**Supplementary Materials**

****

**FigureS1 Expression level of MALAT1 is not affected by age or gender.**

1. Clinical information of the patients and healthy controls in this study.
2. Spearman’s correlation analysis was performed between age and MALAT1 expression levels in healthy controls (R2 = 0.0133, p = 0.3414).
3. Spearman’s correlation analysis was performed between gender and MALAT1 expression levels in gastric adenocarcinoma patients (R2 = 0.0024, p = 0.6871).
4. The MALAT1 expression levels in the serum of 70 gastric adenocarcinoma patients and 70 healthy control divided by gender were determined by qRT-PCR. Results were represented as mean ± S.D. and \*\*\* indicated p < 0.001.

****

**FigureS2. MALAT1 is up-regulated in gastric adenocarcinoma cell lines.**

The MALAT1 expression levels in immortalized normal gastric epithelial cell line GES-1 and RGM-1 and gastric adenocarcinoma cell line MGC-803 and NCI-N87 were determined by qRT-PCR. Results were represented as mean ± S.D. and n = 3 independent experiments. \*\* indicated p < 0.01, \*\*\* indicated p < 0.001 compared to GES-1 cell line.



**FigureS3 MALAT1 directly targets miR-181a-5p and miR-181a-5p directly targets AKT3 in MGC-803 cells.**

1. Dual-Reporter assay was used to determine whether MALAT1 directly targets the miR-181a-5p. The 3’ UTR of Firefly luciferase in pMIR plasmid was replaced by wild type or mutated miR-181a-5p and MALAT1 or the scramble lncRNA were transfected together with the luciferase plasmid into the MGC-803 cells. Renilla luciferase activity in pRL-CMV plasmid was used as the internal control. The Ratio of Firefly luciferase/ Renilla luciferase was used to determine the luciferase activity in different groups as indicated. Data were represented as mean ± s.d., n = 5 independent experiments. \*\*\* indicated p < 0.001.
2. The same assay was used to determine the direct interaction between miR-181a-5p and the 3’UTR of AKT3.