

## Supporting Information

### **A facile route to controlled synthesis of $\beta$ -NaLuF<sub>4</sub>:Ln<sup>3+</sup> (Ln=Eu, Tb, Dy, Sm, Tm, Ho) and their tunable luminescent properties**

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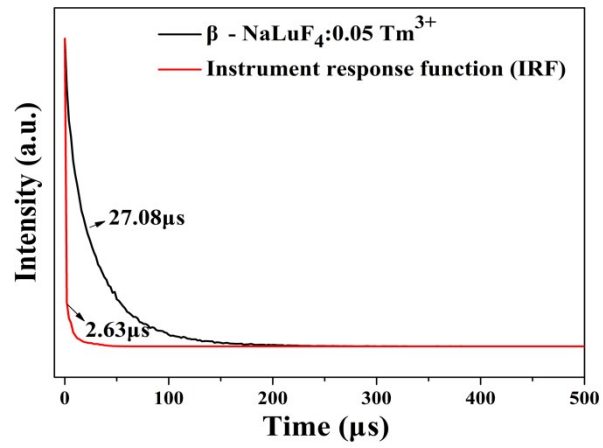


Fig.S1 The decay curves for the luminescence of Tm<sup>3+</sup> ions in  $\beta$ -NaLuF<sub>4</sub>:0.05 Tm<sup>3+</sup> sample and the instrument response function (IRF) (excited at 356 nm, monitored at 451 nm).

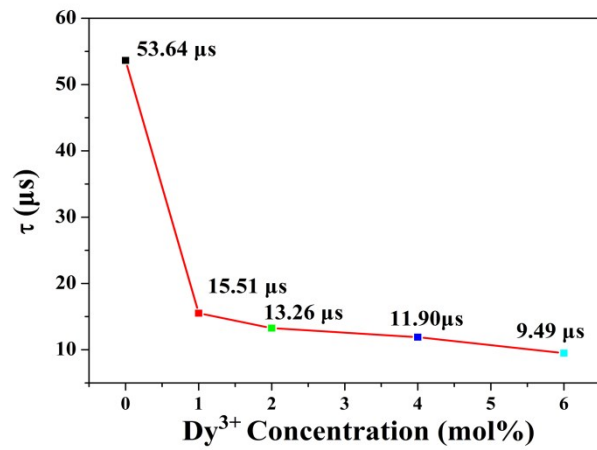


Fig.S2 Line chart of the decay times of  $\text{Tm}^{3+}$  ions in  $\beta\text{-NaLuF}_4: 0.03\text{Tm}^{3+}, y\text{Dy}^{3+}$  ( $y=0, 1 \text{ mol}\%, 2 \text{ mol}\%, 4 \text{ mol}\%, 6 \text{ mol}\%$ ) samples.