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Lysosomal zinc ions imaging with two-photon fluorescent probe

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Detecting lysosomal Zn(II) is an important issue because it acts as downstream marker for the LMP process. Development of fluorescent probe which can detect lysosomal Zn(II) ions is necessary to study the oxidative stress levels in biological systems. Herein, we have developed innovative two-photon probe using naphthalimide dye composed of N,N-di-(2-picolyl) ethylenediamine (DPEN) ligand and a morpholine unit. The probe can detect Zn(II) ions in lysosomes with high sensitivity and selectivity over the most competing Cd(II) ions. The probe can also enabled fluorescence imaging of mouse brain tissues under two-photon excitation at 900 nm. The probe can be an effective tool for studying biological processes related to lysosomal Zn(II) ions by two-photon microscopy.

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