REVISED

**Preparation of Bis(β -Trimethylsilylethanesulfonyl)imide (SES₂NH)
and Its Use in Synthesis of Protected Amine Derivatives**

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Supporting Information

4a: Off white solid: mp 112-115 °C; ^1H NMR (300 MHz, CDCl_3) δ 7.27-7.19 (m, 5H), 3.91 (t, $J = 7.9$ Hz, 2H), 3.21 (m, 4H), 2.98 (t, $J = 7.9$ Hz, 2H), 1.02 (m, 4H), 0.00 (s, 18H); ^{13}C NMR (75 MHz, CDCl_3) δ 137.5, 129.5, 128.9, 127.3, 53.2, 50.9, 37.9, 10.2, -1.8; HRMS ($\text{C}_{18}\text{H}_{35}\text{NO}_4\text{S}_2\text{Si}_2$) calcd 467.1890 ($\text{M}+\text{NH}_4^+$), found 467.1852.

4b: Off white solid: mp 79-81 °C; ^1H NMR (300 MHz, CDCl_3) δ 7.59-7.39 (m, 5H), 4.95 (s, 2H), 3.13 (m, 4H), 0.96 (m, 4H), 0.00 (s, 18H); ^{13}C NMR (75 MHz, CDCl_3) δ 135.7, 129.7, 128.7, 128.6, 53.5, 52.9, 9.6, -2.2; HRMS ($\text{C}_{17}\text{H}_{33}\text{NO}_4\text{S}_2\text{Si}_2$) calcd 453.1733 ($\text{M}+\text{NH}_4^+$), found 435.1702.

4c: Colorless oil. ^1H NMR (300 MHz, CDCl_3) δ 5.07 (m, 1H), 3.73 (m, 2H), 3.36 (m, 4H), 2.05 (m, 2H), 1.71 (m, 1H), 1.68 (s, 3H), 1.60 (s, 3H), 1.58-1.11 (m, 4H), 1.08 (m, 4H), 0.92 (d, $J = 6.4$ Hz, 3H), 0.07 (s, 18H); ^{13}C NMR (75 MHz, CDCl_3) δ 131.4, 124.3, 53.2, 48.2, 38.0, 36.6, 30.2, 25.7, 25.3, 19.2, 17.6, 9.9, -2.1; HRMS ($\text{C}_{20}\text{H}_{45}\text{NO}_4\text{S}_2\text{Si}_2$) calcd 501.2672 ($\text{M}+\text{NH}_4^+$), found 501.2646.

4d: Pale yellow oil. ^1H NMR (360 MHz, CDCl_3) δ 5.35 (m, 1H), 5.05 (m, 1H), 4.36 (d, $J = 7.3$ Hz, 2H), 3.32 (m, 4H), 2.03 (m, 4H), 1.71 (s, 3H), 1.66 (s, 3H), 1.58 (s, 3H), 1.05 (m, 4H), 0.04 (s, 18H); ^{13}C NMR (90 MHz, CDCl_3) δ 142.0, 132.2, 123.6, 120.1, 53.6, 48.1, 39.8, 26.7, 25.8, 17.9, 16.4, 10.0, -1.9; HRMS ($\text{C}_{20}\text{H}_{43}\text{NO}_4\text{S}_2\text{Si}_2$) calcd 499.2516 ($\text{M}+\text{NH}_4^+$), found 499.2507.

4e: Off white solid: mp 69-70 °C; ^1H NMR (360 MHz, CDCl_3) δ 7.35-7.28 (m, 5H), 4.55 (s, 2H), 4.02 (t, $J = 5.0$ Hz, 2H), 3.74 (t, $J = 5.0$ Hz, 2H), 3.48 (m, 4H), 1.07 (m, 4H), 0.0 (s, 18H); ^{13}C NMR (90 MHz, CDCl_3) δ 137.7, 128.6, 127.9, 127.7, 72.9, 70.2, 53.0, 49.4, 21.1, 14.3, 9.9, -2.0; HRMS ($\text{C}_{19}\text{H}_{37}\text{NO}_5\text{S}_2\text{Si}_2$) calcd 497.1995 ($\text{M}+\text{NH}_4^+$), found 497.1956.

4g: White solid: mp 59-62 °C; ^1H NMR (300 MHz, CDCl_3) δ 7.45 (d, $J = 8.7$, 2H), 6.86 (d, $J = 8.7$, 2H), 4.84 (s, 2H), 3.76 (s, 3H), 3.06 (m, 4H), 0.89 (m, 4H), -0.05 (s, 18H); ^{13}C NMR (75 MHz, CDCl_3) δ 159.9, 131.3, 127.9, 114.1, 55.3, 53.6, 52.7, 31.7, 9.7, -2.5; HRMS ($\text{C}_{18}\text{H}_{35}\text{NO}_5\text{S}_2\text{Si}_2$) calcd 483.1839 ($\text{M}+\text{NH}_4^+$), found 483.1816.

4h: White solid: mp 61-63 °C; ^1H NMR (300 MHz, CDCl_3) δ 5.32 (d, $J = 1.0$, 1H), 3.67 (m, 2H), 3.35 (m, 4H), 2.36 (m, 3H), 2.21 (m, 2H), 2.06 (m, 2H), 1.26 (s, 3H), 1.14-1.04 (m, 5H), 0.80 (s, 3H), 0.04 (s, 18H); ^{13}C NMR (75 MHz, CDCl_3) δ 144.0,

119.6, 53.3, 48.1, 45.5, 40.7, 38.8, 38.1, 31.8, 31.5, 26.3, 21.4, 10.1, -1.9; HRMS ($C_{21}H_{43}NO_4S_2Si_2$) calcd 511.2516 ($M+NH_4^+$), found 511.2498.

4f: White solid. 1H NMR (360 MHz, $CDCl_3$) δ 7.26-7.12 (m, 5H), 4.30 (m, 1H), 3.30 (m, 4H), 2.63 (m, 2H), 2.17 (m, 2H), 1.51 (d, $J = 3.5$ Hz, 3H), 1.06 (m, 4H), 0.00 (s, 18H); ^{13}C NMR (90 MHz, $CDCl_3$) δ 141.0, 128.8, 128.5, 126.4, 59.5, 38.1, 33.8, 21.1, 10.1, -1.8; HRMS ($C_{20}H_{39}NO_4S_2Si_2$) calcd 495.2203 ($M+NH_4^+$), found 495.2180.

4i: White solid: mp 53-55 °C 1H NMR (300 MHz, $CDCl_3$) δ 6.21-6.12 (m, 1H), 5.29-5.23 (m, 2H), 4.52 (m, 1H), 3.33 (m, 4H), 2.01-1.91 (m, 2H), 1.09 (m, 4H), 0.93 (t, $J = 7.4$ Hz, 3H), 0.04 (s, 18H); ^{13}C NMR (75 MHz, $CDCl_3$) δ 137.1, 119.9, 67.5, 54.3, 27.3, 11.6, 9.8, -2.1; HRMS ($C_{15}H_{35}NO_4S_2Si_2$) calcd 431.1890 ($M+NH_4^+$), found 431.1850.

2-(Trimethylsilyl)-ethanesulfonic Acid Phenethylamide (5a): White solid. 1H NMR (360 MHz, $CDCl_3$) δ 7.33-7.19 (m, 5H), 4.44 (t, $J = 6.0$ Hz, 1H), 3.35 (t, $J = 6.9$ Hz, 2H), 2.85 (t, $J = 6.9$ Hz, 2H), 2.80 (m, 2H), 0.87 (m, 2H), 0.00 (s, 9H); ^{13}C NMR (90 MHz, $CDCl_3$) δ 138.1, 129.1, 129.0, 127.2, 49.0, 44.8, 36.9, 10.6, -1.8; HRMS ($C_{13}H_{23}NO_2SSi$) calcd 286.1297 ($M+H^+$), found 286.1276.

2-(Trimethylsilyl)-ethanesulfonic Acid Benzylamide (5b): Pale yellow solid. 1H NMR (360 MHz, $CDCl_3$) δ 7.41-7.32 (m, 5H), 4.61, (t, $J = 5.7$ Hz, 1H), 4.32 (d, $J = 6.1$ Hz, 2H), 2.83 (m, 2H), 0.96 (m, 2H), 0.00, (s, 9H); ^{13}C NMR (90 MHz, $CDCl_3$) δ 137.4, 129.1, 128.3, 128.2, 49.8, 47.5, 10.7, -1.9; HRMS ($C_{12}H_{21}NO_2SSi$) calcd 289.1406 ($M+NH_4^+$), found 289.1416.

2-(Trimethylsilyl)-ethanesulfonic Acid (3,7-Dimethyl-oct-6-enyl)-amide (5c): Colorless oil. 1H NMR (360 MHz, $CDCl_3$) δ 5.07 (m, 1H), 4.25 (m, 1H), 3.12 (m, 2H), 2.91 (m, 2H), 1.97 (m, 2H), 1.67 (s, 3H), 1.59 (s, 3H), 1.55 (m, 2H), 1.36 (m, 2H), 1.20 (m, 1H), 1.00 (m, 2H), 0.90 (d, $J = 6.3$ Hz, 3H), 0.04 (s, 9H); ^{13}C NMR (90 MHz, $CDCl_3$) δ 131.7, 124.6, 48.8, 41.7, 37.7, 37.0, 29.1, 25.9, 25.5, 19.4, 17.9, 10.9, -1.8; HRMS ($C_{15}H_{33}NO_2SSi$) calcd 342.1899 ($M+Na^+$), found 342.1903.

2-(Trimethylsilyl)-ethanesulfonic Acid (3,7-Dimethyl-octa-2,6-dienyl)-amide (5d): Pale yellow oil. 1H NMR (300 MHz, $CDCl_3$) δ 5.21 (m, 1H), 5.06 (m, 1H), 4.27 (m, 1H), 3.71 (t, $J = 6.3$ Hz, 2H), 2.91 (m, 2H), 2.08-2.01 (m, 4H), 1.67 (s, 6H), 1.59

(s, 3H), 1.00 (m, 2H), 0.04 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 141.0, 132.1, 123.8, 119.7, 49.2, 41.2, 39.7, 26.5, 25.9, 17.9, 16.5, 10.8, -1.8; HRMS ($\text{C}_{15}\text{H}_{31}\text{NO}_2\text{SSi}$) calcd 340.1743 ($\text{M}+\text{Na}^+$), found 340.1739.

2-(Trimethylsilyl)-ethanesulfonic Acid (2-Benzyloxyethyl)-amide (5e): Pale yellow oil. ^1H NMR (360 MHz, CDCl_3) δ 7.38-7.29 (m, 5H), 4.67 (s, 1H), 4.53 (s, 2H), 3.60 (m, 2H), 3.31 (m, 2H), 2.94 (m, 2H), 1.01 (m, 2H), 0.03 (m, 9H); ^{13}C NMR (90 MHz, CDCl_3) δ 137.8, 128.7, 128.2, 128.0, 73.6, 69.4, 49.1, 43.5, 10.8, -1.8; HRMS ($\text{C}_{14}\text{H}_{25}\text{NO}_3\text{SSi}$) calcd 338.1222 ($\text{M}+\text{Na}^+$), found 338.1236.

2-(Trimethylsilyl)-ethanesulfonic Acid (1-Methyl-3-phenylpropyl)-amide (5f): Yellow solid. ^1H NMR (400 MHz, CDCl_3) δ 7.26-7.13 (m, 5H), 4.08 (d, $J = 8.6$ Hz, 1H), 3.46 (m, 1H), 2.86 (m, 2H), 2.57 (m, 2H), 1.76 (m, 2H), 1.23 (d, $J = 3.6$ Hz, 3H), 0.99 (m, 2H), 0.00 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 141.4, 128.7, 128.5, 126.2, 50.1, 50.1, 39.8, 32.4, 22.7, 10.9, -1.8; HRMS ($\text{C}_{15}\text{H}_{27}\text{NO}_2\text{SSi}$) calcd 314.1610 ($\text{M}+\text{H}^+$), found 314.1616.

2-(Trimethylsilyl)-ethanesulfonic Acid Benzylphenethylamide (6a): Yellow solid: ^1H NMR (300 MHz, CDCl_3) δ 7.40-7.12 (m, 10H), 4.45 (s, 2H), 3.44 (t, $J = 7.8$ Hz, 2H), 2.79 (t, $J = 7.8$ Hz, 2H), 2.71 (m, 2H), 0.96 (m, 2H), 0.00 (s, 9H); ^{13}C NMR (100 MHz, CDCl_3) δ 138.7, 136.6, 129.0, 129.0, 128.8, 128.7, 128.2, 126.9, 51.6, 49.3, 49.2, 35.5, 10.5, -1.8; HRMS ($\text{C}_{20}\text{H}_{29}\text{NO}_2\text{SSi}$) calcd 376.1767 ($\text{M}+\text{H}^+$), found 376.1763.

2-(Trimethylsilyl)-ethanesulfonic Acid (2-Benzyloxyethyl)-butylamide (6e): Yellow oil: ^1H NMR (300 MHz, CDCl_3) δ 7.35-7.29 (m, 5H), 4.52 (s, 2H), 3.61 (t, $J = 6.0$ Hz, 2H), 3.47 (t, $J = 5.4$ Hz, 2H), 3.26 (t, $J = 7.6$ Hz, 2H), 2.91 (m, 2H), 1.59-1.56 (m, 2H), 1.31-1.29 (m, 2H), 1.01 (m, 2H), 0.91 (t, $J = 5.4$ Hz, 2H), 0.01 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 138.0, 128.7, 128.0, 127.9, 73.5, 68.9, 48.5, 48.2, 47.0, 31.1, 20.0, 13.9, 20.0, 13.9, 10.5, -1.8.

2-(Trimethylsilyl)-ethanesulfonic Acid Allyl-(4-methoxybenzyl)-amide (6g): Pale yellow solid: mp 40-41 °C; ^1H NMR (300 MHz, CDCl_3) δ 7.24 (dd, $J = 6.8$, 1.7 Hz, 2H), 6.86 (dd, $J = 6.7$, 2.1 Hz, 2H), 5.77 (m, 1H), 5.26-5.17 (m, 2H), 4.34 (s, 2H), 3.78 (s, 3H), 3.76 (d, $J = 6.6$ Hz, 2H), 2.84 (m, 2H), 0.97 (m, 2H), 0.00 (s, 9H); ^{13}C NMR (75 MHz, CDCl_3) δ 159.5, 133.1, 130.1, 128.4, 119.5, 114.2, 55.4, 49.9, 49.2, 10.5, -1.8; HRMS ($\text{C}_{16}\text{H}_{27}\text{NO}_3\text{SSi}$) calcd 364.1379 ($\text{M}+\text{Na}^+$), found 364.1392.

Current Data Parameters
 NAME Nov20-2002-wein
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021120
 Time 17.34
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 28
 DS 0
 SMH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 456.1
 DM 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 9.80 usec
 PL1 -6.00 dB
 SFO1 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300060 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 FIP 11.000 ppm
 F1 3301.43 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 180.07800 Hz/cm

Current Data Parameters
 NAME Nov20-2002-Wein
 EXPNO 21
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021120
 Time 17.45
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 217
 DS 4
 SWH 18832.393 Hz
 FIDRES 0.287360 Hz
 AQ 1.7400308 sec
 RG 16384
 DW 26.550 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00020000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.60 usec
 PL1 -6.00 dB
 SF01 75.4760200 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SF02 300.1312005 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4677319 MHz
 MDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16225.56 Hz
 F2P -5.000 ppm
 F2 -377.34 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 830.14508 Hz/cm

Current Data Parameters
NAME Jun13-2002-Me1n
EXPNO 10
PROCNO 1

F2 - Acquisition Parameters
Date_ 20020613
Time 14.18
INSTRUM spect
PROBHD 5 mm QNP 1H/1
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 6172.839 Hz
FIDRES 0.094190 Hz
AQ 5.3084660 sec
RG 57
DM 81.000 usec
DE 6.00 usec
TE 300.0 K
D1 1.00000000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 11.70 usec
PL1 0.00 dB
SF01 299.8718518 MHz

F2 - Processing parameters
SI 32768
SF 299.8700268 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 11.000 ppm
F1 3298.57 Hz
F2P -1.000 ppm
F2 -299.87 Hz
PPMCM 0.60000 ppm/cm
HZCM 179.92201 Hz/cm

Current Data Parameters
 NAME May07-Da-2002-0
 EXPNO 141
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020507
 Time 16.15
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 293
 DS 4
 SWH 18832.393 Hz
 FIDRES 0.287360 Hz
 AQ 1.7400308 sec
 RG 16384
 DW 26.550 usec
 DE 5.00 usec
 D1 2.0000000 sec
 d11 0.0300000 sec
 d12 0.0000200 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.60 usec
 PL1 -6.00 dB
 SF01 75.4760200 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SF02 300.1312005 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4677331 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 FIP 215.000 ppm
 F1 16225.56 Hz
 F2 -5.000 ppm
 F2 -377.34 Hz
 PUNCH 11.00000 ppm/cm
 H2O 830.14508 Hz/cm

Current Data Parameters
 NAME DD-Aug01-2002-W
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020801
 Time 10.00
 INSTRUM spect
 PROBD 5 mm Multinu
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 16
 DS 2
 SWH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 181
 DW 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 1.00000000 sec

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 9.80 usec
 PL1 -6.00 dB
 SF01 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1299930 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3301.43 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 180.07800 Hz/cm

Current Data Parameters
 NAME DD-Aug01-2002-W
 EXPNO 21
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020801
 Time 10.09
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 323
 DS 4
 SMH 18832.393 Hz
 FIDRES 0.287360 Hz
 AQ 1.7400308 sec
 RG 16384
 DW 26.550 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.0002000 sec

===== CHANNEL f1 =====
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 P1 5.60 usec
 PL1 -6.00 dB
 SF01 75.4760200 MHz

===== CHANNEL f2 =====
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 NUC2 1H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SF02 300.1312005 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4677510 MHz
 NDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16225.57 Hz
 F2P -5.000 ppm
 F2 -377.34 Hz
 PPMCH 11.00000 ppm/cm
 HZCH 830.14526 Hz/cm

Current Data Parameters
 NAME Aug16-2002-Wein
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020816
 Time 10.01
 INSTRUM spect
 PROBHD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 106
 DS 4
 SWH 18795.992 Hz
 FIDRES 0.286819 Hz
 AQ 1.7433076 sec
 RG 4096
 DW 26.600 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 D12 0.0002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.40 usec
 PL1 -6.00 dB
 SF01 75.4106357 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 115.00 usec
 PL2 0.00 dB
 PL12 20.00 dB
 PL13 20.00 dB
 SF02 299.8711995 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4023741 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16211.51 Hz
 F2P -5.000 ppm
 F2 -377.01 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 829.42615 Hz/cm

Current Data Parameters
 NAME Sep17-2002-Wein
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020917
 Time 3.56
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zg30
 TO 65536
 SOLVENT CDC13
 NS 22
 DS 0
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 64
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1339842 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 FIP 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08038 Hz/cm

Current Data Parameters
 NAME Dec03-2002-Wein
 EXPNO 20
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021203
 Time 10.28
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zg30
 TO 65536
 SOLVENT CDC13
 NS 12
 DS 0
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 128
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1339803 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08038 Hz/cm

Current Data Parameters
 NAME Feb28-2003-Wein
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030228
 Time 13.42
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 268
 DS 4
 SWH 22727.273 Hz
 FIDRES 0.346791 Hz
 AQ 1.4418420 sec
 RG 32768
 DW 22.000 usec
 DE 31.43 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 CPDPRG waltz16
 P31 106.00 usec
 S4 30 dB
 D11 0.03000000 sec
 S2 30 dB
 P1 7.90 usec
 SF01 90.5658969 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 90.5557462 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 19469.49 Hz
 F2P -5.000 ppm
 F2 -452.78 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 996.11322 Hz/cm

Current Data Parameters
 NAME Aug19-2002-Wein
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020819
 Time 4.08
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zg30
 TO 65536
 SOLVENT CDC13
 NS 75
 DS 0
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 256
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1340046 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08040 Hz/cm

Current Data Parameters
 NAME Aug19-2002-Wein
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020819
 Time 4.20
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl₃
 NS 145
 DS 4
 SWH 22727.273 Hz
 FIDRES 0.346791 Hz
 AQ 1.4418420 sec
 RG 32768
 DW 22.000 usec
 DE 31.43 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 CPDPRG waltz16
 P31 106.00 usec
 S4 30 dB
 D11 0.03000000 sec
 S2 30 dB
 P1 7.90 usec
 SF01 90.5658969 MHz
 NUCLEUS ¹³C

F2 - Processing parameters
 SI 32768
 SF 90.5555753 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 19469.45 Hz
 F2P -5.000 ppm
 F2 -452.78 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 996.11133 Hz/cm

Current Data Parameters
 NAME Dec03-2002-Wein
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021203
 Time 10.13
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zg30
 TD 65536
 SOLVENT CDCl₃
 NS 26
 DS 0
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 128
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1339835 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 FIP 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08038 Hz/cm

Current Data Parameters
 NAME Sep27-2002-Main
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020927
 Time 10.51
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl₃
 NS 16
 DS 4
 SWH 18832.393 Hz
 FIDRES 0.267360 Hz
 AQ 1.7400308 sec
 RG 13004
 DW 26.550 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 5.60 usec
 PL1 -6.00 dB
 SFO1 75.4760200 MHz

===== CHANNEL f2 =====
 CPOPRG2 waltz16
 NUC2 ¹H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SFO2 300.1312005 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4675952 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16225.54 Hz
 F2P -5.000 ppm
 F2 -377.34 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 830.14355 Hz/cm

Current Data Parameters
 NAME Oct14-2002-Wein
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021014
 Time 12.24
 INSTRUM spect
 PROBD 5 mm QNP 1H/1
 PULPROG zg30
 TD 65536
 SOLVENT CDC13
 NS 23
 DS 0
 SWH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 50.8
 DW 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.0000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 11.70 usec
 PL1 0.00 dB
 SF01 299.8718518 MHz

F2 - Processing parameters
 SI 32768
 SF 299.8700093 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3298.57 Hz
 F2P -1.000 ppm
 F2 -299.87 Hz
 PPMCM 0.6000 ppm/cm
 HZCM 179.92200 Hz/cm

Current Data Parameters
 NAME Oct14-2002-Wein
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021014
 Time 12.39
 INSTRUM spect
 PROBHD 5 mm QNP 1H/1
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl₃
 NS 52
 DS 4
 SWH 18795.992 Hz
 FIDRES 0.286819 Hz
 AQ 1.7433076 sec
 RG 2048
 DW 26.600 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 D11 0.03000000 sec
 D12 0.00020000 sec

===== CHANNEL f1 =====
 NUC1 ¹³C
 P1 5.40 usec
 PL1 -6.00 dB
 SF01 75.4106357 MHz

===== CHANNEL f2 =====
 CPOPRG2 waltz16
 NUC2 ¹H
 PCPD2 115.00 usec
 PL2 0.00 dB
 PL12 20.00 dB
 PL13 20.00 dB
 SF02 299.8711995 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4023759 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16211.51 Hz
 F2P -5.000 ppm
 F2 -377.01 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 829.42615 Hz/cm

Current Data Parameters
 NAME DA-Ju124-2002-W
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20020724
 Time 2.46
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 512
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 1.00000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1339897 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08040 Hz/cm

Current Data Parameters
 NAME Nov11-2002-Wain
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021111
 Time 4.30
 INSTRUM spect
 PROBO 5 mm QNP 1H
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 42
 DS 0
 SWH 7462.687 Hz
 FIDRES 0.113872 Hz
 AQ 4.3909621 sec
 RG 128
 DW 67.000 usec
 DE 95.71 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.0000000 sec
 P1 12.00 usec
 SF01 360.1361620 MHz
 NUCLEUS 1H

F2 - Processing parameters
 SI 32768
 SF 360.1339835 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3961.47 Hz
 F2P -1.000 ppm
 F2 -360.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 216.08038 Hz/cm

Current Data Parameters
 NAME Nov20-2002-wein
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021120
 Time 10:22
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TD 65536
 SOLVENT CDC13
 NS 257
 DS 4
 SWH 18832.393 Hz
 FIDRES 0.287360 Hz
 AQ 1.7400308 sec
 RG 16384
 DW 26.550 usec
 DE 6.00 usec
 TE 300.0 K
 d1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.60 usec
 PL1 -6.00 dB
 SF01 75.4760200 MHz

===== CHANNEL f2 =====
 CPOPRG2 waltz16
 NUC2 1H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SF02 300.1312005 MHz

F2 - Processing parameters
 SI 32768
 SF 75.4677313 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 FIP 215.000 ppm
 F1 16225.56 Hz
 F2P -5.000 ppm
 F2 -377.34 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 830.14502 Hz/cm

Current Data Parameters
 NAME Nov04-2002-MeIn
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021104
 Time 10.07
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zg30
 TO 65536
 SOLVENT CDCl₃
 NS 17
 DS 0
 SWH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 143.7
 DW 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec

===== CHANNEL f1 =====
 NUC1 ¹H
 P1 9.80 usec
 PL1 -6.00 dB
 SF01 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300058 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00
 ID NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3301.43 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 180.07800 Hz/cm

Current Data Parameters
 NAME Nov04-2002-Me1n
 EXPNO 11
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021104
 Time 10.18
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TO 65536
 SOLVENT CDCl3
 NS 66
 DS 4
 SWH 18832.393 Hz
 FIDRES 0.287360 Hz
 AQ 1.7400308 sec
 RG 11585.2
 DW 26.550 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec
 d11 0.03000000 sec
 d12 0.00002000 sec

===== CHANNEL f1 =====
 NUC1 13C
 P1 5.50 usec
 PL1 -6.00 dB
 SF01 75.4760200 MHz

===== CHANNEL f2 =====
 CPDPRG2 waltz16
 NUC2 1H
 PCPD2 114.00 usec
 PL2 -6.00 dB
 PL12 18.00 dB
 PL13 18.00 dB
 SF02 300.1312005 MHz

F2 - Processing Parameters
 SI 32768
 SF 75.4677348 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 16225.56 Hz
 F2P -5.000 ppm
 F2 -377.34 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 830.14508 Hz/cm

Current Data Parameters
 NAME Mar05-2003-Wein
 EXPNO 80
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030305
 Time 18.00
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 27
 DS 0
 SWH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 362
 DW 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.00000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 9.80 usec
 PL1 -6.00 dB
 SF01 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300060 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3301.43 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 180.07800 Hz/cm

Current Data Parameters
 NAME Oct21-2002-Wein
 EXPNO 31
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021021
 Time 4.57
 INSTRUM spect
 PROBHD 5 mm QNP 1H
 PULPROG zgpg30
 TD 65536
 SOLVENT CDCl3
 NS 90
 DS 4
 SWH 22727.273 Hz
 FIDRES 0.346791 Hz
 AQ 1.4418420 sec
 RG 32768
 DW 22.000 usec
 DE 31.43 usec
 TE 300.0 K
 HL1 0 dB
 D1 2.00000000 sec
 CPDPRG waltz16
 P31 106.00 usec
 S4 30 dB
 D11 0.03000000 sec
 S2 30 dB
 P1 7.90 usec
 SF01 90.5658969 MHz
 NUCLEUS 13C

F2 - Processing parameters
 SI 32768
 SF 90.5557414 MHz
 WDW EM
 SSB 0
 LB 1.00 Hz
 GB 0
 PC 1.40

1D NMR plot parameters
 CX 20.00 cm
 F1P 215.000 ppm
 F1 19469.49 Hz
 F2P -5.000 ppm
 F2 -452.78 Hz
 PPMCM 11.00000 ppm/cm
 HZCM 996.11316 Hz/cm

NHSES

Current Data Parameters
 NAME Mar05-2003-Wein
 EXPNO 50
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030305
 Time 17.15
 INSTRUM spect
 PROBHD 5 mm Multinu
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 38
 DS 0
 SWH 6172.839 Hz
 FIDRES 0.094190 Hz
 AQ 5.3084660 sec
 RG 203.2
 DW 81.000 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.0000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 9.80 usec
 PL1 -6.00 dB
 SF01 300.1318534 MHz

F2 - Processing parameters
 SI 32768
 SF 300.1300192 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 3301.43 Hz
 F2P -1.000 ppm
 F2 -300.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 180.07800 Hz/cm

NHSES

Current Data Parameters
 NAME Nov01-2002-Wein
 EXPNO 10
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20021101
 Time 7.57
 INSTRUM spect
 PROBHD 5 mm BBI 1H-B
 PULPROG zg30
 TD 65536
 SOLVENT CDCl₃
 NS 28
 DS 0
 SWH 8278.146 Hz
 FIDRES 0.126314 Hz
 AQ 3.9584243 sec
 RG 22.6
 DW 60.400 usec
 DE 6.00 usec
 TE 300.0 K
 D1 2.0000000 sec

===== CHANNEL f1 =====
 NUC1 1H
 P1 6.28 usec
 PL1 0.00 dB
 SF01 400.1324710 MHz

F2 - Processing parameters
 SI 32768
 SF 400.1300232 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 F1P 11.000 ppm
 F1 4401.43 Hz
 F2P -1.000 ppm
 F2 -400.13 Hz
 PPMCM 0.60000 ppm/cm
 HZCM 240.07802 Hz/cm