Electronic Supplementary Information for

Hyaluronic acid-mediated one-pot facile synthesis of a sensitive and biocompatible Gd_2O_3 nanoprobe for MR Imaging in vivo

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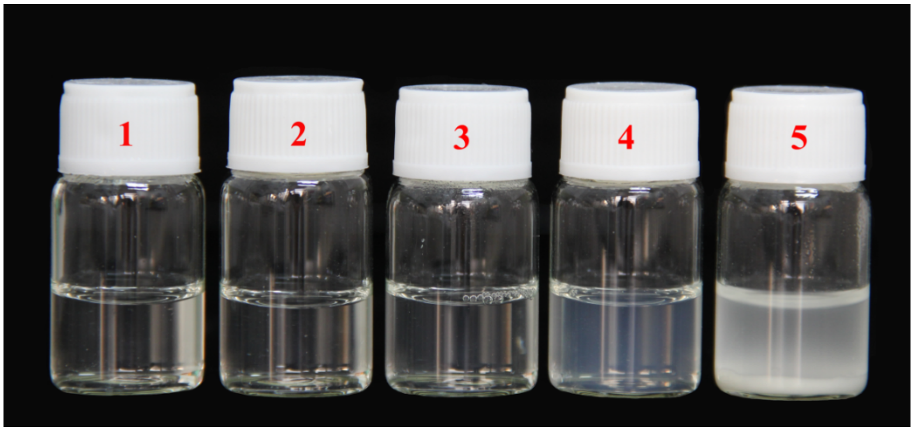

Fig. S1. The photographs of HA-Gd_2O_3 nanoprobe prepared using different concentrations of $Gd(NO_3)_3$ (0.02 M, 0.05 M 0.1 M, 0.2 M, 0.5 M). The precipitation began to arise as the concentration of Gd^{3+} increased to 0.2 M. So the 0.1 M was chosen to be the optimal reaction concentration to meet requirements in the aspects of high Gd content and good colloid stability**.**

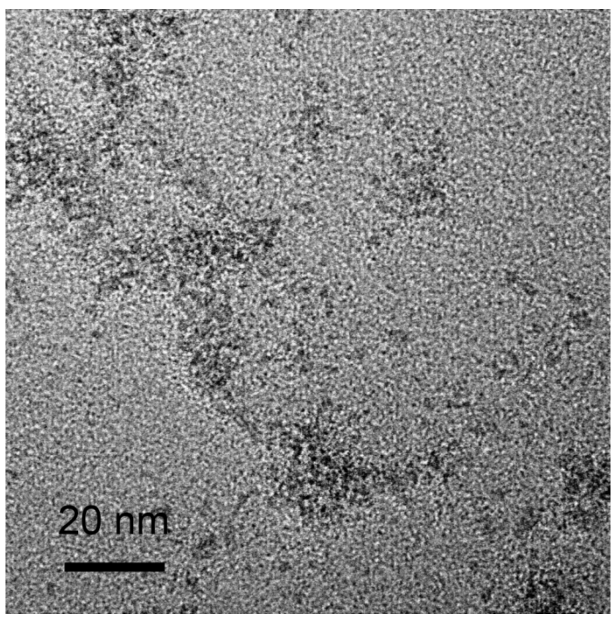

Fig. S2. HRTEM of HA-Gd_2O_3 nanoprobe

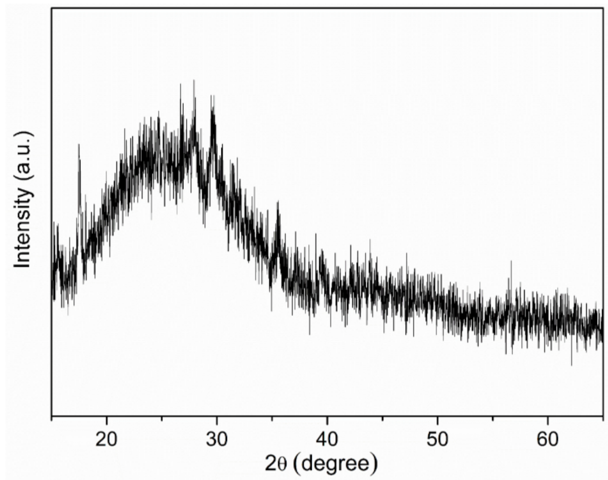

Fig. S3. The XRD of HA-Gd_2O_3 nanoprobe.

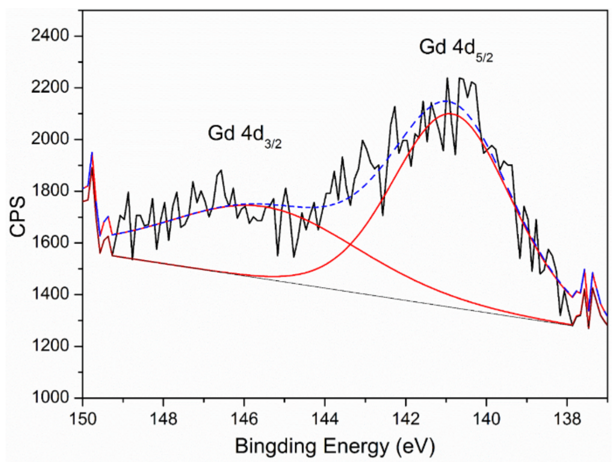

Fig. S4. The XPS patterns of Gd 4d for HA-Gd_2O_3 nanoprobe.

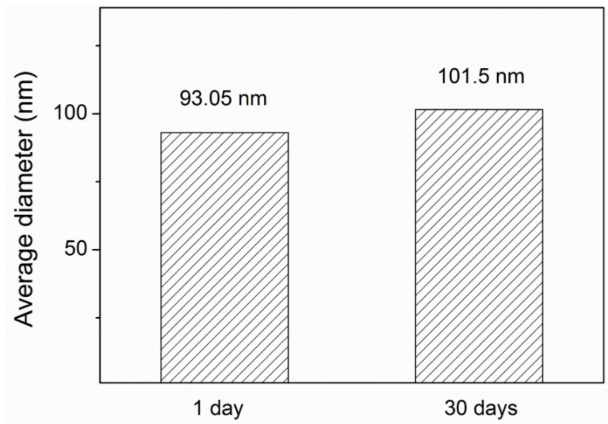

Fig. S5. The measurements of dynamic light scattering (DLS) of HA-Gd_2O_3 nanoprobe dispersed in normal saline for 1 day and 30 days.

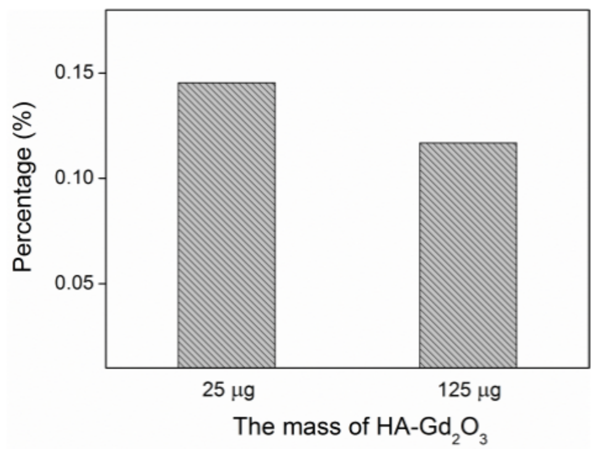

Fig. S6. The cell uptake of HA-Gd_2O_3 after treatment with different mass of HA-Gd_2O_3 nanoprobe (25 μg, 125 μg). The following equations were used to evaluate the internalization of HA-Gd_2O_3 nanoprobe by cells.

Percentage (%) = Gd content in intracellular fluid/total Gd content x 100%

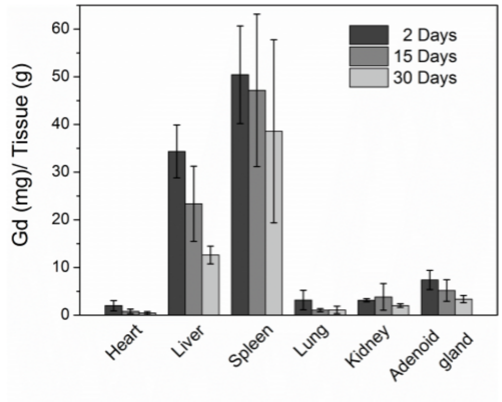

Fig. S7. Time-dependent biodistribution measurement of Gd levels in various organs of mice after injection of HA-Gd_2O_3 nanoprobe at a dose of 0.025 mmol Gd/kg.

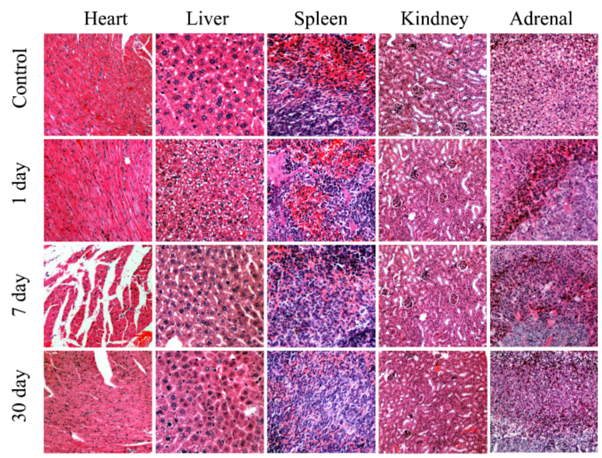

Fig. S8. Histology analysis of mice treated with and without intravenous injection of HA-Gd_2O_3 nanoprobe (200 µl, 0.025 mmol Gd /kg) at 1, 7 and 30 days.

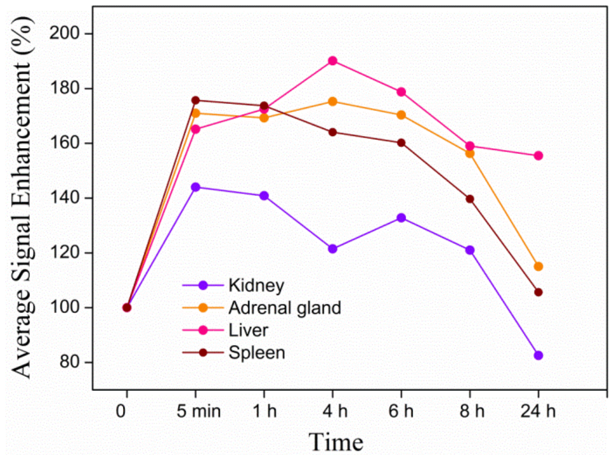

Fig. S9. Average signal enhancement of major organs (kidney, adrenal gland, liver, spleen) after intravenous injection of HA-Gd_2O_3 (200 µl, 8 mg/mL)