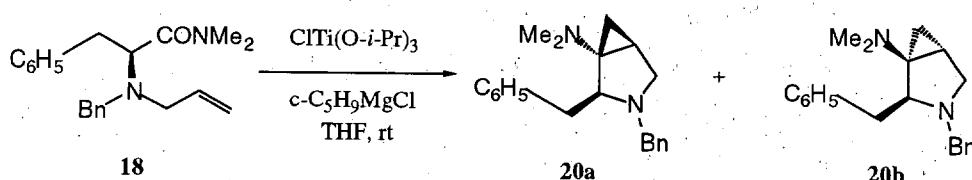


## SUPPORTING INFORMATION

## General

All solvents were reagent grade and were distilled before use. Tetrahydrofuran (THF) was distilled over sodium and benzophenone. Reagent cyclopentyl magnesium chloride was purchased from Aldrich. Proton magnetic resonance spectra (<sup>1</sup>H NMR) and carbon magnetic resonance spectra (<sup>13</sup>C NMR) were recorded on a Bruker AMX-500 spectrometer. Chemical shifts are in parts per million (ppm) relative to the solvent as the internal reference. Infrared spectra were obtained on a Perkin-Elmer Model 281-B spectrometer. Absorptions were reported in wavenumber (cm<sup>-1</sup>). Optical rotations (in degrees) were measured with a Perkin-Elmer Model 241 polarimeter. Flash column chromatography was carried out on E. Merck silica gel 60 (240-400 mesh) using the solvent systems listed under individual experiments.

## Representative Procedure for the Intramolecular Aminocyclopropanation



To a solution of 2-(allylbenzylamino)-N,N-dimethyl-3-phenyl-propionamide (**18**, 50mg, 0.155 mmol) in 1.55 mL anhydrous THF was added ClTi(O-*i*-Pr)<sub>3</sub> (0.155 mL of 1.0 M solution in hexanes, 1.0 equiv), cyclopentyl magnesium chloride (0.349 mL of 2.0 M solution in diethyl ether, 4.5 equiv) was added dropwise at room temperature over a period of 1 h. The reaction mixture was stirred for an additional 2 h, poured into ice water (5 mL), and stirred for 30 min. THF was evaporated under reduced pressure and 10 mL Et<sub>2</sub>O was added to the residue. The organic layer was separated, and the aqueous layer was extracted with ether (3x10 mL). The combined extracts were washed with aqueous NaHCO<sub>3</sub> (10 mL), followed by brine (10 mL), and dried over Na<sub>2</sub>SO<sub>4</sub>. Evaporation of the solvent, followed by silica gel column chromatography (acetone-hexanes, 10:90) of the residue afforded 28 mg (60% yield) of **20a** as a light yellow solid, and 11mg (23%) of **20b** as a light yellow oil.

(1R,2S,6S)-2,3-Dibenzyl-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**20a**)

- Mp: 32.8-33.8 °C; R<sub>f</sub> 0.2 (ethyl acetate:petroleum ether, 20:80); [α]<sub>D</sub><sup>20</sup> +18.4 (c=1.0, CHCl<sub>3</sub>); <sup>1</sup>H NMR (500MHz, CDCl<sub>3</sub>) δ 7.14-7.32 (m, 10H), 3.81 (d, 1H, J = 13.3 Hz), 3.18 (m, 1H), 3.14-3.19 (dd, 1H, J = 4.2 Hz, 13.7 Hz), 3.02 (d, 1H, J = 13.3 Hz), 2.86 (dd, 1H, J = 13.7 Hz, 4.8 Hz), 2.72 (d, 1H, J = 9.0 Hz), 2.38 (s, 6H), 2.30 (dd, 1H, J = 3.9 Hz, 9.0Hz), 1.24 (m, 1H), 0.89 (dd, 1H, J = 4.5 Hz), 0.59 (dd, 1H, J = 4.5 Hz, 8.7Hz); <sup>13</sup>C NMR (500MHz, CDCl<sub>3</sub>) δ 140.4, 139.8, 129.6, 128.4, 128.0, 128.0, 126.6, 125.8, 62.9, 58.3, 55.4, 54.6, 42.2, 38.7, 21.7, 14.5; IR (neat): 3026, 2926.7, 2817.4, 2776.9, 1602.1, 1494.0, 1452.2, 1376.8, 1351.6, 737.2, 697.1 cm<sup>-1</sup>; HRMS calcd for MH<sup>+</sup> C<sub>21</sub>H<sub>27</sub>N<sub>2</sub>, 307.2174; found, 307.2160.

(1S,2S,6R)-2,3-Dibenzyl-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**20b**)

- $R_f$  0.2 (ethyl acetate:petroleum ether, 5:95);  $[\alpha]_D^{20}$  -48.0 (c=1.0,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  7.07-7.23 (m, 10H), 3.68 (d, 1H,  $J$  = 13.8 Hz), 3.55 (d, 1H,  $J$  = 13.8 Hz), 3.42 (dd, 1H,  $J$  = 4.7 Hz, 6.4 Hz), 3.10 (dd, 1H,  $J$  = 13.8 Hz, 4.5 Hz), 2.79 (dd, 1H,  $J$  = 3.2 Hz, 9.3 Hz), 2.73 (dd, 1H,  $J$  = 6.4 Hz, 13.8Hz), 2.51 (d, 1H,  $J$  = 9.3 Hz), 2.12 (s, 6H), 1.55-1.58 (m, 1H), 0.72 (dd, 1H,  $J$  = 4.2 Hz, 8.5 Hz), 0.63 (dd, 1H,  $J$  = 4.0 Hz);  $^{13}\text{C}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  142.5, 140.5, 129.6, 128.2, 127.9, 127.8, 126.4, 125.0, 68.0, 57.0, 55.8, 51.9, 42.1, 34.5, 22.8, 8.45; IR (neat): 3025.2, 2936.1, 2817.4, 2774.8, 1602.1, 1493.4, 1452.7, 1348.6, 730.7, 697.3  $\text{cm}^{-1}$ ; HRMS calcd for  $\text{MH}^+$   $\text{C}_{21}\text{H}_{27}\text{N}_2$ , 307.2174; found, 307.2160.

(1R,2S,6S)-3-Benzyl-2-(4-hydroxybenzyl)-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**22a**)

- Mp: 143-144 °C;  $R_f$  0.35 (acetone:hexanes, 30:70);  $[\alpha]_D^{20}$  +14.4 (c=1.0,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  7.15-7.29 (m, 7H), 6.70 (d, 2H,  $J$  = 8.1 Hz), 5.88 (br, s, 1H), 3.84 (d, 1H,  $J$  = 13.3 Hz), 3.16 (m, 1H), 3.02-3.10 (m, 2H), 2.81 (d, 1H,  $J$  = 10.5 Hz), 2.72 (d, 1H,  $J$  = 8.4 Hz), 2.38 (s, 6H), 2.31 (m, 1H), 1.28 (m, 1H), 0.89 (m, 1H), 0.62 (d, 1H,  $J$  = 3.0 Hz);  $^{13}\text{C}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  154.0, 139.5, 132.1, 130.6, 128.5, 128.1, 126.6, 115.2, 62.8, 58.3, 55.4, 54.5, 42.3, 37.7, 21.9, 14.5; IR (neat): 3300 (br), 2930.5, 2785.1, 1612.6, 1514.3, 1453.5, 1240.1, 1170.0, 827.1, 751.7, 699.2  $\text{cm}^{-1}$ ; HRMS calcd for  $\text{MH}^+$   $\text{C}_{21}\text{H}_{27}\text{N}_2\text{O}$ , 323.2123; found, 323.2111.

(1S,2S,6R)-3-Benzyl-2-(4-hydroxybenzyl)-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**22b**)

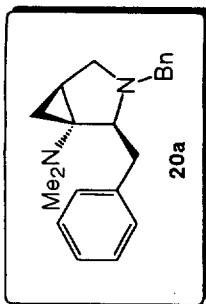
- $R_f$  0.55 (acetone:hexanes, 30:70);  $[\alpha]_D^{20}$  -34.2 (c=1.0,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  7.08-7.24 (m, 7H), 6.67 (d, 2H,  $J$  = 8.4 Hz), 4.91 (br, s, 1H), 3.68 (d, 1H,  $J$  = 13.8 Hz), 3.56 (d, 1H,  $J$  = 13.8 Hz), 3.35 (m, 1H), 3.01 (dd, 1H,  $J$  = 13.7 Hz, 3.6 Hz), 2.79 (dd, 1H,  $J$  = 6.9 Hz, 8.7 Hz), 2.68 (dd, 1H,  $J$  = 6.1 Hz, 13.6 Hz), 2.49 (d, 1H,  $J$  = 9.4 Hz), 2.13 (s, 6H), 1.56 (m, 1H), 0.74 (dd, 1H,  $J$  = 3.6 Hz, 7.7Hz), 0.59 (m, 1H);  $^{13}\text{C}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  153.2, 140.5, 134.4, 130.7, 128.2, 128.0, 126.4, 114.7, 68.2, 57.3, 55.8, 52.0, 42.0, 33.8, 22.9, 8.73; IR (neat): 3318.8 (br), 2934.8, 2817.8, 2776.1, 1612.3, 1513.5, 1453.3, 1352.2, 1243.2, 1170.4, 828.5, 740.0, 698.4  $\text{cm}^{-1}$ ; HRMS calcd for  $\text{MH}^+$   $\text{C}_{21}\text{H}_{27}\text{N}_2\text{O}$ , 323.2123; found, 323.2118.

(1R,2S,6S)-3-Benzyl-2-(1*H*-indol-3-ylmethyl)-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**27a**)

- $R_f$  0.35 (acetone:hexanes, 30:70);  $[\alpha]_D^{20}$  -9.8 (c=1.0,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  7.97 (br, s, 1H), 7.72 (d, 1H,  $J$  = 7.7 Hz), 7.30 (d, 1H,  $J$  = 7.8 Hz), 7.10-7.23 (m, 7H), 7.05 (d, 1H,  $J$  = 1.9 Hz), 3.80 (d, 1H,  $J$  = 13.3 Hz), 3.36 (dd, 1H,  $J$  = 4.1 Hz, 6.1 Hz), 3.30 (dd, 1H,  $J$  = 4.0 Hz, 15.3 Hz), 2.98-3.03 (m, 2H), 2.77 (d, 1H,  $J$  = 9.0 Hz), 2.42 (s, 6H), 2.33 (dd, 1H,  $J$  = 3.9 Hz, 9.0Hz), 1.30 (m, 1H), 1.09 (dd, 1H,  $J$  = 4.3 Hz), 0.65 (dd, 1H,  $J$  = 4.4 Hz, 8.6Hz);  $^{13}\text{C}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  140.0, 136.3, 128.4, 127.9, 127.9, 126.5, 122.1, 121.8, 119.3, 119.1, 114.8, 111.0, 61.2, 58.8, 56.0, 54.9, 42.2, 28.9, 22.4, 14.5; IR (neat): 3420.3, 3058.2, 2922.9, 2783.6, 1619.7, 1493.8, 1477.5, 1453.8, 1353.2, 738.7, 699.2  $\text{cm}^{-1}$ ; HRMS calcd for  $\text{M}^+$   $\text{C}_{23}\text{H}_{27}\text{N}_3$ , 345.2205; found, 345.2203.

(1S,2S,6R)-3-Benzyl-2-(1*H*-indol-3-ylmethyl)-3-aza-bicyclo[3.1.0]hex-1-yl-dimethyl amine (**27b**)

- $R_f$  0.55 (acetone:hexanes, 30:70);  $[\alpha]_D^{20}$  -30.3 ( $c=1.0$ ,  $\text{CHCl}_3$ );  $^1\text{H}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  7.81 (br, s, 1H), 7.60 (d, 1H,  $J = 7.8$  Hz), 7.28 (d, 1H,  $J = 8.0$  Hz), 7.06-7.21 (m, 7H), 6.92 (d, 1H,  $J = 1.7$  Hz), 3.73 (d, 1H,  $J = 14.0$  Hz), 3.56 (d, 1H,  $J = 14.0$  Hz), 3.51 (dd, 1H,  $J = 4.0$  Hz, 6.9 Hz), 3.29 (dd, 1H,  $J = 3.9$  Hz, 14.8 Hz), 2.91 (dd, 1H,  $J = 3.2$  Hz, 9.3 Hz), 2.84 (dd, 1H,  $J = 7.0$  Hz, 14.8 Hz), 2.50 (d, 1H,  $J = 9.3$  Hz), 2.21 (s, 6H), 1.61 (m, 1H), 0.77 (dd, 1H,  $J = 4.2$  Hz, 8.5 Hz), 0.62 (dd, 1H,  $J = 4.0$  Hz);  $^{13}\text{C}$  NMR (500MHz,  $\text{CDCl}_3$ )  $\delta$  140.9, 136.1, 128.1, 128.0, 127.9, 126.3, 122.5, 121.4, 119.2, 118.8, 115.9, 110.9, 67.2, 57.2, 55.9, 52.2, 42.4, 23.8, 23.0, 9.34; IR (neat): 3421.1, 3057.1, 2935.8, 2817.0, 2774.6, 1617.9, 1492.5, 1454.1, 1351.1, 738.1, 698.0  $\text{cm}^{-1}$ ; HRMS calcd for  $\text{MH}^+ \text{C}_{23}\text{H}_{28}\text{N}_3$ , 346.2283; found, 346.2273.



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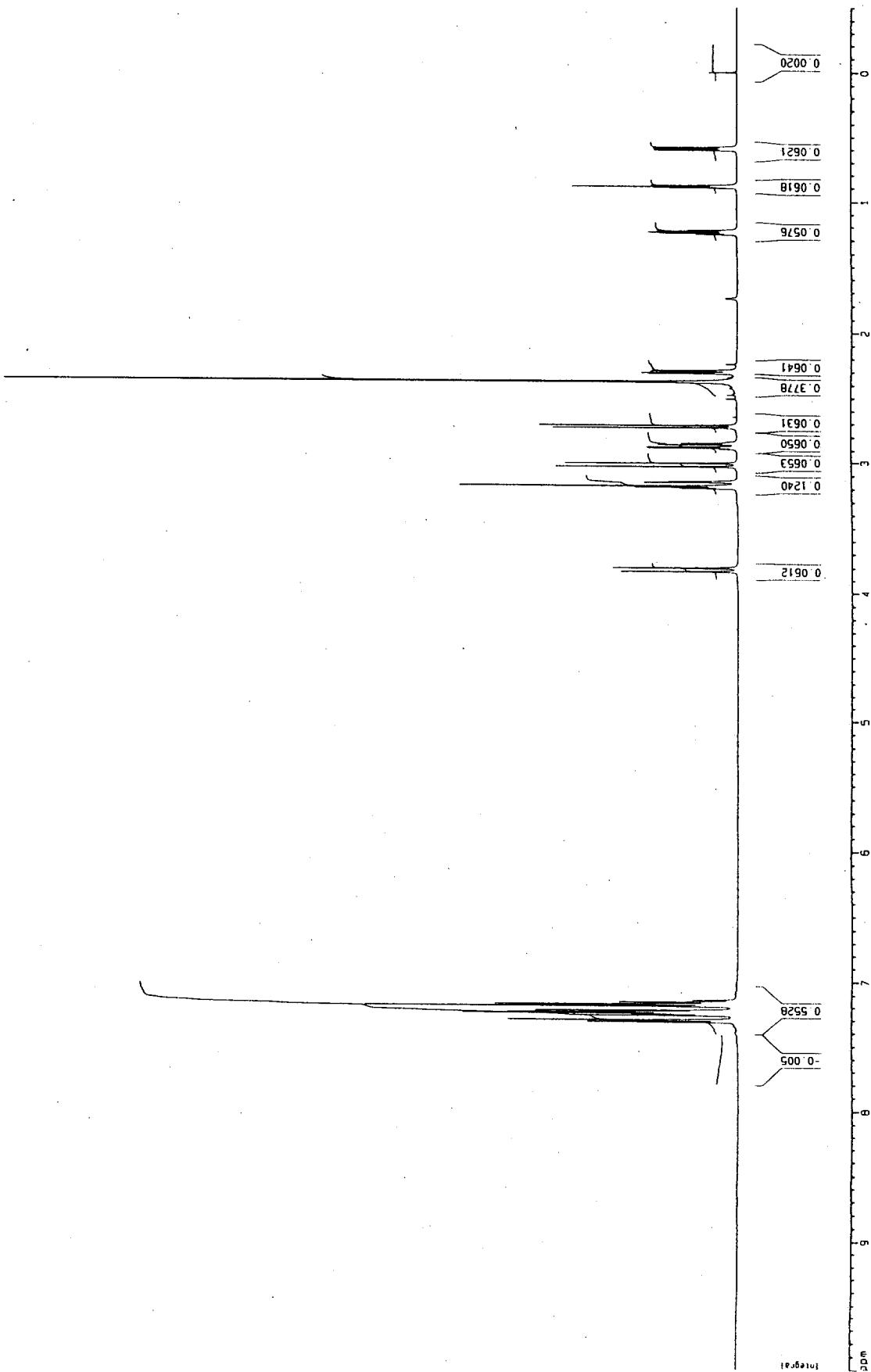
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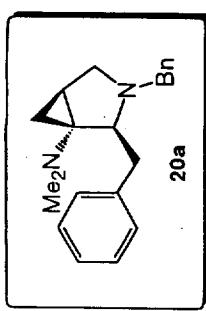
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## Current Date Parameters

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EPRD

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PROD

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DS\_ 2

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TE\_ 200.0 K

NU1\_ 40 dB

D11\_ 0.020000 sec

S1\_ 24 dB

D1\_ 2.000000 sec

CPDPRG\_ walt16

P11\_ 107.00 usec

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P1\_ 18.75 usec

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MOLUS\_ 13C

PPM

F2 - Processing parameters

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T0\_ 10

NOESY param

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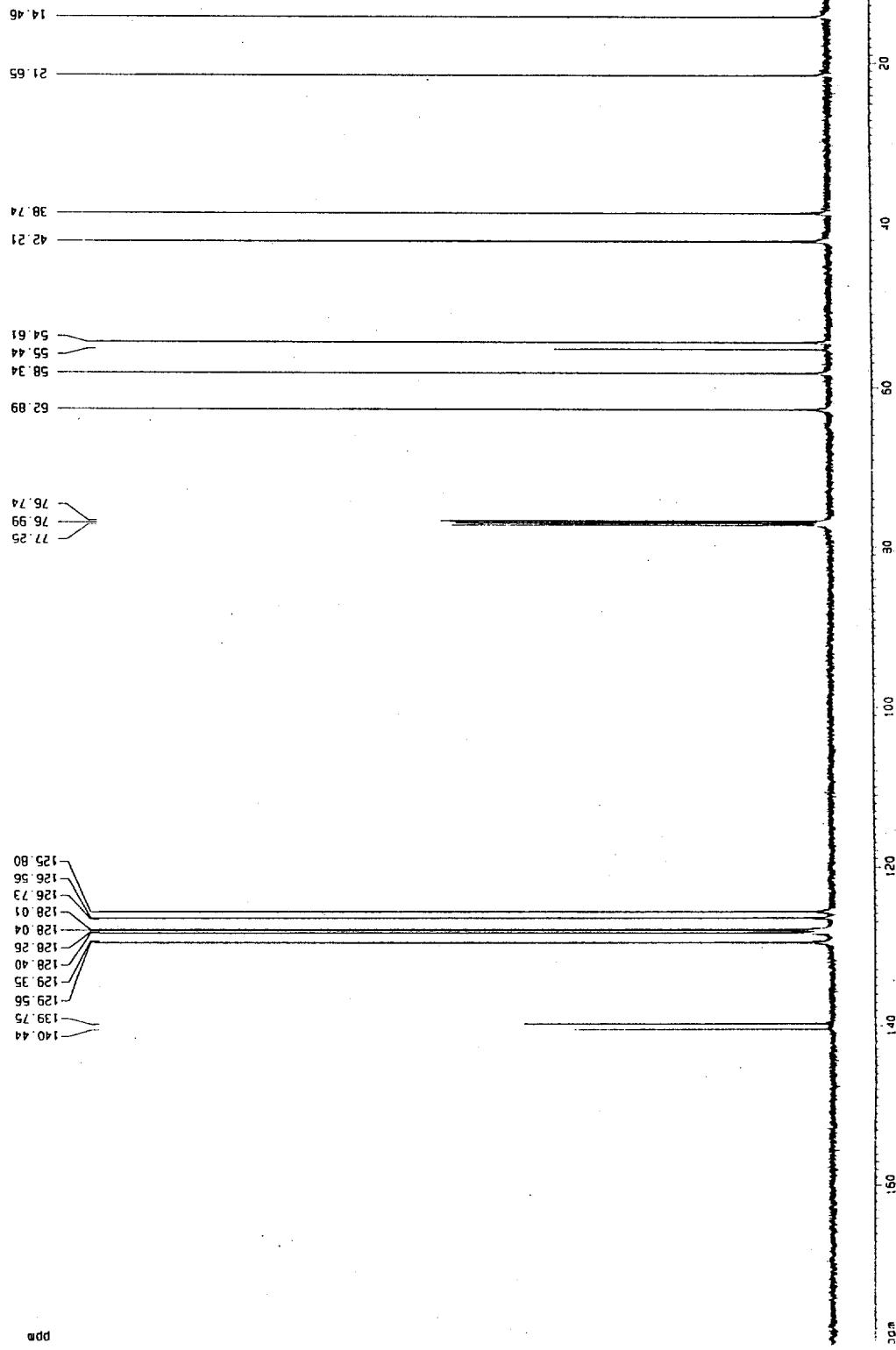
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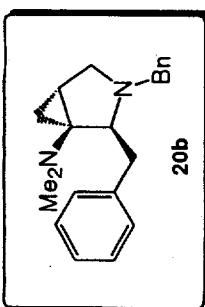
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PPM



<sup>1</sup>H-NMR

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EPRD

PROD

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NUCLEUS	1H

F2 - Processing parameters

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MHz

of

water

C1

35.00

cm

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ppm

F1

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Hz

F2P

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ppm

F2

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Hz

PPM

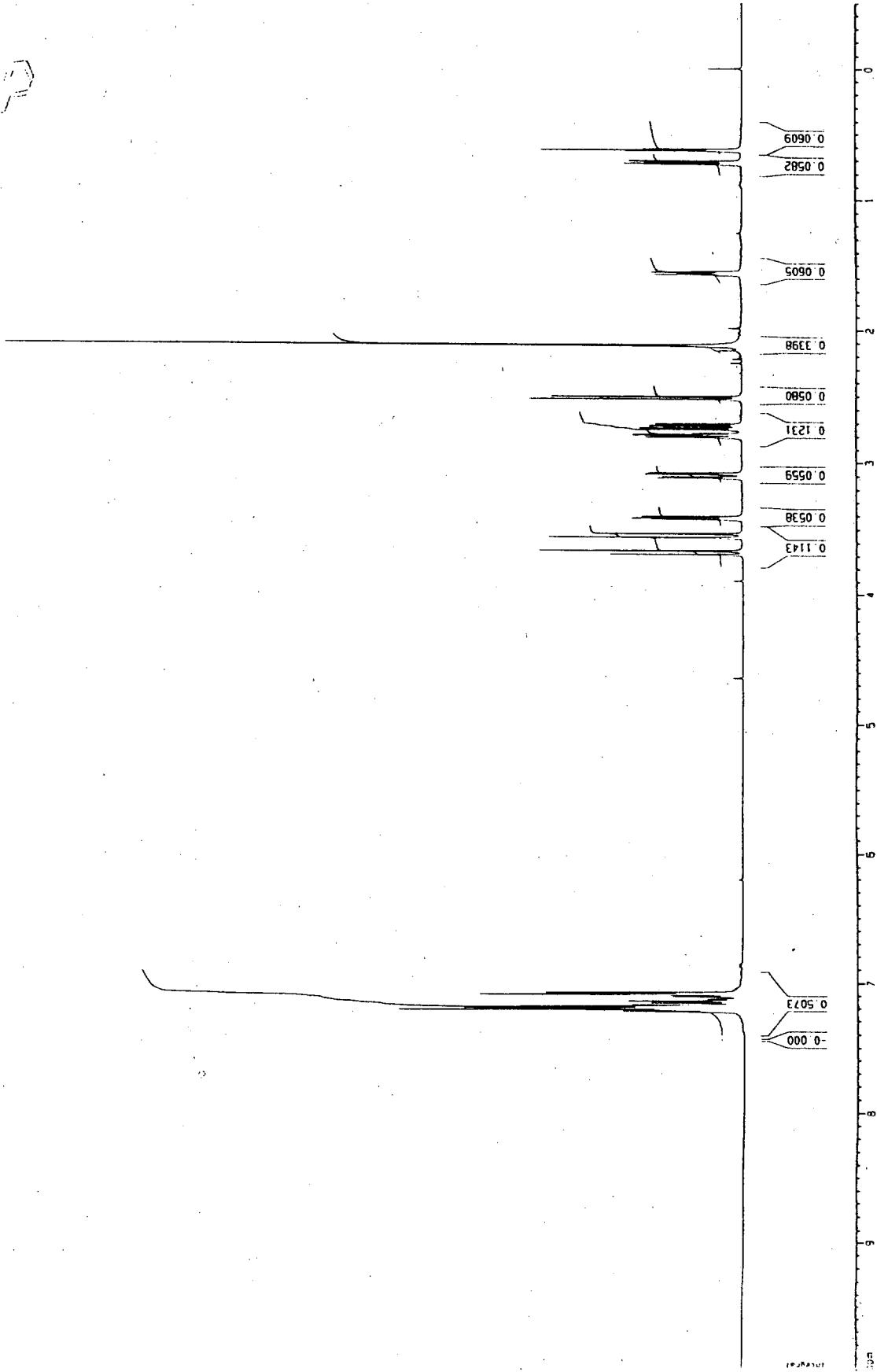
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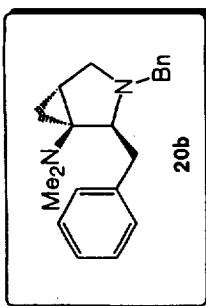
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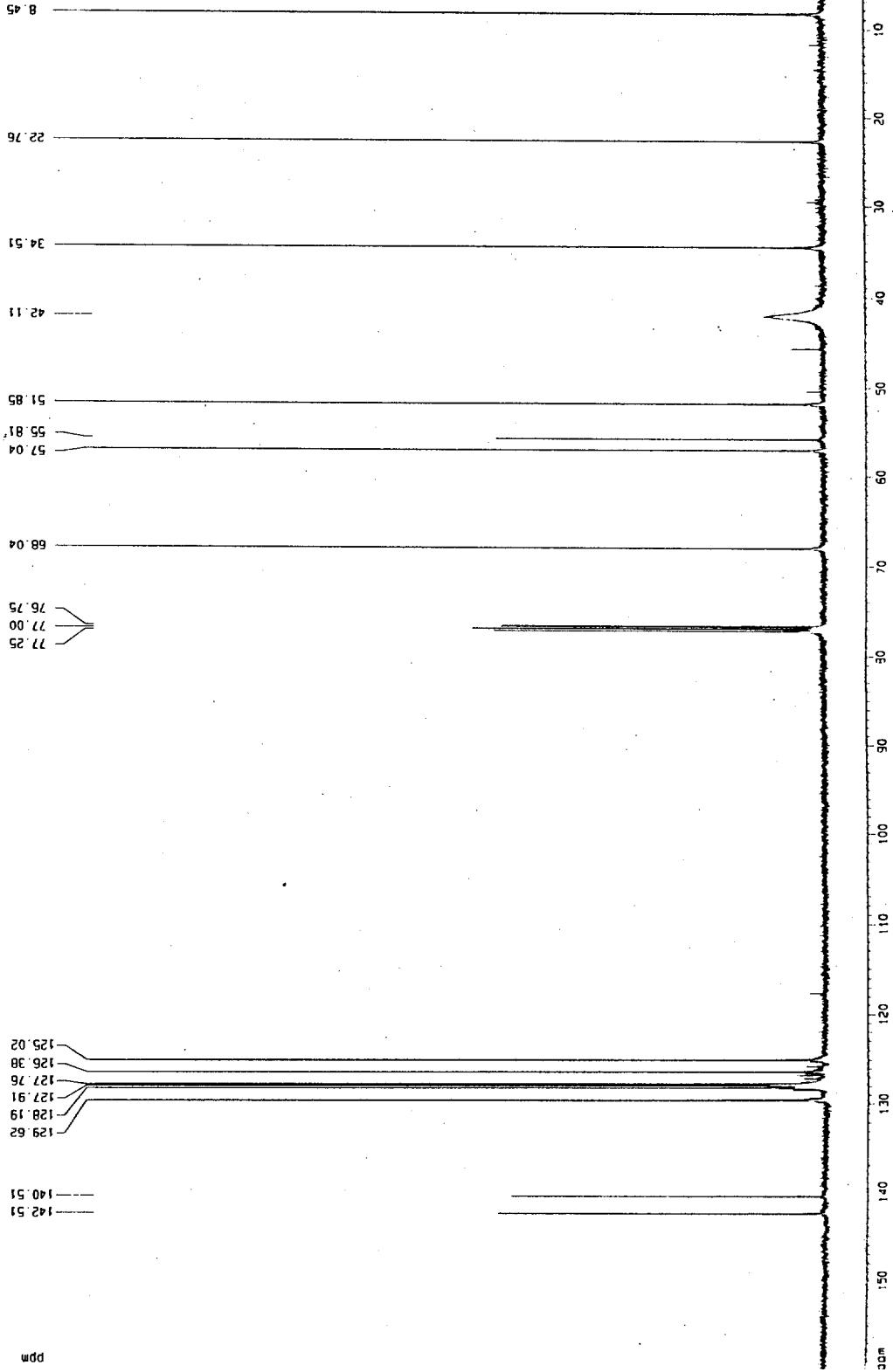
<sup>13</sup>C-NMR

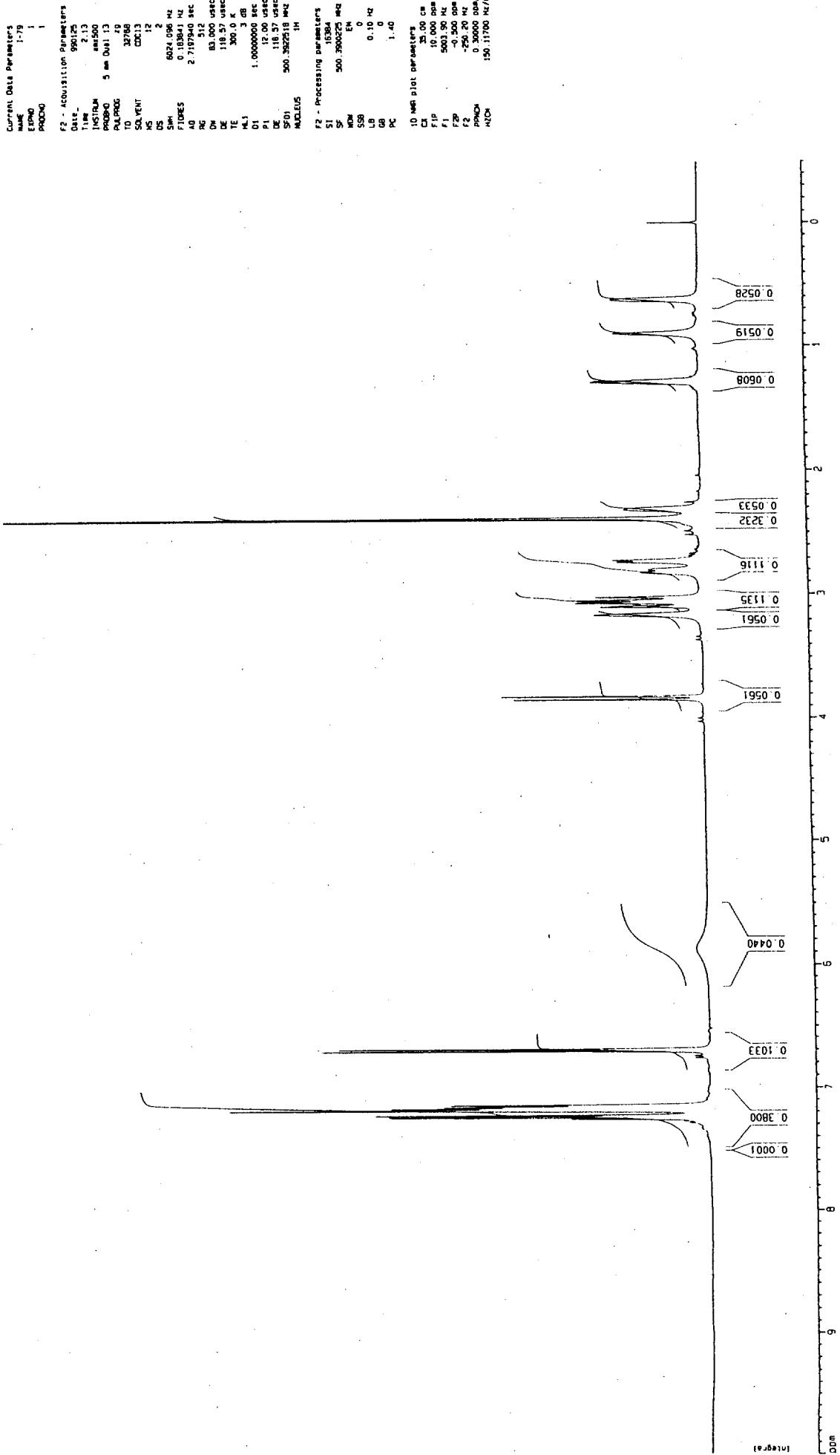
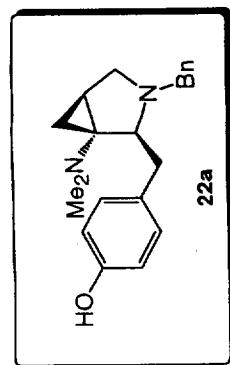


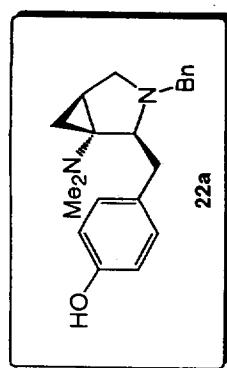
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OE: 18.75 usec  
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OB: 0  
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F1P: 160.000 ppm  
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F2P: -10.000 ppm  
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AQ : 0.983050 sec  
RG : 16.04  
DW : 15.000 usec  
D1 : 16.75 usec  
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SF3 : 0.000000 sec  
ETRSES3 : 24.48  
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RG3 : 16.16  
DW3 : 107.00 usec  
D13 : 18.08  
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55.31

55.39

56.34

62.79

76.74

77.00

77.25

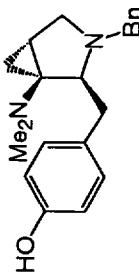
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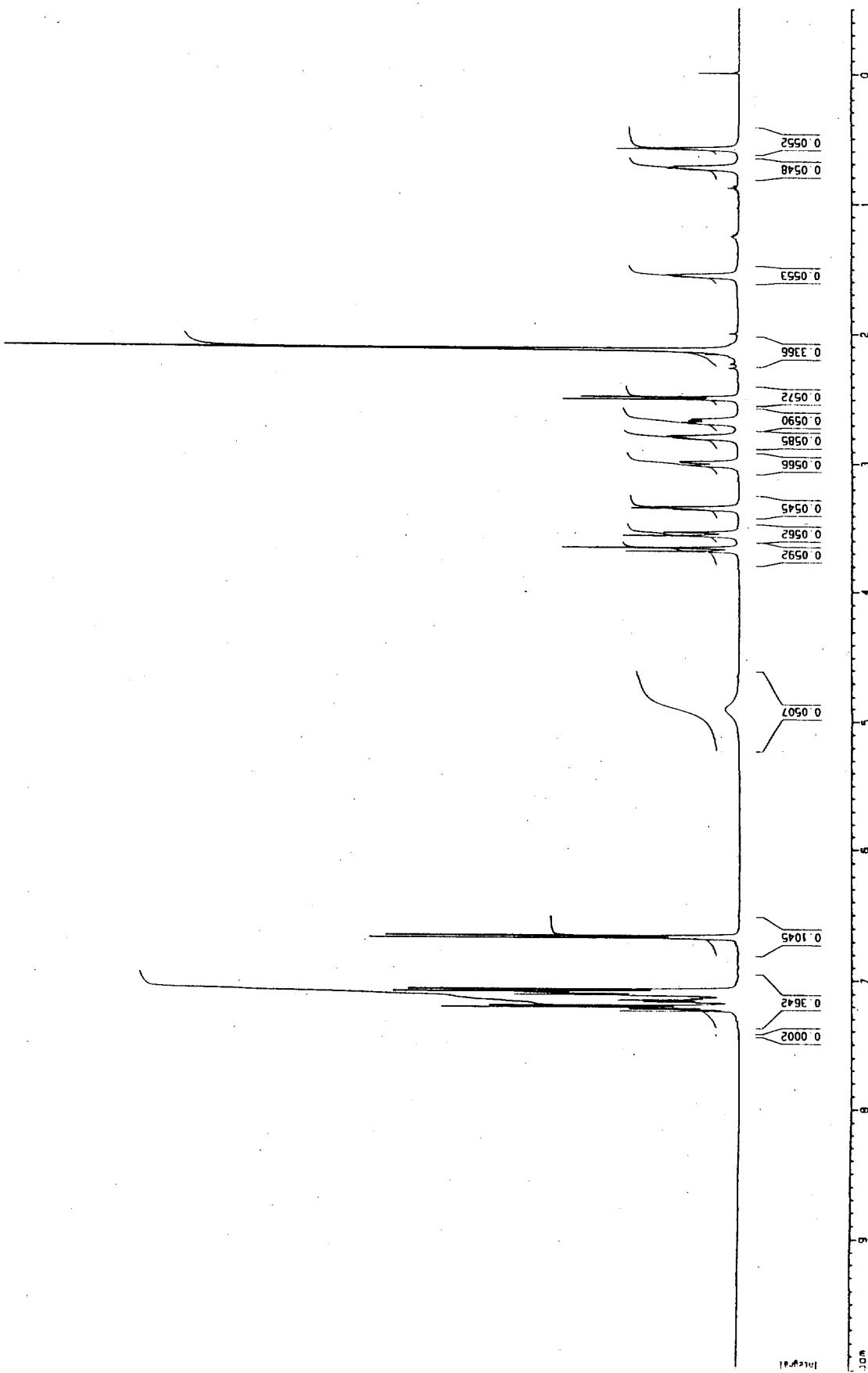
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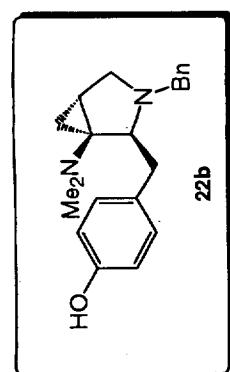
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NUCLEUS: 1H

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TE: 300.0 K  
N1: 3.08  
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SF01: 500.3922510 Hz  
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TE    24.00 usc
DW    2.0000000 sec
AQ    107.00 usc
RG    15.00 usc
TE    5.00 usc
DW    18.75 usc
AQ    1.00 usc
SP01  127.333333 Hz
MAXD1S 1.25

```

8.73

22.88

33.80

52.01

55.78

57.27

68.24

76.75

77.00

77.26

114.71

126.41

127.95

128.21

130.66

134.39

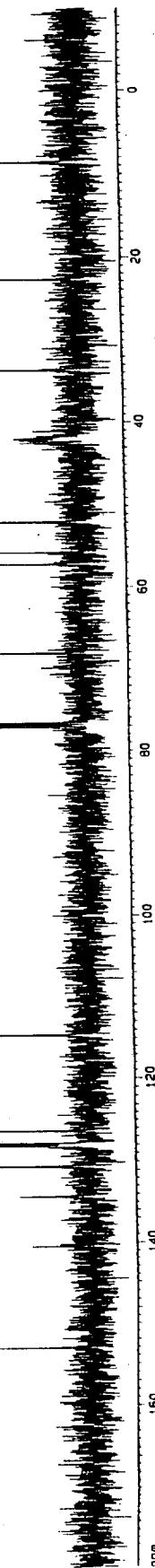
153.20

ppm

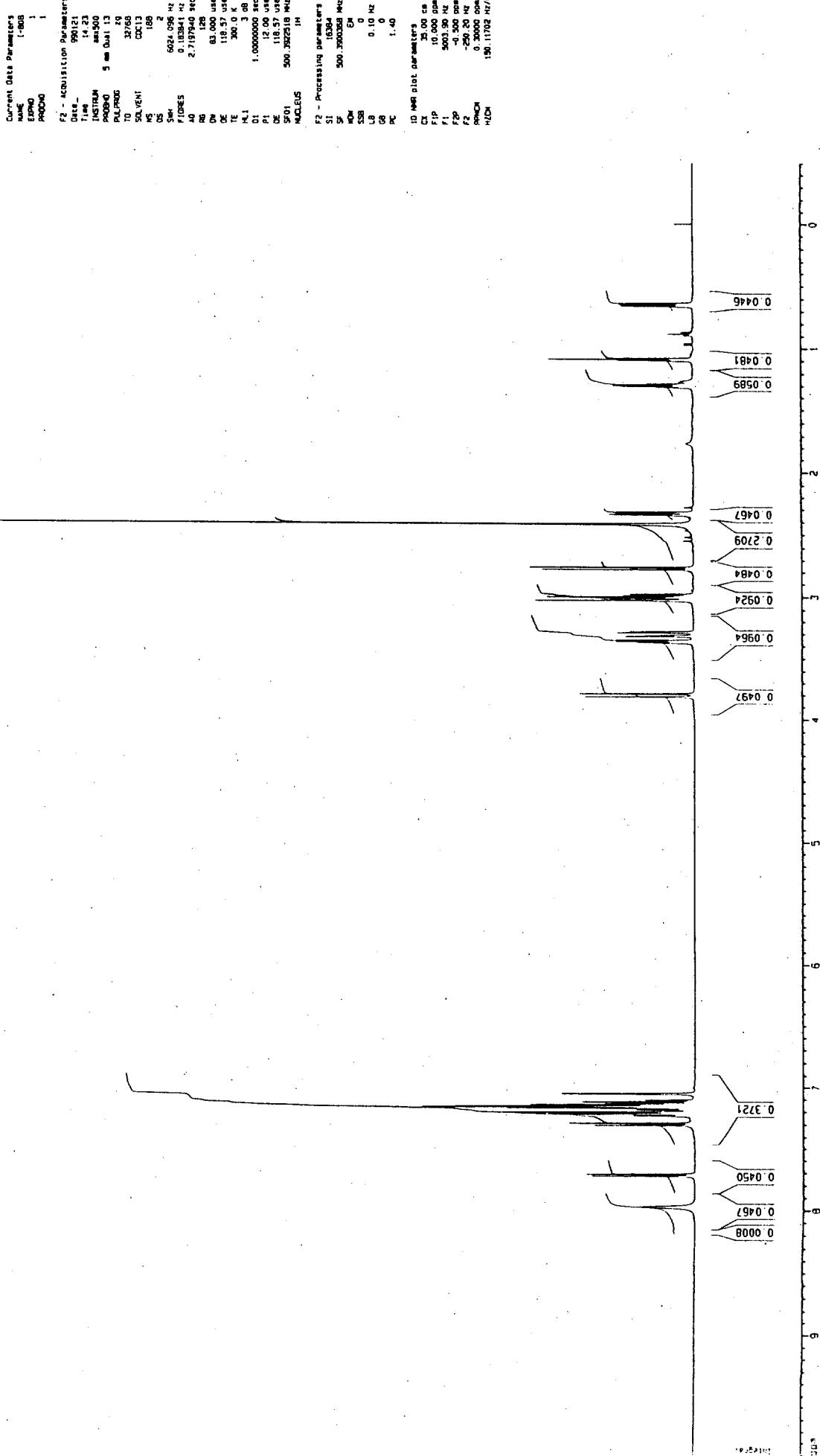
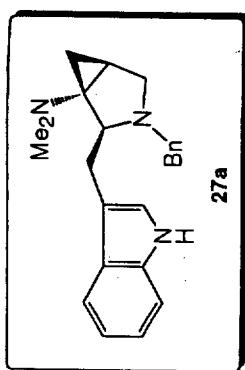
```

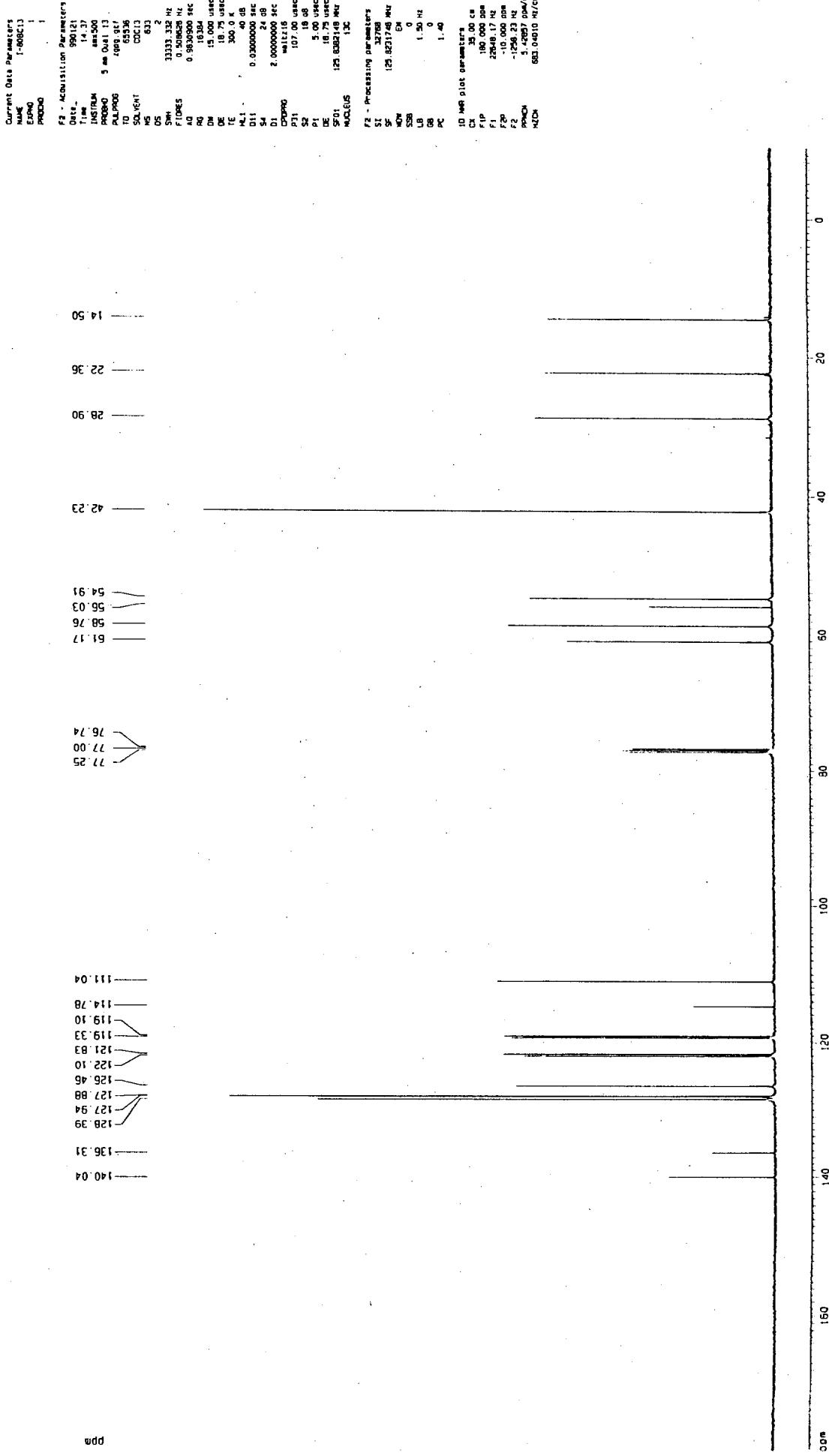
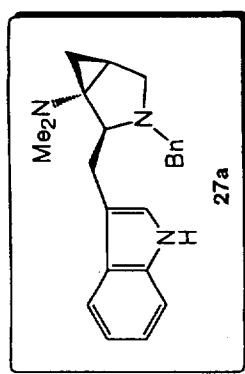
P2 - Processing parameters
SI    207360
RG    125.000000 Hz
DW    0.50 usc
AQ    0 usc
RG    1.50 usc
DW    0 usc
AQ    1.40 usc
DPF    1.00 usc
TP    35.00 sec
TD    16384000
DWave 17 Hz
T1    1.000 sec
P1    1.000 sec
T2    1.250 sec
FID抑 5.28251 sec/m/z
DE    60.000 sec
DM    5.000 sec
DWave 10 Hz/c

```

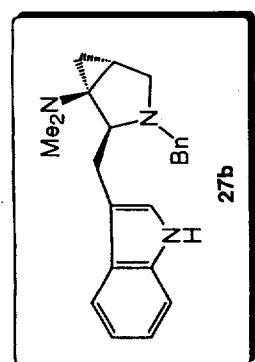


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## Compound Data Parameters

NAME	I-00A
ESPIDO	1

## F2 - Acquisition Parameters

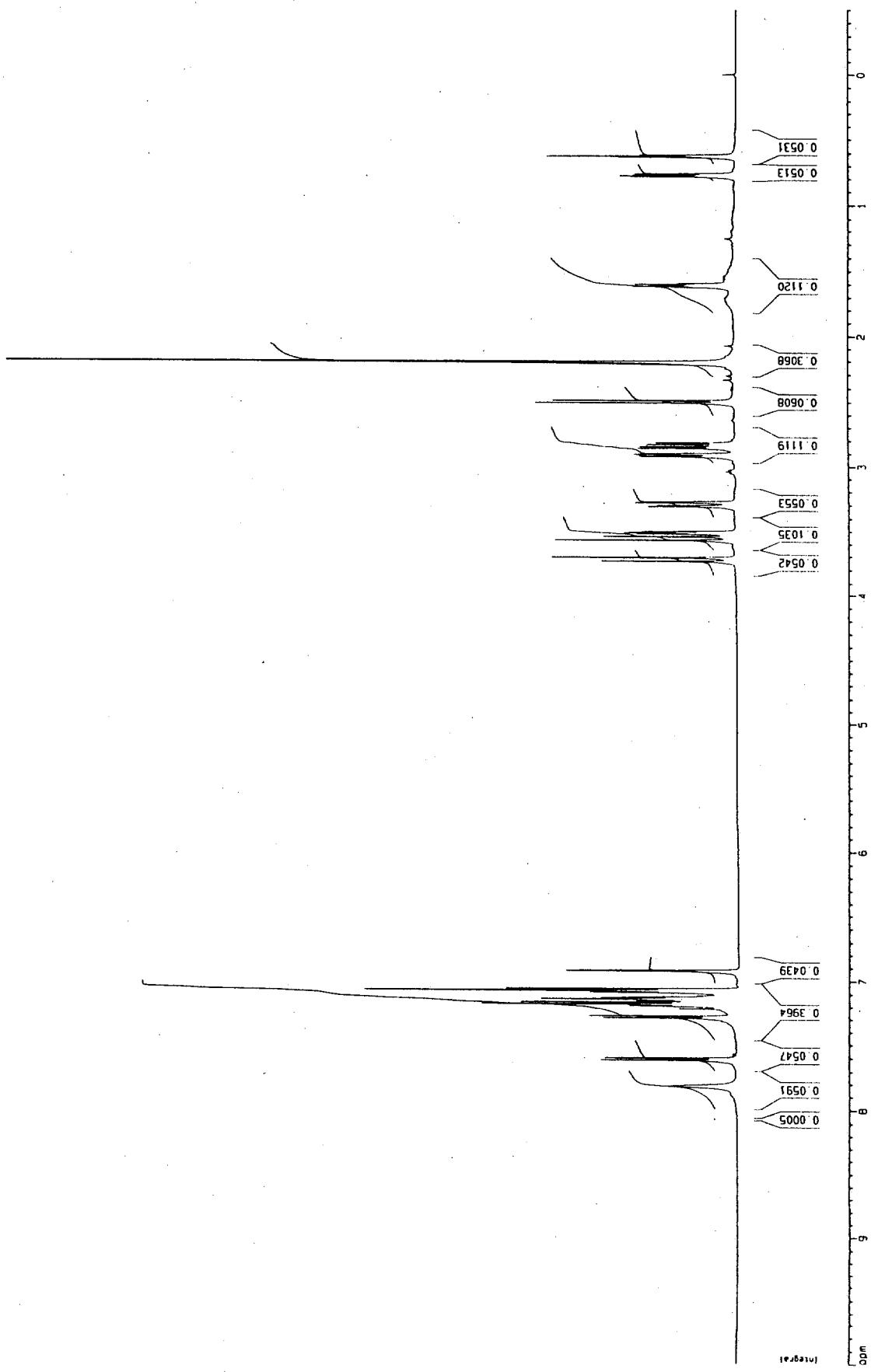
DATE	990122
TIME	15:41
INSTRUM	AM-500
PROMOD	5 mm Dual 13
PULPROG	A9
TD	32768
SOLVENT	CDCl3
NQ	17
DS	2
SWH	8024.065 Hz
R1DSES	0.183841 Hz
AD	2.719760 sec
RG	128
SC	83.000
DE	11.937 sec
TB	300.0 sec
ML	3.00
D1	1.000000 sec
P1	12.00 sec
CE	119.57 sec
SW0L	500.362251 Hz
SW1US	IN

## F2 - Processing parameters

S1	16384
SW	500.362251 Hz
DE	0
RG	0
TD	1.40

## 1D NMR, 0.10T, DEPT90

C1	30.00
C2	10.00
C3	50.00
C4	-130.50
C5	-25.50
C6	2.50
C7	0.30
C8	150.1172 Hz/c



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