MMP-9 targeted by hsa-miR-494 promotes silybin-inhibited osteosarcoma

Tianhao Sun, Frankie Leung and **William W Lu**
University of Hong Kong, China

Osteosarcoma (OS) is the most common malignant tumor that develops in bone. Its mortality is very high. Therefore, study of mechanisms of pathogenesis of the OS is urgently required. Previous studies of microarray showed that the expression levels of matrix metallopeptidase 9 (MMP-9) altered significantly in OS. In addition, overexpression of MMP-9 is recognized as an indicator in cancer. However, the exact roles of MMP-9 in OS are not fully investigated. Thus, we firstly studied the roles of MMP-9 in OS and revealed that silence of MMP-9 inhibited OS cell proliferation as determined by MTT assay and colony formation assay. Secondly, we conducted TUNEL assay and found loss of functions of MMP-9 induced OS cell apoptosis. Next, we used lentivector packaging method to overexpress MMP-9 and found that overexpression of MMP-9 promoted OS cell migration. Fourthly, the results of luciferase assay showed that MMP-9 was targeted by hsa-miR-494, which inhibited OS. Fifthly, we revealed that the levels of hsa-miR-494 were upregulated by the drug silybin which inhibited OS cell proliferation. Finally, we revealed that silybin inhibited OS cell viability by altering the protein levels of β-catenin and Runt-related transcription factor 2 (RUNX2) as determined by western blot and immunocytochemistry (ICC).

e: sunmishu@126.com