KIF4A

Kinesin superfamily protein 4 (KIF4), a KIF member classified in Kinesin 4 has been indicated as a mediator acted in the tumorigenesis of human cancer. The mechanism of KIF4A in glioma is yet to be investigated. Zhang et al. explored the potential function and mechanism of KIF4A in gliomas. They analyzed the KIF4A expression and the prognosis in glioma patients using The Cancer Genome Atlas (TCGA) databases. KIF4A levels in normal human astrocyte cell (NHA) and glioma cell lines were examined by Western blot. They studied the function of KIF4A on proliferation, migration, invasion, and cell cycle in glioma cell lines using a series of in vitro and in vivo experiments. Chromatin Immunoprecipitation (ChIP) analysis was applied to search potential KIF4A related downstream in glioma. They identified the significantly up-regulated expression of KIF4A both in glioma tissues and cells. Glioma patients with elevated KIF4A expression have shorter survival. Down-regulation of KIF4A exerted an inhibitory effect on cell proliferation, invasion, and migration.

Zhang et al crucially identified that KIF4A drives glioma growth by Rac1/Cdc42 transcriptional repressors to induce cytoskeletal remodeling in glioma cells. Knockdown of KIF4A decreased RohA, Rac1, Cdc42, Pak1 and Pak2 expression level. The study provided a prospect that KIF4A functions as an oncogene in glioma [1)].

1)
Zhang H, Meng S, Chu K, Chu S, Fan YC, Bai J, Yu ZQ. KIF4A drives glioma growth by transcriptional repression of Rac1/Cdc42 to induce cytoskeletal remodeling in glioma cells. J Cancer. 2022 Nov 21;13(15):3640-3651. doi: 10.7150/jca.77238. PMID: 36606197; PMCID: PMC9809311.