

Supplementary Information

Acid-Catalyzed Chirality-Transferring Intramolecular Friedel-Crafts Cyclization of α -Hydroxy- α -alkenylsilanes

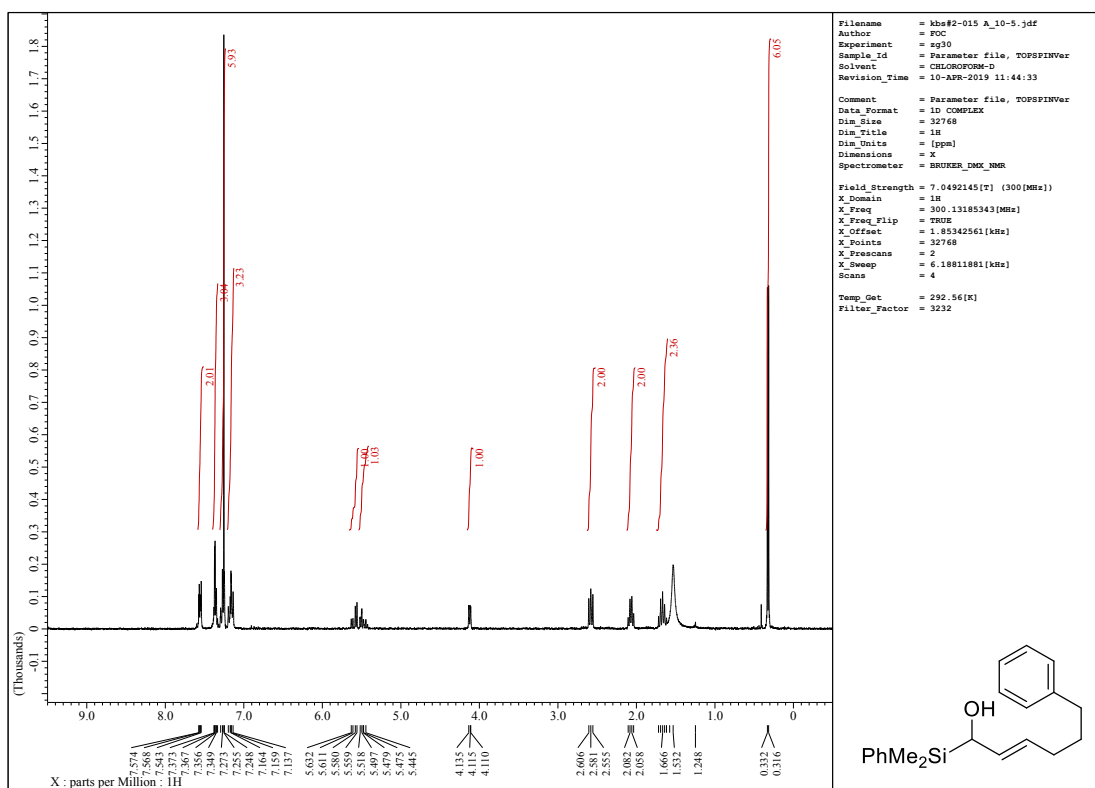
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*Division of Molecular Materials Science, Graduate School of Science,
Osaka City University, Sugimoto, Sumiyoshi, Osaka 558-8585, Japan*

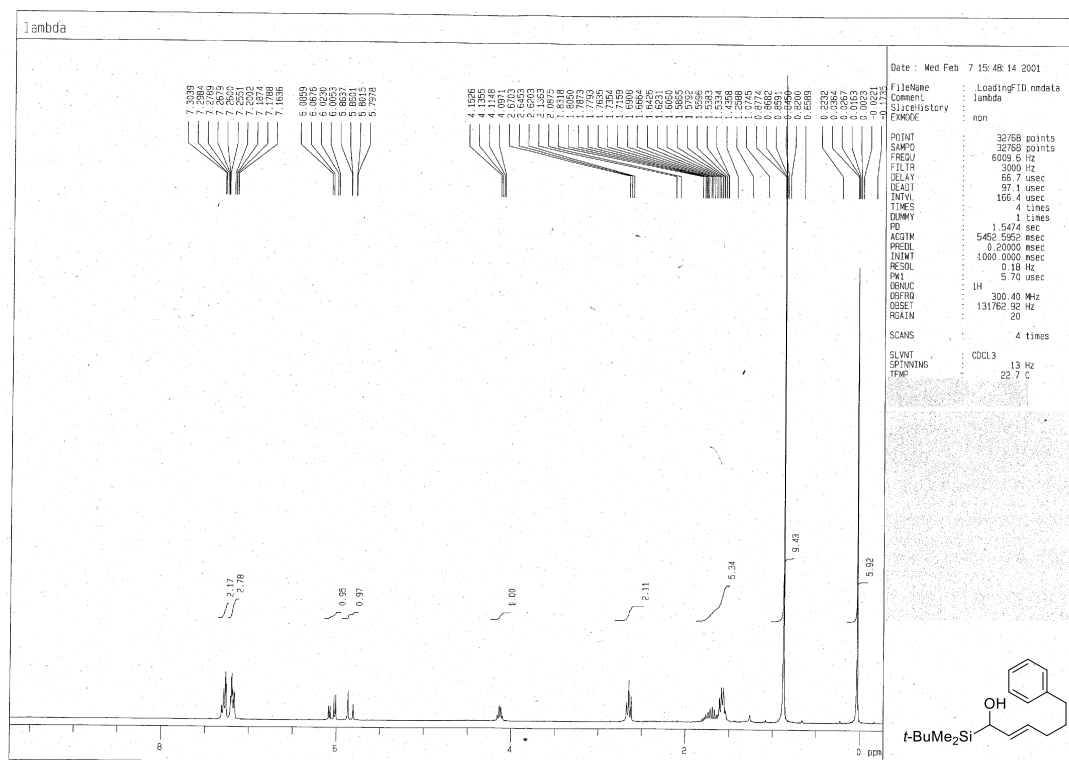
1. NMR spectra	S2
2. Determination of absolute configuration of secondary alcohol	S34
3. Determination of optical purity	S42

1. NMR spectra

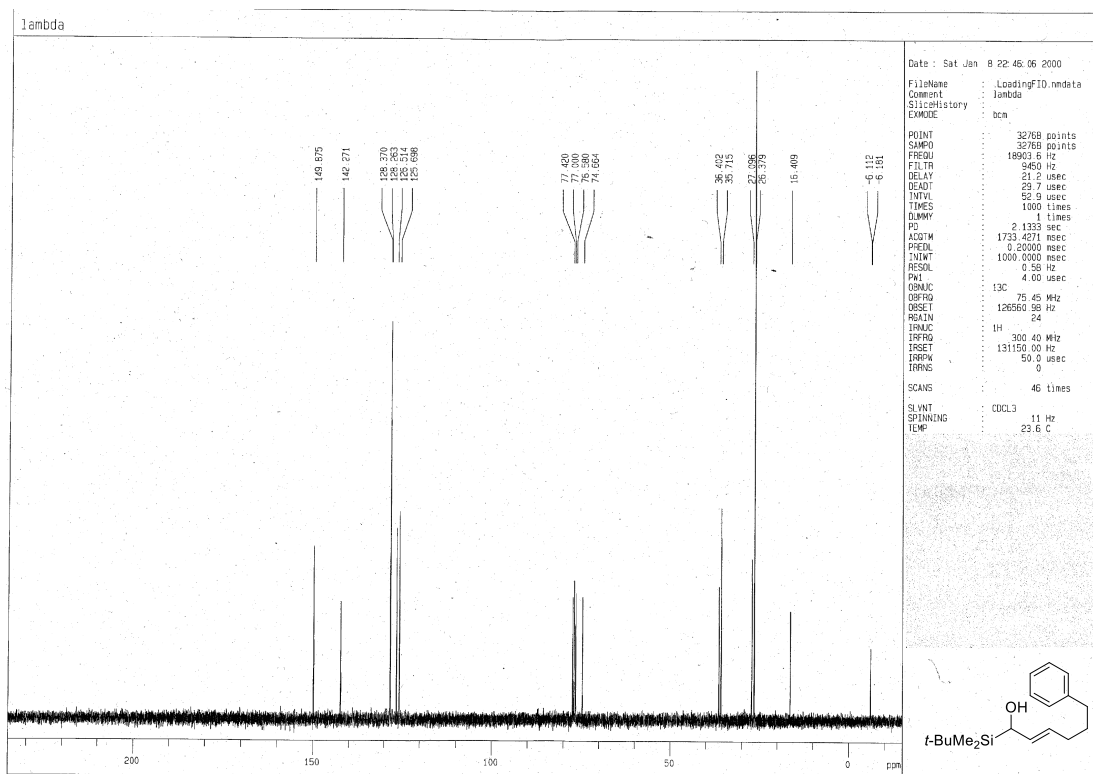
¹H NMR: Compound 3a



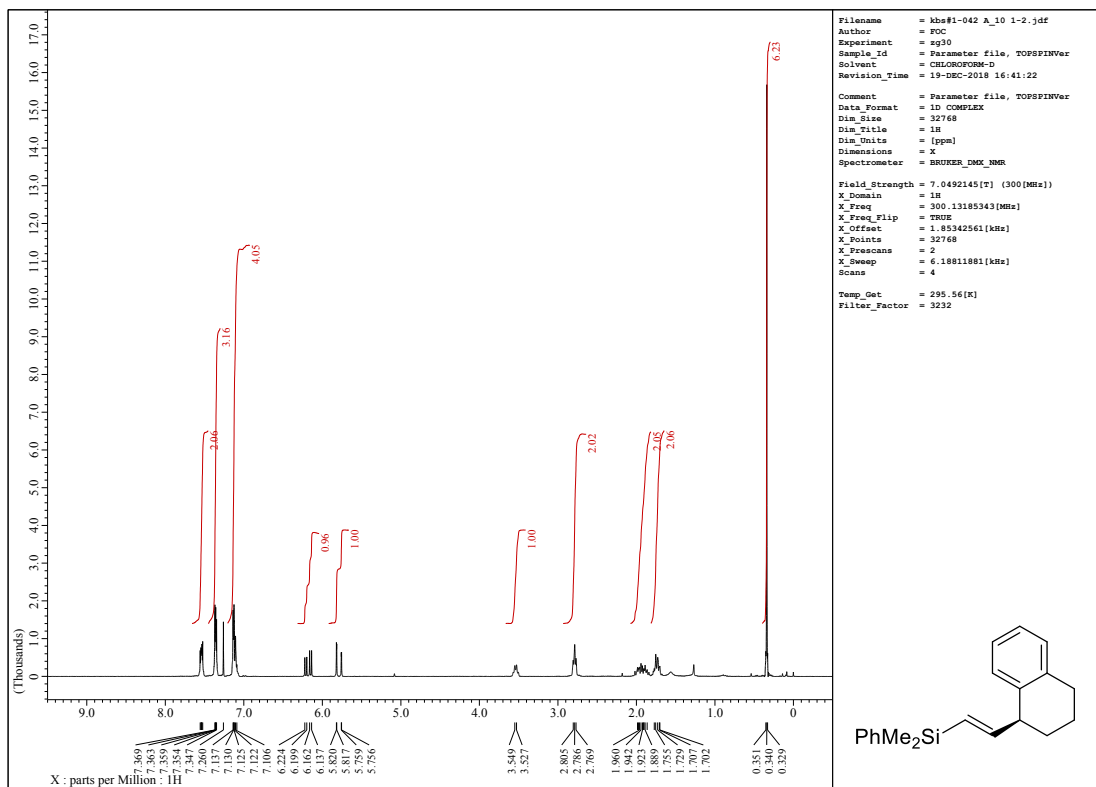
¹H NMR: Compound 3b



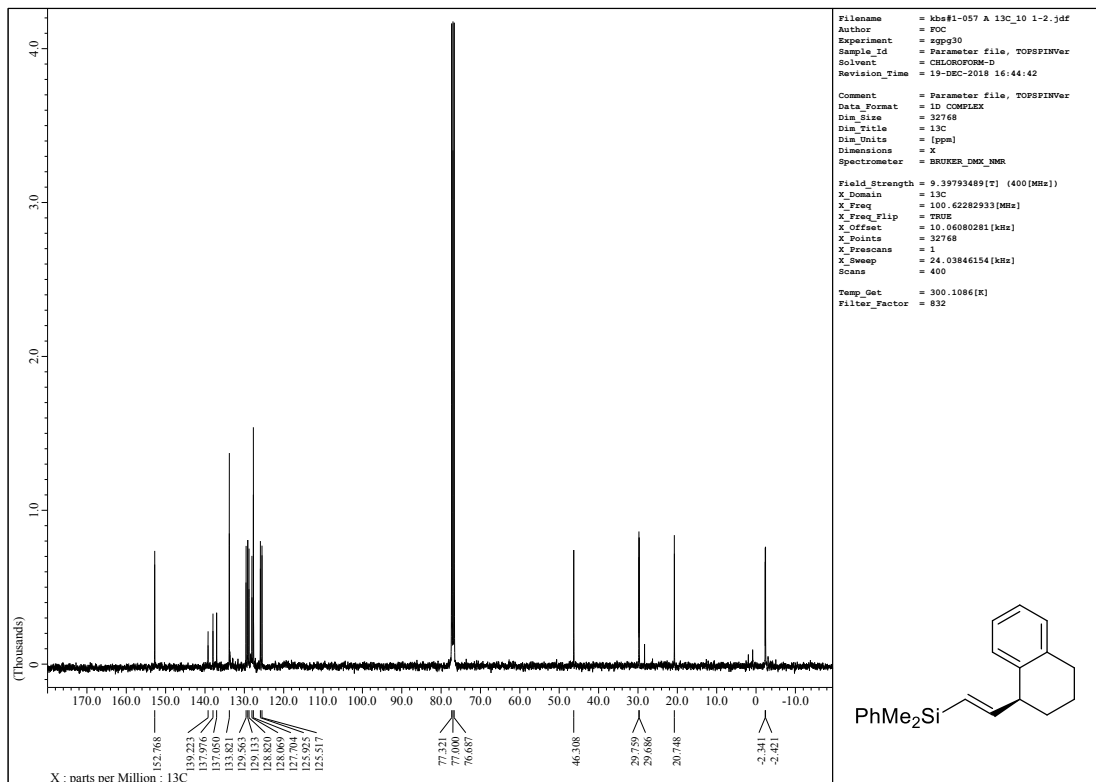
¹³C NMR: Compound 3b



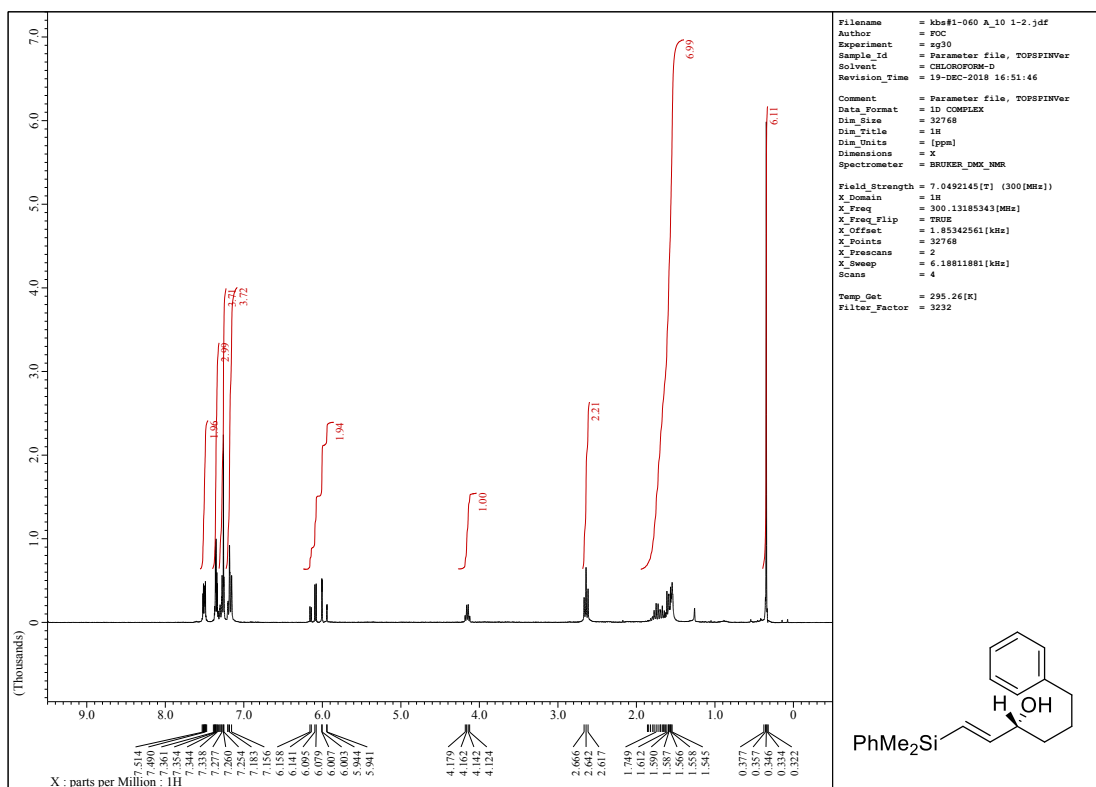
¹H NMR: Compound (S)-4a



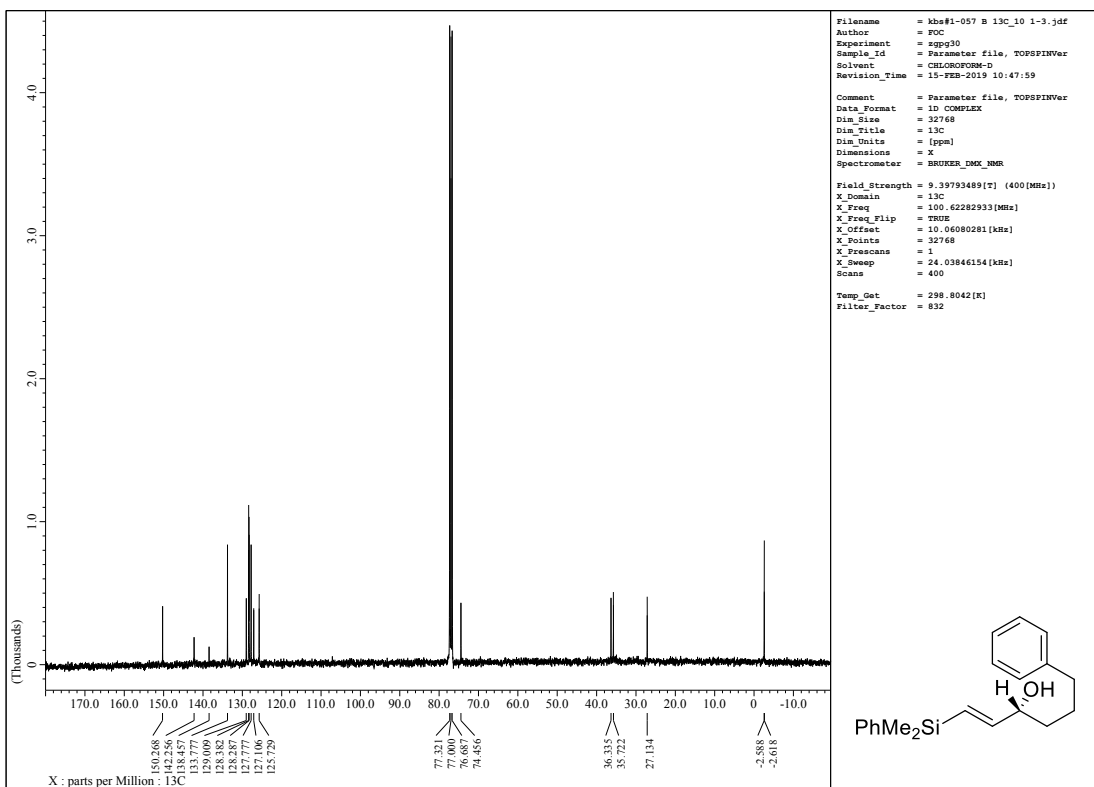
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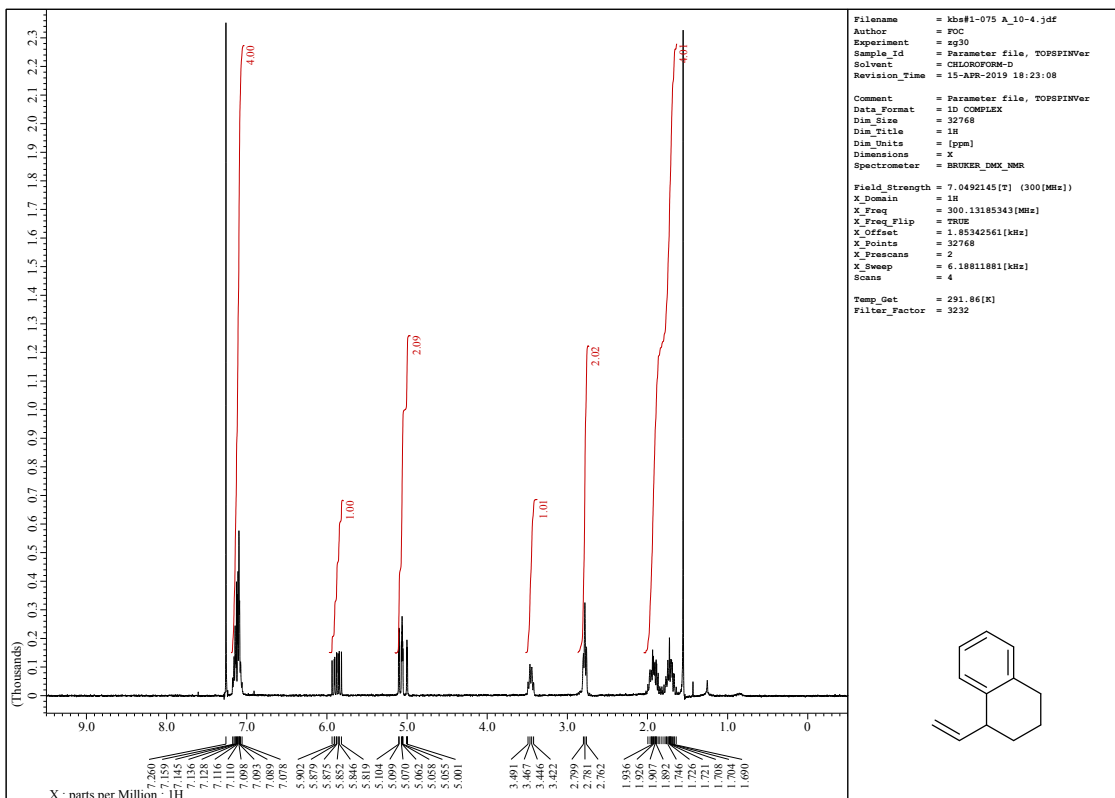
¹H NMR: Compound (R)-7a



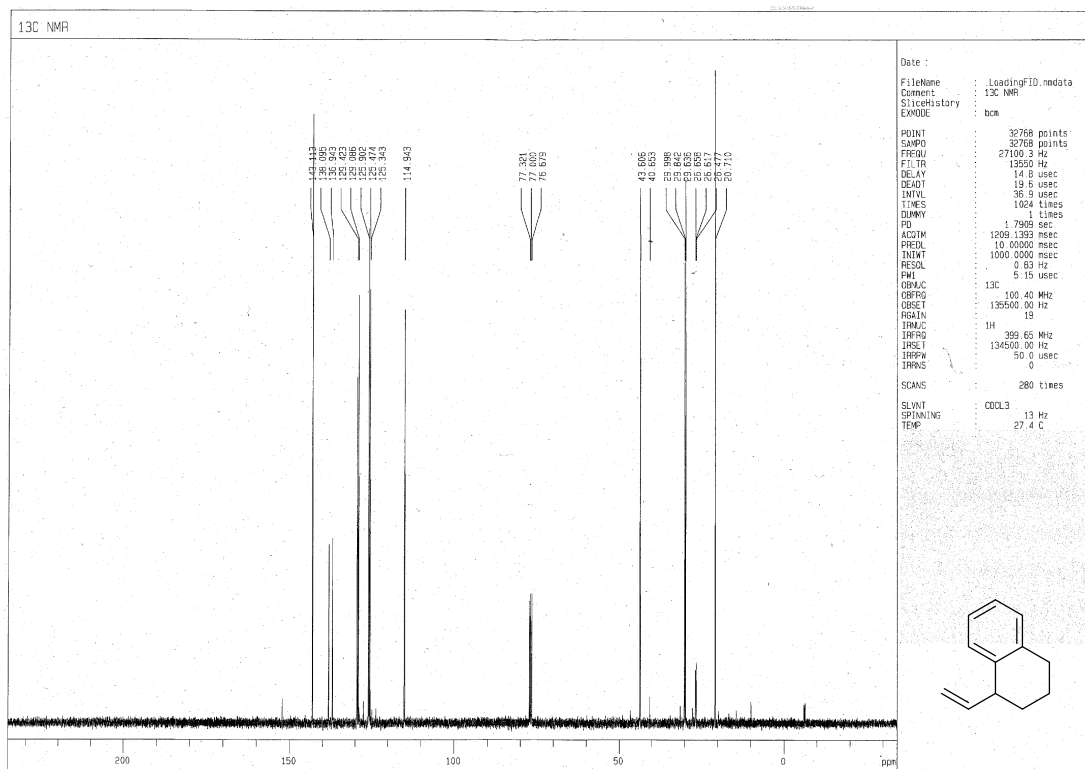
¹³C NMR: Compound (R)-7a



¹H NMR: Compound S2

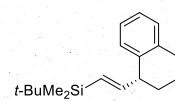
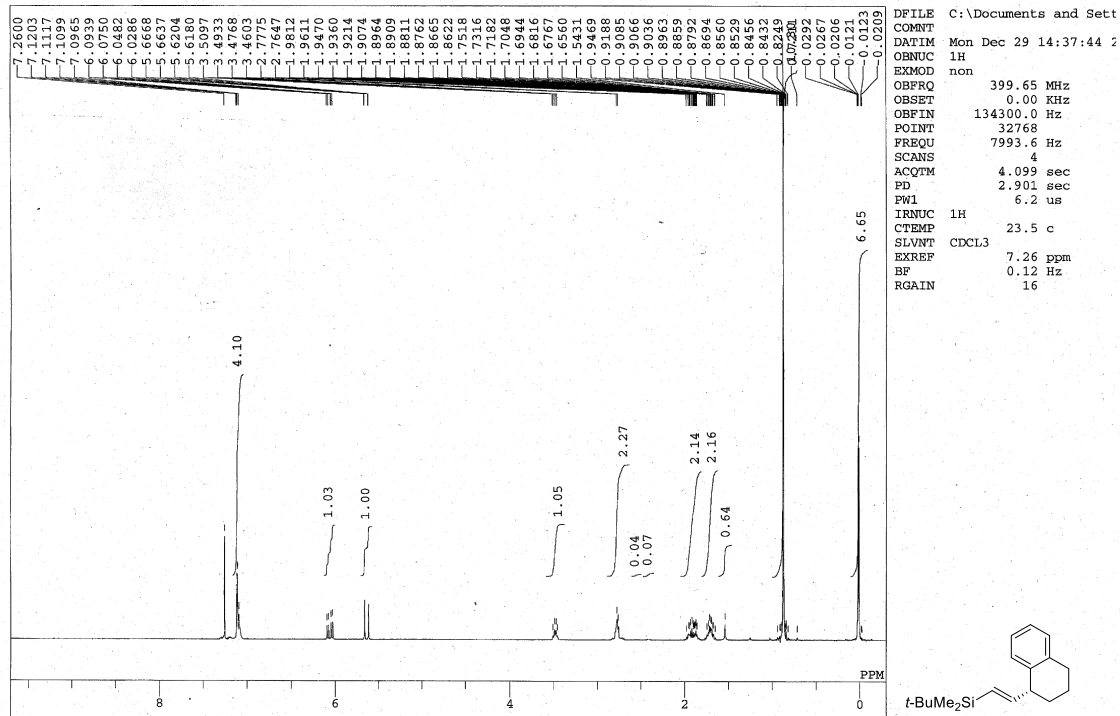


¹³C NMR: Compound S2

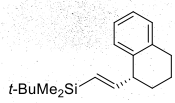
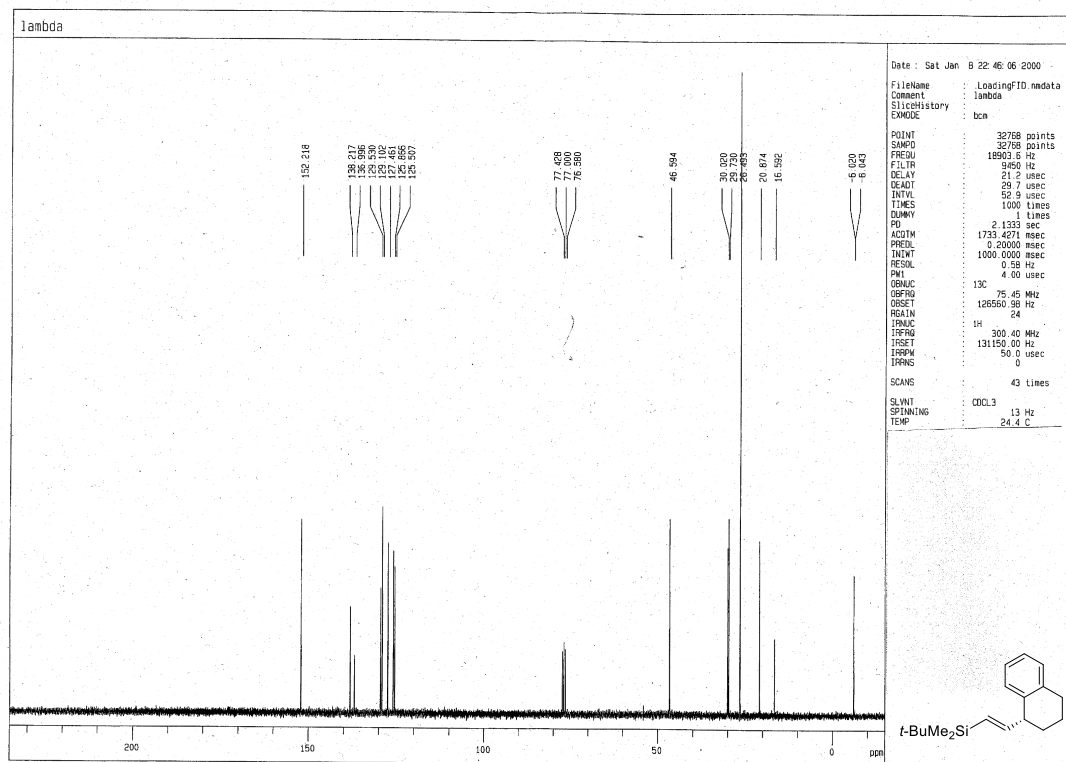


¹H NMR: Compound (S)-4b

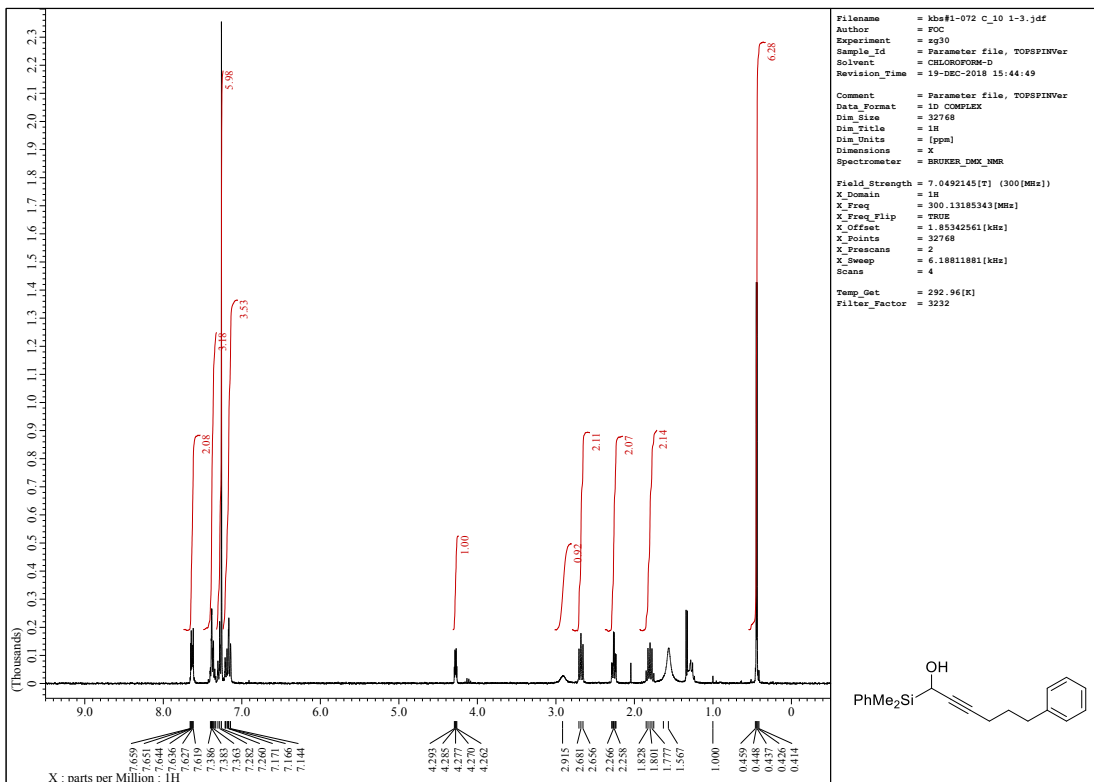
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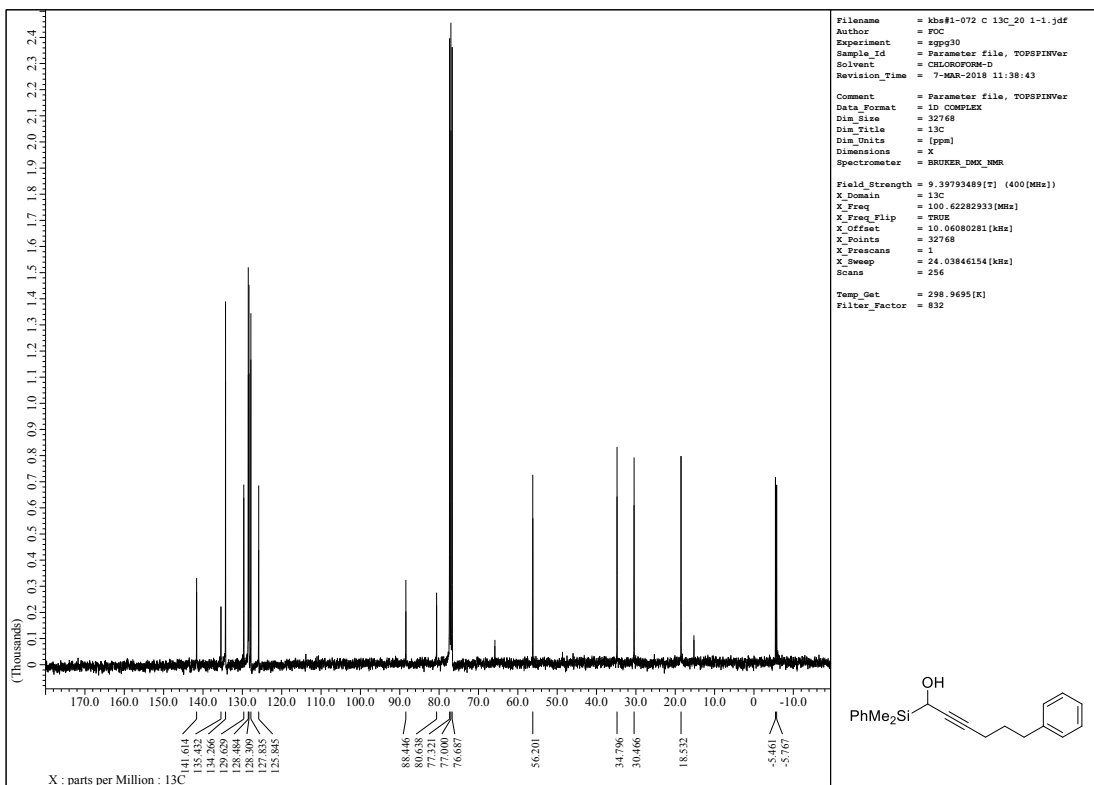
¹³C NMR: Compound (S)-4b



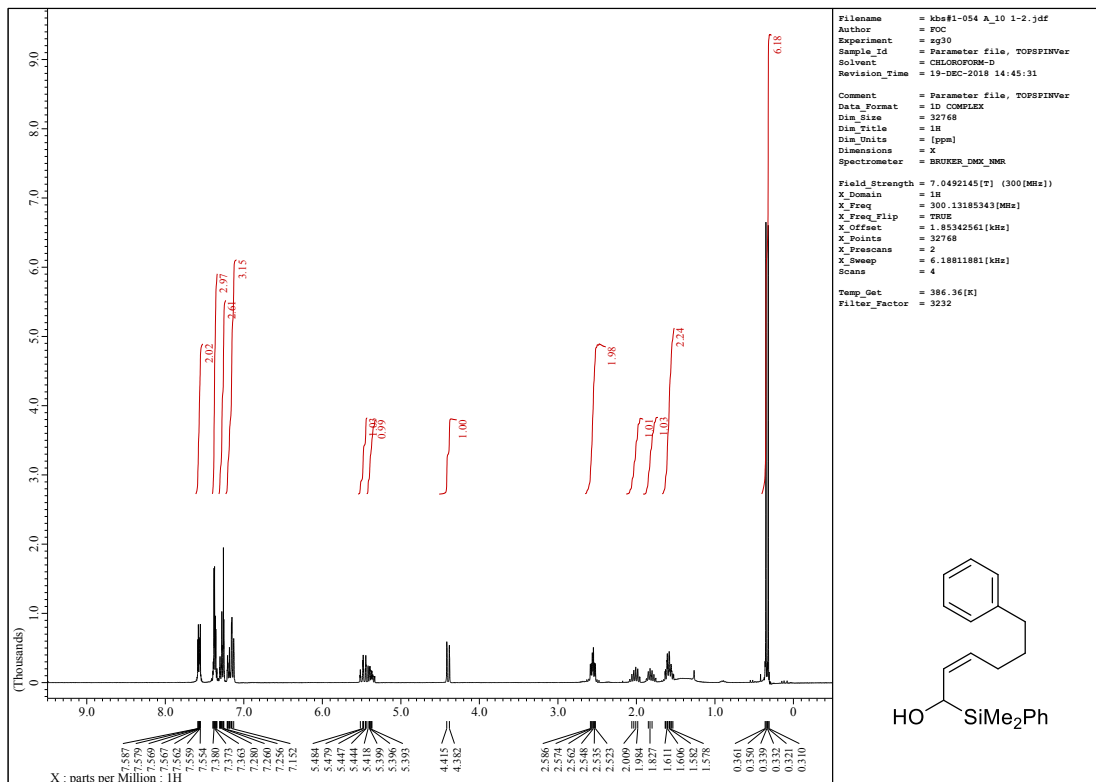
¹H NMR: Compound S3



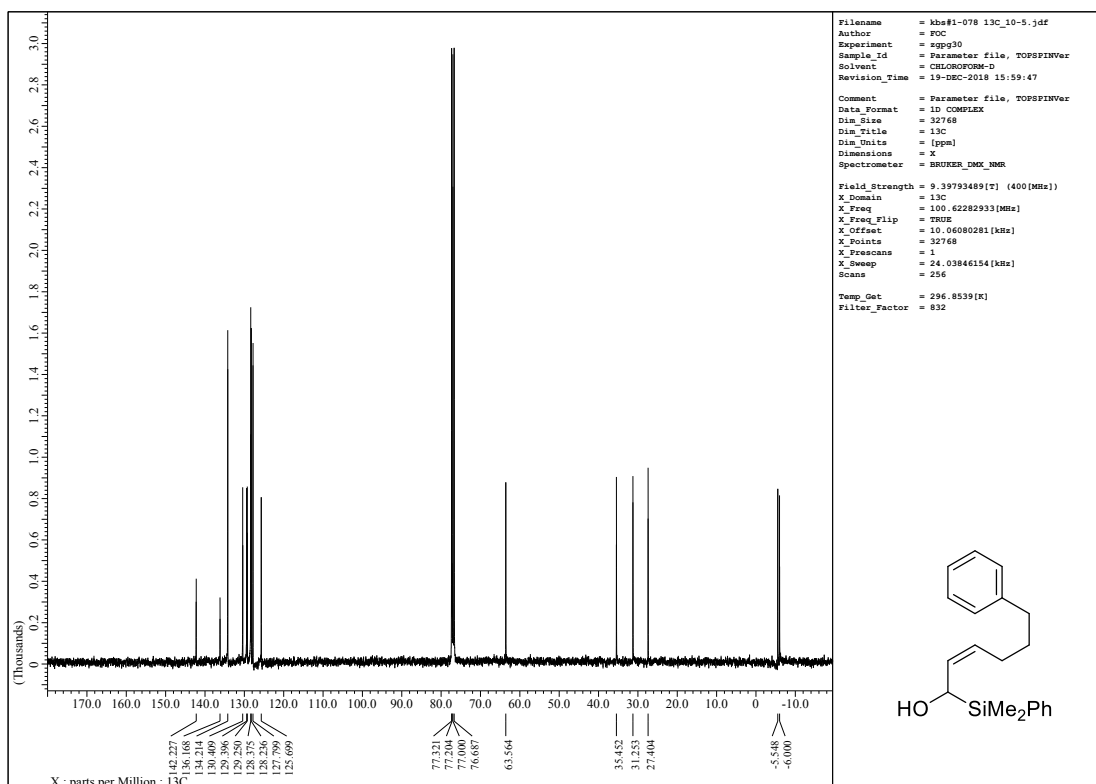
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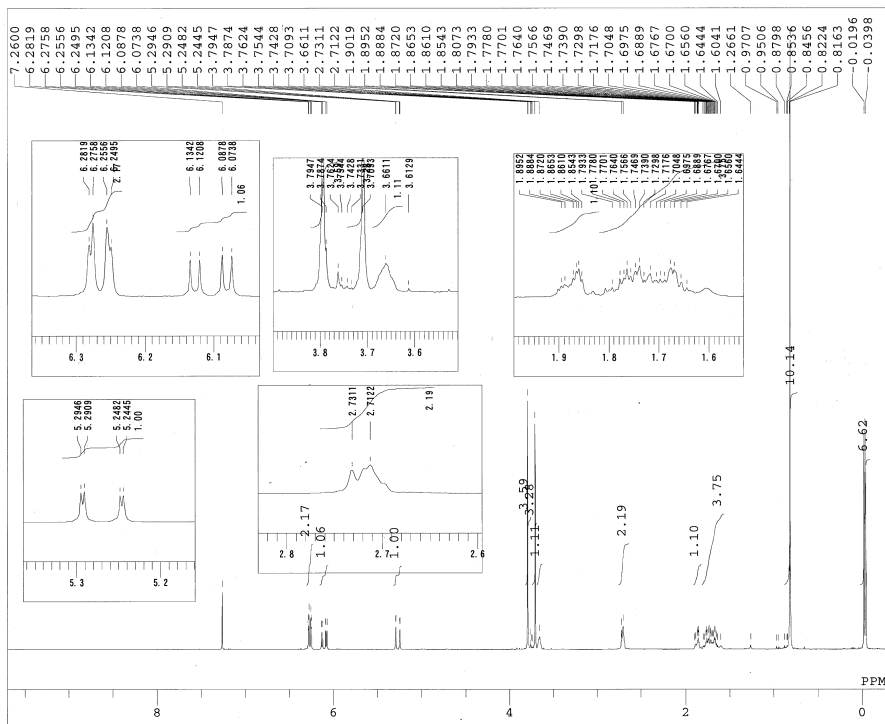
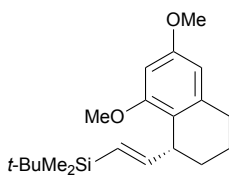
¹H NMR: Compound (Z)-8



¹³C NMR: Compound (Z)-8



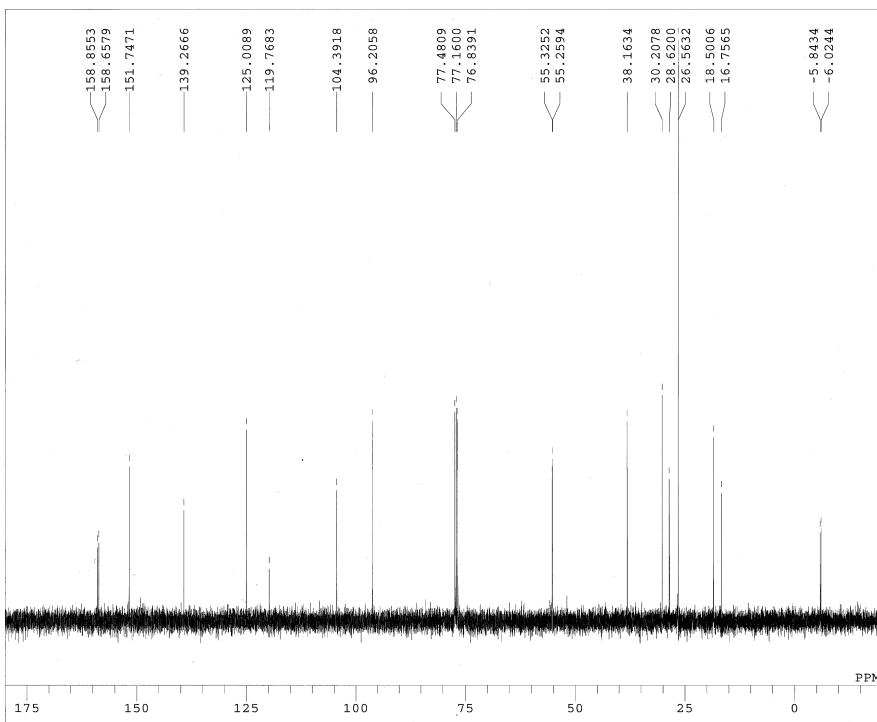
¹H NMR: Compound 4c



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PD 2.901 sec
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SLVNT CDCL3
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BF 0.12 Hz
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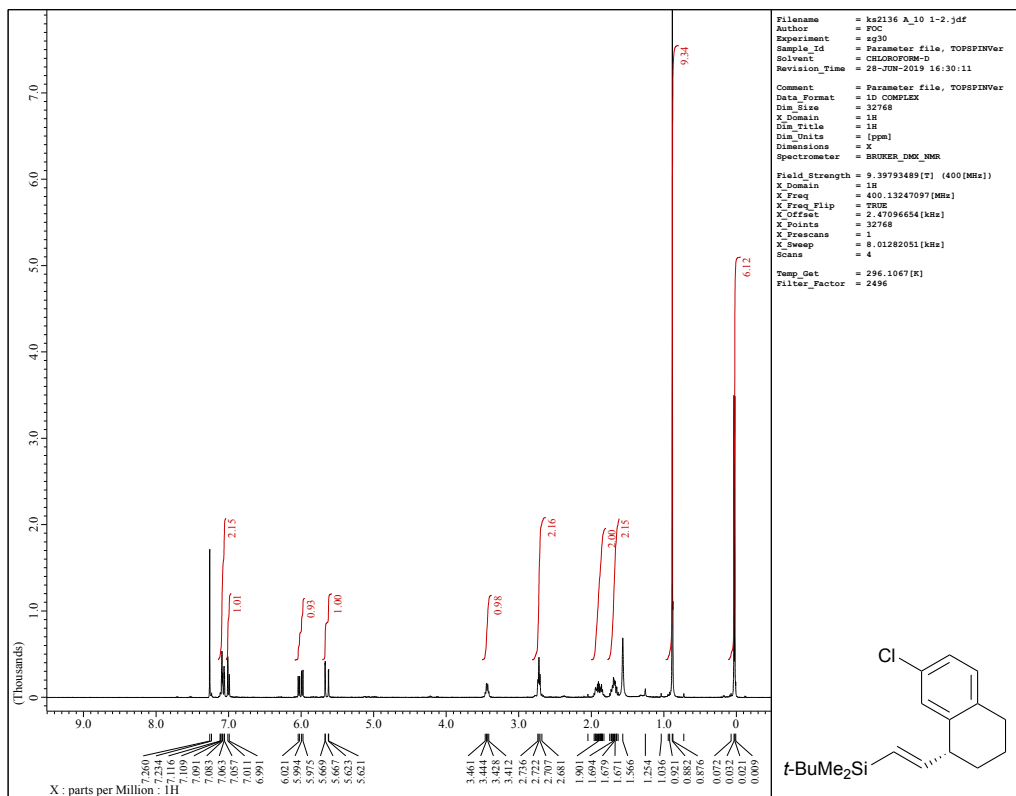
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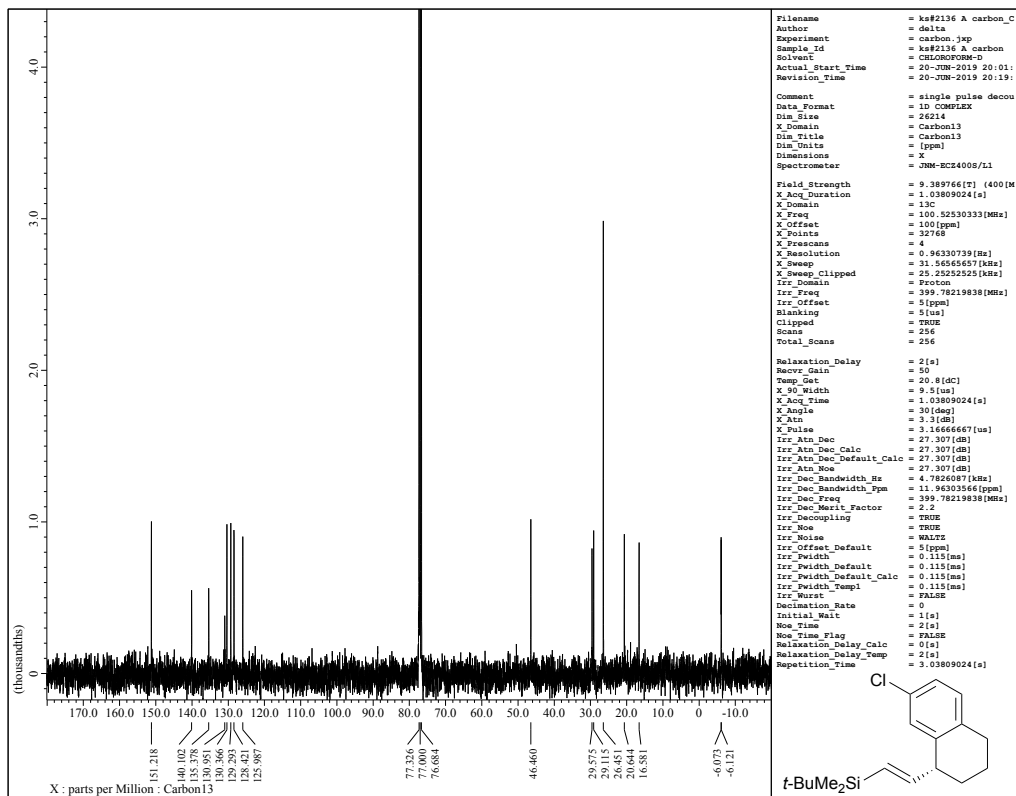
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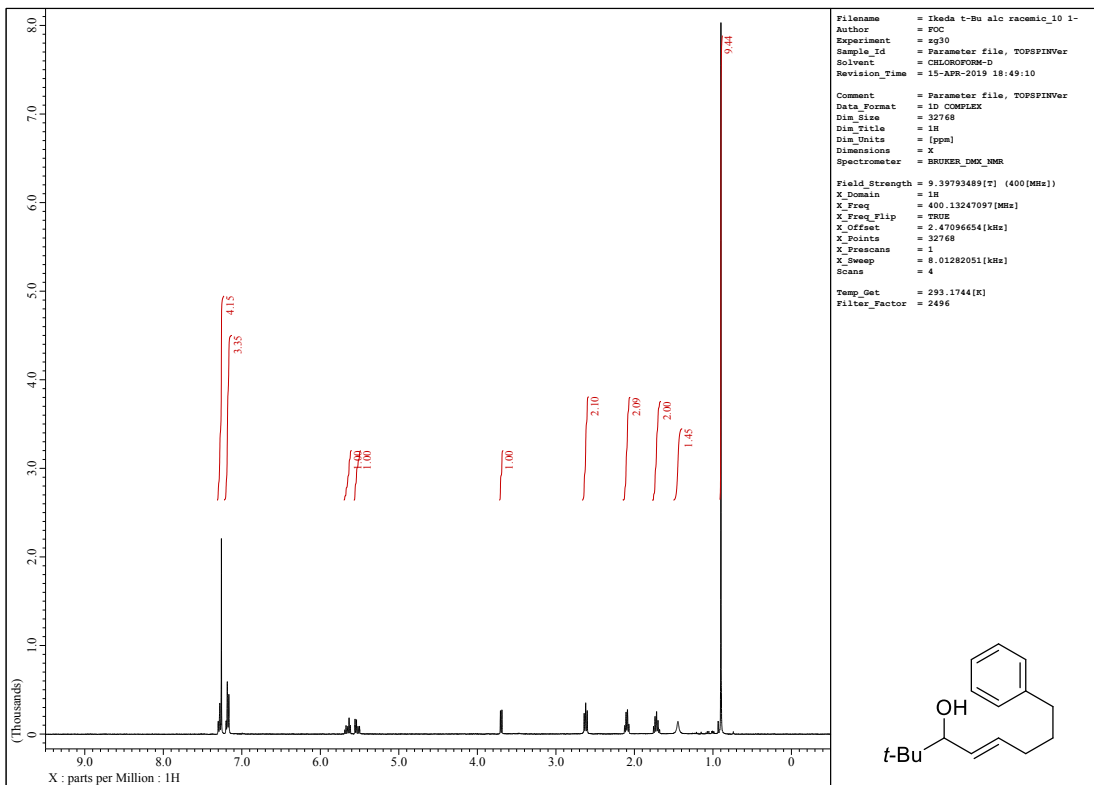
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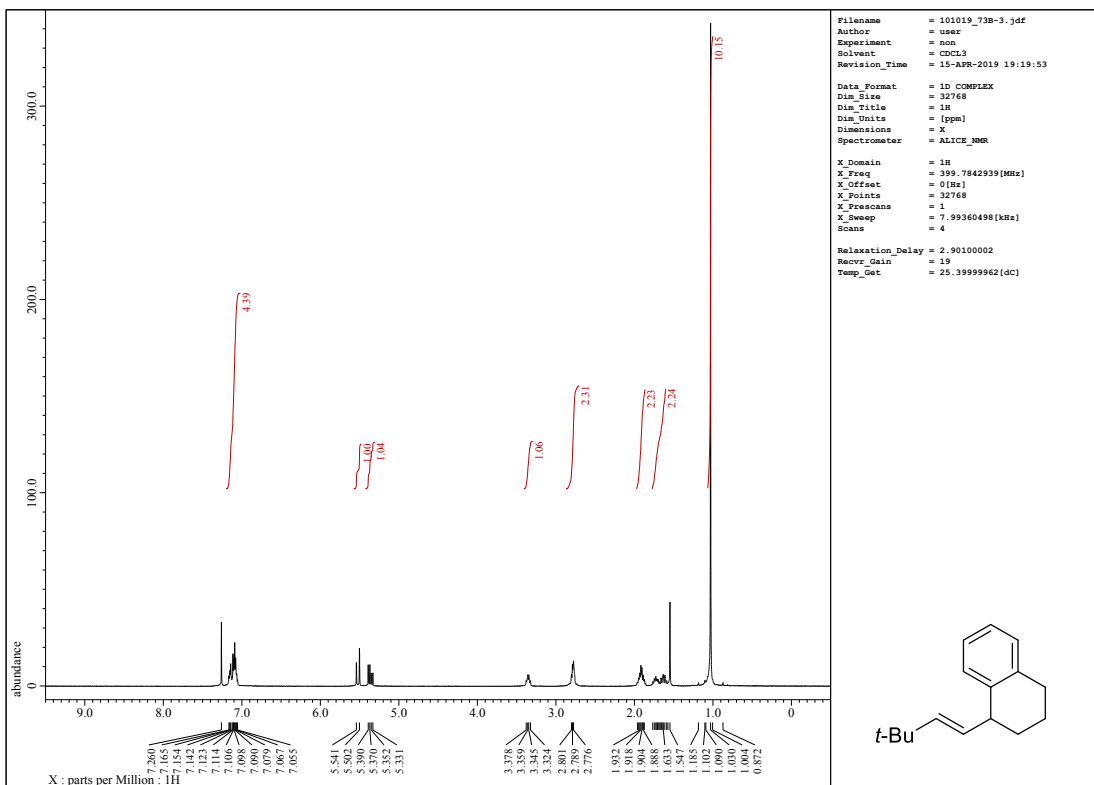
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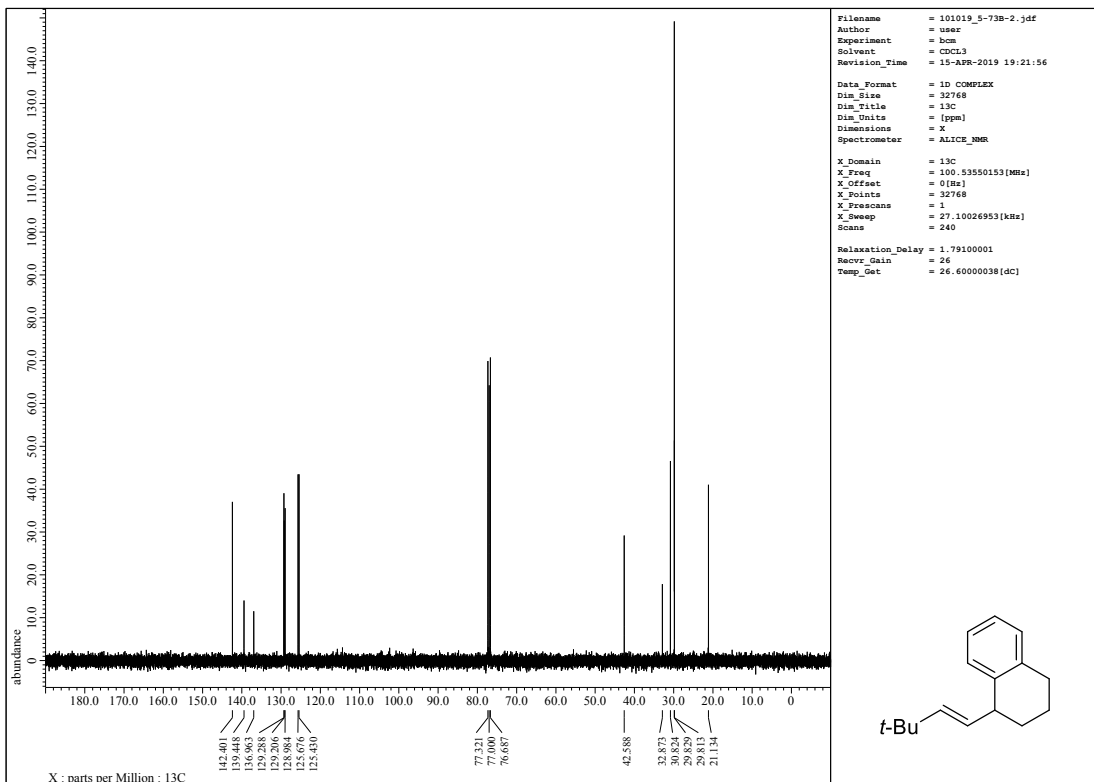
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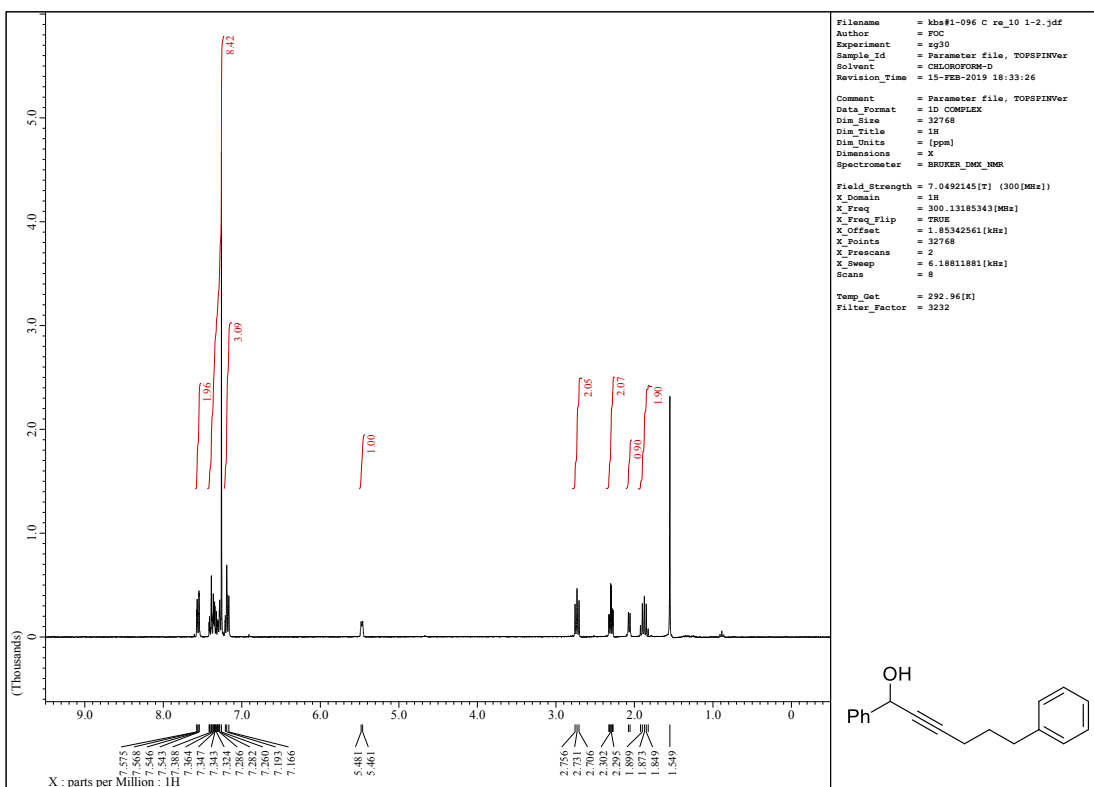
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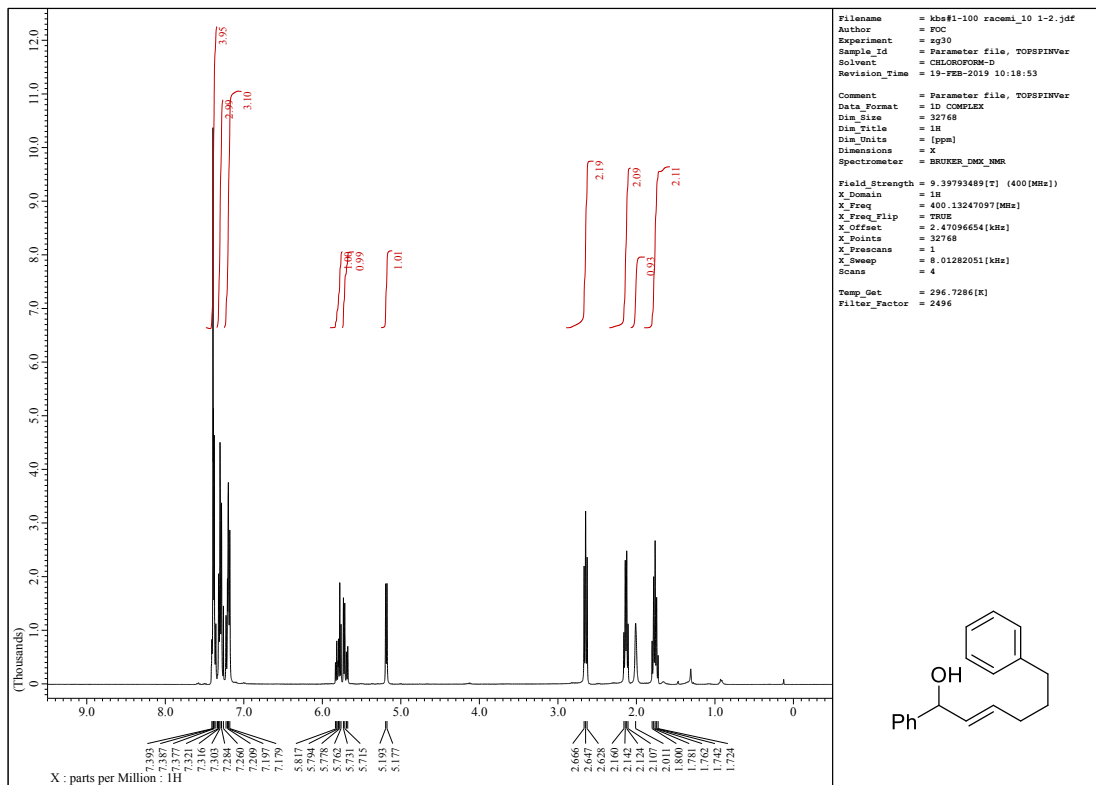
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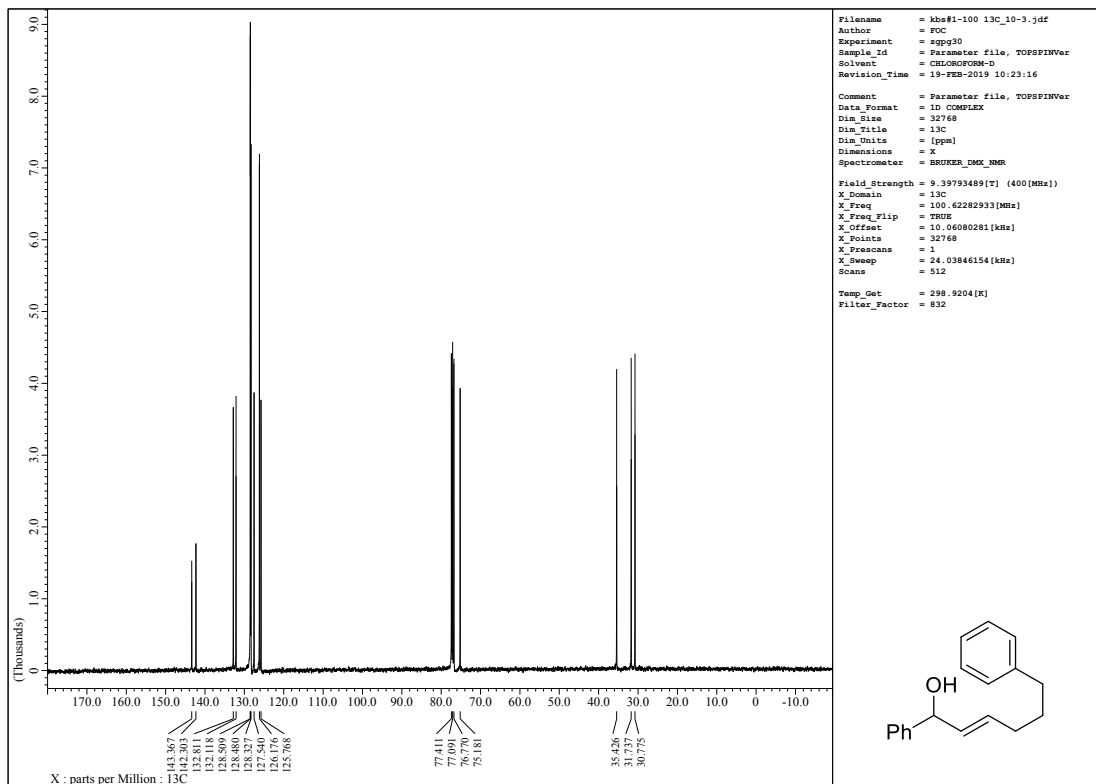
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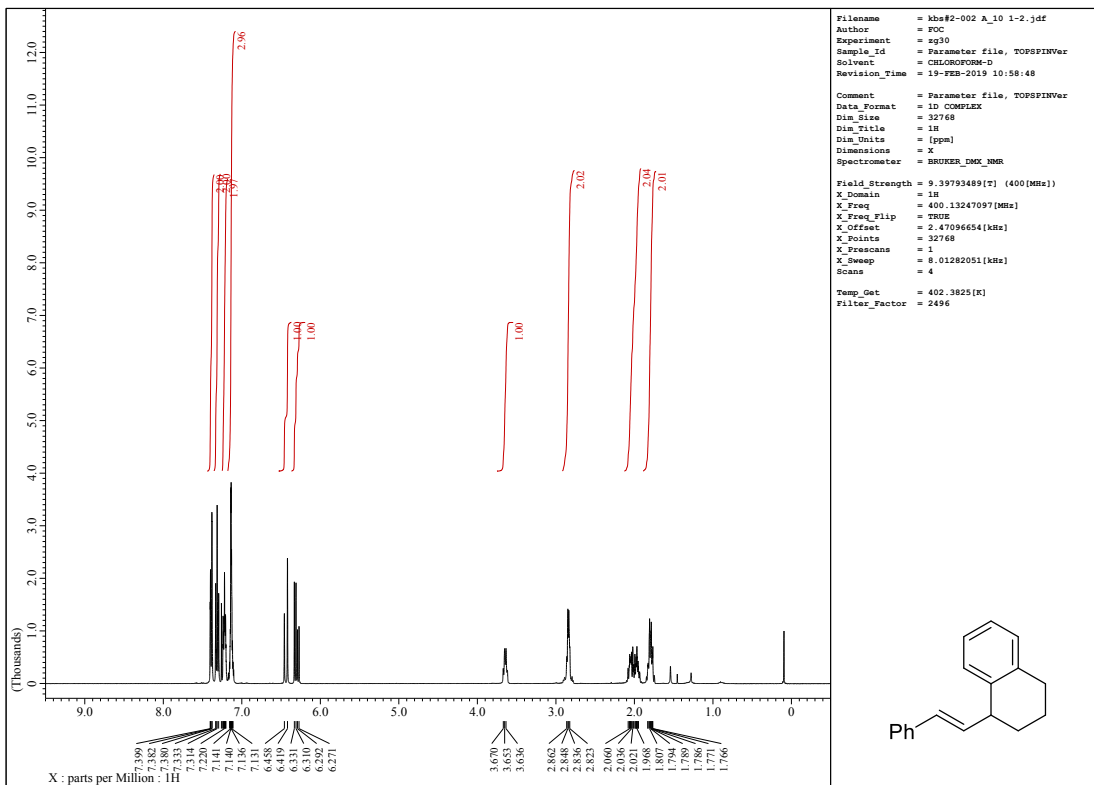
¹H NMR: Compound 11



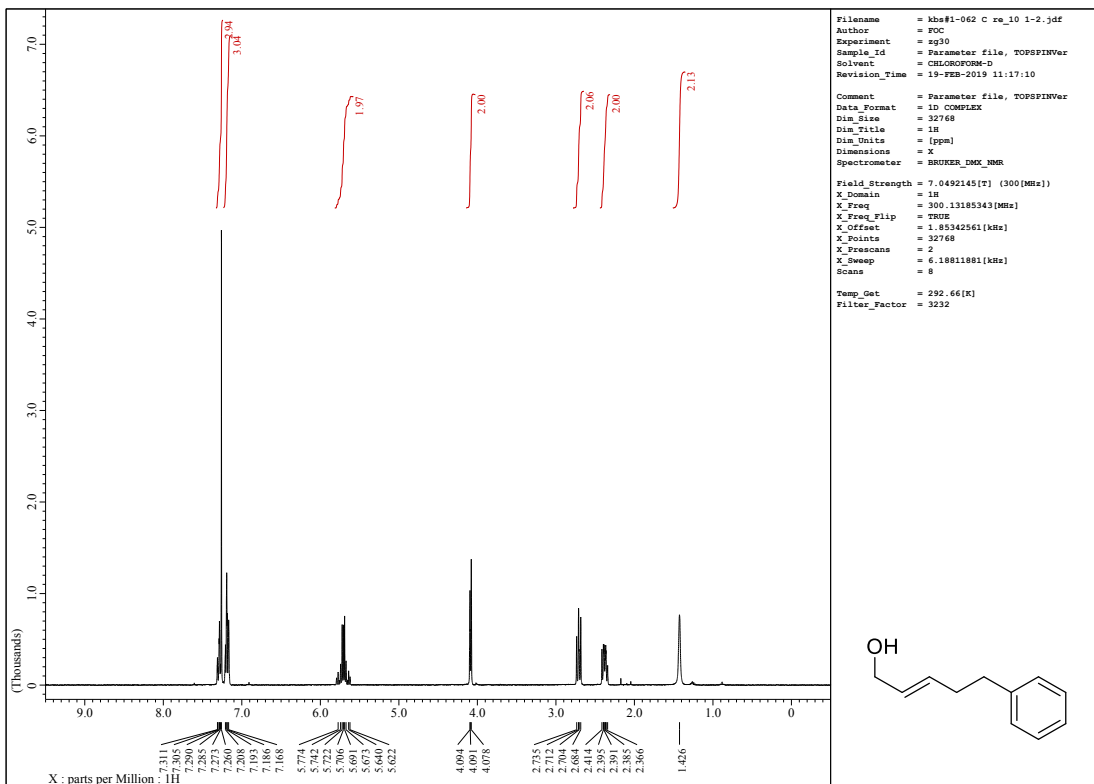
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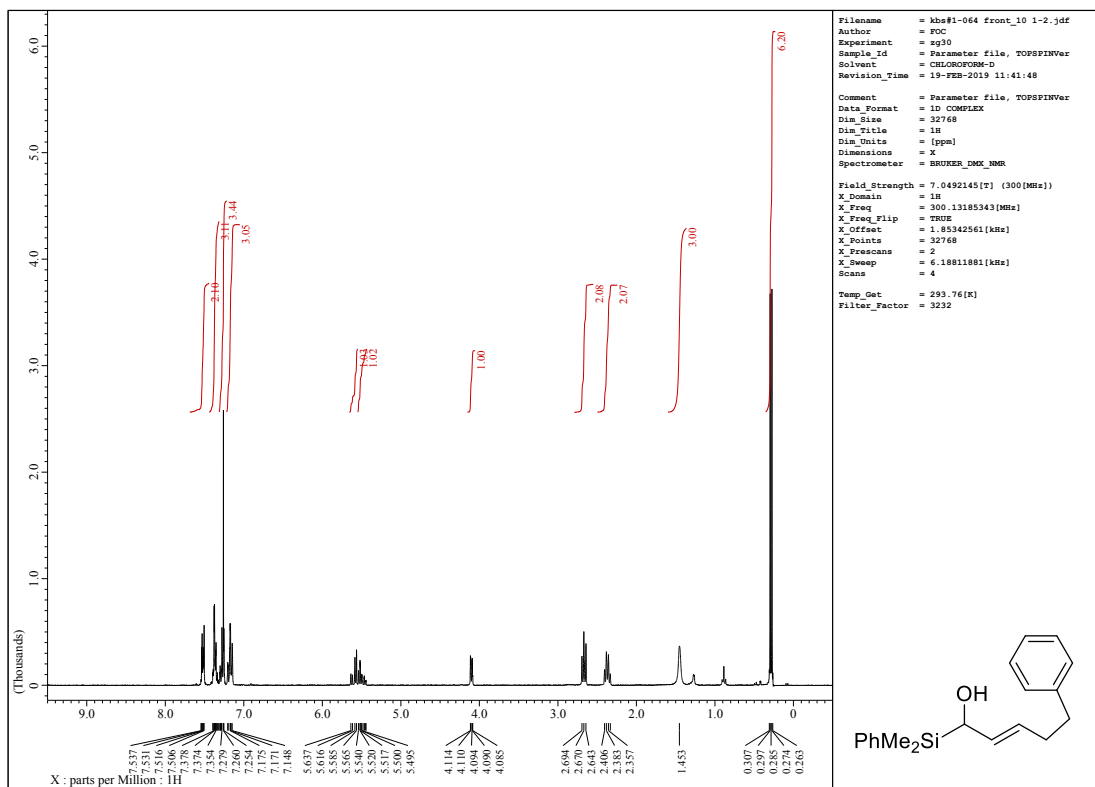
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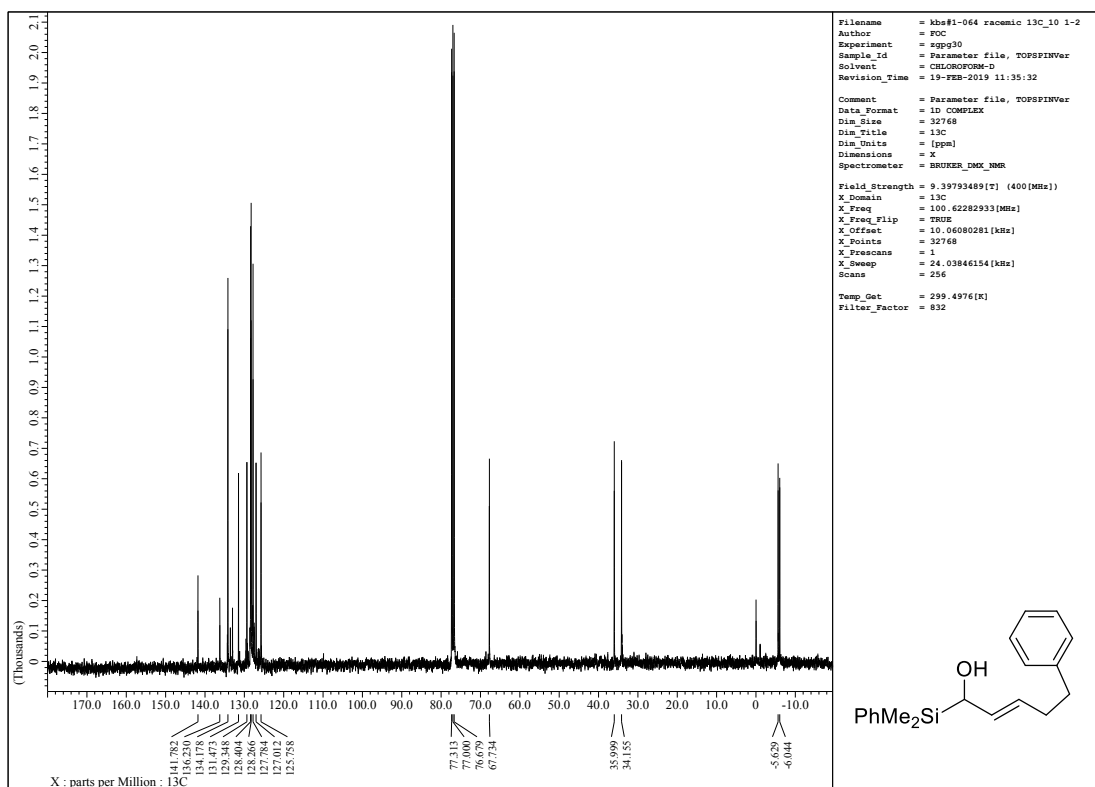
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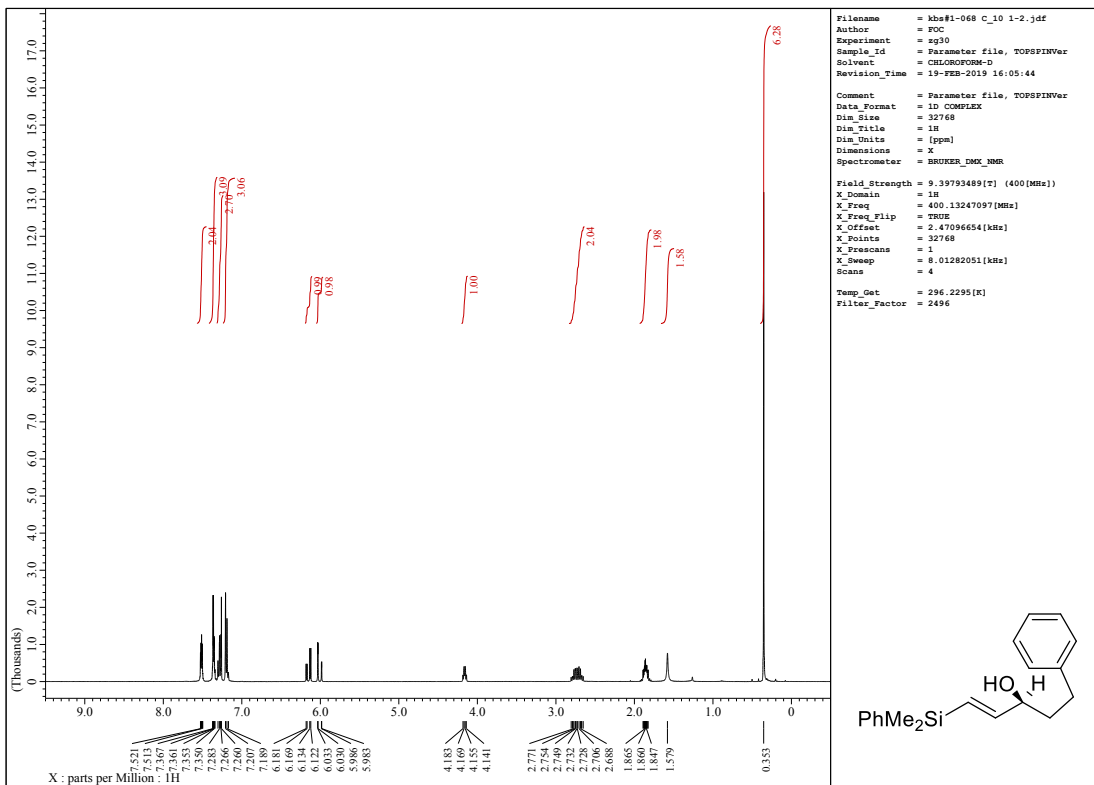
¹H NMR: Compound 13



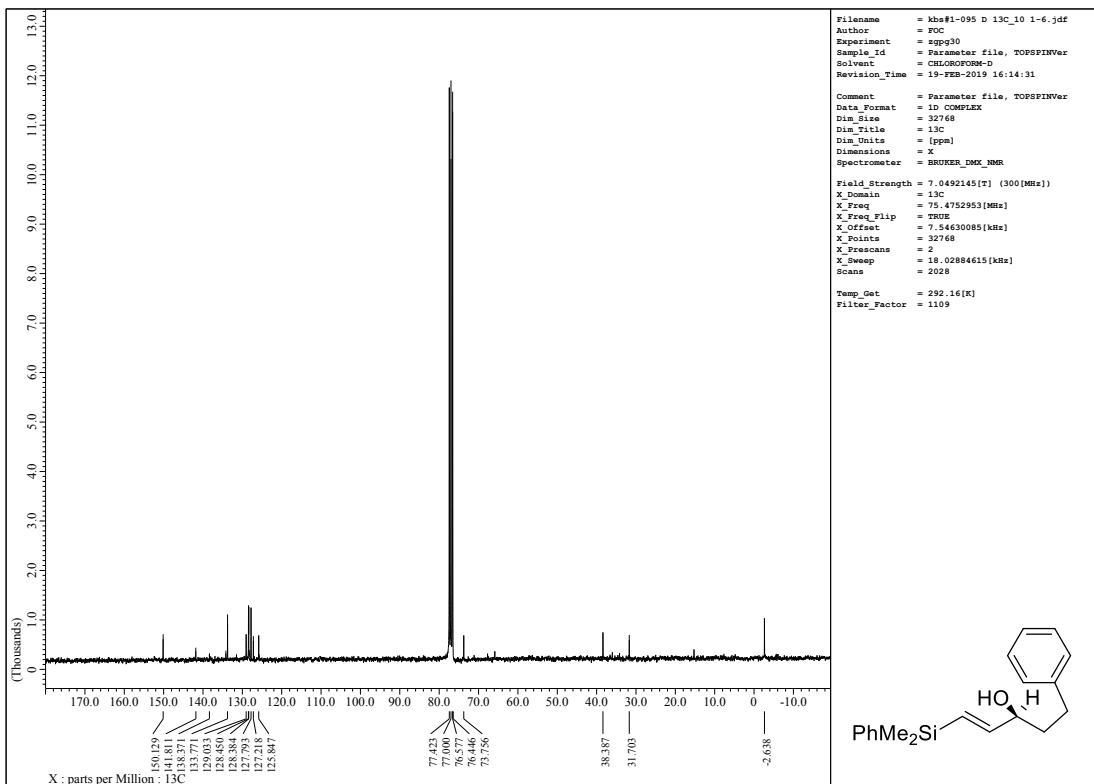
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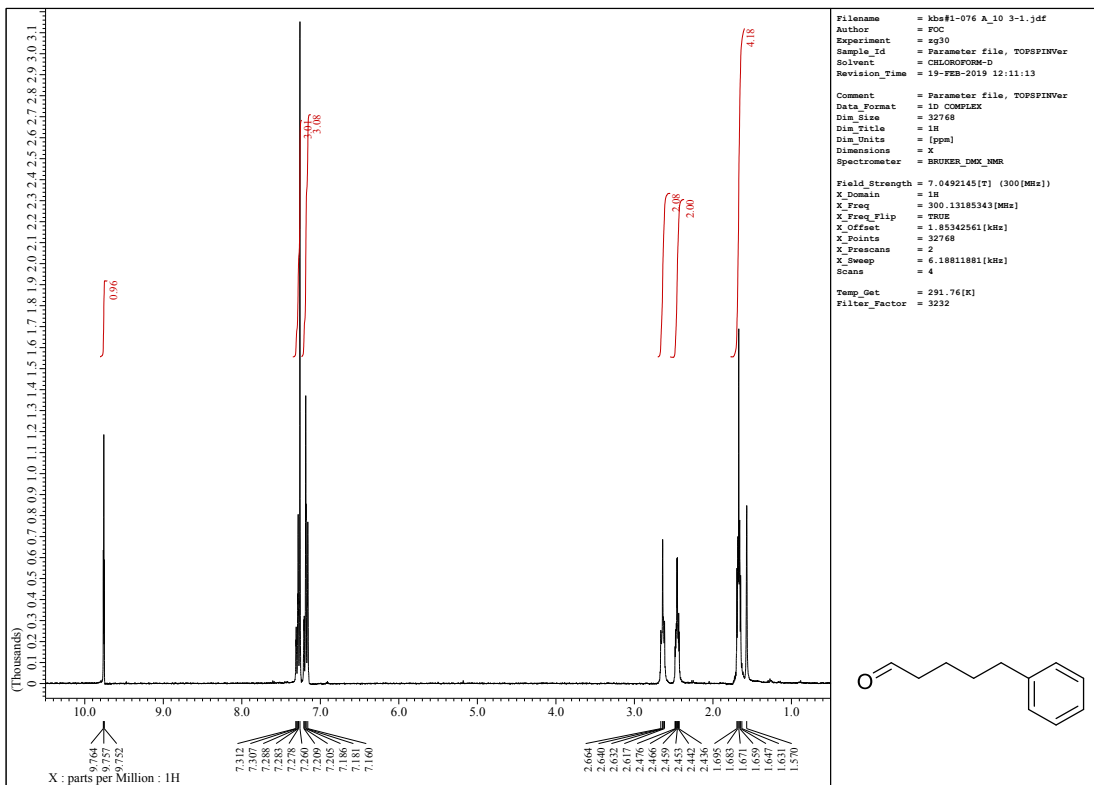
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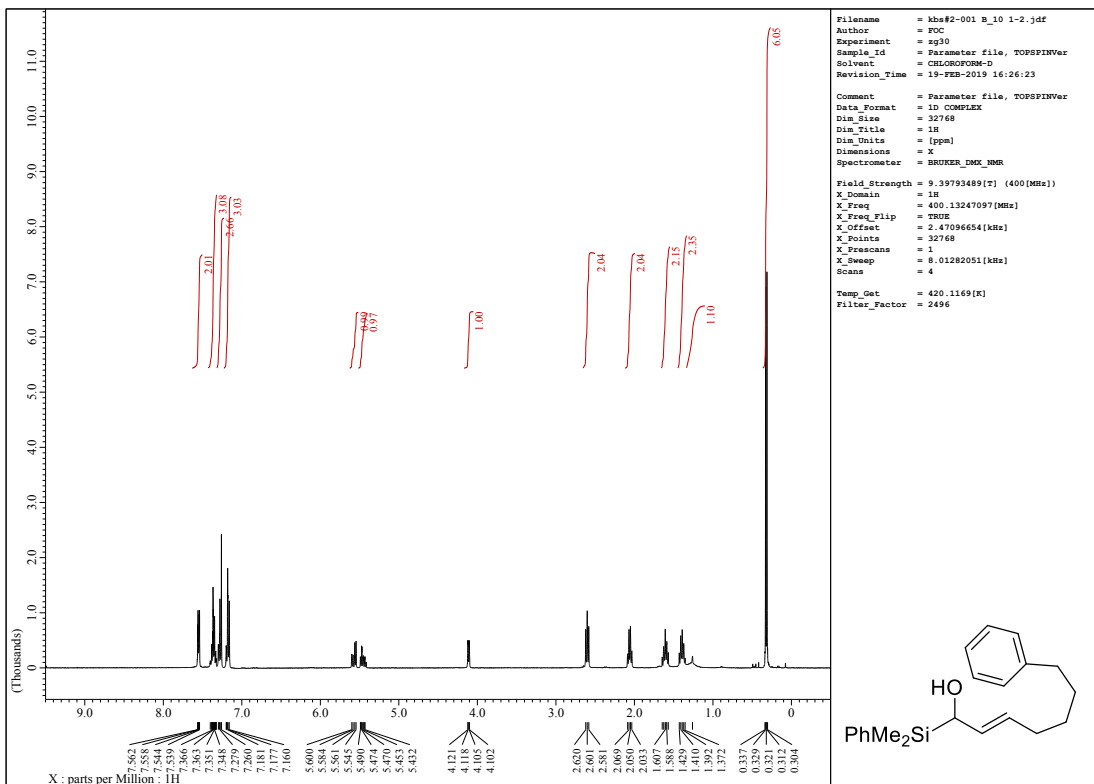
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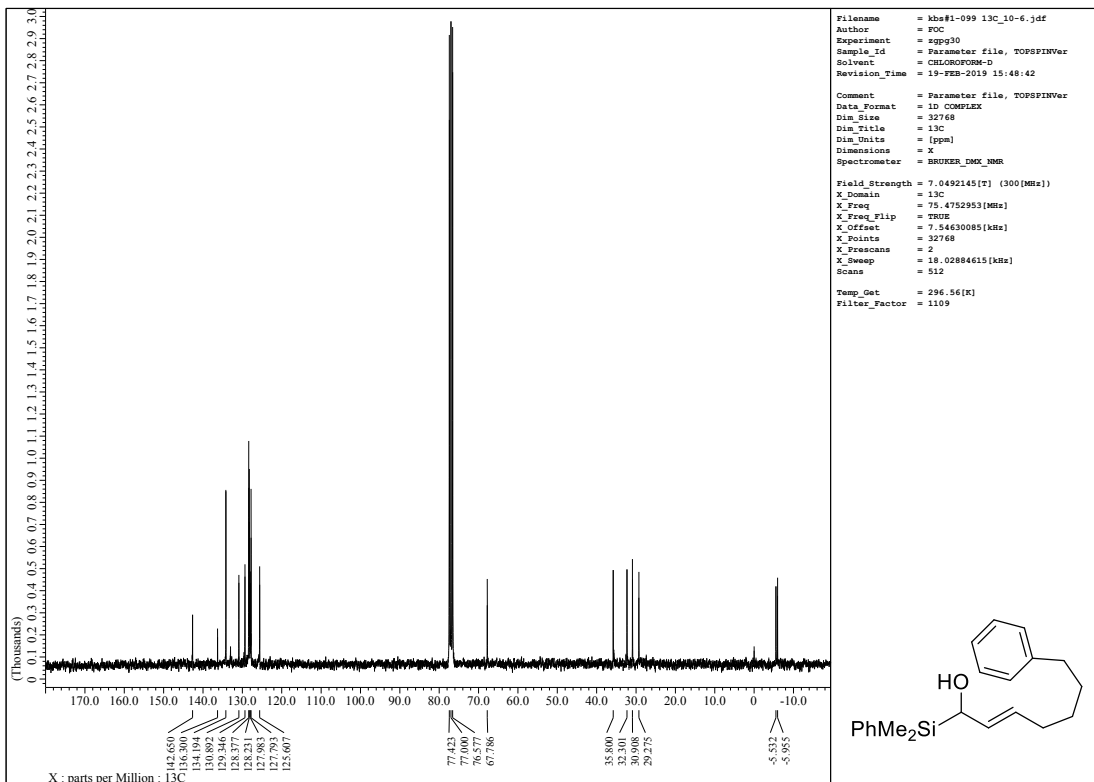
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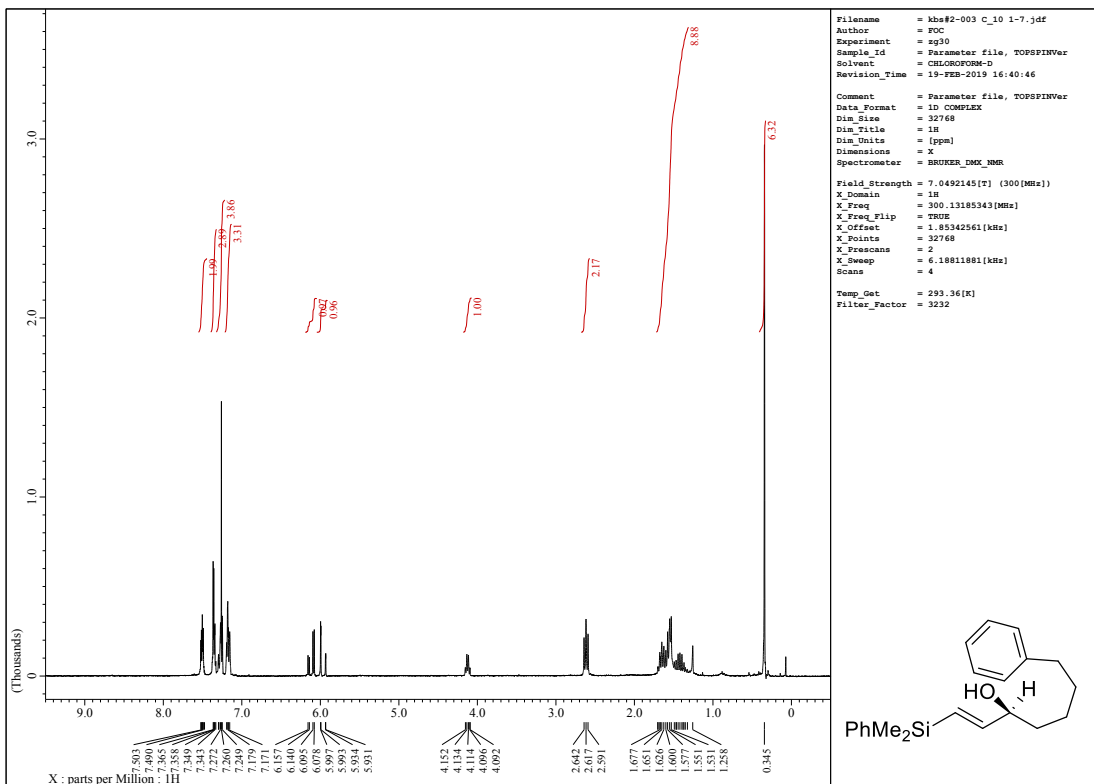
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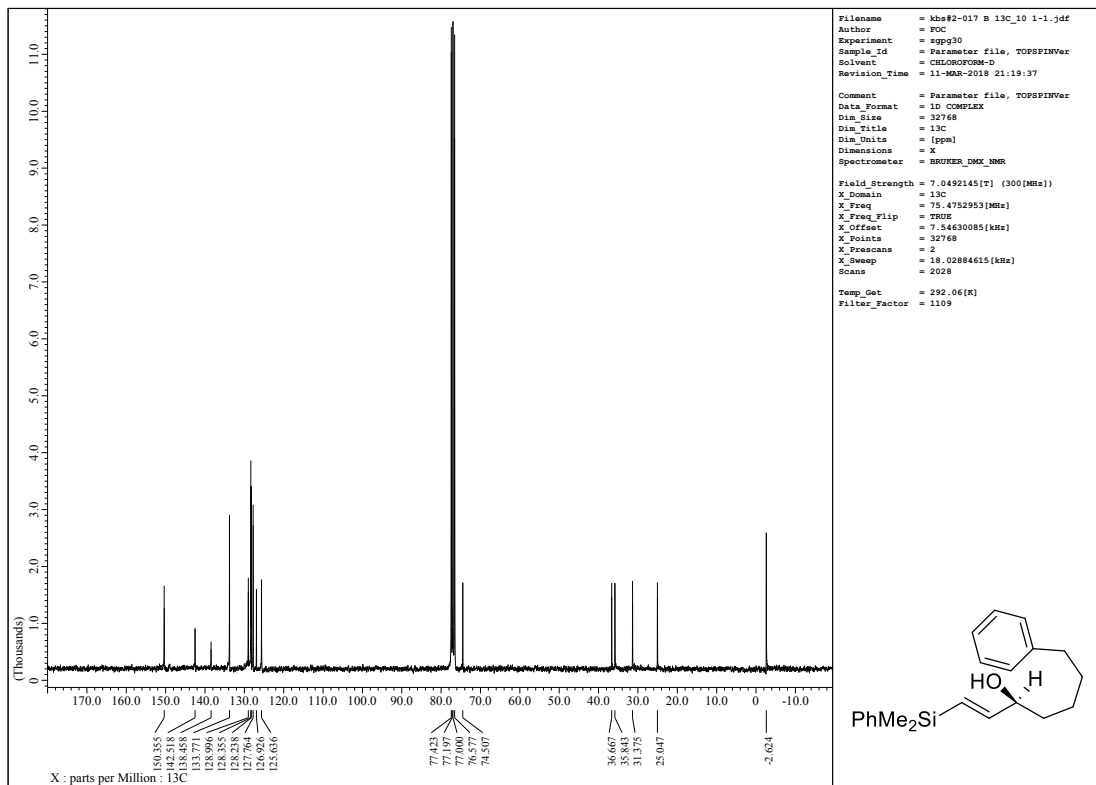
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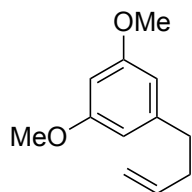


¹H NMR: Compound (S)-16

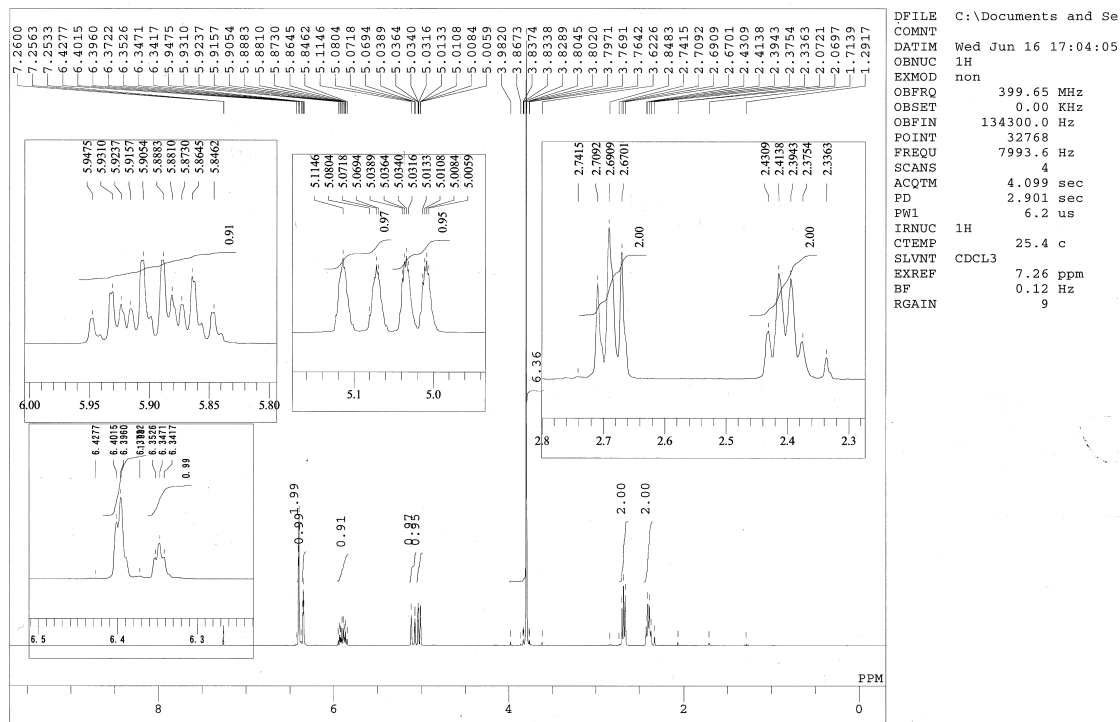


¹³C NMR: Compound (S)-16



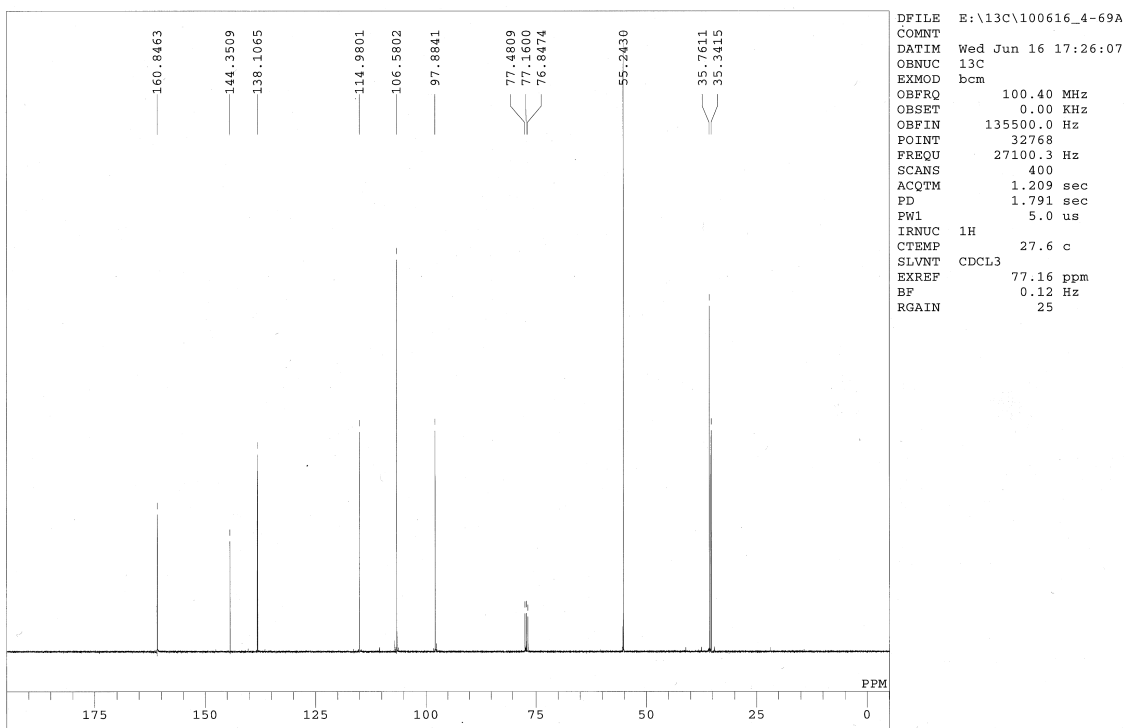


¹H NMR: Compound S19

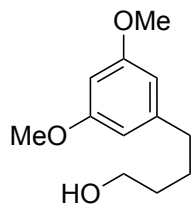


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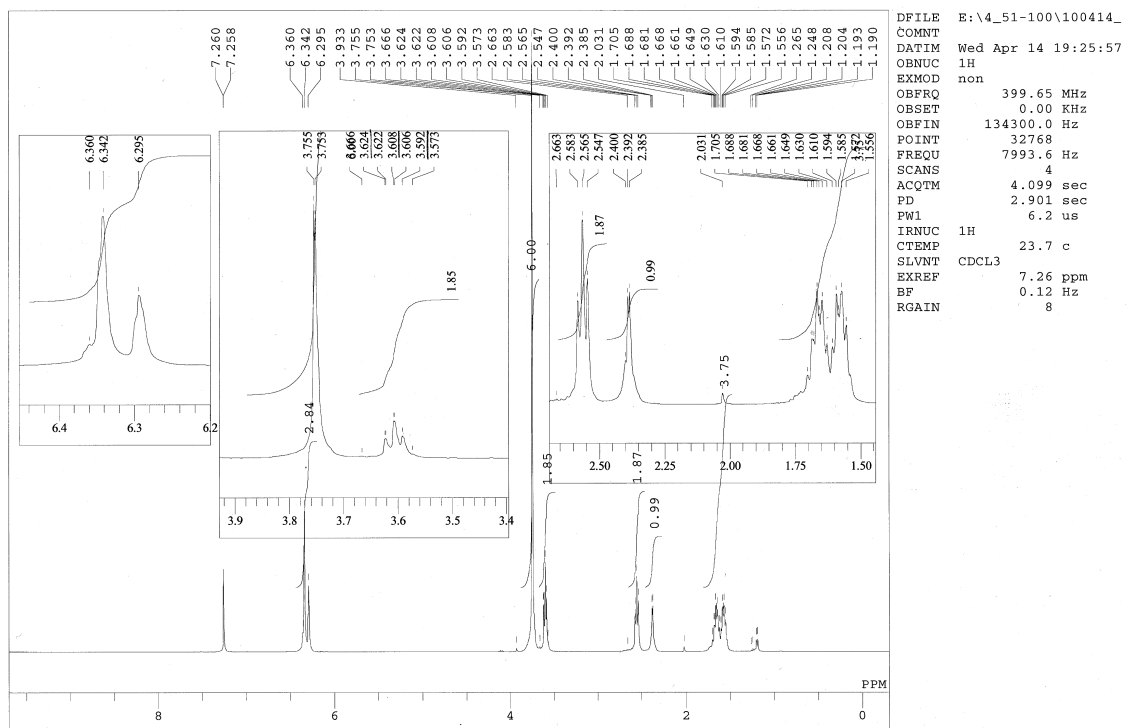
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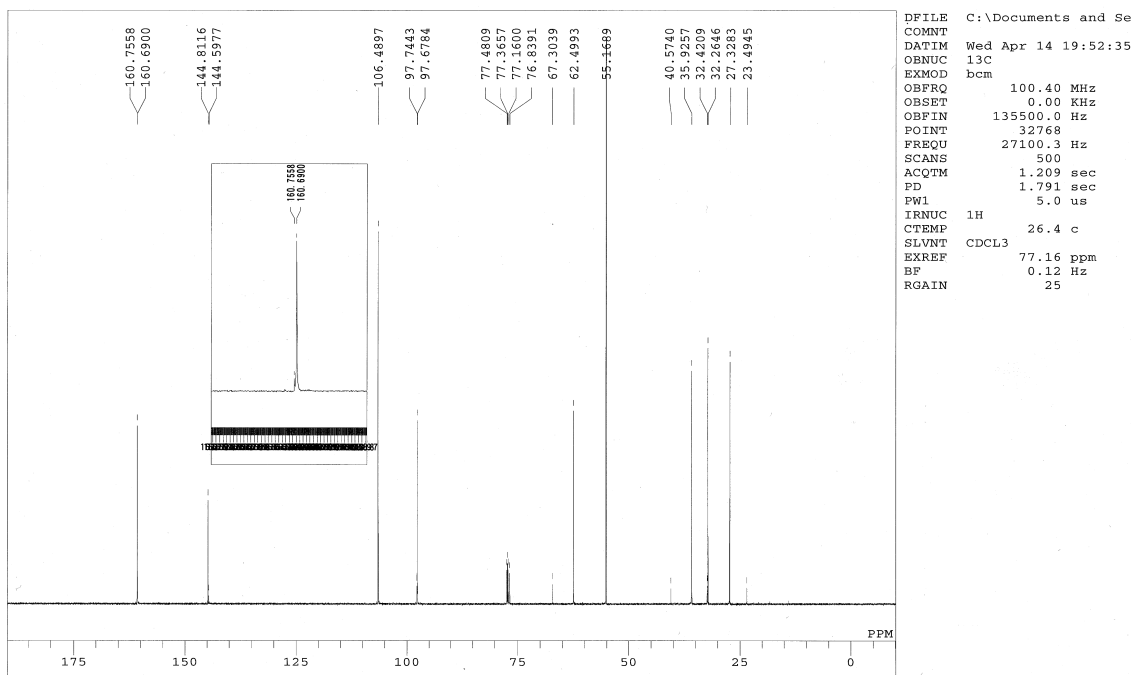
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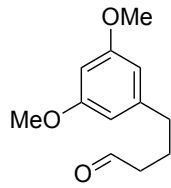


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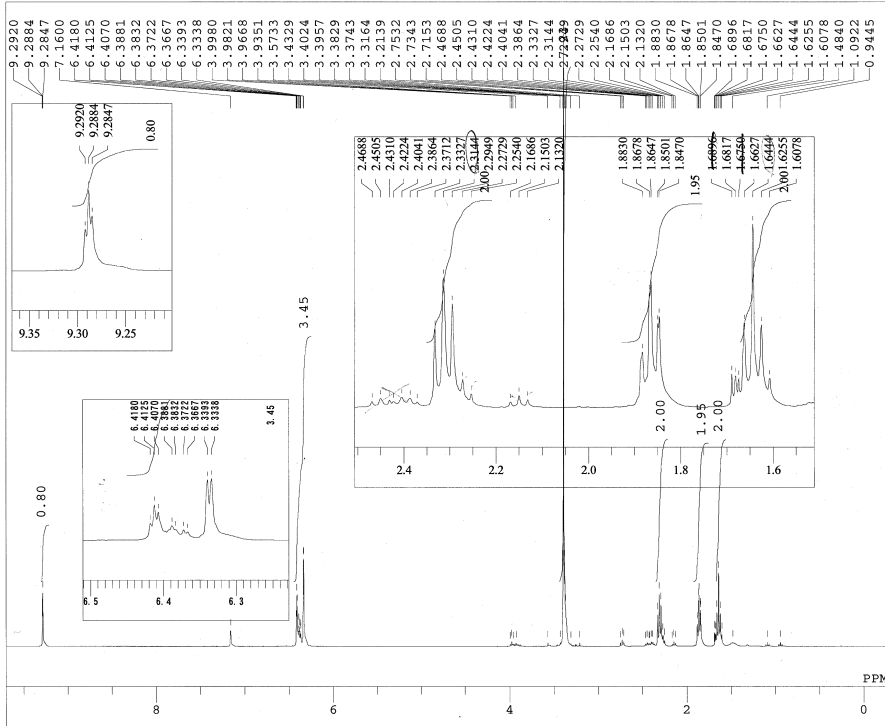


¹³C NMR: Compound S20





¹H NMR: Compound S21

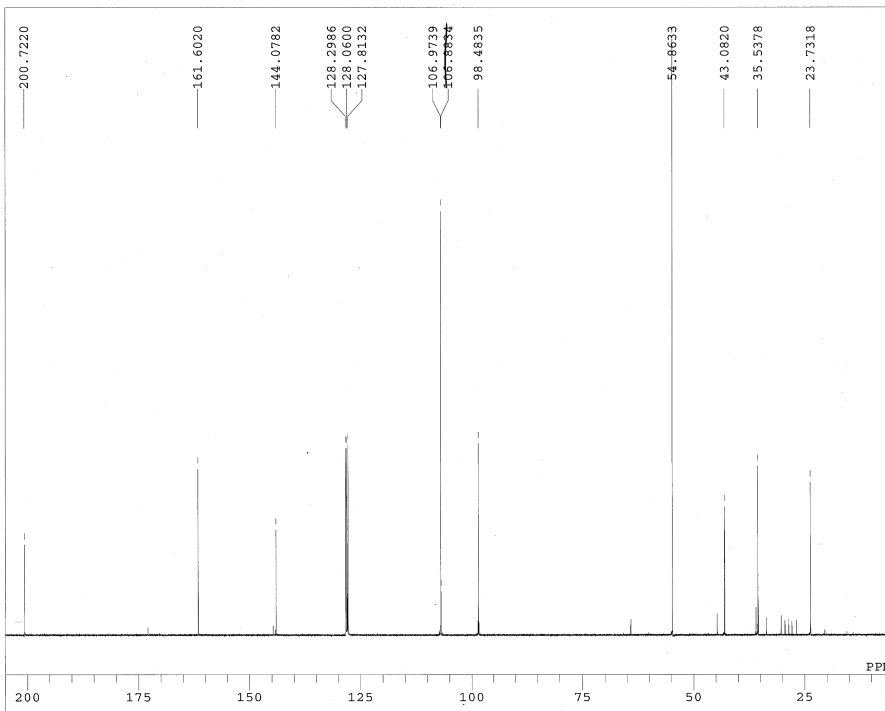


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RGAIN

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¹³C NMR: Compound S21

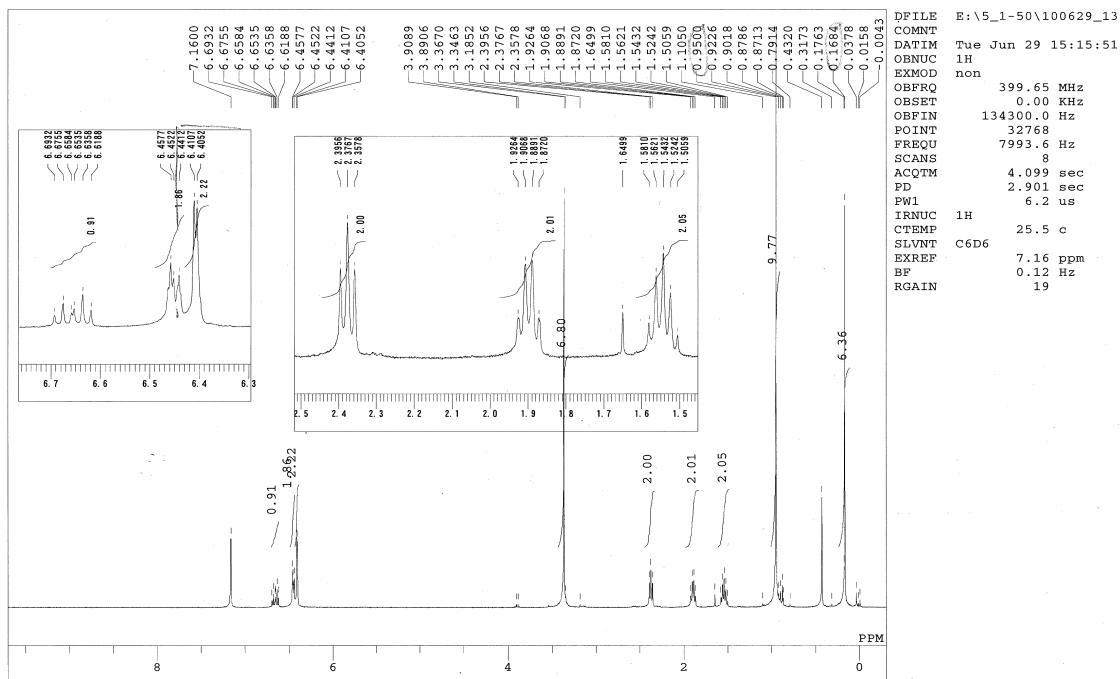
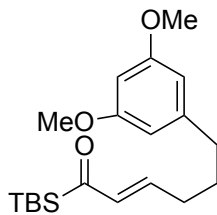


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RGAIN

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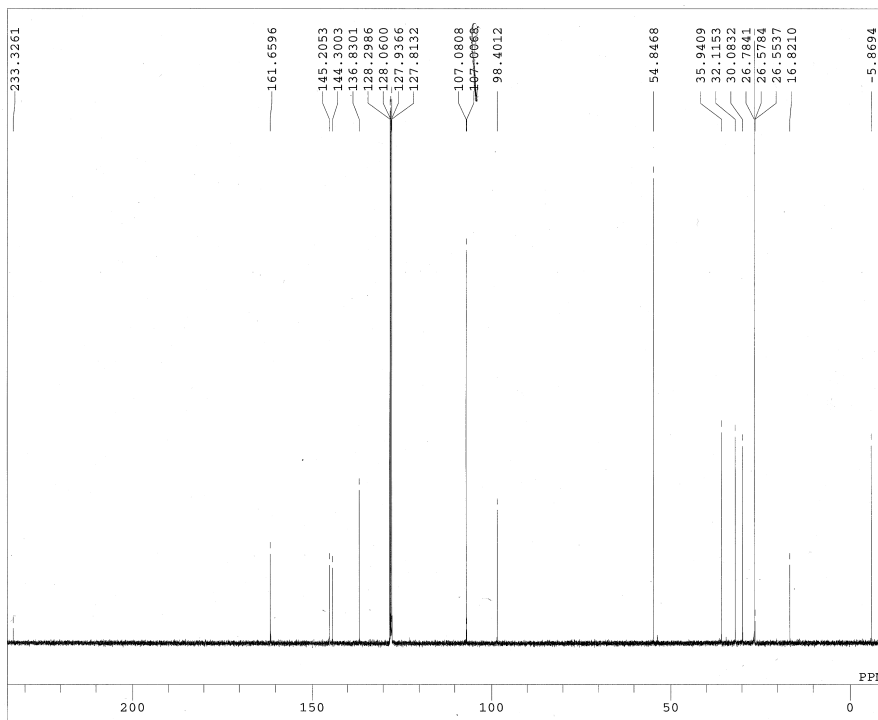
¹H NMR: Compound S22



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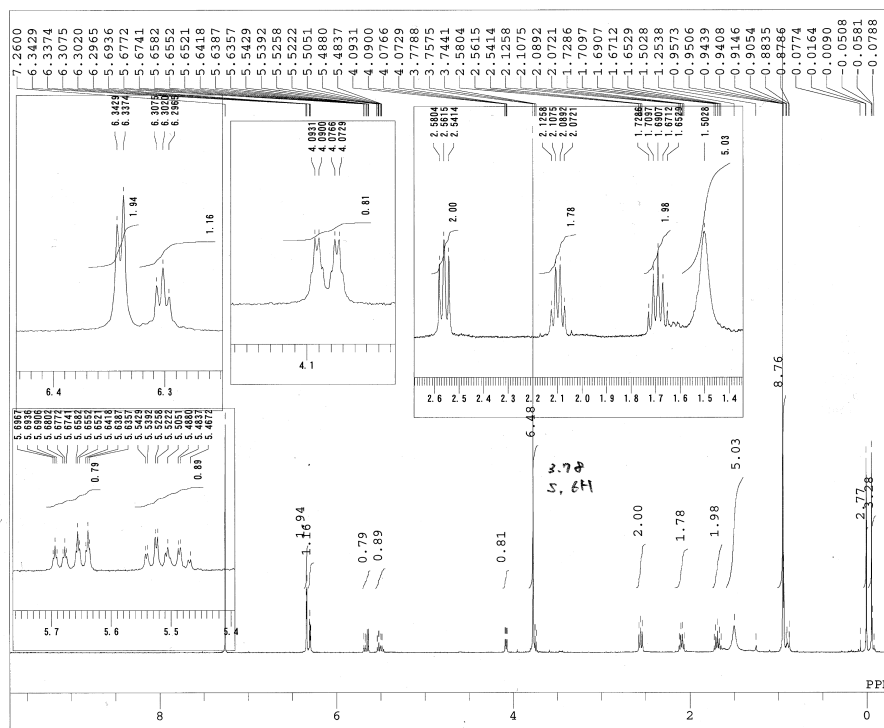
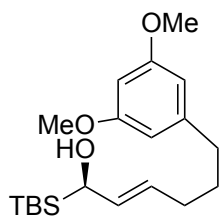
¹³C NMR: Compound S22



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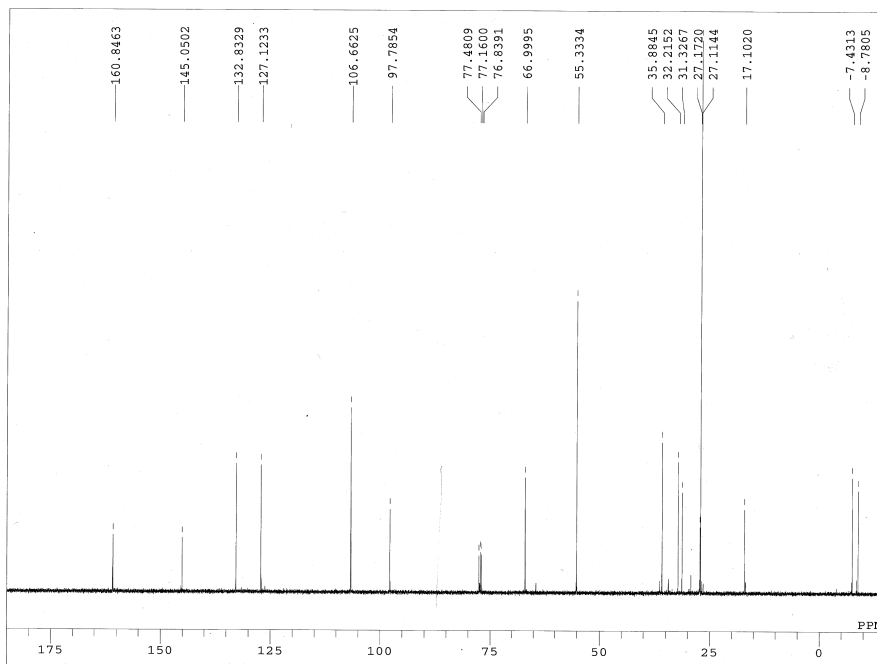
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PD 1.791 sec
PW1 5.0 us
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¹H NMR: Compound 3c



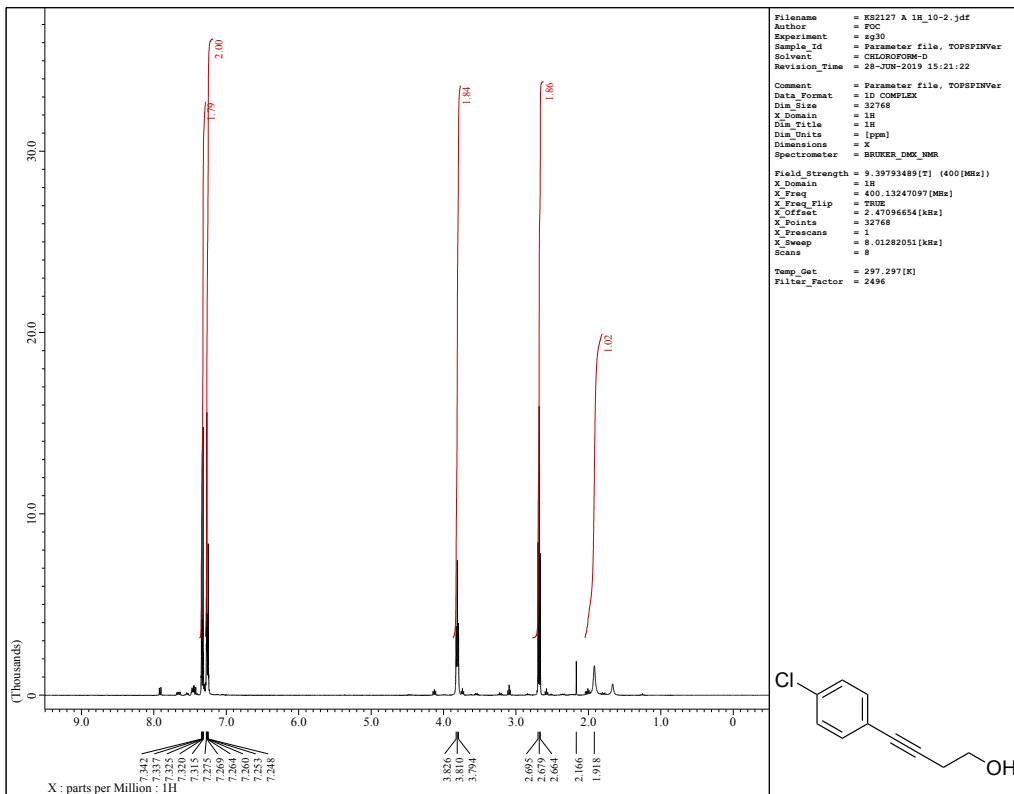
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 RGAIN 19

¹³C NMR: Compound 3c

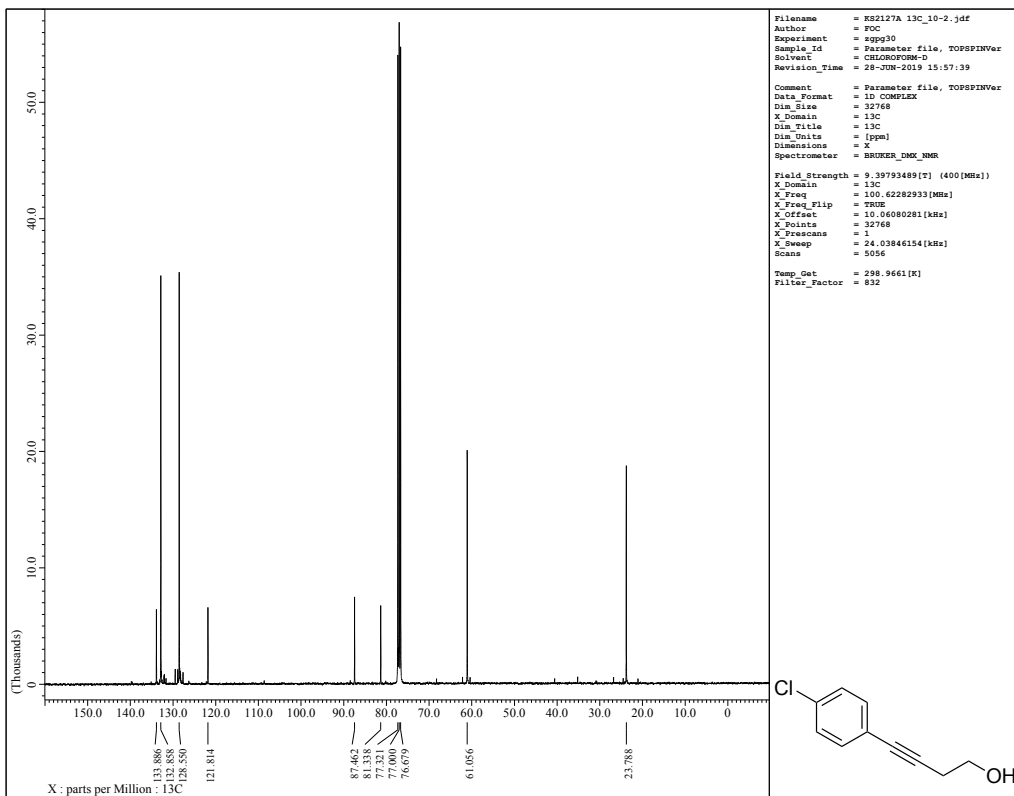


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 RGAIN 26

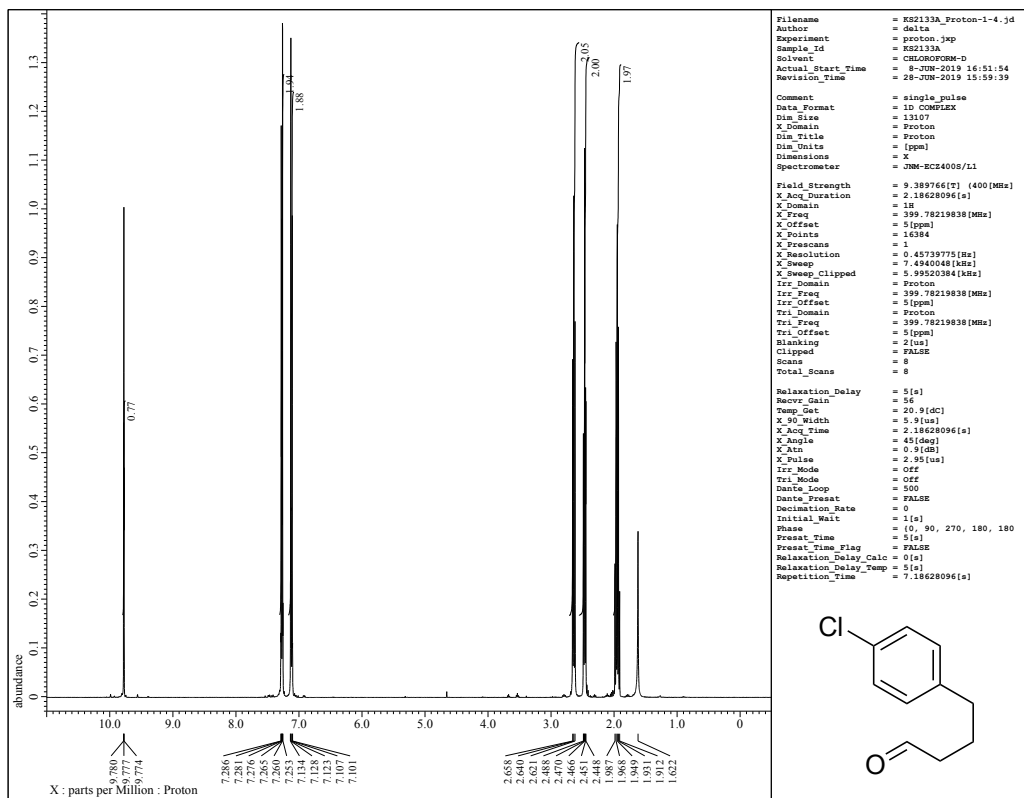
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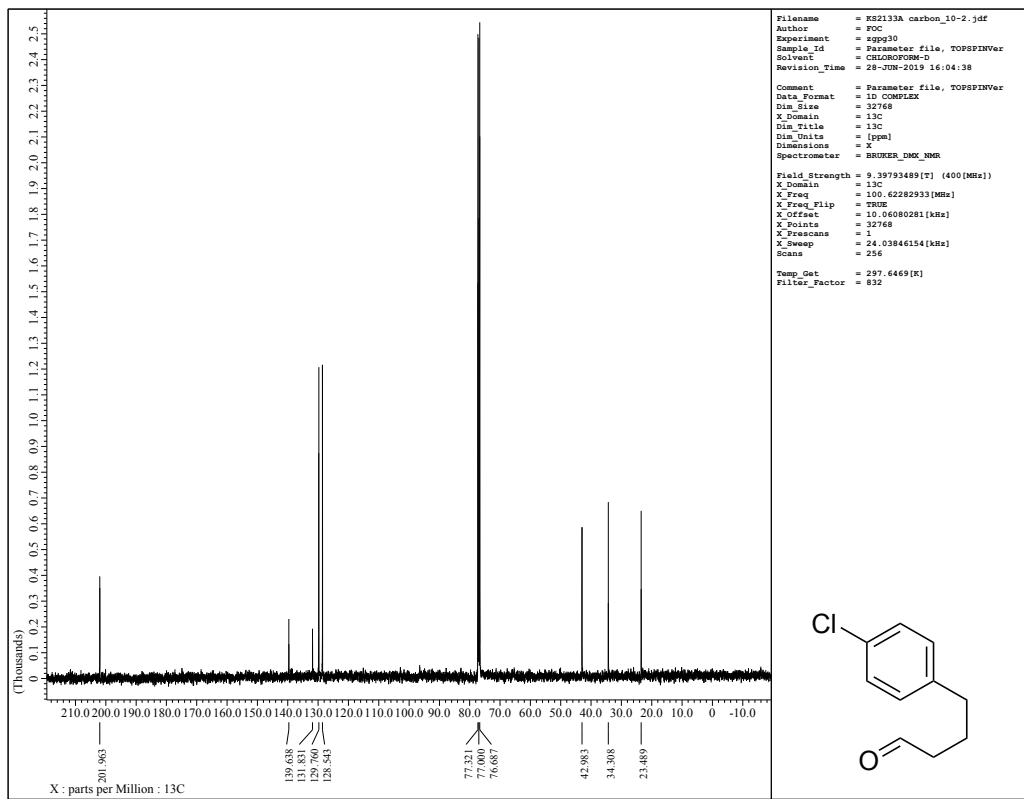
¹³C NMR: Compound S24



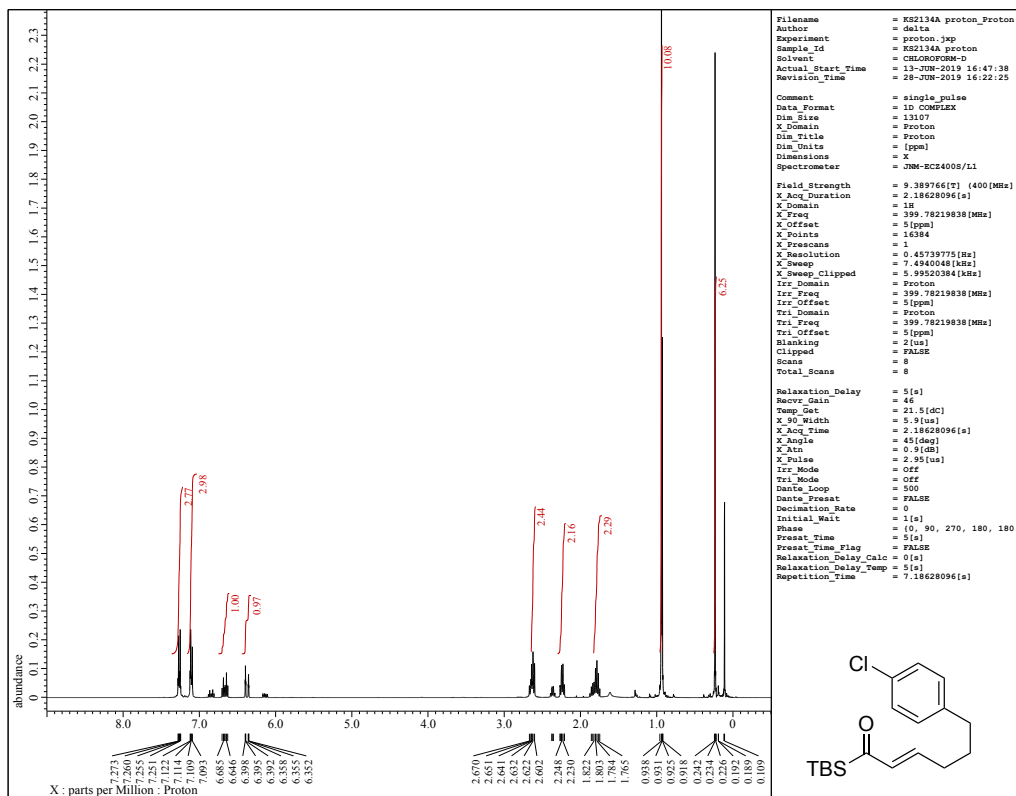
¹H NMR: Compound S25



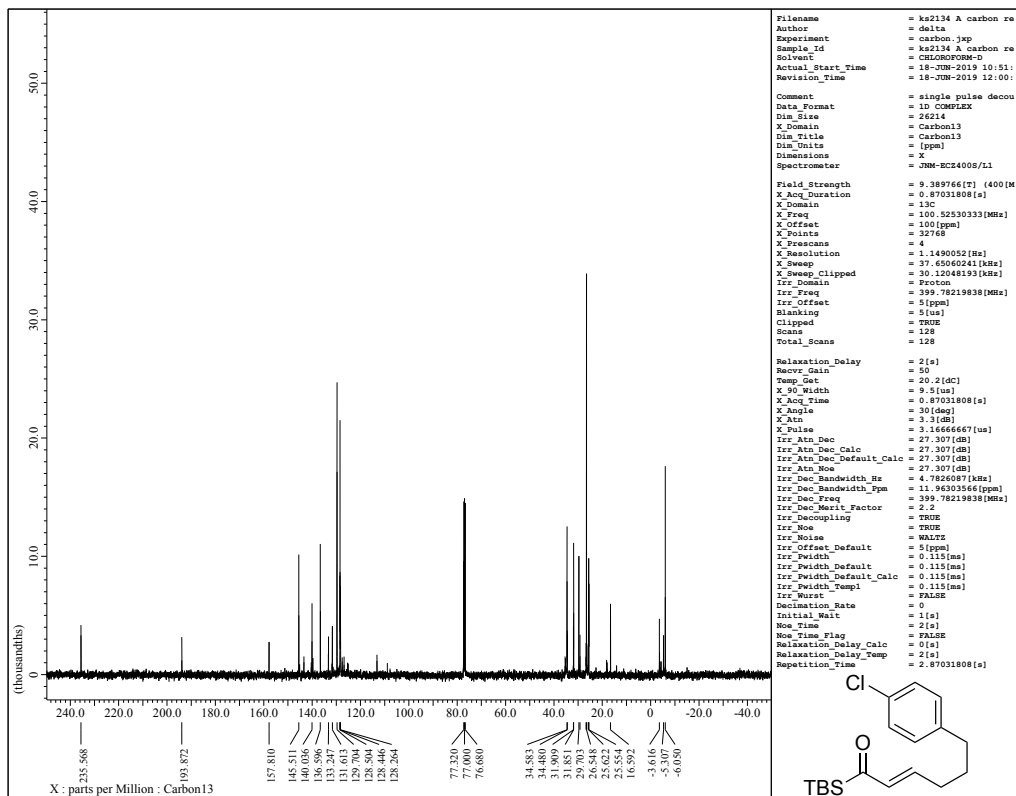
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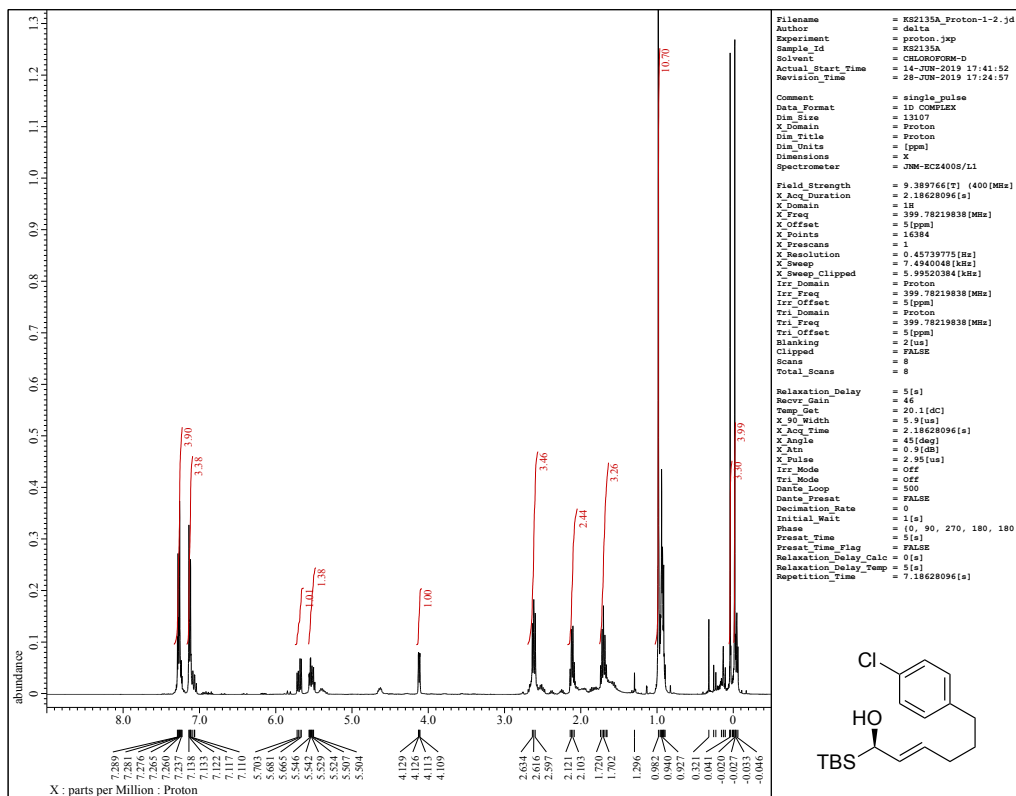
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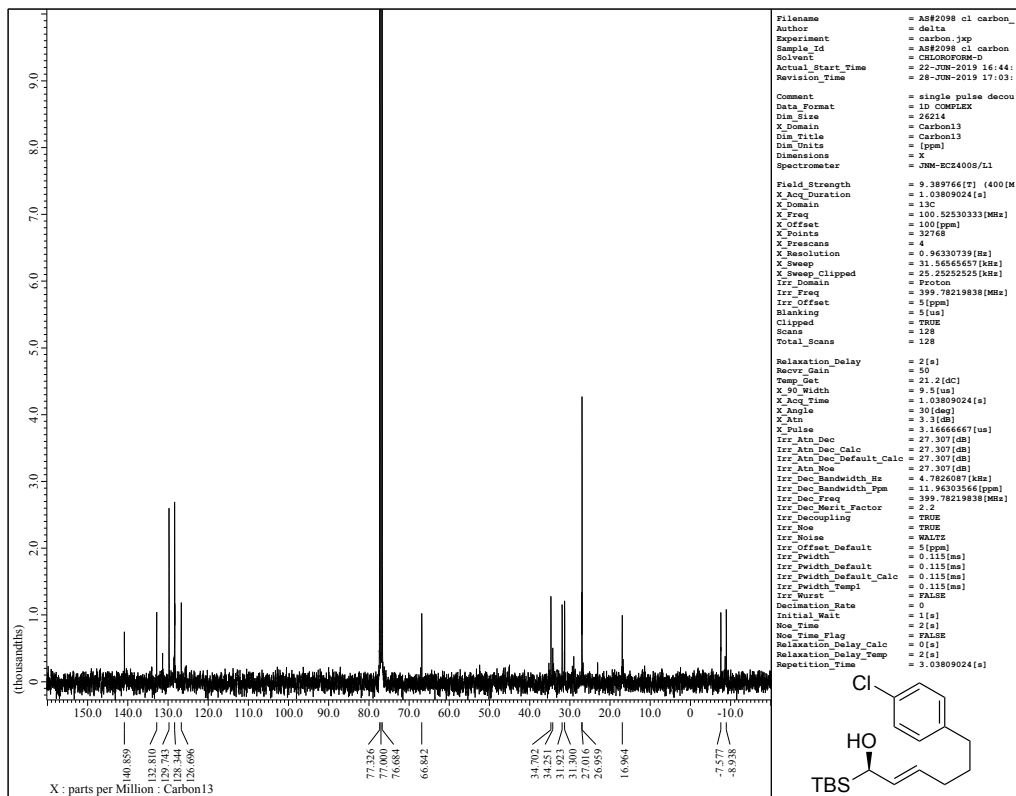
¹³C NMR: Compound S26



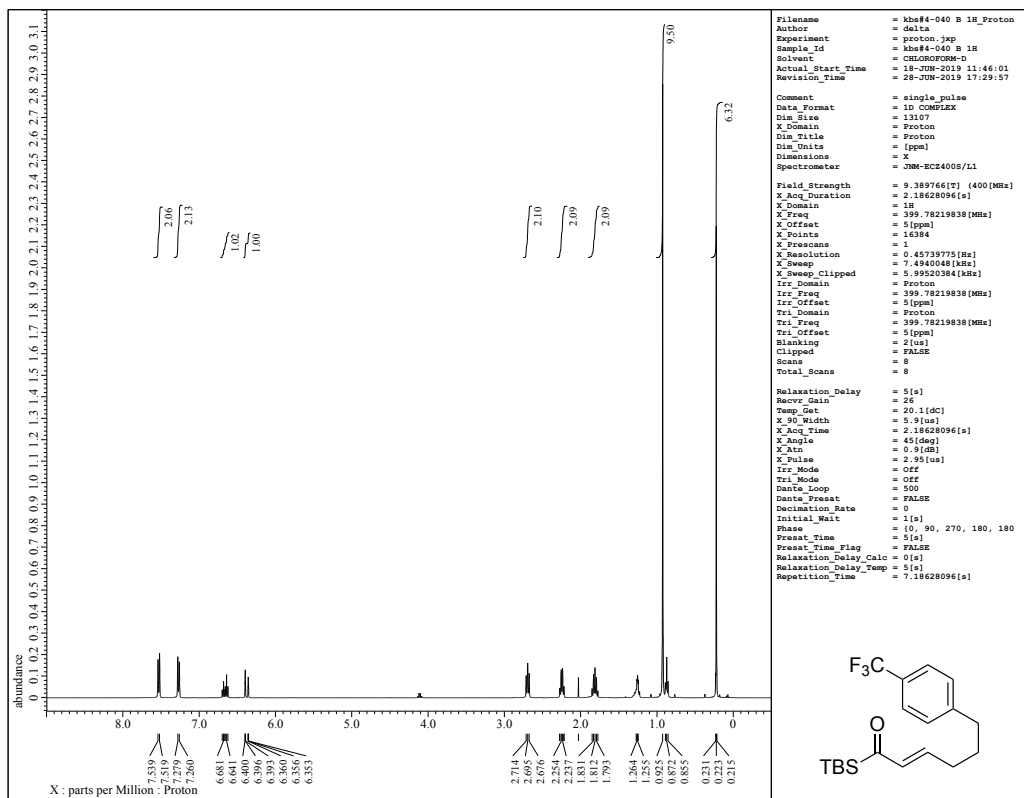
¹H NMR: Compound 3d



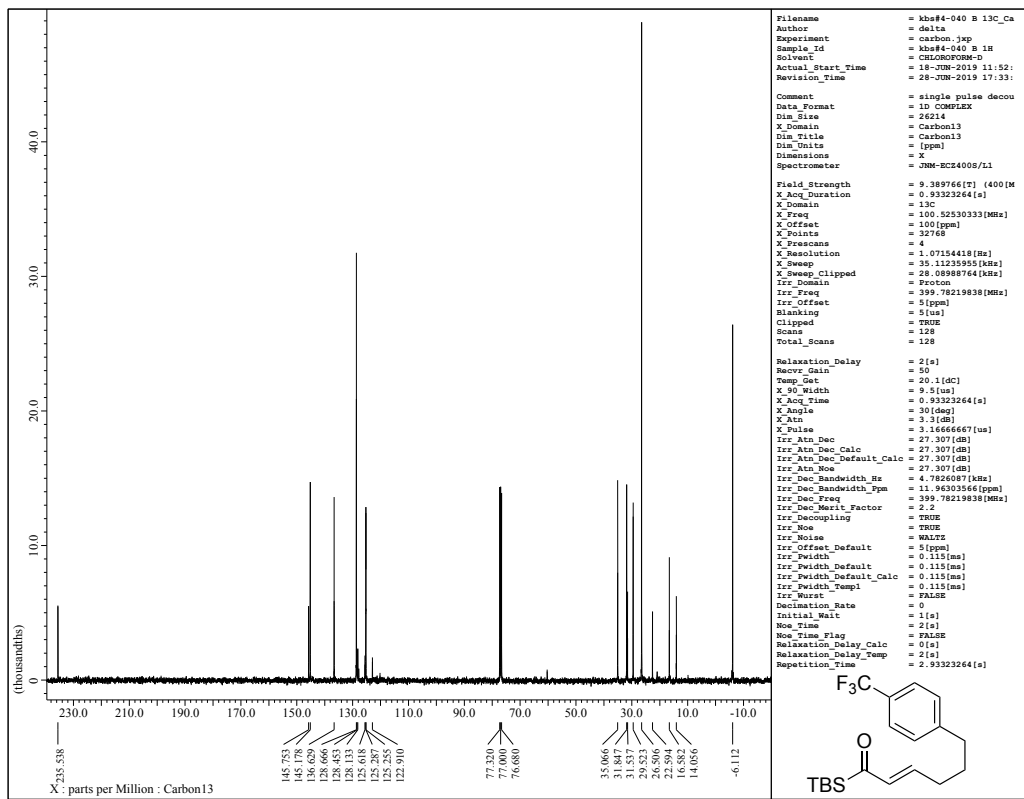
¹³C NMR: Compound 3d



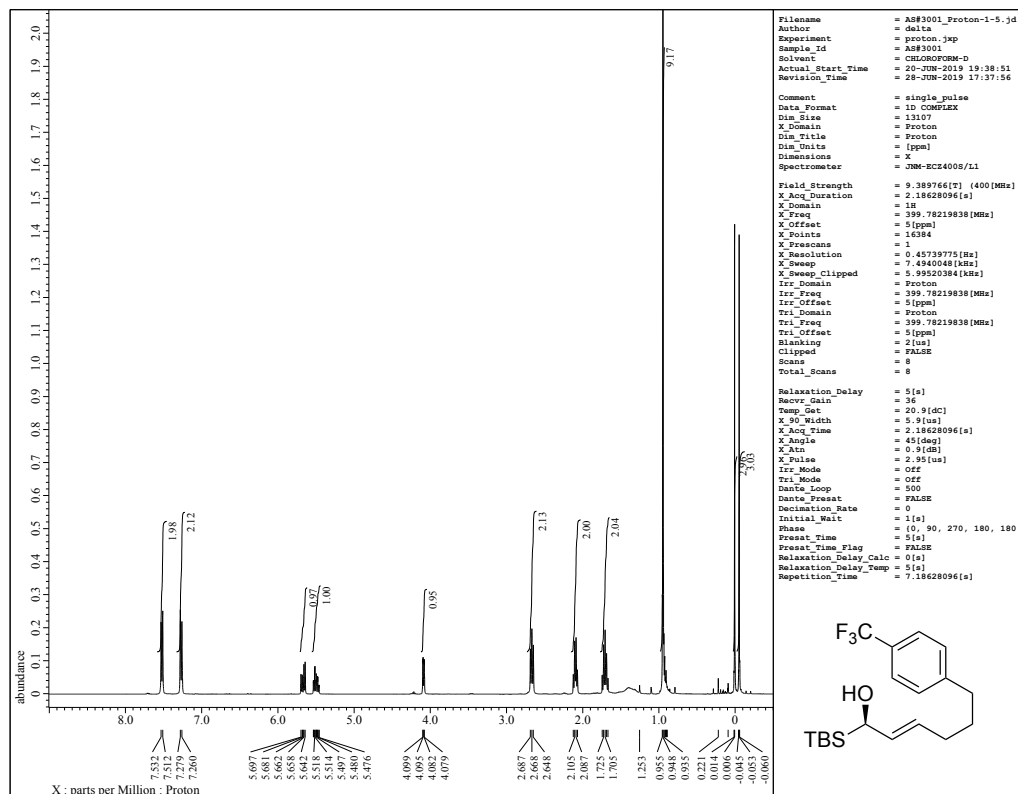
¹H NMR: Compound S28



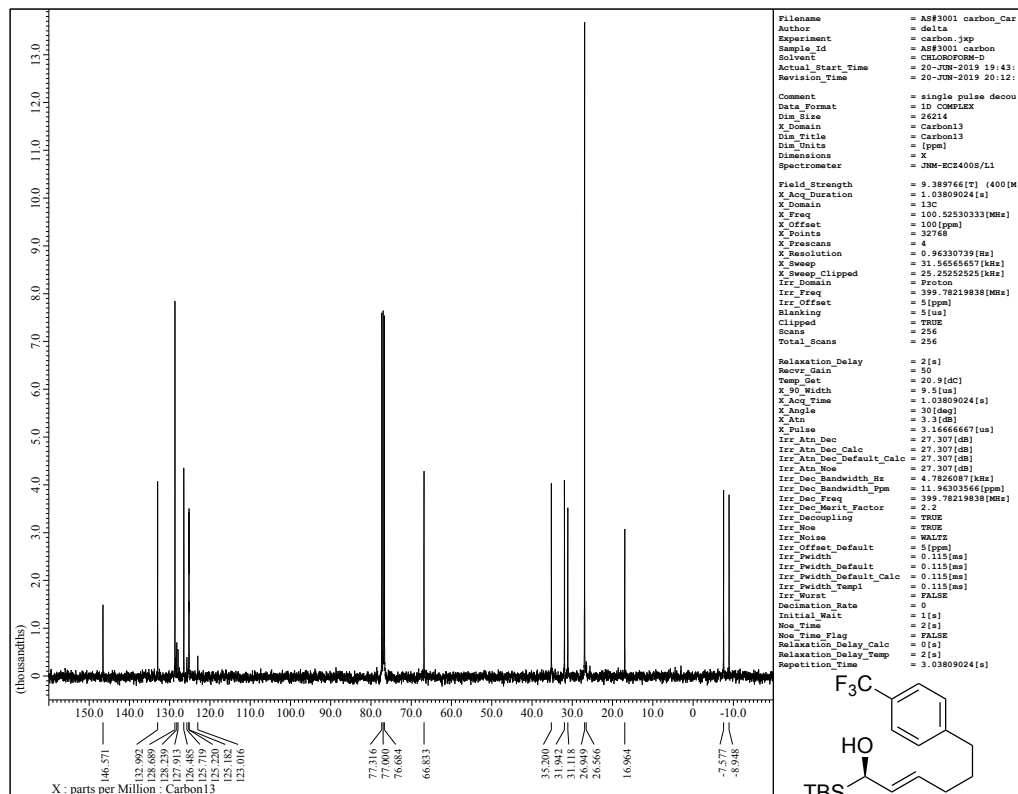
¹³C NMR: Compound S28



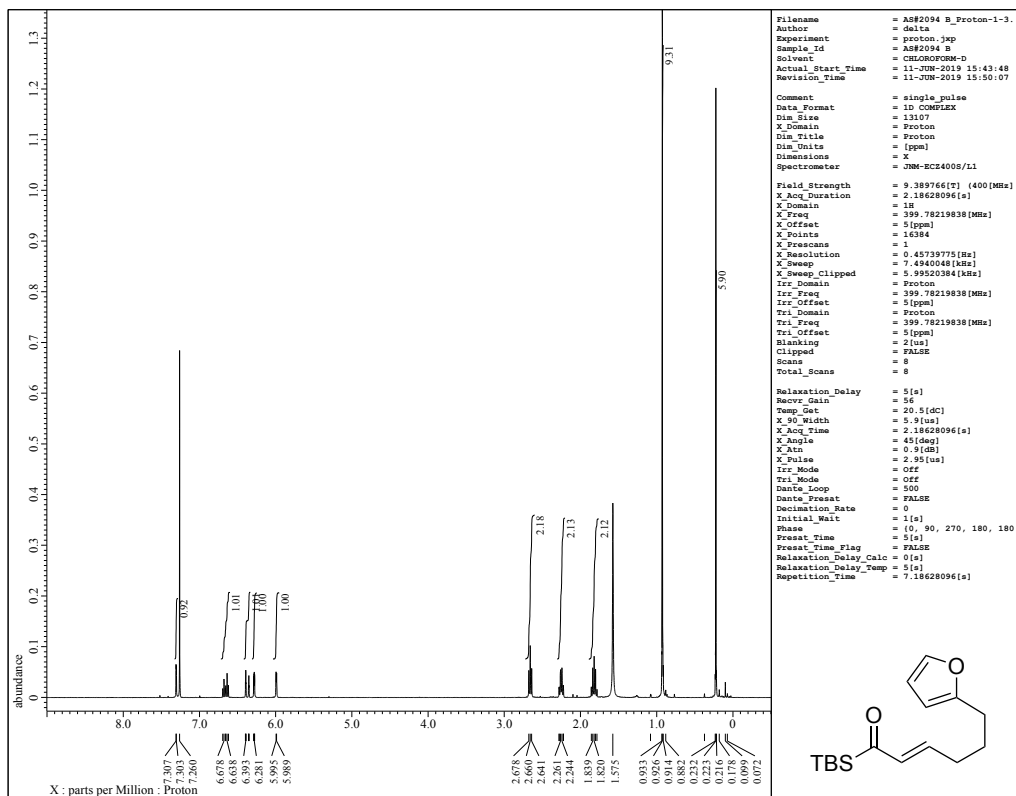
¹H NMR: Compound 3e



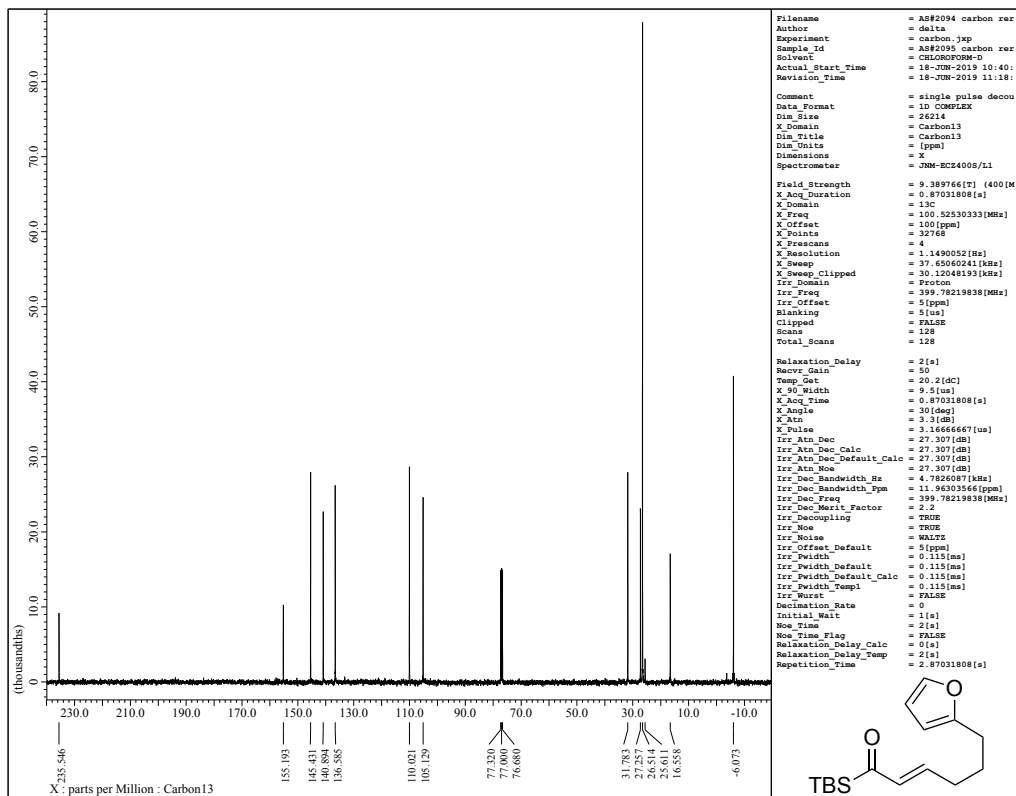
¹³C NMR: Compound 3e



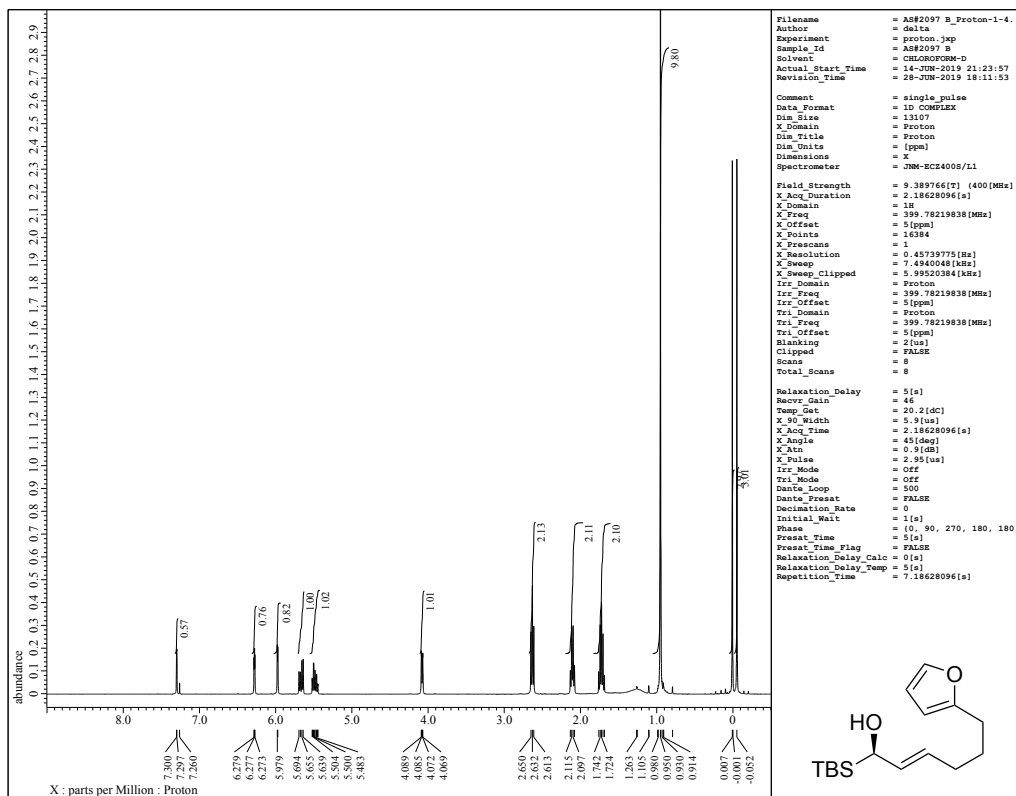
¹H NMR: Compound S30



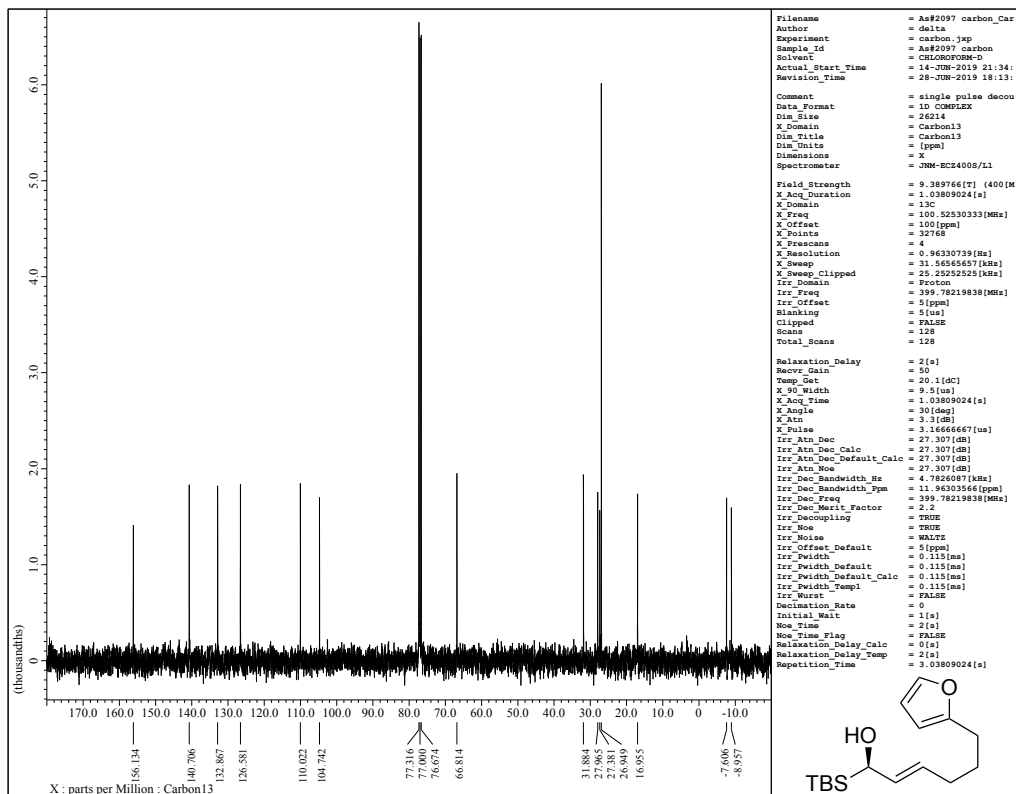
¹³C NMR: Compound S30



¹H NMR: Compound 3f



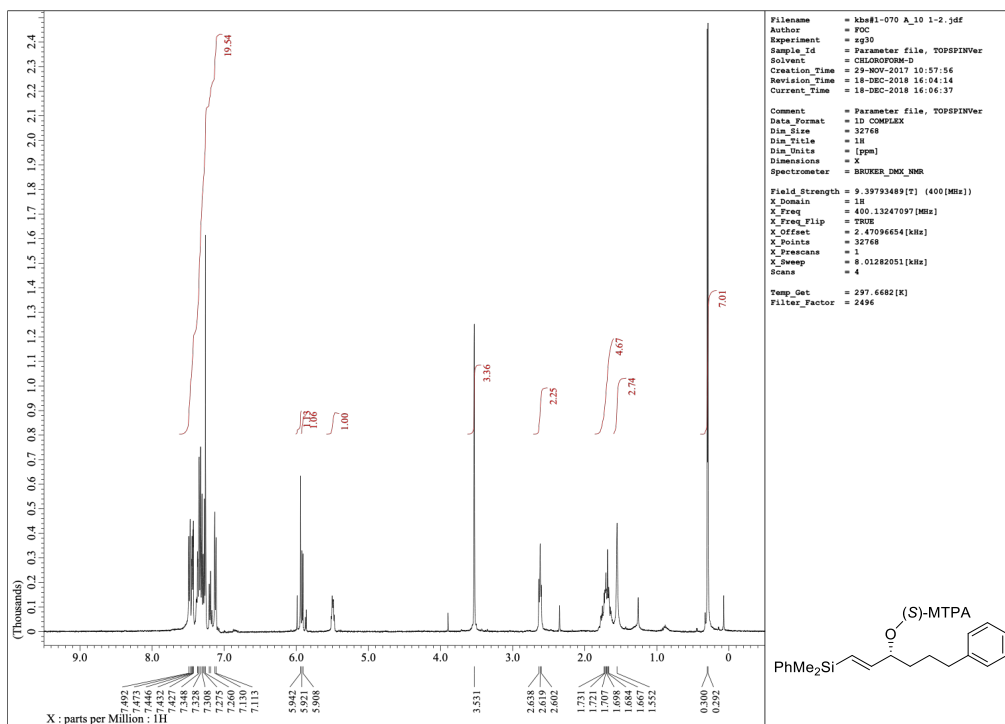
¹³C NMR: Compound 3f



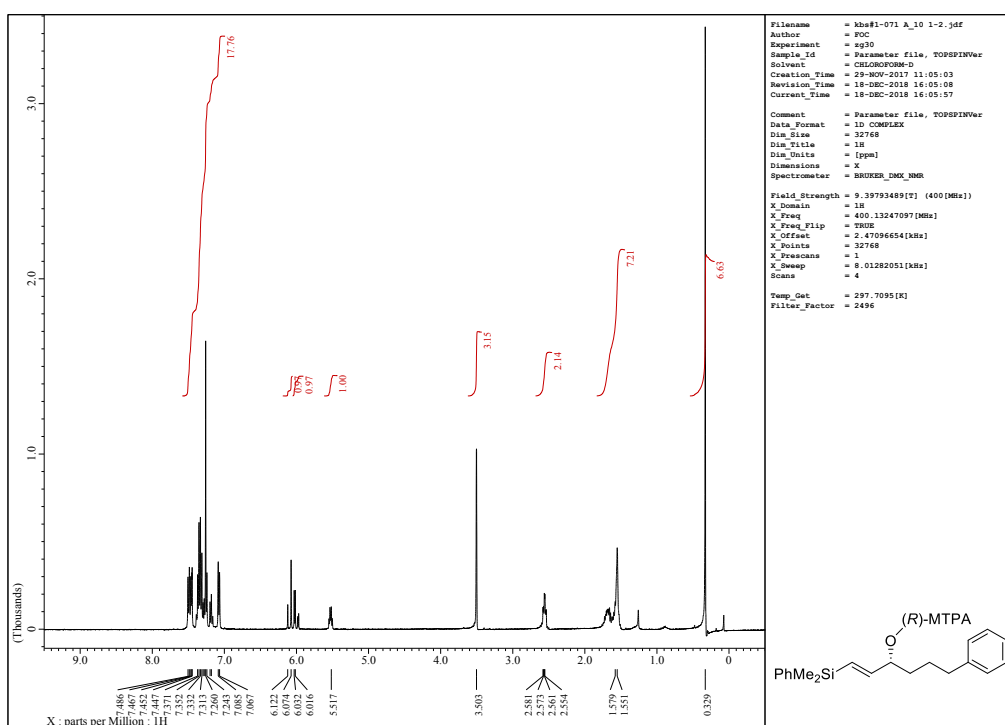
2. Determination of absolute configuration of secondary alcohols

¹H NMR: (*S* or *R*)-MTPA ester S1

(*S*)-MTPA ester S1

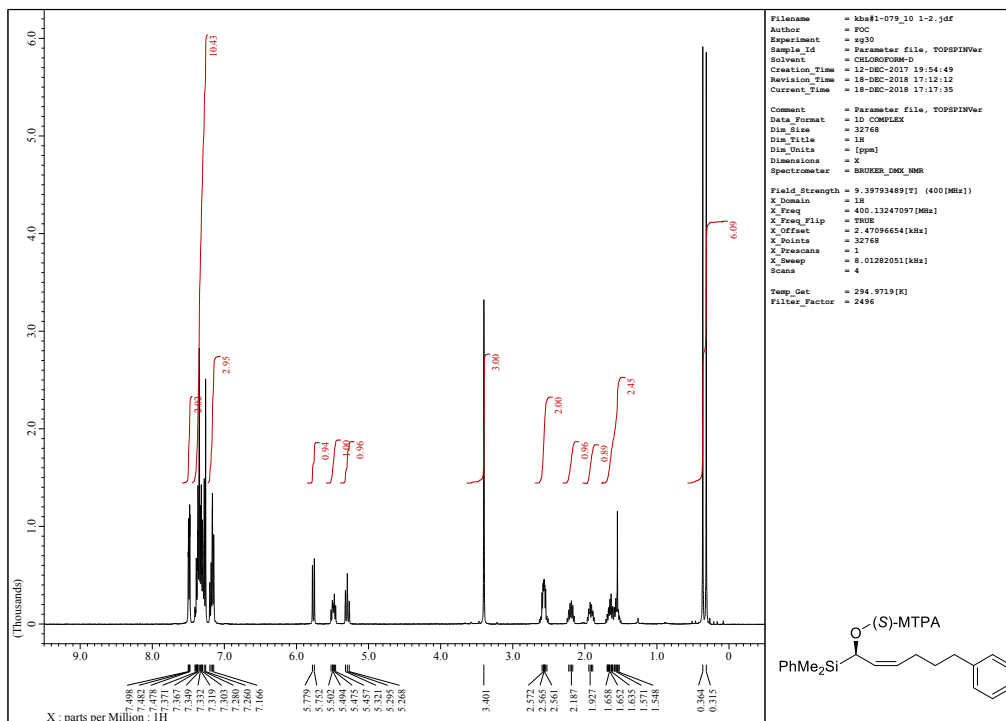


(*R*)-MTPA ester S1'

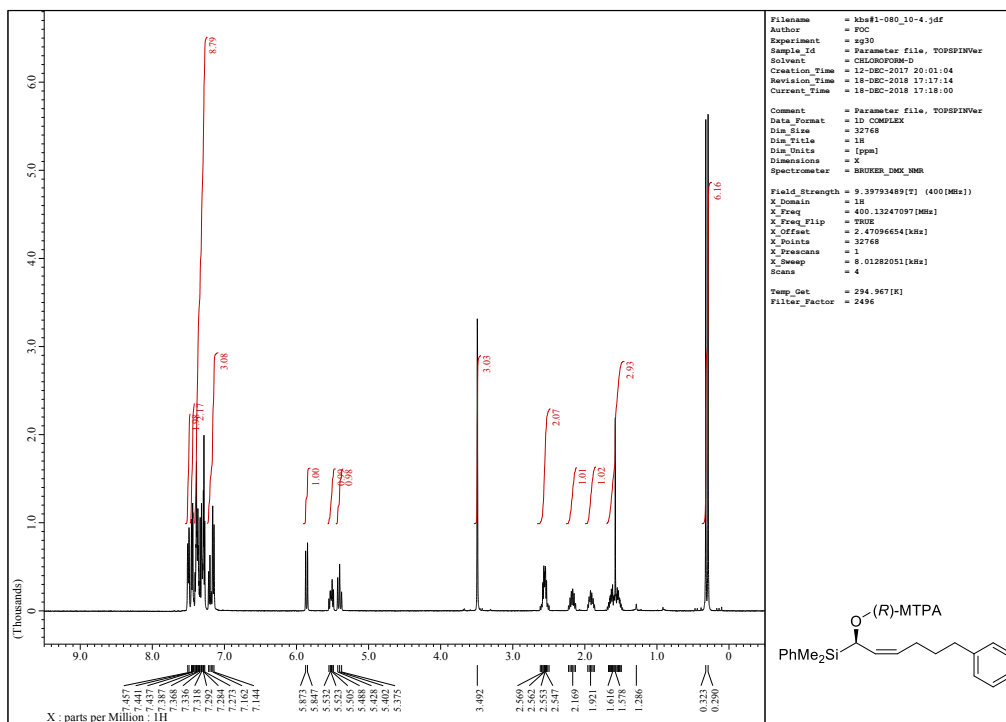


¹H NMR: (*S* or *R*)-MTPA ester S4

(*S*)-MTPA ester S4

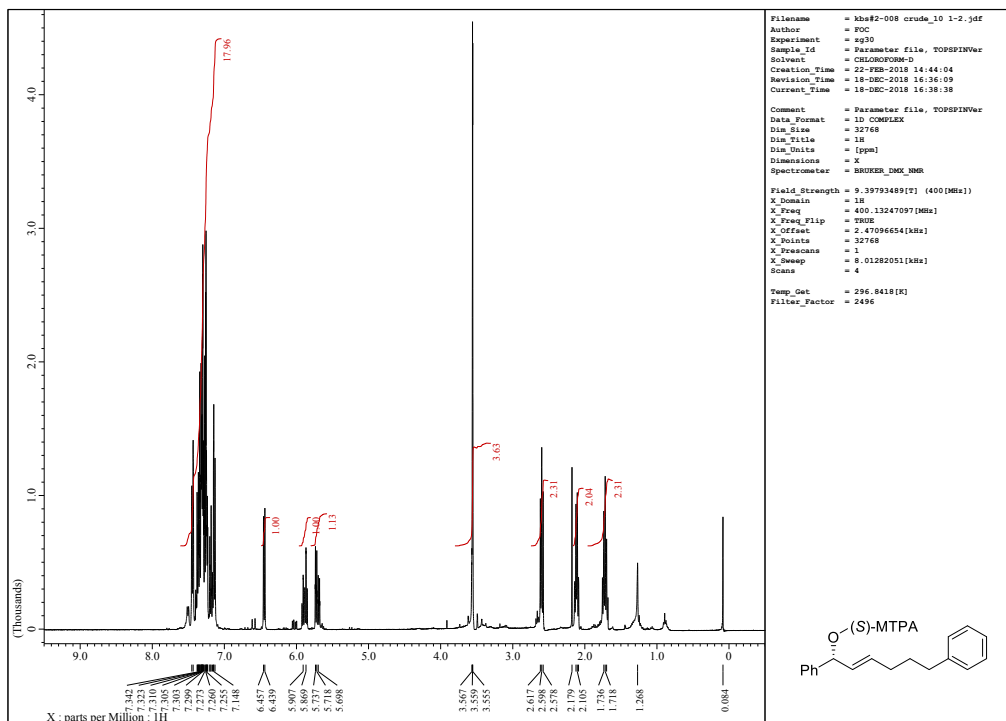


(*R*)-MTPA ester S4'

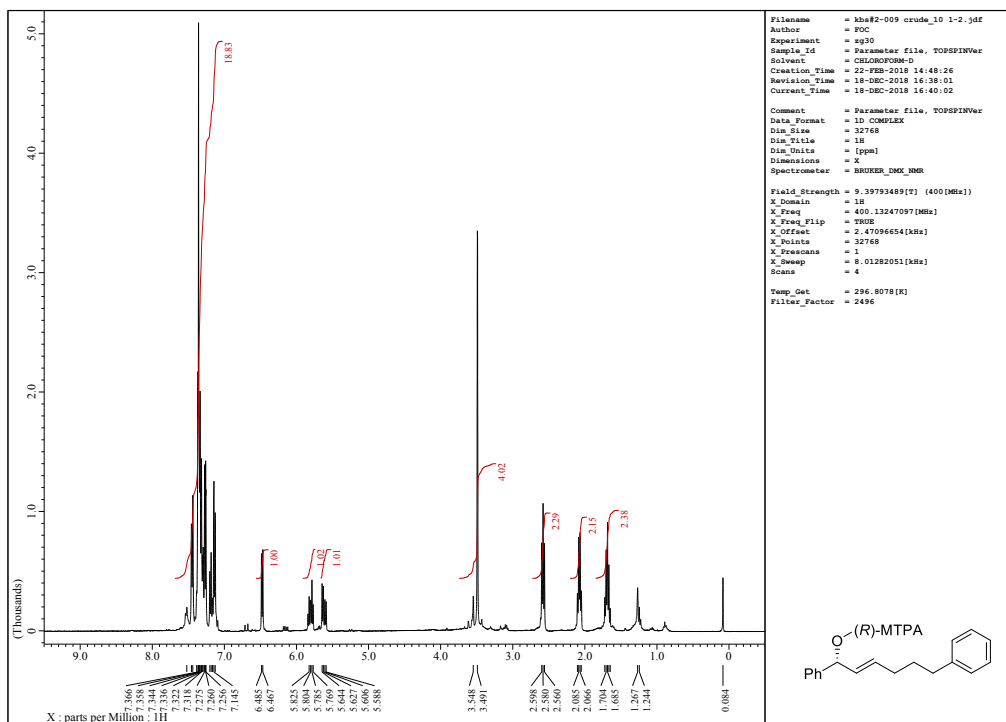


¹H NMR: (*S* or *R*)-MTPA ester S6

(*S*)-MTPA ester S6

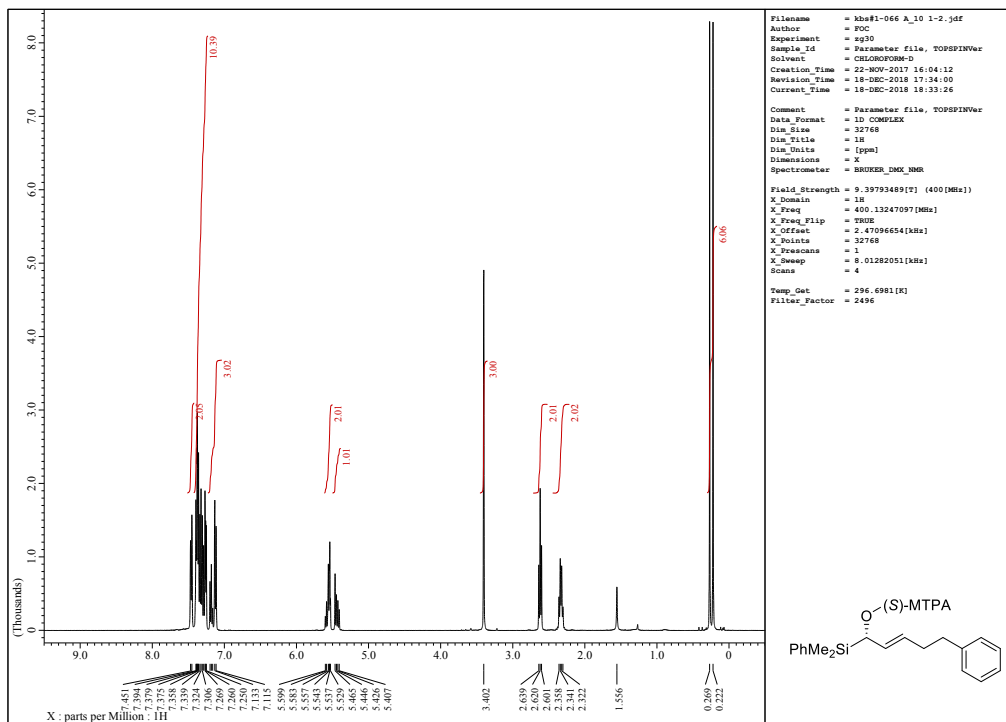


(*R*)-MTPA ester S6'

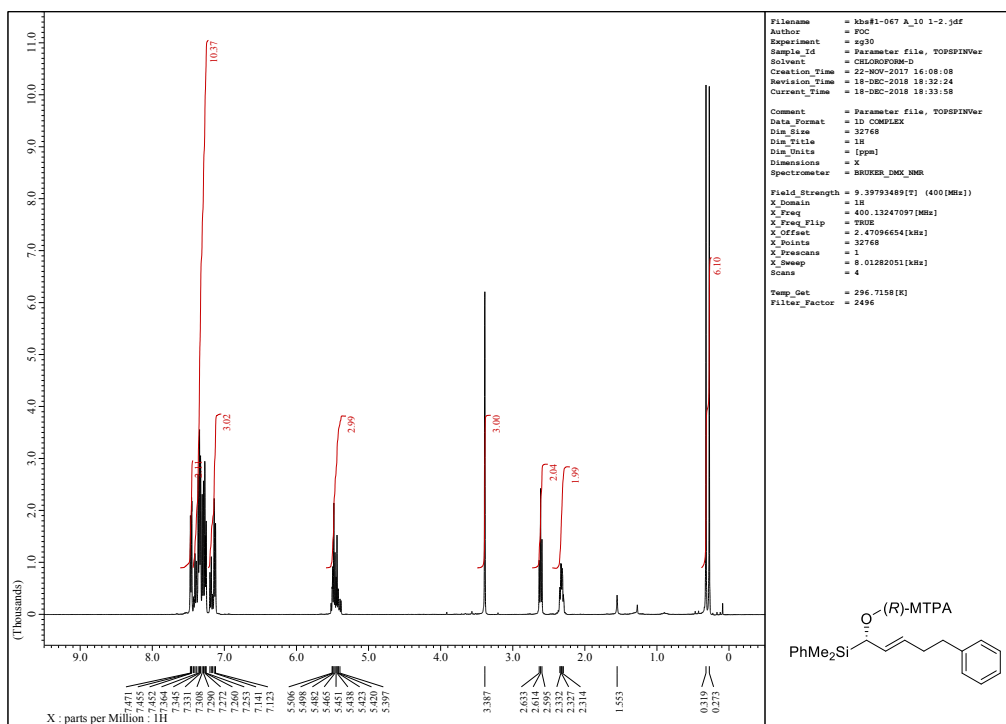


¹H NMR: (*S* or *R*)-MTPA ester S10

(*S*)-MTPA ester S10

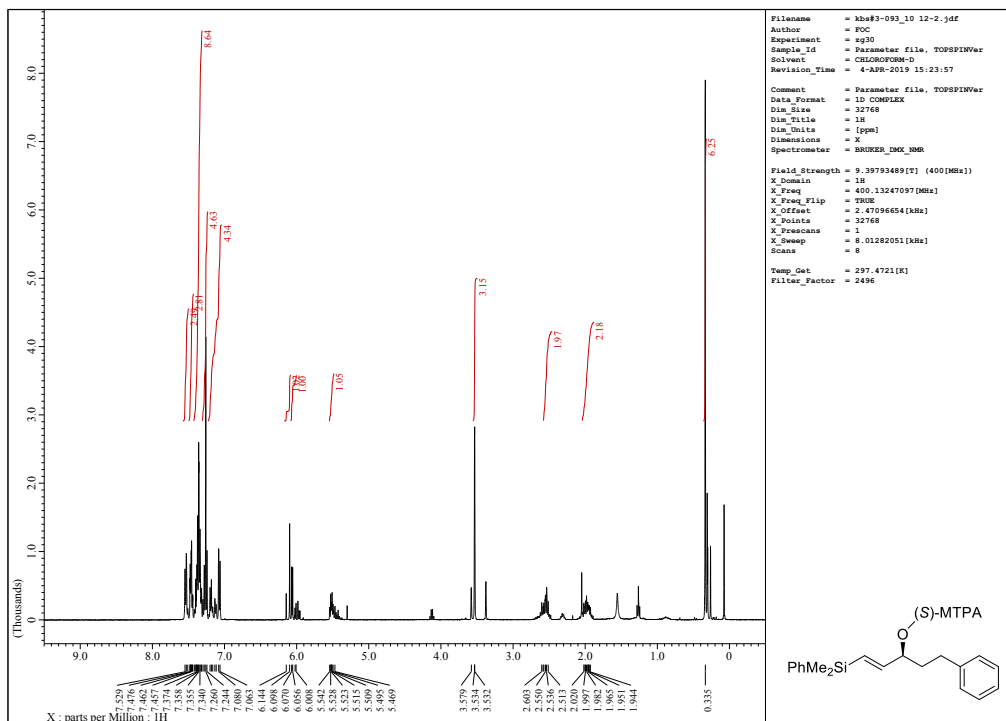


(*R*)-MTPA ester S10'

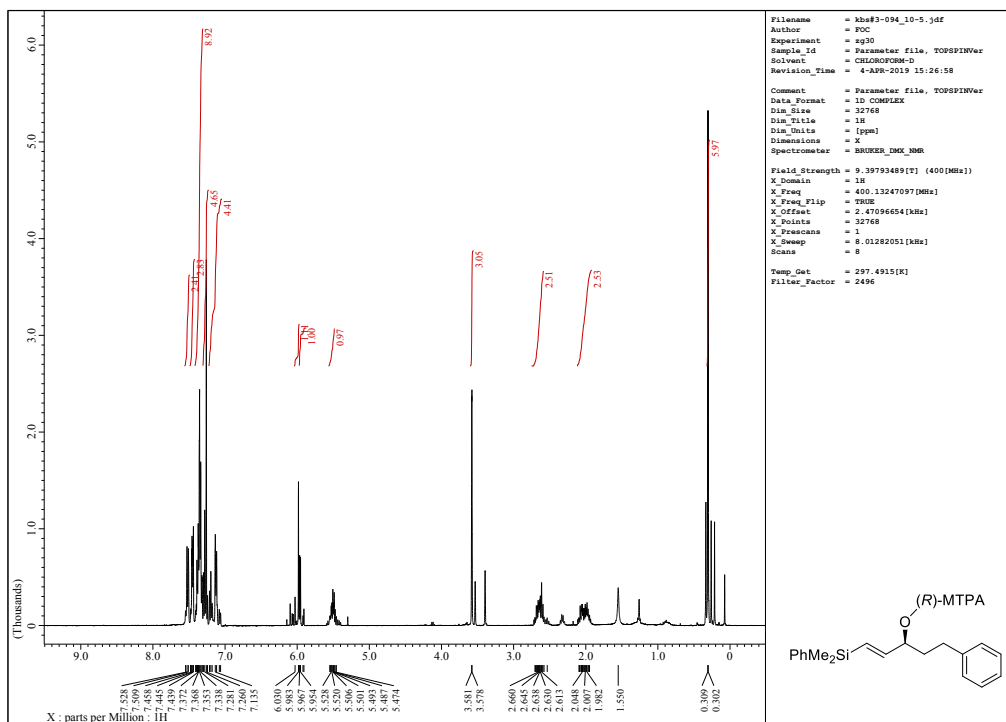


¹H NMR: (*S* or *R*)-MTPA ester S11

(*S*)-MTPA ester S11

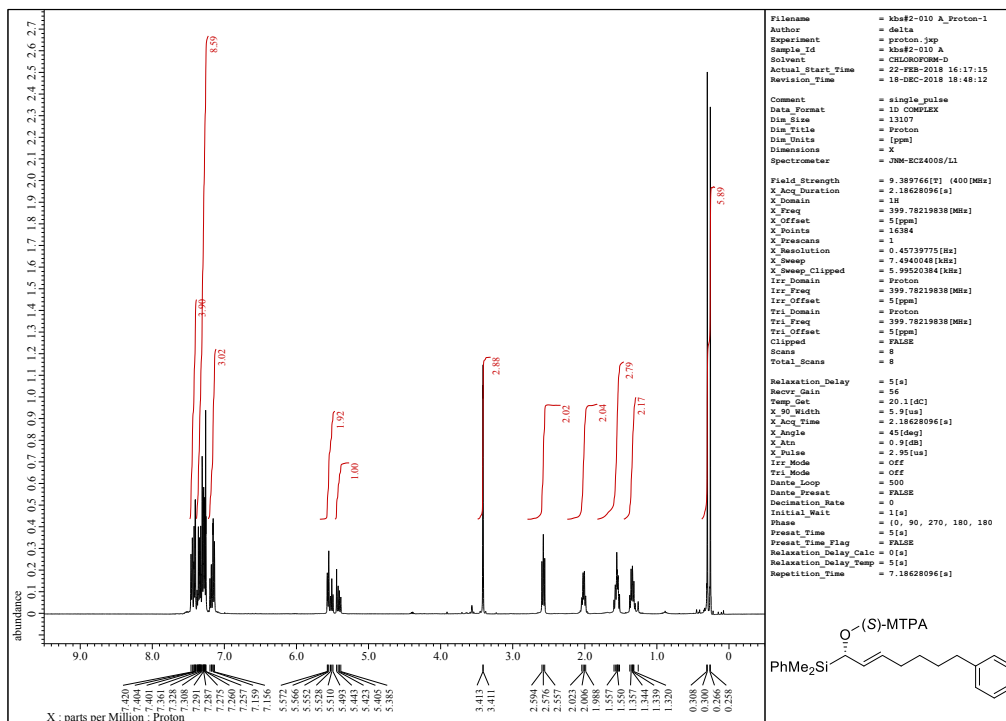


(*R*)-MTPA ester S11'

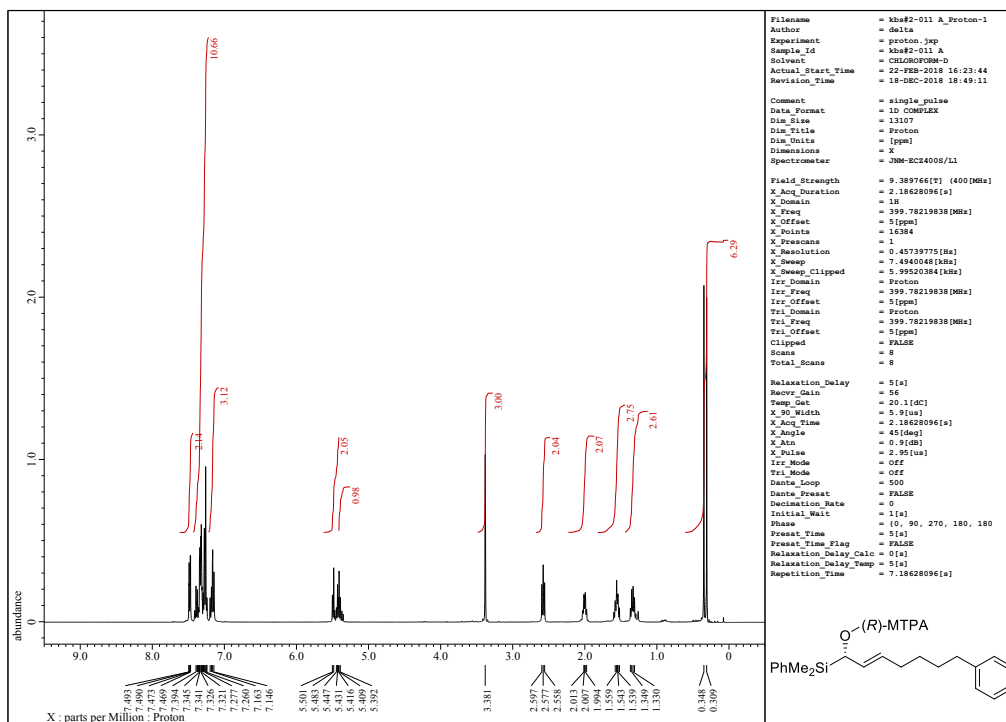


¹H NMR: (*S* or *R*)-MTPA ester S16

(*S*)-MTPA ester S16

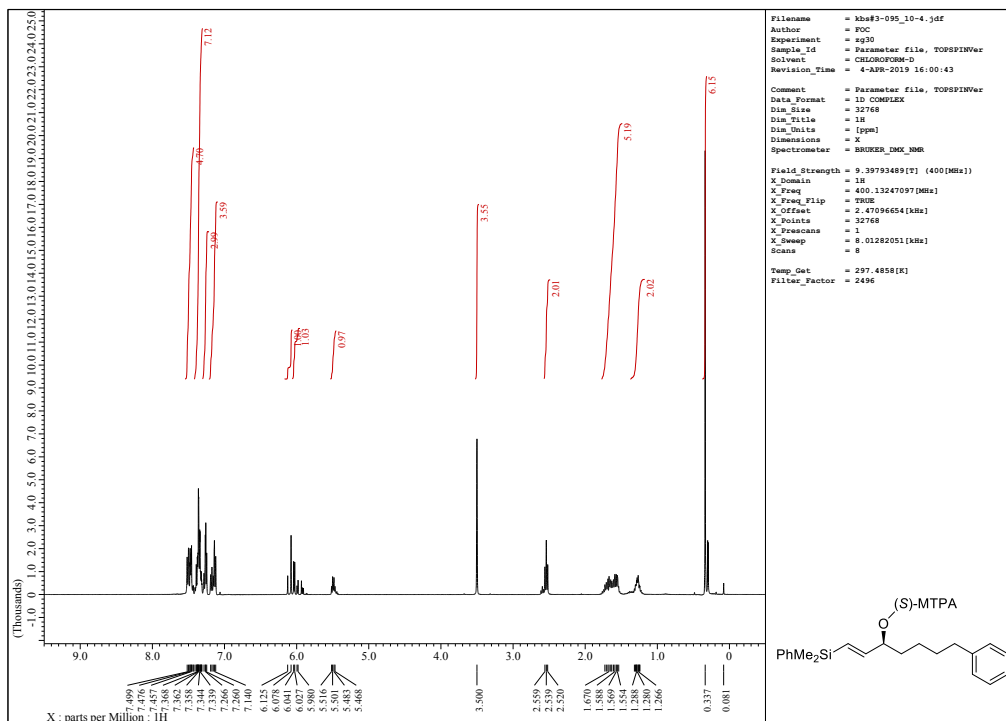


(*R*)-MTPA ester S16'

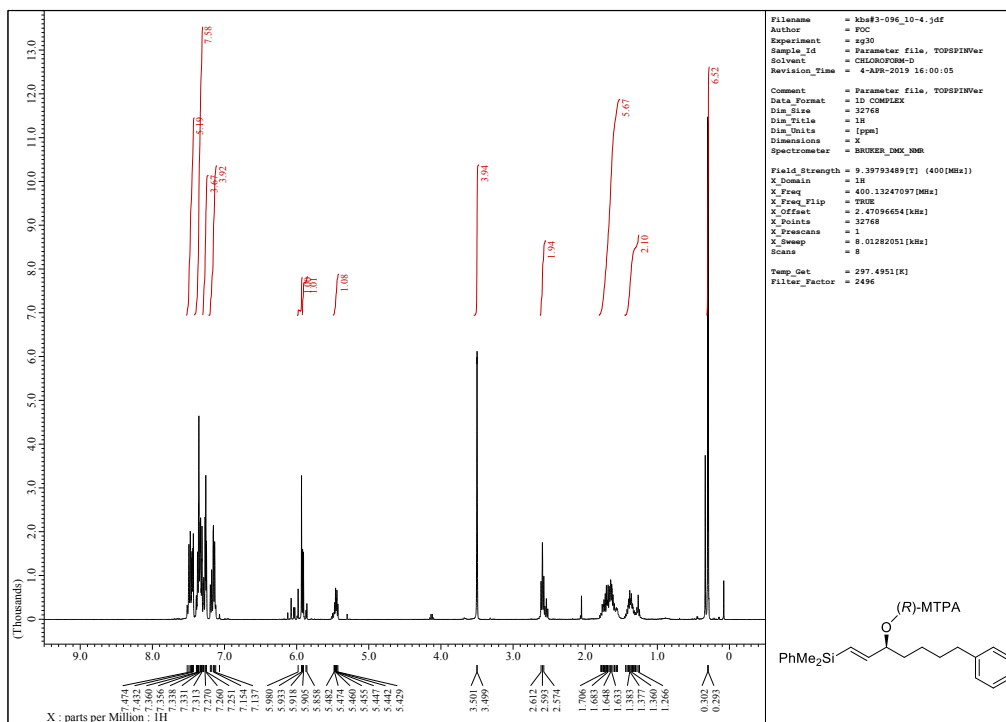


¹H NMR: (*S* or *R*)-MTPA ester S17

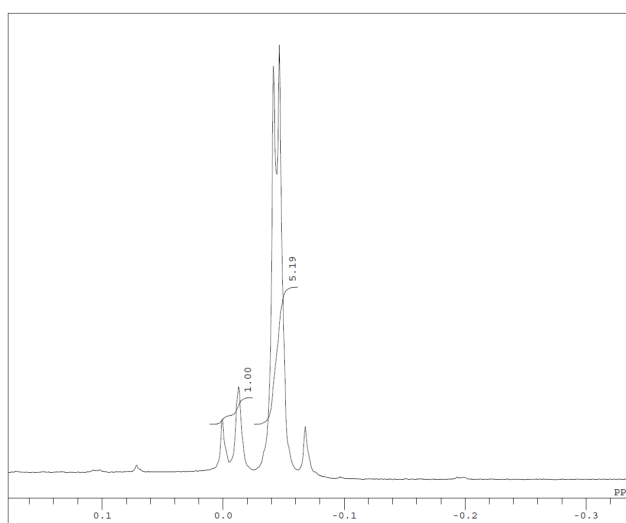
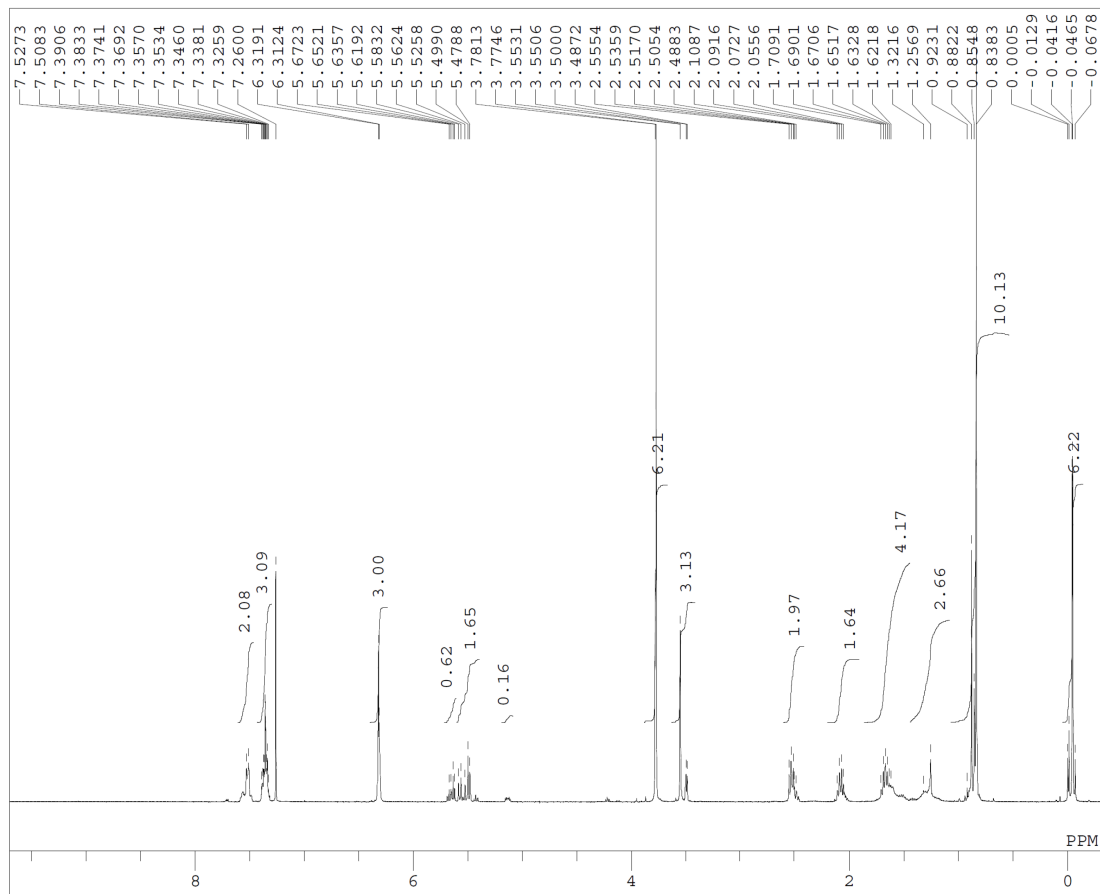
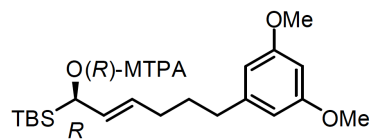
(*S*)-MTPA ester S17



(*R*)-MTPA ester S17'

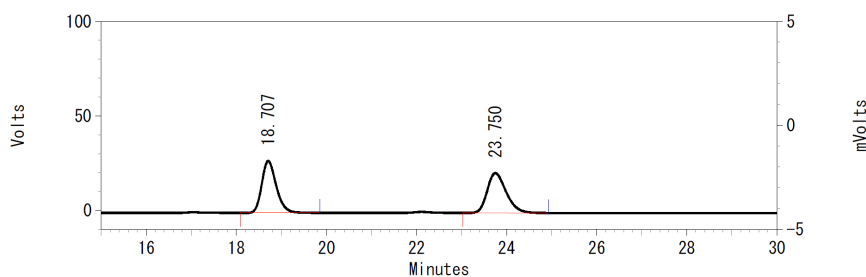


(*R*)-MTPA ester derived from (*R*)-**3c** (68% ee)



3. Determination of optical purity

Compound 3a (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	18.707	616523	49.997	27463
2	23.750	616594	50.003	21081
Totals		1233117	100.000	48544

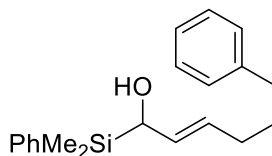
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

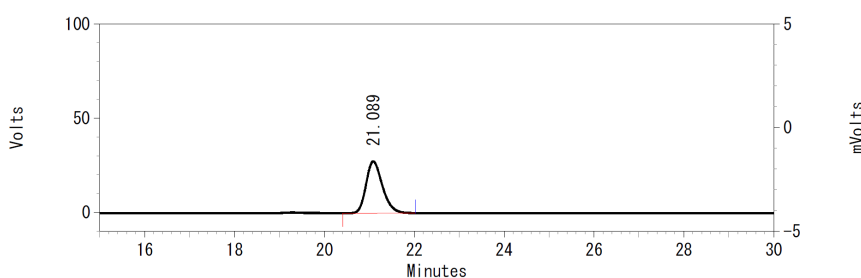
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*R*)-3a (>99% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	21.089	694670	100.000	27417
Totals		694670	100.000	27417

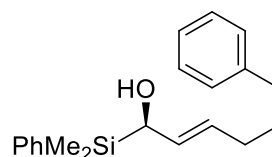
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

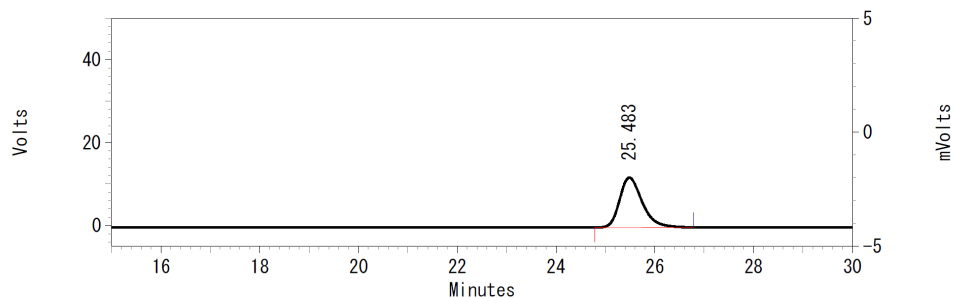
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S)-3a (>99% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	25.483	382678	100.000	12029
Totals		382678	100.000	12029

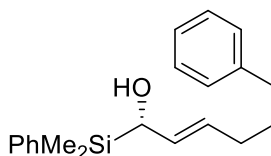
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

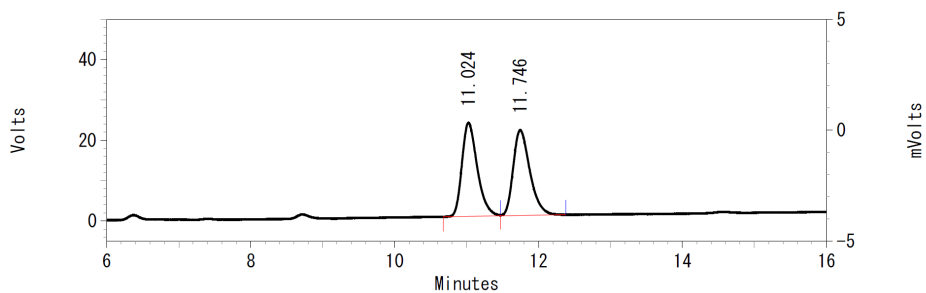
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 4a (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	11.024	344259	50.184	23179
2	11.746	341729	49.816	21157
Totals		685988	100.000	44336

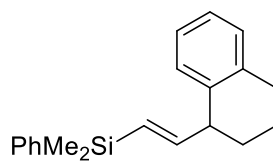
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

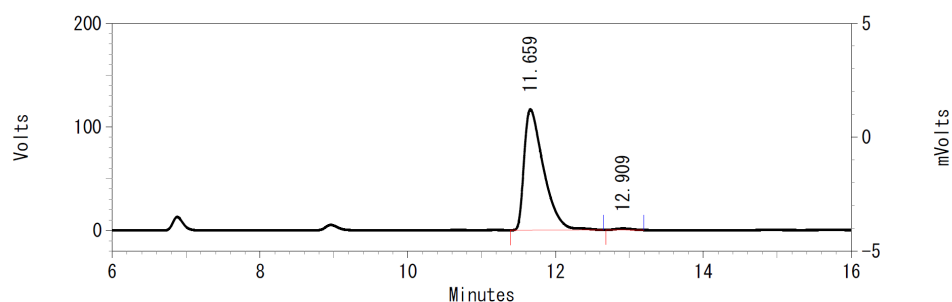
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S)-4a (98% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	11.659	2132883	99.035	116565
2	12.909	20775	0.965	1406

Totals		2153658	100.000	117971
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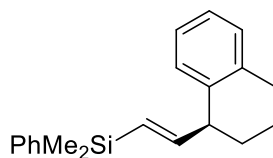
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

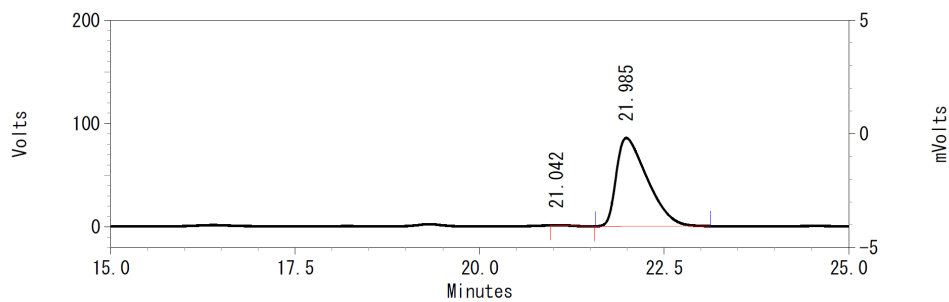
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R)-8a (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	21.042	2387	0.096	292
2	21.985	2495384	99.904	85350

Totals		2497771	100.000	85642
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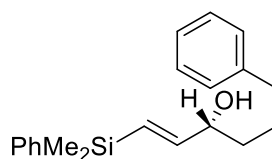
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

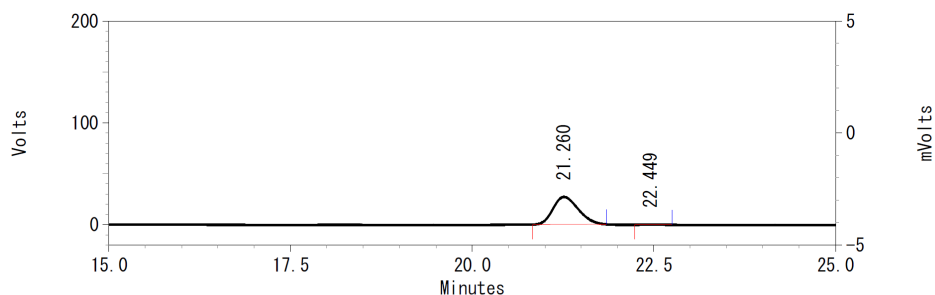
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S)-8a (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	21.260	654914	99.532	27062
2	22.449	3079	0.468	180
Totals		657993	100.000	27242

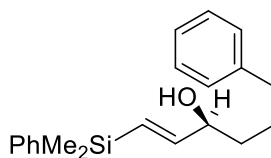
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

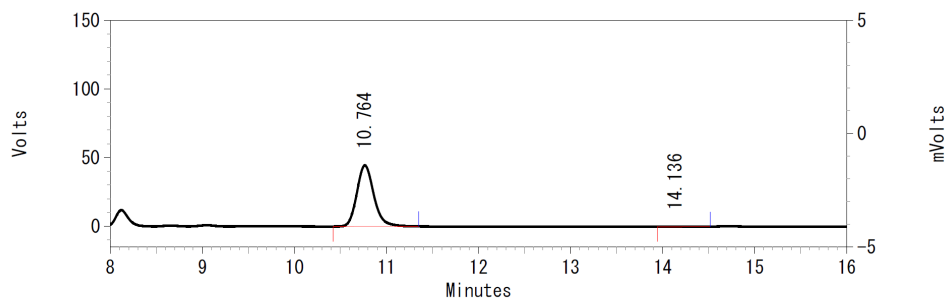
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R)-3b (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	10.764	570576	99.947	44458
2	14.136	300	0.053	57
Totals		570876	100.000	44515

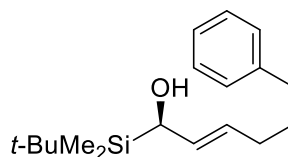
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

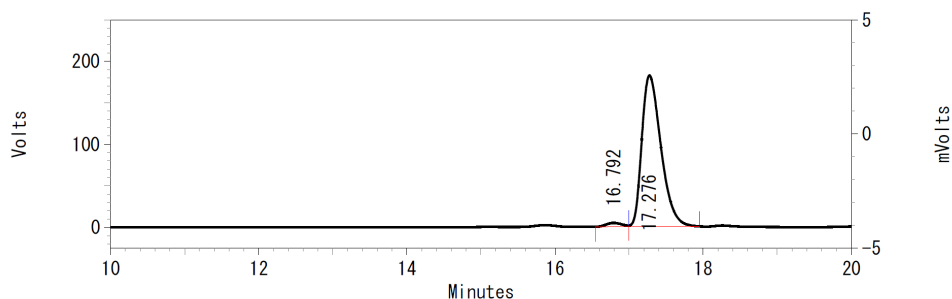
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R)-4b (96% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	16.792	69364	2.080	4647
2	17.276	3266204	97.920	181895

Totals		3335568	100.000	186542
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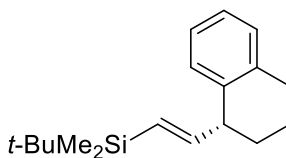
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

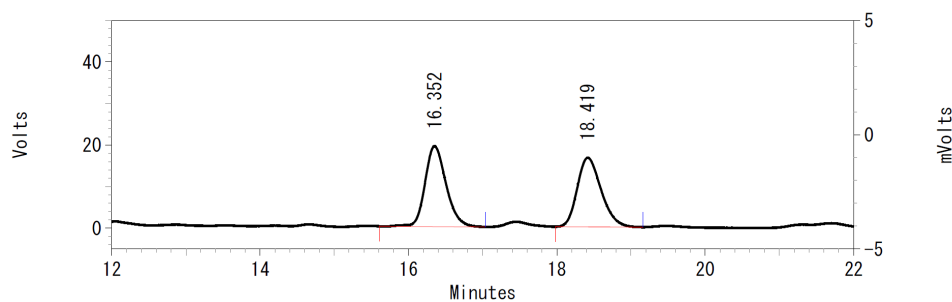
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (Z)-8 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	16.352	382390	50.676	19371
2	18.419	372185	49.324	16638

Totals		754575	100.000	36009
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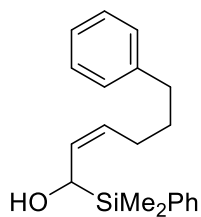
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

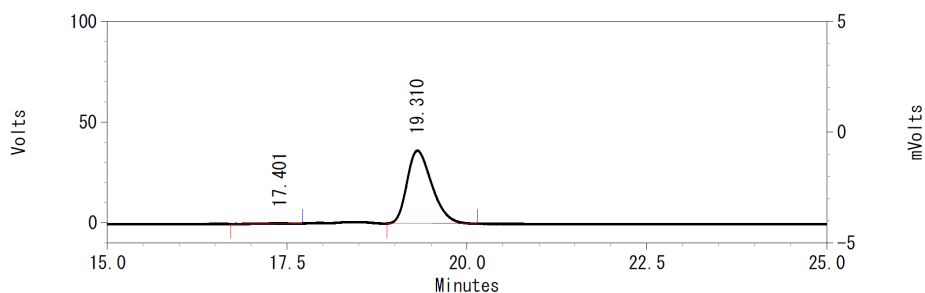
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R,Z)-8 (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.401	2525	0.289	117
2	19.310	870864	99.711	36188
Totals		873389	100.000	36305

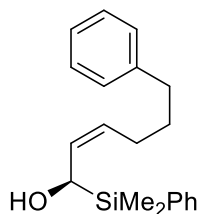
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

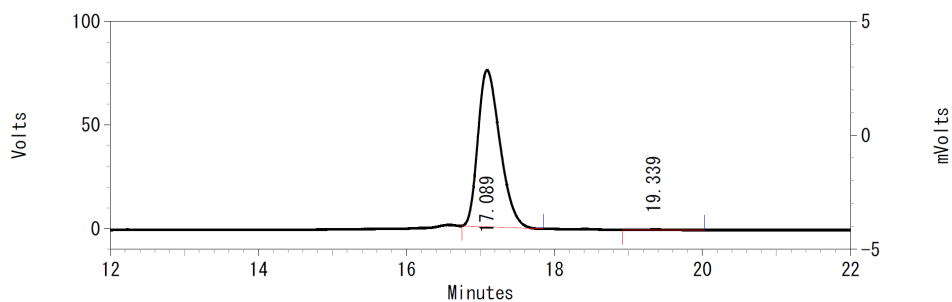
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S,Z)-8 (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.089	1566530	99.751	75615
2	19.339	3912	0.249	188
Totals		1570442	100.000	75803

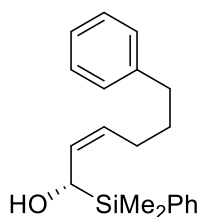
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

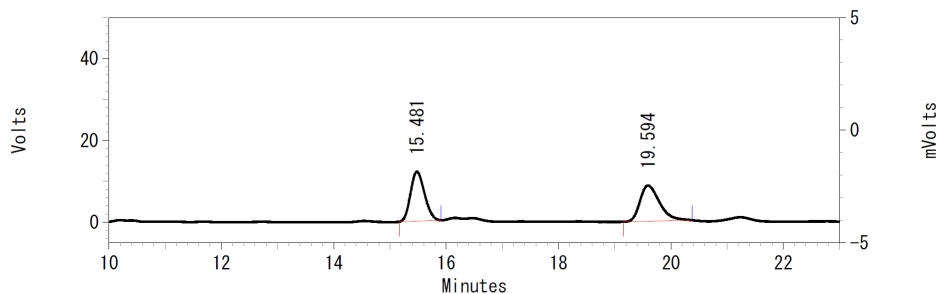
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 9 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	15.481	209302	49.708	12078
2	19.594	211757	50.292	8736
Totals		421059	100.000	20814

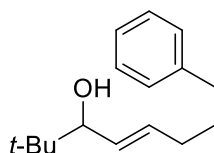
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

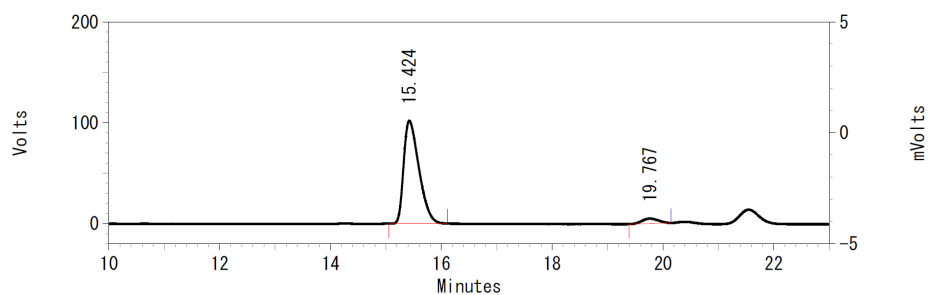
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*S*)-9 (90% ee)



UV-970 Results

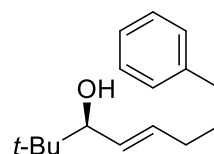
Pk #	Retention Time	Area	Area Percent	Height
1	15.424	1950174	95.088	101926
2	19.767	100732	4.912	4914
Totals		2050906	100.000	106840

Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

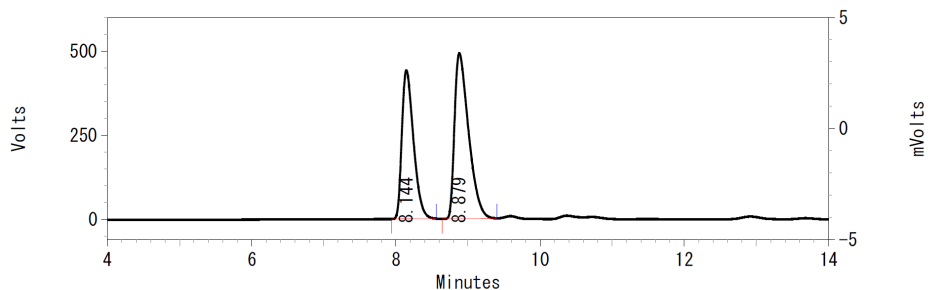
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound (S)-10 (15% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	8.144	4934168	42.626	440915
2	8.879	6641257	57.374	491054

Totals		11575425	100.000	931969
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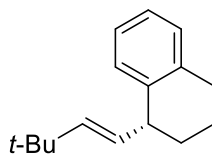
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

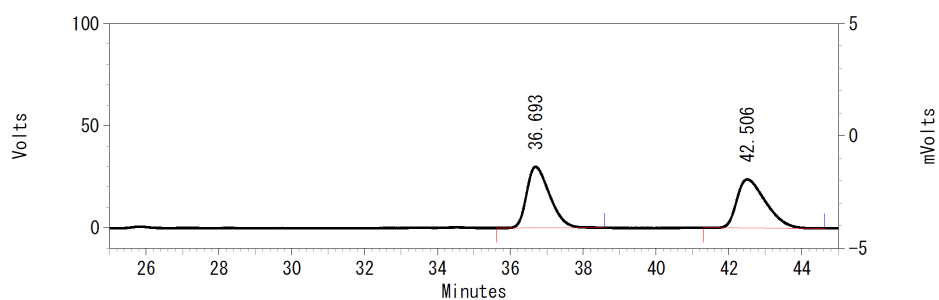
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 11 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	36.693	1309452	50.172	29906
2	42.506	1300448	49.828	23798

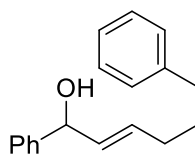
Totals		2609900	100.000	53704
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Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

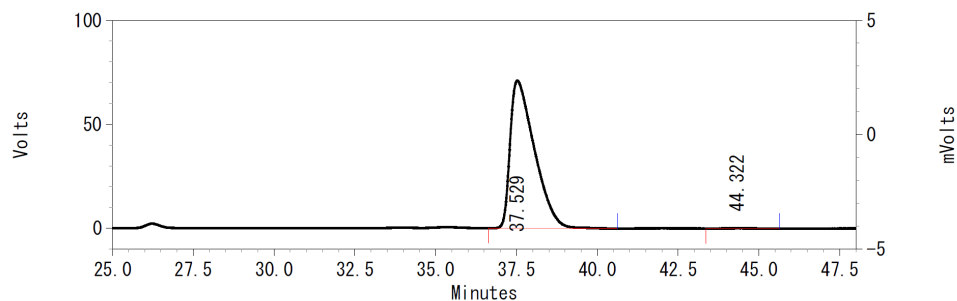
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound (S)-11 (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	37.529	3712840	99.904	71011
2	44.322	3573	0.096	84
Totals		3716413	100.000	71095

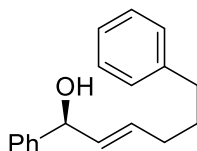
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

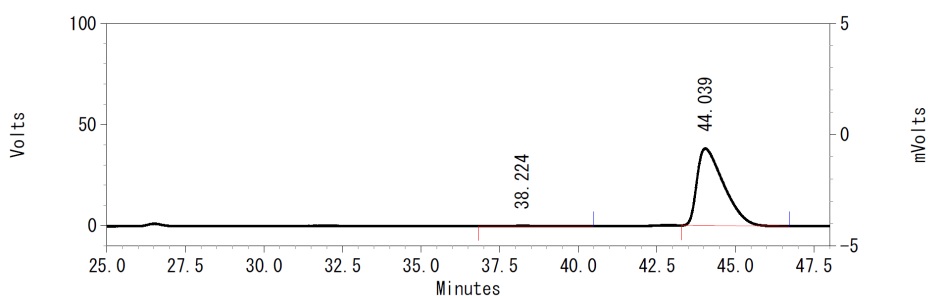
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R)-11 (>99% ee)



UV-970 Results

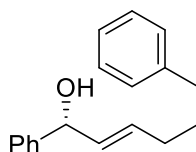
Pk #	Retention Time	Area	Area Percent	Height
1	38.224	7379	0.328	205
2	44.039	2244037	99.672	38117
Totals		2251416	100.000	38322

Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

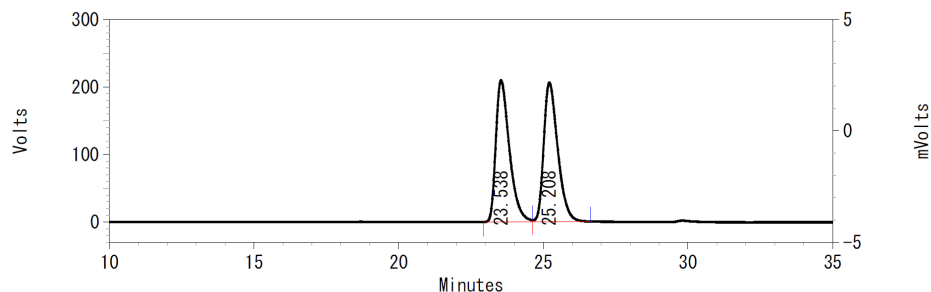
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound 12 (0% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	23.538	6853894	49.715	209558
2	25.208	6932441	50.285	205547

Totals		13786335	100.000	415105
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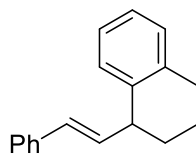
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

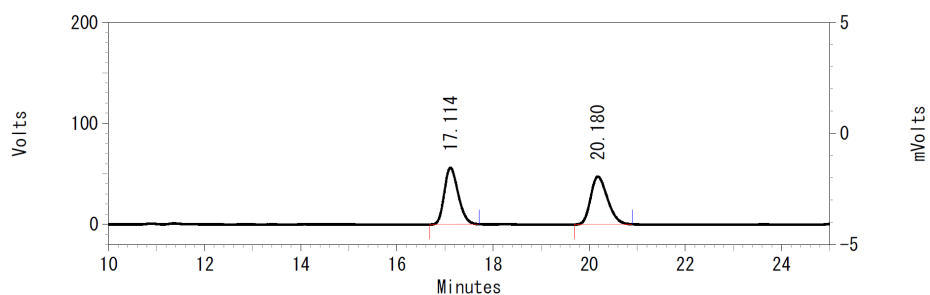
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 13 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.114	1126533	49.394	56088
2	20.180	1154187	50.606	47424

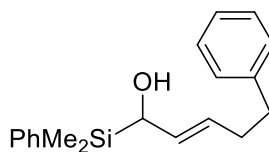
Totals		2280720	100.000	103512
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Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

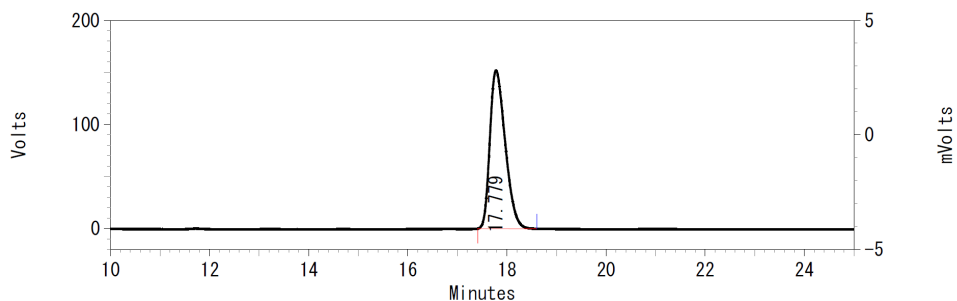
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound (R)-13 (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.779	3269150	100.000	152038

Totals		3269150	100.000	152038
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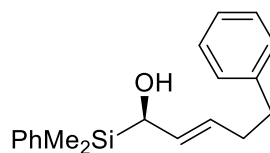
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

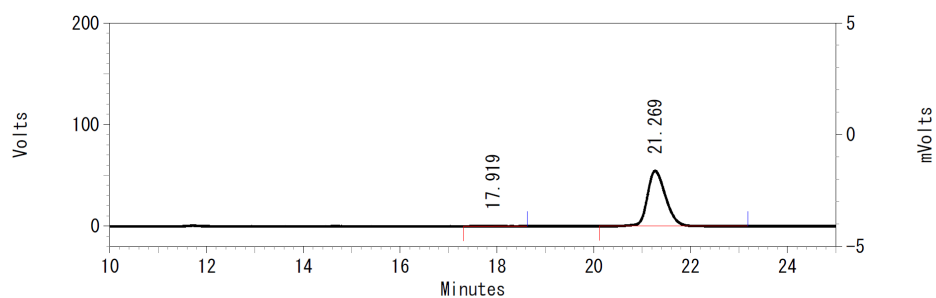
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S)-13 (>99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.919	913	0.064	58
2	21.269	1423361	99.936	54480

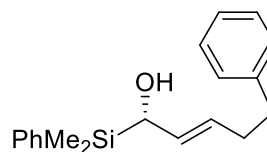
Totals		1424274	100.000	54538
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Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

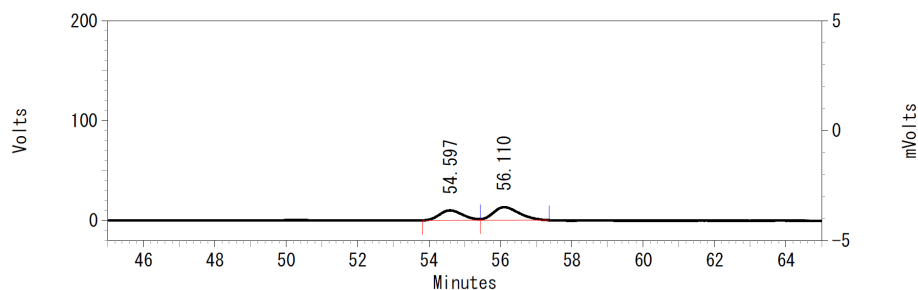
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound 14 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	0.018	82	0.007	56
2	54.597	455510	40.485	9955
3	56.110	669548	59.508	13184

Totals		1125140	100.000	23195
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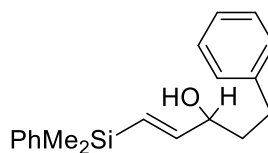
Column: CHIRALCEL OD-H x3

Column size: 0.46 cm × 25 cm

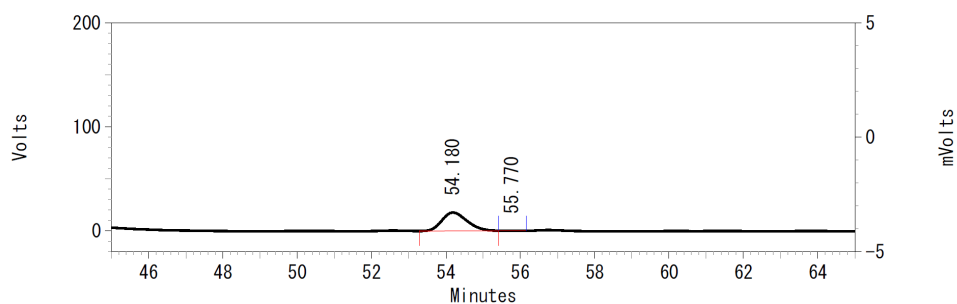
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (S)-14 (99% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	54.180	837147	99.301	17685
2	55.770	5897	0.699	199

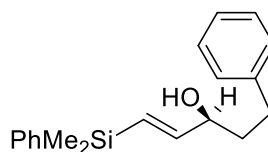
Totals		843044	100.000	17884
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Column: CHIRALCEL OD-H x3

Column size: 0.46 cm × 25 cm

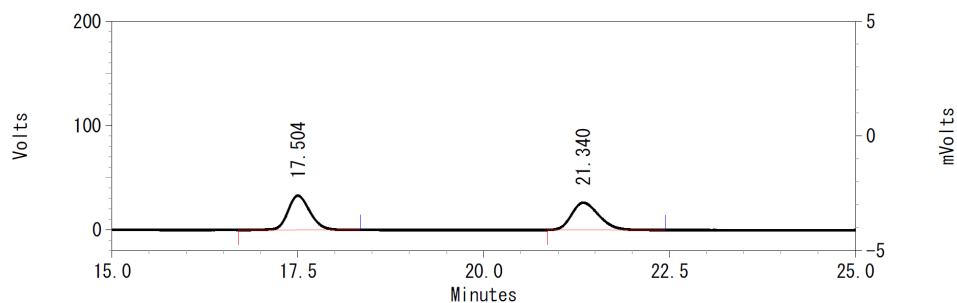
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound 15 (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.504	674042	50.251	32872
2	21.340	667319	49.749	26131
Totals		1341361	100.000	59003

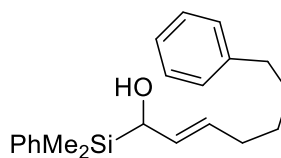
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

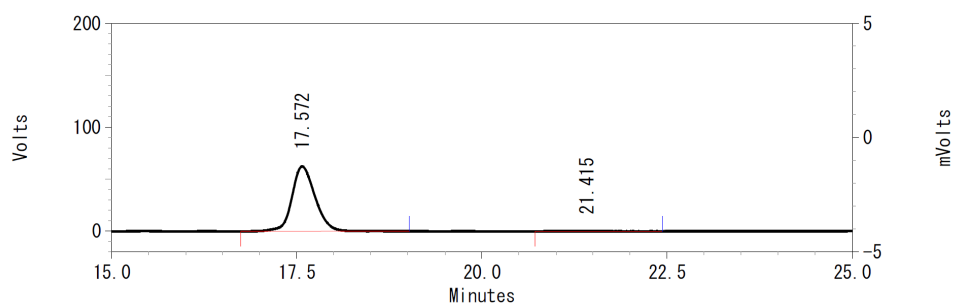
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (R)-15 (>99% ee)



UV-970 Results

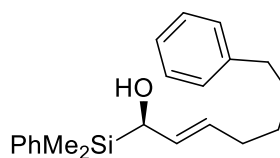
Pk #	Retention Time	Area	Area Percent	Height
1	17.572	1356415	99.895	62346
2	21.415	1423	0.105	41
Totals		1357838	100.000	62387

Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

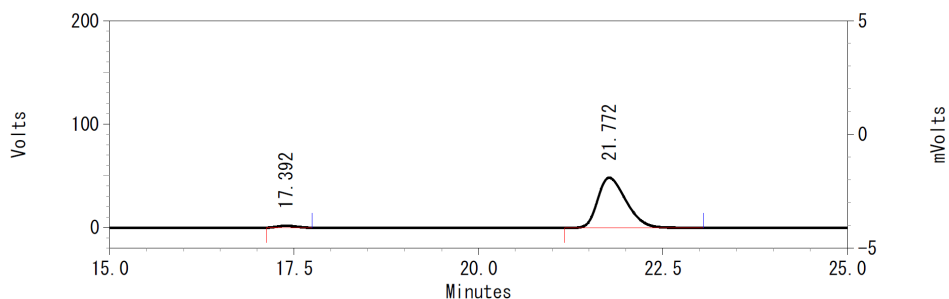
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min



Detect: 254 nm

Compound (S)-15 (95% ee)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	17.392	34348	2.595	1884
2	21.772	1289451	97.405	48438
Totals		1323799	100.000	50322

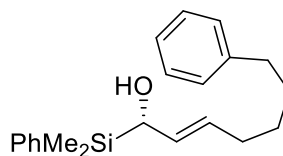
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

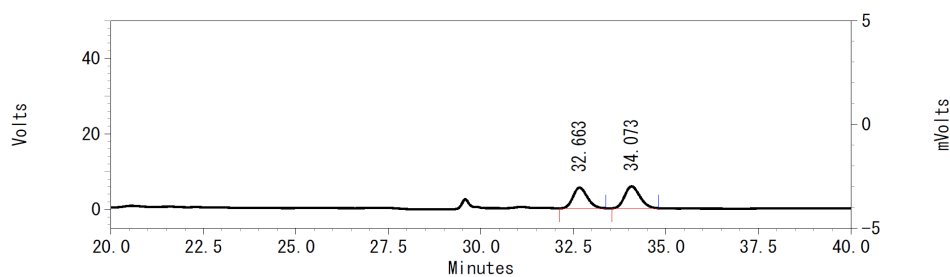
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound of (S)-16 (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	32.663	146186	46.922	5461
2	34.073	165368	53.078	5780
Totals		311554	100.000	11241

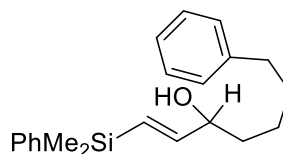
Column: CHIRALPAK AD-H x2

Column size: 0.46 cm × 25 cm

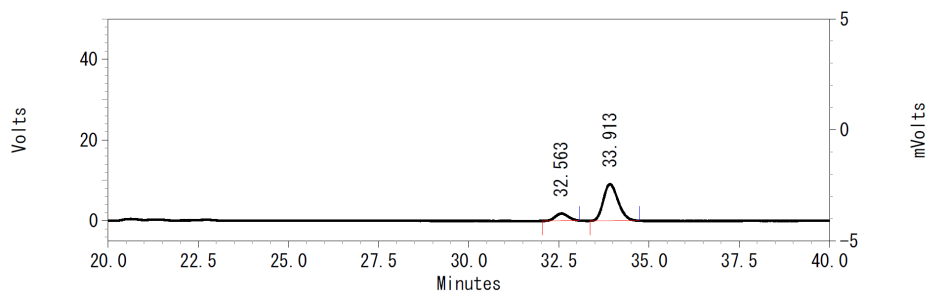
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound of (S)-16 (70% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	32.563	44993	14.858	1798
2	33.913	257817	85.142	9071
Totals		302810	100.000	10869

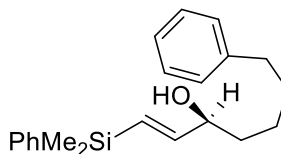
Column: CHIRALPAK AD-H x2

Column size: 0.46 cm × 25 cm

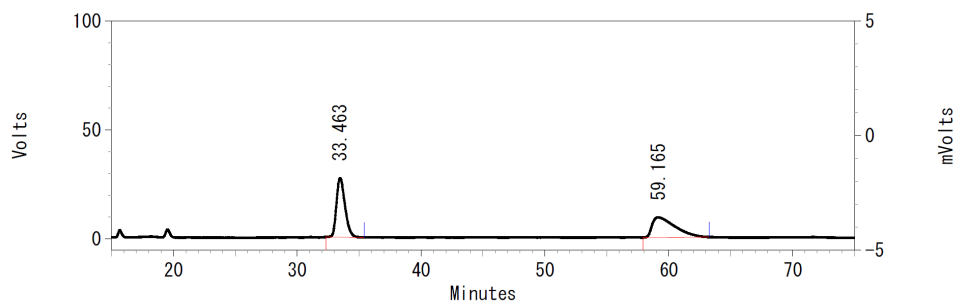
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 3c (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	0.030	46	0.002	25
2	33.463	1298820	52.322	27096
3	59.165	1183472	47.676	9192
Totals		2482338	100.000	36313

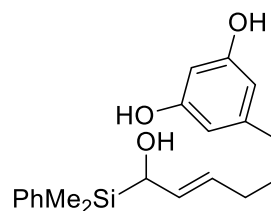
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

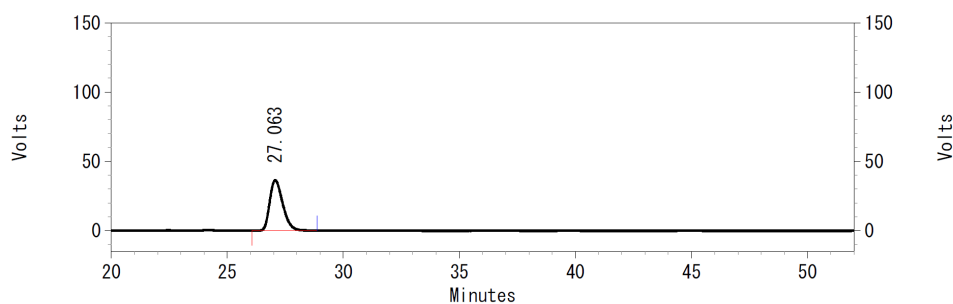
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*R*)-3c (>99% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	27.063	1421786	100.000	36287
Totals		1421786	100.000	36287

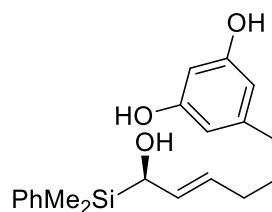
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

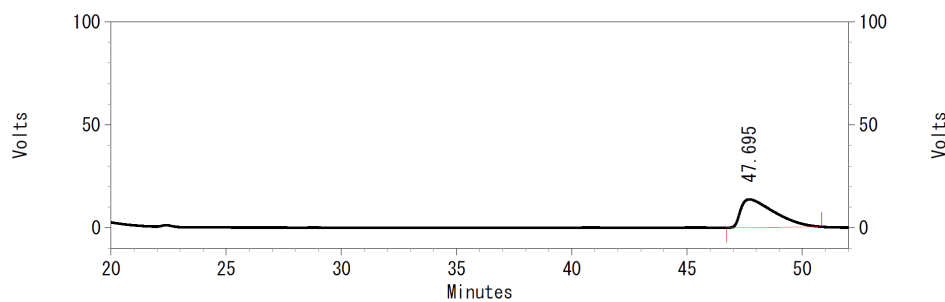
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*S*)-3c (>99% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	47.695	1384610	100.000	13642
Totals		1384610	100.000	13642

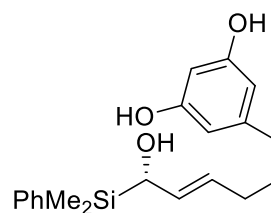
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

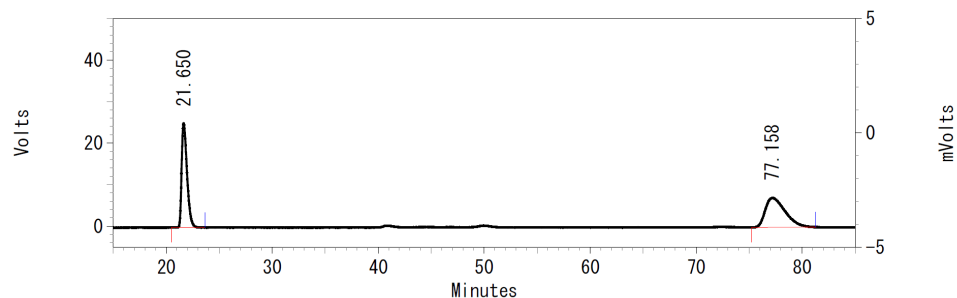
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 4c (racemate)



UV-970 Results

Pk #	Retention Time	Area	Area Percent	Height
1	21.650	883069	49.037	25025
2	77.158	917744	50.963	7058

Totals		1800813	100.000	32083
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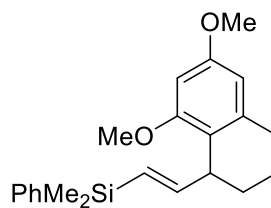
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

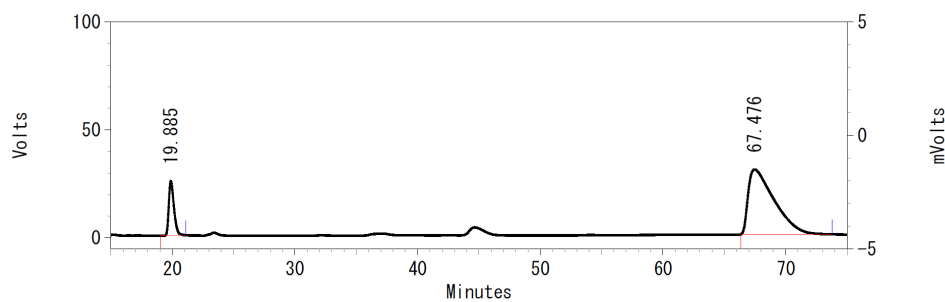
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 4c (72% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	19.885	733443	14.234	25197
2	67.476	4419280	85.766	30026

Totals		5152723	100.000	55223
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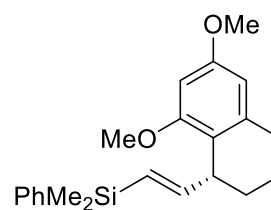
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

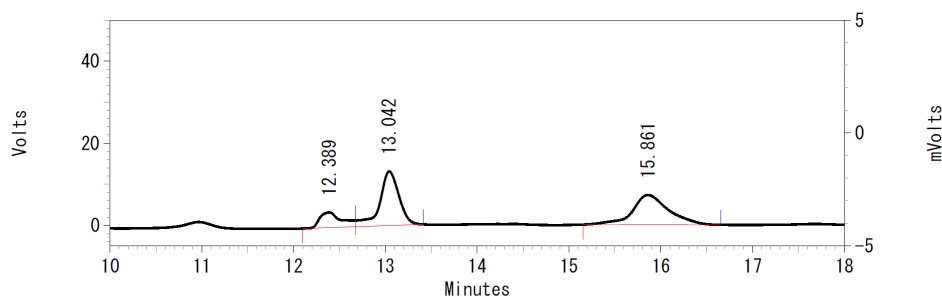
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 3d (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	12.389	61885	13.603	3706
2	13.042	193637	42.563	13190
3	15.861	199415	43.834	7261

Totals		454937	100.000	24157
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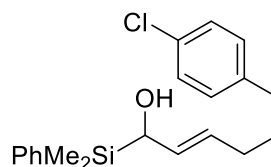
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

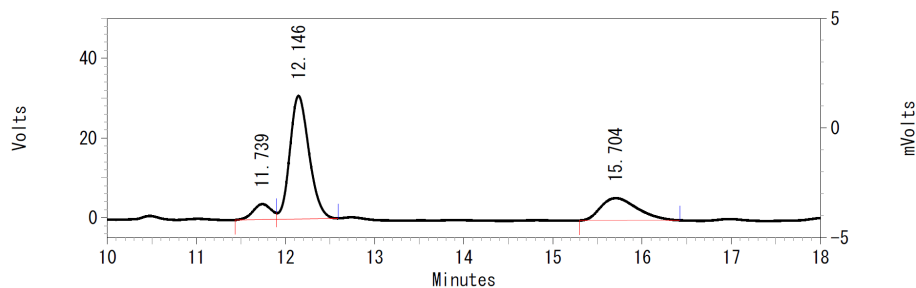
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*R*)-3d (49% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	11.739	54748	8.078	3875
2	12.146	463106	68.333	30847
3	15.704	159863	23.588	5581

Totals		677717	100.000	40303
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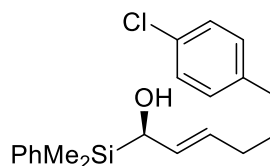
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

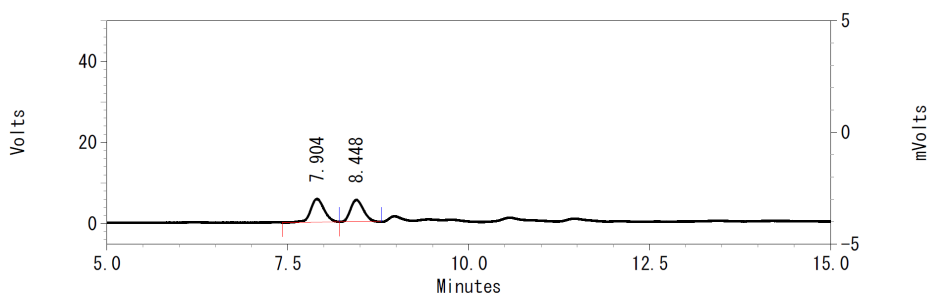
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 4d (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	7.904	72865	52.021	5665
2	8.448	67204	47.979	5380
Totals		140069	100.000	11045

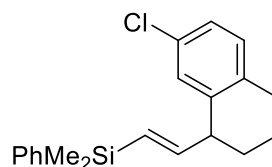
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

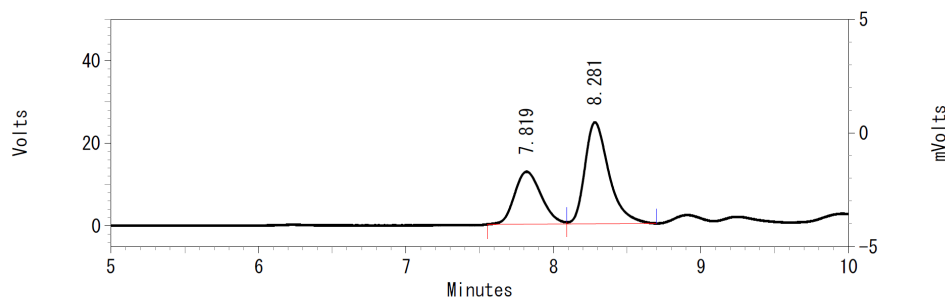
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 4d (27% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	7.819	158979	36.338	12679
2	8.281	278517	63.662	24552
Totals		437496	100.000	37231

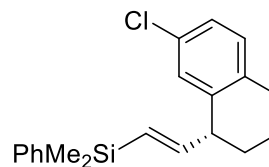
Column: CHIRALCEL OD-H

Column size: 0.46 cm × 25 cm

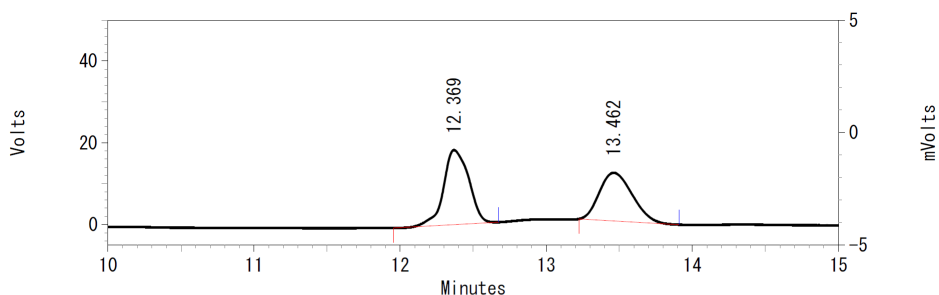
Eluent: *n*-hexane

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 3e (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	12.369	217907	54.199	18221
2	13.462	184141	45.801	11770
Totals		402048	100.000	29991

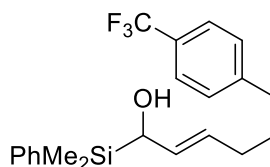
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

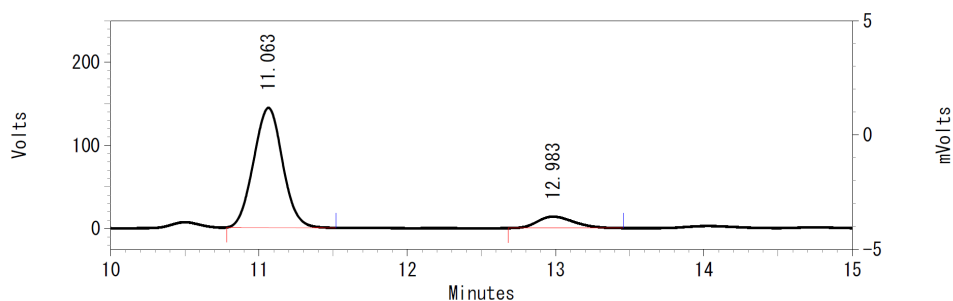
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*R*)-3e (78% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	11.063	1958640	89.167	143920
2	12.983	237967	10.833	13877
Totals		2196607	100.000	157797

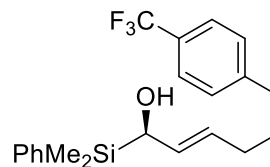
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

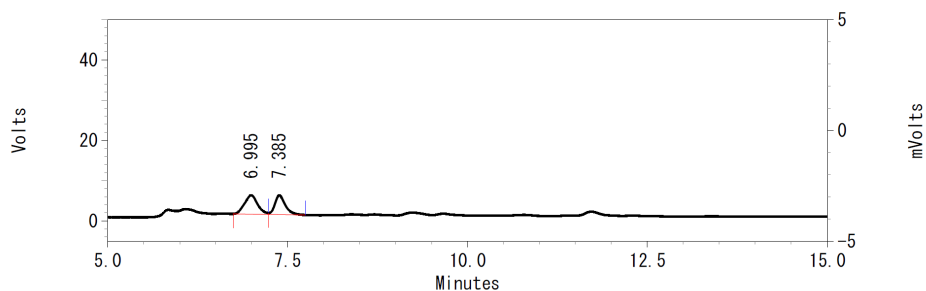
Eluent: *n*-hexane/EtOH = 50/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound 3f (racemate)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	6.995	59537	55.217	4698
2	7.385	48286	44.783	4791
Totals		107823	100.000	9489

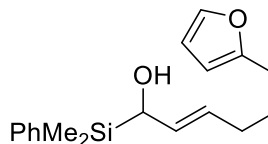
Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

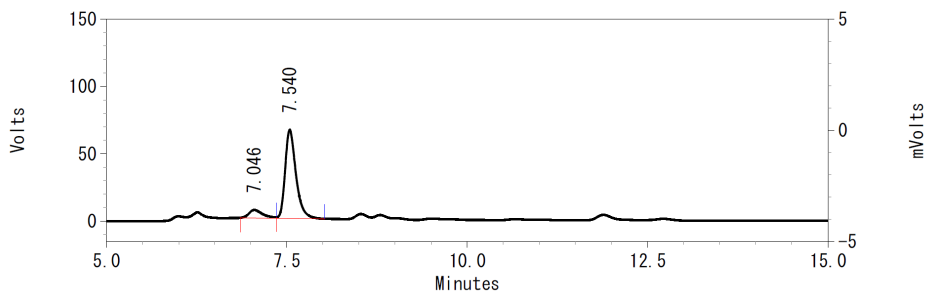
Eluent: *n*-hexane/*i*PrOH = 19/1

Flow rate: 0.5 mL/min

Detect: 254 nm



Compound (*R*)-3f (80% ee)



UV Results

Pk #	Retention Time	Area	Area Percent	Height
1	7.046	79564	10.376	5983
2	7.540	687263	89.624	65746
Totals		766827	100.000	71729

Column: CHIRALPAK AD-H

Column size: 0.46 cm × 25 cm

Eluent: *n*-hexane/*i*PrOH = 19/1

Flow rate: 0.5 mL/min

Detect: 254 nm

