# C. Radiopharmaceuticals

## 1515

SEMI-IN-VIVO LABELING OF RBC WITH Tc-99m.

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Stannous chloride was evaluated as a stannous ion source for the semi-in-vivo labeling of red blood cells(RBC) with Tc-99m. In this animal study, optimal dose of stannous chloride, optimal time interval between the administration of stannous chloride and with-drawing of blood sample, and optimal incubation time for Sn-RBC with Tc-99m were studied. Spleen imaging with Tc-99m-labeled heat-damage RBC was also evaluated.

The results of our investigation revealed that optimal doses of stannous chloride were from 23.5 μg/kg to 3.17 μg/kg, optimal time intervals were from 5 minutes to 30 minutes, and optimal incubation times were from 1 minutes to 20 minutes. Spleen was clearly imaged with Tc-99m-labeled heat damage RBC.

## 1516

FUNDAMENTAL EVALUATION OF IN VIVO LABELING OF RED BLOOD CELLS WITH TC-99m USING STANNOUS CHLORIDE.

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Stannous chloride was evaluated as a stannous ion source for the in vivo labeling of red blood cells(RBC) with Tc-99m. In this study, the labeling of RBC with Tc-99m was performed by two successive intravenous administrations of stannous chloride and Tc -99m-pertechnetate, and the optimal dose of stannous chloride and the optimal time interval between the two injection were evaluated. The labeling efficiency for this procedure was also evaluated as a function of time after the pertechnetate injection. The results of our investigation revealed that the maximal in vivo RBC labeling(86%) can be obtained at 15 min after the pertechnetate injection with an i.v. dose of 12.7μg/kg of stannous chloride followed 15 min later by an i.v. injection of Tc-99m-pertechnetate. In conclusion, stannous chloride was found to be an excellent stannous ion source for the in vivo labeling of RBC with Tc-99m.

## 1517

CLINICAL TRIAL AND EVALUATION OF IN VIVO

LABELING OF RED BLOOD CELLS WITH Tc-99m

USING STANNOUS CHLORIDE.

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For the clinical investigation, stannous chloride was evaluated as a stannous ion source for in vivo labeling of red blood cells ( RBC ) with Tc-99m.

In this study, the labeling of RBC with Tc-99m was performed by two successive intravenous administrations of stannous chloride and Tc-99m pertechnetate. Used optimal dose of stannous chloride was 0.76mg/4ml/60 Kg (12.7μg/Kg) and the optimal time interval between the two injection was 15 min. later by an i. v. injection of Tc-99m pertechnetate. Used dose of Tc-99m pertechnetate was 30 mCi/3ml/60 Kg in each cases.

The results of our investigation revealed that stannous chloride was found to be an excellent stannous ion source for the in vivo labeling of RBC with Tc-99m in clinical use of 11 cases including the cardio vascular disease with safety.

## 1518

EVALUATION OF Tc-99m LABELED aminoDTS-HSA.

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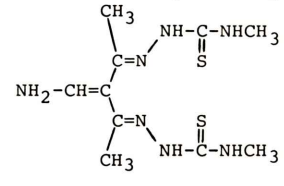
3-Aminomethylene-2,4-pentanedione-bis-(thiosemicarbazone)(aminoDTS) has been synthesized as a promising bifunctional chelating agent.



(aminoDTS)

AminoDTS was attached to HSA, a protein model, using carbodiimide coupling technique. The resultant aminoDTS-HSA conjugate was labeled with Tc-99m by simple mixing with Tc-99m pertechnetate solution in the presence of Sn(II). Electrophoresis of Tc-99m labeled aminoDTS-HSA showed that the labeling efficiency was nearly 100%, and that its electric charge was substantially the same as that of native HSA. In vitro stability of Tc-99m labeled aminoDTS-HSA was very high, and neither free Tc-99m nor reduced Tc-99m was detected even at 48 hr after preparation.

In vivo studies showed that blood retention and organ uptake of Tc-99m labeled aminoDTS-HSA were comparable to those of I-131 labeled HSA.

These results suggest that aminoDTS is an excellent bifunctional chelating agent, and that the labeled conjugate is a promising blood pool scanning agent.