STRUCTURAL CHARACTERIZATION OF ONCOGENIC PROTEINS INVOLVED IN THE DEVELOPMENT OF CHRONIC MYELOID LEUKEMIA

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Chronic Myeloid Leukemia (CML) is a chronic myeloproliferative disorder of hematopoietic stem cells that results in marked myeloid hyperplasia in the bone marrow. This neoplasic transformation arises due to the acquisition of an abnormal, shortened chromosome 22, named the Philadelphia (Ph) chromosome. The molecular characterization of the Ph translocation in CML has revealed the involvement of two genes: the *c-abl* proto-oncogene, normally localized on chromosome 9, and the bcr gene in chromosome 22. The main goal of this work is to evaluate the abnormal formation of the *bcr-ABL* gene in the pathogenesis of CML. Different types of transcripts originated from reciprocal translocations were found in peripheral blood samples of CML patients, as observed by RT-PCR. In addition, we estimated the number of *bcr-ABL* and ABL transcripts in these samples by competitive RT-PCR and Fluorescence in situ hybridization (FISH), which gave us an idea about the clinical status of the patients. We sequenced the *bcr-ABL* gene from patients with different types of *bcr-ABL* transcripts and have identified possible mutations that can be correlated to CML development. Furthermore, we cloned into pET vector system target regions from *bcr-ABL* gene, which is an important step to determine a real correlation between protein structure and neoplasic dysfunction.