

Supplementary Information

A Fast Response Highly Selective Probe for the Detection of Glutathione in Human Blood Plasma. *Sensors* 2012, 12, 5940-5950

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Figure S1. ¹H NMR (400 MHz) spectrum of **4** in DMSO-*d*₆.

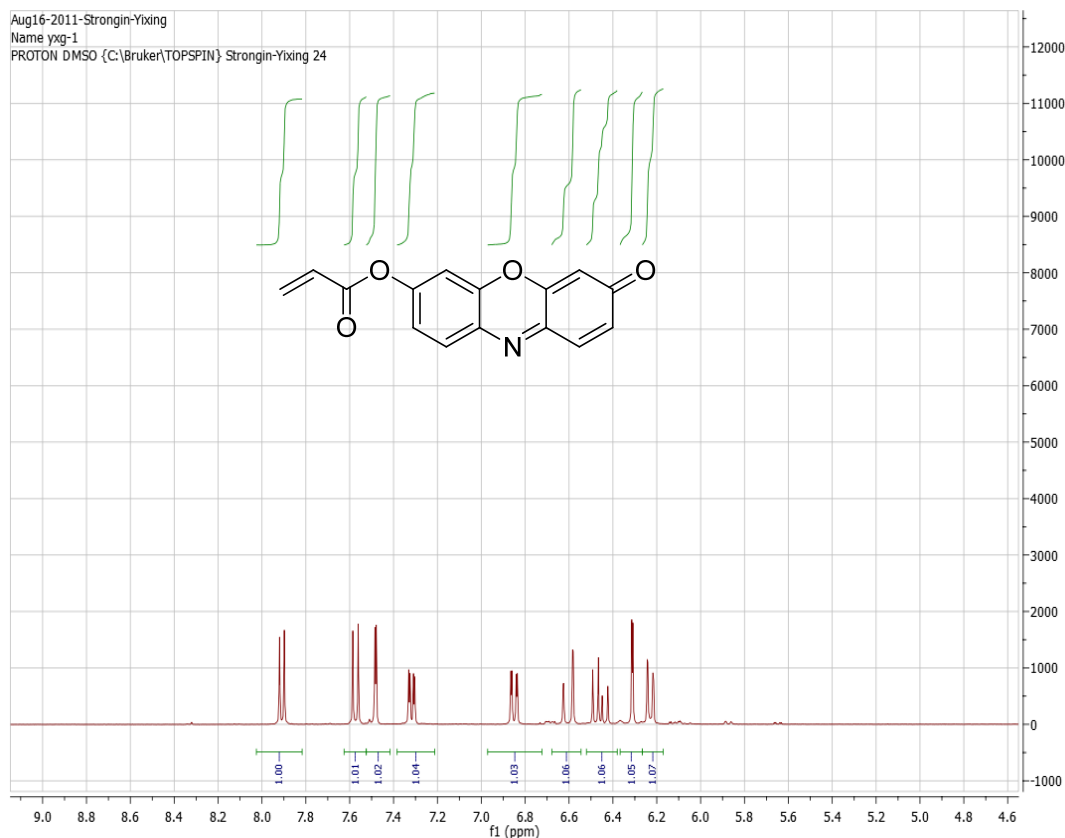


Figure S2. ^{13}C NMR (100 MHz) spectrum of **4** in $\text{DMSO}-d_6$.

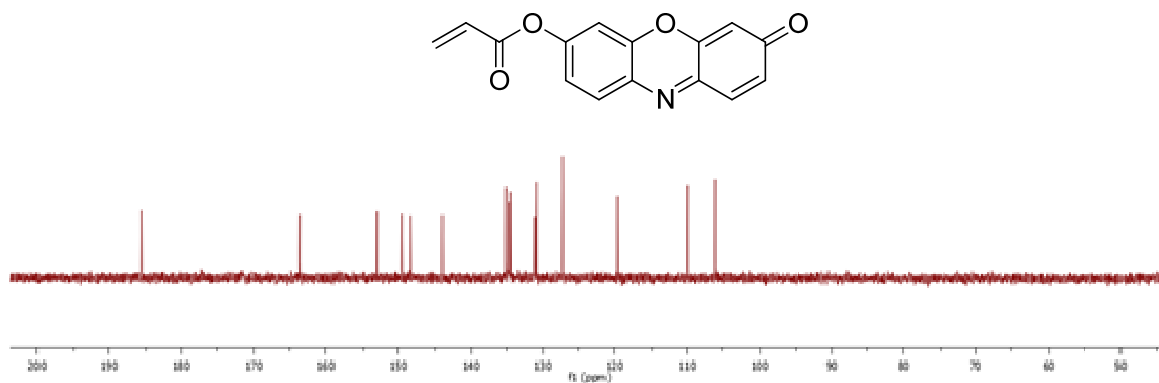


Figure S3. HRMS of **4**.

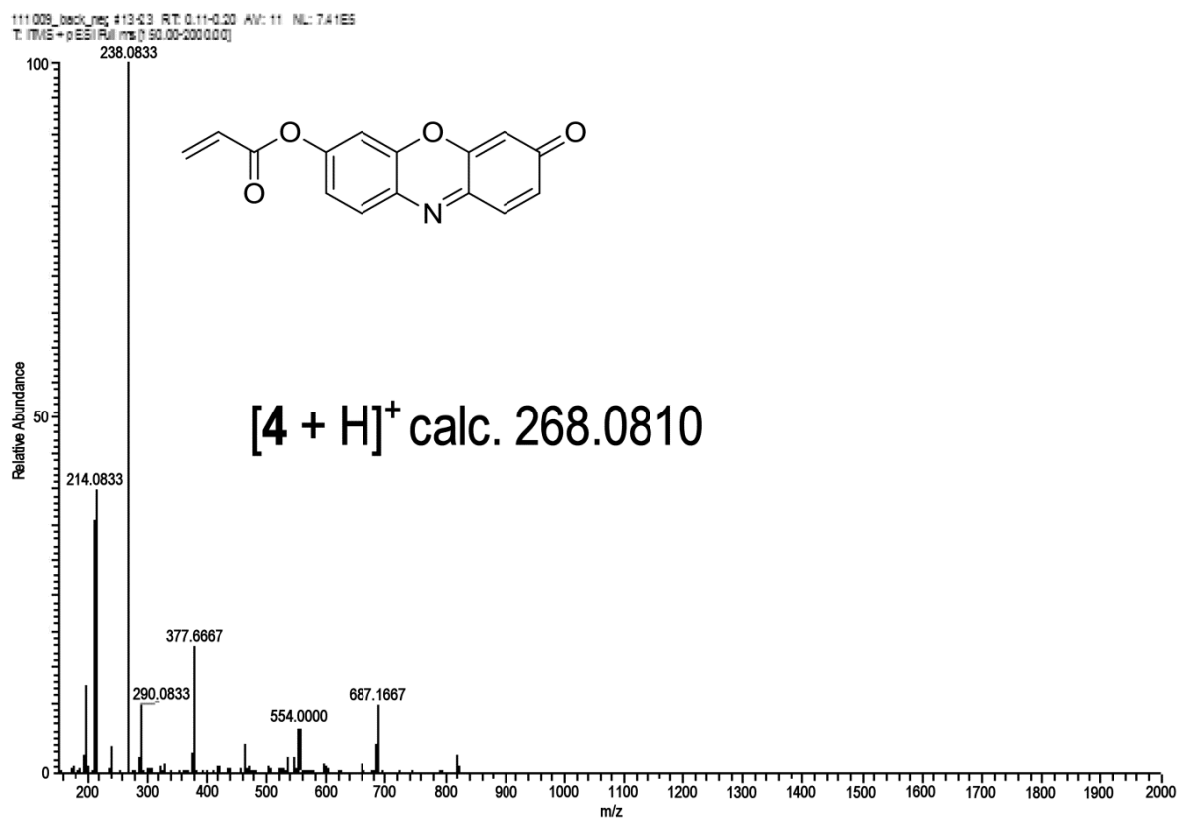


Figure S4. Absorption spectrum of **4** (2.5 μM) in 50 mM phosphate buffer (pH 7.4).

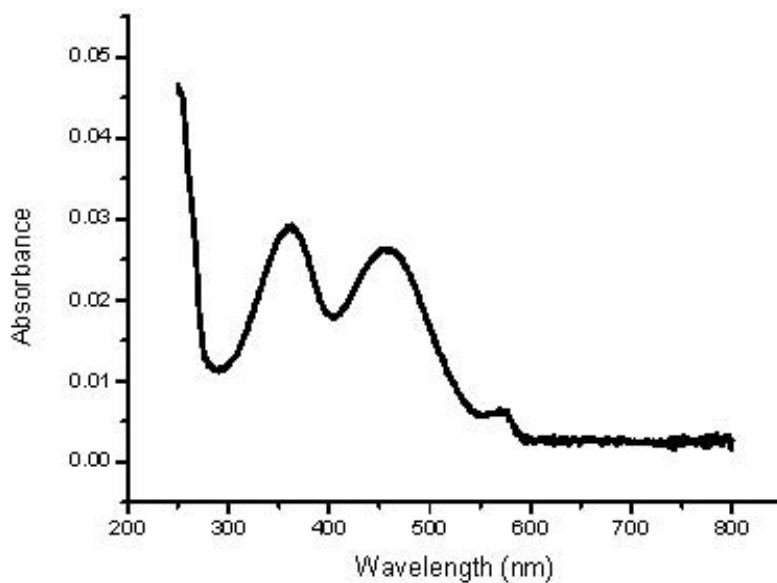


Figure S5. Intrinsic linear response of **4** towards Cys. Fluorescence spectra ($\lambda_{\text{ex}} = 565 \text{ nm}$) of **4** (2.5 μM) upon the addition of increasing concentrations of Cys (0–3 μM) at pH 7.4 (phosphate buffer, 50 mM). Reaction time, 60 min. The inset shows a linear relationship between fluorescence intensity and Cys concentration with a correlation coefficient of 0.995.

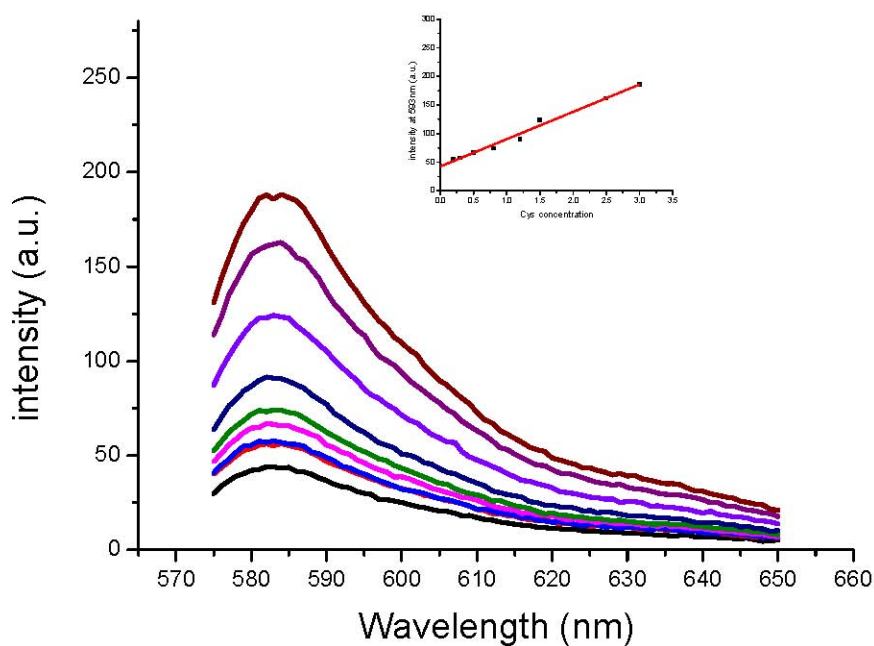


Figure S6. HRMS of the reaction mixture of **4** (20 μ M) and Cys (20 μ M) in 1:1 MeOH:H₂O showing formation of **3a**. Reaction time: 3 hours.

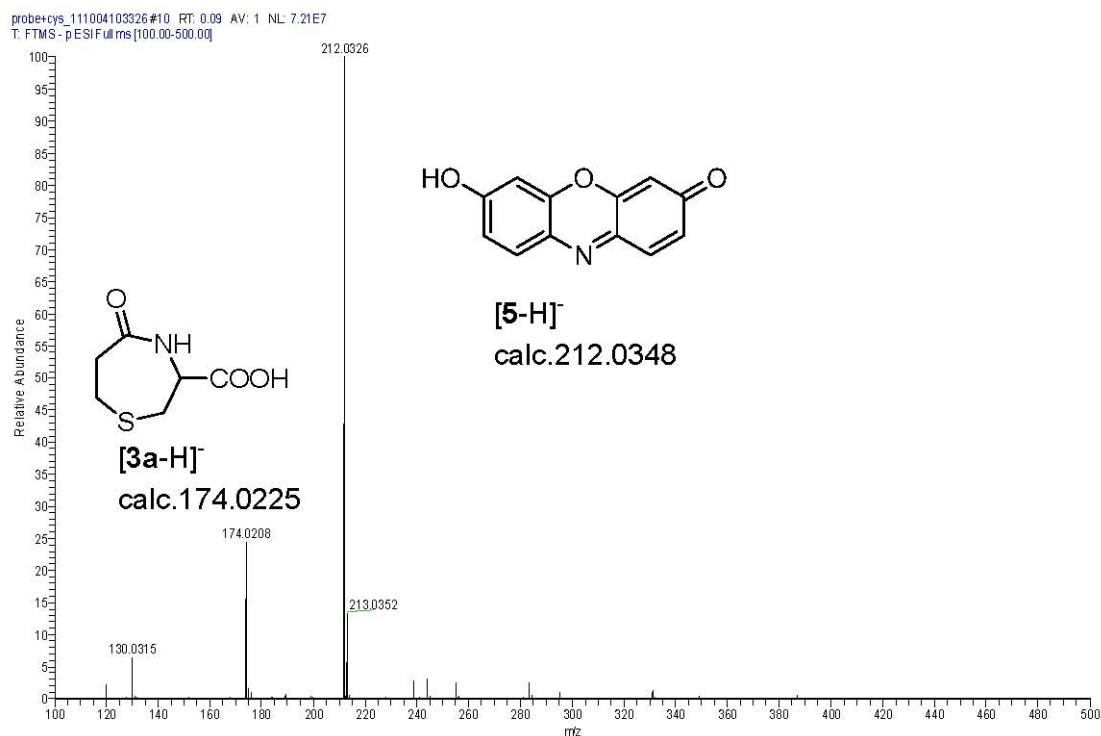


Figure S7. HRMS of the reaction mixture of **4** (20 μ M) and Hcy (20 μ M) in 1:1 MeOH:H₂O showing formation of **3b**. Reaction time: 3 hours.

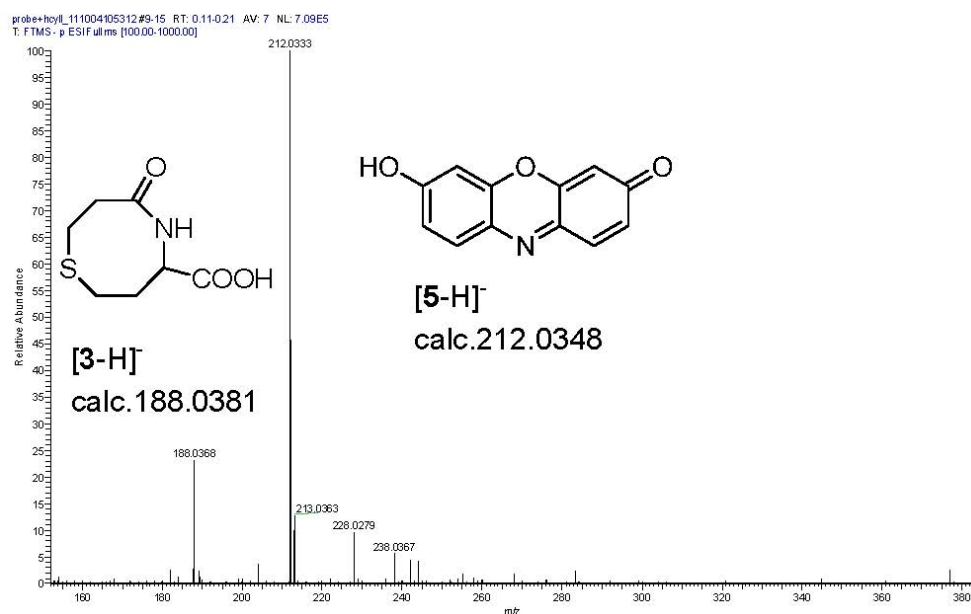


Figure S8. Response of **4** towards thiols upon inclusion of various surfactants. Time-dependent fluorescence changes ($\lambda_{\text{ex}}/\lambda_{\text{em}} = 565/590 \text{ nm}$) of **4** (2.5 μM) towards various thiols (2 equiv) in phosphate buffered media (50 mM, pH = 7.4) including surfactants (a) SDS (10 mM); (b) Triton X-100 (0.3 mM); (c) BC (0.05 mM); (d) CTAB (2 mM).

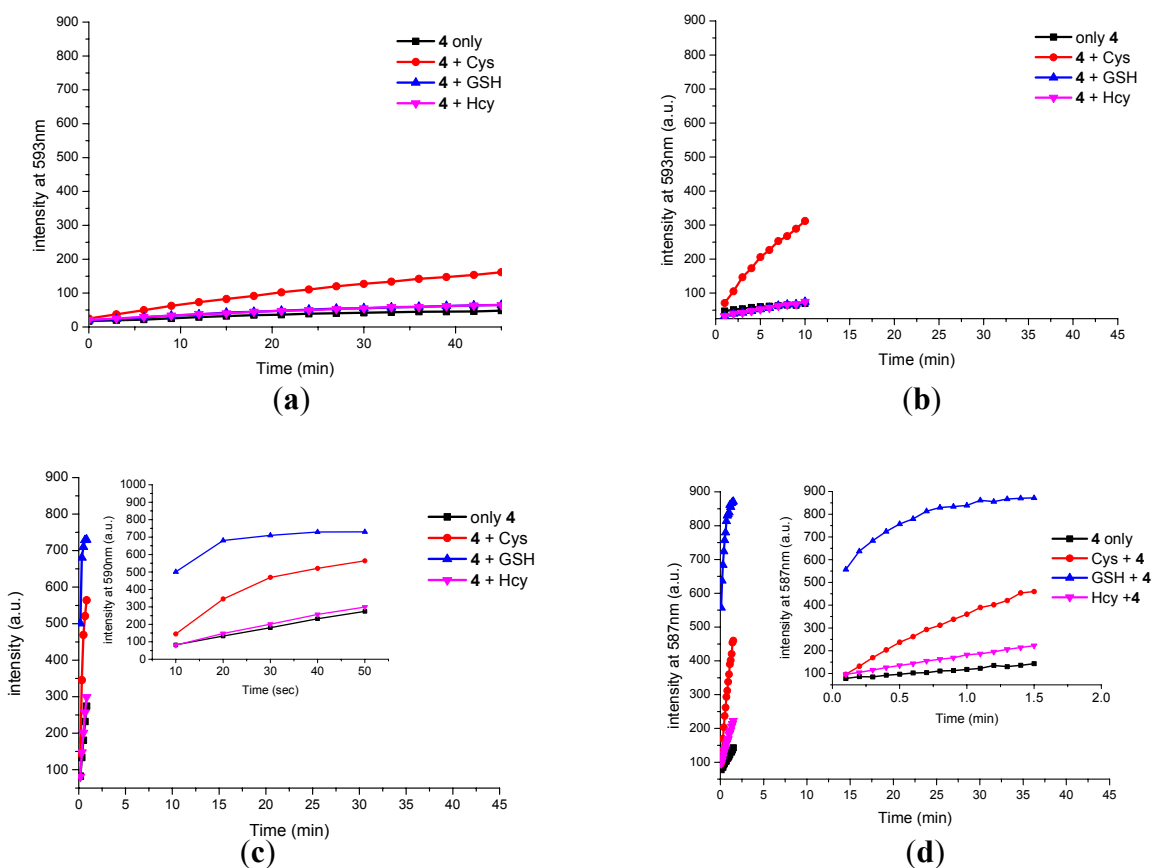


Figure S9 Surfactant-mediated response of the **4**-CTAB system towards GSH in the presence of Cys. Fluorescence spectra ($\lambda_{\text{ex}} = 565 \text{ nm}$) of **4** ($1.5 \mu\text{M}$) upon the addition of a mixture of Cys ($2 \mu\text{M}$) and increasing concentrations of GSH ($0\text{--}2 \mu\text{M}$) at pH 7.4 (phosphate buffer, 50 mM). Reaction time, 2 min. The inset shows a linear relationship between fluorescence intensity and GSH concentration with a correlation coefficient of 0.990 and also between fluorescence intensity and a mixture GSH and Cys with a correlation coefficient of 0.9894.

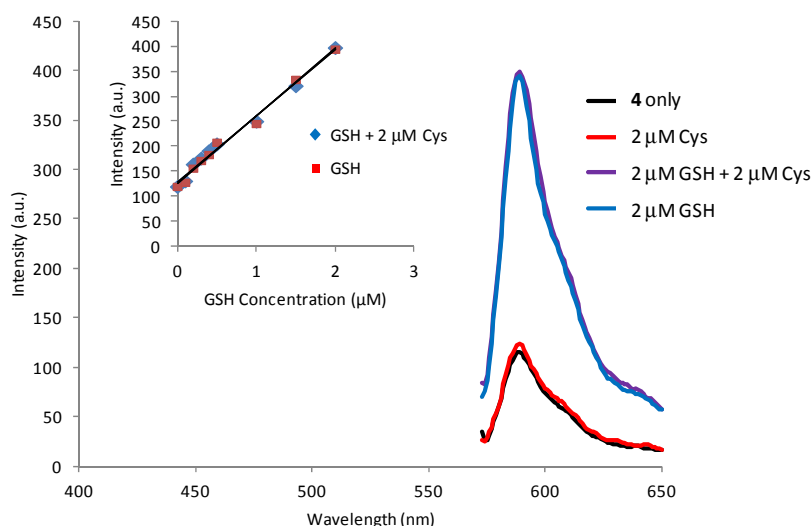


Figure S10. HRMS of the reaction mixture of **4** ($20 \mu\text{M}$) and GSH ($20 \mu\text{M}$) in 1:1 MeOH:H₂O showing the formation of **7**. Reaction time: 3 hours.

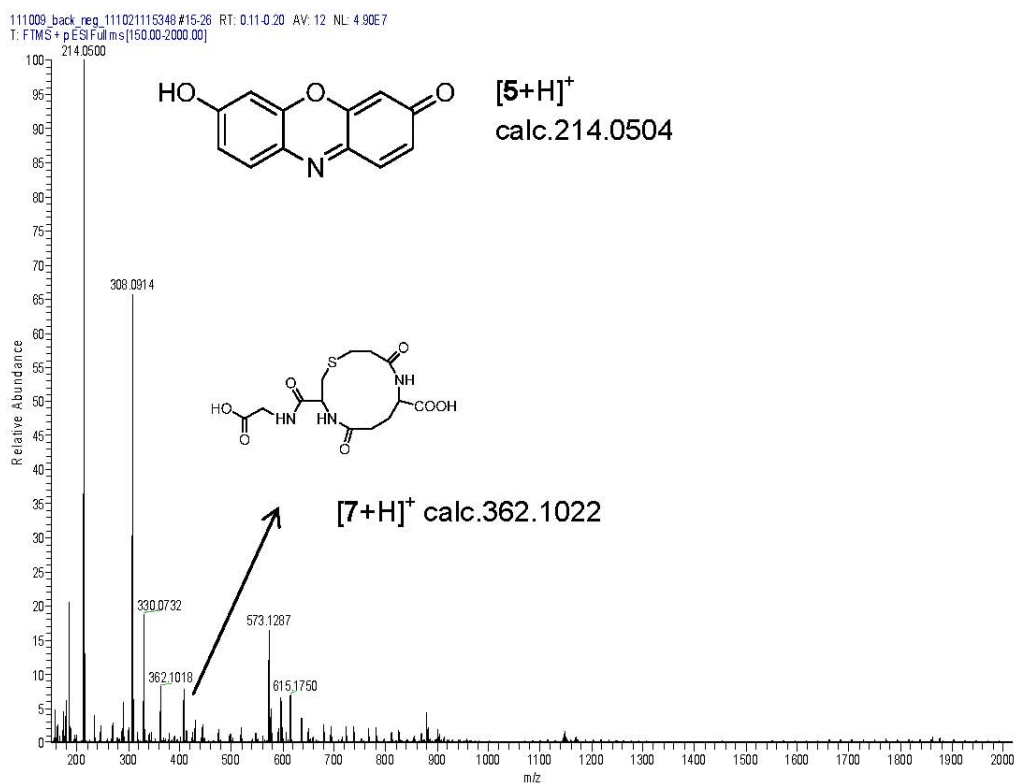


Figure S11. HRMS of the reaction mixture of **4** (20 μ M) and GSH (20 μ M) in 2.0 mM CTAB medium buffered at pH 7.4 (Hepes buffer, 20 mM) showing the formation of **7**. Reaction time: 5 min.

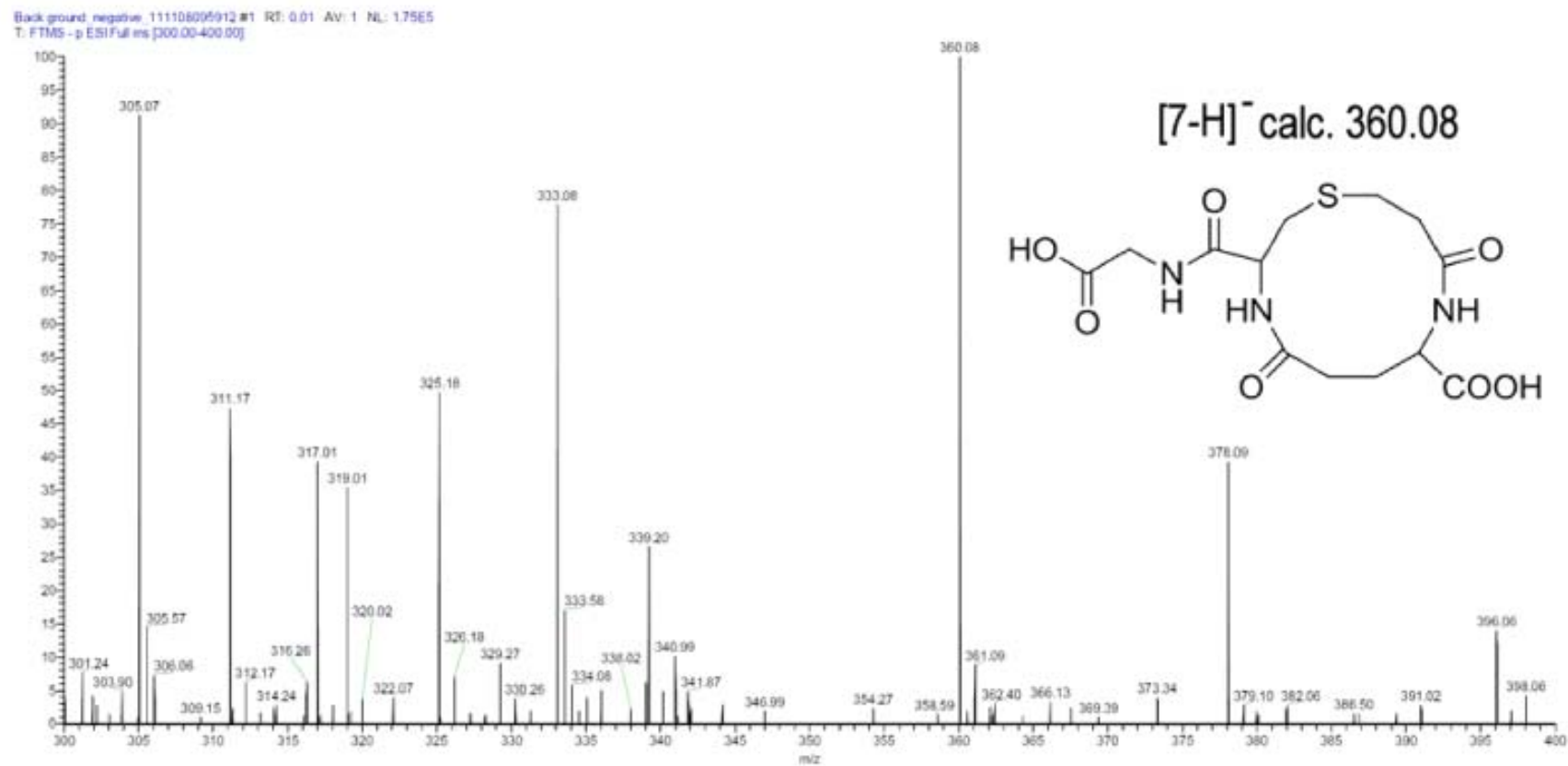


Figure S12. Spectral behavior of the 4-CTAB system under different pH conditions (50 mM phosphate buffer). (a) Time-dependent absorbance changes of a solution of **4** (2.5 μM) at 580 nm in CTAB media (2 mM) buffered at pH 5.5 to 8; (b) Absorbance spectra of **4** in pH 6, 7, and 8 phosphate buffer after 1 min; (c) Absorbance spectra of **4** in pH 6, 7 and 8 phosphate buffer after 10 min.

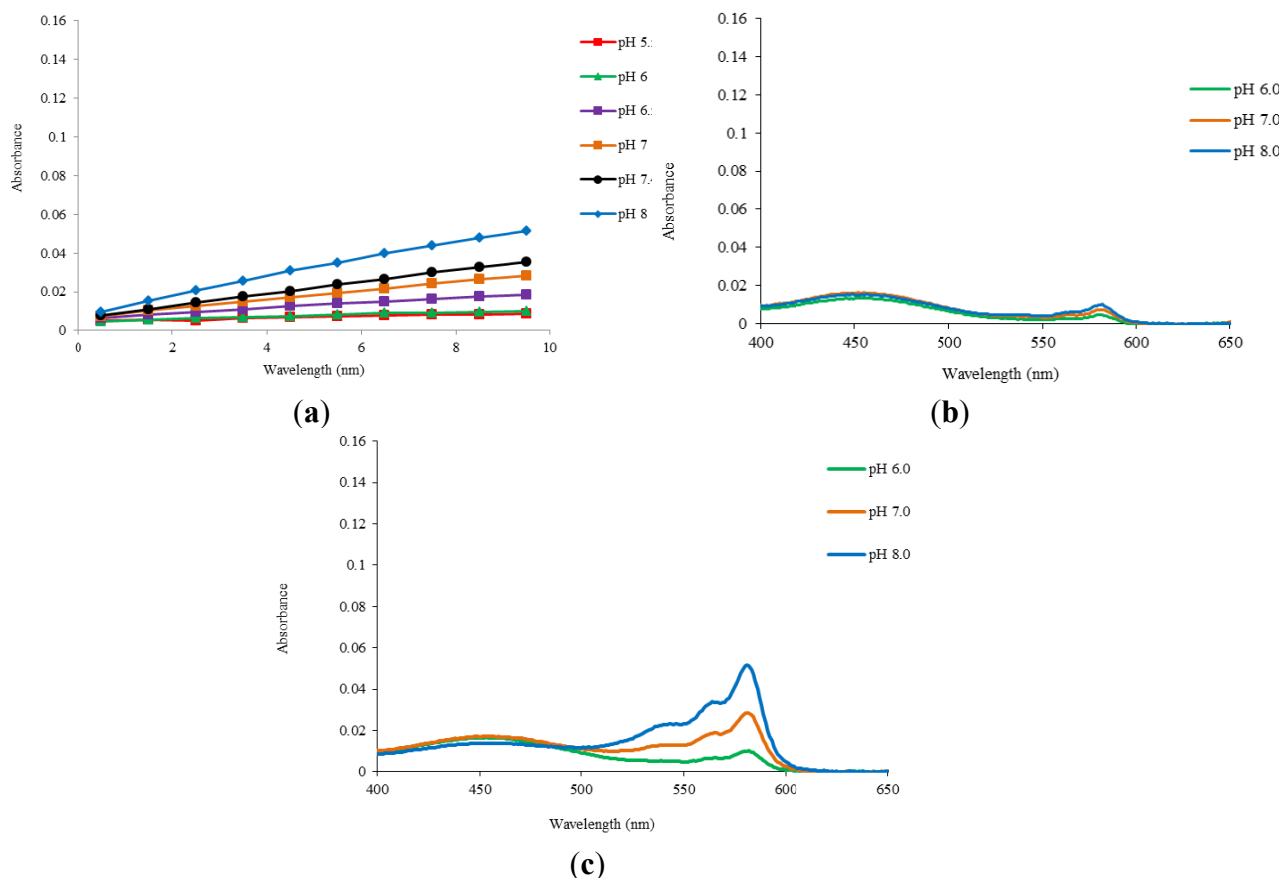


Figure S13. Fluorescence spectra ($\lambda_{\text{ex}} = 565 \text{ nm}$) of **4** (1.5 μM) upon addition of GSH (0–2.0 μM) and Cys (2 μM) to 10% deproteinized plasma diluted with 2.0 mM CTAB media buffered at pH 6.0 (phosphate buffer, 50 mM). The emission spectra were collected 8 min after mixing.

