

Gene-expression analysis identifies novel RBL2/p130

Abstract:

Burkitt lymphoma (BL) is a B-cell tumor whose characteristic gene aberration is the translocation t(8;14), which determines c-myc overexpression. Several genetic and epigenetic alterations other than c-myc overexpression have also been described in BL. It has been demonstrated that the RBL2/p130 gene, a member of the retinoblastoma family (pRbs), is mutated in BL cell lines and primary tumors. The aim of this study was to investigate the biologic effect of RBL2/p130 in BL cells and its possible role in lymphomagenesis. Therefore, we reintroduced a functional RBL2/p130 in BL cell lines where this gene was mutated. Our results demonstrated that RBL2/p130-transfected cells regain growth control. This suggests that RBL2/p130 may control the expression of several genes, which may be important for cell growth and viability. Gene-expression analysis revealed a modulation of several genes, including CGRRF1, RGS1, BTG1, TIA1, and PCDHA2, upon RBL2/p130 reintroduction. We then monitored their expression in primary tumors of endemic BL as well, demonstrating that their expression resembled those of the BL cell lines. In conclusion, these data suggest that, as RBL2/p130 modulates the expression of target genes, which are important for cell