Histogram of EMI unit on $64 \times 64$ matrix were made taking average of 25 matrix from data of $320 \times 320$ matrix by other computer system.

This result showed that histogram of EMI unit by $64 \times 64$ matrix were useful in differential diagnosis of the liver diseases, but were not on pancreas diseases.

**Basic Studies on the Liver Function Test with F-18 Labeled p-Fluoroacetanilide (p-FA) In Rats**

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Drug metabolizing activity is one of the most important functions of liver. p-FA is accumulated into liver and metabolized by liver Cyt. P450 to give mainly two products. While para-hydroxylation liberates $^{18}$F-fluoride, the ultimate products of ortho-hydroxylation are glucuronide or sulfate of p-18FA. In order to achieve liver functional imaging based on Cyt. P450 activity, we synthesized p-18FA and studied its organ distribution and metabolism in rats.

Diazonium fluoroborate was prepared from p-aminocetanilide by the ordinary method. F-18 was prepared by $^{20}$Ne(d, a)$^{15}$F reaction with NIRS cyclotron. By the isotopic exchange reaction in acetonitril, 30 mCi $^{18}$F-diazonium fluoroborate was obtained, then to be converted to p-18FA. Radiochemical yield was 10%, with specific activity of 0.25 mCi/mg and preparation time was about 30 minutes.

Male Wistar rats were administered 10μCi p-18FA intravenously or orally. Rats were pretreated with methylcholanthrene, PCB, SKF-525A or not pretreated.

Bone uptake of F-18 activity was increased gradually in normal rats and about three times more rapidly in MC-pretreated rats, which is caused by defluorination reaction of p-18FA in liver. Therefore bone activity or urinary fluoride assay can determine the whole liver drug metabolizing activity. Cyt.P450 induced rats with MC or PCB showed rapid clearance of F-18 activity from liver. SKF-525A pretreated rats were on the contrary. Relative liver F-18 activity at three hours after i.v. injection for MC-, PCB-, No-, and SKF-525A pretreated rats were 19, 33, 100, and 125% respectively. Rapid clearance from induced rats are associated with increased liver Cyt. P450 activity and conjugation reaction. Rapid clearance of fluoride and conjugated products from liver, compared with p-FA, is the basis of liver functional imaging with p-18FA, especially enlightens the regional inducibility of drug metabolizing activity of liver.

**Biliary Excretion of Bucolome in the Rat... A Possible Cause for Choleresis...**

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Bucolome is known to be a potent choleretic in rats, dogs, guinea pigs and men. The mechanism for choleretic action, however, remains unknown. The osmotic choleretic of bucolome or its metabolite(s) excreted in the bile has been considered unlikely, since the biliary excretion of bucolome was reported to be very small. The authors investigated this possibility, since the information was not sufficient to exclude this possibility.

$^{14}$C-bucolome was synthesized from Na $^{14}$C-cyanate. Final purification was done using column chromatography (sephadex, LH-20, solvent, ethanol). In Wistar male rats, sodium salt of $^{14}$C-bucolome mixed with carrier Na bucolome (dose, 10mg/100g, 20mg/100g) was injected i.p. The bile was collected every 15 min for 2 hrs. and the
biliary excretion of bucolome or its metabolites was measured from its radioactivity. Two hrs, biliary recovery of 14C-bucolome activity was 24.5±4.0 (%) n=3, in rats given 10mg/100g, and 19.0±4.0 (%) n=3 in rats given 20mg/100g. The cumulative biliary excretion was almost linear for 2 hrs in both groups. The relation between bile flow rate (µl/min/100g, Y) and biliary excretion rate of bucolome (µmol/min/100g, X) was found to be $Y = 27X + 3.87 (r=0.85 n=60)$. It is suggested that bucolome (possibly in glucuronide conjugates form) is excreted appreciably in the rat bile and that cholresis can be explained as an osmotic cholresis with the assumption that $27 \mu l$ of bile can be produced by the excretion of 1 µmol of bucolome or its metabolite(s).

The effect of Spironolactone Pretreatment on the Biliary Excretion and Renal Accumulation of Mercury in the Rat

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An agreement has not been achieved in the literature concerning the effect of spironolactone (SP) pretreatment on the biliary excretion of iv administered inorganic mercury ion (Hg++). Haddow et al, and the authors reported more than 10 times increase in the biliary excretion of mercury in SP pretreated rats, while Selye, Garg and more recently Klaassen independently reported the absence of a significant increase of the biliary excretion of mercury by SP pretreatment. The authors pursued in the present study the cause for this discrepancy, by comparing several different experimental conditions. In male SPF, SD rats (250g), SP (5mg/100g) was given intraperitonea (IP) or orally (Oral) 1–3 hrs prior to the mercury study. Aldactone A tablets (A) was ground into powder and was suspended in water (W), ethylene glycol (EG) or propylene glycol (PG). Pure SP material (SP) was also tested in the same preparation. 203Hg was used as a tracer for inorganic mercury. When the mercury dose of 0.2mg/100g was used as a challenging mercury, the biliary excretion of mercury for 2 hr. (%) of the dose mean ±SD was significantly and similarly increased P<0.01, in all treated groups (Oral-W-A 13.13± 3.08, IP-W-A 10.49±1.62, IP-EG-A 12.99±1.61, IP-EG-SP 12.58±1.39) compared with control rats given PG only (1.45±0.12). Renal accumulation at 2 hrs post injection in treated rats, was 28.52±4.00, 17.68±1.50, 13.73±5.67, 6.58±2.65 respectively which were all significantly lower than control value (34.77±4.18). But difference in it was concluded that the difference in the effect of SP on the biliary excretion of mercury observed in the past reports might be most probably due to the difference in the mercury dose used and not due to the difference in the preparation or administration of SP.

On the other hand, the difference in the preparation or administration of SP was shown to affect significantly the renal accumulation of mercury in the rat.

Changes in Liver Scan Following Splenectomy

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Changes in liver size, shape and hepatic uptake constant (KL) were studied in liver scan of 11 patients following splenectomy. The patients were diagnosed as liver cirrhosis with esophageal varices and hypersplenismus. They underwent splenectomy and showed better clinical course except one.

A preoperative liver study is compared with the study done 3 to 35 months following splenectomy. Liver size was measured and left to right lobe area ratio was calculated in anterior liver image using

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