An Ensemble Method for Ranking Cancers to Target KIF19

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The conventional use of current therapeutic approaches to treat metastatic cancers is limited. Kinesin Family 19 (KIF19) is a microtubule-associated protein involved in cell motility and has shown promise for an efficient treatment through siRNA-mediated inhibition. During this study, patient-derived databases were mined to identify the location and function of KIF19 as well as cancers exhibiting a high expression and a low patient survival rate to discover targetable KIF19 expressing cancers for siRNA inhibition. The reference of PubMed was significant in the understanding of the formation of cancer and the function of KIF19. Information from the Human Protein Atlas and R2 databases, indicating the staining of KIF19 in different tissues as well as Kaplan Meier graphs depicting the survival rate of cancer patients with a high expression of KIF19, was cross-referenced with the data accumulated from GeneCards to detect cancers that demonstrated the characteristics for potential targeting of KIF19 in such cancers. It was concluded that KIF19 appears in different intensities when comparing healthy and cancerous tissues. Based on the finding from the databases, Ovarian cancer (p=0.017), Tumor Ovarian Adenocarcinoma (p=0.06), and Melanoma cancer were identified as targets for inhibition due to the lack of KIF19 present in the surrounding tissues and low patient survival rate for high expressions of this protein. In the future, the targetable cancers will undergo siRNA-meditated inhibition in vitro. Insight into the mechanisms of action of KIF19 and its location will be vital for identifying protein targets for cancer prevention and its therapeutic purposes.

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