

## Supplementary data for

# A rhodol-enone dye platform with dual reaction triggers for specific detection of Cys

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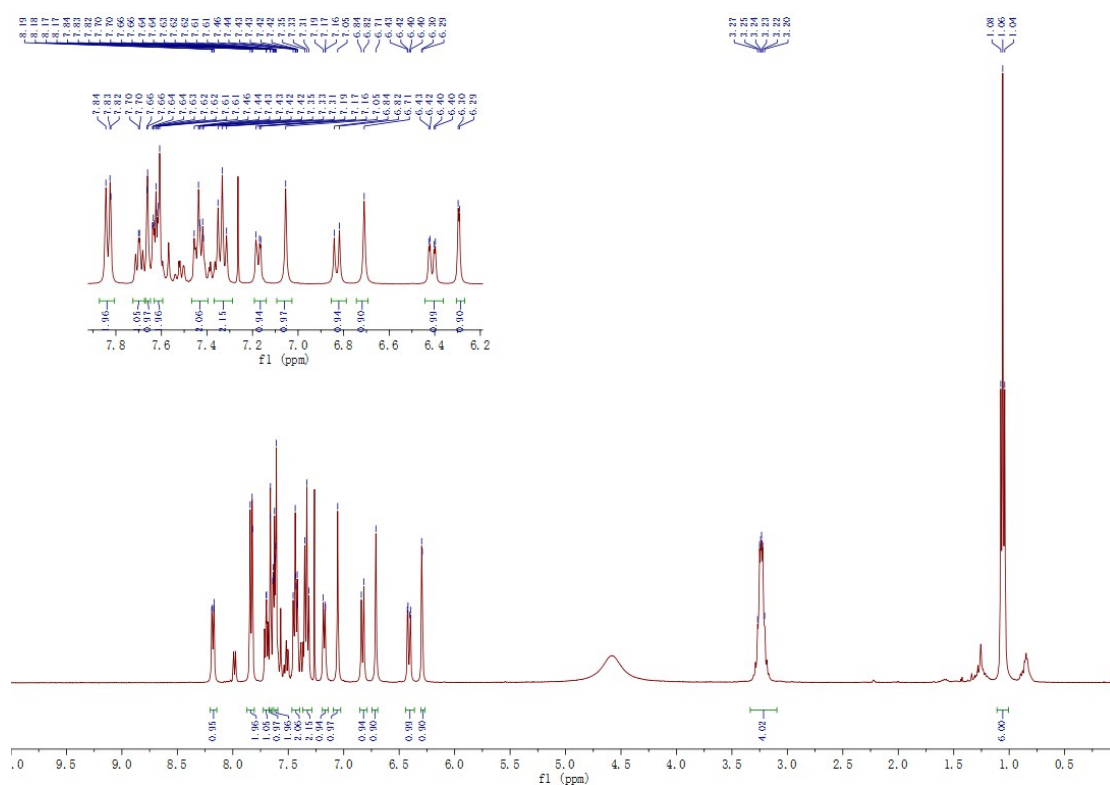


Figure S1.  $^1\text{H}$  NMR spectroscopy of compound of BL.

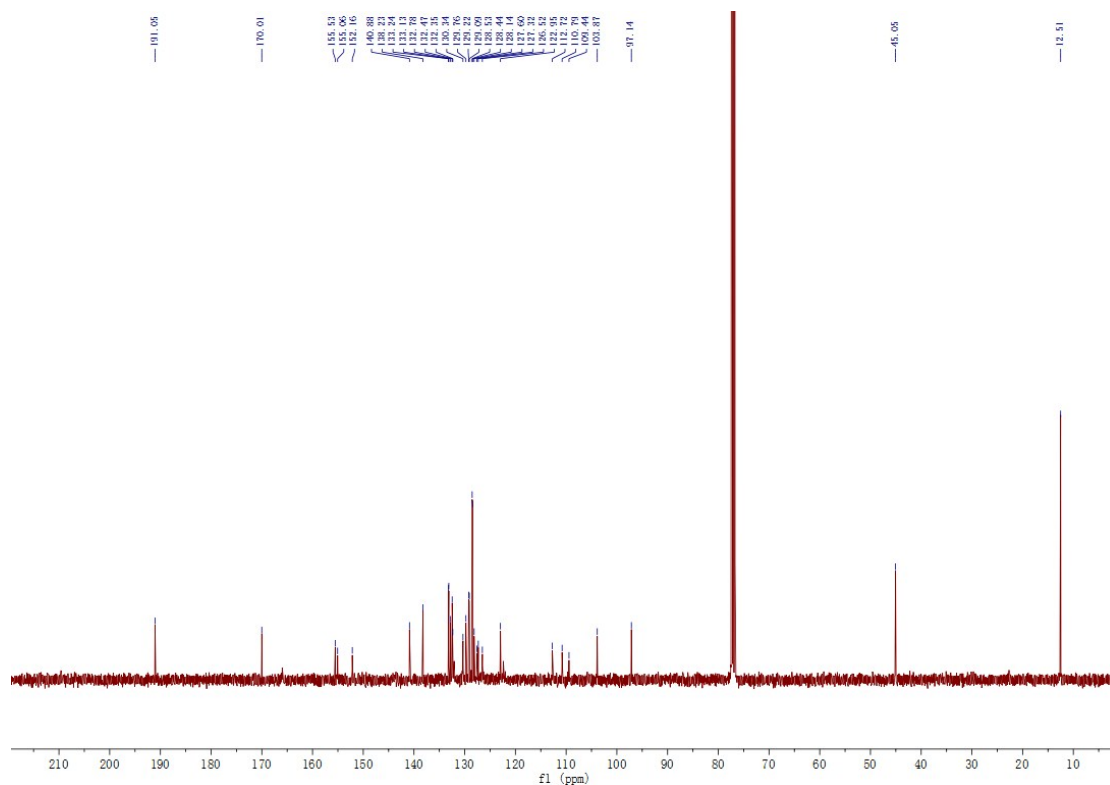
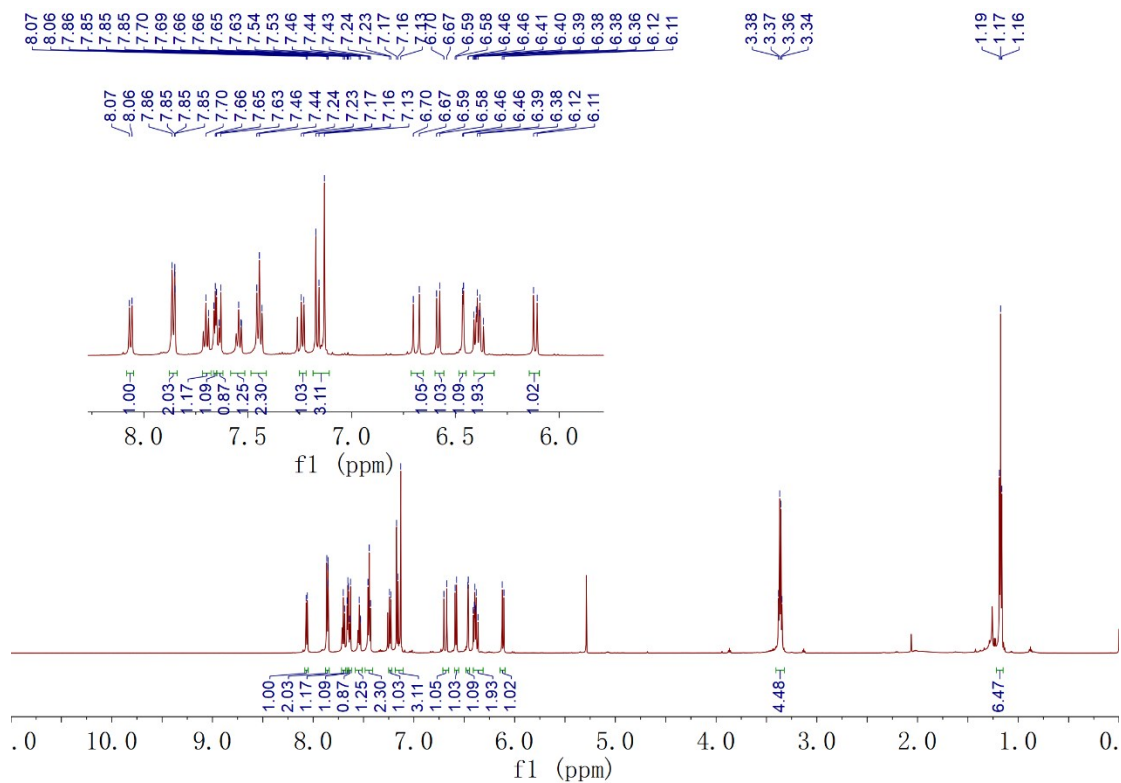
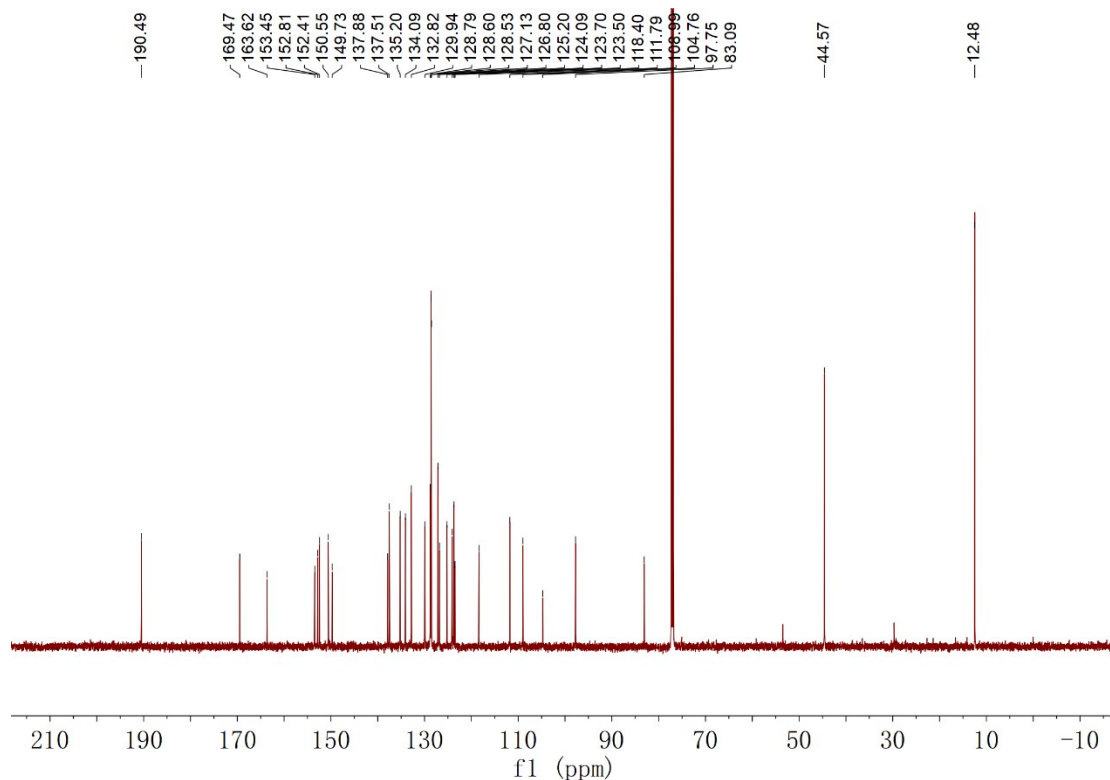


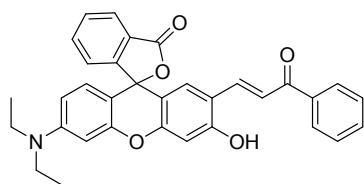
Figure S2.  $^{13}\text{C}$  NMR spectroscopy of compound of BL.



**Figure S3.**  $^1\text{H}$  NMR spectroscopy of compound of probe **BL-C**.



**Figure S4.**  $^{13}\text{C}$  NMR spectroscopy of compound of probe **BL-C**.



Exact Mass: 517.18892

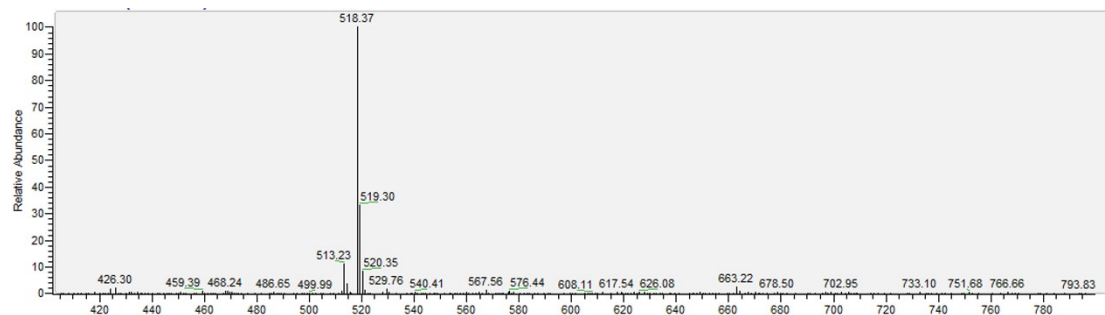
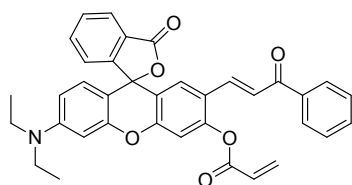


Figure S5. MS spectroscopy of BL (M+H)<sup>+</sup>.



Exact Mass: 571.19949

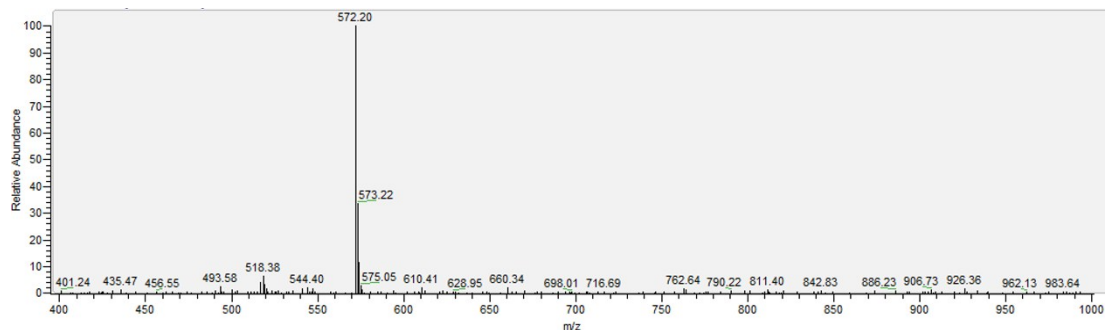
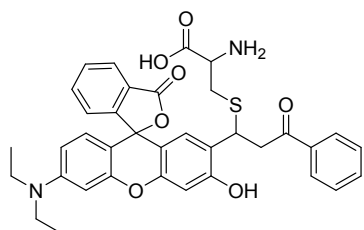
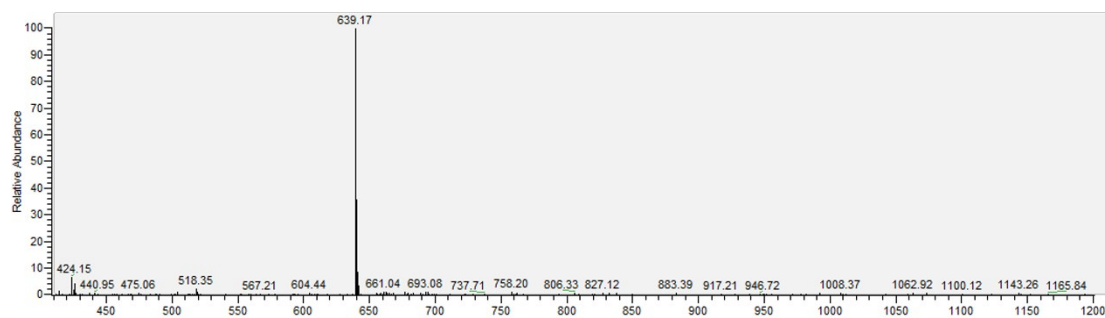


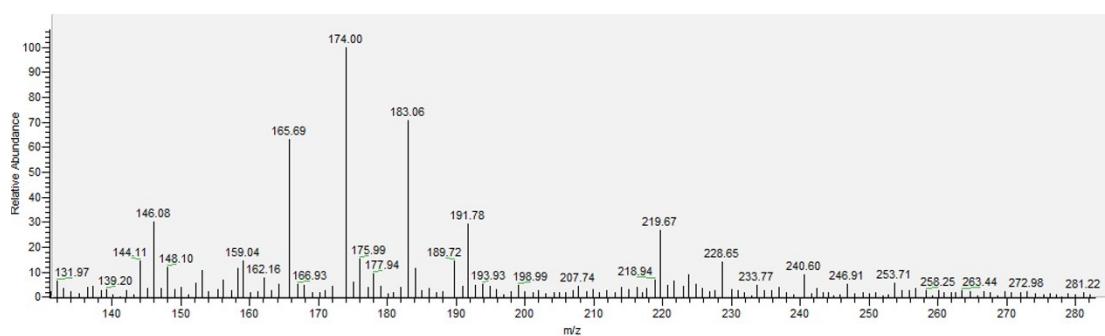
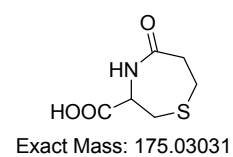
Figure S6. MS spectroscopy of probe BL-C (M+H)<sup>+</sup>.



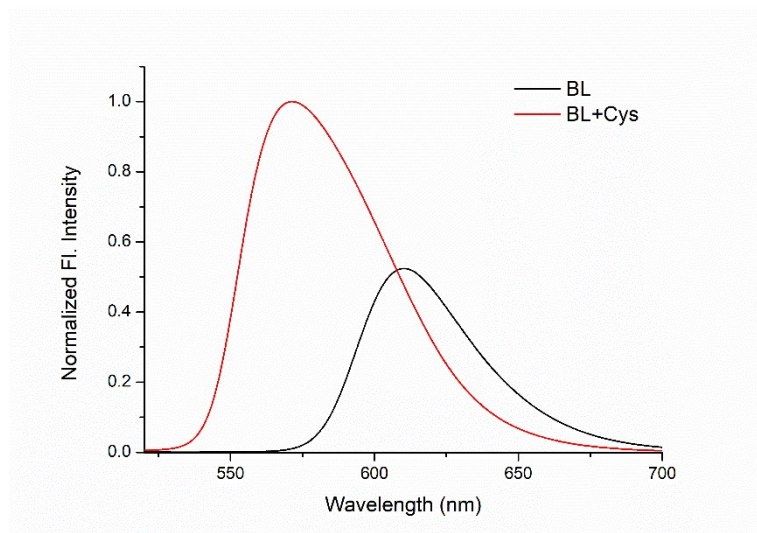
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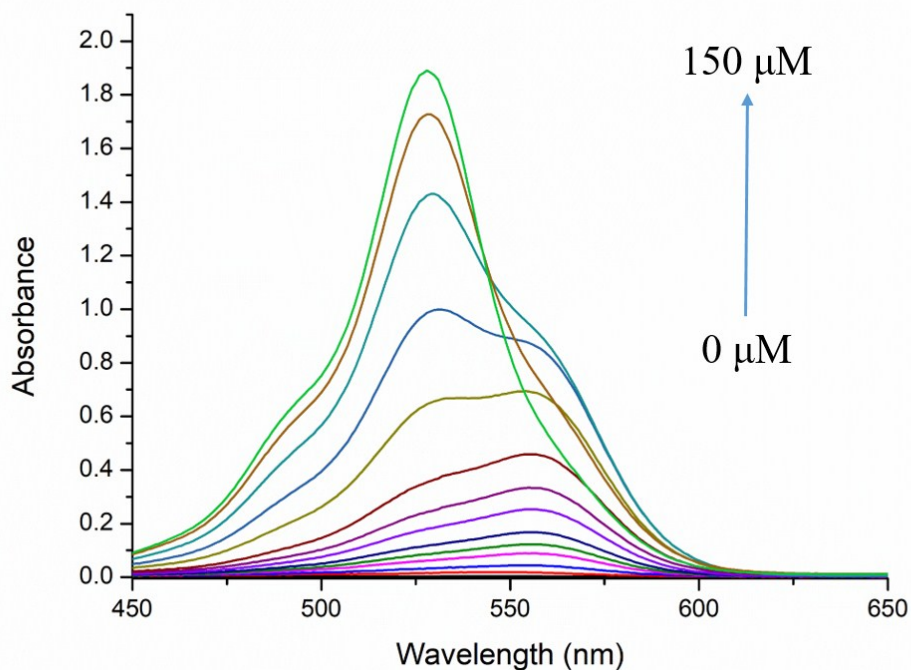
**Figure S7.** MS spectroscopy of probe **BL-C** after the treatment with Cys ( $M+H$ )<sup>+</sup>.



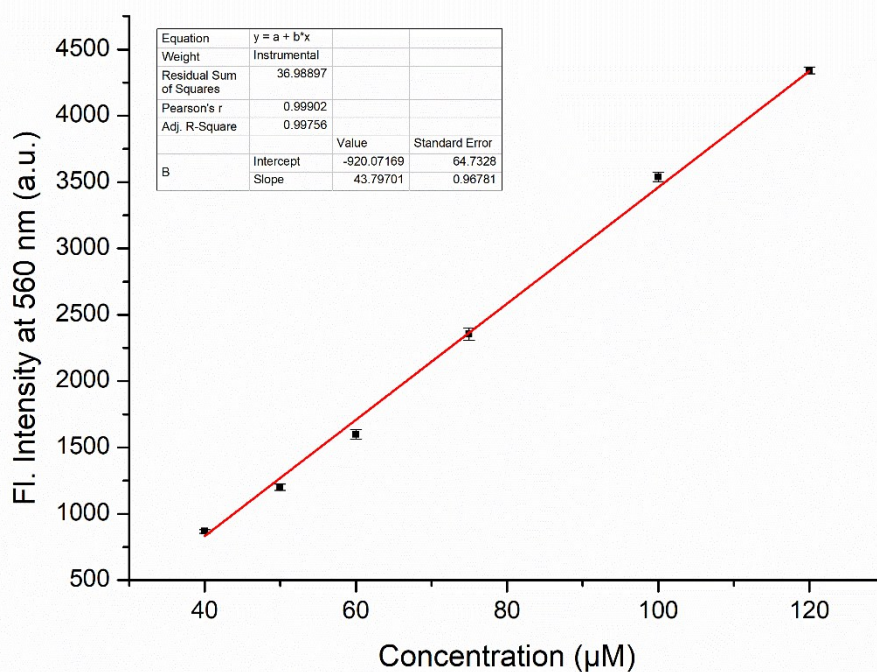
**Figure S8.** MS spectroscopy of the lactam produced by the reaction of probe **BL-C** with Cys ( $M-H$ ).



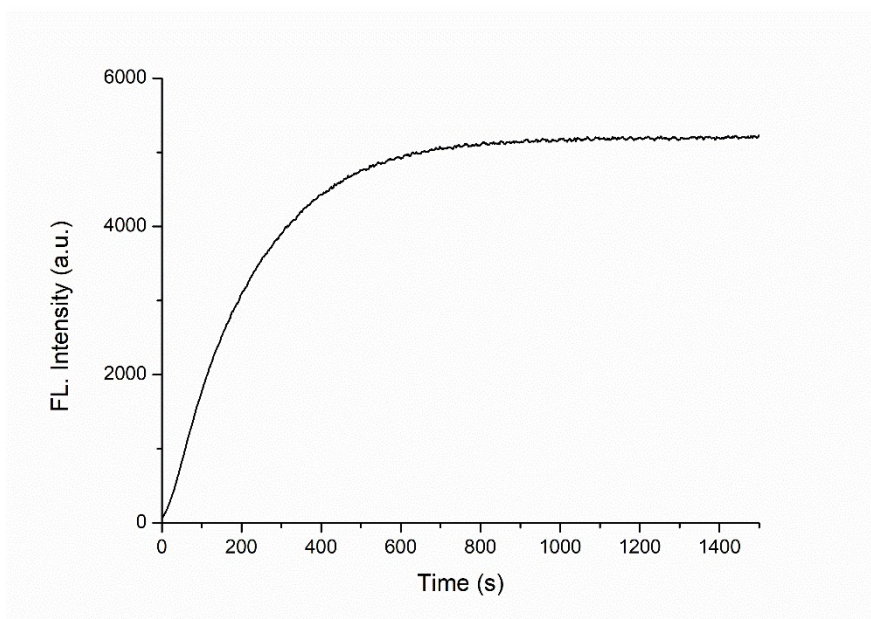
**Figure S9.** Fluorescence spectra of **BL** (10  $\mu$ M) in the absence and presence of Cys (100  $\mu$ M).



**Figure 10.** UV/Vis absorption responses of probe **BL-C** (10  $\mu\text{M}$ ) toward different concentrations of Cys (0-150  $\mu\text{M}$ ).



**Figure S11.** Fluorescence intensity at 560 nm of probe **BL-C** versus Cys concentration (40-120  $\mu\text{M}$ ) with  $\lambda_{\text{ex}}=480$  nm. Error bars, SD ( $n = 3$ ).



**Figure S12.** The time-dependent changes of the fluorescence intensity at 560 nm in the presence of 150  $\mu\text{M}$  Cys