

Synthesis of a ^{188}Re -DTPMP complex using carrier-free ^{188}Re and study of its stability

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Abstract Labeling of diethylenetriamine- N,N,N',N'',N'' -pentakis(methylenephosphonic) acid (DTPMP) with rhenium-188 using stannous chloride as a reducing agent has been investigated. Dependence of the yield of the ^{188}Re -DTPMP complex on the concentration of the reducing agent, pH, reaction time, temperature, ascorbic acid and amount of carrier added has been studied. Under optimum conditions, the labeling yield of ^{188}Re -DTPMP complex is 95% for the carrier-free ^{188}Re but with the carrier-added ^{188}Re the labeling yield is more than 97%. Furthermore, the stability of the ^{188}Re -DTPMP complex against pH change and dilution with saline has been also studied. It is found that the addition of carrier stabilizes the ^{188}Re -DTPMP complex against pH change and dilution.

Keywords Rhenium-188 · DTPMP · Stability · Biodistribution · Bone uptake

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