

## Supporting Information

### Selective Excitation of $\text{Eu}^{3+}$ in the Core of Small $\beta\text{-NaGdF}_4$ Nanocrystals

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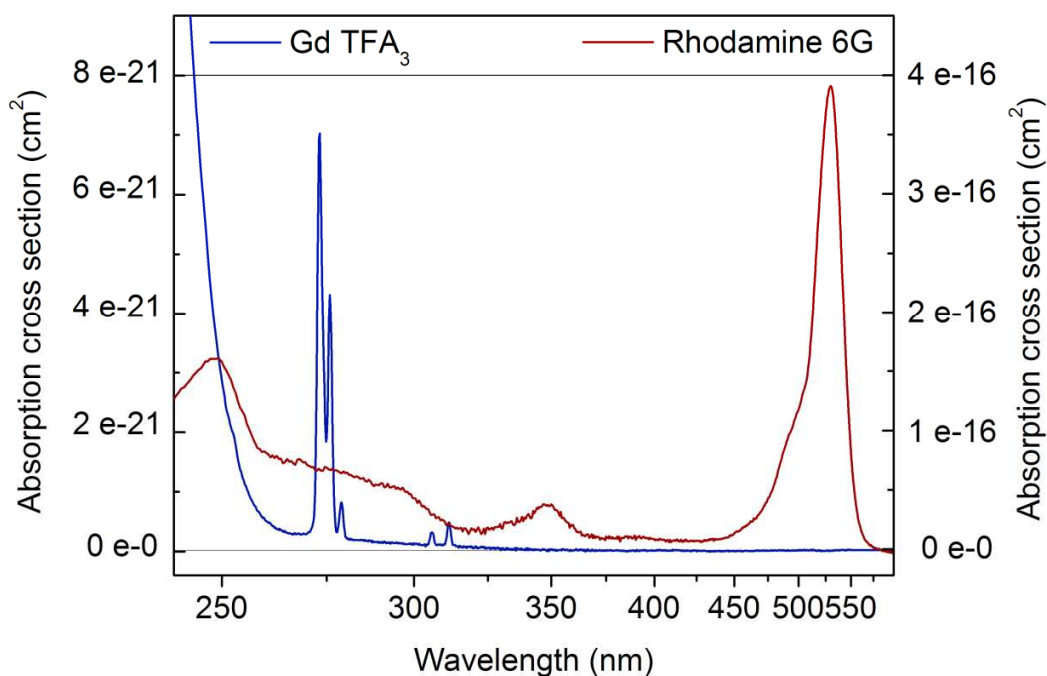


Figure S1. Absorption cross section ( $\sigma$ ) of gadolinium trifluoroacetates ( $\text{Gd TFA}_3$ ), precursor used in NCs synthesis, and commonly used organic fluorophore (Rhodamine 6G).

Table 1S. Calculated absorption cross section ( $\sigma$ ) of NaGdF<sub>4</sub> NCs containing different amount of Gd<sup>3+</sup>.  $\sigma$  of Rhodamine 6G is given for comparison.

|                                  | NaGdF <sub>4</sub>    |                       |                       |                       | Rhodamine 6G       |
|----------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------|
| NC diameter [nm]                 | 3.0                   | 5.2                   | 11.0                  | 21.0                  | 1 molecule         |
| Number of Gd <sup>3+</sup> in NC | ~200                  | ~1 000                | ~10 000               | ~65 000               |                    |
| $\sigma$ (cm <sup>2</sup> )      | $1,40 \cdot 10^{-18}$ | $7,00 \cdot 10^{-18}$ | $7,00 \cdot 10^{-17}$ | $4,55 \cdot 10^{-16}$ | $4 \cdot 10^{-16}$ |