

Supporting information

bis(3-bromomethyl-5-*tert*-butyl-2-methoxyphenyl)methane **1** and N-(9-anthrylmethyl)imidazole were prepared following literature procedures.^{S1}

[H₂BIMMN^{me}](PF₆)₂ **2**

A 100 mL flask was charged with N-methylimidazole (1.0 g, 12.2 mmol), bis(3-bromomethyl-5-*tert*-butyl-2-methoxyphenyl)methane **47** (3.1 g, 6.0 mmol) and THF(50 mL), and the mixture was heated to reflux for 2 days. During this time, a white solid precipitated from the solution. The solid filtered off and washed with cold THF (5 mL × 2) to yield the crude product [H₂BIMMN^{me}]Cl₂. The hygroscopic chloride salt was converted to stable [H₂BIMMN^{me}](PF₆)₂ by adding NH₄PF₆ (g, mmol) in 50 mL of methanol. The white hexafluorophosphate salt precipitated immediately, and was collected by filtration, washed with small portions of cold methanol. The product was further purified by recrystallised from acetonitrile and ethanol. The product was obtained by filtration and dried in a vacuum to provided the pure product [H₂BIMMN^{me}](PF₆)₂ (g) as a white powder in 89% yield; mp. > 250°C; ¹H NMR (300 MHz, DMSO-d₆): 9.10(s, 2 H, imidazolyl-H), 7.64(s, 2 H), 7.34(s, 2 H, imidazolyl-H), 7.02(s, 2 H, imidazolyl-H, 5.36(s, 4 H), 3.98(s, 2 H, -CH₂-), 3.84 (s, 6 H, -NCH₃), 3.65 (s, 6 H, -OCH₃), 1.15 (s, 18 H, *t*-Bu). ¹³C NMR (75 MHz, DMSO-d₆): 161.85, 154.27, 146.83, 136.55, 128.89, 126.98, 125.75, 123.67, 122.35, 61.10, 48.31, 35.74, 34.01, 30.90, 29.13. Anal. Calcd. for C₃₃H₄₆F₁₂N₄O₂P₂: C, 48.30; H, 5.65; N, 6.83. Found: C, 48.19; H, 5.63; N, 6.80.

[H₂BIMMN^{9-anthrylme}]Cl₂ **3**

A 100 mL flask was charged with N-(9-anthrylmethyl)imidazole (g, 12.2 mmol), bis(3-bromomethyl-5-*tert*-butyl-2-methoxyphenyl)methane **1** (3.1 g,

6.0 mmol) and THF(50 mL), and the mixture was heated to reflux for 2 days. During this time, a yellow solid precipitated from the solution. After cooling the solution, the solid was filtered and washed with THF (5 mL $\times$ 2) to yield the crude product $[\text{H}_2\text{BIMMN}^{9\text{-anthrylmethyl}}]\text{Cl}_2$. The chloride salt was converted to $[\text{H}_2\text{BIMMN}^{9\text{-anthrylmethyl}}]\text{Cl}_2$ by adding NH_4PF_6 (g, mmol) in 50 mL of methanol. The yellow hexafluorophosphate salt precipitated immediately, and was collected by filtration, washed with small portions of cold methanol. The product was further purified by recrystallised from acetonitrile and ethanol. The product was obtained by filtration and dried in a vacuum to provided the pure product $[\text{H}_2\text{BIMMN}^{\text{me}}](\text{PF}_6)_2$ (g) as a yellow powder in 87% yield; mp. $>250^\circ\text{C}$; ^1H NMR (300 MHz, DMSO-d_6): 9.10 (s, 2 H), 8.86 (s, 2 H), 8.47 (d, 4 H, $J = 8.4$ Hz), 8.23 (d, 4 H, $J = 7.8$ Hz), 7.63 (m, 8 H), 7.60 (s, 4 H), 6.93 (s, 4 H, $-\text{CH}=\text{CH}-$), 6.54 (s, 4 H, $-\text{CH}_2-$), 5.14 (s, 4 H, $-\text{CH}_2-$), 3.88 (s, 2 H, $-\text{CH}_2-$), 3.62 (s, 6 H, $-\text{OCH}_3$), 1.00 (s, 18 H, $t\text{-Bu}$). ^{13}C NMR (75 MHz, DMSO-d_6): 161.81, 154.05, 146.75, 136.64, 136.64, 133.64, 130.36, 129.71, 128.90, 127.60, 127.13, 127.08, 126.40, 125.56, 123.04, 122.85, 122.73, 61.01, 50.01, 48.41, 33.95, 30.87, 30.81, 30.77, 29.03, 22.02, 13.89. Anal. Calcd. for $\text{C}_{61}\text{H}_{62}\text{F}_{12}\text{N}_4\text{O}_2\text{P}_2$: C, 62.45; H, 5.33; N, 4.78. Found: C, 62.51; H, 5.38; N, 4.76.

$[\text{BIMMN}^{9\text{-anthrylmethyl}}]_2\text{Ag}_2(\text{PF}_6)_2$ 5

A 100 mL flask was charged with silver oxide (278 mg, 1.2 mmol), $[\text{H}_2\text{BIMMN}^{9\text{-anthrylmethyl}}](\text{PF}_6)_2$ (650 mg, 0.55 mmol) and DMSO (50 mL). The suspension was washed with nitrogen flow for 30 min and then heated to 75°C for 12 h. The solution was filtered. The filtrate was diluted with water (100 mL) and the product precipitated immediately. The precipitate was collected by filtration, washed with small portions of cold ethyl ether. The product was purified by recrystallised from acetonitrile and ethyl ether. The

product was obtained by filtration and dried in a vacuum to provided the pure product $[\text{BIMMN}^{9\text{-anthrylme}}]_2\text{Ag}_2(\text{PF}_6)_2$ (468 mg) as an air- and moisture-stable and moderately light-sensitive yellow crystal in 73% yield; mp. > 250 °C; ^1H NMR (300 MHz, DMSO- d_6): 8.71 (s, 4 H), 8.27(d, 8 H, $J = 8.6$ Hz), 8.09 (s, 8 H, $J = 8.1$ Hz), 7.74 (s, 4 H), 7.51(m, 24 H), 7.31(s, 4 H), 6.44(s, 8 H, -CH₂-), 6.05(s, 8 H, -CH₂-), 3.19(s, 4 H, -CH₂-), 2.40(s, 12 H, -OCH₃), 0.87(s, 36 H, *t*-Bu). ^{13}C NMR (75 MHz, DMSO- d_6): 153.08, 145.82, 132.15, 131.04, 130.16, 129.06, 128.90, 128.44, 128.31, 127.00, 126.95, 126.65, 125.13, 123.68, 59.73, 45.94, 33.50, 31.08, 29.82。 Anal. Calcd. for $\text{C}_{122}\text{H}_{120}\text{Ag}_2\text{F}_{12}\text{N}_8\text{O}_4\text{P}_2$: C, 64.61; H, 5.33; N, 4.94. Found: C, 64.72; H, 5.31; N, 4.96.

S1. a), Masci, B.; Finelli, M.; Varrone, M. Chem. Eur. J. 1998, 10, 2018. b). Liu, Q. X.; Song, H. B.; Xu, F. B.; Li, Q. S.; Zeng, X. S.; Leng, X. B.; Zhang, Z. Z. J. Chem. Res. (S).; 2003, 445 - 447.)