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Expression profiling of chemokine receptors in peripheral blood mononuclear cells in chronic lymphocytic leukemia

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Chronic lymphocytic leukemia (CLL) cell is characterized by a progressive accumulation of long-lived CD5+ B lymphocytes in bone marrow/lymph nodes, whose survival requires exogenous activation signals such as chemokines. Growing number of studies show that chemokines and their receptors, in addition to trafficking, have much broader influence on neoplastic cells, such as cell growth, differentiation and survival. To gain more insights into the chemokine receptor network in CLL, we characterized the expression pattern of 16 canonical and 4 atypical chemokine receptors in peripheral blood mononuclear cells (PBMC) of CLL patients (n=88) and healthy subjects (n=34) by using quantitative RT-PCR. The expression of CXCR3, CXCR4, CXCR5, CXCR7, and CCR7 was confirmed by 6-color flow cytometry. Among deregulated receptors, 5 receptors (CCR7, CCR10, CXCR3, CXCR4, CXCR5) were up-regulated and 9 receptors (CCR2-CCR6, CCR8, CCRL2, CXCR1, CXCR2) down-regulated in CLL; the expression of others did not differ between CLL and controls (*P*>0.05). We have also analyzed differences in expression pattern in CLL groups subdivided according to cytogenetics (13q and 17q deletions). In patients with del(17q) having worse prognosis, we observed higher mRNA levels of CXCR6, CXCR7 and CCR10 comparing to del(13q) associated with good prognosis. In conclusion, differential expression patterns of chemokine receptors suggest the relevance of the network of these receptors in CLL pathogenesis. The potential of chemokine/chemokine receptor network as determinant for clinical outcome and novel therapies is worth exploring.

Biography

Gabriela Gabcova is a PhD student of Immunology at Palacky University Olomouc, Czech Republic. Her main research activity includes immunophenotyping of cells in peripheral blood and synovial fluids by flow cytometry. She has experience with development of multi-colours panels for flow cytometry. She is primarily focused on disorders of connective tissue (osteoarthritis, rheumatoid arthritis) and hematological malignancies (chronic lymphocytic leukemia, Hodgkin lymphoma).

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