Transmembrane protein 60

The family of transmembrane proteins (TMEM) is a large family of genes that encode proteins closely related to the malicious behavior of tumors. Thus, it is necessary to explore the molecular and clinical characteristics of newly identified oncogenes, such as transmembrane protein 60 (TMEM60), to develop effective treating options for glioma. We used bioinformatic methods and basic experiments to verify the expression of transmembrane protein 60 in gliomas and its relationship with 1p and 19q (1p19q) status, isocitrate dehydrogenase (IDH) status, patient prognosis, and immune cell infiltration using public databases and clinical samples. In addition, Gene Ontology (GO) and Kyoto Encyclopedia of Genes and Genomes (KEGG) enrichment analyses were performed to detect co-expressed genes. Thus, we inhibited the expression of transmembrane protein 60 to observe the proliferation and activity of glioma LN229 cells. We found transmembrane protein 60 was significantly upregulated in glioma compared with that in normal brain tissue at the mRNA. In the subgroups of World Health Organization high grade, isocitrate dehydrogenase wildtype, 1p and 19q non-codeletion, or isocitrate dehydrogenase wild combined with 1p and 19q non-codeletion, the expression of transmembrane protein 60 increased, and the prognosis of glioma patients worsened. In the transmembrane protein 60 high expression group, infiltration of immune cells and stromal cells in the tumor microenvironment increased, tumor purity decreased, and immune cells and pathways were activated. The immune cells mainly included regulatory T-cell, gamma delta T-cell, macrophages M0, neutrophils, and CD8+ T-cells. Overexpression of co-inhibitory receptors (CTLA4, PDL1 and CD96) may promote the increase of depletion of T-cell, thus losing the anti-tumor function in the transmembrane protein 60 high expression group. Finally, we found that transmembrane protein 60 silencing weakened the viability, proliferation, and colony formation of glioma LN229 cells. This is the 0 report on the abnormally high expression of transmembrane protein 60 in glioma and its related clinical features, such as tumor microenvironment, immune response, tumor heterogeneity, and patient prognosis. We also found that transmembrane protein 60 silencing weakened the proliferation and colony formation of glioma LN229 cells. Thus, the new oncogene transmembrane protein 60 might be an effective therapeutic target for the clinical treatment of glioma [1)].

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Yang F, Zhang X, Wang X, Xue Y, Liu X. The new oncogene transmembrane protein 60 is a potential therapeutic target in glioma. Front Genet. 2023 Jan 20;13:1029270. doi: 10.3389/fgene.2022.1029270. PMID: 36744183; PMCID: PMC9895843.