Electronic supplementary information (ESI)

A colorimetric and ratiometric NIR fluorescent turn-on fluoride chemodosimeter based on BODIPY derivatives: high selectivity via specific Si-O cleavage

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1. General Methods

All chemical reagents and solvents for synthesis were purchased from commercial suppliers and were used without further purification. $^1$H NMR and $^{13}$C NMR spectra were recorded on a Bruker AV-400 spectrometer with chemical shifts reported in ppm (in CDCl$_3$, TMS as internal standard) at room temperature. Mass spectra were measured on a HP 1100 LC-MS spectrometer.

UV-vis absorption spectra were recorded on a Varian Cary 100 spectrophotometer. Fluorescence spectra were measured with a Varian CARY Eclipse Fluorescence spectrophotometer. Spectral-grade solvents were used for measurements of UV-vis absorption and fluorescence.

2. Synthesis of BODIPY-OSi

Scheme S1

To a solution of BODIPY-OH (500 mg, 1.24 mmol) in CH$_2$Cl$_2$ (25 mL) was added DBU (234 mg, 1.24 mmol) at -15 °C, the resulted solution was stirred for another 15 min at room temperature, the resulted solution was stirred for another 15 min at -15 °C, followed by the addition of tert-butylidiphenylchlorosilane (681 mg, 2.48
mmol). The resulting mixture was stirred for 10 min at -15 °C, quenched with 0.1M HCl (1.0 mL), extracted with CH₂Cl₂, washed with H₂O. The combined organic extracts were dried with anhydrous Na₂SO₄, and the solvent was removed in vacuo. The crude product was purified by flash chromatography to afford 557 mg (70%).

**BODIPY-OSi**: ¹H NMR (400 MHz, CDCl₃): δ 1.00-1.04 (t, J = 7.6 Hz, 3H, -CH₂CH₃), 1.11 (s, 9H, -CH₃), 1.36 (s, 3H, -CH₃), 1.49 (s, 3H, -CH₃), 2.33-2.38 (q, J = 7.6 Hz, 2H, -CH₂CH₃), 2.67 (s, 3H, -CH₃), 6.29-6.31 (dd, J₁ = 2.4 Hz, J₂ = 2 Hz, 1H), 7.02-7.04 (d, J = 8.8 Hz, 1H), 7.29-7.31 (m, 3H), 7.34-7.42 (m, 6H), 7.50-7.51 (m, 3H), 7.75-7.77 (m, 4H); ¹³C NMR (100 MHz, CDCl₃): δ 11.27, 12.15, 13.39, 14.26, 17.20, 19.57, 26.55, 103.98, 115.90, 121.54, 127.17, 127.78, 128.29, 129.10, 129.23, 129.67, 129.86, 132.52, 133.01, 133.42, 134.81, 135.18, 135.39, 135.53, 135.70, 136.73, 141.37, 141.51, 146.69, 157.68, 161.78; HRMS (ESI) calcd for C₄₀H₄₀BF₂N₂OSi: 641.2971; found: 641.2986. [M - H].
Kinetics of fluorescence enhancement profile

Fig. S1. Kinetics of fluorescence enhancement profile of BODIPY-OSi ($5 \times 10^{-6}$ M) at 676 nm in the presence of F$^-$ (50 equiv), $\lambda_{ex} = 644$ nm. The spectra data were obtained at room temperature.
3. UPLC-Mass spectra of BODIPY-OSi and BODIPY-OSi + TBAF

Fig. S2. UPLC-Mass spectra of BODIPY-OSi and BODIPY-OSi + TBAF.
4. $^1$H NMR and $^{13}$C NMR spectra

Fig. S3. $^1$H NMR and $^{13}$C NMR spectra of BODIPY-OSi (in CDCl$_3$)
5. HRMS spectrum

Fig. S4. HRMS spectrum of BODIPY-OSi