4.073

THE EXPRESSION OF Fc RECEPTORS ENHANCES TUMOR PROGRESSION

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Previously we demonstrated that cloned BALB/c 3T3 cells transformed in-vitro with polyoma virus (PyV) acquired a high tumorigenicity phenotype after a single in-vivo passage. We now present evidence that the in-vivo passaged cells expressed also an augmented metastatic phenotype as compared to their clonal ancestors which were maintained only in culture. The in-vivo passaged cells also acquired FcγRII expression. In order to test whether or not the "ectopic" expression of FcγRII confers upon non-lymphoid tumor cells an increased malignancy phenotype we transfected in-vitro transformed cells with the B1FcγRII gene. The results showed that cells transformed in-vitro with PyV or c-Ha ras and expressing a FcγRII transgene were significantly more tumorigenic and metastatic than similarly transformed, control transfectants.

4.074

PARAFFIN-EMBEDDED BONE MARROW BIOPSY IMMUNOPHENOTYPING IN PATIENTS WITH LYMPHOPROLIFERATIVE DISORDERS (LPD).

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Routinely processed bone marrow biopsies of 28 patients with B- and T-cell LPD and bone marrow disease were studied using the immunoperoxidase (PAP) method. Monoclonal and polyclonal antibodies applied were as follows: LN2 (CD74), L26(CD20cyt.), KiB3(CD45R), UCHL1(CD45RO), Leu7(CD57), anti-kappa, anti-lambda, anti-lysozyme.

The studies allowed: 1) the demonstration and (or) confirmation of monoclonal invasion of the bone marrow in 77% of B-LPD (17/22), 2) demonstration of B cell origin of the neoplastic lymphocytes and their phenotypic peculiariries, 3) determination of the T-LPD and quantitative assessment of the normal T cells in B-LPD and 4) clear-cut visualization of the residual elements of myelopoiesis in bone marrow.

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REGULATION OF TRANSCRIPTION OF THE rrg SUPPRESSION GENE BY v-Ha-ras: STRUCTURAL REQUIREMENTS AND THEIR RELATION TO TUMORIGENICITY.

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The continious search for oncogene suppressor genes which control the tumorigenic capacity of known oncogenes has led to the discovery of a new member of this family of genes, designated rrg, which was recently described by Contente et al.[1]. The expression of this gene in fibroblastoid cells strongly suppresses the carcinogenic capacity of the Ha-ras oncogene by a mechanism which is still undelineated. Using NIH 3T3 fibroblastoid cells transfected with the original v-Ha-ras gene mutated at strategic codons and inserted in the pSV2-neo expression vector, we have observed that although all of the fibroblastoid cell lines transfected by the different mutants produce high and stable levels of the p21 Ha-ras protein, only those mutants which preserve the capacity to induce the tumorigenic phenotype are capable of suppressing the transcription of the rrg gene. These data suggest that:

a. The rrg gene product is a pivotal factor involved in Ha-ras induced tumorigenicity.
b. The Ha-ras molecule regulates the transcription of rrg gene.
c. This regulation is strictly dependent on the integrity of strategic structural motifs in the Ha-ras molecule.

Our data thus provide new information as to the nature of the regulatory circuits involved in the control of neoplastic transformation processes induced by the Ha-ras oncogene which is the most frequently observed activated oncogene in human malignancies.

1. Contente, S., Kenyon, K., Rimoldi, D., Friedman, R.M. Science 249: 796-798 (1990).

4.076

THE N-CAM HOMOLOGOUS CD56 ANTIGEN IS INVOLVED IN TUMOR CELL BINDING TO HUMAN ENDOTHELIUM.

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The neural cell adhesion molecule N-CAM is an integral membrane glycoprotein which takes part in specific homo- and heterotypic interactions between neuron and astrocytes during development. Three distinct bands of 180, 140 and 120kD can be detected after SDS-PAGE. Both heavy chains have a transmembrane region and N-CAM 180 interacts with spectrin, whereas N-CAM 120 is covalently linked to the membrane via phosphatidylinositol. Recently, it has been reported that the N-CAM homologous CD56 lymphocyte antigen is expressed in regenerative neural cells and in tumors derived from neural and striated muscle cells in humans, suggesting a role of CD56 molecule as an oncodevelopmental antigen. Here we demonstrate that:

a) CD56 antigen is expressed on a variety of human solid tumors
b) fresh tumor cells and tumor cell lines bind to human endothelium
c) CD56 molecule is involved in tumor cell-endothelial cell binding
d) the function of CD56 as an adhesion molecule is related, at least in part, to the degree of sialylation.