



New Dual-modality Nanoparticle probes for liver Imaging

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Article-10-105-2

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خلاصه مقاله

Abstract

Background: Dual-modality contrast agents, such as radiolabeled nanoparticles, are promising candidates for a number of diagnostic applications, namely SPECT imaging with MR imaging. So the aim of study was evaluate potential of Chitosan-Coated Magnetic Nanoparticles(SPION) labeled with ^{99m}Tc as new Dual-modality probes for liver Imaging.

Methods: In this study chitosan particles were coated on SPION and radiolabeled with ^{99m}Tc after Purification. The quality control tests including determining particles size, labeling efficiency, stability and Biodistribution study in the mice were performed. Finally MRI and nuclear medicine imaging study in Balb/c mice in 1 and 4 hour after injection of complex were performed.

Results: Results showed that the final complex have spherical shape and with average size $255\pm 30\text{nm}$. The labeling efficiency and stability of complex with ^{99m}Tc were $89\pm 6\%$, $93\pm 6\%$ respectively. Biodistribution study, MRI and nuclear medicine imaging showed high accumulation of Complex in liver.

Conclusion: The results showed that the ^{99m}Tc -Chitosan coated SPION may be considered as promising Dual-modality probes for liver Imaging.

Keywords:

Nanoparticle, nuclear medicine, MRI, Dual-modality