Electronic Supplementary Material (ESI) for RSC Advances.

One-step synthesis of carboxyl-functionalized rare-earth fluorides nanoparticles for cell imaging and drug delivery

Zhiyang Zhang[1], Xiaoyan Ma[1], Zhirong Geng[1], Kuaibing Wang[1,2], Zhilin Wang[1]

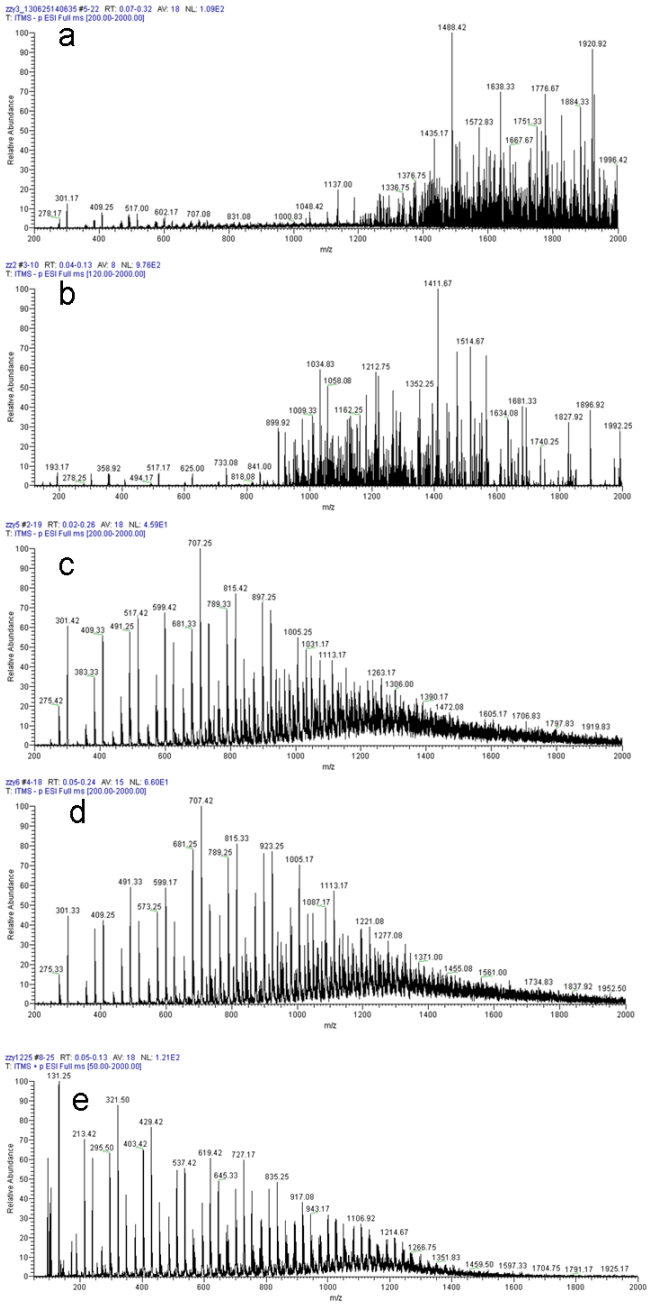

Fig. S1 ESI-MS of solute in supernate from production prepared with different amounts of NaOH (a) 0 mg, (b) 240 mg, (c) 480 mg, (d) 720 mg and (e) 960 mg.

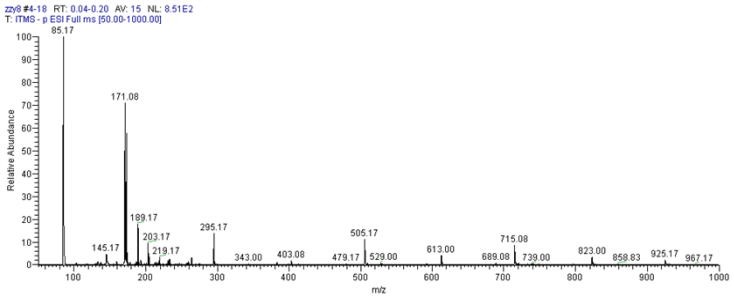

Fig. S2 ESI-MS of MAA monomer.

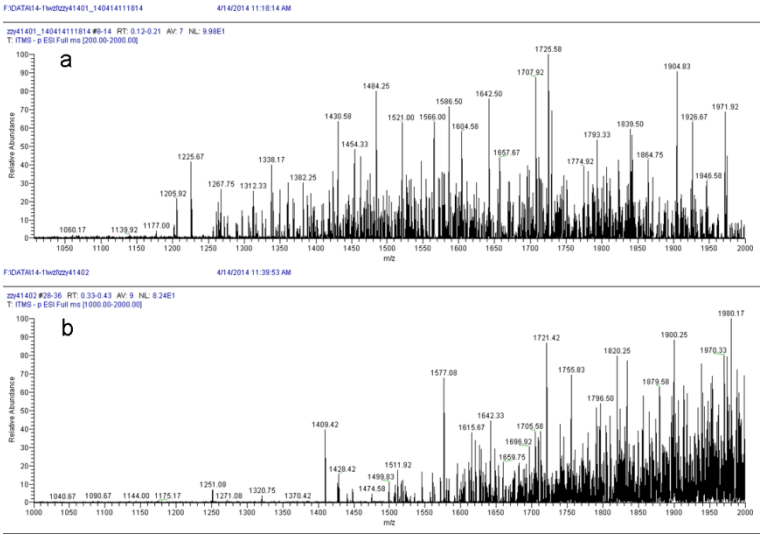

Fig. S3 ESI-MS of solute in supernate from production prepared with 0 mg NaOH (a) without rare-earth ions, (b) with rare-earth ions.

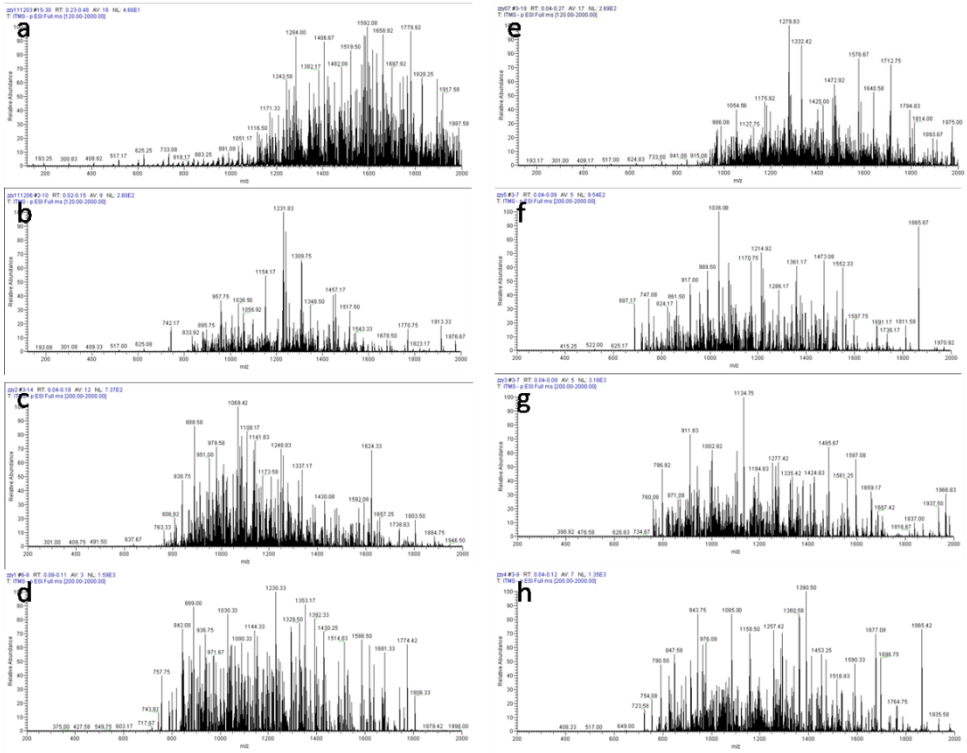

Fig. S4 ESI-MS of solute in supernate from production prepared with 240 mg NaOH a LaF_3, b CeF_3, c $NaEuF_4$, d $NaGdF_4$, e $NaTbF_4$, f $NaErF_4$, g $NaTmF_4$, h $NaYbF_4$.

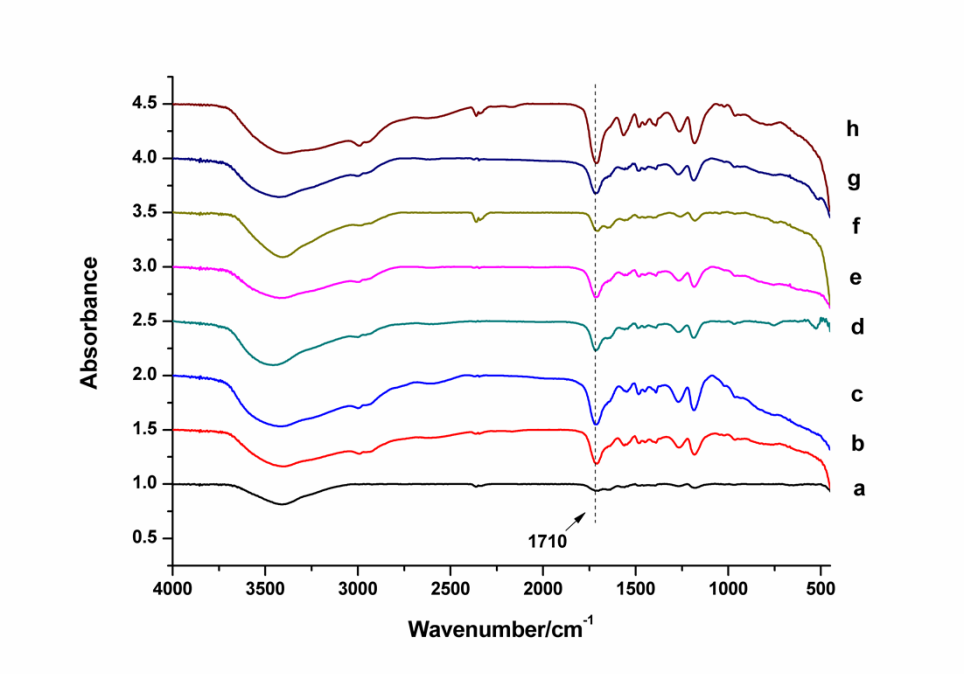

Fig. S5 IR spectra of products prepared in the presence of 240 mg NaOH a LaF_3, b CeF_3, c $NaEuF_4$, d $NaGdF_4$, e $NaTbF_4$, f $NaErF_4$, g $NaTmF_4$, h $NaYbF_4$.

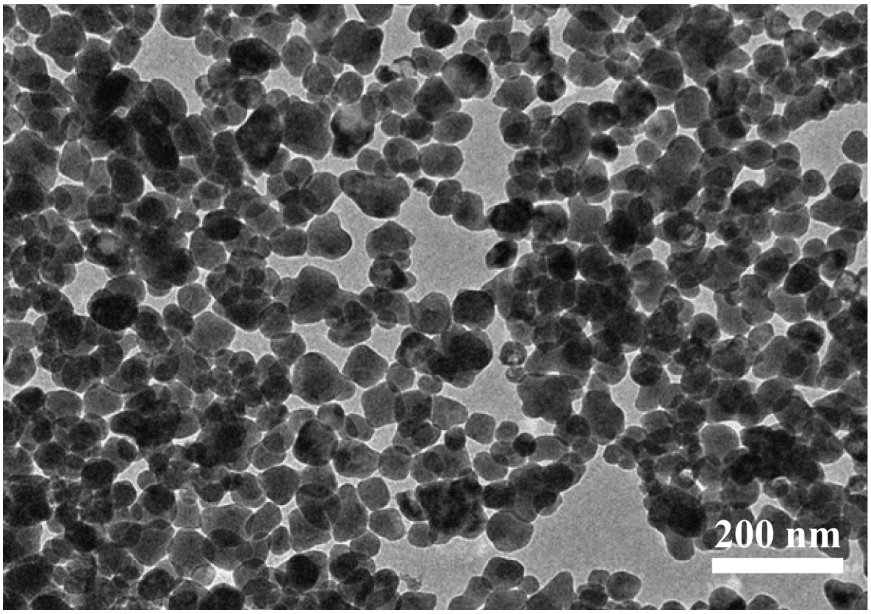

Fig. S6 TEM image of $NaYF_4$-CDDP.

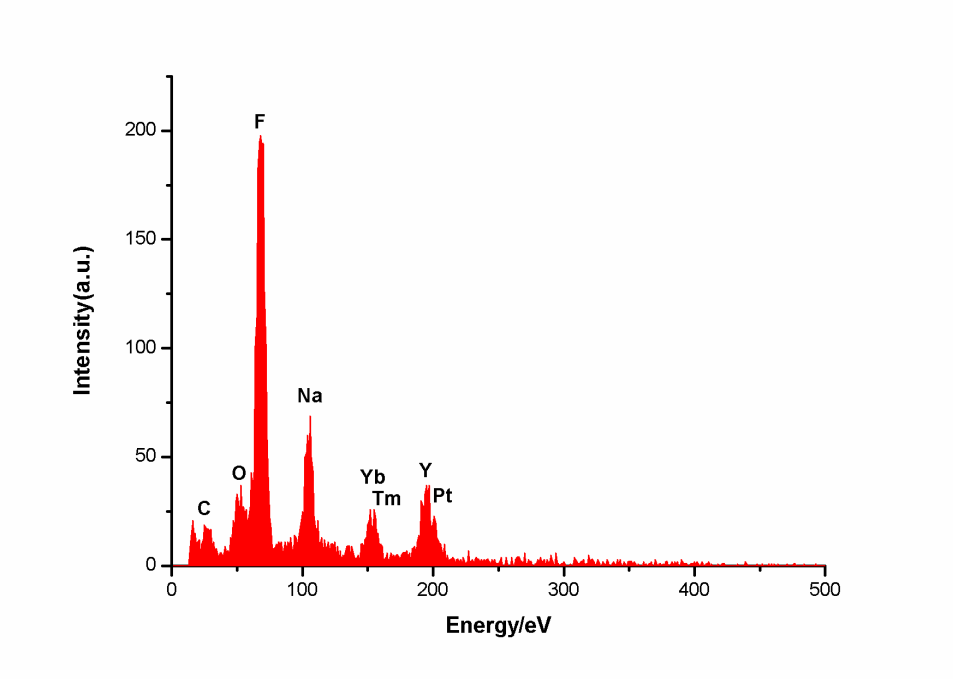

Fig. S7 EDX spectrum of $NaYF_4$-CDDP.

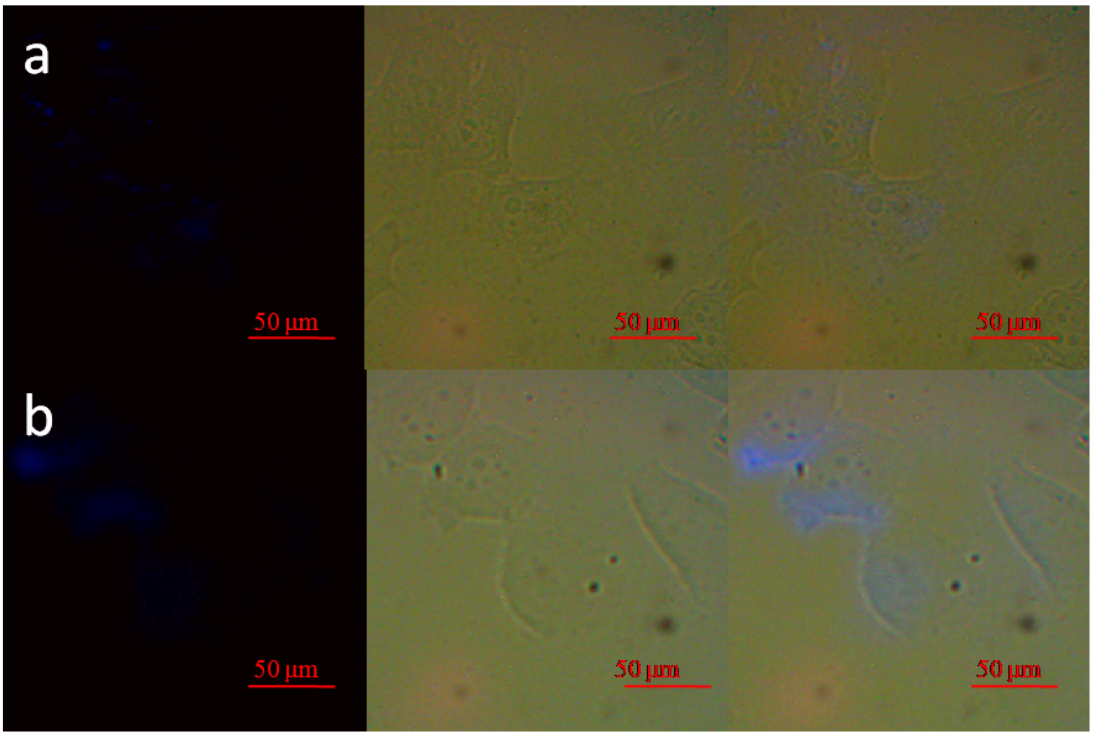

Fig. S8 Upconversion luminescence images of HeLa cells stained with 400 μg/mL $NaYF_4$:Yb^{3+}/Tm^{3+} nanoparticles for (a) 12h, and (b) 24 h on the left, bright field images in the middle, and merged bright field and upconversion luminescence images on the right.