Electronic Supplementary Material (ESI) for Analyst.

Supplementary Information

A dual chemosensor for Cu^{2+} and Hg^{2+} based on rhodamine-terminated water-soluble polymer in 100% aqueous solution

Guang Li*, Liping Bai, Farong Tao, Aixia Deng and Liping Wang*

School of Materials Science and Engineering, Liaocheng University, Liaocheng 252059, China

E-mail addresses: lglzsd@126.com (G. Li), wangliping5@163.com (L. Wang).

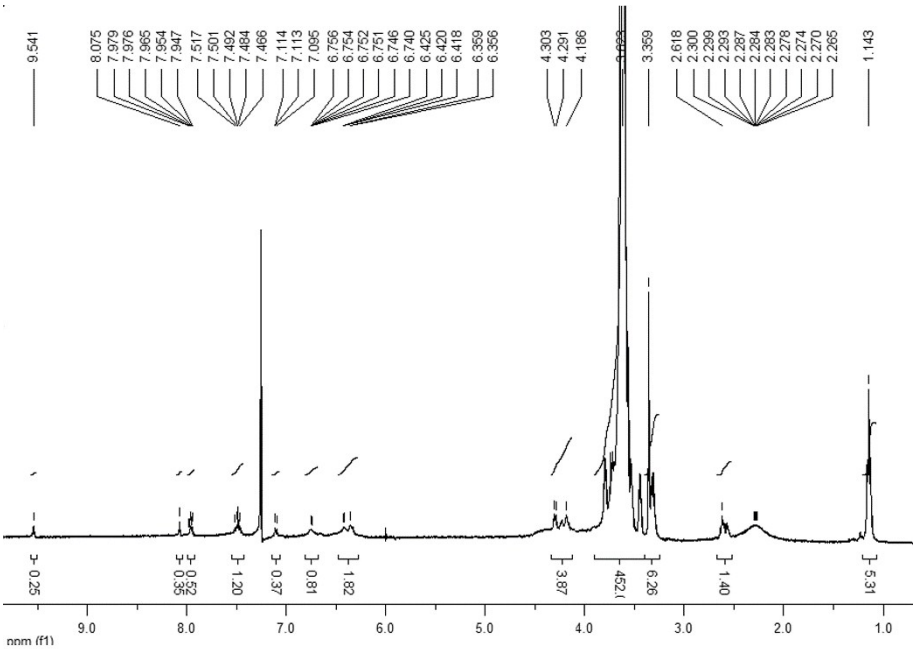


Fig. S1. ^{1}H NMR spectrum of PEGSRh in $CDCl_3$.

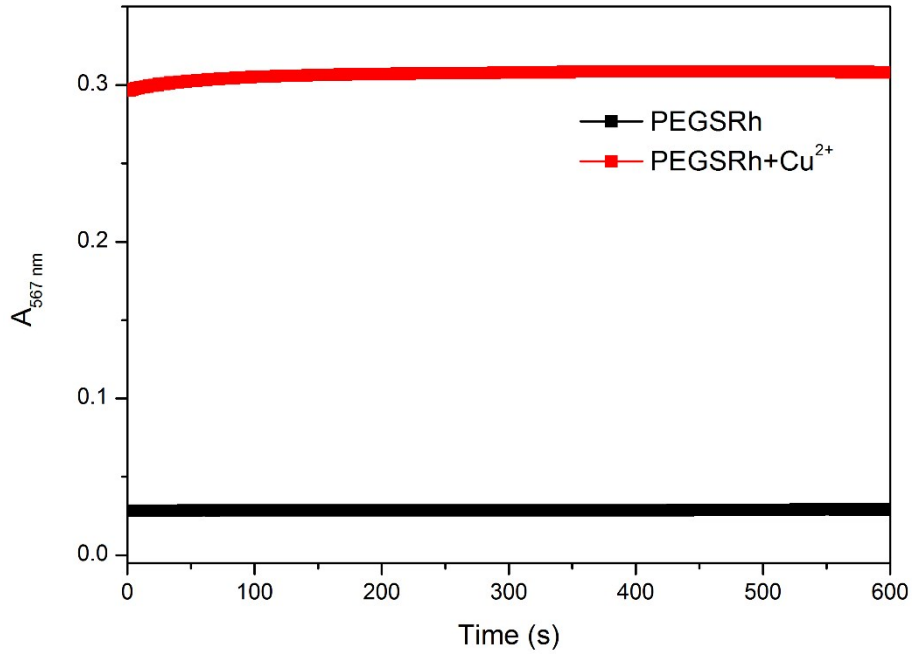


Fig. S2. Effects of reaction time on the absorbance intensity of PEGSRh (10 μM) with 2 equiv of Cu^{2+} in aqueous solution.

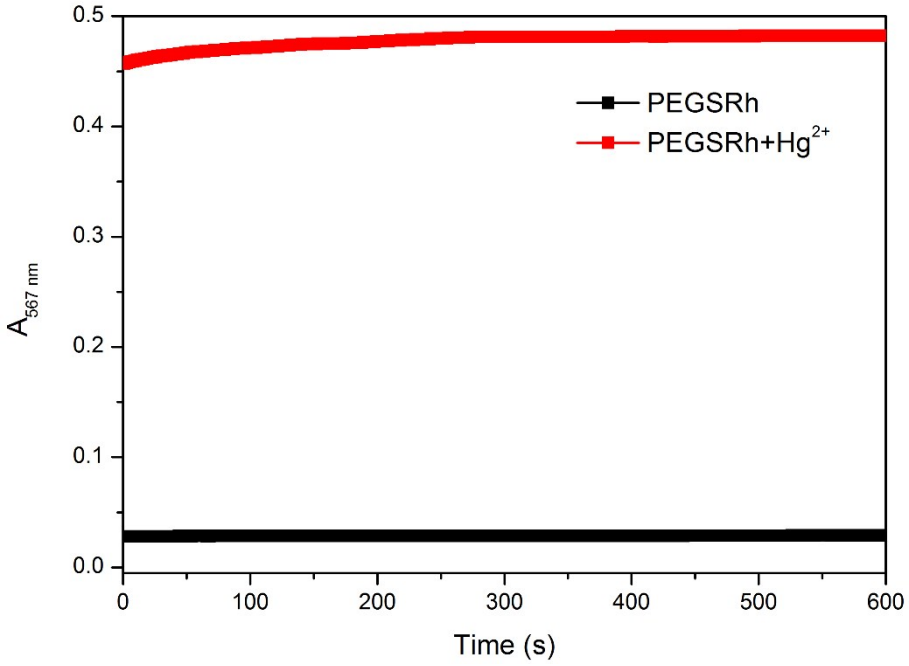


Fig. S3. Effects of reaction time on the absorbance intensity of PEGSRh (10 μM) with 2 equiv of Hg^{2+} in aqueous solution.

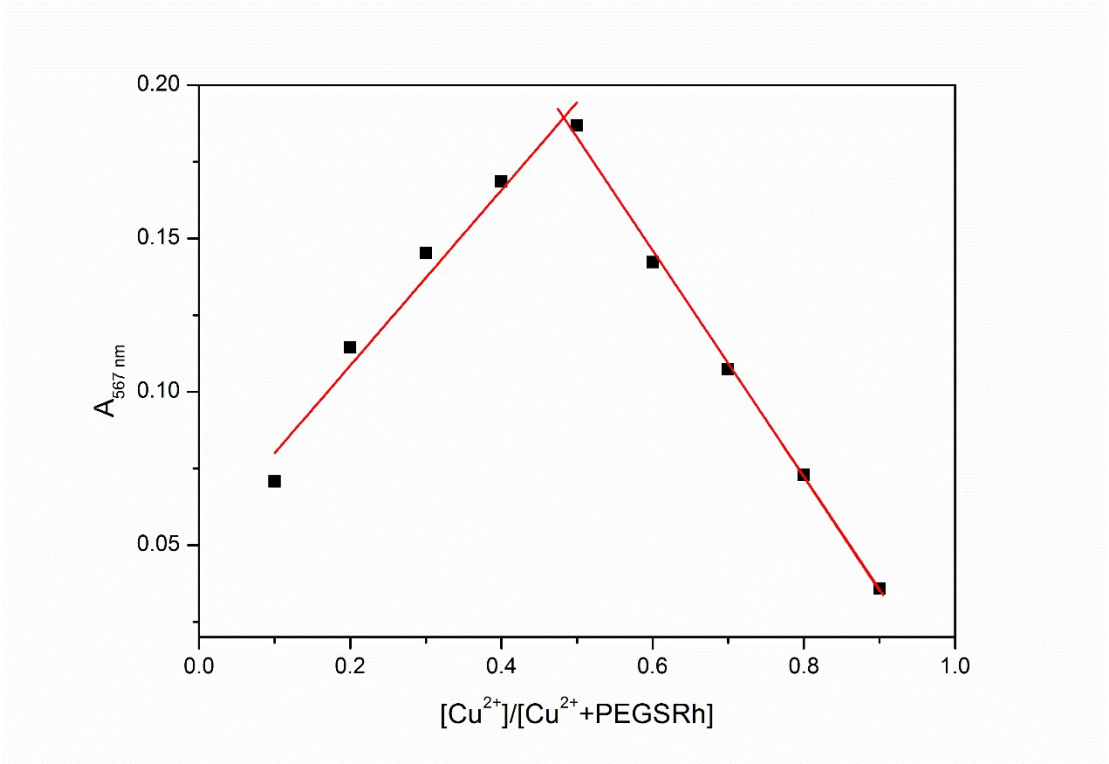


Fig. S4. Job plot of PEGSRh and Cu^{2+} in aqueous solution. The total concentration of PEGSRh and Cu^{2+} is 10 μM.

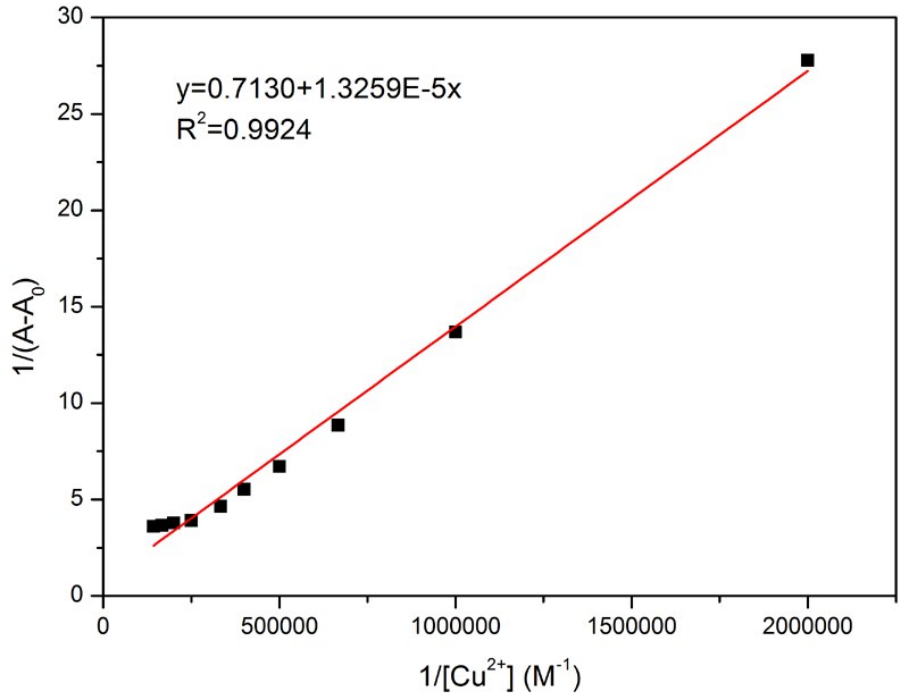


Fig. S5. Benesi-Hildebrand plot (absorbance at 567 nm) of PEGSRh (10 μM) with Cu^{2+}.

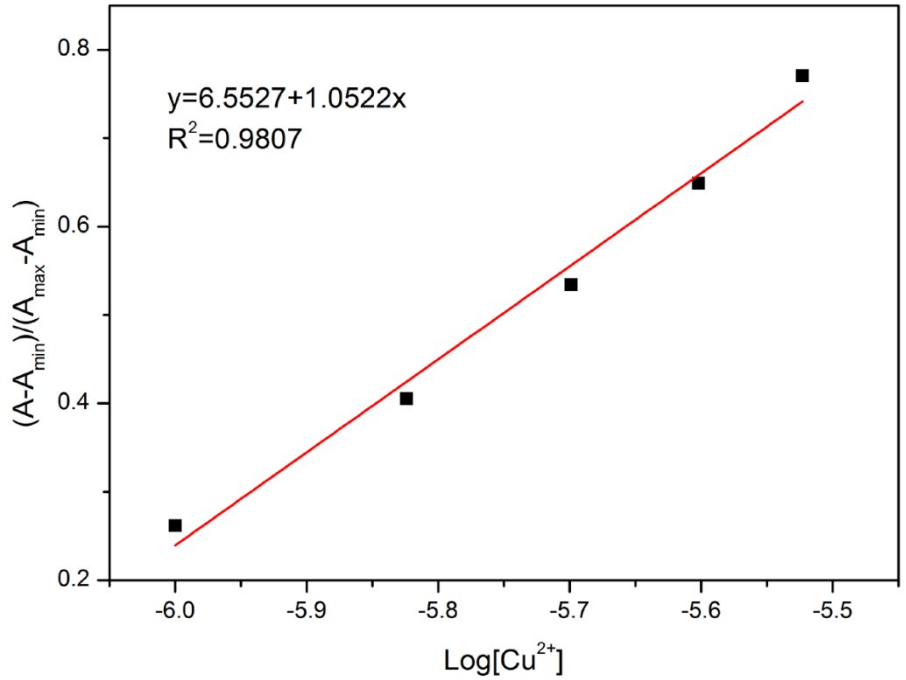


Fig. S6. Determination of the detection limit based on the absorbance change at 567 nm in the ratio of PEGSRh (10 μM) with Cu^{2+}.

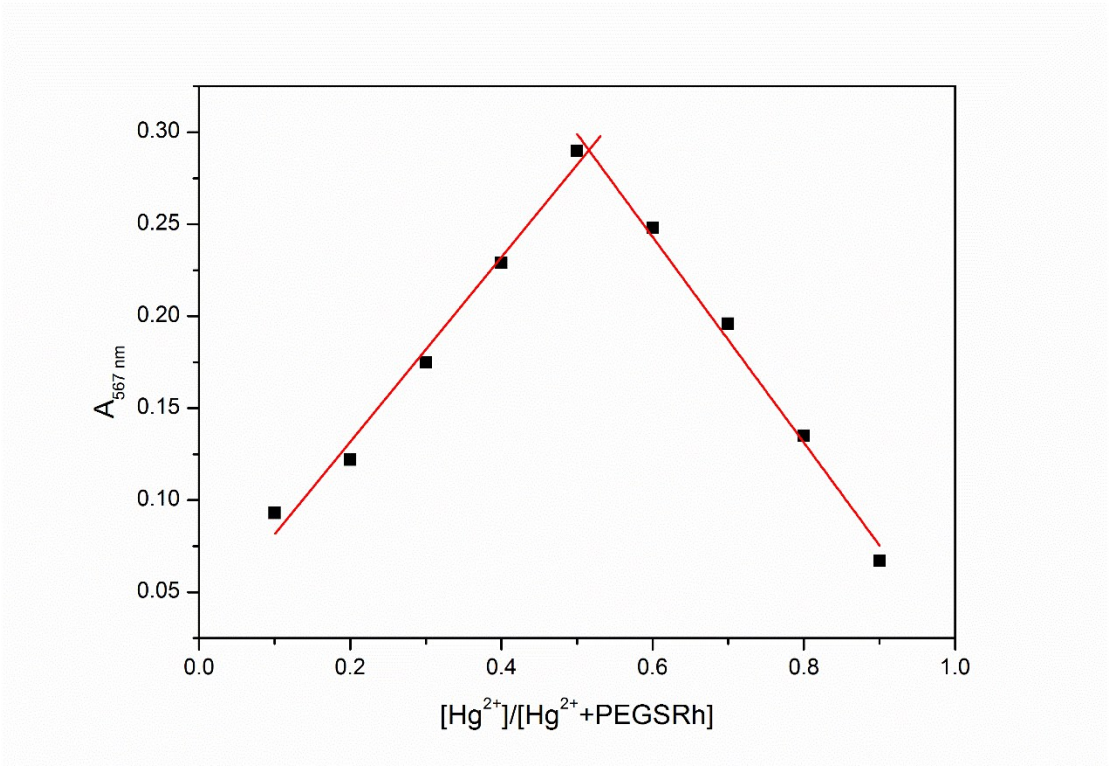


Fig. S7. Job plot of PEGSRh and Hg^{2+} in aqueous solution. The total concentration of PEGSRh and Hg^{2+} is 10 μM.

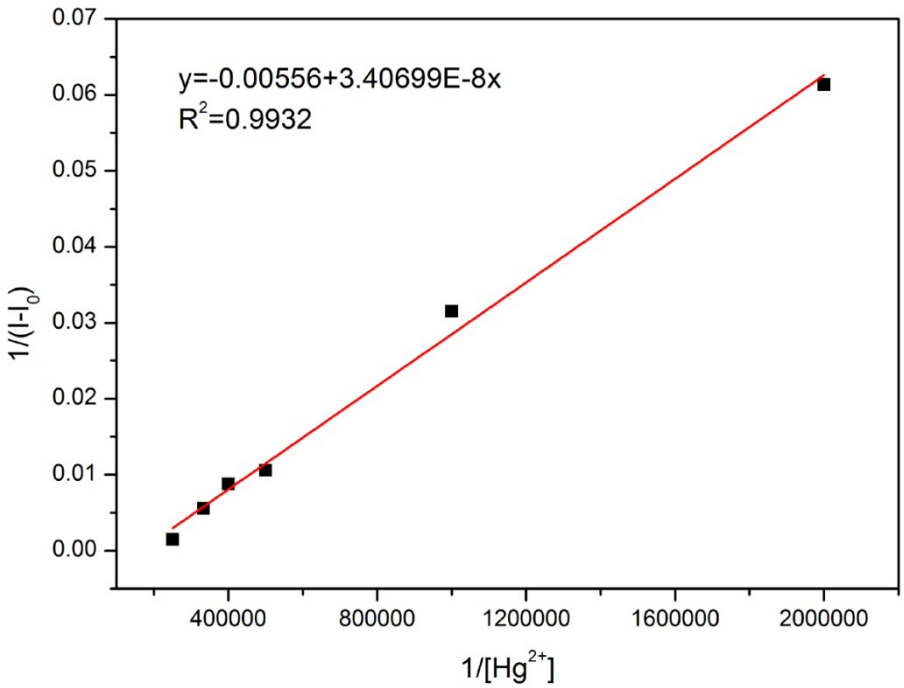


Fig. S8. Benesi-Hildebrand plot (fluorescence intensity at 586 nm) of PEGSRh (10 μM) with Hg^{2+}.

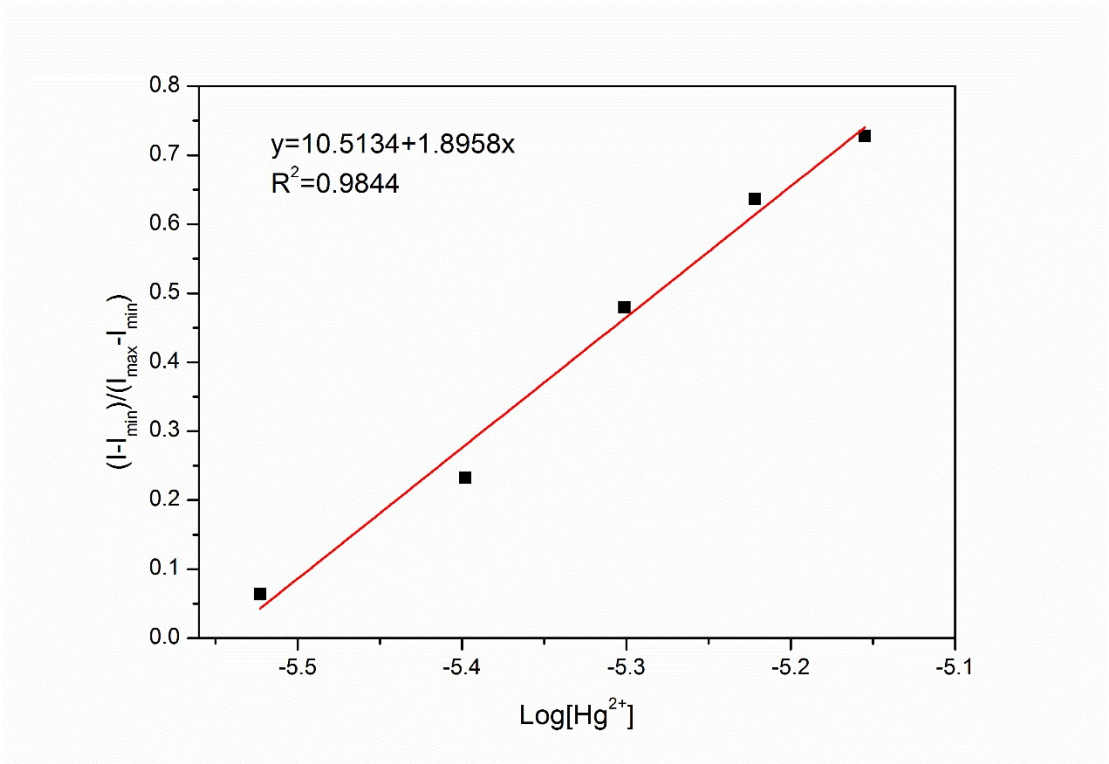
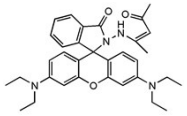
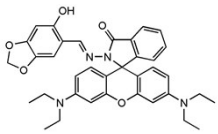
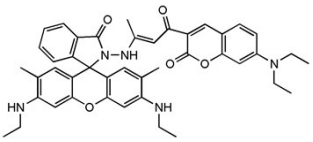
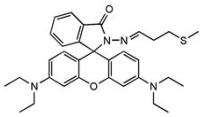
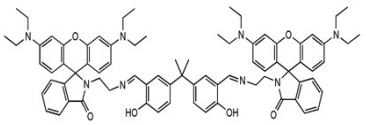
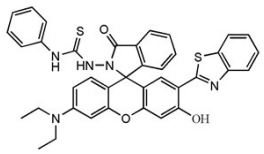
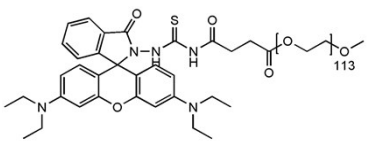


Fig. S9. Determination of the detection limit based on the fluorescence intensity change at 586 nm in the ratio of PEGSRh (10 μM) with Hg^{2+}.

Table S1 Comparison of some reported rhodamine-based Cu^{2+} or Hg^{2+} chemosensors

Chemosensor structure	Working solvent	Sensing ions	Detection limit	Ref.
	EtOH/H_2O (9:1, v/v)	Cu^{2+}	2.0×10^{-6} M	18
	H_2O/CH_3CN (3:2, v/v)	Cu^{2+}	1.1×10^{-7} M	20
	CH_3CN/H_2O (9:1, v/v)	Cu^{2+} Hg^{2+}	6.88×10^{-6} M 2.96×10^{-6} M	21
	CH_3CN/H_2O (5:5, v/v)	Hg^{2+}	1.6×10^{-8} M	17
	CH_3CN CH_3CN/H_2O (8:2, v/v)	Zn^{2+} Hg^{2+}	2.21×10^{-6} M 2.16×10^{-6} M	22
	THF/H_2O (4:6, v/v)	Hg^{2+} Ag^{+}	2.7×10^{-7} M 4.5×10^{-7} M	42
	H_2O	Cu^{2+} Hg^{2+}	5.92×10^{-7} M 2.85×10^{-6} M	This work