

Electronic Supplementary Information

Non-Nanogold Catalyzed Aerobic Oxidation of Secondary Amines to Imines

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Experimental Section

Solution NMR spectra were obtained at room temperature on a Bruker DRX-400 spectrometer. Electrospray ionization mass spectra were obtained on a Finnigan TSQ700 triple quadrupole mass spectrometer (Finnigan MAT, San Jose, CA).

General Procedure for Preparations of Compounds 4a-c. A mixture of amine (**1a-c**, 1.5 mmol) and gold powder (2.0 g) in acetonitrile (10 mL) was prepared in a glass tube (2.5 × 18 cm, ~85 mL volume). The O₂ gas (about 2.0 L) was introduced into a rubber balloon that was attached to a syringe needle, which was inserted into the septum covering the tube opening. The mixture was stirred vigorously (magnetic stir bar) at 60 °C for 48 h, and then worked up by filtration to remove the gold powder. Solvent and the unreacted amine (**1a-c**) were removed under reduced pressure (~1.0 mm Hg) at room temperature to give the corresponding imine as the pure product (**4a-c**). **4a**, 37% yield, the spectral data for this compound are in agreement with the literature values.^[1] **4b**, 31% yield, ¹H NMR (400 MHz, CDCl₃, 25 °C): δ=3.50 (t, ³J(H,H)=6.0 Hz, 2H; CH₂), 3.26 (t, ³J(H,H)=5.6 Hz, 4H; CH₂), 2.19 (t, ³J(H,H)=6.8 Hz, 2H; CH₂), 1.70 (m, 2H; CH₂), 1.54 ppm (m, 8H; CH₂); ¹³C{¹H} NMR (100 MHz, CDCl₃, 25 °C): δ=159.1, 47.4, 45.5, 26.0, 25.5, 25.1, 22.8, 21.1 ppm; MS (70 eV): *m/z* (%): 166 (100) [*M*⁺], 151 (12), 137 (87), 123 (28), 111 (27), 84 (66), 55 (30); HR-MS (EI): *m/z* calcd for C₁₀H₁₈N₂: 166.1470; found: 166.1468. **4c**, 17% yield, ¹H NMR (400 MHz, CDCl₃, 25 °C): δ=3.42 (m, 6H; CH₂), 2.50 (m, 2H; CH₂), 1.98-1.50 ppm (m, 14H; CH₂); ¹³C{¹H} NMR (100 MHz, CDCl₃, 25 °C): δ=167.1, 48.8, 48.7, 31.0, 29.1, 29.0, 27.3, 27.1, 24.1 ppm; MS (70 eV): *m/z* (%): 194 (100) [*M*⁺], 179 (13), 165 (29), 151 (43), 137 (42), 96 (52), 68 (23), 55 (39); HR-MS (EI): *m/z* calcd for C₁₂H₂₂N₂: 194.1783, found: 194.1780.

References

- [1] (a) S.-I. Murahashi, N. Yoshimura, T. Tsumiyama, T. Kojima, *J. Am. Chem. Soc.* **1983**, *105*, 5002–5011; (b) B. Sezen, D. Sames, *J. Am. Chem. Soc.* **2004**, *126*, 13244–13246.