Electronic Supplementary Material (ESI) for Biomaterials Science.

SUPPORTING INFORMATION

Lanthanide-doped upconversion nanoparticles complexed with nano oxide graphene used for upconversion fluorescence imaging and photothermal therapy

Po Li [a], Yue Yan [b], Binlong Chen [c], Pan Zhang [a], Siling Wang [b], Jing Zhou [a],Haiming Fan [*d], Yiguang Wang [*c], Xiaonan Huang [*a]

a. Department of Chemistry, Capital Normal University, 105 West 3rd Ring North Rd, Beijing 100048, PR China.

b. Department of Pharmaceutics, School of Pharmacy, Shenyang Pharmaceutical University, 103 Wenhua Road, Shenyang, Liaoning Province 110016, PR China.

c. Beijing Key Laboratory of Molecular Pharmaceutics and New Drug Delivery Systems, School of Pharmaceutical Sciences, Peking University, Beijing, China.

d. School of Petroleum Engineering, China University of Petroleum (East China), Qingdao 266580, Shandong Province, PR China.

*** To whom correspondence should be addressed:**
Dr. Xiaonan Huang
E-mail: huangxn@cnu.edu.cn (X.N. Huang)
Dr. Yiguang Wang
E-mail: wangyiguang1980@bjmu.edu.cn
Dr. Haiming Fan
E-mail:Haimingfan@126.com

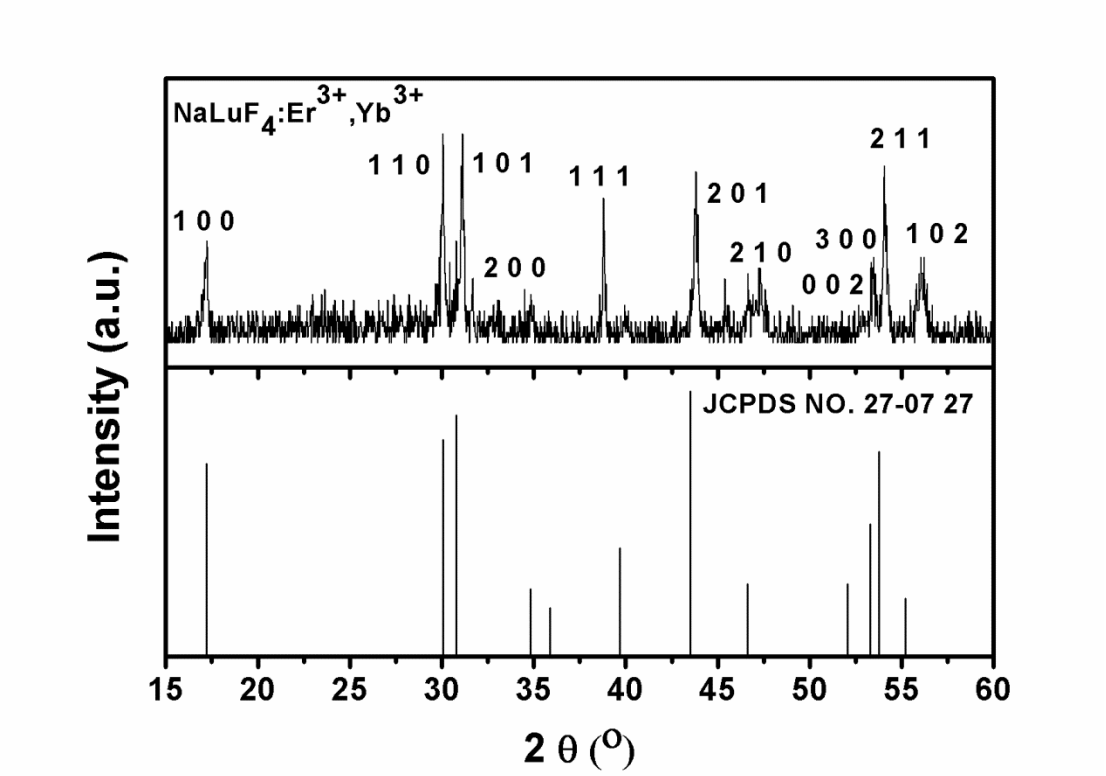

Fig. S1. X-ray power diffraction (XRD) spectrum of the $NaLuF_4:Yb^{3+}$, Er^{3+} UNCP@OA hexagonal nanoparticles (JCPDS standard card no. 27-0727)

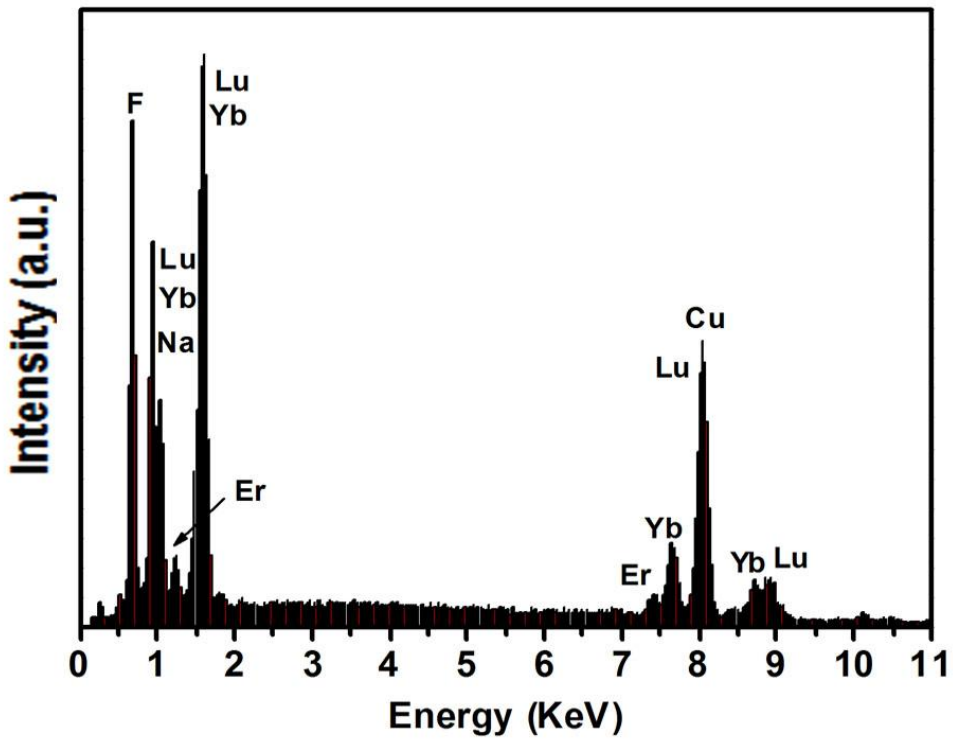

Fig. S2. EDX spectrum of UNCP@OA $NaLuF_4:Yb^{3+}$, Er^{3+}

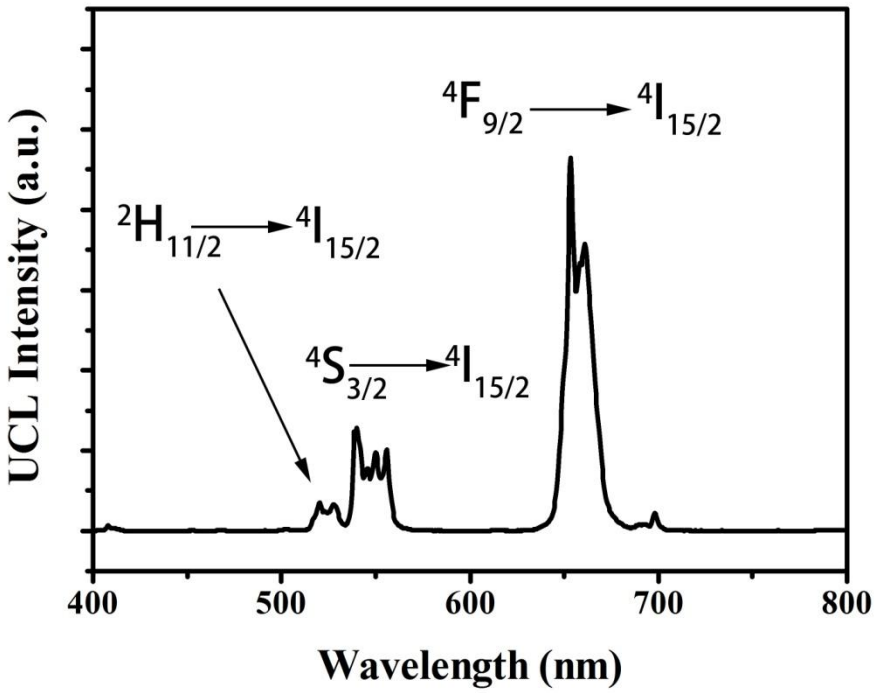

Fig. S3. Upconversion emission spectra of OA-capped UNCPs under 980 nm laser excitation.

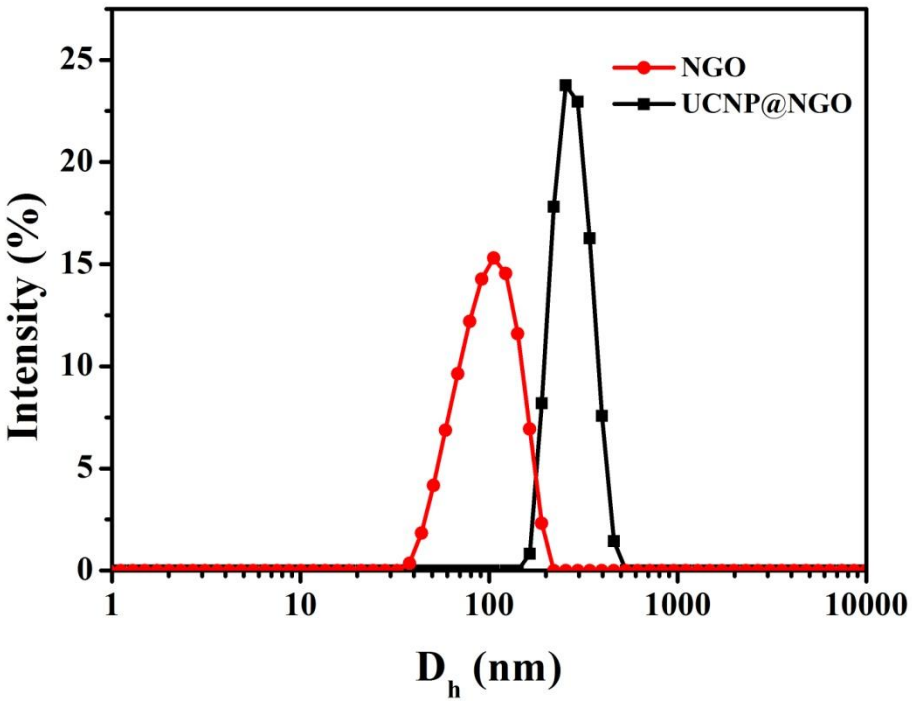

Fig. S4. DLS distribution of NGO and UCNP@NGO in aqueous solution.