Supporting Information

Cobalt-Catalyzed Efficient Aziridination of Alkenes

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Experimental Section

General Considerations. All reactions were carried out under nitrogen atmosphere in an oven dried Schlenk tube. All olefins were purchased from Acros or Aldrich Chemicals and used without further purification. Acetonitrile was dried with calcium hydride in reflux. All metalloporphyrins were purchased from Strem or Mid-century Chemicals. Bromamine-T was prepared from Chloramine-T according to the literature procedure and dried at 80 °C in vacuum overnight before use.¹ Proton and carbon nuclear magnetic resonance spectra (¹H NMR and ¹³C NMR) were recorded on a Varian Mercury 300 spectrometer and referenced with respect to residual solvent. Infrared spectra were obtained using a Bomen B100 Series FT-IR spectrometer. Samples were prepared as films on a NaCl plate with chloroform as solvent. Thin layer chromatography was carried out on E. Merck Silica Gel 60 F-254 TLC plates.

General Procedure for Aziridination of Alkenes. An oven dried Schlenk tube equipped with stirring bar was degassed on vacuum line and purged with nitrogen. The tube was charged with metalloporphyrin (5 mol %), Bromamine-T (0.4 mmol) and activated 5 Å molecular sieves (500 mg). The tube was capped with a Teflon screw cap, evacuated on vacuum line for 30-45 min. The Teflon screw cap was replaced with a rubber septum and 3-5 mL of solvent and substrate (0.2 mmol) were then added successively. The tube was purged with nitrogen for 1-2 min and the contents were stirred overnight at ambient temperatures. After completion of the reaction, molecular sieves were removed by filtration and the filtrate was concentrated under vacuum. The solid residue was purified by flash chromatography (silica gel, ethyl acetate:hexanes (V:V) = 3:7) to afford the pure product.

***N*-(*p*-Tolylsulfonyl)-2-phenylaziridine**^{2,3} (Table 2, entry 1) was synthesized from styrene as substrate and the product obtained as a yellow oil (45 mg, yield, 83%). ¹H NMR (300 MHz, CDCl₃): δ 7.83 (d, 2H, *J* = 8.1 Hz), 7.17-7.31 (m, 7H), 3.73 (dd, 1H, *J* = 7.2, 4.5 Hz), 2.94 (d, 1H, *J* = 7.2 Hz), 2.39 (s, 3H), 2.35 (d, 1H, *J* = 4.5 Hz). ¹³C NMR (75 MHz, CDCl₃): δ 144.6, 140.5, 135.0, 134.8, 129.7, 128.5, 128.3, 127.9, 126.5, 41.0, 35.9, 21.6. FT-IR (film, cm⁻¹): 3064, 3034, 2924, 2855, 1597, 1495, 1459, 1385, 1324, 1292, 1232, 1190, 1160, 978, 909, 815, 775, 758, 715, 696, 665.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-methylphenyl)aziridine**^{2,3} (Table 2, entry 2) was synthesized from *p*-methylstyrene as substrate and the product obtained as a yellow oil (43 mg, yield, 76%). ¹H NMR (300 MHz, CDCl₃): δ 7.84 (d, 2H, *J* = 8.1 Hz), 7.31 (d, 2H, *J* = 8.4 Hz), 7.08 (s, 4H), 3.73 (dd, 1H, *J* = 7.2, 4.5 Hz), 2.95 (d, 1H, *J* = 7.2 Hz), 2.41 (s, 3H), 2.36 (d, 1H, *J* = 4.5 Hz), 2.29 (s, 3H). FT-IR (film, cm⁻¹): 3057, 1600, 1150, 916. ¹³C NMR (75 MHz, CDCl₃): δ 144.6, 140.5, 138.1, 134.9, 131.9, 129.7, 129.2, 127.9, 126.4, 41.0, 35.8, 21.6, 21.1. FT-IR (film, cm⁻¹): 2922, 2857, 1597, 1517, 1494, 1453, 1381, 1324, 1292, 1232, 1186, 1160, 1118, 1093, 1019, 979, 911, 815, 731, 716, 693, 665.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-*tert*-butylphenyl)aziridine**³ (Table 2, entry 3) was synthesized from *p*-*tert*-butylstyrene as substrate and the product obtained as a yellow oil (53 mg, yield, 81%). ¹H NMR (300 MHz, CDCl₃): δ 7.85 (d, 2H, *J* = 8.1 Hz), 7.29-7.33 (m, 4H), 7.13 (d, 2H, *J* = 8.1 Hz), 3.75 (dd, 1H, *J* = 7.2, 4.5 Hz), 2.94 (d, 1H, *J* = 7.2 Hz), 2.42 (s, 3H), 2.37 (d, 1H, *J* = 4.8 Hz), 1.28 (s, 9H). ¹³C NMR (75 MHz, CDCl₃): δ 151.4, 147.4, 144.6, 134.9, 131.9, 129.7, 127.9, 126.2, 125.8, 40.9, 35.8, 34.5, 31.2, 21.6. FT-IR (film, cm⁻¹): 3281, 2962, 2869, 1688, 1599, 1511, 1459, 1410, 1332, 1271, 1161, 1093, 1019, 958, 834, 757, 725, 705, 663.

***N*-(*p*-Tolylsulfonyl)-2-(3-methylphenyl)aziridine**^{3,4} (Table 2, entry 4) was synthesized from 3-methylstyrene as substrate and the product obtained as a yellow oil (51 mg, yield, 89%). ¹H NMR (300 MHz, CDCl₃): δ 7.85 (d, 2H, *J* = 8.4 Hz), 7.31 (d, 2H, *J* = 8.7 Hz), 7.01-7.16 (m, 4H), 3.73 (dd, 1H, *J* = 7.2, 4.5 Hz), 2.94 (d, 1H, *J* = 6.9 Hz), 2.42 (s, 3H), 2.36 (d, 1H, *J* = 4.5 Hz), 2.29 (s, 3H). ¹³C NMR (75 MHz, CDCl₃): δ 144.6, 138.3, 134.8, 129.7, 129.0, 128.4, 127.9, 127.1, 123.6, 41.0, 35.9, 21.6, 21.2. FT-

IR (film, cm^{-1}): 3292, 2922, 2362, 1688, 1596, 1492, 1453, 1382, 1325, 1292, 1215, 1184, 1160, 1093, 1039, 1019, 981, 929, 867, 816, 787, 720, 692, 666.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-chloromethylphenyl)aziridine^{3,5a}** (Table 2, entry 5) was synthesized from *p*-vinylbenzyl chloride as substrate and the product obtained as a yellow oil (55 mg, yield, 86%). ¹H NMR (300 MHz, CDCl_3): δ 7.85 (d, 2H, J = 8.4 Hz), 7.30 (m, 4H), 7.20 (d, 2H, J = 7.8 Hz), 4.54 (s, 2H), 3.76 (dd, 1H, J = 4.5, 7.2 Hz), 3.00 (d, 1H, J = 6.9 Hz), 2.44 (s, 3H), 2.36 (d, 1H, J = 4.2 Hz). ¹³C NMR (75 MHz, CDCl_3): δ 145.3, 135.4, 129.8, 128.8, 128.0, 127.9, 126.9, 45.7, 40.5, 36.0, 21.6. FT-IR (film, cm^{-1}): 2362, 1596, 1519, 1493, 1453, 1383, 1324, 1268, 1187, 1161, 1093, 1019, 981, 909, 815, 750, 715, 674.

***N*-(*p*-Tolylsulfonyl)-2-(4-trifluoromethylphenyl)aziridine^{3,4}** (Table 2, entry 6) was synthesized from 4-(trifluoromethyl)styrene as substrate and the product obtained as a yellow oil (61 mg, yield, 90%). ¹H NMR (300 MHz, CDCl_3): δ 7.86 (d, 2H, J = 8.1 Hz), 7.54 (d, 2H, J = 8.1 Hz), 7.34 (d, 4H, J = 8.1 Hz), 3.80 (dd, 1H, J = 4.2, 7.2 Hz), 3.01 (d, 1H, J = 7.2 Hz), 2.44 (s, 3H), 2.37 (d, 1H, J = 4.5 Hz). ¹³C NMR (75 MHz, CDCl_3): δ 147.4, 145.0, 139.2, 134.6, 129.8, 127.9, 126.9, 125.6, 125.5, 125.4, 40.1, 36.2, 21.6. ¹⁹F NMR (75 MHz, CDCl_3): -63.1. FT-IR (film cm^{-1}): 2926, 2362, 1621, 1597, 1494, 1454, 1421, 1383, 1325, 1233, 1163, 1121, 1093, 1067, 1018, 982, 911, 840, 817, 751, 697, 661.

***N*-(*p*-Tolylsulfonyl)-2-(4-acetoxylphenyl)aziridine^{5b-d}** (Table 2, entry 7) was synthesized from 4-acetoxystyrene as substrate and the product obtained as a yellow oil (61 mg, yield, 92%). ¹H NMR (300 MHz, CDCl_3): δ 7.86 (d, 2H, J = 8.1 Hz), 7.33 (d, 2H, J = 8.1 Hz), 7.21 (d, 4H, J = 8.4 Hz), 7.01 (d, 4H, J = 8.4 Hz), 3.75 (dd, 1H, J = 4.2, 7.2 Hz), 2.97 (d, 1H, J = 7.2 Hz), 2.43 (s, 3H), 2.35 (d, 1H, J = 4.5 Hz), 2.27 (s, 3H). ¹³C NMR (75 MHz, CDCl_3): δ 169.4, 150.5, 144.7, 134.7, 132.6, 129.8, 127.9, 127.6, 121.7, 40.4, 36.0, 21.6, 21.0. FT-IR (film cm^{-1}): 3583, 2925, 1762, 1597, 1510, 1453, 1371, 1325, 1194, 1162, 1093, 1016, 982, 911, 852, 816, 724, 710, 694, 666.

***N*-(*p*-Tolylsulfonyl)-2-(2',4',6'-trimethylphenyl)aziridine³** (Table 2, entry 8) was synthesized from 2,4,6-trimethylstyrene as substrate and the product obtained as a yellow oil (39 mg, yield, 61%). ¹H NMR (300 MHz, CDCl_3): δ 7.88 (d, 2H, J = 8.4 Hz), 7.35 (d, 2H, J = 7.8 Hz), 6.79 (s, 2H), 3.86 (t, 1H, J = 4.8 Hz), 2.93 (d, 1H, J = 7.5 Hz),

2.46 (s, 3H), 2.31 (s, 6H), 2.24 (s, 3H), 2.16 (d, 1H, $J = 4.5$ Hz). ^{13}C NMR (75 MHz, CDCl_3): δ 144.9, 139.8, 137.4, 135.2, 129.7, 129.1, 128.8, 128.2, 127.1, 38.9, 35.4, 21.7, 20.9, 20.1. FT-IR (film cm^{-1}): 3583, 3282, 2923, 1711, 1610, 1449, 1331, 1160, 1092, 934, 852, 814, 754, 665.

***N*-(*p*-Tolylsulfonyl)-2-(2-naphthyl)aziridine**^{3,6} (Table 2, entry 9) was synthesized from 2-vinylnaphthalene as substrate and the product obtained as a yellow oil (34 mg, yield, 53%). ^1H NMR (300 MHz, CDCl_3): δ 7.87 (d, 2H, $J = 8.1$ Hz), 7.71-7.79 (m, 4H), 7.46 (m, 2H), 7.30 (d, 2H, $J = 8.4$ Hz), 7.26 (s, 1H), 3.80 (d, 1H, $J = 7.2, 4.5$ Hz), 3.05 (d, 1H, $J = 7.2$ Hz), 2.47 (d, 1H, $J = 4.5$ Hz), 2.40 (s, 3H). ^{13}C NMR (75 MHz, CDCl_3): δ 147.4, 144.7, 134.9, 133.1, 133.0, 132.4, 129.8, 128.5, 127.9, 127.8, 127.7, 126.4, 126.3, 126.1, 123.6, 41.3, 36.0, 21.6. FT-IR (film cm^{-1}): 3583, 3056, 2923, 2362, 1685, 1597, 1509, 1453, 1398, 1324, 1160, 1093, 1019, 953, 920, 858, 816, 751, 722, 666.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-bromophenyl)aziridine**^{3,7a} (Table 2, entry 10) was synthesized from 4-bromostyrene as substrate and the product obtained as a yellow oil (49 mg, yield, 70%). ^1H NMR (300 MHz, CDCl_3): δ 7.83 (d, 2H, $J = 8.4$ Hz), 7.40 (d, $J = 8.4$ Hz), 7.31 (d, 2H, $J = 8.4$ Hz), 7.06 (d, 2H, $J = 8.4$ Hz), 3.70 (dd, 1H, $J = 4.2, 7.2$ Hz), 2.95 (d, 1H, $J = 7.2$ Hz), 2.42 (s, 3H), 2.32 (d, 1H, $J = 4.5$ Hz). ^{13}C NMR (75 MHz, CDCl_3): δ 144.8, 134.7, 134.1, 131.7, 129.7, 128.2, 127.9, 122.3, 40.2, 35.9, 21.6. FT-IR (film cm^{-1}): 2922, 1491, 1453, 1407, 1377, 1325, 1229, 1186, 1161, 1115, 1093, 1071, 1012, 981, 910, 816, 769, 727, 705, 693, 665.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-chlorophenyl)aziridine**^{2,3} (Table 2, entry 11) was synthesized from 4-chlorostyrene as substrate and the product obtained as a yellow oil (44 mg, yield, 71%). ^1H NMR (300 MHz, CDCl_3): δ 7.85 (d, 2H, $J = 8.4$ Hz), 7.33 (d, 2H, $J = 8.1$ Hz), 7.27 (d, 2H, $J = 8.7$ Hz), 7.16 (d, 2H, $J = 8.4$ Hz), 3.73 (dd, 1H, $J = 4.2, 7.2$ Hz), 2.97 (d, 1H, $J = 6.9$ Hz), 2.44 (s, 3H), 2.34 (d, 1H, $J = 4.2$ Hz). ^{13}C NMR (75 MHz, CDCl_3): δ 144.8, 134.7, 134.1, 133.6, 129.8, 128.7, 127.9, 40.2, 36.0, 21.6. FT-IR (film cm^{-1}): 2924, 2361, 1597, 1494, 1454, 1414, 1378, 1325, 1306, 1230, 1188, 1162, 1092, 1016, 981, 911, 816, 776, 729, 708, 694, 669.

***N*-(*p*-Tolylsulfonyl)-2-(*p*-fluorophenyl)aziridine**^{3,7a} (Table 2, entry 12) was synthesized from 4-fluorostyrene as substrate and the product obtained as a yellow oil (50

mg, yield, 86%). ¹H NMR (300 MHz, CDCl₃): δ 7.83 (d, 2H, *J* = 8.1 Hz), 7.31 (d, 2H, *J* = 8.4 Hz), 7.16 (m, 2H), 6.96 (m, 2H), 3.74 (dd, 1H, *J* = 4.5, 7.2 Hz), 2.94 (d, 1H, *J* = 7.2 Hz), 2.42 (s, 3H), 2.32 (d, 1H, *J* = 4.5 Hz). ¹³C NMR (75 MHz, CDCl₃): δ 144.8, 134.7, 130.7, 129.8, 128.3, 128.2, 127.9, 115.7, 115.4, 40.2, 36.0, 21.6. FT-IR (film cm⁻¹): 3583, 3069, 2924, 1600, 1513, 1454, 1379, 1325, 1235, 1188, 1162, 1093, 1017, 982, 912, 839, 818, 720, 692, 665.

***N*-(*p*-Tolylsulfonyl)-2-(pentafluorophenyl)aziridine**^{7b,c} (Table 2, entry 13) was synthesized from pentafluorostyrene as substrate and the product obtained as a yellow oil (45 mg, yield, 61%). ¹H NMR (300 MHz, CDCl₃): δ 7.83 (d, 2H, *J* = 8.1 Hz), 7.34 (d, 2H, *J* = 8.1 Hz), 3.77 (dd, 1H, *J* = 4.5, 7.2 Hz), 3.01 (d, 1H, *J* = 7.2 Hz), 2.77 (d, 1H, *J* = 4.2 Hz), 2.44 (s, 3H). ¹³C NMR (75 MHz, CDCl₃): δ 145.2, 134.1, 129.8, 128.3, 32.4, 31.9, 21.7. ¹⁹F NMR (75 MHz, CDCl₃): -142.6, -153.1, -161.8. FT-IR (film cm⁻¹): 2926, 1656, 1597, 1525, 1504, 1456, 1379, 1333, 1307, 1230, 1186, 1164, 1131, 1093, 1023, 975, 943, 873, 816, 778, 747, 711, 696, 673.

***N*-(*p*-Tolylsulfonyl)-2-methyl-2-phenylaziridine**^{2,3} (Table 2, entry 14) was synthesized from α-methylstyrene as substrate and the product obtained as a yellow oil (42 mg, yield, 73%). ¹H NMR (300 MHz, CDCl₃): δ 7.85 (d, 2H, *J* = 8.4 Hz), 7.28-7.36 (m, 7H), 2.95 (s, 1H), 2.51 (s, 1H), 2.42 (s, 3H), 2.03 (s, 3H). ¹³C NMR (75 MHz, CDCl₃): δ 144.0, 141.0, 137.6, 129.5, 128.4, 127.7, 127.5, 126.5, 51.8, 41.8, 21.6, 20.9. FT-IR (film cm⁻¹): 3276, 2362, 1598, 1495, 1447, 1326, 1159, 909, 815, 765, 703, 666.

***N*-(*p*-Tolylsulfonyl)-2,2-diphenylaziridine**^{3,8} (Table 2, entry 15) was synthesized from 1,1-diphenylethylene as substrate and the product obtained as a yellow oil (57 mg, yield, 81%). ¹H NMR (300 MHz, CDCl₃): δ 7.45 (d, 2H, *J* = 7.8 Hz), 7.00-7.14 (m, 12 H), 2.83 (s, 2H), 2.18 (s, 3H). ¹³C NMR (75 MHz, CDCl₃): δ 147.4, 129.7, 129.4, 128.8, 128.6, 128.2, 128.1, 127.9, 40.8, 21.6. FT-IR (film cm⁻¹): 3273, 3061, 2362, 1722, 1597, 1557, 1542, 1492, 1448, 1398, 1327, 1279, 1159, 1090, 1020, 943, 917, 814, 756, 700, 673.

***N*-(*p*-Tolylsulfonyl)amino-1,2,3,4-tetrahydronaphthalene-1,2-imine**^{2,3} (Table 2, entry 16) was synthesized from 1,2-dihydronaphthalene as substrate and the product obtained as a yellow oil (20 mg, yield, 33%). ¹H NMR (300 MHz, CDCl₃): δ 7.82 (d, 2H, *J* = 8.1 Hz), 7.30 (d, 2H, *J* = 8.1 Hz), 7.03-7.25 (m, 4H), 3.81 (d, 1H, *J* = 7.2 Hz), 3.55 (d,

1H, $J = 6.9$ Hz), 2.72 (dt, 1H, $J = 13.5, 6.3$ Hz), 2.5 (dd, 1H, $J = 13.5, 5.4$ Hz), 2.42 (s, 3H), 2.24 (dd, 1H, $J = 14.8, 6.3$ Hz), 1.62 (m, 1H). ^{13}C NMR (75 MHz, CDCl_3): δ 144, 136.6, 135.5, 129.7, 129.4, 128.5, 128.4, 127.6, 126.3, 114.3, 42.0, 41.7, 24.7, 21.6, 19.9. FT-IR (film cm^{-1}): 3585, 3026, 2925, 2854, 1598, 1494, 1433, 1398, 1321, 1229, 1157, 1091, 1028, 989, 945, 908, 877, 814, 754, 731, 715, 670.

2,2-Dimethyl-1-(toluene-4-sulfonyl)-1,1a,2,7b-tetrahydro-3-oxa-1-azacyclopropa[a]naphthalene-6-carbonitrile^{3,9} (Table 2, entry 17) was synthesized from 2,2-dimethyl-2H-1-benzopyran-6-carbonitrile (185 mg, 1.0 mmol) and bromamine-T (54.4 mg, 0.2 mmol) and the product obtained as a yellow oil (47 mg, yield, 66%). ^1H NMR (300 MHz, CDCl_3): δ 7.80 (d, 2H, $J = 8.1$ Hz), 7.53 (d, 1H, $J = 1.8$ Hz), 7.46 (dd, 2H, $J = 8.4, 1.8$ Hz), 7.31 (d, 2H, $J = 8.1$ Hz), 6.80 (d, 1H, $J = 8.4$ Hz), 3.86 (d, 1H, $J = 7.2$ Hz), 3.35 (d, 1H, $J = 7.5$ Hz), 2.43 (s, 3H), 1.29 (s, 3H), 1.24 (s, 3H). ^{13}C NMR (75 MHz, CDCl_3): δ 156.3, 145.2, 134.4, 134.2, 133.2, 129.8, 128.0, 119.3, 119.2, 104.7, 73.2, 49.2, 38.7, 25.8, 23.8, 21.7. FT-IR (film cm^{-1}): 2980, 2925, 2854, 2360, 2227, 1615, 1598, 1579, 1492, 1461, 1328, 1276, 1251, 1208, 1159, 1092, 1025, 962, 935, 874, 850, 833, 784, 768, 717, 674.

trans-N-(p-Tolylsulfonyl)-2-methyl-3-phenylaziridine^{2,3} (Table 2, entry 18) was synthesized from *cis*- β -methystyrene as substrate and the product obtained as a yellow oil (54 mg, yield, 94%). ^1H NMR (300 MHz, CDCl_3): δ 7.84 (d, 2H, $J = 8.4$ Hz), 7.24-7.30 (m, 5 H), 7.15-7.19 (m, 2H), 3.81 (d, 1H, $J = 4.2$ Hz), 2.93 (dq, 1H, $J = 6.3, 4.8$ Hz), 2.40 (s, 3H), 1.85 (d, 3H, $J = 5.7$ Hz). ^{13}C NMR: δ 143.9, 137.8, 135.5, 129.5, 128.5, 128.0, 127.1, 126.2, 49.1, 49.0, 21.5, 14.1. FT-IR (film, cm^{-1}): 3030, 1400, 1090, 970, 890. FT-IR (film cm^{-1}): 2929, 1598, 1497, 1455, 1413, 1383, 1321, 1239, 1205, 1184, 1159, 1091, 1059, 1037, 971, 890, 815, 749, 697, 685.

(cis- & trans)-N-(p-Tolylsulfonyl)-2,3-diphenylaziridine^{2,3} (Table 2, entry 19) was synthesized with *cis*-stilbene (36 μL , 0.2 mmol) with bromamine-T (163.0 mg, 0.6 mmol) in the presence of 10 mole% Co(DCITPP) (19 mg, 0.2 mmol), and the products obtained as a mixture of *cis*- and *trans*- aziridine (65 mg, yield, 92%). For *cis*-N-(p-Tolylsulfonyl)-2,3-diphenylaziridine ^1H NMR (300 MHz, CDCl_3): δ 7.96 (d, 2H, $J = 8.4$ Hz), 7.47 (d, 2H, $J = 8.7$ Hz), 7.03-7.13 (m, 10H), 4.23 (s, 2H), 2.45 (s, 3H). For *trans*-N-(p-Tolylsulfonyl)-2,3-diphenylaziridine ^1H NMR (300 MHz, CDCl_3): δ 7.63 (d, 2H, $J =$

8.4 Hz), 7.34-7.44 (m, 10H), 7.20 (d, 2H, $J = 8.4$ Hz), 4.27 (s, 2H), 2.38 (s, 3H). ^{13}C NMR (75 MHz, CDCl_3): δ 144.7, 143.9, 137.3, 137.0, 134.8, 133.0, 132.0, 129.8, 129.4, 128.6, 128.4, 128.2, 128.0, 127.9, 127.7, 127.6, 127.5, 126.5, 50.3, 47.4, 21.7, 21.6. FT-IR (film cm^{-1}): 3061, 3031, 2923, 2854, 1598, 14957, 1452, 1401, 1327, 1160, 1090, 1026, 908, 813, 785, 760, 697, 674.

***trans*-*N*-(*p*-Tolylsulfonyl)-2-methyl-3-phenylaziridine**^{2,3} (Table 2, entry 20) was synthesized from *trans*- β -methystyrene as substrate and the product obtained as a yellow oil (51 mg, yield, 87%). ^1H NMR (300 MHz, CDCl_3): δ 7.84 (d, 2H, $J = 8.4$ Hz), 7.24-7.30 (m, 5 H), 7.15-7.19 (m, 2H), 3.81 (d, 1H, $J = 4.2$ Hz), 2.93 (dq, 1H, $J = 6.3, 4.8$ Hz), 2.40 (s, 3H), 1.85 (d, 3H, $J = 5.7$ Hz). ^{13}C NMR: δ 143.9, 137.8, 135.5, 129.5, 128.5, 128.0, 127.1, 126.2, 49.1, 49.0, 21.5, 14.1. FT-IR (film cm^{-1}): 3583, 2928, 1598, 1497, 1456, 1413, 1383, 1320, 1238, 1205, 1184, 1159, 1091, 1059, 1037, 971, 890, 815, 748, 697, 685, 665.

(*cis*- & *trans*)-*N*-(*p*-Tolylsulfonyl)-2,3-diphenylaziridine^{2,3} (Table 2, entry 21) was synthesized with *trans*-stilbene (36 mg, 0.2 mmol) with bromamine-T (163.0 mg, 0.6 mmol) in the presence of 10 mole% Co(DCITPP) (19 mg, 0.2 mmol), and the products obtained as a mixture of *cis*- and *trans*- aziridine (66 mg, yield, 94%). For *cis*-*N*-(*p*-Tolylsulfonyl)-2,3-diphenylaziridine ^1H NMR (300 MHz, CDCl_3): δ 7.96 (d, 2H, $J = 8.4$ Hz), 7.47 (d, 2H, $J = 8.7$ Hz), 7.03-7.13 (m, 10H), 4.23 (s, 2H), 2.45 (s, 3H). For *trans*-*N*-(*p*-Tolylsulfonyl)-2,3-diphenylaziridine ^1H NMR (300 MHz, CDCl_3): δ 7.63 (d, 2H, $J = 8.4$ Hz), 7.34-7.44 (m, 10H), 7.20 (d, 2H, $J = 8.4$ Hz), 4.27 (s, 2H), 2.38 (s, 3H). ^{13}C NMR (75 MHz, CDCl_3): δ 144.7, 143.9, 137.3, 137.0, 134.8, 133.0, 132.0, 129.8, 129.4, 128.6, 128.4, 128.2, 128.0, 127.9, 127.7, 127.6, 127.5, 126.5, 50.3, 47.4, 21.7, 21.6. FT-IR (film cm^{-1}): 3583, 3273, 3062, 3032, 1723, 1598, 1495, 1451, 1399, 1327, 1160, 1092, 1025, 906, 813, 785, 752, 699, 669.

***N*-(*p*-Tolylsulfonyl)-6-(azabicyclo)[3.1.0]hexane**^{3,10} (Table 2, entry 22) was synthesized from cyclopentene as substrate and the product obtained as a yellow oil (29 mg, yield, 61%). ^1H NMR (300 MHz, CDCl_3): δ 7.80 (d, 2H, $J = 8.4$ Hz), 7.31 (d, 2H, $J = 8.1$ Hz), 3.33 (s, 2H), 2.44 (s, 3H), 1.95 (m, 2H), 1.61 (m, 4H). ^{13}C NMR (75 MHz, CDCl_3): δ 144.1, 135.9, 129.6, 127.6, 46.7, 26.9, 21.6, 19.5. FT-IR (film cm^{-1}): 3271,

2958, 2925, 2854, 1598, 1494, 1439, 1367, 1320, 1303, 1157, 1093, 1075, 1009, 977, 931, 874, 832, 815, 723, 673.

***N*-(*p*-Tolylsulfonyl)-7-azabicyclo[4.1.0]heptane**^{2,3} (Table 2, entry 23) was synthesized from cyclohexene as substrate and the product obtained as a yellow oil (33 mg, yield, 66%). ¹H NMR (300 MHz, CDCl₃): δ 7.79 (d, 2H, *J* = 7.8 Hz), 7.30 (d, 2H, *J* = 8.1 Hz), 2.96 (s, 2H), 2.42 (s, 3H), 1.77 (m, 4H), 1.39 (m, 2H), 1.20 (m, 2H). ¹³C NMR (75 MHz, CDCl₃): 143, 141, 129, 127, 39.3, 22.3, 21.9, 18.9. FT-IR (film, cm⁻¹): 3000, 1600, 1392, 1155, 920. FT-IR (film cm⁻¹): 3280, 2927, 2856, 2361, 2340, 1598, 1494, 1440, 1399, 1320, 1239, 1184, 1157, 1091, 1020, 965, 921, 847, 816, 793, 724, 667.

***N*-(*p*-Tolylsulfonyl)-9-azabicyclo[6.1.0]nonane**^{3,10} (Table 2, entry 24) was synthesized from cyclooctene as substrate and the product obtained as a yellow oil (44 mg, yield, 79%). ¹H NMR (300 MHz, CDCl₃): δ 7.80 (d, 2H, *J* = 8.1 Hz), 7.31 (d, 2H, *J* = 7.8 Hz), 2.76 (d, 1H, *J* = 9.9 Hz), 2.43 (s, 3H), 1.99 (d, 1H, *J* = 14.1 Hz), 1.55-1.23 (m, 12H). ¹³C NMR (75 MHz, CDCl₃): δ 144.0, 135.8, 129.6, 127.5, 43.9, 26.3, 26.1, 25.2, 21.6. FT-IR (film cm⁻¹): 2927, 2857, 1598, 1494, 1468, 1449, 1425, 1320, 1158, 1092, 1016, 985, 933, 889, 869, 856, 825, 815, 796, 764, 750, 720, 668.

***N*-(*p*-Tolylsulfonyl)-2-heptylaziridine**^{3,11} (Table 2, entry 25) was synthesized from 1-nonene as substrate and the product obtained as a yellow oil (33 mg, yield, 56%). ¹H NMR (300 MHz, CDCl₃): δ 7.82 (d, 2H, *J* = 6.6 Hz), 7.33 (d, 2H, *J* = 8.1 Hz), 2.68 (m, 1H), 2.63 (d, 1H, *J* = 6.9 Hz), 2.44 (s, 3H), 2.05 (d, 1H, *J* = 4.2 Hz), 1.2 (m, 12H), 0.87 (t, 3H, *J* = 6.3 Hz). ¹³C NMR (75 MHz, CDCl₃): δ 144.4, 129.6, 128.0, 40.5, 33.8, 31.6, 31.3, 29.1, 28.9, 26.8, 22.6, 21.6, 14.1. FT-IR (film cm⁻¹): 2926, 2856, 1725, 1598, 1494, 1458, 1401, 1325, 1232, 1161, 1092, 1020, 929, 869, 815, 768, 747, 715, 694, 662.

***N*-(*p*-Tolylsulfonyl)-1-azaspiro[2.5]octane**^{3,12} (Table 2, entry 26) was synthesized from methylene cyclohexane as substrate and the product obtained as a yellow oil (36 mg, yield, 67%). ¹H NMR (300 MHz, CDCl₃): δ 7.82 (d, 2H, *J* = 7.8 Hz), 7.30 (d, 2H, *J* = 8.1 Hz), 2.43 (s, 3H), 2.40 (s, 2H), 1.72-1.97 (m, 6H), 1.50 (m, 4H). ¹³C NMR (75 MHz, CDCl₃): δ 143.7, 137.7, 129.4, 127.3, 54.0, 41.0, 33.0, 25.4, 25.2, 21.6. . FT-IR (film cm⁻¹): 3287, 2934, 2857, 1598, 1495, 1448, 1386, 1318, 1252, 1209, 1158, 1129, 1092, 1002, 943, 867, 840, 816, 793, 723, 664.

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