Cytokeratin expression patterns in benign lesions of the vocal cords


The cytokeratin expression patterns of 12 benign lesions of the larynx and the adjacent mucosa were studied. Intermediate filament proteins are major components of the cytoskeleton. The largest subgroup of these proteins are formed by the cytokeratins, which are specific for epithelia. In man, 20 different cytokeratin polypeptides have been identified. The individual cytokeratins are related to the different types of epithelial differentiation. Cytokeratins 1 and 10 expression are observed in keratinizing epithelia. The expression of the simple cell-related cytokeratins 7, 8, 18 and 19 are seen in the simple and complex epithelia. The stratification cytokeratins 4 and 13 are expressed in the non-keratinizing stratified epithelia. Cytokeratins 5 and 14 are the basal cell markers. Cytokeratins 6, 16 and 17 are associated with hyperproliferation. In benign lesions a shift in cytokeratin expression patterns is observed. The expression of cytokeratin 10 in hyperkeratotic lesions is seen. A decrease of the stratification markers cytokeratins 4 and 13 and an increased expression of the basal cell markers cytokeratins 5 and 14 and the hyperproliferative markers cytokeratins 6 and 16 is observed in the hyperplastic and hyper-keratotic lesions. An increase in the expression of cytokeratin 19 is seen in epithelial hyperplasia. The simple cytokeratins 7, 8 and 18 are not expressed. These findings differ from those established in squamous cell carcinomas, where the markers of simple cell epithelia cytokeratins 7, 8 and 18 show an increased expression.

Squamous cell-specific reverse-transcriptase-polymerase chain reaction for the detection of disseminated tumour cells in head and neck cancer patients

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We are focusing on the use of squamous cell carcinoma-associate antigens and monoclonal antibodies (MAbs) for the detection and treatment of head and neck squamous cell carcinoma. To this end we developed MAb E48. Reactivity of MAb E48 is restricted to normal squamous epithelia and their malignant counterparts. Recently, the cDNA encoding the MAb E48 defined antigen was cloned and the gene structure elucidated. On the basis of this molecular information intron spanning primers were selected and evaluated in reverse transcriptase polymerase chain reactions (RT-PCR) for their potential to detect single squamous cancer cells in peripheral blood. E48 RT-PCR in combination with Southern blot hybridization on 30 peripheral blood samples obtained from different healthy donors was negative. We evaluated the sensitivity and specificity of the E48 RT-PCR for tumour detection by seeding single cells of the E48-positive HNSCC cell line UM-SCC-22A in the peripheral blood of healthy volunteers by micromanipulation. E48 RT-PCR on 7 ml blood samples (containing $\pm 10^7$ nucleated blood cells) to which 25, 5, or just one tumour cell was added, gave positive results. When to four out of eight samples one single tumour cell was added, three positive samples could be identified. The procedure will be applied for the detection of tumour cells in lymph nodes, peripheral blood and bone marrow of patients with head and neck cancer.