

## **Nanoscaled Luminescent Terbium Metal-Organic Frameworks for Measuring and Scavenging Reactive Oxygen Species in Living Cells**

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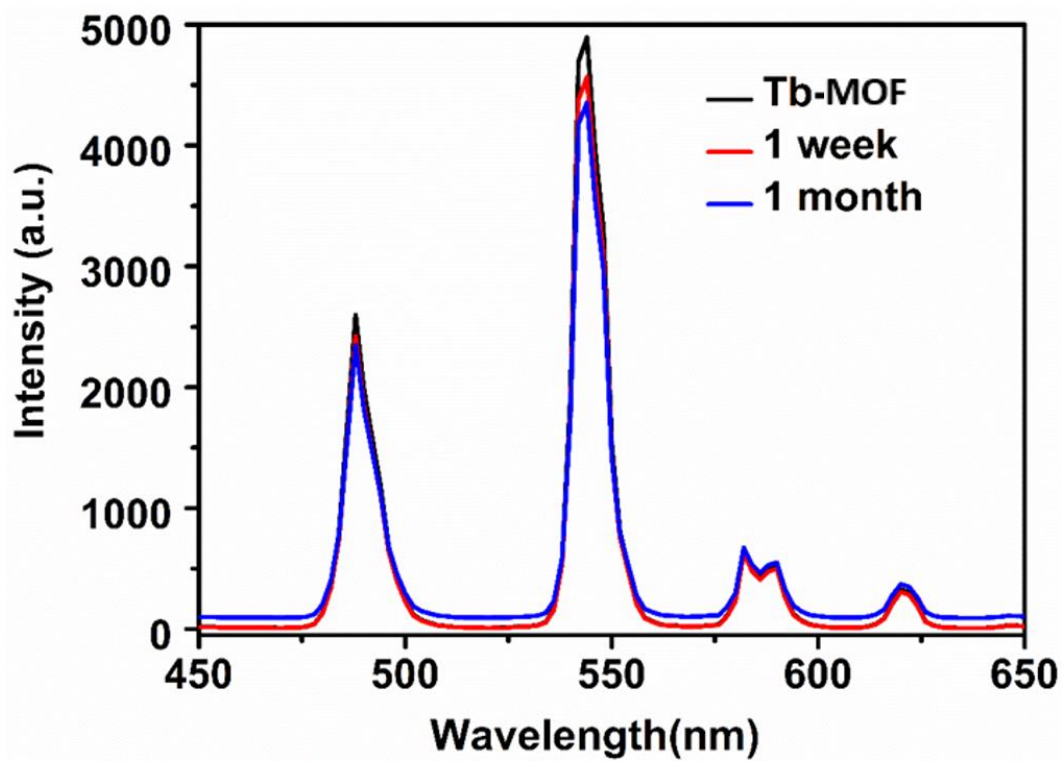
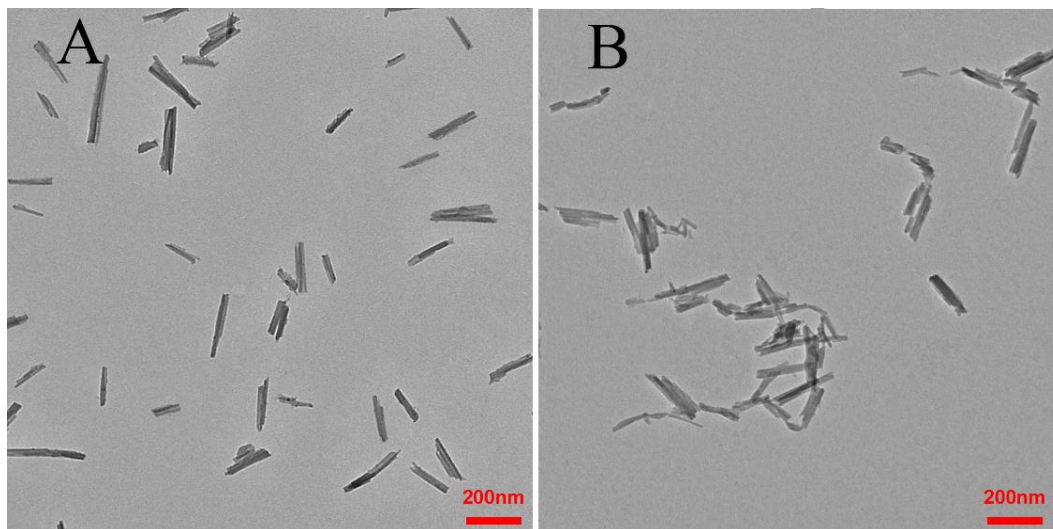
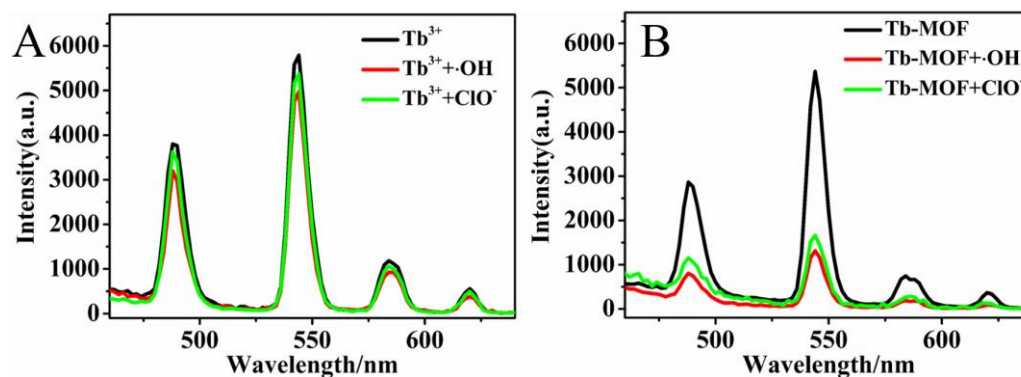


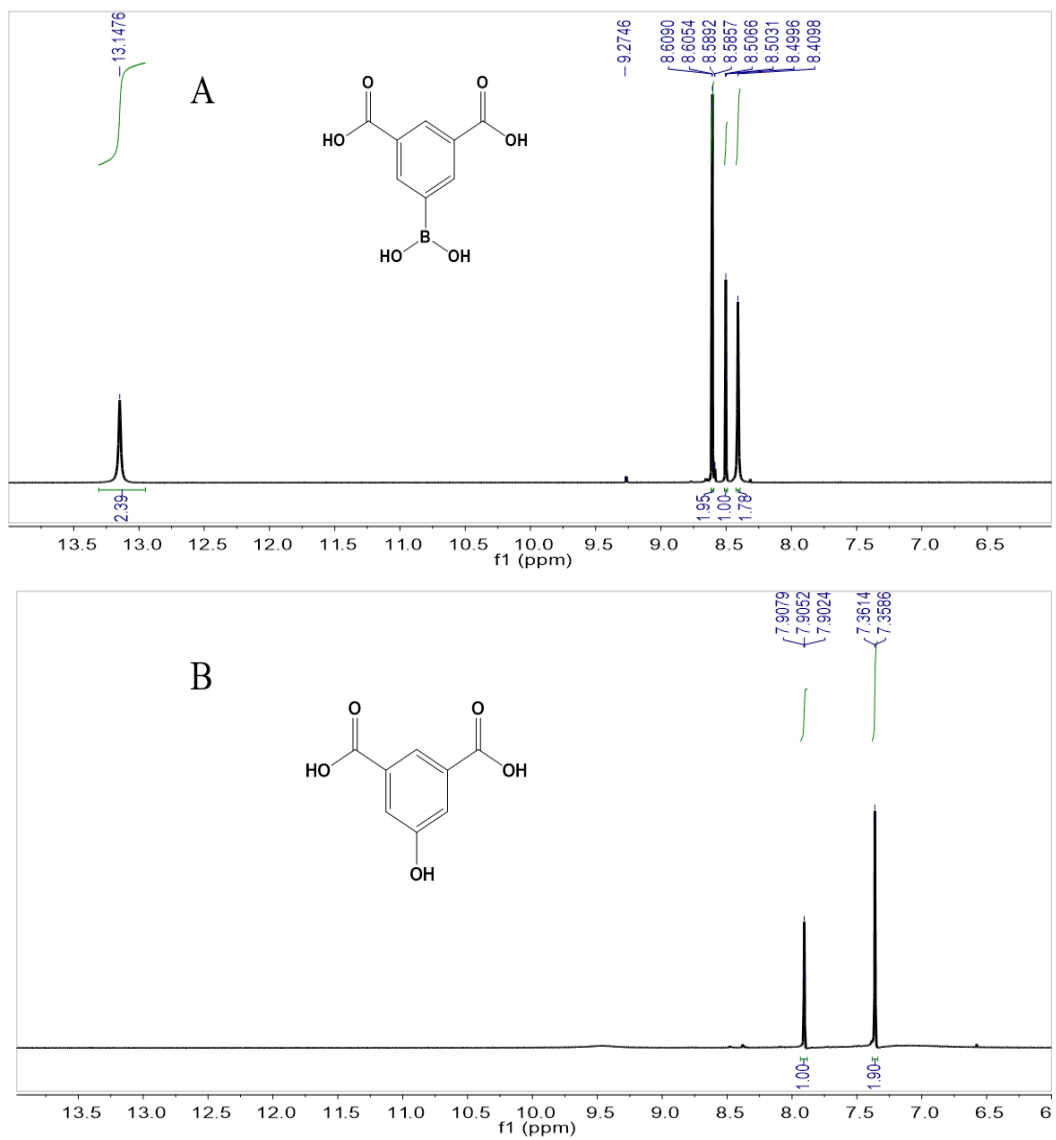
Figure S1. The luminescent stability of Tb-MOF.



**Figure S2.** TEM images of Tb-MOF before (A) and after (B) reacted with ROS.



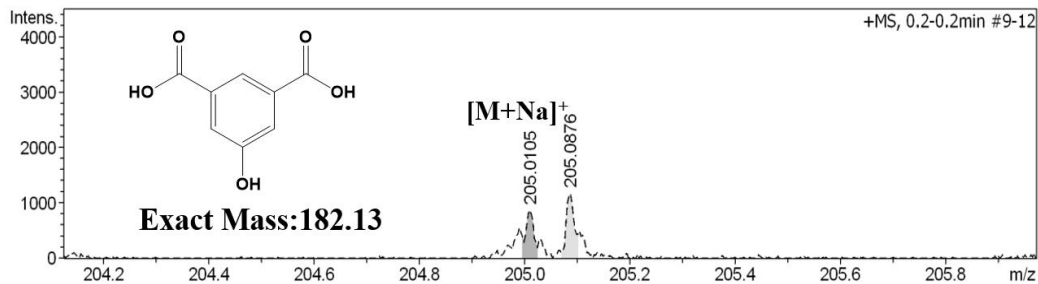
**Figure S3.** The luminescent spectra of  $\text{Tb}^{3+}$  (A) and Tb-MOF (B) without any ROS (black), with  $\cdot\text{OH}$  (red) and  $\text{ClO}^-$  (green), respectively. The concentrations of Tb in Tb-MOF and  $\text{Tb}^{3+}$  are  $1.5 \mu\text{M}$  and  $1.0 \text{mM}$ , respectively. The concentrations for OH and  $\text{ClO}^-$  are  $100 \mu\text{M}$ , respectively.



**Figure S4.**  $^1\text{H}$  NMR of (A) 5-bop in DMSO- $d_6$ :  $\delta$  13.15 (2H, s, COOH), 8.61 (2H, m), 8.51 (1H, t), 8.41 (2H, s). (B)  $\cdot$ OH treated 5-bop in DMSO- $d_6$ :  $\delta$  7.88 (1H, t), 7.34 (2H, d,  $J = 1$  Hz).

**Acquisition Parameter**

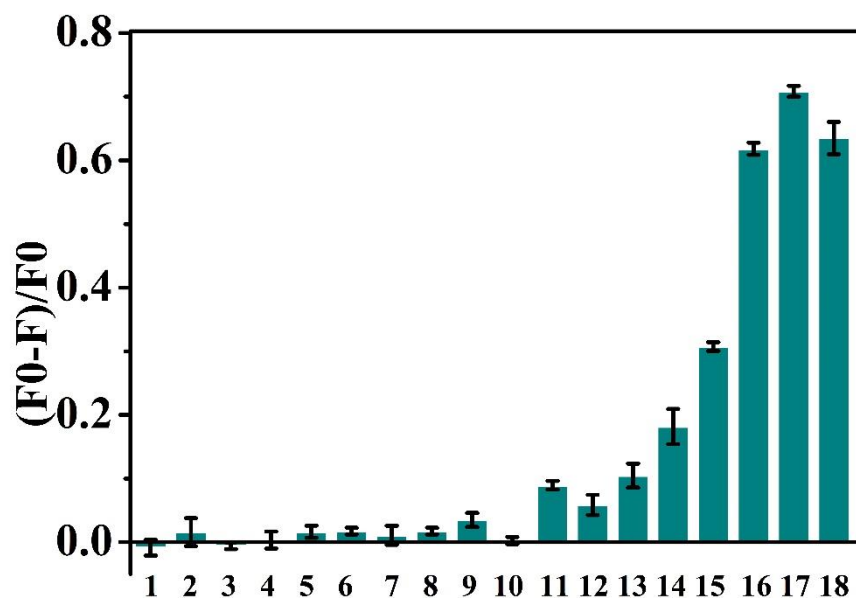
Source Type	ESI	Ion Polarity	Positive	Set Nebulizer	1.5 Bar
Focus	Active	Set Capillary	3700 V	Set Dry Heater	180 °C
Scan Begin	50 m/z	Set End Plate Offset	-500 V	Set Dry Gas	6.0 l/min
Scan End	1200 m/z	Set Collision Cell RF	500.0 Vpp	Set Divert Valve	Waste



#	m/z	Res.	S/N	I	I %	FWHM
1	205.0105	12744	14.3	864	73.7	0.0161
2	205.0876	12396	19.5	1172	100.0	0.0165

Meas. m/z	#	Ion Formula	m/z	err [ppm]	mSigma	Score	rdb	e <sup>-</sup> Conf	N-Rule
205.0105	1	C <sub>8</sub> H <sub>6</sub> NaO <sub>5</sub>	205.0107	1.3	52.1	1	100.00	5.5	even ok

**Figure S5.** ESI-MS spectrum of  $\cdot\text{OH}$  treated Tb-MOF 8 mg Tb-MOF were firstly treated with  $\cdot\text{OH}$ , and then digested with 72  $\mu\text{L}$  (48% aqueous solution) HF and dissolved in 928  $\mu\text{L}$  MeOH.



**Figure S6.** Luminescence intensities of Tb-MOF in presence of ROS (50  $\mu$ M) and common ions (50  $\mu$ M). (1) blank, (2) Na<sup>+</sup>, (3) K<sup>+</sup>, (4) Mg<sup>2+</sup>, (5) Ca<sup>2+</sup>, (6) Zn<sup>2+</sup>, (7) Cl<sup>-</sup>, (8) NO<sub>3</sub><sup>-</sup>, (9) NO<sub>2</sub><sup>-</sup>, (10) GSH, (11) Fe<sup>2+</sup>, (12) Fe<sup>3+</sup>, (13) H<sub>2</sub>O<sub>2</sub>, (14) O<sub>2</sub><sup>•-</sup>, (15) <sup>1</sup>O<sub>2</sub>, (16) ClO<sup>-</sup>, (17) ONOO<sup>-</sup>, (18) •OH.