

nanoparticles with magnetite/silica hybrid walls, which was made of iron oxide nanoparticles and can be used as contrast agents or drug carrier system.

Results This kind of hollow magnetic nanoparticles about 150 nm in diameter has the properties of superparamagnetism, is generally recognised as safe and degradable automatically and slowly. The contrast agents will be filled in the nanoparticles. When administered intravenously, the nanoparticle-contained contrast agents can remain in the intravascular space until removed primarily by the kidneys and it is possible to make the imaging process take longer. Moreover, the modified imaging agent we described here can provide better visualisation of the vasculature, especially arterial flow.

Conclusions It is possible for this iron oxide nanoparticle-contained imaging agents to make the blood vessels show up for a long time, avoid side effects of imaging agents, save operation time significantly and has theranostic potential in vascular diseases for detecting unstable ruptured plaque or treating atherosclerosis.

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APPROACH TO THE SYNTHESIS OF HOLLOW MAGNETIC NANOPARTICLES USED FOR LONG-ACTING AND TARGETED CONTRAST AGENTS

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Yuan Yuan, Yuan Yuan. *Department of Cardiology, Xijing Hospital, the Fourth Military Medical University*

Objectives Vessels can be displayed clearly with contrast agents flashily but not long. However, continuous vascular imaging and less contrast agents would be beneficial to the patients undergoing interventional endovascular procedures, especially complex vascular intervention. Therefore, the aims of the present study was to improve regular contrast agents to show long residence time in the targeted blood vessel.

Methods Based on the co-sedimentation of polymer microspheres and magnetic colloids followed by impregnation with silica oligomer from tetraethyl orthosilicate and the further removal of the polymer microspheres by pyrolysis, we have developed a new and simple approach for templating synthesis of hollow magnetic