

## **Akt protein and mRNA expression in control and leukaemic patients**

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Studies on the development of drug resistance in several cancers including AML have implicated the PI-3 kinase pathway. This pathway plays a pivotal role in cell survival through activation of the kinase Akt which phosphorylates and inactivates proapoptotic proteins and transcription factors. We and other researchers have shown that inhibition of this pathway in HL-60 cells results in an increased apoptotic response to cytotoxic drugs (1). In B cell lymphocytic leukaemia, inhibition of PI-3 kinase resulted in increased apoptosis in the presence of cytotoxic drugs (2). Thus the aim of this study is to measure total and phosphorylated Akt and PTEN protein as well as Akt and PTEN mRNA levels in lymphocytes isolated from control and leukaemic patients to determine the role played by this pathway in leukaemia. Preliminary results were obtained from 12 control patients attending the metabolic stone clinic and 6 leukaemic (2 CLL, 3 CML, 1 CMML) patients attending oncology clinic at the Johannesburg General Hospital. Following multiplex RT-PCR, the Akt/GAP ratio of seven control and two leukaemic patients were similar, whereas a patient with CMML had decreased transcription of Akt mRNA. Immunoblotting for total Akt and phospho Akt in six control and five leukaemic patients demonstrated that the expression of phospho Akt was low relative to total Akt protein expression in all controls as well as in four leukaemia patients. The CMML patient had increased phospho Akt expression relative to total Akt expression. One of the CML patients had different molecular weight Akt.

(1) O’Gorman DM, Mc Kenna SL, McGahon AJ, Knox KA and Cotter TG. *Leukemia*, 14, 602-611, 2000. (2) Barragan M, Bellosillo B et al. *Blood*, 99, 2969-2976, 2002.