close relatives of patients with large bowel malignancies. This excess of cases suggests that genetic factors may be involved in about 20% of the registered colonic tumours.

ARA-C INDUCED DIFFERENTIATION OF A NEW HUMAN NEUROBLASTOMA CELL LINE (GI-ME-N)

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Cytosine-arabinoside (ARA-C) effects on a new human neuroblastoma (NB) cell line (GI-ME-N) recently established in our laboratory, have been extensively tested. Low doses of ARA-C allowing 100% cell viability induce morphological differentiation and growth inhibition; differentiated cells appear larger and flattened with elongated dendritic processes; such cells appeared within 48 hrs after a dose of ARA-C as low as 0.1 µg/ml. The new morphological aspect reached the maximum expression after 5 days of culture being independent of the addition of fresh drug to the culture. A decrease in [3]H-thymidine incorporation was also observed within 48 hr, the cell growth being completely inhibited by the 5th day. Membrane immunofluorescence with specific monoclonal antibodies showed several dramatic changes in NB-specific antigen expression after 4 days of treatment with ARA-C. Concurrent studies including transmission electron microscopy, appearance of 68, 120 and 200 kD, neurofilaments and catecholamines determination will contribute to further definition of this system. Our data suggest that low ARA-C doses promotes in vitro differentiation of human NB cells resulting in an interesting alteration of the malignant phenotype.

SYNGENEIC TUMOUR INHIBITION AFTER TRANSFER OF IN VITRO INDUCED SPECIFIC T CELLS AND IN VIVO LAK CELLS

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Inhibition of polyoma growth after transplantation in CBA mice was achieved in 70% of animals treated with IL-2 and T cells induced in culture. transferred cells derived from donors with DTH to TAA and were stimulated with TAA. Soluble TAA with both specificities (polyoma and H-2K) have affinity to cell receptors. Antitumour effects and DTH in recipients are dependent on the period of time of the culture of T cells and dosage of IL-2.

PRESENCE OF A BREAST CARCINOMA ANTIGEN IN BODY FLUIDS

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The anti-breast carcinoma monoclonal antibody, NCRC-11 defines complex, high molecular weight glycoprotein antigens associated with secretory glandular epithelia, as well as with most epithelial malignancies. These components have been identified in, and purified from, normal body fluids including urine and skim milk. Analysis of these materials from normal fluids or tumours by sodium dodecyl sulphate polyacrylamide gel electrophoresis and immunoblotting with the NCRC-11 antibody revealed that the major antibody binding species were present as a single band or doublet of low electrophoretic mobilities.

Since it was shown that NCRC-11 antigens were released from tissues in a soluble form, the possibility that these antigens, when secreted from a developing tumour into the circulation, might represent a diagnostic marker for breast cancer was evaluated. For this purpose, the NCRC-11 antibody was employed in a solid phase 'sandwich' radioimmunoassay, whereby antigen in the serum of cancer patients was captured by adsorbed NCRC-11 antibody, and the antigen was then detected by the subsequent binding of radiolabelled NCRC-11 tracer antibody. The findings obtained indicated that NCRC-11 antigens were elevated in the serum of advanced breast cancer patients in comparison to healthy control females. Thus, access to the circulation was available to NCRC-11 antigens released from the tumour but not to equivalent products released from normal epithelia.

COMPARISON OF GEOCHEMICAL AND CANCER INCIDENCE DATA IN FINLAND

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As a joint effort of the Finnish Cancer Registry and the Geochemistry Department of the Geological Survey of Finland a research project has been started in which the role of elements in the soil will be studied as risk or protective factors in different cancers. Soil samples were collected from

more than 1100 locations all over Finland. Cancer incidence rates dating back to the year 1953 were produced by municipalities (mean population 10,000). As a first step both geochemical data and cancer incidence data were illustrated as maps showing the areas with high and low concentrations and rates in 10-colour scale. On the basis of the hypotheses generated by visual observation of the maps or those known from the literature, a statistical multivariate analysis will be conducted by taking into account the known associations discovered in earlier analyses by the Finnish Cancer Registry between different background variables characterizing the municipalities (industrial structure, social welfare, living conditions, latitude, etc.), and individual cancer forms.

DNA-PROTEIN CROSS-LINKING BY CYTOTOXIC DRUGS

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Analysis of DNA and DNA-protein by buoyant density centrifugation and electrophoresis of fractions revealed that exposure of SV40 transformed mouse BALB/c fibroblasts to the alkylating agent nitrogen mustard reduced the amount of DNA that banded in an isopycnic caesium chloride (CsCl) gradient and resulted in a greater proportion of DNA sedimenting at lower densities. Analysis of the drug treated and untreated DNA purified from the CsCl gradient revealed trace amounts of protein of molecular weight 20 to 25K (detected by silver staining) associated with the nitrogen mustard treated DNA.

These findings were correlated with cytotoxicity (as assayed by colony-formation assays and radiolabelled thymidine incorporation into DNA) and the studies are being extended to novel platinum-containing agents.

SEARCHING FOR NEW ONCOGENES AT THE JUNCTIONS OF TUMOUR SPECIFIC CHROMOSOMAL ABNORMALITIES

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Chromosomal abnormalities which appear to be tumour specific may be involved in aetiology of the malignant cells. Abnormalities involving chromosome bands 14q11 and 14q32 are frequently observed in human tumours as rearranging genes (T cell receptor α chain and immunoglobulin heavy chain genes respectively) exist at these positions; this appears to enhance these interchromosomal exchanges. We have examined a number of different abnormalities involving 14q11 or q32 in an attempt to define new oncogenes by their occurrence at the junction of the abnormality and by the ability to detect mRNA transcripts from these genes. The nature of such transcripts has been investigated.

INTRACEREBRALLY IMPLANTED MAMMARY CARCINOMA CURED WITH ACETAMIDO-CNU AND HECNU

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A mouse mammary carcinoma (MCa) implanted intraperitoneally (i.p.), intravenously and intramuscularly can be cured with acetamido-CNU and hydroxyethyl-chloroethyl-nitrosourea (HECNU) (Radacic et al, Chemoterapia 2: 455, 1983). Further, we have studied the sensitivity of intracerebrally implanted MCa to those drugs. Animals were inoculated with different numbers of tumour cells ranging from 10^6 to 10^3 given in 0.05 ml (in one group, 0.1 ml). One day later, animals were treated i.p. with acetamido-CNU (15 mg/kg) or HECNU (20 mg/kg). The efficacy of the drugs was higher when the tumour cell inoculum was 0.05 ml than with 0.1 ml. Antitumour effects of acetamido-CNU were higher than the antitumour effects of HECNU. One-third of the animals inoculated with 10^5 tumour cells and treated with acetamido-CNU were cured, and all animals inoculated with 10^4 or 10^3 cells were cured. HECNU-treated animals were cured only when the inoculum was 10^3 cells or less.

TAQ I POLYMORPHIC ALLELES OF H-ras-1 PROTO-ONCOGENE PREFERENTIALLY ASSOCIATED WITH MALIGNANT MELANOMA

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A polymorphism based on a variable number of repetitions in a region (VTR) of the human H-ras-1 proto-oncogene has been reported and used to define different classes of alleles that were designated as "common" and "rare". The latter have been found to be significantly associated with