# Abstracts

# 1. HISTOCHEMICAL STUDIES ON GASTRIC CANCER AND OTHER GASTRIC DISEASES: WITH SPECIAL REFERENCE TO THE GENESIS OF GASTRIC CANCER AND THE INTERSTITIAL REACTION OF GASTRIC CANCER TISSUE

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In 16 gastric ulcer, 12 chronic gastritis, 3 gastric polyp, 16 ulcer cancer, 18 gastritis cancer and 8 polyp cancer cases, the alkaline and acid phosphatase activity, RNA and DNA reactions, PAS reaction, and lipase activity were examined in the tissues. The results obtained were as follows:

In the gastric ulcer and ulcer cancer, the increase of alkaline phosphatase activity was recognized in the superficial layer of the mucosa and glandular cells at the edge of the ulcer, the callous tissue, the interstitial connective tissue and the cancer cells. On the other hand, in chronic gastritis and gastritis cancer, the decrease of alkaline phosphatase activity was observed in the superficial layer and glandular cells of the gastric mucosa, the interstitial connective tissue and the cancer cells. The decrease was especially noticeable in atrophic gastritis. In all the tissues of ulcer cancer, gastritis cancer and polyp cancer, the increase of DNA and RNA reactions was clearly seen in the adjacent mucosa, the interstitial connective tissue and the cancer cells. It was worthy of notice that the phosphatase activity, DNA and RNA reactions, and PAS reaction increased conspicuously in the region where the atypia or the malignant changes of the regenerated epithelium were shown at the edge of the gastric ulcer. On the other hand, in the cirrhotic type of gastric cancer accompanied by the strong interstitial reaction, the increase of alkaline phosphatase activity was observed in the interstitial connective tissue as well as in the cancer cells. It was interesting that this phenomenon might be regarded as a defensive reaction of the host to the cancer.

## 2. A NEW FURAN DERIVATIVE

### The Formation, Antibacterial Activity and Pharmacological Nature of 3-amino-6-[(5-nitro-2-furyl)vinyl]-as-triazine hydrochloride (Panfuran)

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In 1960 it was found that heat treatment of 1,5-bis-(5-nitro-2-furyl)-3-pentadienone-guanylhydrazone (Panazon) gave it much stronger antimicrobial action against gram-negative bacterial cultures. Further studies made it clear that heat treatment transformed *Panazon* into *Panfuran.* In comparison with antibiotics these compounds were investigated on following items: (1) *in vitro* activity against selected bacteria (*Escherichia coli, Shigella flexneri, Staphylococcus aureus, Bacillus subtilis* and *Mycobacterium tuberculosis var. hominis* (2) toxicity to mice (3) *in vivo* activity in *Streptococcus hemolyticus* infection mice (4) general pharmacological action.

## 3. ATTEMPTS TO INDUCE IMMUNITY AGAINST SARCOMA 180 WITH NITROUS ACID INACTIVATED TUMOR CELLS IN *dd* MICE

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Experiments were made to ascertain whether mice could be protected against a transplant of sarcoma 180 (ascites form) by immunization with tumor cells inactivated with nitrous acid.

Washed tumor cells withdrawn from mice that had been transplanted with sarcoma 180 were treated with 1 M $NaNO_2$ in acetate buffer (pH 4.0) at 0°C for 15 minutes, and then were washed and suspended in Krebs solution. The nitrite-treated cells thus prepared could not be successfully transplanted to *dd* mice. Vaccination was carried out with a single injection of the nitrite-inactivated sarcoma 180 cells on a group of ten *dd* mice, and with four injections of the same cells at 3-day intervals on another group of ten. Three weeks later the vaccinated mice were implanted intraperitoneally with enough viable tumor cells to kill normal mice within about 30 days. As controls an equal number of normal mice were also implanted.

The mice receiving a single injection of the vaccine produced little or no resistance to a subsequent transplant of viable tumor cells, while those receiving multiple injections showed a high degree of resistance.

## 4. STUDIES ON THE COFACTOR NECESSARY FOR ACTIVITY OF RIBONUCLEIC ACID IN INDUCING FORMATION OF STREPTOLYSIN S

### Part 2. Isolation and Purification of a Cofactor from Commercial Peptone

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It was indicated in 1948~9 by Bernheimer and Rodbart, and Hosoya et al. that peptone as well as meat infusion may contain a cofactor, or cofactors, necessary for the streptolysin S formation inducing activity of ribonucleic acid (RNA) in the resting cell system, which is composed of washed hemolytic streptococci and purified RNA in inorganic salts solution.

Furthermore, it was recently reported by Kobayashi that the formation of an appreciable amount of streptolysin S may occur in a mixture of washed cocci and commercial peptone.

In 1960, Shimizu has succeeded in isolating a highly purifed polypeptidic fraction having cofactor activity from the non-dialysable part of meat extract. As the continuation of this line of work, efforts have been made in our laboratory towards the isolation and purification of cofactor from commercial peptone preparations.

In the present paper, the procedure, by which a polypeptidic fraction with cofactor activity from the dialysable part of peptone could be obtained in highly purified state, was described as may be seen from Tables 1-5.

## 5. A CASE OF THE BENIGN CYSTIC TERRATOMA IN THE LEFT POSTERIOR MEDIASTINUM

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The authors is reporting a case of benign tumor developing in the left posterior mediastinum of a 30 year old male. The chest X-ray picture showed a circumscribed shadow in the upper and middle aspect of the left lung. It was diagnosed before operation as a tumor of the left mediastinum. The tumor was removed and its dimensions were founed to be 14× 8 × 5 cm, and its weight 235gm. It was filled with adipose tissue, gelatinlike material containing hair, and pieces of bone. Histological examination showed it to be a benign cystic terratoma. The postoperative course was uneventful and the patient remained in good condition.

# 6. MASS EXAMINATION FOR ADULT DISEASES PART 1

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Mass examination was carried out for stomach diseases and hypertension in Kamioka Town, Gifu Prefecture, and the following results were obtained.

1. Stomach Diseases

The number of adults covered by this examination was 1,024. They were over 40 years old, and constituted 13.3% of the population of their age group in the town. Among them there were 27 persons who had had their stomachs removed. Among the remaining 997 subjects, 4 were found with stomach cancer, 15 with gastric ulcer, 177 with chronic gastritis, 205 with gastroptosis, 2 with pylotic stenosis, 2 with atonia ventriculi, one with pyloritis and one with sac-shaped stomach. Most of the cancer patients were over 50 years, and most of the ulcer patients were below 54 years. The cases of ulcer and gastritis were more frequent in the male and those of gastroptosis more frequent in the female.

2. Hypertension

There were 1,209 subjects examined for hypertension, and all of them were over 30 years.

When the subjects were classified according to Master's limits of blood pressure, the percentage of those with systolic hypertension began to increase substantially at 60 years in the male and at 65 in the female. The figure for diastolic hypertension began to do so at 45 in the male and at 55 in the female. (Table 1 and 2)

Prehypertension, i. e. latent hypertension appeared at 50 in the male both in systolic and in diastolic pressure, while it appeared in the female 35 in systolic and earlier in diastolic. (Table 1 and 2)

# AGE DISTRIBUTION OF BLOOD PRESSURES BY MASTER'S CLASSIFICATION IN 1,209 CASES OVER 30 YEARS

## Table 1 SYSTOLIC PRESSURE

| Age ys. | | *Master's Classification* Upper limit of hypot. mmHg | Normal limits mmHg | Lower limit of hypert. mmHg | *Number of cases with* Hypo-tension | Prehypo-tension | Norm. | Prehyper-tension | Hyper-tension | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30–34 | Male | 100 | 110–145 | 155 | | 4 | 18 | | 1 | 23 | |
| | % | | | | | (17.3) | (78.0) | | ( 4.3) | | |
| | Female | 98 | 102–135 | 145 | 2 | | 30 | 2 | 3 | 37 | 60 |
| | % | | | | ( 5.4) | | (81.1) | ( 5.4) | ( 7.1) | | |
| 35–39 | Male | 102 | 110–145 | 160 | | 5 | 28 | 1 | 2 | 36 | |
| | % | | | | | (13.8) | (77.6) | ( 2.7) | ( 5.5) | | |
| | Female | 100 | 105–140 | 150 | 2 | | 76 | 9 | 5 | 92 | 128 |
| | % | | | | ( 2.1) | | (82.4) | ( 9.7) | ( 5.3) | | |
| 40–44 | Male | 102 | 110–150 | 165 | 3 | 12 | 74 | 2 | 7 | 98 | |
| | % | | | | ( 3.0) | (12.2) | (74.2) | ( 2.0) | ( 7.1) | | |
| | Female | 100 | 105–150 | 165 | 3 | 12 | 96 | 3 | 8 | 132 | 230 |
| | % | | | | ( 2.2) | ( 9.0) | (72.5) | ( 9.7) | ( 5.8) | | |
| 45–49 | Male | 104 | 110–155 | 170 | 3 | 4 | 77 | 1 | 5 | 90 | |
| | % | | | | ( 3.3) | ( 4.4) | (85.4) | ( 1.1) | ( 5.5) | | |
| | Female | 100 | 105–155 | 175 | 3 | 5 | 111 | 15 | 6 | 140 | 230 |
| | % | | | | ( 2.1) | ( 3.5) | (79.2) | (10.6) | ( 4.2) | | |
| 50–54 | Male | 105 | 115–160 | 175 | 1 | 8 | 41 | 10 | 3 | 63 | |
| | % | | | | ( 1.5) | (12.6) | (64.9) | (15.8) | ( 8.6) | | |
| | Female | 105 | 110–165 | 180 | 7 | | 86 | 14 | 7 | 114 | |
| | % | | | | ( 6.1) | | (75.1) | (12.1) | ( 6.1) | | |
| 55–59 | Male | 106 | 115–165 | 180 | 2 | 7 | 45 | 3 | 7 | 64 | |
| | % | | | | ( 3.1) | (11.1) | (71.3) | ( 4.7) | (10.8) | | |
| | Female | 105 | 110–170 | 185 | 3 | | 76 | 9 | 15 | 103 | 167 |
| | % | | | | ( 2.9) | | (73.2) | ( 8.2) | (14.8) | | |
| 60–64 | Male | 108 | 115–170 | 190 | 1 | 3 | 24 | 4 | 13 | 45 | |
| | % | | | | ( 2.2) | ( 6.6) | (53.1) | ( 8.8) | (28.7) | | |
| | Female | 105 | 115–175 | 190 | | 4 | 44 | 9 | 3 | 60 | 105 |
| | % | | | | | ( 6.6) | (73.2) | (15.0) | ( 5.3) | | |
| 65–69 | Male | | | | 1 | 3 | 21 | 6 | 8 | 39 | |
| | % | | | | ( 2.5) | ( 7.6) | (53.8) | (15.3) | (20.4) | | |
| | Female | | | | | 2 | 26 | 2 | 5 | 35 | 74 |
| | % | | | | | ( 5.7) | (73.9) | ( 5.6) | (14.2) | | |
| 70– over | Male | | | | | | 7 | 4 | 2 | 13 | |
| | % | | | | | | (53.5) | (30.6) | (15.2) | | |
| | Femare | | | | | | 19 | 2 | 4 | 25 | 38 |
| | % | | | | | | (76.0) | ( 8.0) | (16.0) | | |
| Total | Male | | | | 11 | 46 | 335 | 31 | 48 | 471 | |
| | % | | | | ( 2.3) | ( 9.7) | (71.1) | ( 6.5) | (10.1) | | |
| | Female | | | | 20 | 23 | 564 | 75 | 56 | 738 | 1,209 |
| | % | | | | ( 2.7) | ( 3.1) | (76.4) | (10.1) | ( 7.5) | | |

Hypotension : below upper limit of hypotension
Prehypotension : between uper limit of hypotension and lower normal limit
Normal : within normal limits
Prehypertension : between higher normal limit and lower limit of hypertension
Hypertension : above lower limit of hypertension

Hypot. – Hypotension (Hypotony)
Hypert. – Hypertension

## Table 2 DIASTOLIC PRESSURE

| Age ys. | | *Master's Classification* Upper limit of hypot. mmHg | Normal limits mmHg | Lower limit of hypert. mmHg | *Number of cases with* Hypo-tension | Prehypo-tension | Norm. | Prehyper-tension | Hyper-tension | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 30–34 | Male | 60 | 68– 92 | 98 | 1 | 5 | 14 | 2 | 1 | 23 | |
| | % | | | | ( 4.3) | (21.7) | (60.7) | ( 8.6) | ( 4.3) | | |
| | Female | 55 | 60– 88 | 95 | 1 | | 31 | 4 | 1 | 37 | 60 |
| | % | | | | ( 2.7) | | (83.7) | (10.8) | ( 2.7) | | |
| 35–39 | Male | 60 | 68– 92 | 100 | | 3 | 23 | 7 | 3 | 36 | |
| | % | | | | | ( 8.3) | (63.8) | (19.4) | ( 8.3) | | |
| | Female | 60 | 65– 90 | 98 | 3 | 14 | 59 | 12 | 4 | 92 | 128 |
| | % | | | | ( 3.2) | (15.3) | (64.0) | (13.0) | ( 4.3) | | |
| 40–44 | Male | 60 | 70– 94 | 100 | | 11 | 70 | 9 | 8 | 98 | |
| | % | | | | | (11.2) | (71.3) | ( 9.1) | ( 8.1) | | |
| | Female | 60 | 65– 92 | 100 | 4 | 16 | 83 | 17 | 12 | 132 | 230 |
| | % | | | | ( 3.0) | (12.1) | (62.7) | (12.8) | ( 9.0) | | |
| 45–49 | Male | 60 | 70– 96 | 104 | | 8 | 72 | | 10 | 90 | |
| | % | | | | | ( 8.8) | (79.8) | | (11.1) | | |
| | Female | 60 | 65– 96 | 105 | 1 | 8 | 114 | 8 | 9 | 140 | 230 |
| | % | | | | ( 0.7) | ( 5.7) | (81.3) | ( 5.7) | ( 6.3) | | |
| 50–54 | Male | 60 | 70– 98 | 106 | 1 | 4 | 44 | 7 | 7 | 63 | |
| | % | | | | ( 1.5) | ( 6.3) | (69.6) | (11.0) | (11.0) | | |
| | Female | 60 | 70–100 | 108 | 1 | 9 | 81 | 15 | 8 | 114 | 177 |
| | % | | | | ( 0.8) | ( 7.8) | (70.9) | (13.1) | ( 7.0) | | |
| 55–59 | Male | 60 | 70– 98 | 108 | | 1 | 47 | 8 | 8 | 64 | |
| | % | | | | | ( 1.5) | (73.5) | (12.5) | (12.5) | | |
| | Female | 60 | 70–100 | 108 | | 9 | 69 | 11 | 14 | 103 | 167 |
| | % | | | | | ( 8.7) | (66.8) | (10.6) | (13.5) | | |
| 60–64 | Male | 60 | 70–100 | 110 | | 2 | 27 | 10 | 6 | 45 | |
| | % | | | | | ( 4.4) | (60.0) | (22.2) | (13.2) | | |
| | Female | 60 | 70–100 | 110 | | 2 | 44 | 9 | 5 | 60 | 105 |
| | % | | | | | ( 3.3) | (73.3) | (15.0) | ( 8.3) | | |
| 65–69 | Male | | | | | 2 | 24 | 9 | 4 | 39 | |
| | % | | | | | ( 5.1) | (61.4) | (23.0) | (10.2) | | |
| | Female | | | | | 3 | 24 | 4 | 4 | 35 | 74 |
| | % | | | | | ( 8.5) | (68.4) | (11.4) | (11.4) | | |
| 70– over | Male | | | | | | 9 | 2 | 2 | 13 | |
| | % | | | | | | (69.0) | (15.3) | (15.3) | | |
| | Female | | | | | 2 | 13 | 8 | 2 | 25 | 38 |
| | % | | | | | ( 8.0) | (52.0) | (32.0) | ( 8.0) | | |
| Total | Male | | | | 2 | 36 | 330 | 54 | 49 | 471 | |
| | % | | | | ( 0.4) | ( 7.6) | (69.9) | (11.4) | (10.3) | | |
| | Female | | | | 10 | 63 | 517 | 88 | 59 | 738 | 1,209 |
| | % | | | | ( 1.3) | ( 8.5) | (70.0) | (11.9) | ( 7.9) | | |

Hypotension : below upper limit of hypotension

Prehypotension : between upper limit of hypotension and lower normal limit

Normal : within normal limits

Prehypertension : between higher normal limit and lower limit of hypertension

Hypertension : above lower limit of hypertension

Hypot. – Hypotension (Hypotony)

Hypert. – Hypertension