Electronic Supplementary Material (ESI) for ChemComm.

Visible-Light-Induced Chemoselective Reductive Decarboxylative Alkynylation under Biomolecule-Compatible Conditions

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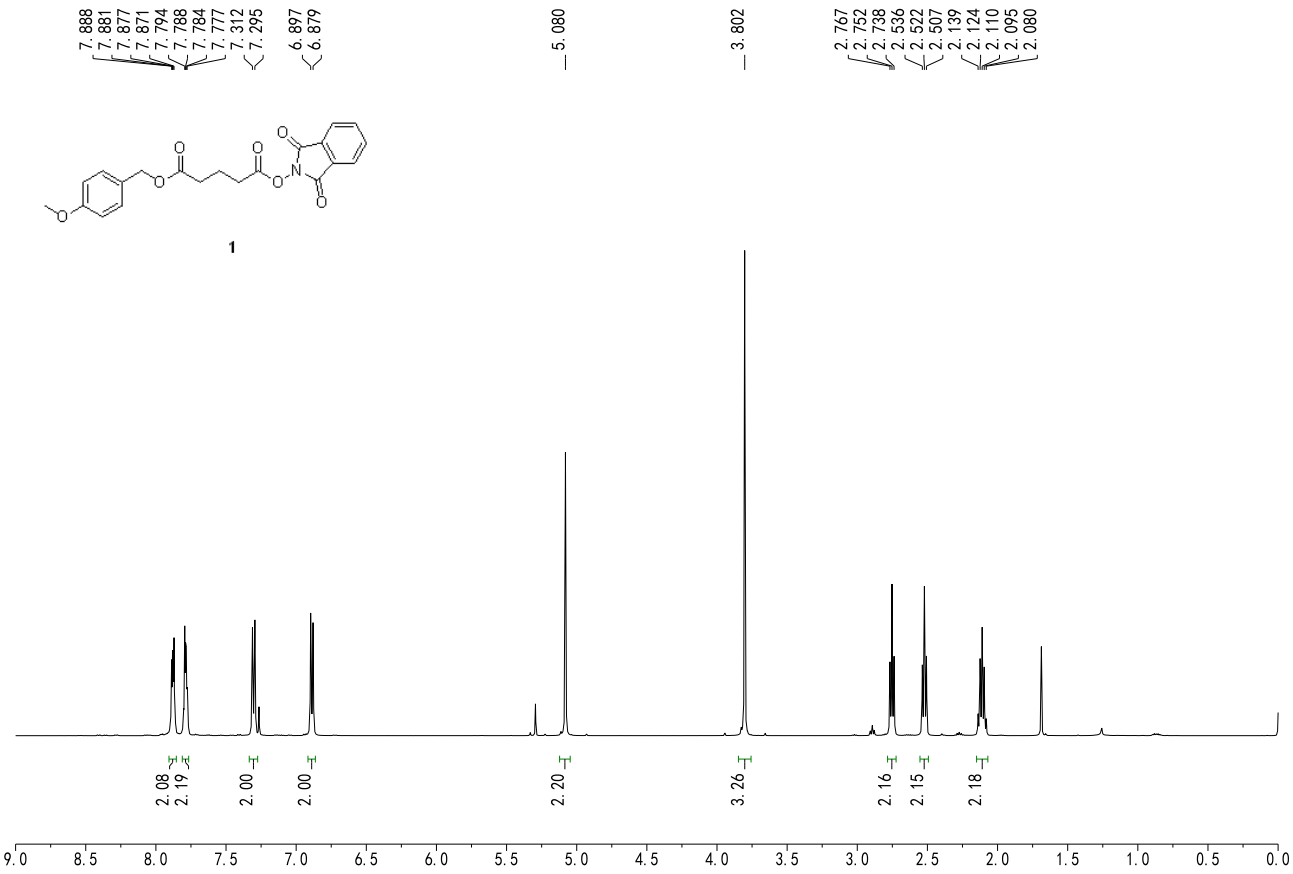
Supplementary Information

NMR Spectra of New Compounds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7.881
7.877
7.871
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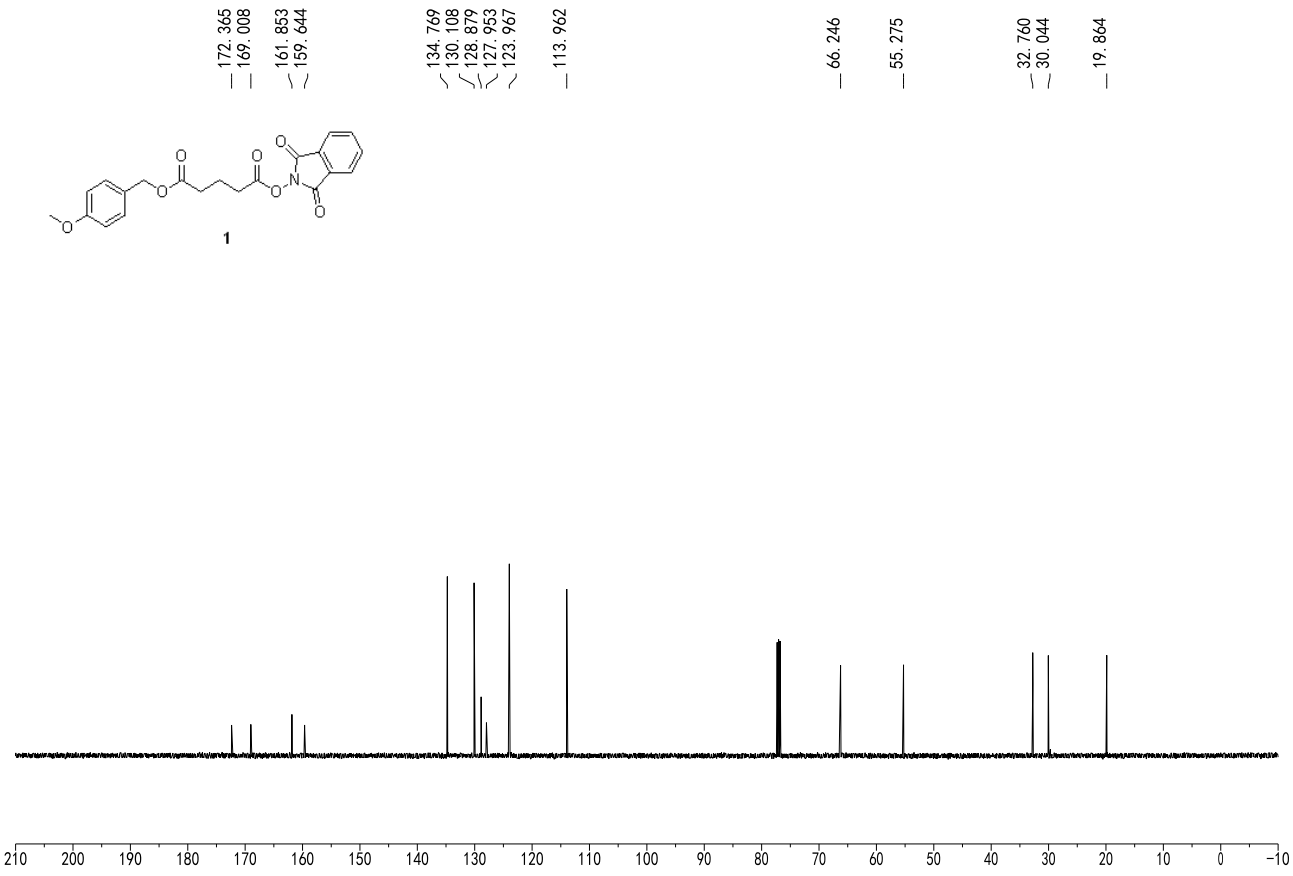
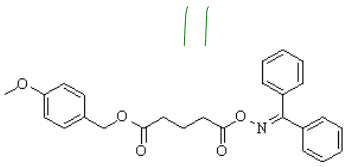
7.788
7.784
7.777
7.312
7.295
6.897
6.879
5.080
3.802
2.767
2.752
2.738
2.536
2.522
2.507
2.139
2.124
2.110
2.095
2.080
1
2.08
2.19
2.00
2.00
2.20
3.26
2.16
2.15
2.18
9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0


172.365
169.008
161.853
159.644
134.769
130.108
128.879
127.953
123.967
113.962
66.246
55.275
32.760
30.044
19.864
1
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10

2012310YJ-13-64- H C.10.fid



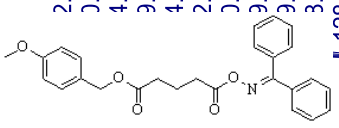
1-oxime

f1 (ppm)

2012310YJ-13-64- H C.11.fid

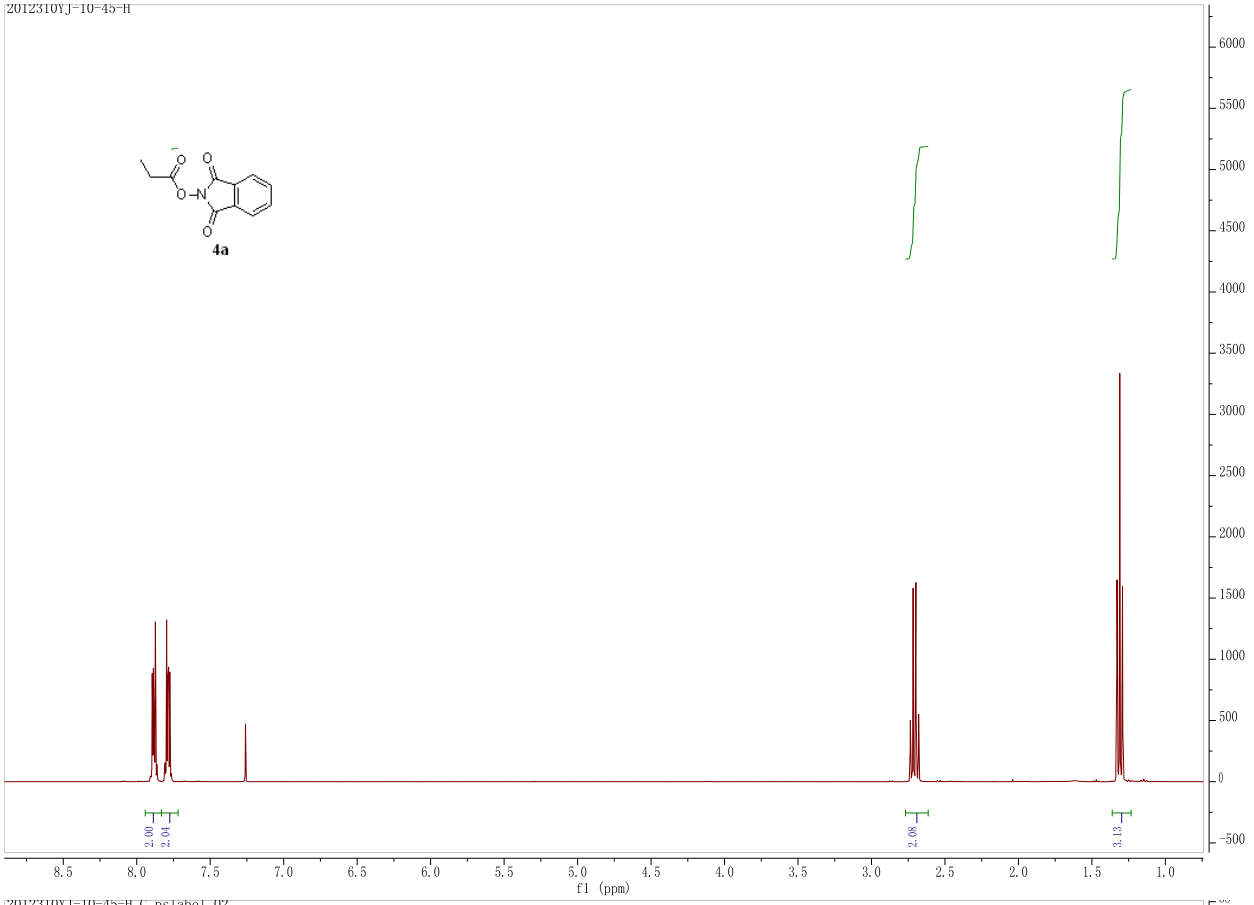
2.357
0.152
4.770
3.394
4.431
2.296
0.710
3.805
3.388
3.760
128.451
128.162
128.129
128.001
127.797
113.706

77.317 CDCl3
76.999 CDCl3
76.680 CDCl3
65.806
55.006
32.885
31.722
19.616



1-oxime

f1 (ppm)


2012310YJ-10-45-H
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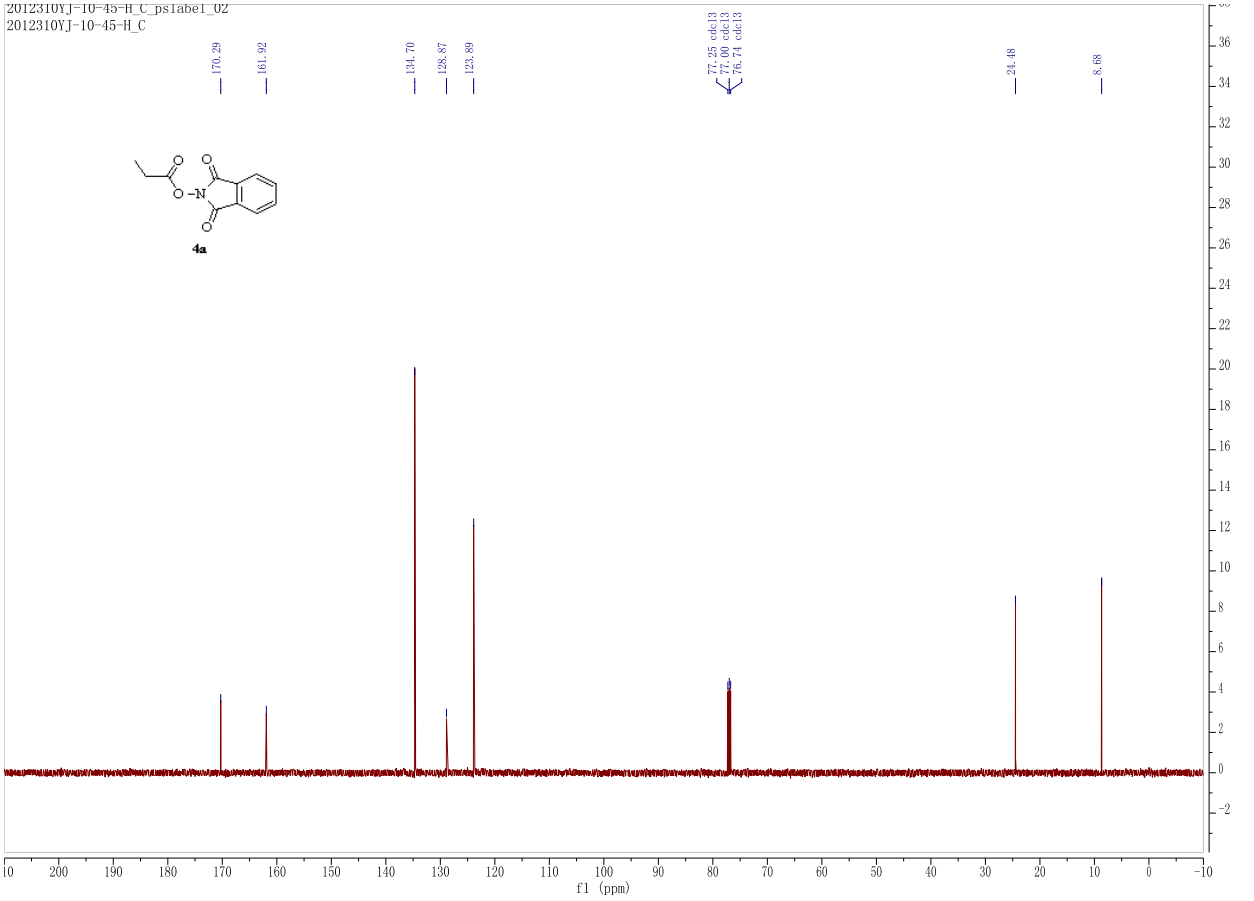
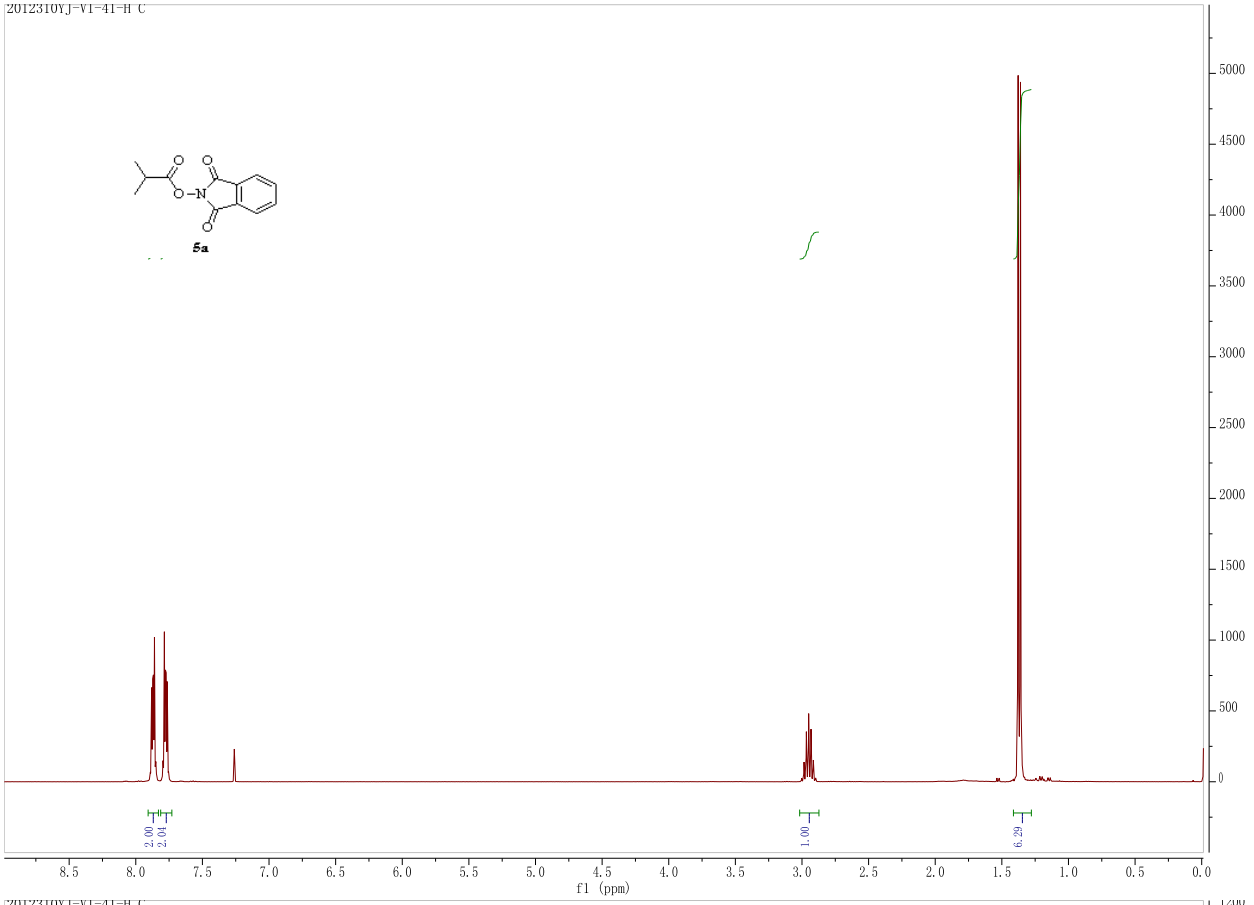
2.04
2.08
3.13
f1 (ppm)


2012310YJ-10-45-H_C_ps1abel_02
2012310YJ-10-45-H_C
170.29
161.92
134.70
128.87
123.89
77.25 cdcl3
77.00 cdcl3
76.74 cdcl3
24.48
8.68
4a
f1 (ppm)


2012310YJ-V1-41-H C
5a
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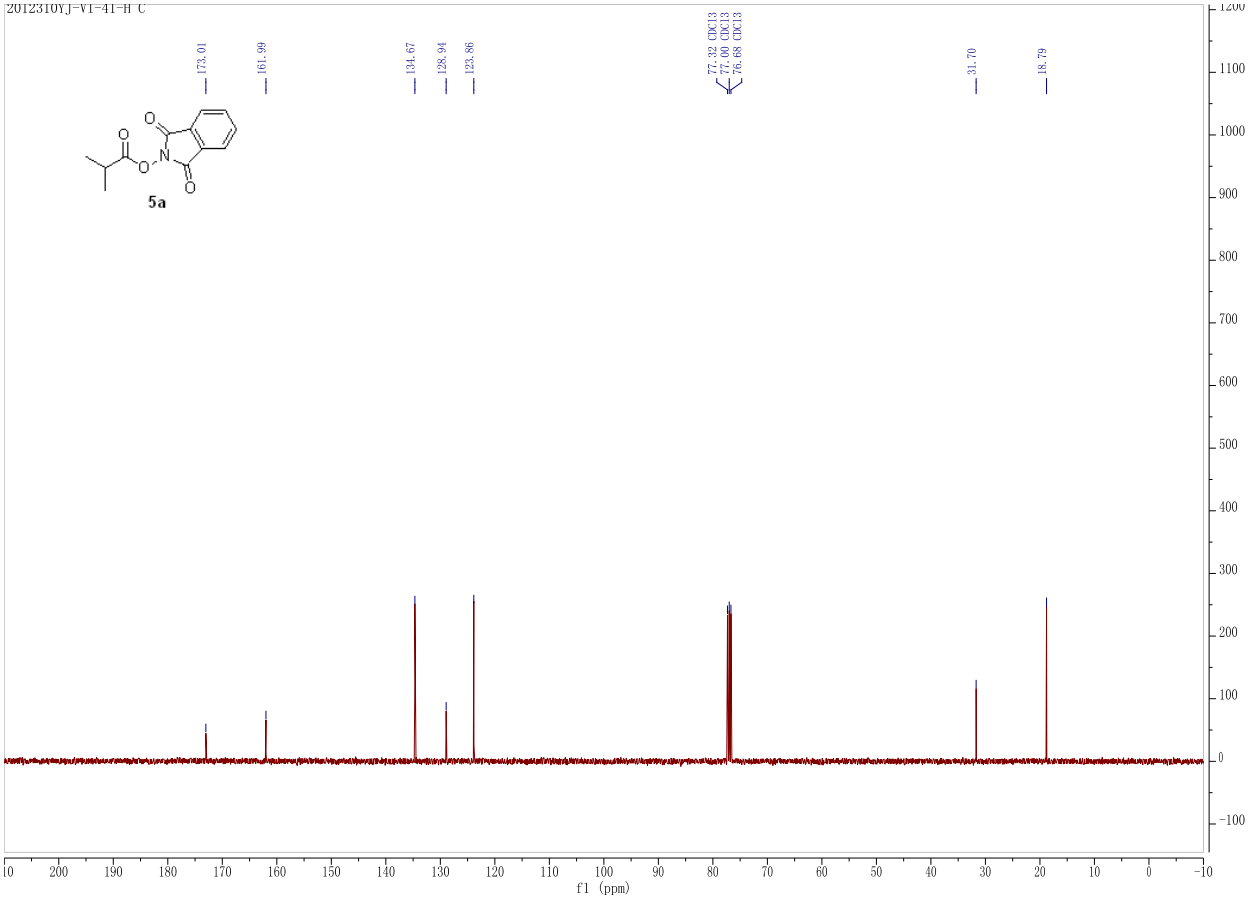
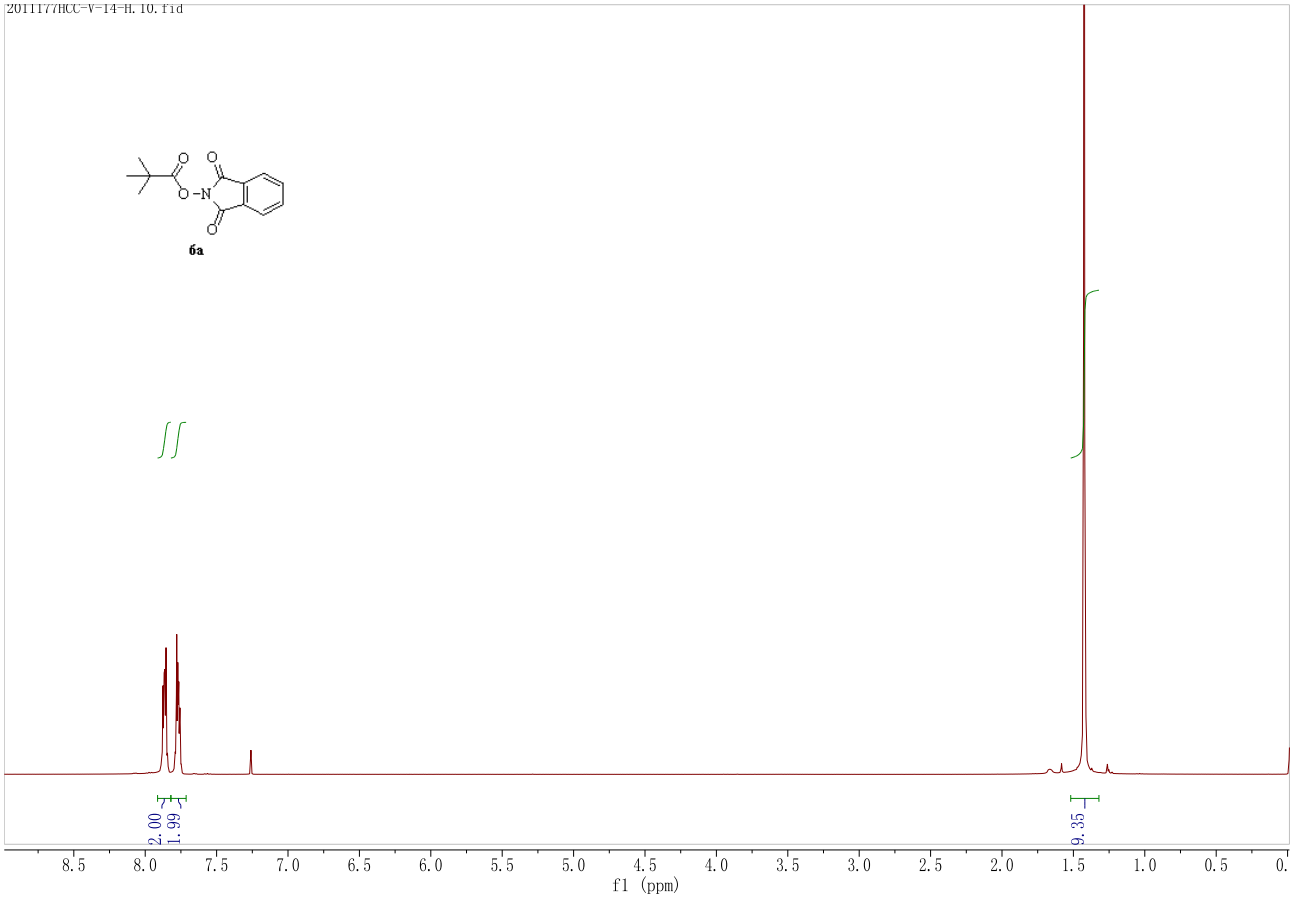
2.04
1.00
6.29
f1 (ppm)


2012310YJ-V1-41-H C
173.01
161.99
134.67
128.94
123.86
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
31.70
18.79
5a
f1 (ppm)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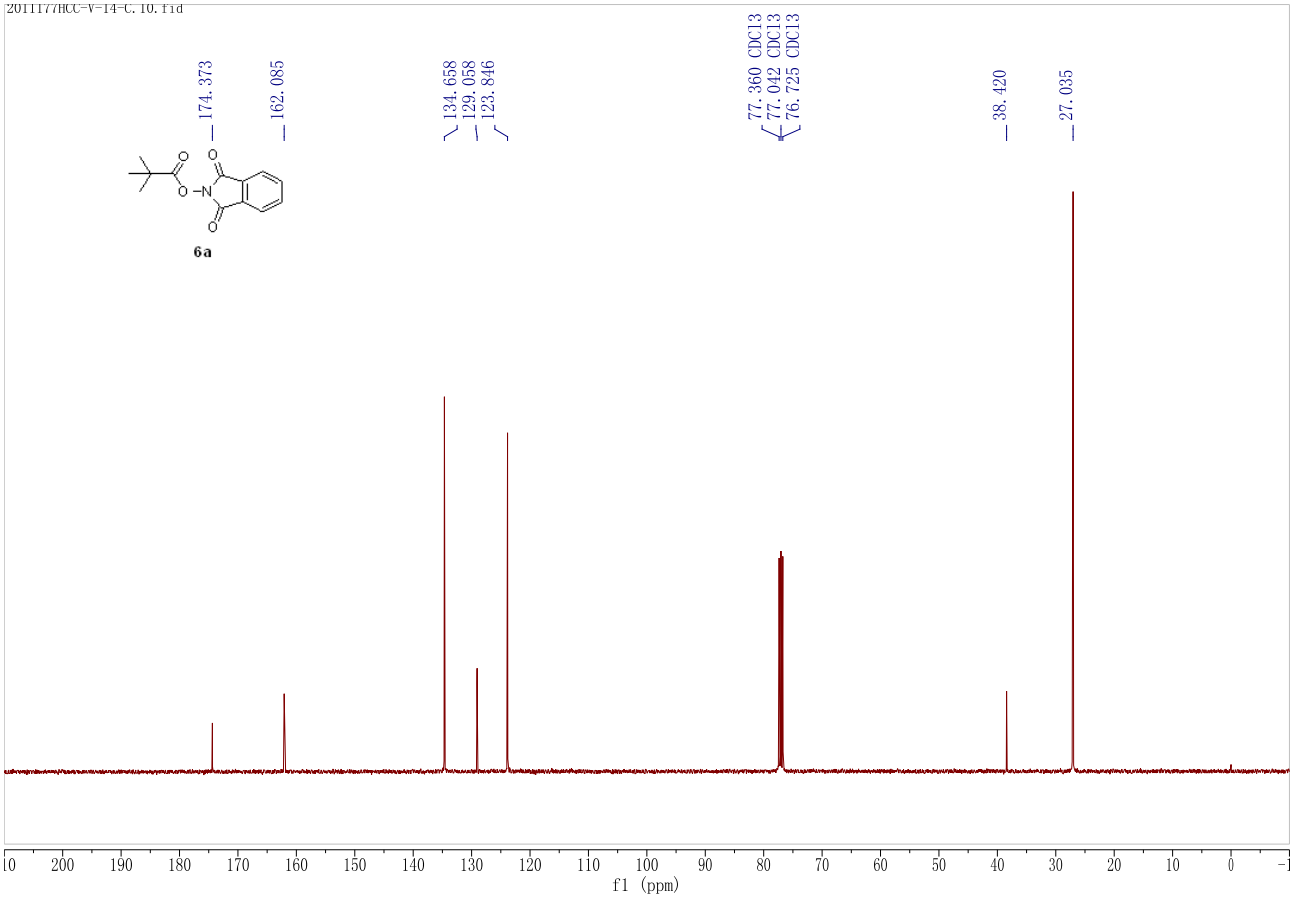
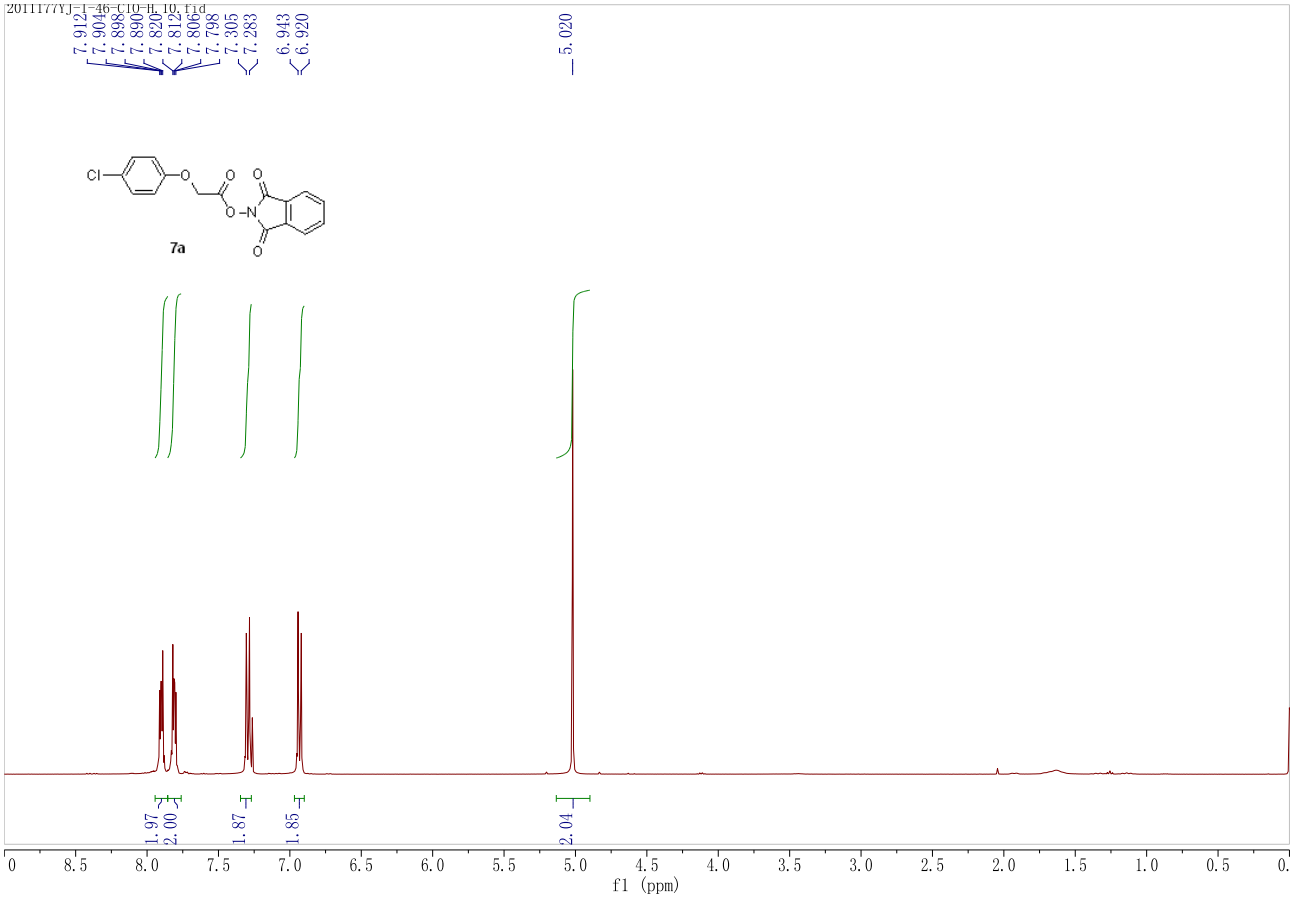
1.99
9.35
f1 (ppm)


2011177HCC-V-14-C. 10. fid
174.373
162.085
134.658
129.058
123.846
77.360 CDCl3
77.042 CDCl3
76.725 CDCl3
38.420
27.035
6a
f1 (ppm)


20111177YJ-1-46-C10-H.10.fid
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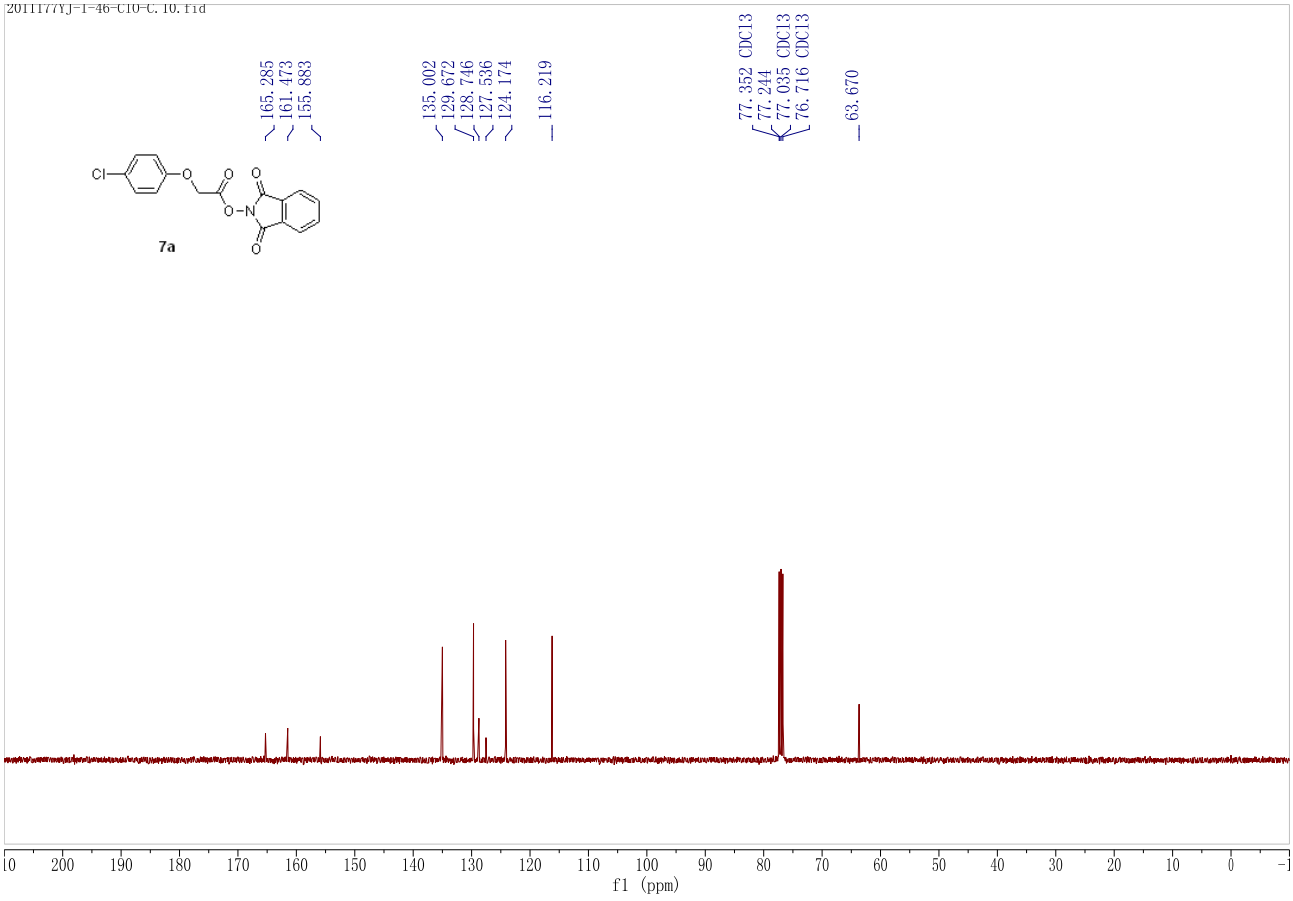
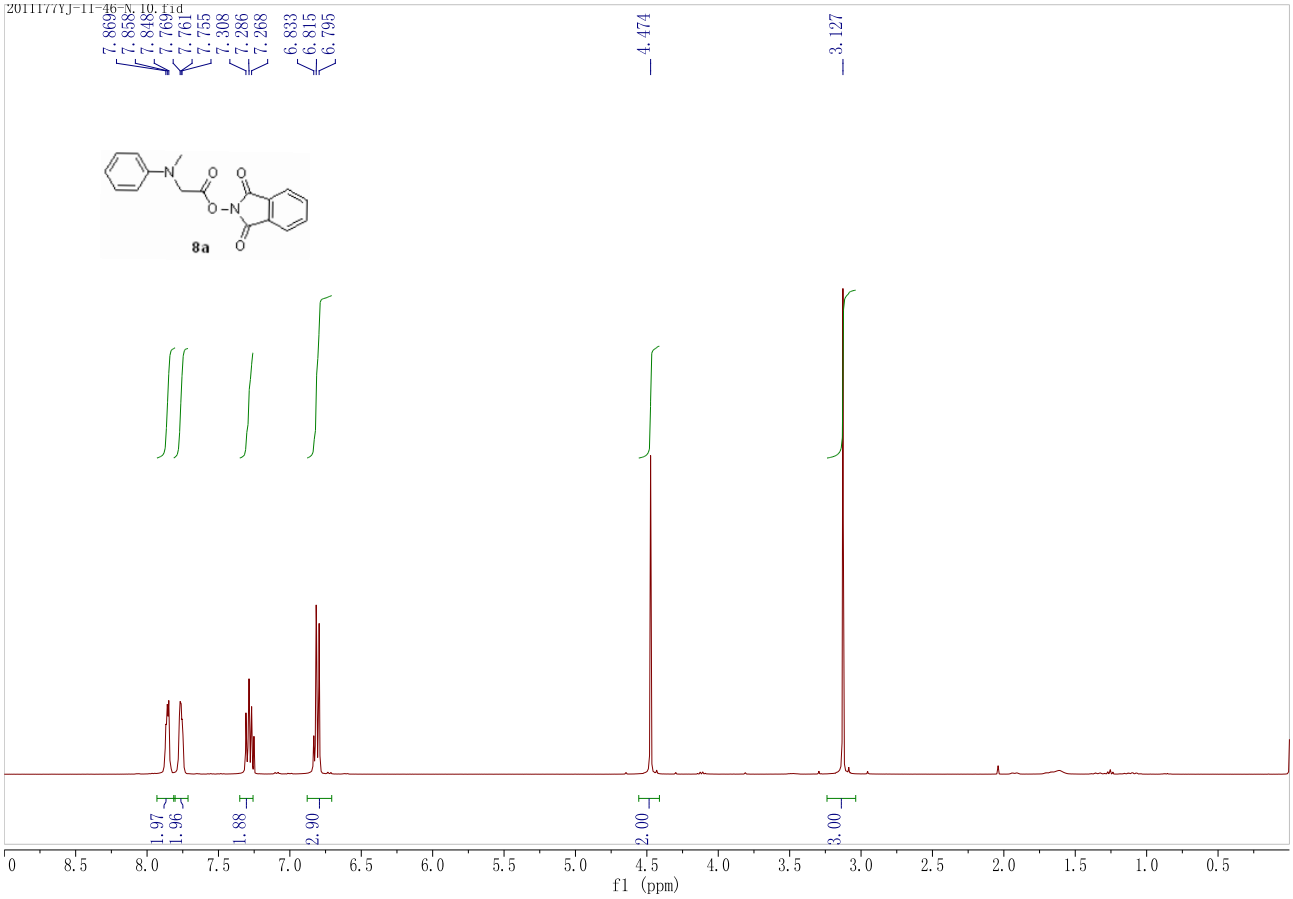
7.904
7.898
7.890
7.820
7.812
7.806
7.798
7.305
7.283
6.943
6.920
5.020
Cl
O
O
O
O
N
O
7a
1.97
2.00
1.87
1.85
2.04
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)


20111177YJ-1-46-C10-C.10.fid
165.285
161.473
155.883
135.002
129.672
128.746
127.536
124.174
116.219
77.352 CDCl3
77.244
77.035 CDCl3
76.716 CDCl3
63.670
Cl
O
O
O
O
N
O
7a
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-1
f1 (ppm)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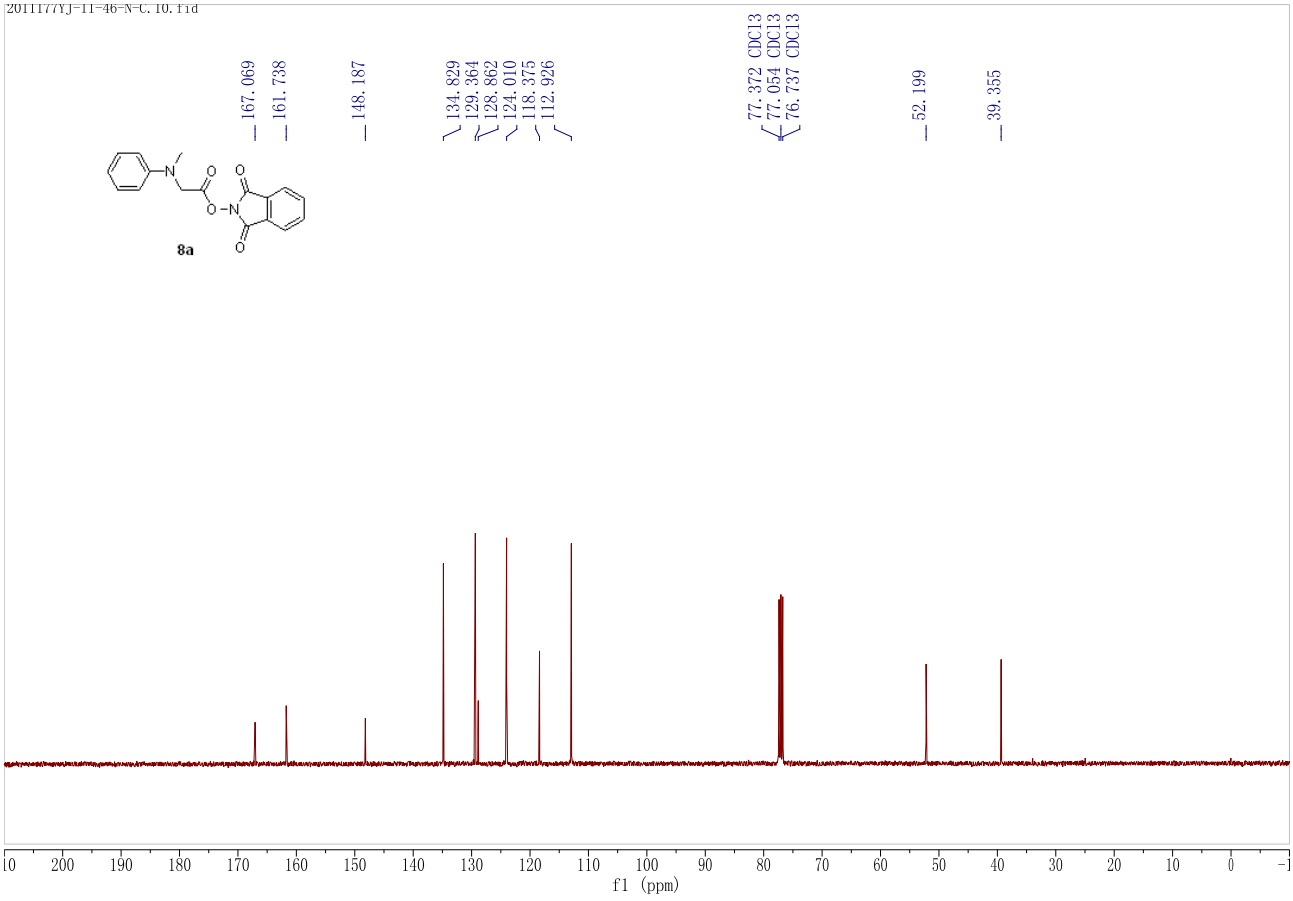
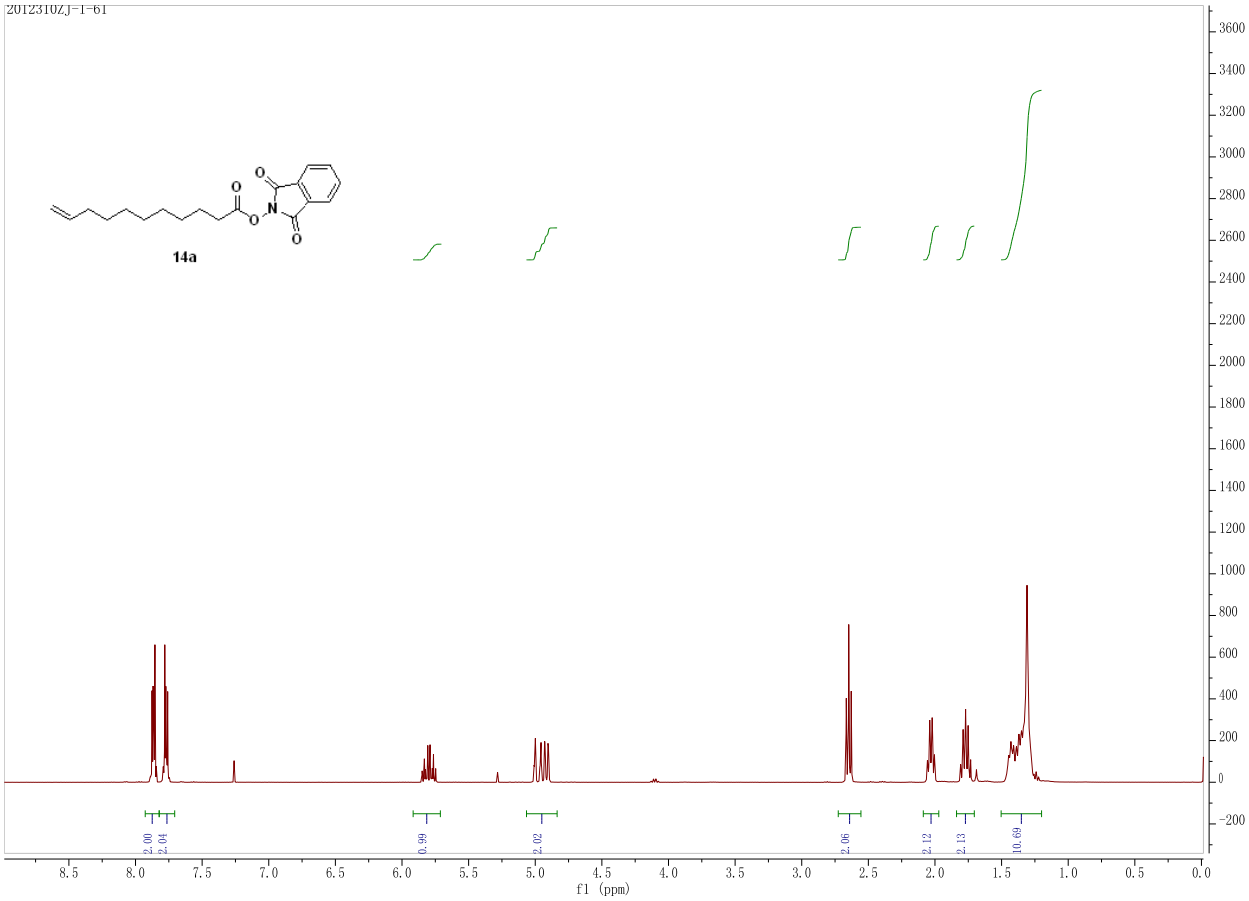
7.848
7.769
7.761
7.755
7.308
7.286
7.268
6.833
6.815
6.795
4.474
3.127
8a
1.97
1.96
1.88
2.90
2.00
3.00
f1 (ppm)


20111177YJ-11-46-N-C.10.1r1d
167.069
161.738
148.187
134.829
129.364
128.862
124.010
118.375
112.926
77.372 CDCl3
77.054 CDCl3
76.737 CDCl3
52.199
39.355
8a
f1 (ppm)


20121310ZJ-1-61
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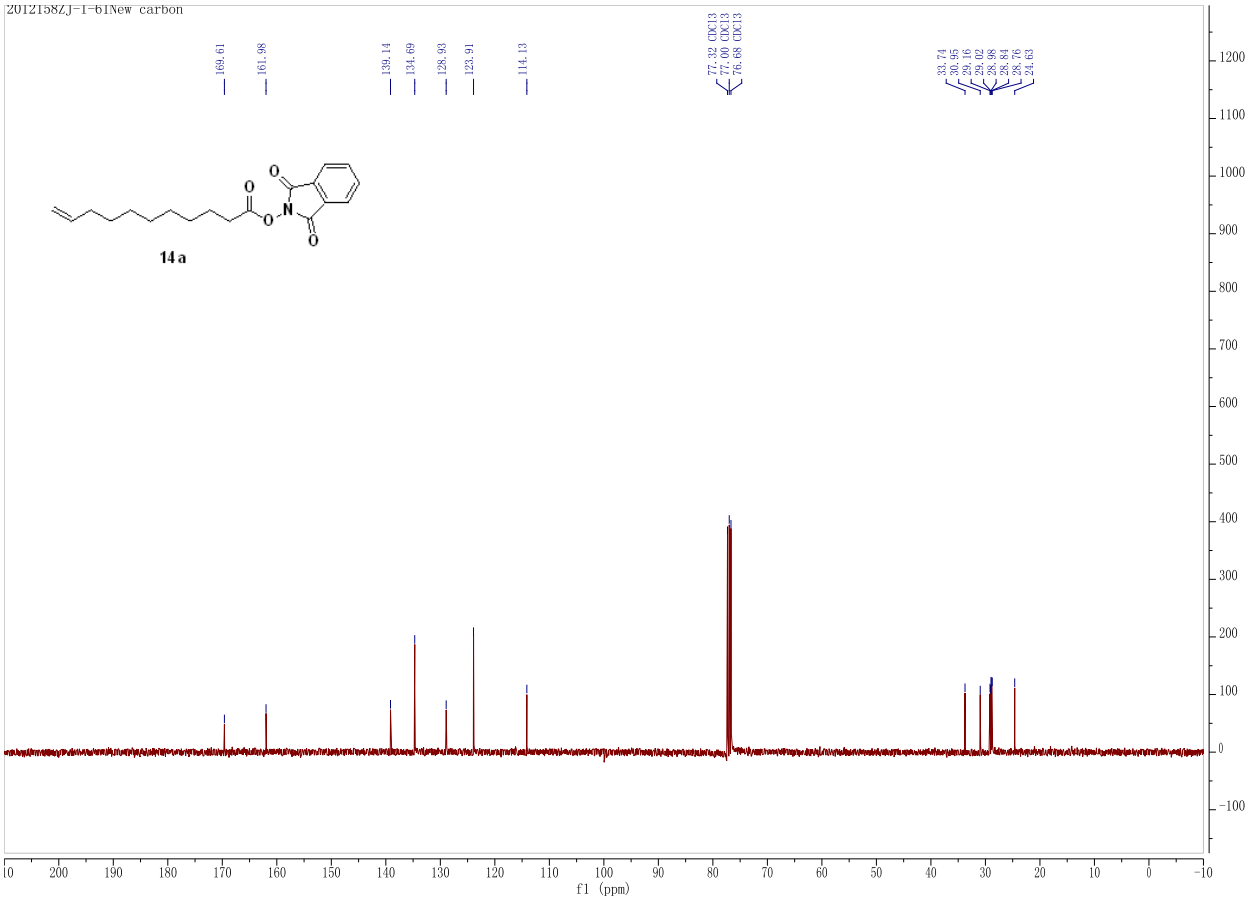
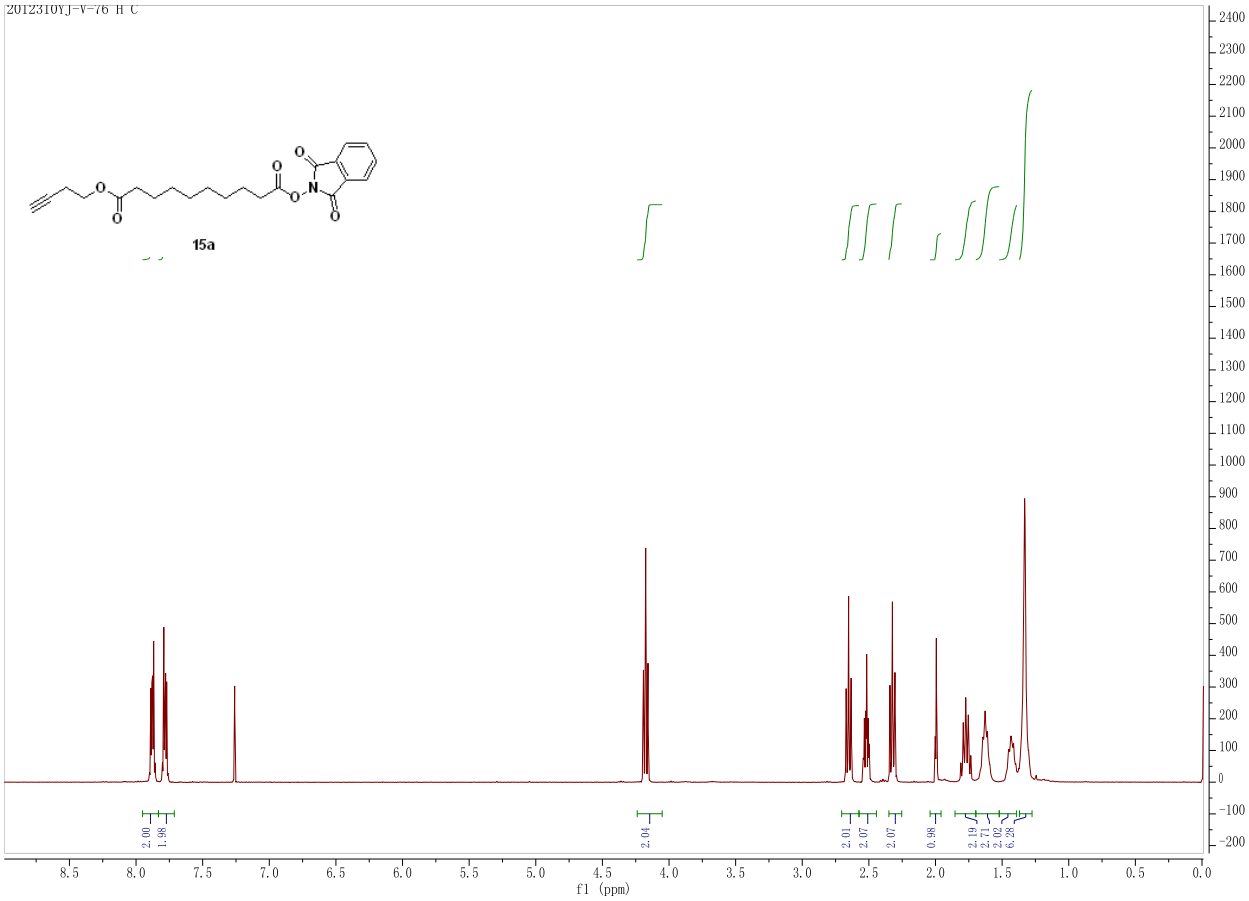
2.06
2.12
2.13
10.69
f1 (ppm)


20121158ZJ-1-61New carbon
169.61
161.98
139.14
134.69
128.93
123.91
114.13
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
33.74
30.95
29.16
29.02
28.98
28.84
28.76
24.63
14a
f1 (ppm)


20120310YJ-V-76 H C
15a
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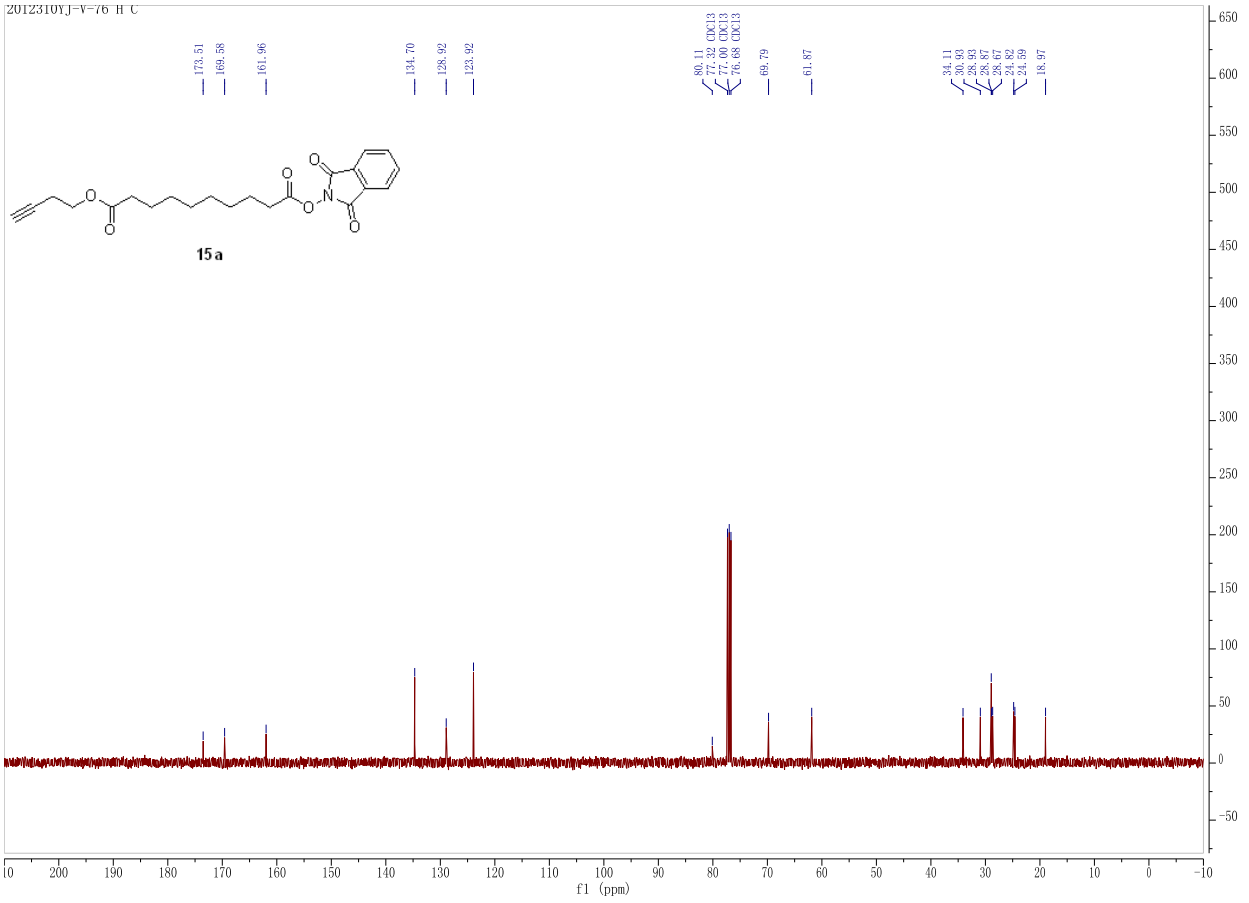
1.98
2.04
2.01
2.07
2.07
0.98
2.19
2.11
2.02
6.28
f1 (ppm)


20120310YJ-V-76 H C
173.51
169.58
161.96
134.70
128.92
123.92
80.11
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
69.79
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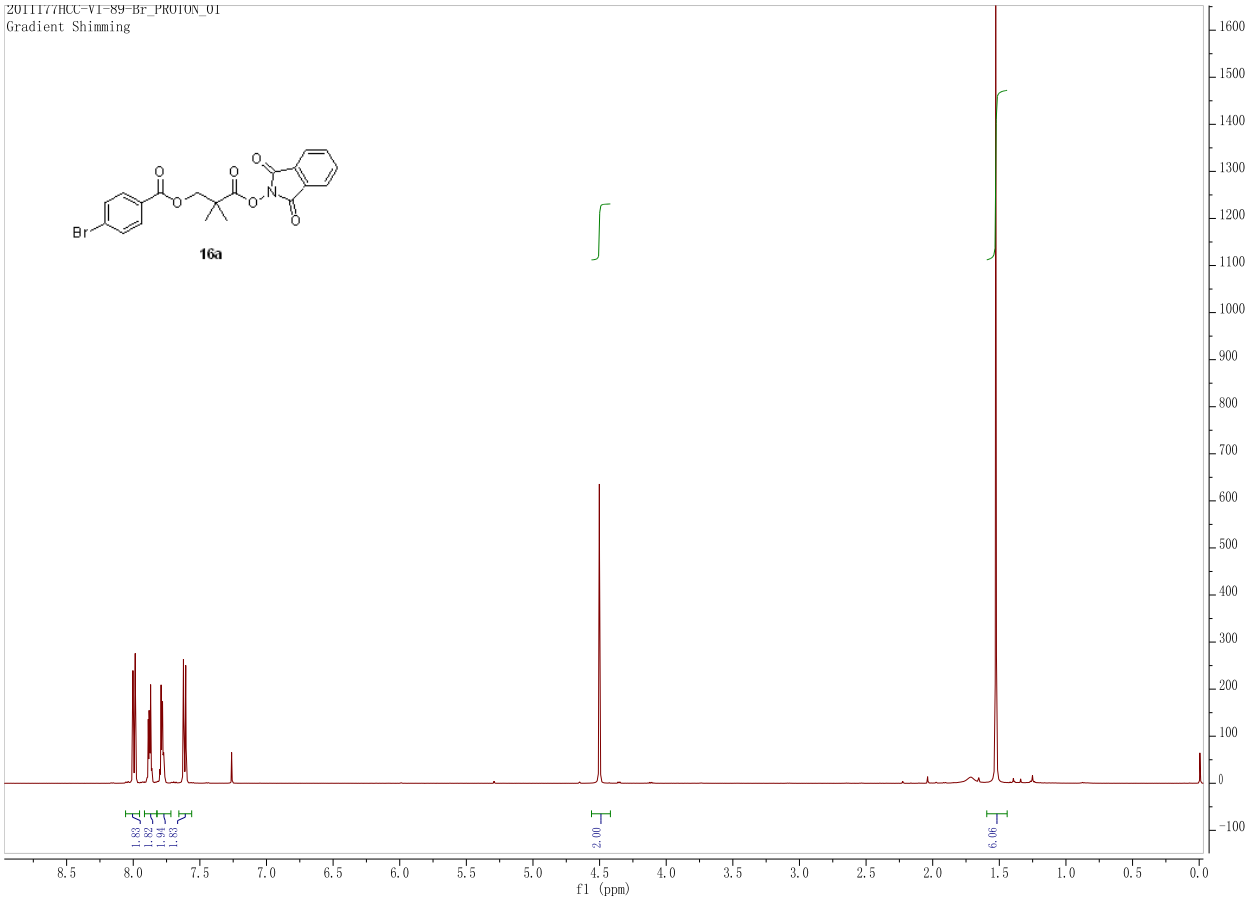
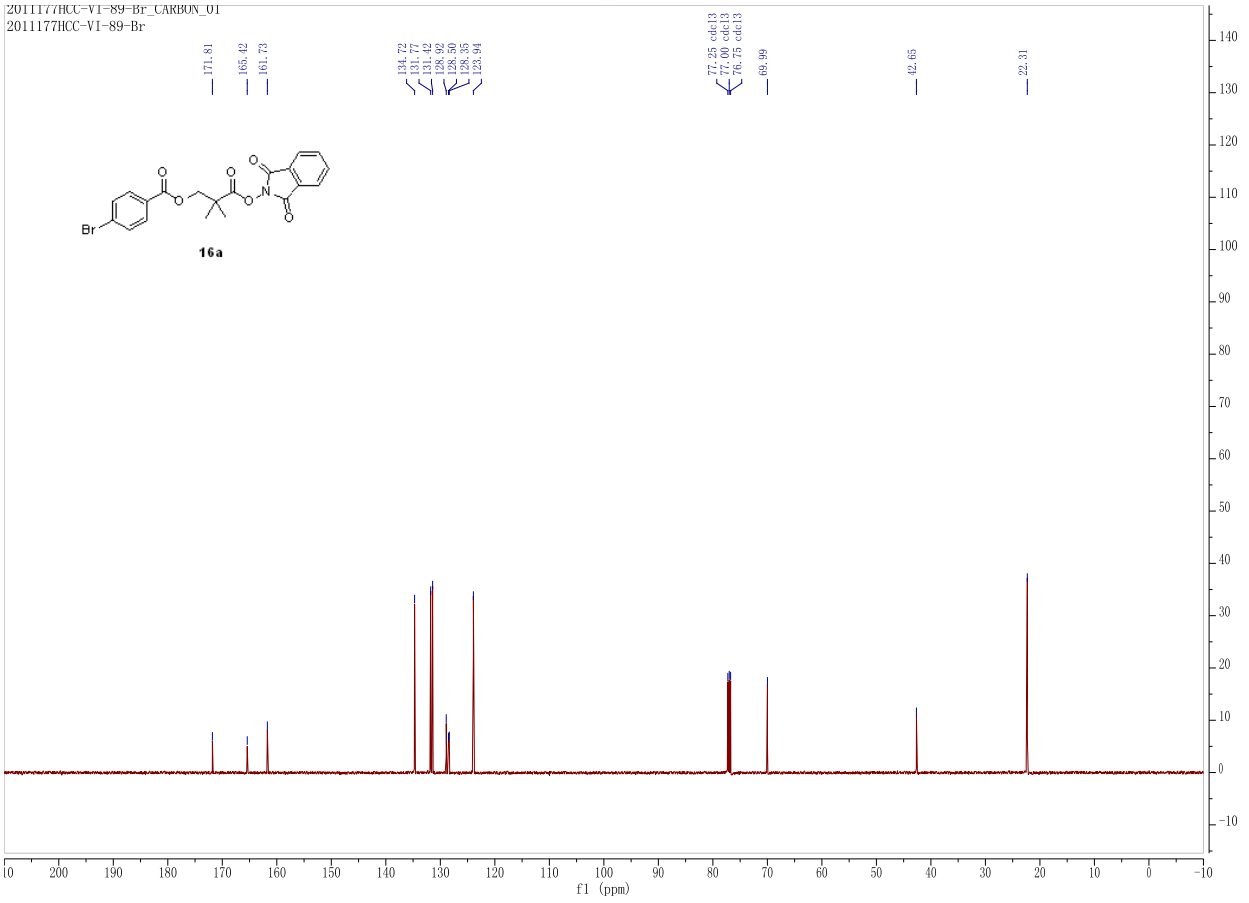
30.93
28.93
28.87
28.67
24.82
24.59
18.97
15a
f1 (ppm)


2011177HCC-VI-89-Br_PROTON_01
Gradient Shimming
Br
16a
1.83
1.82
1.94
1.83
2.00
6.06
f1 (ppm)


2011177HCC-VI-89-Br_CARBON_01
2011177HCC-VI-89-Br
171.81
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161.73
134.72
131.77
131.42
128.98
128.50
128.35
123.94
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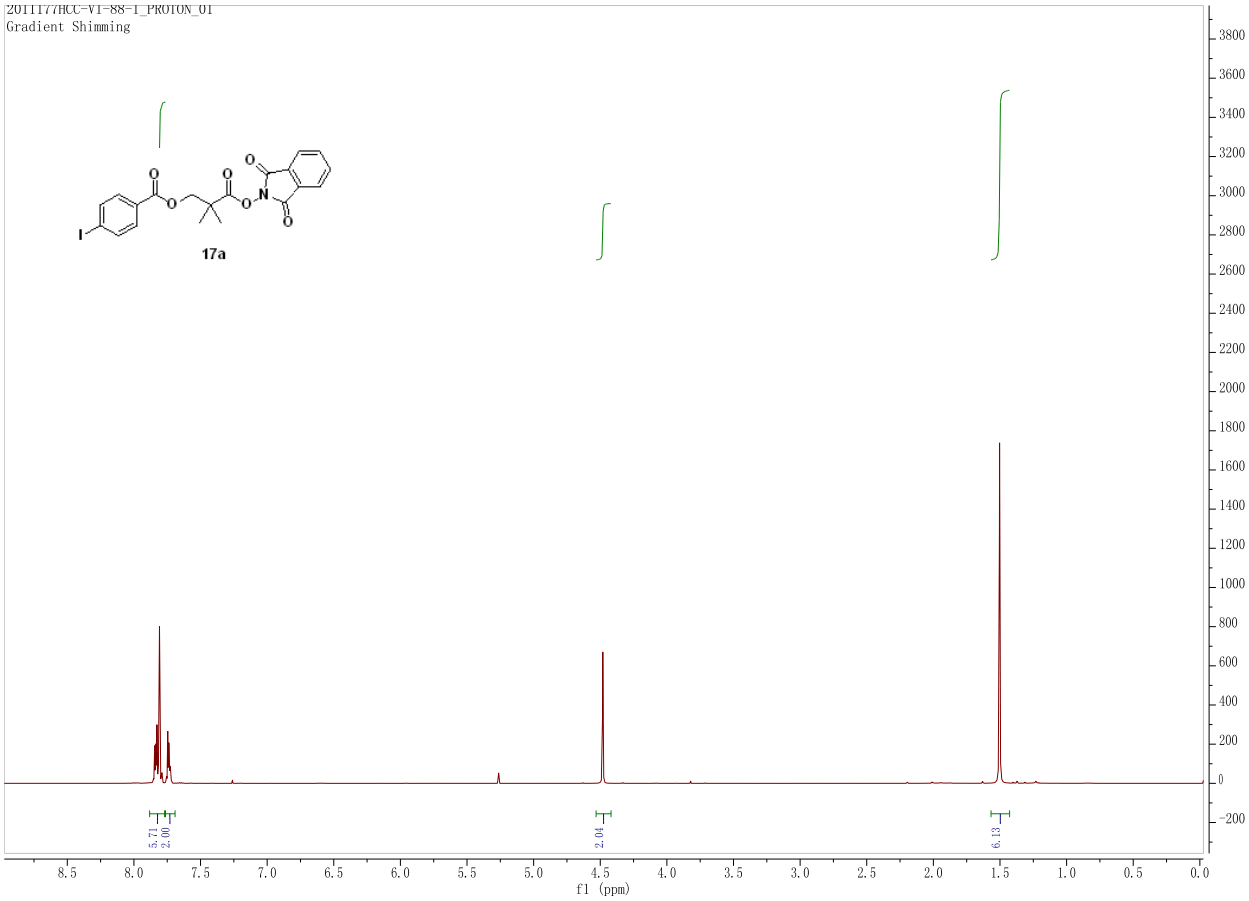
77.00 cdcl3
76.75 cdcl3
69.99
42.65
22.31
Br
16a
f1 (ppm)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Gradient Shimming
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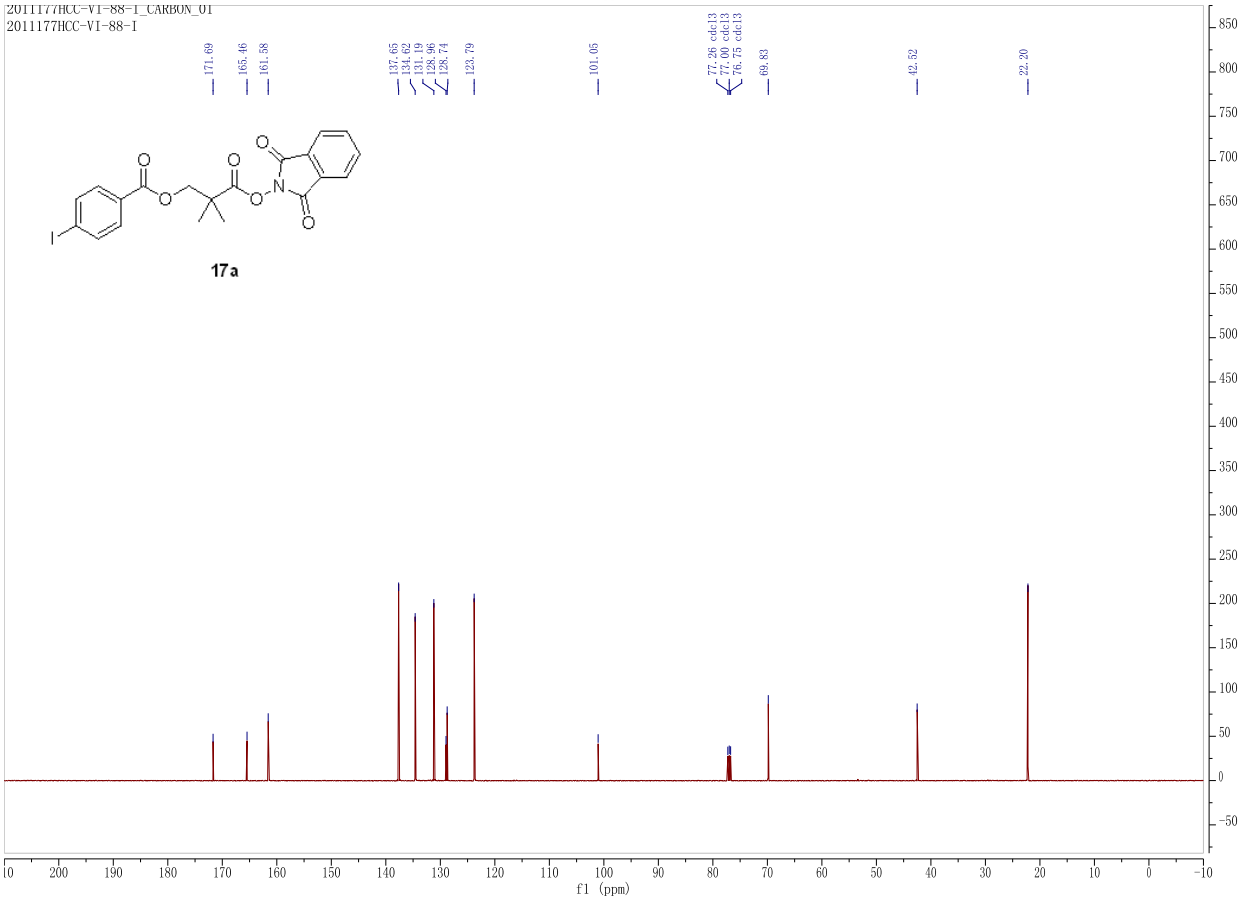
2.04
6.13
f1 (ppm)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2011177HCC-VI-88-I
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137.65
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131.19
128.96
128.74
123.79
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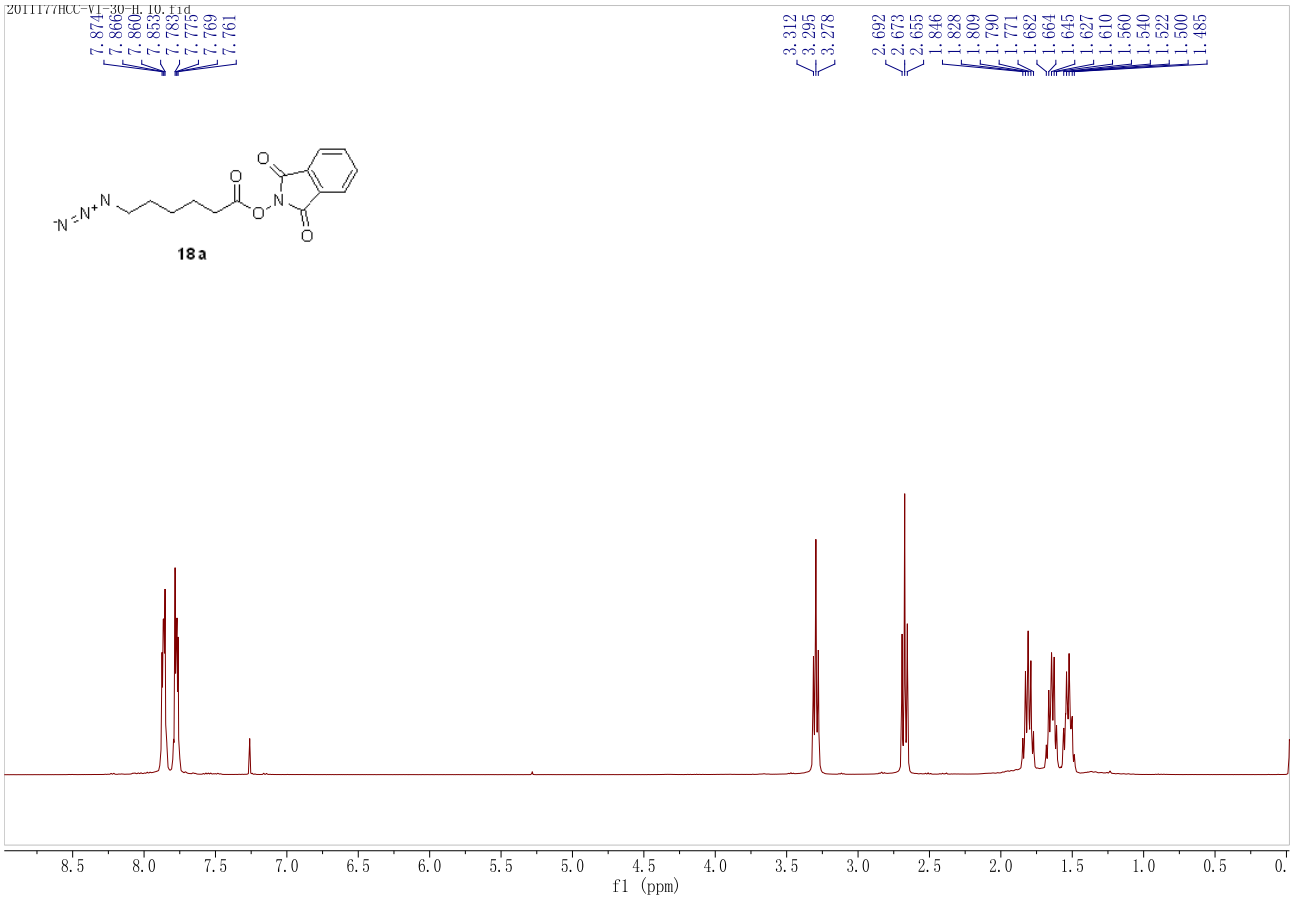
77.26 cdcl3
77.00 cdcl3
76.75 cdcl3
69.83
42.52
22.20
17a
f1 (ppm)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2.692
2.673
2.655
1.846
1.828
1.809
1.790
1.771
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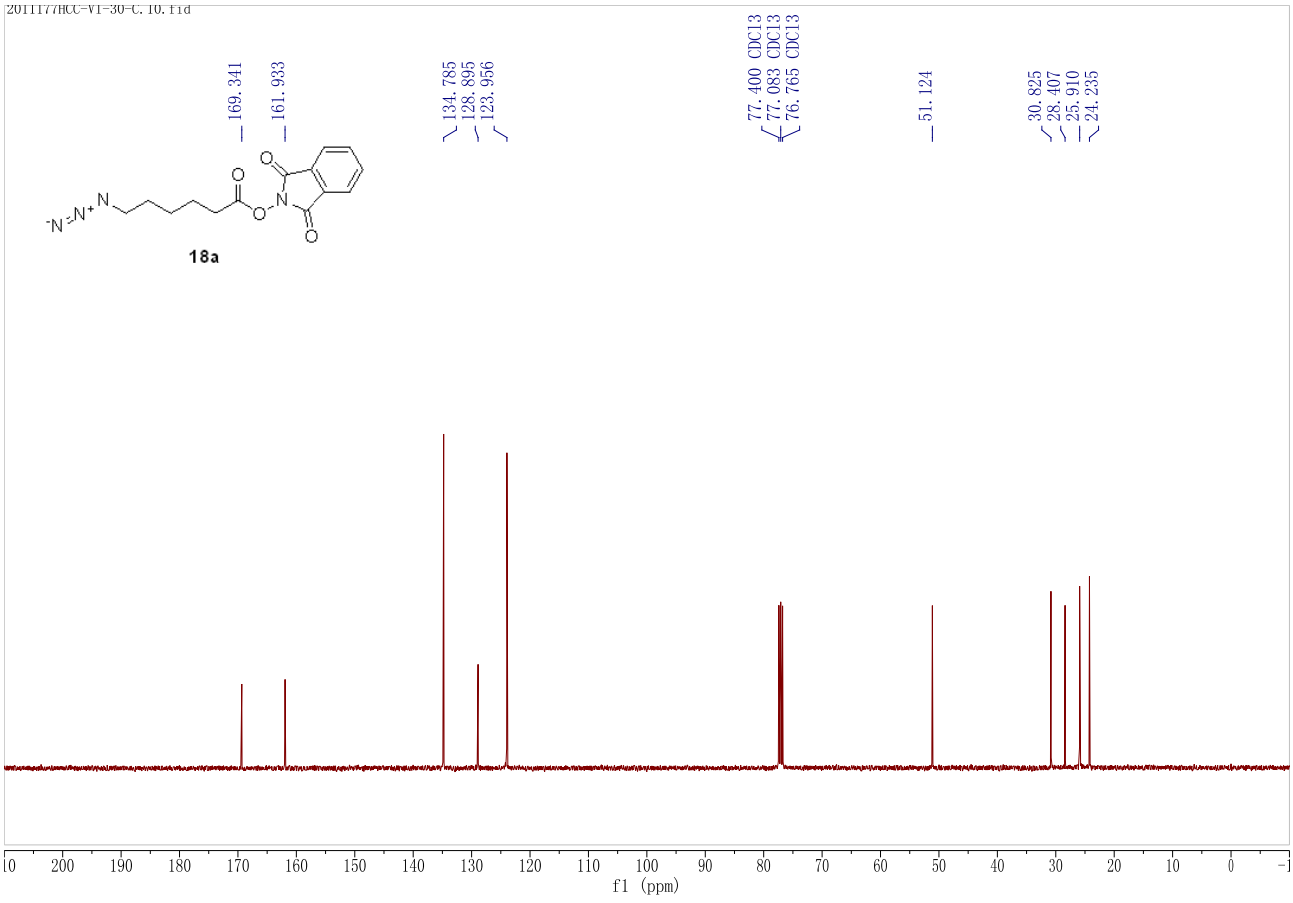
1.560
1.540
1.522
1.500
1.485
18a
f1 (ppm)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161.933
134.785
128.895
123.956
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76.765 CDCl3
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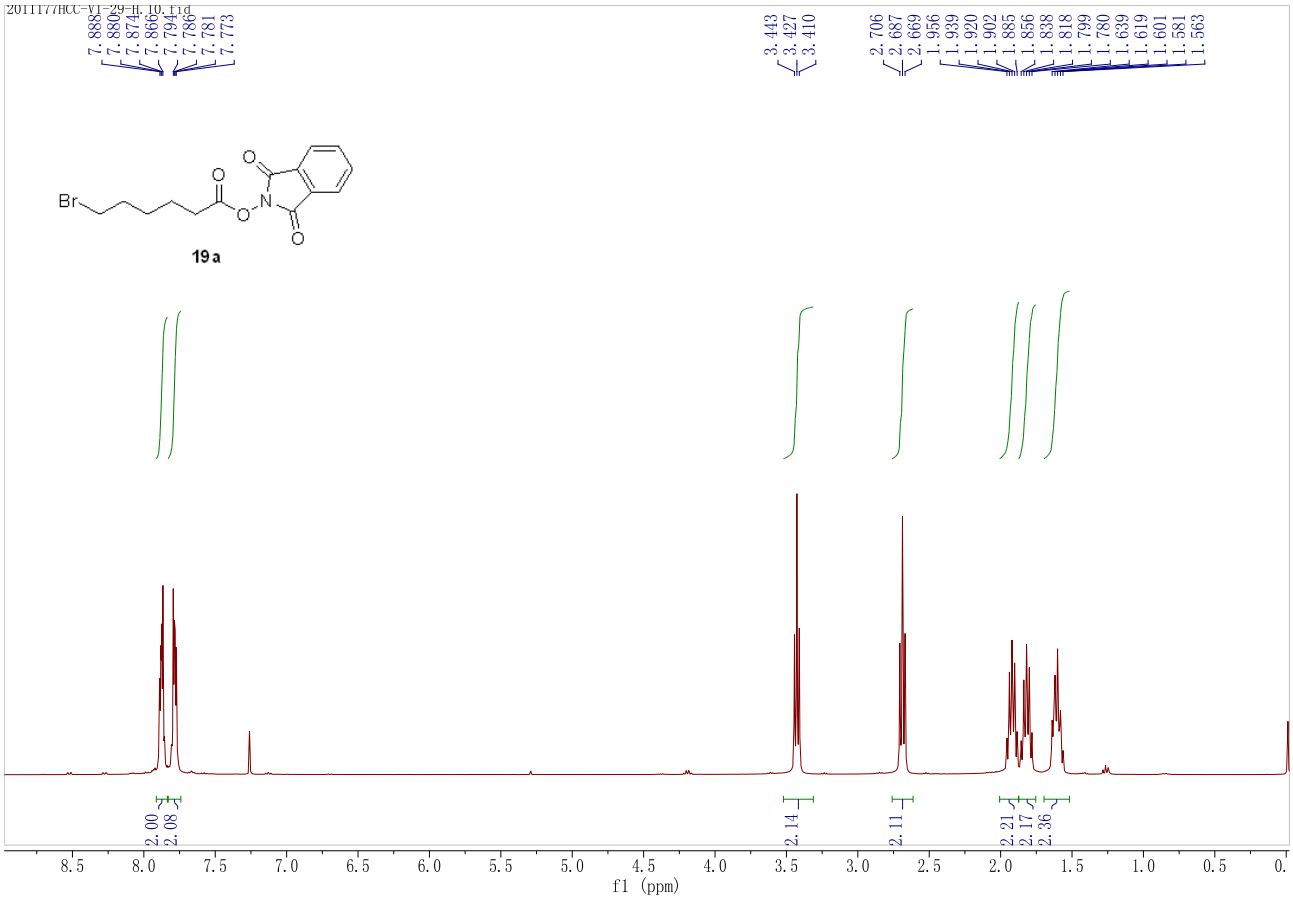
18a
f1 (ppm)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3.410
2.706
2.687
2.669
1.956
1.939
1.920
1.902
1.885
1.856
1.838
1.818
1.799
1.780
1.639
1.619
1.601
1.581
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N
19a
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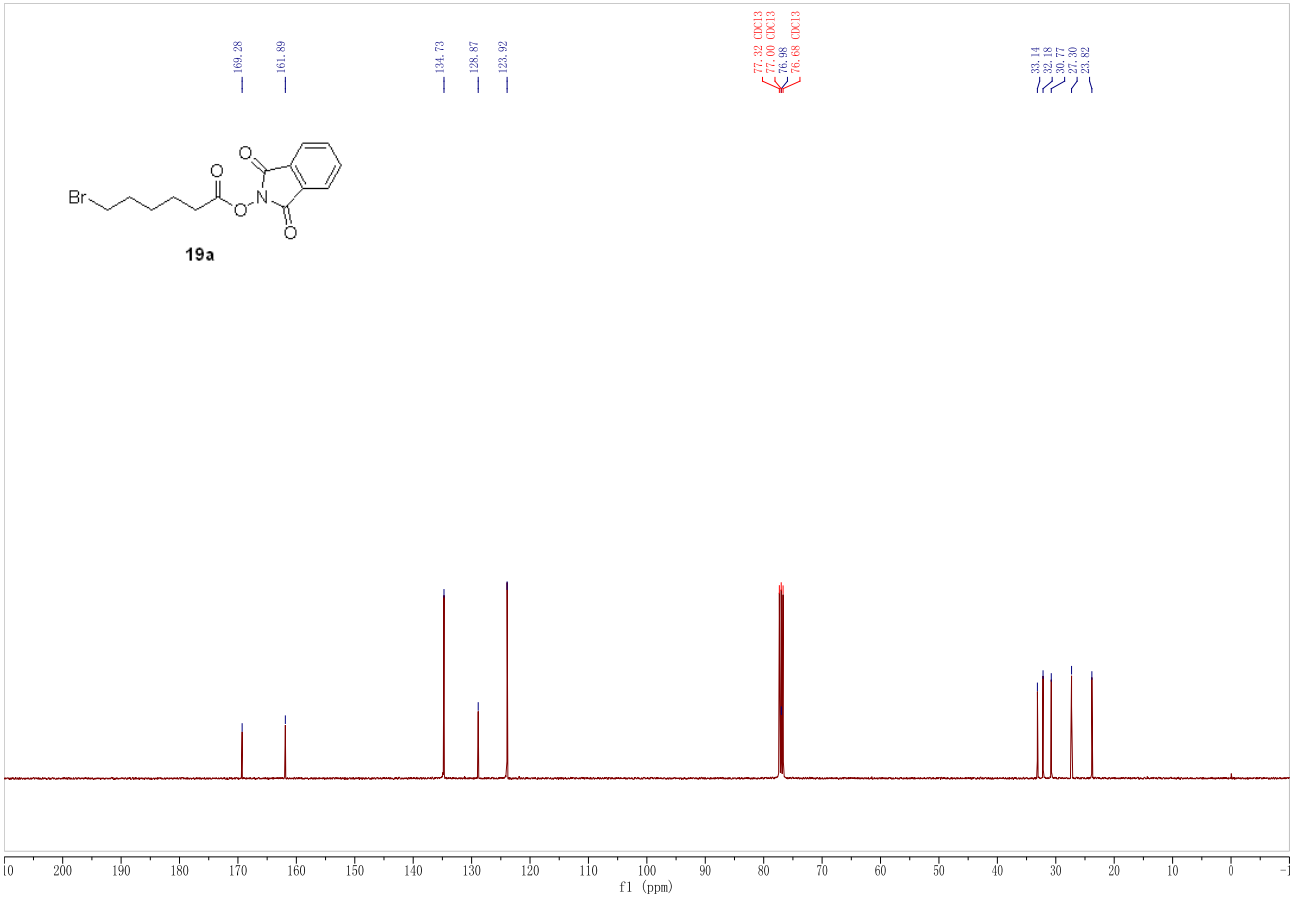
2.08
2.14
2.11
2.21
2.17
2.36
f1 (ppm)


169.28
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134.73
128.87
123.92
77.32 CDCl3
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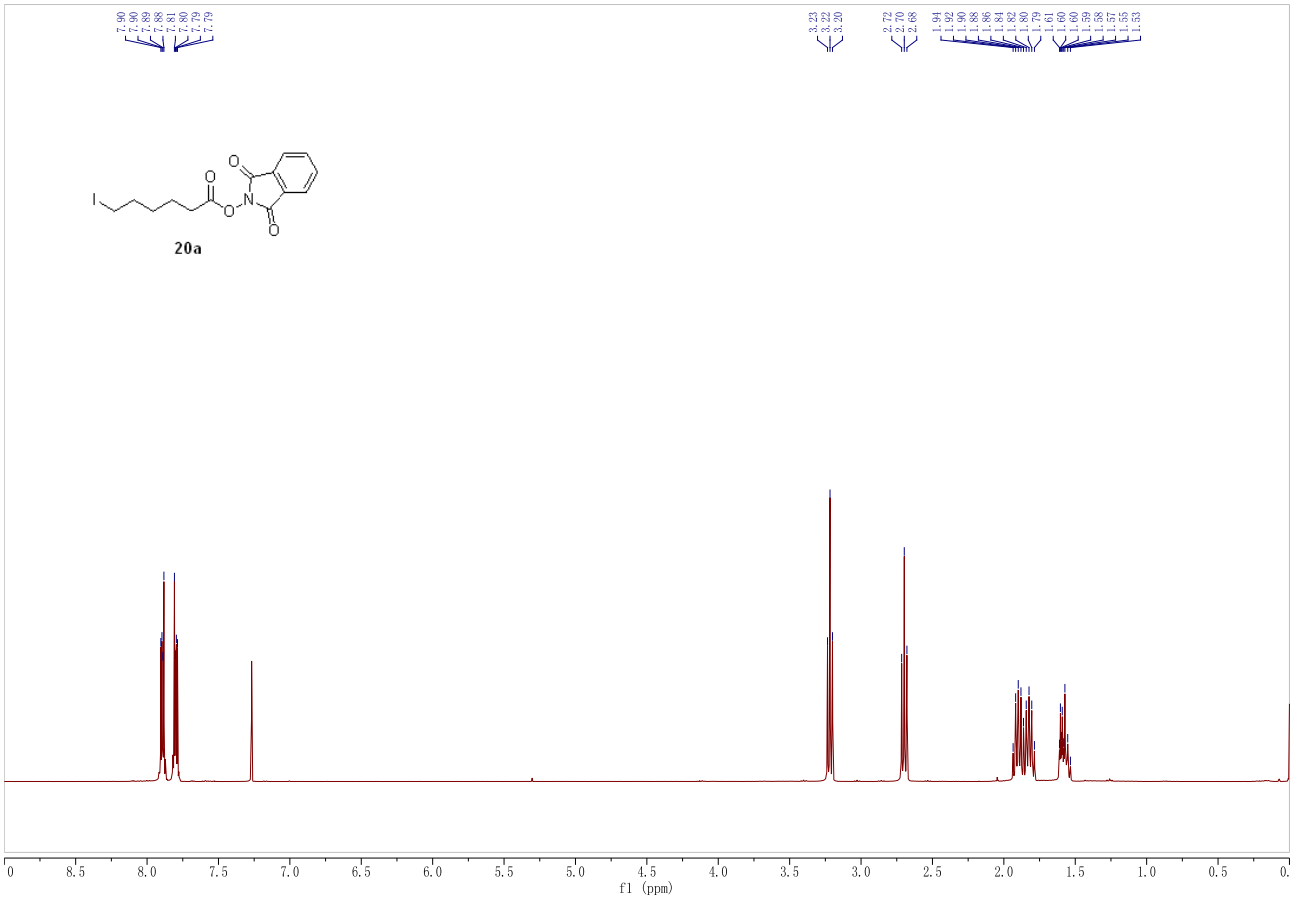
30.77
27.30
23.82
Br
O
N
19a
f1 (ppm)


7.90
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7.88
7.81
7.80
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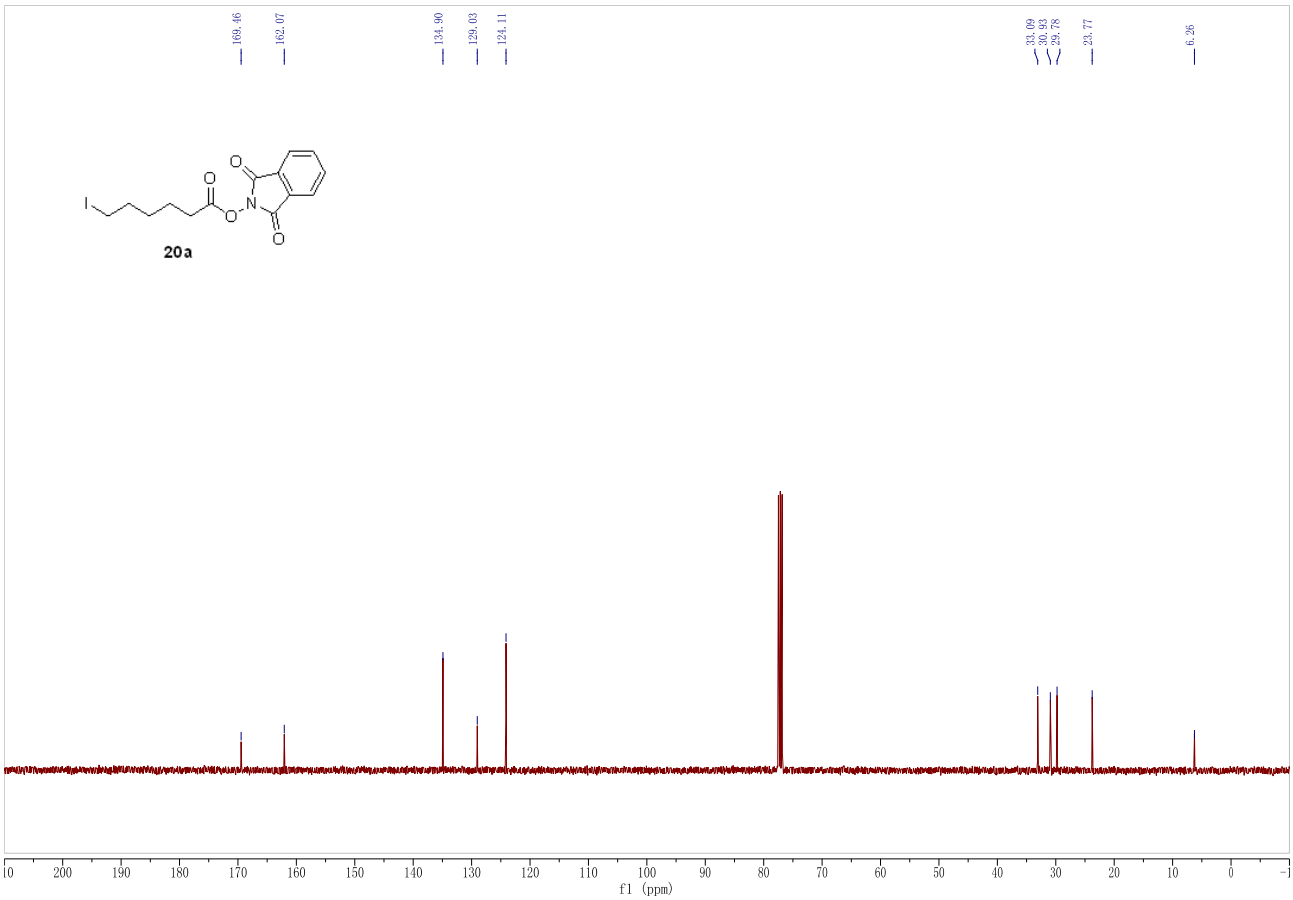
7.79
3.23
3.22
3.20
2.72
2.70
2.68
1.94
1.92
1.90
1.88
1.86
1.84
1.82
1.80
1.79
1.61
1.60
1.60
1.59
1.58
1.57
1.55
1.53
O
O
I
O
N
O
O
20a
f1 (ppm)


169.46
162.07
134.90
129.03
124.11
33.09
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29.78
23.77
6.26
O
O
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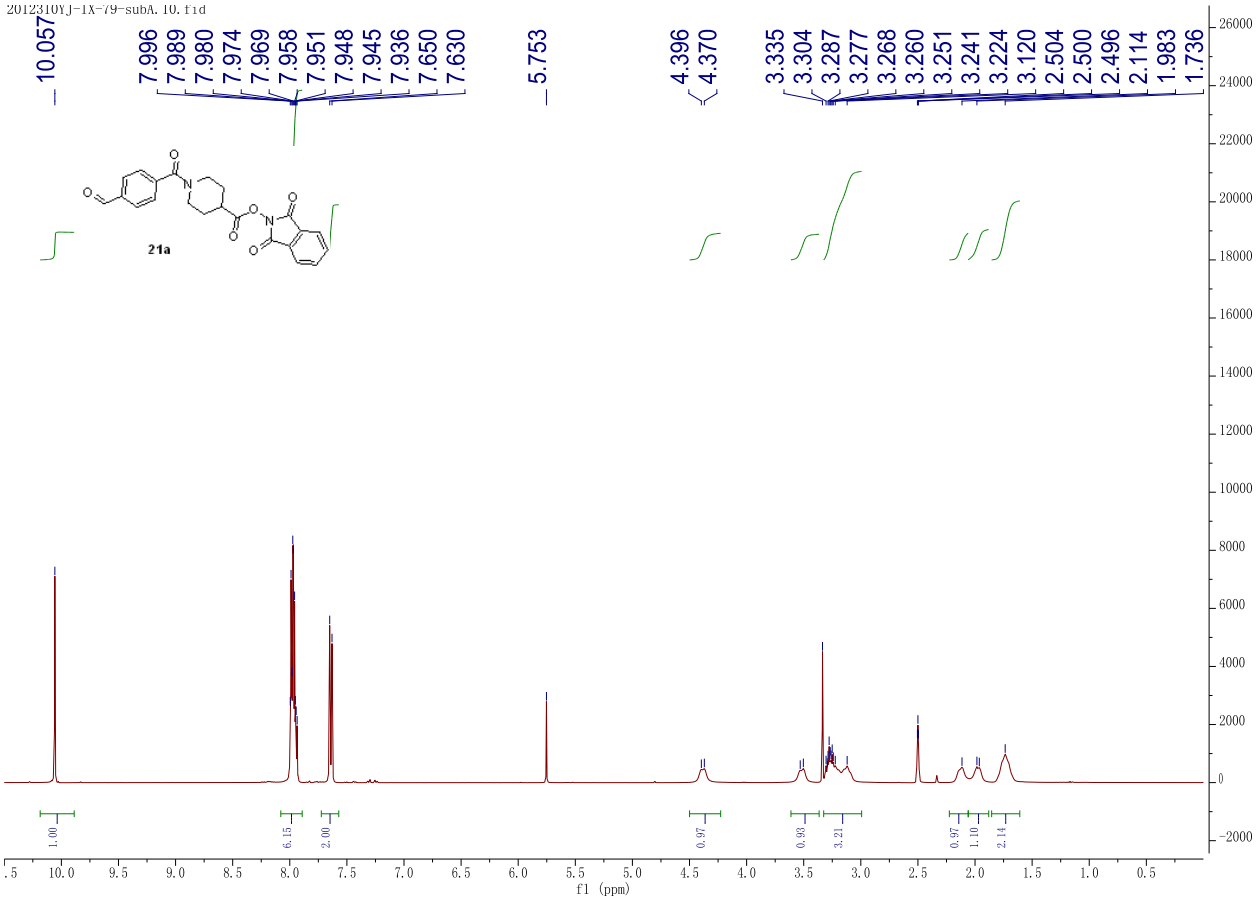
O
N
O
O
20a
f1 (ppm)


20123101YJ-1X-79-subA.10.fid
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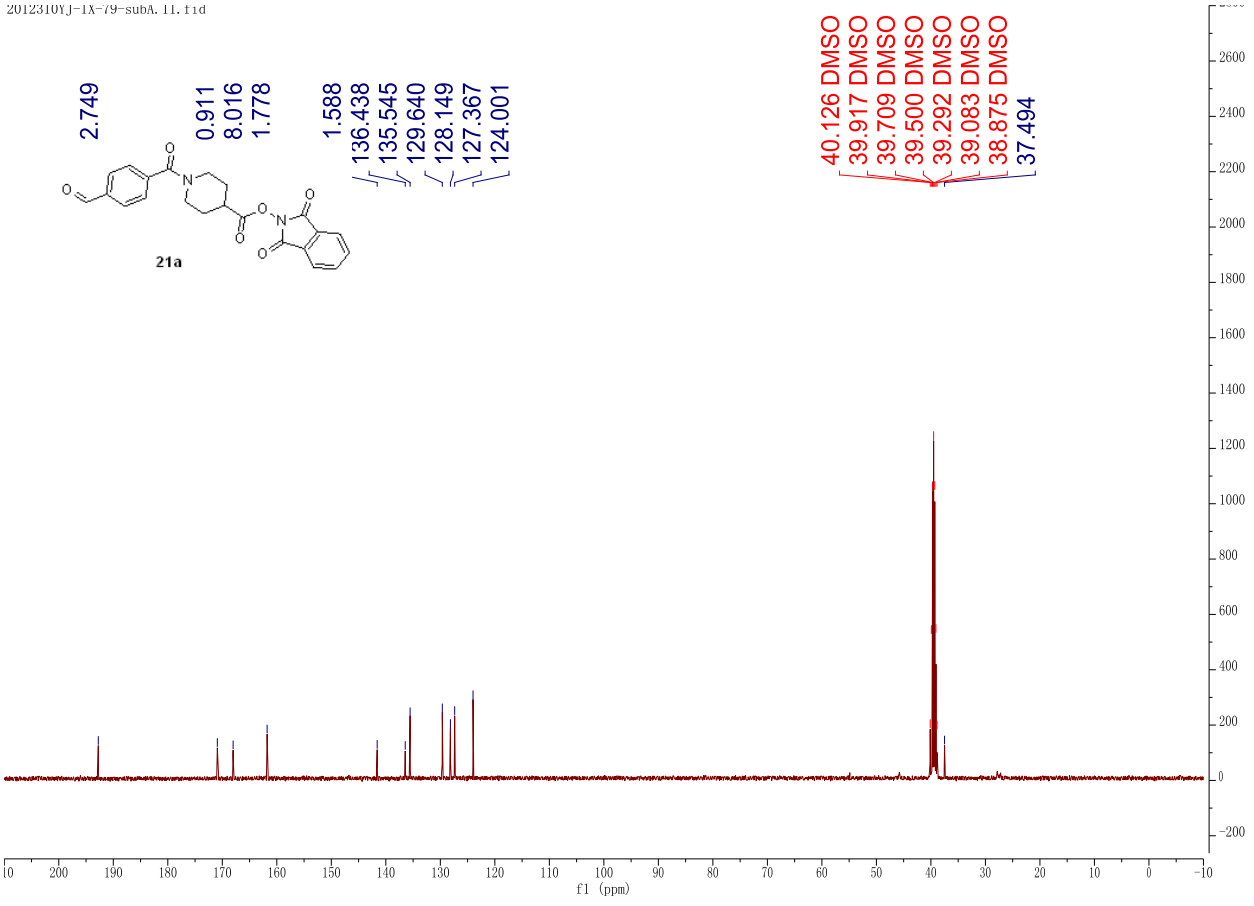
7.989
7.980
7.974
7.969
7.958
7.951
7.948
7.945
7.936
7.650
7.630
5.753
4.396
4.370
3.335
3.304
3.287
3.277
3.268
3.260
3.251
3.241
3.224
3.120
2.504
2.500
2.496
2.114
1.983
1.736
21a
1.00
6.15
2.00
0.97
0.83
3.21
0.97
1.10
2.14
f1 (ppm)


20123101YJ-1X-79-subA.11.fid
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8.016
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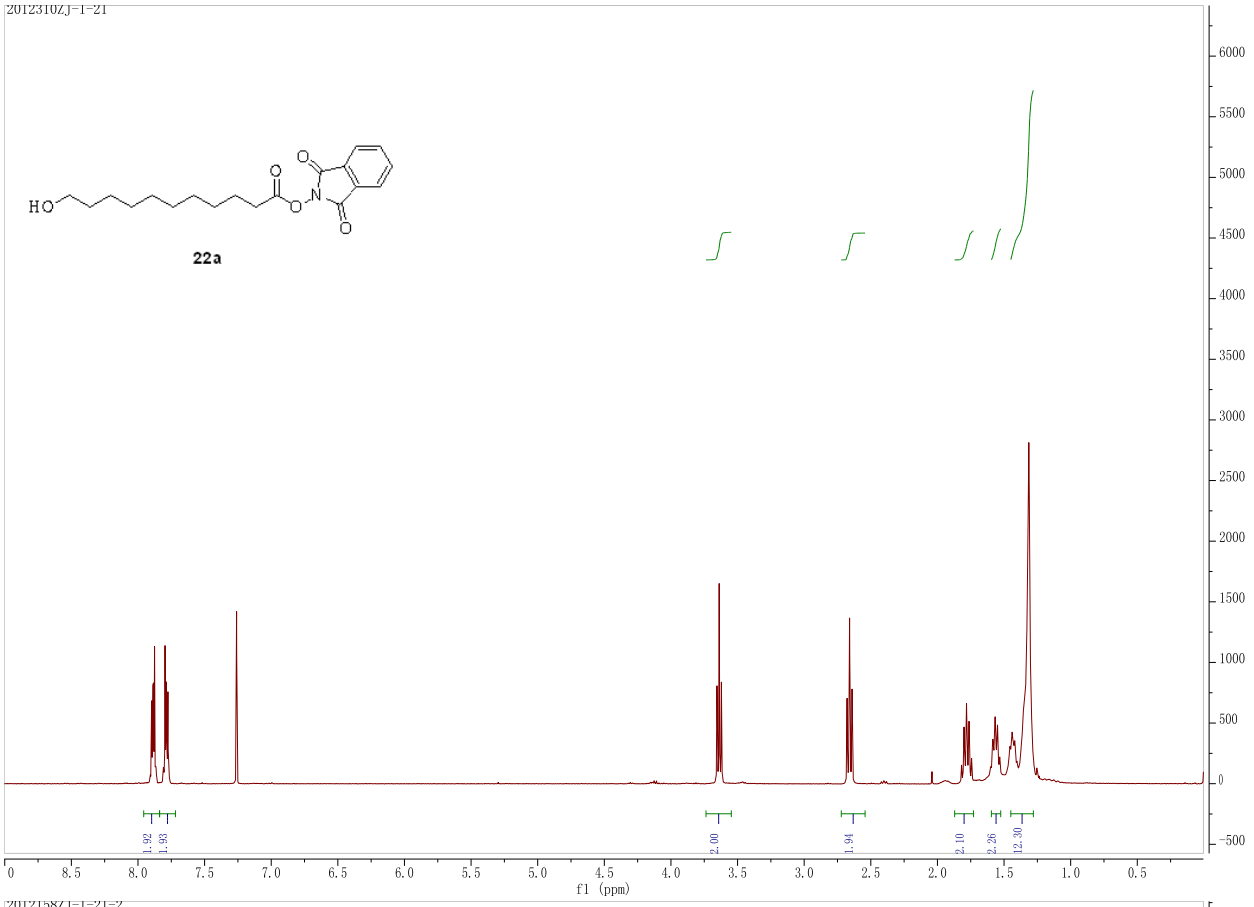
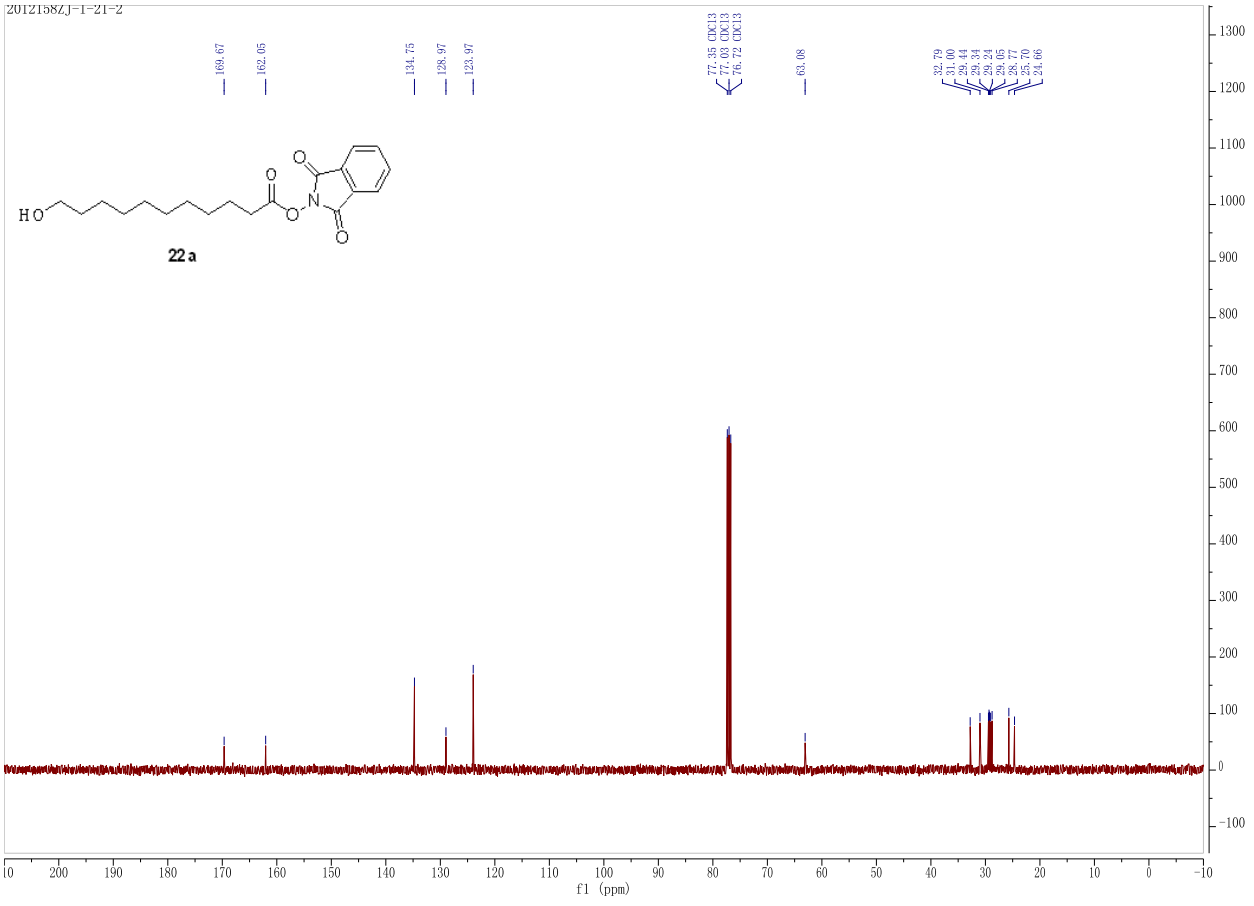
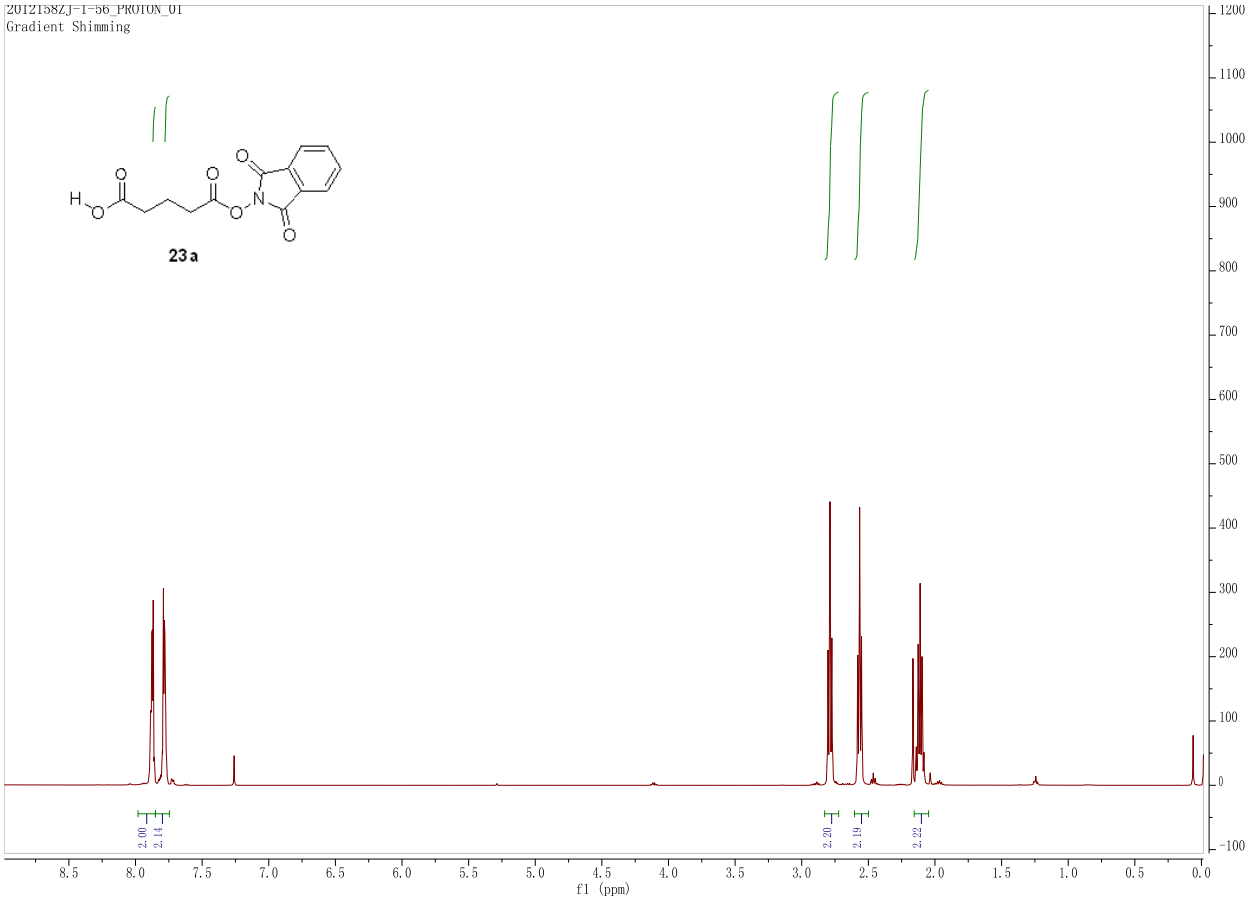
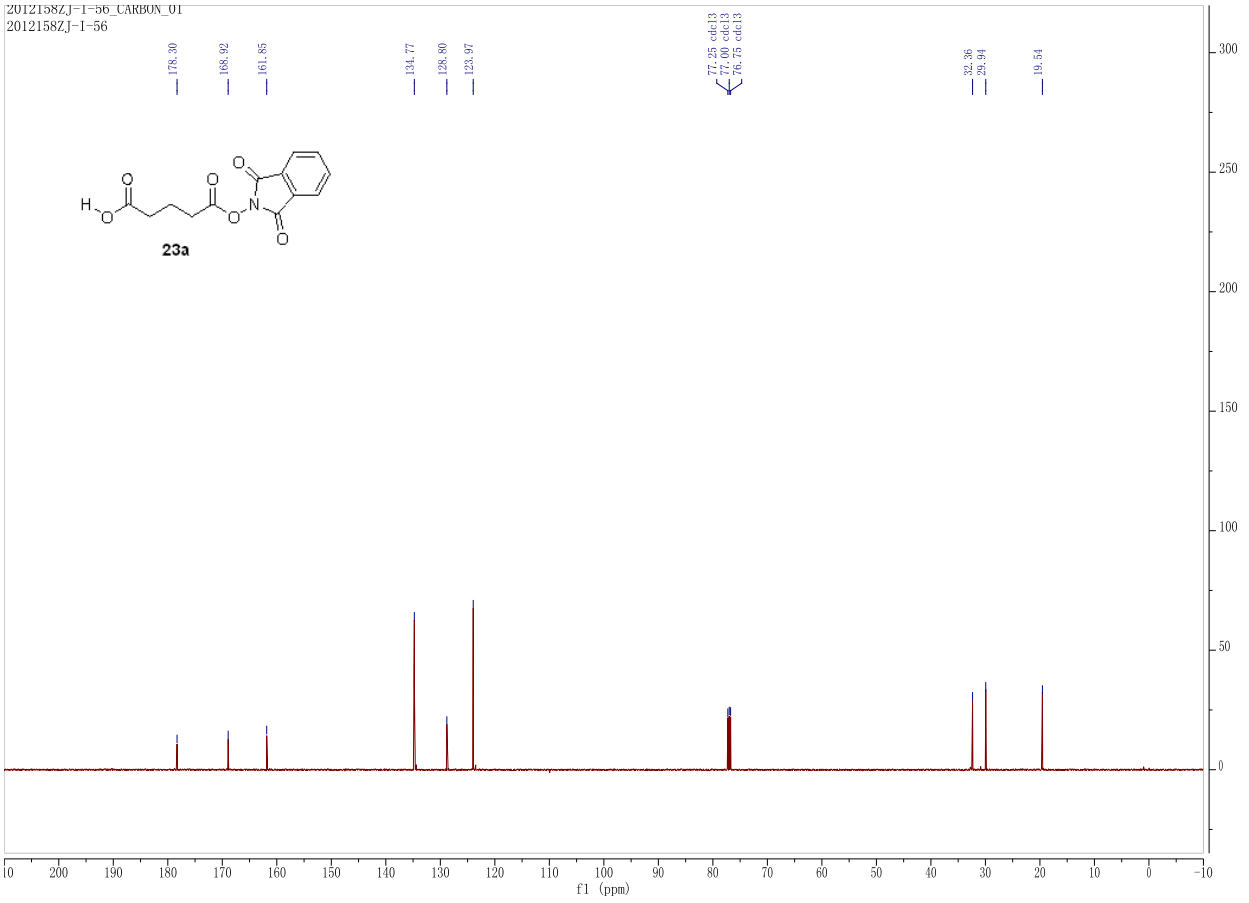
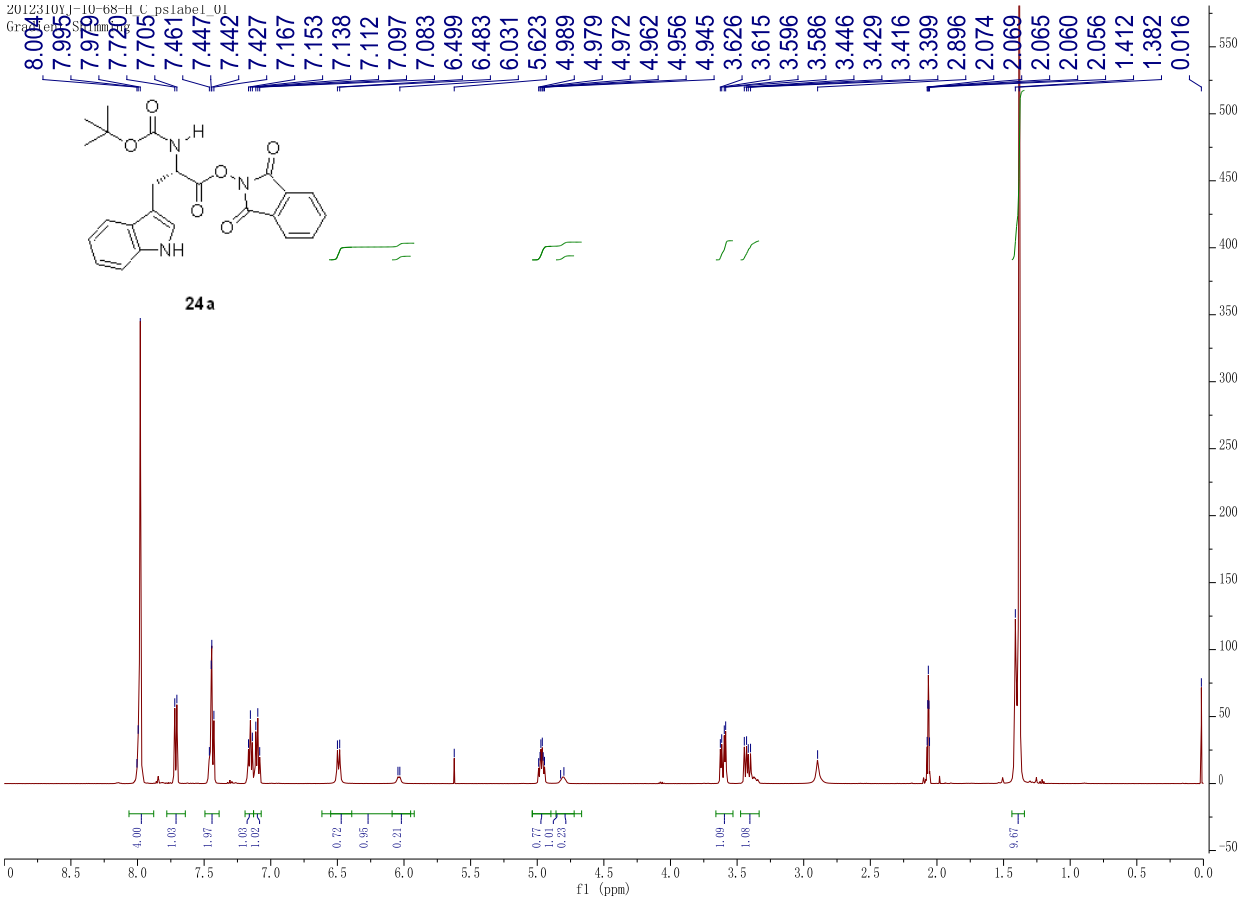
136.438
135.545
129.640
128.149
127.367
124.001
40.126 DMSO
39.917 DMSO
39.709 DMSO
39.500 DMSO
39.292 DMSO
39.083 DMSO
38.875 DMSO
37.494
21a
f1 (ppm)

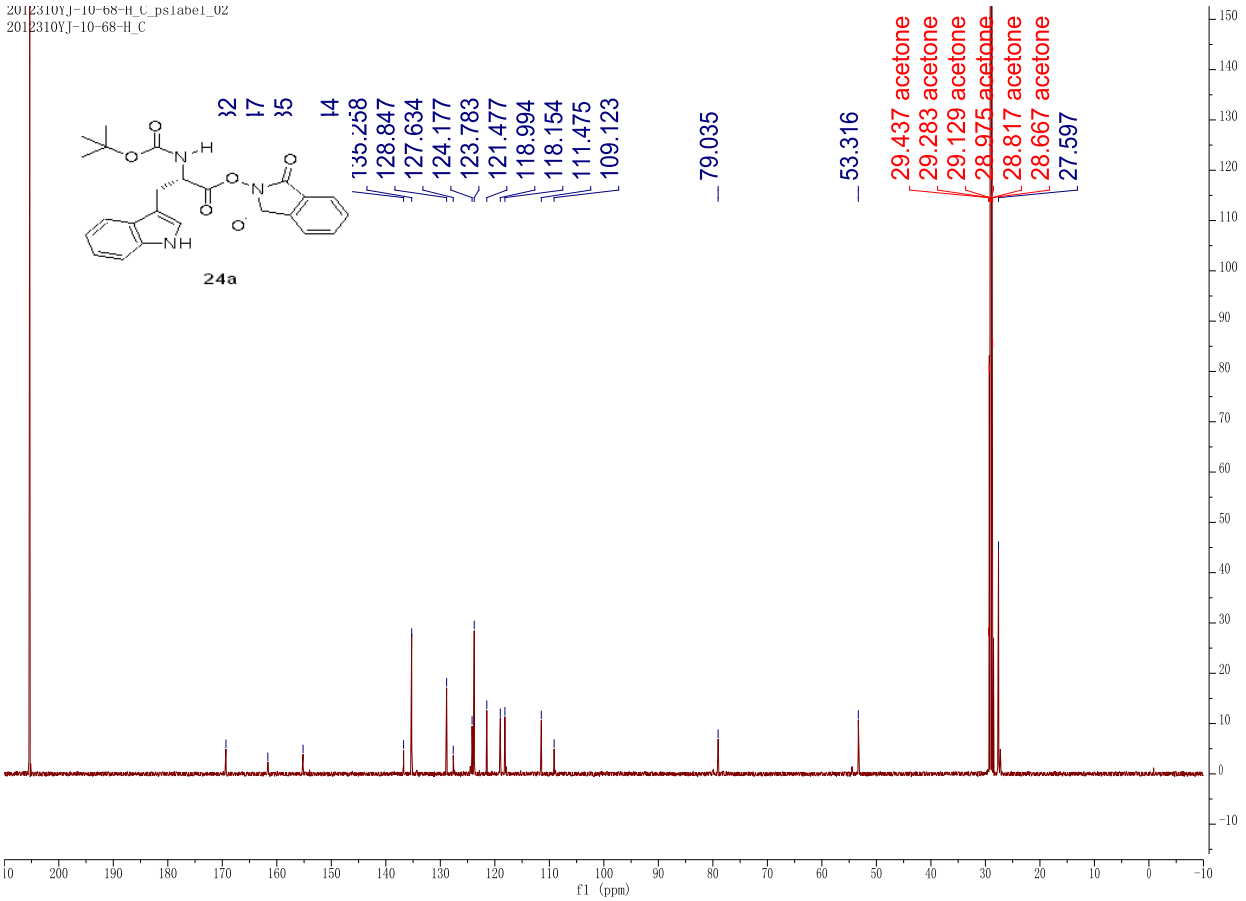

20120310ZJ-1-21
HO
O
O
N
O
O
22a
1.92
1.93
2.00
1.94
2.10
2.26
12.30
f1 (ppm)

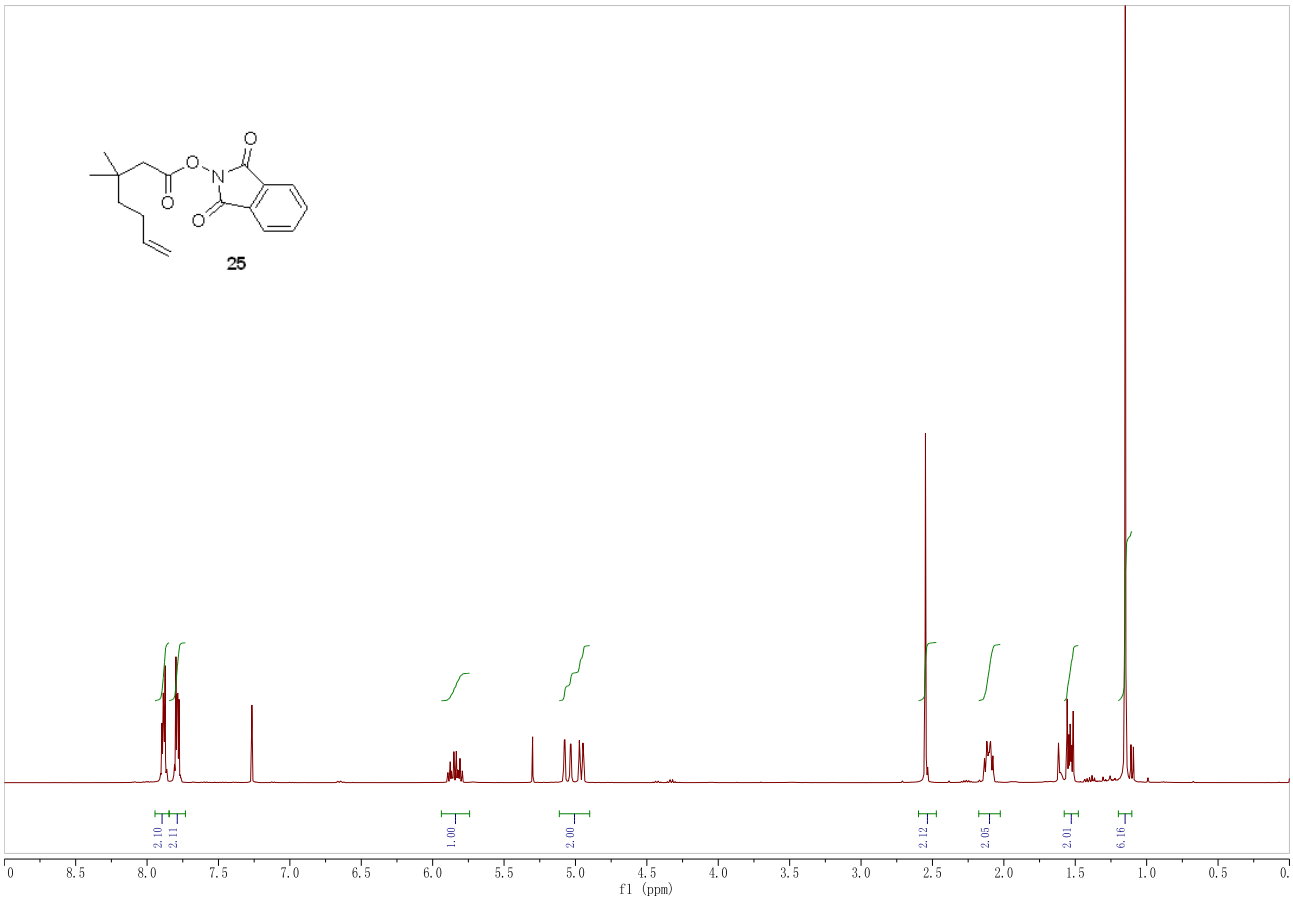

20120158ZJ-1-21-2
169.67
162.05
134.75
128.97
123.97
77.35 CDCl3
77.03 CDCl3
76.72 CDCl3
63.08
32.79
31.00
29.44
29.34
29.24
29.05
28.77
25.70
24.66
HO
O
O
N
O
O
22a
f1 (ppm)

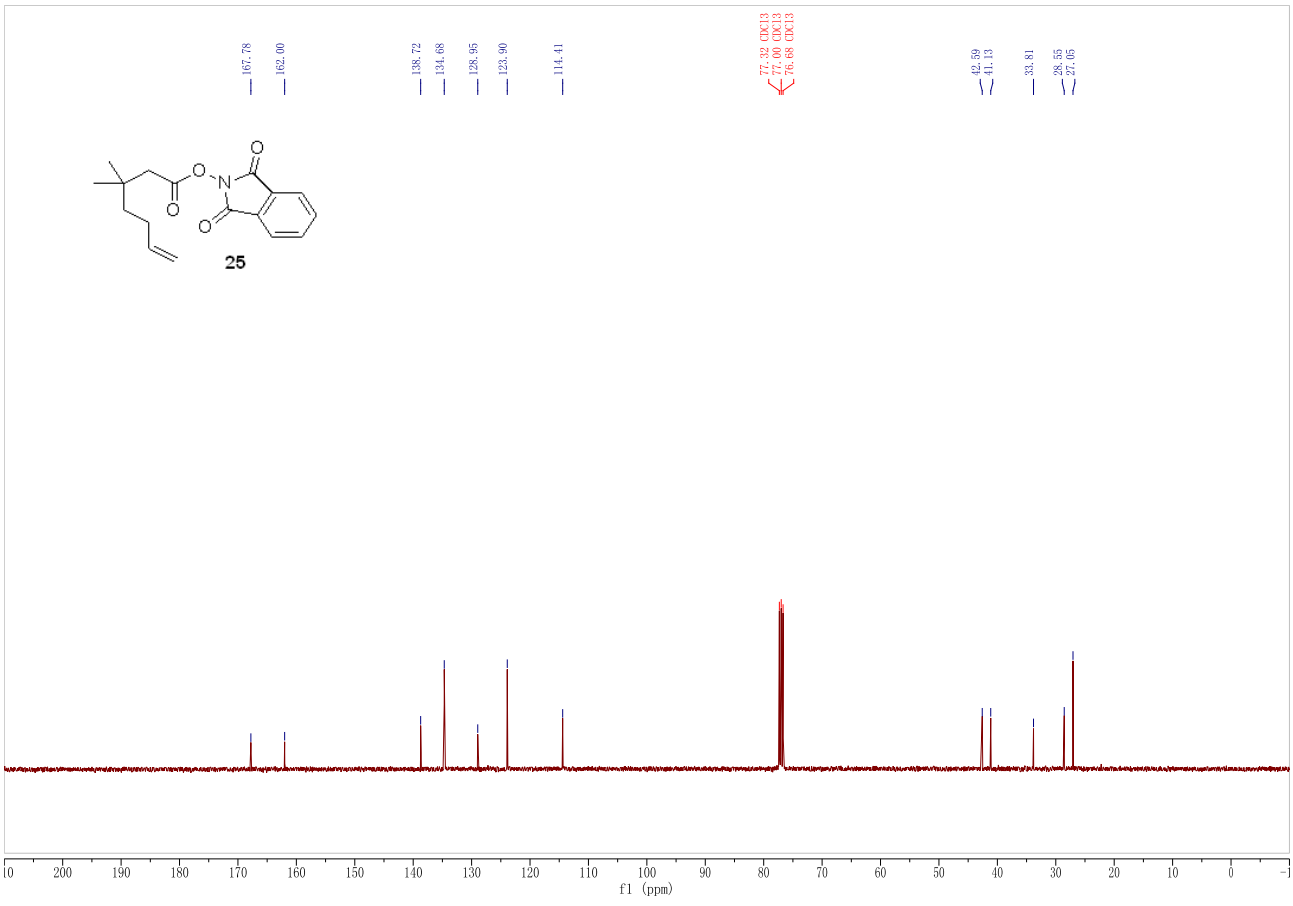

2012158ZJ-I-56_PROTON_01
Gradient Shimming
23a
2.00
2.14
2.20
2.19
2.22
f1 (ppm)

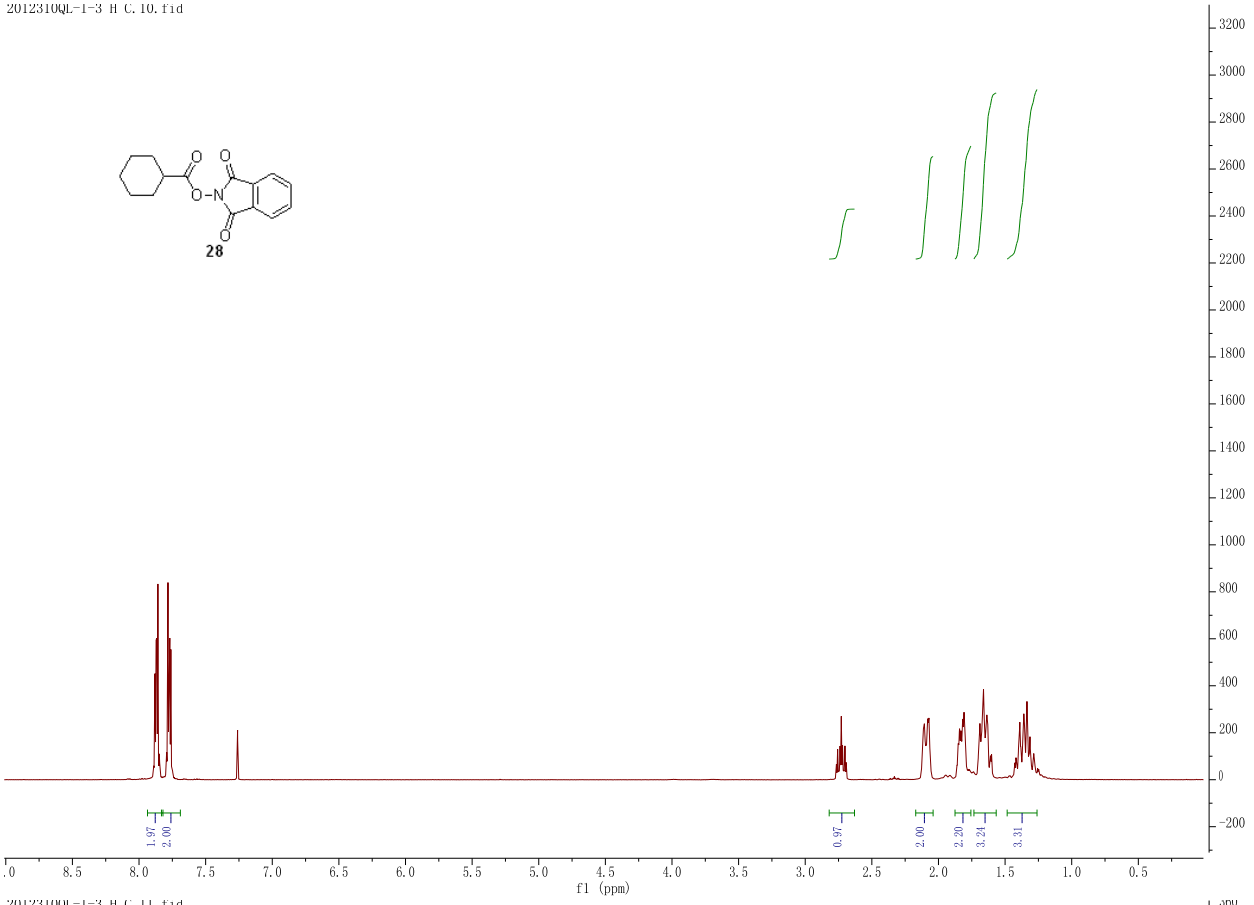

2012158ZJ-I-56_CARBON_01
2012158ZJ-I-56
178.30
168.92
161.85
134.77
128.80
123.97
77.25 cdcl3
77.00 cdcl3
76.75 cdcl3
32.36
29.94
19.54
23a
f1 (ppm)

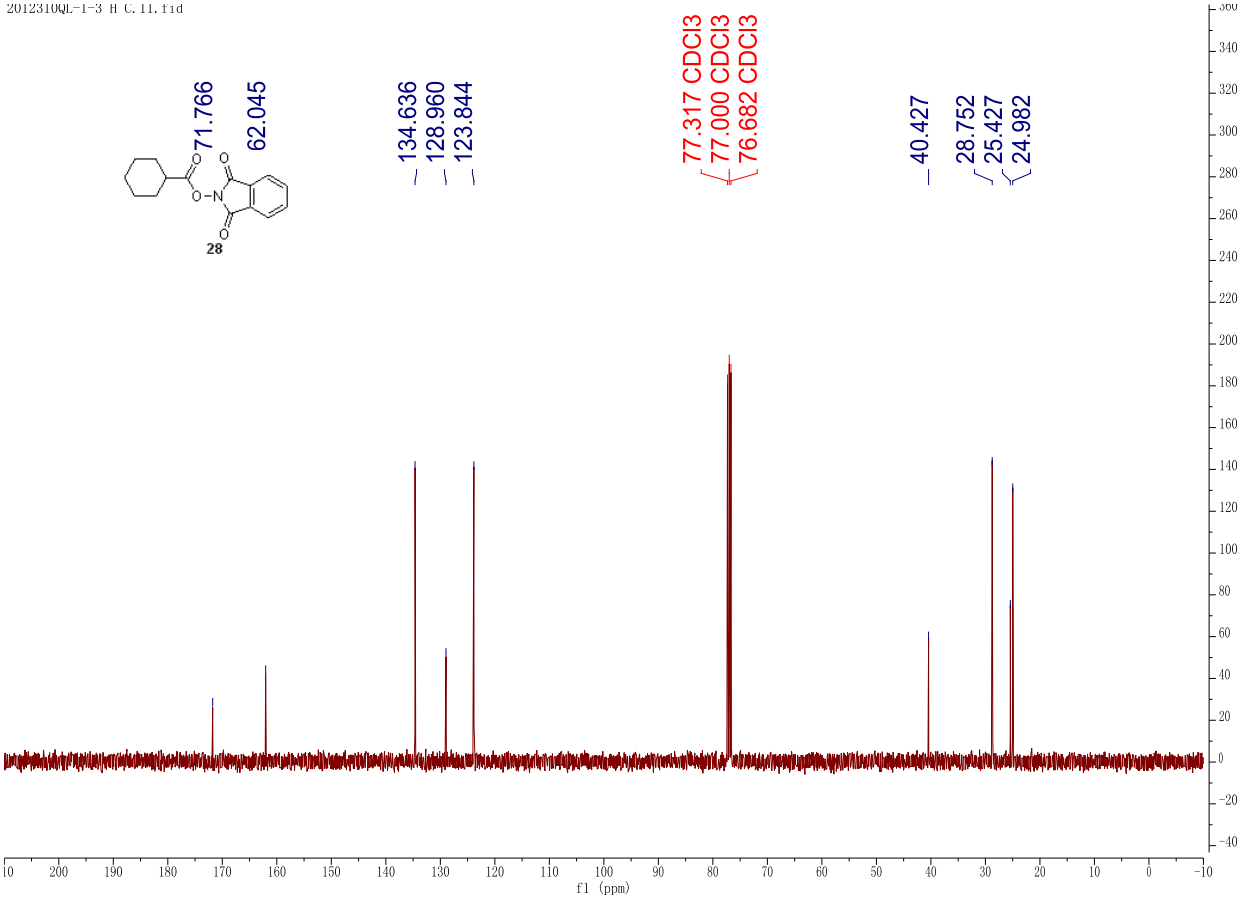

2012310YJ-10-68-H_C_pslabel_01
8.004 7.995 7.979 7.720 7.705 7.461 7.447 7.442 7.427 7.167 7.153 7.138 7.112 7.097 7.083 6.499 6.483 6.031 5.623 4.989 4.979 4.972 4.962 4.956 4.945 3.626 3.615 3.596 3.586 3.446 3.429 3.416 3.399 2.896 2.074 2.069 2.065 2.060 2.056 1.412 1.382 0.016
24a
4.00 1.03 1.97 1.03 1.02 0.72 0.95 0.21 0.77 1.01 0.23 1.09 1.08 9.67
f1 (ppm)


2012310YJ-10-68-H_C_pslabel_02
2012310YJ-10-68-H_C
135.258 128.847 127.634 124.177 123.783 121.477 118.994 118.154 111.475 109.123
79.035
53.316
29.437 acetone 29.283 acetone 29.129 acetone 28.975 acetone 28.817 acetone 28.667 acetone 27.597
24a
f1 (ppm)


25
2.10
2.11
1.00
2.00
2.12
2.05
2.01
6.16
f1 (ppm)


167.78
162.00
138.72
134.68
128.95
123.90
114.41
77.39 CDCl3
77.08 CDCl3
76.68 CDCl3
42.59
41.13
33.81
28.55
27.65
25
f1 (ppm)


20123101QL-1-3 H C.10.fid
28
1.97
2.00
0.97
2.00
2.20
3.24
3.31
f1 (ppm)

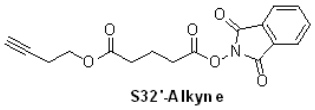

20123101QL-1-3 H C.11.fid
71.766
62.045
134.636
128.960
123.844
77.317 CDCl3
77.000 CDCl3
76.682 CDCl3
40.427
28.752
25.427
24.982
28
f1 (ppm)

ZJ-II-49-C0

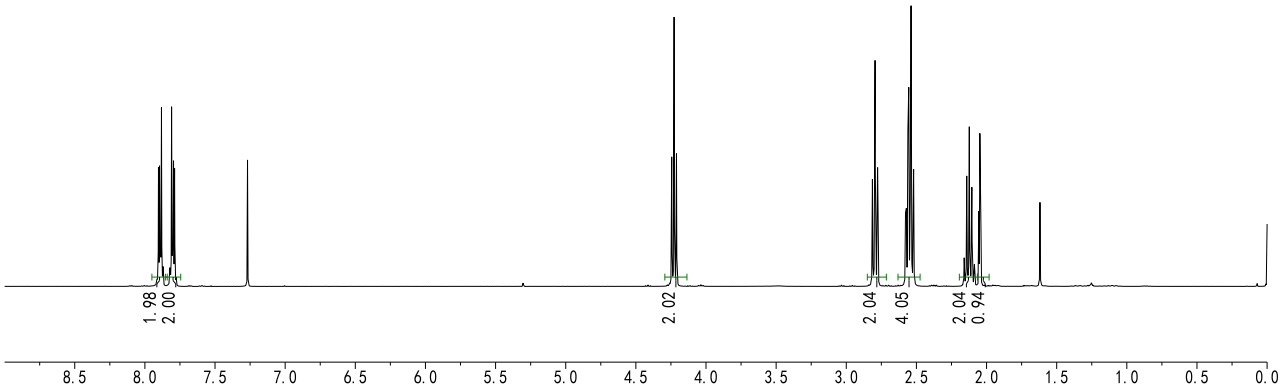
7.903
7.895
7.889
7.882
7.810
7.802
7.796
7.788
7.268

4.244
4.227
4.211

2.813
2.795
2.777
2.578
2.571
2.561
2.557
2.555
2.544
2.538
2.520
2.159
2.141
2.123
2.105
2.087
2.054
2.048
2.041

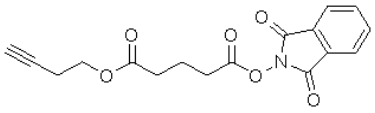


S32'-Alkyne

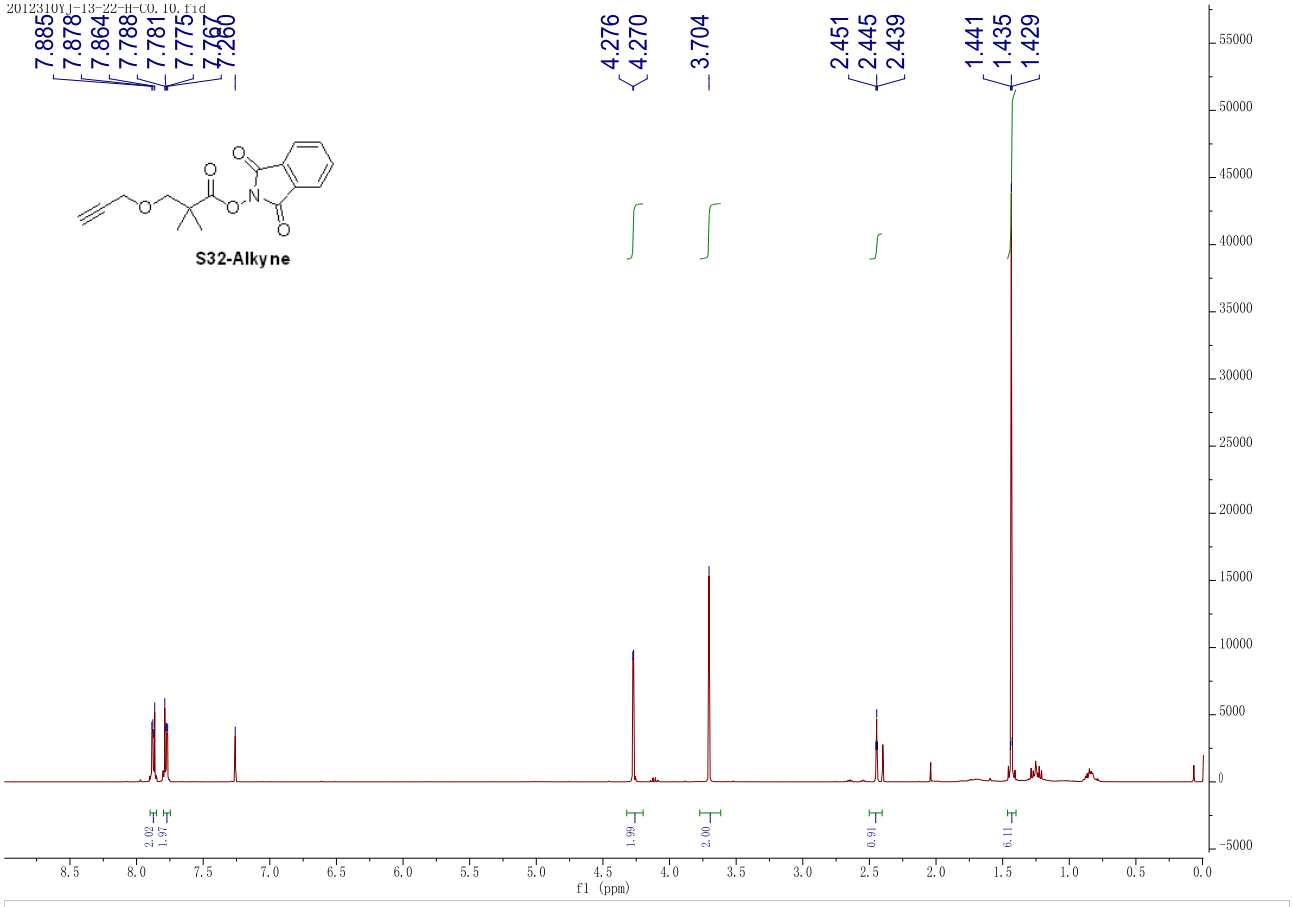


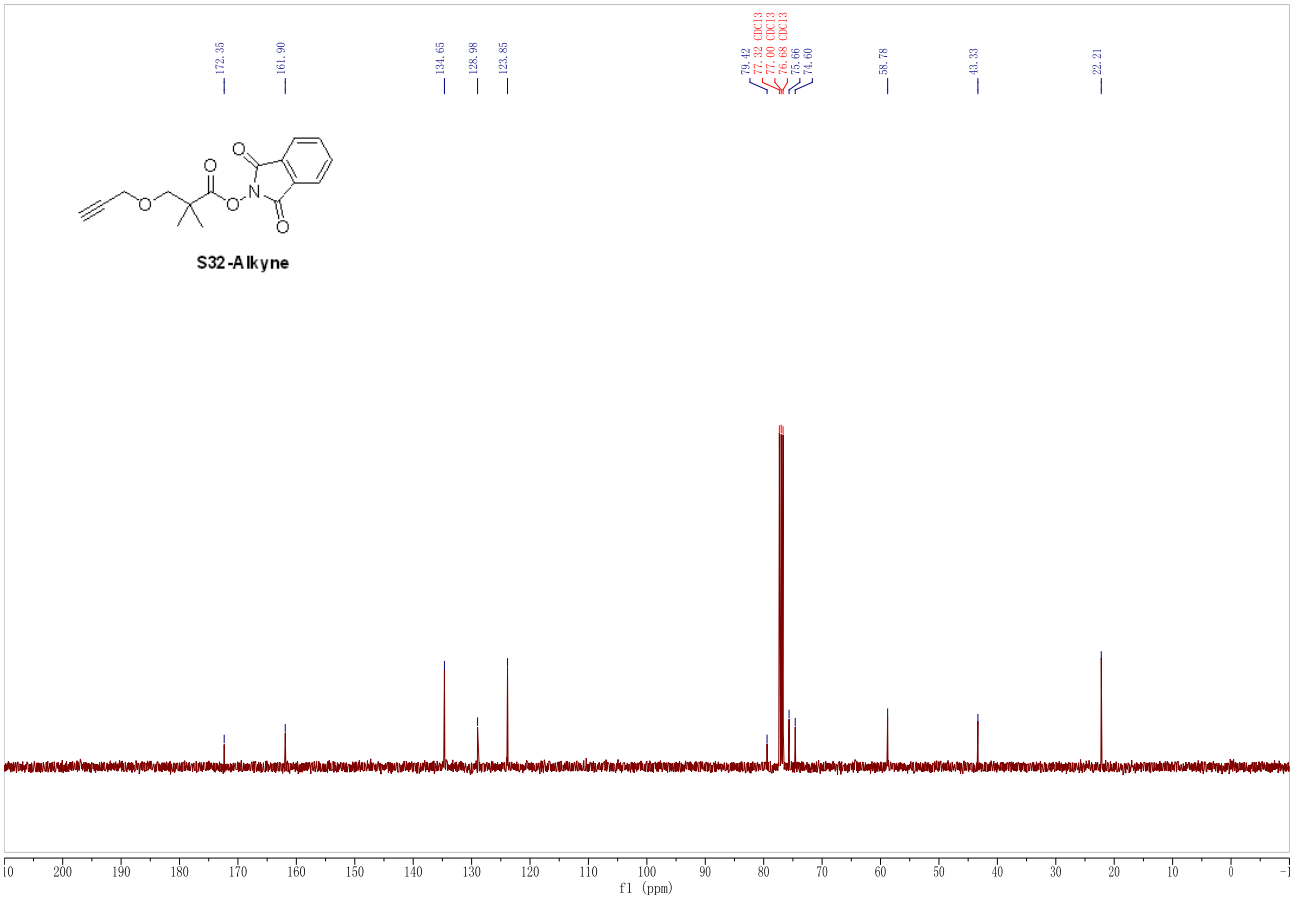
2012310ZJ-II-49-H_C_ps1abel_02
2012310ZJ-II-49-H_C

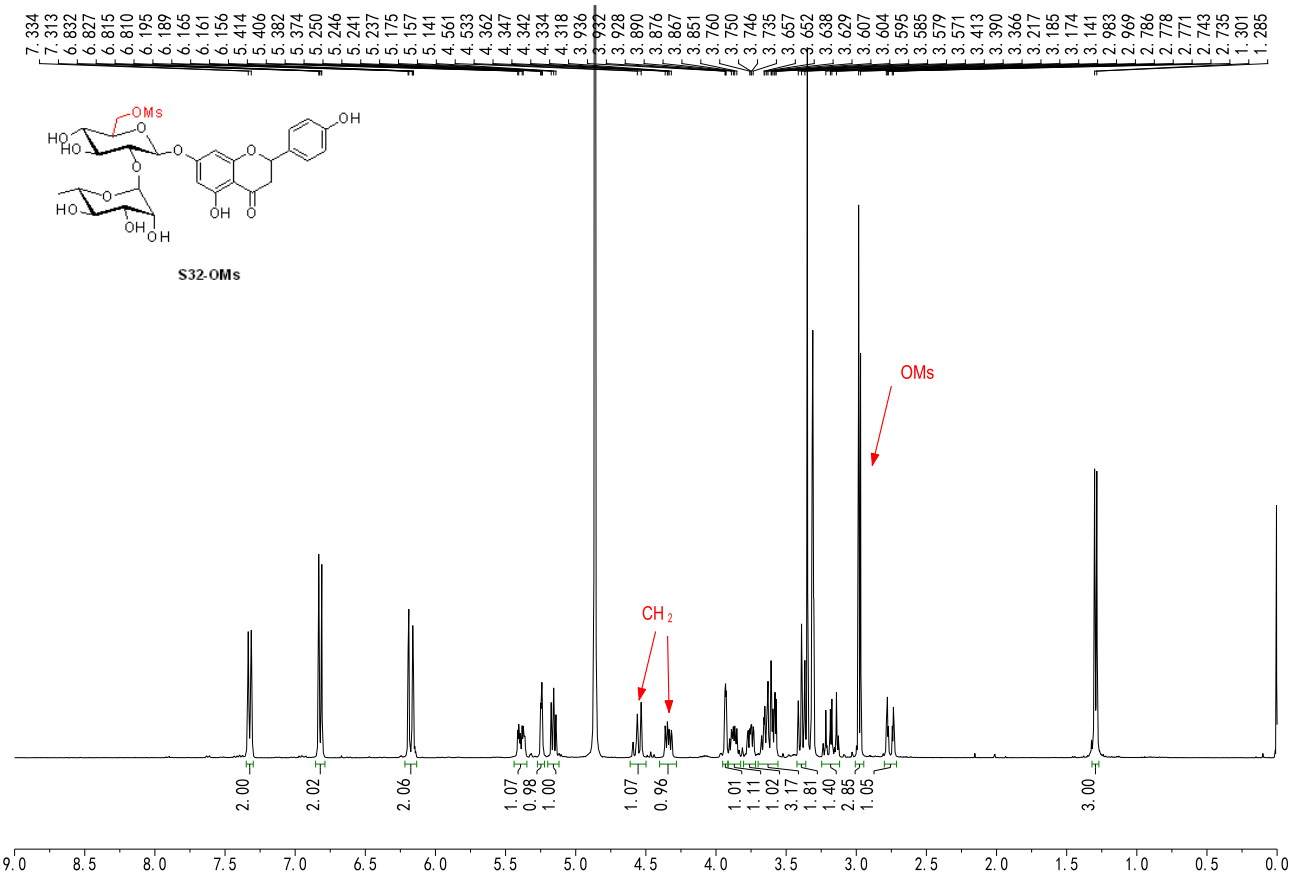
172.130
168.991
161.806
134.789
128.798
123.925
79.986
77.314
77.056
76.804
70.128
62.161
32.556
29.969
19.800
18.926

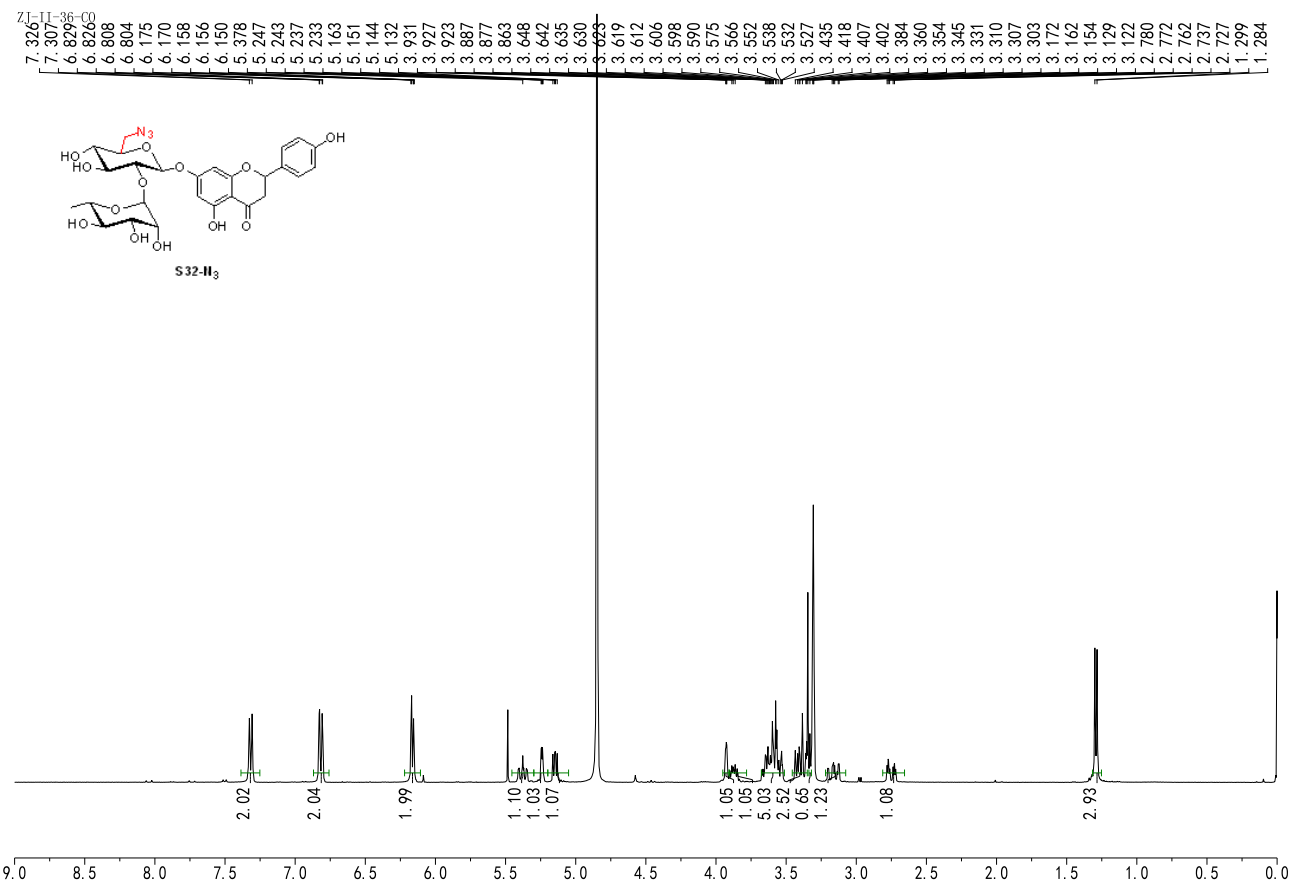


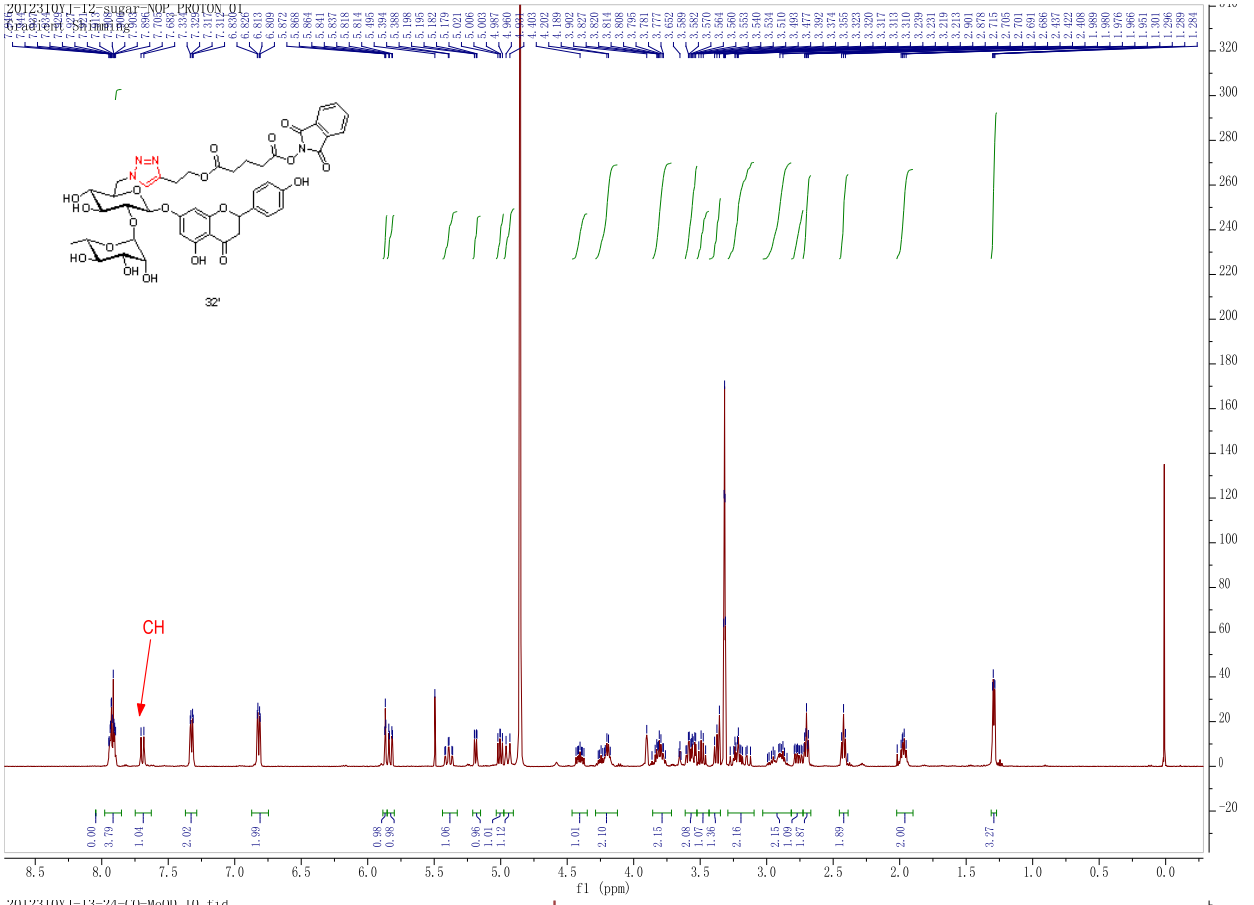
S32'-Alkyne

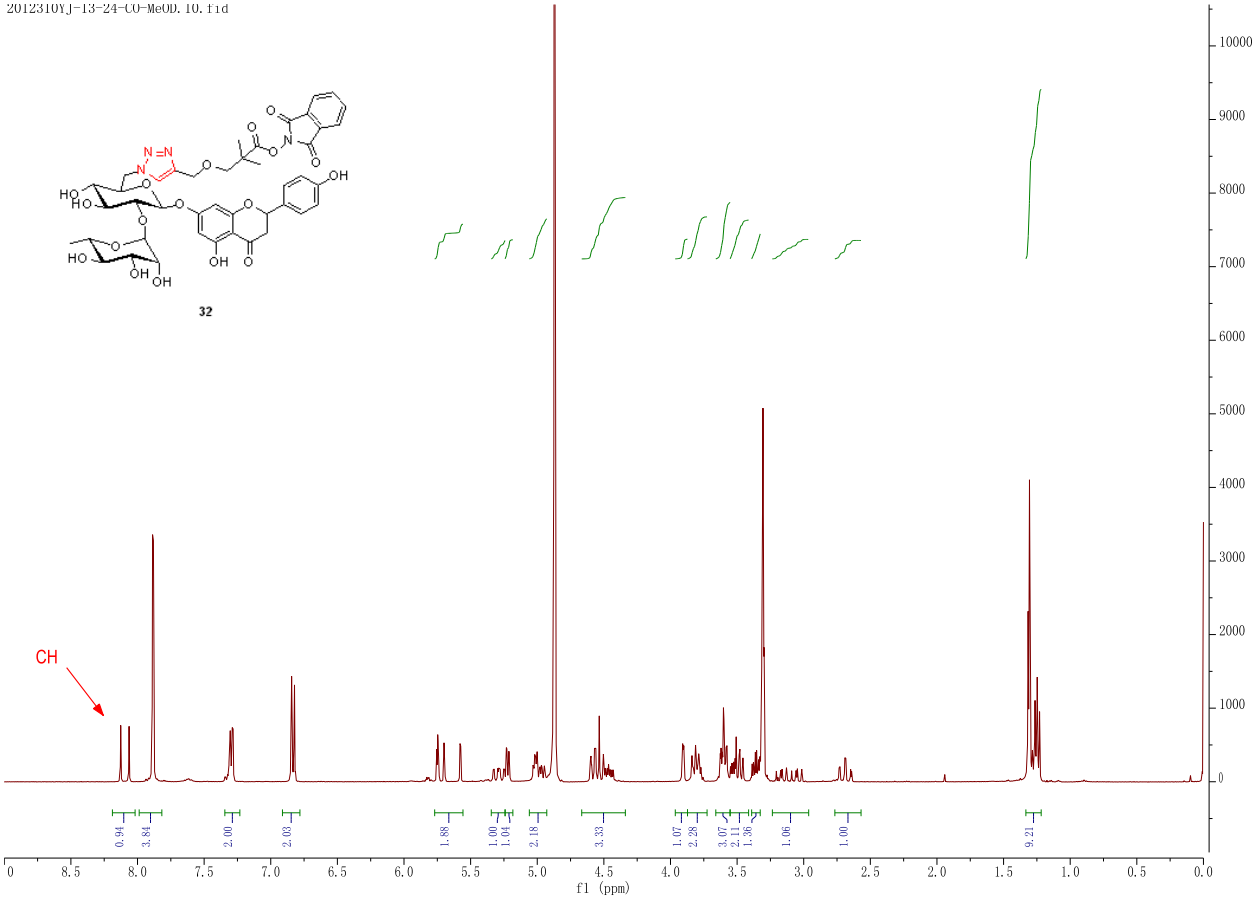

20123101YJ-13-22-H-CO. 10. fid
7.885
7.878
7.864
7.788
7.781
7.775
7.767
7.260
4.276
4.270
3.704
2.451
2.445
2.439
1.441
1.435
1.429
S32-Alkyne
2.02
1.97
1.99
2.00
0.91
6.11
f1 (ppm)

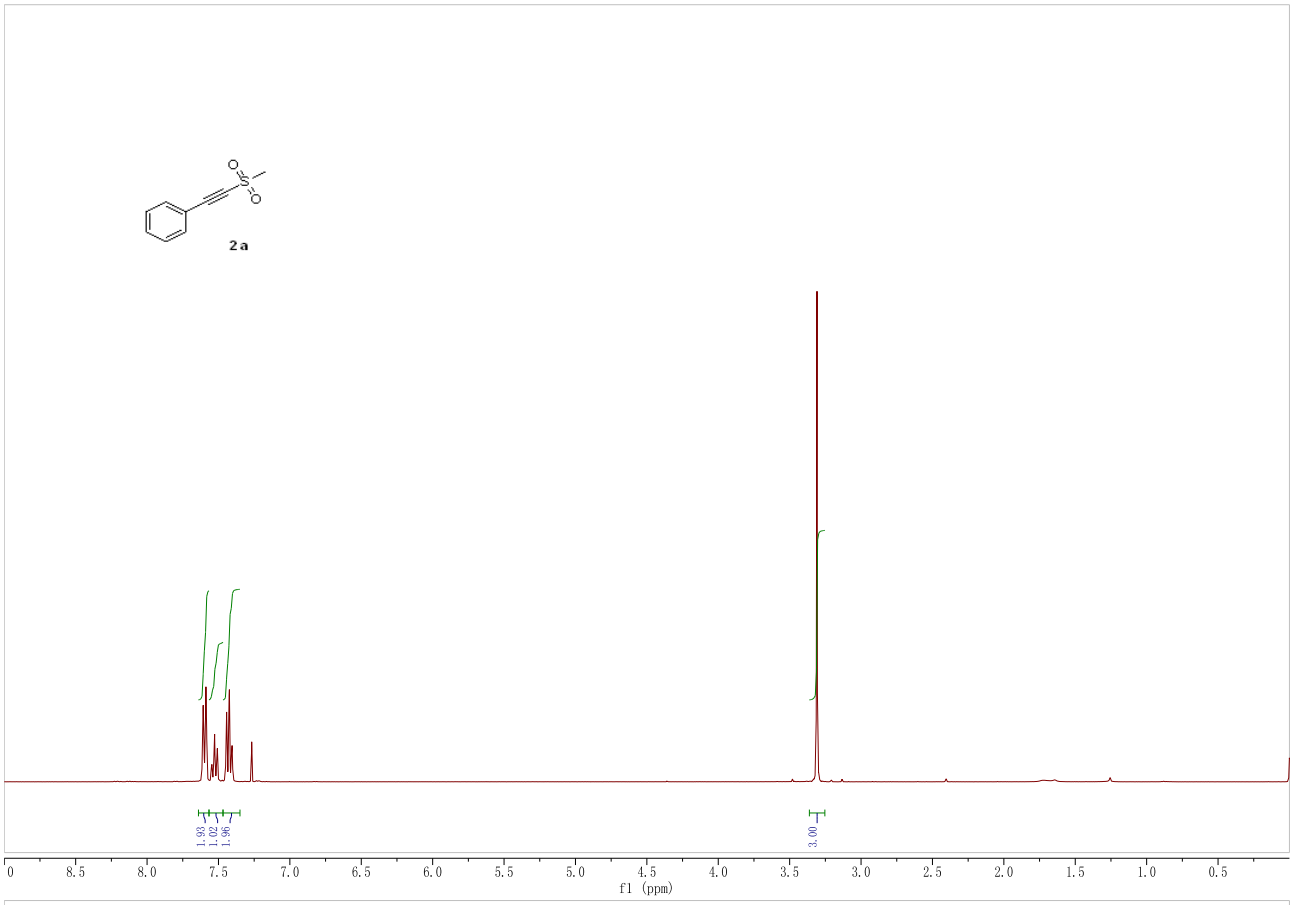

172.35
161.90
134.65
128.98
123.85
79.42
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
75.66
74.60
58.78
43.33
22.21
S32-Alkyne
f1 (ppm)

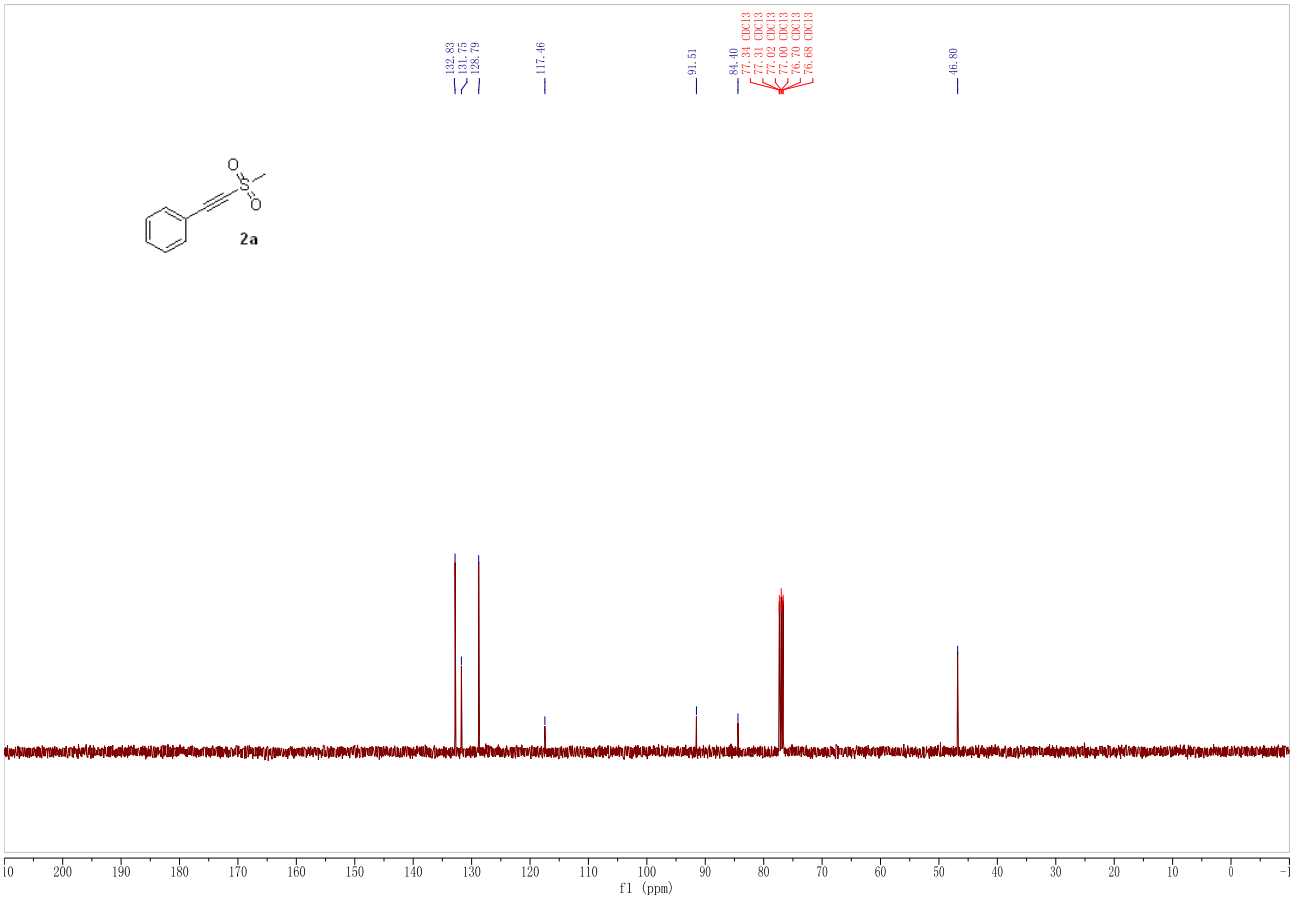

OMs
S32-OMs
OMs
CH2

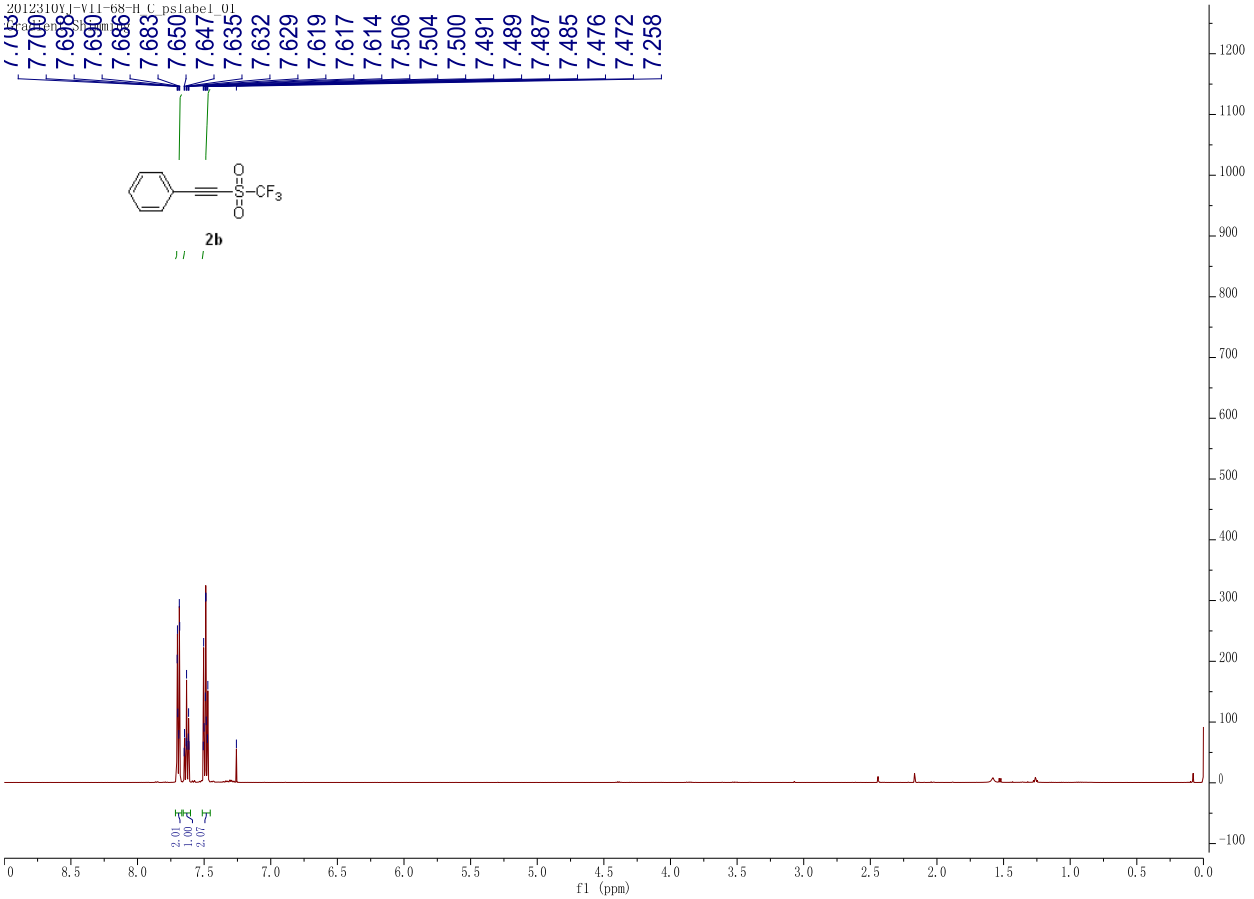

ZJ-II-36-CO
N3
S32-N3

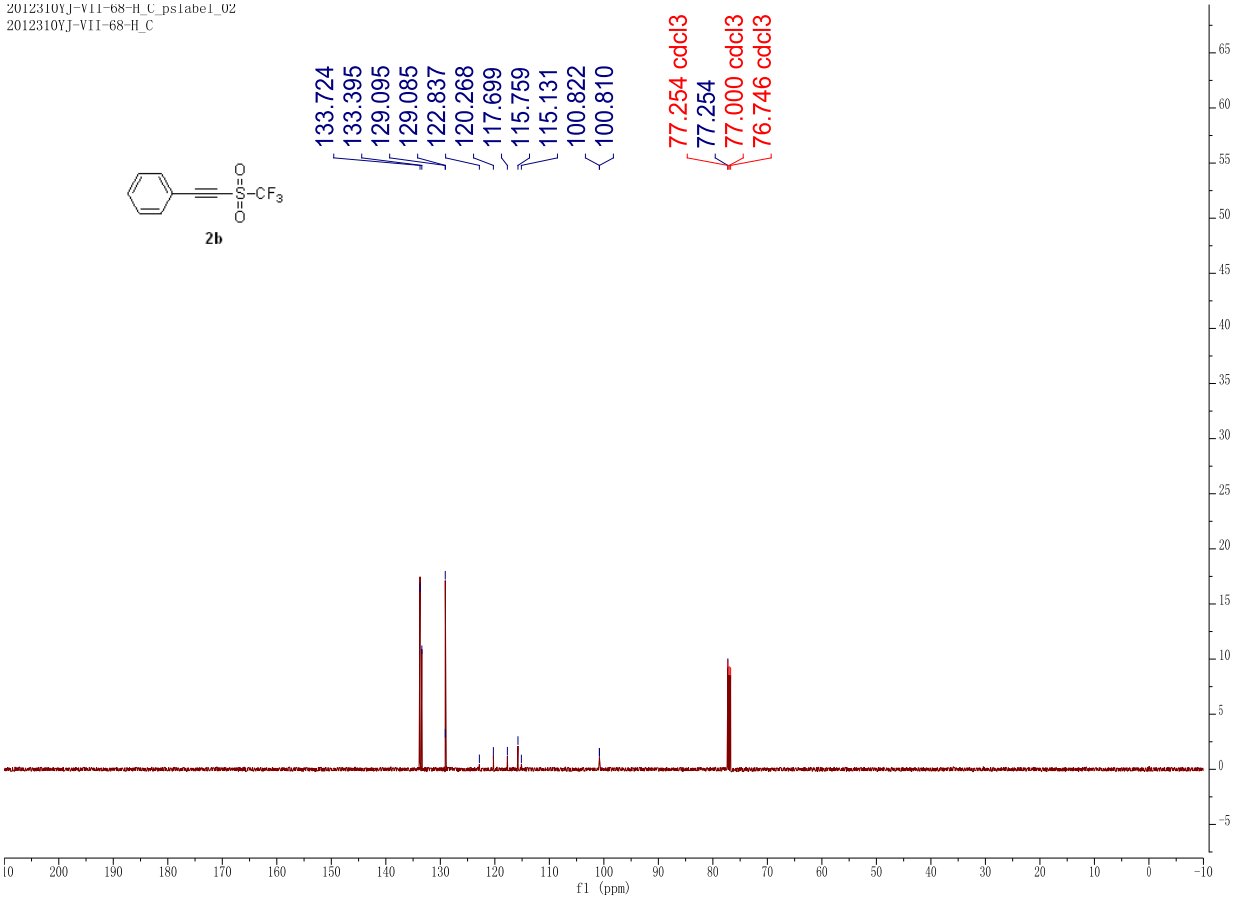

20123101J-12-sugar-NOP PROTON 01
Gradient Shimming
32'
CH
f1 (ppm)

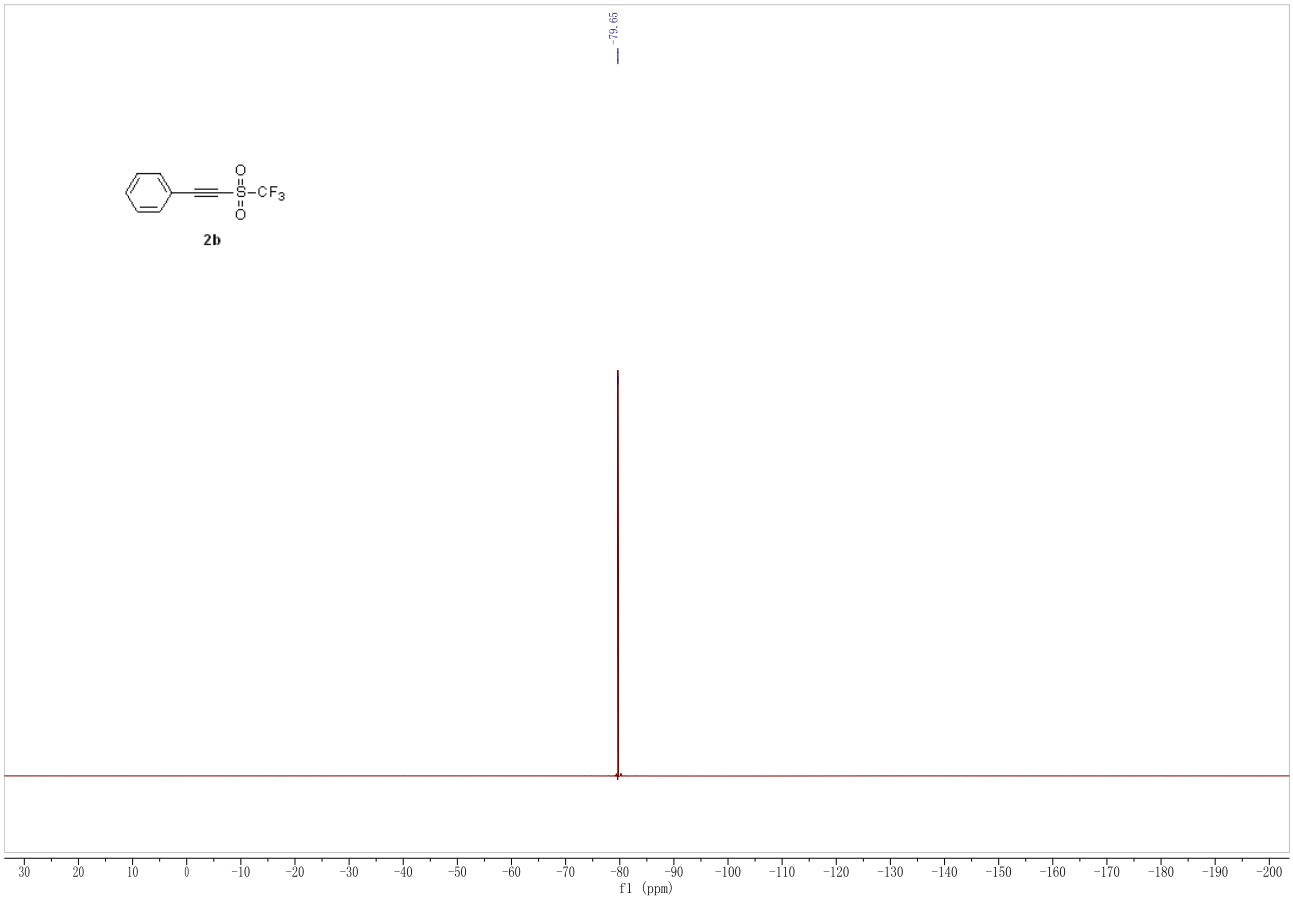

20123101J-13-24-CO-MeOD.10.fid
32
CH
f1 (ppm)

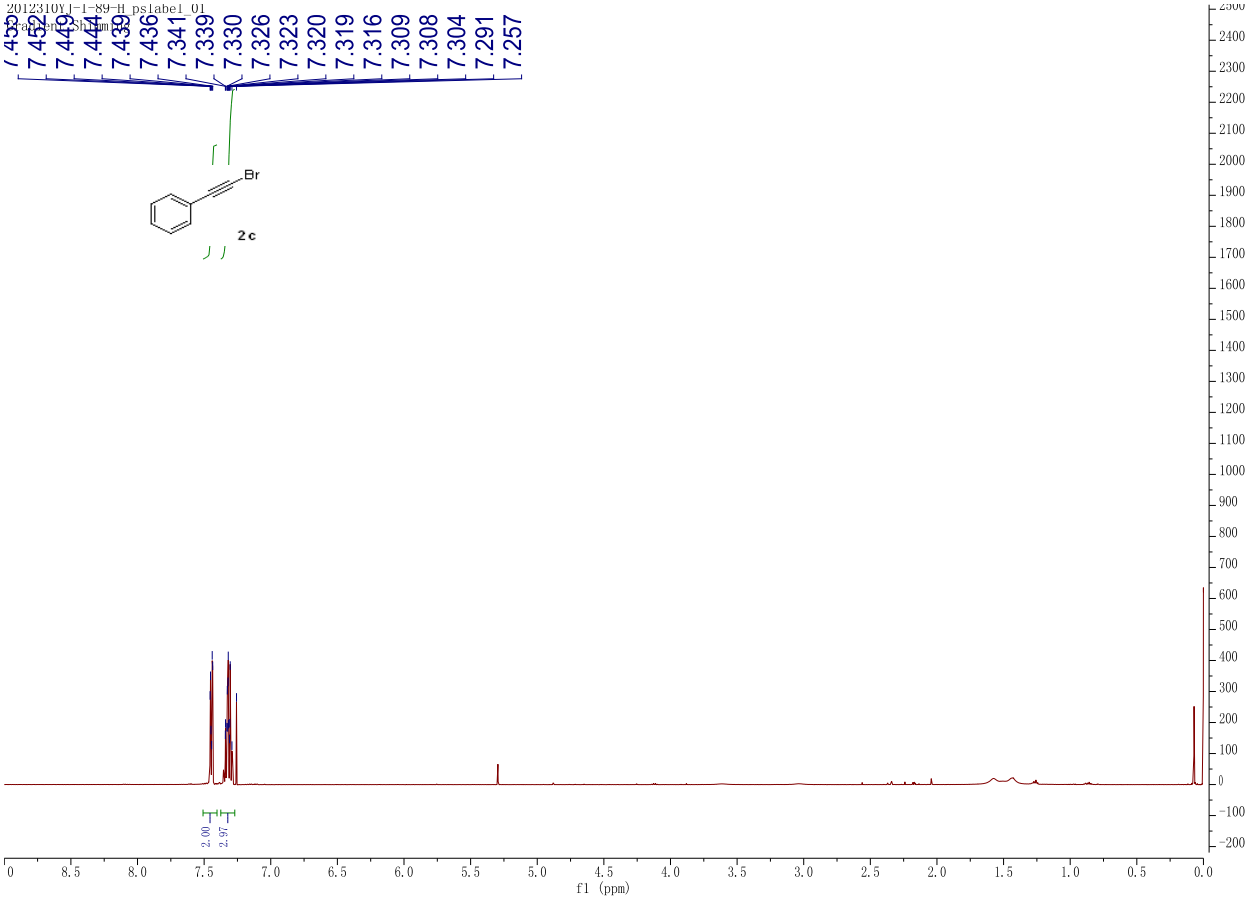

2a
1.93
1.02
1.96
3.00
f1 (ppm)

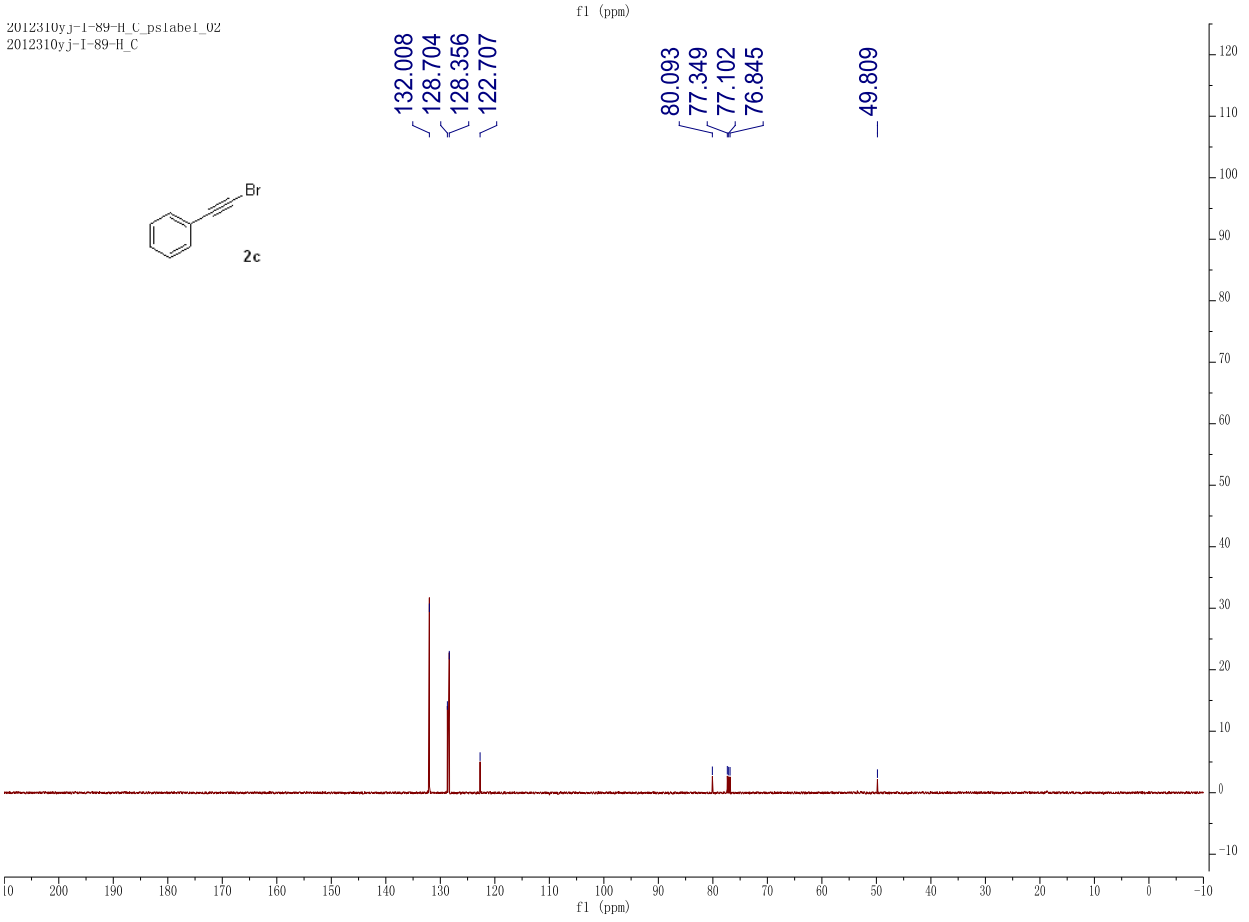

132.83
131.75
128.79
117.46
91.51
84.40
77.34 CDCl3
77.31 CDCl3
77.02 CDCl3
77.00 CDCl3
76.70 CDCl3
76.68 CDCl3
46.80
2a
f1 (ppm)

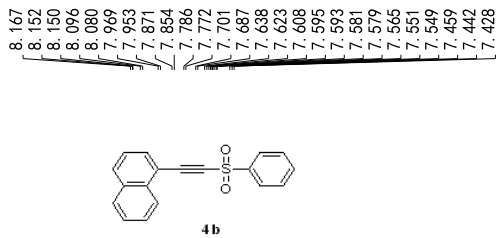

2012310YJ-VII-68-H_C_pslabel_01
7.703
7.698
7.690
7.686
7.683
7.650
7.647
7.635
7.632
7.629
7.619
7.617
7.614
7.506
7.504
7.500
7.491
7.489
7.487
7.485
7.476
7.472
7.258
O
S
O
CF3
2b
2.01
1.00
2.05
f1 (ppm)


2012310YJ-VII-68-H_C_pslabel_02
2012310YJ-VII-68-H_C
133.724
133.395
129.095
129.085
122.837
120.268
117.699
115.759
115.131
100.822
100.810
77.254 cdcl3
77.254
77.000 cdcl3
76.746 cdcl3
O
S
O
CF3
2b
f1 (ppm)

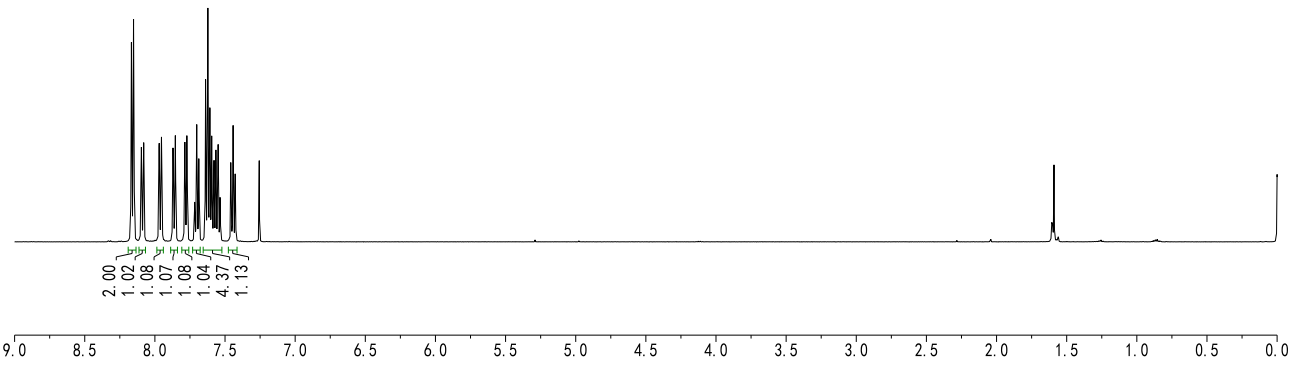

-79.66
O
S
O
CF3
2b
30 20 10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150 -160 -170 -180 -190 -200
f1 (ppm)


2012310YJ-1-89-H_pslabel_01
7.455
7.452
7.449
7.444
7.439
7.436
7.341
7.339
7.330
7.326
7.323
7.320
7.319
7.316
7.309
7.308
7.304
7.291
7.257
Br
2c
2.00
2.97
f1 (ppm)

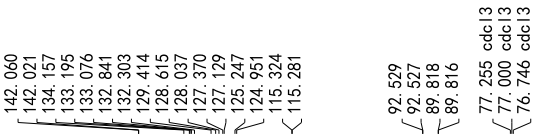

2012310yj-1-89-H_C_pslabel_02
2012310yj-I-89-H_C
132.008
128.704
128.356
122.707
80.093
77.349
77.102
76.845
49.809
Br
2c
f1 (ppm)

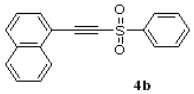

8.167
8.152
8.150
8.096
8.080
7.969
7.953
7.871
7.854
7.786
7.772
7.701
7.687
7.638
7.623
7.608
7.595
7.593
7.581
7.579
7.565
7.551
7.549
7.459
7.442
7.428

4b

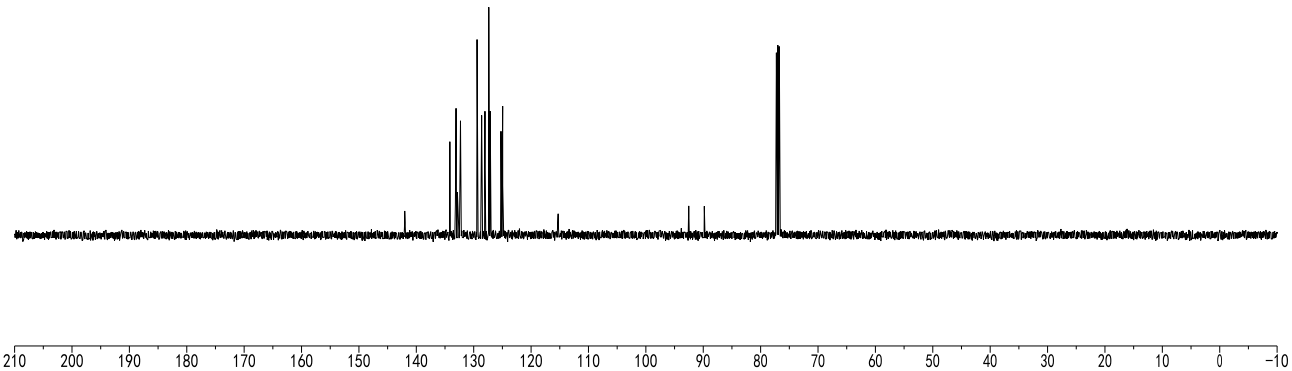

2.00
1.02
1.08
1.07
1.08
1.04
4.37
1.13

9.0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0

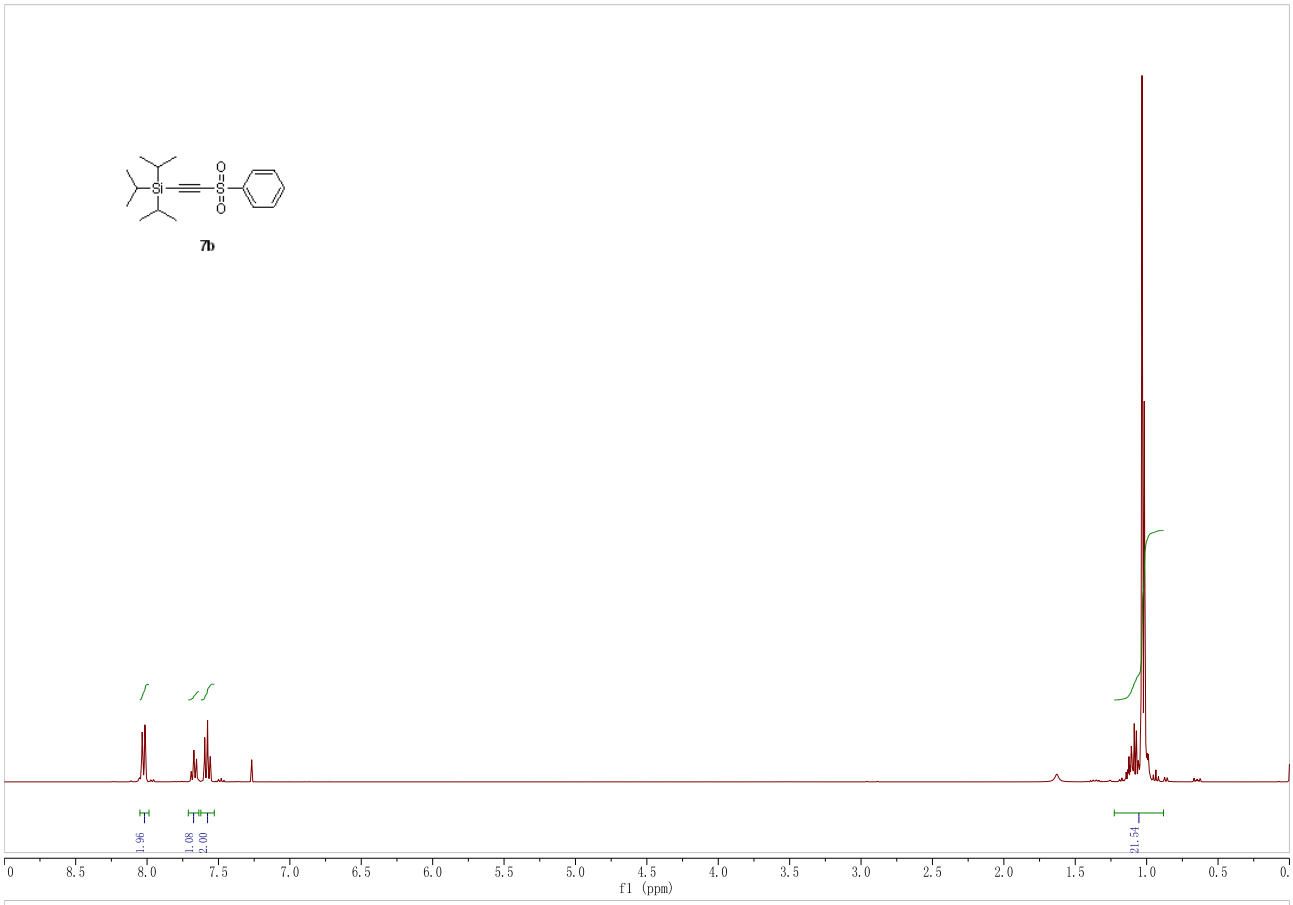

142.060
142.021
134.157
133.195
133.076
132.841
132.303
129.414
128.615
128.037
127.370
127.129
125.247
124.951
115.324
115.281
92.529
92.527
89.818
89.816
77.255 cdcl3
77.000 cdcl3
76.746 cdcl3

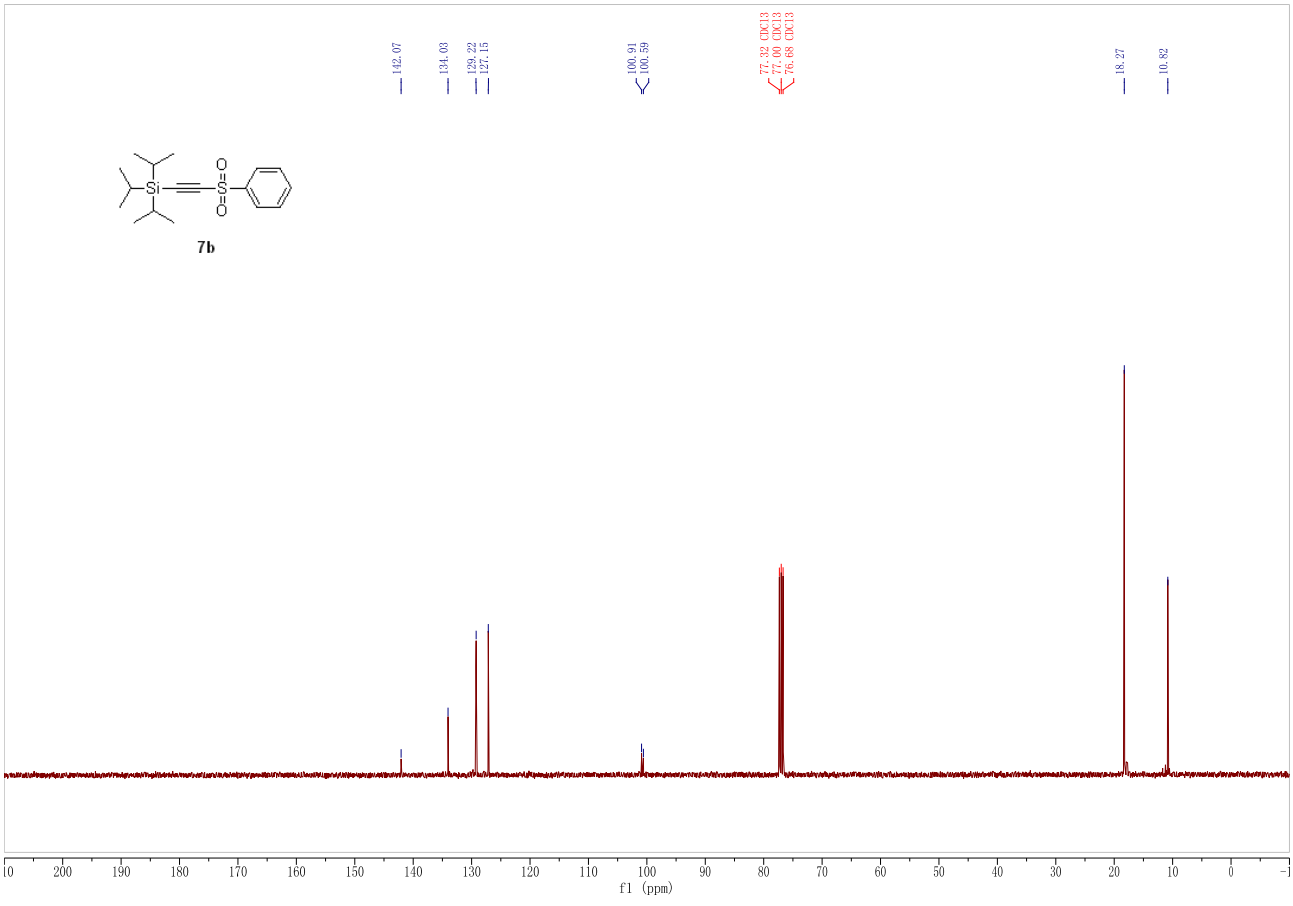


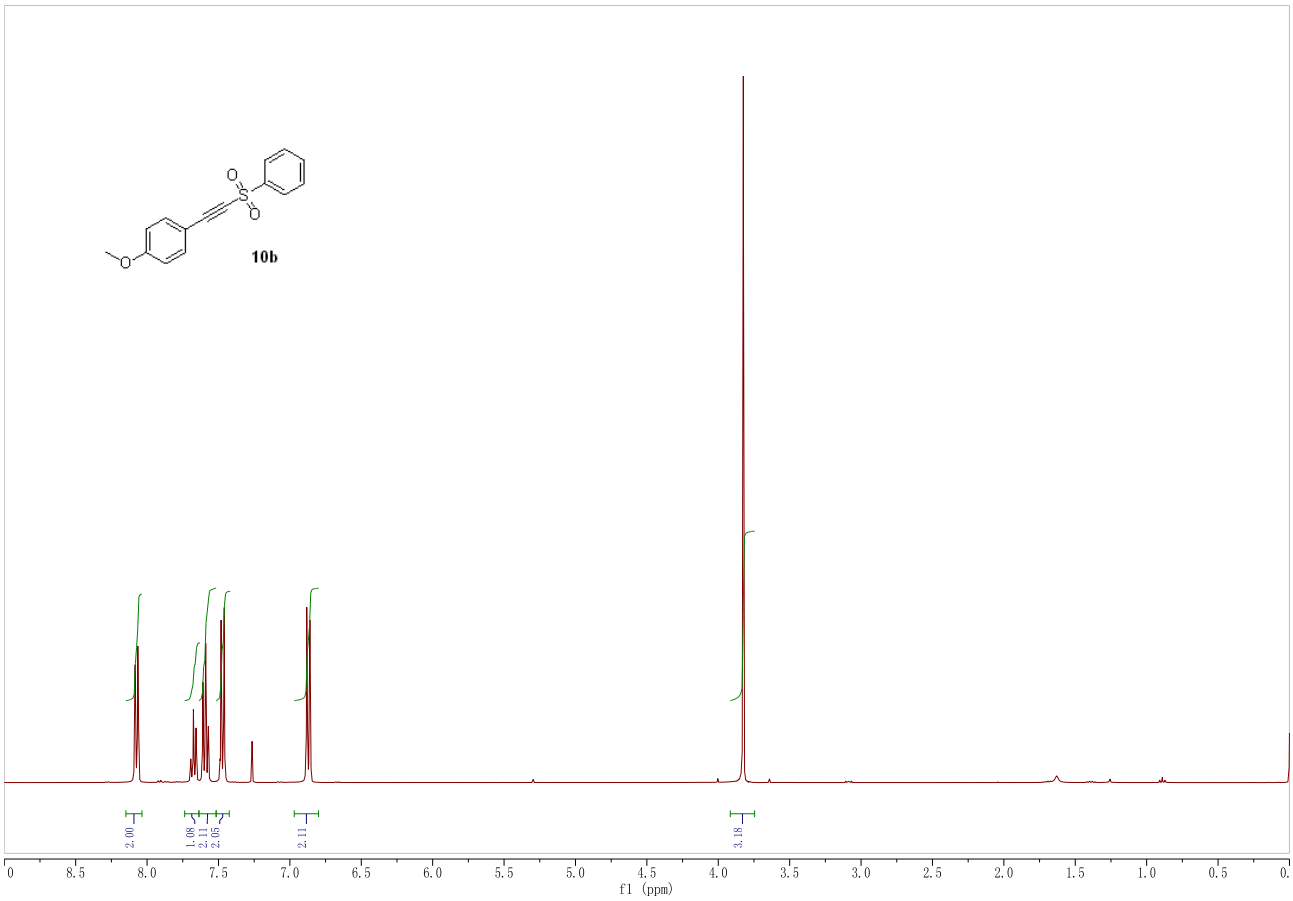
4b

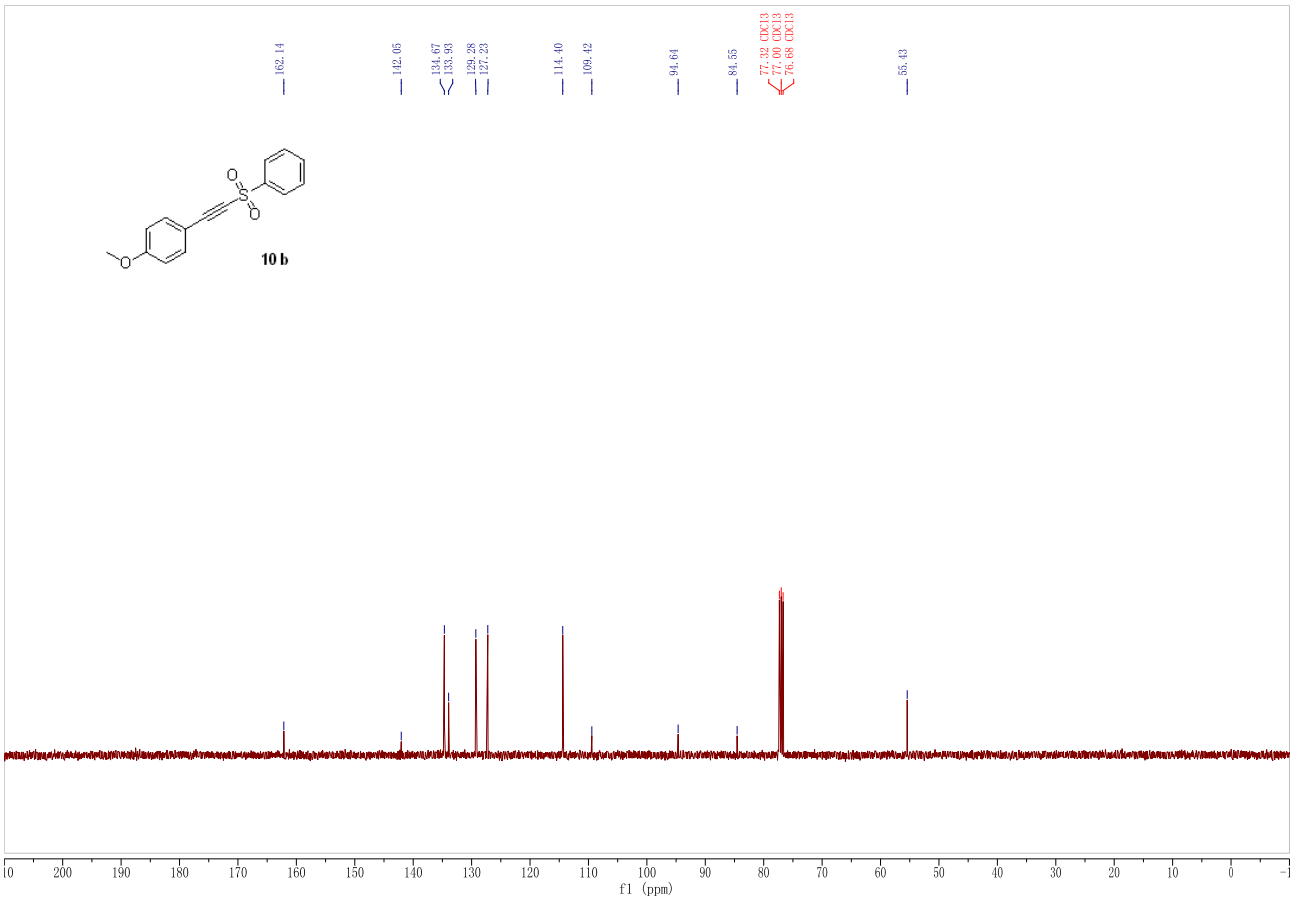


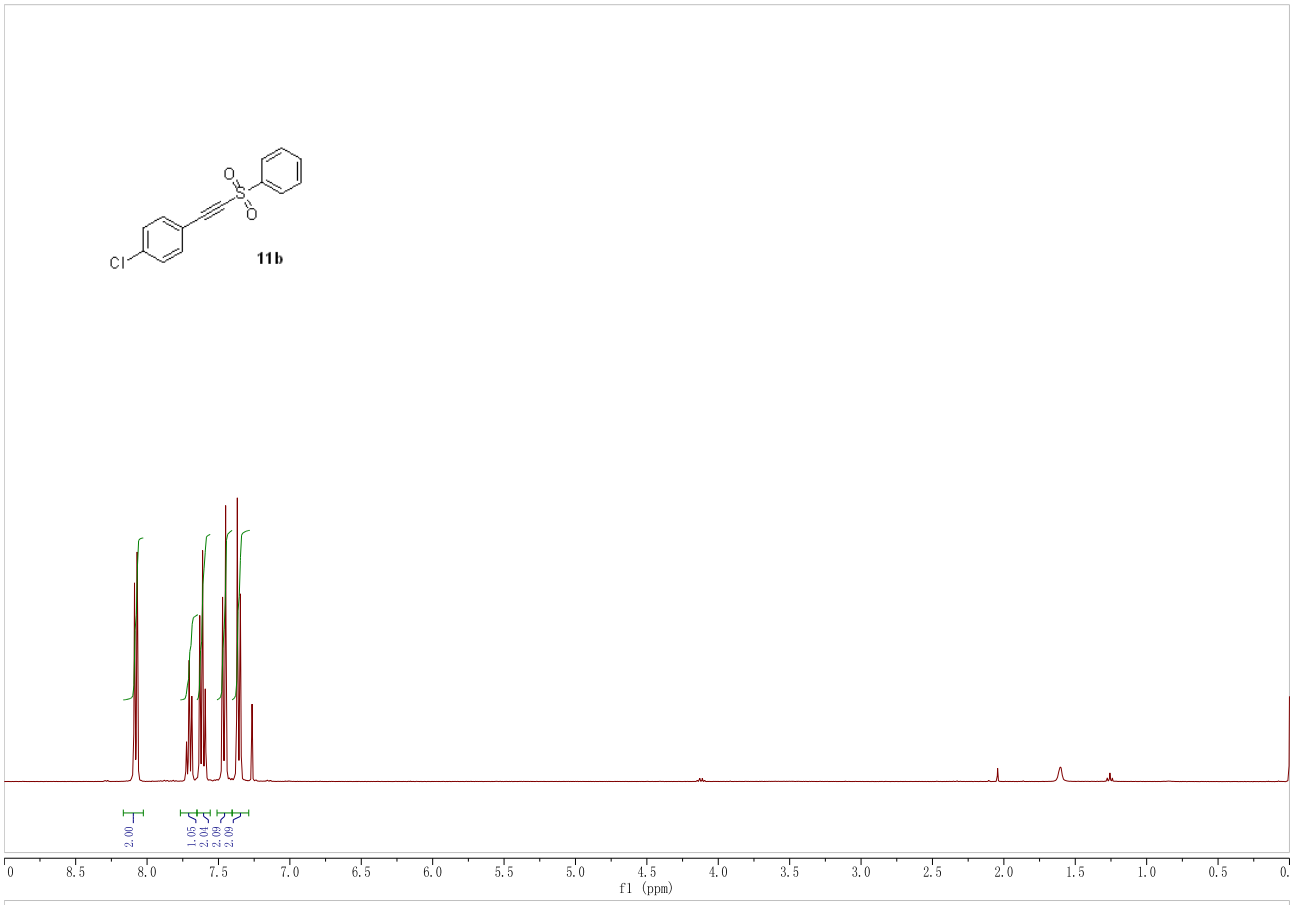
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
−10

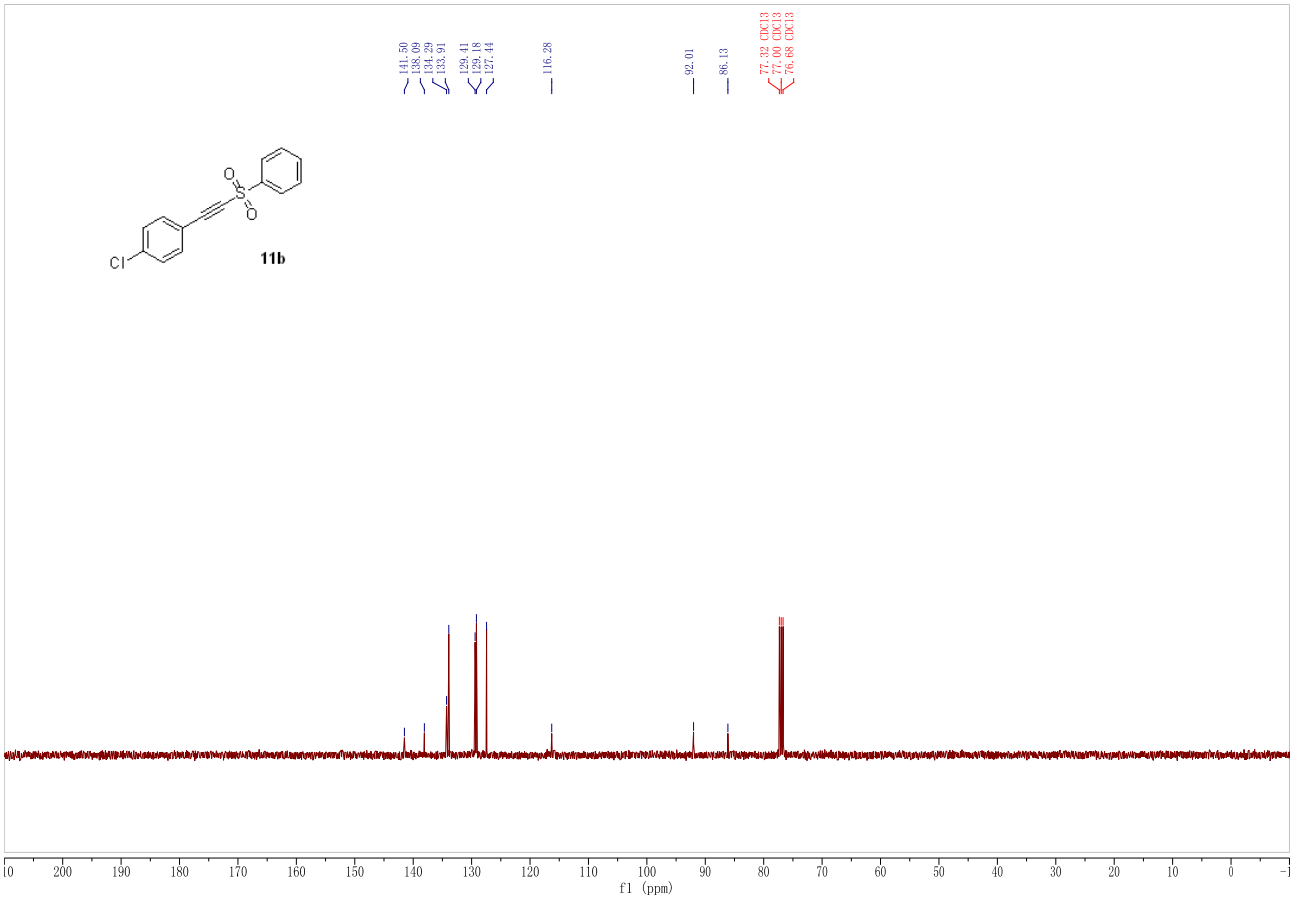

7b
1.96
1.08
2.00
21.54
f1 (ppm)

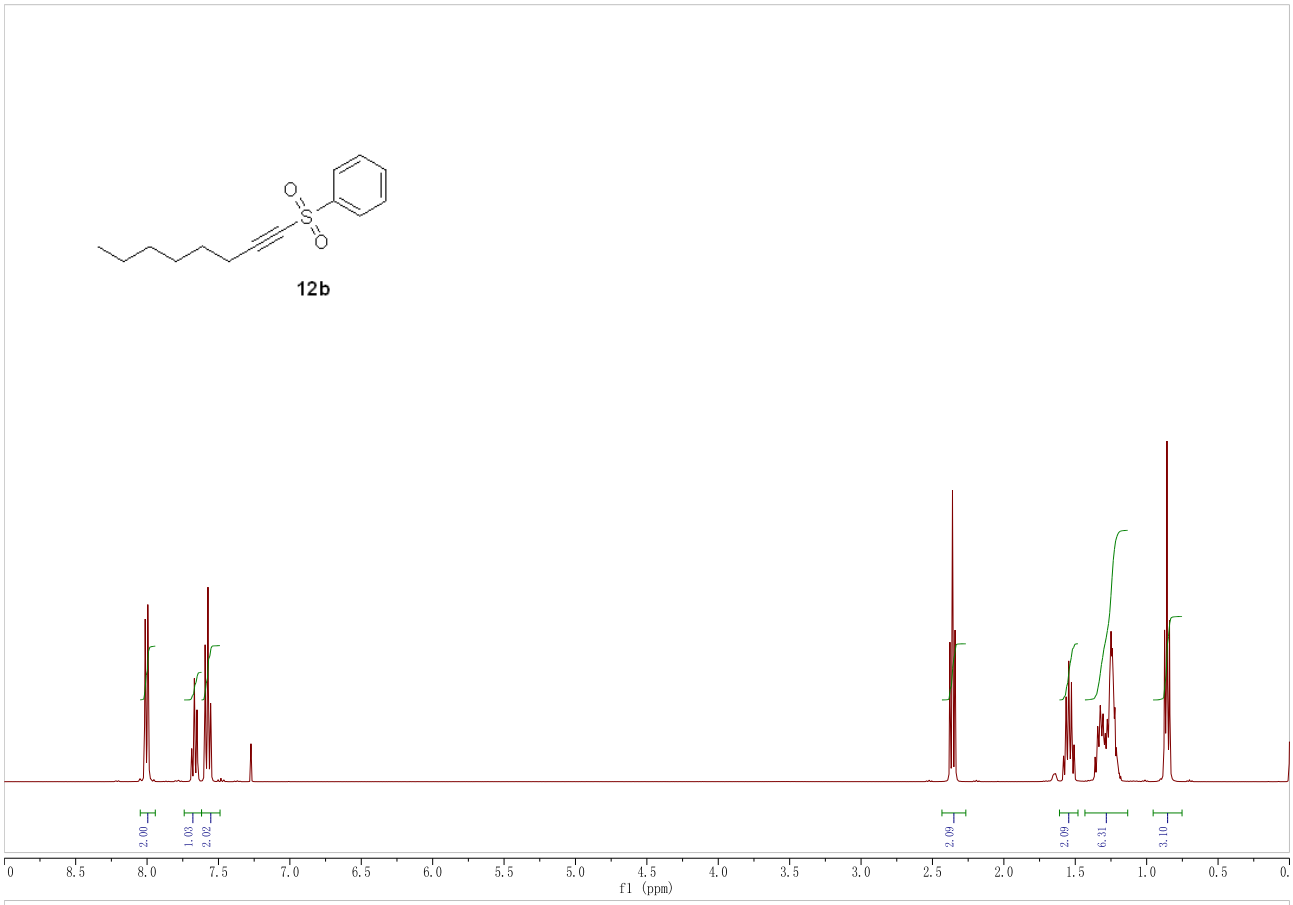

142.07
134.03
129.22
127.15
100.91
100.59
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
18.27
10.82
7b
f1 (ppm)

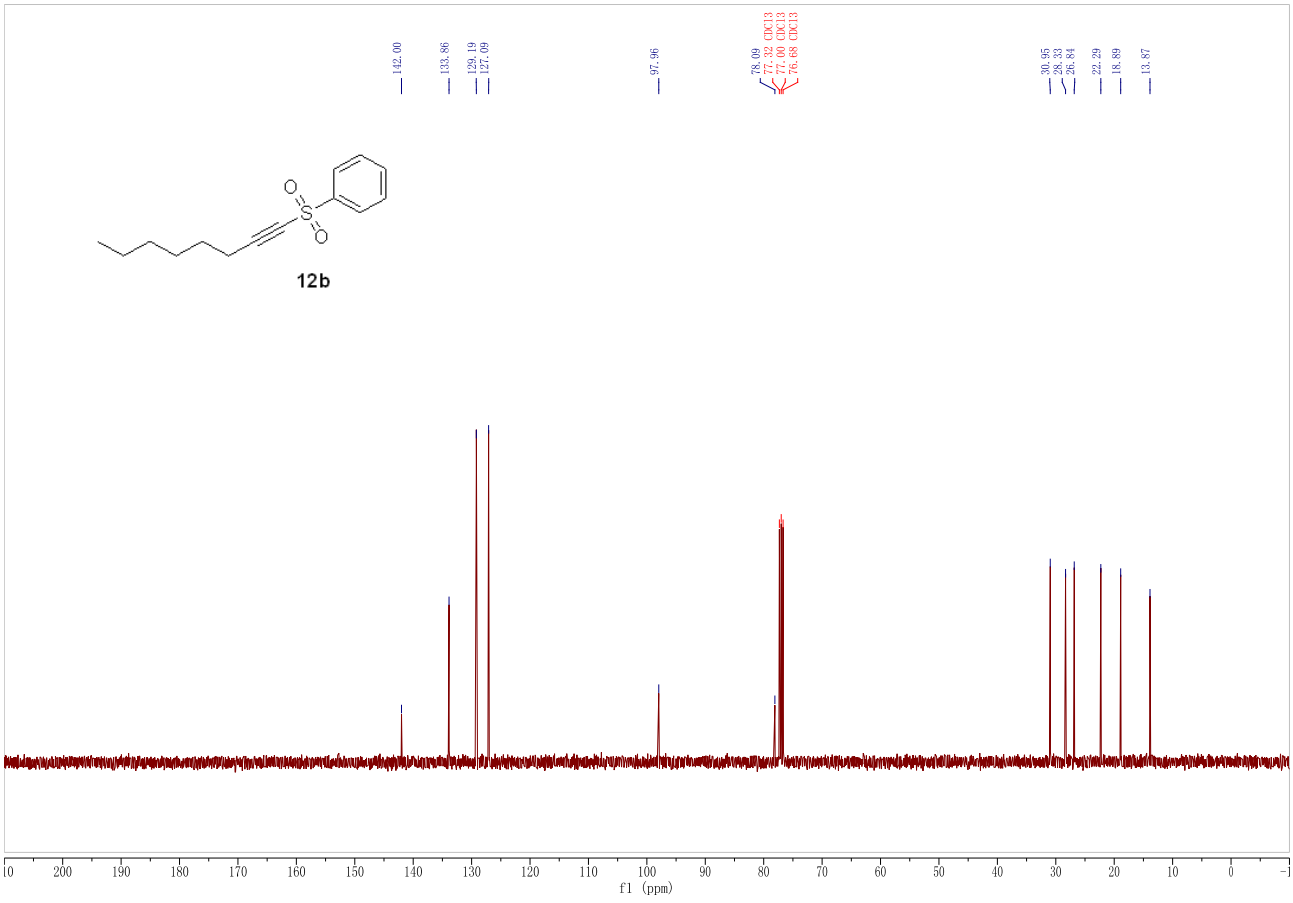

10b
2.00
1.08
2.11
2.05
2.11
3.18
f1 (ppm)

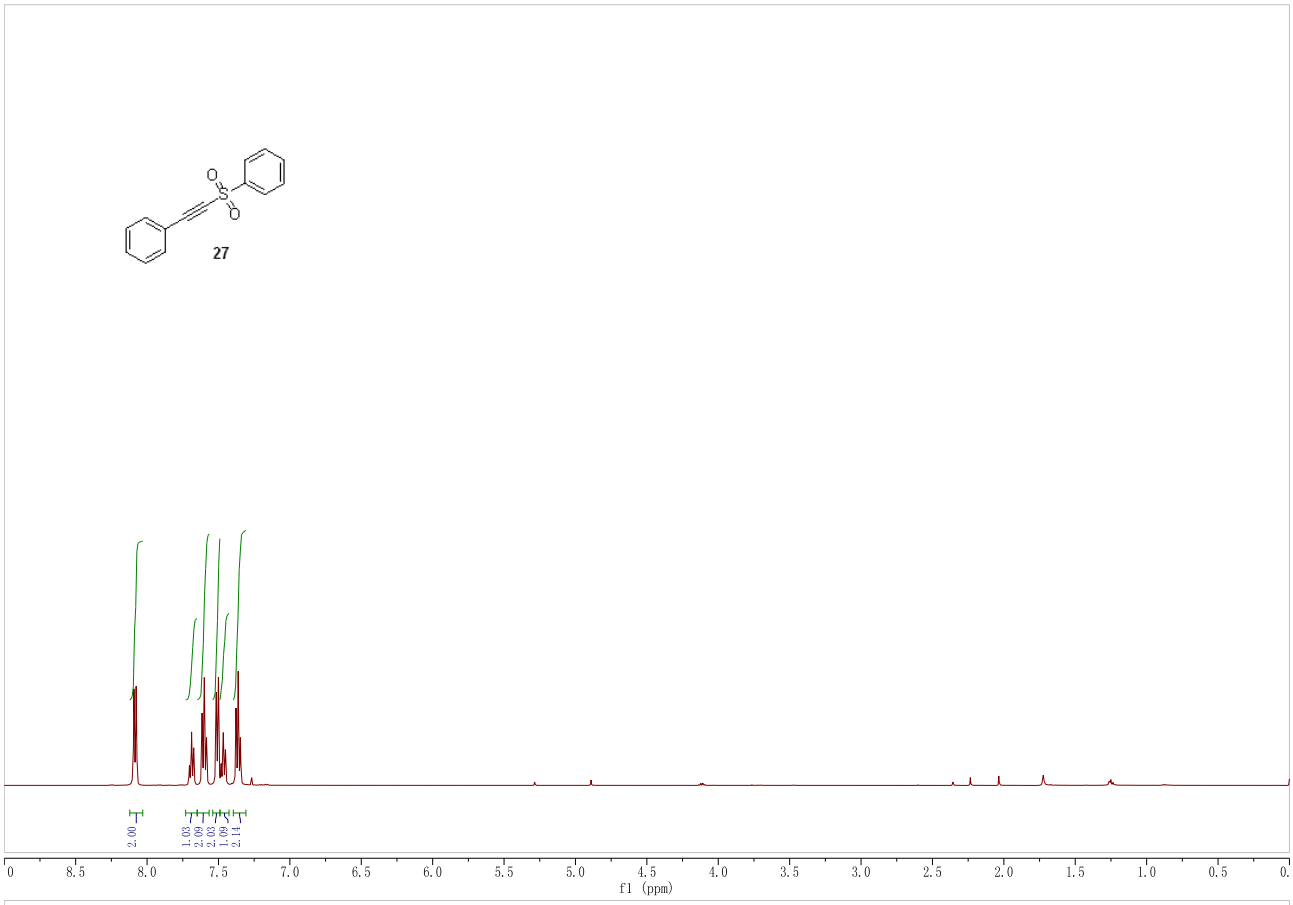

162.14
142.05
134.67
133.93
129.28
127.23
114.40
109.42
94.64
84.55
77.39 CDCl3
77.08 CDCl3
76.68 CDCl3
55.43
10 b
f1 (ppm)

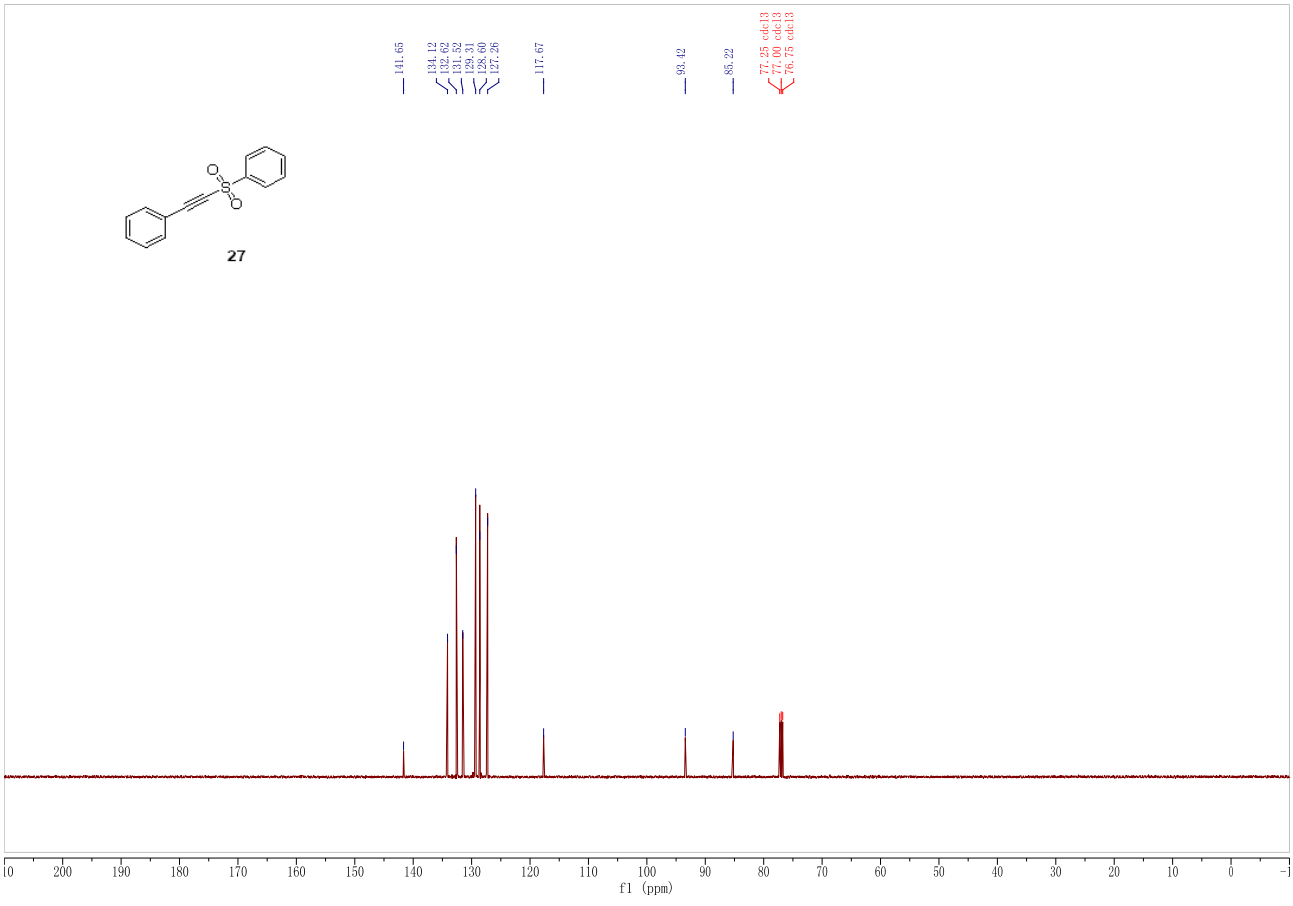

11b
2.00
1.05
2.04
2.00
2.09
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

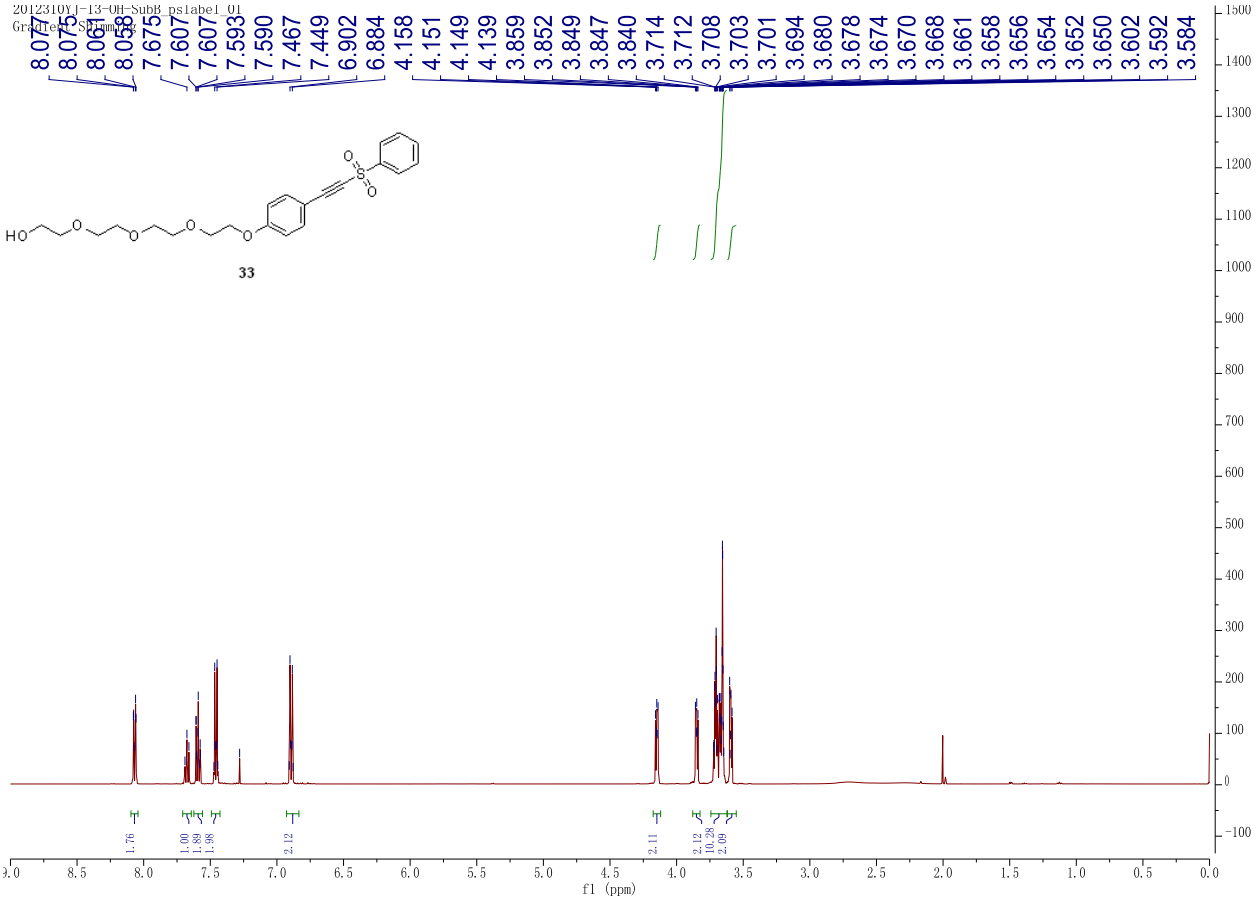

141.50
138.09
134.29
133.91
129.41
129.18
127.44
116.28
92.01
86.13
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
11b
10
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)

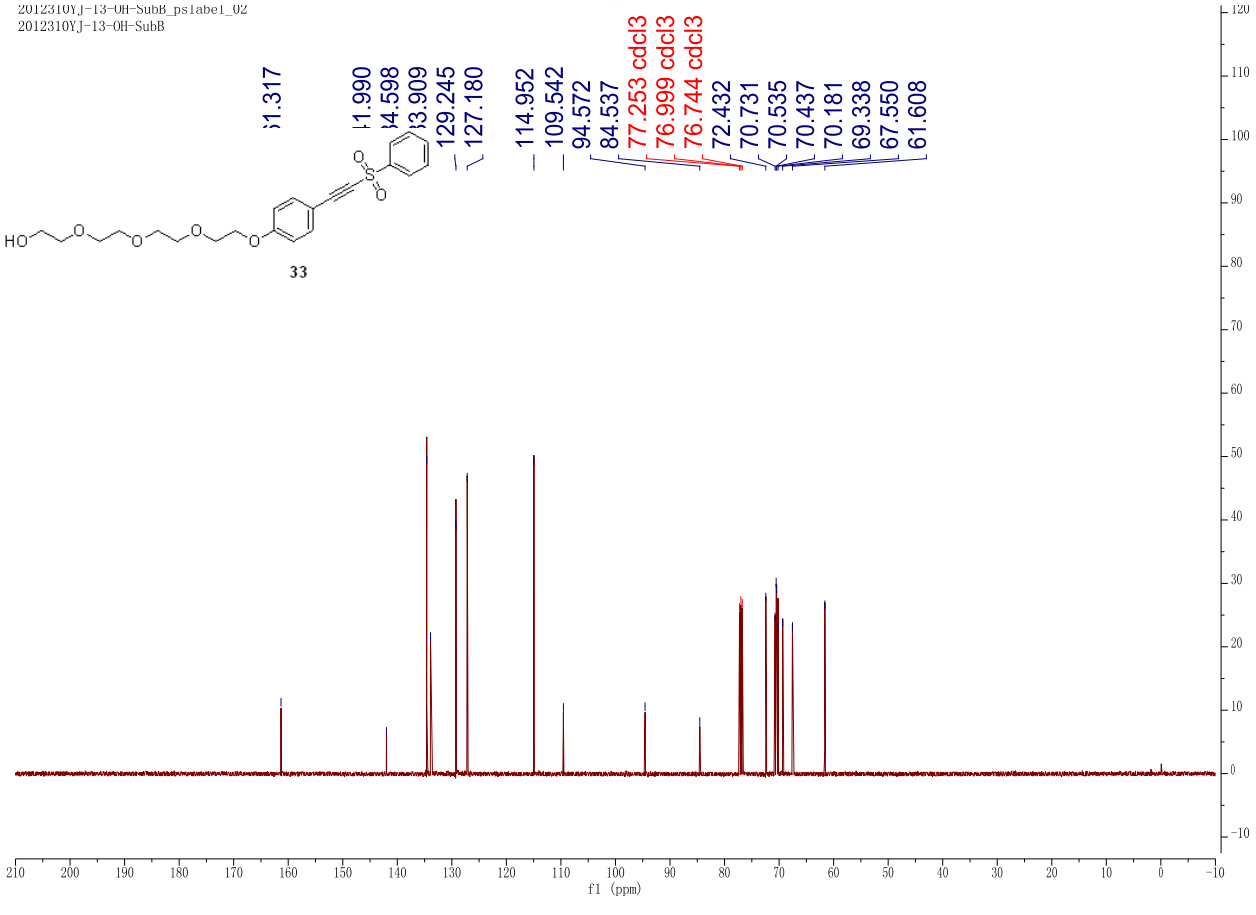

12b
2.00
1.03
2.02
2.09
2.09
6.31
3.10
f1 (ppm)

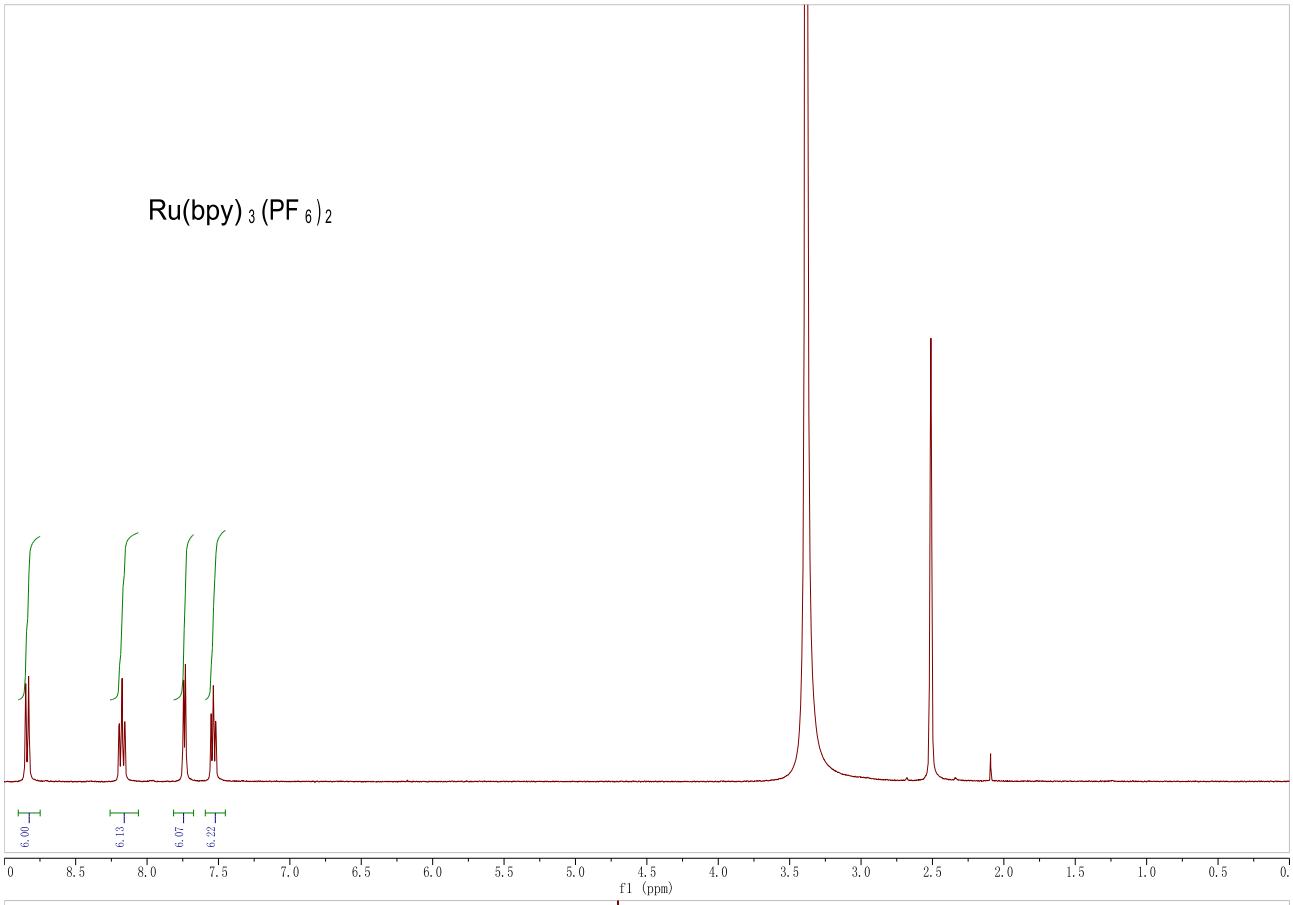

142.00
133.86
129.19
127.09
97.96
78.09
77.32 CDCl3
77.00 CDCl3
76.68 CDCl3
30.95
28.33
26.84
22.29
18.89
13.87
12b
f1 (ppm)

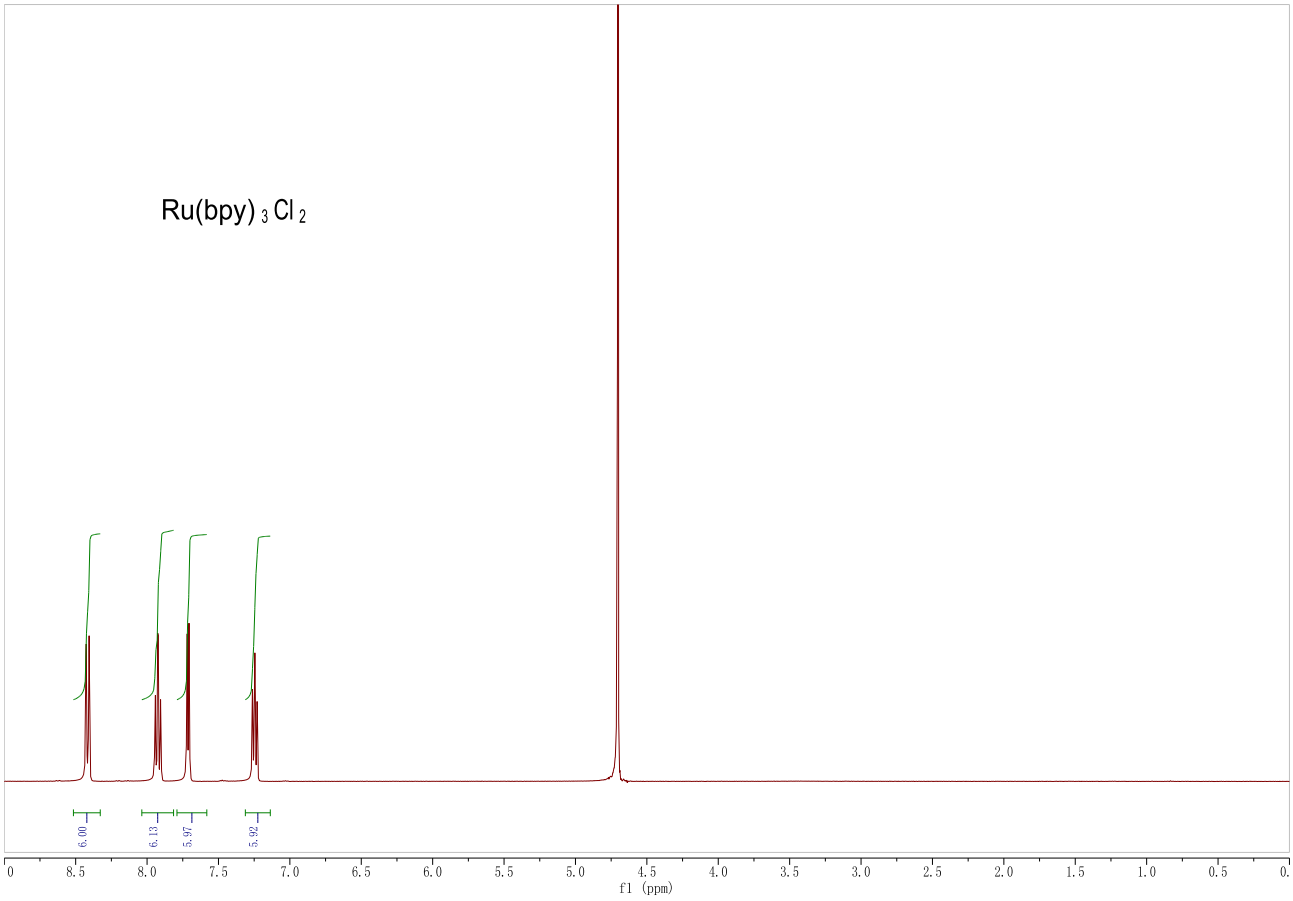

27
2.00
1.03
2.09
2.03
1.09
2.14
f1 (ppm)

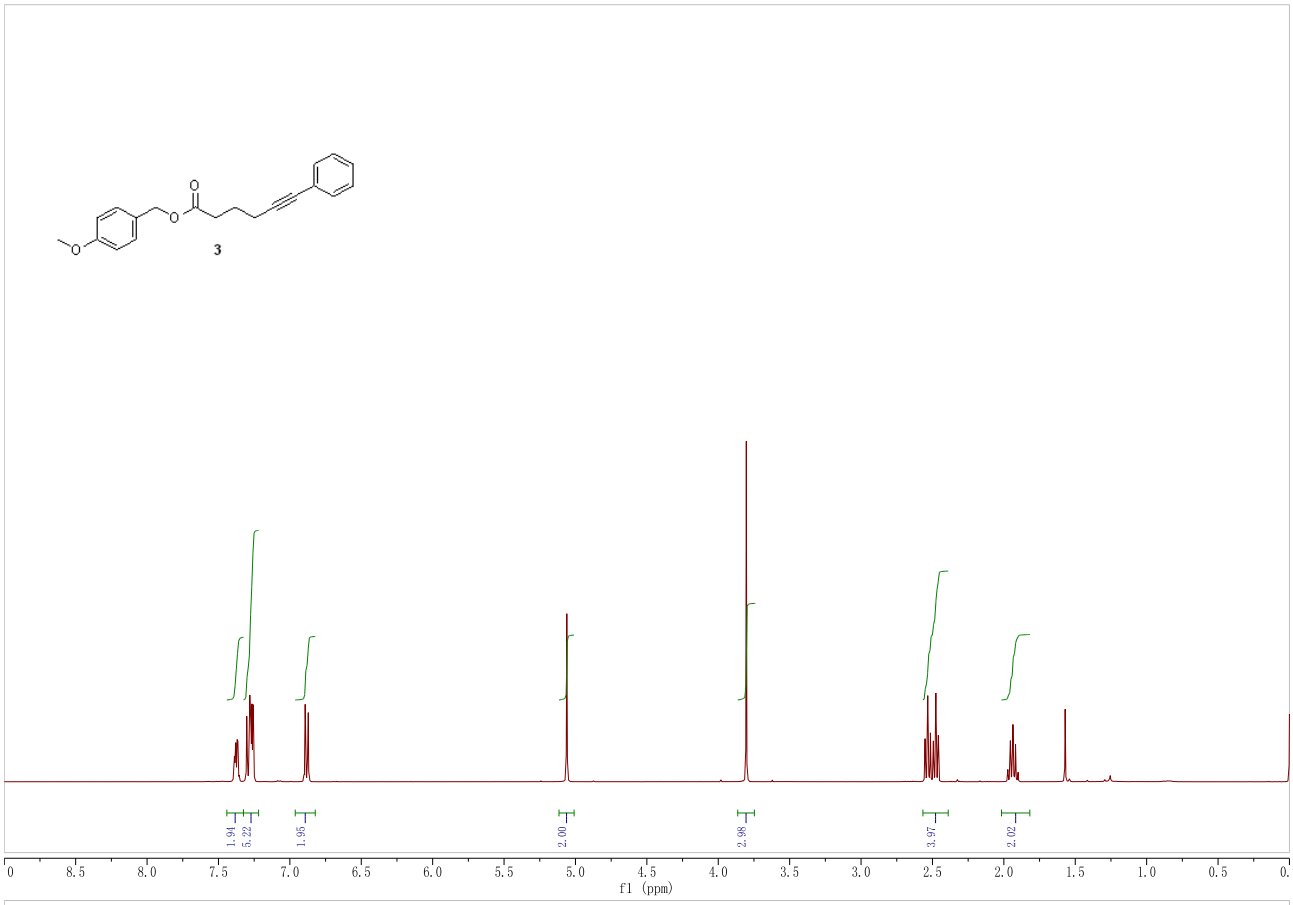

141.65
134.12
132.62
131.52
129.31
128.60
127.26
117.67
93.42
85.22
77.25 cdcl3
77.00 cdcl3
76.75 cdcl3
27
f1 (ppm)

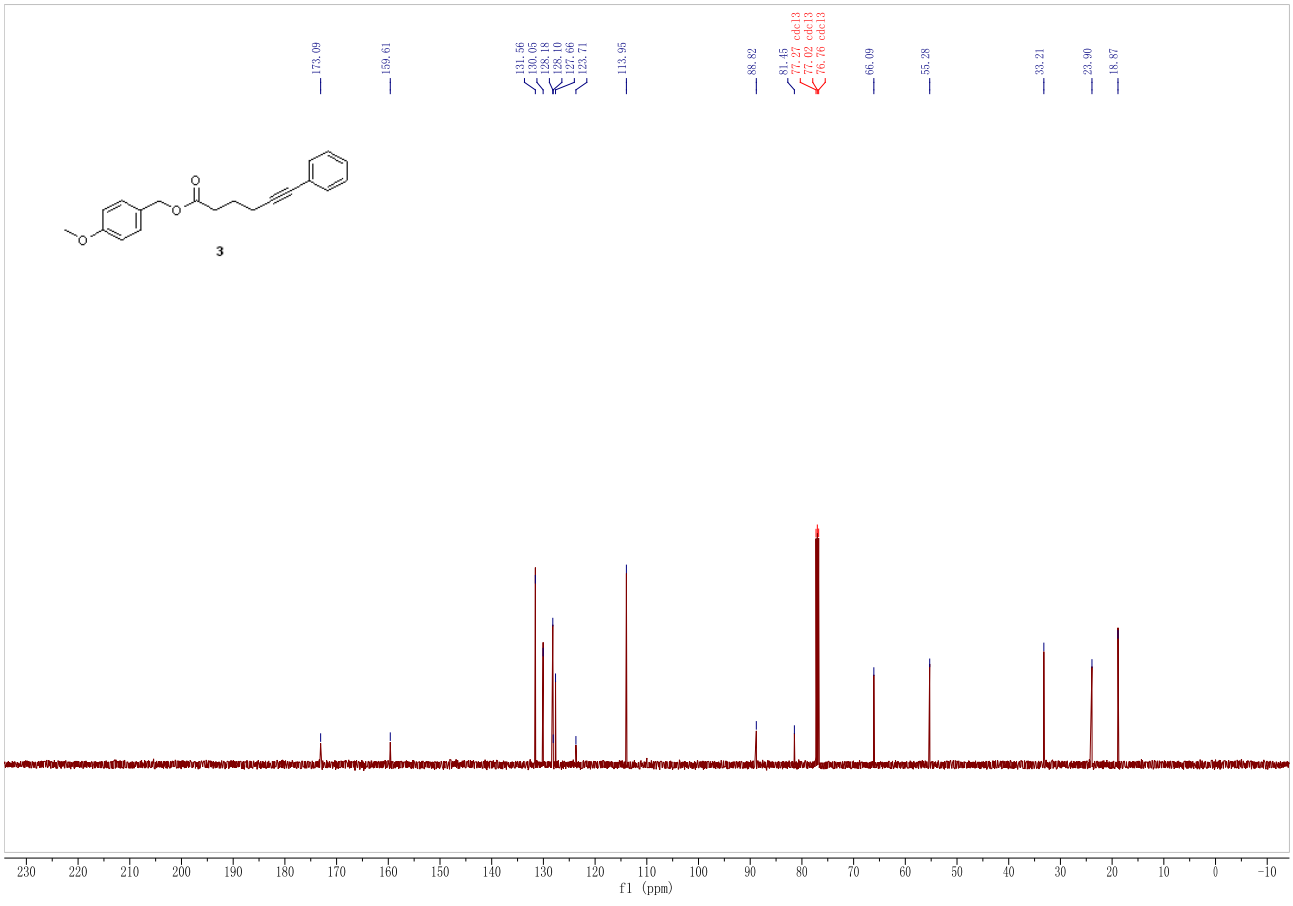

2012310YJ-13-OH-SubB_pslabel_01
8.076
8.004
8.004
8.038
7.675
7.607
7.607
7.593
7.590
7.467
7.449
6.902
6.884
4.158
4.151
4.149
4.139
3.859
3.852
3.849
3.847
3.840
3.714
3.712
3.708
3.703
3.701
3.694
3.680
3.678
3.674
3.670
3.668
3.661
3.658
3.656
3.654
3.652
3.650
3.602
3.592
3.584
HO
33
1.76
1.00
1.89
1.98
2.12
2.11
2.12
10.28
2.09
f1 (ppm)

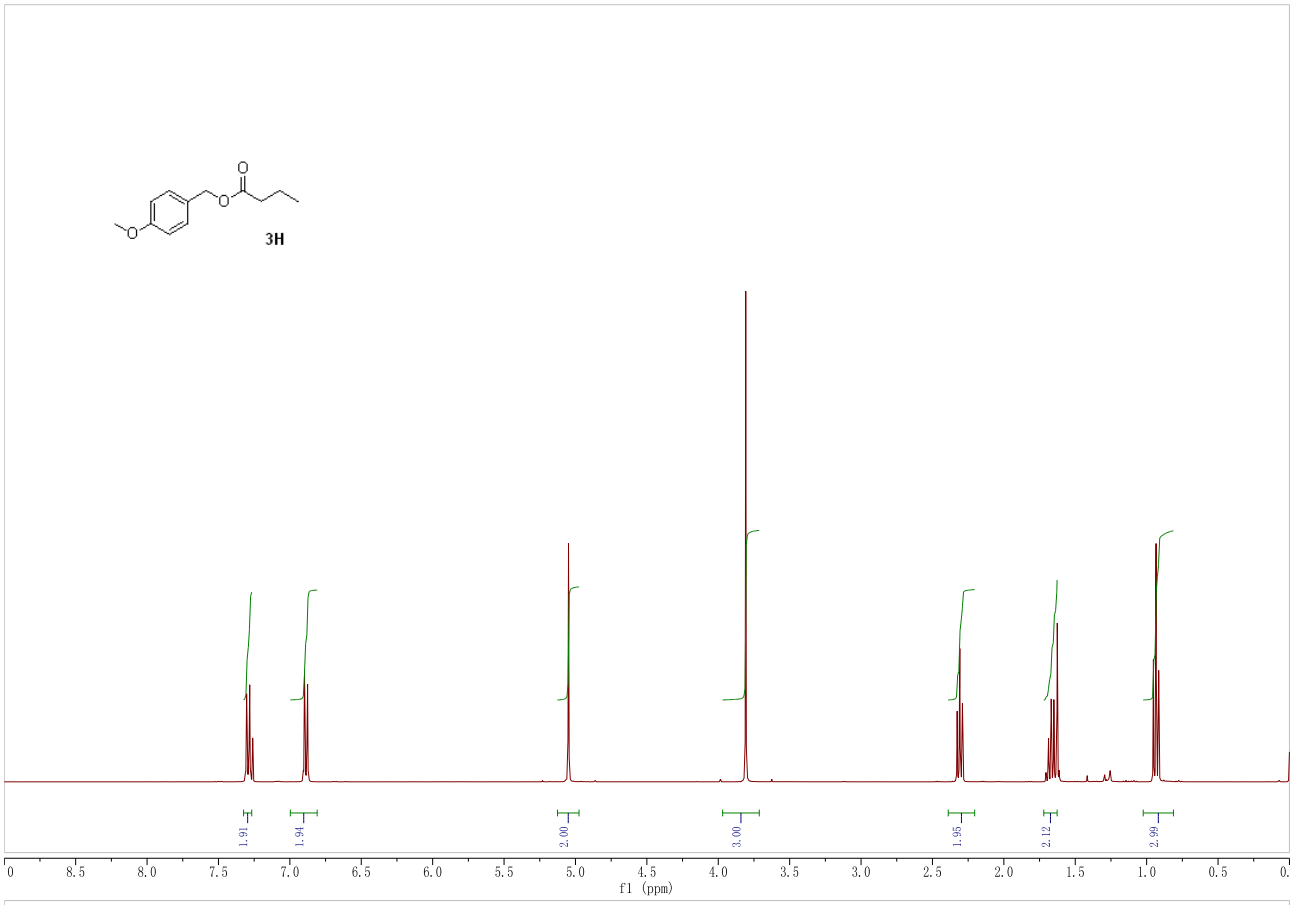

2012310YJ-13-OH-SubB_pslabel_02
2012310YJ-13-OH-SubB
161.317
141.990
134.598
133.909
129.245
127.180
114.952
109.542
94.572
84.537
77.253 cdcl3
76.999 cdcl3
76.744 cdcl3
72.432
70.731
70.535
70.437
70.181
69.338
67.550
61.608
HO
33
f1 (ppm)

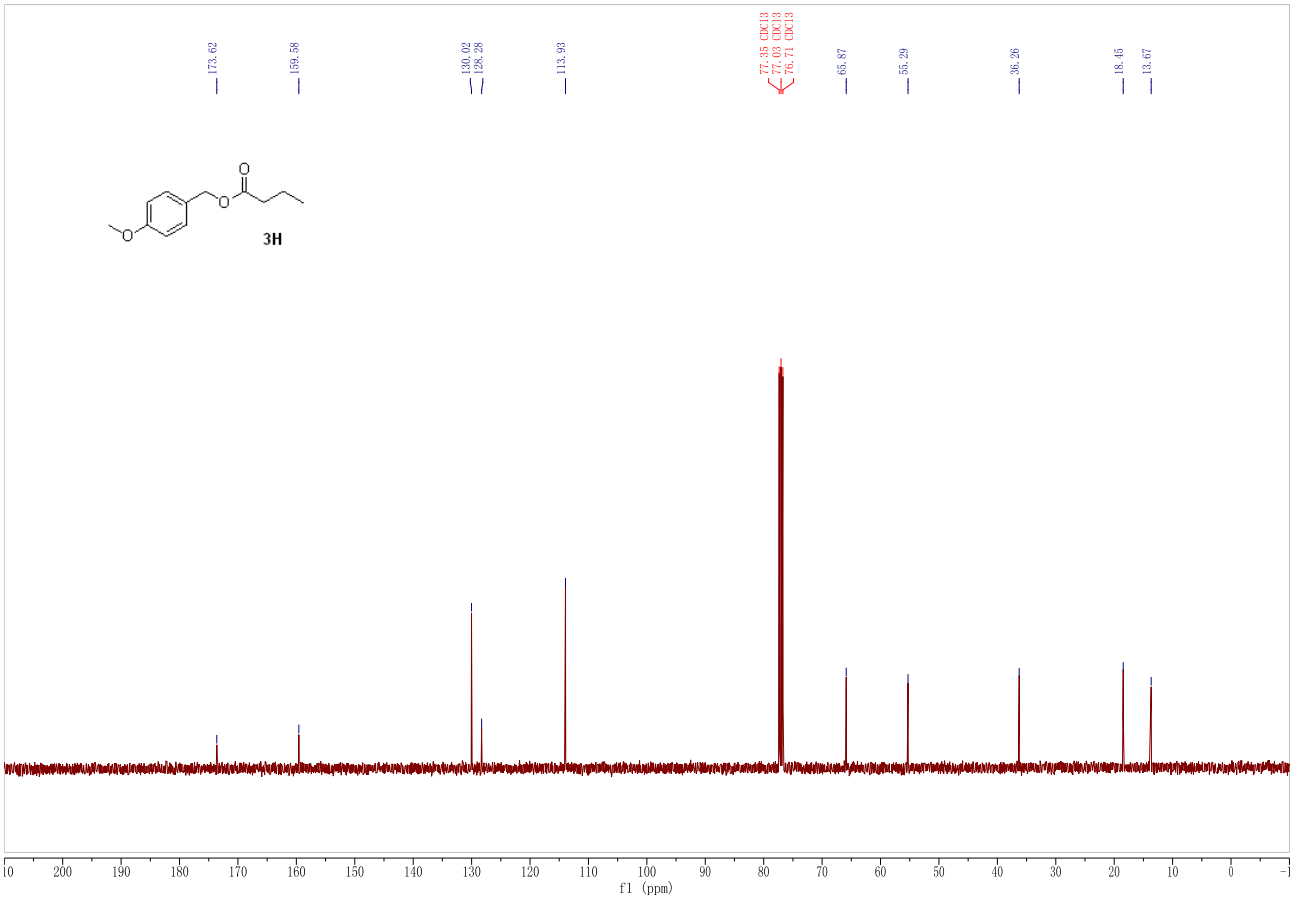

Ru(bpy)3(PF6)2
6.00
6.13
6.07
6.22
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

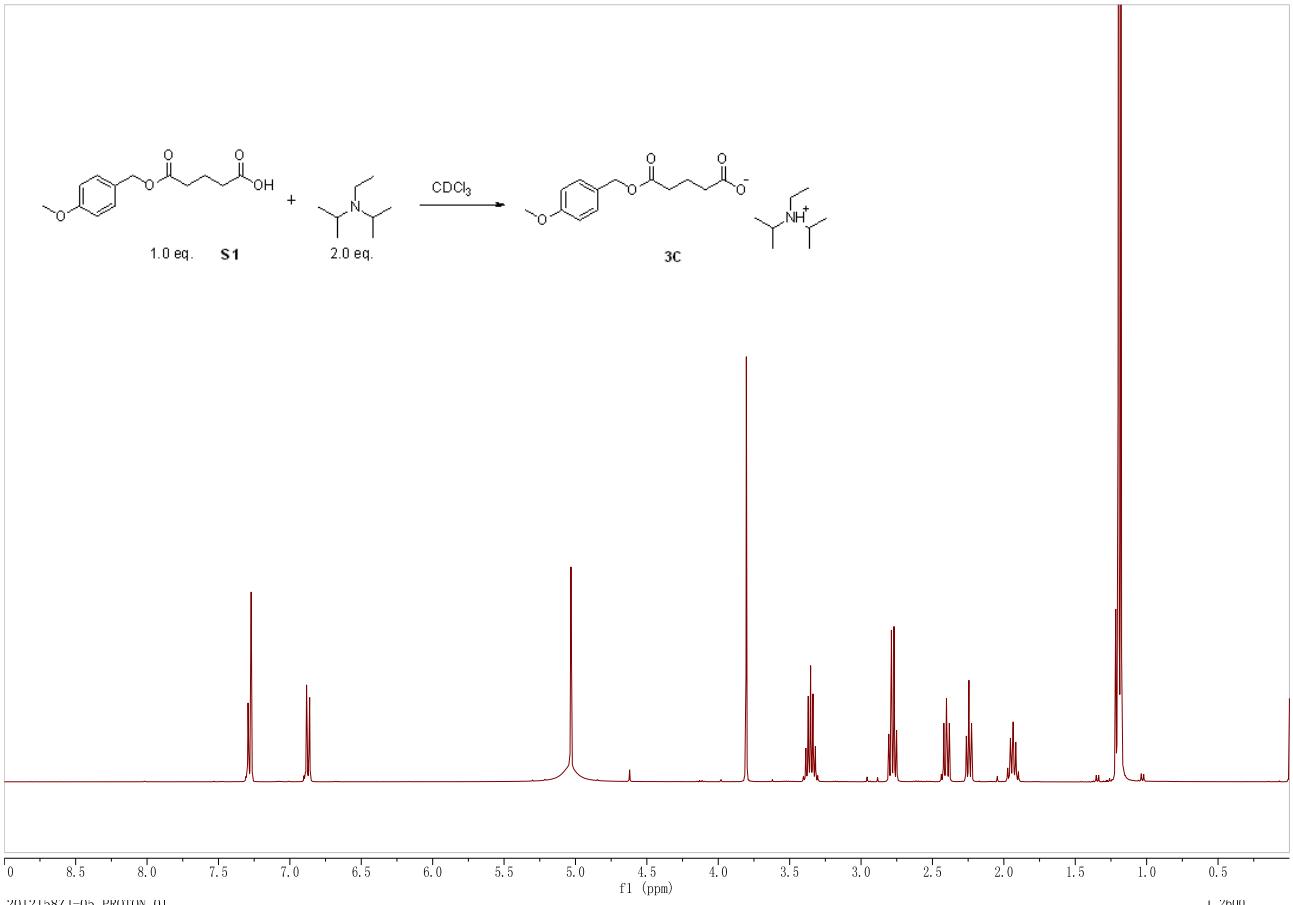

Ru(bpy)3Cl2
6.00
6.13
5.97
5.92
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

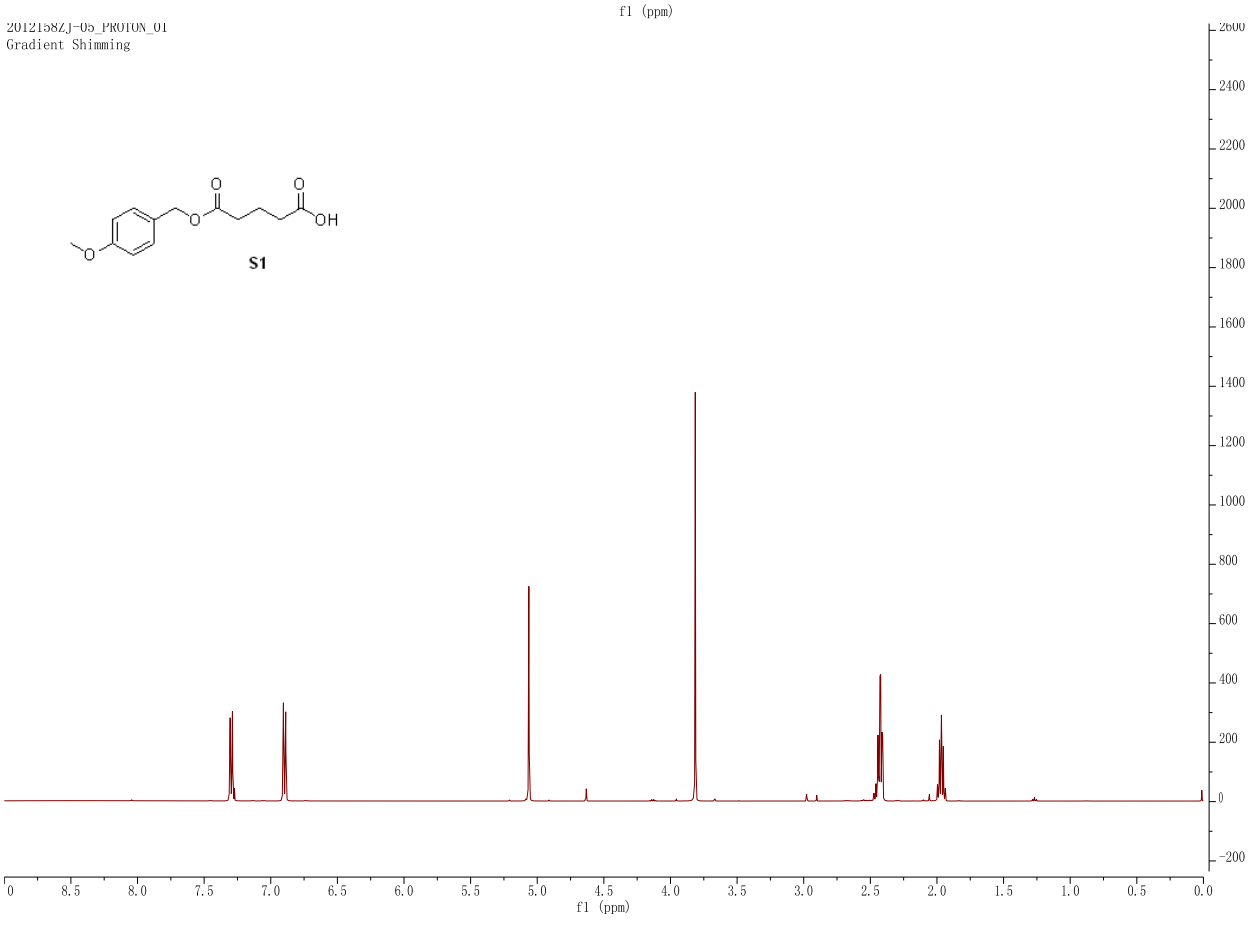

3
1.94
5.22
1.95
2.00
2.98
3.97
2.02
f1 (ppm)

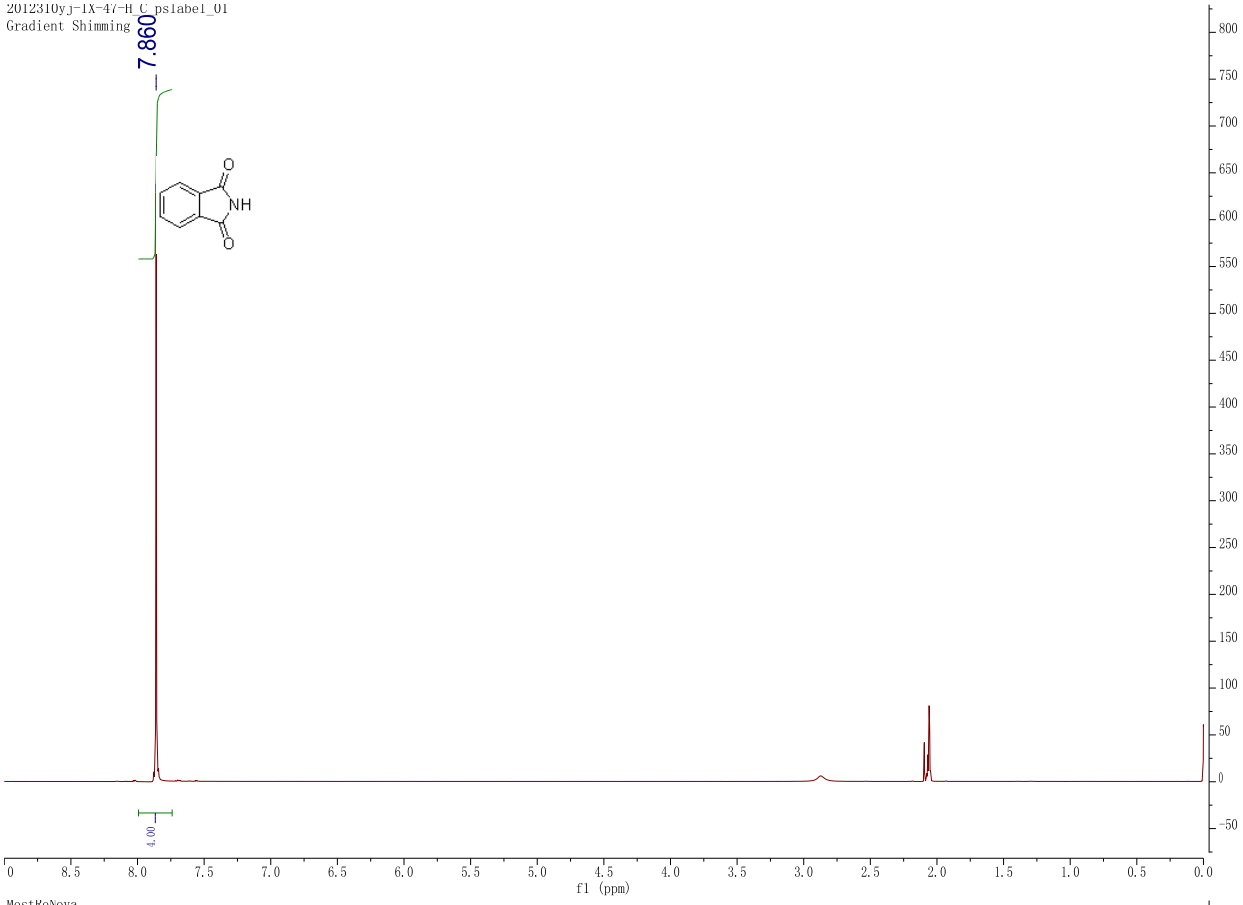

173.09
159.61
131.56
130.05
128.18
128.10
127.66
123.71
113.95
88.82
81.46
77.27 cdcl3
77.02 cdcl3
76.76 cdcl3
66.09
55.28
33.21
23.90
18.87
3
f1 (ppm)

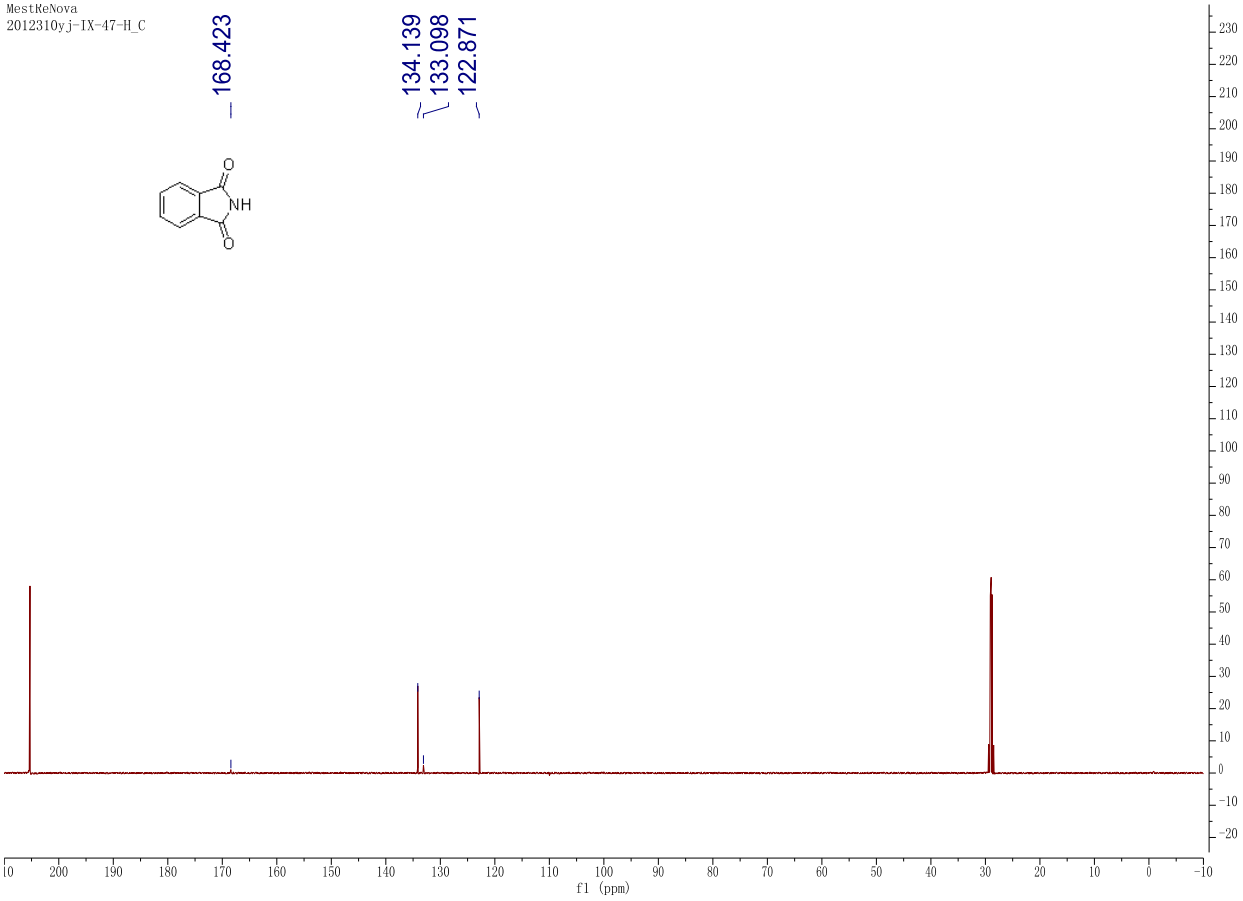

3H
1.91
1.94
2.00
3.00
1.95
2.12
2.99
f1 (ppm)

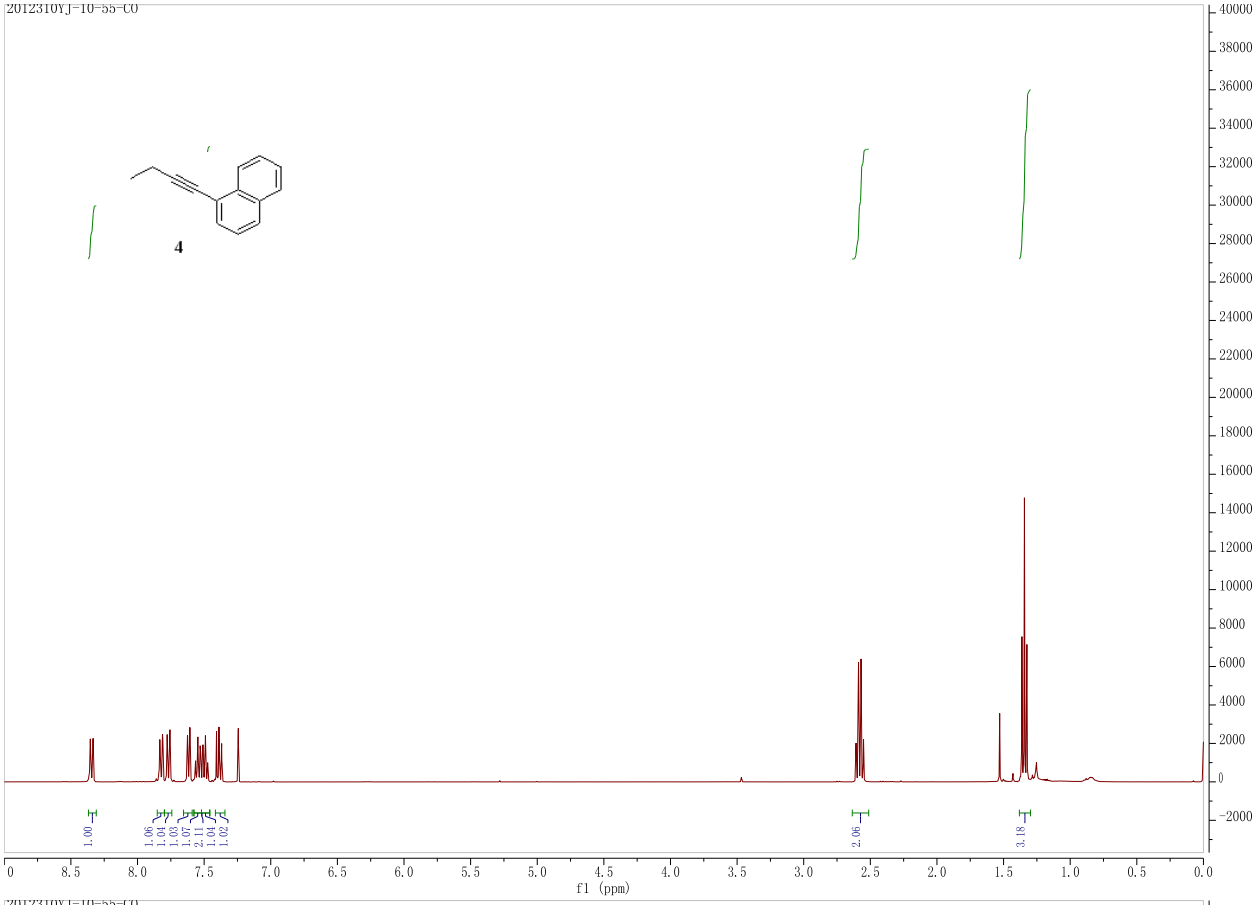

173.62
159.58
130.02
128.28
113.93
77.35 CDCl3
77.03 CDCl3
76.71 CDCl3
65.87
55.29
36.26
18.46
13.67
3H
f1 (ppm)

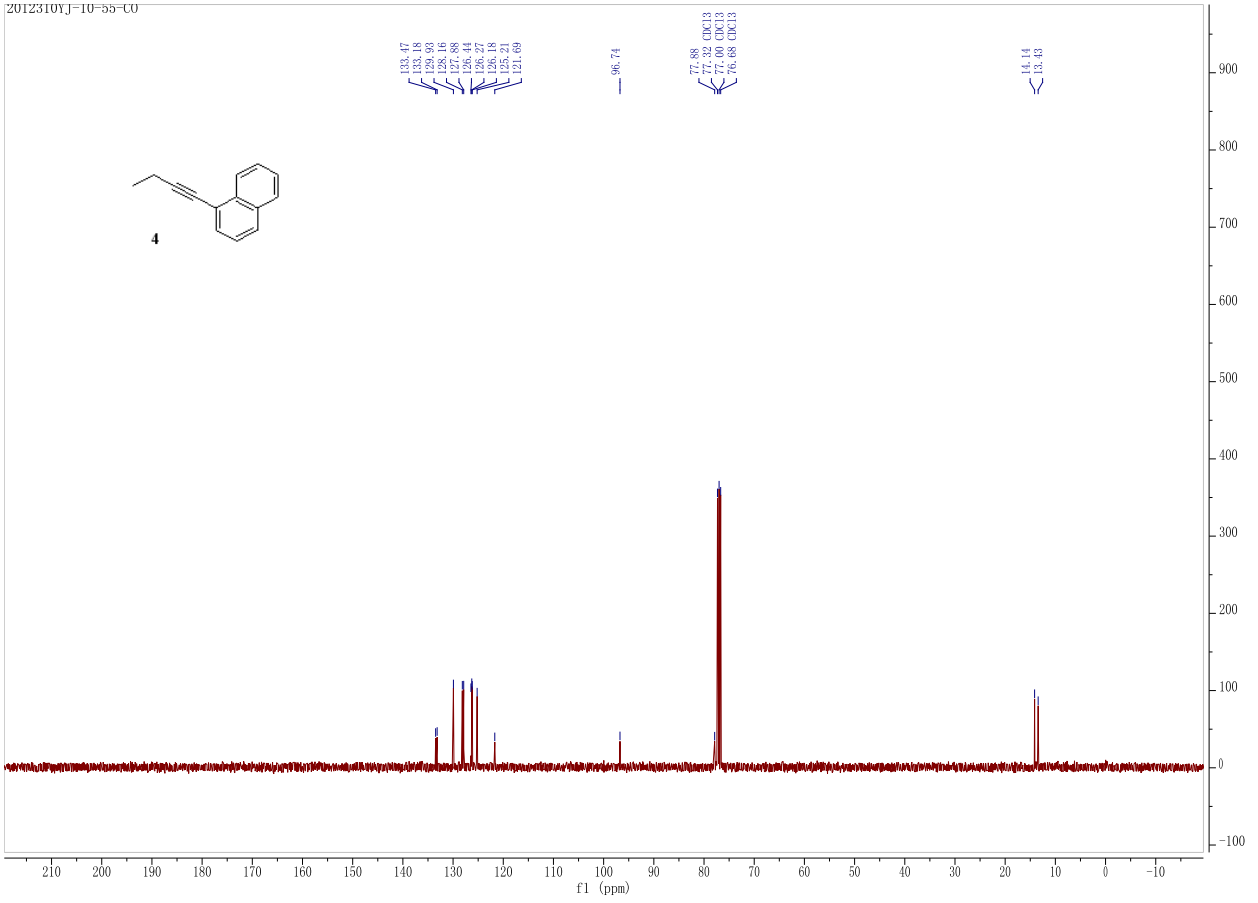

1.0 eq.
S1
2.0 eq.
CDCl3
3C
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
f1 (ppm)

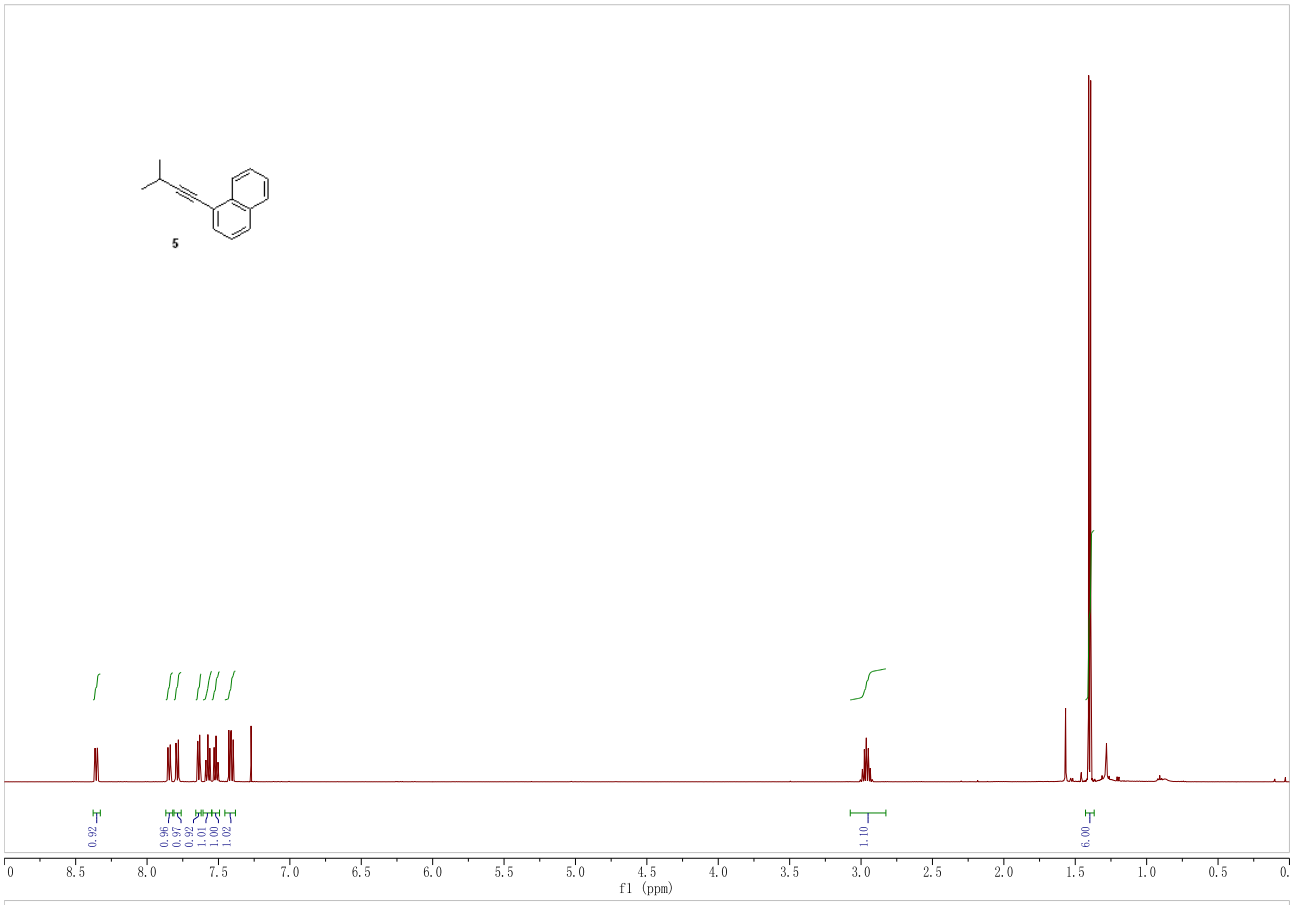

201215SZJ-05_PROTON_01
Gradient Shimming
S1
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
-200
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
f1 (ppm)

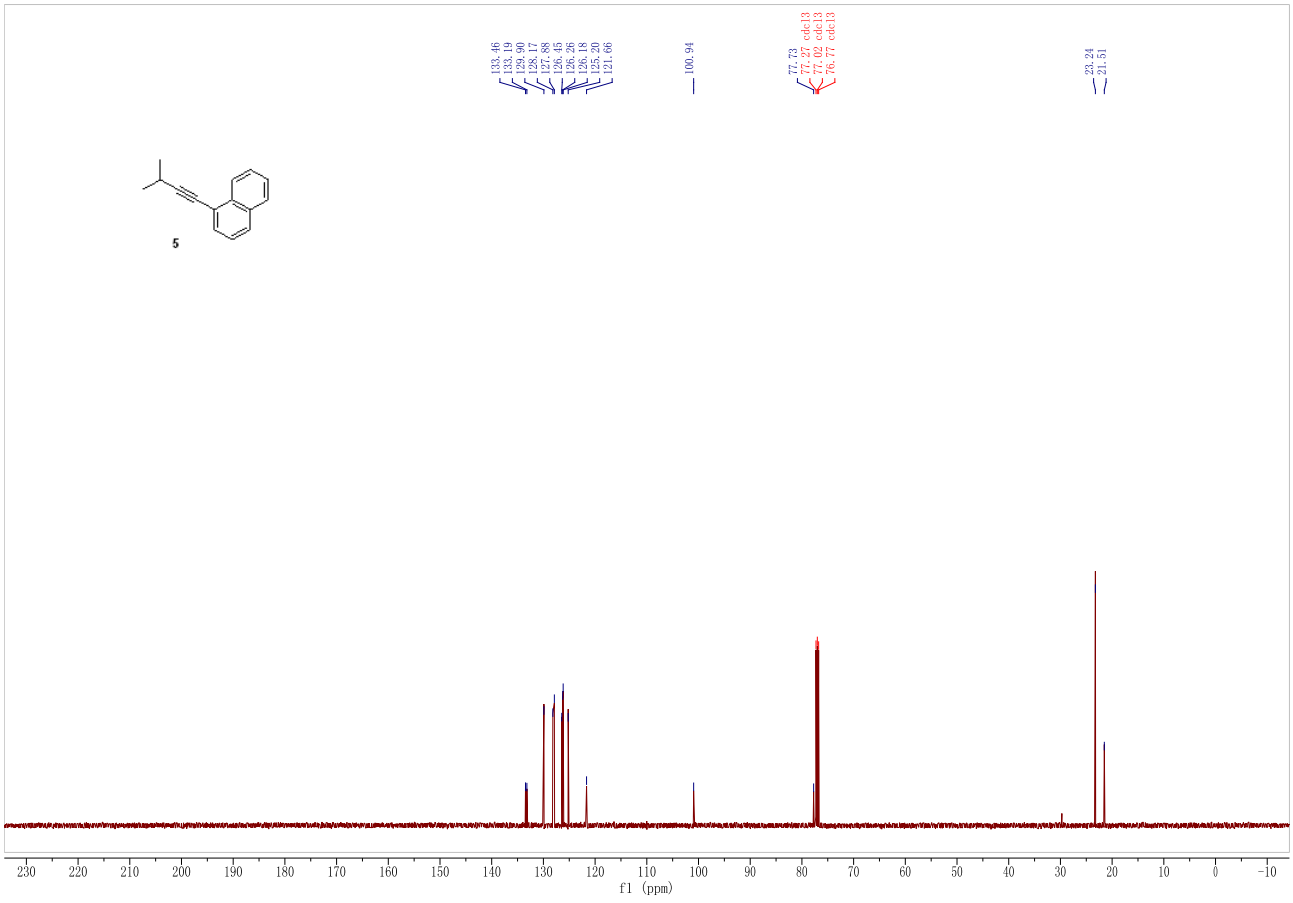

2012310yj-IX-47-H_C_pslabel_01
Gradient Shimming
7.860
O
NH
O
4.00
f1 (ppm)

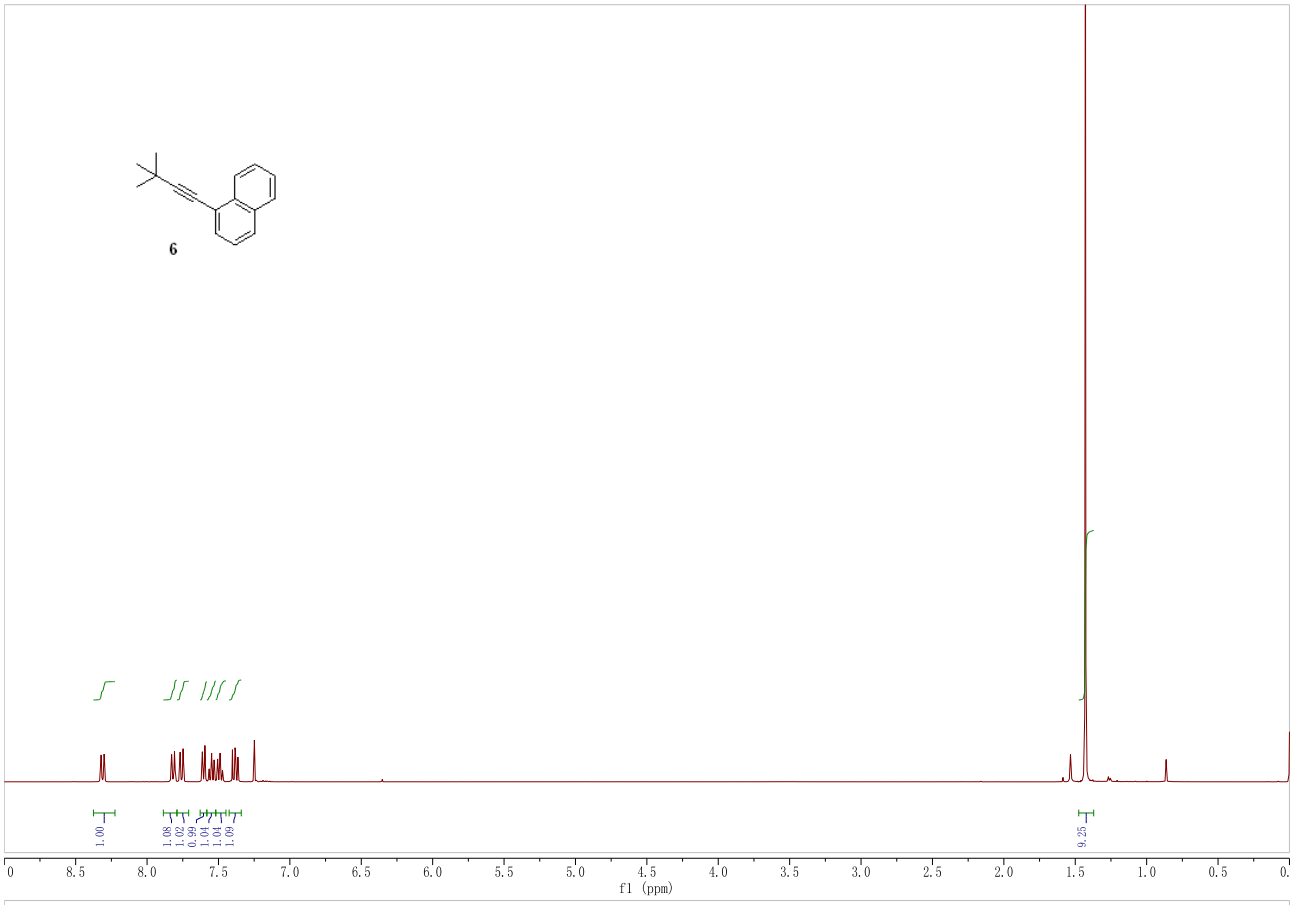

MestReNova
2012310yj-IX-47-H_C
168.423
134.139
133.098
122.871
O
NH
O
f1 (ppm)

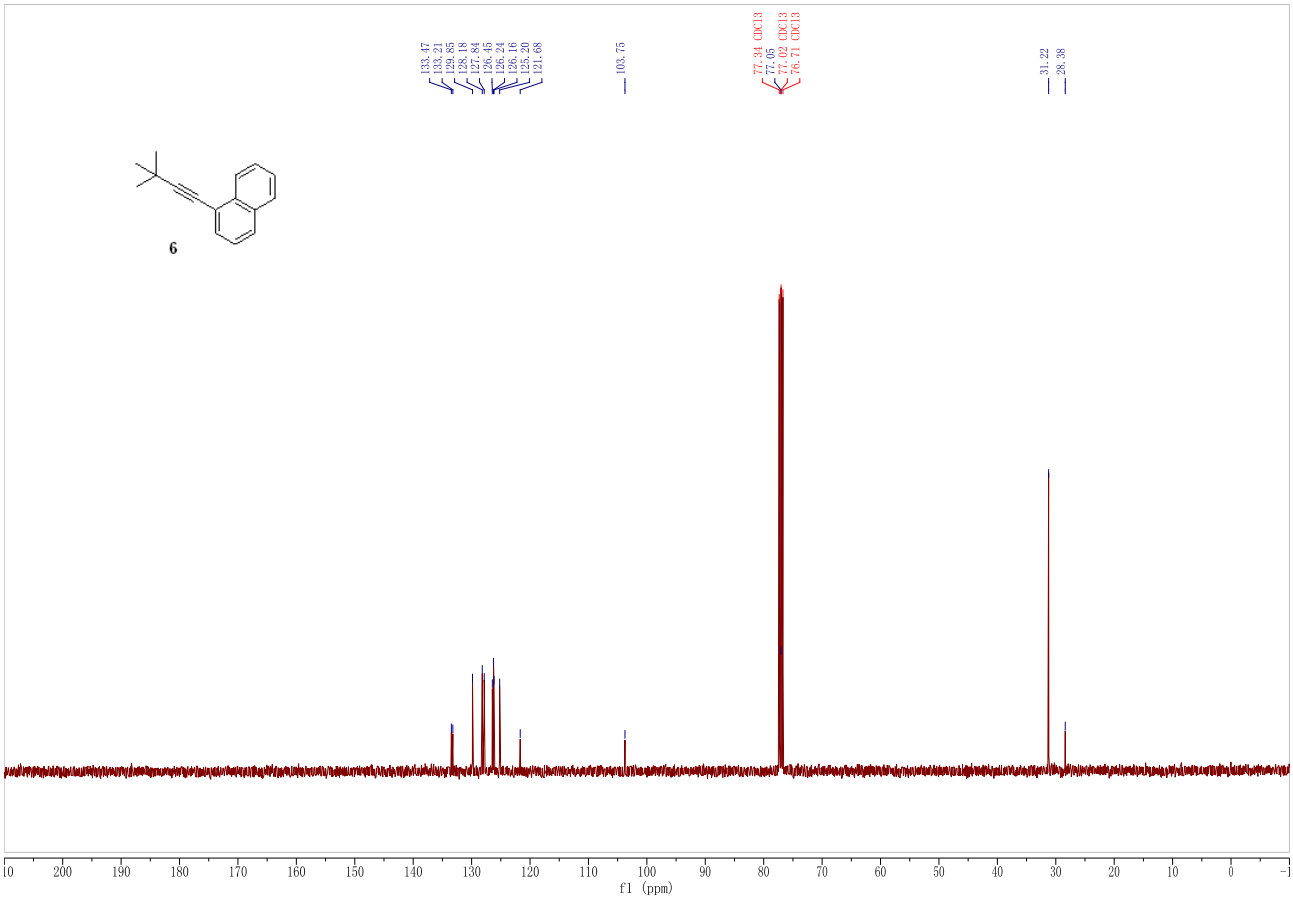

20123101Y_J-10-55-C0
4
1.00
1.06
1.04
1.03
1.07
2.11
1.04
1.02
2.06
3.18
f1 (ppm)

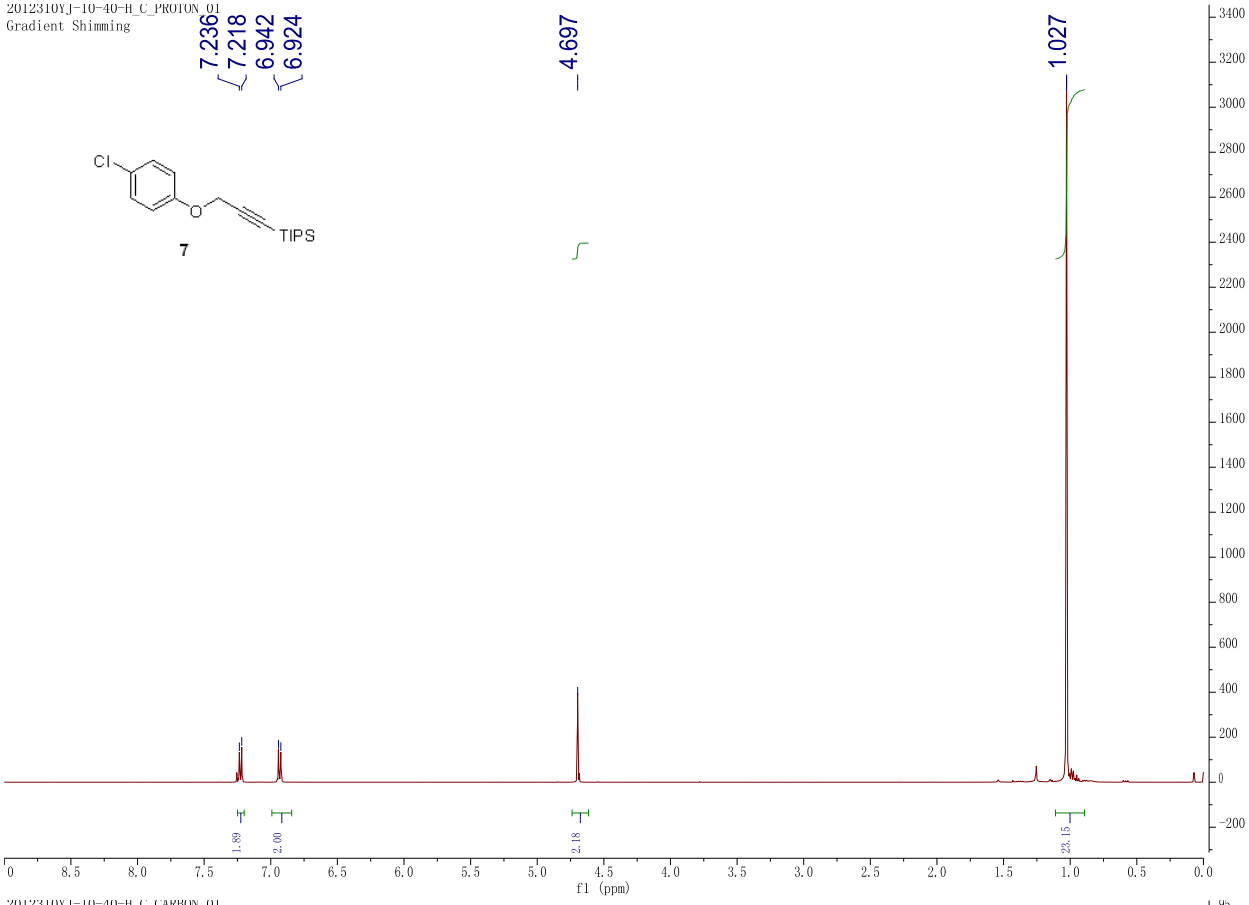

20123101Y_J-10-55-C0
133.47
133.18
129.93
128.16
127.88
126.44
126.27
126.18
125.21
121.69
96.74
77.88 CDCl3
77.32
77.00 CDCl3
76.68 CDCl3
14.14
13.43
4
f1 (ppm)

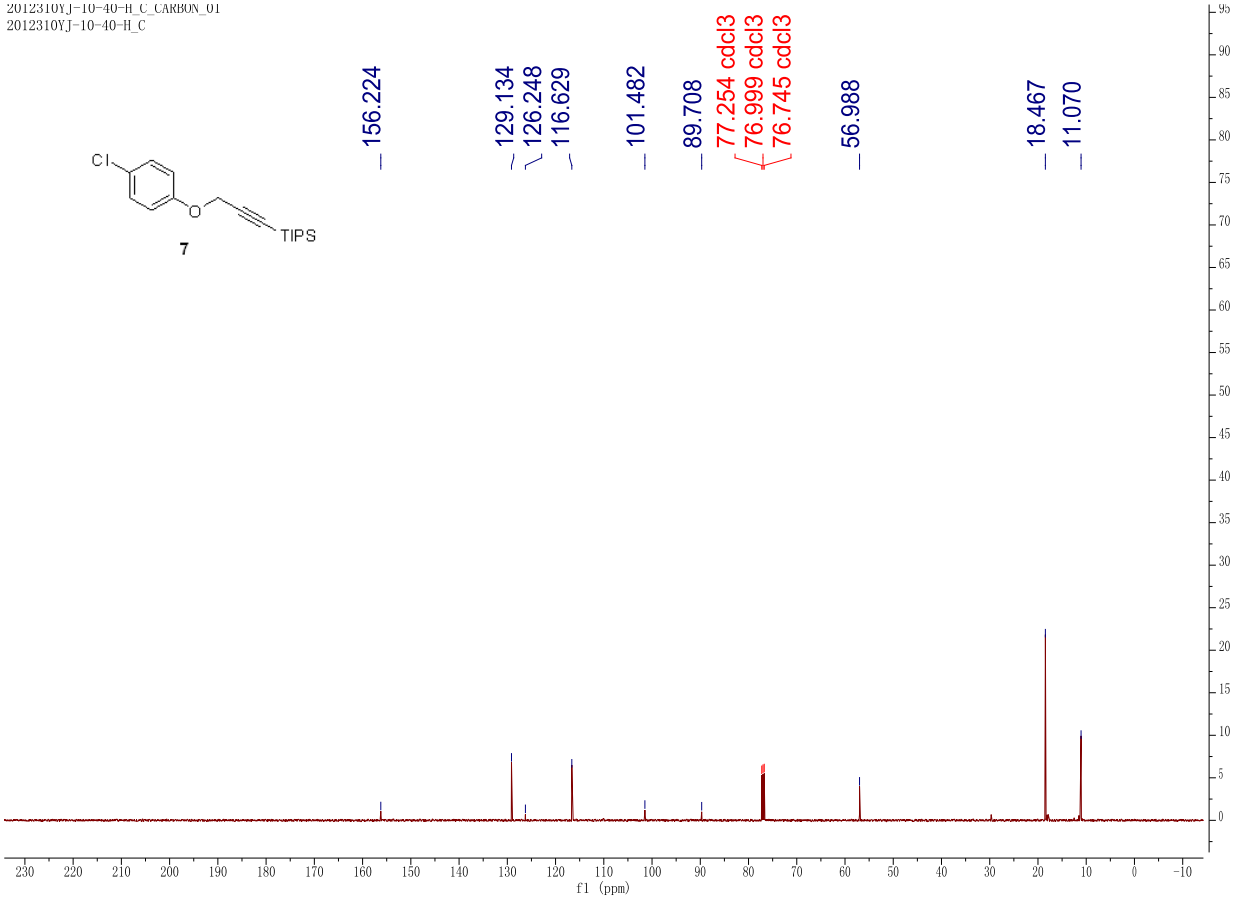

5
0.92
0.96
0.97
0.92
1.01
1.00
1.02
1.10
6.00
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

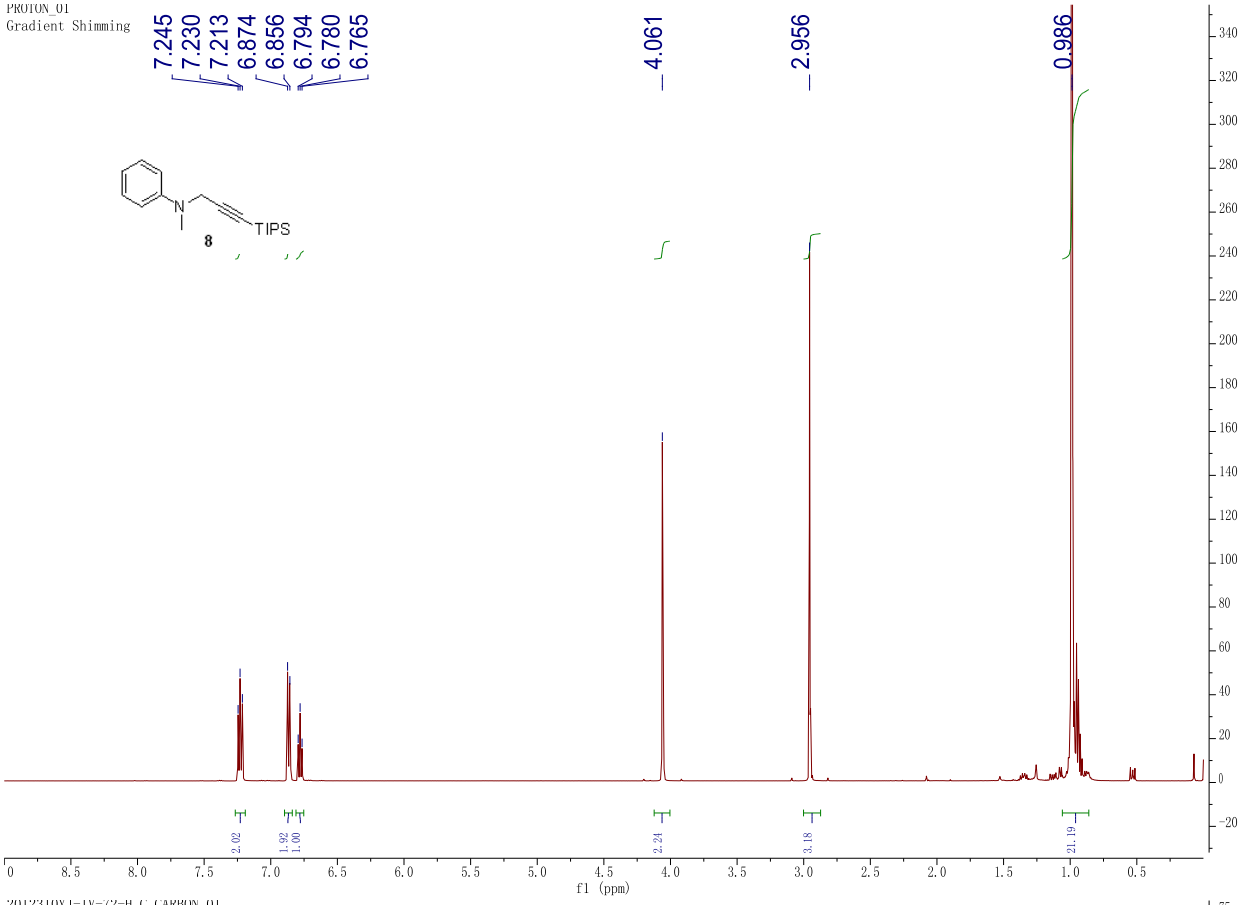

133.46
133.19
129.90
128.17
127.88
126.45
126.26
126.18
125.20
121.86
100.94
77.73
77.47
77.00
cdcl3
cdcl3
cdcl3
76.77
23.24
21.51
5
230
220
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

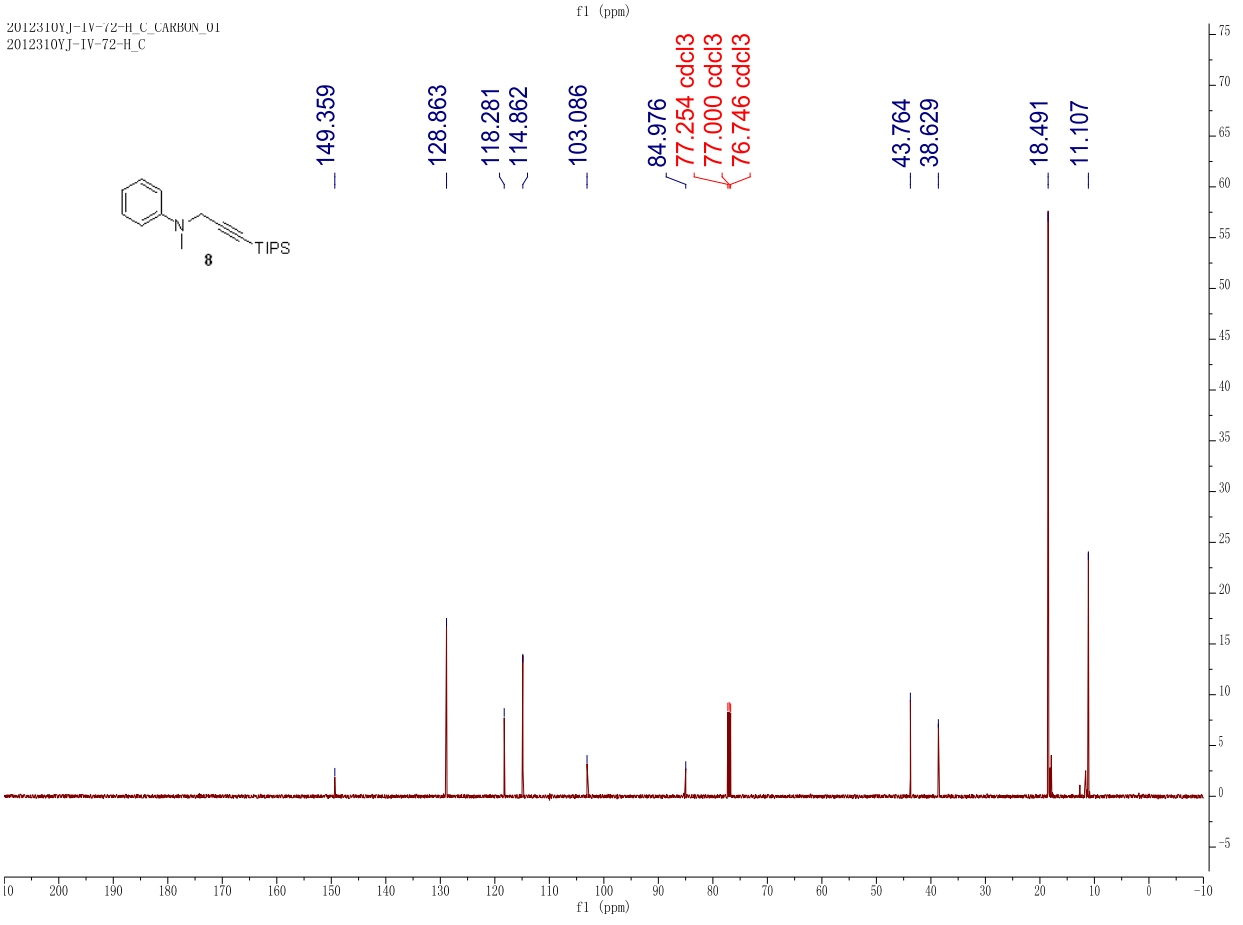

6
1.00
1.08
1.02
0.99
1.04
1.04
1.00
9.25
f1 (ppm)

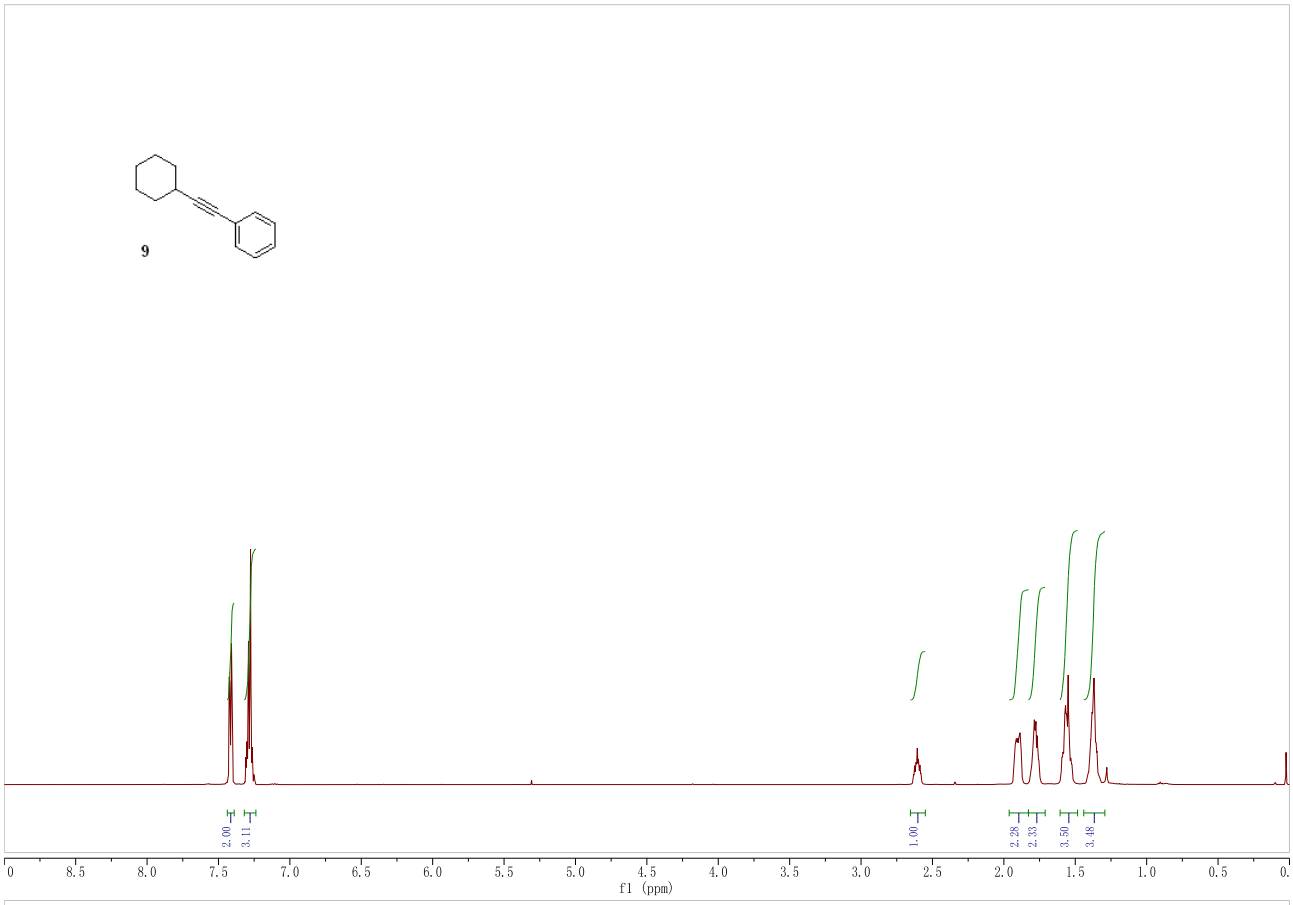

133.47
133.21
129.85
128.18
127.84
126.45
126.24
126.16
125.20
121.68
103.75
77.34 CDCl3
77.05
77.02 CDCl3
76.71 CDCl3
31.22
28.38
6
f1 (ppm)

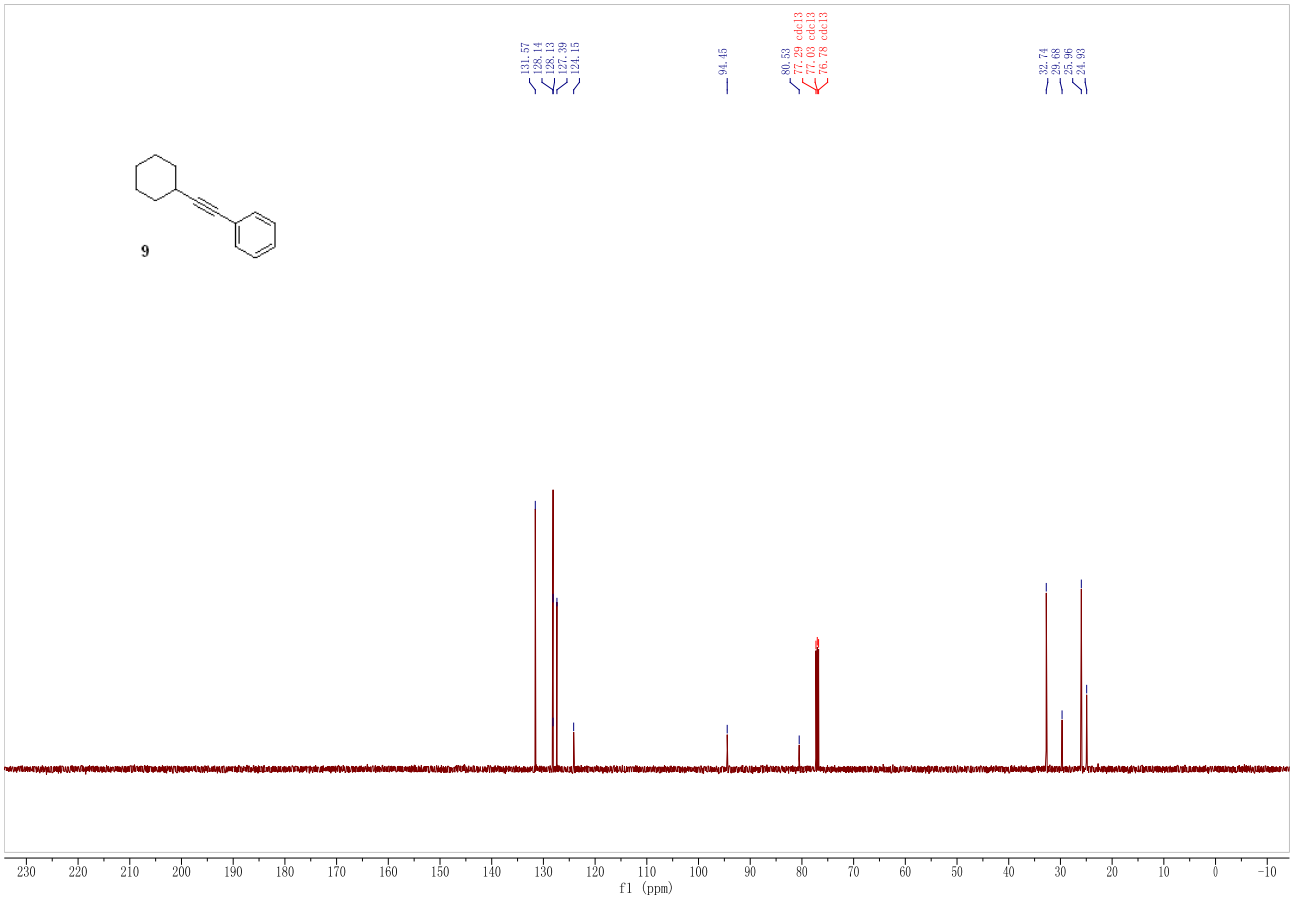

2012310YJ-10-40-H_C_PROTON_01
Gradient Shimming
7.236
7.218
6.942
6.924
4.697
1.027
Cl
O
TIPS
7
1.89
2.00
2.18
23.15
f1 (ppm)

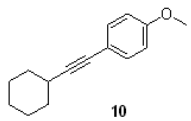

2012310YJ-10-40-H_C_CARBON_01
2012310YJ-10-40-H_C
156.224
129.134
126.248
116.629
101.482
89.708
77.254 cdcl3
76.999 cdcl3
76.745 cdcl3
56.988
18.467
11.070
Cl
O
TIPS
7
f1 (ppm)


PROTON_01
Gradient Shimming
7.245
7.230
7.213
6.874
6.856
6.794
6.780
6.765
4.061
2.956
0.986
TIPS
8
2.02
1.92
1.00
2.24
3.18
21.19
f1 (ppm)

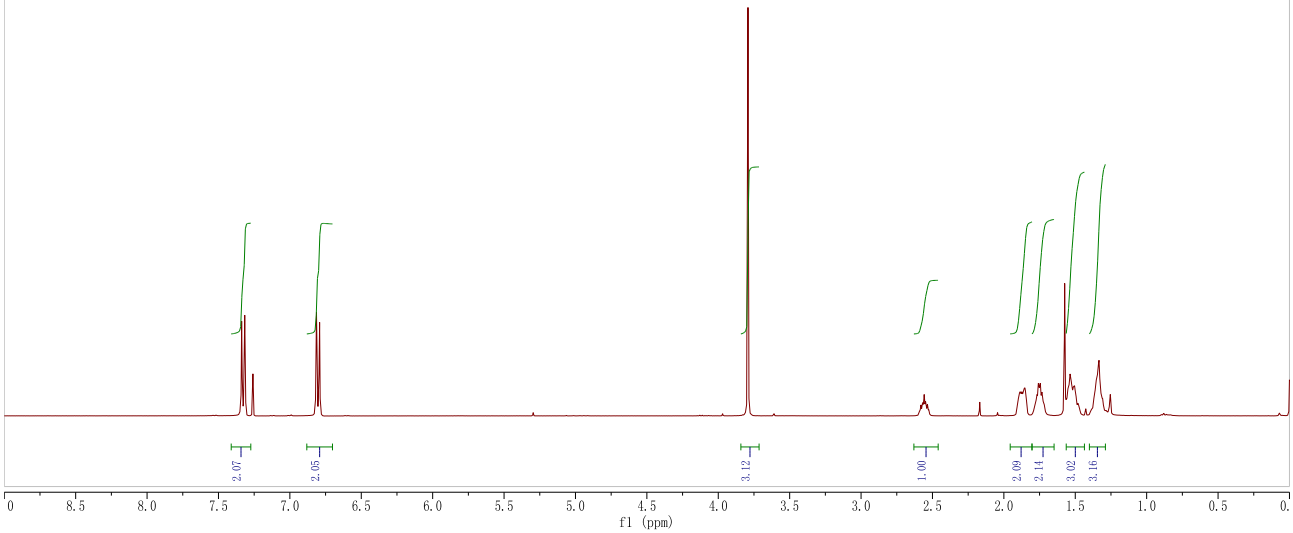

2012310YJ-IV-72-H_C_CARBON_01
2012310YJ-IV-72-H_C
149.359
128.863
118.281
114.862
103.086
84.976
77.254 cdcl3
77.000 cdcl3
76.746 cdcl3
43.764
38.629
18.491
11.107
TIPS
8
f1 (ppm)

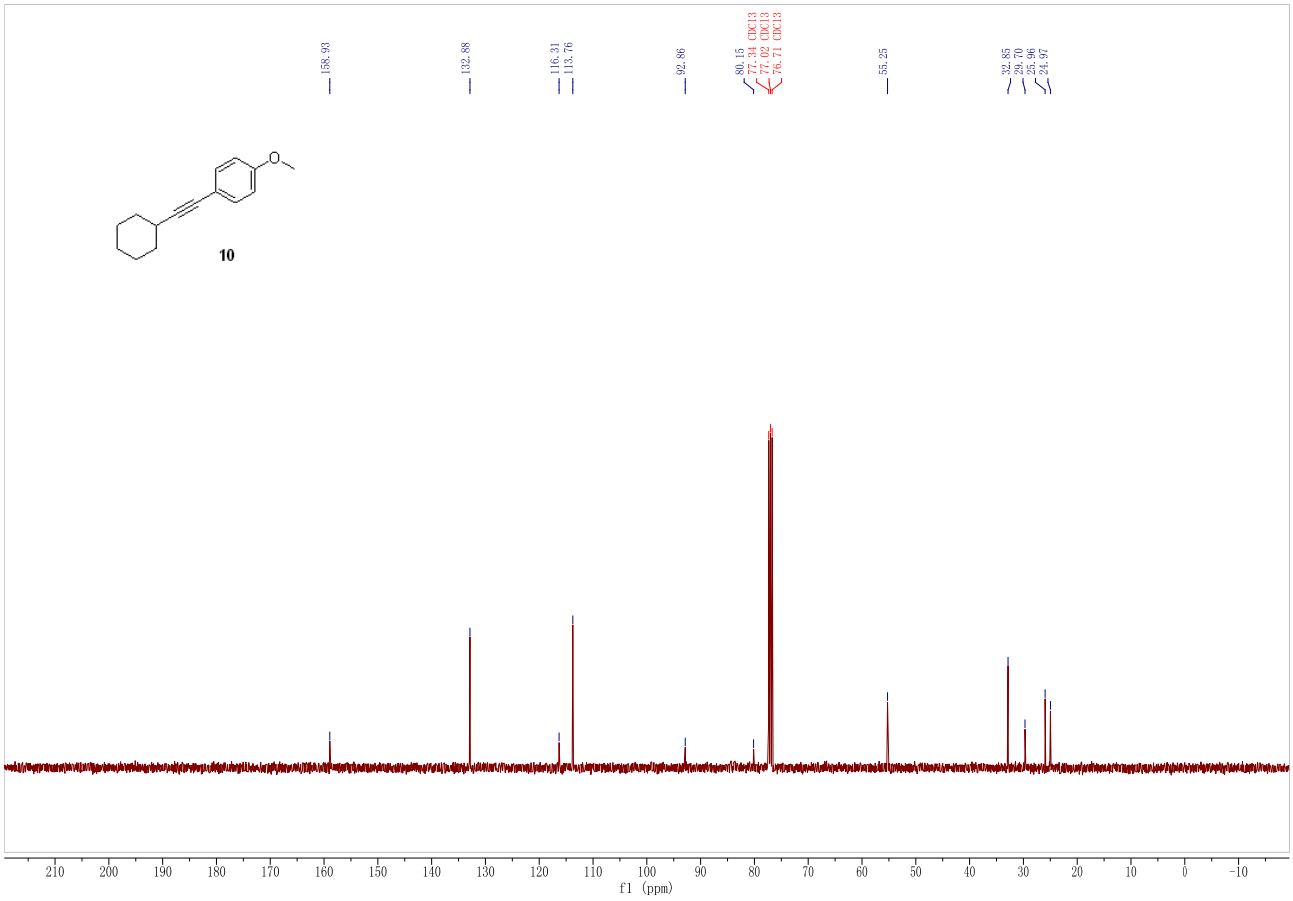

9
2.00
3.11
1.00
2.28
2.33
3.50
3.48
f1 (ppm)


131.57
128.14
128.13
127.39
124.15
94.45
80.53
77.29 cdcl3
77.03 cdcl3
76.78 cdcl3
32.74
29.68
25.96
24.93
9
f1 (ppm)

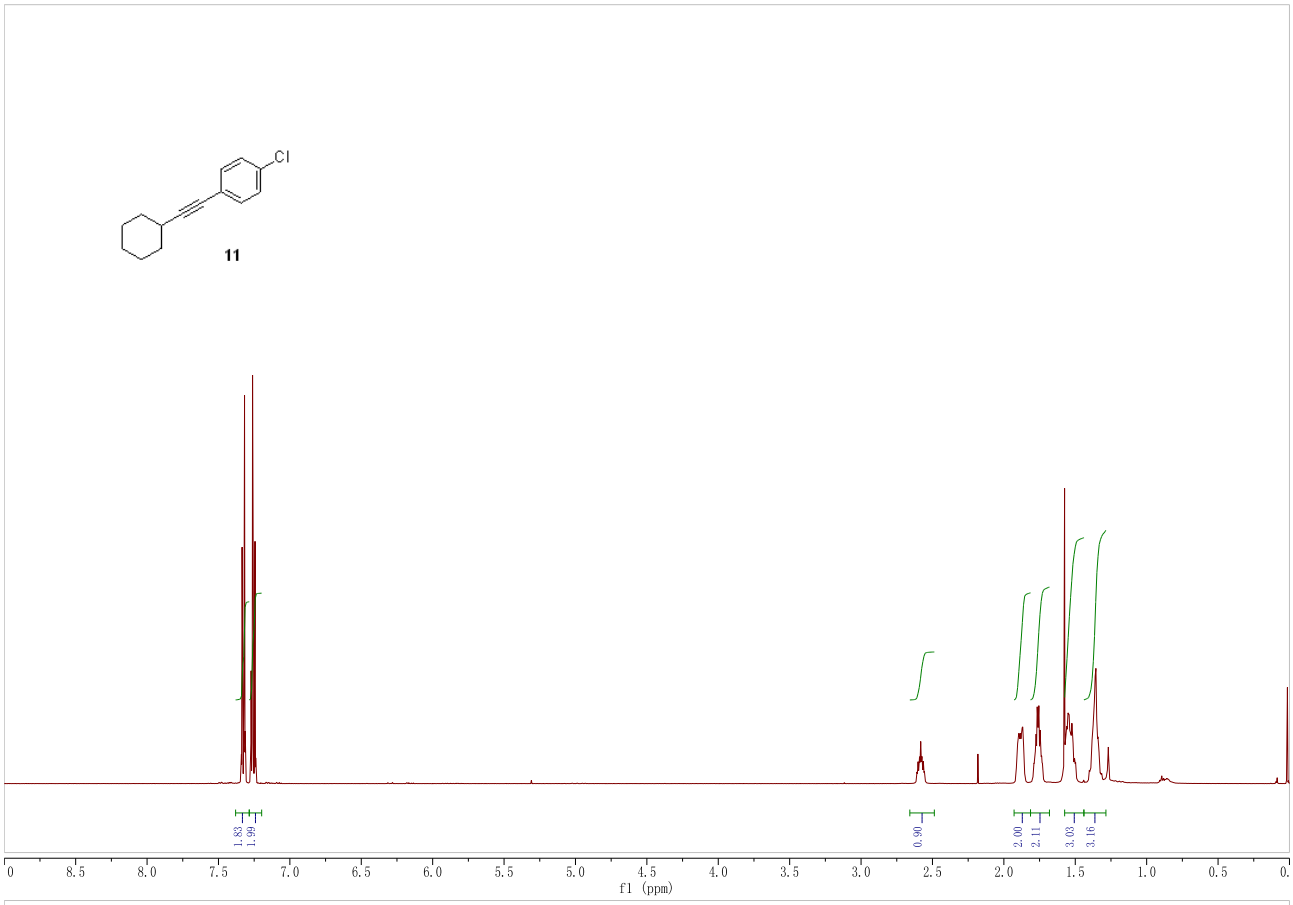


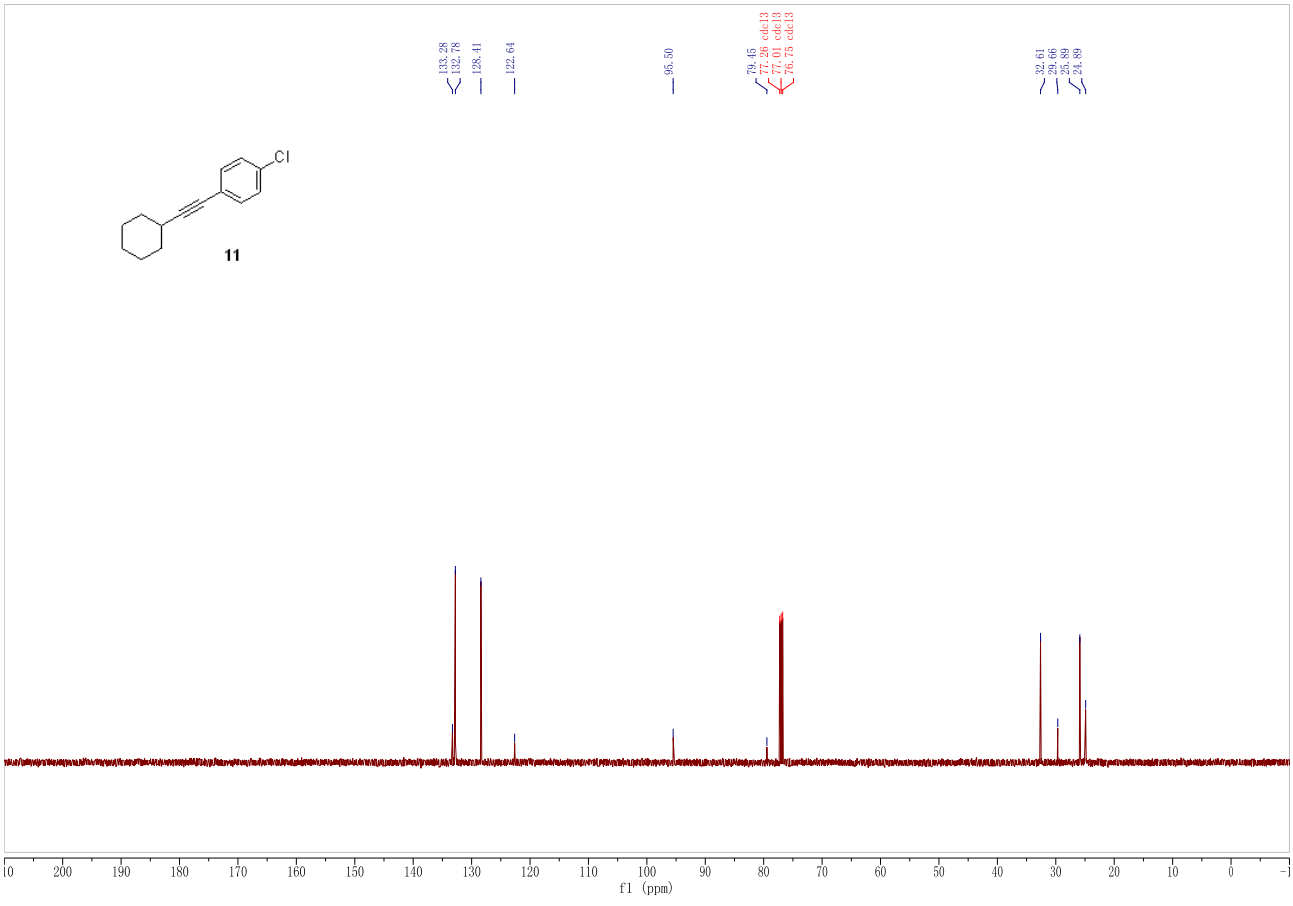
10

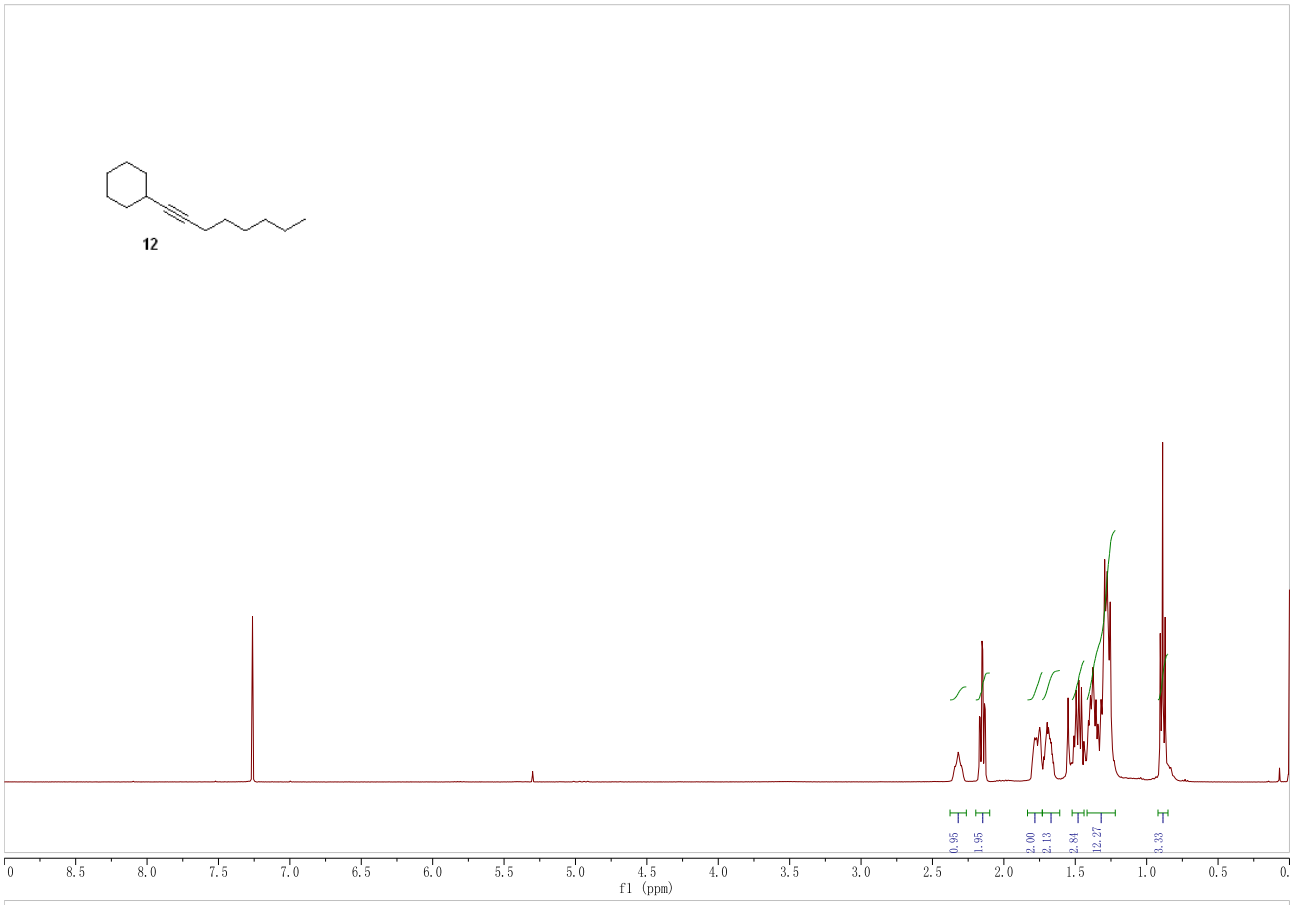

2.07
2.05
3.12
1.00
2.09
2.14
3.02
3.16
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

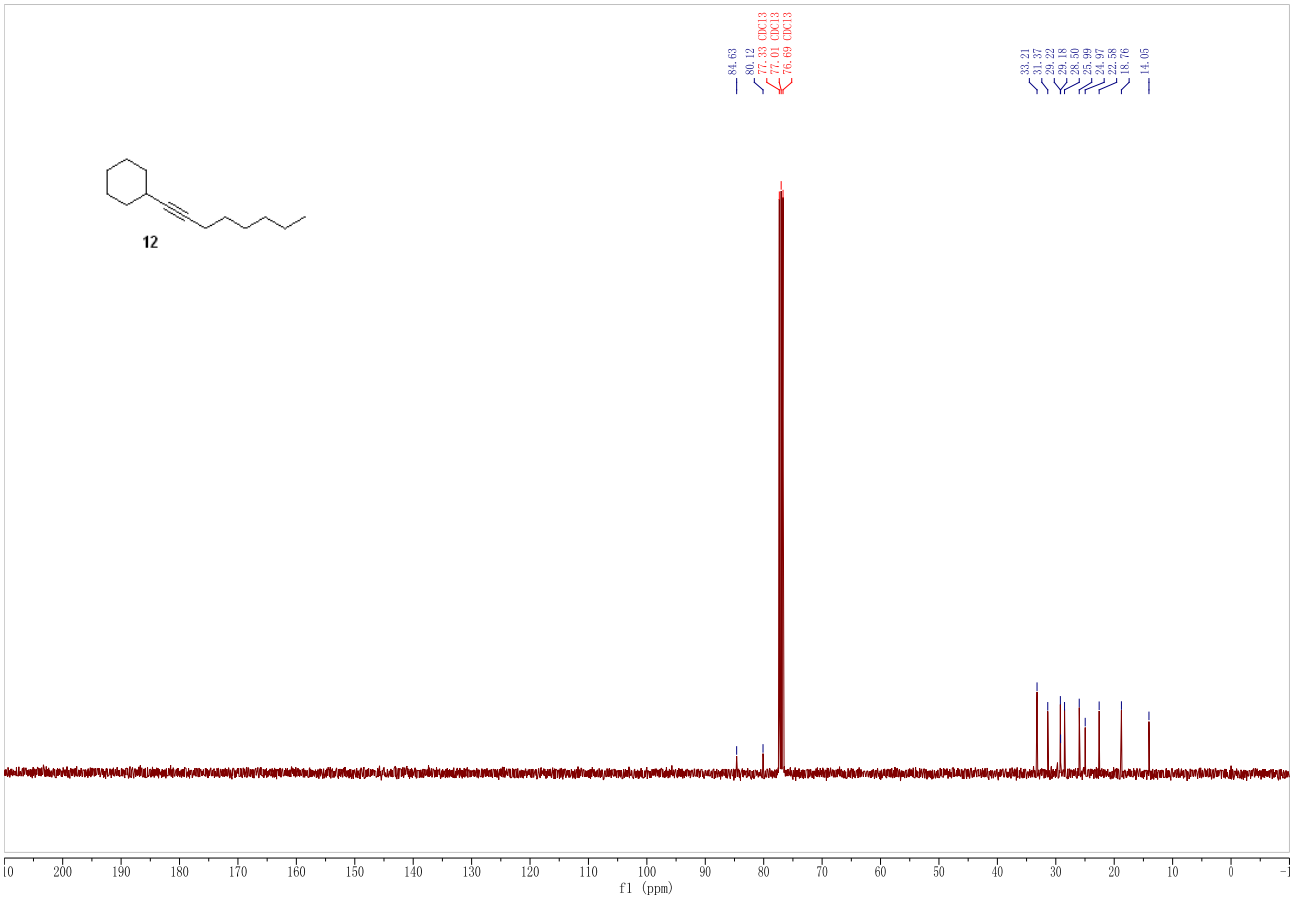

158.93
132.88
116.31
113.76
92.86
80.15
77.34 CDCl3
77.02 CDCl3
76.71 CDCl3
55.25
32.85
29.70
25.96
24.97
210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
f1 (ppm)

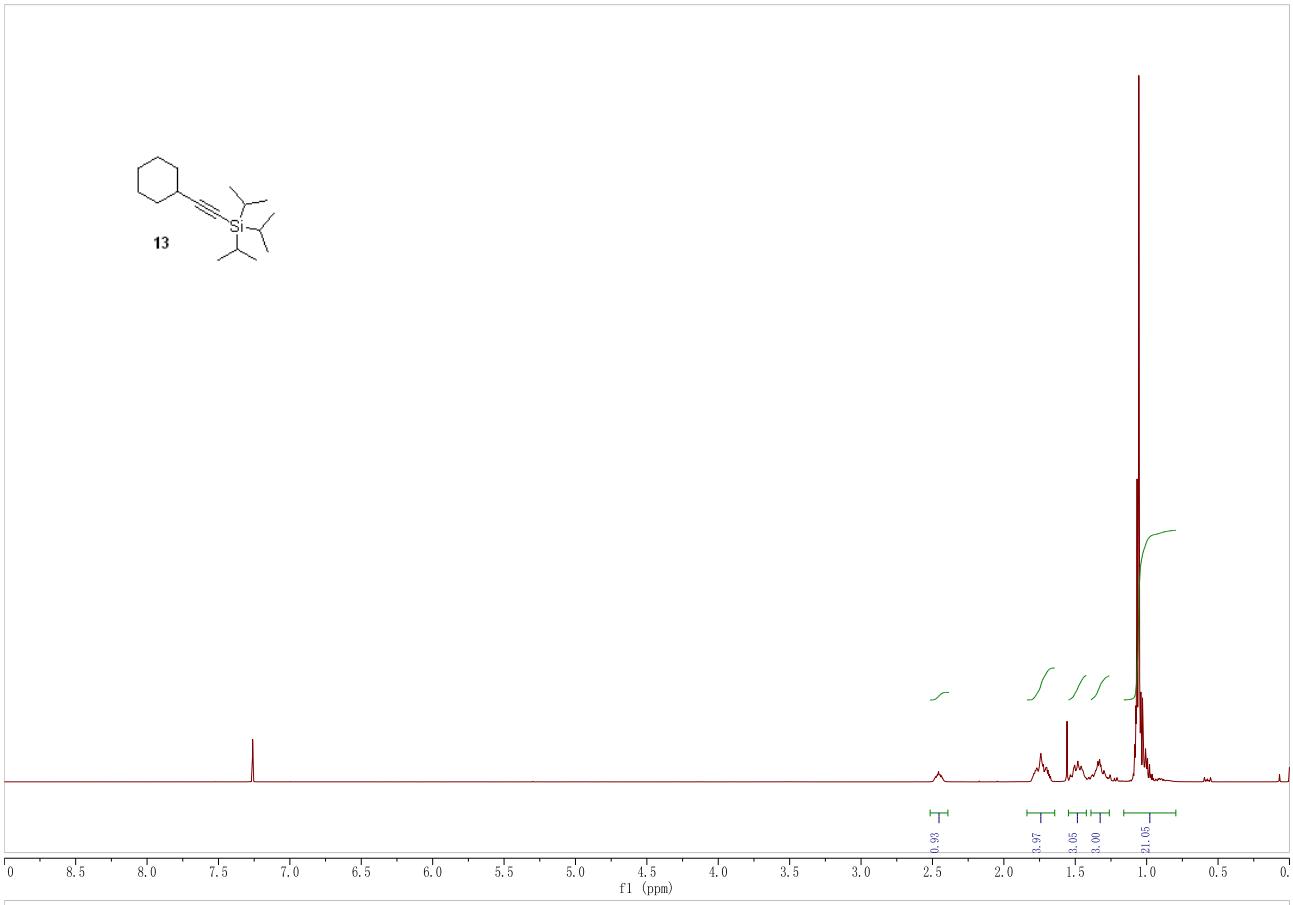
10

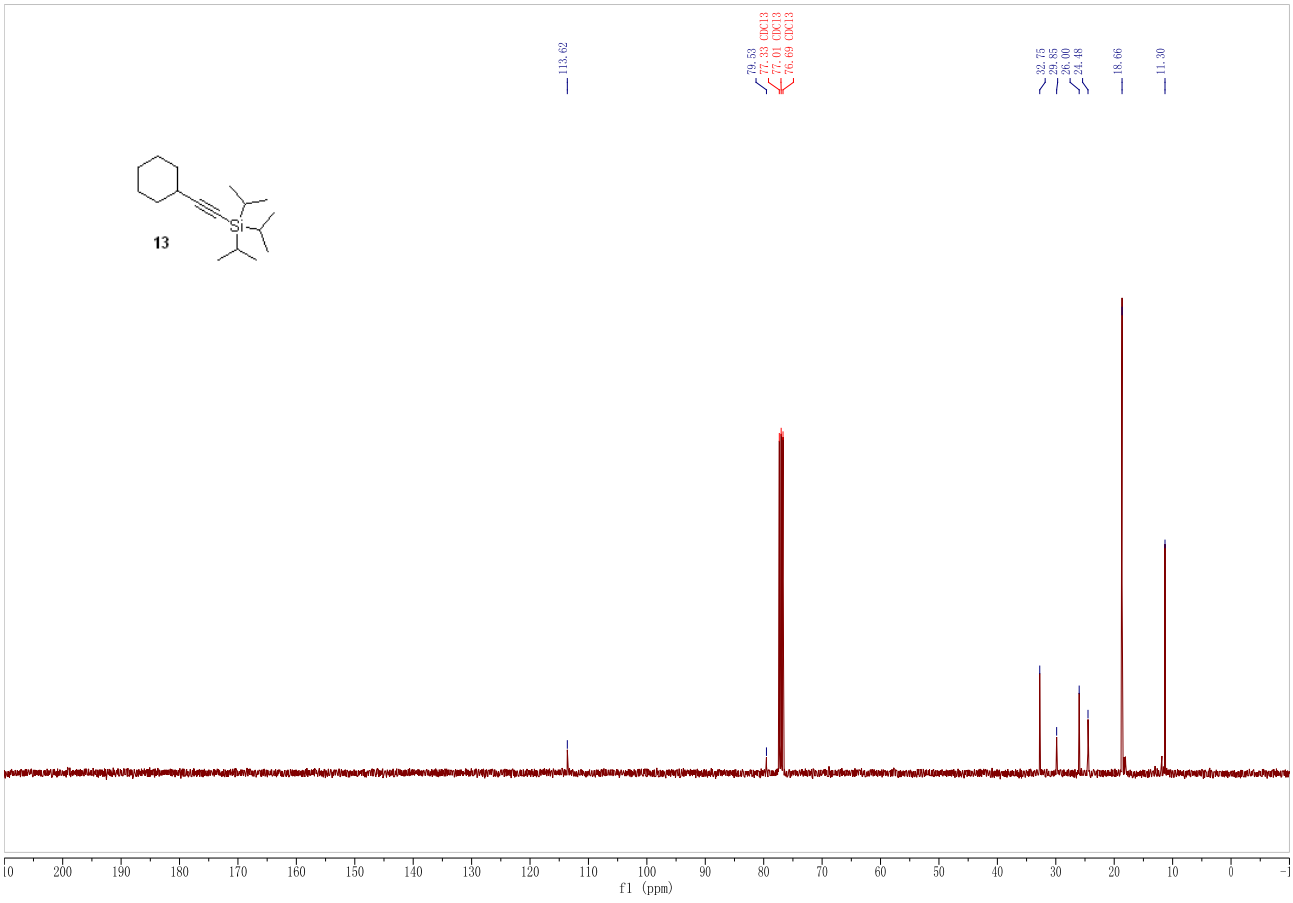

Cl
11
1.83
1.99
0.90
2.00
2.11
3.03
3.16
f1 (ppm)


133.28
132.78
128.41
122.64
96.50
79.45
77.26 cdcl3
77.01 cdcl3
76.75 cdcl3
32.61
29.66
25.89
24.89
Cl
11
f1 (ppm)

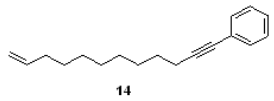

12
0.95
1.95
2.00
2.13
2.84
12.27
3.33
f1 (ppm)


84.63
80.12
77.33
CDCl3
77.01
CDCl3
76.69
CDCl3
33.21
31.37
29.22
29.18
28.50
25.99
24.97
22.88
18.76
14.06
12
f1 (ppm)

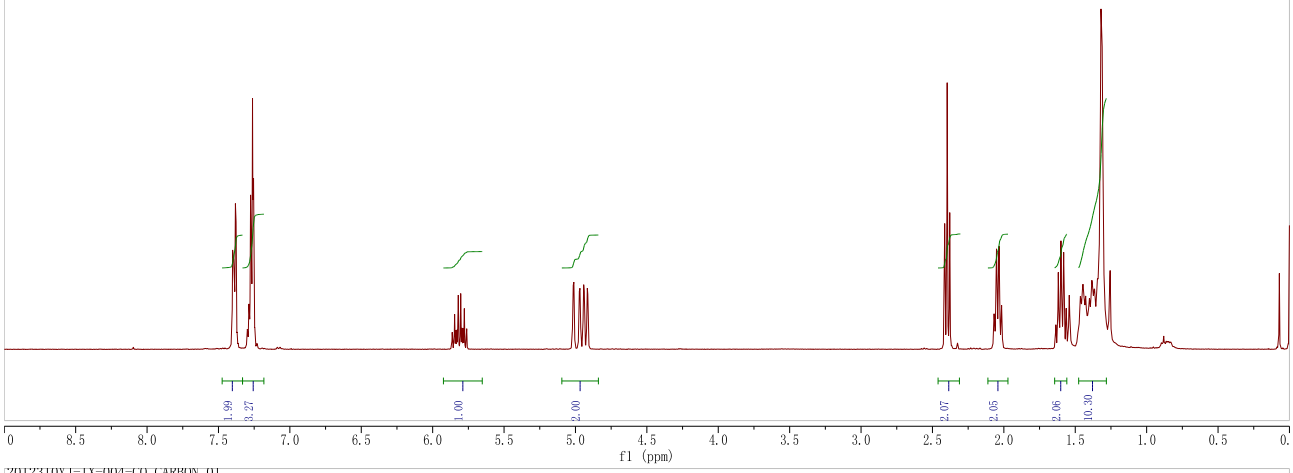

13
Si
0.93
3.97
3.05
3.00
21.05
f1 (ppm)


113.62
79.53
77.33 CDCl3
77.01 CDCl3
76.69 CDCl3
32.75
29.85
26.00
24.48
18.66
11.30
13
Si
f1 (ppm)

2012310YJ-V1111-4-CO. 10. fid

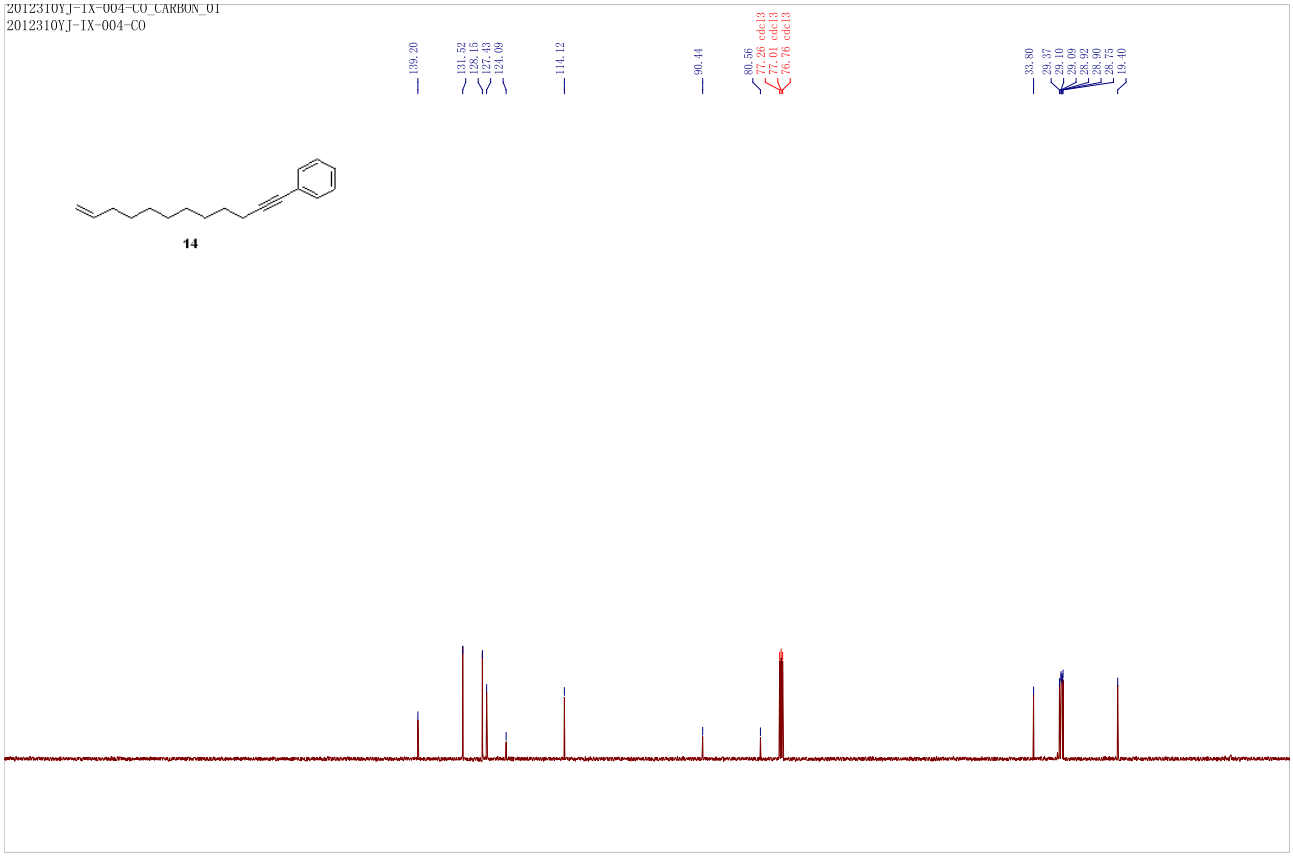


14

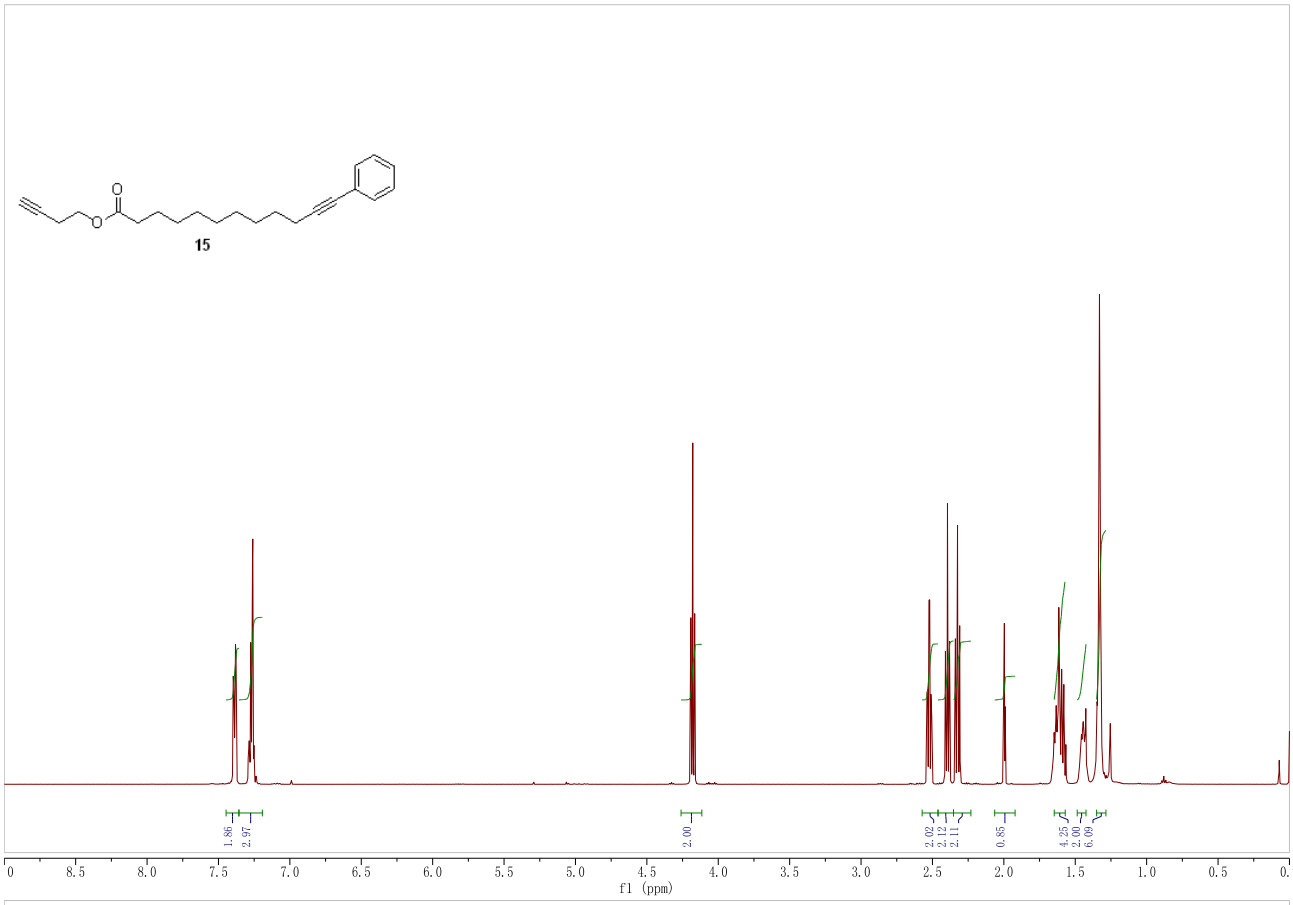


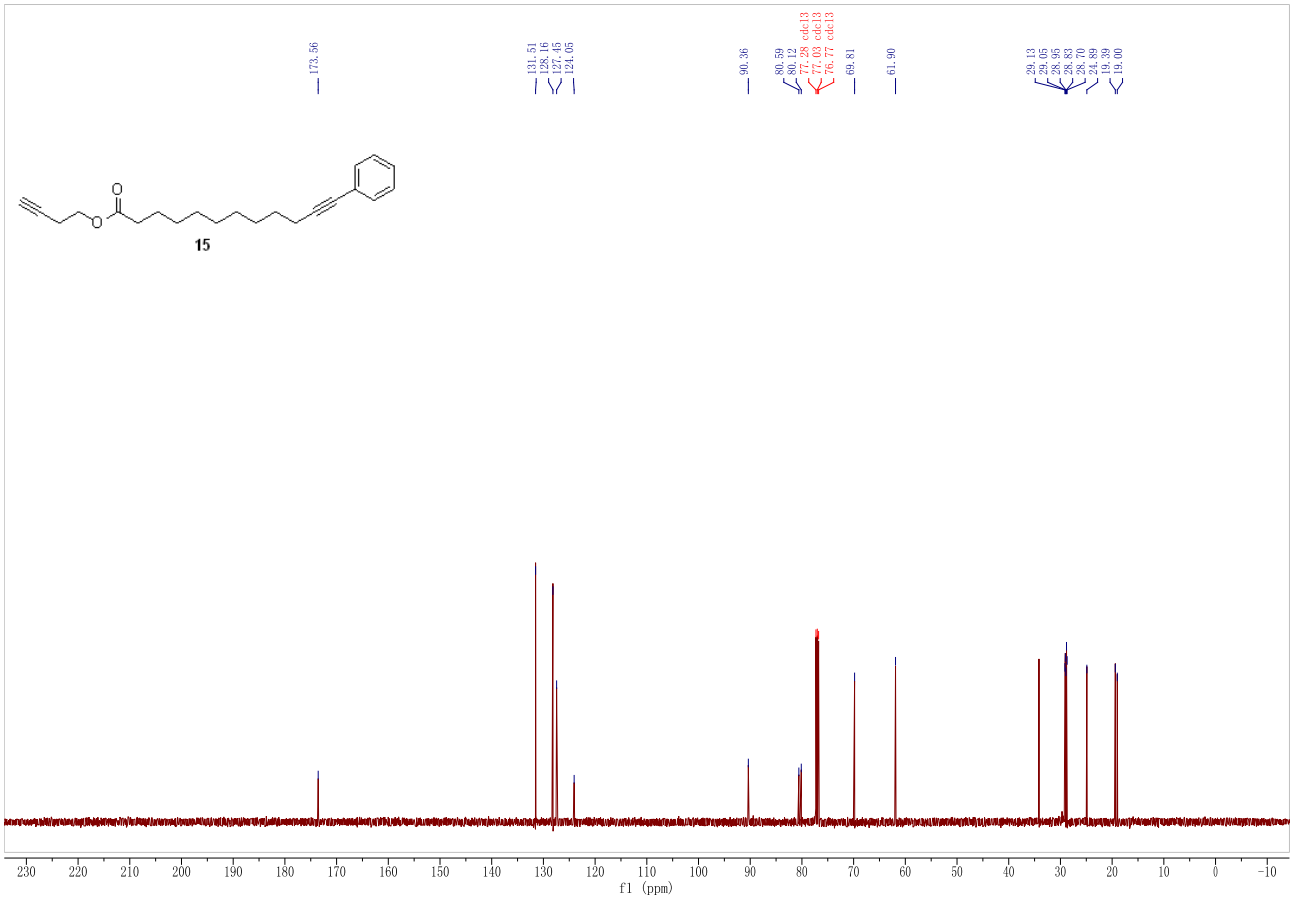
2012310YJ-IX-004-CO_CARBON_01

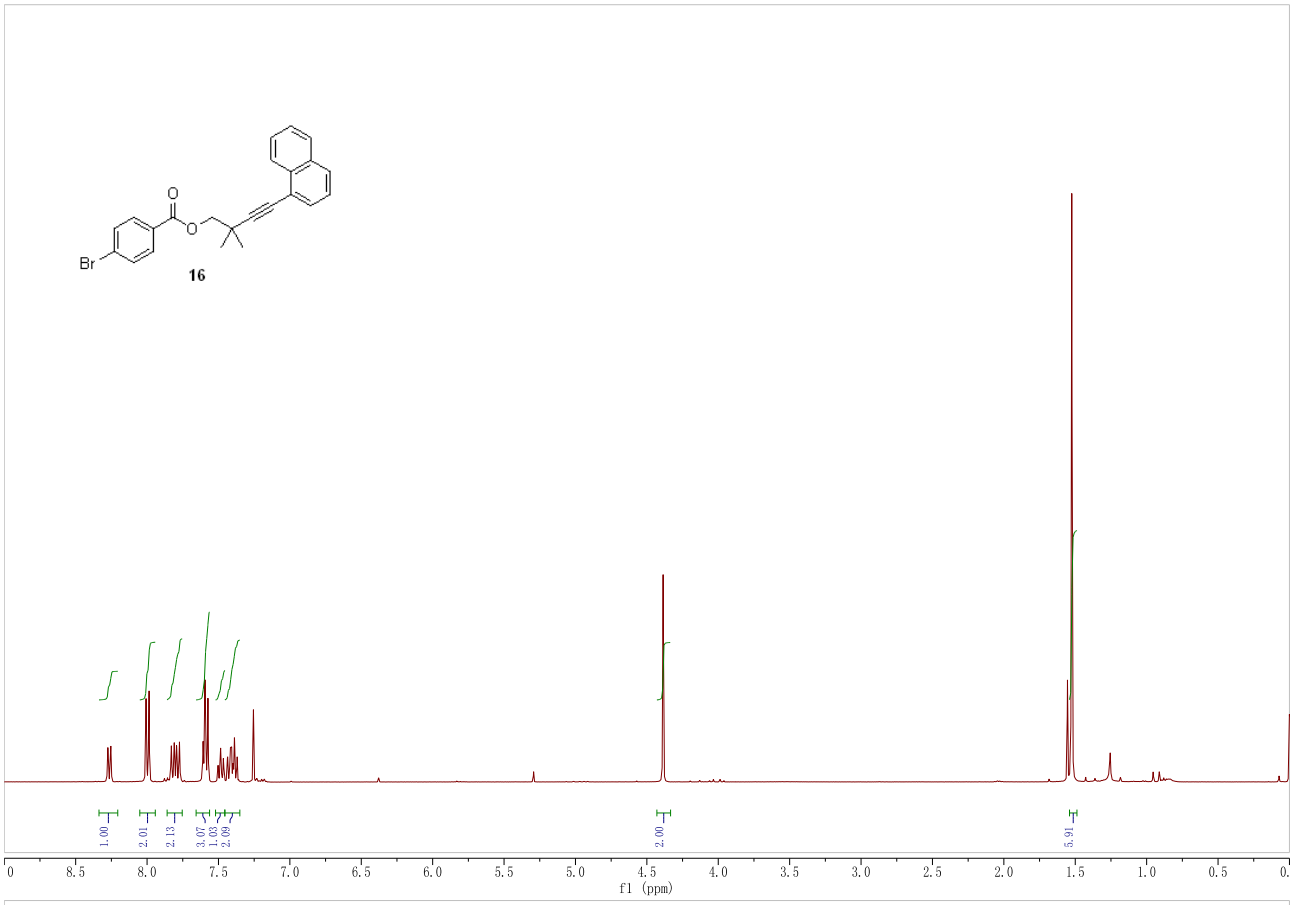
2012310YJ-IX-004-CO

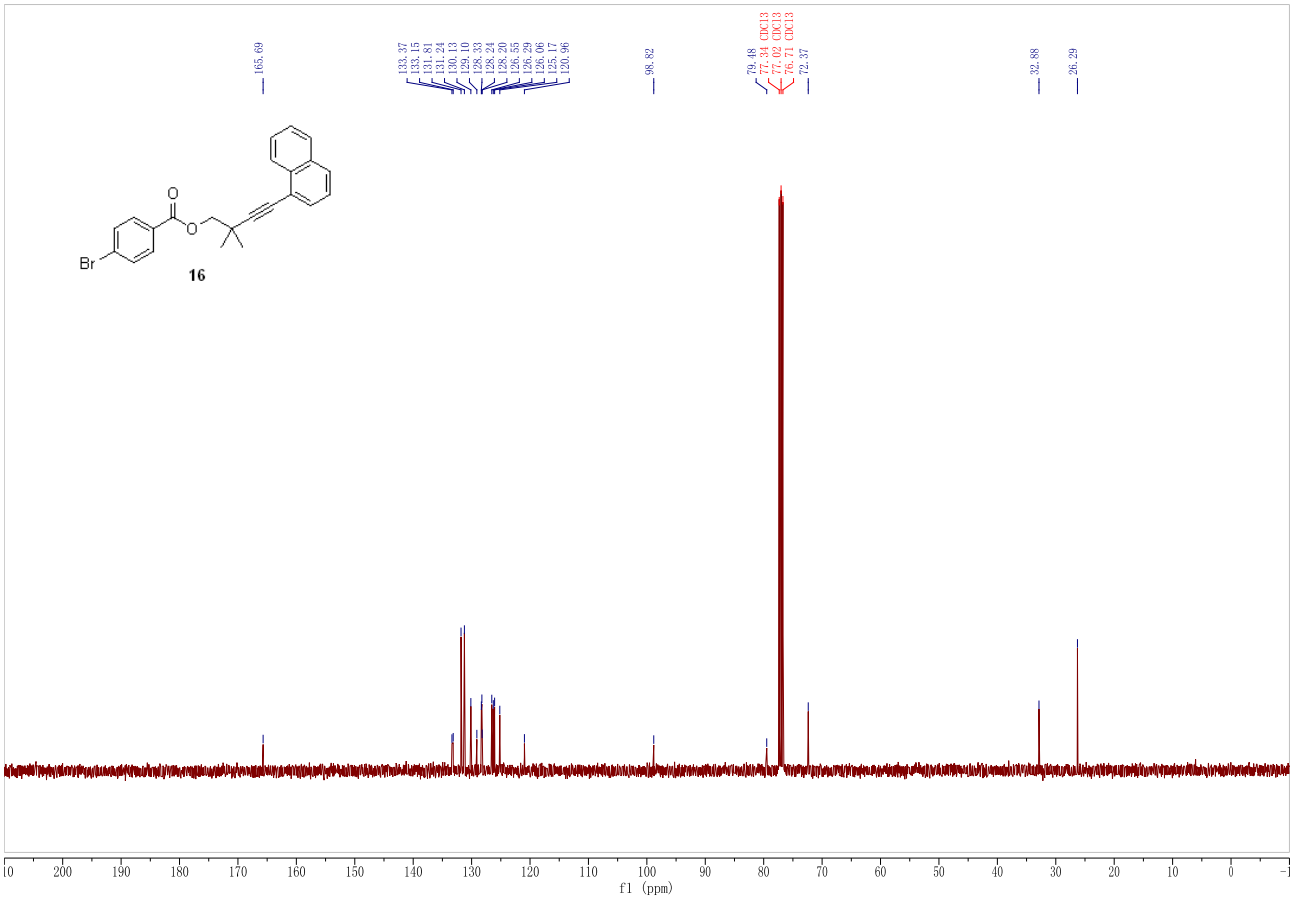


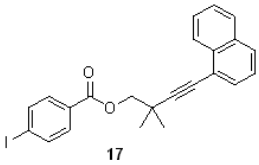
14


15
1.86
2.97
2.00
2.02
2.12
2.11
0.85
4.25
2.00
6.09
f1 (ppm)


173.56
131.51
128.16
127.45
124.05
90.36
80.59
80.12
77.39
77.03
76.77
69.81
61.90
29.13
28.95
28.85
28.83
28.70
24.89
19.39
19.00
15
f1 (ppm)


Br
O
O
16
1.00
2.01
2.13
3.07
1.03
2.09
2.00
5.91
f1 (ppm)

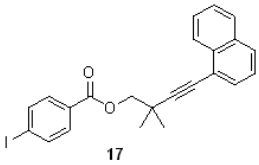

165.69
133.37
133.15
131.81
131.24
130.13
129.10
128.33
128.24
128.20
126.55
126.29
126.06
125.17
120.96
98.82
79.48
77.34 CDCl3
77.02 CDCl3
76.71 CDCl3
72.37
32.88
26.29
Br
O
O
16
f1 (ppm)



17

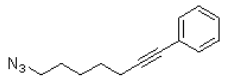
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
f1 (ppm)

2012310YJ-V11-82-C0.11.fid
165.93
137.83
133.37
133.15
131.15
130.14
129.66
129.34
128.25
126.56
126.30
126.07
125.18
120.96
100.89
88.82
79.49
77.36 CDCl3
77.04 CDCl3
76.72 CDCl3
72.36
32.88
26.30

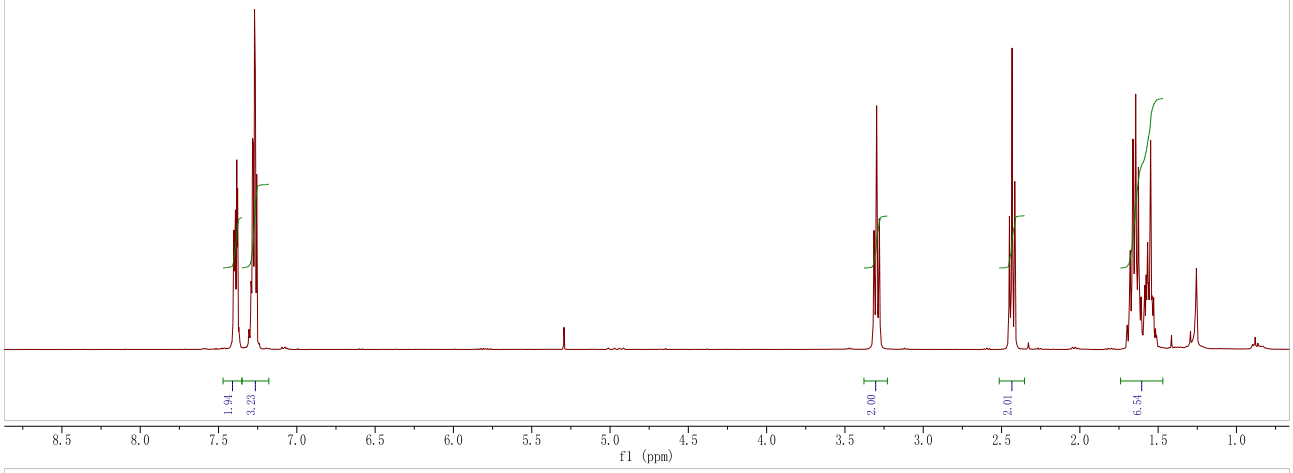


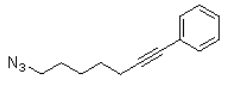
17

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



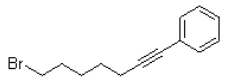
18


1.94
3.23
2.00
2.01
6.54
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
f1 (ppm)

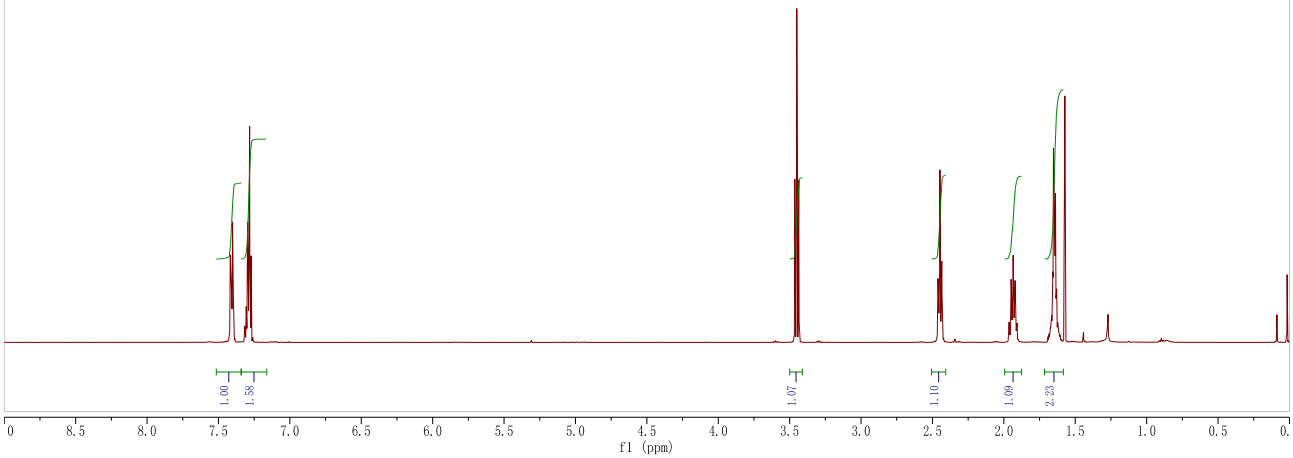


18

131.54
128.21
127.58
123.90
89.72
80.95
77.34 CDCl3
77.03 CDCl3
76.71 CDCl3
51.36
28.47
28.25
26.02
19.31
f1 (ppm)

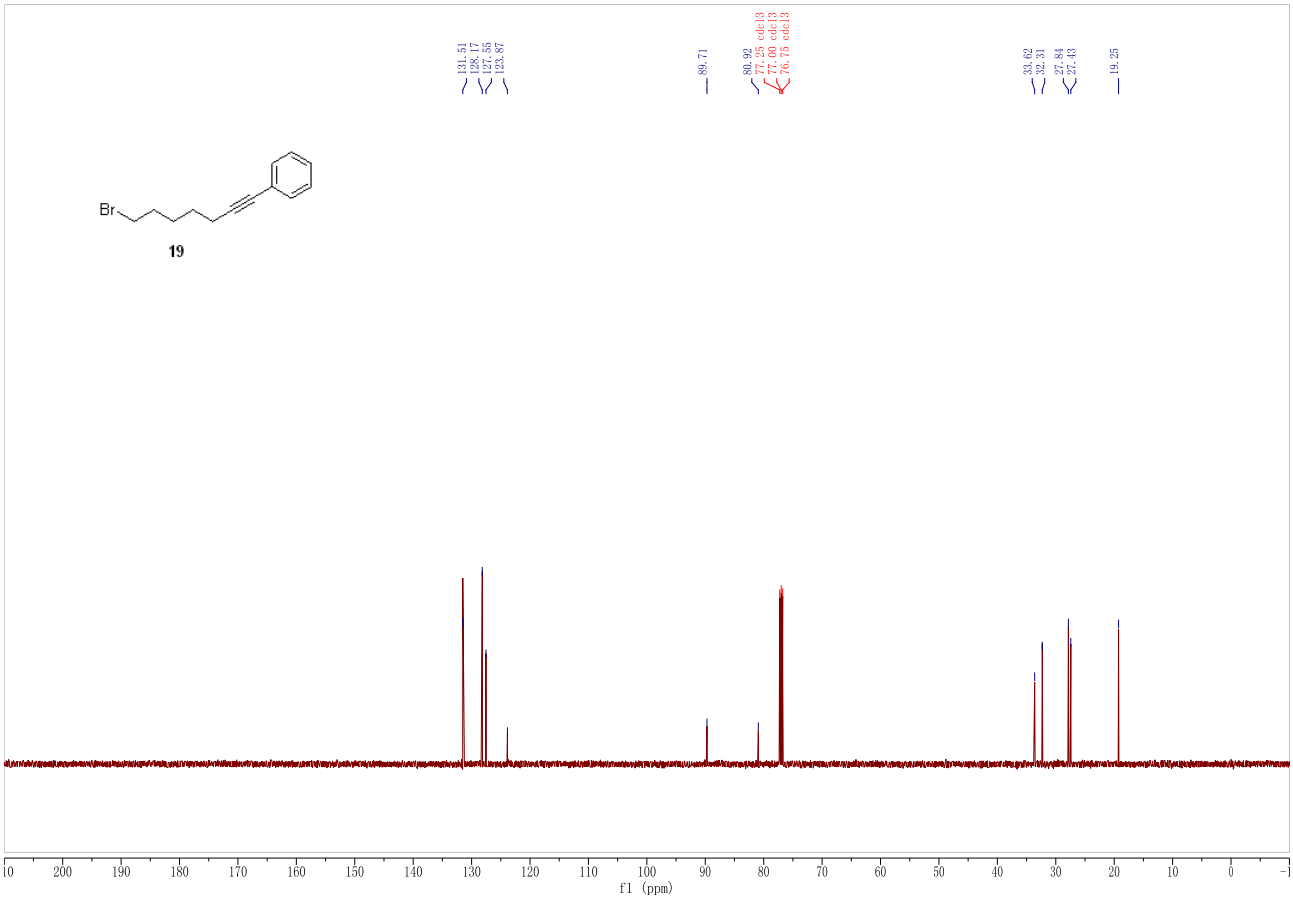

Br

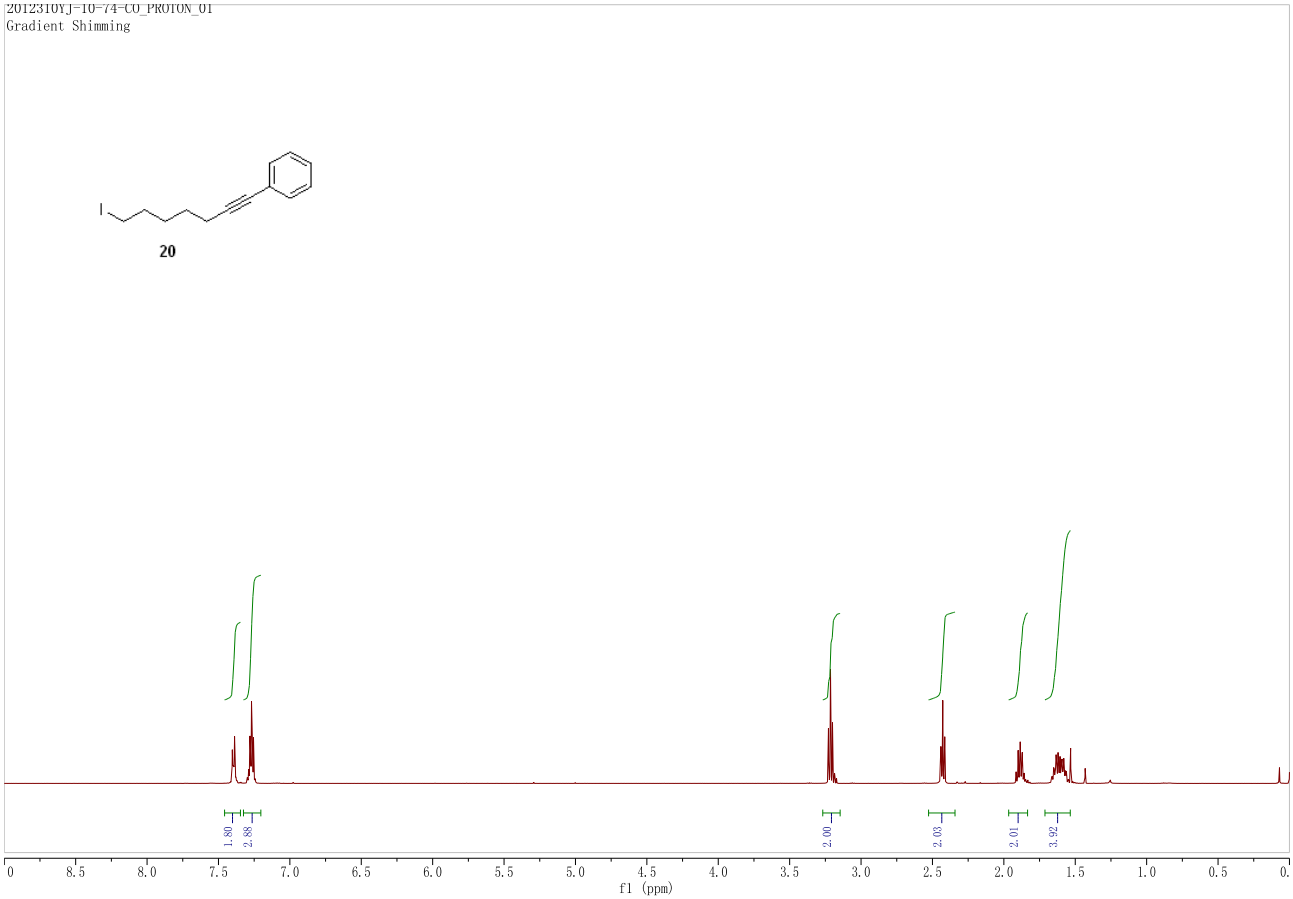
19

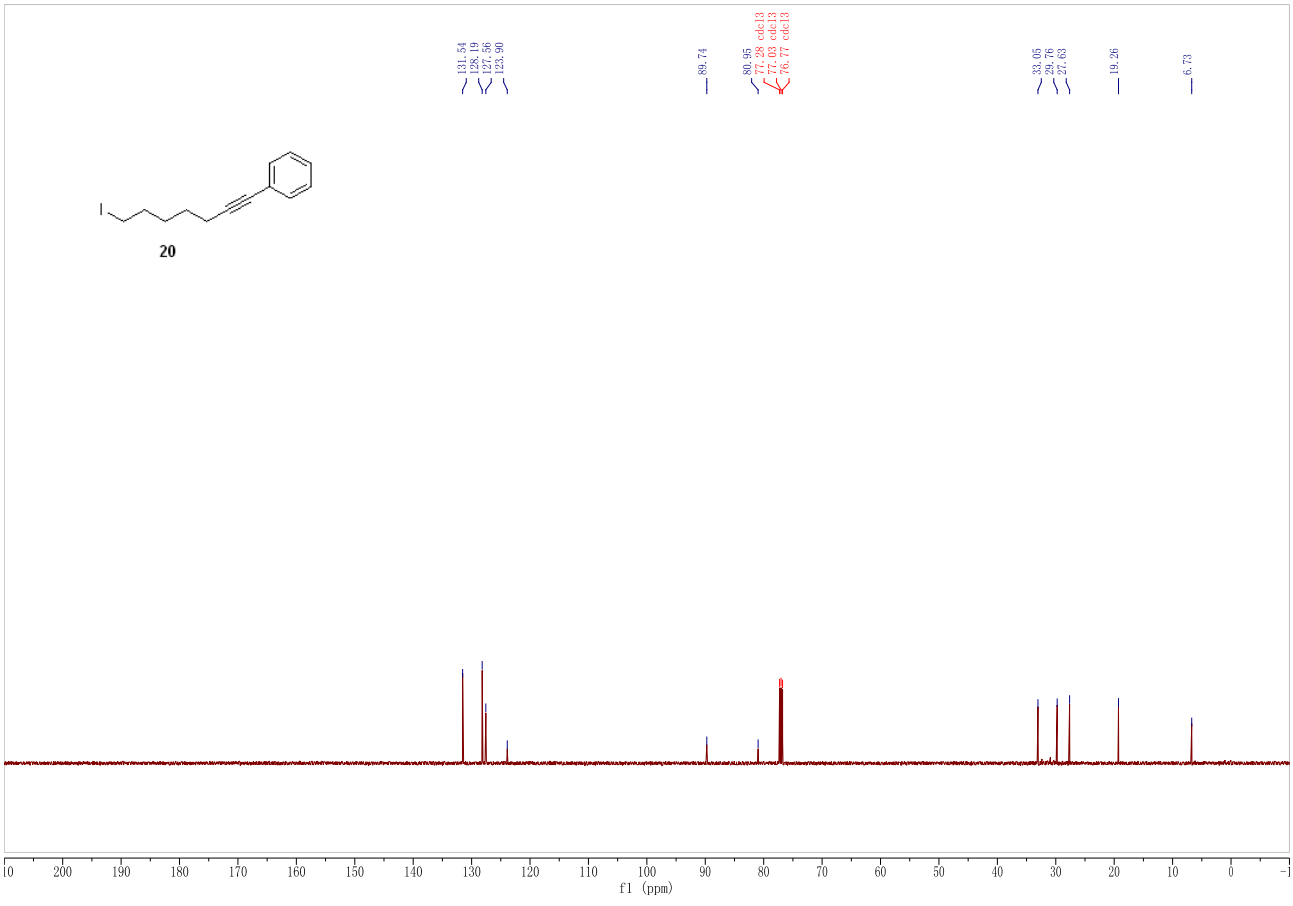

1.00
1.58
1.07
1.10
1.09
2.23
0
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.
f1 (ppm)

Br

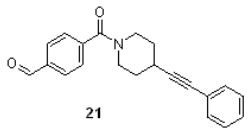
19


131.51
128.17
127.55
123.87
89.71
80.92
77.25 cdcl3
77.00 cdcl3
76.75 cdcl3
33.62
32.31
27.84
27.43
19.25
10
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
f1 (ppm)


20120310YJ-10-74-CO_PROTON_01
Gradient Shimming
I
20
1.80
2.88
2.00
2.03
2.01
3.92
f1 (ppm)


131.54
128.19
127.56
123.90
89.74
80.95
77.28 cdcl3
77.03 cdcl3
76.77 cdcl3
33.05
29.76
27.63
19.26
6.73
I
20
f1 (ppm)

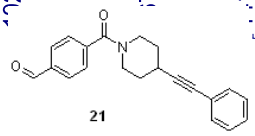
2012310YJ-1X-79-P. 10. fid



21

f1 (ppm)

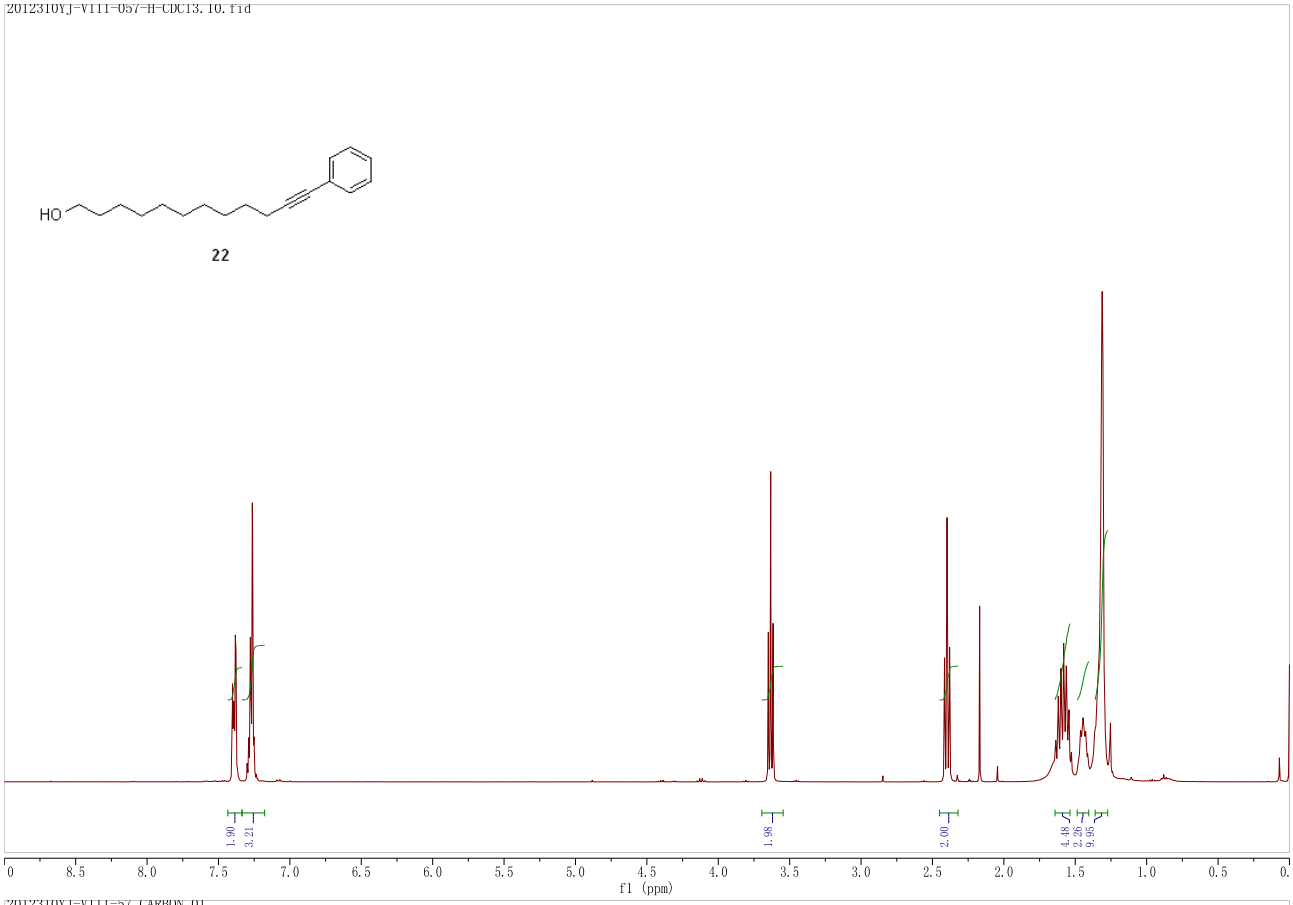
2012310YJ-1X-79-P. 11. fid

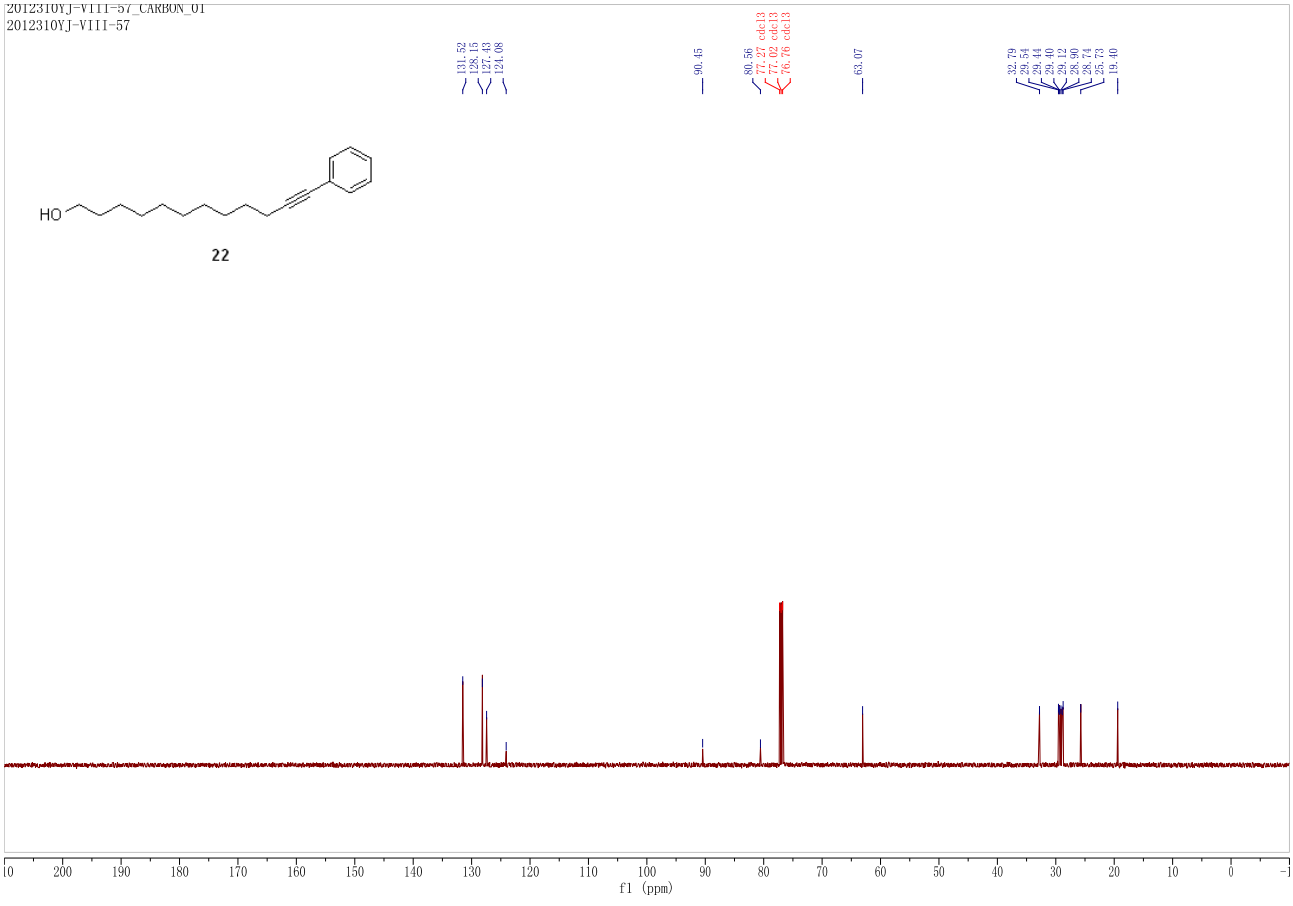


21

192.746
137.828
131.783
136.383
131.289
129.631
128.550
128.121
127.302
122.781
92.240
81.589
40.125 DMSO
39.917 DMSO
39.707 DMSO
39.499 DMSO
39.290 DMSO
39.082 DMSO
38.874 DMSO
26.873

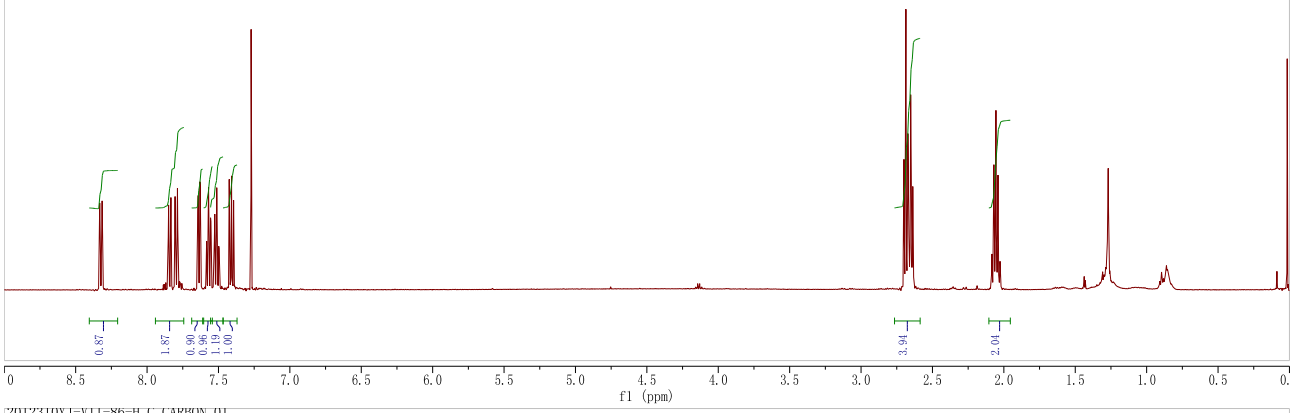
f1 (ppm)


2012310YJ-VIII-057-H-CDCl3.10.fid
HO
22
1.90
3.21
1.98
2.00
4.48
2.26
9.95
f1 (ppm)

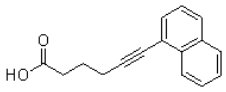

2012310YJ-VIII-57_CARBON_01
2012310YJ-VIII-57
131.52
128.15
127.43
124.08
90.45
80.56
77.27 cdcl3
77.02 cdcl3
76.76 cdcl3
63.07
32.79
29.54
29.44
29.40
29.12
28.90
28.74
25.73
19.40
HO
22
f1 (ppm)

2012310YJ-VII-086-H_C_PROTON_01
Gradient Shimming

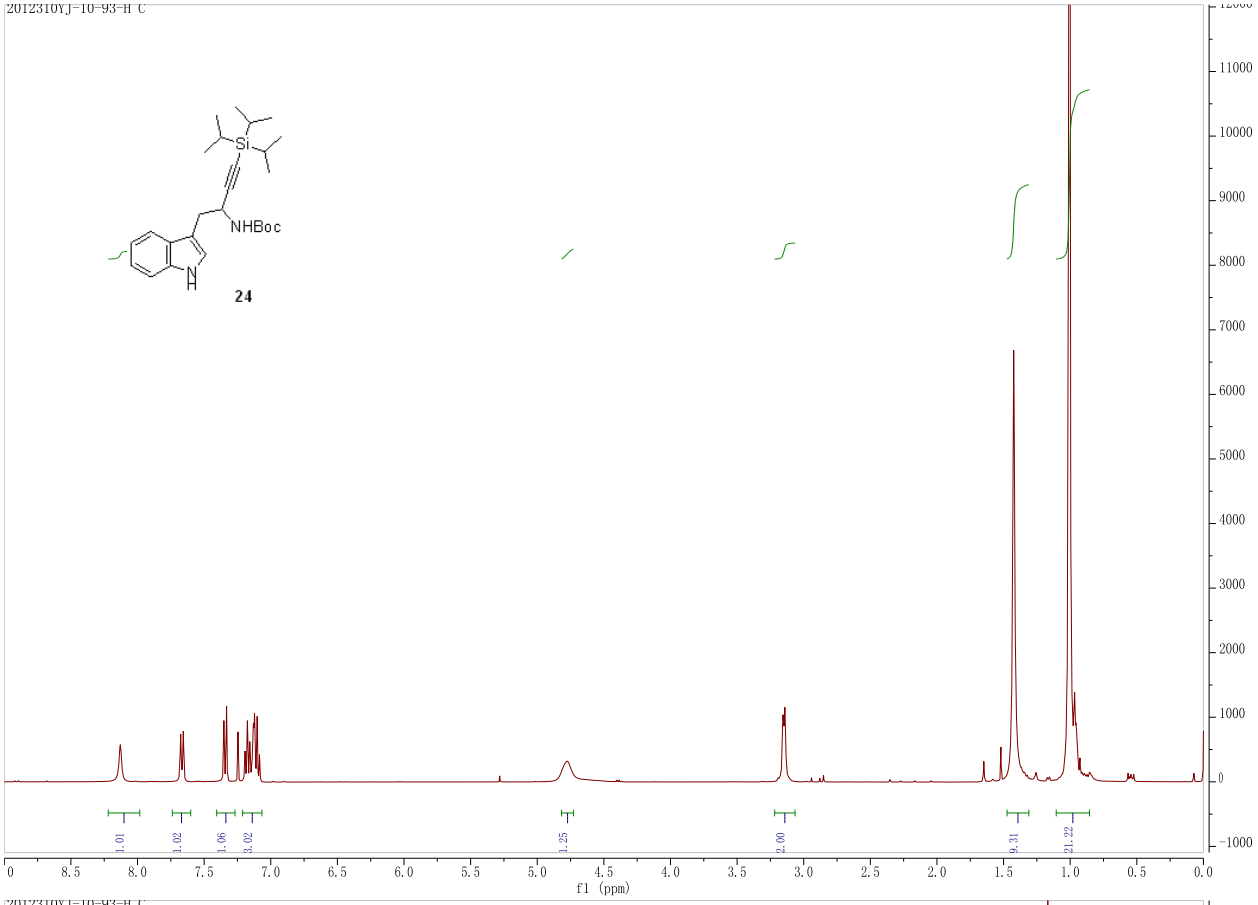
23

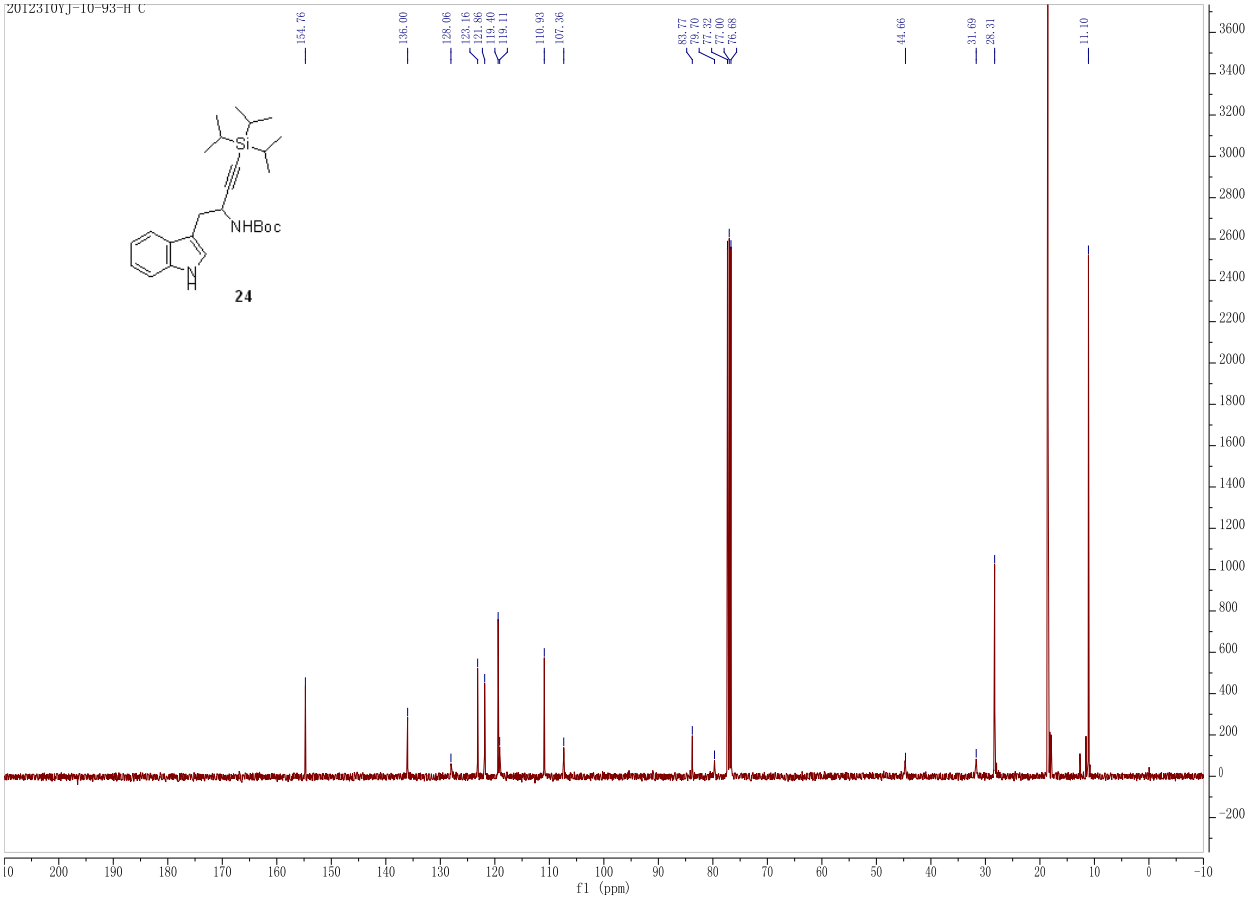


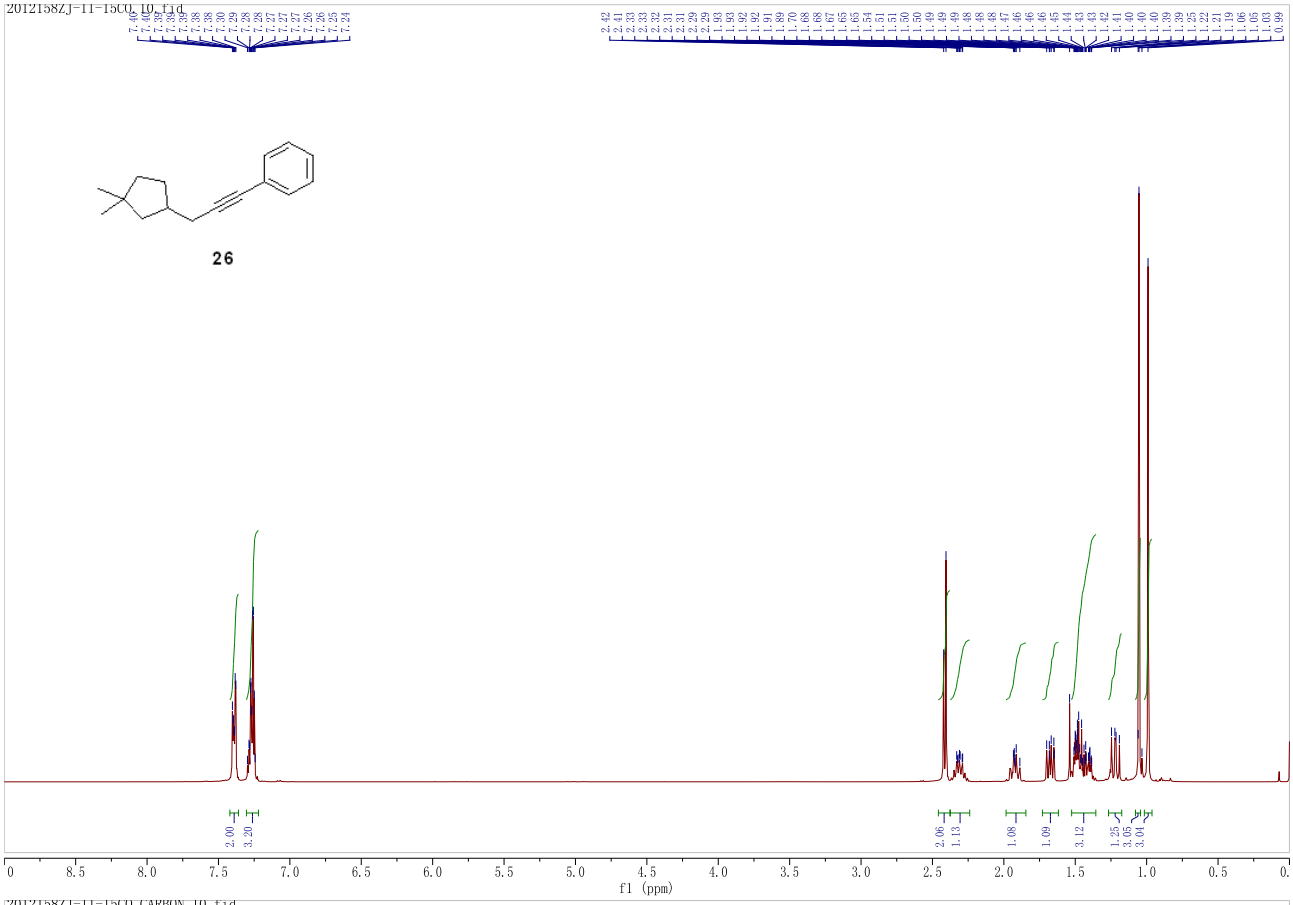
2012310YJ-VII-86-H_C_CARBON_01
2012310YJ-VII-86-H_C

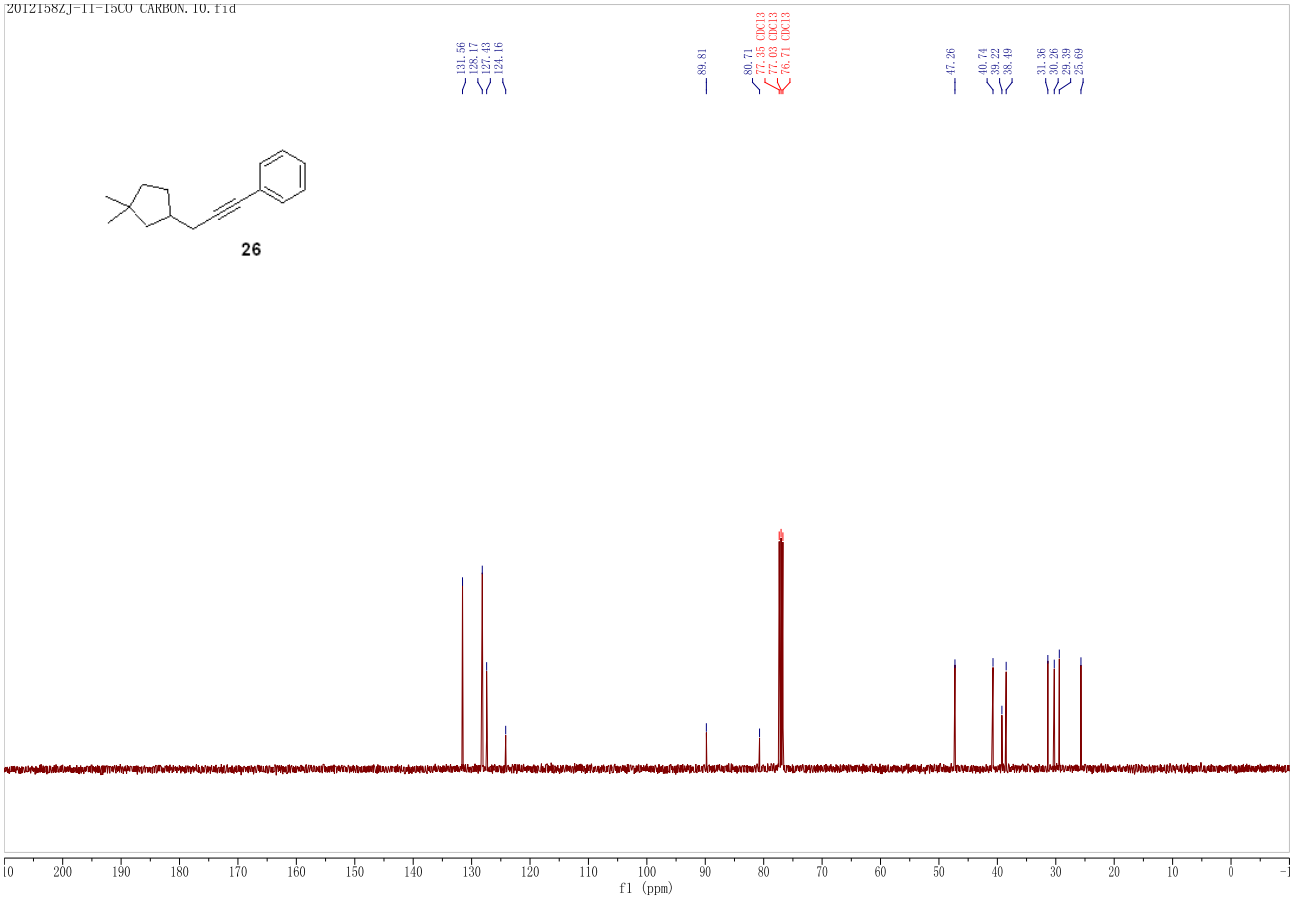


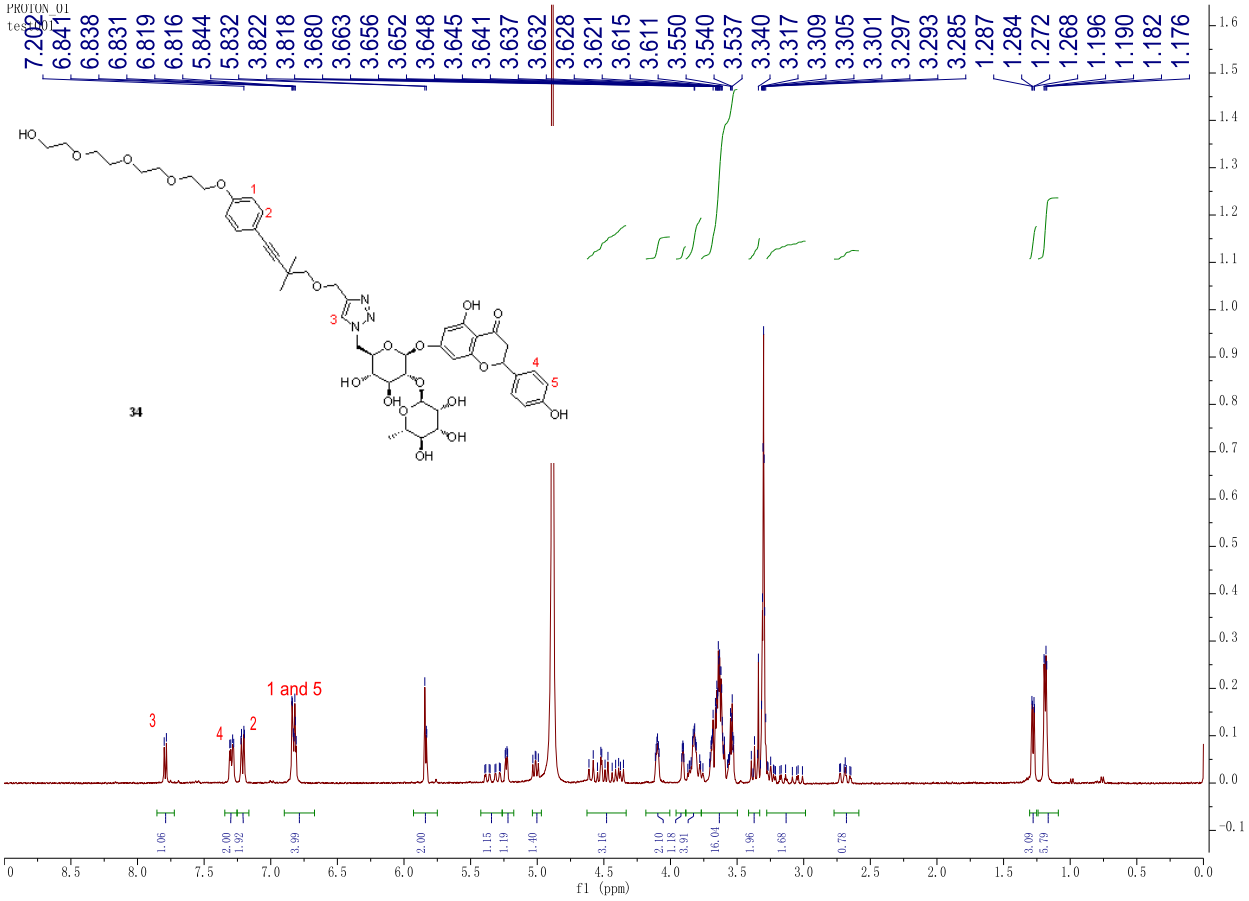
23


20123101Y_J-10-93-H C
NHBoc
24
1.01
1.02
1.06
3.02
1.25
2.00
9.31
21.22
f1 (ppm)


20123101Y_J-10-93-H C
154.76
136.00
128.06
123.16
121.86
119.40
119.11
110.93
107.36
83.77
79.70
77.32
77.00
76.68
44.66
31.69
28.31
11.10
NHBoc
24
f1 (ppm)


20121158ZJ-11-15CO. 10. fid
26
2.00
3.20
2.06
1.13
1.08
1.09
3.12
1.25
3.05
3.04
f1 (ppm)


20121158ZJ-11-15CO CARBON. 10. fid
131.56
128.17
127.43
124.16
89.81
80.71
77.35 CDCl3
77.03 CDCl3
76.71 CDCl3
47.26
40.74
39.22
38.49
31.36
30.26
29.39
25.69
26
f1 (ppm)


PROTON_01
7.20
6.841
6.838
6.831
6.819
6.816
5.844
5.832
3.822
3.818
3.680
3.663
3.656
3.652
3.648
3.645
3.641
3.637
3.632
3.628
3.621
3.615
3.611
3.550
3.540
3.537
3.340
3.317
3.309
3.305
3.301
3.297
3.293
3.285
1.287
1.284
1.272
1.268
1.196
1.190
1.182
1.176
34
1 and 5
3
4
2
f1 (ppm)