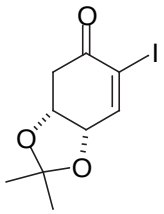
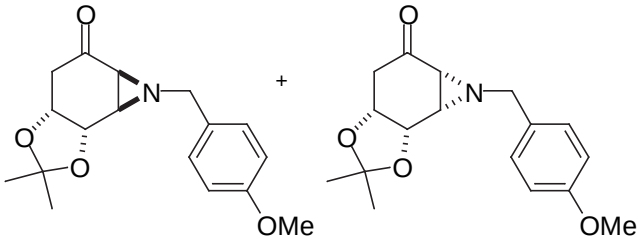
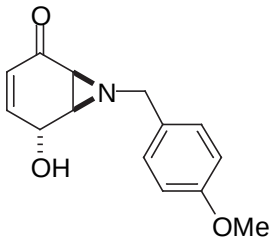


Compound 4: To a solution of enone **3** (2.7 g, 0.016 mol) in pyridine/CCl_4 (4mL/4mL), at 0°C, was added I_2 (10.2 g, 0.04 mol) in pyridine/CCl_4 (4mL/4mL) and DMAP. The reaction mixture was stirred at r.t. for 8 h and then 20% aqueous $Na_2S_2O_3$ solution was added. The mixture was extracted with ethyl ether (3 X 15 mL), the combined organic extracts were dried ($MgSO_4$) and concentrated to afford an orange residue that was purified by flash chromatography (hexane – 30/70 AcOEt/hexane). α-iodoenone **4** (3.7 g, 80%) was obtained as white crystals, and starting material (0.40 g) was recovered as a colourless oil that crystalised at low temperatures. $[\alpha]_D^{20}$ –78.6 (c 0.72, CH_2Cl_2). m.p. 63-65 °C. ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.42 (1H, d, J=2.3 Hz), 4.70-4.68 (2H, m), 3.21 (1H, dd, J= 17.2 Hz, J=2.2 Hz), 2.81 (1H, dd, J=17.1 Hz, J=2.2 Hz), 1.38 (6H, s). ^{13}C NMR ($CDCl_3$, 75 MHz): δ 188.3, 154.3, 110.5, 104.4, 73.6, 73.5, 37.3, 27.7, 26.5.

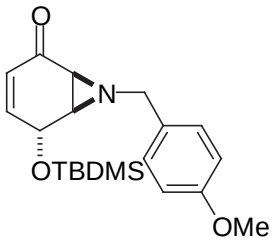


Compounds 5 and 6: To a suspension of **4** (0.600 g, 2.04 mmol), 1,10-phenanthroline (0.360 g, 2.04 mmol) and Cs_2CO_3 (0.720 g, 2.24 mmol) in xylene (8 mL) was added 4-methoxybenzylamine (0.390 mL, 3.06 mmol). The reaction mixture was stirred at 95 °C for 30 min and then immediately cooled. Aqueous NH_4Cl saturated solution was added and the aqueous phase was extracted with CH_2Cl_2 (3 x 10 mL), the combined organic extracts were dried ($MgSO_4$) and concentrated to afford an orange residue. Purification by column chromatography (5/95 AcOEt/hexane – 10/90 AcOEt/hexane), to afford aziridines **5** (0.416 g) and **6** (0.104 g, 84 % total yield, d.r. 4:1) as white crystals and as a colourless oil, respectively. Compound **5**: $[\alpha]_D^{20}$ –7.99 (c 2.54, CH_2Cl_2). m.p. 56-58 °C. ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.20 (2H, d, J=8.6 Hz), 6.85 (2H, d, J=8.6 Hz), 4.50 (1H, m), 4.45 (1H, d, J=5.6 Hz), 3.80 (3H, s), 3.64 (1H, d, J=13.0 Hz), 3.41 (1H, d, J=13.0 Hz), 2.99 (1H, dd, J=14.5 Hz, J=3.0 Hz), 2.39-2.34 (2H, m),

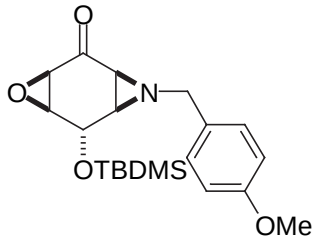
2.26 (1H, d, J=5.8 Hz), 1.41 (3H, s), 1.31 (3H, s). ^{13}C NMR ($CDCl_3$, 75 MHz): δ 205.0, 126.6, 129.2, 114.0, 109.2, 77.5, 71.2, 62.6, 55.3, 49.2, 46.5, 37.0, 27.6, 25.3. Compound **5**: $[\alpha]_D^{20}$ –7.6 (c 0.46, CH_2Cl_2). ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.30 (2H, d, J=8.4 Hz), 6.86 (2H, d, J=8.4 Hz), 4.48 (1H, dd, J=7.4 Hz, J=3.7 Hz), 4.39 (1H, dt, J=7.6 Hz, J=7.6 Hz), 3.80 (3H, s), 3.56 (2H, s), 3.16 (1H, dd, J=13.2 Hz, J=8.2 Hz), 2.60 (1H, dd, J=6.3 Hz, J=3.9 Hz), 2.45 (1H, dd, J=13.1 Hz, J=7.4 Hz), 2.26 (1H, d, J=6.1 Hz), 1.52 (3H, s), 1.33 (3H, s). ^{13}C NMR ($CDCl_3$, 75 MHz): δ 207.6, 158.9, 129.2, 128.8, 113.7, 110.1, 75.7, 71.8, 62.4, 55.2, 47.9, 46.4, 41.6, 27.1, 25.1.



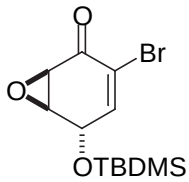
Compound 8: To a solution of **5** (0.200g, 0.66 mmol) in THF (1 mL) at 0 °C, was added a catalytic amount of NaOH 0.5 N (3 drops). The reaction mixture was stirred at 0 °C until no more starting material was detected by analytical TLC. Aqueous NH_4Cl saturated solution was added and the aqueous phase was extracted with AcOEt (3 x 10 mL), the combined organic extracts were dried ($MgSO_4$) and the solvent evaporated. The crude product was usually used without further purification, but for characterisation purposes, preparative TLC was performed (70/30 AcOEt/hexane) and afforded alcohol **8** (0.142 g, 88%) as white crystals. $[\alpha]_D^{20}$ –266.3 (c 0.30, CH_2Cl_2). m.p. 98-100 °C. ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.21 (2H, d, J=8.7 Hz), 6.87 (2H, d, J=8.7 Hz), 6.60 (1H, ddd, J=10.4 Hz, J=4.6 Hz, J=2.2 Hz), 5.95 (1H, ddd, J=10.4 Hz, J=1.3 Hz, J=1.3 Hz), 4.48 (1H, d, J=4.1 Hz), 3.80 (3H, s), 3.78 (1H, d, J=13.2 Hz), 3.45 (1H, d, J=13.2 Hz), 2.62 (1H, ddd, J=5.6 Hz, J=2.4 Hz, J=0.9 Hz), 2.42 (1H, ddd, J=5.6 Hz, J=1.3 Hz, J=1.3 Hz).



Compound 9: To a solution of **8** (0.177 g, 0.72 mmol) in CH_2Cl_2 (1.5 mL) at 0 °C, was added diisopropylethylamine (0.320 mL, 1.8 mmol), TBDMSCl (0.211 g, 1.44 mmol) and a catalytic amount of DMAP. The solution was stirred for 24 h, and then water was added. The aqueous phase was extracted with CH_2Cl_2 (3 x 10 mL), the combined organic phases were dried ($MgSO_4$) and the solvent evaporated. Preparative TLC (20/80 AcOEt/hexane) afforded **9** (0.208 g, 80%) as a viscous colourless oil. $[\alpha]_D^{20}$ –192.8 (c 0.28, CH_2Cl_2). ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.20 (2H, d, J=8.6 Hz), 6.87 (2H, d, J=8.6 Hz), 6.44 (1H, ddd, J=10.4 Hz, J=4.4 Hz, J=1.6 Hz), 5.92 (1H, d, J=10.4 Hz), 4.45 (1H, d, J=3.7 Hz), 3.82 (1H, d, J=13.0 Hz), 3.80 (3H, s), 3.38 (1H, d, J=13.0 Hz), 2.44 (2H, s), 0.89 (9H, s), 0.10 (3H, s), 0.08 (3H, s). ^{13}C NMR ($CDCl_3$, 75 MHz): δ 194.6, 159.1, 144.9, 129.5, 129.4, 127.3,113.9, 64.1, 62.8, 55.3, 47.4, 45.1, 25.7, 18.1, –4.5, –4.6.

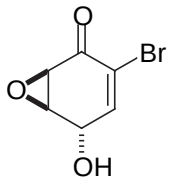


Compound 10: To a solution of **9** (0.095 g, 0.26 mmol) in THF (1 mL) at 0 °C, was added H_2O_2 30% (0.221 mL, 1.98 mmol), Triton B (0.0064 mL, 0.015 mmol). Aqueous NH_4Cl saturated solution was added immediately. The aqueous phase was extracted with Et_2O (3 x 10 mL), the combined organic phases were dried ($MgSO_4$) and the solvent evaporated. Preparative TLC (20/80 AcOEt/hexane) afforded **10** (0.089 g, 90%) as a white solid. $[\alpha]_D^{20}$ –20.5 (c 0.39, CH_2Cl_2). m.p. 75-76 °C. ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.21 (2H, d, J=8.6 Hz), 6.87 (2H, d, J=8.6 Hz), 4.57 (1H, s), 3.81 (3H, s), 3.66 (1H, d, J=13.0 Hz), 3.43 (1H, m), 3.32 (1H, dd, J=3.7 Hz, J=1.5 Hz), 3.27 (1H, d, J=13.0 Hz), 2.33 (2H, s), 0.92 (9H, s), 0.12 (6H, s). ^{13}C NMR ($CDCl_3$, 75 MHz): δ 199.7, 159.0, 129.3, 129.2, 113,9, 63.7, 63.0, 62.5, 55.3, 54.5, 52.1, 45.7, 25.7, 18.1, -4.9.



Compound 11: A solution of **10** (0.020 g, 0.05 mmol) and HBr in MeOH (1 mL, 0.1 M HBr in MeOH) was stirred at r.t. for 1 h. Aqueous $NaHCO_3$ saturated solution was added and the aqueous

phase was extracted with Et_2O (3 x 10 mL), the combined organic phases were dried ($MgSO_4$) and the solvent evaporated. Preparative TLC (20/80 AcOEt/hexane) afforded **11** (0.014 g, 80%) as a viscous oil that solidified slowly at low temperature. $[\alpha]_D^{20}$ +99.3 (c 1.03, $CHCl_3$), (lit. $[\alpha]_D^{20}$ +98.9 (c 0.79, $CHCl_3$). m.p. 46-47 °C (lit. 49-50 °C). ^{1}H NMR ($CDCl_3$, 300 MHz): δ 6.95 (1H, dd, J=5.0 Hz, J=2.2 Hz), 4.70 (1H, ddd, J=5.0 Hz, J=1.3 Hz, J=1.3 Hz), 3.69-3.67 (1H, m), 3.66 (1H, ddd, J=3.0 Hz, J=3.0 Hz, J=1.3 Hz), 0.93 (9H, s), 0.19 (3H, s), 0.17 (3H, s).



Compound 1 (Bromoxone): To a solution of **11** (0.014 g, 0.04 mmol) in CH_3CN (1 mL) at 0 °C, was added HF 40% (0.0028 mL), and the mixture was stirred at r.t. for 2 h. Aqueous $NaHCO_3$ saturated solution was added, the aqueous phase was extracted with AcOEt (3 x 5 mL), the combined organic phases were dried ($MgSO_4$) and the solvent evaporated. Recrystallisation from hexane/$CHCl_3$ afforded **1** (0.008 g, 89%) as white needles. $[\alpha]_D^{20}$ +205.7 (c 0.32, acetone), (lit. $[\alpha]_D^{20}$ +204.0 (c 0.21, acetone), $[\alpha]_D^{22}$ +220 (c 0.09, $CHCl_3$), $[\alpha]_D^{25}$ +203 (c 2.5, acetone)). m.p. 125-126 °C, (lit. 123-127 °C, 124-125 °C, 138-139 °C, 131-132 °C). ^{1}H NMR ($CDCl_3$, 300 MHz): δ 7.14 (1H, dd, J=4.9 Hz, J=2.1 Hz), 4.75 (1H, s), 3.85 (1H, m), 3.67 (1H, dd, J=3.5 Hz, J=1.3 Hz), 2.48 (1H, br s). ^{3}C NMR ($CDCl_3$, 75 MHz): δ 186.7, 144.0, 123.6, 64.8, 57.5, 53.4.