Aim: Human DEK gene on chromosome 6p encodes a 43kD nuclear phosphoprotein that was originally identified as part of a fusion protein found in a subset of acute myeloid leukemia carrying a t(6;9) translocation. According to several in vitro studies, DEK overexpression may play a role in tumor development through suppressing cellular senescence, apoptosis, and differentiation, which result in promoting cell growth and survival. Although DEK upregulation has been described in a number of human malignancies and was significantly associated with high histologic grade, lymph node metastasis and/or advanced clinical stage, no previous report has evaluated the expression of DEK protein and its clinical significance in oral squamous cell carcinoma (OSCC). Our aims were to determine DEK expression in tissue samples of normal oral mucosa and OSCC by immunohistochemistry, to analyze the correlation between DEK expression and clinicopathologic parameters, and to evaluate the value of DEK as a predictive marker for clinical outcome in OSCC.

Methods: Ten normal oral mucosa samples and 60 OSCC samples were studied by immunohistochemistry. The immunostaining for DEK was scored as 0 (no or < 5% positive cells), 1 (5-25% positive cells), 2 (26-50% positive cells) or 3 (>50% positive cells). Cases with a score ≥ 2 were defined as high expression. Correlation between DEK expression and clinicopathological parameters were analyzed by χ² test and Fisher’s exact tests. The survival rates were calculated using the Kaplan-Meier method and analyzed using the log-rank test. P < 0.05 was considered statistically significant.

Results: High expression of DEK protein (score ≥ 2) was found in 68.3% of OSCC cases. Statistical analysis revealed that DEK overexpression in OSCC was positively correlated with high histologic grade (p = 0.001), lymph node metastasis (p = 0.003), and advanced clinical stage (p = 0.039). In the Kaplan-Meier survival analysis, DEK overexpression was significantly associated with decreased overall survival in patients with OSCC (p = 0.019).

Conclusions: We demonstrated the clinical significance of DEK overexpression in OSCC tissue samples. DEK overexpression correlated with worse clinical outcome of patients with OSCC. Therefore, our results suggest that DEK overexpression may be a reliable marker to predict the clinical outcome in OSCC.

Disclosure: All authors have declared no conflicts of interest.