

## **Modulation of IL-4 level by fludarabine and its relation to apoptosis in chronic B-cell lymphocytic leukemia**

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Accumulation of malignant B-lymphocytes in chronic B-cell lymphocytic leukemia (B-CLL) is mainly attributed to reduced apoptosis rather than increased proliferation rate. Interleukin-4 (IL-4) has been proved to be involved in the survival mechanisms of B-cells as well as protection of B-CLL cells against spontaneous or drug induced apoptosis. Fludarabine is one of purine analogs and the current standard treatment for B-CLL, which has been proved to induce apoptosis in normal and malignant lymphocytes. We investigated the effect of ex vivo treatment of peripheral blood lymphocytes (PBLs) with Fludarabine on apoptosis and IL-4 production in untreated patients with B-CLL. The study was conducted on 15 recently diagnosed B-CLL patients and 15 normal healthy control subjects. PBLs were isolated and cultured in complete culture media without and with the addition of 1 microM/ml Fludarabine for 48 hrs. Harvested cells were assessed by flowcytometry for apoptosis and IL-4 production using staining with Annexin-V/PI and specific monoclonal IL-4 antibody, respectively.