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Supporting Information for:

A ratiometric fluorescent probe for fluoride ion based on naphthoimidazolium receptor

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Fig. S1. Absorbance spectra of compound 3-5 (10 μ M) in acetonitrile with different anions (50 μ M, Cl⁻, Br⁻, I⁻, AcO⁻, H₂PO₄⁻, and HSO₄⁻, as *n*-Bu₄N⁺ salts). (a) compound 3, (b) compound 4, (c) compound 5.



Fig. S2. Changes in UV-Vis spectra of compound **5** (10 μ M) upon the addition of 0–40 equiv. of F– in CH₃CN. (a) in the range of 0-4 equiv. of F–, (b) in the range of 4-40 equiv. of F–.





Fig. S3. Fluorescence responses of 3-5 (10 μ M) to various anions (50 μ M) in CH₃CN. λ ex=331nm. (a) compound 3, (b) compound 4, (c) compound 5.





Fig. S4. ¹H NMR (a) and ¹⁹F NMR (b) spectra of 4 with fluoride in CD₃CN at room temperature. [4] = 2×10^{-2} mol/L.



Fig. S5. Part of ITMS-ESI spectrum of compound 3 with 5 equiv. F⁻ addition.



Fig. S6. MALDI-TOF (LD+) spectrum of compound 4 with 5 equiv. F⁻ addition.



Fig. S7. ¹H-NMR of compound 8 in CDCl₃.



Fig. S8. MS (ES API+) of compound 8.



Fig. S9. ¹H-NMR of compound 11 in CDCl₃.



Fig. S10. MS (ES API+) of compound 11.



Fig. S11. ¹H-NMR of compound 12 in CDCl₃.



Fig. S12. MS (ES API+) of compound 12.



Fig. S13 ¹H-NMR of compound 3 in CD₃CN.



Fig. S14 13 C-NMR of compound 3 in (CD₃)₂SO.



Fig. S15 HRMS (TOF LD+) of compound 3.



Fig. S16 ¹H-NMR of compound 4 in CD₃CN.



Fig. S17 ¹³C-NMR of compound 4 in CD₃CN.



Fig. S18 ¹⁹F-NMR of compound 4 in CD₃CN.



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Fig. S20 ¹H-NMR of compound 5 in CD₃CN.



Fig. S21 ¹³C-NMR of compound 5 in CD₃CN.



Fig. S22 ¹⁹F-NMR of compound 5 in CD₃CN.



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