Supporting Information

A dual-sensitized luminescent Europium(III) complex as photoluminescent probe for selectively detecting Fe^{3+}

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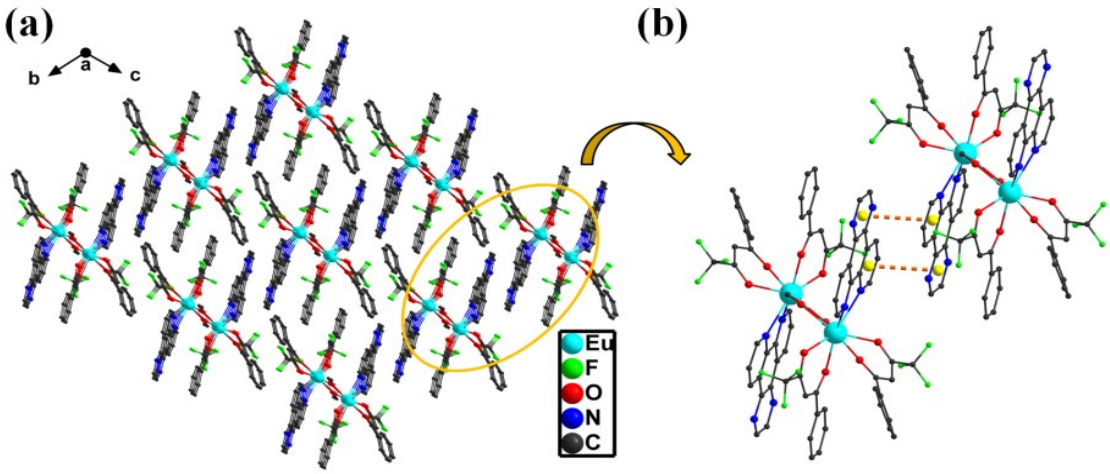

Fig. S1 Molecular stacking charts of **1**.

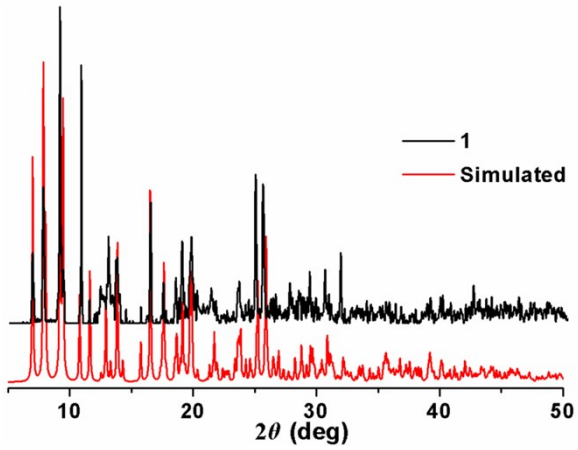

Fig. S2 PXRD patterns of **1**.

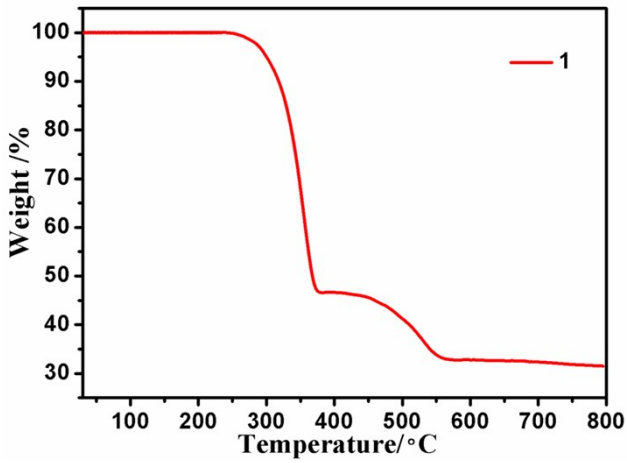

Fig. S3 TG curve for **1**.

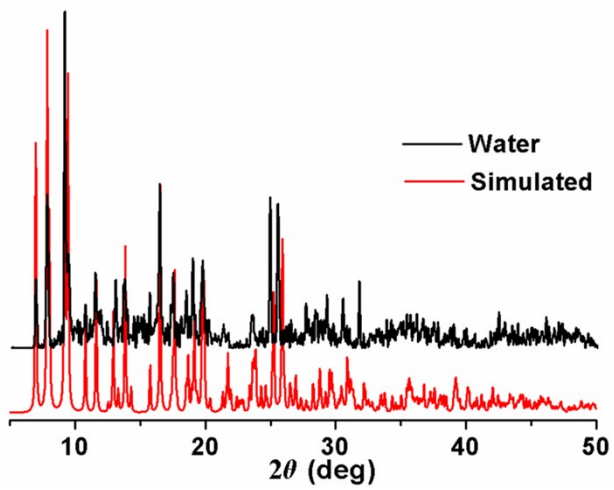

Fig. S4 PXRD patterns of **1** after being soaked in water.

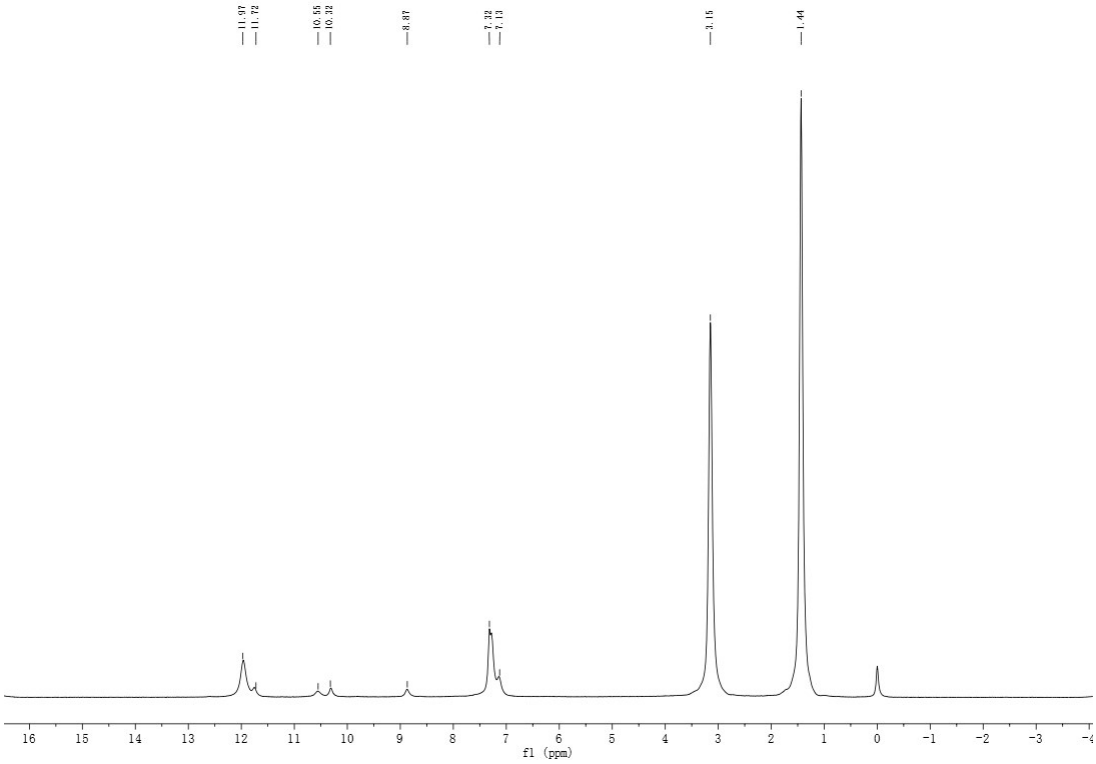

Fig. S5 NMR spectrum of **1** after dissolving in MeOH.

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

Compound **1**			
Eu(1)-O(1)	2.385(5)	Eu(1)-O(2)	2.373(5)
Eu(1)-O(3)	2.393(5)	Eu(1)-O(4)	2.437(5)
Eu(1)-O(5)	2.312(5)	Eu (1)-O(5)#1	2.313(4)
Eu(1)-N(1)	2.624(6)	Eu(1)-N(2)	2.609(6)
O(1)-Eu(1)-O(3)	137.29(17)	O(1)-Eu(1)-O(4)	71.98(16)
O(1)-Eu(1)-N(1)	82.05(16)	O(1)-Eu(1)-N(2)	140.49(18)
O(2)-Eu(1)-O(3)	72.27(17)	O(2)-Eu(1)-O(3)	80.94(16)
O(2)-Eu(1)-O(4)	79.92(17)	O(2)-Eu(1)-N(1)	147.41(18)
O(2)-Eu(1)-N(2)	147.08(18)	O(3)-Eu(1)-O(4)	71.00(16)
O(3)-Eu(1)-N(1)	106.56(16)	O(3)-Eu(1)-N(2)	73.24(18)
O(4)-Eu(1)-N(1)	73.17(18)	O(4)-Eu(1)-N(2)	109.57(17)
O(5)-Eu(1)-O(1)	78.38(16)	O(5) #1-Eu(1)-O(1)	121.73(15)
O(5)-Eu(1)-O(2)	115.03(16)	O(5) #1-Eu(1)-O(2)	77.82(17)
O(5)-Eu(1)-O(3)	144.10(17)	O(5) #1-Eu(1)-O(3)	82.63(16)
O(5)-Eu(1)-O(4)	140.70(16)	O(5) #1-Eu(1)-O(4)	147.74(18)
O(5) -Eu(1)-O(5) #1	70.80(19)	O(5)-Eu(1)-N(1)	77.74(16)
O(5) #1-Eu(1)-N(1)	133.99(18)	O(5)-Eu(1)-N(2)	78.18(17)
O(5) #1-Eu(1)-N(2)	78.91(17)	N(2)-Eu(1)-N(1)	62.14(17)
#1 1-X,1-Y,1-Z			

Table S2. The calculated results for Eu^{III} ions configuration of **1** by SHAPE 2.1 software.

Eu^{III} ion geometry analysis of **1**.

```
HBPY-8       3 D6h  Hexagonal bipyramid
CU-8         4 Oh   Cube
SAPR-8       5 D4d  Square antiprism
TDD-8        6 D2d  Triangular dodecahedron
JGBF-8       7 D2d  Johnson gyrobifastigium J26
JETBPY-8     8 D3h  Johnson elongated triangular bipyramid J14
JBTPR-8      9 C2v  Biaugmented trigonal prism J50
BTPR-8      10 C2v  Biaugmented trigonal prism
JSD-8       11 D2d  Snub diphenoid J84
TT-8        12 Td   Triakis tetrahedron
ETBPY-8     13 D3h  Elongated trigonal bipyramid

Structure [ML8 ]    HBPY-8     CU-8     SAPR-8     TDD-8     JGBF-8     JETBPY-8     JBTPR-8     BTPR-8     JSD-8     TT-8     ETBPY-8
 ABOXIY     ,       15.765,    9.160,   0.626,     2.420,    16.045,    28.065,      2.983,      2.489,     5.294,    9.881,   23.701
```

Configuration	ABOXIY, **1**
Hexagonal bipyramid (D_{6h})	15.765
Cube (O_h)	9.160
Square antiprism (D_{4d})	**0.626**
Triangular dodecahedron (D_{2d})	2.420
Johnson gyrobifastigium J26 (D_{2d})	16.045
Johnson elongated triangular bipyramid J14 (D_{3h})	28.065
Biaugmented trigonal prism J50 (C_{2v})	2.983
Biaugmented trigonal prism (C_{2v})	2.489
Snub siphenoid J84 (D_{2d})	5.294
Triakis tetrahedron(T_d)	9.881
Elongated trigonal bipyramid(D_{3h})	23.701

Table S3. Comparison of detection capacity of **1** towards Fe^{3+} ion with other materials.

Materials	Solvent	Detection Limit	Ref.
$[Tb(tftba)_{1.5}(phen)(H_2O)]_n$	Water	1.27×10^{-5} M	1
Eu-MOF	Water	1.5×10^{-5} M	2
$[Tb(HL)(H_2O)_2(NO_3)]\cdot NO_3$	Water	1.6×10^{-5} M	3
$[Tb(HL)_{1.5}(H_2O)(DMF)]\cdot 2H_2O$	aqueous	2.0×10^{-5} M	4
$[Eu_2(BTFA)_4(OMe)_2(dpq)_2]$	Water	3.5×10^{-5} M	This work
Eu^{3+}@MIL-53-COOH (Al)	Water	5.0×10^{-5} M	5
BUT-15	Water	8.0×10^{-5} M	6
$[Eu(bpda)_{1.5}]\cdot H_2O_n$	Water	9.0×10^{-5} M	7
$\{[Cd_3(HL)_2(H_2O)_3]\cdot 3H_2O\cdot 2CH_3CN\}_n$	Water	9.06×10^{-5} M	8
$[Zn_5(hfipbb)_4(trz)_2(H_2O)_2]_n$	Water	2.0×10^{-4} M	9
$\{[Cd(5\text{-}asba)(bimbu)]\}_n$	Water	1.87×10^{-4} M	10
EuL_3	Ethanol	10^{-4} M	11
$Eu(acac)_3\subset Zn(C_{15}H_{12}NO_2)_2$	DMF	5.0×10^{-3} M	12

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