

The significance of fetal hemoglobin in malignant white blood cells and their differentiation

Moshe Wolk¹ and Anna Fyrberg²

¹Emeritus, Central Laboratories, Israel Ministry of Health, Israel

²Faculty of Health Science, Linköping University, Sweden

As supported by accumulating evidences about spontaneous fetal hemoglobin (HbF) gene expression, in leukemia cell lines and by our immunohistochemically detection of HbF in morphologically recognized white blood cells (WBC) of leukemia patients, as presented in our poster, we assume that HbF is a potential direct marker of malignant WBC. In leukemic cell lines models, HbF was upregulated at a very early developmental stage (CD34+, CD19-, CD2-), indicating that marking malignant WBC by HbF may have important clinical implications in the early detection of the disease and in monitoring response to therapy, where tumor cells are sparse. Another aspect, deserving investigation, is the involvement of HbF expression, in malignant WBC differentiation. HbF marked erythroid differentiation in the leukemic cell line K562 is considered as opposed to leukemic transformation, and drugs inducing such differentiation have been proposed as anti tumor agents. In order to evaluate the significance of HbF, as a direct marker in leukemia patients, we have recently elaborated a simple and efficient immunohistochemical protocol of staining those cells in bone marrow smears of 19 AML patients and in WBC concentrated peripheral blood smears of 19 CLL patients. In order to evaluate the clinical implication of that method, our purpose is to use it as reciprocated by biochemical measurements of HbF and in parallel comparing the results to the records of the patients.

Biography

Moshe Wolk is a Biologist-Microbiologist (Embryology; Serological and immunohistochemical cancer marking; Epidemiology of *E coli*). 1975-PhD Hebrew University, Jerusalem, on *differentiation and cell movement in the early chick embryo blastoderm*. Proficiency in the evaluation of fetal haemoglobin (HbF) as a serological and immunohistochemical marker in cancer, through three decades of research in Jerusalem (Tel-Hai Hospital) and in London (Department of Pathology - Barts and the London Medical school, and Department of Oncology, Charing Cross Hospital). Emeritus as Head of laboratory of pathogenic *E coli*, in Central Laboratories, Israel Ministry of Health.

Wolk1@bezeqint.net