Supporting Information

Room Temperature Synthesis of Hydrophilic Ln^{3+}-doped $KGdF_4$ (Ln = Ce, Eu, Tb, Dy) Nanoparticles with Controllable Size: Energy Transfer, Size-Dependent and Color-Tunable Luminescence Properties

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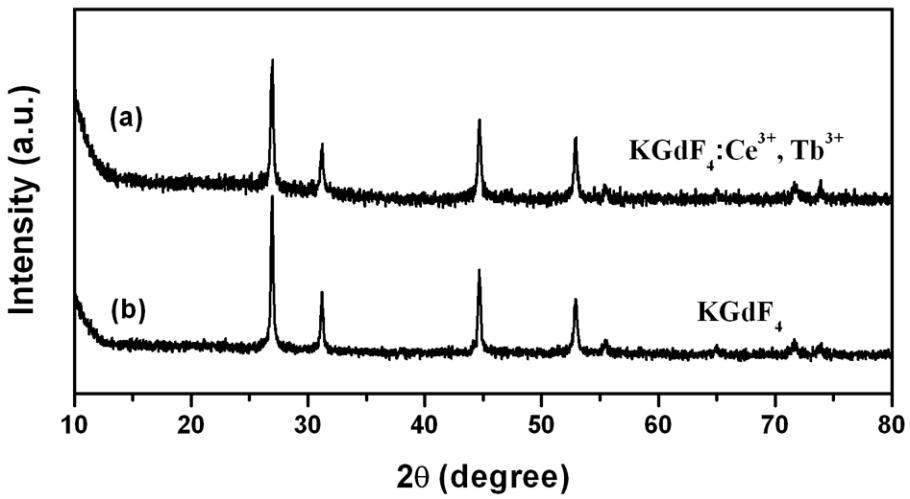

Figure S1. XRD patterns of $KGdF_4$:Ce^{3+}, Tb^{3+} (a) and $KGdF_4$ NPs (b), respectively.

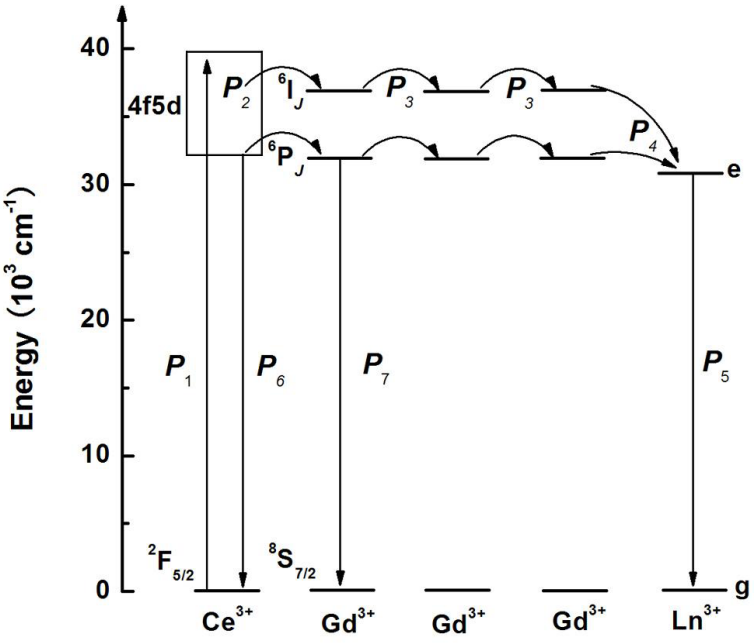

Figure S2. Schematic energy level diagram showing the luminescence mechanism in $KGdF_4$: Ce^{3+}, Ln^{3+} nanoparticles.

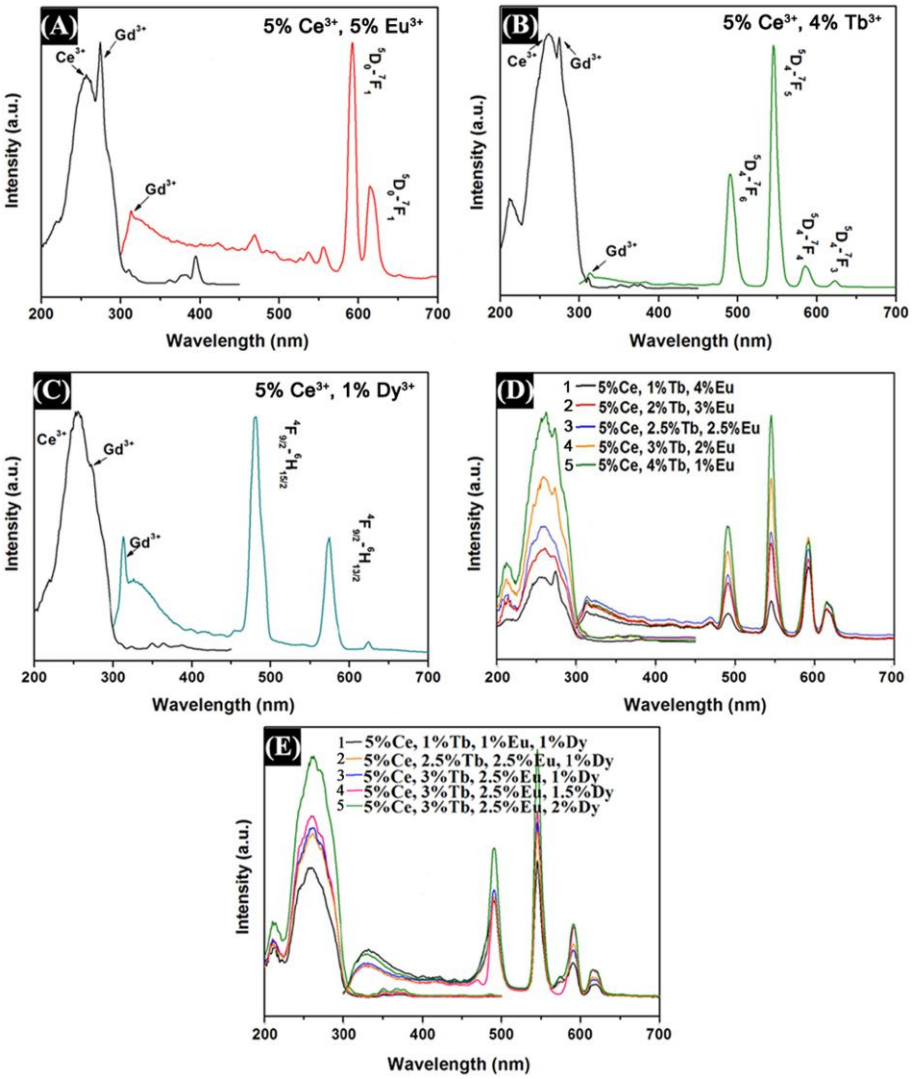

Figure S3. Excitation and emission spectra of $KGdF_4$: Ce^{3+}/Ln^{3+} (Ln= Eu, Tb, Dy, Eu/Tb and Eu/Tb/Dy) nanoparticles (A-E).

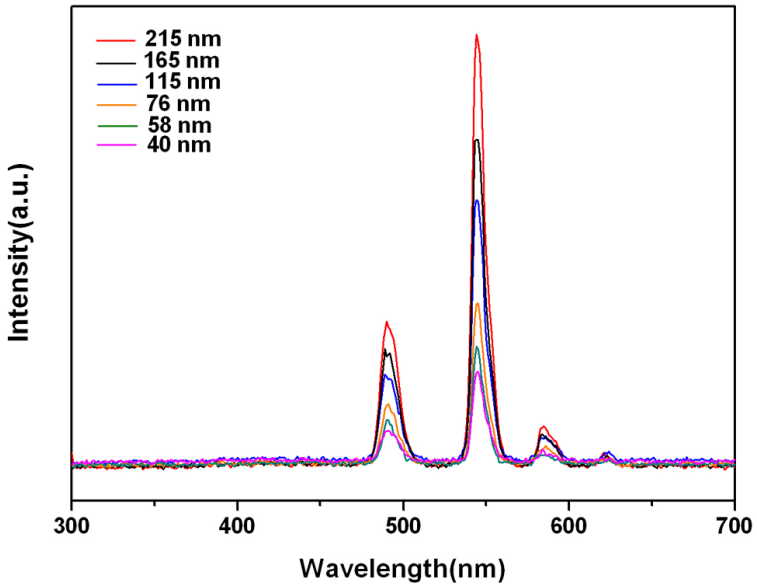

Figure S4. CL spectra of the $KGdF_4$: 5% Ce^{3+}, 4% Tb^{3+} nanoparticles with different size. (accelerating voltage = 3 kV; filament current = 92.4 mA)

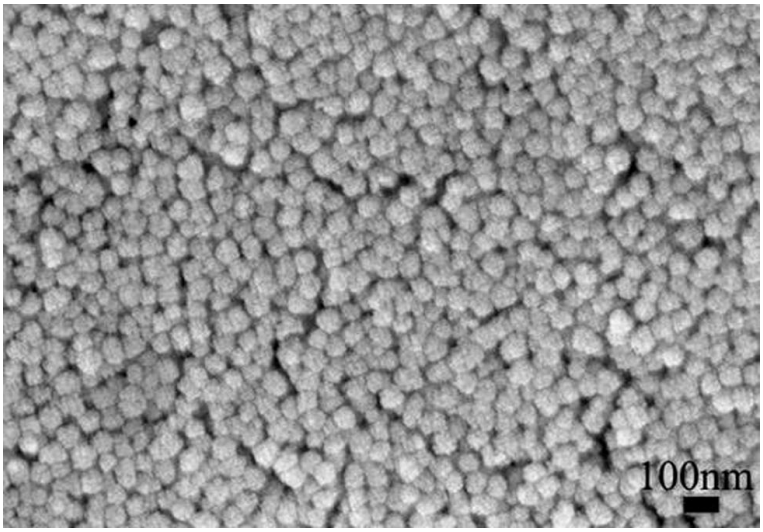

Figure S5. The SEM image of $KGdF_4$: 5% Ce^{3+}, 4% Tb^{3+}@$KGdF_4$ nanoparticles as-prepared in the DEG/H_2O = 50/0 mixed solvent.

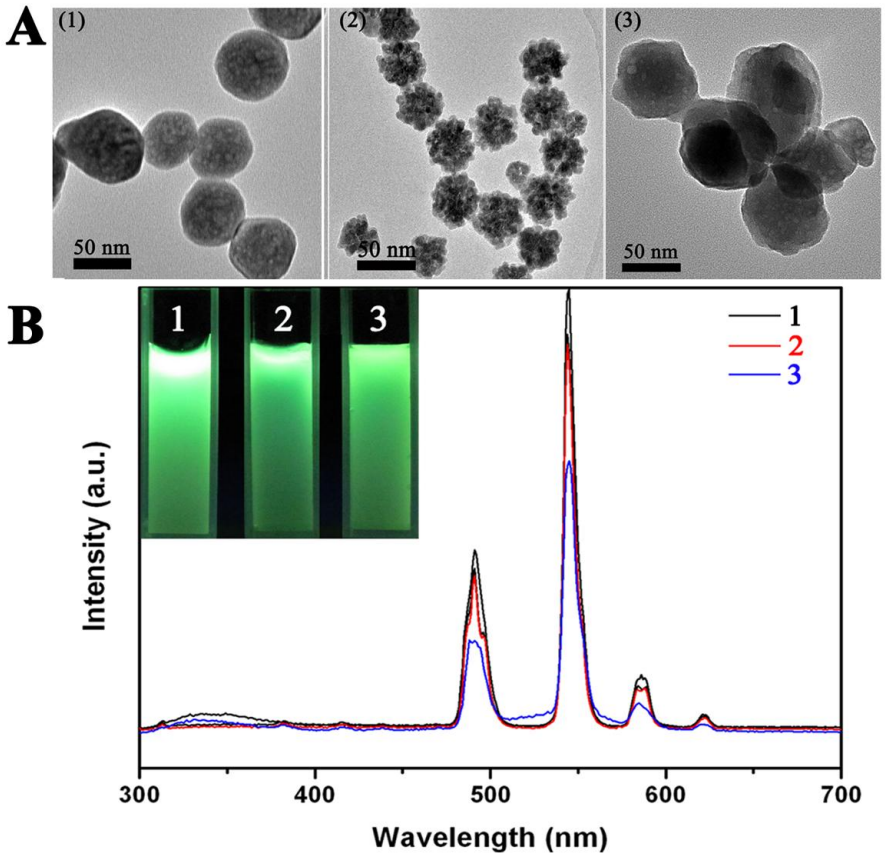

Figure S6. The TEM images of the $KGdF_4$:5%Ce^{3+}, 5%Tb^{3+} NPs prepared by solvothermal (A1), co-precipitation (A2) and hydrothermal method (A3), and their corresponding emission spectra and luminescence photos under UV lamp (B), respectively.

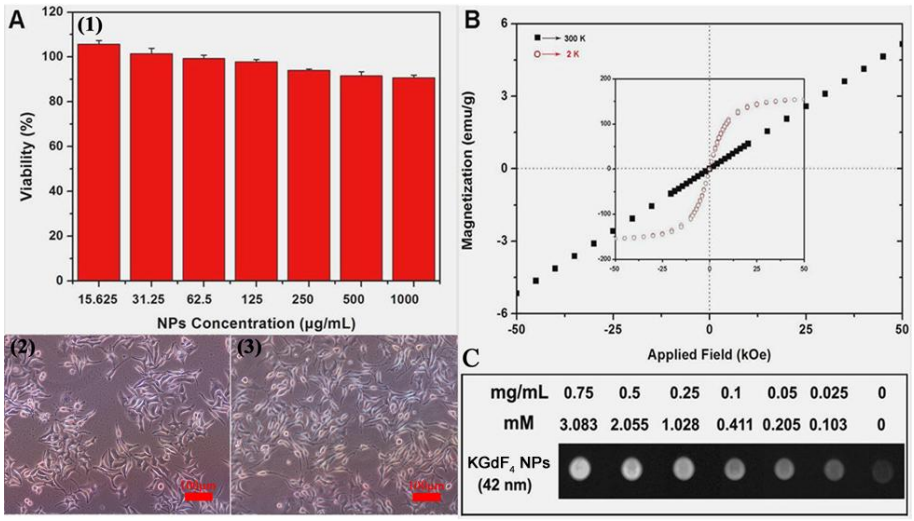

Figure S7. *In vitro* cell viability data of cultured L929 fibroblast cells after incubation with $KGdF_4$ NPs for 24 h using standard MTT colorimetric assay A(1) and fluorescence microscopy images of L929 cells incubated with $KGdF_4$ NPs for 0 h A(2) and 24 h A(3). Magnetization vs magnetic field of the $KGdF_4$ nanoparticles (B) and T_1-weighted MR image of various mass and molar concentration of $KGdF_4$ nanoparticles in water (C).