Regulatory role of microRNA184 in osteosarcoma cells

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ABSTRACT. Osteosarcoma is a highly malignant cancer that often appears in teenagers. It is the most frequently occurring primary bone tumor, and can easily metastasize, resulting in high mortality. MicroRNAs express abnormally in osteosarcoma, and may function as oncogenes or tumor suppressors. Recent studies showed that microRNA184 (miR-184) is abnormally expressed in multiple tumors, and is involved in tumor cell growth, differentiation, invasion, and metastasis. Nevertheless, the role of miR-184 in osteosarcoma cells remains unknown. We evaluated the expression and function of microRNA184 in osteosarcoma cells. SOSP-M osteosarcoma cells were divided into normal control, miR-184 mimic, and miR-184 inhibitor groups. Real-time PCR was applied to detect miR-184 expression. The 3-(4,5-dimethylthaizol-2-yl)-2,5-diphenyltetrazolium bromide assay was used to evaluate cell proliferation. Transwell assays were performed to detect changes in cell invasion ability. Compared with the control group, miR-184 expression was significantly increased in the miR-184 mimic group ($P < 0.05$). After miR-184 inhibitor transfection, miR-

184 expression was obviously reduced ($P < 0.05$). Tumor cell proliferation was enhanced in the miR-184 mimic group ($P < 0.05$), whereas miR-184 inhibition suppressed cell proliferation ($P < 0.05$). Furthermore, tumor cell invasion increased after miR-184 mimic transfection ($P < 0.05$), and decreased after inhibiting miR-184 ($P < 0.05$). MiR-184 promotes tumor cell proliferation and invasion, and may represent a new biological target for osteosarcoma.

Key words: miR-184; Osteosarcoma; Proliferation; Invasion

