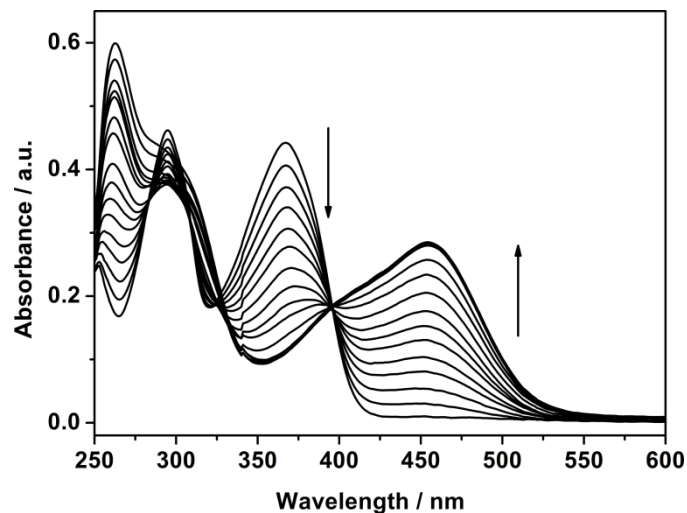


## **Turn-on detection of Pyrophosphate Based on Aggregation-Induced Emission Property of 5-chlorosalicylaldehyde Azine**

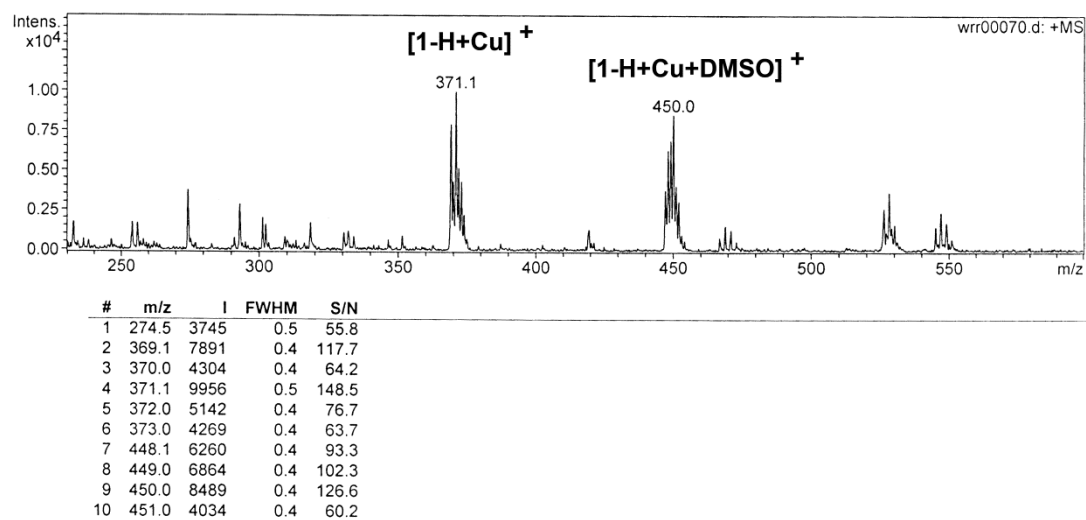
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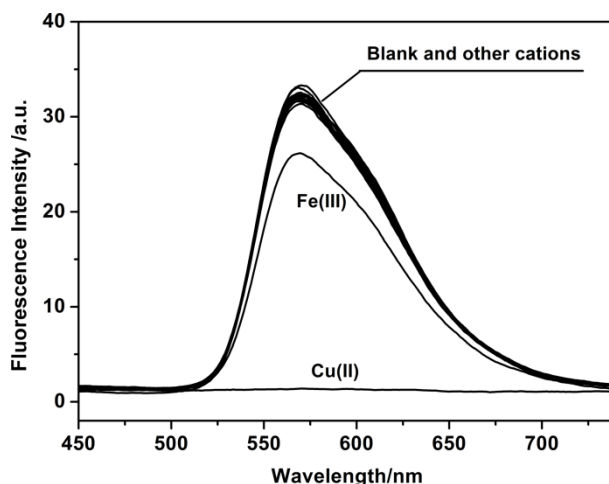
Fax: +86-10-62787682; Tel: +86-10-62787682; E-mail: [tongaj@mail.tsinghua.edu.cn](mailto:tongaj@mail.tsinghua.edu.cn)



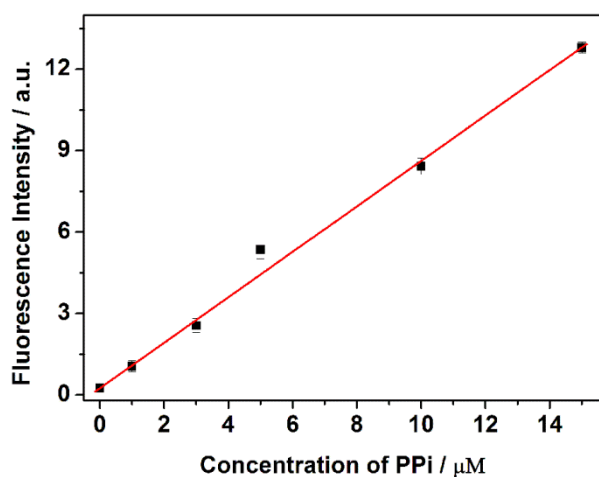
**Figure S1.** Absorption spectra of 20  $\mu\text{mol/L}$  **1** upon the increasing amount of  $\text{Cu}^{2+}$  in 20% DMSO/ $\text{H}_2\text{O}$  solution (10 mmol/L Tris-HCl, pH = 7.00). Inset: absorbance at 452 nm versus different concentration of  $\text{Cu}^{2+}$ .



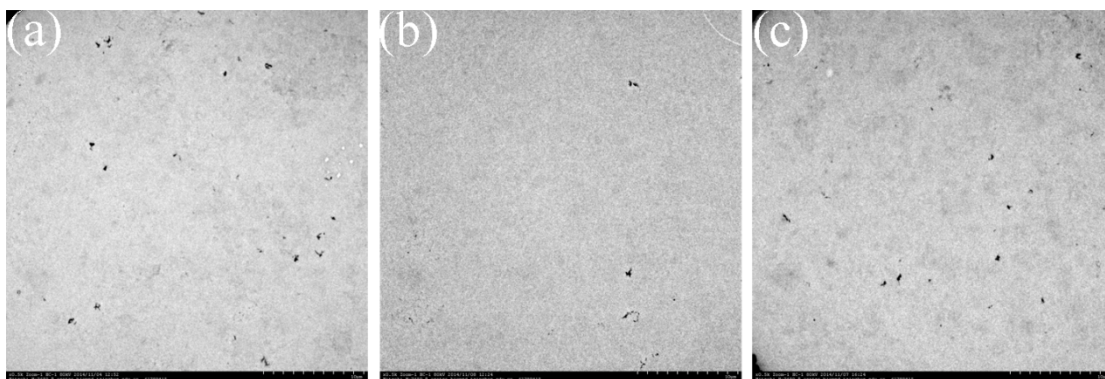
**Figure S2.** ESI-MS spectrum of **1** in the presence of 1 equiv.  $\text{Cu}^{2+}$ .



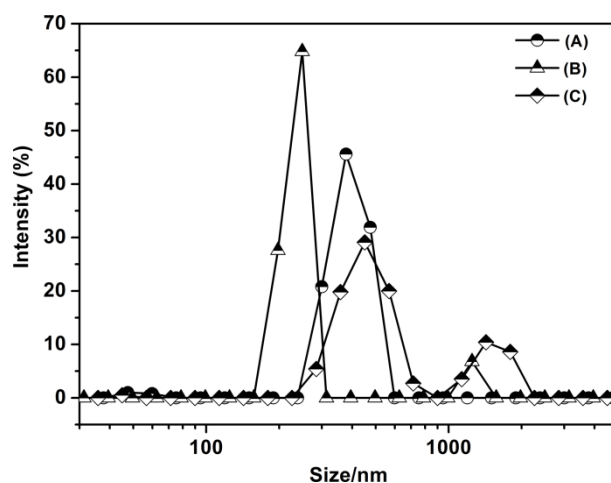
**Figure S3** Fluorescence spectra of 20  $\mu\text{mol/L}$  **1** in 20% DMSO/H<sub>2</sub>O aqueous solution (10 mmol/L Tris-HCl, pH = 7.00) in the absence and presence of different cations,  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 388/570$  nm, from left to right (1~16) : blank, Cd<sup>2+</sup> (2 mmol/L), Mg<sup>2+</sup> (2 mmol/L), Mn<sup>2+</sup> (2 mmol/L), Ba<sup>2+</sup> (2 mmol/L), Ca<sup>2+</sup> (2 mmol/L), Hg<sup>2+</sup> (200  $\mu\text{mol/L}$ ), Co<sup>2+</sup> (200  $\mu\text{mol/L}$ ), Zn<sup>2+</sup> (2 mmol/L), Fe<sup>3+</sup> (200  $\mu\text{mol/L}$ ), Sr<sup>2+</sup> (2 mmol/L), Ni<sup>2+</sup> (2 mmol/L), Li<sup>+</sup> (2 mmol/L), Na<sup>+</sup> (2 mmol/L), K<sup>+</sup> (2 mmol/L), Cu<sup>2+</sup> (200  $\mu\text{mol/L}$ ).  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 388/570$  nm.



**Fig. S4** Linear range for PPI detection with **1**-Cu in 20% DMSO/H<sub>2</sub>O aqueous solution (10 mmol/L Tris-HCl, pH = 7.00). **1** (20  $\mu\text{mol/L}$ ), Cu<sup>2+</sup> (20  $\mu\text{mol/L}$ ).  $\lambda_{\text{ex}}/\lambda_{\text{em}} = 388/570$  nm. The relationship between fluorescence intensity of **1**-Cu at 570 nm and concentration of PPI was as  $y = 0.84x + 0.25$ ,  $R^2 = 0.998$ . The detection limit was determined to be 0.117  $\mu\text{mol/L}$ .



**Fig. S5** TEM images: (a) 20  $\mu\text{mol/L}$  **1** in 20% DMSO aqueous solution; (b) 20  $\mu\text{mol/L}$  **1** and 18.5  $\mu\text{mol/L}$   $\text{Cu}^{2+}$  in 20% DMSO aqueous solution; (c) 200  $\mu\text{mol/L}$  PPI was added into mixtures of b.



**Fig. S6** Dynamic light scattering data: (A) 20  $\mu\text{mol/L}$  **1** in 20% DMSO aqueous solution; (B) 20  $\mu\text{mol/L}$  **1** and 18.5  $\mu\text{mol/L}$   $\text{Cu}^{2+}$  in 20% DMSO aqueous solution; (C) 200  $\mu\text{mol/L}$  PPI was added into mixtures of B.

**Table S1.** Mean diameter obtained according to the dynamic light scattering data from particle size analyzer: (A) 20  $\mu\text{mol/L}$  **1** in 20% DMSO aqueous solution; (B) 20  $\mu\text{mol/L}$  **1** and 18.5  $\mu\text{mol/L}$   $\text{Cu}^{2+}$  in 20% DMSO aqueous solution; (C) 200  $\mu\text{mol/L}$  PPI was added into mixtures of (B).

	A	B	C
Mean size (nm)	533.5	279.4	506.0