Supporting Information

A Highly Selective and instantaneous responsive Schiff Base

Fluorescent Sensor for the “Turn-off” Detection of Iron(III), Iron(II),

Copper(II) Ions

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Fig. S1
Fig. S4

(a) Absorbance (a.u.)

(b) Fluorescence Intensity (a.u.)

(c) Images showing varying concentrations of DBAB
The limit of detection and association constant

The limit of detection (LOD) was calculated based on the fluorescence titration according to the following equation (Eq. S1) [1-3], where $S_{b_1}$ is the standard deviation of the blank solution and $S$ is the slope of the calibration curve. To determine $S_{b_1}$, the emission intensity of DBAB in DMF solution without any metal ions was measured 10 times, respectively.

\[
LOD = 3 \times \frac{S_{b_1}}{S}
\]  
(Eq. S1)

The association constant (Ka) of DBAB-metal ion was obtained from nonlinear curve fitting of the fluorescence titration data according to Benesi-Hildebrand equation (Eq. S2) [4-6], where $F_0$, $F$, and $F_{\text{min}}$ are the fluorescence intensity of DBAB in the absence of metal ions, at a certain concentration of metal ions, and the minimum fluorescence intensity of [QLBM-Fe$^{3+}$/Fe$^{2+}$/Cu$^{2+}$] in the linear range, $[M]$ is the metal ion concentration, $n$ is the binding stoichiometry.

\[
\log\left[\frac{F_{\text{max}} - F}{F - F_0}\right] = n \log[M] + \log K_a
\]  
(Eq. S2)
References


