**High Expression of NF1 in Human Esophageal Squamous Cell Carcinoma Correlates with Tumor Metastasis and Poor Prognosis**

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**Abstract**

**Background** Neurofibromin 1 (NF1) is related to the occurrence and progression of neurofibromatosis type 1, juvenile myelomonocytic leukemia and Watson syndrome. However, its role in esophageal squamous cell carcinoma (ESCC) is unclear. This current study investigated the prognostic significance and biological functions of NF1 in ESCC.

**Methods** Gene Expression Profiling Interactive Analysis (GEPIA), and gene Expression Omnibus (GEO) were used to investigate NF1 expression in esophageal cancer. The relationship between NF1 expression and clinicopathological characteristics and patient survival was evaluated in GSE53625 dataset and tissue microarray (TMA) dataset based on immunohistochemistry. The impact of NF1 on the migration and invasion of cancer cells were investigated by wound-healing and transwell assays, respectively.

**Results** The expression of NF1 was obviously increased in ESCC tissues versus adjacent esophageal tissues according to online database analyses (*P*<0.05). High NF1 expression was closely related to several clinicopathological characteristics, including lymph node metastasis, and tumor-node-metastasis (TNM) stage. High NF1 expression was related to worse outcomes and was identifed as an independent prognostic factor of overall survival in ESCC patients (GSE53625 dataset, *P*=0.046; TMA dataset, *P*=0.001). Downregulation of NF1 expression can signifcantly reduce the migration and invasion ability of ESCC cells.

**Conclusion** NF1 is related to the migration and invasion of ESCC cells, and can be used as a potential biomarker to evaluate the prognosis of ESCC patients.

**Keywords** Esophageal squamous cell carcinoma, NF1, Prognosis