

## Supplementary Information

### Controlled synthesis and enhanced luminescence of europium-doped fluorine-substituted hydroxyapatite nanoparticles

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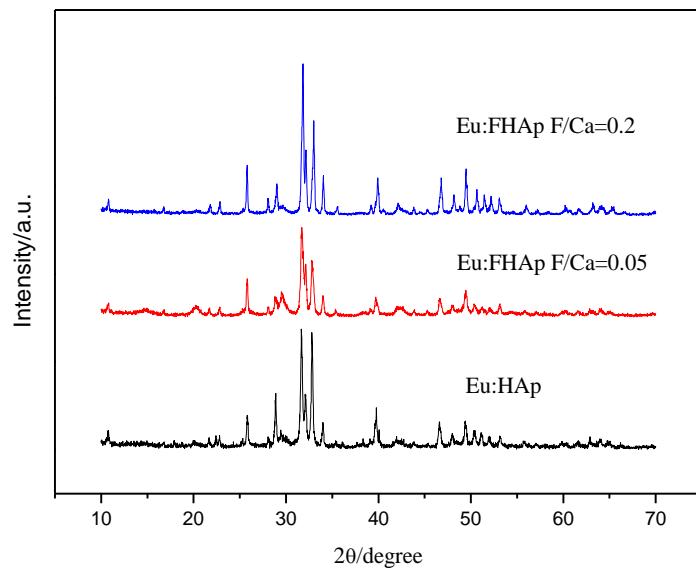


Fig.S1 XRD patterns of Eu:HAp nanoparticles with different F concentration prepared at pH 3.0

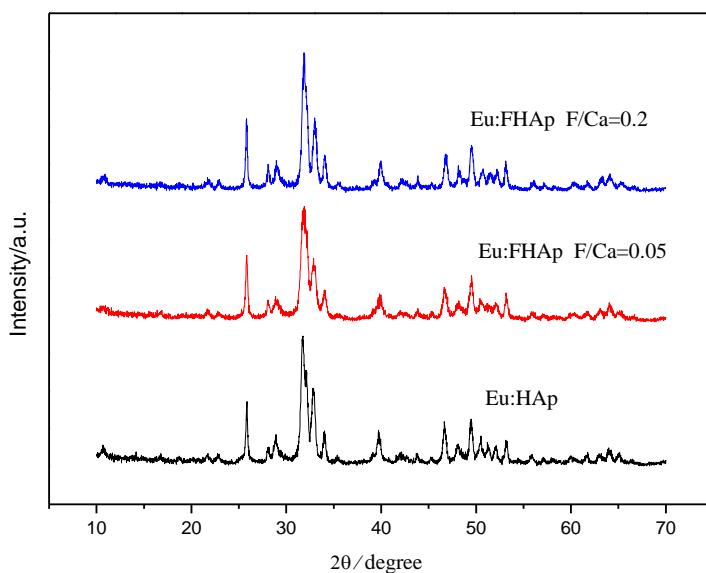


Fig.S2 XRD patterns of Eu:HAp nanoparticles with different F concentration prepared at pH 11.0

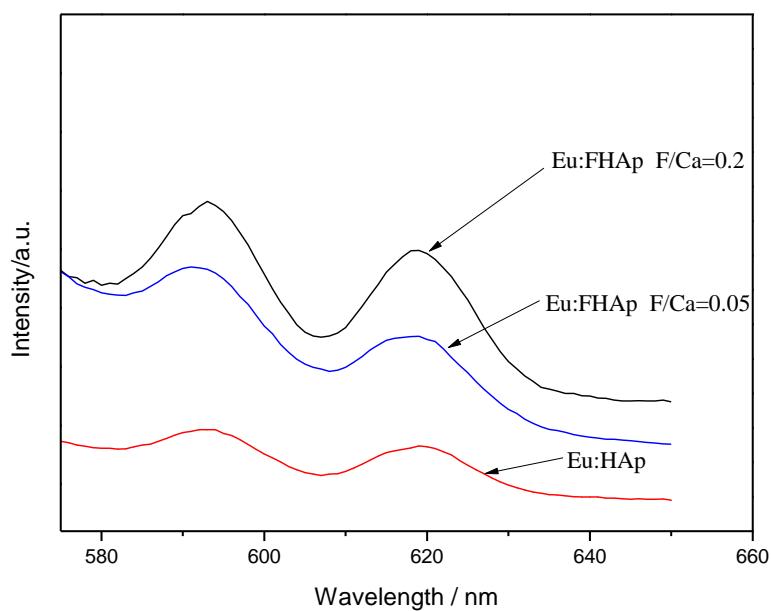


Fig.S3 Photoluminescence spectra of Eu:FHAp (prepared at pH 11.0) under 254 nm excitation.

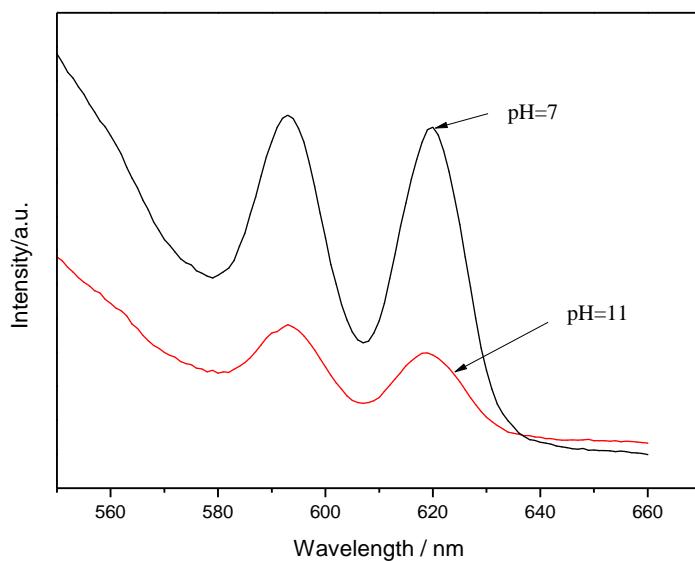


Fig.S4 Photoluminescence spectra of Eu:FHAp ( $F/Ca = 0.2$ ) under 254 nm excitation.