A Convenient Approach for Access to Both Carbapentofuranoses and Carbahexopyranoses. Stereocontrolled Synthesis of Enantiopure Carba-D-ribofuranoses, Carba-D-arabinofuranoses and Carba-L-gulopyranose

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General experimental procedure

All reactions were carried out under a blanket of N₂. A usual workup of the reaction mixture consists of extraction with ether, washing with brine, drying over Na₂SO₄ and removal of solvent in vacuo. Petroleum ether refers to the fraction having bp 60-80 °C. Column chromatography was carried out with silica gel (60-120 mesh). Peak positions in ¹H and ¹³C NMR spectra are indicated in ppm downfield from internal TMS in δ units. Unless otherwise indicated NMR spectra were taken in CDCl₃ solution at 300 MHz for ¹H and 75 MHz for ¹³C NMR. ¹³C peak assignment is based on DEPT experiment. IR spectra were recorded as neat for liquids.

(1R,2S,3R,4R)-4-(Hydroxymethyl)cyclopentane-1,2,3-triol (Carba-β-D-ribofuranose) 17. Following the procedure for the hydrogenolysis of the diol **13**, the benzyl ether groups in the alcohol **16** (44 mg, 0.11 mmol) was hydrogenolysed to the alcohol **17** (20 mg, 96%): [α]²³_D +8.5 (*c* 1.7, CH₃OH) [lit.^{4k} [α]²³_D +8.0 (*c* 2.9, CH₃OH)]; ¹H NMR (CD₃OD) δ 1.19-1.29 (1H, m, CH₂), 2.03-2.05 (1H, m), 2.17-2.27 (1H, m), 3.53 (1H, dd, *J* = 6.7, 10.5 Hz, OCH₂), 3.63 (1H, dd, *J* = 5.5, 10.6 Hz, OCH₂), 3.69 (1H, m), 3.85 (1H, m), 3.99 (1H, dd, *J* = 6.1, 10.8 Hz); ¹³C NMR (CD₃OD) δ 33.7 (CH₂), 46.0 (CH), 65.3 (OCH₂), 74.5 (OCH), 76.7 (OCH), 79.6 (OCH) [¹H and ¹³C NMR spectral data were closely comparable to those reported in literature⁴ⁱ]; HRMS (ESI) calcd for C₆H₁₃O₄ (M+H)⁺, 149.0814; found, 149.0825.

(3S)-3-[(2S)-1,4-Dioxaspiro[4.5]dec-2-yl]pent-4-enal 3b. Following the procedure for the reduction of the cyclopentenone derivative **8a**, the unsaturated ester **5b**^{10e} (1.1 g, 4.10 mmol) was reduced with LiAlH₄ (171 mg, 4.51 mmol) at 0 °C to the corresponding alcohol (840 mg, 90%) as a colorless viscous liquid: IR 3418.0 cm⁻¹; ¹H NMR δ 1.17

(2H, br s), 1.36-1.40 (8H, m), 1.68-1.79 (1H, m), 2.05-2.10 (1H, m), 3.30 (2H, m), 3.38-3.48 (3H, m), 3.69-3.76 (2H, m), 4.84-4.93 (2H, m), 5.28-5.40 (1H, m); ^{13}C NMR δ 23.6 (CH₂), 23.7 (CH₂), 24.9 (CH₂), 34.5 (CH₂), 34.9 (CH₂), 36.1 (CH₂), 45.5 (CH), 60.2 (OCH₂), 67.6 (OCH₂), 77.7 (OCH), 109.6 (C), 117.0 (CH₂), 137.5 (CH); HRMS (ESI) calcd for C₁₃H₂₂O₃Na (M+Na)⁺, 249.1467; found, 249.1498.

To a magnetically stirred cold (−78 °C) solution of oxalyl chloride (0.52 mL, 5.95 mmol) in dichloromethane (10 mL) under argon atmosphere was added a solution of DMSO (0.88 mL, 12.39 mmol) in dichloromethane (10 mL). The mixture, on stirring at −78 °C for 20 min, was treated with a solution of the above alcohol (840 mg, 3.72 mmol) in dichloromethane (15 mL) and stirred for 45 min. Triethylamine (2.76 mL, 19.83 mmol) was added to it. The reaction mixture was stirred for 2 h, then warmed to rt and was allowed to stir for 1 h. The reaction mixture was then cooled to 0 °C and quenched by adding water. Usual workup of the reaction mixture followed by column chromatography using ether-petroleum ether (3:7) as eluent afforded the aldehyde **3b** (690 mg, 83%) as a colorless viscous liquid: IR 1726.0 cm^{−1}; ^1H NMR δ 1.37 (2H, br s), 1.62 (8H, m), 2.42-2.51 (1H, m), 2.71-2.77 (2H, m), 3.63-3.70 (1H, m), 3.90-4.01 (2H, m), 5.10-5.18 (2H, m), 5.56-5.65 (1H, m), 9.74 (1H, t, J =2.1 Hz); ^{13}C NMR δ 24.2 (CH₂), 24.3 (CH₂), 25.5 (CH₂), 35.3 (CH₂), 36.8 (CH₂), 44.0 (CH), 46.2. (CH₂), 68.1 (OCH₂), 77.8 (OCH), 110.6 (C), 118.3 (CH₂), 136.8 (CH), 202.0 (CHO); HRMS (ESI) calcd for C₁₃H₂₀O₃Na (M+Na)⁺, 247.1309; found, 247.1348.

(2S)-2-[(1R,4S)-4-(Benzyloxy)cyclopent-2-en-1-yl]-1,4-dioxaspiro[4.5]decane 10b.

Following the procedure for the benzylation of the alcohol **9a**, the cyclopentenol derivative **9b** (170 mg, 0.76 mmol) was benzylation with benzyl bromide (0.18 mL, 1.52

mmol) to afford the benzyl ether **10b** (200 mg, 84%) as a colorless viscous liquid: $[\alpha]^{23}_D +13.5$ (*c* 1.5, CHCl₃); ¹H NMR δ 1.37-1.43 (2H, m, CH₂), 1.52-1.77 (8H, m, CH₂), 2.40 (2H, td, *J* = 7.8, 13.7 Hz, CH₂), 2.82-2.84 (1H, m, CH), 3.68 (1H, t, *J* = 7.0 Hz), 3.99-4.10 (3H, m), 4.52 (1H, d, *J* = 11.8 Hz, PhCH₂), 4.58 (1H, d, *J* = 11.8 Hz, PhCH₂), 5.81-5.83 (1H, m, =CH–), 6.00 (1H, td, *J* = 2.0, 5.7 Hz, =CH–), 7.26-7.35 (5H, m, ArH); ¹³C NMR δ 23.7 (CH₂), 23.9 (CH₂), 25.0 (CH₂), 33.3 (CH₂), 34.8 (CH₂), 36.1 (CH₂), 47.4 (CH), 66.8 (OCH₂), 70.7 (OCH₂), 78.4 (OCH), 83.4 (OCH), 109.3 (C), 127.3 (CH), 127.5 (CH), 128.2 (CH), 133.5 (CH), 134.0 (CH), 138.5 (C); HRMS (ESI) calcd for C₂₀H₂₆O₃Na (M+Na)⁺, 337.1780; found, 337.1812.

(1S,2S,3S,5R)-3-(Benzyloxy)-5-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopentane-1,2-diol 18. Following the procedure for *cis*-dihydroxylation of the cyclopentene derivative **10a**, the cyclopentene derivative **10b** (180 mg, 0.57 mmol) was *cis*-dihydroxylated to afford the *cis*-diol **18** (160 mg, 80%): $[\alpha]^{20}_D +14.0$ (*c* 1.4, CHCl₃); ¹H NMR δ 1.39-1.50 (2H, m, CH₂), 1.58-1.62 (8H, m, CH₂), 2.01-2.11 (2H, m), 2.19-2.29 (1H, m), 3.23 (2H, br s, OH), 3.67 (1H, dd, *J* = 7.4, 7.9 Hz), 3.83-3.97 (3H, m), 4.01 (1H, dd, *J* = 6.4, 8.2 Hz), 4.17 (1H, q, *J* = 6.3 Hz), 4.51 (1H, d, *J* = 11.8 Hz, PhCH₂), 4.57 (1H, d, *J* = 11.8 Hz, PhCH₂), 7.26-7.34 (5H, m, ArH); ¹³C NMR δ 23.6 (CH₂), 23.8 (CH₂), 25.0 (CH₂), 28.9 (CH₂), 34.7 (CH₂), 36.0 (CH₂), 44.5 (CH), 67.0 (OCH₂), 71.3 (OCH₂), 73.0 (OCH), 76.1 (OCH), 76.7 (OCH), 82.8 (OCH), 109.2 (C), 127.5 (CH), 128.3 (CH), 138.0 (C); HRMS (ESI) calcd for C₂₀H₂₈O₅Na (M+Na)⁺, 371.1834; found, 371.1834.

(2S)-2-[(1S,2S,3R,4S)-2,3,4-tris(Benzyloxy)cyclopent-1-yl]-1,4-dioxaspiro[4.5]

decane 19. The *cis*-diol **18** (150 mg, 0.43 mmol) was benzylated with benzylbromide (0.23 mL, 1.72 mmol) following the previously described procedure to afford the benzyl

ether **19** (200 mg, 88%) as a colorless viscous liquid: $[\alpha]_D^{20} -29.0$ (*c* 2.2, CHCl₃); ¹H NMR δ 1.38 (2H, m, CH₂), 1.56-1.65 (8H, m, CH₂), 2.25-2.36 (3H, m, CH₂, CH), 3.65 (1H, t, *J* = 7.8 Hz), 3.73 (1H, dd, *J* = 4.8, 7.2 Hz), 3.87 (1H, dd, *J* = 3.0, 4.5 Hz), 3.94-4.07 (3H, m), 4.38-4.65 (6H, m, PhCH₂), 7.23-7.39 (15H, m, ArH); ¹³C NMR δ 23.7 (CH₂), 23.8 (CH₂), 25.1 (CH₂), 29.4 (CH₂), 35.1 (CH₂), 36.0 (CH₂), 43.3 (CH), 67.7 (OCH₂), 71.0 (OCH₂), 71.4 (OCH₂), 71.8 (OCH₂), 77.3 (OCH), 80.3 (OCH), 80.5 (OCH), 80.7 (OCH), 108.8 (C), 127.4 (CH), 127.46 (CH), 127.47 (CH), 127.5 (CH), 127.7 (CH), 127.8 (CH), 128.17 (CH), 128.18 (CH), 128.2 (CH), 138.0 (C), 138.1 (C), 138.2 (C); HRMS (ESI) calcd for C₃₄H₄₁O₅ (M+H)⁺, 529.2954; found, 529.2965.

(1S,2R,3S,4S)-4-(Hydroxymethyl)cyclopentane-1,2,3-triol (Carba-β-L-ribofuranose)

20. Following the procedure for the deketalization of the cyclopentane derivative **12**, the cyclopentane derivative **19** (160 mg, 0.30 mmol) was transformed to the corresponding vicinal diol (90 mg, 66%): $[\alpha]_D^{20} -41.0$ (*c* 1.4, CHCl₃); ¹H NMR δ 1.57-1.63 (1H, m, CH₂), 2.17-2.34 (2H, m, CH₂, CH), 2.61 (2H, br s, OH), 3.48 (1H, dd, *J* = 6.6, 11.4 Hz, OCH₂), 3.57 (1H, dd, *J* = 3.0, 11.7 Hz, OCH₂), 3.66-3.67 (1H, m, OCH), 3.83 (1H, dd, *J* = 4.8, 7.8 Hz), 3.88 (1H, dd, *J* = 2.4, 4.8 Hz), 3.93-3.97 (1H, m), 4.36-4.61 (6H, m, PhCH₂), 7.27-7.37 (15H, m, ArH); ¹³C NMR δ 28.9 (CH₂), 43.1 (CH), 65.5 (OCH₂), 71.1 (OCH₂), 71.5 (OCH₂), 72.0 (OCH₂), 73.4 (OCH), 79.9 (OCH), 80.30 (OCH), 80.32 (OCH), 127.5 (CH), 127.60 (CH), 127.63 (CH), 127.7 (CH), 127.87 (CH), 127.91 (CH), 128.2 (CH), 128.30 (CH), 128.31 (CH), 137.7 (C), 137.9 (C), 138.0 (C); HRMS (ESI) calcd for C₂₈H₃₃O₅ (M+H)⁺, 449.2328; found, 449.2309.

Following the procedure for the synthesis of the aldehyde **15**, the vicinal diol (74 mg, 0.17 mmol) thus obtained was transformed to the corresponding aldehyde (60 mg, 87%):

IR 1722.3 cm^{-1} ; ^1H NMR δ 1.89-1.97 (1H, m, CH_2), 2.32 (1H, ddd, $J = 6.6, 10.7, 14.2$ Hz, CH_2), 3.04-3.08 (1H, m, CH), 3.86 (1H, t, $J = 3.7$ Hz), 4.02 (1H, pent, $J = 3.2$ Hz), 4.23 (1H, dd, $J = 4.5, 6.8$ Hz), 4.42-4.61 (6H, m, PhCH_2), 7.25-7.32 (15H, m, ArH), 9.70 (1H, s, CHO); ^{13}C NMR δ 32.1 (CH_2), 57.9 (CH), 75.9 (OCH_2), 76.7 (OCH_2), 76.8 (OCH_2), 83.6 (OCH), 85.0 (OCH), 85.9 (OCH), 132.1 (CH), 132.19 (CH), 132.22 (CH), 132.28 (CH), 132.31 (CH), 132.87 (CH), 132.90 (CH), 142.3 (C), 142.5 (C), 142.6 (C), 206.3 (CHO); HRMS (ESI) calcd for $\text{C}_{27}\text{H}_{29}\text{O}_4$ ($\text{M}+\text{H}$) $^+$, 417.2066; found 417.2030.

Following the procedure for the reduction of the aldehyde **15**, the above aldehyde (60 mg, 0.14 mmol) was reduced with NaBH_4 (10 mg, 0.28 mmol) to the corresponding alcohol (57 mg, 95%): $[\alpha]_{\text{D}}^{20} -35.6$ (c 1.6, CHCl_3); ^1H NMR δ 1.36 (1H, ddd, $J = 4.9, 8.1, 13.2$ Hz, CH_2), 2.08-2.12 (1H, m), 2.27-2.37 (1H, m), 2.40-2.49 (1H, m), 3.61-3.71 (2H, m, OCH_2), 3.86 (1H, dd, $J = 5.0, 7.2$ Hz), 3.92 (1H, dd, $J = 3.0, 4.6$ Hz), 4.03-4.06 (1H, m), 4.49-4.67 (6H, m, PhCH_2), 7.28-7.45 (15H, m, ArH); ^{13}C NMR δ 30.2 (CH_2), 42.6 (CH), 65.3 (OCH_2), 71.4 (OCH_2), 71.6 (OCH_2), 71.8 (OCH_2), 80.9 (OCH), 81.1 (OCH), 81.4 (OCH), 127.6 (CH), 127.72 (CH), 127.74 (CH), 127.9 (CH), 128.38 (CH), 128.41 (CH), 128.45 (CH), 138.17 (C), 138.21 (C), 138.3 (C); HRMS (ESI) calcd for $\text{C}_{27}\text{H}_{30}\text{O}_4\text{Na}$ ($\text{M}+\text{Na}$) $^+$, 441.2042; found, 441.2045.

Following the procedure for the hydrogenolysis of the vicinal diol **13**, the above benzyl ether (50 mg, 0.12 mmol) was hydrogenolysed to the alcohol **20** (17 mg, 96%): $[\alpha]_{\text{D}}^{24} -6.2$ (c 1.5, CH_3OH); ^1H NMR (CD_3OD) δ 1.19-1.28 (1H, m, CH_2), 2.03-2.05 (1H, m), 2.16-2.26 (1H, m), 3.53 (1H, dd, $J = 6.7, 10.5$ Hz, OCH_2), 3.63 (1H, dd, $J = 5.4, 10.5$ Hz, OCH_2), 3.69 (1H, m), 3.85 (1H, m), 3.98 (1H, dd, $J = 6.1, 10.8$ Hz); ^{13}C NMR (CD_3OD)

δ 33.7 (CH₂), 46.0 (CH), 65.3 (OCH₂), 74.5 (OCH), 76.7 (OCH), 79.6 (OCH); HRMS (ESI) calcd for C₆H₁₂O₄Na (M+Na)⁺, 171.0633; found, 171.0639.

***tert*-Butyl-[(1R,4S)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopent-2-en-1-**

ylloxy]dimethylsilane **21.** To a magnetically stirred solution of the alcohol **9a** (440 mg, 1.96 mmol) in dichloromethane (15 mL), triethylamine (1.37 mL, 9.82 mmol), DMAP (20 mg), and imidazole (20 mg) were added. To it was added *t*-butyldimethylsilyl chloride (589 mg, 3.93 mmol) at 0 °C in portion and the reaction mixture was allowed to stir at rt for 18 h. After evaporation of the solvent, the residual mass was extracted with diethyl ether (2 × 10 mL). The ether extract was washed with water (2 × 2 mL), brine (2 × 3 mL), dried and concentrated. The residual mass was column chromatographed using ether-petroleum ether (1:9) as eluent to afford the silylether **21** (490 mg, 96%) as a colorless viscous liquid: $[\alpha]_D^{23}$ -4.9 (*c* 1.0, CHCl₃); ¹H NMR δ 0.04 (6H, s, CH₃), 0.86 (9H, s, CH₃), 1.27 (1H, td, *J* = 5.2, 13.8 Hz, CH₂), 1.36 (2H, m, CH₂), 1.48-1.59 (8H, m, CH₂), 2.21 (1H, td, *J* = 7.8, 13.5 Hz, CH₂), 2.67-2.71 (1H, m, CH), 3.62 (1H, ddd, *J* = 3.9, 6.0, 9.9 Hz), 3.89-3.99 (2H, m), 4.79-4.83 (1H, m), 5.73 (1H, td, *J* = 2.0, 5.4 Hz, =CH), 5.89 (1H, td, *J* = 1.5, 5.7 Hz, =CH); ¹³C NMR δ -4.84 (CH₃), -4.79 (CH₃), 17.9 (C), 23.6 (CH₂), 23.8 (CH₂), 25.0 (CH₂), 25.7 (CH₃), 34.9 (CH₂), 35.7 (CH₂), 36.4 (CH₂), 47.9 (CH), 67.2 (OCH₂), 76.9 (OCH), 78.7 (OCH), 109.3 (C), 133.8 (CH), 135.2 (CH); HRMS (ESI) calcd for C₁₉H₃₄O₃SiNa (M+Na)⁺, 361.2175; found, 361.2154.

(1R,2R,3R,5S)-3-(*tert*-Butyl-dimethylsilanyloxy)-5-[(2S)-1,4-dioxaspiro[4.5]dec-2-

yl]cyclopentane-1,2-diol **22a.** Following the procedure for *cis*-dihydroxylation of the cyclopentene derivative **10a**, the cyclopentene derivative **21** (930 mg, 2.75 mmol) was *cis*-dihydroxylated to afford the *cis*-diol **22a** (980 mg, 96%): $[\alpha]_D^{23}$ -7.6 (*c* 1.0, CHCl₃);

^1H NMR δ 0.01 (6H, s, CH_3), 0.82 (9H, s, CH_3), 1.08 (1H, ddd, $J = 4.8, 8.7, 13.5$ Hz, CH_2), 1.35 (2H, br s, CH_2), 1.54-1.57 (8H, m, CH_2), 1.95-2.00 (1H, m), 2.08-2.15 (1H, m), 2.73 (1H, br s, OH), 3.04 (1H, br s, OH), 3.53-3.58 (1H, m), 3.79 (1H, m), 3.97-4.01 (3H, m), 4.09 (1H, dd, $J = 5.7, 6.0$ Hz); ^{13}C NMR δ -5.1 (CH_3), -5.0 (CH_3), 17.8 (C), 23.6 (CH_2), 23.9 (CH_2), 24.9 (CH_2), 25.6 (CH_3), 33.7 (CH_2), 34.9 (CH_2), 36.2 (CH_2), 45.5 (CH), 68.1 (OCH_2), 75.8 (OCH), 75.9 (OCH), 78.5 (OCH), 79.5 (OCH), 109.7 (C); HRMS (ESI) calcd for $\text{C}_{19}\text{H}_{36}\text{O}_5\text{SiNa}$ ($\text{M}+\text{Na}$) $^+$, 395.2230; found, 395.2214.

[(1R,2R,3R,4R)-2,3-bis(Benzyloxy)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopent-1-yloxy]-tert-butyl-dimethylsilane 22b. Following the procedure for the benzylation of the alcohol **9a**, the *cis*-diol **22a** (830 mg, 2.23 mmol) was benzylated with benzyl bromide (1.06 mL, 8.92 mmol) to afford the benzyl ether **22b** (1.12 gm, 91%) as a colorless viscous liquid: $[\alpha]_D^{24}$ -28.2 (c 2.2, CHCl_3); ^1H NMR δ 0.02 (6H, s, CH_3), 0.82 (9H, s, CH_3), 1.08 (1H, pent, $J = 6.6$ Hz, CH_2), 1.35 (2H, m, CH_2), 1.53-1.56 (8H, m, CH_2), 2.04-2.14 (1H, m), 2.19-2.24 (1H, m), 3.53 (2H, dd, $J = 7.2, 14.1$ Hz), 3.83-3.98 (3H, m), 4.21 (1H, q, $J = 6.3$ Hz), 4.49-4.60 (4H, m, PhCH_2), 7.20-7.35 (10H, m, ArH); ^{13}C NMR δ -4.8 (CH_3), -4.7 (CH_3), 17.9 (C), 23.8 (CH_2), 23.9 (CH_2), 25.2 (CH_2), 25.8 (CH_3), 32.5 (CH_2), 35.0 (CH_2), 36.5 (CH_2), 44.0 (CH), 67.4 (OCH_2), 71.4 (OCH_2), 71.9 (OCH_2), 74.5 (OCH), 77.5 (OCH), 78.6 (OCH), 84.3 (OCH), 109.5 (C), 127.3 (CH), 127.47 (CH), 127.52 (CH), 128.17 (CH), 128.18 (CH), 138.6 (C), 138.7 (C); HRMS (ESI) calcd for $\text{C}_{33}\text{H}_{48}\text{O}_5\text{SiNa}$ ($\text{M}+\text{Na}$) $^+$, 553.3344; found, 553.3334.

(1R,2S,3R,4R)-2,3-bis(Benzyloxy)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopentanol 22c. To a magnetically stirred solution of the silyl ether **22b** (1.12 gm, 2.03 mmol) in THF (12 mL) at 0 °C was added a solution of $n\text{-Bu}_4\text{N}^+\text{F}^- \cdot 3\text{H}_2\text{O}$ (1.28 gm, 4.06 mmol) in

THF (10 mL). After stirring for 15 min at 0 °C, the reaction mixture was allowed to stir at rt for an additional 2 h. The resulting solution was then poured into a solution of 50% aqueous sodium chloride solution (4 mL), the organic layer was separated and the aqueous layer was extracted with diethyl ether (30 mL). The combined organic layer was washed with brine (2 × 3 mL), dried. Removal of solvent in vacuo followed by column chromatography using ether-petroleum ether (1:1) afforded the alcohol **22c** (800 mg, 90%) as a colorless viscous liquid: $[\alpha]_D^{20} +17.3$ (*c* 2.2, CHCl₃); ¹H NMR δ 1.32-1.39 (2H, m, CH₂), 1.53-1.57 (8H, m, CH₂), 2.27-2.43 (3H, m, CH₂, CH), 2.77 (1H, br s, OH), 3.67-3.75 (2H, m), 3.96-4.03 (2H, m), 4.09 (1H, dd, *J* = 4.4, 6.6 Hz), 4.23-4.24 (1H, m), 4.42-4.57 (4H, m, PhCH₂), 7.25-7.36 (10H, m, ArH); ¹³C NMR δ 23.6 (CH₂), 23.8 (CH₂), 24.9 (CH₂), 32.5 (CH₂), 34.6 (CH₂), 35.9 (CH₂), 43.1 (CH), 66.6 (OCH₂), 71.2 (OCH₂), 71.7 (OCH₂), 73.4 (OCH), 77.1 (OCH), 77.7 (OCH), 83.2 (OCH), 109.5 (C), 127.5 (CH), 127.6 (CH), 127.8 (CH), 128.09 (CH), 128.14 (CH), 128.2 (CH), 137.9 (C), 138.0 (C); HRMS (ESI) calcd for C₂₇H₃₅O₅ (M+H)⁺, 439.2484; found, 439.2457.

(2R,3R,4R)-2,3-bis(Benzyloxy)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopentanone

23. Following the procedure for the oxidation of the alcohol **7a**, the cyclopentanol derivative **22c** (450 mg, 1.03 mmol) was oxidized with Jones reagent to afford the cyclopentanone derivative **23** (390 mg, 87%): IR 1722.3 cm⁻¹; ¹H NMR δ 1.37-1.43 (2H, m, CH₂), 1.47-1.57 (8H, m, CH₂), 2.04 (1H, dd, *J* = 1.0, 16.7 Hz, CH₂), 2.50-2.65 (2H, m, CH₂, CH), 3.64 (1H, dt, *J* = 1.6, 5.2 Hz), 3.68-3.74 (1H, m), 3.97-4.05 (2H, m), 4.12 (1H, s), 4.46-4.81 (4H, m, PhCH₂), 7.25-7.37 (10H, m, ArH); ¹³C NMR δ 23.5 (CH₂), 23.8 (CH₂), 24.9 (CH₂), 34.2 (CH₂), 36.0 (CH₂), 36.1 (CH₂), 40.1 (CH), 67.1 (OCH₂), 71.6 (OCH₂), 71.8 (OCH₂), 75.5 (OCH), 76.0 (OCH), 80.7 (OCH), 109.9 (C), 127.6

(CH), 127.7 (CH), 127.8 (CH), 128.2 (CH), 128.3 (CH), 137.3 (C), 137.8 (C), 212.1

(CO); HRMS (ESI) calcd for $C_{27}H_{32}O_5Na$ ($M+Na$)⁺, 459.2148; found, 459.2121.

(1S,2S,3R,4R)-2,3-bis(Benzyloxy)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl] cyclopentanol

24 and (1R,2S,3R,4R) 22c. Following the procedure for the reduction of the

cyclopentenone derivative **8a**, the cyclopentanone derivative **23** (390 mg, 0.89 mmol)

was reduced with $LiAlH_4$ (37 mg, 0.98 mmol) at $-60\text{ }^{\circ}C$ to the cyclopentanol derivatives

24 (235 mg, 60%) as a viscous liquid; $[\alpha]_D^{20} +5.0$ (c 2.6, $CHCl_3$); 1H NMR δ 1.38-1.47

(2H, m, CH_2), 1.55-1.57 (8H, m, CH_2), 2.00 (1H, dd, $J = 2.3, 10.1$ Hz, CH_2), 2.05 (1H,

dd, $J = 2.2, 10.1$ Hz, CH_2), 2.41-2.50 (1H, m, CH), 3.06-3.09 (1H, m), 3.54 (1H, dd, $J =$

7.1, 7.7 Hz), 3.71 (1H, t, $J = 4.4$ Hz), 3.86 (1H, q, $J = 6.6$ Hz), 3.93-4.00 (2H, m), 4.19-

4.20 (1H, m), 4.63-4.75 (4H, m, $PhCH_2$), 7.30-7.38 (10H, m, ArH); ^{13}C NMR δ 23.7

(CH_2), 23.9 (CH_2), 25.1 (CH_2), 33.4 (CH_2), 34.8 (CH_2), 36.3 (CH_2), 45.2 (CH), 67.5

(OCH_2), 71.7 (OCH), 71.8 (OCH_2), 72.0 (OCH_2), 77.1 (OCH), 79.8 (OCH), 80.5 (OCH),

109.5 (C), 127.6 (CH), 127.9 (CH), 128.2 (CH), 128.3 (CH), 138.1 (C), 138.2 (C);

HRMS (ESI) calcd for $C_{27}H_{34}O_5Na$ ($M+Na$)⁺, 461.2304; found, 461.2318 and **22c** (35

mg, 9%).

(1S,2S,3R,4R)-4-(Hydroxymethyl)cyclopentane-1,2,3-triol (Carba- α -D-

ribofuranose) 25. Following the procedure for the deketalization of the cyclopentane

derivative **12**, the cyclopentanol derivative **24** (190 mg, 0.43 mmol) was transformed to

the corresponding diol (93 mg, 60%): $[\alpha]_D^{23} +31.7$ (c 0.4, $CHCl_3$); 1H NMR δ 1.46 (1H,

ddd, $J = 6.6, 8.0, 14.1$ Hz, CH_2), 1.87 (1H, ddd, $J = 3.3, 10.1, 13.7$ Hz, CH_2), 2.34-2.41

(1H, m, CH), 3.14 (2H, br s, OH), 3.32-3.43 (3H, m, OCH_2 , OCH), 3.52-3.56 (1H, m),

3.79 (1H, t, $J = 4.3$ Hz), 3.91 (1H, t, $J = 5.1$ Hz), 4.13 (1H, m), 4.49-4.71 (4H, m,

PhCH₂), 7.24-7.34 (10H, m, ArH); ¹³C NMR δ 33.1 (CH₂), 43.7 (CH), 65.1 (OCH₂), 70.9 (OCH), 71.9 (OCH₂), 72.5 (OCH₂), 74.0 (OCH), 79.6 (OCH), 80.5 (OCH), 127.70 (CH), 127.74 (CH), 127.8 (CH), 127.9 (CH), 128.2 (CH), 128.337 (CH), 128.343 (CH), 137.6 (C), 137.9 (C); HRMS (ESI) calcd for C₂₁H₂₆O₅Na (M+Na)⁺, 381.1678; found, 381.1671.

Following the procedure for the synthesis of the aldehyde **15**, the above diol (73 mg, 0.20 mmol) was allowed to react with NaIO₄ to produce the corresponding aldehyde (58 mg, 87%): IR 1720.4, 3425.3 cm⁻¹; ¹H NMR δ 2.00-2.05 (2H, m, CH₂), 2.91 (1H, br s, OH), 3.26 (1H, dt, *J* = 5.0, 8.8 Hz, CH), 3.69 (1H, t, *J* = 4.2 Hz), 4.15 (2H, t, *J* = 4.5 Hz), 4.57-4.81 (4H, m, PhCH₂), 7.24-7.40 (10H, m, ArH), 9.65 (1H, s, CHO); ¹³C NMR δ 30.7 (CH₂), 54.9 (CH), 71.1 (OCH), 73.1 (OCH₂), 73.2 (OCH₂), 78.8 (OCH), 80.5 (OCH), 128.30 (CH), 128.31 (CH), 128.37 (CH), 128.40 (CH), 128.9 (CH), 138.0 (C), 138.3 (C), 201.5 (CHO); HRMS (ESI) calcd for C₂₀H₂₂O₄Na (M+Na)⁺, 349.1416; found, 349.1411.

The above aldehyde (58 mg, 0.18 mmol) was reduced with NaBH₄ (14 mg, 0.36 mmol) to the corresponding alcohol (51 mg, 87%): [α]_D²⁰ +29.5 (*c* 1.0, CHCl₃); ¹H NMR δ 1.44-1.54 (1H, m, CH₂), 1.89-1.98 (2H, m, CH, CH₂), 2.51 (1H, br s, OH), 3.03 (1H, br s, OH), 3.41 (1H, dd, *J* = 7.1, 10.6 Hz, OCH₂), 3.54 (1H, dd, *J* = 5.3, 10.6 Hz, OCH₂), 3.77 (2H, d, *J* = 2.7 Hz), 4.15 (1H, m), 4.55-4.75 (4H, m, PhCH₂), 7.24-7.43 (10H, m, ArH); ¹³C NMR δ 33.4 (CH₂), 44.2 (CH), 64.9 (OCH₂), 71.7 (OCH), 72.7 (OCH₂), 72.9 (OCH₂), 80.4 (OCH), 81.7 (OCH), 128.18 (CH), 128.22 (CH), 128.25 (CH), 128.85 (CH), 128.87 (CH), 138.5 (C), 138.6 (C); HRMS (ESI) calcd for C₂₀H₂₄O₄Na (M+Na)⁺, 351.1572; found, 351.1552.

The benzyl ether groups in the alcohol (47 mg, 0.14 mmol) thus obtained was hydrogenolysed to the title compound **25** (20 mg, 94%): [α]_D²⁴ +42.4 (*c* 1.7, CH₃OH)

[lit.^{5b} $[\alpha]_{\text{D}}^{25} +46.1$ (c 0.8, CH₃OH)]; ¹H NMR (CD₃OD) δ 1.65-1.69 (1H, m, CH₂), 1.89 (1H, m), 2.25 (1H, m), 3.49-3.61 (2H, m, OCH₂), 3.69-3.82 (2H, m), 4.07 (1H, m); ¹³C NMR (CD₃OD) δ 33.8 (CH₂), 47.1 (CH), 64.7 (OCH₂), 73.0 (OCH), 75.0 (OCH), 75.4 (OCH) [¹H NMR^{4h} and ¹³C NMR^{5b} spectral data were comparable to those reported in literature]; HRMS (ESI) calcd for C₆H₁₃O₄ (M+H)⁺, 149.0814; found, 149.0829.

(4S)-2-(Benzyloxy)-4-[(2S)-1,4-dioxaspiro[4.5]dec-2-yl]cyclopent-2-en-1-one 27.

Swern oxidation of the cyclopentanol derivative **22c** (370 mg, 0.84 mmol) with oxalyl chloride (0.12 mL, 1.35 mmol), DMSO (0.20 mL, 2.81 mmol) and triethylamine (0.63 mL, 4.50 mmol) afforded the cyclopentenone derivative **27** (260 mg, 94%): IR 1720.4 cm⁻¹; $[\alpha]_{\text{D}}^{20} -70.0$ (c 1.0, CHCl₃); ¹H NMR δ 1.40 (2H, br s, CH₂), 1.56-1.60 (8H, m, CH₂), 2.08 (1H, dd, $J = 1.8, 18.9$ Hz, CH₂), 2.49 (1H, dd, $J = 6.3, 18.9$ Hz, CH₂), 2.90-2.95 (1H, m, CH), 3.61 (1H, dt, $J = 3.0, 7.2$ Hz), 3.92-4.01 (2H, m), 4.97 (2H, s, PhCH₂), 6.47 (1H, d, $J = 2.7$ Hz, =CH-), 7.31-7.37 (5H, m, ArH); ¹³C NMR δ 23.7 (CH₂), 24.0 (CH₂), 25.1 (CH₂), 34.6 (CH₂), 35.8 (CH₂), 36.4 (CH₂), 38.5 (CH), 66.8 (OCH₂), 71.8 (OCH₂), 78.1 (OCH), 110.2 (C), 127.6 (CH), 128.2 (CH), 128.5 (CH), 128.9 (CH), 135.5 (C), 156.9 (C), 200.6 (CO); HRMS (ESI) calcd for C₂₀H₂₅O₄ (M+H)⁺, 329.1753; found, 329.1740.

(2S)-2-[(1R,2R,3R,4S)-2,3,4-tris(Benzyloxy)cyclopent-1-yl]1,4-dioxaspiro

[4.5]decane 29b. The diol **29a** (70 mg, 0.20 mmol) was benzylated with benzyl bromide (0.10 mL, 0.80 mmol) as previously described to afford the benzyl ether **29b** (90 mg, 85%) as a colorless viscous liquid : $[\alpha]_{\text{D}}^{20} +16.1$ (c 1.8, CHCl₃); ¹H NMR δ 1.39 (2H, br s, CH₂), 1.57-1.60 (8H, m, CH₂), 1.70-1.79 (1H, m, CH₂), 1.92 (1H, ddd, $J = 5.1, 8.7, 13.4$ Hz), 2.34-2.39 (1H, m), 3.65 (1H, t, $J = 7.7$ Hz), 3.87-3.95 (3H, m), 4.02 (1H, dd, J

= 4.4, 4.7 Hz), 4.07 (1H, dd, $J = 6.5, 13.6$ Hz), 4.49-4.66 (6H, m, PhCH₂), 7.24-7.41 (15H, m, ArH); ¹³C NMR δ 24.3 (CH₂), 24.4 (CH₂), 25.6 (CH₂), 31.1 (CH₂), 35.5 (CH₂), 36.8 (CH₂), 44.4 (CH), 67.6 (OCH₂), 71.5 (OCH₂), 72.2 (OCH₂), 72.4 (OCH₂), 77.2 (OCH), 81.6 (OCH), 85.1 (OCH), 90.0 (OCH), 109.9 (C), 127.9 (CH), 128.02 (CH), 128.05 (CH), 128.10 (CH), 128.2 (CH), 128.4 (CH), 128.7 (CH), 128.79 (CH), 128.80 (CH), 138.7 (C), 138.8 (C), 139.0 (C); HRMS (ESI) calcd for C₃₄H₄₀O₅Na (M+Na)⁺, 551.2773; found, 551.2799.

(1S,2R,3R,4R)-4-(Hydroxymethyl)cyclopentane-1,2,3-triol (Carba- α -D-

arabinofuranose) 31. Deketalization of the cyclopentane derivative **29b** (193 mg, 0.37 mmol) using the previously described procedure afforded the corresponding vicinal diol (119 mg, 73%): $[\alpha]_D^{24} +20.8$ (c 1.7, CHCl₃); ¹H NMR δ 1.75 (1H, ddd, $J = 6.5, 11.4, 13.6$ Hz, CH₂), 1.91-1.98 (1H, m), 2.41 (1H, ddd, $J = 7.7, 11.3, 16.1$ Hz), 2.94 (2H, br s, OH), 3.51 (1H, dd, $J = 5.7, 11.6$ Hz, OCH₂), 3.62-3.70 (2H, m, OCH₂, OCH), 3.92-3.99 (2H, m), 4.04-4.09 (1H, m), 4.47-4.76 (6H, m, PhCH₂), 7.27-7.47 (15H, m, ArH); ¹³C NMR δ 30.7 (CH₂), 43.4 (CH), 65.7 (OCH₂), 71.3 (OCH₂), 72.4 (OCH₂), 72.6 (OCH₂), 75.0 (OCH), 81.3 (OCH), 86.3 (OCH), 90.1 (OCH), 128.2 (CH), 128.25 (CH), 128.28 (CH), 128.3 (CH), 128.4 (CH), 128.5 (CH), 128.91 (CH), 128.94 (CH), 138.2 (C), 138.4 (C), 138.5 (C); HRMS (ESI) calcd for C₂₈H₃₂O₅Na (M+Na)⁺, 471.2148; found, 471.2145.

The vicinal diol (100 mg, 0.22 mmol) thus obtained was transformed through periodate cleavage as described above to the corresponding aldehyde (85 mg, 92%): IR 1722.3 cm⁻¹; ¹H NMR δ 1.99 (1H, ddd, $J = 5.1, 9.0, 13.9$ Hz, CH₂), 2.12-2.24 (1H, m, CH₂), 3.06 (1H, dd, $J = 7.6, 15.5$ Hz, CH), 3.85 (1H, dd, $J = 5.4, 10.9$ Hz), 4.04 (1H, t, $J = 4.5$ Hz), 4.12 (1H, dd, $J = 5.1, 6.2$ Hz), 4.47-4.64 (6H, m, PhCH₂), 7.25-7.32 (15H, m, ArH), 9.65

(1H, s, CHO); ^{13}C NMR δ 28.1 (CH_2), 53.9 (CH), 71.1 (OCH_2), 71.97 (OCH_2), 72.03 (OCH_2), 80.7 (OCH), 82.8 (OCH), 88.5 (OCH), 127.58 (CH), 127.63 (CH), 127.64 (CH), 127.69 (CH), 127.72 (CH), 127.74 (CH), 128.31 (CH), 128.33 (CH), 137.7 (C), 137.9 (C), 138.0 (C), 201.1 (CHO); HRMS (ESI) calcd for $\text{C}_{27}\text{H}_{28}\text{O}_4\text{Na}$ ($\text{M}+\text{Na}$) $^+$, 439.1885; found, 439.1888.

The above aldehyde (85 mg, 0.20 mmol) was reduced with NaBH_4 (15 mg, 0.40 mmol) to the corresponding alcohol (80 mg, 94%): $[\alpha]_{\text{D}}^{20} +29.0$ (c 1.0, CHCl_3); ^1H NMR δ 1.71 (1H, ddd, $J = 6.9, 9.5, 13.7$ Hz, CH_2), 1.87-1.96 (1H, m), 2.06-2.08 (1H, m), 2.30-2.42 (1H, m), 3.57 (2H, d, $J = 5.9$ Hz, OCH_2), 3.71 (1H, dd, $J = 5.6, 8.0$ Hz), 3.86-3.91 (1H, m), 4.02 (1H, dd, $J = 4.1, 4.4$ Hz), 4.43-4.68 (6H, m, PhCH_2), 7.27-7.39 (15H, m, ArH); ^{13}C NMR δ 30.1 (CH_2), 43.0 (CH), 64.5 (OCH_2), 70.8 (OCH_2), 71.89 (OCH_2), 71.95 (OCH_2), 81.3 (OCH), 85.6 (OCH), 89.8 (OCH), 127.56 (CH), 127.61 (CH), 127.63 (CH), 127.76 (CH), 127.78 (CH), 128.3 (CH), 138.1 (C), 138.2 (C), 138.3 (C); HRMS (ESI) calcd for $\text{C}_{27}\text{H}_{30}\text{O}_4\text{Na}$ ($\text{M}+\text{Na}$) $^+$, 441.2042; found, 441.2058.

Hydrogenolysis of the benzyl ether groups in the alcohol thus obtained (50 mg, 0.12 mmol) with H_2 and Pd-C following the procedure as described earlier gave the alcohol **31** (17 mg, 96%): $[\alpha]_{\text{D}}^{24} +44.5$ (c 1.5, CH_3OH) [(lit.⁴ⁱ for *ent*-**31**) $[\alpha]_{\text{D}}^{16} -40.5$ (c 0.84, CH_3OH)]; ^1H NMR (CD_3OD) δ 1.67-1.90 (2H, m, CH_2), 1.99-2.11 (1H, m, CH), 3.47-3.56 (2H, m, OCH_2), 3.61-3.68 (2H, m), 3.81 (1H, dd, $J = 6.3, 14.1$ Hz); ^{13}C NMR (CD_3OD) δ 33.0 (CH_2), 44.9 (CH), 64.5 (OCH_2), 75.5 (OCH), 78.6 (OCH), 85.6 (OCH) [^1H and ^{13}C NMR spectral data were closely comparable to those reported in literature⁴ⁱ for *ent*-**31**]; HRMS (ESI) calcd for $\text{C}_6\text{H}_{13}\text{O}_4$ ($\text{M}+\text{H}$) $^+$, 149.0814; found, 149.0820.

(2S)-2[(1R,2R,3R,4R)-2,3,4-tris(Benzyloxy)cyclopent-1-yl]1,4-dioxaspiro[4.5] decane

30b. The diol **30a** (100 mg, 0.29 mmol) was benzylated with benzyl bromide (0.14 mL, 1.15 mmol) to afford the benzyl ether **30b** (130 mg, 86%) as a colorless viscous liquid; $[\alpha]_D^{23} -5.7$ (*c* 0.5, CHCl₃); ¹H NMR δ 1.39 (2H, br s, CH₂), 1.57-1.64 (8H, m, CH₂), 1.93-2.02 (2H, m, CH₂), 2.06-2.12 (1H, m, CH), 3.60 (1H, dd, *J* = 7.3, 7.6 Hz), 3.84 (1H, t, *J* = 3.9 Hz), 3.93-3.98 (2H, m), 4.03 (1H, t, *J* = 3.8 Hz), 4.14 (1H, dd, *J* = 6.6, 14.7 Hz), 4.47-4.68 (6H, m, PhCH₂), 7.18-7.32 (15H, m, ArH); ¹³C NMR δ 24.4 (CH₂), 24.5 (CH₂), 25.7 (CH₂), 29.6 (CH₂), 35.5 (CH₂), 37.2 (CH₂), 45.6 (CH), 68.1 (OCH₂), 71.9 (OCH₂), 72.1 (OCH₂), 72.2 (OCH₂), 78.3 (OCH), 78.4 (OCH), 83.8 (OCH), 84.5 (OCH), 110.0 (C), 128.0 (CH), 128.03 (CH), 128.04 (CH), 128.21 (CH), 128.25 (CH), 128.30 (CH), 128.78 (CH), 128.79 (CH), 128.81 (CH), 138.888 (C), 138.895 (C), 139.1 (C); HRMS (ESI) calcd for C₃₄H₄₀O₅Na (M+Na)⁺, 551.2773; found, 551.2769.

(1R,2R,3R,4R)-4-(Hydroxymethyl)cyclopentane-1,2,3-triol (Carba-β-D-

arabinofuranose) 32. Deketalization of the cyclopentane derivative **30b** (340 mg, 0.64 mmol) was achieved according to the previously described procedure to give the corresponding vicinal diol (230 mg, 80%): $[\alpha]_D^{23} -16.0$ (*c* 0.7, CHCl₃); ¹H NMR δ 1.71 (1H, dd, *J* = 5.5, 6.4 Hz, CH₂), 2.03-2.13 (3H, m), 2.58 (1H, br s, OH), 3.50 (1H, dd, *J* = 6.1, 11.3 Hz, OCH₂), 3.62 (1H, dd, *J* = 3.8, 11.4 Hz, OCH₂), 3.70 (1H, dd, *J* = 5.9, 9.7 Hz), 3.89 (1H, t, *J* = 4.9 Hz), 3.97-4.03 (1H, m), 4.20 (1H, t, *J* = 5.1 Hz), 4.53-4.77 (6H, m, PhCH₂), 7.30-7.38 (15H, m, ArH); ¹³C NMR δ 29.8 (CH₂), 42.5 (CH), 65.0 (OCH₂), 71.4 (OCH₂), 71.8 (OCH₂), 72.1 (OCH₂), 74.4 (OCH), 76.7 (OCH), 83.1 (OCH), 84.1 (OCH), 127.66 (CH), 127.68 (CH), 127.70 (CH), 127.8 (CH), 128.33 (CH), 128.34 (CH),

128.36 (CH), 137.8 (C), 137.9 (C), 138.1 (C); HRMS (ESI) calcd for C₂₈H₃₂O₅Na (M+Na)⁺, 471.2148; found, 471.2113.

The above vicinal diol (150 mg, 0.33 mmol) was transformed by reaction with NaIO₄ to the corresponding aldehyde (125 mg, 90%): IR 1722.3 cm⁻¹; ¹H NMR δ 1.89 (1H, ddd, *J* = 4.6, 10.3, 14.5 Hz, CH₂), 2.16 (1H, td, *J* = 3.9, 13.9 Hz, CH₂), 2.57 (1H, td, *J* = 4.0, 10.1 Hz, CH), 3.77 (1H, dd, *J* = 4.2, 5.3 Hz), 3.86 (1H, q, *J* = 4.0 Hz), 4.31 (1H, t, *J* = 2.2 Hz), 4.35-4.55 (6H, m, PhCH₂), 7.15-7.27 (15H, m, ArH), 9.53 (1H, s, CHO); ¹³C NMR δ 27.7 (CH₂), 54.0 (CH), 71.5 (OCH₂), 72.3 (OCH₂), 72.8 (OCH₂), 77.4 (OCH), 82.8 (OCH), 85.0 (OCH), 128.16 (CH), 128.18 (CH), 128.26 (CH), 128.29 (CH), 128.3 (CH), 128.87 (CH), 128.95 (CH), 138.5 (C), 138.6 (C), 202.2 (CHO); HRMS (ESI) calcd for C₂₇H₂₈O₄Na (M+Na)⁺, 439.1885; found, 439.1865.

The above aldehyde (125 mg, 0.30 mmol) was reduced with NaBH₄ (23 mg, 0.60 mmol) to the corresponding alcohol (110 mg, 88%): [α]_D²⁰ -16.0 (*c* 2.0, CHCl₃); ¹H NMR δ 1.76 (1H, td, *J* = 4.9, 13.3 Hz, CH₂), 2.07-2.28 (2H, m, CH₂, CH), 2.38 (1H, br s, OH), 3.71 (2H, d, *J* = 5.6 Hz, OCH₂), 3.93 (1H, dd, *J* = 4.6, 5.1 Hz), 4.00-4.08 (2H, m), 4.52-4.79 (6H, m, PhCH₂), 7.31-7.41 (15H, m, ArH); ¹³C NMR δ 29.5 (CH₂), 43.1 (CH), 65.5 (OCH₂), 71.4 (OCH₂), 71.9 (OCH₂), 72.2 (OCH₂), 77.2 (OCH), 84.4 (OCH), 84.5 (OCH), 127.60 (CH), 127.62 (CH), 127.65 (CH), 127.69 (CH), 127.75 (CH), 127.8 (CH), 128.34 (CH), 128.35 (CH), 128.37 (CH), 138.1 (C), 138.2 (C), 138.5 (C); HRMS (ESI) calcd for C₂₇H₃₀O₄Na (M+Na)⁺, 441.2042; found, 441.2049.

The benzyl ether groups in the above alcohol (47 mg, 0.11 mmol) was hydrogenolysed with H₂ over Pd-C to the alcohol **32** (16 mg, 96%): [α]_D²⁴ +9.2 (*c* 1.5, CH₃OH) [lit.^{4g} [α]_D²² +9.7 (*c* 0.7, CH₃OH)]; ¹H NMR (CD₃OD) δ 1.47 (1H, ddd, *J* = 4.6, 7.1, 11.9 Hz,

CH₂), 1.84-1.91 (1H, m), 2.11-2.21 (1H, m), 3.54 (1H, dd, $J = 7.0, 10.3$ Hz, OCH₂), 3.66-3.77 (3H, m), 4.01-4.04 (1H, m); ¹³C NMR (CD₃OD) δ 33.5 (CH₂), 45.7 (CH), 65.7 (OCH₂), 72.1 (OCH), 79.1 (OCH), 80.5 (OCH) [¹H and ¹³C NMR spectral data were closely comparable to those reported in literature⁴ⁿ]; HRMS (ESI) calcd for C₆H₁₂O₄Na (M+Na)⁺, 171.0633; found, 171.0638.

(2S)-2-[(1R, 2S, 5S)-2,5-bis-Benzylloxy-cyclohex-3-enyl]-1,4-dioxo-spiro[4.5]decane 38b. A solution of the cyclohexenediol **38a** (110 mg, 0.43 mmol) in THF (3 mL) was benzylated with NaH (62 mg, 1.30 mmol, 50% in oil) and benzyl bromide (0.15 mL, 1.30 mmol) according to the procedure for benzylation of the alcohol **9a** as described above to afford the dibenzyl ether **38b** (130 mg, 69%) as a colorless viscous liquid: $[\alpha]_D^{25} + 56.9$ (c 0.6, CHCl₃); ¹H NMR δ 1.40 (2H, br s), 1.58 (8H, br s), 1.65-1.73 (1H, m), 1.80-1.92 (1H, m), 2.33-2.37 (1H, m), 3.59 (1H, t, $J = 7.5$ Hz), 3.70-3.72 (1H, m), 3.97 (1H, dd, $J = 8.0, 5.9$ Hz), 4.02-4.07 (1H, m), 4.20-4.27 (1H, m), 4.36-4.70 (4H, m), 5.97-6.04 (2H, m), 7.22-7.40 (10H, m, ArH); ¹³C NMR δ 23.8 (CH₂), 24.1 (CH₂), 25.2 (CH₂), 27.2 (CH₂), 35.2 (CH₂), 36.7 (CH₂), 41.9 (CH), 67.3 (CH₂), 70.0 (CH₂), 70.1 (CH), 70.2 (CH₂), 74.2 (CH), 76.2 (CH), 109.0 (C), 126.8 (CH), 127.5 (CH), 127.6 (CH), 127.7 (CH), 128.2 (CH), 128.3 (CH), 128.4 (CH), 134.4 (CH), 138.4 (C), 138.6 (C); HRMS (ESI) Calcd for C₂₈H₃₄O₄Na (M+Na)⁺, 457.2355; found, 457.2372.

(1S, 2R, 3R, 4S, 6S)-3,6-bis-Benzylloxy-4-[(2S)-1,4-dioxo-spiro[4.5]dec-2-yl]-cyclohexane-1,2-diol 39a. To a stirred solution of the dibenzyl ether **38b** (120 mg, 0.27 mmol) in acetone-water (4:1) (4 mL) N-methylmorpholine N-oxide monohydrate (112 mg, 0.83 mmol) and a catalytic amount of OsO₄ was added and the mixture was stirred at rt for 16 h. The reaction mixture was then concentrated and the residual mass was

extracted with chloroform (3 × 5 mL). The organic extract was washed with brine (2 × 1 mL) and dried. Evaporation of solvent followed by column chromatography of the residual mass using ether-petroleum ether (2:3) afforded the *cis*-diol **39a** (110 mg, 85%) as a colorless viscous liquid: $[\alpha]_{\text{D}}^{25} + 39.5$ (c 0.9, CHCl₃); ¹H NMR δ 1.39 (2H, br s), 1.53 (4H, br s), 1.57 (4H, br s), 1.58-1.65 (1H, m), 1.91-1.98 (1H, m), 2.27-2.33 (1H, m), 2.72 (1H, br s), 2.89 (1H, br s), 3.47-3.53 (2H, m), 3.63-3.66 (1H, m), 3.69 (1H, dd, *J* = 7.9, 5.8 Hz), 3.86 (1H, dd, *J* = 9.2, 3.2 Hz), 4.07-4.10 (1H, m), 4.22-4.24 (1H, m), 4.37 (1H, d, *J* = 11.6 Hz), 4.45 (1H, d, *J* = 11.4 Hz), 4.62 (1H, d, *J* = 11.6 Hz), 4.74 (1H, d, *J* = 11.4 Hz), 7.25-7.41 (10H, m, ArH); ¹³C NMR δ 23.8 (CH₂), 24.0 (CH₂), 25.2 (CH₂), 26.7 (CH₂), 35.3 (CH₂), 36.5 (CH₂), 39.1 (CH), 67.5 (CH₂), 68.7 (CH), 70.8 (CH₂), 72.0 (CH₂), 72.5 (CH), 76.1 (CH), 76.7 (CH), 77.6 (CH), 109.2 (C), 127.74 (CH), 127.76 (CH), 127.8 (CH), 127.9 (CH), 128.4 (CH), 128.5 (CH), 137.7 (C), 138.4 (C); HRMS (ESI) Calcd for C₂₈H₃₆O₆Na (M+Na)⁺, 491.2410; found, 491.2420.

(2S)-2-[(1S, 2R, 3S, 4R, 5S)-2,3,4,5-tetrakis-Benzylloxy-cyclohexyl]-1,4-dioxaspiro[4.5]decane 39b. A solution of the *cis*-diol **39a** (120 mg, 0.256 mmol) was benzylated with NaH (37 mg, 0.77 mmol, 50% in oil) and benzyl bromide (0.09 mL, 0.77 mmol) according to the procedure for benzylation of alcohol **9a** as described above to afford the tetrabenzyl ether **39b** (120 mg, 72%) as a colorless viscous liquid: $[\alpha]_{\text{D}}^{25} - 6.9$ (c 1.0, CHCl₃); ¹H NMR δ 1.37-1.39 (2H, m), 1.54 (4H, br s), 1.57 (4H, br s), 1.60-1.64 (1H, m), 1.88-1.92 (1H, m), 2.20-2.27 (1H, m), 3.17-3.18 (1H, m), 3.31 (1H, t, *J* = 7.7 Hz), 3.60 (1H, dd, *J* = 7.7, 5.9 Hz), 3.72-3.78 (2H, m), 3.84-3.92 (1H, m), 3.94-4.00 (1H, m), 4.06 (1H, d, *J* = 11.8 Hz), 4.21 (1H, d, *J* = 11.7 Hz), 4.47-4.73 (4H, m), 4.82 (2H, dd, *J* = 12.2, 3.4 Hz), 7.05-7.07 (2H, m, ArH), 7.24-7.39 (18H, m, ArH); ¹³C NMR δ 23.8

(CH₂), 24.0 (CH₂), 25.2 (CH₂), 28.8 (CH₂), 35.2 (CH₂), 36.5 (CH₂), 38.8 (CH), 67.5 (CH₂), 71.6 (CH₂), 72.3 (CH₂), 73.5 (CH₂), 73.6 (CH₂), 75.4 (CH), 76.1 (CH), 76.2 (CH), 77.6 (CH), 80.8 (CH), 109.2 (C), 127.2 (CH), 127.4 (CH), 127.6 (CH), 127.73 (CH), 127.76 (CH), 127.8 (CH), 127.98 (CH), 128.0 (CH), 128.2 (CH), 128.3 (CH), 128.3 (CH), 128.4 (CH), 137.8 (C), 138.7 (C), 139.1 (C), 139.3 (C); HRMS (ESI) Calcd for C₄₂H₄₈O₆Na (M+Na)⁺, 671.3348; found, 671.3307.

[(1S, 2R, 3S, 4R, 5S)-2,3,4,5-tetrakis-Benzyloxy-cyclohexyl]-methanol 40a. A solution of the tetrabenzyl ether **39b** (100 mg, 0.154 mmol) in aqueous acetic acid (80%, 1 mL) was stirred at rt for 14 h. The reaction mixture was diluted with ethyl acetate (15 mL), washed with NaOH solution (15%, 2 × 2 mL), brine (1 mL) and dried. Evaporation of the solvent followed by column chromatography using ethyl acetate-petroleum ether (1:1) as eluent afforded the corresponding diol (72 mg, 82%) as colorless viscous liquid: $[\alpha]_D^{25} - 7.3$ (c 1.4, CHCl₃); ¹H NMR δ 1.61-1.74 (2H, m), 1.94-2.06 (1H, m), 2.97 (1H, br s), 3.00 (1H, br s), 3.47-3.55 (3H, m), 3.67 (1H, dd, *J* = 9.4, 2.9 Hz), 3.76-3.80 (2H, m), 3.81-3.90 (1H, m), 4.16 (1H, d, *J* = 11.4 Hz), 4.25 (1H, d, *J* = 11.4 Hz), 4.55 (2H, dd, *J* = 12.1, 4.0 Hz), 4.71-4.85 (4H, m), 7.06-7.09 (2H, m, ArH), 7.25-7.38 (18H, m, ArH); ¹³C NMR δ 25.9 (CH₂), 36.5 (CH), 64.8 (CH₂), 71.6 (CH₂), 72.4 (CH₂), 73.4 (CH₂), 73.5 (CH₂), 73.8 (CH), 74.6 (CH), 77.5 (CH), 79.7 (CH), 80.4 (CH), 127.3 (CH), 127.5 (CH), 127.6 (CH), 127.7 (CH), 127.8 (CH), 127.91 (CH), 127.92 (CH), 127.95 (CH), 128.1 (CH), 128.2 (CH), 128.28 (CH), 128.34 (CH), 128.49 (CH), 128.54 (CH), 137.1 (C), 138.5 (C), 138.9 (C), 139.0 (C); HRMS (ESI) Calcd for C₃₆H₄₀O₆Na (M+Na)⁺, 591.2723; found, 591.2714.

This diol (90 mg, 0.158 mmol) in 60% aqueous acetonitrile (3 mL) was treated with sodium metaperiodate (68 mg, 0.137 mmol) as already described to afford the aldehyde (69 mg, 81%) as a colorless viscous liquid: IR(neat) : $\nu_{\max}$ 1726 cm^{-1} ; ^1H NMR δ 1.81-1.89 (1H, m), 2.19-2.25 (1H, m), 2.69-2.75 (1H, m), 3.74 (1H, dd, J = 8.9, 2.5 Hz), 3.83-3.87 (2H, m), 3.99-4.00 (1H, m), 4.32 (2H, s), 4.57 (2H, dd, J = 11.9, 4.4 Hz), 4.67-4.81 (4H, m), 7.09-7.11 (2H, m), 7.20-7.40 (18H, m), 9.60 (1H, s); ^{13}C NMR δ 25.5 (CH_2), 48.1 (CH), 72.09 (CH_2), 72.15 (CH_2), 73.46 (CH_2), 73.48 (CH_2), 75.22 (CH), 75.35 (CH), 76.6 (CH), 80.3 (CH), 127.4 (CH), 127.5 (CH), 127.6 (CH), 127.73 (CH), 127.75 (CH), 127.8 (CH), 127.89 (CH), 127.91 (CH), 128.29 (CH), 128.31 (CH), 128.38 (CH), 128.40 (CH), 137.7 (C), 138.4 (C), 138.8 (C), 138.9 (C), 202.7 (CHO); HRMS (ESI) Calcd for $\text{C}_{35}\text{H}_{36}\text{O}_5\text{Na}$ ($\text{M}+\text{Na}$) $^+$, 559.2460; found, 559.2447.

This aldehyde (60 mg, 0.11 mmol) in methanol (2 mL) was reduced with sodium borohydride (10 mg, 0.26 mmol) to afford after column chromatography using ether-petroleum ether (2:3) as eluent, the pure alcohol **40a** (55 mg, 91%) as a colorless viscous liquid: $[\alpha]_{\text{D}}^{25} + 1.4$ (c 1.7, CHCl_3); ^1H NMR δ 1.54-1.66 (2H, m), 1.84-1.91 (1H, m), 2.04-2.07 (1H, m), 3.60 (2H, d, J = 5.4 Hz), 3.67-3.74 (2H, m), 3.83-3.95 (2H, m), 4.26 (1H, d, J = 11.7 Hz), 4.33 (1H, d, J = 11.6 Hz), 4.56 (2H, dd, J = 12.0, 5.8 Hz), 4.63-4.81 (4H, m), 7.12-7.14 (2H, m), 7.25-7.37 (18H, m); ^{13}C NMR δ 28.2 (CH_2), 36.8 (CH), 64.5 (CH_2), 71.9 (CH_2), 72.3 (CH_2), 73.2 (CH_2), 73.3 (CH_2), 75.2 (CH), 77.2 (CH), 77.5 (CH), 80.8 (CH), 127.31 (CH), 127.38 (CH), 127.45 (CH), 127.58 (CH), 127.6 (CH), 127.79 (CH), 127.86 (CH), 127.9 (CH), 128.2 (CH), 128.27 (CH), 128.31 (CH), 128.5 (CH), 138.0 (C), 138.6 (C), 139.1 (C), 139.2 (C); HRMS (ESI) Calcd for $\text{C}_{35}\text{H}_{39}\text{O}_5$ ($\text{M}+\text{H}$) $^+$, 539.2798; found, 539.2758.

(1S, 2R, 3S, 4R, 5S)-5-Hydroxymethyl-cyclohexane-1,2,3,4-tetraol 40b. To a solution of the alcohol **40a** (80 mg, 0.15 mmol) in dry methanol (4 mL) under hydrogen atmosphere, Pd-C (10%) (20 mg) was added and stirred at rt for 15 h. The mixture was filtered. Solvent evaporation under reduced pressure afforded the carba- β -L-gulopyranose **40b** (25 mg, 95%) as a colorless viscous liquid: $[\alpha]_D^{25} + 45.4$ (c 1.3, CH₃OH); ¹H NMR δ (CD₃OD) 1.28-1.47 (1H, m), 1.68-1.72 (1H, m), 2.00-2.02 (1H, m), 3.48-3.55 (1H, m), 3.60-3.71 (3H, m), 3.88-3.89 (2H, m); ¹³C NMR (CD₃OD) δ 31.0 (CH₂), 38.5 (CH), 64.6 (CH₂), 70.9 (CH), 71.8 (CH), 74.7 (CH), 74.9 (CH); HRMS (ESI) Calcd for C₇H₁₄O₅Na (M+Na)⁺, 201.0739; found, 201.0748.

Acetic acid (1R, 2S, 3R, 4S, 6S)-2,3,6-triacetoxy-4-acetoxymethyl-cyclohexyl ester 40c. To a solution of the hydroxy compound **40b** (24 mg, 0.13 mmol) in dry pyridine (1 mL), acetic anhydride (0.13 mL, 1.4 mmol) was added and stirred at rt for 16 h. The reaction mixture was evaporated and the residual mass was chromatographed using ether-petroleum ether (1:4) as eluent to afford the penta-acetate **40c** (45 mg, 86%): $[\alpha]_D^{25} + 21.5$ (c 2.0, CHCl₃) [lit.^{6f} $[\alpha]_D^{20} + 20.5$ (c 1.0, CHCl₃); IR(neat): $\nu_{\max}$ 1747.4 cm⁻¹; ¹H NMR δ 1.54-1.67 (2H, m), 1.99 (3H, s), 2.05 (6H, s), 2.13 (6H, s), 2.44-2.49 (2H, m), 3.87 (1H, dd, *J* = 11.1, 6.6 Hz), 4.04 (1H, dd, *J* = 11.1, 8.4 Hz), 5.10-5.13 (1H, m), 5.16-5.18 (2H, m), 5.38-5.39 (1H, m); ¹³C NMR δ 20.84 (CH₃), 20.87 (CH₃), 20.89 (CH₃), 20.94 (CH₃), 21.13 (CH₃), 27.7 (CH₂), 33.7 (CH), 63.3 (CH₂), 68.3 (CH), 68.5 (CH), 69.1 (CH), 70.5 (CH), 169.3 (C), 169.4 (C), 170.2 (C), 170.5 (C), 170.9 (C); HRMS (ESI) Calcd for C₁₇H₂₄O₁₀Na (M+Na)⁺, 411.1267; found, 411.1256. The ¹H NMR spectral data of **40c** is comparable to that reported in literature.^{7f}

18-III-75-13C (SR)

Current Data Parameters
NAME 18-III-75-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

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PULPROG zgpg
TD 65536
SOLVENT CDCl3
NS 1810
DS 0

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FIDRES 0.250012 Hz
AQ 1.9999557 sec
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DE 4.50 usec
TE 300.0 K
D11 0.0300000 sec
PL12 15.00 dB

CPDPRG2 waltz16
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SF02 300.1314106 MHz
NUC2 1H
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PL1 -6.00 dB

F2 - Processing parameters
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LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
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F1 16598.48 Hz
F2P -8.530 ppm
F2 -643.72 Hz
PPMCM 10.36505 ppm/cm
HZCM 783.73633 Hz/cm

TB-III-75-DEPT135 (SR)

Current Data Parameters
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 PROCNO 1

F2 - Acquisition Parameters
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 TE 300.0 K
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 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
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 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 D12 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
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 PCPD2 100.00 usec

F2 - Processing parameters
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 KDN EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 MHz plot parameters
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 F1p 177.636 ppm
 F1 13405.77 Hz
 F2p -10.344 ppm
 F2 -790.66 Hz
 PPMCM 8.5465 ppm/cm
 HZCM 644.83771 Hz/cm

TB-III-9US-13C (SR)

Current Data Parameters
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 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
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 Time 19.30

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 TD 86576
 SOLVENT DMSO
 NS 1864
 DS 0
 SWH 21645.021 Hz
 FIDRES 0.250012 Hz
 AQ 1.999957 sec
 RG 8192
 DW 23.100 usec
 DE 4.50 usec
 TE 300.0 K
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 PL12 16.00 dB
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 PCPD2 100.00 usec
 SF02 300.1314106 MHz
 NUC2 ¹H
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 NUC1 ¹³C
 PL1 -6.00 dB

F2 - Processing parameters
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 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
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 F1 15678.58 Hz
 F2P -7.979 ppm
 F2 -602.13 Hz
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 HZCK 740.03192 Hz/cm

TB-III-9US-DEPT135 (SR)

Current Data Parameters
NAME TB-III-9US-DEP
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
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Time 20.18

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PROBHD dox300
PULPROG dep135
TO 65536
SOLVENT CDCl3
NS 1043
DS 0

SMH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192

DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
d4 20.2 usec

CNST2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
PL2 -5.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C

PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
CPDPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
FIP 144.022 ppm
F1 10869.04 Hz
F2P -7.940 ppm
F2 -599.25 Hz
PPKM 6.50739 ppm/cm
HZCM 521.26552 Hz/cm

TB-III-74-13C (SR)

Current Data Parameters
NAME TB-III-74-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.50

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TO 86576
SOLVENT CDCl3
NS 1315
DS 0

SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters
SI 65536
SF 75.4677527 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 203.672 ppm
F1 15385.72 Hz
F2P -12.023 ppm
F2 -907.36 Hz
PPMCH 9.81339 ppm/cm
HZCM 740.59465 Hz/cm

ppm

TB-III-74-DEPT135 (SR)

Current Data Parameters
 NAME TB-III-74-DEPT
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 20.07
 INSTRUM dpx300
 PROBRD 5 mm Nujolnu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1053
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192
 DE 25.500 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST2 142.0000000
 d2 0.0036211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.00000000 sec
 PL2 -6.00 dB
 SF02 300.1310320 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDEPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 NCH 64
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.00 cm
 F1P 147.266 ppm
 F1 11113.01 Hz
 F2P -4.964 ppm
 F2 -374.65 Hz
 PPMCH 6.91907 ppm/cm
 HZCH 522.16656 Hz/cm

TB1196-1H (SKD)

TB-III-96-13C (SR)

Current Data Parameters

NAME	TB-III-96-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	15.30
INSTRUM	dpX300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	86576
SOLVENT	CDCl3
NS	1469
DS	0
SMH	21645.021 Hz
FIDRES	0.250012 Hz
AQ	1.9999557 sec
RG	8192
DM	23.100 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314106 MHz
NUC2	¹³ C
PL2	120.00 dB
D1	1.00000000 sec
P1	6.70 usec
DE	4.50 usec
SFO1	75.4772724 MHz
NUC1	¹³ C
PL1	-6.00 dB

F2 - Processing parameters

SI	65536
SF	75.4677557 MHz
MDM	EN
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	205.181 ppm
F1	15484.53 Hz
F2P	-6.285 ppm
F2	-474.32 Hz
PPMCM	9.61208 ppm/cm
HZCM	725.40210 Hz/cm

TB-III-96-DEPT135 (SR)

Current Data Parameters
NAME TB-III-96-DEPT
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 15.53
INSTRUM dx300
PROBHD 5 mm Nujitsu
PULPROG zgpg30
TO 65536
SOLVENT CDCl3
NS 1041
DS 0
SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
ON172 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
PL2 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
OPRG2 zgpg30
PCPDZ 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
FIP 145.310 ppm
F1 10966.22 Hz
F2P -5.365 ppm
F2 -404.67 Hz
PPMCM 6.84886 ppm/cm
HZCM 516.86780 Hz/cm

1B11154-1H (SKD)

1B111154-13C (SKD)

Current Data Parameters
NAME 1B111154-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 13.24
INSTRUM dpz300
PROBHD 5 mm Mxltinu
PULPROG zgpg
TD 86576
SOLVENT CDCl3
NS 1241
DS 0
SMH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 148.224 ppm
F1 1186.15 Hz
F2P -6.377 ppm
F2 -481.25 Hz
PPMCM 7.02732 ppm/cm
HZCM 530.33500 Hz/cm

1B111154-Dept135 (SKD)

Current Data Parameters
NAME 1B111154-Dept1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 13.36

INSTRUM 5 mm Nvltinu
PROBHD 5 mm Nvltinu
PULPROG dept135

TD 65536
SOLVENT CDCl3
NS 1068
DS 0

SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec

RG 8192
DM 25.500 usec
DE 4.50 usec

TE 300.0 K
P1 6.20 usec
P2 12.4 usec

P3 10.10 usec
P4 20.2 usec
CONST2 142.0000000

d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec

D1 5.0000000 sec
PL2 -6.00 dB
SF02 300.1310920 MHz

NUC2 1H
SF01 75.4747101 MHz
NUC1 13C

PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec

CPDPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
S1 65536
SF 75.4677408 MHz

WDW EM
SSB 0
LB 3.60 Hz

GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 144.303 ppm

F1 10890.20 Hz
F2P -4.580 ppm
F2 -345.64 Hz

PPMCM 6.76740 ppm/cm
HZCM 510.72028 Hz/cm

TB-III-101-1H (SR)

TB-III-101-13C (SR)

Current Data Parameters

NAME	TB-III-101-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	15.36
INSTRUM	dpX300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	86576
SOLVENT	CDCl3
NS	1151
DS	0
SWH	21645.021 Hz
FIDRES	0.250012 Hz
AQ	1.9999557 sec
RG	8192
DM	23.100 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314106 MHz
NUC2	¹³ C
PL2	120.00 dB
D1	1.00000000 sec
P1	6.70 usec
DE	4.50 usec
SFO1	75.4772724 MHz
NUC1	¹³ C
PL1	-6.00 dB

F2 - Processing parameters

SI	65536
SF	75.4677626 MHz
MDN	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	200.941 ppm
F1	15164.56 Hz
F2P	-8.073 ppm
F2	-609.25 Hz
PPMCM	9.50063 ppm/cm
HZCM	716.99133 Hz/cm

ppm

120

100

80

60

40

20

0

128.507
128.421
128.337
127.867
127.743

83.196
81.301
78.592
77.380
71.969
71.471
67.517

43.944
36.667
35.119
29.744
25.342
24.157
24.005

12

O=C1C(OC(=O)C2CCCCC2)C(OC(=O)C3CCCCC3)C(OC(=O)C4CCCCC4)C1

Current Data Parameters		F2 - Acquisition Parameters	
NAME	TE-III-104-DEP	Date -	500000
EXPNO		Time	15.42
PROCNO	1	INSTRUM	ddx300
		PROBHD	5 mm Multinu
		PULPROG	del135
			65536
		SOLVENT	CDCl3
		NS	1044
		DS	0
		SH1	19607.844 Hz
		FIDRES	0.299192 Hz
		RG	1.672180 sec
		DM	8192
		DE	25.500 usec
		TE	4.50 usec
		P1	300.0 K
		P2	6.20 usec
		P3	12.4 usec
		P4	10.10 usec
		CNST2	20.2 usec
		d12	142.0000000
		DELTA	0.0035211 sec
		D1	0.0000260 sec
		P1.2	0.0000079 sec
		SF02	5.0000000 sec
		SF01	6.00 usec
		NUL1	300.1310920 MHz
		PL1	1H
		PL2	75.4747101 MHz
		PCPD2	13C
			13C
			-6.00 dB
			16.00 dB
			4.50 usec
			wait16
			100.00 usec
F2 - Processing parameters			
SF1	65536		
MDM	75.4677408 MHz		
SSB	EM		
LB	0		
GB	3.60 Hz		
PC	0		
	1.00		
10 NMR plot parameters			
CX	22.00 cm		
F1P	137.817 ppm		
F1	10400.71 Hz		
F2P	-4.109 ppm		
F2	310.08 Hz		
PRQCM	6.45115 ppm/cm		
NZCM	486.85365 Hz/cm

TB11103-1H (SKD)

1B111103-13C (SKD)

Current Data Parameters
NAME 1B111103-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 13.19

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1239
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.999957 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
D11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677626 MHz
MCH FM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1p 147.158 ppm
F1 11105.68 Hz
F2p -6.021 ppm
F2 -454.42 Hz
PPMCM 6.96270 ppm/cm
HZCM 525.45935 Hz/cm

TB111103-Dept135 (SKD)

Current Data Parameters
 NAME TB111103-Dept1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 13.30
 INSTRUM dpx300
 PROBD 5 mm Multinu
 PULPROG dept135
 TO 85536
 SOLVENT CDCl3
 NS 1219
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST2 142.0000000
 d2 0.0035211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.00000000 sec
 PL2 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CPDPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 NDM EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 FIP 140.803 ppm
 F1 10626.06 Hz
 F2P -7.618 ppm
 F2 -574.95 Hz
 PPMCM 5.74642 ppm/cm
 HZCM 509.13687 Hz/cm

1B-IV-86-1H (SR)

TB/IV/06-13C (SKD)

Current Data Parameters

NAME	TB/IV/06-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	0.52
INSTRUM	dxp300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	39680
SOLVENT	MeOH
NS	3258
DS	0
SMH	19841.270 Hz
FIDRES	0.500032 Hz
AQ	0.999960 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	¹³ C
PL2	120.00 dB
D1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4766447 MHz
NUC1	¹³ C
PL1	-1.00 dB

F2 - Processing parameters

SI	SF	WDW	SSB	LB	GB	PC
65536	75.4675280 MHz	EM	0	0.30 Hz	0	1.00

1D NMR plot parameters

CX	F1P	F1	F2P	F2	PPMCM	HZCM
22.00 cm	82.339 ppm	6213.90 Hz	-3.624 ppm	-273.51 Hz	3.90741 ppm/cm	294.88223 Hz/cm

TB-IV-86-DEPT135 (SP)

Current Data Parameters
 NAME TB-IV-86-DEPT1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 15.11
 INSTRUM dpx300
 PROBRD 5 mm Multinu
 PULPROG dept135
 TD 39212
 SOLVENT CDCl3
 NS 1911
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.50047 Hz
 AQ 0.999560 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST2 142.0000000
 d2 0.0035211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 PL2 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDDPRG2 waitz16
 PCPRG2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4675466 MHz
 NCM EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 F1P 97.768 ppm
 F1 7378.31 Hz
 F2P -7.883 ppm
 F2 -594.91 Hz
 PPMCM 4.80231 ppm/cm
 HZCM 362.41882 Hz/cm

1B-III-104-1H(SR)

1B-III-104-13C (SR)

Current Data Parameters
NAME 1B-III-104-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 18.42
INSTRUM 5 mm NUTINA
PROBHD zgpg300
PULPROG zgpg300
TD 65536
SOLVENT CDCl3
NS 1119
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.999957 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
PL12 0.0300000 sec
PL12 16.00 dB
PCPD2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters
SI 65536
SF 75.4677626 MHz
KON EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 217.883 ppm
F1 16443.18 Hz
F2P -9.575 ppm
F2 -722.64 Hz
PPMCM 10.33904 ppm/cm
HZCM 780.26440 Hz/cm

TB-III-104-DEPT135 (SR)

Current Data Parameters

NAME	TB-III-104-DEP
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	18.46
INSTRUM	INSTRUM
PROBHD	5 mm NUT
PULPROG	DEPT135
TD	65536
SOLVENT	CDCl3
NS	1044
DS	0
SWH	19607.844 Hz
FTRES	0.299192 Hz
AQ	1.6712180 sec
RG	8192
DM	25.500 usec
DE	4.50 usec
TE	300.0 K
P1	6.20 usec
P2	12.4 usec
P3	10.10 usec
P4	20.2 usec
ONST2	142.0000000
d2	0.003241 sec
d12	0.000200 sec
DELTA	0.000079 sec
D1	5.0000000 sec
P1.2	-6.00 dB
SFO2	300.1310920 MHz
NUC2	¹³ C
SFO1	75.4747101 MHz
NUC1	¹³ C
P1.1	-6.00 dB
P1.2	16.00 dB
DE	4.50 usec
CPDPRG2	WALTZ16
PCPD2	100.00 usec

F2 - Processing parameters

SI	65536
SF	75.4677408 MHz
WDW	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	215.174 ppm
F1	16238.72 Hz
F2P	-5.009 ppm
F2	-453.46 Hz
PPMCH	10.05377 ppm/cm
HZCH	758.73547 Hz/cm

TB-III-105-13C (SI)

Current Data Parameters
 NAME TB-III-105-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 18.50

138.177
 138.090
 138.058
 128.314
 128.270
 128.238
 128.190
 127.797
 127.783
 127.595
 127.576
 127.561
 127.513
 127.293
 81.095
 81.066
 80.830
 77.410
 76.986
 76.562
 71.671
 71.470
 71.316
 65.099
 42.483
 30.093

16

F2 - Processing parameters

SI 65536
 SF 75.467/626 MHz
 MDN EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

10 NMR plot parameters

CX 22.00 cm
 F1P 205.089 ppm
 F1 15477.60 Hz
 F2P -7.443 ppm
 F2 -561.71 Hz
 PPMCH 9.66054 ppm/cm
 HZCM 729.05957 Hz/cm

1B-111-105-DEPT135 (SR)

Current Data Parameters
 NAME 1B-111-105-DEPT
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 18.52

INSTRUM dpx300
 PROBO 5 mm Nvltinu
 PULPROG deot135
 TD 65536
 SOLVENT CDCl3
 NS 1036
 DS 0

SMH 15607.844 Hz
 F10RES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192

DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec

CNST2 142.0000000
 d2 0.0035211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 PL2 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF04 75.4747101 MHz
 NUC4 13C

PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDDPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 NDM EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 F1P 146.920 ppm
 F1 11087.71 Hz
 F2P -6.331 ppm
 F2 -477.76 Hz
 PPMCM 6.96593 ppm/cm
 HZCM 525.70319 Hz/cm

TB-IV-76-1H (SR)

TB-IV-76-13C (SR)

Current Data Parameters
NAME TB-IV-76-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.48

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpgc
TD 109152
SOLVENT CDCl3
NS 1093
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 ¹H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.476447 MHz
NUC1 ¹³C
PL1 -1.00 dB

F2 - Processing parameters

SI 65536
SF 75.4676454 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 86.373 ppm
F1 6518.34 Hz
F2P -3.056 ppm
F2 -230.59 Hz
PPMCM 4.06492 ppm/cm
HZCM 306.76984 Hz/cm

1B-1V-76-DEP1135 (SR)

Current Data Parameters
NAME 1B-1V-76-DEP11
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.51

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30
TO 39212
SOLVENT CDCl3
NS 1044
DS 0

SWH 19607.844 Hz
FIDRES 0.500047 Hz
AQ 0.9999560 sec
RG 8192

DE 25.500 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec

CKST2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec

D1 5.00000000 sec
R12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H

SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB

DE 4.50 usec
CPOBPG2 Waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4676453 MHz
WDW EM

SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR Plot parameters

CX 22.00 cm
F1P 89.190 ppm
F1 6730.96 Hz
F2P -3.632 ppm
F2 -289.20 Hz
PPHOM 4.22828 ppm/cm
HZCM 319.09814 Hz/cm

TB-III-109-1H(SR)

TB-III-109-13C(SR)

Current Data Parameters
NAME TB-III-109-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date 500000
Time 18.35

INSTRUM 5 mm Mxltina

PROBHD zgc

PULPROG zgpg30

TD 86576

SOLVENT CDCl3

NS 2505

DS 0

SWH 21645.021 Hz

FIDRES 0.250012 Hz

AQ 1.999957 sec

RG 8192

DM 23.100 usec

DE 4.50 usec

TE 300.0 K

tl1 0.030000 sec

pl12 16.00 dB

CPDPRG2 waltz16

PCPD2 100.00 usec

SFO2 300.1314106 MHz

NMC2 1H

PI2 120.00 dB

D1 1.00000000 sec

P1 6.70 usec

DE 4.50 usec

SFO1 75.4772724 MHz

NUC1 13C

PL1 -6.00 dB

F2 - Processing parameters

SI 65536

SF 75.4677626 MHz

WDW EM

SSB 0

LB 0.30 Hz

GB 0

PC 1.00

1D NMR plot parameters

CX 22.00 cm

FLP 220.727 ppm

F1 16657.75 Hz

F2 -8.509 ppm

TB-III-109-DEPT135 (SR)

Current Data Parameters
NAME TB-III-109-dep
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 19.23
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 65536
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DW 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNSR2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
P12 -6.00 dB
SFO2 300.1310920 MHz
NUC2 1H
SFO1 75.4747101 MHz
NUC1 13C
P11 -6.00 dB
P112 16.00 dB
DE 4.50 usec
CDEPRG2 waltz16
PCPD2 100.00 usec

DS 0
SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DW 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNSR2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
P12 -6.00 dB
SFO2 300.1310920 MHz
NUC2 1H
SFO1 75.4747101 MHz
NUC1 13C
P11 -6.00 dB
P112 16.00 dB
DE 4.50 usec
CDEPRG2 waltz16
PCPD2 100.00 usec

45.884
43.640
36.548
35.004
25.212
24.048
23.890

77.470
67.760

136.575
117.928

201.603

1D NMR plot parameters
CX 22.00 cm
FLP 216.462 ppm
F1 1.6335 91 Hz
F2 -12.770 ppm
F2 963.70 Hz
FPCMC 10.41963 ppm/cm
HZCM 786.34595 Hz/cm

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

TBII110-13C (SKD)

Current Data Parameters

NAME TBII110-13C

EXNO 1

PROCNO 1

F2 - Acquisition Parameters

Date 500000

Time 14.02

INSTRUM dpx300

PROBHD 5 mm Multinu

PULPROG zgpg

TD 86576

SOLVENT CDCl3

NS 1438

DS 0

SWH 21645.021 Hz

FIDRES 0.250012 Hz

AQ 1.9999557 sec

RG 8192

DW 23.100 usec

DE 4.50 usec

TE 300.0 K

dl1 0.0300000 sec

pl12 16.00 dB

CPDPRG2 waltz16

PCPD2 100.00 usec

SFO2 300.1314106 MHz

NUC2 ¹H

PL2 120.00 dB

D1 1.00000000 sec

P1 6.70 usec

DE 4.50 usec

SFO1 75.4772724 MHz

NUC1 ¹³C

PL1 -6.00 dB

F2 - Processing parameters

SI 65536

SF 75.4677626 MHz

WDM EX

SSB 0

LB 0.30 Hz

GB 0

PC 1.00

1D NMR plot parameters

CX 22.00 cm

FLP 145.765 ppm

FI 11000.56 Hz

F2P -4.070 ppm

F2 -307.19 Hz

PPMCM 6.81070 ppm/cm

HzCM 513.98834 Hz/cm

TBIIII10-Dept135(SKD)

Current Data Parameters

NAME TBIIII10-Dept1

EXPNO 1

PROCNO 1

F2 - Acquisition Parameters

Date_ 500000

Time 14.30

INSTRUM dpx300

PROBHD 5 mm Multinu

PULPROG dept135

TD 65536

SOLVENT CDCl3

NS 1311

DS 0

SWH 19607.844 Hz

FIDRES 0.299192 Hz

AQ 1.6712180 sec

RG 8192

DW 25.500 usec

DE 4.50 usec

TE 300.0 K

P1 6.20 usec

P2 12.4 usec

P3 10.10 usec

P4 20.2 usec

CNST2 142.0000000

d2 0.0035221 sec

dl2 0.0000200 sec

DELTA 0.0000079 sec

D1 5.0000000 sec

P12 -6.00 dB

SFO2 300.1310920 MHz

SFO1 75.4747101 MHz

NUC1 13C

PL1 -6.00 dB

PL12 16.00 dB

DE 4.50 usec

CDPRG2 waltz16

PCPD2 100.00 usec

F2 - Processing parameters

SI 65536

SE 75.4677408 MHz

WDM EM

SSB 0

LB 3.60 Hz

GB 0

PC 1.00

ID NMR plot parameters

CX 22.00 cm

F1P 149.817 ppm

F1 11306.39 Hz

F2P -6.009 ppm

F2 -453.46 Hz

PPMCM 7.08301 ppm/cm

HZCM 534.33851 Hz/cm

TBII121-1H (SKD)

1B11121-13C (SKD)

Current Data Parameters
 NAME 1B11121-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 11.13
 INSTRUM dpx300
 PROBN 5 mm Multinu
 PULPROG zgpg
 TD 66576
 SOLVENT CDCl3
 NS 1221
 DS 0
 SMH 21645.021 Hz
 FIDRES 0.250012 Hz
 AQ 1.9999557 sec
 RG 8192
 DM 23.100 usec
 DE 4.50 usec
 TE 300.0 K
 d11 0.030000 sec
 PL12 16.00 dB
 CPOPRG2 waltz16
 PCPD2 100.00 usec
 SF02 300.1314106 MHz
 NUC2 1H
 PL2 120.00 dB
 O1 1.00000000 sec
 P1 6.70 usec
 DE 4.50 usec
 SF01 75.4772724 MHz
 NUC1 13C
 PL1 -6.00 dB

F2 - Processing parameters
 S1 65536
 SF 75.4677626 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 FIP 215.040 ppm
 F1 16228.61 Hz
 F2p -5.666 ppm
 F2 -427.60 Hz
 PPMCH 10.03210 ppm/cm
 HZCM 757.10034 Hz/cm

TBII1121-Dept135 (SKD)

Current Data Parameters
NAME TBII1121-Dept1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 11.18
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG dept135
TO 65536
SOLVENT CDCl3
NS 1098
DS 0
SMH 19607.844 Hz
FIDRES 0.259192 Hz
AQ 1.5712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CHST2 142.0000000
d2 0.0035211 sec
d12 0.0002200 sec
DELTA 0.000079 sec
D1 5.0000000 sec
PL2 -6.00 dB
SF02 300.1310520 MHz
N1C2 1H
SF01 75.4747101 MHz
N1C1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
COPRPG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 170.423 ppm
F1 12861.41 Hz
F2P -6.009 ppm
F2 -453.46 Hz
PPHOM 8.01960 ppm/cm
HZCM 605.22125 Hz/cm

TB-III-111US (SR)

1B-111-111US (SR)

Current Data Parameters
NAME 1B11111US-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 16.23
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 86576
SOLVENT CDCl3
NS 1102
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing Parameters

SI 65536
SF 75.4677514 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR Plot Parameters

CX 22.00 cm
F1P 217.223 ppm
F1 16393.31 Hz
F2P -9.000 ppm
F2 -679.20 Hz
PNUCK 10.28285 ppm/cm
HZCM 776.02319 Hz/cm

TB-III-111LS-1H (SR)

TB-III-111LS-13C (SR)

C-1 diastereoisomer of 9b

Current Data Parameters
 NAME TBIII111LS-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 17.12
 INSTRUM dpx300
 PROBHD 5 mm MUltinu
 PULPROG zgpg
 TO 86576
 SOLVENT CDCl3
 NS 1854
 DS 0
 SMH 21645.021 Hz
 FIDRES 0.250012 Hz
 AQ 1.9999557 sec
 RG 8192
 DM 23.100 usec
 DE 4.50 usec
 TE 300.0 K
 d11 0.0300000 sec
 PL12 16.00 dB
 CDPRG2 waitz16
 PCPD2 100.00 usec
 SF02 300.1314106 MHz
 NUC2 1H
 PL2 120.00 dB
 D1 1.00000000 sec
 P1 6.70 usec
 DE 4.50 usec
 SF01 75.4772724 MHz
 NUC1 13C
 PL1 -6.00 dB

F2 - Processing parameters
 SI 65536
 SF 75.4677514 MHz
 NDM EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.00 cm
 F1P 178.839 ppm
 F1 13496.60 Hz
 F2P -4.888 ppm
 F2 -366.90 Hz
 PPMCM 8.35125 ppm/cm
 HZCM 630.24988 Hz/cm

TB-III-111LS-DEPT135 (SR)

Current Data Parameters
NAME TB11111LS-DEP
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 17.17
INSTRUM 5 mm NMR
PROBHD dpx300
PULPROG 5mmzgpg30
TO 65536
SOLVENT CDCl3
NS 1042
DS 0
SWH 19607.844 Hz
FIDRES 0.298192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
d4 142.000000
d2 0.003211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.00000000 sec
PL2 -6.00 dB
PL1 16.00 dB
NUC1 13C
NUC2 1H
SR01 75.4747101 MHz
SR02 300.1310920 MHz
PCPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 150.483 ppm
F1 11356.59 Hz
F2P -7.661 ppm
F2 -579.69 Hz
PPMCM 7.18927 ppm/cm
HZCM 542.55792 Hz/cm

TB-III-134-1H(SR)

TB-III-134-13C (SR)

Current Data Parameters
NAME TB-III-134-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 17.35
INSTRUM dpx300
PROBHD 5 mm MUltiNu
PULPROG zgpg
TD 66576
SOLVENT CDCl3
NS 1141
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.472724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677626 MHz
MDM EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 197.270 ppm
F1 14887.53 Hz
F2P -6.377 ppm
F2 -481.24 Hz
PPMCM 9.25667 ppm/cm
HZCM 698.58051 Hz/cm

TB-III-134-DEPT135 (SR)

Current Data Parameters

NAME TB-III-134-DEPT135

EXPNO 1

PROCNO 1

F2 - Acquisition Parameters

Date_ 500000

Time 17.38

INSTRUM 600300

PROBHD 5 mm Multinu

PULPROG deph135

TO 65536

SOLVENT COC13

NS 1046

DS 0

SH1 13607.844 Hz

FIDRES 0.259192 Hz

AQ 1.6712180 sec

RG 8192

DM 25.500 usec

DE 4.50 usec

TE 300.0 K

P1 6.20 usec

P2 12.4 usec

P3 10.10 usec

P4 20.2 usec

CNST2 142.0000000

d2 0.003211 sec

d12 0.0000200 sec

DELTA 0.0000079 sec

D1 5.0000000 sec

PL2 -6.00 dB

SF02 300.1310920 MHz

NUC2 1H

SF01 75.4747101 MHz

NUC1 13C

PL1 -6.00 dB

PL12 16.00 dB

DE 4.50 usec

CPDPRG2 wait216

PCPD2 100.00 usec

F2 - Processing parameters

SI 65536

SF 75.4677408 MHz

WDM EM

SSB 0

LB 3.60 Hz

GB 0

PC 1.00

1D NMR plot parameters

CX 22.00 cm

F1P 141.769 ppm

F1 10698.96 Hz

F2P -5.365 ppm

F2 -404.87 Hz

PPMCM 5.68788 ppm/cm

HZCM 504.71921 Hz/cm

TB-III-139-1H (SR)

TB-III-139-13C (SR)

Current Data Parameters
NAME TB-III-139-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 21.14
INSTRUM dpx300
PROBHD 5 mm WALTIN
PULPROG zgpg
TD 66576
SOLVENT CDCl3
NS 1089
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 192.294 ppm
F1 14512.03 Hz
F2P -6.377 ppm
F2 -81.24 Hz
PPMCM 9.03051 ppm/cm
HZCM 681.51221 Hz/cm

18-III-139-DEPT135 (SR)

Current Data Parameters
NAME 18-III-139-DE
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 21.15

INSTRUM 5 mm Nucleus
PROBHD dpx300
PULPROG dept135
TD 65536
SOLVENT CDCl3
NS 1035
DS 0

SMH 19607.844 Hz
FIDRES 0.259192 Hz
AQ 1.6712180 sec

RG 8192
DM 25.500 usec
DE 4.50 usec

TE 300.0 K
P1 6.20 usec
P2 12.4 usec

P3 10.10 usec
P4 20.2 usec
CNS12 142.0000000

d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec

D1 5.0000000 sec
PL2 -6.00 dB
SF02 300.1310920 MHz

NUC2 1H
SF01 75.4747101 MHz
NUC1 13C

PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec

CPDPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz

WDW EM
SSB 0
LB 3.60 Hz

GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
FJP 136.939 ppm

F1 10334.50 Hz
F2P -6.331 ppm
F2 -477.76 Hz
PPMCM 6.51227 ppm/cm
HZCM 491.46519 Hz/cm

TB-III-141-1H (SR)

TB-III-141-13C (SR)

Current Data Parameters
NAME TB-III-141-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.23
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TO 86576
SOLVENT CDCl3
NS 1987
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing Parameters
SI 65536
SF 75.4677626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 209.354 ppm
F1 15799.46 Hz
F2P -7.798 ppm
F2 -588.53 Hz
PPMCM 9.87055 ppm/cm
HZCM 744.90895 Hz/cm

1B-111-141-DEPT135 (SR)

Current Data Parameters
 NAME 1B-111-141-DEPT
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 19.28
 INSTRUM dpx300
 PROBRD 5 mm Multinu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1193
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.672180 sec
 RG 8192
 OR 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CDS12 142.0000000
 d2 0.0026211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 R12 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 P11 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDDPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 MDW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 FIP 137.905 ppm
 F1 10407.38 Hz
 F2P -5.365 ppm
 F2 -404.87 Hz
 PPMCH 6.51227 ppm/cm
 HZCH 491.46619 Hz/cm

TB-IV-77-1H (SR)

TB-IV-77-13C (SR)

TB-IV-77-DEPT135 (SI)

Current Data Parameters
NAME TB-IV-77-DEPT1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 18.46
INSTRUM gpc300
PROBHD 5 mm Multinu
PULPROG zgpg30
TO 38212
SOLVENT CDCl3
NS 1052
DS 0
SWH 19907.844 Hz
FIDRES 0.500047 Hz
AQ 0.9999560 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
PC 142.0000000
d2 0.0035211 sec
d12 0.0000260 sec
DELTA 0.0000079 sec
DT 5.0000000 sec
R12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
MUL1 13C
P11 -6.00 dB
P12 16.00 dB
DE 4.50 usec
CPOPRG2 waltz16
PCPO2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4676462 MHz
MOM EN
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 99.666 ppm
F1 7521.57 Hz
F2P -5.985 ppm
F2 -451.64 Hz
PPMKV 4.80231 ppm/cm
HZCM 362.41882 Hz/cm

TB-III-195-1H (SR)

TB-III-195-13C (SR)

Current Data Parameters
 NAME TB-III-195-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 20.44

INSTRUM dpx300
 PROCNO 5 mm Multinu

PULPROG zgpg
 TD 86576

SOLVENT CDCl3
 NS 1066

DS 0
 SM 21645.021 Hz

FIDRES 0.250012 Hz
 AQ 1.9999557 sec

RG 8192
 DM 23.100 usec

DE 4.50 usec
 TE 300.0 K

d11 0.0300000 sec
 PL12 16.00 dB

CPDPRG2 waltz16
 PCPD2 100.00 usec

SFO2 300.1314106 MHz
 NUC2 1H

PL2 120.00 dB
 D1 1.00000000 sec

P1 6.70 usec
 DE 4.50 usec

SFO1 75.4772724 MHz
 NUC1 13C

PL1 -6.00 dB
 F2 - Processing Parameters

SF 65536
 SI 75.4677626 MHz

MDM EM
 SSB 0

LB 0.30 Hz
 GB 0

PC 1.00
 1D NMR Plot Parameters

CX 22.00 cm
 F1P 194.846 ppm

F1 14704.60 Hz
 F2P -13.451 ppm

F2 -1015.10 Hz
 PPMCH 9.46804 ppm/cm

HZCH 714.53168 Hz/cm

1B-111-195-DEPT135 (SR)

Current Data Parameters
 NAME 1B-111-195-DEPT
 EXPNO 1
 PROCNO 1
 F2 - Acquisition Parameters
 Date_ 500000
 Time 20.46
 INSTRUM gpx300
 PROBR4 5 mm N411nu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 8
 DS 0
 SM 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST12 142.0000000
 d2 0.0035211 sec
 d12 0.0000000 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 P12 -6.00 dB
 SF02 300.1310920 MHz
 NUCE 1H
 SFO1 75.47101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CPOPRG2 waltz16
 PCPD2 100.00 usec
 F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 WDW EM
 SSB 0
 LB 3.50 Hz
 GB 0
 PC 1.00
 10 NMR plot parameters
 CX 22.00 cm
 FIP 149.833 ppm
 F1 11307.57 Hz
 F2p -11.254 ppm
 F2 -849.29 Hz
 PPMCH 7.32213 ppm/cm
 HZCH 552.58466 Hz/cm

TB-III-175P-13C (SR)

Current Data Parameters
NAME TB-III-175P-13
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.46

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg

TD 66576
SOLVENT CDCl3
NS 1081

DS 0
SMH 21645.021 Hz
FIDRES 0.250012 Hz

AQ 1.9999557 sec
RG 8192

DE 23.100 usec
TE 300.0 K

d11 0.030000 sec
PL12 16.00 dB

CPDPRG2 waltz16
PCPD2 100.00 usec

SFO2 300.1314106 MHz
NUC2 1H

PL2 120.00 dB
D1 1.00000000 sec

P1 6.70 usec
DE 4.50 usec

SFO1 75.4772724 MHz
NUC1 13C

PL1 -6.00 dB
F2 - Processing parameters

SI 65536
SF 75.4677626 MHz
WDW EM

SSB 0
LB 0.30 Hz
GB 0

PC 1.00
10 NMR plot parameters
CX 22.00 cm
FJP 200.113 ppm

F1 15102.10 Hz
F2P -13.130 ppm
F2 -990.86 Hz

PPMCM 9.69285 ppm/cm
HZCM 731.49792 Hz/cm

TB-III-175P-DEPT135 (SR)

Current Data Parameters
 NAME TB-III-175P-DE
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 19.49
 INSTRUM 5 mm Multinu
 PROBR4 600300
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1039
 DS 0
 SM 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CHST2 142.0000000
 d2 0.003211 sec
 d12 0.000200 sec
 DELTA 0.000079 sec
 O1 5.0000000 sec
 P12 -6.00 dB
 SFO2 300.1310520 MHz
 NUC2 1H
 SFO1 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CHPRG2 Waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 MDW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 FIP 88.646 ppm
 F1 6689.92 Hz
 F2P -12.126 ppm
 F2 -915.11 Hz
 PPMCM 4.58054 ppm/cm
 HZCM 345.88295 Hz/cm

1B-III-176A-1H (SR)

TB-111-176A-13C (SR)

Current Data Parameters
NAME TB-111-176A-13
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 18.39
INSTRUM dpx300
PROBHD 5 mm MUltinu
PULPROG zgpg
TD 66576
SOLVENT CDCl3
NS 1074
DS 0

SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K

PL12 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz

NUC2 1H
PL2 120.00 dB
P1 1.00000000 sec
DE 6.70 usec

SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters
SI 65536
SF 75.467527 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 188.165 ppm
F1 14200.42 Hz
F2P -11.527 ppm
F2 -869.93 Hz
PPMCM 9.07693 ppm/cm
HZCM 685.01569 Hz/cm

1B-111-176A-DEPT135 (SR)

Current Data Parameters

NAME	1B-111-176A-DE
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	18.42
INSTRUM	ddr300
PROBHD	5 mm Multinu
PULPROG	depr135
TD	65536
SOLVENT	CDCl3
NS	1053
DS	0
SWH	19607.844 Hz
FIDRES	0.299192 Hz
AQ	1.6712180 sec
RG	8192
DM	25.500 usec
DE	4.50 usec
TE	300.0 K
P1	6.20 usec
P2	12.4 usec
P3	10.10 usec
P4	20.2 usec
CNST12	142.0000000
d2	0.0035211 sec
d12	0.0000200 sec
DELTA	0.0000079 sec
D1	5.0000000 sec
PL2	-6.00 dB
SFO2	300.1310920 MHz
NUC2	13C
SFO1	75.4747101 MHz
NUC1	1H
PL1	-6.00 dB
PL12	16.00 dB
DE	4.50 usec
CPDPRG2	waltz16
PCPD2	100.00 usec

F2 - Processing Parameters

SI	65536
SF	75.4677408 MHz
WDW	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

10 NMR plot parameters

CX	22.00 cm
F1P	137.167 ppm
F1	10351.69 Hz
F2P	-10.504 ppm
F2	-800.27 Hz
PRGCM	6.71687 ppm/cm
HZCM	506.90732 Hz/cm

TB-111-198-1H (SR)

1B-III-198-13C (SR)

Current Data Parameters
NAME 1B-III-198-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 20.29
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TO 86576
SOLVENT CDCl3
NS 1329
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
wait16
PCPRG2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing parameters

SF 65536
SF 75.4677626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 193.771 ppm
F1 14623.43 Hz
F2P -8.790 ppm
F2 -653.37 Hz
PPMCM 9.20730 ppm/cm
HZCM 694.85443 Hz/cm

138.032
137.893
128.212
128.138
128.091
127.831
127.569
127.503
115.952
109.507

83.184
77.656
77.278
77.075
76.855
76.431
73.397
71.687
71.171
66.649

43.064
35.851
34.593
32.553
24.916
23.817
23.601

22c

TB-III-198-DEPT135 (SR)

Current Data Parameters
 NAME TB-III-198-DEP
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 20.45
 INSTRUM dpx300
 PROBHD 5 mm H111nu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1052
 DS 0
 SWH 19607.844 Hz
 FIDRES 0.289192 Hz
 AQ 1.6712180 sec
 RG 8192
 DE 25.500 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNUF2 142.000000
 d2 0.003211 sec
 d12 0.000200 sec
 DELTA 0.000079 sec
 D1 5.0000000 sec
 R12 -6.00 dB
 SF02 300.1310930 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 R11 -6.00 dB
 R12 16.00 dB
 DE 4.50 usec
 CROPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 KDM EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 F1P 135.786 ppm
 F1 104.7367 Hz
 F2P -5.177 ppm
 F2 -350.71 Hz
 PPMCM 6.54379 ppm/cm
 HZCM 433.84470 Hz/cm

TB-111-185-1H (SR)

1B-III-185-13C (SR)

Current Data Parameters
NAME 1B-III-185-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

F2 - Processing parameters
SI 65536
SF 75.4677626 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 211.056 ppm
F1 17437.29 Hz
F2P -8.073 ppm
F2 -609.25 Hz
PPMCM 10.86950 ppm/cm
HZCM 820.29724 Hz/cm

F2 - Acquisition Parameters
Date_ 500000
Time 17.22
INSTRUM dpX300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 86576
SOLVENT CDCl3
NS 1877
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.999957 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.472724 MHz
NUC1 13C
PL1 -6.00 dB

18-III-185-DEPT135 (SR)

Current Data Parameters
NAME 18-III-185-DEP
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 18.11
INSTRUM dpx300
PROBHD 5 mm MUltinu
PULPROG dept135
TD 65536
SOLVENT CCl3
NS 1078
DS 0
SWH 19607.844 Hz
FIDRES 0.259192 Hz
AQ 1.6712180 sec
RG 8192
DE 25.500 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
DNS12 142.000000
d2 0.003211 sec
d12 0.000200 sec
DELTA 0.000079 sec
D1 5.0000000 sec
P12 -6.00 dB
SFO2 300.1310920 MHz
NUC2 1H
SFO1 75.477101 MHz
NUC1 13C
P11 -6.00 dB
P12 16.00 dB
DE 4.50 usec
CPOPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 2" 30 cm
F1P 142.039 ppm
F1 10719.33 Hz
F2P -6.057 ppm
F2 -457.14 Hz
PPMCM 6.73164 ppm/cm
HZCM 508.02139 Hz/cm

1B-III-235B-1H (SR)

TB-III-235B-13C (SR)

Current Data Parameters
NAME TB-III-235B-13
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 20.48
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 65576
SOLVENT CDCl3
NS 1083
DS 0
SWH 21645.021 Hz
FIDRES 0.250012 Hz
AQ 1.9999557 sec
RG 8192
DM 23.100 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
PCPD2 waltz16
PCPD2 100.00 usec
SF02 300.132912 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 6.70 usec
DE 4.50 usec
SF01 75.4772724 MHz
NUC1 13C
PL1 -6.00 dB

F2 - Processing Parameters

SI 65536
SF 75.4677590 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 186.671 ppm
F1 14087.61 Hz
F2P -7.914 ppm
F2 -597.26 Hz
PPMCM 8.64476 ppm/cm
HZCM 667.49408 Hz/cm

TB-III-235B-DEPT135 (SR)

Current Data Parameters
 NAME TB-III-235B-DE
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 20.52
 INSTRUM 5 mm Multinu
 PROBRG 500135
 PULPROG zgpg30
 TO 65536
 SOLVENT CDCl3
 NS 1049
 DS 0
 SWH 19607.844 Hz
 FIDRES 0.259192 Hz
 AQ 1.6712180 sec
 RG 8192
 DE 25.500 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 DAST2 142.0000000
 d2 0.0035211 sec
 d12 0.000200 sec
 DELTA 0.000079 sec
 D1 5.0000000 sec
 R12 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CHRG2 100.00 usec
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.467408 MHz
 MDW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 FIP 136.812 ppm
 F1 10324.88 Hz
 F2P -4.331 ppm
 F2 -326.88 Hz
 PPMCM 5.41560 ppm/cm
 HZCM 484.17108 Hz/cm

TB/IV/79-1H (SKD)

TB/IV/79-13C (SKD)

Current Data Parameters
NAME TB/IV/79-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date 500000
Time 13.10
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TO 109152
SOLVENT CDCl3
NS 1507
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
waltz16
PCPD2 100.00 usec
SFO2 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SFO1 75.4766447 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters

SI 65536
SF 75.4676459 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 86.551 ppm
F1 6531.81 Hz
F2P -4.232 ppm
F2 -319.35 Hz
PPMCM 4.12649 ppm/cm
HZCM 311.41647 Hz/cm

TB/I/79-Dept135 (SKD)

Current Data Parameters
 Name TB/I/79-Dept1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 14.05
 INSTRUM dox300
 PROBR0 5 mm Multinu
 PULPROG zgpg30
 TO 98212
 SOLVENT DMS
 NS 1367
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.500047 Hz
 A0 0.9999560 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 DNST2 142.0000000
 d2 0.0035211 sec
 d12 0.0000000 sec
 DELTA 0.0000079 sec
 D1 5.0000000 sec
 P2 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CPOPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 85536
 SF 75.4676448 MHz
 WDW EN
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR Plot Parameters
 CX 22.00 cm
 F1P 86.927 ppm
 F1 6560.19 Hz
 F2P -5.742 ppm
 F2 -433.36 Hz
 PPMCH 4.21225 ppm/cm
 HZCM 317.88864 Hz/cm

TB/IV/35-13C (SKD)

Current Data Parameters

NAME	VALUE
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	14.33
INSTRUM	gdx300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	109152
SOLVENT	CDCl3
NS	1110
DS	0
SMH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7506804 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
D11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	Waltz16
PCPD2	100.00 usec
SFO2	300.1314106 MHz
NUC2	¹ H
PL2	120.00 dB
D1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4754845 MHz
NUC1	¹³ C
PL1	-1.00 dB

F2 - Processing parameters

SI	SI
65536	75.4677522 MHz
FM	0
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

SI	SI
22.00 cm	206.767 ppm
F1P	15604.21 Hz
F2P	-5.321 ppm
F2	-401.58 Hz
PCVCM	9.64035 ppm/cm
HZCM	727.53558 Hz/cm

TB/IV/35-Dept135 (SKD)

Current Data Parameters
NAME TB/IV/35-Dept1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 14.37
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 65536
SOLVENT CDCl3
NS 1050
DS 0
SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
DMSF2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 10.0000000 sec
P12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
P11 -6.00 dB
P112 16.00 dB
DE 4.50 usec
PROG2 zgpg30
PCPD2 100.00 usec

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 146.920 ppm
F1 11087.71 Hz
F2P -7.618 ppm
F2 -574.95 Hz
PPMCK 7.02447 ppm/cm
HZCK 530.12073 Hz/cm

ppm

129.085
128.693
128.389
127.731

78.241
71.914
67.000

38.699
36.569
35.962
34.774

25.222
24.126
23.857

TB-IV-41LS-1H (SR)

TB-IV-41LS-13C (SR)

Current Data Parameters
NAME TB-IV-41LS-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 15.02

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 109152
SOLVENT CDCl3
NS 1126
DS 0

SMH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K

PL12 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SFO2 300.1314106 MHz

NUC2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SFO1 75.4764845 MHz

NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters
SI 65536
SF 75.4677522 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 199.362 ppm
F1 15045.42 Hz
F2P -9.287 ppm
F2 -700.84 Hz
PPMCK 9.48404 ppm/cm
HZCM 715.73938 Hz/cm

ppm

29a

TB-IV-41LS-DEPT135 (SR)

Current Data Parameters
 NAME TB-IV-41LS-DEP
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 15.07
 INSTRUM dpx300
 PROBRD 5 mm Multinu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1057
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712168 sec
 RG 8192
 DM 23.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST12 142.0000000
 d2 0.0035211 sec
 d12 0.0002000 sec
 DELTA 0.0000779 sec
 O1 5.0000000 sec
 PL2 -6.00 dB
 SF02 300.1310920 MHz
 NUC1 1H
 NUC2 13C
 SF01 75.4747101 MHz
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDPRG2 Waltz16
 PCPD2 100.00 usec

F2 - Processing Parameters
 SI 65536
 SF 75.4677408 MHz
 MDW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 F1P 137.025 ppm
 F1 10341.89 Hz
 F2P -9.153 ppm
 F2 -690.73 Hz
 PP4CK 6.64488 ppm/cm
 HZCK 501.47312 Hz/cm

TB-IV-41US-1H (SR)

TB-IV-41US-13C (SR)

ppm

137.924
128.531
128.483
127.988
127.888
127.832

109.893

84.994
79.950
79.329
77.418
76.995
76.572
72.163
68.952
67.927

44.778
36.445
34.886
31.718
25.034
24.086
23.782

Current Data Parameters
NAME TB-IV-41US-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 15.19

INSTRUM gpX300
PROBHD 5 mm Multinu
PULPROG zgpg
TO 109152
SOLVENT CDCl3
NS 1464
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPOPRG2 waitz16
PCPD2 100.00 usec
SFO2 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SFO1 75.4764845 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters
SI 65536
SF 75.4677522 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 194.840 ppm
F1 14704.17 Hz
F2P -9.933 ppm
F2 -749.59 Hz
PPMCM 9.30787 ppm/cm
HZCM 702.44391 Hz/cm

TB-IV-4IUS-DEPT135 (SR)

Current Data Parameters
 NAME TB-IV-4IUS-DEP
 EXPNO 1
 PROCNO 1
 F2 - Acquisition Parameters
 Date_ 500000
 Time 15.47
 INSTRUM dpx300
 PROBRD 5 mm Multinu
 PULPROG dept135
 TO 65536
 SOLVENT CDCl3
 NS 1054
 DS 0
 SWH 19607.844 Hz
 FIDRES 0.29192 Hz
 AQ 1.6712180 sec
 RG 8192
 DE 25.500 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 DNST2 142.0000000
 d2 0.003211 sec
 d12 0.000200 sec
 DELTA 0.000079 sec
 D1 5.0000000 sec
 P12 -6.00 dB
 SFO2 300.1310920 MHz
 NUC2 1H
 SFO1 75.477101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDPRG2 wa1tz16
 PCPR2 100.00 usec
 F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 KW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00
 10 NMR plot parameters
 CX 22.00 cm
 F1P 141.184 ppm
 F1 10554.84 Hz
 F2P -5.642 ppm
 F2 -425.76 Hz
 PPMCM 6.67369 ppm/cm
 HZCM 503.66357 Hz/cm

TB/IV/64-1H (SKD)

TB/IV/64-13C (SKD)

Current Data Parameters

NAME	TBIV64-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	13.45
INSTRUM	gpcx300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	109152
SOLVENT	CDCl3
NS	1195
DS	0
SHH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7505604 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	1H
PL2	120.00 dB
O1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.476447 MHz
NUC1	13C
PL1	-1.00 dB

F2 - Processing parameters

SI	65536
SF	75.4677190 MHz
KDM	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	146.411 ppm
F1	11049.29 Hz
F2P	19.084 ppm
F2	1440.26 Hz
PPMCM	5.78756 ppm/cm
HZCM	436.77411 Hz/cm

TB, IV64-Dept135 (SKD)

Current Data Parameters
NAME TB, IV64-Dept1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 14.07
INSTRUM dpx300
PROBHD 5 mm W/ltinu
PULPROG dept135
TO 39212
SOLVENT CDCl3
NS 1256
DS 0
SWH 19507.844 Hz
FIDRES 0.500047 Hz
AQ 0.3999560 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNS12 142.0000000
d2 0.0035211 sec
d12 0.0002000 sec
DELTA 0.000079 sec
O1 5.0000000 sec
P12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
CPOPRG2 waltz16
PCPDZ 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
KON EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 134.364 ppm
F1 10140.12 Hz
F2P -6.009 ppm
F2 -453.46 Hz
PPOCM 6.38056 ppm/cm
HZCM 481.32043 Hz/cm

TB/1V/78-1H (SKD)

TB/IV/78-13C (SKD)

Current Data Parameters
NAME TB/IV/78-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 14.43
INSTRUM dpx300
PROBHD 5 mm WJ11nu
PULPROG zgpg30
TD 109152
SOLVENT CDCl3
NS 1303
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
D11 0.030000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.4766447 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters

SI 65536
SF 75.4676445 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 101.720 ppm
F1 7676.57 Hz
F2P -5.945 ppm
F2 -448.66 Hz
PPMCK 4.89386 ppm/cm
HZCK 369.32831 Hz/cm

TB/IV/78-Dept135 (SKD)

Current Data Parameters

NAME	TB/IV/78-Dept135
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	15.06
INSTRUM	dos300
PROBHD	5 mm Multinu
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	359
DS	0
SWH	19607.844 Hz
FIDRES	0.259192 Hz
AQ	1.6712180 sec
RG	8192
DM	25.500 usec
DE	4.50 usec
TE	300.0 K
P1	6.20 usec
P2	12.4 usec
P3	10.10 usec
P4	20.2 usec
CN2	142.000000
DE	0.0035211 sec
DE2	0.0000250 sec
DELTA	0.0000079 sec
D1	10.0000000 sec
P1.2	-6.00 dB
SFO2	300.1310920 MHz
NULC2	1H
SFO1	75.4747101 MHz
NULC1	13C
PL1	-6.00 dB
PL12	16.00 dB
DE	4.50 usec
CPDPRG2	waltz16
PCPD2	100.00 usec

F2 - Processing Parameters

SI	SI
65536	75.4676440 MHz
MM	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

1D NMR Plot Parameters

CX	F1P	F1	F2P	PPMCH	HZCH
22.00 cm	100.324 ppm	7571.21 Hz	-459.42 Hz	4.93629 ppm/cm	364.98325 Hz/cm

TBIV55-1H (SKD)

Current Data Parameters

NAME	VALUE
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	11:56
INSTRUM	dp300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	109152
SOLVENT	CDCl3
DS	1521
NS	0
SMH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7506804 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.030000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	¹³ C
PL2	120.00 dB
D1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4766447 MHz
NUC1	¹³ C
PL1	-1.00 dB

F2 - Processing parameters

SI	SI
65536	65536
SF	75.4677190 MHz
MDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	160.583 ppm
F1	12118.83 Hz
F2P	-7.370 ppm
F2	-556.19 Hz
PPMCM	7.63422 ppm/cm
HZCM	576.13696 Hz/cm

TBIV55-Dept135 (SKD)

Current Data Parameters
NAME TBIV55-Dept1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 12.00

INSTRUM dpx300
PROBHD 5 mm N/1Hnu
PULPROG dept135
TD 65536
SOLVENT CDCl3
NS 306
DS 0

SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNST2 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.000079 sec
DI 10.00000000 sec
P12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
CPDPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing Parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1p 135.438 ppm
F1 10221.26 Hz
F2p -5.961 ppm
F2 -449.65 Hz
PPMCH 6.42725 ppm/cm
HZCM 485.04993 Hz/cm

TB-IV-75-1H (SR)

TB-IV-75-13C (SR)

Current Data Parameters
NAME TB-IV-75-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 15.48

INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg30

TD 109152
SOLVENT CDCl3
NS 1157
DS 0

SMH 1984.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec

RG 8192
DM 25.200 usec
DE 4.50 usec

TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB

PCPDG2 waltz16
PCPD2 100.00 usec
SFO2 300.1314795 MHz

NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec

P1 10.50 usec
DE 4.50 usec
SFO1 75.4766447 MHz

NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters
SI 65536
SF 75.4676439 MHz

WDW EM
SSB 0
LB 0.30 Hz

GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 98.602 ppm

F1 7441.28 Hz
F2P -5.979 ppm
F2 -526.68 Hz
PPMCM 4.79914 ppm/cm
HZCM 362.18002 Hz/cm

18-IV-75-DEPT135 (SR)

Current Data Parameters
NAME 18-IV-75-DEPT1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 15.51
INSTRUM gpx300
PROBHD 5 mm Multinu
PULPROG dept135
TO 39212
SOLVENT CDCl3
NS 1060
DS 0
SWH 13607.844 Hz
FIDRES 0.500047 Hz
AQ 0.989560 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNS12 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
DI 5.0000000 sec
P12 -6.00 dB
NUC2 300.1310920 MHz
SFO1 1H
SFO2 75.4747101 MHz
NUC1 13C
PC1 -6.00 dB
PL1 -6.00 dB
PL2 4.50 usec
DE 4.50 usec
CHOPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters

SF 65536
SF 75.4676346 MHz
NOM EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 98.375 ppm
F1 7424.42 Hz
F2P -7.202 ppm
F2 -543.54 Hz
PPMCM 4.75914 ppm/cm
HZCM 362.17999 Hz/cm

NS-607A6-13C (SR)

Current Data Parameters
NAME NS-607A6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 18.50
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1078
DS 0
SMH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.476647 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677438 MHz
NOM EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 194.814 ppm
F1 14702.14 Hz
F2P -7.053 ppm
F2 -532.25 Hz
PPMCM 9.17574 ppm/cm
HZCM 692.47229 Hz/cm

NS-607A6-DEPT 135 (SR)

Current Data Parameters
 NAME NS-607A6-DEPT1
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
 Time 18.53
 INSTRUM 5 mm Multinu
 PROBHD 5 mm Multinu
 PULPROG dept135
 TO 39212
 SOLVENT CDCl3
 NS 1040
 DS 0

SMH 19607.844 Hz
 FIDRES 0.50047 Hz
 AQ 0.9999560 sec
 RG 8192

DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K

PI 6.20 usec
 P2 12.4 usec
 P3 10.10 usec

P4 20.2 usec
 CNU12 142.0000000
 d2 0.0035211 sec

d12 0.0000200 sec
 DELTA 0.0000079 sec

D1 5.0000000 sec
 R12 -6.00 dB

SF02 300.1310920 MHz
 NUC1 1H

SF01 75.477101 MHz
 NUC2 13C

PL1 -6.00 dB
 PL12 16.00 dB

DE 4.50 usec
 CDPRG2 Waltz16

PCPD2 100.00 usec

F2 - Processing parameters

SI 65536
 SF 75.4677408 MHz
 MDW EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

1D NMR plot parameters

CK 22.00 cm
 F1P 146.610 ppm
 F1 11054.34 Hz
 F2P -5.642 ppm
 F2 -425.76 Hz
 PPMCH 5.92054 ppm/cm
 HZCH 522.2728 Hz/cm

NS-2701A6-1H (SR)

NS-2701A6-13C (SR)

Current Data Parameters
NAME NS-2701A6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 15.02
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1158
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPRO2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.4764845 MHz
NUC1 13C
PL1 -1.00 dB

34c

F2 - Processing parameters

SI 65536
SF 75.4677513 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 221.983 ppm
F1 16752.58 Hz
F2P -8.629 ppm
F2 -651.19 Hz
PRGCM 10.48236 ppm/cm
HZCM 731.08032 Hz/cm

NS-2701A6-DEPT135 (SR)

Current Data Parameters

NAME	NS-2701A6-DEPT
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	15.11
INSTRUM	dpX300
PROBHD	5 mm Multinu
PULPROG	dept135
TD	65536
SOLVENT	CDCl3
NS	1061
DS	0
SMH	19607.844 Hz
FIDRES	0.299192 Hz
AQ	1.6712180 sec
RG	8192
DM	25.500 usec
DE	4.50 usec
TE	300.0 K

F2 - Processing Parameters

SI	65536
SF	75.4677408 MHz
WDW	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	138.631 ppm
F1	10462.13 Hz
F2P	-5.642 ppm
F2	-425.76 Hz
PPMCK	6.55782 ppm/l
HZCM	494.90421 Hz/cr

NS-704B6-1H (SR)

NS-704B6-13C (SR)

Current Data Parameters
NAME NS-704B6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 18.15
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1718
DS 0
SMH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CDPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.4756447 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing Parameters
SI 65536
SF 75.4677550 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 161.398 ppm
F1 12180.33 Hz
F2P -5.586 ppm
F2 -421.53 Hz
PPMCH 7.59017 ppm/cm
HZCM 572.81311 Hz/cm

NS-704B6-DEPT135 (SR)

ppm

126.964
126.503

78.259

67.003
66.646

39.502

36.227

34.986

34.906

25.265

24.074

23.884

ppm

Current Data Parameters
NAME NS-704B6-DEPT11
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 18.59
INSTRUM gp300
PROBHD 5 mm Multinu
PULPROG dept135
TO 38212
SOLVENT CDCl3
NS 1072
DS 0
SMH 19807.844 Hz
FIDRES 0.500047 Hz
AQ 0.9999560 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CHST2 142.0000000
d2 0.003521 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 1.0000000 sec
FL2 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
COPPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 137.035 ppm
F1 10341.69 Hz
F2P -8.833 ppm
F2 -666.64 Hz
PPOCKM 6.63037 ppm/cm
HZCM 500.37888 Hz/cm

NS-202A6-13C (SR)

Current Data Parameters
 NAME NS-202A6-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
 Time 15 26
 INSTRUM dpx300
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 TO 109152
 SOLVENT CDCl3
 NS 1108
 DS 0
 SMH 19841.270 Hz
 FIDRES 0.181777 Hz
 AQ 2.7506804 sec
 RG 8192
 DM 25.200 usec
 DE 4.50 usec
 TE 300.0 K
 D11 0.0300000 sec
 PL12 16.00 dB
 CPDPRG2 waltz16
 PCPD2 100.00 usec
 SF02 300.1314106 MHz
 NUC2 1H
 PL2 120.00 dB
 D1 1.00000000 sec
 P1 10.50 usec
 DE 4.50 usec
 SF01 75.4764845 MHz
 NUC1 13C
 PL1 -1.00 dB

F2 - Processing parameters

SI 65536
 SF 75.4677522 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

10 NMR plot parameters

CX 22.00 cm
 F1P 182.157 ppm
 F1 13746.98 Hz
 F2P -6.139 ppm
 F2 -463.33 Hz
 PPMCM 8.55893 ppm/cm
 HZCM 645.92328 Hz/cm

NS-202A6-DEPT 135 (SR)

Current Data Parameters

NAME	NS-202A6-DEPT11
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	15.38
INSTRUM	600300
PROBHD	5 mm Multinu
PULPROG	depl135
TD	65536
SOLVENT	CDCl3
NS	1058
DS	0
SWH	19607.844 Hz
FIDRES	0.259192 Hz
AQ	1.6712180 sec
RG	8192
DM	25.500 usec
DE	4.50 usec
TE	300.0 K
P1	6.20 usec
P2	12.4 usec
P3	10.10 usec
P4	20.2 usec
ONST2	142.0000000
d2	0.0035211 sec
d12	0.0000200 sec
DELTA	0.0000079 sec
D1	10.0000000 sec
P12	-6.00 dB
SFO2	300.1310920 MHz
NUC2	1H
SFO1	75.4747101 MHz
NUC1	13C
PL1	-6.00 dB
PL12	16.00 dB
DE	4.50 usec
CPDPRG2	waltz16
PCPD2	100.00 usec

F2 - Processing parameters

SI	65536
SF	75.4677408 MHz
WDW	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

10 NMR plot parameters

CX	22.00 cm
F1P	135.229 ppm
F1	10205.46 Hz
F2P	-5.281 ppm
F2	-398.53 Hz
PRMCK	6.38683 ppm/cm
HZCM	481.95994 Hz/cm

NS1602-1H (SKD)

NS1602A6-13C (SKD)

Current Data Parameters

NAME	EXPNO	PROCNO
NS1602A6-13C	1	1

F2 - Acquisition Parameters

Date_	Time
500000	11:41

INSTRUM 5 mm Multinu

PROBHD zgpg

PULPROG zgpg

TD 109152

SOLVENT CUC13

NS 1201

DS 0

SMH 19841.270 Hz

FIDRES 0.181777 Hz

AQ 2.7506804 sec

RG 8192

DM 25.200 usec

DE 4.50 usec

TE 300.0 K

d11 0.0300000 sec

PL12 16.00 dB

CPDPRG2 waitz16

PCPD2 100.00 usec

SFO2 300.1314106 MHz

NUC2 1H

PL2 120.00 dB

D1 1.00000000 sec

P1 10.50 usec

DE 4.50 usec

SFO1 75.4764845 MHz

NUC1 13C

PL1 -1.00 dB

F2 - Processing parameters

SI	SI
65536	65536

SF 75.4677522 MHz

WDW EM

SSB 0

LB 0.30 Hz

GB 0

PC 1.00

10 NMR plot parameters

CX	F1p	F2p	PPMCM	HZCM
22.00 cm	175.752 ppm	13653.64 Hz	-6.139 ppm	-463.33 Hz
			8.26781 ppm/cm	623.95312 Hz/cm

NS1602A6-Dept135 (SKD)

Current Data Parameters
NAME NS1602A6-DEPT135
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 12 01
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG dept135
TD 65536
SOLVENT CDCl3
NS 1108
DS 0
SMH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec

77.3246
76.6489
68.7820
67.9348
66.8816
66.7592
53.9918
52.9937
51.9775
49.8707
38.3203
37.7388
36.3219
36.1222
35.2080
34.6724
30.8081
29.5173
28.9265
27.1486
25.2235
24.0434
23.9037
23.8354
21.3208
21.2598

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 139.344 ppm
F1 10515.94 Hz
F2P -6.230 ppm
F2 -470.18 Hz
PPMCH 6.51599 ppm/cm
HZCH 493.35929 Hz/cm

NS-0103A6-1H (SR)

NS-0103A6-13C (SR)

Current Data Parameters
 NAME NS-0103A6-13C
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 20.07
 INSTRUM dpX300
 PROBHD 5 mm Maltinu
 PULPROG zgpg30
 TO 109152
 SOLVENT CDCl3
 NS 1242
 DS 0
 SMH 19841.270 Hz
 FIDRES 0.181777 Hz
 AQ 2.7506804 sec
 RG 8192
 DM 25.200 usec
 DE 4.50 usec
 TE 300.0 K
 d11 0.0300000 sec
 PL12 16.00 dB
 CPDPRG2 waltz16
 PCPD2 100.00 usec
 SF02 300.1314106 MHz
 NUC2 1H
 PL2 120.00 dB
 O1 1.00000000 sec
 P1 10.50 usec
 DE 4.50 usec
 SF01 75.4764845 MHz
 NUC1 13C
 PL1 -1.00 dB

F2 - Processing Parameters
 SI 65536
 SF 75.4677506 MHz
 MDN EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 22.00 cm
 F1P 188.543 dpm
 F1 14228.88 Hz
 F2P -6.604 dpm
 F2 -498.41 Hz
 PMCH 8.87031 dpm/cm
 HZCM 659.42218 Hz/cm

NS-0103A6-DEPT135 (SR)

Current Data Parameters
 Name: NS-0103A6-DEPT1
 EXPNO: 1
 PROCNO: 1
 F2 - Acquisition Parameters
 Date_: 500000
 Time: 20.22
 INSTRUM: dpx300
 PROBNM: 5 mm Multinu
 PULPROG: dept135
 TO: 65536
 SOLVENT: CDCl3
 NS: 1050
 DS: 0
 SMH: 15607.844 Hz
 FIDRES: 0.299192 Hz
 AQ: 1.6712180 sec
 RG: 8192
 DM: 25.500 usec
 DE: 4.50 usec
 TE: 300.0 K
 P1: 6.20 usec
 P2: 12.4 usec
 P3: 10.10 usec
 P4: 20.2 usec
 DNST2: 142.0000000
 d2: 0.0035211 sec
 d12: 0.0000200 sec
 DELTA: 0.0000079 sec
 D1: 5.0000000 sec
 R12: -6.00 dB
 SF02: 300.1310920 MHz
 NUC2: ¹H
 SF01: 75.4747101 MHz
 NUC1: ¹³C
 PL1: -6.00 dB
 PL12: 16.00 dB
 DE: 4.50 usec
 CDPRG2: waltz16
 PCPD2: 100.00 usec
 F2 - Processing parameters
 SI: 65536
 SF: 75.4677408 MHz
 WDM: EN
 SSB: 0
 LB: 3.60 Hz
 GB: 0
 PC: 1.00
 10 MHz plot parameters
 CX: 22.00 cm
 F1P: 87.036 ppm
 F1: 65681.43 Hz
 F2P: -5.365 ppm
 F2: -404.87 Hz
 PPMCM: 4.20005 ppm/cm
 HZCM: 316.96808 Hz/cm

NS-2002C6-1H (SR)

NS-2002C6-13C (SR)

Current Data Parameters
NAME NS-2002C6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 19.13
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1194
DS 0
SMH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314106 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.476485 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters
SI 65536
SF 75.467522 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 182.332 DPM
F1 13760.21 Hz
F2P -8.579 DPM
F2 -647.45 Hz
DPMCM 8.67780 DPM/cm
H1CM 654.89374 Hz/cm

NS-2002C6-DEPT135 (SR)

Current Data Parameters
 NAME NS-2002C6-DEPT
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 19.23
 INSTRUM 5 mm Multinu
 PROBHD 5 mm Multinu
 PULPROG zgpg30
 DEPT135
 TO 65536
 SOLVENT CDCl3
 NS 1053
 DS 0
 SMH 19607.844 Hz
 FIDRES 0.299192 Hz
 AQ 1.6712180 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 CNST2 142.000000
 d2 0.0035211 sec
 d12 0.0000200 sec
 DELTA 0.0000079 sec
 D1 10.0000000 sec
 PL1 -5.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4717101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CPDPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 KW FM
 SSF 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR Plot Parameters
 CX 22.00 cm
 F1P 147.242 DPM
 F1 11112.01 Hz
 F2P -7.940 DPM
 F2 -599.24 Hz
 PPMCH 7.05374 DPM/cm
 HZCM 532.32965 Hz/cm

NS-1705A6-1H (SR)

NS-1705A6-13C (SR)

Current Data Parameters

NAME	NS-1705A6-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	19.35
INSTRUM	5 mm Multinu
PROBHD	290C
PULPROG	zgpg
TD	109152
SOLVENT	CDCl3
NS	1122
DS	0
SMH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7506804 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	1H
PL2	120.00 dB
O1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4766447 MHz
NUC1	13C
PL1	-1.00 dB

F2 - Processing parameters

SI	65536
SF	75.4677523 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CK	22.00 cm
F1P	186.735 ppm
F1	14092.48 Hz
F2P	-6.457 ppm
F2	-487.29 Hz
PPMCKM	8.78146 ppm/cm
HZCM	662.71680 Hz/cm

NS-1705A6-DEPT135 (SR)

Current Data Parameters
 NAME NS-1705A6-DEPT
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 500000
 Time 19.40
 INSTRUM dpx300
 PROBHD 5 mm N/11nu
 PULPROG zgpg30
 TO 39212
 SOLVENT CDCl3
 NS 1047
 DS 0
 SWH 19507.844 Hz
 FIDRES 0.50047 Hz
 AQ 0.999560 sec
 RG 8192
 DM 25.500 usec
 DE 4.50 usec
 TE 300.0 K
 P1 6.20 usec
 P2 12.4 usec
 P3 10.10 usec
 P4 20.2 usec
 ONST2 142.000000
 d2 0.003521 sec
 d12 0.000020 sec
 DELTA 0.000079 sec
 D1 5.000000 sec
 R1.2 -6.00 dB
 SF02 300.1310920 MHz
 NUC2 1H
 SF01 75.4747101 MHz
 NUC1 13C
 PL1 -6.00 dB
 PL12 16.00 dB
 DE 4.50 usec
 CDPRG2 waltz16
 PCPD2 100.00 usec

F2 - Processing parameters
 SI 65536
 SF 75.4677408 MHz
 MOH EM
 SSB 0
 LB 3.60 Hz
 GB 0
 PC 1.00

10 NMR plot parameters
 CX 22.00 cm
 F1P 144.022 ppm
 F1 10869.04 Hz
 F2P -4.721 ppm
 F2 -356.27 Hz
 PRINCM 6.76105 ppm/cm
 HZCM 510.24130 Hz/cm

NS-1905A6-1H (SR)

NS-1905A6-13C (SR)

Current Date Parameters
NAME NS-1905A6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 19.54
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1078
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.0300000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.4766447 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters

SF 65536
SF 75.4677529 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 159.740 ppm
F1 12055.19 Hz
F2P -5.154 ppm
F2 -386.97 Hz
PPMCM 7.49517 ppm/cm
HZCM 565.64362 Hz/cm

NS-1905A6-DEPT135 (SR)

Current Data Parameters
NAME NS-1905A6-DEPT1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date- 500000
Time 20.00
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG gpcp135
TO 65536
SOLVENT CDCl3
NS 275
DS 0
SWH 19607.844 Hz
FIDRES 0.239192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNS12 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 10.0000000 sec
P2 6.00 dB
SF02 300.1310920 MHz
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
wait216
PCP02 100.00 usec

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR Plot parameters

CX 22.00 cm
F1P 138.549 ppm
F1 10455.98 Hz
F2P -7.256 ppm
F2 -550.65 Hz
PPMCH 6.62934 ppm/cm
HZCM 500.30151 Hz/cm

NS-906A6-1H (SR)

NS-906A6-13C (SR)

Current Data Parameters
NAME NS-906A6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 16.47
INSTRUM dpx300
PROBHD 5 mm Multinu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1229
DS 0
SWH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPOPRG2 waltz16
PCPD2 100.00 usec
SF02 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.476647 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters
SI 65536
SF 75.4677520 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 190.830 ppm
F1 14401.51 Hz
F2P -7.160 ppm
F2 -540.38 Hz
PPMCM 8.9956 ppm/cm
HZCM 679.17670 Hz/cm

NS-906A6-DEPT135 (SR)

Current Data Parameters
NAME NS-906A6-DEPT1
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 17.00

INSTRUM gpc300
PROBHD 5 mm Multi-nu
PULPROG dept135
TO 39212
SOLVENT CDCl3
NS 1075

DS 0
SMH 19607.844 Hz
FIDRES 0.500047 Hz
AQ 0.9999560 sec
RG 8192

DW 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec

CKS12 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
P12 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
CROPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters
CX 22.00 cm
F1P 139.269 ppm
F1 10510.31 Hz
F2P -5.961 ppm
F2 -449.85 Hz
PPMCM 6.60135 ppm/cm
HZCM 498.18896 Hz/cm

ppm
130.562
128.521
128.437
128.377
128.137
127.977
127.766
127.631
127.410

80.977
77.789
76.381
76.259
75.548
73.744
73.615
72.464
72.247
71.738
67.677

38.975
36.678
35.364
28.946
25.341
24.173
23.993

NS-2206A6-1H (SR)

NS-2206A6-13C (SR)

Current Data Parameters
NAME NS-2206A6-13C
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 18.03
INSTRUM dpx300
PROBHD 5 mm Mj11nu
PULPROG zgpg
TD 109152
SOLVENT CDCl3
NS 1637
DS 0
SMH 19841.270 Hz
FIDRES 0.181777 Hz
AQ 2.7506804 sec
RG 8192
DM 25.200 usec
DE 4.50 usec
TE 300.0 K
d11 0.030000 sec
PL12 16.00 dB
CPOPRG2 mslz16
PCPD2 100.00 usec
SFQ2 300.1314795 MHz
NUC2 1H
PL2 120.00 dB
D1 1.00000000 sec
P1 10.50 usec
DE 4.50 usec
SF01 75.476447 MHz
NUC1 13C
PL1 -1.00 dB

F2 - Processing parameters

SI 65536
SF 75.4677520 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 22.00 cm
F1P 205.041 ppm
F1 15474.01 Hz
F2P -7.806 ppm
F2 -589.13 Hz
PPMCM 9.67490 ppm/cm
HZCM 730.14270 Hz/cm

NS-2206A6-DEPT 135 (SR)

Current Data Parameters
NAME NS-2206A6-DEPT
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 500000
Time 18.40
INSTRUM 5 mm Multinu
PROBHD 5 mm Multinu
PULPROG dept135
TD 65536
SOLVENT CDCl3
NS 350
DS 0
SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712180 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CONST 142.000000
d2 0.003211 sec
d12 0.000200 sec
DELTA 0.000079 sec
D1 10.0000000 sec
PL2 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.474101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
CPDPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing Parameters
SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 22.00 cm
F1P 144.376 ppm
F1 10895.72 Hz
F2P -8.195 ppm
F2 -618.47 Hz
PPMCM 6.93504 ppm/cm
HZCM 523.37213 Hz/cm

NS-2606A6-1H (SR)

NS-2606A6-13C (SR)

Current Data Parameters

NAME	NS-2606A6-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	18.13
INSTRUM	gpc300
PROBHD	5 mm Multinu
PULPROG	zgpg30
TD	109152
SOLVENT	D2O
NS	1625
DS	0
SMH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7506904 sec
RG	8192
DM	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.0300000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	¹³ H
PL2	120.00 dB
D1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4766447 MHz
NUC1	¹³ C
PL1	-1.00 dB

F2 - Processing parameters

SI	65536
SF	75.4676433 MHz
WDW	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	166.026 ppm
F1	12529.59 Hz
F2P	-5.503 ppm
F2	-422.89 Hz
PPMCM	7.50132 ppm/cm
HZCM	588.74731 Hz/cm

NS-2606A6-DEPT135 (SR)

Current Data Parameters
NAME NS-2606A6-DEPT
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 19.36
INSTRUM 5 mm Multinu
PROBHD 5 mm Multinu
PULPROG dept135
TO 39212
SOLVENT MeOH
NS 2216
DS 0
SWH 19607.844 Hz
FIDRES 0.500047 Hz
AQ 0.9999560 sec
RG 8192
DM 25.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
D1 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.0000000 sec
P1.2 -6.00 dB
SF02 300.1310920 MHz
NUC2 ¹H
SF01 75.4747101 MHz
NUC1 ¹³C
P1.1 -6.00 dB
P1.2 16.00 dB
DE 4.50 usec
CROSSPO2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
WDW EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters

CX 22.00 cm
F1P 81.926 ppm
F1 6182.79 Hz
F2P -4.097 ppm
F2 -309.17 Hz
PNUCH 3.91013 ppm/cm
NCHM 295.00881 Hz/cm

NS-2806A6-1H (SR)

NS-2806A6-13C (SR)

Current Data Parameters

NAME	NS-2806A6-13C
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	500000
Time	18.09
INSTRUM	dot300
PROBHD	5 mm Multinu
PULPROG	zgpg
TD	109152
SOLVENT	CDCl3
NS	1644
DS	0
SMH	19841.270 Hz
FIDRES	0.181777 Hz
AQ	2.7506804 sec
RG	8192
DW	25.200 usec
DE	4.50 usec
TE	300.0 K
d11	0.030000 sec
PL12	16.00 dB
CPDPRG2	waltz16
PCPD2	100.00 usec
SFO2	300.1314795 MHz
NUC2	¹³ C
PL2	120.00 dB
O1	1.00000000 sec
P1	10.50 usec
DE	4.50 usec
SFO1	75.4756447 MHz
NUC1	¹³ C
PL1	-1.00 dB

F2 - Processing Parameters

SI	65536
SF	75.4677390 MHz
MDM	EM
SSB	0
LB	0.30 Hz
GB	0
PC	1.00

1D NMR plot parameters

CX	22.00 cm
F1P	197.978 ppm
F1	14186.26 Hz
F2P	-9.605 ppm
F2	-724.90 Hz
PPMCM	8.98105 ppm/cm
HZCM	677.78003 Hz/cm

NS-2806A6-DEPT135 (SR)

Current Data Parameters

NAME	NS-2806A6-DEPT
EXPNO	1
PROCNO	1

F2 - Acquisition Parameters

Date_	Time
500000	18.48
INSTRUM	gdx300
PROBHD	5 mm Multinu
PULPROG	dept135
TD	65536
SOLVENT	CDCl3
NS	301
DS	0
SWH	19607.844 Hz
FIDRES	0.299192 Hz
AQ	1.6712180 sec
RG	8192
DW	25.500 usec
DE	4.50 usec
TE	300.0 K
P1	6.20 usec
P2	12.4 usec
P3	10.10 usec
P4	20.2 usec
CNSTR2	142.0000000
d2	0.0035211 sec
d12	0.0000200 sec
DELTA	0.0000079 sec
D1	10.0000000 sec
PL2	-6.00 dB
SFO2	300.1310920 MHz
NUC2	1H
SFO1	75.4747101 MHz
NUC1	13C
PL1	-6.00 dB
PL12	16.00 dB
DE	4.50 usec
OPPGC2	waitz16
PCPD2	100.00 usec

F2 - Processing parameters

SI	55536
SF	75.4677408 MHz
MDW	EM
SSB	0
LB	3.60 Hz
GB	0
PC	1.00

10 NMR plot parameters

CX	22.00 cm
F1P	80.798 ppm
F1	6097.61 Hz
F2P	-8.762 ppm
F2	-661.25 Hz
PPMCM	4.07089 ppm/cm
HZCM	307.22067 Hz/cm

TB-III-111US-DEPT135 (SR)

Current Data Parameters
NAME TB11111US-DEP
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 16.27
INSTRUM 5 mm Multinu
PROBHD dpx300
PULPROG dept135
TD 65536
SOLVENT CDC13
NS 1043
DS 0
SWH 19607.844 Hz
FIDRES 0.299192 Hz
AQ 1.6712160 sec
RG 8192
DM 23.500 usec
DE 4.50 usec
TE 300.0 K
P1 6.20 usec
P2 12.4 usec
P3 10.10 usec
P4 20.2 usec
CNS12 142.0000000
d2 0.0035211 sec
d12 0.0000200 sec
DELTA 0.0000079 sec
D1 5.00000000 sec
PL2 -6.00 dB
SF02 300.1310920 MHz
NUC2 1H
SF01 75.4747101 MHz
NUC1 13C
PL1 -6.00 dB
PL12 16.00 dB
DE 4.50 usec
COPRG2 waltz16
PCPD2 100.00 usec

F2 - Processing parameters

SI 65536
SF 75.4677408 MHz
KHM EM
SSB 0
LB 3.60 Hz
GB 0
PC 1.00

10 NMR plot parameters

CK 22.00 cm
F1P 147.235 ppm
F1 11111.49 Hz
F2P -6.057 ppm
F2 -457.14 Hz
PNUCM 6.96763 ppm/cm
HZCM 525.84674 Hz/cm