

Supplementary Material

Ionic Liquid Promoted Synthesis and Cholinesterase Inhibitory Activity of Highly Functionalized Spiropyrrolidines

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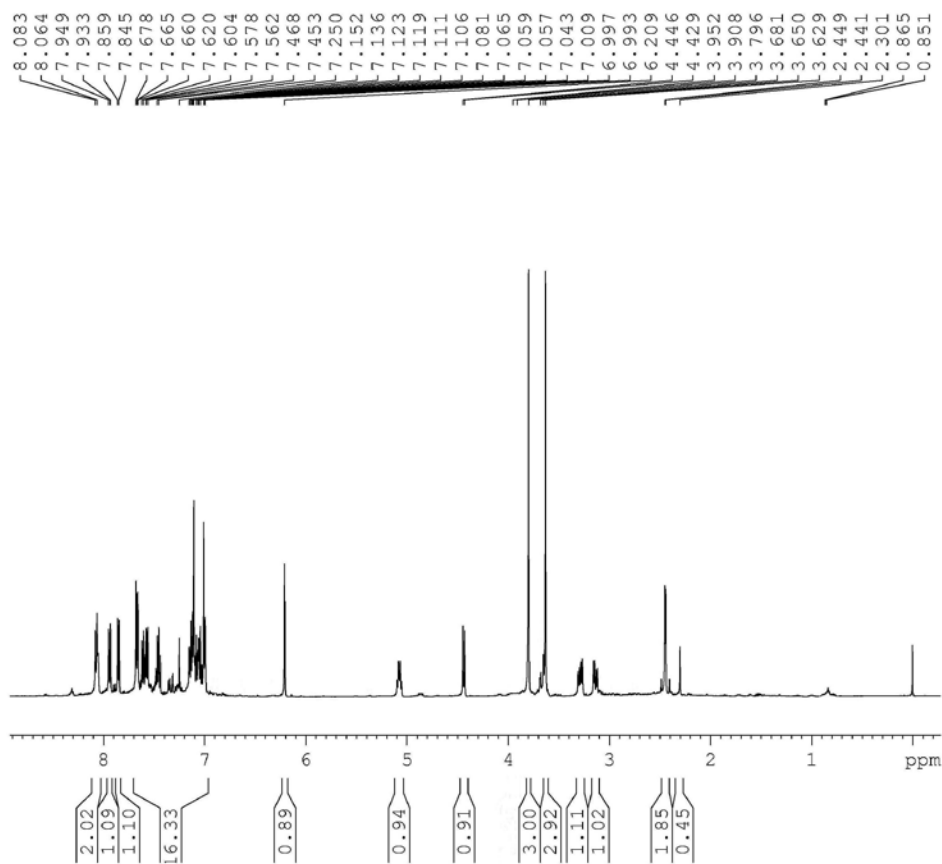
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Current Data Parameters
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 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20131105
 Time 16.59
 INSTRUM spect
 PROBHD 5 mm PABBO BB-
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 s
 RG 64.35
 DW 48.400 us
 DE 6.50 us
 TE 296.1 K
 D1 1.00000000 s

===== CHANNEL f1 =====
 NUC1 1H
 P1 13.20 us
 PLW1 15.00000000 V
 SFO1 500.1330885 MHz

F2 - Processing parameters
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 SF 500.1300178 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

Figure 1 ¹H NMR spectrum of 5j

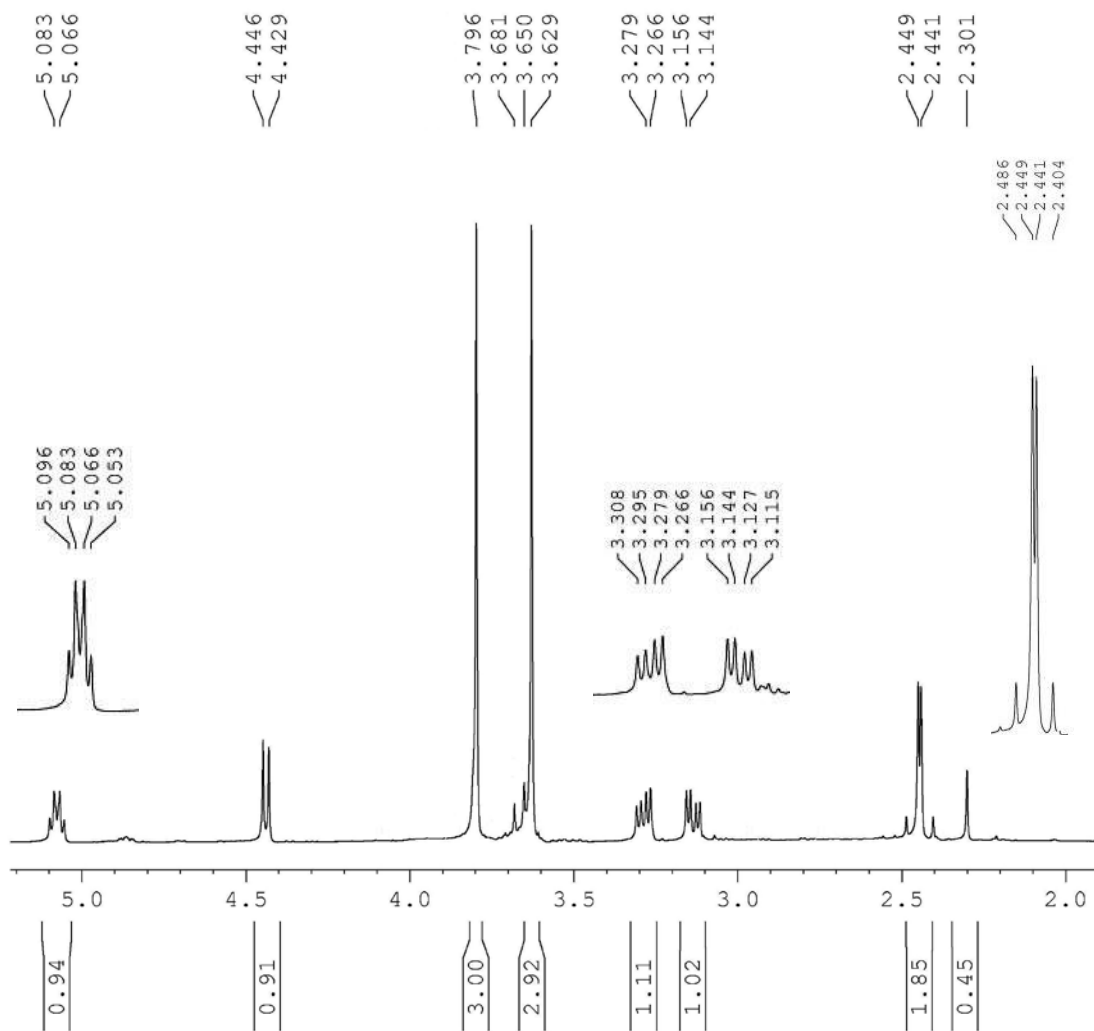


Figure 2 ^1H NMR spectrum of **5j** (Expansion)

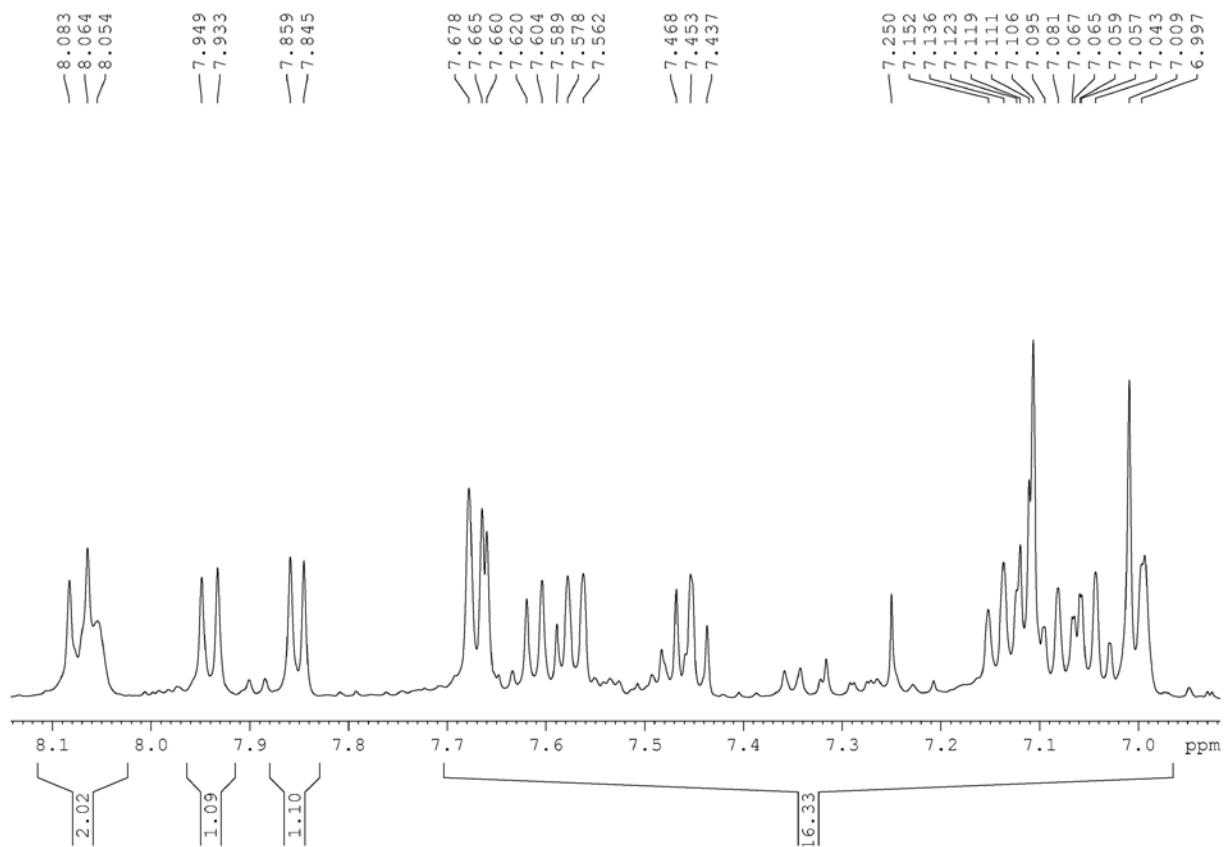
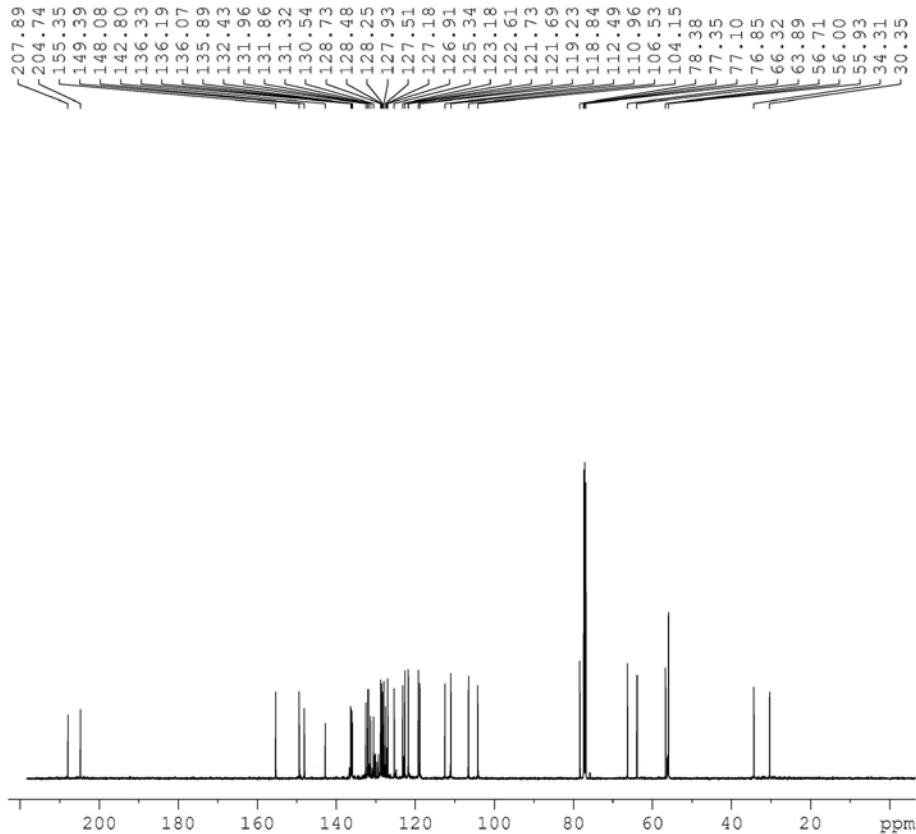


Figure 3 ^1H NMR spectrum of **5j** (Expansion)



```

Current Data Parameters
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EXPNO    14
PROCNO   1

F2 - Acquisition Parameters
Date_    20131106
Time     3.58
INSTRUM  spect
PROBHD   5 mm PABBO BB-
PULPROG  zgpg30
TD       65536
SOLVENT  CDC13
NS       3800
DS       4
SWH      29761.904 F
FIDRES   0.454131 F
AQ       1.1010548 s
RG       188.01
DW       16.800 u
DE       6.50 u
TE       297.1 K
D1       2.00000000 s
D11      0.03000000 s

===== CHANNEL f1 =====
NUC1     13C
P1       10.90 u
PLW1     80.00000000 W
SFO1     125.7703637 M

===== CHANNEL f2 =====
CPDPRG2  waltz16
NUC2     1H
PCPD2    80.00 u
PLW2     15.00000000 W
PLW12    0.40836999 W
PLW13    0.26135999 W
SFO2     500.1320005 M

F2 - Processing parameters
SI       32768
SF       125.7577890 M
WDW      EM
  
```

Figure 4 ^{13}C NMR spectrum of **5j**

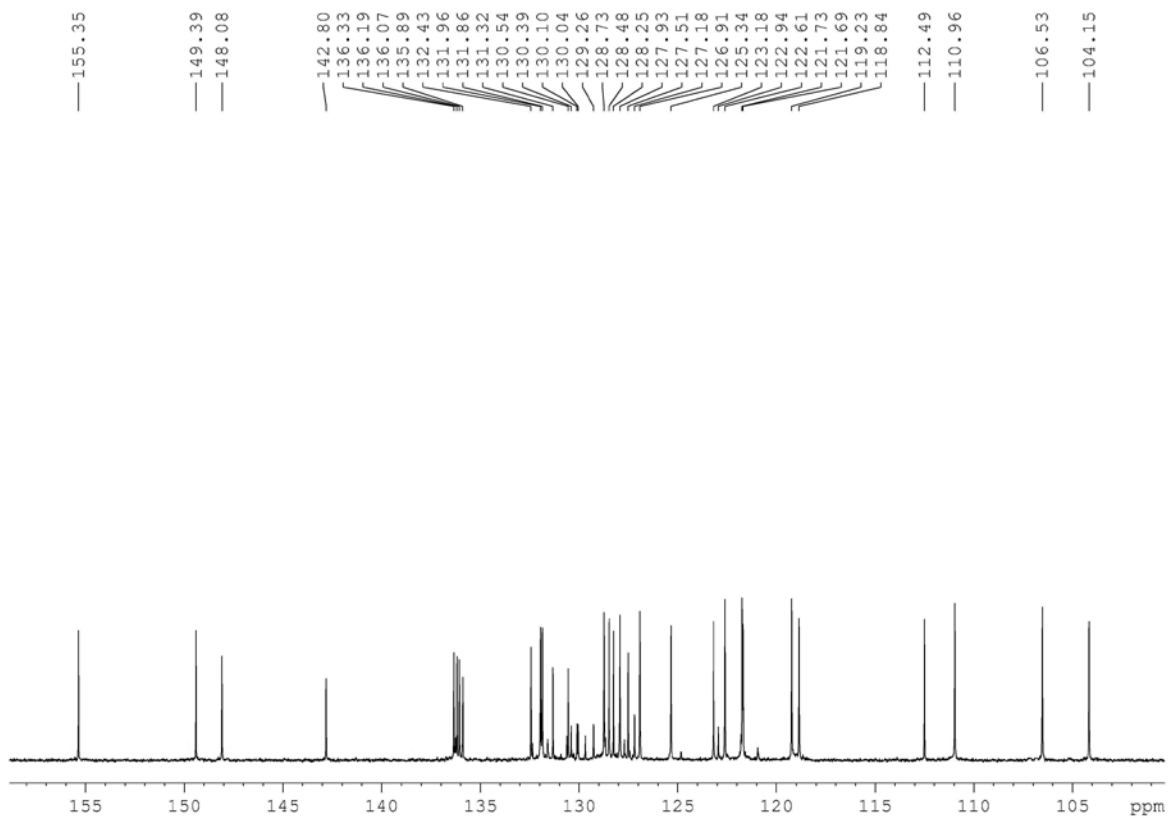
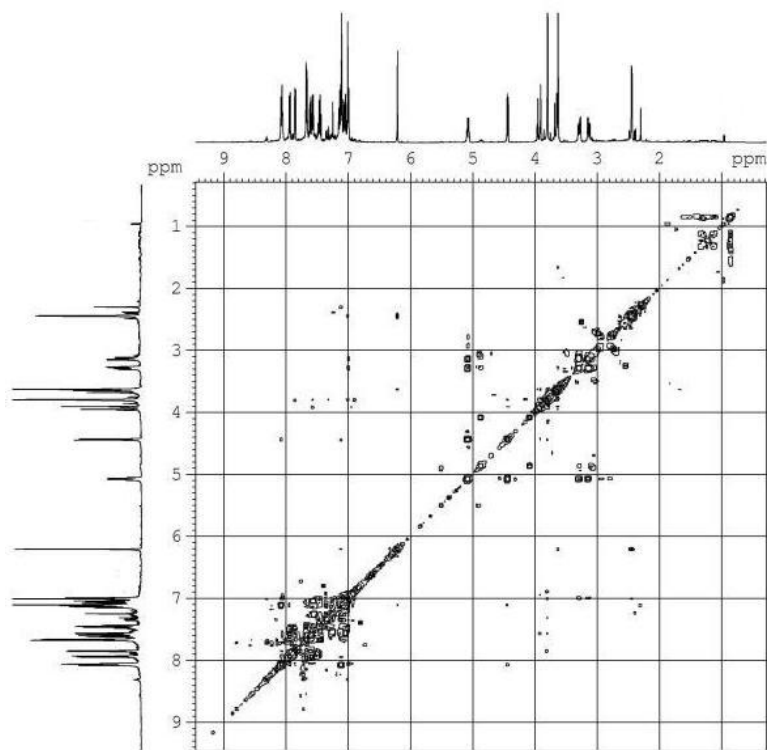


Figure 5 ^{13}C NMR spectrum of **5j** (Expansion)



Current Data Parameters
NAME 20 C
EXPNO 11
PROCNO 1

F2 - Acquisition Parameters
Date_ 20131105
Time 17.01
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG cosygpppqf
TD 2048
SOLVENT CDCl3
NS 12
DS 8
SWH 4587.156 Hz
FIDRES 2.239822 Hz
AQ 0.2232820 s
RG 37.01
DW 109.000 us
DE 6.50 us
TE 296.0 K
D0 0.00000300 s
D1 1.92995799 s
D11 0.03000000 s
D12 0.00002000 s
D13 0.00000400 s
D16 0.00020000 s
IN0 0.00021800 s

=====
CHANNEL f1 =====
NUC1 1H
P0 13.20 us
P1 13.20 us
P17 2500.00 us
PLW1 15.00000000 V
PLW10 3.86630011 V
SFO1 500.1324529 MHz

=====
GRADIENT CHANNEL -
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GPZ1 10.00 us
P16 1000.00 us

F1 - Acquisition parameters

Figure 6 H,H-COSY spectrum of **5j**

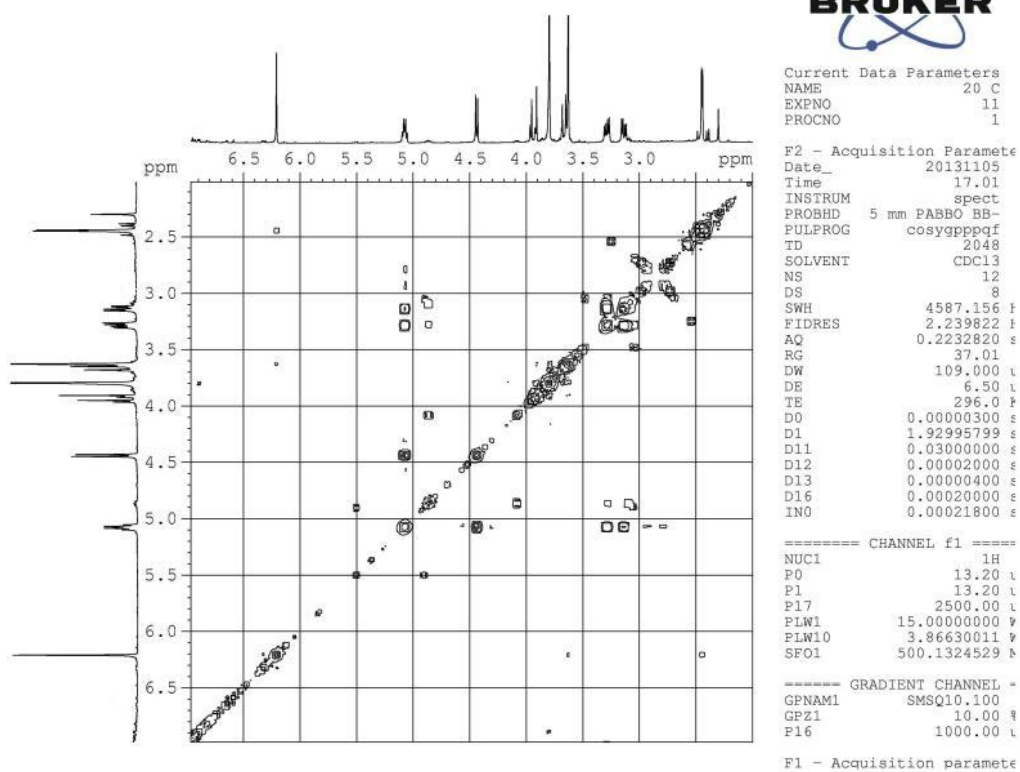
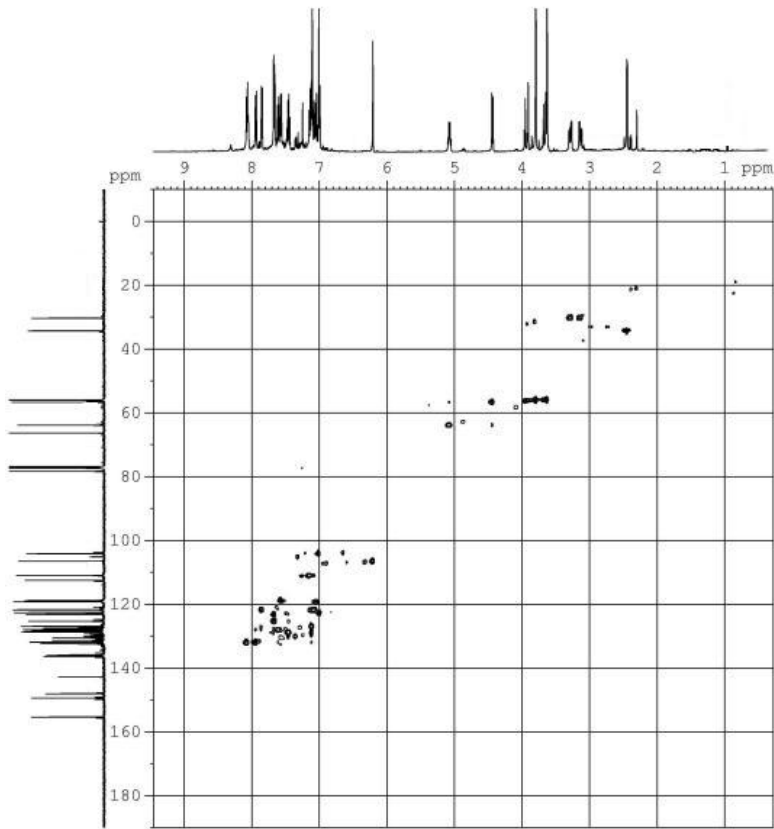


Figure 7 H,H-COSY spectrum of **5j** (Expansion)



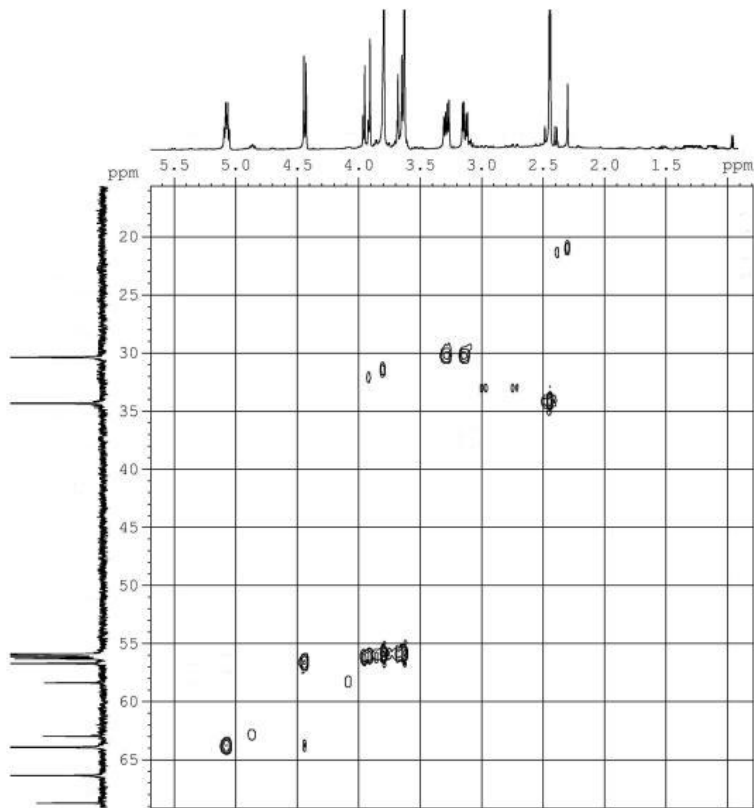
Current Data Parameters
NAME 20 C
EXPNO 13
PROCNO 1

F2 - Acquisition Parameters
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PROBHD 5 mm PABBO BB-
PULPROG hsqcetgpsi2
TD 1024
SOLVENT CDC13
NS 28
DS 16
SWH 4587.156 |
FIDRES 4.479644 |
AQ 0.1116660 |
RG 188.01
DW 109.000 |
DE 6.50 |
TE 296.2 |
CNST2 145.0000000
D0 0.0000300 |
D1 1.46518397 |
D4 0.00172414 |
D11 0.03000000 |
D13 0.00000400 |
D16 0.00020000 |
D24 0.00086207 |
INO 0.00001990 |
ZGPTNS

==== CHANNEL f1 =====
NUC1 1H
P1 13.20 |
P2 26.40 |
P28 1000.00 |
PLW1 15.00000000 |
SFO1 500.1324529 |

==== CHANNEL f2 =====
CPDPRG2 garp
NUC2 13C
P3 9.90 |

Figure 8 C,H-COSY spectrum of 5j



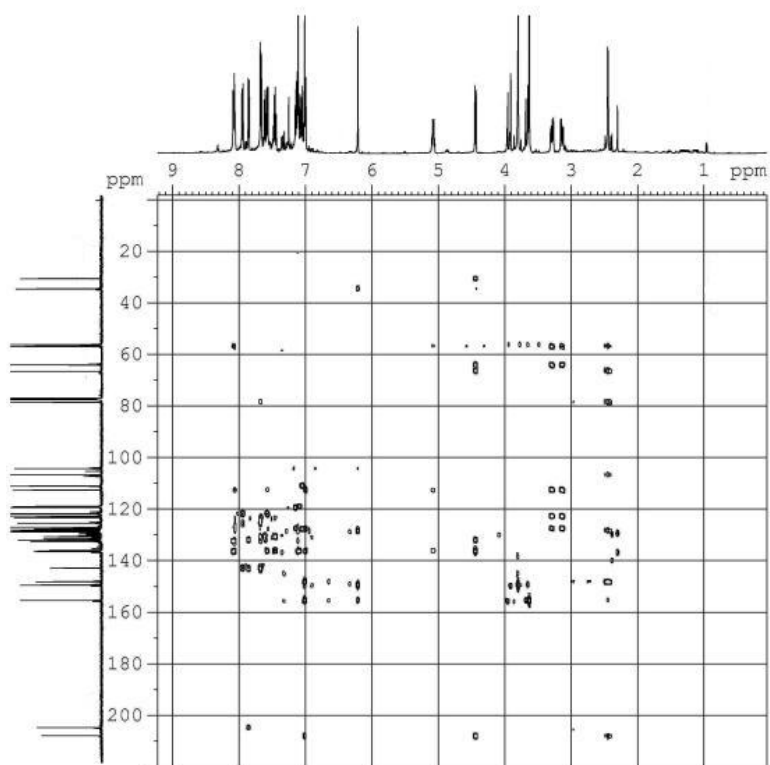
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Current Data Parameters
NAME          20 C
EXPNO         13
PROCNO        1

F2 - Acquisition Parameters
Date_         20131105
Time          21.26
INSTRUM       spect
PROBHD        5 mm PABBO BB-
PULPROG       hsqcetgps12
TD            1024
SOLVENT       CDCl3
NS            28
DS            16
SWH           4587.156 MHz
FIDRES        4.479644 MHz
AQ            0.1116660 sec
RG            188.01
DW            109.000 nsec
DE            6.50 nsec
TE            296.2 K
CNST2         145.0000000
D0            0.00000300 sec
D1            1.46518397 sec
D4            0.00172414 sec
D11           0.03000000 sec
D13           0.00000400 sec
D16           0.00020000 sec
D24           0.00086207 sec
IN0           0.00001990 sec
ZGOPTNS

===== CHANNEL f1 =====
NUC1           1H
P1             13.20 nsec
P2             26.40 nsec
P28            1000.00 nsec
PLW1           15.00000000 sec
SFO1           500.1324529 MHz

===== CHANNEL f2 =====
CPDPRG2       garp
NUC2           13C
P3             9.90 nsec
```

Figure 9 C,H-COSY spectrum of **5j** (Expansion)



Current Data Parameters
NAME 20 C
EXPNO 12
PROCNO 1

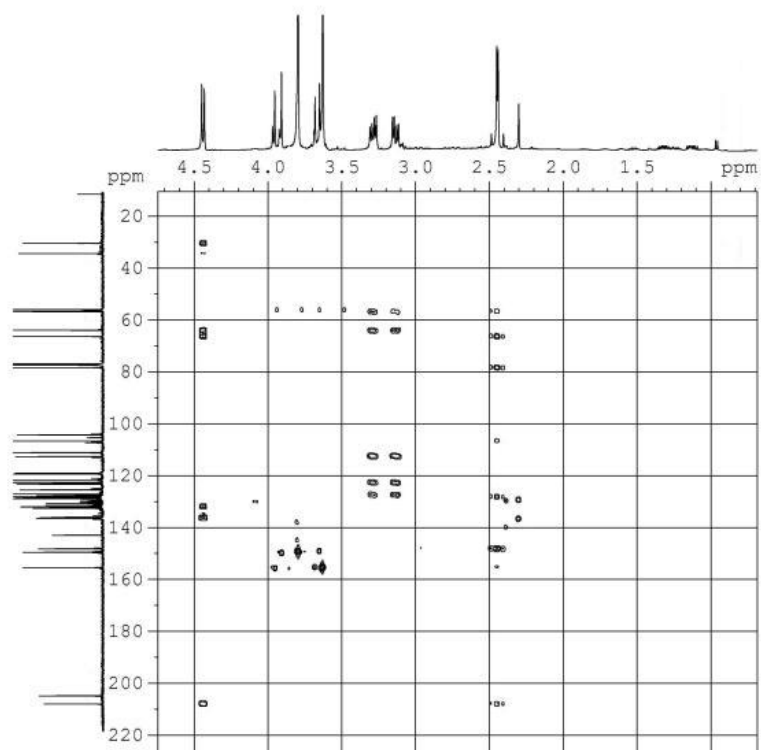
F2 - Acquisition Parameters
Date_ 20131105
Time 18.00
INSTRUM spect
PROBHD 5 mm PABBO BB-
PULPROG hmbcgp1pndqf
TD 2048
SOLVENT CDCl3
NS 56
DS 16
SWH 4587.156 Hz
FIDRES 2.239822 Hz
AQ 0.2232820 s
RG 188.01
DW 109.000 us
DE 6.50 us
TE 296.0 K
CNST2 145.0000000
CNST3 10.0000000
D0 0.00000300 s
D1 1.43405402 s
D2 0.00344828 s
D6 0.05000000 s
D16 0.00020000 s
IN0 0.00001790 s

===== CHANNEL f1 =====
NUC1 1H
P1 13.20 us
P2 26.40 us
PLW1 15.00000000 V
SFO1 500.1324529 MHz

===== CHANNEL f2 =====
NUC2 13C
P3 9.90 us
PLW2 80.00000000 V
SFO2 125.7703437 MHz

===== GRADIENT CHANNEL =====

Figure 10 HMBC spectrum of 5j



```
Current Data Parameters
NAME      20 C
EXPNO    12
PROCNO   1

F2 - Acquisition Parameters
Date_    20131105
Time     18.00
INSTRUM spect
PROBHD   5 mm PABBO BB-
PULPROG hmbcggplndqf
TD       2048
SOLVENT  CDCl3
NS       56
DS       16
SWH      4587.156 F
FIDRES   2.239822 F
AQ       0.2232820 s
RG       188.01
DW       109.000 u
DE       6.50 u
TE       296.0 K
CNST2    145.0000000
CNST13   10.0000000
D0       0.00000300 s
D1       1.43405402 s
D2       0.00344828 s
D6       0.05000000 s
D16      0.00020000 s
IN0      0.00001790 s

===== CHANNEL f1 =====
NUC1     1H
P1       13.20 u
P2       26.40 u
PLW1    15.00000000 V
SFO1    500.1324529 M

===== CHANNEL f2 =====
NUC2     13C
P3       9.90 u
PLW2    80.00000000 V
SFO2    125.7703437 M

===== GRADIENT CHANNEL =
```

Figure 11 HMBC spectrum of 5j (Expansion)

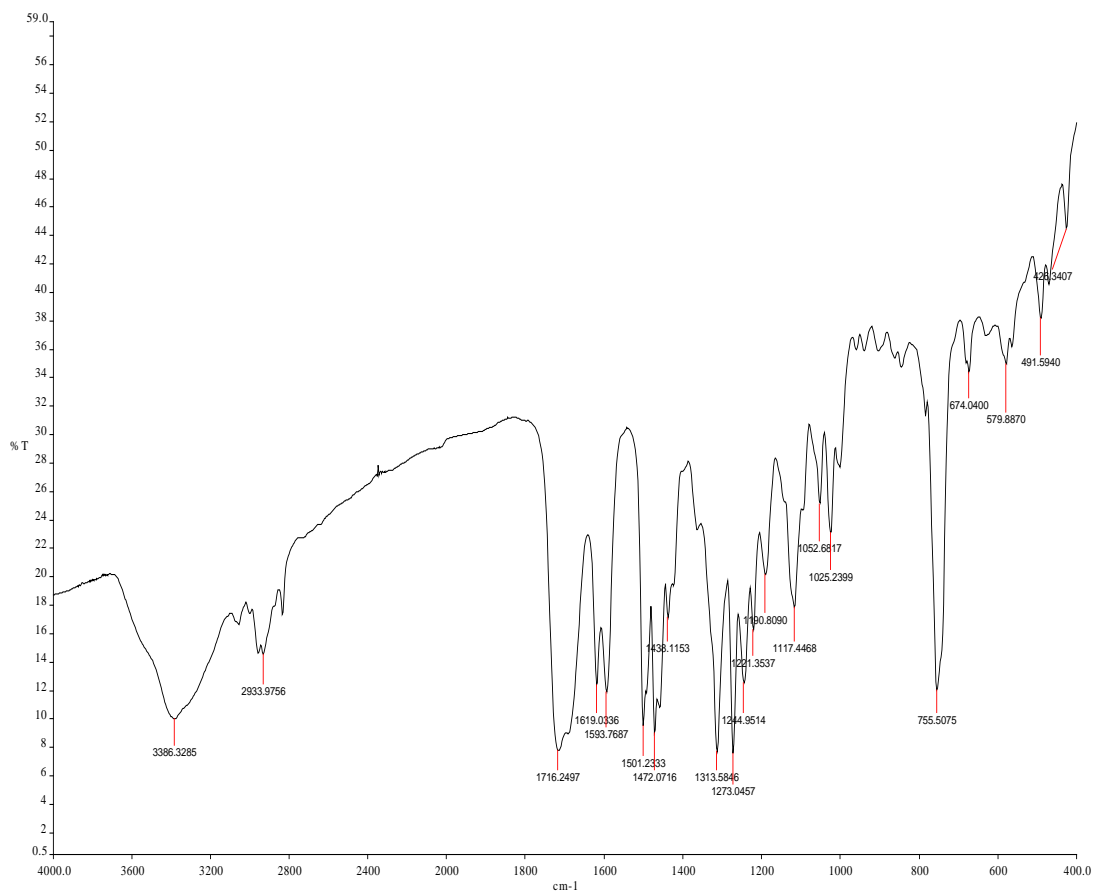


Figure 12 FT-IR spectrum of **5j**