stannuous chloride (SC) in pH between 2.5 and 3.0, then the pH of the solution was adjusted to neutral by sodium bicarbonate. The solution was further passed through 0.22 μ millipore filter. The treated HSA was kept lyophilized until use.

When various amount of HSA was treated with 1 mg SC, the labeling efficiency was excellent in higher concentration of more than 33 mg and in lower conc. considerable amount of colloid formation was observed. Subsequently effect of various conc. of SC was studied with 50 mg HSA. Higher conc. of SC resulted in worse efficiency and 100 μg or less conc. was found suitable. From these observations, further studies was performed using 50 mg HSA and 50 μg SC.

Stability of the treated material was compared in following ways 1) kept frozen, 2) kept frozen after gassation of nitrogen and 3) lyophilized, gassed and then stoppered. The material 1) was good enough only for 3 to 5 days. 2) was not effective after 3 weeks. However, the material 3) did not show any significant changes in the labeling efficiency even after 9 weeks and more than 90% of radioactivity was recovered bound with HSA.

In conclusion, instant 99m-Tc labeling kit should better be prepared using rather small quantity of SC, and should be kept lyophilized and gassed with nitrogen.

A Simple, Rapid and Efficient Preparation of 99mTc-compounds by Electrolysis (III)

99mTc-Bleomycin, 99mTc-chain phosphate

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As previously reported, electrolysis method is one of the most convenient methods for labelling of several kinds of compounds with 99mTc. Now we have further expanded this method into other compounds such as bleomycin and chain phosphates, which are used as a tumor localizing agent and bone scanning agents respectively.

For the preparation of 99mTc-Bleomycin, the most suitable pH is between 5 and 6. The labelling efficiency at that pH range was about 90% with the electricity of 0.3 coulomb.

99mTc-chain phosphates, such as polyphosphate (n=12), tripolyphosphate and pyrophosphate were prepared by adding 99mTcO4- soln. to Sn-chain phosphates solutions which were previously produced by electrolysis. The efficiency of labeling averaged more than 90% by allowing to stand this mixture for about 5 min. From the results of organ distribution study of 99mTc-chain phosphate with mice, we concluded that 99mTc-pyro phosphate was better bone scanning agent than the other two polymerized phosphates.

The results of further investigation showed that electrolysis method can be applied for labeling of several other compounds such as penicillamine and phytate.