FERMT3

FERMT3, also known as kindlin-3, is one of three kindlin family members expressed in mammals. Kindlins are cytosolic, adaptor proteins that are important activators and regulators of integrin function. They have also been shown to play critical roles in the development and progression of various cancers. In the present study, we hypothesized that FERMT3 would enhance glioblastoma multiforme (GBM) cell survival. Indeed, expression level analyses showed significant FERMT3 upregulation in human glioma tissues as compared to normal brain tissues. The effect was particularly pronounced in high-grade gliomas. We then demonstrated that FERMT3 knockdown suppresses glioma cell proliferation and chemoresistance to temozolomide (TMZ). To determine the mechanism by which FERMT3 enhances glioma cell proliferation and chemoresistance, we examined the effects of FERMT3 on integrin activation and Wnt/β-catenin signaling. Through the use of western blot assays and TOPflash and FOPflash plasmid transfection into glioma cells lines, we demonstrated that FERMT3 regulates glioma cell activity through integrin-mediated Wnt/β-catenin signaling. These results suggest that FERMT3 activates integrin activity in high-grade gliomas to enhance glioma cell survival and chemoresistance. The present study thus indicates a potential role for FERMT3 as a genetic target in the treatment of GBM [1].

1)
Lu C, Cui C, Liu B, Zou S, Song H, Tian H, Zhao J, Li Y. FERMT3 contributes to glioblastoma cell proliferation and chemoresistance to temozolomide through Integrin mediated Wnt signaling. Neurosci Lett. 2017 Aug 1. pii: S0304-3940(17)30629-8. doi: 10.1016/j.neulet.2017.07.057. [Epub ahead of print] PubMed PMID: 28778805.