

A near infrared fluorescent probe based on ICT for monitoring mitophagy in living cells

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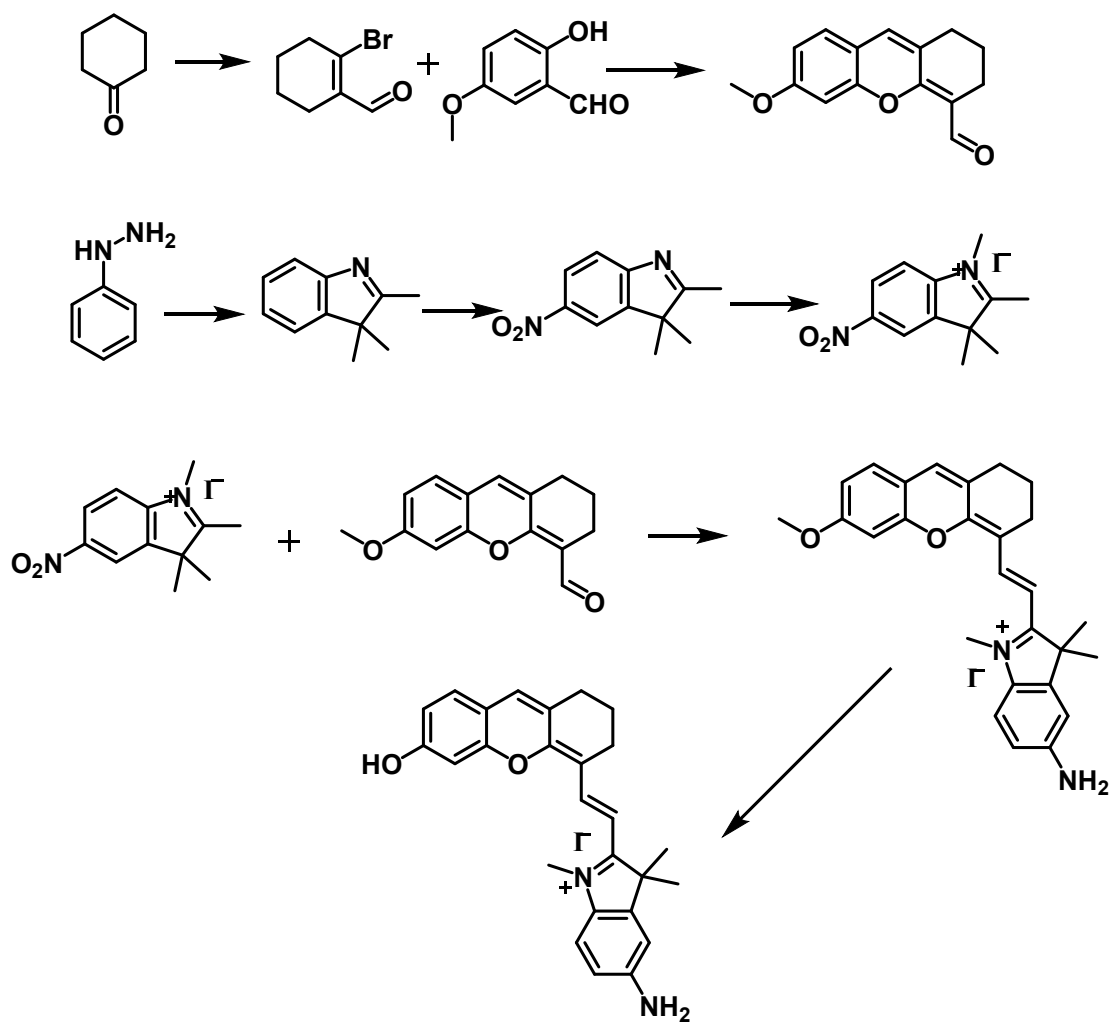
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Scheme S1. Synthetic routes for Cy-NH₂.

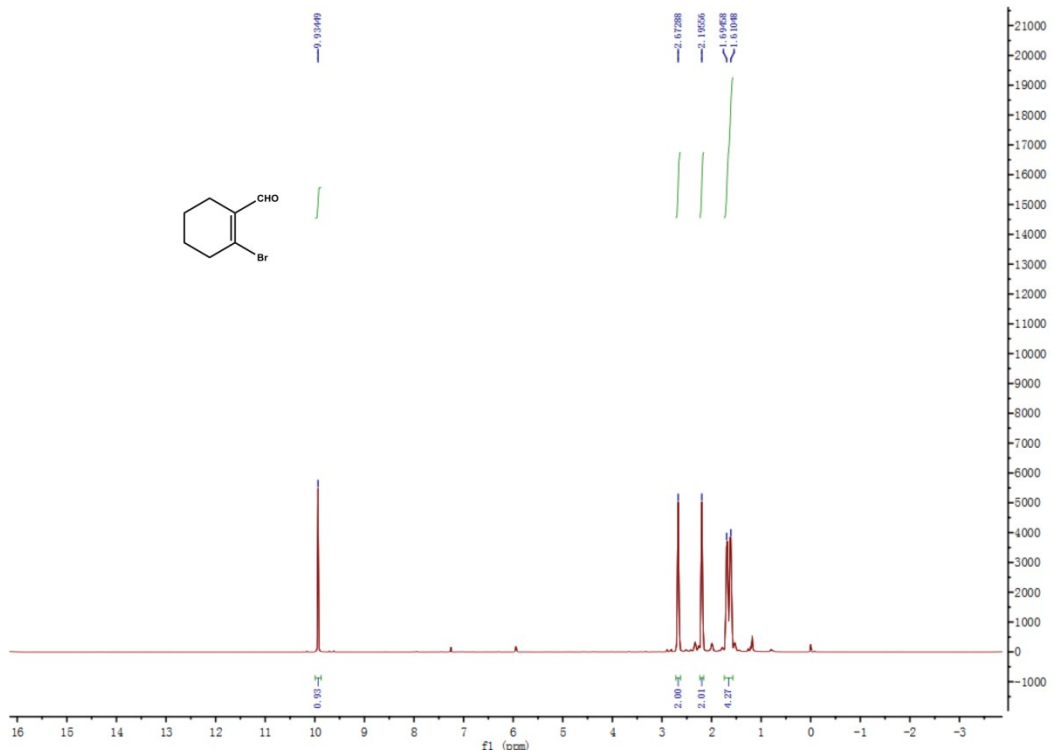


Figure S1. $^1\text{H-NMR}$ spectrum of 2-bromocyclohex-1-ene-1-carbaldehyde

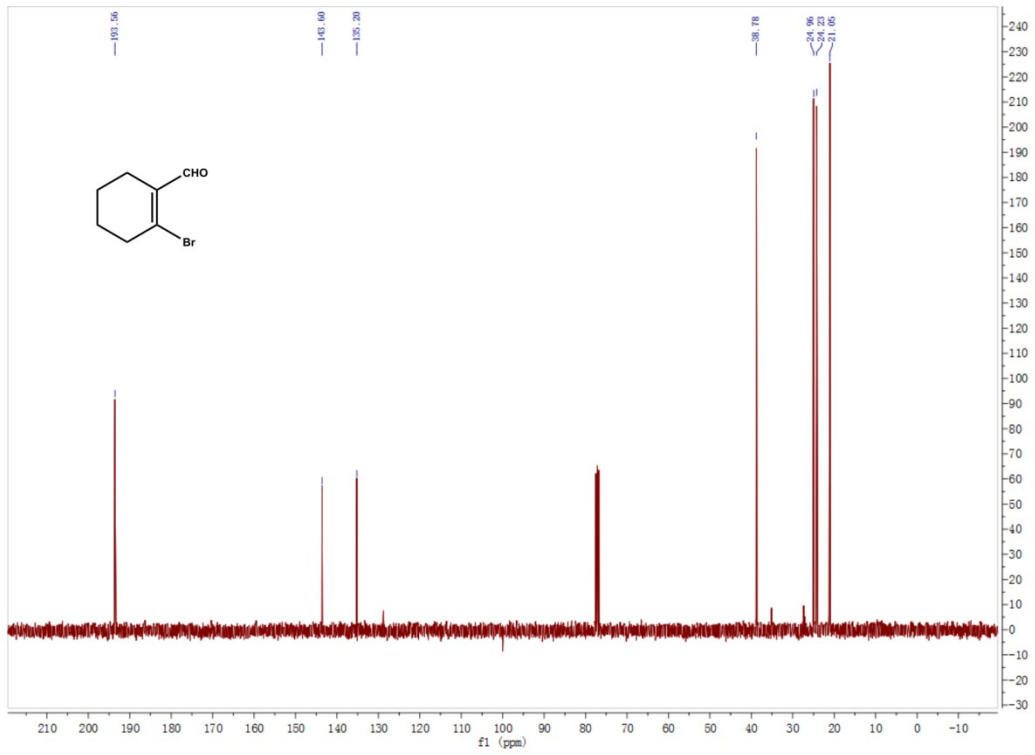


Figure S2. ^{13}C -NMR spectrum of 2-bromocyclohex-1-ene-1-carbaldehyde

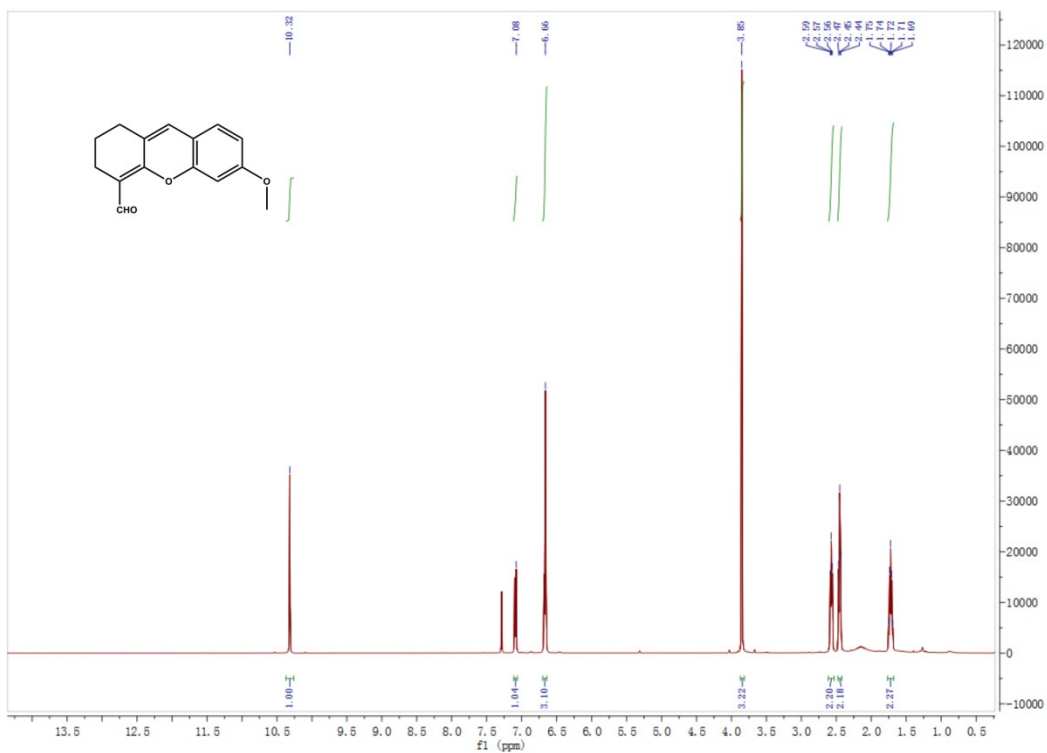


Figure S3. ¹H-NMR spectrum of 6-methoxy-2,3-dihydro-1H-xanthene-4-carbaldehyde

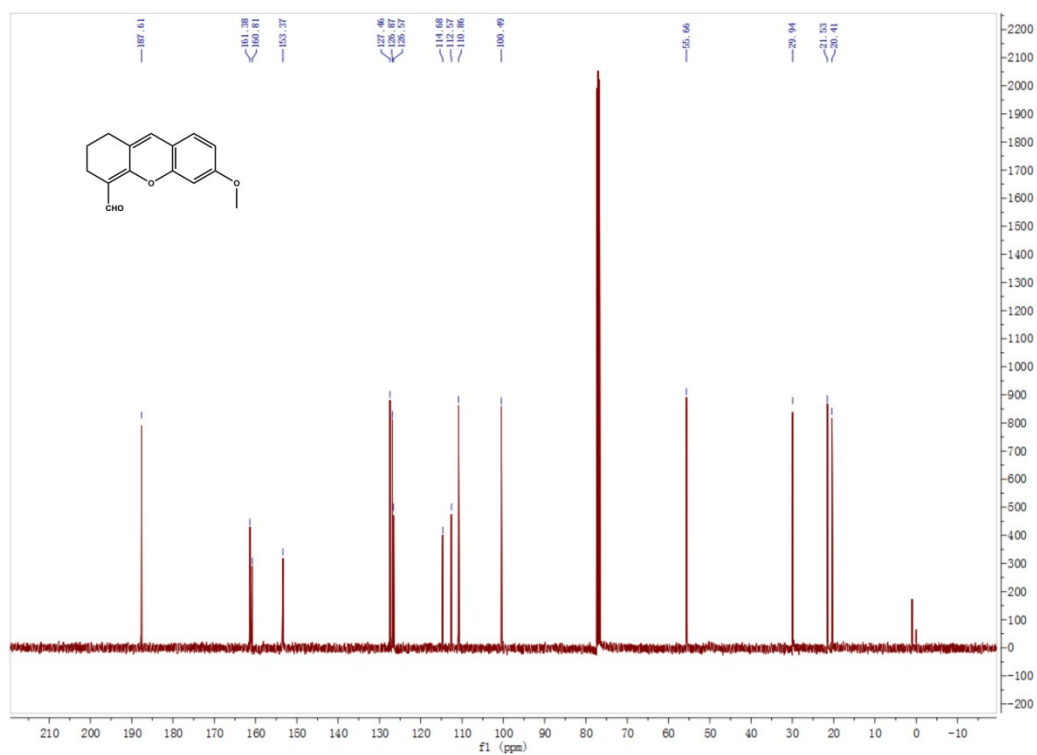


Figure S4. ^{13}C -NMR spectrum of 6-methoxy-2,3-dihydro-1H-xanthene-4-carbaldehyde

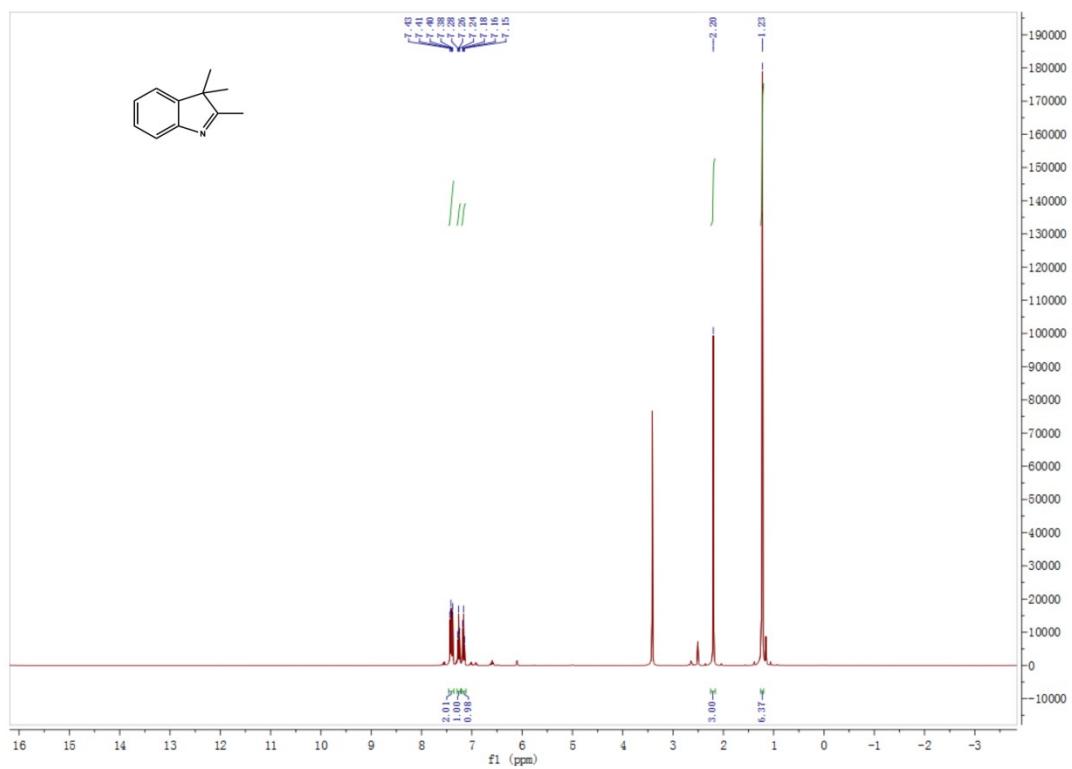


Figure S5. $^1\text{H-NMR}$ spectrum of 2,3,3-trimethyl-3H-indole

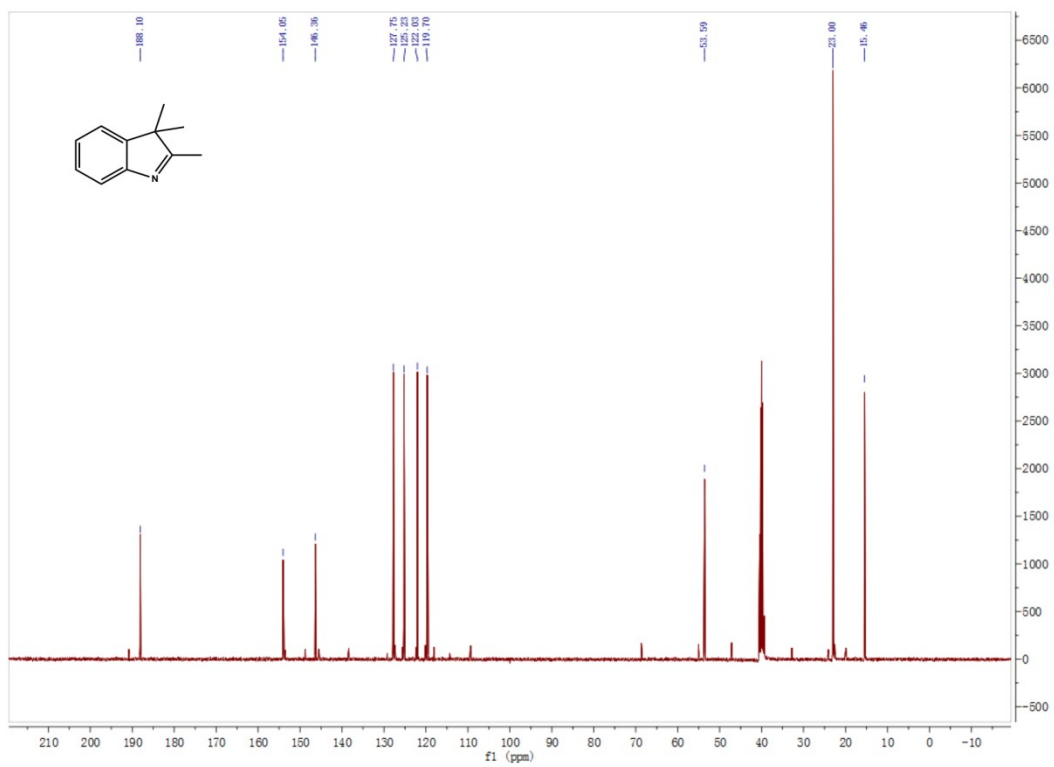


Figure S6. ^{13}C -NMR spectrum of 2,3,3-trimethyl-3H-indole

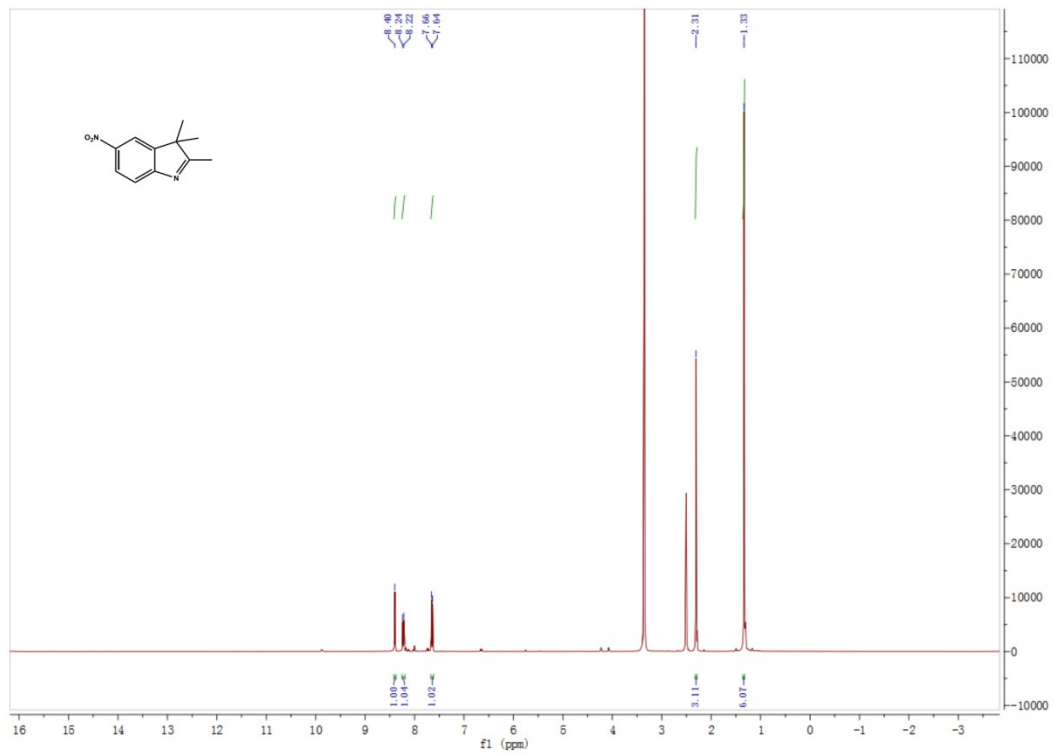


Figure S7. ¹H-NMR spectrum of 2,3,3-trimethyl-5-nitro-3H-indole

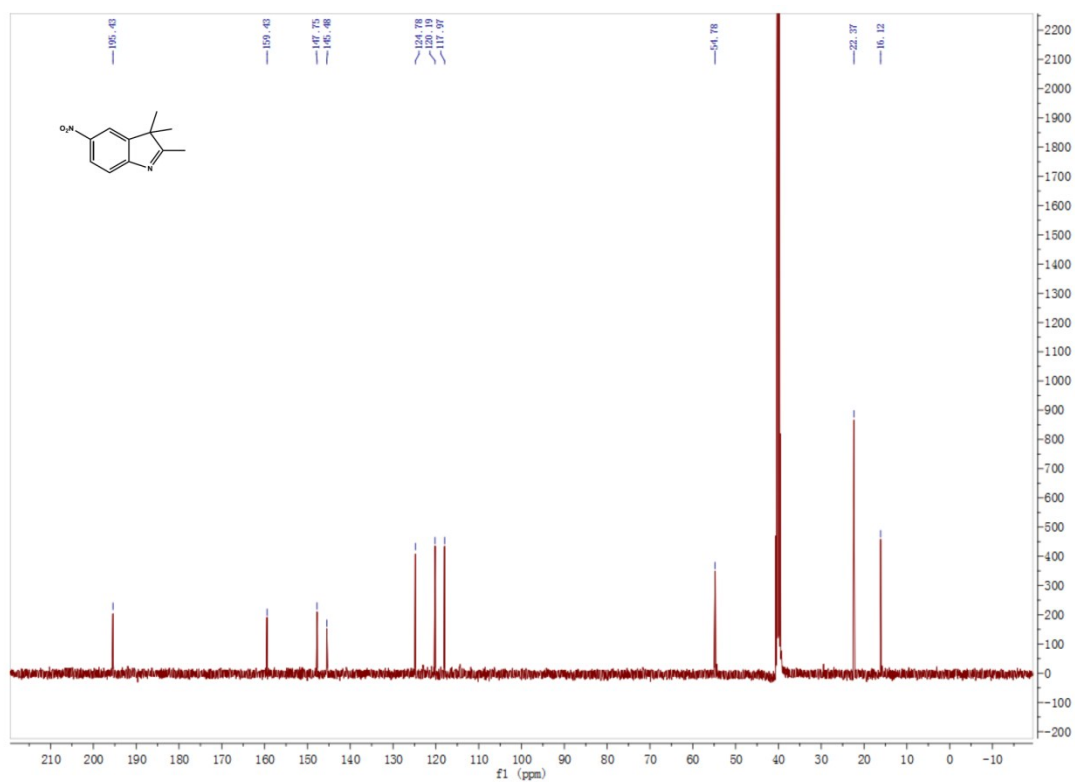


Figure S8. ^{13}C -NMR spectrum of 2,3,3-trimethyl-5-nitro-3H-indole

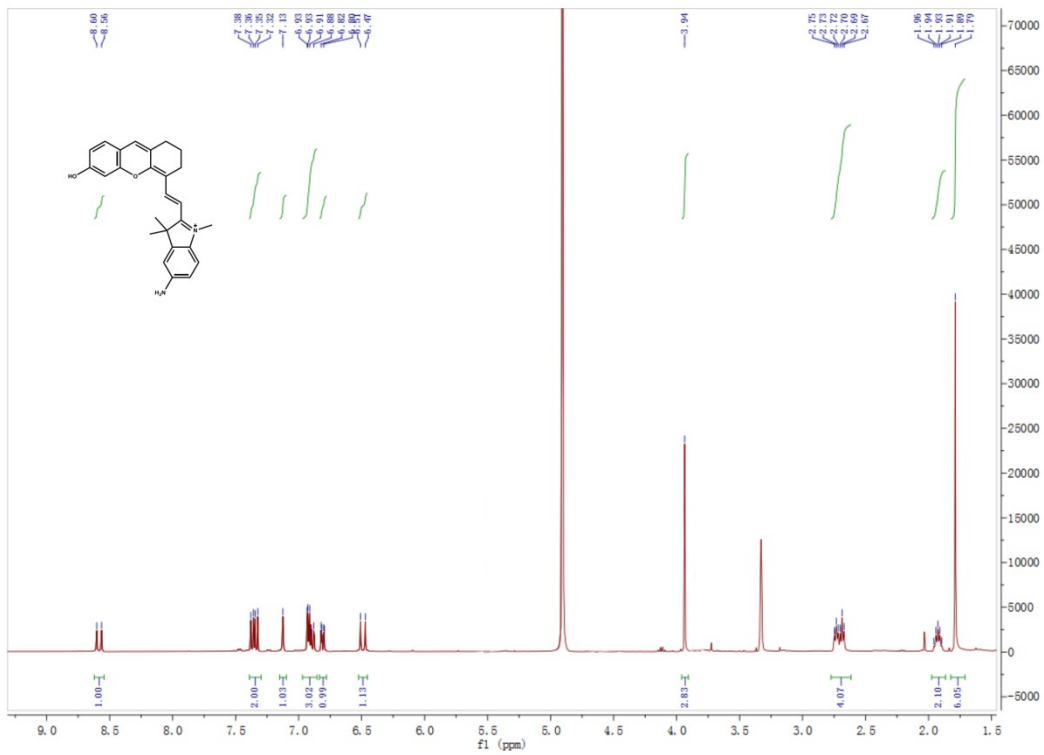


Figure S9. $^1\text{H-NMR}$ spectrum of Cy- NH_2

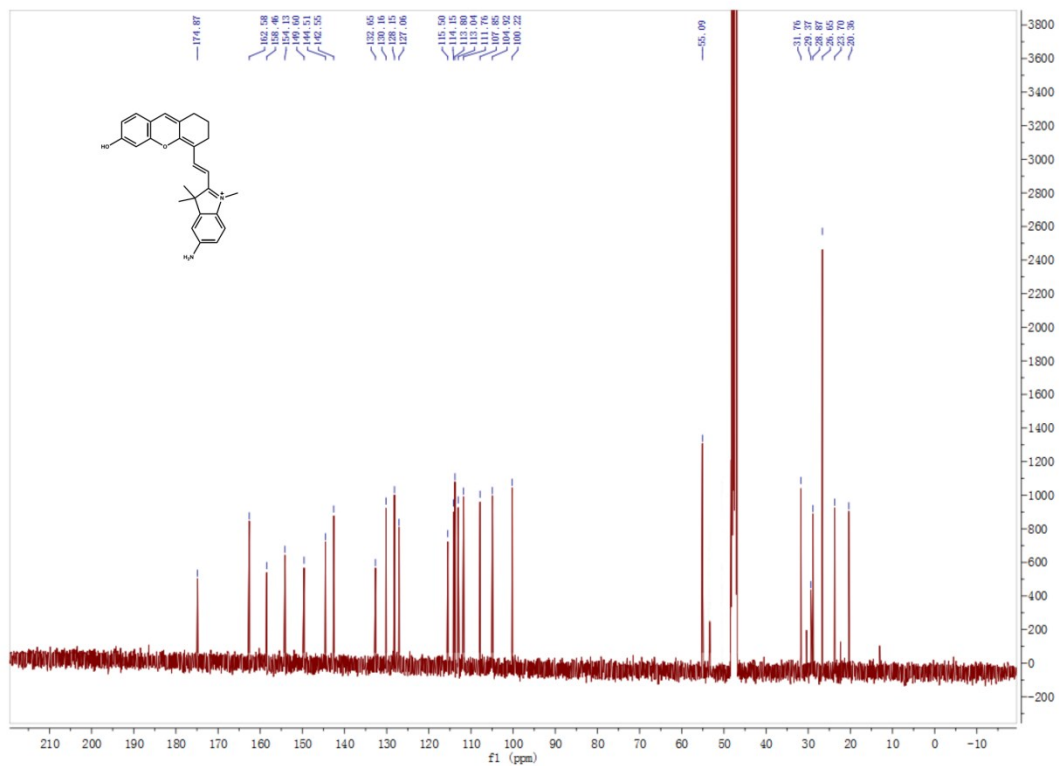


Figure S10. ^{13}C -NMR spectrum of Cy-NH₂

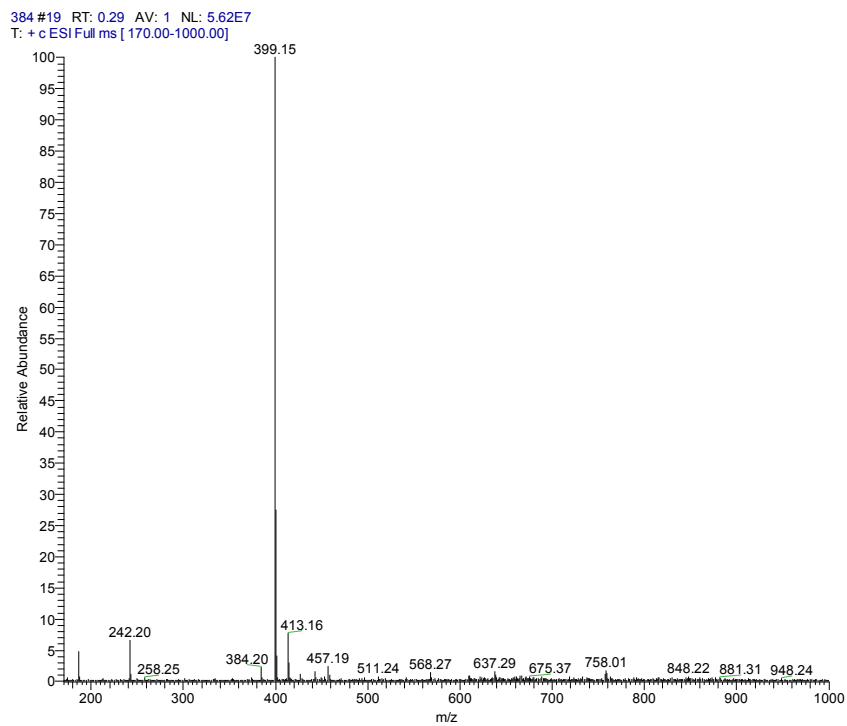


Figure S11. Mass spectrum of Cy-NH_2

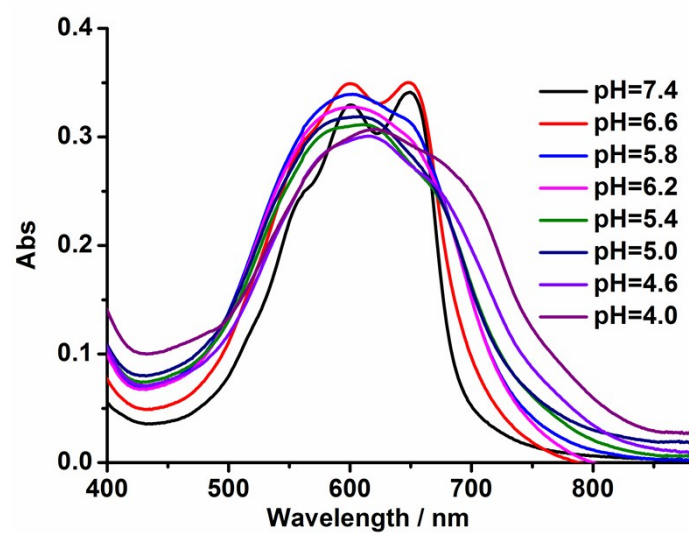


Figure S12. The absorption spectra of 10 μM probe in different pH contains 1.0% DMSO.

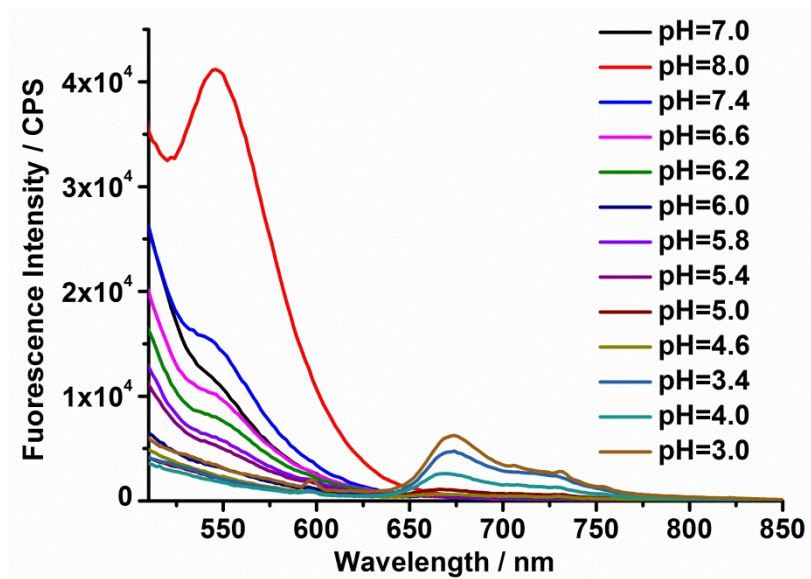


Figure S13. The fluorescence spectra of 10 μM probe in different pH contains 1.0% DMSO.

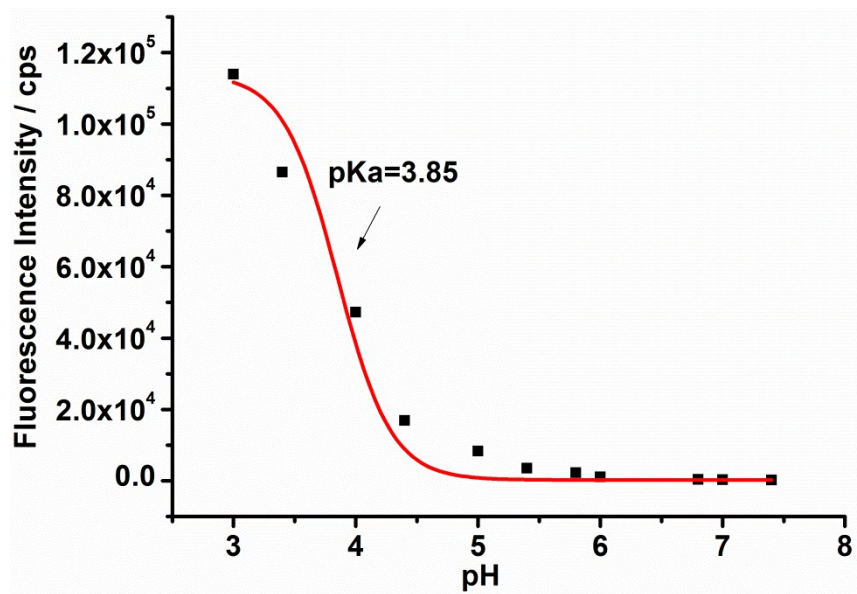


Figure S14. Sigmoidal fitting the pH-dependent fluorescence intensity at 670 nm.

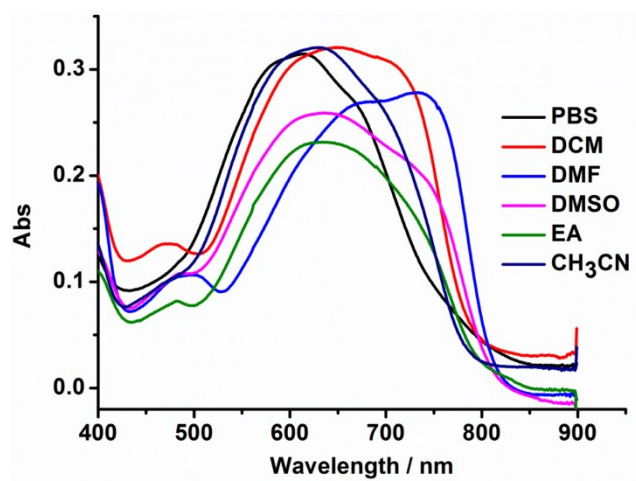


Figure S15. The absorption spectra of 10 μM probe in different solvents

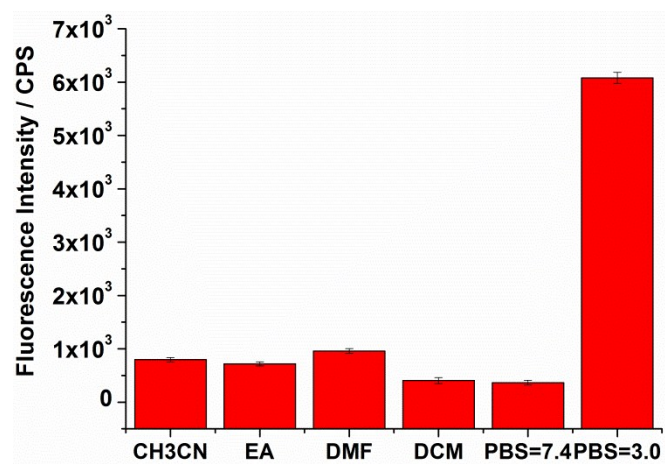


Figure S16. The fluorescence spectra of 10 μM probe in different solvents. (Em: 670 nm)

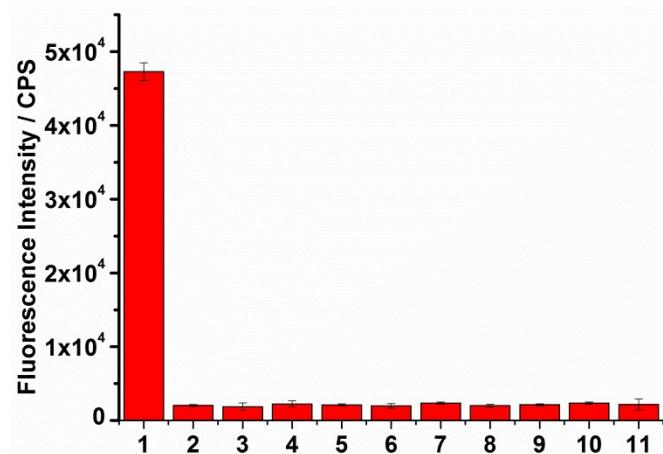


Figure S17. The fluorescence spectra of 10 μ M probe in different compounds. 1. pH=4.0; 2. Cys (200 μ M); 3. Hcy (200 μ M); 4. GSH (5.0 mM); 5. Leu (100 μ M); 6. H₂O₂ (100 μ M); 7. ClO⁻ (100 μ M); 8. Na⁺ (100 mM); 9. Fe²⁺ (100 μ M); 10. K⁺ (5.0 mM) and 11. Cl⁻ (100 mM).

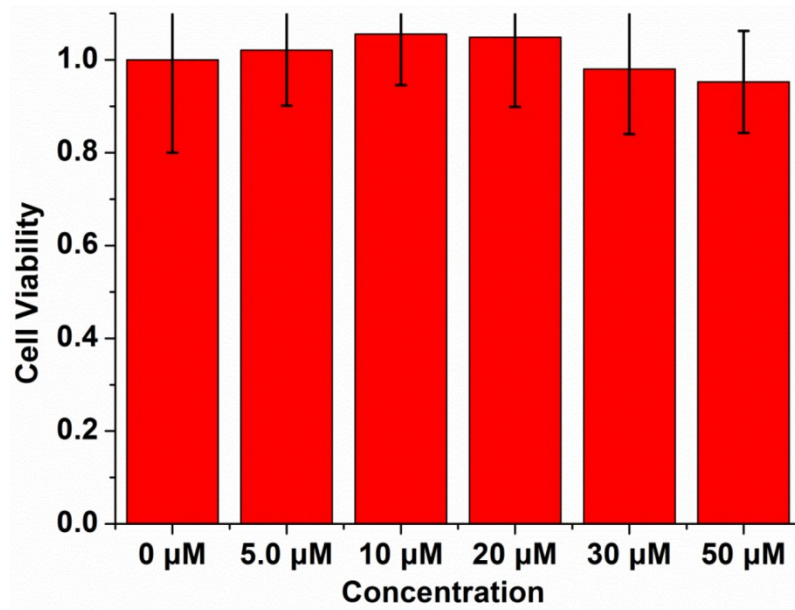


Figure S18. Cell viability estimated by MTT assay. MCF-7 cells were incubated with different concentrations of Cy-NH₂ (0-50 μM) for 24 h.

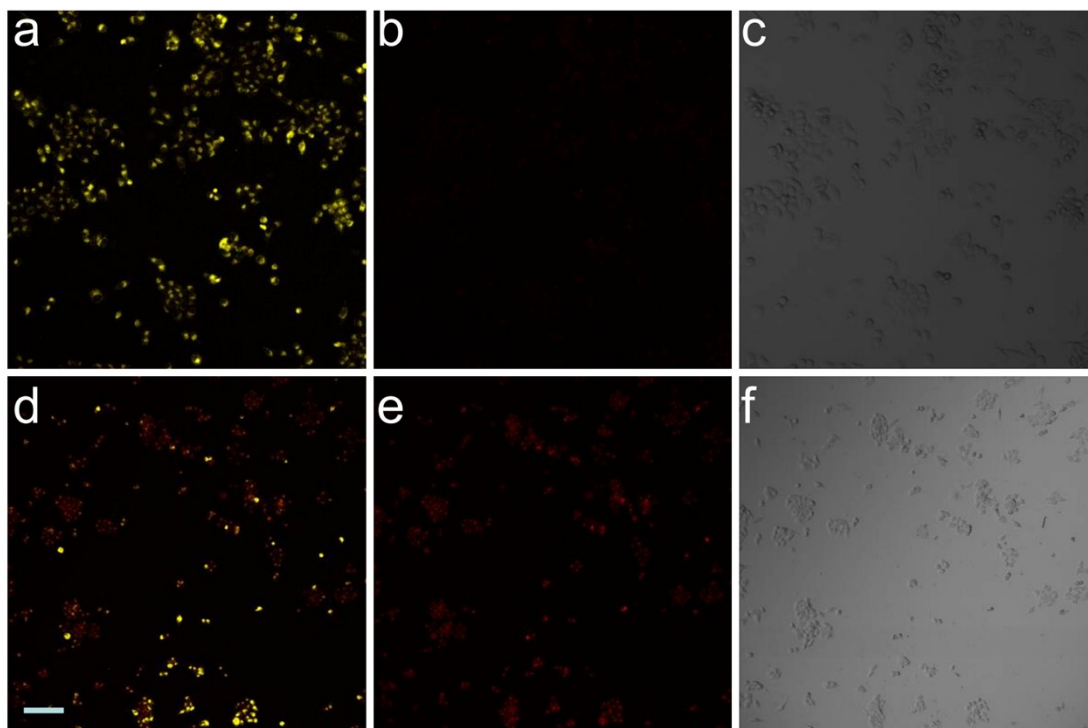


Figure S19. Confocal fluorescence images of cells before (a-c) and after starvation-induced autophagy at 2 h (d-e). ($\lambda_{\text{ex}}=488\text{ nm}$, $\lambda_{\text{em}}=530\text{-}580\text{ nm}$; $\lambda_{\text{ex}}=639\text{ nm}$, $\lambda_{\text{em}}=650\text{-}750\text{ nm}$; scale bar= $20\text{ }\mu\text{m}$.)

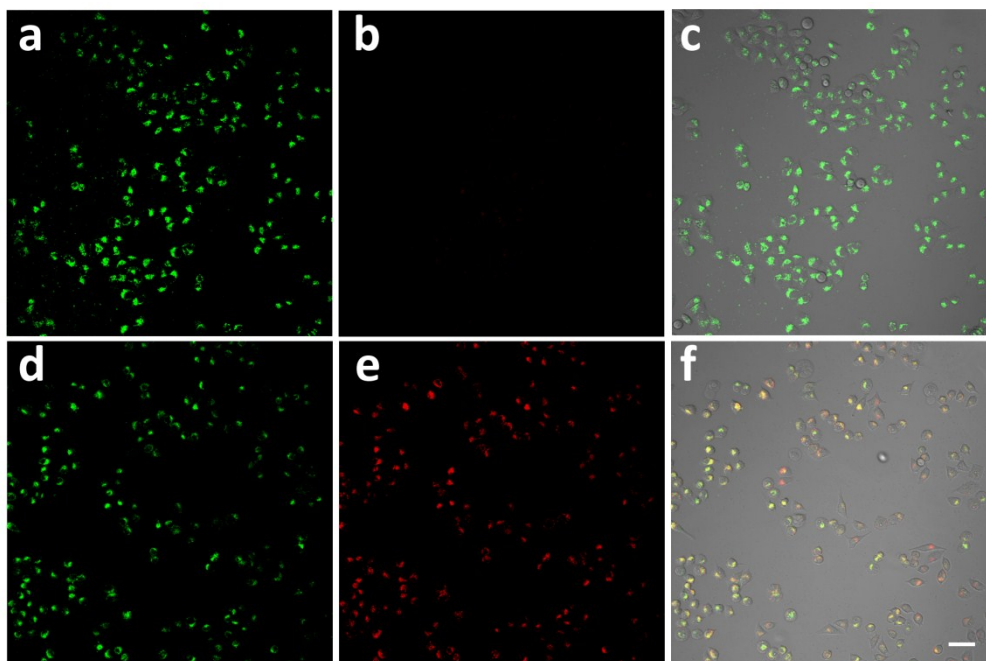


Figure S20. Confocal fluorescence images of cells incubated with NH₂-Cy in normal medium (a-c) and the autophagy caused by rapamycin(d-f) ((a and d, $\lambda_{\text{ex}}= 488 \text{ nm}$, $\lambda_{\text{em}}= 530\text{-}580 \text{ nm}$), (b and e, $\lambda_{\text{ex}}= 639 \text{ nm}$, $\lambda_{\text{em}}= 650\text{-}750 \text{ nm}$), (c and f are merging of the green channel, red channel and bright field) scale bar= $20 \mu\text{m}$.)

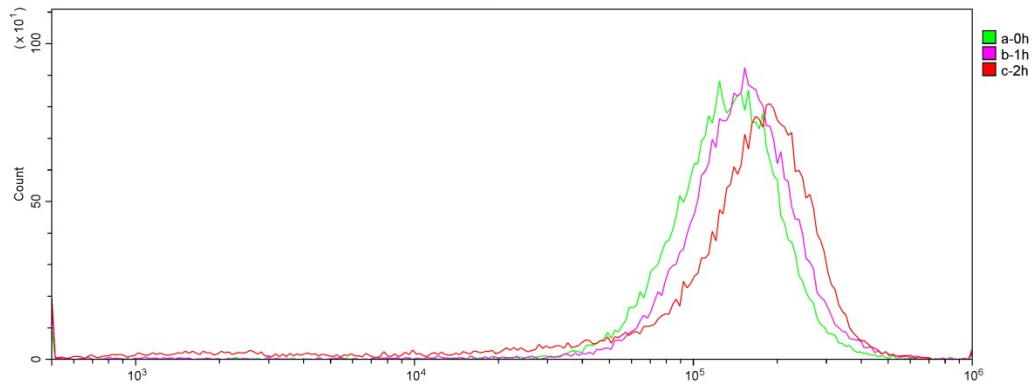


Figure S21. Flow Cytometric Assay. The green line represents normal culture of cells after incubating the probe; the purple line represents starvation-induced autophagy for 1 h; the red line represents starvation-induced autophagy for 2 h.

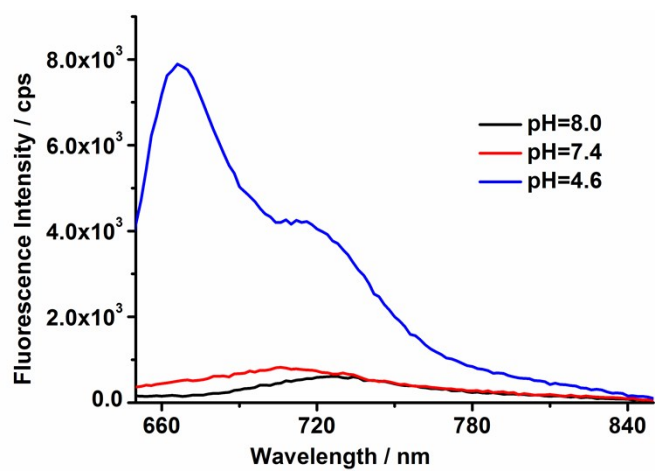


Figure S22. The fluorescent spectra of 10 μM probe in different pH contains 1.0% DMSO