Electronic Supplementary Material (ESI) for RSC Advances

Supporting Information

A rhodamine-benzimidazole based sensor for selective imaging of acidic pH

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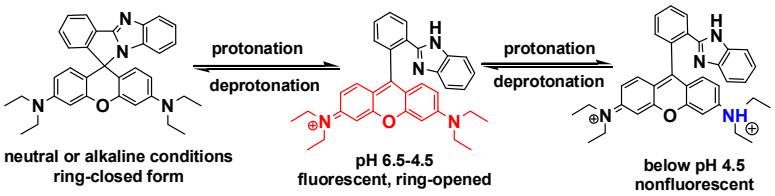

Scheme S1. Successive protonation of RB-IM at acidic media. RB-IM is poised to proton triggered fluorogenic opening of the intramolecular ring at lysosomal pH. At pH<4.5, the ring-opened form of RB-IM could be further protonated (shown in blue), which leads to decreased fluorescence emission. In contrast, acidic pH (pH <4.5) would even further promote ring-opening of RB-IM and has no effects on UV-vis absorbance of ring-opened RB-IM (Fig. 1d).

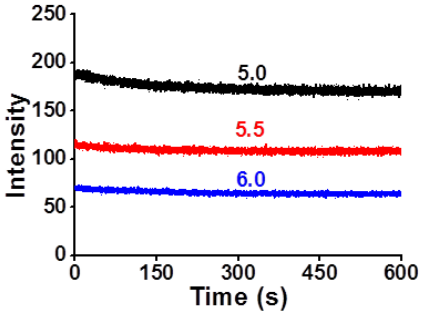

Fig. S1 Kinetic profiles pH responses of RB-IM. RB-IM was spiked into Na_2HPO_4-NaH_2PO_4 buffer (200 mM, pH 5.0, 5.5, 6.0) to a final concentration of 10 μM. The color formation of the solutions was monitored over time by fluorescence emission intensity at 590 nm (Ex@560 nm).

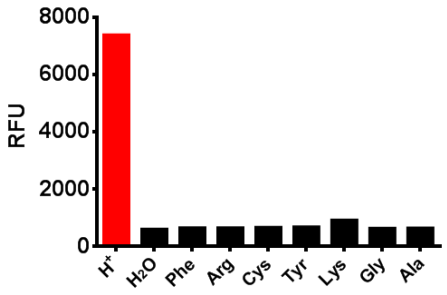

Fig. S2 Selectivity of RB-IM for selected amino acids. RB-IM (10 μM) was spiked into water or a serial of NaH_2PO_4-Na_2HPO_4 buffer (200 mM, pH 7.0) containing amino acids (1 mM) as indicated. Fluorescence emission at 595 nm of the resultant solutions was recorded using λex at 565 nm.