Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Supplementary Information

Reaction-based dual signaling of fluoride ions by resorufin sulfonates

by Hyun Gyu Im, Hong Yeong Kim, Myung Gil Choi, and Suk-Kyu Chang*
Department of Chemistry, Chung-Ang University, Seoul 156-756, Korea

Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S1. Changes in absorbance ratio A_{587}/A_{433} of **1** in the presence of various anions. [**1**] = 1.0×10^{-5} M, [A^{n-}] in TBA salt = 1.0×10^{-4} M in CH_3CN.

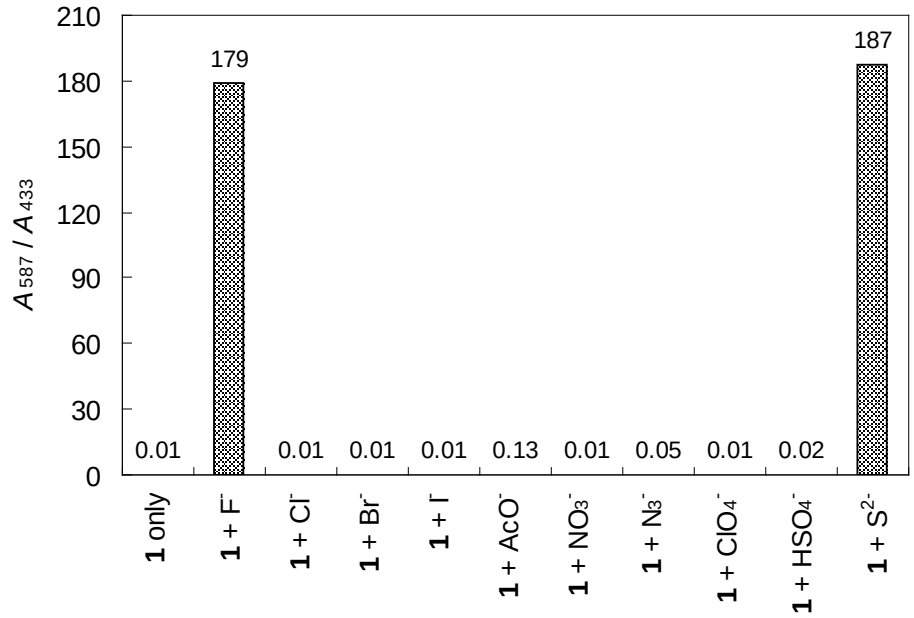
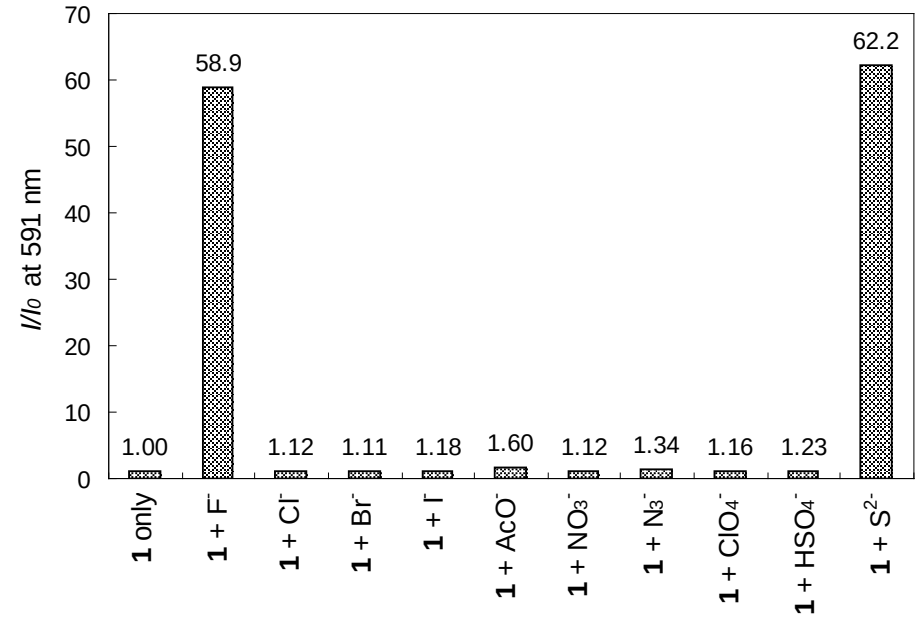


Fig. S2. Fluorescence intensity ratio I/I_o at 591 nm of **1** in the presence of various anions. [**1**] = 5.0×10^{-6} M, [A^{n-}] in TBA salt = 5.0×10^{-5} M in CH_3CN. λ_{ex} = 485 nm.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S3. UV-vis spectra of **1**, **1** + tetrabutylammonium fluoride, resorufin + tetrabutylammonium fluoride. [**1**] = [Resorufin] = 1.0×10^{-5} M, [TBA^+F^-] = 1.0×10^{-4} M in CH_3CN.

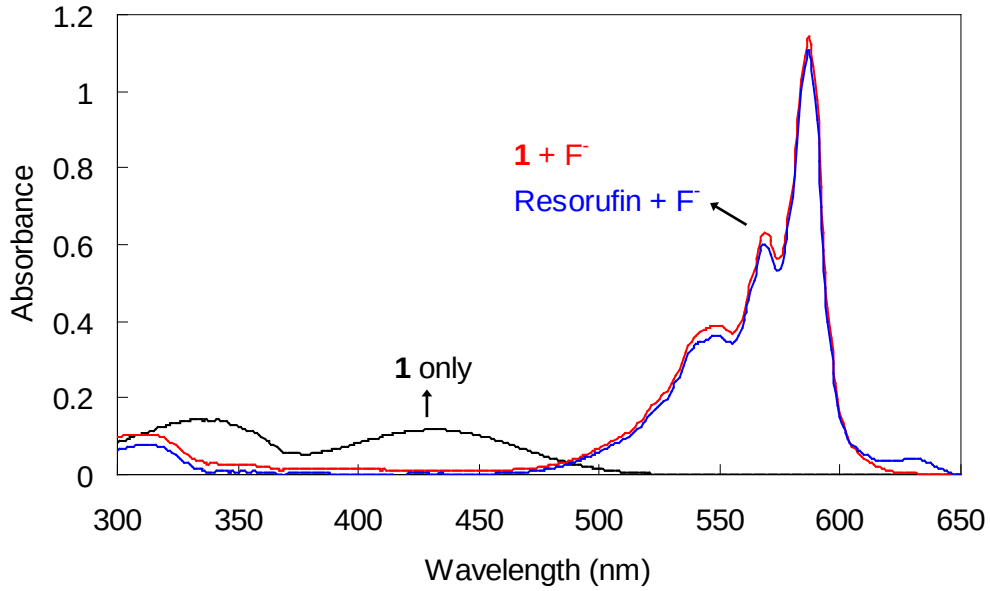
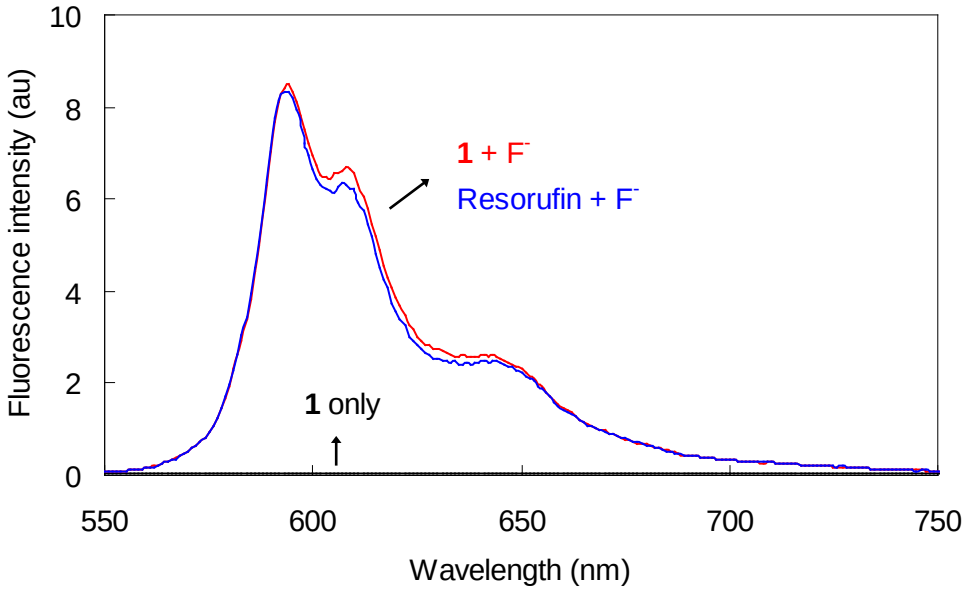


Fig. S4. Fluorescence spectra of **1, 1** + tetrabutylammonium fluoride, resorufin + tetrabutylammonium fluoride. [**1**] = [Resorufin] = 5.0×10^{-6} M, [TBA^+F^-] = 5.0×10^{-5} M in CH_3CN. λ_{ex} = 485 nm.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S5. Time trace for the changes in UV-vis absorbance of **1** at 587 nm in the presence of fluoride ions. [**1**] = 1.0×10^{-5} M, [TBA^+F^-] = 1.0×10^{-4} M in CH_3CN.

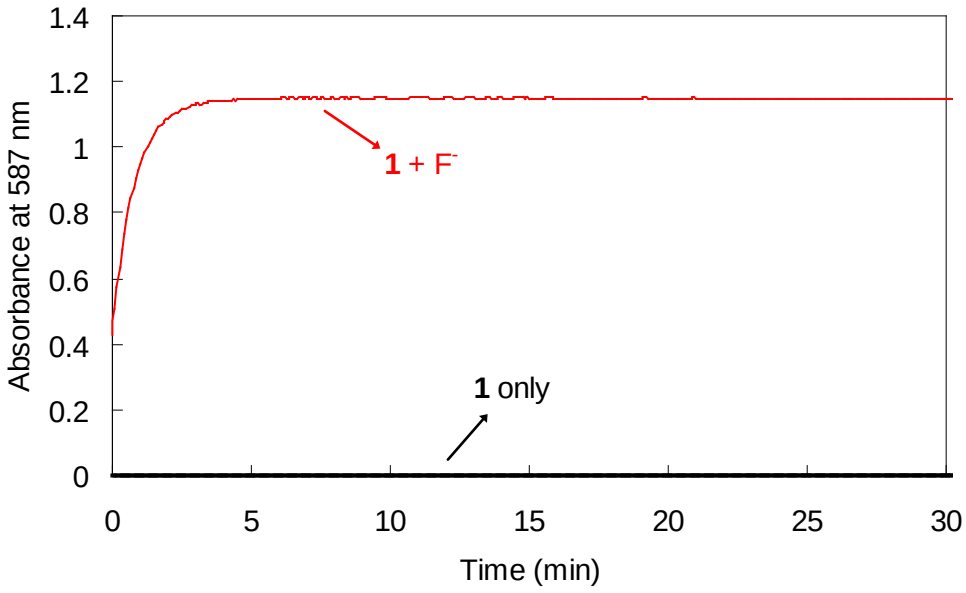
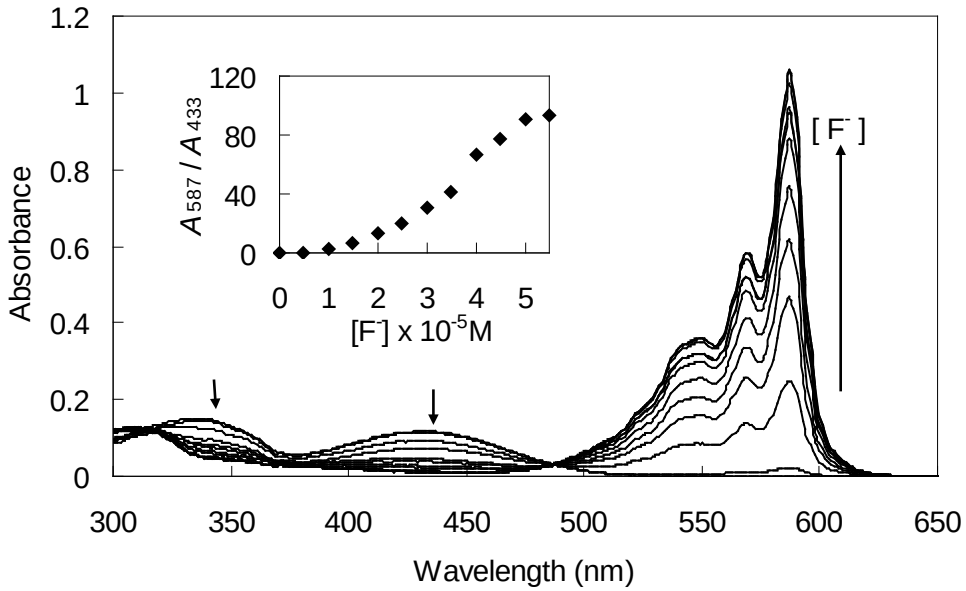


Fig. S6. UV-vis spectral changes of **1** upon titration with fluoride ions. [**1**] = 1.0×10^{-5} M, [TBA^+F^-] = from 0 to 5.5×10^{-5} M in CH_3CN.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S7. Competitive signaling of fluoride ions by **1** in the presence of common anions as background. [**1**] = 5.0×10^{-6} M, [F^-] = [A^-] in TBA salt = 5.0×10^{-5} M in CH_3CN. λ_{ex} = 485 nm. Other anions = Cl^-, Br^-. I^-, AcO^-, NO_3^-, N_3^-, ClO_4^-, and HSO_4^-.

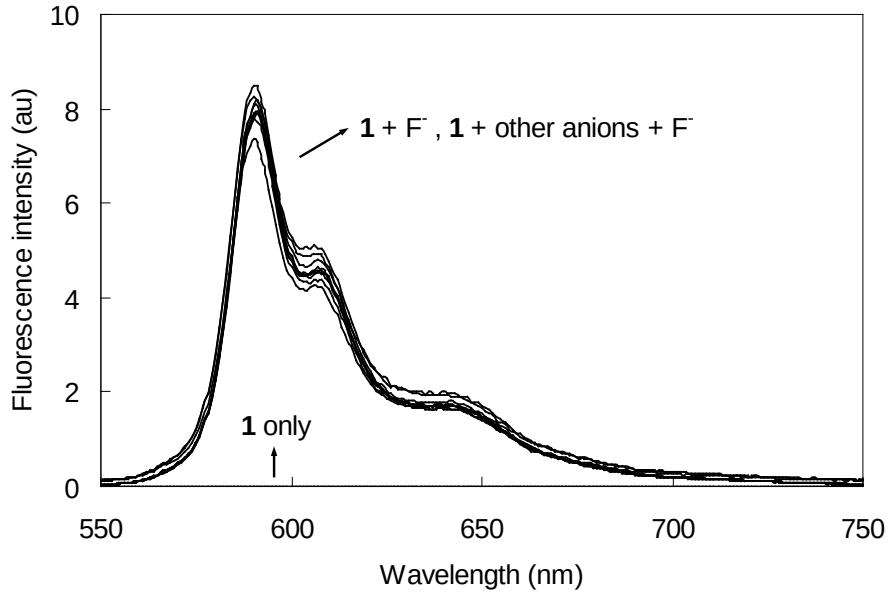
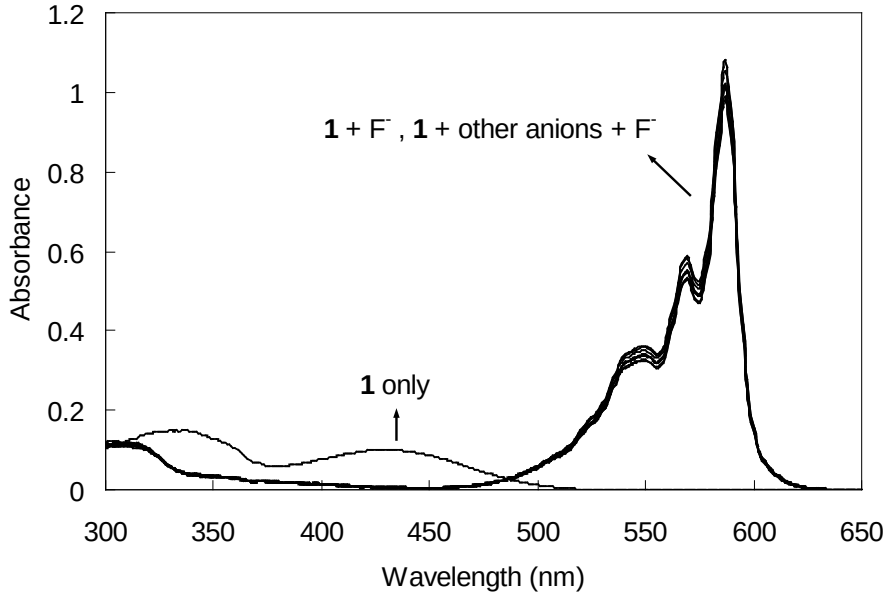


Fig. S8. UV-vis spectral changes of **1**-F^- in the presence of common anions as background. [**1**] = 1.0×10^{-5} M, [F^-] = [A^-] in TBA salt = 1.0×10^{-4} M in CH_3CN. Other anions = Cl^-, Br^-. I^-, AcO^-, NO_3^-, N_3^-, ClO_4^-, and HSO_4^-.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S9. Time trace for the changes in UV-vis absorbance of **2** at 587 nm in the presence of fluoride ions. [**2**] = 1.0×10^{-5} M, [TBA^+F^-] = 1.0×10^{-4} M in CH_3CN.

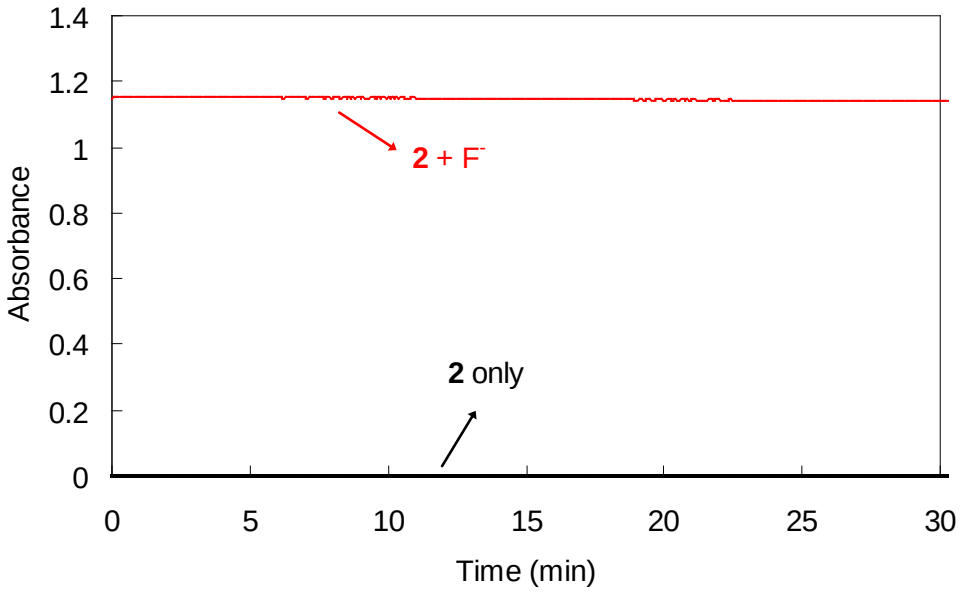
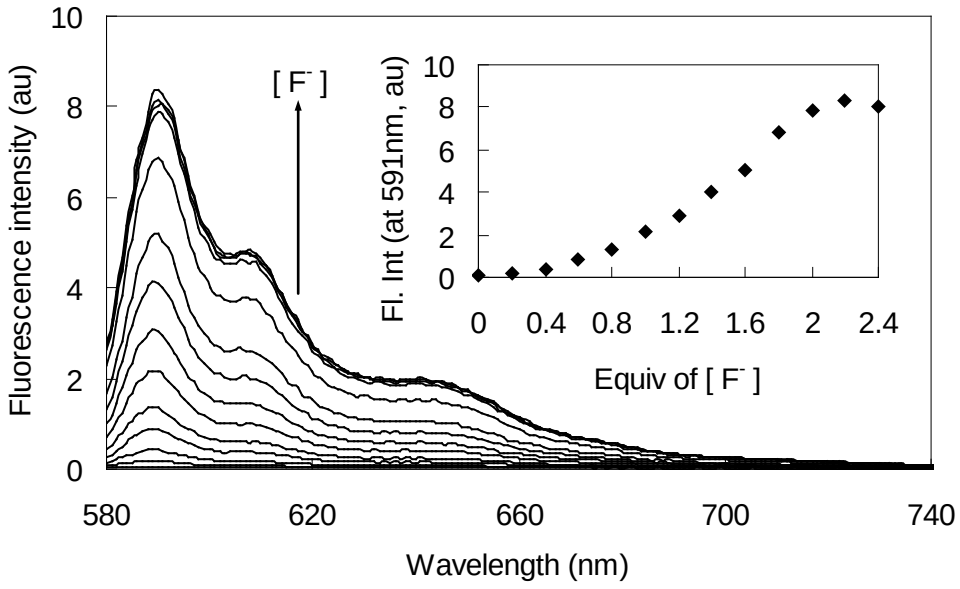


Fig. S10. Concentration-dependent fluorescence signaling behavior of **2** for fluoride ions. [**2**] = 5.0×10^{-6} M, [TBA^+F^-] = 0 ~ 1.2×10^{-5} M in CH_3CN. λ_{ex} = 485 nm.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S11. Changes in UV-vis spectra of **2** in the presence of various anions. [**2**] = 1.0 × 10^{-5} M, [A^-] in TBA salt = 1.0 × 10^{-4} M in CH_3CN.

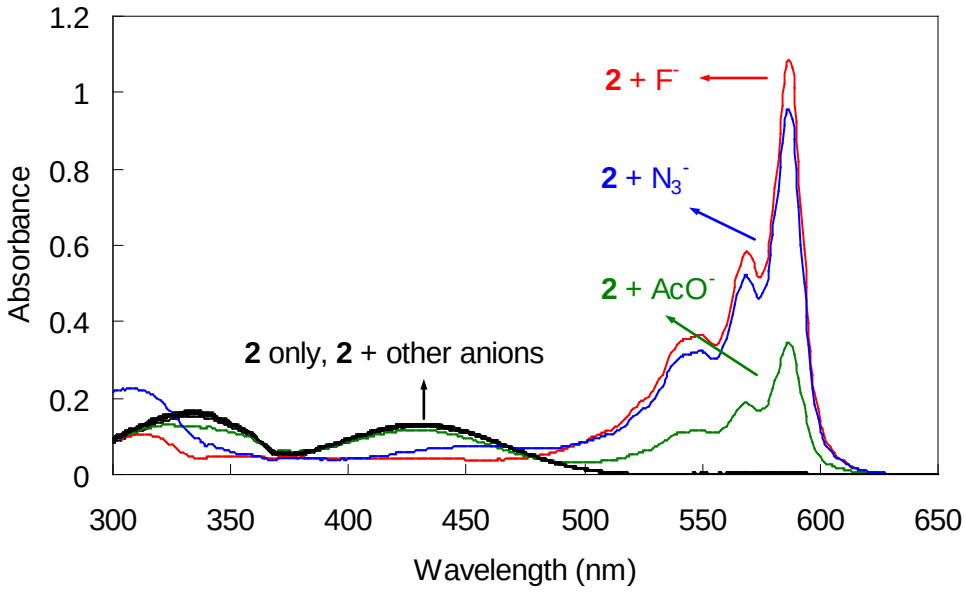
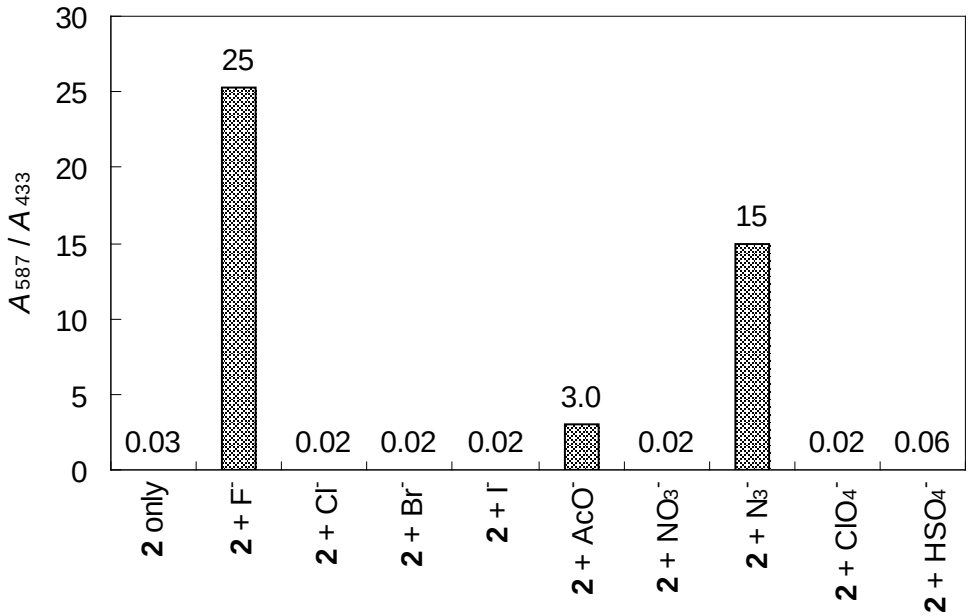


Fig. S12. Changes in absorption intensity ratio A_{587}/A_{433} of **2** in the presence of various anions. [**2**] = 1.0 × 10^{-5} M, [A^-] in TBA salt = 1.0 × 10^{-4} M in CH_3CN.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S13. Time trace for the changes in UV-vis absorbance of **3** at 587 nm in the presence of fluoride ions. [**3**] = 1.0×10^{-5} M, [TBA^+F^-] = 1.0×10^{-4} M in CH_3CN.

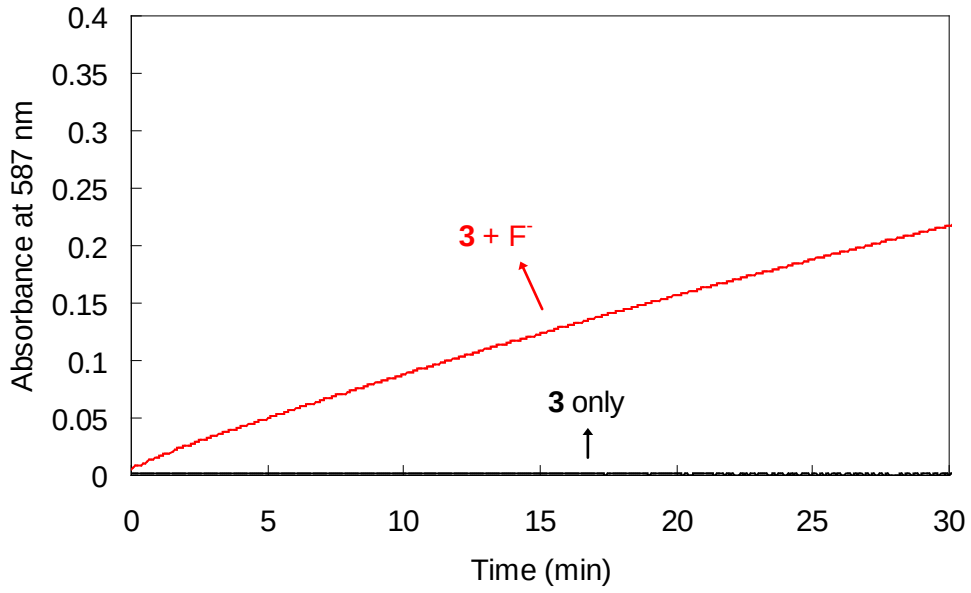
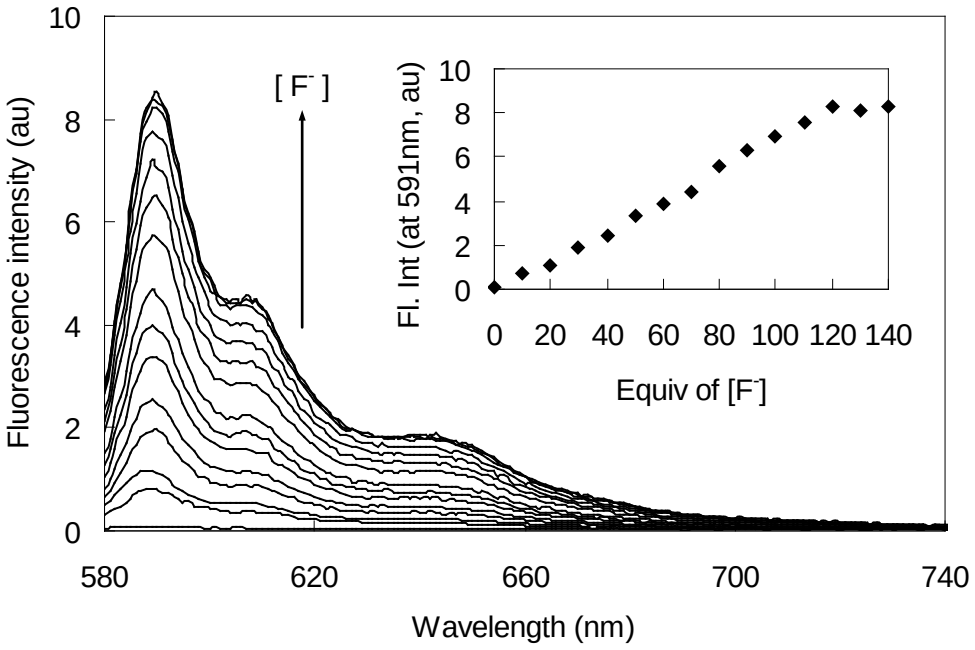


Fig. S14. Concentration dependent fluorescence signaling behavior of **3** for fluoride ions. [**3**] = 5.0×10^{-6} M, [TBA^+F^-] = 0 ~ 7.0×10^{-4} M in CH_3CN. λ_{ex} = 485 nm.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S15. Changes in fluorescence intensity ratio (I/I_o) at 591 nm of **1**, **2**, and **3** in the presence of fluoride and sulfide ions. [**1**] = [**2**] = [**3**] =5.0 × 10^{-6} M, [TBA^+F^-] = [$(TBA^+)_2S^{2-}$] = 5.0 × 10^{-5} M in CH_3CN. λ_{ex} = 485 nm.

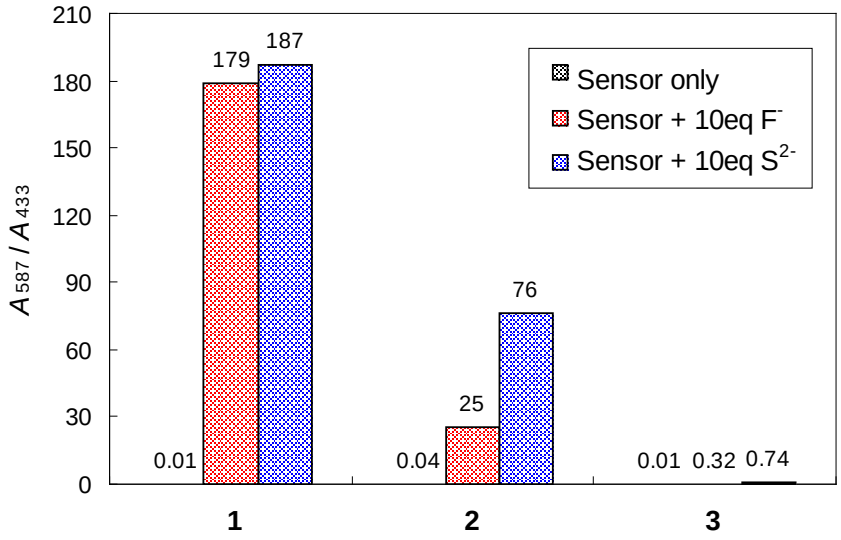
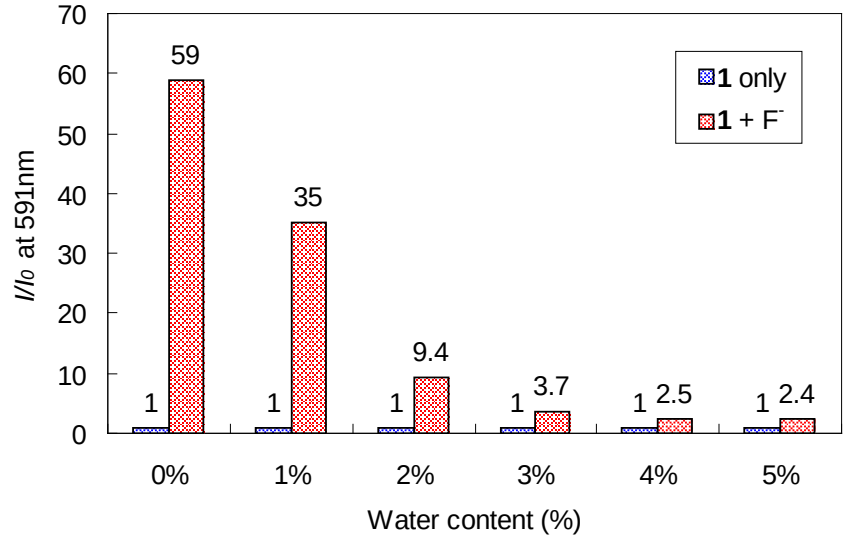


Fig. S16. Changes in fluorescence intensity ratio (I/I_o) at 591 nm of **1** and **1** + fluoride as a function of water content in CH_3CN. [**1**] = 5.0 × 10^{-6} M, [TBA^+F^-] = 5.0 × 10^{-5} M in aqueous acetonitrile (water content: from 0 to 5%). λ_{ex} = 485 nm.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S17. Fluorescence intensity ratio I/I_o at 591 nm of **1** in the presence of various anions. [**1**] = 1.0×10^{-5} M, [A^-] in TBA salt = 1.0×10^{-4} M in 1% aqueous acetonitrile solution. λ_{ex} = 485 nm.

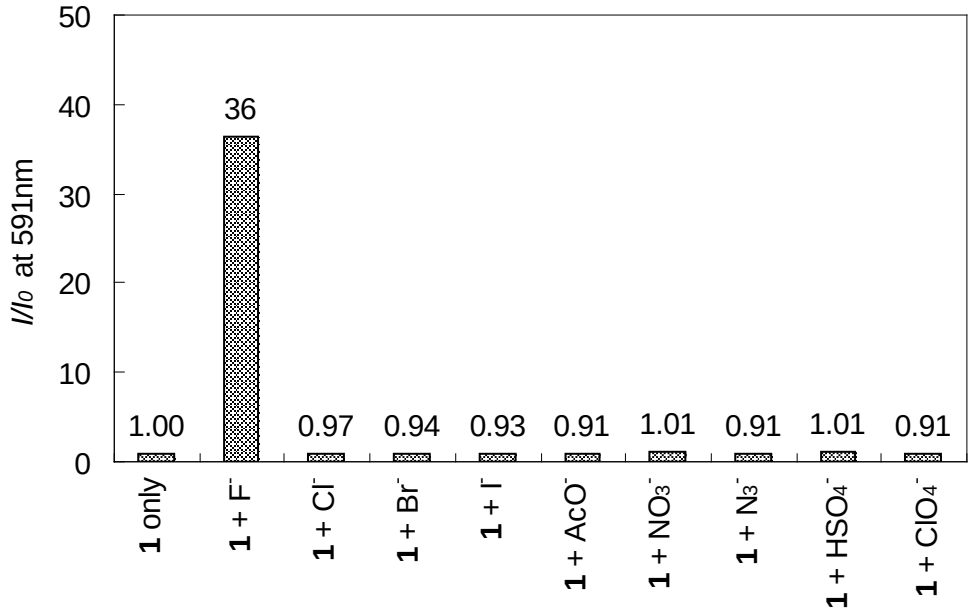
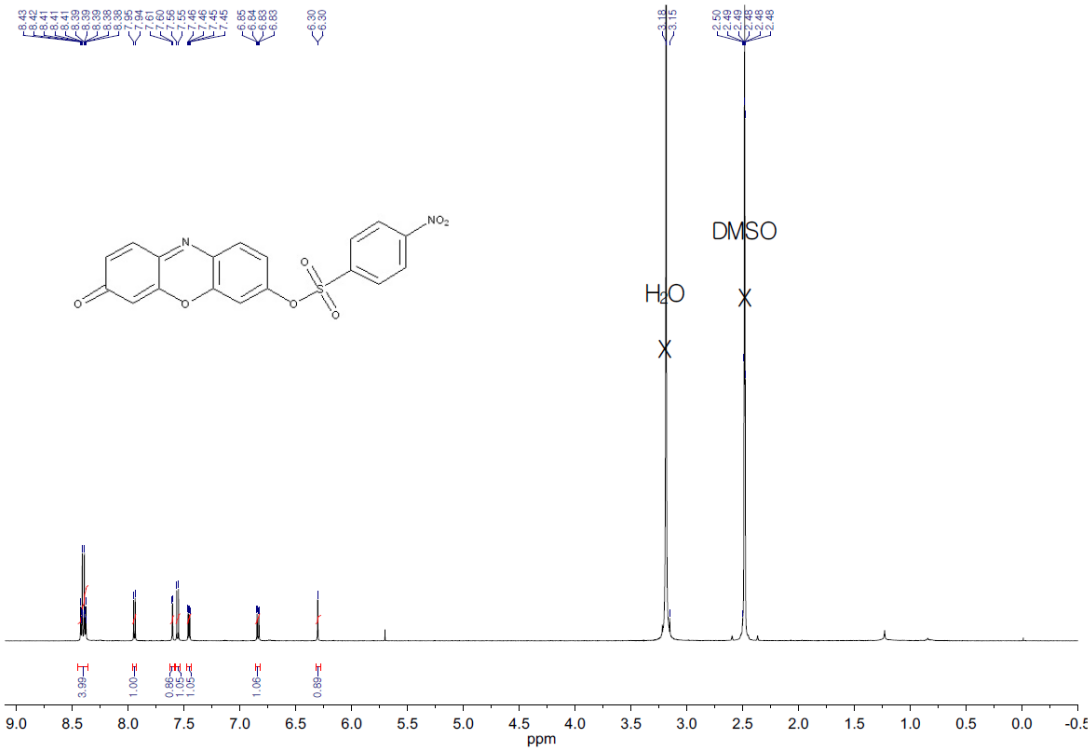


Fig. S18. ^{1}H NMR spectrum of **1** in DMSO-d_6.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S19. ^{13}C NMR spectrum of **1** in DMSO-d$_6$.

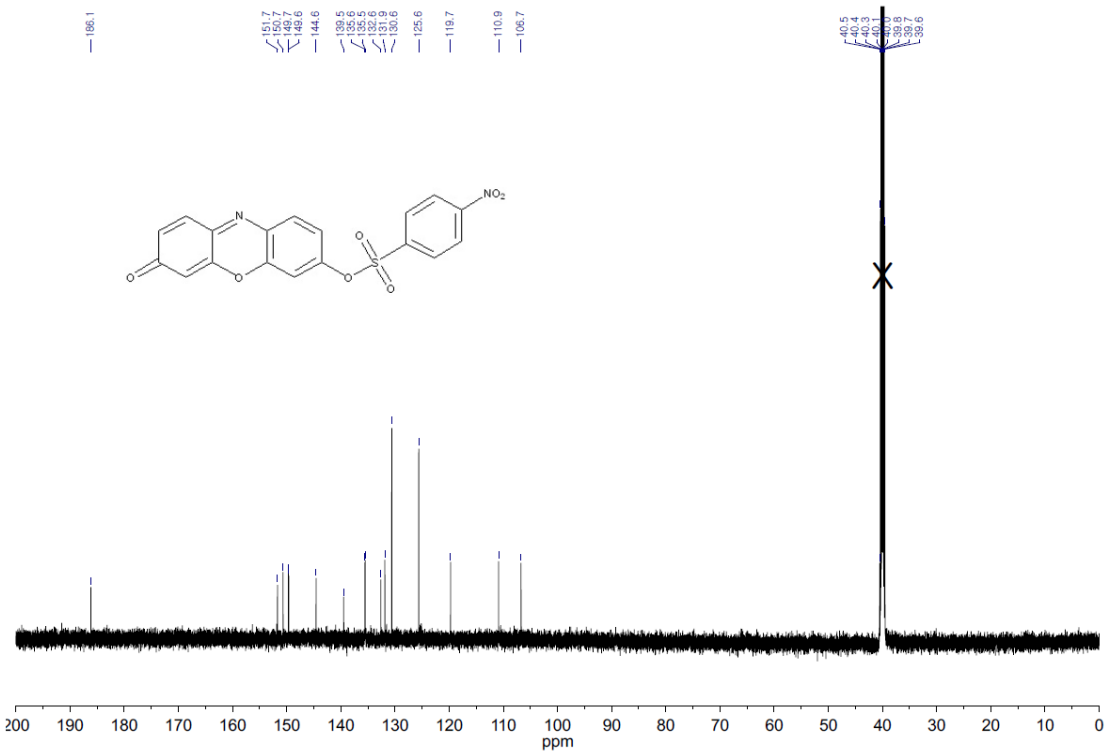
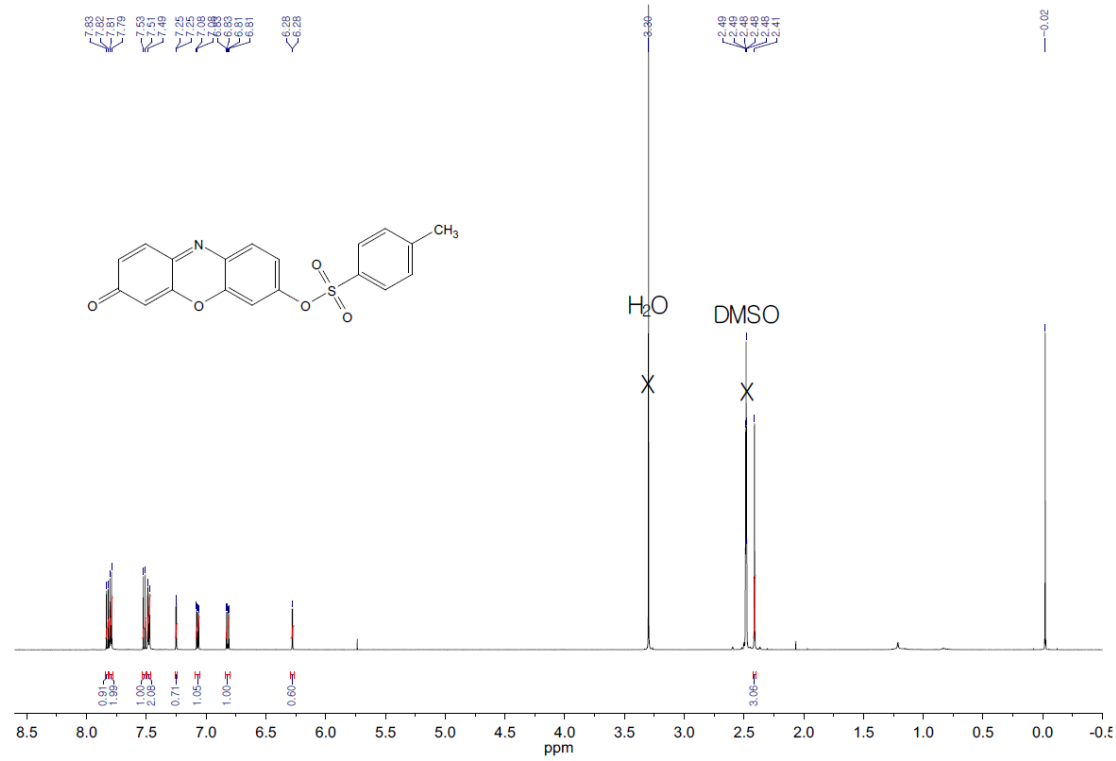


Fig. S20. ^{1}H NMR spectrum of **3** in DMSO-d$_6$.



Electronic Supplementary Material (ESI) for Organic and Biomolecular Chemistry
This journal is © The Royal Society of Chemistry 2013

Fig. S21. ^{13}C NMR spectrum of **3** in DMSO-d_6.