

## Department of Pathology, Clinical Service

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Makio Kawakami, *Professor*  
Masaharu Fukunaga, *Associate Professor*  
Masafumi Suzuki, *Associate Professor*  
Koichi Nomura, *Lecturer*

Yutaka Yamaguchi, *Professor*  
Akihiko Sakata, *Associate Professor*  
Hiroyuki Takahashi, *Lecturer*  
Yukiko Kanetsuna, *Lecturer*

### General Summary

Although improvements in the personnel loan system, which decreases motivation, are urgently needed, such improvements were not made this year. Therefore, the research of mainly non-loan employees is described here. Readers who are interested in the research of loan employees can find their achievements in the records of the Department of Pathology.

### Research Activities

#### *Main Hospital*

Kawakami's research focused on cardiovascular issues and aging problems of the gastric mucosa and ovaries.

#### 1. Natural history of the myocardium

Twelve separate myofibrils in a subcytomembranous monocoque arrangement in the sponge framework of the cytoplasm during the prenatal period become independent myofibril units as the cardiac muscle develops. The paleomyocardium, as pace-making cells, takes an axial myofibrillar position, and neomyocardium, as the ventricles, takes a peripheral position in the so-called monocoque alignment. After the age of 65 years, the power of longitudinal splitting stops and the volume of the myofibrils increases.

#### 2. The participation of thrombus in myocardial infarction

Coronary artery thrombosis occurs in 50% of cases of myocardial infarction, but many cases of even advanced infarction are without thrombus. Mixed thrombi tend to appear in chronic sclerosis, and red thrombus tends to appear in acute sclerosis. Therefore, thrombosis in myocardial infarction is more strongly influenced by rheological factors, such as blood flow delay, than by factors of vasculomural injury.

#### 3. The natural history of the ovary

The cross-sectional area of the ovary increases exponentially until the 30's and then decreases. The ovarian medulla shows similar changes. The volume of the corpora albicans increases most in the 20's and in the 50's, although the corpora albicans is larger in the 20's than in the 50's. In the cortex, the distinction between the inner active and the inner inactive strata is greatest in the 20's and after 40 years.

#### 4. Peritoneal dialysis and encapsulating peritoneal sclerosis

The peritoneum, which is a revival of the dialysis membrane caused by the renal impairment is exposed to a state of hyperfiltration as "flat" glomerulus, analogous to the renal glomerulus. The additional development of skeletal collagenosis an essential trend, decreases with the progression of vasculopathy after 6 years, and the basis of the

encapsulating peritoneal sclerosis is established.

The achievements of loan personnel are described below.

Suzuki performed a comparative immunohistochemical study of renal cell carcinoma and renal adenoma. The characteristics of cystic renal cell carcinomas were also reported. Suzuki also assessed the validity of the immunohistochemical Hercep test and the fluorescence in situ hybridization method for selecting the optimal method of molecular target therapy of breast cancer.

Nakayama started a study of morphological changes of lymphatic channels in normal, hepatic, and cirrhotic livers by means of D2-40 and CD34. The degree of lymphatic dilation was weakly correlated with the grade of fibrosis.

Nakano studied genes in prostatic carcinoma with special emphasis on metastasis.

Koike also started his debut study of the natural history of the vertebra. He found that growth continues until 30 years of age and then gradually decreases.

#### *Aoto Hospital*

Sakata has been studying the process of liver restructuring. To find antigens related to proliferation and oxidative stress, he introduced 8-hydroxydeoxyguanosine and proliferating-cell nuclear antigen, resulting in their frequent expression unrelated to causes or location and magnitude of inflammation. The expression of proliferating-cell nuclear antigen was predominant, and 8-hydroxydeoxyguanosine activity was present in the nucleus and in the cytoplasm. Damage and repair of DNA were found to have progressed further than expected in the cirrhotic stage.

Kanetsuna, who returned from the United States, continued an experimental study of the diabetic kidney. She clarified the relationship between endothelial nitric oxide synthase and vascular endothelium in diabetic and nondiabetic kidneys.

#### *Daisan Hospital*

Fukunaga performed research in obstetric and gynecologic pathology. The discrepancy of histological diagnoses among pathologists is substantial in atypical hyperplasia and grade 1 endometrioid adenocarcinoma after treatment with medroxyprogesterone acetate. New criteria that can be applied to hormonally effected lesions are needed. He also examined hepatoid carcinoma of fallopian tube, hydatidiform mole, and perivascular epithelioid cell tumors of the uterus and soft tissue.

Takahashi compared separate and global scorings for Gleason grades in prostatic cancer and showed the effectiveness of separate scoring. He also performed molecular loss-of-heterozygosity analysis of minute lesions of prostatic cancer and found a lower value in minute cancer.

#### *Kashiwa Hospital*

Yamaguchi analyzed hypertensive nephropathy semiquantitatively by means of image analysis software. He investigated the correlation of glomerulosclerosis, tubulointerstitial lesions, and vascular lesions was investigated and found that arteriolar lesions influence of the progression of glomerulosclerosis. Lesions of interlobular arteries correlated with acute tubuloepithelial lesions and interstitial fibrosis and influenced

renal prognosis.

With repeated biopsies for nephritis related to myeloperoxidase antineutrophil cytoplasmic antibodies Yamaguchi found that the active lesions of the glomerulus and tubules disappear after treatment.

Yamaguchi's histological analysis of renal grafts in chronic rejection showed that basement membrane thickening of the peritubular capillary was related to moderate and severe peritubular capillaritis.

Ohmura analyzed the development of cancer in the alimentary canal from the viewpoints of the environmental conditions of vessel invasion and local circulatory disturbance.

## Publications

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