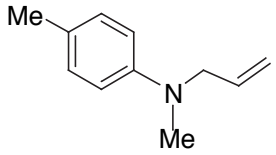
Experimental Section

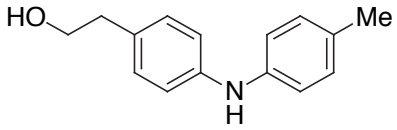
General Considerations: All reactions were carried out in 100 mL pear-shaped or round-bottom flasks and run under an air atmosphere. Vigorous stirring with a large egg-shaped stir bar (25.4 mm x 12.7 mm) was found to be extremely important and is required to insure complete reproducibility. Toluene was purchased from J. T. Baker in CYCLE-TAINER® solvent delivery kegs, were vigorously purged with argon for 2 h, and further purified by passing through two packed columns of neutral alumina and copper (II) oxide under argon pressure. Boronic acids, 2,6-lutidine, aniline and $Cu(OAc)_2$ were purchased from Strem Chemical Company and used without further purification. Myristic acid and all other amines were purchased from Aldrich and used without further purification. Flash column chromatography was performed with Silicycle ultra pure silica gel (230-400 mesh). IR spectra were recorded on a Perkin-Elmer FT-IR 1600 instrument for all previously unknown compounds. Elemental analysis were performed by Atlantic Microlabs, Inc., Norcross, GA. ^{1}H NMR and ^{13}C NMR were recorded on a Bruker 400 MHz instrument with chemical shifts reported relative to residual deuterated solvent peaks. Gas chromatographic analysis were performed on a Hewlett Packard 6890 instrument with an FID detector and a Hewlett Packard 10 m x 0.2 mm i.d. HP-1 capillary column. Mass spectra (GC/MS) were recorded on a Hewlett Packard model GCD. All yields reported in the publication represent an average of at least two independent runs. Characteriztion data for previously unknown compounds were determined from a single run with isolated yields. Compounds described in the literature were characterized by comparing their ^{1}H NMR and GC/MS to the previously reported data; their purity was confirmed by GC.

General Procedure for the Copper-Catalyzed Coupling of Amines with Arylboronic Acids.

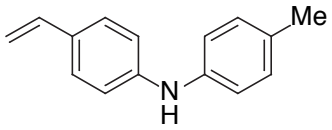
To a flame-dried 100 mL pear shaped flask with a large egg-shaped stir bar, a standard 24/40 joint and rubber septa was added 1.50 mmol of the solid arylboronic acid, 5-20 mol% of solid $Cu(OAc)_2$ and 10-40 mol% of crystalline myristic acid under an atmosphere of air. The rubber septum was then replaced and 2 mL of dry toluene was added via syringe. The resulting suspension was stirred slowly and 116 μL (1.00 mmol) of 2,6-lutidine was added by syringe. After a few minutes 1.00 mmol of the respective amine was added and the resulting mixture was stirred vigorously at ambient temperature for approximately 24 h. The reaction mixture was then diluted with 10 mL of ethyl acetate, filtered through a pad of silica gel and purified by column chromatography using ethyl acetate/hexanes as the eluent system. Yields in the publication represent an average of at least two runs. Yields reported below are from a single experiment with characterization taken from that specific run.



***N*-Allyl-*N*-methyl-4-methylaniline.**[1] The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 96 μL (1.00 mmol) of *N*-methylallyl amine. Column chromatography using 50:1 hexanes:ethyl acetate provided 0.092 g of the title compound as a colorless oil in 57 % isolated yield. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.09 (d, 2H, J = 8.5 Hz), 6.72 (d, 2H, J = 8.6 Hz), 5.90 (m, 1H), 5.20 (m, 2H), 3.93 (m, 2H), 2.95 (s, 3H), 2.32 (s, 3H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 147.46, 133.97, 129.57, 125.65, 116.14, 112.84, 55.60, 38.13, 20.19. IR (thin film, cm^{-1}) 2921 (m), 2858 (m), 1618 (m), 1522 (s), 1365 (m), 1247 (m), 802 (m). Anal calc for $C_{11}H_{15}N$: C, 81.93; H, 9.38. Found: C, 81.99; H, 9.32.

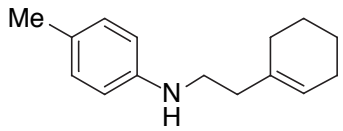


***N*-(4-phenethylalcohol)-4-methylaniline.** The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 0.137g (1.00 mmol) of 4-aminophenethyl alcohol. Column chromatography using 70:30 hexanes:ethyl acetate provided 0.168 g of the title compound as a white solid in 74 % isolated yield, mp = 87.0-87.5 ^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.13 (m, 4H), 7.02 (m, 4H), 3.86 (t, 2H, J = 6.5 Hz), 2.84 (t, 2H, J = 6.5 Hz), 2.35 (s, 3H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 142.78, 140.96, 131.07, 130.66, 130.31, 130.29, 118.90, 117.84, 64.26, 38.84, 21.12. IR (thin film, cm^{-1}) 3280 (b), 2931 (m), 1610 (m), 1523 (s), 1319 (m), 1059 (m), 811 (s). Anal calc for $C_{15}H_{17}NO$: C, 79.26; H, 7.54. Found: C, 79.12; H, 7.52.

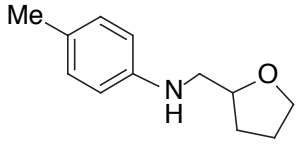


***N*-(4-methylphenyl)-4-vinylaniline.** The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 129 μL (1.00 mmol) of 4-vinylaniline (90 % tech. grade). Column chromatography using 50:1 hexanes:ethyl acetate provided 0.149 g of the title compound as a white solid in 71 % isolated yield, mp = 71-73 ^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.37 (d, 2H, J = 8.5 Hz), 7.16 (d, 2H, J = 8.3 Hz), 7.07 (d, 2H, J = 8.4 Hz), 7.02 (d, 2H, J = 8.2 Hz), 6.72 (dd, 1H, J = 10.8 Hz and J = 17.5 Hz), 5.68 (bs, 1H), 5.67 (dd, 1H, J = 0.8 Hz and J = 17.5 Hz), 5.17 (dd, 1H, J = 0.8 Hz and J = 10.8 Hz), 2.38 (s, 3H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 143.57, 139.81, 136.32, 131.09, 129.83, 129.72, 127.23, 119.05, 116.39, 110.74, 20.66. IR (thin film, cm^{-1}) 2917 (m), 1607

(m), 1514 (s), 1314 (m), 811 (m). Anal calc for $C_{15}H_{15}N$: C, 86.08; H, 7.22. Found: C, 86.18; H, 7.14.

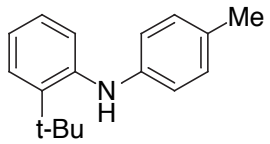


***N*-[2-(1-cyclohexenyl)ethyl]-4-methylaniline.** The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 139 μL (1.00 mmol) of 2-(1-cyclohexenyl)ethyl amine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.116 g of the title compound as a colorless oil in 54 % isolated yield. ^{1}H NMR (400 MHz, $CDCl_3$): δ 6.99 (d, 2H, J = 8.1 Hz), 6.56 (d, 2H, J = 8.3 Hz), 5.52 (m, 1H), 3.59 (bs, 1H), 3.14 (t, 2H, J = 6.8 Hz), 2.25 (t, 2H, J = 6.7 Hz), 2.24 (s, 3H), 2.02 (m, 2H), 1.95 (m, 2H), 1.62 (m, 2H), 1.58 (m, 2H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 146.12, 143.93, 129.66, 126.44, 123.49, 113.08, 41.82, 37.61, 27.81, 25.24, 22.84, 22.39, 20.37. IR (thin film, cm^{-1}) 2921 (m), 2833 (s), 1618 (m), 1520 (s), 805 (m). Anal calc for $C_{15}H_{21}N$: C, 83.66; H, 9.83. Found: C, 83.60; H, 9.87.

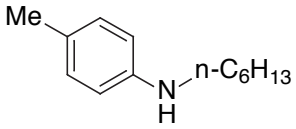


***N*-(tetrahydrofurylmethyl)-4-methylaniline.** The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 103 μL (1.00 mmol) of S-(+)-tetrahydro-furylmethyl amine. Column chromatography using 10:1 hexanes:ethyl acetate provided 0.101 g of the title compound as a colorless oil in 53 % isolated yield. The resulting stereochemistry of the furan was not determined for the above product. ^{1}H NMR (400 MHz, $CDCl_3$): δ 6.98 (d, 2H, J = 8.3 Hz), 6.56 (d, 2H, J = 8.3 Hz), 4.13 (m, 1H), 3.90 (m, 1H), 3.79 (m, 1H), 3.25 (dd, 1H, J = 3.8 Hz and J = 12.3 Hz), 3.08 (dd, 1H, J =

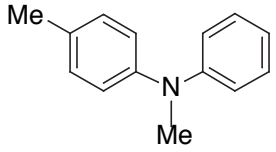
5.3 Hz and J = 7.5 Hz), 2.26 (s, 3H), 2.04 (m, 1H), 1.93 (m, 2H), 1.67 (m, 1H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 146.57, 130.11, 127.09, 113.65, 78.03, 68.44, 49.02, 29.53, 26.23, 20.82. IR (thin film, cm^{-1}) 2918 (m), 2864 (s), 1618 (m), 1522 (s), 1073 (m), 808 (m). Anal calc for $C_{12}H_{17}NO$: C, 75.35; H, 8.96. Found: C, 75.59; H, 8.96.



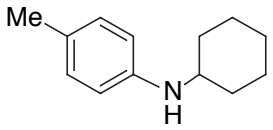
***N*-(2-*t*-Butylphenyl)-4-methylaniline.** The general procedure was followed using 0.204 g (1.50 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 0.156 g (1.00 mmol) of 2-*t*-butylaniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.186 g of the title compound as a white solid in 78 % isolated yield, mp = 46.0-47.0 ^{o}C. ^{1}H NMR (400 MHz, $CDCl_3$): δ 7.32 (m, 1H), 7.15 (m, 1H), 7.05 (m, 1H), 6.93 (m, 3H), 6.67 (m, 2H), 5.25 (bs, 1H), 2.18 (s, 3H), 1.35 (s, 9H). ^{13}C NMR (100.6 MHz, $CDCl_3$): 143.59, 142.69, 142.29, 130.26, 129.34, 127.37, 127.29, 125.13, 123.56, 117.20, 35.20, 30.97, 21.00. IR (thin film, cm^{-1}) 2961 (m), 2916 (m), 1615 (m), 1514 (s), 1299 (m), 807 (m), 756 (m). Anal calc for $C_{17}H_{21}N$: C, 85.30; H, 8.84. Found: C, 85.24; H, 8.98.



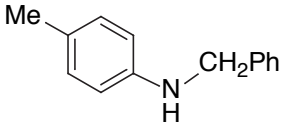
***N*-(4-Methylphenyl)-*n*-hexylamine.**[2] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 132 μL (1.00 mmol) of *n*-hexylamine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.096 g of the title compound as a white solid in 50 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



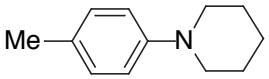
***N*-Methyl-*N*-phenyl-4-methylaniline.**[2] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 108 μL (1.00 mmol) of phenmethylamine. Column chromatography using 50:1 hexanes:ethyl acetate provided 0.122 g of the title compound as a white solid in 62 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



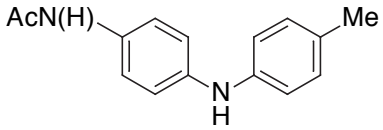
***N*-Cyclohexyl-4-methylaniline.**[3] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 114 μL (1.00 mmol) of cyclohexylamine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.113 g of the title compound as a colorless oil in 60 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



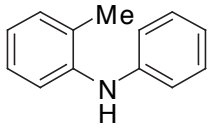
***N*-Benzyl-4-methylaniline.**[4] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 109 μL (1.00 mmol) of benzylamine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.125 g of the title compound as a white solid in 63 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



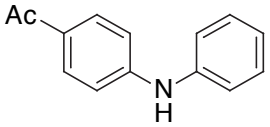
***N*-(4-Methylphenyl)-piperidine.**[5] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 100 μL (1.00 mmol) of piperidine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.100 g of the title compound as a colorless oil in 57 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



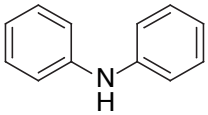
***N*-[*N*-(*p*-Tolyl)amino]acetanilide.**[6] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 0.150 g (1.00 mmol) of 4'-aminoacetanilide. Column chromatography using 2:3 hexanes:ethyl acetate provided 0.139 g of the title compound as a white solid in 58 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



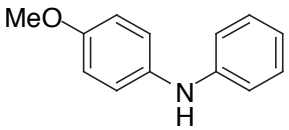
***N*-(2-Methylphenyl)aniline.**[7] The general procedure was followed using 0.204 g (1.5 mmol) *o*-tolylboronic acid, 0.036 g (0.20 mmol) $Cu(OAc)_2$, 0.092 g (0.40 mmol) myristic acid and 91 μL (1.00 mmol) of aniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.098 g of the title compound as a white solid in 53 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



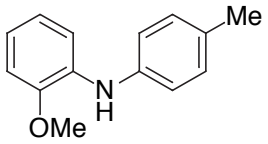
***N*-(4-Acetylphenyl)aniline.**[8] The general procedure was followed using 0.246 g (1.5 mmol) 4-acetylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 91 μL (1.00 mmol) of aniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.133 g of the title compound as a white solid in 63 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



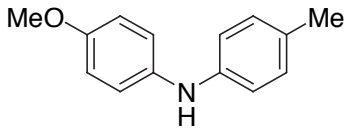
Diphenylamine.[9] The general procedure was followed using 0.134 g (1.1 mmol) phenylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 91 μL (1.00 mmol) of aniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.130 g of the title compound as a white solid in 77 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



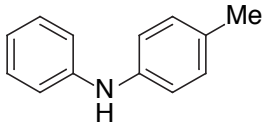
***N*-(4-Methoxyphenyl)aniline.**[7] The general procedure was followed using 0.228 g (1.5 mmol) 4-methoxyphenylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 91 μL (1.00 mmol) of aniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.130 g of the title compound as a white solid in 71 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



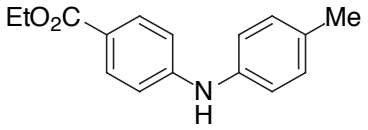
***N*-(2-Methoxyphenyl)-4-methylaniline.**[10] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 113 μL (1.00 mmol) of *o*-anisidine. Column chromatography using 50:1 hexanes:ethyl acetate provided 0.165 g of the title compound as a colorless oil in 77 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



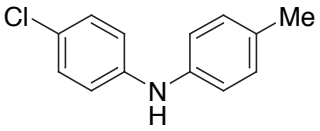
***N*-(4-Methoxyphenyl)-4-methylaniline.**[11] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 0.123 g (1.00 mmol) of *p*-anisidine. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.177 g of the title compound as a white solid in 83 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



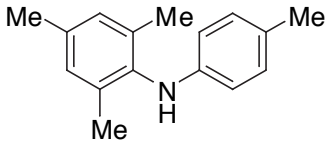
***N*-phenyl-4-methylaniline.**[5] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 91 μL (1.00 mmol) of aniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.165 g of the title compound as a white solid in 90 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



***N*-(4-Carboxyethylphenyl)-4-methylaniline.**[12] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 0.165 g (1.00 mmol) of ethyl 4-aminobenzoate. Column chromatography using 10:1 hexanes:ethyl acetate provided 0.194 g of the title compound as a white solid in 76 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



***N*-(4-Chlorophenyl)-4-methylaniline.**[13] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.009 g (0.05 mmol) $Cu(OAc)_2$, 0.023 g (0.10 mmol) myristic acid and 0.128 g (1.00 mmol) of 4-chloroaniline. Column chromatography using 20:1 hexanes:ethyl acetate provided 0.152 g of the title compound as a white solid in 70 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.



***N*-(2,4,6-Trimethylphenyl)-4-methylaniline.**[14] The general procedure was followed using 0.204 g (1.5 mmol) *p*-tolylboronic acid, 0.018 g (0.10 mmol) $Cu(OAc)_2$, 0.046 g (0.20 mmol) myristic acid and 140 μL (1.00 mmol) of 2,4,6-trimethyaniline. Column chromatography using 10:1 hexanes:ethyl acetate provided 0.201 g of the title compound as a white solid in 89 % isolated yield. Spectral data (^{1}H NMR) matched that of the literature and GC analysis indicated >95 % purity.

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