



# The Prognostic Value and Biological Function of MicroRNA-491-5p for Gastric Cancer

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CCS-1 assay and transwell assay were performed. Furthermore, the un

**Results:** miR-491-5p was related with TNM stage. patients with high miR-491-5p had better prognosis. We found that high level of miR-491-5p caused a weak cell proliferation, migration and invasion abilities. In order to explore the role of miR-491-5p in vivo, we set a xenograft mouse model, and found that high level of miR-491-5p suppressed tumor growth. Moreover, we found that miR-491-5p regulate the tumor development thought regulate the expression of EMT (Epithelial-Mesenchymal Transition), cell adhesion genes and IFITM2.

**Conclusions:** miR491-5p is an important prognostic bio-marker, which can offer help for diagnosis and treat of GC patients, and miR-491-5p function as a tumor suppressor in GC both in vitro and in vivo.

: miR-491-5p; Gastric Cancer; EMT

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Gastric Cancer (GC) is an aggressive and deadly malignancy. Surgery and Endoscopic Mucosal Resection (EMR) with or without adjuvant systemic chemotherapy are the primary treatments for gastric cancer. Currently, there are no effective drugs for gastric cancer. Despite a steady decline in overall morbidity and mortality over the past few decades, most of patients diagnosed with GC are already in an advanced-stage so that the 5-year survival rate is less than 15%. Due to its high mortality and geographical distribution, gastric cancer has become an important public health problem in China. Therefore, it is urgent to further explore the gastric cancer progress and develop



Univariate analysis was performed for all variables, and then the variables of  $P < 0.05$  were selected for multivariate Cox regression analysis. The survival curves were analyzed by Kaplan-Meier method and compared by the log-rank test in each group. Download the target gene of miR-491-5p from ENCORI database <http://starbase.sysu.edu.cn/>, Enrichment analysis using GO and KEGG, implemented in R with the packages clusterProfiler, enrichplot and ggplot2,  $p < 0.05$  means meaningful. When  $* p < 0.05$ , we think it has statistical significance [7].

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Figure 1 showed the correlation between miR-491-5p with clinical characteristics, the level of miR-491-5p was related with TNM stage ( $p < 0.05$ ).

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Figure 2 K-M survival curve (supplementary) showed that patients with high miR-491-5p had better prognosis compared with low level of miR-491-5p, besides multivariate analysis got that TNM stage and miR-491-5p were independent risk factors of survival of gastric cancer patients.

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It has been reported that miR-491-5p is low expressed in gastric cancer, and perhaps function as a tumor suppressor. In order to find out the function of miR-491-5p in gastric cancer, we transfected miR-491-5p into AGS cells and then observed the change of cells proliferation and metastasis abilities. The results of MTT assay shows that the cells transfected with miR-491-5p mimics have a low cell activity than control. The inhibitor of miR-491-5p we named it ASO-miR-491-5p treated can increase the cell activity.

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