Supporting information for

A tumor-targeting and lysosome-specific two-photon fluorescent probe for imaging pH changes in living cells

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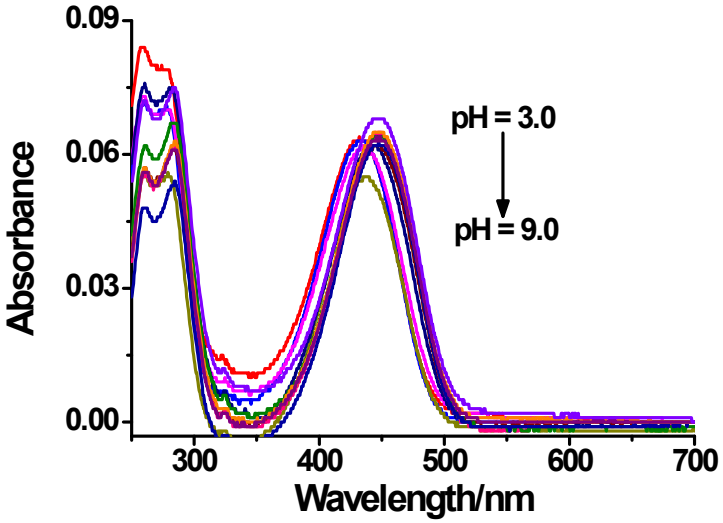

Fig. S1 UV-Vis absorption spectra of 5 μM **BN-lys** in the B-R buffer (5% EtOH) solution at different pH values.

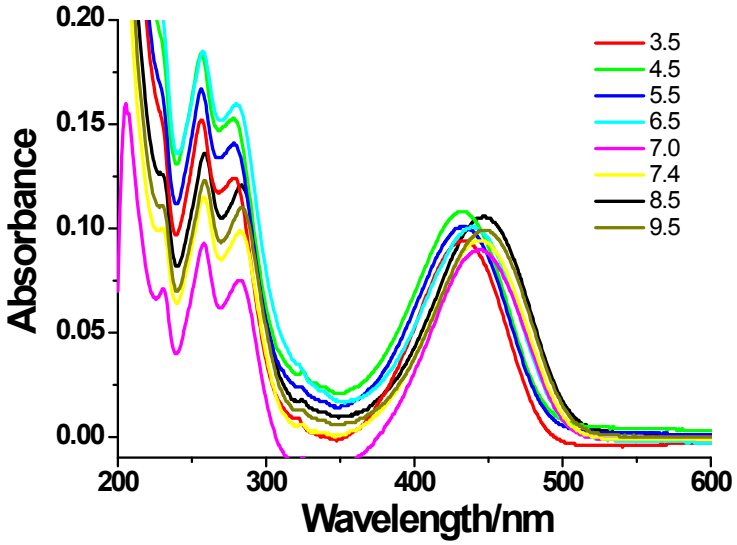

Fig. S2 UV-Vis absorption spectra of 5 μM **NA-lys** in the B-R buffer (5% EtOH) solution at different pH values

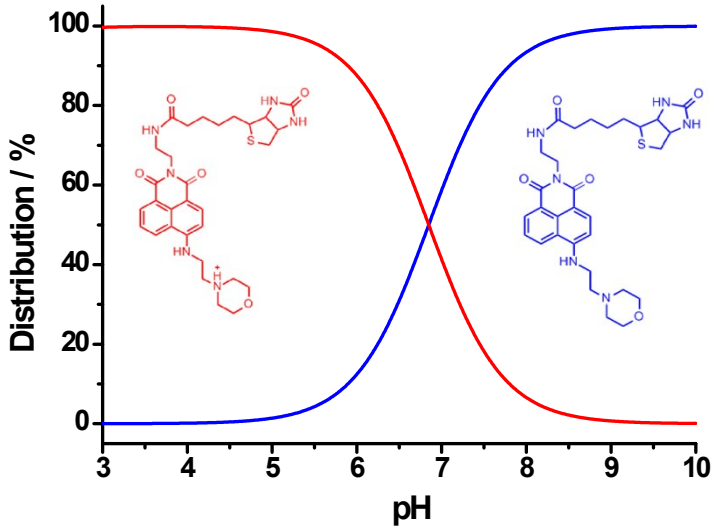

Fig. S3 Distribution of **BN-lys** and its protonated species at various pH values calculated by MarvinSketch software using macro mode and dynamic acid/base prefix at 298 K.

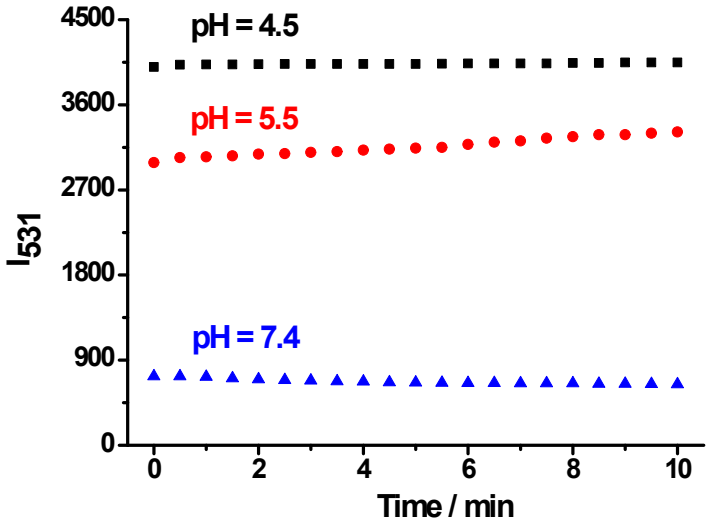

Fig. S4 Time-dependent fluorescence intensities (I_{531}) of **BN-lys** in B-R buffer solutions (5% MeOH) at pH 4.5, 5.5 and 7.4. λ_{ex} = 445 nm.

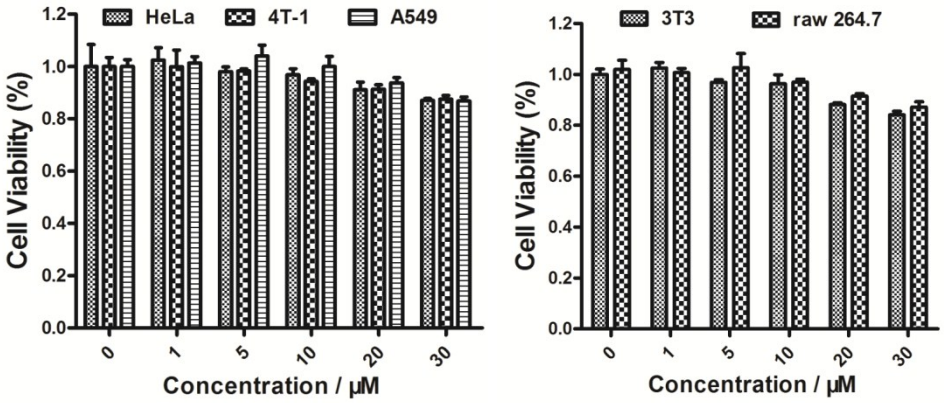

Fig. S5 Survial of HeLa, A549, 4T1, NIH 3T3 and Raw264.7 cells in the presence of **BN-lys** at various concentrations measured using MTT assay.

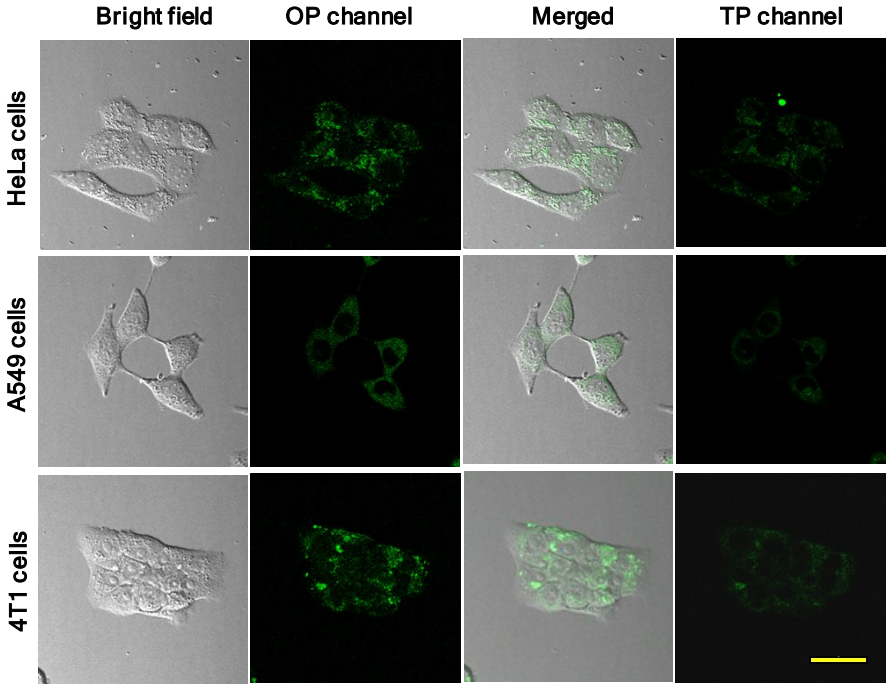

Fig. S6 Fluorescence images for 10 μM BN-lys in HeLa cells, A549 cells and NIH 3T3 cells pretreated 2 mM biotin. OP green channel: one-photon emission at 500-550 nm with excitation at 488 nm; TP green channel: two-photon emission at 500-550 nm with excitation at 760 nm. Scale bar = 20 μm.

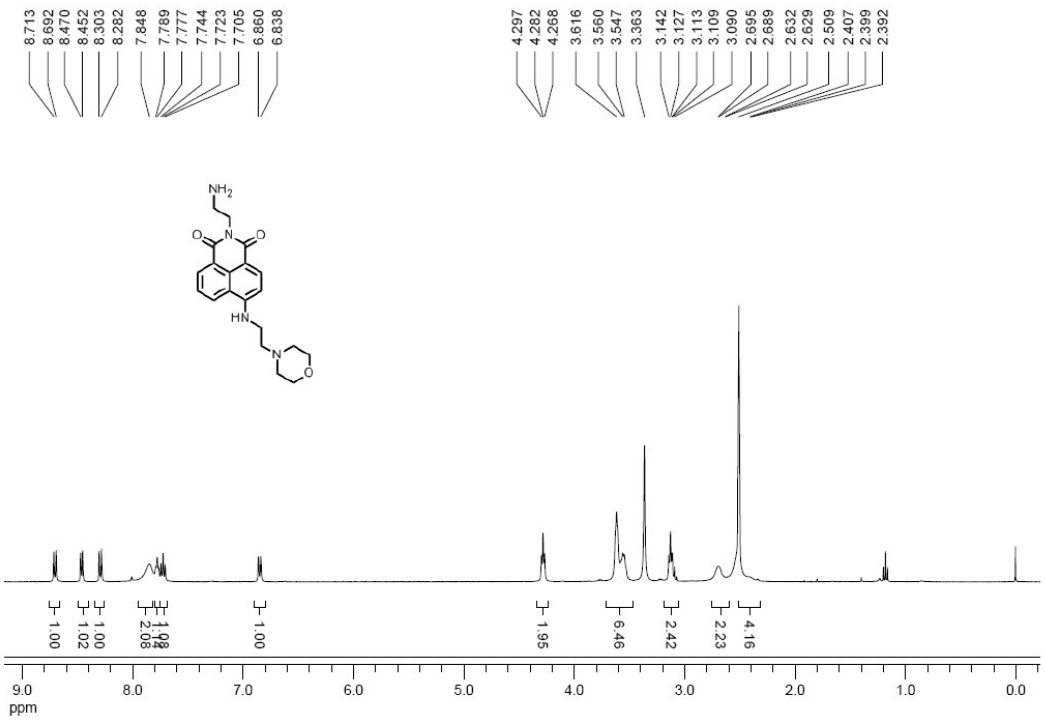

Fig. S7 ^{1}H NMR spectrum of compound **2**.

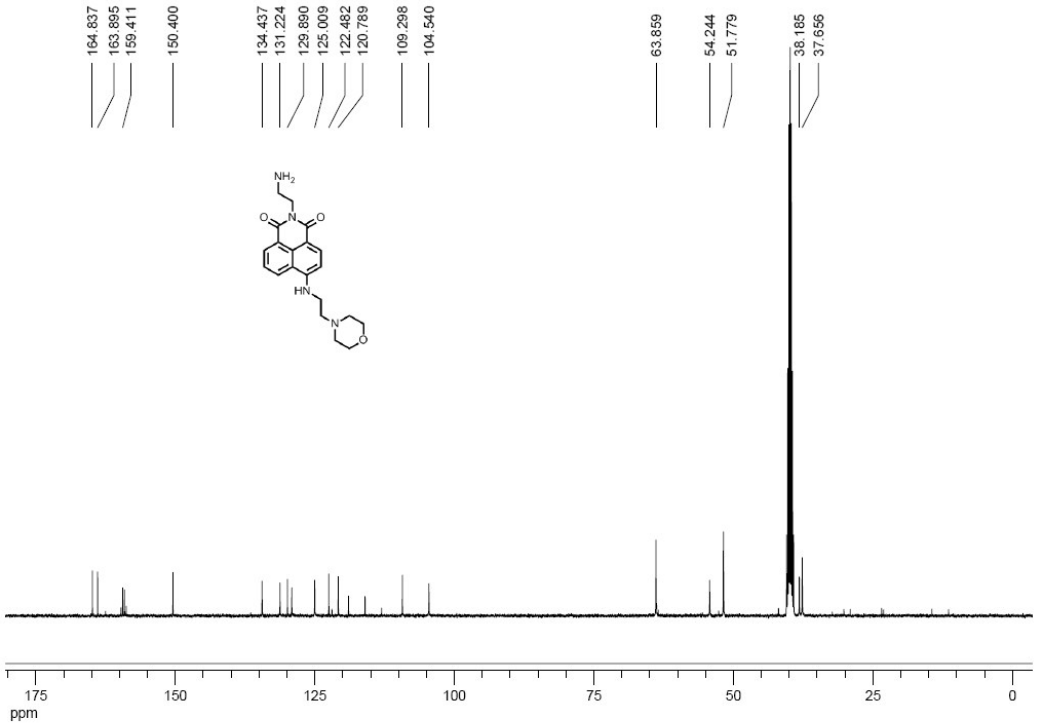

Fig. S8 ^{13}C NMR spectrum of compound **2**.

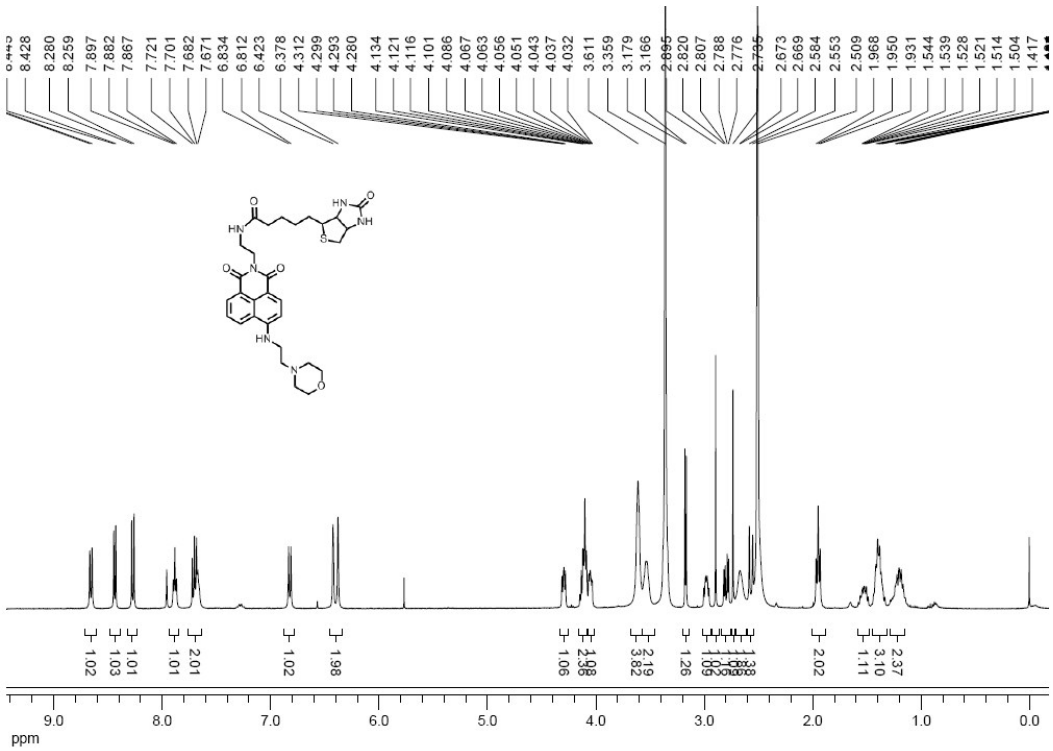

Fig. S9 ^{1}H NMR spectrum of **BN-lys**.

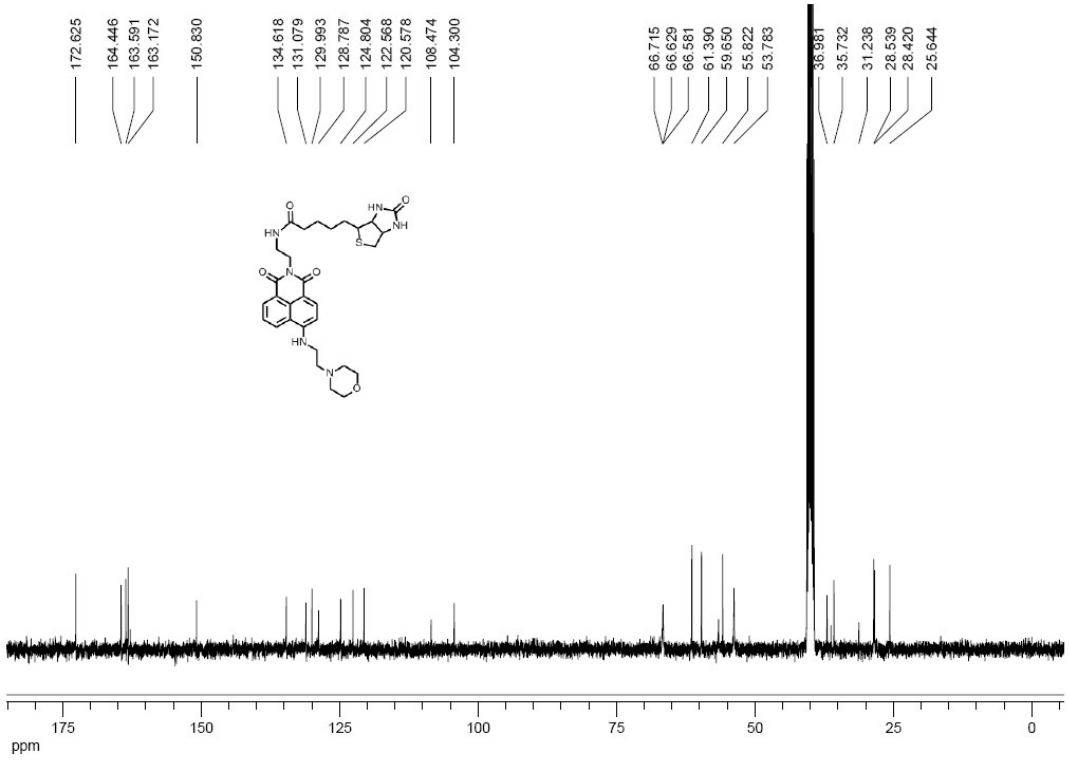

Fig. S10 ^{13}C NMR spectrum of **BN-lys**.

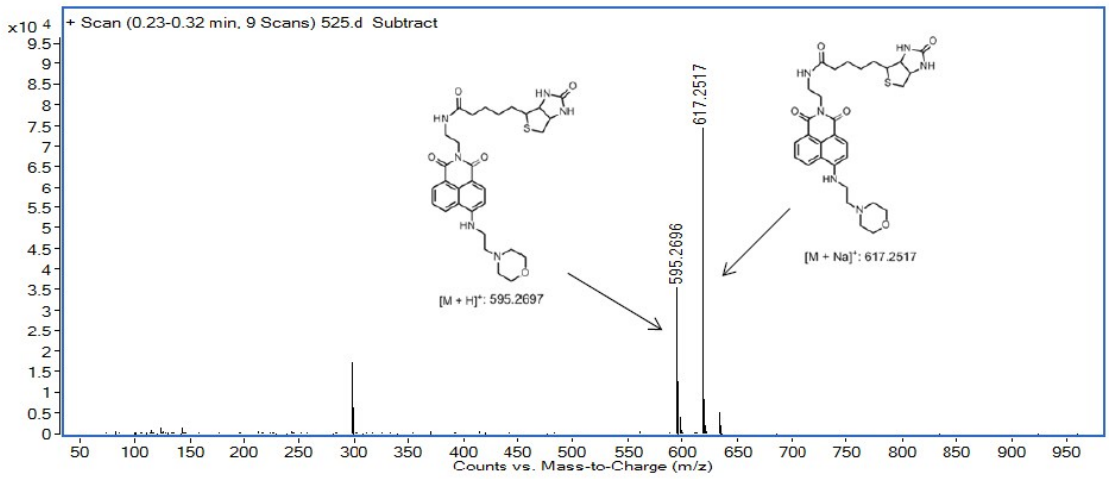

Fig. S11 HRMS spectrum of **BN-lys**.