

synthesis is not required for the TPA induced increase in mRNAs recognized by λ B3 and λ B10. Addition of a protein synthesis inhibitor alone leads to marked accumulation of mRNA recognized by λ B3. Analysis of genomic organization indicates that λ B10 contains sequences belonging to a repeated gene family or a family of closely related genes whereas sequences present in λ B3 may correspond to a unique gene. The expression patterns of mRNAs recognized by λ B3 and λ B10 suggest that they may be associated with early phases of the genetic programme for growth, although a specific function in this programme remains to be shown.

TUMOUR PROMOTER PMA REVERSES THE ORDER IN WHICH CELLS ENTER MITOSIS

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Tumour promoting phorbol ester derivatives are known to stimulate as well as inhibit the cell cycle traverse of many kinds of cells, but it is not known whether or how these effects are related to tumour promotion. It is shown here that the potency of the phorbol diester PMA to cause a delay of cell division in human fibroblasts depends on the cycle status at the beginning of exposure to the PMA. Cells which become exposed while they are in an early stage of the cycle are less effectively delayed and reach mitosis earlier than those for which exposure begins at a later stage of the cycle. Thus PMA actually reverses the cycle-age distribution and the order of cell division within a normally growing population. Since growth regulation in self-renewing tissues is dependent on intercellular communication which is likely to be effected by the relative cell cycle positions of neighbouring cells, this reversal of cell cycle age may cause a disturbance of growth regulation, leading to hyperplasia and tumorigenesis.

FUCOSE AND SIALIC ACID AS PROGNOSTIC INDEXES IN PATIENTS WITH BREAST CANCER

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Fucose and sialic acid were determined in sera of 700 patients with breast cancer in various stages of evolution and compared with 150 patients with benign lesions of the breast and 80 healthy women, respectively.

Both parameters levels increased together with tumour volume enhancement. The most relevant results were found for fucose which was found significantly increased starting with stage I, its values being more frequently elevated and with higher magnitude in cases when homolateral lymph nodes were invaded. In patients with recurrences and/or metastases higher levels of fucose were found in 96% of cases and the modifications occurred at about 2 to 3 months before any clinical or radiological evidence of recurrences or metastases. Our results revealed that fucose is a better marker than sialic acid both in tumour volume estimation and disease expansion as well as in prognosis of breast cancer.

TRISOMY 13 - A RARE ACQUIRED CHROMOSOMAL ABERRATION

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Trisomy 13 occurring as the sole aberration in an acquired clone was seen in three patients, two males and one female, aged 77, 44 and 53 respectively, in over 15,000 patients studied because of malignant disorders. All three patients had acute non-lymphocytic leukaemia (ANLL). One patient had had RAEB-T diagnosed previously, two others had findings suggesting that their leukaemia had evolved through a myelodysplastic phase. ANLL types were M2, M2 and M2/M4 respectively. Haematologically, the patients were rather different (Hb range: 92 to 165 g/l; WBC: 3.1 to 250 $\times 10^9$; platelets: 31 to 255 $\times 10^9$ /l).

Cells with trisomy 13 as well as normal cells were found in the bone marrow of all patients. Peripheral blood lymphocytes had a normal karyotype. One patient had two additional clones in the bone marrow: 47,XX,+13,7q- and 48,XX,+13,+21.

Trisomy 13 thus is a rare acquired aberration which, based on these three patients, occurs in ANLL with a preceding myelodysplastic phase.

GENETIC ACTIVITY OF CHLORINATED ETHANES

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This work, sponsored by Associazione Italiana Ricerca sul Cancro (AIRC), is a part of an interdisciplinary program on

polychlorinated ethanes using different biological systems in collaboration with other Institutes.

In this report, five chlorinated ethanes such as 1,1-Dichloroethane (1,1-DCE), 1,2-Dichloroethane (1,2-DCE), 1,1,1-Trichloroethane (1,1,1-TCE), 1,1,1-Trichloroethane (1,1,2 TCE) and 1,1,2,2-Tetrachloroethane (1,1,2,2 TCE) were tested using D7 yeast strain of *Saccharomyces cerevisiae* with and without metabolic activation. Chemicals were tested on yeast cells from stationary and logarithmic growth phase where the level of cytochrome P-450 is high.

The results confirmed the relevance of metabolic activation and the use of yeast cells rich in cytochrome P-450 capable of metabolic activity. From this methodology 1,2-DCE, 1,1,2-TCE and 1,1,2,2-TCE show a genetic activity.

SAPINTOXIN A, A NON-PROMOTING PHORBOL ESTER ACTIVATES PROTEIN KINASE C

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In this communication we report the activity of a naturally occurring, highly fluorescent phorbol ester which activates protein kinase C (K_a 76nM) but which is neither a complete nor second stage tumour-promoter in traditional Berenblum tests. This compound, Sapintoxin-A, 12-O-[2-methylaminobenzoyl]-4-deoxyphorbol-13-acetate was isolated from the unripe fruits of *Sapium indicum* L., and forms one of a family of fluorescent phorbols, including Sapintoxin-D, and the protein kinase C receptor antagonist α -sapienine. Sapintoxin-A has properties in common with promoters such as TPA in that it will induce erythema *in vivo*, liberate PG's *in vitro*, induce lymphocyte mitogenesis and aggregation of human and rabbit platelets. Sapintoxin-A is therefore a suitable negative control compound for further biochemical studies concerning the involvement of protein kinase C in tumour-promotion and cell proliferation.

ANTITUMOUR EFFICACY OF HUMAN RECOMBINANT INTERLEUKIN 2

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Repeated peritumoural injections of human recombinant interleukin 2 (RIL-2) inhibited the growth of 80% of methylcholanthrene (MC)-induced murine sarcomas in syngeneic mice. Twenty percent of the MC-induced murine sarcomas were resistant to the RIL-2 immunotherapy. A direct correlation was observed between the susceptibility of the MC-induced murine sarcomas to RIL-2 immunotherapy *in vivo* and the sensitivity of these sarcomas to the cytolytic effect of RIL-2-activated spleen (LAK) cells *in vitro*. These results suggest that LAK cells represent the effector cell mechanism responsible for the anti-tumour efficacy of local RIL-2 immunotherapy, and that *in vitro* testing of sensitivity to LAK cell-mediated cytotoxicity may be used to detect tumours that will respond to IL-2 immunotherapy *in vivo*.

PURIFICATION OF A PHOSPHOTYROSINE PROTEIN PHOSPHATASE (PTP)

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It is now generally accepted that phosphorylation of proteins on tyrosine residues plays a fundamental role in growth regulation and oncogenesis. Many of the known oncogene products and growth factor receptors are associated with tyrosine protein kinase activity. To be of physiological significance, phosphorylation of tyrosine residues has to be reversible. A PTP activity capable of removing phosphate from tyrosine residues has been demonstrated by us and others. Of all the phosphatases known to dephosphorylate tyrosine residues, we concentrate on a membrane associated activity insensitive to EDTA/Fluoride which can be inhibited by micromolar amounts of Zn^{2+} or vanadate. The epidermal carcinoma cell line A431 was found to have high amounts of PTP activity and is being used as a source for purifying the enzyme. We are in the process of optimizing purification and recovery.

DIFFERENT GLYCOCONJUGATES ON HUMAN NORMAL AND TUMOUR TISSUES DEFINED BY THE MONOCLONAL ANTIBODY, MLuCl

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The monoclonal antibody (MAB) MLuCl