Electronic Supplementary Material (ESI) for Journal of Materials Chemistry B.

Luminescence enhancement of CaF_2: Nd^{3+} nanoparticles in the second near-infrared window for *in vivo* imaging through Y^{3+} doping

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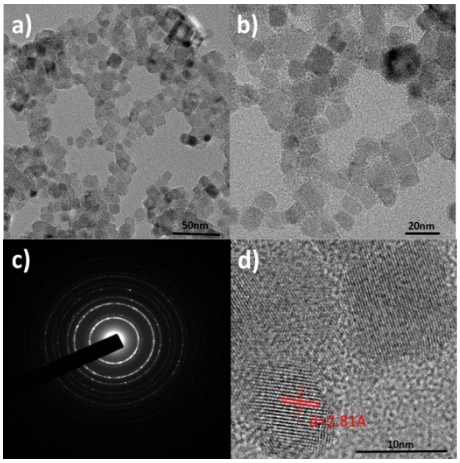
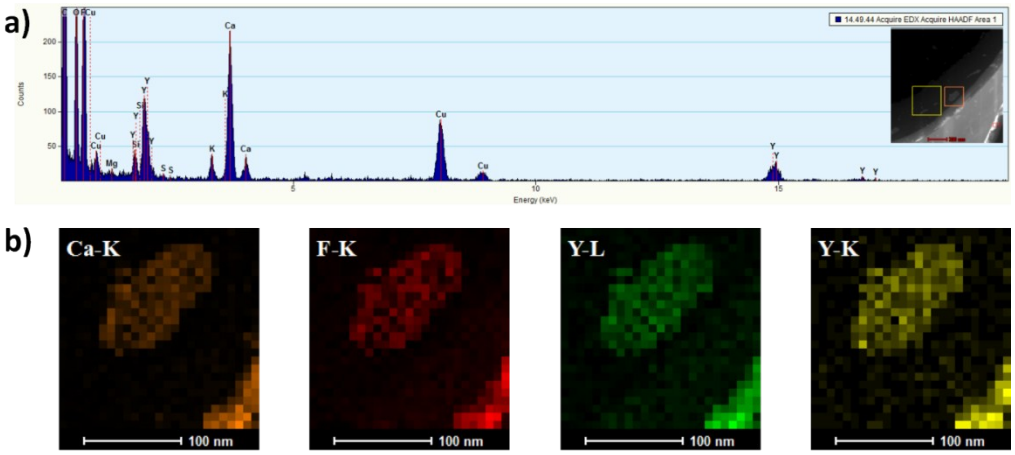


Figure.S1 (a), (b) TEM images of $Ca_{0.98}F_{2.02}$: $Nd^{3+}_{0.02}$ NPs; (c) Electron diffraction pattern of $Ca_{0.98}F_{2.02}$: $Nd^{3+}_{0.02}$ NPs; (d) High resolution TEM image of $Ca_{0.98}F_{2.02}$: $Nd^{3+}_{0.02}$ NPs.



C)

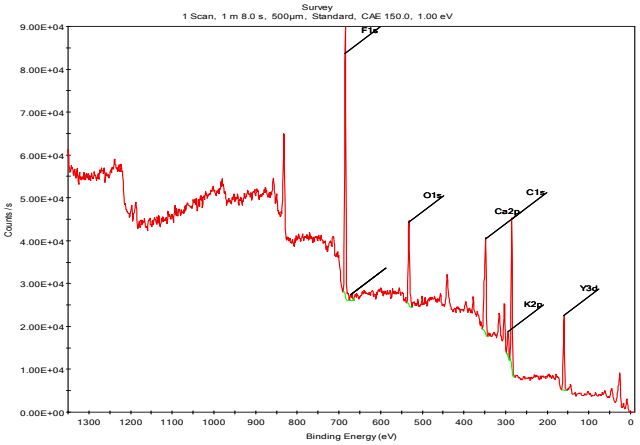


Figure.S2 The EDS and the mapping of $Ca_{0.68}Y_{0.30}Nd_{0.02}F_{2.32}$ NPs. The XPS results revealed that the existence of Ca^{2+}, Y^{3+} and F^{-}, which further confirm the formation of $Ca_{0.68}Y_{0.30}Nd_{0.02}F_{2.32}$ NPs.

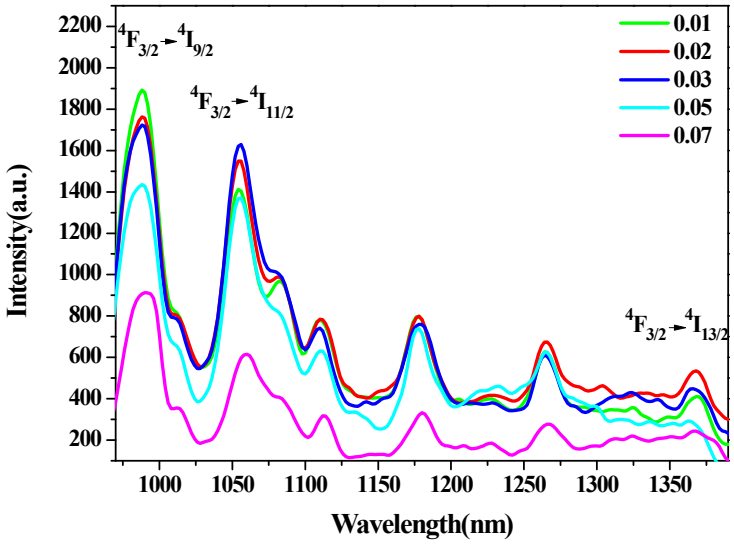


Figure.S3 Emission spectra of CaF_2: Nd^{3+} NPs (excited by 808nm).