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A cloning and functional study of MYB upstream lncRNA

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Abstract: The proto-oncogene MYB is an important transcription factor, which plays an important role in the proliferation and differentiation of hematopoietic cells. Although *MYB* has been well studied, the detailed mechanism of *MYB* regulation still remains unclear. The aim of this study is to explore the effects of a lncRNA, which was transcribed from the upstream region of *MYB,* on *MYB* expression and the proliferation of K562 cells. The full length of the above lncRNA was obtained by rapid amplification of cDNA ends (RACE). The effects of the lncRNA on the proliferation, invasion, and migration of K562 cells were examined in vitro using the Cell Counting Kit 8 (CCK8) and Transwell. The results indicated that the overexpression of the lncRNA promotes the mRNA and protein levels of the *MYB* gene in K562 cells, and knockdown of the lncRNA decreases the expression of *MYB*. In addition, lncRNA overexpression promotes the growth of K562 cells, and knockdown of the lncRNA significantly inhibits the proliferation, migration and invasion of K562 cells. Based on our data, we conclude that this lncRNA, which is transcribed by the upstream of the *MYB* gene, can be used as a molecular markers or target for tumor diagnosis and treatment, especially in leukemia. More specifically, the above lncRNA can be applied to the detection and treatment and modern drug development of leukemia, which has far-reaching clinical significance.

Key words: MYB, lncRNA, leukemia, proliferation, migration