Supporting Information for

A Fast-response Two-photon Fluorescent Probe for the Detection of Cys over GSH / Hcy with a Large Turn-on Signal and Its Application in Living Tissues

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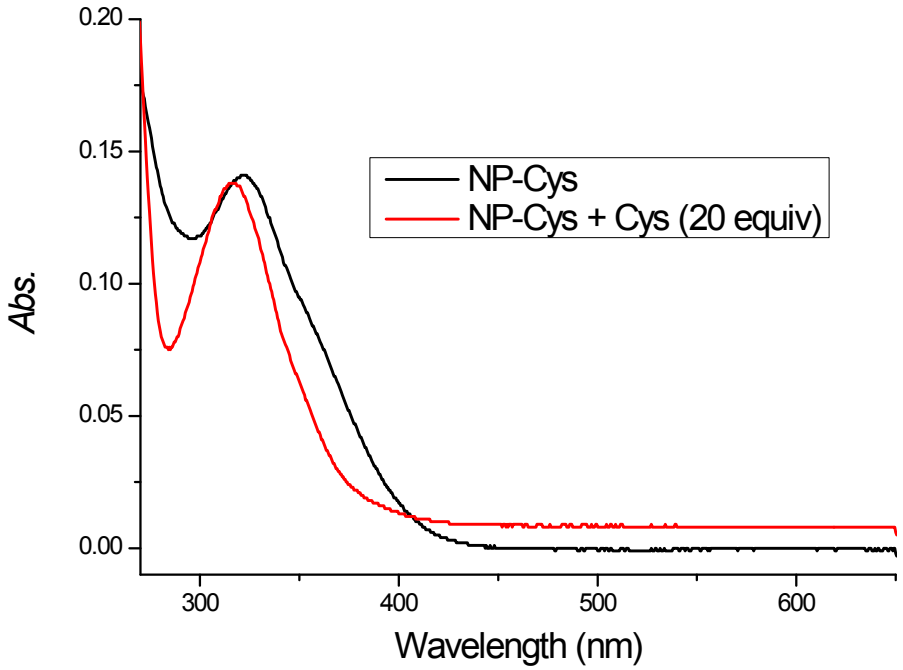

Fig. S1. The absorption spectra of **NP-Cys** (10 μM) in pH 7.4 PBS buffer (containing 5% MeOH) in the absence or presence of Cys (20 equiv).

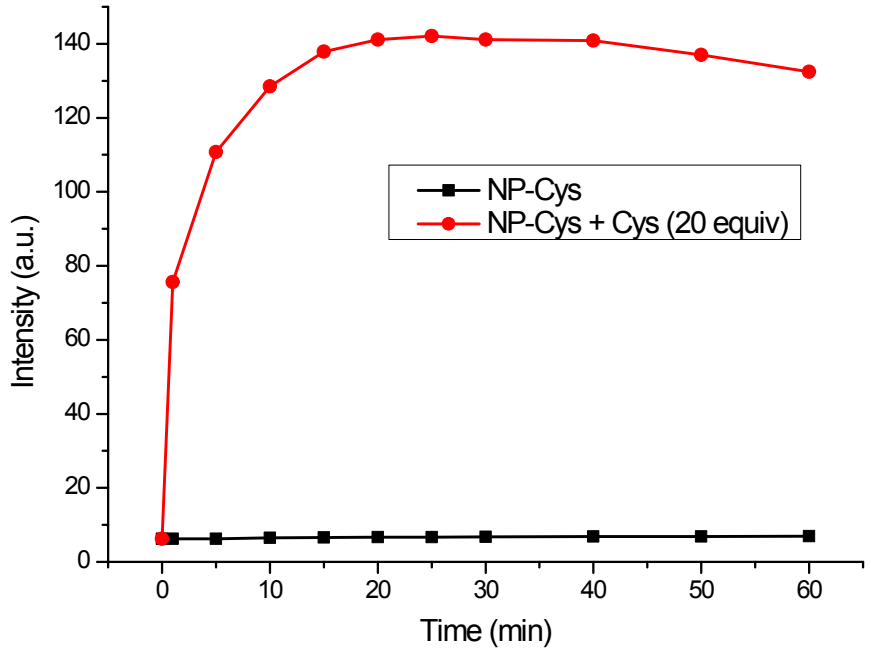

Fig. S2. The stability spectra of **NP-Cys** (10 μM) in pH 7.4 PBS buffer (containing 5% MeOH as a colsolvent) in the absence or presence of Cys (20 equiv).

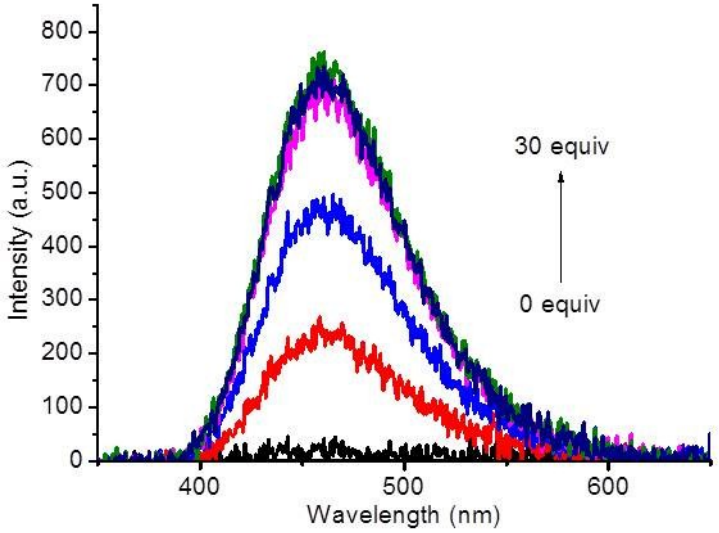

Fig. S3. Two-photon fluorescence spectra of the **NP-Cys** (10 μM) in the absence or presence of Cys for 20 min in PBS buffer (containing 5% MeOH as cosolvent).

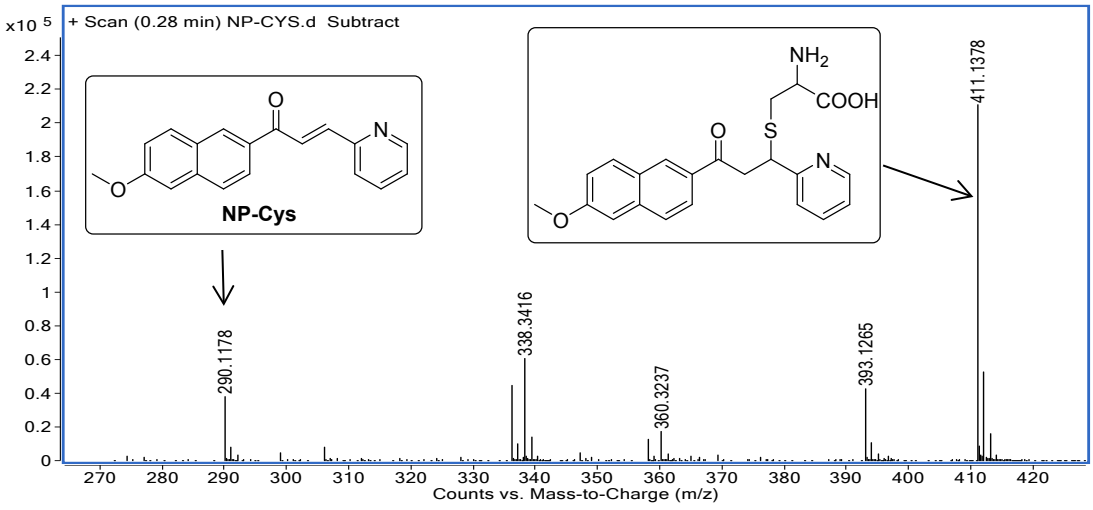

Fig. S4. HRMS (positive ion mode) spectrum of **NP-Cys** (20 μM) after treatment with Cys (400 μM) in pH 7.4 PBS/MeOH (19: 1) for 60 min. The peak at m/z 411.1378 corresponds to **NP-Cys-adduct**; The peak at m/z 290.1178 corresponds to the probe **NP-Cys**.

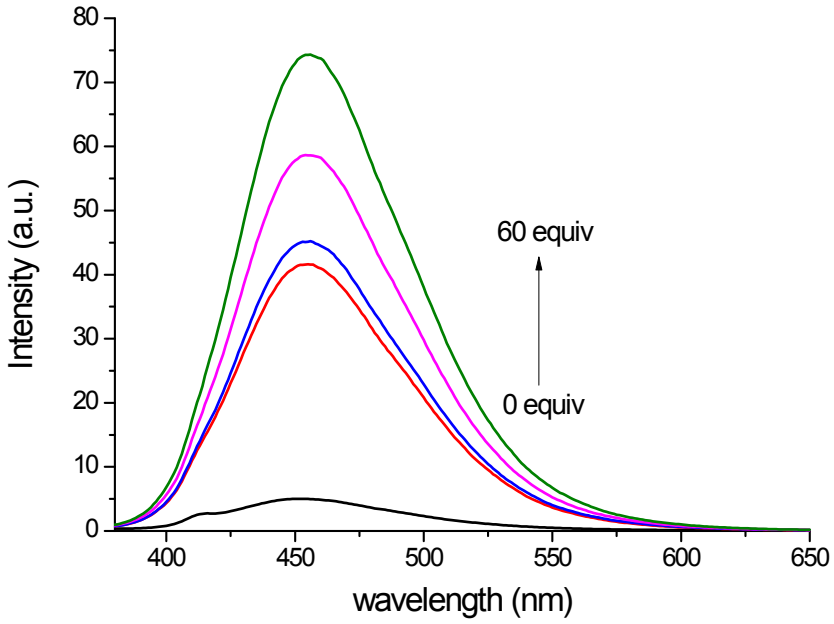

Fig. S5. The fluorescence spectra of **NP-Cys** (10 μM) in pH 7.4 PBS buffer (containing 5% MeOH) in the absence or presence of GSH (0-60 equiv).

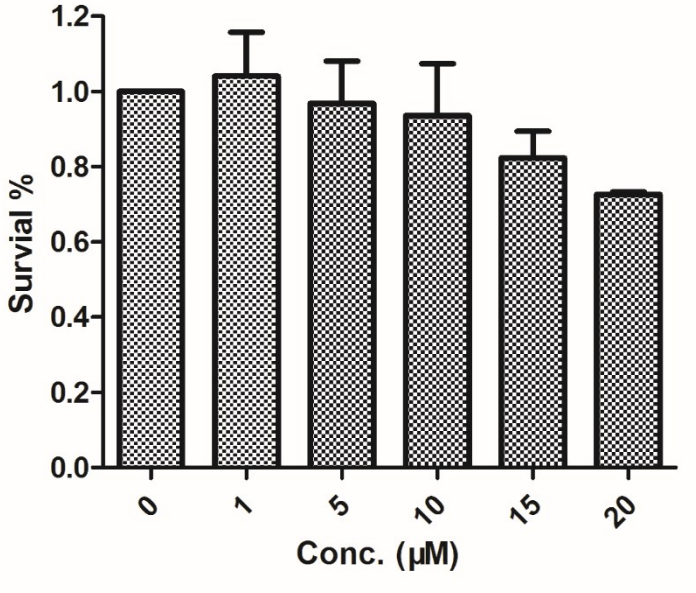

Fig. S6. Cytotoxicity assays of **NP-Cys** at different concentrations (0 μM; 1 μM; 5 μM; 10 μM; 15 μM; 20 μM) for HeLa cells.

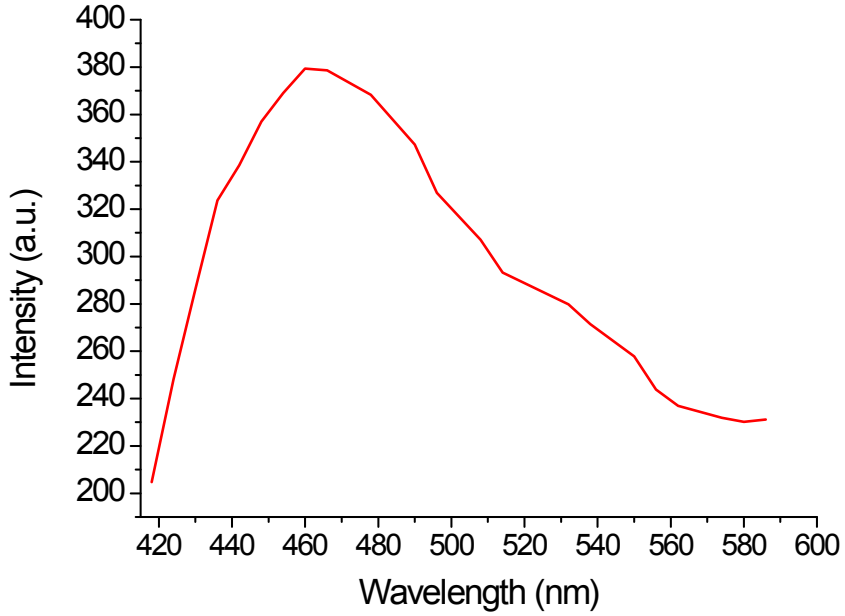

Fig. S7. Two-photon excited fluorescence spectrum from the HeLa cells incubated with both the probe **Np-Cys** and Cys upon excitation at 800 nm.

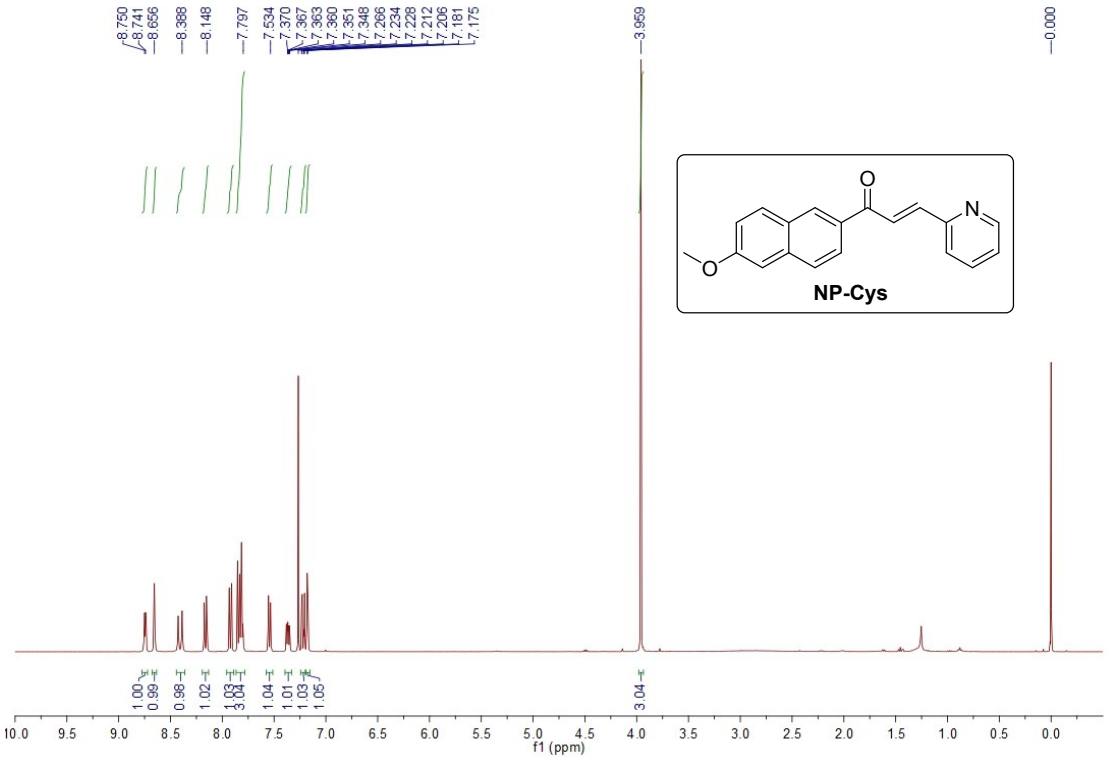

Fig. S8. ^{1}H-NMR ($CDCl_3$) spectrum of **NP-Cys**.

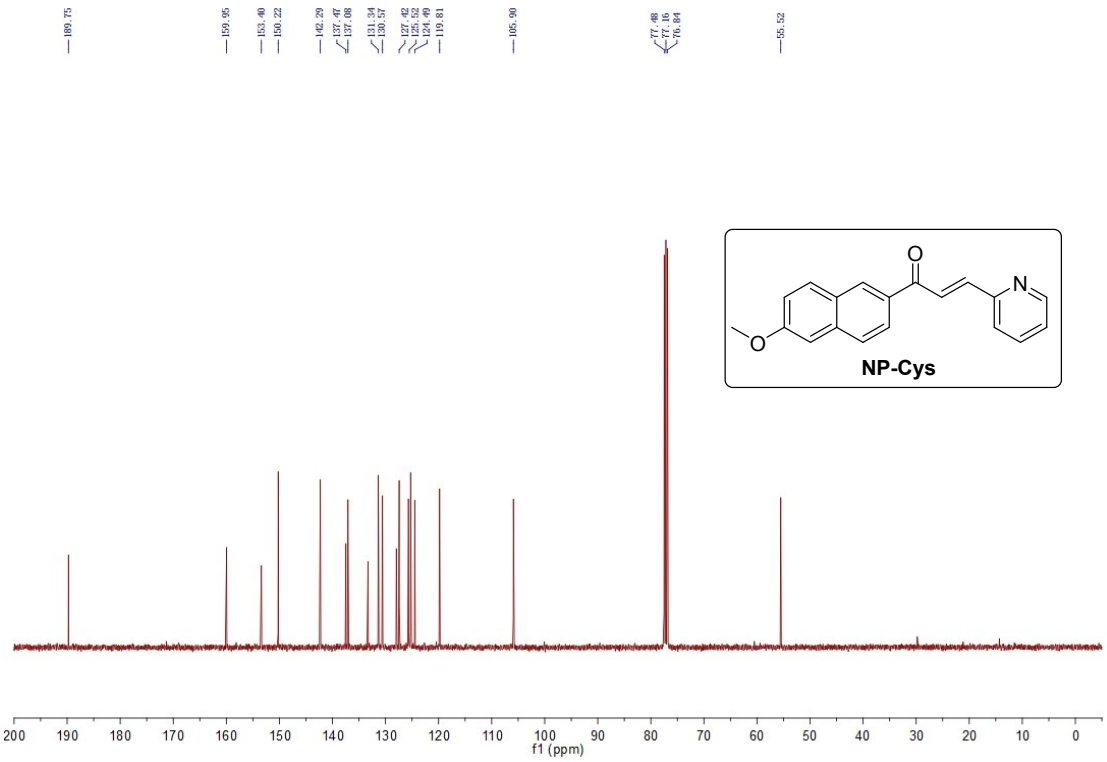

Fig. S9. ^{13}C-NMR ($CDCl_3$) spectrum of **NP-Cys**.