

**Special Lecture 5****Radioimmuno-detection of Tumor Localization.****Hidematsu HIRAI Ph.D.***Department of Biochem., Hokkaido Univ. School of Medicine, Sapporo*

Specific antibodies to human and rat AFP were purified from horse antisera by immuno-adsorbent and radiolabeled with I-131 or I-125. Specific activity was about 10  $\mu\text{Ci}/\mu\text{g}$  antibody.

**Experiments:** 1) rats were transplanted s.c. with a rat hepatoma. When it grew to 1–2 cm in diameter 100  $\mu\text{Ci}$  of I-125 antibody were injected i.p. and scintiscanned. Clear images of tumor were obtained 3 to 5 days after injection. Radioactivity of various organs was counted. The ratio of cpm of g tissue/cpm ml blood was more than 1 only in tumor. 2) Rats fed a carcinogen DAB and hepatoma developed in liver were scintiscanned. Tumors were clearly imaged despite of a high serum AFP level. The organs removed were directly scintigrammed. Only the tumor areas were imaged.

**Clinical Study:** Twelve patients with hepatoma were given 1–1.7 mCi of I-131 antibody. After that 0.5 mCi of Tc-99m albumin were given. Tc images were subtracted from I-131 images by a computer to withdraw background images. Six in 12 cases gave positive results. The patients with higher serum AFP levels gave more clear images.

Five cancer patients were examined with anti-CEA antibody. One lung and one colon cancer patients gave positive results.

The antibody accumulated in the tumor even under the presence of excess antigen in blood stream. The reason was discussed.