investigated.

PYRUVATE KINASE (PK) ISOENZYMES IN CHARACTERISTICS OF MULTISTAGE CARCINOGENESIS IN HUMAN UROTHELIAL CELL LINES

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Among 12 urothelial cell lines of normal and tumour (TCC) origin, representing different transformation grades (TGr) in vitro (I-III), a nuclear PK variant inhibited by L-cysteine has been found in the tumourigenic TGr III cell lines only. Chromatin extracts of all cell lines contained three PK isoenzymes which showed the greatest electrophoretic mobility in TGr I cells. It diminished in immortalized TGr II and III cells, and in TGr III cells the slow migrating isoenzyme acquired sensitivity to L-cysteine inhibition. From the T-24 TCC derived TGr III cell line a subline (T-24a) with reduced tumourigenic properties was isolated. This subline showed a simultaneous reduction of the sensitivity of PK to L-cysteine inhibition.

It is concluded that changes in PK isoenzymes might express multistage genotypic alterations during in vitro carcinogenesis.

DIFFERENCE IN 5'-NUCLEOTIDASE ACTIVITY AND PROTEIN PATTERN BETWEEN SEVERAL TUMOUR CELL LINES WITH LOW- AND HIGH-MALIGNANT PROPERTIES

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Data on the plasma membrane structure of several experimental tumour cell lines with different tumourigenic and metastatic properties has been obtained. These cell lines include the low-malignant mouse ascites HD33, the mouse lymphoma Eb and the rat adenocarcinoma BSp73 AS cells, and their high-malignant variants, mouse ascites HD34 and mouse lymphoma Esb, and the rat adenocarcinoma BSp73 ASML. The purified plasma membranes were investigated with respect to their protein and lipid composition, and their enzyme activity. The most prominent differences were found for the specific, concanavalin A-inhibitable, 5'-nucleotidase activity, and for the protein pattern exhibiting two to seven times higher enzyme acrivities and a greater amount of slightly acidic (basic) proteins preferentially in the lower molecular weight range (25 to 60 kD) of the low-malignant cells. The sialic acid content was found to be significantly higher in the low-metastasizing variants, and also their membrane lipid fluidity was higher compared to the high-metastasizing cell lines. The data has been evaluated in relation to the malignant properties of these tumour cells.

OVER-EXPRSSION OF CERTAIN ONCOGENES IN PRENEOPLASTIC AND NEOPLASTIC STAGES DURING RAT HEPATOCARCINOGENESIS

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Oncogenes such as ras and myc have been found over-expressed during hepatocarcinogenesis in rats. However, an interpretation of the sequential analysis of these changes in relation to other genetical and enzymatical alterations, represents a new approach. We analysed these changes in an experimental model of rat hepatocarcinogenesis where male Wistar rats were submitted to a triphasic induction protocol (initiation, selection, promotion). Isolation of messenger-RNA from rat liver, Northern blotting and hybridisation with radioactively labelled onc-probes, were carried out. A distinction was made between nodular/non-nodular tissue m-RNA and tumourigenic/non-tumourigenic tissue m-RNA. A first series of results is in accordance with published data: there is an elevated level of ras oncogene transcripts found in regenerative liver 30 hours after partial hepatectomy, in the nodules and surrounding parenchyma and in both the tumourigenic and non-tumourigenic tissue. The quantitative analysis, by densitometry of the autoradiographics, is under investigation.

LECTIN-BINDING AND AFFFINITY CHROMATOGRAPHY SEPARATION OF TUMOUR CELLS

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Tumour cell surface characteristics have been implicated in several aspects of cancer metastasis. We have made quantitative estimations of sugar groups