Electronic Supplementary Information

A high selective and sensitive turn on fluorescent probe for detection of holmium ion

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Figure S1: 1H NMR, 13C NMR, EI-MS of probe
Figure S2: The emission spectra of probe when all kinds of analytes added
Figure S3: The absorption spectra changes of probe for Ho3+
Figure S4: The determination of the stoichiometry between probe and Ho3+, their association constant
Figure S5: Detection limit for Ho3+
Figure S6: ESI-MS spectra of the probe-Ho3+

Figure S1: 1H NMR, 13C NMR, EI-MS of probe.
Figure S2: The emission spectra of probe when all kinds of analytes were added.
**Figure S3:** The absorption spectra changes of probe for Ho$^{3+}$

**Figure S3:** The absorption spectra changes of probe (50 µM) in 10 mmol/L HEPES buffer/DMF (v/v=1:1, pH 7.4) upon addition of Ho$^{3+}$; Ho$^{3+}$ was added gradually with [Ho$^{3+}$] = 0–50 µM.
Figure S4: The determination of the stoichiometry between probe and Ho$^{3+}$, their association constant

\[ y = 0.19418E-7x + 0.20988 \]
\[ R = 0.99797 \]

Figure S4: Benesi-Hildebrand plot based on the 1:1 for probe and Ho$^{3+}$ with \( K_a = 1.08 \times 10^7 \text{M}^{-1} \).
Figure S5: Plot of the fluorescence intensity (at 480 nm) as a function of the concentrations of Ho$^{3+}$.

\[ F - F_0 = 1.9351c + 6.6314 \]
\[ R = 0.9978 \]
Figure S6: ESI-MS spectra of the probe-Ho$^{3+}$