

عنوان مقاله:

Preparation of ^{191}Os -phytate, an in-vivo radionuclide generator, for radiosynovectomy application

محل انتشار:

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خلاصه مقاله:

^{191}Os is a parent radionuclide with a ۱۵.۴ d half-life. It decays by beta emission to ^{191m}Ir , which is a radionuclide with a ۴.۹۶s half-life. It decays by the isomeric transition to stable ^{191}Ir , emitting a ۱۲۹-keV gamma photon. In this study, ^{191}Os -phytate was developed into an in-vivo radionuclide generator for simultaneous radiosynovectomy and imaging. ^{191}Os -hexachloroosmate was used to prepare ^{191}Os -phytate ($100 \mu\text{Ci}/50 \mu\text{l}$) using reaction condition optimization followed by an intraarticular injection to rat knee joints. Also, its distribution and stability were assessed. The imaging of ^{191}Os cation and ^{191}Os -phytate was performed by SPCT. The ^{191}Os -phytate complex was obtained at $\text{pH}=5.5$ with normal saline at room temperature. Radio-TLC showed an overall radiochemical yield of ۹۵-۹۸%. The complex was injected into the rats' knees, and the whole injected dose remained at the injection site even three days after injection. Due to the stability and retention of the complex in joints approved by biodistribution and imaging studies, the complex is a potential in vivo generator for cavital radiosynovectomy of minor joints.

کلمات کلیدی:

Radiosynovectomy, Phytate, Osmium-۱۹۱, Biodistribution, Imaging

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