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Figure S1. DLS measurements on the size of (a)  $Tm,Yb:GdVO_4$  and (b)  $Tm,Yb:GdVO_4@SiO_2$  nanoparticles



Figure S2. Evolution from room temperature up to 673 K of upconversion spectra under 980 n, excitation for 1 % Tm<sup>3+</sup>, 15 % Yb<sup>3+</sup>:GdVO<sub>4</sub> core-shell nanoparticles covering the spectral range from 460 nm to 850 nm.



Figure S3. Calibration curves of the intensity rations between the emission peaks located at 475 and 700 nm ( $I_{700}/I_{475}$ ) and 475 and 800 nm ( $I_{800}/I_{475}$ ) as a function of temperature.