Supporting Information

A Sole Multi-Analyte receptor responds with three distinct fluorescence signals: Traffic signal like sensing of Al$^{3+}$, Zn$^{2+}$ and F$^{-}$

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**Fig. S1:** Changes in the absorption spectra of L upon the addition of different metal ions. INSET: Visual colour change upon the addition of Al$^{3+}$ and Zn$^{2+}$ to L.
Fig. S2: Changes in the emission spectra of L upon the addition of different metal ions. INSET: Visual colour change upon the addition of Al$^{3+}$ and Zn$^{2+}$ to L under UV lamp ($\lambda_{ex}=365$ nm).
Fig. S3: Changes in the absorption spectra of L upon the addition of different anions.
Fig. S4: Changes in the emission spectra of L upon the addition of different anions.
Fig S5: Normalized fluorescence responses of L (10 μM) to various cations in mixed solvent. The red bars represent the emission intensities of L in the presence of cations of interest (5 eqv.). The black bars represent the change of the emission that occurs upon the subsequent addition of Al³⁺ to the above solution.
**Fig S6:** Normalized fluorescence responses of L (10 μM) to various cations in mixed solvent. The red bars represent the emission intensities of L in the presence of cations of interest (5 eqv.). The black bars represent the change of the emission that occurs upon the subsequent addition of Zn$^{2+}$ to the above solution.
Fig S7: Job’s plot between L and Al$^{3+}$ ions. $X_{\text{Host}}$ is the mole fraction of L and $\Delta I$ is the change (I-I$_0$) in the intensity of the emission spectra in presence of guest i.e; Al$^{3+}$. 
**Fig S8:** Job’s plot between L and Zn$^{2+}$ ions. $X_{\text{Host}}$ is the mole fraction of L and $\Delta I$ is the change (I-I$_0$) in the intensity of the emission spectra in presence of guest i.e; Zn$^{2+}$. 
**Fig S9:** Bensei-Hildebrand plot obtained for Al$^{3+}$ from the emission experiment (emission intensity calculated from 500 nm) studies.
**Fig S10:** Bensei-Hildebrand plot obtained for Zn$^{2+}$ from the emission experiment (emission intensity calculated from 550 nm) studies.
Fig S11: Effect of pH on the fluorescence intensity of L.
**Fig S12**: MTT assay to determine the cytotoxic effects of compounds L, L–Al and L–Zn complex on HeLa cells.
Fig S13: $^1$H-NMR spectra of L in CDCl$_3$. 
Fig S14: Expanded $^1$H-NMR spectra of L in CDCl$_3$. 
Fig S15: $^{13}$C-NMR spectra of L in CDCl$_3$. 
Fig S16: Mass spectrum of L, Calculated \([L + H]^+ = 503.1832\), Found 503.1867 (Mass spectrum obtained in positive mode).
Fig. S17: $^1$H-NMR titration spectra of L with Al$^{3+}$ in DMSO-d$_6$. 
Fig. S18: $^1$H-NMR titration spectras of L with Zn$^{2+}$ in DMSO-d$_6$. 
Fig. S19: $^1$H-NMR titration spectras of L with F$^-$ in CDCl$_3$. 
**Fig. S20:** Crystal structure of L and various interactions presents in it.