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ERp19 contributes to tumorigenicity in human gastric cancer by promoting cell growth, migration and invasion

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ERp19, a mammalian thioredoxin-like protein, plays a key role in defense against endoplasmic reticulum stress. It belongs to families of protein disulfide isomerase (PDI) whose members have been implicated in cancer development including breast cancer, ovarian cancer and gastrointestinal cancer. Recently, little is known regarding ERp19 function in gastric cancer (GC). Therefore, the aim of our study is to investigate the expression and prognostic value of ERp19 in GC patients and to explore the role of ERp19 in tumorigenicity. The expression of ERp19 in human GC tissues was detected by immunohistochemical staining and real-time PCR. Statistical analysis of clinical cases revealed that the expression levels of ERp19 were higher in tumor tissues compared with the non-tumor tissues. And the expression levels of ERp19 were correlated with tumor size, lymph node involvement and poor prognosis of GC patients. Furthermore, ERp19 knockdown dramatically suppressed gastric cancer cell growth, inhibited cell migration/invasion and downregulated the phosphorylation of FAK and paxillin. Whereas ERp19 over-expression did reversely. On the basis of these data, we indicated that ERp19 contributes to the tumorigenicity and metastasis via activation of the FAK signaling pathway, and may function as an oncogene in GC. In conclusion, ERp19 is expected to become a new diagnostic and prognostic marker and a novel target of the treatment of GC.