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Supporting Information

Lanthanide doped Bi_2O_3 upconversion luminescence nanospheres for temperature sensing and optical imaging

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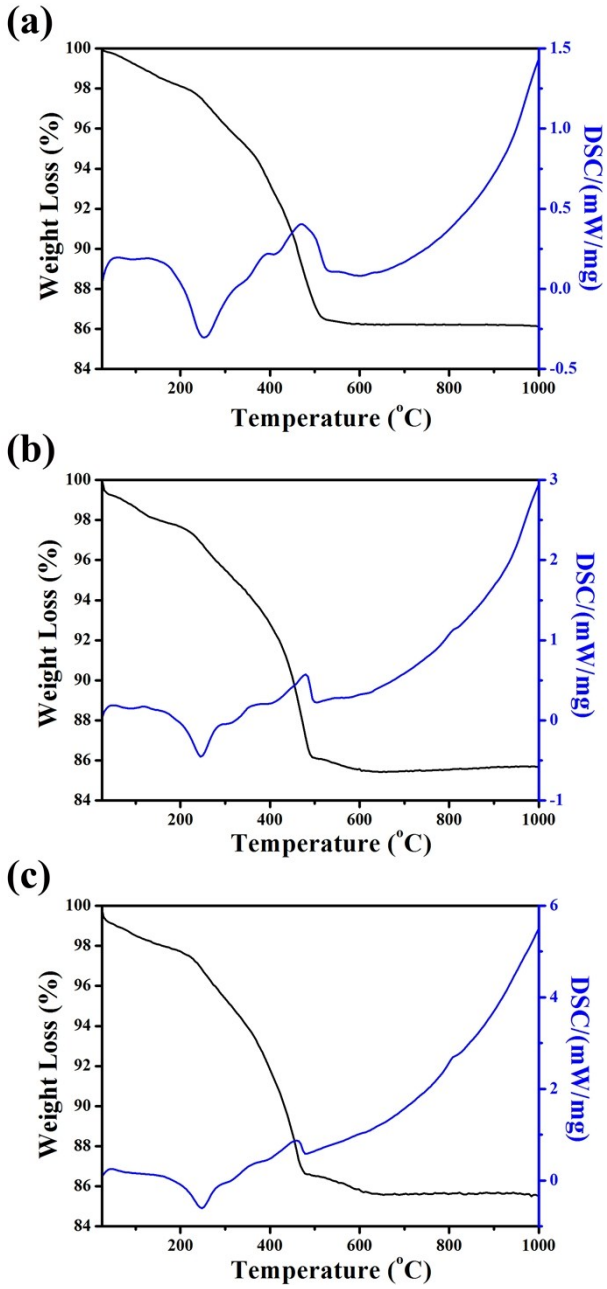

Fig. S1 TG-DSC curves of the precursor samples. (a) $Bi_2O_2CO_3$:Yb^{3+}/Er^{3+}, (b) $Bi_2O_2CO_3$:Yb^{3+}/Ho^{3+}, (c) $Bi_2O_2CO_3$:Yb^{3+}/Tm^{3+}.

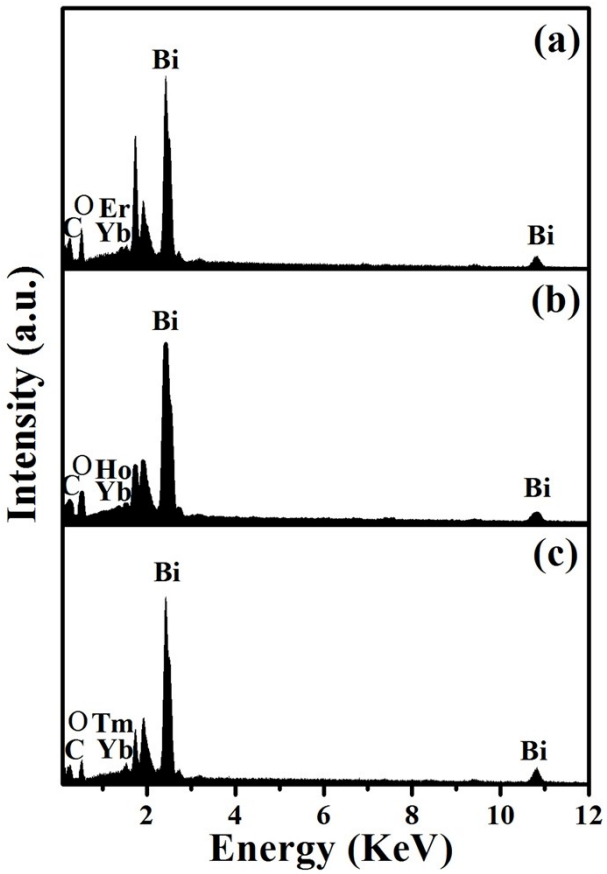

Fig. S2 X-ray Energy-dispersive (EDX) spectroscopy of the precursor samples. (a) $Bi_2O_2CO_3$:Yb^{3+}/Er^{3+}, (b) $Bi_2O_2CO_3$:Yb^{3+}/Ho^{3+}, (c) $Bi_2O_2CO_3$:Yb^{3+}/Tm^{3+}.

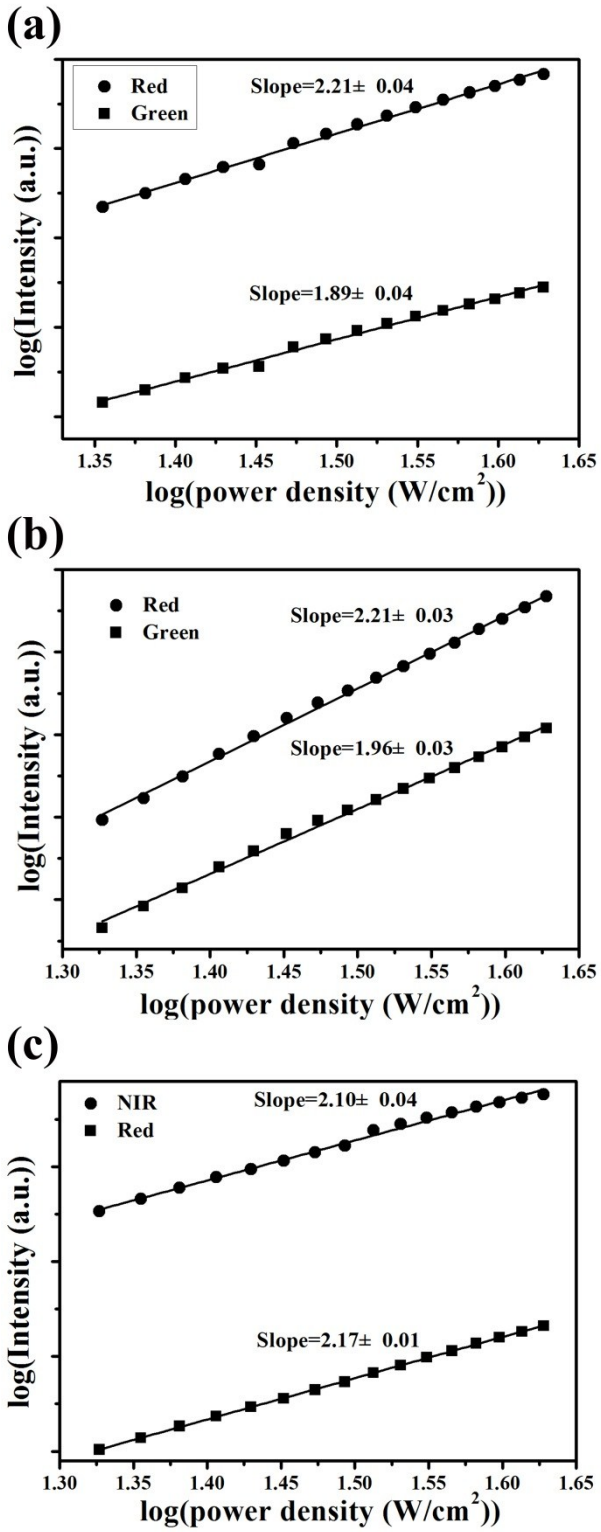

Fig. S3 Pump power dependence of the (a) red and green UCL intensities of Bi_2O_3:Yb^{3+}/Er^{3+} nanospheres obtained at 700 ^oC, (b) red and green UCL intensities of Bi_2O_3:Yb^{3+}/Ho^{3+} nanospheres obtained at 700 ^oC, (c) NIR and red UCL intensities of Bi_2O_3:Yb^{3+}/Tm^{3+} nanospheres obtained at 700 ^oC excited by 980 nm laser.