論 文 要 旨

Downregulation of microRNA-1274a induces cell apoptosis through regulation of BMPR1B in clear cell renal cell carcinoma

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Our previous studies of the microRNA (miRNA) expression signature in clear cell renal cell carcinoma (ccRCC) indicated that miRNA-1274a (miR-1274a) was significantly upregulated in clinical specimens, suggesting that miR-1274a may act as an oncogenic miRNA in ccRCC. The aim of this study was to investigate the functional roles of miR-1274a and identify downstream tumor-suppressive targets regulated by miR-1274a in ccRCC cells. Functional studies of miR-1274a were carried out by anti-miRNA to investigate cell proliferation and apoptosis using the A498, ACHN and Caki1 ccRCC cell lines. Suppression of miR-1274a significantly inhibited cancer cell proliferation and induced apoptosis in the ccRCC cells. Gene expression data combined with in silico analysis and luciferase reporter assays demonstrated that bone morphogenetic protein receptor type 1B(BMPR1B) was directly regulated by miR-1274a. Moreover, TCGA database as well as immunohistochemistry demonstrated low expression of BMPR1B in ccRCC clinical specimens cared to that in normal kidney tissues. We conclude that loss of oncogenic miR-1274a reduced cancer cell proliferation and induced apoptosis in ccRCC through targeting BMPR1B. Our data revealing molecular pathways and a target gene regulated by oncogenic miR-1274a provide new insight into the potential mechanisms of ccRCC oncogenesis.