The Reminiscences of Dept. Pathol., Cancer Research Institute

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In my undergraduate periods, thinking that the research of cancer was very important in future, I went in and out at the pathology section of cancer institution in which the stuffs researched cancer-host relationship biochemically. I engaged on the biochemistry of cancer. After finishing internship, I had no hesitation about studying the biochemistry of cancer. In those days, toxohormon study was in the golden age. The institution had no own building. The institution rented rooms from departments of pathology, bacteriology and hygiene. Days after days, I extracted and purified toxohormon from cancer cells, then injected it into mice and measured hepatic catalase activity. On the other hand, researching the localization of hepatic catalase, we discovered microbodies, one of the cell organelles, which were later named peroxisomes by DeDuve.

Rat peroxisomes had unique dense core ultrastructurally. We isolated the core and proofed that urate oxidase localized in the core. I examined the core by negative staining of electron microscopy. Many granules were observed but no core structure in negative staining. I consulted all journals concerning ultrastructure in the library and found out that these granules were glycogen. So, I used fasted rats and could finally clarify fine structure of the core(J. Cell Biol., 1966).

In the congress of International Cell Biology, we met Dr. Hruban who first clarified the structure of commercial bovine urate oxidase. He wanted to invite me to Chicago University. I declined his offer, because I was a graduate student and had to investigate toxohormon. It was last 4 months that I began my doctoral dissertation. I investigated the correlation of hepatic catalase activity and the numbers of hepatic peroxisomes in tumor-bearing mice.

After finished doctoral course, I went to Chicago to collaborate with Dr.Hruban. I measured peroxisomal enzymes on various condition of rats and a variety of animal livers. During Chicago periods, I met Dr. Morris who made minimal deviated Morris hepatomas which were similar to human hepatomas. I had a joint research with him and came back to Sapporo University bringing Morris hepatomas.

After coming back, the plan of independent construction of cancer research institution came up. Several years, I had to design the cancer institution.

I measured peroxisomal enzymes of various Morris hepatomas and tried to make chemically -induced hepatomas of rats similar to Morris hepatomas, using chemical carcinogens, and I challenged the culture of hepatocytes. However, I reluctantly had to give up the study of peroxisomes, so I started to investigate the modification of hepatocarcinogenesis. My study put a plane on track and I got the grants. However, again I had to give up my own studies, because my professor had grate grant, so I engaged in

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peroxisome studies. During the last terms, I was infected with Kore hemorrhagic fever. Next year, one person was died of KHF, so all my experiments were forbidden during 3 years. I had pain in left arm and leg by stress, so I could not walk. I barely continued to study on culture of rat hepatocytes which were obtained from other researchers. I observed them under microscope and electron microscope and found actin rings on cultured hepatocyts. These actin rings related to activation of PI3-kinase.

Fortunatly I obtained a position of professor. I aimed that this section become Mecca of hepatocyte culture, so I prepared all instruments for culturing. Younger researchers are satisfactorily growing and they are investigating proliferation and differentiation of cultured hepatocytes. These researches are now very important to regeneration medicine. I now feel happily that I could hand over to younger fellows.

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