Spectroscopic data:

Indole (3a): Yellow solid; Mp: 51-52 ℃(lit.[11a] 51 ℃); IR (KBr): 3402, 3097, 3043, 1616, 1496, 1454, 1338, 744 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 8.12 (br s, 1 H), 7.72 (d, *J* = 7.8 Hz, 1 H), 7.43 (d, *J* = 8.1 Hz, 1 H), 7.26 (t, *J* = 8.1 Hz, 1 H), 7.23 (t, *J* = 2.8 Hz, 1 H), 7.19 (t, *J* = 7.9 Hz, 1 H), 6.62 (t, *J* = 2.1 Hz, 1 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 135.80, 127.87, 124.13, 122.00, 120.75, 119.83, 111.02, 102.65; MS: *m/z* 117 [M^+], 89, 63.

6-Chloroindole (3b): White solid; Mp: 88-89 ℃(lit.[11c] 88-89 ℃); IR (KBr): 3394, 3097, 3039, 1616, 1566, 1496, 1446, 1334, 806, 733 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 8.12 (br s, 1 H), 7.56 (d, *J* = 8.4 Hz, 1 H), 7.39 (br s, 1 H), 7.20 (t, *J* = 2.8 Hz, 1 H), 7.11 (dd, *J* = 8.4, 1.8 Hz, 1 H), 6.55 (br s, 1 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 136.15, 127.89, 126.46, 124.83, 121.57, 120.61, 110.96, 102.83; MS: *m/z* 153, 151 [M^+], 124, 116 [M^+-Cl], 89, 63.

6-Bromoindole (3c): Off-white solid; Mp: 93-94 ℃ (lit.[11d] 95-97 ℃); IR (KBr): 3398, 3093, 3035, 1604, 1570, 1493, 1450, 1331, 810, 729 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 8.16 (br s, 1 H), 7.57 (br s, 1 H), 7.53 (d, *J* = 8.4 Hz, 1 H), 7.26 (dd, *J* = 8.4, 1.7 Hz, 1 H), 7.20 (dd, *J* = 3.1, 2.5 Hz, 1 H), 6.57-6.56 (m, 1 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 136.60, 126.77, 124.78, 123.17, 121.95, 115.49, 113.96, 102.87; MS: *m/z* 197, 195 [M^+], 116 [M^+-Br], 89, 63.

6-Aminoindole (3d): Light grey solid; Mp: 63-64 ℃ (lit.[11f] 64-67 ℃); IR (KBr): 3394, 3359, 3294, 3101, 3020, 1624, 1512, 1454, 1342, 849, 795, 729 cm^{-1}; ^1H NMR (500 MHz, CD_3OD): δ = 7.30 (d, *J* = 8.3 Hz, 1 H), 6.99 (d, *J* = 3.15 Hz, 1 H), 6.78 (d, *J* = 1.0 Hz, 1 H), 6.57 (dd, *J* = 8.4, 2.0 Hz, 1 H), 6.28 (d, *J* = 3.1 Hz, 1 H); ^{13}C NMR (125 MHz, CD_3OD): δ = 141.25, 137.40, 122.14, 121.94, 120.13, 110.57, 100.73, 97.44; MS: *m/z* 132 [M^+], 104, 77.

5-Metlylindole (3e): White solid; Mp: 58-59 ℃(lit.[11b] 58-60 ℃); IR (KBr): 3390, 3097, 3027, 2912, 2858, 1631, 1573, 1465, 1326, 798, 763, 717 cm^{-1}; ^1H NMR (500 MHz, $CDCl_3$): δ = 7.98 (br s, 1 H), 7.42 (s, 1 H), 7.25 (d, *J* = 8.2 Hz, 1 H), 7.13 (t, *J* = 2.8 Hz, 1 H), 7.01 (dd, *J* = 8.2, 1.4 Hz, 1 H), 6.47-6.45 (m, 1 H), 2.44 (s, 3 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 134.13, 129.02, 128.16, 124.24, 123.63, 120.36, 110.67, 102.13, 21.45; MS: *m/z* 131 [M^+], 130, 103, 77.

5-Cyanoindole (3f): White solid; Mp: 105-106 ℃ (lit.[11e] 104.5-106.5 ℃); IR

(KBr): 3321, 3070, 3035, 2214, 1608, 1508, 1466, 1342, 802, 768, 733 cm^{-1}; ^{1}H NMR (500 MHz, CD_3COCD_3): δ = 10.83 (br s, 1 H), 8.06 (s, 1 H), 7.63 (d, *J* = 8.3 Hz, 1 H), 7.56 (t, *J* = 2.7 Hz, 1 H), 7.43 (dd, *J* = 8.6, 1.5 Hz, 1 H), 6.66 (d, *J* = 2.4 Hz, 1 H); ^{13}C NMR (125 MHz, CD_3COCD_3): δ = 137.98, 128.02, 127.55, 125.74, 123.93, 120.35, 112.53, 102.46, 102.21; MS: *m/z* 142 [M^+], 115, 88, 62.

5-Chloroindole (3g): White solid; Mp: 72-73 ℃ (lit.[11b] 69-71 ℃); IR (KBr): 3386, 3100, 3035, 1624, 1566, 1450, 1315, 802, 760 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 8.20 (br s, 1 H), 7.65 (d, *J* = 2.0 Hz, 1 H), 7.33 (d, *J* = 8.6 Hz, 1 H), 7.25 (t, *J* = 2.8 Hz, 1 H), 7.19 (dd, *J* = 8.6, 2.0 Hz, 1 H), 6.55-6.54 (m, 1 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 134.16, 128.97, 125.54, 125.49, 122.33, 120.13, 112.00, 102.43; MS: *m/z* 153, 151 [M^+], 124, 116 [M^+-Cl], 89, 63.

5,6-Dichloroindole (3h): Light brown solid; Mp: 152-153 ℃ (lit.[11h] 148-151 ℃); IR (KBr): 3402, 3086, 3039, 1628, 1558, 1496, 1446, 1288, 760, 725 cm^{-1}; ^{1}H NMR (500 MHz, CD_3COCD_3): δ = 10.53 (s, 1 H), 7.76 (s, 1 H), 7.65 (s, 1 H), 7.45 (t, *J* = 2.4 Hz, 1 H), 6.50 (d, *J* = 2.2 Hz, 1 H); ^{13}C NMR (125 MHz, CD_3COCD_3): δ = 136.49, 129.42, 128.85, 125.45, 123.60, 122.45, 114.13, 102.63; MS: *m/z* 189, 187, 185 [M^+], 150 [M^+-Cl], 152, 123, 114, 87, 62.

4-Chloroindole (3i): Yellow Oil; IR (KBr): 3425, 3116, 3070, 1616, 1574, 1485, 1427, 1338, 806, 748 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 8.27 (br s, 1 H), 7.29 (ddd, *J* = 7.0, 1.8, 0.9 Hz, 1 H), 7.24 (dd, *J* = 5.6, 2.9 Hz, 1 H), 7.14-7.09 (m, 2 H), 6.67-6.66 (m, 1 H); ^{13}C NMR (125 MHz, $CDC1_3$): δ = 136.49, 126.81, 126.14, 124.66, 122.61, 119.61, 109.65, 101.40; MS: *m/z* 153, 151 [M^+], 124, 116 [M^+-Cl], 89, 63.

4-Aminoindole (3j): Dark grey solid; Mp: 106-107 ℃ (lit.[11g] 106-108.5 ℃); IR (KBr): 3394, 3325, 3178, 3008, 1592, 1511, 1442, 1361, 775, 744 cm^{-1}; ^{1}H NMR (500 MHz, CD_3COCD_3): δ = 9.96 (br s, 1 H), 7.11 (t, *J* = 2.8 Hz, 1 H), 6.83 (t, *J* = 7.9 Hz, 1 H), 6.72 (d, *J* = 8.1 Hz, 1 H), 6.53-6.52 (m, 1 H), 6.26 (d, *J* = 7.5 Hz, 1 H), 4.66 (br s, 2 H); ^{13}C NMR (125 MHz, CD_3COCD_3): δ =146.14, 142.62, 127.66, 126.97, 122.62, 107.68, 105.99, 103.83; MS: *m/z* 132 [M^+], 104, 77.

7-Chloroindole (3k): White solid; Mp: 59-60 ℃ (lit.[11a] 58 ℃); IR (KBr): 3398, 3108, 3023, 1619, 1562, 1485, 1431, 1331, 783, 721 cm^{-1}; ^{1}H NMR (500 MHz, $CDCl_3$): δ = 8.35 (br s, 1 H), 7.54 (d, *J* = 8.0 Hz, 1 H), 7.24 (t, *J* = 2.8 Hz, 1 H), 7.19 (d, *J* = 7.6 Hz, 1 H), 7.05 (t, *J* = 7.8 Hz, 1 H), 6.59 (t, *J* = 2.7 Hz, 1 H); ^{13}C NMR (125

MHz, $CDC1_3$): δ = 133.19, 129.32, 124.77, 121.36, 120.60, 119.37, 116.60, 103.72; MS: *m/z* 153, 151 [M^+], 124, 116 [M^+-Cl], 89, 63.

7-Methylindole (3l): White solid; Mp: 81-82 °C (lit.[11a] 81 °C); IR (KBr): 3398, 3100, 3050, 2923, 2854, 1619, 1592, 1492, 1454, 1338, 782, 721 cm^{-1}; ^1H NMR (500 MHz, CD_3COCD_3): δ = 10.15 (br s, 1 H), 7.40 (d, *J* = 7.2 Hz, 1 H), 7.29 (t, *J* = 2.7 Hz, 1 H), 6.94-6.89 (m, 2 H), 6.46 (t, *J* = 2.2 Hz, 1 H), 2.49 (s, 3 H); ^{13}C NMR (125 MHz, CD_3COCD_3): δ = 136.80, 128.81, 125.25, 122.67, 121.33, 120.22, 118.87, 102.88, 17.09; MS: *m/z* 131 [M^+], 130, 103, 77.