

## †Electronic supplementary information (ESI)

### 2-(1-Pyrenyl) benzimidazole as a ratiometric and “turn-on” fluorescent probe for iron(III) ions in aqueous solution

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Table of.....	contentsPages
Fig. S1 <sup>1</sup> H NMR and HRESIMS spectrum of <b>L</b> .....	S2
Fig. S2 UV-Vis absorption spectra of <b>L</b> with Fe <sup>3+</sup> in buffer aqueous solution.....	S3
Fig. S3 Job's plot and the binding constant of <b>L</b> to Fe <sup>3+</sup> in buffer aqueous solution...	S4
Fig. S4 Interference experiments of <b>L</b> to Fe <sup>3+</sup> .....	S5
Fig. S5 The reversibility of <b>L</b> to Fe <sup>3+</sup> .....	S6
Fig. S6 The pH dependence of <b>L</b> to Fe <sup>3+</sup> .....	S7

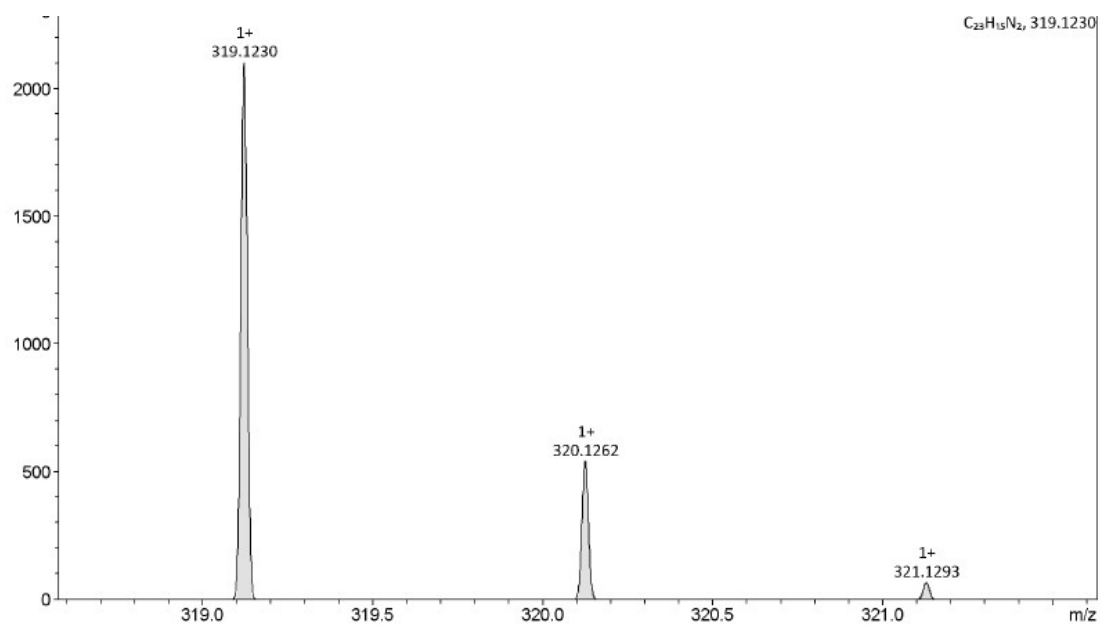
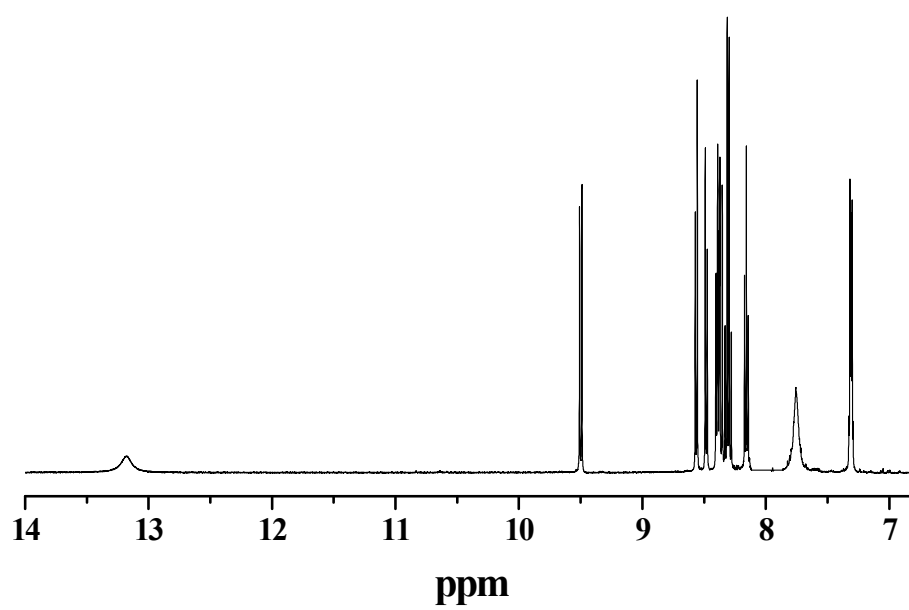


Fig.S1  $^1\text{H}$  NMR and HRESIMS spectrum of L.

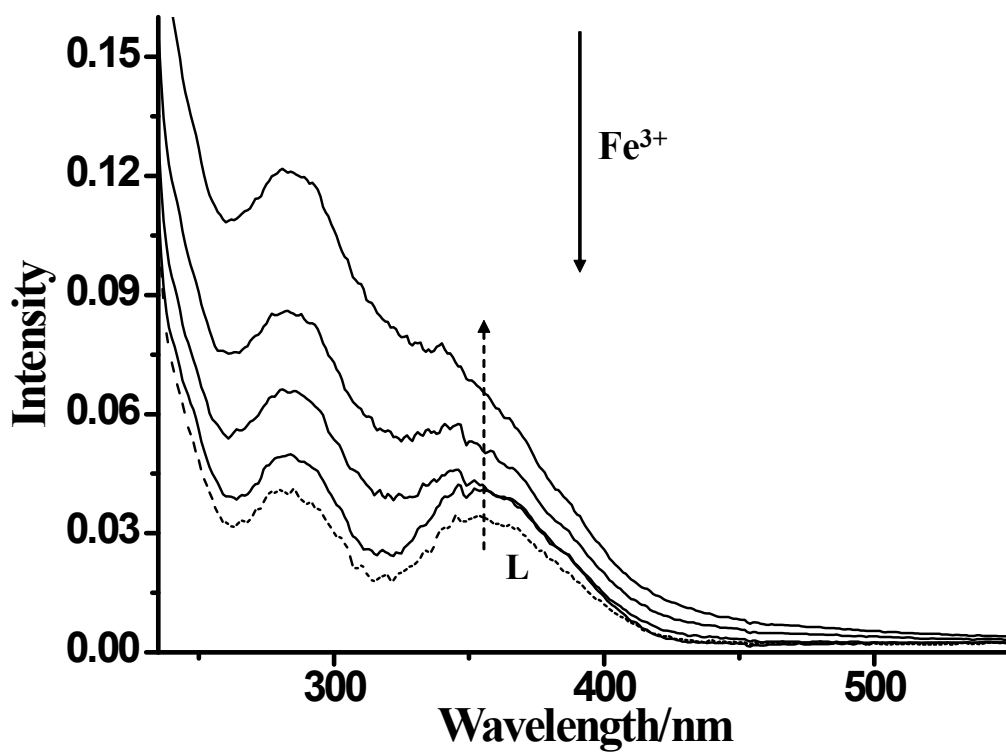


Fig. S2 UV-Vis absorption spectra of L with Fe<sup>3+</sup> in buffer aqueous solution.

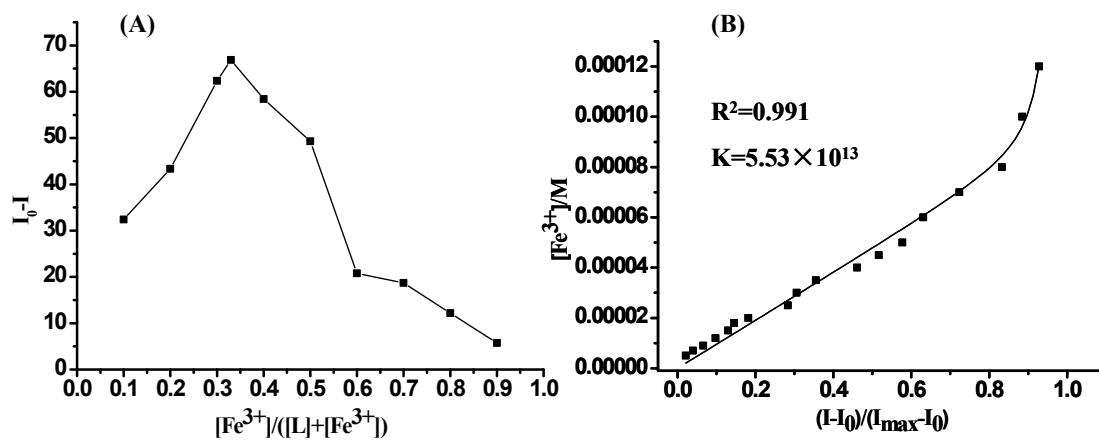


Fig. S3 Job's plot and the binding constant of L to Fe<sup>3+</sup> in buffer aqueous solution.

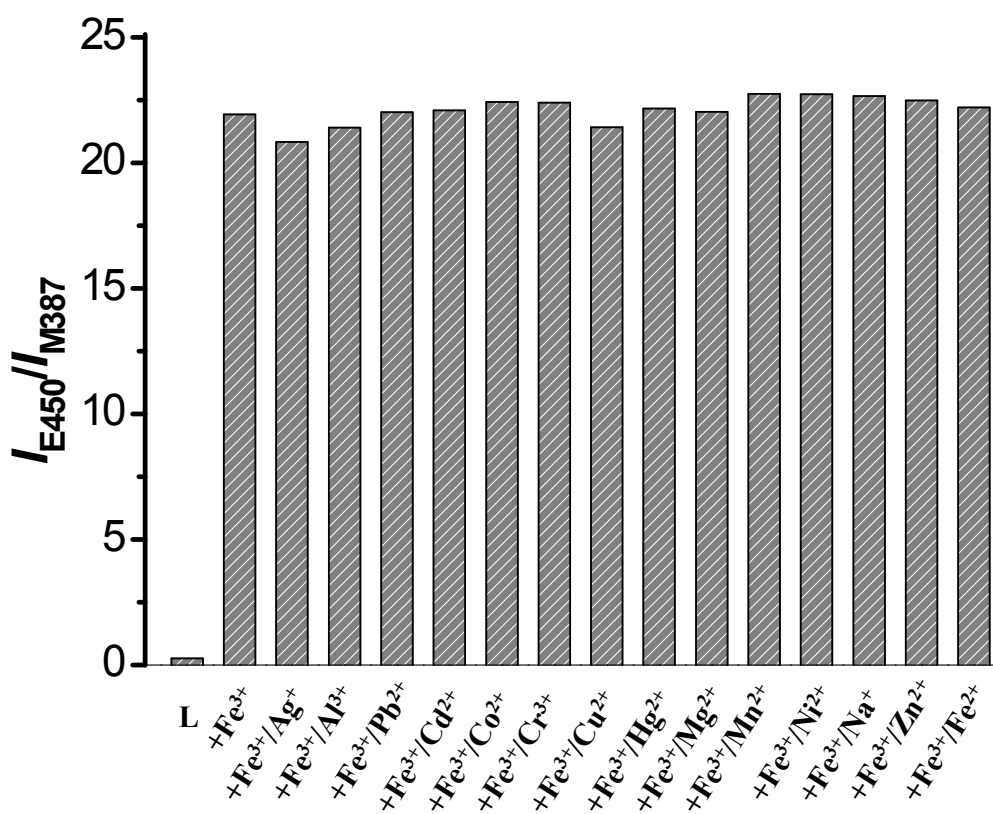


Fig. S4 Interference experiments of L to Fe<sup>3+</sup> in buffer aqueous solution.

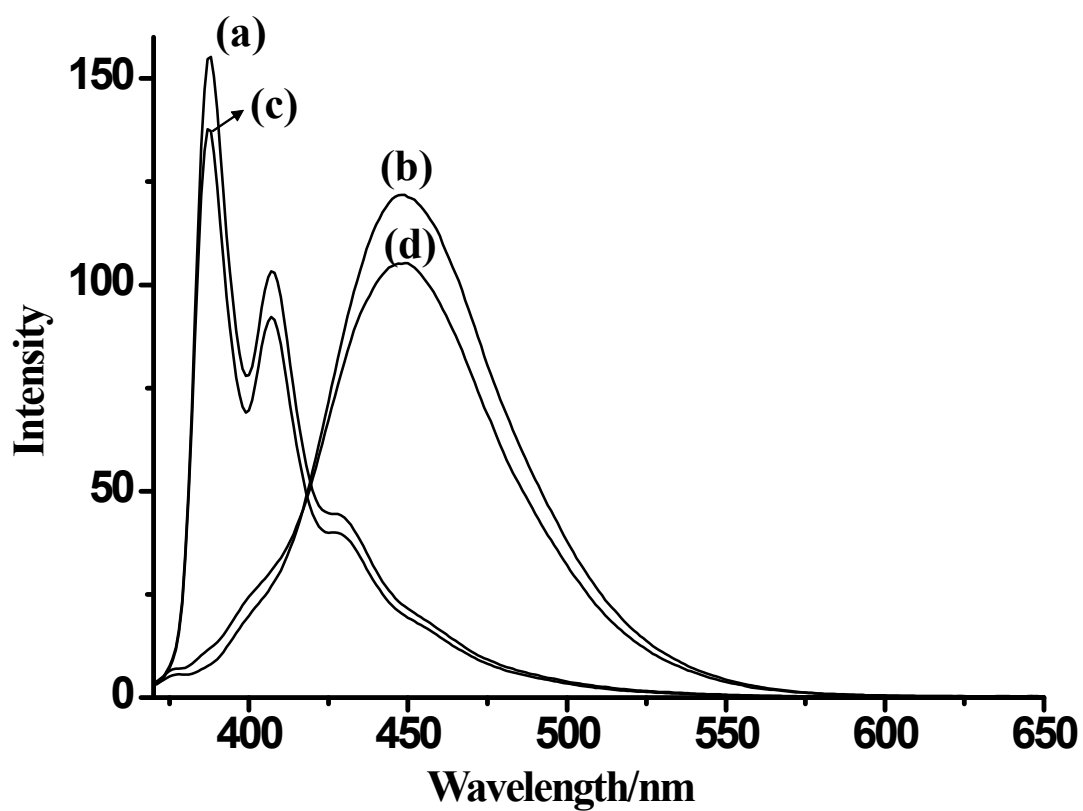


Fig. S5 The reversibility of L to Fe<sup>3+</sup>.

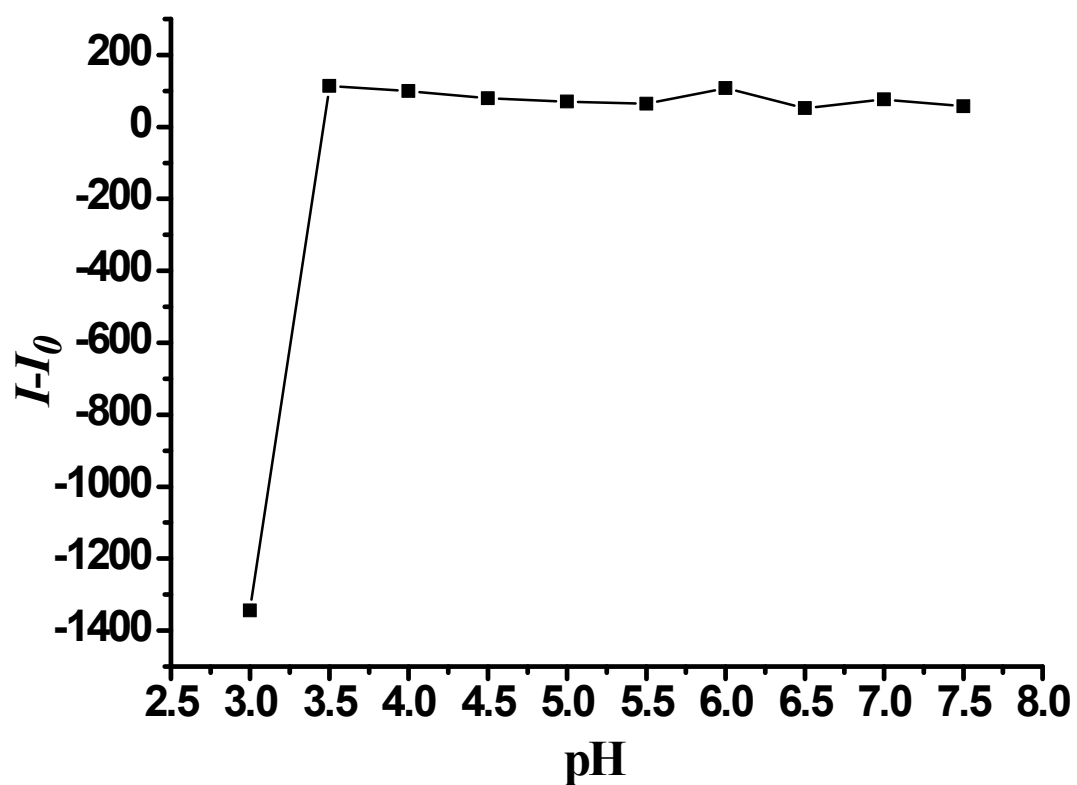


Fig. S6 Variation of fluorescent intensity ( $I-I_0$ ) at 450 nm of **L** in the presence and absence of  $\text{Fe}^{3+}$  (50.0  $\mu\text{M}$ ) as a function of pH values in buffer aqueous solution.