KNG1 (Kininogen 1) is a Protein Coding gene. Diseases associated with KNG1 include Angioedema, Hereditary, 6, and High Molecular Weight Kininogen Deficiency. Among its related pathways are “Agents Acting on the Renin-Angiotensin System Pathway, Pharmacodynamics” and GPCR downstream signaling. Gene Ontology (GO) annotations related to this gene include signaling receptor binding and cysteine-type endopeptidase inhibitor activity. An important paralog of this gene is HRG.

Since the inhibitory effect of KNG1 on glioma has been proved, this study further explores the regulation of the lncRNA/miRNA axis on KNG1 in glioma.

The miRNAs that target KNG1 and the lncRNA that target miR 942-5p were predicted by bioinformatics analysis and verified by experiments. The correlations between miR-942-5p and the survival of patients and between KNG1 and miR-942-5p were analyzed. After transfection, cell migration, invasion, proliferation, and cell cycle were detected through wound healing, Transwell, colony formation, and flow cytometry assays. A mouse subcutaneous xenotransplanted tumor model was established. The expressions of miR-942-5p, KNG1, LINC01018, and related genes were evaluated by quantitative real-time reverse transcription polymerase chain reaction (RT-qPCR), Western blot, or immunohistochemistry.

MiR-942-5p targeted KNG1, and LINC01018 sponged miR-942-5p. The high survival rate of patients was related to low miR-942-5p level. MiR-942-5p was highly expressed, whereas KNG1 was lowly expressed in glioma. MiR-942-5p was negatively correlated with KNG1. Silent LINC01018 or KNG1 and miR-942-5p mimic enhanced the migration, invasion, and proliferation of glioma cells, and regulated the expressions of metastasis-related and proliferation-related genes. LINC01018 knockdown and miR-942-5p mimic promoted glioma tumor growth in mice. The levels of miR-942-5p and KNG1 were decreased by LINC01018 knockdown, and LINC01018 expression was suppressed by miR-942-5p mimic. MiR-942-5p inhibitor, KNG1, and LINC01018 had the opposite effect to miR-942-5p mimic.

Conclusion: LINC01018/miR-942-5p/KNG1 pathway regulates the development of glioma cells in vitro and in vivo [1)].

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Xu J, Wang J, Zhao M, Li C, Hong S, Zhang J. LncRNA LINC01018/miR-942-5p/KNG1 axis regulates the malignant development of glioma in vitro and in vivo. CNS Neurosci Ther. 2022 Dec 22. doi: 10.1111/cns.14053. Epub ahead of print. PMID: 36550594.