

## Supplementary data

### **A fluorescent coumarin-based probe for the fast detection of cysteine with live cell application**

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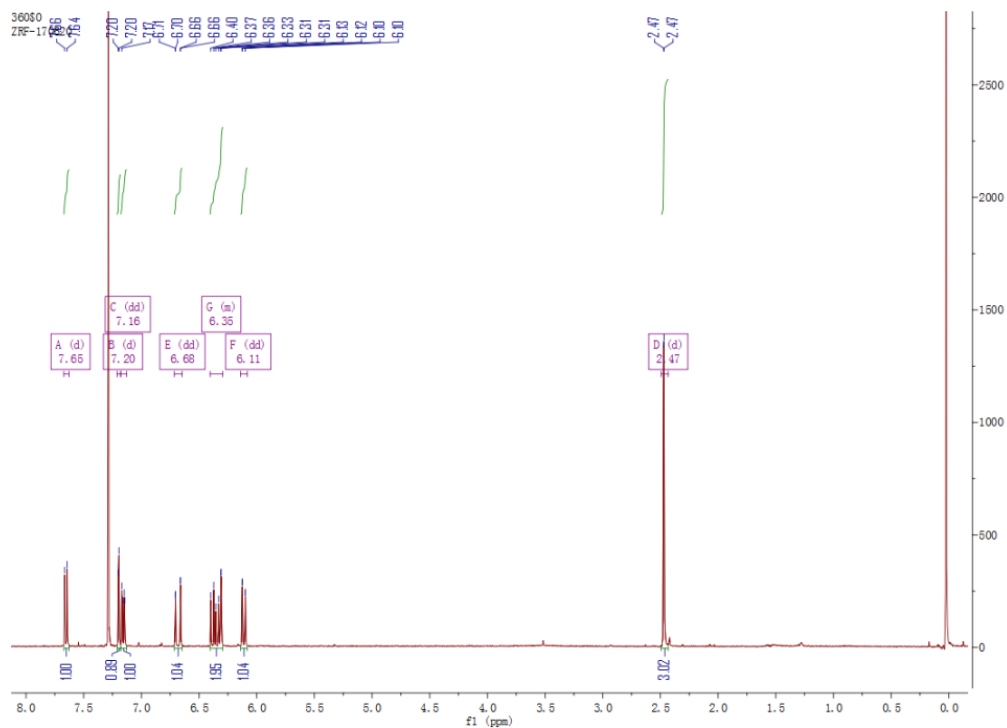
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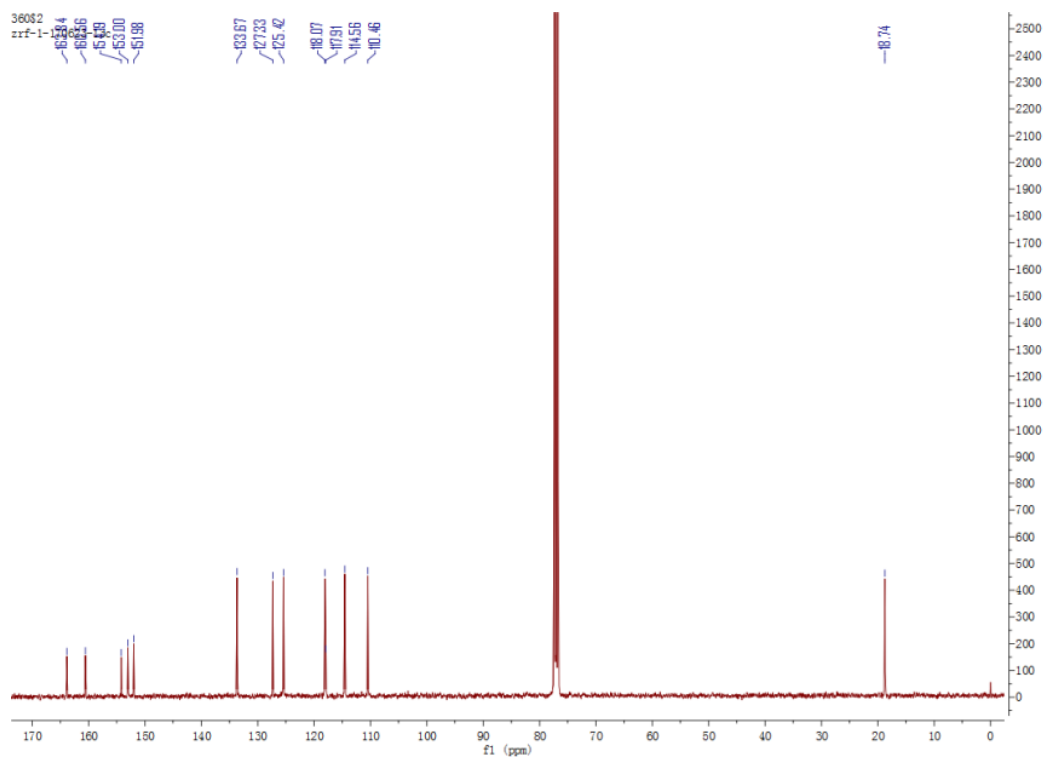
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**Fig S1.**  $^1\text{H-NMR}$  spectrum of the probe in  $\text{CDCl}_3$ .



**Fig S2.**  $^{13}\text{C-NMR}$  spectrum of compound the probe in  $\text{CDCl}_3$ .

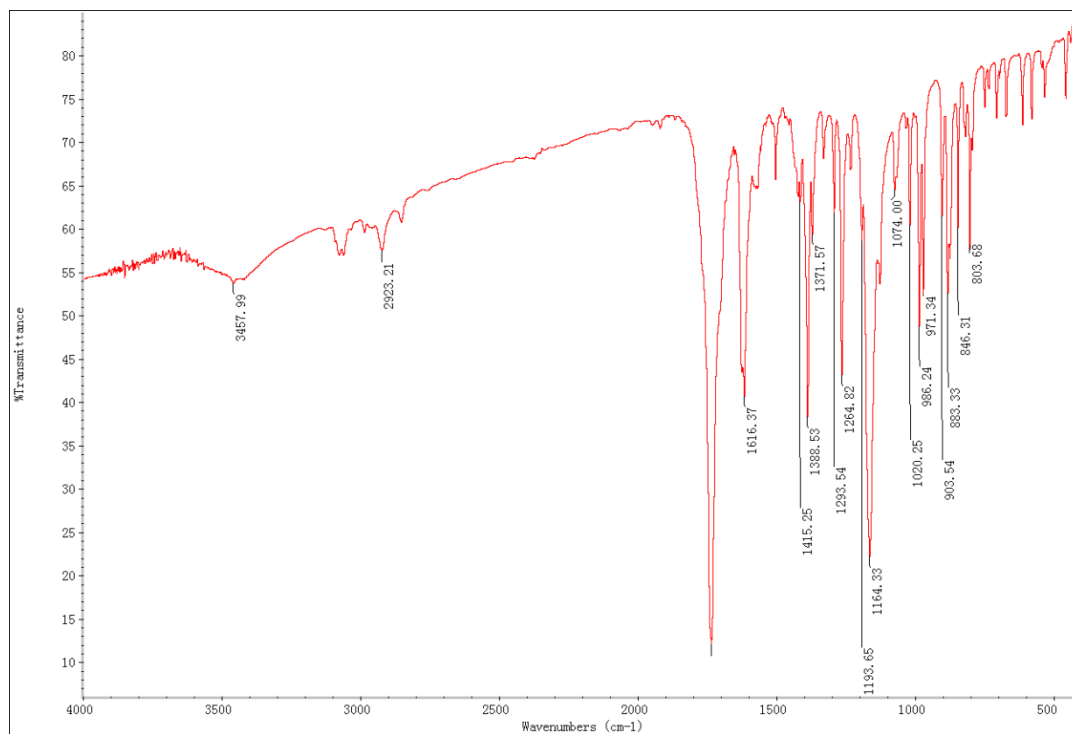


Fig S3. IR spectrum of compound the probe.

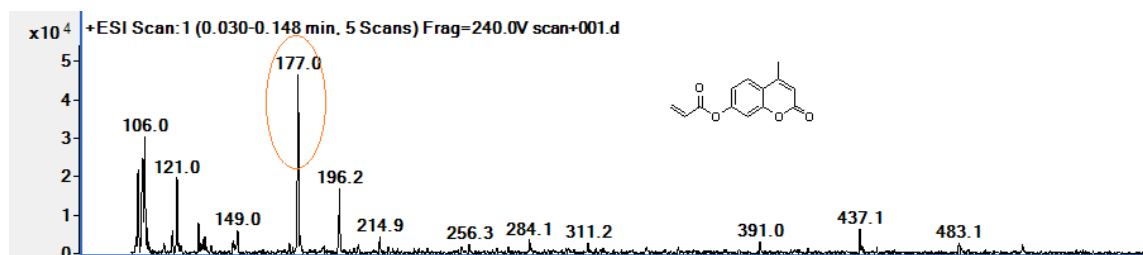
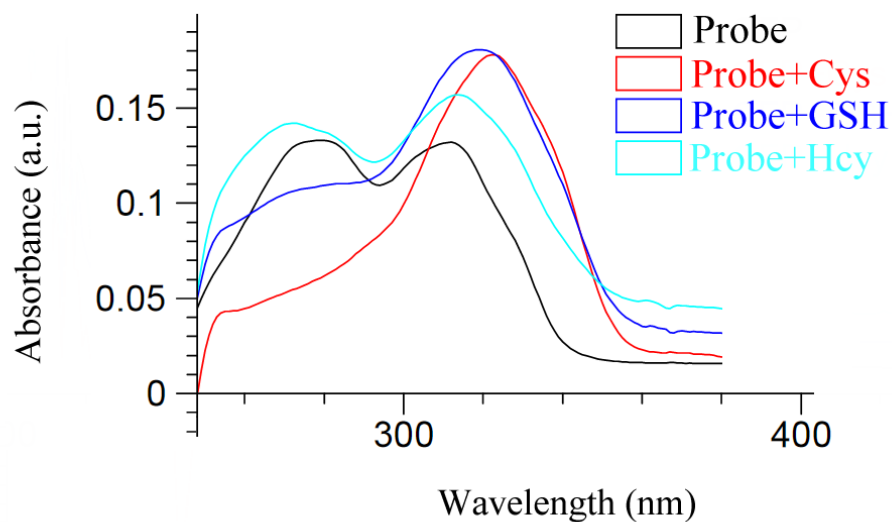
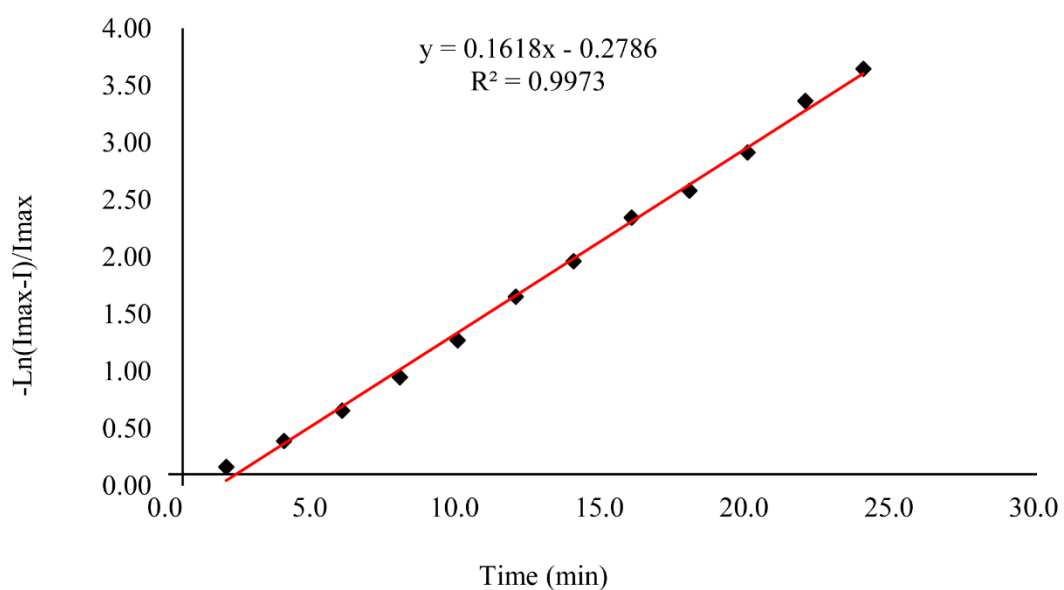


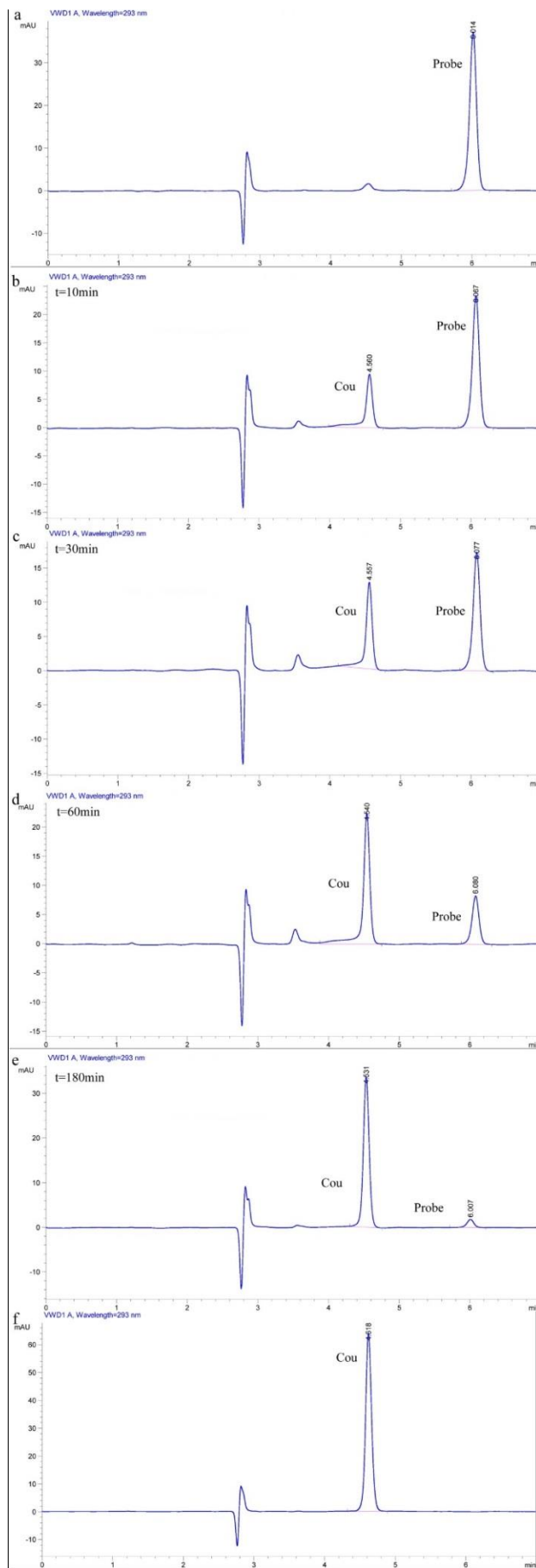
Fig S4. Mass spectrum of compound the probe.



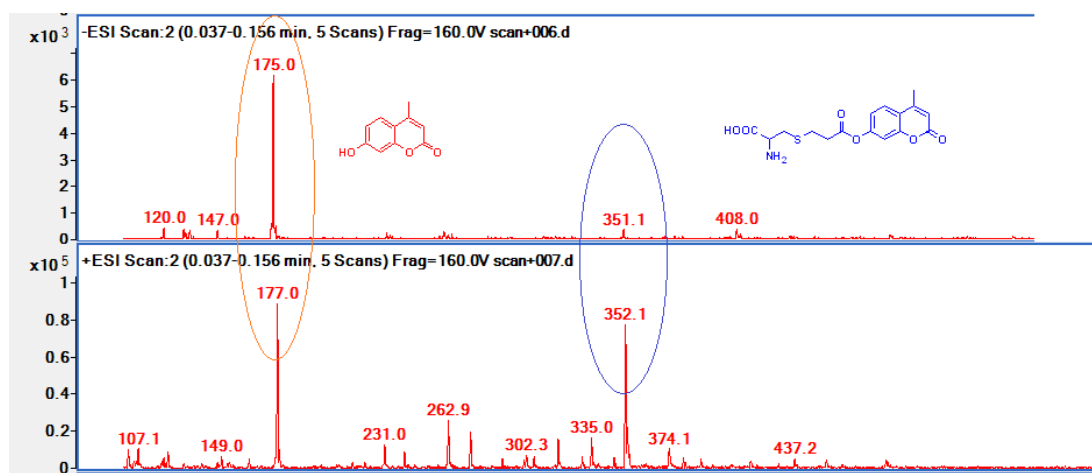
**Fig S5.** The absorption spectra of the probe and the probe added to Cys, GSH and Hcy in buffered solution (PBS:DMSO = 6: 4, PH = 7.4) at room temperature.



**Fig S6.** Pseudo-first-order rate figures of 10  $\mu\text{M}$  probe in the presence of 50  $\mu\text{M}$  Cys.



**Figure S7.** HPLC chromatogram in the reaction of probe (a):probe (50  $\mu$ M) in PBS (pH 7.4) buffer; (b): probe (50  $\mu$ M) reacted with Cys (10 equiv.) for 10min; (c): probe (50  $\mu$ M) reacted with Cys (10 equiv.) for 30min; (d): probe (50  $\mu$ M) reacted with Cys (10 equiv.) for 60min; (e): probe (50  $\mu$ M) reacted with Cys (10 equiv.) for 160min; (f): Coumarin (50  $\mu$ M) in PBS (pH 7.4) buffer.



**Figure S8.** Mass spectrum of the crude product from the reaction of probe with Cys.