عنوان مقاله:

Comprehensive analysis of autophagy associated genes and immune infiltrates in cervical cancer

محل انتشار:

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خلاصه مقاله:

Objective(s): Cervical cancer (CC) is the most common gynecological malignant tumor and the fourth leading cause of cancer-related death in women. The progression of CC is significantly affected by autophagy. Our objective was to use bioinformatics analysis to explore the expression, prognostic significance, and immune infiltration of autophagy-related genes in CC. Materials and Methods: We identified a set of autophagy-related differentially expressed genes (ARDEGs) from The Cancer Genome Atlas (TCGA) and Gene Expression Omnibus (GEO) databases. ARDEGs were further validated by The Human Protein Atlas (HPA), GSE۵۲۹۰۳, and GSE۳۹۰۰۱ dataset. Hub genes were found by the STRING network and Cytoscape. We performed Gene Set Enrichment Analysis (GSEA), Gene ontology analysis (GO), Kyoto Encyclopedia of Genes and Genomes (KEGG) analysis, and immune infiltration analysis to further understand the functions of the hub genes. Kaplan-Meier (K-M) and receiver operating characteristic (ROC) were used to check the hub genes. Results: A total of ۱۰ up-regulated (CXCR۴, BAX, SPHK۱, EIF۲AK۲, TBK۱, TNFSF۱۰, ITGB۴, CDKN۲A, IL۲۴, and BIRC۵) and ۱۹ down-regulated (PINK۱, ATG۱۶L۲, ATG۴D, IKBKE, MLST۸, MAPK۳, ERBB۲, ULK۳, TP۵۳INP۲, MTMR۱۴, BNIP۳, FOS, CCL۲, FAS, CAPNS۱, HSPB۸, PTK۶, FKBP۱B , and DNAJB۱) ARDEGs were identified. The ARDEGs were enriched in cell growth, apoptosis, human papillomavirus infection, and cytokine-mediated. Then, we found that low expression of MAPK۳ was associated with poor prognosis in CC patients and was significantly enriched in immune pathways. In addition, the expression of MAPK۳ was significantly positively correlated with the infiltration levels of macrophages, B cells, mast cell activation, and cancer-associated fibroblasts. Furthermore, MAPK۳ was positively correlated with LGALS۹, and negatively correlated with CTLA۴ and CD۴۰. Conclusion: Our results show that MAPK۳ can be used as a new prognostic biomarker to predict the prognosis of patients with CC.

کلمات کلیدی:

Autophagy, Bioinformatics, Uterine Cervical Neoplasms, Immune Infiltrates, Mitogen-activated protein – kinase ۳

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