

Supporting Information
For

**Surfactant-Sensitized Ratiometric Fluorescent
Chemodosimeter for the Highly Selective Detection of
Mercury (II) ions Based on Vinyl Ether
Oxymercuration**

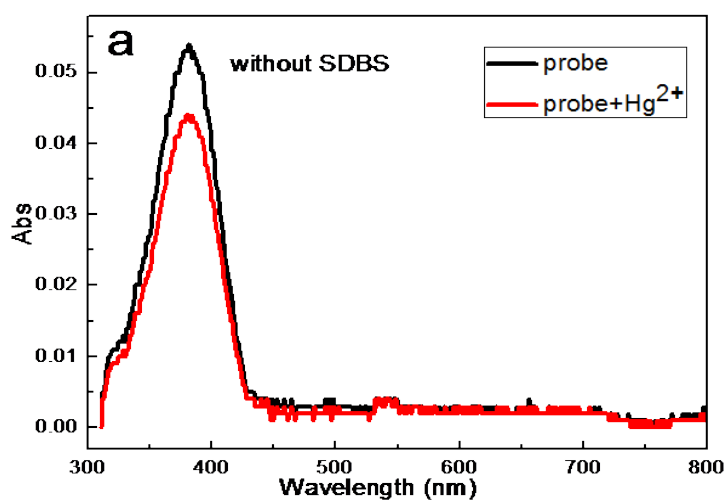
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Supporting Methods

1. General Procedures and Materials

All reagents and solvents were obtained commercially and used without further purification unless otherwise noted. The stock solutions of 0.05mM, 1mM, 2.5mM $\text{Hg}(\text{ClO}_4)_2$ were prepared by dissolving appropriate amount of $\text{Hg}(\text{ClO}_4)_2$ in doubly-distilled water with 2% HNO_3 . The stock solution of 2.5mM NT-VE was prepared by dissolving the appropriate amount of NT-VE in methanol and was stored at low temperature away from light. All the metal ion solutions were prepared as either perchlorates or nitrates. The fluorogenic samples were prepared in 10mL volumetric test tubes. Each test tube contained 20mM potassium acid phthalate buffer (pH=4) and 0.1 mM sodium dodecylbenzenesulfonate (SDBS), 5 μM NT-VE with different concentration of $\text{Hg}(\text{ClO}_4)_2$.

2. Supporting Figures



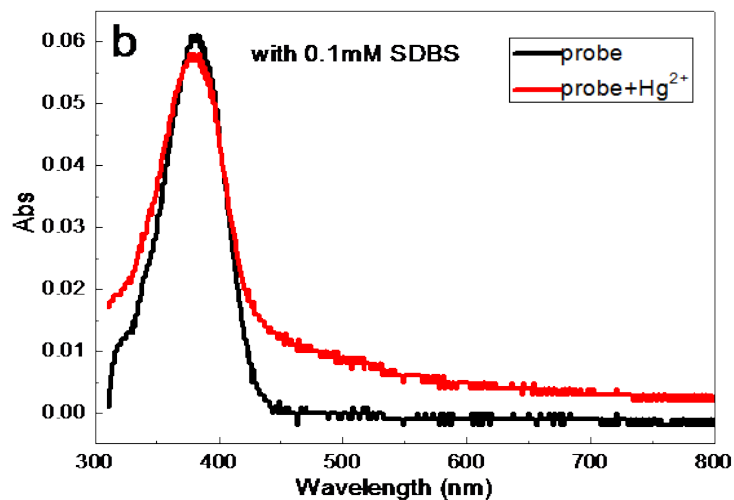


Figure S1. Absorption spectrum of NT-VE (5 μ M) in the absence and presence of Hg²⁺ (10 μ M) (a) in pH=4 buffer without sodium dodecyl-benzenesulfonate (SDBS) and (b) in pH=4 buffer with 0.1mM SDBS.

¹H NMR and ¹³C NMR spectra and Mass spectra

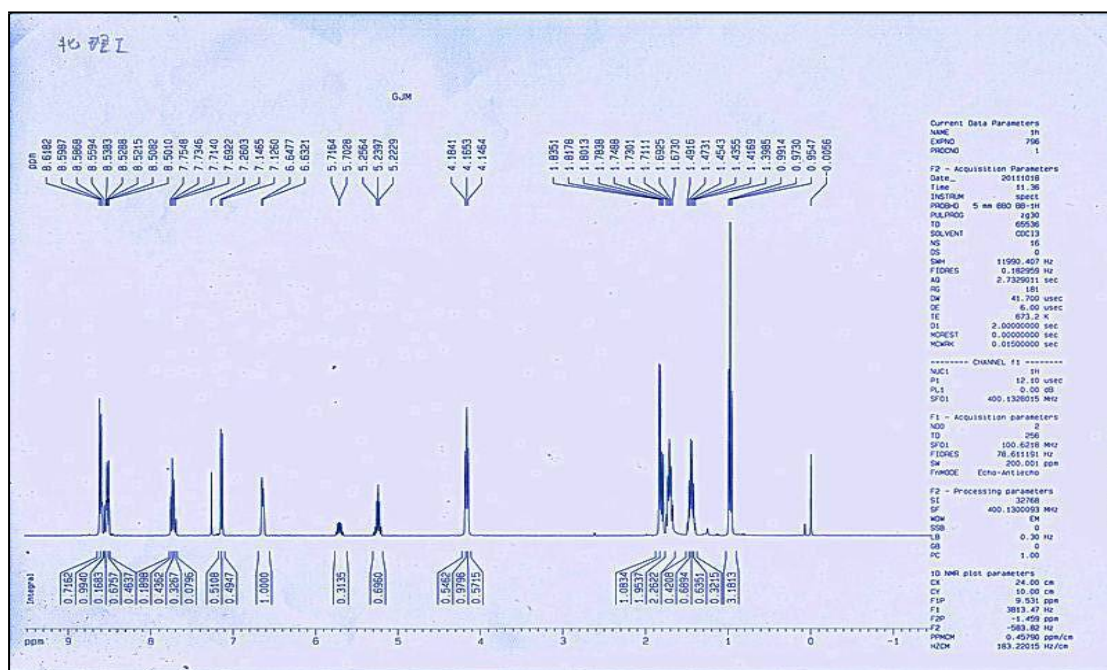


Figure S2. ¹H NMR spectrum of compound NT-VE (CDCl₃).

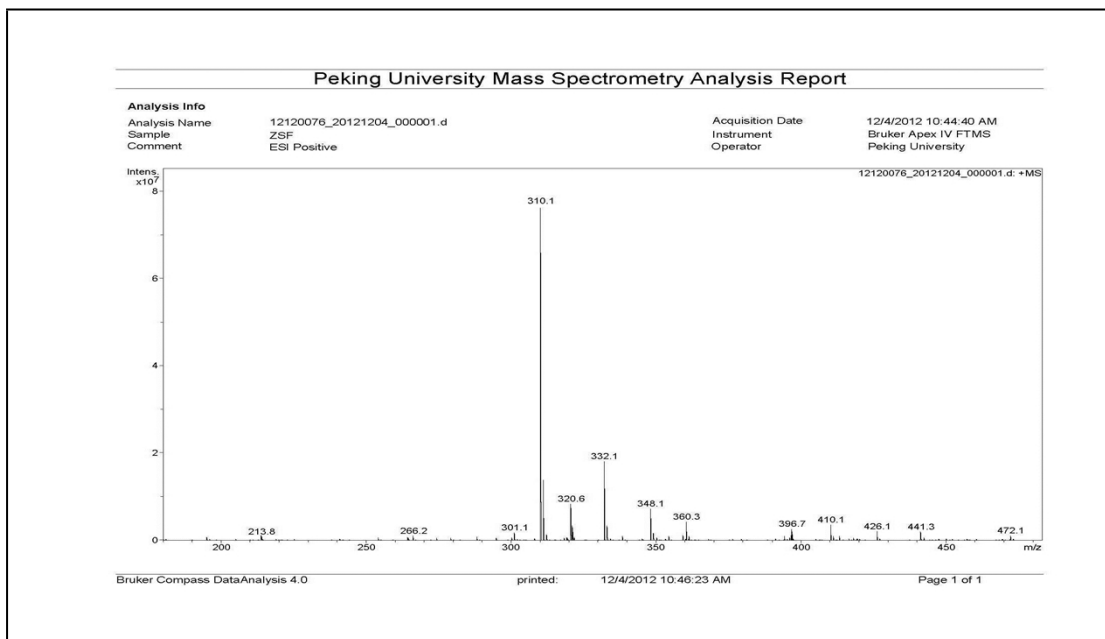


Figure S3. Mass spectrum of compound NT-VE.

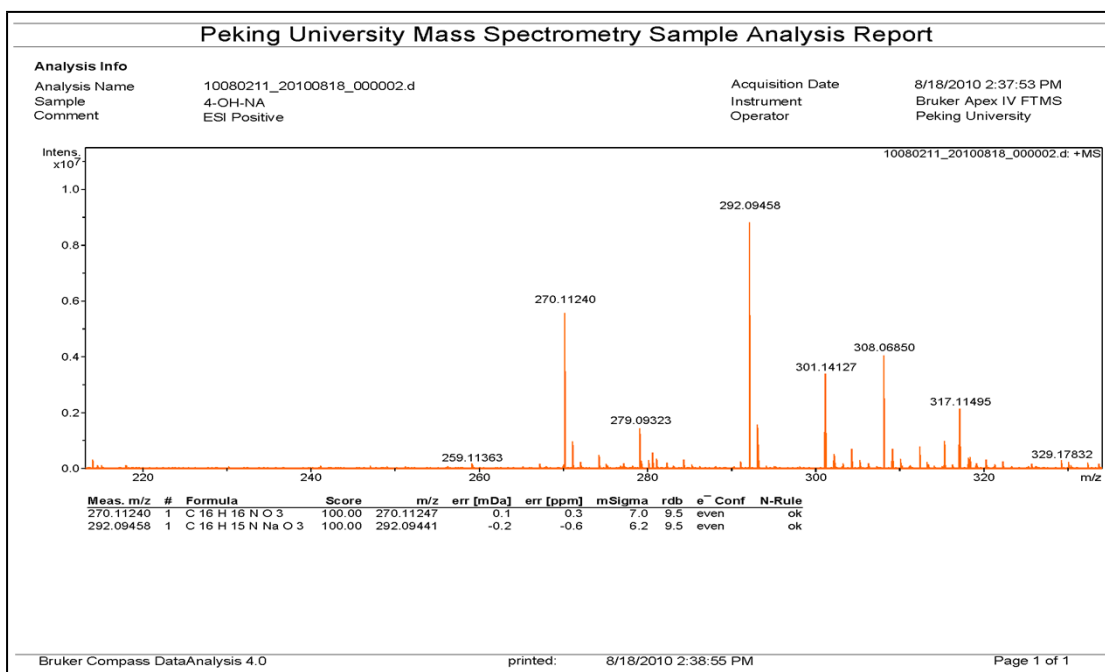


Figure S4. Mass spectrum of compound NT-OH.

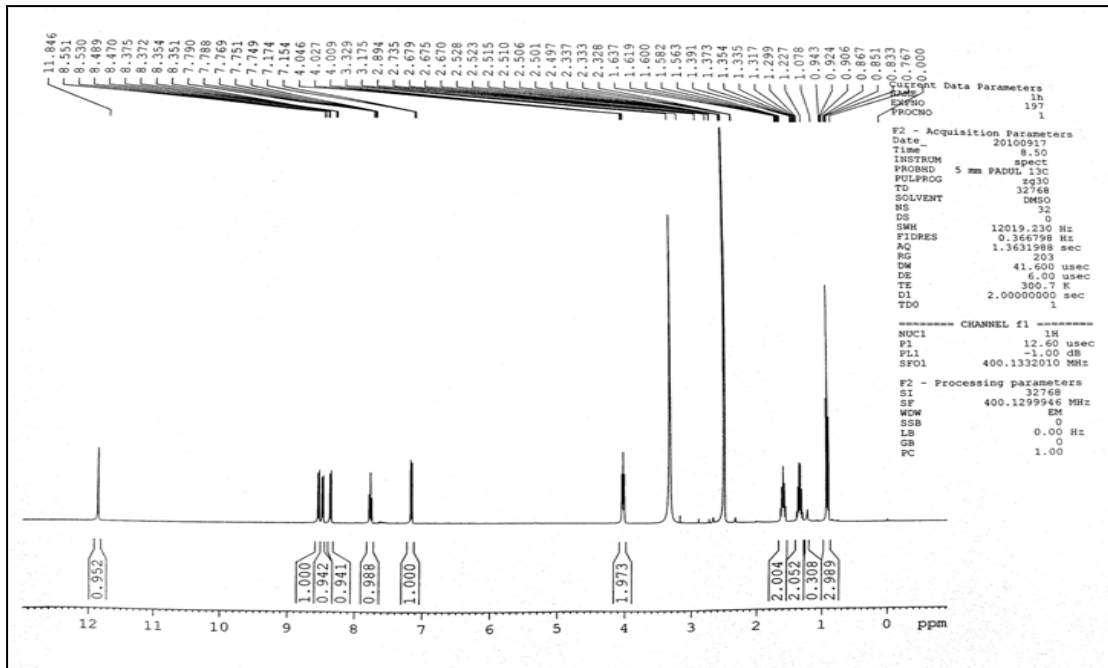


Figure S5. ¹H NMR spectrum of compound NT-OH (d₆-DMSO).

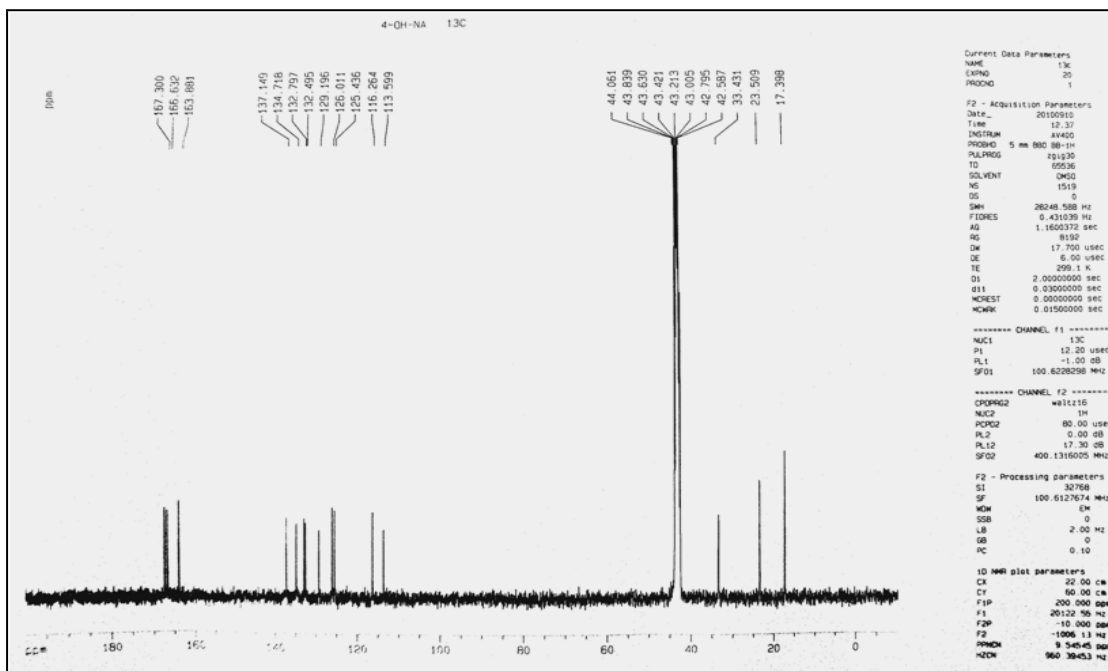


Figure S6. ¹³C NMR spectrum of compound NT-OH.

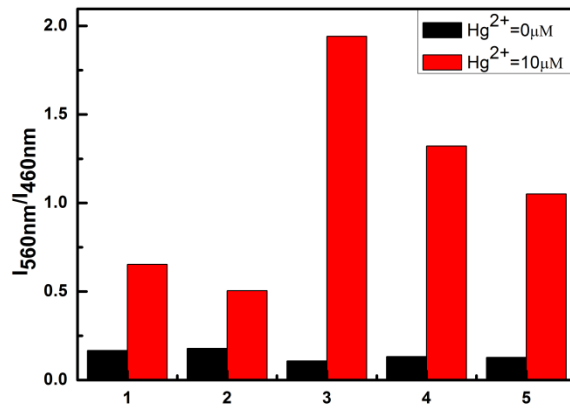
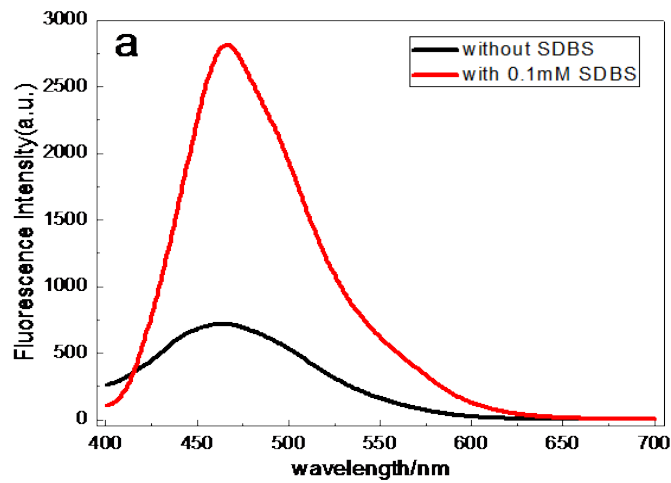


Figure S7. Fluorescence response of NT-VE (5µM) to Hg²⁺ (10µM) with different surfactants (0.15 mM) in pH=4 aqueous buffer: (1) without any surfactant added, (2) cetyltrimethylammonium bromide, (3) sodium dodecylbenzenesulfonate (SDBS), (4) sodium dodecylsulfonate and, (5) sodium laurylsulfate.



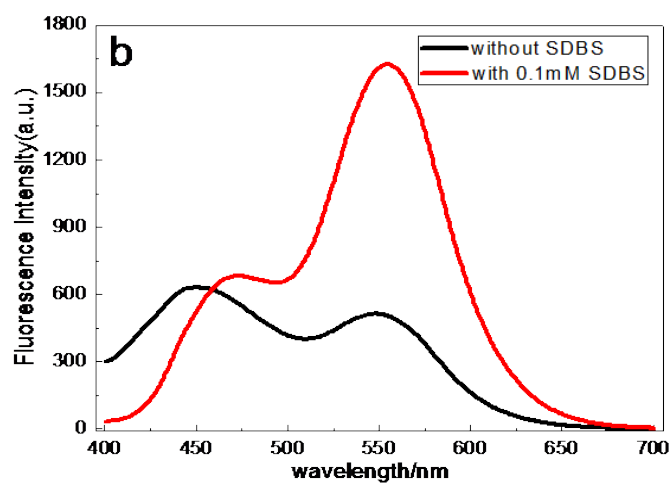


Figure S8. Fluorescence emission (a) of NT-VE ($5\mu\text{M}$) in water and in SDSB aqueous solution ($C_{\text{SDBS}}=0.1\text{mM}$) in the absence of Hg^{2+} , (b) of NT-VE ($5\mu\text{M}$) in water and in SDSB aqueous solution ($C_{\text{SDBS}}=0.1\text{mM}$) in the presence of Hg^{2+} ($10\mu\text{M}$).

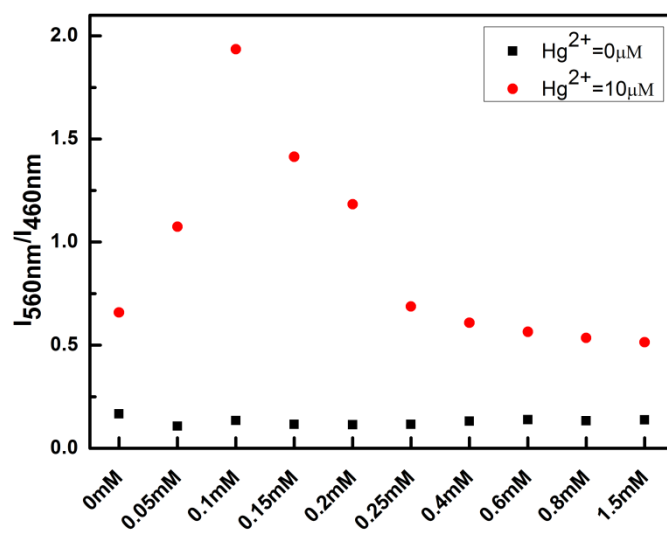


Figure S9. Effect of the concentration of SDSB on the fluorescence response of the NT-VE ($5\mu\text{M}$) to Hg^{2+} ($10\mu\text{M}$) in potassium biphthalate (20mM , $\text{pH}=4$) solution.