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Title: cDNA synthesis of the RNA of SRI gene in leukemia patient samples

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Abstract: Introduction: Multidrug resistance (MDR) is a major factor of treatment failure in various leukemias. The increase of expression of some genes such as SRI, that codes a 22KDa calcium-binding protein; namely Sorcin, in cancer cells may increase the possibility of MDR. Sorcin plays a fundamental role in emerging intra-cellular calcium homeostasis and causing drug resistance in various cancers through regulating the expression and functions of some apoptotic factors and P-gp. The study of the expression changes of Sorcin in cancer cells may help improving treatment of MDR. The main objective of this research is RNA extraction and cDNA synthesis from de novo acute lymphoblastic leukemia (ALL) cases for specific studies.

Methods: Bone marrow samples were taken from 30 ALL new case patients. RNA extraction from mononuclear cells was carried out by using RNeasy Mini kit. In order to provide total cDNA, Fermentas kit was used. Specific primers for Sorcin were designed by AlleID 7.7 and Oligo 7 programs. The specificity of primers was evaluated by PCR assay.

Result: The counting of the cells taken from bone marrow samples indicated that the number of the required cells was sufficient. RNA density measurement by bio-photometer apparatus indicated the net percentage of notable extracted RNA. Additionally, the specific bands of products were observed followed by polymerase chain reaction and Gel electrophoresis, confirming the precision of primers and the total cDNA.

Conclusion: Through Real-time PCR method, it is possible to measure the expression level of genes such as Sorcin in patient samples by providing total cDNA and designing specific primers.

Keywords: Multidrug resistance; Leukemia; Gene expression; cDNA; Primer.

Presentation: Poster