Electronic Supplementary Material (ESI) for Analyst.

SI

An Upconversion Fluorescent Resonant Energy Transfer Biosensor for Hepatitis B Virus (HBV) DNA Hybridization Detection

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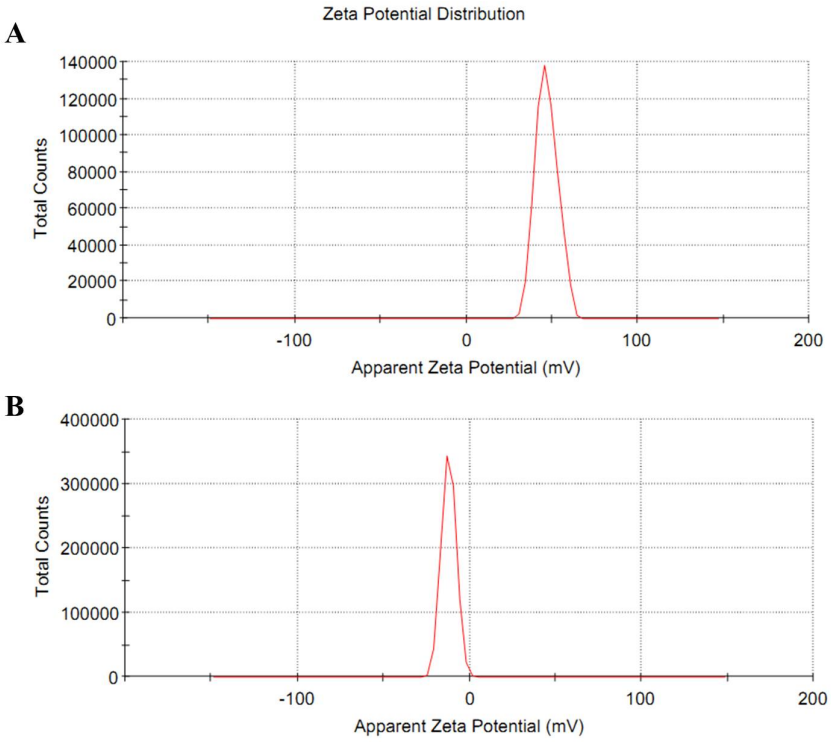

Fig. S1 Zeta potential distributions of NH_2-UCNPs (A) and UCNPs- seq 1(B).

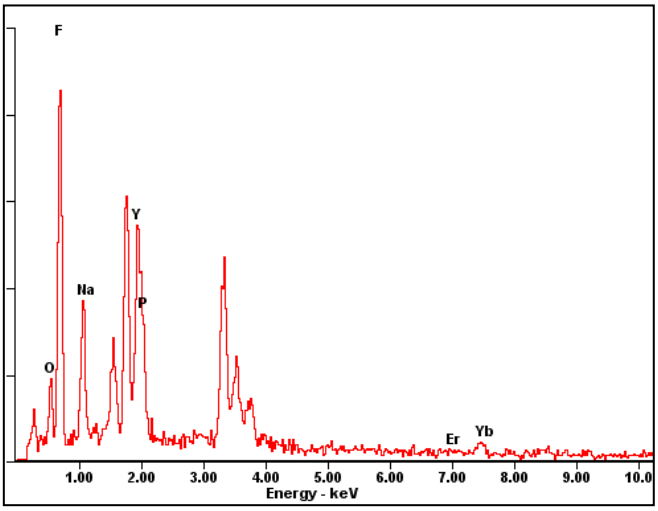

Fig. S2 EDX analysis spectrum of UCNPs-seq 1.

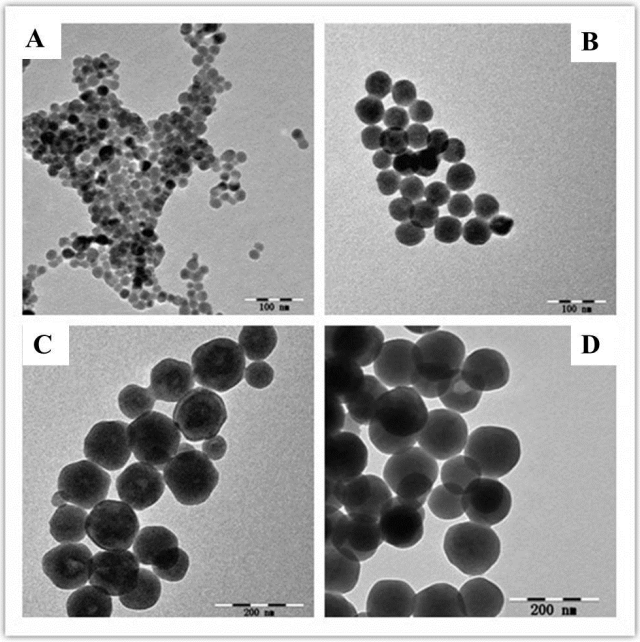

Fig. S3 TEM images of NH_2-UCNPs synthesized with different F/Ln molar ratios at 200 °C for 24 h. F/Ln=4(A), F/Ln=6(B), F/Ln=8(C), F/Ln=10(D). The scale bar for A and B =100 nm, the scale bar for C and D =200 nm.

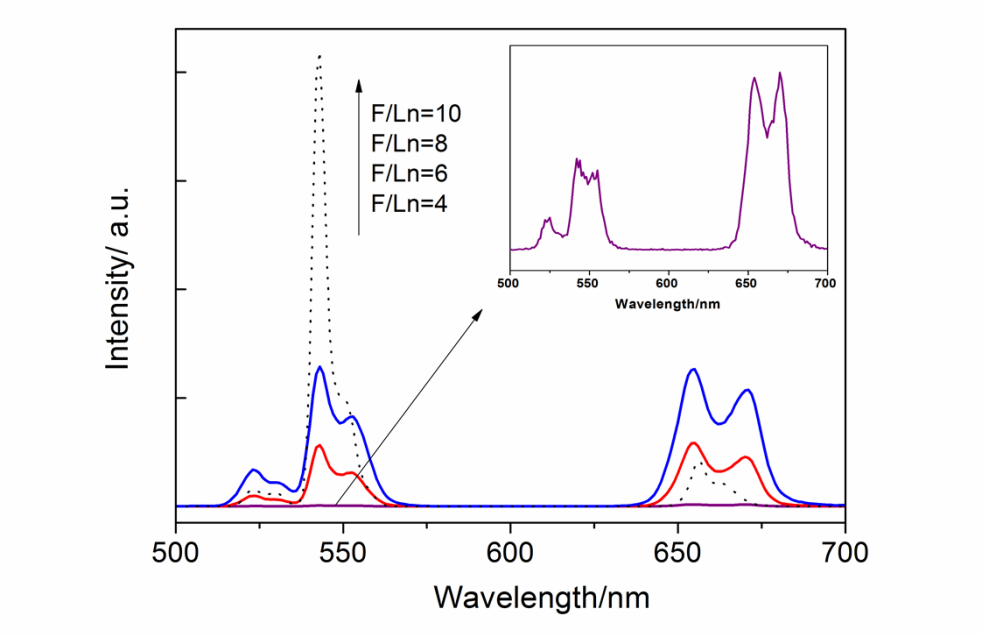

Fig. S4 The UCL of NH_2-UCNPs synthesized with different F/Ln molar ratios at 200 °C for 24 h, inset: amplified UCL of F/Ln=4 (the concentration is fixed at 0.5 mg·mL^{-1}).

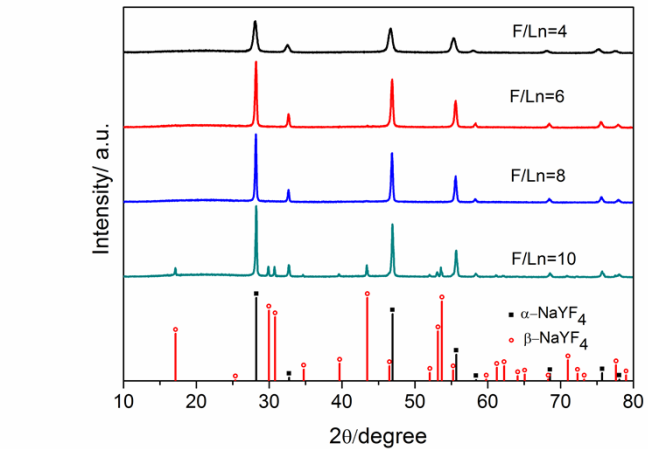

Fig. S5 XRD patterns of NH_2-UCNPs synthesized with different F/Ln molar ratios at 200 °C for 24 h, α-$NaYF_4$ (JCPDS no. 77-2042), β -$NaYF_4$ (JCPDS no. 28-1192).

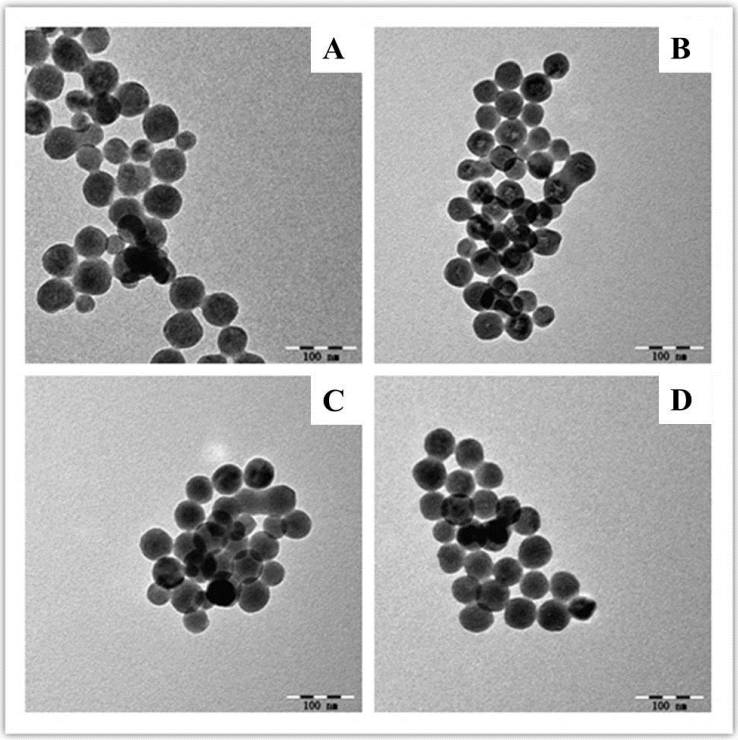

Fig. S6 TEM images of NH_2-UCNPs synthesized with different reaction time at 200 °C with F/Ln=6. 2 h (A), 6 h (B), 12 h (C), 24 h (D). The bar =100 nm.

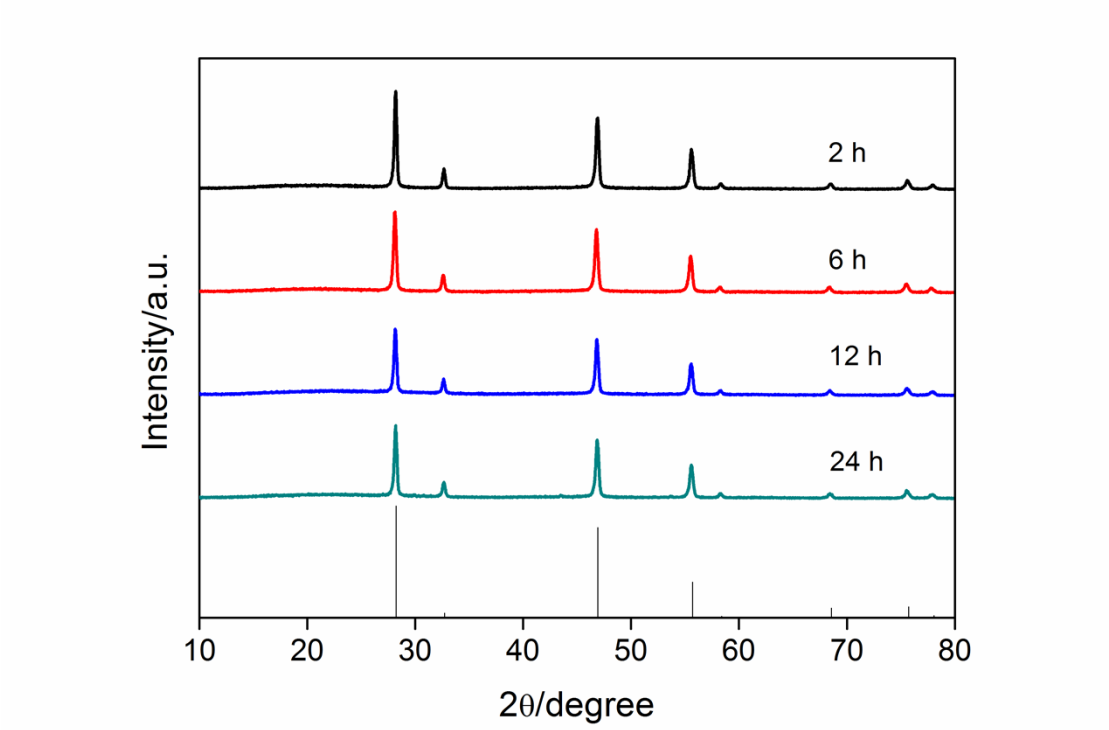

Fig. S7 XRD patterns of NH_2-UCNPs synthesized with different reaction time at 200 °C with F/Ln=6, α-$NaYF_4$ (JCPDS no. 77-2042).

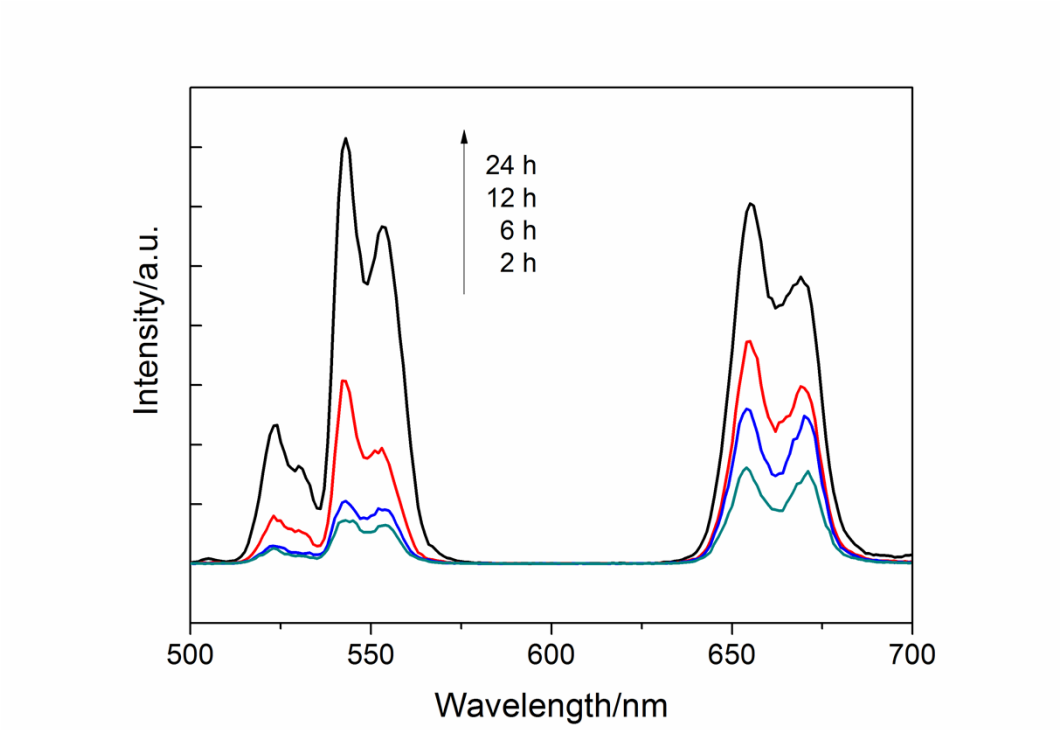

Fig. S8 The UCL of NH_2-UCNPs synthesized with different reaction time at 200 °C with F/Ln=6, the concentration is fixed at 0.5 mg·mL^{-1}.

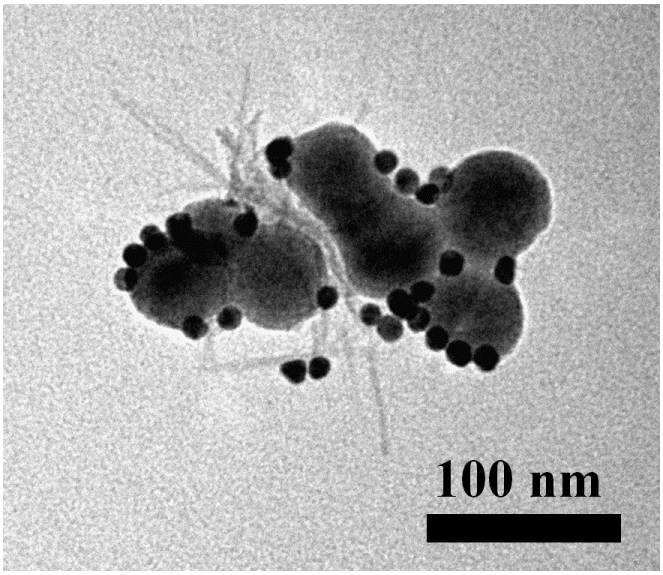

Fig. S9 TEM image of the UCNPs-seq 1 assembled with Au NPs-seq 2.