INTRODUCTION

NHLs are heterogenous clonal lymphoproliferative disorders in respect to their clinical presentation, pathogenesis and biological behavior. They are one of the major hematological malignancies ***(Elenitoba-Johnson and Kjeldsberg, 2000).***

Normal hematopoiesis takes place in the bone marrow and is the result of interaction between hematopoietic progenitor stem cells and the surrounding microenvironment. The bone marrow microenvironment (BMM) plays an important role in promoting hematopoietic progenitor cell proliferation and differentiation as well as the controller progress of these developing hematopoietic cells ***(Lee et al., 2004).***

The bone marrow microenvironment is a complex organization of several cell types including fibroblastic stromal cells, adipocytes macrophages and endothelial cells. Additional regulatory factors including extracellular matrix (ECM), cytokines, chemokines, and neural peptides are also located in bone marrow ***(Janowska et al., 2001).***

In addition bone marrow progenitor cells expressing the CD34 antigen have multiple adhesion receptors, allowing them to attach to cellular and matrix components with the marrow sinusoidal spaces. Receptor-ligand interactions facilitate the lodgment of stem cells in the marrow and permit the close cell – cell contacts required for cell survival and proliferation. They are five families of adhesion receptors. Integrin family, immunoglobuin superfamily, selectin family, mucin family and CD44 ***(Abboud and Lichtman, 2006).***