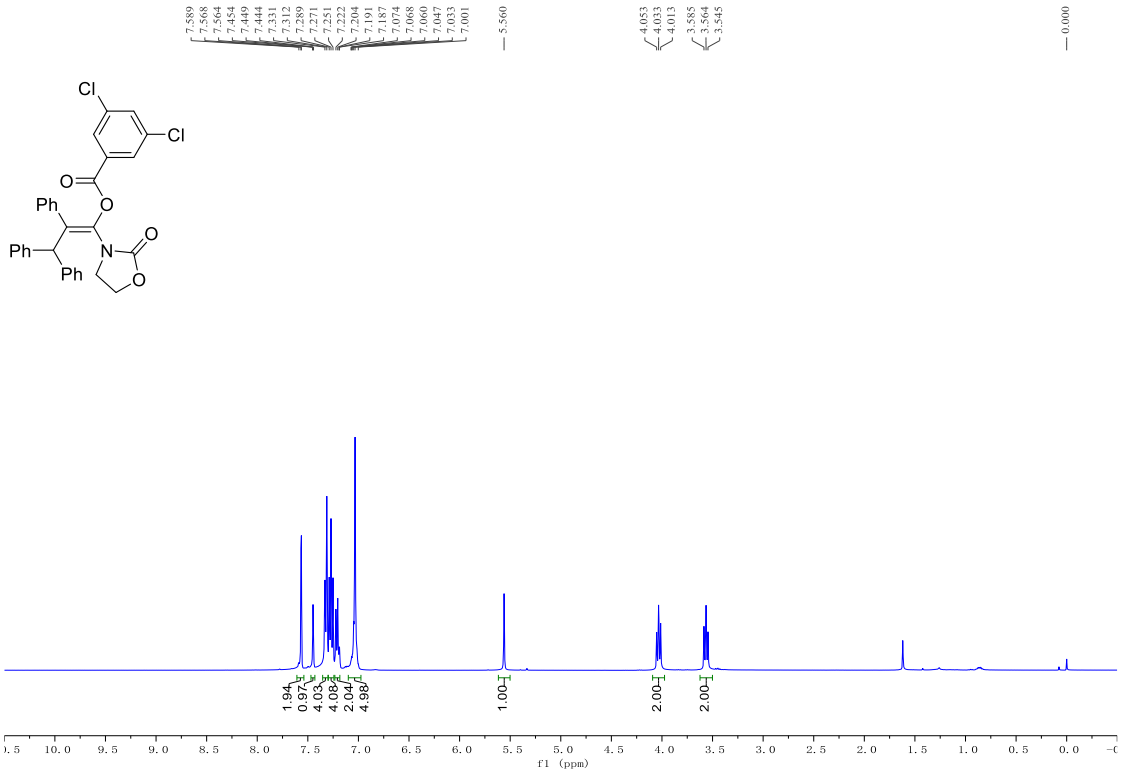


^{13}C NMR (100 MHz, $CDCl_3$)

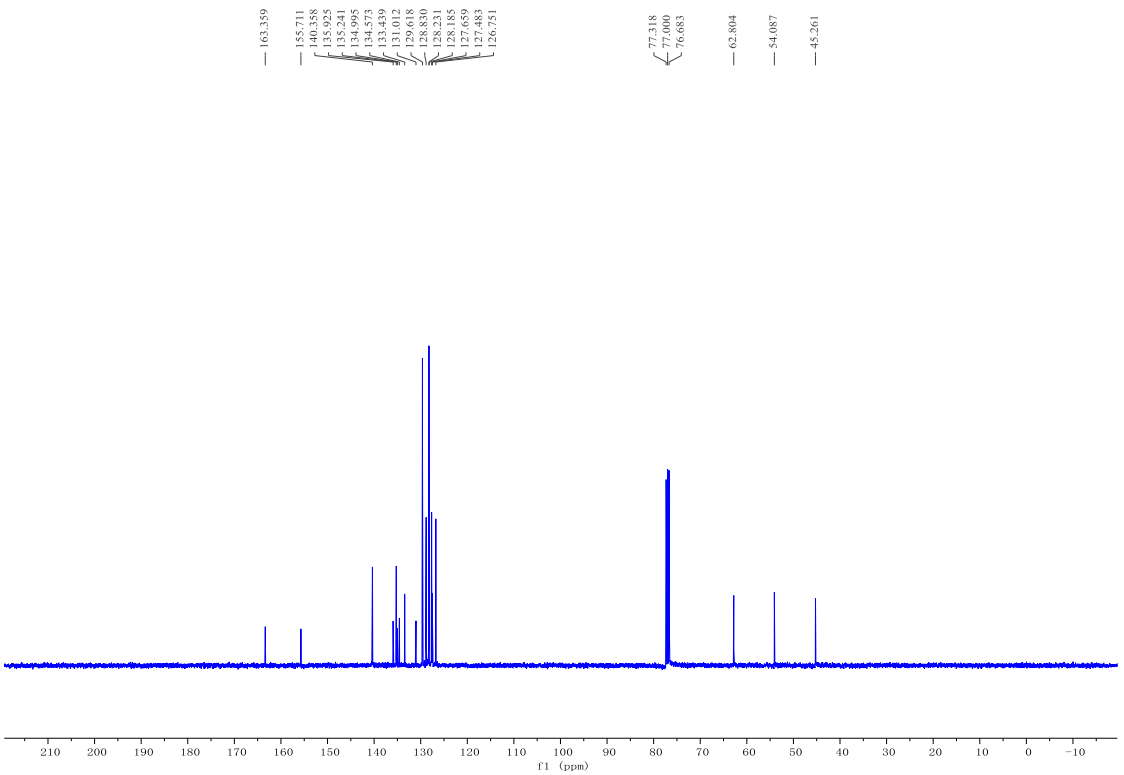


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3an:

^{1}H NMR (400 MHz, $CDCl_3$)

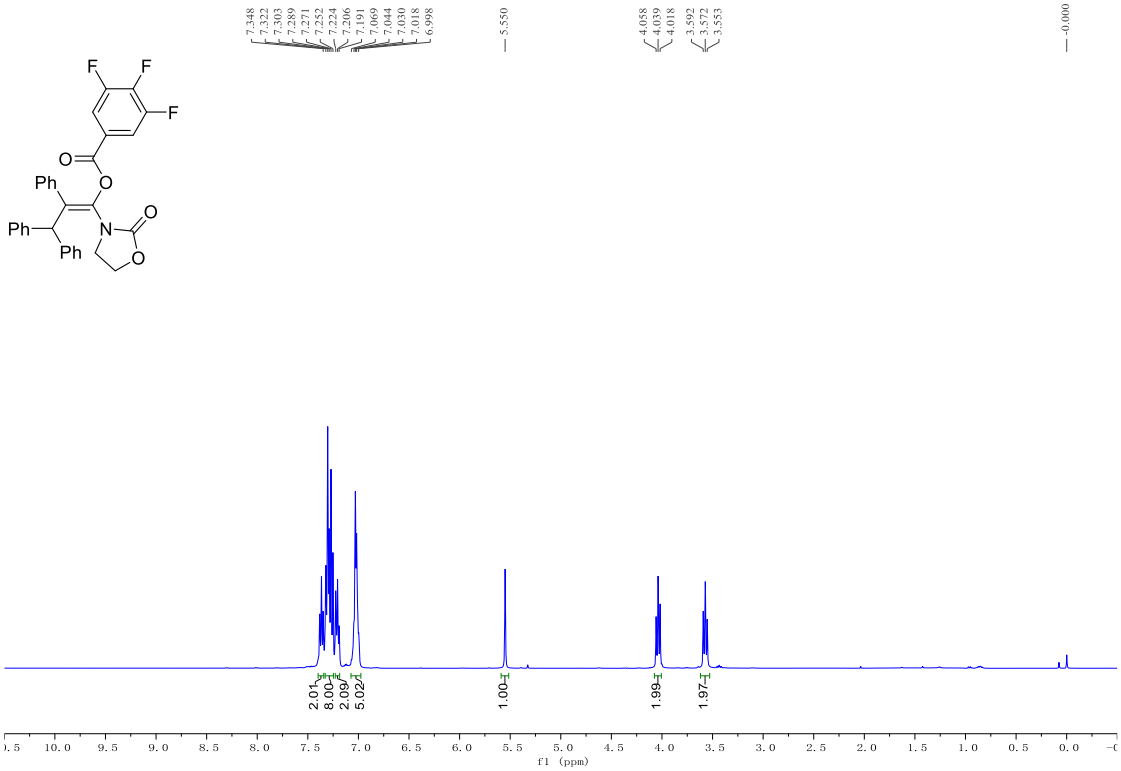


^{13}C NMR (100 MHz, $CDCl_3$)

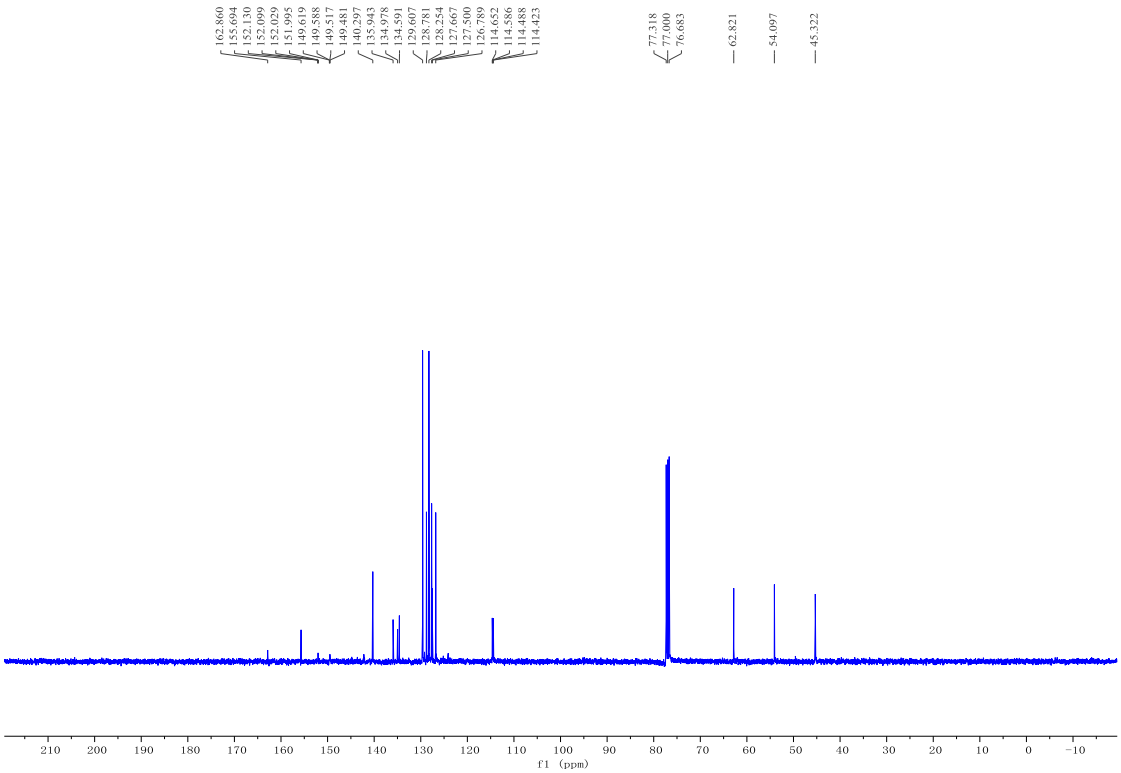


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ao:

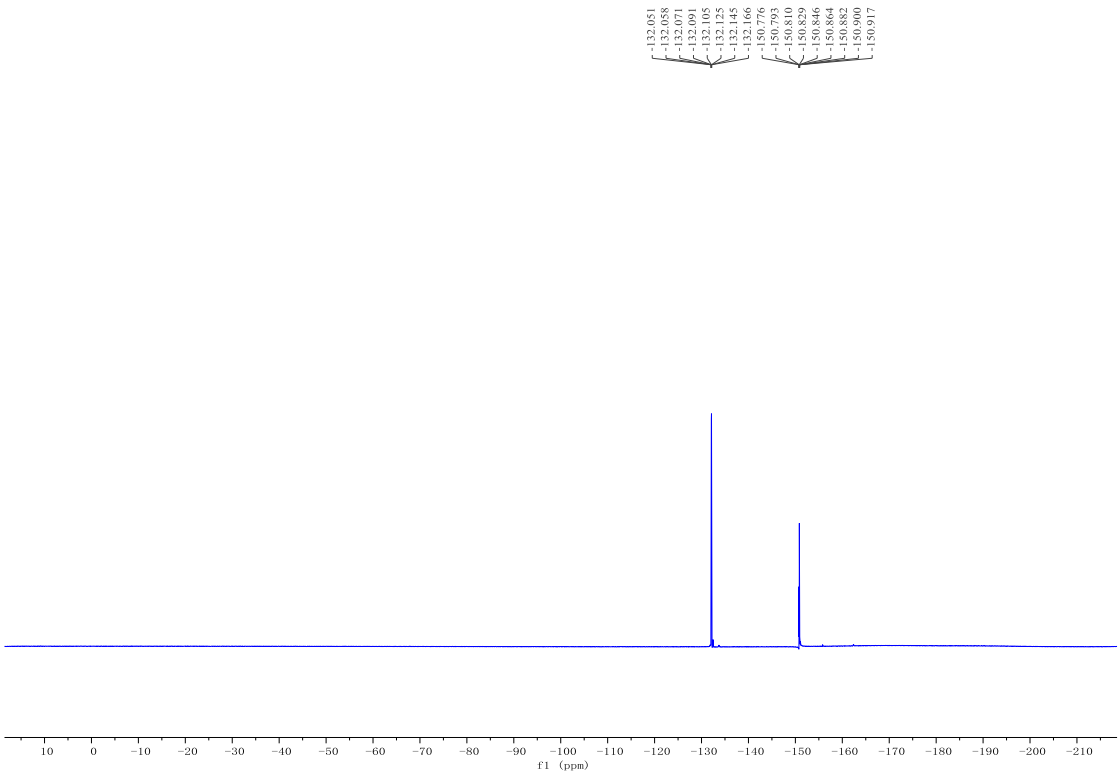
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

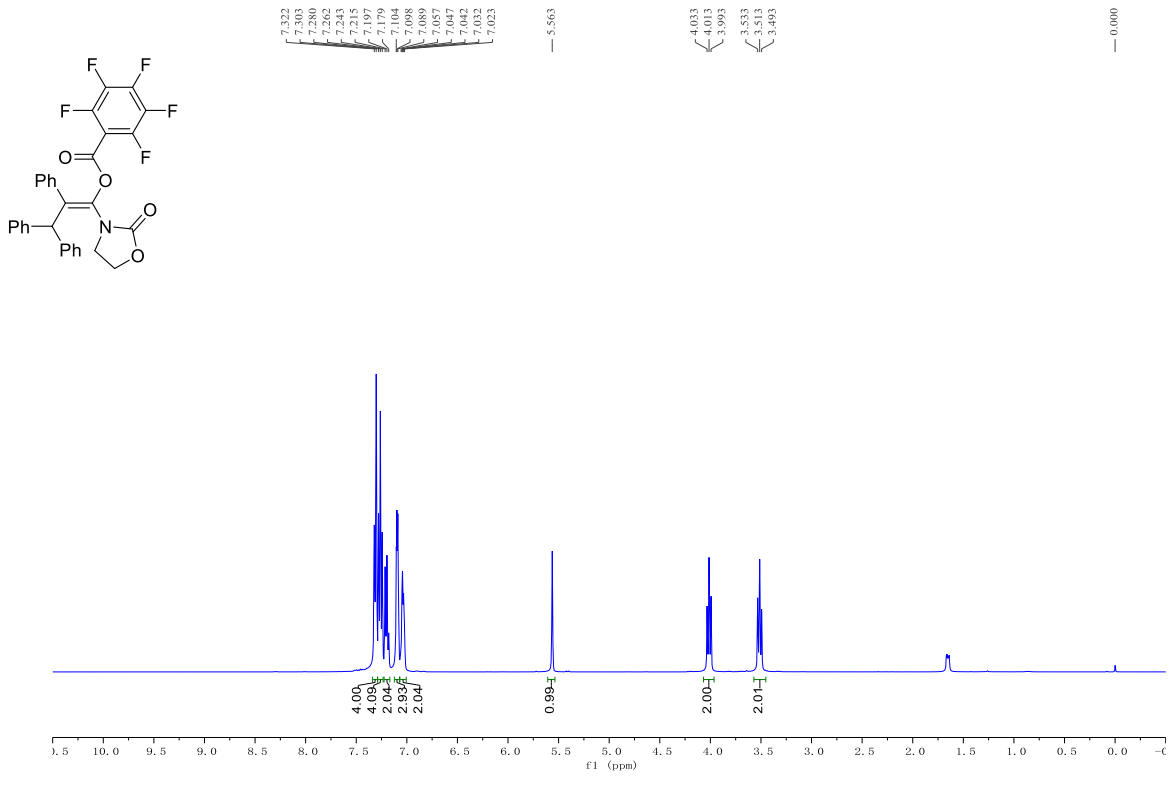


^{19}F NMR (376 MHz, $CDCl_3$)

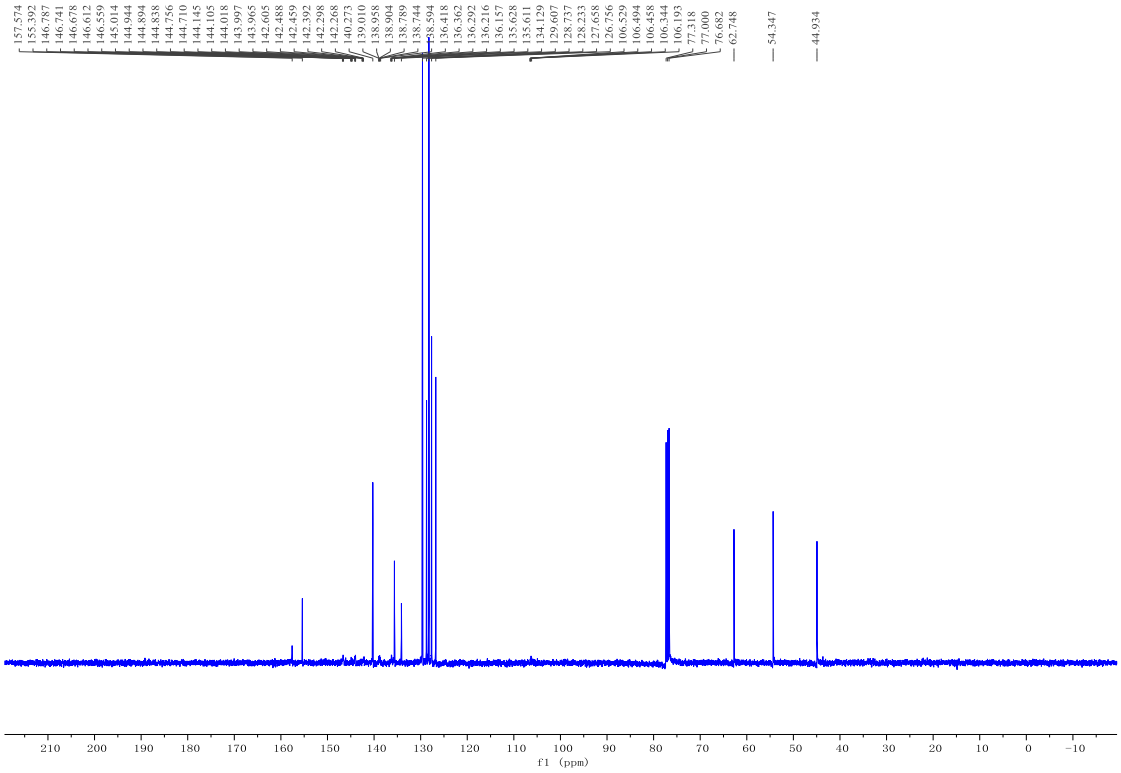


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ap:

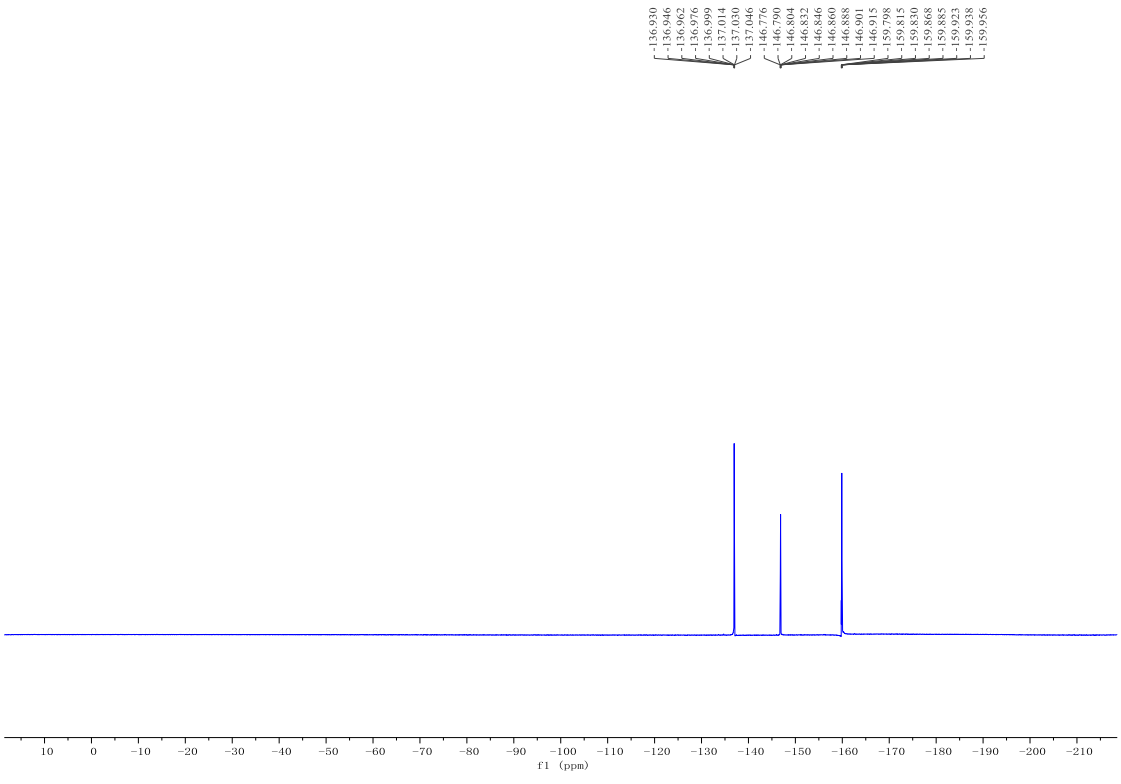
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

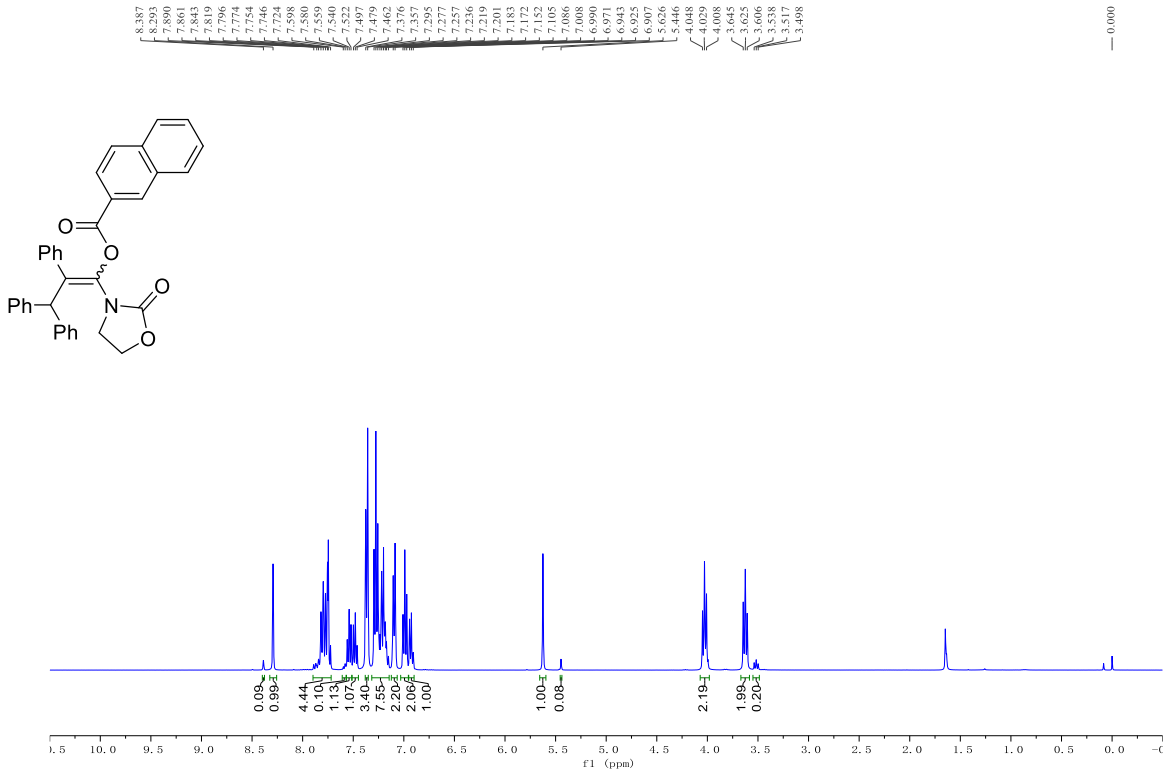


^{19}F NMR (376 MHz, $CDCl_3$)

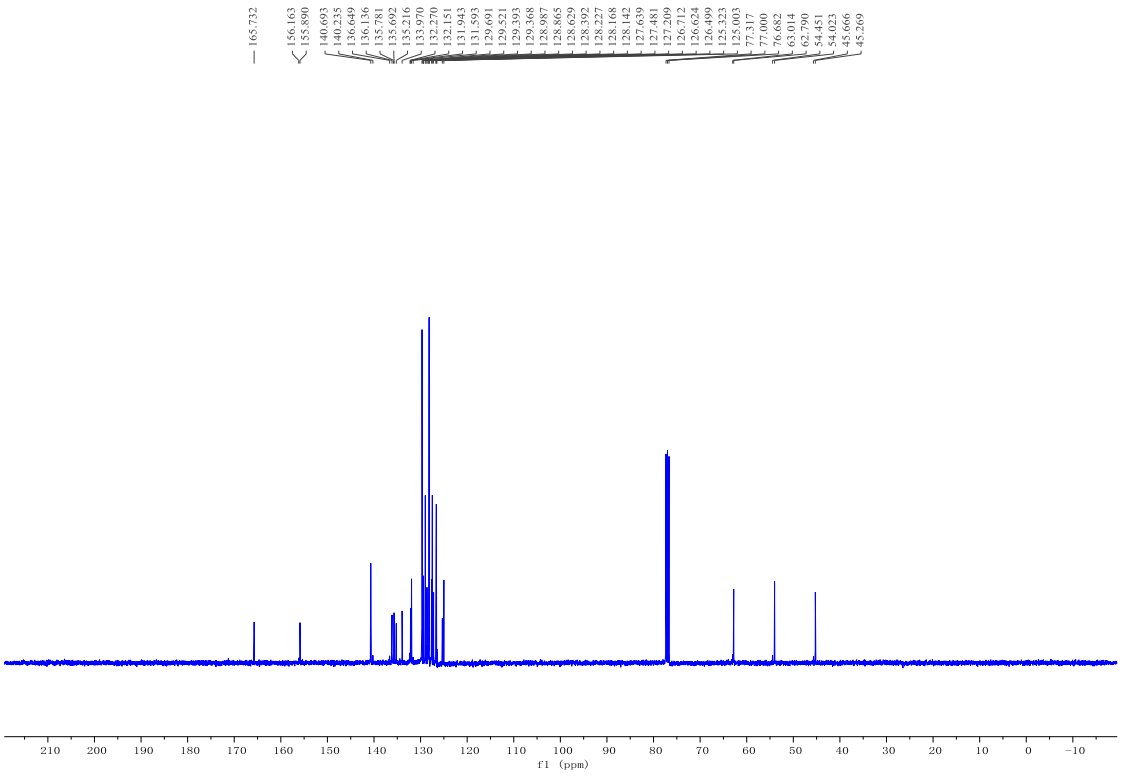


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3aq:

^{1}H NMR (400 MHz, $CDCl_3$)

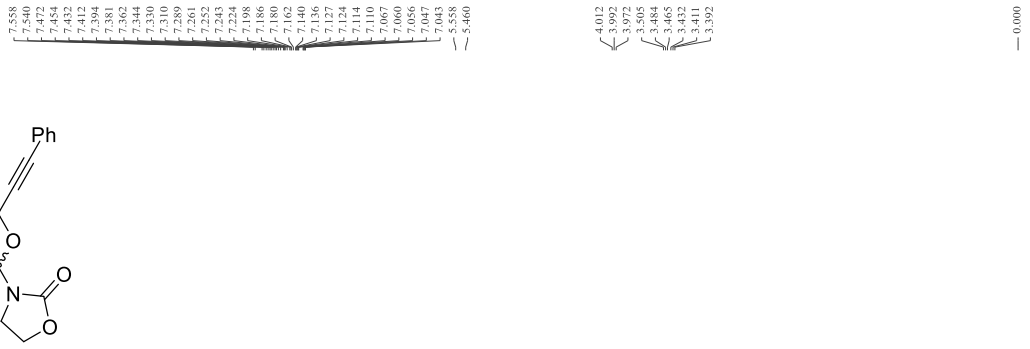


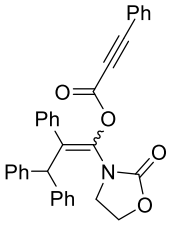
^{13}C NMR (100 MHz, $CDCl_3$)

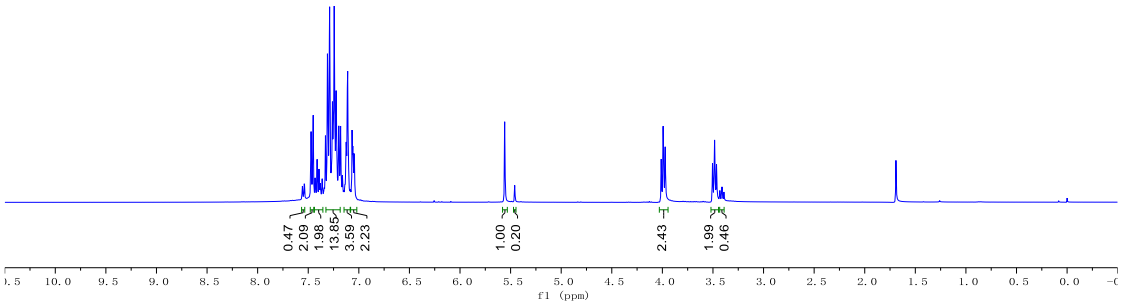


^{1}H and ^{13}C NMR Spectra for Compound (*Z/E*)-3ar:

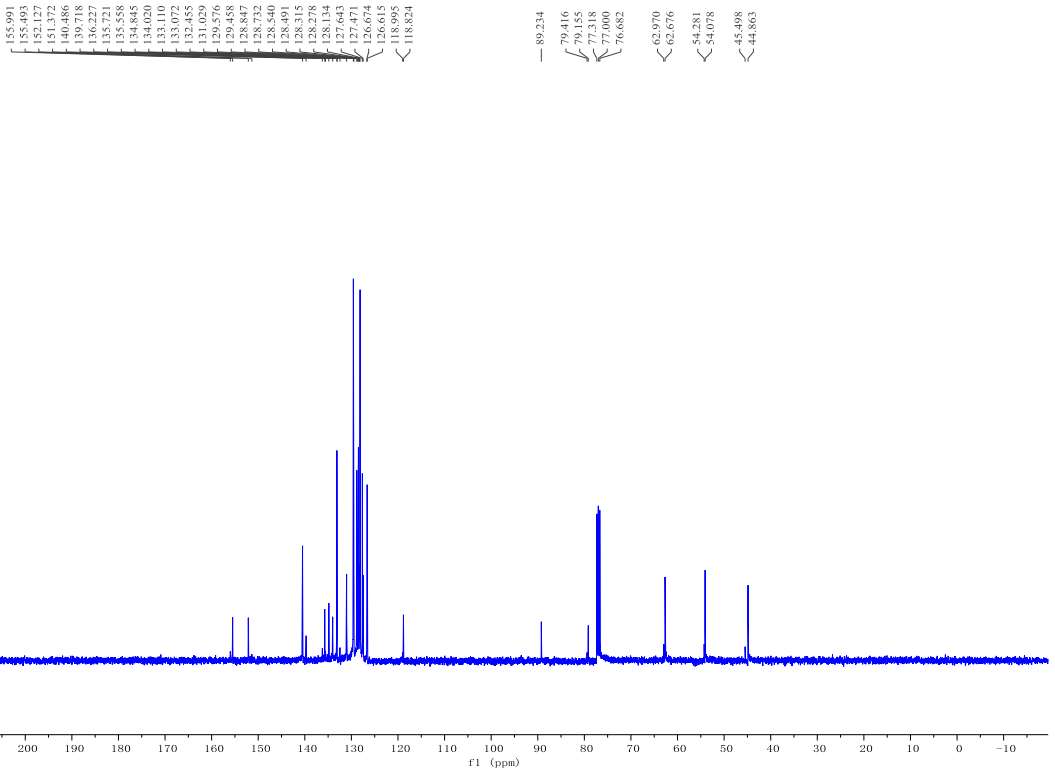
^{1}H NMR (400 MHz, $CDCl_3$)





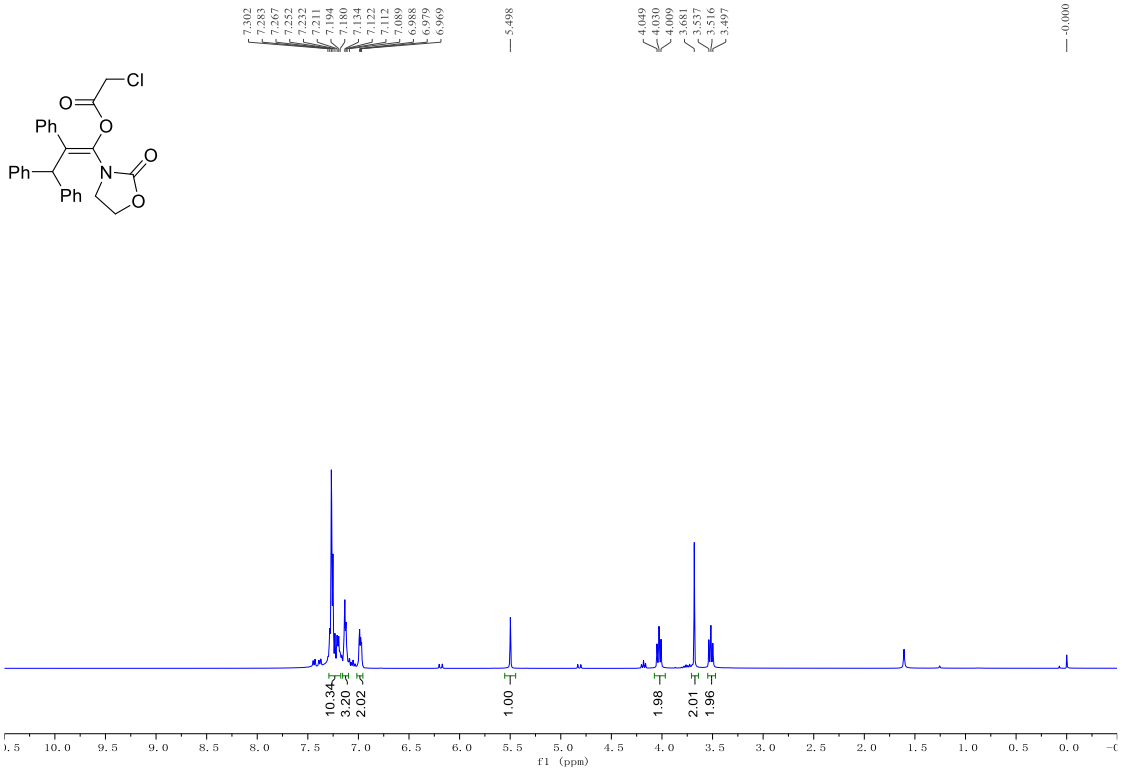


^{13}C NMR (100 MHz, $CDCl_3$)

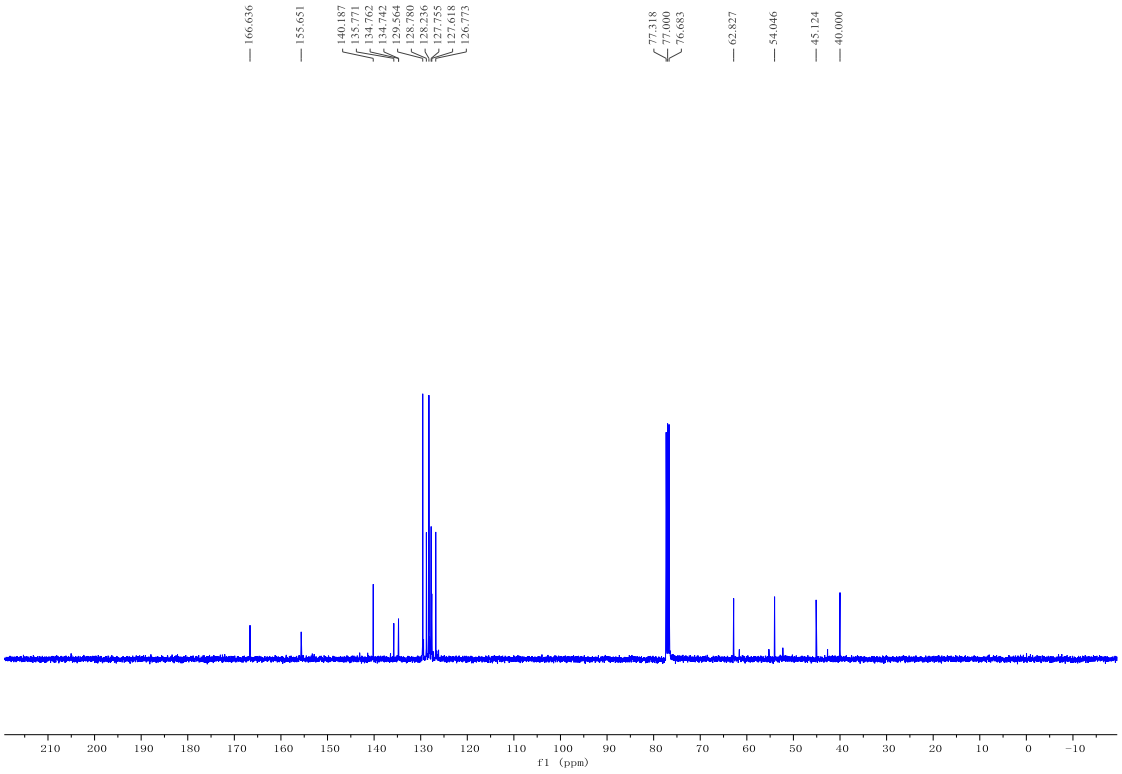


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3as:

^{1}H NMR (400 MHz, $CDCl_3$)

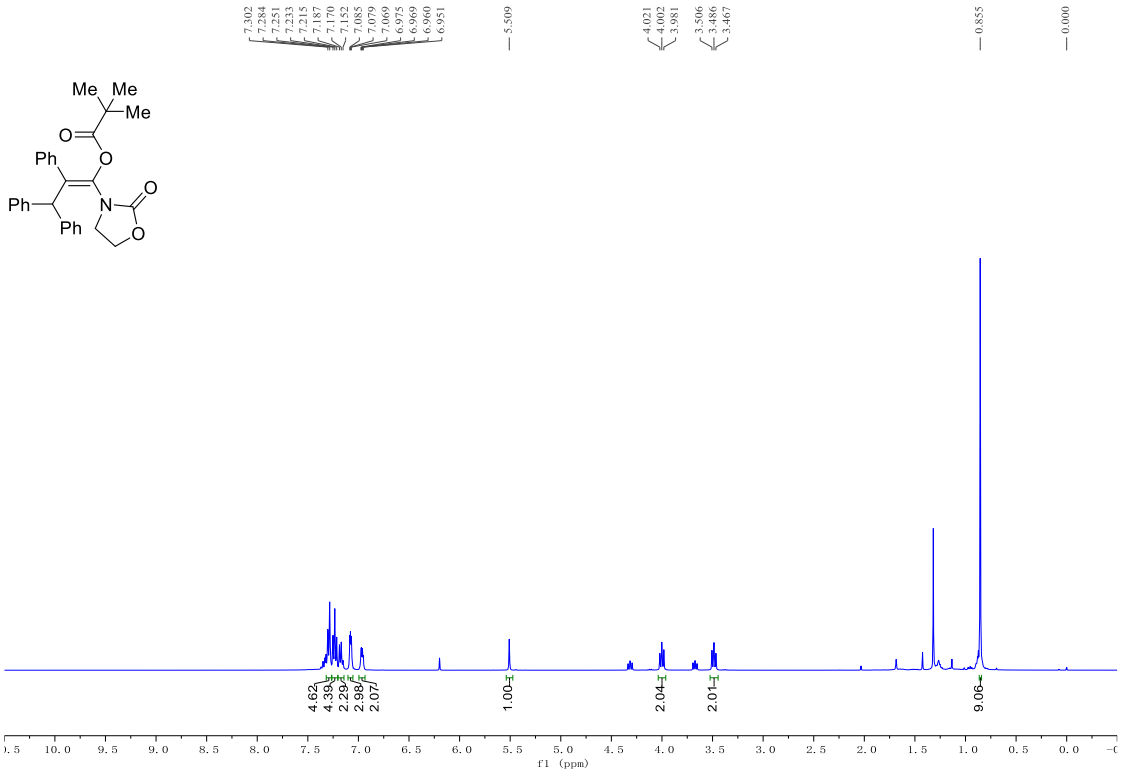


^{13}C NMR (100 MHz, $CDCl_3$)

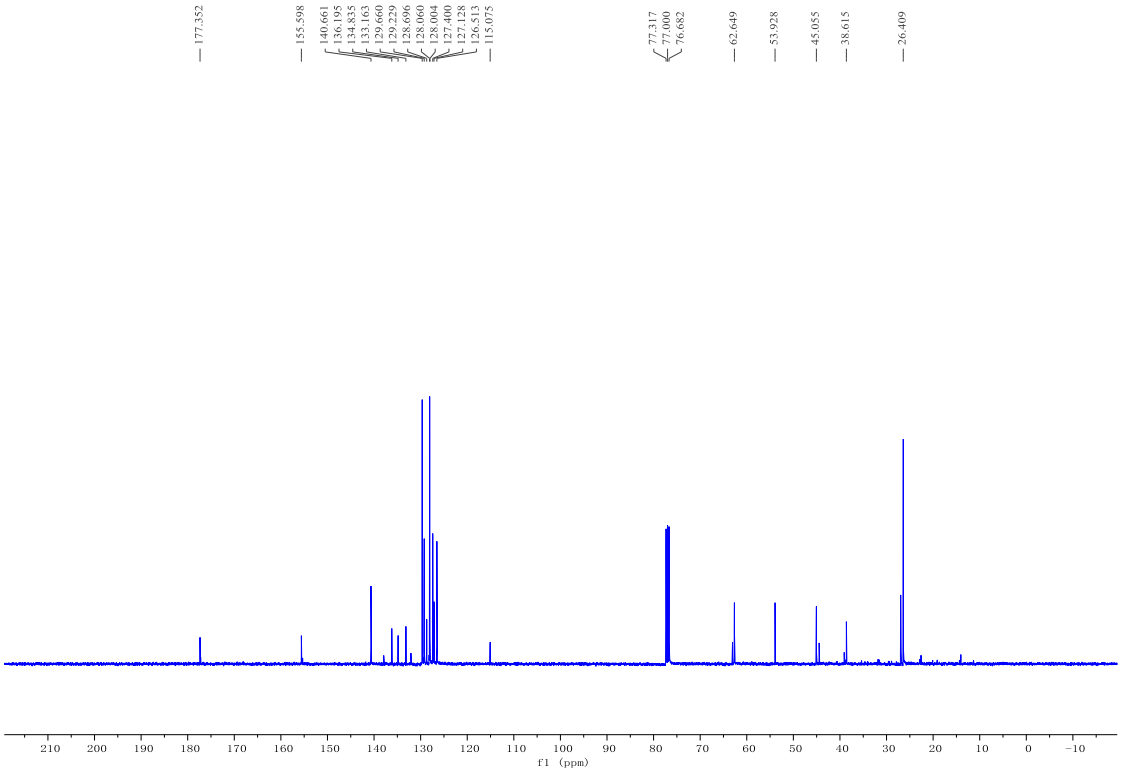


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3at:

^{1}H NMR (400 MHz, $CDCl_3$)

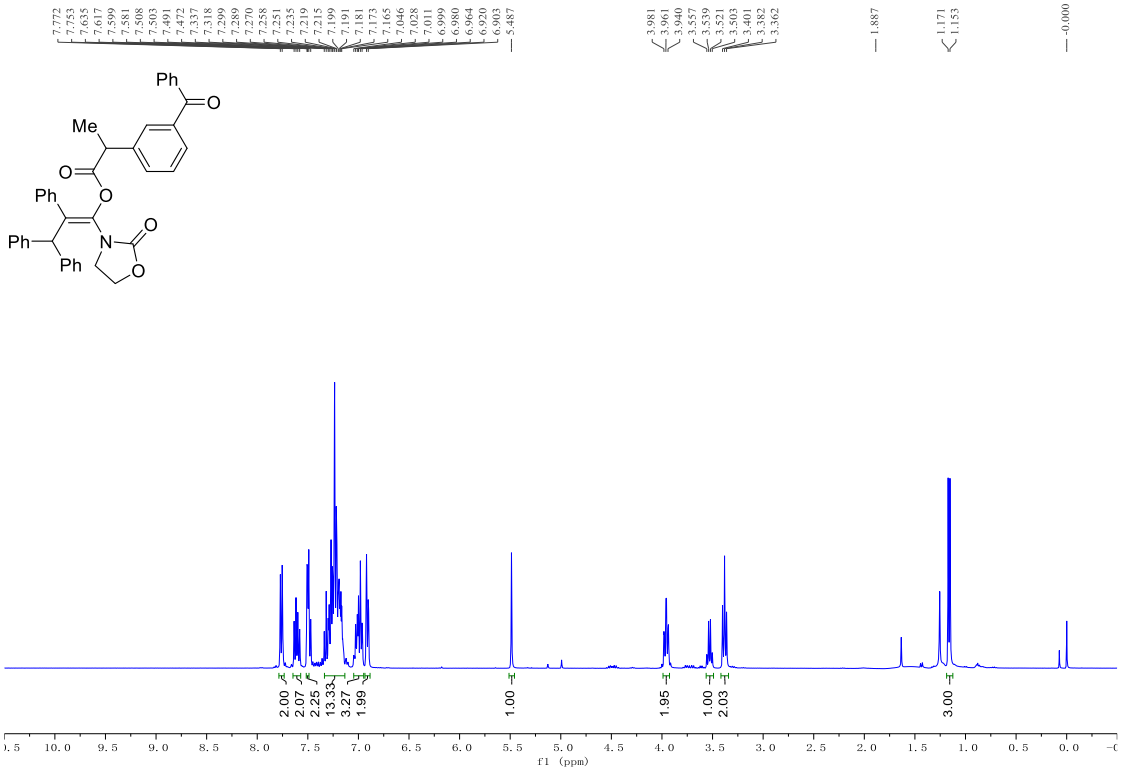


^{13}C NMR (100 MHz, $CDCl_3$)

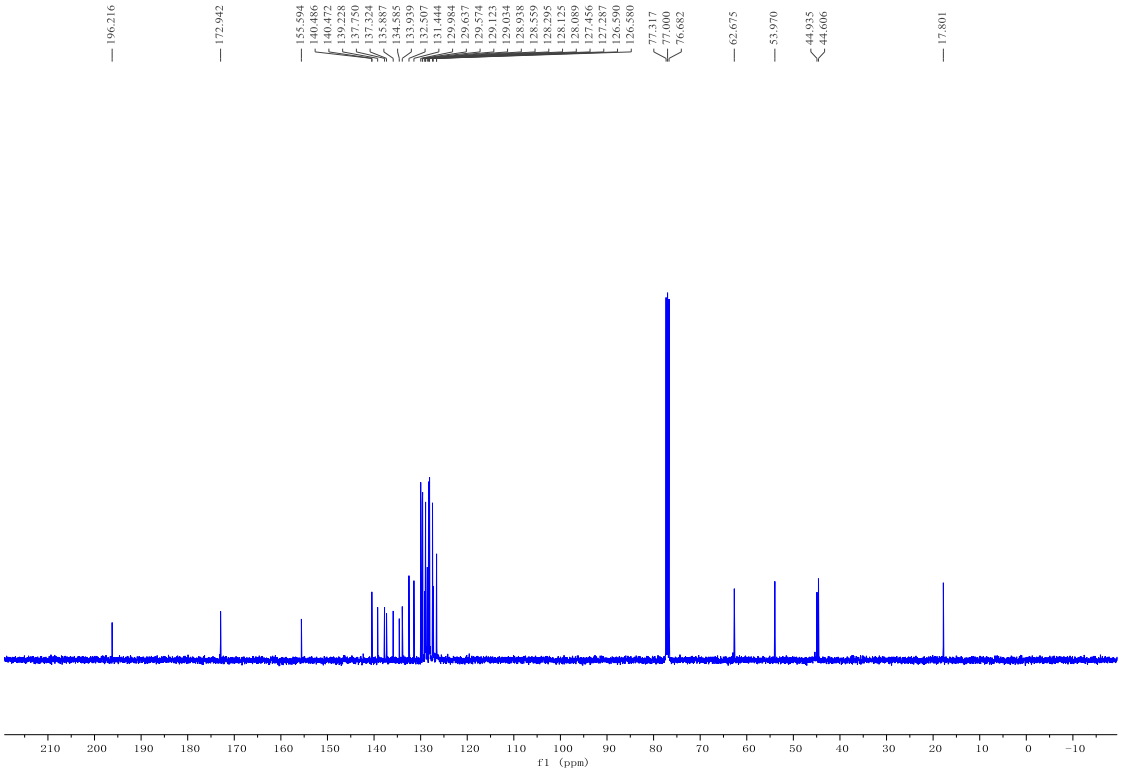


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3au:

^{1}H NMR (400 MHz, $CDCl_3$)

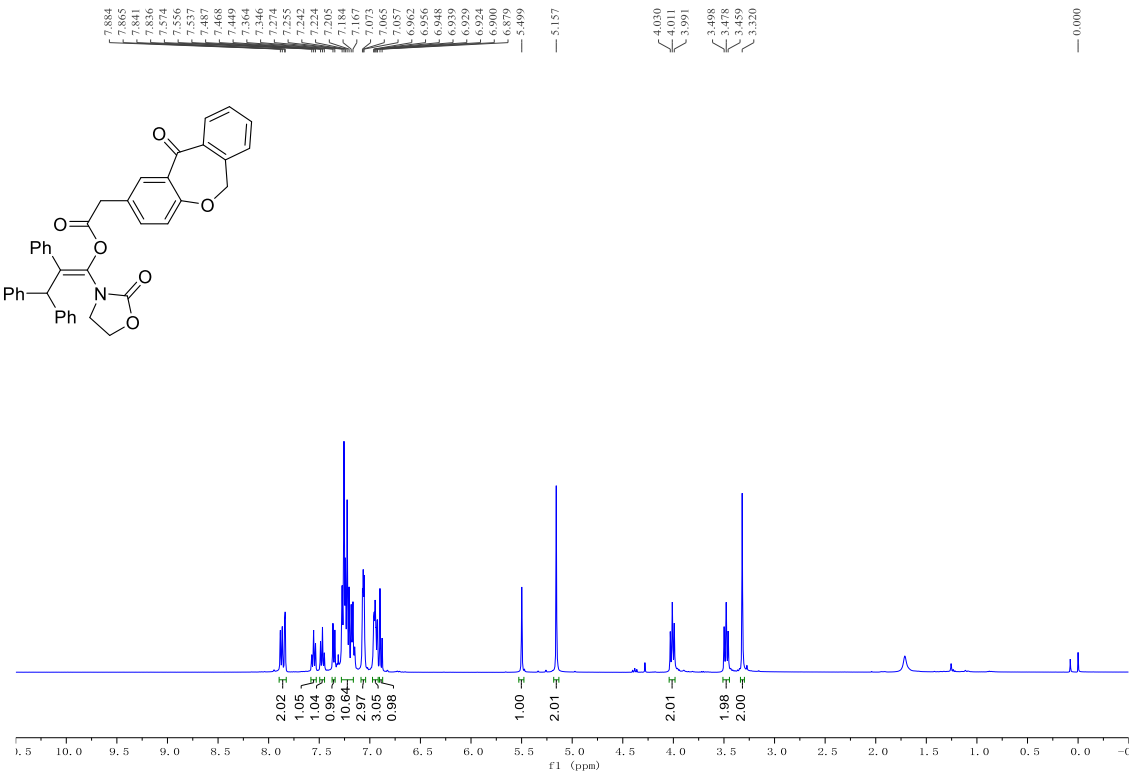


^{13}C NMR (100 MHz, $CDCl_3$)

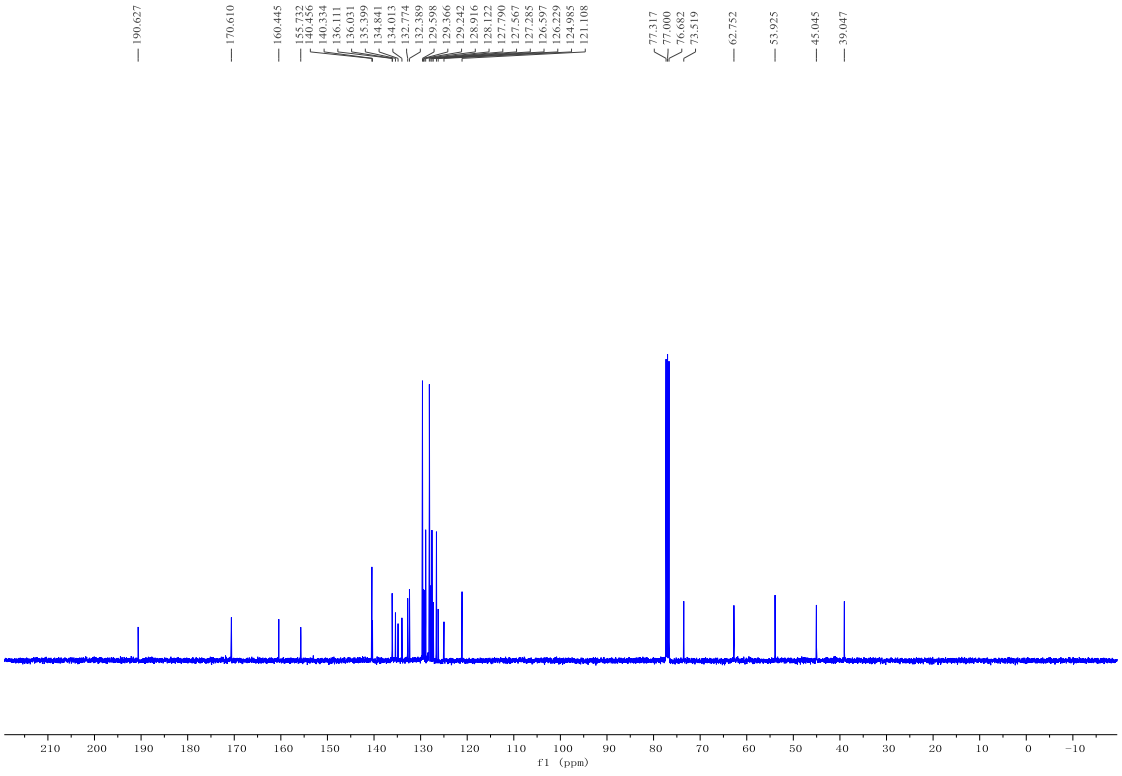


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3av:

^{1}H NMR (400 MHz, $CDCl_3$)

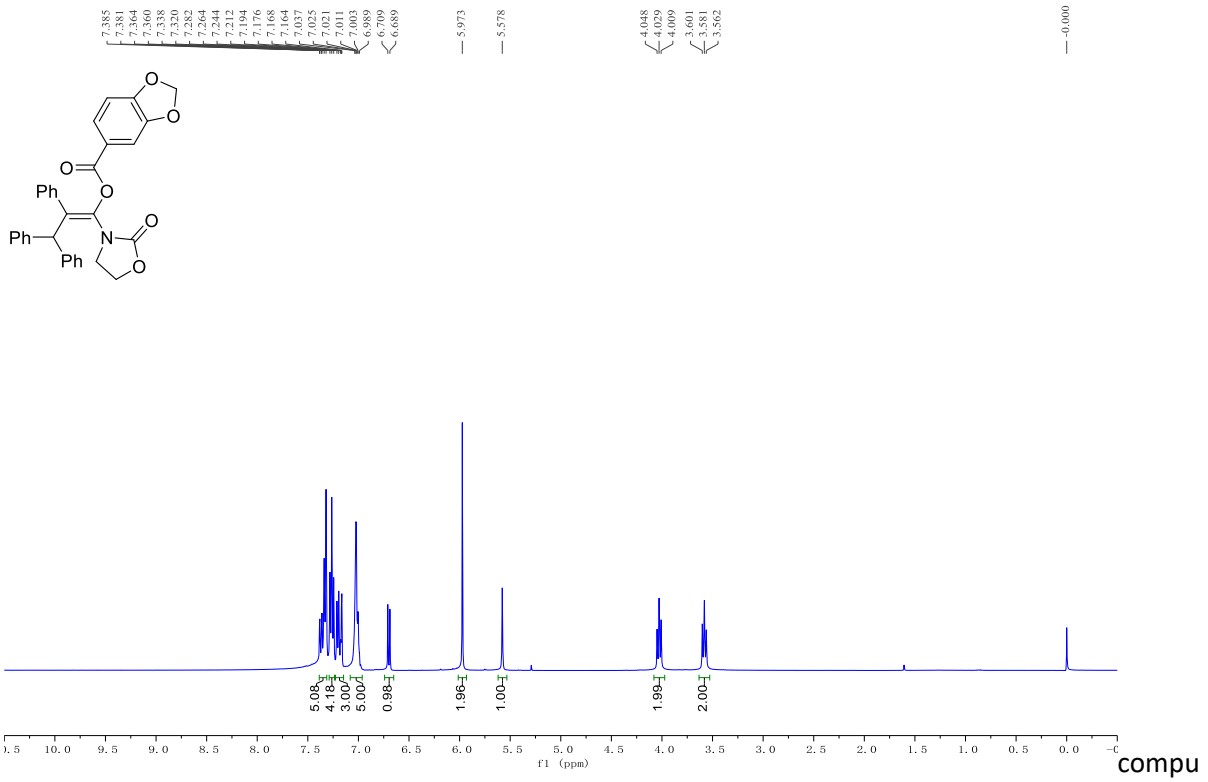


^{13}C NMR (100 MHz, $CDCl_3$)



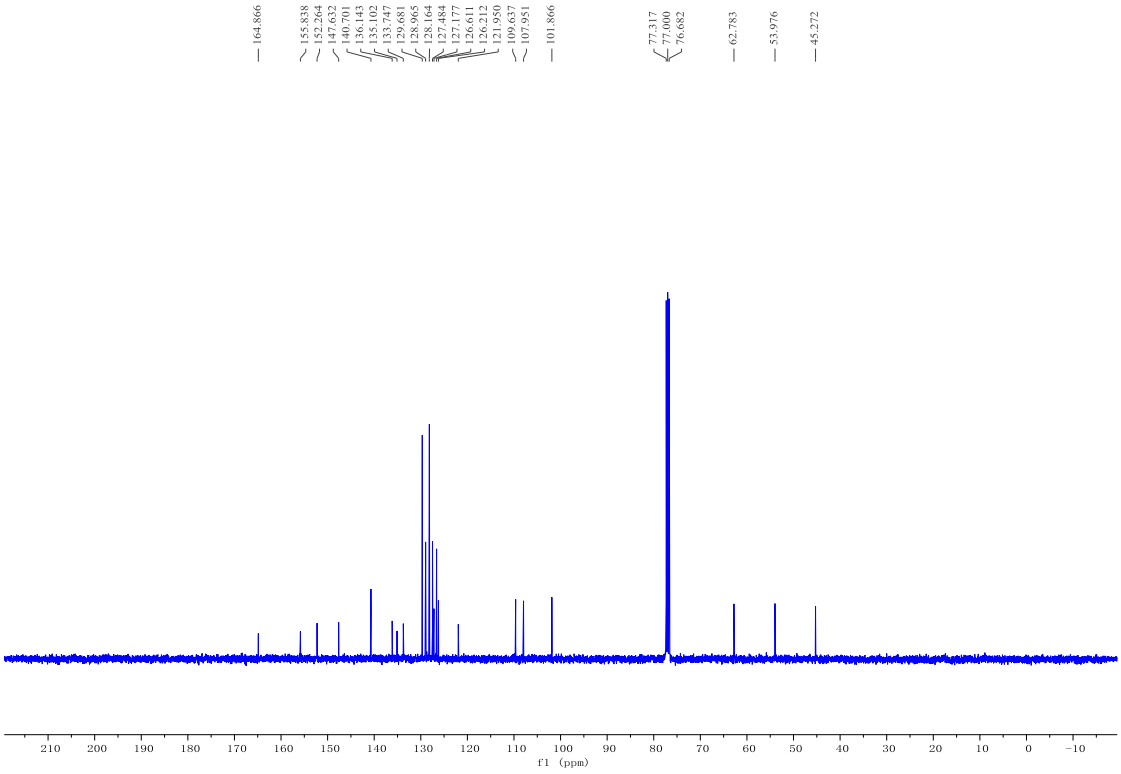
^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3aw:

^{1}H NMR (400 MHz, $CDCl_3$)



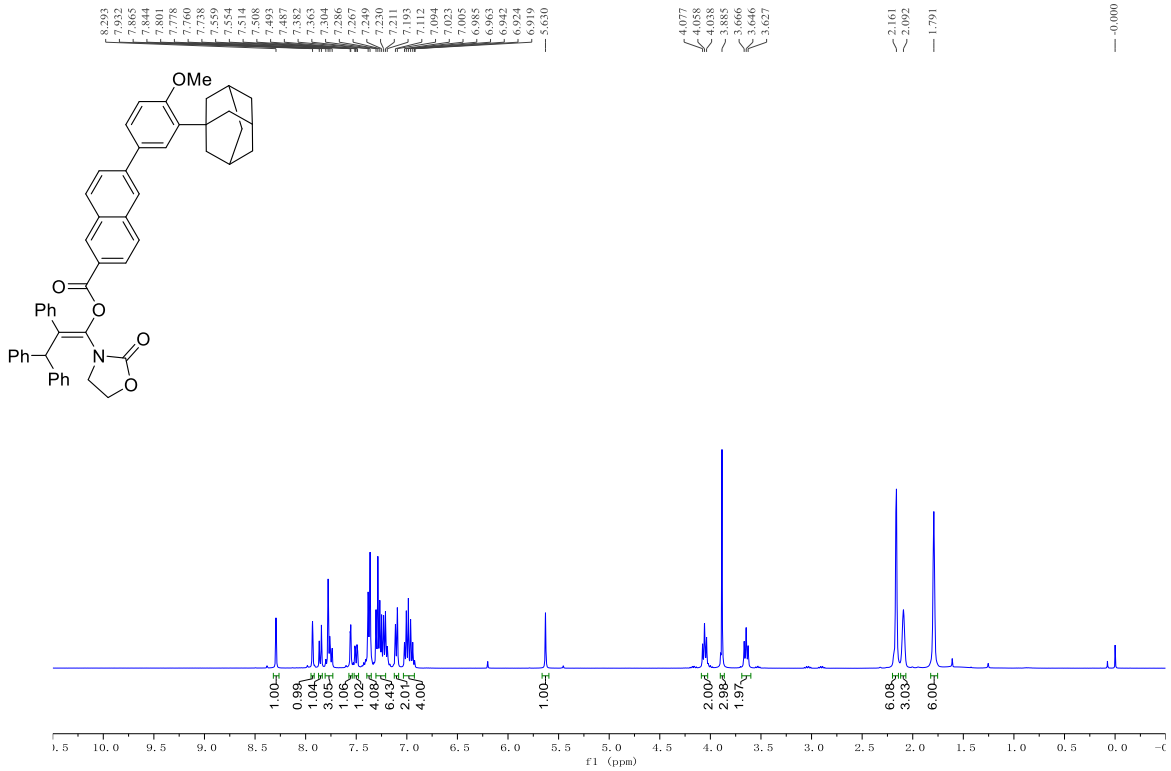
compu

^{13}C NMR (100 MHz, $CDCl_3$)

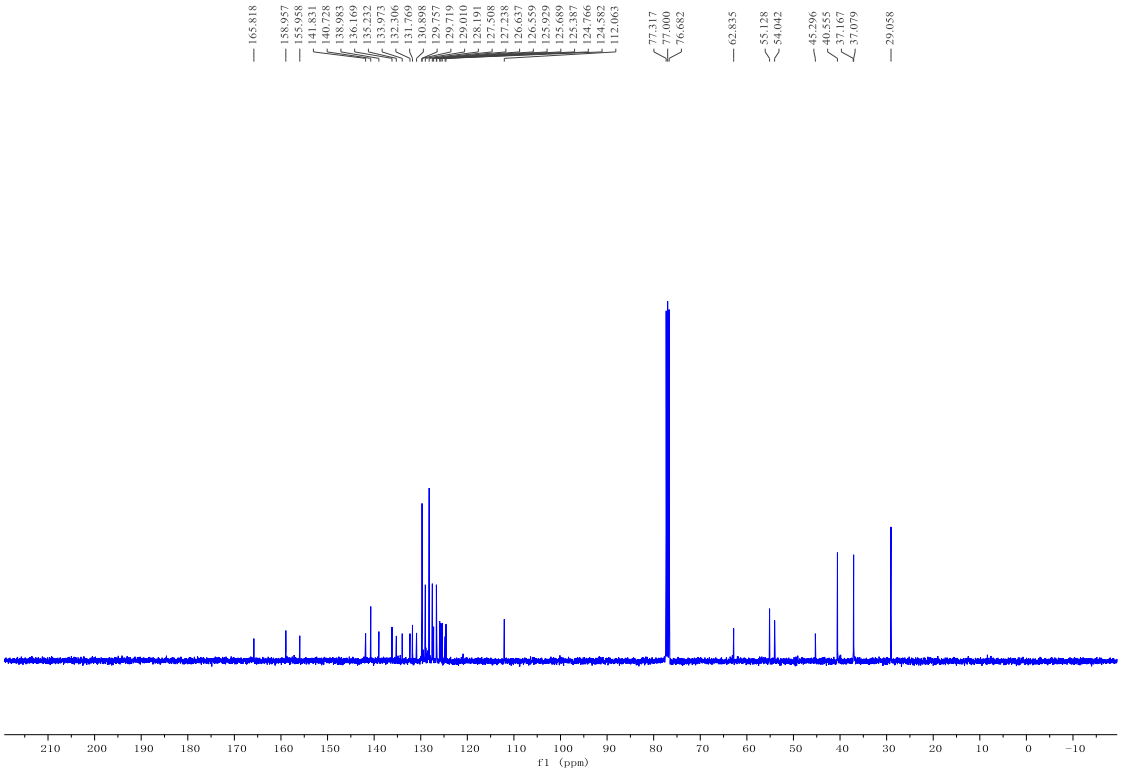


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ax:

^{1}H NMR (400 MHz, $CDCl_3$)

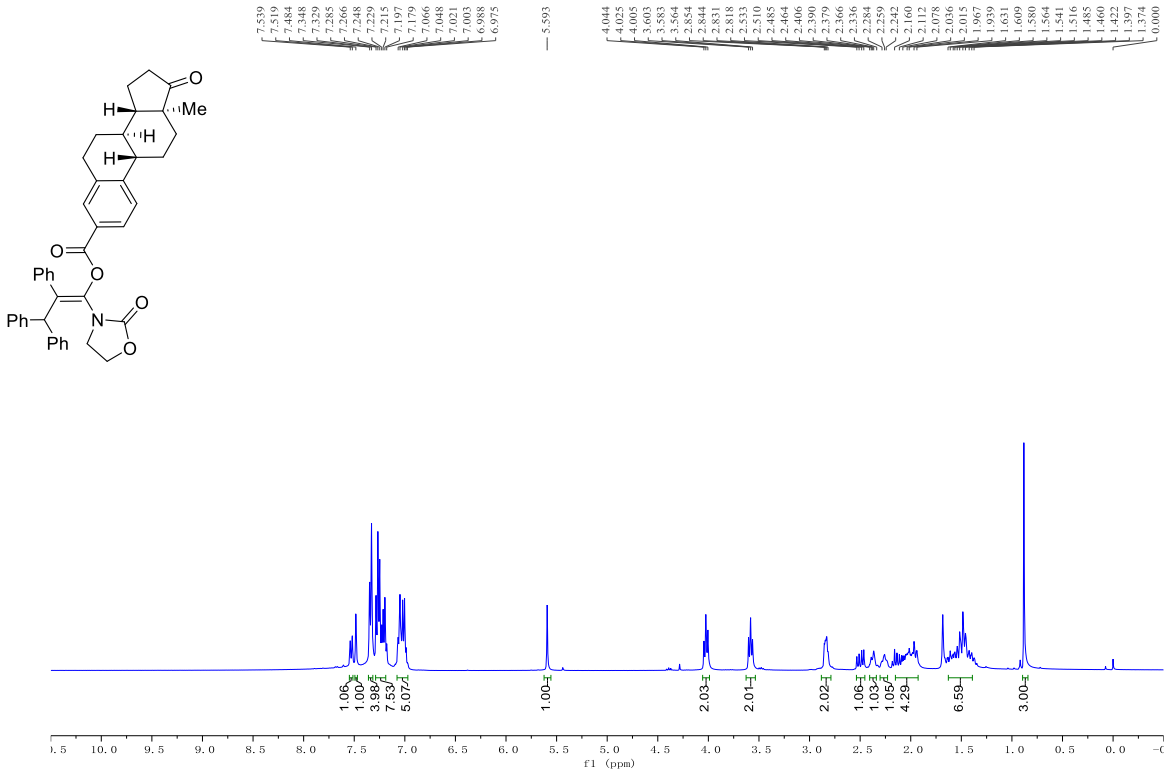


^{13}C NMR (100 MHz, $CDCl_3$)

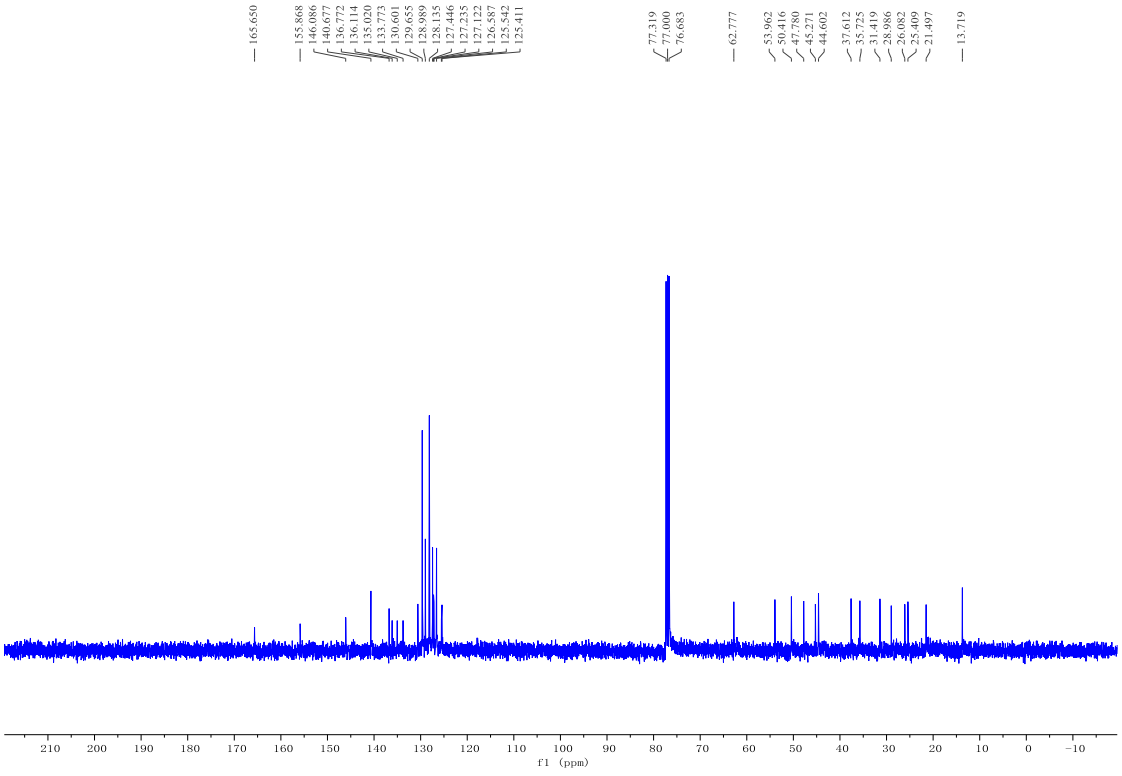


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3ay:

^{1}H NMR (400 MHz, $CDCl_3$)

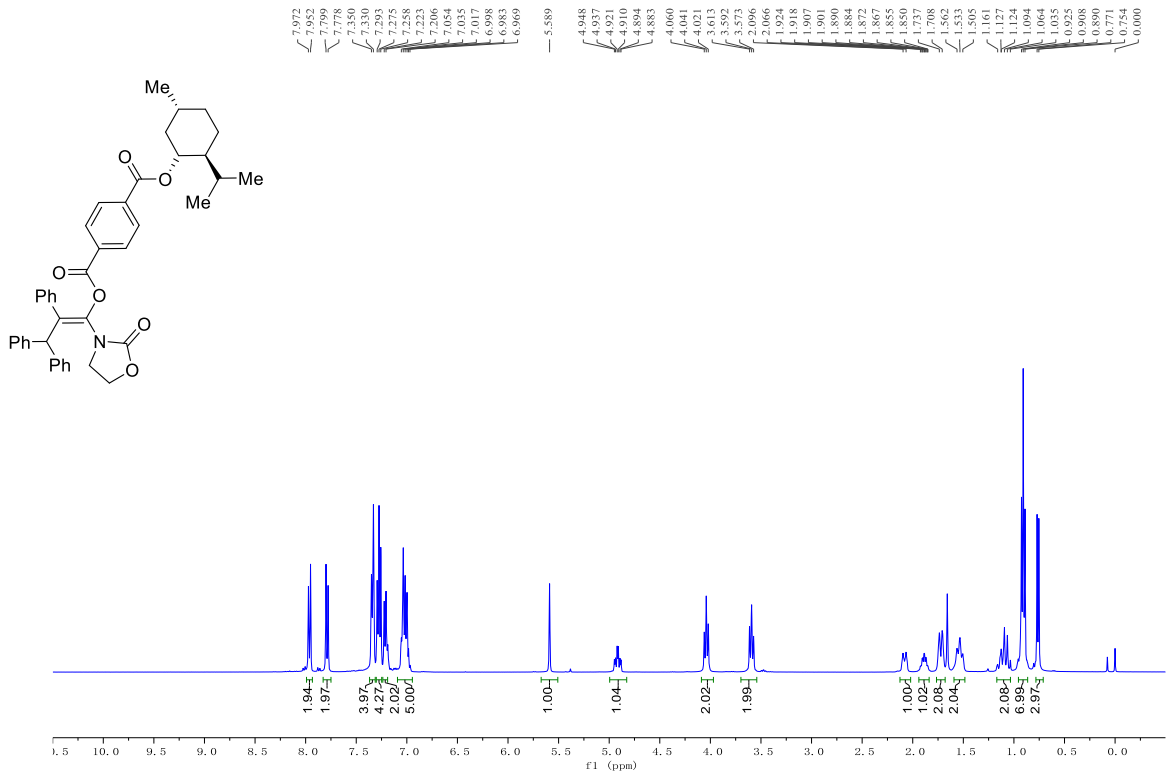


^{13}C NMR (100 MHz, $CDCl_3$)

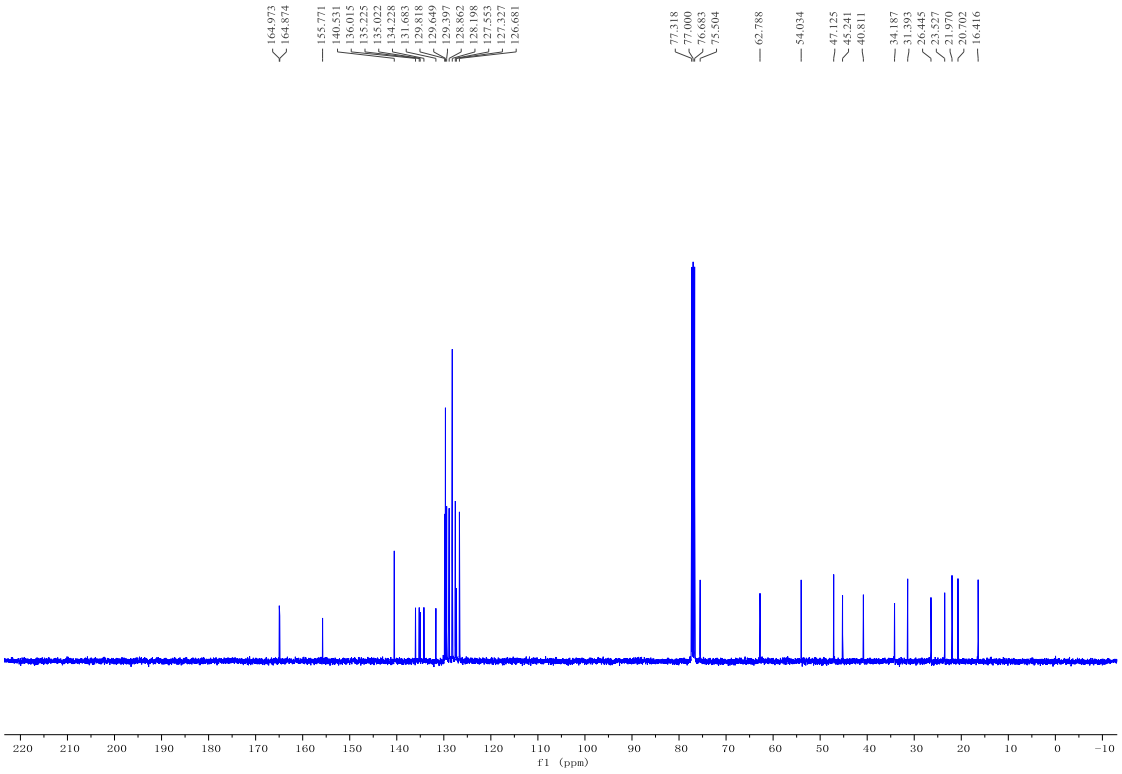


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3az:

^{1}H NMR (400 MHz, $CDCl_3$)

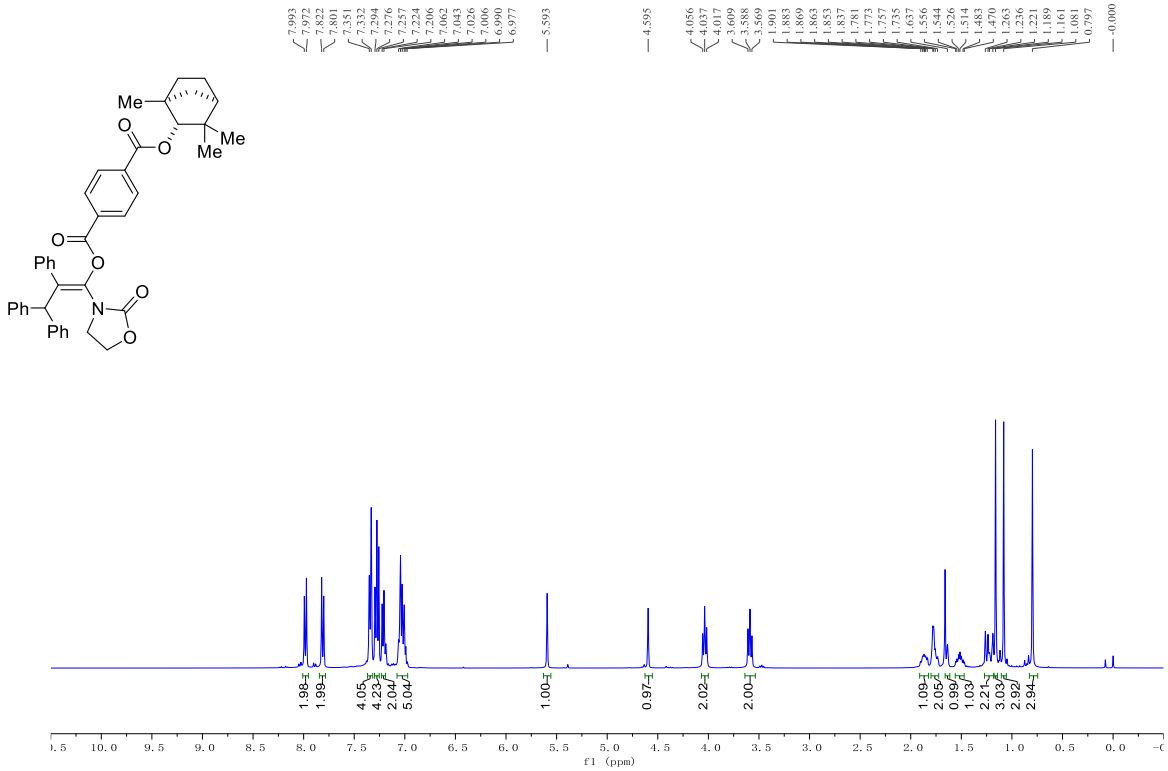


^{13}C NMR (100 MHz, $CDCl_3$)

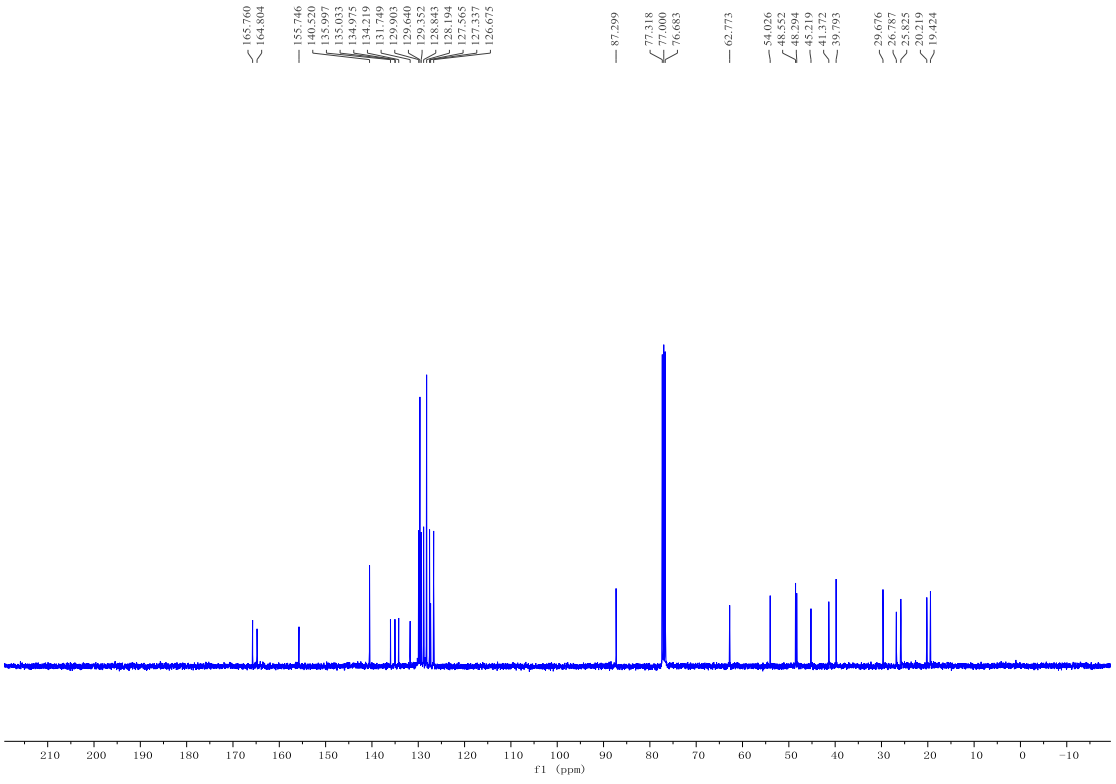


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3aaa:

^{1}H NMR (400 MHz, $CDCl_3$)

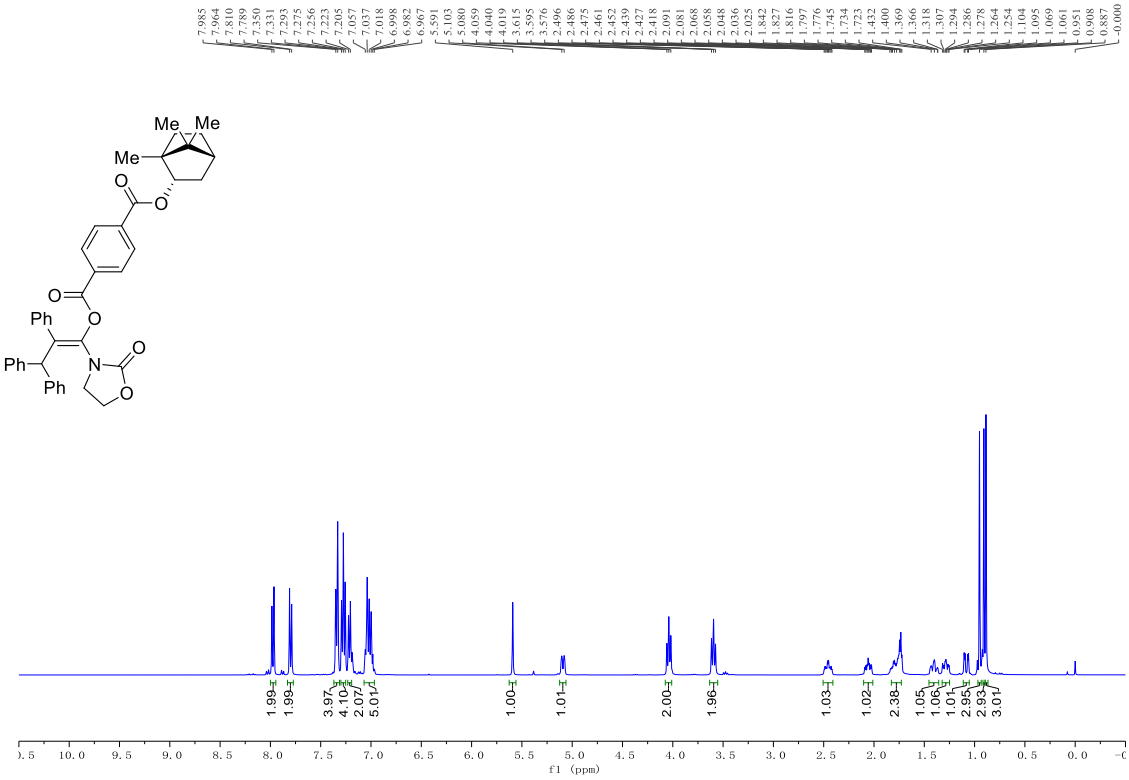


^{13}C NMR (100 MHz, $CDCl_3$)

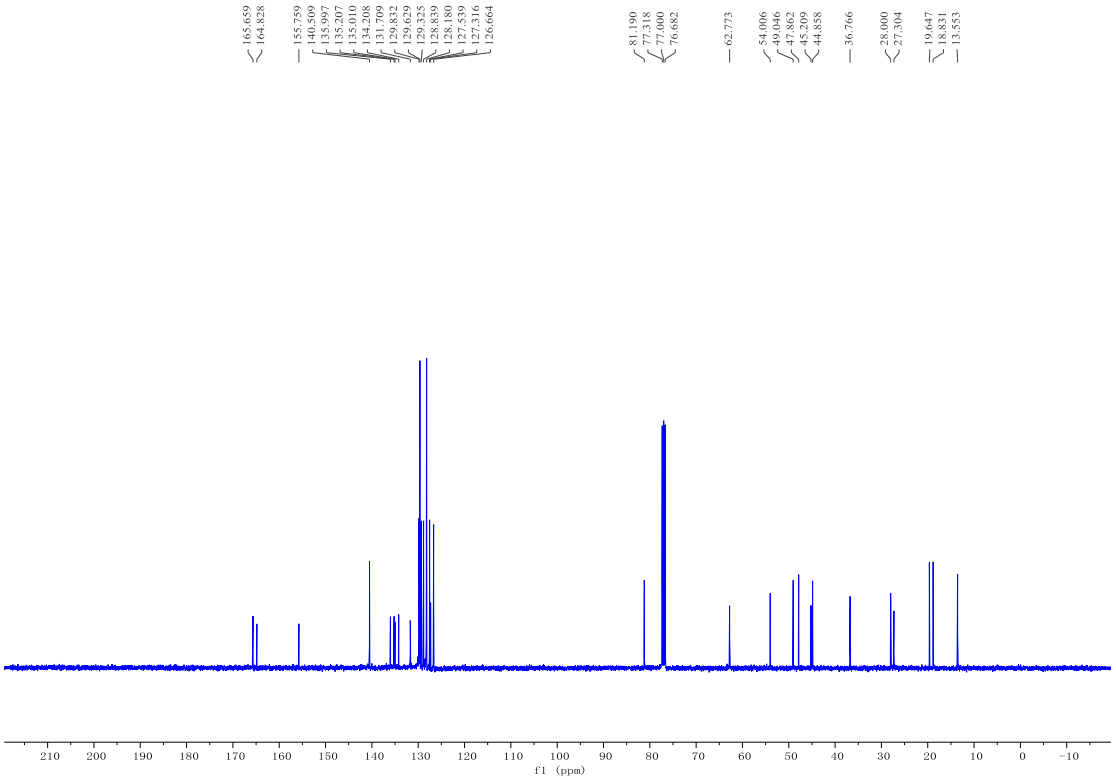


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-3aab:

^{1}H NMR (400 MHz, $CDCl_3$)

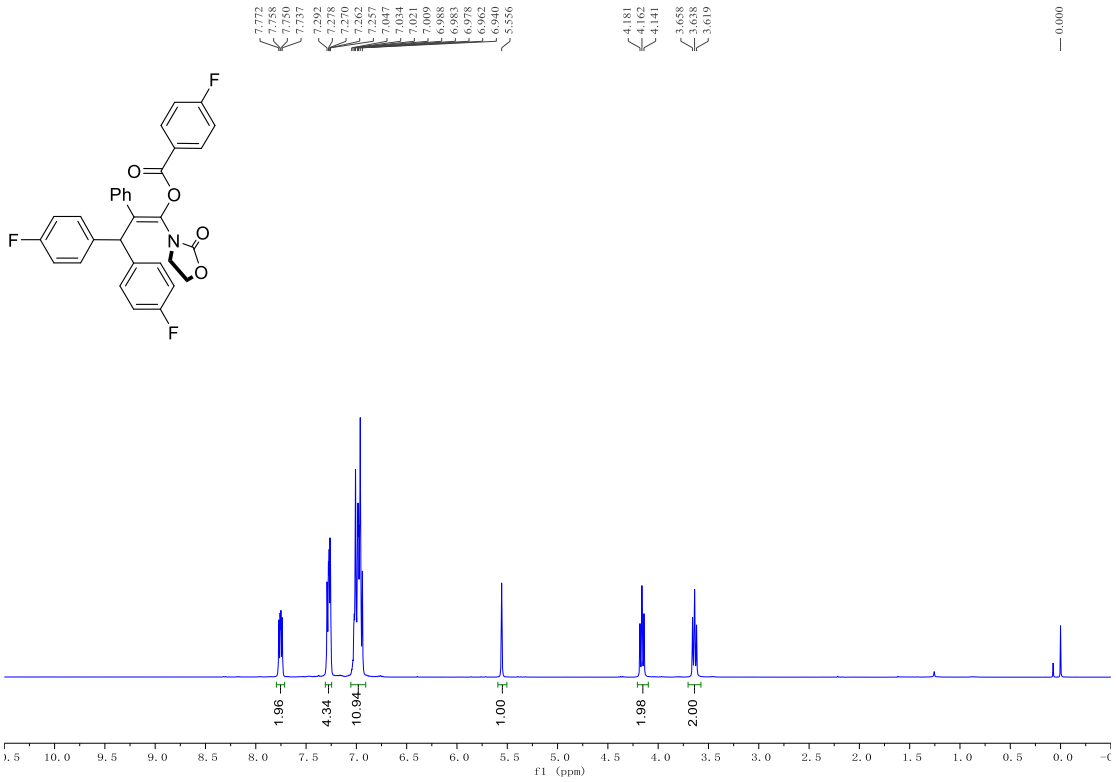


^{13}C NMR (100 MHz, $CDCl_3$)

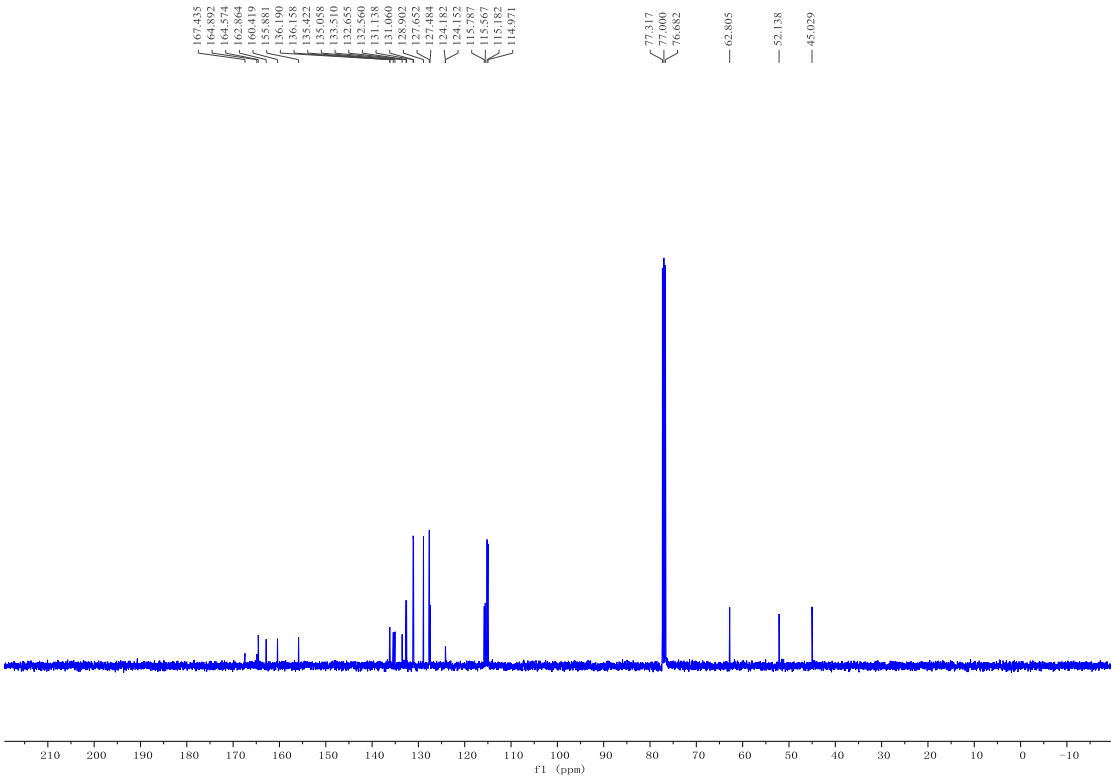


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aac:

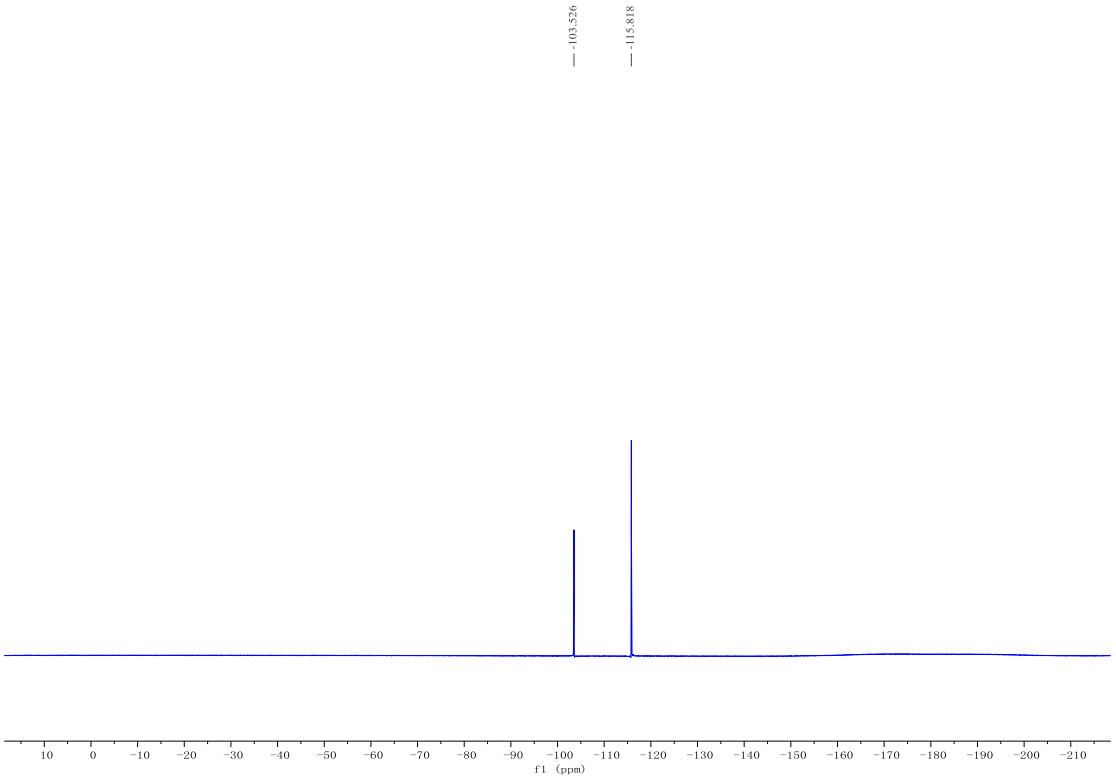
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

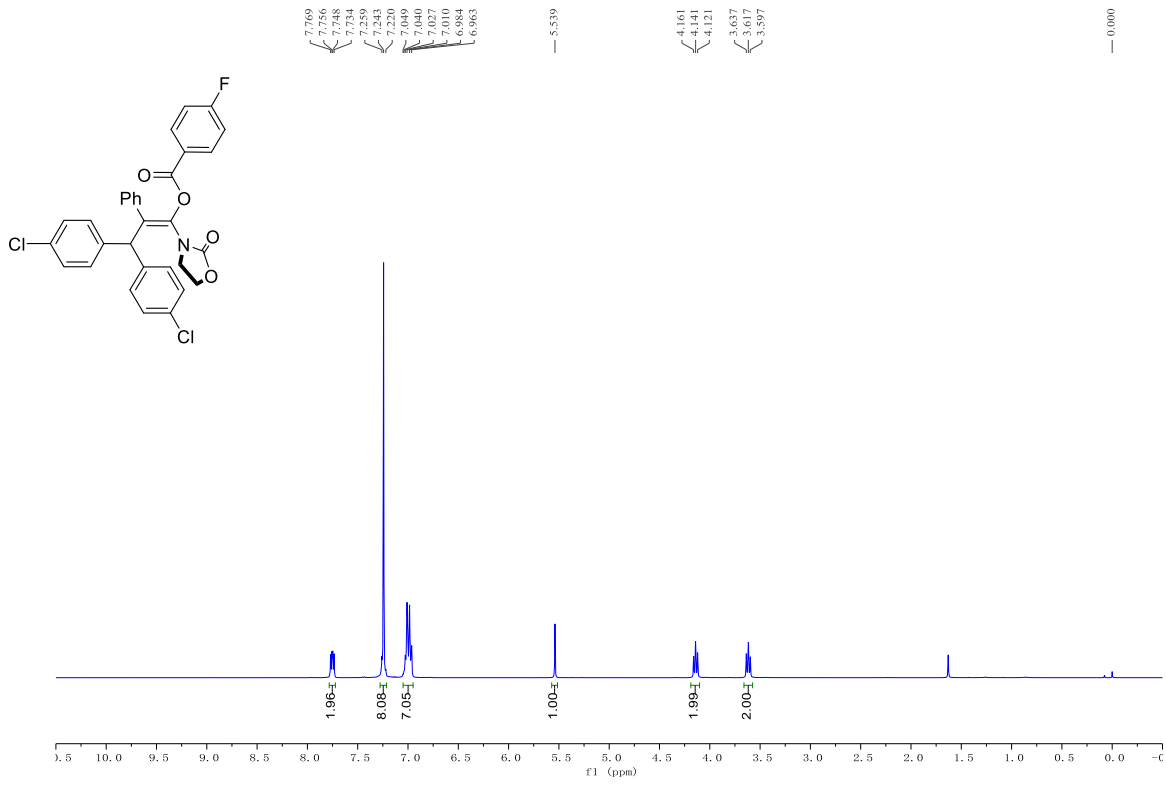


^{19}F NMR (376 MHz, $CDCl_3$)

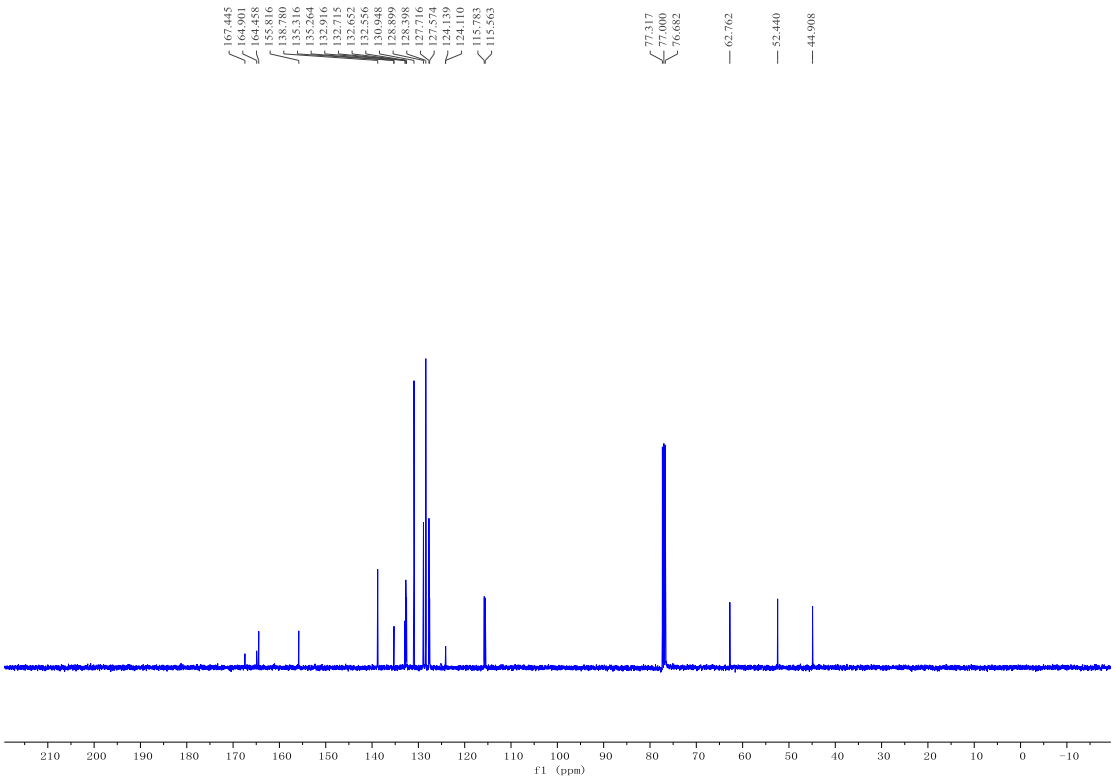


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aad:

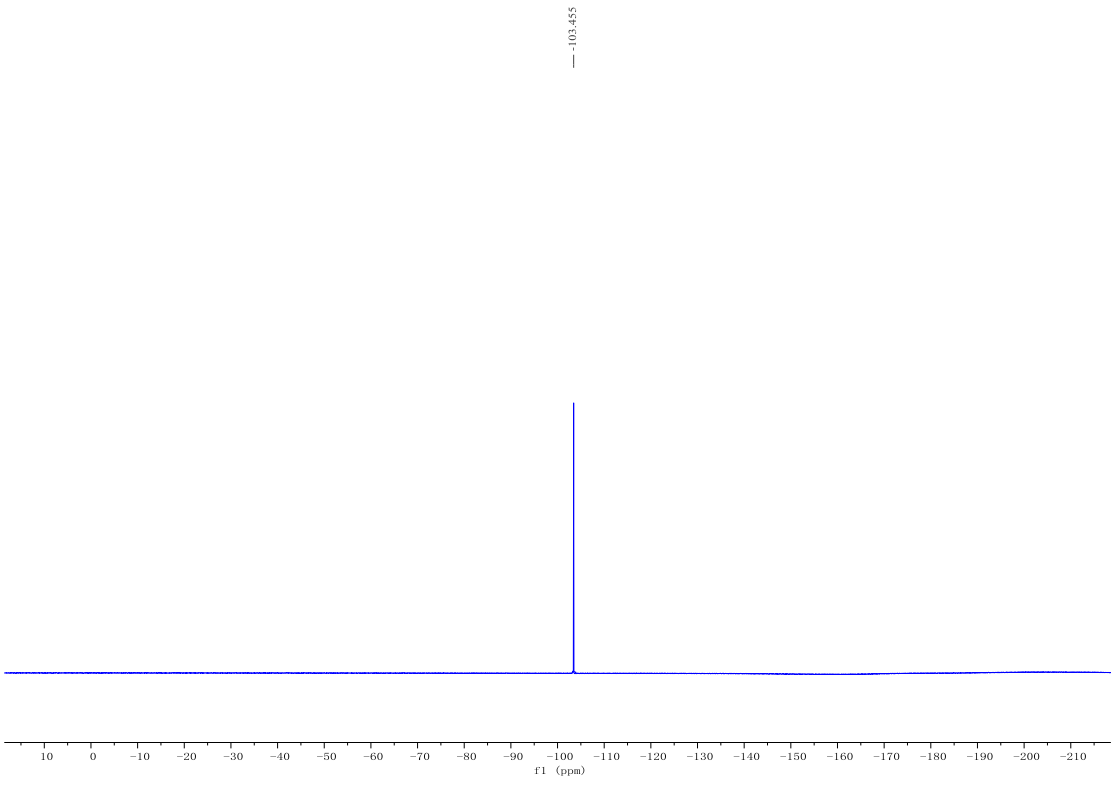
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

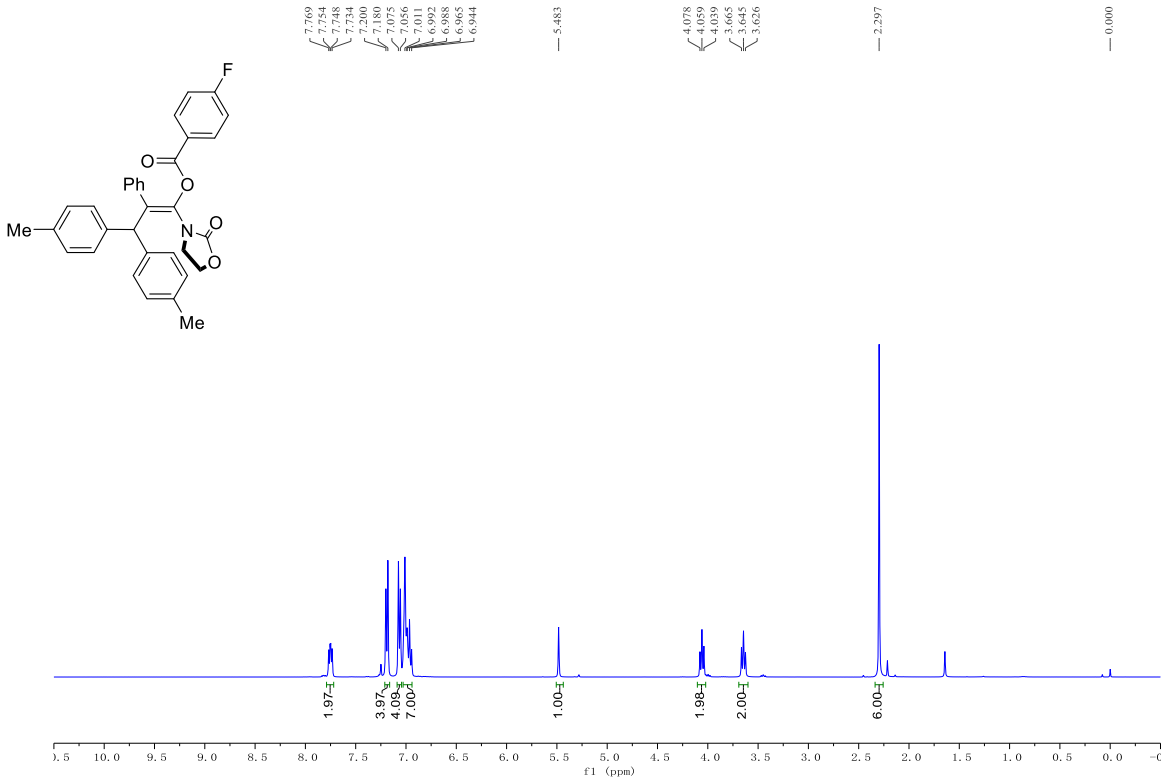


^{19}F NMR (376 MHz, $CDCl_3$)

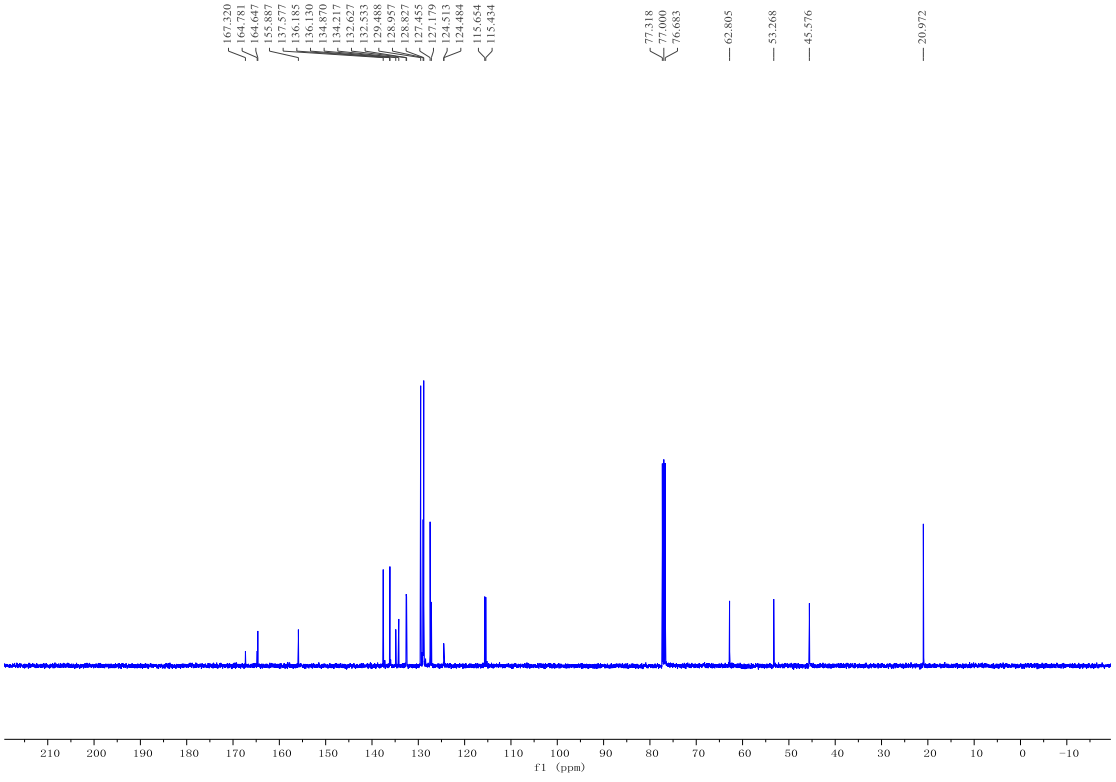


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aae:

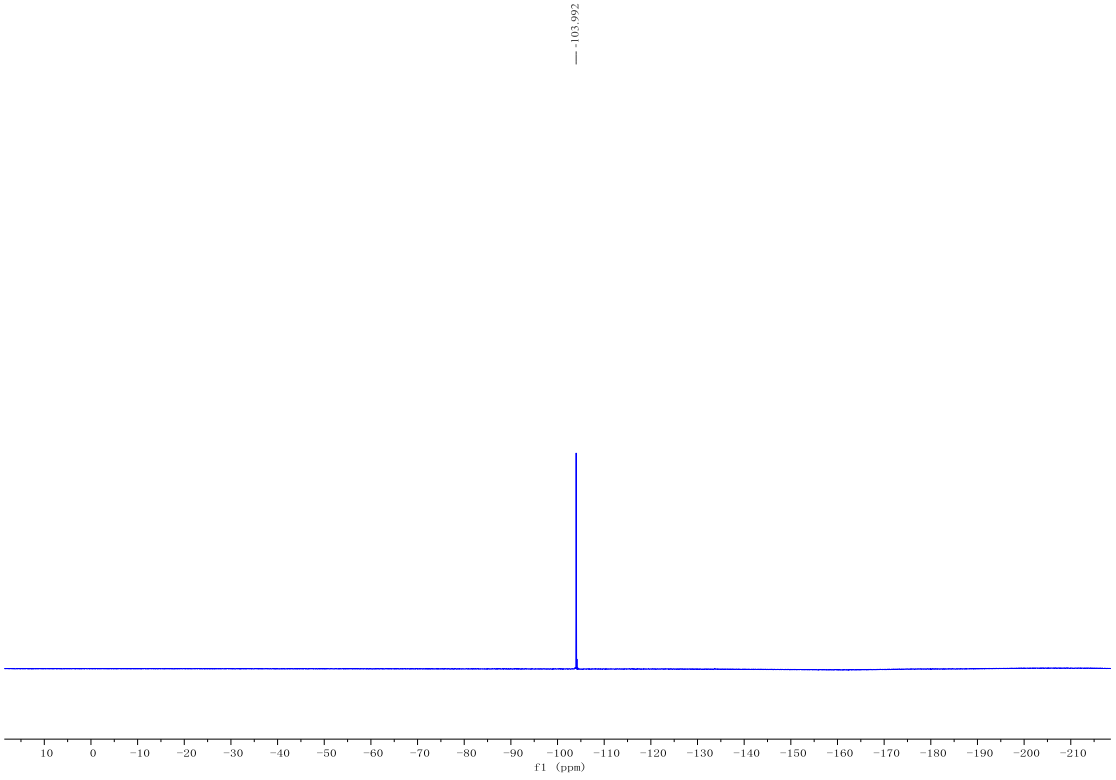
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

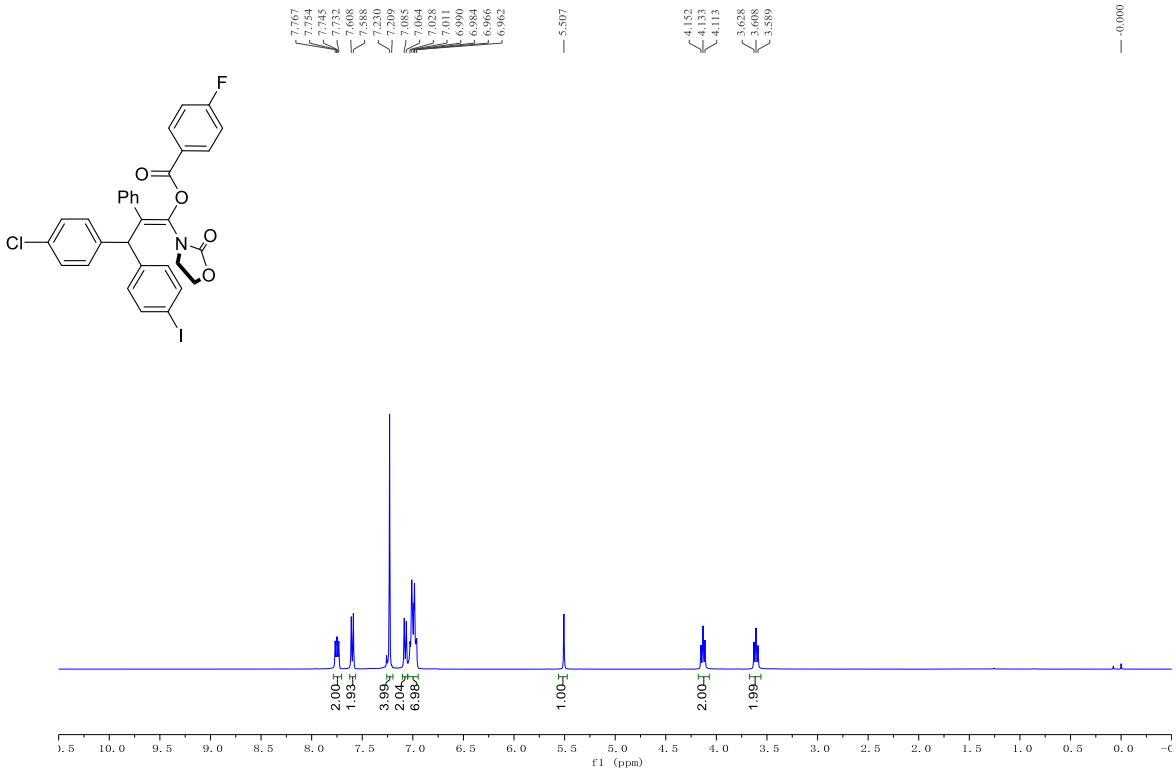


^{19}F NMR (376 MHz, $CDCl_3$)

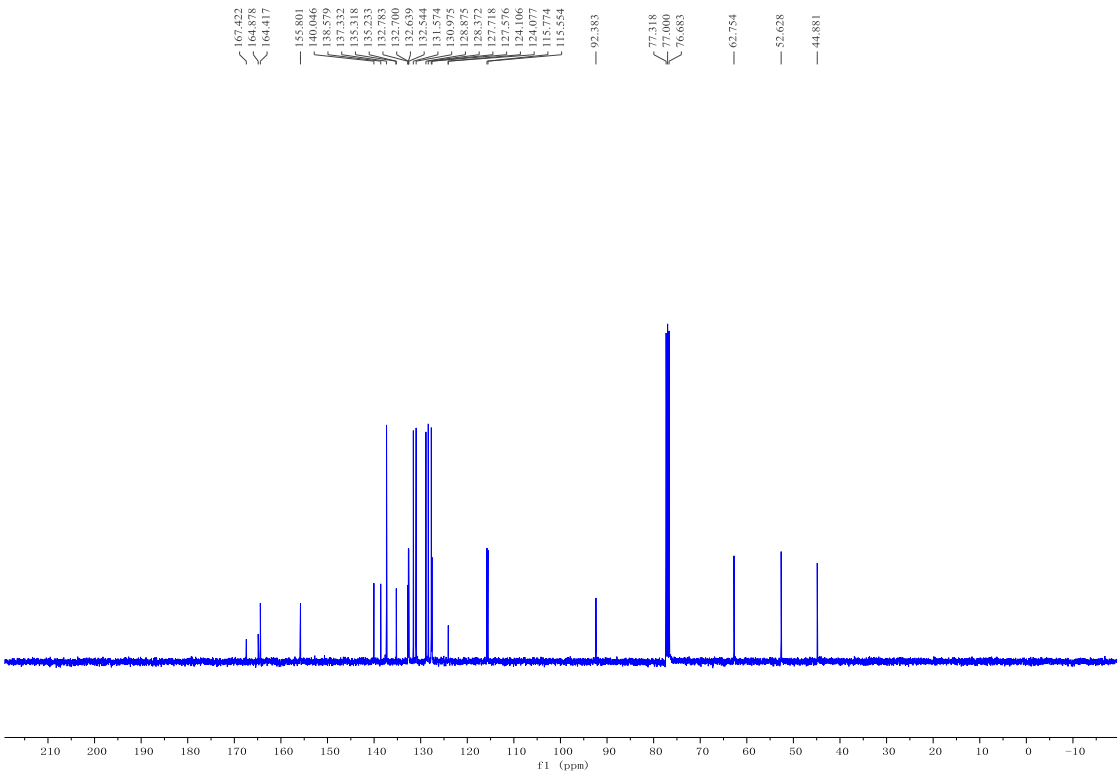


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aaf:

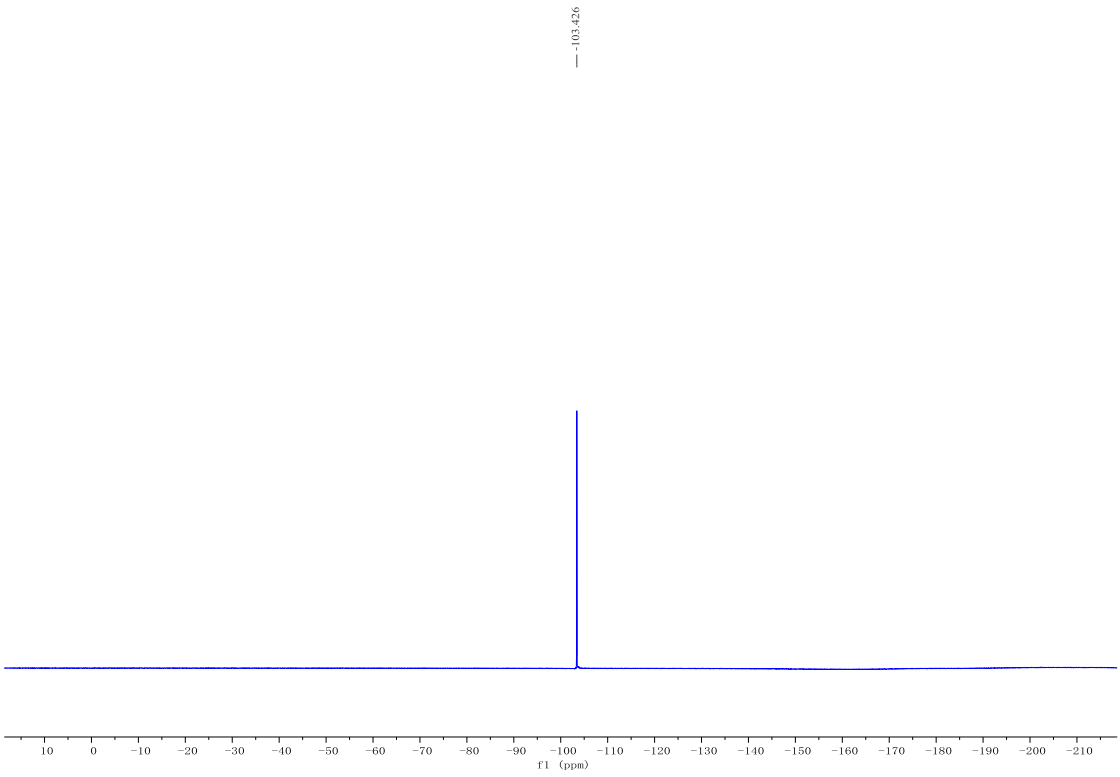
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

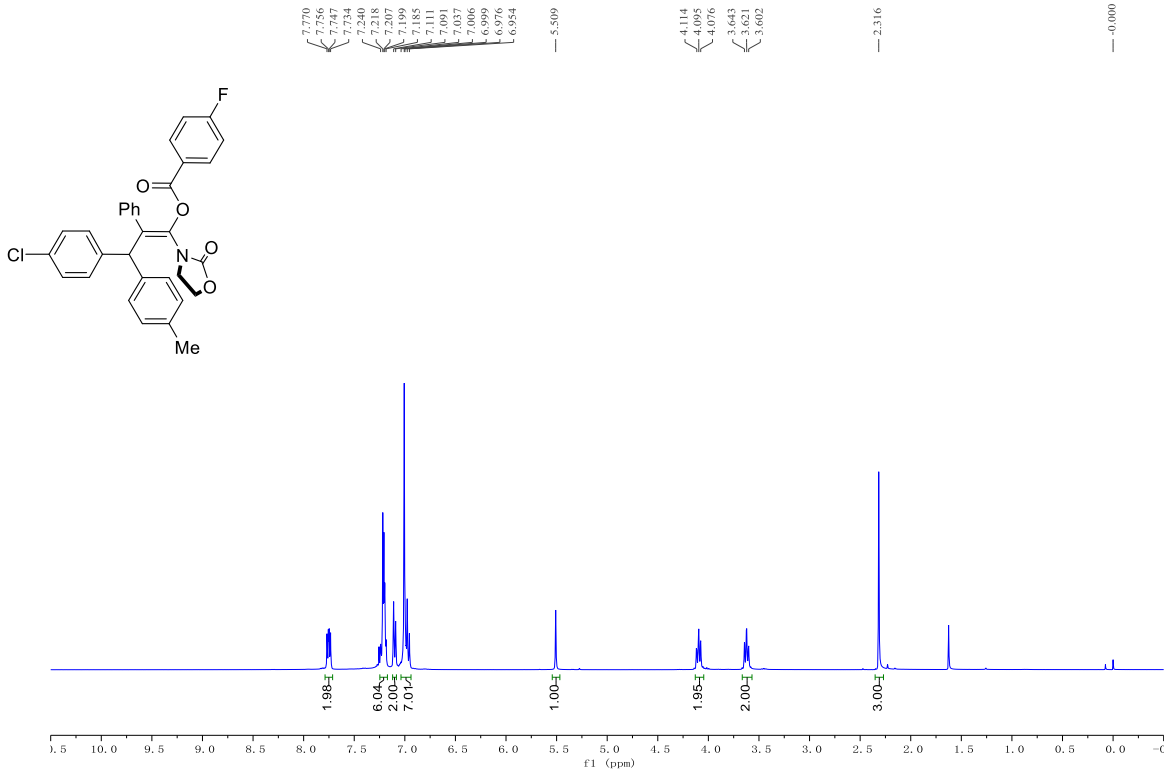


^{19}F NMR (376 MHz, $CDCl_3$)

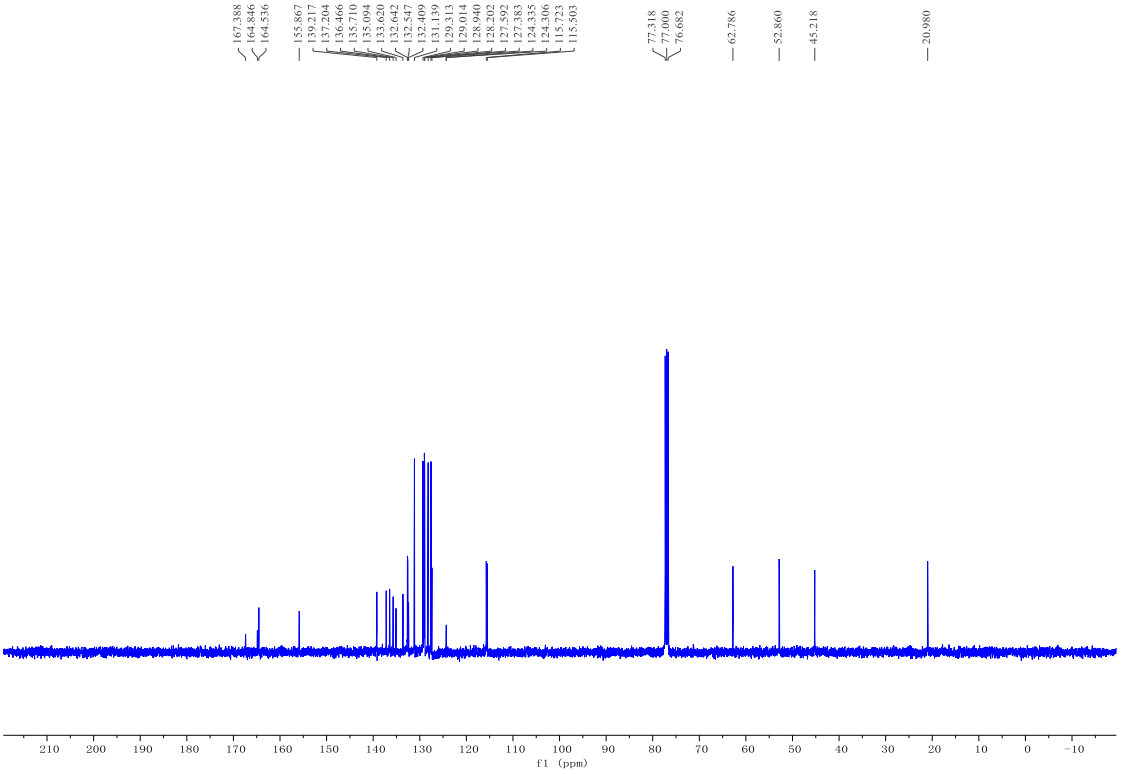


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aag:

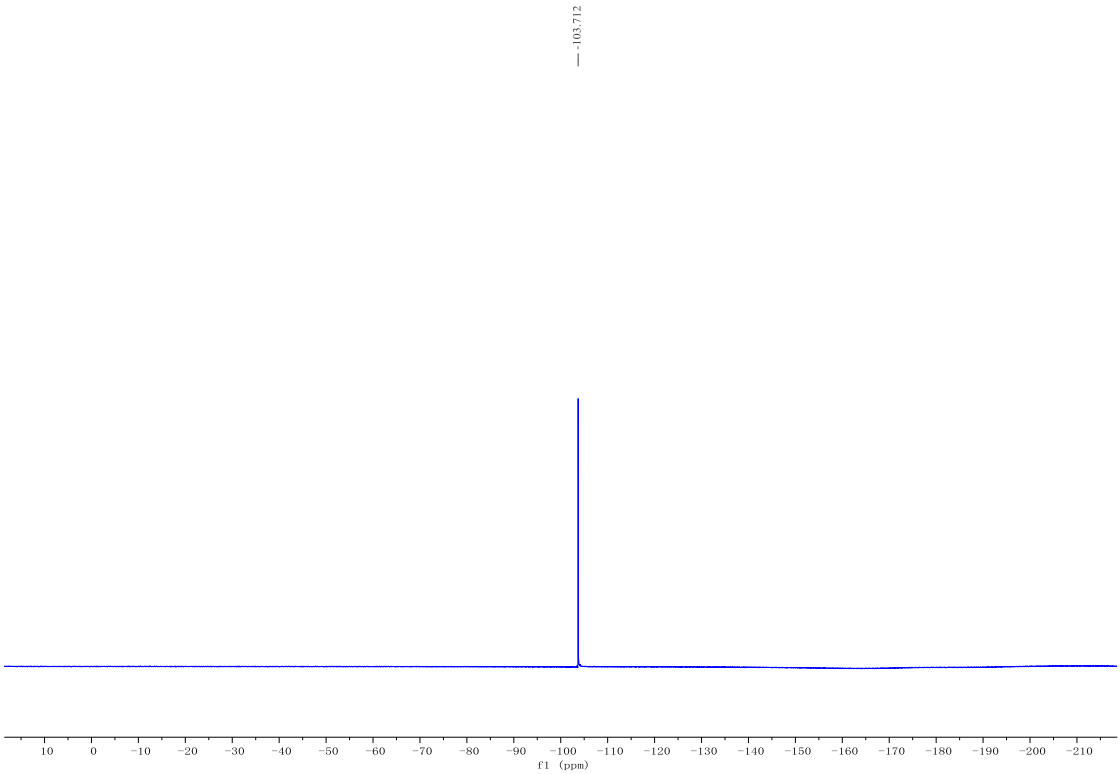
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

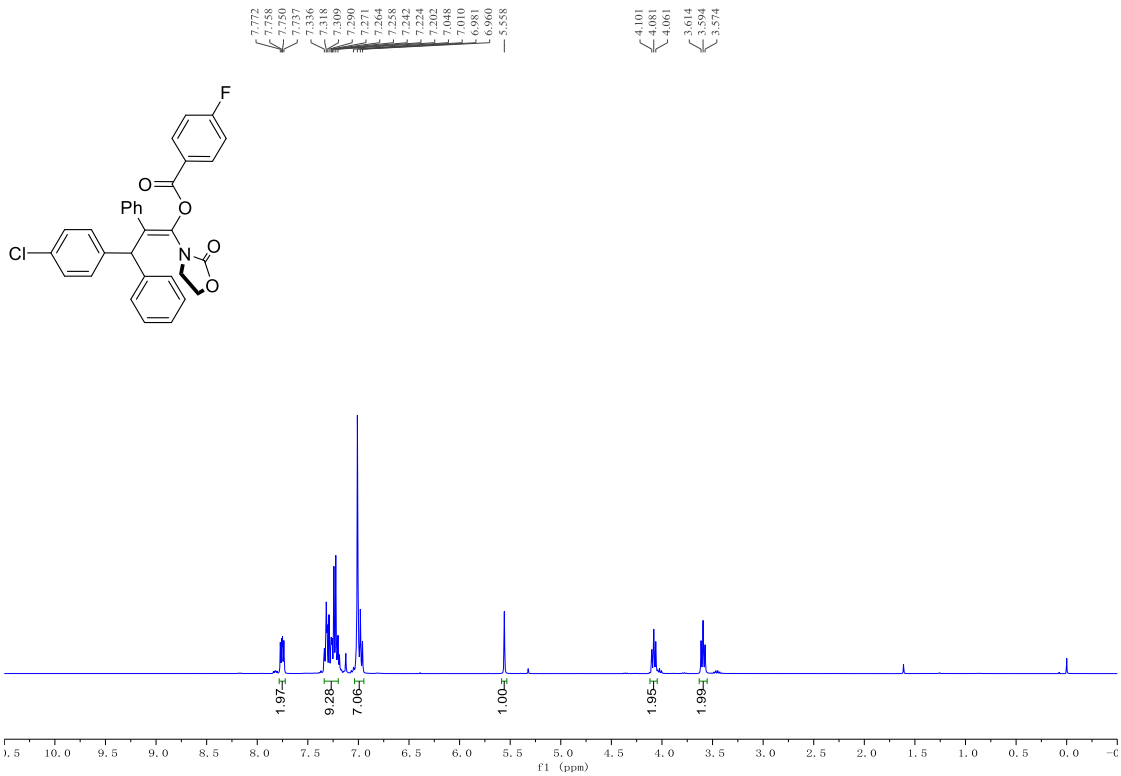


^{19}F NMR (376 MHz, $CDCl_3$)

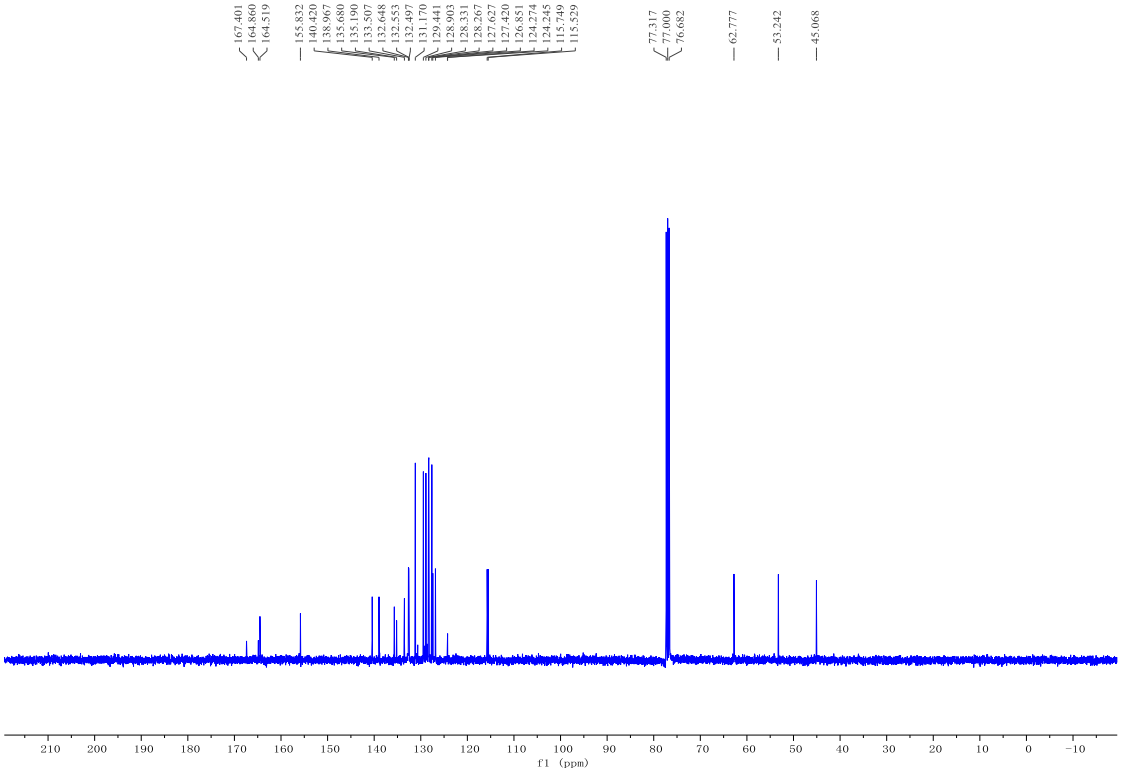


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aah:

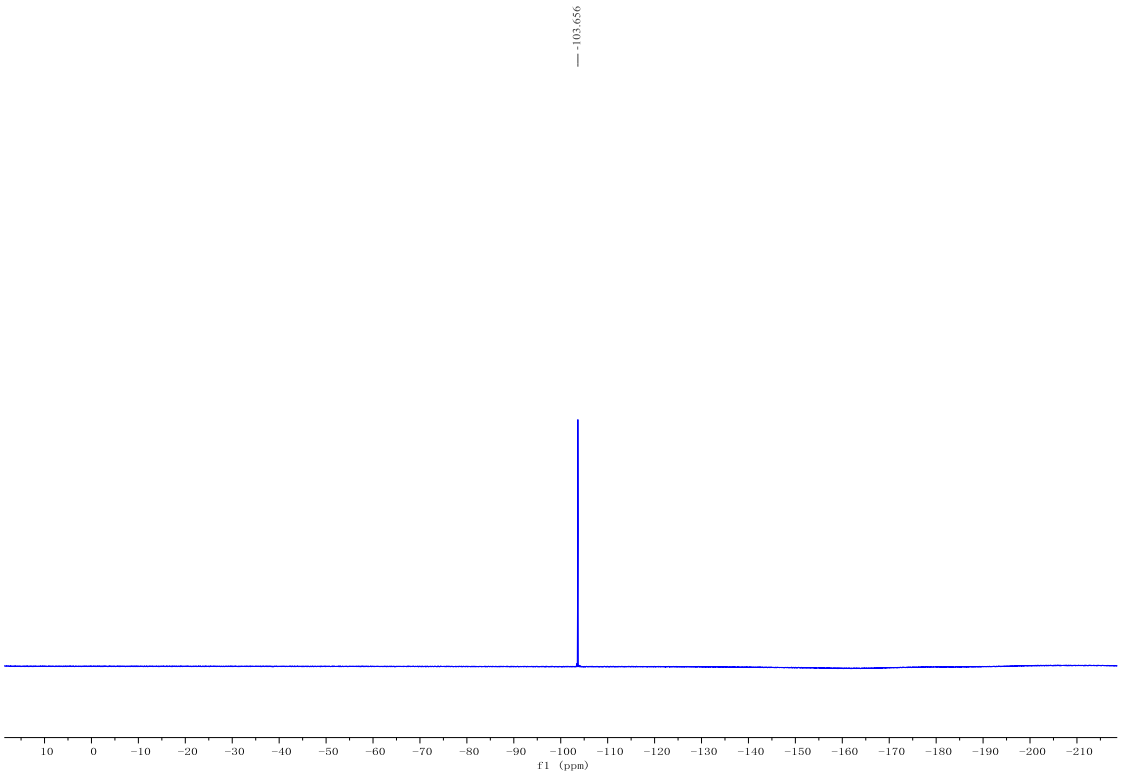
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

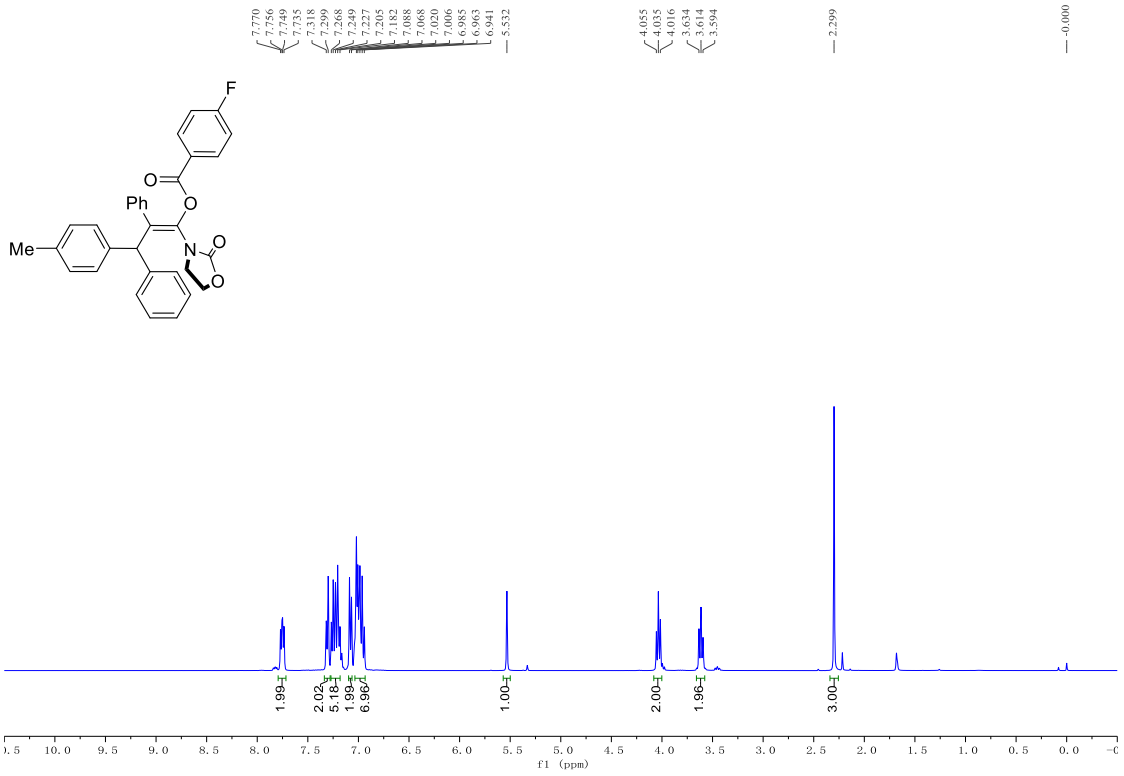


^{19}F NMR (376 MHz, $CDCl_3$)

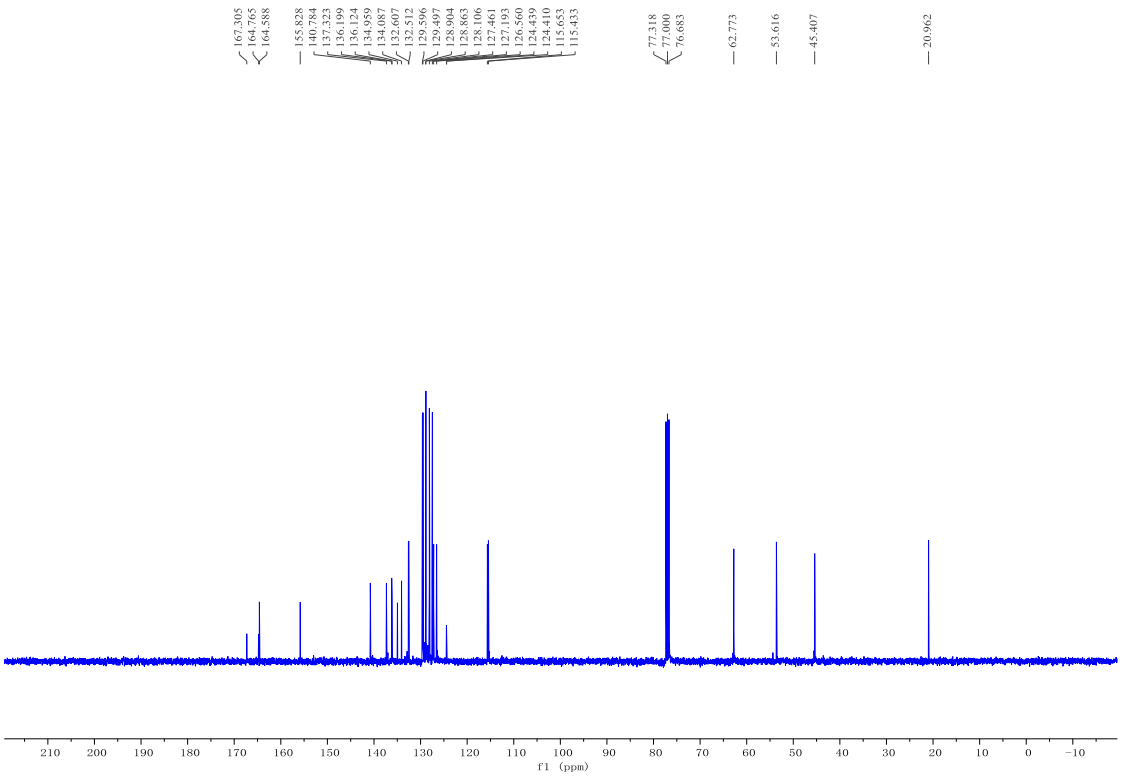


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aai:

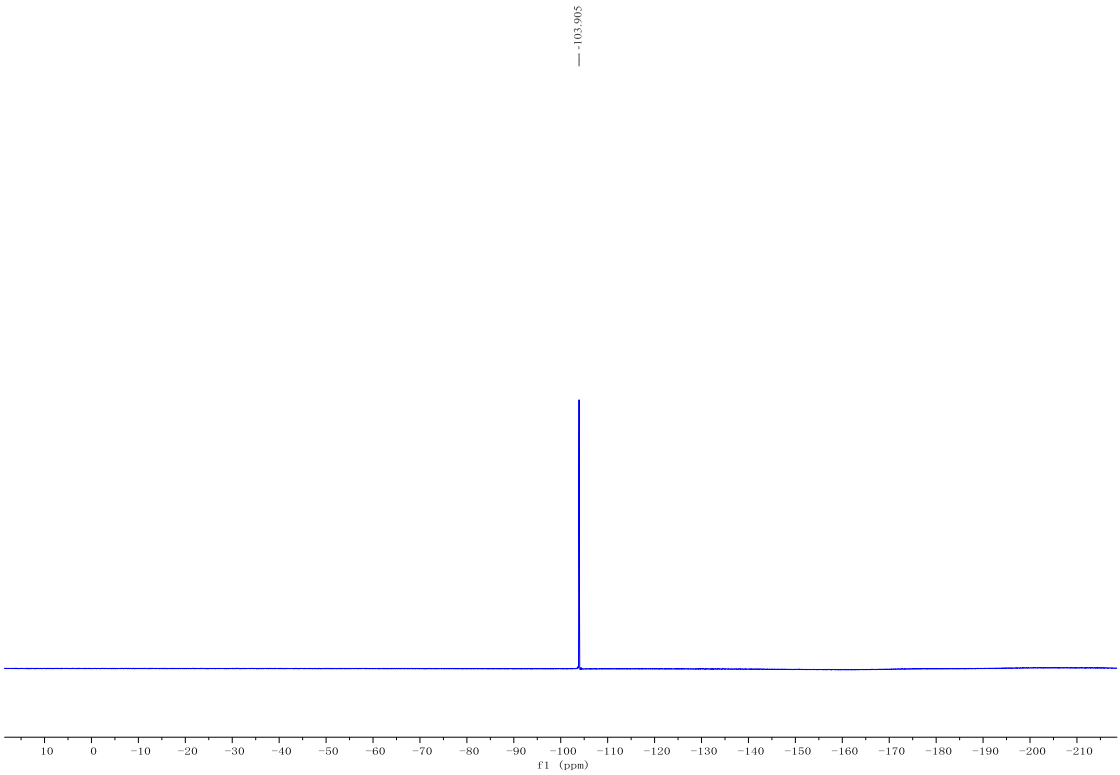
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

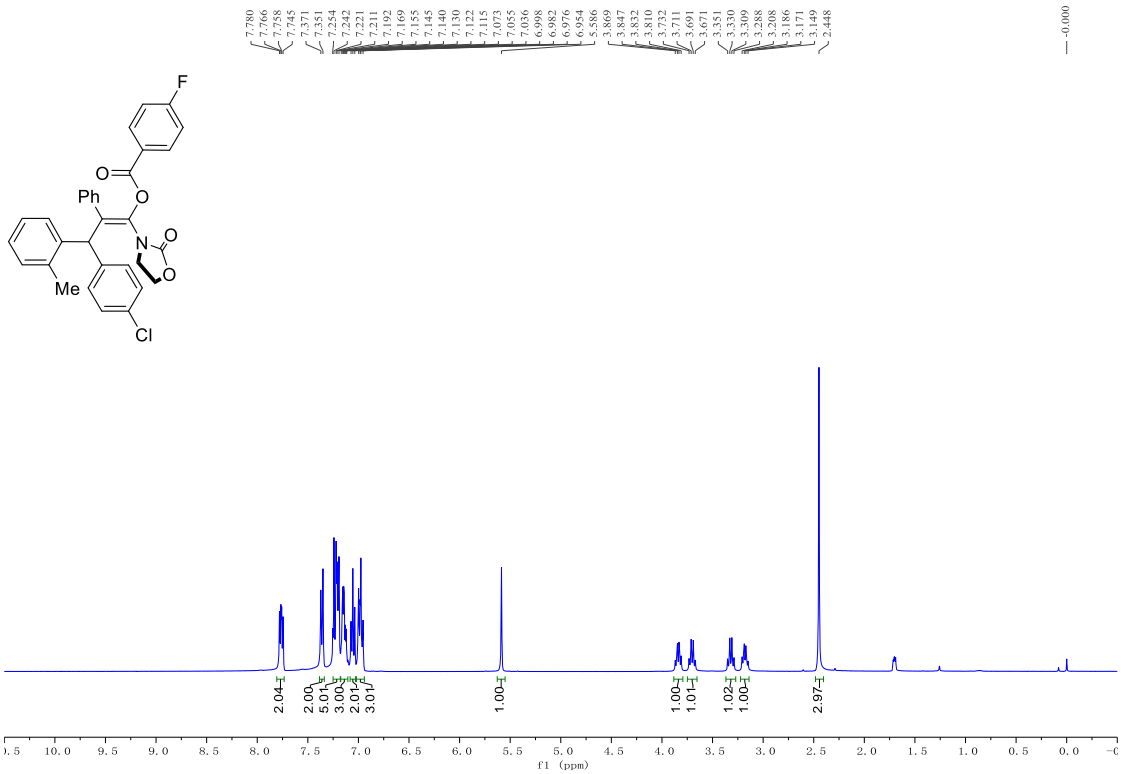


^{19}F NMR (376 MHz, $CDCl_3$)

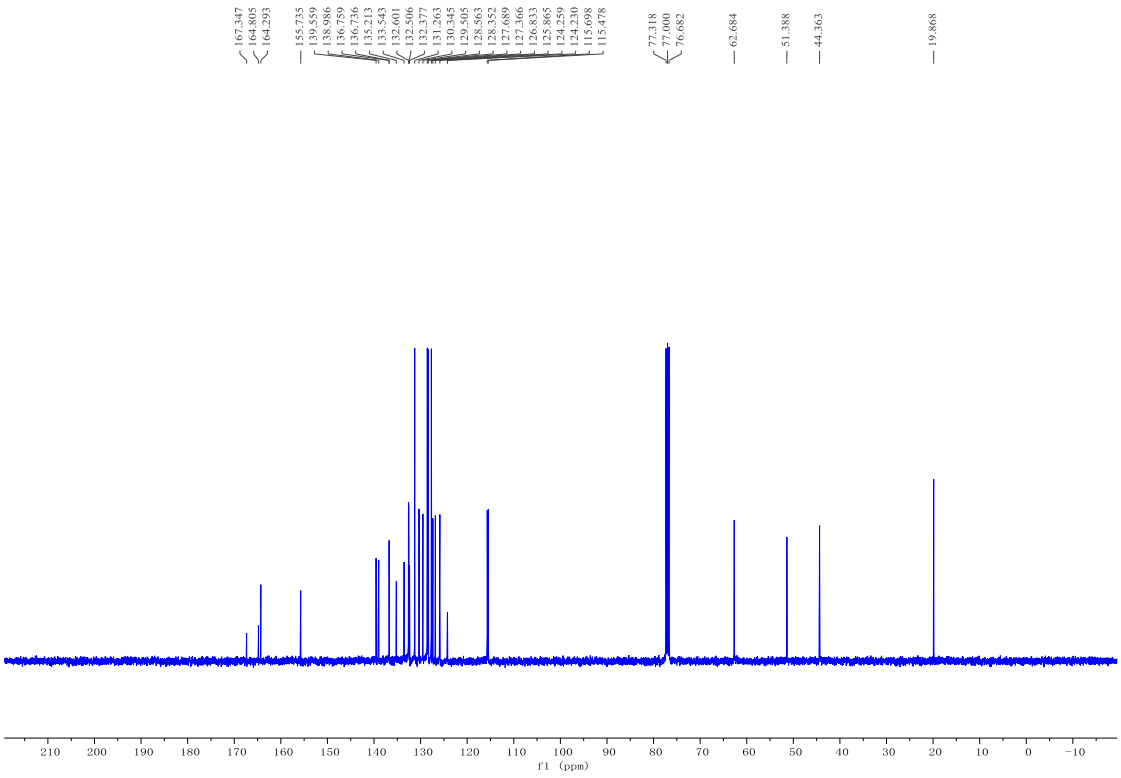


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aaj:

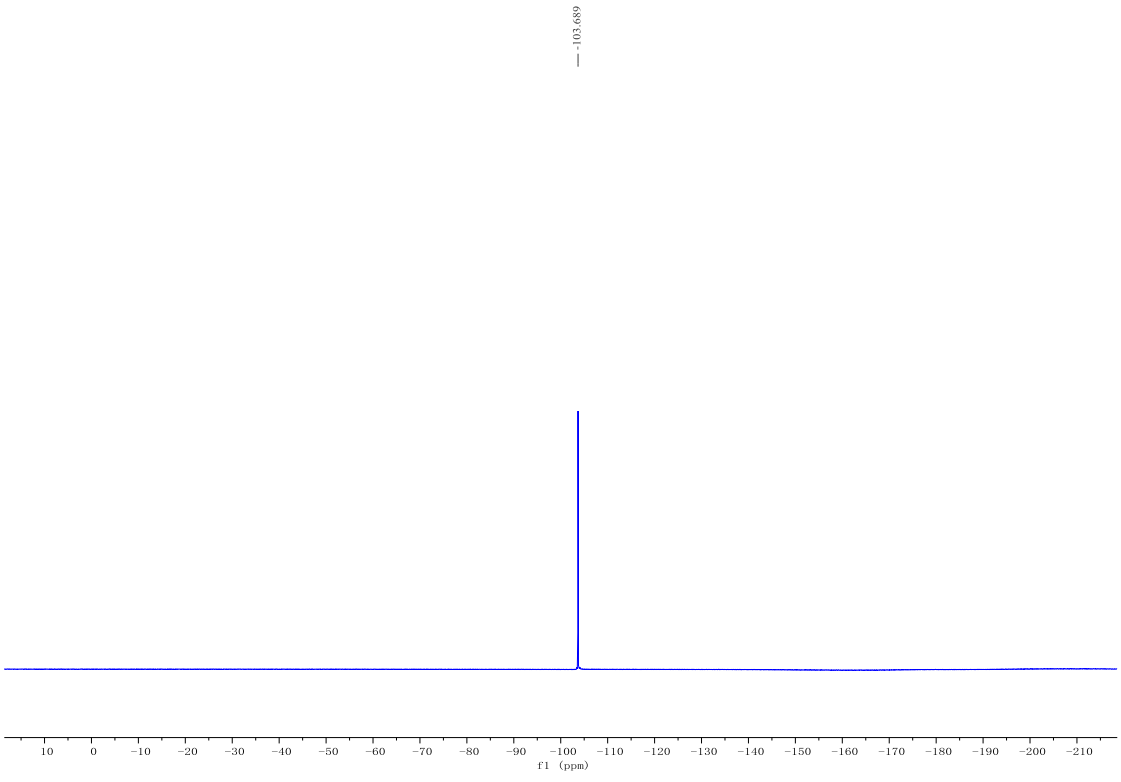
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

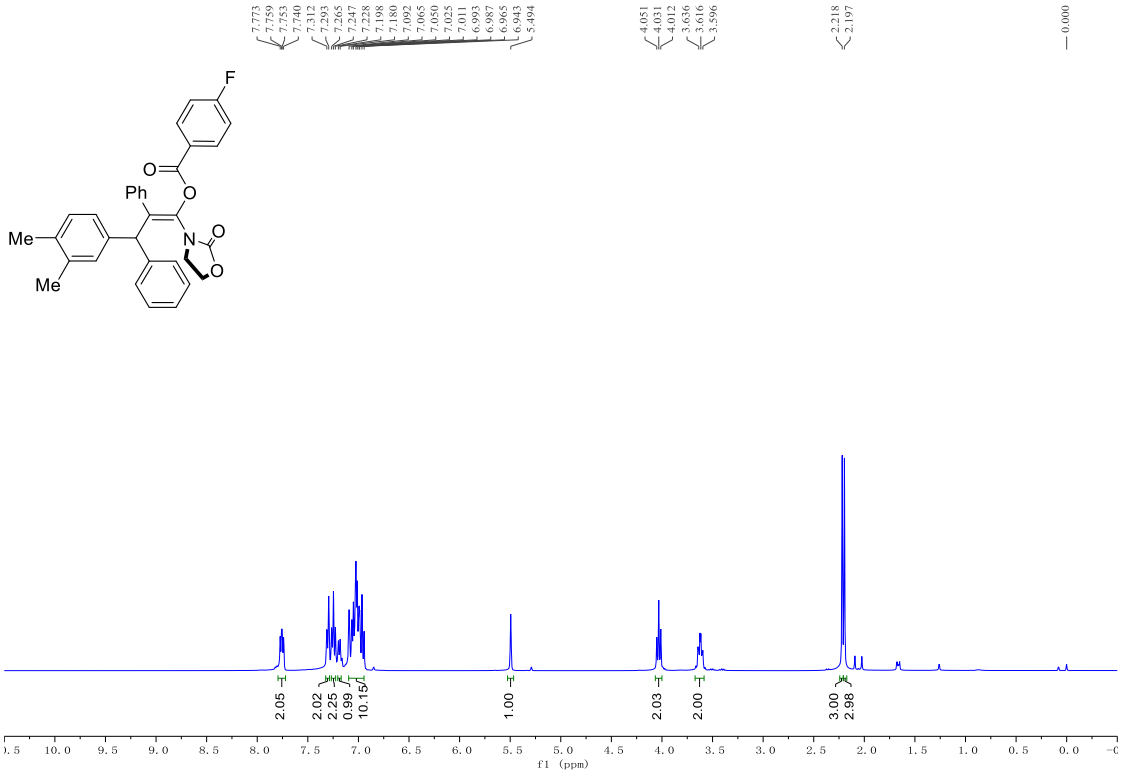


^{19}F NMR (376 MHz, $CDCl_3$)

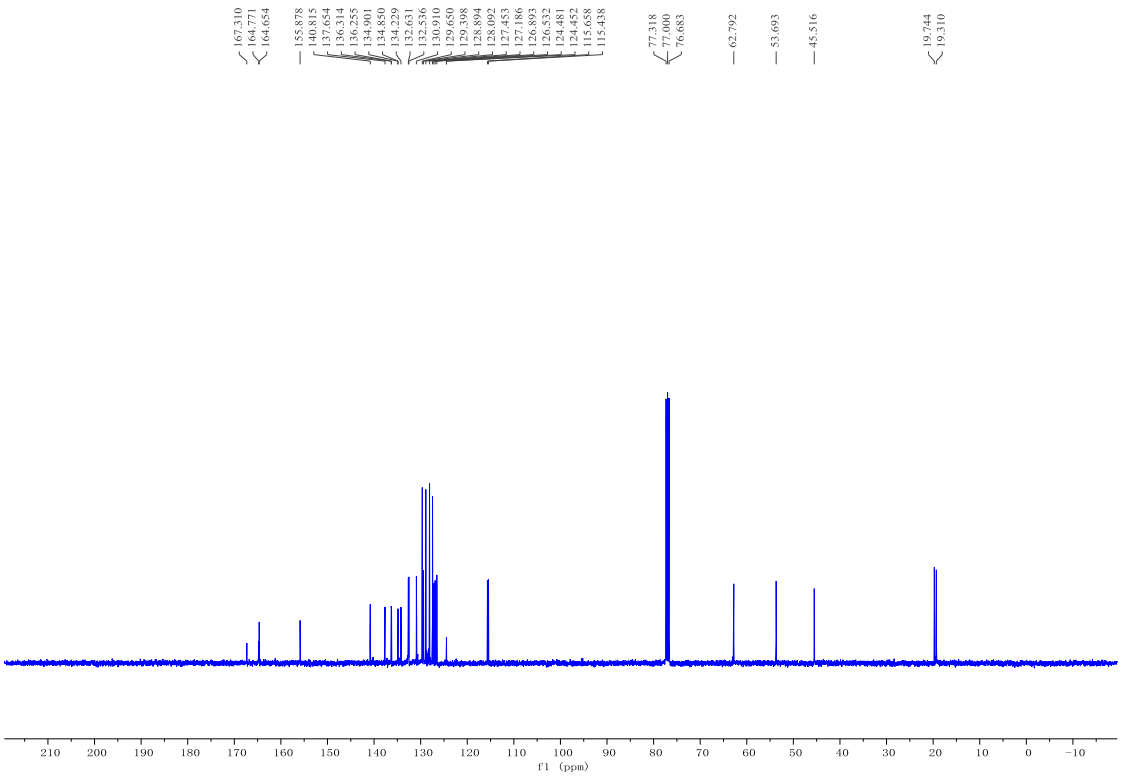


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aak:

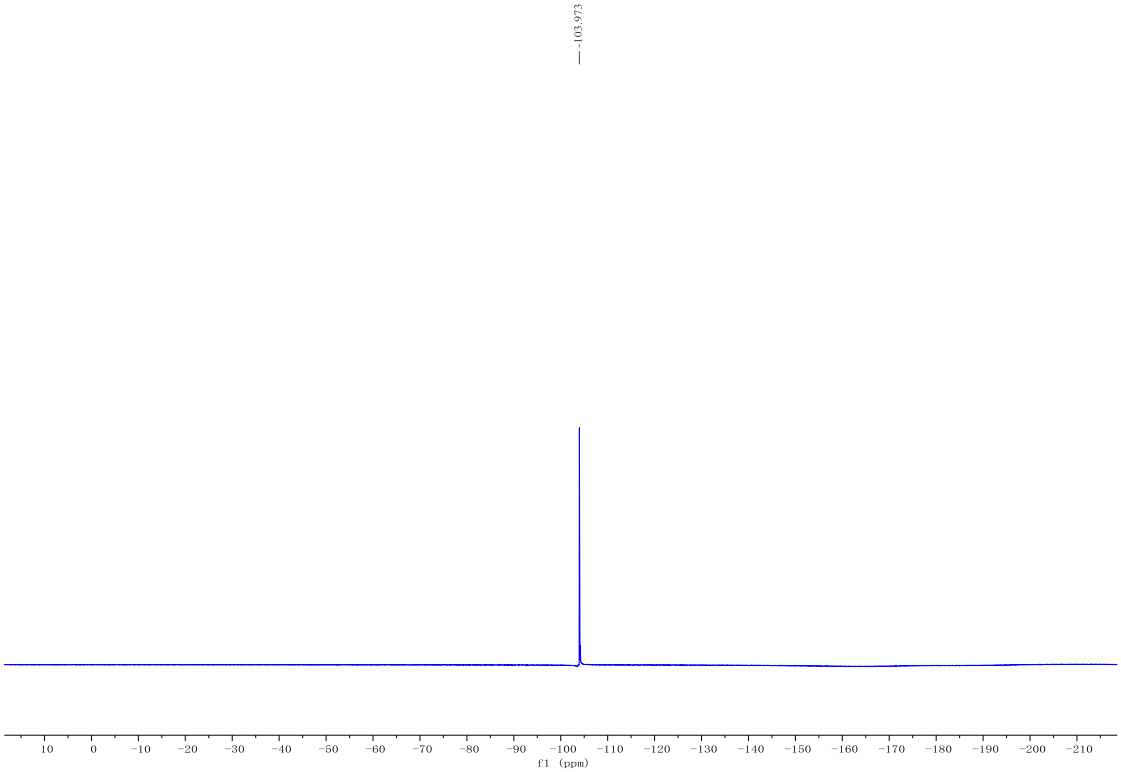
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

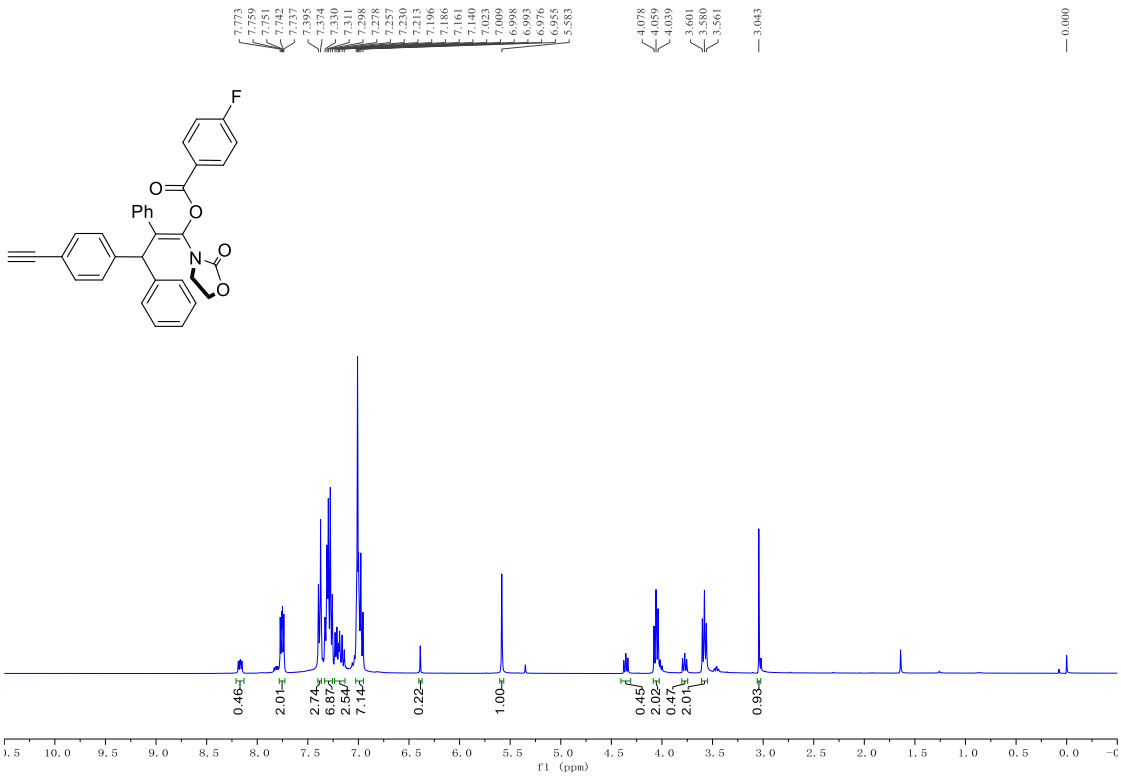


^{19}F NMR (376 MHz, $CDCl_3$)

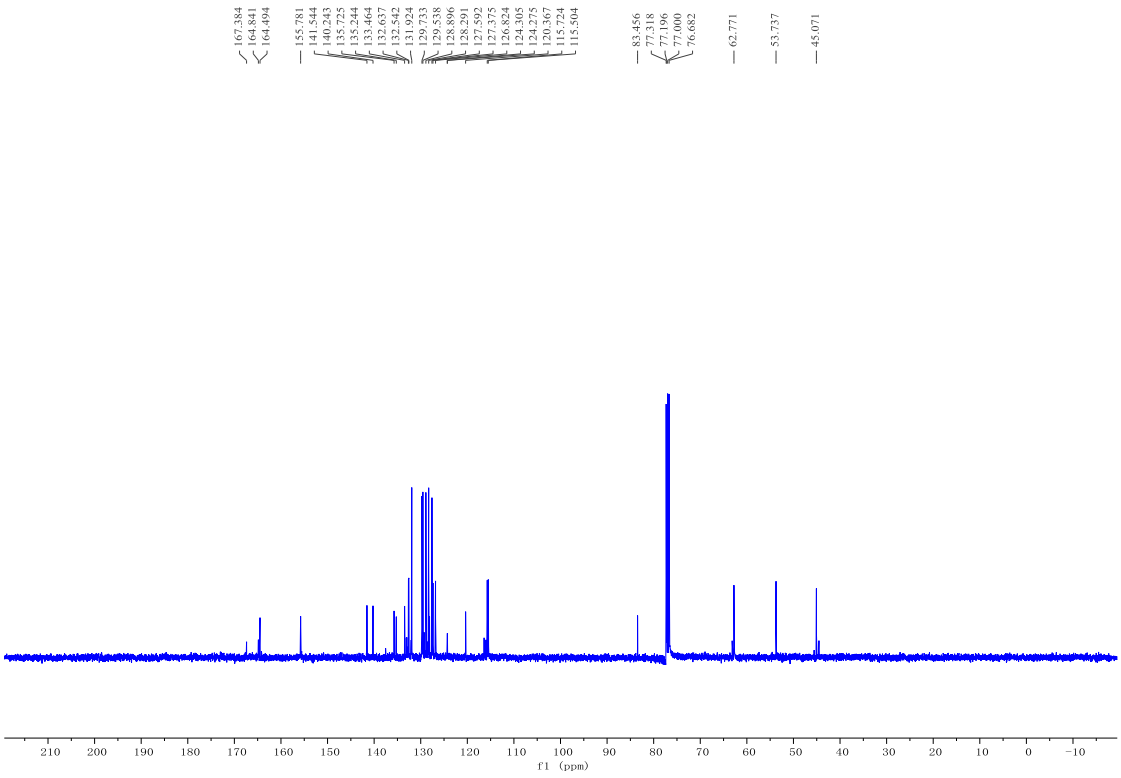


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aal:

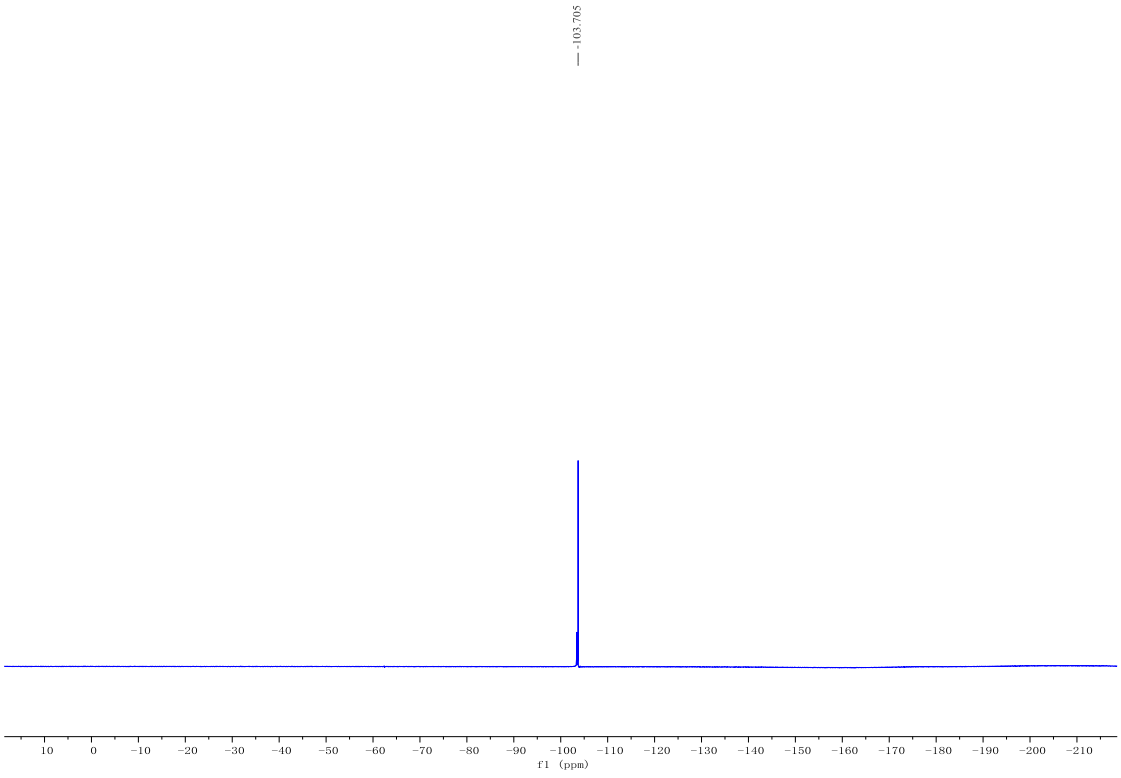
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

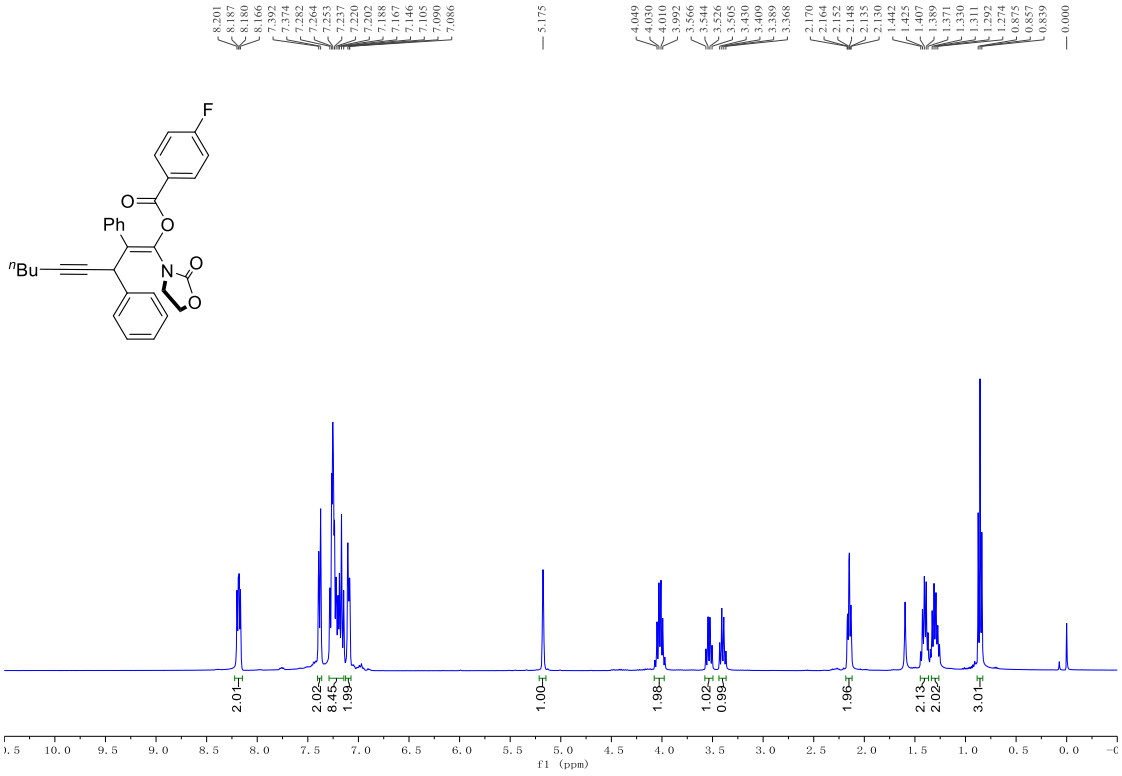


^{19}F NMR (376 MHz, $CDCl_3$)

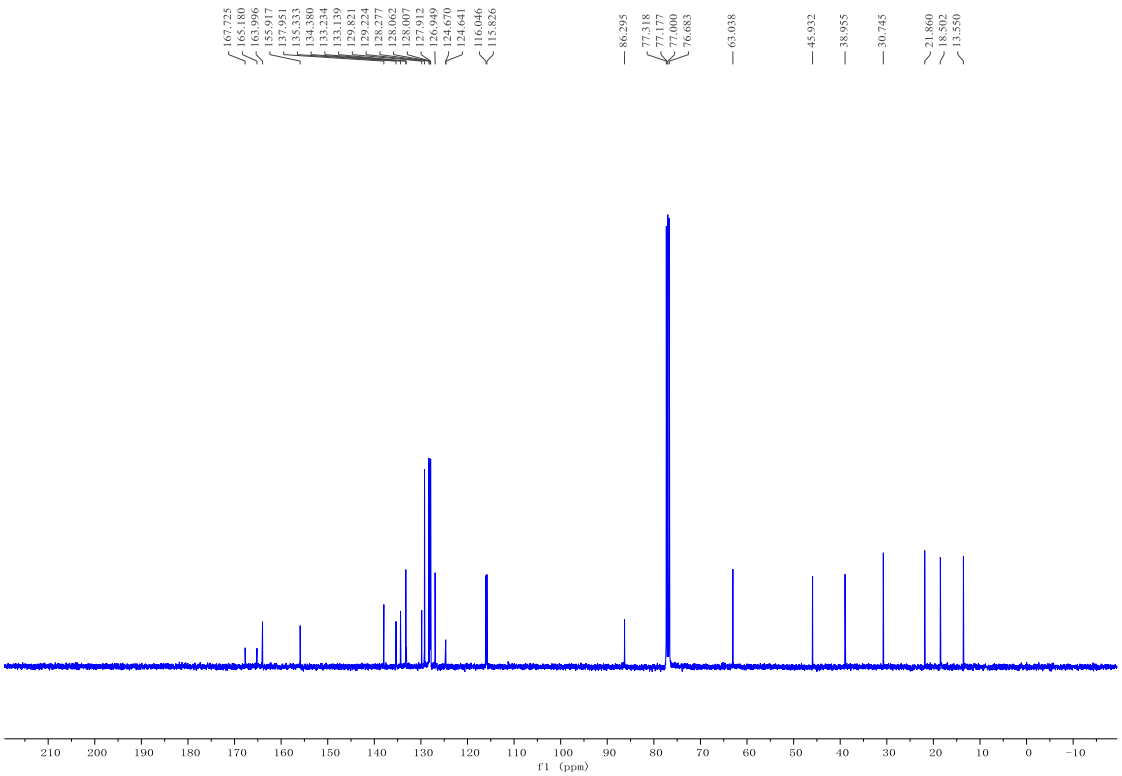


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aam:

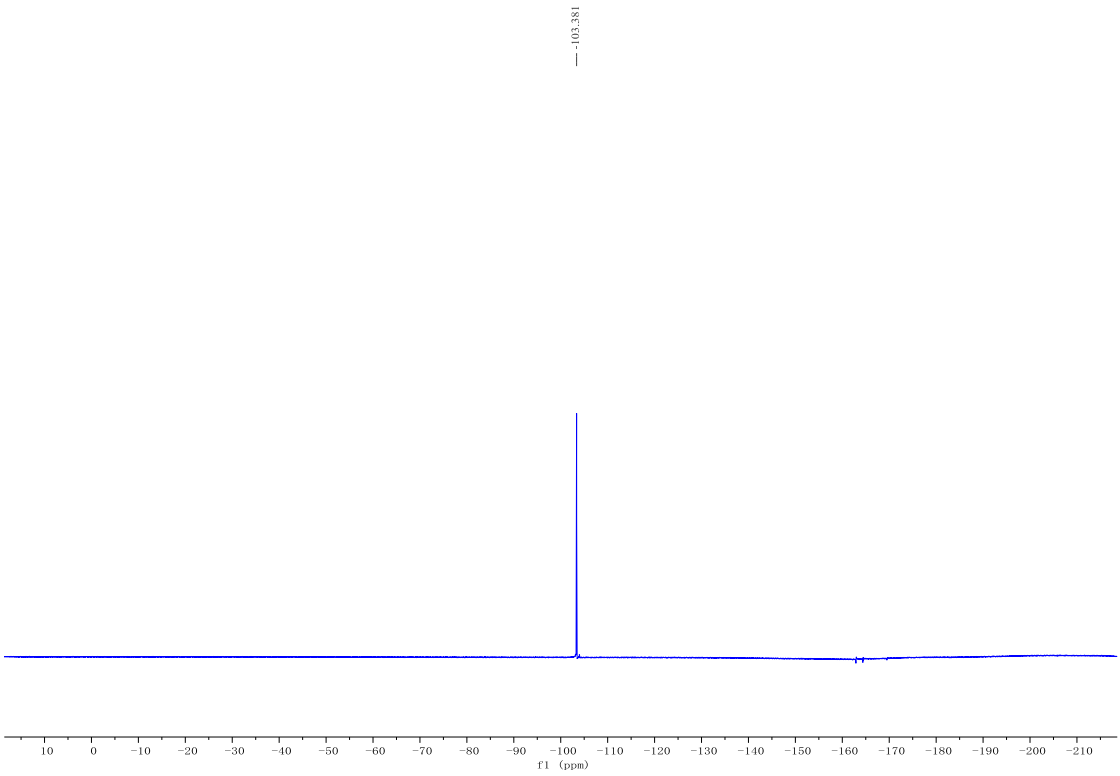
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

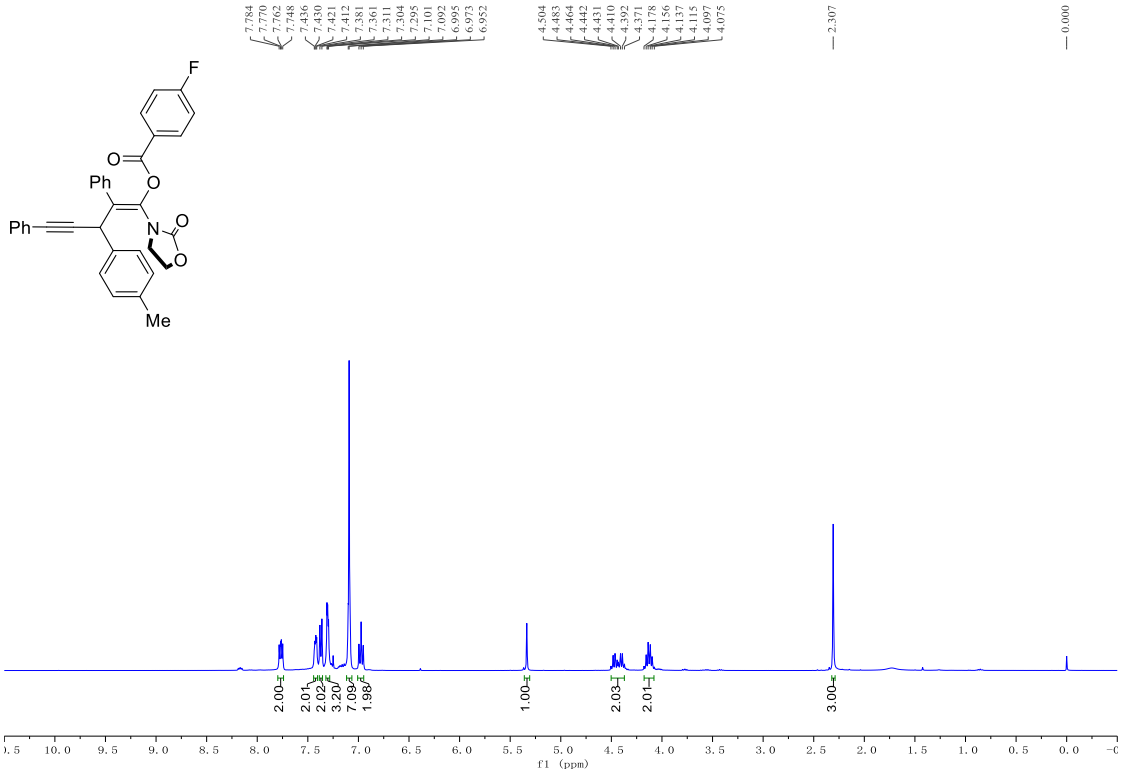


^{19}F NMR (376 MHz, $CDCl_3$)

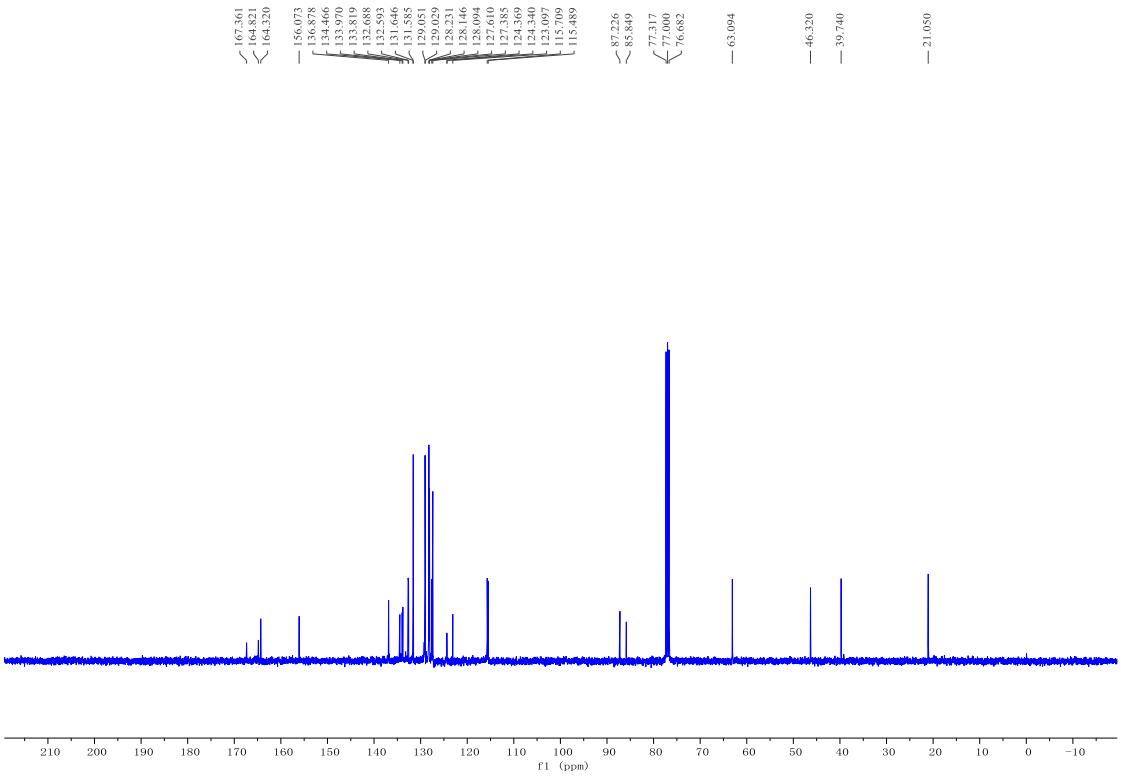


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aan:

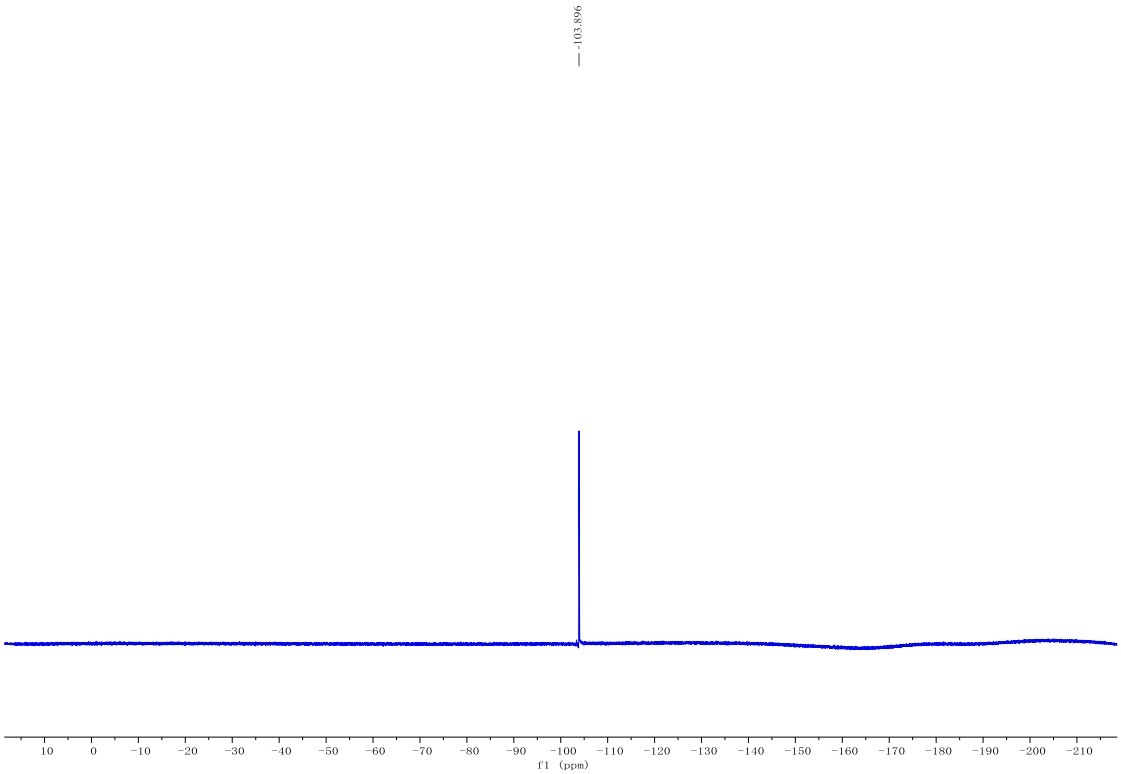
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

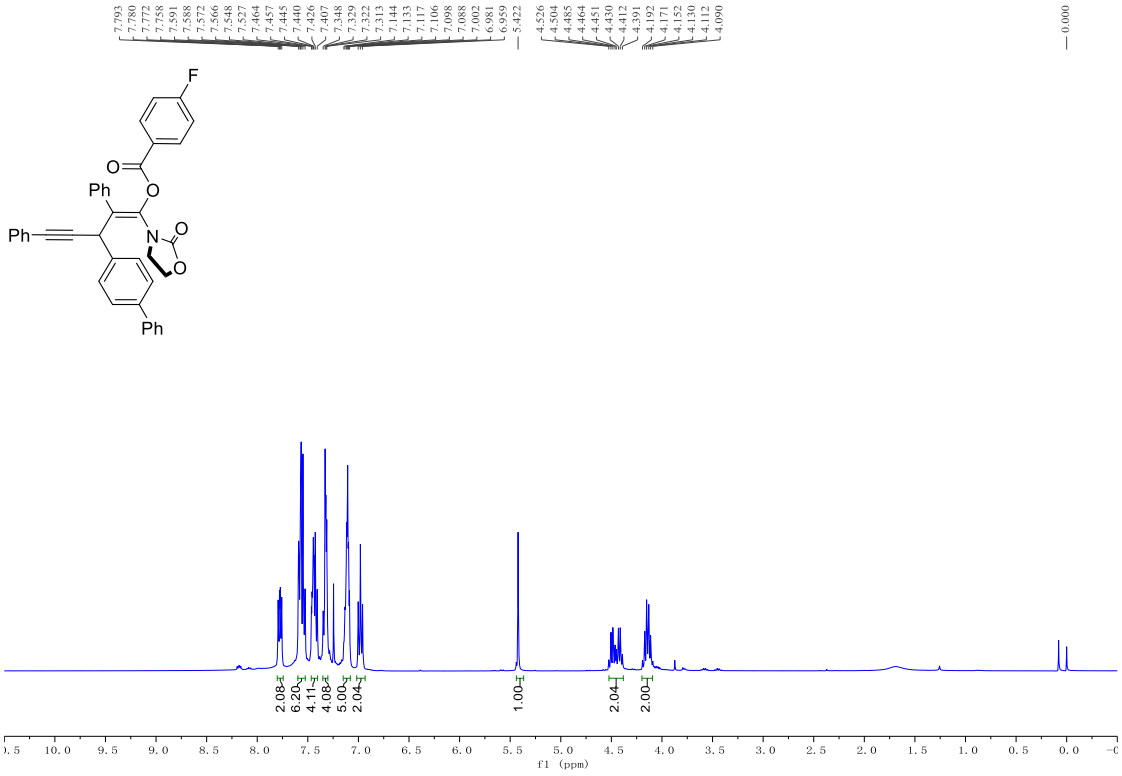


^{19}F NMR (376 MHz, $CDCl_3$)

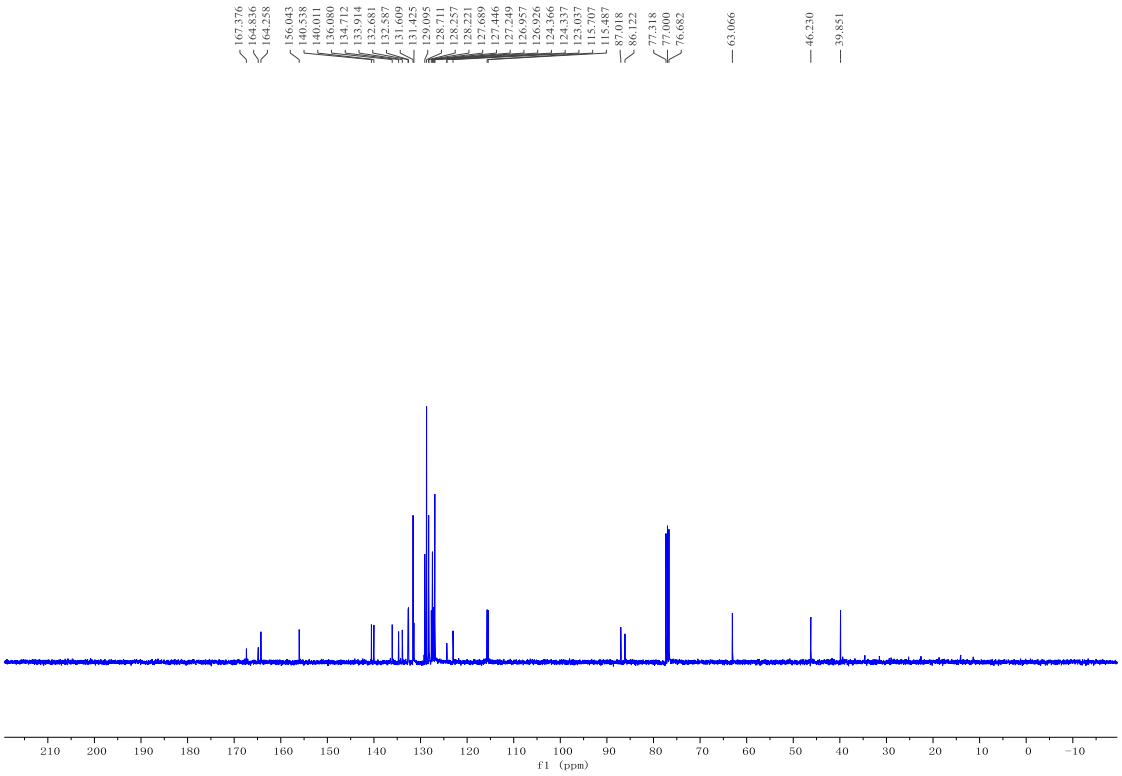


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aao:

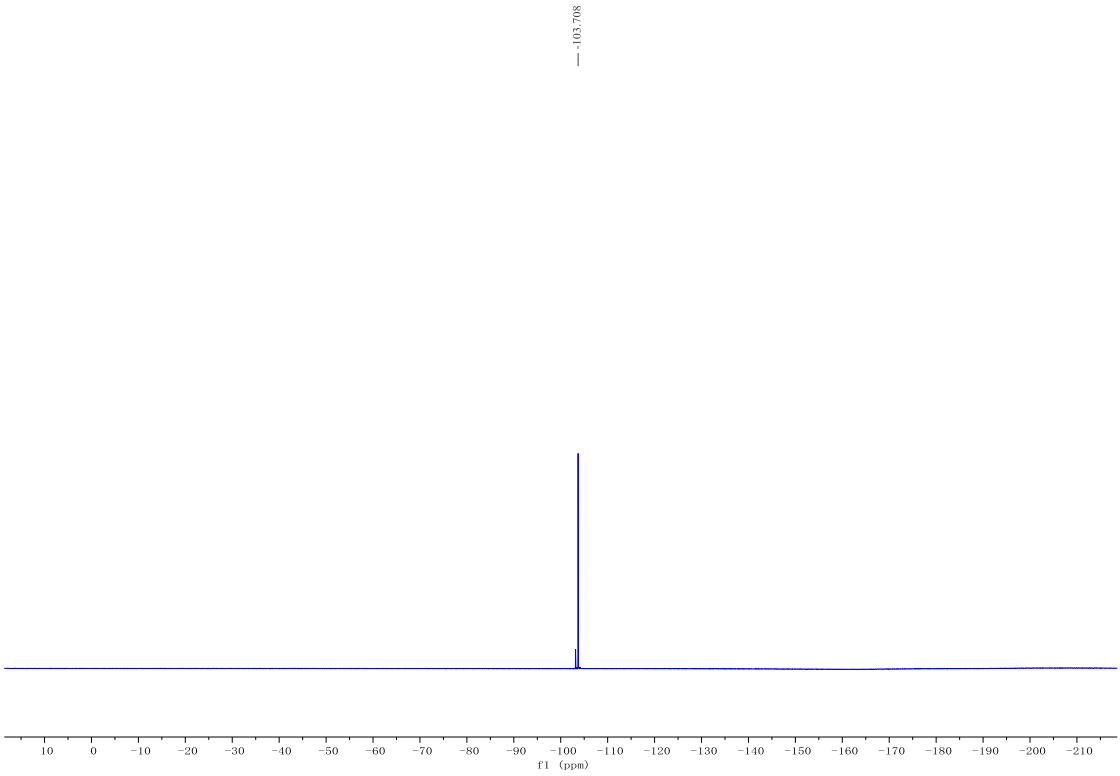
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

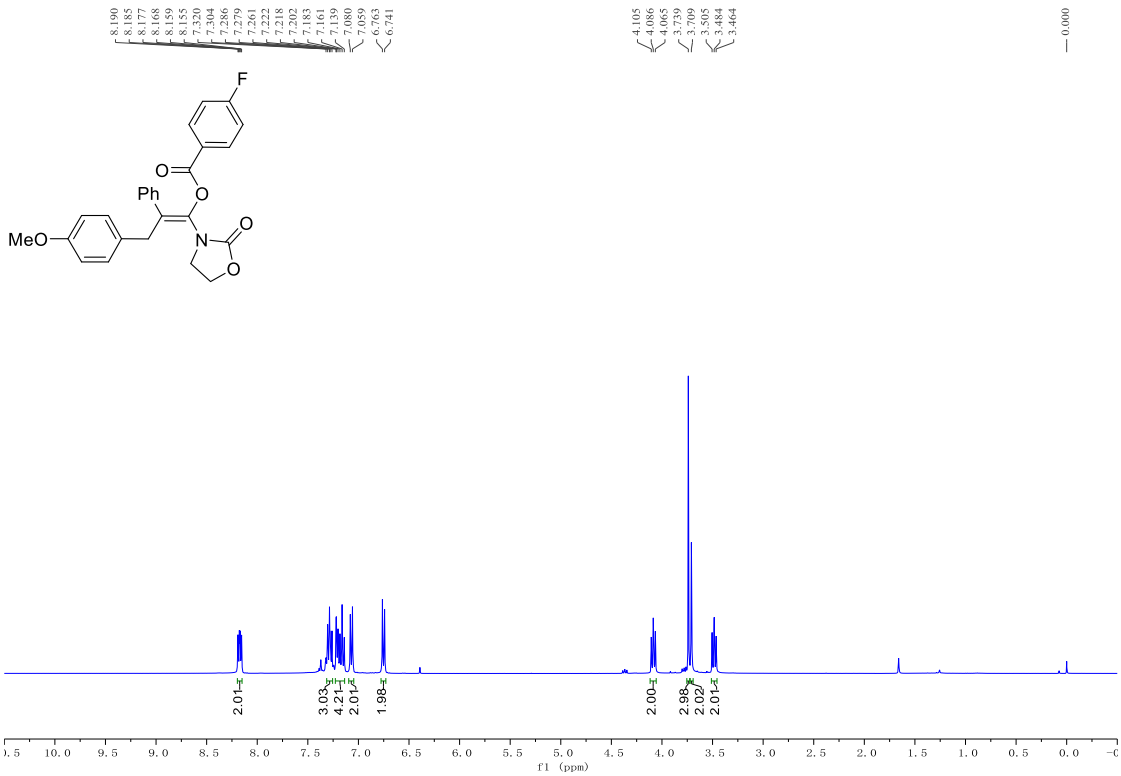


^{19}F NMR (376 MHz, $CDCl_3$)

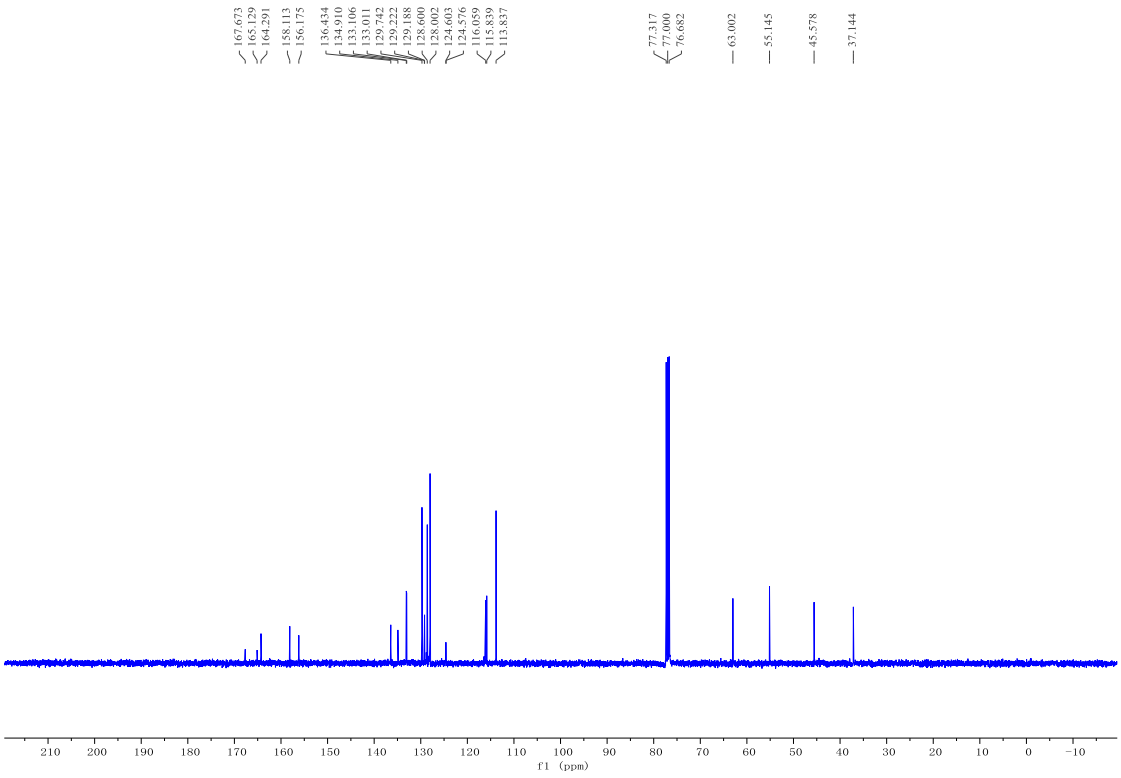


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aap:

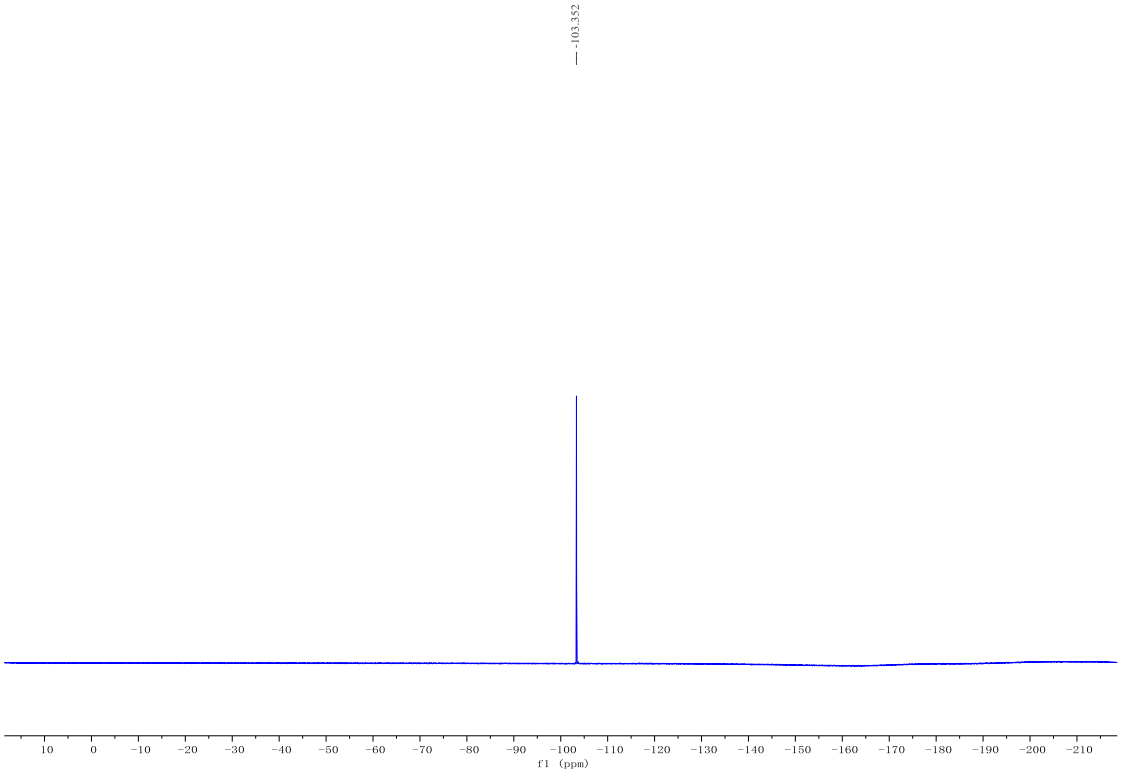
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

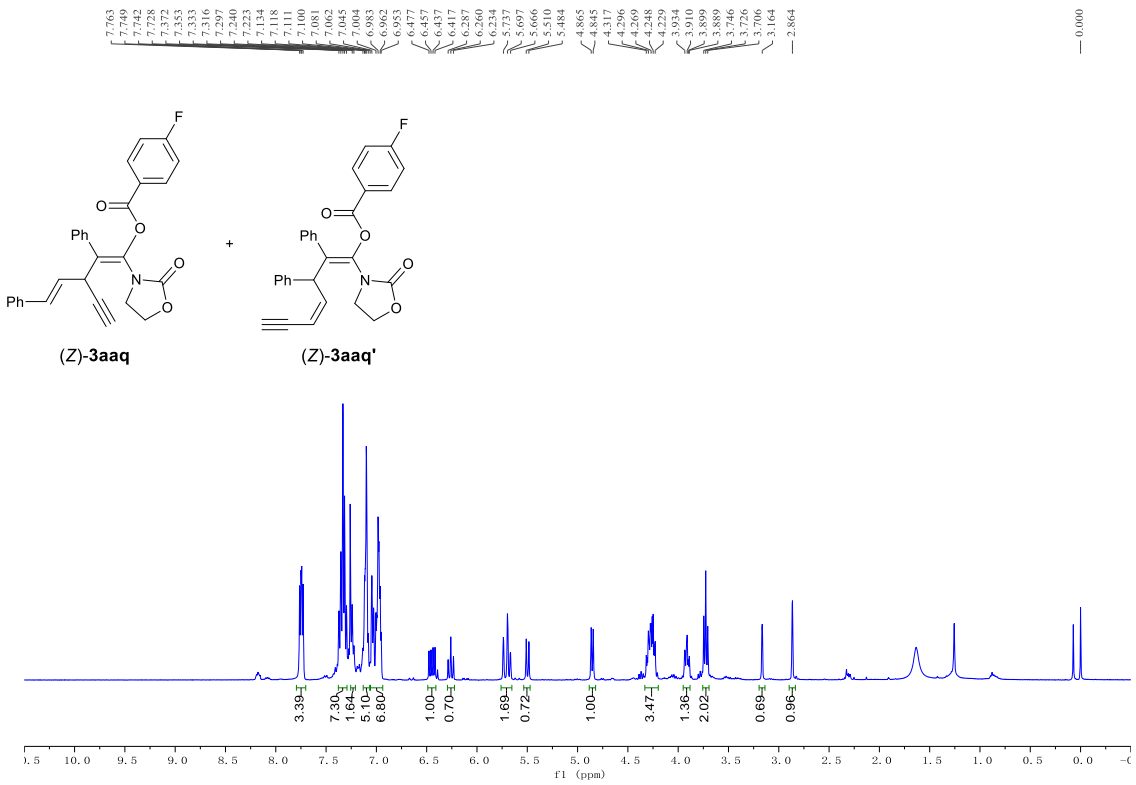


^{19}F NMR (376 MHz, $CDCl_3$)

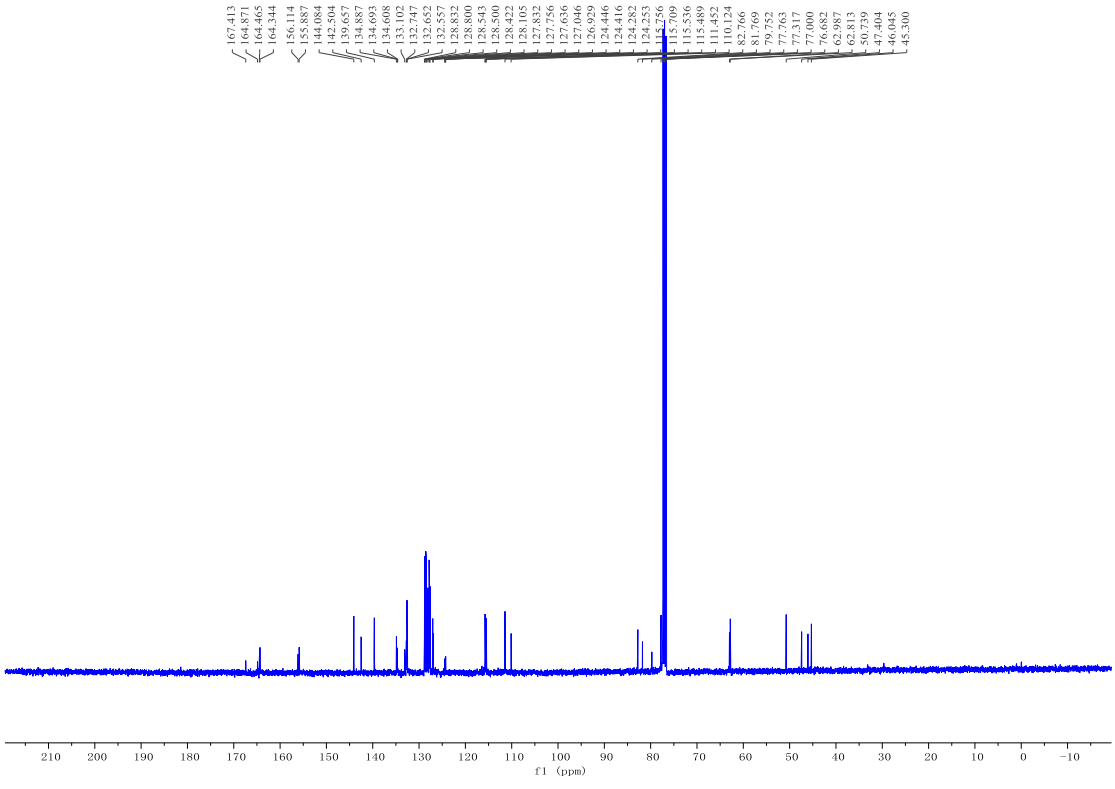


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aaq and its regioisomer:

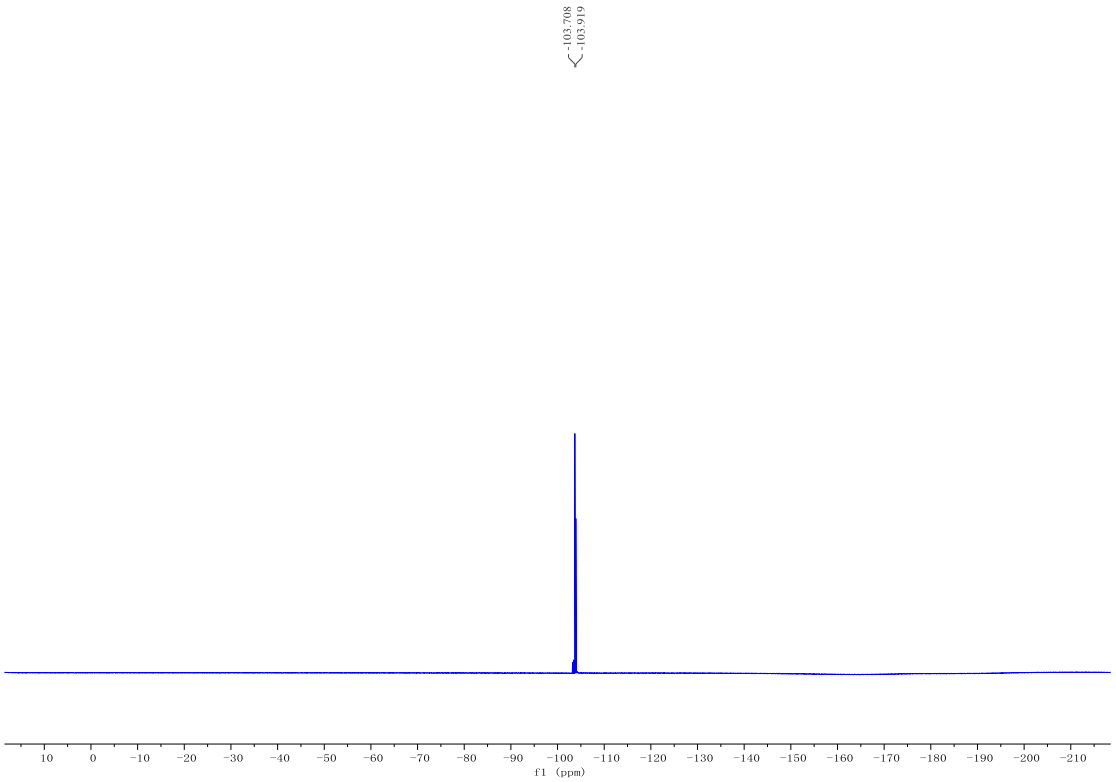
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

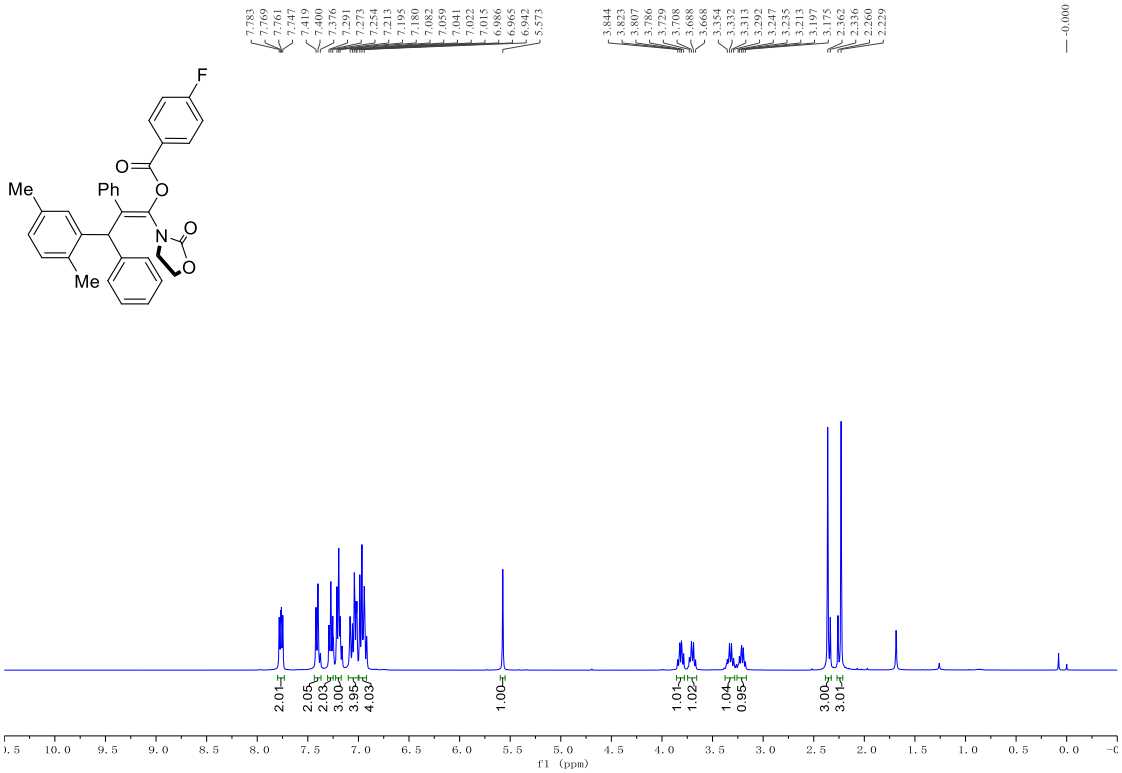


^{19}F NMR (400 MHz, $CDCl_3$)

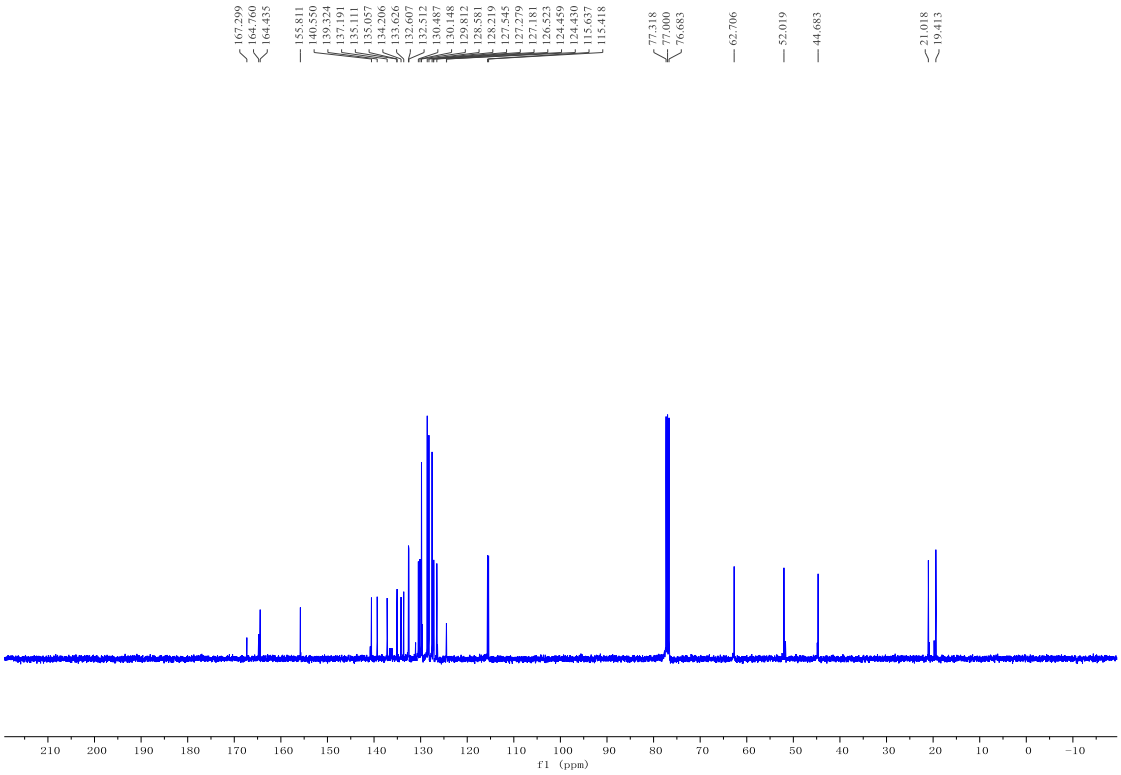


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3aar:

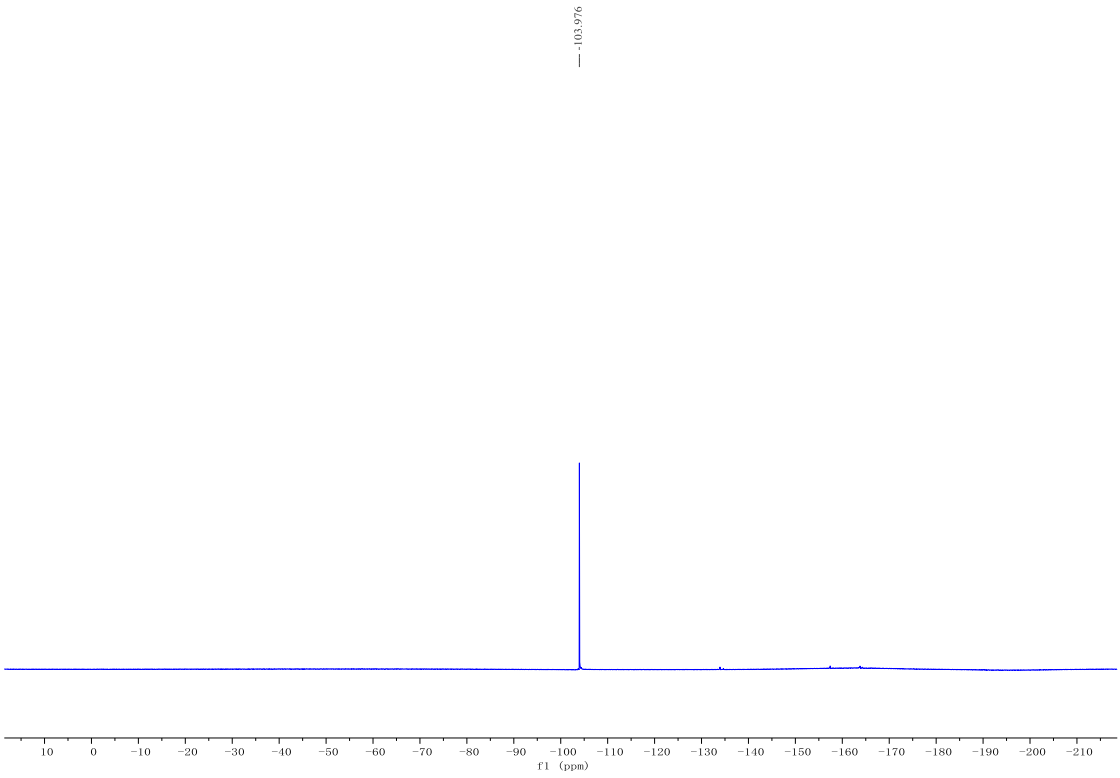
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

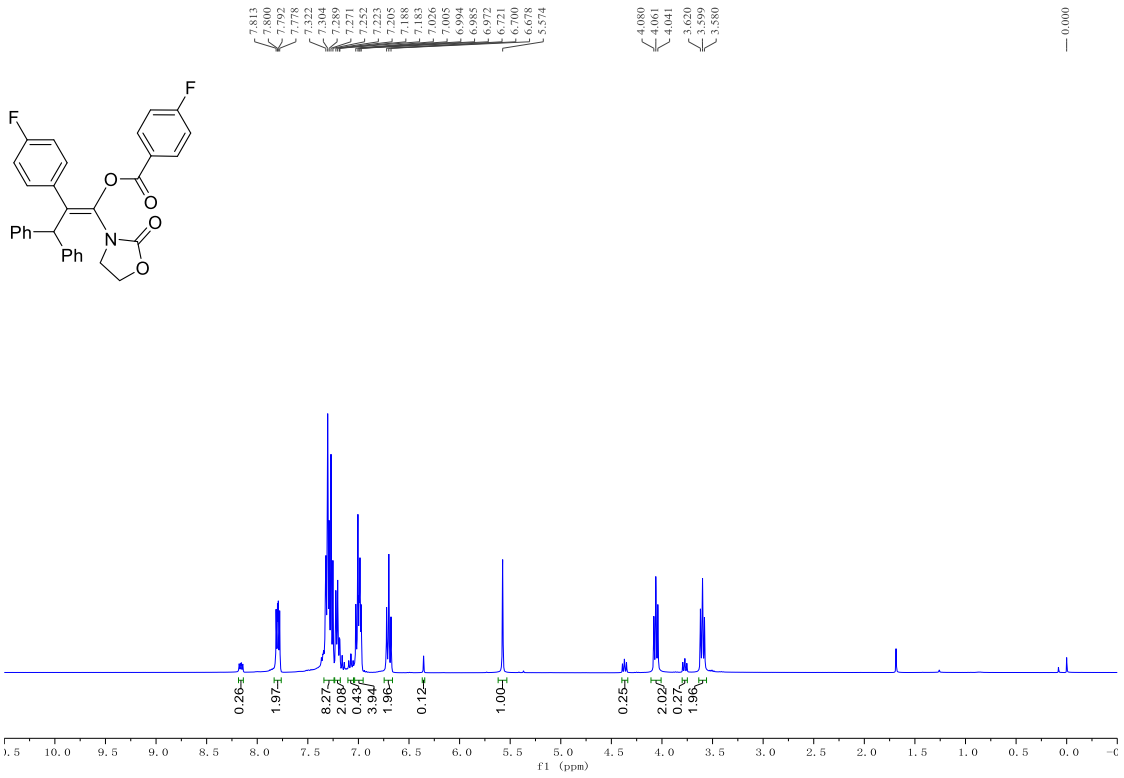


^{19}F NMR (376 MHz, $CDCl_3$)

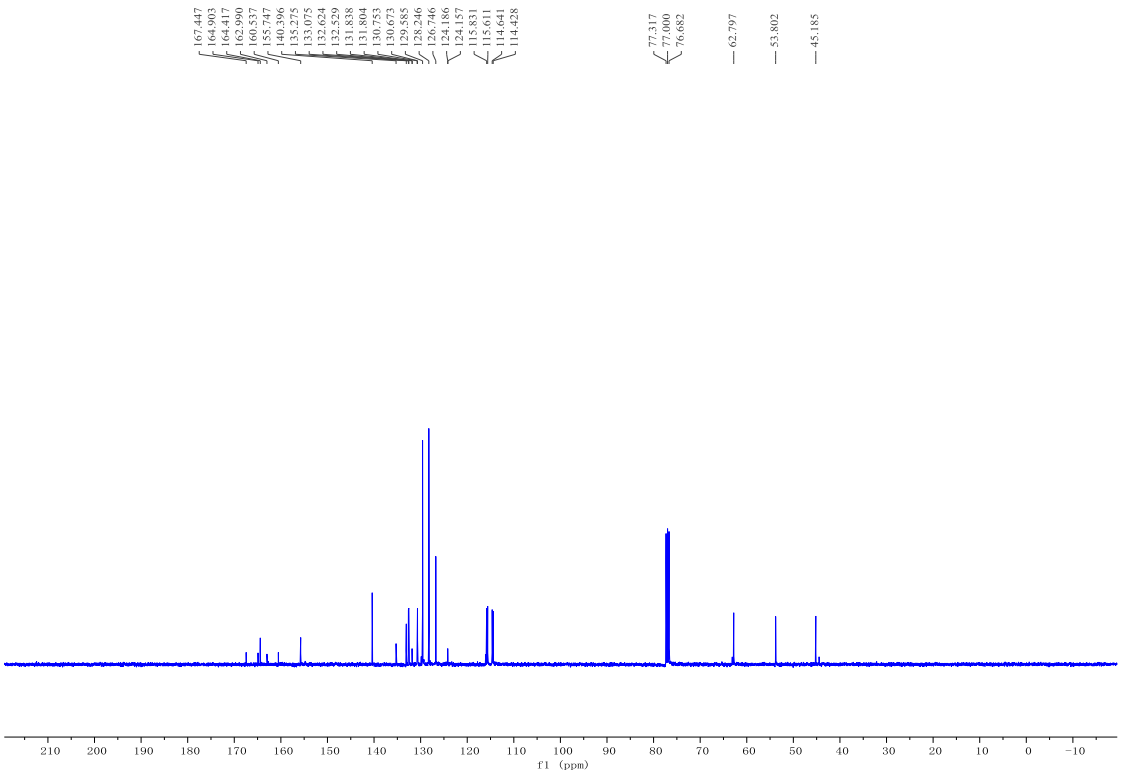


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ba:

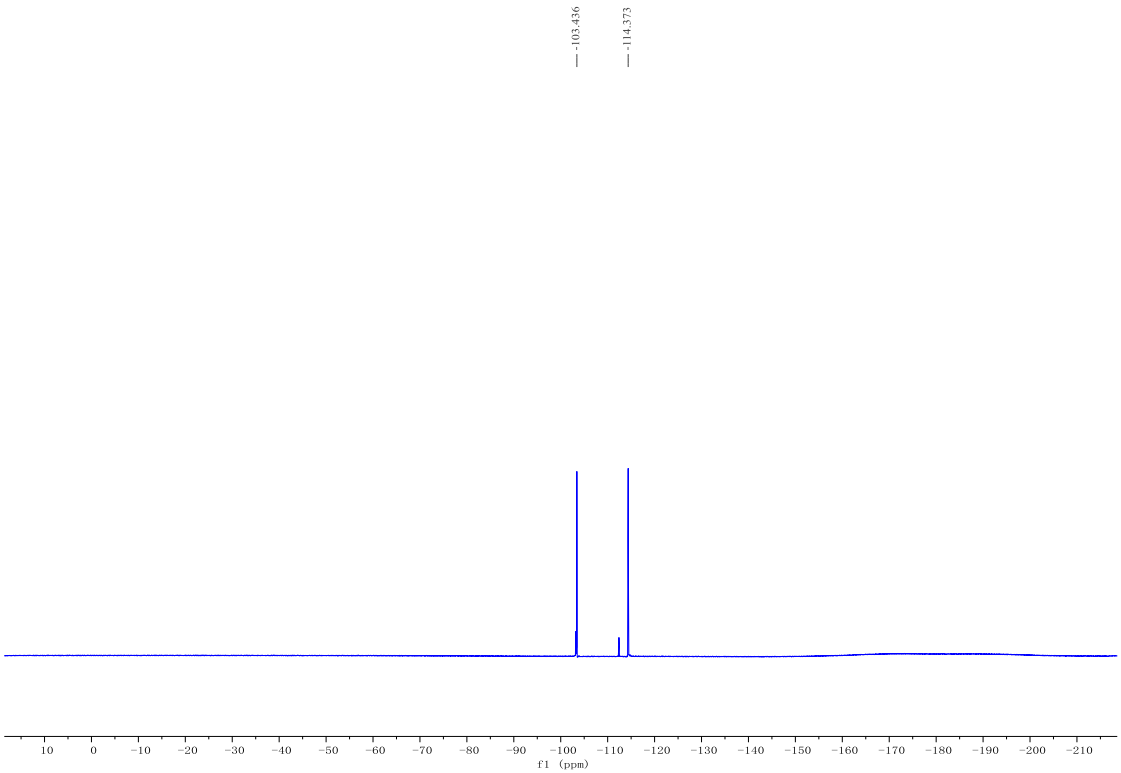
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

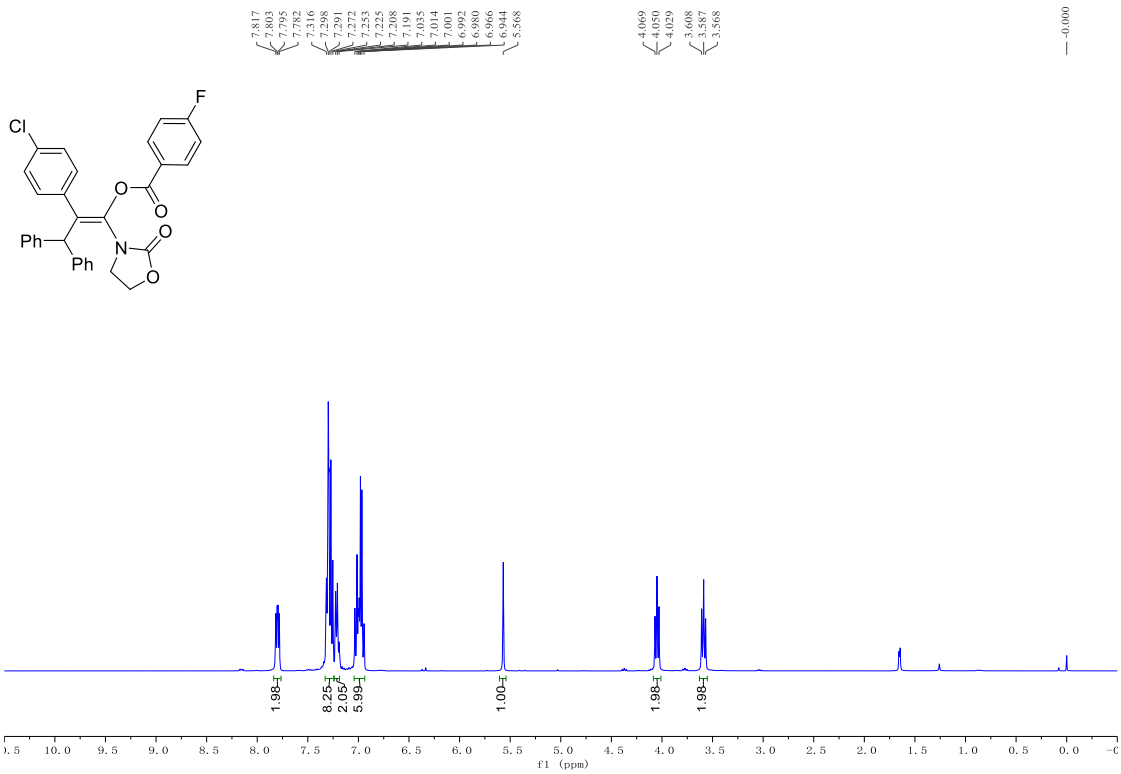


^{19}F NMR (376 MHz, $CDCl_3$)

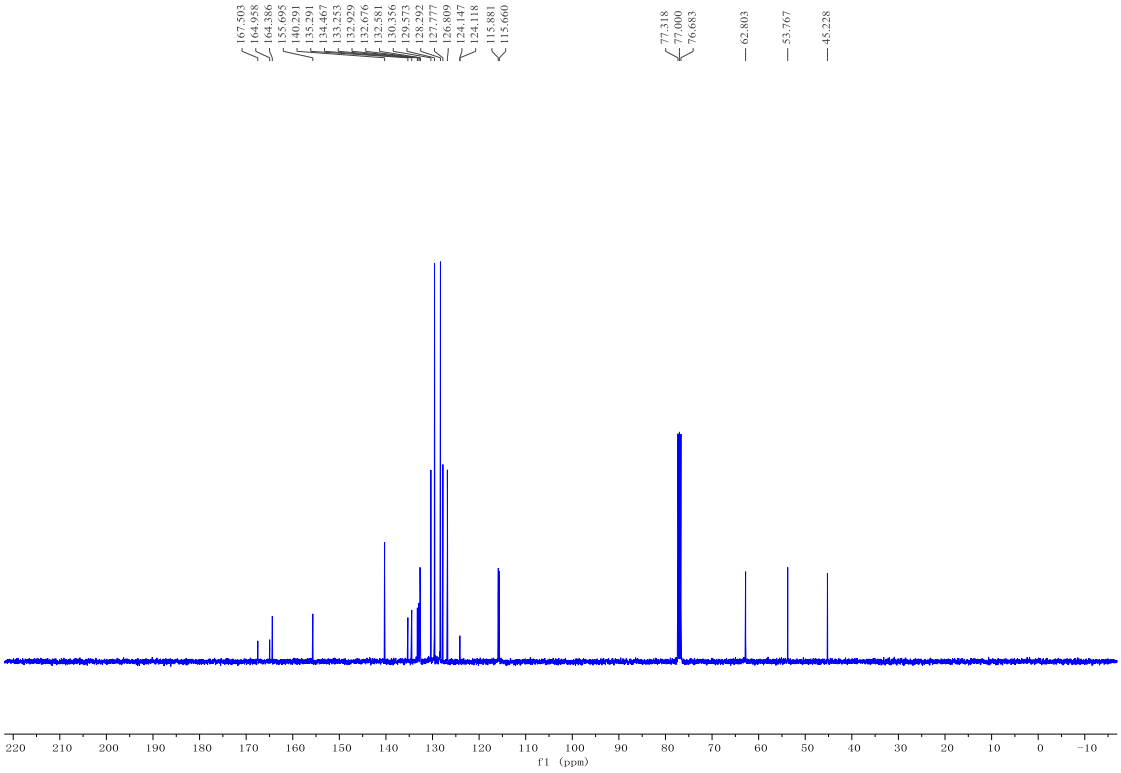


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ca:

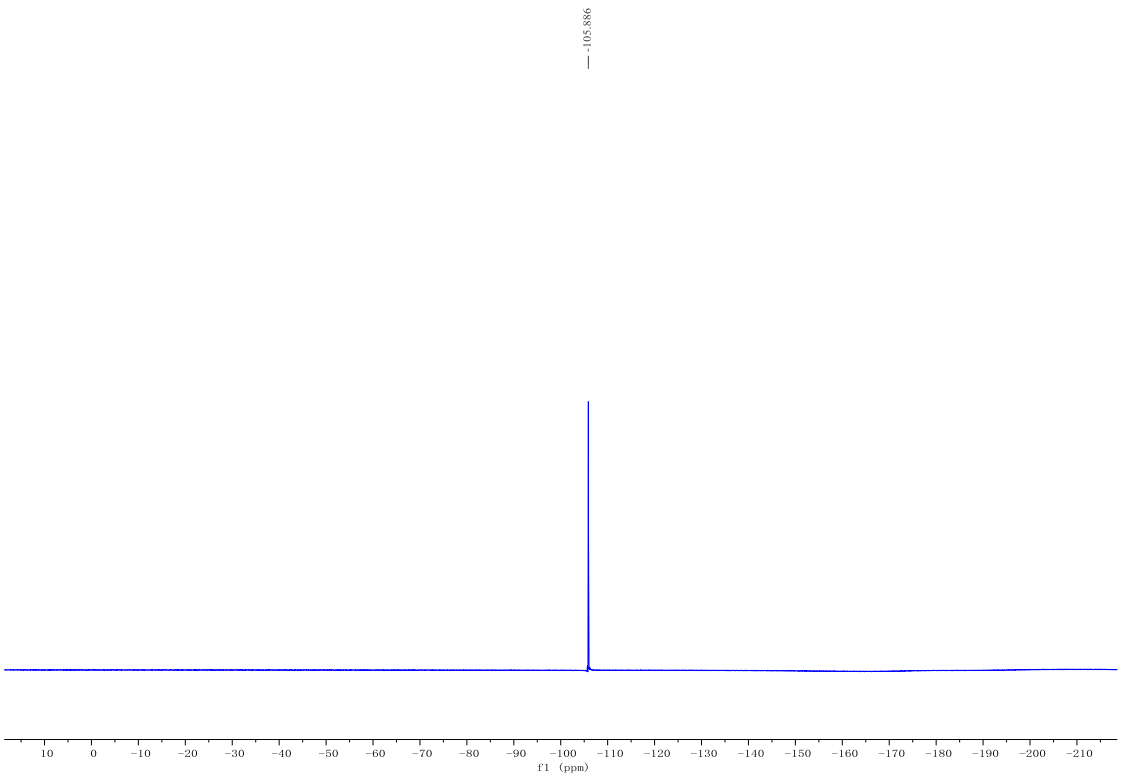
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

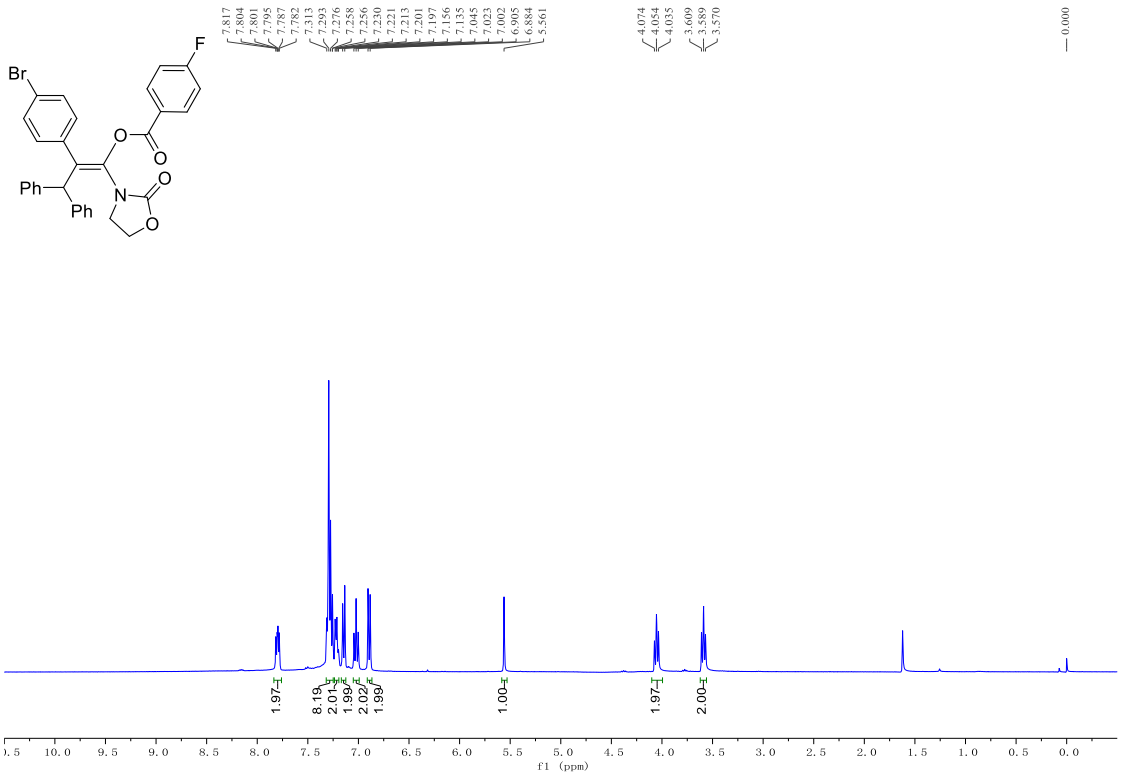


^{19}F NMR (376 MHz, $CDCl_3$)

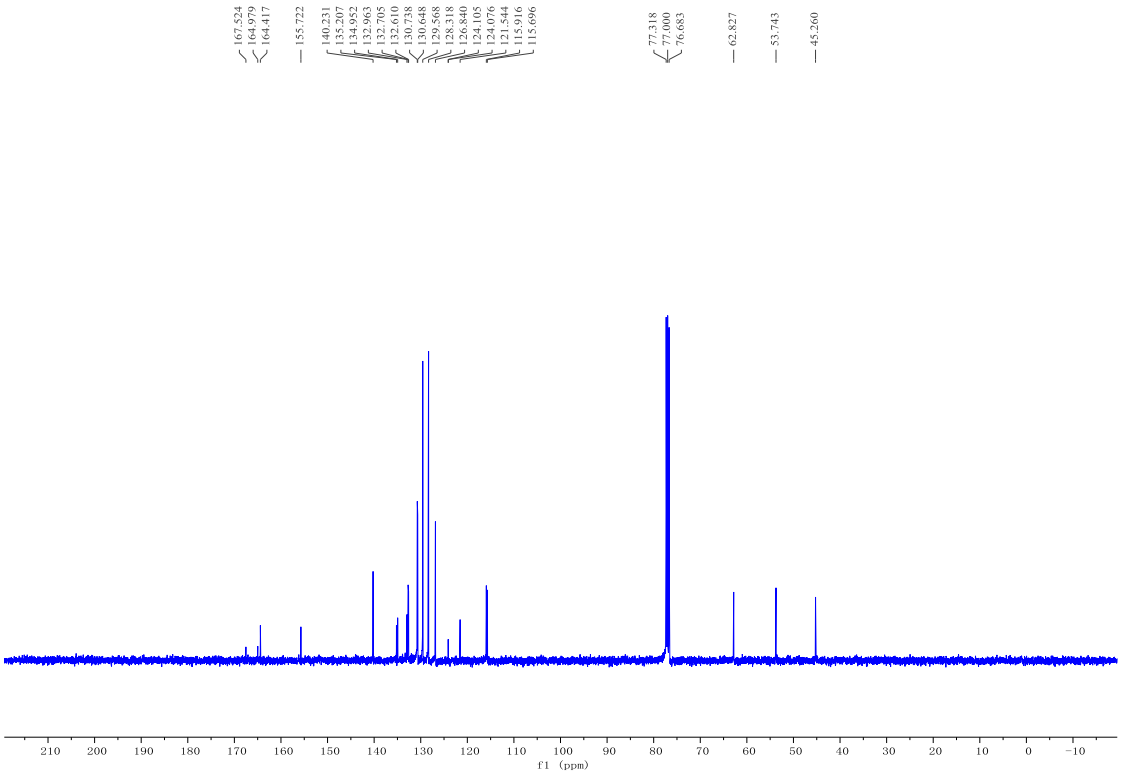


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3da:

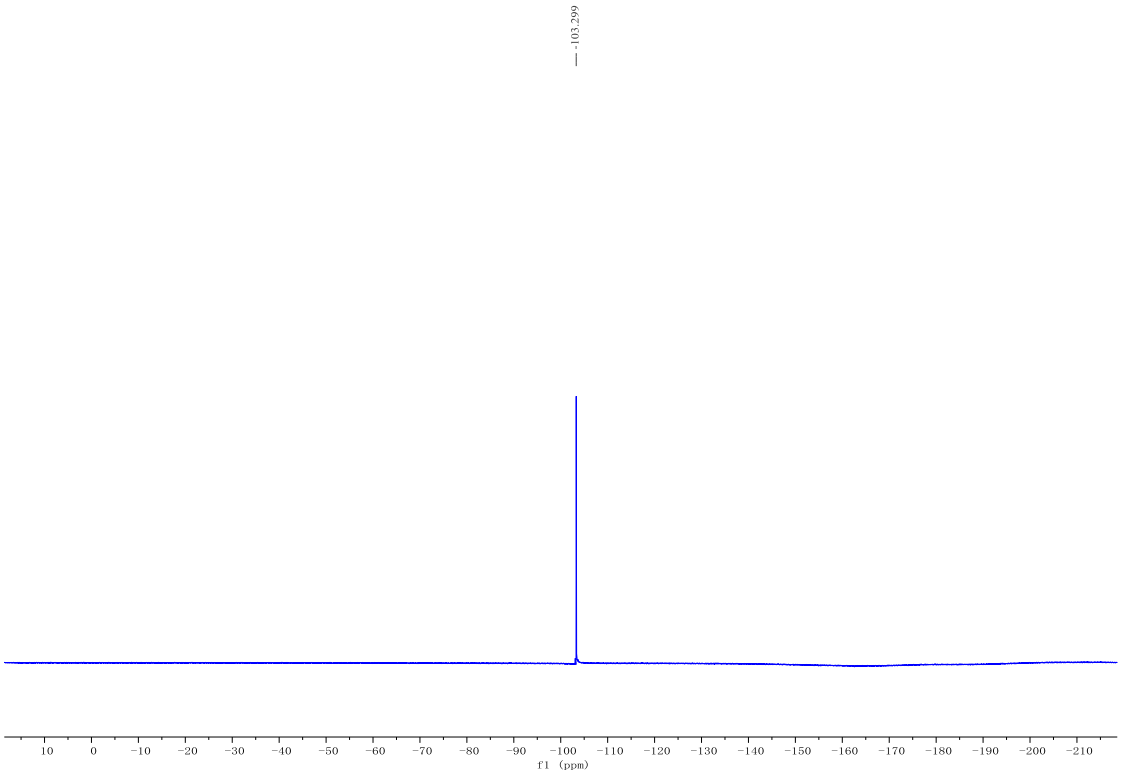
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

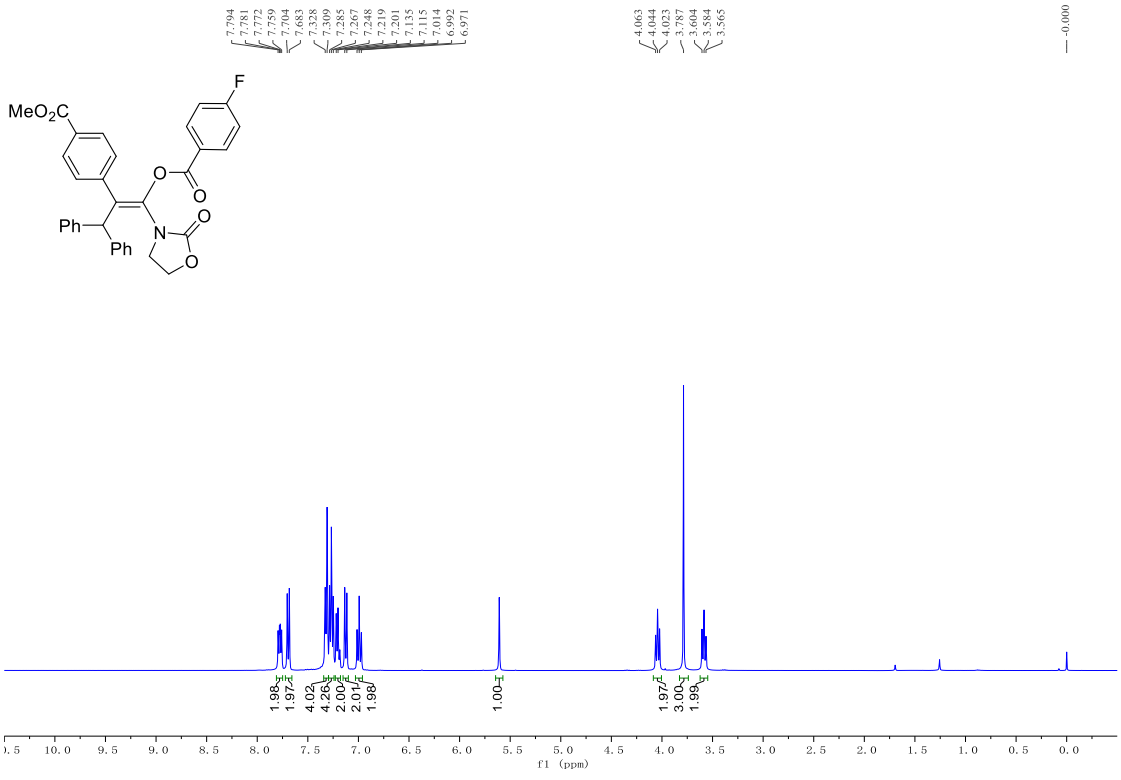


^{19}F NMR (376 MHz, $CDCl_3$)

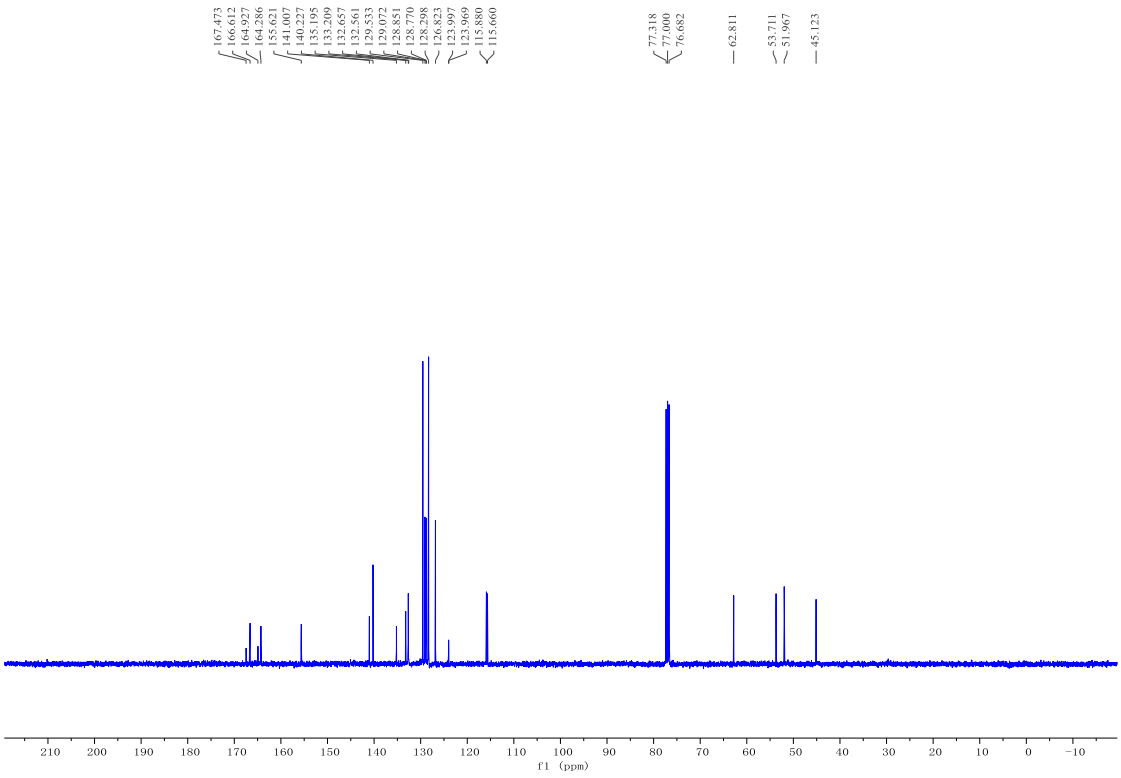


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ea:

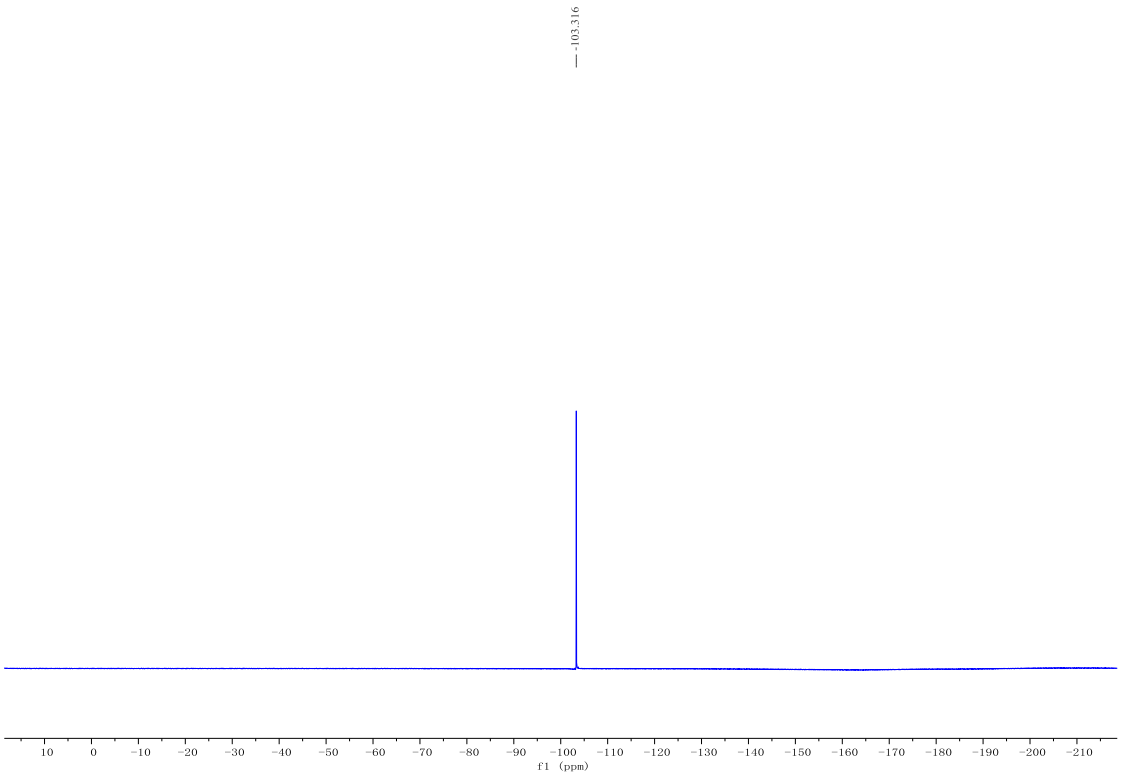
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

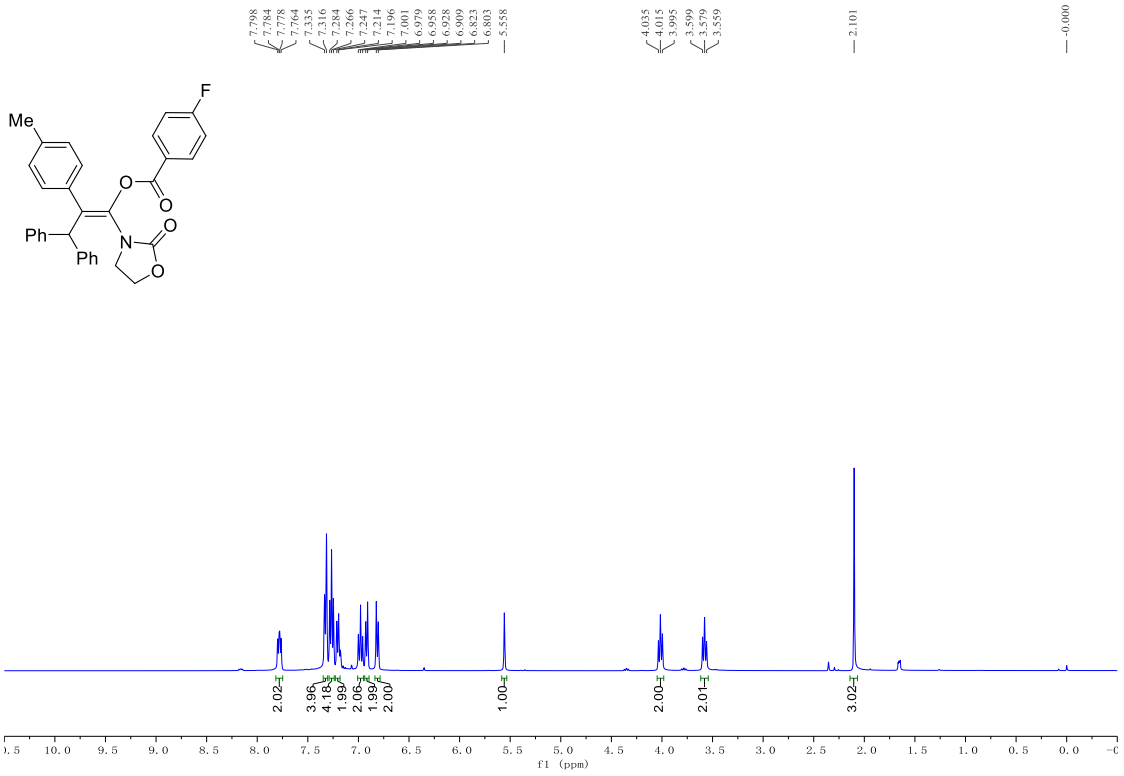


^{19}F NMR (376 MHz, $CDCl_3$)

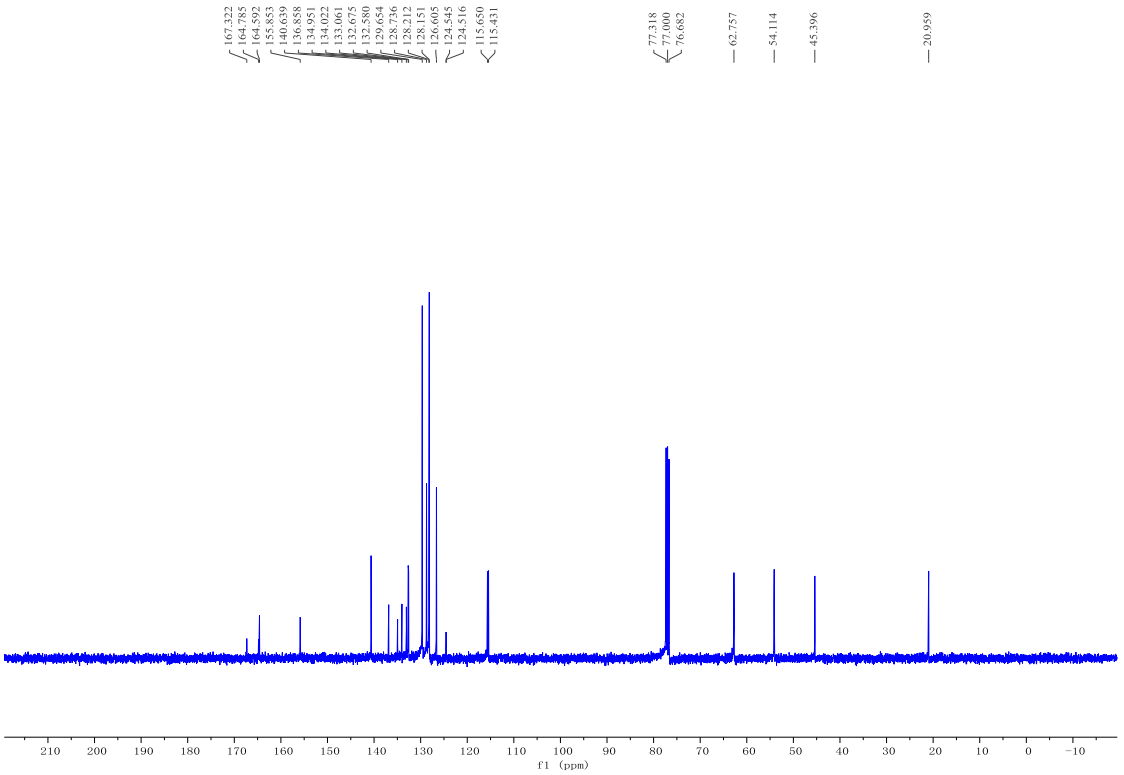


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3fa:

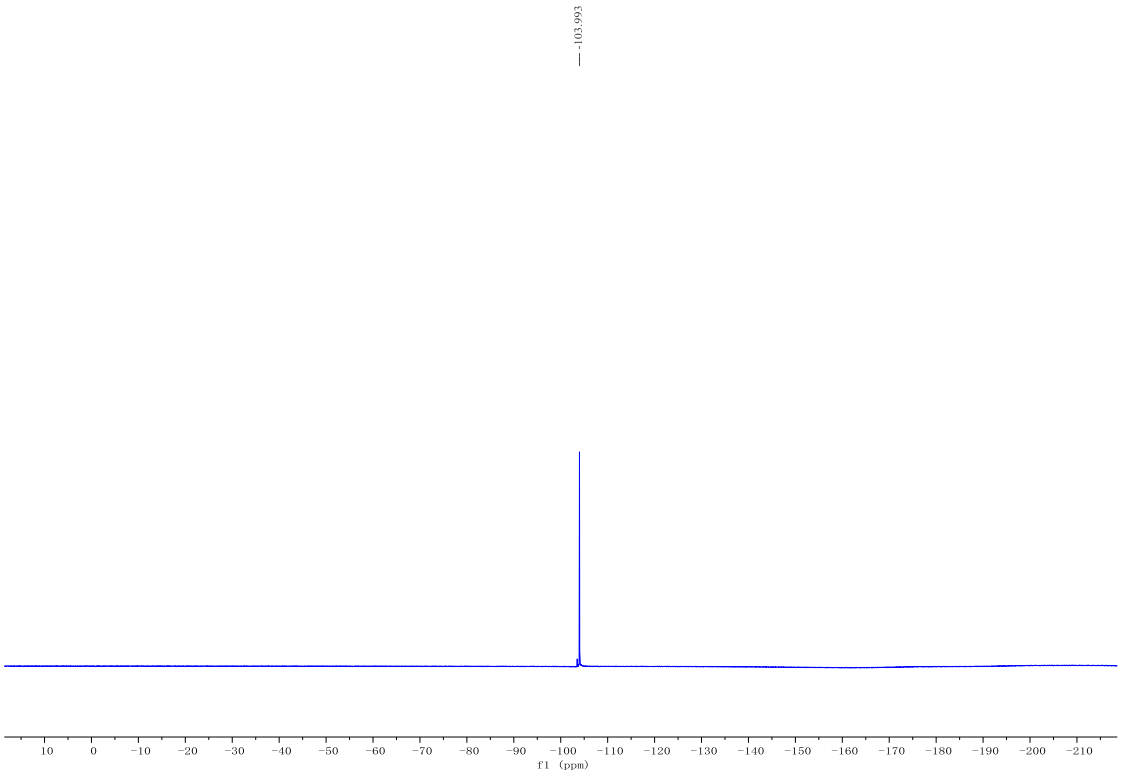
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

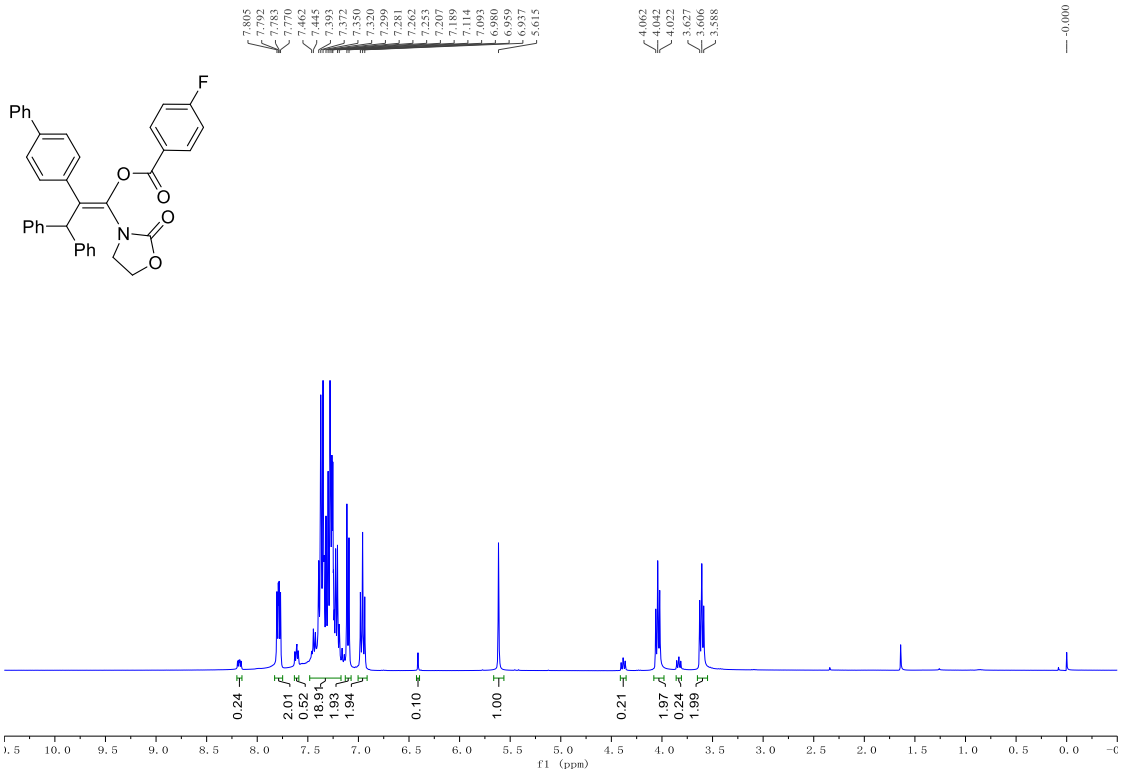


^{19}F NMR (376 MHz, $CDCl_3$)

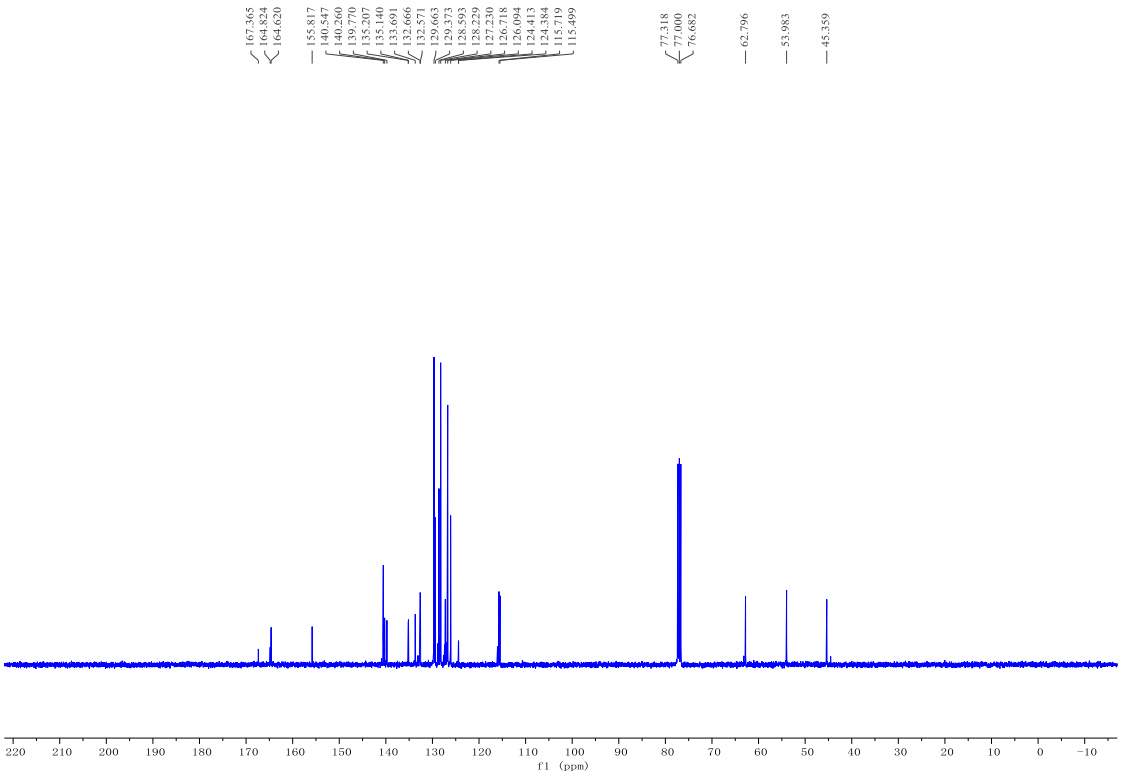


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ga:

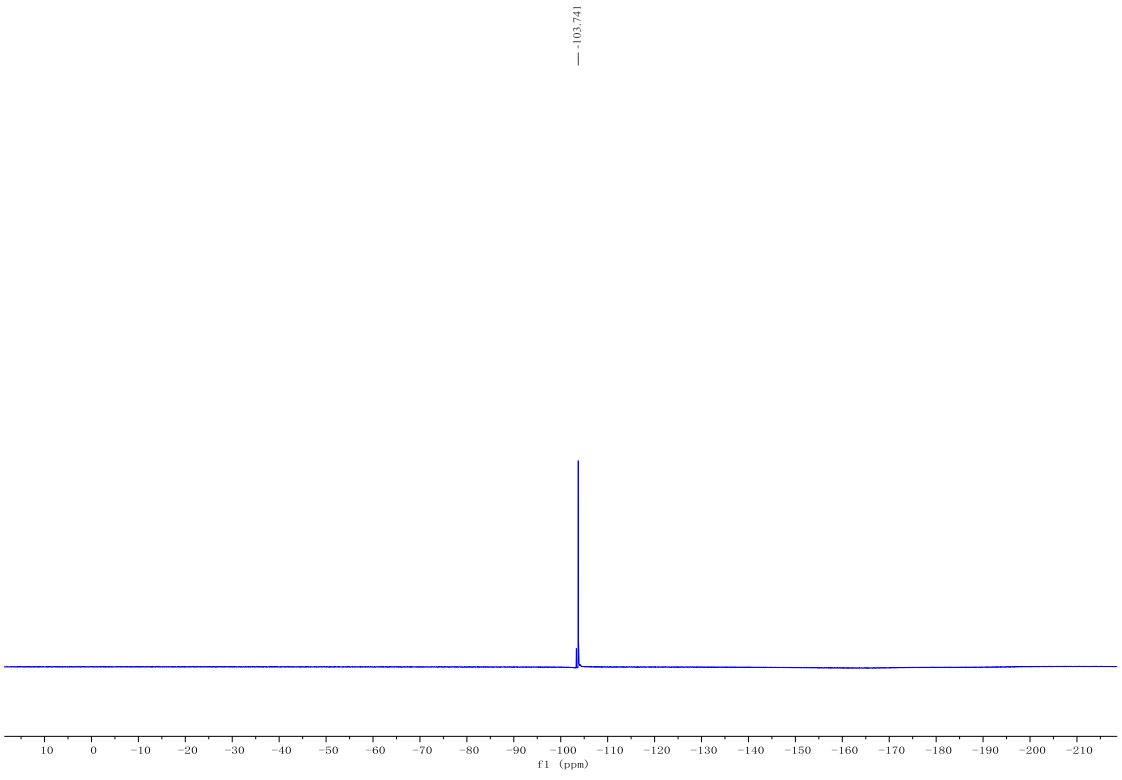
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

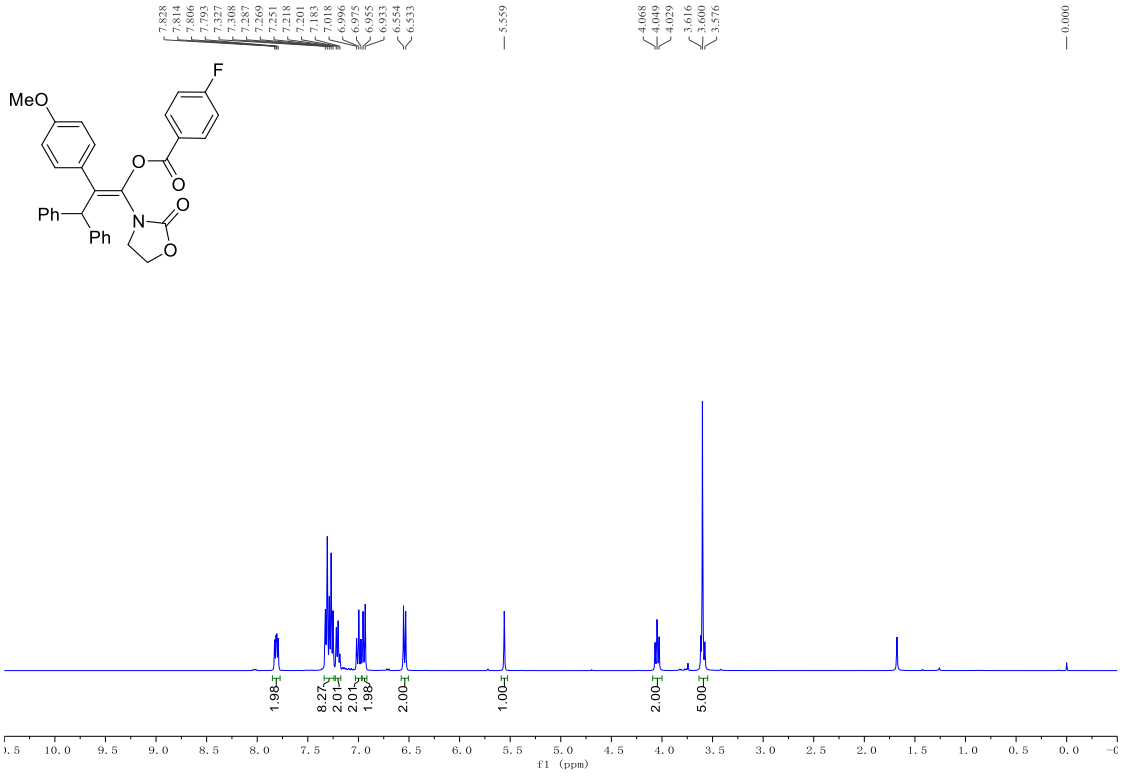


^{19}F NMR (376 MHz, $CDCl_3$)

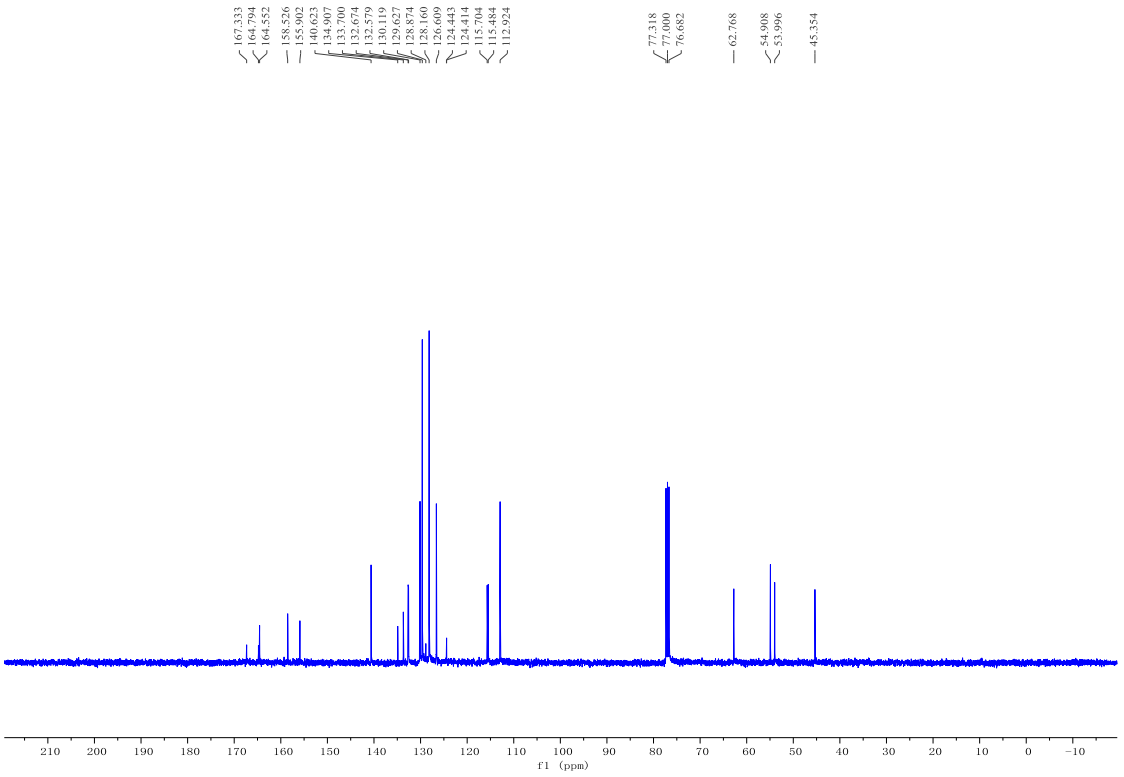


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ha:

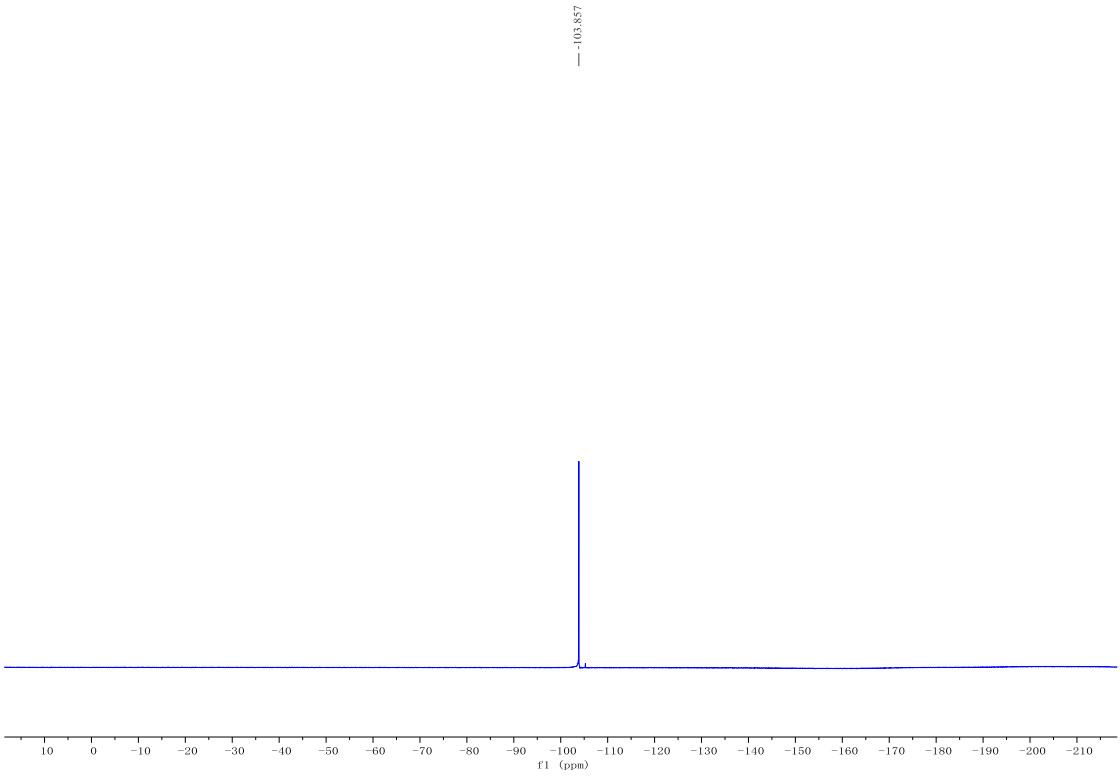
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

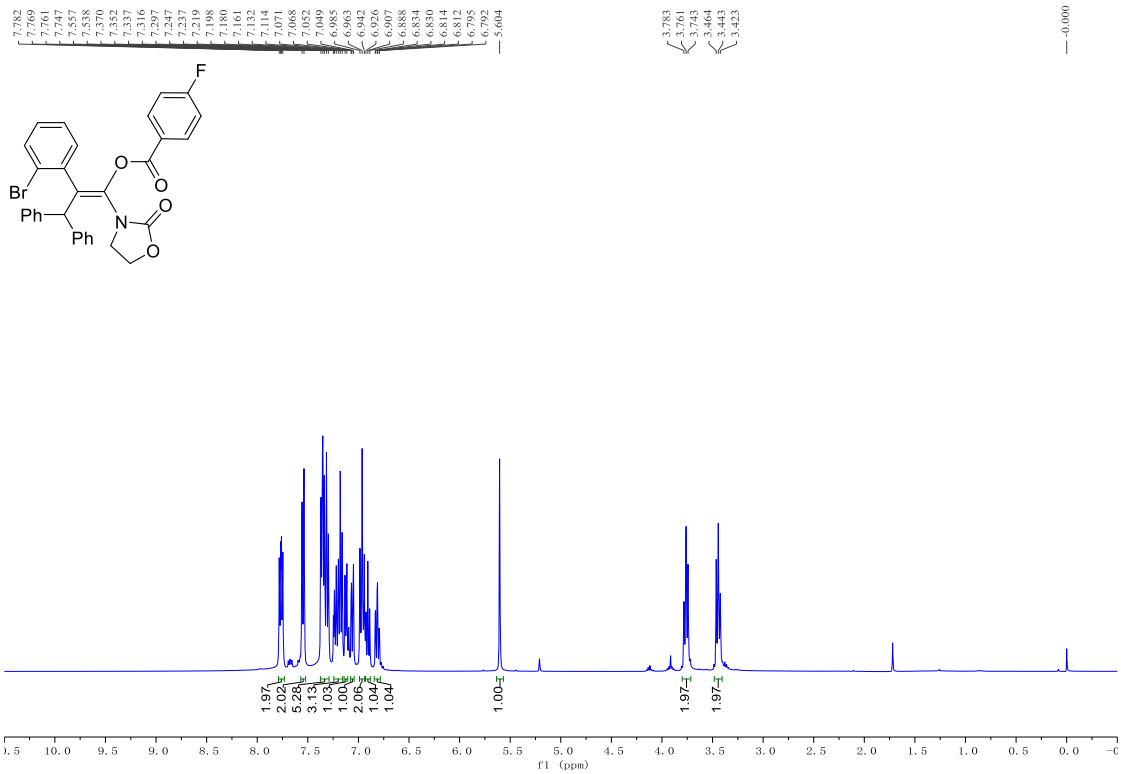


^{19}F NMR (376 MHz, $CDCl_3$)

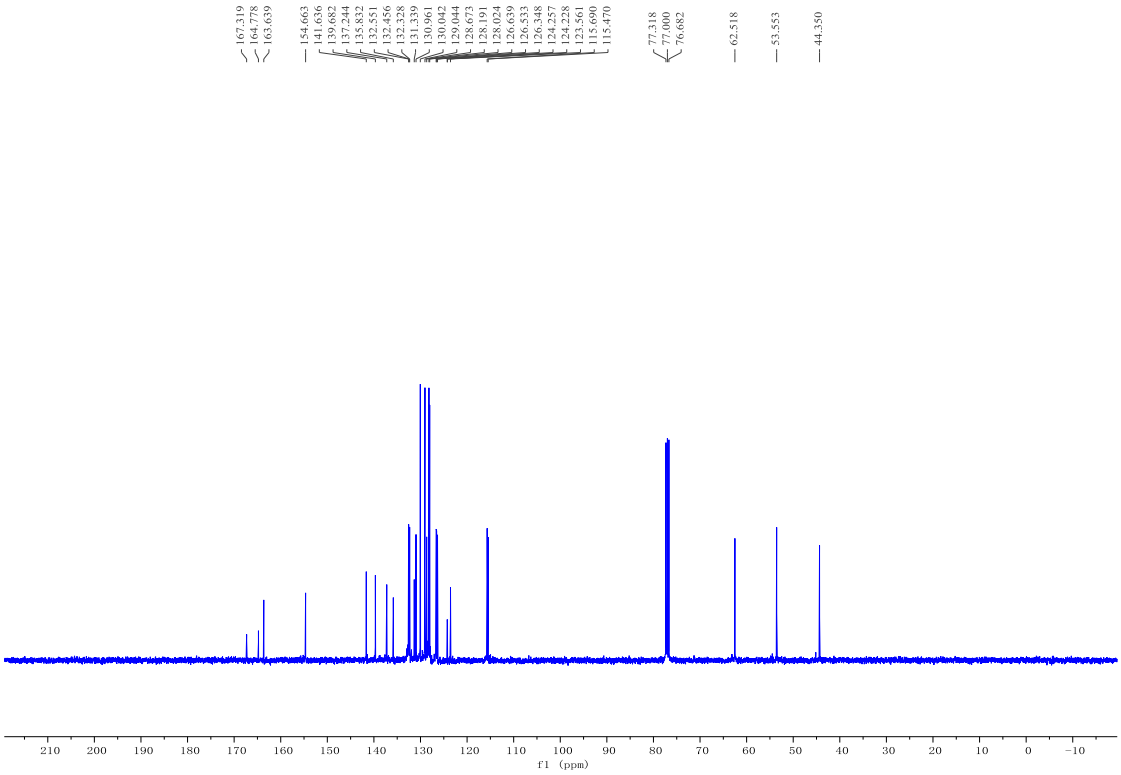


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ia:

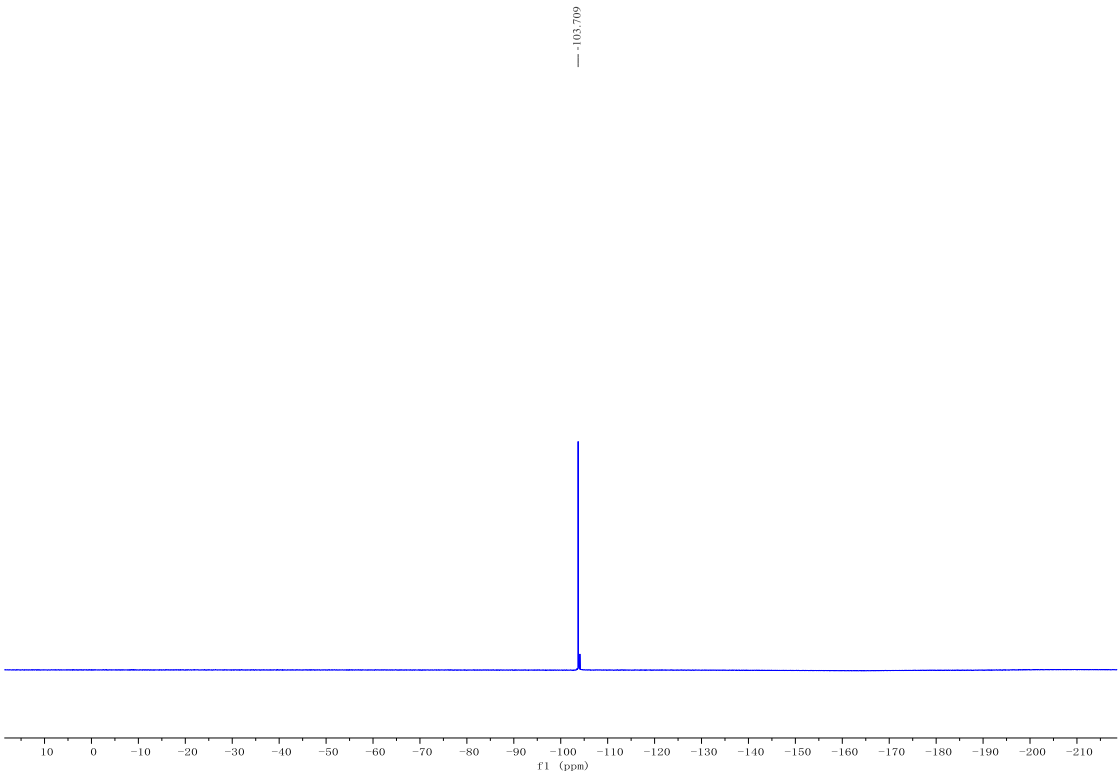
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

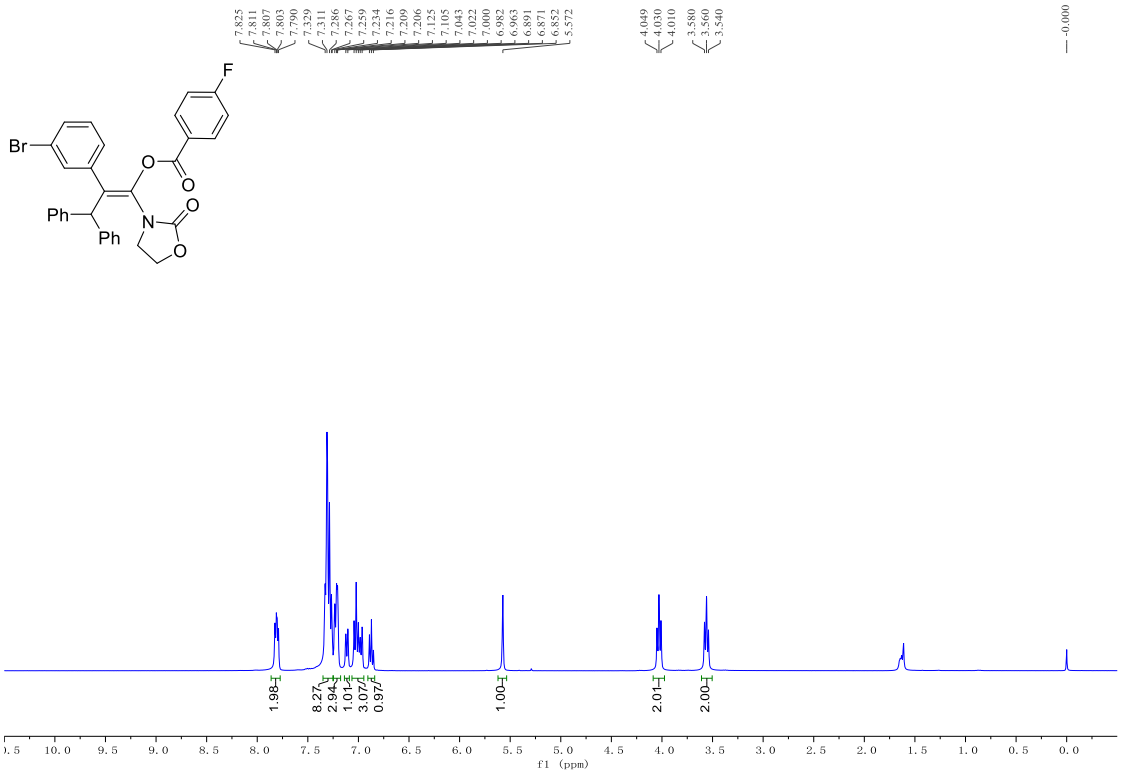


^{19}F NMR (376 MHz, $CDCl_3$)

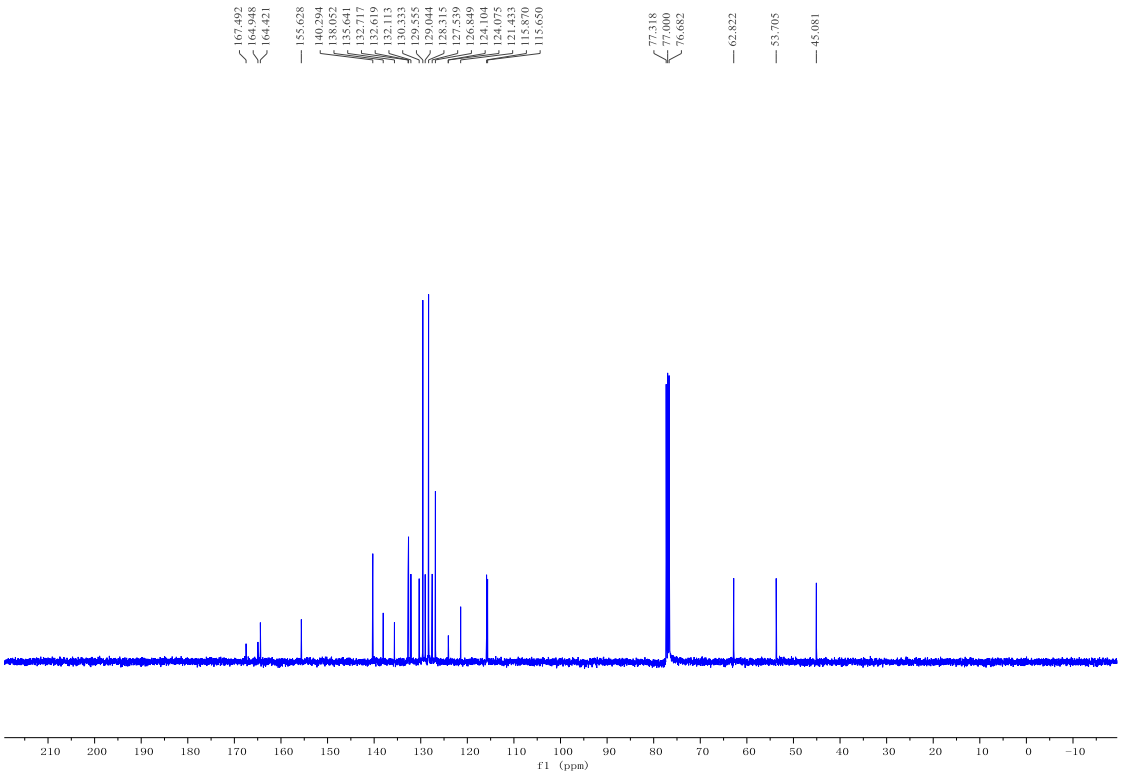


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ja:

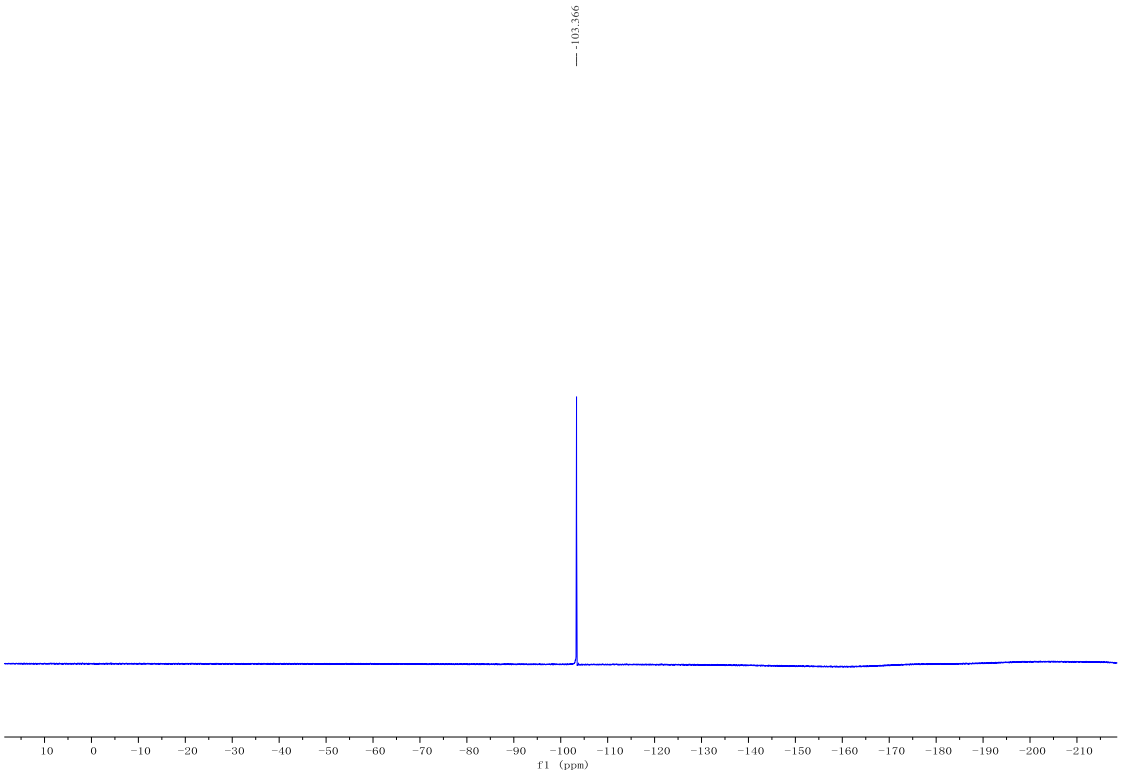
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

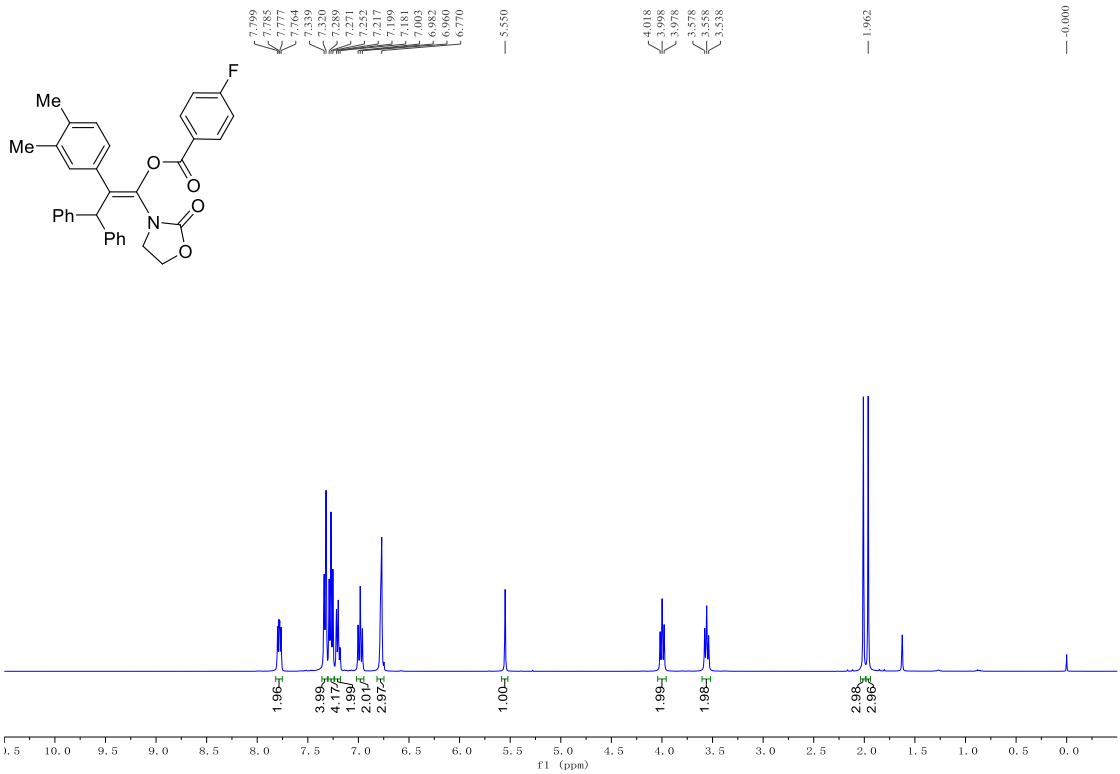


^{19}F NMR (376 MHz, $CDCl_3$)

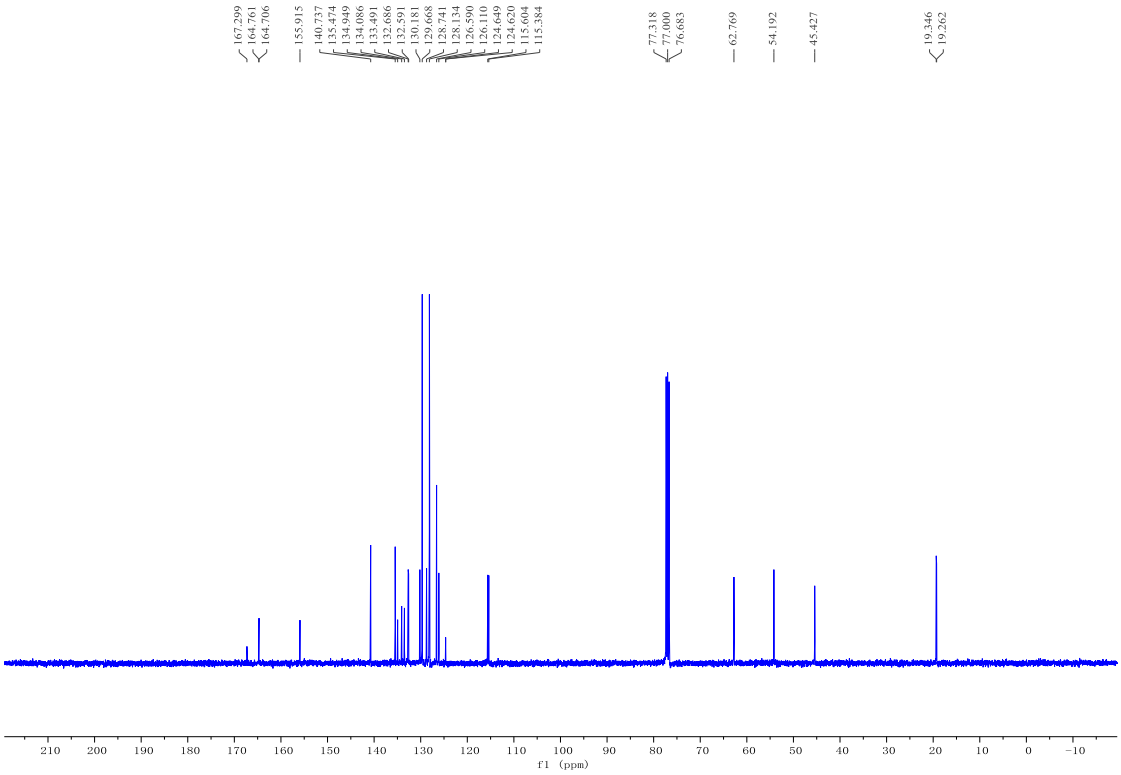


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ka:

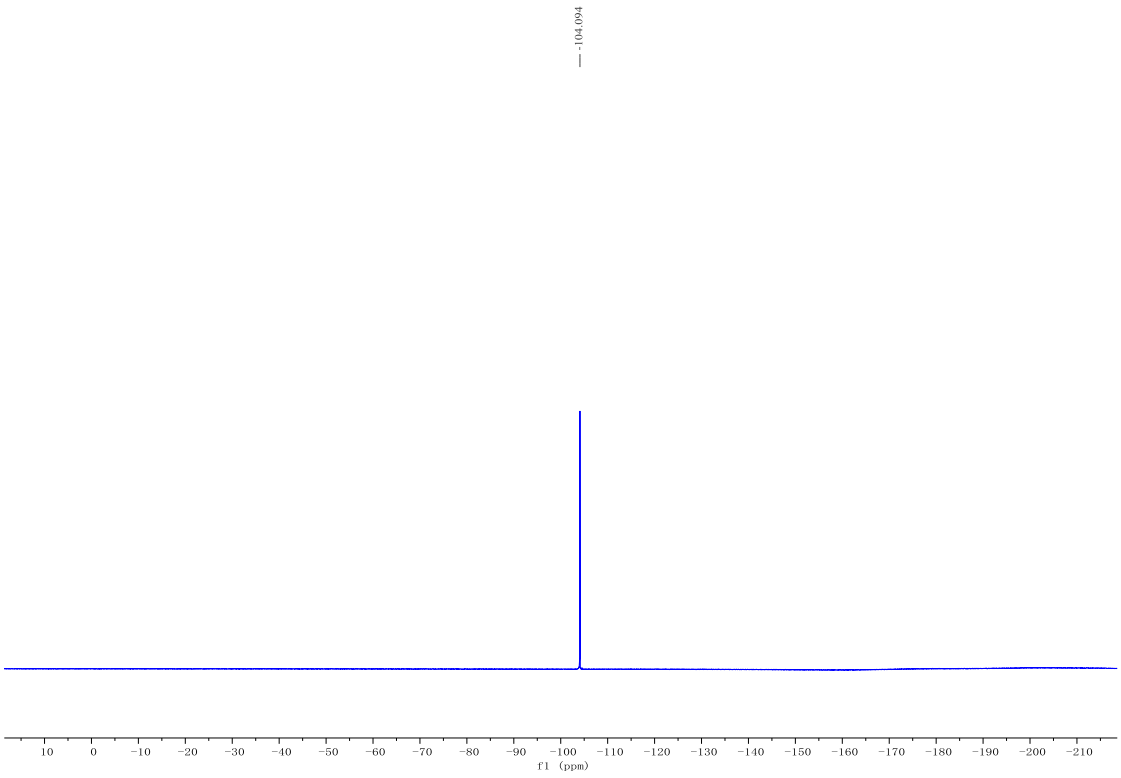
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

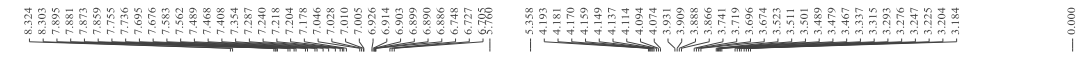


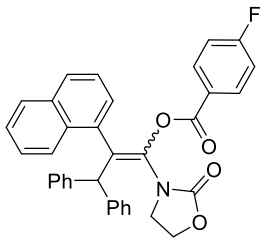
^{19}F NMR (376 MHz, $CDCl_3$)

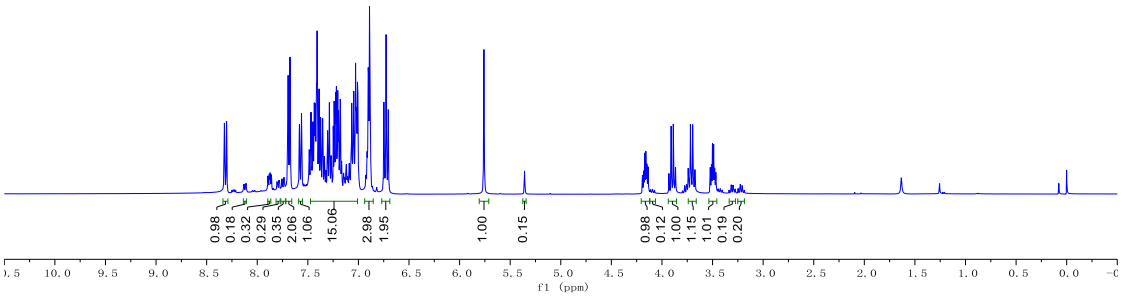


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*/*E*)-3la:

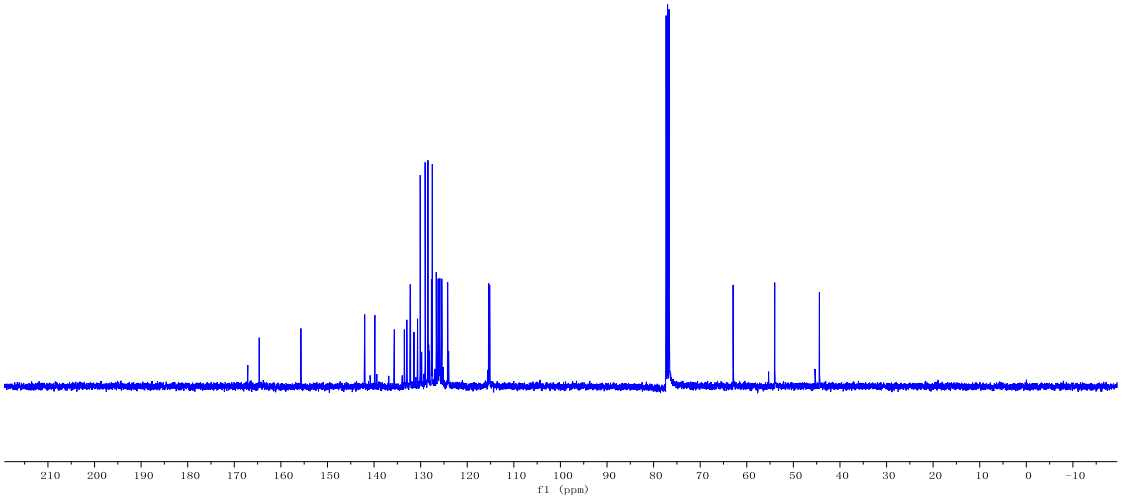
^{1}H NMR (400 MHz, $CDCl_3$)



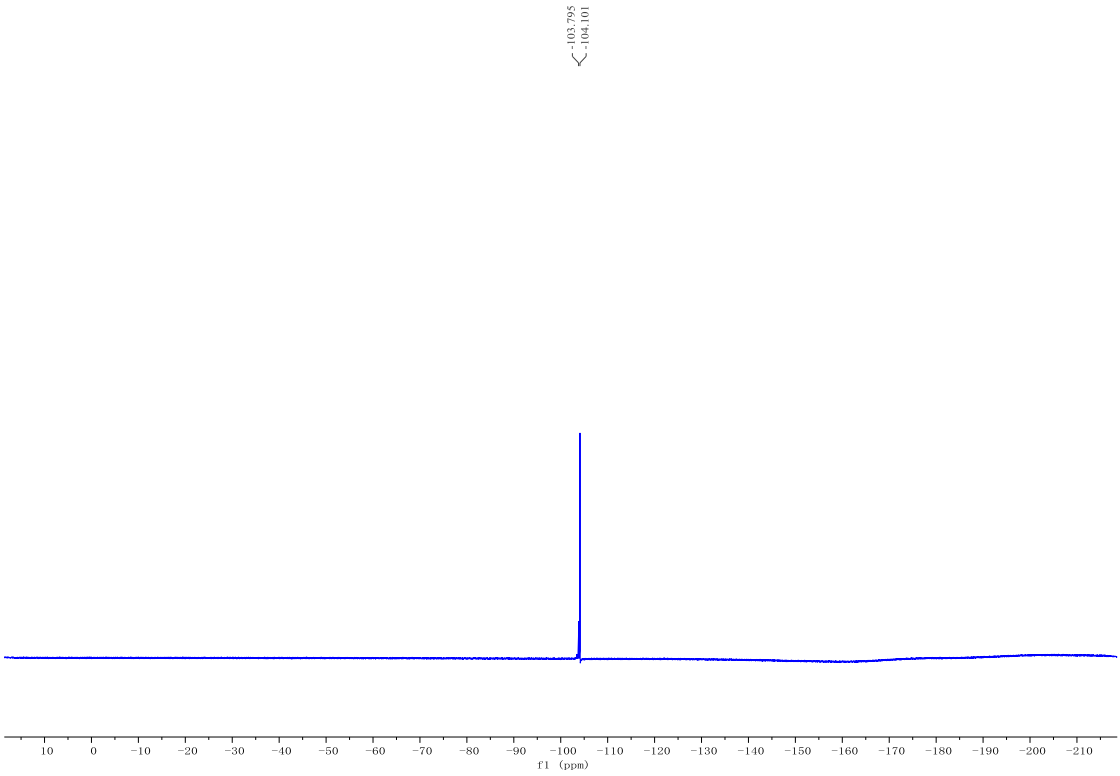




^{13}C NMR (100 MHz, $CDCl_3$)

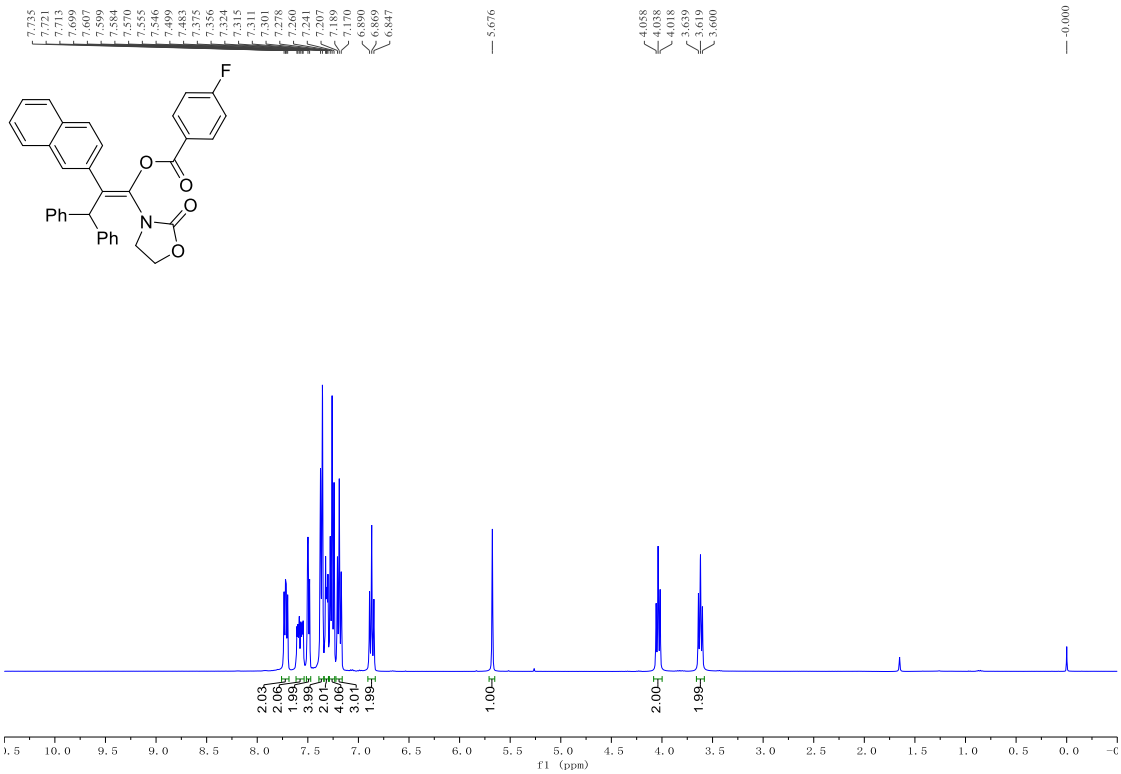


^{19}F NMR (376 MHz, $CDCl_3$)

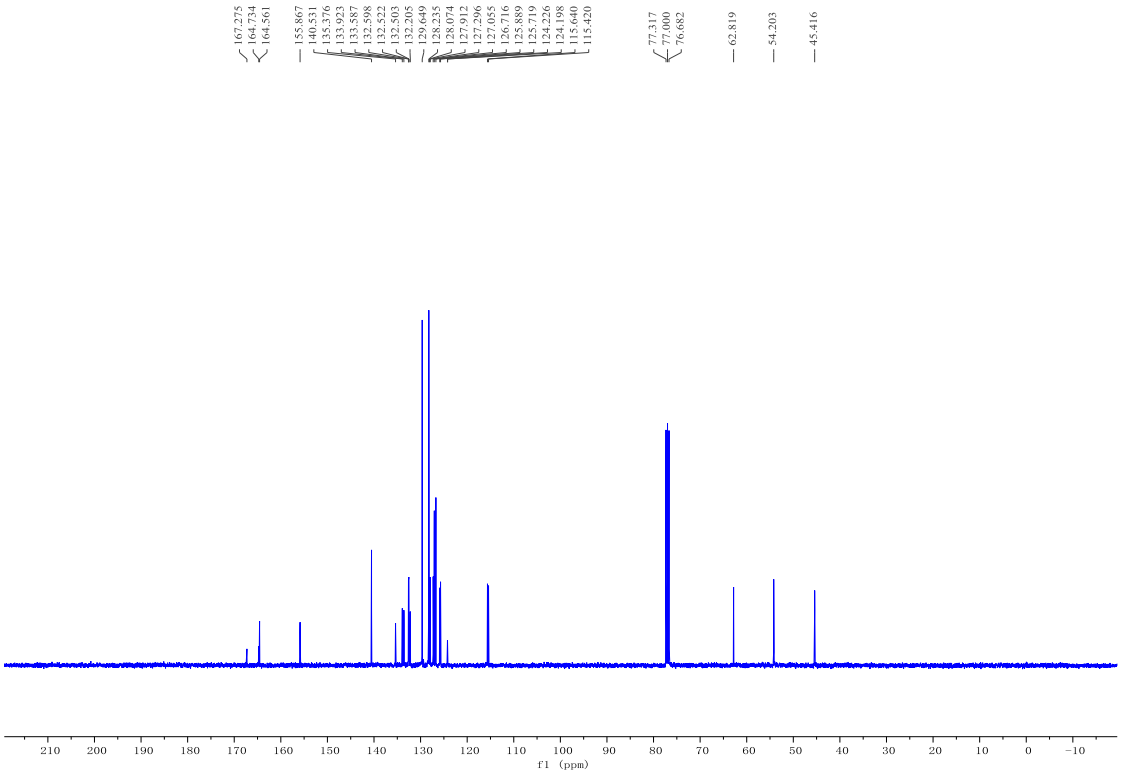


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ma:

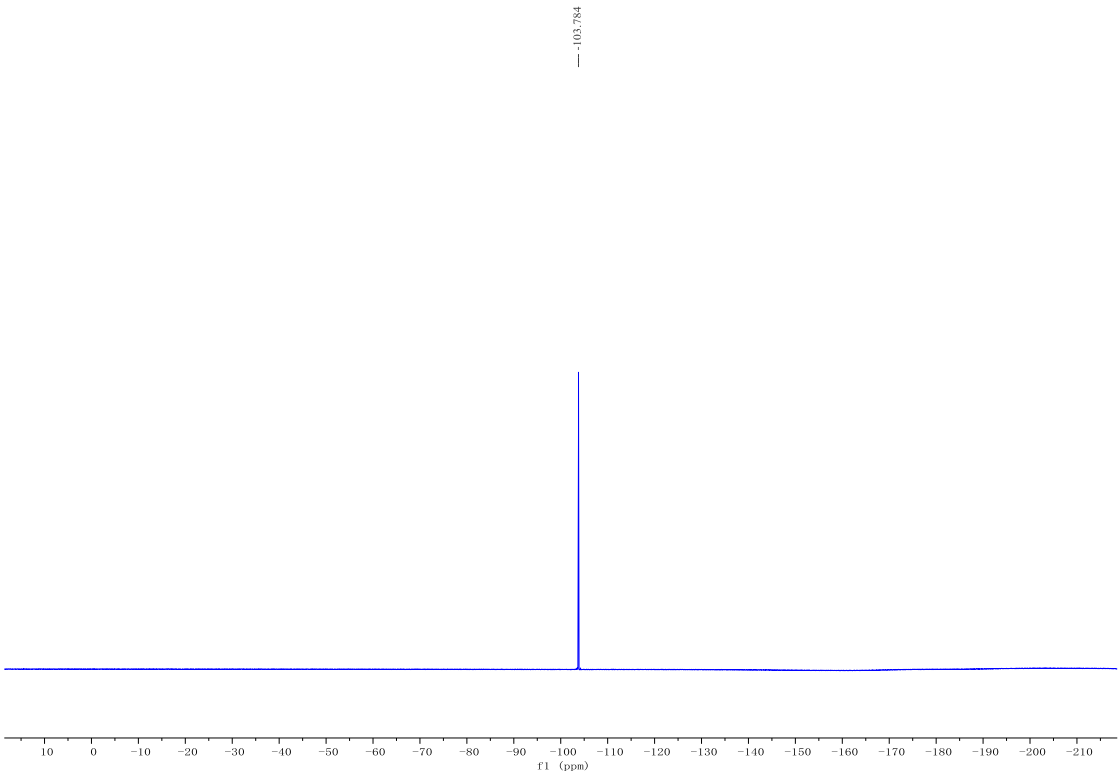
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

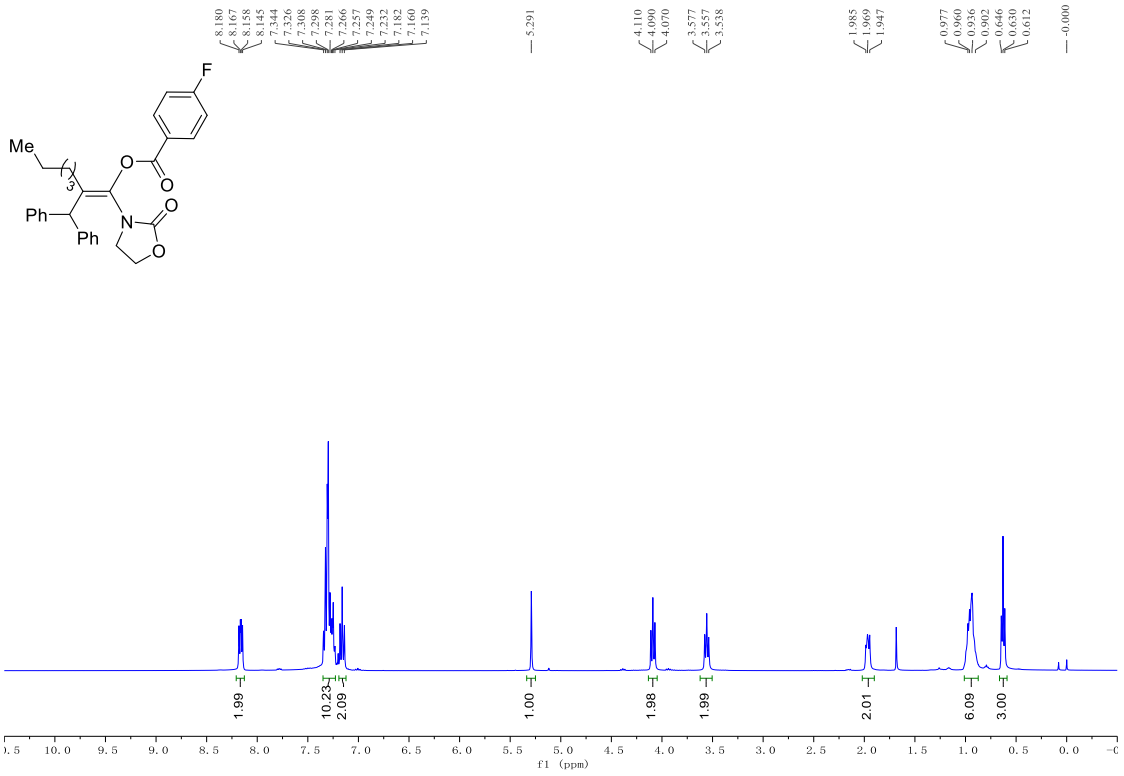


^{19}F NMR (376 MHz, $CDCl_3$)

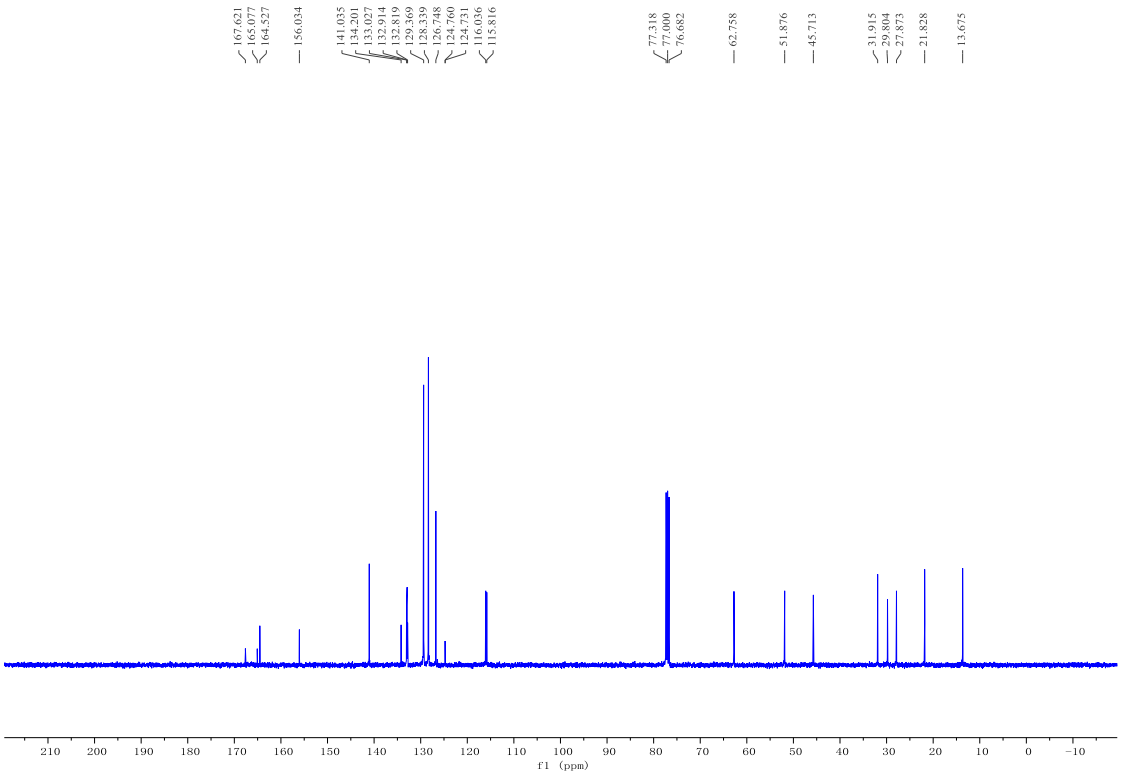


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*E*)-3na:

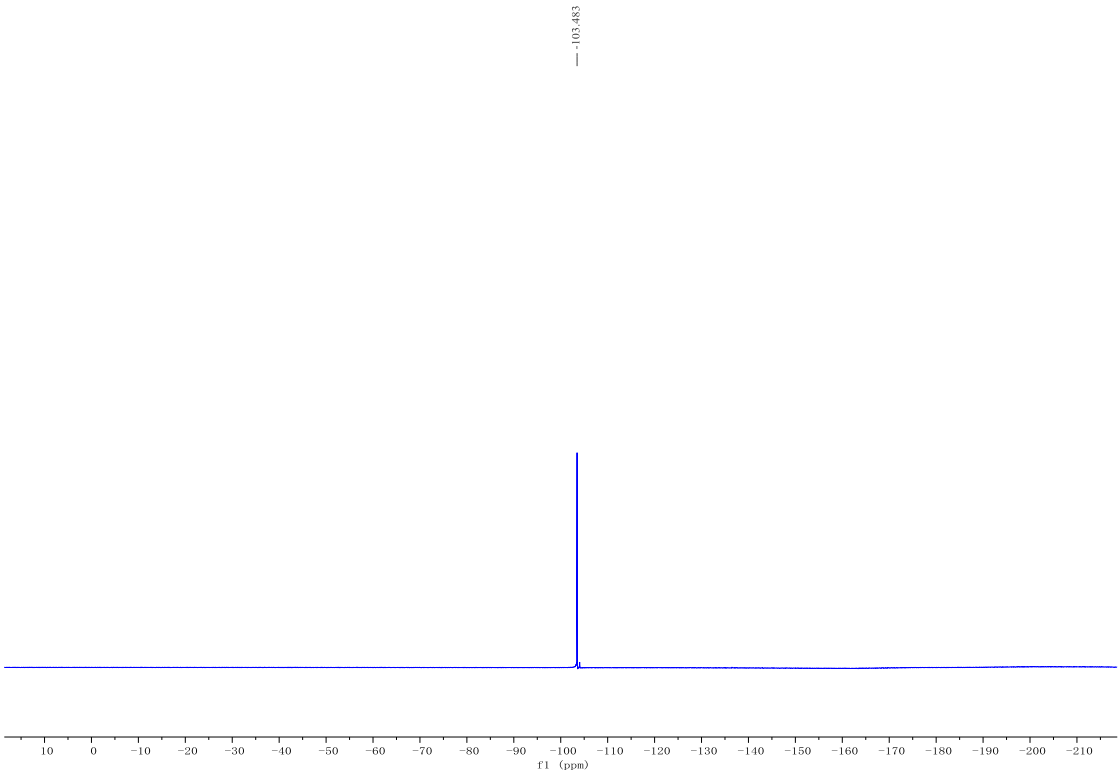
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

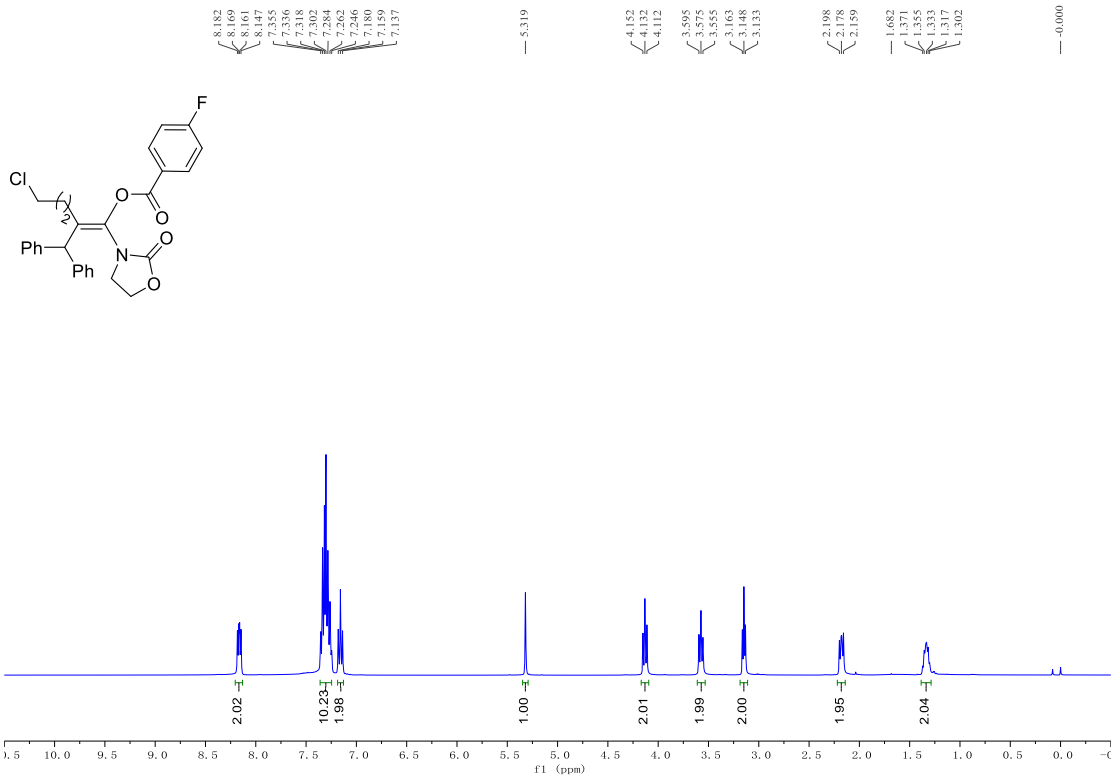


^{19}F NMR (376 MHz, $CDCl_3$)

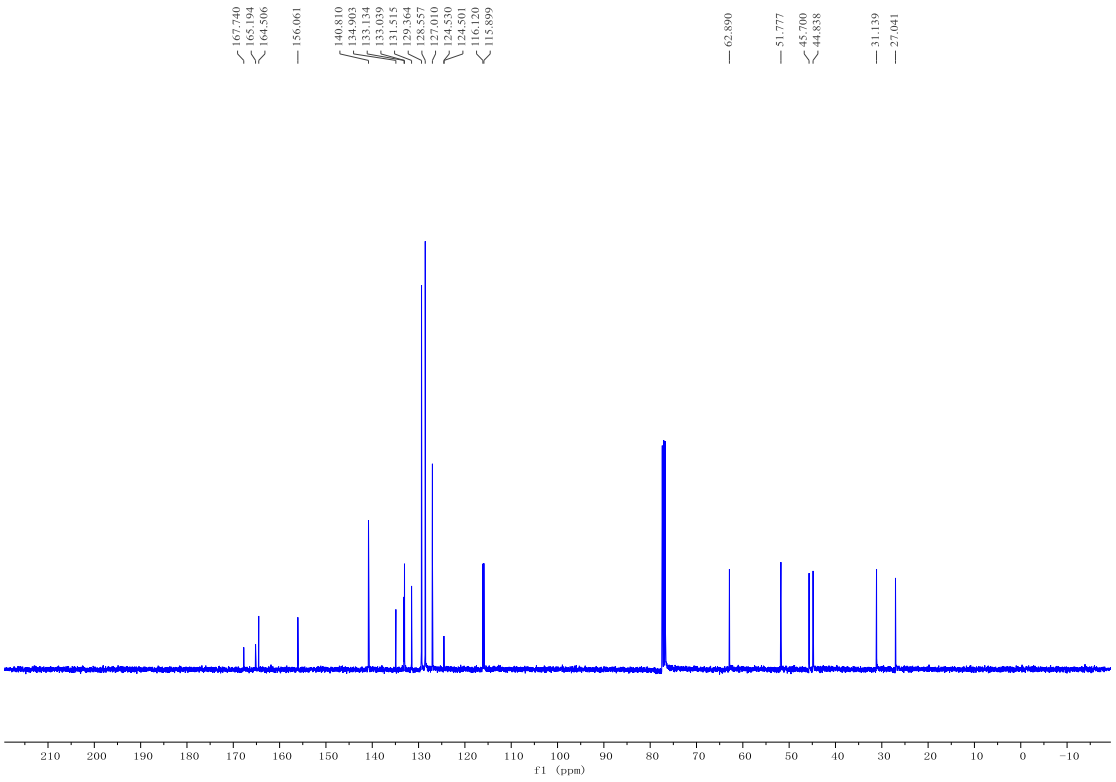


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*E*)-3oa:

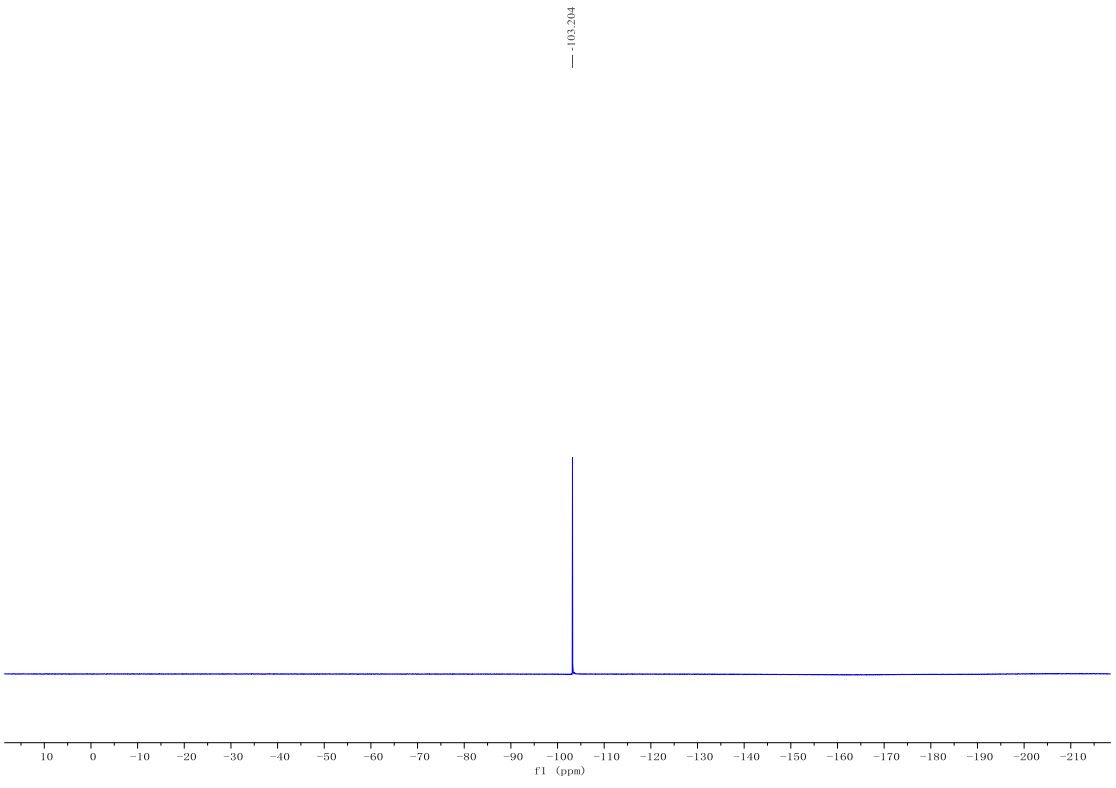
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

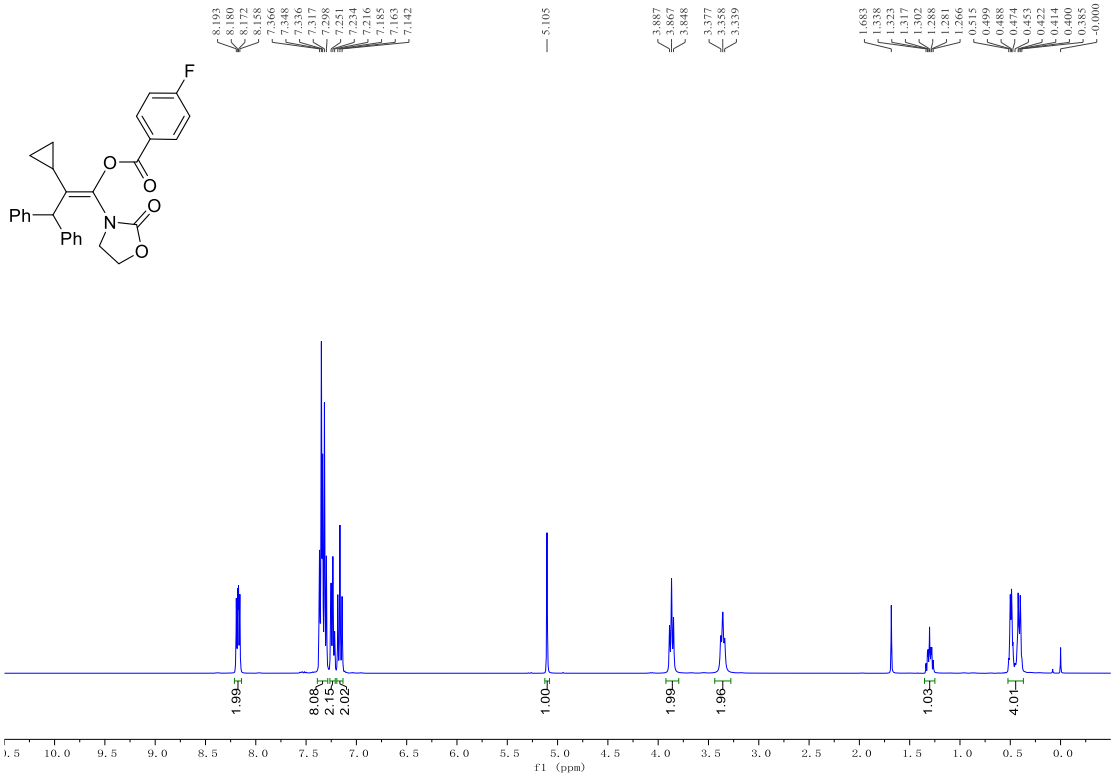


^{19}F NMR (376 MHz, $CDCl_3$)

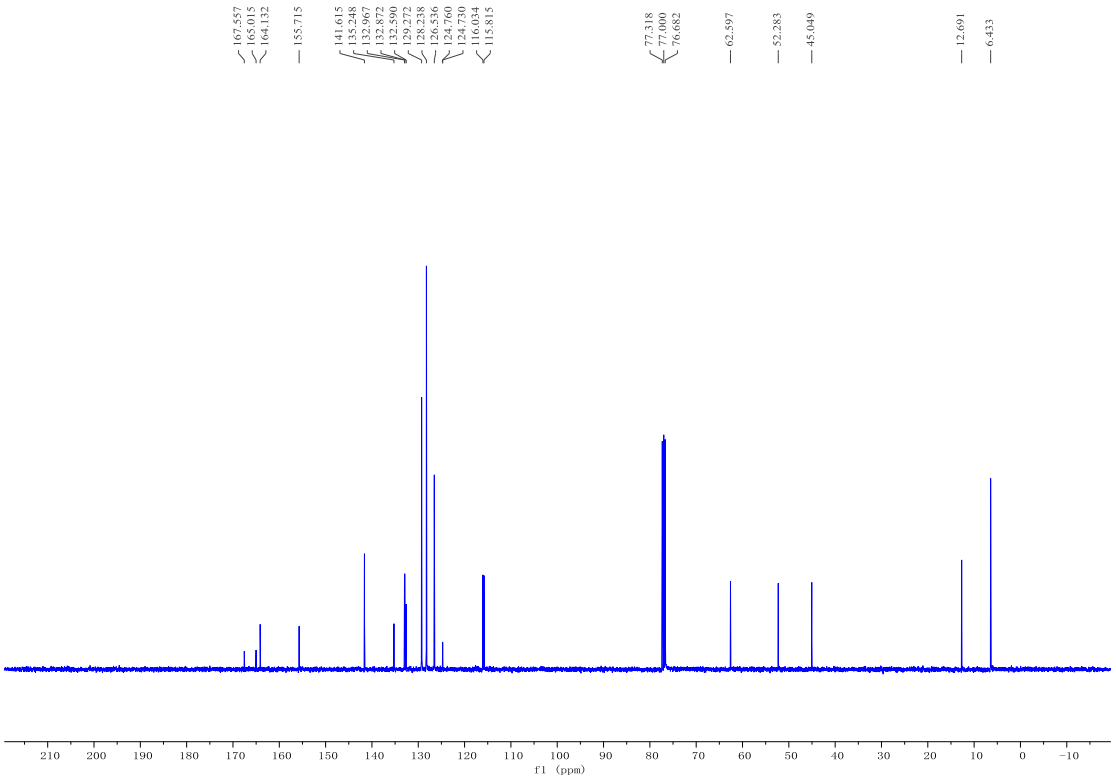


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*E*)-3pa:

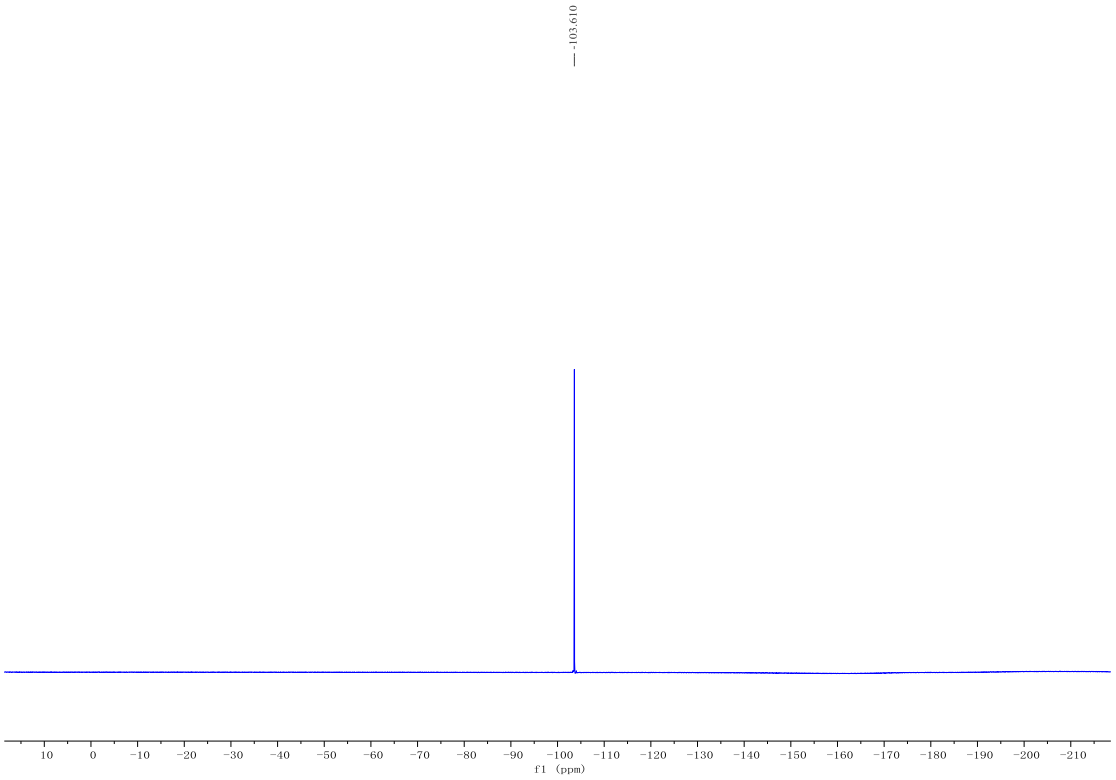
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

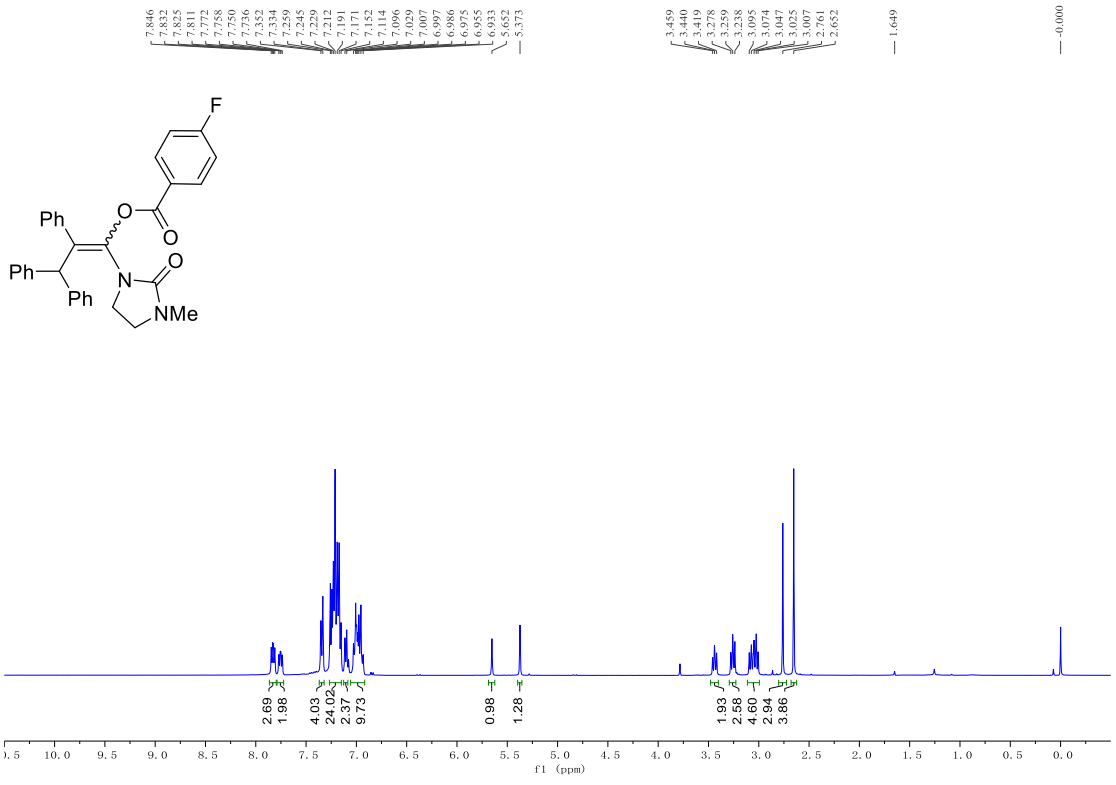


^{19}F NMR (376 MHz, $CDCl_3$)

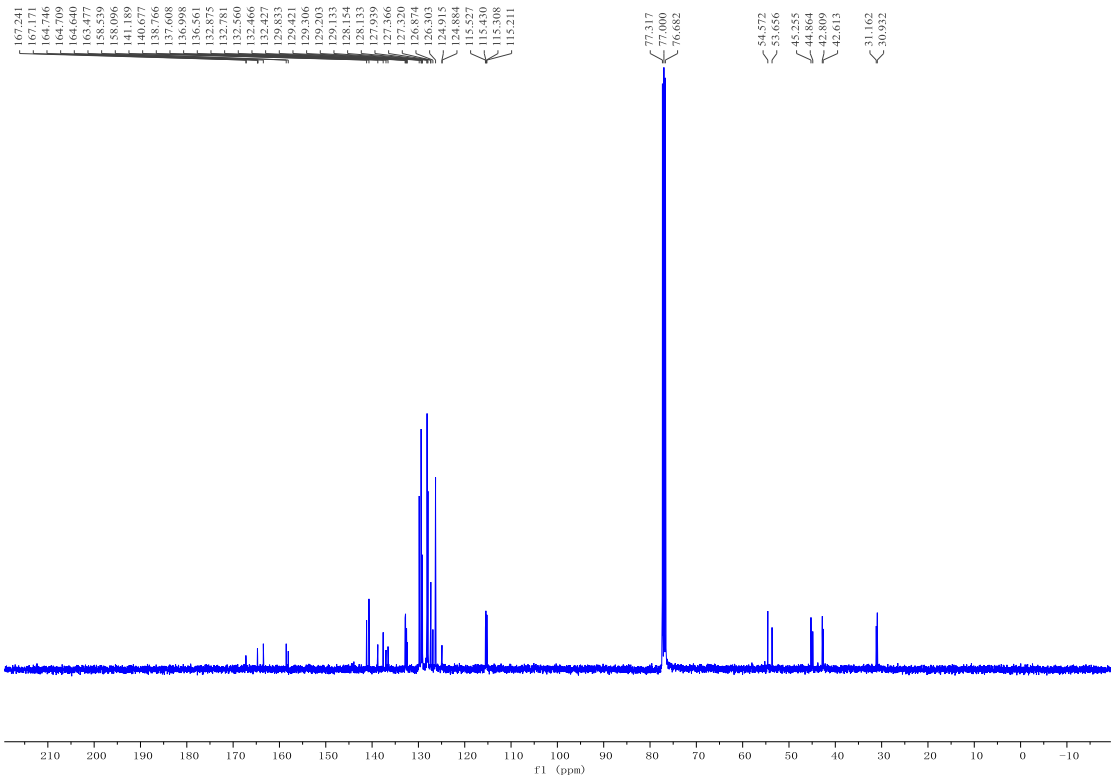


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*/*E*)-3qa:

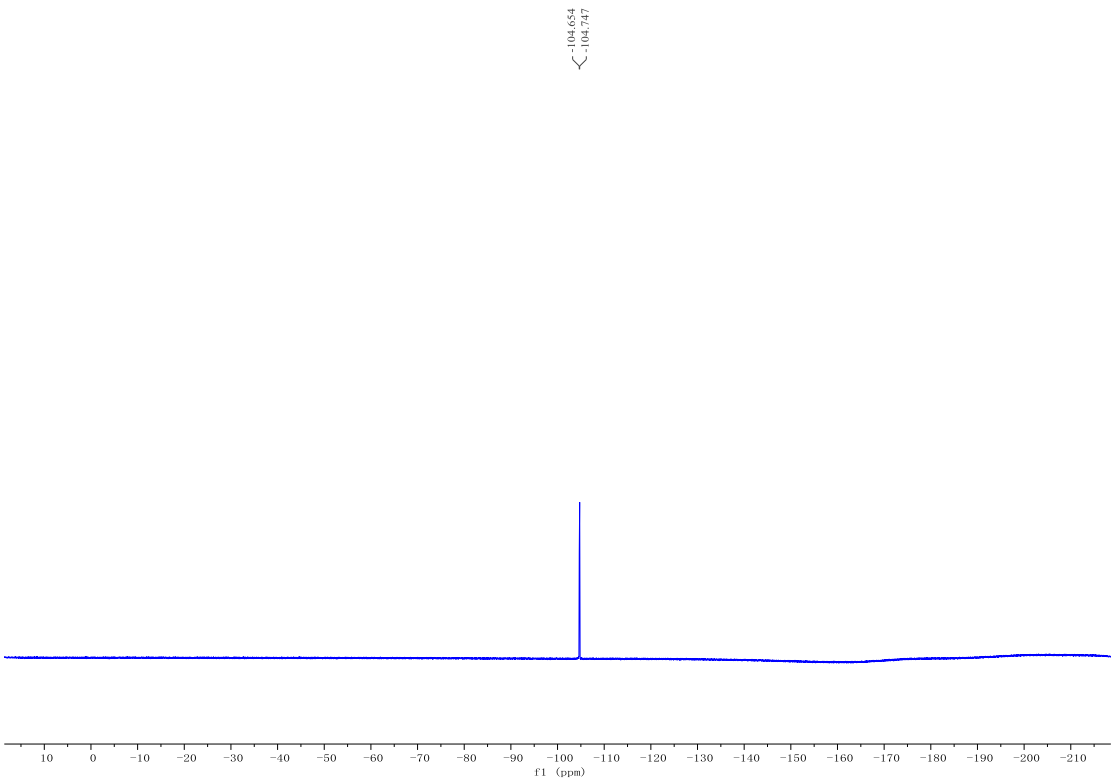
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

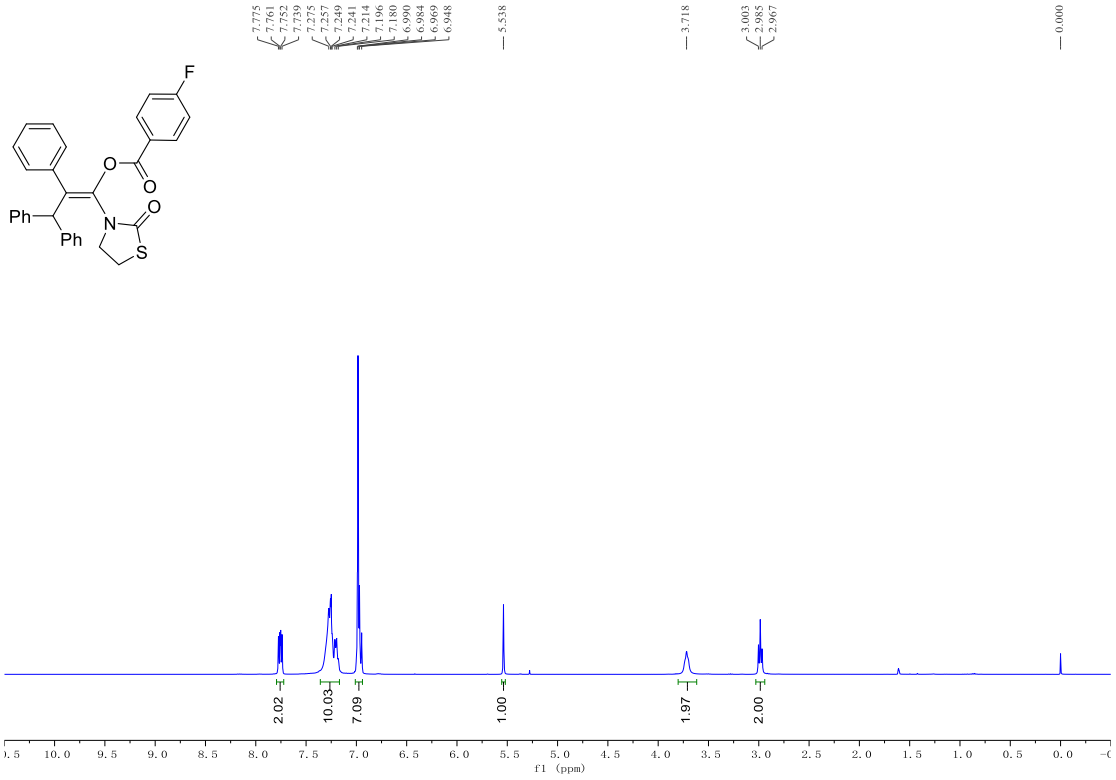


^{19}F NMR (376 MHz, $CDCl_3$)

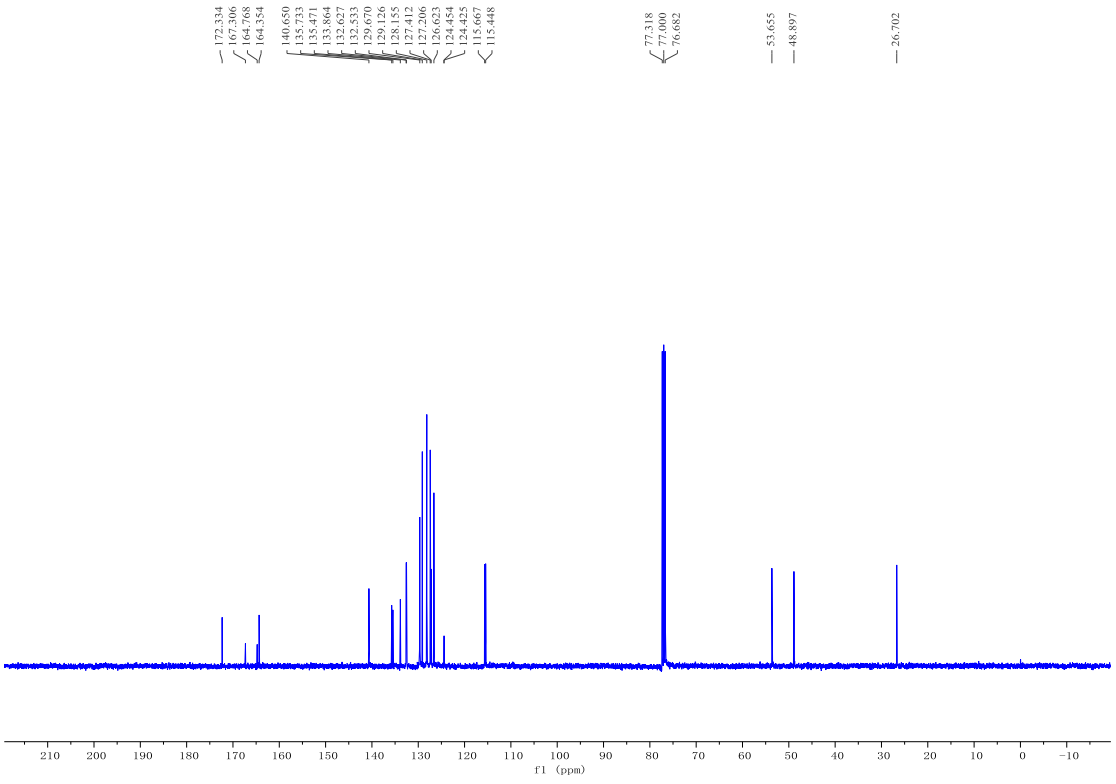


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (*Z*)-3ra:

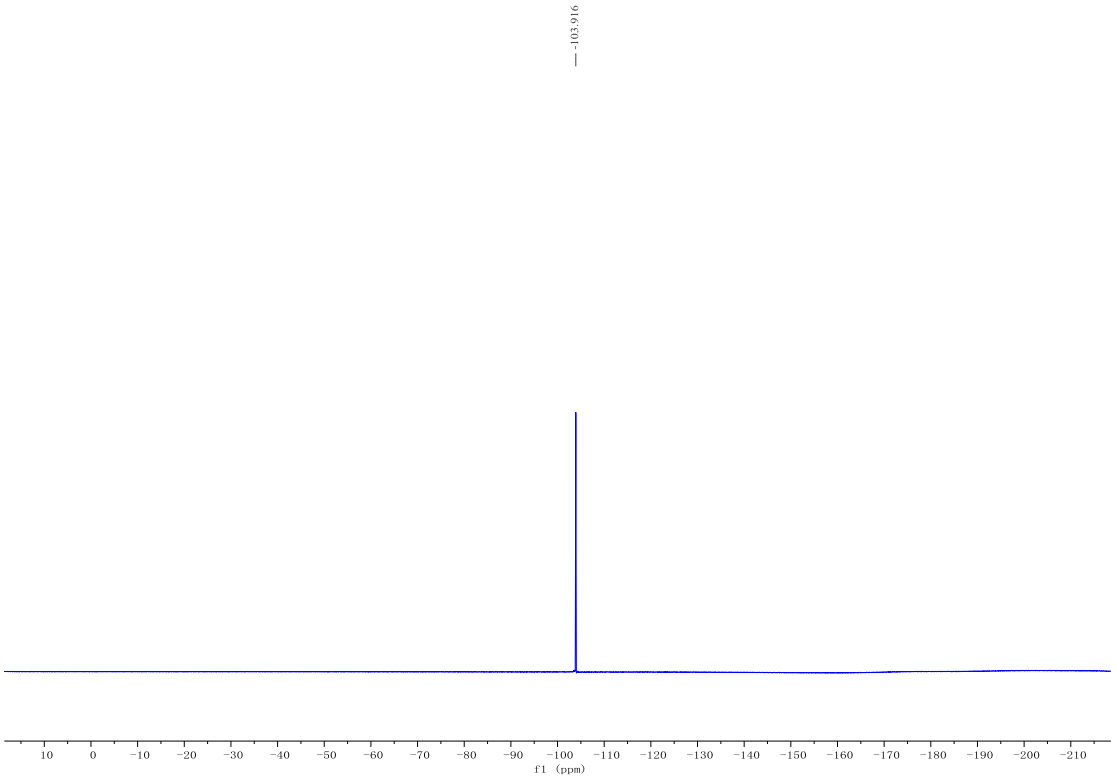
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

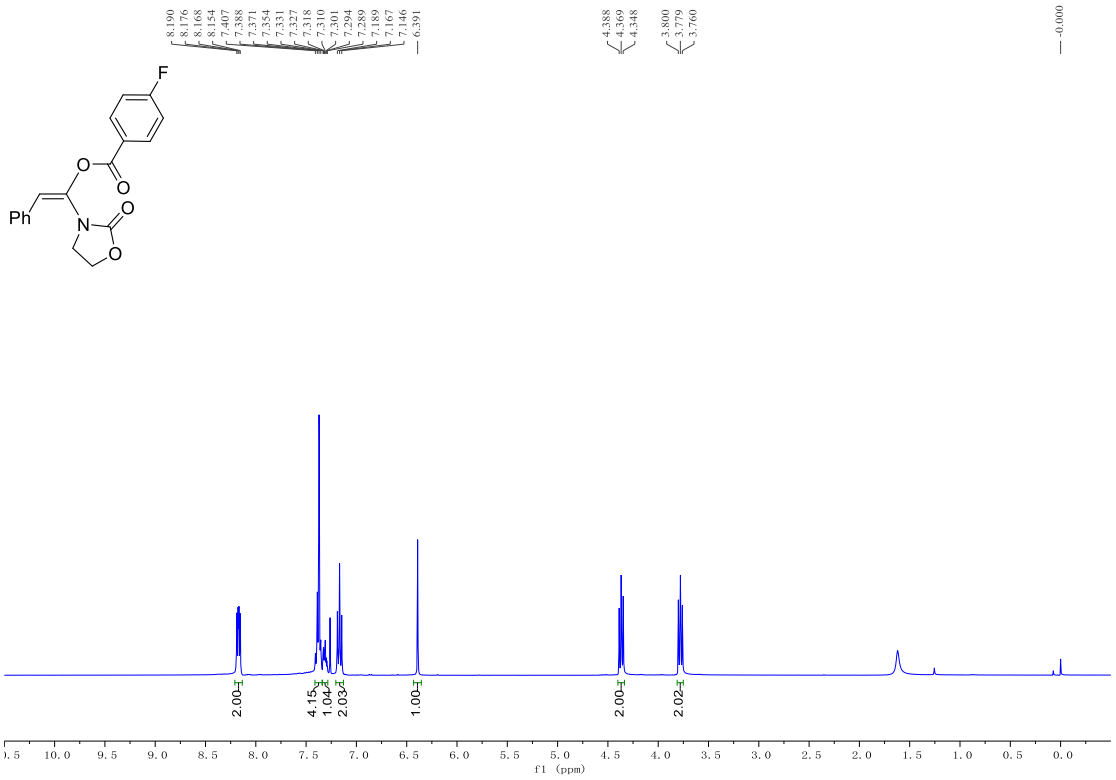


^{19}F NMR (376 MHz, $CDCl_3$)

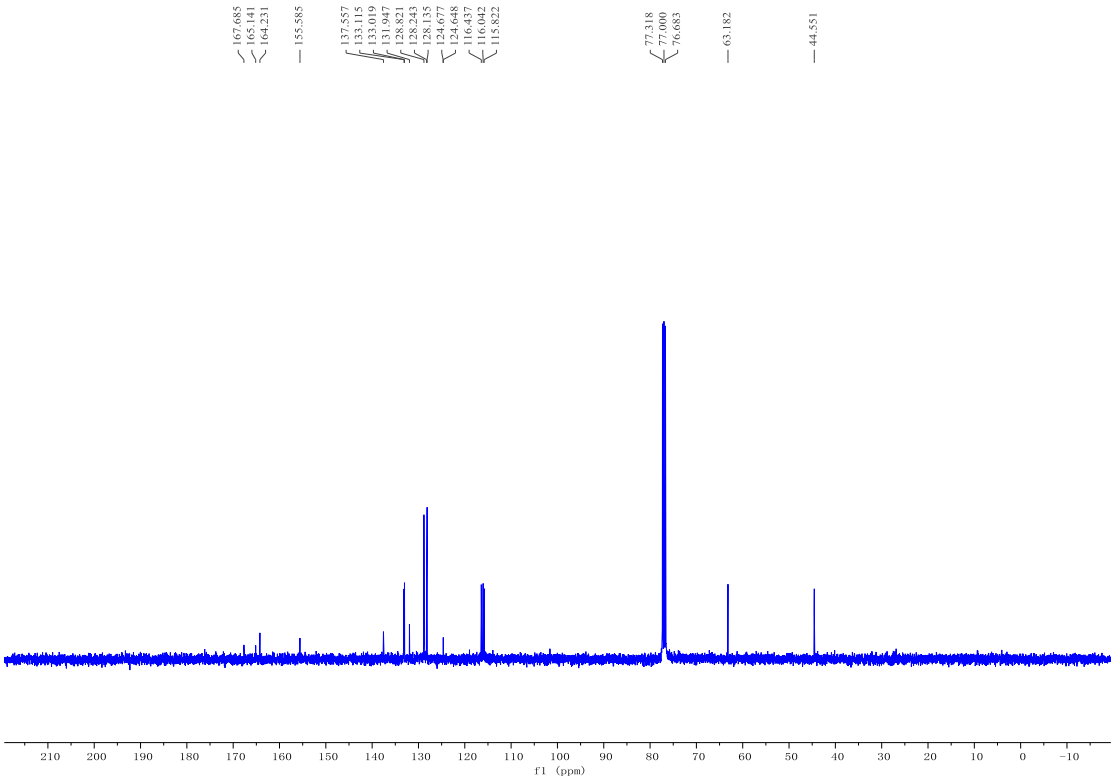


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound 4aa:

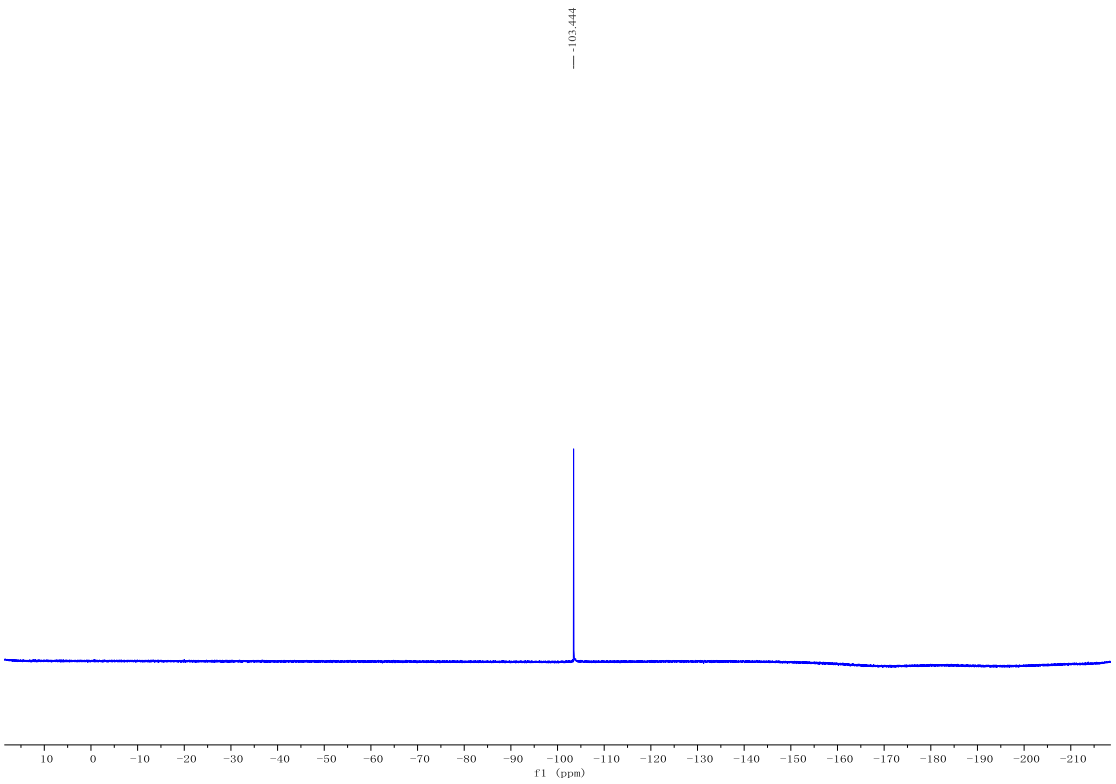
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

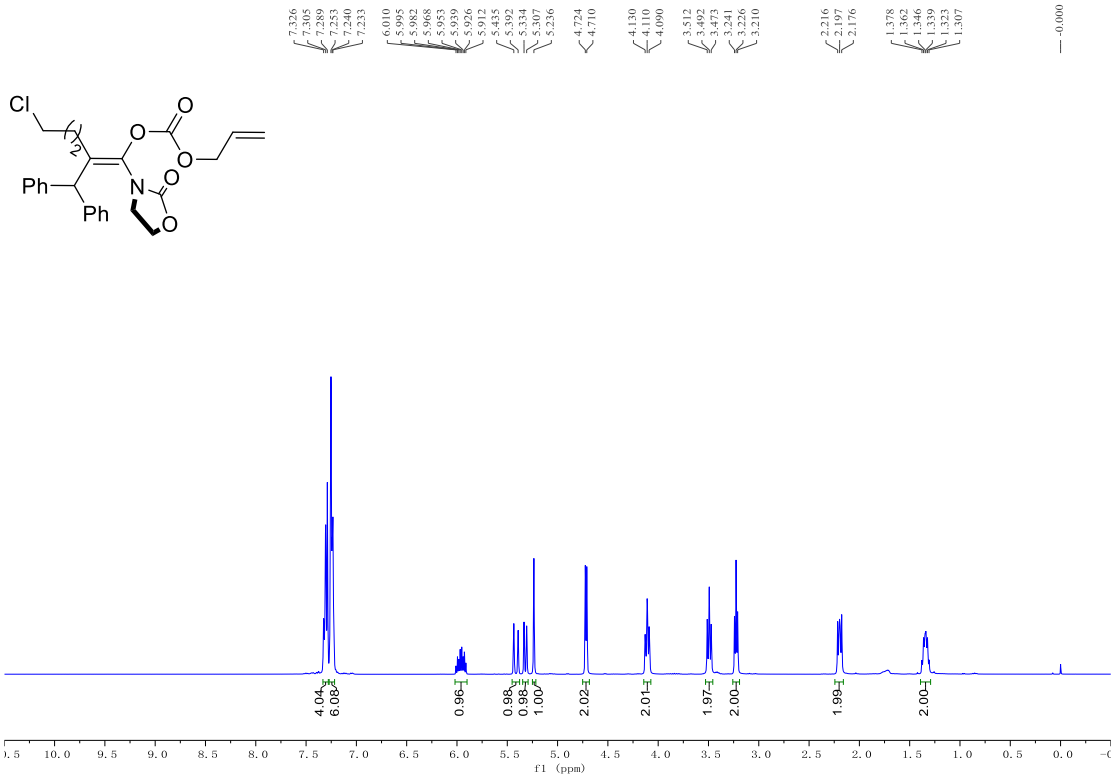


^{19}F NMR (376 MHz, $CDCl_3$)

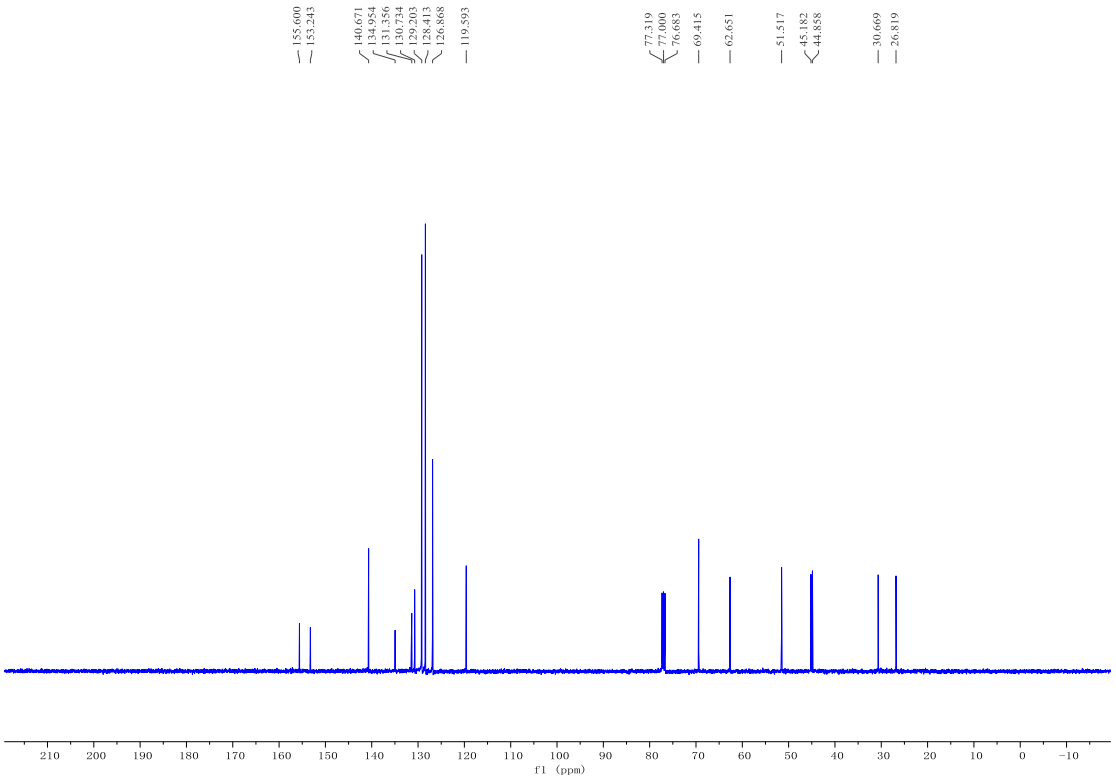


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oa:

^{1}H NMR (400 MHz, $CDCl_3$)

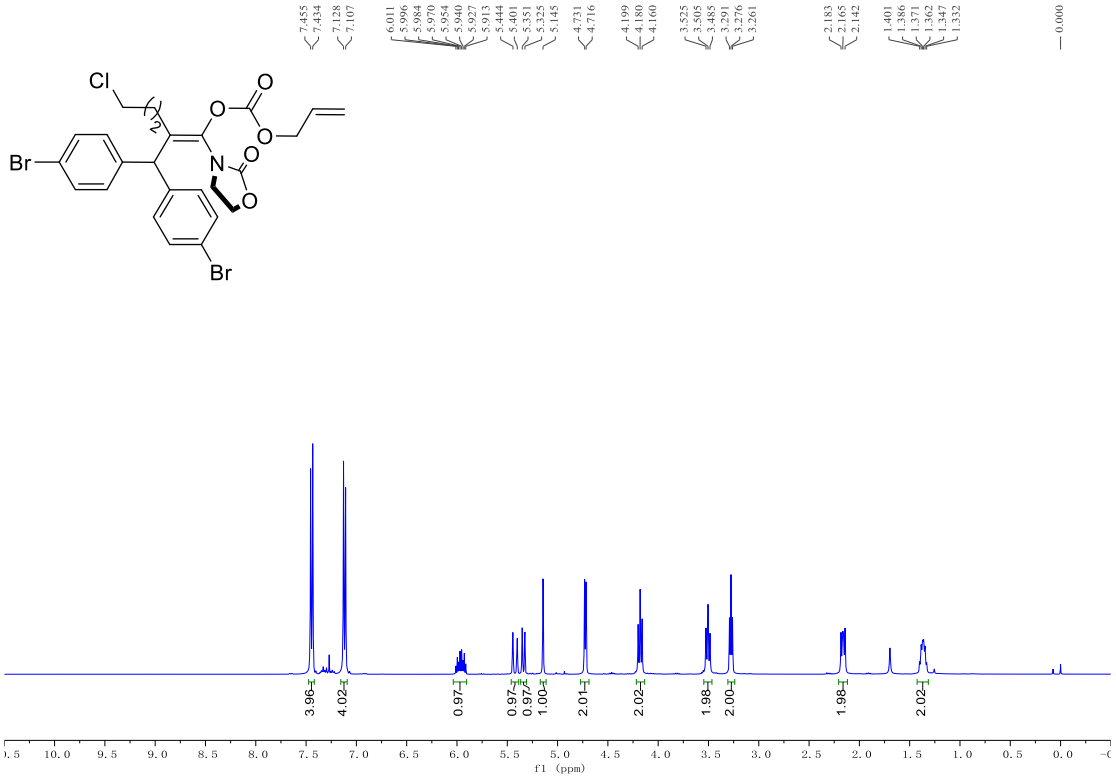


^{13}C NMR (100 MHz, $CDCl_3$)

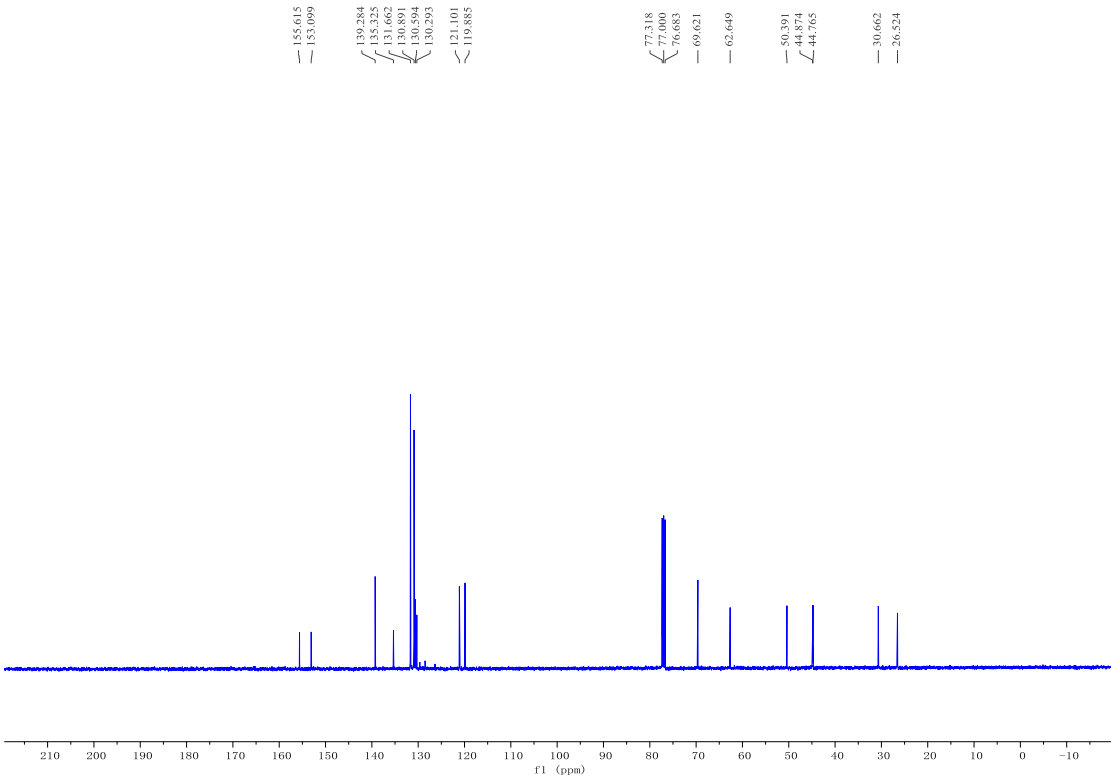


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6ob:

^{1}H NMR (400 MHz, $CDCl_3$)

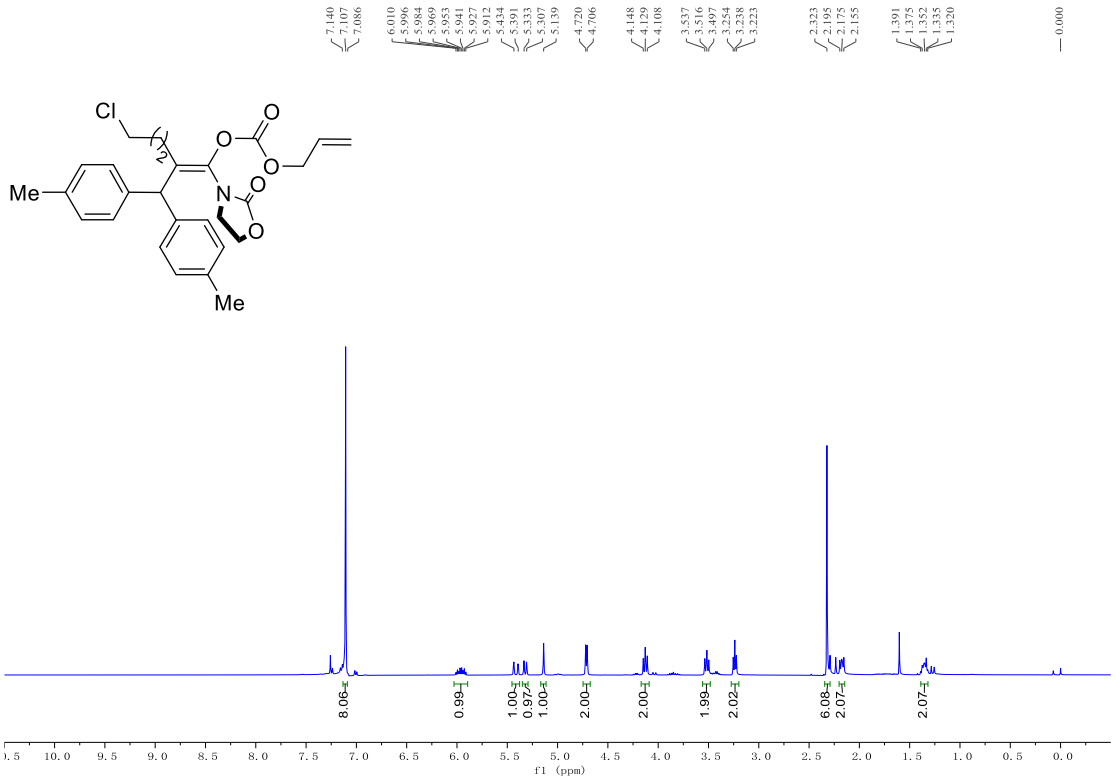


^{13}C NMR (100 MHz, $CDCl_3$)

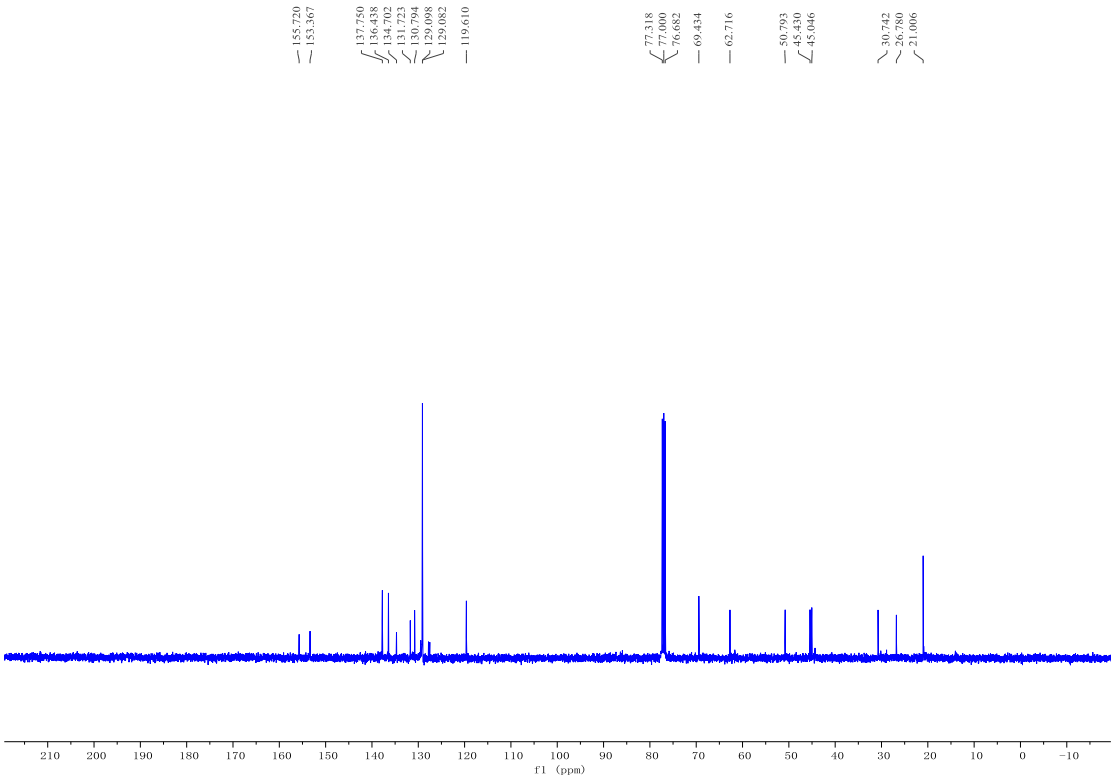


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oc:

^{1}H NMR (400 MHz, $CDCl_3$)

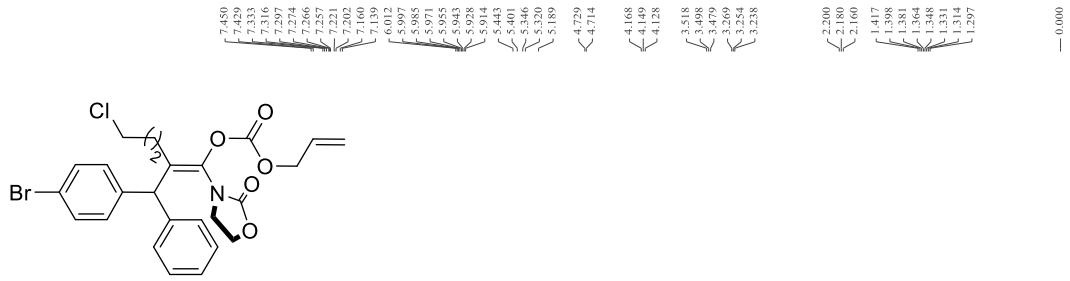


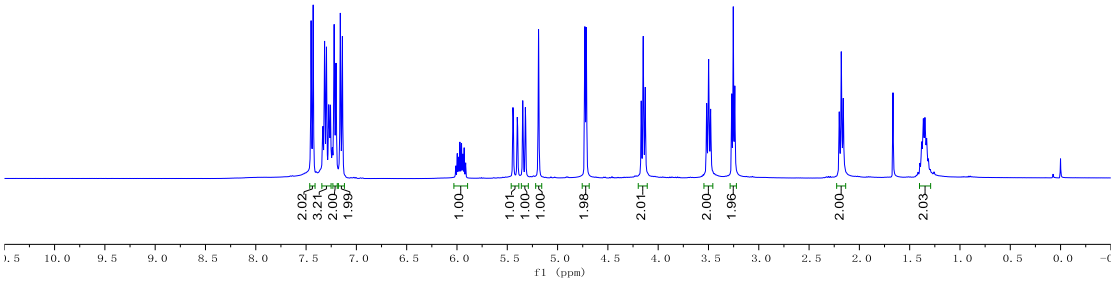
^{13}C NMR (100 MHz, $CDCl_3$)



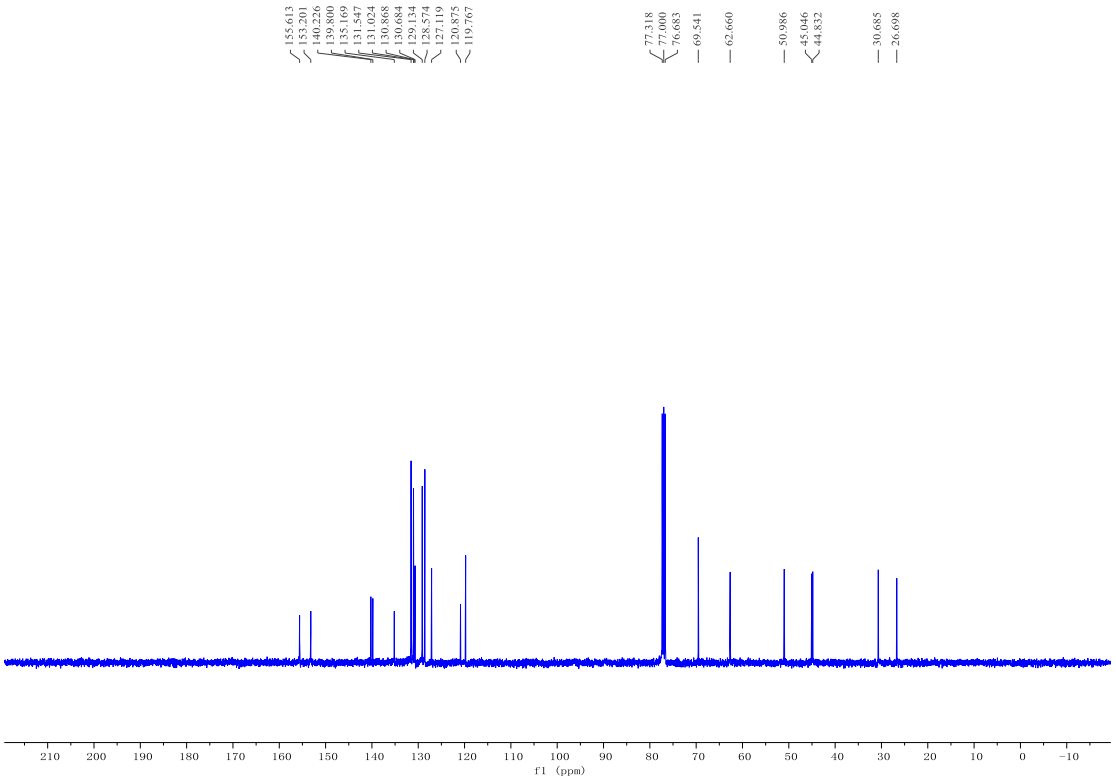
^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6od:

^{1}H NMR (400 MHz, $CDCl_3$)



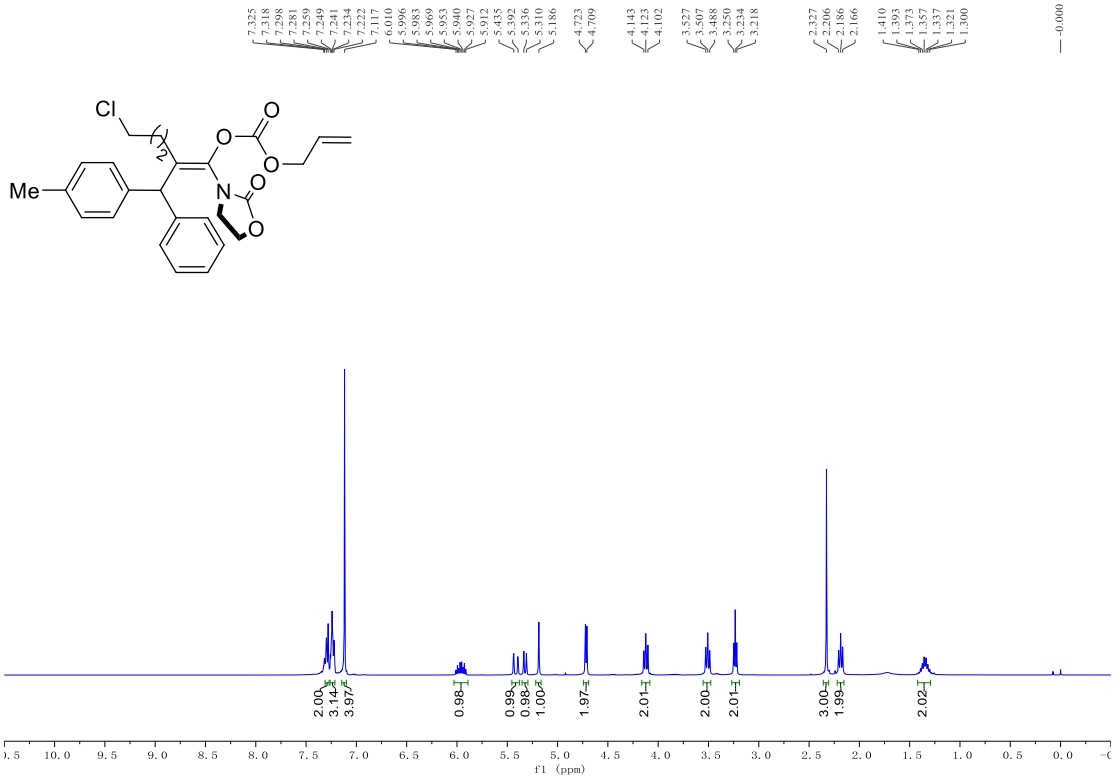


^{13}C NMR (100 MHz, $CDCl_3$)

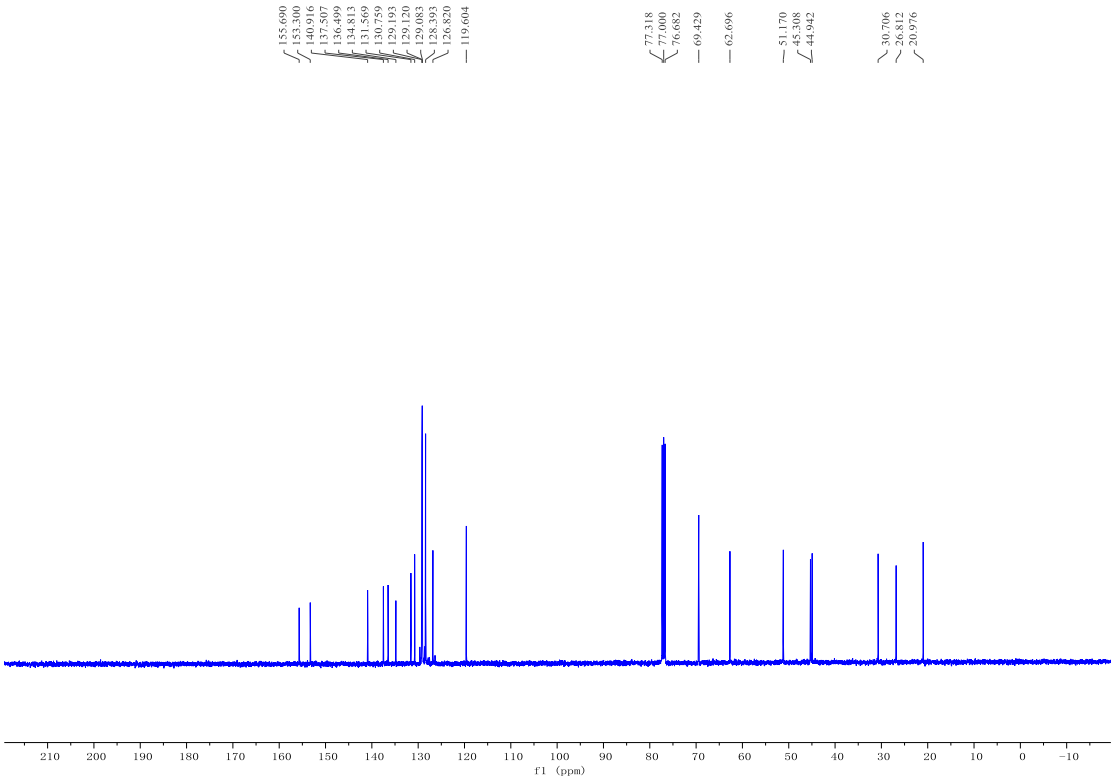


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oe:

^{1}H NMR (400 MHz, $CDCl_3$)

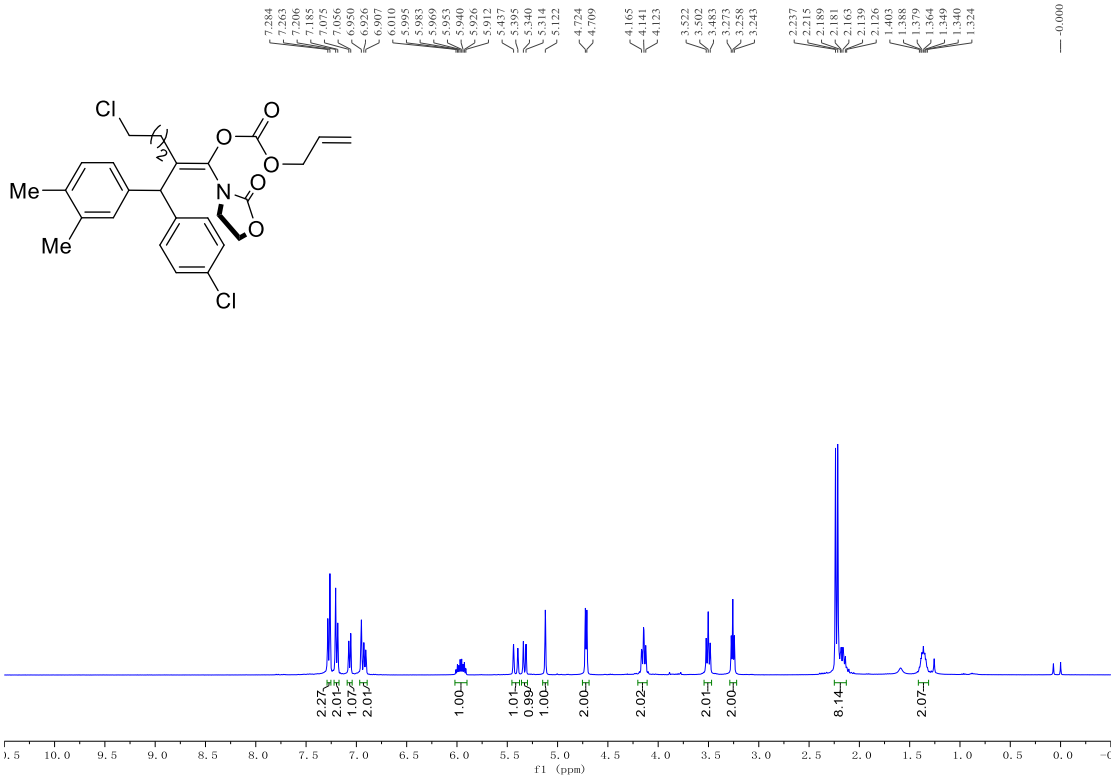


^{13}C NMR (100 MHz, $CDCl_3$)

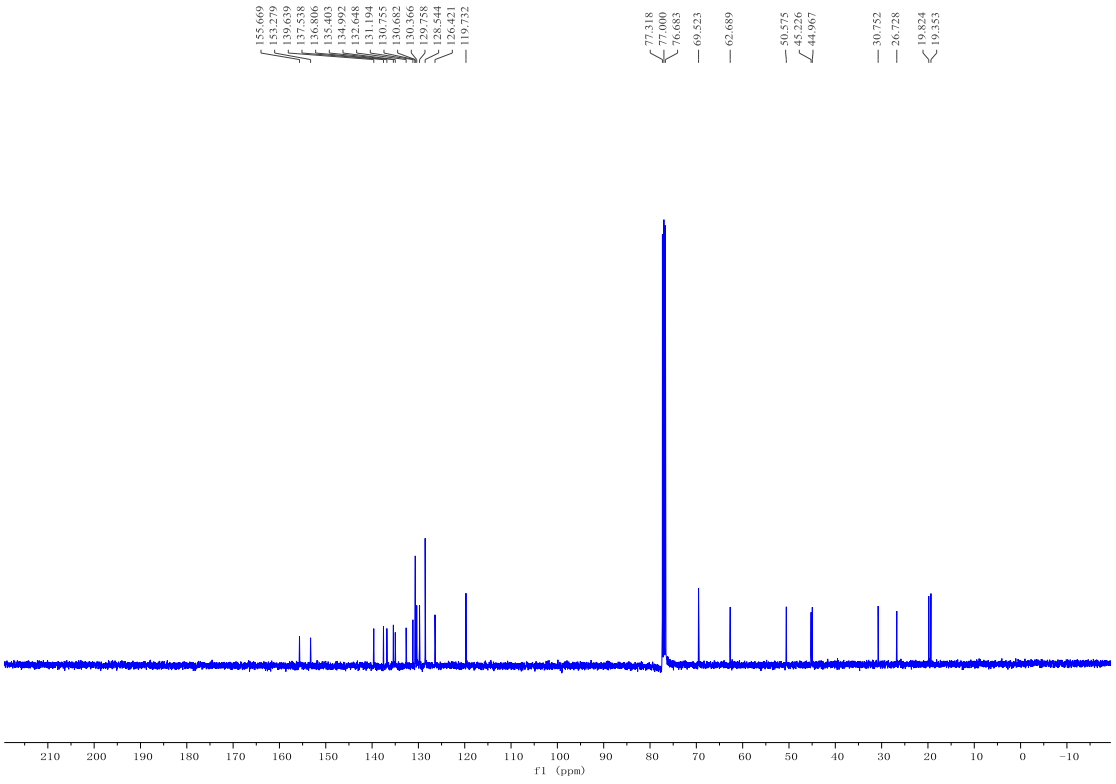


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6of:

^{1}H NMR (400 MHz, $CDCl_3$)

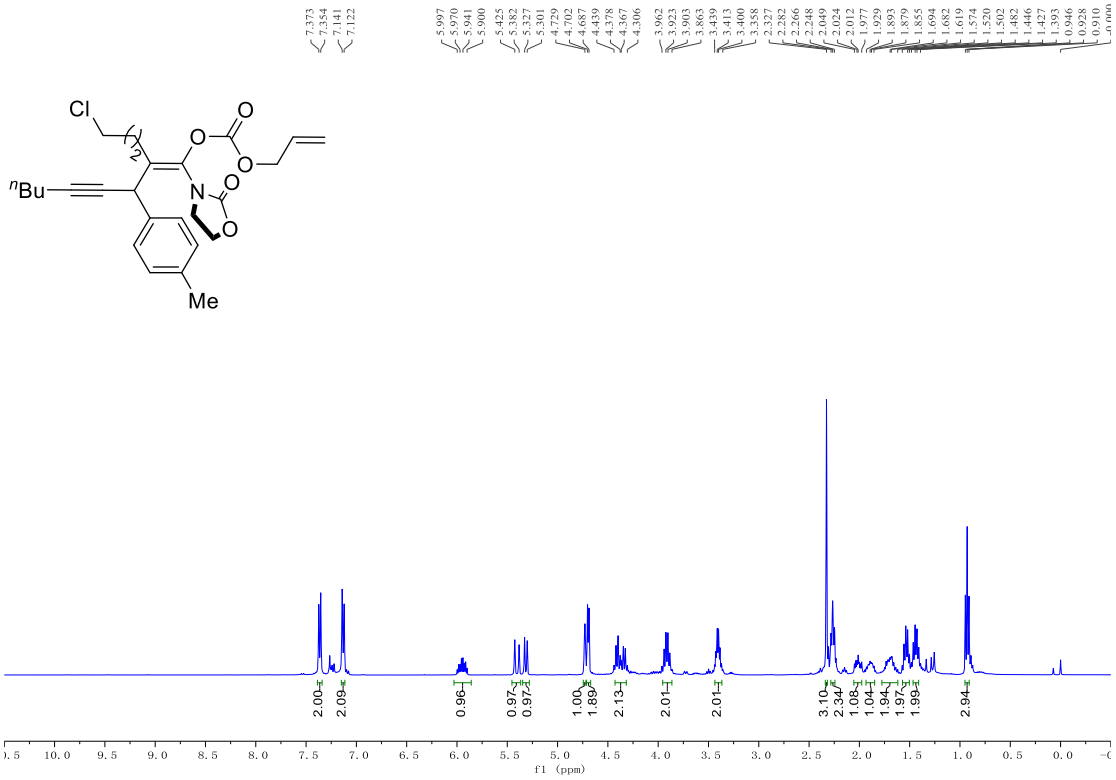


^{13}C NMR (100 MHz, $CDCl_3$)

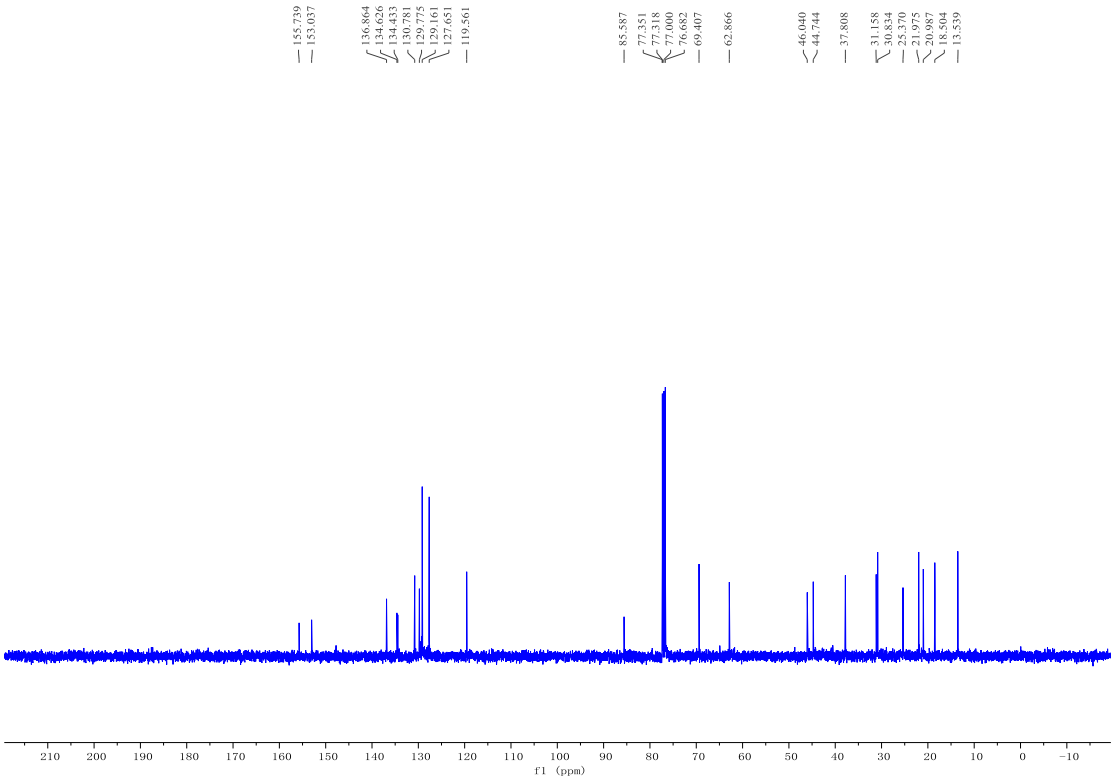


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oh:

^{1}H NMR (400 MHz, $CDCl_3$)

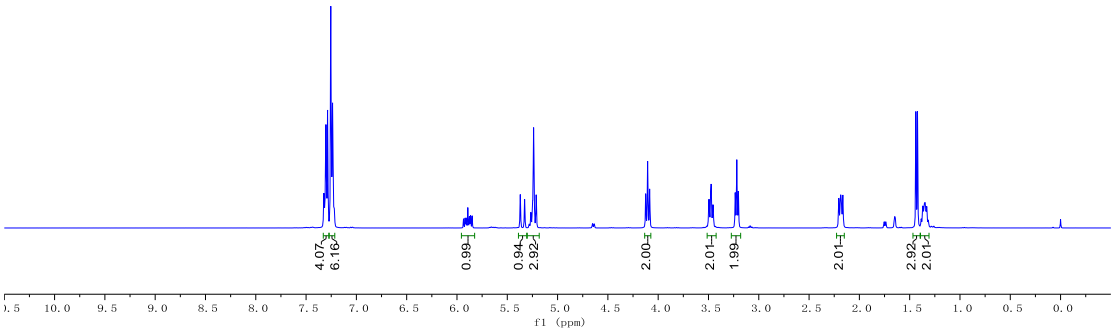


^{13}C NMR (100 MHz, $CDCl_3$)

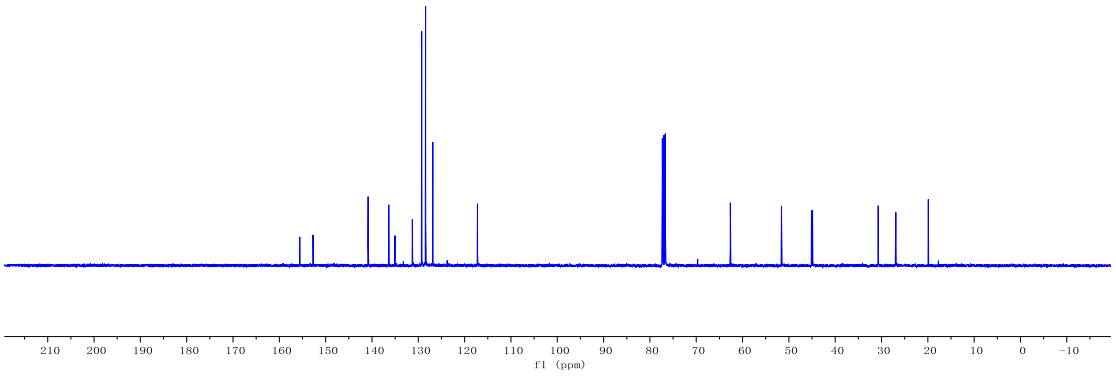


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oi:

^{1}H NMR (400 MHz, $CDCl_3$)

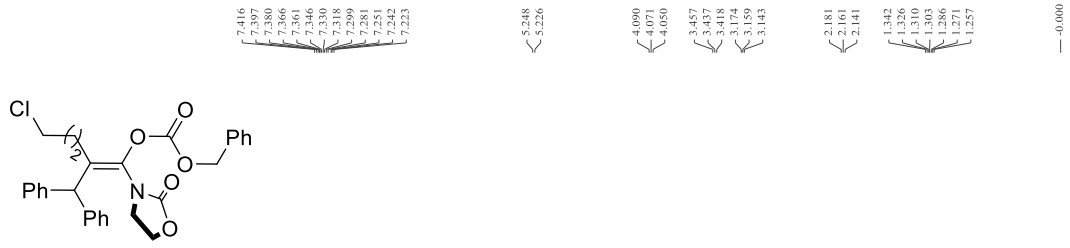


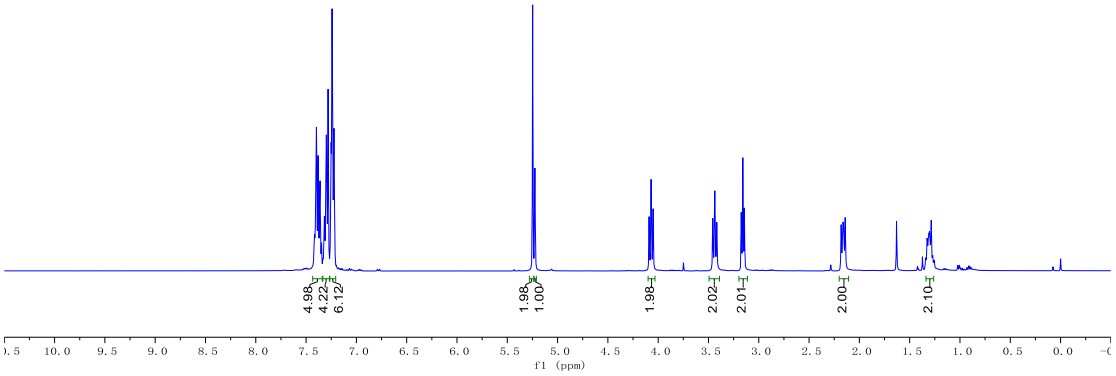
^{13}C NMR (100 MHz, $CDCl_3$)



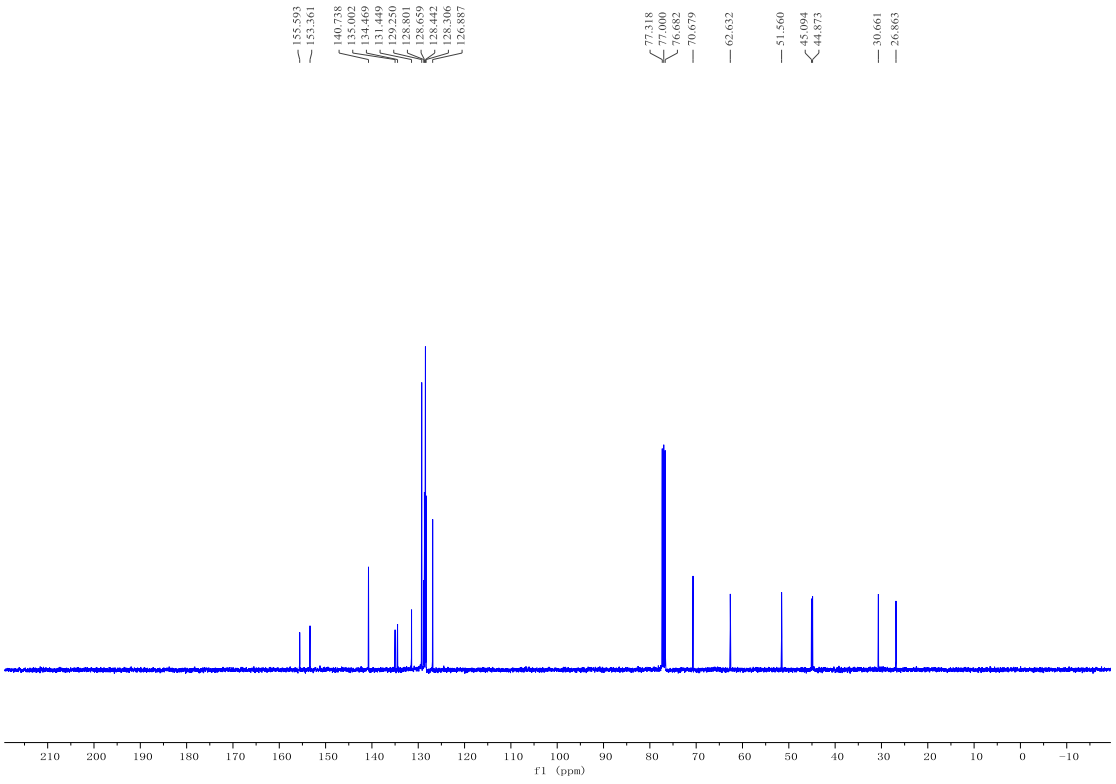
^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6oj:

^{1}H NMR (400 MHz, $CDCl_3$)



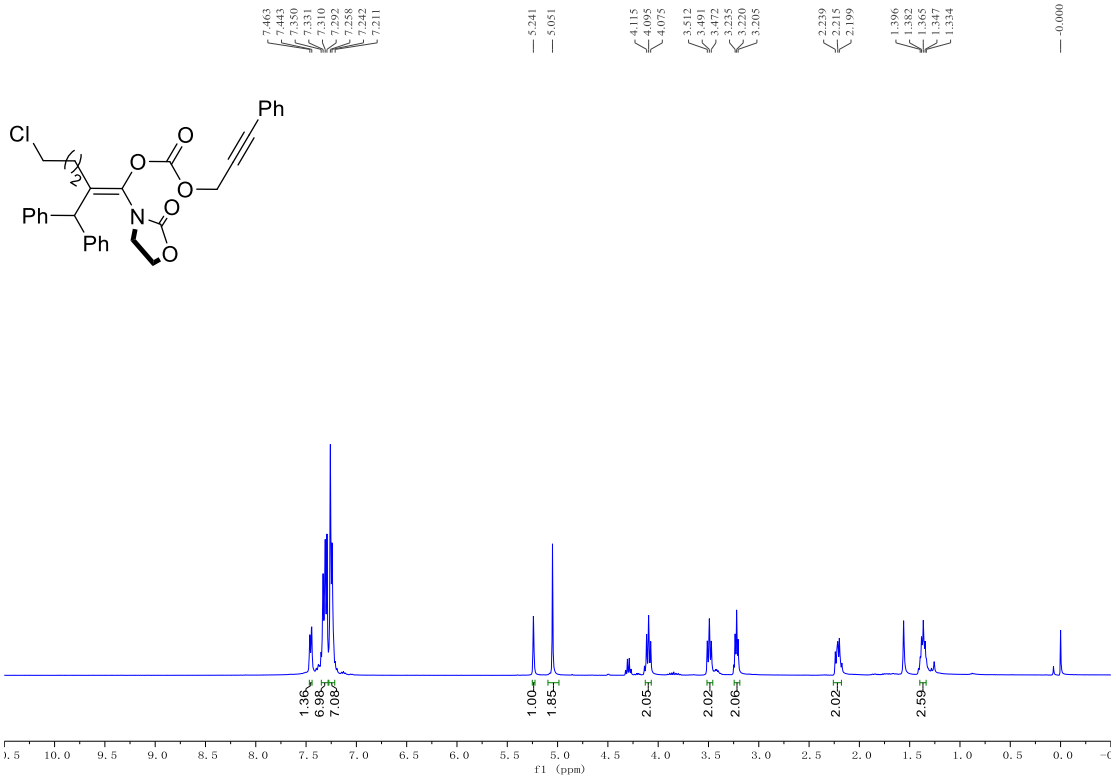


^{13}C NMR (100 MHz, $CDCl_3$)

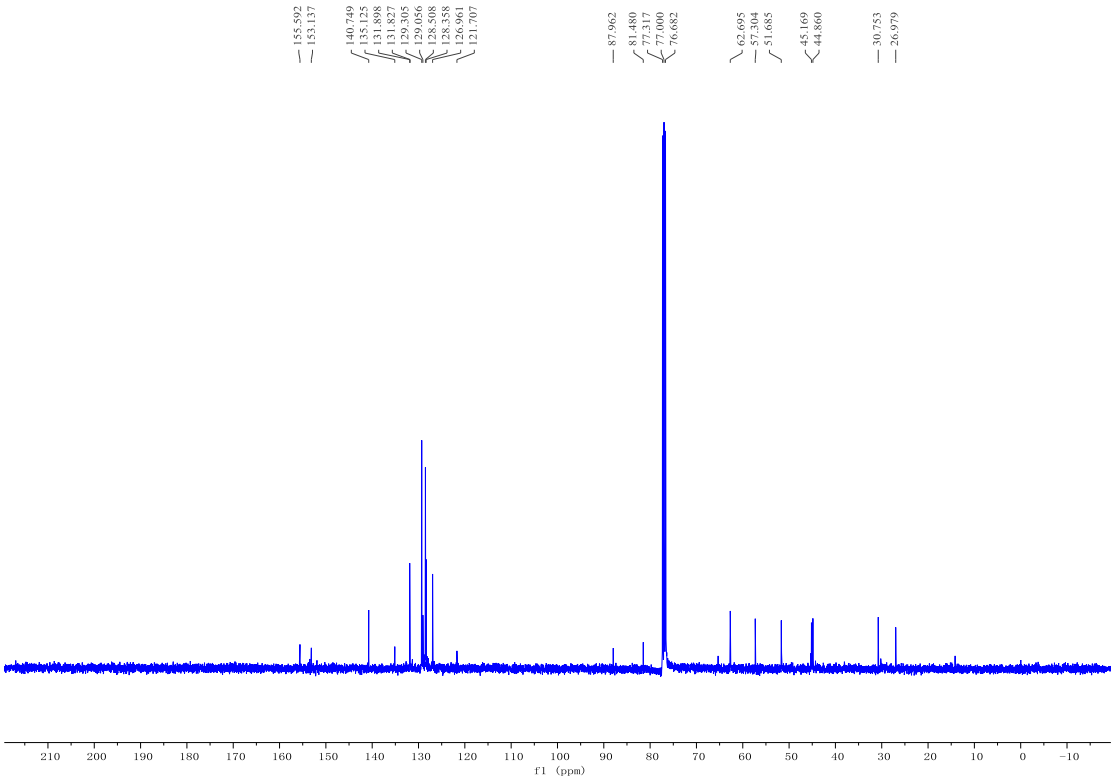


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6ok:

^{1}H NMR (400 MHz, $CDCl_3$)

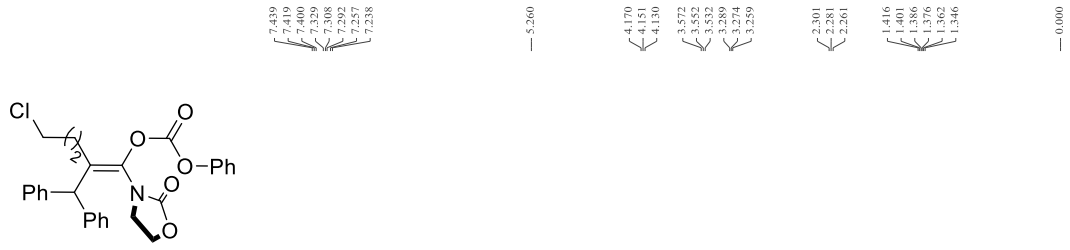


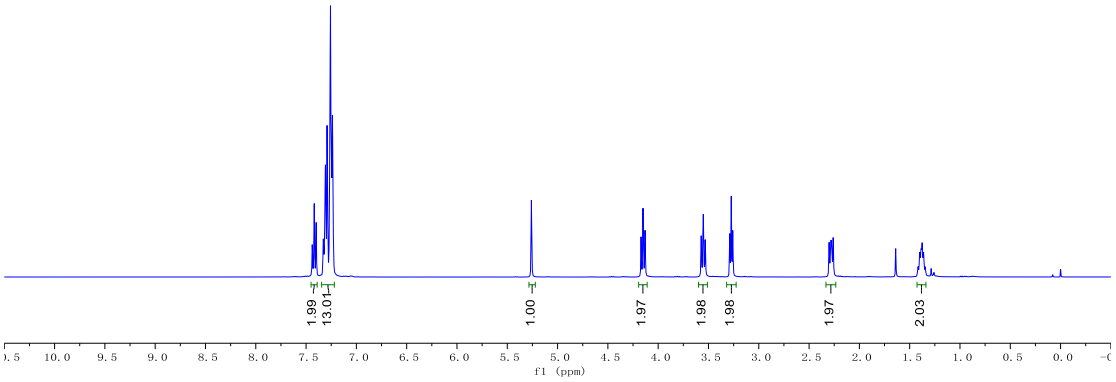
^{13}C NMR (100 MHz, $CDCl_3$)



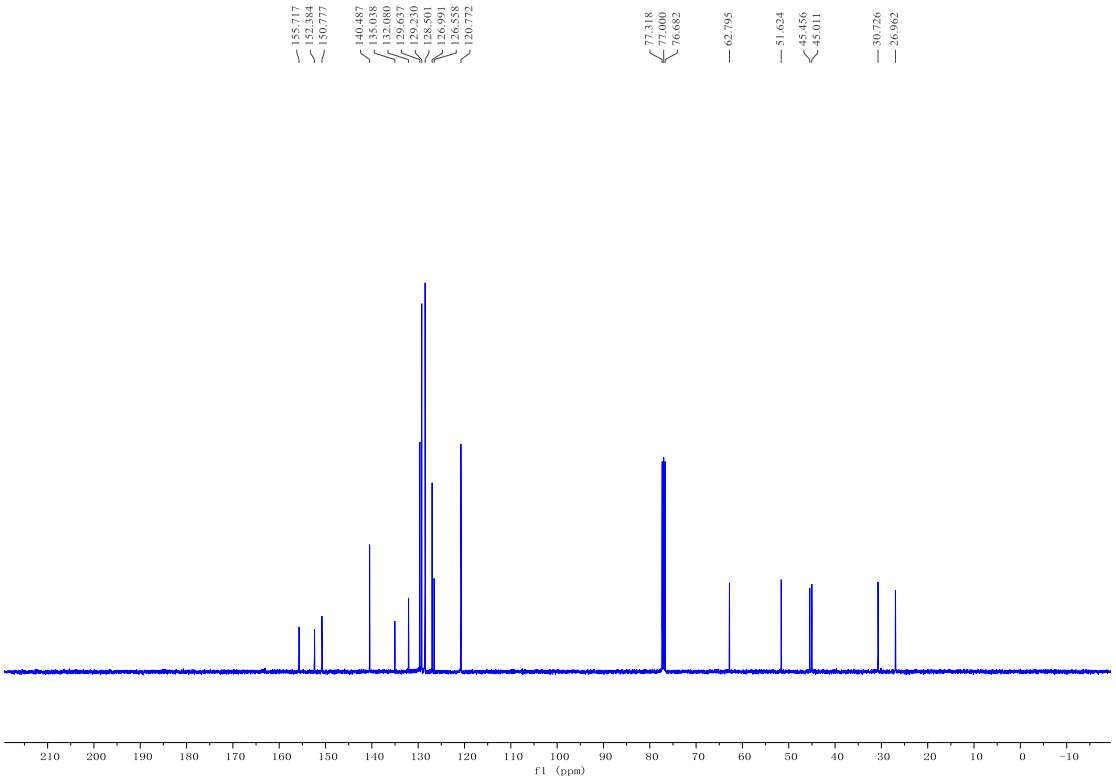
^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6ol:

^{1}H NMR (400 MHz, $CDCl_3$)



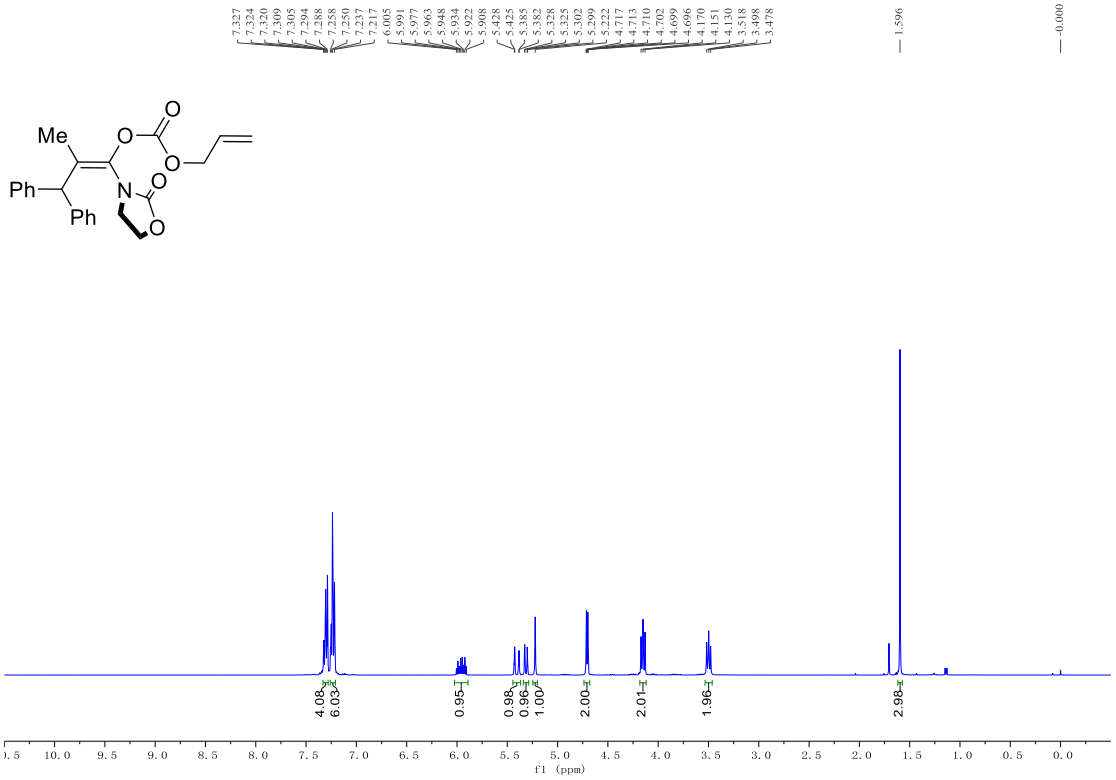


^{13}C NMR (100 MHz, $CDCl_3$)

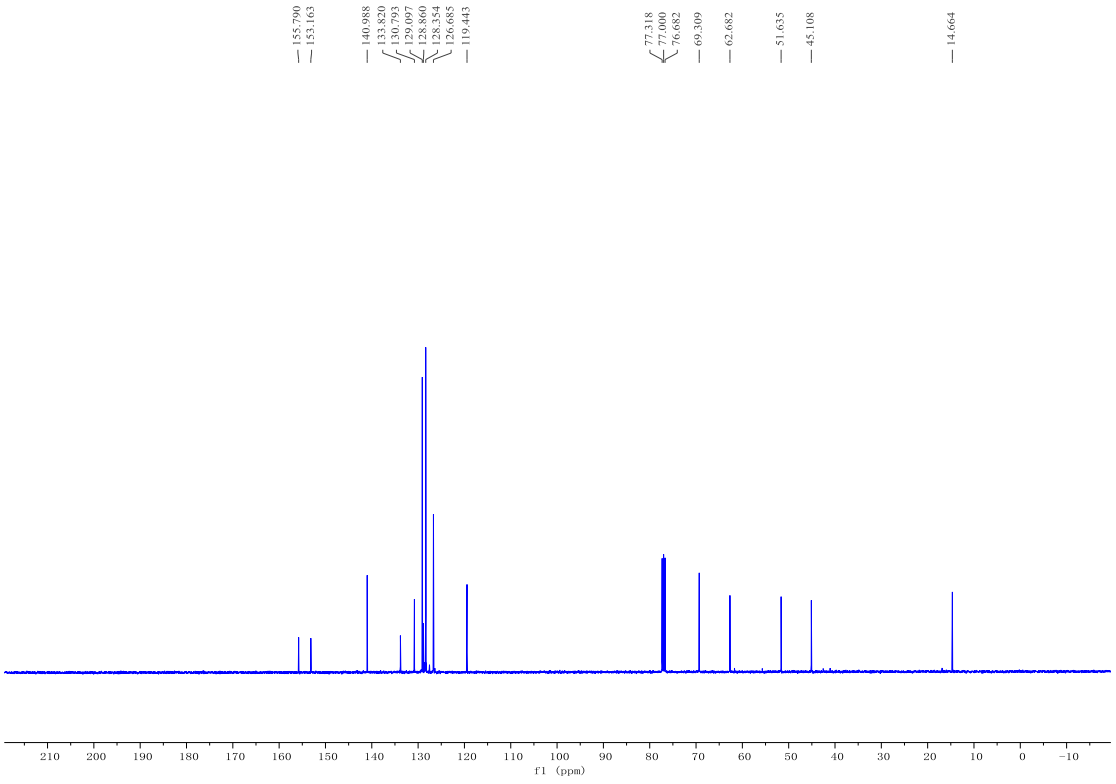


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6sa:

^{1}H NMR (400 MHz, $CDCl_3$)

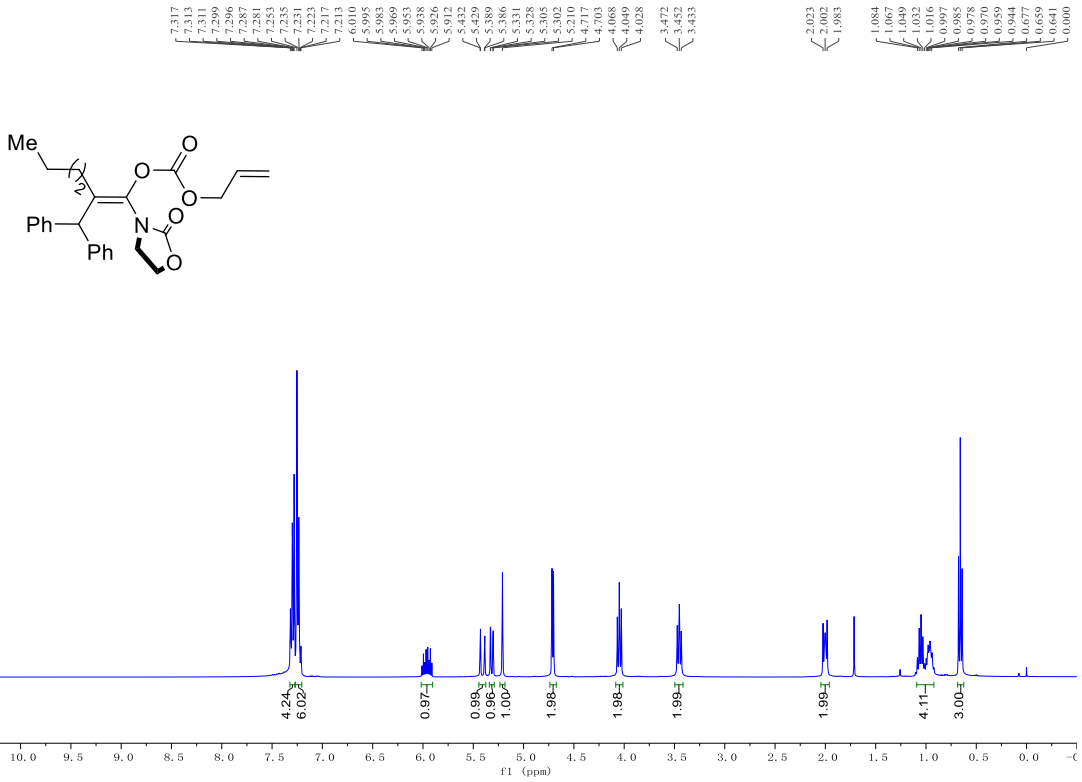


^{13}C NMR (100 MHz, $CDCl_3$)

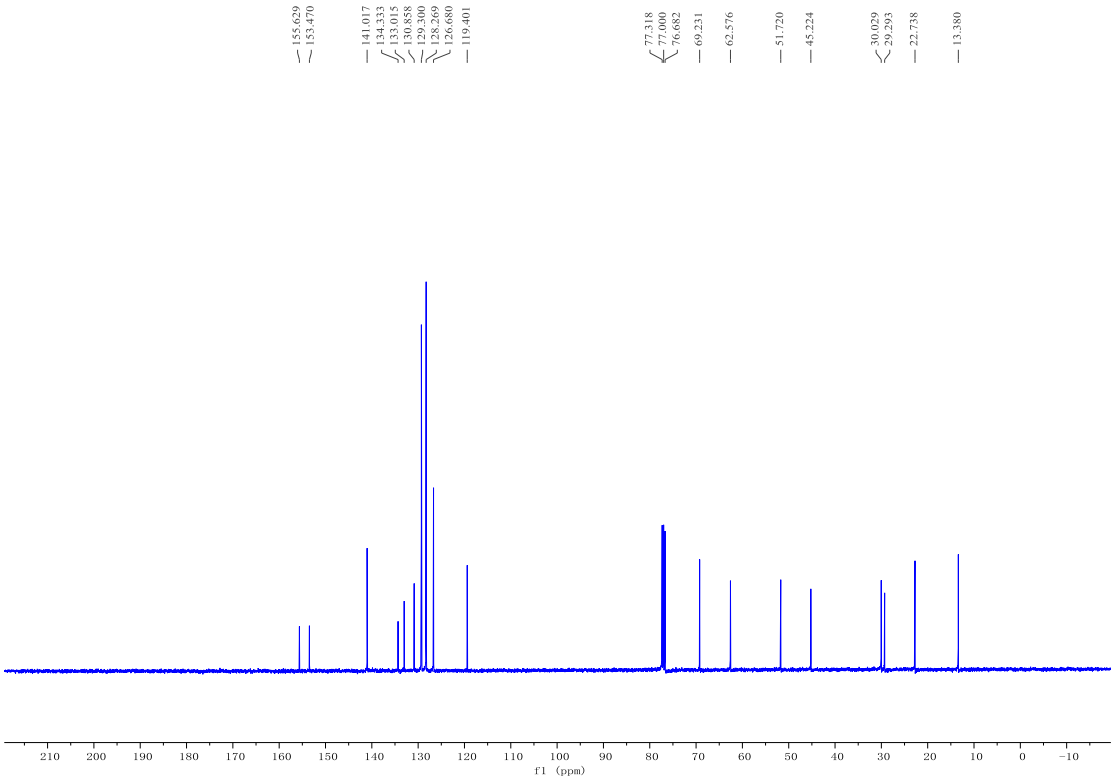


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6ta:

^{1}H NMR (400 MHz, $CDCl_3$)

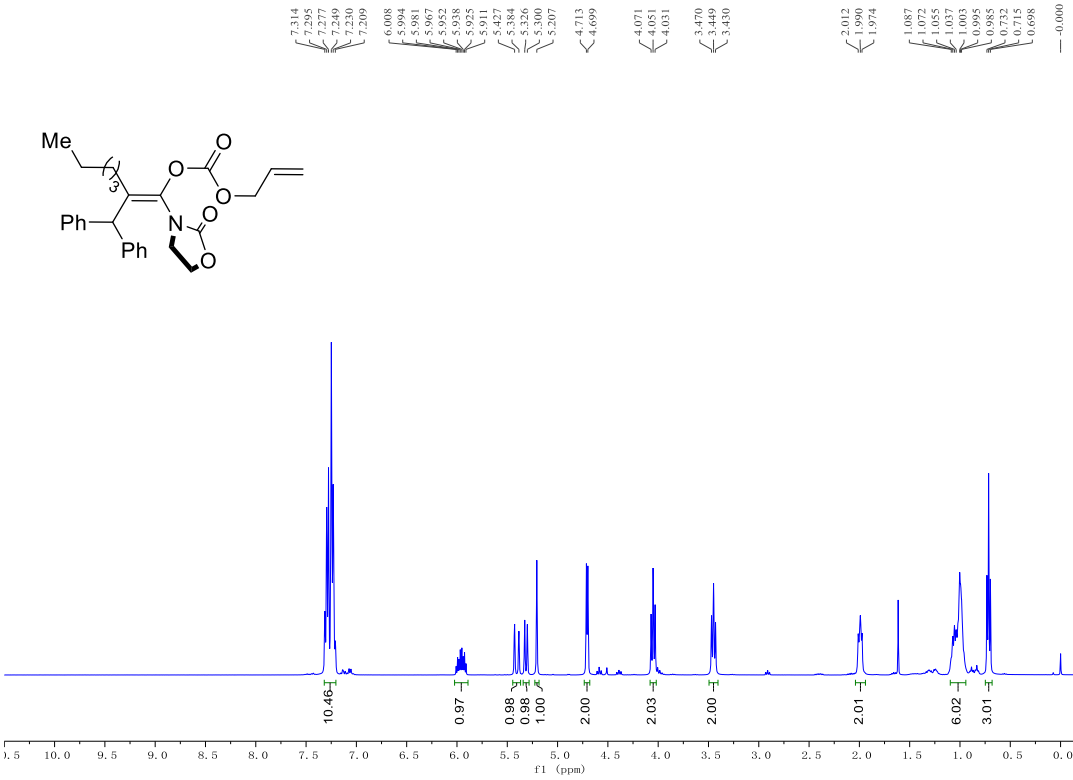


^{13}C NMR (100 MHz, $CDCl_3$)

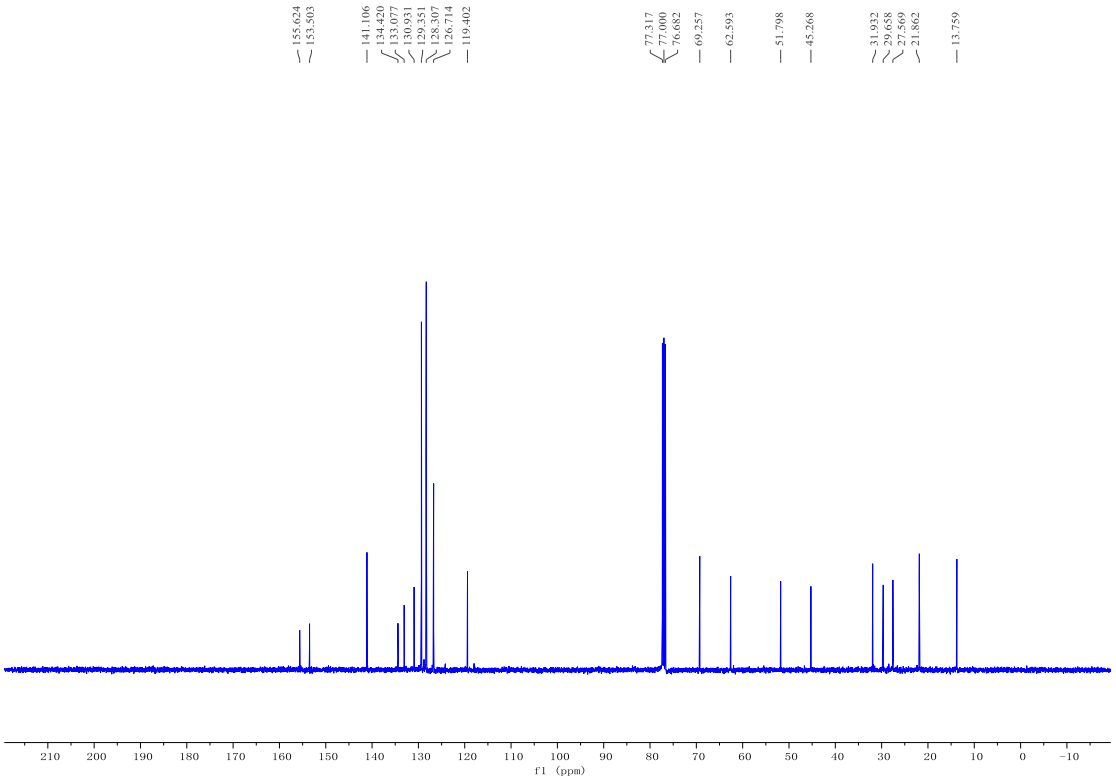


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6na:

^{1}H NMR (400 MHz, $CDCl_3$)

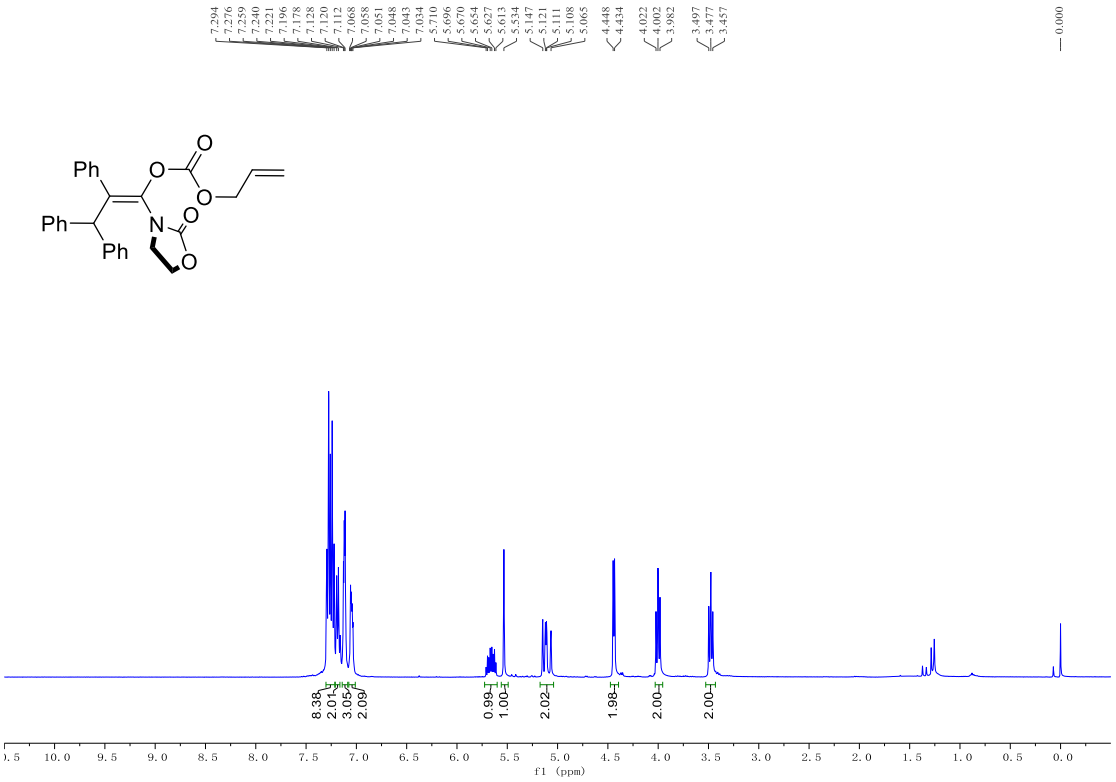


^{13}C NMR (100 MHz, $CDCl_3$)

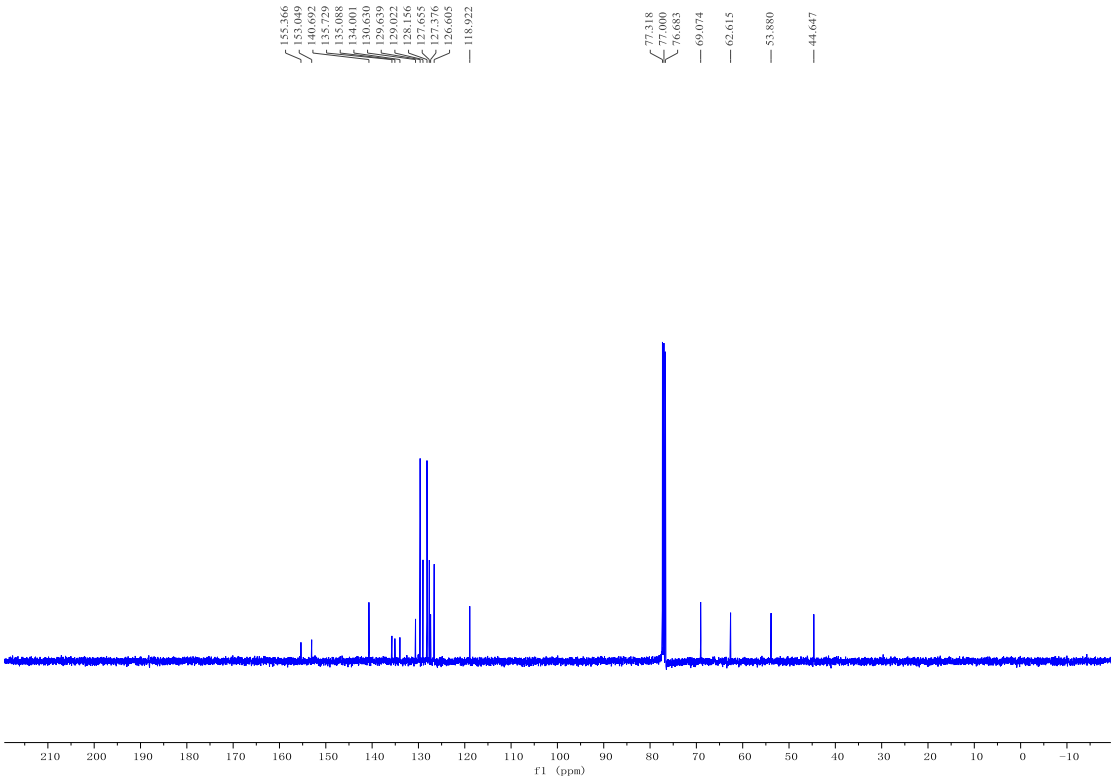


^{1}H and ^{13}C NMR Spectra for Compound (*Z*)-6aa:

^{1}H NMR (400 MHz, $CDCl_3$)

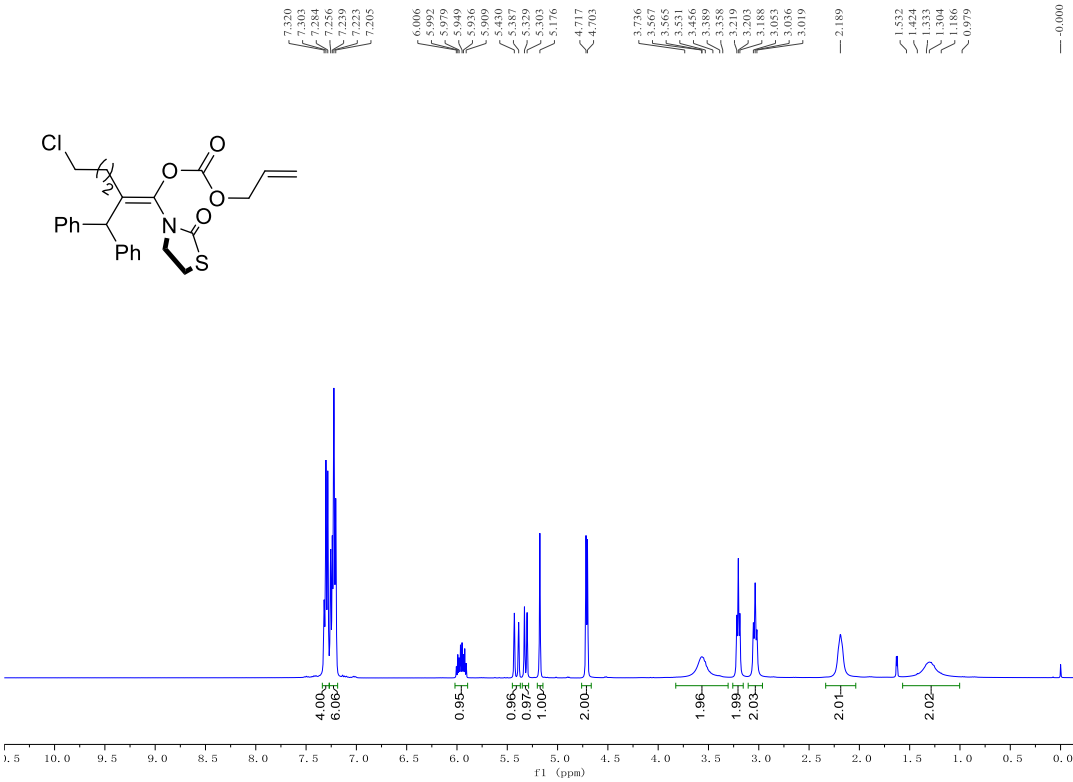


^{13}C NMR (100 MHz, $CDCl_3$)

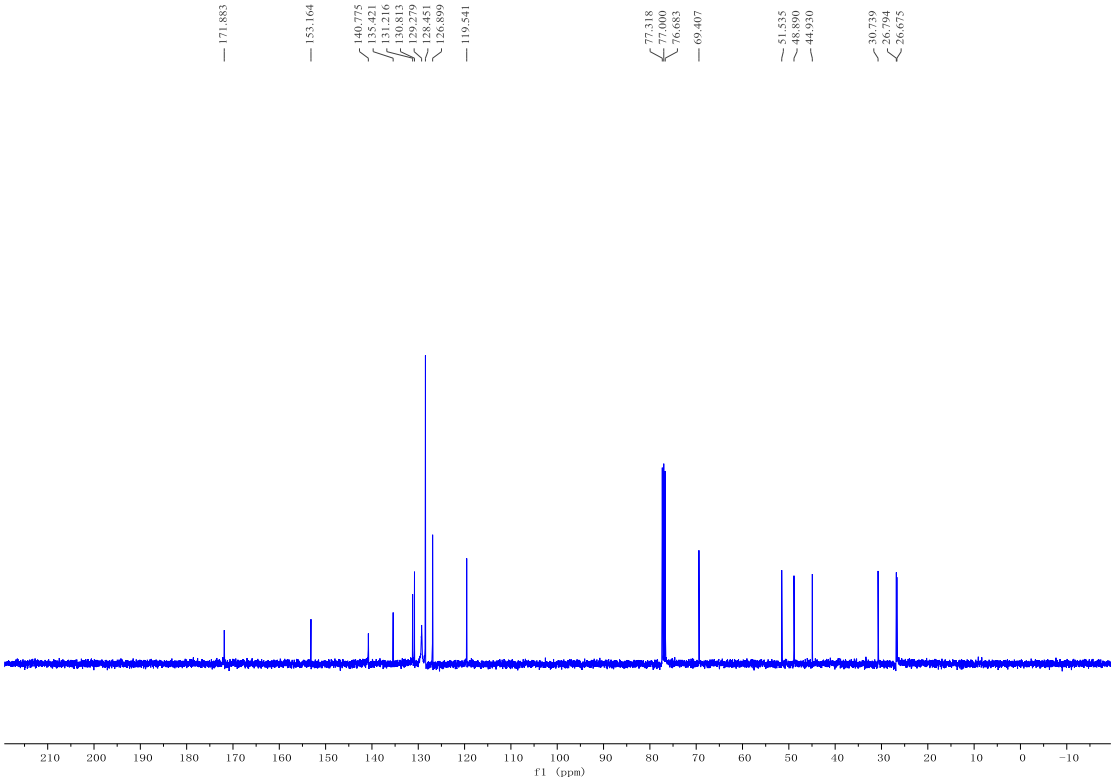


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6ua:

^{1}H NMR (400 MHz, $CDCl_3$)

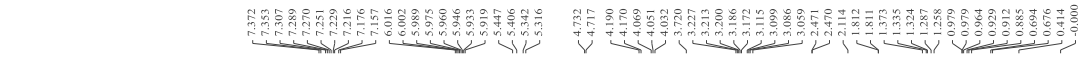


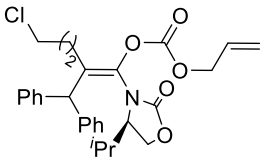
^{13}C NMR (100 MHz, $CDCl_3$)

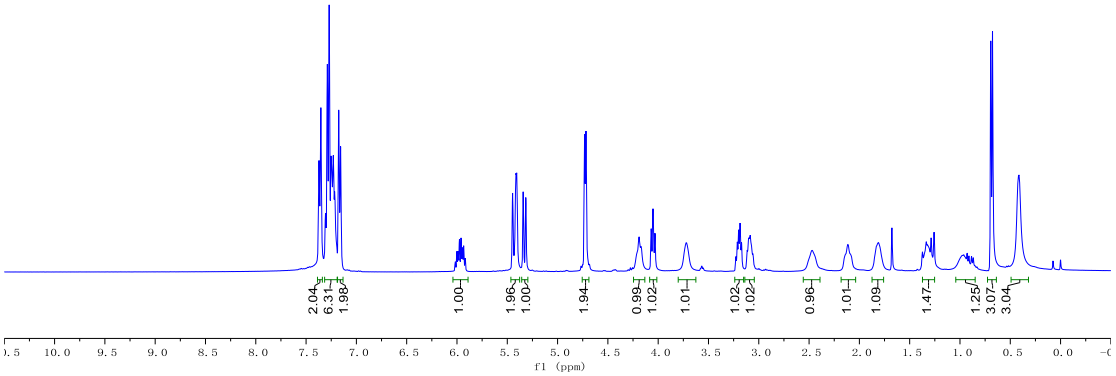


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6va:

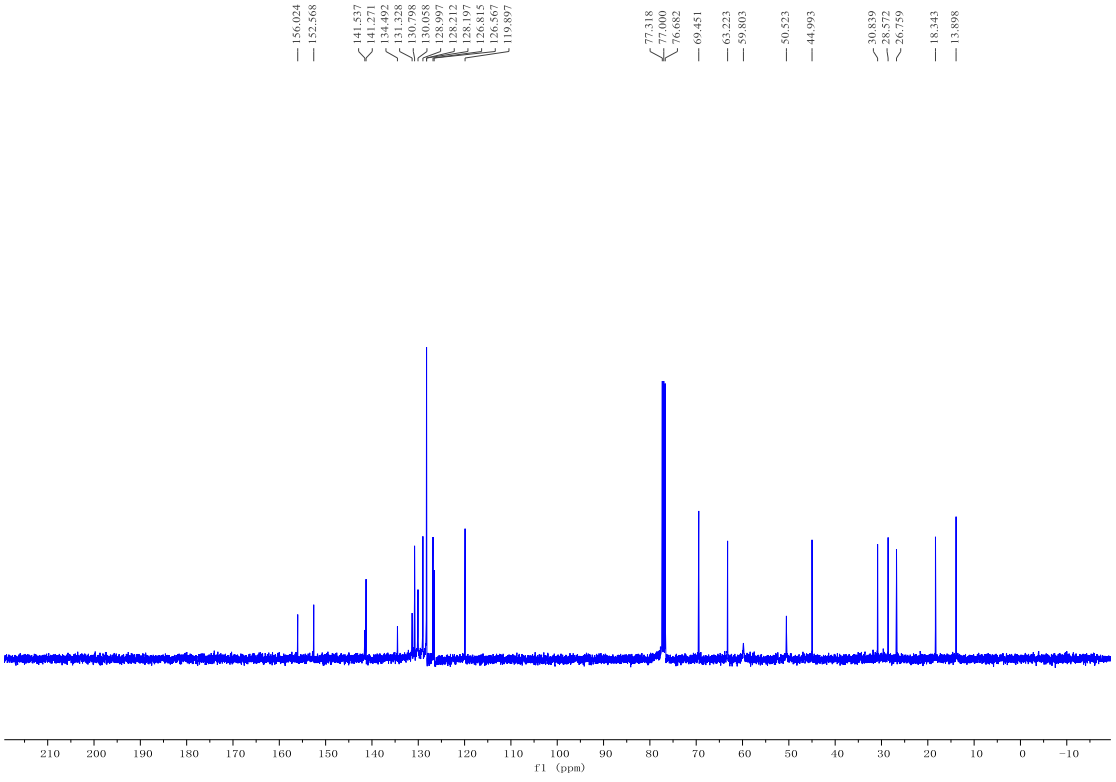
^{1}H NMR (400 MHz, $CDCl_3$)





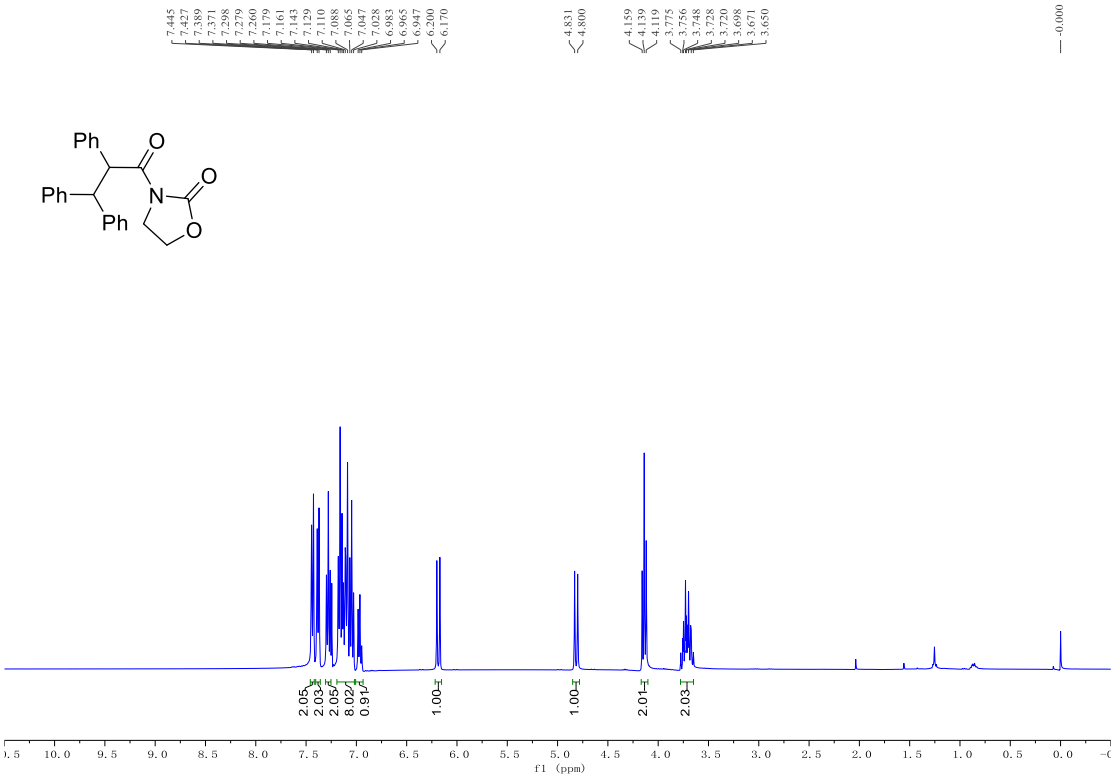


^{13}C NMR (100 MHz, $CDCl_3$)

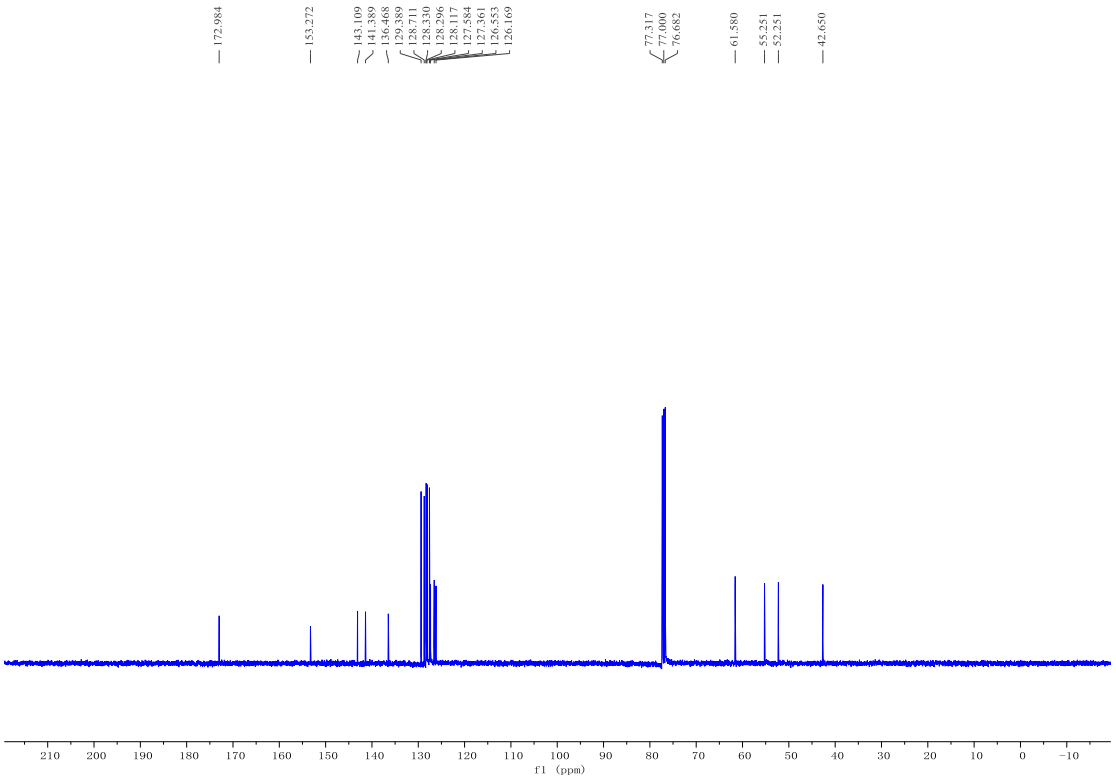


^{1}H and ^{13}C NMR Spectra for Compound (8):

^{1}H NMR (400 MHz, $CDCl_3$)

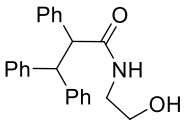


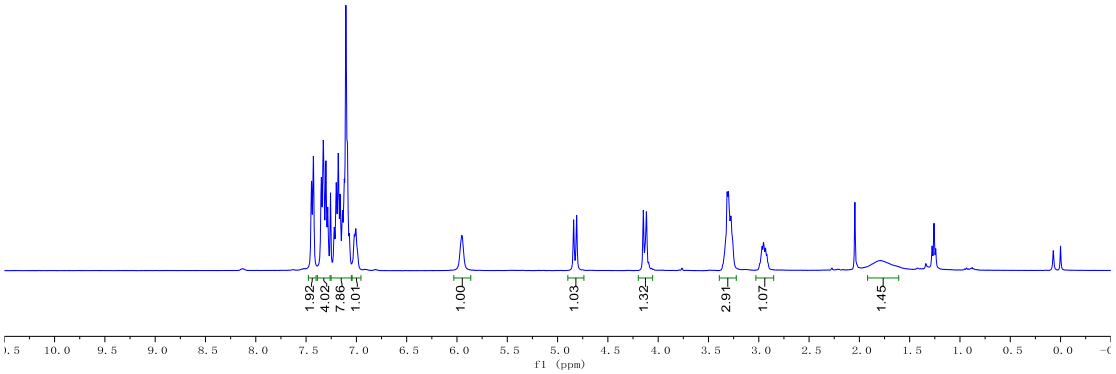
^{13}C NMR (100 MHz, $CDCl_3$)



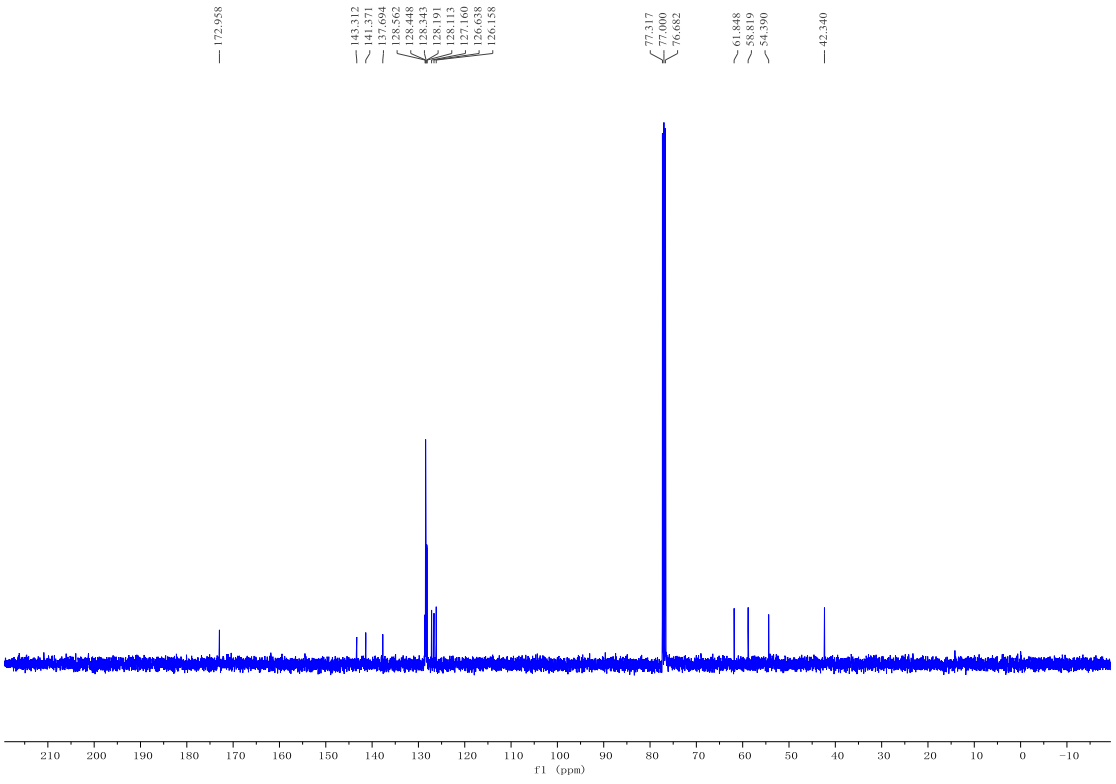
^{1}H and ^{13}C NMR Spectra for Compound (9):

^{1}H NMR (400 MHz, $CDCl_3$)



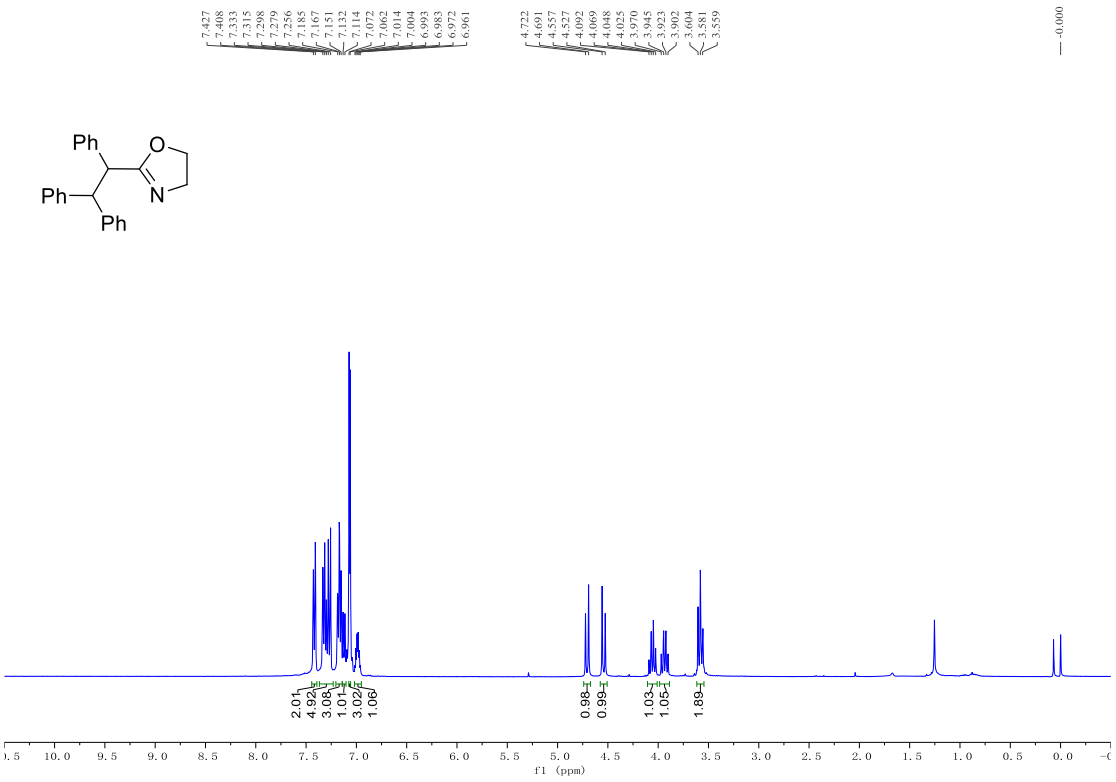


^{13}C NMR (100 MHz, $CDCl_3$)

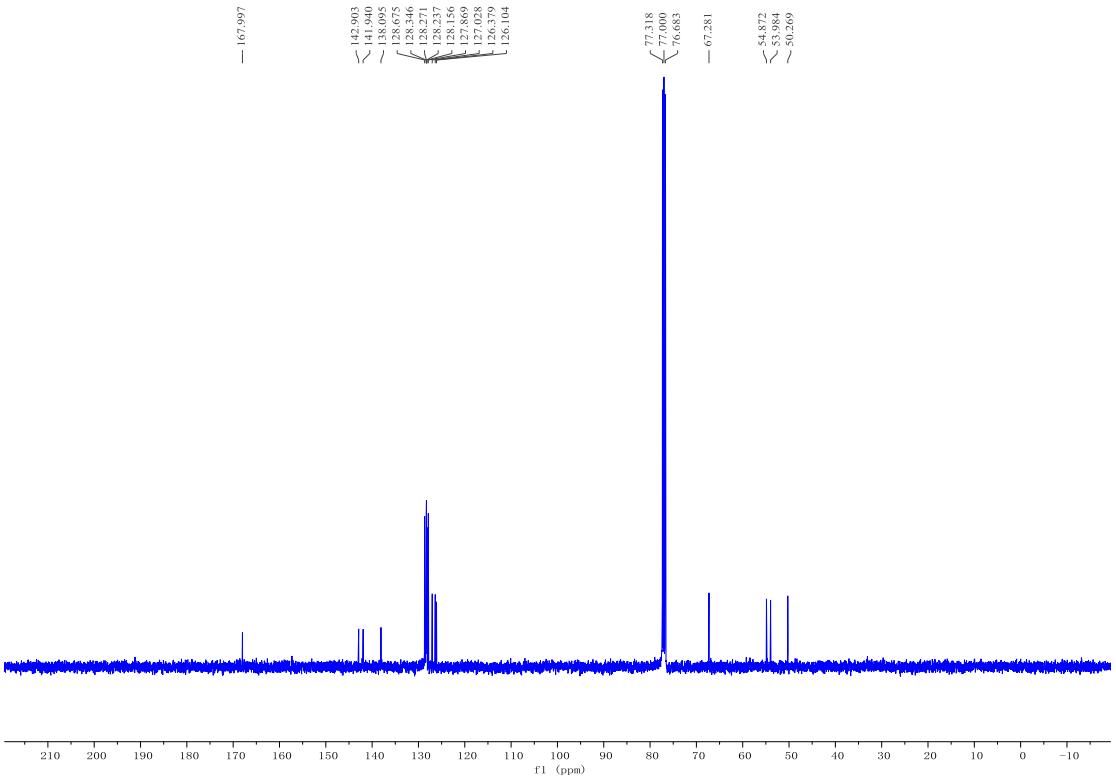


^{1}H and ^{13}C NMR Spectra for Compound (10):

^{1}H NMR (400 MHz, $CDCl_3$)

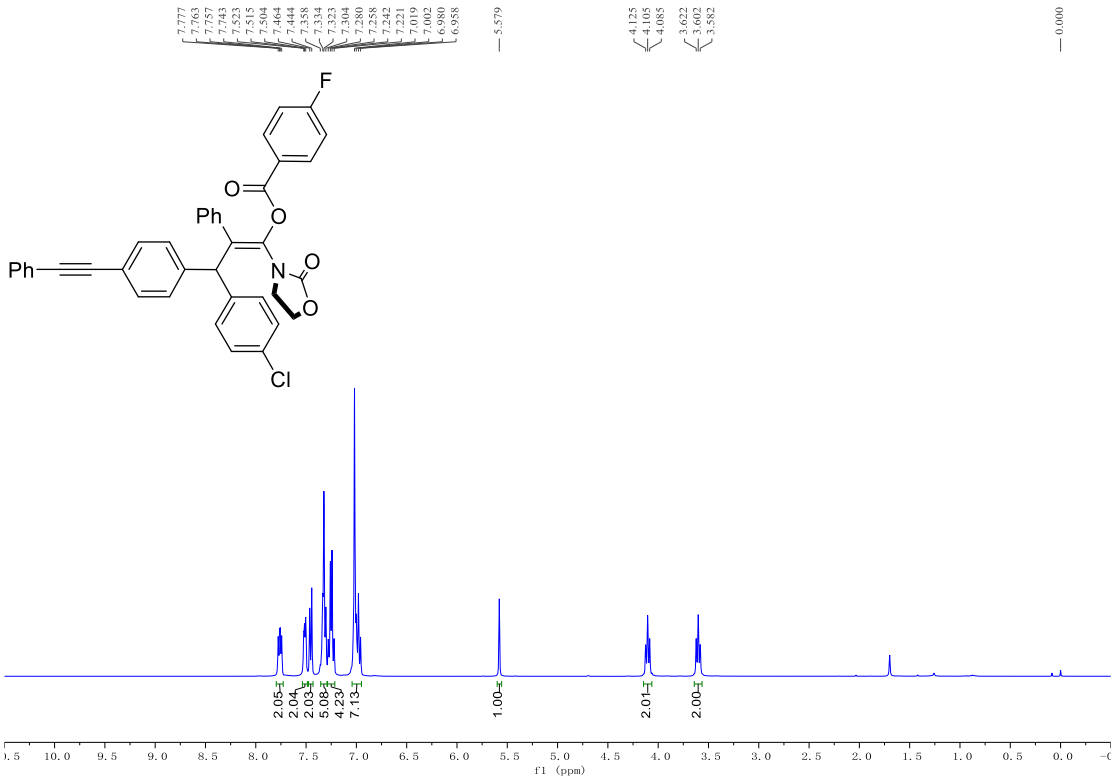


^{13}C NMR (100 MHz, $CDCl_3$)

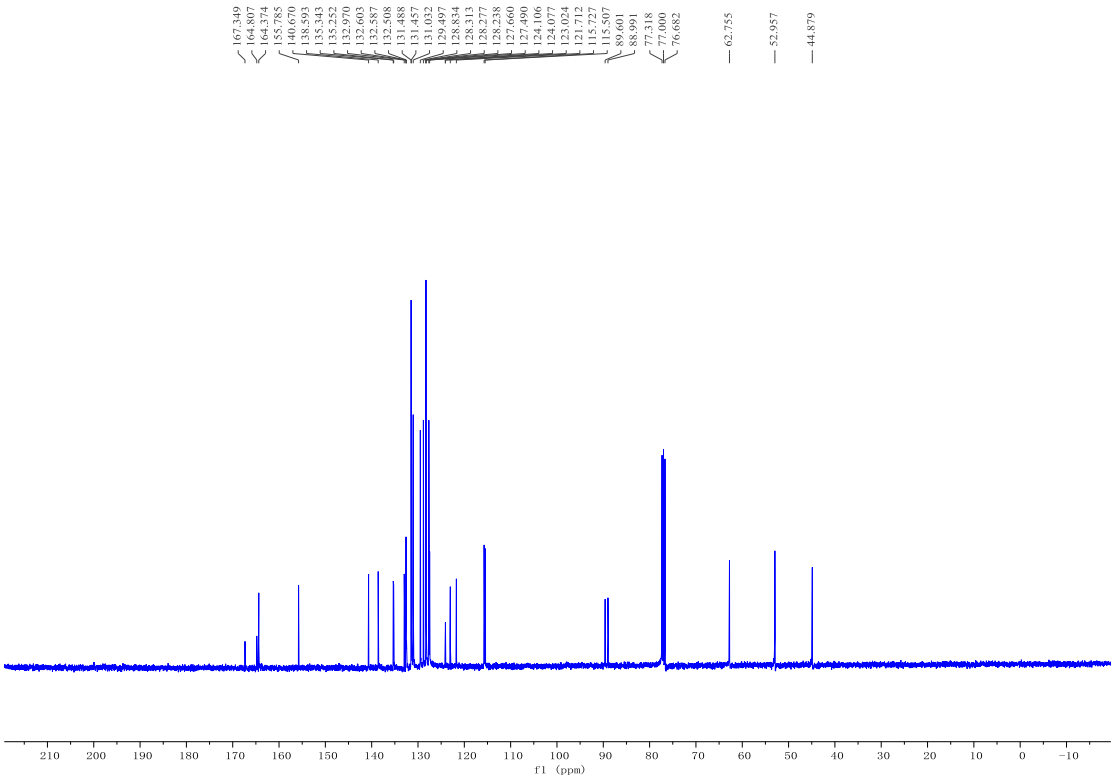


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound (11):

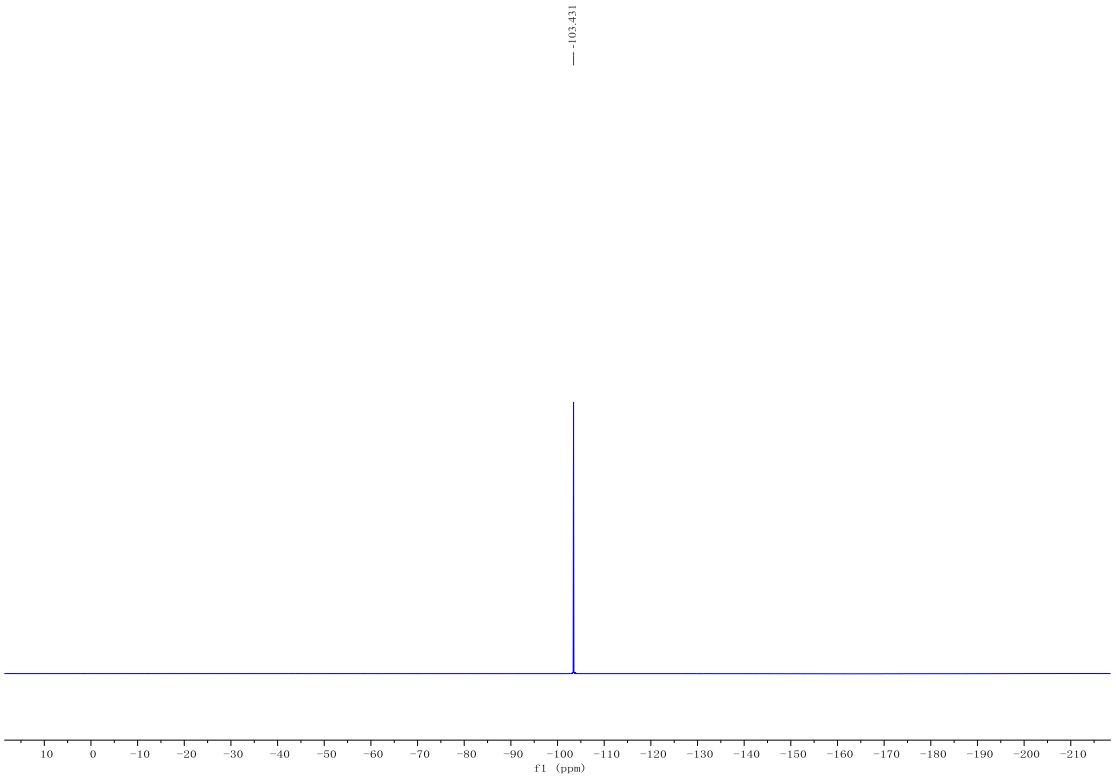
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

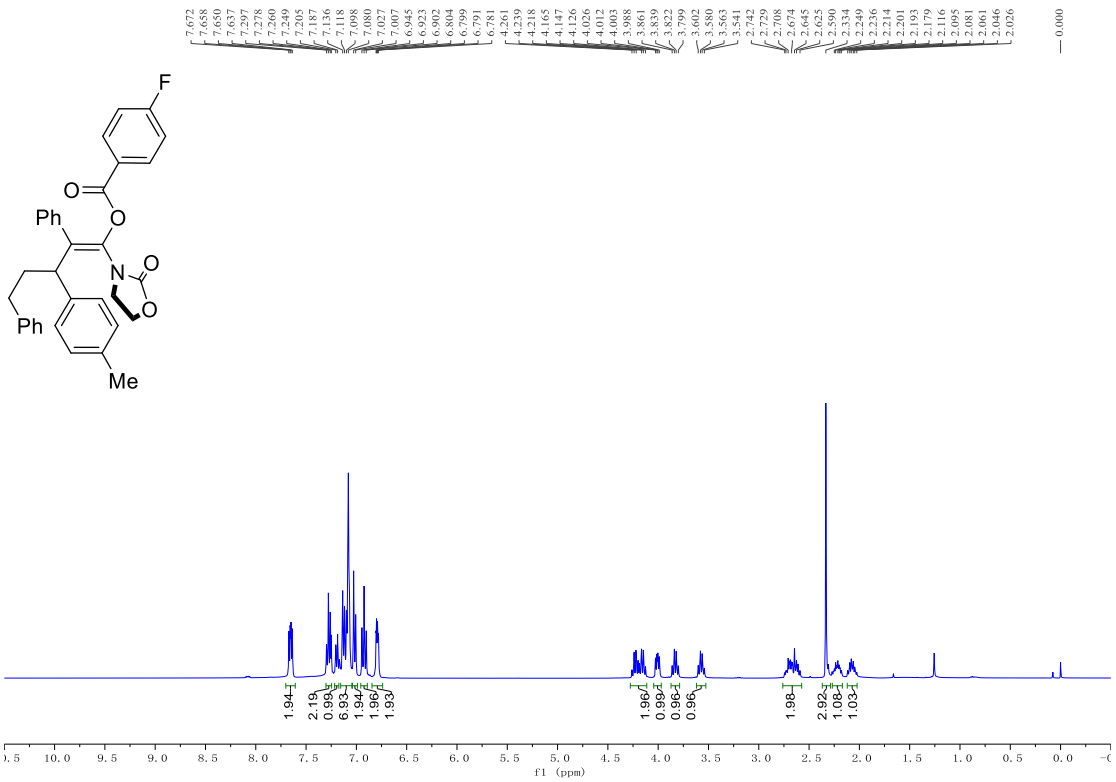


^{19}F NMR (376 MHz, $CDCl_3$)

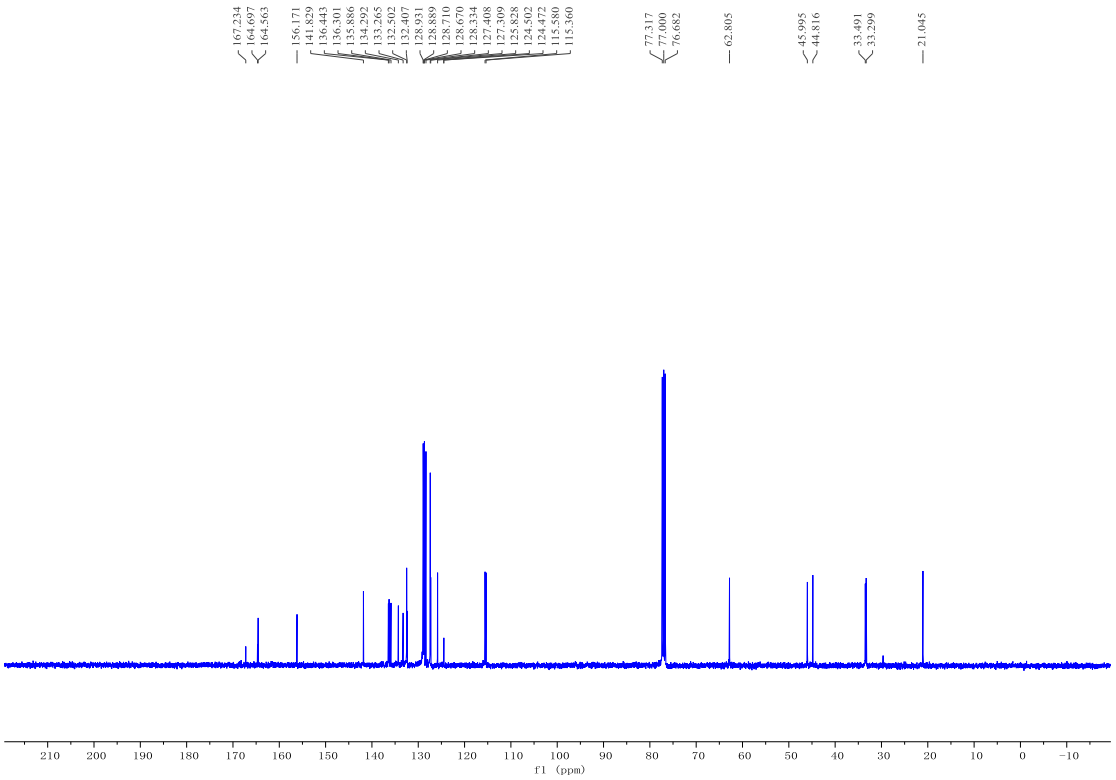


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound ((*Z*)-12):

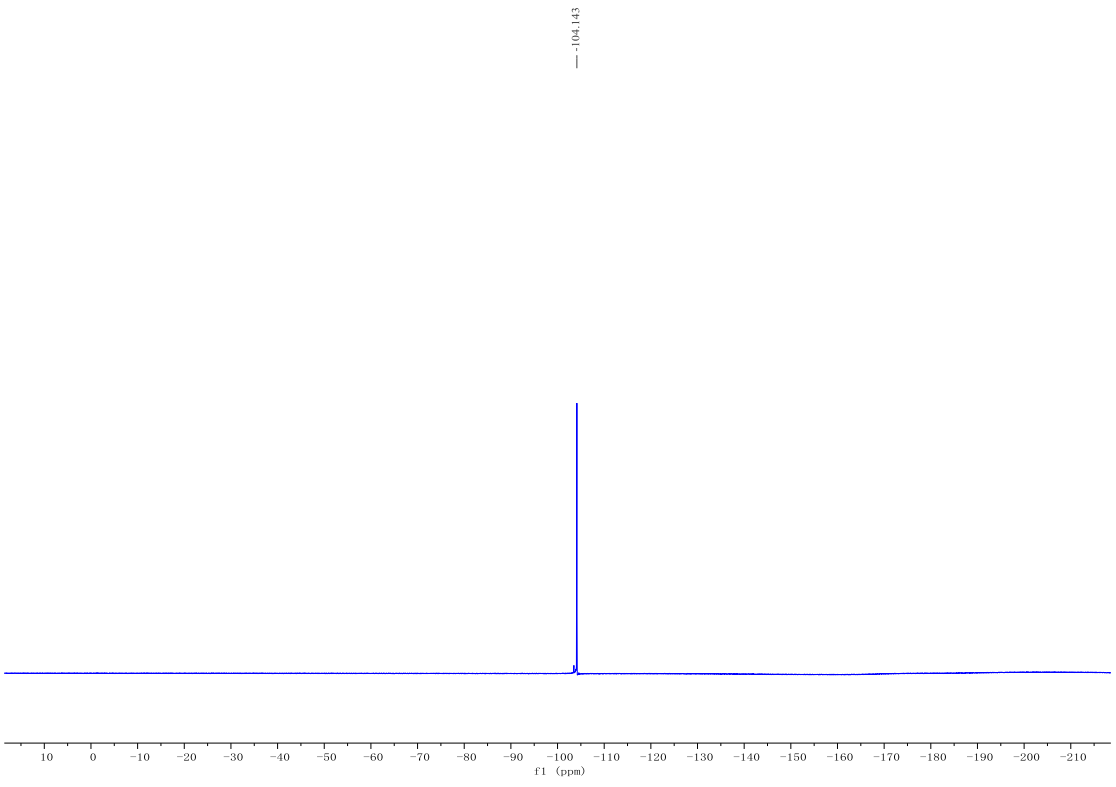
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

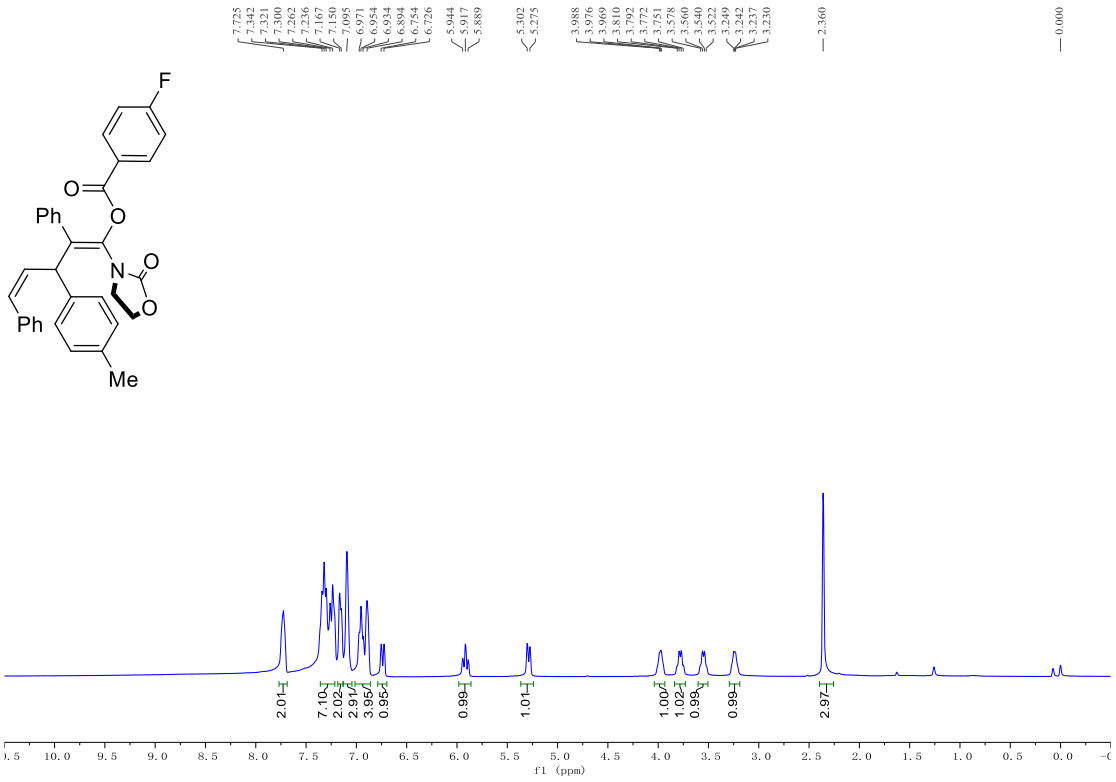


^{19}F NMR (376 MHz, $CDCl_3$)

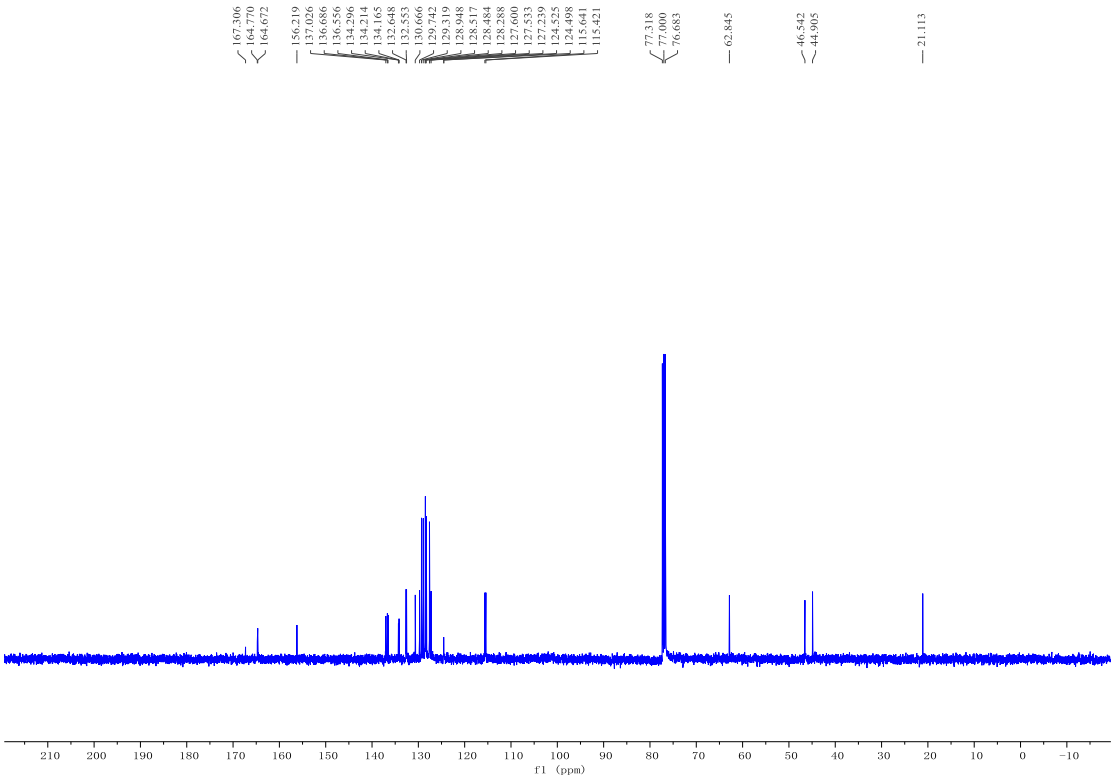


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound ((*Z*)-13):

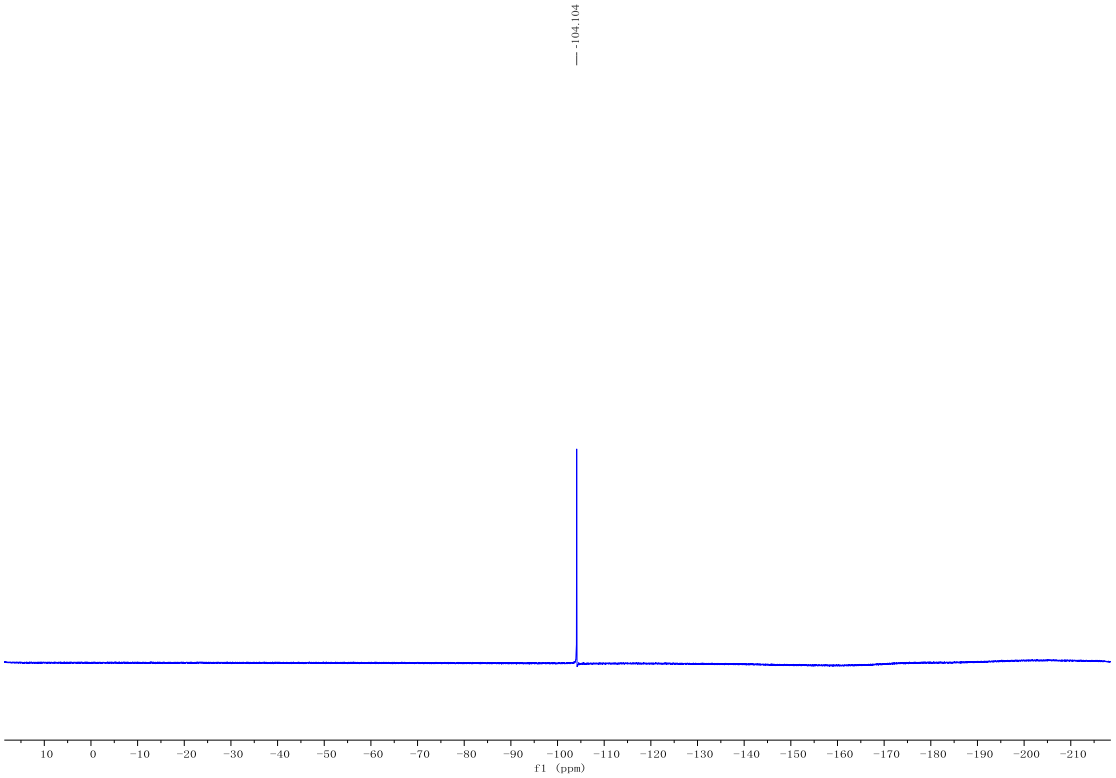
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)

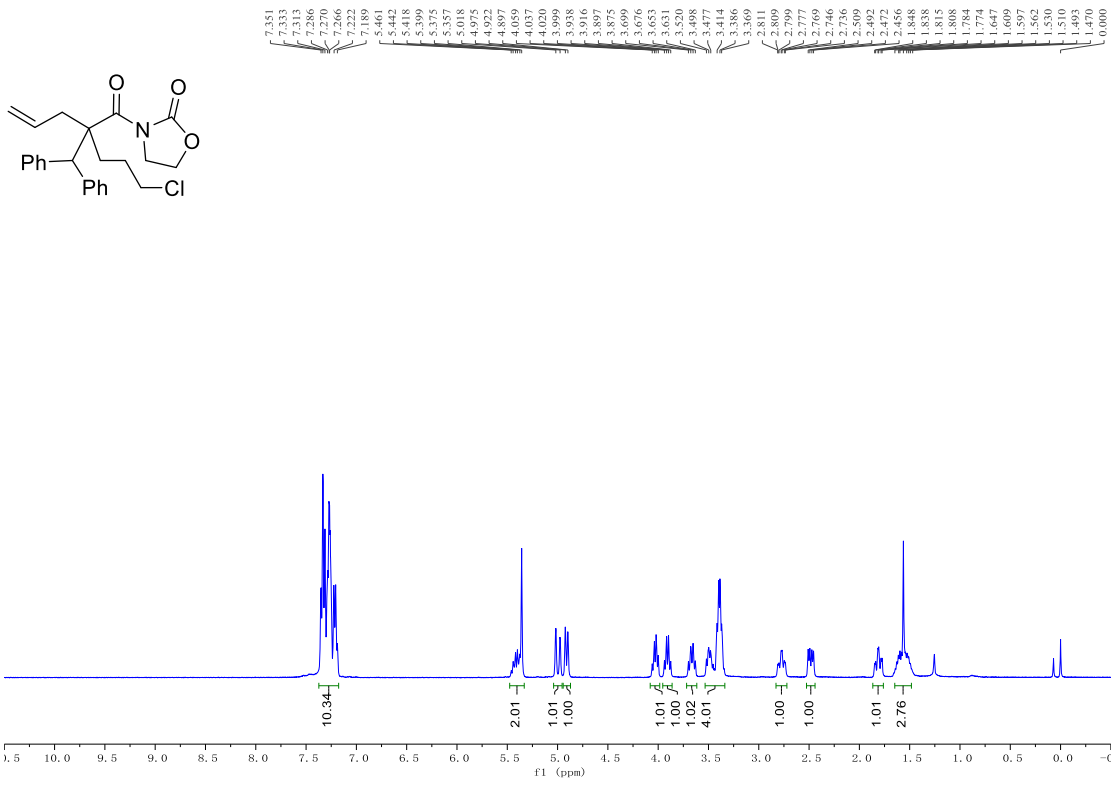


^{19}F NMR (376 MHz, $CDCl_3$)

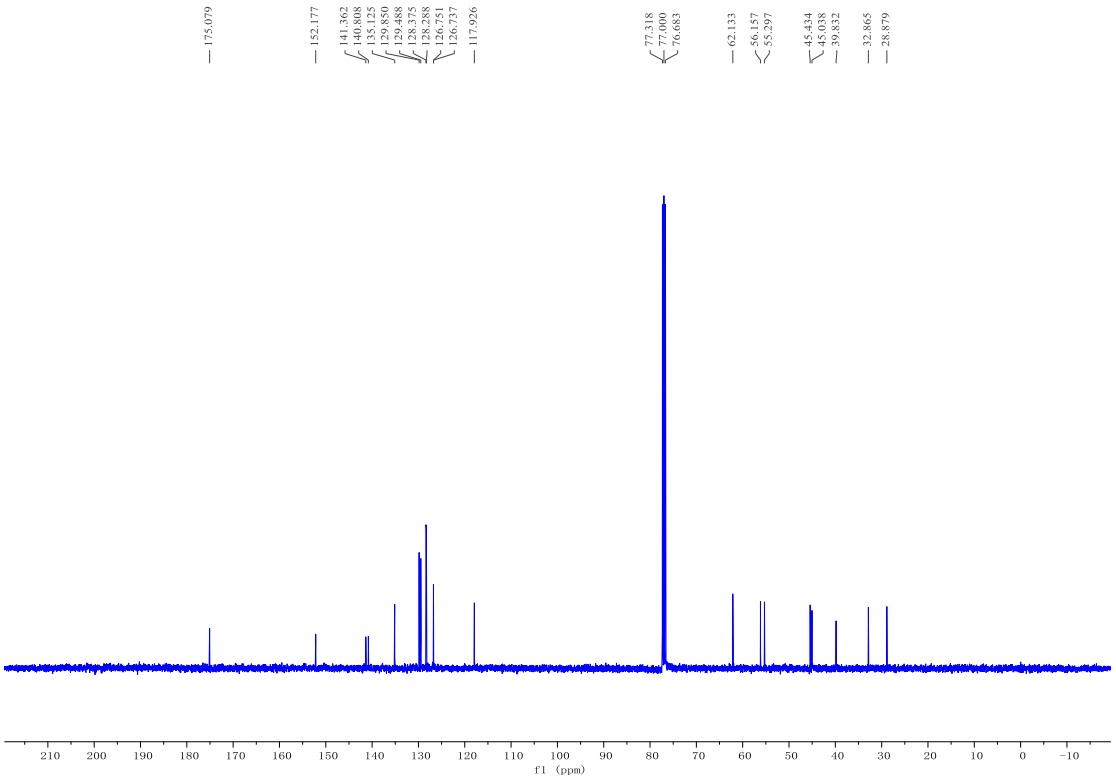


^{1}H and ^{13}C NMR Spectra for Compound (14):

^{1}H NMR (400 MHz, $CDCl_3$)

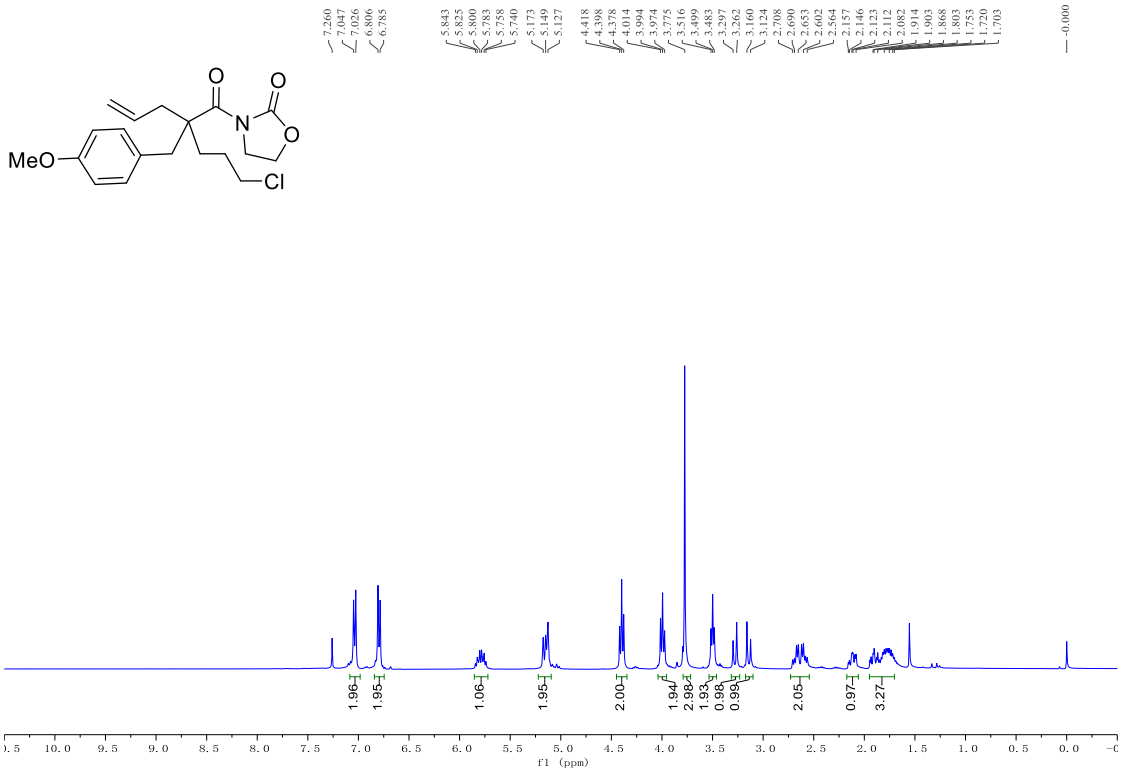


^{13}C NMR (100 MHz, $CDCl_3$)

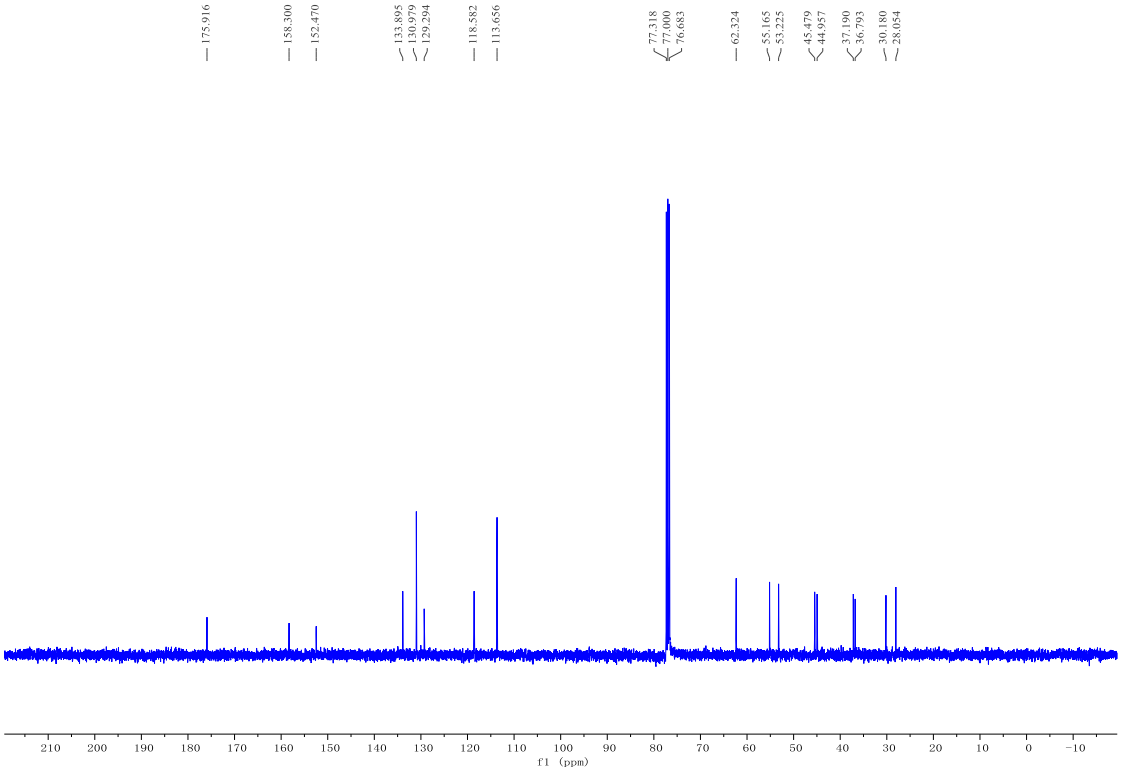


^{1}H and ^{13}C NMR Spectra for Compound (16):

^{1}H NMR (400 MHz, $CDCl_3$)

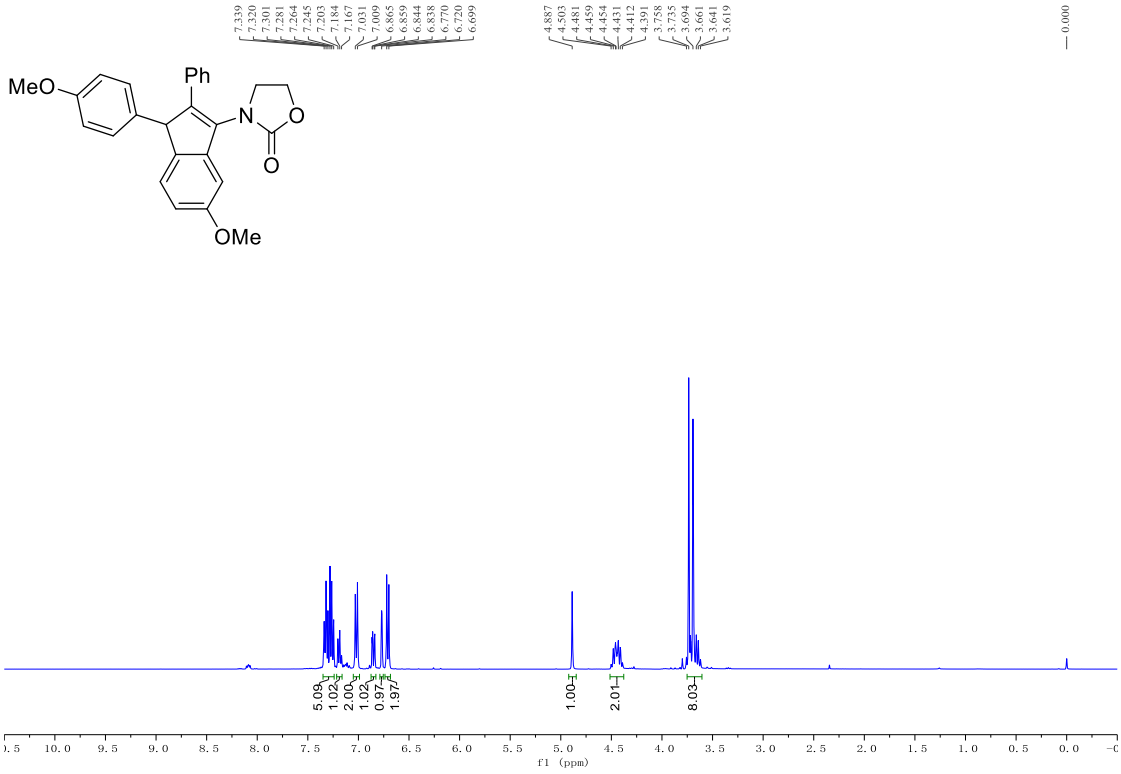


^{13}C NMR (100 MHz, $CDCl_3$)

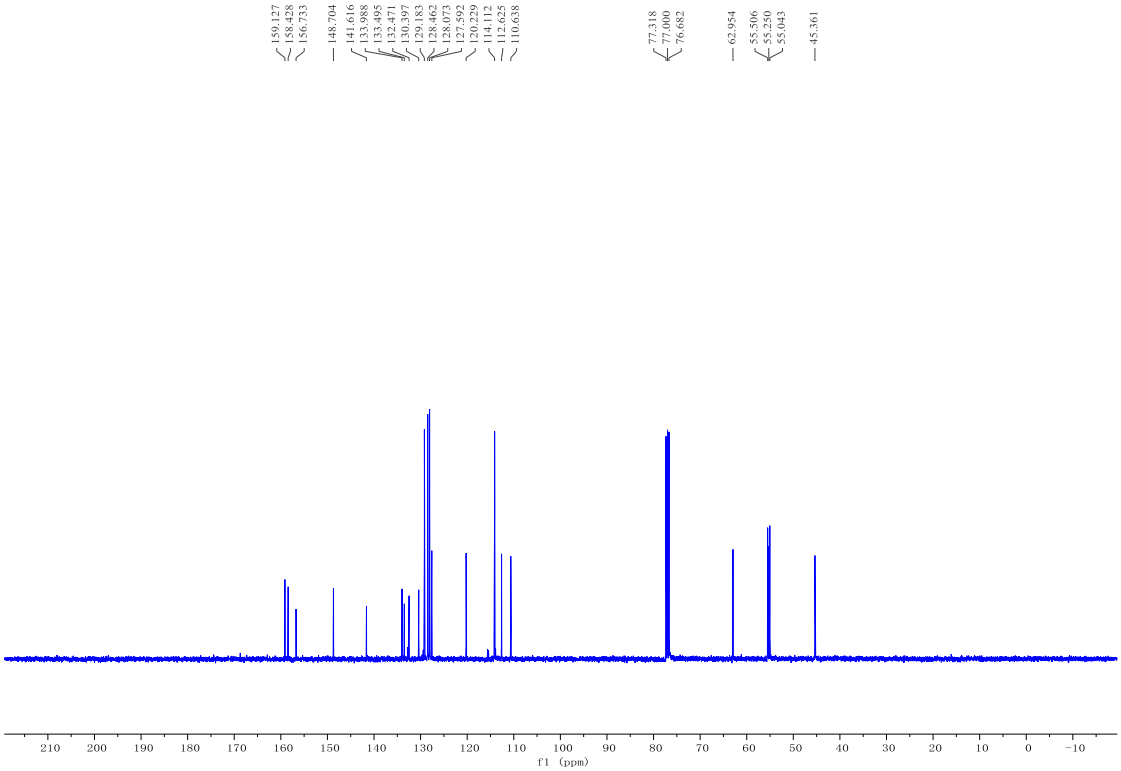


^{1}H and ^{13}C NMR Spectra for Compound (15):

^{1}H NMR (400 MHz, $CDCl_3$)

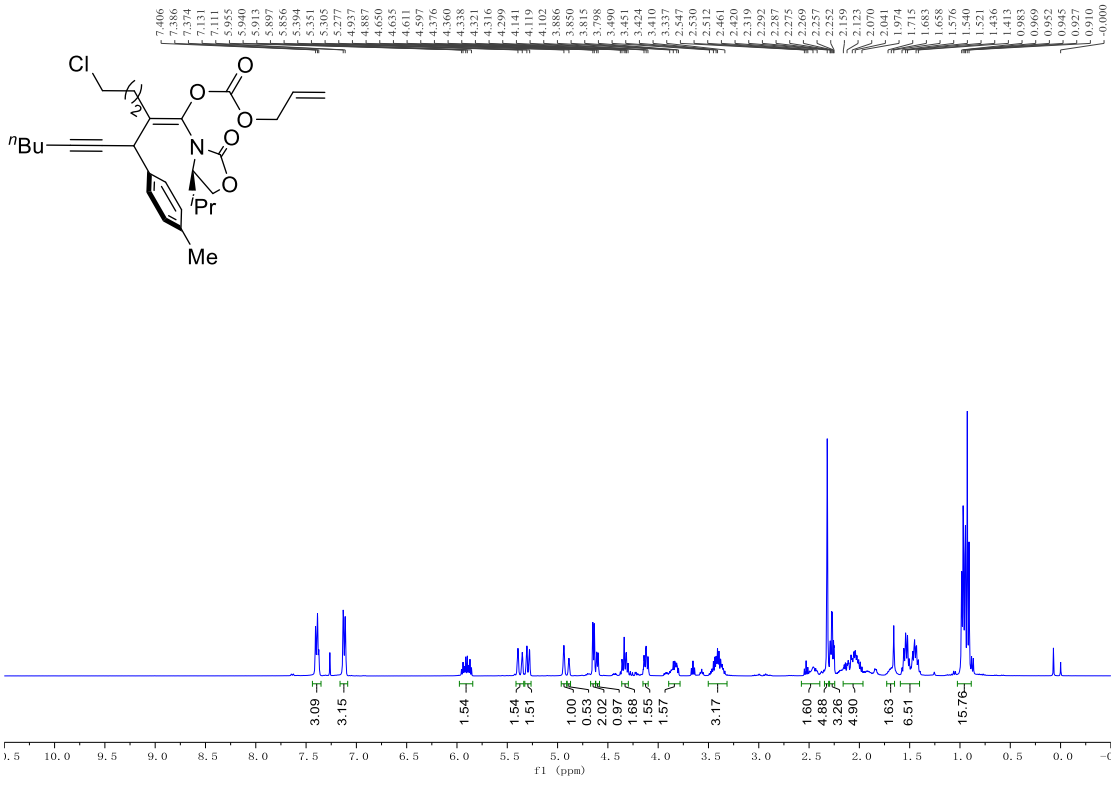


^{13}C NMR (100 MHz, $CDCl_3$)

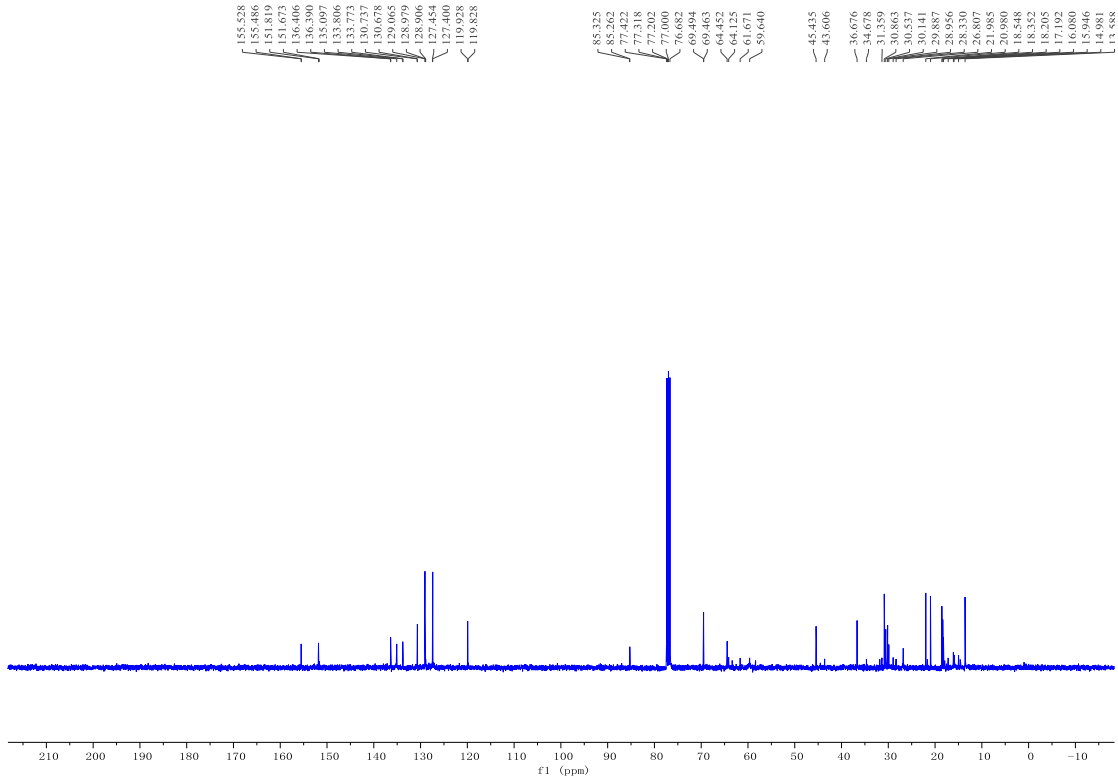


^{1}H and ^{13}C NMR Spectra for Compound (*E*)-6vh:

^{1}H NMR (400 MHz, $CDCl_3$)

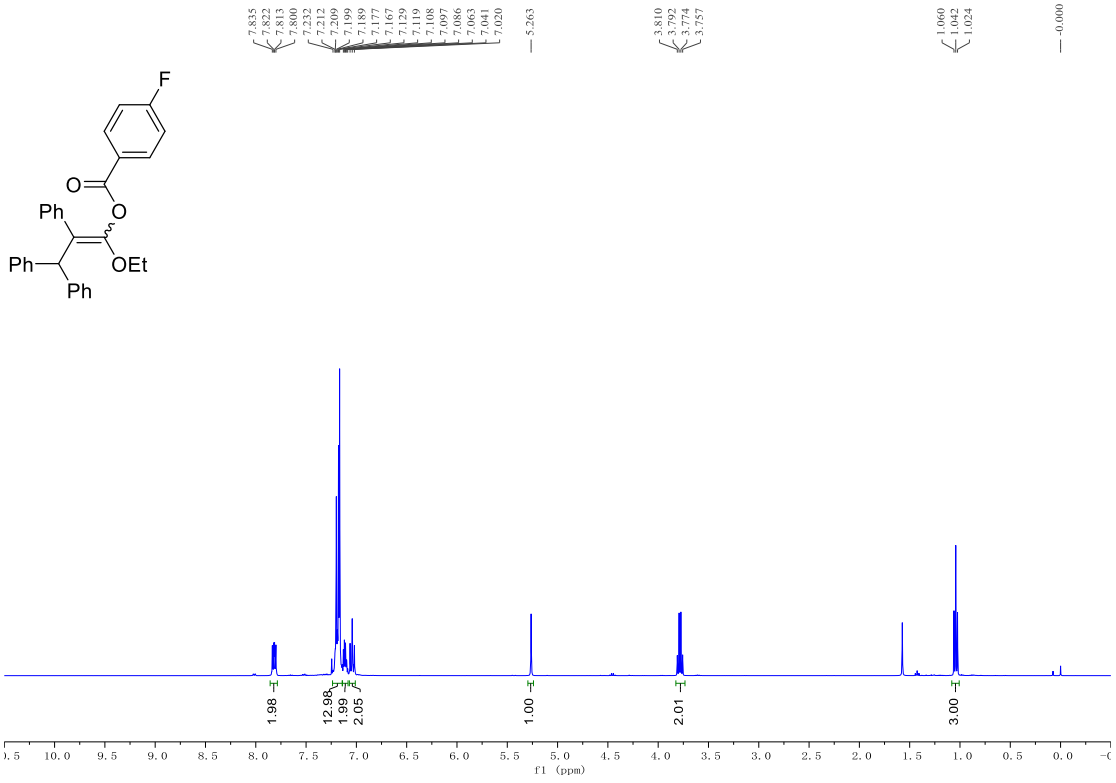


^{13}C NMR (100 MHz, $CDCl_3$)

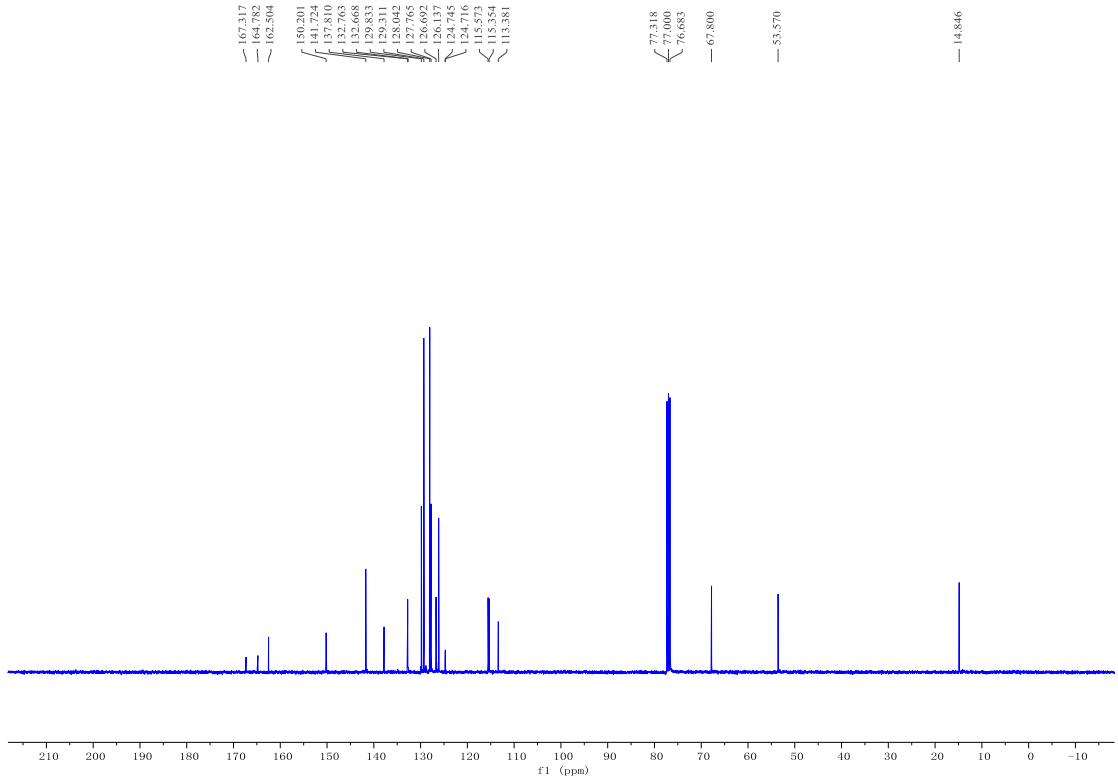


^{1}H, ^{13}C NMR and ^{19}F NMR Spectra for Compound 16(the major isomer):

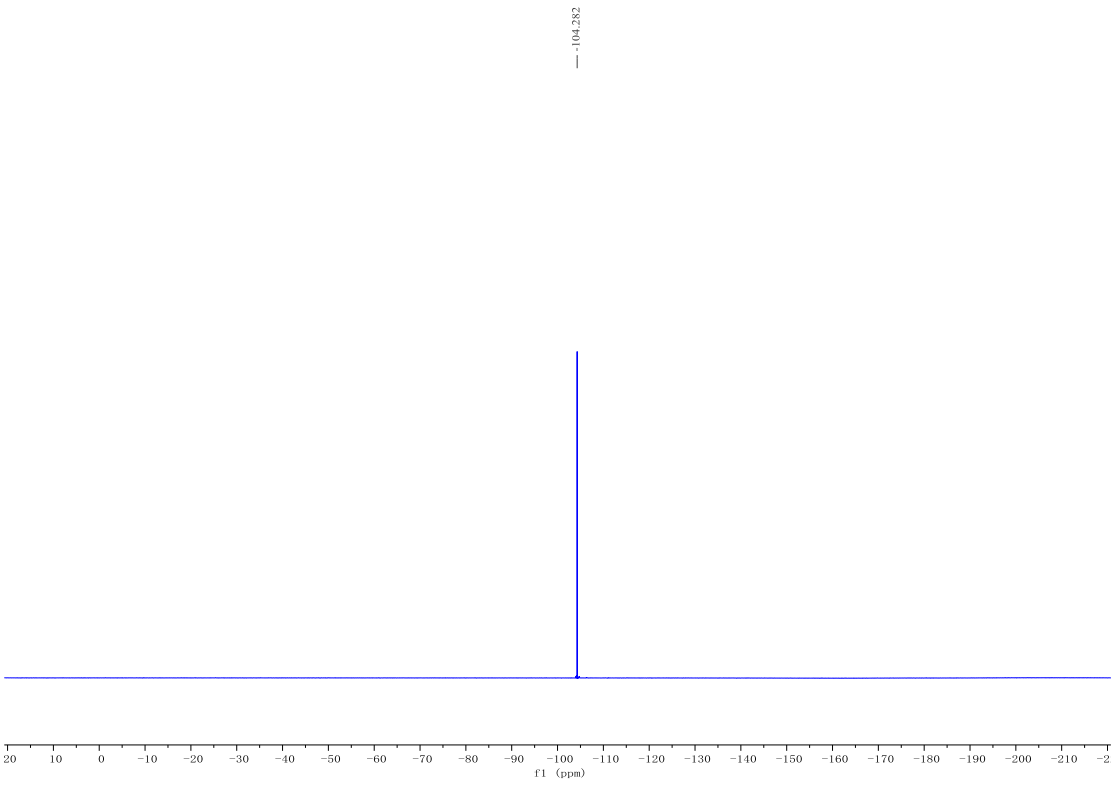
^{1}H NMR (400 MHz, $CDCl_3$)



^{13}C NMR (100 MHz, $CDCl_3$)



^{19}F NMR (400 MHz, $CDCl_3$)



16 Computational Data

All density functional theory (DFT) calculations were performed with the Gaussian 16 package.[4] The 3D structures of the optimized species were generated using CYLview.[5] Geometry optimization and vibrational frequency calculations of all stationary points were carried out at M06-2X[6]/6-31G(d,p) level of theory. To get more accurate energies, single-point energies were computed at M06-2X/cc-PVTZ level for all the species along the reaction pathway. The solvent effect of toluene was treated with the polarizable continuum model (PCM)[7] in both geometry optimizations and single-point calculations. Activation free energy barriers here are defined as the free energy difference between the transition state and the lowest-energy stationary point before it along the reaction pathway. Natural population analyses (NPA)[8] were performed at M06-2X/cc-PVTZ level of theory.

16.1 Results of the DFT Calculations

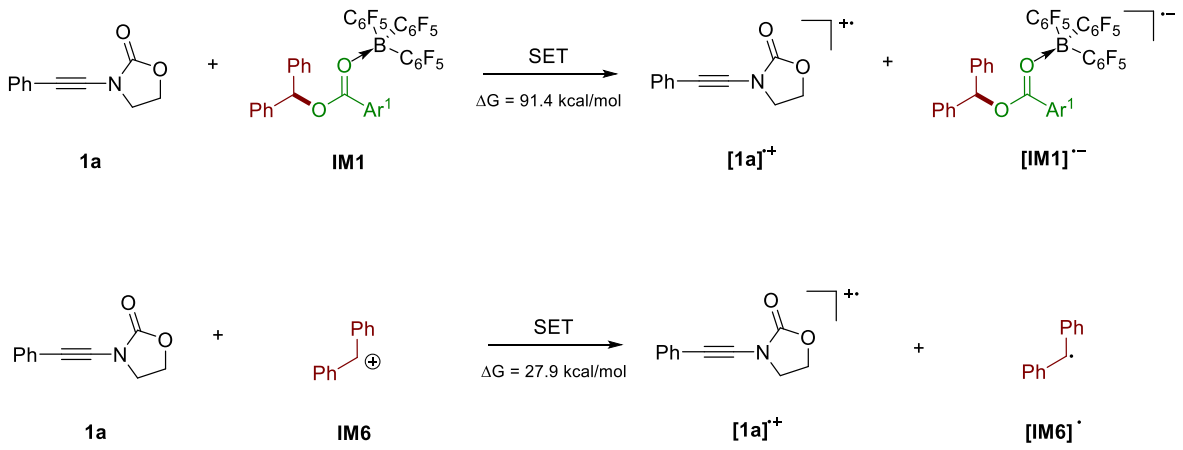


Figure S1. Computed reaction energies for SET process: ynamide **1a** and **2a**-B(C_6F_5)$_3$ adduct **IM1** (or diphenyl methylene cation **IM7**) were defined as electron donor and acceptor, respectively. (Ar^1 = *p*-FC_6H_4, energies are in kcal/mol).

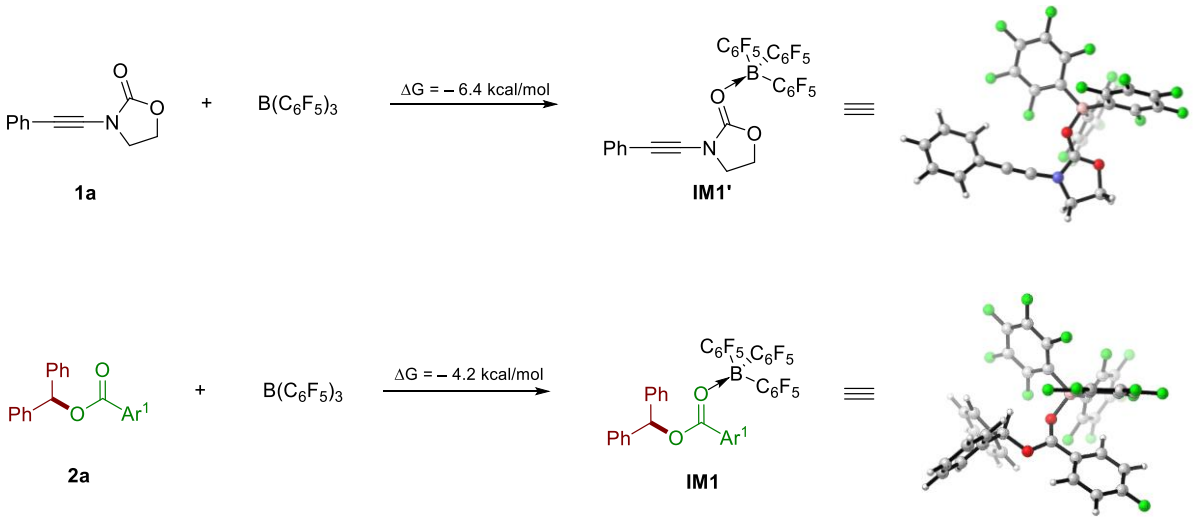
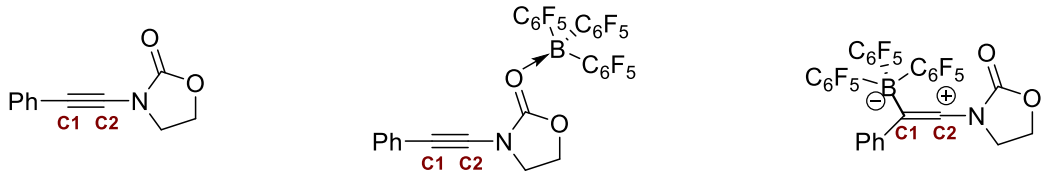


Figure S2. Calculated free energy changes and optimized geometries for the complexation of $B(C_6F_5)_3$ with ynamide **1a** or diaryl ester **2a** (Ar^1 = *p*-FC_6H_4, energies are in kcal/mol).

Table S1. The charge distributions on the selected atoms in the intermediate **IM4** and the $B(C_6F_5)_3$-ynamide complex **IM1'** via B-O complexation.



Species	**C1**	**C2**
1a	-0.025 *e*	0.172 *e*
IM1'	0.048 *e*	0.123 *e*
IM4	-0.143 *e*	0.468 *e*

Table S1 illustrates the charge distributions on the selected atoms in the intermediate **IM4** and the $B(C_6F_5)_3$-ynamide complex **IM1'** (via B-O complexation). The net positive charge on the C2 atom increases from 0.172 e in **1a** to 0.468 e in **IM4**, whereas there is only a slight change in the C1 atom, making it more electrophilic and hence more favorable for the electrophilic attack on the p bond of the alkyne moiety. However, the coordination of $B(C_6F_5)_3$ with the carbonyl oxygen of ynamide **1a** slightly alters the charge on the C2 atom of ynamide, and no nucleophilic addition intermediate via intermediate **IM1'** could be located according to our DFT calculation. These results indicate that the activation of the alkyne pathway through the formation of **IM1'** can be ruled out.

Table S2. M06-2X/6-31G(d,p) computed imaginary frequency number (ImF), free energies in toluene (G, in a.u.), M06-2X/cc-pVTZ calculated single point energies in toluene (E_{sol}, in a.u.), and corrected free energies (G_c, in a.u.) for all stationary points involved.

Species	ImF	G	E_{sol}	G_c
1a	0	-629.351898	-629.7182175	-629.5781142
2a	0	-1020.825625	-1021.433702	-1021.184074
$B(C_6F_5)_3$	0	-2207.409275	-2208.419006	-2208.320029
IM1	0	-3228.24731	-3229.885516	-3229.510814
TS1	1 (88.8*i* cm^{-1})	-3228.209218	-3229.849904	-3229.473837
IM2	0	-3228.21282	-3229.852531	-3229.477777
TS2	1 (232.2*i* cm^{-1})	-3857.568121	-3859.593539	-3859.052447
IM3	0	-3857.594472	-3859.62124	-3859.07773
E-**TS3**	1 (206.5*i* cm^{-1})	-3857.591184	-3859.616046	-3859.07404
Z-**TS3**	1 (40.9*i* cm^{-1})	-3857.596777	-3859.622441	-3859.07671
(*E*)-**3aa**	0	-1650.217037	-1651.210139	-1650.792397
(*Z*)-**3aa**	0	-1650.218407	-1651.213853	-1650.79359
TS4	1 (82.2*i* cm^{-1})	-2836.751429	-2838.146443	-2837.879738
IM4	0	-2836.757482	-2838.151372	-2837.885897
TS5	1 (198.9*i* cm^{-1})	-3857.566235	-3859.587688	-3859.045276
IM5	0	-3857.576966	-3859.602116	-3859.053776
TS1'	1 (237.9*i* cm^{-1})	-3857.557337	-3859.579897	-3859.039031

16.2 Cartesian Coordinates of the Optimized Stationary Points

1a

C	-3.29774600	0.71283400	1.45148400
C	-1.92318500	0.76417800	1.25751800
C	-1.38730900	0.53150200	-0.01218500
C	-2.22908600	0.24692700	-1.09027600
C	-3.60383100	0.19310900	-0.90940300
C	-4.10979500	0.42826700	0.36226100
H	-3.74746200	0.88663800	2.42187700
H	-1.26128400	0.98090900	2.08802700
H	-1.78745700	0.07074300	-2.06497200
H	-4.28414800	0.02431400	-1.72426100
C	0.07687000	0.58049700	-0.27136600
O	0.77798200	0.87694800	0.84041400
O	0.58726500	0.38217300	-1.34877600
C	2.19767200	1.02179800	0.67513100
H	2.54150900	0.25270100	-0.02335300
C	2.82032700	0.79619600	2.03514800
C	3.69231500	-0.26928100	2.24327700
C	2.52413800	1.66088400	3.09180400
C	4.26811800	-0.47257400	3.49692000
H	3.92027800	-0.94438800	1.42280900
C	3.08872300	1.45327700	4.34420000
H	1.85401000	2.49953800	2.92186400
C	3.96471300	0.38617600	4.54800900
H	4.94889000	-1.30352300	3.65042500
H	2.85311800	2.12625900	5.16228700
H	4.40983000	0.22828900	5.52502800
C	2.53347000	2.38908100	0.10647300
C	3.83782900	2.62674800	-0.33172300
C	1.59327800	3.41505500	0.04539200
C	4.19635200	3.87310000	-0.83070800
H	4.57377200	1.82818200	-0.27730300
C	1.95357500	4.66578500	-0.45486700
H	0.57744200	3.23784200	0.38543600
C	3.25263500	4.89792900	-0.89384900
H	5.21153600	4.04562000	-1.17324200
H	1.21342500	5.45813200	-0.50208200
H	3.53066200	5.87099200	-1.28524700
F	-5.43547600	0.37860500	0.54544300

2a

C	9.96670200	4.27797700	5.19245600
C	11.34942300	4.21865100	5.31863900
C	12.11729500	5.37485100	5.19621200
C	11.49408100	6.59621300	4.94715000
C	10.11207700	6.66691400	4.82161300
C	9.33551100	5.50513200	4.94310300
H	9.36562400	3.37971500	5.28541900
H	11.82917800	3.26480100	5.51240100

H	13.19659400	5.32440300	5.29444000
H	12.08702200	7.49988000	4.85092500
H	9.62086400	7.61460600	4.62928200
C	7.91114200	5.57729500	4.81245900
C	6.71021400	5.66139900	4.70244800
C	4.46968500	4.62848800	4.94272000
C	3.13989500	5.22185500	4.46337000
H	4.49525700	4.46273300	6.02411400
H	4.72957700	3.70530200	4.42401700
H	2.30742200	5.01232100	5.13304600
H	2.89475100	4.89487300	3.44982200
N	5.37128100	5.71439400	4.56935700
C	4.67940800	6.91171200	4.39817000
O	5.14619800	8.00359100	4.24150400
O	3.35679000	6.63840800	4.44317100

$B(C_6F_5)_3$

B	-1.30112200	-0.01742000	0.15376900
C	-2.08497800	1.34035100	0.15956500
C	-3.34797400	1.47655300	-0.42528800
C	-1.56800200	2.49817900	0.74935200
C	-4.05089200	2.67076300	-0.43813600
C	-2.24914900	3.70481500	0.77166600
C	-3.49724700	3.79010000	0.16914900
C	0.26520000	-0.01764800	0.08401100
C	0.98231600	0.96553200	-0.60525600
C	1.04079800	-1.00054600	0.70708500
C	2.36582000	0.97714300	-0.68506200
C	2.42590600	-1.01207300	0.66326800
C	3.09043700	-0.01745800	-0.04189600
C	-2.08359400	-1.37451500	0.21787600
C	-1.62115500	-2.53395400	-0.41279300
C	-3.29155200	-1.50851700	0.90991600
C	-2.30291300	-3.73982200	-0.37398100
C	-3.99221500	-2.70186500	0.98521200
C	-3.49448700	-3.82275600	0.33418700
F	-4.15860500	4.93705700	0.17364100
F	-5.24356700	2.75335100	-1.01977500
F	-3.93014300	0.43663800	-1.02529000
F	-1.72108400	4.77479600	1.35801400
F	-0.37432100	2.47726700	1.34516200
F	0.34150700	1.94585400	-1.24448300
F	3.00115900	1.92691400	-1.36468500
F	4.41308000	-0.01767700	-0.10096700
F	3.11949400	-1.96177200	1.28339700
F	0.45942400	-1.98023000	1.40159000
F	-0.48383500	-2.51589300	-1.11015500
F	-1.82880000	-4.81115800	-1.00241700
F	-4.15525400	-4.96881200	0.38800500
F	-5.13019200	-2.78171800	1.66798300
F	-3.81868600	-0.46744000	1.55683400

IM1

B	-0.82571200	-0.40230000	0.35541200

C	-0.03923400	-1.48653500	1.28357700	F	0.64506200	-2.49801100	4.72558900
C	-0.03641600	-1.53933300	2.67216500	F	-0.72372400	-0.64865000	3.39908600
C	0.69345200	-2.48883500	0.64584100	F	-3.09035700	-1.66950100	1.41095300
C	0.66786200	-2.49804400	3.39251100	F	-4.84116800	-3.26633800	0.12200300
C	1.41103800	-3.46139100	1.32791300	F	-4.57066000	-3.69194800	-2.55307800
C	1.39924500	-3.46124900	2.71592900	F	-2.54014900	-2.49763600	-3.91471700
C	-1.37520000	0.90971900	1.14331900	F	-0.81495600	-0.90712200	-2.65750100
C	-2.67104300	1.40932300	1.11621800	C	-0.50267200	4.54448700	-2.30234900
C	-0.46746800	1.68474100	1.86154000	C	0.32173200	3.52797300	-1.85060300
C	-3.05105300	2.58000500	1.76567500	C	-0.21188400	2.25827800	-1.57927400
C	-0.79503300	2.85787200	2.51917100	C	-1.57704700	2.00914800	-1.77589400
C	-2.10913700	3.30632900	2.47528100	C	-2.40829200	3.02107000	-2.22747700
C	-1.88769800	-1.21942500	-0.55816600	C	-1.85378700	4.26968600	-2.48181700
C	-1.78475300	-1.47376900	-1.91947800	H	-0.12562200	5.53776600	-2.51293000
C	-2.93738500	-1.86026400	0.09254200	H	1.37853700	3.71056500	-1.69465200
C	-2.67581800	-2.29411400	-2.60401400	H	-1.99787800	1.03228700	-1.57315100
C	-3.84777500	-2.68409200	-0.54804900	H	-3.46799100	2.86039700	-2.38458800
C	-3.70989400	-2.90499100	-1.91320900	C	0.67800000	1.20501800	-1.08814000
F	0.82734100	1.30730600	1.91525600	O	1.95183000	1.44378900	-1.24178300
F	0.12664200	3.55376900	3.18322500	O	0.34529500	0.12566500	-0.55501600
F	-2.45330200	4.43059500	3.09448400	C	2.90294000	0.55266300	-0.56754700
F	-4.30708500	3.01639100	1.69100500	H	2.46648500	0.33058400	0.41157800
F	-3.62843100	0.81058700	0.39359300	C	4.15330900	1.37988100	-0.38538400
F	0.71408400	-2.54939200	-0.69198100	C	4.19824200	2.28579600	0.67690900
F	2.09610500	-4.39961100	0.67286000	C	5.23001500	1.28761900	-1.26560700
F	2.07865100	-4.38497300	3.39105300	C	5.31449500	3.09484200	0.85879400

H	3.35365400	2.34963600	1.35926300
C	6.34774000	2.09778600	-1.08201700
H	5.19485900	0.57695100	-2.08572100
C	6.39095600	2.99990700	-0.02194700
H	5.34827500	3.79287500	1.68861400
H	7.18662600	2.02182100	-1.76582600
H	7.26527900	3.62633400	0.12180700
C	3.06795400	-0.73704100	-1.33535000
C	3.70480700	-1.79892700	-0.68957700
C	2.60291200	-0.89828700	-2.63729200
C	3.86340500	-3.01731800	-1.33885000
H	4.06942300	-1.67010700	0.32697600
C	2.76070100	-2.12201700	-3.28513900
H	2.10674000	-0.07843100	-3.14715700
C	3.38748200	-3.18167600	-2.63861100
H	4.34538100	-3.84212200	-0.82555100
H	2.38598400	-2.24503400	-4.29591500
H	3.50245800	-4.13551400	-3.14254400
F	-2.65014400	5.24551700	-2.91432500

TS1

B	-1.27090300	0.53294900	0.37212600
C	-1.96344200	-0.21701300	1.66680900
C	-3.10138800	0.16631600	2.36661800
C	-1.34347200	-1.37352400	2.14485400
C	-3.56678600	-0.50885500	3.49181000
C	-1.80154400	-2.10019900	3.23672100
C	-2.91398700	-1.64795600	3.93330000
C	-1.94155400	1.97841400	-0.01182000
C	-2.30732200	2.40399200	-1.28381000
C	-1.99178400	2.97229000	0.96164800
C	-2.69400300	3.70901000	-1.57410600
C	-2.38267200	4.28009300	0.72601400
C	-2.74010400	4.65284800	-0.56184400
C	-1.31117000	-0.58911300	-0.81720800
C	-0.24267300	-1.35828600	-1.25702900
C	-2.54902200	-0.95622900	-1.33686700
C	-0.37349400	-2.38927100	-2.18226900
C	-2.73025000	-1.97533500	-2.25778100
C	-1.62609900	-2.70273000	-2.68295000
F	-1.58892900	2.69064100	2.21504200
F	-2.39875300	5.18149100	1.71143500
F	-3.10340100	5.90687000	-0.82311400
F	-2.99761200	4.06167300	-2.82399900
F	-2.24310600	1.58118500	-2.33935100
F	-0.24171000	-1.84176800	1.54311100
F	-1.19014400	-3.22075400	3.62934500
F	-3.35653100	-2.31062800	4.99993000
F	-4.62022600	-0.04616100	4.17171300
F	-3.81729400	1.23887700	2.00893900
F	-3.64481700	-0.29134300	-0.93759800
F	-3.94279000	-2.27290200	-2.72816600
F	-1.77132300	-3.68997500	-3.56582300

F	0.69493300	-3.08550900	-2.57965800
F	1.00771000	-1.12305000	-0.81974300
C	0.81342500	4.72185900	-1.75053200
C	0.90253800	3.98657300	-0.57570800
C	0.85722000	2.59054000	-0.61478800
C	0.77530000	1.92593200	-1.83898300
C	0.71001900	2.64966900	-3.02372700
C	0.71389400	4.03489300	-2.95385000
H	0.81759200	5.80564800	-1.75250800
H	0.98373200	4.48759800	0.38342800
H	0.77582400	0.84384000	-1.86286800
H	0.64481600	2.16159400	-3.98884900
C	0.90021400	1.84019600	0.67961400
O	1.68036600	2.22020800	1.55666400
O	0.15064200	0.79483600	0.86573100
C	1.70357000	1.23260700	3.64787900
H	2.58765300	1.84220600	3.50161600
C	0.61225700	1.87154200	4.30354800
C	0.80774100	3.19615200	4.75718900
C	-0.65465600	1.26591100	4.46088900
C	-0.21563400	3.87507000	5.39117900
H	1.77207600	3.67063000	4.60199600
C	-1.67632700	1.95279300	5.09442700
H	-0.83702100	0.28377000	4.04415100
C	-1.45497100	3.25004700	5.56017000
H	-0.06469600	4.88879300	5.74355900
H	-2.65671600	1.49864200	5.19449800
H	-2.26335200	3.78899300	6.04368100
C	1.85381800	-0.17550300	3.38099500
C	2.68084800	-0.57980800	2.31353300
C	1.29815200	-1.15049500	4.23311800
C	2.89842500	-1.92370100	2.07285200
H	3.09864100	0.17923500	1.66075200
C	1.56636000	-2.49476400	4.01408800
H	0.72674000	-0.84901600	5.10417100
C	2.34694100	-2.88138800	2.92748800
H	3.50099700	-2.23138700	1.22584600
H	1.15975500	-3.23992000	4.68705400
H	2.53566700	-3.93488800	2.74901400
F	0.63053700	4.73920600	-4.09012000

IM2

B	-1.06844200	0.68411900	0.43127800
C	-1.74423900	-0.08874200	1.73128700
C	-2.92358700	0.24649100	2.39072300
C	-1.17271700	-1.28963800	2.15529500
C	-3.47629400	-0.52081100	3.41316300
C	-1.70734600	-2.10354300	3.14707200
C	-2.86971800	-1.70675000	3.79408900
C	-1.78378500	2.11452900	0.07528200
C	-2.23026600	2.53869400	-1.17081900
C	-1.79675700	3.09913100	1.05746900
C	-2.63369400	3.84430800	-1.43409500

C	-2.20192800	4.40705800	0.84927500	C	0.73878500	1.95576500	-2.11215000
C	-2.62237400	4.78533400	-0.41805900	C	0.48827000	2.68899700	-3.26807800
C	-1.16271800	-0.44724300	-0.75115300	C	0.42381500	4.06992300	-3.17809900
C	-0.10985000	-1.21640400	-1.22682700	H	0.59702400	5.83081200	-1.96931500
C	-2.41978800	-0.82973700	-1.21009200	H	1.10313200	4.50524700	0.10009400
C	-0.27289400	-2.25963700	-2.13264800	H	0.79567300	0.87664200	-2.16328900
C	-2.63368400	-1.86150400	-2.11002100	H	0.33002200	2.20662900	-4.22534400
C	-1.54417600	-2.58676000	-2.57472200	C	1.20372500	1.87578800	0.38861400
F	-1.36960600	2.79640500	2.29712800	O	2.21289500	2.16174500	1.02127500
F	-2.17958100	5.30034900	1.84328100	O	0.36777700	0.96668500	0.84046300
F	-2.99745700	6.04117800	-0.65581600	C	1.40899300	1.00913500	3.61820600
F	-3.00150800	4.20257100	-2.66546700	H	2.05191000	1.64337600	3.00957800
F	-2.24276100	1.71302300	-2.22617700	C	0.38237000	1.69122000	4.31872500
F	-0.05098900	-1.74004800	1.57397400	C	0.51971000	3.09494500	4.45002500
F	-1.12740300	-3.26076900	3.47704300	C	-0.80556100	1.06873700	4.76930200
F	-3.39814400	-2.45989100	4.75685000	C	-0.46495400	3.83870500	5.07223000
F	-4.58017100	-0.11197000	4.04459000	H	1.41040900	3.57504000	4.05581100
F	-3.61141500	1.35209500	2.08386100	C	-1.80436500	1.82514800	5.35256000
F	-3.50347100	-0.17370900	-0.76529400	H	-0.96316500	0.01369200	4.58305900
F	-3.86372700	-2.17384000	-2.52197000	C	-1.62758100	3.20282300	5.51545500
F	-1.72097400	-3.58590500	-3.43830300	H	-0.35430900	4.91096300	5.18332200
F	0.78203000	-2.95370000	-2.56809500	H	-2.73635800	1.35627100	5.65029100
F	1.15791600	-0.96425000	-0.85010600	H	-2.41904700	3.79164200	5.96782000
C	0.64415000	4.74795800	-1.98598700	C	1.70867600	-0.37249300	3.54794700
C	0.91797200	4.00539100	-0.84524000	C	2.53095800	-0.77579600	2.46590100
C	0.93170600	2.60799600	-0.89549000	C	1.25796900	-1.33796200	4.48256600

C	2.84487400	-2.11191000	2.29338800
H	2.85755000	-0.01992100	1.75760300
C	1.59070000	-2.66587400	4.30679400
H	0.70616300	-1.02666800	5.36267100
C	2.36901100	-3.05166600	3.20751700
H	3.44861100	-2.42638000	1.45016800
H	1.25636500	-3.40933300	5.02067400
H	2.61674600	-4.10015400	3.07574900
F	0.15761700	4.78061200	-4.28333700

TS2

B	-0.99343300	0.38989200	0.12257200
C	-1.64399100	-0.34135600	1.45327500
C	-2.69096400	0.10024600	2.25565700
C	-1.09118200	-1.56130600	1.84154200
C	-3.11547400	-0.57853000	3.39414700
C	-1.50298700	-2.28557600	2.95152100
C	-2.50678900	-1.76901400	3.75574900
C	-1.55286900	1.90659600	-0.16344400
C	-1.92536300	2.43746600	-1.39309800
C	-1.46818000	2.84531300	0.85730300
C	-2.19479400	3.78860300	-1.59151000
C	-1.73662100	4.19635800	0.71966400
C	-2.10743200	4.67428500	-0.52888900
C	-1.25217400	-0.65878500	-1.10469900
C	-0.31526400	-1.50411600	-1.68215300
C	-2.56101200	-0.85554800	-1.53619300
C	-0.63616400	-2.45275000	-2.64912700
C	-2.92971700	-1.78706500	-2.49286700
C	-1.95224700	-2.59880100	-3.05361500
F	-1.03835500	2.44831800	2.07010400
F	-1.62372200	5.02875300	1.75780600
F	-2.36096900	5.96906300	-0.70821400
F	-2.51938400	4.24183300	-2.80342300
F	-1.98629600	1.67343400	-2.49210700
F	-0.07768600	-2.09194600	1.13885300
F	-0.93069000	-3.45123100	3.26349800
F	-2.88304200	-2.40458000	4.86675600
F	-4.09223200	-0.08209300	4.16112500
F	-3.35635200	1.22939000	1.98057200
F	-3.53927800	-0.09850300	-1.01346200
F	-4.20220000	-1.92041400	-2.87306600
F	-2.27844000	-3.50534800	-3.97463500
F	0.31187900	-3.23032900	-3.17944800
F	0.98477900	-1.43263400	-1.34791400
C	1.41753600	4.52059800	-1.91915800
C	1.43934500	3.75542300	-0.75936100
C	1.27669000	2.36920400	-0.83180100
C	1.12335200	1.74289600	-2.07051200
C	1.12009100	2.49519000	-3.23848300
C	1.25547800	3.87256200	-3.13673000
H	1.51473500	5.59981200	-1.89660900
H	1.55082400	4.23153100	0.20965800

H	1.01846600	0.66521400	-2.11141000
H	1.00323400	2.03868700	-4.21420000
C	1.23357000	1.57726100	0.43582800
O	1.91192300	1.91081200	1.40499800
O	0.48836900	0.50132600	0.47713400
F	1.23543200	4.60685100	-4.25757600
C	0.25630700	1.37091700	4.35673700
H	0.65272700	1.78260300	3.42769500
C	-0.89325500	2.08014500	4.89628000
C	-0.99652400	3.46339800	4.63442300
C	-1.93056300	1.44121600	5.59828800
C	-2.08059700	4.18671400	5.10026700
H	-0.21225700	3.95918800	4.06928100
C	-3.02289800	2.17177900	6.05048800
H	-1.92356800	0.36655700	5.73485900
C	-3.09223600	3.54254400	5.81844600
H	-2.14865300	5.24840800	4.89053600
H	-3.82949100	1.66218600	6.56533300
H	-3.94734900	4.10832300	6.17387400
C	0.61099600	-0.01206500	4.58820200
C	1.30778400	-0.66928300	3.55290200
C	0.33282300	-0.70702500	5.78346300
C	1.67647300	-1.99834300	3.69301800
H	1.50808700	-0.12874100	2.62980800
C	0.71089000	-2.03584800	5.91512300
H	-0.14062000	-0.19918900	6.61614900
C	1.37659200	-2.68101900	4.87240500
H	2.17532700	-2.50900600	2.87712400
H	0.49454900	-2.56767100	6.83508900
H	1.65798300	-3.72375900	4.97801100
C	0.41202800	2.63414100	7.71796500
C	0.08133300	2.23270700	9.00778600
C	0.80873200	1.22766600	9.64209500
C	1.87945500	0.62079500	8.98701800
C	2.21859300	1.00876700	7.69714300
C	1.48472100	2.01970300	7.05696100
H	-0.15228600	3.41652200	7.22118800
H	-0.74902500	2.70903400	9.51784700
H	0.54397800	0.91957500	10.64799600
H	2.44862600	-0.16049700	9.47918600
H	3.03779100	0.53048400	7.17061100
C	1.81339300	2.34946900	5.69744200
C	2.43513400	2.78253600	4.72751500
C	4.17830500	2.46778500	3.00609400
C	4.39654200	3.33380800	1.74742500
H	3.88942900	1.44874500	2.75094600
H	5.03484200	2.47472200	3.68101400
H	4.20977200	2.76925300	0.83551600
H	5.37980700	3.80230600	1.72377400
N	3.04544600	3.16017600	3.62835500
C	2.57379100	4.22358400	2.82376000
O	1.59352600	4.87814300	3.03488000

O	3.41784700	4.38344000	1.81068700

IM3

B	-0.81701600	0.48043400	0.21334200
C	-1.46556700	-0.20706400	1.56000900
C	-2.52713300	0.26418900	2.32460000
C	-0.98331600	-1.45883800	1.94022200
C	-3.07017800	-0.44180900	3.39373900
C	-1.46488500	-2.17760800	3.02451700
C	-2.53587400	-1.66985600	3.74489200
C	-1.27718700	2.03565800	-0.02409200
C	-1.71102000	2.59903400	-1.21810600
C	-1.04916500	2.95258700	0.99691600
C	-1.91052000	3.96555600	-1.38864200
C	-1.24884400	4.31873700	0.88410500
C	-1.68465400	4.83058000	-0.33060100
C	-1.22416400	-0.54765000	-0.99175000
C	-0.39488300	-1.48375200	-1.59282800
C	-2.56691400	-0.64323800	-1.34833400
C	-0.84374900	-2.41960500	-2.52034400
C	-3.06179800	-1.55782500	-2.26324600
C	-2.18667400	-2.46000600	-2.85473900
F	-0.55495600	2.51462400	2.17305900
F	-1.01719700	5.13852500	1.91017500
F	-1.86971400	6.14120100	-0.47999100
F	-2.29450000	4.45130900	-2.57020100
F	-1.90468800	1.85010800	-2.31233600
F	-0.01451200	-2.04669900	1.21772900
F	-0.92856400	-3.35148800	3.36667700
F	-3.02338600	-2.34587000	4.78581100
F	-4.09887600	0.05663500	4.08371800
F	-3.10472000	1.44464800	2.05958400
F	-3.45150500	0.19572700	-0.78574100
F	-4.35950300	-1.59141300	-2.57289000
F	-2.63594600	-3.35223800	-3.73698000
F	0.00705500	-3.28523700	-3.07829000
F	0.92266700	-1.51787400	-1.32437200
C	1.52208000	4.34252800	-2.19808700
C	1.62869800	3.62453100	-1.01364900
C	1.45245600	2.23777800	-1.01057700
C	1.20320700	1.56308300	-2.20683100
C	1.11552900	2.26700000	-3.40207200
C	1.26231900	3.64595100	-3.37120600
H	1.62165300	5.42144100	-2.22702600
H	1.80653900	4.14682600	-0.07863100
H	1.09236400	0.48599100	-2.19644800
H	0.92263000	1.77012900	-4.34548100
C	1.50112400	1.50285700	0.29367500
O	2.30743600	1.83488800	1.16007000
O	0.69177000	0.49405700	0.48261400
F	1.15849000	4.33294300	-4.51640300
C	2.16453200	1.53491500	4.85072900
C	2.73246200	2.34617600	4.01718500

C	4.56422900	2.82995700	2.46667300
C	4.44508400	3.80757600	1.28792600
H	4.57026600	1.79041300	2.14638100
H	5.40145000	3.05547500	3.12801300
H	4.12671500	3.29760600	0.37977000
H	5.34762700	4.39298100	1.12732200
N	3.31100400	3.10287400	3.19619200
C	2.64513400	4.30030500	2.64600600
O	1.63382400	4.74585100	3.06974200
O	3.39773000	4.73149000	1.65292200
C	1.17737100	0.48776700	4.28079300
H	0.96108200	0.78370300	3.24649600
C	1.89596000	-0.84722800	4.23598800
C	2.15624600	-1.40742800	2.98423100
C	2.34318400	-1.50570500	5.38882200
C	2.81353100	-2.63150200	2.88448700
H	1.82717600	-0.88681600	2.08880400
C	3.01206500	-2.72131800	5.28437000
H	2.16168300	-1.07528500	6.36963700
C	3.24317400	-3.28982100	4.03266900
H	2.98551700	-3.06715700	1.90563300
H	3.34804000	-3.22782600	6.18335400
H	3.75526500	-4.24352800	3.95577200
C	-0.12233200	0.57167800	5.07259000
C	-0.84824000	1.76849900	5.00641700
C	-0.60565300	-0.47063600	5.86139700
C	-2.02924200	1.91988900	5.72251100
H	-0.48067800	2.58680900	4.39449800
C	-1.78794700	-0.31393400	6.58685200
H	-0.08447400	-1.42109400	5.89196100
C	-2.49898600	0.87815100	6.52320700
H	-2.58580700	2.84849000	5.65153600
H	-2.15812900	-1.13875900	7.18619300
H	-3.42399500	0.99243500	7.07841800
C	2.59781700	1.58598500	6.27969500
C	3.94746800	1.34803200	6.56380600
C	1.69237500	1.82700300	7.31866400
C	4.39035500	1.34047300	7.88187300
H	4.63646900	1.13473800	5.75169100
C	2.14806900	1.81930100	8.63339700
H	0.64930200	2.02704700	7.10373600
C	3.49004100	1.57503400	8.91771200
H	5.43518800	1.14506700	8.09737700
H	1.44728300	2.00858100	9.43922000
H	3.83333700	1.56811100	9.94675700

Z-**TS3**

B	-0.07313100	0.95202500	-0.18807900
C	-0.02996600	-0.11944800	1.06297700
C	-0.44327500	0.08563200	2.37730600
C	0.40807500	-1.41423800	0.80200300
C	-0.35882300	-0.88754600	3.36626300

C	0.51985800	-2.41443500	1.75587800
C	0.13397200	-2.14547100	3.05825100
C	-0.49133100	2.46451700	0.28115700
C	-1.48203200	3.26254800	-0.27965300
C	0.26754500	3.08808200	1.26926100
C	-1.70727700	4.58349100	0.09617400
C	0.03663400	4.37849800	1.71752700
C	-0.94275800	5.14573600	1.10334800
C	-1.08532800	0.24572700	-1.26367400
C	-0.70948100	-0.42043300	-2.42113200
C	-2.42737000	0.10632400	-0.92179000
C	-1.59807400	-1.12732800	-3.22383400
C	-3.35178900	-0.58783700	-1.68624800
C	-2.92973600	-1.21339300	-2.85207100
F	1.28203700	2.41633100	1.85125900
F	0.73906800	4.90540700	2.72953500
F	-1.14220800	6.40512900	1.48946300
F	-2.63848200	5.31308100	-0.51928200
F	-2.26241400	2.81290800	-1.27121000
F	0.78634000	-1.75534200	-0.44613100
F	1.00292900	-3.61485000	1.43004900
F	0.23003200	-3.08249900	4.00015100
F	-0.75515400	-0.62103800	4.61273900
F	-0.95858500	1.25648300	2.77749200
F	-2.87291800	0.66762400	0.21264600
F	-4.62933600	-0.67415400	-1.31222100
F	-3.79709900	-1.88898000	-3.60455100
F	-1.17667200	-1.73116400	-4.33811700
F	0.56839400	-0.39025700	-2.85235400
C	0.66680200	5.41137700	-2.29011100
C	1.39984300	4.37802800	-1.72616900
C	1.12728700	3.04846600	-2.06228700
C	0.16460500	2.75764300	-3.02689200
C	-0.55667600	3.78790800	-3.62348900
C	-0.30912500	5.09198200	-3.22636400
H	0.83787300	6.44729700	-2.01887500
H	2.16880200	4.59104100	-0.99349800
H	-0.01147800	1.73461400	-3.32931500
H	-1.31260000	3.59204300	-4.37468000
C	1.94145600	2.00585800	-1.35611100
O	3.16636900	2.12573300	-1.37411700
O	1.37428000	1.01401700	-0.70958300
F	-1.02140900	6.08398600	-3.77922100
C	4.77322300	2.79666900	1.08761800
C	4.35043900	1.64552700	0.66856300
C	4.68668300	-0.36213200	-0.67935000
C	3.63373700	-1.46804700	-0.71264700
H	5.68879400	-0.72513700	-0.43765400
H	4.67926500	0.27334200	-1.56246700
H	4.02503800	-2.43610800	-1.01472900
H	2.76087100	-1.18321300	-1.30129100
N	4.18922400	0.41014200	0.47059400

C	3.34276300	-0.44125200	1.31130700
O	2.93811200	-0.13164700	2.38366000
O	3.21136700	-1.58556300	0.66733700
C	5.92504700	2.73110700	2.12391900
C	6.60825000	1.37070000	2.11950000
C	7.57757900	1.11622100	1.14405800
C	6.22270300	0.34066500	2.97921400
C	8.15400100	-0.14535000	1.02729500
H	7.88007800	1.91432400	0.46993200
C	6.78847900	-0.92723900	2.85281000
H	5.47293500	0.52149600	3.74275000
C	7.75329500	-1.17397900	1.87897500
H	8.91402700	-0.32443600	0.27366400
H	6.47642900	-1.72085000	3.52359400
H	8.19764300	-2.15974300	1.78961300
C	4.27457500	4.13418700	0.66230500
C	4.85081800	4.73840700	-0.45779700
C	3.31459200	4.80585400	1.41601100
C	4.46659200	6.02630200	-0.81589500
H	5.58296300	4.19547100	-1.04699100
C	2.92586400	6.09212200	1.04254600
H	2.87069500	4.32609700	2.27891100
C	3.50741100	6.70540800	-0.06408000
H	4.90921600	6.49564100	-1.68779900
H	2.16114100	6.60162900	1.61933800
H	3.20784500	7.70889500	-0.34845700
C	5.40344700	3.19322700	3.47387000
C	6.16840100	4.08648200	4.22481900
C	4.18638000	2.73315800	3.98663000
C	5.73165100	4.50838900	5.47729000
H	7.11089200	4.45217900	3.82655900
C	3.74934800	3.15933100	5.23828200
H	3.56775400	2.05124600	3.40726500
C	4.52058700	4.04592700	5.98583900
H	6.33487100	5.20365400	6.05165000
H	2.80083600	2.80056500	5.62362000
H	4.17574400	4.37989900	6.95875700
H	6.64337900	3.47705200	1.76225600

E-**TS3**

B	-1.26539300	0.87617400	0.57117500
C	-2.21552500	0.27453600	1.75929600
C	-3.47445000	0.73503000	2.12778100
C	-1.78134800	-0.85148100	2.45469000
C	-4.22812200	0.16007900	3.14534000
C	-2.50426800	-1.46603800	3.46511900
C	-3.73688700	-0.94312300	3.82291100
C	-1.72904100	2.34060800	0.02264900
C	-1.87921900	2.71330200	-1.30746000
C	-1.86369600	3.37991100	0.93941200
C	-2.12263400	4.02248800	-1.71008000
C	-2.11870100	4.69564900	0.58672000
C	-2.24498000	5.02001000	-0.75742500

C	-1.19467500	-0.31293300	-0.54765700	C	1.20327200	3.97651000	-2.73787800
C	-0.12583400	-1.16329900	-0.78584900	H	1.19938800	5.68858400	-1.44583000
C	-2.36701300	-0.64656000	-1.22123500	H	1.18157700	4.28908700	0.62200000
C	-0.18608600	-2.25031900	-1.65196400	H	1.21876300	0.73455200	-1.80332000
C	-2.47838200	-1.71720700	-2.09303200	H	1.22262400	2.15436700	-3.85797000
C	-1.37286100	-2.53140300	-2.30758000	C	1.16647000	1.64045700	0.81816300
F	-1.72769700	3.12641100	2.25343300	O	2.22246900	1.64210600	1.47830800
F	-2.23403700	5.64756800	1.51409800	O	0.11070600	1.05126800	1.24984300
F	-2.46686800	6.28035800	-1.12582300	F	1.19612200	4.73283400	-3.84269100
F	-2.20135400	4.32790200	-3.00650100	C	2.42438200	1.05348000	4.28326900
F	-1.74124100	1.82234000	-2.30002500	C	2.85672100	1.95925300	3.45430200
F	-0.58509500	-1.39925000	2.16673900	C	4.80454400	2.91384300	2.32114800
F	-2.02300400	-2.53396900	4.10386700	C	4.53814700	3.96078900	1.23669600
F	-4.42925400	-1.48435800	4.82395200	H	4.94464000	1.91241500	1.91838100
F	-5.41686900	0.66802300	3.48019000	H	5.62690200	3.18732400	2.98453300
F	-4.03650500	1.78800800	1.51803000	H	4.09242600	3.51253600	0.34596900
F	-3.46085200	0.10500300	-1.02969100	H	5.41019800	4.55843600	0.98264600
F	-3.62624800	-1.98082300	-2.71761000	N	3.54073100	2.98386100	3.07586200
F	-1.45327500	-3.56727700	-3.14049300	C	2.84219500	4.21084700	2.74652800
F	0.88623100	-3.01988300	-1.85210400	O	1.80550400	4.54984400	3.22034800
F	1.07704000	-0.95118700	-0.20526900	O	3.55534000	4.84128900	1.82066900
C	1.21020100	4.60596600	-1.49907600	C	1.46026500	-0.08331100	3.96504800
C	1.21074500	3.81713800	-0.35653400	H	1.18473800	0.03441500	2.91697900
C	1.18322100	2.42123300	-0.46515300	C	2.16604500	-1.41954400	4.10513100
C	1.20617800	1.81374300	-1.71860000	C	2.32828400	-2.19784800	2.95590000
C	1.21703800	2.59755300	-2.86924900	C	2.67912000	-1.89007900	5.32011300

C	2.98494900	-3.42398000	3.01685600
H	1.92928500	-1.83893000	2.01117600
C	3.33619400	-3.11595800	5.37930100
H	2.56022400	-1.30322600	6.22613100
C	3.49174000	-3.88533400	4.22858800
H	3.09751200	-4.01873700	2.11623000
H	3.72498700	-3.47052000	6.32844700
H	4.00241200	-4.84160400	4.27796400
C	0.18801800	0.13152700	4.78036400
C	-0.54982400	1.29268900	4.51068200
C	-0.27976500	-0.76099000	5.74141800
C	-1.72685800	1.56046600	5.19716800
H	-0.20630000	1.98159800	3.74276600
C	-1.46073200	-0.48908100	6.43550000
H	0.25212100	-1.68542400	5.93444600
C	-2.18155500	0.67010900	6.17240100
H	-2.29416000	2.45442200	4.95788200
H	-1.82163900	-1.19850900	7.17318000
H	-3.10552300	0.87070500	6.70565000
C	3.00302000	1.23618100	5.65866900
C	4.35545700	0.94962600	5.86091600
C	2.19815200	1.64273000	6.72681200
C	4.90164100	1.04978900	7.13635500
H	4.96285800	0.61747700	5.02381300
C	2.75497400	1.74026600	7.99874900
H	1.15307700	1.88141800	6.56228700
C	4.10044200	1.44227600	8.20580400
H	5.94915200	0.81659300	7.29411600
H	2.13333500	2.05545100	8.82982100
H	4.52488400	1.51946400	9.20124200

(*Z*)-**3aa**

C	10.89620300	7.73127700	-9.58866000
C	11.60754100	6.85149000	-8.78340100
C	10.93191400	6.05249500	-7.85662600
C	9.54237800	6.13668900	-7.73165100
C	8.82102200	7.00981400	-8.53262500
C	9.51640100	7.79052400	-9.44698300
H	11.38612800	8.36858400	-10.31511900
H	12.68613700	6.78641900	-8.86426100
H	9.04392300	5.50954300	-7.00058400
H	7.74342400	7.09852500	-8.46323300
C	11.64569500	5.10412700	-6.96684300
O	12.97853100	5.06178200	-7.23426500
O	11.13121300	4.44509000	-6.09809800
F	8.82790900	8.63632000	-10.22262900
C	14.70596600	4.61711600	-5.68948700
C	13.74543800	4.15339600	-6.49786500
C	13.31241500	2.35652500	-8.17612600
C	13.10396900	0.86137100	-7.91662200
H	14.21656800	2.55291000	-8.75714200
H	12.45123100	2.82446100	-8.66757800
H	14.05117800	0.31714600	-7.96561200

H	12.36765100	0.40453800	-8.57656300
N	13.46175300	2.82601000	-6.80799200
C	12.92789200	1.92408200	-5.90416600
O	12.76625200	2.06750800	-4.72311600
O	12.61231300	0.79089600	-6.57330100
C	15.81595900	3.78630700	-5.06060500
H	16.72578000	4.36610800	-5.27314200
C	15.72084400	3.73879800	-3.54074900
C	16.89992400	3.59797000	-2.80358500
C	14.50324200	3.81026400	-2.86490100
C	16.86709700	3.53013200	-1.41524300
H	17.85100000	3.53773500	-3.32793900
C	14.46944500	3.74394000	-1.47280200
H	13.58177500	3.88963700	-3.43215000
C	15.64730700	3.60565500	-0.74485000
H	17.79169100	3.42334700	-0.85673000
H	13.51539800	3.79860800	-0.95823400
H	15.61708400	3.55651300	0.33897000
C	16.05964400	2.42560900	-5.70286500
C	16.61643500	2.38186200	-6.98551300
C	15.76043000	1.22668500	-5.05664300
C	16.85496100	1.16708700	-7.61910900
H	16.85824700	3.31515000	-7.49069800
C	15.99109200	0.00705600	-5.69249100
H	15.32280800	1.24949700	-4.06393700
C	16.54102600	-0.02871700	-6.97115500
H	17.29353300	1.15100300	-8.61225800
H	15.74204100	-0.91758100	-5.18181100
H	16.72960600	-0.97996700	-7.45882200
C	14.72725000	6.07138500	-5.36066600
C	15.86942600	6.84396300	-5.58845700
C	13.60045400	6.68111300	-4.79677700
C	15.88252900	8.19887600	-5.26874600
H	16.74979600	6.39124200	-6.03623100
C	13.61404700	8.03387200	-4.47617900
H	12.71622000	6.07903700	-4.60272800
C	14.75601000	8.79709400	-4.71103500
H	16.77438300	8.78751900	-5.45798100
H	12.73401400	8.49095000	-4.03544100
H	14.76861500	9.85205200	-4.45729900

(*E*)-**3aa**

C	7.07447600	-0.03659000	0.07583400
C	5.97229400	0.31445700	0.84431600
C	5.91236800	1.57531900	1.44461700
C	6.95862900	2.48673600	1.27653900
C	8.06462100	2.14764500	0.51113400
C	8.09839700	0.88886900	-0.07476400
H	7.15547600	-1.00480400	-0.40371600
H	5.15774200	-0.38724600	0.98132500
H	6.88813300	3.45721800	1.75539800
H	8.89273000	2.83014600	0.36160000
C	4.76066800	2.00137500	2.27750400

O	3.81901800	1.01882600	2.38759400
O	4.64903500	3.07500700	2.81031600
F	9.16144100	0.55358200	-0.81504400
C	2.37267800	0.80544000	4.26740000
C	2.65766300	1.35322300	3.08505700
C	1.14186000	2.00936600	1.17637400
C	0.65340500	3.42473700	0.84210400
H	0.31679000	1.30820200	1.34793600
H	1.80833300	1.60606500	0.41111600
H	-0.36126400	3.44878400	0.44723000
H	1.33230300	3.93180600	0.15117200
N	1.85016400	2.27587600	2.41724600
C	1.48559200	3.48879600	2.97023400
O	1.80233000	3.94342900	4.03536700
O	0.67023900	4.12389800	2.09101100
C	3.39349000	-0.04553700	5.01044400
H	4.22534500	-0.21371300	4.31777300
C	3.98019200	0.69929500	6.21408400
C	4.15656200	2.08711100	6.16157200
C	4.44476300	0.00593400	7.33464300
C	4.76341100	2.76278100	7.21724300
H	3.80639100	2.64833600	5.29776100
C	5.05516800	0.68345000	8.38767400
H	4.32973900	-1.07203400	7.38658900
C	5.21301000	2.06520300	8.33553200
H	4.88299900	3.84009400	7.16122900
H	5.40636300	0.12653600	9.25078400
H	5.68360300	2.59380800	9.15833200
C	2.79557100	-1.41044400	5.31560500
C	1.89960300	-1.60862600	6.37202300
C	3.09289400	-2.48653800	4.47861100
C	1.32316200	-2.85636100	6.58493100
H	1.65446300	-0.77774500	7.02788900
C	2.51684000	-3.73783200	4.68882700
H	3.78297700	-2.33971700	3.65106200
C	1.62988200	-3.92537600	5.74427700
H	0.63025000	-2.99392100	7.40886600
H	2.76393600	-4.56406300	4.02971700
H	1.18022900	-4.89854300	5.91336600
C	1.00878700	0.98185900	4.84274100
C	-0.04909200	0.26373500	4.27457200
C	0.76264000	1.79182300	5.95556200
C	-1.33200100	0.34993300	4.80702400
H	0.15087300	-0.38698400	3.42715700
C	-0.52113900	1.87337000	6.48827600
H	1.57116400	2.36983600	6.38774000
C	-1.56920500	1.15394600	5.91881200
H	-2.14187300	-0.21736000	4.35964300
H	-0.70341900	2.50955900	7.34831800
H	-2.56755800	1.22150400	6.33903600

TS1’

B	-2.08648700	-0.16200000	0.64384600	F	-5.41231100	-4.01131700	3.49324900
C	-3.07341000	-1.22284700	1.43668400	F	-6.57248300	-1.84297500	2.30472000
C	-4.45776700	-1.12610500	1.52128200	F	-5.11683200	-0.07653800	1.00169600
C	-2.53725800	-2.36736700	2.02639000	F	-4.03366600	-0.56680900	-1.41010200
C	-5.25608200	-2.04728000	2.19320400	F	-3.77175400	-2.00432400	-3.66002600
C	-3.29444900	-3.29953600	2.72693000	F	-1.39354700	-3.19794600	-4.24777800
C	-4.67030200	-3.13854100	2.81536700	F	0.71558900	-2.90526600	-2.55050500
C	-2.76597000	1.33011900	0.55608300	F	0.48669900	-1.45347800	-0.34129100
C	-2.86629800	2.13588100	-0.57114100	C	0.09367600	4.40895100	0.06401700
C	-3.07798500	1.97382700	1.74720400	C	0.01943800	3.39378000	1.00901200
C	-3.20258900	3.48527000	-0.51663900	C	0.07083000	2.05285200	0.61547500
C	-3.40934500	3.31315200	1.85938500	C	0.26591400	1.73207500	-0.72750400
C	-3.47303200	4.08153000	0.70540600	C	0.36560600	2.73873500	-1.68225700
C	-1.78926600	-0.91714700	-0.77832200	C	0.25528400	4.05758800	-1.26989100
C	-0.60694200	-1.56587200	-1.11266100	H	0.02858300	5.45604400	0.33703700
C	-2.83686400	-1.11575900	-1.67357700	H	-0.09023400	3.62937000	2.06374000
C	-0.45209400	-2.32200700	-2.27136300	H	0.35472300	0.69615700	-1.02555900
C	-2.73125500	-1.85963800	-2.83758200	H	0.51428100	2.51667600	-2.73236200
C	-1.52226100	-2.47410300	-3.13694800	C	-0.08204300	1.01745800	1.69395300
F	-2.99387200	1.29224300	2.92478700	O	0.50803000	1.17753000	2.74978600
F	-3.62079300	3.86554500	3.05711900	O	-0.86105900	-0.02941500	1.50855600
F	-3.76888300	5.37702500	0.77414500	C	-0.53576200	0.63057300	5.10524900
F	-3.22822500	4.21986200	-1.62778200	H	-1.37746500	0.62829200	4.41613300
F	-2.56160300	1.66293700	-1.78542100	C	-0.09887000	1.95968500	5.49263400
F	-1.22888500	-2.62793800	1.93408400	C	-0.76329900	3.03771400	4.87927200
F	-2.70796500	-4.34694900	3.31527400	C	0.88092000	2.22215400	6.46546700

C	-0.42611700	4.34391200	5.19048400
H	-1.55265200	2.83385400	4.16107400
C	1.21238200	3.53526500	6.77748900
H	1.35191200	1.40944100	7.00614600
C	0.57004800	4.59312100	6.13659900
H	-0.94722900	5.16434200	4.70911700
H	1.96679300	3.73327200	7.53103600
H	0.83402000	5.61550100	6.38671700
C	0.21340900	-0.61582000	5.09488300
C	-0.48140700	-1.77436700	4.70606300
C	1.58004200	-0.71185900	5.39671200
C	0.14993600	-3.00603900	4.67001300
H	-1.53420800	-1.69492500	4.44489300
C	2.21378600	-1.94818100	5.35900900
H	2.15823400	0.17992800	5.60074600
C	1.50104600	-3.09432500	5.01251600
H	-0.40254300	-3.88405100	4.35552300
H	3.27253000	-2.01433200	5.58384200
H	2.00387200	-4.05534800	4.98255300
F	0.32568800	5.03186500	-2.18849600
C	-0.08752200	-1.18845900	8.19637000
C	0.81209700	-1.33114400	9.24724900
C	0.97745900	-0.30582100	10.17599900
C	0.23549700	0.86944300	10.06147900
C	-0.66855200	1.02507200	9.01863600
C	-0.83231900	-0.00701100	8.08159400
H	-0.21541800	-1.98263800	7.46753600
H	1.38716900	-2.24644900	9.33717700
H	1.68322500	-0.42301400	10.99157900
H	0.36220100	1.66756200	10.78498300
H	-1.24358700	1.93845500	8.90785200
C	-1.72779900	0.20512300	6.97694500
C	-2.77794300	0.43242100	6.37615200
C	-4.50146400	-0.28838400	4.76791400
C	-5.60928400	0.59298600	4.15530500
H	-4.89993000	-1.10270300	5.37444200
H	-3.81155900	-0.67973500	4.01703200
H	-6.59007100	0.36707400	4.57515400
H	-5.64812200	0.53657900	3.06942900
N	-3.80723100	0.69115900	5.60425400
C	-4.26746800	2.01887200	5.36733400
O	-3.81895100	3.00549400	5.86561100
O	-5.27947100	1.94710500	4.50701700

TS4

C	11.95789300	4.15781600	-4.29907000
C	13.03296500	4.74315400	-4.40231800
C	14.89066600	6.20639200	-3.59609000
C	16.35727100	6.04879100	-4.02844200
H	14.74784100	5.92674200	-2.55285900
H	14.49116000	7.20550100	-3.78069800
H	16.90314800	5.37599900	-3.36384500
H	16.88095500	6.99801500	-4.12122600

N	14.25670000	5.23074700	-4.48876400
C	15.12769400	4.84545700	-5.53716600
O	14.85180800	4.12852200	-6.45199500
O	16.30826100	5.43865300	-5.32934000
C	10.54923200	3.91726800	-4.52602400
C	9.61203600	4.86281600	-4.09173300
C	10.12075300	2.73372000	-5.13863900
C	8.25553500	4.61488200	-4.25904500
H	9.95742300	5.76407600	-3.59748200
C	8.76086100	2.50241500	-5.31312300
H	10.85306500	2.00655100	-5.46679200
C	7.82741600	3.43535000	-4.86659200
H	7.53052800	5.34255900	-3.91060900
H	8.43083900	1.58610400	-5.79090900
H	6.76675600	3.24469400	-4.99186500
B	12.99328000	2.92308900	-2.63601700
C	11.74612100	1.95734700	-2.40256900
C	11.76186400	0.57288400	-2.57760400
C	10.54197500	2.47491600	-1.91517300
C	10.64286900	-0.22633100	-2.37838700
C	9.40061100	1.71490100	-1.71902700
C	9.45327400	0.34881300	-1.95727200
C	14.26732600	2.41906200	-3.45464300
C	15.57897700	2.80199200	-3.17109400
C	14.13241100	1.65473500	-4.61612200
C	16.67277900	2.43879800	-3.94697700
C	15.19617900	1.24829500	-5.40476800
C	16.48245600	1.64757100	-5.06895700
C	13.23308400	3.87400200	-1.35459300
C	12.78827000	5.16246700	-1.08498700
C	13.88252400	3.24240400	-0.29438700
C	13.00080100	5.79615100	0.13571200
C	14.11047200	3.83235100	0.93753700
C	13.66154300	5.12840700	1.15390800
F	12.91383000	1.31005300	-5.04596200
F	14.99230400	0.51953100	-6.49667100
F	17.51349700	1.29020400	-5.82074900
F	17.89136900	2.87420800	-3.62712400
F	15.86238500	3.60725400	-2.13171400
F	10.43717800	3.78204800	-1.64603600
F	8.27094900	2.27591900	-1.29478300
F	8.37772900	-0.40519600	-1.76637800
F	10.71056000	-1.54244200	-2.56803900
F	12.88125300	-0.06810100	-2.92328000
F	14.33475300	1.99232700	-0.47120000
F	14.74771100	3.17646600	1.90430300
F	13.86699300	5.72317900	2.32394600
F	12.56314200	7.03934100	0.33115600
F	12.13453400	5.88715300	-2.00571100

IM4

C	12.06217900	4.00402100	-3.99938500
C	13.02296500	4.76442200	-4.33058400

C	14.79641400	6.37264600	-3.70060900	C	9.50020300	1.33902400	-1.44398200
C	16.26523500	6.16558100	-4.09854900	C	9.73524000	-0.02723000	-1.50141100
H	14.61374100	6.17745900	-2.64435500	C	14.17195200	2.39747300	-3.52061300
H	14.41159400	7.35154800	-3.98847900	C	15.46137300	2.85569700	-3.27293300
H	16.78853400	5.50873800	-3.40324900	C	14.06967900	1.55898900	-4.62941300
H	16.80693600	7.09894900	-4.23249500	C	16.57192700	2.49756600	-4.03079700
N	14.15507100	5.33001200	-4.52246900	C	15.14730200	1.15418100	-5.40112500
C	15.06032300	4.88921800	-5.57769500	C	16.41664800	1.63113100	-5.09970700
O	14.76605400	4.13997000	-6.45040300	C	13.09742000	3.77358800	-1.40040900
O	16.21948900	5.49969900	-5.37777000	C	12.59263700	5.01614600	-1.03720700
C	10.64900200	4.01169600	-4.42600200	C	13.81434400	3.12092000	-0.39760100
C	9.90387700	5.19255000	-4.35850500	C	12.81174800	5.59492800	0.21066500
C	10.06446600	2.83615000	-4.90249700	C	14.05561200	3.65574200	0.85679700
C	8.57500900	5.19242900	-4.76435400	C	13.54601900	4.91115500	1.16429900
H	10.36343800	6.09315800	-3.96594400	F	12.86079700	1.12505700	-5.01512100
C	8.73650000	2.85018300	-5.31922700	F	14.97535700	0.34284100	-6.44095600
H	10.65319400	1.92720900	-4.95602400	F	17.46181300	1.27510100	-5.83742000
C	7.98970700	4.02279200	-5.24600500	F	17.76868800	3.01731600	-3.74788200
H	7.99480600	6.10695600	-4.70208600	F	15.70657500	3.75552300	-2.29576300
H	8.28577400	1.93938600	-5.69871400	F	10.23017200	3.52050700	-1.73769600
H	6.95204300	4.02611600	-5.56255800	F	8.33907000	1.79681700	-0.97726300
B	12.82370500	2.93121900	-2.77381700	F	8.80143900	-0.88628900	-1.10348000
C	11.72432500	1.80083400	-2.37722200	F	11.20567300	-1.79569100	-1.99208800
C	11.92751100	0.42282400	-2.37451600	F	13.09420700	-0.11134100	-2.75245400
C	10.49487400	2.21096700	-1.85823200	F	14.32485500	1.90693800	-0.65026700
C	10.95840700	-0.48630900	-1.96284000	F	14.76378700	2.98571100	1.76465000

F 13.76351100 5.44975200 2.36097900

F 12.30946600 6.79785900 0.49308400

F 11.85312100 5.75018600 -1.88859000

TS5

C 9.84539700 7.81212000 -8.46854900

C 10.29391700 6.78630200 -7.64471700

C 11.65393400 6.68228100 -7.34703300

C 12.56719600 7.61064200 -7.84823800

C 12.13126700 8.62383500 -8.69087600

C 10.77706500 8.70088000 -8.98644800

H 8.79674900 7.93296800 -8.71302600

H 9.58664800 6.08049300 -7.21766200

H 13.62021200 7.51569700 -7.60506500

H 12.81495500 9.34735200 -9.11846800

C 12.16103100 5.58084800 -6.48168700

O 12.73834400 5.83651900 -5.42850900

O 11.99236800 4.32089800 -6.82632000

F 10.35124500 9.67651800 -9.79698000

C 12.34697500 3.66460500 -3.67962300

C 13.33728800 4.38096200 -4.10046700

C 15.25246000 5.70723200 -3.23437900

C 16.72323900 5.40056700 -3.54802800

H 15.00582600 5.55006700 -2.18443700

H 14.94246300 6.70233300 -3.56136900

H 17.16020100 4.71278500 -2.82285600

H 17.33743000 6.29227500 -3.65194300

N 14.60347900 4.68930700 -4.06824900

C 15.49371100 4.22635100 -5.07902700

O 15.19427000 3.52491300 -5.99994600

O 16.69894100 4.73202100 -4.82725100

C 10.95775100 3.75605500 -4.18224400

C 10.24171300 4.95434500 -4.11094300

C 10.39021000 2.64051300 -4.80176800

C 8.97899200 5.04055400 -4.68779900

H 10.68123900 5.80814300 -3.60756500

C 9.13612200 2.74055700 -5.39880000

H 10.95040200 1.71339100 -4.85409000

C 8.42925800 3.93924800 -5.34622800

H 8.42267200 5.97068500 -4.62348900

H 8.71791800 1.87825100 -5.90809300

H 7.44672400 4.01310700 -5.80164600

B 12.90051000 2.59169800 -2.43301900

C 11.70333400 1.54002700 -2.06304400

C 11.80057300 0.15176000 -2.01169400

C 10.47974400 2.04869200 -1.62333400

C 10.74599400 -0.67387800 -1.63473500

C 9.40147800 1.26367300 -1.24494000

C 9.53611600 -0.11683300 -1.25548300

C 14.26220500 1.90778400 -3.03808100

C 15.56465300 2.24207600 -2.68401800

C 14.18264800 1.04918000 -4.13076300

C 16.69675200 1.77312200 -3.34294000

C	15.27765600	0.53911700	-4.80968500	C	12.36810800	1.65541300	-7.40637400
C	16.55576400	0.90697500	-4.41421200	C	10.58373500	1.81010900	-9.02700200
C	13.15362600	3.42475700	-1.04282500	C	12.31249500	0.26543600	-7.49274700
C	12.74991600	4.71846500	-0.73872100	H	13.06824800	2.13737300	-6.72794700
C	13.72193500	2.72925600	0.02412000	C	10.53510500	0.42293500	-9.11519300
C	12.92706000	5.30213200	0.51353600	H	9.90613000	2.41747000	-9.62237900
C	13.91724100	3.26644300	1.28556200	C	11.40099000	-0.35108500	-8.34597300
C	13.51265100	4.57212400	1.53310200	H	12.98144800	-0.33070800	-6.88364700
F	12.97558000	0.69668300	-4.60429500	H	9.81850700	-0.05188800	-9.77741500
F	15.11554200	-0.27635900	-5.85324600	H	11.36206100	-1.43376300	-8.40729500
F	17.62243800	0.44651800	-5.05926800	C	12.46978100	4.51785000	-9.20453200
F	17.90943500	2.18668500	-2.96444800	C	11.94176900	5.18188600	-10.30946300
F	15.81526500	3.13146000	-1.70051200	C	13.85348400	4.40583100	-9.05201700
F	10.30526000	3.37698100	-1.53570400	C	12.79146400	5.74019800	-11.26105900
F	8.25402500	1.81867200	-0.85255500	H	10.86416800	5.28566200	-10.41180000
F	8.52001100	-0.89547600	-0.89049100	C	14.69981900	4.97220200	-10.00013300
F	10.89845600	-1.99913200	-1.61934300	H	14.26430900	3.88855800	-8.18799900
F	12.94260000	-0.48207000	-2.30753600	C	14.17135200	5.64028900	-11.10424900
F	14.13023800	1.46559000	-0.16618600	H	12.37550500	6.26339300	-12.11587900
F	14.48274000	2.55095700	2.25808100	H	15.77488200	4.88870500	-9.87820000
F	13.68828000	5.11405500	2.73638800	H	14.83500800	6.08186300	-11.84049400
F	12.52634500	6.55547300	0.73721200	**IM5**			
F	12.15656900	5.50253900	-1.65722600	C	10.11821200	7.78985100	-8.40456100
C	11.54411000	3.93941000	-8.15385300	C	10.49351400	6.74913100	-7.56508200
H	10.53126600	4.32357500	-8.30431600	C	11.85032600	6.52668100	-7.32239200
C	11.49880900	2.42891400	-8.17496800	C	12.83786500	7.33570400	-7.88748100

C	12.46587400	8.35907000	-8.74672900
C	11.11318900	8.56167400	-8.98969900
H	9.07785400	8.00941000	-8.61212100
H	9.74069700	6.12912100	-7.08504700
H	13.88532900	7.13363700	-7.68844100
H	13.19877600	8.99501000	-9.22819500
C	12.26697200	5.38371900	-6.48682400
O	12.80254000	5.67610000	-5.36658600
O	12.11433200	4.16190700	-6.81350700
F	10.75342000	9.54627200	-9.81612300
C	12.36807100	3.88195600	-3.76714900
C	13.23568700	4.68046700	-4.38648100
C	15.23378400	5.57326700	-3.07903100
C	16.71177100	5.38523600	-3.46284100
H	15.00627700	5.10601500	-2.12109300
H	14.92459900	6.62277800	-3.06385900
H	17.17611400	4.56890300	-2.90572200
H	17.30315500	6.29272800	-3.35125300
N	14.59657300	4.86025100	-4.18246600
C	15.46427500	4.66696700	-5.23126500
O	15.16939100	4.25914600	-6.33224000
O	16.70235200	5.02938500	-4.85883500
C	10.94452700	3.98119200	-4.20356800
C	10.22111300	5.16891500	-4.04620100
C	10.34050100	2.90085400	-4.85962600
C	8.92544200	5.27930600	-4.54564300
H	10.67818800	5.99952900	-3.51775800
C	9.05186200	3.01980800	-5.37345000
H	10.89944000	1.98111800	-4.99806400
C	8.33998100	4.20890300	-5.22094100
H	8.37271600	6.20297000	-4.40411900
H	8.60707000	2.17754500	-5.89442000
H	7.33087300	4.29600800	-5.61109500
B	12.89035600	2.83063000	-2.57063500
C	11.72316900	1.70558100	-2.27438800
C	11.83433200	0.32361700	-2.39976400
C	10.49003600	2.13647800	-1.78199800
C	10.79473700	-0.55859600	-2.12074300
C	9.42581900	1.29498700	-1.49417600
C	9.58002500	-0.07187800	-1.66855000
C	14.29610400	2.18357800	-3.13549900
C	15.57983700	2.35513400	-2.63521700
C	14.25833500	1.53716700	-4.36830500
C	16.73269300	1.95942200	-3.30928900
C	15.37301800	1.12429600	-5.07758100
C	16.63579800	1.34535300	-4.54557200
C	13.08342200	3.59123800	-1.12212700
C	12.76848100	4.90619400	-0.80725100
C	13.50159300	2.82343700	-0.03606900
C	12.87100300	5.43814600	0.47466700
C	13.61774300	3.30566300	1.25776800
C	13.29341000	4.63086500	1.51684200

F	13.06692200	1.30333100	-4.94405500
F	15.25013200	0.54100700	-6.27499800
F	17.72663300	0.97004100	-5.20795200
F	17.93431900	2.22176200	-2.78456200
F	15.81162200	3.00780200	-1.47834600
F	10.27790500	3.44524600	-1.56281300
F	8.26845000	1.78301400	-1.04237600
F	8.57673500	-0.90533100	-1.39601500
F	10.96504500	-1.87406400	-2.27320500
F	12.97661100	-0.25667100	-2.79434600
F	13.84192700	1.54141700	-0.23416600
F	14.03474900	2.51859400	2.25086200
F	13.39725500	5.12088000	2.75115100
F	12.55999000	6.71646100	0.70522700
F	12.35797400	5.77148200	-1.75594900
C	11.53035700	3.77069500	-8.12481200
H	10.51099400	4.16440400	-8.13315600
C	11.48206000	2.26658000	-8.11456800
C	12.57958300	1.51248000	-7.70288000
C	10.32182000	1.63148100	-8.55670600
C	12.50658600	0.12335000	-7.72153400
H	13.47231400	2.00315900	-7.32673300
C	10.25954700	0.24182700	-8.59455300
H	9.46507500	2.22466700	-8.86644900
C	11.35225300	-0.51217600	-8.17355200
H	13.35173000	-0.45621400	-7.36859700
H	9.35577700	-0.24959300	-8.93896100
H	11.30072800	-1.59584900	-8.18749600
C	12.33565600	4.37416900	-9.25207000
C	11.66198100	5.00169700	-10.29878000
C	13.73144500	4.32905400	-9.24437300
C	12.37847500	5.58848000	-11.33799500
H	10.57587400	5.04927100	-10.29064900
C	14.44304200	4.92516600	-10.28109500
H	14.26440600	3.87192600	-8.41606900
C	13.77053000	5.55439400	-11.32738100
H	11.84951000	6.08148600	-12.14687900
H	15.52757900	4.89947100	-10.26761400
H	14.33104500	6.01982400	-12.13139300

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