

Electronic Supplementary Material

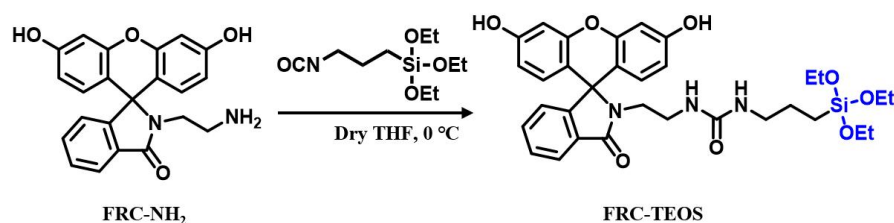
Single-wavelength-excited fluorogenic nanoprobe for accurate real-time ratiometric analysis of broad pH fluctuations in mitophagy

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Scheme S1 Synthesis of pH probe FRC-TEOS.

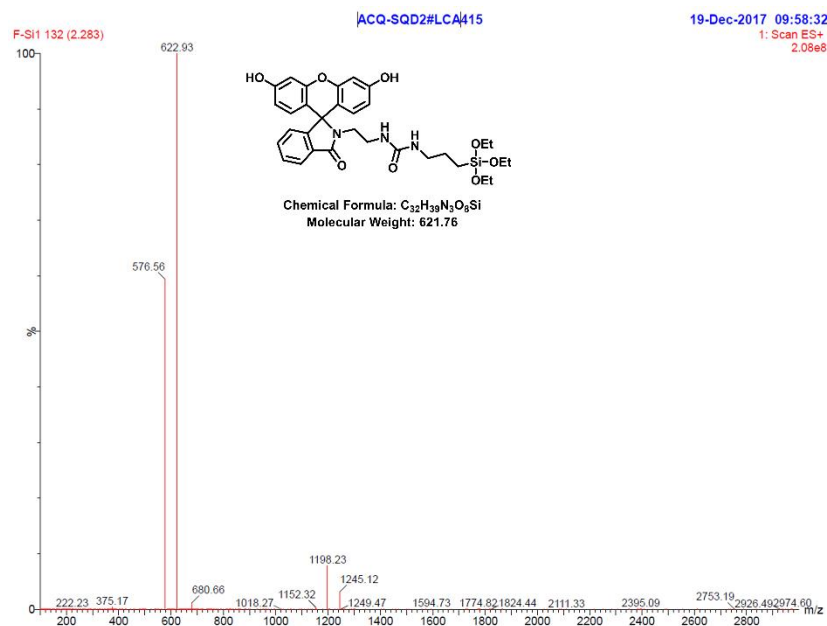
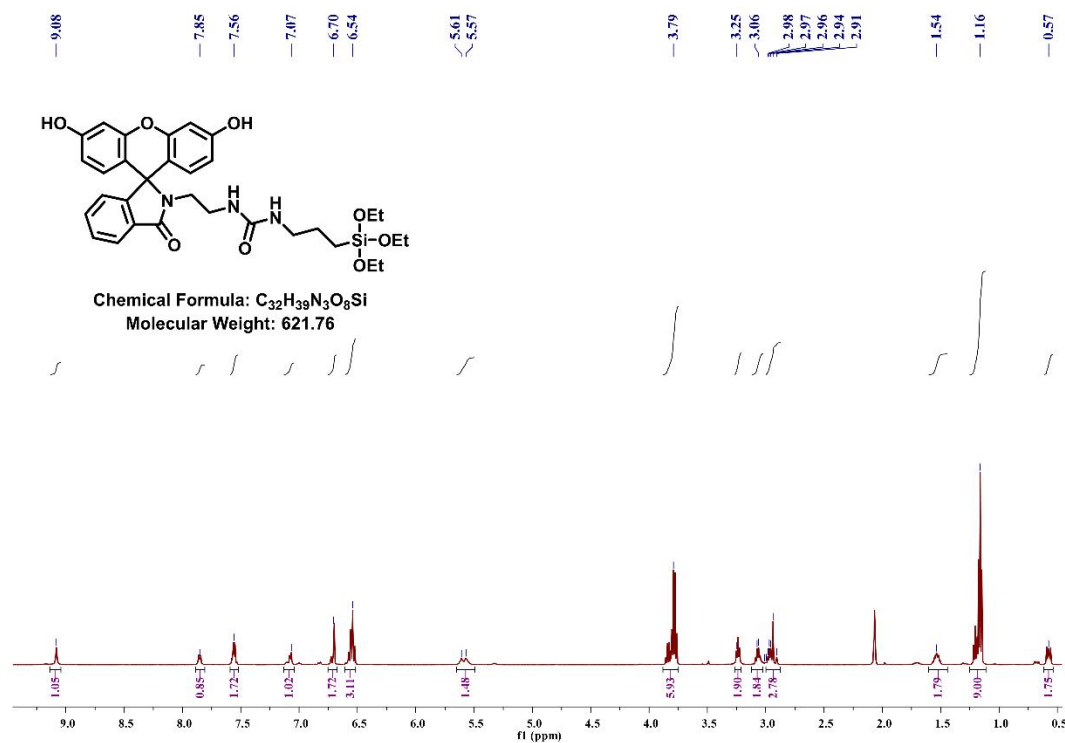
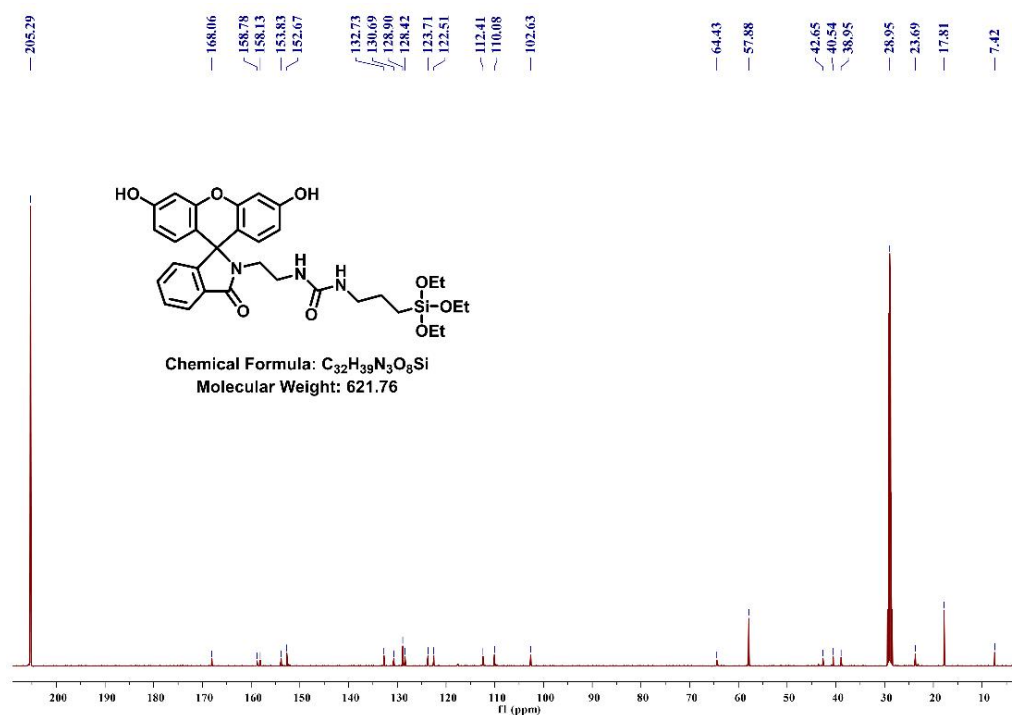
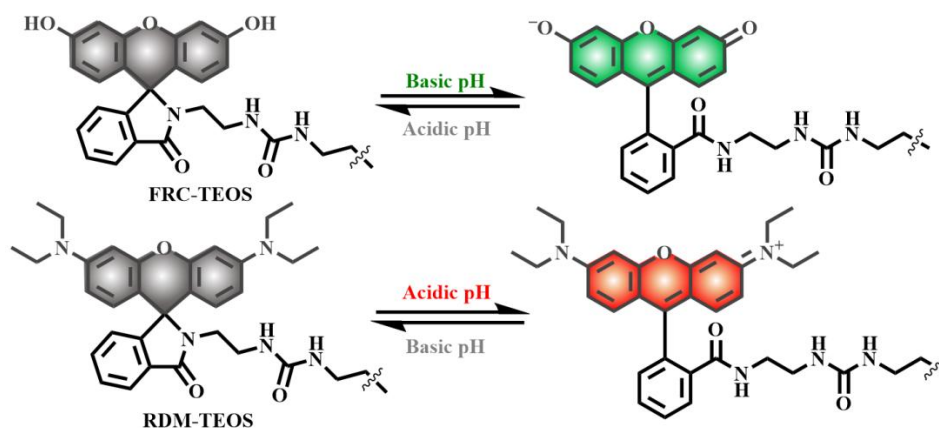


Figure S1 MS spectrum of FRC-TEOS.

Figure S2 1H NMR spectrum of FRC-TEOS.Figure S3 ^{13}C NMR spectrum of FRC-TEOS.



Scheme S2 Sensing mechanisms of the proposed probes.

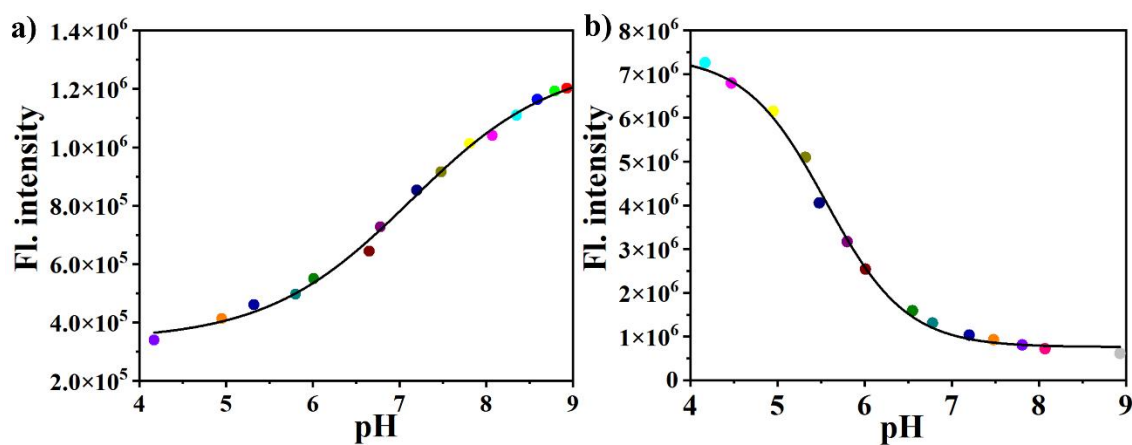


Figure S4 a) The relationship between fluorescence intensity (at 520 nm, obtained from spectra of Figure 1b) along with pH. b) The relationship between fluorescence intensity (at 580 nm, obtained from spectra of Figure 1d) along with pH.

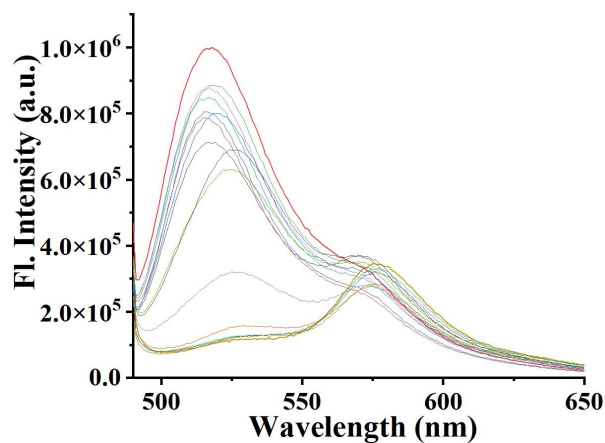


Figure S5 Fluorescence emission spectra of FR-NPs (FCS-TEOS/ RDM-TEOS, m:m = 1:1).

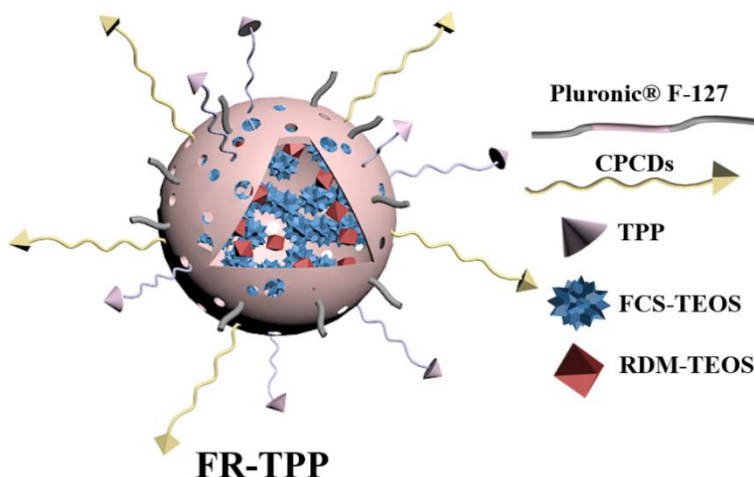


Figure S6 Materials and structure of FR-TPP.

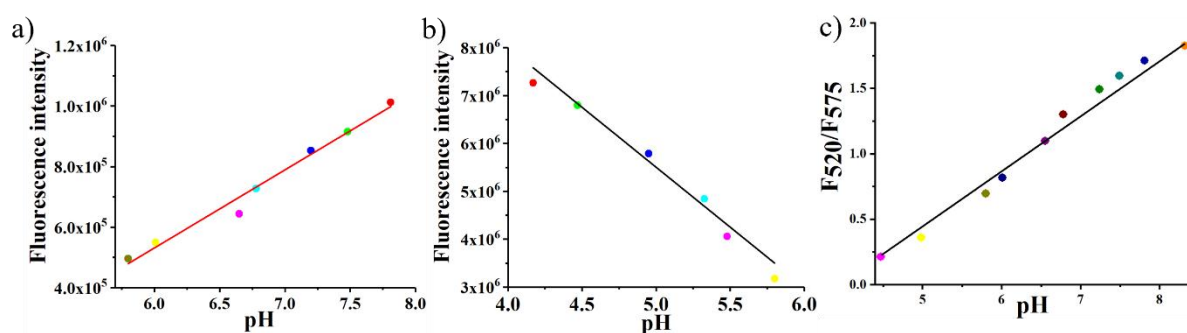


Figure S7 Summarize different linear relationships among different NPs, (a) FCS-TEOS, (b) RDM-TEOS, (c) FR-NPs.

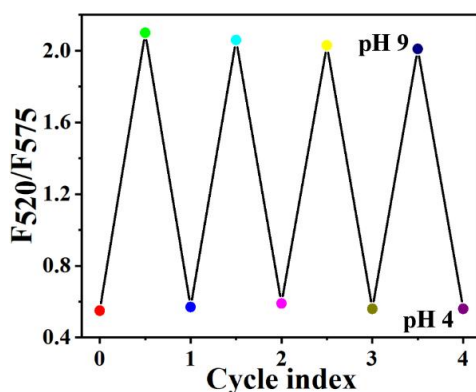


Figure S8 Fluorescence reversibility of FR-TPP (1.0 mg/mL) in buffers between pH 4.0 and 9.0.

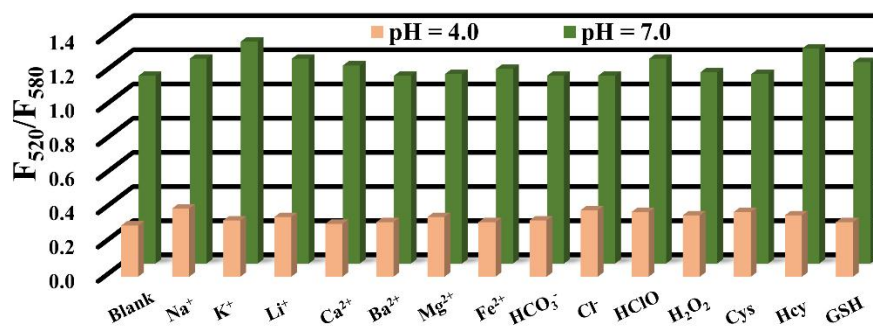


Figure S9 Interference studies of FR-TPP in various species at pH 7.0 and pH 4.0.

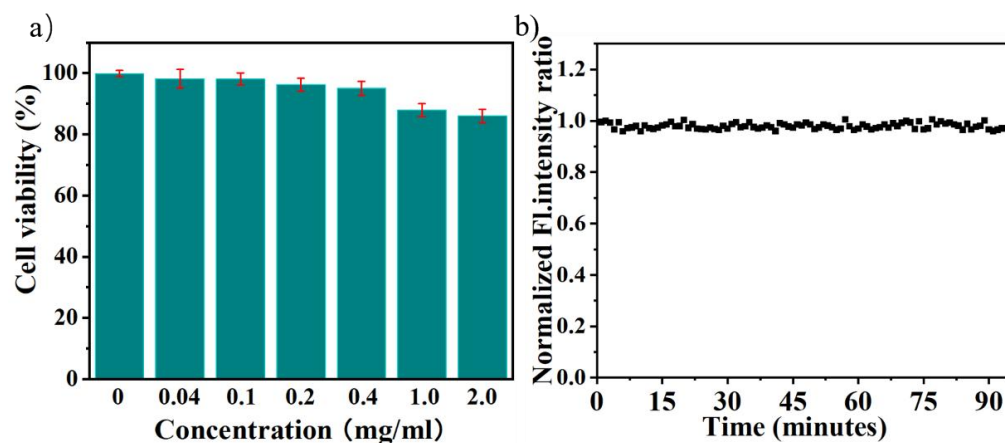


Figure S10 Cytotoxicity and photostability of FR-TPP. (a) Cytotoxicity of FR-TPP in MCF-7 cells. (b) Relative signal changes of FR-TPP upon continuous scanning by laser light.

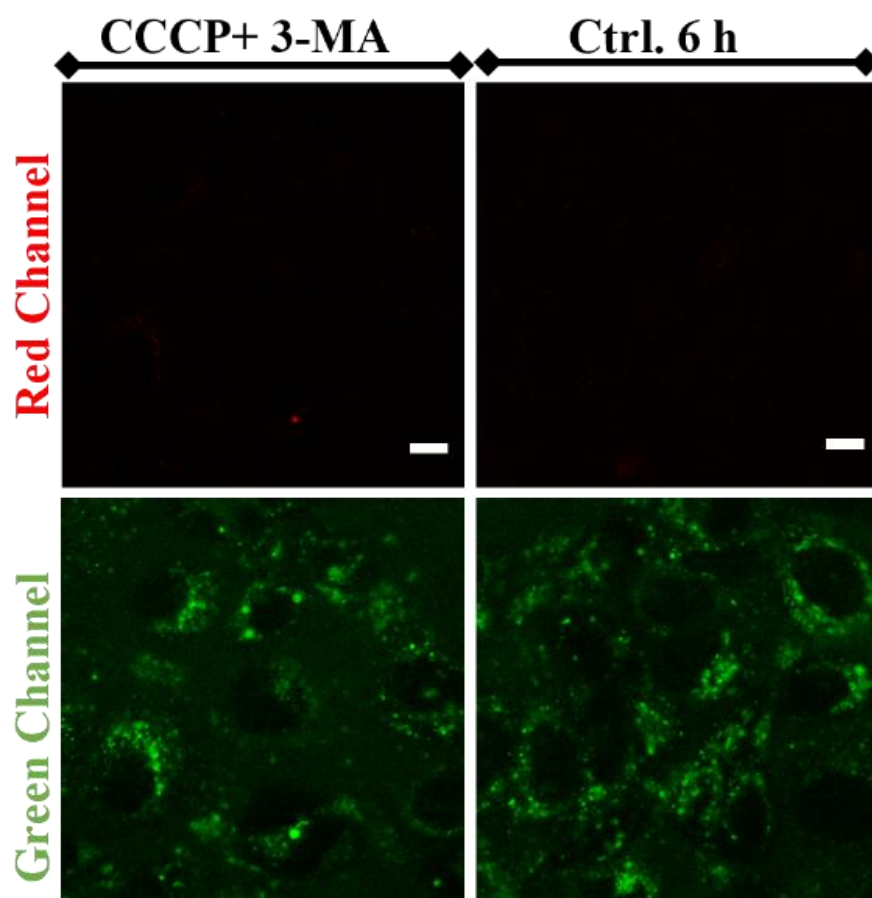


Figure S11 Fluorescent images of MCF-7 cells incubated with FR-TPP (1.0 mg/mL) under control and CCCP+3-MA treatments. Scale bar = 10 μm. Green channel is collected from 510 - 540 nm, with an excitation at 488 nm; Red channel is collected from 570-600 nm, with an excitation at 488 nm.