AUTOMATIC BACTERIAL MUTAGENICITY ASSAY. K.Falck[1,2], P.Ekholm[2], E.Kaukanen[2], P.Partanen[2], O.Suovaniemi[2], M.Sorsa[1] and H.Vainio[1]. [1]Institute of Occupational Health, Haartmaninkatu 1, Helsinki, Finland; [2]Labsystems Oy, Pulttitie 8, Helsinki, Finland.

A new rapid automatic bacterial mutagenicity assay has been developed. The method is based on the use of the Salmonella typhimurium TA strains and the Escherichia coli WP strains. The test is carried out in liquid medium by an automatic analyzer.

Several chemicals (directly acting mutagens, premutagens requiring metabolic activation and non-mutagenic chemicals) have been tested for mutagenicity and it has been found that the new method can detect smaller amounts of chemical mutagens than the Ames test or the bacterial fluctuation test.

The new automatic mutagenicity test is faster than the conventional methods: the analyzer can perform the mutagenicity assays in less than 24 hr.

In addition to the mutagenicity of the sample, the new method can show whether the sample is toxic toward the indicator bacteria or whether the sample may contain growth-factor amino acids, so with this method it is also possible to detect samples that would otherwise give false negative or false positive results.

LACK OF MUTAGENICITY BY DOXORUBICIN, 4'-EPI-DOXORUBICIN AND 4'-DEOXYDOXORUBICIN IN HUMAN CELLS. A.M.Ferreri, A.Capucci, M.P.Grilli, P.Rocchi and P.Perocco. Istituto di Cancerologia, Università di Bologna, Bologna, Italy.

The mutagenic power of doxorubicin, 4'-epi-doxorubicin and 4'-deoxydoxorubicin has been tested in a human cell line (EUE). The cells were exposed to these compounds for 24 hr , at the following concentrations: doxorubicin (10^{-7}M, $5x10^{-7}$M, $5x10^{-8}$M), 4'-epi-doxorubicin (10^{-7}M, $5x10^{-8}$M, 10^{-8}M) and 4'-deoxydoxorubicin ($5x10^{-8}$M, 10^{-8}M, $5x10^{-9}$M). To assay the mutagenic action we used selection against diphtheria toxin, a protein synthesis inhibitor, at a dose of 0.05 Lf/ml (1). The mutagenic power of each drug tested was assayed after an expression time of 5 days: in all the experiments performed no mutagenicity was observed at any of the concentrations tested. Cytotoxicity assays revealed a clear toxic effect produced by the drugs tested.

(1) P.Rocchi, A.M.Ferreri, R.Borgia and G.Prodi, Carcinogenesis 1, 765 (1980).

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BIOCHEMICAL AND FUNCTIONAL CHARACTERIZATION OF SUBFRACTIONS OF NEONATAL MOUSE KERATINOCYTES. G.Fürstenberger[1], M.Gross[1], J.Schweizer[2], I. Vogt[1] and F.Marks[1]. Institutes of Biochemistry[1] and Experimental Pathology[2], German Cancer Research Center, D-6900 Heidelberg, F.R.G.

Neonatal mouse keratinocytes isolated by flotation trypsination of skin can be separated into 4 cell fractions (F_1-F_4) using discontinuous Percoll density centrifugation. The fractions were characterized by light microscopy, by immunofluorescence using BP-antigen by staining with fluorescein-labelled lectins (Bandeiraea simplicifolia and Ulex europaeus lectis) exhibiting specificity for surface carbohydrates of cells of different epidermal layers and by analysis of epidermal keratin patterns. As evidenced by these parameters, two basal cell fractions F_3 and F_4 were obtained exhibiting different growth characteristics when cultivated on plastic (4x MEM, 10% FCS at 34°C; plating efficiency 85-90% and 80-85%, respectively). Both fractions respond to the growth stimulatory effects of the tumour promoter TPA. The exclusive use of basal cells may be of help in studying the mechanisms of action of growth stimulating and tumour promoting agents.