Electronic Supplementary Material (ESI) for Nanoscale Advances.

Supporting Information

Amine-assisted catechol-based nanocoating on ultrasmall iron oxide nanoparticles for high-resolution T_1 angiography

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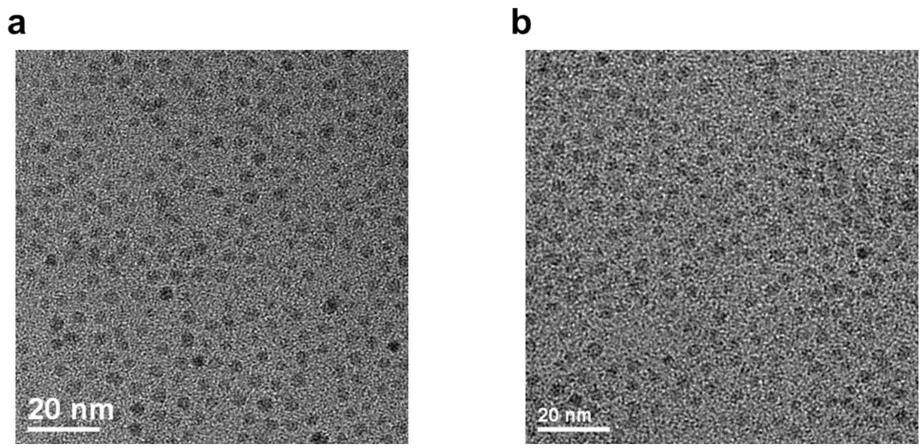

Fig. S1 TEM image of (a) oleic acid capped 3 nm-sized IONPs, and (b) MCP coated 3 nm-sized IONPs by assistance of AEE.

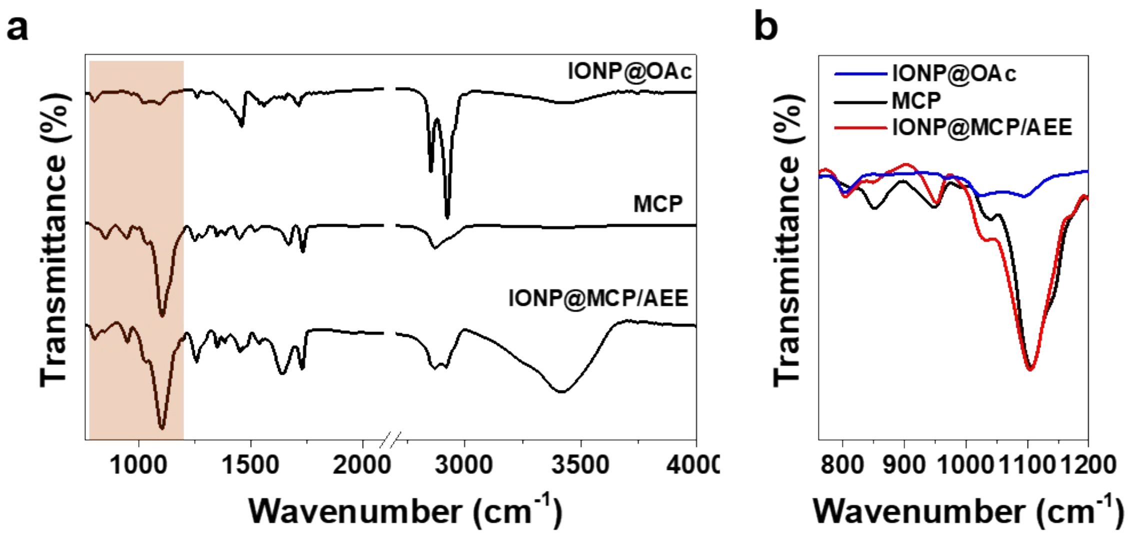

Fig. S2 (a) FT-IR spectra of as-syn IONPs, MCP, and IONP@MCP/AEE and (b) enlarged FT-IR spectra of reddish boxed window of (a) spectra.

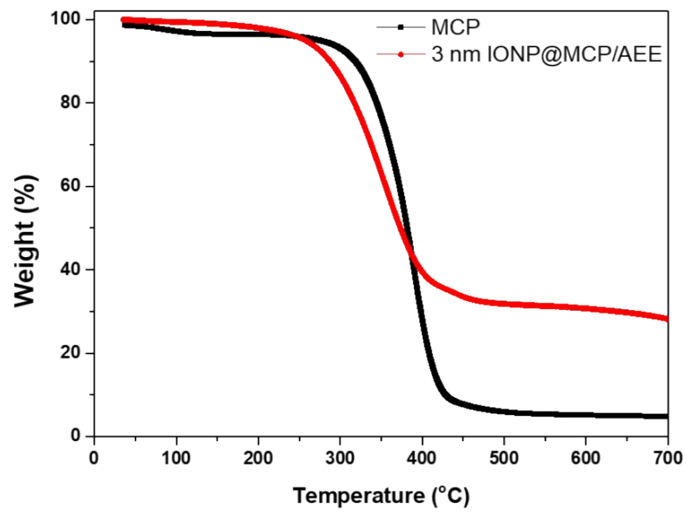

Fig. S3 TGA data of 3 nm sized IONP@MCP/AEE and MCP.

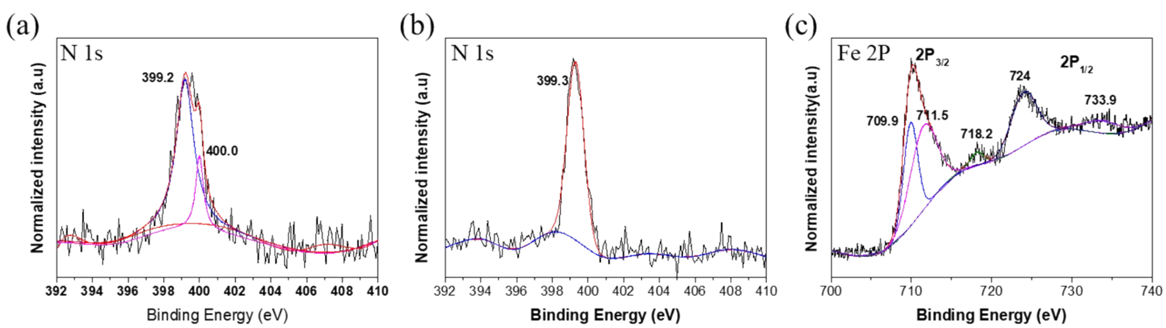

Fig. S4 N 1s XPS spectra of (a) IONP@MCP/AEE and (b) MCP. (c) Fe 2P spectra of IONP@MCP/AEE.

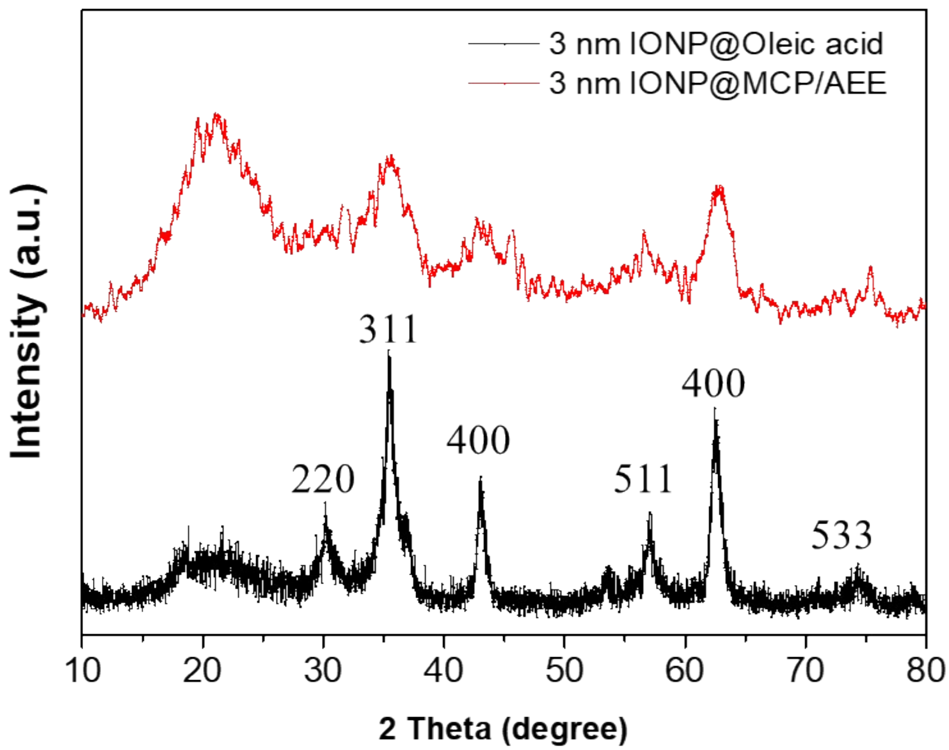

Fig. S5 XRD patterns of 3 nm sized IONPs@Oleic acid and 3 nm sized IONP@MCP/AEE.

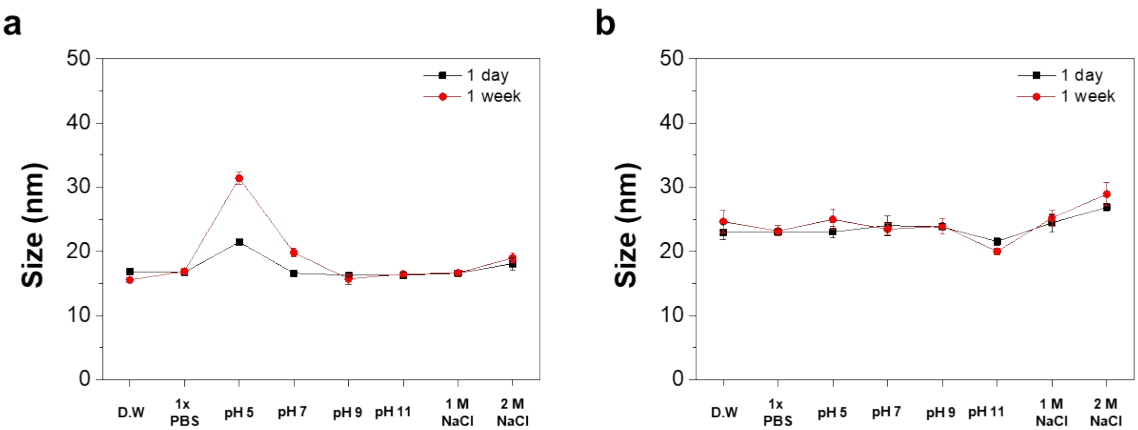

Fig. S6 Stability measurement of MCP nanocoated (a) 8.5 nm and (b) 12 nm-sized IONPs by DLS in the wide range of pH and salt concentration.

Fig. S7 Photograph showing the water dispersed MCP coated IONPs obtained by a single-batch reaction.

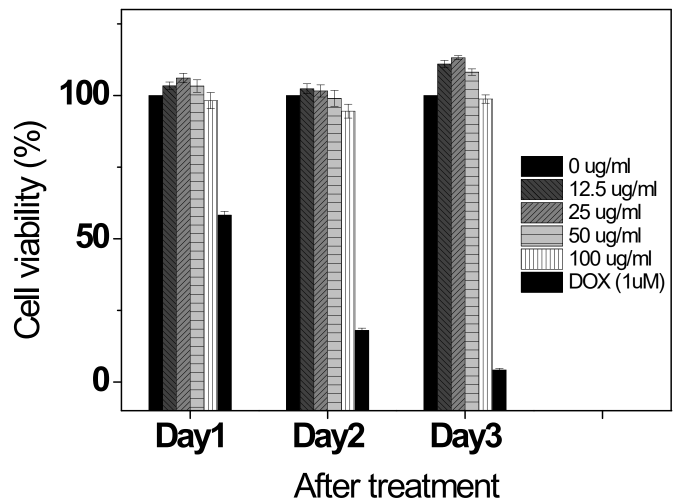

Fig. S8 Cytotoxicity of IONP@MCP using CCK-8 assay. The viability of the HeLa cells was evaluated with various concentration of IONPs and time.

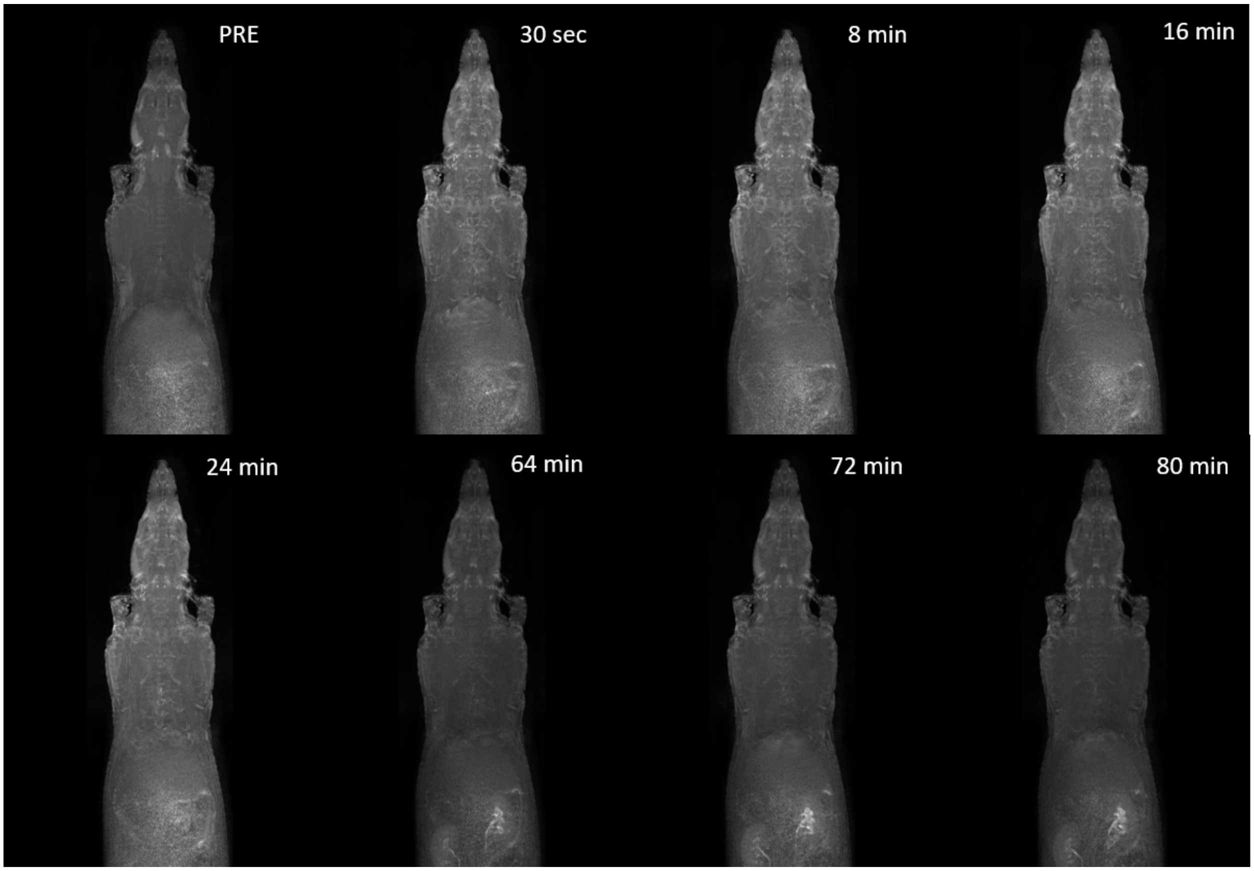

Fig. S9 DOTAREM enhanced 2D-MIP angiography with a dynamic time-resolved MR sequence. 100 µmol/kg of Gd-DOTA is injected at rats.

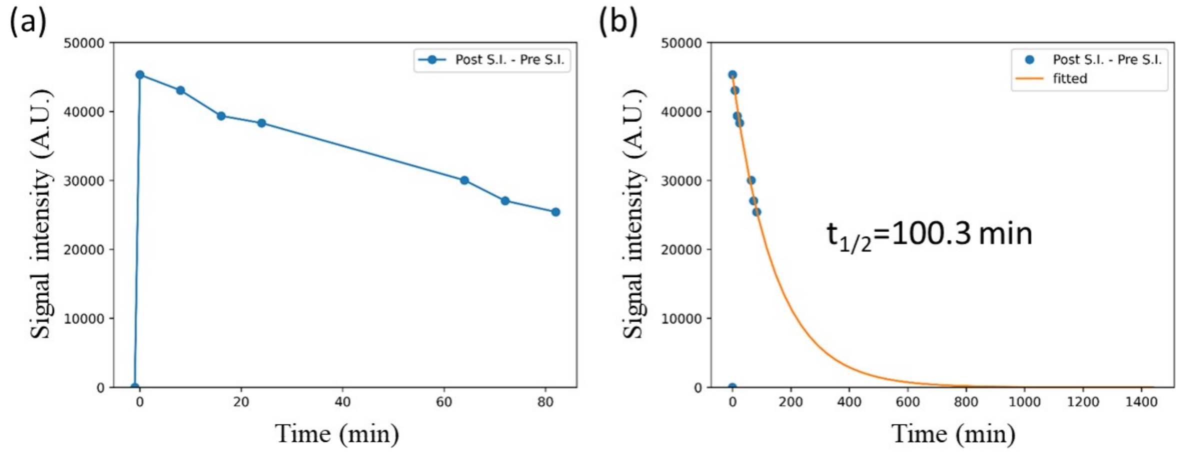

Fig. S10 (a) Average T1 signal intensity over the vessel area in each time frame. (b) Fitted signal intensities using exponential functions.

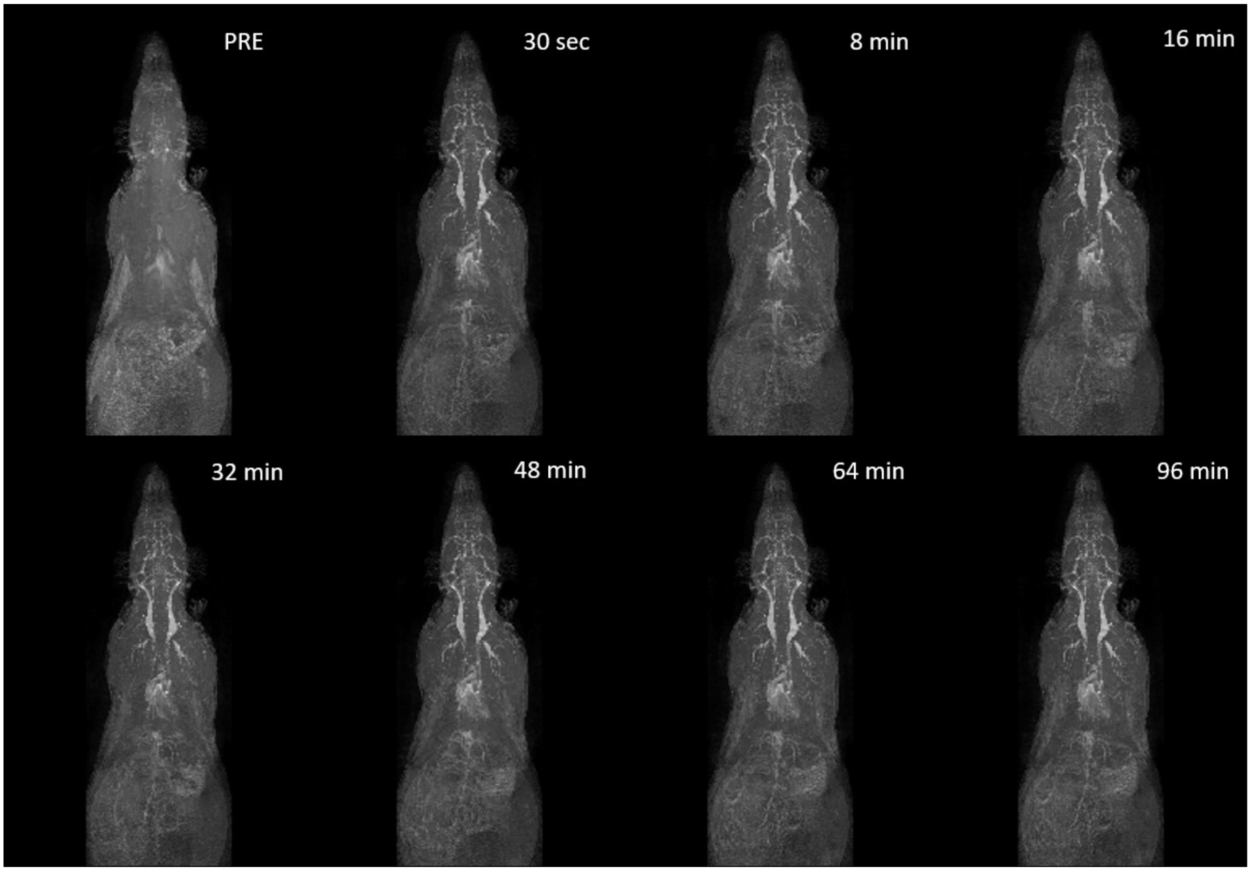

Fig. S11 SPION enhanced 2D-MIP angiography with a dynamic time-resolved MR sequence.

2.5 mg Fe/kg of sample is injected at rats