Supporting Information

Imaging Stressed Organelle via Sugar-conjugated Color-Switchable pH Sensors

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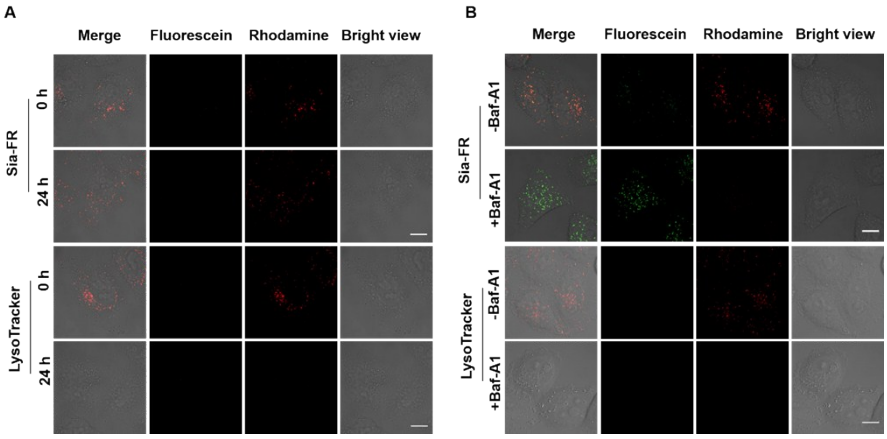

Fig. S1 Acidity-independent retention of Sia-FR in lysosomes. (A) HeLa cells prestained with Sia-FR (20 μM) or LysoTracker Red (1 μM) were further incubated in fresh DMEM for 24 h before analysis. (B) HeLa cells prestained with Sia-FR (20 μM) or LysoTracker Red (1 μM) were further incubated in DMEM spiked with or without Baf-A1 (20 nM) for 24 h prior to confocal fluorescence microscopy analysis. Scale bars, 10 μm.

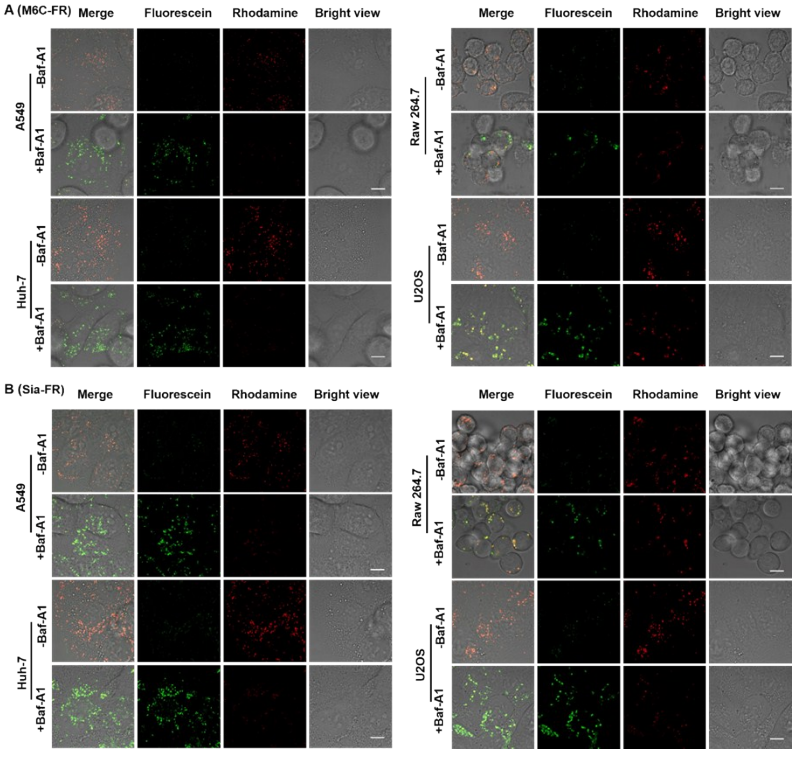

Fig. S2 Acidity-independent retention of M6C-FR (A) and Sia-FR (B) in different cell lines. HeLa cells prestained with M6C-FR or Sia-FR (20 μM) were further incubated in DMEM spiked with or without Baf-A1 (20 nM) for 24 h prior to confocal fluorescence microscopy analysis. Scale bars, 10 μm.

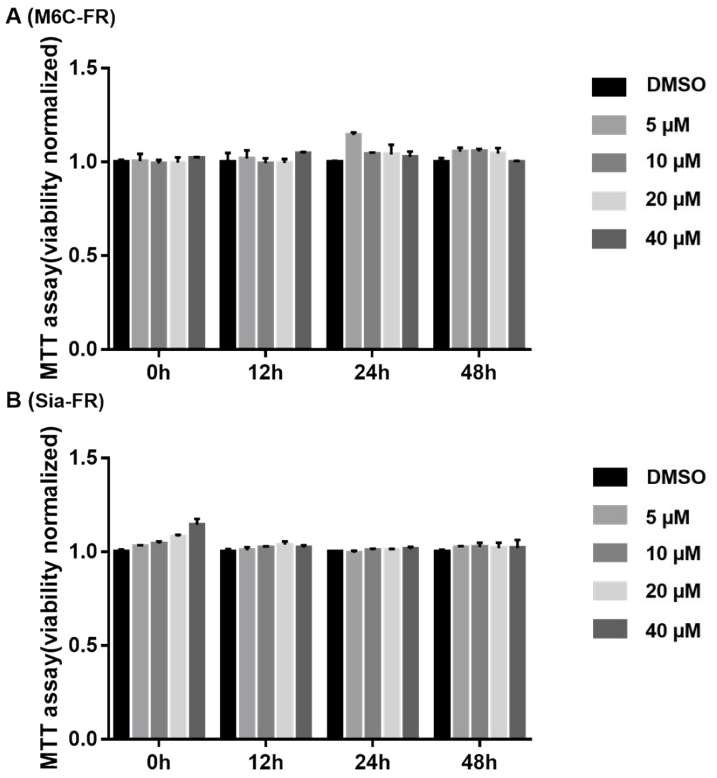

Fig. S3 Cytotoxicity of M6C-FR and Sia-FR. HeLa cells prestained with M6C-FR (A) or Sia-FR (B) (0-40 μM) for 0-48 h. At indicated time points, the cells were determined for cell viability by MTT assay.

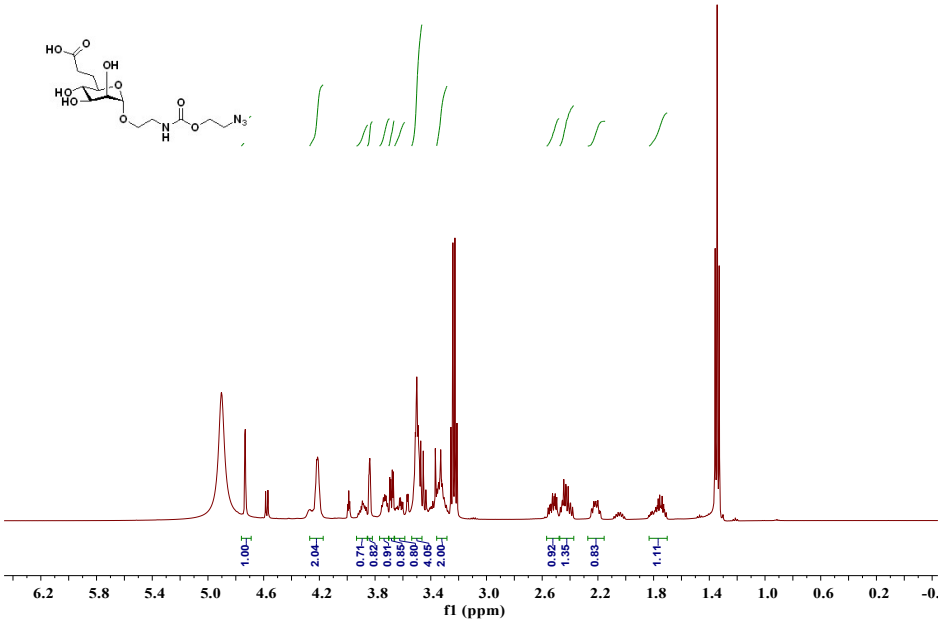

Fig. S5 ^{1}H NMR spectrum of ^{Az}M6C ($CDCl_3$).

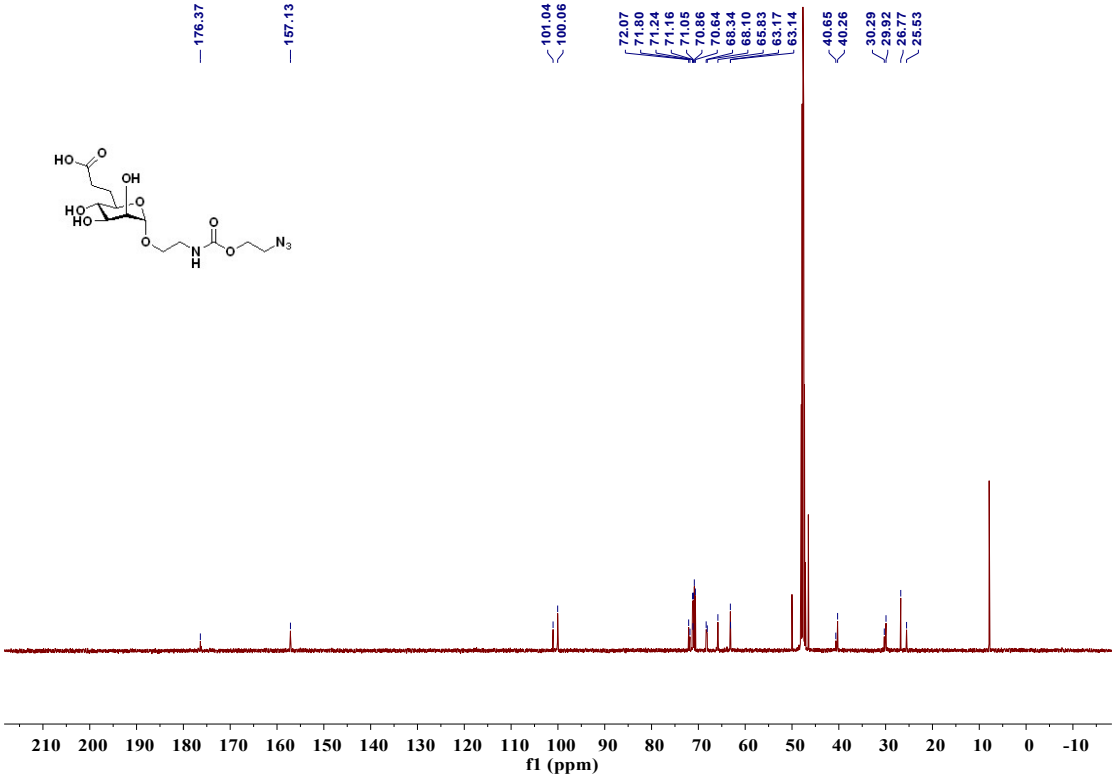

Fig. S6 ^{13}C NMR spectrum of ^{Az}M6C ($CDCl_3$).

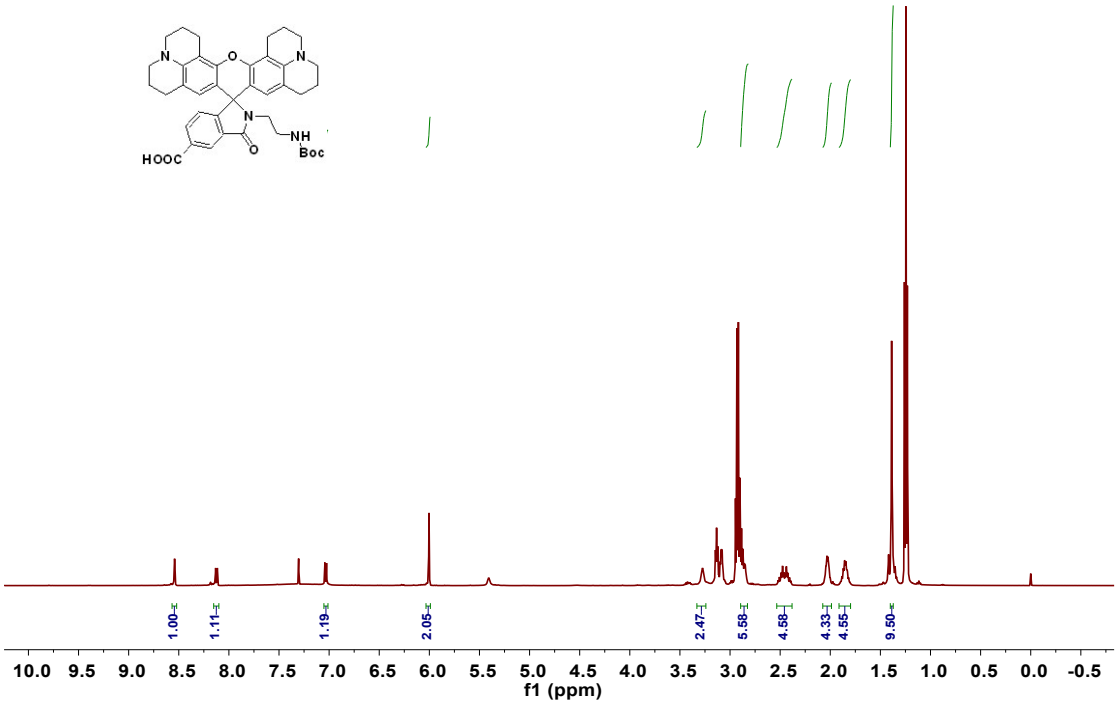

Fig. S7 ^{1}H NMR spectrum of **S1** ($CDCl_3$).

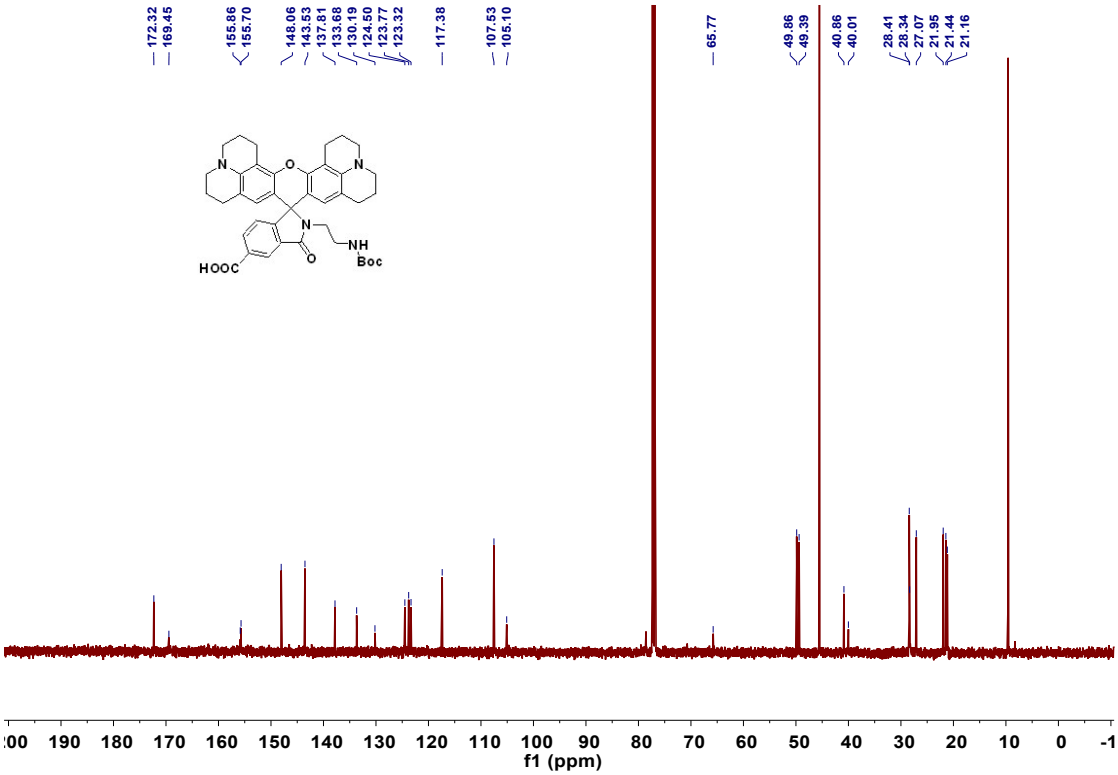

Fig. S8 ^{13}C NMR spectrum of **S1** ($CDCl_3$).

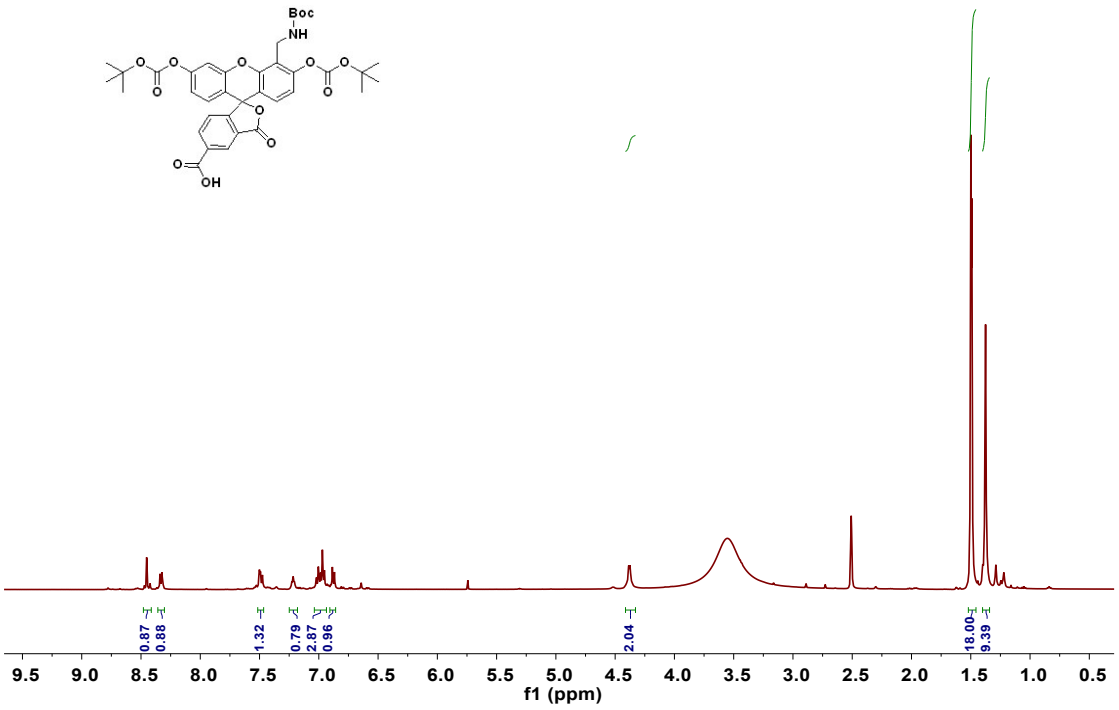

Fig. S9 ^{1}H NMR spectrum of **S5** (DMSO-d_6).

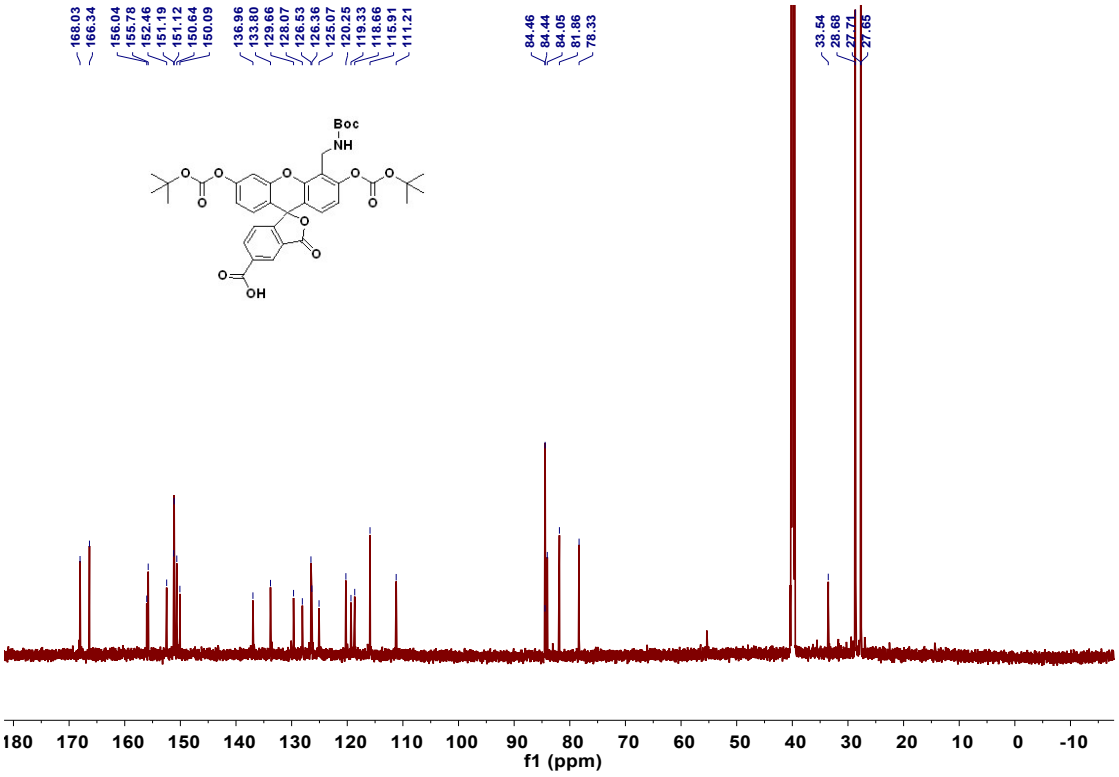

Fig. S10 ^{13}C NMR spectrum of **S5** (DMSO-d_6).

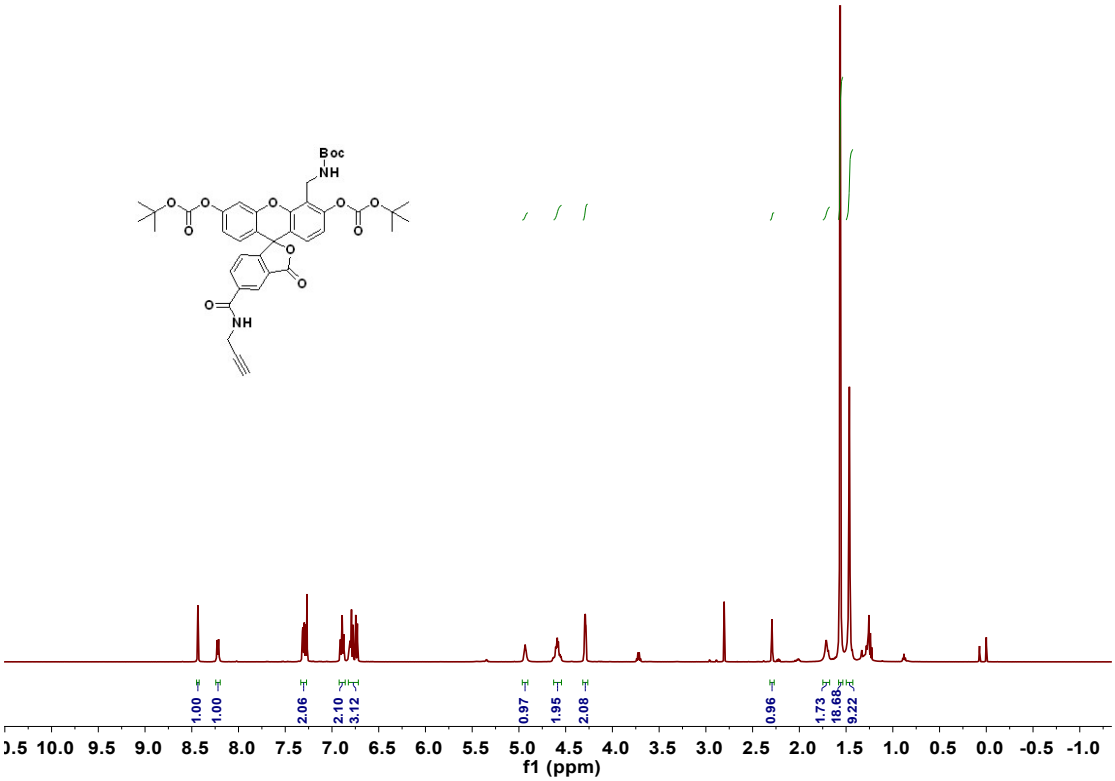

Fig. S11 ^{1}H NMR spectrum of **S6** ($CDCl_3$).

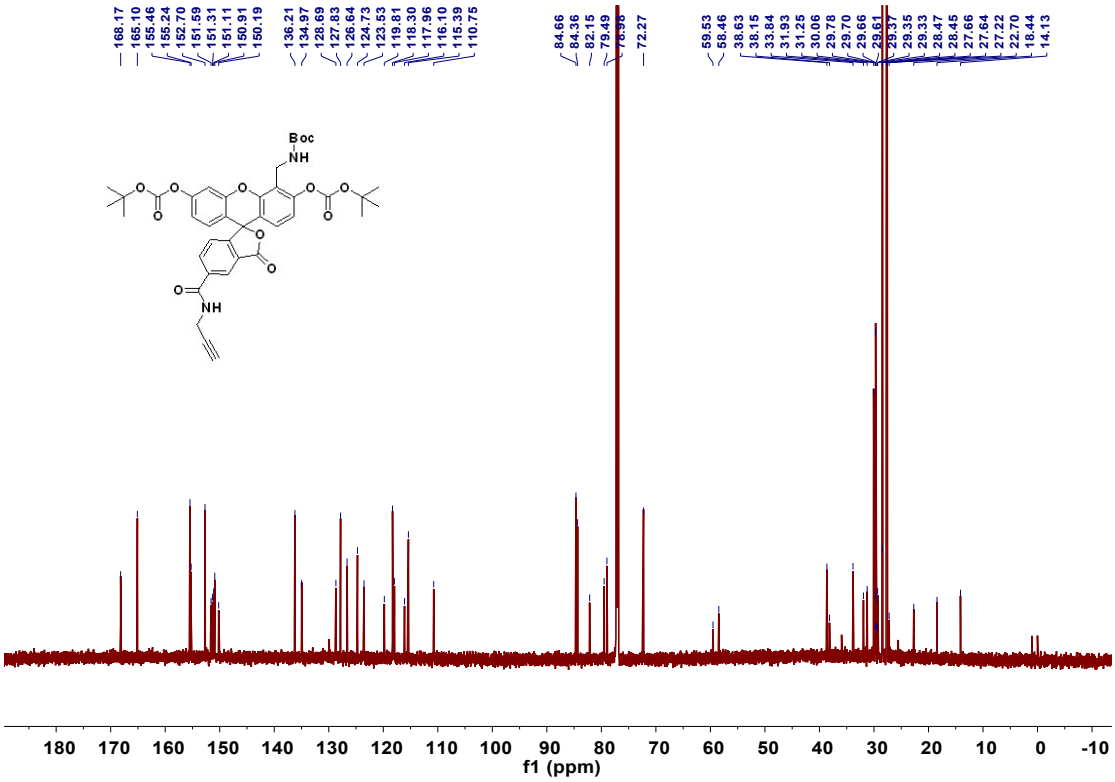

Fig. S12 ^{13}C NMR spectrum of **S6** ($CDCl_3$).

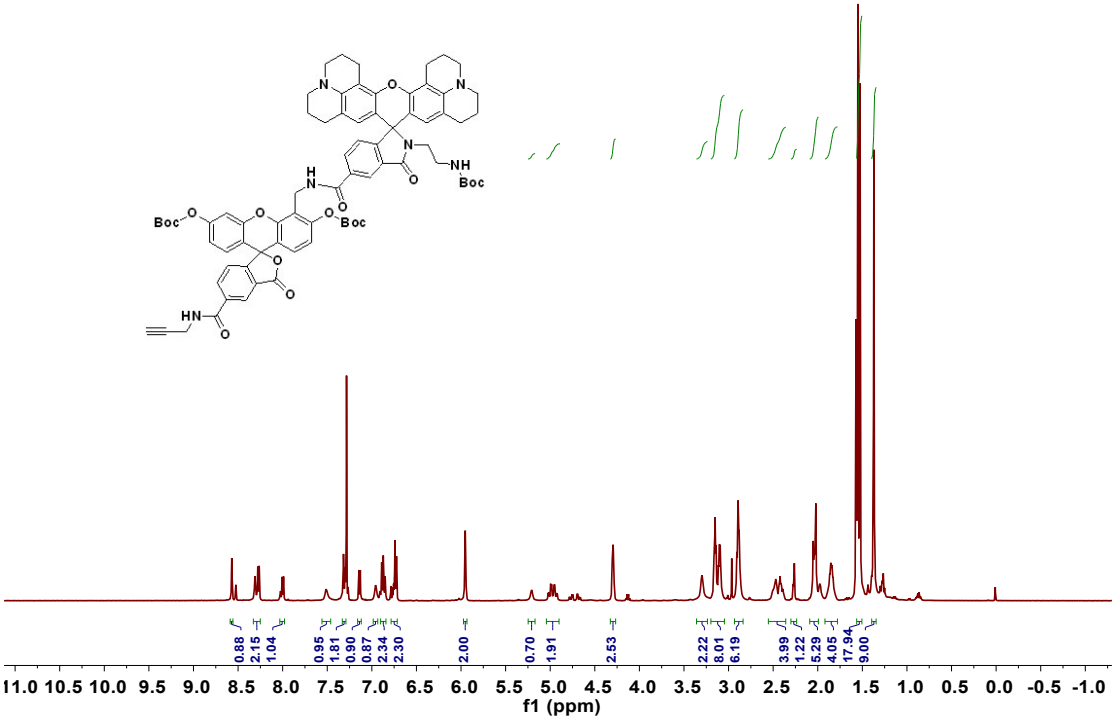

Fig. S13 ^{1}H NMR spectrum of S8 ($CDCl_3$).

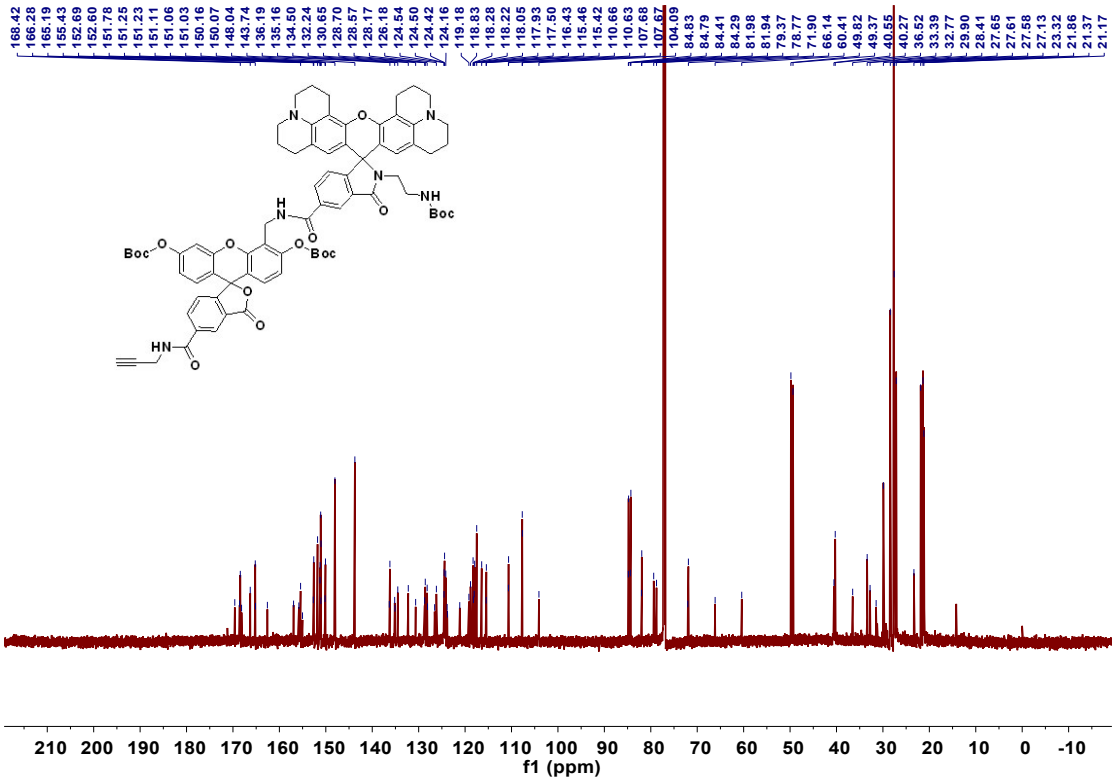

Fig. S14 ^{13}C NMR spectrum of S8 ($CDCl_3$).

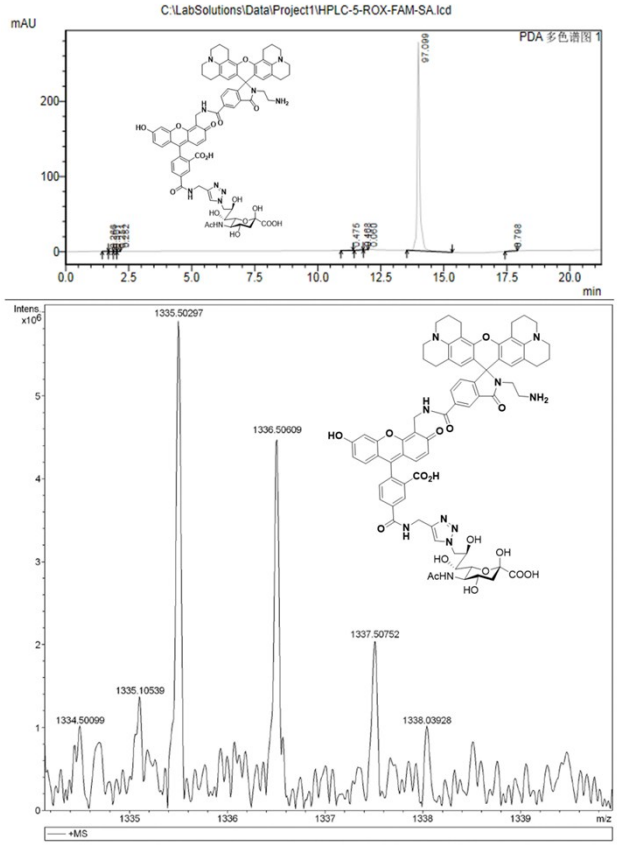

Fig. S15 HPLC and HRMS analysis of M6C-FR.

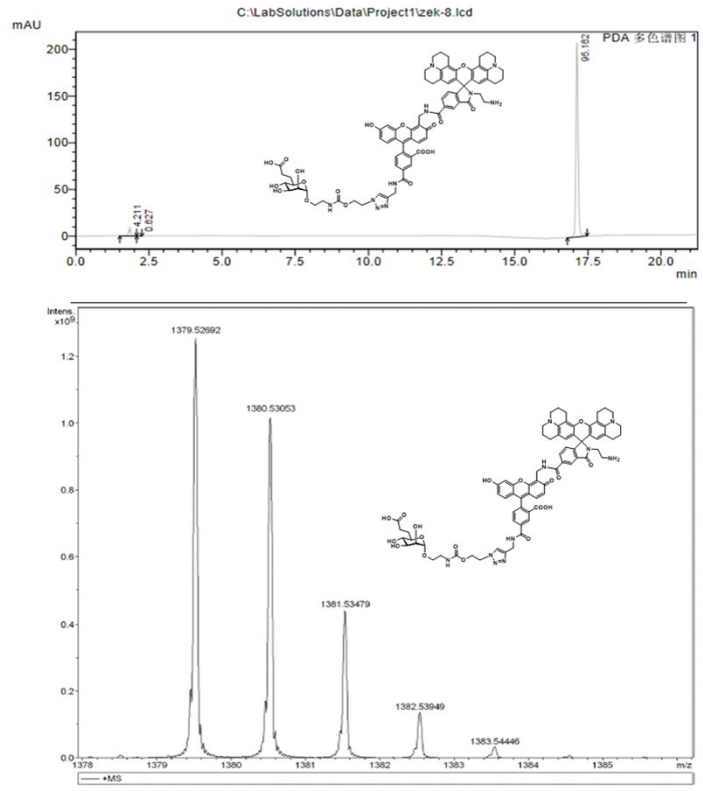

Fig. S16 HPLC and HRMS analysis of Sia-FR.

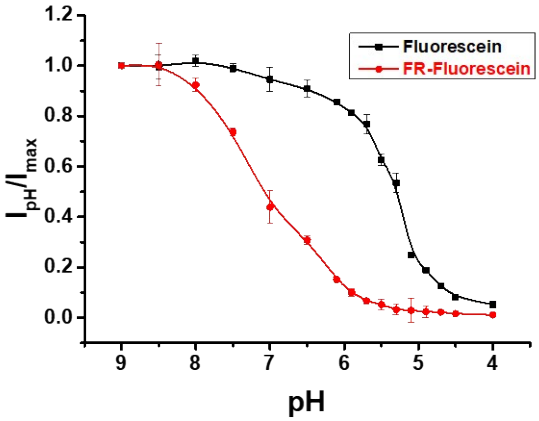

Fig. S17 FRET between fluorescein and rhodamine. The green fluorescence emission at 515 nm of 5-FAM and M6C-FR and was determined as a function of buffer pH. The lower lelvels of fluorescence of fluorescein over M6C-FR at pH 9.0-6.5 is due to intramolecular effects of rhodamine-lactam on fluorscein moiety, because nonfluorescent rhodamine-lactam was present at neutral to alkaline pH. The assay also suggests insignificant FRET between fluorescein and rhodamine-amide moiety at pH 4.0-5.5.