Public Abstract
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Title:ABERRANT DNA METHYLATION OF RUN DOMAIN CONTAINING 3B IN LYMPHOID MALIGNANCIES

Lymphoid malignancy is an umbrella term used to describe several types of leukemia and lymphomas. These diseases account for approximately 4% of all cancers cases. Lymphoid malignancies in precursor B cells are more prevalent in children; 75% cases occur in patients under 6 years of age. Heritable changes to DNA conformation can have significant impacts on gene expression without altering the DNA sequence. DNA methylation is one such modification. The RUN domain containing 3B gene (RUNDC3B) has been shown to be differentially expressed in cancer types such as, acute lymphoblastic leukemia. We sought to determine how DNA methylation of RUNDC3B could affect the expression of the gene and contribute to development of lymphoid malignancies. We were able to establish the methylation status of the promoter region of RUNDC3B and correlate this data with impacts on RUNDC3B expression. This analysis was completed in cell lines from lymphoid malignancies, myeloid malignancies, various solid tumor cancers, and healthy lymphoid cell lines to determine if our observations were characteristic of lymphoid malignancies. The lymphoid malignancy cell lines were found to have more methylation and express RUNDC3B at lower levels than other malignant and healthy lymphoid cell lines. DNA sequence analysis of the CGI in the RUNDC3B promoter (RUNDC3B CGI) was performed to support the importance of this region as a regulatory element. The results provide the basis for continued analysis of the role of RUNDC3B repression in the development of lymphoid malignancies.