Electronic Supplementary Material (ESI) for Analytical Methods.

Supporting Information for

Colorimetric and ratiometric fluorescent probe for hydrogen sulfide using a coumarin-pyronine FRET dyad with large emission shift

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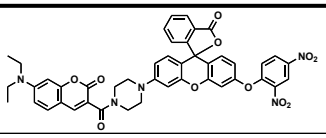
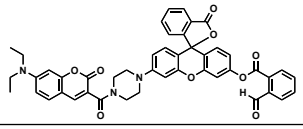
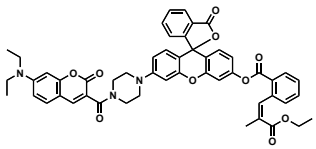
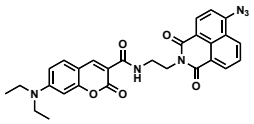
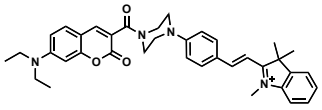
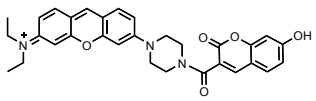
Table of contents

Page

Table S1. Summary of the optical properties of ratiometric fluorescent probes based on FRET mechanism for detecting hydrogen sulfide.

Pobes	Sructures	Emission wavelengths /nm	Emission shift/nm	Enhancement of ratiometric signals	Refrences
CR-DNP		474/541	67	15.0 folds	1
CR-FBA		474/542	68	15.0 folds	2
H_2S-CR		470/541	71	16.6 folds	3
CN-N_3		474/534	60	8.7 folds	4
CPC		474/587	113	56.0 folds	5
CP-H_2S		454/573	119	252.7 folds	This work

References:

1. K. Huang, M. Liu, Z. Liu, D. Cao, J. Hou and W. Zeng, *Dyes Pigments*, 2015, **118**, 88.

2. K. Huang, M. Liu, X. Wang, D. Cao, F. Gao, K. Zhou, W. Wang, W. Zeng, *Tetrahedron Lett.*, 2015, **56**, 3769.

3. K. Huang, L. Yu, P. Xu, X. Zhang and W. Zeng, *RSC Adv.,* 2015, **5**, 17797.

4. L. He, W. Lin, Q. Xu and H. Wei, *Chem. Commun.*, 2015, **51**, 1510.

5. X. Feng, T. Zhang, J.-T. Liu, J.-Y. Miao and B.-X. Zhao, *Chem. Commun.*, 2016, **52**, 3131.

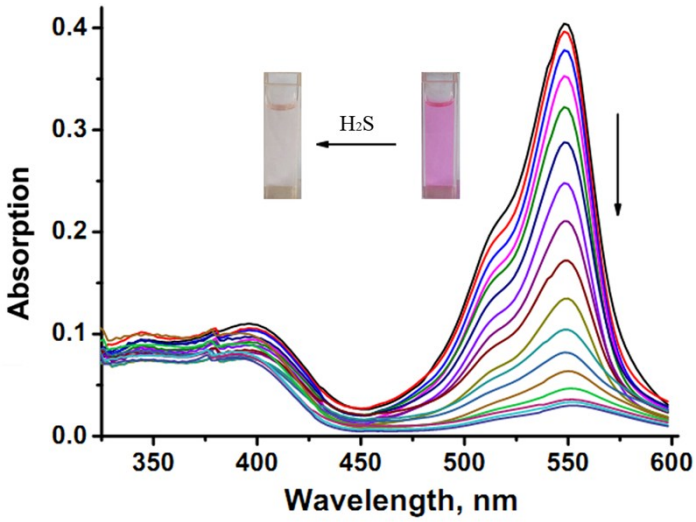


Fig. S1 Absorption spectra of **CP-H_2S** (10 μM) with H_2S (0–30.0 equiv) in aqueous solution (25 mM PBS buffer, pH 7.4, containing 5 % DMF as cosolvent). Inset: the visual colour of probe **CP-H_2S** in the absence (right) or presence (left) of H_2S.

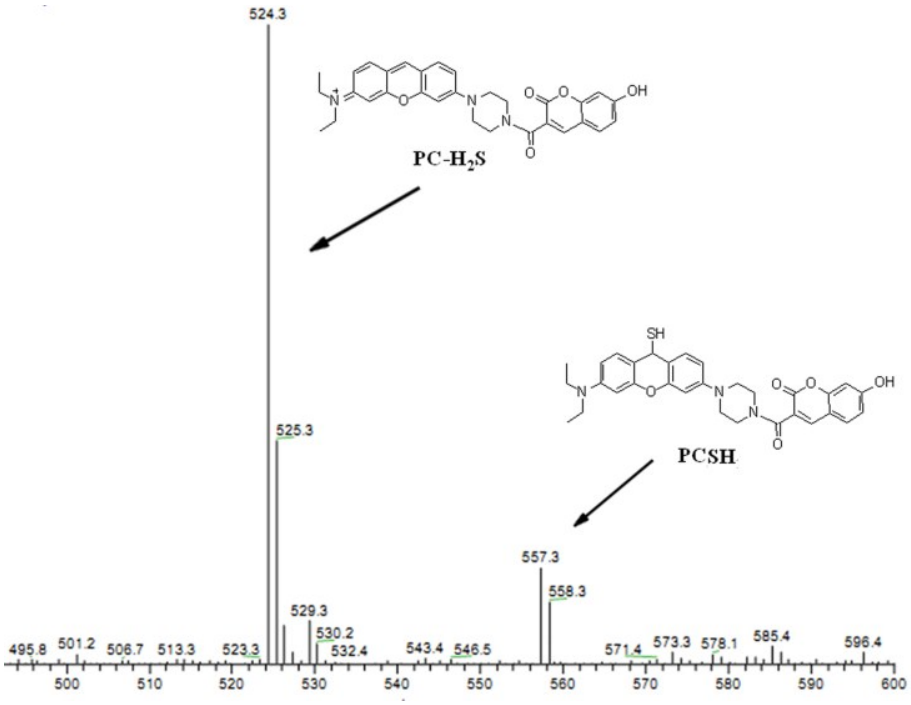


Fig. S2 The mass spectrum of **CP-H_2S** in the presence of H_2S in aqueous PBS solution.

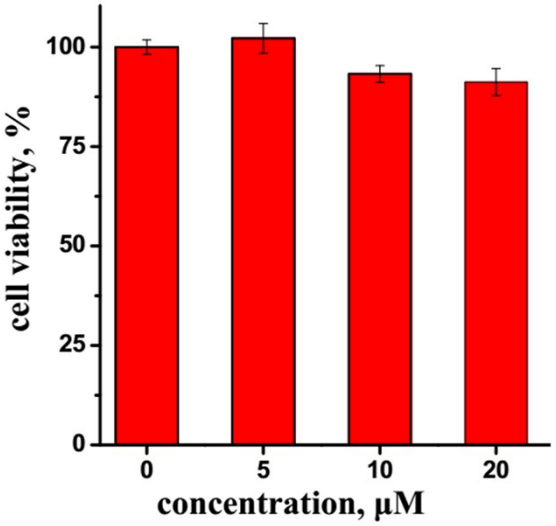


Fig. S3 Cytotoxicity of **CP-H_2S** (5, 10, 20 μM) evaluated by the standard MTT assay. The cells were incubated with the probe for 24 h.

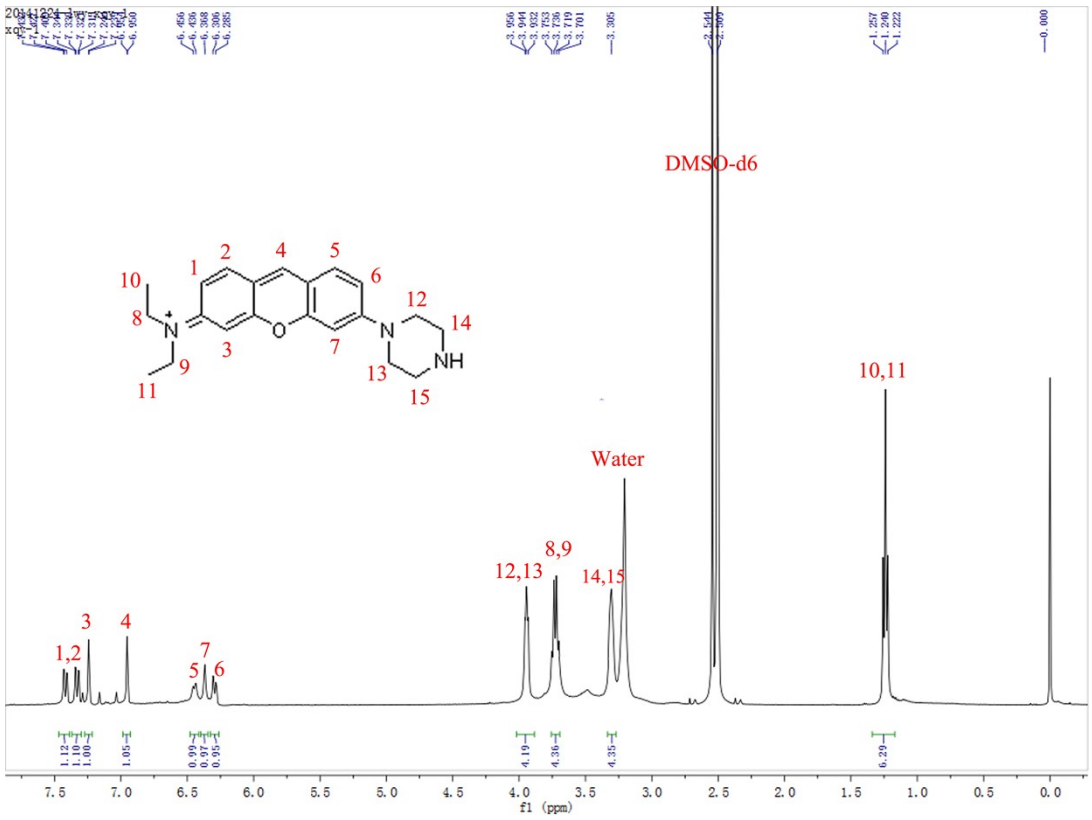


Fig. S4 ^{1}H NMR spectrum of compound **3** in DMSO-d_6.

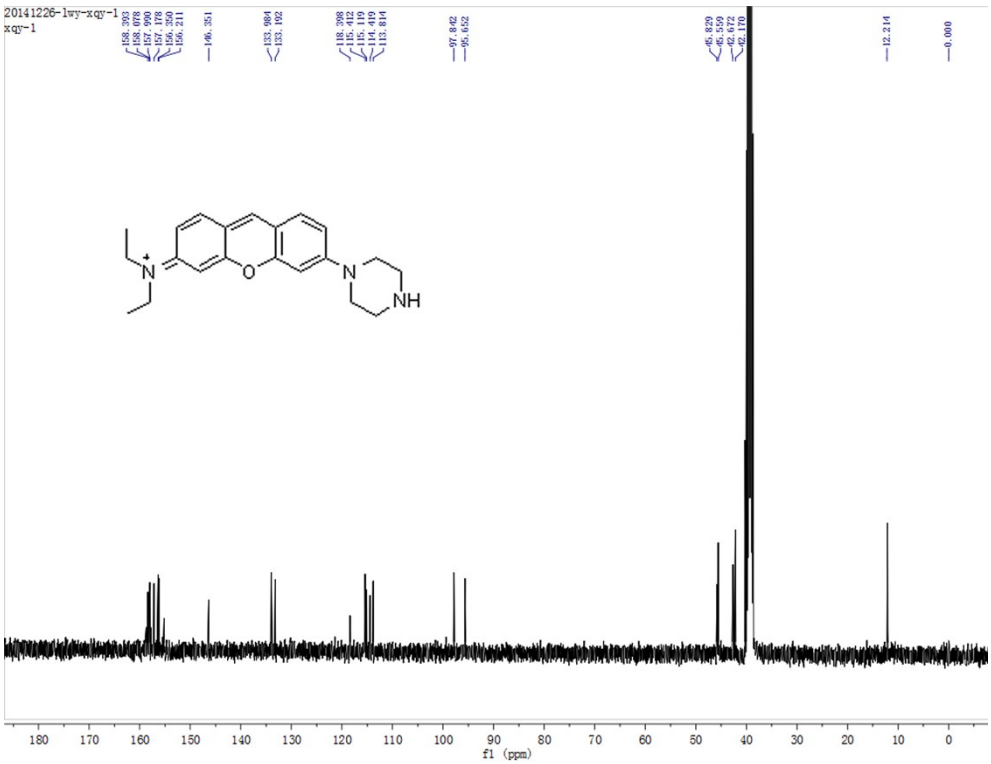


Fig. S5 ^{13}C NMR spectrum of compound **3** in DMSO-d_6.

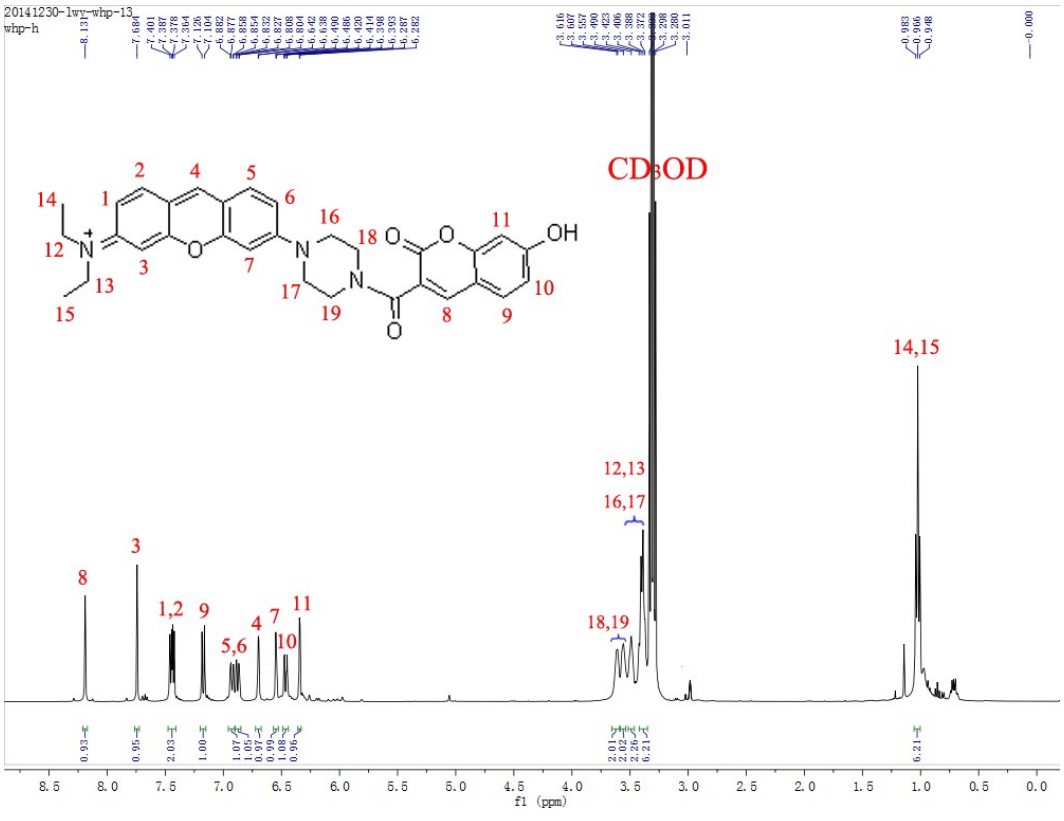


Fig. S6 ^{1}H NMR spectrum of compound **CP-H_2S** in CD_3OD.

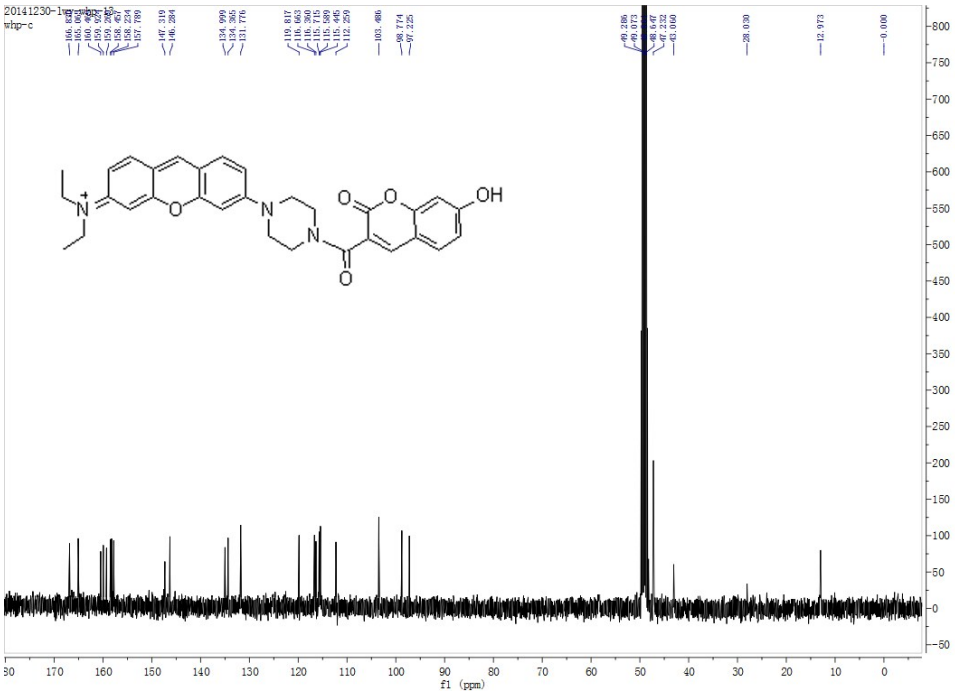


Fig. S7 ^{13}C NMR spectrum of compound **CP-H_2S** in CD_3OD.