ESCO2

The establishment of sister chromatid cohesion N-acetyltransferase 2 (ESCO2) has an important regulatory effect on cell proliferation and division, which is closely related to the malignant process of glioma cells. Therefore, a study attempted to provide a target for biologically targeted therapy for low-grade glioma (LGG) by demonstrating the regulatory effect of ESCO2 during the pathological process of LGG. First, the 1064 samples of LGG transcriptomics data and corresponding clinicopathological information obtained from various databases were included in the study. Second, the chi-squared test showed that the expression of ESCO2 was associated with the malignant characteristics of LGG (recurrence and grade), and Kaplan Meier and multivariate analysis suggested that ESCO2 was an independent risk factor, resulting in a significant reduction in the overall duration of survival of patients. Third, co-expression analysis showed that the level of mRNA expression of ESCO2 was negatively regulated by multiple methylation sites (cg04108328, cg12564175, and cg26534677), and the hypermethylation status of cg12564175 could prolong the overall survival of patients. Fourth, the Tumor Immune Estimation Resource (TIMER) database shows that ESCO2 can have a positive regulatory relationship with six different immune cells, such as CD8 + T cells and macrophages, and a positive expression relationship with PD-1 and PD-L1. Finally, Gene Set Enrichment Analysis (GSEA) showed that ESCO2 may play a carcinogenic role by affecting cell replication and DNA repair. In summary, this study confirmed the carcinogenic effect of ESCO2 on LGG for the first time. It is speculated that both the mRNA of ESCO2 and its methylation site (cg12564175) can be useful biological targets for molecular targeted therapy of LGG [1].

see Targeted therapy in low-grade glioma

1)
Liu Z, Cheng X, Pang B, Wang S, Liu B, Cao C, Qian R, Liang W, Zhu Y, Li P, Gao Y. Effects of ESCO2 or its methylation on the prognosis, clinical characteristics, immune microenvironment, and pathogenesis of low-grade glioma. Int Immunopharmacol. 2022 Jan 7;104:108399. doi: 10.1016/j.intimp.2021.108399. Epub ahead of print. PMID: 35008004.