nanomaterials

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Supplementary Materials

Dual-Wavelength Excited Intense Red Upconversion Luminescence from Er^{3+}-Sensitized Y_2O_3 Nanocrystals Fabricated by Spray Flame Synthesis

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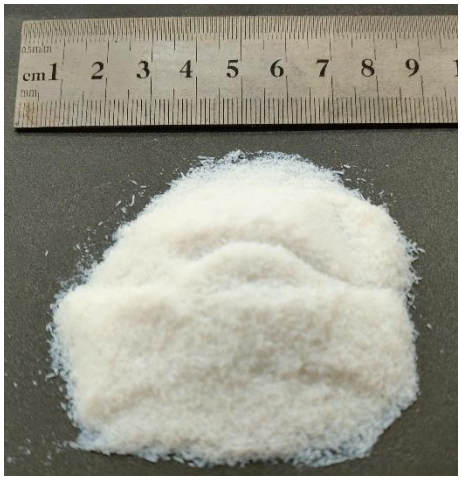

Figure S1. The synthesized Y_2O_3:Er^{3+}/Tm^{3+} UCNPs.

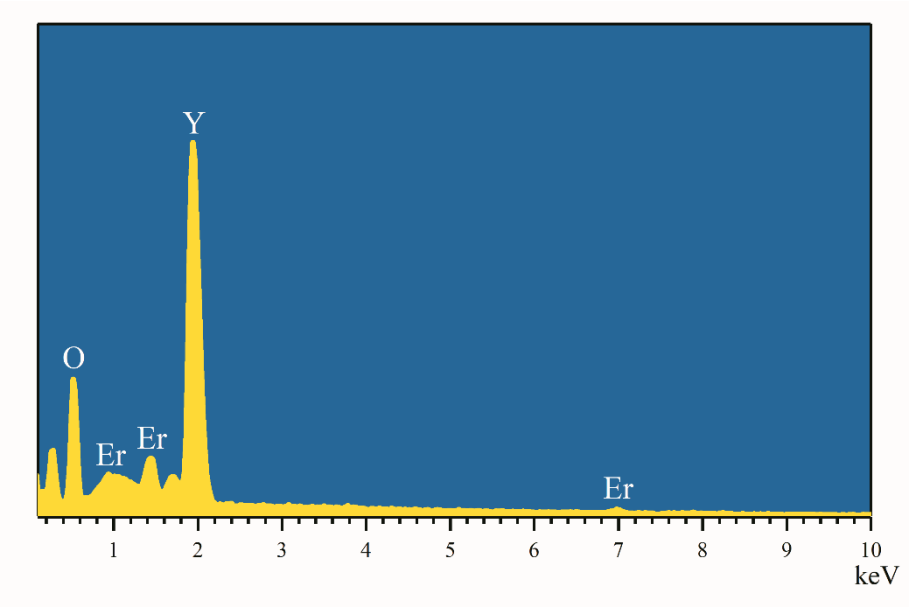

Figure S2. The EDS spectra of the synthesized Y_2O_3 nanoparticles doped with 8 mol% Er^{3+} ions.

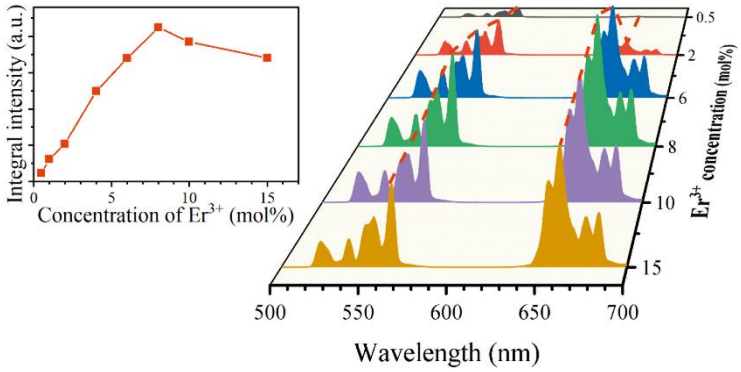

Figure S3. The absolute luminescence spectra of the Y_2O_3:Er^{3+} UCNPs doped with different concentration of Er^{3+} ions. The inset shows the tendency of the integral luminescence intensities (from 500 to 700 nm). All excitation wavelengths are at 980 nm.

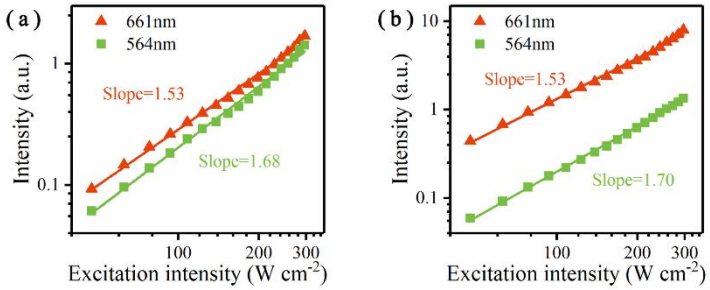

Figure S4. UC emission intensities of Y_2O_3:Er^{3+}/Tm^{3+} (8/x mol%) UCNPs as a function of excitation intensities. (**a**) x = 0, (**b**) x = 1. All excitation wavelengths are at 808 nm.

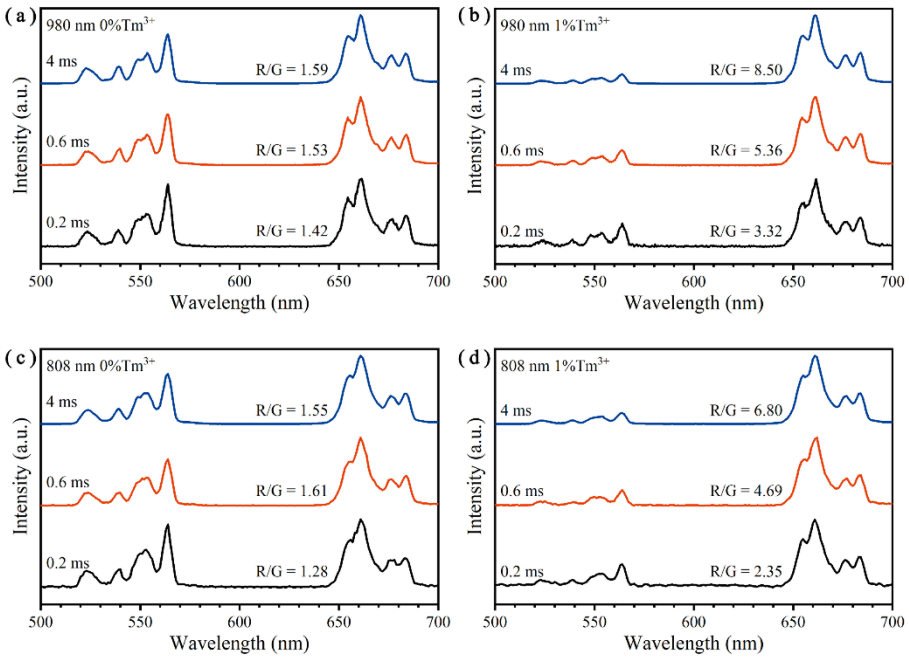

Figure S5. Normalized UC emission spectra of Y_2O_3: Er^{3+}/Tm^{3+} (8/x mol%) UCNPs under the excitation of lasers operated at different pulse width. (a) x = 0, 980 nm excitation, (b) x = 1, 980 nm excitation, (c) x = 0, 808 nm excitation, (d) x = 1, 808 nm excitation.

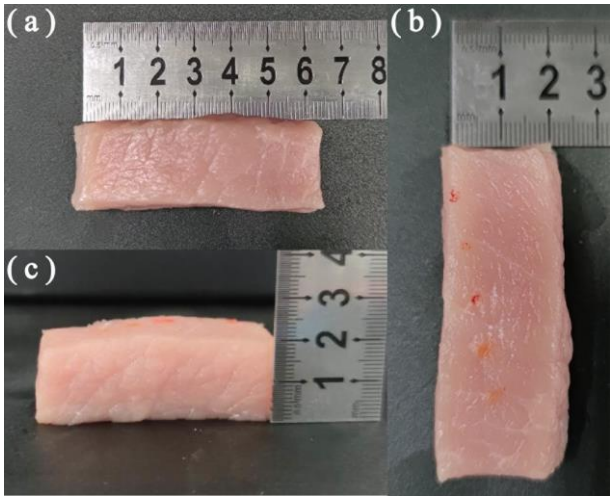

Figure S6. Cuboid fresh pork with the size of 6 cm × 2 cm × 2 cm.

Table S1. The experimental elemental composition of the Y_2O_3:Er^{3+} (8 mol%) UCNPs.

Elements	Weight percent (%)	Atom percent (%)
O	31.69	73.74
Y	56.32	23.59
Er	11.99	2.67
Total	100.00	100.00