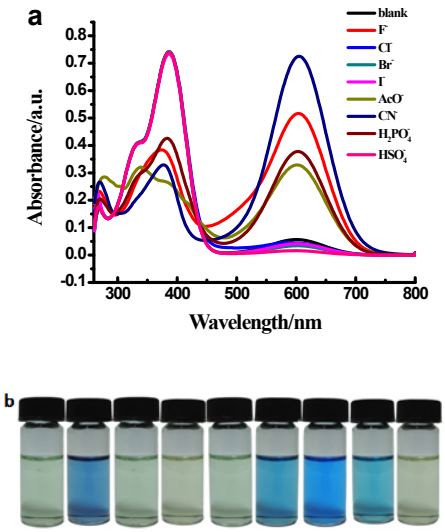
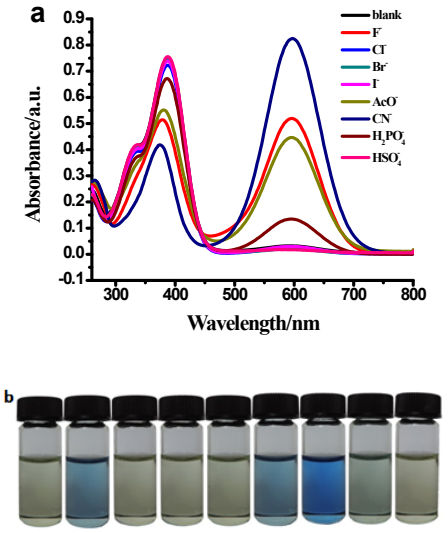
Electronic Supporting Information

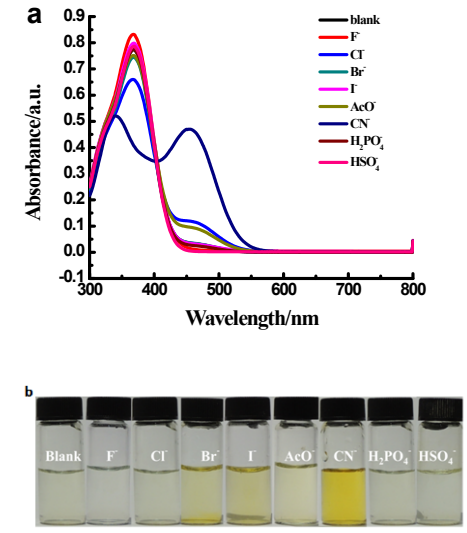
1. Anionic Response of 2-HPEAPB in DMF, DMSO, H_2O, and methanol



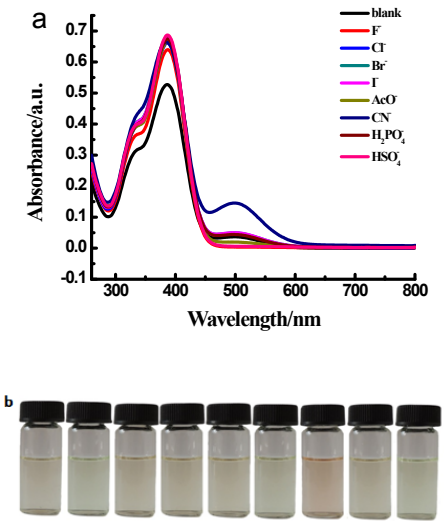
S.Fig. 1 (a) UV–Vis spectra of 2-HPEAP (3.0×10^{-5} mol L^{-1}) in DMF upon the addition of 5 equiv of F^-, Cl^-, Br^-, I^-, AcO^-, CN^-, $H_2PO_4^-$, and HSO_4^-. (b) Color changes observed in 2-HPEAPB (3.0×10^{-5} mol L^{-1}) upon the addition of various anions as tetra-butylammonium salts (1.5×10^{-4} mol L^{-1}).



S.Fig. 2 (a) UV–Vis spectra of 2-HPEAPB (3.0×10^{-5} mol L^{-1}) in DMSO upon the addition of 5 equiv of F^-, Cl^-, Br^-, I^-, AcO^-, CN^-, $H_2PO_4^-$, and HSO_4^-. (b) Color changes observed in 2-HPEAPB (3.0×10^{-5} mol L^{-1}) upon the addition of various anions as tetra-butylammonium salts (1.5×10^{-4} mol L^{-1}).



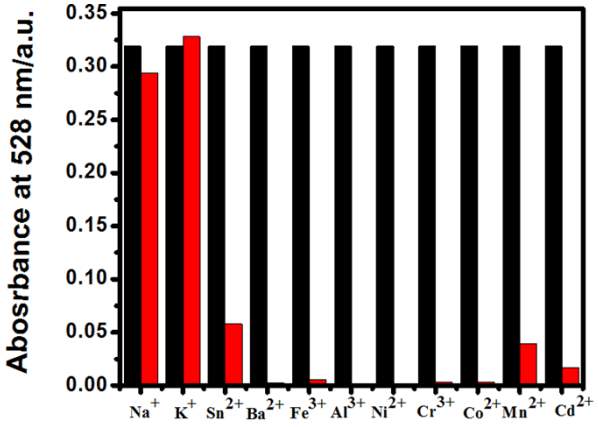
S.Fig. 3 (a) UV–Vis spectra of 2-HPEAPB (3.0×10^{-5} mol L^{-1}) in H_2O upon the addition of 5 equiv of F^-, Cl^-, Br^-, I^-, AcO^-, CN^-, $H_2PO_4^-$, and HSO_4^-. (b) Color changes observed in 2-HPEAPB (3.0×10^{-5} mol L^{-1}) upon the addition of various anions as tetra-butylammonium salts (1.5×10^{-4} mol L^{-1}).



S.Fig. 4 (a) UV–Vis spectra of 2-HPEAPB (3.0×10^{-5} mol L^{-1}) in methanol upon the addition of 5 equiv of F^-, Cl^-, Br^-, I^-, AcO^-, CN^-, $H_2PO_4^-$, and HSO_4^-. (b) Color changes observed in 2-HPEAPB (3.0×10^{-5} mol L^{-1}) upon the addition of various anions as tetra-butylammonium salts (1.5×10^{-4} mol L^{-1}).

2. The influence of Cations

The anti−jamming ability of 2-HPEAPB to cations including Na^+, K^+, Sn^{2+}, Ba^{2+}, Fe^{3+}, Al^{3+}, Ni^{2+}, Cr^{3+}, Co^{2+}, Mn^{2+}, Cd^{2+} was evaluated using UV-Vis competition experiments (S.Fig. 5). These cations (such as K^+, Na^+) which cannot form complexes or precipitation with CN^- produce slight influence, however, these cations (such as Sn^{2+}, Ba^{2+}, Fe^{3+}, Al^{3+}, Ni^{2+}, Cr^{3+}, Co^{2+}, Mn^{2+}, and Cd^{2+}) which could form precipitation or complexes with CN^- produce great influence.



S.Fig. 5 The UV-Vis intensity of 2-HPEAPB (3.0×10^{-5}mol L^{-1}) in acetonitrile-water (95:5, v/v) at 528 nm to various metal ions. The black bars represent the UV-Vis intensity of 2-HPEAPB in the presence of 1 equiv of CN^-. The red bars represent the UV-Vis intensity of 2-HPEAPB in the presence of 1 equiv upon subsequent addition of 1equiv various cations (Na^+, K^+, Sn^{2+}, Ba^{2+}, Fe^{3+}, Al^{3+}, Ni^{2+}, Cr^{3+}, Co^{2+}, Mn^{2+}, Cd^{2+}).