Electronic Supplementary Information For

An "AIE+ESIPT" mechanism-based benzothiazole derived fluorescent probe for the detection Hg^{2+} and its applications

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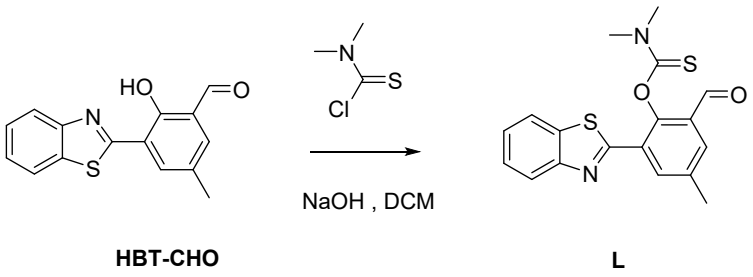

HBT-CHO **L**

Scheme S1. Synthesis of probe **L**.

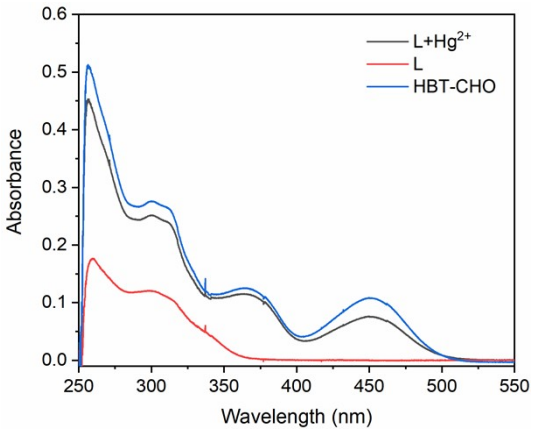

Figure S1. UV-Vis absorption spectra of compound **HBT-CHO**, probe **L** (10 μM) and probe **L**+Hg^{2+} in DMF/H_2O (4/6, v/v, pH=6.8) solution.

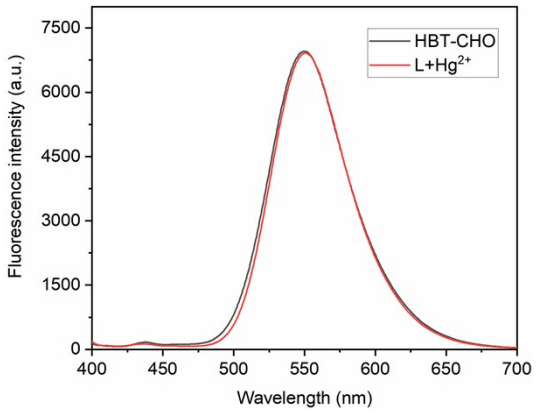

Figure S2. Fluorescence spectra of compound **HBT-CHO** and probe **L**+Hg^{2+} in DMF/H_2O (4/6, v/v, pH=6.8) solution.

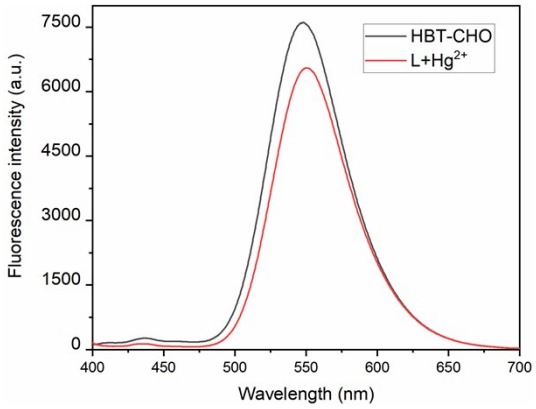

Figure S3. Fluorescence spectra of compound **HBT-CHO** and probe **L**+Hg^{2+} in DMF/H_2O (2/8, v/v, pH=7.3) solution.

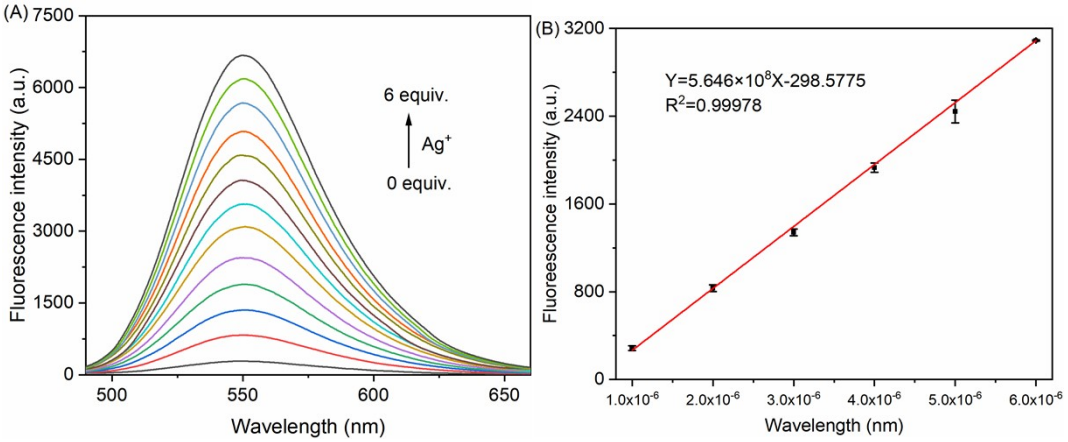

Figure S4. (A) Fluorescence spectra after adding different concentrations of Ag^{+} (0

M to 6×10^{-5} M) in the solution containing probe **L** (10 μM) (λ_{ex}=380 nm, λ_{em}=550 nm); (B) Linear relationship between fluorescence intensity and Ag^{+} concentration (1×10^{-6} to 6×10^{-6} M) at 550nm (λ_{ex}=380 nm, λ_{em}=550 nm).

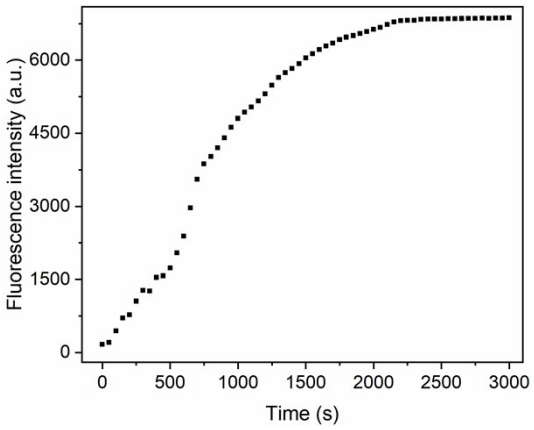

Figure S5. Variation of fluorescence intensity with time after adding Ag^{+} (6×10^{-5} M) to probe **L**.

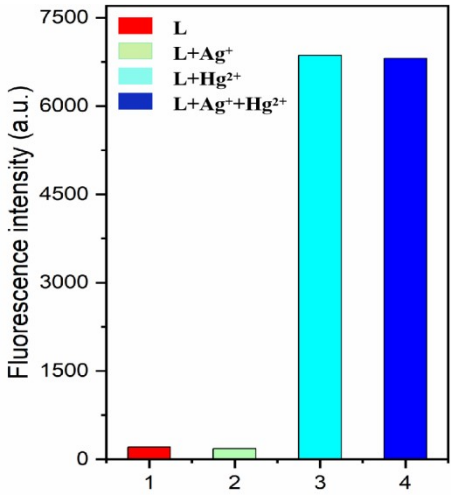

Figure S6. Fluorescence intensity changes of probe **L** toward Ag^{+} and Hg^{2+} in DMF/H_2O (4/6, v/v, pH=6.8, NaCl=128 mM) solution.

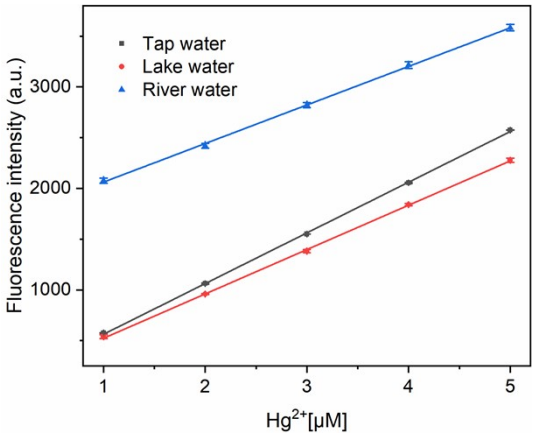

Figure S7. Detection of Hg^{2+} in real water samples by probe **L**.

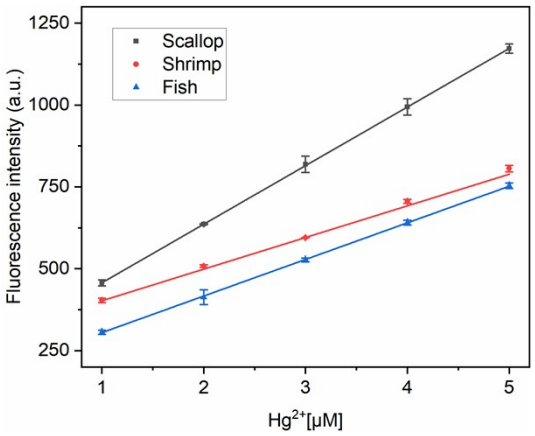

Figure S8. Linear relationship between fluorescence intensity of probe **L** (at 550 nm) and Hg^{2+} concentration in seafood samples.

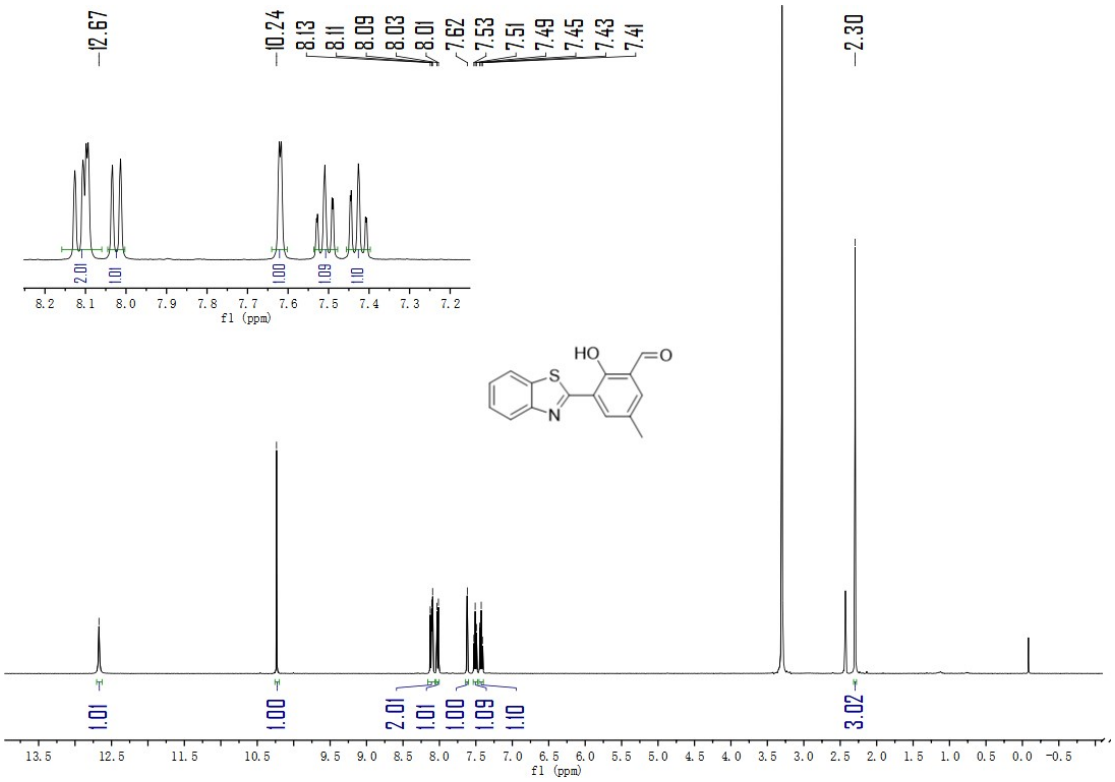

Figure S9. ^{1}H NMR spectrum of compound **HBT-CHO** in DMSO-d_6.

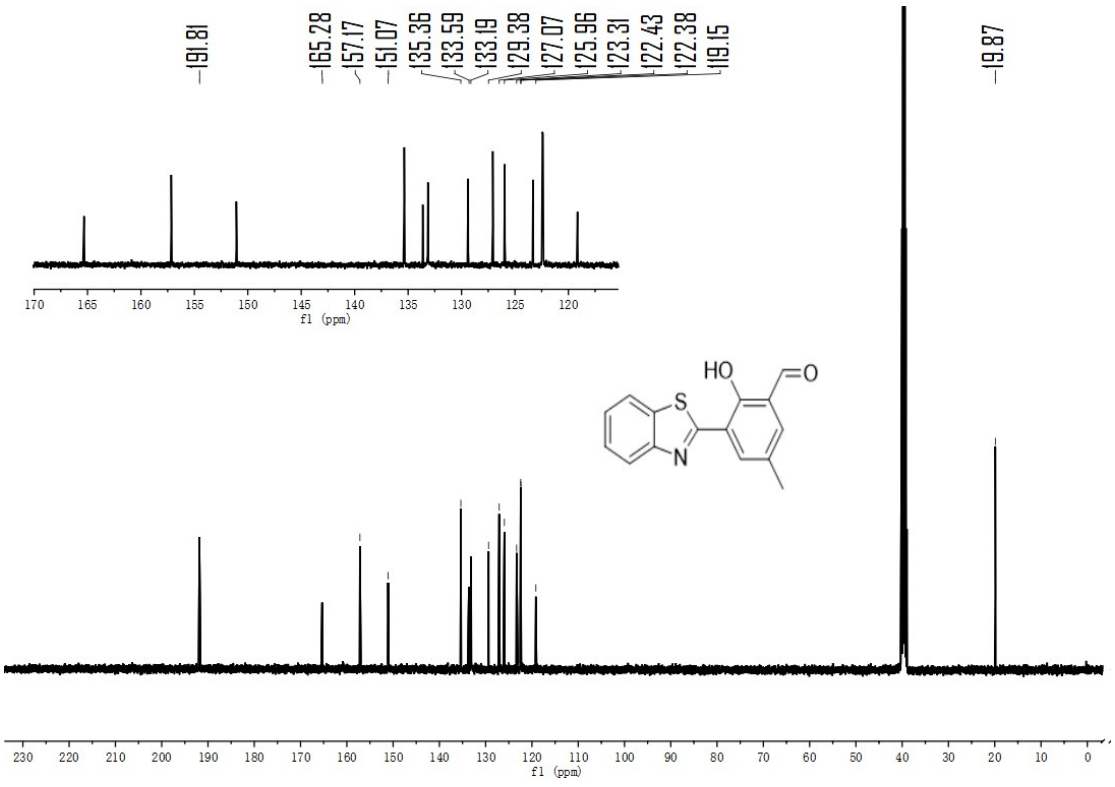

Figure S10. ^{13}C NMR spectrum of compound **HBT-CHO** in DMSO-d_6.

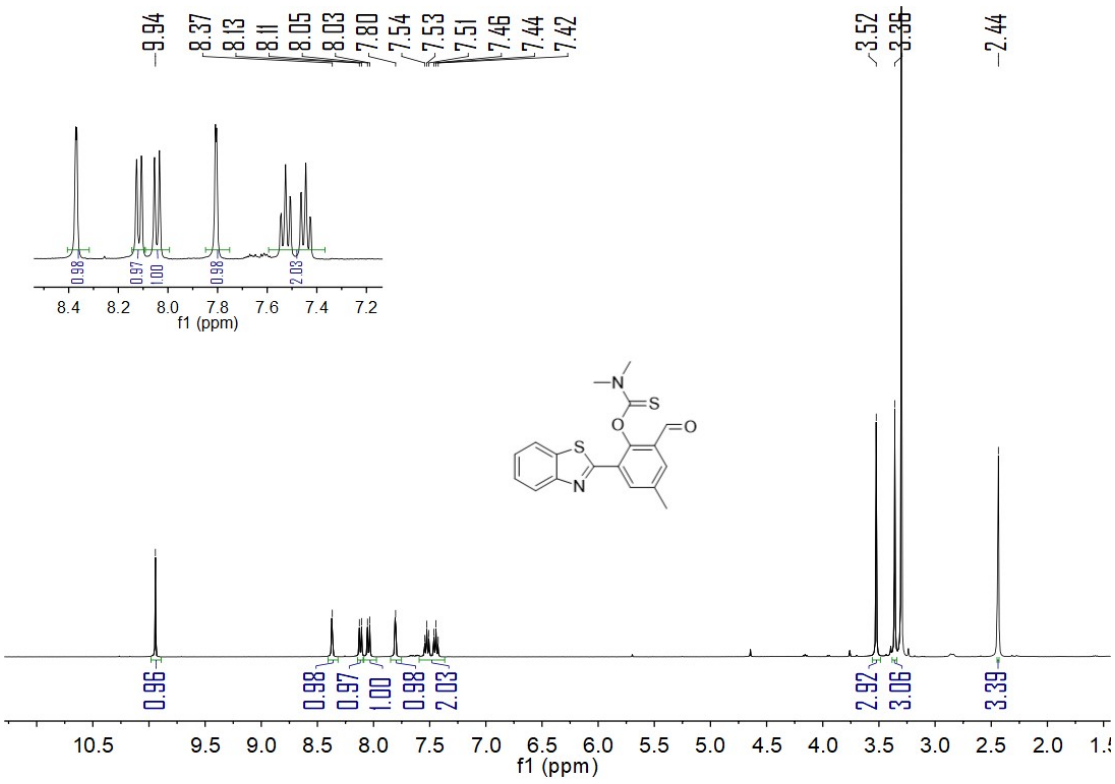

Figure S11. [1]H NMR spectrum of probe **L** in DMSO-d_6.

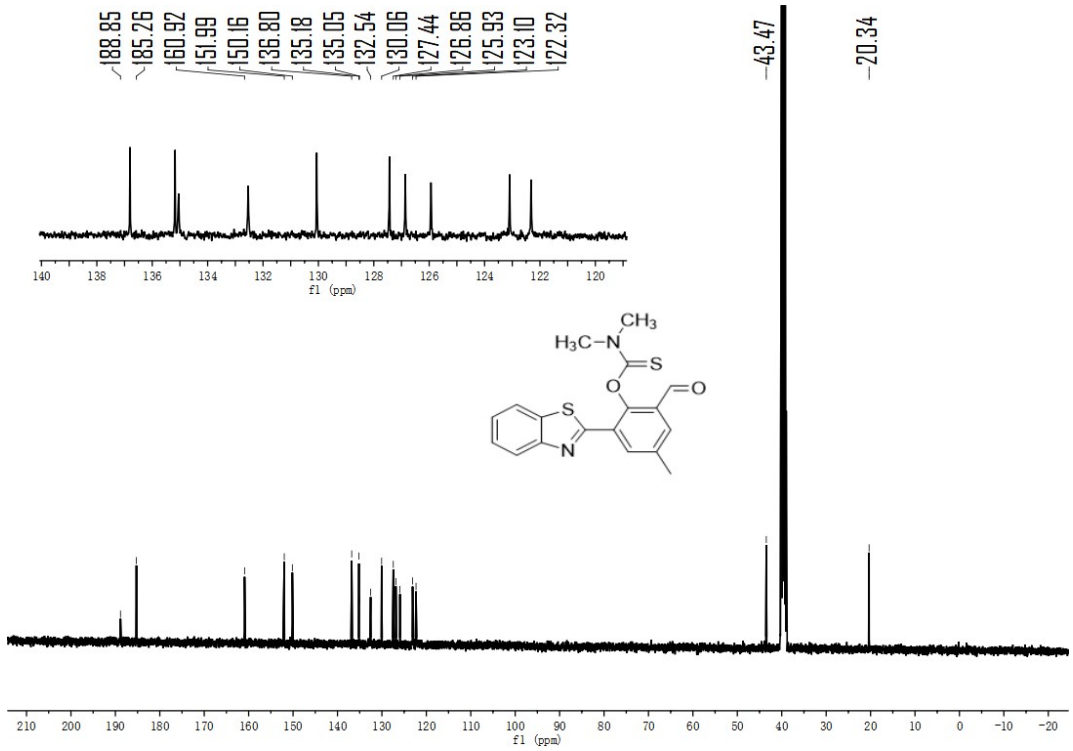

Figure S12. [13]C NMR spectrum of probe **L** in DMSO-d_6.

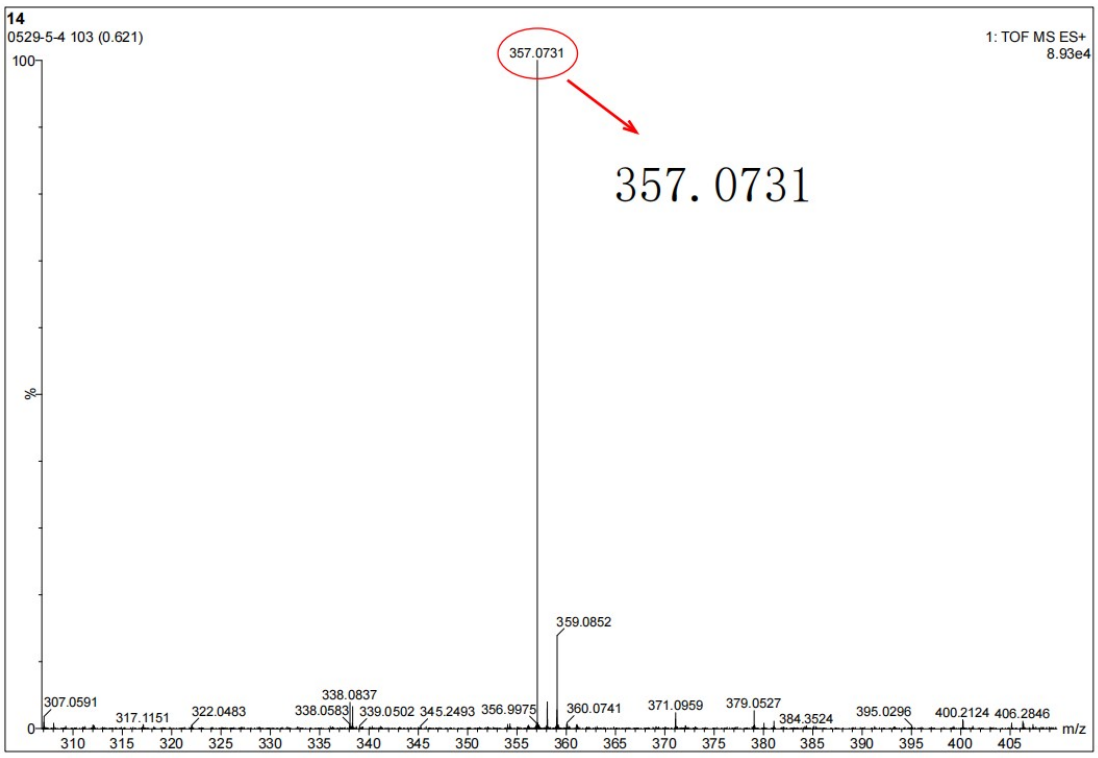

Figure S13. HRMS (ESI^+) spectrum of probe **L**.

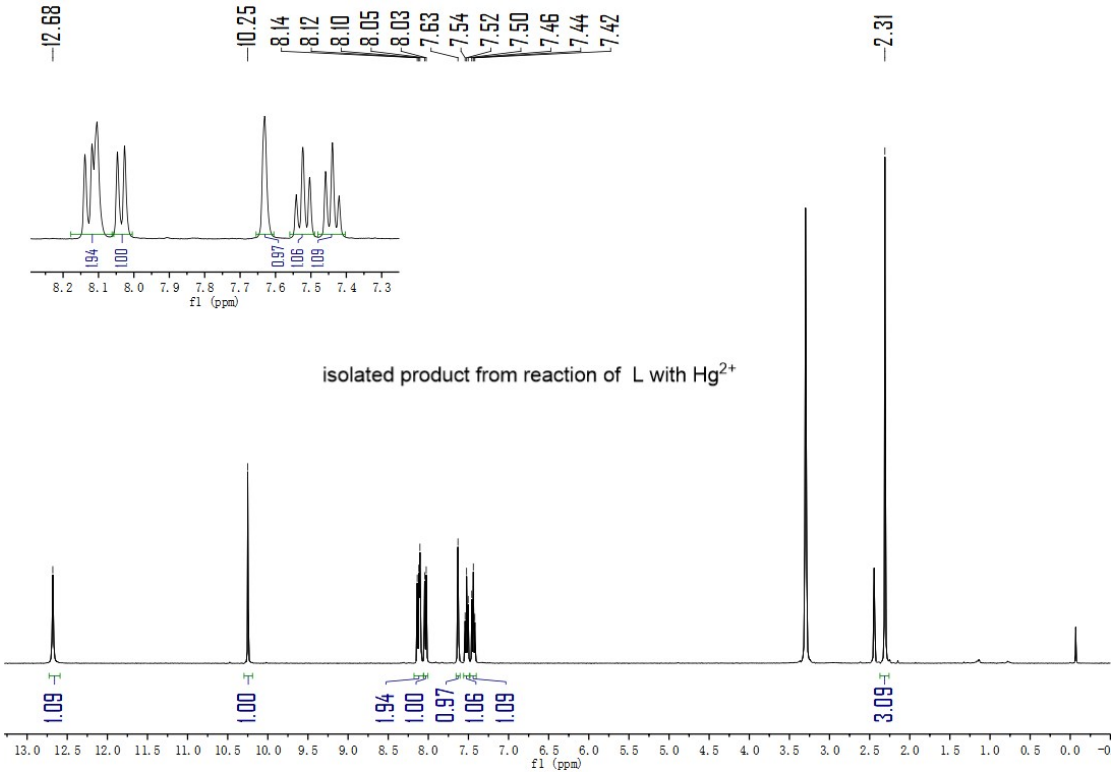

Figure S14. ^1H NMR spectrum of probe **L**+Hg^{2+} in DMSO-d_6.

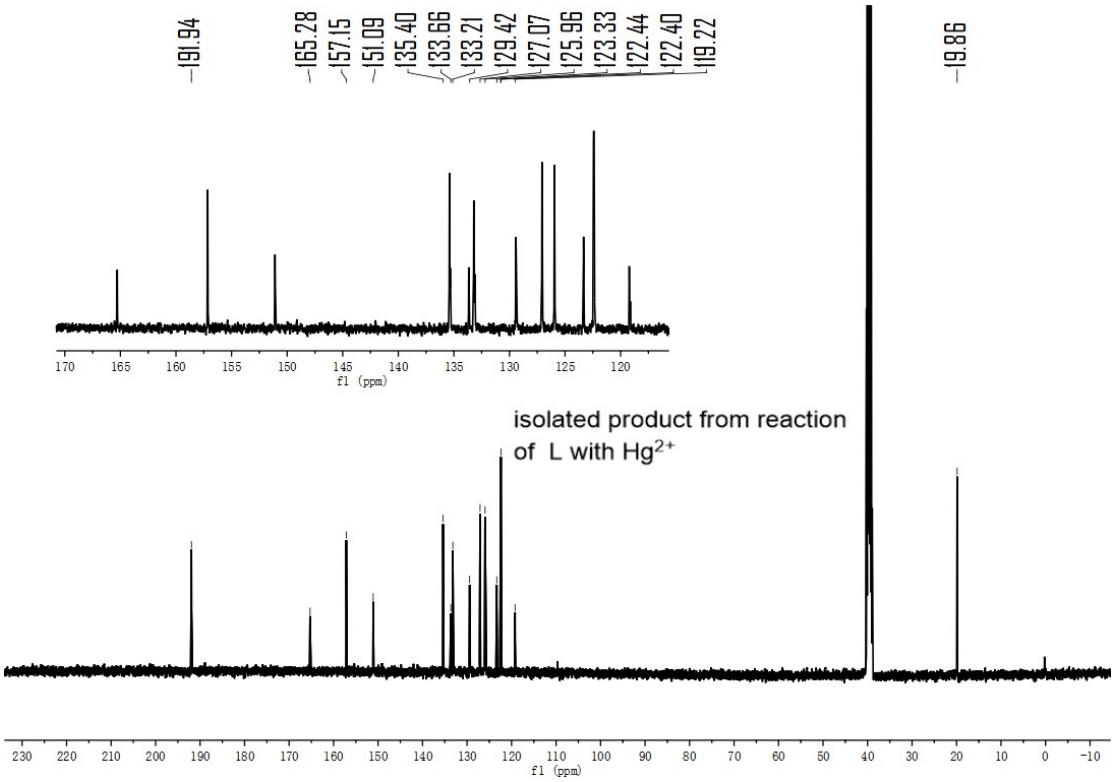

Figure S15. ^{13}C NMR spectrum of probe **L**+Hg^{2+} in DMSO-d_6.

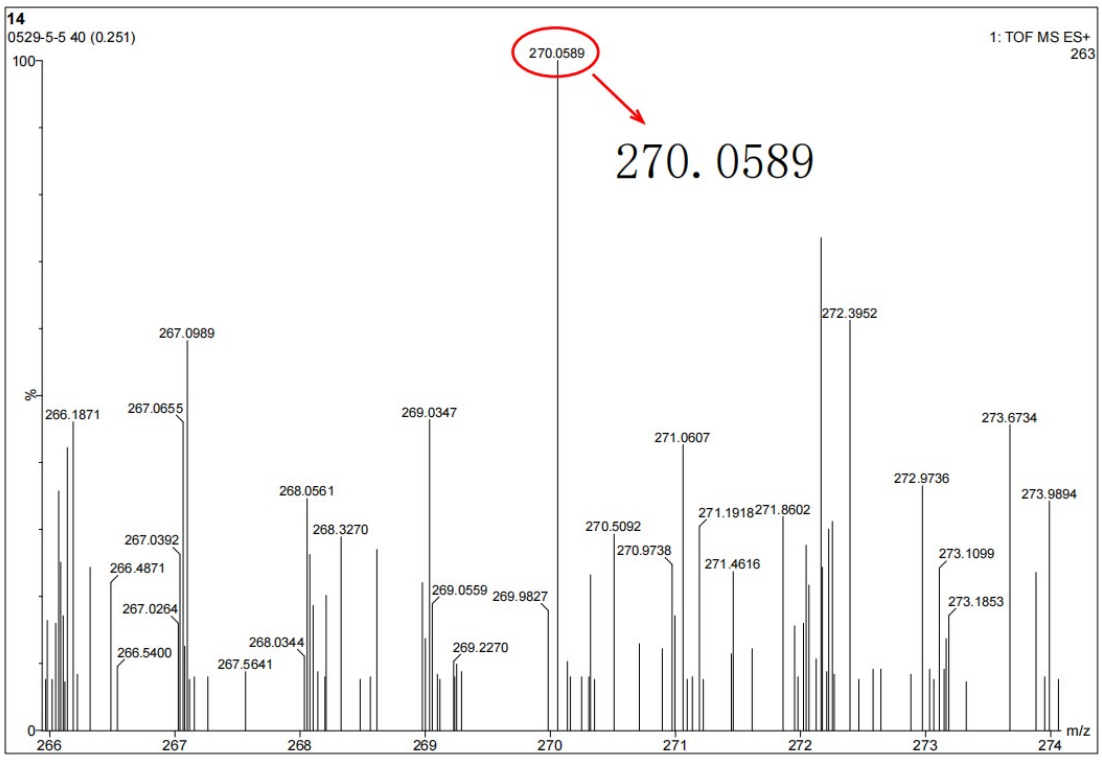

Figure S16. HRMS (ESI^+) spectrum of probe **L**+Hg^{2+}.

Table S1. Comparison of the properties of some reported fluorescent probes and this work.

Ref	LOD	Solution system	Properties	pH range
43	6.5nM	PBS	ICT	6-10
44	21.2nM	EtOH:H_2O(1:1,v/v)	ICT	5-9
45	40nM	EtOH:H_2O(1:1,v/v)	PET-Off	5-7
46	4.157μM	CH_3OH:PBS(3:7,v/v)	AIE	7-9
This work	2.85nM	DMF:H_2O(4:6,v/v)	AIE+ESIPT	4-10