

The Amplified *WWP1* Gene is a Potential Molecular Target in Oral Squamous Cell Carcinoma

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The mortality of oral squamous cell carcinoma (OSCC) is one of the ten leading causes of cancer deaths in Taiwan. Environmental carcinogens such as betel quid chewing, tobacco smoking and alcohol drinking have been identified as major risk factors for OSCC. Our laboratory has found that WW domain containing E3 ubiquitin protein ligase 1 (*WWP1*) overexpressed in OSCC due to gene amplification. *WWP1* belongs to the C2-WW-HECT type E3 family, and the involvement of the HECT-type E3s in crucial signaling pathways implicates in tumorigenesis. The amplification and overexpression of *WWP1* was also found in prostate cancer and breast cancer. Knockdown of *WWP1* suppressed cell proliferation and induced apoptosis. These findings suggest an oncogenic role of *WWP1* in carcinogenesis. In this study, we investigated the functional roles of *WWP1* in OSCC with RNA interference using VSV-G pseudotyped lentivirus system. To verify the RNAi-induced expression, we examined *WWP1* mRNA and protein expression by real time RT-PCR and Western blotting. Inhibition of cell growth was examined by trypan blue counting and MTT assay. The effects on cell cycle phase and apoptosis were determined by flow cytometry. Our findings showed that knockdown of *WWP1* would cause cell cycle arrest in S phase and induce apoptosis in OSCC cell line. These results suggest that genomic aberrations of *WWP1* may contribute to the pathogenesis of OSCC.