

miR 144

The [transferrin](#) receptor is a [membrane glycoprotein](#) whose only clearly defined function is to mediate cellular uptake of [iron](#) from a plasma glycoprotein, transferrin.

Glioblastoma (Glioblastoma) remains the most common and malignant tumor of the human central nervous system. Increasing evidence has highlighted that tumor cells with high [transferrin receptor](#) (TFRC) expression show advantages in growth. [Long non-coding RNAs \(lncRNAs\)](#) are related to [glioma progression](#) by mediating [microRNAs \(MicroRNAs\)](#). However, the underlying mechanism among TFRC, MicroRNA and lncRNA in Glioblastoma is limited.

Ma et al. identified a new lncRNA-induced signaling mechanism that regulates the [transferrin receptor](#) (TFRC) levels in Glioblastoma (Glioblastoma). The TFRC level was higher in [glioma cell lines](#), and elevated TFRC expression promoted the proliferation and survival of [glioma cells](#). Further study showed that hsa-miR 144a-3p bound to the 3'-UTR of TFRC mRNA and inhibited its expression, preventing the malignant properties of glioma cells, such as [proliferation](#) and [survival](#). They also found that the lncRNA RP1-86C11.7 sponges hsa-miR-144-3p to suppress its protective role in [glioma](#). RP1-86C11.7 overexpression in glioma cells elevated TFRC expression, increased the intracellular free [iron](#) level, and deteriorated [oncogenicity](#), with a significant reduction in hsa-miR-144-3p. By contrast, silencing RP1-86C11.7 upregulated the hsa-miR-144-3p level, resulting in decreased TFRC expression and repressed glioma progression. However, the effect of silencing RP1-86C11.7 was reversed with simultaneous hsa-miR-144-3p inhibitor treatment: the TFRC level, intracellular iron level and proliferation in glioma cells increased. Mechanistically, this data indicated that RP1-86C11.7 exacerbates the malignant behavior of glioma through the hsa-miR-144-3p/TFRC axis. RP1-86C11.7 may be a potential [biomarker](#) or target to treat glioma in the future ¹⁾.

Thirteen MicroRNAs including miR-125b-1 were downregulated, while only 4 MicroRNAs including miR-144 were upregulated in Gli1 high expression group. In summary, our study presents a subset of MicroRNAs which target the Hh signaling pathway in Glioblastomas, and throws some light on the aberrant activation mechanism ²⁾

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Ma Q, Wang X, Li J. [LncRNA RP1-86C11.7](#) exacerbates the [glioma progression](#) and [oncogenicity](#) by [hsa-miR-144-3p/TFRC](#) signaling. Transl Oncol. 2021 Sep 24;14(12):101215. doi: 10.1016/j.tranon.2021.101215. Epub ahead of print. PMID: 34571345.

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Gu W, Shou J, Gu S, Sun B, Che X. Identifying hedgehog signaling specific microRNAs in glioblastomas. Int J Med Sci. 2014 Mar 21;11(5):488-93. doi: 10.7150/ijms.6764. PMID: 24688313; PMCID: PMC3970102.

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