Functional role of matrix metalloproteinase-28 in the oral squamous cell carcinoma.

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Abstract

The newly identified MMP-28 has been shown to be expressed in several types of carcinomas, however, its functional role in transformation events is unknown. This study was to assess whether this proteinase plays a role in oral tumor malignancy. By using RT-PCR, we found that expression of MMP-28 was significantly higher in 92 oral squamous cell carcinomas (OSCCs) (52/92, 56.5%) than in seven oral premalignant lesions (OPMLs) (0/7, 0%) (P=0.004). No statistically significant correlation was found between MMP-28 expression and tumor stage, thickness, size, and metastasis. Both mRNA and protein of MMP-28 were preferentially concentrated in OSCC specimens than in neighboring tissues as analyzed by semi-quantitative RT-PCR (P=0.015) and immunohistochemistry, respectively. Transfection of OSCC and esophageal carcinoma cell lines with MMP-28 antisense oligodeoxynucleotide (AODN) resulted in the reduced secretion of MMP-28 protein and the ability of colony formation in soft agar without affecting cell growth. Our findings show the close correlation between MMP-28 and OSCC, and support a role for MMP-28 in the anchorage-independent growth of both OSCC and esophageal carcinomas.