

Supplementary Material

Upconversion nanophosphors NaLuF₄:Yb,Tm for lymphatic imaging *in vivo* by real-time upconversion luminescence imaging under ambient light and high-resolution X-ray CT

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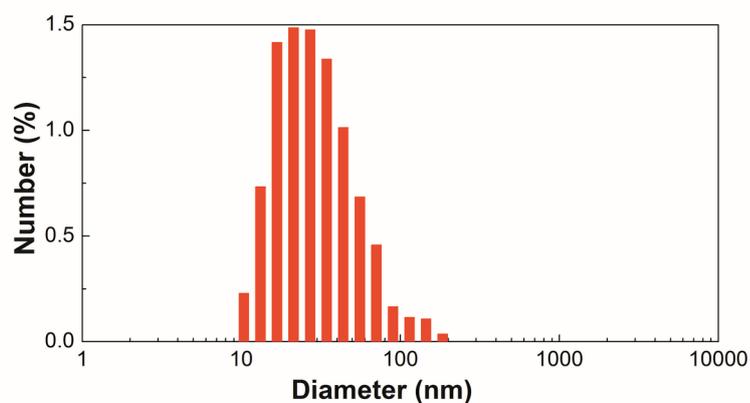


Figure S1. Hydrodynamic diameter of cit-NaLuF₄:Yb,Tm.

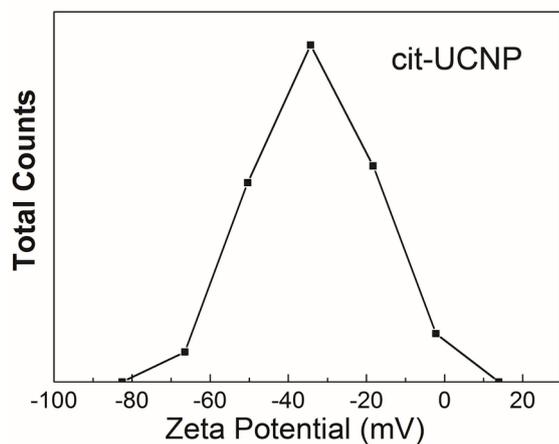


Figure S2. Zeta potential of cit-NaLuF₄:Yb,Tm.

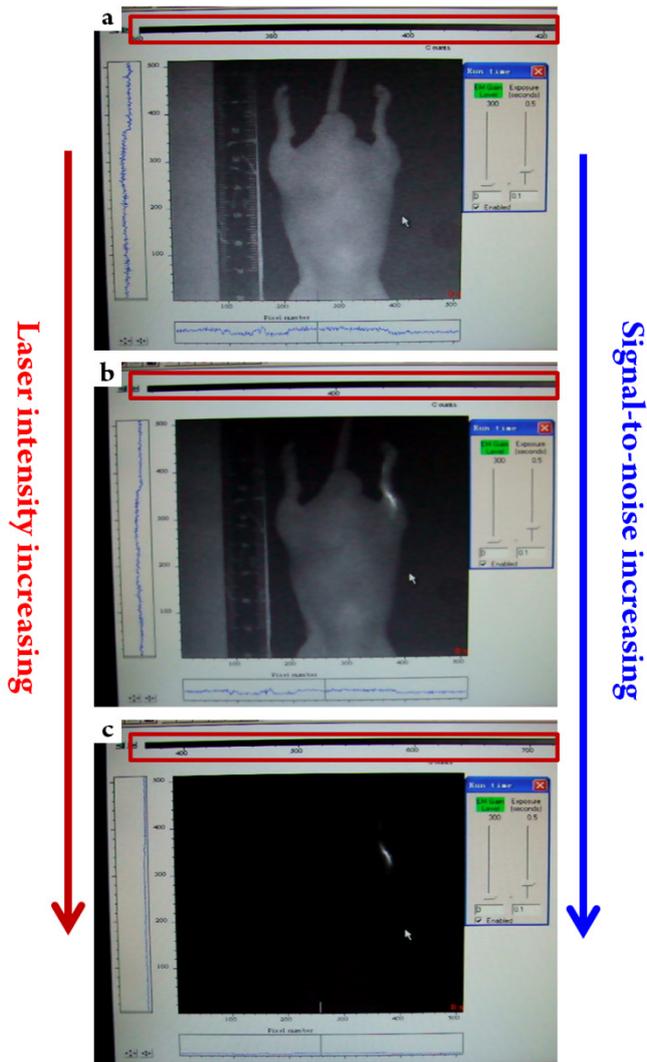


Figure S3. *In vivo* UCL imaging of lymphatic vessel upon irradiation at 980 nm laser under fluorescent lamp. (a) 980 nm laser was not open, and signal from the ambient light was clearly visualized by EMCCD camera. (b) After opening of the 980 nm laser, the excitation intensity was gradually increasing and the ratio of UCL signal to the signal from ambient light was increasing. (c) Finally, when the laser intensity arrived at its peak point, the ratio of UCL signal to the signal from ambient light arrived at its peak. It should be pointed out that the intensity bar is changing automatically, and thus the ambient light signal will gradually disappear with the increasing of the ratio of UCL signal to the signal from ambient light.

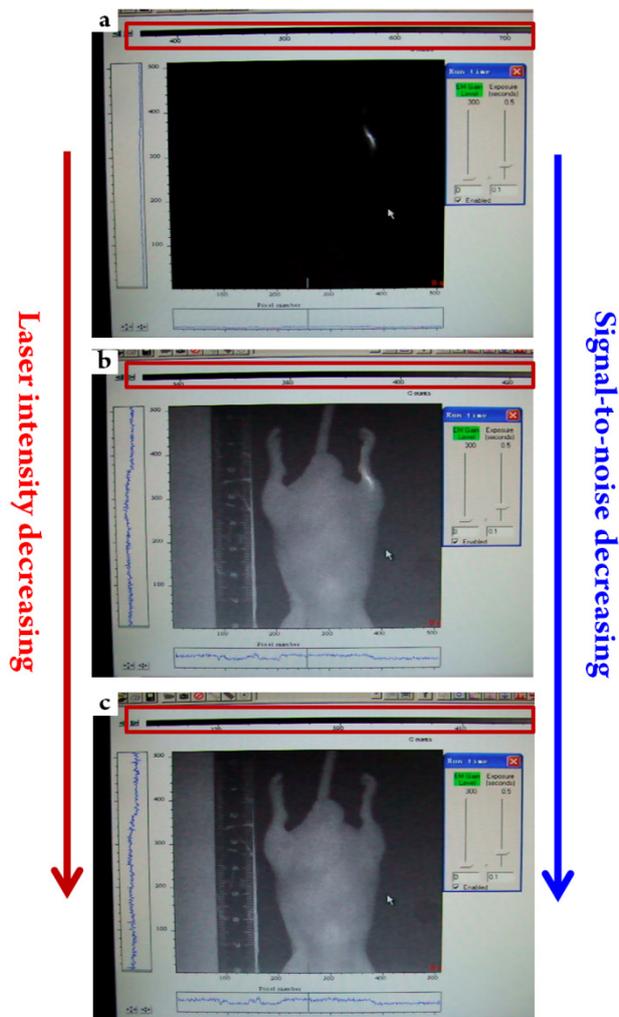


Figure S4. *In vivo* UCL imaging of lymphatic vessel upon irradiation at 980 nm laser under fluorescent lamp. (a) 980 nm laser was closed, and laser intensity was gradually decreasing. (b) With further decreasing of excitation intensity, the ratio of UCL signal to the signal from ambient light was decreasing. (c) Finally, when the laser intensity was zero, the UCL signal disappears. It should be pointed out that the intensity bar is changing automatically, and thus the ambient light signal will gradually appear with the decreasing of the ratio of UCL signal to the signal from ambient light.