

**Electronic supplementary information (ESI)**

**A Colorimetric and Ratiometric Fluorescent Probe for Copper(II)  
with Large Red Shift and Its Ratiometric Imaging in Living Cells**

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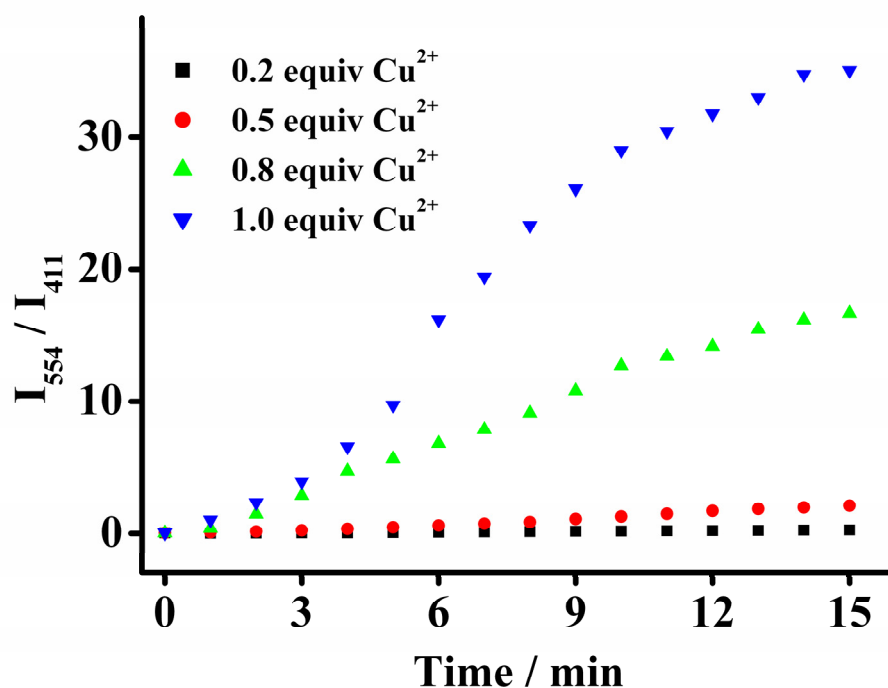
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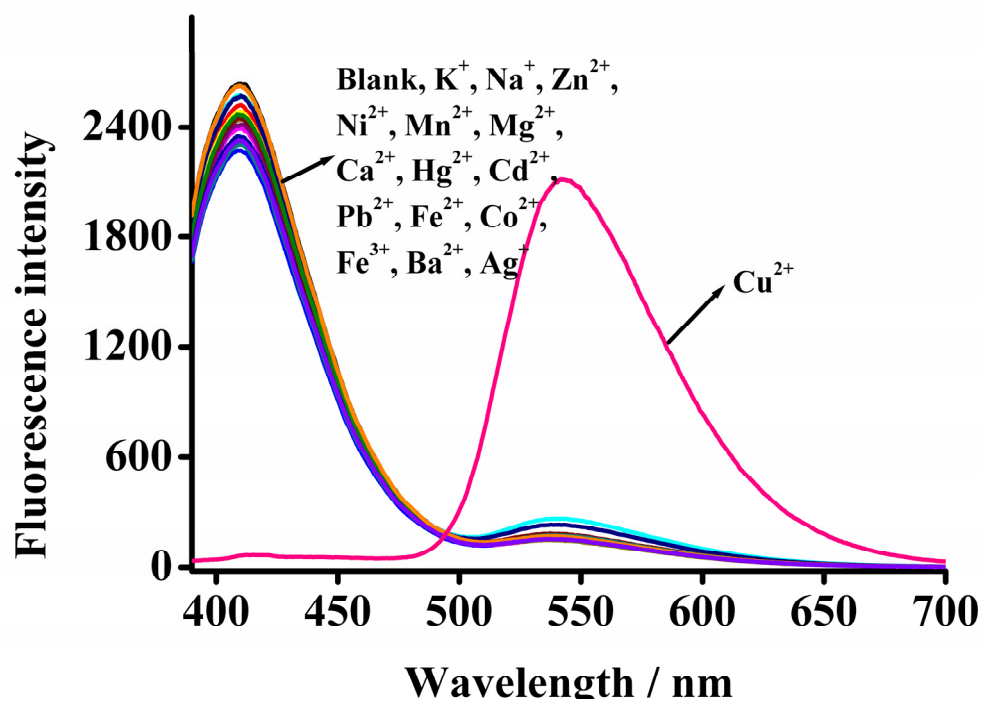
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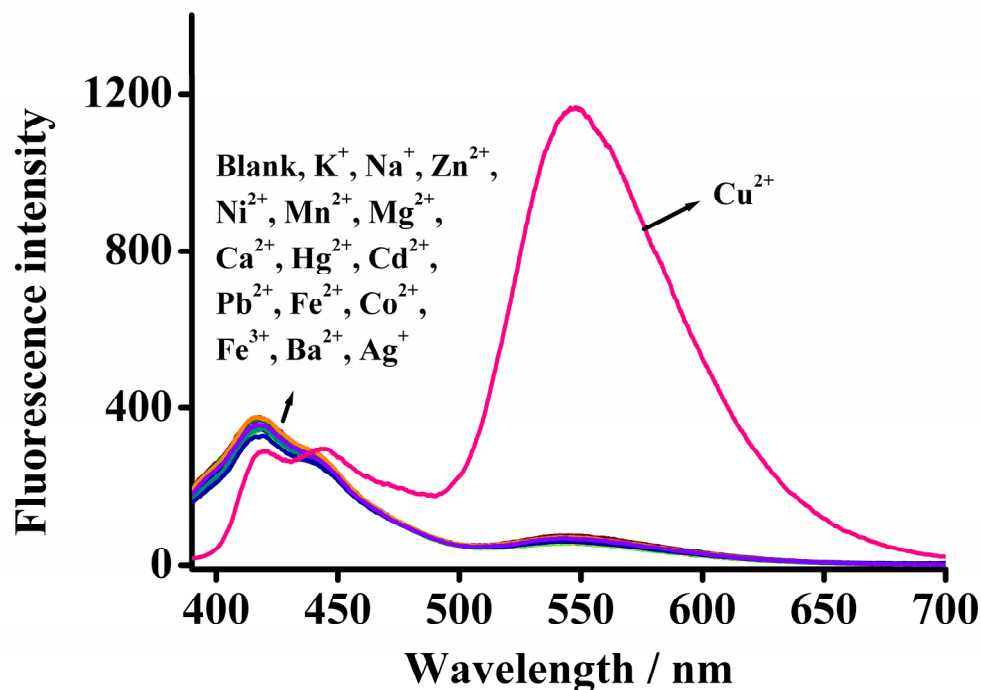
- 1. Time-dependent fluorescent behavior of probe 1 at different equiv of Cu<sup>2+</sup> in 50% H<sub>2</sub>O-CH<sub>3</sub>CN HEPES buffered solution**
- 2. Fluorescence spectra of probe 1 upon the addition of various metal ions in H<sub>2</sub>O-Ethanol HEPES buffered solution(50%, V/V)**
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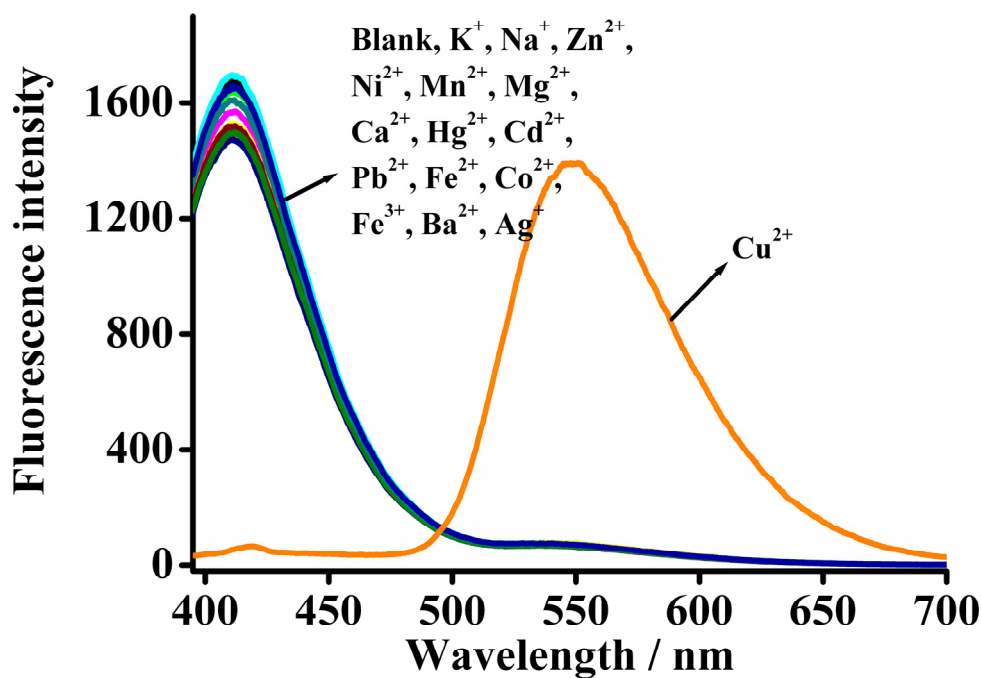
**Fig. S1** Time-dependent fluorescent behavior of probe 1 with different equiv. of  $\text{Cu}^{2+}$  in  $\text{H}_2\text{O}-\text{CH}_3\text{CN}$  HEPES buffer (pH 7.4, 25 mM) (50%, V/V).



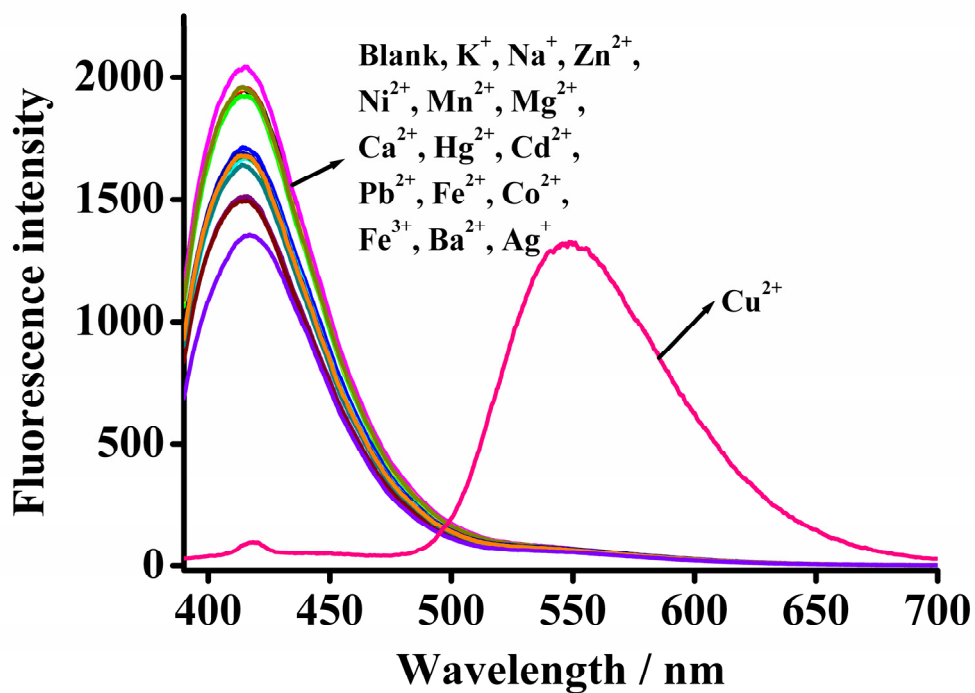
**Fig. S2** Fluorescence spectra of the probe 1 (10  $\mu\text{M}$ ,  $\lambda_{\text{ex}} = 376 \text{ nm}$ ) upon the addition of various metal ions (15  $\mu\text{M}$ ) in HEPES buffered (pH 7.4, 25 mM)  $\text{H}_2\text{O}$ -Ethanol (50%, V/V).



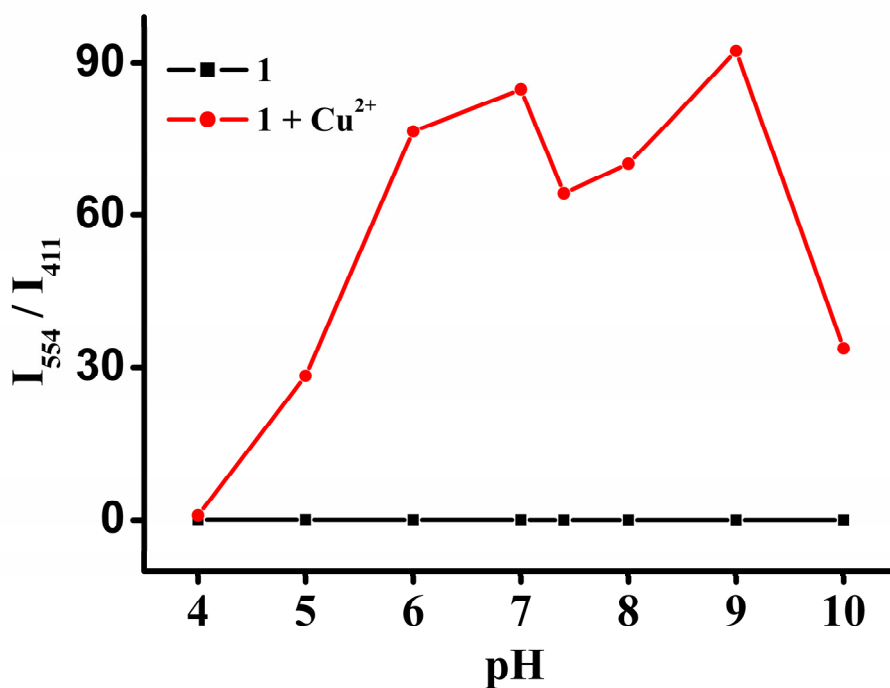
**Fig. S3** Fluorescence spectra of the probe **1** ( $10 \mu\text{M}$ ,  $\lambda_{\text{ex}} = 375 \text{ nm}$ ) upon the addition of various metal ions ( $15 \mu\text{M}$ ) in HEPES buffered (pH 7.4, 25 mM)  $\text{H}_2\text{O}$ -DMSO (50%, V/V).



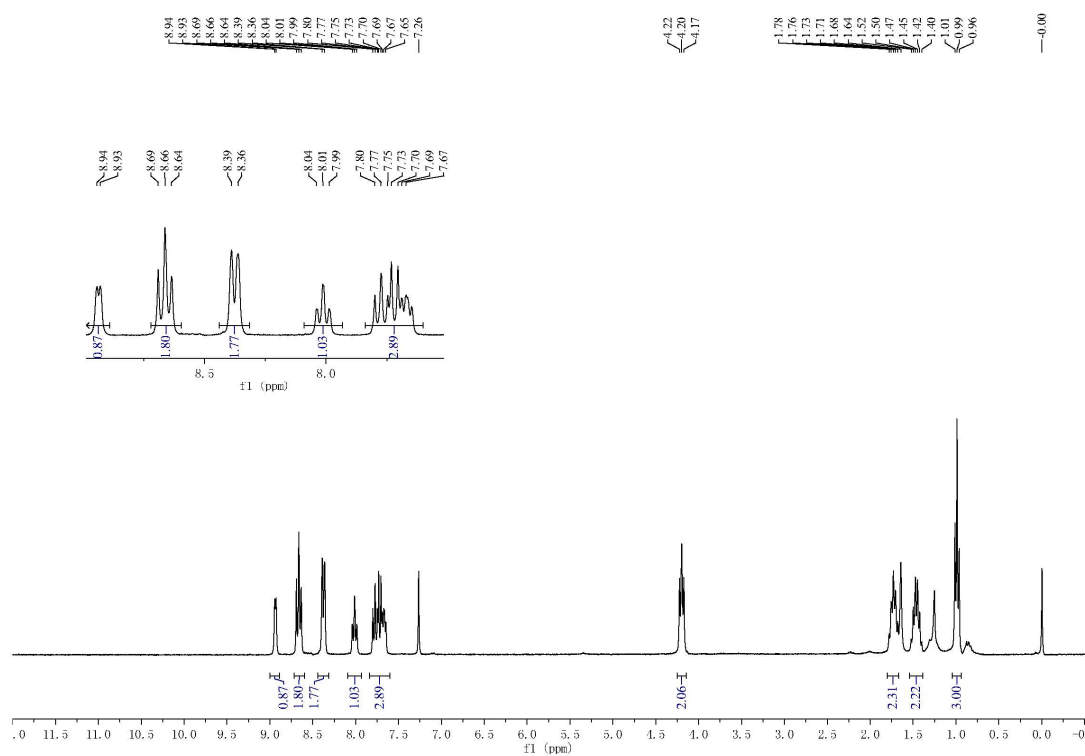
**Fig. S4** Fluorescence spectra of the probe **1** ( $10 \mu\text{M}$ ,  $\lambda_{\text{ex}} = 371 \text{ nm}$ ) upon the addition of various metal ions ( $15 \mu\text{M}$ ) in HEPES buffered (pH 7.4, 25 mM)  $\text{H}_2\text{O}$ - $\text{CH}_3\text{CN}$  (70%, V/V).



**Fig. S5** Fluorescence spectra of the probe 1 (10  $\mu\text{M}$ ,  $\lambda_{\text{ex}} = 376 \text{ nm}$ ) upon the addition of various metal ions (15  $\mu\text{M}$ ) in HEPES buffered (pH 7.4, 25 mM)  $\text{H}_2\text{O}-\text{CH}_3\text{CN}$  (90%, V/V).



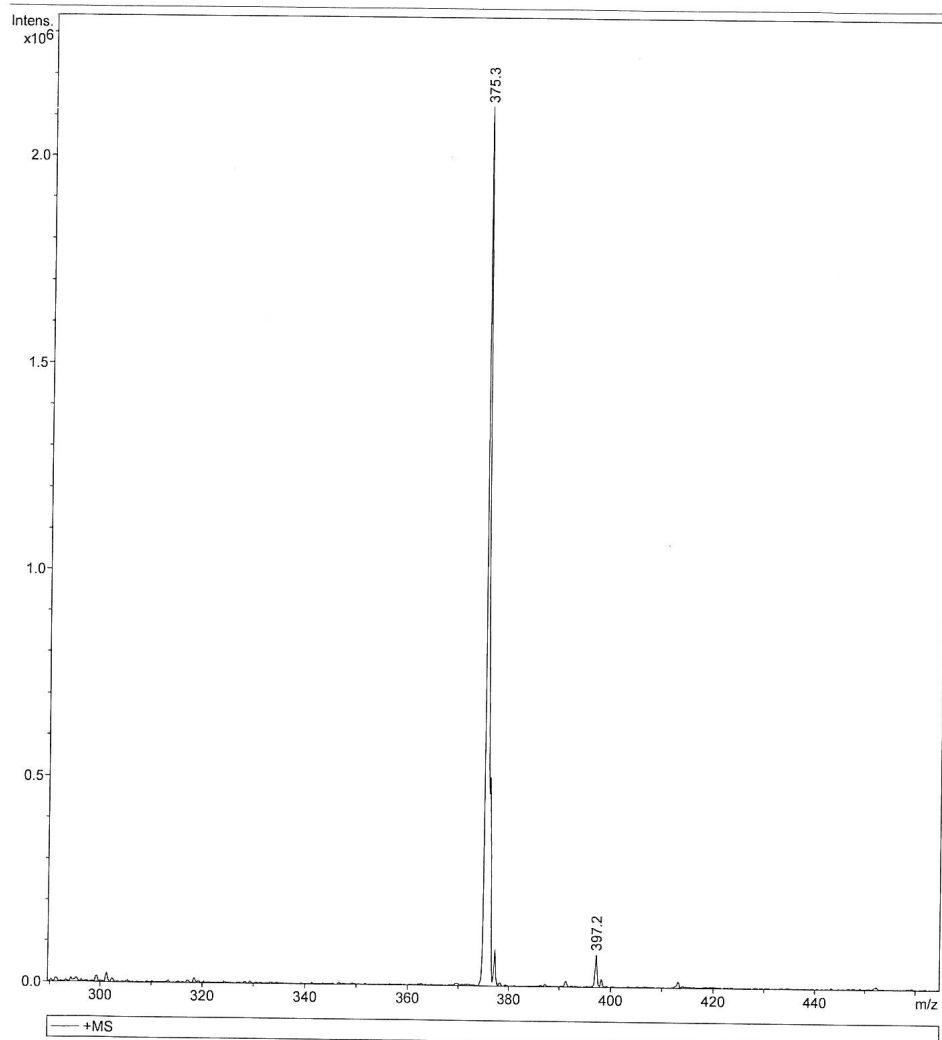
**Fig.S6** The ratio of fluorescence intensity of the probe 1 at 554 nm and 411nm in the presence of absence of  $\text{Cu}^{2+}$  at different pH conditions.



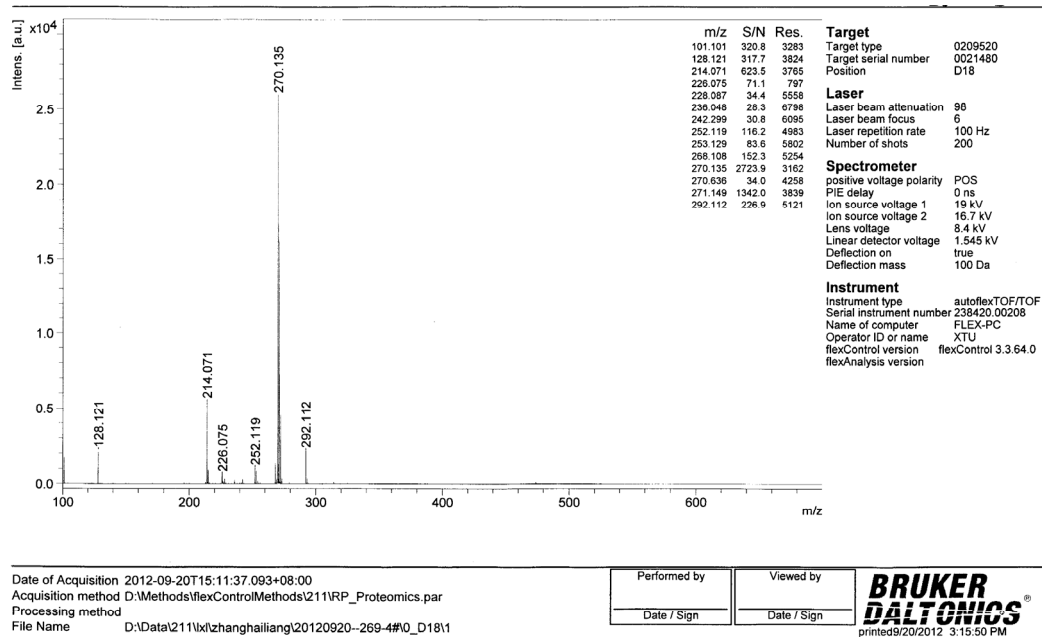
**Fig. S7**  $^1\text{H}$  NMR spectrum of probe 1 in  $\text{CDCl}_3$

### Generic Display Report

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Method	APCIMS.m	Instrument	esquire6000
Sample Name	M=374		
Comment			



**Fig. S8** Mass (ESI) spectrum of probe 1 (M+1).



**Fig. S9** Mass (ESI) spectrum of the reaction products of probe **1** with  $\text{Cu}^{2+}$ .