6.

GALACTOSYLTRANSFERASE IN MALIGNANT EFFUSIONS
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Galactosyltransferase activity (GT,E.C.2.4.1.22) and immunoactivity were determined in 69 malignant, cytology positive effusions. Enzyme activity was measured using free N-acetylglucosamine as acceptor substrate; immunoreactivity was determined by ELISA using a polyclonal rabbit antiserum against the soluble human milk enzyme.

The tumor types analyzed included ovarian (9), breast (15), lung (12), gastrointestinal (12) and miscellaneous cancers (21). The median value of specific GT-activity was highest for ovarian cancer (0.57 U/L) as well as the mean value (0.80 U/L) with a range from 0.11 to 2.25 U/L. For comparison mean serum reference value for GT is 0.29 U/L. These values suggest that effusion GT is generated by cancer cells and that the determination of its level in effusion may be helpful in the diagnosis of ovarian cancer.

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7.

THE MEMBRANE-ASSOCIATED γ-GLUTAMYL TRANSPEPTIDASE (γ-GT) IN THE DIAGNOSIS OF ACUTE LEUKEMIAS (AL).
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Ficoll-enriched blast suspensions from 92 patients with AL were classified using surface markers, morphology and cytochemistry. The cells were biochemically assayed for the plasma membrane associated γ-GT and terminal transferase (TdT). In myeloid leukemias (n=37)we observed an increase of γ-GT activity in immature AML (FAB-M1, median: m = 18.3 u;u = nmole/hr/10^6 cells). This activity gradually decreased in more mature AML (FAB-M2-M3, m = 10.2u). The level of γ-GT in granulocytes was 11.5u. Myelomonocytic and monocytic AL showed the highest γ-GT values (m = 29.7u in M4 and 30.2u in M5). Extremely high values (150-250u) were only recorded in M4 and M5 AL. The value for monocytes was 2.5u. In lymphoblastic leukemias (n=41), however, the γ-GT was very low (m=1.5u for c-ALL and 2.1u for T-ALL). The median was 9.0u and 14.0u in normal T and B lymphocytes. Interestingly, γ-GT values had a bimodal distribution in patients with acute undifferentiated leukemias (AUL. n=14): 9 patients had values between 0 and 2.8u and 5 between 7.0 and 21.0u. The correlation with TdT allowed to define 3 types of AUL: a) lymphoid-like (TdT+, low γ-GT); b) myelomonocytic-like (TdT-, high γ-GT); c) undifferentiated type (TdT-, low γ-GT). 13 of 14 AUL cases fitted in these 3 categories. As γ-GT activity is nearly absent in lymphoid AL and elevated in myeloid and monocytic AL, this enzyme may be a helpful marker for the distinction between myeloid and lymphoid leukemias.

8.

ENZYME CHARAXTERISTICS OF PLASMA MEMBRANE IN CELLS FROM NON-HODGKIN LYMPHOMAS (NHL).
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The activity profiles of marker enzymes associated with the plasma membrane were investigated on cells isolated from lymph nodes of patients with malignant NHL.The composition of the population was assessed by testing cells for the presence of surface immunoglobulins(SIg) and T antigens, and of non specific esterase.Activity levels of plasma membrane enzymes involved in purine metabolism,as 5'-nucleotidase(5'-AMPase) and nucleotide phosphodiesterase,in ion transport as adenosine triphosphatase and alkaline phosphomonoesterase,and in aminoacid transport as γ-glutamyltranspeptidase(GLUPAase) were assayed at saturating concentration of substrate.Cases of NHL with a majority of cells bearing SIg denoted a significant lower activity level of 5'-AMPase in comparison of cells of non malignant lymph nodes.In contrast,NHL with abundant cytoplasmic immunoglobulins(CIg) displayed a significant higher activity of this enzyme.A third group included NHL cases with a variable proportion of lymphoid cells bearing either B or T markers but without detectable CIg.Correlations between the various enzyme activities were absent with the exception for 5'-AMPase and GLUPAase.These findings indicate that the cellular heterogeneity of NHL is reflected by the enzymatic heterogeneity of the plasma membrane which in turn may relate to biological peculiarities of malignant cells.

9.

TUMOR DETECTION WITH RADIOLABELLED ANTIBODY: HOW PRACTICAL IS THIS METHOD ?
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With the development of monoclonal antibodies and new Nuclear Medicine techniques, there ist great hope that improved tumor detection and localization by immunoscintigraphy will be possible, Tumors which concentrate the radiolabelled antibody may be better detected by scintigraphy than by morphological abnormalities. We report here on the initial clinical experience with this method at our hospital as well as on experimental results obtained in nude mice bearing human colon carcinoma using in both cases a well characterized monoclonal anti-CEA antibody No 2o2 labelled with ^{131}J. In our colon carcinoma patients, we found antibody localization in most surgical tumor specimens, but not all carcinomas could be visualized by scintigraphy. With ^{131}J-labelled antibody the count rates are so low that examination by emission computed tomography will present some problems. Furthermore, the topographic localization of the radioactive uptake in tumors often requires the use of an additional scintigraphy with a bone or liver seeking Technetium labelled agent. Clearly, this tumor detection method ist still at a stage of clinical research. The logistics needet are formidable, it requires expert producers of antibodies, experienced radiochemists, constant quality controls, experimental models of human tumor grafted in nude mice, and an optimum collaboration between surgeons and nuclear physicians.

10.

LOCALIZATION OF COLON CARCINOMA BY EMISSION COMPUTERIZED TOMOGRAPHY (ECT) USING ^{123}I LABELED F(ab')$_2$ FRAGMENTS FROM MONOCLONAL ANTI-CEA ANTIBODIES.
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Eleven patients with known colorectal carcinomas were injected each with 1.5 mg of F(ab')$_2$ of monoclonal anti-CEA antibodies No 35 and 202 labeled with 3-4 mCi of P-5n ^{123}I. ECT was performed in all patients 6, 24 and 48 h after injection using a double head Rotacamera. In all 5 patients with localized carcinoma (4 primary tumors from the caecum, right colon, sigmoid and rectum, respectively, and 1 sigmoid recurrence), the tumors were clearly detected by ECT. In 2 patients, tumor to normal tissue radioactivity ratios were measured on surgically resected material at day 5 post injection and found to be 6, 8, 15 and 9 for one patient and 3, 5, 7 and 2 for the other, in comparison with normal mucosa, serosa, fat and blood, respectively. Two out of 2 bone metastases, in the sacroiliac area and in the scapula were also detected, one of which was previously unknown. In 1 patient under chemotherapy 2 small lung metastases were not detected. Out of 6 patients with liver metastases, 2 remained negative, while in the 4 others, the metastases presented as cold area at the 6 h ECT. These defects progressively filled with radioactivity at later ECT in 2 cases and gave doubtful uptakes in the 2 others. Briefly, 9 of the 14 tumor sites were localized by ECT, 2 were doubtful and 3 negative. The excellent definition of the tumor in the positive cases represents an improvement over previously reported results.

11.

IMMUNOSCANNING OF GI TRACT ADENOCARCINOMAS USING TUMOR SPECIFIC MONOCLONAL ANTIBODIES (MoAb): A PROSPECTIVE STUDY.
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Twenty three patients with a suspicion of GI tract adenocarcinoma primary tumor, recurrence or metastasis that could not be proven by conventionnal methods (X ray, Ultrasonography, endoscopy, CT scan.) were injected with radiolabeled MoAb proven to react with adenocarcinoma cells from the GI tract.