DETECTION OF EXPOSURE TO STYRENE OXIDES USING MASS SPECTROMETRY

L.Ehrenberg and Siv Osterman-Golkar
Department of Radiobiology, University of Stockholm, S-106 91 Stockholm, Sweden

Because of long latency times in man and due to low statistical power, epidemiology is an inefficient tool to detect exposures to genotoxic agents. Experimentally established genotoxicity is a questionable basis of risk management because of difficulties in extrapolating from laboratory organisms to man and from experimental doses to current exposure levels. Therefore methods for monitoring genotoxic agents require improvements with regard to: early detection, high sensitivity (high "resolving power"), specificity to causative agent, ability to identify risk factors in mixed exposures, possibility of risk quantitation. These requirements can be shown to be fulfilled by monitoring electrophilic compounds or metabolites (i.e. most mutagens and cancer initiators) by means of their adducts with blood proteins from which the formation of adducts with DNA can be inferred, as a basis of risk estimation. Chemical determination of adducts is several orders of magnitude more sensitive than the observation of biological end-points. This method may be used for the monitoring of exposure to styrene.

FORMALDEHYDE AND ACETALDEHYDE AS INITIATORS OF CELL TRANSFORMATION. Per Eker and Tore Sanner, Department of Biochemistry and Department of Environmental and Occupational Cancer, NHIK, The Norwegian Radium Hospital, Oslo, Norway.

The ability of formaldehyde and acetaldehyde to initiate cell transformation has been studied in a transformation assay using the cell line HRRT derived from a hereditary renal rat tumour. The assay is based on attachment independant survival of transformed cells in aggregates.

Short treatment with single non-cytotoxic doses of formaldehyde and acetaldehyde did not affect survival of HRRT cells in the aggregate assay system. However, when aldehyde-treatment was followed by exposure of the cells to the tumour promoter TPA, a considerable increase in the number of viable cells was observed. On a molar basis, formaldehyde was about 100 times more effective than acetaldehyde.

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ALKALINE AND ACID PHOSPHATASE AND NADH-DIAPHORASE ACTIVITIES IN EXPLANTED HUMAN UROTHELIUM. M.E.El-Houssini, B.Christensen, H.Wolf and J. Kieler. Division of Environmental Carcinogenesis, The Fibiger Laboratory and Department of Urology, Hvidovre Hospital, Copenhagen, Denmark.

Alkaline phosphatase activity was measured in biopsies and cell lines from normal and malignant human urothelium. By histochemical techniques, 77% of biopsies of normal origin showed weak to moderate epithelial reactions, while only 13% of the biopsies derived from transitional cell carcinomas (TCC) showed a similar reaction. In established cell lines, cells of normal origin showed a stronger reaction than cells of TCC origin. The reaction of the latter correlated with the histological grade of the original explant, but not in all cases with the tumourigenicity of the cultured cells in nude mice. Biochemical studies confirmed the difference between cell lines of normal and TCC origin.

Histochemical studies of acid phosphatase and NADH-diaphorase activity of *in vitro* propagated cell lines failed to demonstrate any unambiguous difference between cell lines and TCC origin.