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Quantification of The FLI1 Gene Expression By Real-Time Quantitative RT-PCR

Hakan SAVLI[1,2]
Sema SIRMA[2]
Uğur ÖZBEK[2]
[1]Department of Medical Biology, Faculty of Medicine, Kocaeli University, Kocaeli ,
[2]Department of Genetics, Institute for Experimental Medical Research (DETAE), İstanbul University, İstanbul - Turkey

Abstract: In this study, quantification levels were investigated to define alterations in the expression of the FLI1 gene on acute promyelocytic leukemia (APL), which is characterized by a reciprocal t(15,17) translocation of fusing the PML gene to the retinoic acid receptor alpha (RAR alpha) gene. The FLI1 gene plays an important role in several signal transduction pathways, and is involved in the normal regulation of myeloid hematopoiesis and leukomogenesis. We used the real-time quantitative RT-PCR (LightCycler) with SYBR Green I dye method for the labeling and analysis of the quantification of FLI1 gene RT-PCR products. Ribosomal protein S9 (RPS9) was used as an internal control for the normalization of the results. FLI1 gene levels were found up-regulated in two PMLRARA fusion gene positive APL patients compared to bone marrow samples from four healthy donors. To our knowledge, this study is the first attempt to quantify the FLI1 gene in APL patients by real-time RT-PCR. SYBR Green I dye detection and product verification by melting curve analysis is a rapid, sensitive and specific method to validate the expression of the FLI1 gene. Based on our findings, this method should be considered to be a successful approach to gene statement analysis. The possible correlation of high expression levels of FLI1 in APL pathogenesis remains to be established.

Key Words: Gene expression, FLI1, PML-RARA, Real Time RT-PCR

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