

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

Hala Elkammar ,nermine samy afifi

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 (α -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 α -SMA in the progression of SCC. Materials and methods: qRT-PCR was performed to evaluate α -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 α -SMA expression with clinico-pathological correlations was performed for 24 SCC specimens of different grades. Results: qRT-PCR results showed that there was α -SMA expression in the epithelial cells, and that co-culturing resulted in an overall increase in α -SMA expression. Immunohistochemical evaluation of the specimens revealed that the expression of α -SMA increased with tumor grade and correlated with lymph node involvement. Conclusion: α -SMA can be used as a prognostic marker and a potential target for cancer therapy.

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