Characterizing Differences in Growth and Invasion Between Epithelial and Mesenchymal Cell Lines in Oral Cavity Squamous Cell Carcinoma

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Oral cavity squamous cell carcinoma (OCSCC) is an aggressive and life-changing disease affecting ~55,000 patients in the United States yearly. Treatment of this cancer involves radical surgery followed by adjuvant therapies, like radiation and chemotherapy. Despite treatment, up to 35% of oral cavity cancers will recur at the primary site and/or in nearby lymph nodes. Epithelial-mesenchymal transition is a process in cancer biology, where epithelial cells adopt mesenchymal characteristics, becoming more aggressive and motile. The focus of this research is to better characterize the epithelial-mesenchymal transition in OCSCC, and its impact on a tumor aggressiveness and growth. Three populations derived from the SCC-9 oral tongue cell line (parental, epithelial, and mesenchymal) were tested across a variety of metrics to determine their growth rates and invasion. Contrary to literature on other tumor types, these results indicated that not only was the epithelial cell line faster growing, it was more invasive than the mesenchymal cell line. In the future, understanding the epithelial to mesenchymal transition in OCSCC may inform targeted patient care, as researchers will be able to risk stratify which tumors are more likely to recur and should receive even more aggressive initial treatment and long-term surveillance.

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