# ROLE OF INTERLEUKIN-3 AND SIGNALING PATHWAYS ON β-THALASSEMIA/HbE ERYTHROID PROGENITOR CELL IN CULTURE

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Abstract. In order to study the role of the cytokine interleukin-3 (IL-3) and its signaling pathways in erythropoiesis of β-thalassemia/HbE erythroid progenitor cells, CD34 positive cells were isolated from peripheral blood of patients and healthy subjects. After culturing the cells in the presence or absence of IL-3, cell viability was measured by trypan blue staining and apoptotic cells were analyzed by flow cytometry. After 7 days of culture the highest percent erythroid progenitor cell viability was obtained with cells from healthy subjects, while the lowest percentage was found in those from splenectomized β-thalassemia/HbE. Viability of β-thalassemia/HbE erythroid progenitor cells in the presence of IL-3 was higher than that of nonsupplemented cells. In addition, specific inhibitors of protein kinase C (Ro-318220), phospholipase C (U-73122) and Janus kinase 2 (AG-490) were used to investigate the involvement of signaling pathways in erythropoiesis. Percent apoptosis of erythroid progenitor cells from splenectomized β-thalassemia/HbE subjects treated with RO-318220 was higher than those of nonsplenectomized β-thalassemia/HbE and healthy subjects. Treatment with U-73122 resulted in enhanced percent apoptotic cells from normal and β-thalassemia/HbE subjects. All these effects were independent of IL-3 treatment.

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