

## Supplementary Material

### Energy Transfer Luminescence of Tb<sup>3+</sup> Ion Complexed with Calix[4]arenetetrasulfonate and the Thia and Sulfonyl Analogue. The Effect of Bridging Groups

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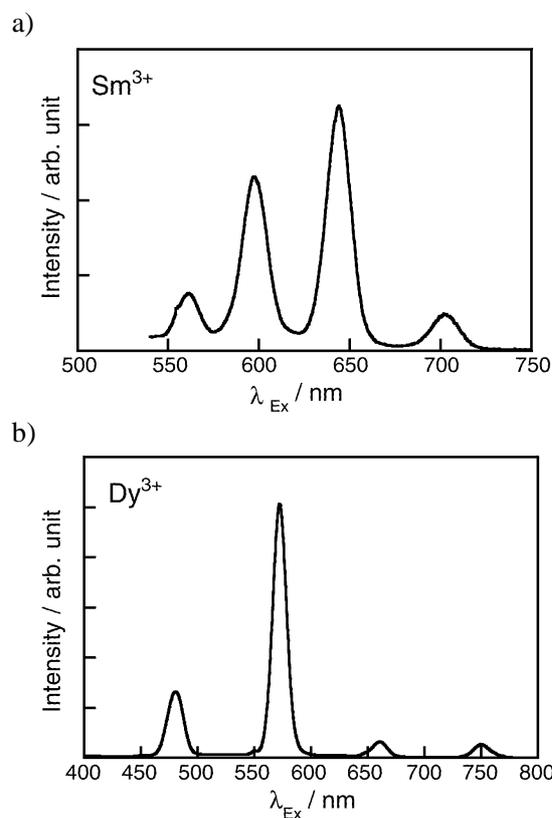
Fig. S1 Emission spectra of (a) Sm<sup>3+</sup> and (b) Dy<sup>3+</sup> ions complexed with **2**.

Fig. S2 Emission spectra of (a) Sm<sup>3+</sup>, (b) Eu<sup>3+</sup>, and (c) Dy<sup>3+</sup> ions complexed with **3**.

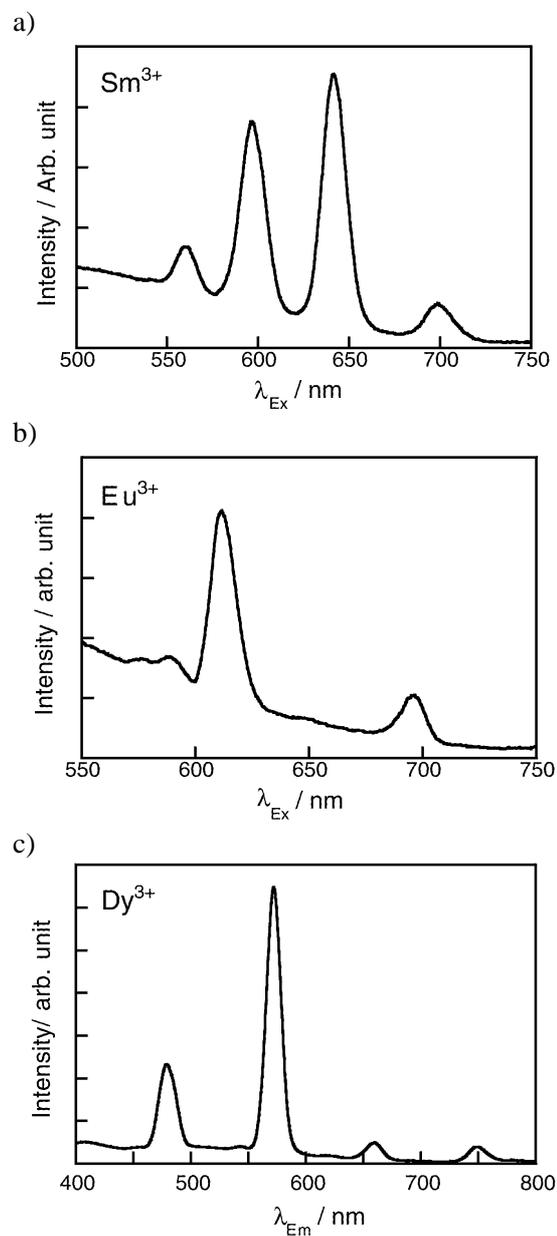
Fig. S3. Continuous variation curves for the Tb<sup>3+</sup> complexes with calix[4]arenetetrasulfonates **2** and **3**.

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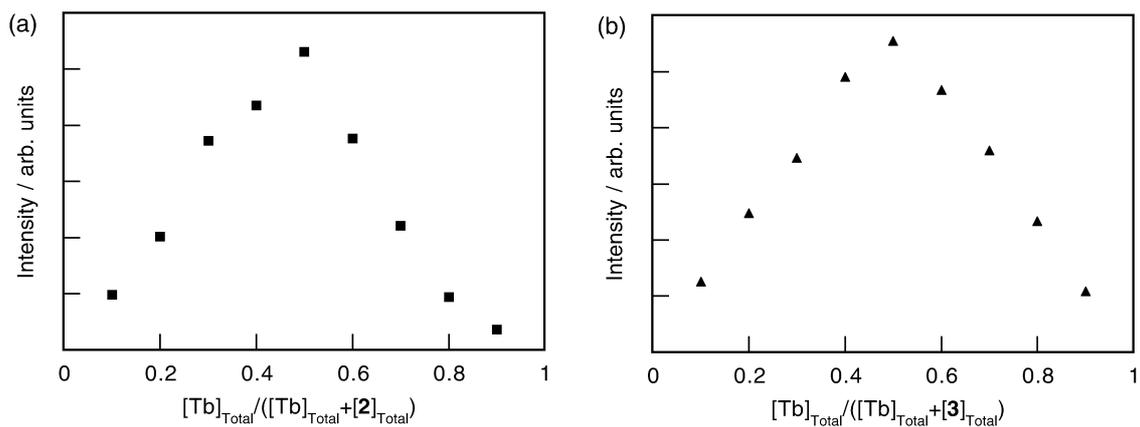
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**Fig. S1** Emission spectra of (a)  $\text{Sm}^{3+}$  and (b)  $\text{Dy}^{3+}$  ions complexed with **2**. (a)  $[\text{Sm}^{3+}] = 2.0 \times 10^{-6} \text{ M}$ ,  $[\mathbf{2}] = 4.0 \times 10^{-6} \text{ M}$ ,  $[\text{buffer}] = 5 \text{ mM}$ ,  $\text{pH} = 9.3$ , (b)  $[\text{Dy}^{3+}] = 2.0 \times 10^{-6} \text{ M}$ ,  $[\mathbf{2}] = 4.0 \times 10^{-6} \text{ M}$ ,  $[\text{buffer}] = 5 \text{ mM}$ ,  $\text{pH} = 8.5$ . In each case,  $\lambda_{\text{Ex}} = 313 \text{ nm}$ , excitation and emission slit width: 10 nm.



**Fig. S2** Emission spectra of (a)  $\text{Sm}^{3+}$ , (b)  $\text{Eu}^{3+}$ , and (c)  $\text{Dy}^{3+}$  ions complexed with **3**. (a)  $[\text{Sm}^{3+}] = 2.0 \times 10^{-6} \text{ M}$ ,  $[\mathbf{3}] = 4.0 \times 10^{-6} \text{ M}$ ,  $[\text{buffer}] = 5 \text{ mM}$ ,  $\text{pH} = 5.5$ , (b)  $[\text{Eu}^{3+}] = 2.0 \times 10^{-6} \text{ M}$ ,  $[\mathbf{3}] = 4.0 \times 10^{-6} \text{ M}$ ,  $[\text{buffer}] = 1 \text{ mM}$ ,  $\text{pH} = 5.5$ , (c)  $[\text{Dy}^{3+}] = 2.0 \times 10^{-6} \text{ M}$ ,  $[\mathbf{3}] = 4.0 \times 10^{-6} \text{ M}$ ,  $[\text{buffer}] = 1 \text{ mM}$ ,  $\text{pH} = 5.5$ . In each case,  $\lambda_{\text{Ex}} = 331 \text{ nm}$ , excitation and emission slit width: 10 nm.



**Fig. S3.** Continuous variation curves for the Tb<sup>3+</sup> complexes with calix[4]arenetetrasulfonates **2** and **3**.  $[\text{Tb}^{3+}]_{\text{Total}} + [\text{L}]_{\text{Total}} = 8.0 \times 10^{-7} \text{ M}$ , (a) L = **2** at pH 9.0,  $\lambda_{\text{Ex}} = 261 \text{ nm}$ . (b) L = **3**, at pH 5.0,  $\lambda_{\text{Ex}} = 330 \text{ nm}$ .