Supporting Information

NIR Sensing of Zn(II) and Subsequent Dihydrogen Phosphate Detection by a Benzothiazole Functionalized Ninhydrin Based Receptor

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Figure S1. $^1$H NMR of L$_1$ in CDCl$_3$ solution at room temperature.

Figure S2. $^{13}$C NMR of L$_1$ in CDCl$_3$ solution at room temperature.
Figure S3. Mass Spectrum of $L_1$ in positive mode.

Figure S4. IR spectrum of $L_1$ recorded on KBr disc.
Figure S5. $^1$H NMR of $L_2$ in CDCl$_3$ solution at room temperature.

Figure S6. $^{13}$C NMR of $L_2$ in CDCl$_3$ solution at room temperature.
Figure S7. Mass Spectrum of $L_2$ in positive mode.

Figure S8. IR spectrum of $L_2$ recorded on KBr disc.
Figure S9. IR spectrum of L₁ zinc complex recorded on KBr disc.

Figure S10. Changes of absorption intensities at 380 nm and 536 nm with the incremental addition of Zn²⁺ ion to L₁.
Figure S11. Plot of log FI (fluorescence intensity) versus log [Zn$^{2+}$] in the range of 0–6 equiv. of Zn$^{2+}$. (b) Plot of fluorescence intensity versus [Zn$^{2+}$] for the detection limit calculation.

Figure S12. (a) Absorption spectra and (b) the corresponding fluorescence spectra of L$_2$ in the experimental medium.
Figure S13. The fluorescence emission response of various ions to the \( \text{L}_1-\text{Zn}^{2+} \) ensembles.

Figure S14. The fluorescence response of the receptor \( \text{L}_1 \) towards \( \text{Zn}^{2+} \) ion in buffered acetonitrile (8:2 acetonitrile:water) at room temperature.
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Figure S17. (a) Job’s plot of Zn$^{2+}$ titration with L$_1$ (the absorption intensity was calculated from $\lambda = 536$ nm) and (b) the corresponding Bensei-Hildebrand plot.

Figure S18. Crystal packing diagram of L$_1$ with different $\pi$-$\pi$ and C-H-$\pi$ interactions.
Figure S19. Changes in absorption spectral patterns of the ‘$L_1$-Zn$^{2+}$ ensembles’ in various solvents.