

Preparation of ^{131}I and ^{125}I —Labelled AA

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There were some reports on the method for preparing aggregated albumin- ^{131}I , but they were not always sufficient in the viewpoints of reproducibility.

We have researched the reproducible method for preparing AA- ^{131}I and AA- ^{125}I under many different conditions, for example, under various concentrations of albumin solution, temperatures, times for heating, methods for stirring, volumes of albumin solution, methods for labelling albumin with ^{131}I and so on.

The following method brought a good result.

- (1) Dilute the 25% human serum albumin for injection to 3% solution.
- (2) Adjust the pH of 3% albumin solution

to 10 with 0.2N-NaOH.

- (3) Stir the solution in the water bath at 83°C for 20 minutes and then cool to room temperature.
- (4) Adjust the pH of albumin solution to 5.5 with 0.2N-HCl
- (5) Centrifuge the solution and wash the precipitate twice with distilled water.
- (6) Dissolve the precipitate with 0.1N- NaHCO_3 solution and filter it with milipore filter stock solution.
- (7) Label a part of stock solution with $^{131}\text{I}\text{Cl}$ prepared from Na^{131}I and obtain AA- ^{131}I .

AA- ^{125}I is also obtained by the same method.

Clinical Applications of ^{197}Hg (especially on the contamination of ^{203}Hg)

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^{203}Hg has been widely used in Japan as radioisotope of mercury, due to its long shelf-life. But recently ^{197}Hg is interested, because it has low gamma energy of 77 Kev, and radiation dose to the kidney is small.

But the main problem for the application of this nuclide in Japan is that ^{203}Hg is contained in it and its relative amount is increasing with elapse of time. For instance, suppose the ratio of $^{203}\text{Hg}/^{197}\text{Hg}$ is 0.06 on the first day, then its ratio becomes 0.77 on the 13th day.

One of the method to decrease the contamination of ^{203}Hg in ^{197}Hg is to use enriched target of ^{196}Hg on the production of

^{197}Hg in the reactor. If 4% enriched target is used, the amount of ^{203}Hg can be reduced sufficiently.

At present the amount of ^{203}Hg in ^{197}Hg in the preparations at the time of import is a few percent. But it is getting improved. So ^{197}Hg will take place of ^{203}Hg in future even in Japan.

In our department we are applying this nuclide for the scanning of the kidney (^{197}Hg Neohydrine), scanning of spleen (^{197}Hg M.H.P.) and also for the determination of the position of the kidney before taking renogram by ^{131}I Hippuran.