Electronic Supplementary Information for

Hyaluronic acid-mediated one-pot facile synthesis of a sensitive and biocompatible Gd$_2$O$_3$ nanoprobe for MR Imaging in vivo

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**Fig. S1.** The photographs of HA-Gd$_2$O$_3$ 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$_2$O$_3$ nanoprobe
**Fig. S3.** The XRD of HA-Gd$_2$O$_3$ nanoprobe.

**Fig. S4.** The XPS patterns of Gd 4d for HA-Gd$_2$O$_3$ nanoprobe.
Fig. S5. The measurements of dynamic light scattering (DLS) of HA-Gd$_2$O$_3$ nanoprobe dispersed in normal saline for 1 day and 30 days.

Fig. S6. The cell uptake of HA-Gd$_2$O$_3$ after treatment with different mass of HA-Gd$_2$O$_3$ nanoprobe (25 μg, 125 μg). The following equations were used to evaluate the internalization of HA-Gd$_2$O$_3$ 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$_2$O$_3$ 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$_2$O$_3$ 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$_2$O$_3$ (200 μl, 8 mg/mL)