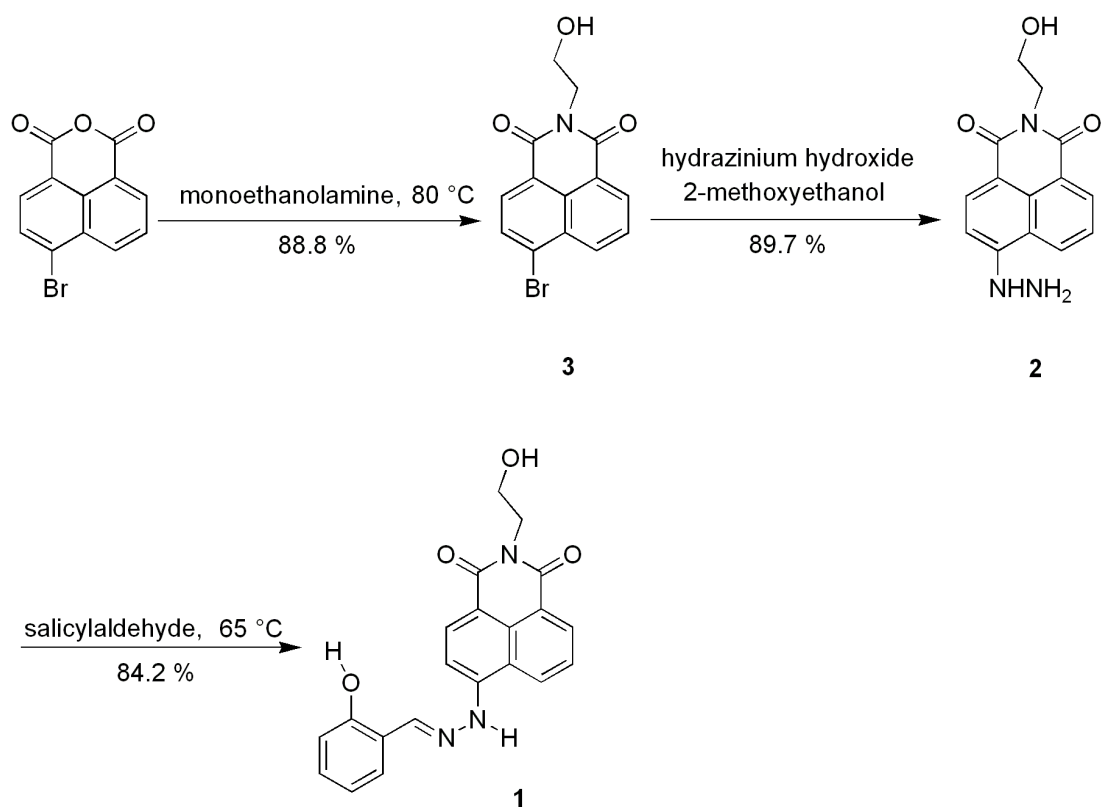


Naked-eye and fluorescent detection of basic pH and F⁻ with a 1,8-naphthalimide-based multifunctional probe

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Scheme S1 Synthetic route of compound 1.

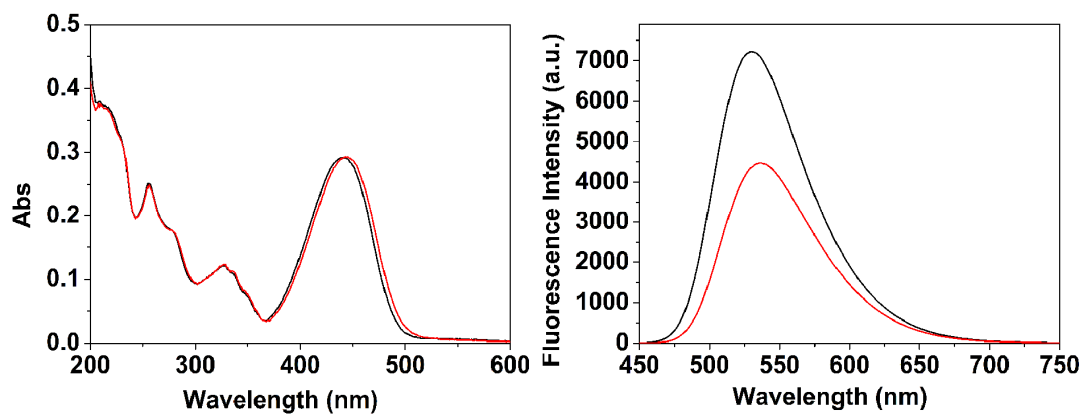


Fig. S1 Absorption (left) and emission (right) spectra change of probe 1 (1.0×10^{-5} M, acetonitrile) upon addition of 60 μL water (red line).

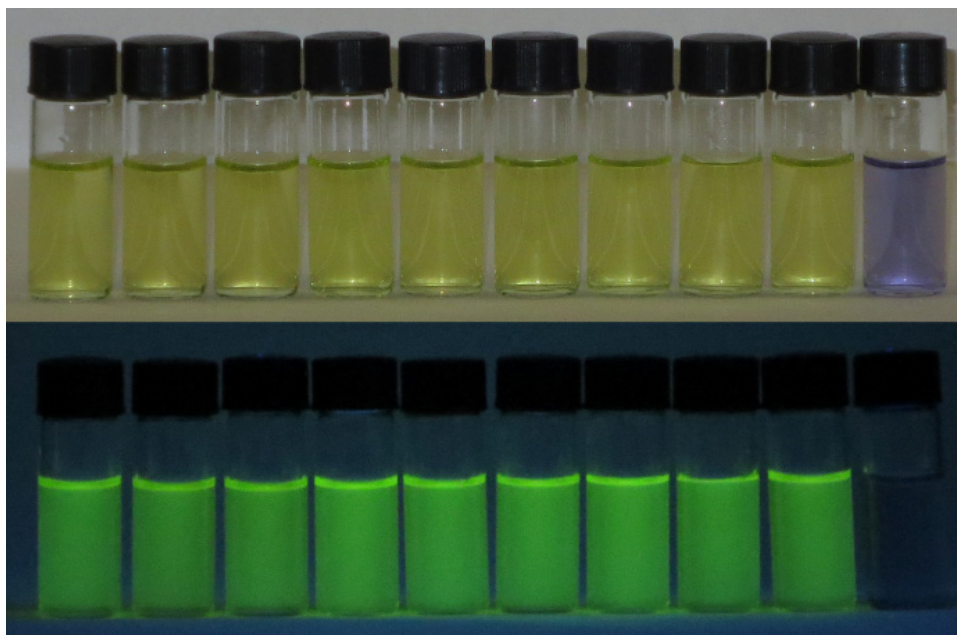


Fig. S2 Photographs of compound **1** (1.0×10^{-5} M, acetonitrile) upon addition of different anions (**1** only, tetrabutyl ammonium chloride, t, Na_2SO_4 , KNO_3 , Na_2SO_3 , NaHSO_4 , NaHSO_3 , and . from left to right) in aqueous solution in daylight (up) and under a UV lamp (365 nm, down).

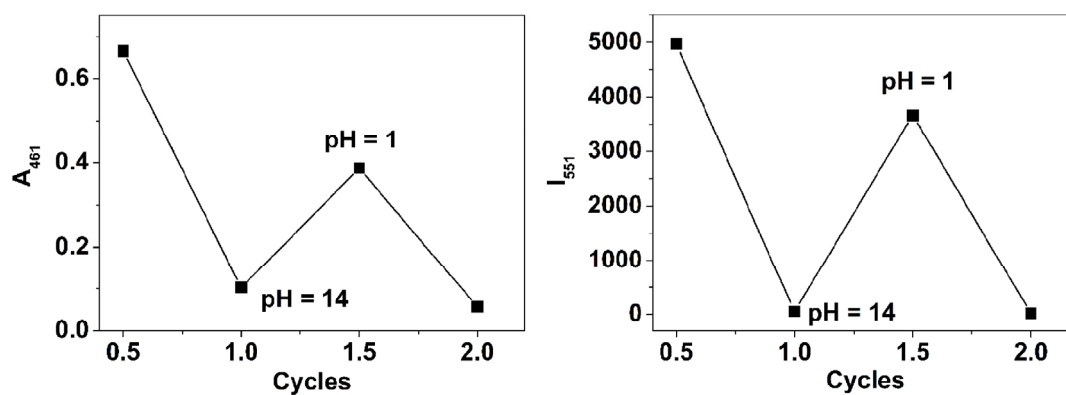


Fig. S3 pH reversibility study of **1** between pH 3 and 13 with absorption and emission spectra. The excitation wavelength was 460 nm.

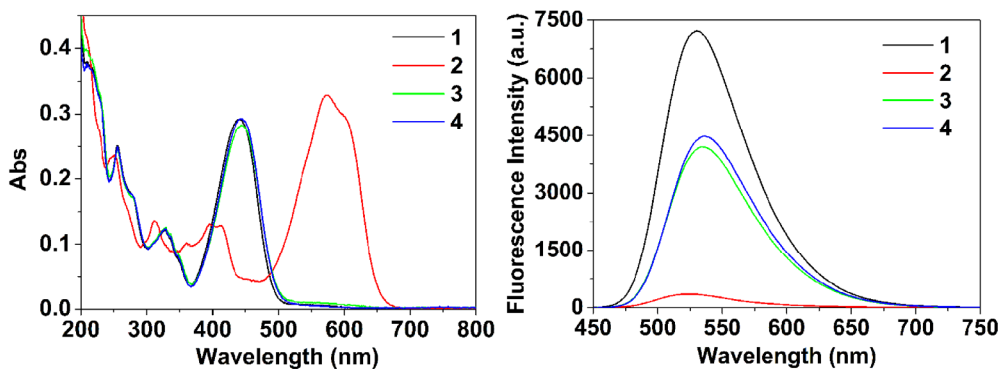


Fig. S4 F^- reversibility study of **1** with absorption and emission spectra (Black line, compound **1** in 3 mL CH_3CN ; red line, compound **1** and 4 equiv F^- in 3 mL CH_3CN and 12 μL water; green line, compound **1** and 4 equiv F^- in 3 mL CH_3CN and 80 μL water; blue line, compound **1** in 3 mL CH_3CN and 72 μL water.). The excitation wavelength was 460 nm.

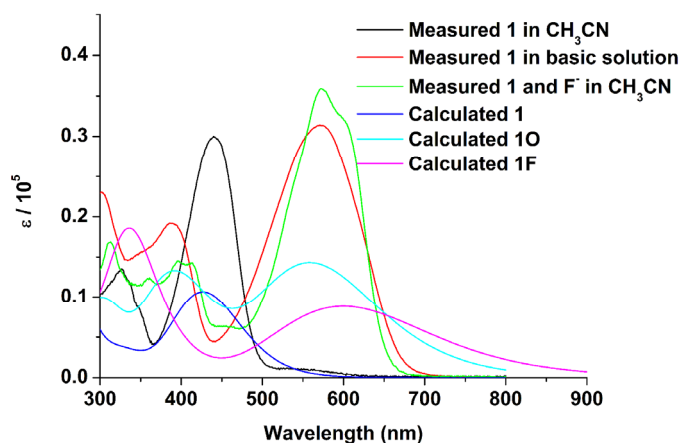


Fig. S5 Absorption spectrum of probe **1** in different conditions.

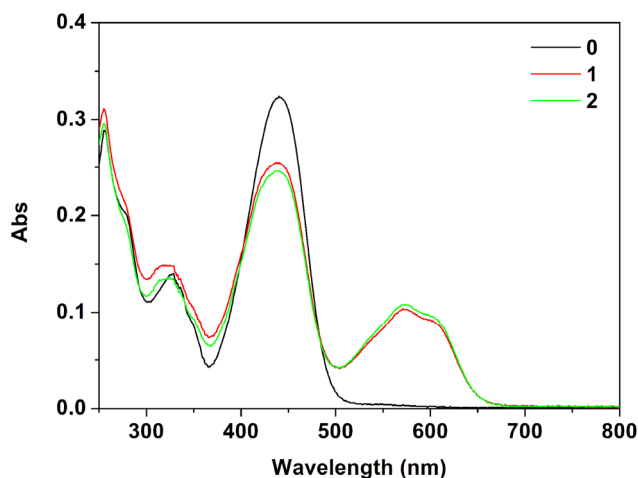


Fig. S6 Absorption spectra change of probe **1** (1.0×10^{-5} M, acetonitrile) upon addition of F^- from toothpaste 1 and 2.

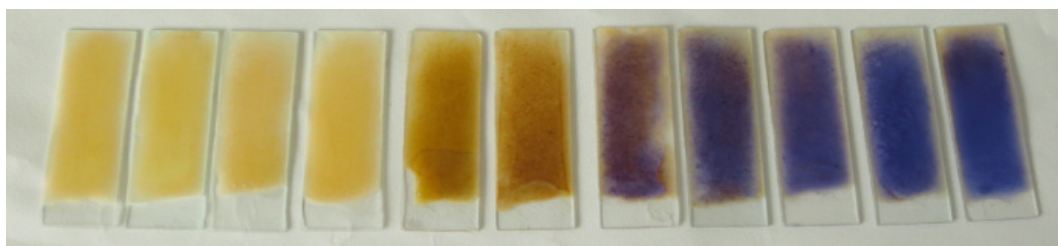


Fig. S7 Images of chromatography plates for the detection of F^- at various concentrations (0, 1.0×10^{-6} M, 1.0×10^{-5} M, 1.0×10^{-4} M, 1.0×10^{-3} M, 5.0×10^{-3} M, 1.0×10^{-2} M, 3.0×10^{-2} M, 5.0×10^{-2} M, 0.1 M, 0.2 M, from left to right) in water solutions