A layer-structured Eu-MOF as highly selective fluorescent probe for Fe^{3+} detection through cation-exchange approach

1. Crystal data for La(Y)L

Table S1. Cell parameters of all **LnL**.

$C_{35}H_{32}NO_{13}Ln$ (Ln = La, Y, Eu, Tb, Gd), Space group, P-1

Ln	*a* / Å	*b* / Å	*c* / Å	*α* / °	*β* / °	*γ* / °	V / $Å^3$
La	9.189(3)	11.486(4)	17.918(6)	80.253(6)	81.343(5)	86.819(5)	1841.8(11)
Y	9.3193(11)	11.8459(14)	17.601(2)	82.597(2)	82.102(2)	87.194(2)	1907.6(4)
Eu	9.25	11.64	18.01	80.39	81.40	87.11	1904.252
Tb	9.31	11.67	18.20	81.91	82.88	88.101	1910.328
Gd	9.26	11.54	18.21	80.981	81.55	88.21	1887.182

2. Luminescent Measurements

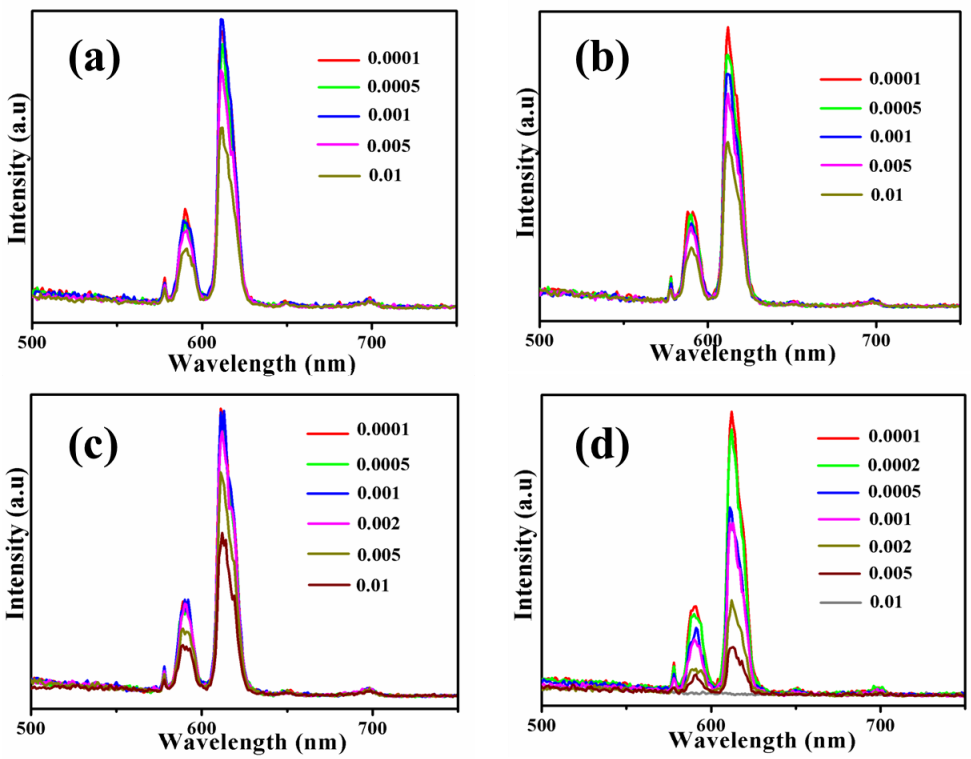

Fig. S1 Comparison of the emission intensity of M^{n+}-**EuL** (a) Ag^{+}, (b) Cu^{2+}, (c) Fe^{2+}, (d) Fe^{3+} immersing in different concentrations of $M(NO_3)_x$ aqueous solution, λ_{ex} = 320 nm.

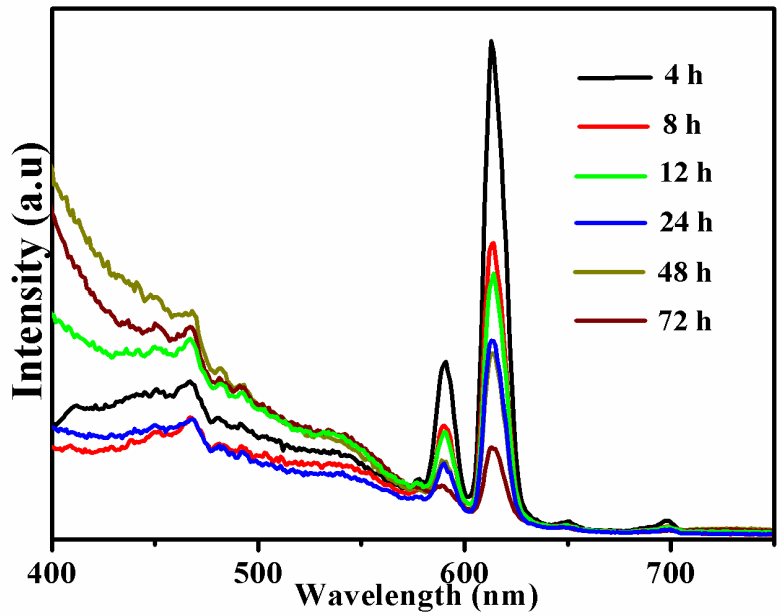

Fig. S2 PL emission spectra (λ_{ex} = 320 nm) of the Fe^{3+}-**EuL** samples obtained at different reaction times.

3. PXRD Analysis

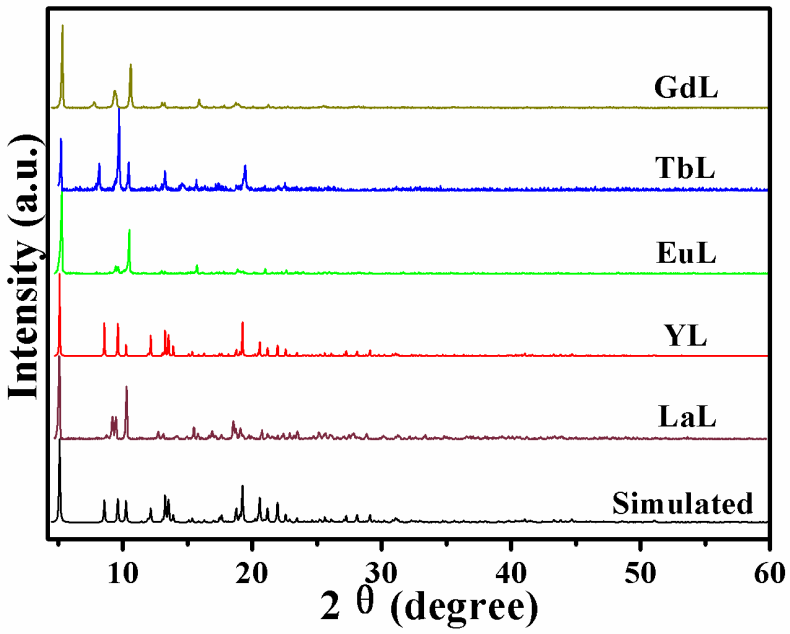

Fig. S3 Powder XRD patterns of compounds **LnL** (Ln = La, Y, Eu, Tb, Gd).

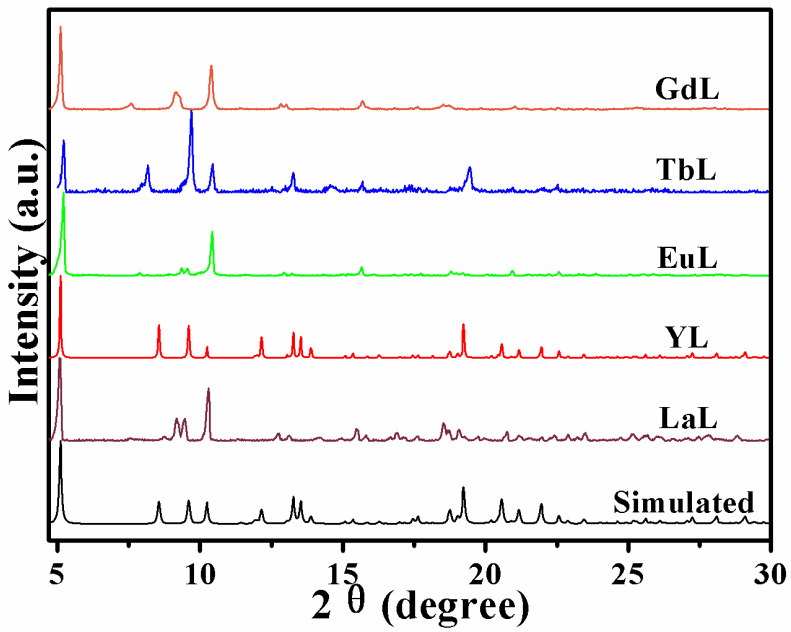

Fig. S4 Powder XRD patterns of compounds **LnL** (Ln = La, Y, Eu, Tb, Gd) in the range from 5 to 30 degrees. Some trace amount of unknown impurities still exist in **GdL** and **TbL**.

4. TGA analyses

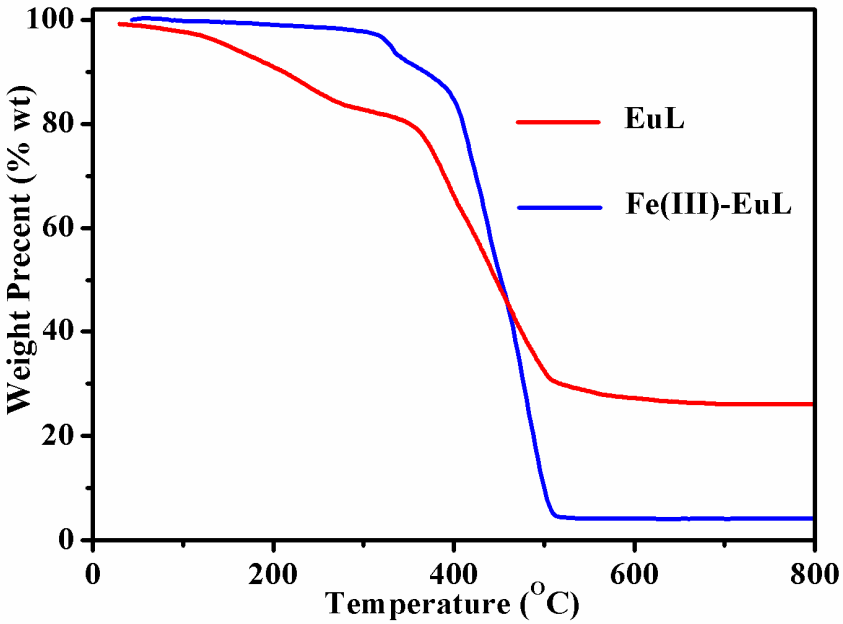

Fig. S5 Thermogravimetric analyses of **EuL** and Fe(III)-**EuL**.