Electronic Supplementary Material (ESI) for Dalton Transactions.

Supplementary Information

Functional up-converting $SrTiO_3:Er^{3+}/Yb^{3+}$ nanoparticles, structural features, particle size colour tuning and *in vitro* RBC cytotoxicity

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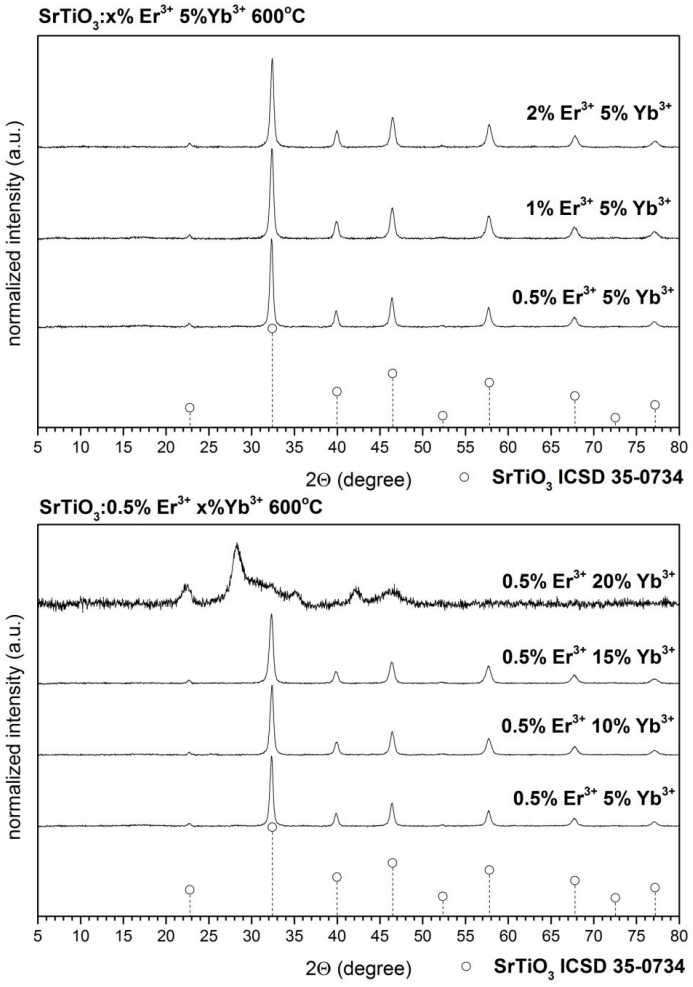

Fig. 1s. Effect of Er^{3+} (upper) and Yb^{3+} (bottom) concentration on crystal structure of the $SrTiO_3$ heated at 600°C.

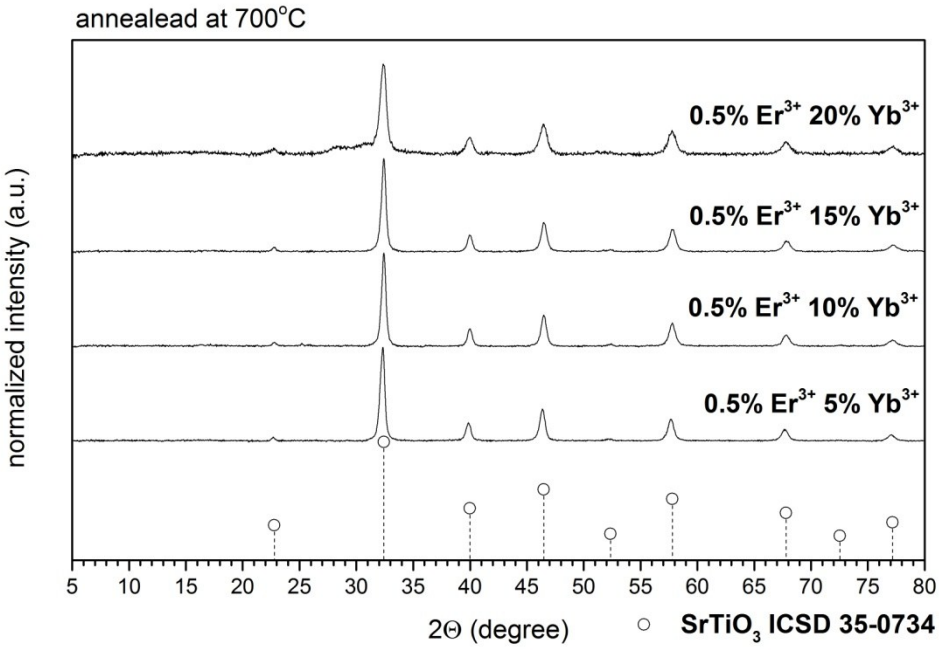

Fig. 2s. Compare with sample containing 20 mol% of Yb^{3+} heat treated at 600°C with 20 mol% Yb^{3+} sample at 700°C.

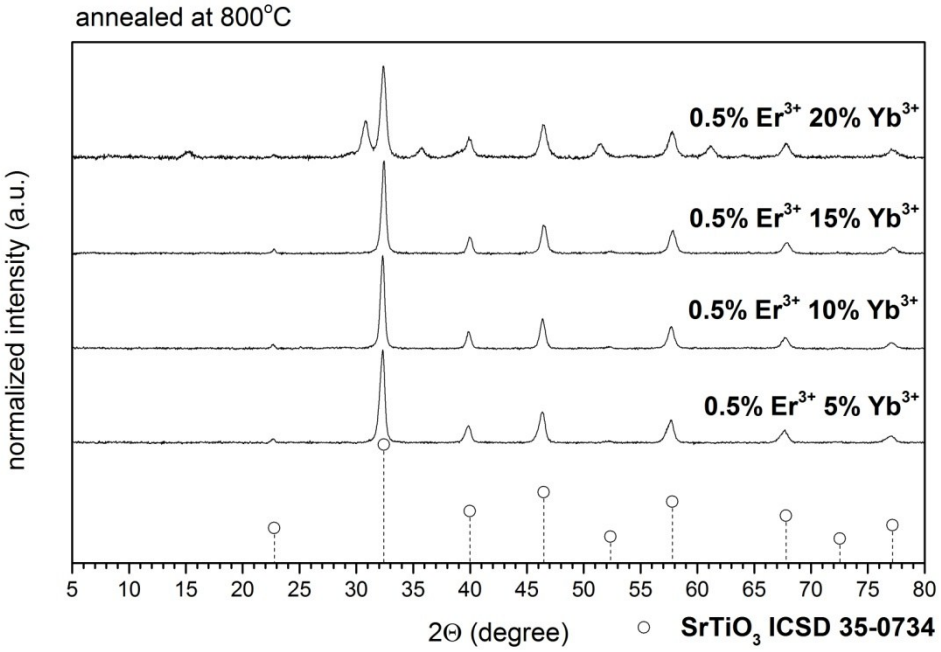

Fig. 3s. Note phase separation of the $SrTiO_3$ above 20 mol% of Yb^{3+} at 800°C.

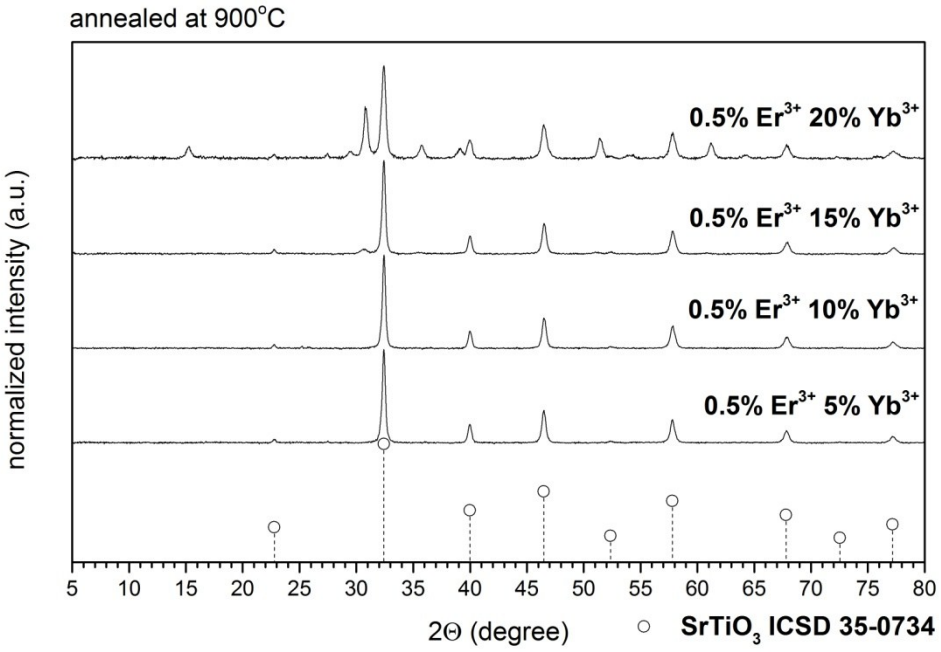

Fig. 4s. Note phase separation of the $SrTiO_3$ with different content of Yb^{3+} above 15 mol% at 900°C.

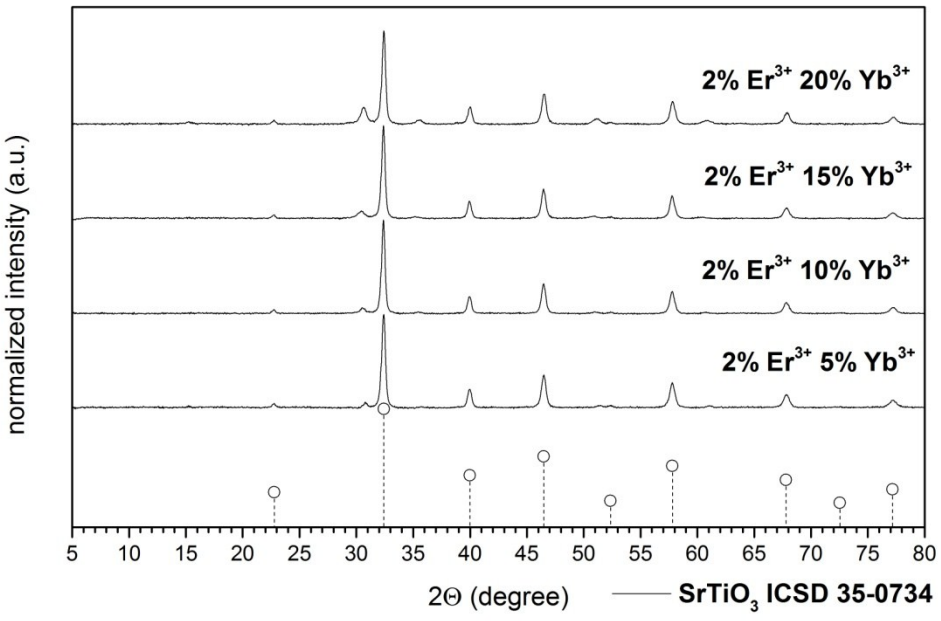

Fig. 5s. Note phase separation of the $SrTiO_3$ with 2 mol% of Er^{3+} and different content of Yb^{3+} samples heated at 900°C.

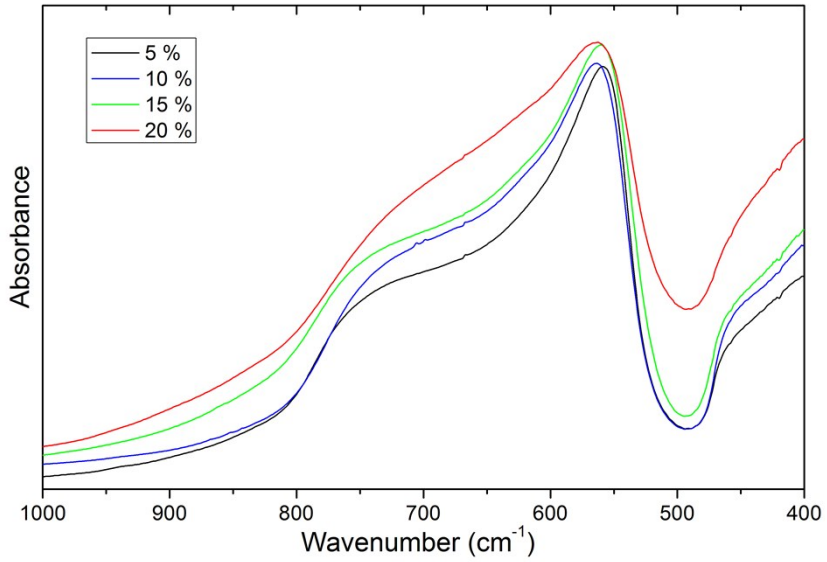

Fig. 6s. Mid-IR spectra of $SrTiO_3$ doped with 5, 10, 15 and 20 % of Yb^{3+} and 0.5 % of Er^{3+} annealed at 800 °C.

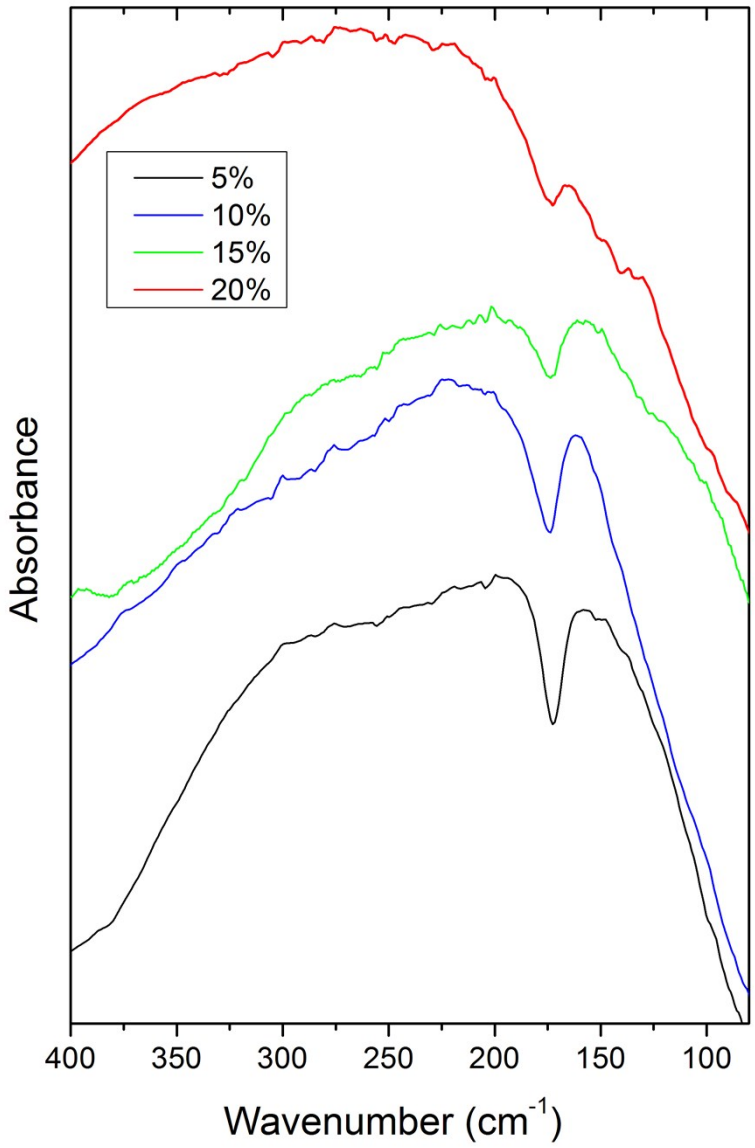

Fig. 7s. Far-IR spectra of $SrTiO_3$ doped with 5, 10, 15 and 20 % of Yb^{3+} and 0.5 % of Er^{3+} annealed at 800 °C.

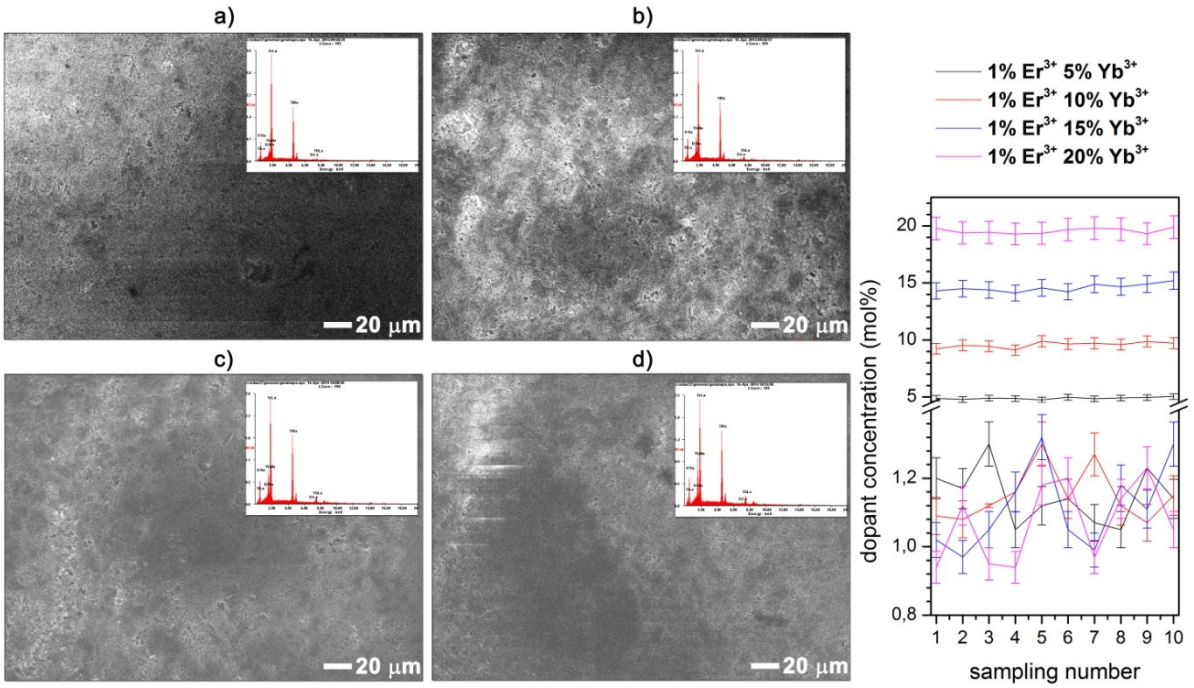

Fig. 8s. SEM-EDX analysis of the $SrTiO_3$ 1% Er^{3+} / x% Yb^{3+} nanoparticles sintered at 600°C.

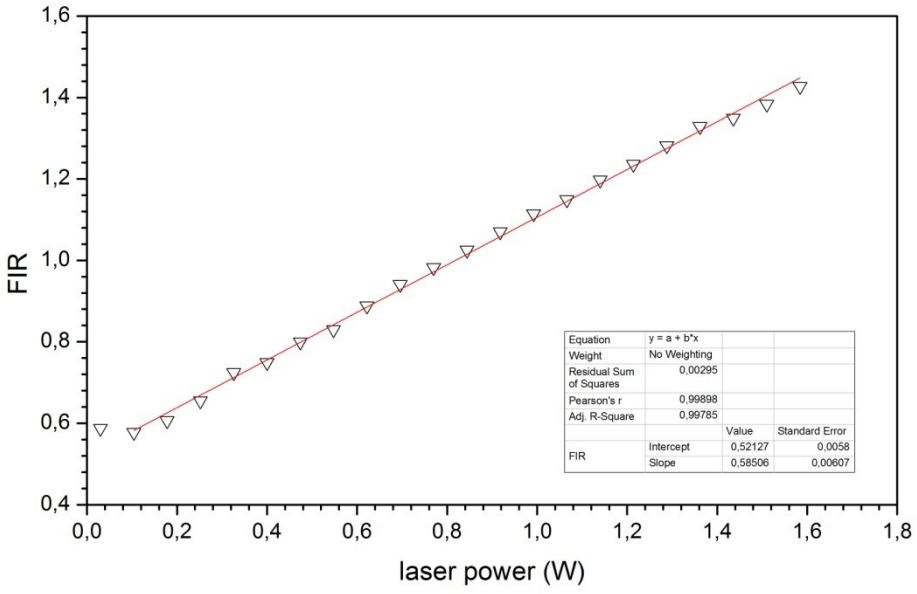

Fig. 9s. Calibration curve FIR vs. pump power.

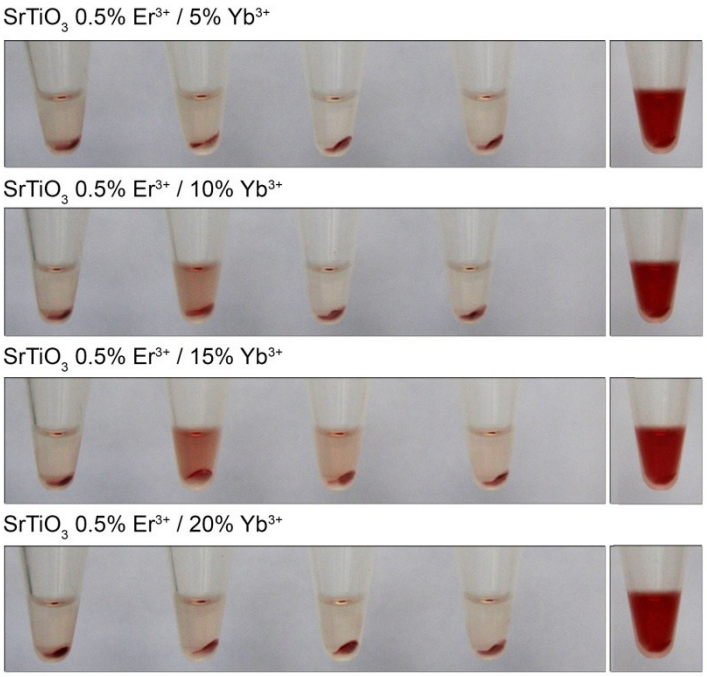

Fig. 10s. Hemolysis assay on human erythrocyte cells loaded with the $SrTiO_3$ 0.5% Er^{3+} / x% Yb^{3+} nanoparticles annealed at 600°C (from left side: negative control (PBS), 1 mg/ml, 0.1 mg/ml, 0.01 mg/ml, positive control (100% hemolysis, distilled water).

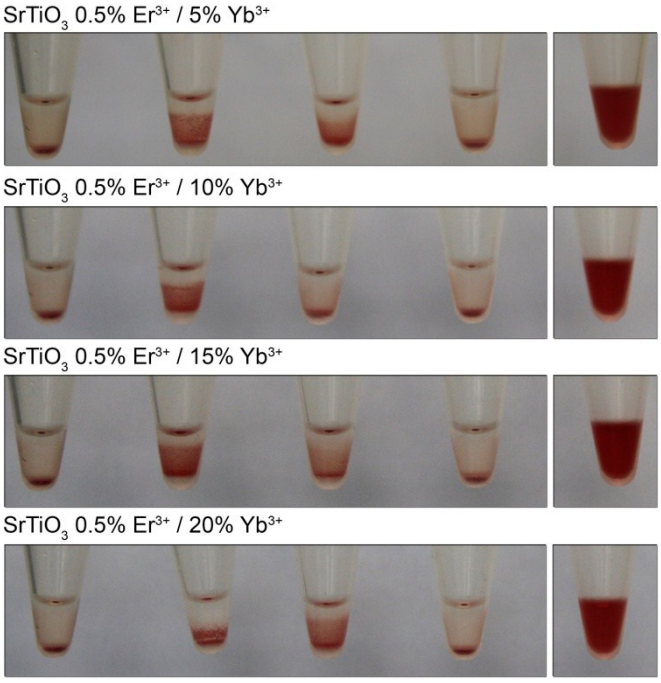

Fig. 11s. ESR of human erythrocyte cells loaded with the $SrTiO_3$ 0.5% Er^{3+} / x% Yb^{3+} nanoparticles annealed at 600°C (from left side: negative control (PBS), 1 mg/ml, 0.1 mg/ml, 0.01 mg/ml, positive control (100% hemolysis, distilled water).