PATHOGENETIC CONSIDERATIONS ON NASAL CAVITY TUMOURS INDUCED BY TOBACCO SPECIFIC NITROSAMINES (TSNA) IN RATS. A.Rivenson, S.S.Hecht and D.Hoffman. American Health Foundation, Naylor-Dana Institute, Valhalla, NY 10595, U.S.A.

TSNA, the most powerful carcinogens in tobacco products, are formed during tobacco processing (0.7-80 ppm) and during smoking (0.45-9μg/cigarette). They induce a wide variety of benign and malignant tumours in the nasal cavity of Fisher 344 rats. Our studies indicate that after the administration of TSNA, benign tumours (squamous or transitional type papillomas, polyps, adenomas) develop earlier and with smaller doses. Malignant tumours (esthesioneuroepitheliomas, squamous-cell carcinomas, rhabdomyosarcomas, anaplastic carcinomas) have a longer latency and/or require larger doses of TSNA. With the exception of esthesioneuroepithelioma, the benign or malignant tumours of the nasal cavity can evolve in either respiratory or olfactory part of the mucosa. The tumours are, usually, multifocal and for a certain period of time, neoplasms of various types may coexist. However, at an advanced stage, malignant tumours invade and destroy the benign tumours the same way they destroy the normal tissue. The end stage is characterized by the dominance of only one type of malignant neoplasia (most commonly the esthesioneuroepithelioma) which packs the entire cavity and frequently also invades the brain or cheek area. Because the initial tumourous foci are of variable histologic types and randomly distributed in both olfactory and respiratory areas of the nasal mucosa, it is proper to admit that besides the receptivity of the "target" cells an additional factor must play a key role in the genesis of these tumours. One such factor, which is currently under study, is the particular type of blood circulation in the nasal mucosa. It is possible that due to the presence of the erectile vascular tissue in the nasal mucosa, a quantity of carcinogen is temporarily trapped in the engorged vessels and kept longer in contact with the mucosal cells. That may explain not only the unusually large number of tumours developed in the nasal cavity following the administration of TSNA but also the wide histologic variety of the nasal cavity tumours.

EFFECT OF VITAMIN A ACETATE ON MUTAGENESIS INDUCED BY ULTRAVIOLET LIGHT IN HUMAN CELLS
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The effect of vitamin A acetate on mutagenesis induced by ultraviolet (UV) light was examined in a human epithelial-like cell line (EUE), in order to investigate the anti-mutagenic activity of this drug using a damaging agent not requiring metabolic activation (1). Cultures were exposed to UV light at a dose of 3.5 J/m^2, irradiated cells were grown in medium with or without vitamin A 10^{-6}M, and mutation frequencies were determined by selection against diphtheria toxin. The frequency of diphtheria toxin resistant mutants induced by UV light was lower in cultures treated with vitamin A, showing a clear inhibitory effect of this drug on mutagenesis induced by UV irradiation.

(1) Rocchi *et al.*, Carcinogenesis 4, 245, 1983.

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RELATION BETWEEN MORPHOLOGICAL TRANSFORMATION AND ANCHORAGE INDEPENDENT GROWTH OF HAMSTER EMBRYO CELLS. Tore Sanner and Edgar Rivedal, Laboratory of Environmental and Occupational Cancer, NHIK, Norwegian Radium Hospital, Oslo, Norway.

Formation of morphologically transformed colonies and the ability to grow in semi-solid agar has been compared for 3 different cell lines from hamster embryo and for primary hamster embryo cells. By manipulating the growth conditions, transformed colony morphology and growth in agar could be induced for all cell types studied. Conditions that induced morphologically transformed colonies, also produce growing colonies in agar. One cell line and the primary cells needed the presence of the tumour promoter TPA for expression of transformed morphology and agar growth, while the two other cell lines produce both morphologically transformed colonies and growth in soft agar without any additions. The cells were dependent on foetal bovine serum in order to grow in soft agar and form morphologically transformed colonies except for one of the cell lines which produced a low number of agar growing colonies in newborn bovine serum. The data indicate a close relation between morphological transformation and growth in soft agar.

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