

Supporting Information for:

Total Synthesis and Biological Evaluation of Ipomoeassin F and Its Unnatural *11R*-Epimer

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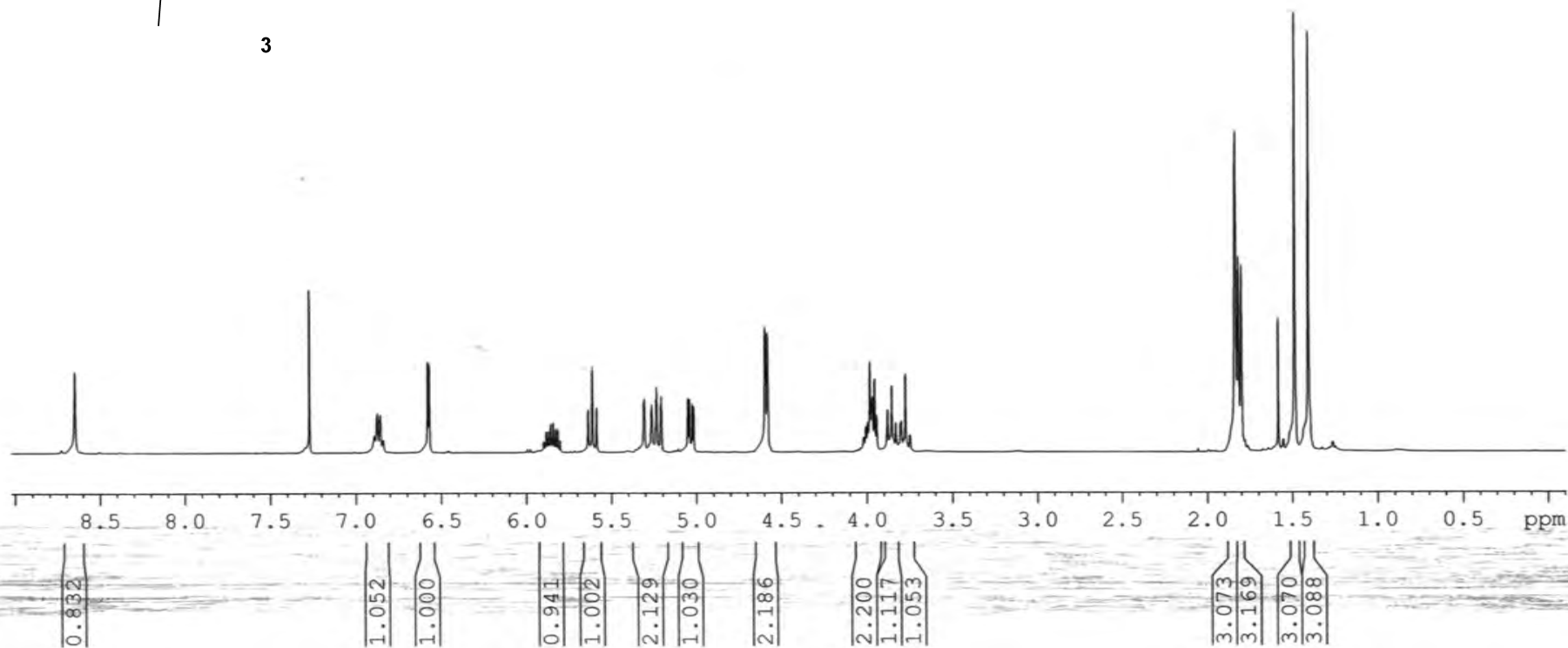
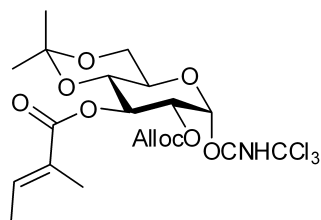
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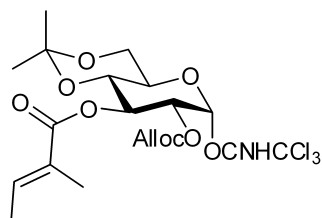
ZGH-*Ipom*-1-165-A-131010 1H in CDCl₃

8.649
7.271
7.269
6.891
6.877
6.873
6.859
6.856
6.578
6.568
5.884
5.882
5.870
5.857
5.855
5.841
5.827
5.814
5.813
5.635
5.611
5.587
5.309
5.306
5.265
5.263
5.236
5.234
5.231
5.210
5.207
5.050
5.048
5.040
5.025
5.024
5.016
5.014
4.594
4.580
4.017
4.005
3.993
3.980
3.970
3.965
3.953
3.941
3.877
3.853
3.829
3.802
3.797
3.773
3.747
1.834
1.832
1.815
1.797
1.584
1.486
1.425
1.405

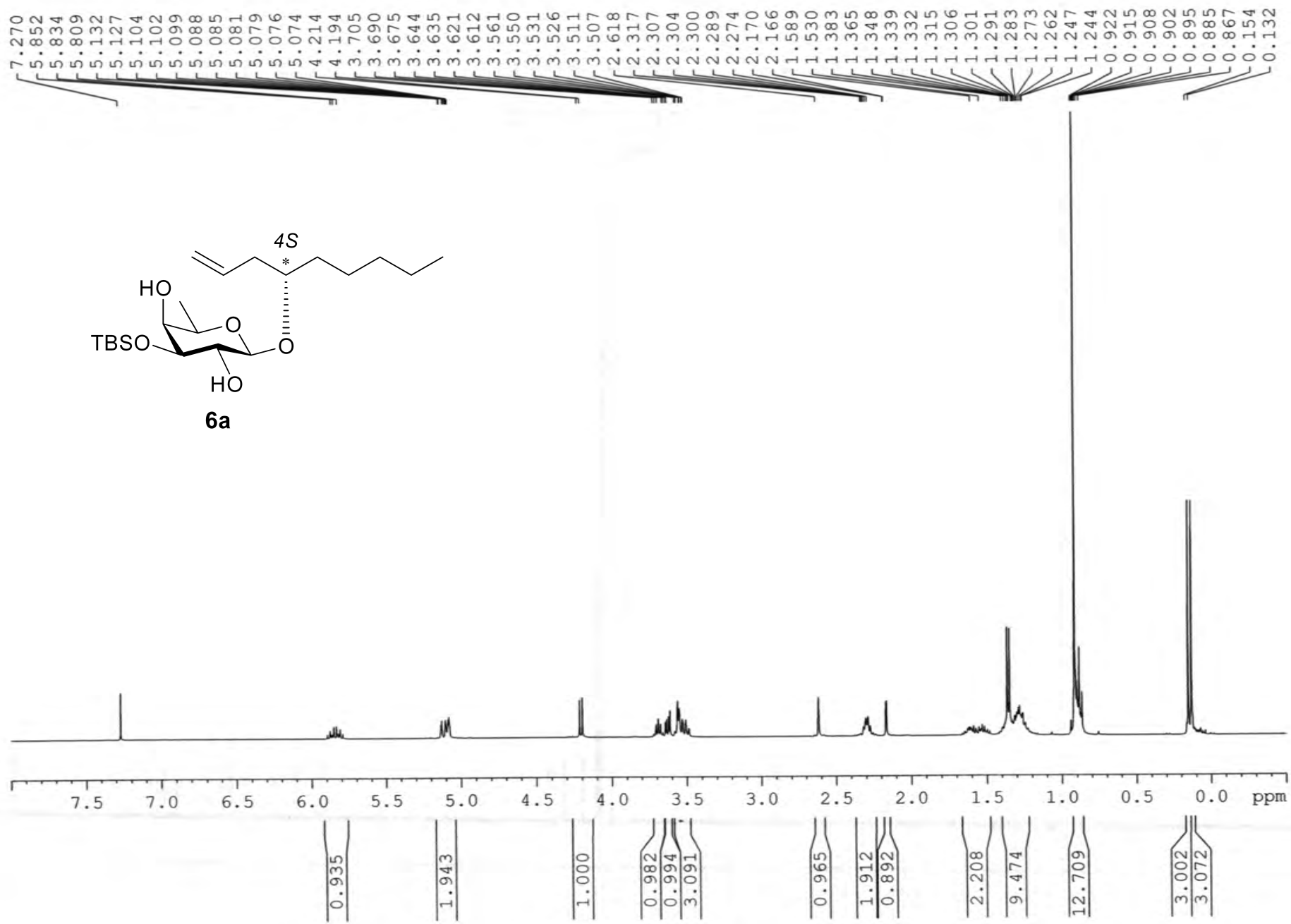


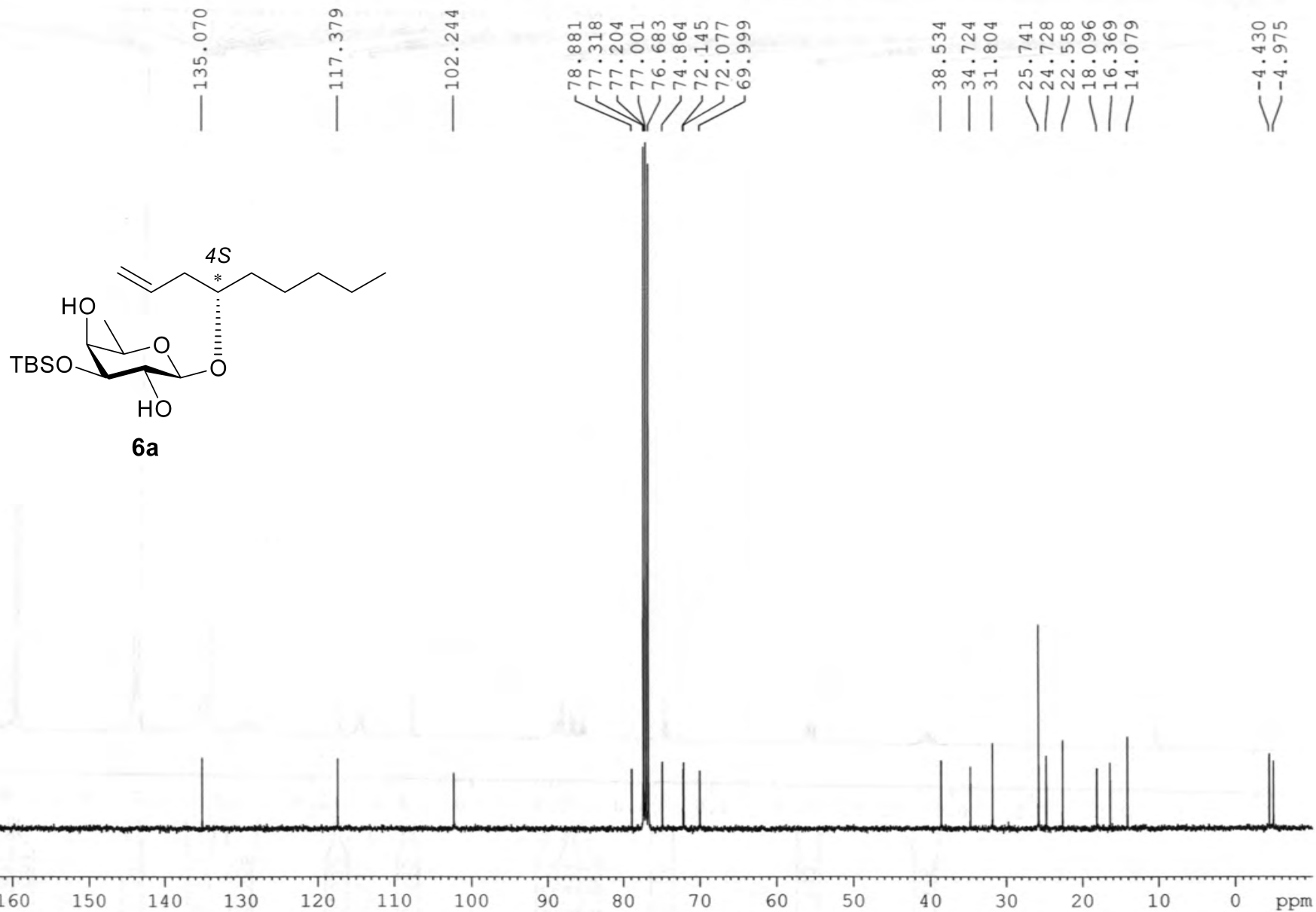
ZGH-*Ipom*-1-165-A-131010 ^{13}C in CDCl_3

— 166.643
— 154.183
— 138.034
— 131.113
— 128.046
— 118.802
— 99.956
— 93.570
77.002
76.684
73.988
71.649
69.006
68.909
66.194
62.023
— 28.821
— 18.929
— 14.432
— 12.117



170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm

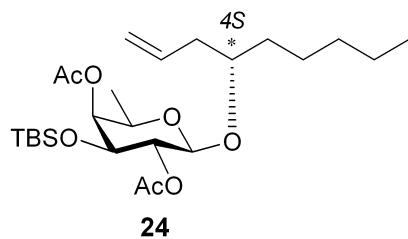
ZGH-*Ipom*-2-16-A 1H in CDCl₃

ZGH-*Ipom*-2-16-A ^{13}C in CDCl_3 

ZGH-*Ipom*-2-22-A 1H in CDCl₃

— 7.270

5.813
5.787
5.770
5.745
5.076
5.066
5.049
5.045
5.041
5.033
5.029
5.021
4.370
4.349
3.789
3.780
3.765
3.756
3.674
3.672
3.658
3.656
3.603
3.588
3.573
2.244
2.229
2.227
2.212
2.146
2.050
1.623
1.589
1.586
1.574
1.566
1.559
1.551
1.536
1.509
1.488
1.472
1.457
1.453
1.354
1.335
1.318
1.303
1.292
1.288
1.282
1.275
1.263
1.232
1.186
1.170
0.893
0.877
0.859
0.823
0.061
0.044



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 -0.5 ppm

0.976

4.009

1.000

1.026

0.974

1.036

1.990

3.000

3.060

2.122

6.246

3.118

3.221

9.101

2.855

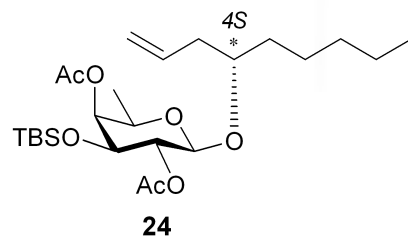
2.999

ZGH-*Ipom*-2-22-A 13C in CDCl₃170.874
169.176

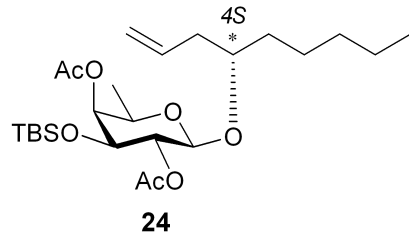
134.676

116.852

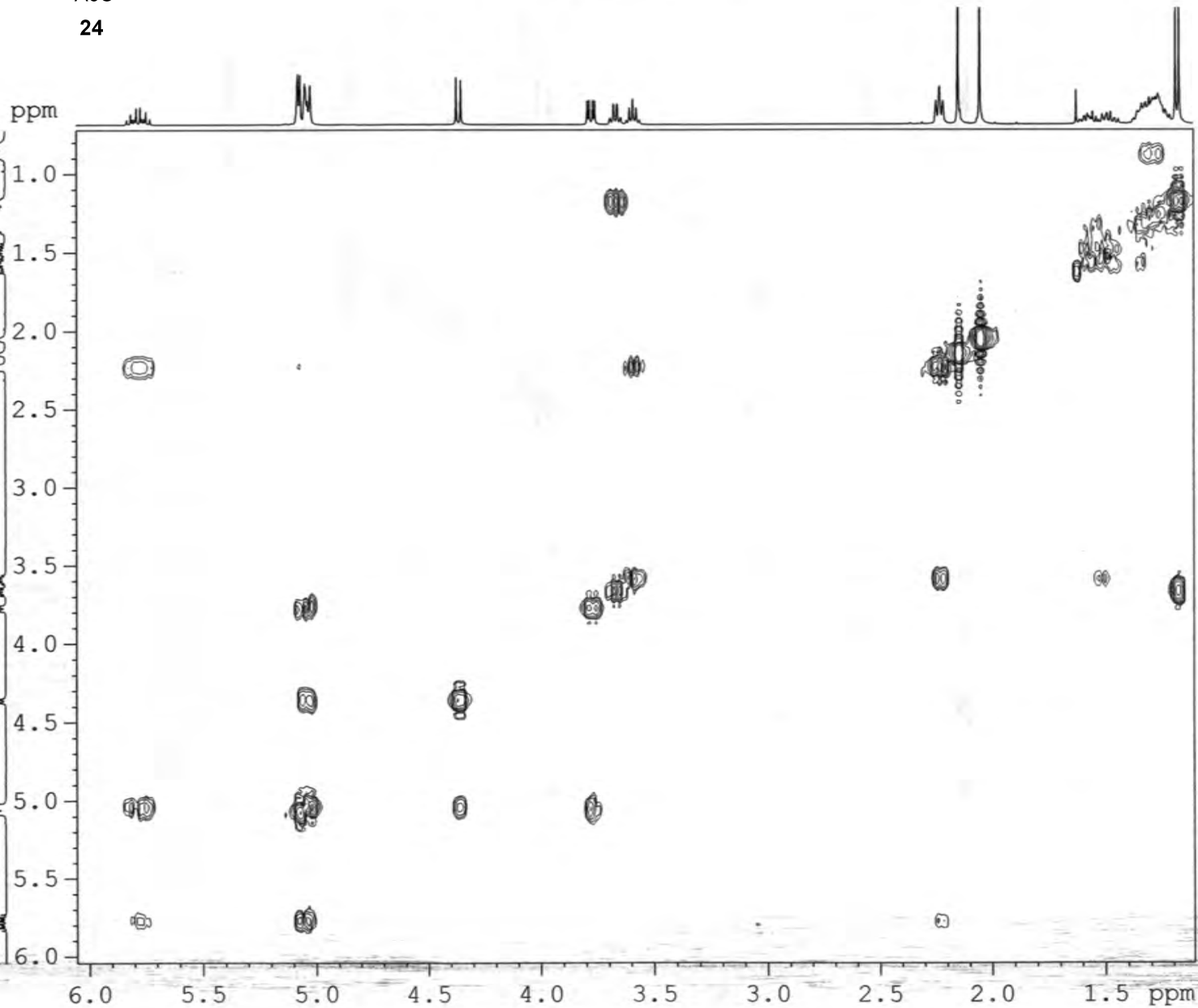
100.608

79.890
77.321
77.206
77.004
76.687
72.919
72.278
71.484
69.02238.386
34.371
31.751
25.373
24.638
22.559
21.220
20.869
17.749
16.312
14.043-4.838
-5.162

170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm



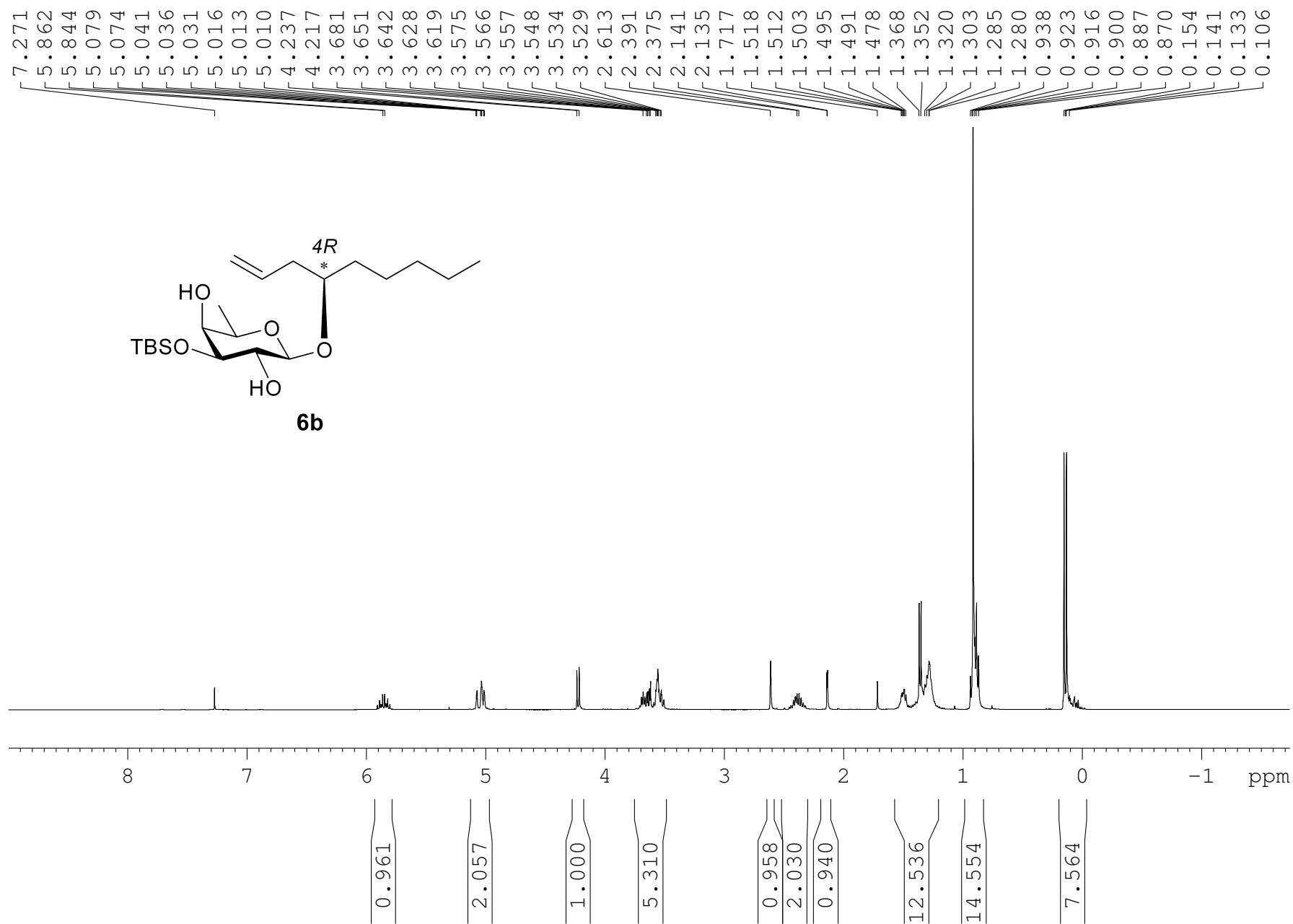
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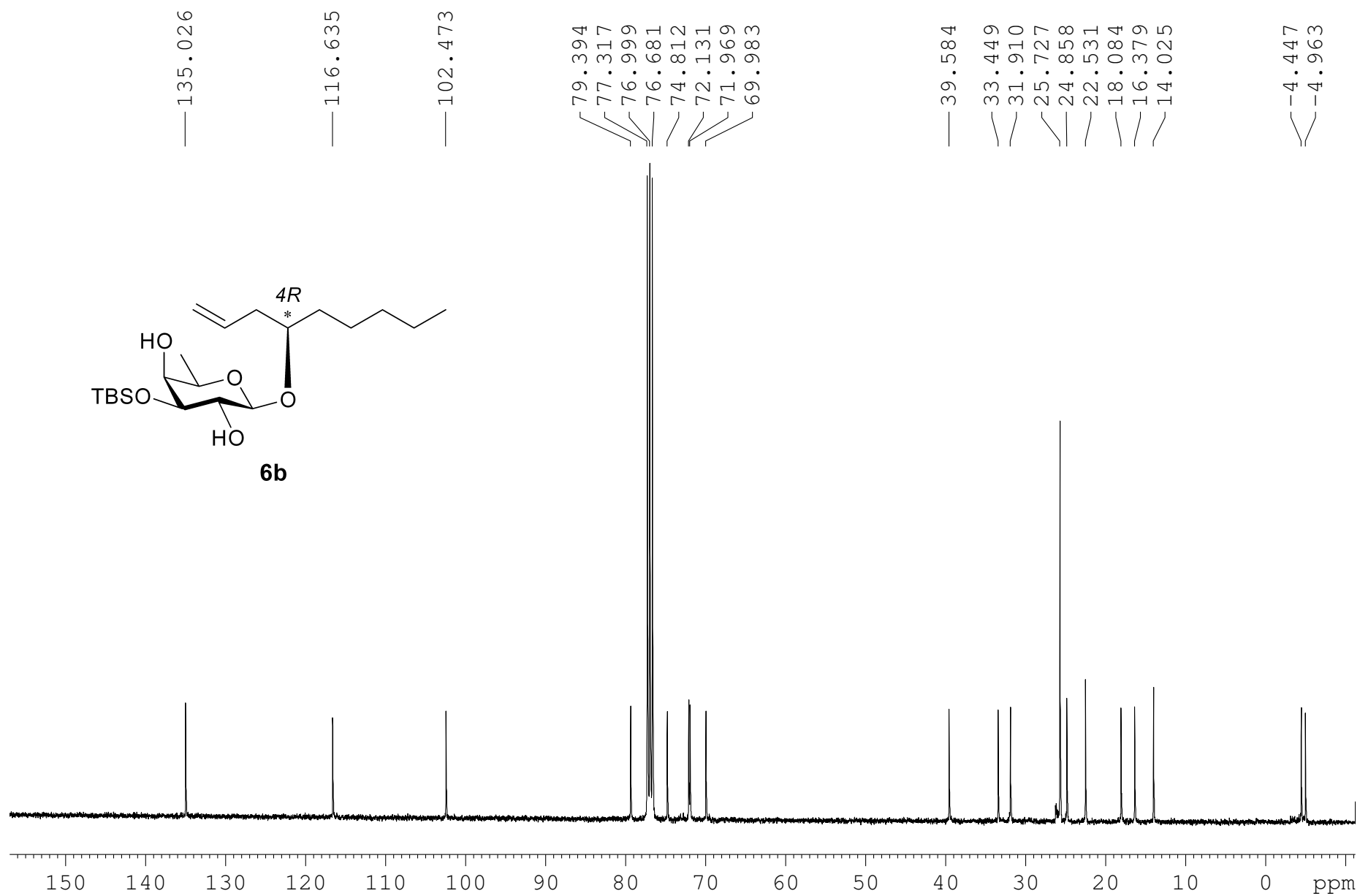


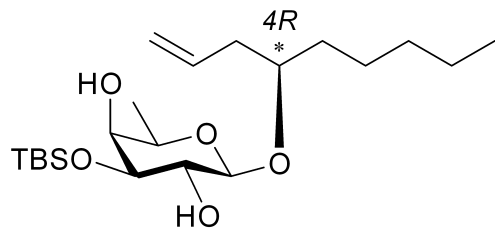
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 PROCNO 1
 Date 20150323
 Time 12.35
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT CDC13
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 114
 DW 93.600 usec
 DE 6.50 usec
 TE 292.8 K
 DO 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

----- CHANNEL f1 -----
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FrMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

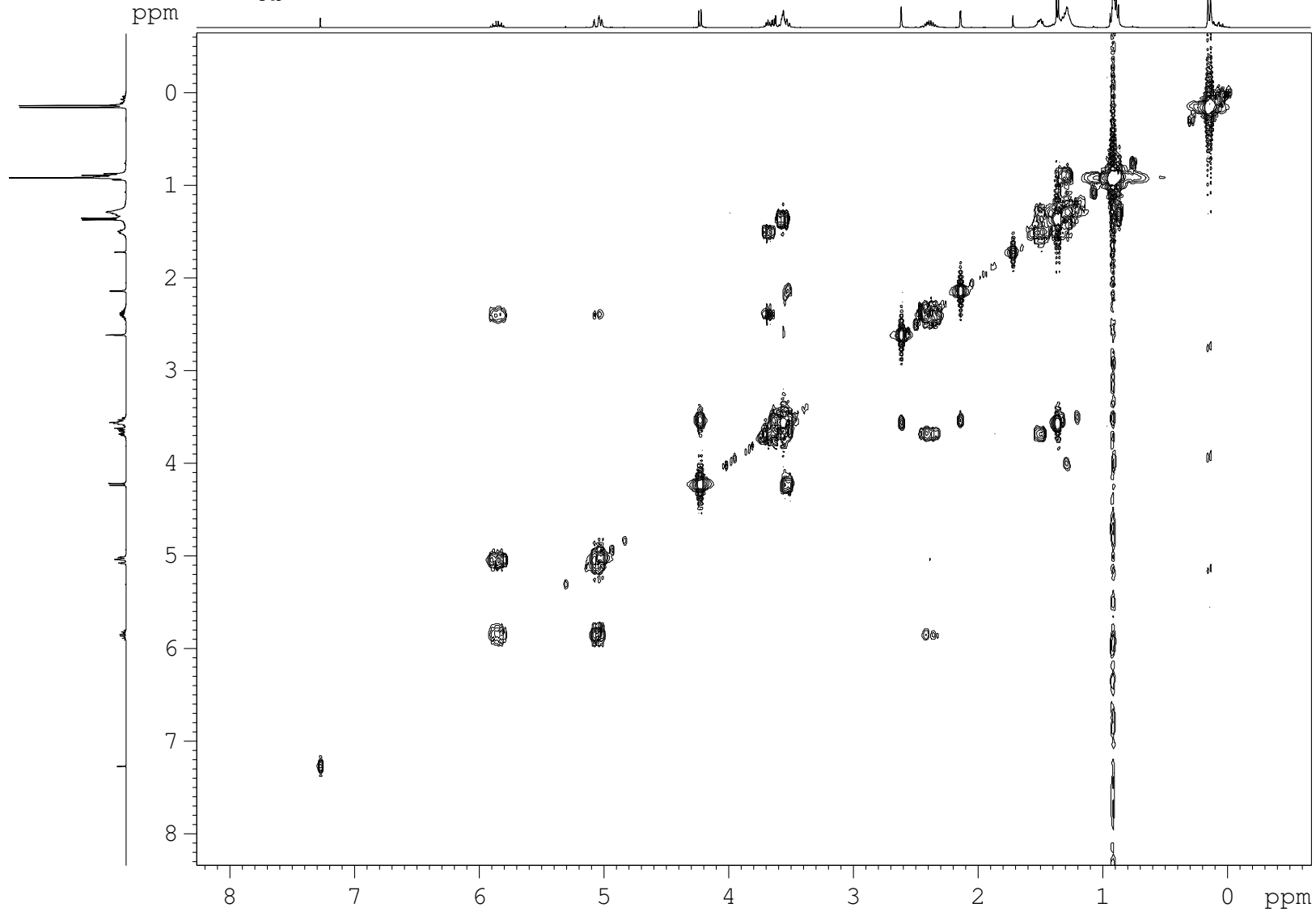
EDB-Ipom-1-103-A-150518 in CDCL₃

EDB-Ipom-1-103-A-150518 ¹³C in CDCl₃



6b

EDB-Ipom-1-103-A-150518 COSY



```

NAME      EDB-Ipom-1-103-A-150518
EXPNO     2
PROCNO    1
Date_     20150615
Time      21.24
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpgf
TD         2048
SOLVENT   CDCl3
NS         4
DS         8
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         80.6
DW         93.600 usec
DE         6.50 usec
TE         292.4 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec

```

```

===== CHANNEL f1 =====
NUC1      1H
P0         10.00 usec
P1         10.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SFO1      400.1324057 MHz

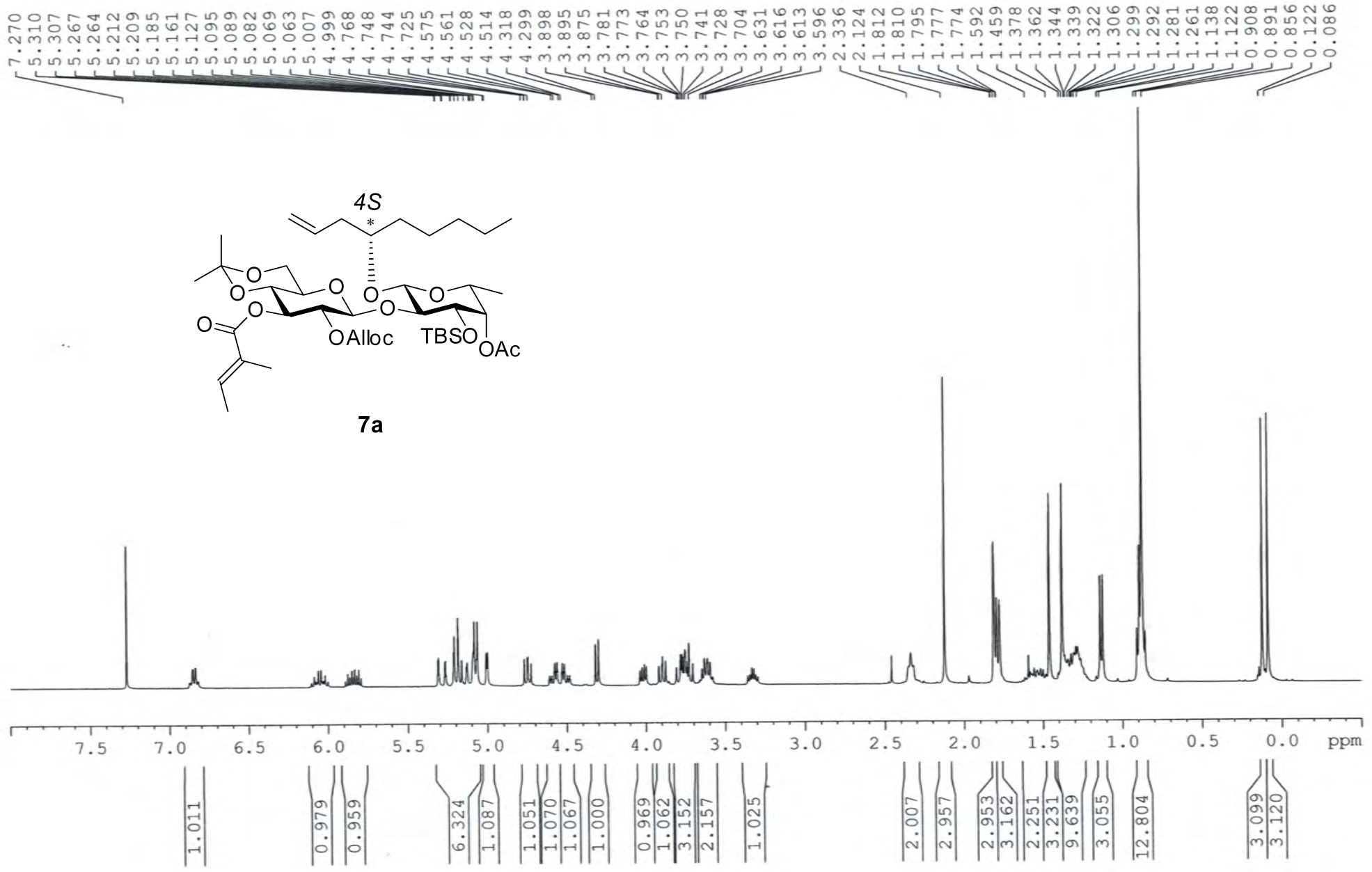
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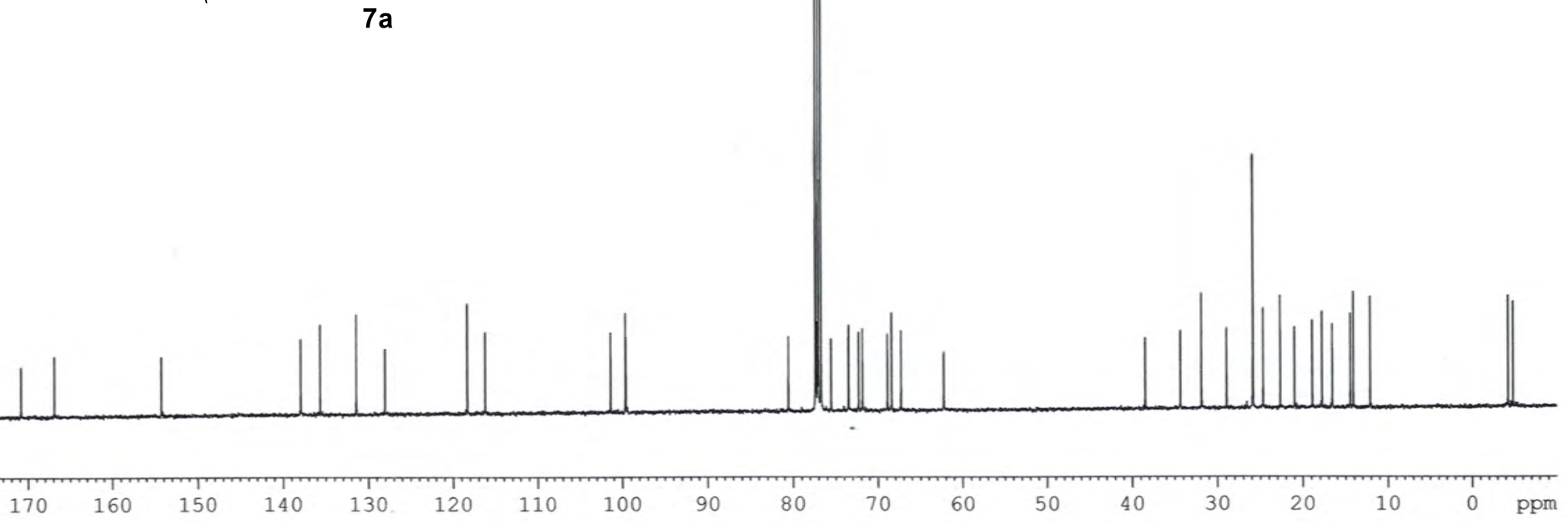
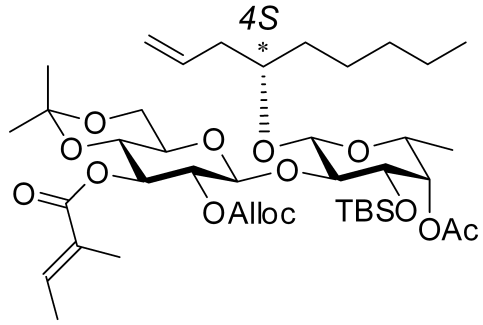
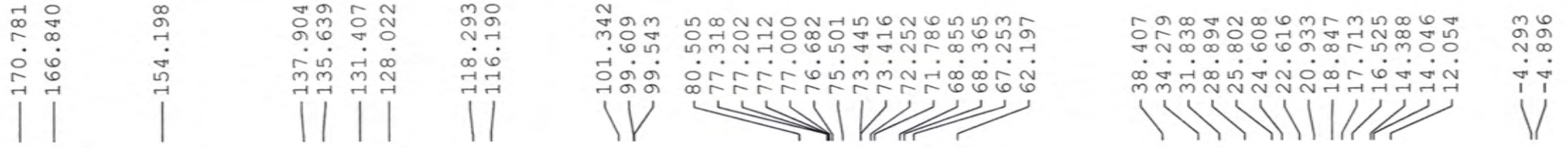
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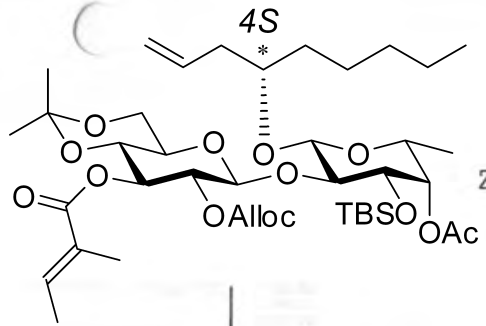
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GPNAM1    SINE.100
GPZ1      10.00 %
P16       1000.00 usec
ND0        1
TD         128
SFO1      400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FnMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB        0
LB         0.00 Hz
GB         0

```

ZGH-Ipom-2-25-A 1H in CDCL3



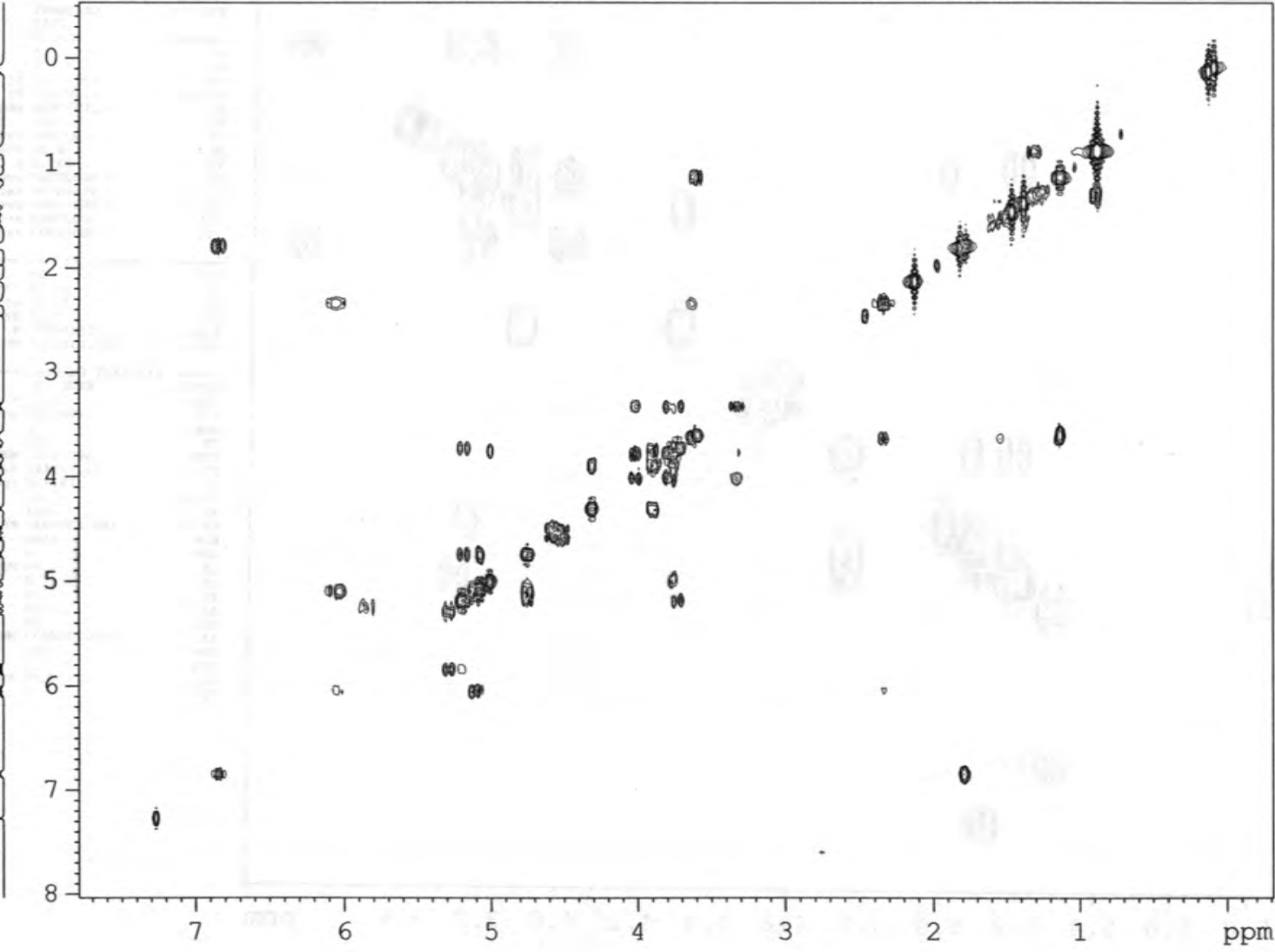
ZGH-*Ipom*-2-25-A ¹³C in CDCl₃



ZGH-Ipom-2-25-A-150106 COSY

7a

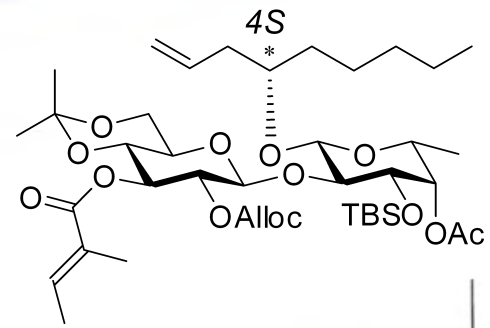
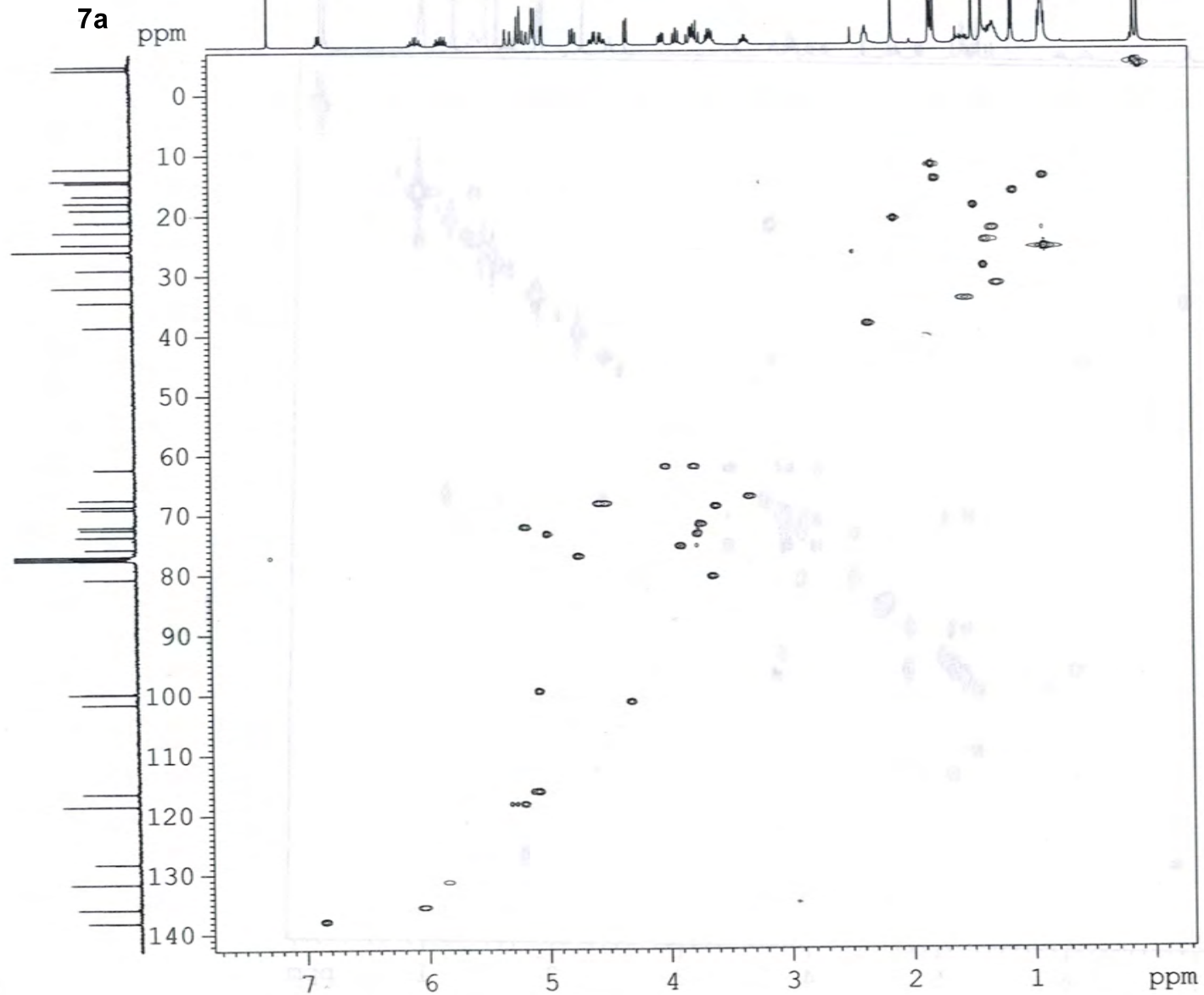
ppm

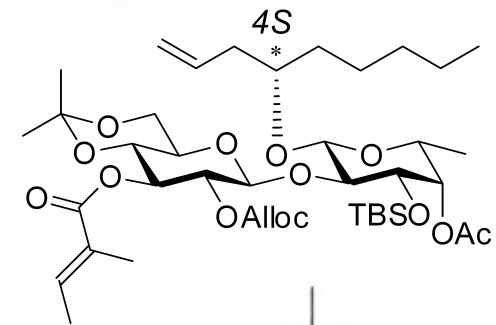
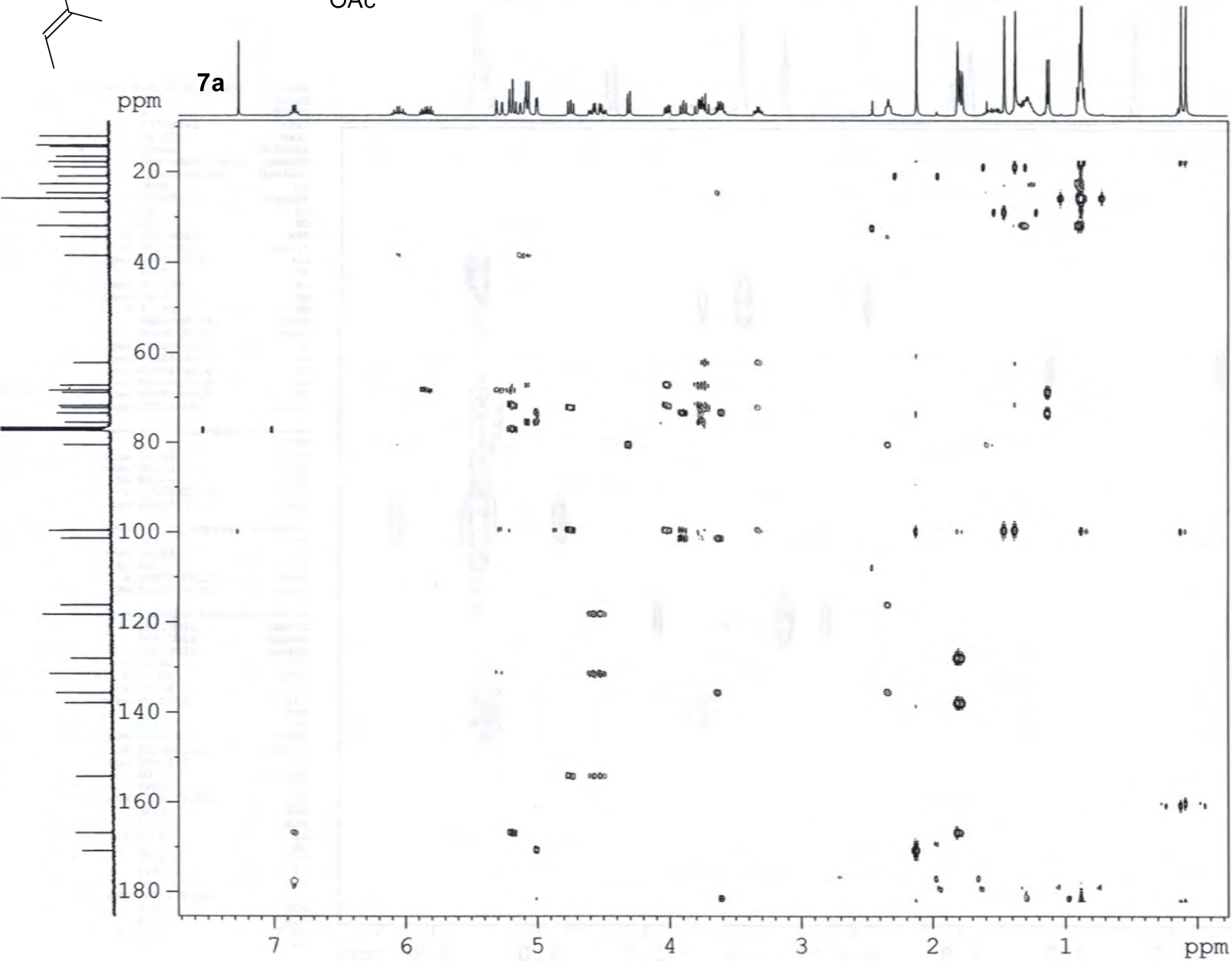


NAME ZGH-Ipom-2-25-A-150106
 EXPNO 2
 PROCNO 1
 Date 20150107
 Time 21.12
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosyppqf
 TD 2048
 SOLVENT CDCl3
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 161
 DW 93.600 usec
 DE 6.50 usec
 TE 292.2 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

----- CHANNEL f1 -----
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ZGH-*Ipom*-2-25-A HSQC

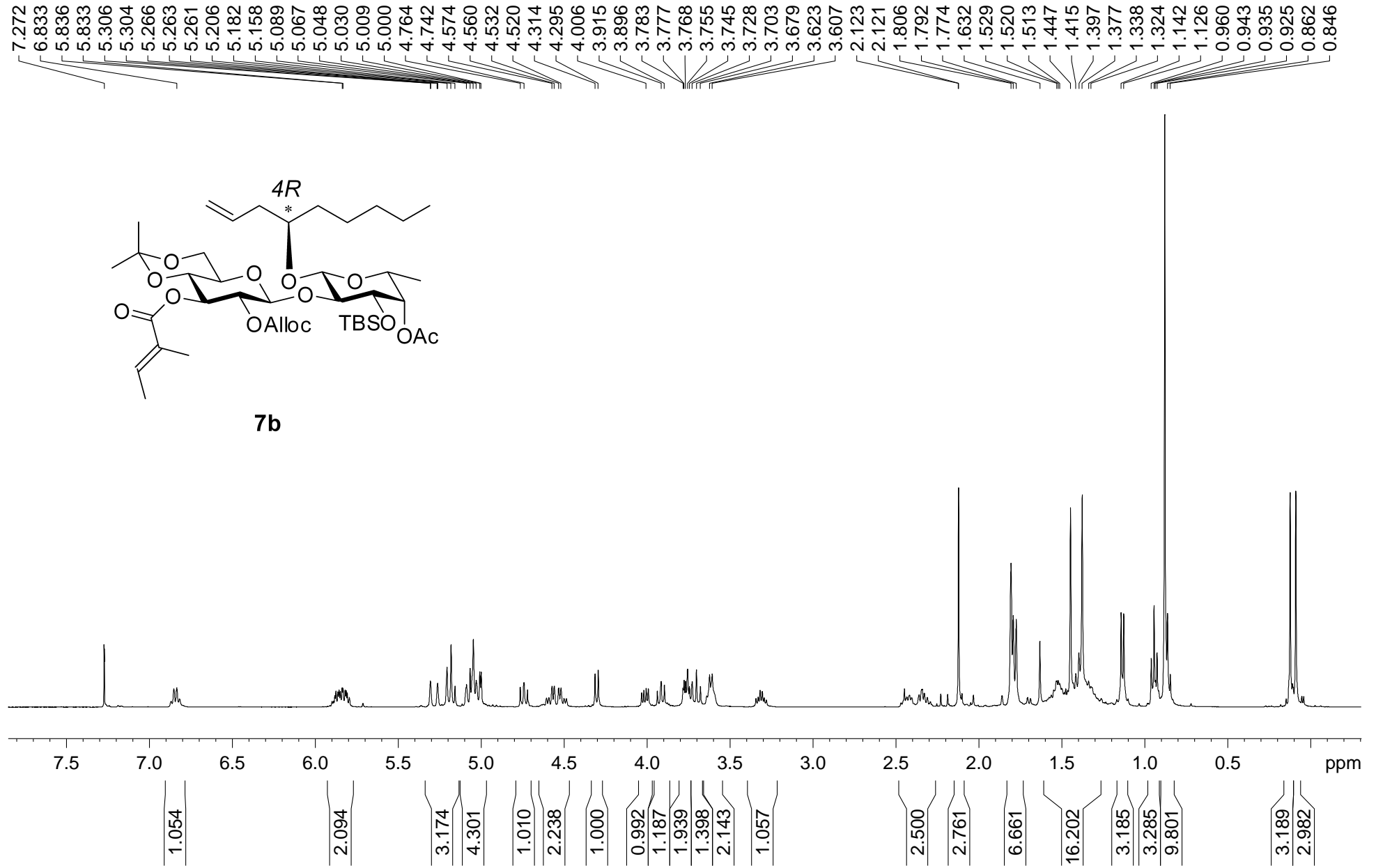
ZGH-*Ipom*-2-25-A-150106 HMBC in CDCl₃

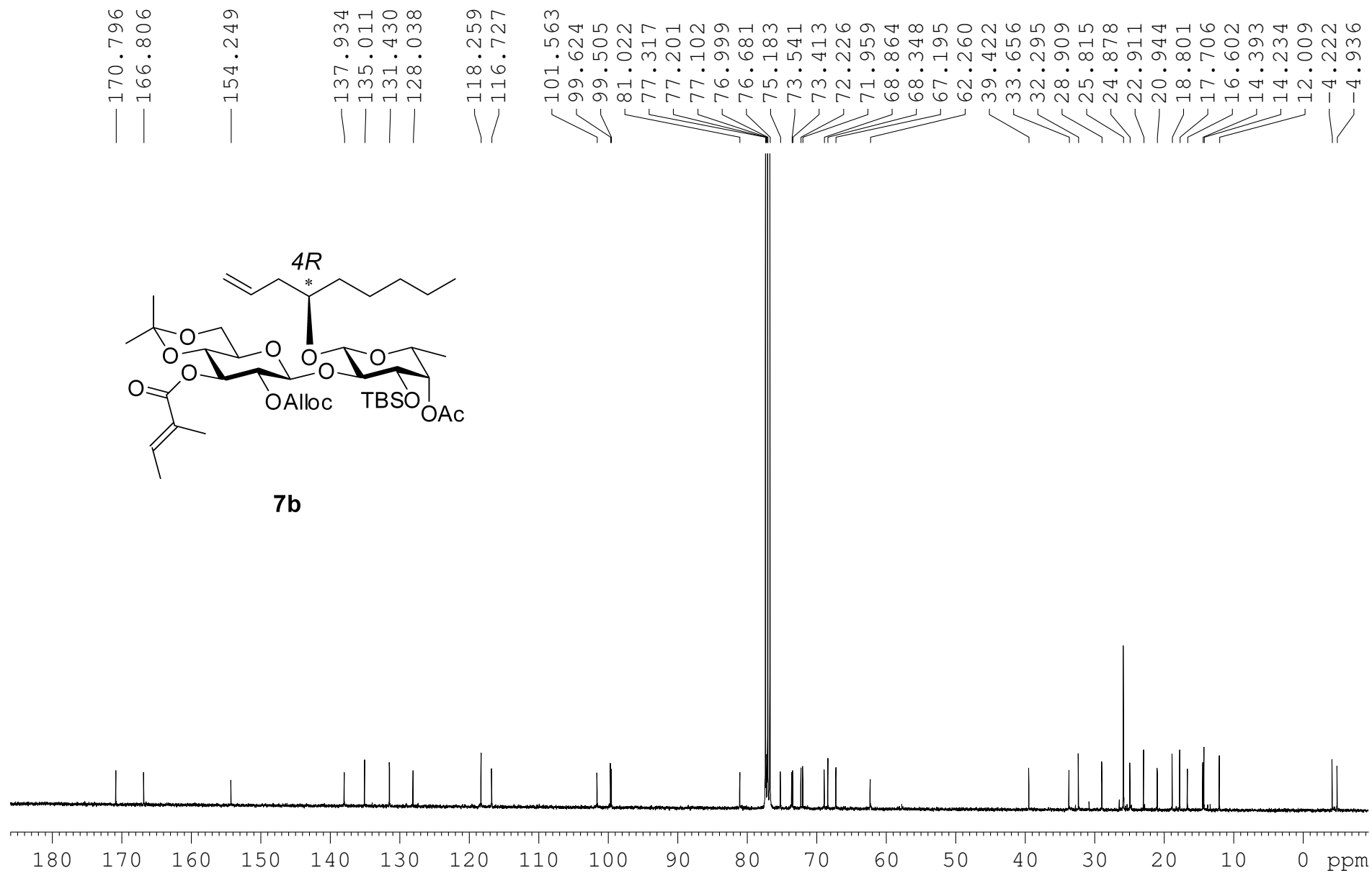
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 PROCNO 1
 Date_ 20150107
 Time 23.35
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcgp1pndqf
 TD 4096
 SOLVENT CDCl3
 NS 15
 DS 16
 SWH 5208.333 Hz
 FIDRES 1.271566 Hz
 AQ 0.3932660 sec
 RG 2050
 DW 96.000 usec
 DE 6.50 usec
 TE 292.1 K
 CNST2 145.0000000
 CNST13 10.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D2 0.00344828 sec
 D6 0.05000000 sec
 D16 0.00020000 sec
 IN0 0.00003010 sec

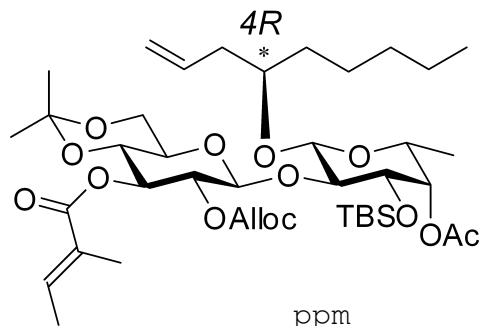
===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1325208 MHz

===== CHANNEL f2 =====
 NUC2 13C
 P3 10.00 usec
 PL2 -2.10 dB
 PL2W 58.37759399 W
 SFO2 100.6228138 MHz

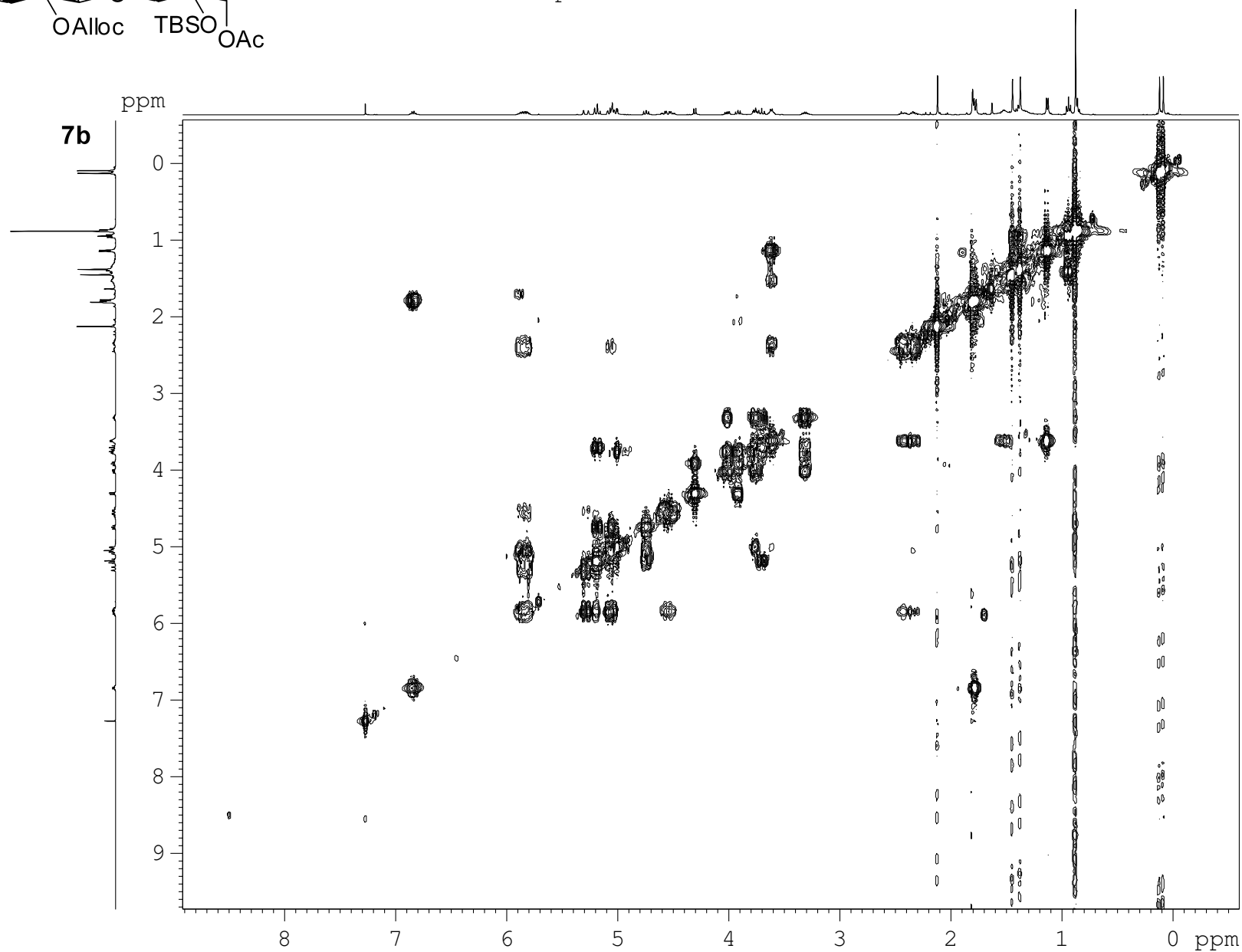
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 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPNAM3 SINE.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 122
 SFO1 100.6228 MHz
 FIDRES 136.088226 Hz
 SW 165.000 ppm
 FhMODE QF
 SI 2048
 SF 400.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 4.00
 SI 1024
 MC2 QF
 SF 100.6127690 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

EDB-Ipom-1-112-A-150608 in CDCl₃

EDB-Ipom-1-112-A-150608 ¹³C in CDCl₃



EDB-Ipom-1-112-A-150608 COSY



```

NAME      EDB-Ipom-1-112-A-150608
EXPNO     2
PROCNO    1
Date_     20150610
Time      22.15
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpgf
TD        2048
SOLVENT   CDCl3
NS        4
DS        8
SWH       5341.880 Hz
FIDRES    2.608340 Hz
AQ        0.1917428 sec
RG        114
DW        93.600 usec
DE        6.50 usec
TE        292.3 K
D0        0.00000300 sec
D1        1.48689198 sec
D13       0.00000400 sec
D16       0.00020000 sec
IN0       0.00018720 sec

```

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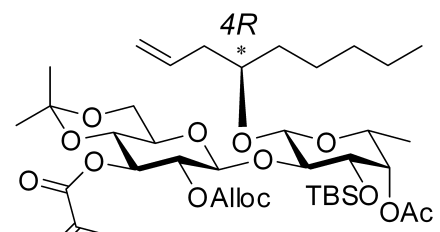
===== CHANNEL f1 =====
NUC1      1H
P0        10.00 usec
P1        10.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

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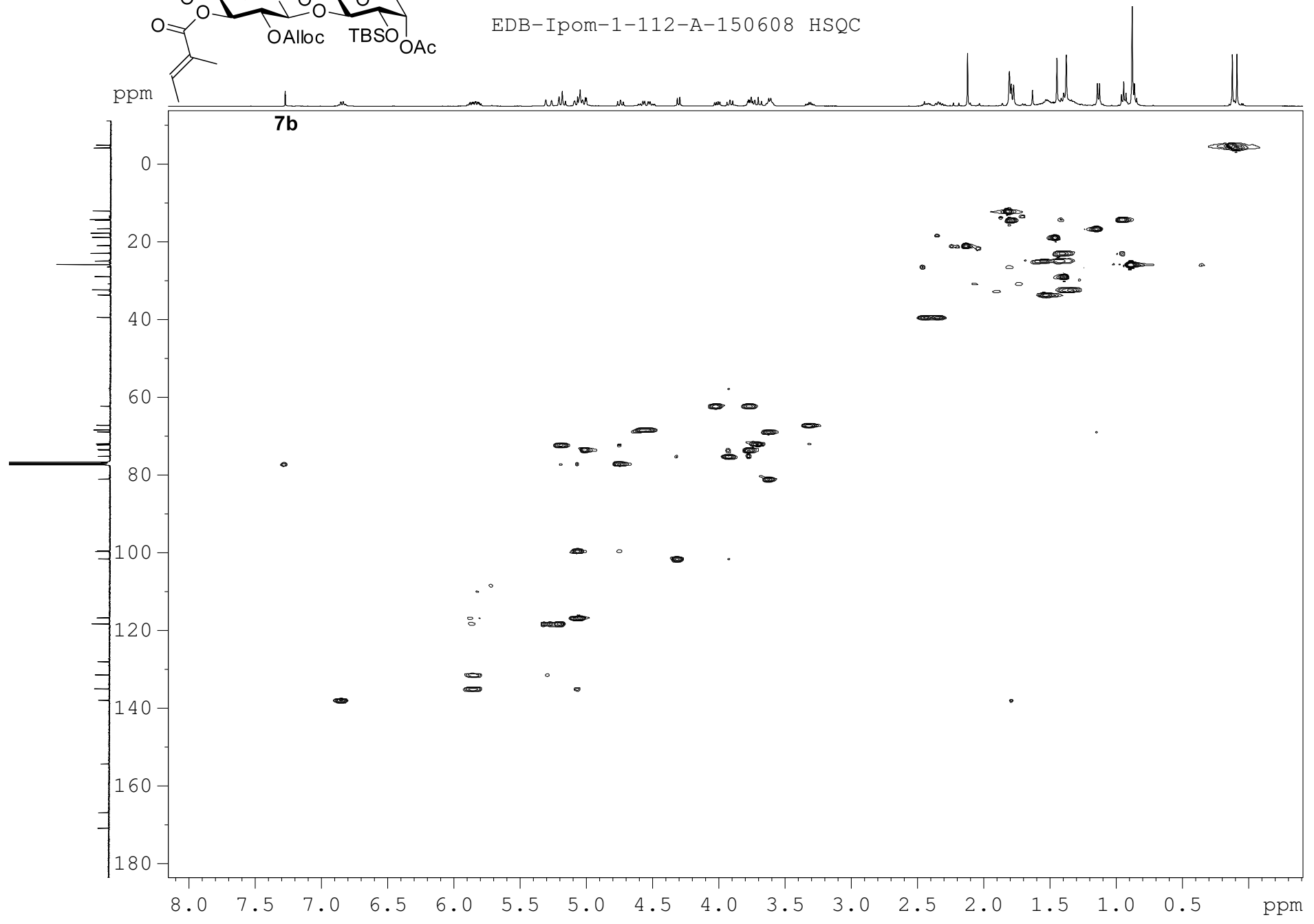
```

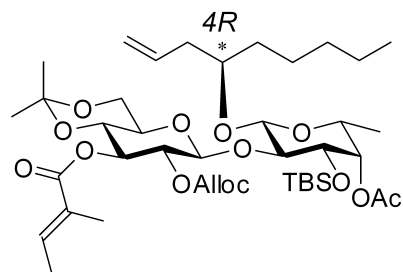
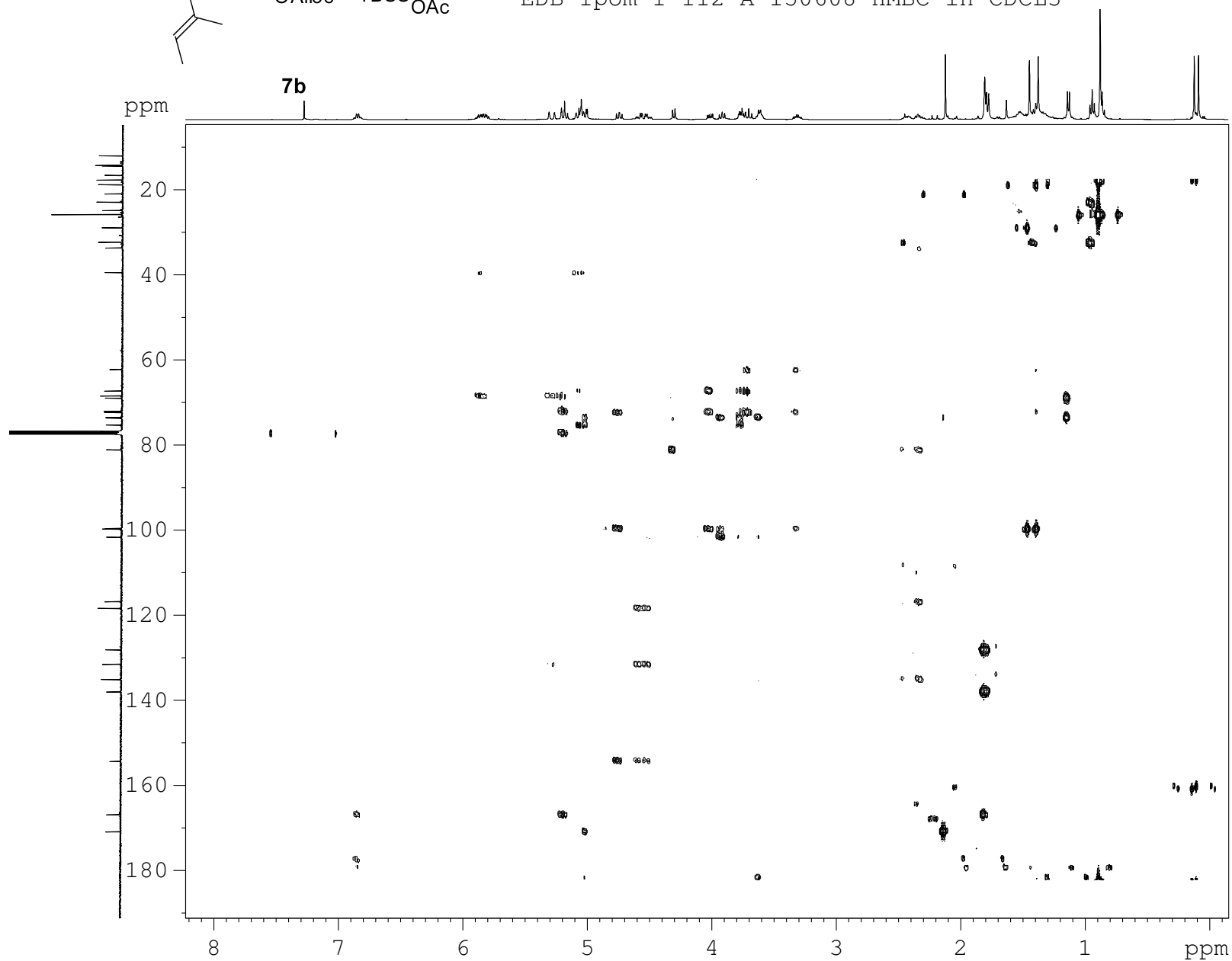
===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1      10.00 %
P16       1000.00 usec
ND0       1
TD        128
SFO1      400.1324 MHz
FIDRES    41.733440 Hz
SW        13.350 ppm
FnMODE    QF
SI        1024
SF        400.1300040 MHz
WDW       SINE
SSB       0
LB        0.00 Hz
GB        0
PC        1.00
SI        1024
MC2       QF
SF        400.1300033 MHz
WDW       SINE
SSB       0
LB        0.00 Hz
GB        0

```



EDB-Ipom-1-112-A-150608 HSQC



EDB-Ipom-1-112-A-150608 HMBC in CDCl₃

```

NAME      EDB-Ipom-1-112-A-150608
EXPNO     5
PROCNO    1
Date_     20150611
Time      3.11
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   hmbcgp1pndqf
TD         4096
SOLVENT   CDCl3
NS         50
DS         16
SWH       5208.333 Hz
FIDRES    1.271566 Hz
AQ         0.3932660 sec
RG         2050
DW         96.000 usec
DE         6.50 usec
TE         292.6 K
CNST2     145.0000000
CNST13    10.0000000
D0         0.00000300 sec
D1         1.50000000 sec
D2         0.00344828 sec
D6         0.05000000 sec
D16        0.00020000 sec
IN0        0.00003010 sec

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.00 usec
P2        20.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1325208 MHz

```

```

===== CHANNEL f2 =====
NUC2      13C
P3        10.00 usec
P4        -2.10 dB
PL2W      58.37759399 W
SFO2      100.6228138 MHz

```

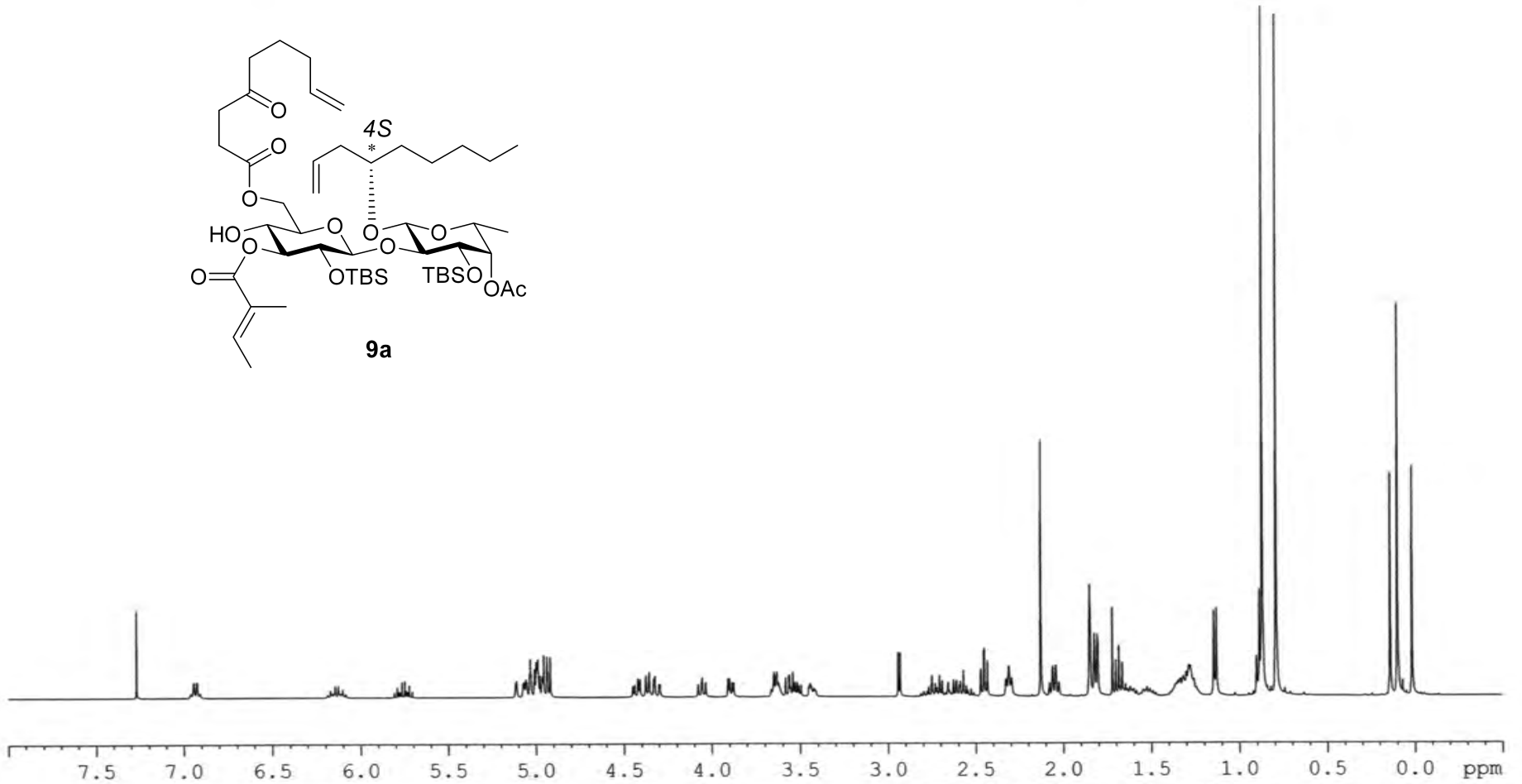
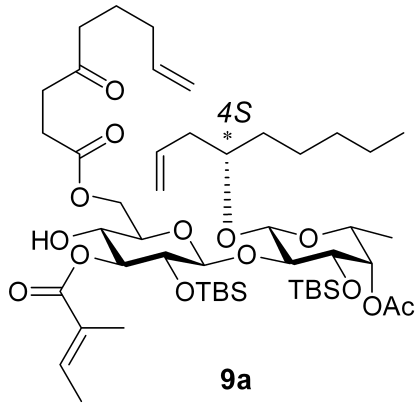
```

===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPNAM2    SINE.100
GPNAM3    SINE.100
GPZ1      50.00 %
GPZ2      30.00 %
GPZ3      40.10 %
P16       1000.00 usec
ND0        2
TD         128
SFO1      100.6228 MHz
FIDRES    129.709091 Hz
SW         165.000 ppm
FnMODE    QF
SI         2048
SF         400.1300000 MHz
WDW       SINE
SSB        0
LB         0.00 Hz
GB         0
PC         4.00
SI         1024
MC2       QF
SF         100.6127690 MHz
WDW       SINE
SSB        0
LB         0.00 Hz
GB         0

```

ZGH-*Ipom*-2-12-A-140120 check again 1H in CDCL₃

7.270
5.035
5.031
5.027
5.006
4.997
4.993
4.990
4.988
4.985
4.977
4.965
4.960
4.954
4.936
4.932
4.917
4.375
4.355
4.324
4.055
3.908
3.648
3.632
3.583
3.564
3.561
3.542
2.943
2.931
2.751
2.707
2.570
2.471
2.453
2.434
2.312
2.295
2.128
2.062
2.044
1.850
1.848
1.825
1.822
1.807
1.805
1.722
1.702
1.684
1.666
1.319
1.302
1.288
1.279
1.146
1.130
0.904
0.887
0.872
0.793
0.141
0.099
0.016



ZGH-*Ipom*-2-12-A-140120 check again ^{13}C in CDCl_3

— 208.616

 173.175
 170.908
 168.934

 138.520
 137.852
 136.120
 — 128.227

 116.232
 115.267

 100.831
 99.915
 80.769

 78.602
 77.319
 77.205
 77.001
 76.683

 74.129
 74.019
 73.756
 73.734
 73.401

 70.050
 68.901
 63.301

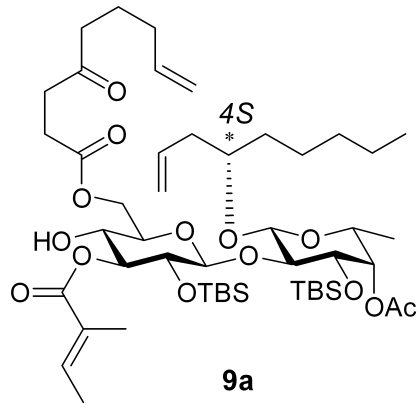
 41.773
 38.550
 37.086

 34.422
 33.001
 31.889

 27.727
 25.801
 24.538

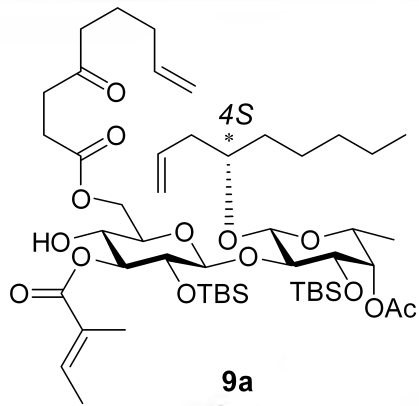
 22.678
 22.589
 21.014

 18.053
 17.611
 16.648

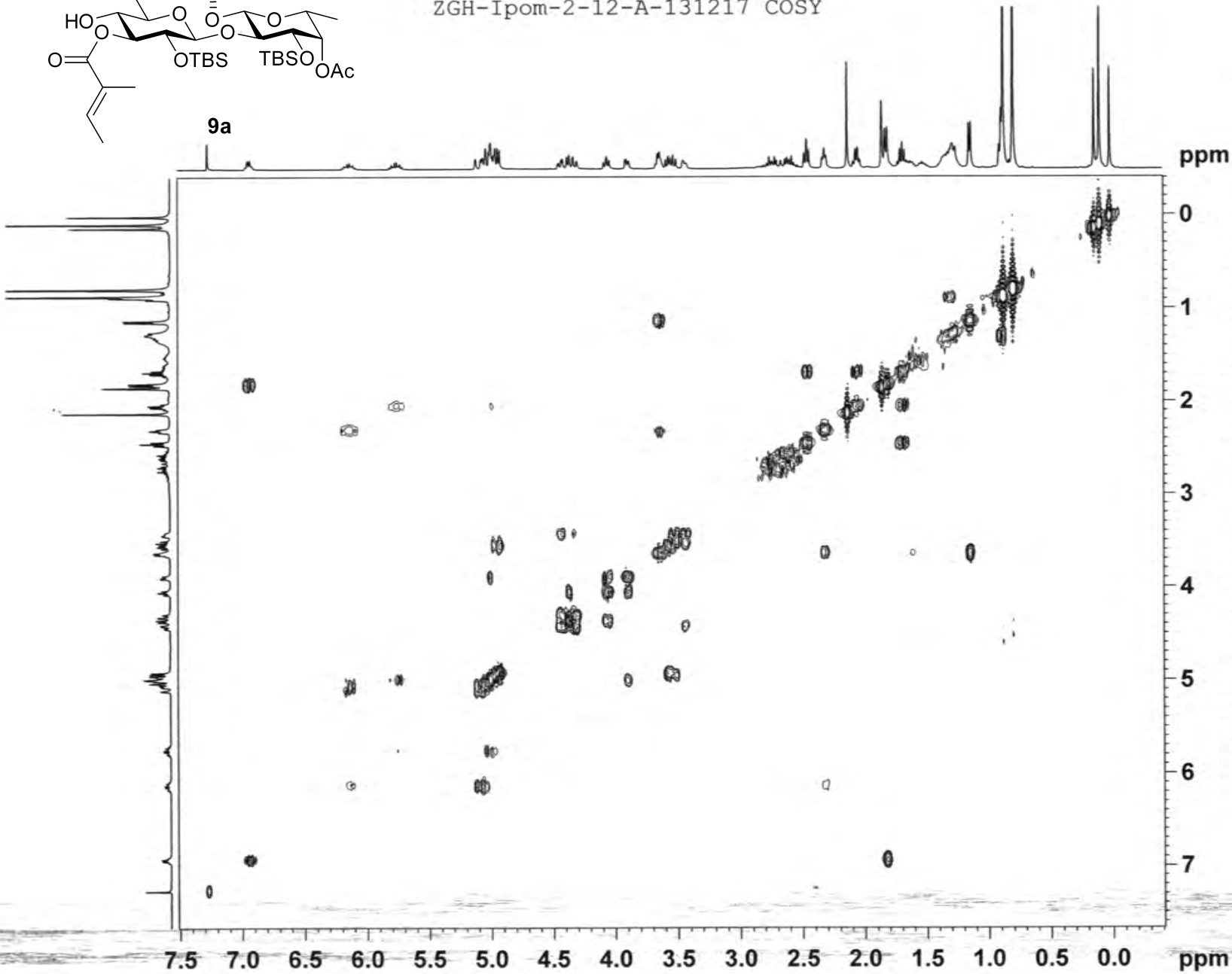
 14.424
 14.044

 — 3.155
 — 3.992
 — 4.310
 — 5.318

-4 ppm

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



ZGH-Ipom-2-12-A-131217 COSY



ppm

0

1

2

3

4

5

6

7

ppm

```

NAME      ZGH-Ipom-2-12-A-131217
EXPNO     3
PROCNO    1
Date_     20131217
Time      21.13
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpqf
TD         2048
SOLVENT   CDCl3
NS         2
DS         8
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         101
DW         93.600 usec
DE         6.50 usec
TE         292.5 K
DO         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec

```

```

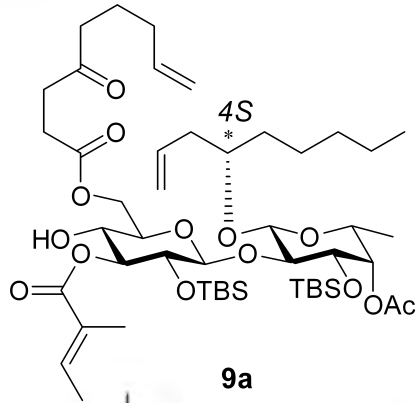
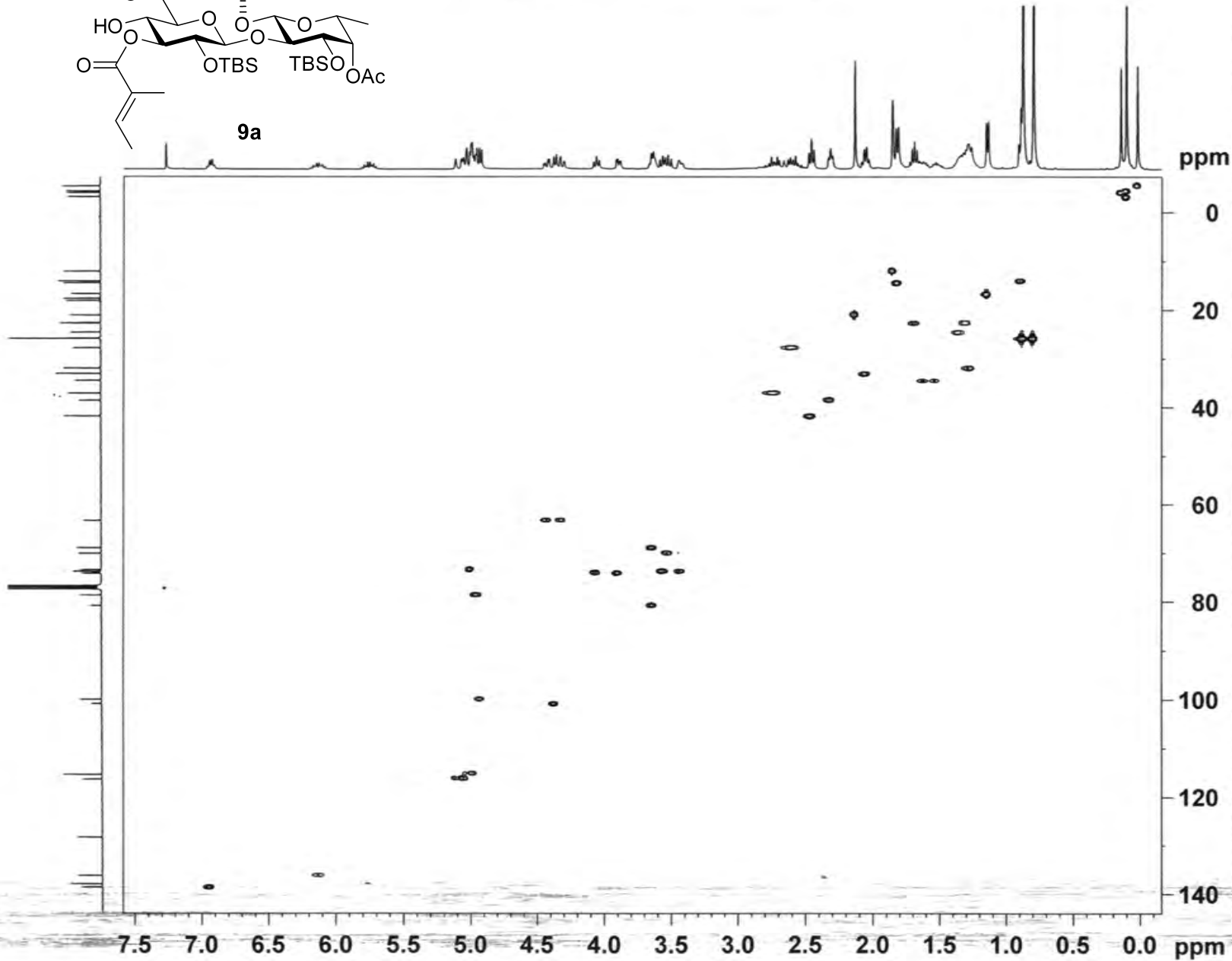
===== CHANNEL f1 =====
NUC1      1H
P0        10.00 usec
P1        10.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

```

```

===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1      10.00 %
P16       1000.00 usec
ND0        1
TD         128
SFO1      400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FrMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0

```

ZGH-*Ipom*-2-12-A-131217 HSQC

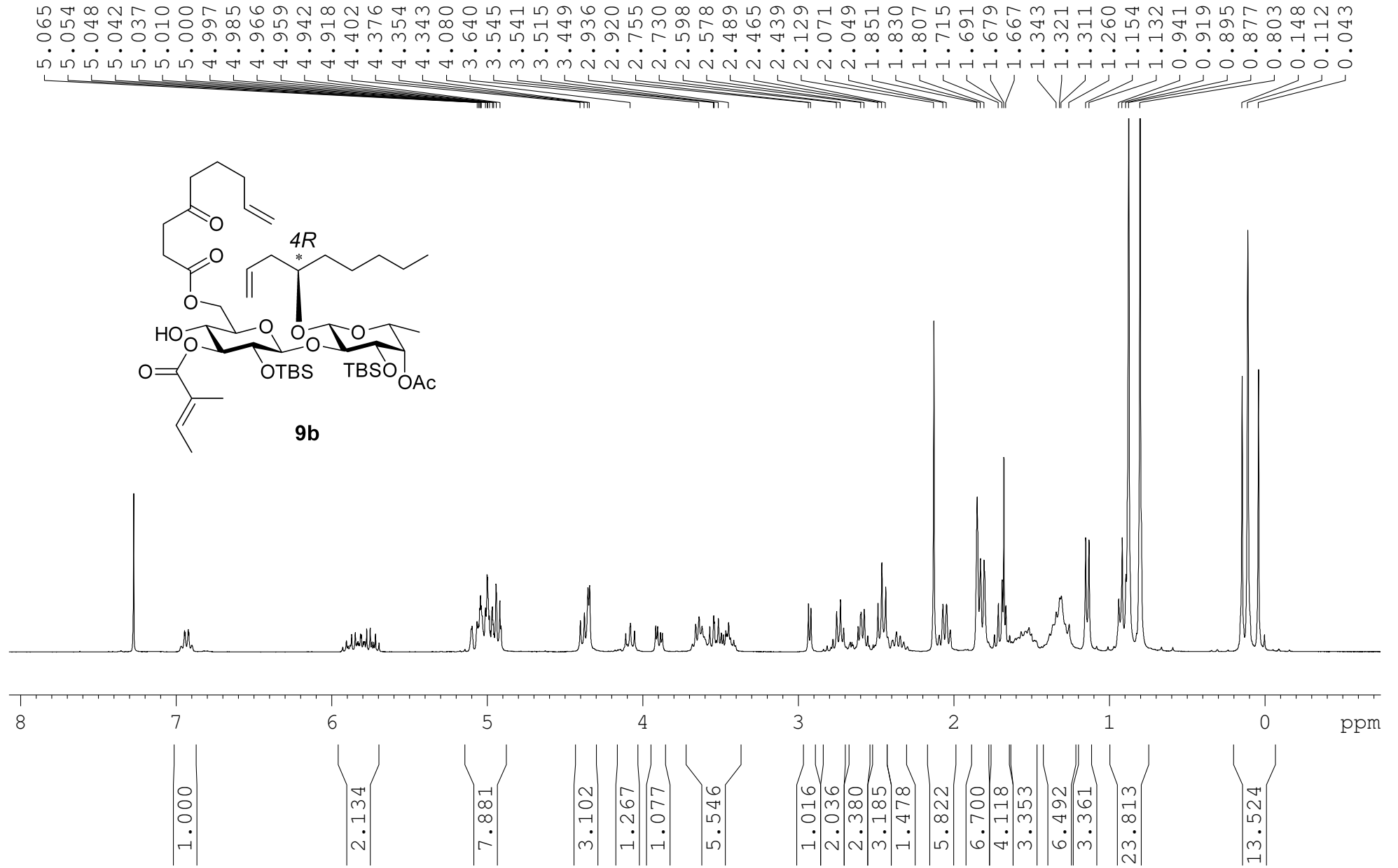
NAME ZGH-*Ipom*-2-12-A-131217
 EXPNO 4
 PROCNO 1
 Date_ 20131217
 Time 20.58
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 2
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.8 K
 CNST2 145.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGOPTNS

----- CHANNEL f1 -----
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- CHANNEL f2 -----
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 FnMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB -0.00 Hz
 GB 0

300 MHz

EDB-*Ipom*-1-64-A-140801 in CDCl₃

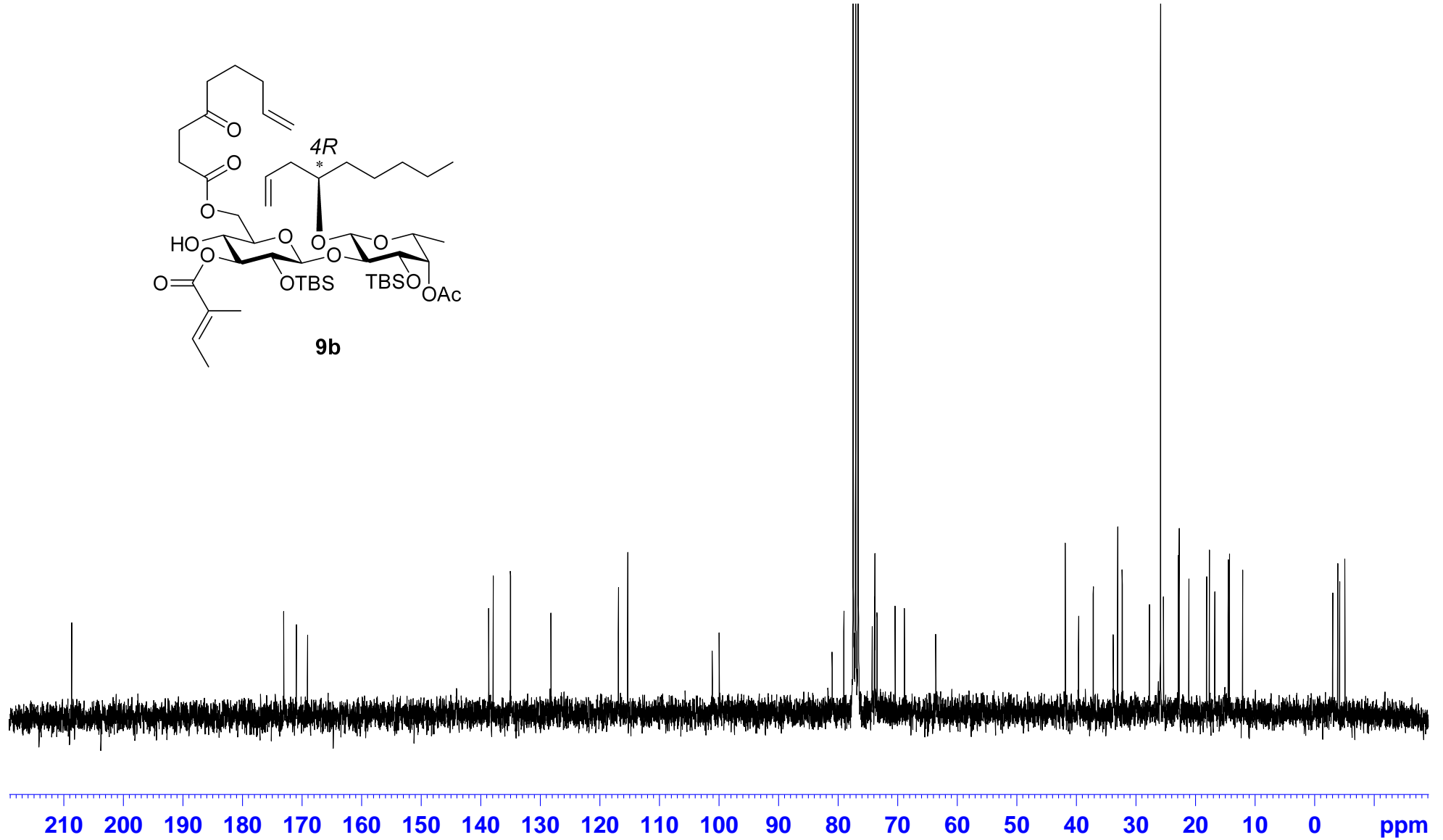
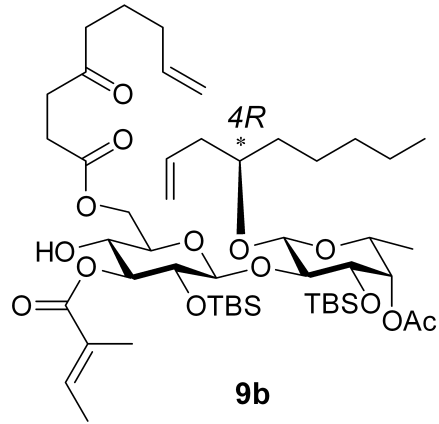
EDB-Ipom-1-64-A-140801 13C in CDCl3

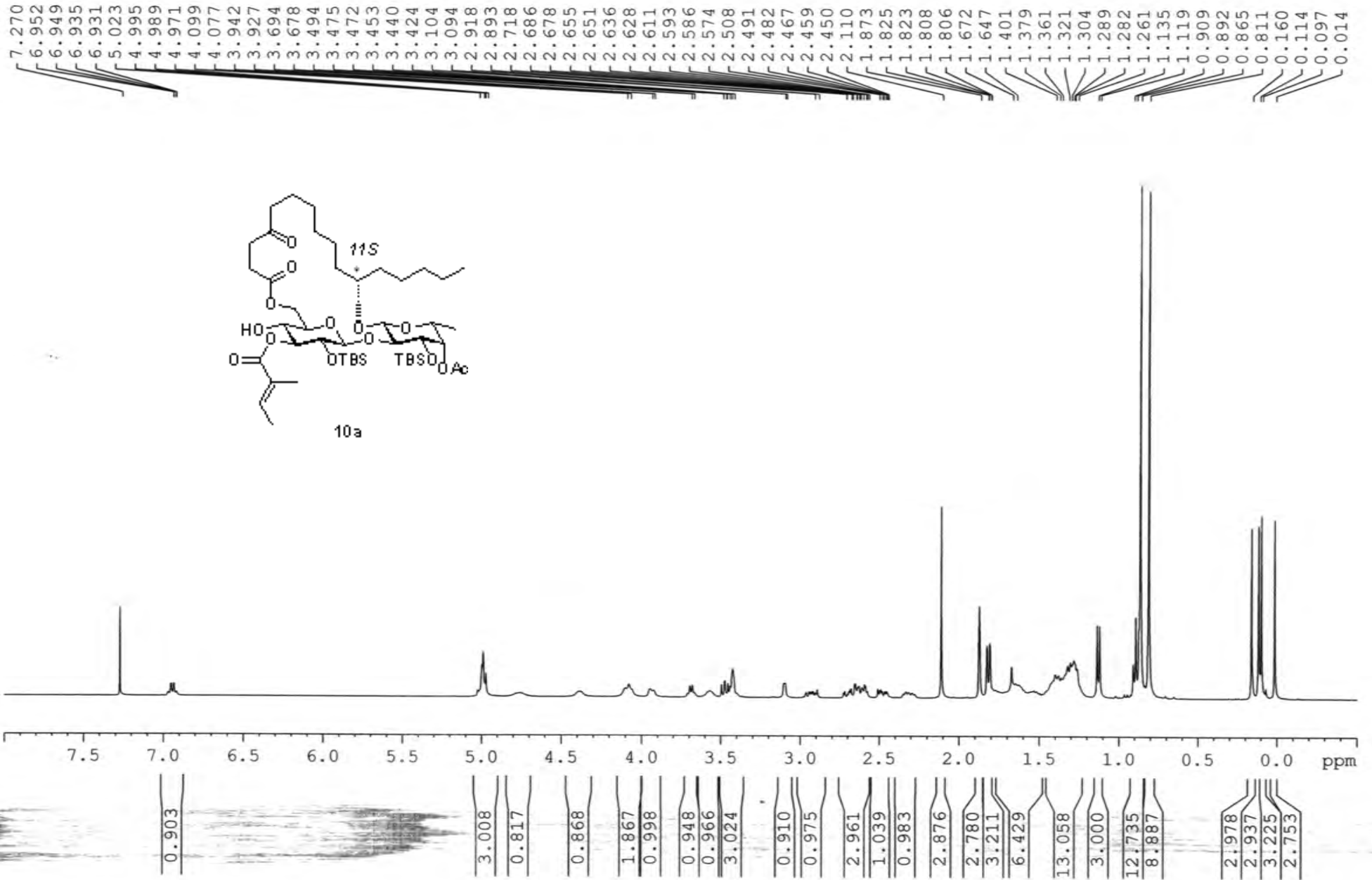
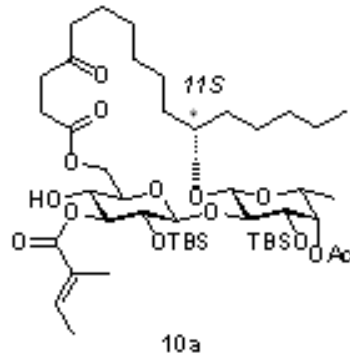
300 MHz

208.66

173.08
170.95
169.08138.67
137.89
134.99

128.20

116.87
115.31101.11
99.9580.99
79.01
77.45
77.24
77.03
76.61
74.25
73.87
73.80
73.43
70.40
68.84
63.5741.82
39.59
37.13
33.77
33.03
32.26
27.70
25.83
25.32
22.85
22.71
21.05
18.09
17.63
16.72
14.46
14.26
12.04
-3.08
-3.94
-4.24
-5.13

ZGH-*Ipom*-2-29-A-140430 1H in CDCl₃

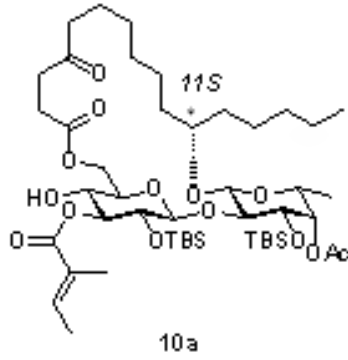
ZZGH-*Ipom*-2-29-A-140430 13C in CDCl₃

— 210.271

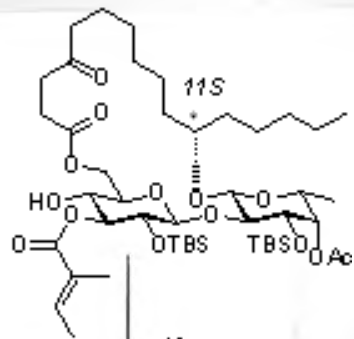
 172.373
 170.877
 168.028

— 137.830

— 128.477

 100.744
 100.210
 78.019
 77.319
 77.206
 77.001
 76.683
 74.493
 73.992
 73.891
 73.650
 69.032
 68.684
 63.338
 41.818
 37.103
 34.869
 31.989
 29.079
 28.504
 28.296
 25.892
 25.770
 25.226
 24.483
 23.360
 22.566
 20.947
 18.026
 17.579
 16.646
 14.374
 14.030
 12.020


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

ZGH-*Ipom*-2-29-A-140430 COSY

ppm

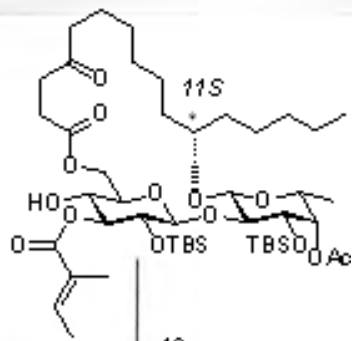
10a

NAME ZGH-*Ipom*-2-29-A-140430
 EXPNO 2
 PROCNO 1
 Date_ 20150317
 Time_ 14.23
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT CDCl3
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 161
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

----- CHANNEL f1 -----
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----
 GPNAMI SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 102
 SFO1 400.1324 MHz
 FIDRES 52.371376 Hz
 SW 13.350 ppm
 FMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 FC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

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 ppm



ZGH-Ipom-2-29-A-140430 HSQC

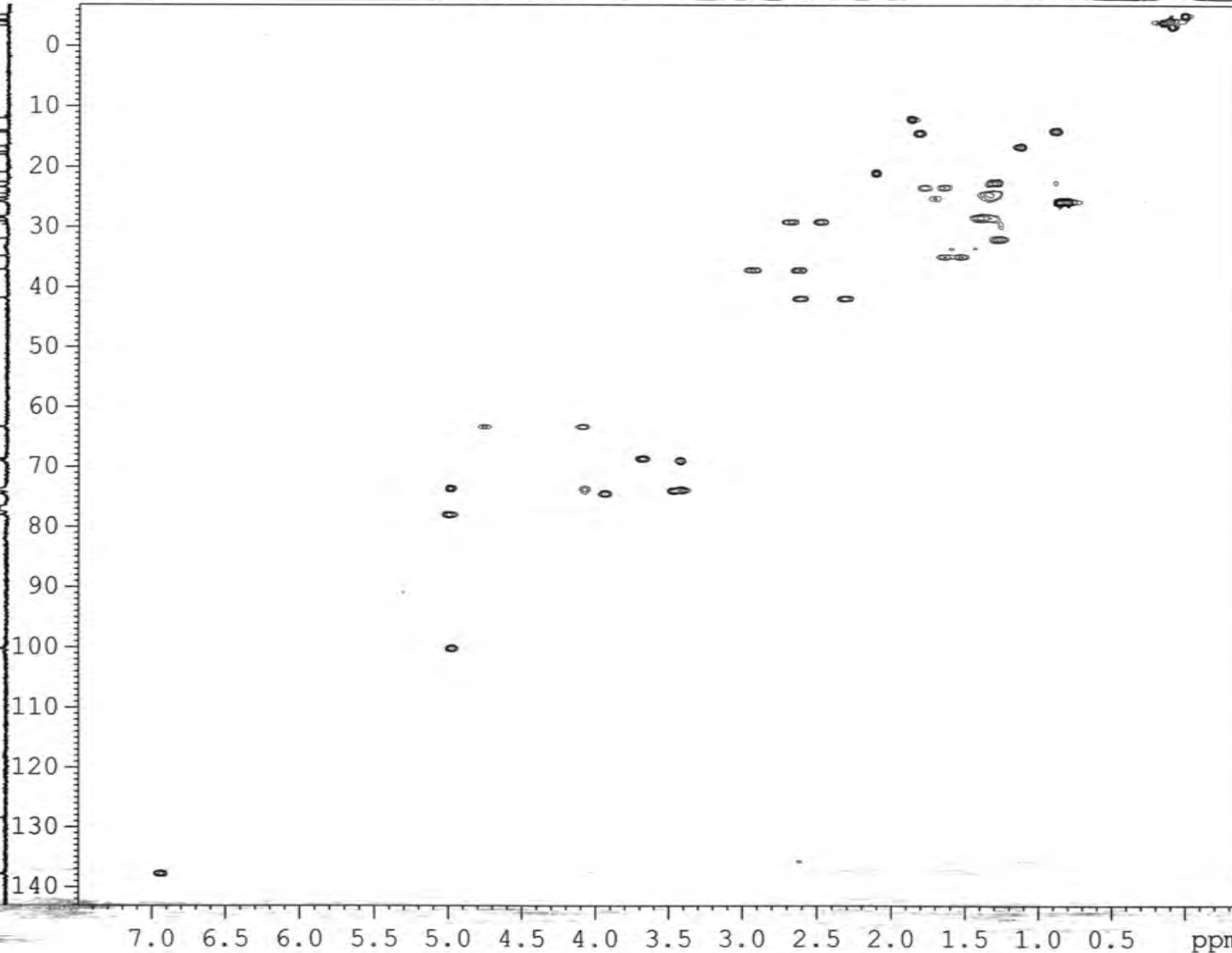
NAME ZGH-Ipom-2-29-A-140430
 EXPNO 4
 PROCNO 1
 Date 20150318
 Time 7.02
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 8
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 293.0 K
 CNST2 145.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGPTNS

----- CHANNEL f1 -----
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

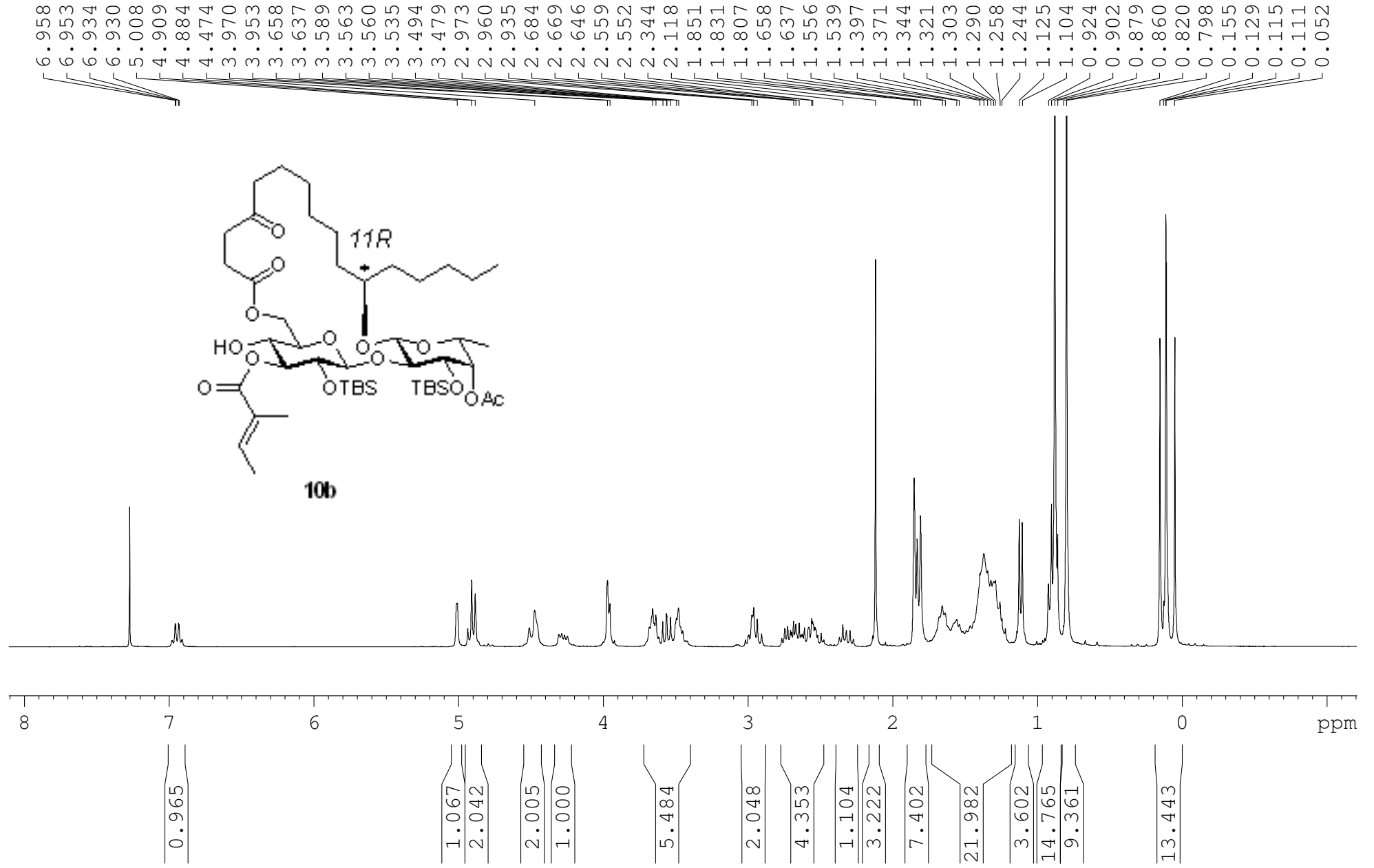
----- CHANNEL f2 -----
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 PnMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0

ppm

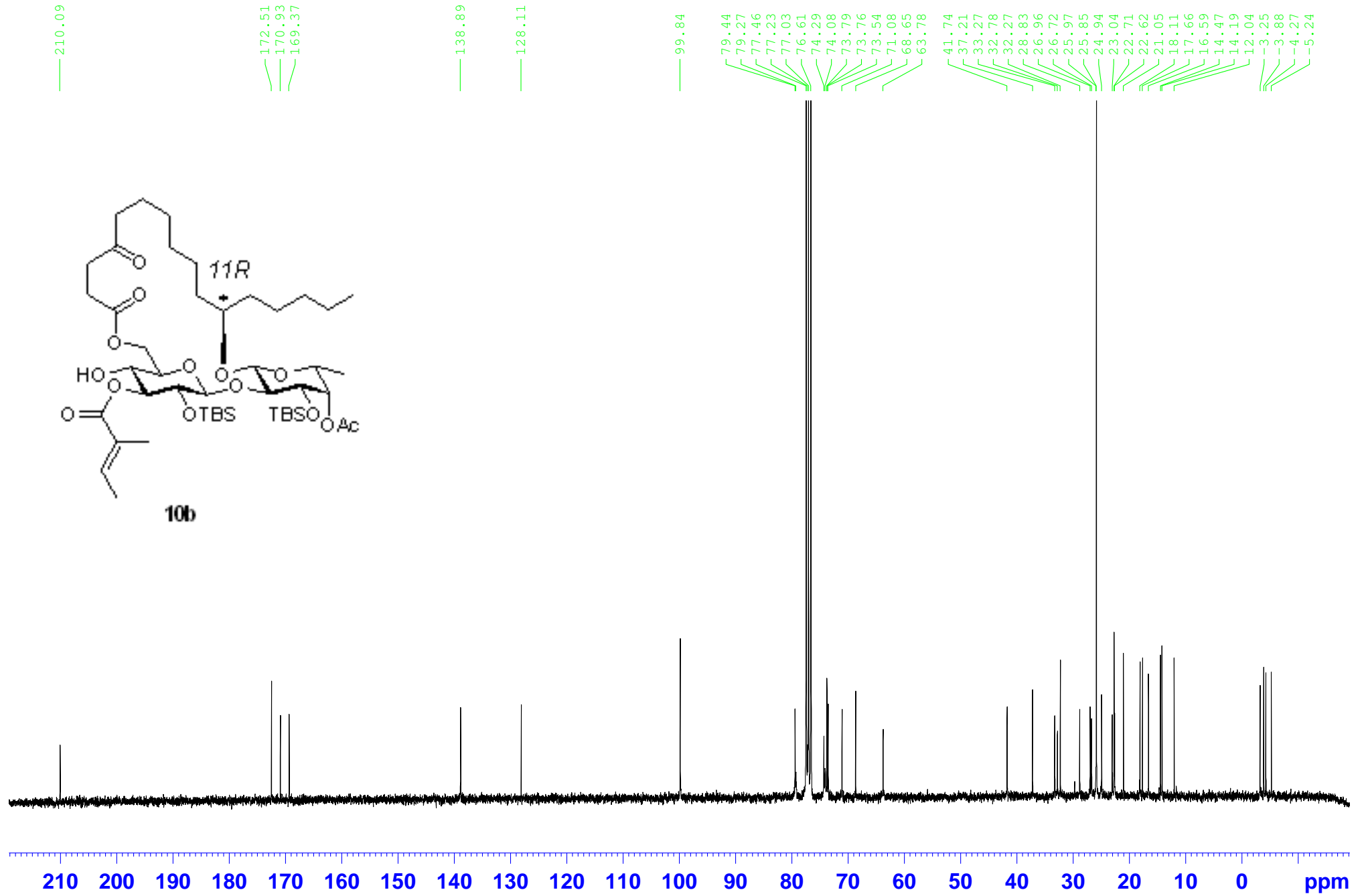


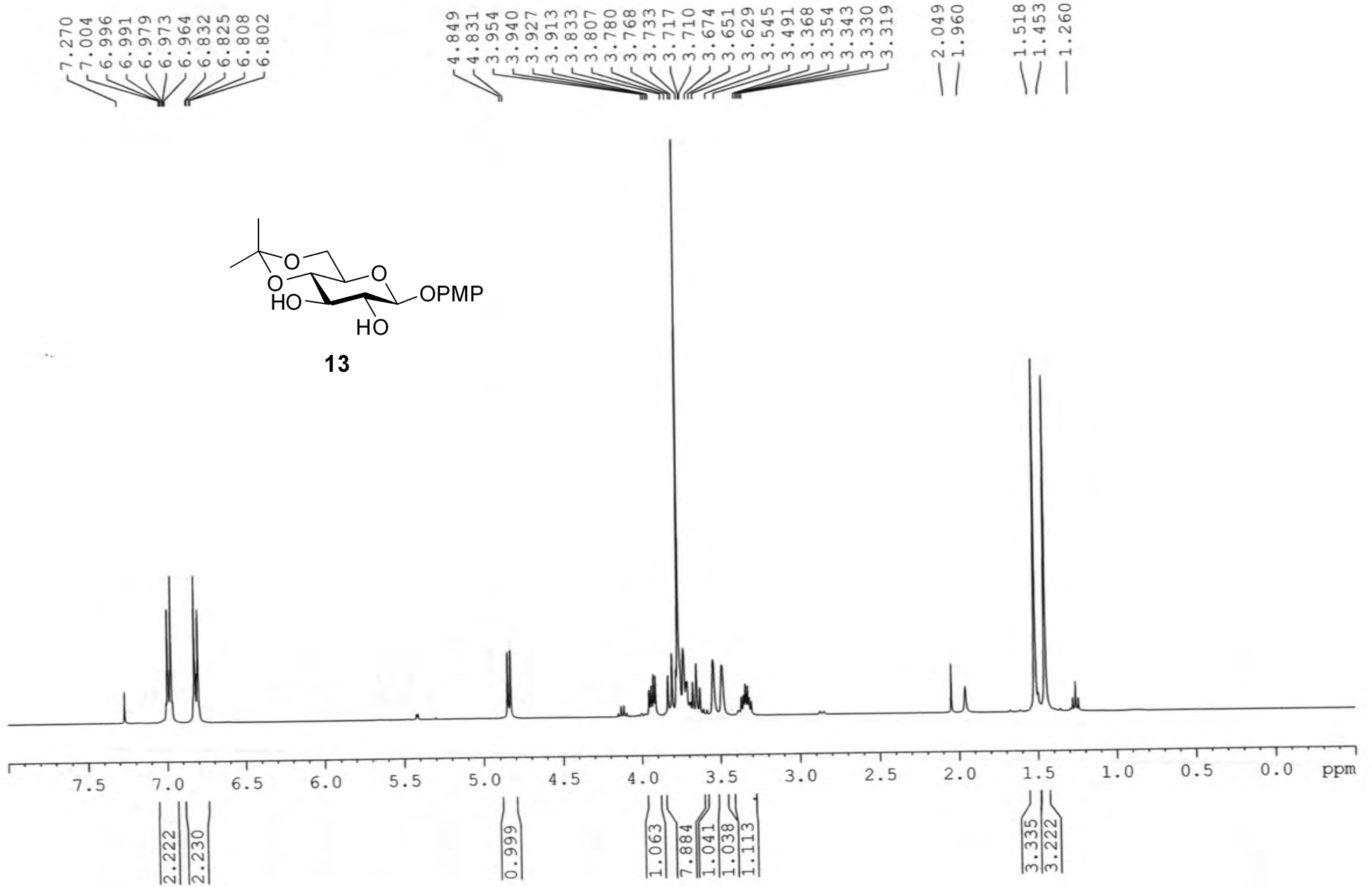
300 MHz

EDB-*Ipom*-1-66-A-140808 in CDCl₃

EDB-Ipom-1-66-A-140808 ¹³C in CDCl₃

300 MHz

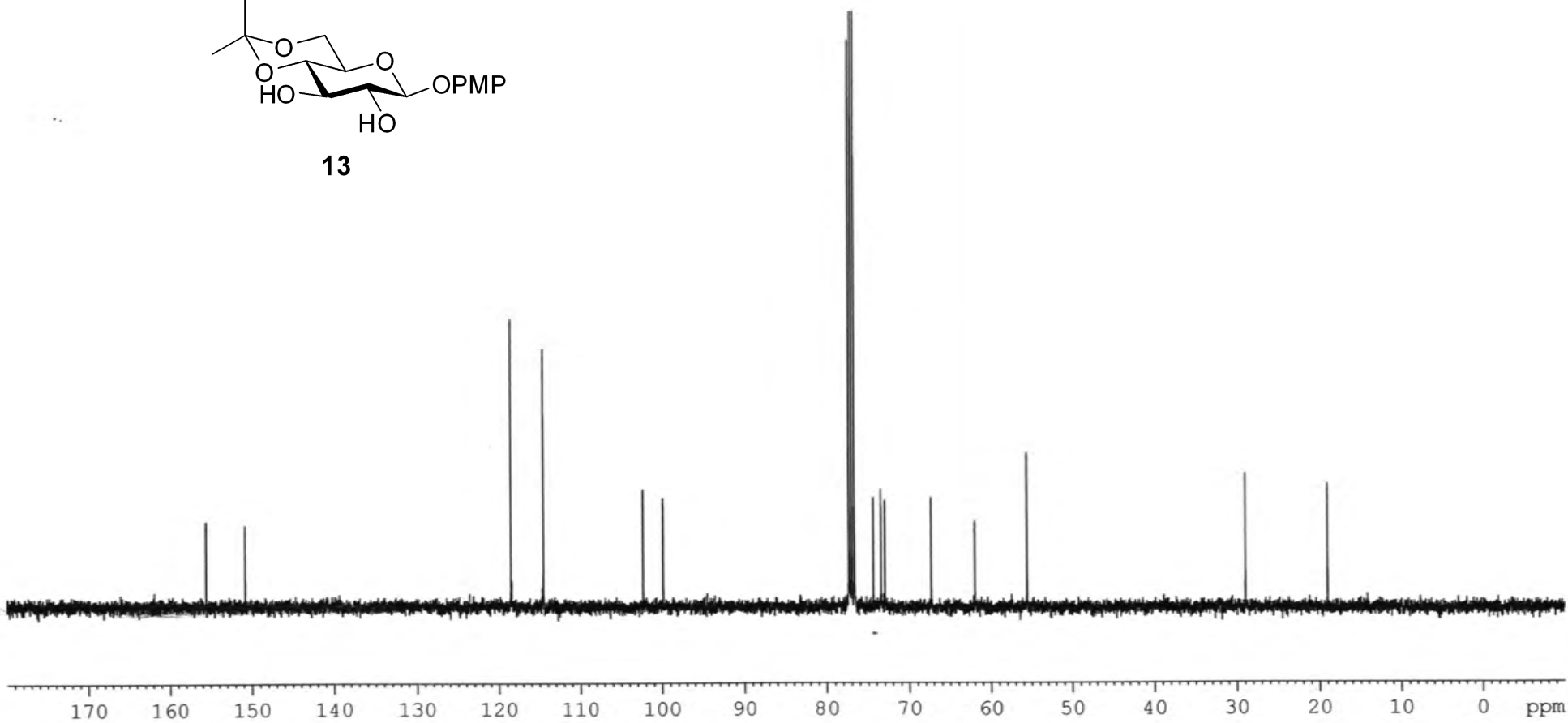
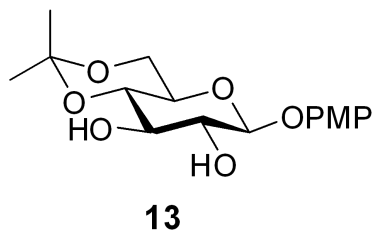


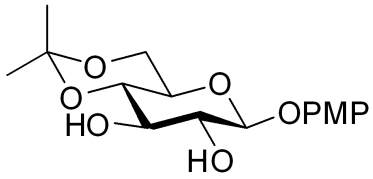
ZGH-*Ipom*-1-126-A-130827 1H in CDCL₃

ZGH-*Ipom*-1-126-A-130827 ¹³C in CDCl₃— 155.552
— 150.839— 118.516
— 118.415
— 114.534— 102.317
— 99.883— 77.316
— 76.998
— 76.680
— 74.359
— 73.447
— 72.961
— 67.318
— 61.959
— 55.579

— 28.943

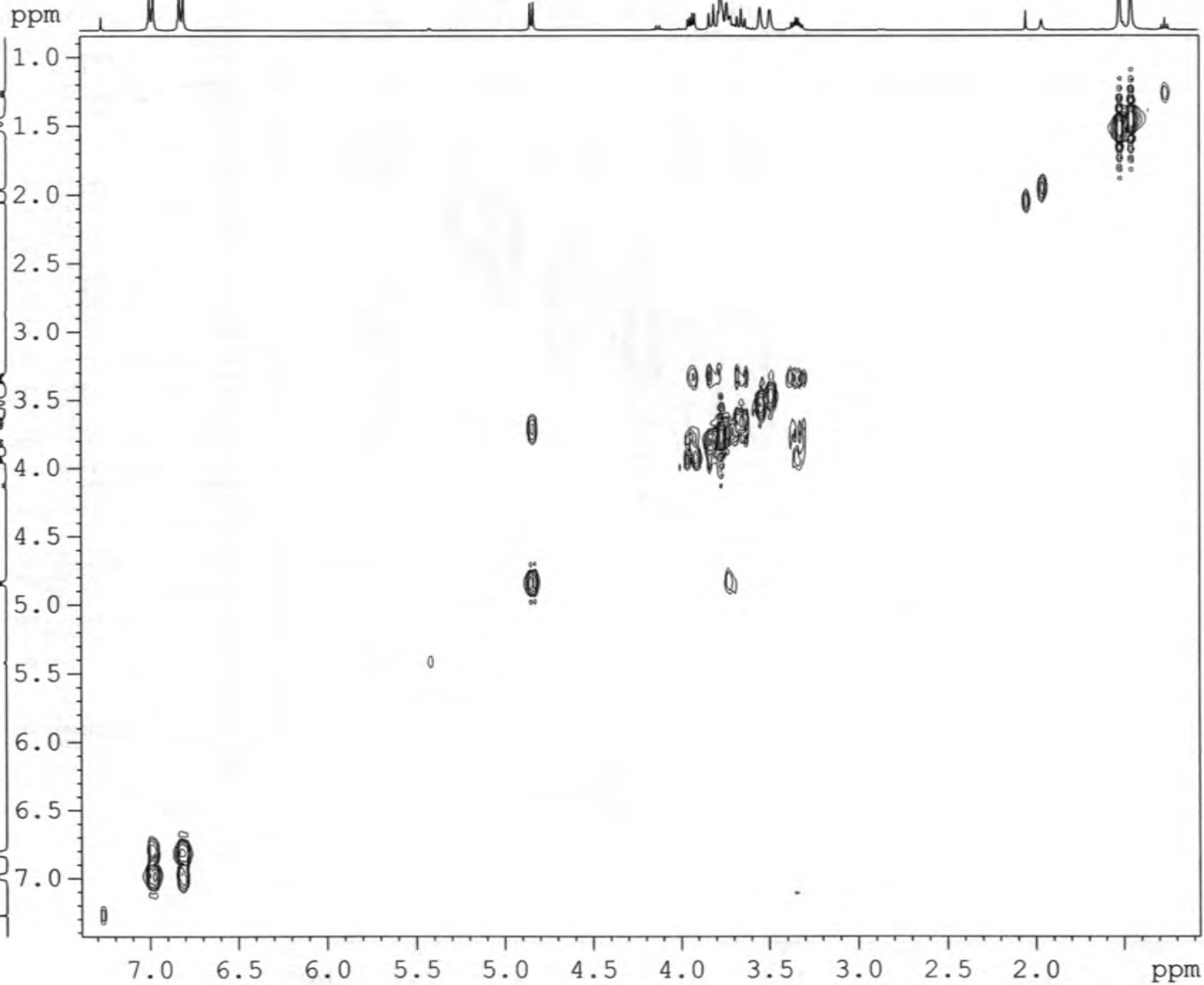
— 19.022





13

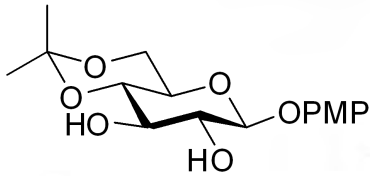
ZGH-Ipom-1-126-A-130827 COSY



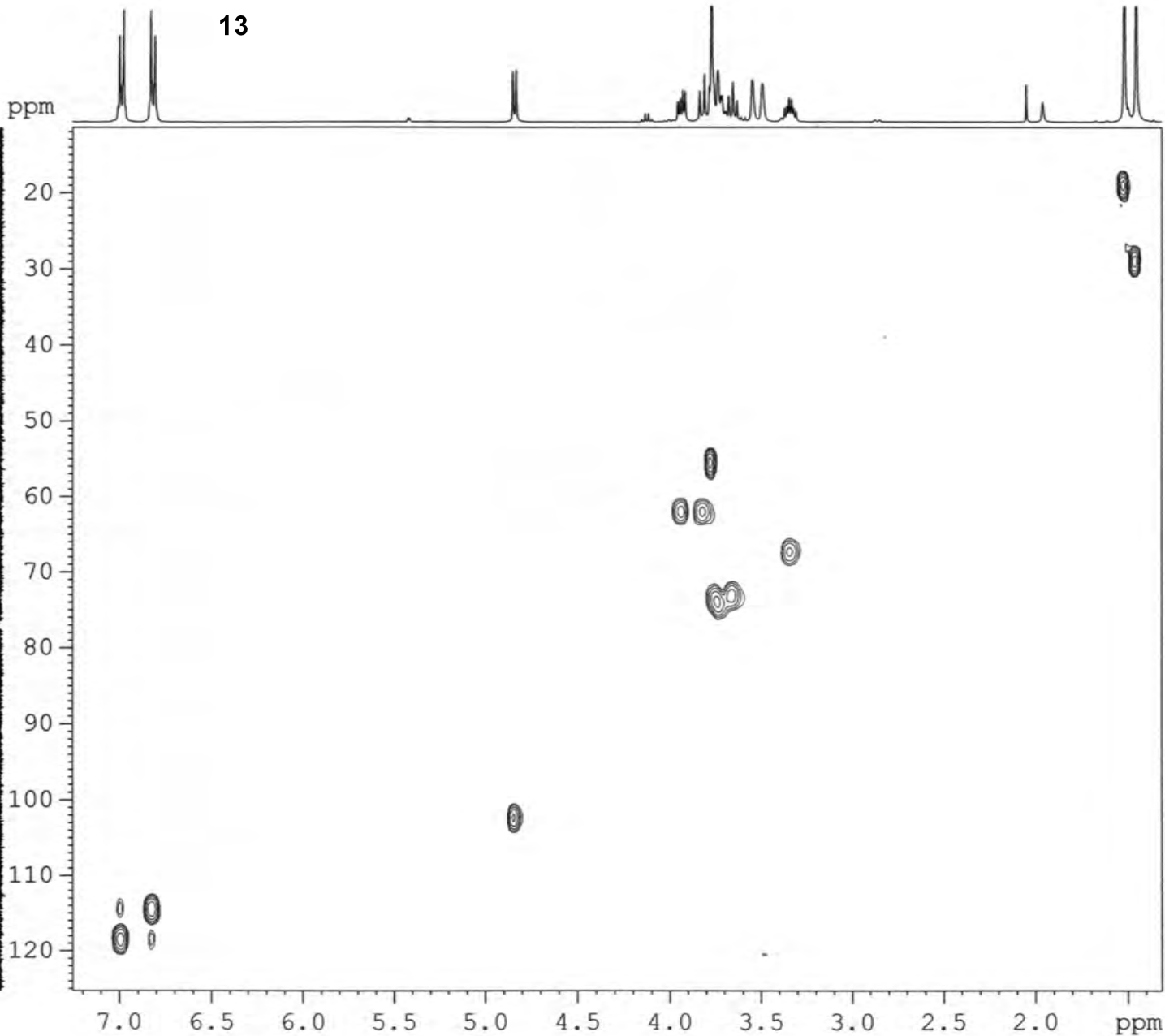
NAME ZGH-Ipom-1-126-A-130827
 EXPNO 2
 PROCNO 1
 Date 20150313
 Time 19.26
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpqf
 TD 2048
 SOLVENT CDC13
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 114
 DW 93.600 usec
 DE 6.50 usec
 TE 292.7 K
 D0 0.0000300 sec
 D1 1.48689198 sec
 D13 0.0000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

----- CHANNEL f1 -----
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 91
 SFO1 400.1324 MHz
 FIDRES 58.701981 Hz
 SW 13.350 ppm
 FhMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



13

ZGH-*Ipom*-1-126-A-130827 HSQC

```

NAME      ZGH-Ipom-1-126-A-130827
EXPNO     4
PROCNO    1
Date_     20150313
Time      19.38
INSTRUM   spect
PROBHD    5 mm FAPBO BB-
PULPROG   hsqcetgps1
TD         1024
SOLVENT   CDCl3
NS         4
DS         16
SWH        5341.880 Hz
FIDRES     5.216680 Hz
AQ         0.0958964 sec
RG         2050
DW         93.600 usec
DE         6.50 usec
TE         292.5 K
CNST2     145.0000000
DO         0.00000300 sec
D1         1.50000000 sec
D4         0.00172414 sec
D11        0.03000000 sec
D13        0.00000400 sec
D16        0.00020000 sec
D24        0.00110000 sec
IN0        0.00003000 sec
ZGPTNS

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.00 usec
P2        20.00 usec
P28       1000.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

```

```

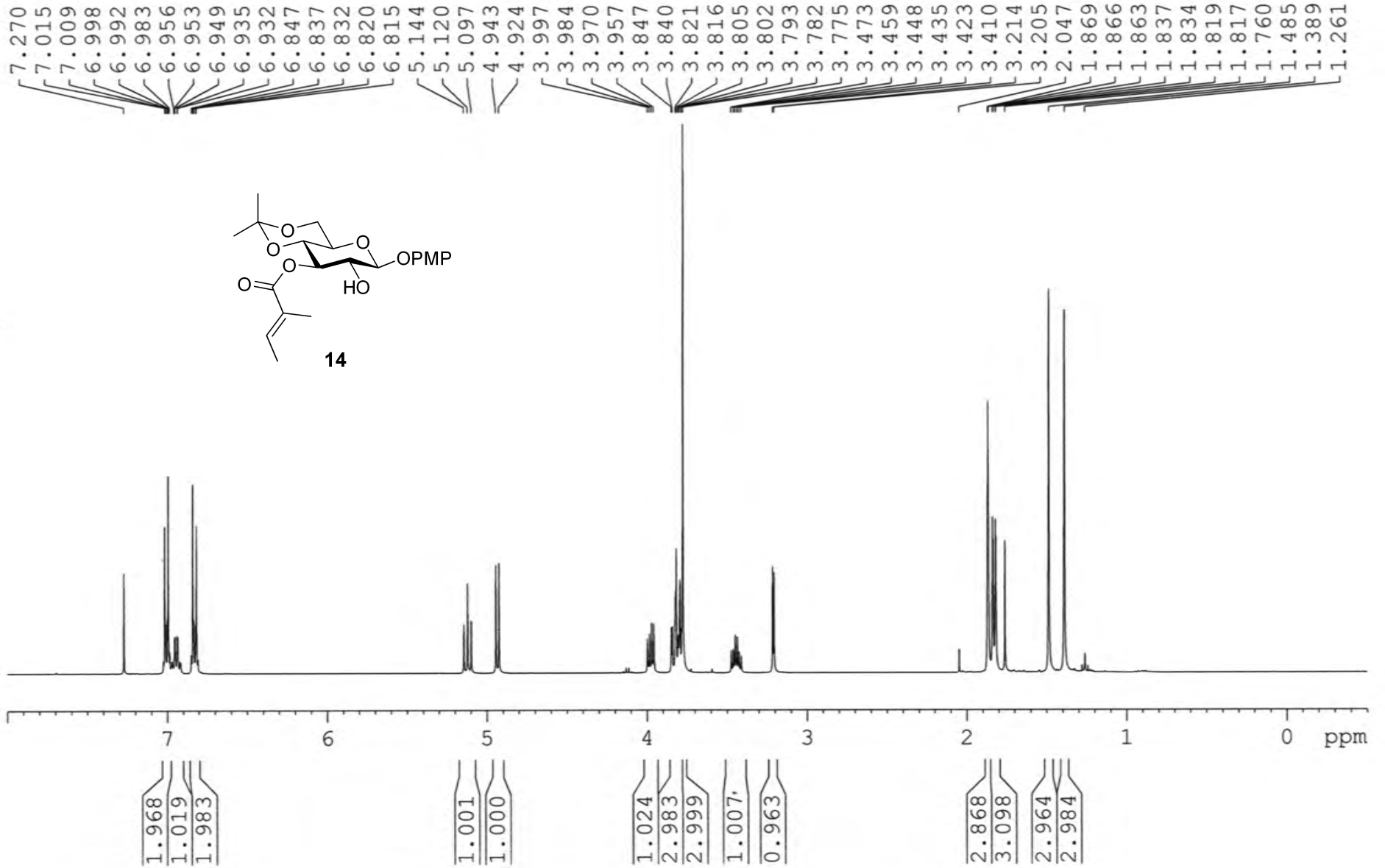
===== CHANNEL f2 =====
CPDPRG2   garp
NUC2      13C
P3        10.00 usec
P4        20.00 usec
PCPD2     75.00 usec
PL2       -2.10 dB
PL12      15.40 dB
PL2W      58.37759399 W
PL12W     1.03811681 W
SFO2      100.6202727 MHz

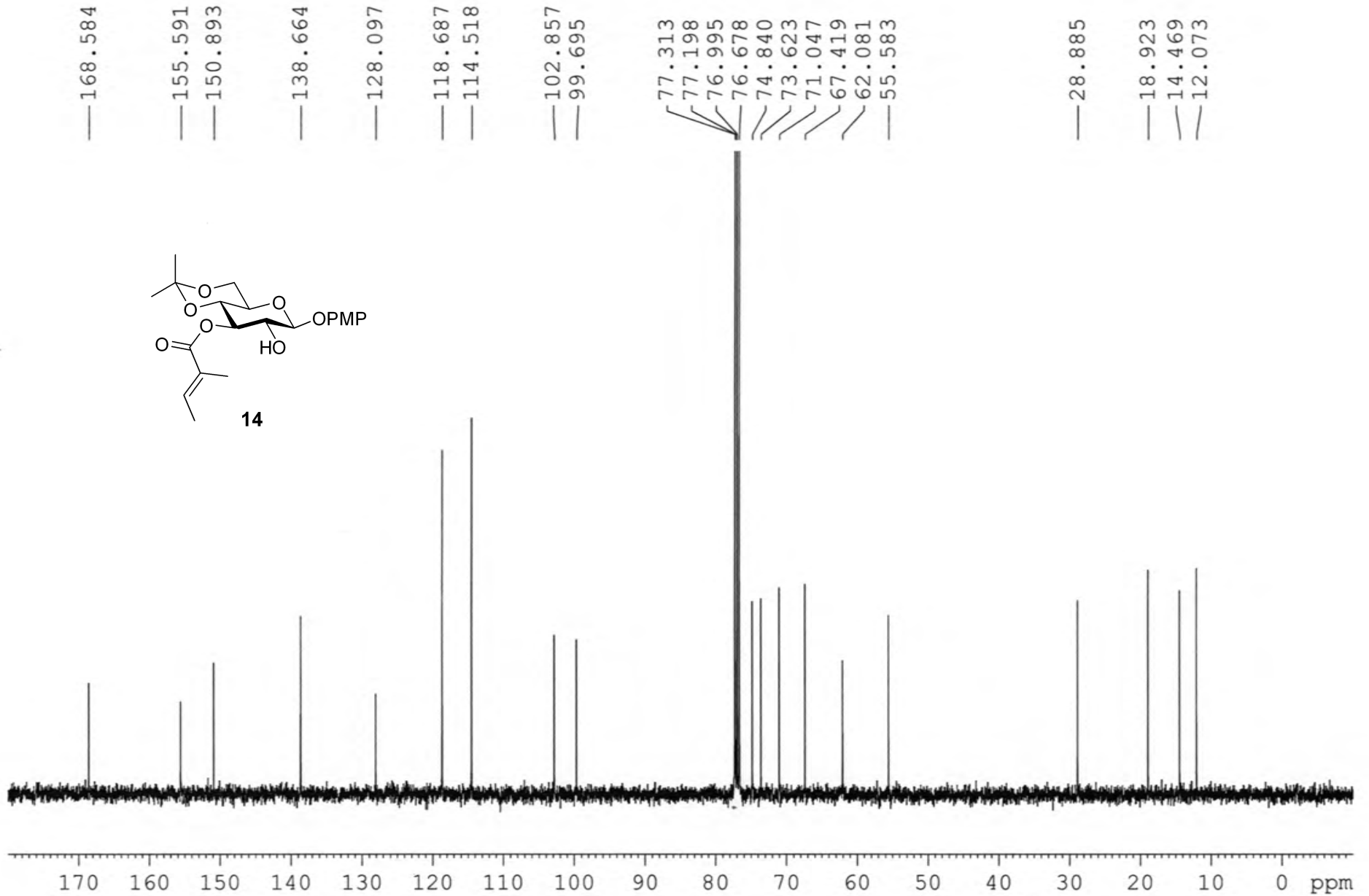
```

```

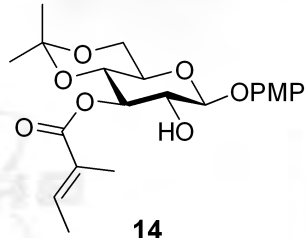
===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPNAM2    SINE.100
GPZ1      80.00 %
GPZ2      20.10 %
P16       1000.00 usec
ND0       2
TD         75
SFO1      100.6203 MHz
FIDRES     222.222214 Hz
SW         165.639 ppm
FrMODE    Echo-Antiecho
SI         1024
SF         400.1300000 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2       echo-antiecho
SF         100.6127690 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

```

ZGH-Ipom-1-132-B-130831 in CDCl₃

ZGH-*Ipom*-1-132-B-130831 ¹³C in CDCl₃

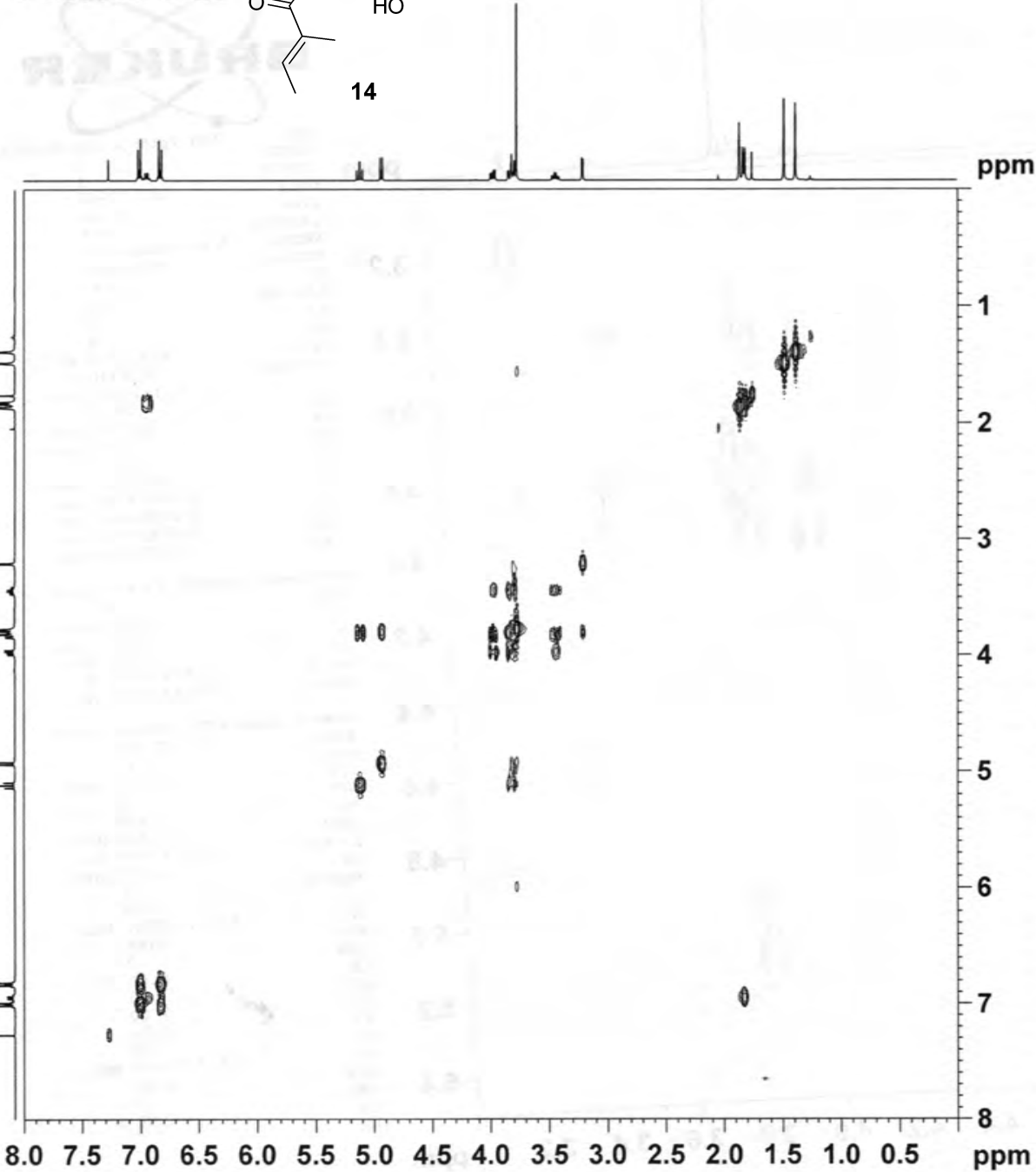
H-Ipom-1-132-B-130831 COSY

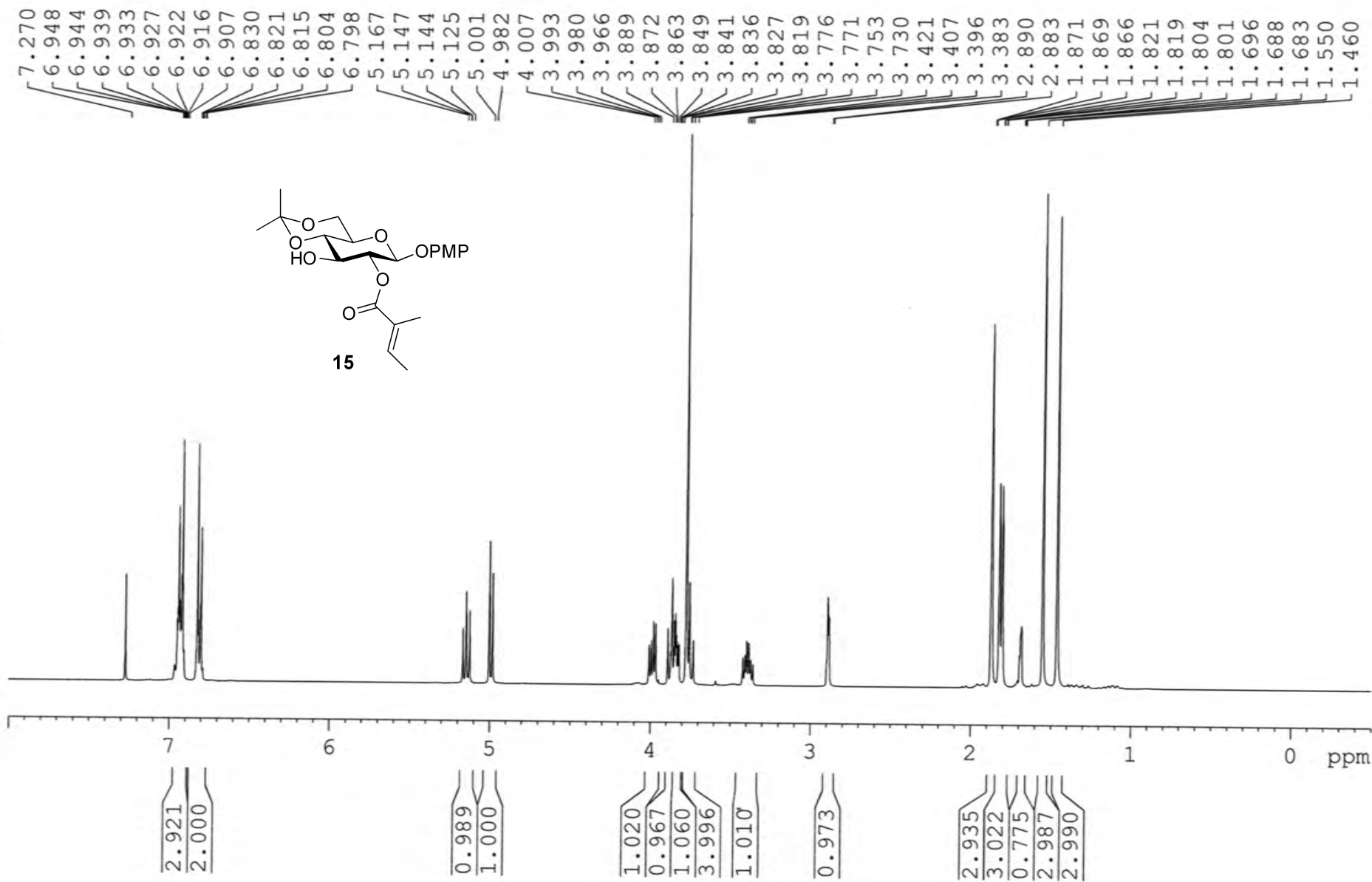


NAME ZGH-Ipom-1-132-B-130831
 EXPNO 3
 PROCNO 1
 Date_ 20130903
 Time_ 22.03
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpqf
 TD 2048
 SOLVENT CDC13
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 90.5
 DW 93.600 usec
 DE 6.50 usec
 TE 293.8 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00018720 sec

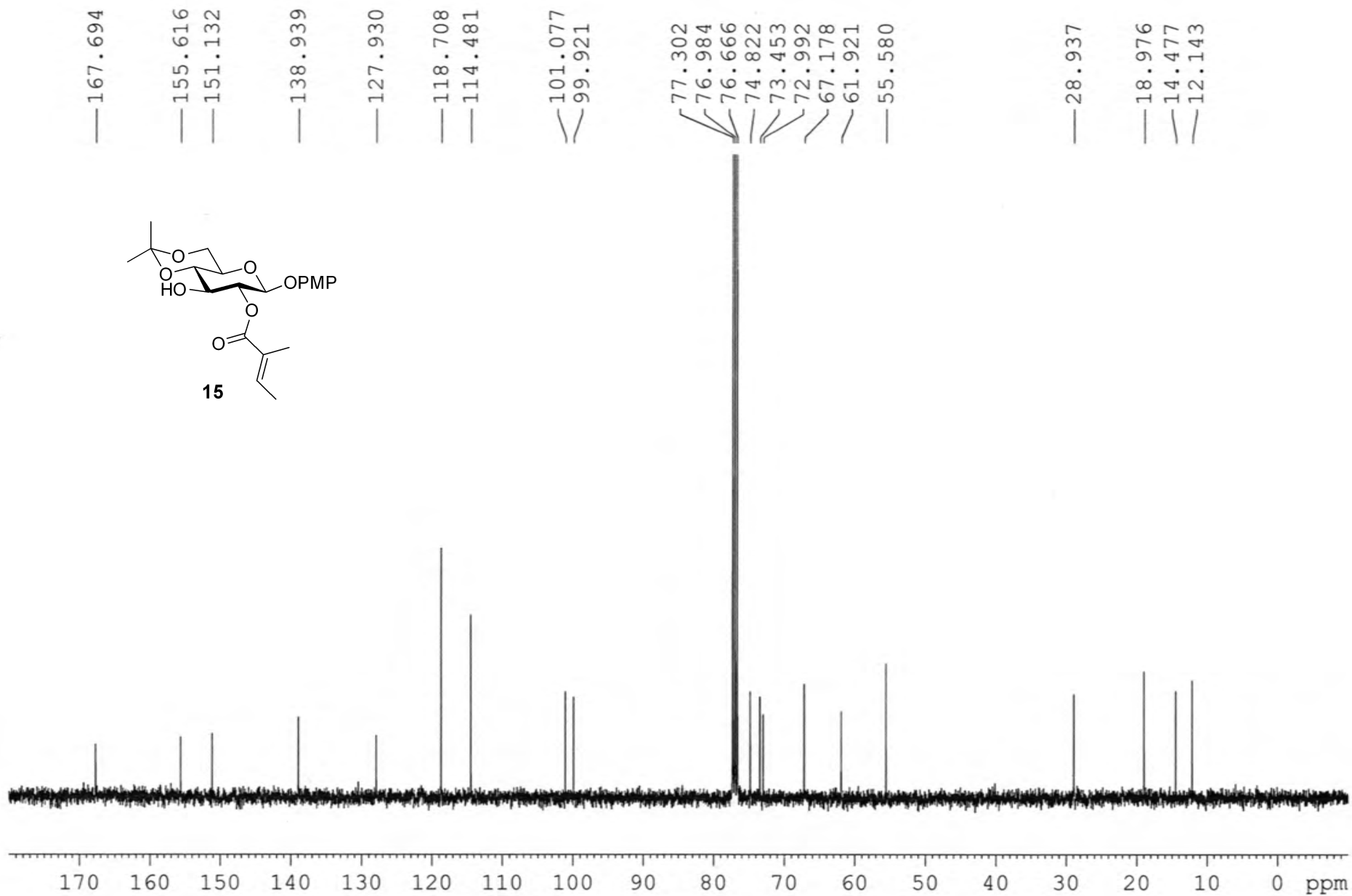
===== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SF01 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SF01 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FnmODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

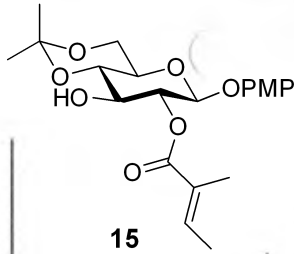


ZGH-*Ipom*-1-132-A-130831 in CDC13

ZGH-Ipom-1-132-A-130831 13C in CDC13



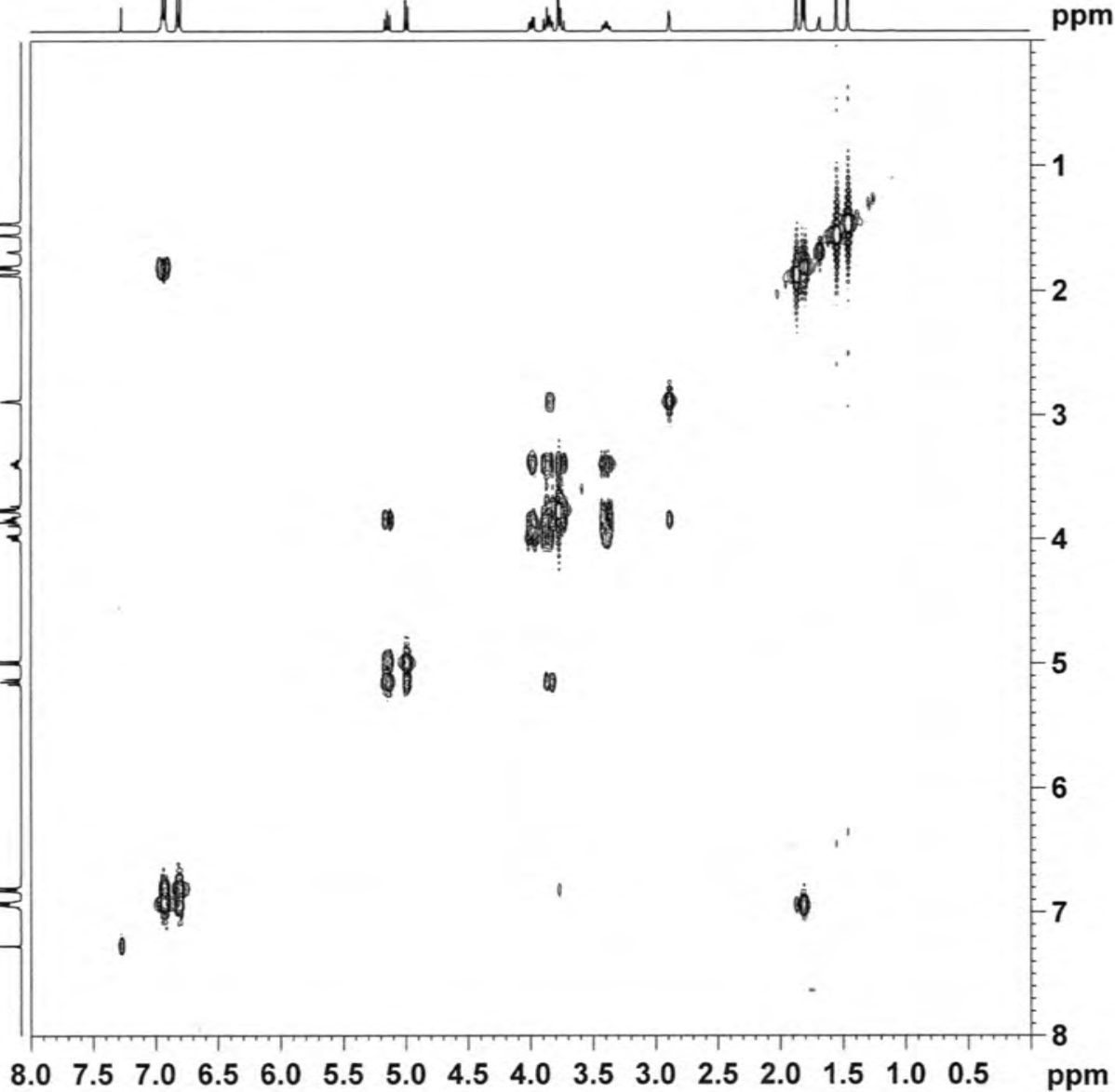
ZGH-Ipom-1-132-A-130831



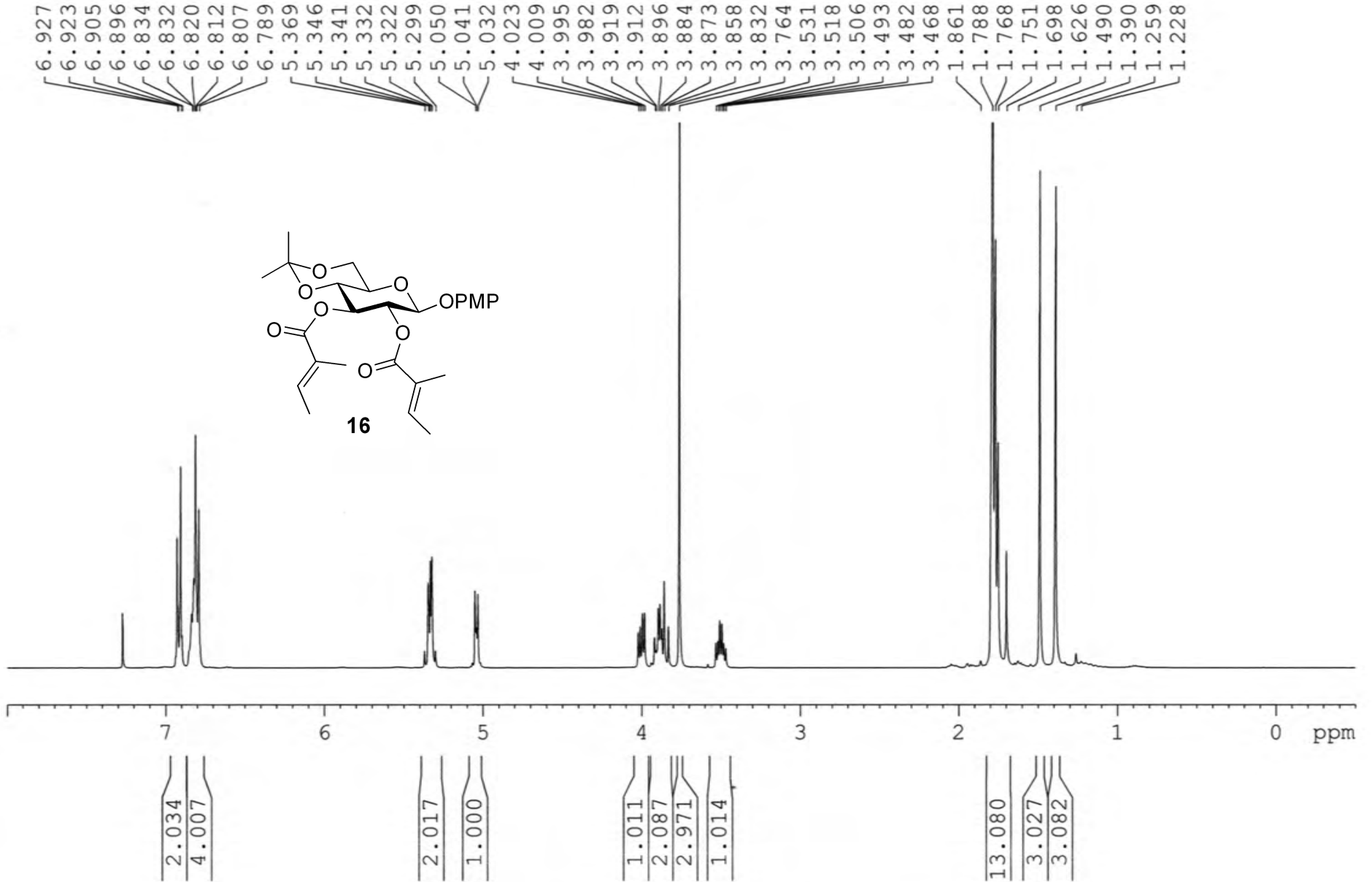
NAME ZGH-Ipom-1-132-A-130831
 EXPNO 2
 PROCNO 1
 Date_ 20130903
 Time 20.31
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygppqf
 TD 2048
 SOLVENT CDC13
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 144
 DW 93.600 usec
 DE 6.50 usec
 TE 293.5 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00018720 sec

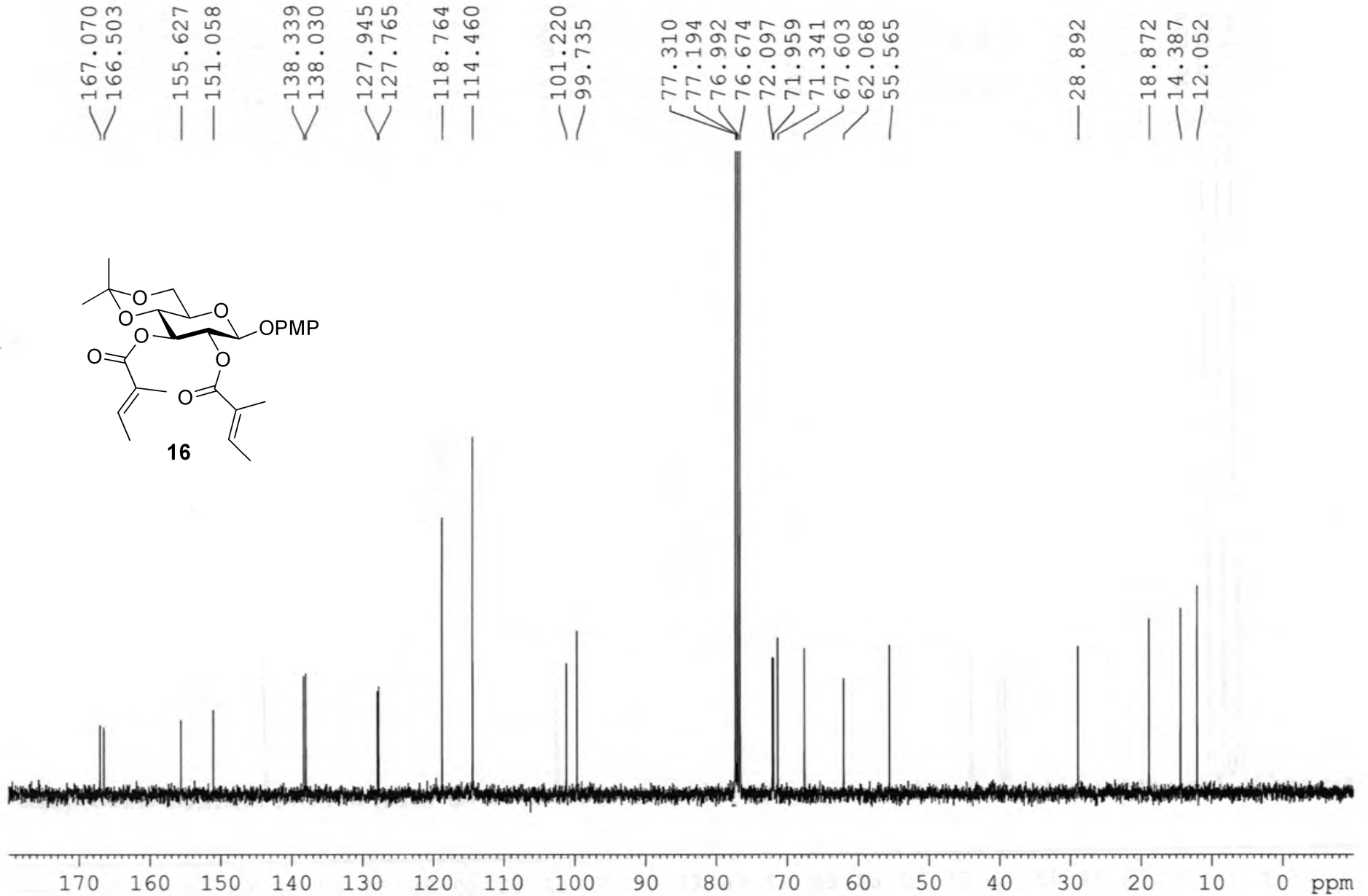
==== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GP21 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FnmODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



ZGH-Ipom-1-132-C-130831 in CDC13

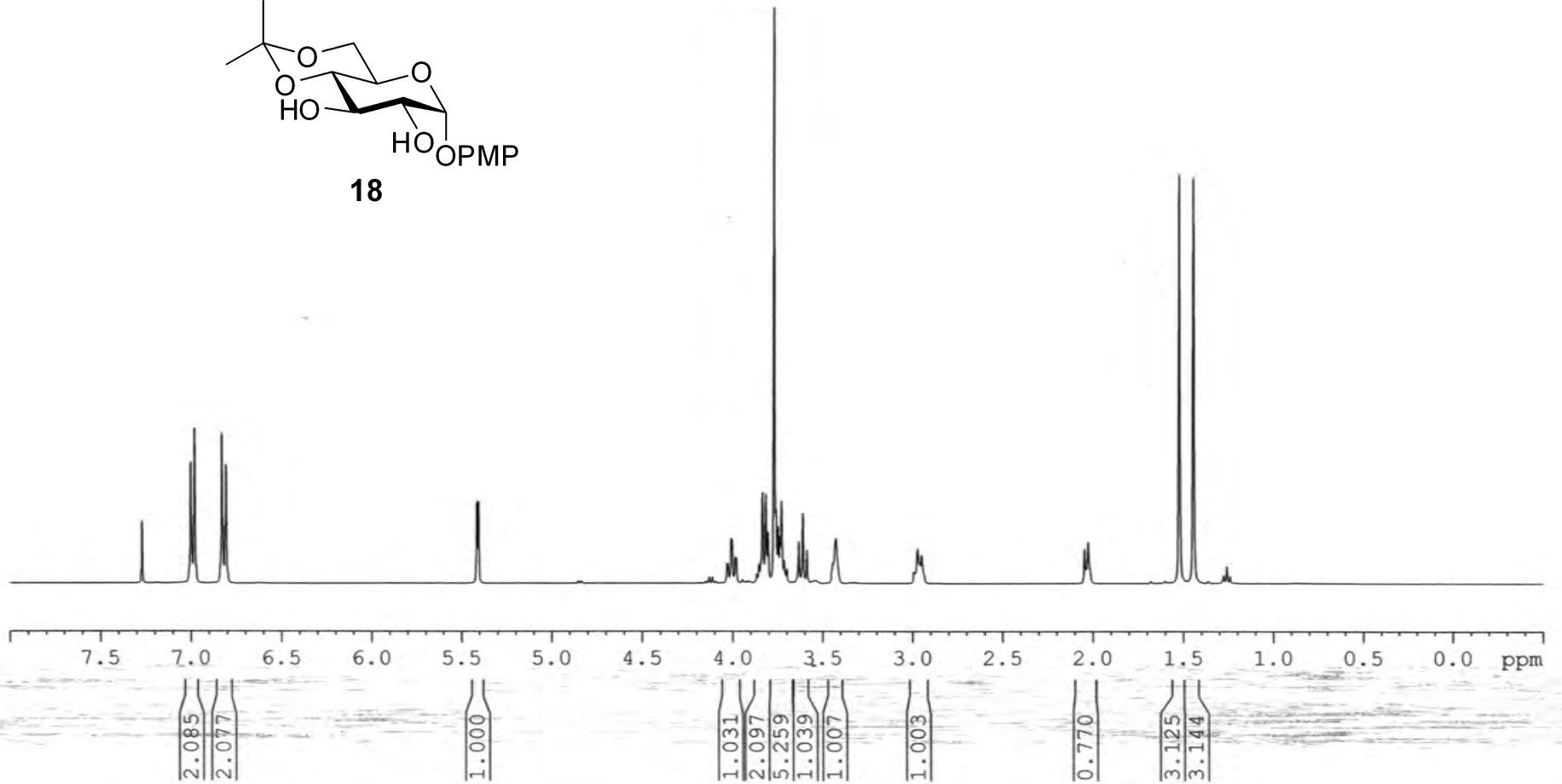
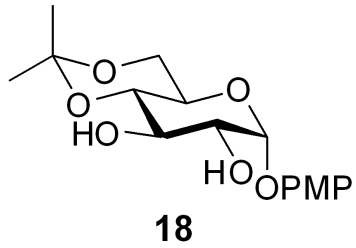


ZGH-*Ipom*-1-132-C-130831 ¹³C in CDCl₃

ZGH-*Ipom*-1-126-B-130827 1H in CDCL₃

7.275
7.270
7.003
6.985
6.980
6.971
6.830
6.811
6.807
6.799

5.414
5.405
4.031
4.026
4.008
4.003
3.985
3.980
3.866
3.853
3.833
3.815
3.803
3.769
3.759
3.747
3.737
3.728
3.714
3.699
3.632
3.610
3.587
3.444
3.425
2.994
2.971
2.951
2.045
2.026
1.522
1.444
1.277
1.259
1.241



ZGH-*Ipom*-1-126-B-130827 ^{13}C in CDCl_3

— 155.418
— 150.180

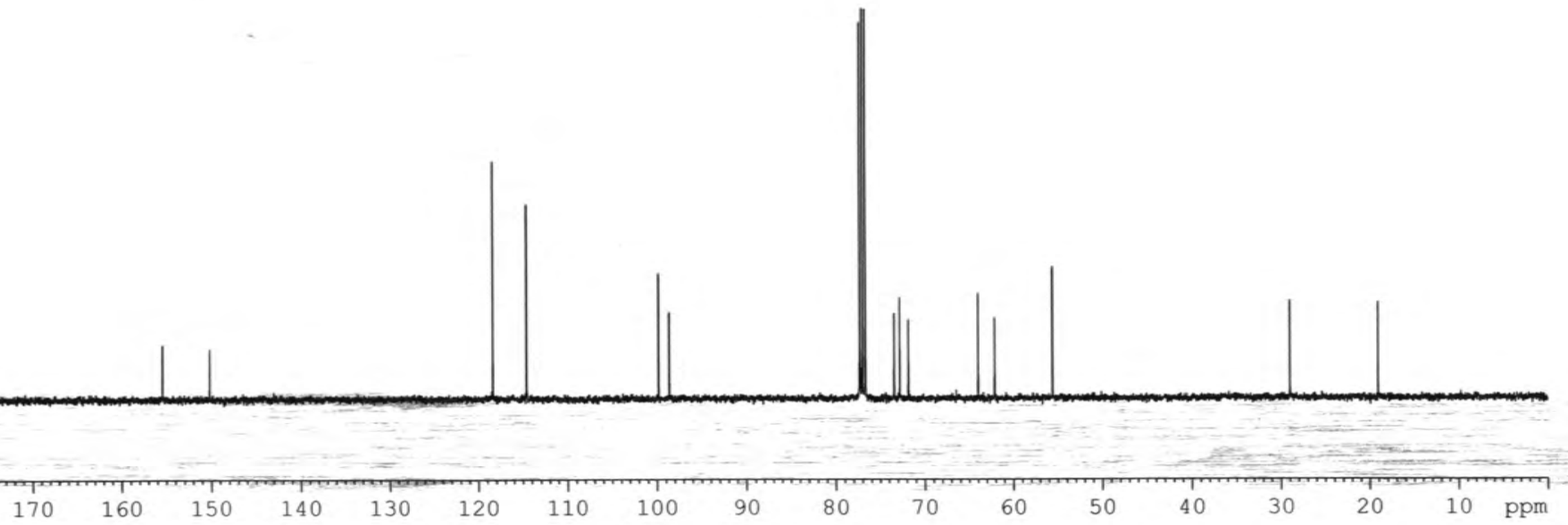
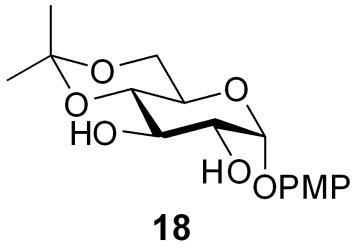
— 118.406
— 114.638

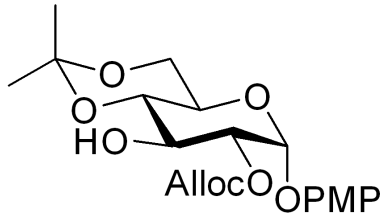
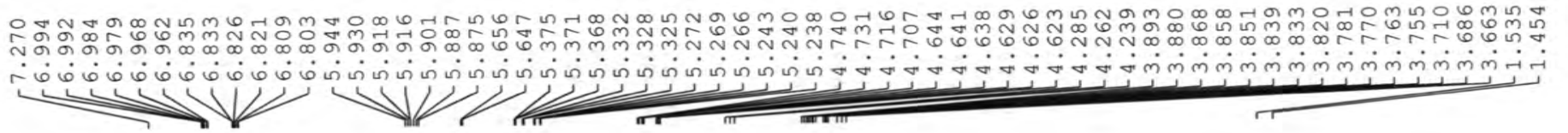
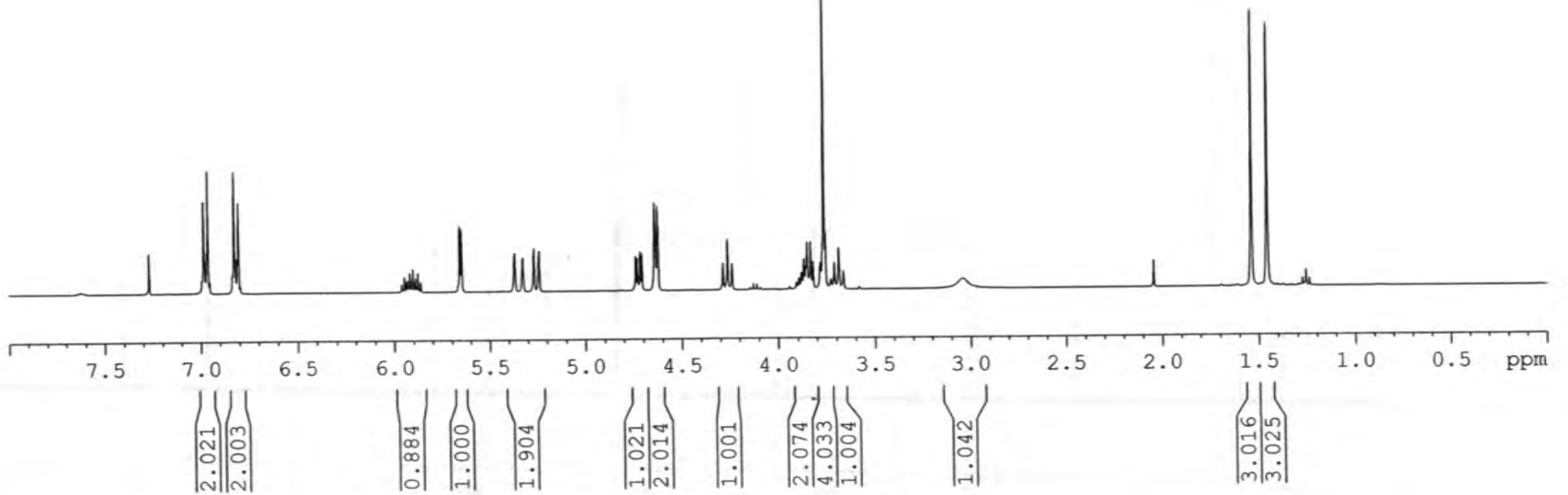
— 99.803
— 98.619

77.319
77.201
77.001
76.683
73.430
72.806
71.845
63.990
62.129
— 55.589

— 28.999

— 19.075



ZGH-*Ipom*-1-152-A-131001 1H in CDCL₃**19**

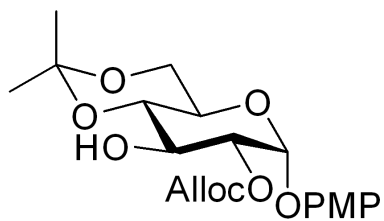
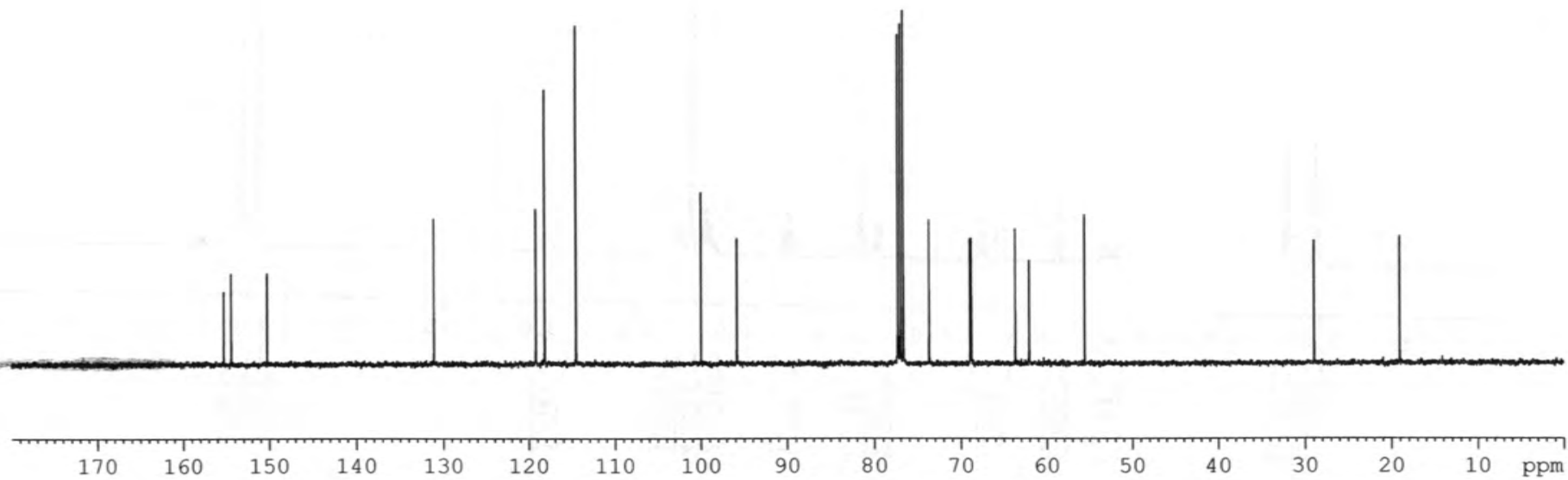
ZGH-Ipom-1-152-A-131001 ^{13}C in CDCl_3 155.280
154.433
150.253

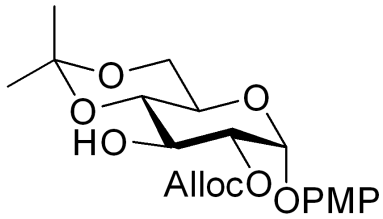
131.072

119.197
118.161
114.54499.973
95.83677.317
76.999
76.680
73.674
68.913
68.763
63.662
62.043
55.563

28.923

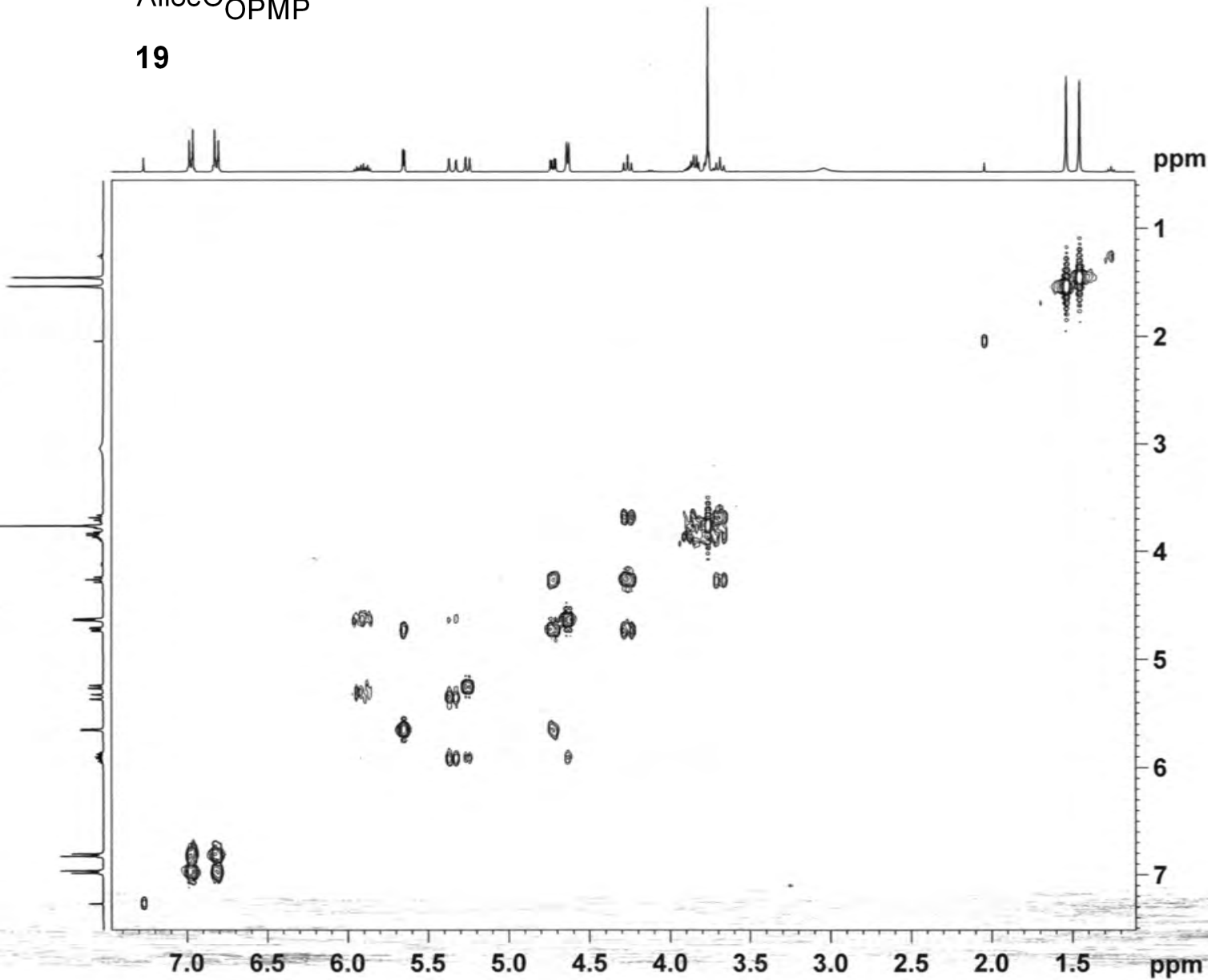
19.046

**19**



19

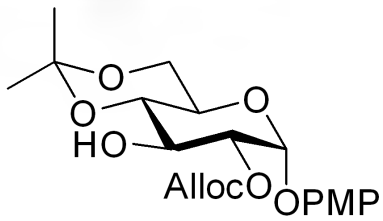
ZGH-Ipom-1-152-A-131001 COSY



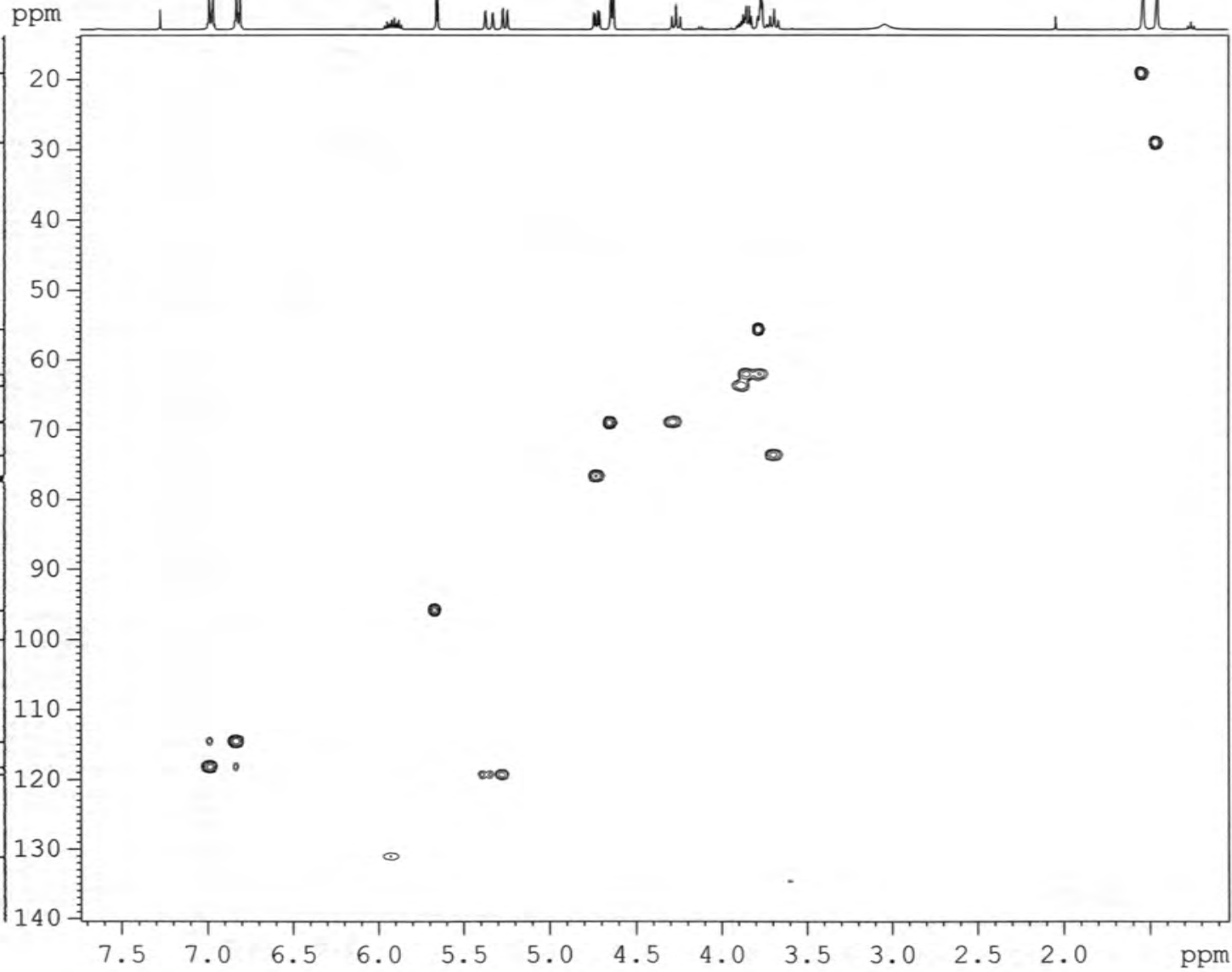
NAME ZGH-Ipom-1-152-A-131001
 EXPNO 3
 PROCNO 1
 Date_ 20131001
 Time 22.51
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygppqf
 TD 2048
 SOLVENT CDC13
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 71.8
 DW 93.600 usec
 DE 6.50 usec
 TE 293.6 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00018720 sec

===== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SF01 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SF01 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FhMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



19

ZGH-*Ipom*-1-152-A-131001 HSQC

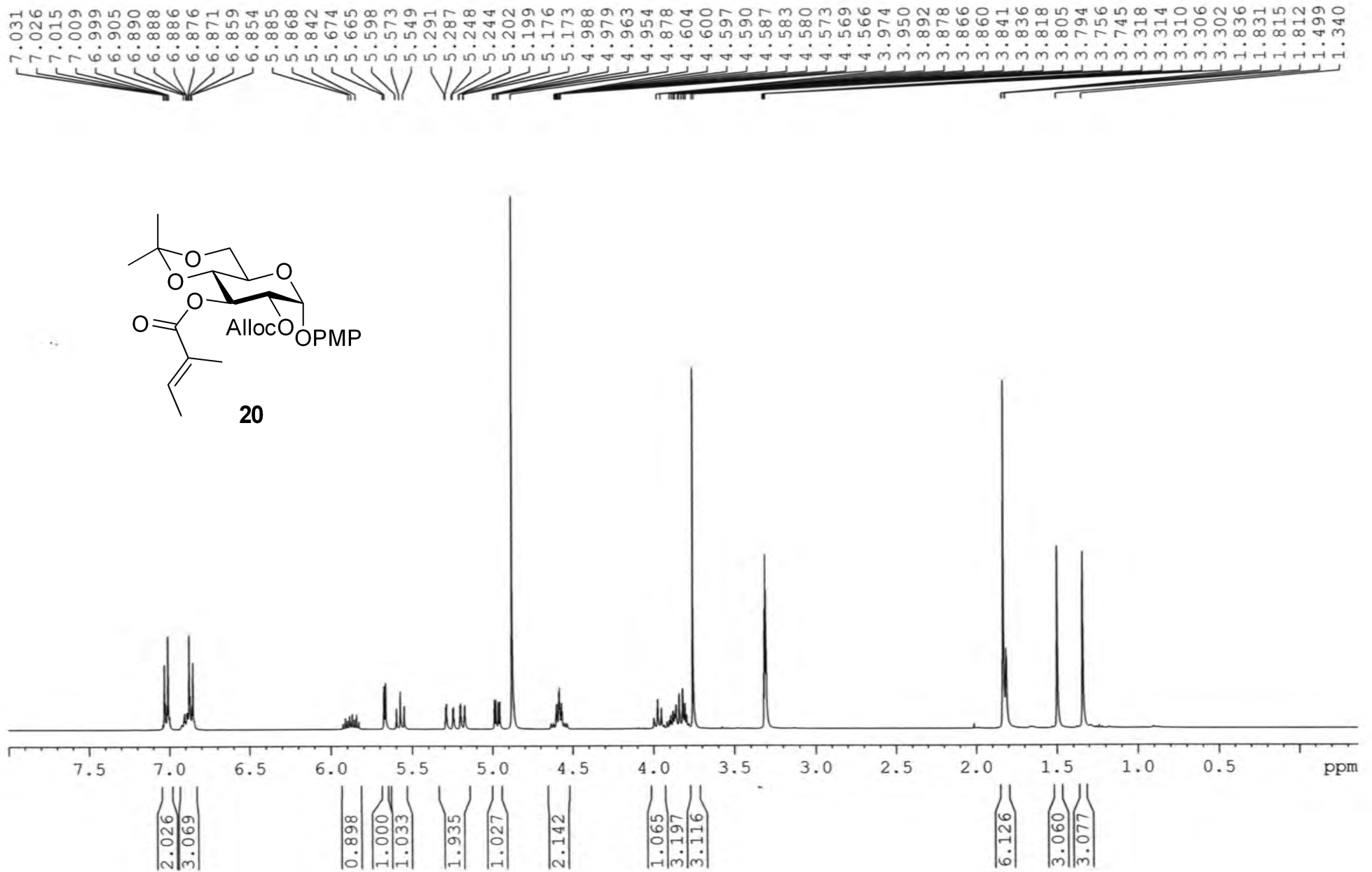
NAME ZGH-*Ipom*-1-152-A-131001
 EXPNO 41
 PROCNO 1
 Date_ 20150313
 Time 0.08
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 8
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.3 K
 CNST2 145.0000000
 D0 0.0000300 sec
 D1 1.5000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGOPTNS

----- CHANNEL f1 -----
 NUC1 1H
 F1 10.00 usec
 F2 20.00 usec
 F28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- CHANNEL f2 -----
 CPDPRG2 garp
 NUC2 13C
 F3 10.00 usec
 F4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 163
 SFO1 100.6203 MHz
 FIDRES 102.249489 Hz
 SW 165.639 ppm
 FnMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0

ZGH-Ipom-1-153-A-140203 1H in MeOD



ZGH-*Ipom*-1-153-A-140203 ¹³C in MeOD

— 168.420
— 157.029
— 155.643
— 151.671

— 139.549
— 132.844
— 129.199

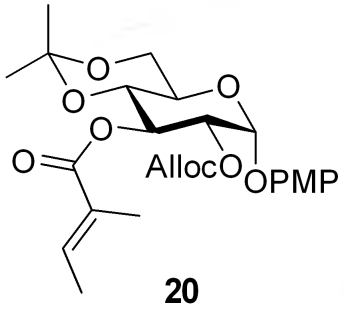
— 119.408
— 118.875
— 115.730

— 101.150
— 97.667

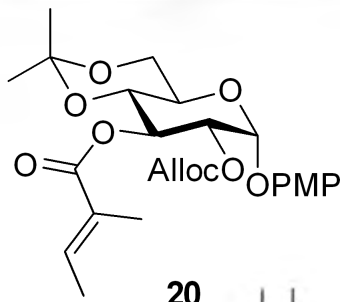
— 75.892
— 73.092
— 70.836
— 69.810
— 65.656
— 63.062
— 56.048
— 49.641
— 49.430
— 49.215
— 49.002
— 48.791
— 48.577
— 48.363

— 29.336

— 19.384
— 14.504
— 12.230



170 160 150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 ppm



ZGH-Ipom-1-153-A-140203 COSY in MeOD

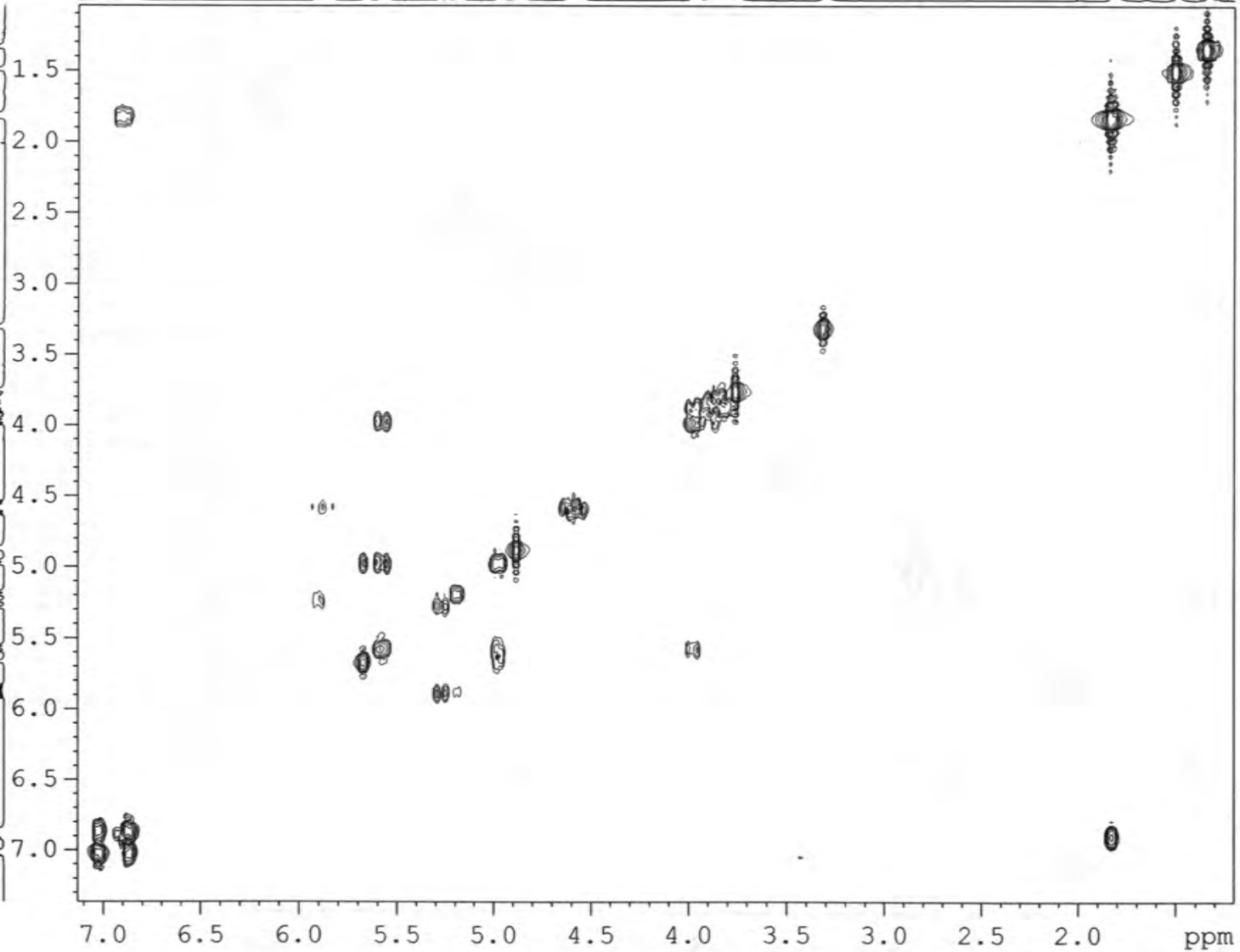
20

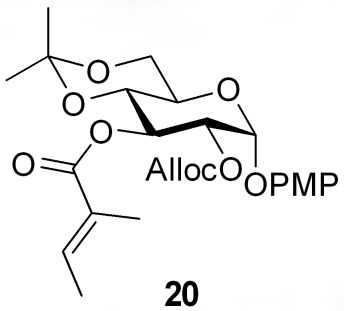
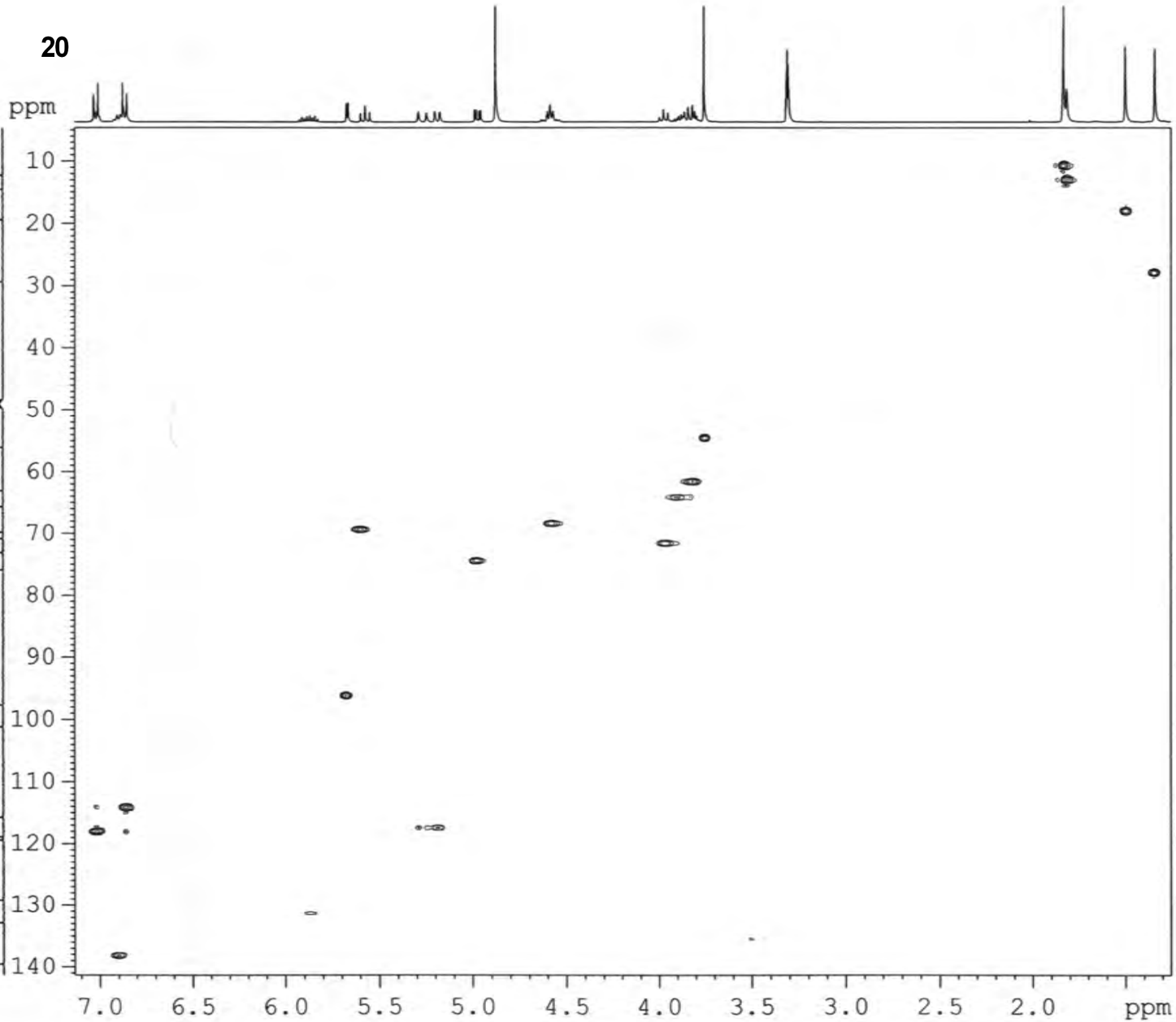
ppm

NAME ZGH-Ipom-1-153-A-140203 check agai
 EXPNO 2
 PROCNO 1
 Date_ 20140512
 Time 22.45
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT MeOD
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 362
 DW 93.600 usec
 DE 6.50 usec
 TE 292.2 K
 DO 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

===== CHANNEL f1 =====
 NUC1 1H
 PO 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE 100
 GPZ1 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FmMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



ZGH-*Ipom*-1-153-A-140203 HSQC in MeOD

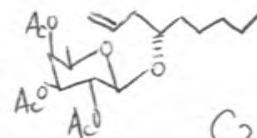
NAME ZGH-*Ipom*-1-153-A-140203 check again
 EXPNO 4
 PROCNO 1
 Date_ 20140512
 Time 23.30
 INSTRUM spect
 PROBHD 5 mm FAPBO BB-
 PULPROG hsqcetpsi
 TD 1024
 SOLVENT MeOD
 NS 2
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 293.0 K
 CNST2 145.0000000
 DO 0.0000300 sec
 D1 1.5000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGPTNS

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

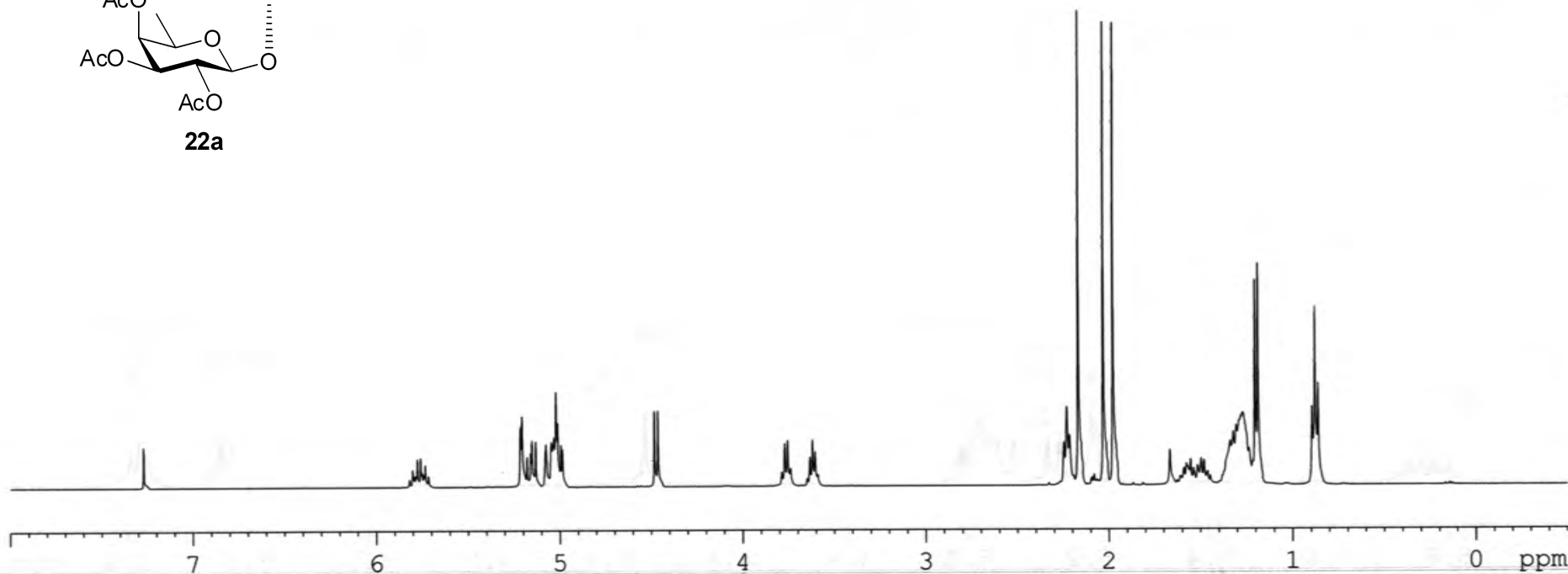
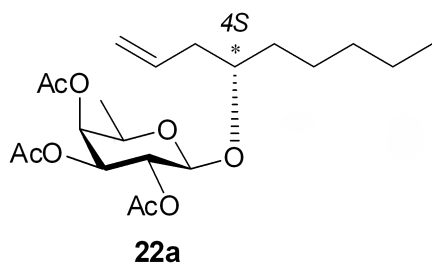
===== CHANNEL f2 =====
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GFZ1 80.00 %
 GFZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 FhMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0

ZGH-Ipom-1-175-A-131028 1H in CDCL3

C₂₁H₃₄O₈

7.271
7.270
5.775
5.758
5.732
5.213
5.205
5.178
5.158
5.152
5.132
5.078
5.075
5.047
5.044
5.042
5.033
5.021
5.012
4.994
4.986
4.482
4.463
3.772
3.755
3.634
3.619
3.605
2.247
2.231
2.216
2.169
2.033
2.007
1.978
1.667
1.577
1.554
1.518
1.497
1.481
1.340
1.323
1.306
1.287
1.280
1.270
1.236
1.215
1.203
1.187
0.894
0.878
0.860



0.981

1.030

1.022

3.097

1.000

1.072

1.018

2.003

3.143

3.027

3.064

2.113

6.272

3.338

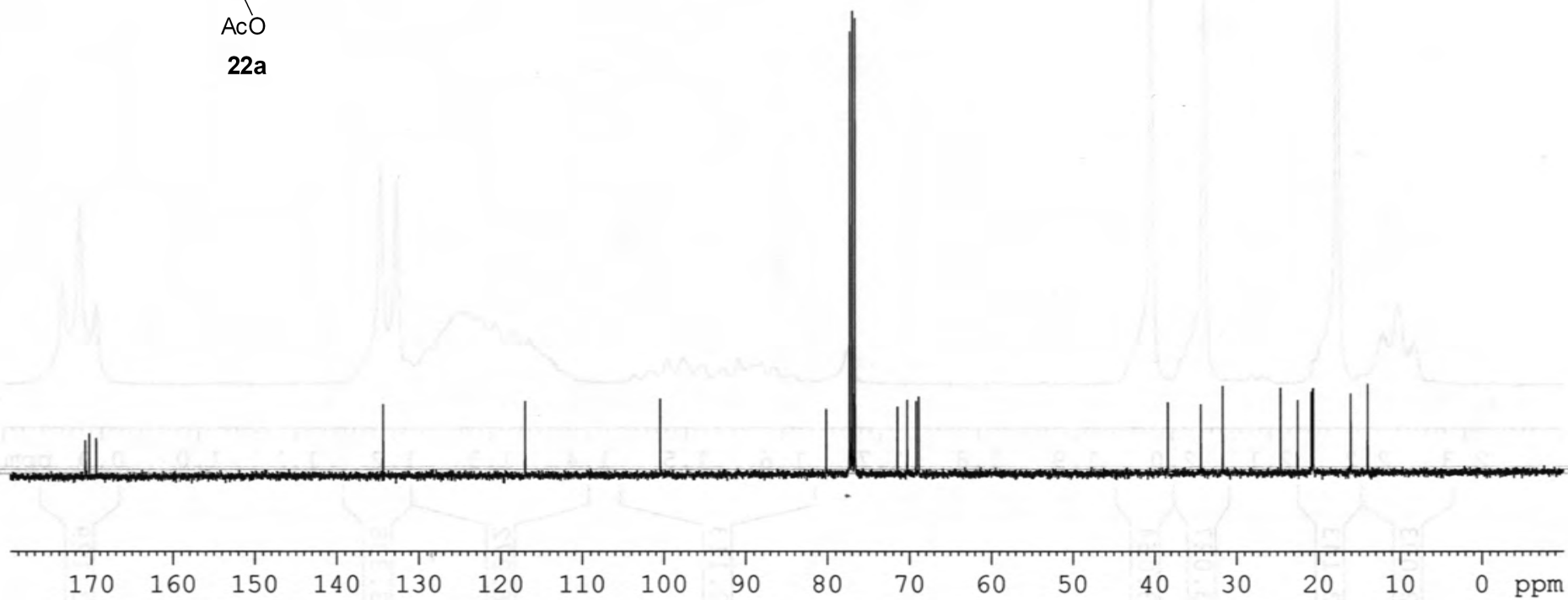
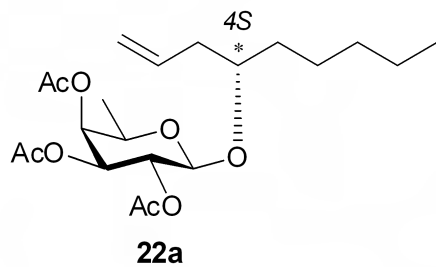
3.129

ZGH-*Ipom*-1-175-A-131028 ^{13}C in CDCl_3 170.775
170.262
169.407

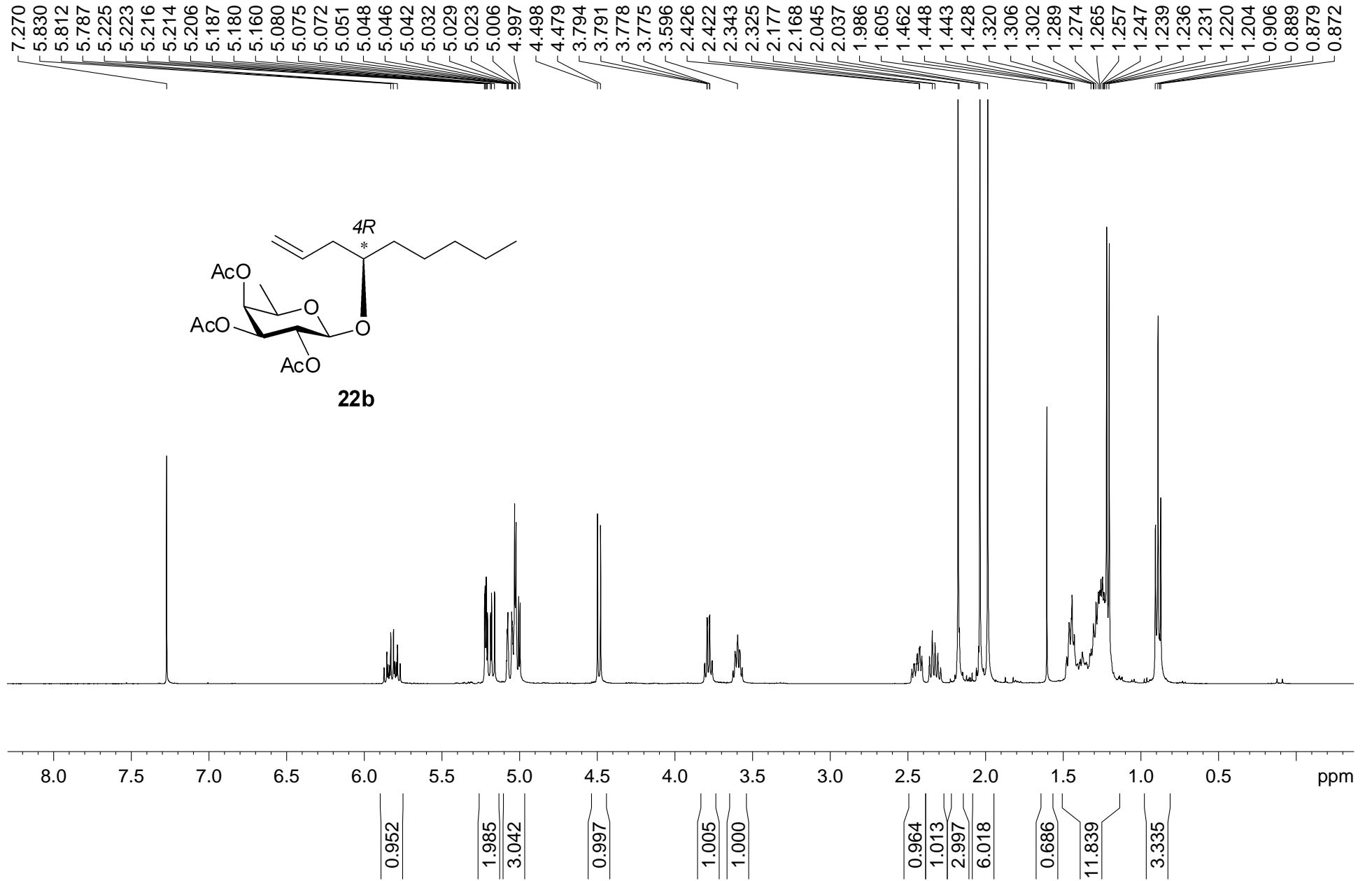
— 134.402

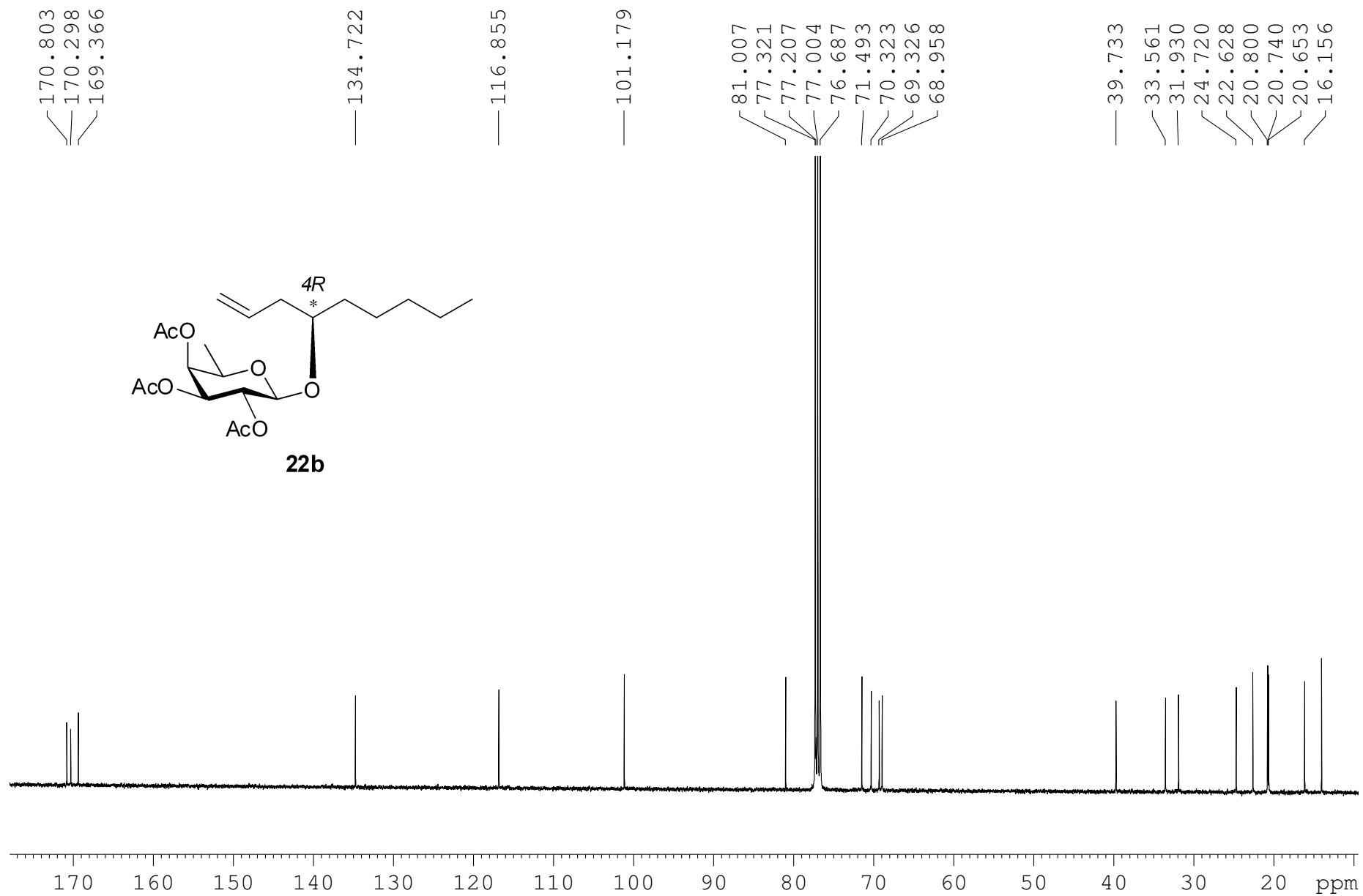
— 117.011

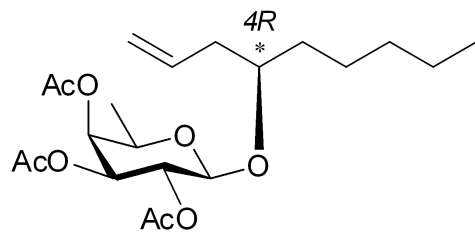
— 100.485

80.160
77.301
76.983
76.665
71.482
70.306
69.239
68.89238.373
34.363
31.686
24.601
22.521
20.837
20.698
20.613
16.070
14.002

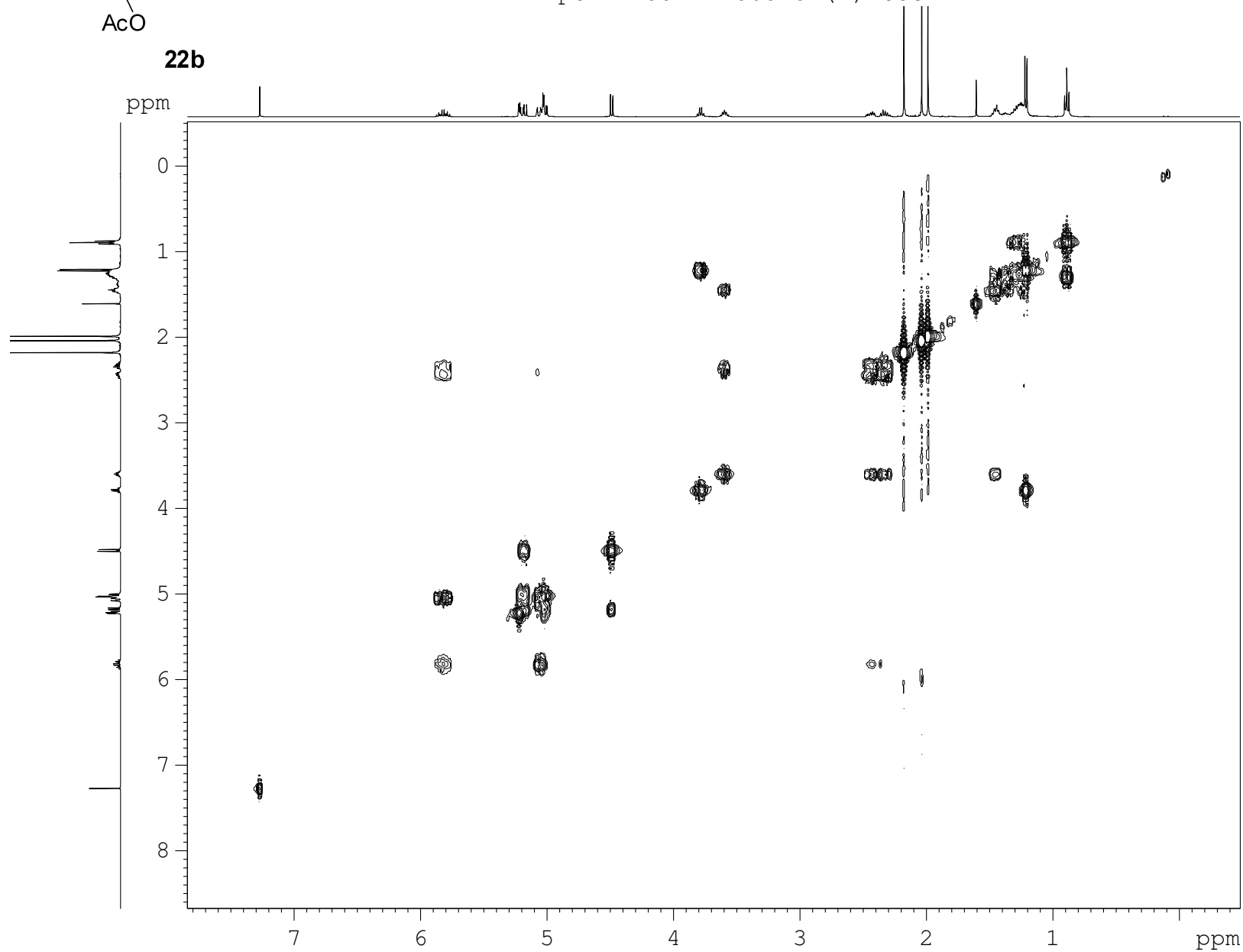
EDB-Ipom-1-99-A-150513 (2) 1H in CDCL3



EDB-Ipom-1-99-A-150513 (2) ^{13}C in CDCl_3 



22b

EDB-*Ipom*-1-99-A-150513 (2) COSY

```

NAME      EDB-Ipom-1-99-A-150513 (2)
EXPNO     1
PROCNO    1
Date_     20150623
Time      23.33
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpgf
TD         2048
SOLVENT   CDCl3
NS         4
DS         8
SWH       5341.880 Hz
FIDRES    2.608340 Hz
AQ         0.1917428 sec
RG         203
DW         93.600 usec
DE         6.50 usec
TE         292.5 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec

```

```

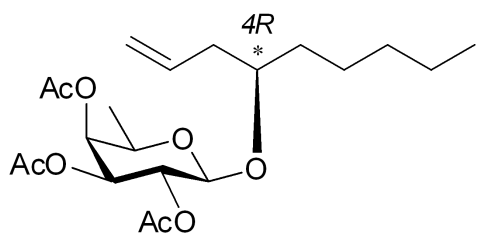
===== CHANNEL f1 =====
NUC1      1H
P0         10.00 usec
P1         10.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SFO1       400.1324057 MHz

```

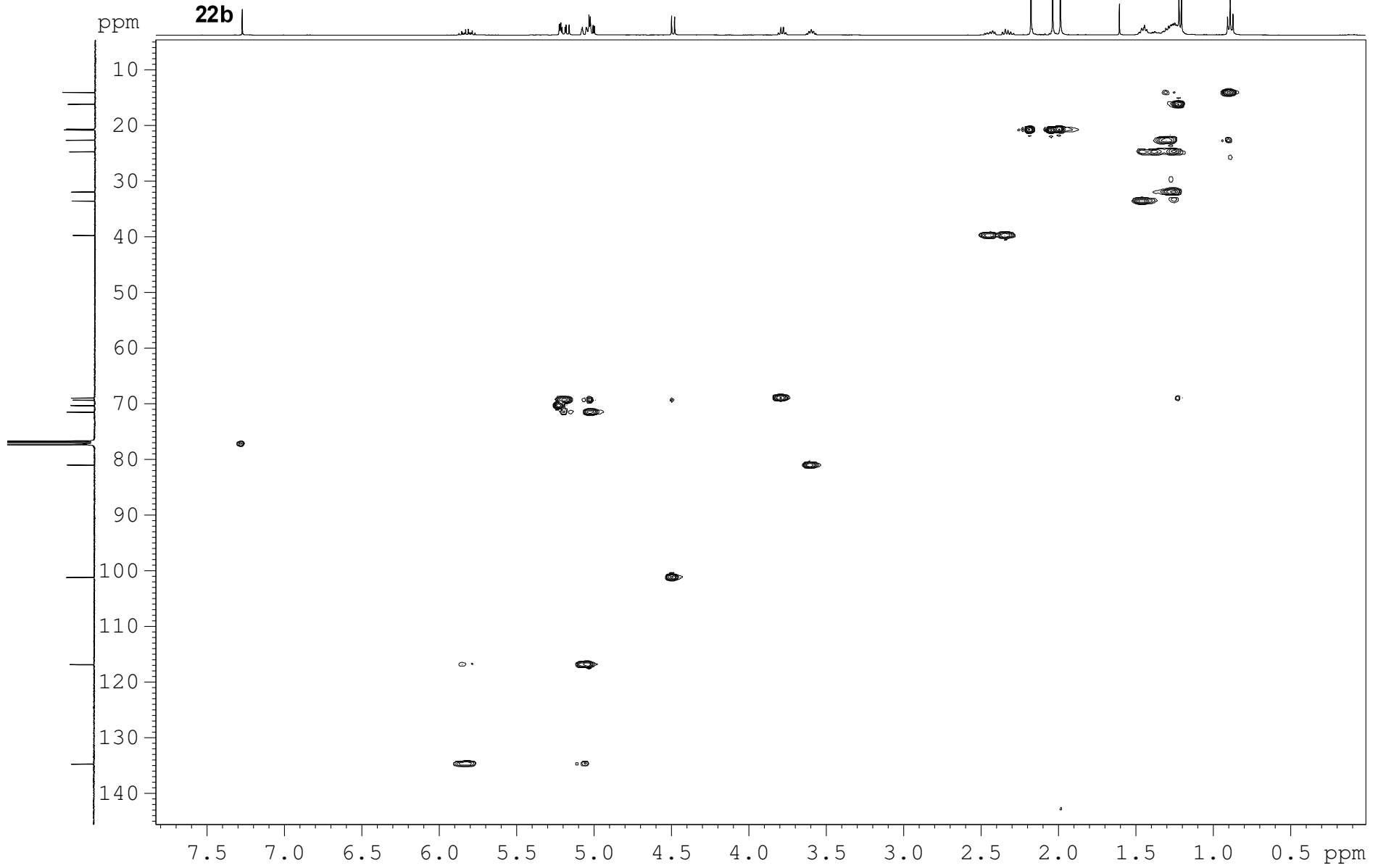
```

===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1       10.00 %
P16        1000.00 usec
ND0         1
TD         128
SFO1       400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FnMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0

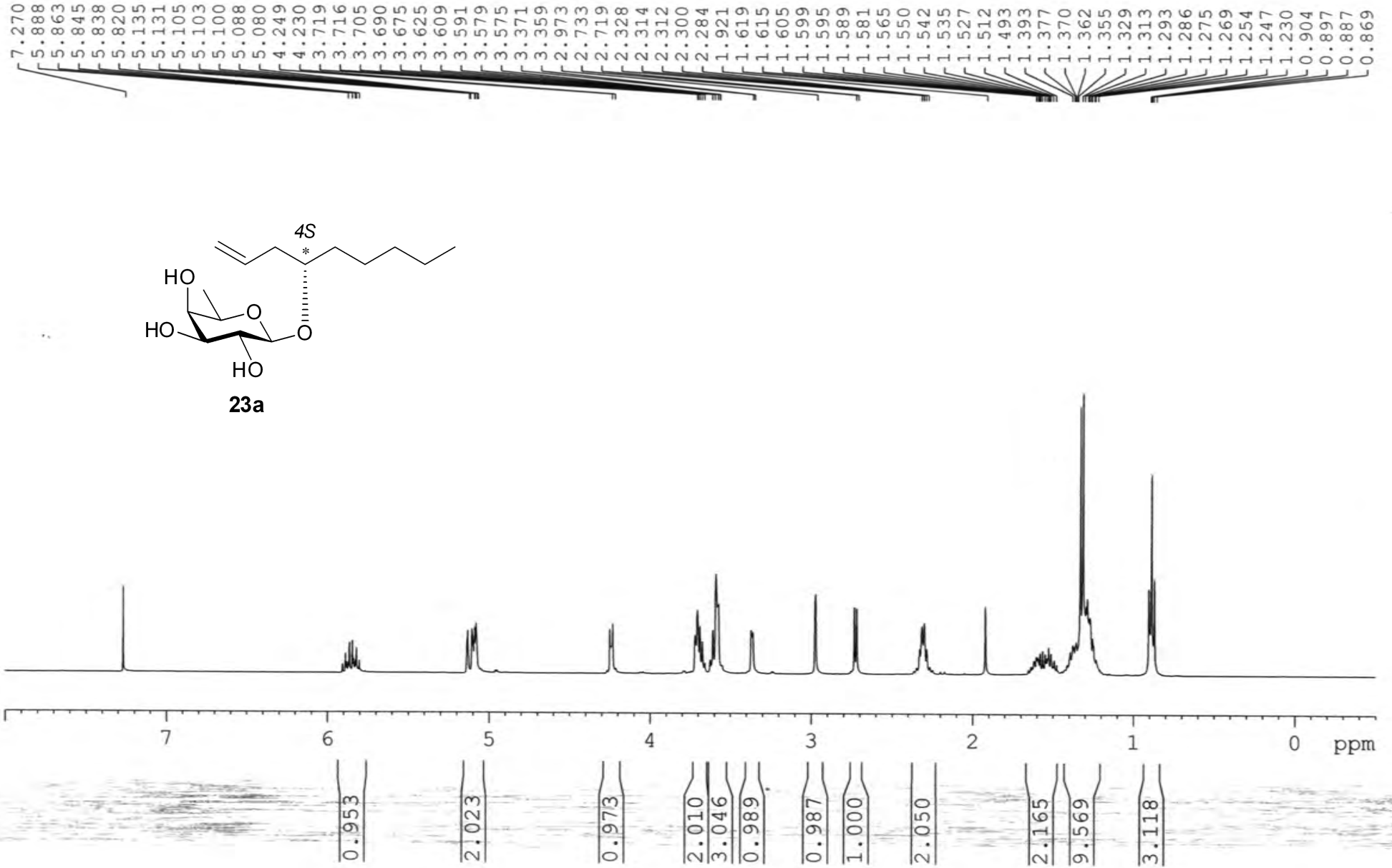
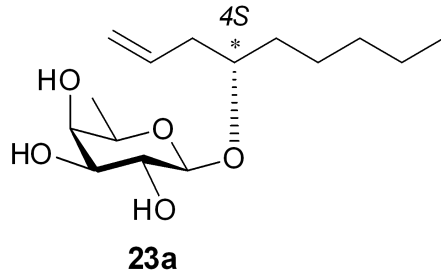
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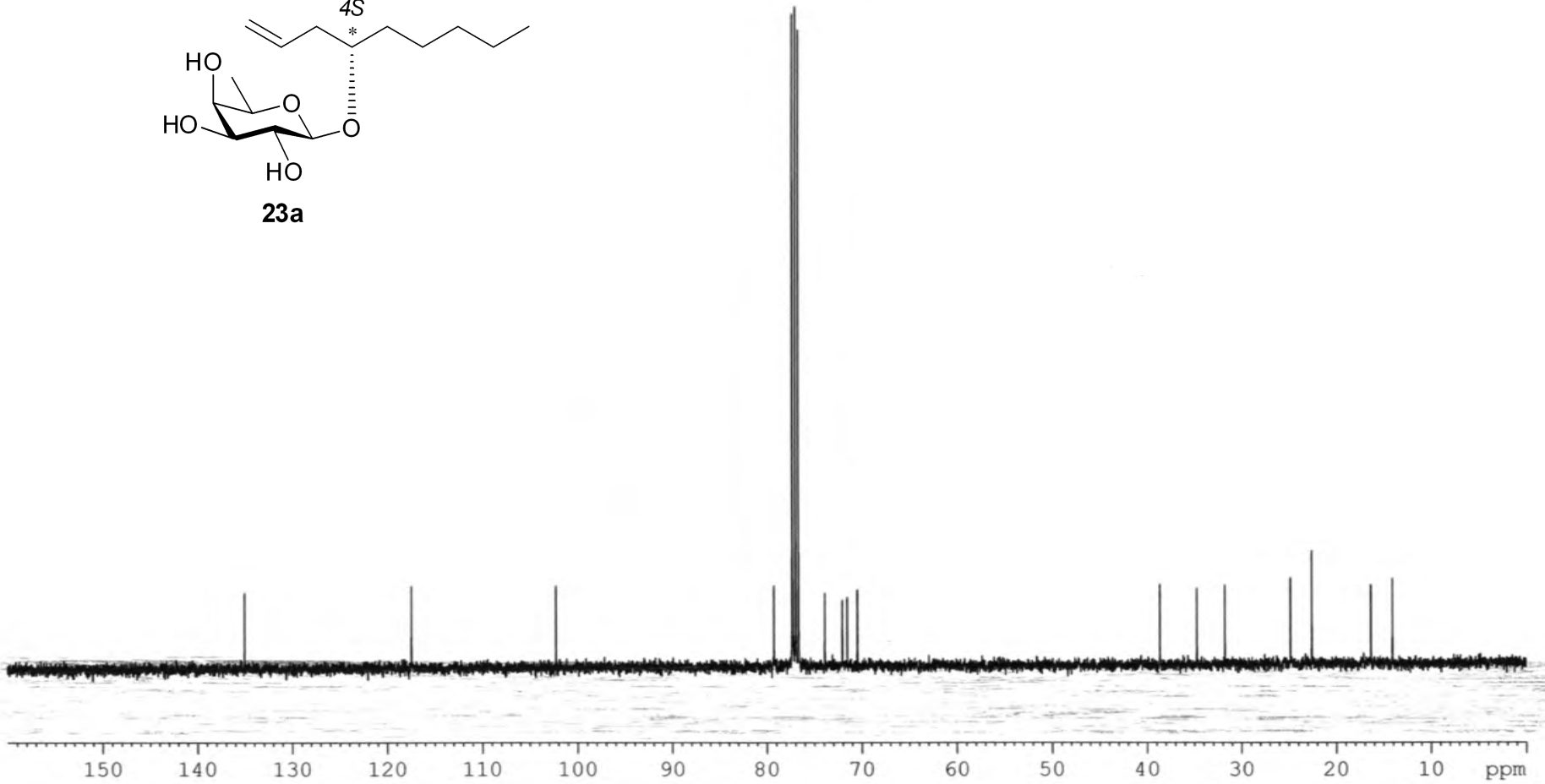
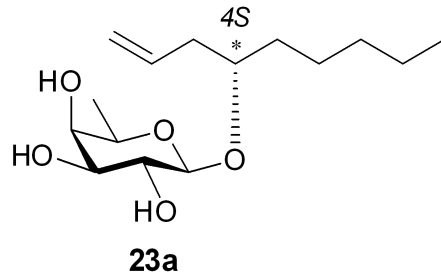
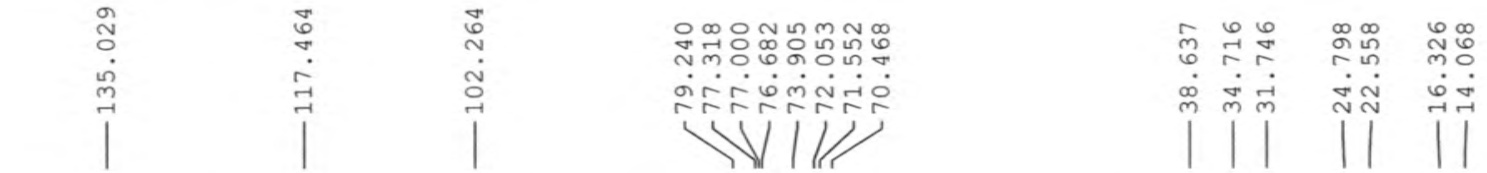


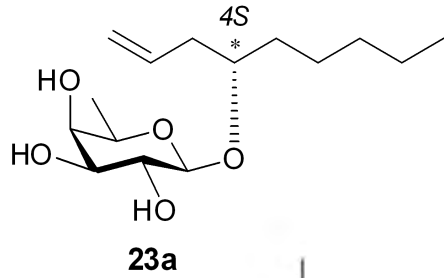
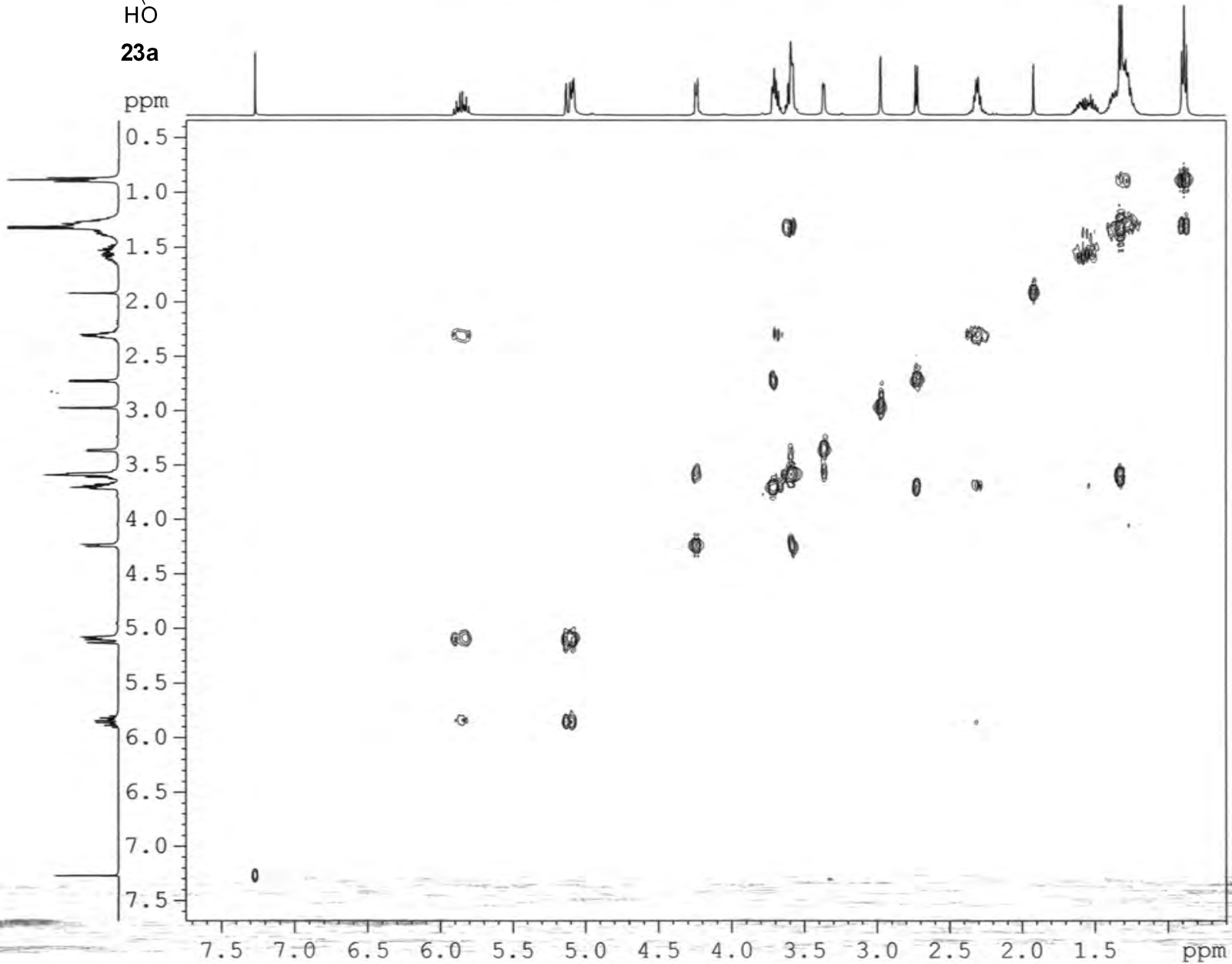
EDB-*Ipom*-1-99-A-150513 (2) HSQC



ZGH-Ipom-1-176-A-131029 1H in CDCl3



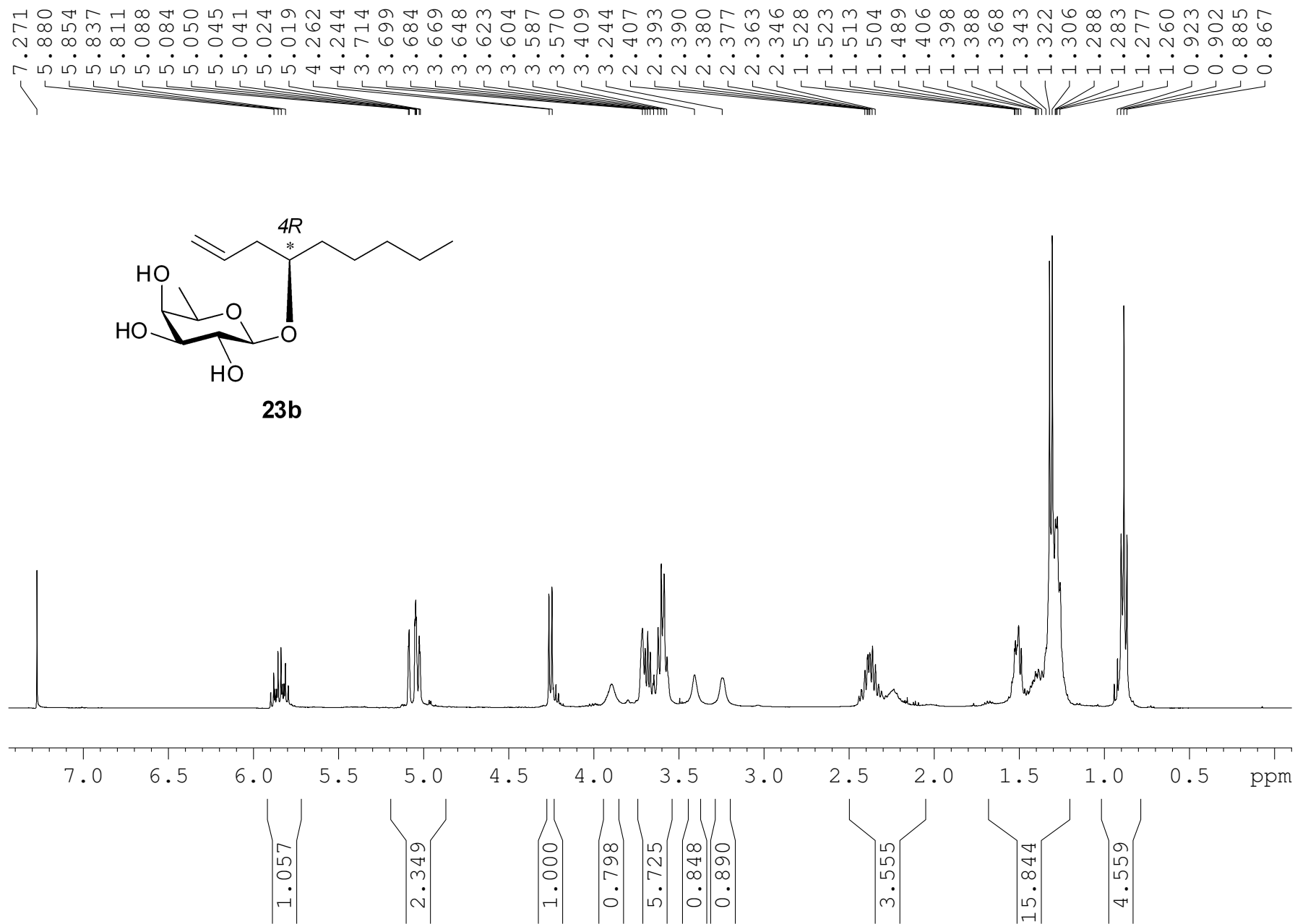
ZGH-*Ipom*-1-176-A-131029 Check 150316 13C in CDC13

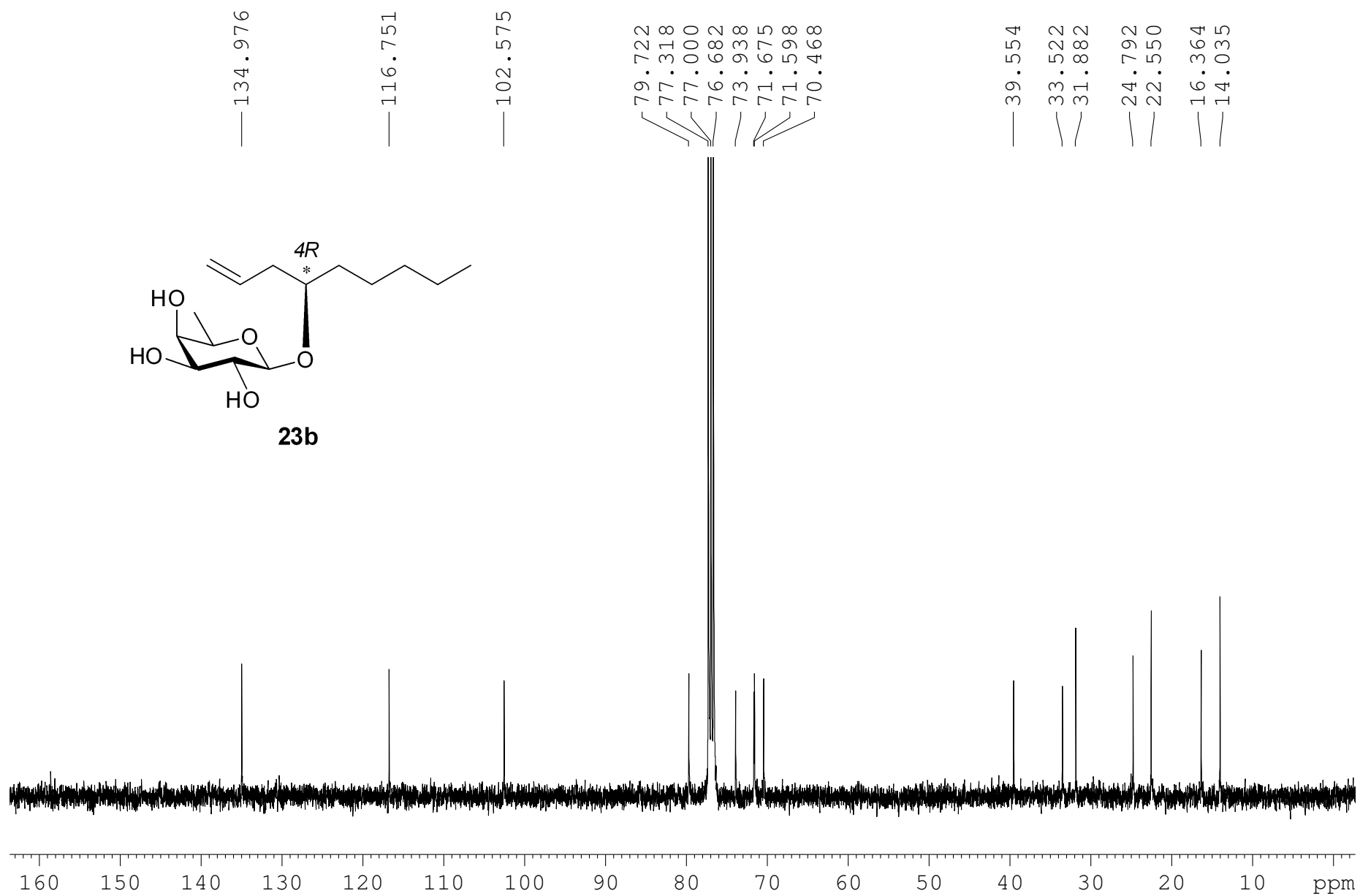
ZGH-*Ipom*-1-176-A-131029 Check 150316 COSY

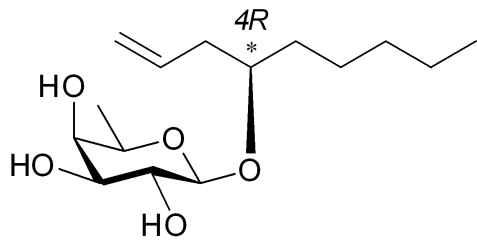
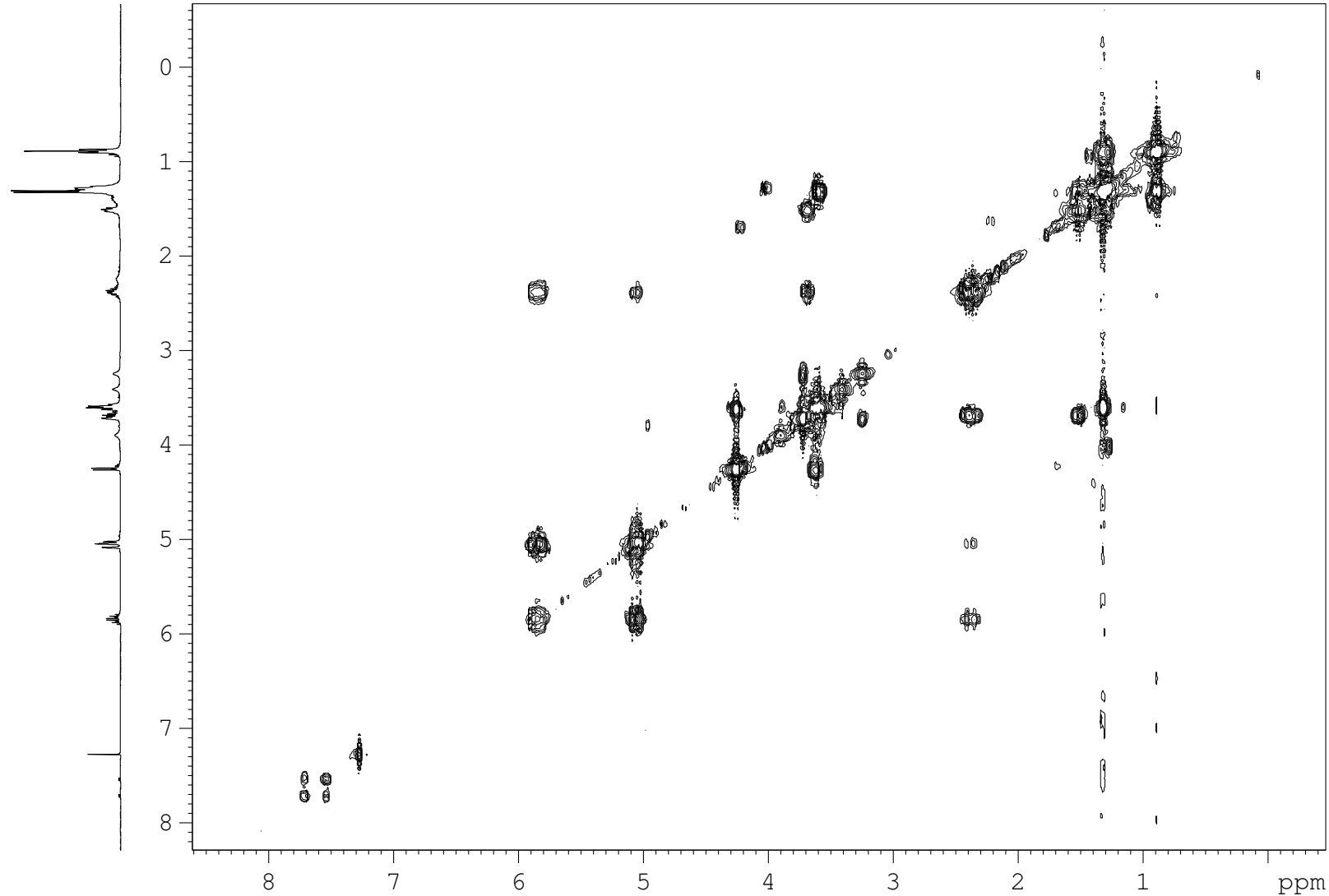
NAME ZGH-*Ipom*-1-176-A-131029
 EXPNO 3
 PROCNO 1
 Date 20150316
 Time 11.12
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT CDC13
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 161
 DW 93.600 usec
 DE 6.50 usec
 TE 292.6 K
 DO 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

===== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SF01 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SF01 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FvMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

EDB-Ipom-1-101-A-150515 in CDCL₃

EDB-Ipom-1-101-A-150515 ^{13}C in CDCl_3 

EDB-*Ipom*-1-101-A-150515 COSY23b
ppm

```

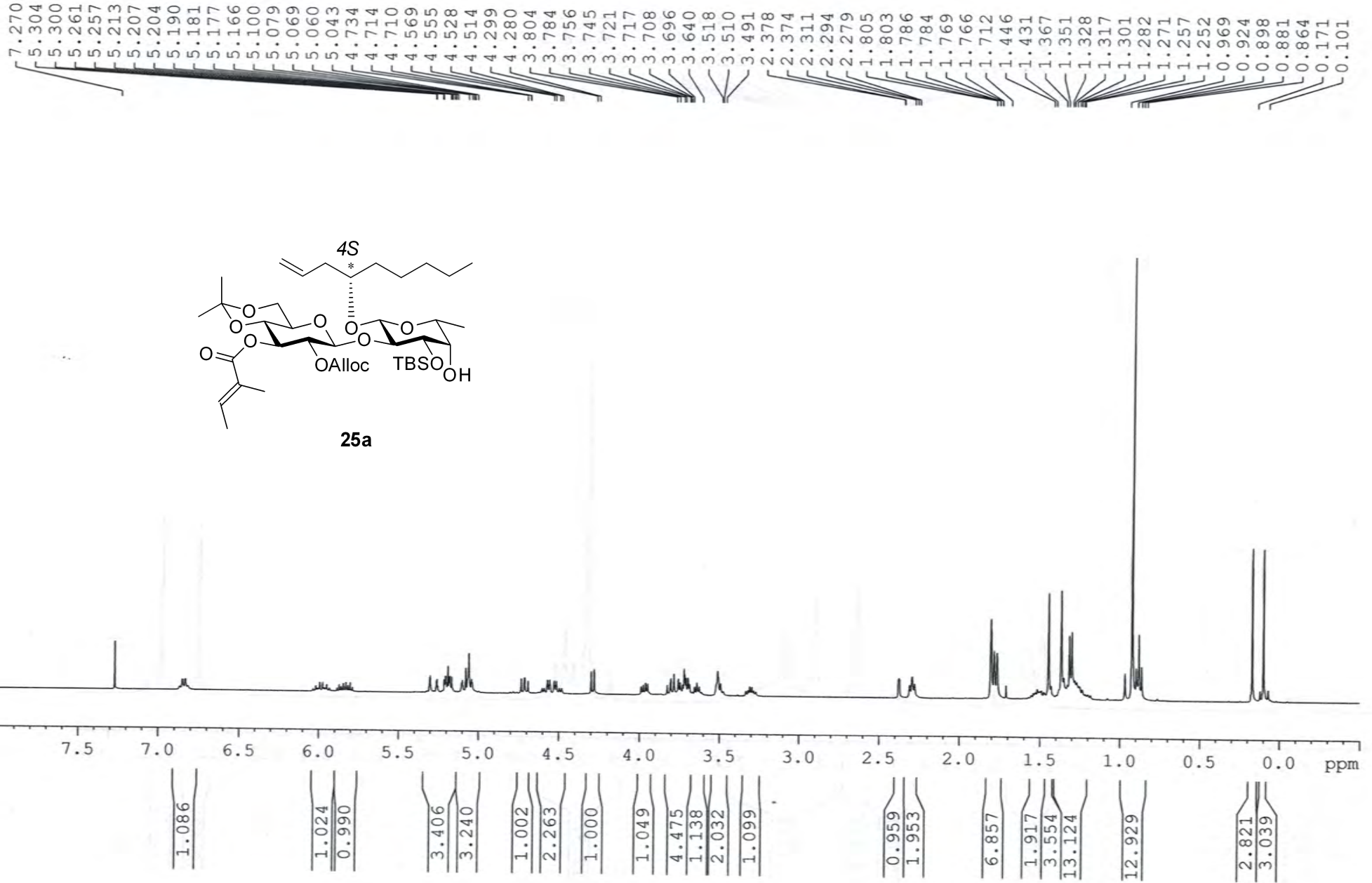
NAME      EDB-Ipom-1-101-A-150515
EXPNO     5
PROCNO    1
Date_     20150621
Time      19.22
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpgf
TD         2048
SOLVENT   CDCl3
NS         4
DS         8
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         80.6
DW         93.600 usec
DE         6.50 usec
TE         292.3 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
INO        0.00018720 sec
  
```

```

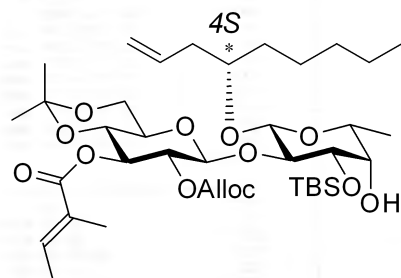
===== CHANNEL f1 =====
NUC1      1H
P0         10.00 usec
P1         10.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SF01      400.1324057 MHz
  
```

```

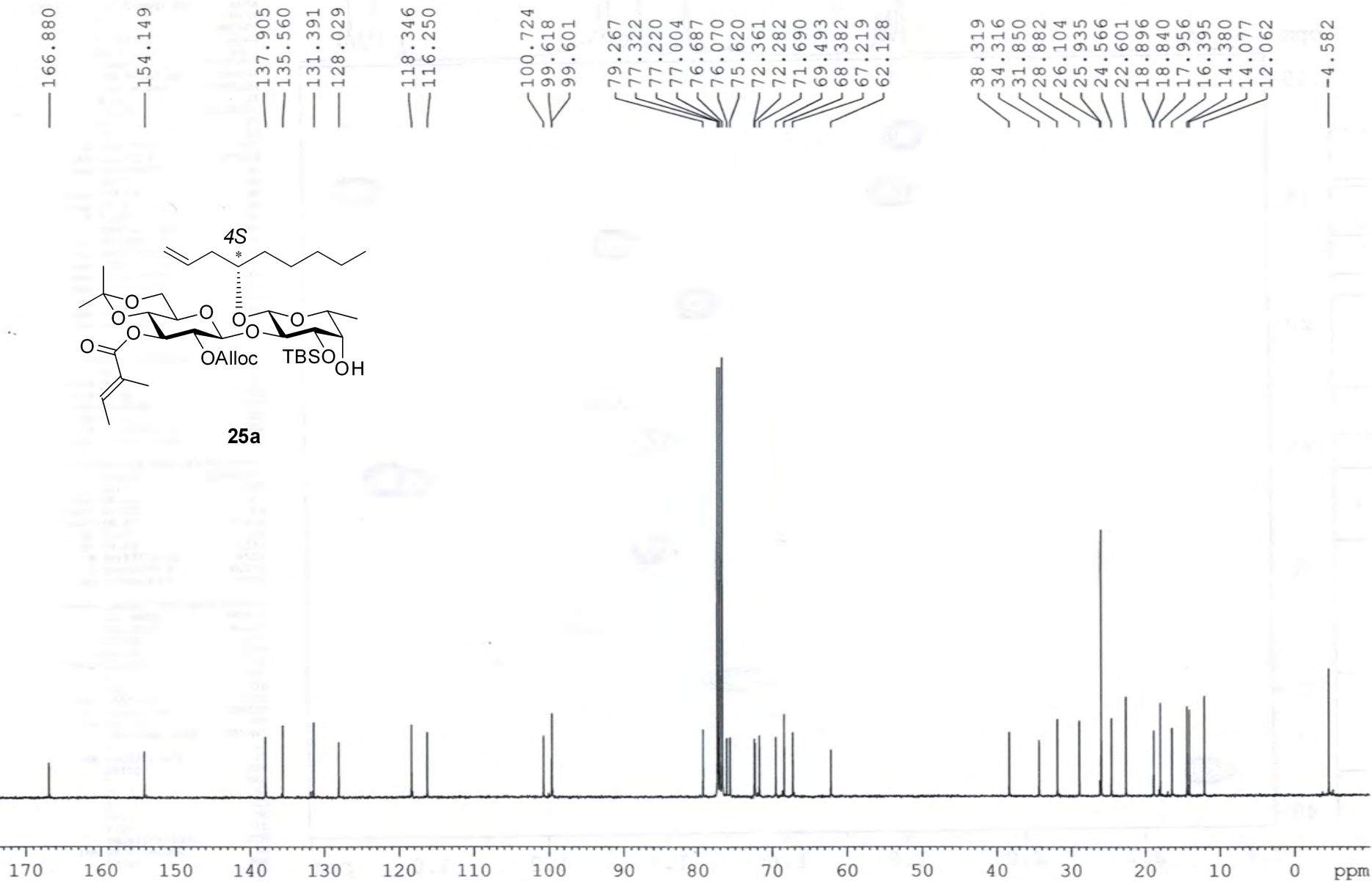
===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1      10.00 %
P16       1000.00 usec
ND0        1
TD         128
SF01      400.1324 MHz
FIDRES    41.733440 Hz
SW         13.350 ppm
FnMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB         0
  
```

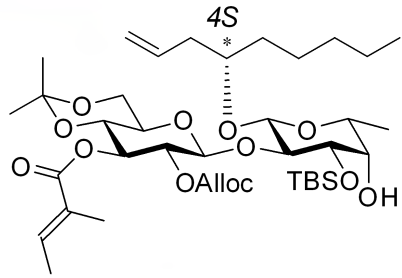
ZGH-*Ipom*-2-24-A-150108 1H in CDCl₃

ZGH-Ipom-2-24-A-150108 13C in CDCl3



25a

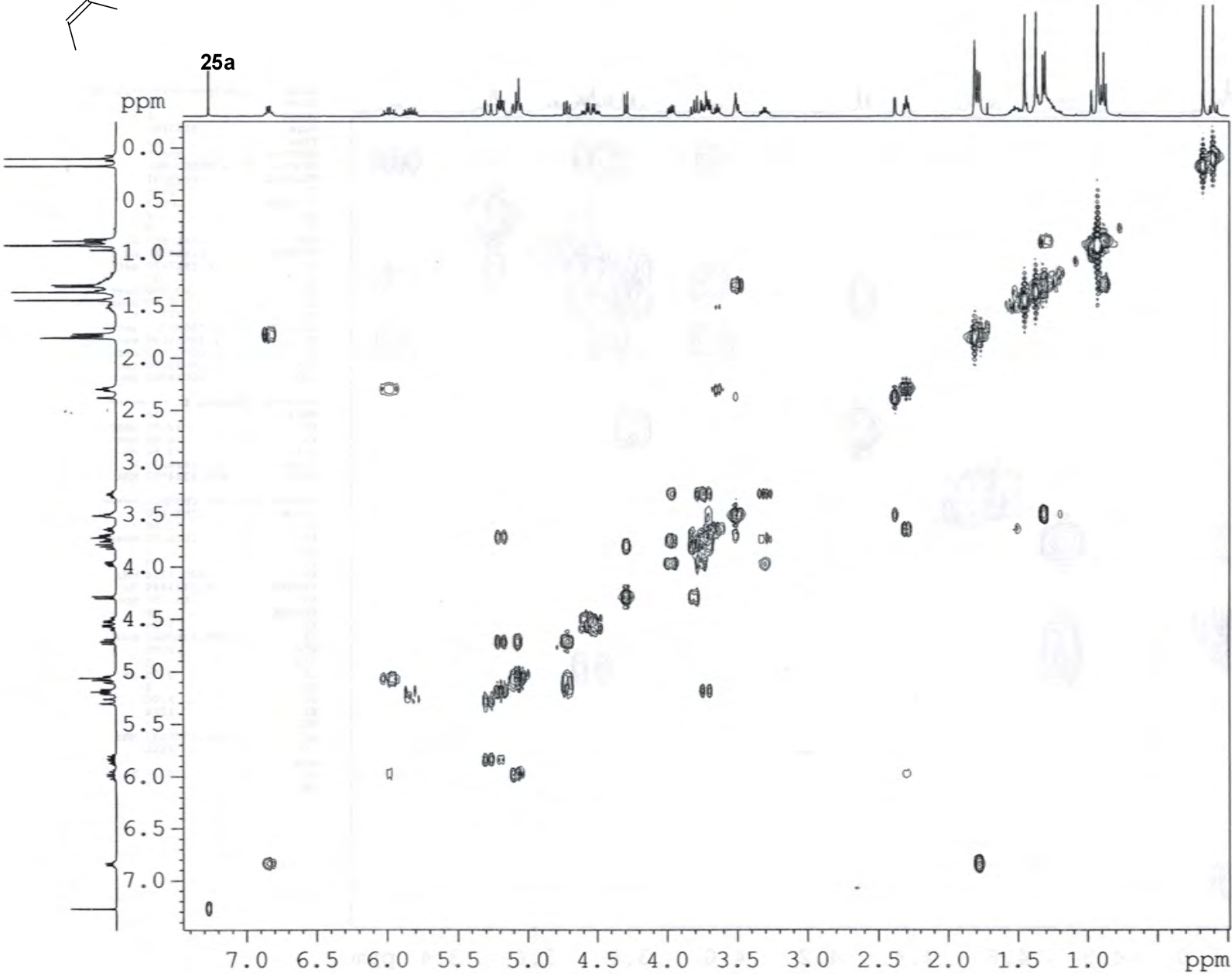




ZGH-Ipom-2-24-A-150108 COSY

25a

ppm



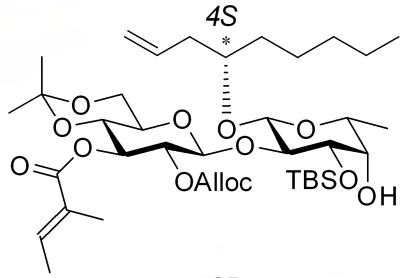
NAME ZGH-Ipom-2-24-A-150108
 EXPNO 2
 PROCNO 1
 Date_ 20150109
 Time 2.21
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosyppqf
 TD 2048
 SOLVENT CDC13
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 57
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

===== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GP21 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FmMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ppm

ZGH-Ipom-2-24-A-150108 HSQC



NAME ZGH-Ipom-2-24-A-150108
 EXPNO 4
 PROCNO 1
 Date 20150109
 Time 4.28
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 8
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.9 K
 CNST2 145.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGOPTNS

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== CHANNEL f2 =====
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 FMODE Echo-Antiecho
 S1 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 FC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GR ^

25a

ppm

0

20

40

60

80

100

120

140

7

6

5

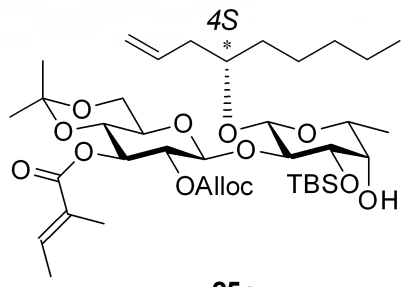
4

3

2

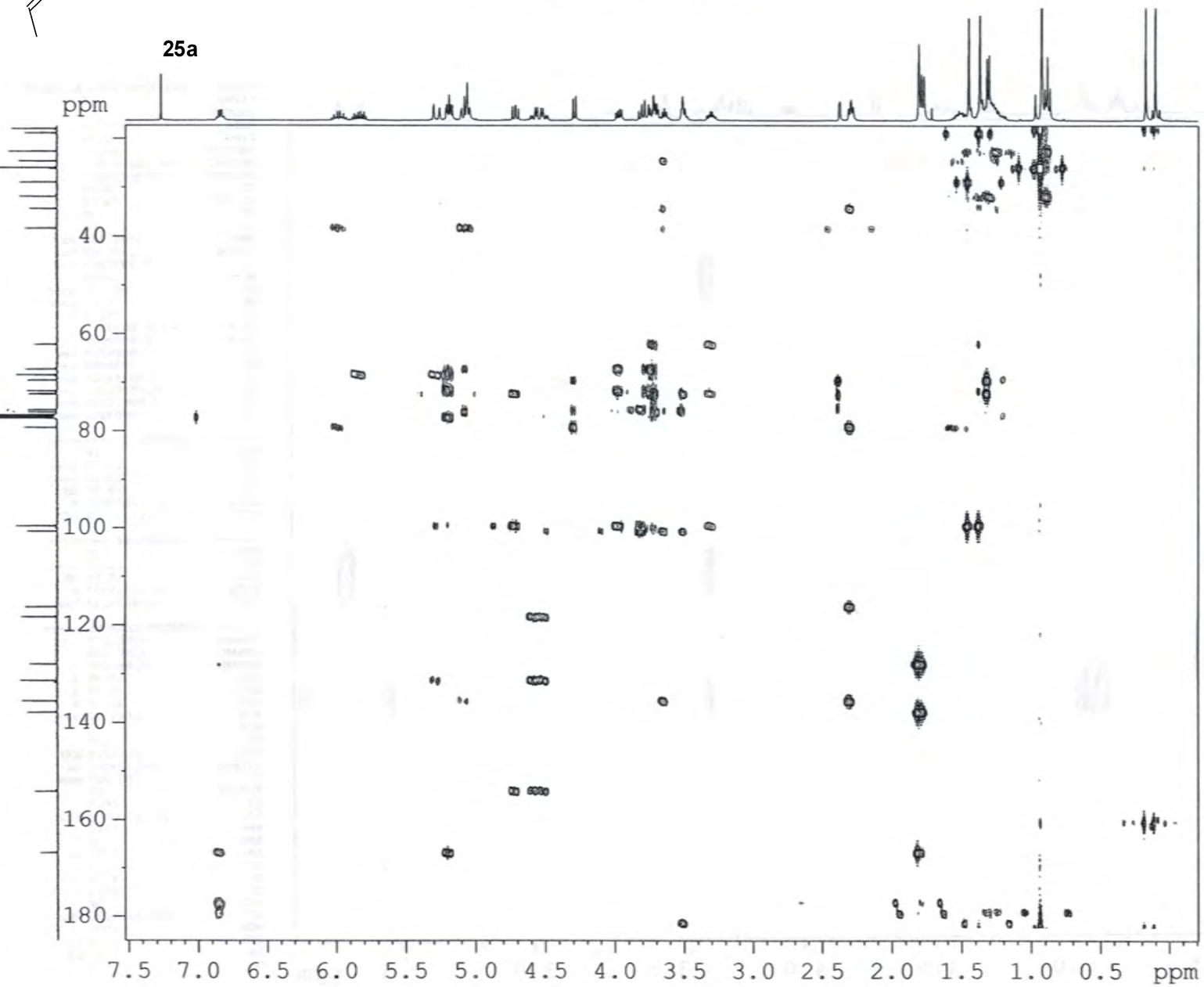
1

ppm



ZGH-*Ipom*-2-24-A-150108 HMBC in CDCL₃

25a

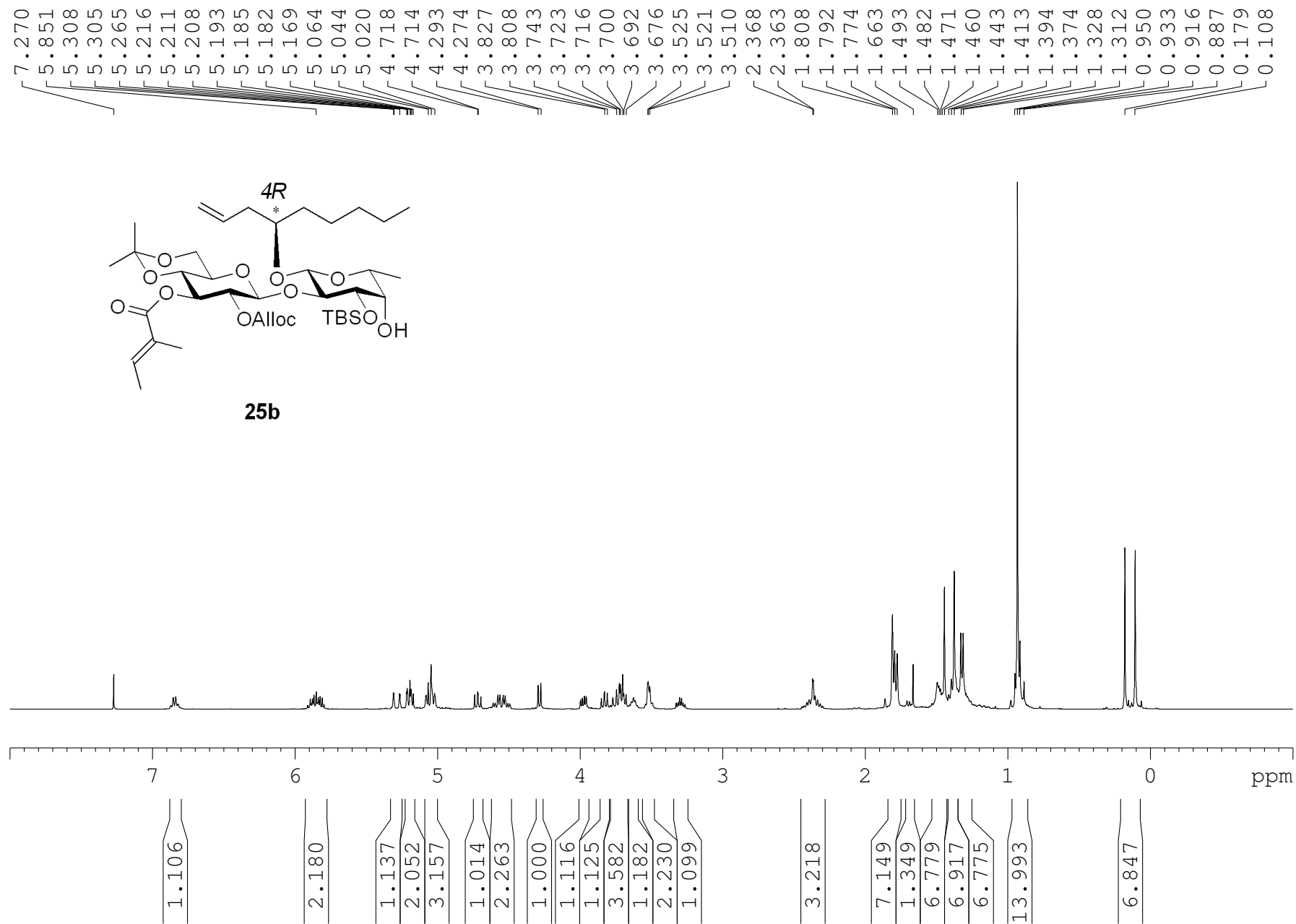


NAME ZGH-*Ipom*-2-24-A-150108
EXPNO 5
PROCNO 1
Date_ 20150109
Time_ 5.24
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG hmbcgp1pdqf
TD 4096
SOLVENT CDCl₃
NS 30
DS 16
SWH 5208.333 Hz
FIDRES 1.271566 Hz
AQ 0.3932660 sec
RG 2050
DW 96.000 usec
DE 6.50 usec
TE 292.4 K
CNST2 145.0000000
CNST13 10.0000000
D0 0.000003000 sec
D1 1.500000000 sec
D2 0.00344828 sec
D6 0.050000000 sec
D16 0.000200000 sec
IN0 0.00003010 sec

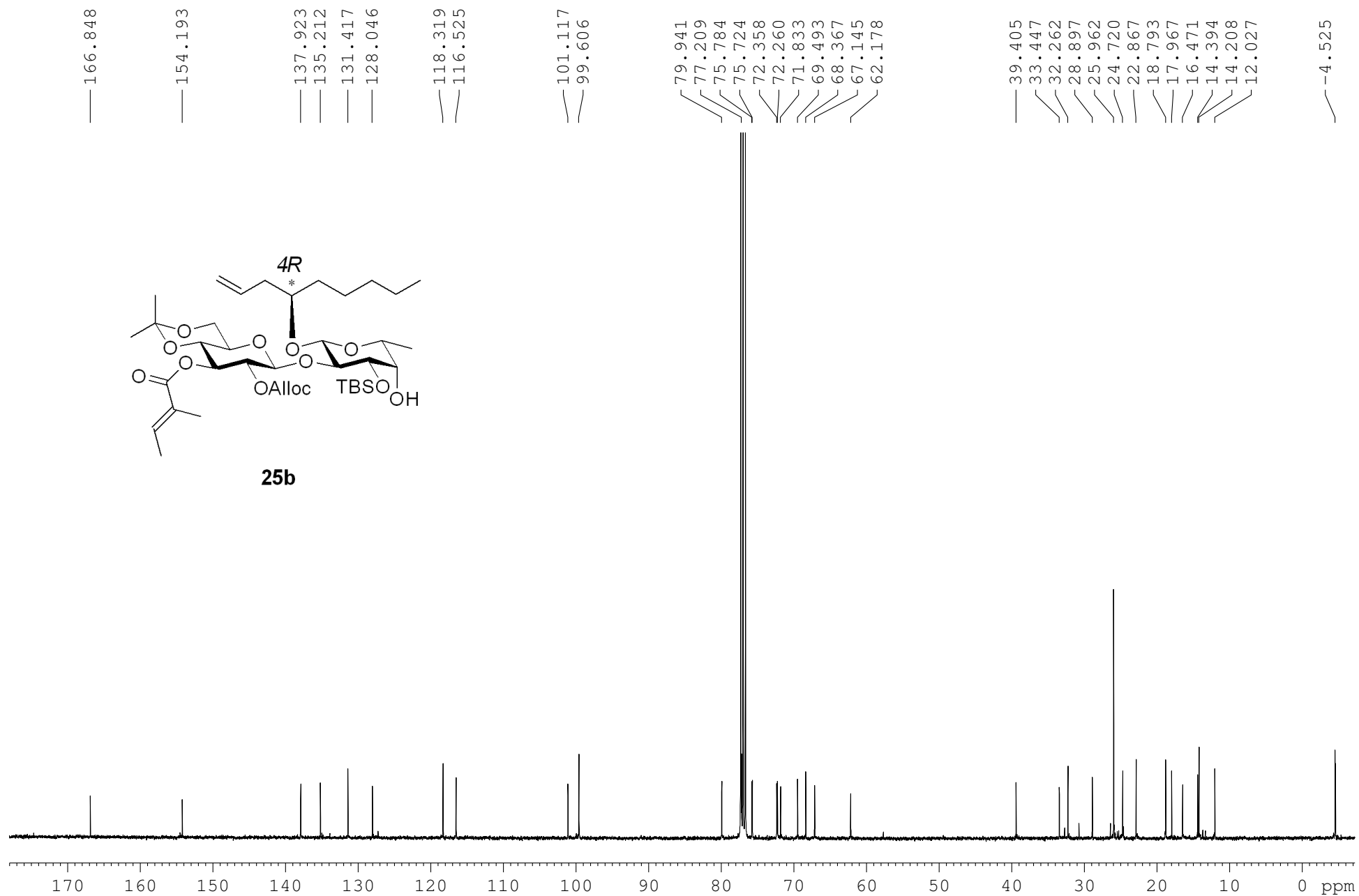
===== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
P2 20.00 usec
PL1 -3.50 dB
PL1W 31.17620277 W
SFO1 400.1325208 MHz

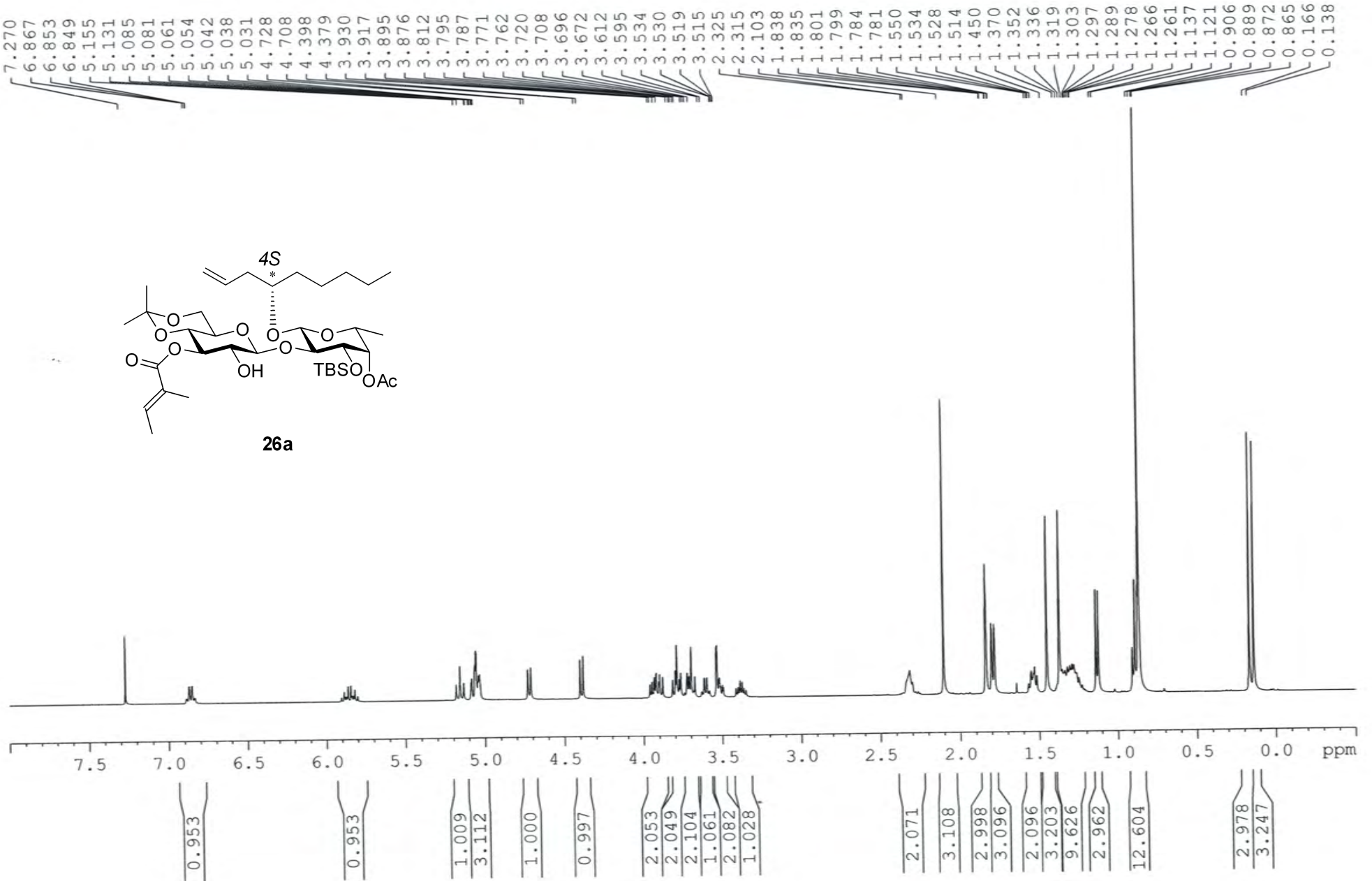
===== CHANNEL f2 =====
NUC2 13C
P3 10.00 usec
PL2 -2.10 dB
PL2W 58.37759399 W
SFO2 100.6228138 MHz

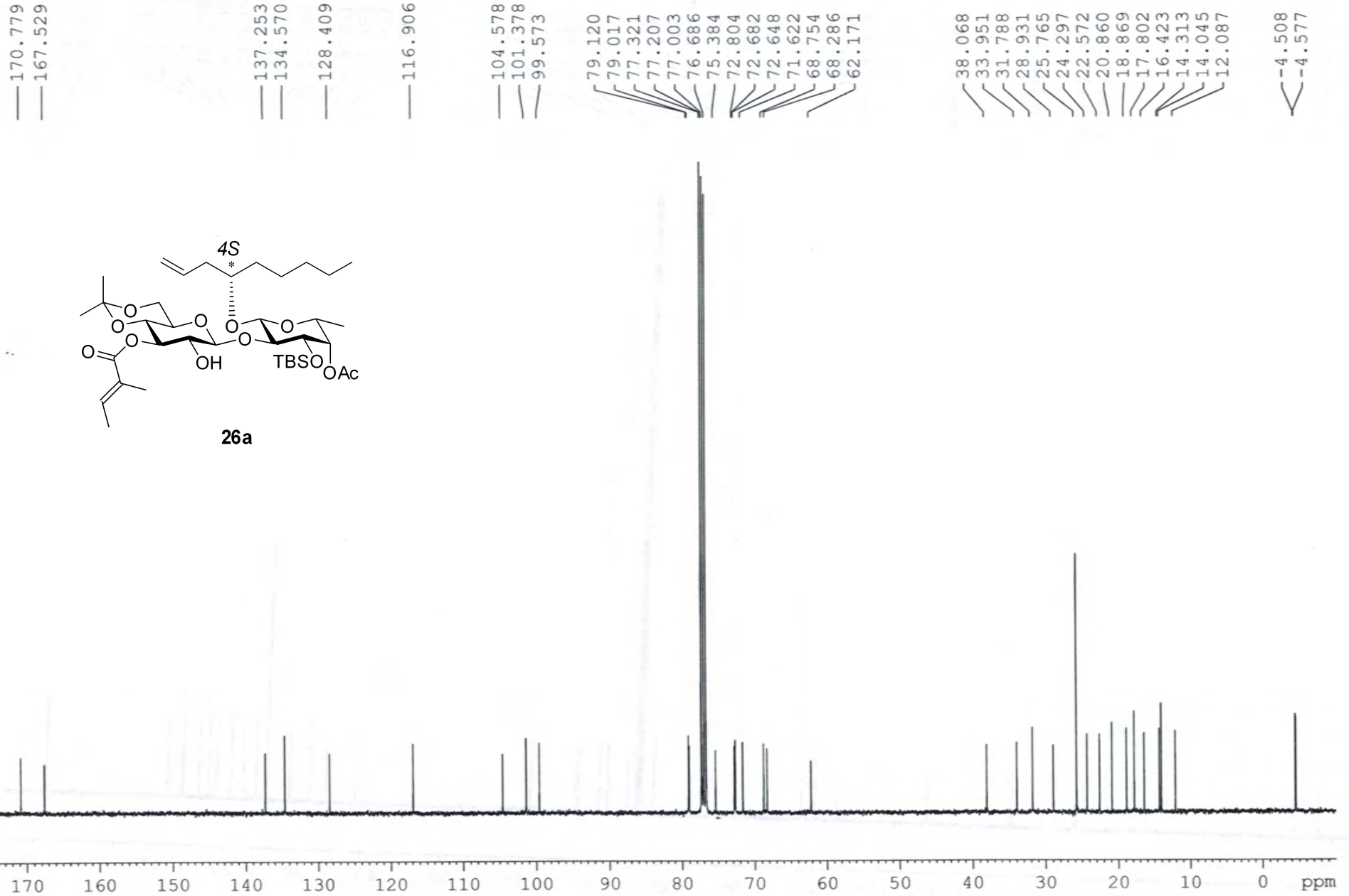
===== GRADIENT CHANNEL =====
GPNAM1 SINE.100
GPNAM2 SINE.100
GPNAM3 SINE.100
GPZ1 50.00 %
GPZ2 30.00 %
GPZ3 40.10 %
P16 1000.00 usec
ND0 2
TD 128
SFO1 100.6228 MHz
FIDRES 129.709091 Hz
SW 165.000 ppm
FnMODE QF
SI 2048
SF 400.1300000 MHz
WDW SINE
SSB 0
LB 0.00 Hz
GB 0
PC 4.00
SI 1024
MC2 QF
SF 100.6127690 MHz
WDW SINE
SSB 0
LB 0.00 Hz
GB 0

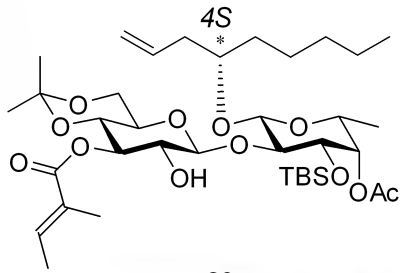
EDB-Ipom-1-111-A-150605 in CDCL₃

EDB-Ipom-1-111-A-150605 13C in CDCl3



ZGH-*Ipom*-1-169-A 1H in CDCl₃

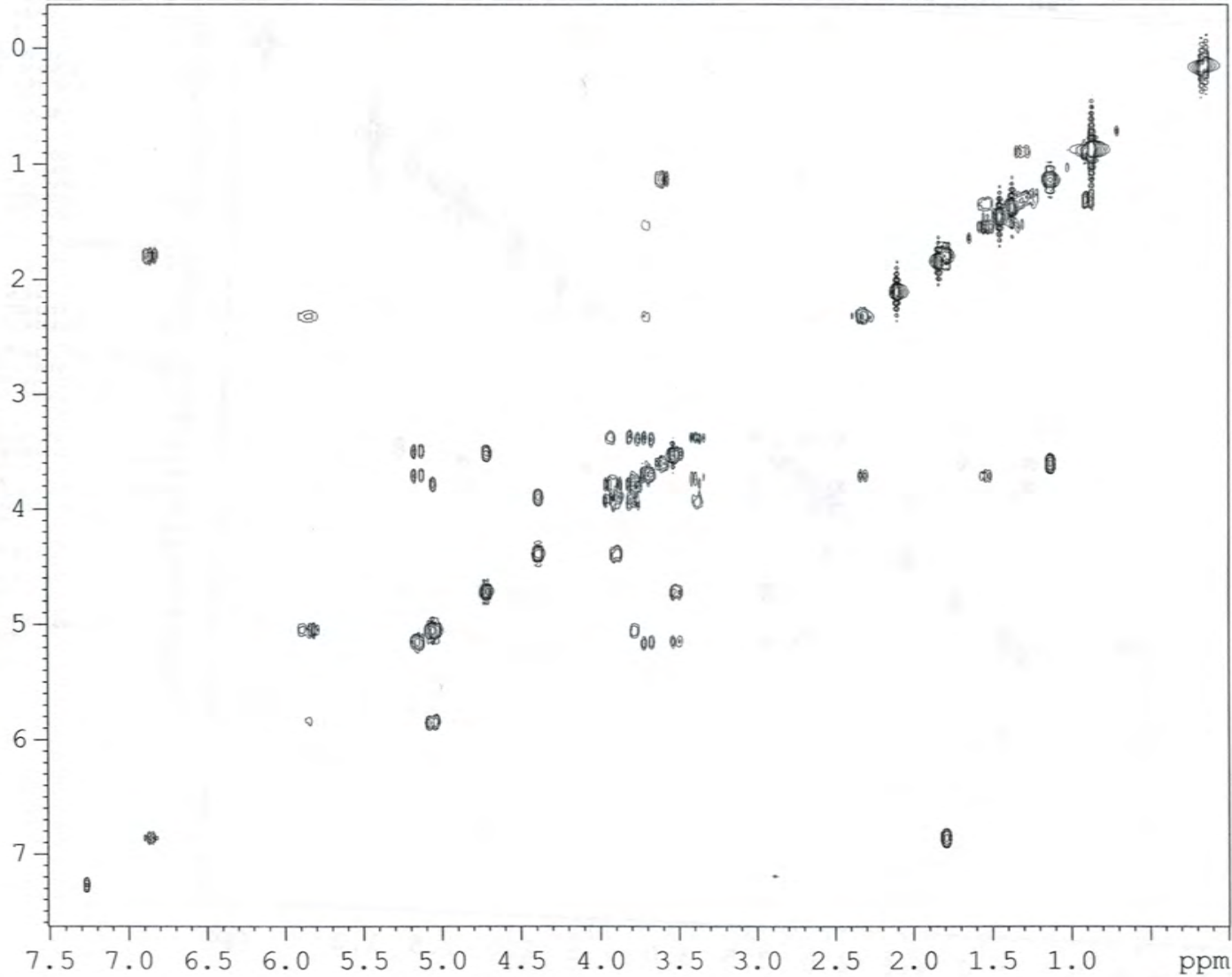
ZGH-*Ipom-1-169-A* 13C in CDCl₃



ZGH-Ipom-1-169-A-150130 COSY

26a

ppm

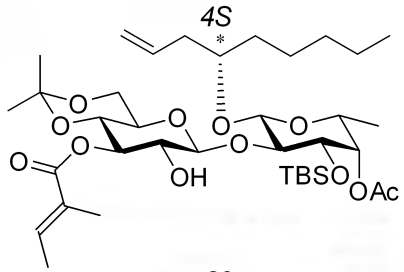


NAME ZGH-Ipom-1-169-A
 EXPNO 2
 PROCNO 1
 Date_ 20150131
 Time 11.58
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT CDCl3
 NS 4
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 80.6
 DW 93.600 usec
 DE 6.50 usec
 TE 292.8 K
 DO 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

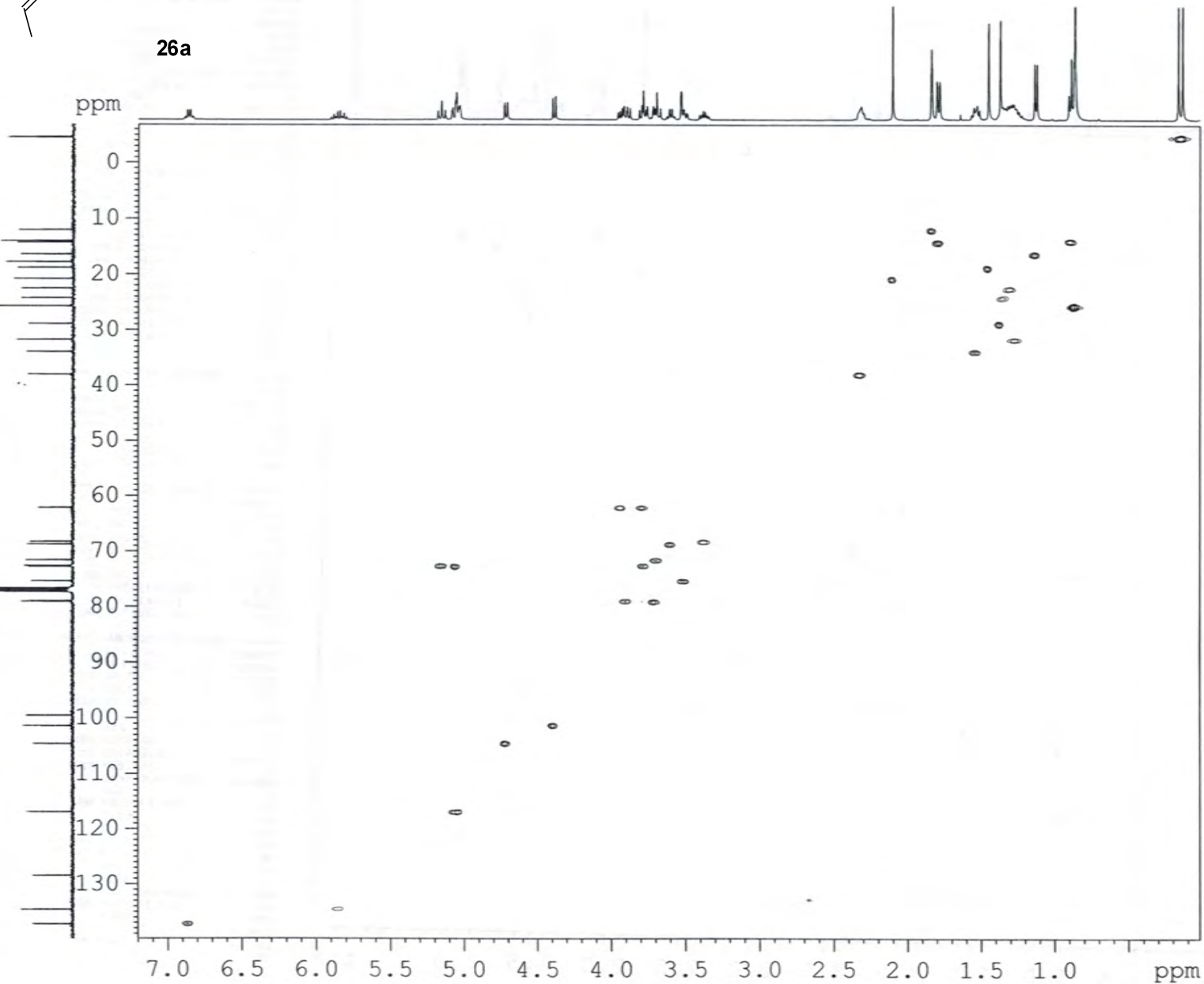
===== CHANNEL f1 =====
 NUC1 1H
 PO 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ZGH-Ipom-1-169-A-150130 HSQC



26a



```

NAME      ZGH-Ipom-1-169-A
EXPNO     4
PROCNO    1
Date_     20150131
Time      13.10
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   hsqcetgpsi
TD         1024
SOLVENT   CDCl3
NS         4
DS         16
SWH       5341.880 Hz
FIDRES    5.216680 Hz
AQ         0.0958964 sec
RG         2050
DW         93.600 usec
DE         6.50 usec
TE         293.4 K
CNST2     145.0000000
D0         0.00000300 sec
D1         1.50000000 sec
D4         0.00172414 sec
D11        0.03000000 sec
D13        0.00000400 sec
D16        0.00020000 sec
D24        0.00110000 sec
INO        0.00003000 sec
ZGPTNS

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.00 usec
P2        20.00 usec
P28       1000.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

```

```

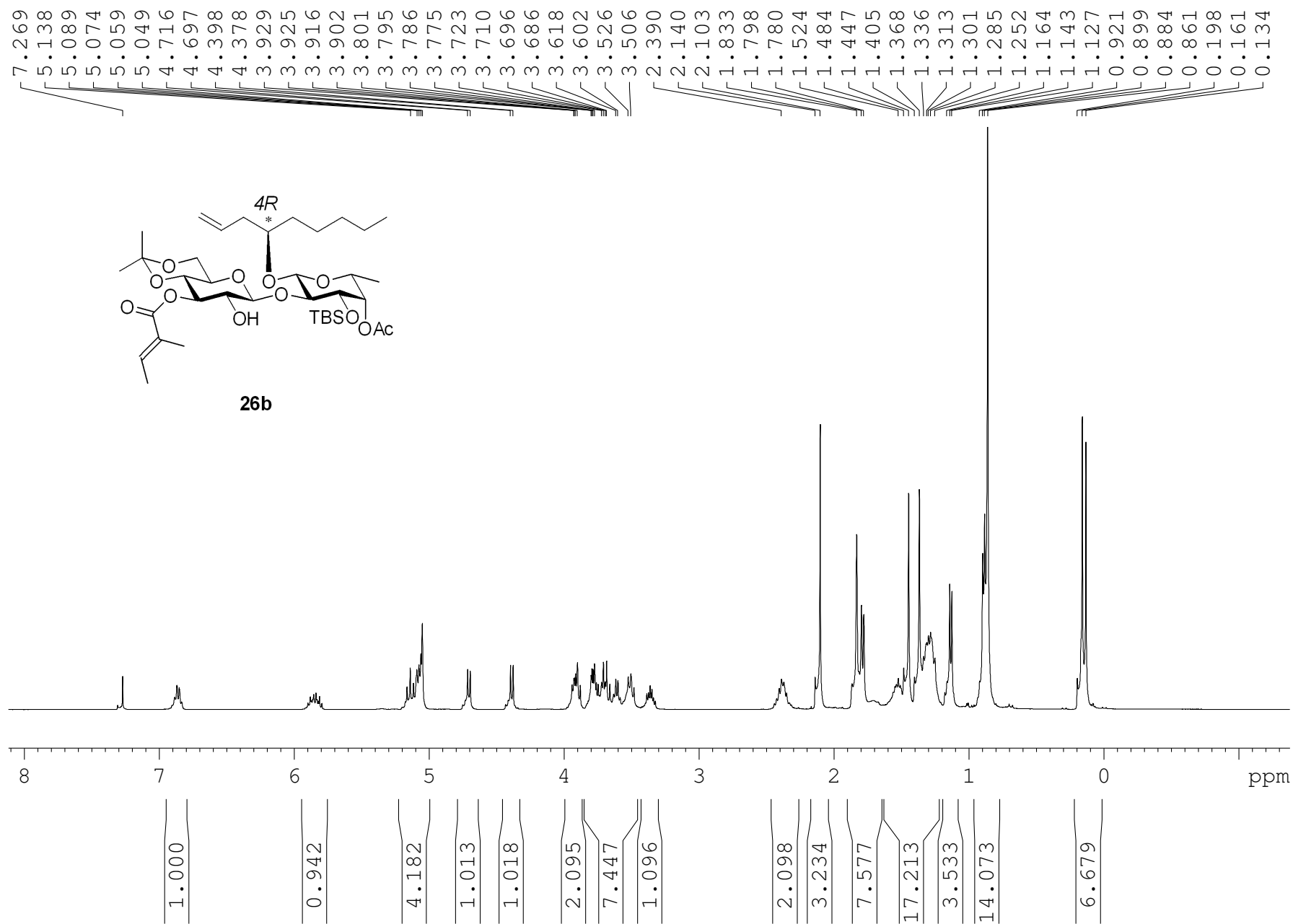
===== CHANNEL f2 =====
CPDPRG2   garp
NUC2      13C
P3        10.00 usec
P4        20.00 usec
PCPD2     75.00 usec
PL2       -2.10 dB
PL12      15.40 dB
PL2W      58.37759399 W
PL12W     1.03811681 W
SFO2      100.6202727 MHz

```

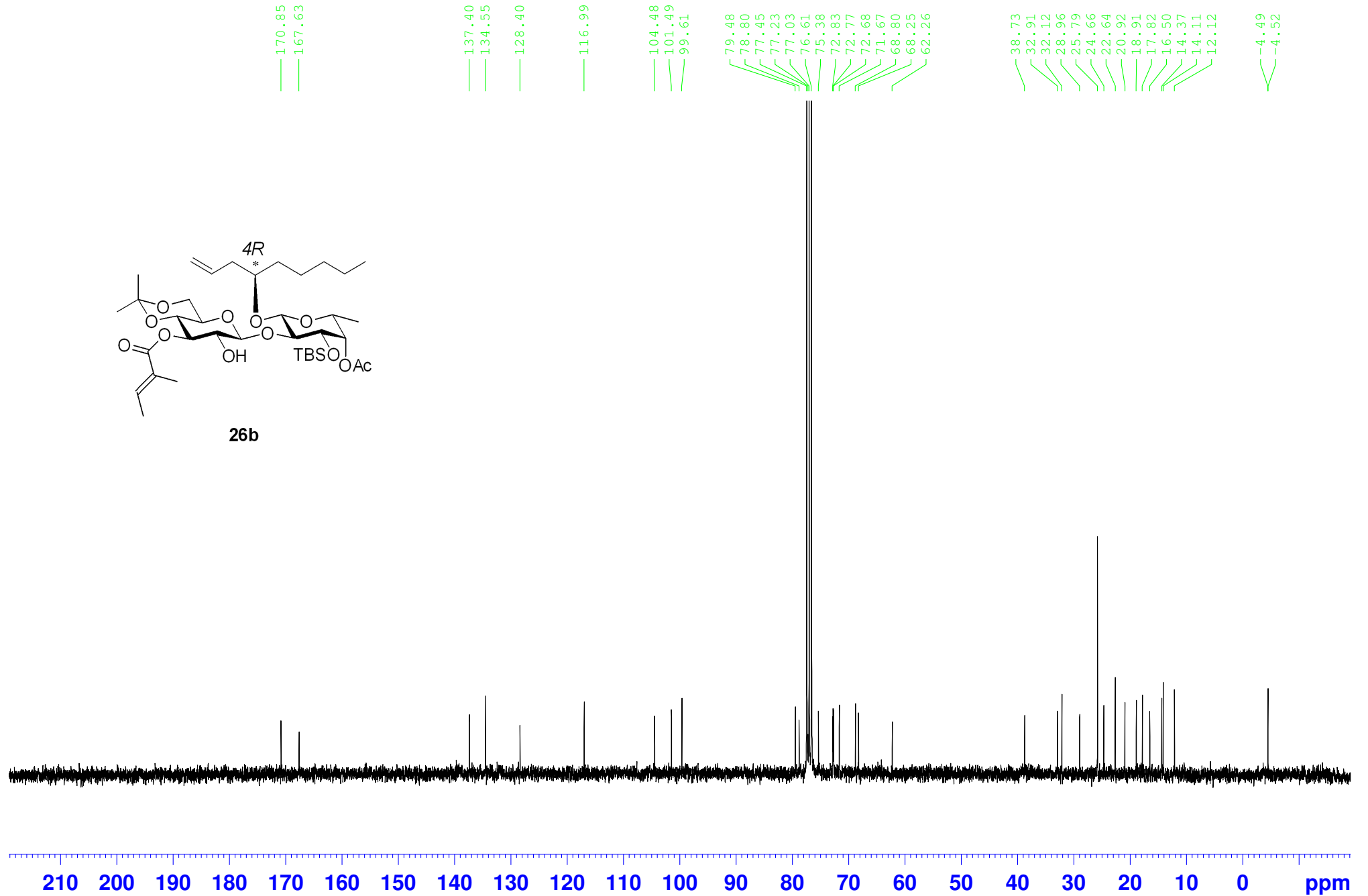
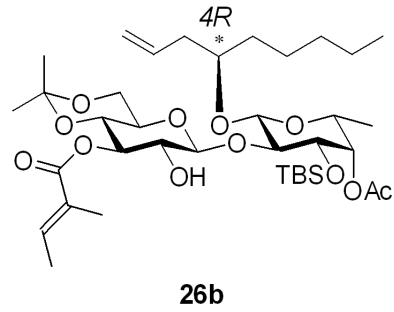
```

===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPNAM2    SINE.100
GPZ1      80.00 %
GPZ2      20.10 %
P16       1000.00 usec
ND0       2
TD         256
SFO1      100.6203 MHz
FIDRES    65.104164 Hz
SW         165.639 ppm
FnMODE    Echo-Antiecho
SI         1024
SF         400.1300000 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2       echo-antiecho
SF         100.6127690 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

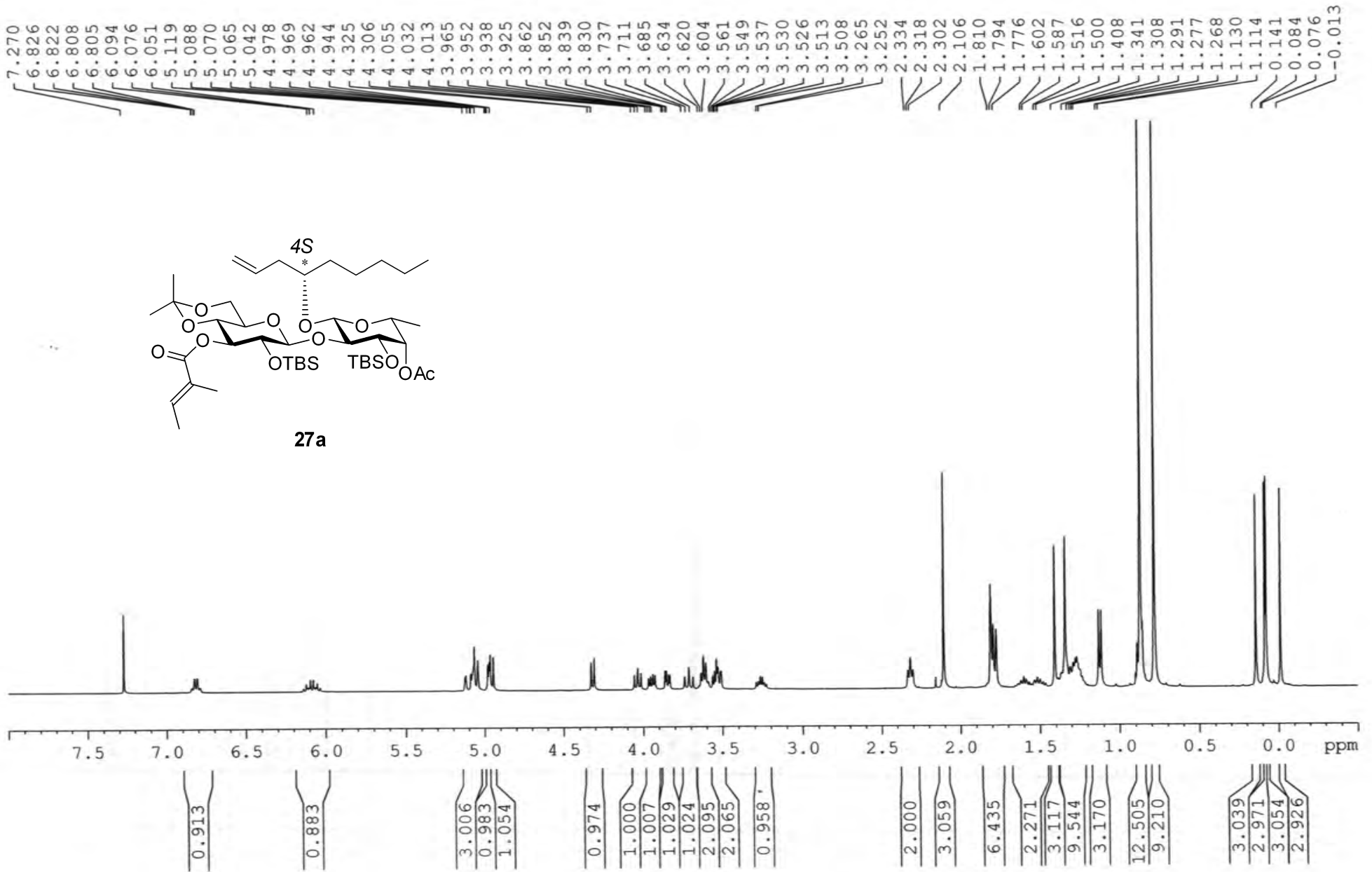
```

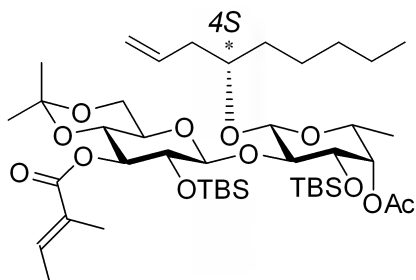
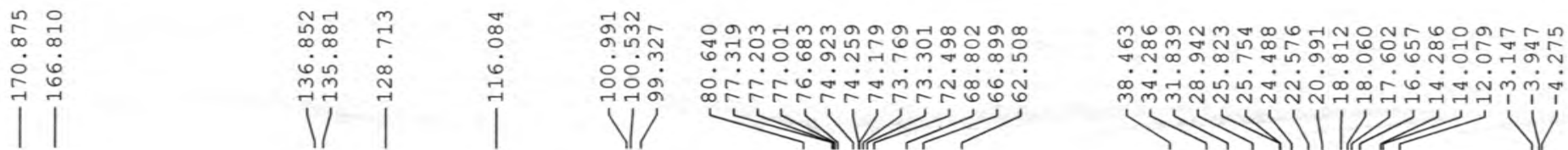

EDB-Ipom-1-28-A-recovered in CDCL₃

EDB-Ipom-1-28-A-140722 13C in CDCl3 300 MHz

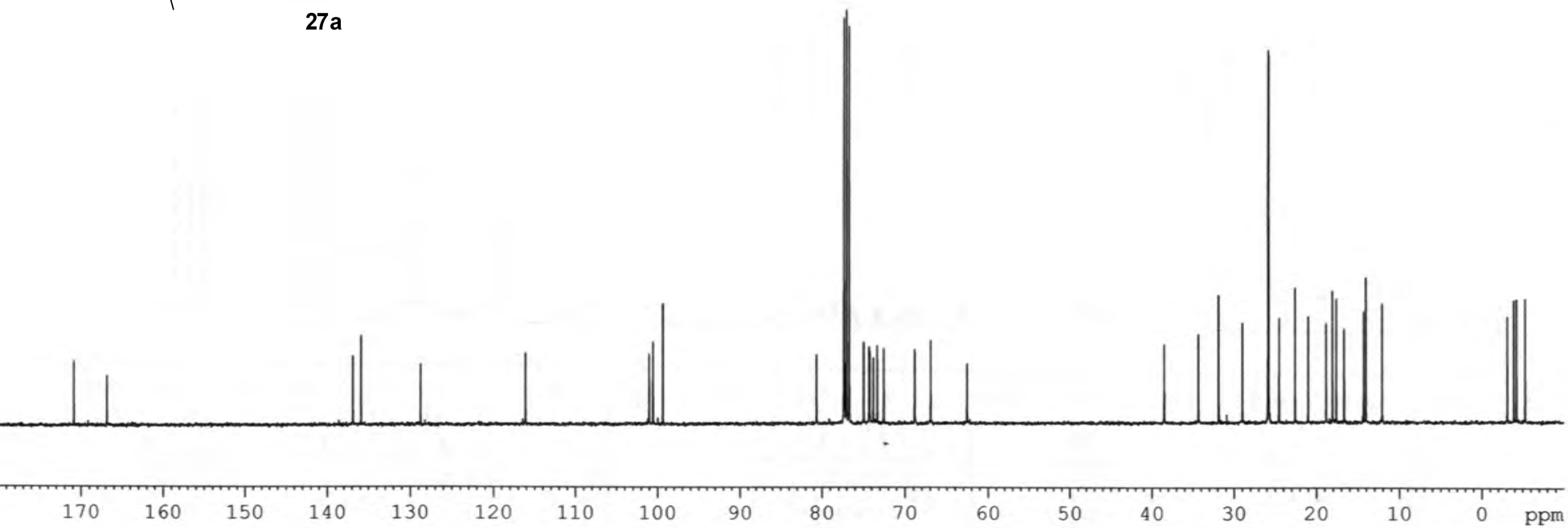


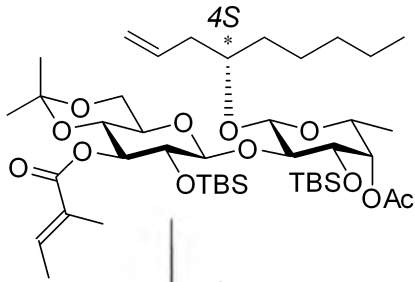
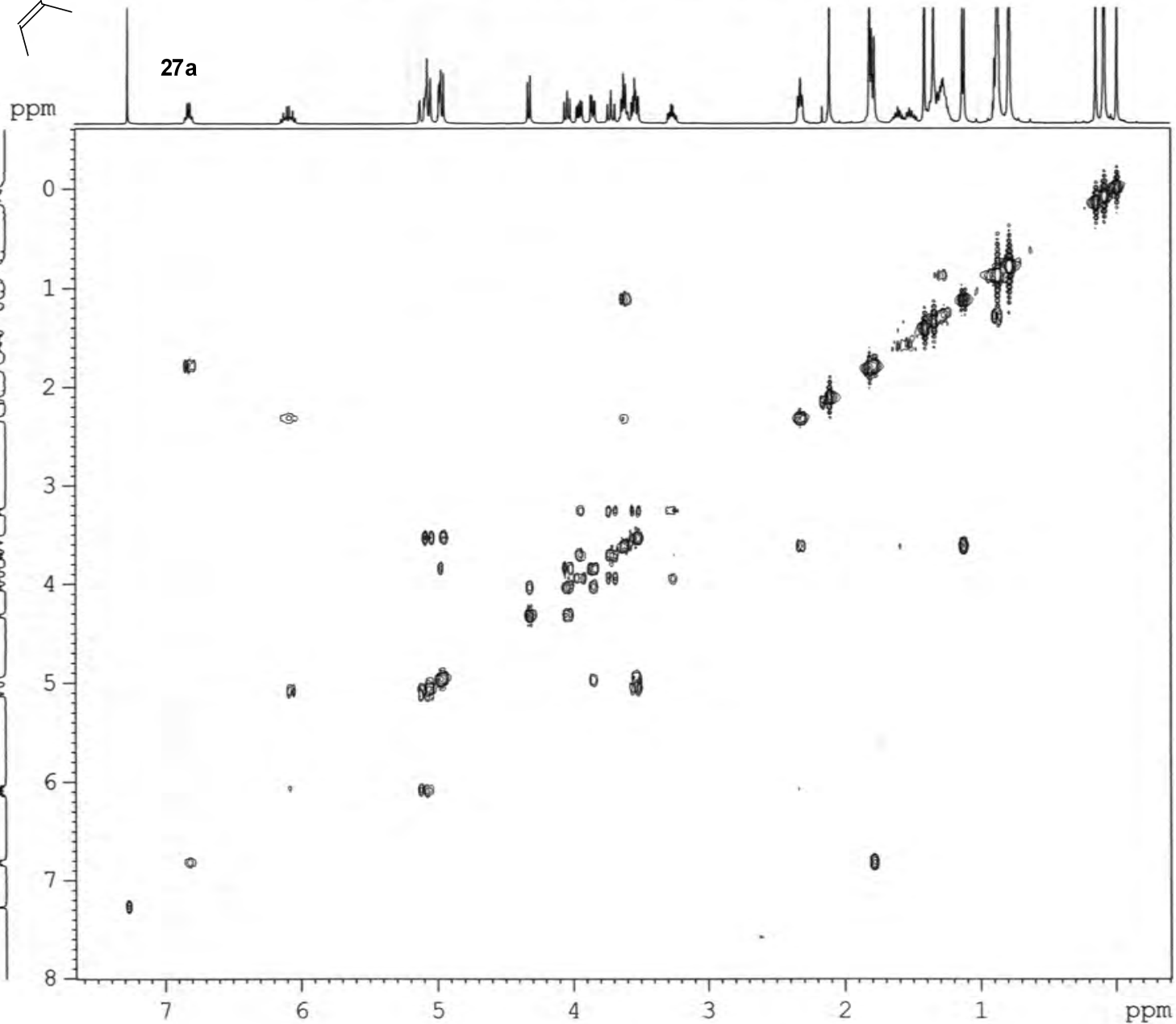
ZGH-Ipom-1-170-A-140226 1H in CDCl3



ZGH-*Ipom*-1-170-A-140226

27a



ZGH-*Ipom*-1-170-A-140226 COSY

```

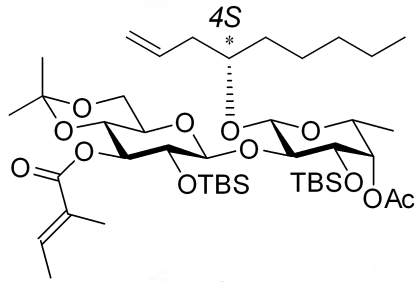
NAME      ZGH-Ipom-1-170-A-140226
EXPNO     3
PROCNO    1
Date_     20140302
Time      22.32
INSTRUM   spect
PROBHD    5 mm PABBO BB-
FULPROG   cosygpgf
TD         2048
SOLVENT   CDC13
NS         2
DS         8
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         28.5
DW         93.600 usec
DE         6.50 usec
TE         292.8 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec
  
```

```

===== CHANNEL f1 =====
NUC1      1H
P0        10.00 usec
P1        10.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz
  
```

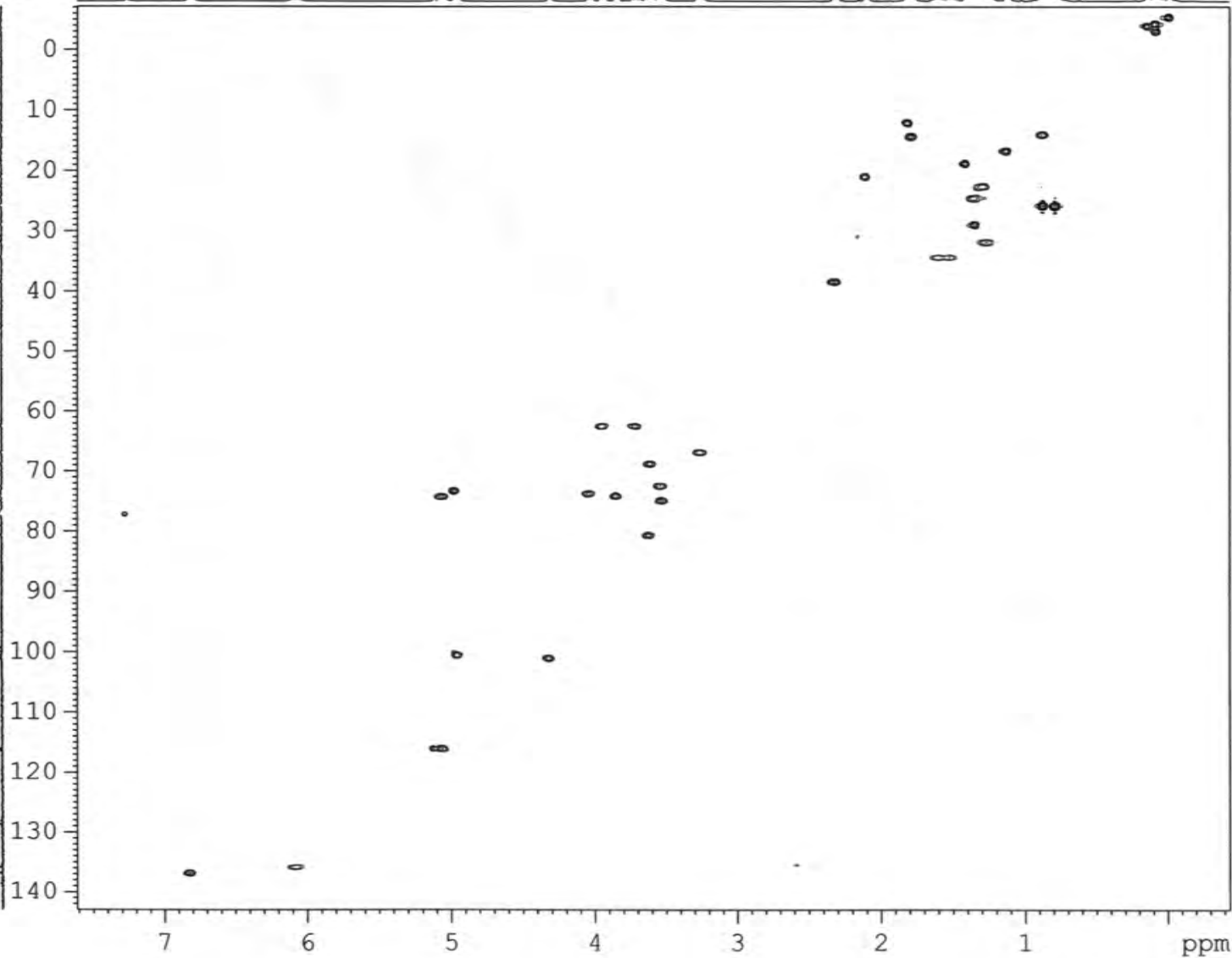
```

===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1      10.00 %
P16       1000.00 usec
ND0        1
TD         128
SFO1      400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FrMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB        0
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB        0
LB         0.00 Hz
GB         0
  
```

ZGH-*Ipom*-1-170-A-140226 HSQC

27a

ppm

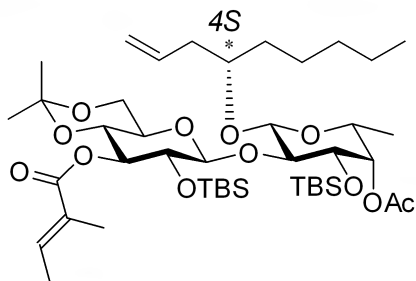


NAME ZGH-*Ipom*-1-170-A-140226
 EXPNO 4
 PROCNO 1
 Date_ 20140302
 Time 22.40
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 FULPROG hsqcetgps1
 TD 1024
 SOLVENT CDCl3
 NS 6
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.3 K
 CNST2 145.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 INO 0.00003000 sec
 ZGPTNS

===== CHANNEL f1 =====
 NUC1 ^1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== CHANNEL f2 =====
 CPDPRG2 garp
 NUC2 ^{13}C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

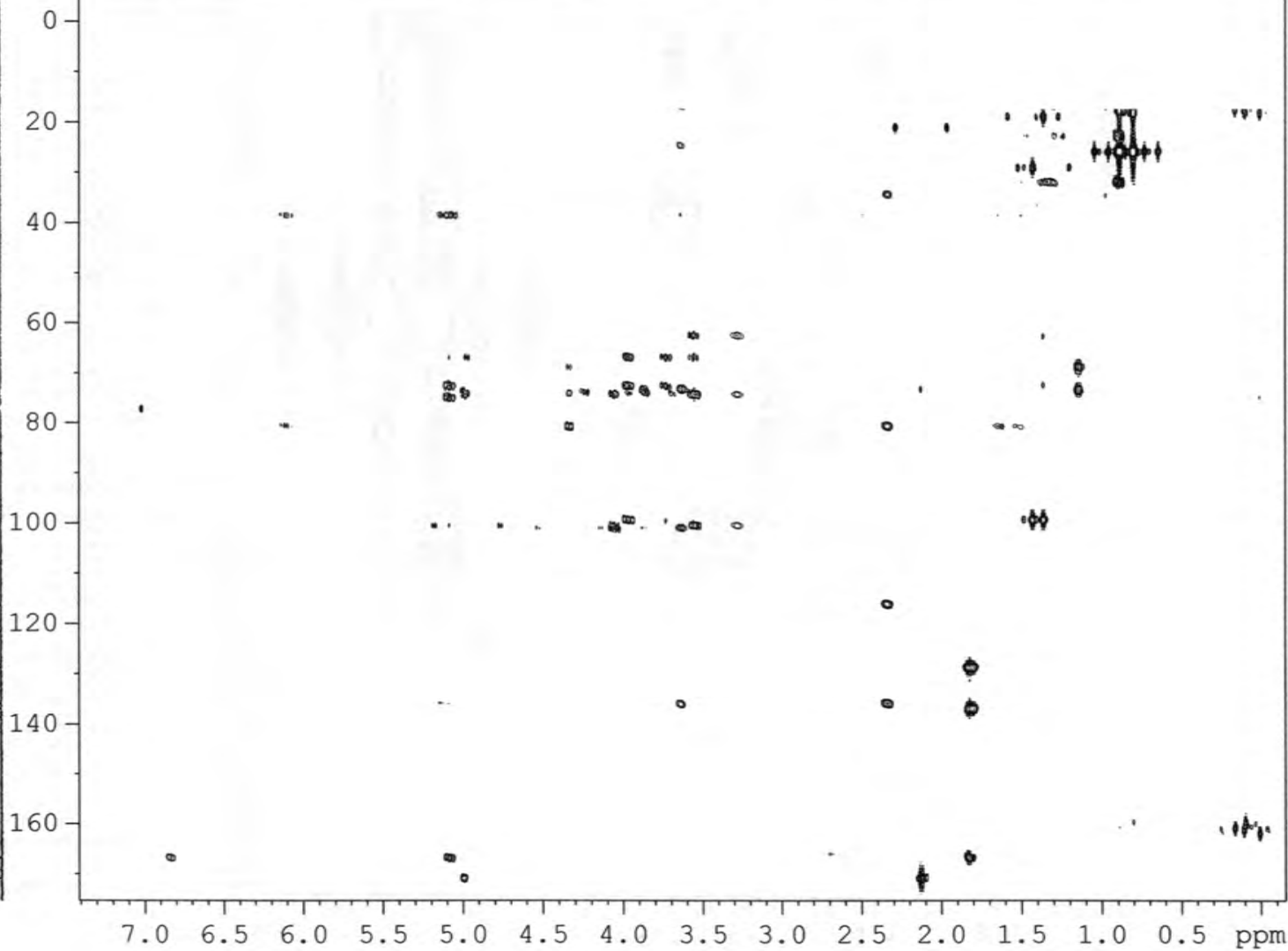
===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 FMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0



ZGH-Ipom-1-170-A-140226 HMBC in CDCL₃

27a

ppm

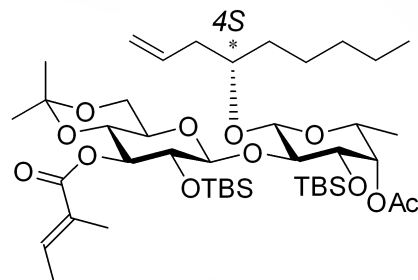


NAME ZGH-Ipom-1-170-A-140226
 EXPNO 5
 PROCNO 1
 Date_ 20150314
 Time_ 0.23
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcgp1pndgf
 TD 4096
 SOLVENT CDCl₃
 NS 90
 DS 16
 SWH 5208.333 Hz
 FIDRES 1.271566 Hz
 AQ 0.3932660 sec
 RG 2050
 DW 96.000 usec
 DE 6.50 usec
 TE 292.3 K
 CNST2 145.0000000
 CNST13 10.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D2 0.00344828 sec
 D6 0.05000000 sec
 D16 0.00020000 sec
 IN0 0.00003010 sec

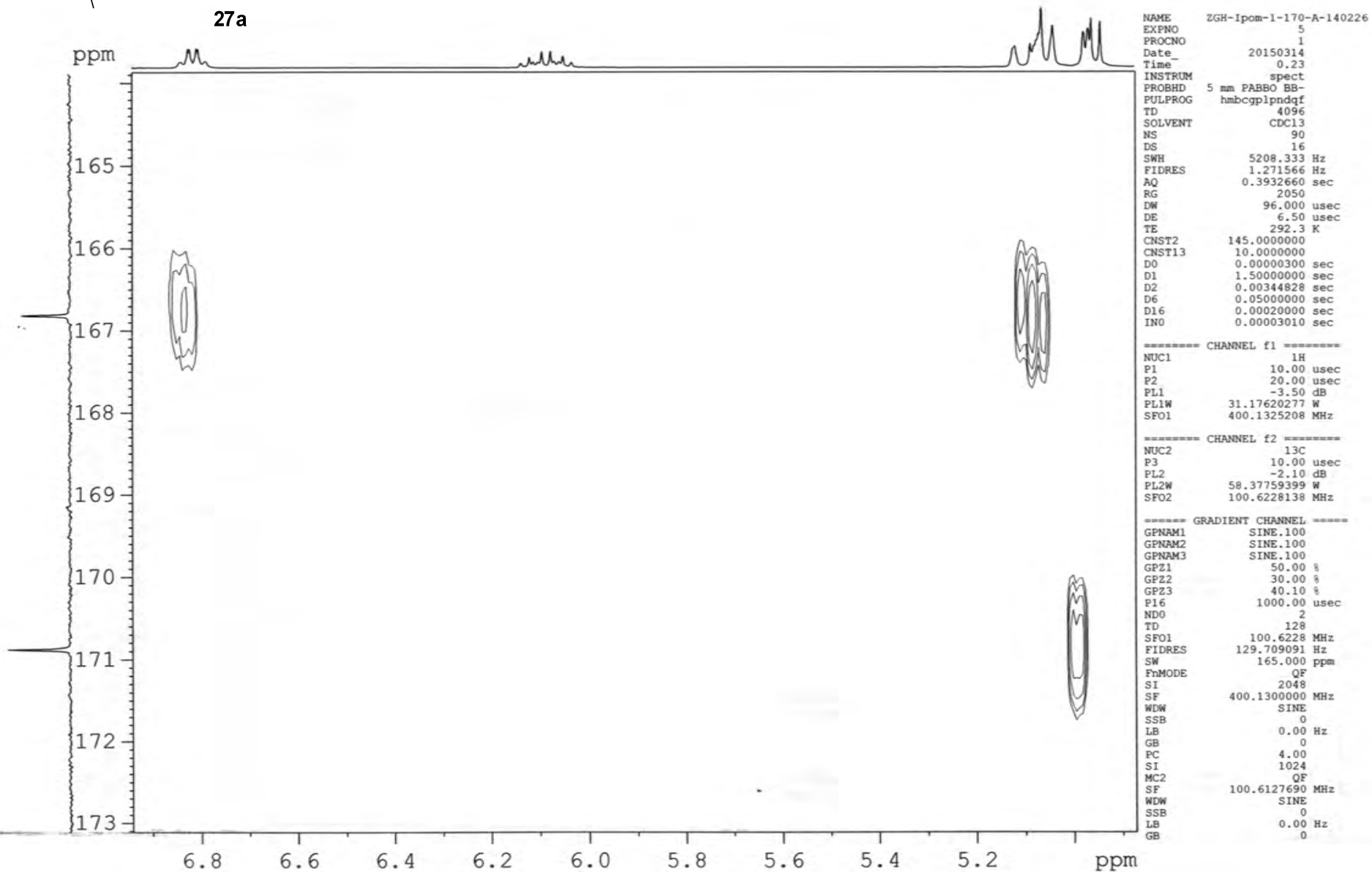
----- CHANNEL f1 -----
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1325208 MHz

----- CHANNEL f2 -----
 NUC2 13C
 P3 10.00 usec
 PL2 -2.10 dB
 PL2W 58.37759399 W
 SFO2 100.6228138 MHz

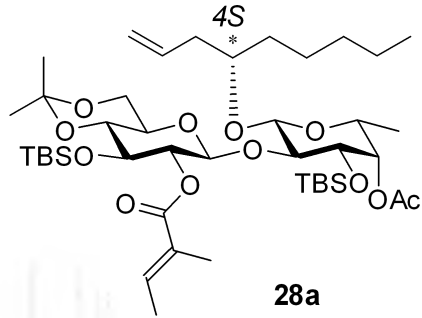
----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPNAM3 SINE.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 128
 SFO1 100.6228 MHz
 FIDRES 129.709091 Hz
 SW 165.000 ppm
 FmMODE QF
 SI 2048
 SF 400.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 4.00
 SI 1024
 MC2 QF
 SF 100.6127690 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



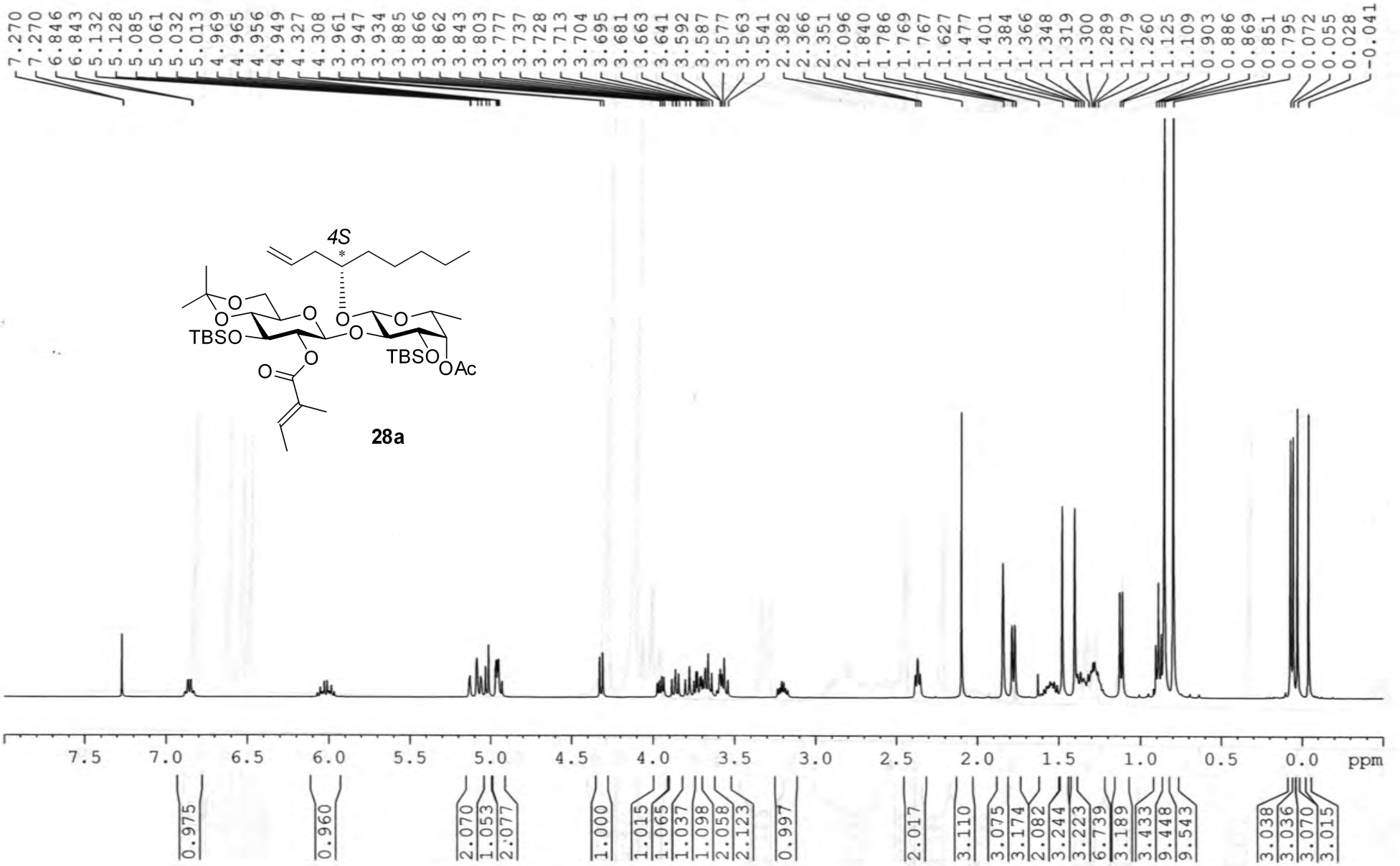
27a

ZGH-*Ipom*-1-170-A-140226 HMBC in CDCl₃

ZGH-Ipom-1-170-B-140119 1H in CDCl3



28a



ZGH-*Ipom*-1-170-B-140117 ¹³C in CDCl₃

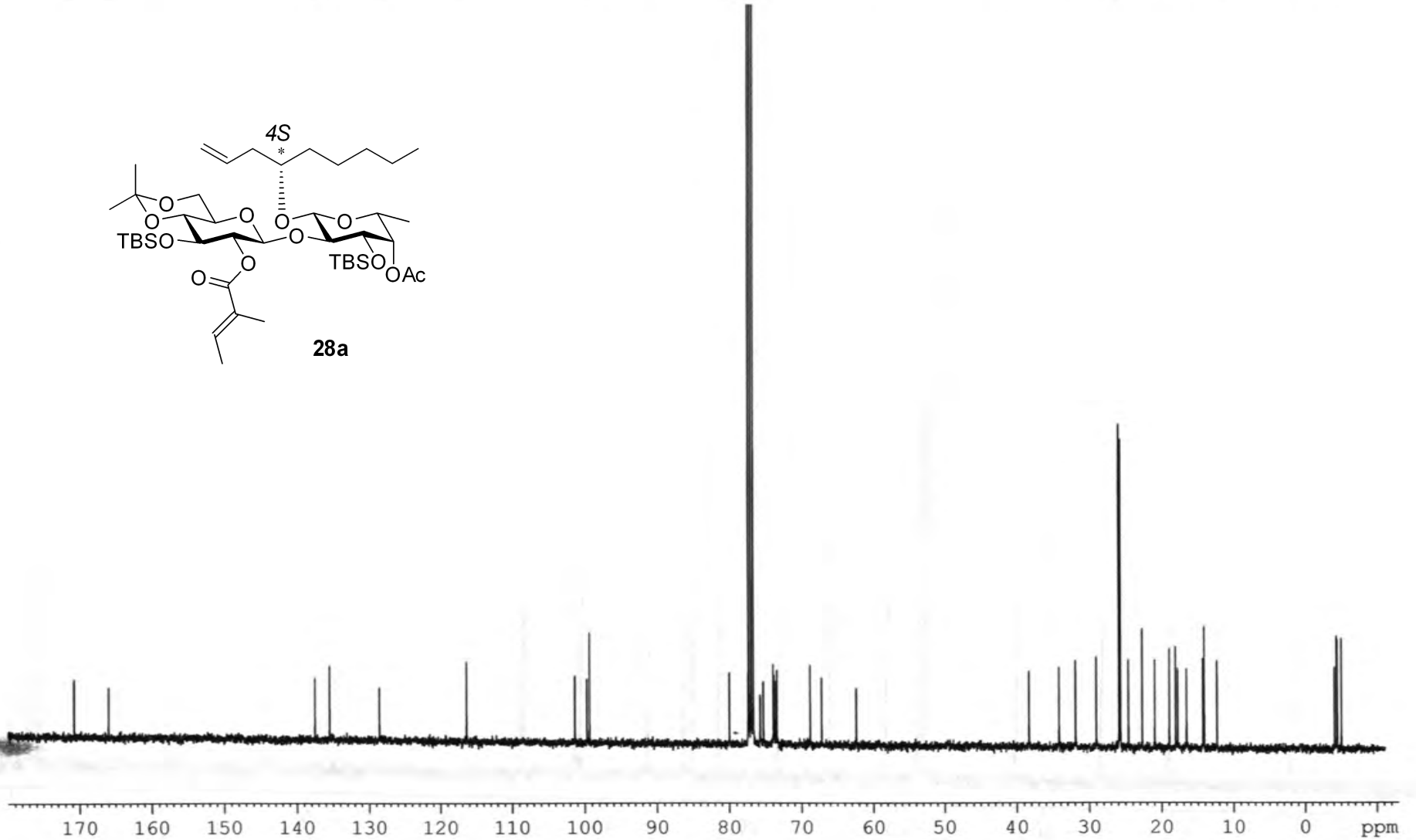
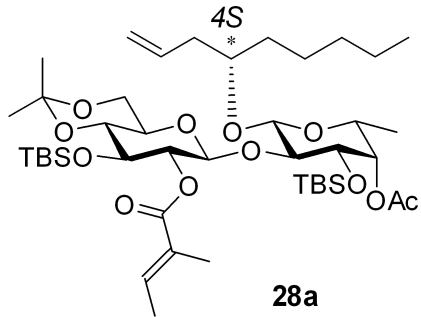
— 170.777
— 165.985

— 137.514
— 135.486
— 128.567

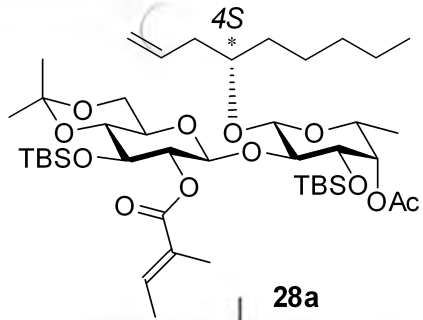
— 116.387

— 101.339
— 99.683
— 99.326
— 79.965
— 77.317
— 77.203
— 76.999
— 76.681
— 75.704
— 75.275
— 73.924
— 73.826
— 73.618
— 73.433
— 68.797
— 67.191
— 62.386

— 38.277
— 34.181
— 31.870
— 28.961
— 25.833
— 25.633
— 24.547
— 22.627
— 20.905
— 18.905
— 18.042
— 17.754
— 16.532
— 14.224
— 14.046
— 12.249
— 4.176
— 4.464
— 4.568
— 5.111



ZGH-Ipom-1-170-B-140119 COSY

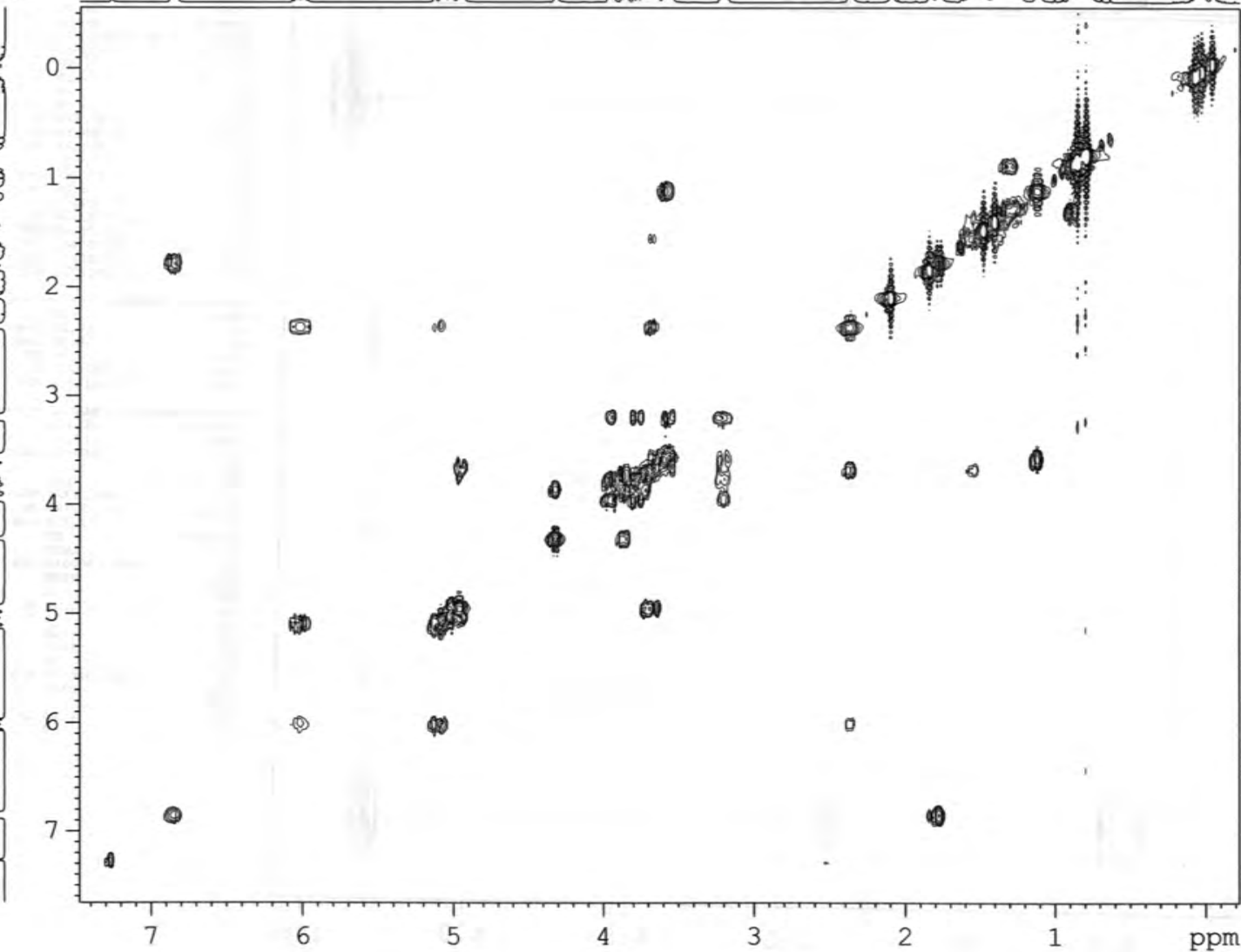


NAME ZGH-Ipom-1-170-B-140119
 EXPNO 2
 PROCNO 1
 Date 20141204
 Time 22.38
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygppqf
 TD 2048
 SOLVENT CDCl3
 NS 8
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 101
 DW 93.600 usec
 DE 6.50 usec
 TE 292.6 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

----- CHANNEL f1 -----
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----
 GPNAM1 SINE.100
 GPZ1 10.00 usec
 P16 1000.00 usec
 NDO 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ppm



ppm

ZGH-*Ipom*-1-170-B-140117 HSQC

```

NAME      ZGH-Ipom-1-170-B-140117
EXPNO     4
PROCNO    1
Date_     20140120
Time      23.18
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   hsqcetgps1
TD         1024
SOLVENT   CDC13
NS         4
DS         16
SWH        5341.880 Hz
FIDRES     5.216680 Hz
AQ         0.0958964 sec
RG         2050
DW         93.600 usec
DE         6.50
TE         292.5 K
CNST2     145.0000000
D0         0.00000300 sec
D1         1.50000000 sec
D4         0.00172414 sec
D11        0.030000000 sec
D13        0.00000400 sec
D16        0.00020000 sec
D24        0.00110000 sec
INO        0.00003000 sec
ZGPTNS

```

```

===== CHANNEL f1 =====
NUC1      1H
P1        10.00 usec
P2        20.00 usec
P28       1000.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

```

```

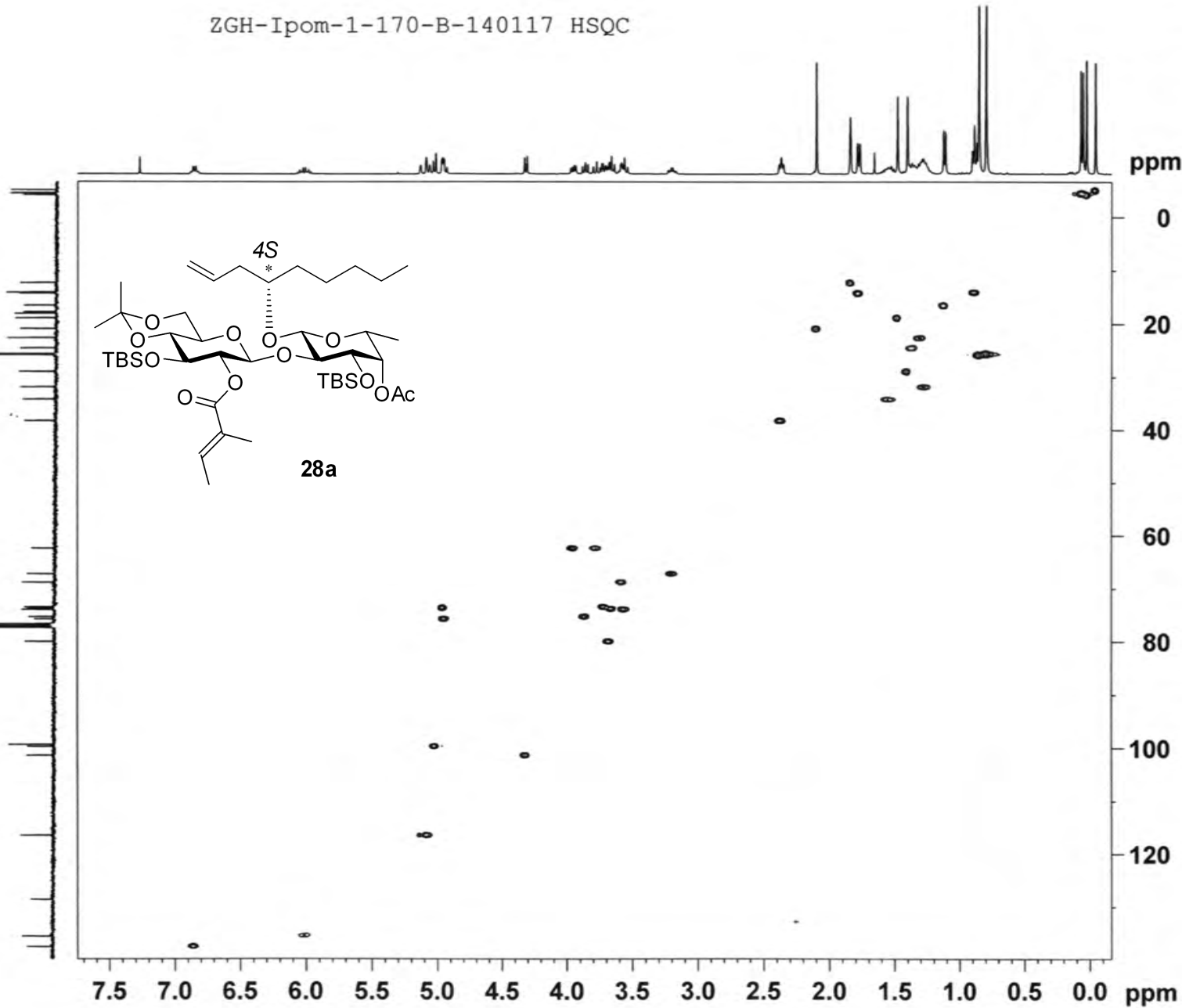
===== CHANNEL f2 =====
CPDPRG2   garp
NUC2      13C
P3        10.00 usec
P4        20.00 usec
PCPD2     75.00 usec
PL2       -2.10 dB
PL12      15.40 dB
PL2W      58.37759399 W
PL12W     1.03811681 W
SFO2      100.6202727 MHz

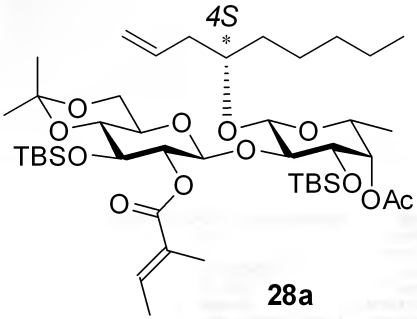
```

```

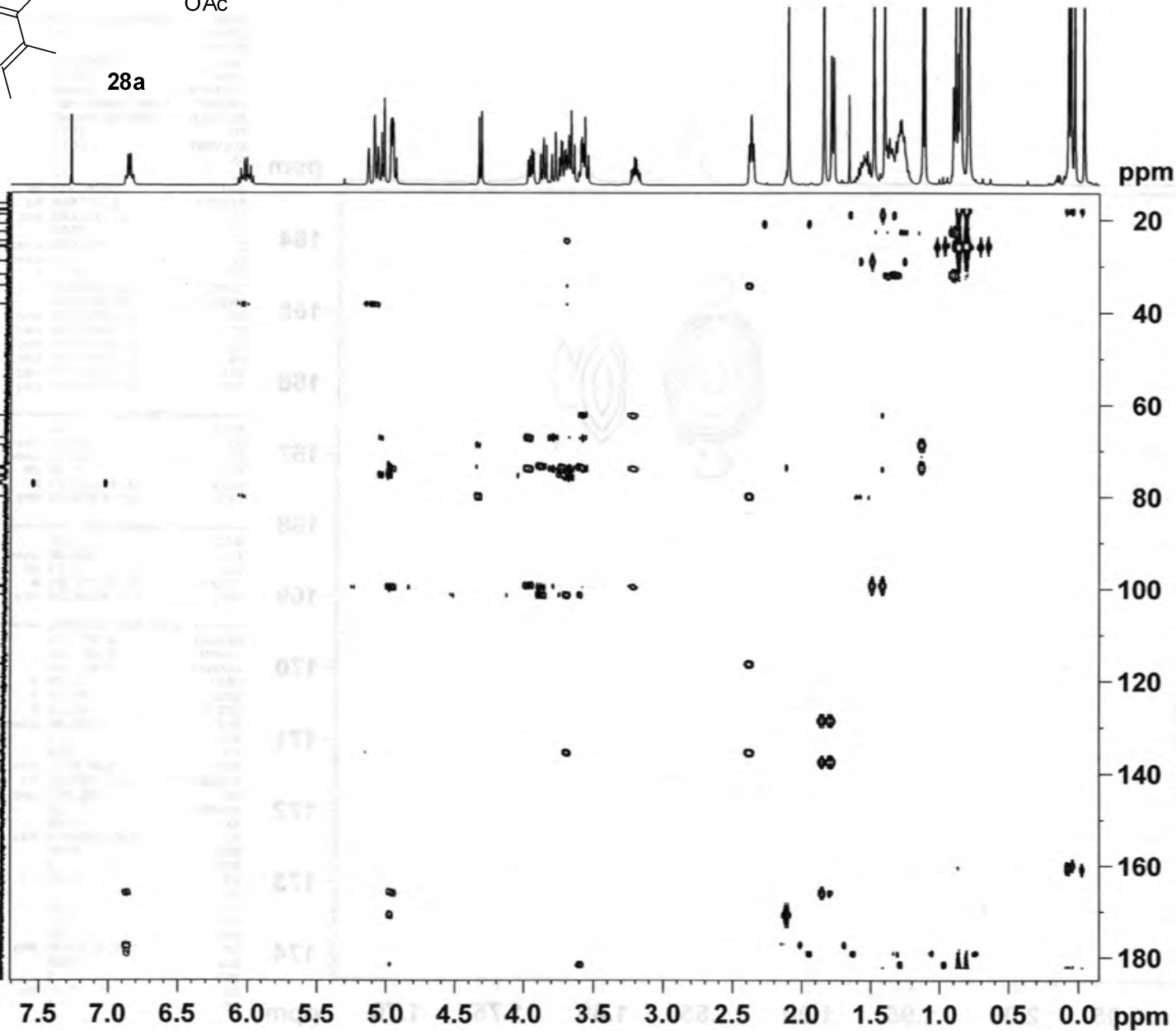
===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPNAM2    SINE.100
GPZ1      80.00 %
GPZ2      20.10 %
P16       1000.00 usec
ND0       2
TD         256
SFO1      100.6203 MHz
FIDRES     65.104164 Hz
SW         165.639 ppm
FnMODE    Echo-Antiecho
SI         1024
SF         400.1300000 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2       echo-antiecho
SF         100.6127690 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

```





ZGH-*Ipom*-1-170-B-140119 HMBC in CDCl₃



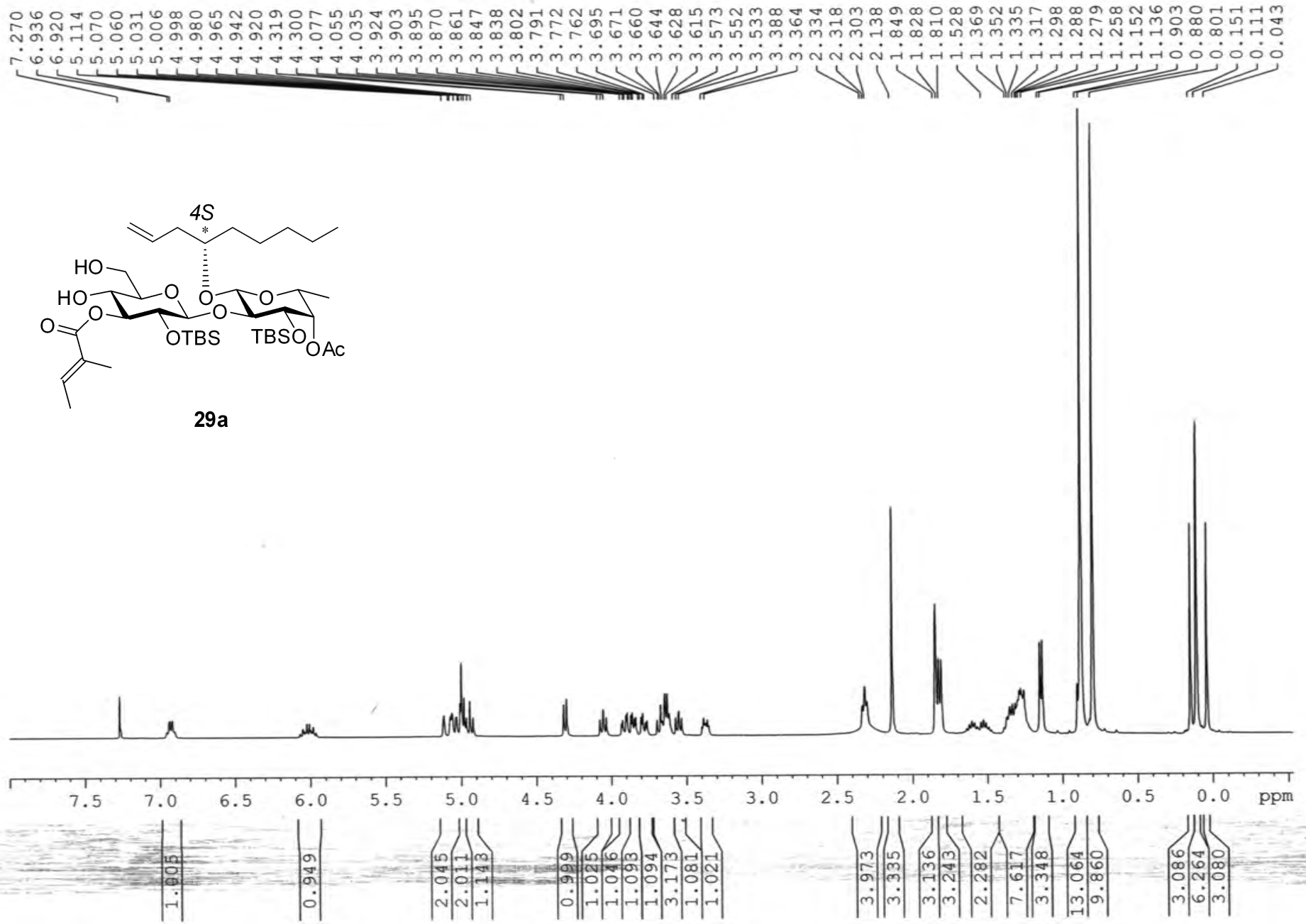
NAME ZGH-*Ipom*-1-170-B-140119
 EXPNO 15
 PROCNO 1
 Date_ 20141202
 Time_ 23.10
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcgp1pndqf
 TD 4096
 SOLVENT CDCl₃
 NS 70
 DS 16
 SWH 5208.333 Hz
 FIDRES 1.271566 Hz
 AQ 0.3932660 sec
 RG 2050
 DW 96.000 usec
 DE 6.50 usec
 TE 292.4 K
 CNST2 145.0000000
 CNST13 10.0000000
 D0 0.00000300 sec
 D1 1.50000000 sec
 D2 0.00344828 sec
 D6 0.05000000 sec
 D16 0.00020000 sec
 INO 0.00003010 sec

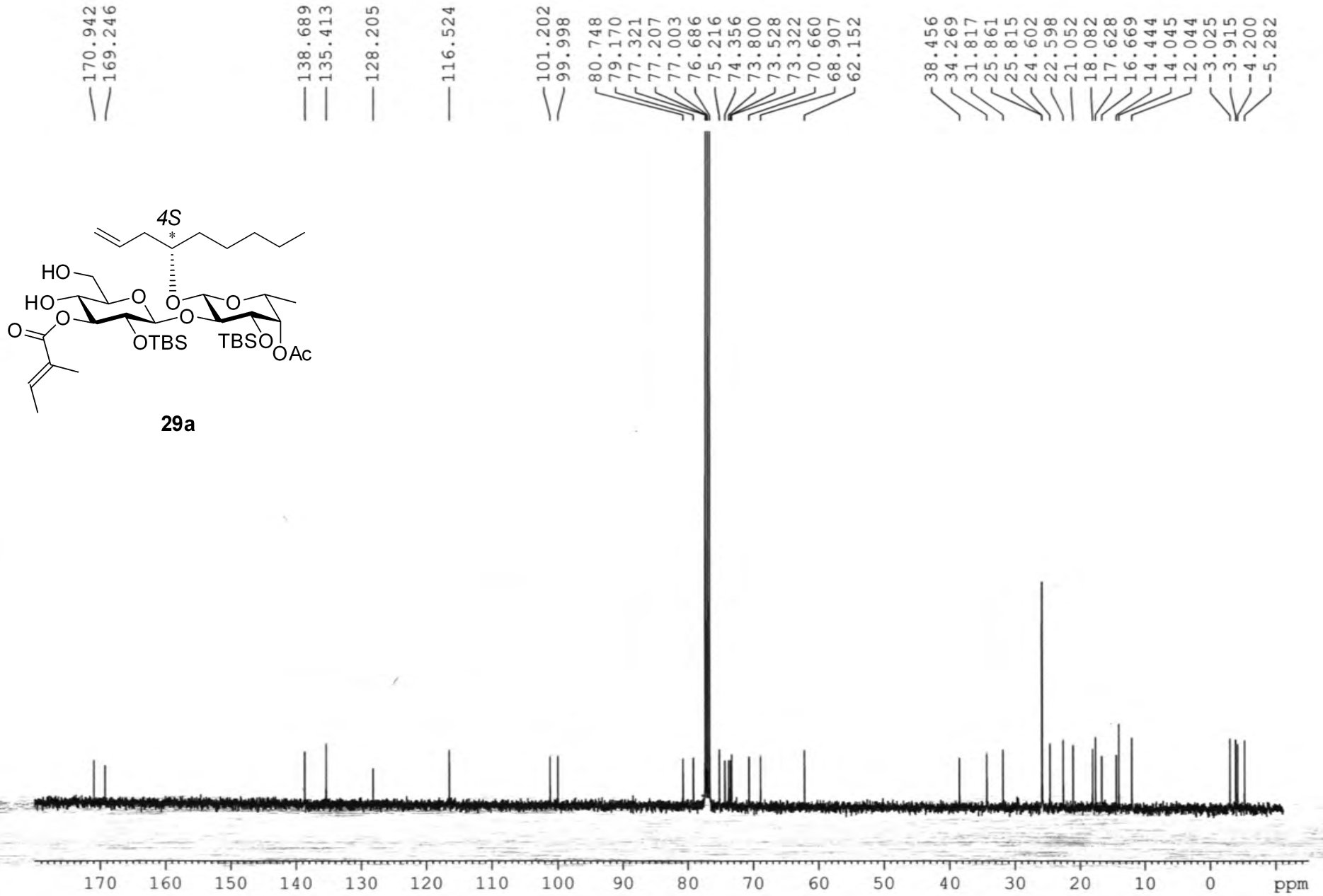
===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1325208 MHz

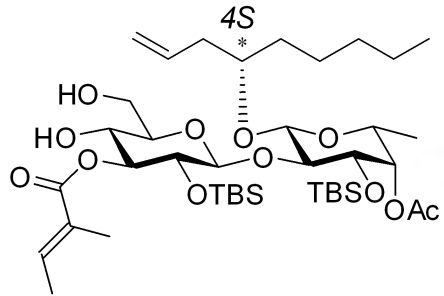
===== CHANNEL f2 =====
 NUC2 13C
 P3 10.00 usec
 PL2 -2.10 dB
 PL2W 58.37759399 W
 SFO2 100.6228138 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPNAM3 SINE.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 128
 SFO1 100.6228 MHz
 FIDRES 129.709091 Hz
 SW 165.000 ppm
 FhMODE QF
 SI 2048
 SF 400.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 4.00
 SI 1024
 MC2 QF
 SF 100.6127690 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ZGH-Ipom-1-173-A-131028 1H in CDCl3

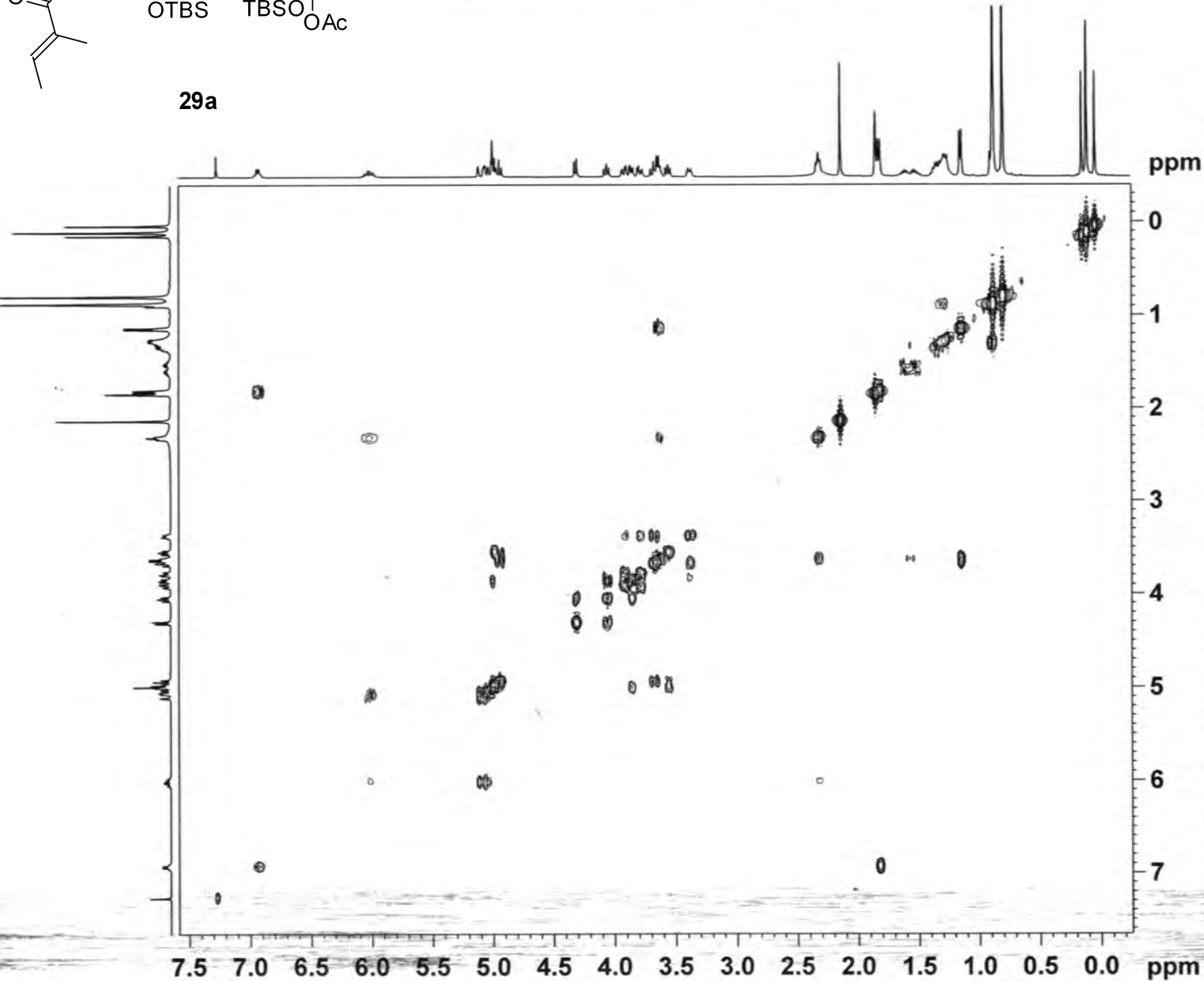


ZGH-Ipom-1-173-A-131028 ¹³C in CDCl₃



29a

ZGH-Ipom-1-173-A-131028 in CDC13 COSY



```

NAME      ZGH-Ipom-1-173-A-131028
EXPNO     3
PROCNO    1
Date_     20131031
Time      14.15
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpgf
TD         2048
SOLVENT   CDC13
NS         2
DS         8
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         114
DW         93.600 usec
DE         6.50 usec
TE         292.5 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec

```

```

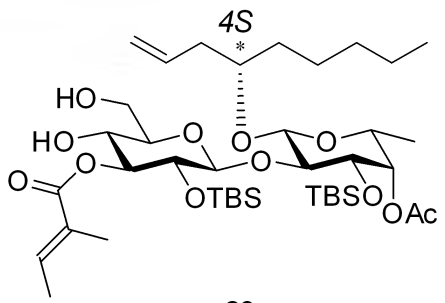
===== CHANNEL f1 =====
NUC1      1H
P0         10.00 usec
P1         10.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SFO1       400.1324057 MHz

```

```

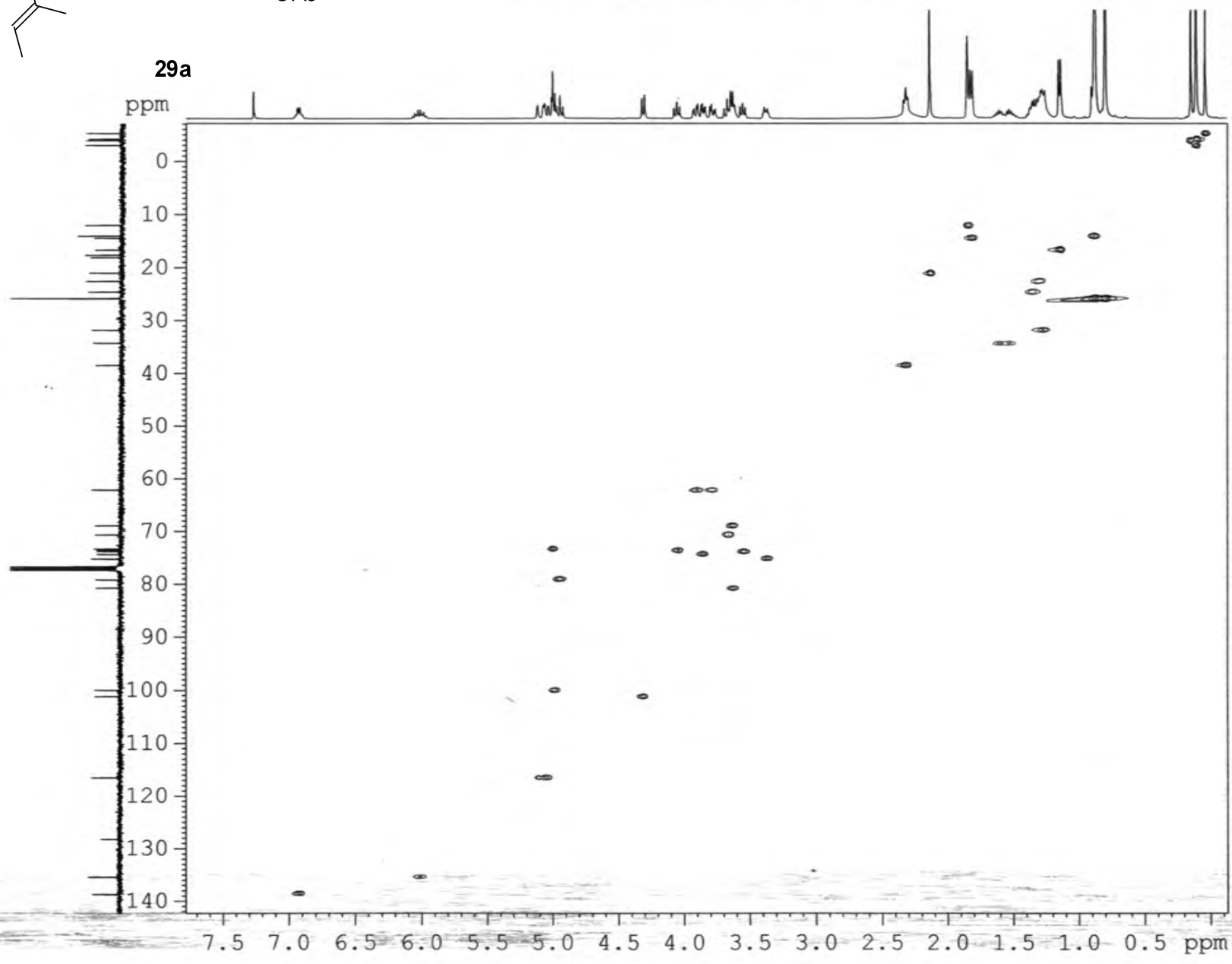
===== GRADIENT CHANNEL =====
GPNAM1    SINE.100
GPZ1       10.00 %
P16        1000.00 usec
ND0         1
TD          128
SFO1       400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FnMODE     QF
SI          1024
SF         400.1300040 MHz
WDW         SINE
SSB         0
LB          0.00 Hz
GB          0
PC          1.00
SI          1024
MC2        QF
SF         400.1300033 MHz
WDW         SINE
SSB         0
LB          0.00 Hz
GB          0

```

ZGH-*Ipom*-1-173-A-131028 HSQC

29a



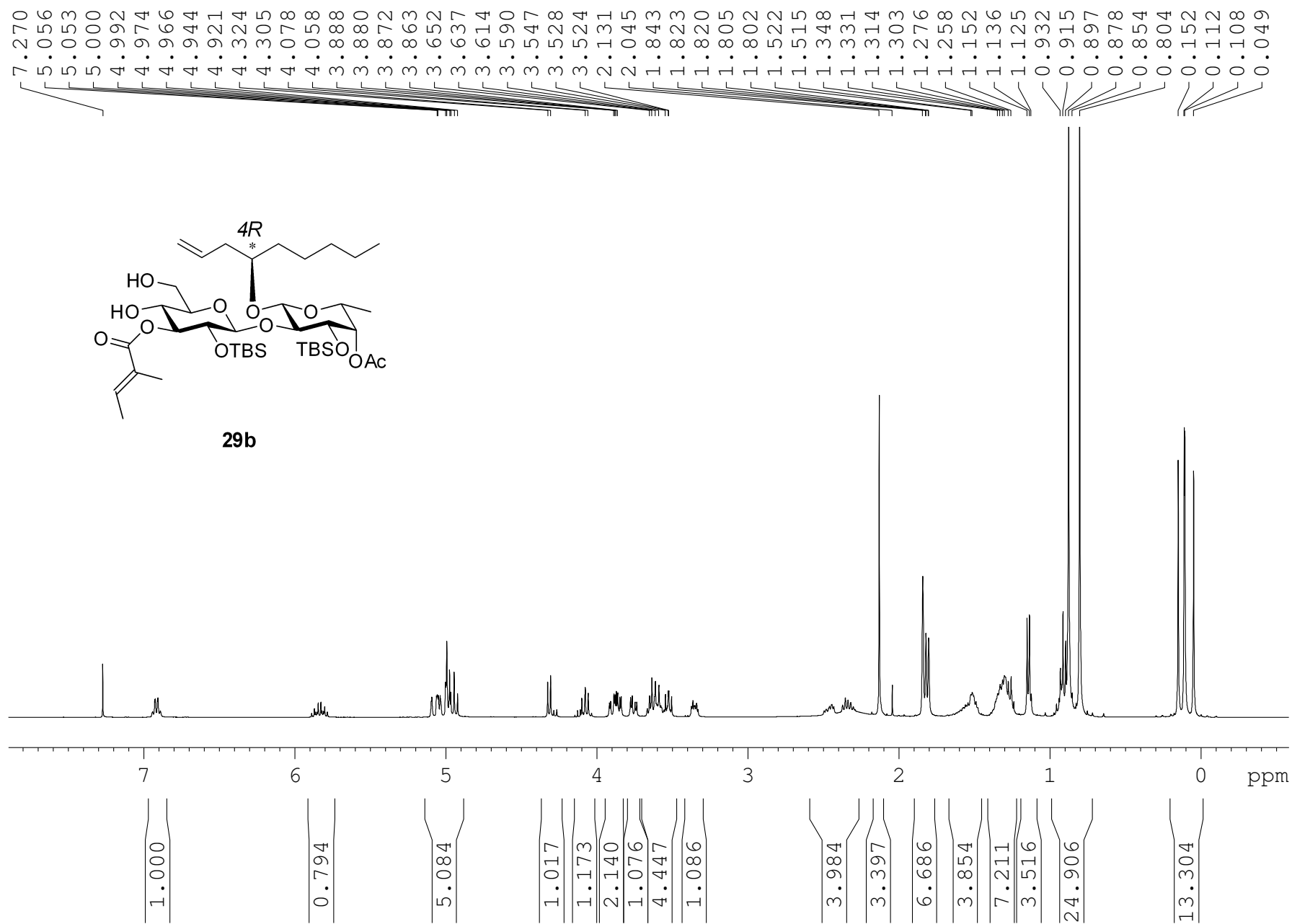
NAME ZGH-*Ipom*-1-173-A-131028
EXPNO 4
PROCNO 1
Date_ 20150313
Time 23.40
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG hsqcetgpsi
TD 1024
SOLVENT CDCl3
NS 4
DS 16
SWH 5341.880 Hz
FIDRES 5.216680 Hz
AQ 0.0958964 sec
RG 2050
DW 93.600 usec
DE 6.50 usec
TE 292.0 K
CNST2 145.0000000
DO 0.00000300 sec
D1 1.50000000 sec
D4 0.00172414 sec
D11 0.03000000 sec
D13 0.00000400 sec
D16 0.00020000 sec
D24 0.00110000 sec
INO 0.00003000 sec
ZGPTNS

==== CHANNEL f1 =====
NUC1 1H
P1 10.00 usec
P2 20.00 usec
P2# 1000.00 usec
PL1 -3.50 dB
PL1W 31.17620277 W
SFO1 400.1324057 MHz

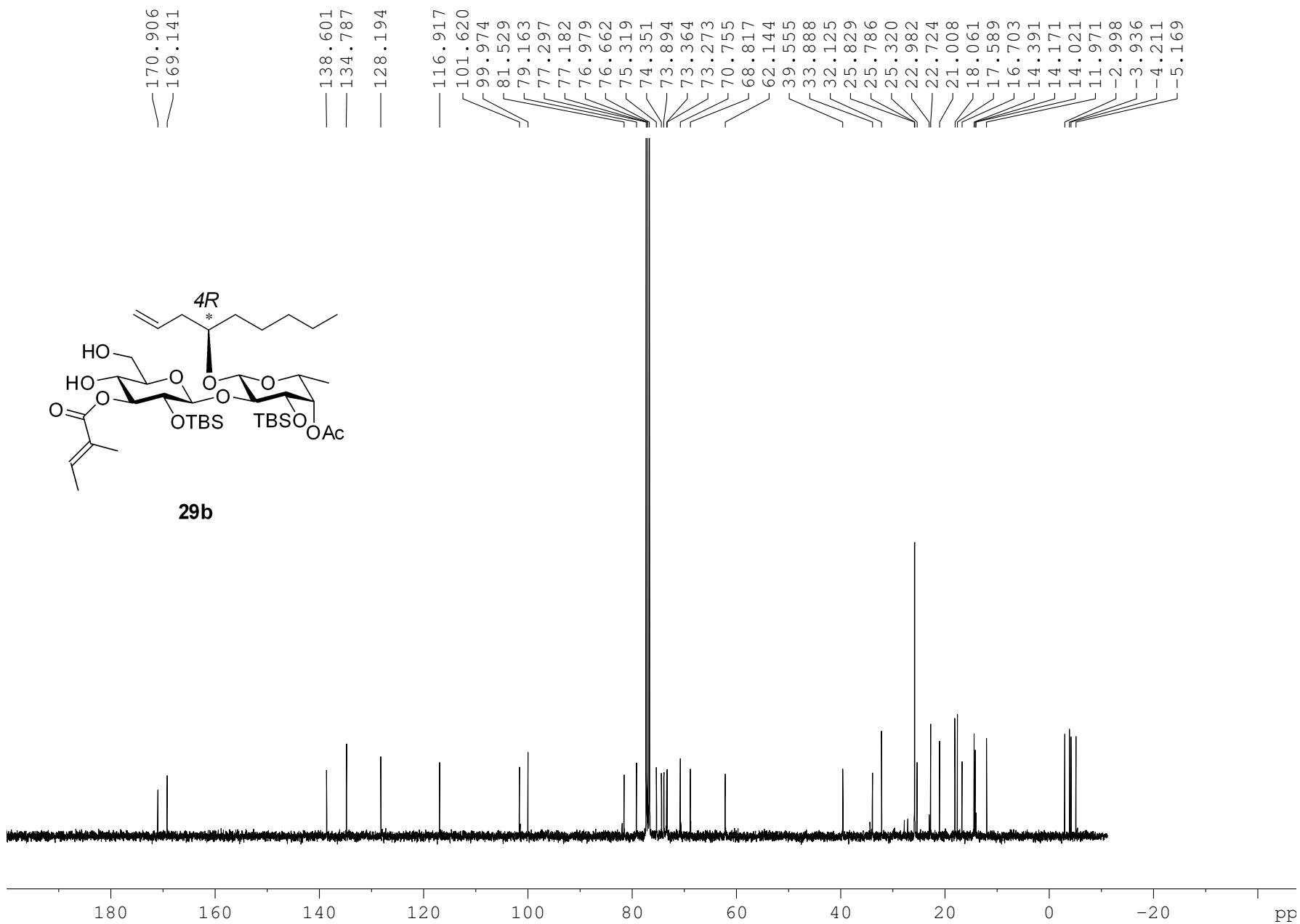
==== CHANNEL f2 =====
CPDPRG2 garp
NUC2 13C
P3 10.00 usec
P4 20.00 usec
PCPD2 75.00 usec
PL2 -2.10 dB
PL12 15.40 dB
PL2W 58.37759399 W
PL12W 1.03811681 W
SFO2 100.6202727 MHz

===== GRADIENT CHANNEL =====
GPNAM1 SINE.100
GPNAM2 SINE.100
GPZ1 80.00 %
GPZ2 20.10 %
P16 1000.00 usec
ND0 2
TD 256
SFO1 100.6203 MHz
FIDRES 65.104164 Hz
SW 165.639 ppm
FrMODE Echo-Antiecho
SI 1024
SF 400.1300000 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0
PC 1.00
SI -1024
MC2 echo-antiecho
SF 100.6127690 MHz
WDW QSINE
SSB 2
LB 0.00 Hz
GB 0

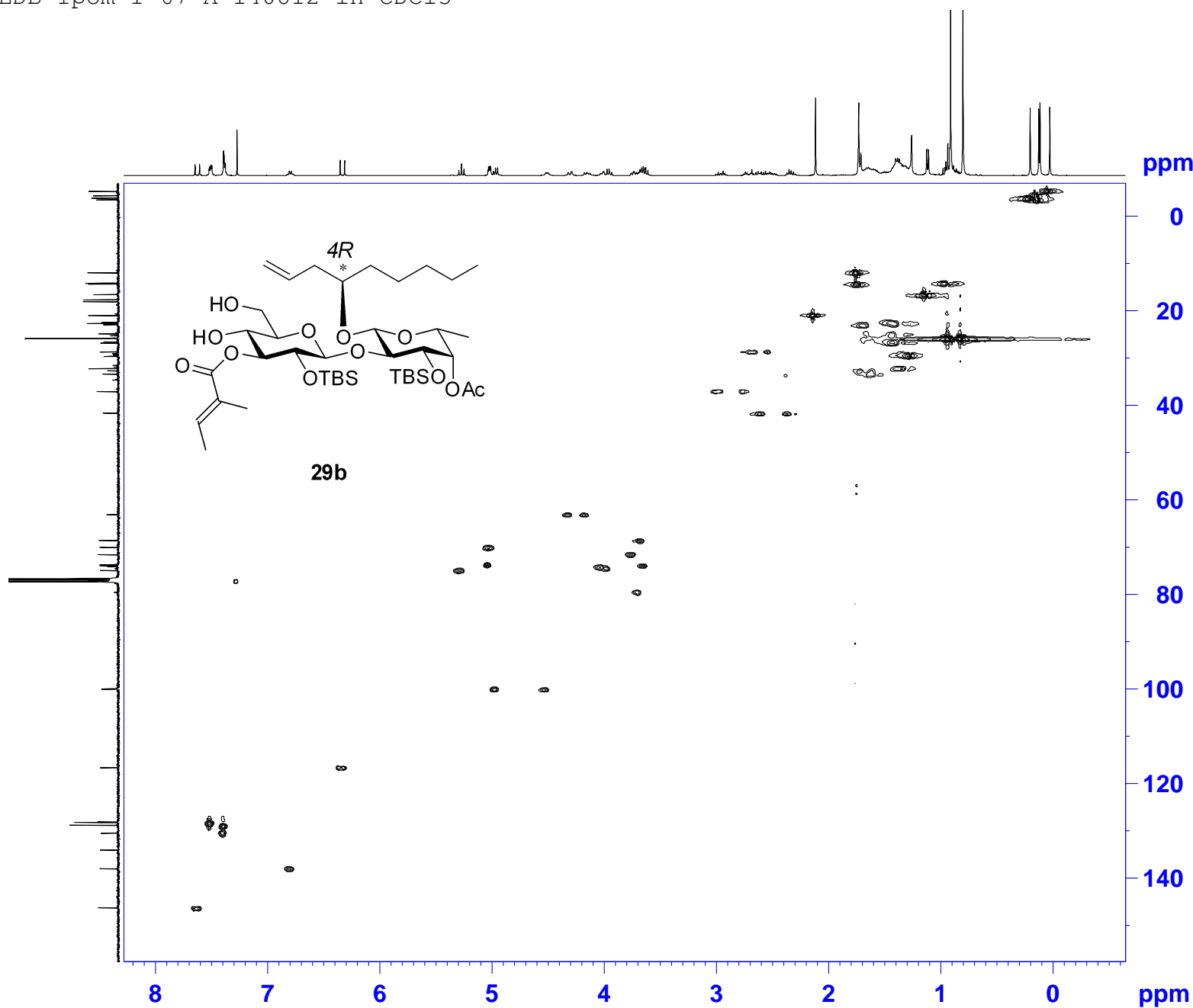
EDB-Ipom-1-56-A-140714 in CDCL3



EDB-Ipom-1-56-A-140714 13C in CDCl3



EDB-Ipom-1-67-A-140812 in CDCl3



```

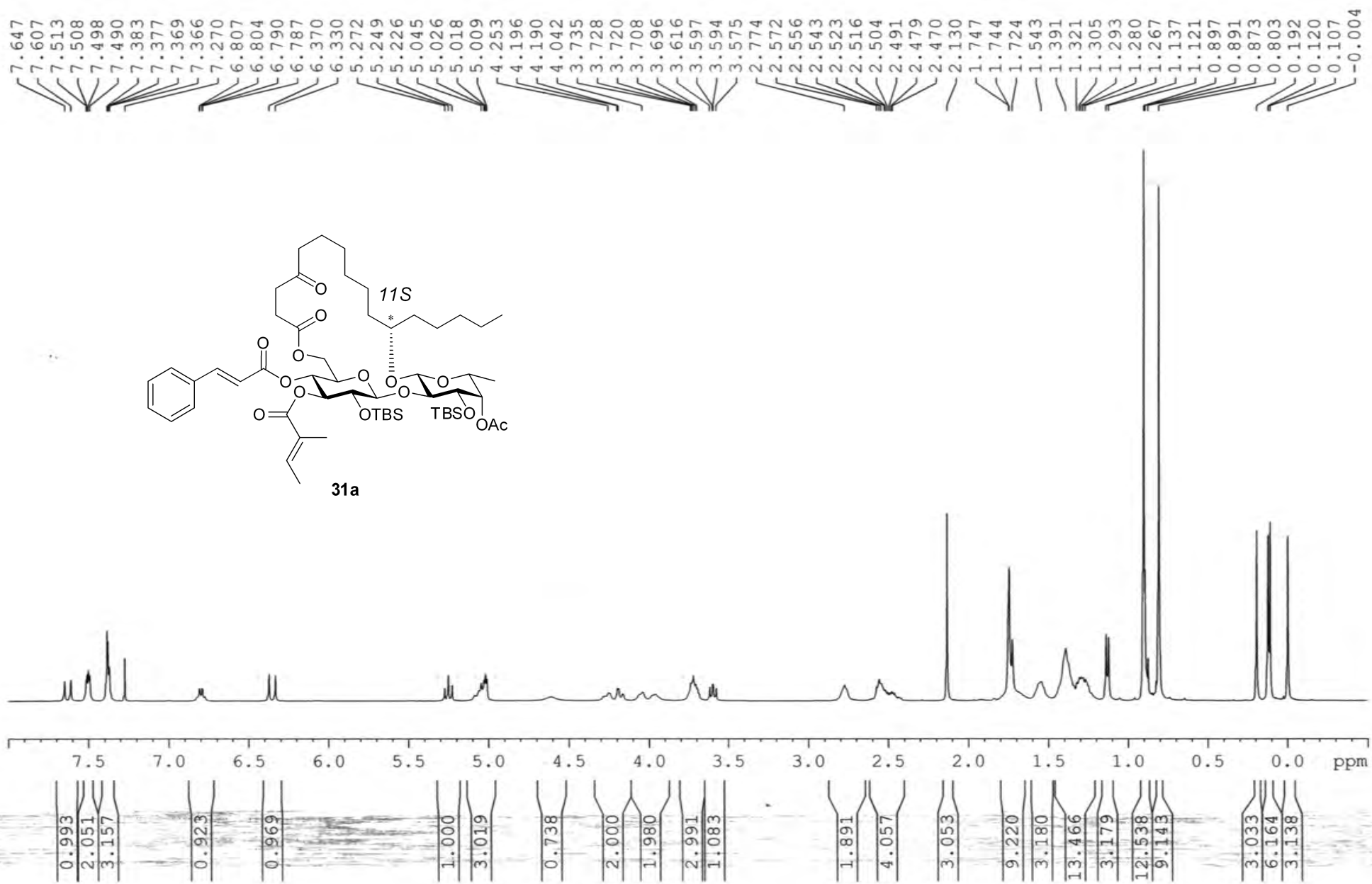
NAME      EDB-Ipom-1-67-A-140812
EXPNO     4
PROCNO    1
Date_     20140828
Time      5.20
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   hsqcetgpsi
TD         1024
SOLVENT   CDCl3
NS         2
DS         16
SWH        5341.880 Hz
FIDRES     5.216680 Hz
AQ         0.0958964 sec
RG         2050
DW         93.600 usec
DE         6.50 usec
TE         293.2 K
CNST2     145.0000000
D0         0.00000300 sec
D1         1.50000000 sec
D4         0.00172414 sec
D11        0.03000000 sec
D13        0.00000400 sec
D16        0.00020000 sec
D24        0.00110000 sec
IN0        0.00003000 sec
ZGPTNS

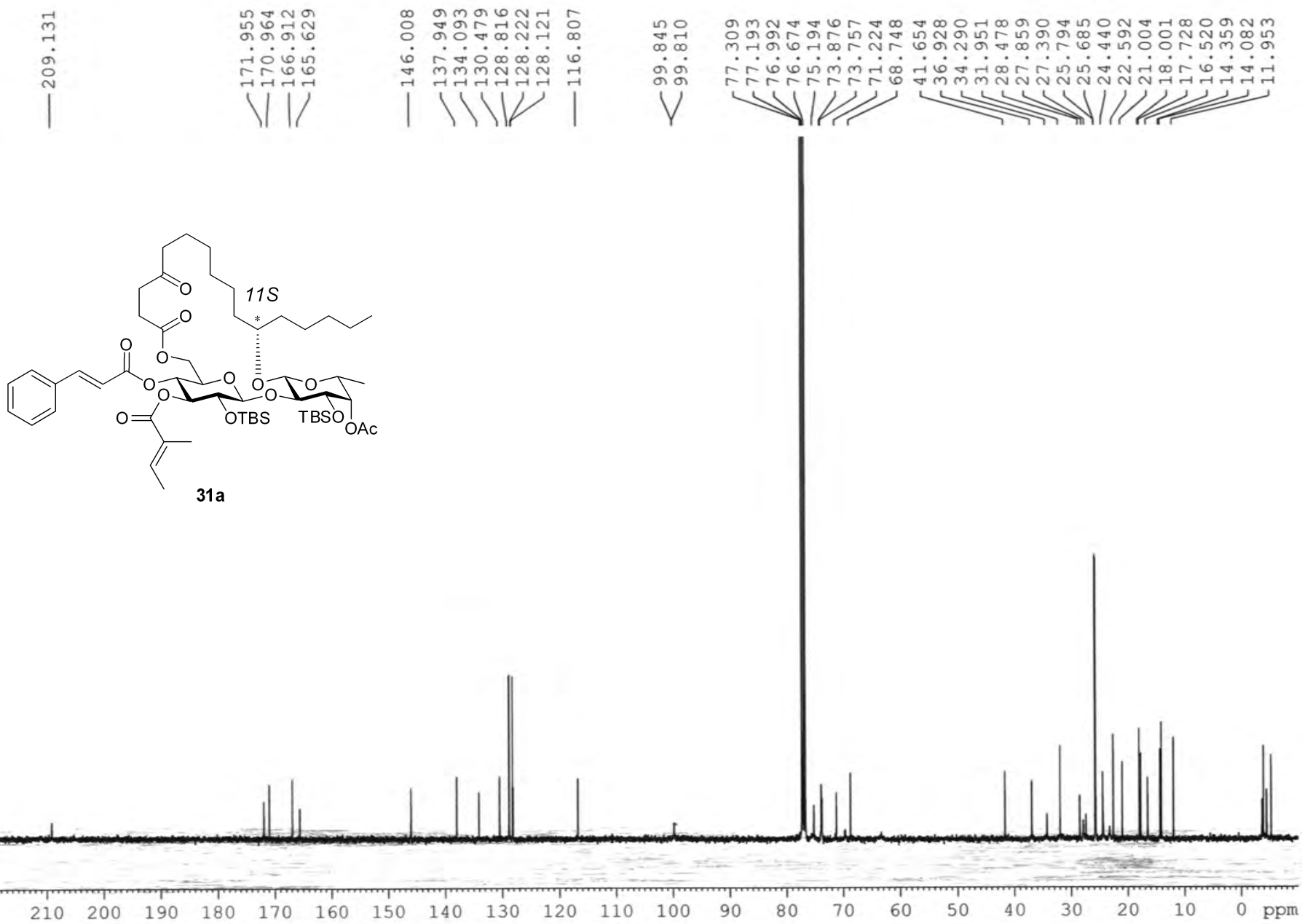
===== CHANNEL f1 =====
NUC1       1H
P1         10.00 usec
P2         20.00 usec
P28        1000.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SFO1       400.1324057 MHz

===== CHANNEL f2 =====
CPDPRG2    garp
NUC2       13C
P3         10.00 usec
P4         20.00 usec
PCPD2      75.00 usec
PL2        -2.10 dB
PL12       15.40 dB
PL2W       58.37759399 W
PL12W      1.03811681 W
SFO2       100.6202727 MHz

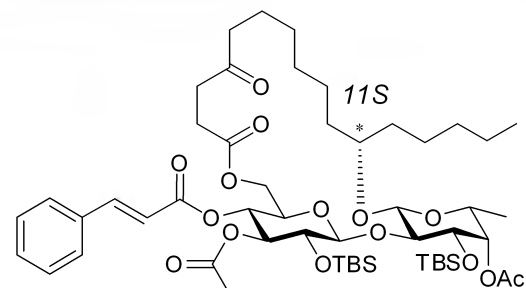
===== GRADIENT CHANNEL =====
GPNAM1     SINE.100
GPNAM2     SINE.100
GPZ1       80.00 %
GPZ2       20.10 %
P16        1000.00 usec
ND0        2
TD         256
SFO1       100.6203 MHz
FIDRES     65.104164 Hz
SW         165.639 ppm
FnMODE     Echo-Antiecho
SI         1024
SF         400.1300000 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0
PC         1.00
SI         1024
MC2        echo-antiecho
SF         100.6127690 MHz
WDW        QSINE
SSB        2
LB         0.00 Hz
GB         0

```

ZGH-*Ipom*-2-31-A-140203 1H in CDCl₃

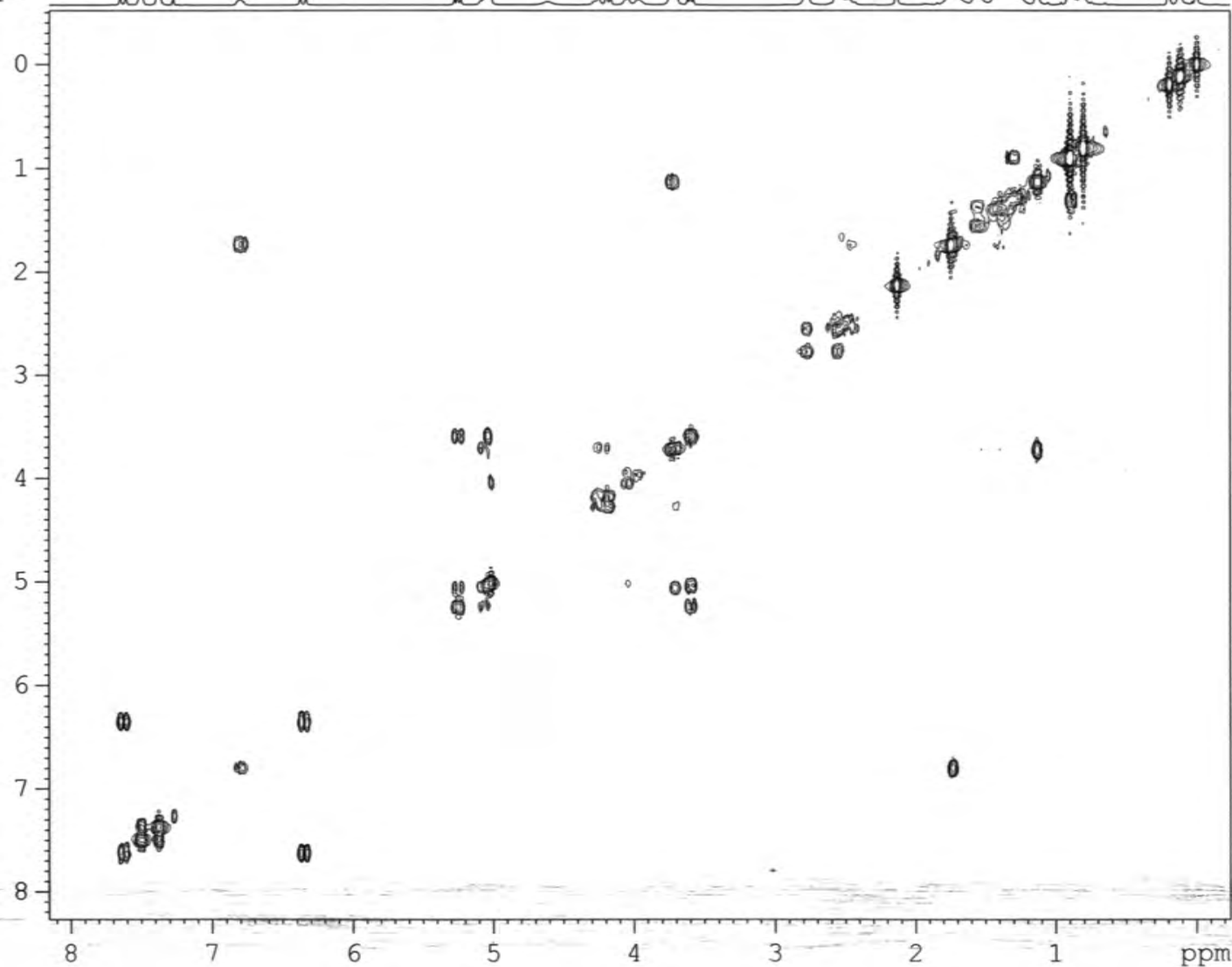
ZGH-Ipom-2-31-A-140203 ¹³C in CDCl₃

ZGH-Ipom-2-31-A-140203 COSY



31a

ppm



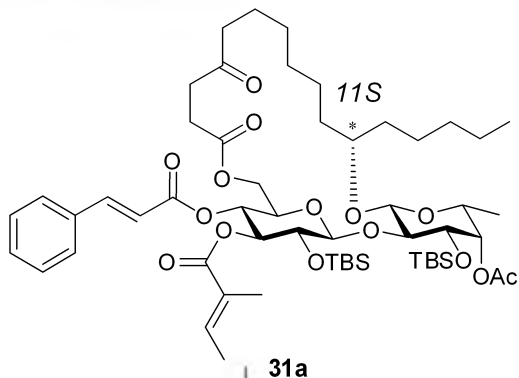
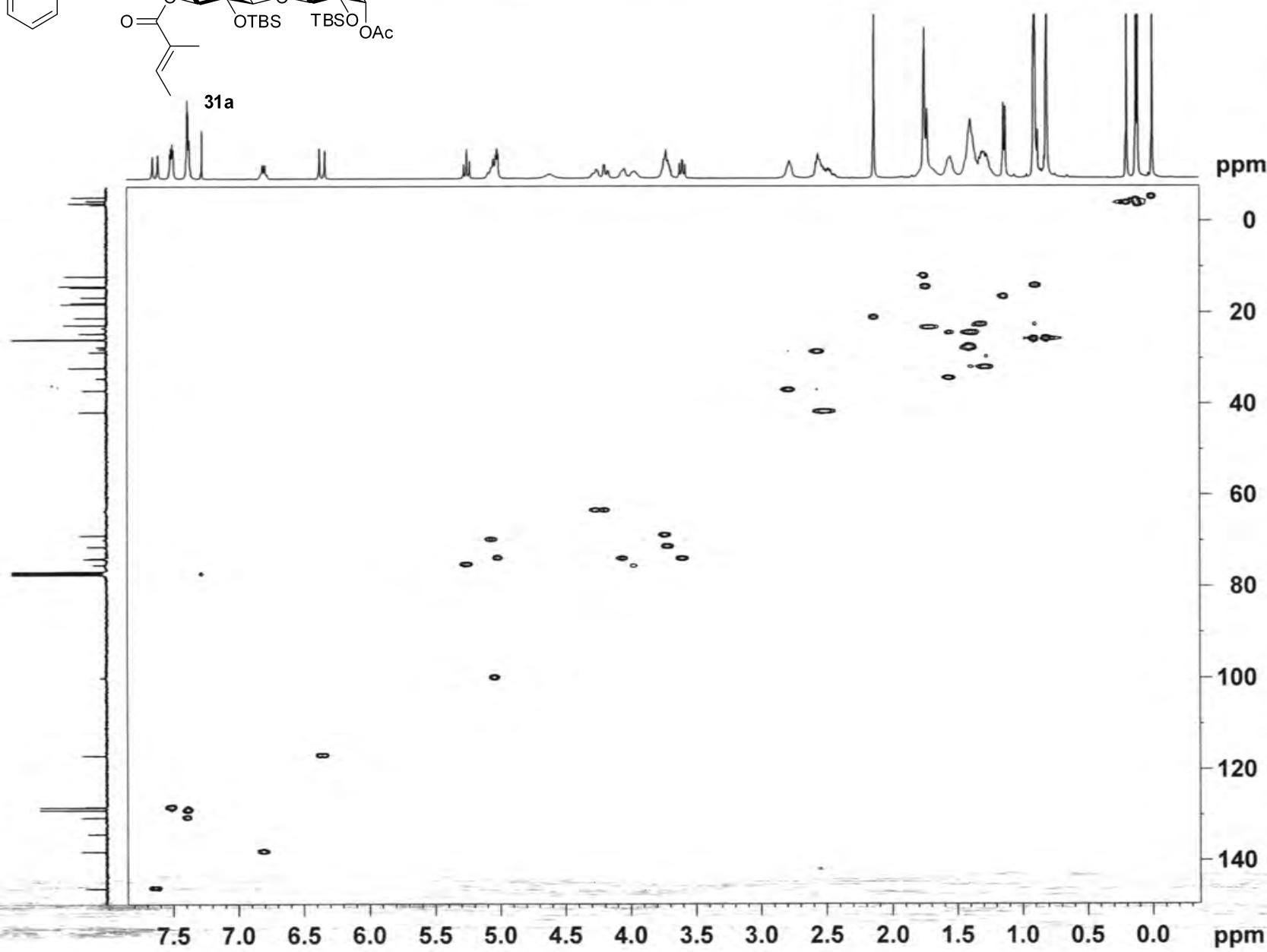
NAME ZGH-Ipom-2-31-A-140203
 EXPNO 3
 PROCNO 1
 Date_ 20140205
 Time_ 18.56
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygppqf
 TD 2048
 SOLVENT CDCl3
 NS 2
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 50.8
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00018720 sec

----- CHANNEL f1 -----

NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

----- GRADIENT CHANNEL -----

GPNAME1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ZGH-*Ipom*-2-31-A-140203 HSQC

```

NAME      ZGH-Ipom-2-31-A-140203
EXPNO     4
PROCNO    1
Date_     20140205
Time      19.06
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   hsqcetgpsi
TD         1024
SOLVENT   CDCl3
NS         8
DS         16
SWH        5341.880 Hz
FIDRES     5.216680 Hz
AQ         0.0958964 sec
RG         2050
DW         93.600 usec
DE         6.50 usec
TE         292.4 K
CNST2     145.0000000
D0         0.00000300 sec
D1         1.50000000 sec
D4         0.00172414 sec
D11        0.03000000 sec
D13        0.00000400 sec
D16        0.00020000 sec
D24        0.00110000 sec
IN0        0.00003000 sec
ZGPTNS

```

```

----- CHANNEL f1 -----
NUC1      1H
P1        10.00 usec
P2        20.00 usec
P2#       1000.00 usec
PL1       -3.50 dB
PL1W      31.17620277 W
SFO1      400.1324057 MHz

```

```

----- CHANNEL f2 -----
CPDPRG2   garp
NUC2      13C
P3        10.00 usec
P4        20.00 usec
PCPD2     75.00 usec
PL2       -2.10 dB
PL12      15.40 dB
PL2W      58.37759399 W
PL12W     1.03811681 W
SFO2      100.6202727 MHz

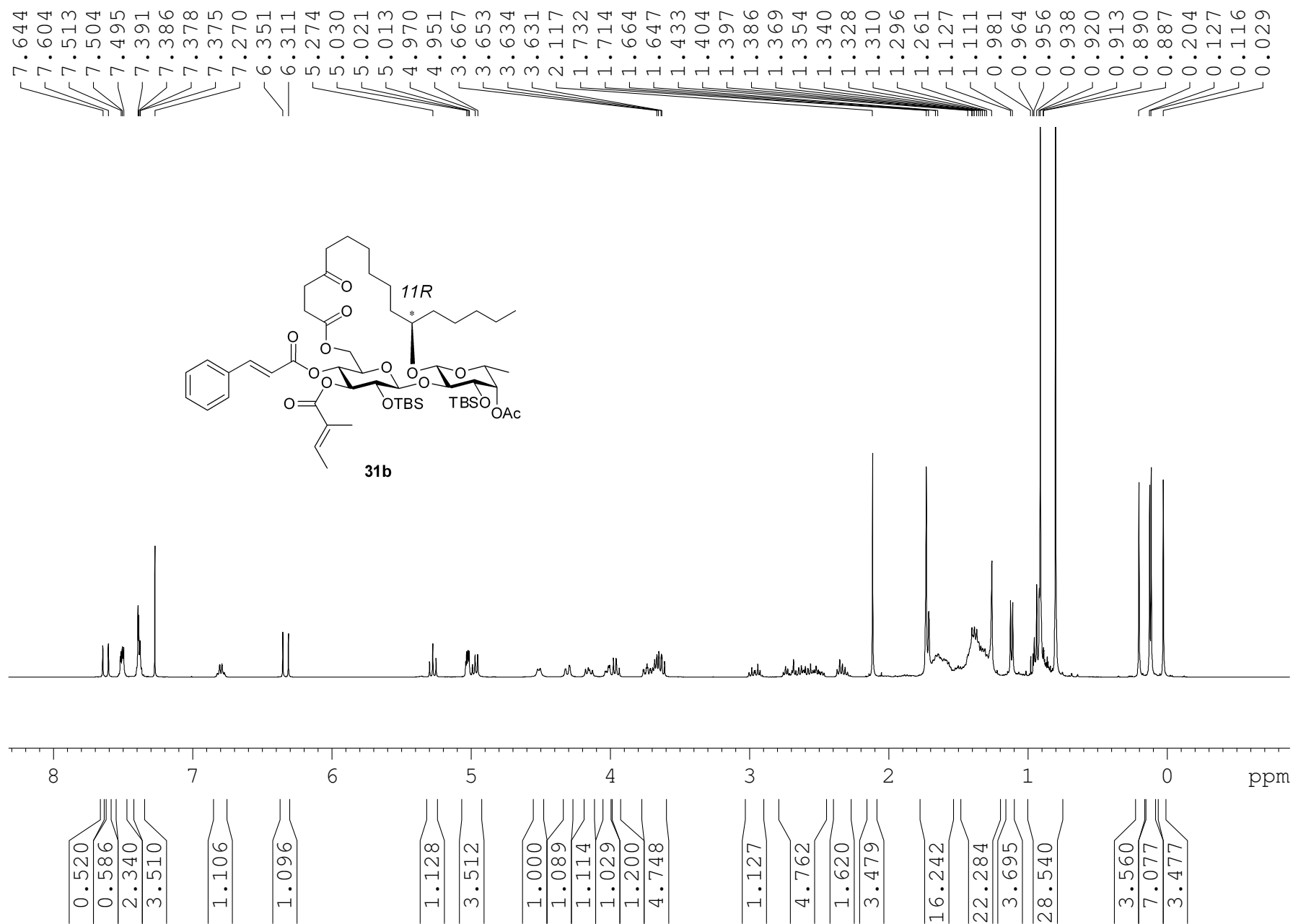
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```

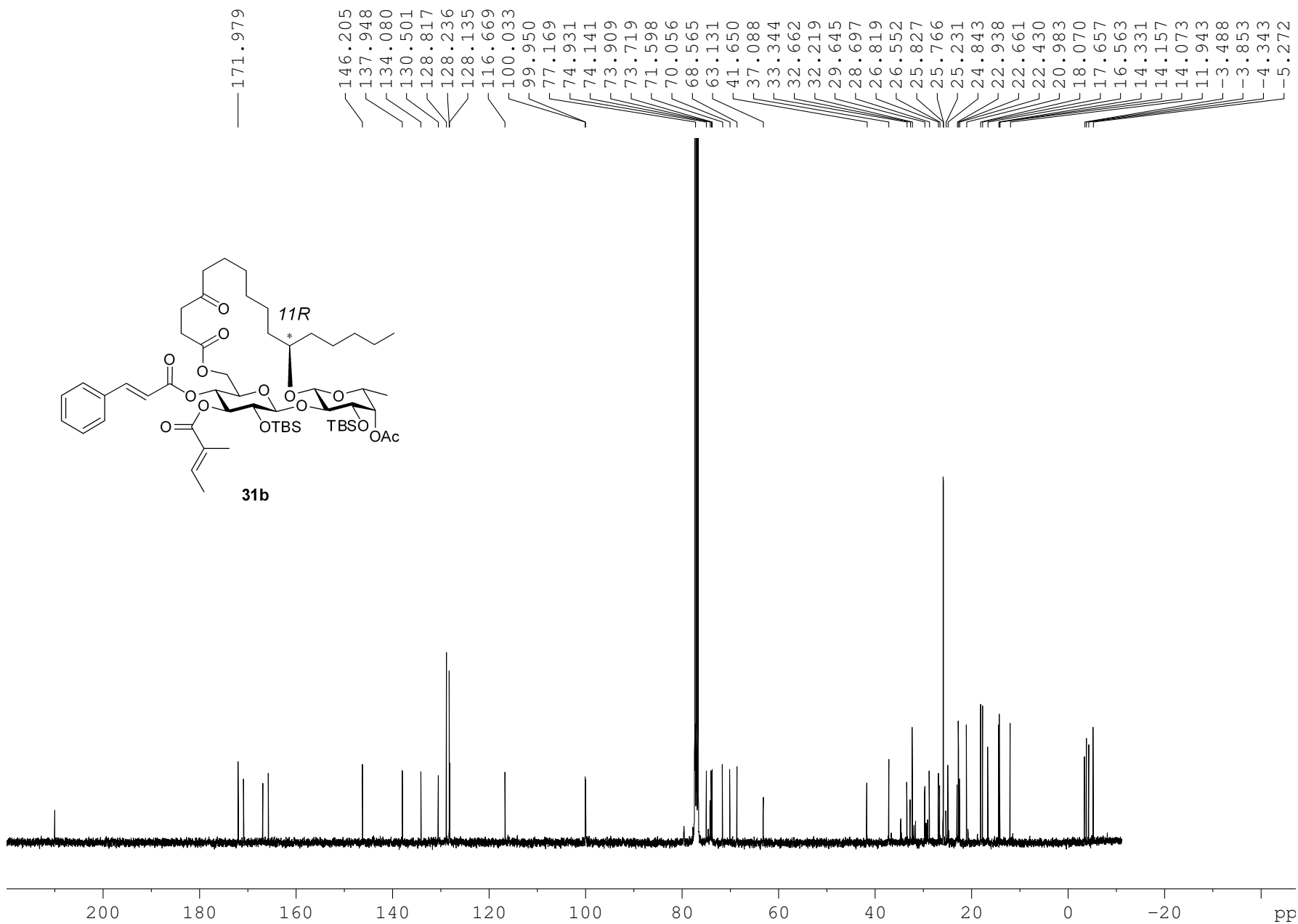
----- GRADIENT CHANNEL -----
GPNAM1    SINE.100
GPNAM2    SINE.100
GPZ1      80.00 %
GPZ2      20.10 %
P16       1000.00 usec
ND0       2
TD        256
SFO1      100.6203 MHz
FIDRES    65.104164 Hz
SW        165.639 ppm
FnMODE    Echo-Antiecho
SI        1024
SF        400.1300000 MHz
WDW       QSINE
SSB       2
LB        0.00 Hz
GB        0
PC        1.00
SI        1024
MC2       echo-antiecho
SF        100.6127690 MHz
WDW       QSINE
SSB       2
LB        0.00 Hz
GB        0

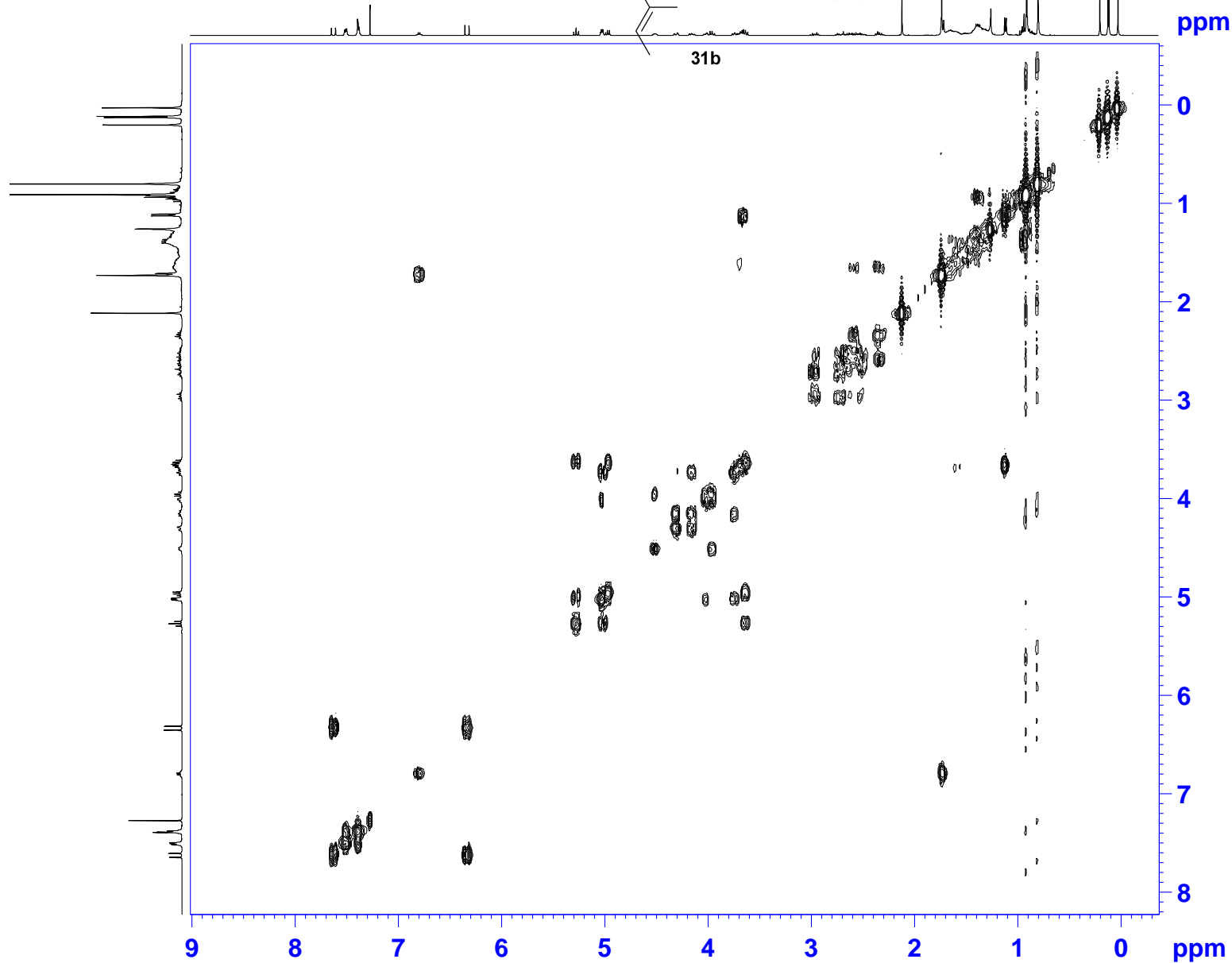
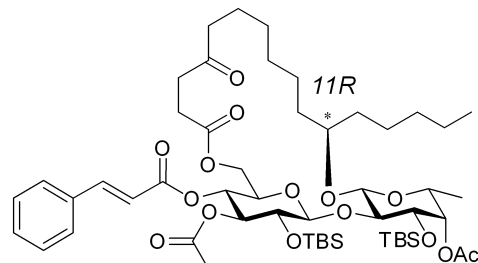
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EDB-Ipom-1-67-A-140812 in CDCL3



EDB-Ipom-1-67-A-140812 13C in CDCl3

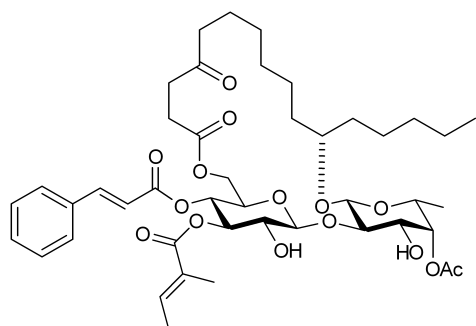




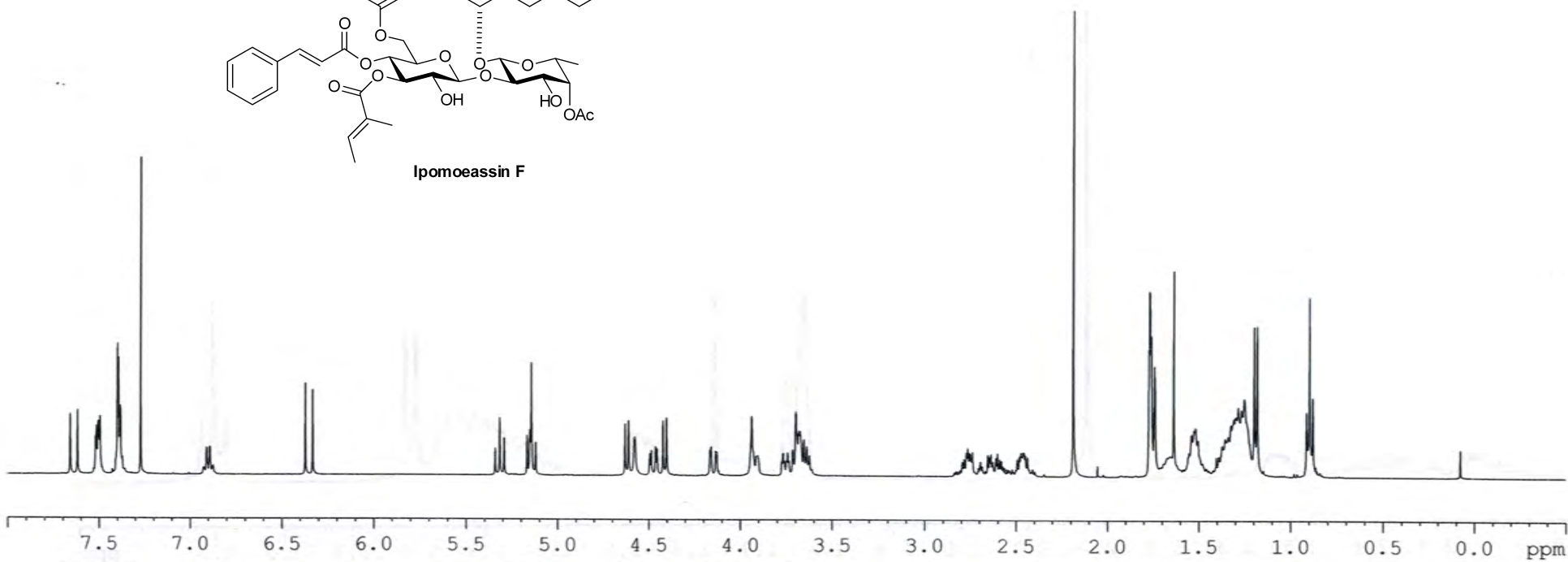
NAME EDB-Ipom-1-67-A-140812
 EXPNO 3
 PROCNO 1
 Date_ 20140828
 Time 5.12
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpdf
 TD 2048
 SOLVENT CDCl3
 NS 2
 DS 0
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 128
 DW 93.600 usec
 DE 6.50 usec
 TE 293.9 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 INO 0.00018720 sec

==== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 ND0 1
 TD 128
 SFO1 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FnMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ZGH-*Ipom-2-34-A* 1H in CDCl₃

Ipomoeassin F

1.013
2.006
2.982

0.972

0.993

1.000

1.962

0.979

1.022

0.989

1.048

1.016

2.033

0.984

4.106

6.156

3.021

5.907

1.561

1.202

0.430

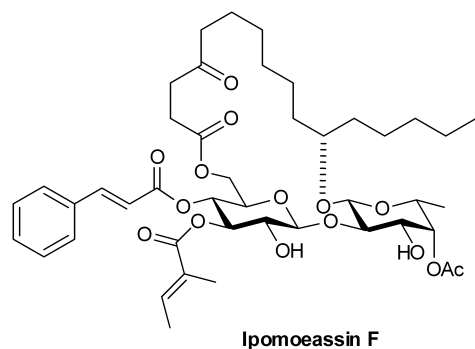
4.047

12.339

3.266

3.309

ZGH-Ipom-2-34-A-140215 check again



Ipomoeassin F

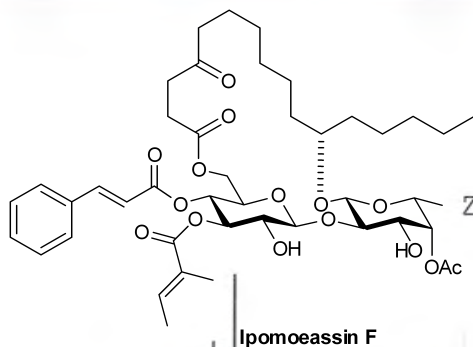
— 210.010

171.786
171.693
168.796
165.409

— 146.125
— 139.782
— 133.964
— 130.624
— 128.874
— 128.246
— 127.536
— 116.666

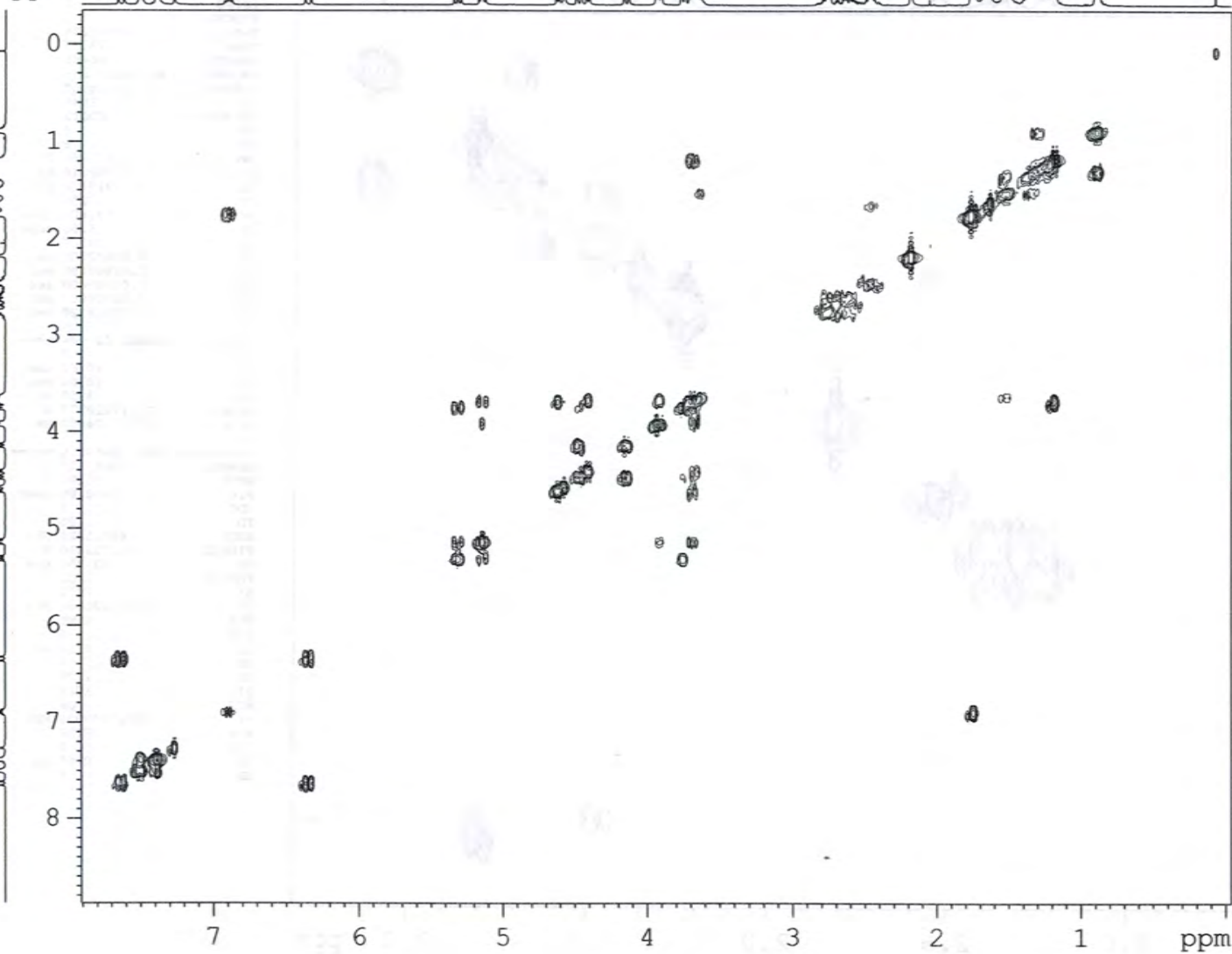
— 105.679
— 100.182
82.767
79.732
77.319
77.204
77.001
76.683
75.817
73.943
72.692
72.569
72.435
68.790
67.444
61.752
41.827
37.564
34.322
33.083
31.892
29.118
29.019
28.291
24.675
24.483
23.465
22.635
20.929
16.327
14.581
14.086
11.954

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



ZGH-Ipom-2-34-A COSY in CDC13

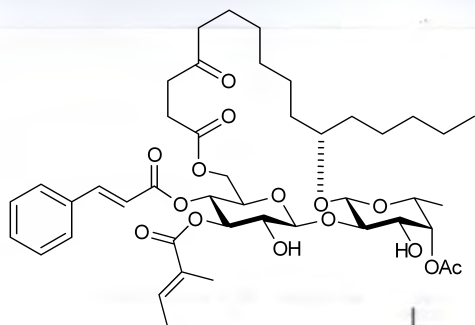
ppm



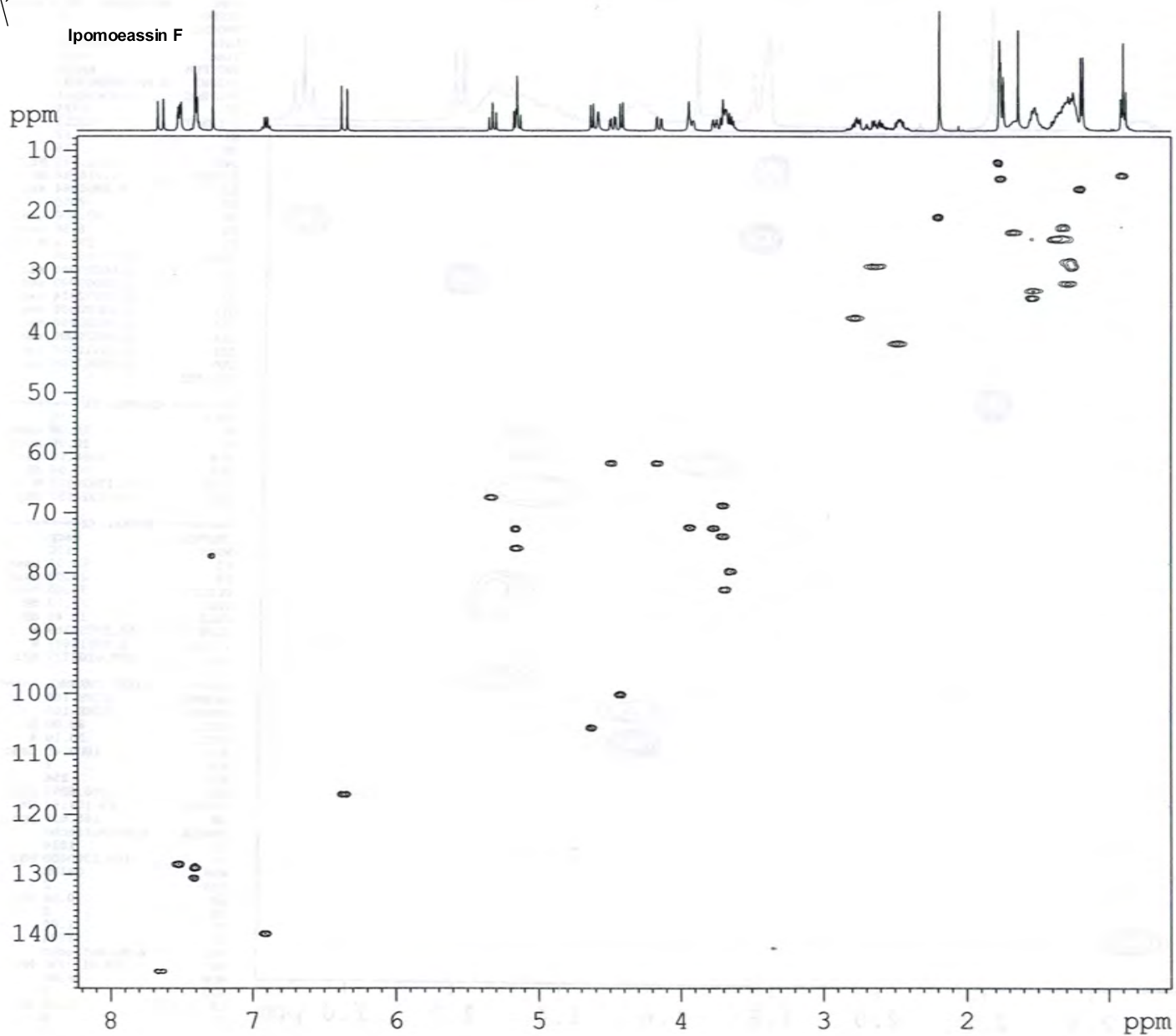
NAME ZGH-Ipom-2-34-A check again
 EXPNO 2
 PROCNO 1
 Date_ 20141204
 Time_ 23.23
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG cosygpgf
 TD 2048
 SOLVENT CDC13
 NS 8
 DS 8
 SWH 5341.880 Hz
 FIDRES 2.608340 Hz
 AQ 0.1917428 sec
 RG 256
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 D0 0.00000300 sec
 D1 1.48689198 sec
 D13 0.00000400 sec
 D16 0.00020000 sec
 IN0 0.00018720 sec

===== CHANNEL f1 =====
 NUC1 1H
 P0 10.00 usec
 P1 10.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SF01 400.1324057 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPZ1 10.00 %
 P16 1000.00 usec
 NDO 1
 TD 128
 SF01 400.1324 MHz
 FIDRES 41.733440 Hz
 SW 13.350 ppm
 FwMODE QF
 SI 1024
 SF 400.1300040 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 QF
 SF 400.1300033 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0



Ipomoeassin F

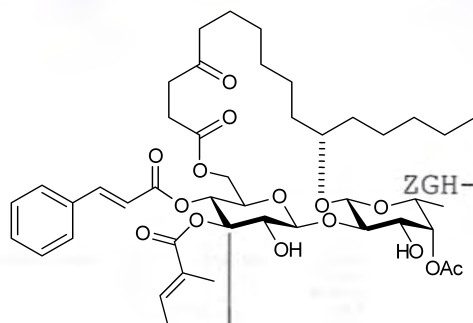
ZGH-*Ipom-2-34-A* HSQC in CDCl₃

NAME ZGH-*Ipom-2-34-A* check again
 EXPNO 4
 PROCNO 1
 Date_ 20141205
 Time_ 6.51
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 12
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 CNST2 145.0000000
 D0 0.000003000 sec
 D1 1.500000000 sec
 D4 0.00172414 sec
 D11 0.030000000 sec
 D13 0.000004000 sec
 D16 0.000200000 sec
 D24 0.001100000 sec
 IN0 0.000030000 sec
 ZGPTNS

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

===== CHANNEL f2 =====
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 NDO 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 PnMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0

ZGH-*Ipom-2-34-A* HMBC in CDCl₃

NAME ZGH-*Ipom-2-34-A* check again
 EXPNO 3
 PROCNO 1
 Date_ 20141204
 Time_ 23.56
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hmbcgp1pndqf
 TD 4096
 SOLVENT CDCl3
 NS 100
 DS 16
 SWH 5208.333 Hz
 FIDRES 1.271566 Hz
 AQ 0.3932660 sec
 RG 2050
 DW 96.000 usec
 DE 6.50 usec
 TE 292.4 K
 CNST2 145.0000000
 CNST13 10.0000000
 D0 0.00000300 sec
 D1 1.5000000 sec
 D2 0.00344828 sec
 D6 0.05000000 sec
 D16 0.00020000 sec
 IN0 0.00003010 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1325208 MHz

===== CHANNEL f2 =====
 NUC2 13C
 P3 10.00 usec
 PL2 -2.10 dB
 PL2W 58.37759399 W
 SFO2 100.6228138 MHz

===== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPNAM3 SINE.100
 GPZ1 50.00 %
 GPZ2 30.00 %
 GPZ3 40.10 %
 P16 1000.00 usec
 ND0 2
 TD 128
 SFO1 100.6228 MHz
 FIDRES 129.709091 Hz
 SW 165.000 ppm
 FMODE QF
 SI 2048
 SF 400.1300000 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0
 PC 4.00
 SI 1024
 MC2 QF
 SF 100.6127690 MHz
 WDW SINE
 SSB 0
 LB 0.00 Hz
 GB 0

ppm

40

60

80

100

120

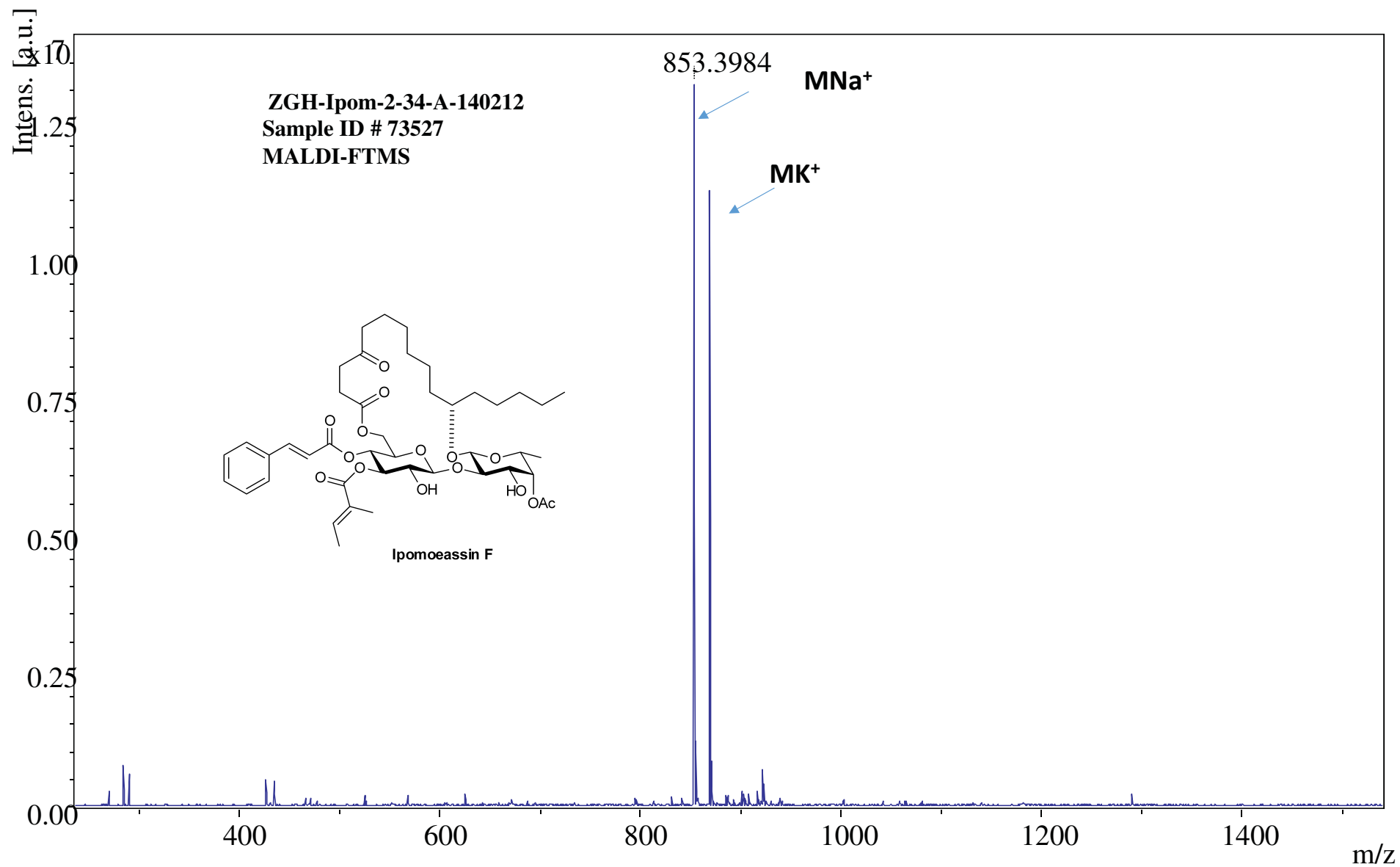
140

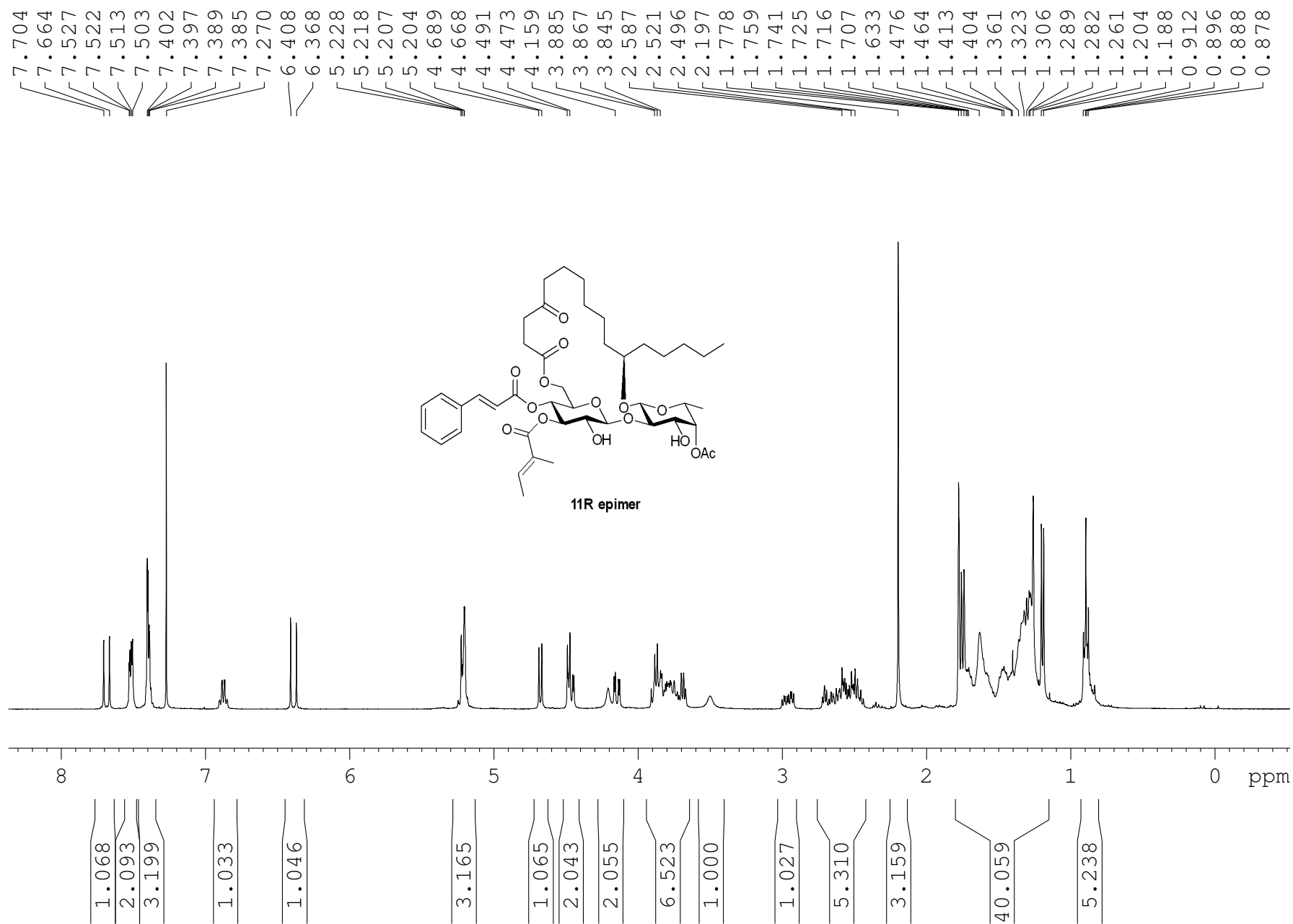
160

180

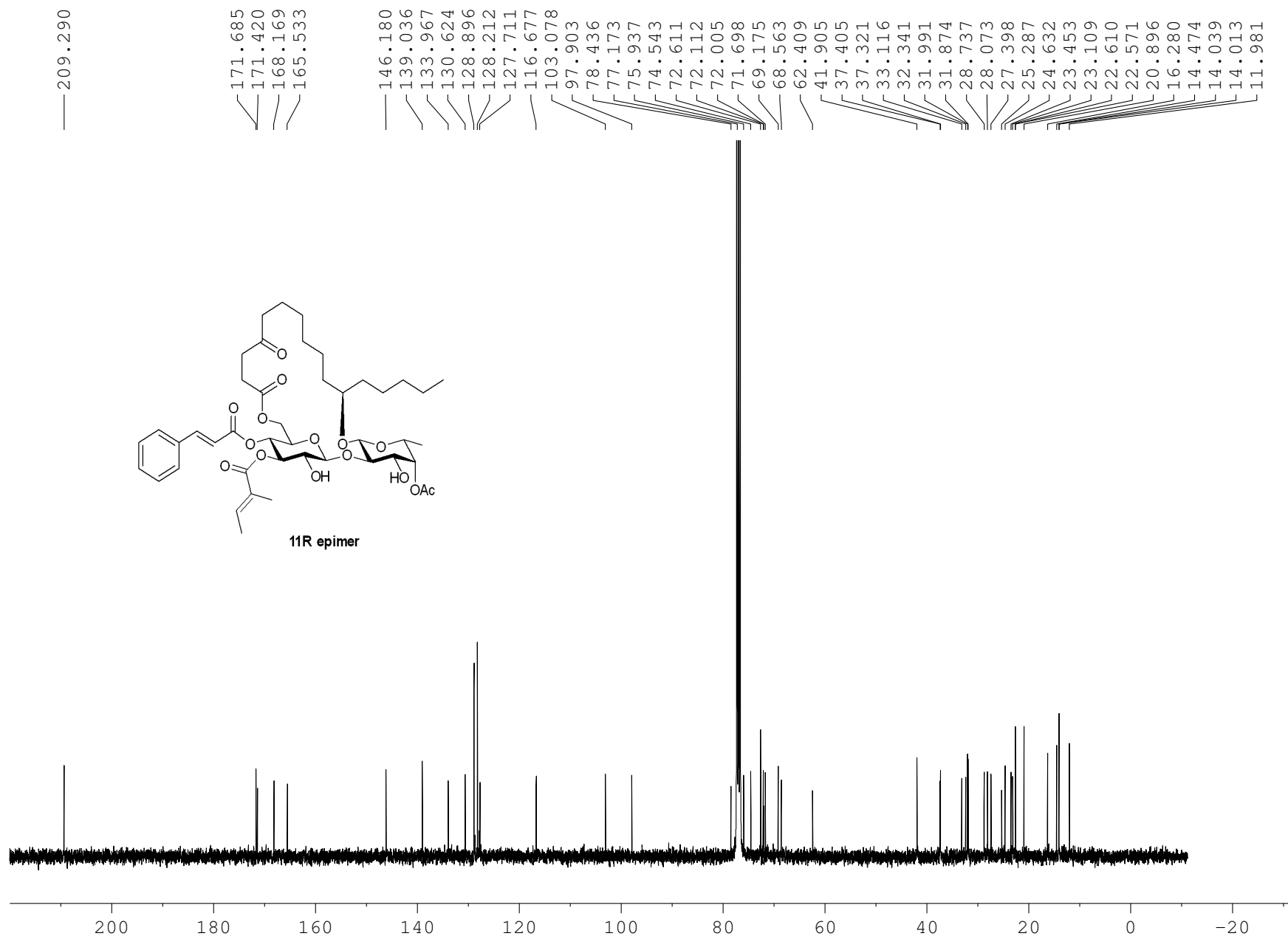
ppm

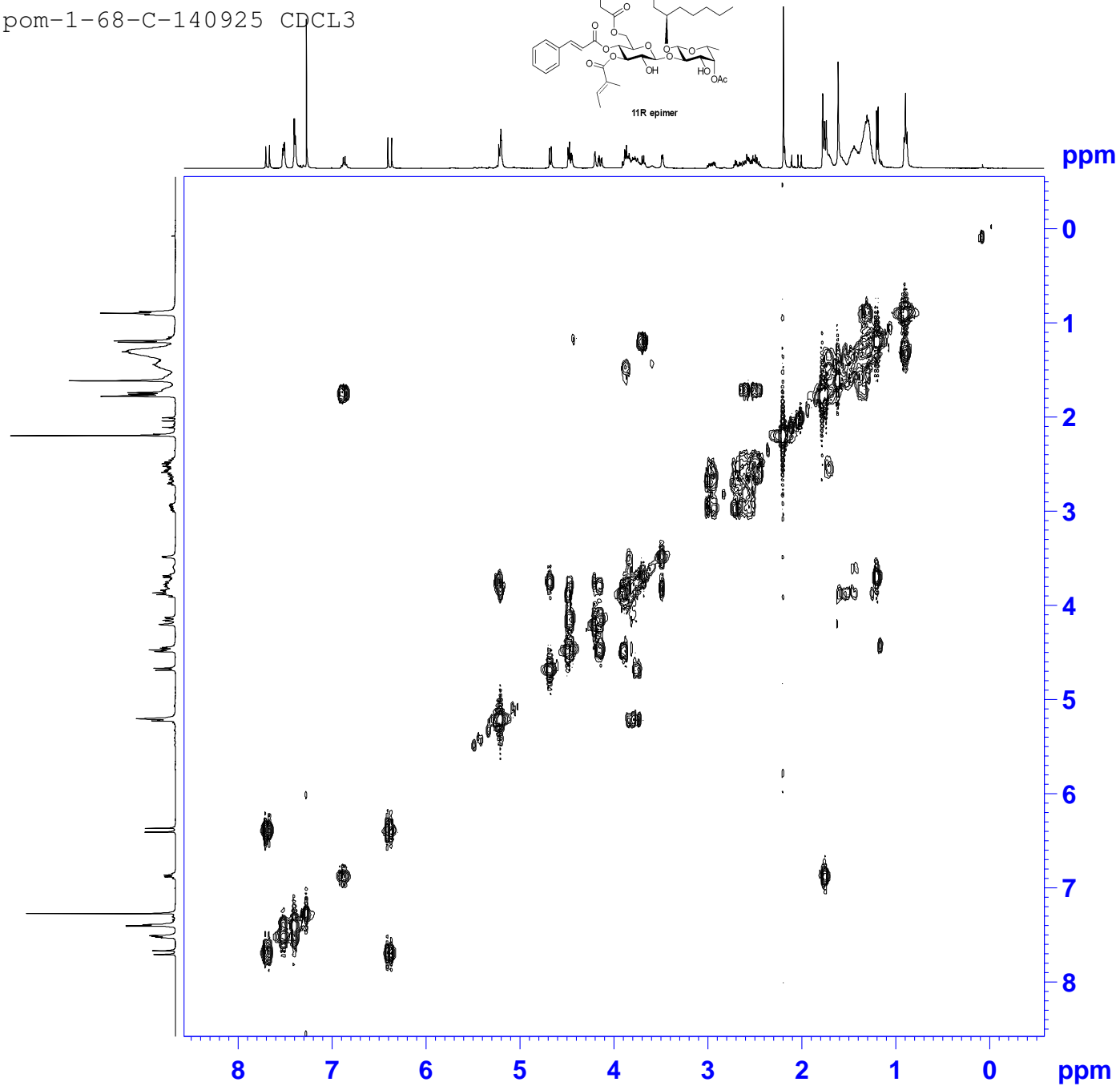
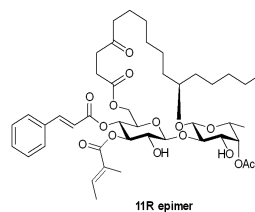
8.0 7.5 7.0 6.5 6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0



EDB-Ipom-1-68-B-140925 in CDCl₃

EDB-Ipom-1-68-C-140925 13C in CDCl3



EDB-*Ipom*-1-68-C-140925 CDCL₃

```

NAME      EDB-Ipom-1-68-C-140925
EXPNO     3
PROCNO    1
Date_     20141011
Time      8.23
INSTRUM   spect
PROBHD    5 mm PABBO BB-
PULPROG   cosygpqf
TD         2048
SOLVENT   CDCl3
NS         2
DS         0
SWH        5341.880 Hz
FIDRES     2.608340 Hz
AQ         0.1917428 sec
RG         128
DW         93.600 usec
DE         6.50 usec
TE         293.1 K
D0         0.00000300 sec
D1         1.48689198 sec
D13        0.00000400 sec
D16        0.00020000 sec
IN0        0.00018720 sec

```

```

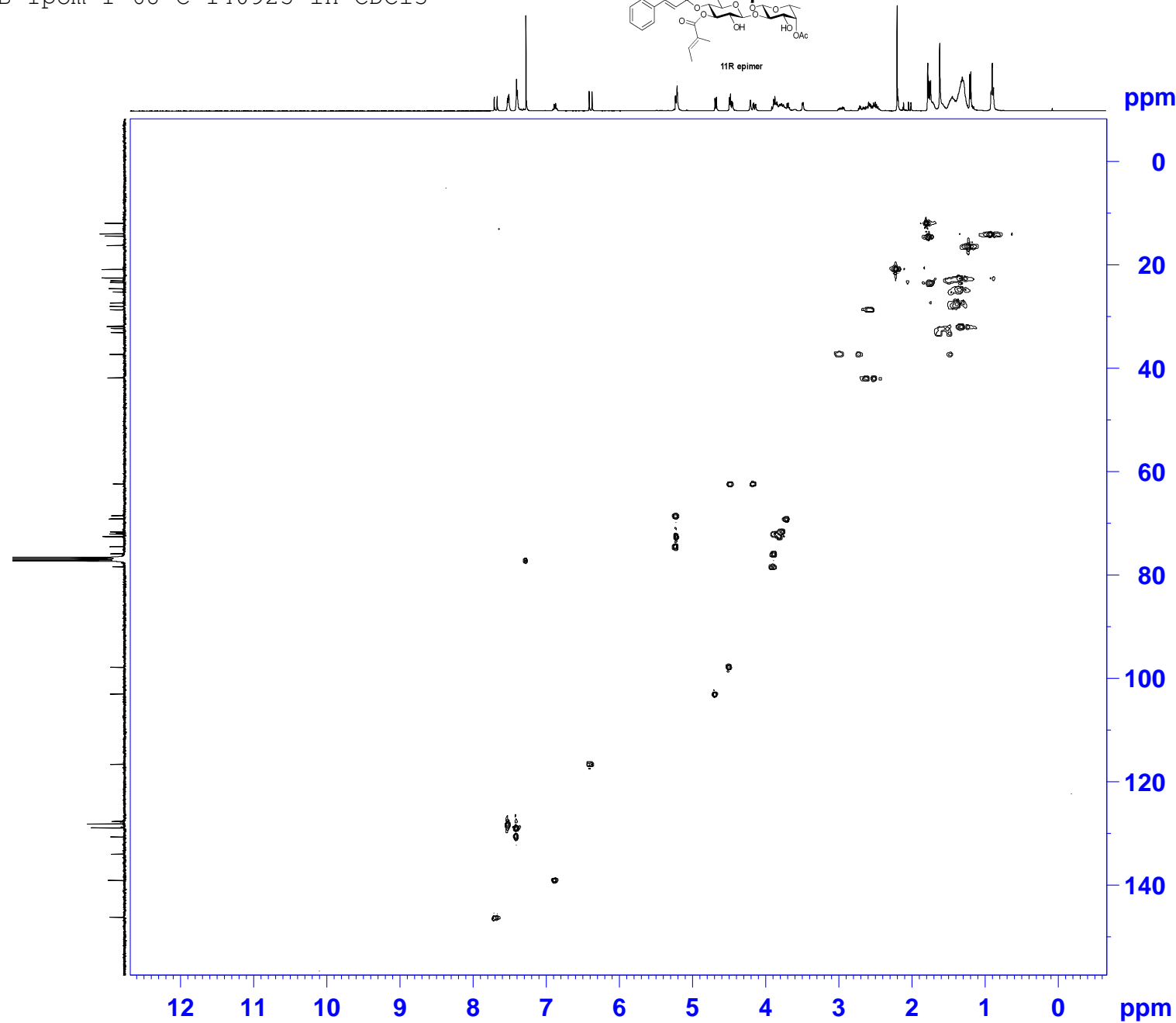
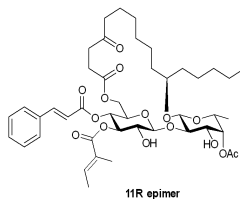
===== CHANNEL f1 =====
NUC1       1H
P0         10.00 usec
P1         10.00 usec
PL1        -3.50 dB
PL1W       31.17620277 W
SFO1       400.1324057 MHz

```

```

===== GRADIENT CHANNEL =====
GPNAM1     SINE.100
GPZ1       10.00 %
P16        1000.00 usec
ND0         1
TD          128
SFO1       400.1324 MHz
FIDRES     41.733440 Hz
SW         13.350 ppm
FnMODE     QF
SI         1024
SF         400.1300040 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB          0
PC          1.00
SI         1024
MC2        QF
SF         400.1300033 MHz
WDW        SINE
SSB         0
LB         0.00 Hz
GB          0

```



NAME EDB-Ipom-1-68-C-140925
 EXPNO 4
 PROCNO 1
 Date_ 20141011
 Time 8.31
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG hsqcetgpsi
 TD 1024
 SOLVENT CDCl3
 NS 2
 DS 16
 SWH 5341.880 Hz
 FIDRES 5.216680 Hz
 AQ 0.0958964 sec
 RG 2050
 DW 93.600 usec
 DE 6.50 usec
 TE 292.4 K
 CNST2 145.000000
 D0 0.0000300 sec
 D1 1.5000000 sec
 D4 0.00172414 sec
 D11 0.03000000 sec
 D13 0.0000400 sec
 D16 0.00020000 sec
 D24 0.00110000 sec
 IN0 0.00003000 sec
 ZGPTNS

==== CHANNEL f1 =====
 NUC1 1H
 P1 10.00 usec
 P2 20.00 usec
 P28 1000.00 usec
 PL1 -3.50 dB
 PL1W 31.17620277 W
 SFO1 400.1324057 MHz

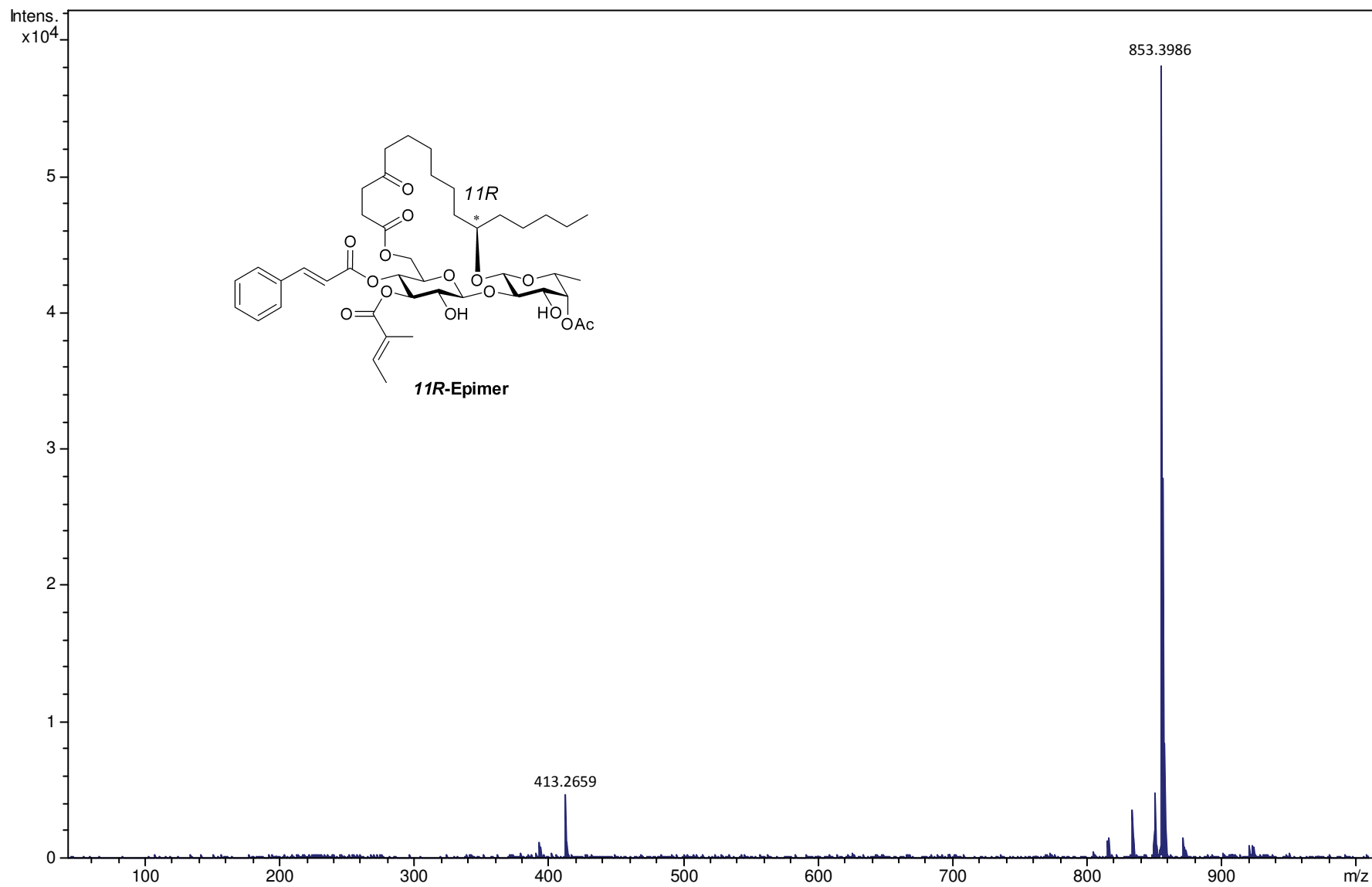
==== CHANNEL f2 =====
 CPDPRG2 garp
 NUC2 13C
 P3 10.00 usec
 P4 20.00 usec
 PCPD2 75.00 usec
 PL2 -2.10 dB
 PL12 15.40 dB
 PL2W 58.37759399 W
 PL12W 1.03811681 W
 SFO2 100.6202727 MHz

==== GRADIENT CHANNEL =====
 GPNAM1 SINE.100
 GPNAM2 SINE.100
 GPZ1 80.00 %
 GPZ2 20.10 %
 P16 1000.00 usec
 ND0 2
 TD 256
 SFO1 100.6203 MHz
 FIDRES 65.104164 Hz
 SW 165.639 ppm
 FmMODE Echo-Antiecho
 SI 1024
 SF 400.1300000 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0
 PC 1.00
 SI 1024
 MC2 echo-antiecho
 SF 100.6127690 MHz
 WDW QSINE
 SSB 2
 LB 0.00 Hz
 GB 0

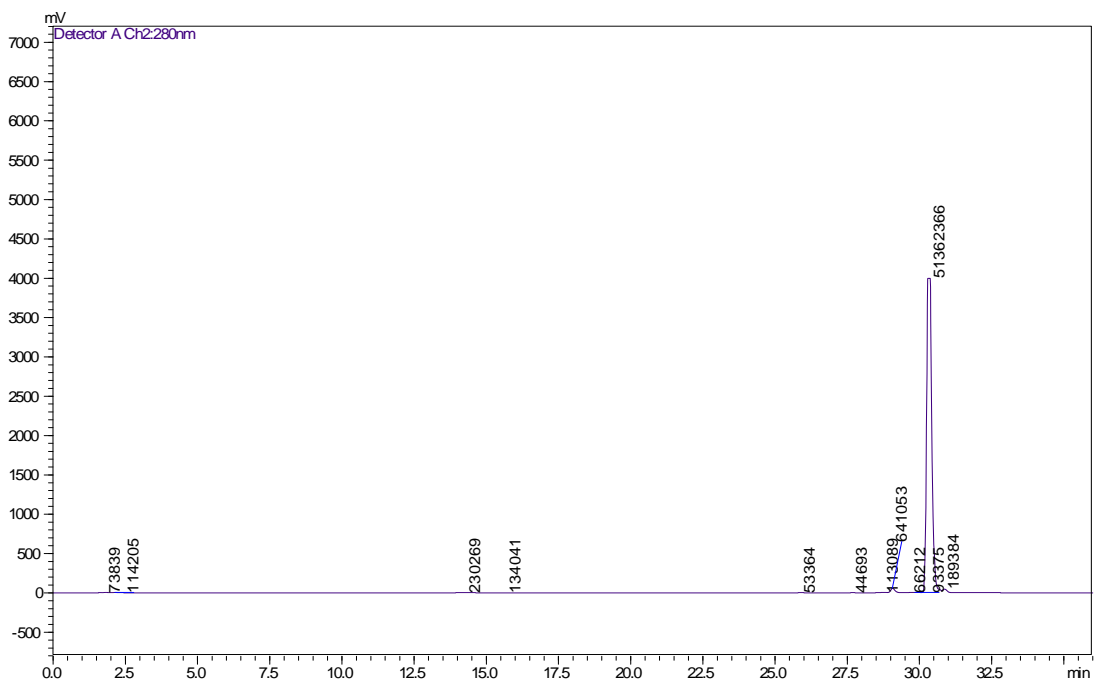
ESI Mass Spectrum

Sample Name: EI-68
Sample id#: 982220
Instrument: ultrOTOF-Q

11/6/2014



HPLC for **Ipomoeassin F** (96.7%; MeCN/H₂O 1:9, 0–5 min; increase to 9:1 over 20 min, 5–25 min; 9:1, 25–35 min; finally return to 1:9 in a minute, 35–36 min; 1 mL/min, t_R = 30.4 min).



HPLC for **11R-Epimer** (95.3%; MeCN/H₂O 3:1; 1 mL/min, t_R = 17.1 min)

