

***“CHARACTERIZATION OF MONOCLONAL B-CELL LYMPHOCYTOSIS”***  
**Belén Espinosa**

Chronic lymphocytic leukemia (CLL) is the most frequent hematological malignancy in Western countries. Currently it is accepted that CLL could be preceded by a clinically silent monoclonal B-cell lymphocytosis (MBL), characterized by the presence of small populations of circulating clonal CLL-like B-cells in otherwise asymptomatic subjects. The prevalence of MBL is very high, as MBL clones can be detected in around 12% of healthy subjects older than 40 years.

Accordingly, increasing evidences suggest that MBL could represent a pre-leukemic condition, since CLL frequently develops in individuals with prior history of MBL and MBL cases progress to CLL at a rate of 1% per year. The precise events involved in both the emergency of “MBL clones” and in the transformation of a MBL into a clinically evident CLL are still unknown; despite this, it has been proposed that MBL could be interpreted as an epiphenomenon of a chronic and persistent antigenic stimulation. Therefore, the (rare) possibility to evolve into a frank leukemia might depend on both microenvironmental and biological/molecular factors –so far unknown- that may modify the modality of cell reaction, as well as the potential to acquire further genetic abnormalities.

In our project, we have aimed at gaining insight into the events involved in the emergency of MBL clones and in the progression of MBL clonal B-cells to CLL. Our results suggest that once these monoclonal populations are detected in healthy individuals they remain in peripheral blood (PB) for long periods of time presumably forever. Moreover, our data also suggest a potential role of infectious agents in the development of “low-count” MBL in the general population, particularly of those involved in respiratory infections, however Cytomegalovirus may have a role in the expansion of monoclonal B-cells in later stages of the disease.

Degree project in biology, Master of Science (2 years), 2012  
Examensarbete i biologi 45 hp till masterexamen, 2012  
Biology Education Centre, Uppsala University, and Department of Medicine, Cancer Research Centre, Salamanca, Spain  
Supervisors: Dra Julia Almeida and Dr Alberto Orfao