

**CHEM****BIO**CHEM

## Supporting Information

© Copyright Wiley-VCH Verlag GmbH & Co. KGaA, 69451 Weinheim, 2009

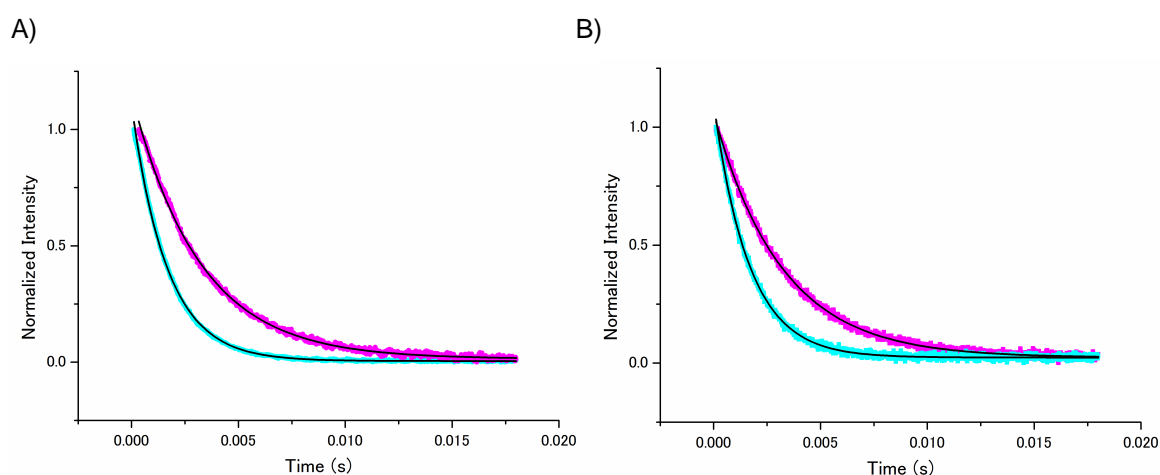
# Supporting Information

for

## Selective Detection of Phosphotyrosine among Various Phosphate-Containing Biomolecules by Terbium(III) Complex

Hiroki Akiba, Jun Sumaoka\* and Makoto Komiyama\*

**Luminescence lifetime measurements and estimated  $q$  value:** Luminescence lifetime measurements were conducted with Tb(III)-DOTAM containing H<sub>2</sub>O or D<sub>2</sub>O solutions (10 mM HEPES buffer, pH = 7 for H<sub>2</sub>O solution). Two ml of solution was excited at 355 nm by pulse laser from Nd:YAG laser (Spectra-Physics KK. INDI-40-10-HG-TRI-T). Luminescence at 545 nm was measured by using a monochromator (JASCO CT-25TP) and a photomultiplier (Hamamatsu Photonics R446). In Figure S1 the measured decay curves and their fitted curves are shown.



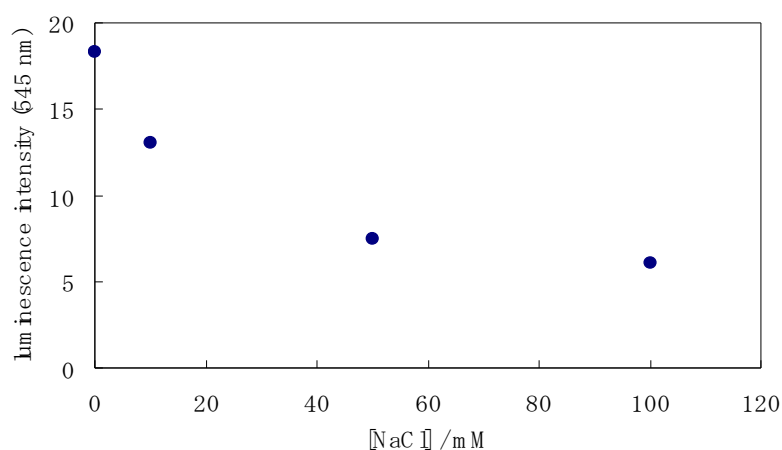
**Figure S1.** Luminescence decay profiles of A) Tb(III)-DOTAM complex and B) Tb(III)-DOTAM complex + phenyl phosphate (10 equivalence). Blue: measurements in H<sub>2</sub>O solution; purple: measurements in D<sub>2</sub>O solution. The fitting curve (black) was fitted as an exponential decay curve.

The estimation of  $q$  value of lanthanide complex in aqueous solution is reviewed in Ref. [14]. The  $q$  value (the number of coordinated water molecules) was calculated with following Equation (1):

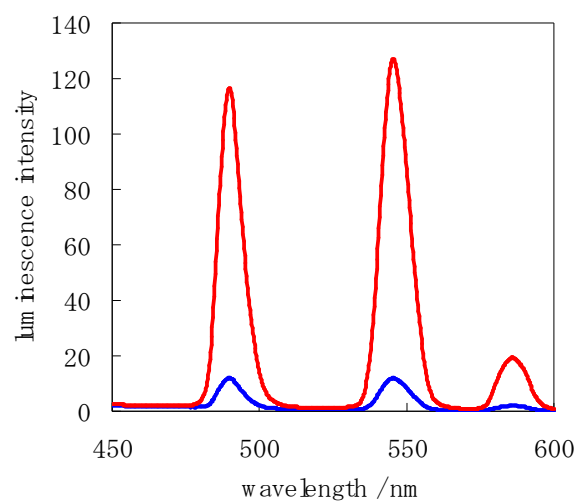
$$q = 5.0(k_{H_2O} - k_{D_2O} - 0.06) \quad (1)$$

where  $k_{H_2O}$  and  $k_{D_2O}$  represents measured rate constant for solutions of  $H_2O$  and  $D_2O$ , respectively. The calculated half-life based on fitting curve and estimated  $q$  value is summarized in Table S1. The  $q$  value is uncertain in the range of  $\pm 0.5$ .

<b>Table S1.</b> The half-life $\tau$ and calculated $q$ value of Tb(III)-DOTAM complex.			
	$\tau_{H_2O}$ (ms)	$\tau_{D_2O}$ (ms)	$q$
— <sup>[a]</sup>	1.65	3.17	1.15
+phenyl phosphate	1.65	3.20	1.17
<sup>[a]</sup> The data in the absence of phenyl phosphate.			



**Figure S2.** Change in the luminescence by the addition of NaCl to the solution of Tb<sup>III</sup>-DOTAM and phenyl phosphate. Conditions: [Tb<sup>III</sup>-DOTAM] = [phenyl phosphate] = 100  $\mu$ M in 10 mM HEPES buffer (pH = 7.0),  $\lambda_{ex}$  = 262.5 nm,  $\lambda_{em}$  = 545 nm.



**Figure S3.** Luminescence spectra of the solution of Tb<sup>III</sup>-DOTAM and phosphorylated (red line) or nonphosphorylated (blue line) v-Src substrate nonapeptide. Conditions: [Tb<sup>III</sup>-DOTAM] = [nonapeptide] = 100  $\mu$ M in 10 mM HEPES buffer (pH = 7.0),  $\lambda_{\text{ex}}$  = 262.5 nm.