Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C.

Supporting information

A Visual Logic Alarm Sensor for Diabetic Patients towards Diabetic Polyneuropathy Based on Metal-Organic Framework Functionalized by Dual-Cation Exchange

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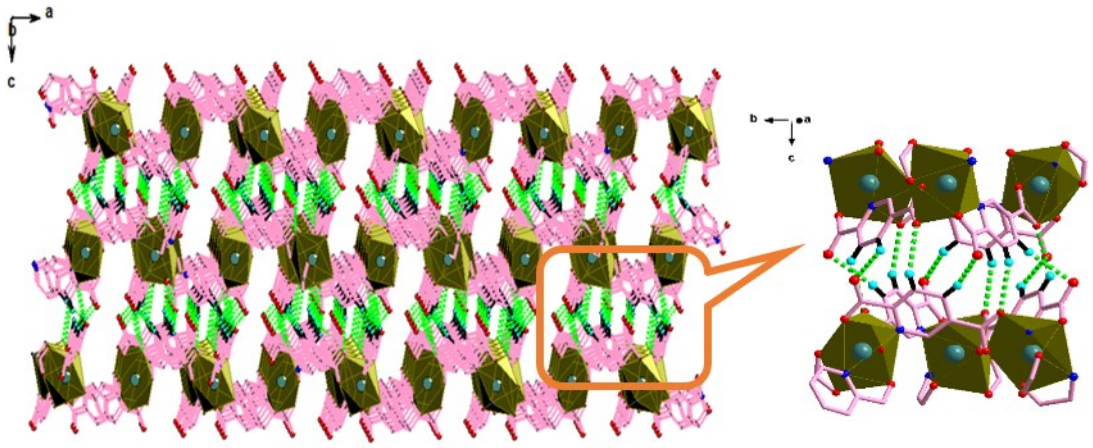

Figure S1 Packing view of the In-pdc layers stacked along *c* direction based on C4–H4···O4 and C5–H5···O2 hydrogen bonds.

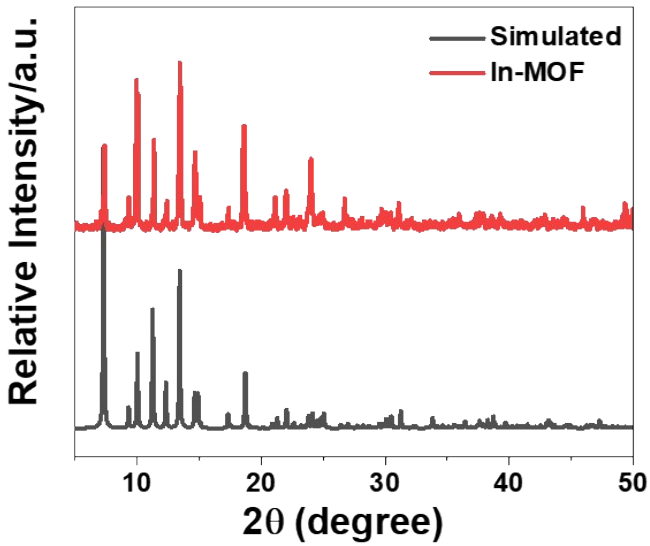

Figure S2 The PXRD patterns of **In-MOF** and simulated one.

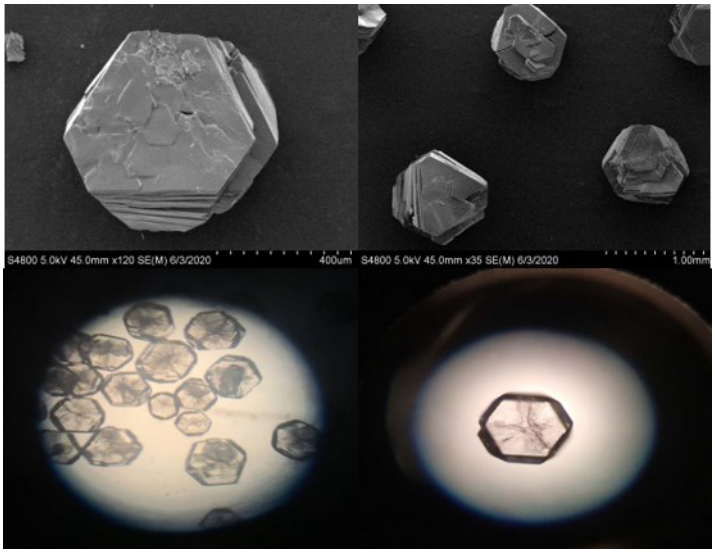

Figure S3 The SEM image and optical images of **In-MOF**.

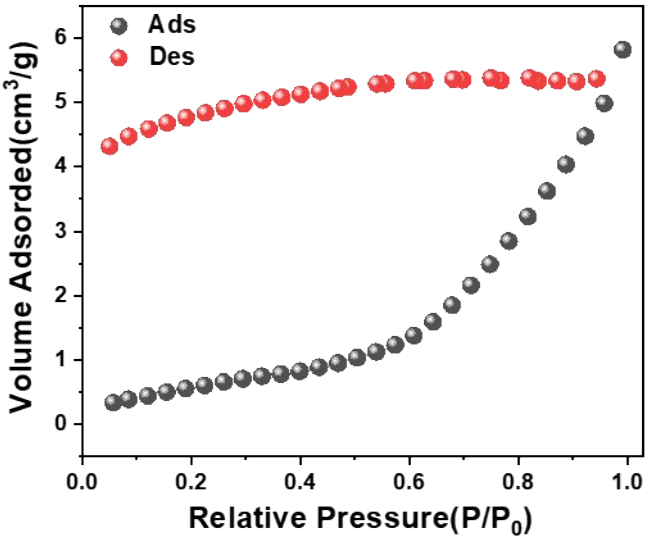

Figure S4 N_2 adsorption/desorption isotherms of **In-MOF**.

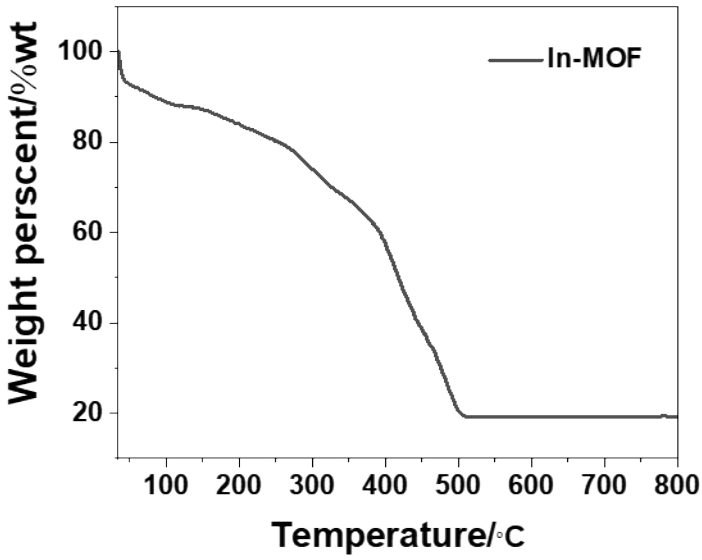

Figure S55 Thermal gravimetric analysis curves for **In-MOF**.

1

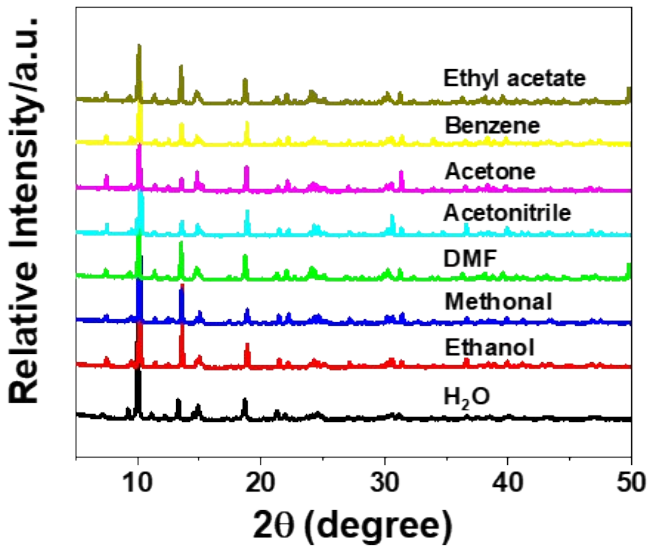

Figure S6 PXRD of **In-MOF** after being immersed in common solvents.

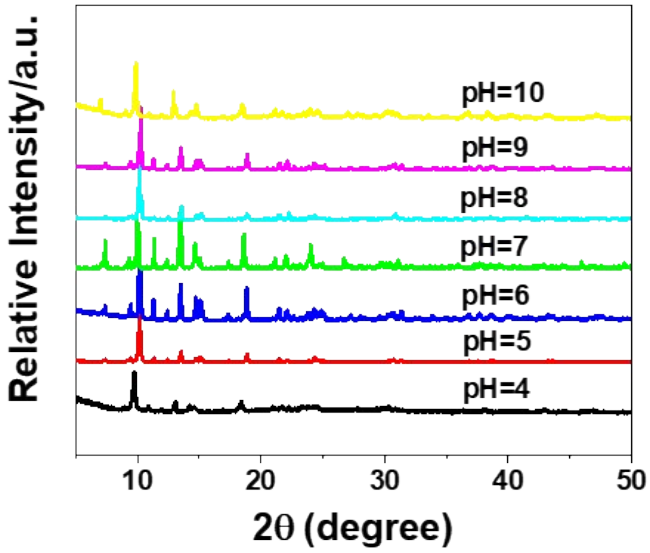

Figure S7 PXRD of **In-MOF** after being immersed in the solutions of pH = 4-10.

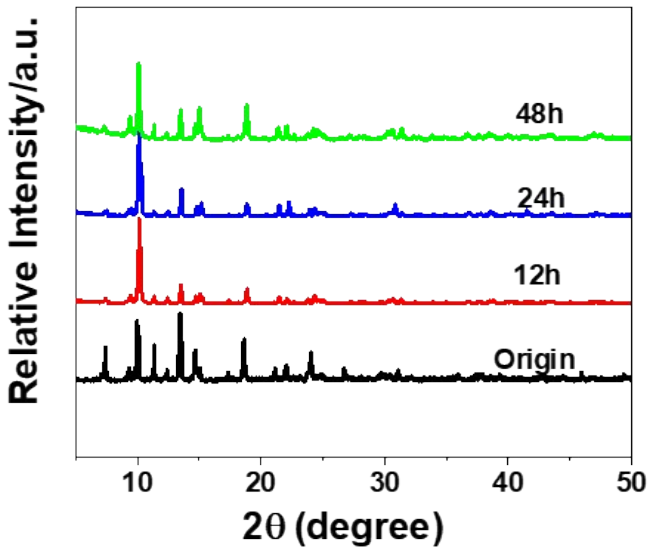

Figure S8 PXRD of **In-MOF** after being immersed in the H_2O for 12-48h.

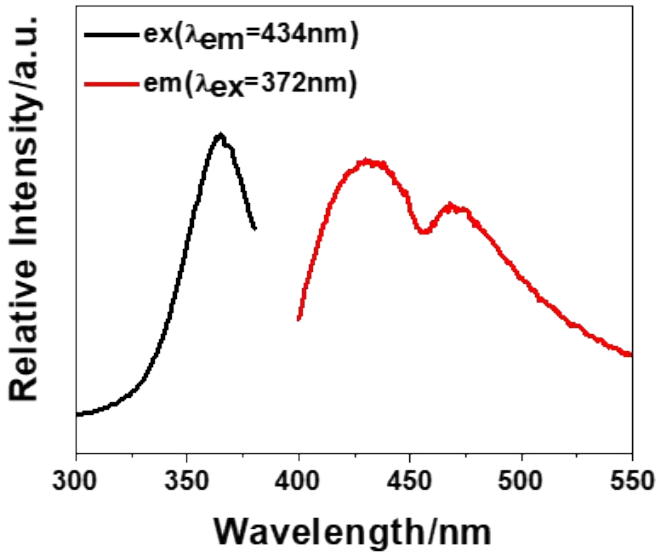

Figure S9 Excitation (black line) and emission (red line) spectra of H_2pdc.

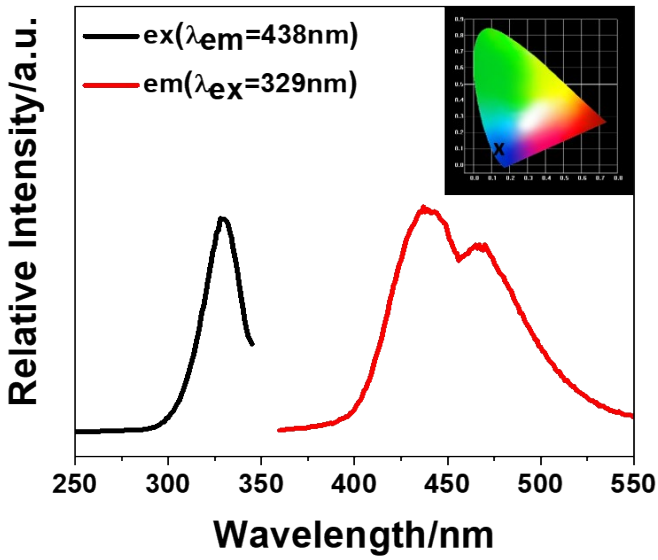

Figure S10 Excitation (black line) and emission (red line) spectra of **In-MOF** (The inset is the corresponding CIE chromaticity diagram of **In-MOF**).

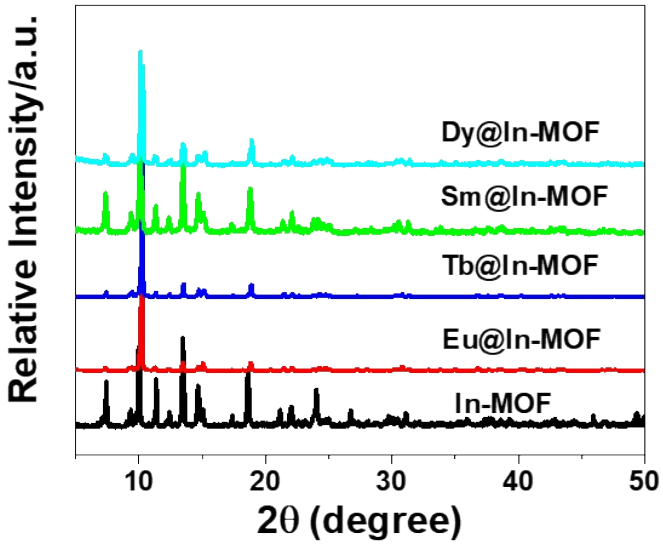

Figure S11 PXRD of **Eu@In-MOF**, **Tb@In-MOF**, **Sm@In-MOF** and **Dy@In-MOF**.

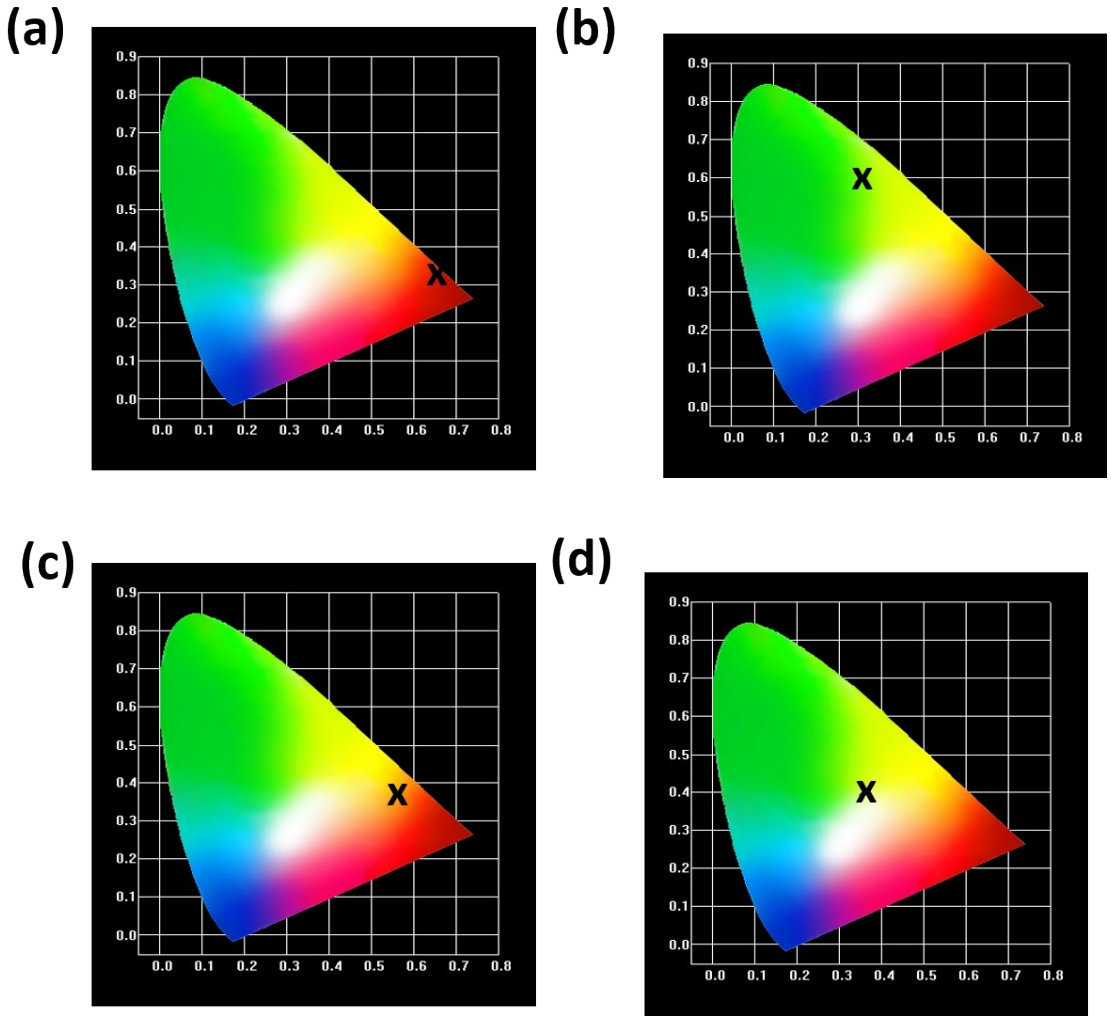

Figure S12 Corresponding CIE chromaticity diagram of (a) **Eu@In-MOF**; (b) **Tb@In-MOF** (c) **Sm@In-**

MOF; (d) **Dy@In-MOF**.

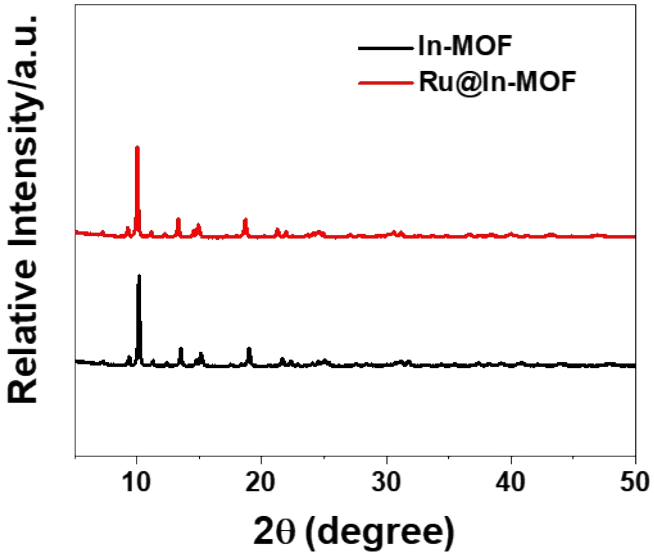

Figure S13 PXRD of **In-MOF** and **Ru@In-MOF**.

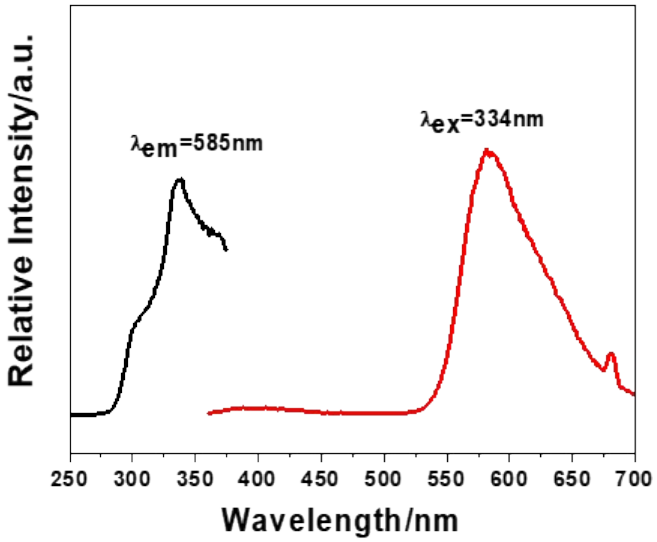

Figure S14 Excitation (black line) and emission (red line) spectra of **Ru@In-MOF**.

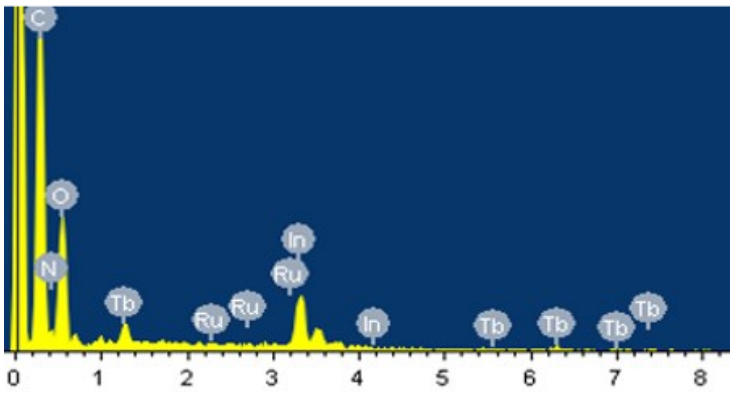

Figure S15 Energy dispersive analysis by X-rays (EDX) spectroscopy of **Ru/Tb@In-MOF**.

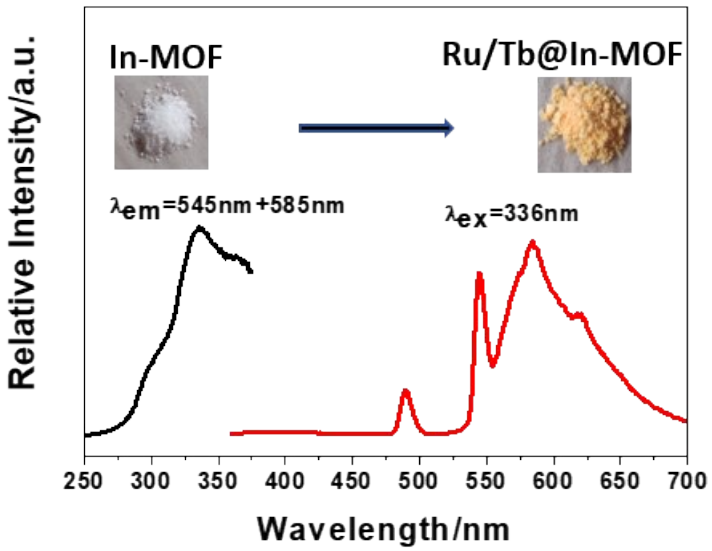

Figure S16 Excitation (black line) and emission (red line) spectra of **Ru/Tb@In-MOF** (The inset is the photo of In-MOF and Ru/Tb@In-MOF power).

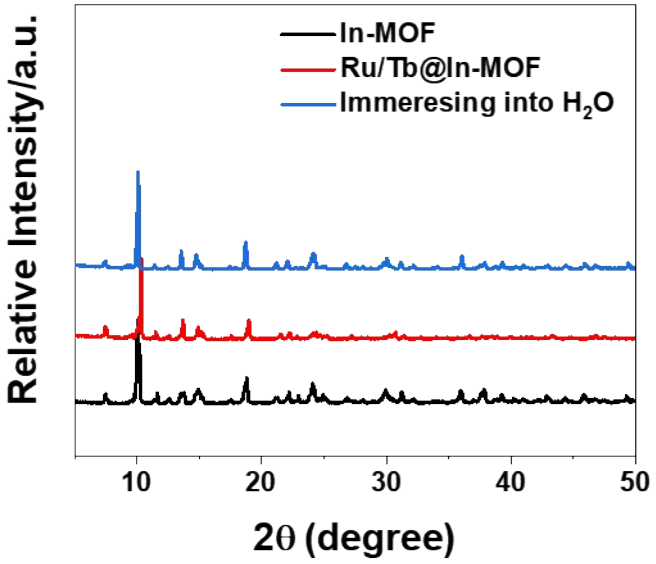

Figure S17 PXRD patterns of **In-MOF**, **Ru/Tb@In-MOF** and **Ru/Tb@In-MOF** immersing into H_2O.

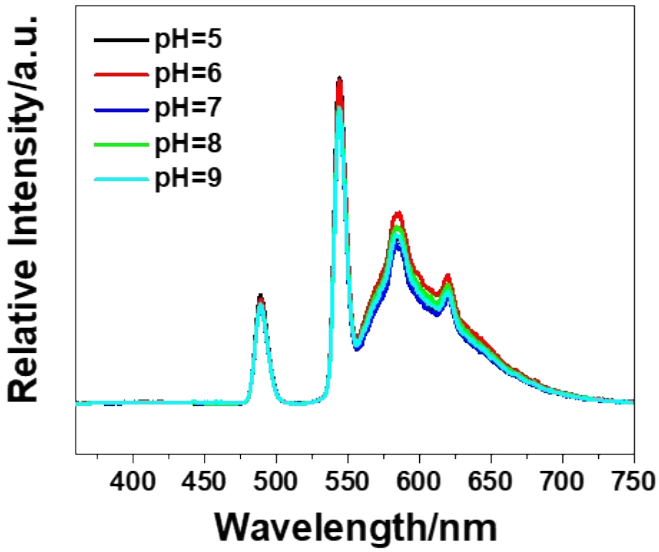

Figure S18 Emission spectra of **Ru/Tb@In-MOF** in different pH solutions.

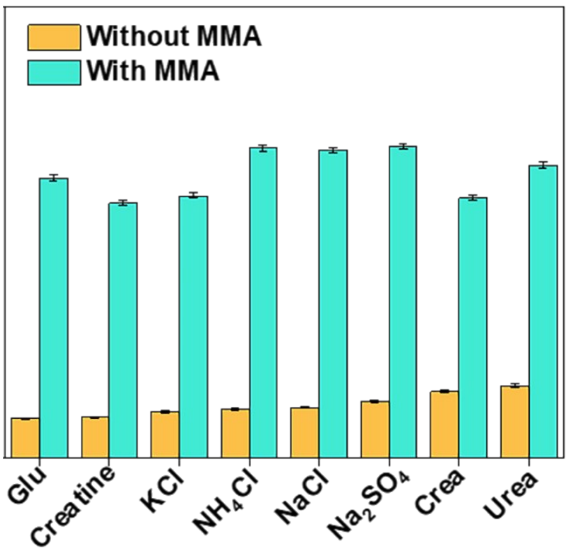

Figure S19 Luminescence responses of **Ru/Tb@In-MOF** (I_{585nm}/I_{545nm}) toward other urine components with and without MMA.

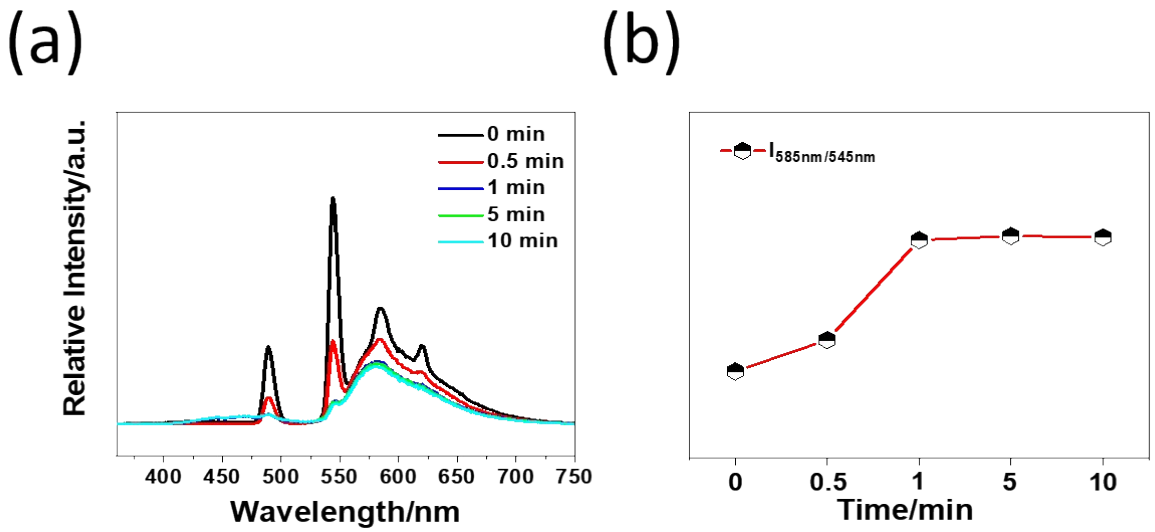

Figure S20 (a)Variation of luminescent intensity of **Ru/Tb@In-MOF** with different immersion time in MMA; (b) The corresponding line chart.

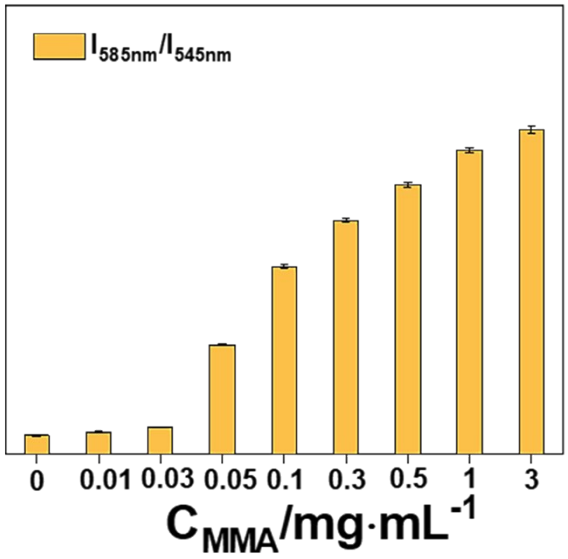

Figure S21 The column diagram of the fluorescence intensity of **Ru/Tb@In-MOF** (I_{585nm}/I_{545nm}) after immersing into different concentrations of MMA.

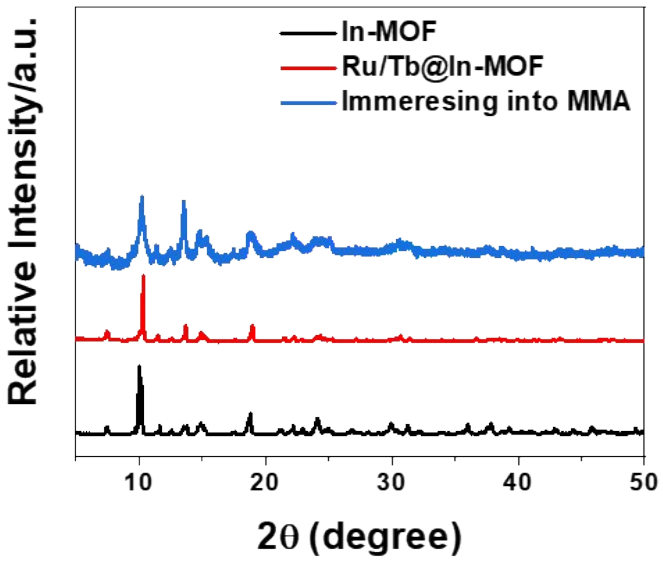

Figure S22 PXRD patterns of **In-MOF**, **Ru/Tb@In-MOF** and **Ru/Tb@In-MOF** immersing into MMA.

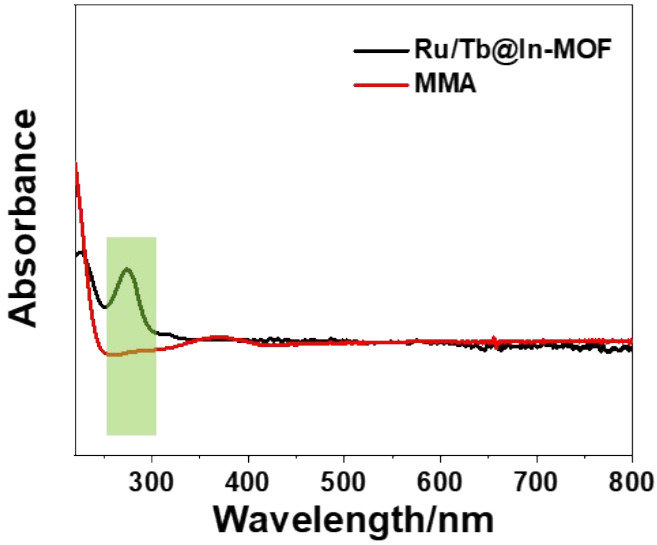

Figure S23 UV-vis spectra of **Ru/Tb@In-MOF** and MMA.

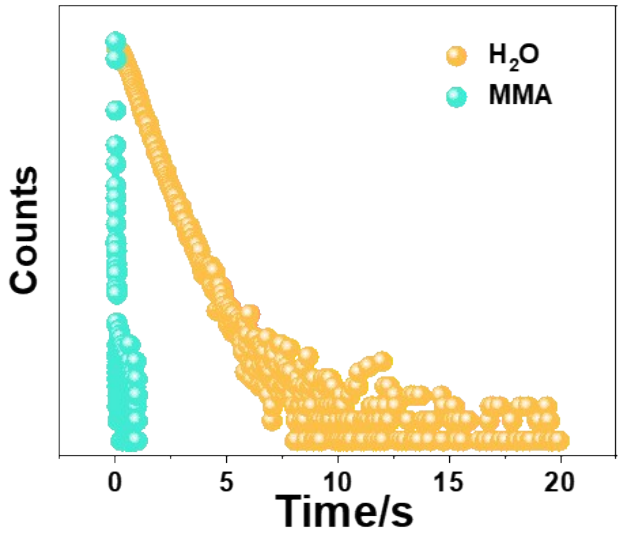

Figure S24 Luminescence decay curves of **Ru/Tb@In-MOF** immersed in H_2O and MMA.

Table S1 Crystal data and structure refinement for **In-MOF**

Complex	**In-MOF**
Empirical formula	$C_{16}H_{14}N_3O_8In$
Formula weight	491.03
monoclinic	
Space group	R-3c
a / Å	15.7001(4)
b / Å	15.7001(4)
c / Å	52.849(3)
α/(°)	90
β/(°)	90
γ / (°)	120
Volume / Å ^{3}	11281.6(8)
Z	18
Calculated density / mg· m^{-3}	1.179
Absorption coefficient / mm^{-1}	0.972
F(000)	3906
Crystal size / mm	0.36 × 0.24 × 0.12
θ Range for data collection / (°)	3.09-27.573
Limiting indices	-20<=h<=20 -20<=k<=20 -68<=l<=67
Reflections collected / unique	50685/2905 [R(int)=0.0625]
Data / restraints / parameters	2905/0/114
Goodness-of-fit on F^2	1.050
R_1 [*I* > 2sigma(*I*)]	0.0518
wR_2 [*I* > 2sigma(*I*)]	0.1904
R_1 [all data]	0.0650
wR_2 [all data]	0.2005
Largest diff. peak and hole / e·$Å^{-3}$	2.291 and -0.800
CCDC	2023759

Table S2 Selected bond lengths [Å] for **In-MOF**

In-MOF	
In(1)-O(1)#1	2.157(4)
In(1)-O(1)	2.157(4)
In(1)-O(3)#2	2.199(4)
In(1)-O(3)#3	2.199(4)
In(1)-N(1)#2	2.269(4)
In(1)-N(1)#3	2.269(4)
O(1)#1-In(1)-O(1)	95.0(2)
O(1)-In(1)-O(3)#3	83.75(16)
O(1)-In(1)-O(3)#2	125.08(15)
O(1)#1-In(1)-O(3)#3	125.07(15)
O(1)#1-In(1)-O(3)#2	83.75(16)
O(1)#1-In(1)-N(1)#3	86.30(16)
O(1)-In(1)-N(1)#2	86.31(16)
O(1)-In(1)-N(1)#3	152.07(16)
O(1)#1-In(1)-N(1)#2	152.08(16)
O(3)#3-In(1)-O(3)#2	139.6(2)
O(3)#2-In(1)-N(1)#2	72.93(14)
O(3)#2-In(1)-N(1)#3	82.82(15)
O(3)#3-In(1)-N(1)#3	72.94(14)
O(3)#3-In(1)-N(1)#2	82.83(15)
N(1)#3-In(1)-N(1)#2	105.3(2)

Symmetry transformations used to generate equivalent atoms: #1 -x+4/3, -x+y+2/3, -z+7/6; #2 -y+1, x-y+1, z; #3 y+1/3, x+2/3, -z+7/6.

Table S3 Repeated ICP-MS results of **Ru/Tb@In-MOF**.

Ru/Tb@TJU-12	Content of In	Content of Tb	Content of Ru
1	**14.96%**	**5.27%**	**3.26%**
2	**15.15%**	**4.91%**	**3.57%**
3	**14.68%**	**5.05%**	**3.06%**

Table S4 The luminescence decay times of **Ru/Tb@In-MOF** in H_2O and MMA.

Substance	Lifetimes(μs)
H_2O	**858.53μs**
MMA	**10.31μs**