Supplementary Information

Possible Gadolinium Ions Leaching and MR Sensitivity Over-Estimation in Mesoporous Silica-Coated Upconversion Nanocrystals

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Electronic Supplementary Material (ESI) for Nanoscale

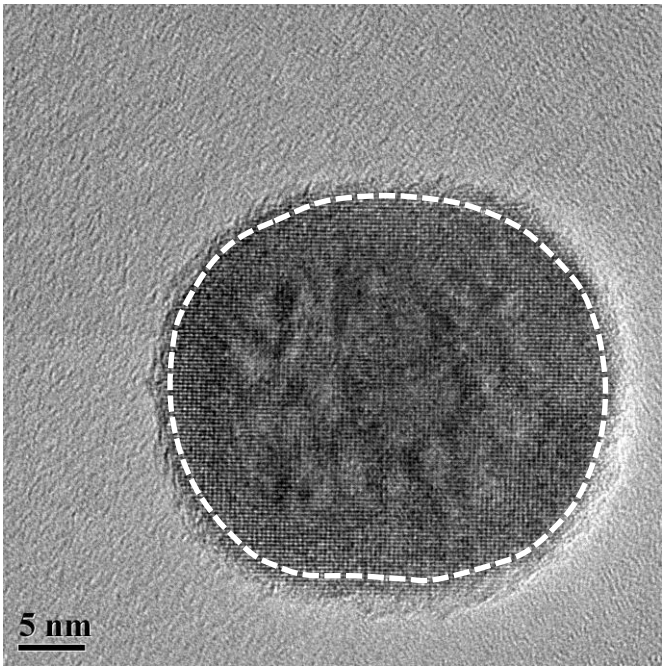

Figure S1. High resolution TEM image of highly crystalline $NaYF_4$:Er/Yb@$NaGdF_4$. White line represents the boundary of $NaYF_4$ and $NaGdF_4$.

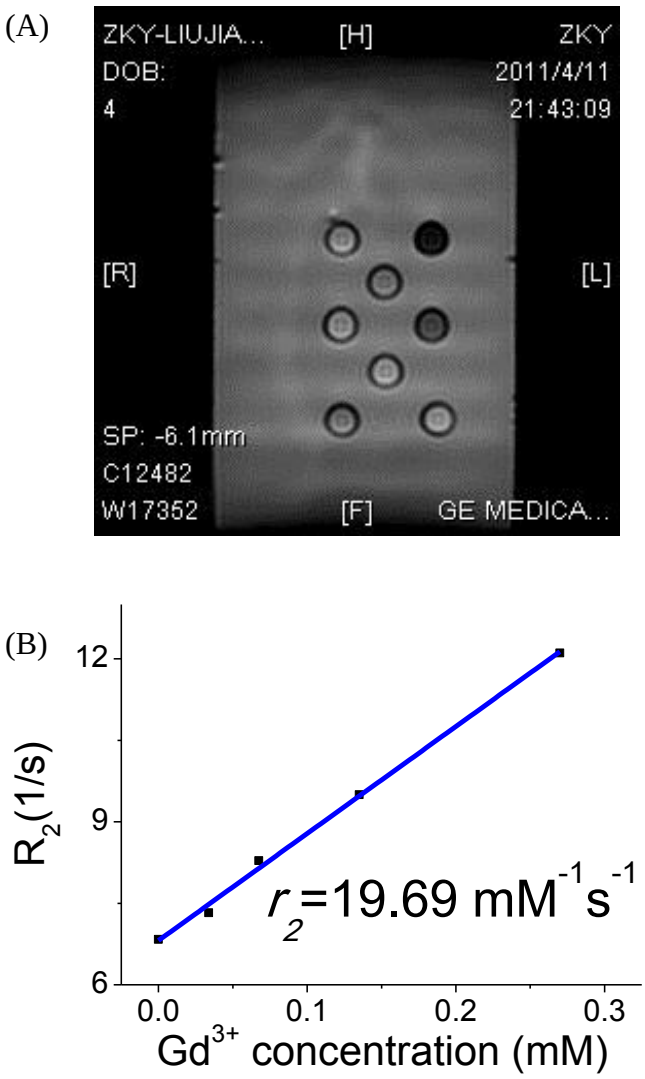

Figure S2. (A) T_2-map of free Gd^{3+} ions. (B) Plot of R_2 (1/s) versus Gd^{3+} ion concentration (mM), the slop indicates the specific relaxivity (r_2). r_2/r_1 = 2.2.

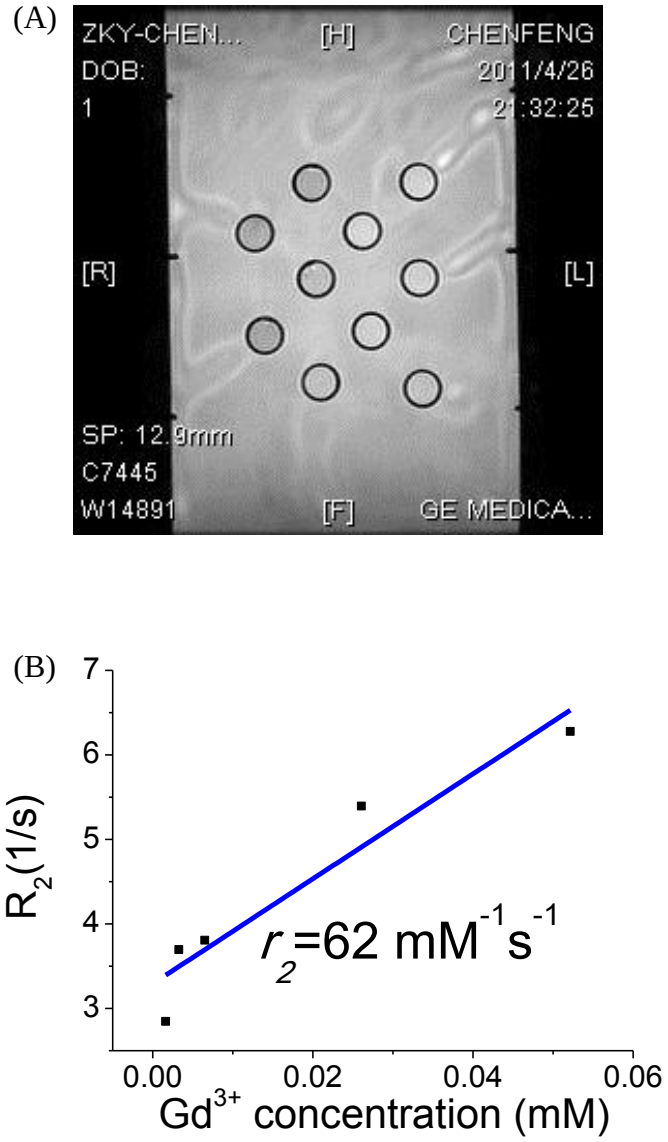

Figure S3. (A) T_2-map of Core@$NaGdF_4$@m-SiO_2 (inner core damaged). (B) Plot of R_2 (1/s) versus Gd^{3+} ion concentration (mM), the slop indicates the specific relaxivity (r_2). r_2/r_1 = 9.6.

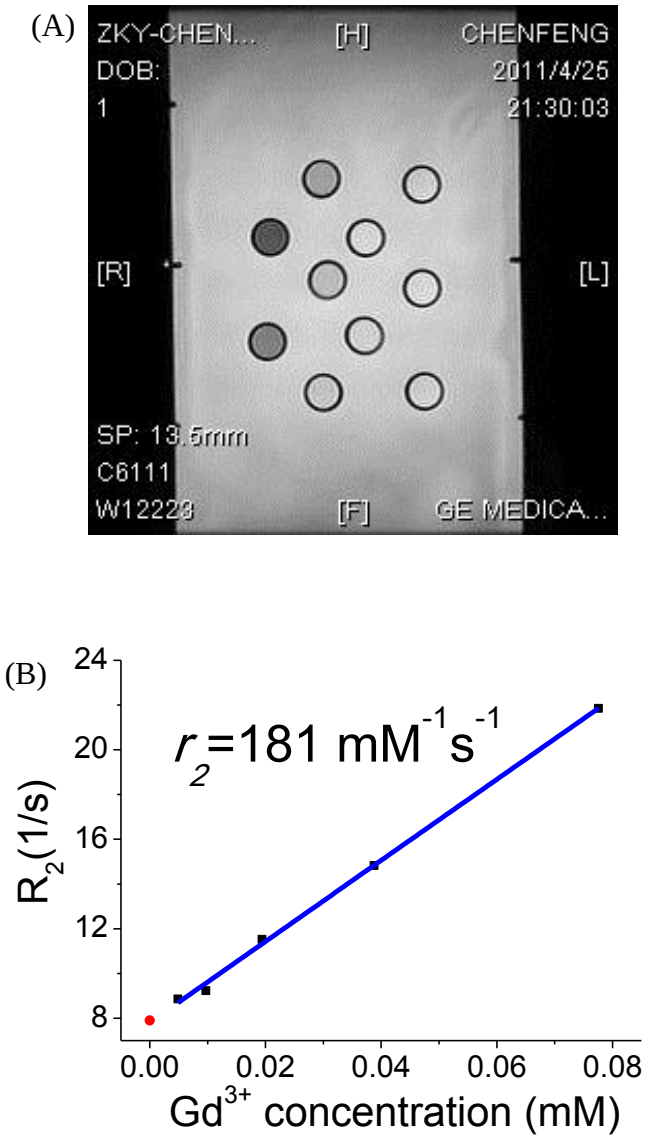

Figure S4. (A) T_2-map of Core@$NaGdF_4$@m-SiO_2 obtained by calcination. (B) Plot of R_2 (1/s) versus Gd^{3+} ion concentration (mM), the slop indicates the specific relaxivity (r_2). r_2/r_1 = 59.3.

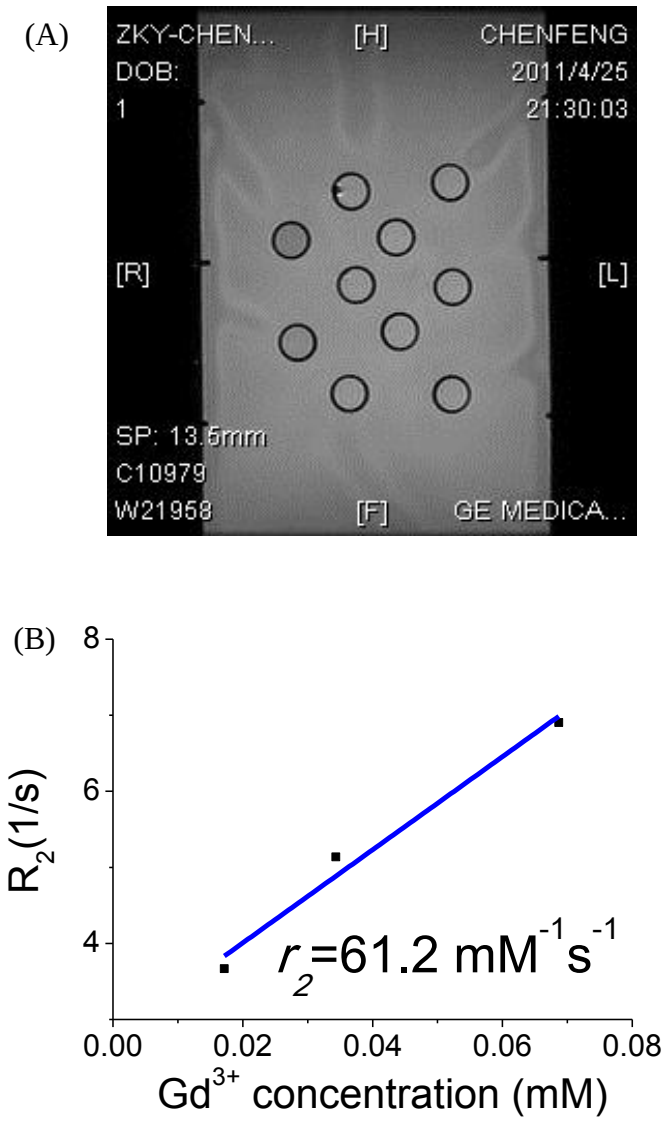

Figure S5. (A) T_2-map of Core@$NaGdF_4$@d-SiO_2. (B) Plot of R_2 (1/s) versus Gd^{3+} ion concentration (mM), the slop indicates the specific relaxivity (r_2). r_2/r_1 = 9.6.

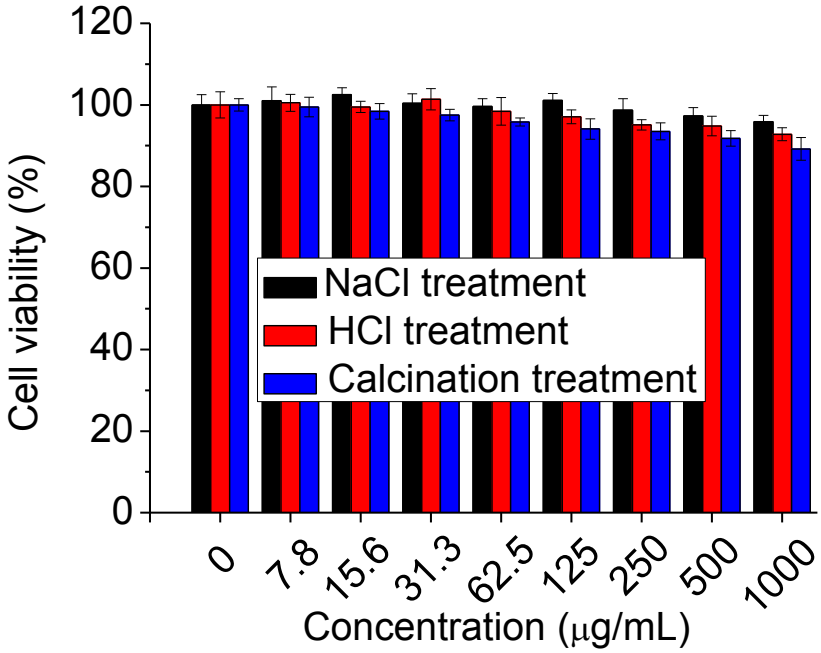

Figure S6. MTT cell viability assay of UCNP@m-SiO_2 after different treatments to extract CTAB on HeLa cells for 24 h incubation. To decrease the cytotoxicity of calcined nanoparticles, they were subject to centrifuge at 3000 r/min for 3 min to exclude large-sized nanoparticles.

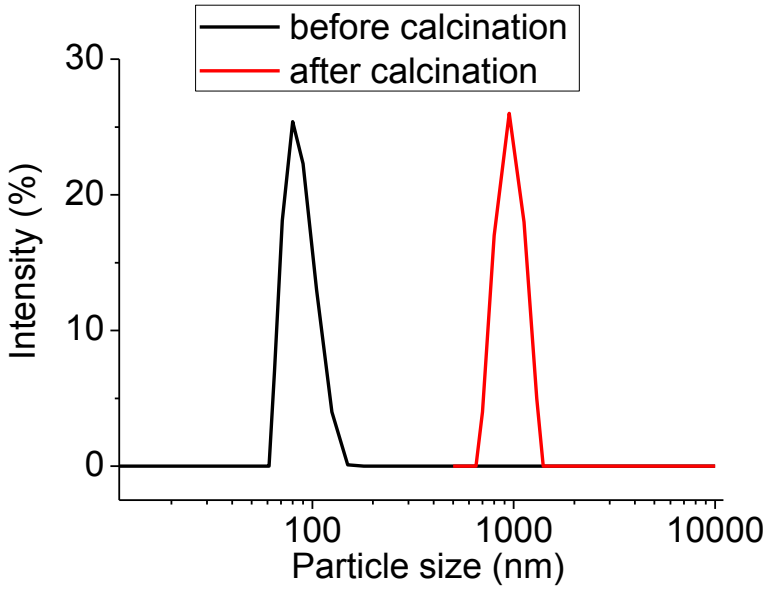

Figure S7. DLS measurements of Core@$NaGdF_4$@m-SiO_2 before and after calcinations.