

Electronic Supporting Information

A water-soluble fluorescent pH probe and its application for monitoring lysosomal pH changes in living cells

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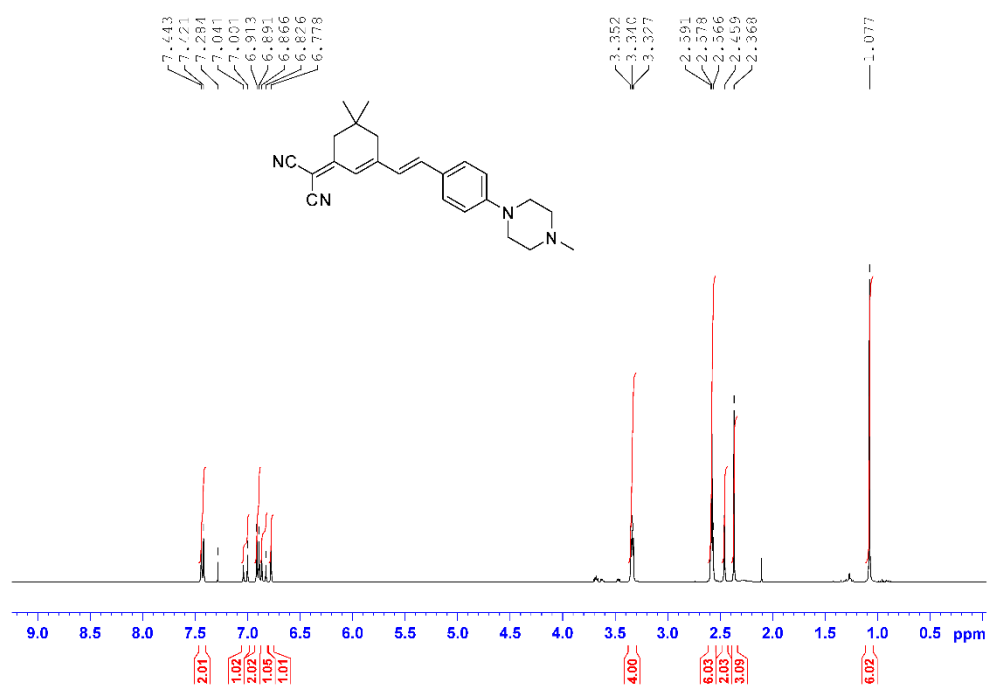


Figure S1. ¹H NMR spectrum of probe DCM-MP.

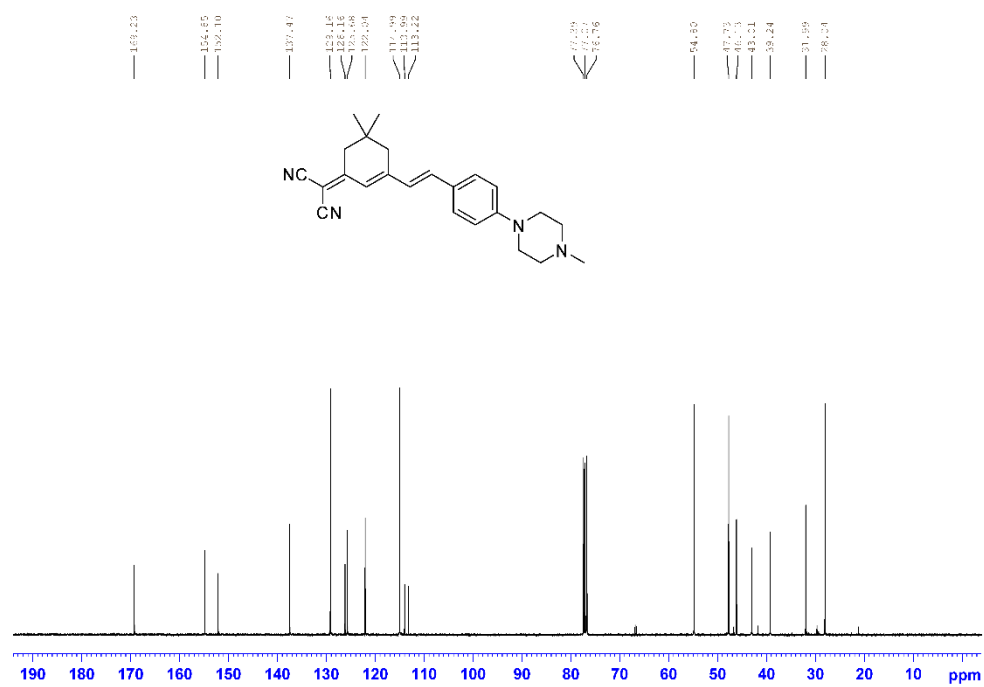


Figure S2. ¹³C NMR spectrum of probe DCM-MP.

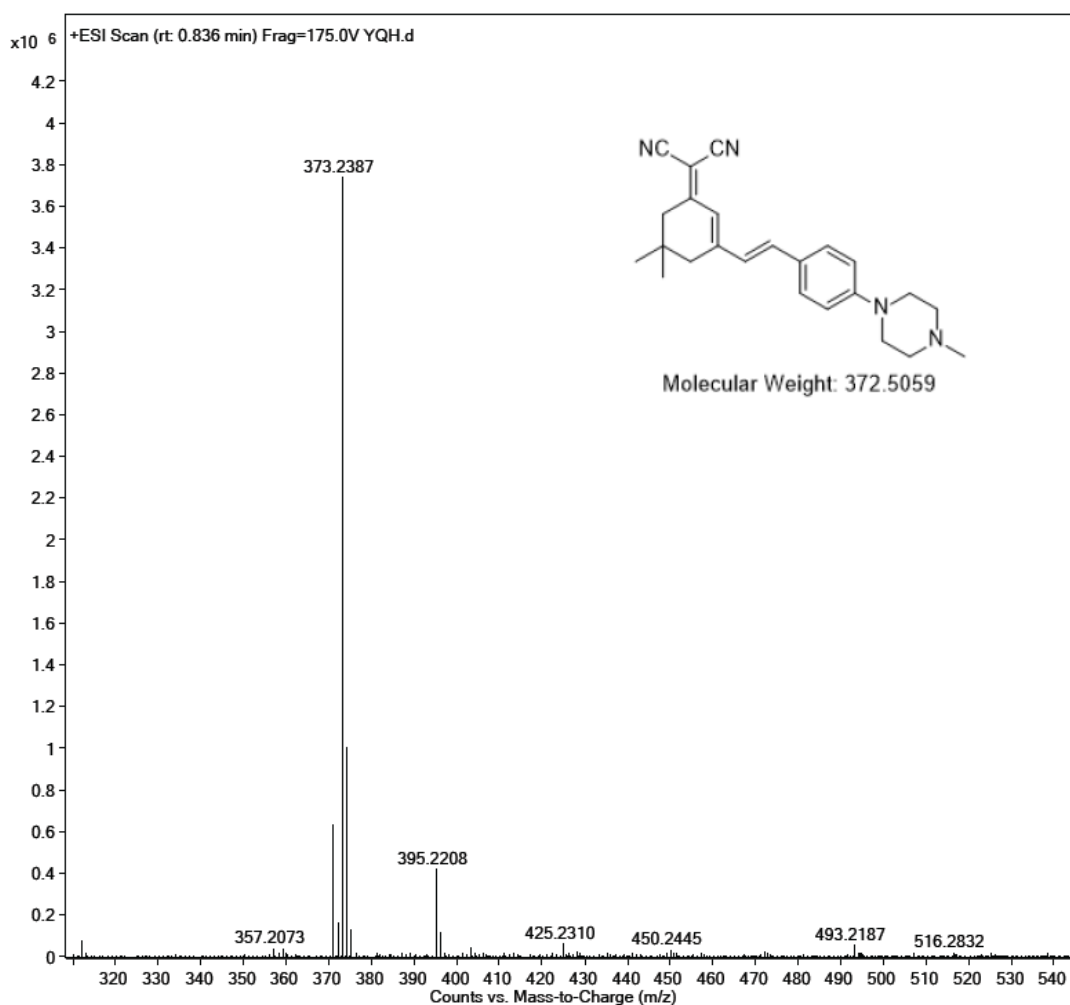


Figure S3. HRMS spectrum of probe **DCM-MP**.

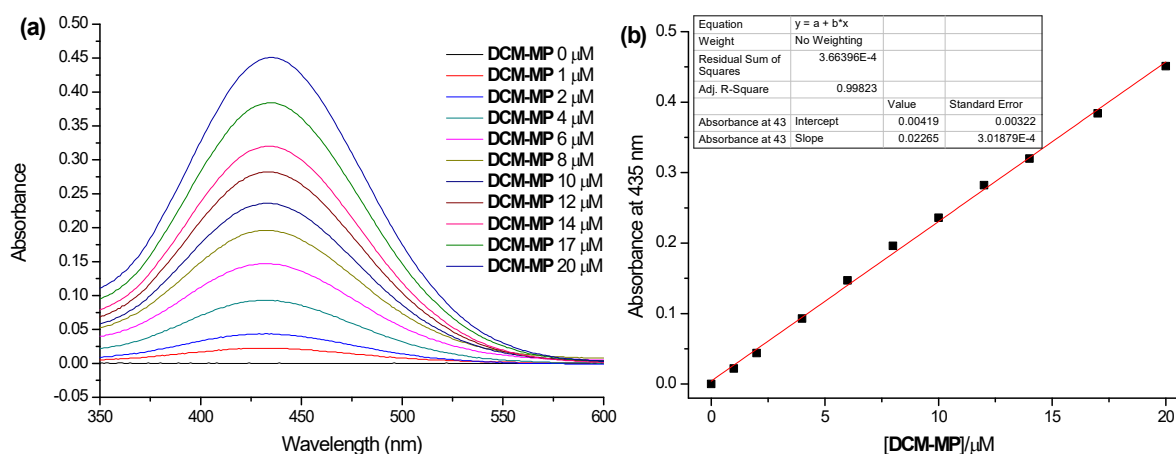


Figure S4. (a) Absorption spectra of **DCM-MP** in Britton-Robinson buffer (40 mM, pH = 4.0) at various concentration. (b) Plot of absorbance of **DCM-MP** in Britton-Robinson buffer (40 mM, pH = 4.0) at 440 nm as a function of concentration.

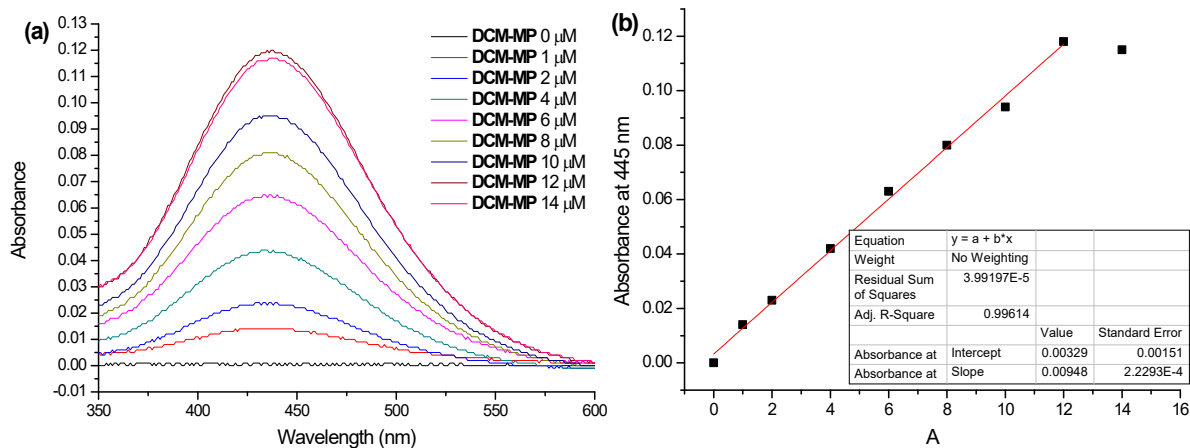


Figure S5. (a) Absorption spectra of **DCM-MP** in Britton-Robinson buffer (40 mM, pH = 8.0) at various concentration. (b) Plot of absorbance of **DCM-MP** in Britton-Robinson buffer (40 mM, pH = 8.0) at 445 nm as a function of concentration.

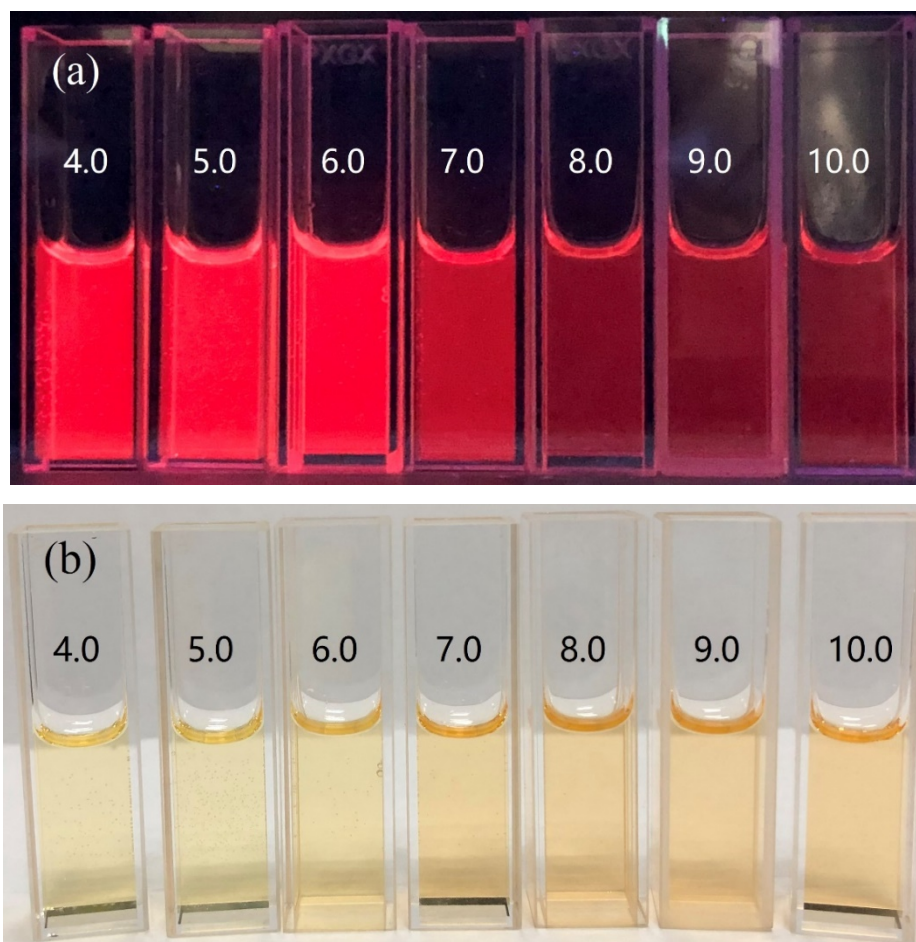


Figure S6. Fluorescence (a) and visual (b) color change of **DCM-MP** (10 μM) in Britton-Robinson buffer (40 mM) at various pH (from left to right: pH = 4.0, 5.0, 6.0, 7.0, 8.0, 9.0 and 10.0, respectively).

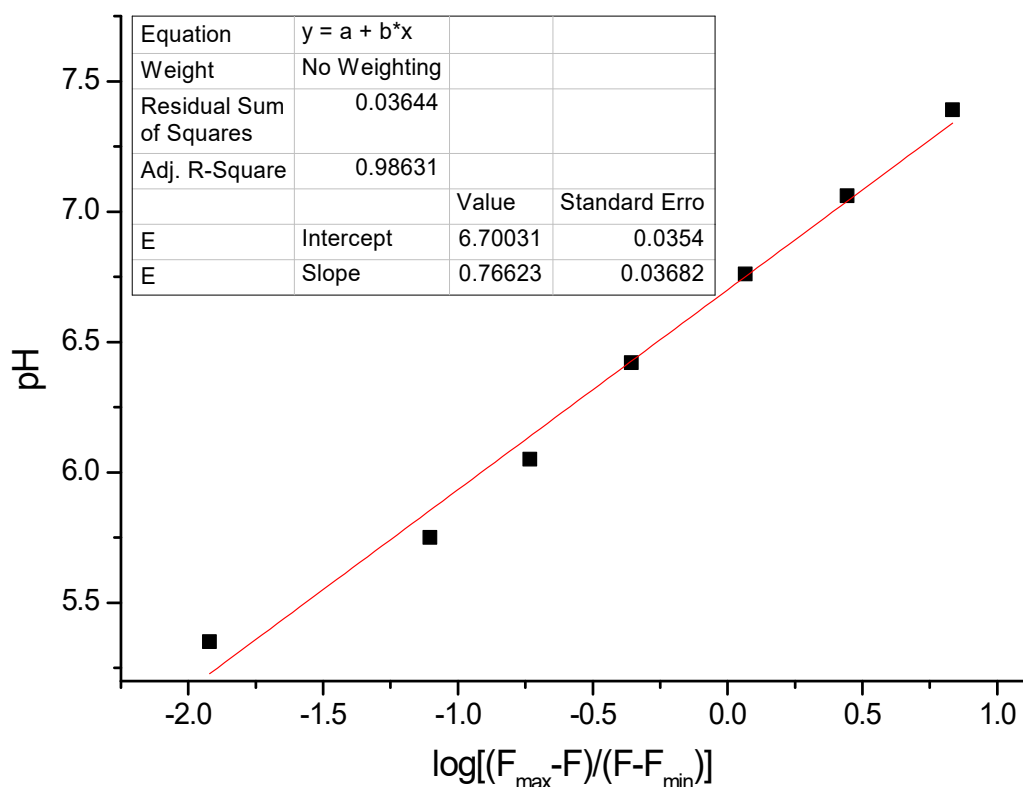


Figure S7. Plot of pH vs $\log[(F_{\max} - F)/(F - F_{\min})]$ using the Henderson-Hasselbach equation: $\log[(F_{\max} - F)/(F - F_{\min})] = \text{pK}_a - \text{pH}$, where F is the observed fluorescence intensity at 640 nm of **DCM-MP**. The y-intercept is the pK_a value (6.70 ± 0.04) of **DCM-MP**.

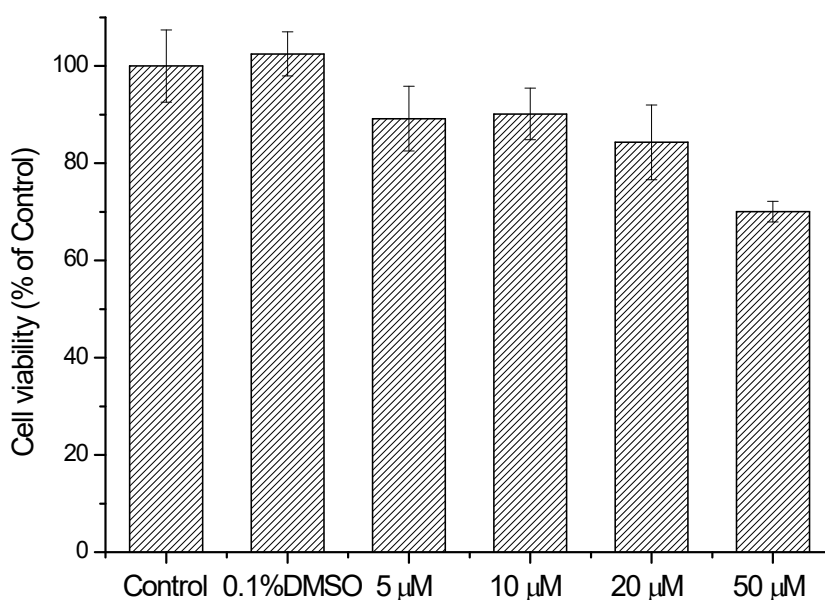


Figure S8. Cell viability of U87 cells treated with various concentrations (0, 5, 10, 20, 50 μM) of **DCM-MP** for 6 h. Cell viability was assessed by using the MTT assay. The results were presented as means \pm SE with replicates n = 3.

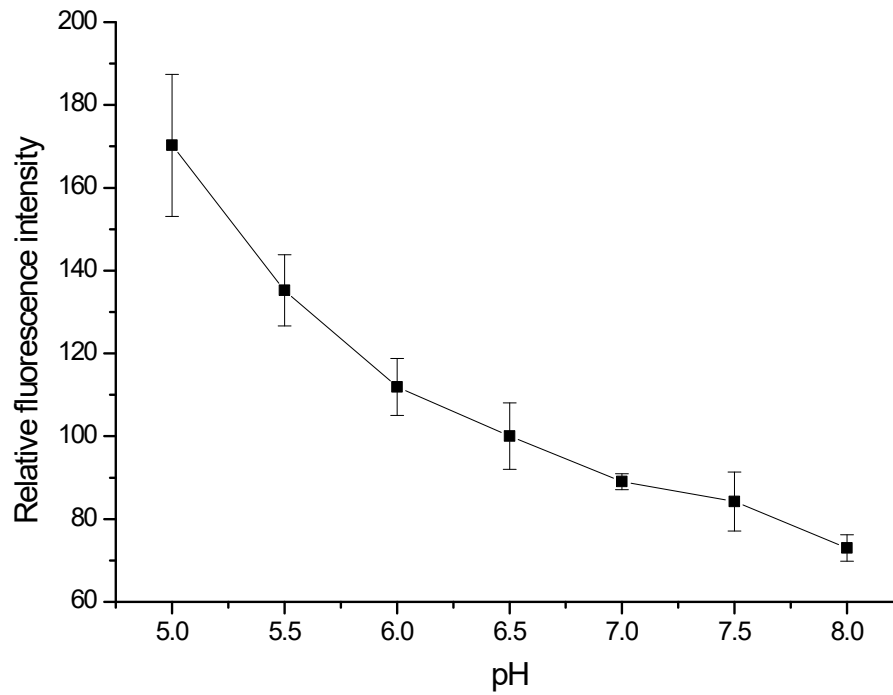


Figure S9. Plot of relative fluorescence intensity as a function of pH in U87 cells (Data were generated from Figure 7). Relative fluorescence intensity was analyzed by the Image J. The results were presented as means \pm SE with replicates $n = 3$.