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RADIOIMMUNOASSAY OF α-FETOPROTEIN — STUDY ON SPAC α-FETO KIT — .

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We conducted a series of tests on the SPAC α-Feto Kit whose results were highly satisfactory — Reproducibility of standard curve; C.V.=2.4-8.3%, Inter-assay precision; C.V.=1.4-5.9%, Intra-assay precision; C.V.=2.5-4.8%. The measured value of diluted sera with buffer solution (1/2-1/1,000) well accorded with the theoretical value at any dilution. The recovery rate was 94.6-115.7%. A wide range of incubation temperatures and times were applicable: no problems appeared at temperatures in the 15°-30°C range with a time of 2-10hrs for the 1st incubation and 16-72 hrs for the 2nd incubation. A highly positive correlation (r=0.95 or above) was found between SPAC α-Feto Kit and both α-Feto Kit "Daiichi" and other companies' kits. The normal fasting value was 4.52± 2.29ng/ml and the values for various liver diseases showed little deviation from other reported values. The kit requires no centrifugation due to solid phase antibody coated tube and is significantly easy to handle and use. From the above, it can be concluded that the SPAC α-Feto kit has been more desirably improved for ordinary clinical examination.

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THE CHANGE OF THE AFP VALUES AT DEEP FREEZING SERUM STORAGE.

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Generally considered,deep freezing serum contain dose not change in one to two monthes, but we were observed remarkbly changed AFT values during storage at RIA method.
These results has been presented in the 19th annual meeting JNM 1978.
Since,we have been checked AFP value changes to the serum storage periods. Thease test data as follow:

period	total	decreased ratio		
		within±15%	over-25%	other
1976_1978	118	56	39	23
1979_1981	155	129	2	24

#decreased ratio: decreased ratio are caluculated in the AFP value (100%)

The AFP values remarkbly changed in 1976 to 1978 period but no changed at 1979 to 1981 period.
This difference results are unknown origin, our technical accuracy are no problem.
Our AFT values of the control serum are the average and standard deviation as follow:
1976-1978 n=83 $\bar{X}$=94.3 ±7.2ng/ml c.v.7.6% NMS2a
1979-1981 n=143 $\bar{X}$=1o2.8 ± 5.6ng/ml c.v.5.6% QC-RIA3
We can not show the details of this unknown origin, however, the modification of AFP RIA kits (DAINABOT alfa RIAKIT)quality can not be disregarded.

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ASSESSMENT OF CLINICAL VALUES OF FIVE TUMOR MARKERS.

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With the purpose of assessing clinical values of various tumor markers plasma concentrations of CEA, AFP, Ferritin, B_2-microglobulin(B_2-m), Pregnancy specific B_1-glycoprotein(SP_1) were measured by radioimmunoassay(RIA). Materials for analysis included 892 patients with various of cancer and 612 patients with benign diseases.
The true positive ratio of each marker was caluculated in each group of cancer classified on the basis of the primary sites. The difference between the true positive ratio and the false positive ratio caluculated in benign diseases were used as the index for clinical usefullness of a marker.
Tumor markers of which usefullness was appreciated were as follows: ferritin and CEA for esophageal carcinoma, B_2-m and CEA for gastric carcinoma, CEA for colonic carcinoma, AFP for hepatoma, ferritin and CEA for pancreatic and pulmonary carcinoma, CEA for breast carcinoma and CEA for metastatic liver carcinoma.
There were no markers appreciated for the diagnosis of early cancers of the stomach, colon and lung.
The appropriate selection of a marker or a combination of markers should allow efficient detection of a target cancer.

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IMMUNOLOGICAL STUDY OF CEA BY THE AUTO-ANTIBODY TO CEA.

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Previously we reported that CEA has immunological cross-reactivity with α_1-acid glycoprotein (AG), and that CEA has AG immune determinant. In this study the immunological characterization of CEA by the auto-antibody to CEA in cancer patients was examined. When ^{125}I-CEA was further purified by affinity chromatography using anti-AG bound to Sepharose, the unbound fraction did not react with both the auto-antibody to CEA and the monoclonal antibody to CEA, but almost all radioactivities of the bound fraction (>90%) reacted with both antibodies.
The specific binding of ^{125}I-CEA with anti-AG was inhibited dose-dependently by the simultaneous incubation with the IgG fraction of the auto-antibody to CEA.
CEA-RIA was performed by the reaction of the auto-antibody to CEA and ^{125}I-CEA purified by anti-AG chromatography. The estimated CEA level in non-cancerous organs (thyroid, lung, heart, liver, spleen, adrenal and kidney) and in feces (or meconium) was lower (about 1/3) than the value estimated by Roche's method. The experimental result means that CEA contains immune determinants in common with AG.