Recently, a major focus of our ongoing investigations into the mechanisms(s) of asbestos transformation of human mesothelial cells has been to delineate their growth factor requirements. Quiescent cells require insulin (INS) and either epidermal growth factor (EGF), platelet derived growth factor or transforming growth factor beta to undergo one round of DNA synthesis. However, a clonal growth does not occur unless the medium also contains high density lipids (HDL). Media containing HDL, INS and either gamma interferon or interleukin-1 will also support clonal growth, but the combination of HDL, INS and EGF with any of the other factors increases the growth rate. Sustained growth of human epithelial cells in defined media containing these factors (other than INS and EGF) is unusual. Interestingly, we have also found that mesothelioma cell lines elaborate some of these mitogens indicating that these factors may play an autocrine role in mesothelial cell carcinogenesis.

LIVER CELL PROLIFERATION INDUCED BY LEAD NITRATE DOES NOT PROMOTE THE GROWTH OF GGT+ FOCI

G.M.Ledda-Columbano, A.Columbano, P.Coni, C.Liguori and P.Pani

Istituto di Farmacologia e Patologia Biochimica, Universita di Cagliari, Italy

We have recently shown that cell proliferation induced by the mitogen lead nitrate does not achieve initiation of hepatocarcinogenesis when coupled with administration of several carcinogens. Therefore, we have investigated the effect of lead-induced cell proliferation on the promotion phase of liver carcinogenesis. The experimental protocol consisted of initiating rat liver with DENA (200 mg/kg) and treating the animals with a mitogenic dose of lead nitrate (5 micromoles/100 g, twice a month). The rats were sacrificed at 6 and 12 months and the preneoplastic lesions were identified as gamma-glutamyltranspeptidase positive foci (GGT+). The results indicate that despite the several mitogenic stimuli exerted by lead, no increase in the size and/or number of GGT+ foci, was observed when compared with that of rats treated with DENA alone.

NUCLEAR DNA CONTENT CHARACTERISTICS OF 129 HIGH GRADE MALIGNANCY NON-HODGKIN LYMPHOMAS

T.Lehtinen(2), R.Aine(2), M.Lehtinen(1), T.Leino(2), O.-P.Kallioniemi(2), T.Hakala(2) and M.Ala-Vaikko(3)

Universities of (1)Tampere and (3)Oulu, and (2)Tampere University Central Hospital, Finland

We have studied the DNA-ploidy of 129 non-Hodgkin lymphomas diagnosed during the last 30 years in the Tampere University Central Hospital. The material consisted of 45 large, non-cleaved follicular centre cell lymphomas, 34 small, non-cleaved non Burkitt type lymphomas, 26 Burkitt type lymphomas (BL) and 25 immunoblastic sarcomas (IBS, Lukes-Collins classification). The analyses of archival diagnostic biopsies were done with an EPICS Cr flowcytometer. By using a trypsin digestion method, which yielded low CV-values (mean 5.4%, range 3.13 to 8.50), we were able to analyze about 90% of the tumour samples.

Aneuploidy as defined by an abnormal DNA Index, was seen in 1/3 of the cases. Tetraploidy was found to be characteristic for IBS (present in 53% of cases compared with 11% in other tumours, $p<0.05$). Six Burkitt type tumours were aneuploid showing a low, near-diploid DNA-Index (mean 1.14, range 1.08 to 1.24). The BL cases had a significantly worse prognosis provided that they had near-diploid tumours ($p<0.02$). We conclude that the DNA content characteristics described can reflect the histopathological type and clinical behaviour of high grade malignancy non-Hodgkin lymphomas.

RELATIONSHIP BETWEEN EMBRYONAL CARCINOMA CELLS AND EMBRYOS

E.Lehtonen

Department of Pathology, University of Helsinki, Haartmaninkatu 3, SF-00290 Helsinki, Finland

The stem cells of teratocarcinomas, the embryonal carcinoma (EC) cells, are multipotential cells, which may proliferate as EC cells or differentiate into a variety of directions. This has suggested that EC cells correspond to a cell type in the early embryo. In line with this, the EC cells differentiate in a way comparable to that of the embryo, EC cells can be obtained from embryos both in vivo and in vitro, and EC cells reintroduced in the embryo can participate in the formation of the tissues of the foetus. Furthermore, the EC cells share many biochemical features with early embryo cells. At present, it appears that mouse EC cells represent primitive ectoderm cells of the mouse embryo.

Upon differentiation, the EC cells lose their malignant properties. The differentiation of EC cells is connected with rapid changes in, e.g. cell surface molecules and in the organization of