Suporting Information for

Water Soluble Lanthanide-Titanium-Oxo-Clusters, the Precursors for Bio-Compatible Nanomaterials

Wen Luo, Dan-Hong Zou, Shen Yang, Li-Na Cui, Pei-Yi Liu, Qin-Yu Zhu,* and Jie Dai*

[a] College of Chemistry, Chemical Engineering and Materials Science, Soochow University, Suzhou 215123, People's Republic of China.

[b] The Key Laboratory of Rare Earth Functional Materials and Applications, Zhoukou Normal University, Zhoukou 466001, People's Republic of China.

E-mail: daijie@suda.edu.cn; zhuqinyu@suda.edu.cn

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The limit of detection (LOD) of AA was evaluated by the following equations:

$I/I_0 = 0.95867 - 0.01081\ C_{AA}$ $R^2 = 0.98449$

the slope of the linear relationship : S = 0.01081 μ mol/l

the standard deviation for replicating detections of blank solutions :

$S_b = \sqrt{\frac{\Sigma\ (F-F0\ )\ 2}{N-1}} = 0.0563\ (N = 20)$

LOD = $\frac{3Sb}{S}$ = 15.62μmol/L.

Where F_0 is the emission intensity of **Eu_2Ti_8** in water, and F is the average of F_0.

The cell viability was determined by the following equation:

Cell viability (%) = (absorbance of test cells/absorbance of blank controlled cells) ×100%.

Figures

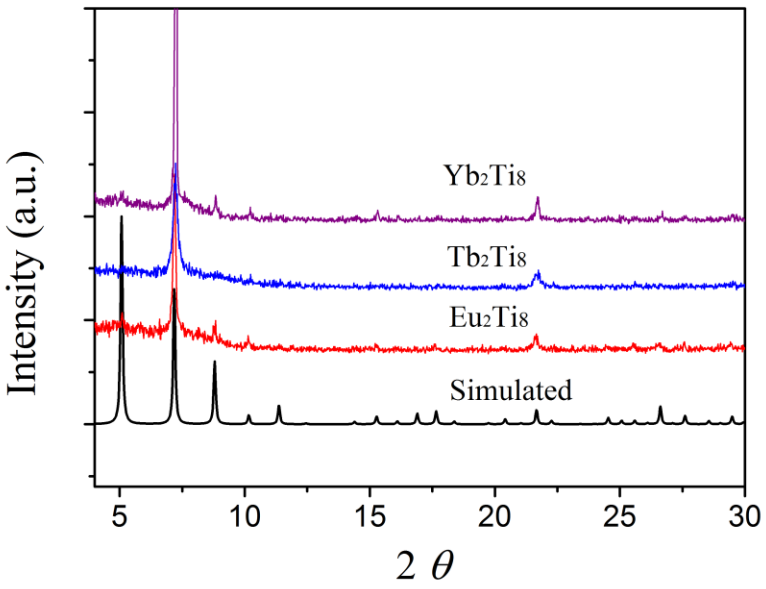


Fig. S1. Comparing the experimental XRD patterns with the calculated pattern from the crystal data.

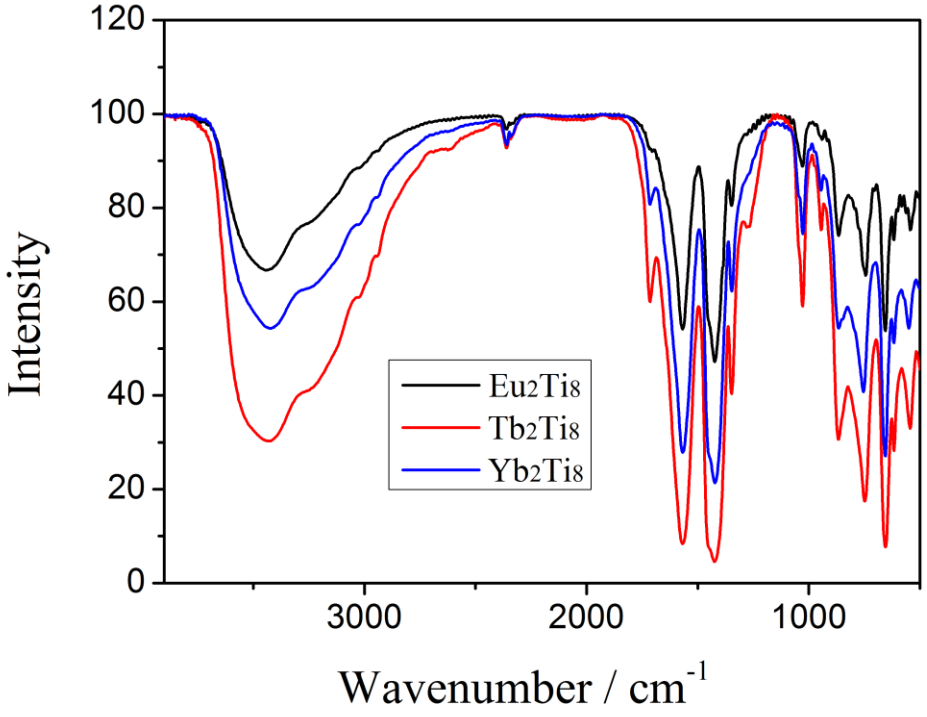


Fig. S2. The FTIR spectra of the clusters **1–3**.

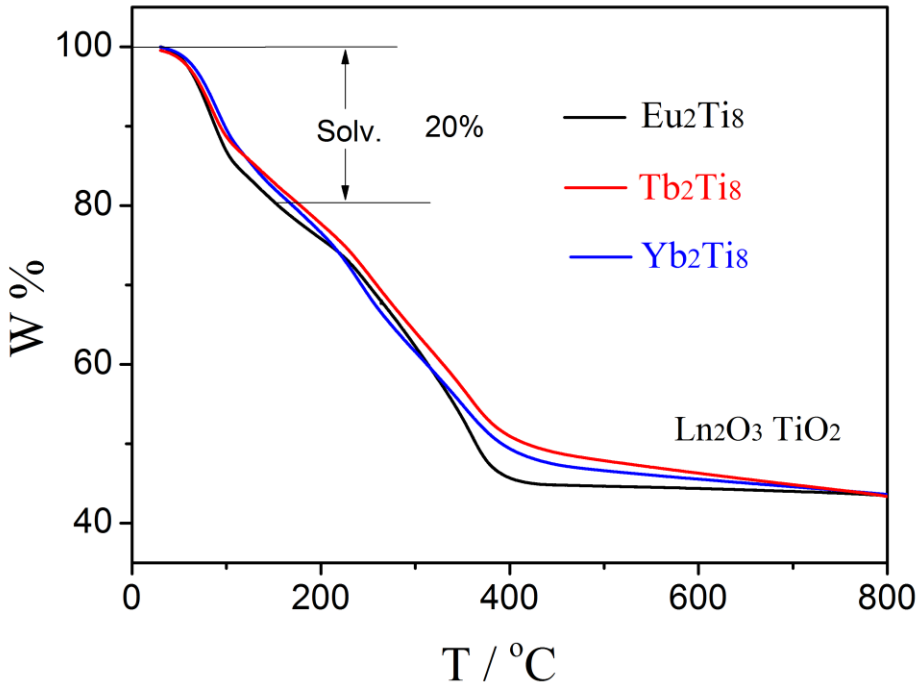


Fig. S3. The TG results of Ln_2Ti_8 using crystal samples, showing the percent of the solvent mo,ecules.

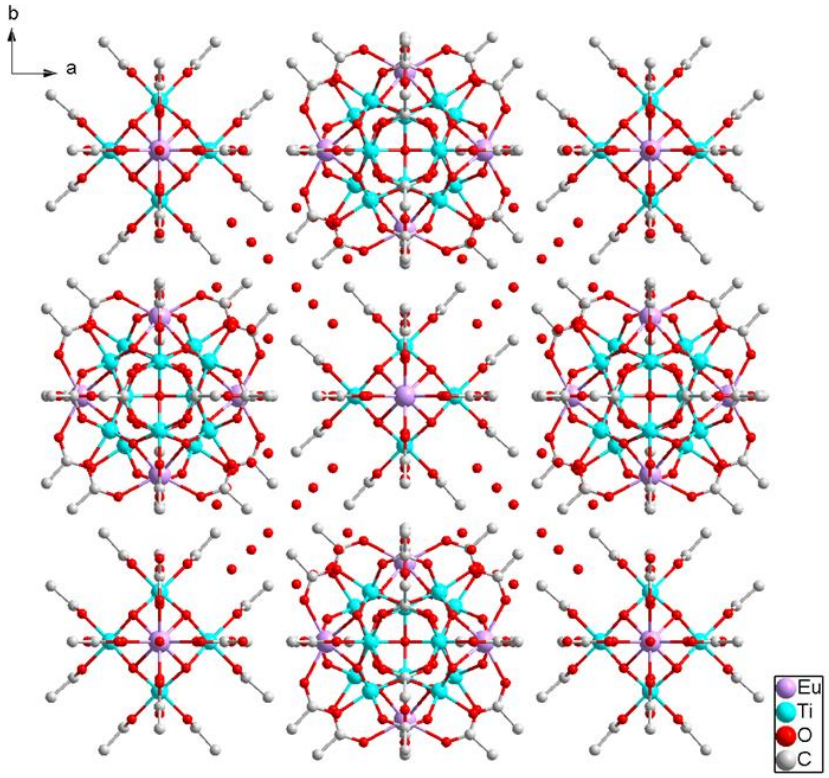


Fig. S4. Molecular packing of cluster **1** in the unit cell.

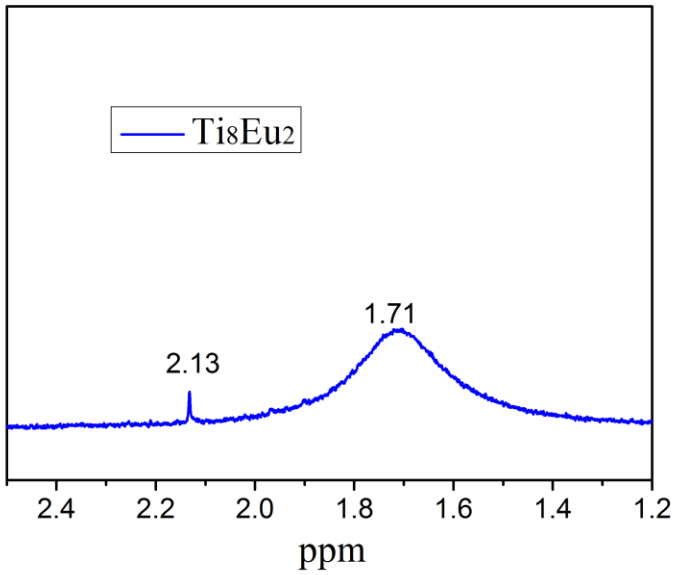
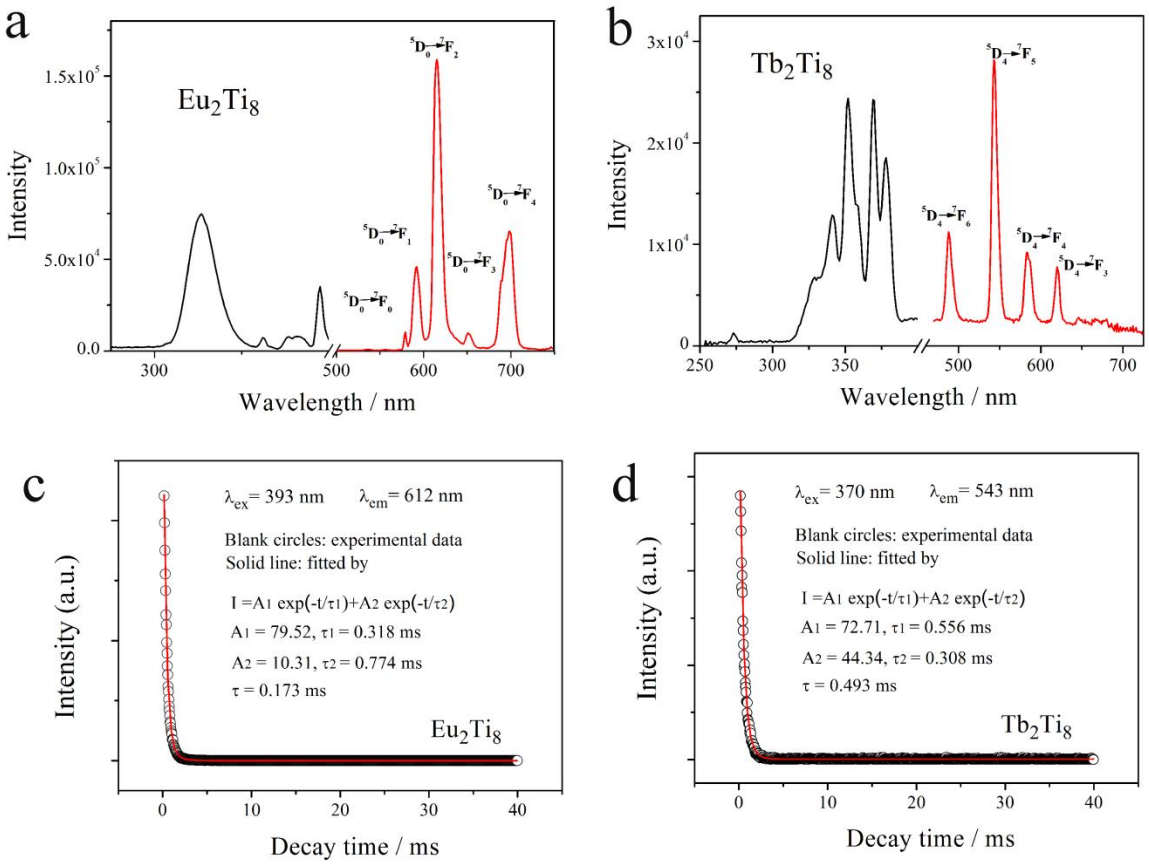


Fig. S5. The spectra of ^{1}H NMR for compound **1**.



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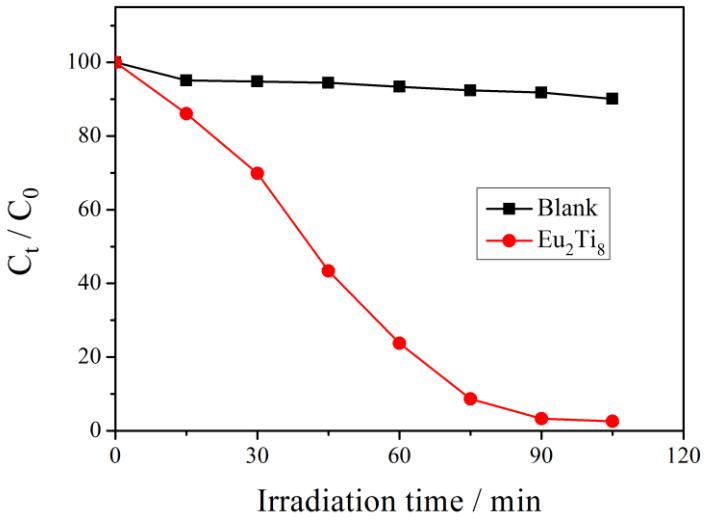

Fig. S7. Photocatalytic degradation of RhB (5 mg / L) using **EuTiO-a** under xenon lamp light illumination.

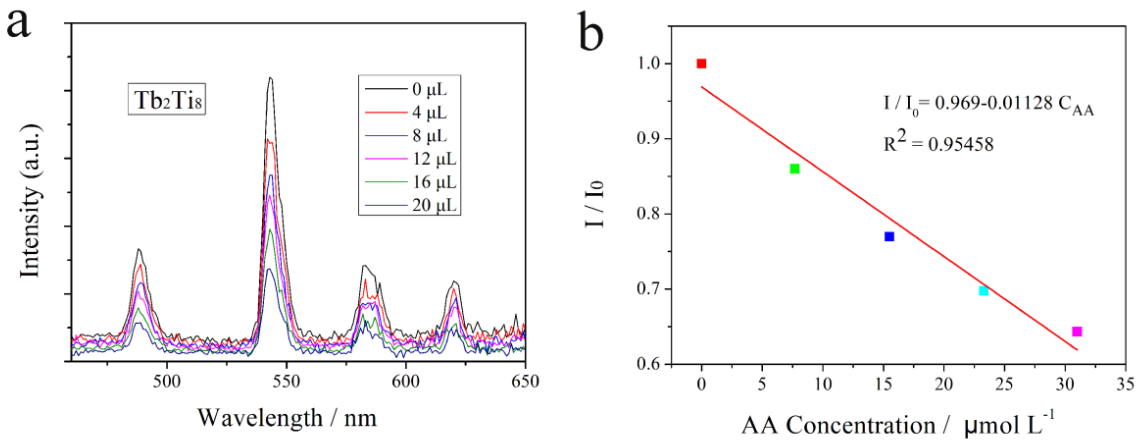

Fig. S8. (a) Fluorescence quenching of **Tb_2Ti_8** in water with the AA volume increasing. (b) Linear correlation between the integral area of luminescence spectra change and the concentration of AA at concentrations from 0 to 20 μmol.

Table 1 Relevant crystal data, collection parameters, and refinement results for **1**.

	1
formula	$H_{2@}[Eu_2Ti_8(\mu_3\text{-}O)_8(\mu_2\text{-}O)_4(Ac)_{16}]$
fw	1866.62
cryst size (mm^3)	0.15 × 0.12 × 0.10
cryst syst	cubic
space group	*Im*-3*m*
a (Å)	24.5900(12)
b (Å)	24.5900(12)
c (Å)	24.5900(12)
α (deg)	90.000
β (deg)	90.000
γ (deg)	90.000
V ($Å^3$)	14868.8(13)
Z	2
ρ_{calcd} (g cm^{-3})	1.476
F(000)	6356
μ (mm^{-1})	1.940
T (K)	120(2)
reflns	47229
unique reflns	1799
observed	1451
no. params	90
GOF on F^2	1.149
R_1	0.0592
R_1 [I>2σ(*I*)]	0.0421
$_wR_2$	0.1593
$_wR_2$ [I>2σ(*I*)]	0.1389