MEASUREMENT OF P53 PROTEIN ISOFORM CONCENTRATIONS AND ENERGETIC LEVELS IN CHRONIC LYMPHOCYTIC LEUKEMIA CELLS USING ENZYMATIC METHOD

A. UDRISTIOIU [1]
1. Titu Maiorescu University of Bucharest, Faculty of Medicine – Nursing with Higher Education, Târgu Jiu, Romania

Introduction

In recent years, it has been discovered that the production of a certain percentage of mutant P53 proteins with increased stability in B-cell chronic lymphocytic leukemia.

Aim

Aim of research work was using the enzyme-linked immunosorbent assay (ELISA) technique, for discovery of frequency of mutant P53 protein expression in diagnosed patients with Chronic Lymphocytic Leukemia.

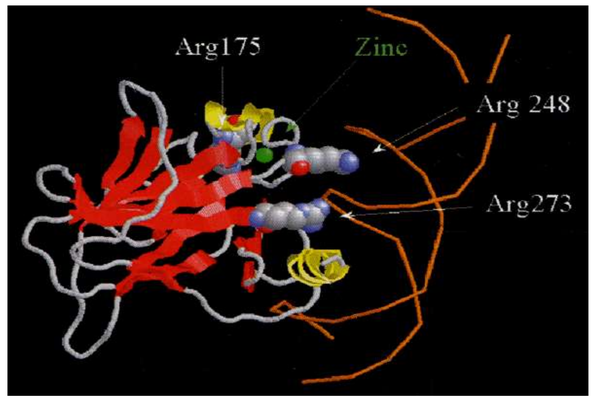
Objectives

PAb 240 detects an epitope that is structurally hidden in the P53 wild-type conformation that becomes exposed upon denaturation or in mutant P53 conformations where point mutations in the TP53 gene alter the terminal structure of the protein. In the context of B-CLL, a simple and inexpensive ELISA method proves useful for identifying patients who may be considered candidates for personalized therapeutic strategies, particularly in the presence of the mutant P53 protein isoform.

Results

Of the 20 patients studied, 14 were men aged 55–85 years and 6 were women aged 39–85 years. Patients were undergoing cytostatic and immunotherapy treatment specific to CLL.

- Male P53 protein concentrations (µg/dL): 20, 15, 18, 40, 10, 12, 14, 60, 30, 10, 13, 13, 5, 10, 15, 12.
- Women P53 protein concentrations (µg/dL): 140, 30, 13, 10.



Summary

Scheme 1. Three-dimensional x-ray structures of the p53 protein in isomorphic form.

Discussion

Additionally, the cellular energy levels, particularly in CLL-B, were measured using a bioluminescence method. The study employed a quantitative sandwich ELISA method for the direct detection of the p53 isoform protein, a product of the mutant P53 gene Adenosine triphosphate, (ATP), was measured using the standard bioluminescence principle.

References

1.Sabapathy K. The contrived mutant p53 oncogene – beyond loss of functions. Sci Rep. 2015; 7:99913.