Electronic Supplementary Information (ESI):

FRET-based probe for fluoride based on phosphorescent iridium(III) complex containing triarylboron groups

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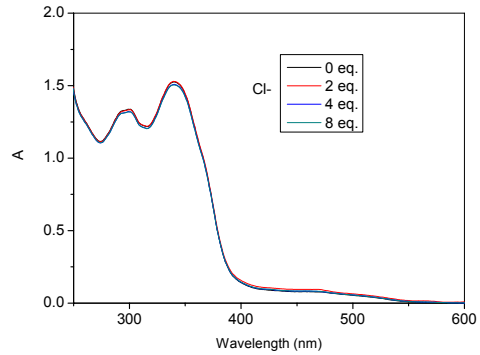
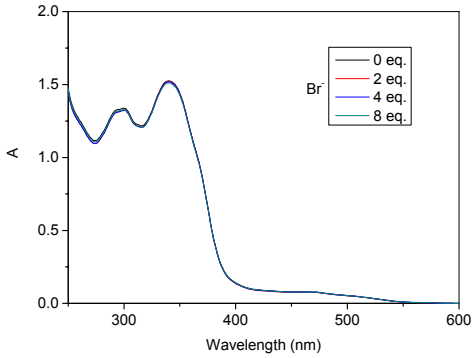
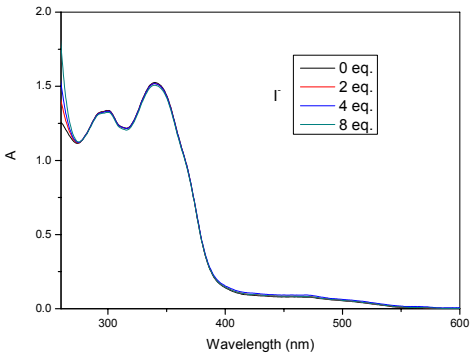
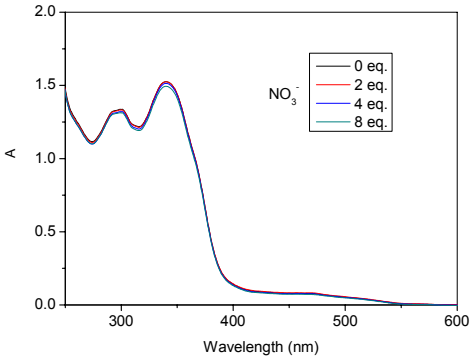
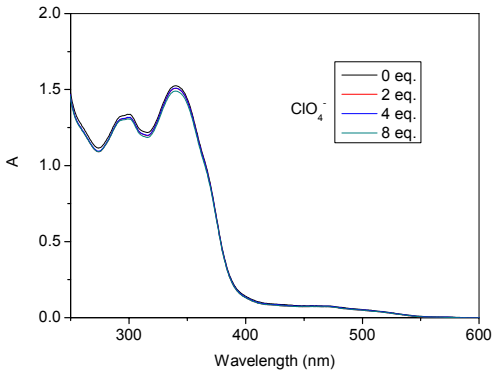
1. Response of UV-vis absorption spectra of 1 to various anions

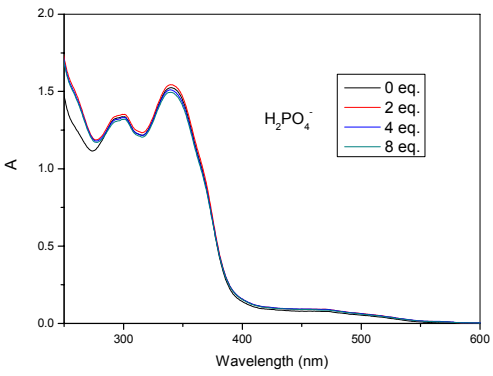












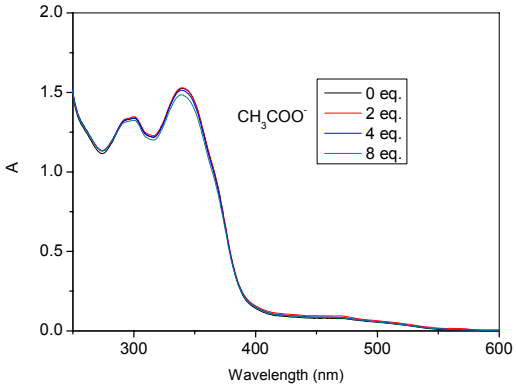
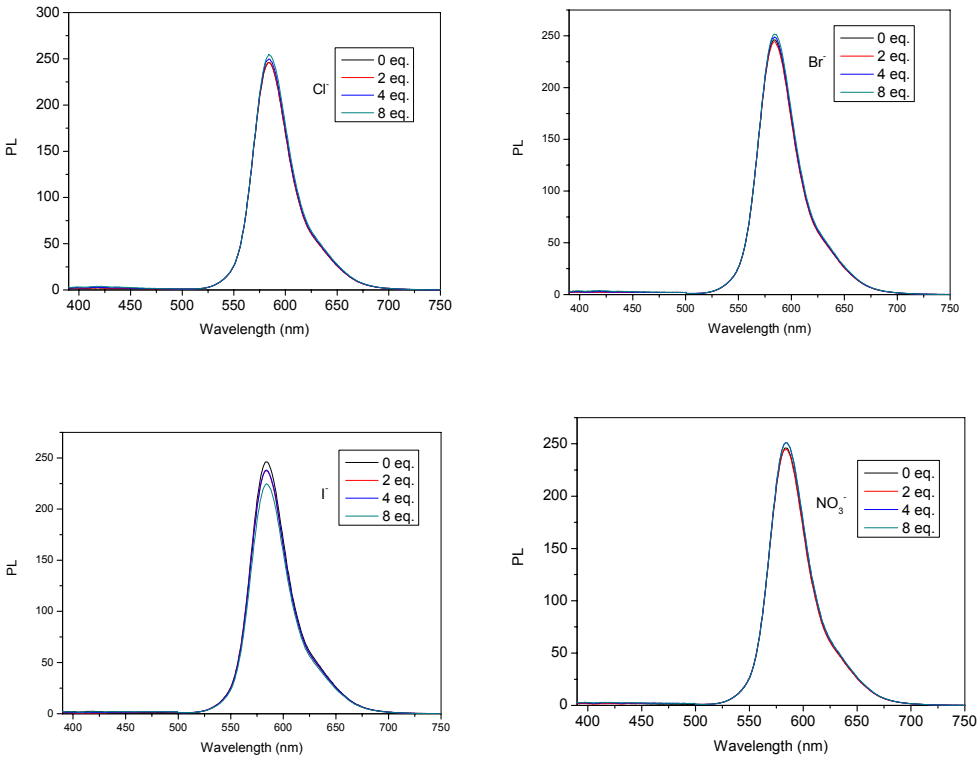


Fig. S1 Response of UV-vis absorption spectra of **1** (20 μM) in CH_2Cl_2 solution to various anions.

2. Response of PL spectra of 1 to various anions



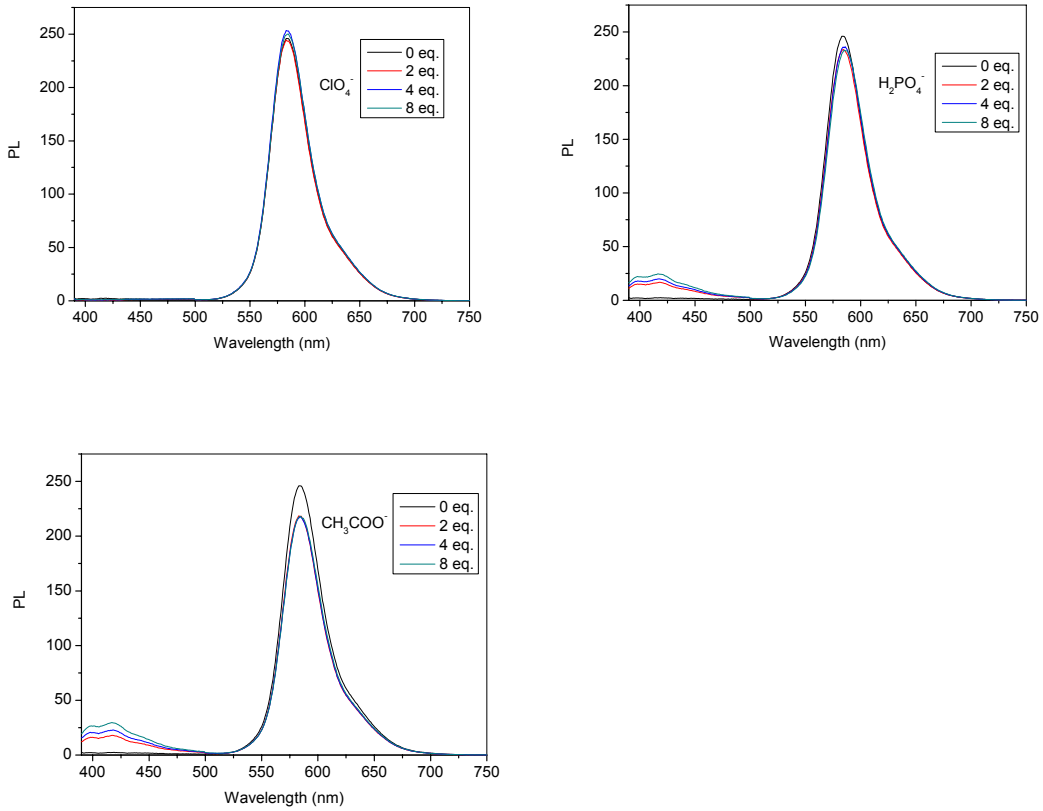


Fig. S2 Response of PL spectra of **1** (20 μM) in CH_2Cl_2 solution to various anions, λ_{ex} = 383 nm.

3. Calculations of F^- binding constant

The stability constants for the binding of one and two fluoride ions to **1** (H) in CH_3CN were determined from the UV-vis titration data. (K.A. Connors, Binding Constants: The Measurement of Molecular Complex Stability Constants, John Wiley and Sons, 1987, p. 161).

$$\Delta A = \frac{[H](K_1\Delta\varepsilon_{11}[F^-] + K_1K_2\Delta\varepsilon_{12}[F^-]^2)}{1 + K_1[F^-] + K_1K_2[F^-]^2}$$

$$[F^-] = \frac{[H](K_1[F^-] + 2K_1K_2[F^-]^2)}{1 + K_1[F^-] + K_1K_2[F^-]^2}$$

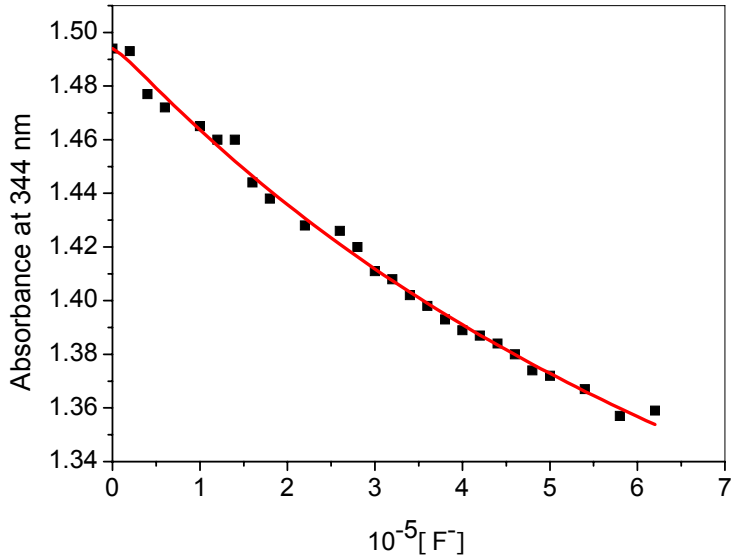


Fig. S3 Titration of **1** in CH_2Cl_2 (2.0×10^{-5} M) with F^- in CH_3CN, monitored at 344 nm. Solid line represents fit with $K_1 = 8.31 \times 10^5$, $K_2 = 9.00 \times 10^3$.