**Epithelial-to-Mesenchymal Transition in Oral Squamous Cell Carcinoma: Cell model for Potential Use in Anti-Cancer Therapies**

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**Abstract**

Epithelial-to-mesenchymal transition (EMT) is a process involving loss of intercellular adhesion, acquisition of a mesenchymal phenotype and enhanced migratory potential. This process involves the acquisition of metastasis and chemotherapeutic resistance, which may cause failure during therapy in oral cancer patients. The aim of this study investigates EMT characteristics and the responsiveness to chemotherapy treatment of the two distinct phenotypes of oral squamous cell carcinoma (CLS-354) with epithelial (ECLS) and mesenchymal-like (MCLS) phenotypes. MCLS cells lacked of cell-surface protein E-cadherin with concomitant gained of cytoskeletal protein vimentin, while ECLS cells displayed opposite characteristics to those observed in MCLS cells. K18 was completely lost in MCLS cells but markedly expressed in ECLS cells. The acquisition of EMT properties found in MCLS cells was concomitant with higher invasive activity of these cells. To address these two phenotypic cells with the resistance to standard chemotherapy, two standard drugs, cisplatin and camptothecin were investigated. MCLS cells displayed much lower response to both anticancer drugs than did ECLS cells. The IC50 values of cisplatin-treated MCLS cells and ECLS cells were 31.67±1.76 and 16.33±2.08 M, respectively. For camptothecin treatment, the IC50 values were > 1.0 and 0.215±0.034 M in MCLS and ECLS cells, respectively. The results indicate that MCLS cells were more resistant to the common chemotherapeutic drugs in comparison to ECLS cells. Thus, the intimate relationship between the EMT property and drug response in oral squamous cell carcinoma can provide the beneficial knowledge for focusing and treatment of this type of aggressive cancer.

**Keywords**

EMT, human oral squamous cell carcinoma, drug response, cisplatin, camptothecin

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