

Supplementary Information

Excretable, ultrasmall hexagonal NaGdF₄:Yb50% Nanoparticles for bimodal imaging and radiosensitization

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Supplementary Figures

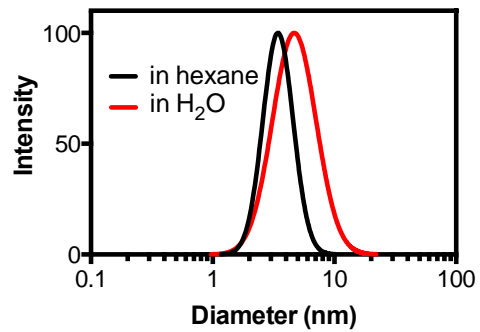


Figure S1 Size distributions from dynamic light scattering (DLS) of hydrophobic NPs in (A) hexane and the (B) surface modified (cysteine/dtpa) NPs in H₂O indicate good stability and monodispersity in both solvents.

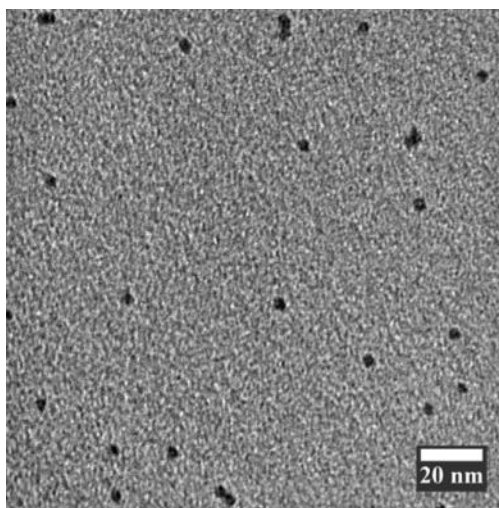


Figure S2 TEM image of the NPs after ligand exchange also show no aggregation resulting from the process.

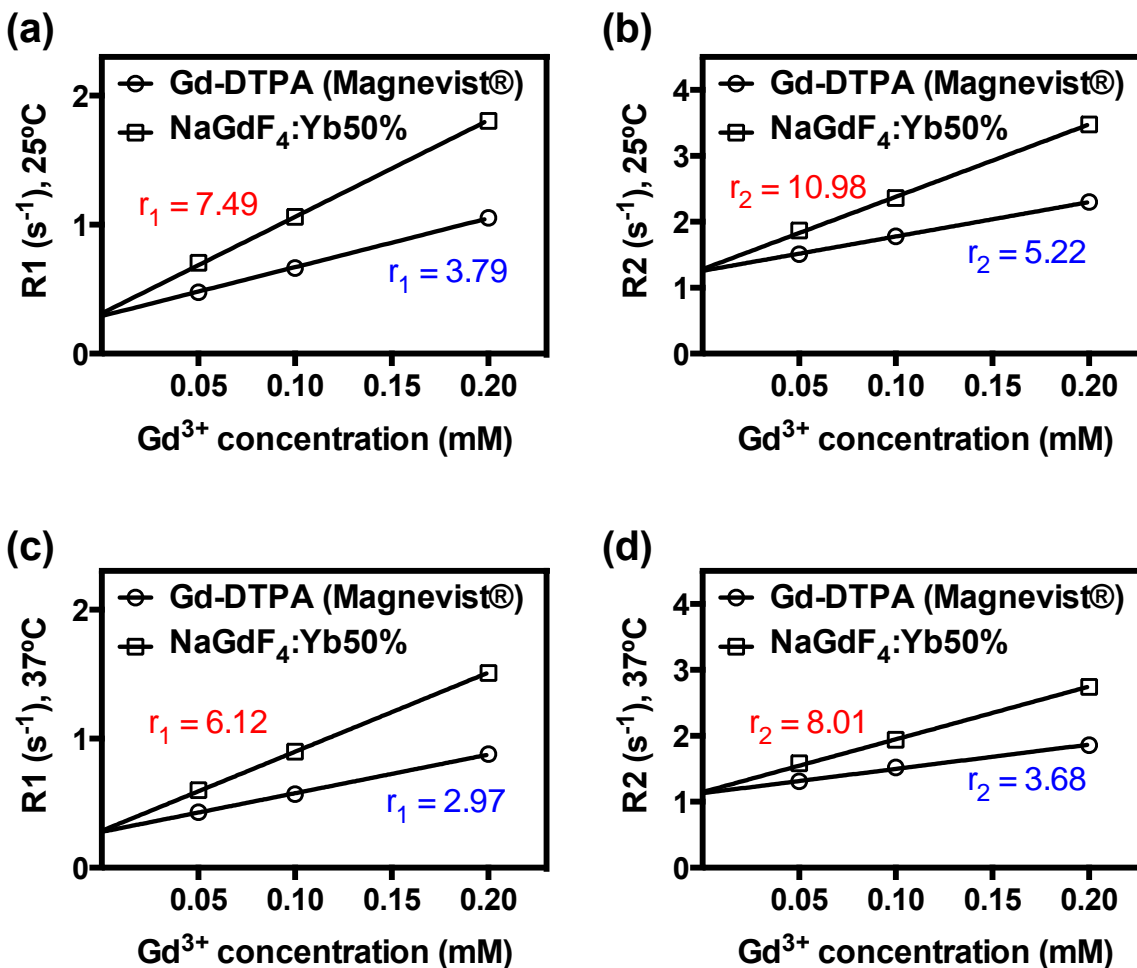


Figure S3 Linear plots of the (a,c) T1 relaxation rates (R1) and (b,d) T2 relaxation rates (R2) as a function of Gd^{3+} concentration to determine the T1 relaxivity (r_1) and T2 relaxivity (r_2) of the ultrasmall NP in comparison with Gd-DTPA (Magnevist®) at 25°C and at 37°C.

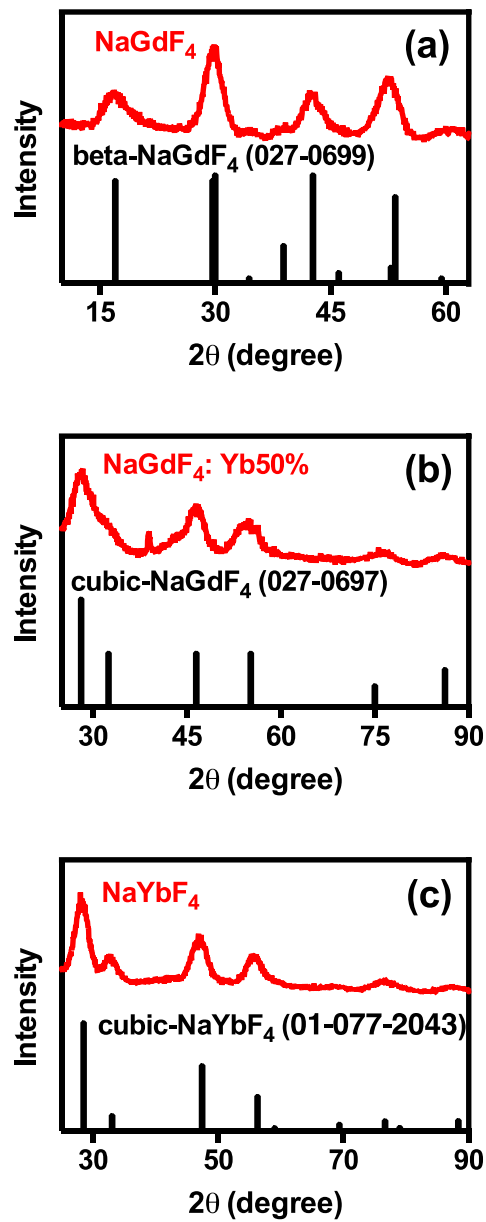


Figure S4. Powder X-ray diffraction patterns of resulting ultrasmall (a) β - NaGdF_4 , (b) α - $\text{NaGdF}_4:\text{Yb}50\%$, and (c) α - NaYbF_4 under 30 minutes nucleation time.

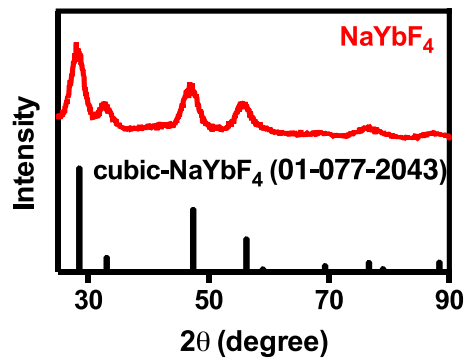


Figure S5 Powder X-ray diffraction patterns of resulting ultrasmall α -NaYbF₄ synthesized under overnight nucleation time.

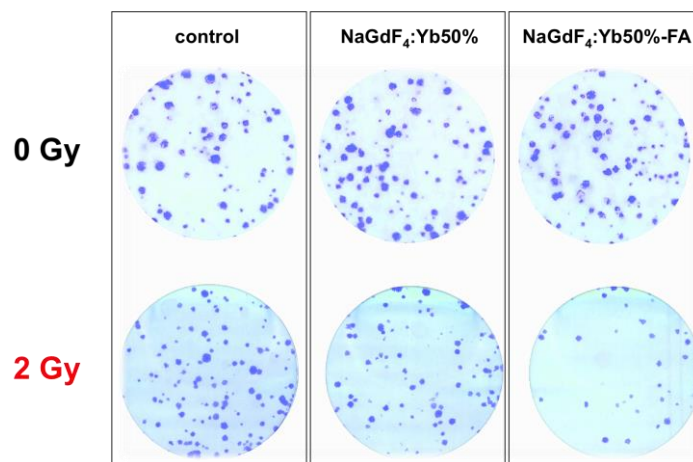


Figure S6 Colony formation assay of C6 cells

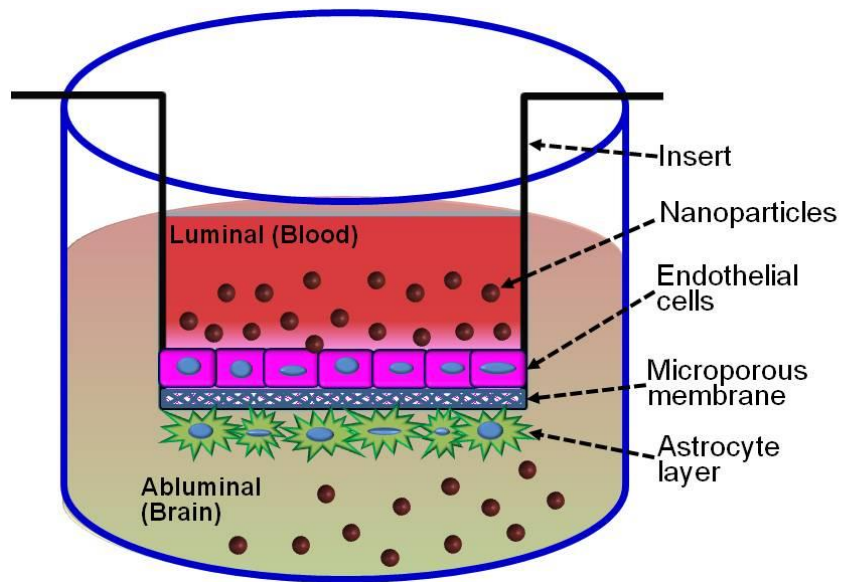


Figure S7 Schematic diagram of the in vitro BBB model.