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Wnt1-induced MAFK expression promotes osteosarcoma cell proliferation

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ABSTRACT. Osteosarcoma is one of the most common primary bone tumors in children and young adults. In this study, we investigated the role of musculoaponeurotic fibrosarcoma oncogene homolog K (MAFK) in osteosarcoma cell proliferation *in vitro* and the possible pathways that contributed to MAFK-related osteosarcoma development. We first reported that *MAFK* was expressed at low levels in an osteosarcoma cell line. Furthermore, a significant correlation between MAFK and the Wnt signaling pathway was observed in osteosarcoma by using a gene microarray assay. We found that expression of MAFK could be induced by Wnt1 in a dose-dependent manner. Furthermore, Wnt1-induced MAFK expression caused a significant increase of cell viability, whereas a Wnt pathway inhibitor, IWR-1-endo, abolished Wnt1-induced effects on MAFK. Finally, cell cycle analysis showed that enhanced cell proliferation might be attributed to re-distribution of the cell cycle. Together, our results suggested that Wnt1-induced MAFK expression promoted cell proliferation in MG63 cells, and that the role of MAFK in osteosarcoma might be closely linked to the Wnt signaling pathway.

Key words: Wnt; MAFK; Osteosarcoma; Proliferation

