Electronic Supplementary Information

Solvent assisted selective detection of sub-micromolar levels of Cu^{2+} ions in aqueous samples and live-cells

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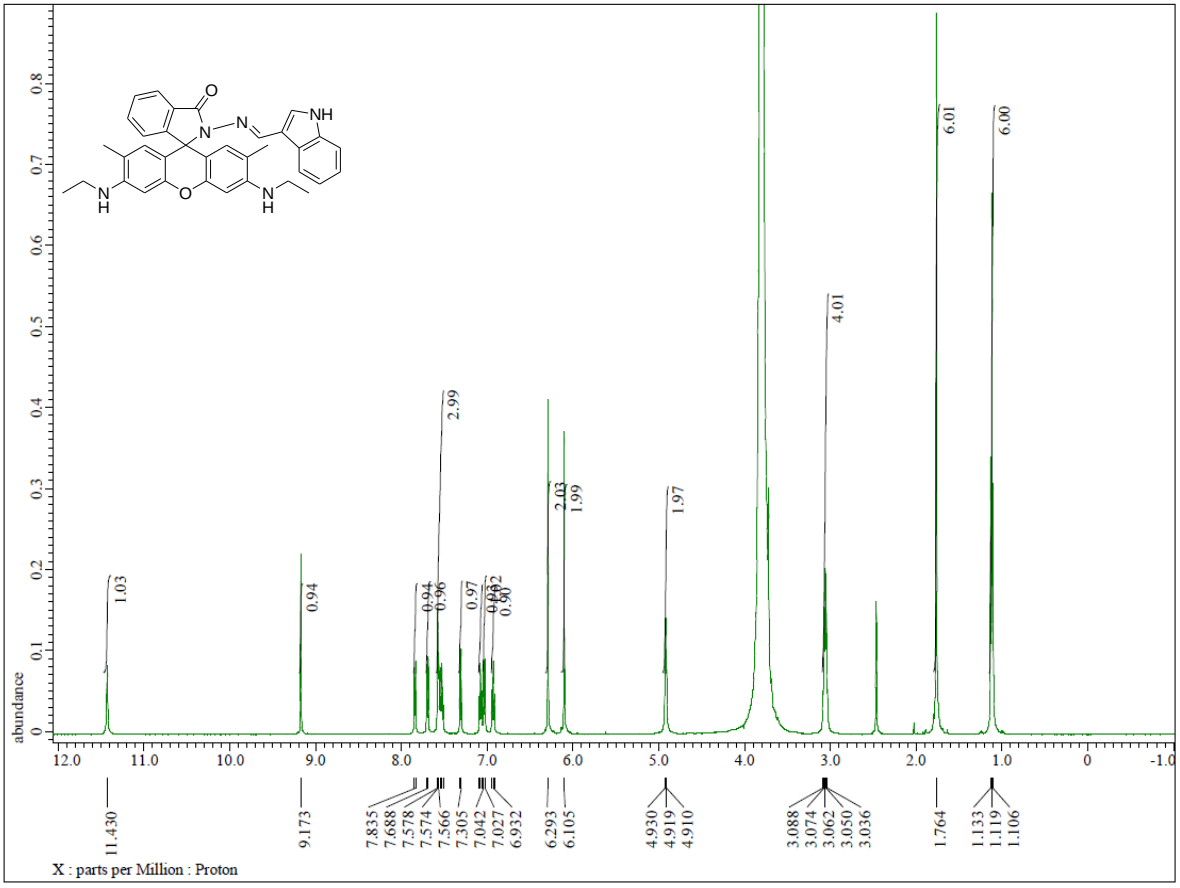

Fig. S1. ^{1}H NMR spectrum of **1** in DMSO-*d6*

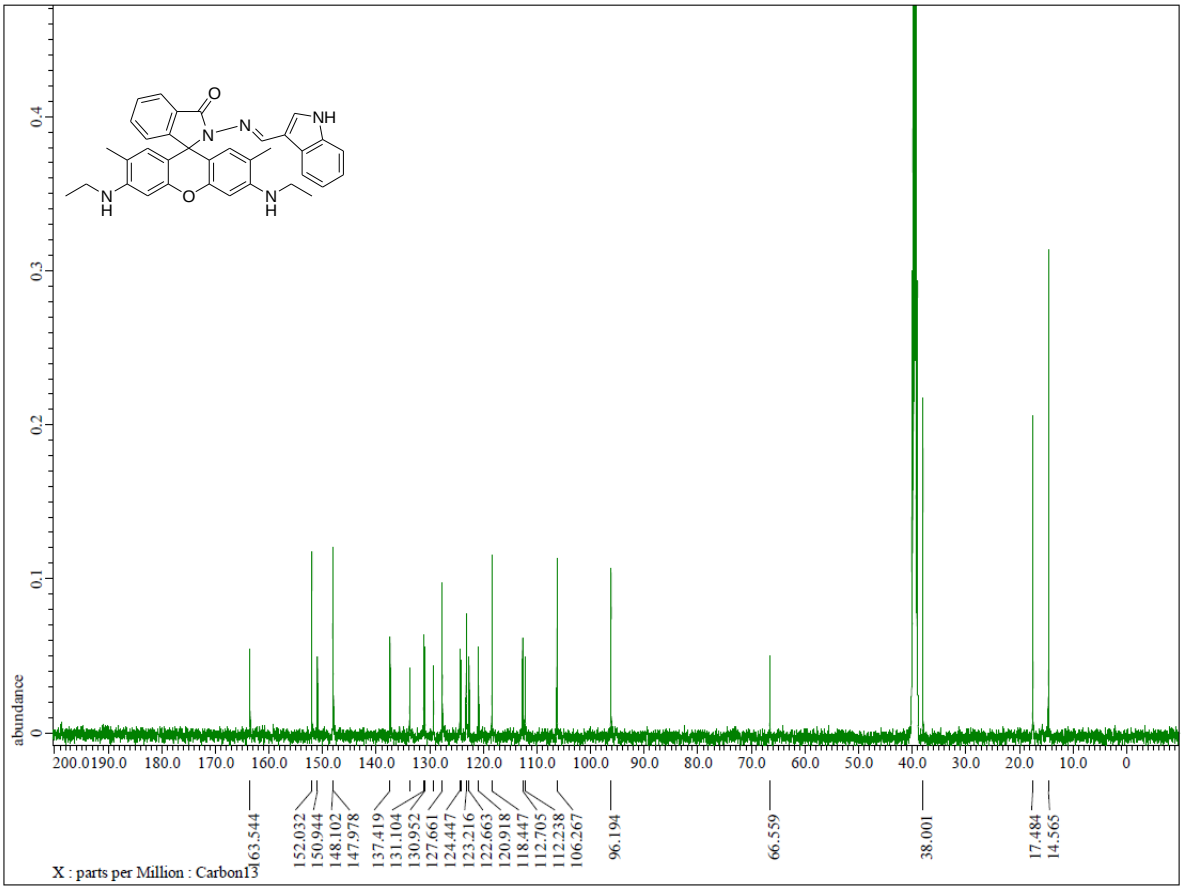

Fig. S2. ^{13}C NMR spectrum of **1** in DMSO-*d6*

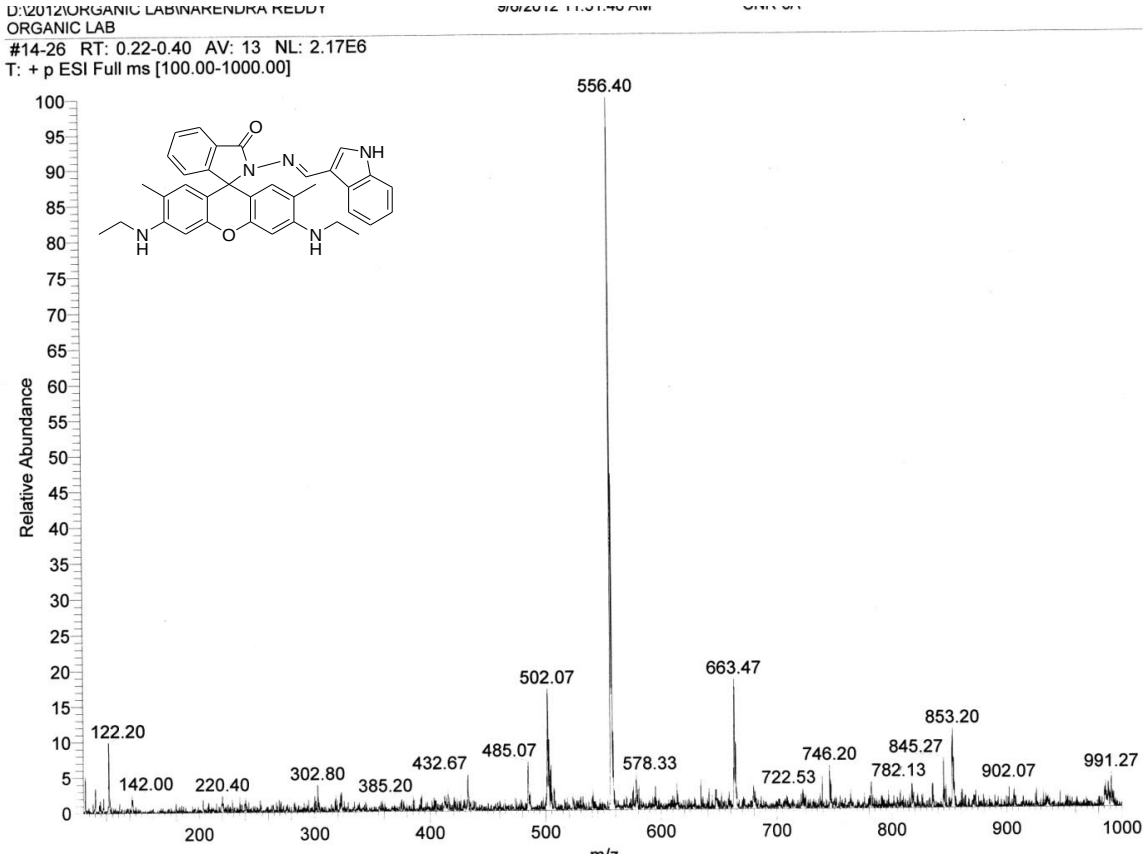

Fig. S3. ESI Mass spectrum of **1**

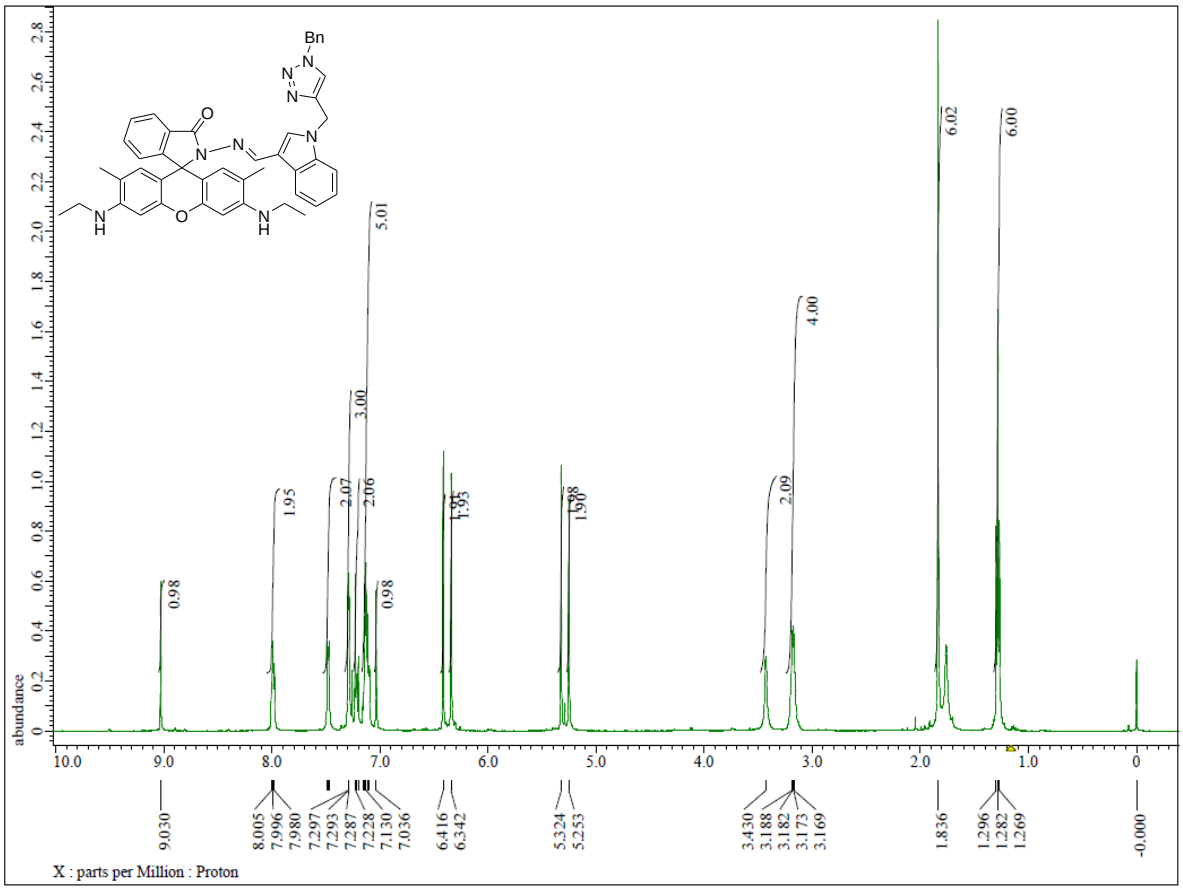

Fig. S4. ^{1}H NMR spectrum of **2** in $CDCl_3$

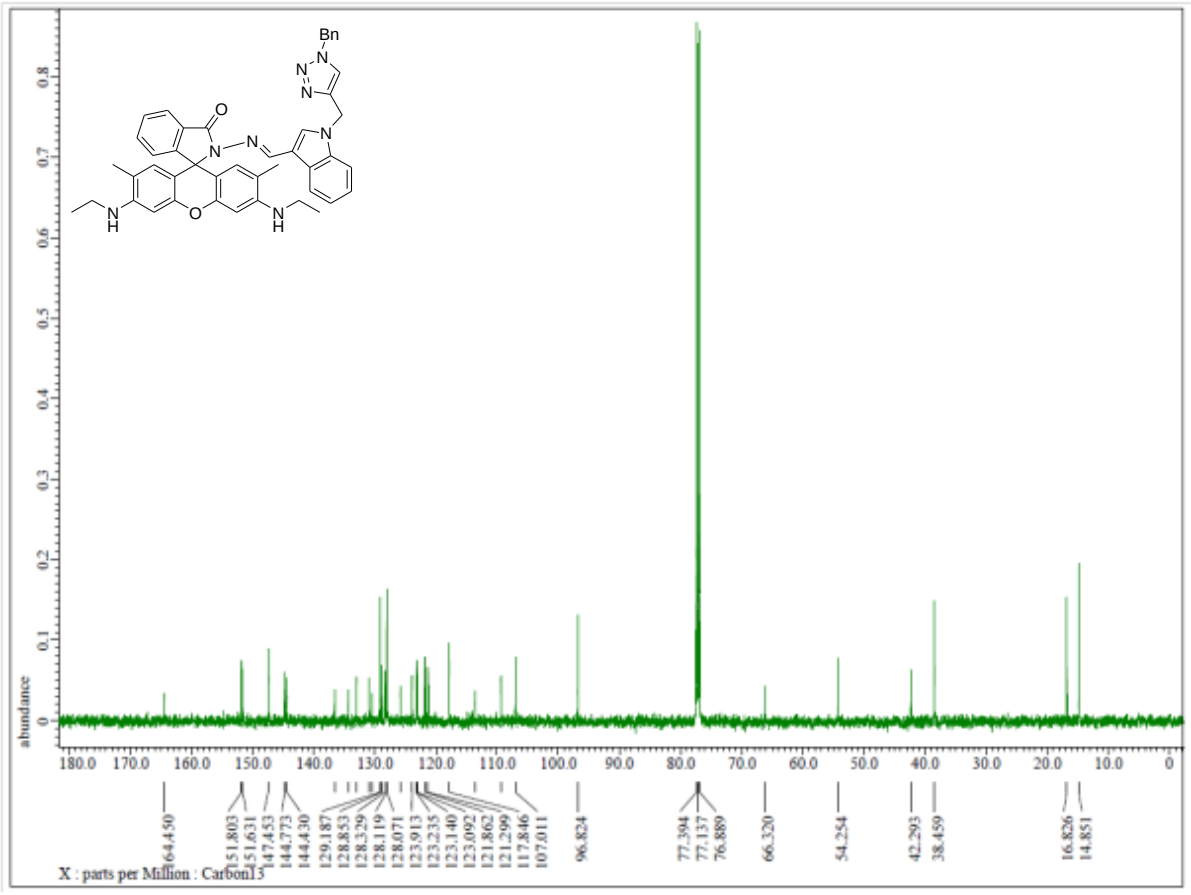

Fig. S5. ^{13}C NMR spectrum of **2** in $CDCl_3$

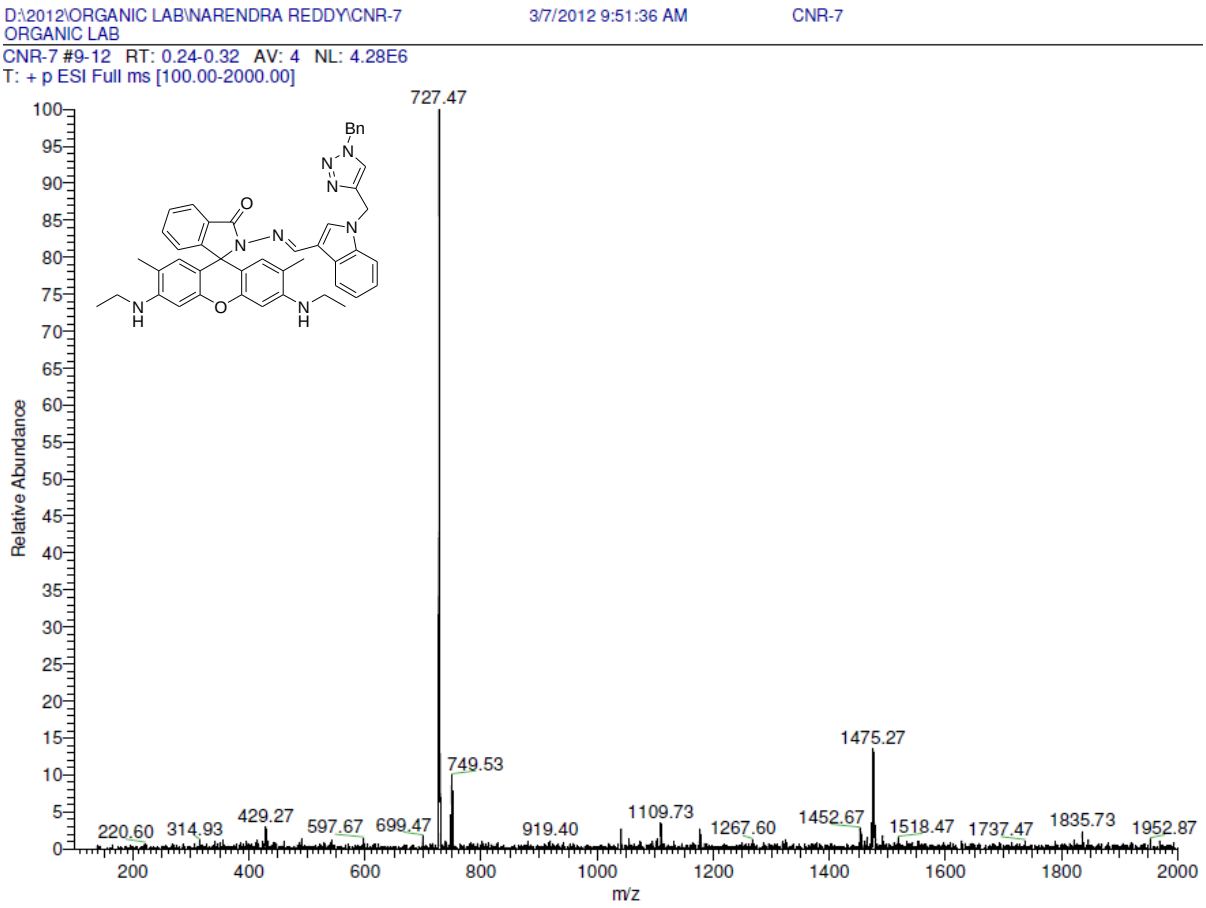

Fig. S6. ESI Mass spectrum of **2**

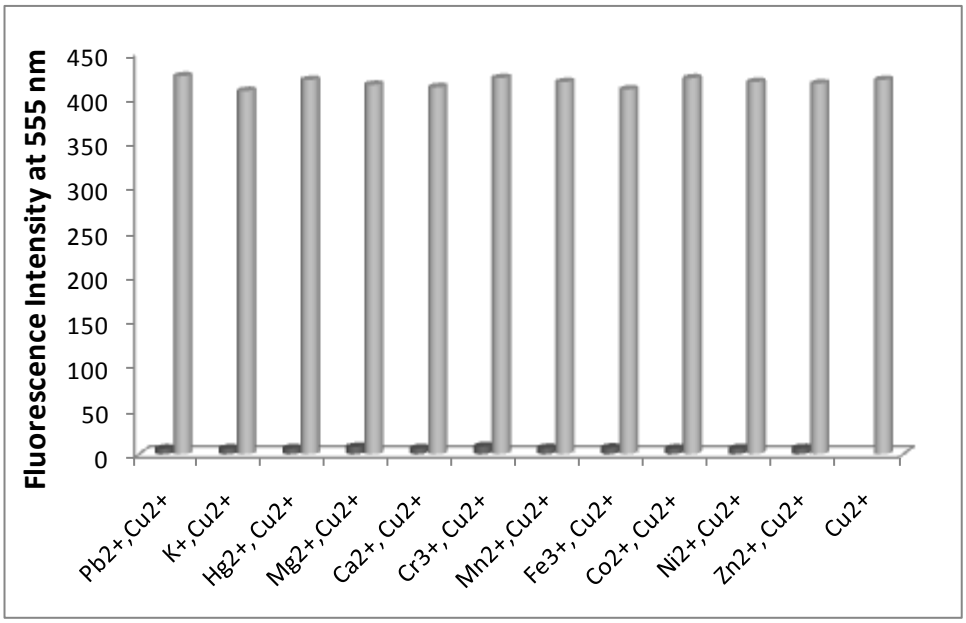

Fig. S7. Metal-ion selectivity of **2** (10 μM) in 1:1 v/v 0.01M Tris HCl-CH_3CN, pH 7.4. The dark bars represent the fluorescence emission of a solution of **2** (10 μM) and 5 equiv of the cation of interest. The light bars show the fluorescence change that occurs upon addition of 1 equiv of Cu(II) to the solution containing **2** (10 µM) and the cation (50 µM).

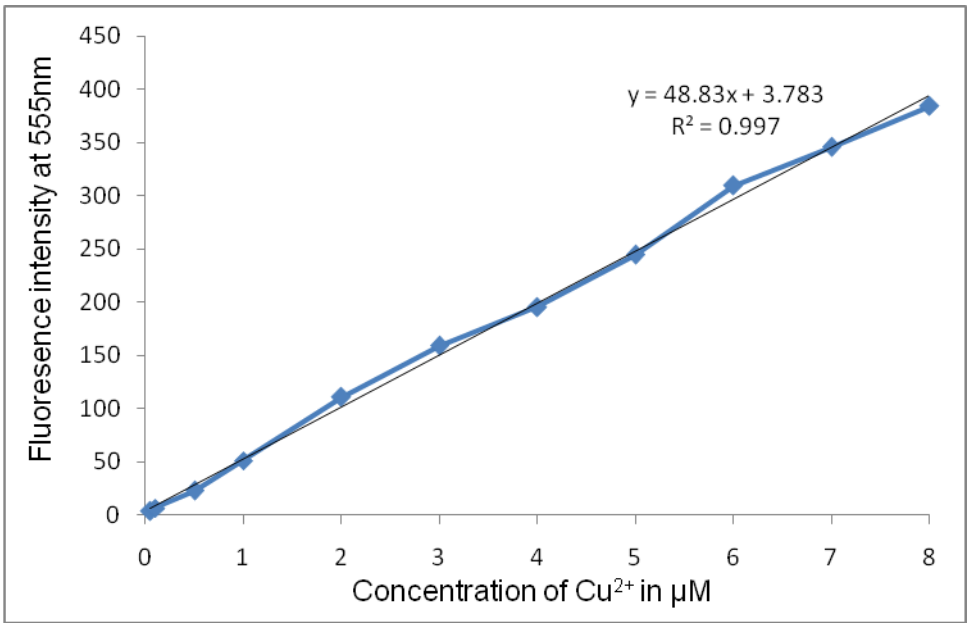

Fig. S8. The linear range of detection using fluorescent probe **2**

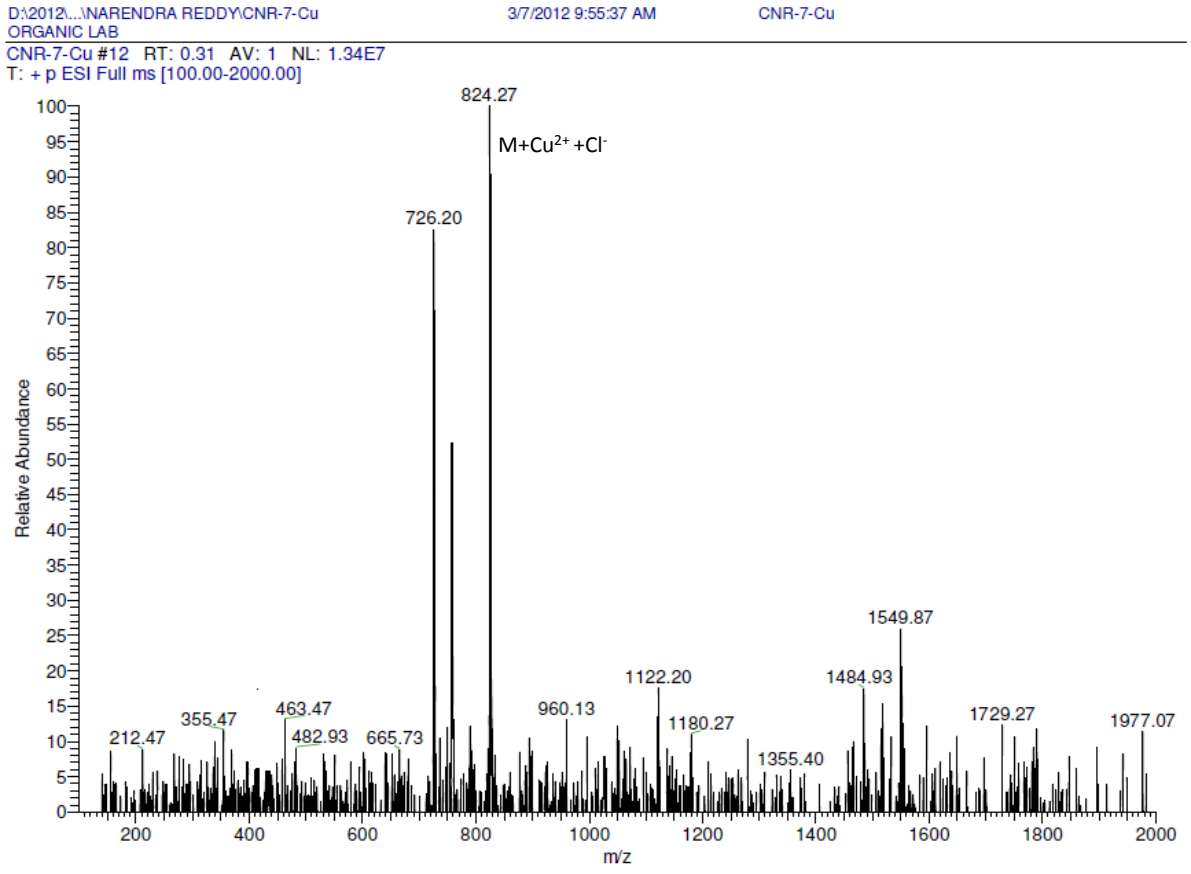

Fig. S9. ESI Mass spectrum of **2**-Cu^{2+} complex

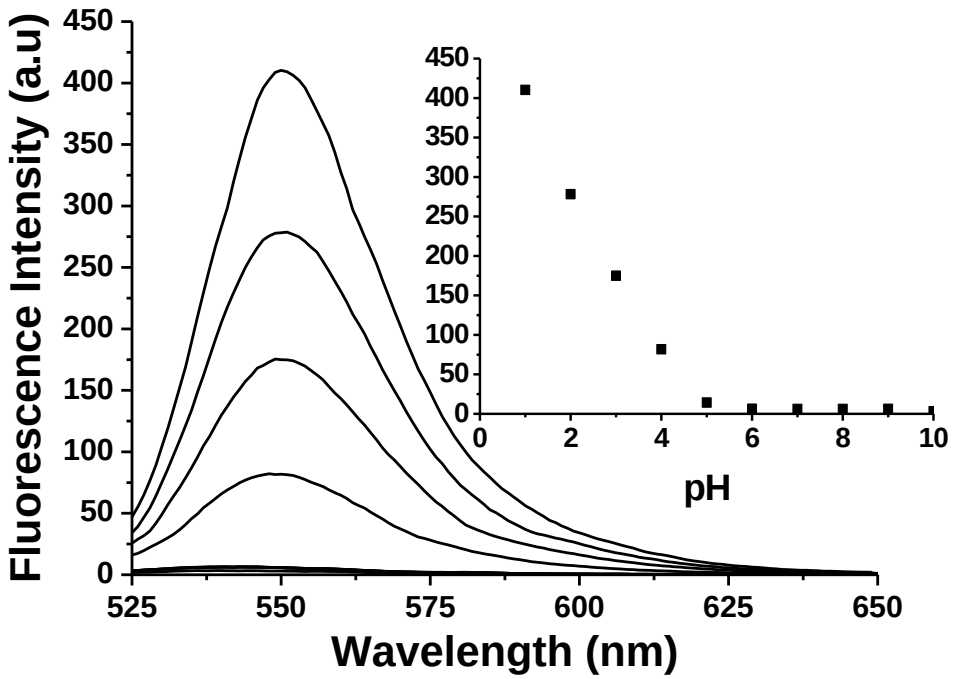

Fig. S10. pH dependant variation in fluorescence intensity of **2** (10 μM).

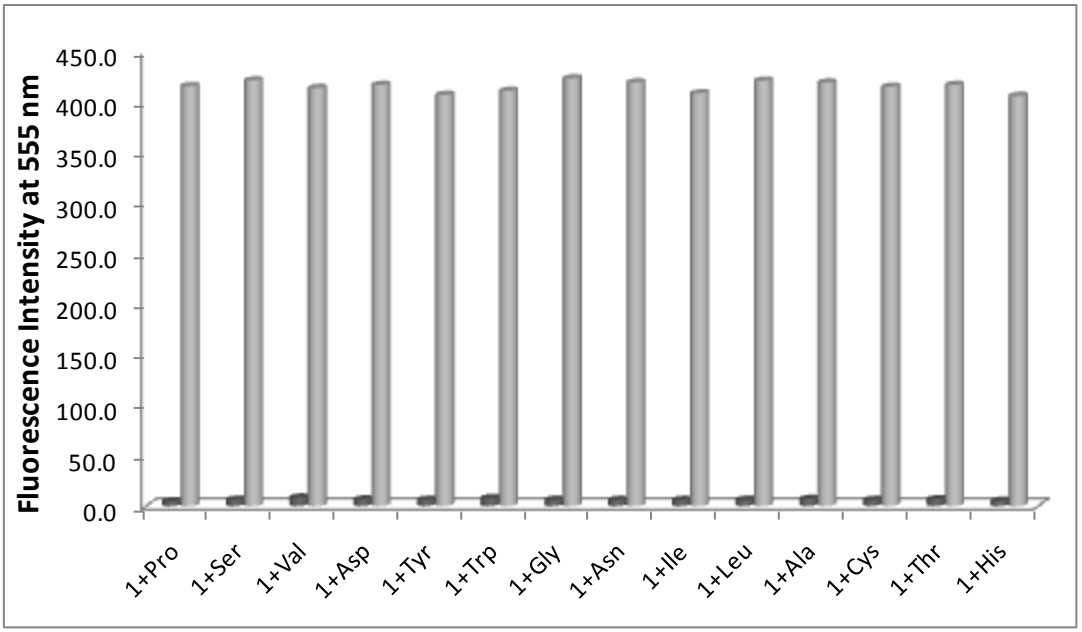

Fig. S11. Cu^{2+} ion selectivity of **2** (10 μM) in 1:1v/v 0.01M Tris HCl-CH_3CN, pH 7.4 in the presence of various amino acids. The dark bars represent the fluorescence emission intensity of **2** (10 μM) and 5 equiv of the amino acid of interest. The grey bars show the fluorescence emission intensity upon addition of 1.0 equiv. of Cu^{2+} to the solution of **2** (10 μM) and 5.0 equiv. of the amino acid of interest.

Table S1. Comparative account of the characteristics of probe **2** and other Cu^{2+} probes

Cu^{2+} Sensor	Reversibility	Competing metal ion(s)	Linear range (μM)	Detection limit (μM)	Remarks
Ref 1	NA	Co^{2+}	0.1-70	0.23	Interference from other metal ions
Ref 2	Irreversible	-	2.5-35	1.8	Large response time (8 min) and high detection limit
Ref 3	Reversible	-	0.1-1	0.045	narrow linear range of detection
Ref 4	Irreversible	-	0.08-30	0.013	Low excitation wavelength (365 nm) may be harmful to living organisms
Ref 5	Irreversible	Cr^{3+}, Hg^{2+}	-	0.3	Interference from other metal ions
Ref 6	NA	Fe^{3+}, Hg^{2+}	-	-	Interference from other metal ions
This work	Reversible	-	0.05-8	0.03	No interference from other metal ions; Wide linear range of detection; Low detection limit; Excitation in visible region (525 nm)

References

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