Table of Contents

SUPPORTING INFORMATION

General methods

^{1}H-NMR spectra were recorded on Varian 400 (400 MHz) spectrometers. Chemical shifts are reported in ppm from TMS with the solvent resonance as the internal standard (deuterochloroform: 7.27 ppm). Data are reported as follows: chemical shift, multiplicity (s = singlet, d = doublet, t = triplet, q = quartet, sext = sextet, sept = septet, p = pseudo, b = broad, m = multiplet), coupling constants (Hz). ^{13}C-NMR spectra were recorded on Varian 400 (100 MHz) spectrometers with complete proton decoupling. Chemical shifts are reported in ppm from TMS with the solvent as the internal standard (deuterochloroform: 77.0 ppm). ^{19}F-NMR spectra were recorded on Varian 400 (377 MHz). ^{31}P-NMR spectra were recorded on Varian 400 (162 MHz) having as reference 31P-PPh3: -4.7 ppm (d^{8}-toluene).

Chromatographic purification was done with 240-400 mesh silica gel.

Anhydrous solvents were supplied by Sigma Aldrich in Sureseal® bottles and used without any further purification.

Commercially available chemicals were purchased from Sigma Aldrich, Fluorochem and TCI and used without any further purification.

Analytical high-performance liquid chromatography (HPLC) was performed on a liquid chromatograph equipped with a variable wavelength UV detector (deuterium lamp 190-600 nm), using a Daicel Chiracel™ IC (0.46 cm I.D. x 25 cm Daicel Inc) and Daicel Chiracel™ IA (0.46 cm I.D. x 25 cm Daicel Inc). HPLC grade isopropanol and n-hexane were used as the eluting solvents.

Compound **4** was synthetized following the known literature.[1]

Naphthols **1a-f** were synthetized following the known literature.[2]

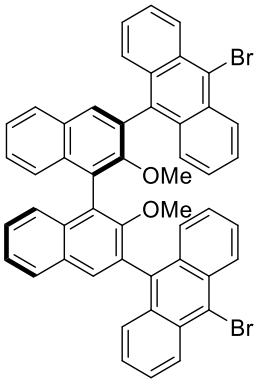
Allenamides **2a**, **2b** and **2c** were synthetized following the known literature.[3]

SUPPORTING INFORMATION

Experimental Procedures

Synthesis of 6

Following reported literature[4], product **8** was isolated and characterized.



(R_a)-10,10'-(2,2'-dimethoxy-[1,1'-binaphthalene]-3,3'-diyl)bis(9-bromoanthracene). White powder, Y = 62%. M.p. = decomposition.

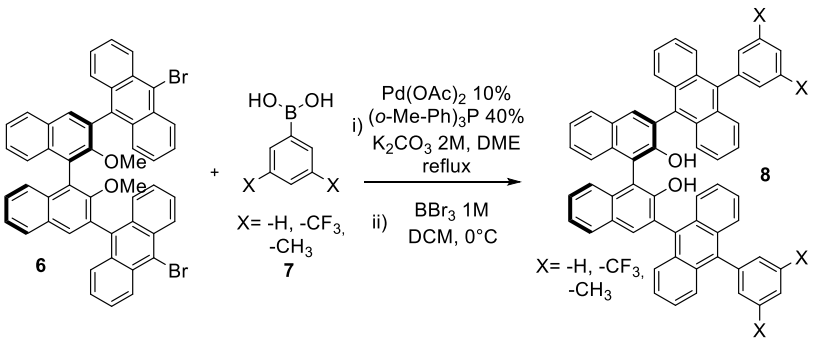
^{1}H NMR (400 MHz, $CDCl_3$) δ = 8.61 (ddt, *J* = 18.6, 8.8, 0.9 Hz, 1H), 7.94 (s, 0H), 7.91 (dt, *J* = 8.1, 0.9 Hz, 1H), 7.75 (dt, *J* = 8.7, 1.0 Hz, 0H), 7.66 – 7.54 (m, 1H), 7.54 – 7.42 (m, 2H), 7.21 (ddd, *J* = 8.8, 6.5, 1.2 Hz, 1H), 2.92 (s, 1H).

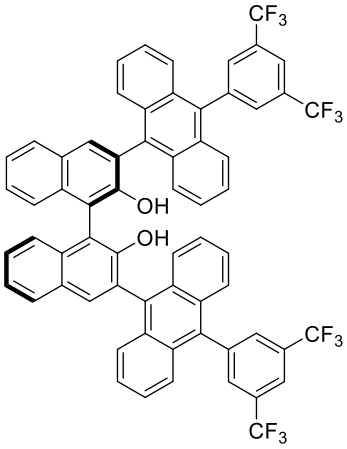
^{13}C NMR (101 MHz, $CDCl_3$) δ = 155.35, 134.32, 134.24, 132.83, 131.71, 131.39, 131.26, 130.58, 130.30, 128.19, 128.02, 127.89, 127.31, 127.18, 126.99, 126.95, 126.92, 125.97, 125.84, 125.75, 125.48, 125.30, 123.25, 60.98.

Anal. Calc. for ($C_{50}H_{32}Br_2O_2$: 822.08): C, 72.83; H, 3.91; found: C, 72.65, H, 3.80.

Synthesis of 8a-c. For compound **10b**, data were in accordance with literature.[5]

In oven dried Schlenk tube **6** (1 eq) and aril boronic acid **7** (4 eq) were introduced, then 1:1 ratio of DME and K_2CO_3 2M in water (10 eq) were added and the mixture was degassed for 3 minutes with N_2. $Pd(OAc)_2$ (0.1 eq) and tri(*o*-methoxyphenyl)phosphine (0.4 eq) were added. The reaction mixture was heated at 80°C for 12h. After TLC, the reaction was extracted 3xDCM and washed once with water. The organic phase was dried over Na_2SO_4 and solvent evaporated. The crude was filtered with DCM through silica to remove palladium salts. Then crude mixture was transferred to a Schlenk tube under inert atmosphere and dissolved in dry DCM and cooled to 0 °C. then a 1.0 M solution of BBr_3 in DCM (6 eq) was added dropwise. The reaction mixture was stirred at the same temperature for 30 minutes and then warmed up to room temperature. After the intermediate was completely consumed, by TLC checking, the reaction was quenched at 0 °C by slowly addition of cold water (HBr gas develops). The mixture was extracted CH_2Cl_2 (3 x 15 mL) and the organic phase were washed 2 x 10 mL $NaHCO_3$ saturated solution, dried over Na_2SO_4 and evaporated. Product **8** was purified by FC with *c*Hex/AcOEt from 40/1 to 20/1.





(*Ra*)-3,3'-bis(10-(3,5-bis(trifluoromethyl)phenyl)anthracen-9-yl)-[1,1'-binaphthalene]-2,2'-diol (**8a**). Yellow powder, Y = 38%. M.p. = decomposition.

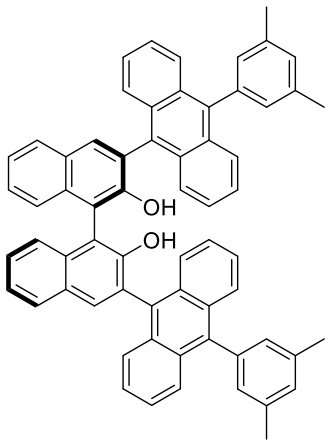
^{1}H-NMR (400 MHz, $CDCl_3$) δ = δ 8.16 (d, *J* = 1.8 Hz, 2H), 8.12 (s, 2H), 8.05 (d, *J* = 1.7 Hz, 4H), 8.04 – 7.97 (m, 4H), 7.81 (dt, *J* = 8.8, 1.0 Hz, 2H), 7.70 – 7.64 (m, 2H), 7.62 – 7.47 (m, 10H), 7.41 (ddd, *J* = 8.8, 6.5, 1.3 Hz, 2H), 7.33 (ddd, *J* = 8.8, 6.5, 1.3 Hz, 2H), 5.28 (s, 2H).

^{13}C-NMR (100 MHz, $CDCl_3$) δ = 151.08, 141.34, 134.10, 133.96, 133.42, 132.88, 132.32, 132.29, 131.99, 131.96, 131.63, 131.53, 130.45, 130.42, 129.95, 129.89, 129.42, 128.66, 127.79, 127.09, 126.76, 126.66, 126.42, 126.15, 126.14, 126.08, 125.99, 124.86, 124.79, 124.76, 124.62, 122.08, 122.05, 121.87, 113.26.

^{19}F-NMR (377 MHz, $CDCl_3$) δ = -62.60 (s,6F), -62.63 (s,6F).

$[\alpha]^{D}$= + 31.87 (DCM, *c* = 4.6).

Anal. Calc. for ($C_{64}H_{34}F_{12}O_2$: 1062.24): C, 72.32; H, 3.22; found: C, 72.15, H, 3.00.



(*Ra*)-3,3'-bis(10-(3,5-dimethylphenyl)anthracen-9-yl)-[1,1'-binaphthalene]-2,2'-diol (**8c**). Pale yellow powder, Y = 52%. M.p. = decomposition.

^{1}H-NMR (400 MHz, $CDCl_3$) δ = 8.15 (dt, *J* = 2.0, 1.1 Hz, 2H), 8.12 (s, 2H), 8.05 – 8.03 (m, 4H), 8.03 – 7.98 (m, 4H), 7.80 (dt, *J* = 8.7, 1.0 Hz, 2H), 7.68 – 7.64 (m, 2H), 7.60 – 7.46 (m, 12H), 7.41 (ddd, *J* = 8.9, 6.5, 1.3 Hz, 2H), 7.32 (ddd, *J* = 8.9, 6.4, 1.2 Hz, 2H), 5.22 (s, 2H), 1.45 (s, 12H).

^{13}C-NMR (100 MHz, $CDCl_3$) δ = 151.07, 141.34, 134.09, 133.96, 133.41, 132.87, 132.32, 132.30, 131.99, 131.97, 131.52, 130.44, 130.41, 129.94, 129.89, 129.42, 128.66, 127.79, 127.08, 126.75, 126.66, 126.42, 126.15, 126.13, 126.07, 125.99, 124.86, 124.62, 121.86, 113.25, 26.93.

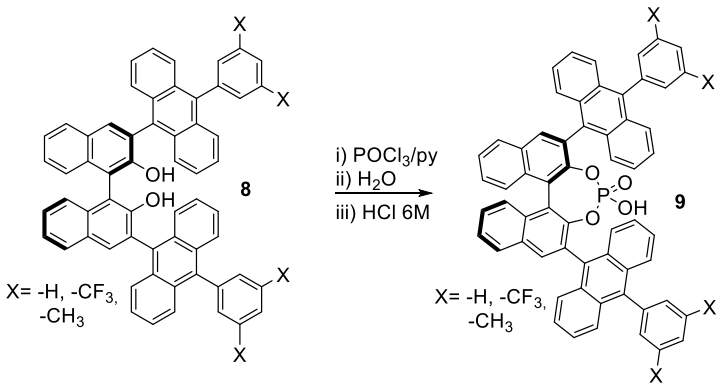
$[\alpha]^{D}$=+33.47 (DCM, *c* = 12.6).

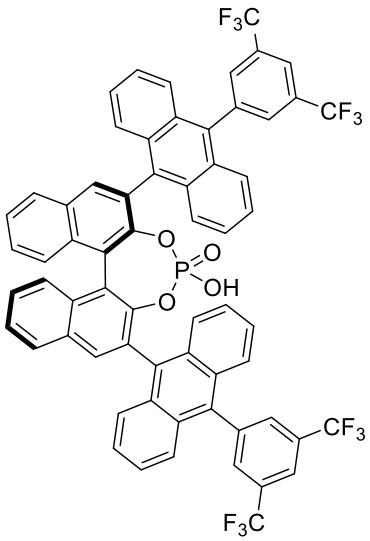
Anal. Calc. for ($C_{64}H_{46}O_2$: 846.35): C, 90.75; H, 5.47; found: C, 90.65, H, 5.33.

SUPPORTING INFORMATION

Synthesis of phosphoric acid 9a-c

A Schlenk tube, under inert atmosphere, was charged with **8** (1 eq) and dissolved in pyridine (0.05 M). Then, freshly distilled $POCl_3$ (3 eq) was added dropwise. The reaction mixture was stirred at 100 °C for 24 h, then a volume of H_2O equal to initial pyridine was added. The reaction was stirred at the same temperature for 6 h. The reaction was cooled to room temperature and acidified to pH = 2 with HCl 6 M. The mixture was extracted CH_2Cl_2 (3 x 10 mL), dried over Na_2SO_4 and the organic phase evaporated. The phosphoric acid **9** was purified by flash chromatography (DCM:MeOH = 100:1). Compound **9b** was isolated in 92% yield as a white solid.[5]





(R_a)-3,3'-bis(10-(3,5-bis(trifluoromethyl)phenyl)anthracen-9-yl)-1,1'-binaphthyl-2,2'-diyl hydrogenphosphate (**9a**). Yellow powder, Y = 38%. M.p. = decomposition.

^{1}H-NMR (400 MHz, $CDCl_3$) δ = 8.04 (s, 4H), 8.02 – 7.96 (m, 2H), 7.93 (d, J = 8.9 Hz, 2H), 7.87 (s, 2H), 7.80 (d, J = 8.3 Hz, 3H), 7.68 (d, J = 8.4 Hz, 2H), 7.63 (s, 2H), 7.61 – 7.47 (m, 5H), 7.30 – 7.14 (m, 8H), 6.89 (t, J = 7.8 Hz, 2H), 6.82 (bs, 1H), 6.62 (d, J = 8.7 Hz, 2H).

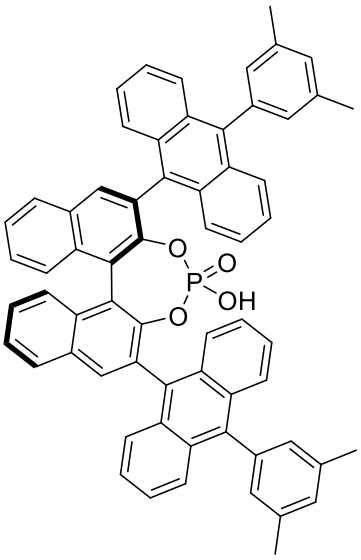
^{13}C-NMR (100 MHz, $CDCl_3$) δ = 147.71, 141.36, 134.30, 133.06, 132.26, 131.93, 131.51, 131.13, 130.78, 130.36, 129.95, 129.45, 129.19, 128.53, 127.07, 126.76, 125.91, 125.82, 125.70, 124.63, 124.37, 123.75, 123.03, 121.69.

^{19}F-NMR (377 MHz, $CDCl_3$) δ = -62.69 (s, 12F).

^{31}P NMR (162 MHz, $CDCl_3$) δ = 4.30 (s).

$[\alpha]^D$=+89.99 (DCM, *c* = 10.6).

Anal. Calc. for ($C_{64}H_{33}F_{12}O_4P$: 1124.19): C, 68.33; H, 2.96; found: C, 68.15, H, 2.66.



(*R*$_a$)-3,3'-bis(10-(3,5-bis(trifluoromethyl)phenyl)anthracen-9-yl)-1,1'-binaphthyl-2,2'-diylhydrogenphosphate (**9c**). White powder. Y = 52%. M.p. = decomposition.

^{1}H-NMR (400 MHz, $CDCl_3$) δ = 8.07 (s, 2H), 7.96 (dd, *J* = 7.3, 2.0 Hz, 2H), 7.93 – 7.88 (m, 2H), 7.83 – 7.69 (m, 6H), 7.62 (dd, *J* = 7.9, 1.8 Hz, 2H), 7.55 – 7.47 (m, 4H), 7.47 – 7.42 (m, 2H), 7.38 (ddd, *J* = 7.9, 6.5, 1.3 Hz, 2H), 7.30 (ddd, *J* = 8.6, 6.5, 1.4 Hz, 2H), 7.26 – 7.21 (m, 2H), 7.19 (s, 2H), 7.12 (d, *J* = 1.7 Hz, 4H), 2.46 (s, 6H), 2.45 (s, 6H).

^{13}C-NMR (100 MHz, $CDCl_3$) δ = 148.34, 143.96, 138.73, 137.72, 137.58, 133.31, 133.08, 132.66, 131.68, 131.09, 130.54, 130.04, 129.64, 129.41, 129.03, 128.93, 128.70, 128.42, 127.31, 127.04, 126.55, 126.16, 125.52, 125.41, 124.79, 124.71, 124.62, 124.18, 123.08, 21.38.

^{31}P NMR (162 MHz, $CDCl_3$) δ = 3.87.

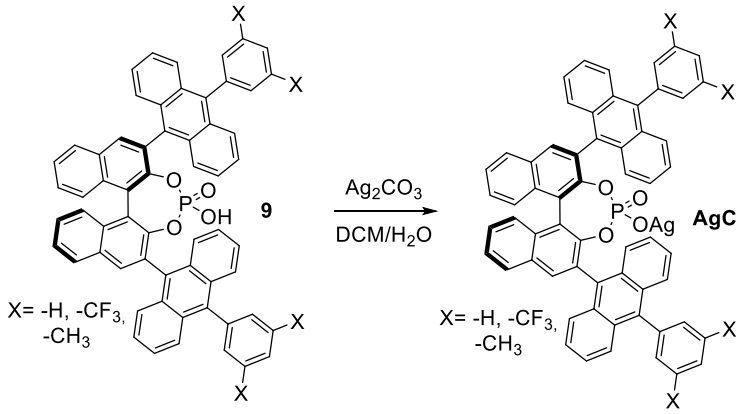
$[\alpha]^D$ = +69.73 (DCM, *c* = 9.3).

Anal. Calc. for ($C_{64}H_{45}O_4P$: 908.31): C, 84.56; H, 4.99; found: C, 84.41, H, 4.65.

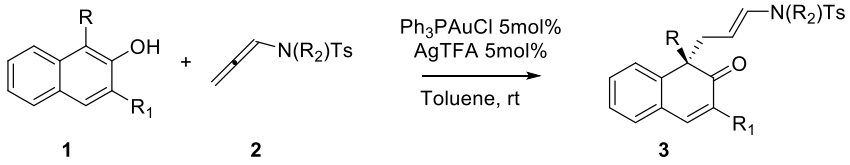
SUPPORTING INFORMATION

Synthesis of silver phosphate AgC4-6

In a Schlenk tube, **9** (1 eq) was charged and dissolved a mixture 1:1 DCM/H_2O mixture (0.1 M), then the glassware was covered with aluminium foil to provide darkness. Ag_2CO_3 (0.5 eq) was added and the reaction mixture stirred at room temperature until **9** was completely consumed (DCM/MeOH = 10 : 1). The reaction was extracted with CH_2Cl_2 (3 x 10 mL) and evaporated. The silver salts were obtained in over 90% yields and employed without further purification.



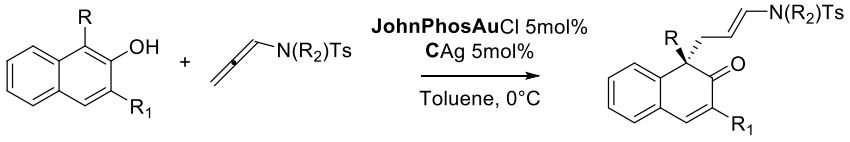
General procedure for gold-catalyzed dearomatization of 2-naphthols with *N*-allenyl amides.



An oven dried two-necked flask was charged with 1 mL of anhydrous toluene, Ph_3PAuCl (1.2 mg, 5 mol%) and AgTFA (0.6 mg, 5 mol%). After stirring for 15 min in the dark, the desired naphthol (0.05 mmol) and *N*-allenyl amide (0.1 mmol) were added and the reaction was kept stirring at room temperature until **1** was completely consumed (TLC). Then, the reaction mixture was directly transferred into silica gel column chromatography (*n*-Hex:AcOEt = 10:1) to afford the dearomatized compound **3**.

General procedure for enantioselective gold(I)-catalysed reaction

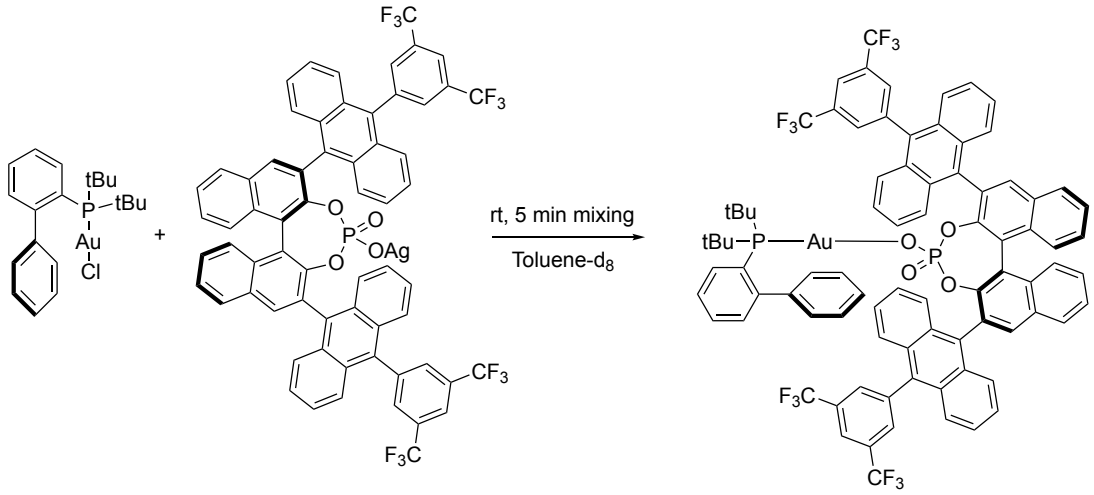
A 2-necked dry flask, under N_2 atmosphere, was charged with JohnPhosAuCl (1.3 mg, 2.5 10^{-3} mmol, 5 mol%), 0.5 mL of dry toluene and the silver phosphate (2.5 10^{-3} mmol, 5 mol%). The flask was covered with aluminium foil to darkness and stirred at room temperature for 15 minutes. The reaction was cooled to 0 °C with an ice bath and naphthol (5•10^{-2} mmol, 1 eq) and allenamide (7.5•10^{-2}, 1.5 eq) were added. The mixture was stirred at the same temperature for 16 h. After this time the reaction was charged directly on silica-gel and was purified by flash chromatography (*n*-hex:EtOAc = 10:1).



For ^{1}H-NMR and ^{13}C-NMR spectra of compound **3aa-3fa** and **3ac** see ref [6].

^{31}P-NMR experiments

All ^{31}P-NMR experiments were carried in reagent grade d^8-toluene.

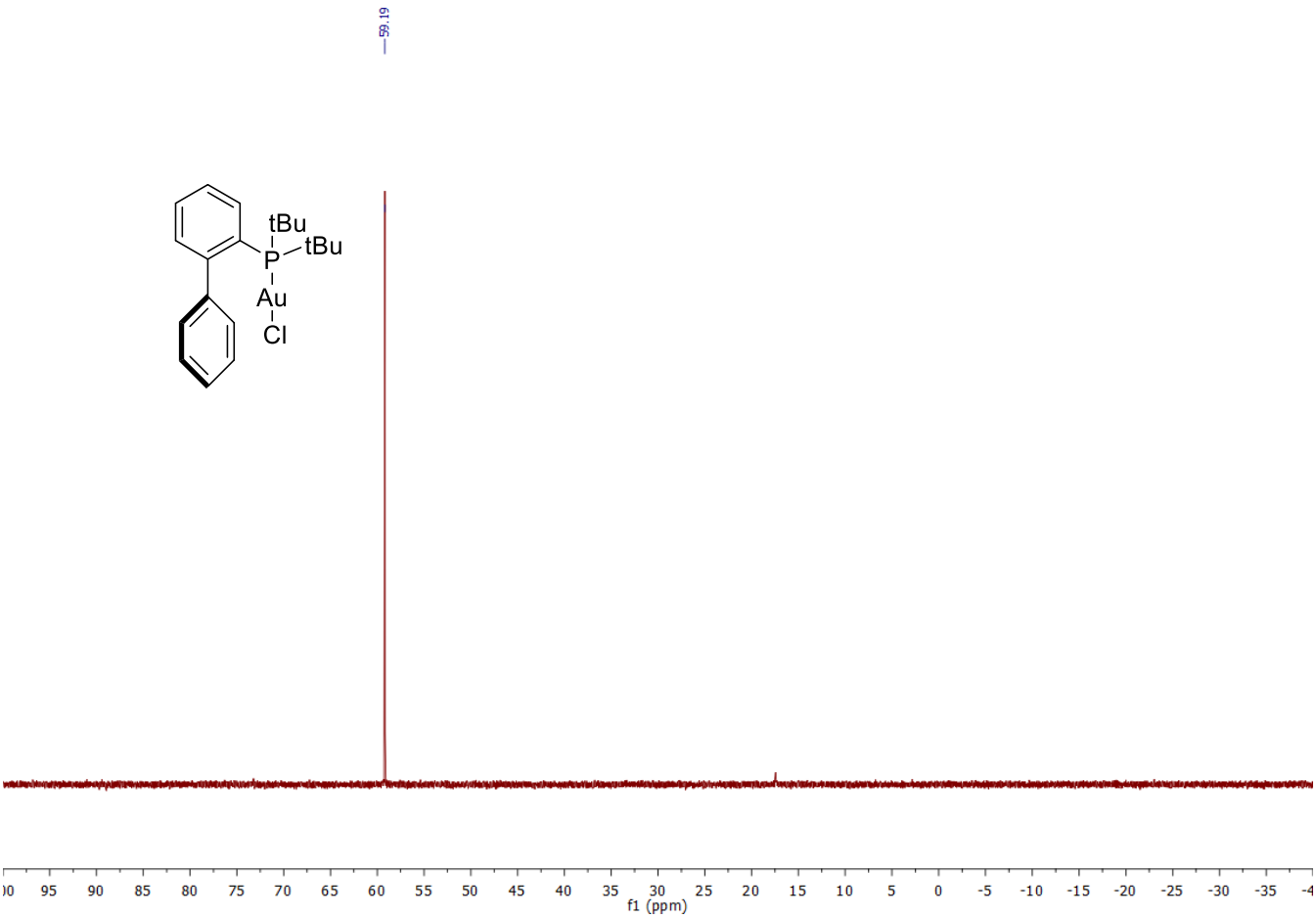


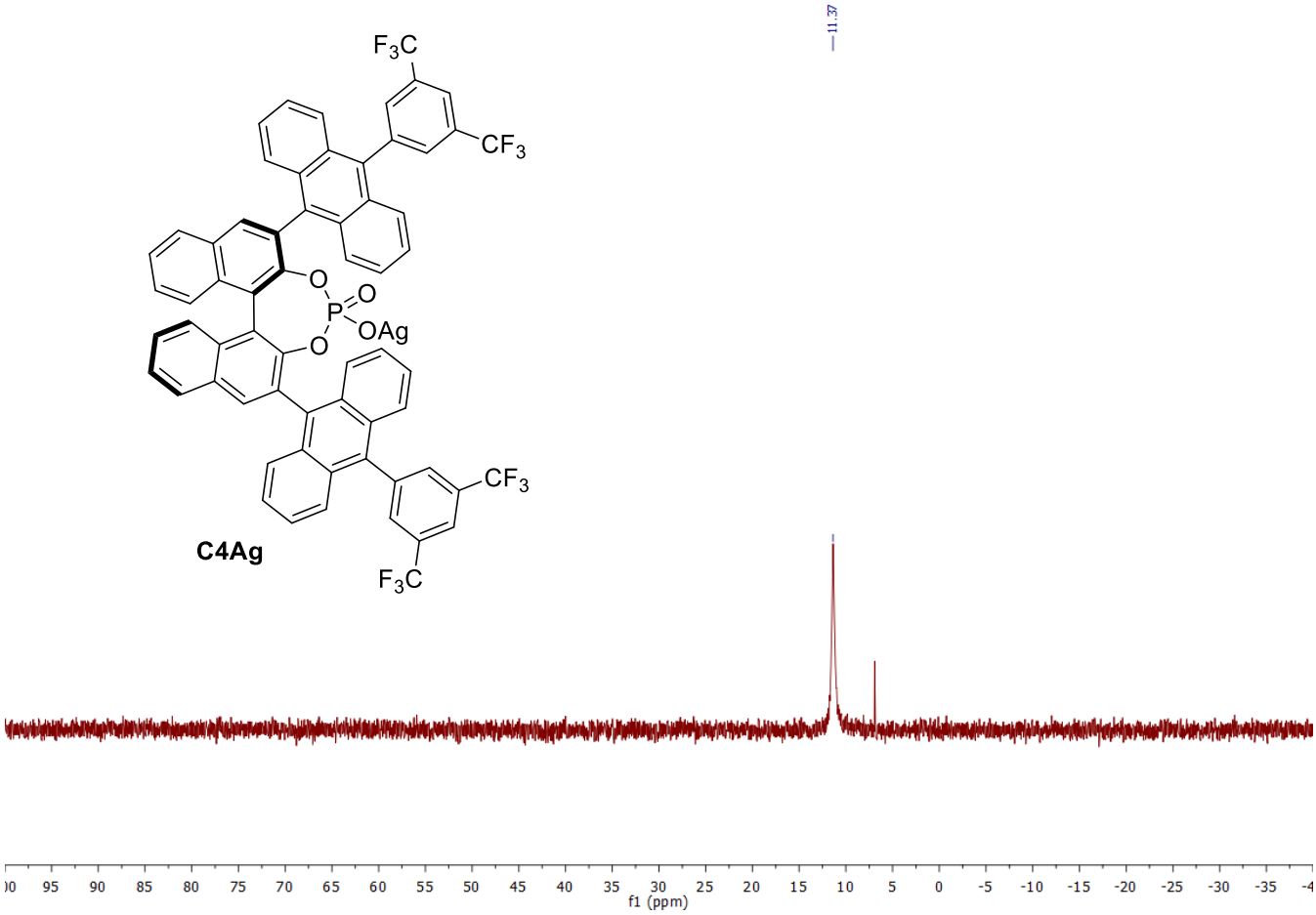
NMR experiment: JohnphosAuCl (10.6 mg, 0.02 mmol) and C4Ag (12.3 mg,0.01 mmol) were mixed for 5 minutes in 1 mL of d^8-toluene before acquisition.

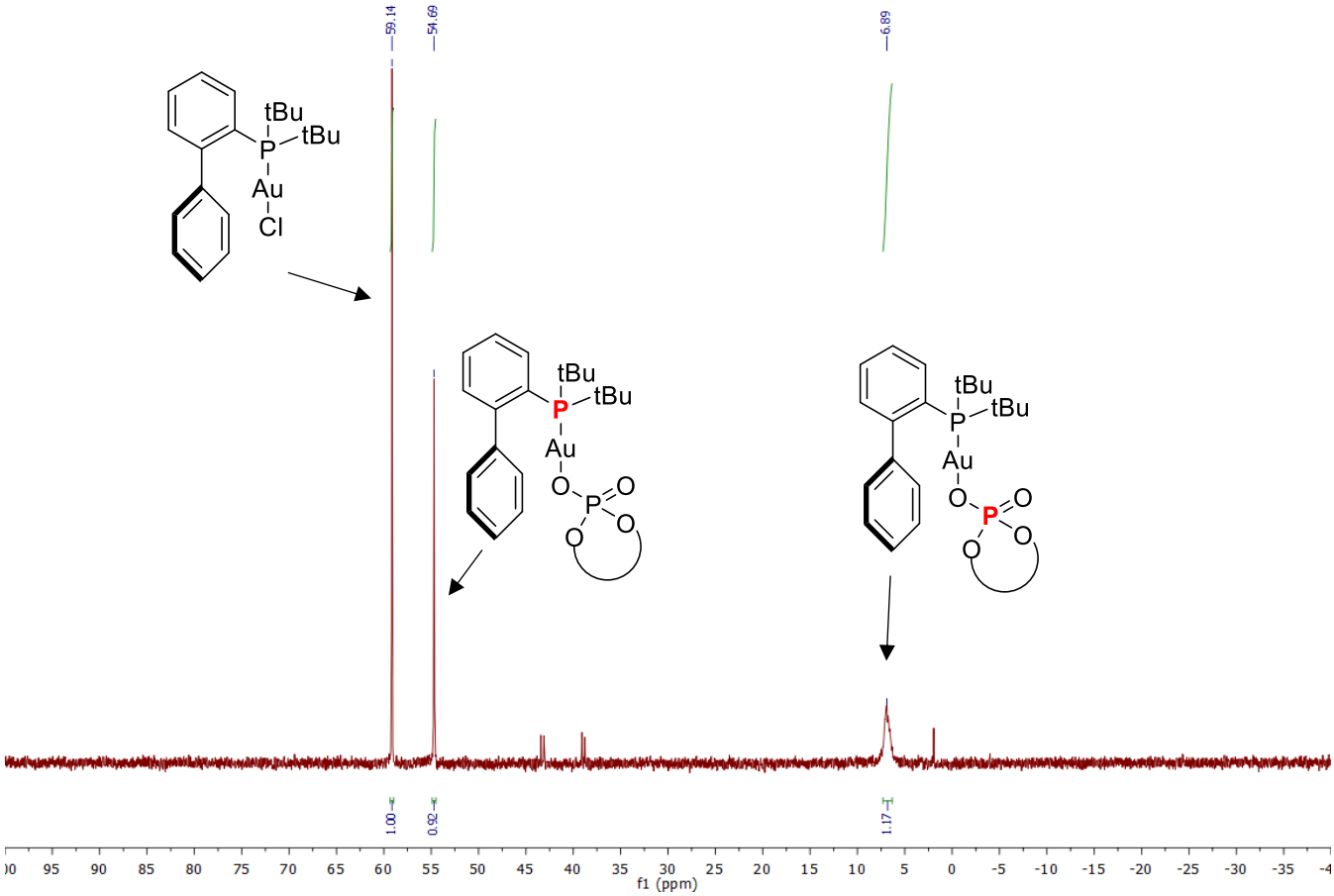
JohnphosAuCl: ^{31}P-NMR (162 MHz, d^8-toluene) δ = 59.19 ppm.

C4Ag: ^{31}P-NMR (162 MHz, d^8-toluene) δ = 11.37 ppm (brs).

JhonphosAuC4: ^{31}P-NMR (162 MHz, d^8-toluene) δ 59.14 (s, 1P), 6.89 (brs, 1P)




F3C
CF3
O
P
O
OAg
O
CF3
F3C
C4Ag
11.37
f1 (ppm)

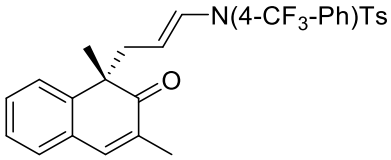

59.14
54.69
6.89
tBu
tBu
P
Au
Cl
tBu
tBu
P
Au
O
P
O
O
tBu
tBu
P
Au
O
P
O
O
1.00
0.92
1.17
f1 (ppm)

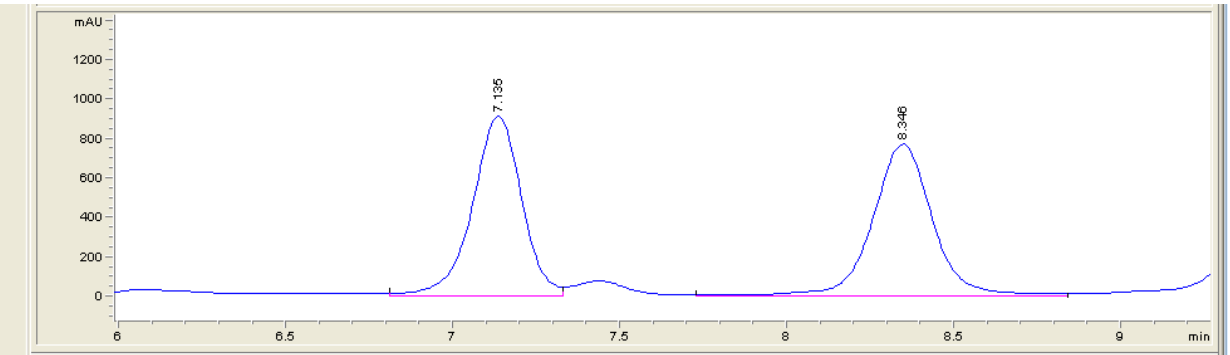
Determination of absolute configuration

Determination of absolute configuration was done by comparison of compound **3ab** with known literature.[7] The references reported for (S)-**3ab** an e.e.=90.6% and $[\alpha]^{20}_D$ = +16.0 (c 1.0, $CHCl_3$). For determination of the absolute configuration, we carried the general procedure for enantioselective gold(I)-catalysed reaction using **C2**-Ag as chiral phosphate and resulted in an e.e.= 43%. Polarized light analysis shown the same direction of $[\alpha]^{20}_D$ of reported one, thus for similarity we attributed the absolute configuration of the major enantiomer as *S* and extended it to all the product.

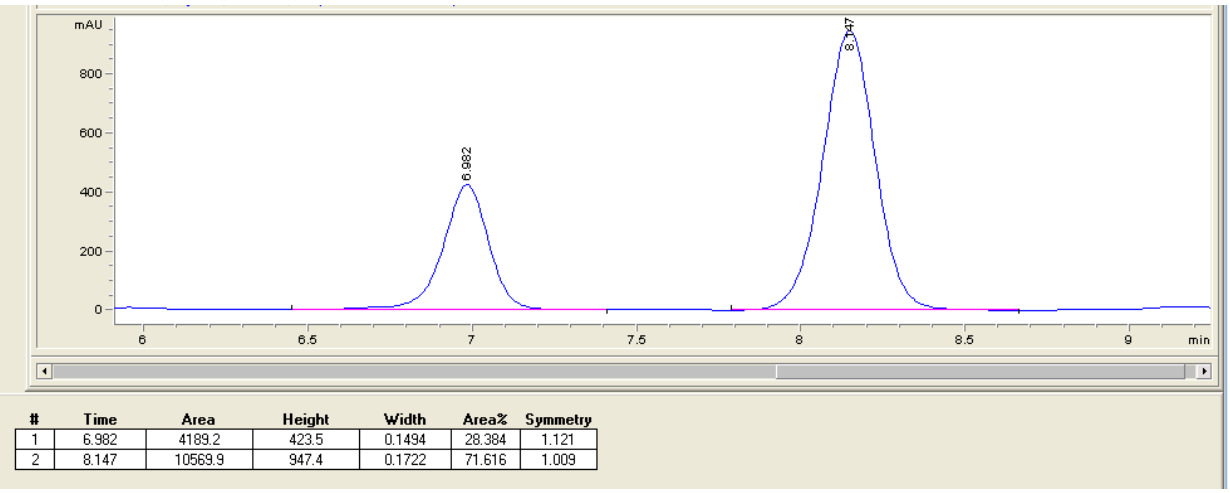
(*S*)-**3ab**, Y = 40%, e.e. = 43%.

IA column, *n*-Hex:IPA 80:20, 1 mL/min, 30 °C. Rt(*R*): 7.13 min, Rt(*S*): 8.35 min





#	Time	Area	Height	Width	Area%	Symmetry
1	7.135	9534.6	917.9	0.1592	48.632	1.108
2	8.346	10071	775.7	0.1955	51.368	1.001

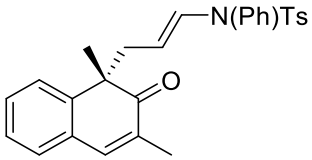


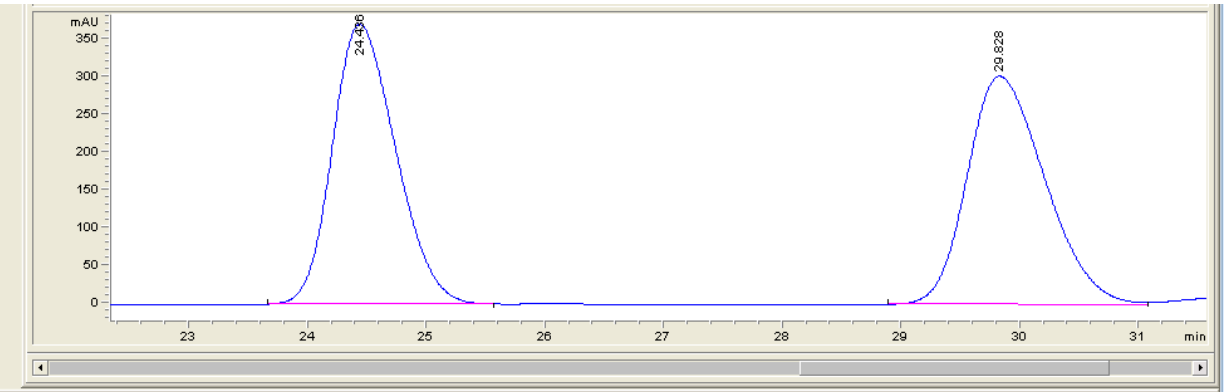
#	Time	Area	Height	Width	Area%	Symmetry
1	6.982	4189.2	423.5	0.1494	28.384	1.121
2	8.147	10569.9	947.4	0.1722	71.616	1.009

Chiral HPLC analysis

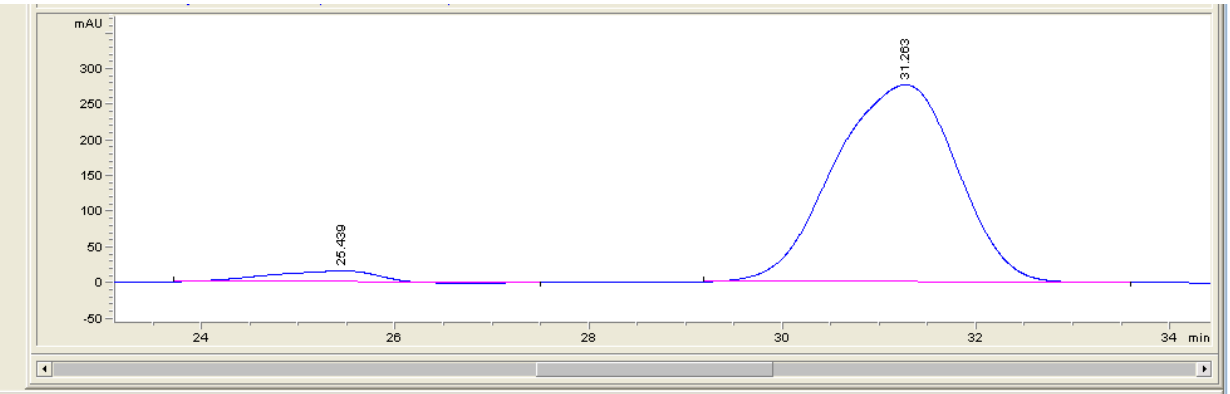
(*S*)-**3aa**, Y = 99%, e.e.= 91%.

IC column, *n*-Hex:IPA 80:20, 1 mL/min, 30 °C. Rt(*R*): 24.43 min, Rt(*S*): 29.83 min





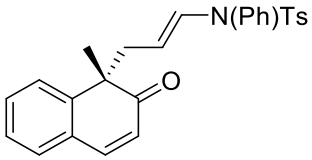
#	Time	Area	Height	Width	Area%	Symmetry
1	24.436	13772.3	370.2	0.582	49.911	0.735
2	29.828	13821.3	302.4	0.7092	50.089	0.695

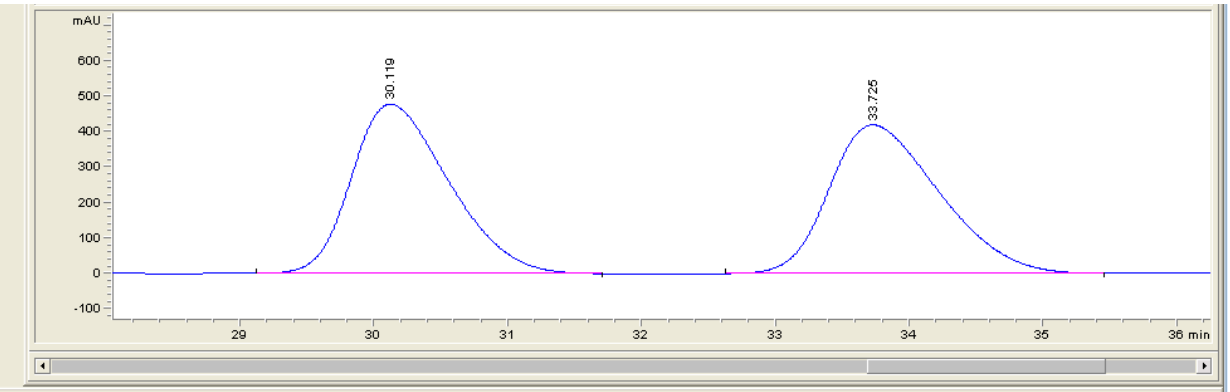


#	Time	Area	Height	Width	Area%	Symmetry
1	25.439	1193.2	15.9	0.8895	4.657	2.212
2	31.263	24425.4	277.5	1.2488	95.343	1.315

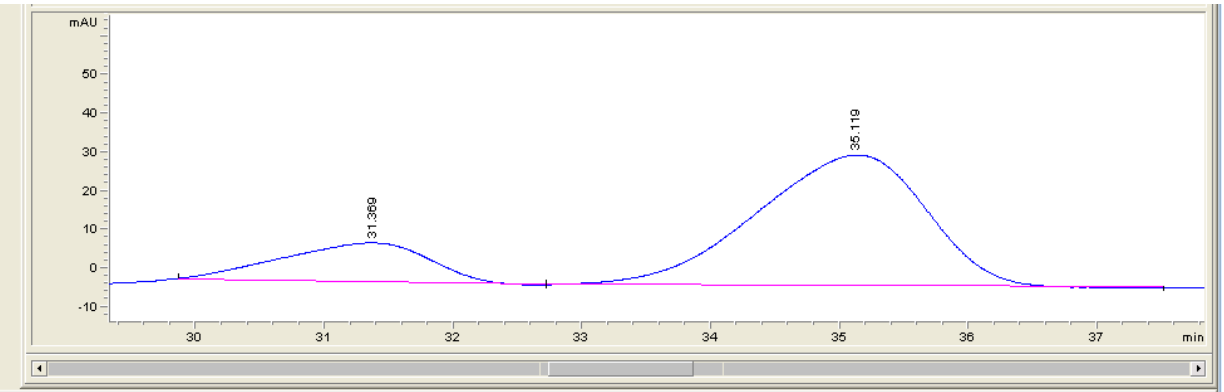
(*S*)-**3ba**, Y = 60%, e.e. = 59%.

IC column, *n*-Hex:IPA 70:30, 1mL/min, 30°C. Rt(*R*): 30.12 min, Rt(*S*): 33.73 min





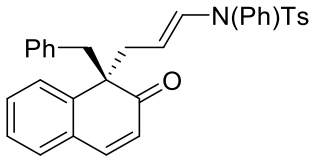
#	Time	Area	Height	Width	Area%	Symmetry
1	30.119	24127.6	477.7	0.7812	50.160	0.642
2	33.725	23973.5	419.2	0.8812	49.840	0.636

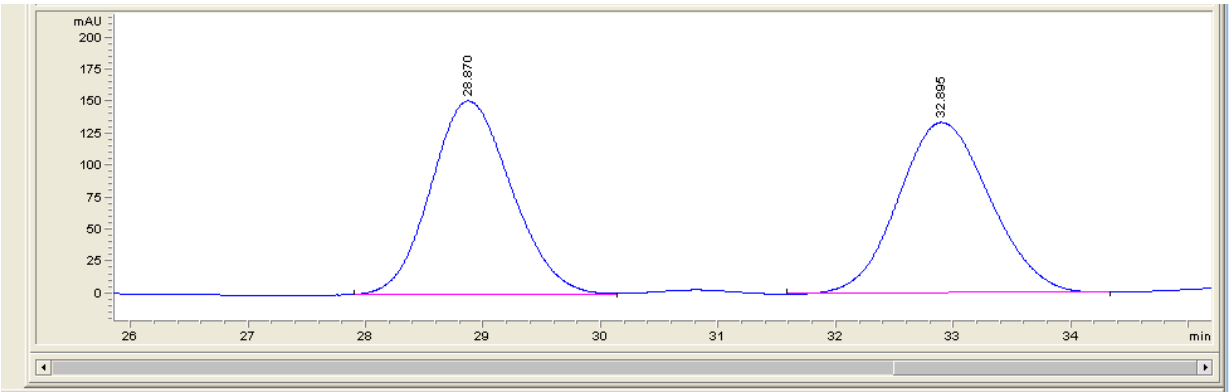


#	Time	Area	Height	Width	Area%	Symmetry
1	31.369	802	10.2	0.9351	20.532	1.543
2	35.119	3104.3	33.9	1.0842	79.468	1.36

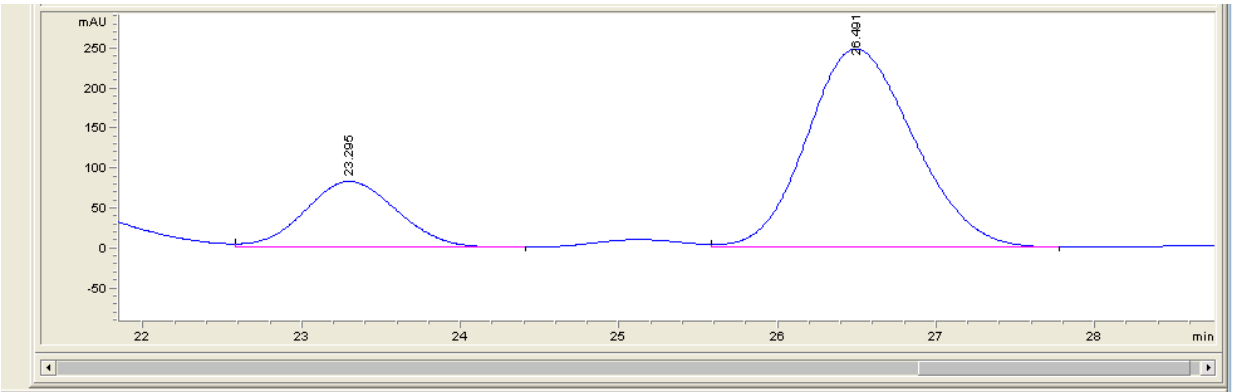
(*S*)-**3ca**, Y = 47%, e.e. = 55%.

IC column, *n*-Hex:IPA 70:30, 1 mL/min, 30 °C. Rt(*R*): 28.87 min, Rt(*S*): 32.90 min





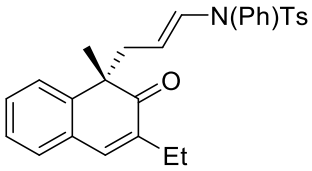
#	Time	Area	Height	Width	Area%	Symmetry
1	28.87	7245.2	151.4	0.7341	50.019	0.839
2	32.895	7239.6	133.5	0.8247	49.981	0.875

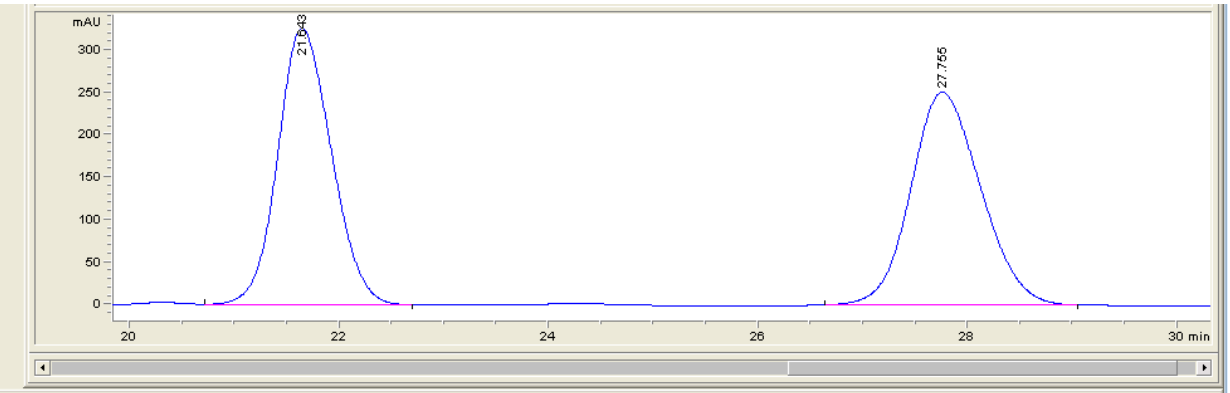


#	Time	Area	Height	Width	Area%	Symmetry
1	23.295	3405.8	83	0.6466	22.659	0.908
2	26.491	11624.9	248.2	0.7245	77.341	0.821

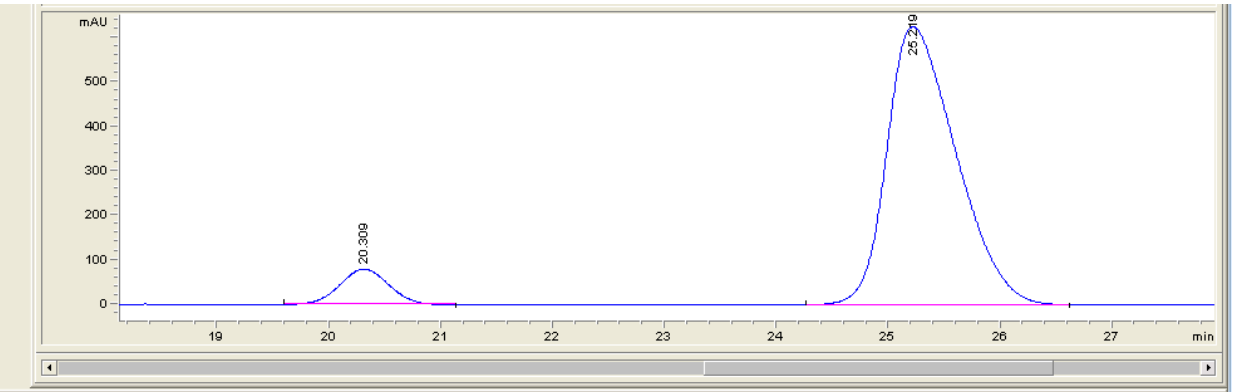
(*S*)-**3da**, Y = 76%, e.e. = 83%.

IC column, *n*-Hex:IPA 80:20, 1 mL/min, 30 °C. Rt(*R*): 21.64 min, Rt(*S*): 27.76 min





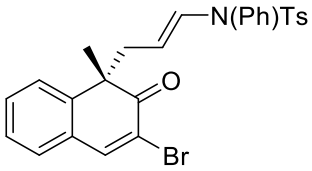
#	Time	Area	Height	Width	Area%	Symmetry
1	21.643	11647.1	326.5	0.5542	49.976	0.806
2	27.755	11658.5	251.3	0.7213	50.024	0.799

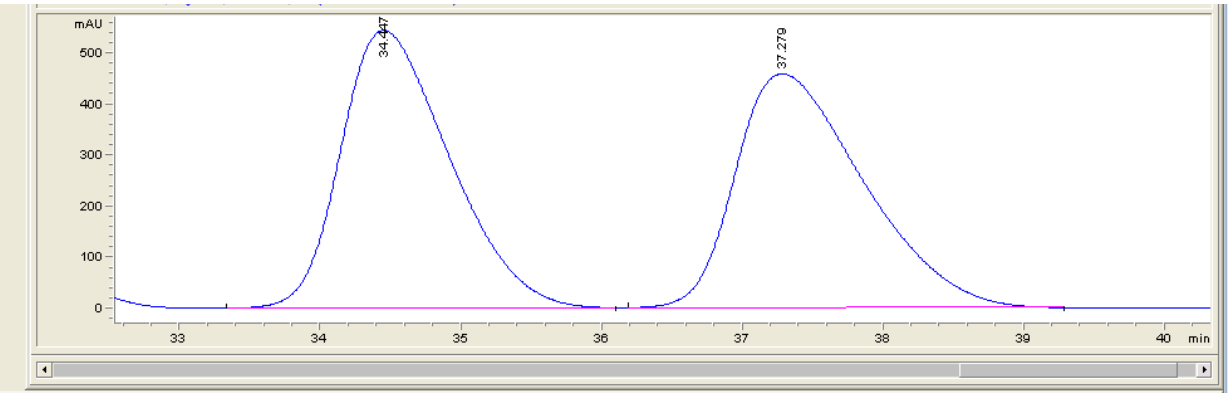


#	Time	Area	Height	Width	Area%	Symmetry
1	20.309	2468.7	79.8	0.4808	8.397	0.96
2	25.219	26931.5	626.2	0.6617	91.603	0.586

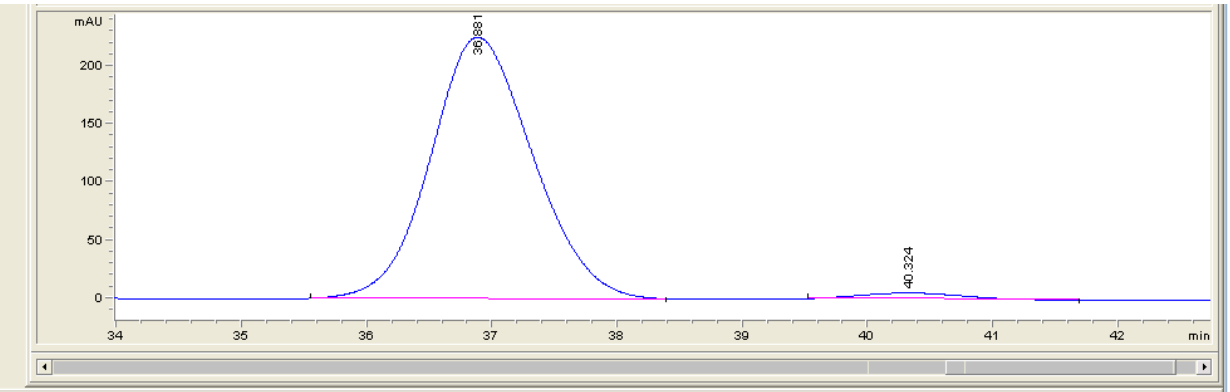
(*S*)-**3ea**, Y = 24%, e.e. = 95%.

IC column, *n*-Hex:IPA 80:20, 1mL/min, 30°C. Rt(*S*): 34.44 min, Rt(*R*): 37.28 min





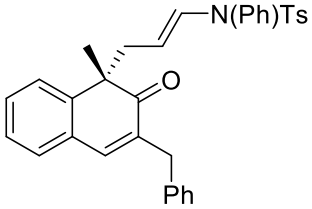
#	Time	Area	Height	Width	Area%	Symmetry
1	34.447	29205.7	544.1	0.7862	50.141	0.63
2	37.279	29041.8	458.3	0.9412	49.859	0.552

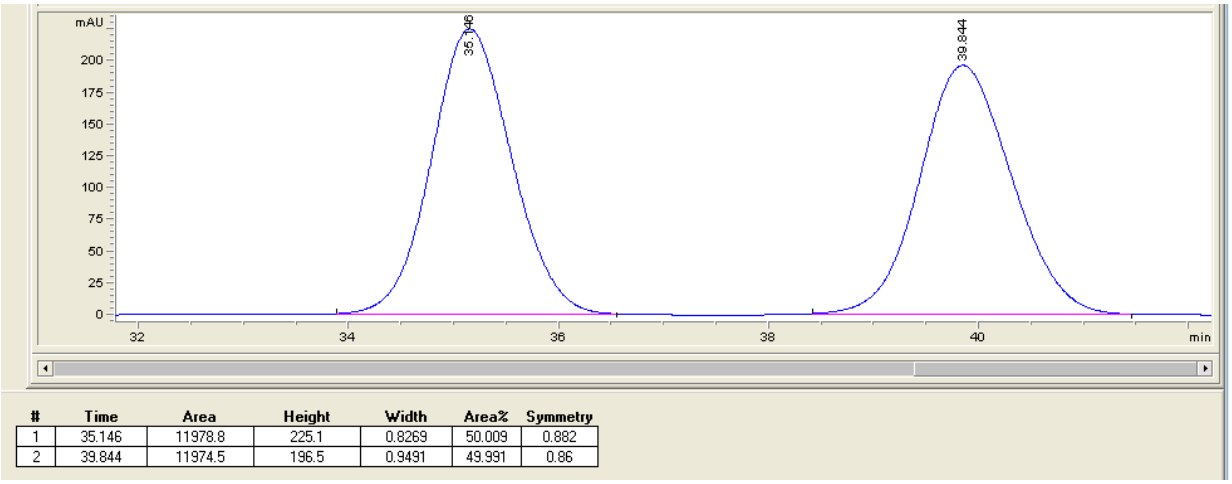


#	Time	Area	Height	Width	Area%	Symmetry
1	36.881	12831	225.5	0.8759	97.665	0.834
2	40.324	306.8	5.4	0.671	2.335	0.939

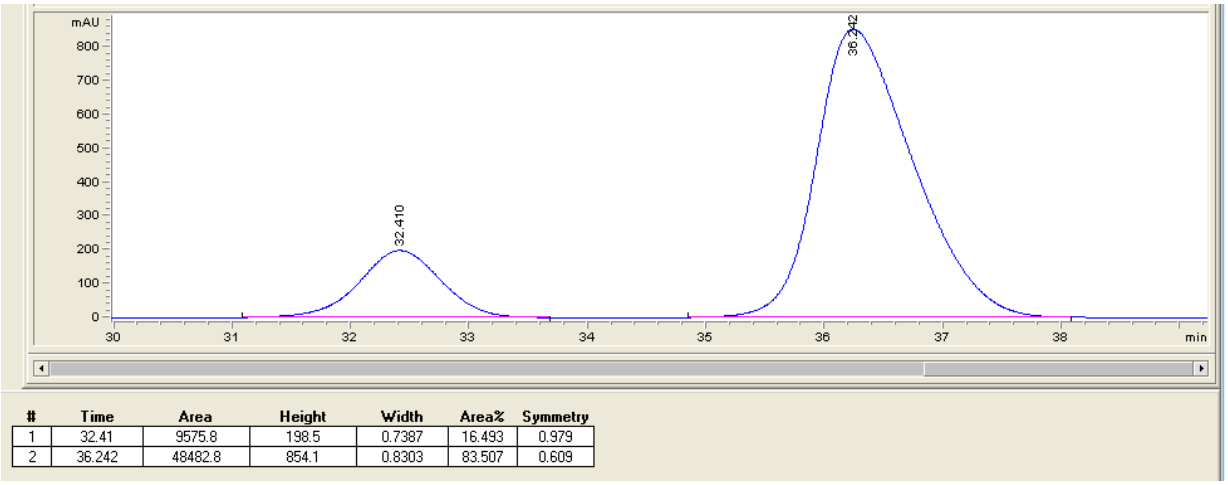
(*S*)-**3fa**, Y = 49%, e.e. = 67%.

IC column, *n*-Hex:IPA 80:20, 0.7 mL/min, 30 °C. Rt(*R*): 35.15 min, Rt(*S*): 39.84 min





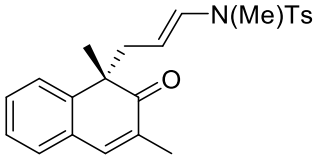
#	Time	Area	Height	Width	Area%	Symmetry
1	35.146	11978.8	225.1	0.8269	50.009	0.882
2	39.844	11974.5	196.5	0.9491	49.991	0.86

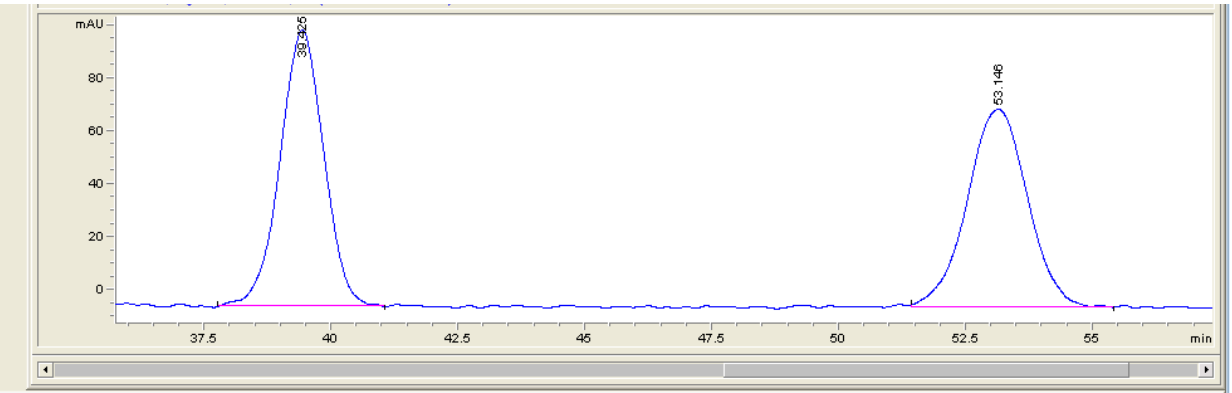


#	Time	Area	Height	Width	Area%	Symmetry
1	32.41	9575.8	198.5	0.7387	16.493	0.979
2	36.242	48482.8	854.1	0.8303	83.507	0.609

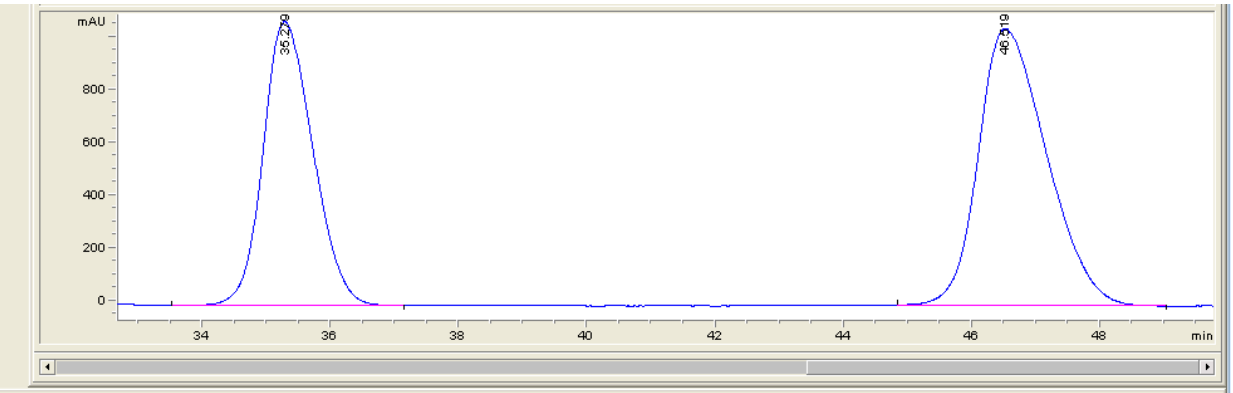
(*S*)-**3ac**, Y = 50%, e.e. = 5%.

IC column, *n*-Hex:IPA 80:20, 1 mL/min, 30 °C. Rt(*R*): 39.43 min, Rt(*S*): 53.14 min





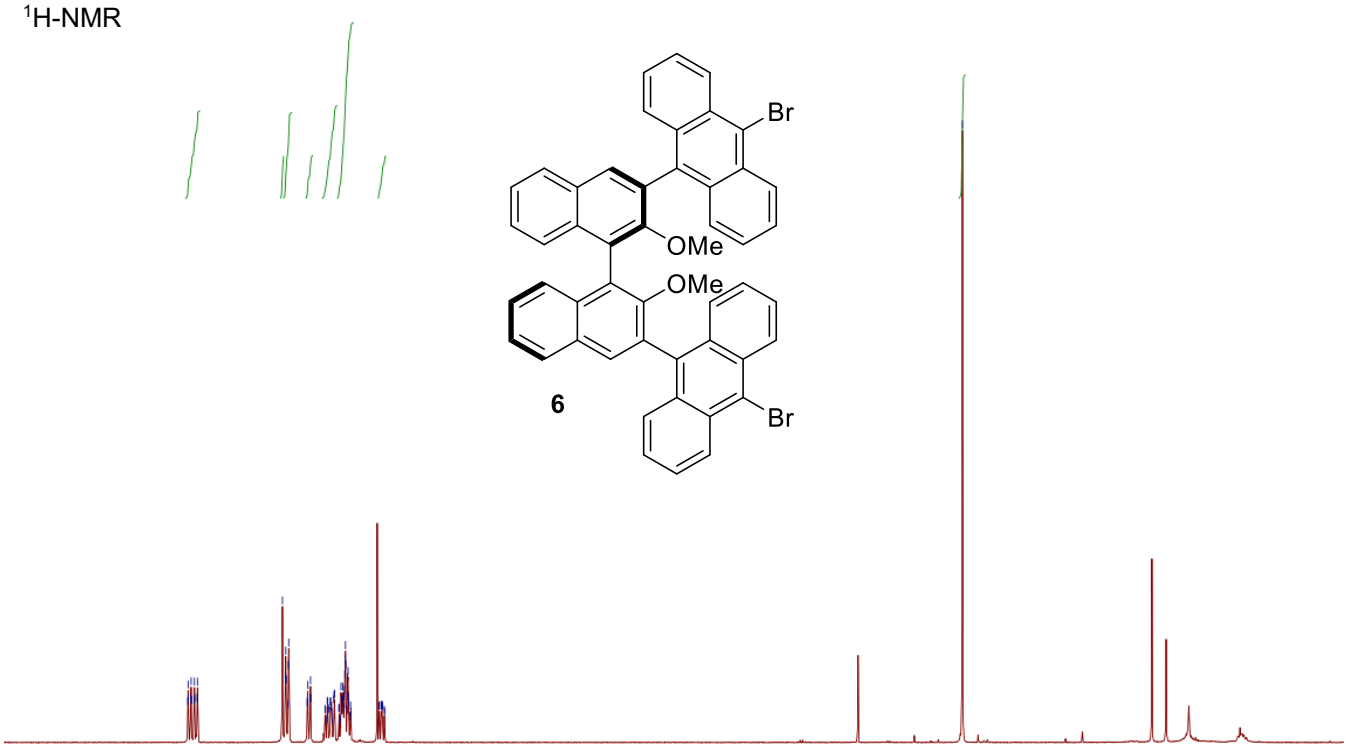
#	Time	Area	Height	Width	Area%	Symmetry
1	39.425	6314.2	104.6	0.9363	50.367	1.02
2	53.146	6222	74.9	1.2405	49.633	1.047



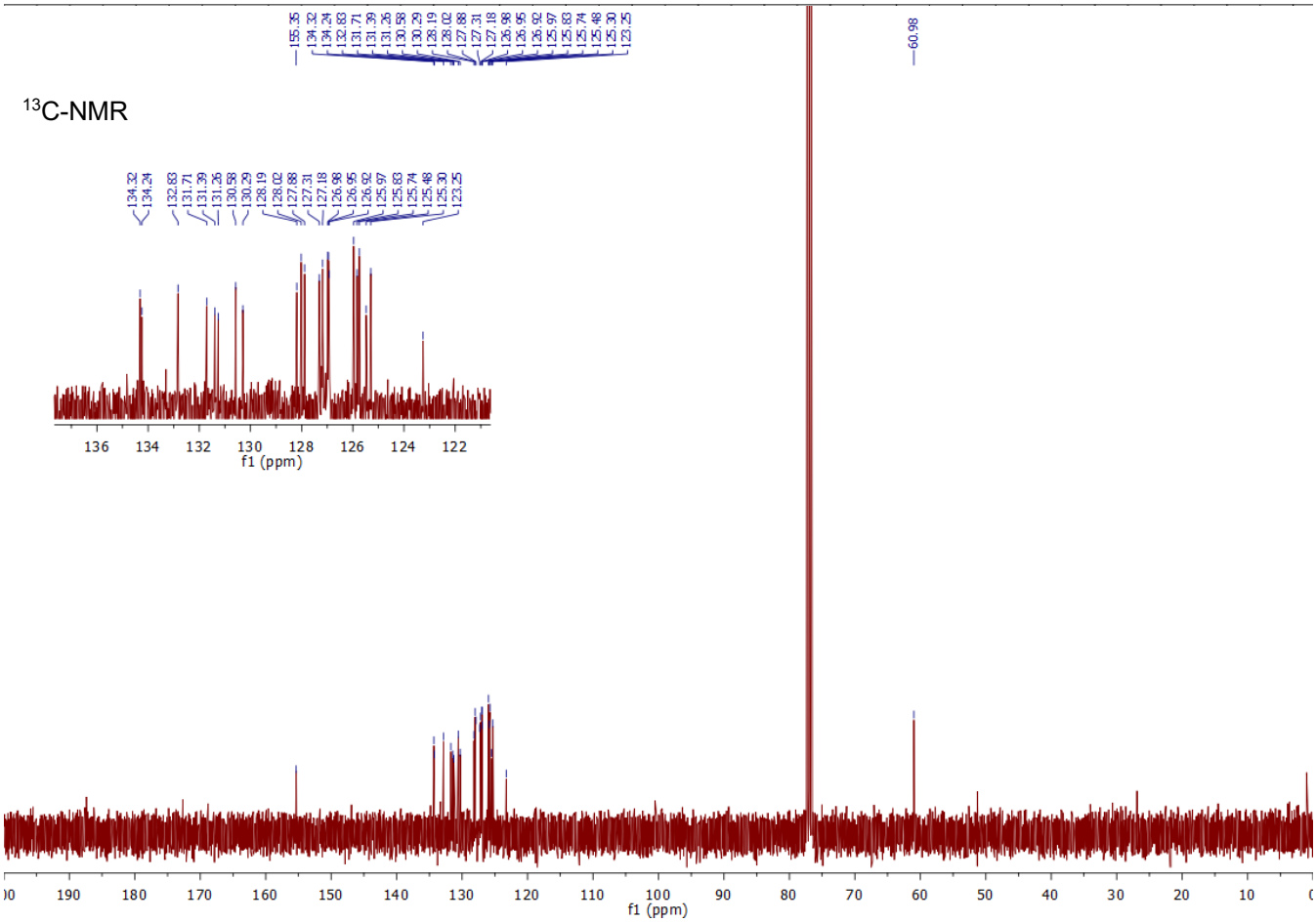
#	Time	Area	Height	Width	Area%	Symmetry
1	35.279	58315.2	1076.7	0.7359	42.786	0.741
2	46.519	77979	1053.1	0.9339	57.214	0.62

NMR Spectra

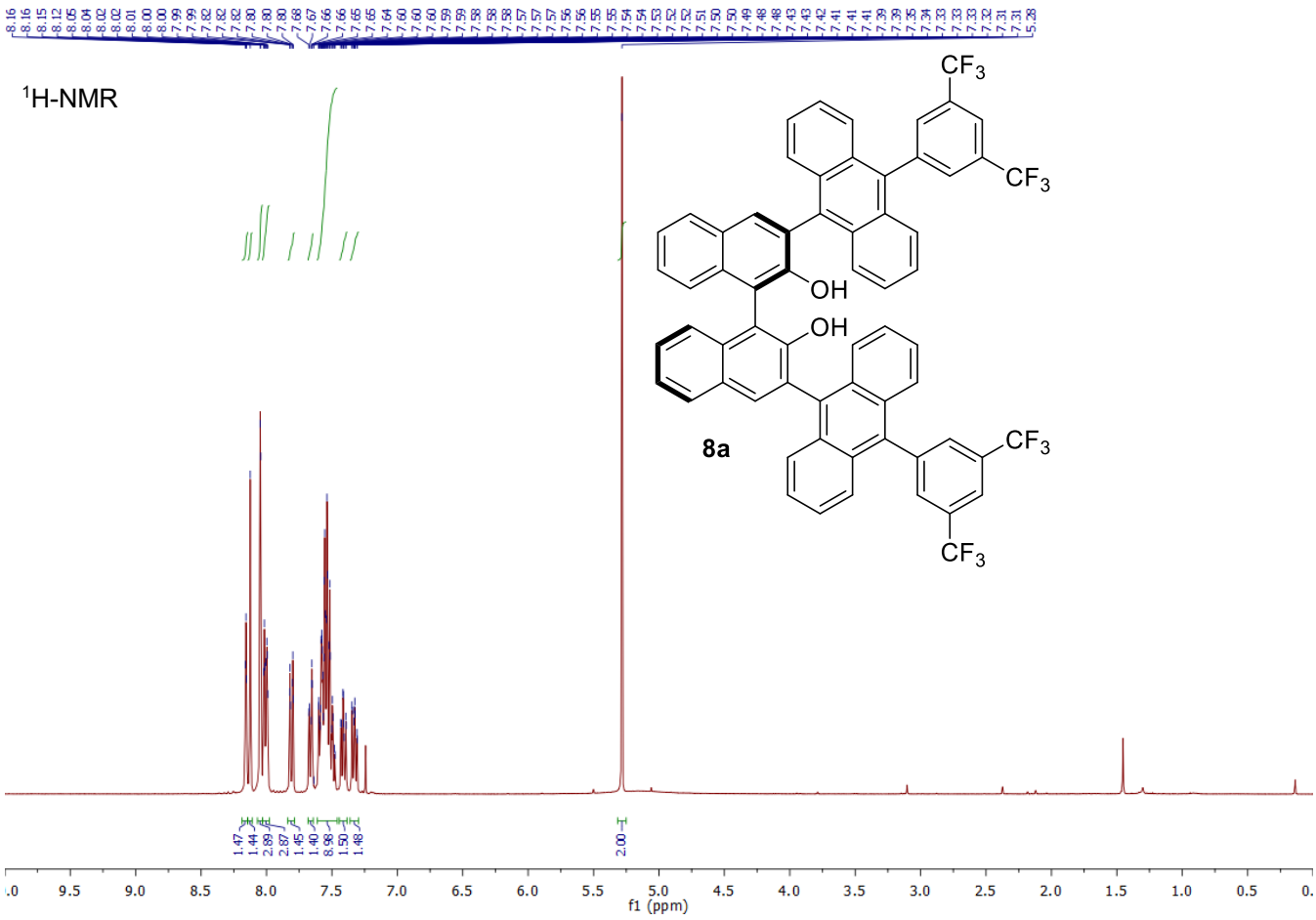
^{1}H-NMR



^{13}C-NMR

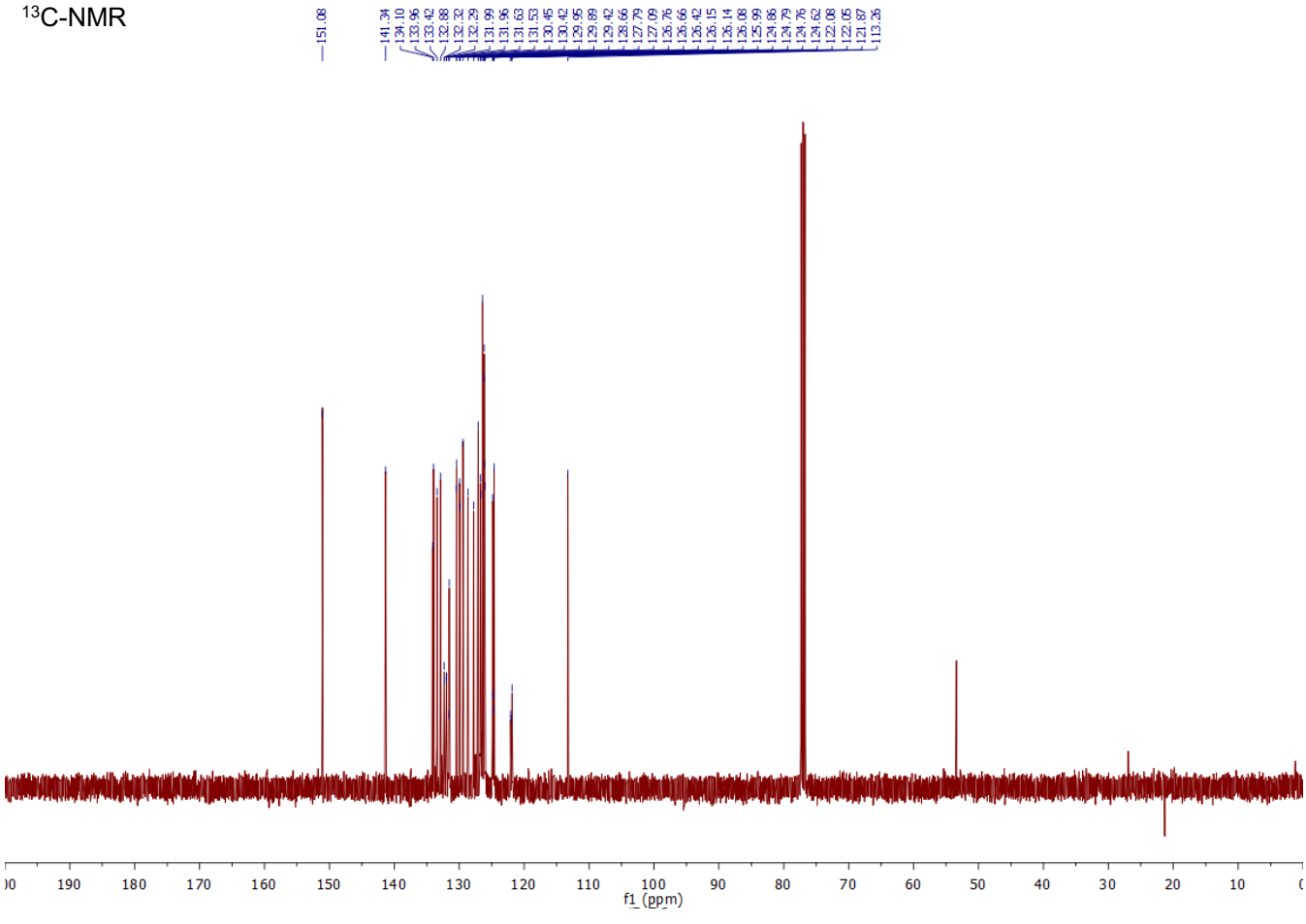


^{1}H-NMR

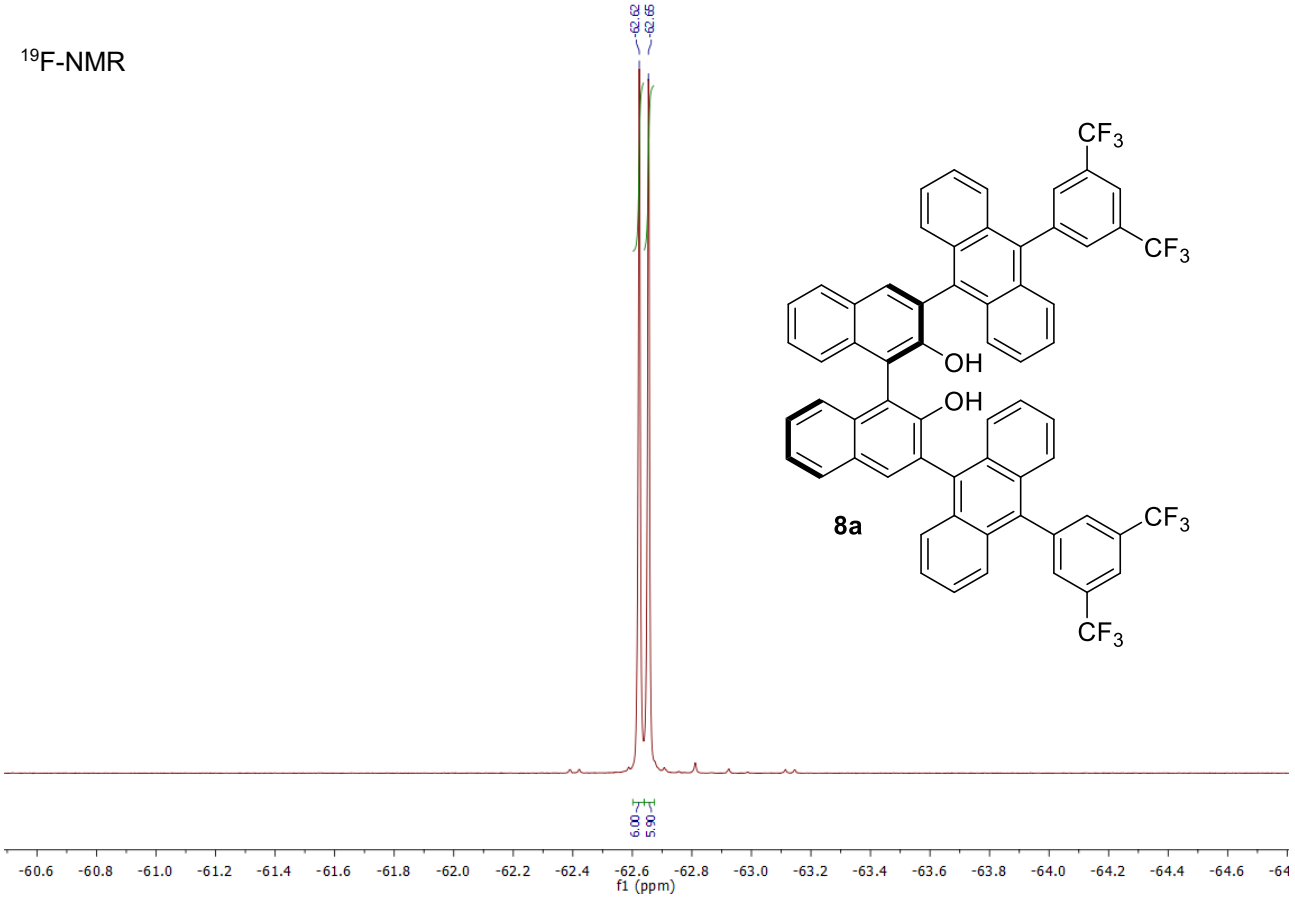


8a

^{13}C-NMR



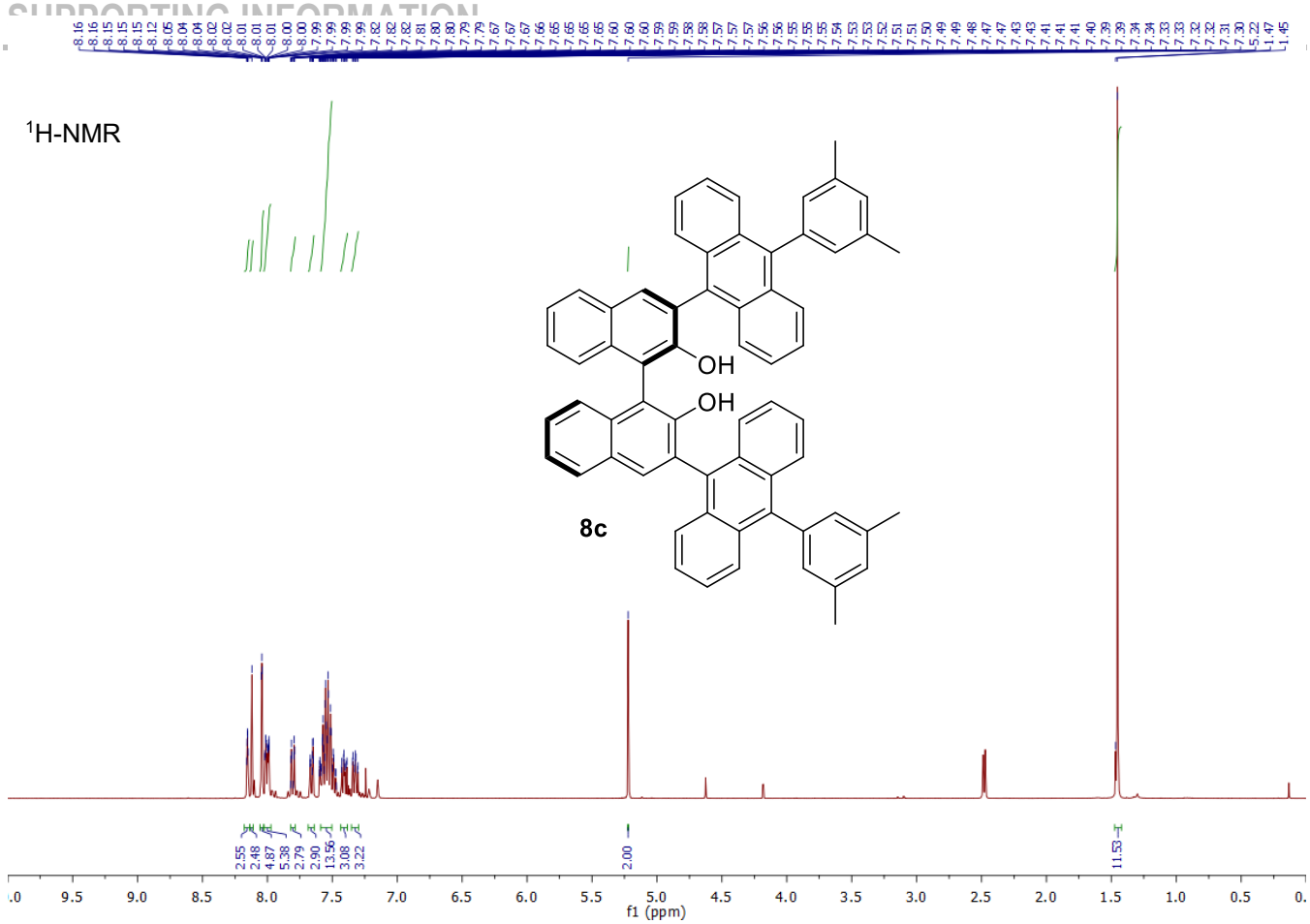
^{19}F-NMR


-62.62
-62.65
6.00
5.90
-60.6
-60.8
-61.0
-61.2
-61.4
-61.6
-61.8
-62.0
-62.2
-62.4
-62.6
-62.8
-63.0
-63.2
-63.4
-63.6
-63.8
-64.0
-64.2
-64.4
-64.6
f1 (ppm)

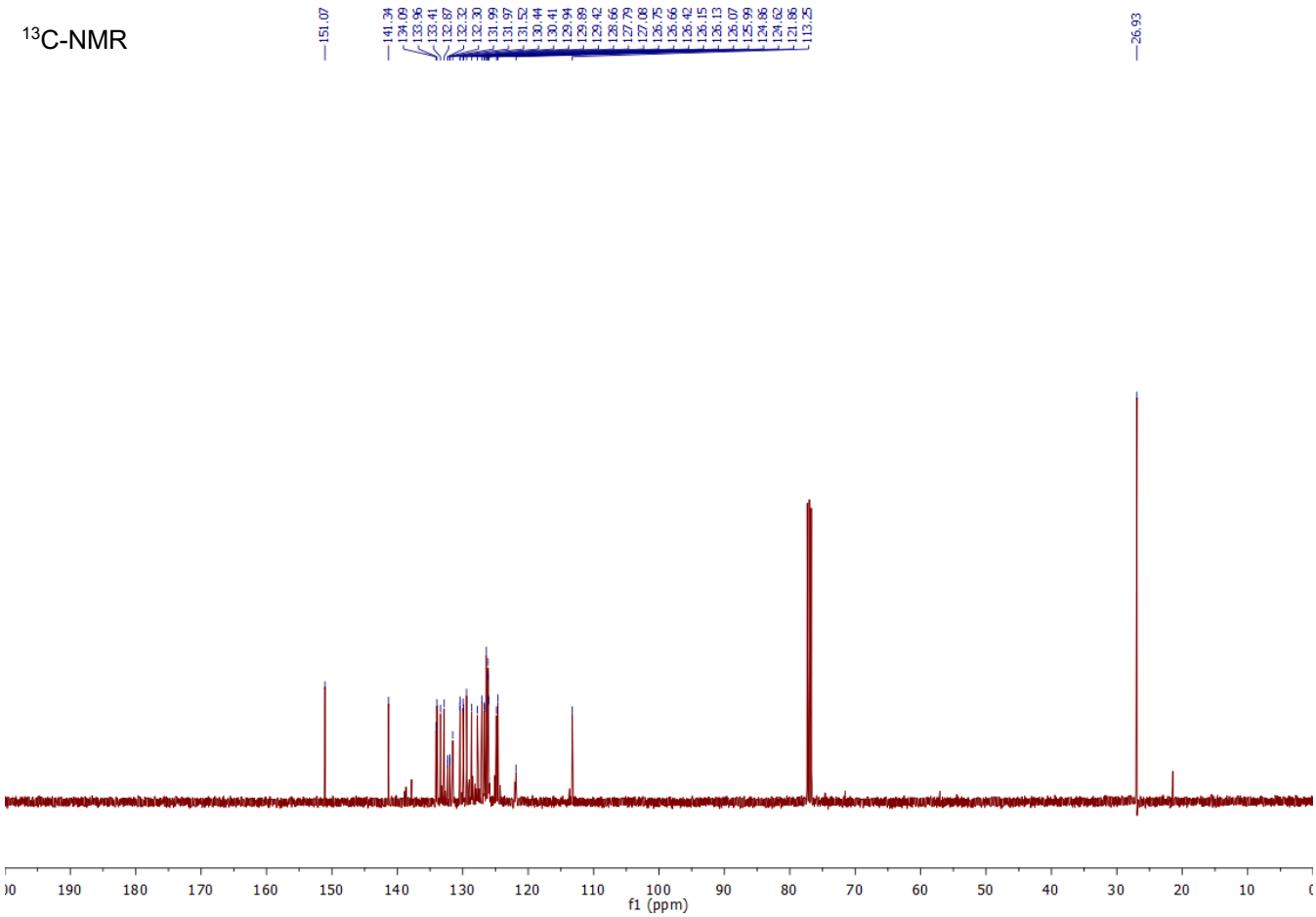
CF3
CF3
OH
OH
CF3
CF3

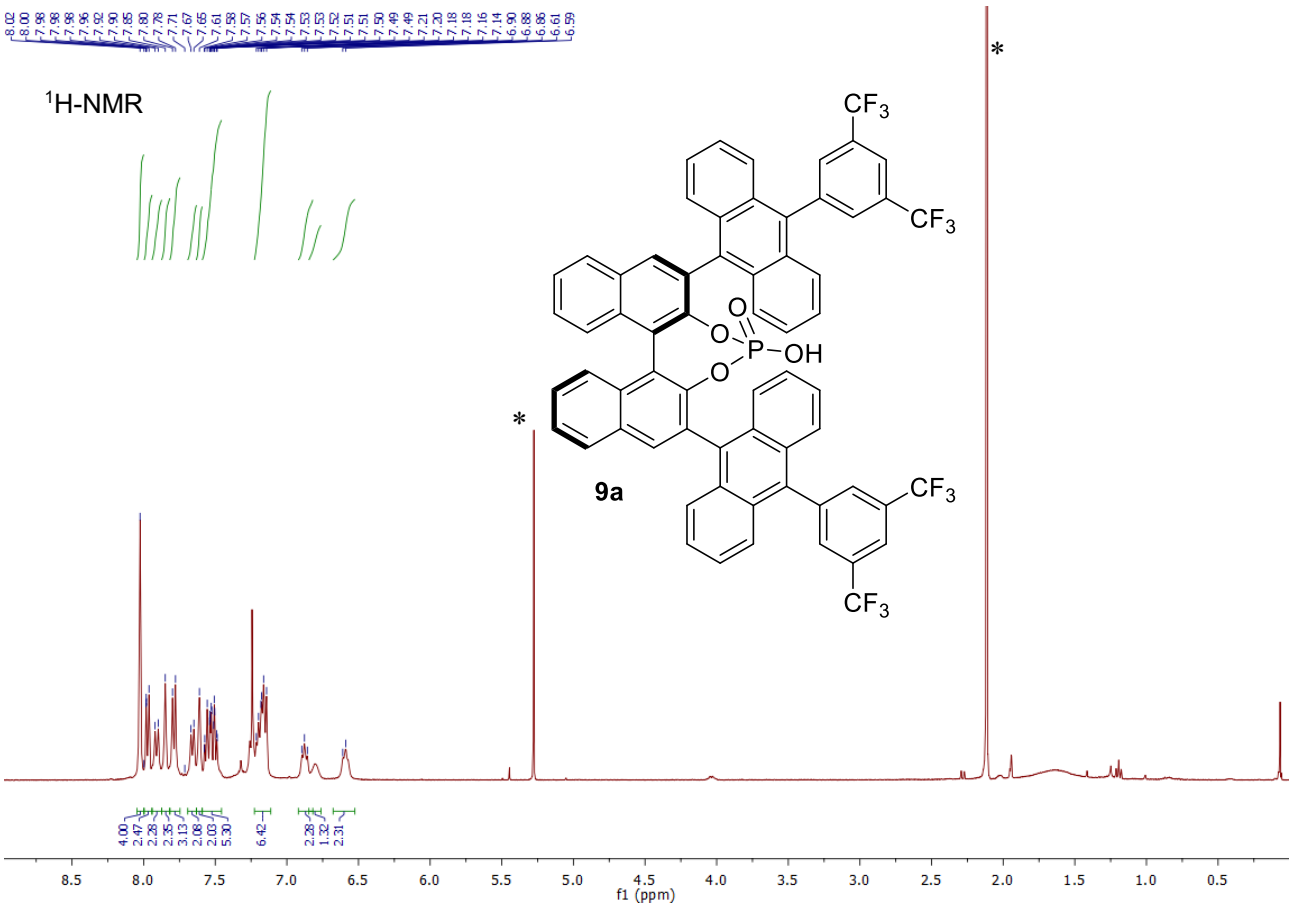
8a

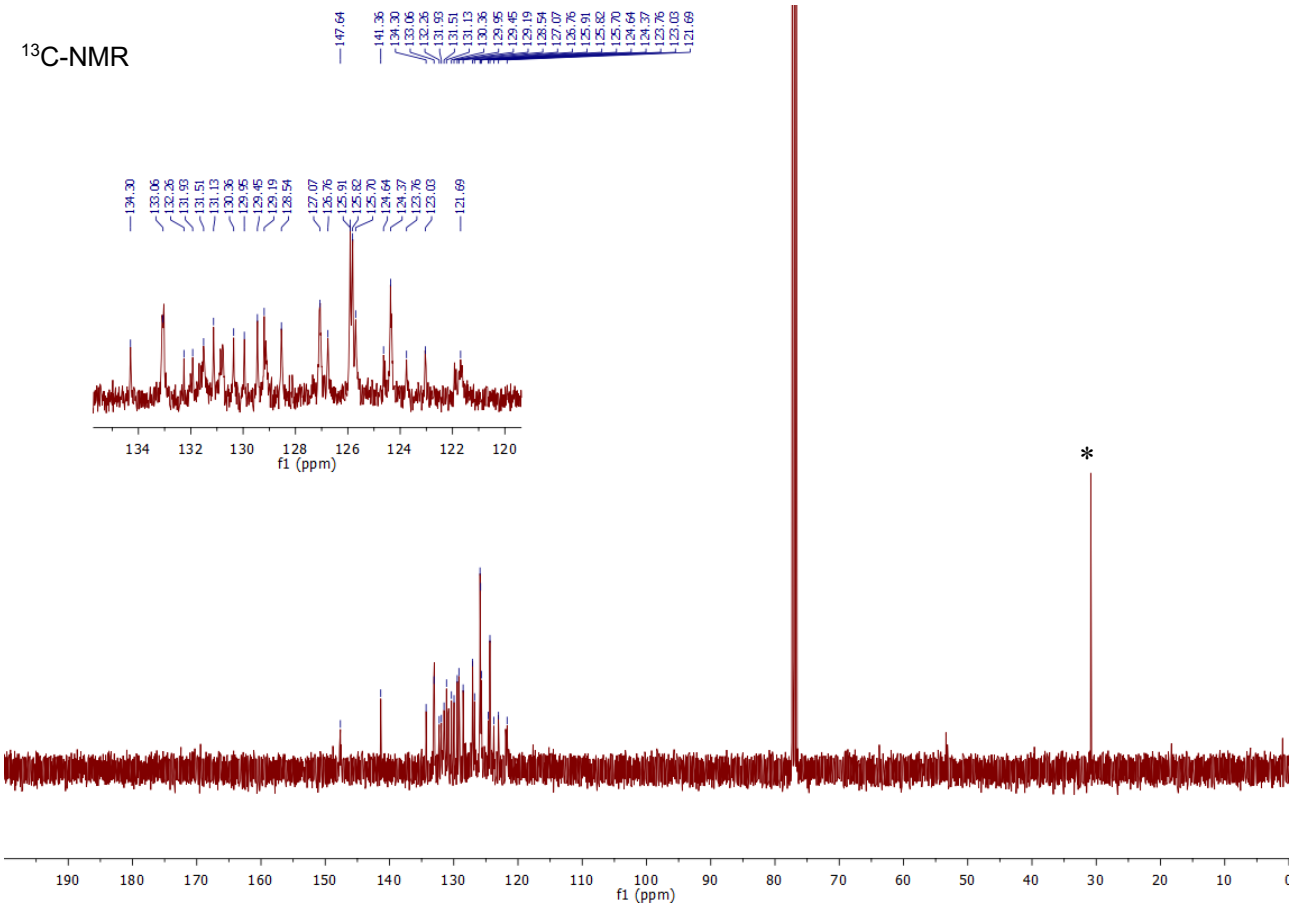
^{1}H-NMR



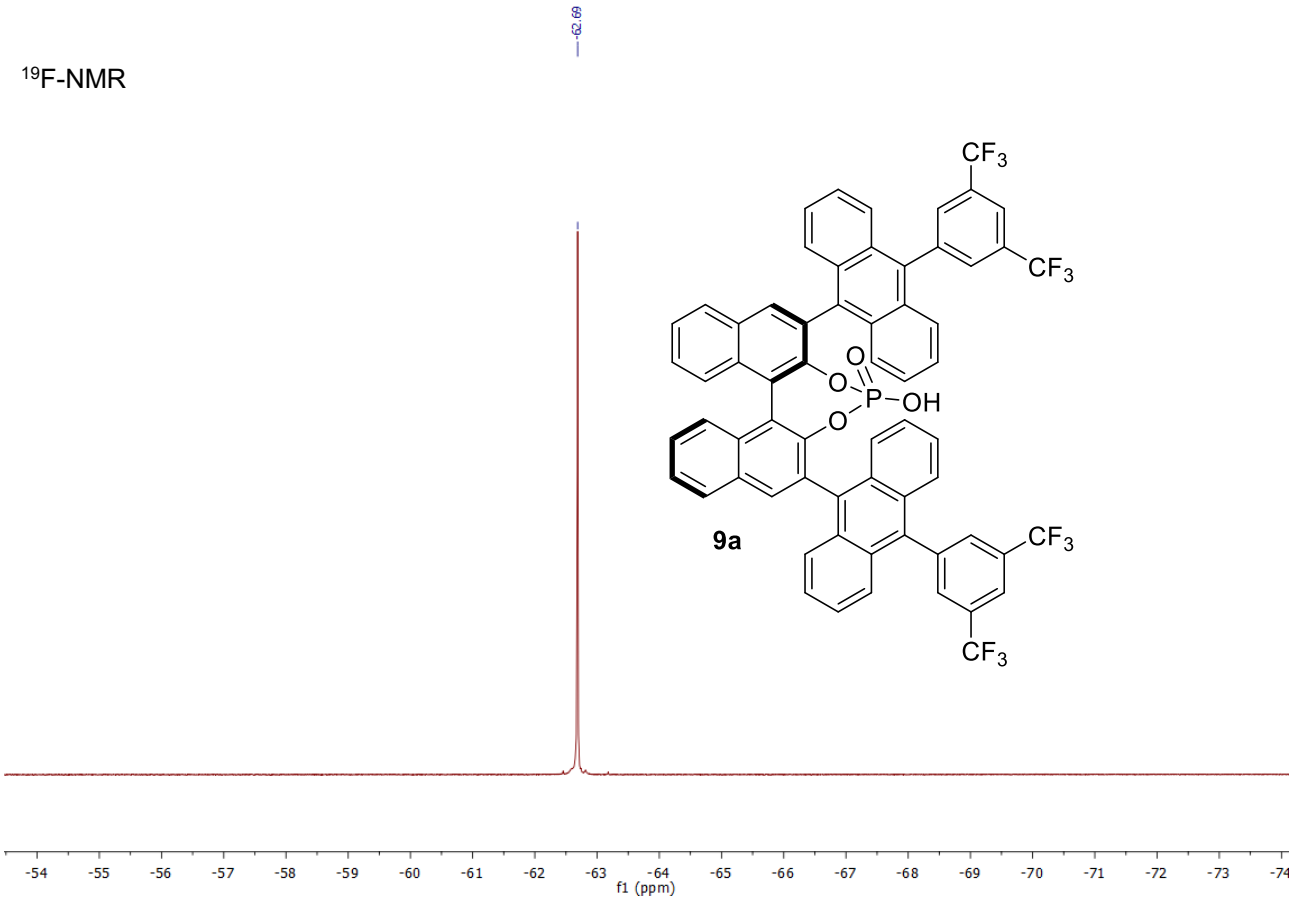
^{13}C-NMR




^{1}H-NMR
CF3
CF3
O
O
P
OH
O
9a
CF3
CF3
*
*
f1 (ppm)

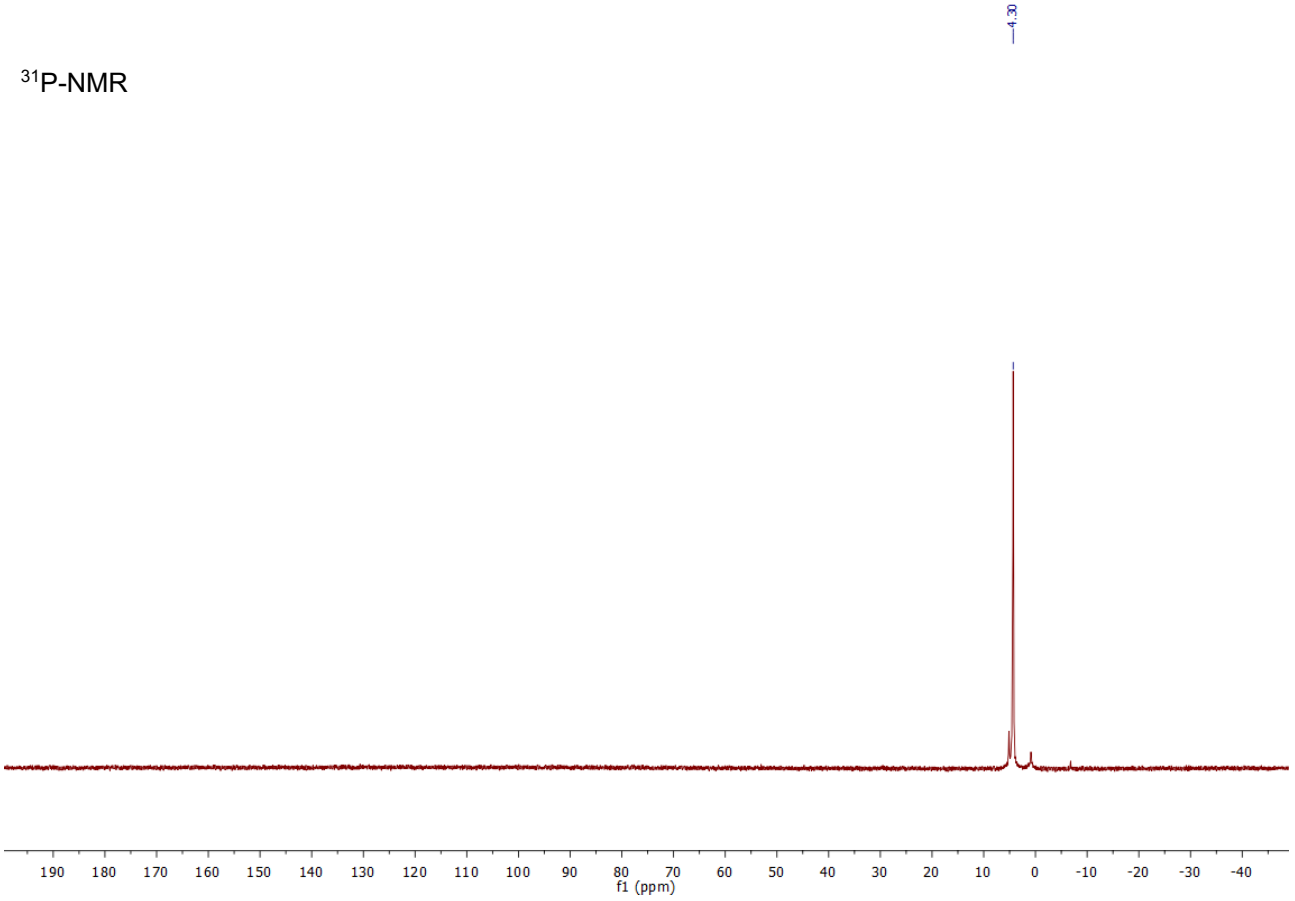

^{13}C-NMR
f1 (ppm)
f1 (ppm)
*

^{19}F-NMR

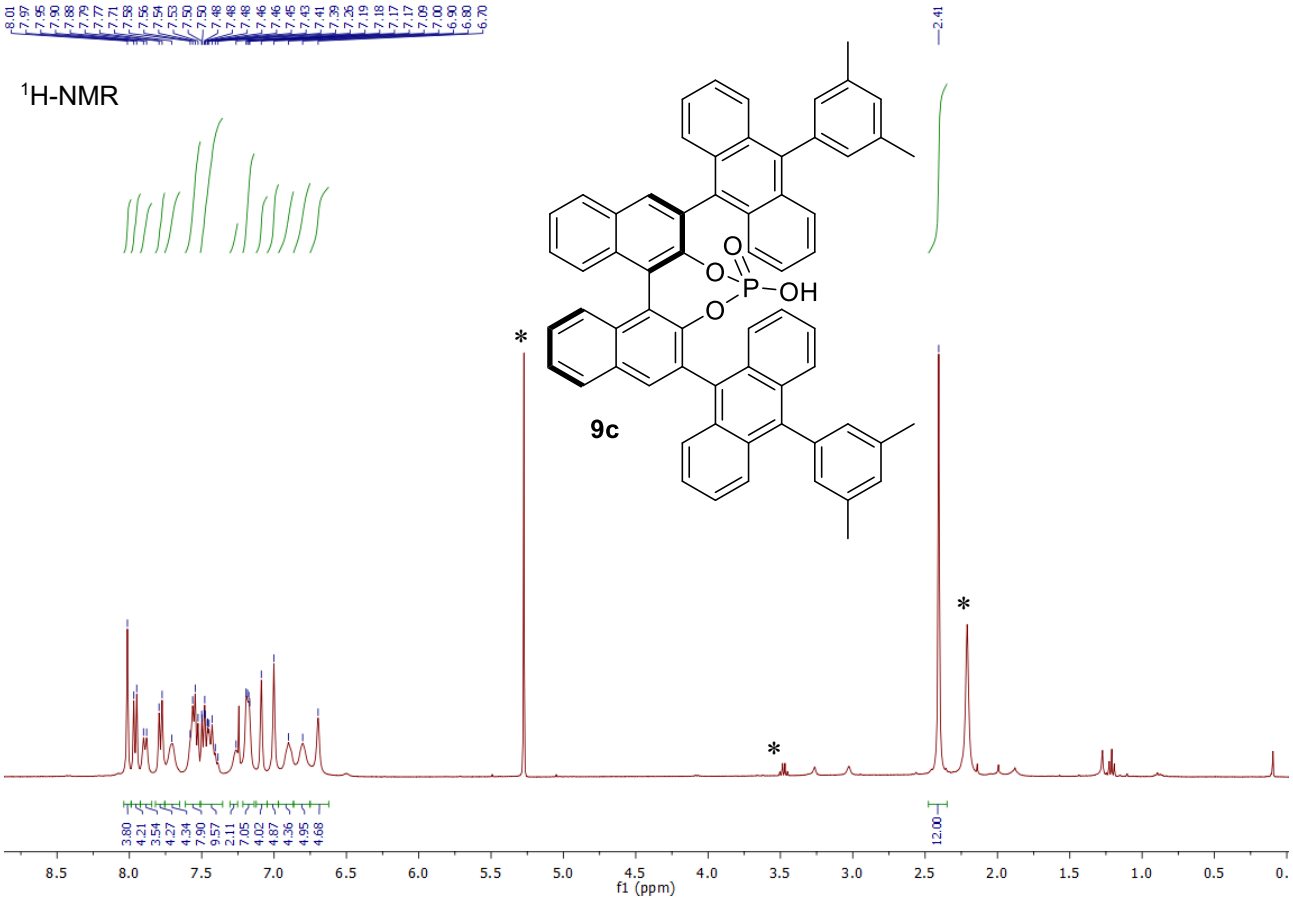


9a

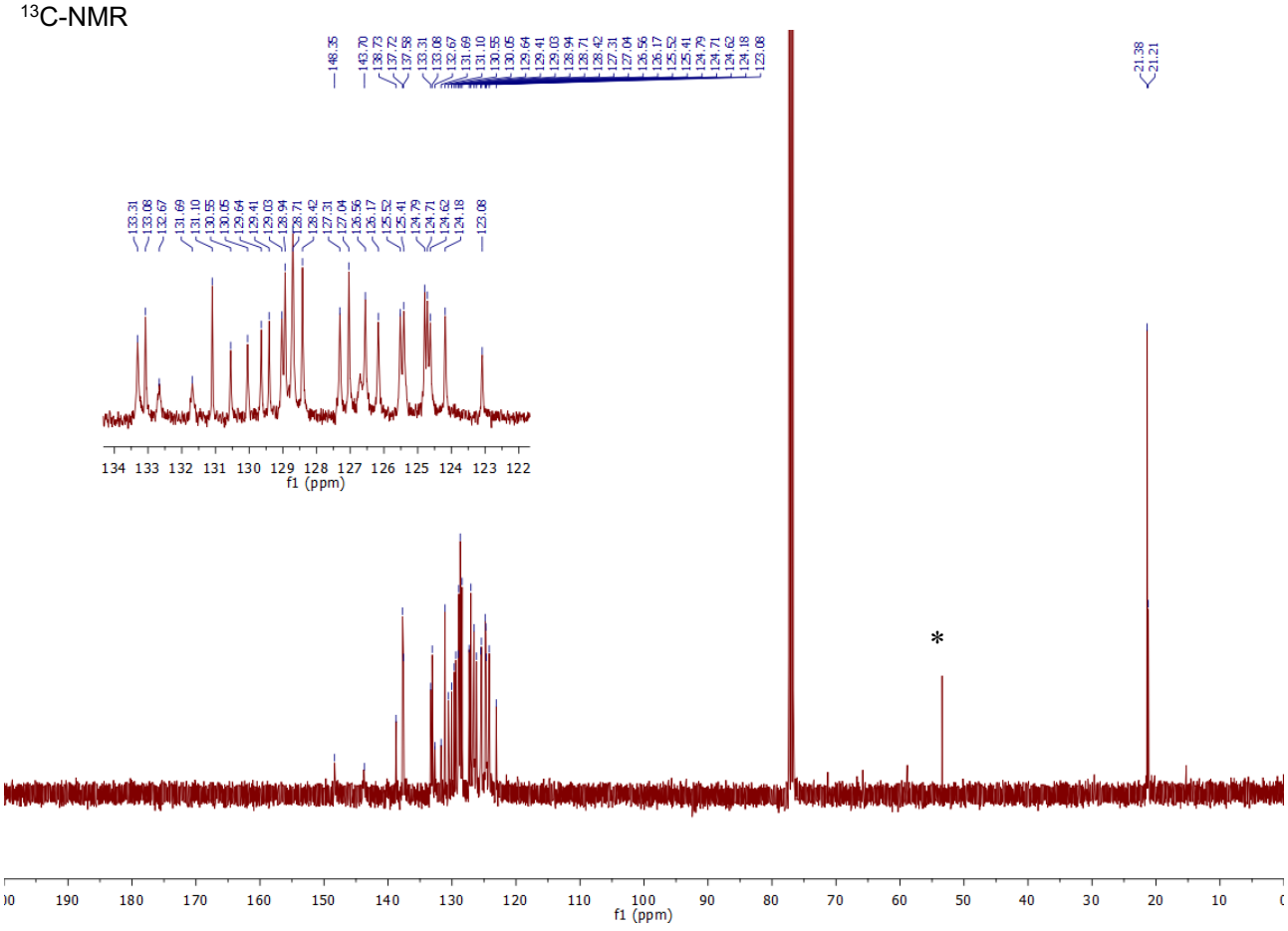
^{31}P-NMR



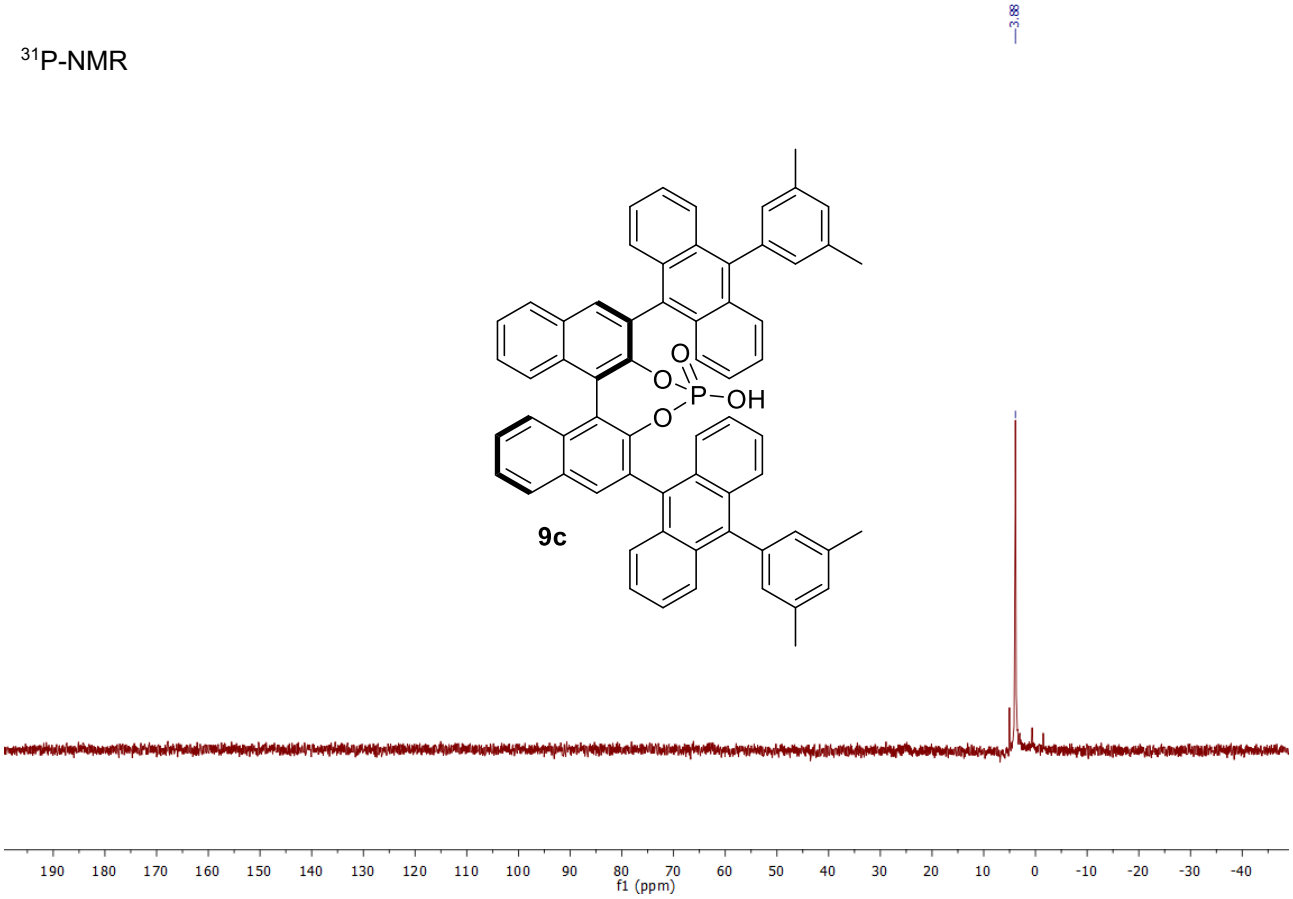
^{1}H-NMR



^{13}C-NMR



^{31}P-NMR


3.88
O
O
P
OH
O
9c
190 180 170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 -10 -20 -30 -40
f1 (ppm)

References

[1] F. Romanov-Michailidis, L. Guénée, A. Alexakis, *Angew. Chem. Int. Ed.*, **2013**, *52*, 35, 9266-9270

[2] a) B. Heid, B. Plietker, *Synthesis* **2016**, *48*, 340-350; b) J. Nan, J. Liu, H. Zheng, Z. Zou, L. Hou, H. Hu, Y. Wang, X. Luan, *Angew. Chem., Int. Ed.* **2015**, *54*, 2356-2360.

[3] A. González-Gómez, L. Añorbe, A. Poblador, G. Domínguez, J. Pérez-Castells, *Eur. J. Org. Chem.*, **2008**, 1370-1377.

[4] Z.L. Xia, C. Zheng, X.W. Liang, Y. Cai, S.L. You, *Angew. Chem. Int. Ed.,* **2019**, *58*, 4, 1158-1162.

[5] G. Lu, V.B. Birman, *Org. Lett.*, **2011**, *13*, 356-358.

[6] J. An, L. Lombardi, S. Grilli, M. Bandini, *Org. Lett.* **2018**, *20*, 7380−7383

[7] B. Yang, X. Zhai, S. Feng, D. Hu, Y. Deng, Z. Shao, *Org. Lett.* **2019**, *21*, 1, 330–334