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A SIMPLE PRODUCTION METHOD OF Kr-77 WITH AN AQUEOUS TARGET OF NaBr R. Iwata, T. Ido, M. Monma, K. Ishiwata, T. Takahashi, *K. Tamate, *M. Uoji and *T. Yamasaki Cyclotron and Radioisotope Center, Tohoku University, Sendai and *National Institute of Radiological Sciences, Chiba

Kr-77 is produced by the proton irradiation of bromine via the Br-79(p,3n)Kr-77 reaction and used for the quantitative measurement of cerebaral blood flow by positron tomography. The simple production method has been developed by using an aqueous solution of NaBr as the target.

40 wt% of NaBr solution was irradiated with 38 MeV-protons. Kr-77 produced was recovered from the target by sweeping it with a He flow and collected in a baloon. The yield and nuclidic purity were investigated by varying the current and the target thickness.

Although Kr-76 was not detected, Kr-79 was simultaneously produced as natural Br was used as the target. The yield of Kr-79 was reduced to 8% of the total Kr activity by decreasing the target thickness to 5 mm. With a 20 min-10 uA irradiation, about 40 mCi of Kr-77 was obtained 5 min after the irradiation. It has proved that this method is simple and suitable for the routine production compared to that of using a solid NaBr as the target.

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PANCREAS SEEKING RADIOPHARMACEUTICAL :NEW ZINC COMPLEXES APPROACH. Y. Fujibayashi, I. Yomoda, A. Yokoyama, H. Tanaka, Dept.of Radiopharmaceutical Chemistry, Faculty of Pharmaceutical Sciences, Kyoto University. H. Saji, R. Morita, K. Torizuka, Dept. of Nuclear Medicine, Kyoto University Hospital.

It is well known that Zn accumulates in the pancreas. The use of Zn-62, a positron emitter, or its chelates as pancreas seeking agent are most desirable. Based on the anion membrane transport system, zincate anion probably, $[Zn(OH)_4]^{2-}$, appeared as suitable. Thus, as a preliminary work, Zn-65 hydroxide and Zn-65 complex with tetradentate ligand were chosen and evaluated by in vitro(pancreas slices assay) or in vivo(mouse biodistribution) studies.

Zn-65 hydroxide showed a fast pancreas uptake in vitro, but not in vivo. The Zn complex of tetradentate ligand such as EDDA, NTA showed a higher uptake in vitro at a Ligand/Zn ratio of 2.2, while in vivo, the Pancreas/Liver ratio increases slowly along with the raise of Ligand/Zn ratio. The highest Pancreas/Liver ratio was 3.35 ± 0.62, (Pancreas/Blood ratio=34.57 ± 3.57) at 3 hr. (Zn:0.48μg, Ligand/Zn=100).

Those data seems to favor our proposal since not such phenomenon were observed with di or tridentate ligand, and it holds considerable promise for the design of Zn-62 agent of positron emitter tomographic studies.

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ULTRASTRUCTURAL STUDIES OF THE CHANGES INDUCED BY HUMAN SERUM ALBUMIN MICROSPHERES IN RAT LIVER. S. Higashi, K. Ishioka, H. Kakehi and Y. Kuniyasu Department of Radiology, Teikyo University Hospital. Tokyo.

Human serum albumin microspheres (HSAM) were clinically used as liver-scannining agent with a mean diameter of 0.5 μm. Ultrastructural studies of the uptake and intracellular transport of HSAM and the histlogial changes induced by HSAM in rat liver were carried out. The particles were seen in the hepatic sinusoid, and taken by the RES cells 5 min after intravenous administration of 0.1 mg/kg of HSAM. A numerous pinocytotic vesicles were seen in the hepatocyte, and flattered cisternae of the ER and Golgi apparatus in associated with lysosomes are observed around by the bile canalicule 15 min after injection. At 30 min the pinocytotic vesicles were fused with lysosomes to make secondary lysosomes, some of which were digested, some of them were deposited in the residual body. One or 7 days after injection of HSAM, numerous and aggregated lipid droplets were noted in the hepatocyte. Repeated injections of 1 mg/kg of HSAM for 7 days produced necrosis in the hepatocyte with swollen mitochondria, fragmented rough ER and aggregated lipid droplets. A month later, however, fat droplets disappeared and the hepatocyte had fairly normal structure except slight proliferation of collagen fibers.