

Role of Alpha Smooth Muscle Actin in Oral Squamous Cell Carcinoma Progression

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Abstract

: Squamous cell carcinoma (SCC) is the most common type of oral cancer. Malignant epithelial cells undergo cytological changes by a process referred to as epithelial mesenchymal transition (EMT). The cancer associated fibroblasts (CAFs) in the tumor micro-environment are now the focus of intense research and are believed to correlate with poor prognosis. They are characterized by alpha smooth muscle actin (SMA) expression, which is a myofibroblastic marker. Physiologically myofibroblasts are not as abundant as fibroblasts in the oral cavity, they have limited locations such as blood vessels walls in the oral mucosa. Aim: evaluation of the potential role of SMA in the progression of SCC. Materials and methods: qRT-PCR was performed to evaluate SMA gene expression in tongue SCC cell line (SCC 25), normal fibroblasts cell line (Wi-38) and in a coculture of both cells. Qualitative and quantitative immunohistochemical analysis of SMA expression with clinico-pathological correlations was performed for 24 SCC specimens of different grades. Results: qRT-PCR results showed that there was SMA expression in the epithelial cells, and that co-culturing resulted in an overall increase in SMA expression. Immunohistochemical evaluation of the specimens revealed that the expression of SMA increased with tumor grade and correlated with lymph node involvement. Conclusion: SMA can be used as a prognostic marker and a potential target for cancer therapy.

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