

RIOK2

RIOK2 is a member of RIO (right open reading frame) kinase family. Recent studies have revealed the involvement of RIO kinases in glioma cell growth and expansion. However, the role and mechanism of RIOK2 in glioma cell migration and invasion remain unclear. Wound healing assay, Transwell assay and real-time quantitative PCR (qRT-PCR) detection of matrix metalloproteinases (MMPs) were used to evaluate the migration/invasion of glioma cells. Western blot and qRT-PCR were employed to measure the expression of epithelial-mesenchymal transition (EMT) markers. Dual luciferase reporter assay was performed to determine the binding between RIOK2 and miR-4744. In addition, RIOK2 and miR-4744 levels were quantified by qRT-PCR and/or immunohistochemistry in glioma tissues. Transfection of RIOK2 siRNAs significantly inhibited glioma cell migration and invasion and down-regulated the expression of MMPs (MMP2 and MMP9) and mesenchymal markers (N-cadherin, β -catenin, Twist1, fibronectin, ZEB-1) in glioma cells. Overexpression of RIOK2 showed the opposite effects. MiR-4744 directly bound to the 3'-untranslated region of RIOK2 and negatively regulated the expression of RIOK2. Up-regulation of miR-4744 inhibited the migration and invasion of glioma cells. Overexpression of RIOK2 could reverse the effects of miR-4744 up-regulation on the migration, invasion and EMT process in glioma cells. Moreover, RIOK2 was high, while miR-4744 was low in glioma tissues, and a negative correlation was found between them. These results suggest that RIOK2 is post-transcriptionally targeted by miR-4744, the low miR-4744 and high RIOK2 levels in glioma may contribute to tumour cell infiltration through promoting the EMT ¹⁾.

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Song Y, Li C, Jin L, Xing J, Sha Z, Zhang T, Ji D, Yu R, Gao S. RIOK2 is negatively regulated by miR-4744 and promotes glioma cell migration/invasion through epithelial-mesenchymal transition. *J Cell Mol Med*. 2020 Mar 3. doi: 10.1111/jcmm.15107. [Epub ahead of print] PubMed PMID: 32125767.

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