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Identification of a subset of B cells expressing the CD5 marker in humans

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Introduction: Development of lymphoproliferative disorders have been studied extensively, but the origin of subpopulations of B cells expressing the CD5 marker is still not fully understood. Of interest, Chronic Lymphobalstic Leukemia (CLL) and mantle cell lymphomas are characterised by a subset of B cells that express the CD5 marker.

Methods: A cohort of individuals (n=50) over 65 years of age and 20 neonatal blood samples were collected. Following mononuclear cell isolation, the cells were incubated with anti-CD5 (FITC), anti-CD19 (PerCP-Cy5.5), anti-κ and anti-λ light chain. At least 200,000 events were acquired on a FACS Calibur equipped with a 488 argon ion laser and 635 red diode laser (Becton Dickinson) and analysed with the CellQuest software system (Becton Dickinson). The ratio of κ+ and λ+ events was evaluated following gating of CD19+ subsets.

Results: The CD19+ fraction derived from neonate cord blood, are positive for CD5. From a cohort of 50 senior citizens, 25 samples were selected on the basis of the number of CD19+ events (>100 events). Immunophenotyping identified a CD19+ CD5dim fraction. Of interest, one of the senior citizens samples showed that 57.12% of the B cells were CD19+ CD5dim. In this sample, l/k ratio indicate a monoclonal origin.

Conclusion: In this study we identified a subset of B cells expressing low levels of CD5. Further characterisation of these cells is required. The ultimate goal of this study is to identify instigating carcinomatous factors that may stimulate B1 cells to transform into a CLL-like model.

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