EARLY SEVERE SHOCK!

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The stathmokinetic method of measuring crypt cell production rate (CCPR) acurately assesses cell turnover in intestinal epithelium but ethical constraints limit its application in man. Organ culture might overcome this problem, although the exact cytokinetics of colorectal mucosa within this system have yet to be determined. We therefore studied 2 x 2 mm mucosal explants from the lower descending colon of male Sprague-Dawley rats (n=35), which were placed on still grids in culture dishes containing supportive medium and gently rocked in an atmosphere of 95% O_2, 5% CO_2. After 18 hr, vincristine (0.5 µg/ml) was added to the medium, and 6 sequential specimens were removed during the next 3 hr. A linear increase in metaphase arrests was observed with a CCPR of 4.78±0.41 cells/crypt/hr (means±S.E.M.). By contrast, in further experiments vincristine was added either ab initio or 3, 6 or 9 hr after the commencement of culture. During the first 5 hr of organ culture there was almost no increase in arrested metaphase figures per crypt (CCPR=0.03; $p<0.0001$). However, if 6 or 9 hr culture preceded addition of vincristine, CCPR was 4.01 and 4.06 respectively (p=n.s. vs 18 hr). Colorectal mucosa undergoes severe shock during the initial 5 hr of organ culture. A 6 to 9 hr period of culture yields satisfactory data on CCPR and could reflect original proliferative rates more closely than an 18 hr culture.

TOXICITY OF COMPOUNDS RELATED TO DENTAL MATERIALS IN CULTURED HUMAN BUCCAL CELLS

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Clinical reports have clearly associated different dental materials with pathological effects in buccal mucosa. Therefore in vitro models using cultured normal human buccal epithelial cells and fibroblasts have been developed. Adult human buccal mucosa, obtained from surgery, was either maintained in a serum-free growth medium to derive epithelial cells, or in a low-serum (0.6%) culture medium to derive fibroblasts.

The effects of several metal-ions corresponding to metals commonly used in dental materials were investigated. The doses required to decrease the colony forming efficiency (CFE) of fibroblasts to 50% after 1 hr exposure were: Hg(II), 1 µM; Ni)II), 1 µM; Cr(VI), 1µM; Cd(II), 3 µM; Cr(III), 100 µM; and Co(II), 300 µM. Formaldehyde, a reactive compound known to be released from denture base polymers, was also found to decrease CFE of fibroblasts; a 50% inhibition was found at 30 µM. Preliminary experiments indicate that individually these agents were equally toxic to buccal epithelial cells grown at clonal density. The results show that different cultured human buccal cell types can be grown and used for studying pathobiological effects of dental materials.

HUMORAL ENHANCEMENT OF METASTASIS : IgG BINDING BY TUMOUR-BEARER T LYMPHOCYTES AND CONCURRENT CHANGES IN HELPER/SUPPRESSOR RATIOS

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Using the RT7-4b hepatocarcinoma of the inbred BD-IV rat, we have previously shown that metastasis can be enhanced using the IgG2b fraction of tumour-bearer serum. Flow cytometric analyses of lymphocytes from tumour bearing, serum enhanced tumour-bearing, and naive rats revealed that IgG from tumour-bearer serum bound to a subset of T lymphocytes. PBLs from serum enhanced tumour-bearing rats bound predominantly the IgG2b isotype (74% T cells exhibiting this isotype specific fluorescence) and this binding was saturated in vivo. Tumour-bearer T splenocytes, sorted on their IgG binding parameters, enhanced metastasis (approximately 2-fold) in the lung colony assay. As well as the additional macrometastases, numerous micro-metastasis were seen in the enhanced rats. During the development of metastasis, helper:suppressor T cell ratios fell progressively, being most rapid for PBLs and serum enhanced animals. Suppressor cells appear to be involved in humoral enhancement of metastasis.

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THE EFFECT OF HYROXYUREA ON GENE AMPLIFICATION IN HUMAN NEUROBLASTOMA CHP-100 CELLS

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Evidence exists to suggest that