Supporting Information

A New-AIE-ligand-based metal-organic framework “turn-on” sensor with extremely high sensitivity

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Table of contents

Table S1. Selected bond lengths(Å) and angles for 1.

Figure S1. The crystal structure of 3-L.

Figure S2. (a) the asymmetric unit of 1; (b) the coordination environments of Cd.

Figure S3. The PXRD analysis of 1.

Figure S4. The thermogravimetric analyses (TGA) of 1.

Figure S5. The IR spectra of 1 before and after sensing Bi\textsuperscript{3+} and Fe\textsuperscript{3+}.

Figure S6. Luminescence spectra of 3-L in DMF/water mixture with various water fractions ($f_w$).

Figure S7. The particle size distribution of the suspension.

Figure S8. the excitation and emission spectra of the water suspensions of 1.

Figure S9. Optical images of 1 before and after sensing Bi\textsuperscript{3+} and Fe\textsuperscript{3+}.

Figure S10. XPS spectra before and after sensing Bi\textsuperscript{3+} and Fe\textsuperscript{3+}: (a) total survey, (b) Bi 4f and (c) Fe 2p.

Figure S11. Absorption spectra of Bi\textsuperscript{3+} and Fe\textsuperscript{3+} and the excitation and emission of 1.
Table S1 Selected bond lengths(Å) and angles for 1.

<table>
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<th>Bond</th>
<th>Lengths(Å)</th>
<th>Bond</th>
<th>Angles(°)</th>
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<td>Cd(02)-O(1)</td>
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<td>O(2)-Cd(02)-O(5)</td>
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Symmetry transformations used to generate equivalent atoms: #1 x-1/2, -y+1/2, z-1/2; #2 -x+3/2, y+1/2, -z+1/2; #3 -x+3/2, y-1/2, -z+1/2; #4 x+1/2, -y+1/2, z+1/2
Figure S1. The crystal structure of 3-L (N: blue; C, gray; H atoms are omitted).

Figure S2. (a) the asymmetric unit of 1; (b) the coordination environment of Cd.

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**Figure S4.** The thermogravimetric analyses (TGA) of 1.

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**Figure S6.** Luminescence spectra of 3-L in DMF/water mixture with various water
fractions ($f_w$).

**Figure S7.** The particle size distribution of the suspension of 1 in H$_2$O.

**Figure S8.** The excitation and emission spectra of the water suspensions of 1.

**Figure S9.** Optical images of 1 before and after sensing Bi$^{3+}$ and Fe$^{3+}$ achieved by Leica Microsystems.
**Figure S10.** XPS spectra before and after sensing Bi$^{3+}$ and Fe$^{3+}$: (a) total survey, (b) Bi 4f and (c) Fe 2p.

**Figure S11.** Absorption spectra of Bi$^{3+}$ and Fe$^{3+}$ and the excitation and emission of 1.