

Synthesis of P1: A solution of zinc 5,10,15,20-tetrakis[4-bromophenyl]-porphyrin (1.0 g, 1.006 mmol) in 20 mL of DMF, triethylamine (1.68 mL, 12.70 mmol) and triethoxysilane (1.48 mL, 8.05 mmol) was syringed to a solution of [Rh(cod)(MeCN)₂]BF₄ (17 mg, 0.0438 mmol) in 20 mL of DMF. The dark purple mixture was heated at 80 °C under stirring overnight. After concentration under vacuum, the resulting solid was taken up in 30 mL of diethyl ether. The insoluble impurities were removed by filtration and the filtrate evaporated under vacuum to afford P1 as a purple solid (0.87 g, 65% yield).

Elemental analysis: calc. (%) for C₆₈H₈₄N₄O₁₂Si₄Zn: C 61.54, H 6.38, Si 8.46, N 4.22, Zn 4.93; found: C 61.02, H 6.33, Si 8.15, N 4.17, Zn 4.83. ¹H NMR (200 MHz, DMSO) δ: 1.47 (t, J = 6.99 Hz, 36H, CH₃), 4.17 (q, J = 6.99 Hz, 24 H, CH₂), 8.09 (d, J = 8.0 Hz, 8 H, C₆H₄), 8.28 (d, J = 8.0 Hz, 8 H, C₆H₄), 8.98 (s, 8 H, porph). ¹³C NMR (50 MHz, DMSO) δ: 18.45 (CH₃), 59.70 (OCH₂), 109.7 (porph), 115.16 (porph), 121.81 (porph), 126.38 (Ar), 133.65 (Ar), 136.52 (Ar), 137.97 (Ar). ²⁹Si NMR (39 MHz, CDCl₃) δ: 259.55.

Synthesis of P2: 3-(Triethoxysilyl)propyl isocyanate (2.85 g, 12.3 mmol) was added dropwise at 60 °C to a solution of 5,10,15,20-tetrakis(4-aminophenyl)porphyrin (1.48 g, 2.2 mmol) in 10 mL of THF, 45 mL of acetonitrile and triethylamine (1.14 g). The reaction was monitored by MALDI-TOF spectrometry. After evaporation to dryness under vacuum, the resulting solid was washed three times with pentane to remove the excess of isocyanate. The resulting dark blue powder was dried under vacuum to afford P2 in quantitative yield (3.70 g, 2.2 mmol).

Elemental analysis: calc. (%) for C₈₄H₁₁₈N₁₂O₁₆Si₄·3H₂O: C 58.72, H 7.27, N 9.78; found: C 58.91, H 7.24, N 9.51. ¹H NMR (500 MHz, DMSO) δ: 22.86 (s, 2 H, NH porph), 0.64 (m, 8 H, CH₂), 1.17 (m, 36 H, OEt), 1.57 (m, 8 H, CH₂), 3.17 (m, 8 H, CH₂), 3.80 (m, 24 H, OEt), 6.39 (s, 4 H, N-H), 7.83 (d, J = 5 Hz, 8 H, C₆H₄), 8.04 (d, J = 5 Hz, 8 H, C₆H₄), 8.85 (m, 8 H, B-H porph). MS (MALDI-TOF) calc. m/z = 1662; found 1660.