F. Tumor Diagnosis

Distribution of Tumor Seeking Substances in Tumor Tissue

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This study was performed to investigate the distribution of ^{67}Ga-citrate, ^{111}In-citrate, ^{169}Yb-citrate, ^{167}Tm-citrate, ^{32}P-sodium phosphate, ^{131}I-albumin and ^{125}I-fibrinogen in tumor tissue by macroautoradiography. These labeled compounds were injected intravenously to the rats subcutaneously transplanted Yoshida sarcoma and were injected intraperitoneally to the mice subcutaneously transplanted Ehrlich tumor. These animals were sacrificed at 24 hours after injection, and tumor tissues were frozen in n-hexane (−70°C) cooled with dry ice acetone. After this, these frozen tumor tissues were cut to thin sections (10μm) in the cryostat (−20°C). First slice of these sections was then placed on X-ray film and this film was developed after exposure of several days. On the other hand, next slice of these sections were then stained using the hematoxylin and eosin. From observing these autoradiogram and H.E. stained slice, the following results were obtained. The uptake of ^{67}Ga, ^{111}In, ^{169}Yb, ^{167}Tm and ^{32}P was predominant in viable tumor tissue rather than in necrotic tumor tissue, but the uptake of ^{131}I-albumin and ^{125}I-fibrinogen was predominant in necrotic tumor tissue rather than in viable tumor tissue. These results were very similar each other in two stains of tumor (Yoshida sarcoma and Ehrlich tumor).

"A Biochemical study on ^{67}Ga Accumulation in Morris Hepatoma"

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In purpose to investigate the basic accumulation mechanism of ^{67}Ga in malignant tumor tissue, one of minimum deviation hepatoma of Morris 7316 A was used. Tumor tissues were preparated in about 48 hours after intraperitoneal injection of ^{67}Ga citrate and fractionated following the method of C. de Duve et al. (1955). Normal rat livers were also treated simultaneously as a control. Light mitochondrial fractions, which contained mainly lysosomes, revealed the highest relative specific