## miR 588

MicroRNA-588 and its potential target Roundabout-directed receptor 1 (ROBO1) have been reported to promote tumor invasion and proliferation in diseases such as gastric, pancreatic, and hepatocellular carcinoma, while their function in GBM and response to hypoxic states remain elusive.

A microarray was leveraged to identify differentially expressed microRNAs in U251 glioma cells cultured under normoxic and hypoxic conditions. The expression of miR-588 was assessed using quantitative real-time PCR (qRT–PCR). Gain- and loss-of-function studies were used to evaluate the role of miR-588 under hypoxic and normoxic conditions. Cell invasion, migration, proliferation, and vasculogenic mimicry (VM) formation experiments were performed. The relationship between miR-588 and ROBO1 was confirmed using western blot and luciferase reporter assays. Intracranial xenograft tumor mouse models were used to study the function of miR-588 in vivo.

Results: The expression of miR-588 was significantly upregulated in hypoxic glioma cells relative to normoxic glioma cells. miR-588 inhibited the invasive, migratory, and VM-forming abilities of glioma cells in vitro and in vivo. Mechanistically, roundabout guidance receptor 1 (ROBO1) is a direct, functionally relevant target of miR-588 in glioma. ROBO1 knockdown suppressed the expression of matrix metallopeptidase 2 (MMP2) and matrix metallopeptidase 9 (MMP9), thereby inhibiting the invasive, migratory, and VM-forming abilities of glioma.

Conclusions: MiR-588 regulated the behaviors of hypoxic glioma cells by targeting ROBO1. miR-588 can be used as a prognostic marker for glioma and has potential implications in glioma gene therapy <sup>1)</sup>.

## 1)

Yu R, Zhao R, Sun X, Zhang Z, Wang S, Gao X, Sun Z, Xue H, Li G. MicroRNA-588 regulates the invasive, migratory and vasculogenic mimicry-forming abilities of hypoxic glioma cells by targeting ROBO1. Mol Biol Rep. 2022 Dec 2. doi: 10.1007/s11033-022-08063-z. Epub ahead of print. PMID: 36459288.

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