

Supporting Information

Dual-modal Fluorescent/Magnetic Bioprobes Based on Small Sized Upconversion Nanoparticles of Amine-functionalized BaGdF₅:Yb/Er

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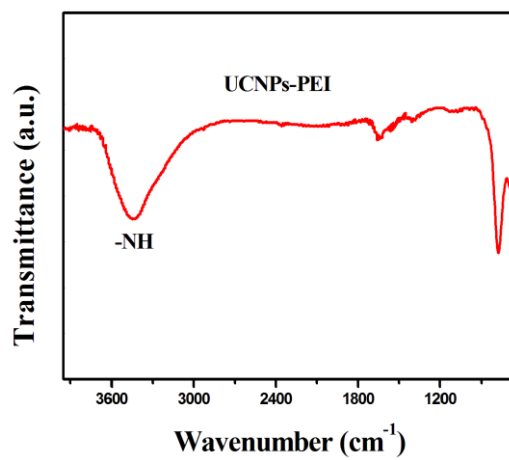


Figure S1. FTIR spectra of the amine-functionalized BaGdF₅:Yb/Er NPs .

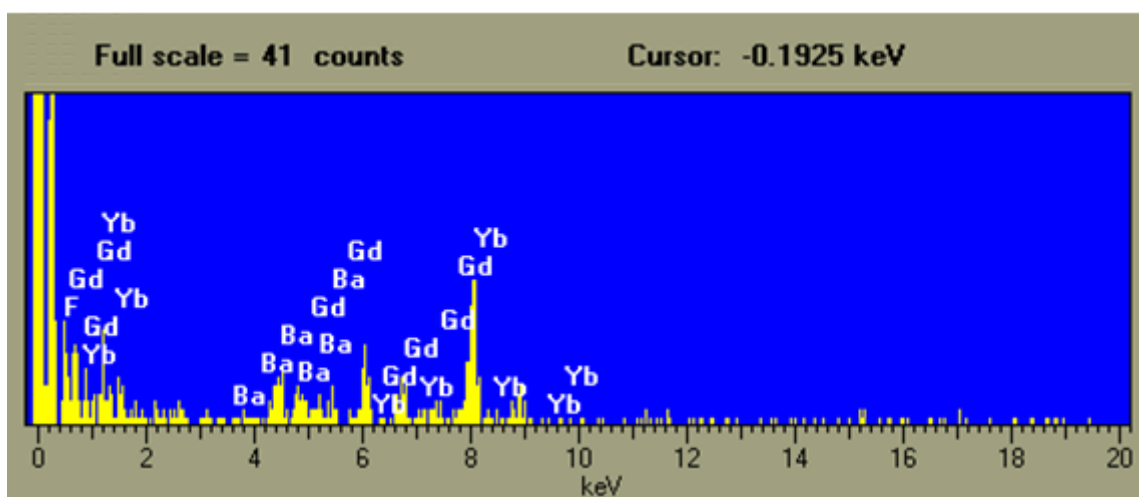


Figure S2. EDS spectra of the amine-functionalized BaGdF₅:Yb/Er NPs (UCNPs-PEI).

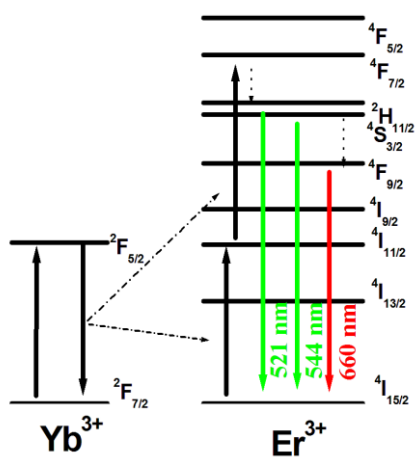


Figure S3. The simplified energy-level diagrams of $\text{Yb}^{3+}/\text{Er}^{3+}$ and the corresponding mechanism of upconversion emissions.