Electronic Supplementary Material (ESI) for Analyst.

A novel fluorescent-colorimetric probe for Al^{3+} and Zn^{2+} ions with different response and applications in F^- detection and cell imaging

Jiaxin Fu[1], Yongxin Chang[11], Bai Li [1], Huihui Mei[1], Li Yang[1], Kuoxi Xu[1, 2]

Kuoxi Xu:
E-mail: xukx@henu.edu.cn

[1] Institute of Functional Organic Molecular Engineering, College of Chemistry and Chemical Engineering, Henan University, Kaifeng, 475004, China;

[2] Engineering Laboratory for Flame Retardant and Functional Materials of Henan Province, College of Chemistry and Chemical Engineering, Henan University, Kaifeng, 475004, China.

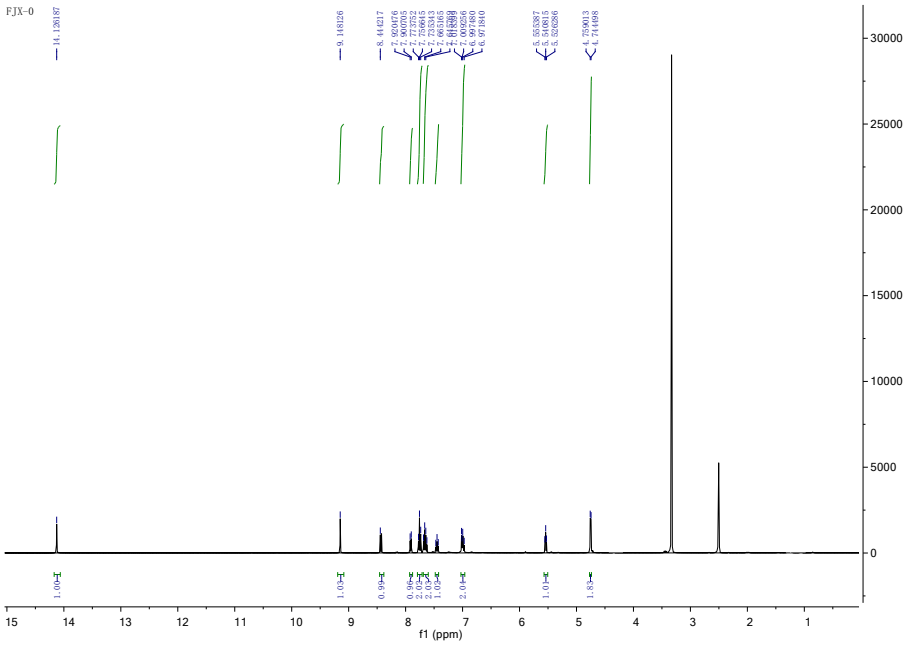

Fig. s1 ^{1}H NMR of HL

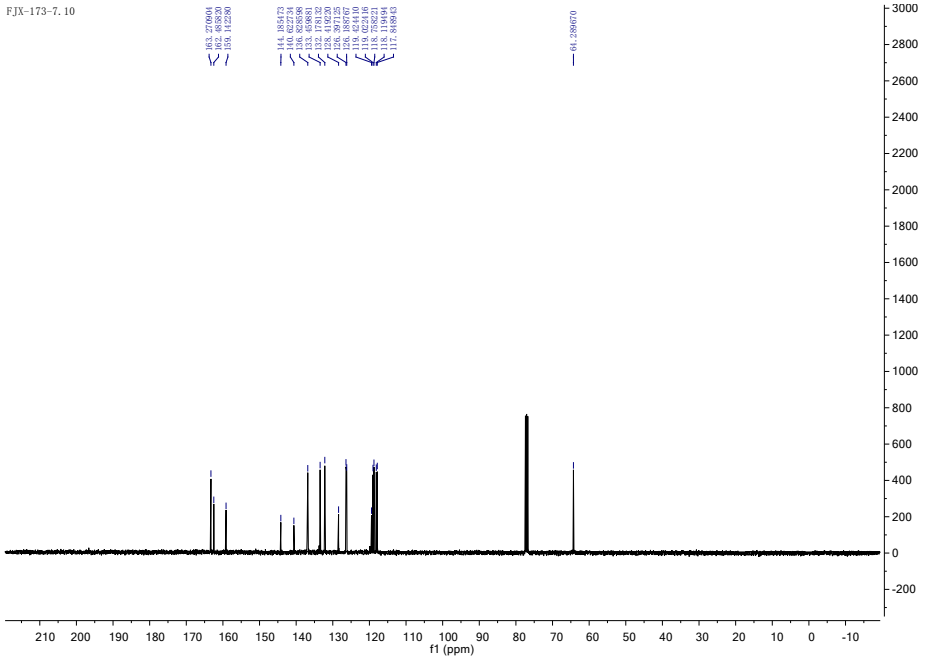

Fig. s2 ^{13}C NMR of HL

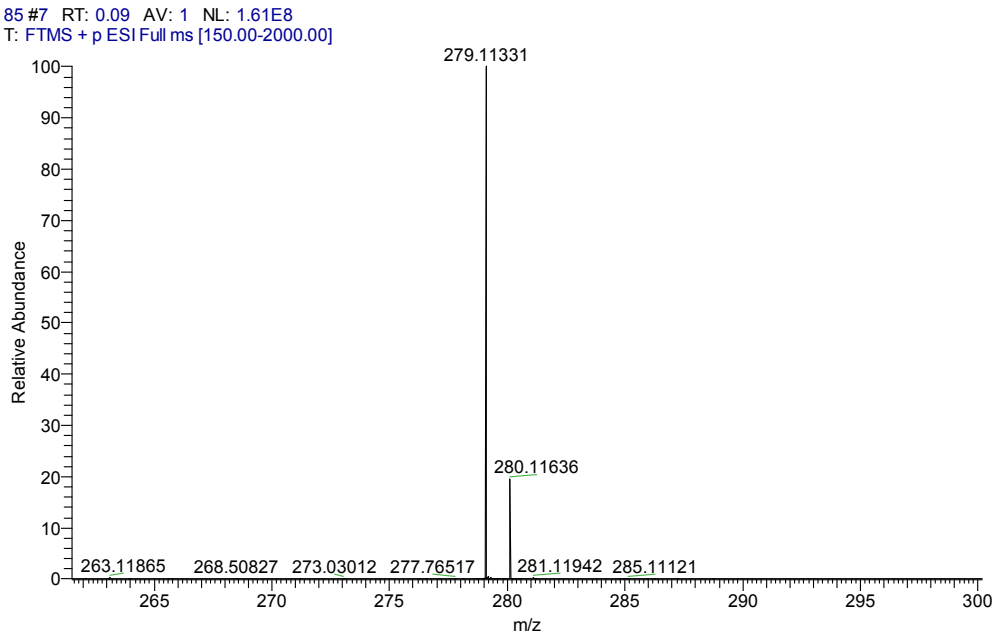

Fig. s3 HRMS of HL

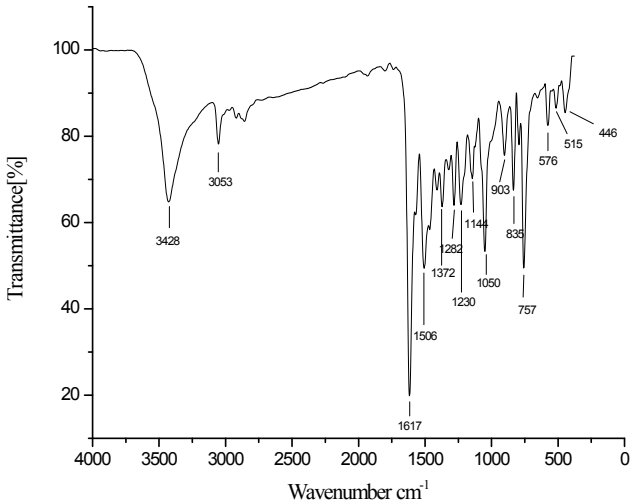

Fig. s4 FT-IR of HL

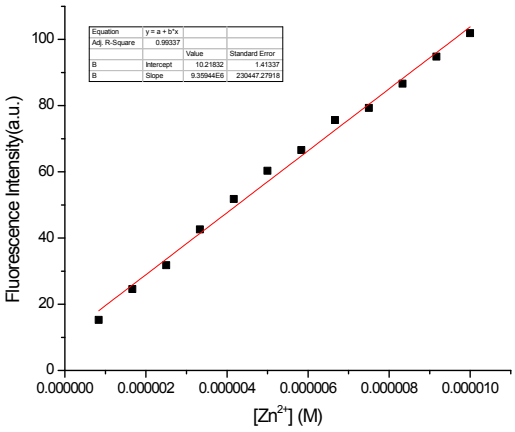

Fig. s5. The detection limit (DL) of probe **HL** for Zn^{2+} in EtOH-H_2O solution (v/v=4/1, 0.01 M, Tris-HCl buffer, pH = 7.30).

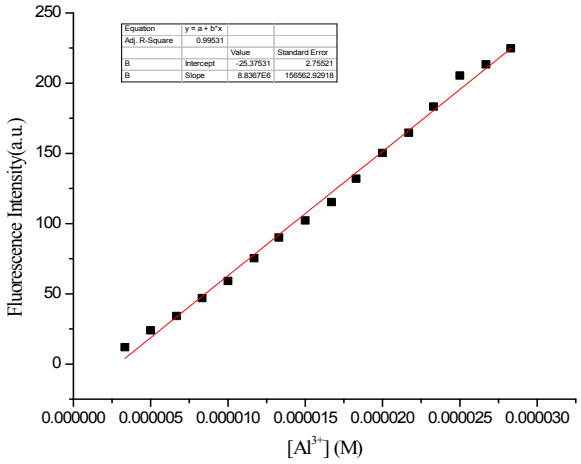

Fig. s6. The detection limit (DL) of probe **HL** for Al^{3+} in EtOH-H_2O solution (v/v=4/1, 0.01 M, Tris-HCl buffer, pH = 7.30).

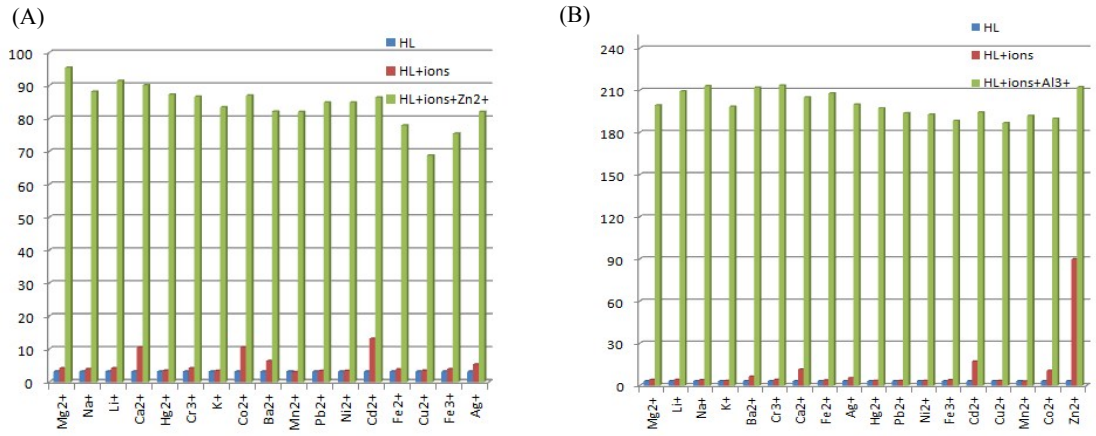

Fig. s7. Metal-ions selectivity of **HL**; The blue and red bars represent in the fluorescence intensity of HL and metal ions. The green bars show the fluorescence intensity after the addition of 2.0 equiv. of (A) Zn^{2+} or (B) Al^{3+} to the solution containing **HL** and different 2.0 equiv. of other metal ions**.**

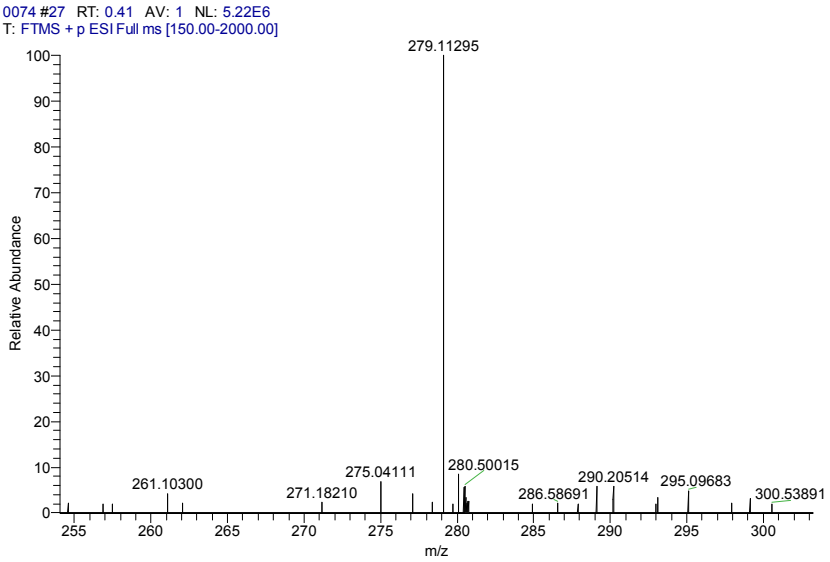

Fig. s8. The HRMS **HL**+Al$(NO_3)_3$ (1.0 equiv.)+NaF (3.0 equiv.).

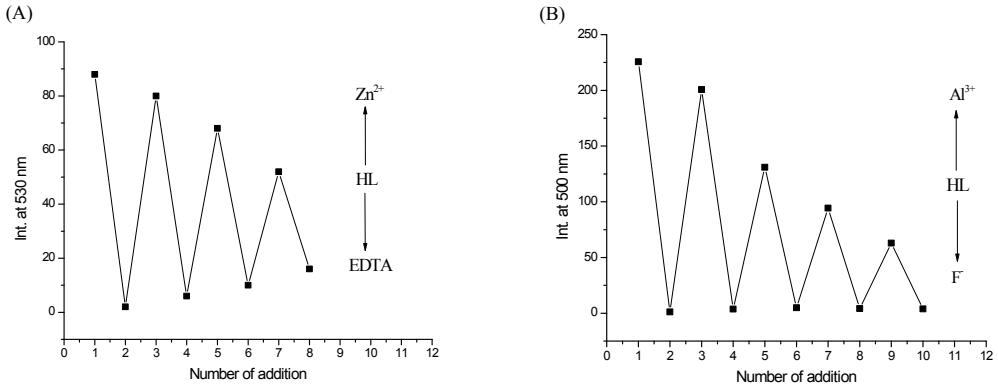

Fig. s9. Recovery experiment of **HL** for Zn^{2+} and Al^{3+}

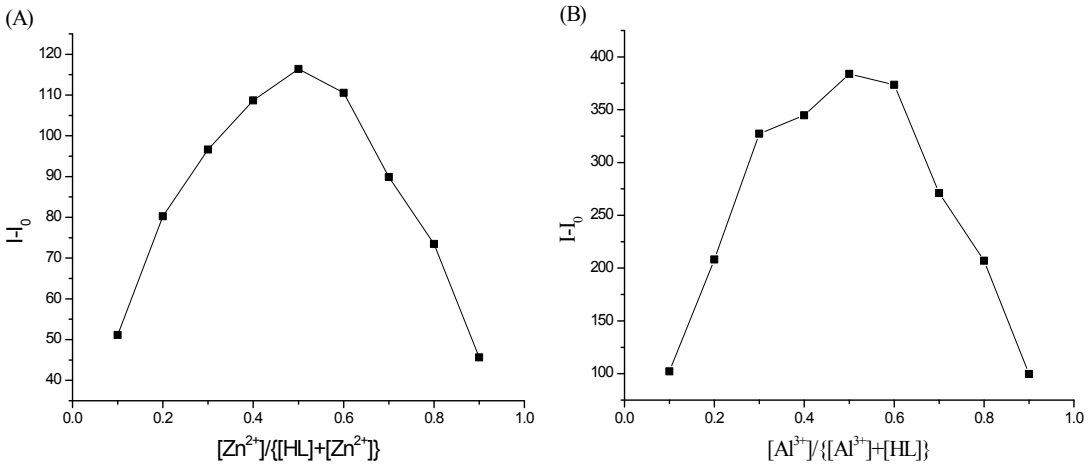

Fig. s10. Job's plot for determining the stoichiometry of probe HL and (A) Zn^{2+}, (B) Al^{3+} in EtOH-H_2O solution (v/v=4/1, 0.01 M, Tris-HCl buffer, pH=7.30) the total concentration of HL and Zn^{2+} or Al^{3+} was 1.00×10^{-4} M.

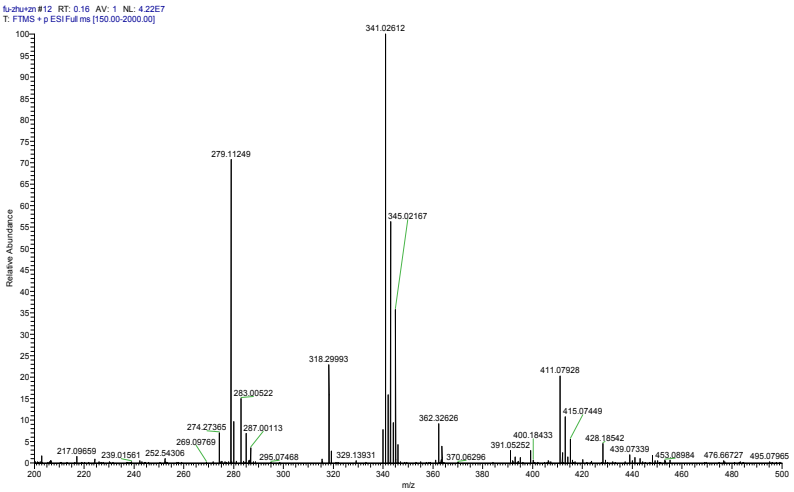

Fig. s11. The HRMR of [**HL**+Zn^{2+}-H]$^{+}$.

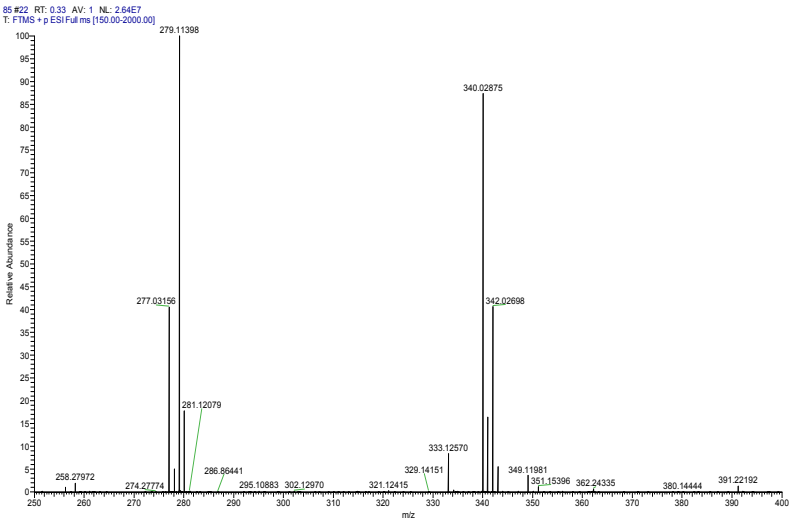

Fig. s12. The HRMR of [**HL**+Al^{3+}+$2H_2O$-H]$^{+}$.

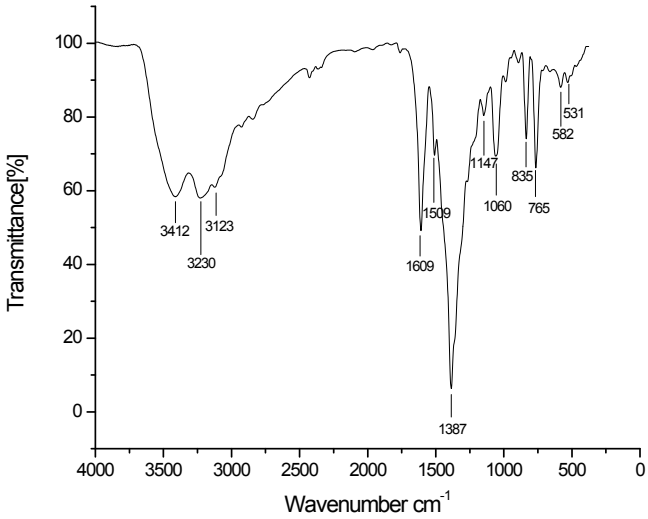

Fig. s13. Comparison between the FT-IR spectral data for **HL**-Zn^{2+} complex

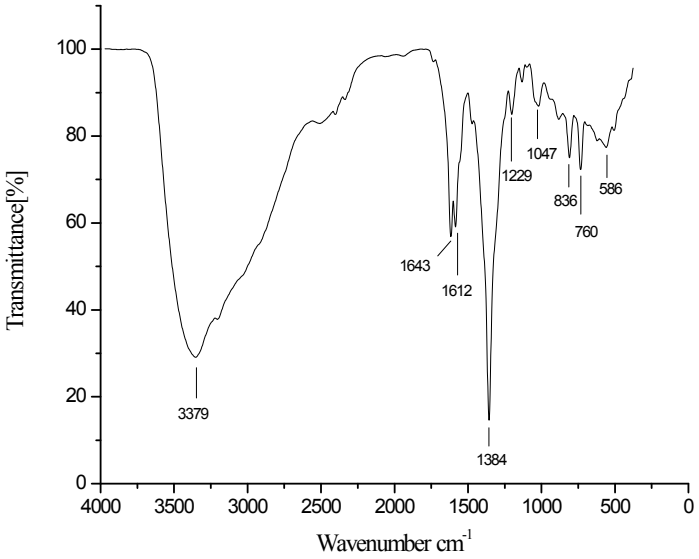

Fig. s14. Comparison between the FT-IR spectral data for **HL**-Al^{3+} complex

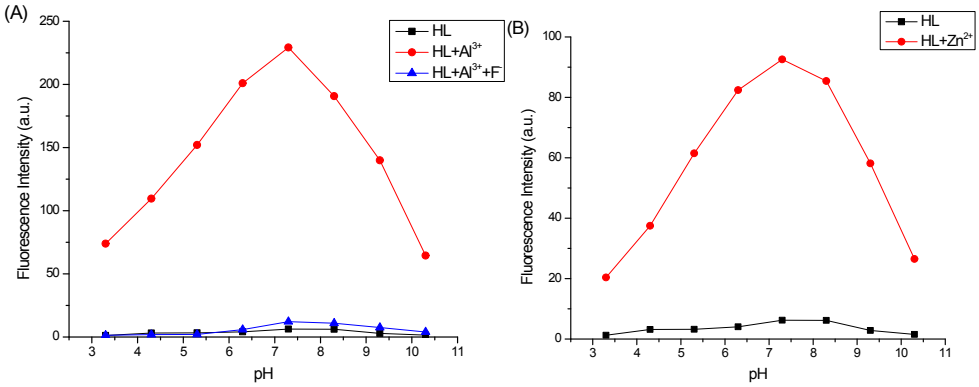

Fig. s15. Dependence of fluorescence response of HL towards Al^{3+} and Zn^{2+} over variable pH medium

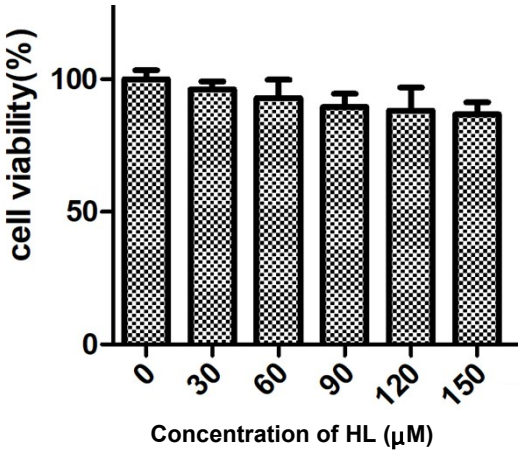

Fig. s16. The cell viability of PC12 at different concentration (0, 30, 60, 90 120, 150 μM) of HL assessed through MTT assay