

**Diastereoselective functionalizations of enecarbamates derived from
pipercolic acid towards 5-guanidinopipercolates as arginine mimetics.**

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45 rue des Saints-Pères 75270 PARIS Cedex 06 FRANCE

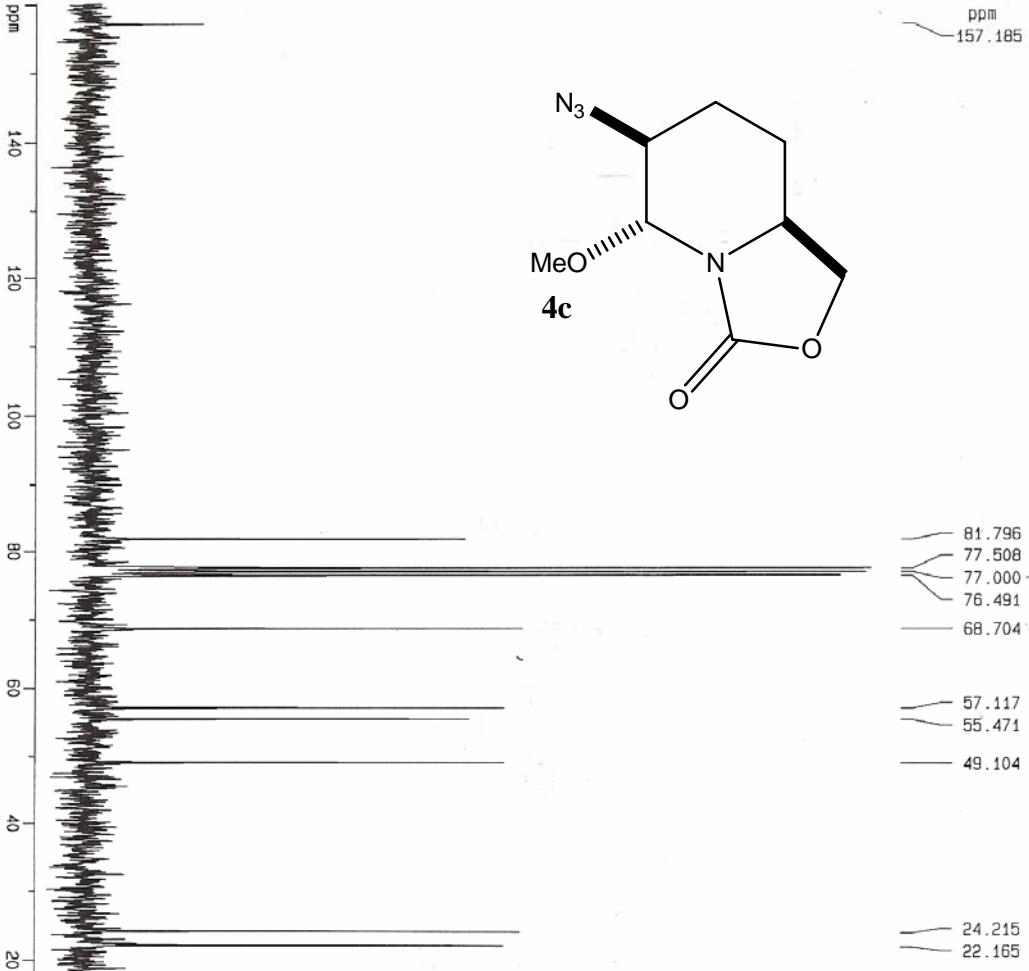
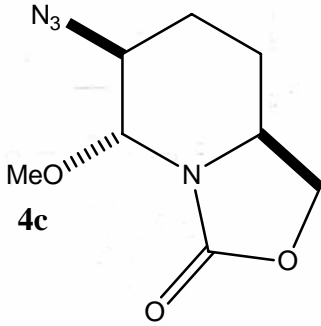
hamid.dhimane@univ-paris5.fr

Submitted to *Org. Biomol. Chem.*

SUPPORTING INFORMATION

Table of Contents

¹³C NMR spectra of compounds **4c**, **t-5a**, **c-5a**, **t-5b**, **c-5b**, **t-5c**, **c-5c**, **6'c**, **t-7a**, **c-7a**, **t-8a**, **c-8a**, **t-8b**, **c-8b**, **t-8c**, **t-11a**, **t-11b**, **t-11c**, **12a**, **12b**, **12c**, **c-13a**, **c-13b**, **t-13b**, **c-14a**, **t-14a**, **t-16a**, **c-16a**, **c-16b**, **t-16b**, **t-17** and **c-17**.



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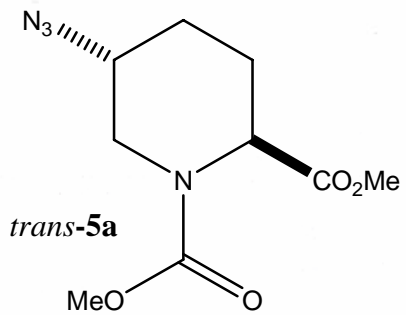
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 DS: 2
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 FIDRES: 0.526165 Hz
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 DE: 41.43 usec
 TE: 300.0 K
 O12: 0.0002000 sec
 O16: 28.50 dB
 O1: 3.0000000 sec
 GEOPRG: walz16
 P31: 100.00 usec
 O11: 0.0300000 sec
 O15: 28.50 dB
 P1: 4.00 usec
 SFO1: 62.9042000 MHz
 NUCLEUS: 13C

F2 - Processing parameters
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 SF: 62.8959617 MHz
 MDW: EM
 SSB: 0
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1D NMR plot parameters
 CX: 20.00 cm
 F1P: 150.202 ppm
 F1: 10076.08 Hz
 F2P: -1.829 ppm
 F2: -115.05 Hz
 PPMCM: 8.10157 ppm/vt
 HZCM: 509.55627 Hz/cm

L2C149



Current Data Parameters
NAME Lec00711
EXPNO 231
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030711
Time 12.33

INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg

TD 32768
SOLVENT D2O
NS 75
DS 2

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FIDRES 0.526165 Hz
AQ 0.9503220 sec

RG 45500
DW 29.000 usec
DE 41.43 usec

TE 300.0 K
D12 0.00002000 sec
D16 28.50 dB

D1 3.00000000 sec
CPDPRG walz16
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D11 0.03000000 sec
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NUC1 13C

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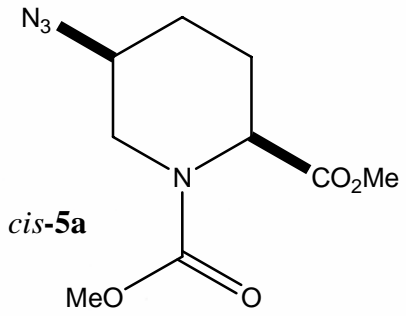
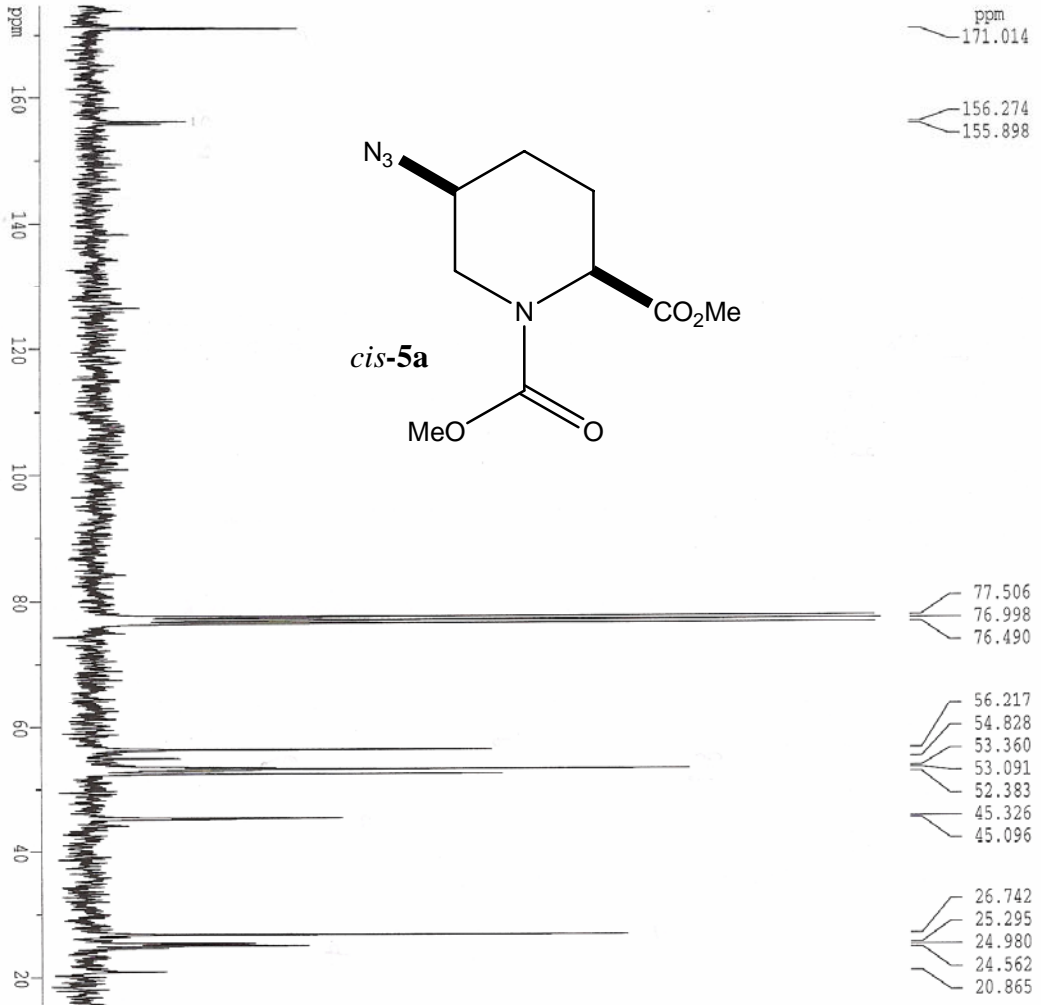
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REPCM 8.95802 ppm/cm
HZCM 563.42365 Hz/cm

LC130



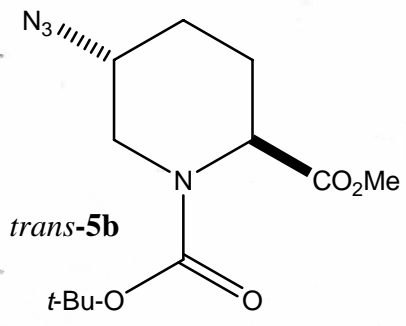
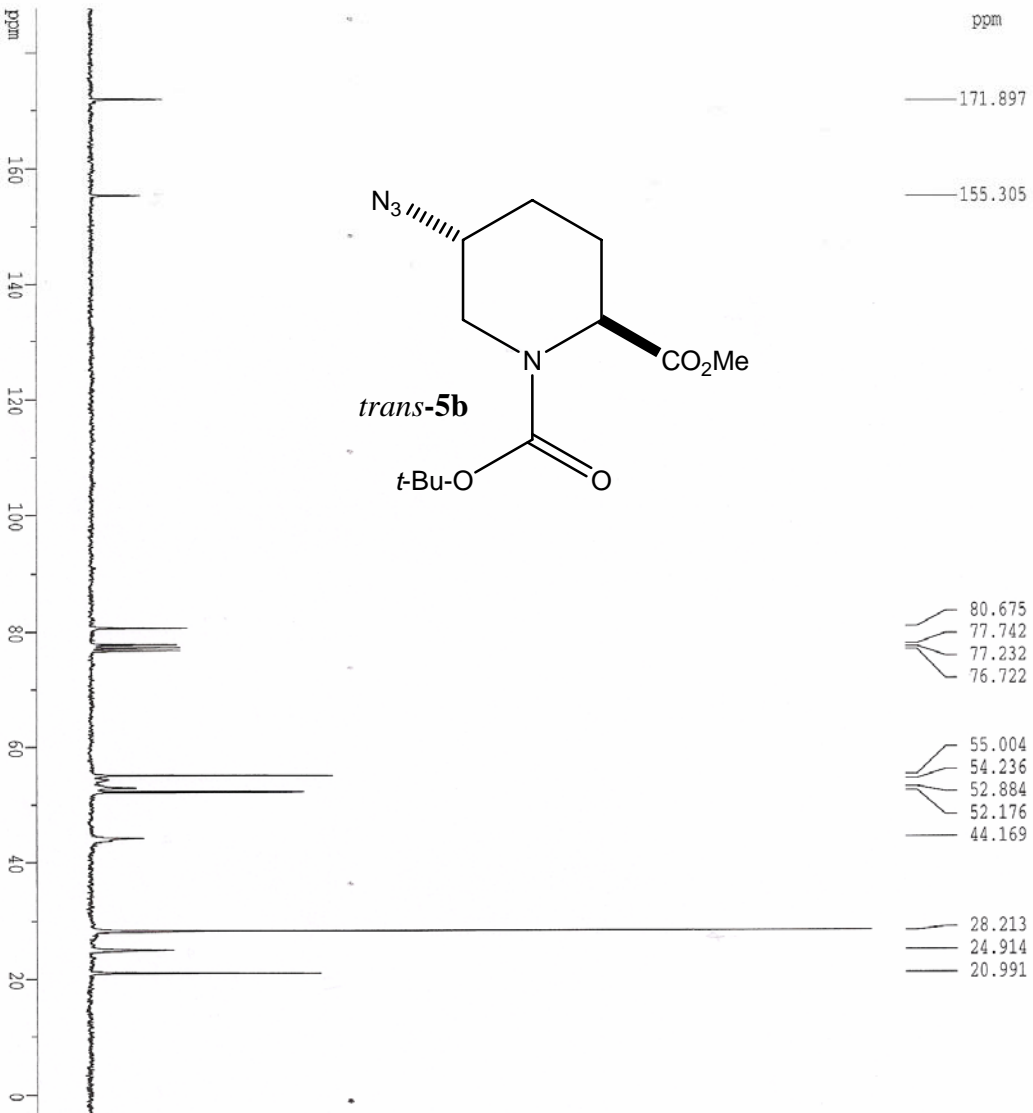
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 SOLVENT D2O
 NS 846
 DS 2
 SMO 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
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 DE 41.43 usec
 PE 300.0 K
 DI2 0.00002000 sec
 DL6 28.50 dB
 DI 3.00000000 sec
 CPDPRG waltz16
 p31 100.00 usec
 DI1 0.03000000 sec
 DL5 28.50 dB
 PL 4.00 usec
 SFO1 62.9042000 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959601 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 174.691 ppm
 F1 10987.35 Hz
 F2P -3.177 ppm
 F2 -199.81 Hz
 FREQCM 8.89338 ppm/cm
 HZCM 559.35773 Hz/cm

Lc 251



Current Data Parameters
NAME lecc0408
EXNO 241
PROCNO 1

F2 - Acquisition Parameters
Date_ 20040408
Time 9.52

INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg
TD 32768
SOLVENT dcl3
NS 590
DS 2
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FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500
RW 29.000 usec
DE 41.43 usec
TE 300.0 K
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D16 28.50 dB
D1 2.000000000 sec
CDEPRG waltz16
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NUC13C 13C

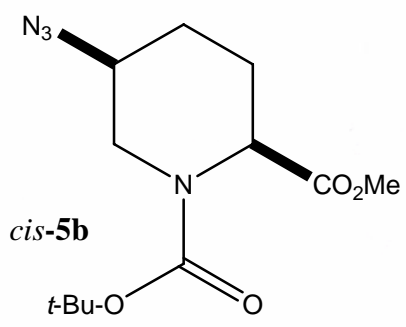
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F1 11797.38 Hz
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Ulc 233 b

ppm

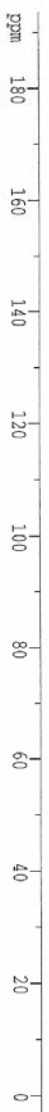
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44.647

28.189
26.788
25.177
24.972

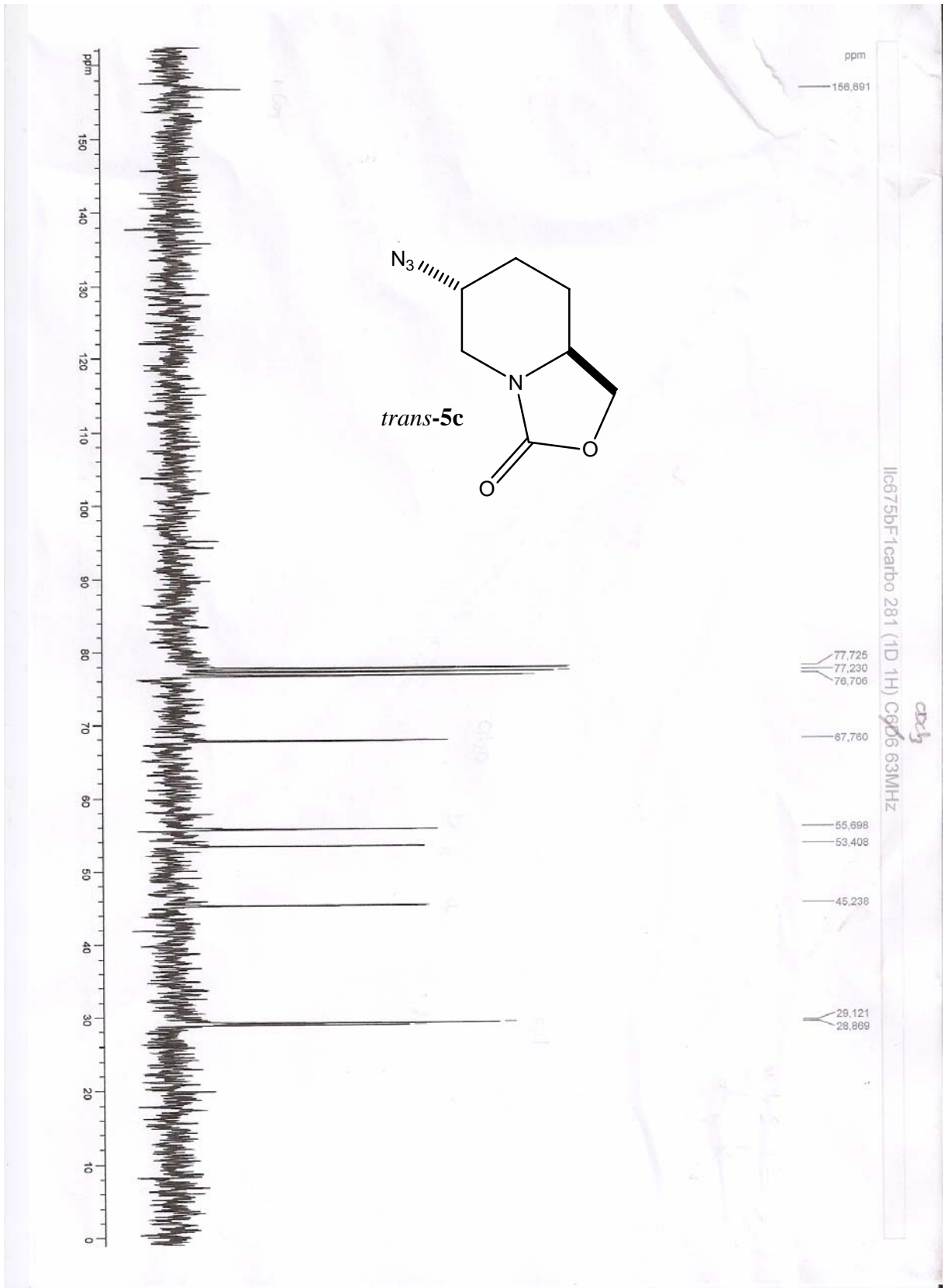


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EXNO 241
PROCNO 1

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PULPROG zgpg
TD 32768
SOLVENT T2O
NS 439
DS 2
SHE 17241.379 Hz
FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500
DM 29.000 usec
DE 41.43 usec
TE 300.0 K
D12 0.0002000 sec
D16 28.50 dB
D1 2.00000000 sec
COPPRG waltz16
P31 100.00 usec
D11 0.03000000 sec
D15 28.50 dB
P1 4.00 usec
SFO1 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768
SF 62.8959537 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

ID NMR plot parameters
CX 20.00 cm
F1P 193.725 ppm
F1 12184.52 Hz
F2P -5.460 ppm
F2 -343.39 Hz
P1PCM 9.95923 ppm/cm
HZCM 626.39545 Hz/cm



(F₂)

llc675bpcarbonyl 281 (1D 13C) CDCl₃ 63MHz

Parameters

llc675bpcarbonyl 281 (1D 1H)

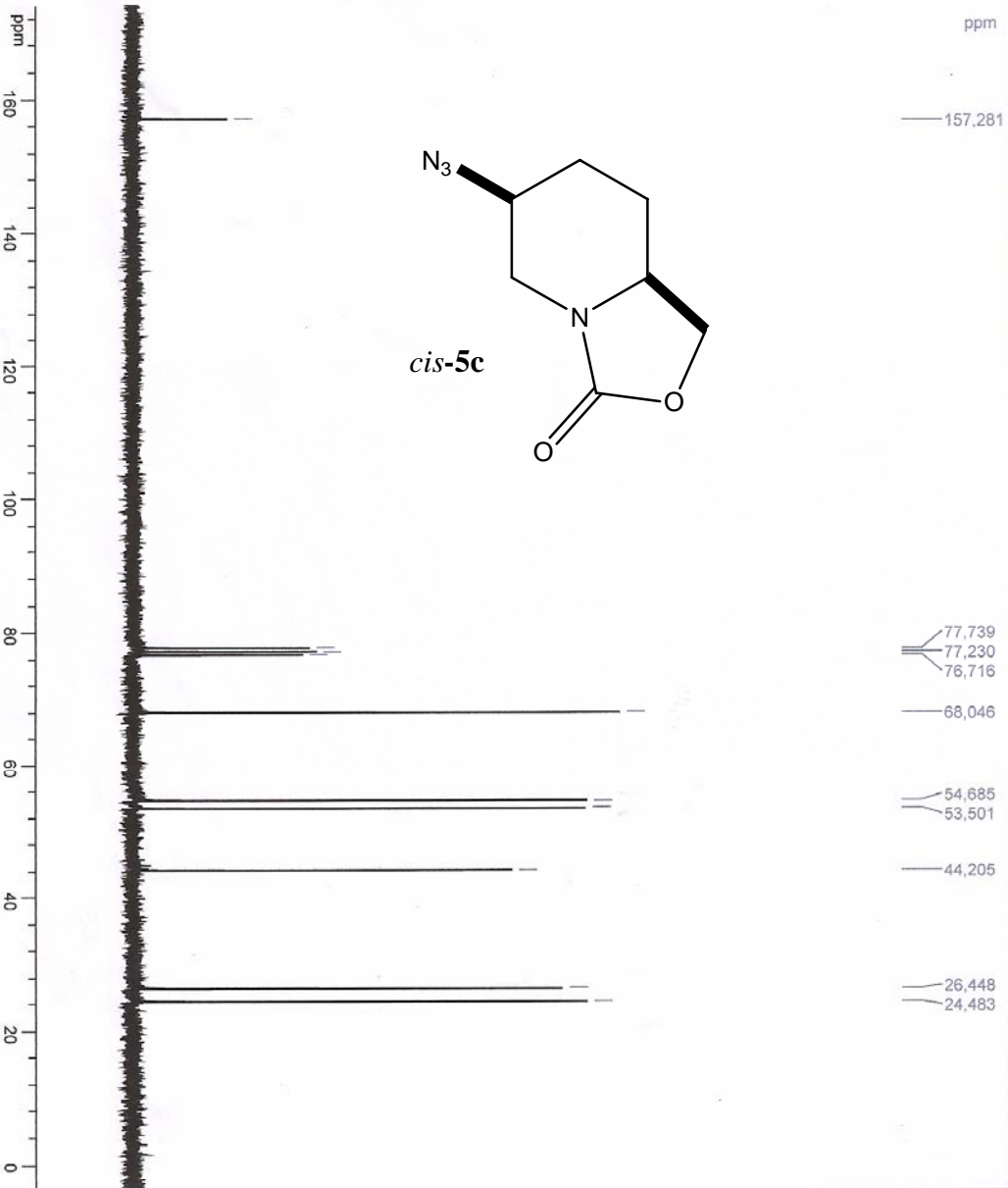
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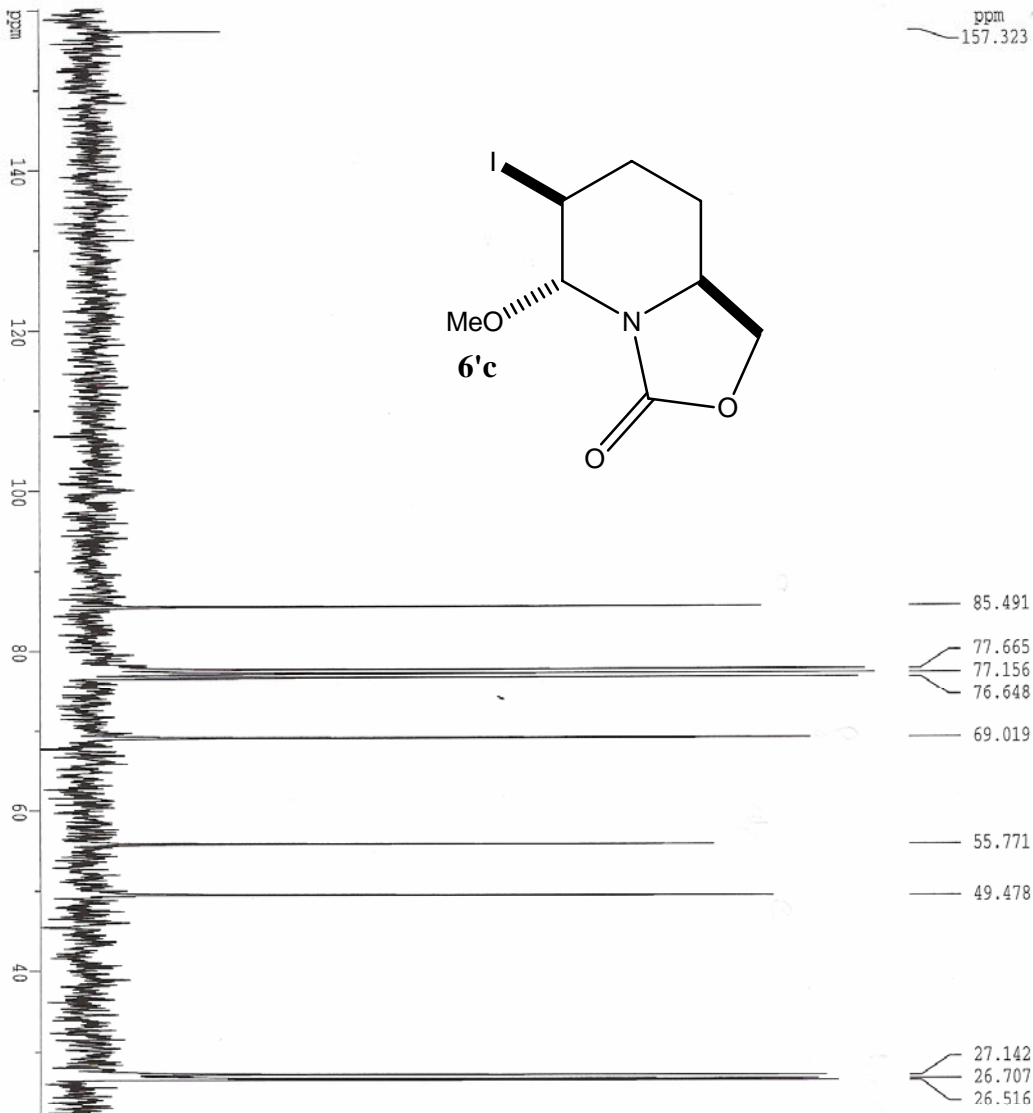
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- Carrier Frequency : 62.903156 MHz
- Nucleus : ¹H

Number of scans : 229

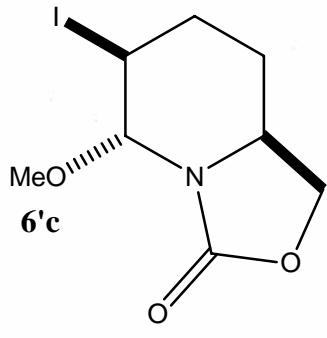
Type : 1D

Spectro : BRUKER 63 MHz
Probe : 5 mm Multinuclear Inverse Z-grad
Date : Mon Mar 31 17:01:59 CEST 2008
Temperature : 300.0 K
Solvent : CDCl₃





ppm
157.323



85.491
77.665
77.156
76.648
69.019
55.771
49.478
27.142
26.707
26.516

Current Data Parameters
NAME Iec00328
EXPNO 232
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030328
Time 12.19

INSTRUM spect
PROBHD 5 mm Multinu

PULPROG zgpg3
TD 32768

SOLVENT D2O
NS 248

IS 2
SWH 17241.379 Hz

FIDRES 0.526165 Hz
AQ 0.9503220 sec

RG 43500
LW 29.000 usec

DE 41.43 usec
TE 300.0 K

DI2 0.0002000 sec
DL6 28.50 dB

D1 3.00000000 sec
CPDPRG walzr16

R31 100.00 usec
D11 0.03000000 sec

DL5 28.50 dB
PI 4.00 usec

SFO1 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768

SF 62.8959521 MHz
WDW EM

SSB 0
LB 3.00 Hz

GB 0
PC 1.00

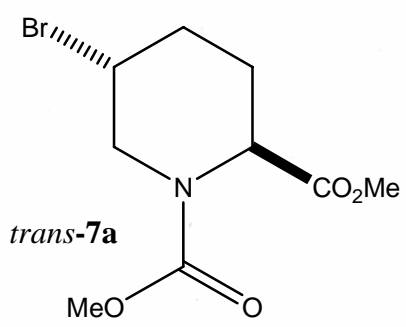
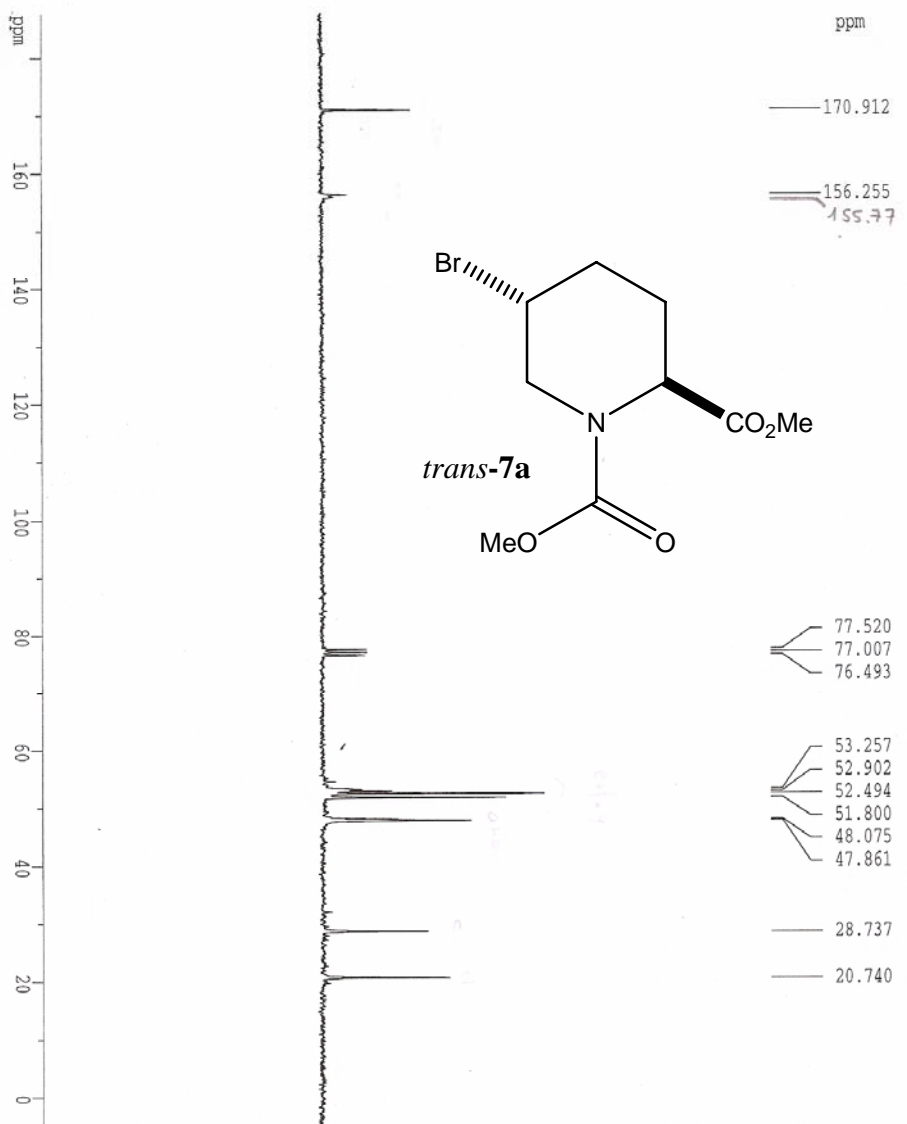
ID NMR plot parameters
CX 20.00 cm

FLP 160.320 ppm
F1 10083.45 Hz

F2P 21.278 ppm
F2 1338.31 Hz

PPMCM 6.95207 ppm/cm
HZCM 437.25690 Hz/cm

Lic 184

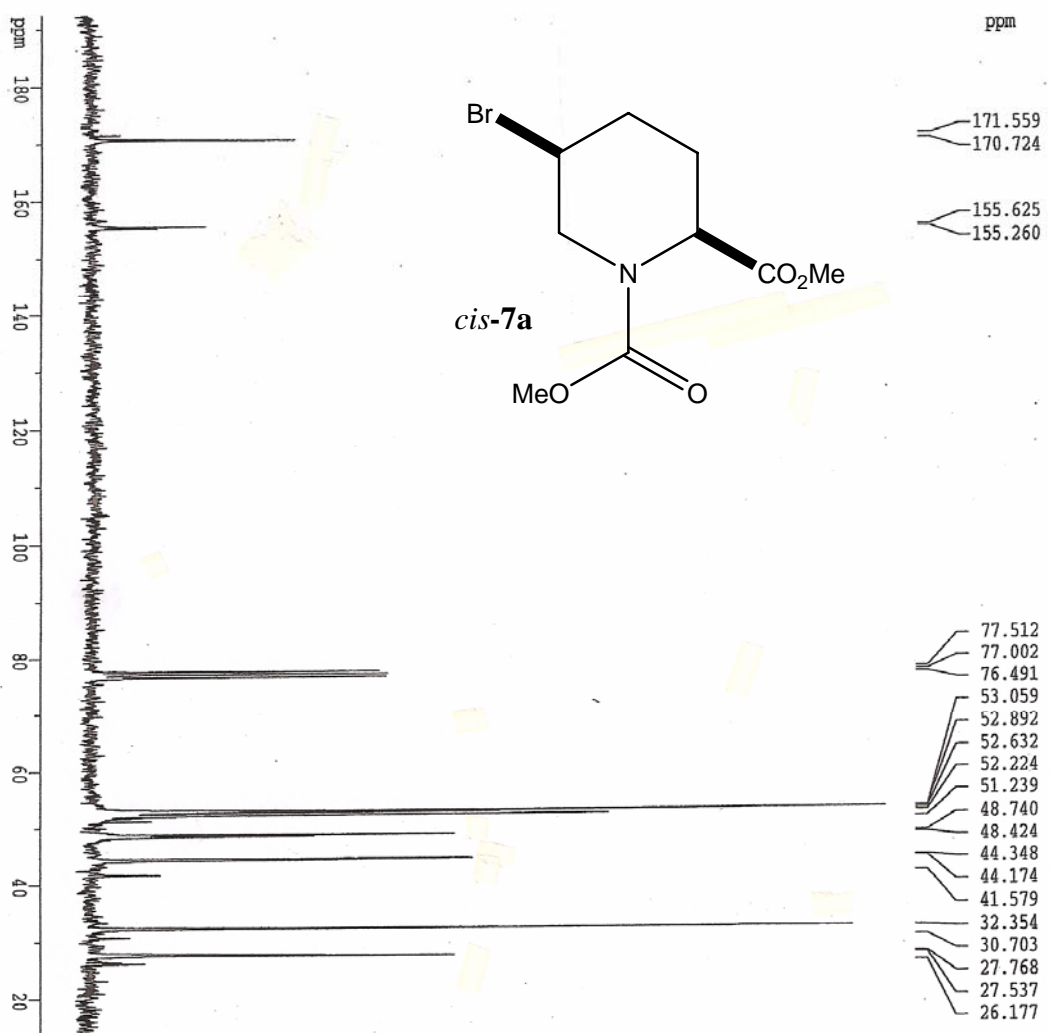


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EXNO 231
PROCNO 1

F2 - Acquisition Parameters
Date_ 20031028
Time 14.19
INSTRUM spect
PROBHD 5 mm Maltinn
PULPROG zgpg3
TD 32768
SOLVENT ~~H2O~~ *cd3*
NS 163
DS 2
SME 17241.379 Hz
FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500
DM 29.000 usec
DE 41.43 usec
TE 300.0 K
D12 0.00002000 sec
DL6 28.50 dB
DL 2.00000000 sec
CPDPRG walz16
P31 100.00 usec
D11 0.03000000 sec
DLS 28.50 dB
P1 4.00 usec
SFO1 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768
SF 62.8959796 MHz
EM
SOLVENT
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 187.723 ppm
F1 11807.04 Hz
F2P -5.085 ppm
F2 -319.83 Hz
PPMCM 9.64041 ppm/cm
HZCM 606.34332 Hz/cm



Current Data Parameters

NAME: 1ec1215
 EXPRNO: 231
 PROCNO: 1

F2 - Acquisition Parameters

Date_: 20031215
 Time: 8.46
 INSTRUM: spect
 PROBD: 5 mm Maltinn
 PULPROG: zgpg
 TD: 32768
 SOLVENT: D2O
 NS: 694
 DS: 2
 SWH: 17241.379 Hz
 FIDRES: 0.526165 Hz
 AQ: 0.9503220 sec
 RG: 45500
 DW: 29.000 usec
 DE: 41.43 usec
 TE: 300.0 K
 D1: 0.00002000 sec
 D1.6: 28.50 dB
 D1.8: 2.00000000 sec
 CPPPRG: wait216
 P1: 100.00 usec
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 P1: 4.00 usec
 SFO1: 62.9042000 MHz
 NUC1: 13C

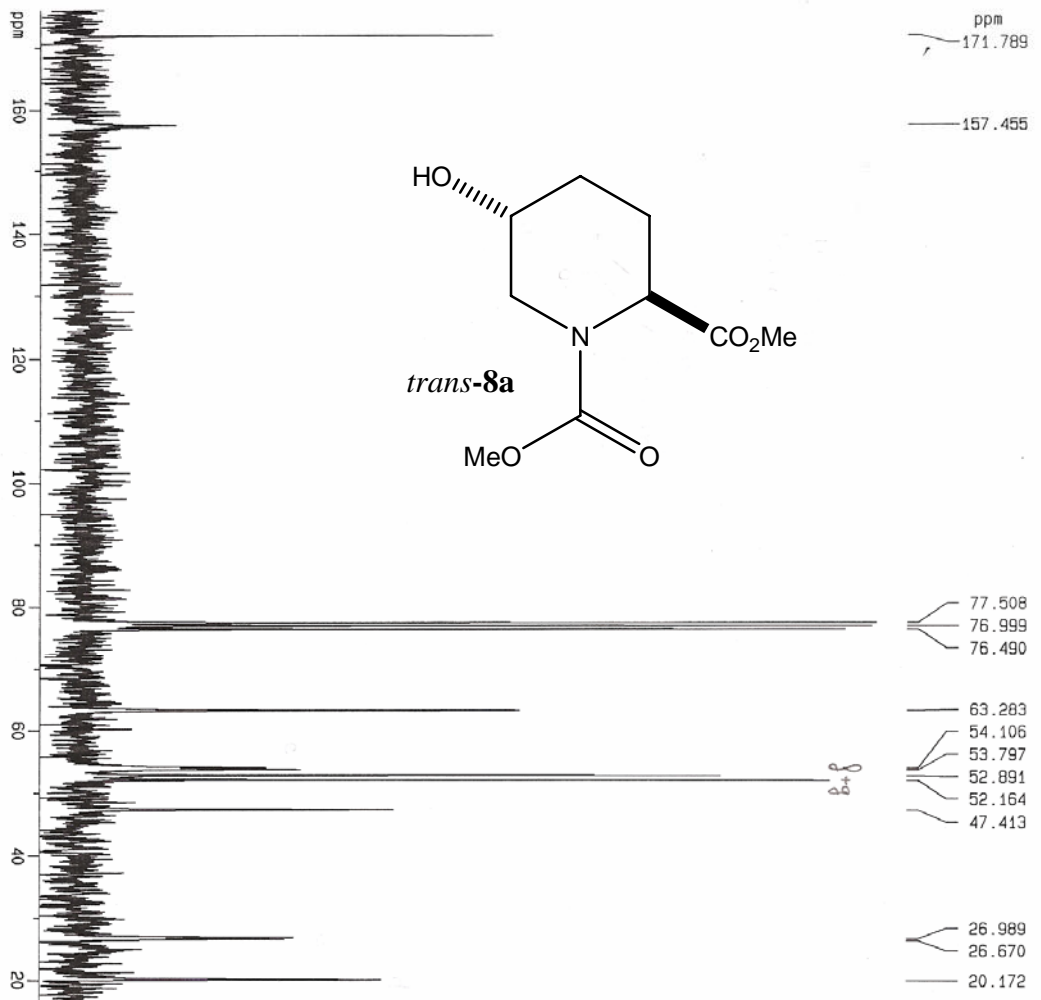
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 SF: 62.8959680 MHz
 WDN: EM
 SSB: 0
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 GB: 0
 PC: 1.00

1D NMR plot parameters

CX: 20.00 cm
 P1P: 192.411 ppm
 F1: 12101.89 Hz
 F2P: -2.928 ppm
 P1PCMK: -184.16 Hz
 P1PCMK: 9.76697 ppm/cm
 HZCM: 614.30280 Hz/cm

LC 29 F 25-60



- 77.508
- 76.999
- 76.490
- 63.283
- 54.106
- 53.797
- 52.891
- 52.164
- 47.413
- 26.989
- 26.670
- 20.172

Current Data Parameters
 NAME 1eccl1104
 EXPNO 222
 PROCNO 1

F2 - Acquisition Parameters
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 Time 15.18

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 PULPROG zgpg
 TD 32758
 SOLVENT D2O
 NS 210
 DS 2

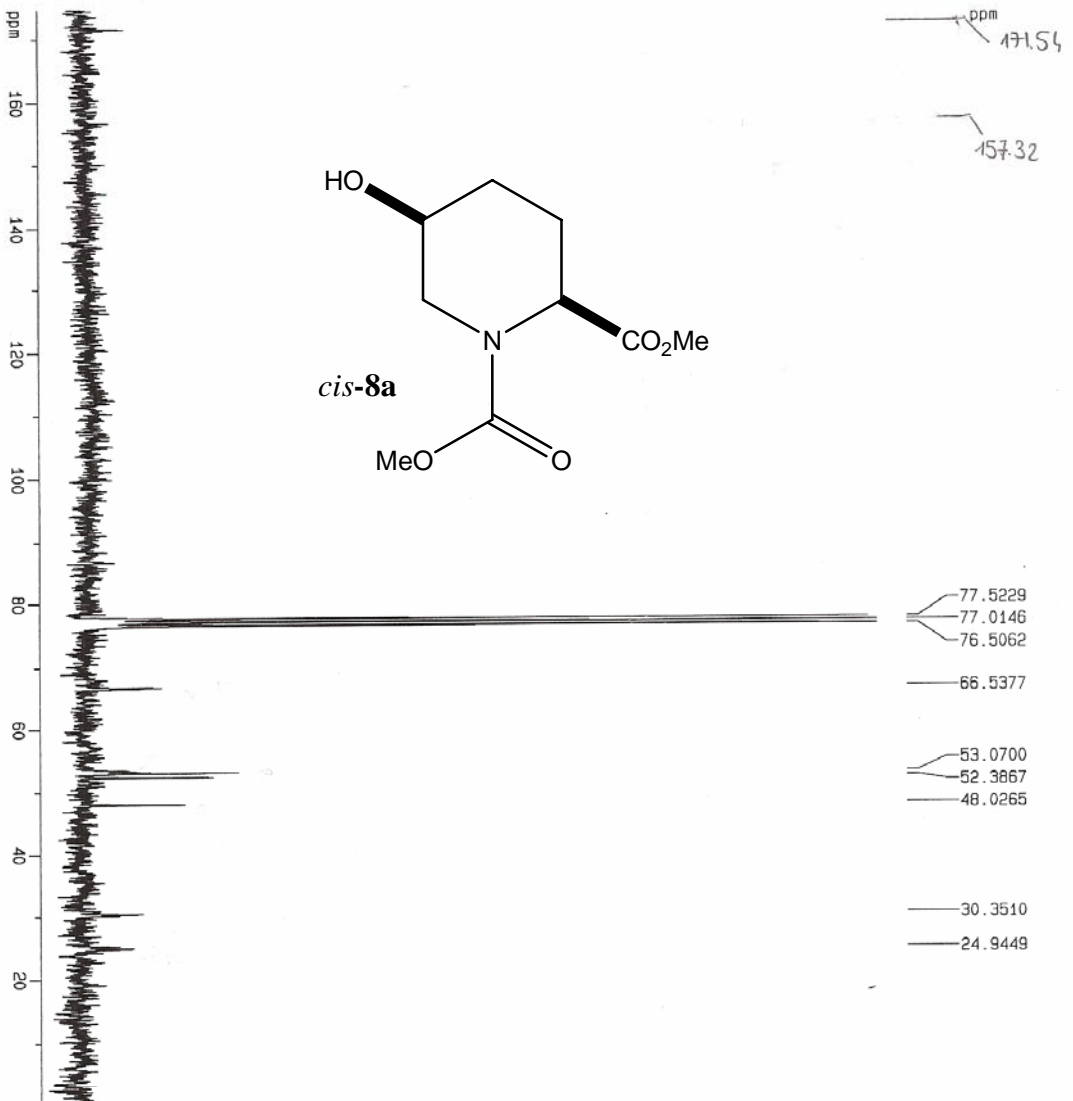
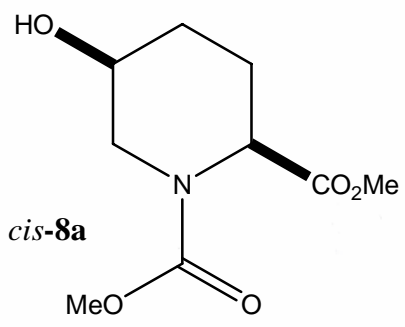
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 RG 43500
 OW 29.000 usec
 DE 41.43 usec
 TE 300.0 K

D12 0.00002000 sec
 DL5 28.50 dB
 D1 3.00000000 sec
 CPOPRG haldz16
 P3 100.00 usec
 D11 0.03000000 sec
 DL5 28.50 dB
 P1 4.00 usec
 SFO1 62.9042000 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32758
 SF 62.9959511 MHz
 MDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 175.966 ppm
 F1 11067.53 Hz
 F2P -2.003 ppm
 F2 -125.00 Hz
 PPMCM 8.89845 ppm/
 HZCM 559.67670 Hz/cm

LIC 29 F18-22



Current Data Parameters
 NAME 1eccl106
 EXRNO 221
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021106
 Time 10:31
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg
 TD 32768
 SOLVENT D2O
 NS 1030
 DS 2

SMH 17241.379 Hz
 FIDRES 0.528165 Hz
 AQ 0.9503220 sec
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 D16 28.50 dB
 D1 3.00000000 sec
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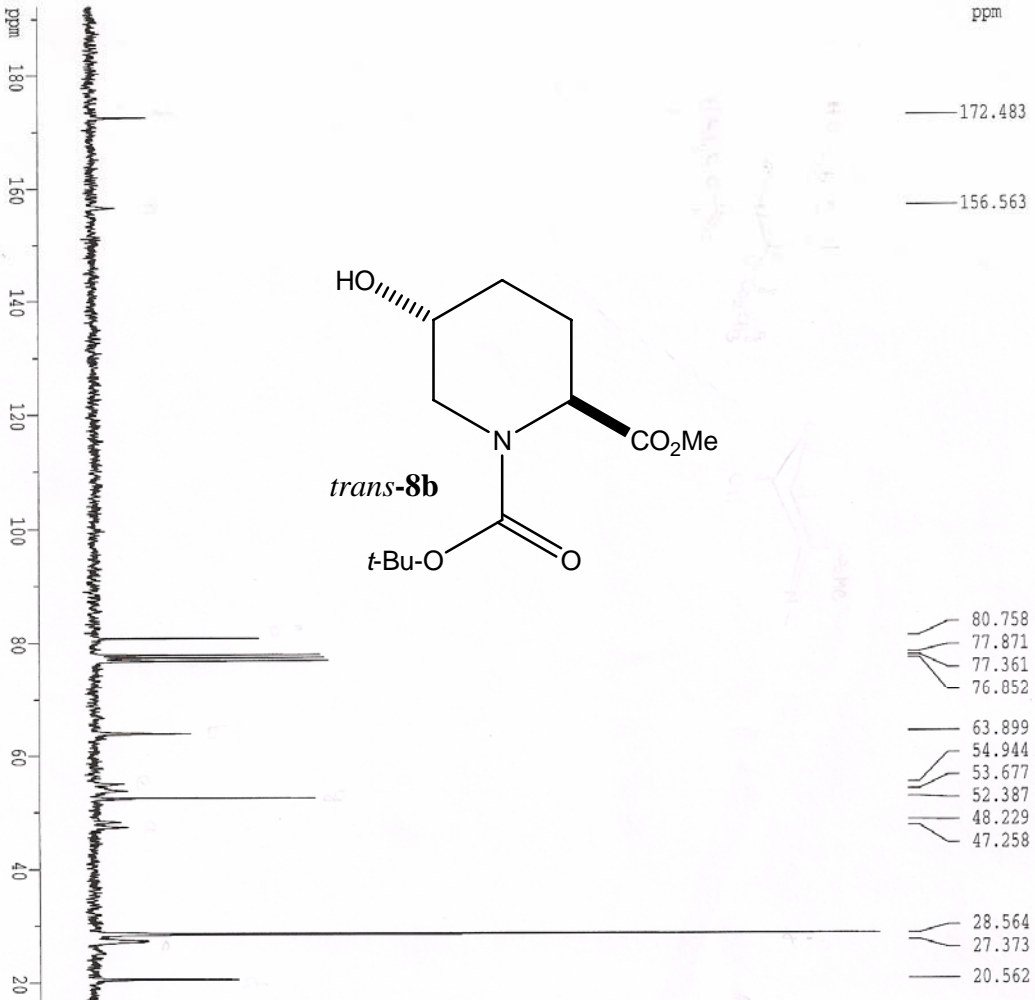
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 NUCLEUS 13C

F2 - Processing Parameters
 SI 32768
 SF 62.8959559 MHz
 KW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 20.00 cm
 FXP 174.904 ppm
 F1 11000.74 Hz
 F2P -2.268 ppm
 F2 -142.67 Hz
 B 8.8564 ppm/K
 KZCM 557.17053 Hz/cm

303

Lic 230



Current Data Parameters
NAME IecC0211
EXNO 242
PROCNO 1

F2 - Acquisition Parameters

Date_ 20040211
Time 11.42
INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg
TD 32768
SOLVENT D2O
NS 1005
DS 2

SWH 17241.379 Hz
FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500

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D16 28.50 dB
D1 2.00000000 sec
CPPPRG walz16

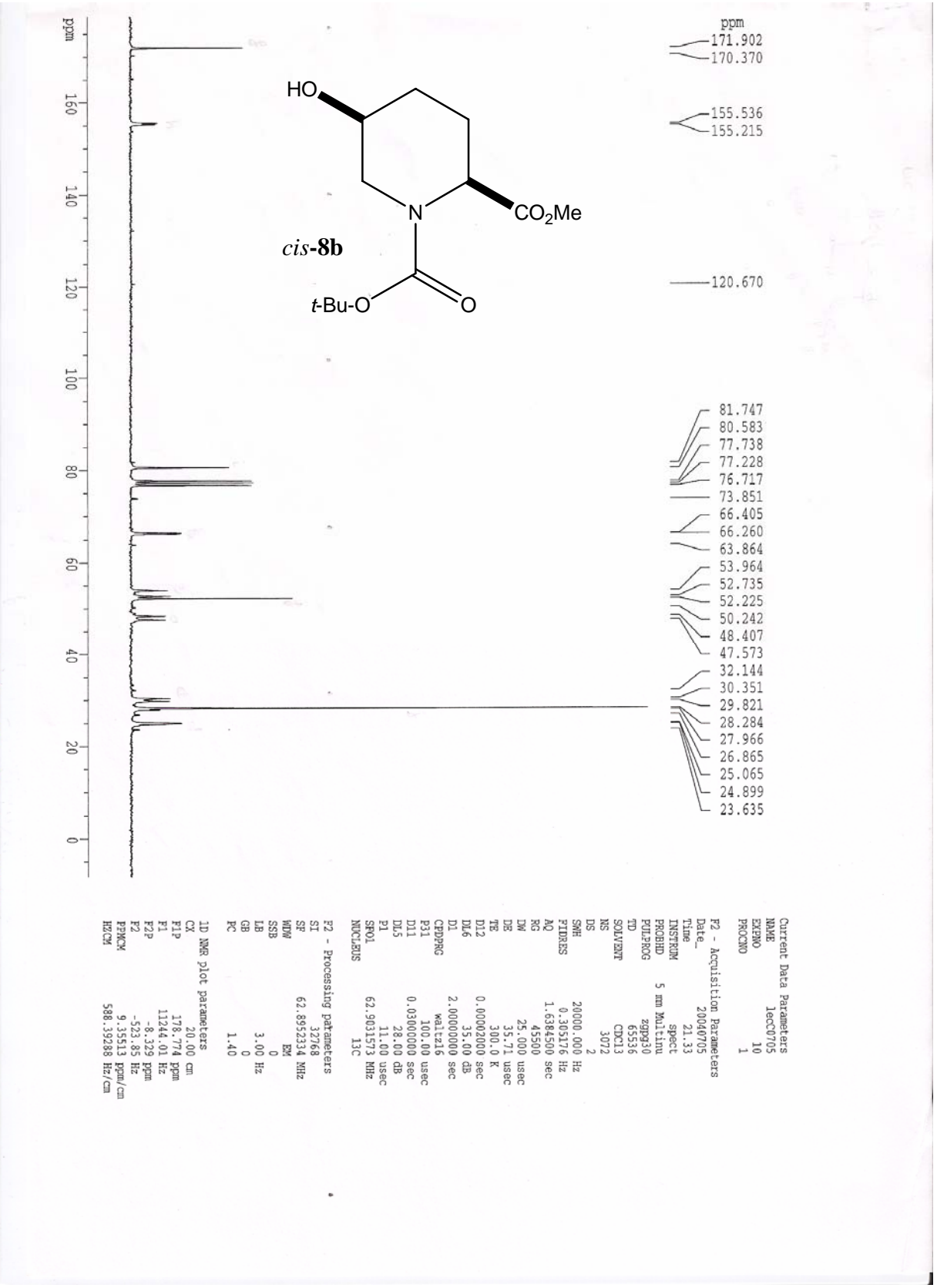
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NUC1PDS 13C

F2 - Processing parameters

SI 32768
SF 62.8959369 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

ID NMR plot parameters

CX 20.00 cm
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F2P -4.207 ppm
F2 -264.58 Hz
FREQM 9.82365 ppm/cm
HZCM 617.86780 Hz/cm

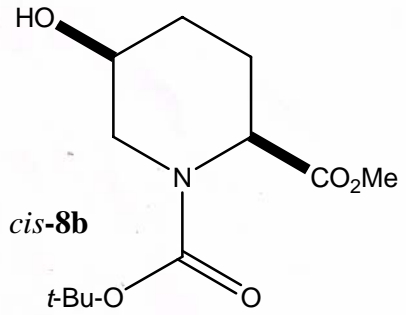


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155.536
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120.670

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77.228
76.717
73.851
66.405
66.260
63.864
53.964
52.735
52.225
50.242
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47.573
32.144
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28.284
27.966
26.865
25.065
24.899
23.635



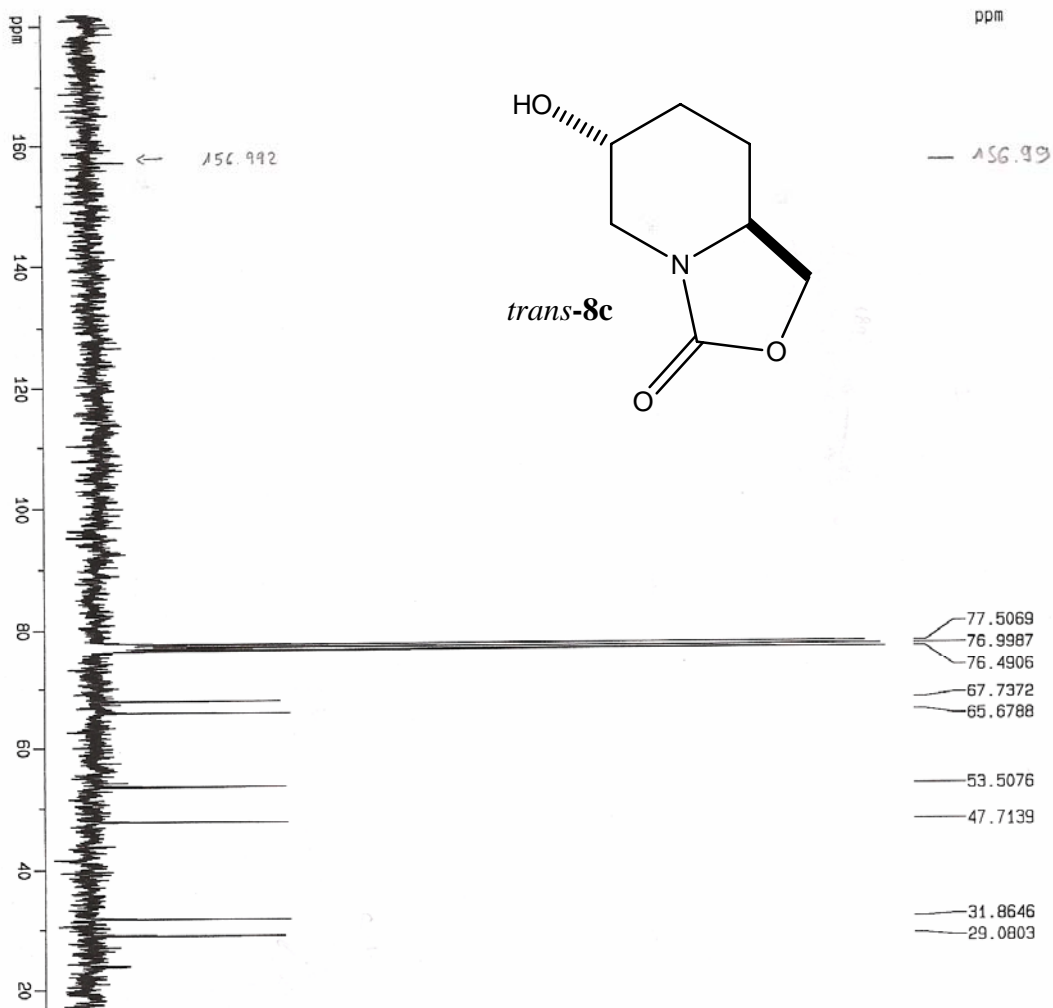
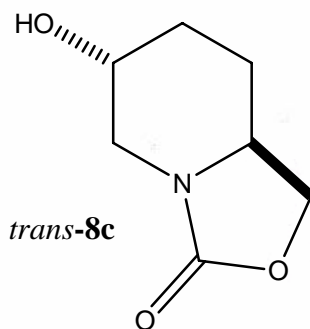
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PROCNO 1

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PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 3072
DS 2
SMH 20000.000 Hz
FIDRES 0.365176 Hz
AQ 1.6384500 sec
RG 45500
DM 25.000 usec
DE 35.71 usec
TE 300.0 K
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D16 35.00 dB
D1 2.00000000 sec
CDEPRG waltz16
P31 100.00 usec
D11 0.03000000 sec
D15 28.00 dB
P1 11.00 usec
SFO1 62.9031573 MHz
NUC13C 13C

F2 - Processing parameters
SI 32768
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WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 20.00 cm
F1P 178.774 ppm
F1 11244.01 Hz
F2P -8.329 ppm
F2 -523.85 Hz
PEAKCM 9.35513 ppm/cm
HZCM 588.39288 Hz/cm

Lec 52



Current Data Parameters
 NAME LecC1219
 EXPNO 221
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021219
 Time 10.45

INSTRUM spect
 PROBRD 5 mm Multinu
 PULPROG zgpg
 TD 32756
 SOLVENT D2O
 NS 662
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 SMH 17241.379 Hz
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 TE 300.0 K
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 D1 3.00000000 sec

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 NUCLEUS 13C

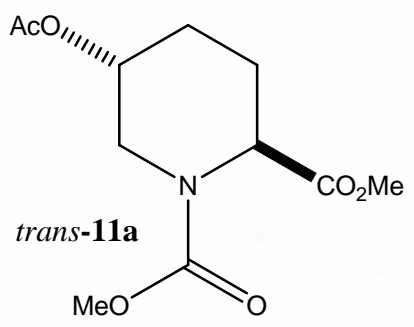
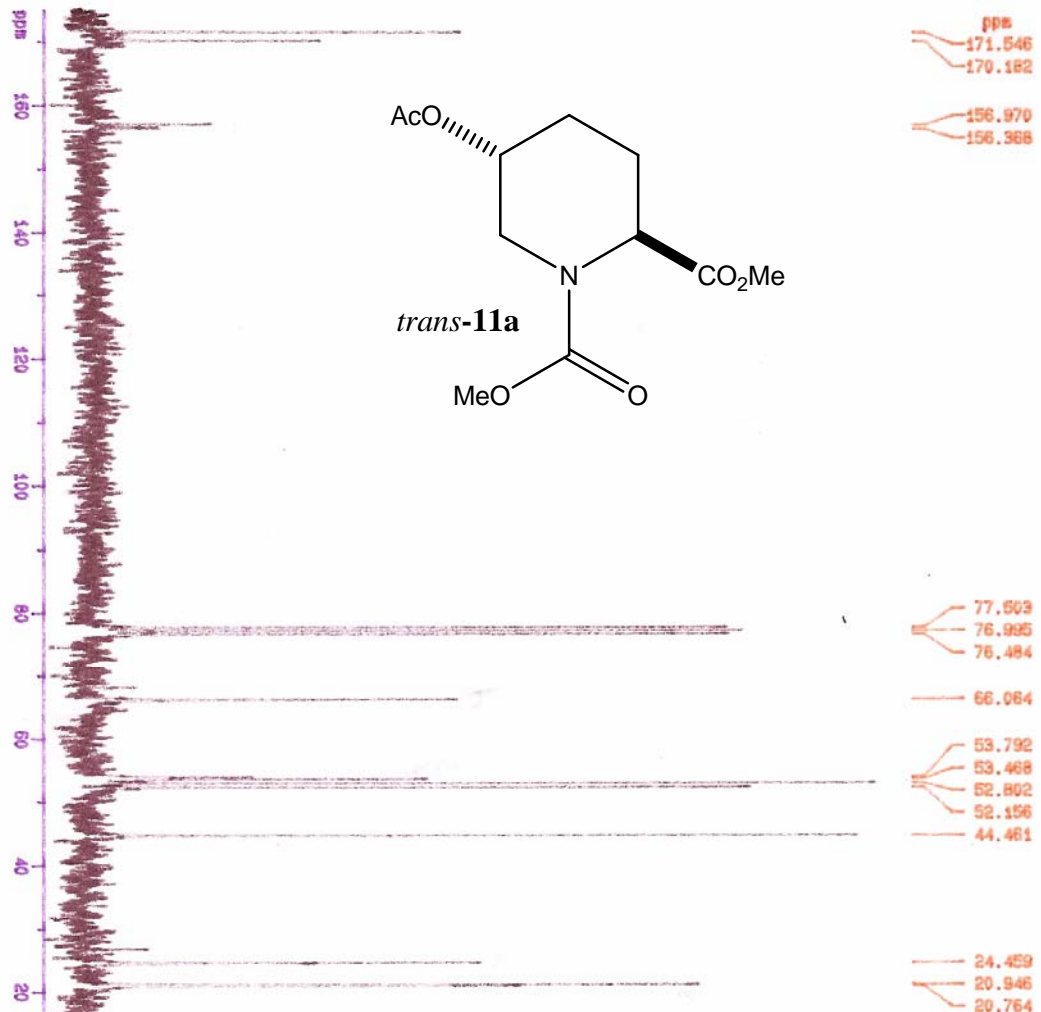
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 LB 3.00 Hz
 GB 0
 PC 1.00

1D NMR plot parameters

CX 20.00 cm
 F3P 181.930 ppm
 F1 11442.64 Hz
 F2P -1.859 ppm
 F2 9.18943 ppm/C
 PPMCK 577.97809 Hz/C4
 HZCM

LC 8b



Current Data Parameters
 NAME 18C00220
 EXPNO 231
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20050220
 Time 15.40
 INSTRUM spect
 PROCESSOR S wa hollist
 PULPROG zgpg
 TD 32768
 SOLVENT D2O
 NS 369
 DS 2
 SWH 17241.379 Hz
 F2RES 0.458163 Hz
 AQ 0.2621820 sec
 RG 48300
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 DK 41.48 usec
 TE 300.2 K
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 D12 28.60 dB
 D1 3.00000000 sec
 CYCLES 180.00 umax
 P1 0.00000000 sec
 P1 28.60 dB
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 SFO1 62.904200 MHz
 NUCLEUS 13C

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 MDW EN
 SSB 0
 LA 3.00 Hz
 GB 0
 PC 1.00

1D F2 file parameters
 CX 20.00 cm
 F1P 178.024 ppm
 F1 11009.58 Hz
 F2P -1.818 ppm
 F2 -65.50 Hz
 SFO1 62.904200 MHz
 SFO2 19128.147 cm

ppm

160

140

120

100

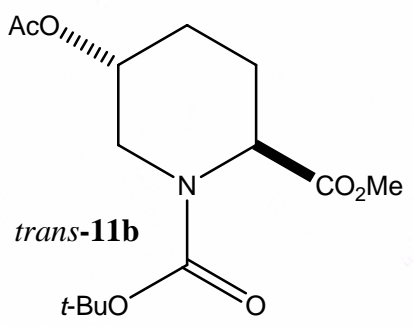
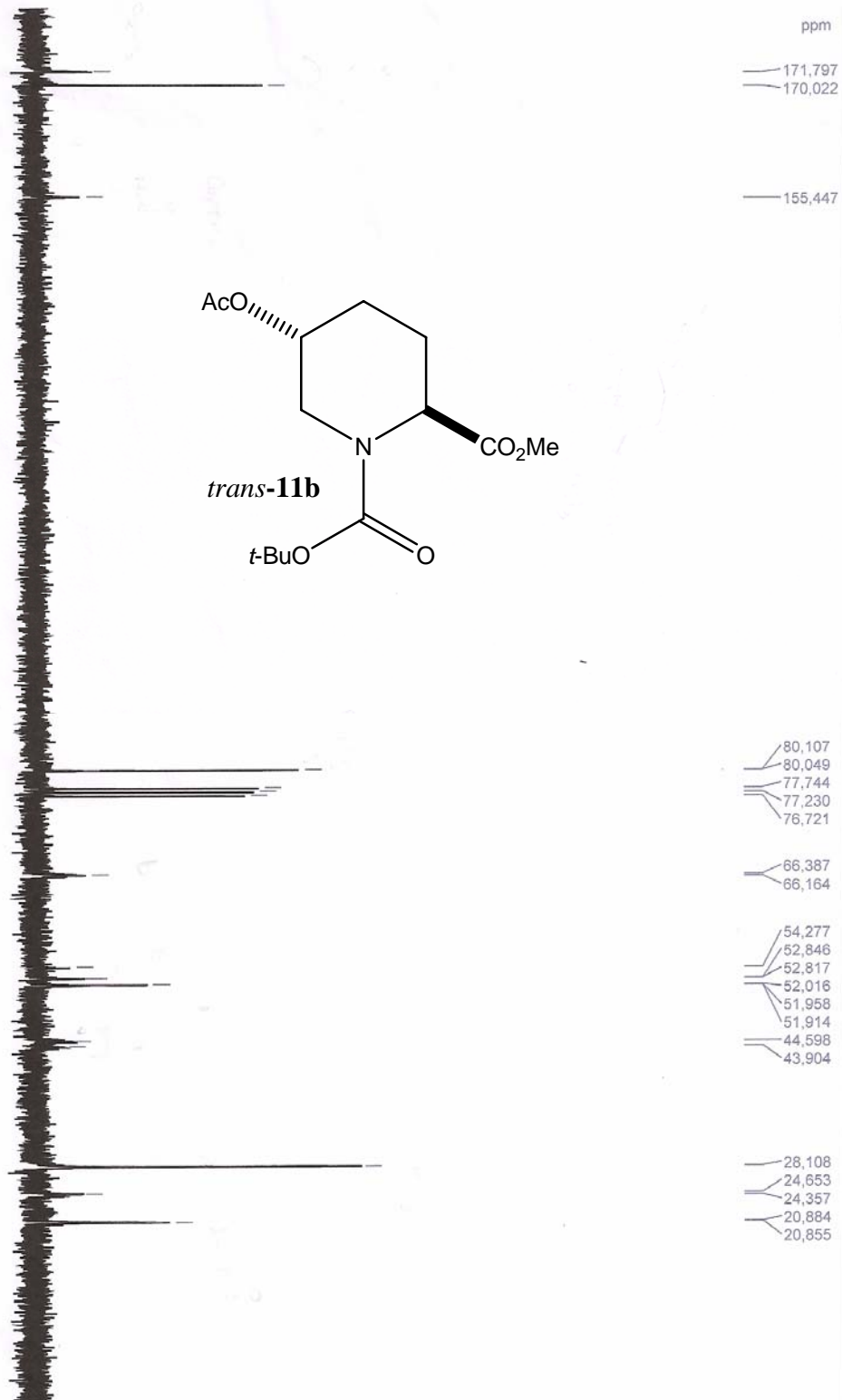
80

60

40

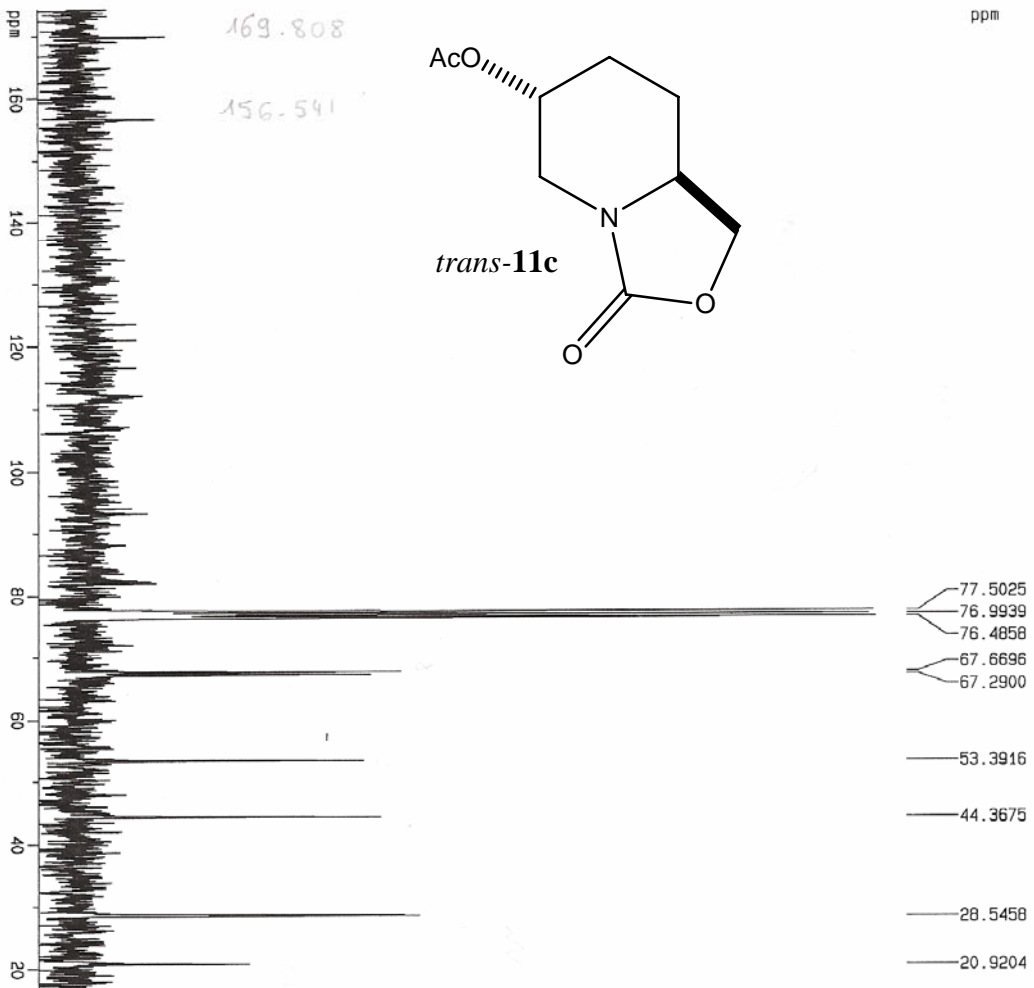
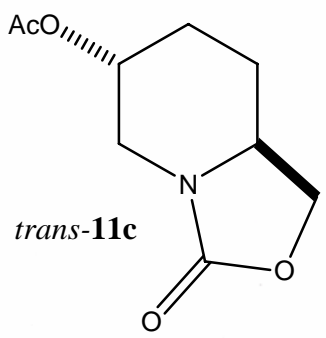
20

0



leco0311 281 (1D 13C) CDCl₃ 63MHz

LC51 F 7.8 20mg



Current Data Parameters
 NAME 1ec01213
 EXPNO 224
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021213
 Time 13.51

INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg
 TD 32768
 SOLVENT D2O
 NS 661
 DS 2

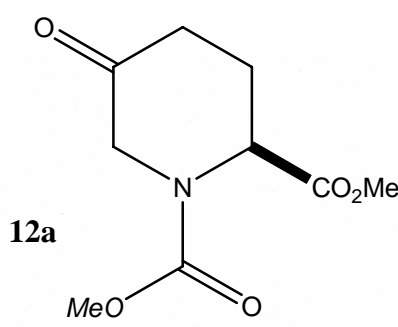
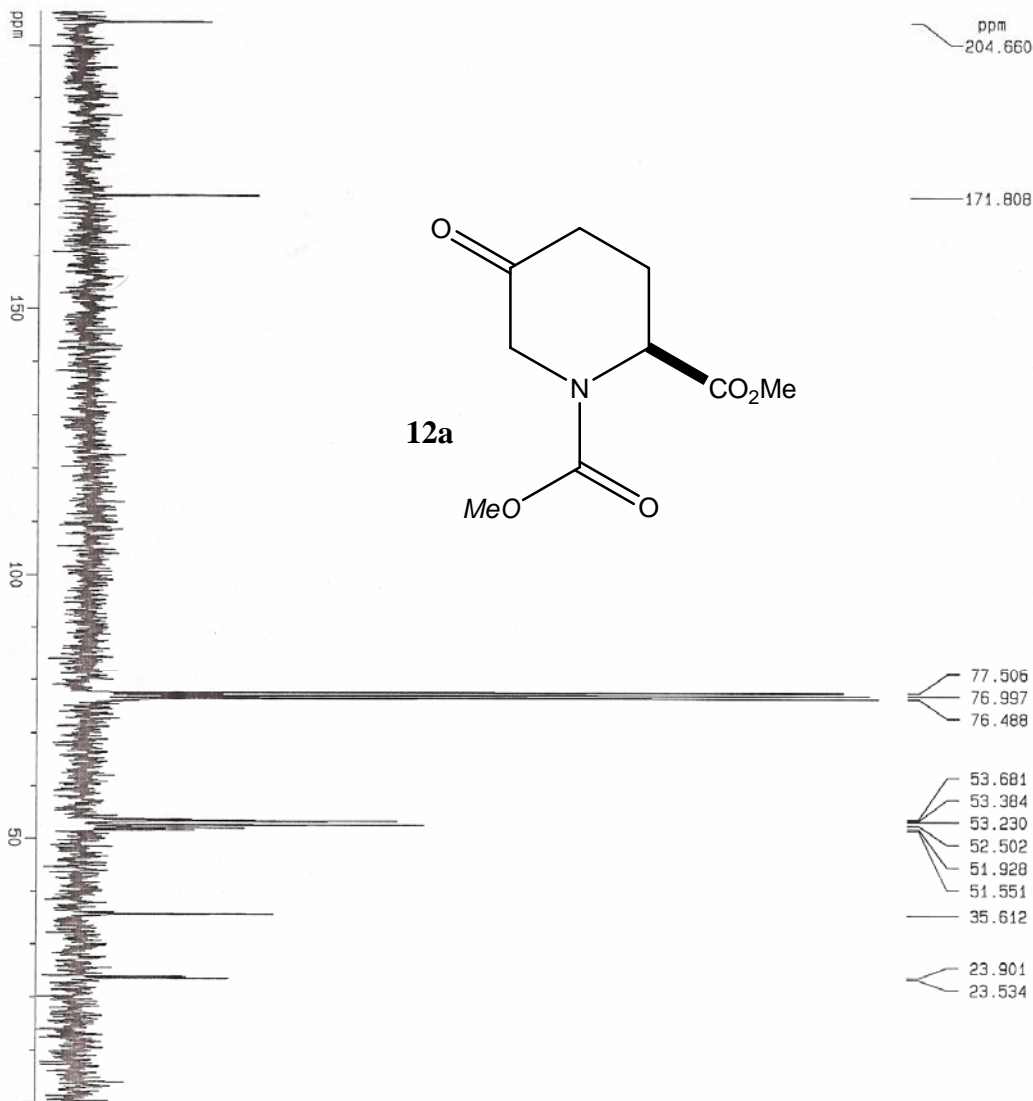
SMH 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 DW 29.000 usec
 DE 41.43 usec
 TE 300.0 K

DL6 28.50 dB
 DL5 28.50 dB
 P1 4.00 usec
 SFO1 62.904200 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.895801 MHz
 KW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 174.360 ppm
 F1 10966.53 Hz
 F2P -3.458 ppm
 F2 -217.51 Hz
 PPMCK 8.85050 ppm/c
 HZCM 559.20190 Hz/cm

L1c H1



Current Data Parameters
NAME l2c00131
EXPNO 231
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030431
Time 13.43

INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg
TD 32768
SOLVENT D2O
NS 515
DS 2

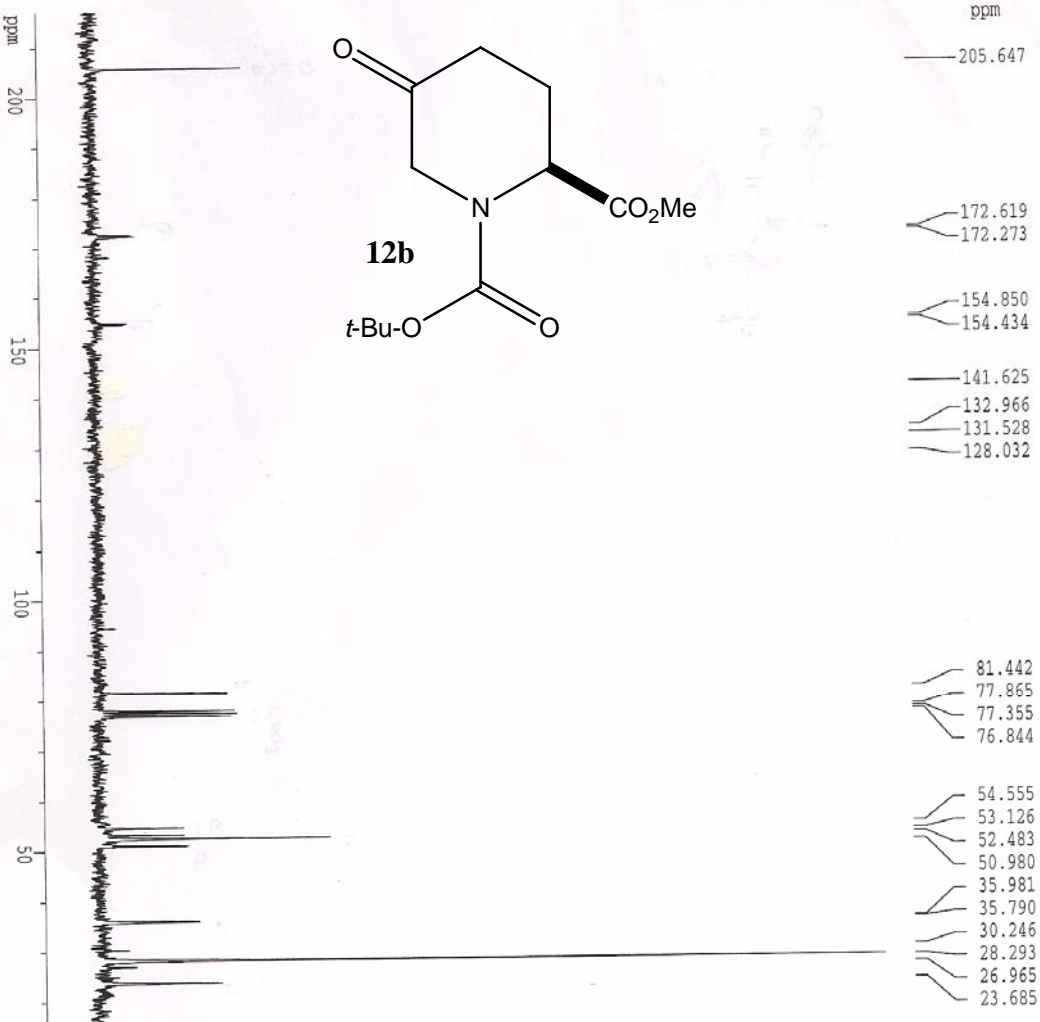
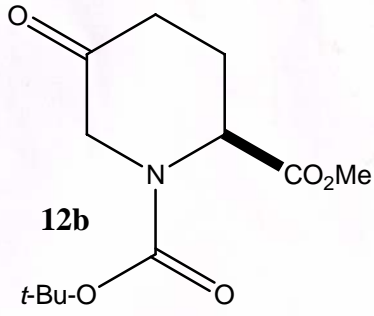
SWH 17241.379 Hz
FIDRES 0.5626165 Hz
AQ 0.9503220 sec
RG 45500
DM 29.000 usec
DE 41.43 usec
TE 300.0 K
D12 0.00002000 sec
DL6 28.50 dB
D1 3.000000000 sec

CPDPRG waitz16
P31 100.00 usec
D11 0.030000000 sec
DL5 28.50 dB
P1 4.00 usec
SF01 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768
SF 62.8955955 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 20.00 cm
F4P 206.724 ppm
F1 13002.08 Hz
F2P -3.924 ppm
F2 -221.44 Hz
PCHECK 10.51222 ppm/C
HZCM 651.17621 Hz/C1

Llc 231



Current Data Parameters
 NAME lecc0212
 EXMNO 243
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20040212
 Time 11.28

INSTRUM spect
 PROBD 5 mm Multinu
 PULPROG zgpgf
 TD 32768
 SOLVENT DMSO-d6
 NS 276
 DS 2

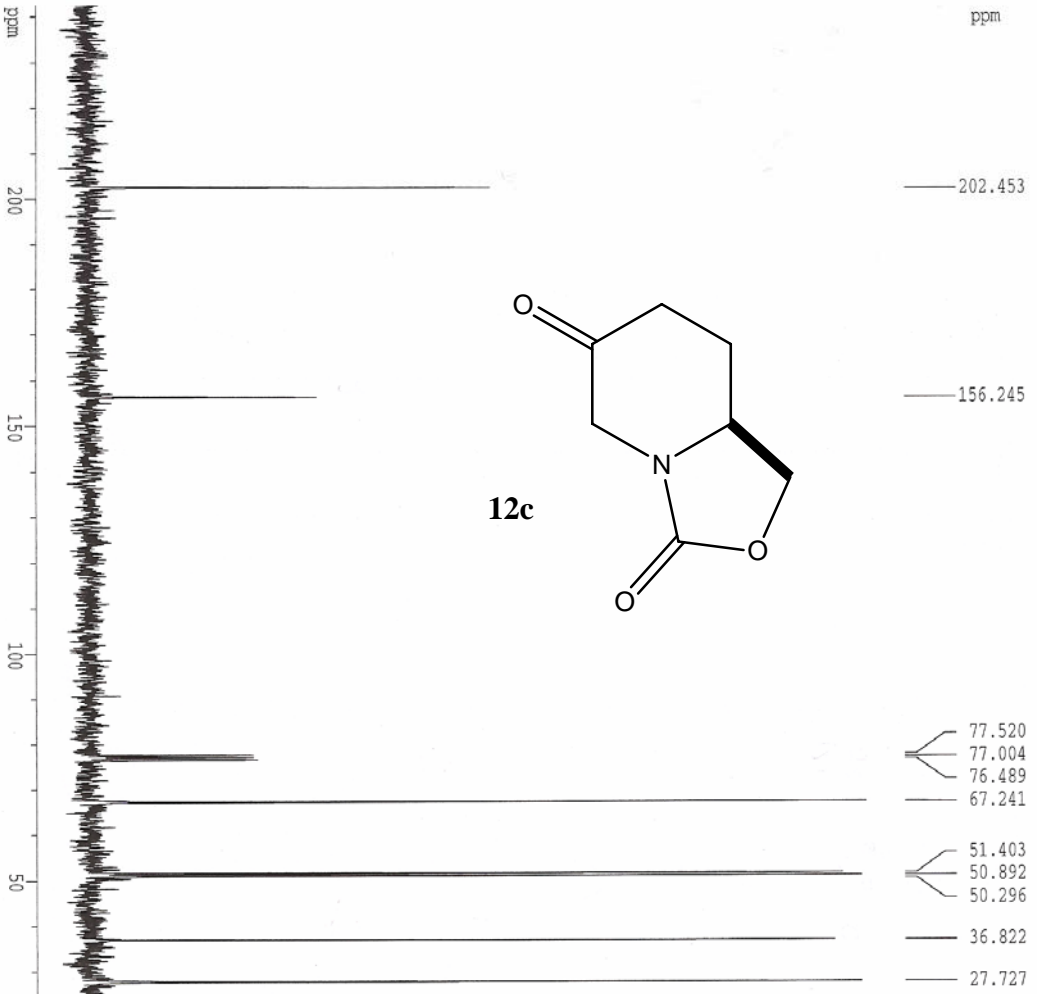
SMH 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 LW 29.000 usec
 DE 41.43 usec
 TE 300.0 K

DI2 0.00002000 sec
 DI6 28.50 dB
 DI 2.00000000 sec
 CPDPRG waltz16
 P31 100.00 usec
 DI1 0.03000000 sec
 DI5 28.50 dB
 P1 4.00 usec
 SFO1 62.9042000 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959432 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

ID NMR plot parameters
 CX 20.00 cm
 F1P 217.078 ppm
 F1 13653.32 Hz
 F2P -4.690 ppm
 F2 -294.96 Hz
 BPCKM 11.08838 ppm/cm
 HZCM 697.41382 Hz/cm

LC-141



12c

Current Data Parameters
NAME lcc0627
EXNO 231
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030627
Time 15.02

INSTRUM spect
PROBED 5 mm Multinu
PULPROG zgpg
TD 32768
SOLVENTF ~~dmf~~ *cdcl3*
NS 36
DS 2

SMH 17241.379 Hz
FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500

DW 29.000 usec
DE 41.43 usec
TE 300.0 K
D12 0.00002000 sec
DL6 28.50 dB

D1 3.00000000 sec
CPDPRG walz16
P31 100.00 usec
D11 0.03000000 sec
DL5 28.50 dB

P1 4.00 usec
SF01 62.9042000 MHz
NUCLEUS 13C

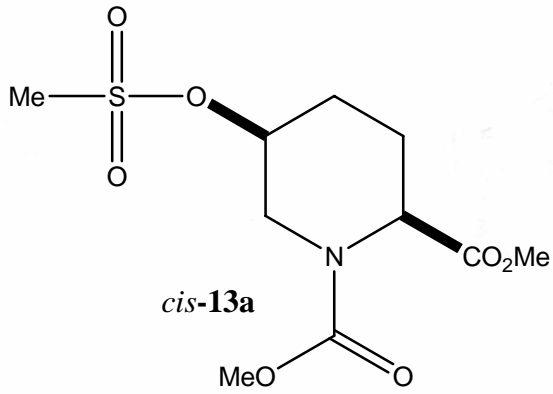
F2 - Processing parameters
SI 32768
SF 62.8959869 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

ID NMR plot parameters
CX 20.00 cm
FIP 242.435 ppm
F1 15246.18 Hz
F2P -3.054 ppm
F2 -192.09 Hz
FREQM 12.27445 ppm/cm
HZCM 772.01355 Hz/cm

L-14-17

ppm

170.555
155.853
155.535



77.516
77.003
76.492
74.342

53.290
52.866
52.538
52.136
44.973
44.534
38.211
31.267
27.533
24.556
24.232



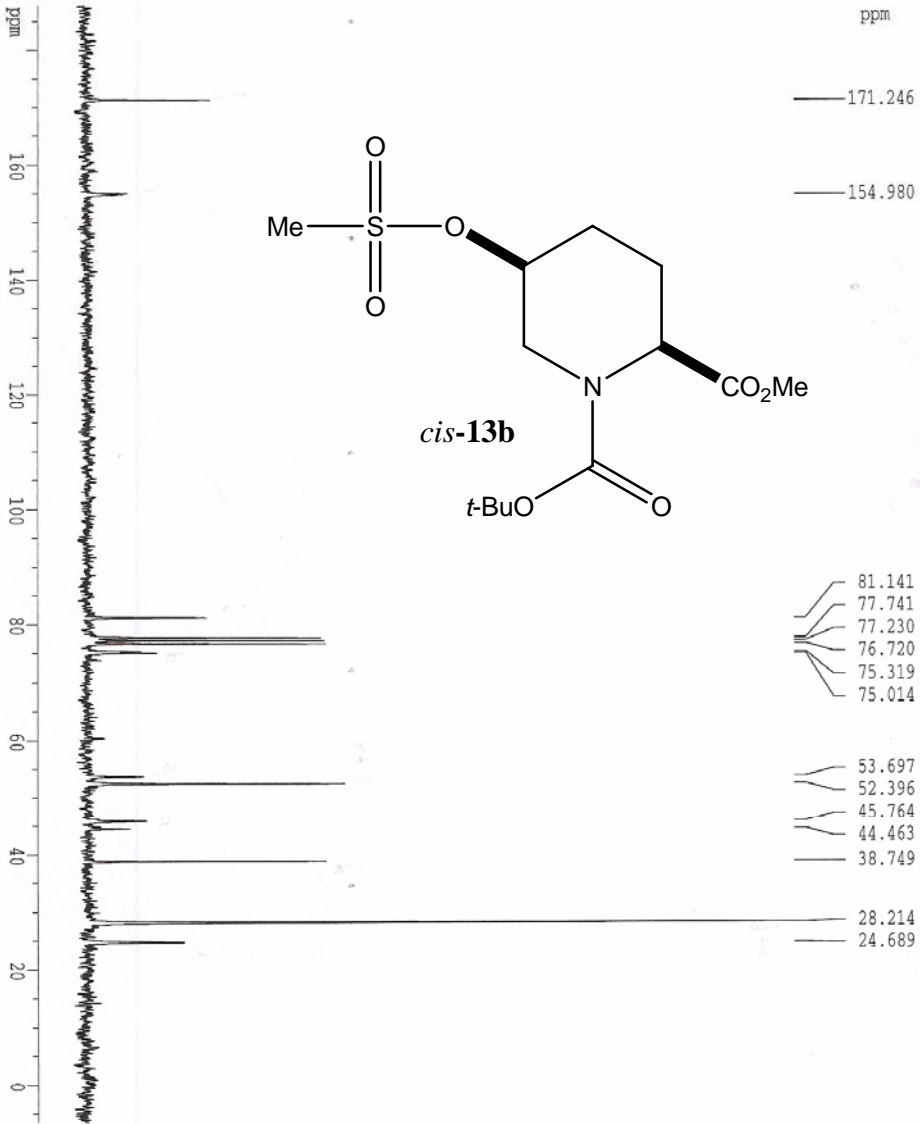
Current Data Parameters
 NAME LecCV708
 EXPMO 231
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030708
 Time_ 8.10
 INSTRUM spect
 PROBRD 5 mm MUltim
 PULPROG zgpg
 TD 32768
 SOLVENT D2O
 NS 234
 DS 2
 SMI 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 DW 29.000 usec
 DE 41.43 usec
 TE 300.0 K
 D12 0.00002000 sec
 DL6 28.50 dB
 D1 3.00000000 sec
 CPDPRG walz16
 P31 100.00 usec
 D11 0.03000000 sec
 DL5 28.50 dB
 P1 4.00 usec
 SF01 62.9042000 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959738 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 188.882 ppm
 F1 11879.92 Hz
 F2P -6.004 ppm
 F2 -377.62 Hz
 CPICM 9.74430 ppm/cm
 HZCM 612.87714 Hz/cm

LUC 296



Current Data Parameters
 NAME Lec0708
 EXPNO 241
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20040708
 Time 15:17

INSTRUM spect
 PROBRD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 390
 DS 2

SMH 20000.000 Hz
 FIDRES 0.30576 Hz
 AQ 1.6384500 sec
 RG 32768

TM 25.000 usec
 DB 35.71 usec
 FE 300.0 K

DI 0.00002000 sec
 DL6 28.50 dB
 DI 2.00000000 sec

CPDPRG walz16
 B1 100.00 usec
 D11 0.03000000 sec

D15 28.50 dB
 P1 9.40 usec
 SF01 62.9031573 MHz
 NUC13 13C

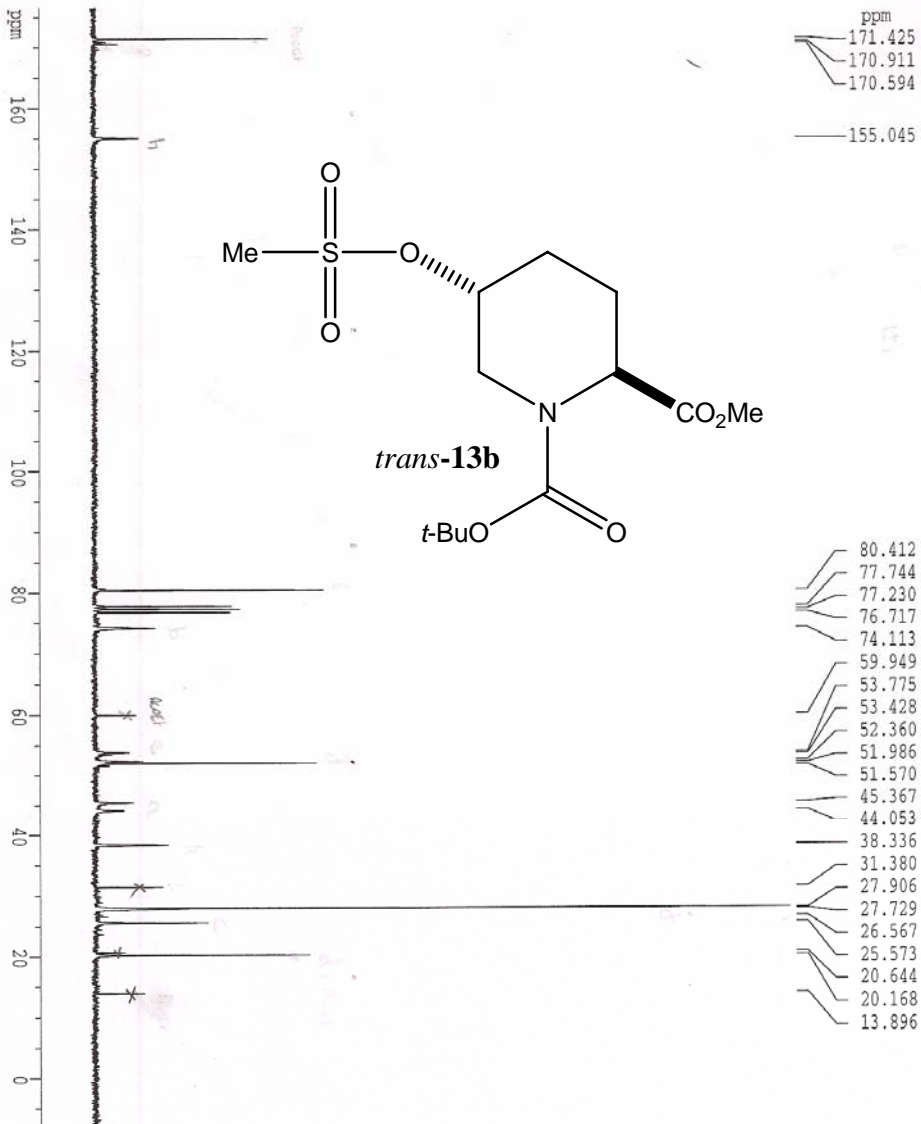
F2 - Processing Parameters
 SI 32768
 SF 62.8952347 MHz

WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CK 20.00 cm
 F1P 187.732 ppm
 F1 11897.48 Hz

F2P -6.435 ppm
 F2 -404.75 Hz
 PPKCM 9.70839 ppm/cm
 HCKM 610.61151 Hz/cm

Llc 231

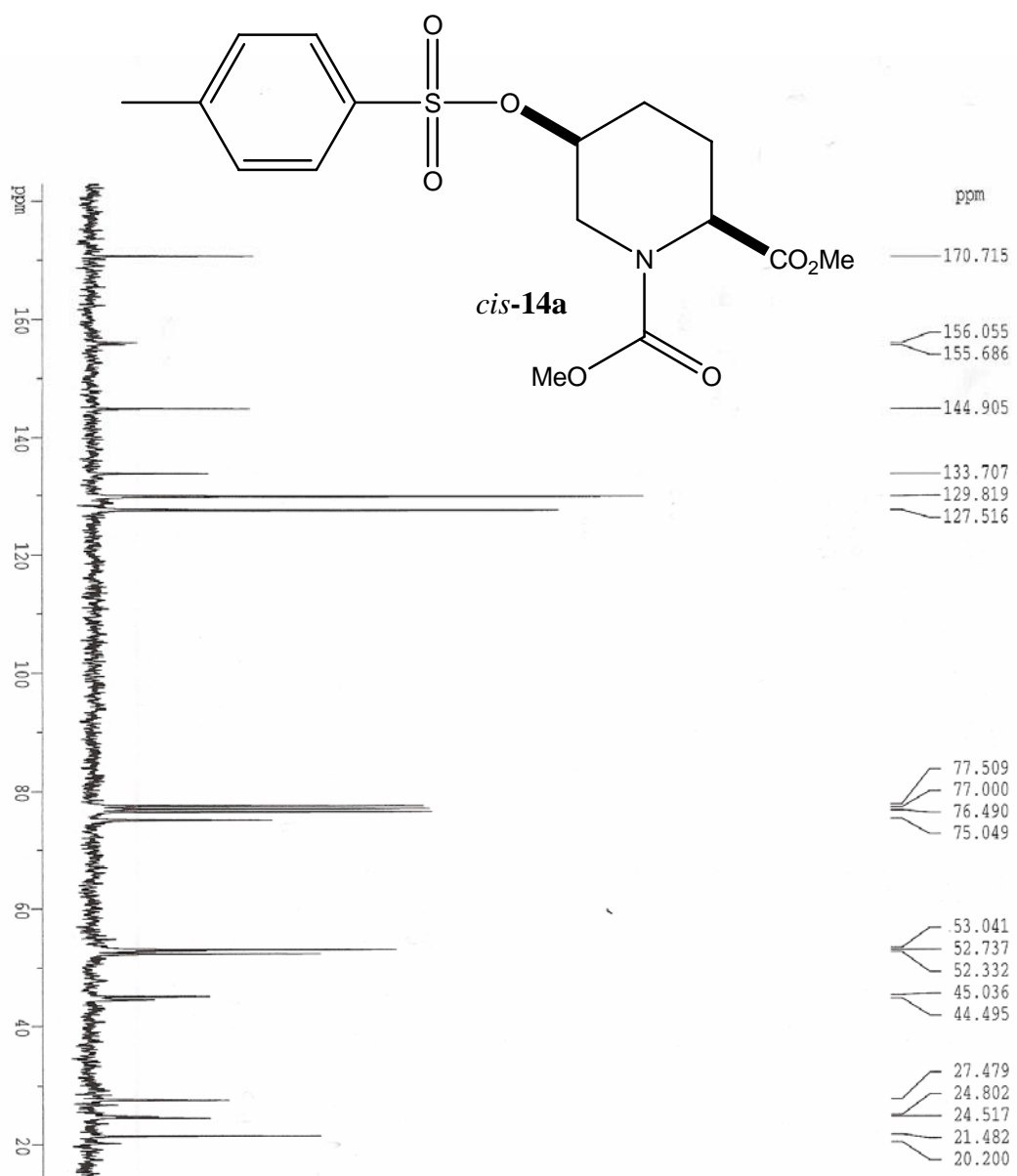


Current Data Parameters
 NAME lecc0629
 EXPNO 242
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20040629
 Time 15.07
 INSTRUM spect
 PROBRD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 636
 DS 2
 SWH 20000.000 Hz
 FIDRES 0.305176 Hz
 AQ 1.6384500 sec
 RG 45500
 BW 25.000 usec
 DB 35.71 usec
 DR 300.0 K
 TE 28.50 dB
 D12 0.00002000 sec
 DL6 28.50 dB
 D1 2.00000000 sec
 CDDPRG waltz16
 P31 100.00 usec
 D11 0.03000000 sec
 DL5 28.50 dB
 P1 9.40 usec
 SF01 62.9031573 MHz
 NUC1EN1 13C

F2 - Processing parameters
 SI 32768
 SF 62.8952463 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 176.602 ppm
 F1 11107.42 Hz
 F2P -7.661 ppm
 F2 -481.87 Hz
 PPKCM 9.2116 ppm/cm
 HZCM 579.46423 Hz/cm



Current Data Parameters

NAME lacc0704

EXPNO 231

PROCNO 1

F2 - Acquisition Parameters

Date_ 20030704

Time 8.03

INSTRUM spect

PROBHD 5 mm Hultnu

PULPROG zgpg

TD 32768

SOLVENT -D2O

NS 377

DS 2

SWH 17241.379 Hz

FIDRES 0.526165 Hz

AQ 0.9503220 sec

RG 45500

DW 29.000 usec

DR 41.43 usec

TE 300.0 K

D12 0.00002000 sec

D16 28.50 dB

D1 3.00000000 sec

CPDPRG walz16

P31 100.00 usec

D11 0.03000000 sec

D15 28.50 dB

P1 4.00 usec

SFO1 62.9042000 MHz

NUCLEUS 13C

F2 - Processing parameters

SI 32768

SF 62.8959638 MHz

WDW EM

SSB 0

LB 3.00 Hz

GB 0

PC 1.00

1D NMR plot parameters

CX 20.00 cm

F1P 182.884 ppm

F1 11502.66 Hz

F2P -2.097 ppm

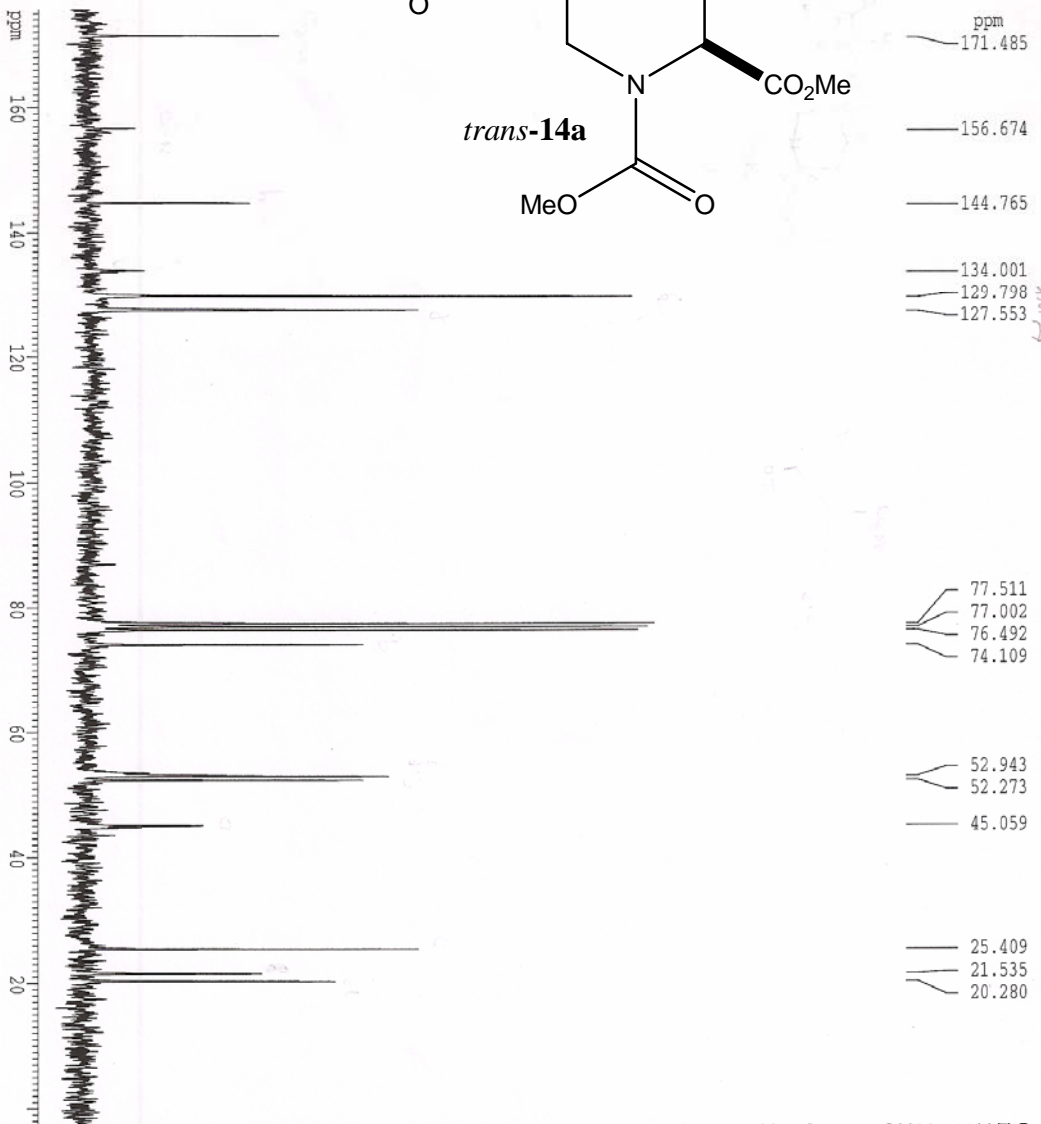
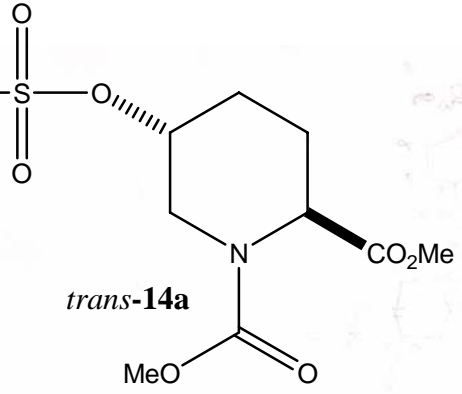
F2 -131.90 Hz

PPMKCM 9.24905 ppm/cm

SF1 72815 Hz/cm

Llc 118

171.7 156.9 145.0 134.1
129.8 127.6
112.8



Current Data Parameters
NAME Ico0521
EXNO 213
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030521
Time 9.03

INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg
TD 32768
SOLVENT CDCl3
NS 1024
DS 2

SWH 17241.379 Hz
FIDRES 0.526165 Hz
AQ 0.9503220 sec
RG 45500
DM 29.000-usec
DE 41.43 usec
TE 300.0 K
D12 0.00002000 sec
D16 28.50 dB
D1 3.00000000 sec
CPDPRG walz16

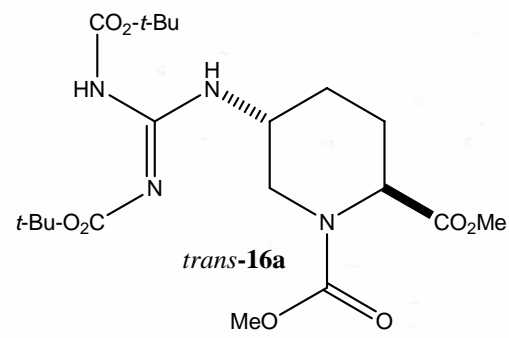
P31 100.00 usec
D11 0.03000000 sec
D15 28.50 dB
P1 4.00 usec
SFOL 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768
SF 62.8959606 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

ID NMR plot parameters
CX 20.00 cm
F1P 175.695 ppm
F1 11050.48 Hz
F2P -2.835 ppm
F2 -178.28 Hz
PPMCM 8.92646 ppm/cm
HZCM 561.45811 Hz/cm

16180

ppm



171.445
163.573
155.502
153.097

83.172
79.241
77.521
77.015
76.505

53.795
53.047
52.339
45.702
43.653

28.252
28.009
24.864
21.317

150
100
50
0

Current Data Parameters
NAME lecc1022
EXPMO 231
PROCNO 1

F2 - Acquisition Parameters
Date_ 20031022
Time 13.34
INSTRUM spect
PROBHD 5 mm Maltinn
PULPROG zgpg
TD 32768
SOLVENT -D₂O
NS 999
DS 2
SMH 17241.379 Hz
FIDRES 0.326165 Hz
AQ 0.9503220 sec
RG 45500
DM 29.000 usec
DE 41.43 usec
TE 300.0 K
D12 0.00002000 sec
DL6 28.50 dB
D1 1.00000000 sec
CPDPRG walcz16
P31 100.00 usec
D11 0.03000000 sec
DL5 28.50 dB
P1 4.00 usec
SFO1 62.9042000 MHz
NUCLEUS 13C

F2 - Processing parameters
SI 32768
SF 62.8959575 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 206.190 ppm
F1 12968.53 Hz
E2P -5.523 ppm
F2 -347.36 Hz
PEPCK 10.58565 ppm/cm
HZCM 665.79431 Hz/cm

luc 169

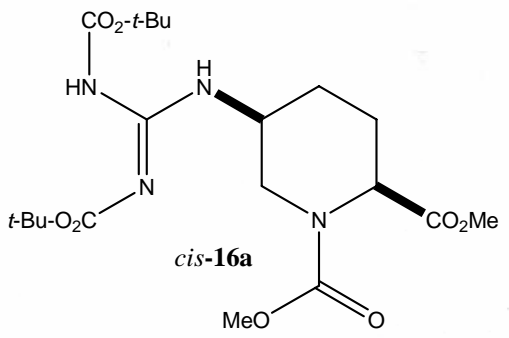
ppm

- 171.564
- 163.579
- 156.566
- 156.293
- 155.667
- 153.237

- 83.374
- 79.441
- 77.521
- 77.013
- 76.505

- 53.147
- 52.389
- 45.922
- 45.637

- 28.247
- 28.045
- 27.683
- 25.239



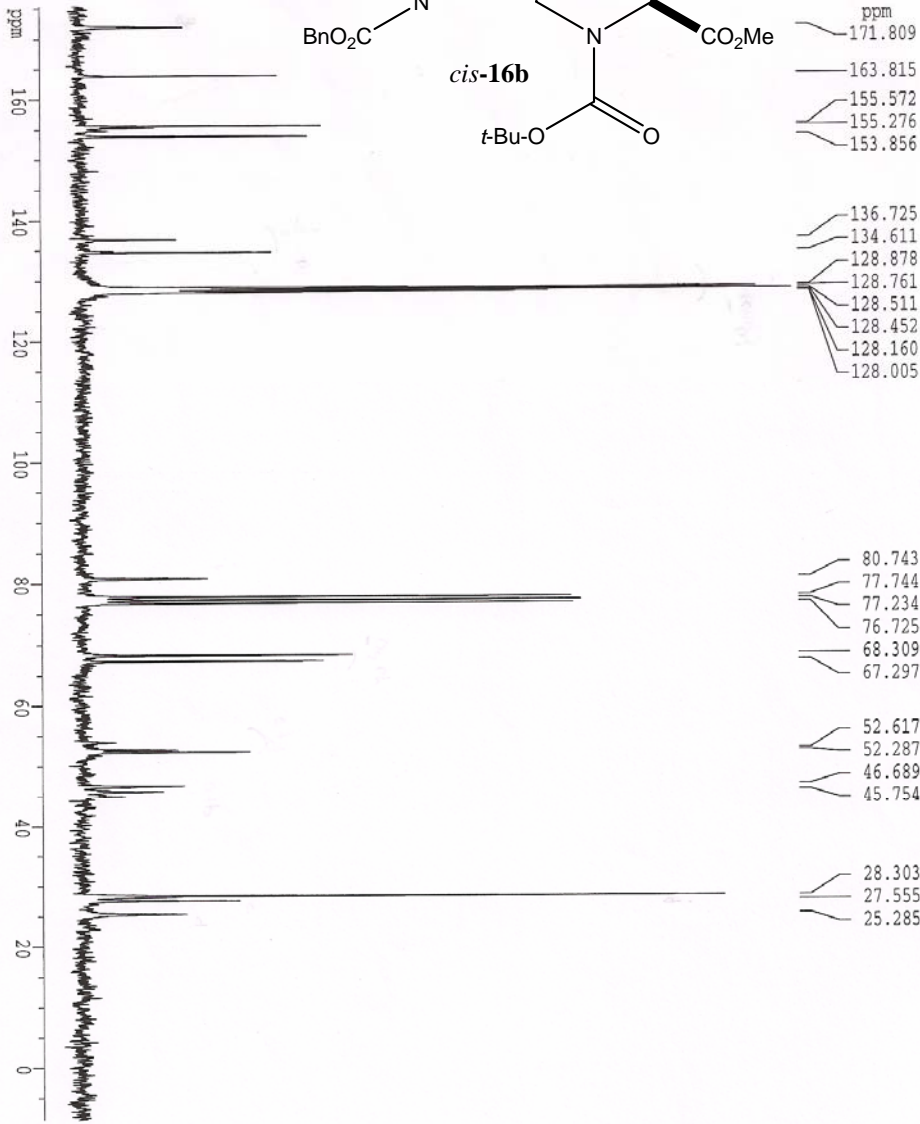
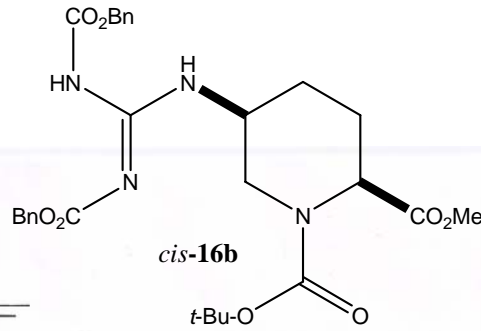
Current Data Parameters
 NAME lecc1007
 EXNO 231
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20031007
 Time 8.28

INSTRUM spect
 PROBRD 5 mm MUltinu
 PULPROG zgpg
 TD 32768
 SOLVENTF ~~D2O~~ ^{CD3}
 NS 1024
 DS 2
 SWH 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 DW 29.1000 usec
 DE 41.43 usec
 TE 300.0 K
 D12 0.00002000 sec
 DL6 28.50 dB
 D1 3.00000000 sec
 CPDPRG walz16
 P31 100.00 usec
 D11 0.03000000 sec
 DL5 28.50 dB
 P1 4.00 usec
 SF01 62.9042000 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959559 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.00

ID NMR plot parameters
 CX 20.00 cm
 P1P 193.936 ppm
 F1 12197.81 Hz
 F2P -3.276 ppm
 F2 -206.05 Hz
 FREQCM 9.86063 ppm/cm
 HZCM 620.19342 Hz/cm



Current Data Parameters
 NAME lec0915
 EXNO 241
 PROCNO 1

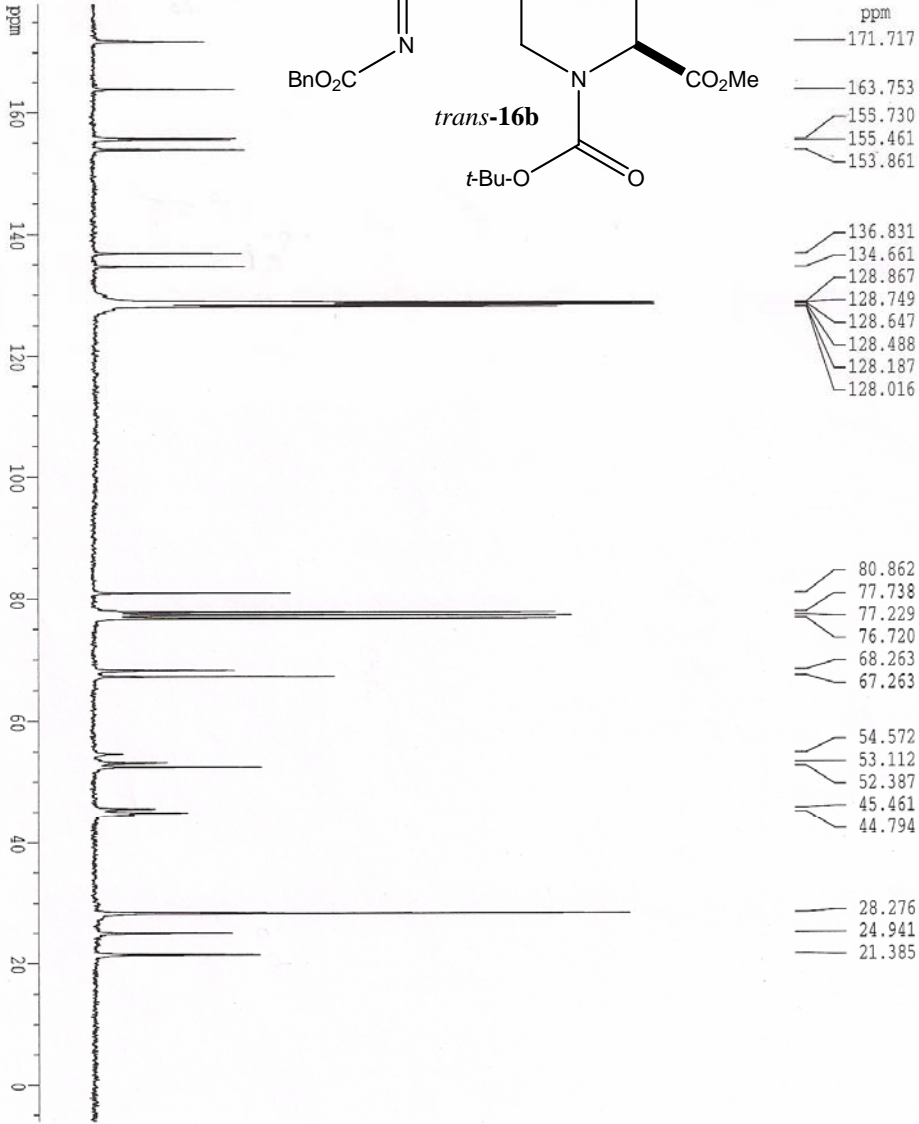
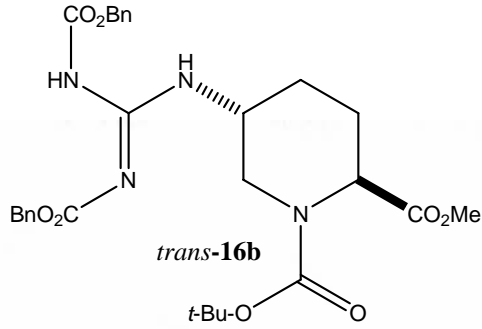
F2 - Acquisition Parameters
 Date_ 20040915
 Time 16.45
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 CODE
 SOLVENT CDCl3
 NS 1051
 DS 2

SMH 20000.000 Hz
 FIDRES 0.305176 Hz
 AQ 1.6384500 sec
 RG 45500
 TM 25.000 usec
 DE 35.71 usec
 TE 300.0 K
 D1 0.00002000 sec
 D12 28.50 dB
 DL6 2.00000000 sec
 DI waitz16

CPDPRG p1
 P1 100.00 usec
 D11 0.03000000 sec
 D15 28.50 dB
 P1 9.40 usec
 SFO1 62.9031573 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.895265 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters:
 CX 20.00 cm
 F1P 175.338 ppm
 F1 11027.90 Hz
 F2P -8.642 ppm
 F2 -543.53 Hz
 PPKCX 9.19897 ppm/cm
 HZCM 578.57141 Hz/cm



- 171.717
- 163.753
- 155.730
- 155.461
- 153.861
- 136.831
- 134.661
- 128.867
- 128.749
- 128.647
- 128.488
- 128.187
- 128.016
- 80.862
- 77.738
- 77.229
- 76.720
- 68.263
- 67.263
- 54.572
- 53.112
- 52.387
- 45.461
- 44.794
- 28.276
- 24.941
- 21.385

Current Data Parameters

NAME Lecol008
 EXPNO 21
 PROCNO 1

F2 - Acquisition Parameters

Date_ 20041009
 Time 18.13
 INSTRUM spect
 PROBHD 5 mm Multira
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 10240
 DS 2
 SFO 20000.000 Hz
 FIDRES 0.305176 Hz
 AQ 1.6384300 sec
 RG 45500
 RW 25.000 usec
 DR 35.71 usec
 TE 300.0 K
 D12 0.00002000 sec
 DL6 35.00 dB
 DI 2.00000000 sec
 GPDPRG walcz16

E31 100.00 usec
 D11 0.03000000 sec
 D15 28.00 dB
 P1 11.00 usec
 SFO1 62.9031573 MHz
 NUC1NUC 13C

F2 - Processing parameters

SI 32768
 SF 62.8952328 MHz
 WDW EM
 SSB 0
 LB 3.00 Hz
 GB 0
 PC 1.40

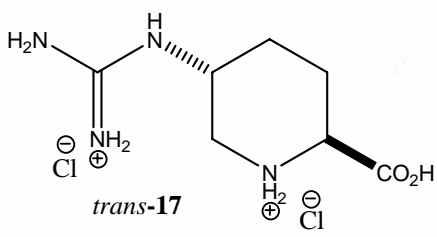
1D NMR plot parameters

CX 20.00 cm
 PIP 177.932 ppm
 F1 11191.05 Hz
 F2P -6.048 ppm
 F2 -380.38 Hz
 FREQCN 9.18997 ppm/cm
 HZCN 578.57147 Hz/cm

Lec 310

Uc-200 (F6-8)

ppm
 173.865
 159.091



59.260
 59.228
 59.136
 58.209
 48.396
 48.352
 48.252
 48.152
 48.059
 47.758
 47.734
 46.925
 31.030
 31.004
 30.915
 28.393
 27.254
 27.129



Current Data Parameters
 NAME lecc1128
 EXNO 231
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20031128
 Time 15.40

INSTRUM spect
 PROBHD 5 mm MUltiHu
 PULPROG zgpg
 TD 32768
 SOLVENT D2O
 NS 1925

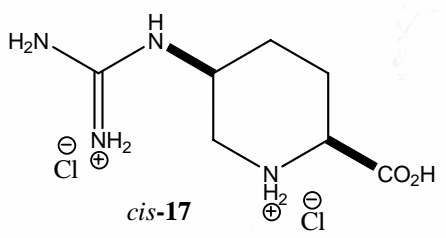
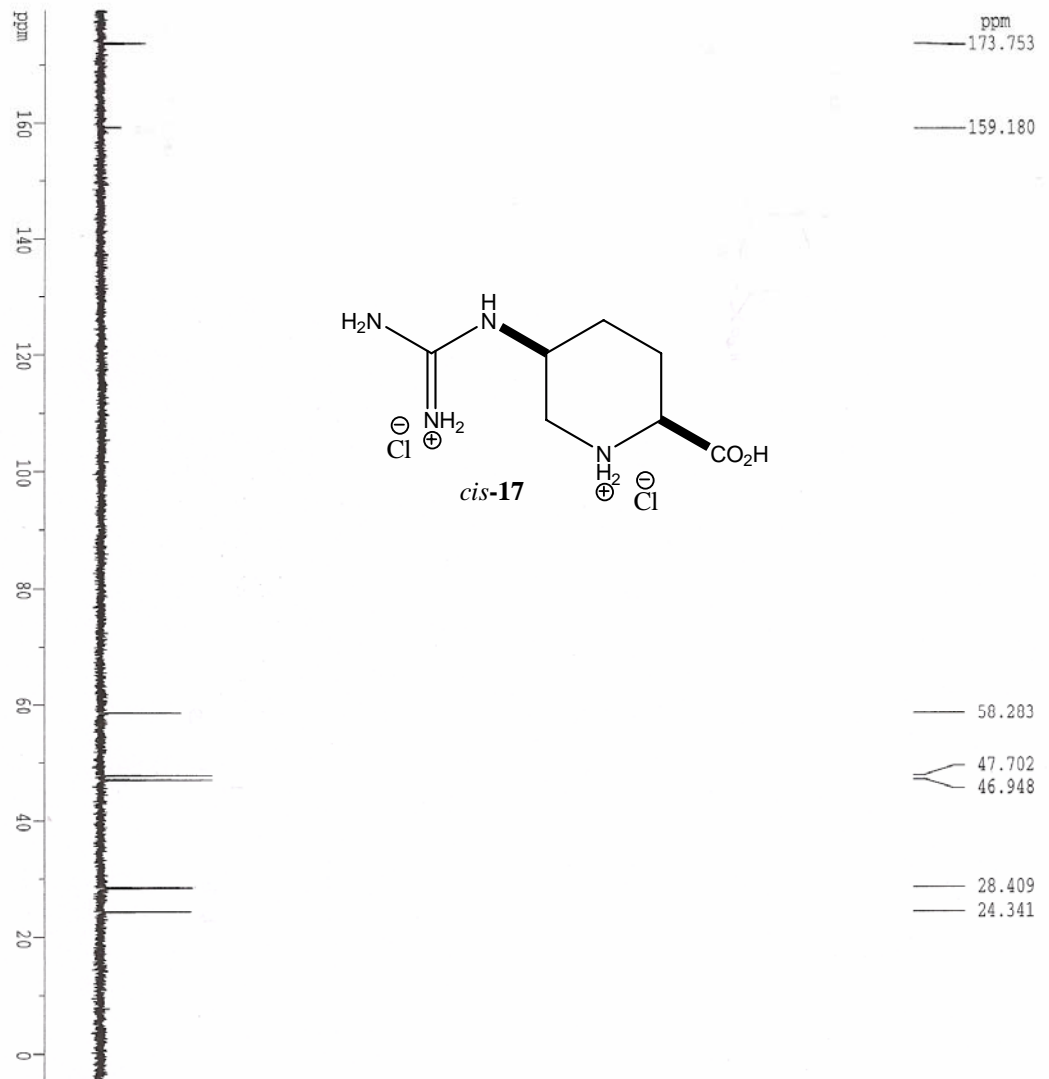
DS 2
 SNUH 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 DM 29.000 usec
 DE 41.43 usec
 TE 300.0 K

D12 0.00002000 sec
 DL6 28.50 dB
 D1 2.00000000 sec
 CPDPRG walcz16
 P31 100.00 usec
 D11 0.03000000 sec
 DL5 28.50 dB
 P1 6.00 usec
 SFO1 62.9031659 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959332 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 0.20

ID NMR plot parameters
 CX 20.00 cm
 F1P 183.281 ppm
 F1 11527.62 Hz
 F2P -5.425 ppm
 F2 -341.23 Hz
 PPMCK 9.43530 ppm/cm
 HZCM 593.44202 Hz/cm

Lec 139 F1



Current Data Parameters
 NAME Lec1125
 EXPNO 232
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20031125
 Time 19.04

INSTRUM spect
 PROBHD 5 mm Maltinn
 PULPROG zgpg3
 TD 32768
 SOLVENT D2O
 NS 14336
 DS 2

SWH 17241.379 Hz
 FIDRES 0.526165 Hz
 AQ 0.9503220 sec
 RG 45500
 INW 29.000 usec
 DE 41.43 usec
 TE 300.0 K
 D12 0.00002000 sec
 D16 28.50 dB
 D1 2.00000000 sec

CPDPRG walz216
 P31 100.00 usec
 D11 0.03000000 sec
 D15 28.50 dB
 P1 6.00 usec
 SFO1 62.9031659 MHz
 NUCLEI1 13C

F2 - Processing parameters
 SI 32768
 SF 62.8959332 MHz
 WDM RM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 0.20

1D NMR plot parameters
 CX 20.00 cm
 FLP 179.365 ppm
 F1 11281.31 Hz
 F2 -12.768 ppm
 -803.05 Hz
 PPMCM 9.60663 ppm/cm
 HZCM 604.21796 Hz/cm