

Supporting information for
Molecular Ladders of lanthanide-3-phenyl-4-benzoyl-5-isoxazolonate
and bis(2-(diphenylphosphino)phenyl) ether oxide complexes: Role of
Ancillary Ligand in the Sensitization Process of Eu³⁺ and Tb³⁺
Luminescence

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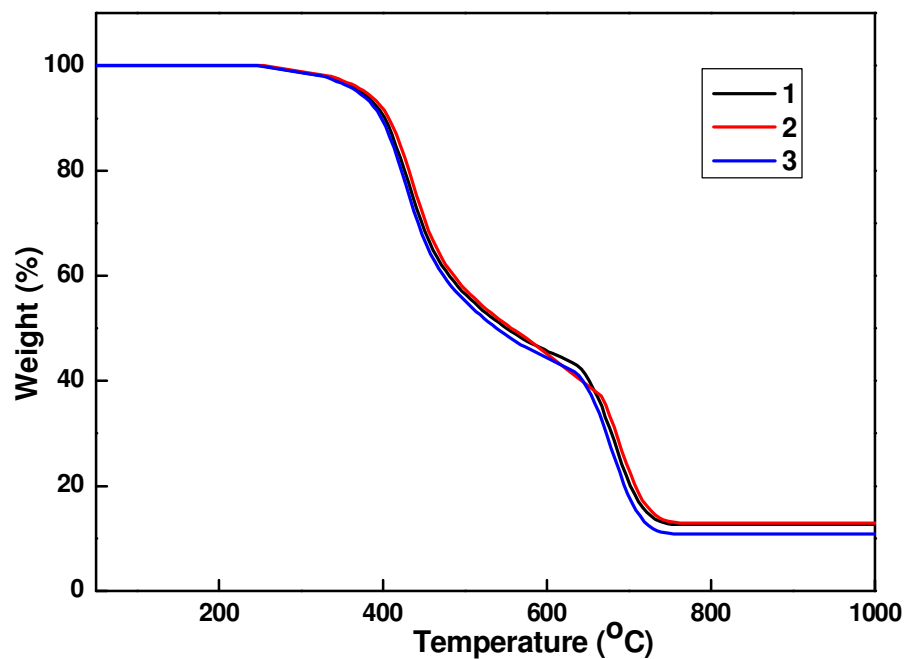


Figure S1. Thermo gravimetric curve for complexes 1-3.

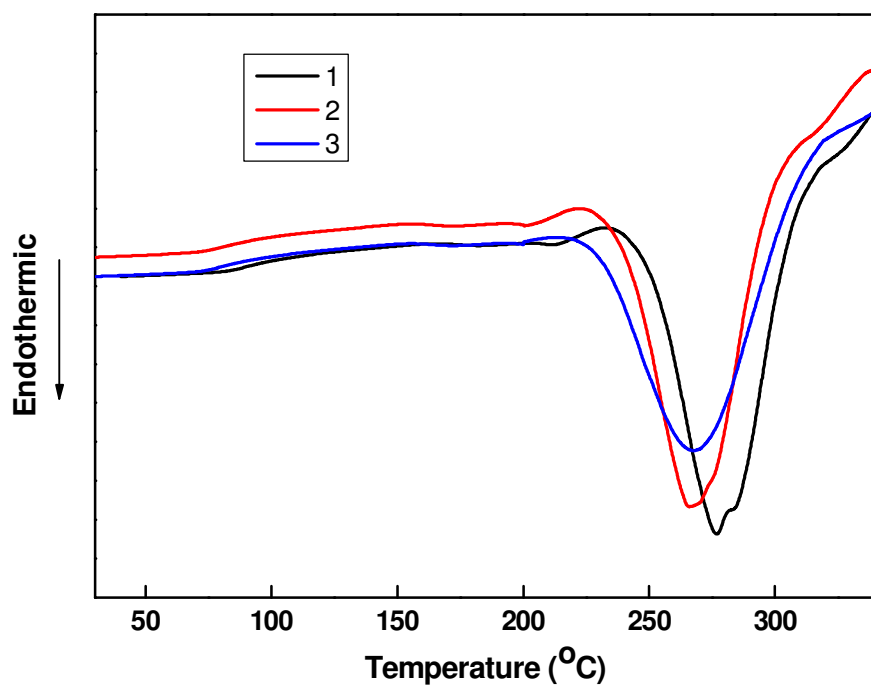


Figure S2. DSC curves of the complexes 1-3 recorded in dynamic nitrogen atmosphere ($50 \text{ ml} \cdot \text{min}^{-1}$), and heating rate 10°C .

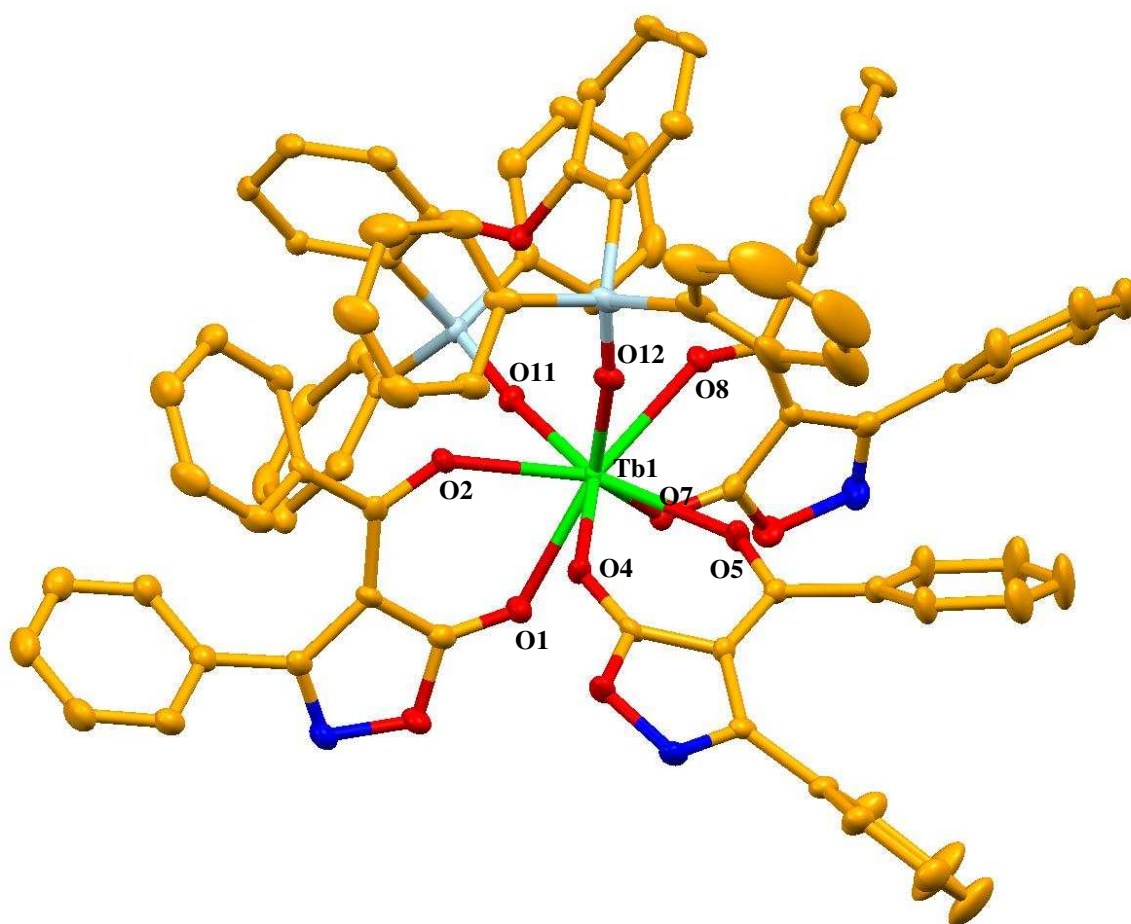


Figure S3. Asymmetric unit of complex 2. Thermal ellipsoids are shown at the 30% probability level and all hydrogen atoms have been omitted for clarity.

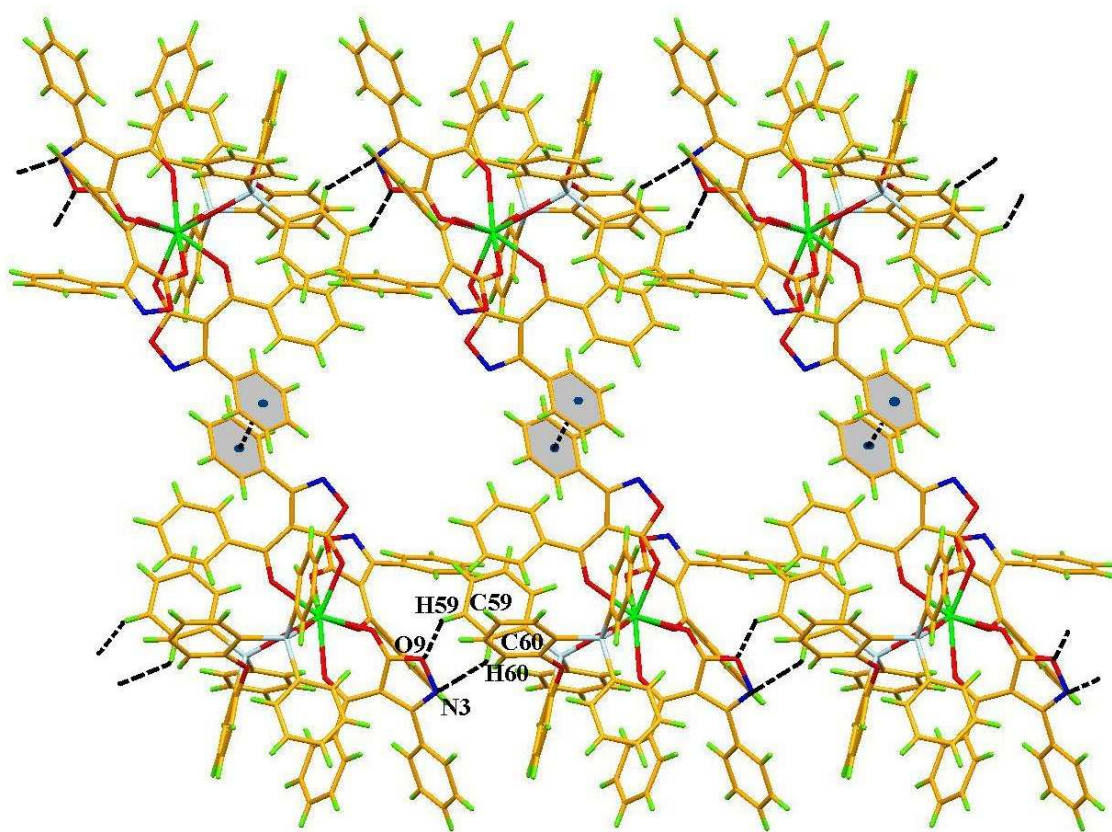


Figure S4. Molecular ladder of complex **2** involving $\pi\cdots\pi$ interactions (C4-C9) and intermolecular hydrogen bonding interactions (C59-H59 \cdots O9, C60-H60 \cdots N3), when viewed along the direction of the *c* axis.

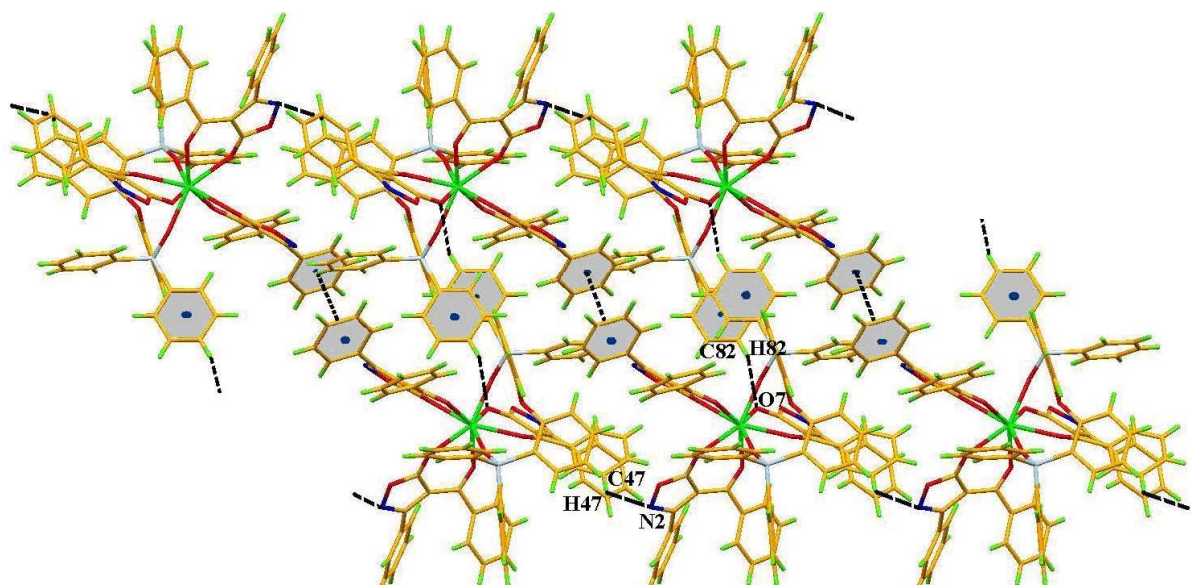


Figure S5. Molecular ladder of complex **2** involving $\pi\cdots\pi$ interactions (C4-C9, C79-C84) and intermolecular hydrogen bonding interactions (C47-H47...N2, C82-H82...O7), when viewed along the direction of the *a* axis.

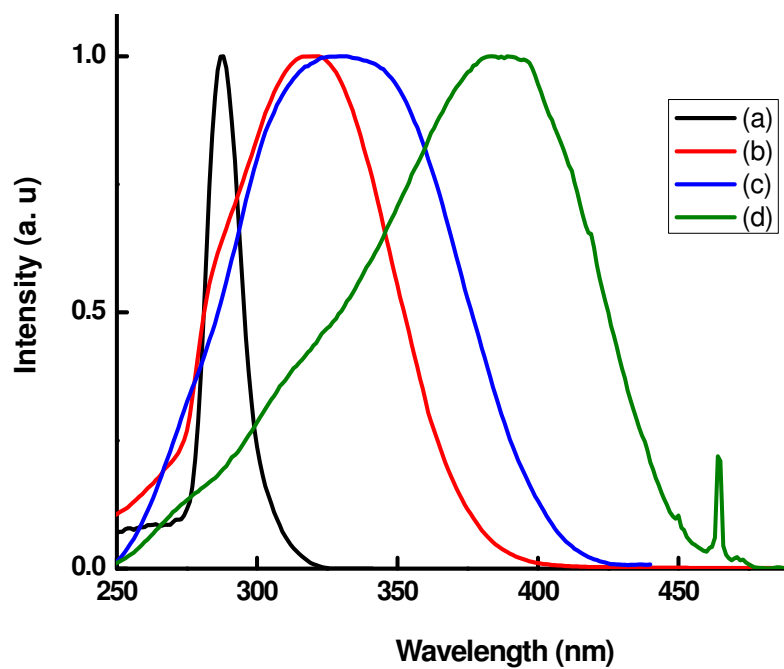


Figure S6 UV-vis absorption spectra of DPEPO (a), HPBI (b) and Excitation spectra of complexes 1 (d) 2 (c); The complexes are in solid state, and the ligands are at 2×10^{-5} M in $\text{CH}_3\text{-CN}$. All spectra are normalized to a constant intensity at the maximum.

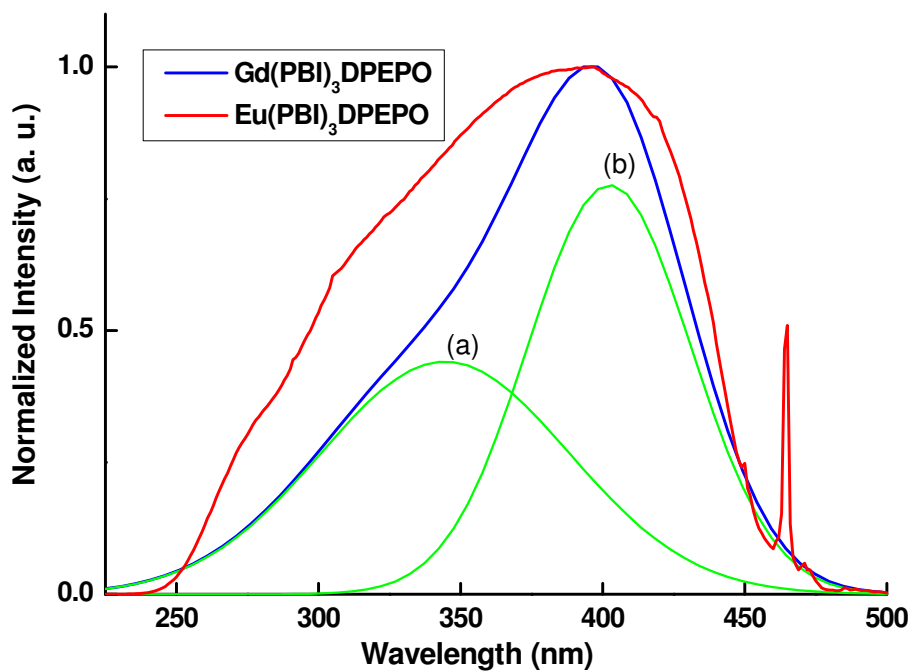


Figure S7. Excitation spectra of complexes **1**, Deconvoluted excitation spectra of **3** emissions monitored around 614 nm, (a) Excitation from DPEPO moiety and (b) Excitation from HPBI moiety

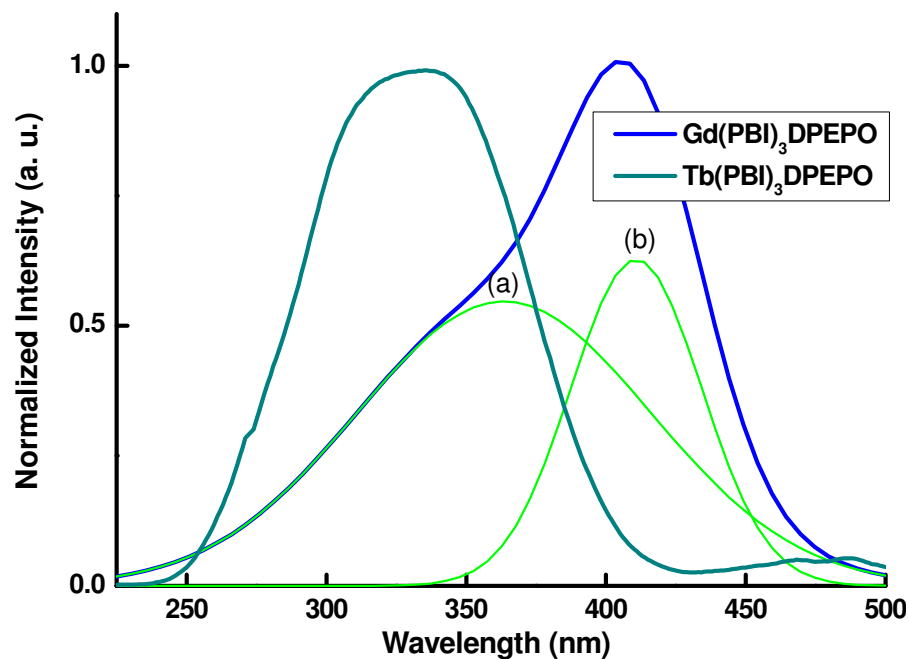


Figure S8. Excitation spectra of complexes **2**, Deconvoluted excitation spectra of **3** emissions monitored around 545 nm, (a) Excitation from DPEPO moiety and (b) Excitation from HPBI moiety

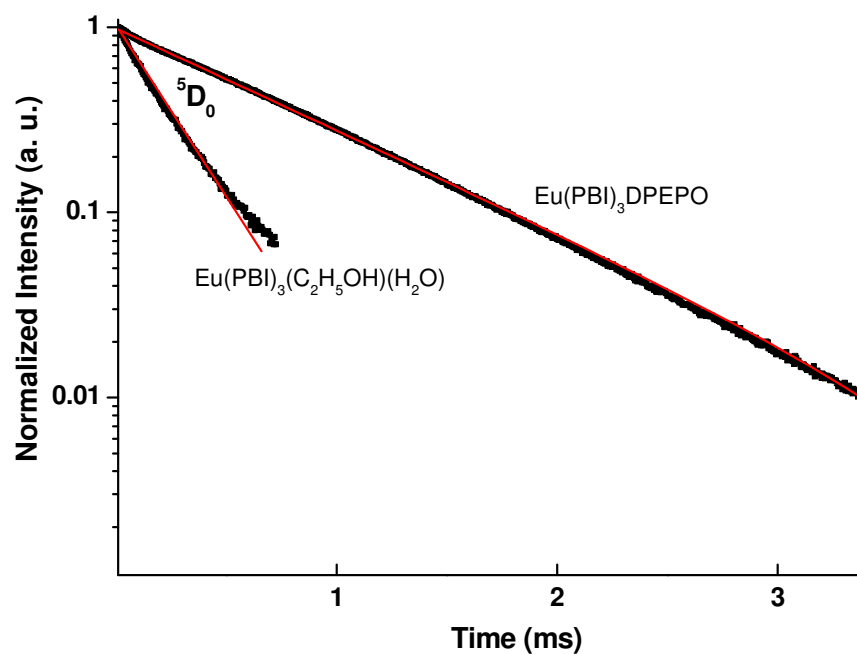


Figure S9. Experimental luminescence decay profiles for complexes **1** (λ_{ex} 390 nm) and $\text{Eu}(\text{PBI})_3 (\text{C}_2\text{H}_5\text{OH})(\text{H}_2\text{O})$ (λ_{ex} 360 nm) at 298 K (in solid state) monitored around 614 nm

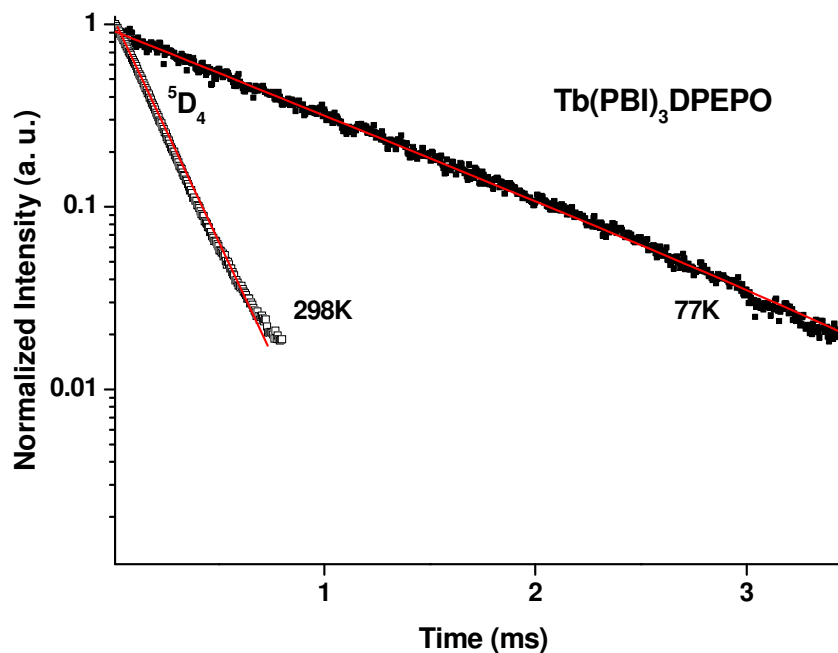


Figure S10. Experimental luminescence decay profiles for complex **2** (λ_{ex} 330 nm) at 298 K and 77K monitored around 545 nm

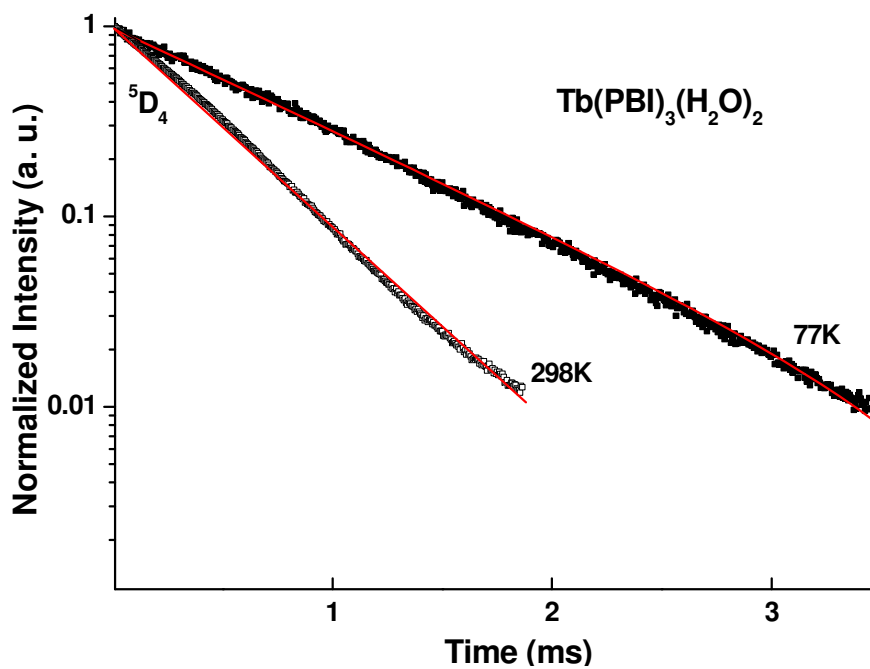


Figure S11. Experimental luminescence decay profiles for complex $\text{Tb}(\text{PBI})_3(\text{H}_2\text{O})_2$ (λ_{ex} 330 nm) at 298 K and 77K monitored around 545 nm

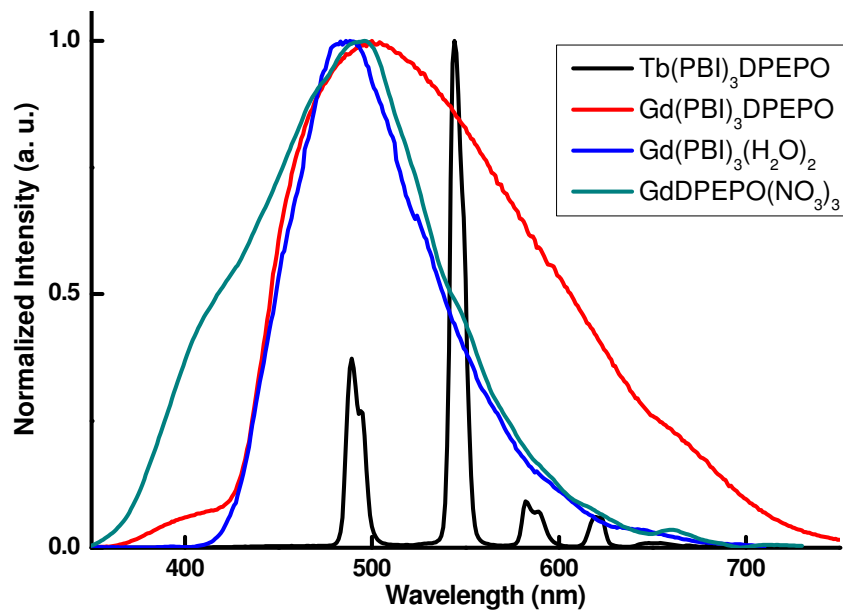


Figure S12. 77K phosphorescence spectra of complexes **3**, $\text{Gd}(\text{PBI})_3(\text{H}_2\text{O})_2$, $\text{Gd}(\text{DPEPO})(\text{NO}_3)_3$ and 298K emission spectra of complex **2**, excited at 330nm