Electronic Supplementary Information

A new fluorescent and colorimetric probe for Cu^{2+} in live cells

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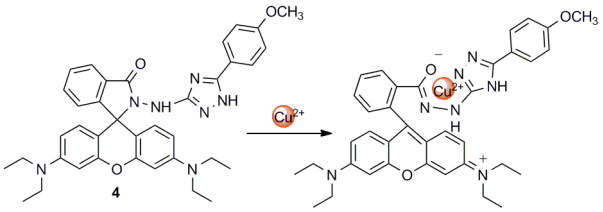

Fig. S1 Mechanism of copper ion inducing ring-open of probe 4

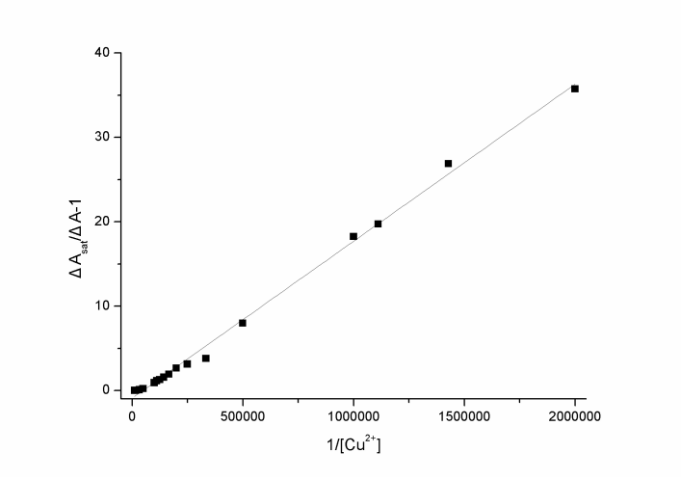

Fig. S2 Linear correlation between$\Delta A_{sat}/\Delta A$-1 and $1/[Cu^{2+}]$ (R = 0.9965). ΔA are the absorbance change values of 10 μM **4** in the presence of 0.05 – 9.0 equiv. Cu^{2+} (Ka = 5.38×10^4 M^{-1}).

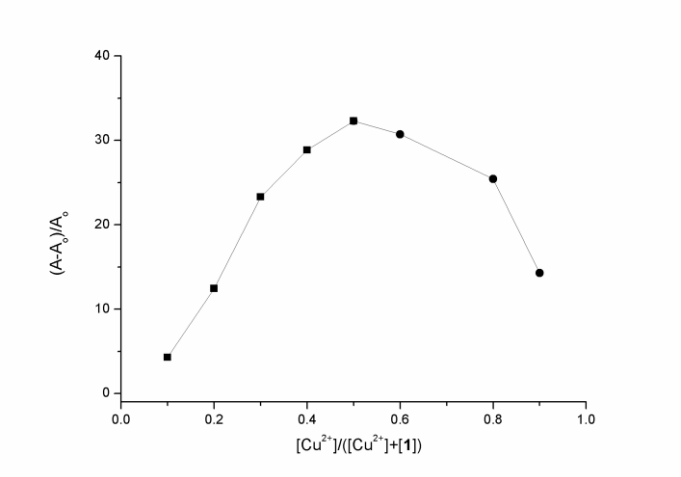

Fig. S3 Job plot for determining the stoichiometry of **4** and Cu^{2+}. The total concentration of **4** and Cu^{2+} was 1×10^{-5} M. A_0 and A are the absorbance values of **4** in the absence of Cu^{2+} and **4** upon addition of different amounts of Cu^{2+}.

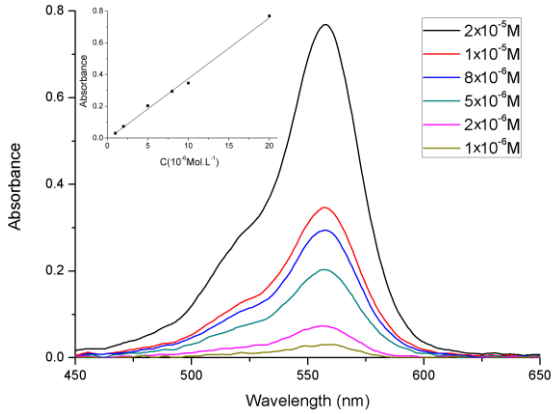

Fig. S4 Absorption spectra of **4** with 1.0 equiv. Cu^{2+} in buffered EtOH/HEPES solution at different concentrations. The inset shows the linear relation of the absorbance with Cu^{2+} concentration (R = 0.9951, ε = 3.83 × 10^4 L mol^{-1} cm^{-1}).

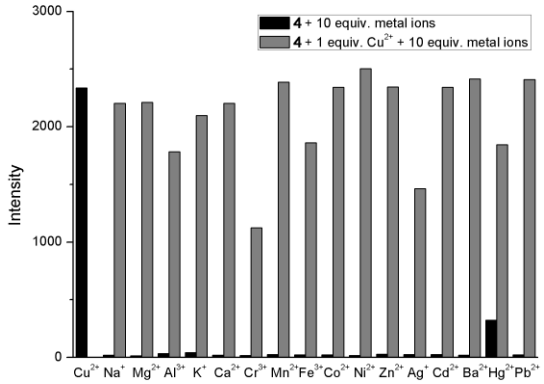

Fig. S5 Fluorescence intensity changes of 10 μM **4** to 100 μM of different metal ions in buffered EtOH/HEPES solution (black bars), and the subsequent addition of 10 μM Cu^{2+} to above solutions (gray bars). (Excitation wavelength (λ_{ex}), 562 nm; slit width, 10 nm; emission wavelength (λ_{em}), 581 nm; slit width, 5.0 nm.)

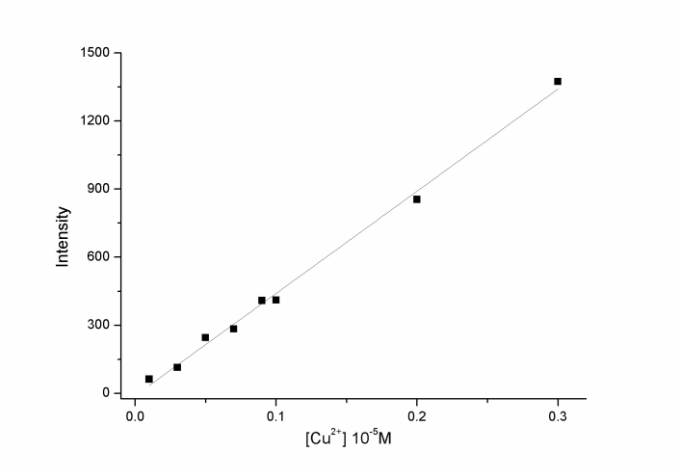

Fig. S6 Linear correlation between the fluorescence intensity and Cu^{2+} concentration (R = 0.9951). Probe **4** 10 μM in the presence of various concentrations of Cu^{2+} ranging from 0.01–0.3 equiv.

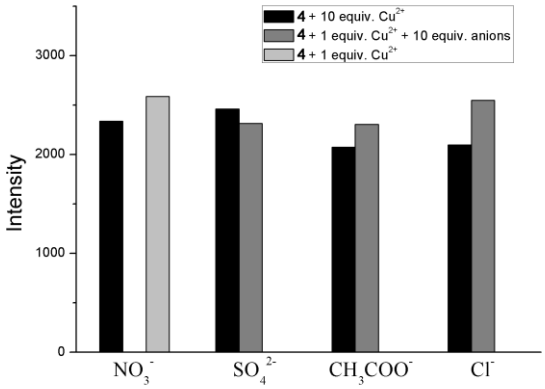

Fig. S7 Fluorescence response of 10 μM **4** to 100 μM of $CuNO_3$, $CuSO_4$, $CuAc_2$, $CuCl_2$ (black bars), 10 μM of $CuNO_3$ (light gray bar) and the mixture of 100 μM of Na_2SO_4, NaAc, NaCl with 10 μM of $CuNO_3$ (gray bars) in buffered EtOH/HEPES solution.

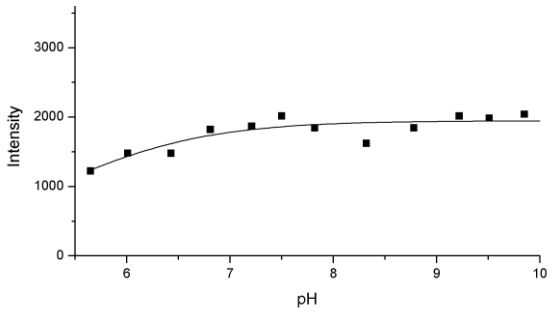

Fig. S8 The effect of pH (5.6 – 10.5) on the fluorescence intensity of 10 μM probe **4** with 1.0 equiv. Cu^{2+} in buffered EtOH/HEPES solution. (Excitation wavelength (λ_{ex}),

562 nm; slit width, 10 nm; emission wavelength (λ_{em}), 578 nm; slit width, 5.0 nm.)

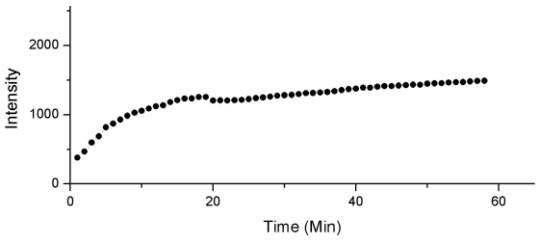

Fig. S9 Time course for the fluorescence response of 10 μM **4** upon the addition of 1.0 equiv. Cu^{2+} in buffered EtOH/HEPES solution at room temperature.