Mir 489

The Glioblastoma cells were isolated and cultured in vitro, and then transfected with miR-489 inhibitor, miR-489 mimics and miR-negative control (NC) or TWIST1-small interfering RNA (siRNA) and TWIST1-NC. The expression levels of miR-489 and TWIST1 gene in the cells were measured via quantitative reverse transcription-polymerase chain reaction (qRT-PCR), and the proliferative capacity of cells in each group was detected by cell counting kit-8 (CCK-8) assay. Besides, the target gene TWIST1 of miR-489 was predicted to construct the luciferase reporter gene vectors of TWIST1 containing miR-489 target sites.

Results: The expression level of miR-489 in Glioblastoma tissues and Glioblastoma cells isolated and cultured in vitro was remarkably lower than that in normal tissues and cells ($p<0.01$). The proliferative capacity of Glioblastoma cells was enhanced notably after inhibiting the expression of miR-489 ($p<0.01$), while it was obviously weakened by overexpressed miR-489 or TWIST1-siRNA ($p<0.01$). Moreover, the apoptosis rate was increased from 2.3±0.4% to 19.6±1.2% following miR-489 overexpression. TWIST1-siRNA could markedly down-regulate the expression level of TWIST1 ($p<0.01$) but evidently up-regulate the protein expression levels of Caspase-3 and Caspase-8 ($p<0.01$). The results of luciferase reporter assay manifested that miR-489 mimics significantly repressed TWIST1 ($p<0.01$).

MiR-489 can repress the proliferation and promote the apoptosis of glioma cells by targeting TWIST1 [1)].

Xu et al. identified miR 489 as a direct target of ENST01108 and ENST01108 negatively regulate miR-489 by act as a sponge. SIK1 is verified as the direct target of miR-489 and it is negatively regulated by miR-489. ENST01108 also positively regulate SIKI and it promotes SIKI expression by suppressing miR-489. Taken together, the reciprocal repression of ENST011081 and miR-489 may be served as potential targets for cancer therapeutics in glioma [2)].

1)
Xiao F, Fan W, Huang X, Fang Z, Zheng X. MiR-489 inhibits proliferation and apoptosis of glioblastoma multiforme cells via regulating TWIST1 expression. J BUON. 2020 Nov-Dec;25(6):2592-2599. PMID: 33455101.

2)
Xu D, Liu R, Meng L, Zhang Y, Lu G, Ma P. Long non-coding RNA ENST01108 promotes carcinogenesis of glioma by acting as a molecular sponge to modulate miR-489. Biomed Pharmacother. 2018 Feb 5;100:20-28. doi: 10.1016/j.biopha.2018.01.126. [Epub ahead of print] PubMed PMID: 29421578.