General: NMR experiments were conducted on a Bruker WM-300 (300 MHz for ^{1}H and 75.4 MHz para ^{13}C), a Bruker DPX-250 (250 MHz for ^{1}H and 62.8 MHz para ^{13}C) or a Bruker WM-500 (500 MHz for ^{1}H) spectrometer, in $CDCl_3$ solutions unless otherwise stated. The following abbreviations are used: s (singlet), t (triplet), q (quartet) an m (multiplet). Infrared spectra were recorded on a MIDAC Prospect-IR spectrometer. Mass spectra were recorded using direc insertion probe on a Hewlett Packard 5988A in EI mode. High resolution mass spectra were recorded on a Kratos MS-50 spectrometer. Melting points were recorded on a Köfler-Thermogerate apparatus and are uncorrected. Chemicals were purchased from Aldrich or Avocado. Dry solvents were distilled according to standard procedures prior to use. Column chromatography was performed on 60 Merck 230-400 mesh sílica (flash, 0.04-0.063).

3-*O*-Benzyl-6-desoxy-1,2-*O*-isopropylidene-6-nitro-D,L-*glycero*-α-D-*gluco*heptofuranose (2): A 1M solution of tetrabutylammonium fluoride in THF (0.33 mL) was added to a solution of the furonose **1** (0.18 g) and 2-nitroethanol (0.06 mL) in THF (7 mL) and the resulting mixture was stirred at rt under argon for 10 h. The solvent was evaporated *in vacuo*, the residue was dissolved in dichloromethane (250 mL) and the solution was washed with water (3 x 125 mL) and concentrated to dryness *in vacuo*. The resulting gum was purified by flash column chromatography (eluant: ethyl acetate/hexane 1:2) to give the title compound (0.18 g, 75% yield) as a mixture of epimers. Spectroscopic data for the epimeric mixture **2**: IR (ν, cm^{-1}, NaCl): 3468 (-OH); 1567, 1376 (-NO_2). ^{1}H-NMR (250 MHz, $CDCl_3$): 1.26, 1.41 (2 x s, 12 H, 4 x -CH_3), 2.49-2.52 (m, 2 H, 2 x -OH), 2.59 (d, 1 H, J = 6.2 Hz, -OH), 2.75 (d, 1 H, J = 7.0 Hz, -OH), 4.04-4.71 (m, 18 H), 5.85 (d, 1 H, $J_{1,2}$ = 3.7 Hz, H-1), 5.87 (d, 1 H, $J_{1',2'}$ = 3.7Hz, H-1'), 7.19-7.34 (m, 10 H, 10 x Ar-H). ^{13}C-NMR (62.8 MHz, $CDCl_3$); 26.01, 26.15, 26.62, 59.58, 61.37, 67.51, 68.66, 72.09, 72.18, 79.20, 79.40, 80.87, 81.12, 81.58, 81.84, 87.99, 89.80, 104.97, 105.03, 112.06, 112.21, 127.73, 127.77, 128.06, 128.13, 128.51, 128.56, 136.80, 136.87. MS (*m/z*, %): 354 (M^+–15, 0.2), 249 (1), 157 (1), 113 (3), 91 (100).

3,5,7-Tri-*O*-benzyl-6-desoxy-1,2-*O*-isopropylidene-6-nitro-D,L-*glycero*-α-D-*gluco*heptofuranose (3).- A mixture of benzyl-2,2,2-trichloroacetimidate (1 mL, 5.39 mmol) andtrifluoromethanesulphonic acid (0.03 mL) in dry cyclohexane (8 mL) was added to a solution of compound **2** (0.5 g, 0.35 mmol) in dry dichloromethane (4 mL). The resulting mixture was stirred at rt for 16 h under argon and filtered, and the filtrate washed with saturated aqueous sodium bicarbonate solution (1 x 60 mL) and water (1 x 60 mL). The organic layers were dried with anhydrous sodium sulphate, filtered and the solvent evaporated *in vacuo*. The residue was submitted to flash column chromatography (eluant: ethyl ether/hexane. 2:11 → 1:3) to give the title compound (0.34 g, 46% yield) as a yellow oil. Spectroscopic data for the epimeric mixture **3**: IR (ν, cm^{-1}, NaCl): 1556, 1373 (-NO$_2$). ^{1}H-NMR (250 MHz, CDCl$_3$): 1.23, 1.35 (2 x s, 6 H, 2 x -CH$_3$), 3.83-4.59 (m, 12 H), 5.02-5.08 (m, 1 H,), 5.83 (d, 1 H, $J_{1,2}$ = 3.6 Hz, H-1), 7.04-7.27 (m, 15 H, 15 x Ar-H). MS (*m/z*, %): 352 (M$^+$- 2 x -OBn-15, 0.1), 279 (0.4), 249 (1), 181 (21), 129 (5), 91 (100).

3,5,7-Tri-*O*-benzyl-6-desoxy-6-nitro-D,L-*glycero*-α-D-*gluco*heptofuranose (**4**): A solution of compound **3** (0.14 g, 0.25 mmol) in trifluoroacetic acid/dioxane/water (1:1:1, 9 mL) was stirred at rt for 48 h. The solvent was evaporated *in vacuo* and the residue was coevaporated with toluene (3 x 5 mL) to give the title compound as a clear gum, which was directly used in the next transformation.

(1*R*,2*S*,3*R*,4*R*,5*R*,6*R*)-6-Benzyloxymethyl-3,5-dibenzyloxy-1,2,4-trihydroxy-6-nitrociclohe-xane (**5**).- A 2% aqueous solution of sodium bicarbonate (3 mL) was added to a solution of the compound **4** in methanol (9 mL) and the mixture was stirred at rt for 14 h. The reaction mixture was then acidified up to pH=6 with DOWEX 50W resin, filtered and the solvent evaporated *in vacuo*. The residue was submitted to flash column chromatography (eluant: 4:9 ethyl acetate/hexane) to give compound **5** (0.042 g, 33% over the last two steps) as a solid. Mp 119–122 °C (ethyl acetate/hexane). $[\alpha]_D^{21}$ –8.2° (c 1.0 in CHCl$_3$). IR (ν, cm^{-1}, NaCl): 3528, 3462 (-OH); 1544,1368 (-NO$_2$). ^{1}H-NMR (500 MHz, Cl$_3$CD): 2.32 (d, 1 H, J = 3.0 Hz, -OH), 2.81 (bs, 1 H, -OH), 3.25 (d, 1 H, J = 3.8 Hz, -OH), 3.70-3.82 (m, 4 H, 2 x -CHPh, H-3 and H-7), 3.79 (d, 1 H, $J_{7,7'}$ = 9.1 Hz, H-7'), 4.51 (d, 1 H, $J_{1,2}$=10.6 Hz, H-2), 4.54-4.61 (m, 4 H, 4 x -CHPh), 4.71 (d, 1 H, $J_{4,5}$=11.3 Hz, H-4), 4.83 (d, 1 H, $J_{1,2}$= 10.6 Hz, H-1), 5.02 (d, 1 H, $J_{4,5}$= 11.3 Hz, H-5), 7.18-7.38 (m, 15 H, 15 x Ar-H).^{13}C-NMR (75.4 MHz, Cl$_3$CD): 68.93, 71.35, 72.44, 74.07, 74.72, 74.93, 76.56, 79.91, 80.15, 93.76, 127.76, 127.87, 127.93, 128.08, 128.26, 128.36, 128.68, 136.46, 137.67, 138.32. MS (*m/z*, %): 418

(M^+ - CH_2Ph, 20), 265 (1), 181 (5), 107(5), 91 (100). EA: calculated for $C_{28}H_{31}NO_8$, C: 66.00, H: 6.13, N: 2.75. found, C: 65.82, H: 6.12, N: 2.43.

(1*R*,2*R*,3*S*,4*R*,5*R*,6*S*)- 1,2,4-triacetoxy-6-benzyloxymethyl-3,5-dibenzyloxy-6-nitrociclohexane (**6**).- *p*-Toluenesulphonic acid (34 mg, 0.02 mmol) was added to a solution of the cyclohexane **5** (200 mg, 0.39 mmol) in acetic anhydride (15 mL) and the mixture was stirred at rt for 72 h. The reaction mixture was then evaporated *in vacuo* and coevaporated with toluene (3 x 1 mL) to remove traces of acetic acid. The residue was submitted to flash column chromatography (eluent: 1:4 ethyl acetate/hexane) to give the title compound (200 mg, 81% yield) as a clear oil. $[\alpha]_D^{24}$ –20.6° (c 3.7 in CHCl3). ^{1}H-NMR (500 MHz, Cl_3CD): 1.94, 1.96, 1.97 (3 x s, 9 H, 3 x –$COCH_3$), 3.94 (d, 1 H, $J_{7,7'}$ = 10.2 Hz, H-7), 4.03 (d, 1 H, $J_{7,7'}$ = 10.2 Hz, H-7'), 4.18 (t, 1 H, $J_{4,3} = J_{2,3}$ = 10.0 Hz, H-3), 4.47-4.77 (m, 7 H, 3 x -CH_2Ph and H-1), 5.47 (dd, 1 H, $J_{1,2}$ = 2.2 Hz, $J_{2,3}$ = 10.0 Hz, H-2), 5.60 (dd, 1 H, $J_{4,5}$ = 9.6 Hz, $J_{4,3}$ =0.0 Hz, H-4), 6.10 (d, 1 H, $J_{4,5}$ = 9.6 Hz, H-5), 7.20-7.45 (m, 15 H, 15 x Ar-H). ^{13}C-NMR (62.8 MHz, Cl_3CD): 21.02, 21.17, 69.15, 70.39, 73.03, 73.87, 74.60, 75.10, 77.06, 77.18, 80.88, 92.41, 128.26, 128.52, 128.65, 128.89, 128.92, 129.03, 136.72, 137.25, 138.45, 169.42, 170.23, 170.46.

(1*R*,2*R*,3*R*,4*S*,5*R*,6*R*)- 1-benzyloxymethyl-2,4-dibenzyloxy-3,5,6-triethoxyethyl-1-nitrociclohexane (**7**).-Ethylvinylether (0.45 g, 6.28 mmol) and a catalytic amount of pyridinium *p*-toluensulfonate (0.03 g) were added over a solution of the cyclohexane **6** (0.12 g, 0.24 mmol) in dry dichloromethane (15 mL), and the mixture was refluxed at rt under argon for 2.5 h. This mixture was then added over a mixture of water and dichloromethane (25+15 mL), the organic layers were separated and the aqueous phase was extracted with dichloromethane (2x15 mL). The combined organic layers were washed saturated aq. sodium bicarbonate (30 mL) and brine (30 mL), dried with anhydrous sodium sulphate and concentrated to dryness *in vacuo*. The solid residue was submitted to flash column chromatography (ethyl ether/hexane 1:4) and the title compound was isolated (0.45 g, 70% yield) as a complex mixture of isomers.

1D-1-Benzyloxymethyl-2,4-di-*O*-benzyl-3,5,6-tri-*O*-ethoxyethyl-*myo*-inositol (**8**).- Tributyltin hydride (0.41 g, 1.42 mmol) and a catalytic amount of AIBN (34 mg, 0.21 mmol) were added over a deoxygenated solution of cyclohexane **7** (99 mg, 0.14 mmol) in dry toluene (10 mL) and the resulting solution was refluxed under argon for 6 h. The solvent was removed *in vacuo* and flash column chromatography (eluant: ethyl acetate/hexane. 1:9 $\longrightarrow$ 1:6) of the solid residue provided the title compound (0.044 g, 48% yield) as a mixture of isomers.

1D-3-Benzyloxymethyl-2,6-di-*O*-benzyl-*myo*-inositol (**9**).- Pyridinium *p*-toluensulfonate (45 mg) was added over a solution of *mio*-inositol **8** (44 mg, 0.06 mmol) in a 20% aqueous solution of acetone and the resulting mixture was refluxed for 1h. and then was neutralised with Amberlite GC 400 (-OH form), filtered and concentrated to dryness *in vacuo*. The remaining solid residue was submitted to flash column chromatography (ethyl acetate/hexane 1:1) and the title compound was isolated (17 mg, 57% yield) as a yellow oil. $[\alpha]_D^{20}$ +2.27° (c 1.5 in $CHCl_3$). IR (ν, cm^{-1}, NaCl): 3434 (-OH). ^1H-NMR (500 MHz, Cl_3CD): 1.87-1.89 (m,1 H, H-3), 2.26 (d, 1 H, J = 4.9 Hz, -OH), 2.73 (bs, 1 H, -OH), 3.09 (bs, 1 H, -OH), 3.46 (t, 1 H, $J_{5,4}$ = 9.0 Hz, $J_{5,6}$ = 9.0 Hz, H-5), 3.58-3.68 (m, 3 H, -CH_2Obn and H-6), 3.73 (dd, 1H, $J_{3,4}$ = 10.7 Hz, $J_{5,4}$ = 9.0 Hz, H-4), 3.83-3.87 (m, 1 H, H-2), 4.00 (s, 1 H, H-1), 4.46-4.56 (m, 3 H, 3 x -CHPh), 4.80-4.90 (m, 3 H, 3 x -CHPh), 7.26-7.39 (m, 15 H, 15 x Ar-H). ^{13}C-NMR (75.4 MHz, Cl_3CD): 43.45, 69.67, 71.95, 73.46, 75.03, 75.11, 75.27, 77.04, 78.00, 81.48, 127.64, 127.85, 127.98, 128.13, 128.39, 128.50, 128.66, 137.74, 138.56, 138.77. MS (*m/z*, %): 463 [$(M-H)^+$, 6], 373 (15), 267 (4), 181 (11), 107(4), 91 (100). EA: calculated for $C_{28}H_{32}O_6$, C: 72.39, H 6.94. found, C: 72.05, H: 7.15.

1D-3-Deoxy-3-hydroxymethyl-*myo*-inositol (**10**).-

Concentrated HCl (a drop) and 10% Pd/C (51 mg) were added to a solution of inositol **9** (51 mg, 0. mmol) in 1:1 dioxane/water and the mixture was stirred under an hydrogen atmosphere (P = 1 atm) for 24 h. This mixture was then filtered through celite and the dioxane of the filtrate was removed *in vacuo*. Liophylization of remaining aqueous solution provide the title compound (19 mg., 91 yield) as an amorphous white solid. $[\alpha]_D^{27}$ +13.6° (c 1.7 in H_2O). ^1H-NMR (250 MHz, D_2O): 1.48-1.56 (m, 1 H), 3.12-3.93 (m, 7 H). ^{13}C-NMR (62.8 MHz, D_2O): 44.85, 59.73, 69.10, 69.98, 72.58, 73.72, 77.25. **MS** (*m/z*, %, FAB): 195 [$(M+H)^+$, 3]. HRMS (FAB): $C_7H_{14}O_6$ (M^+), calcd. 194.0790, found 194.0793.