

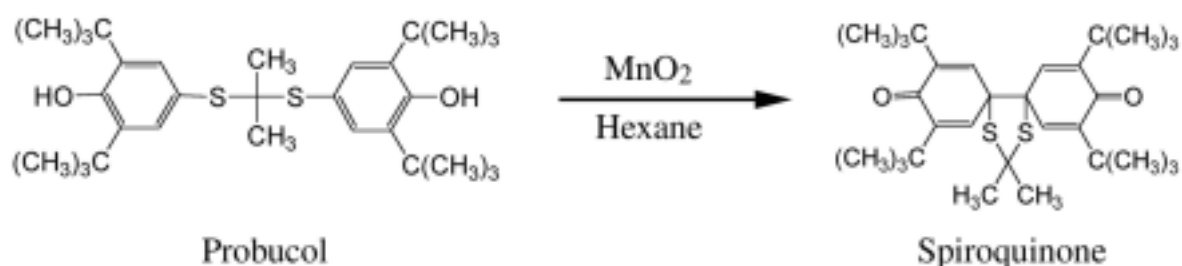
Supplementary Material (1) to "Pharmacological Inhibition of ABCA1 Degradation Increases HDL Biogenesis and Exhibits Antiatherogenesis" by Arakawa et al.

Experimental Procedures for Synthesis and Characterization of Spiroquinone and Diphenoquinone

General Methods

Melting points were determined using a micro hot plate melting point apparatus (YAZAWA Co., Ltd., Tokyo, Japan) without correction. Elemental analysis for C and H was performed using a Vario EL analysis apparatus (Elementar Co., Ltd.). Proton NMR (^1H NMR) spectra were recorded on a JEOL EX-270 spectrometer (JEOL Co., Ltd.) using tetramethylsilane as the internal standard. Mass spectra were obtained in a JEOL JMS-T100GC mass spectrometer system (JEOL Co., Ltd.).

Synthesis of Spiroquinone



A mixture of probuol (250 g), manganese (IV) oxide (125 g) and hexane (400 mL) was vigorously stirred under a light protecting condition at room temperature for 17 hours. The reaction mixture was filtered and the residue was washed with dichloromethane (700 mL). The filtrate was concentrated under reduced pressure. Methanol (400 ml) was added to the residue and concentrated under reduced pressure again. The resulting precipitate was collected, washed with methanol (200 mL X 6) and dried under reduced pressure. Spiroquinone was obtained as yellow crystals, 240.3 g (97 %) of mp 156-158 °C. The results of the mass analysis; for the calculated value $\text{C}_{31}\text{H}_{46}\text{O}_2\text{S}_2$: C, 72.32; H, 9.01, the found value was: C, 72.3; H, 9.0. ; ^1H NMR (CDCl_3) δ : 1.20 (36H, s), 2.01 (6H, s), 6.88 (4H, s). ; MS m/z : 515 (M+1), 473 (M-C₃H₆), 441 (M-C₃H₆S+1), 409 (M-C₃H₆S₂+1), 279 (M-C₁₄H₂₀OS+1), 237 (C₁₄H₂₀OS+1). The purity was verified by HPLC operated in the conditions below. Detection; ultraviolet absorption at 243 nm. Column; Capcell Pak C8 (3.5 X 75 mm). Temperature; 40 °C. Mobile phase; H₂O (0.1% TFA)-CH₃CN (14 : 86). Flow rate; 0.5 mL/min. Retention time of spiroquinone; 12.0 min. (probuol; 6.1 min.). Purity; > 98 % (as peak area %). Stability of spiroquinone was examined as follows being estimated as the HPLC criteria; photostability

