

Turn-on fluorescent chemosensor for Zn (II) via ring opening of rhodamine spirolactam and their live cell imaging

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Electronic supplementary information.

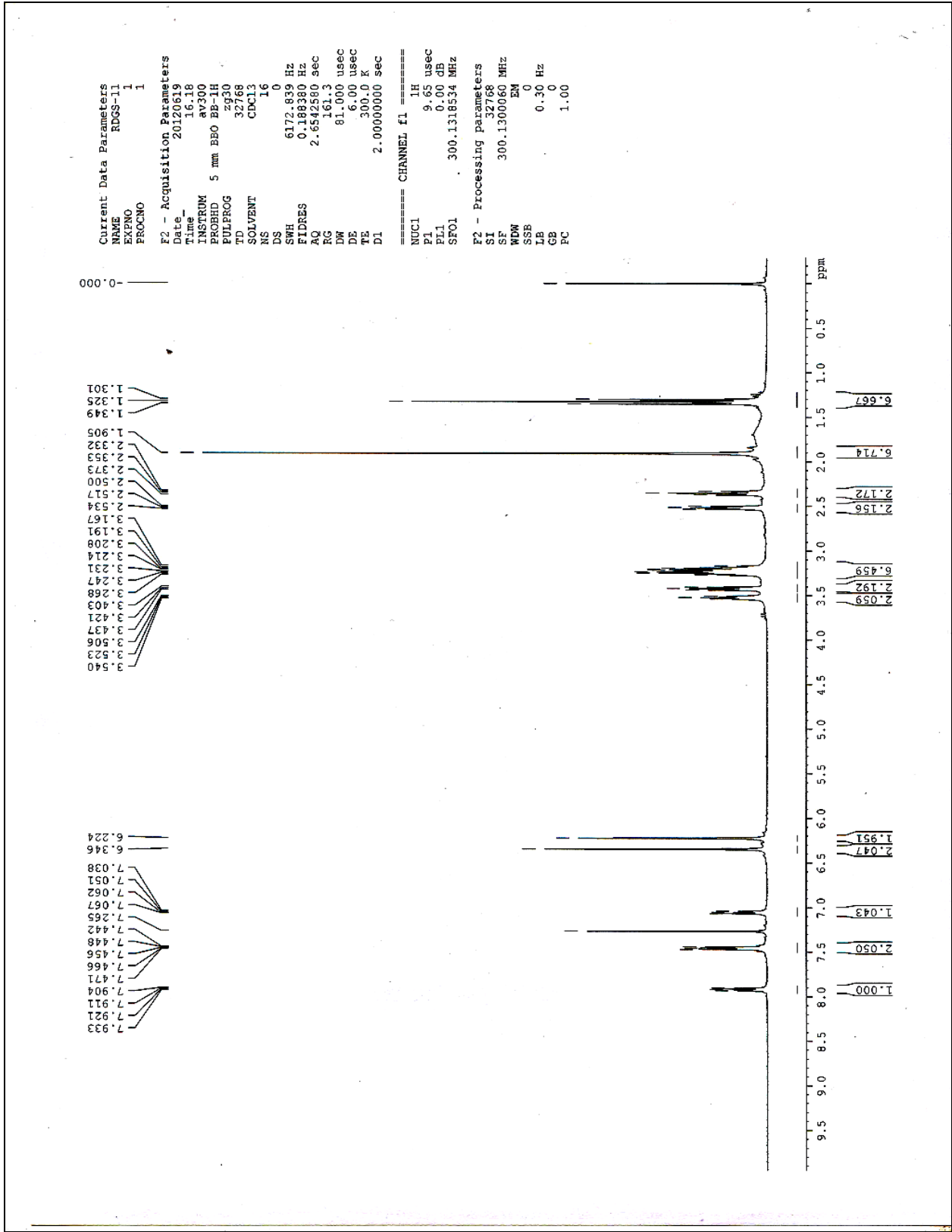


Fig S1: ¹H-NMR spectrum of ZRP-1 in CDCl₃.

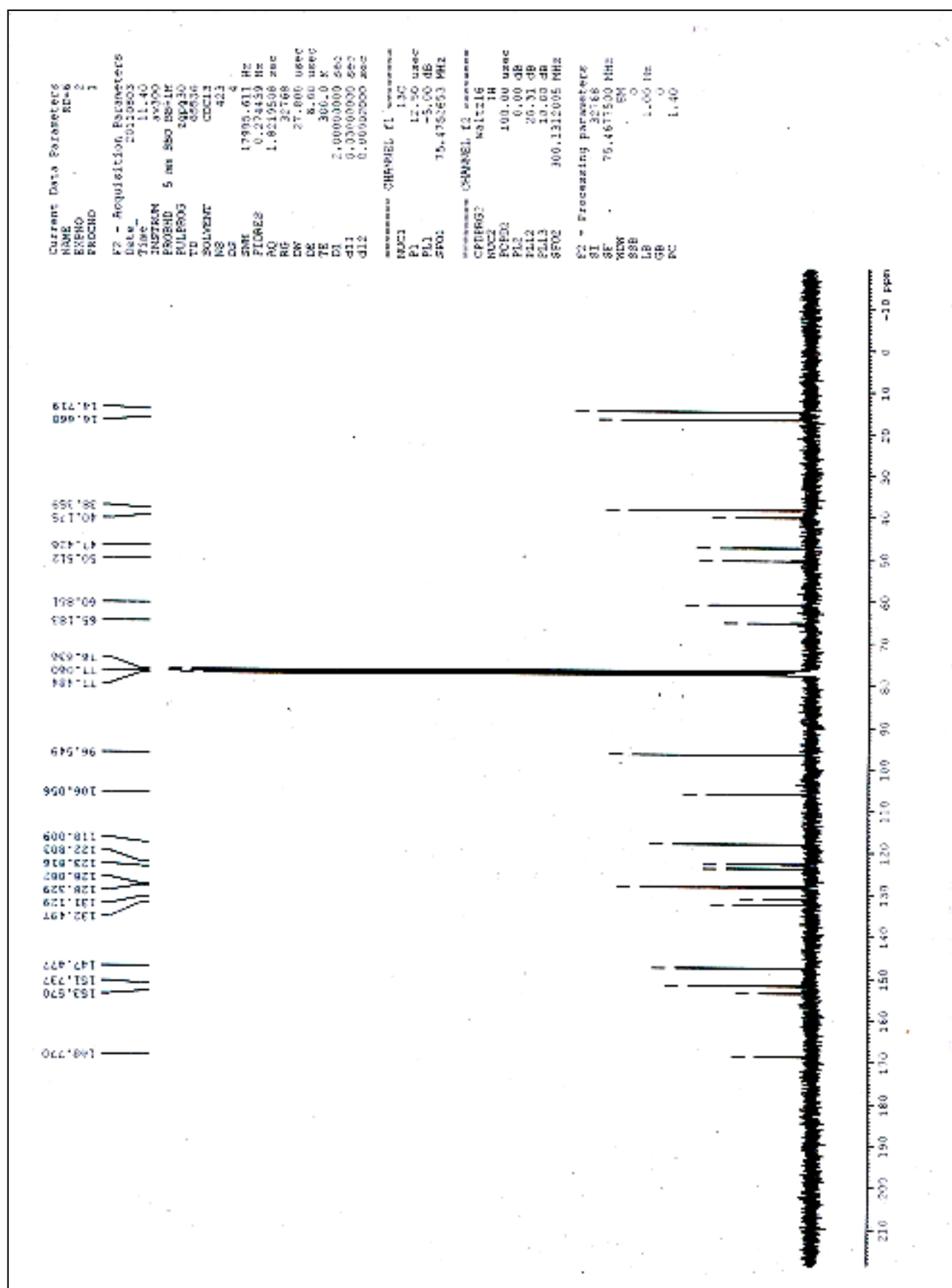


Fig S2: ^{13}C -NMR spectrum of ZRP-1 in CDCl_3 .

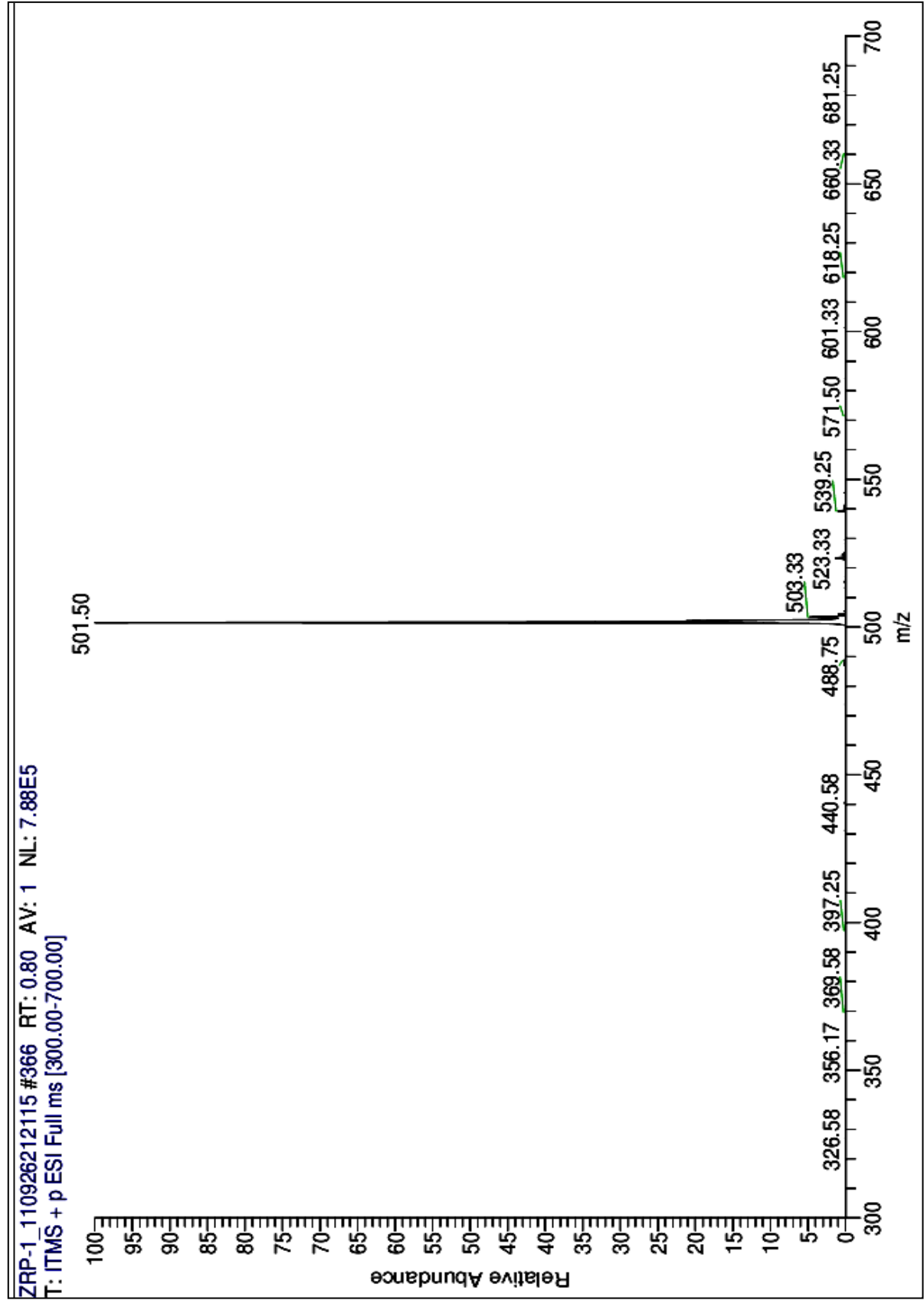


Fig S3: ESI-MS spectrum of ZRP-1.

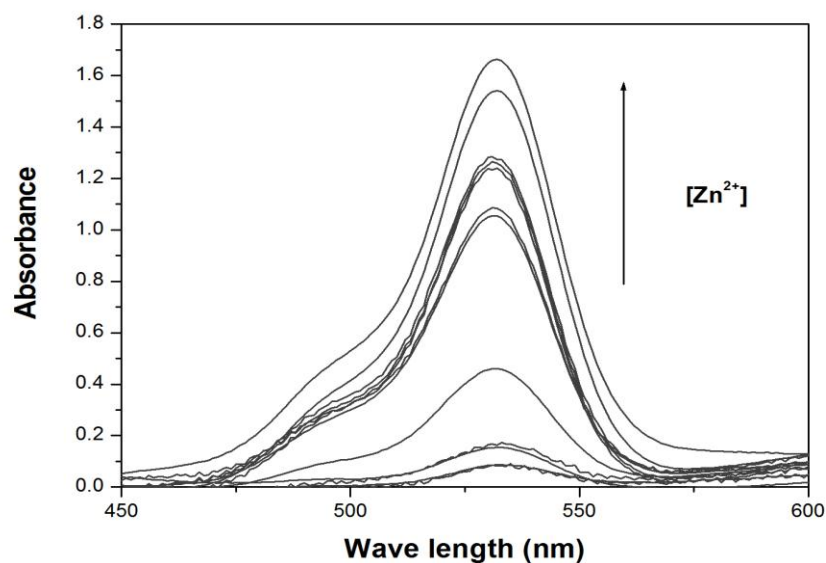


Fig S4: Absorption spectra of ZRP-1 (10 μ M) in 100 mM Phosphate buffer (pH 7.4) in the presence of increasing amounts of Zn²⁺ (0 -10 μ M)

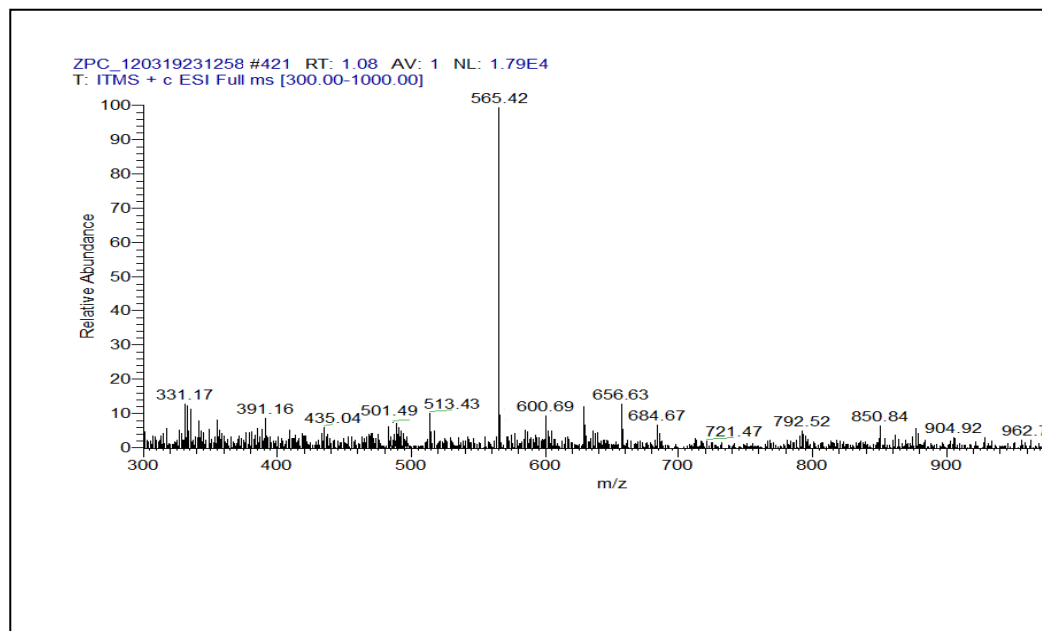


Fig S5: ESI-MS spectrum of ZRP-1+ Zn²⁺.

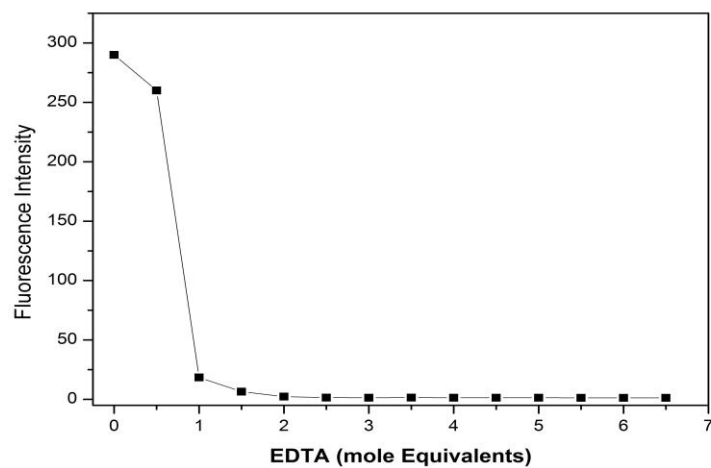


Fig S6: Fluorescence response of ZRP-1+ Zn^{2+} during addition of EDTA.

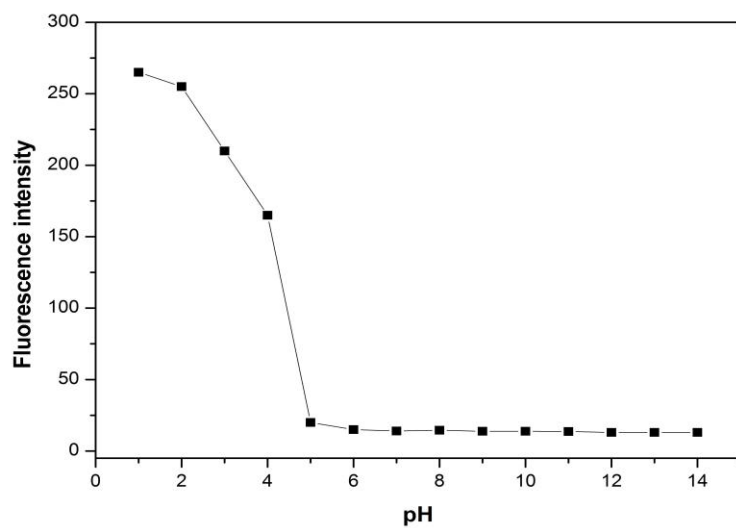


Fig S7: Effect of pH in the Fluorescence response of ZRP-1

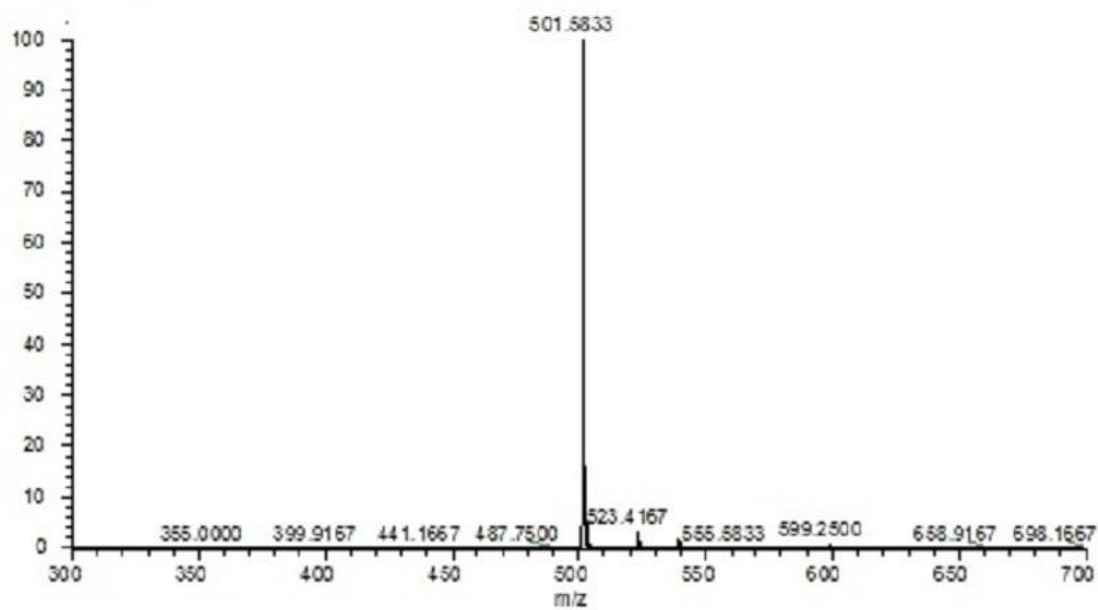


Fig S8: HRMS of ZRP-1.

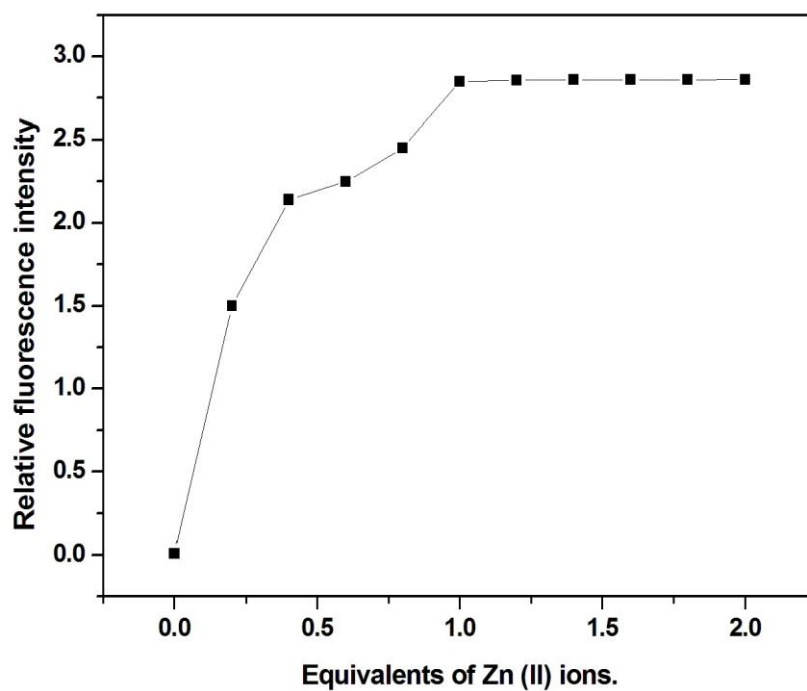


Fig S9: Plot of fluorescence intensity vs concentration of zinc.

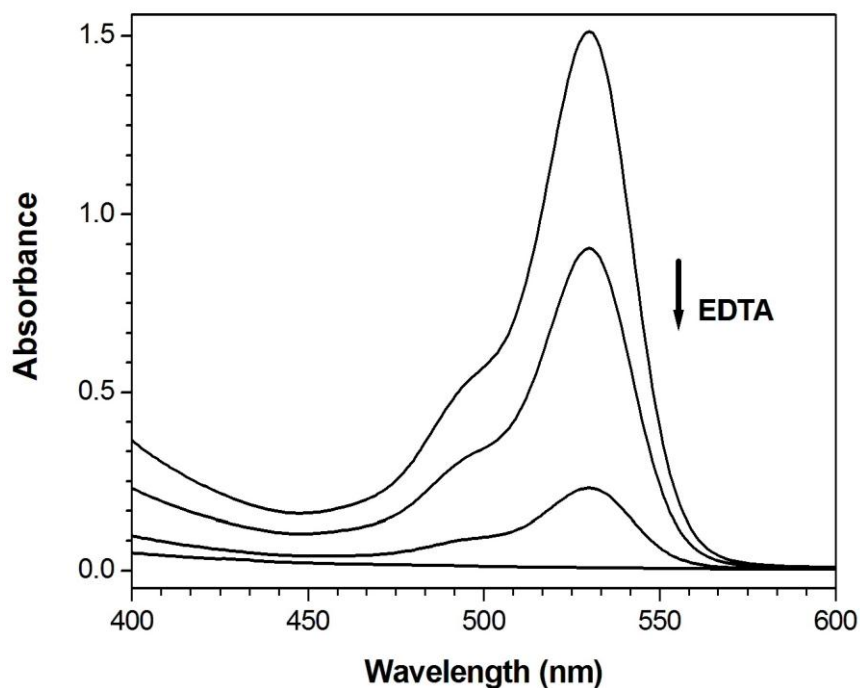


Fig S10: UV-vis absorbance spectral changes after addition of EDTA to ZRP-1 + Zn (II)

Calculation of Binding constant:

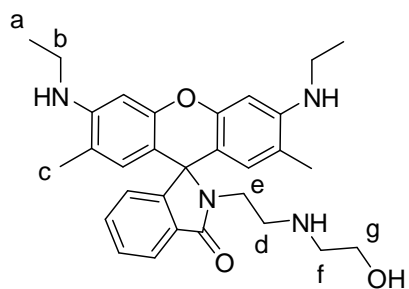
The binding constant K was determined from the plot of the linear regression of $\log [(F - F_0) / (F_m - F)]$ vs. $\log [M]$ in equation to obtain the intercept as $\log K$ and the slope as n .

$$\log \frac{F - F_0}{F_m - F} = \log K + n \log [M]$$

Calculation of Detection limit:

LOD was calculated based on the standard deviation of the response (SD) and the slope of the calibration curve (S) at levels approximating the LOD according to the formula:

$$\text{LOD} = 3.3 (\text{SD}/S)$$



¹H-nmr: 7.93-7.904 (ar), 7.47-7.44 (ar), 7.06-7.03 (ar), 6.34 (ar), 6.22(ar), 3.54-3.50 (g), 3.43-3.40(e), 3.26-3.16 (b), 2.53-2.50 (f), 2.373-2.332 (d), 1.905 (c), 1.34-1.30 (a).

Fig S 11: Labelling of ¹H-nmr spectrum of ZRP-1