

# **The immunoglobulin heavy chain genes somatic recombination in B-lymphocytes populations from healthy volunteers and patients with chronic infections**

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**Objective.** B-lymphocytes immunoglobulin genes rearrangements (clonal) status is used to diagnose hematological malignancies, their dynamics, and, most importantly, for remission control (so-called, Minimal residual disease). The presence of monoclonal (leukemic) element is determined in the typical picture of PCR products. «Normal», or polyclonal samples, usually discarded as diagnostically not significant («non-leukemic»). However, they also represent the importance for the description of the individual immune status.

**Materials and methods.** Clonal status was investigated in 26 healthy volunteers without systemic and acute diseases aged 18 to 31 years; 10 patients with chronic C hepatitis (25-79 years); 10 patients with infectious mononucleosis (18-34 years); intensive care unit patients with a diagnosis of pneumonia, set in 2012-13 influenza season, n = 7. IHC genes recombination assay for B-lymphocytes was carried out using ISH SomaticHypermutation Assay (InVivoscribeTechnologies, USA) primers in PCR reaction with gel-detection. The electrophoretic picture is digitized using GelAnalyzer software package.

**Results.** Two of 26 samples, taken from healthy volunteers, had electrophoretic features of clonality: in the range from 300 to 400 bp, which corresponds to full V(D)J rearrangement, they had similar to monoclonal element band pattern. For 10 samples from infectious mononucleosis patients ; 10 samples from patients with HCV infection clonal pattern consistent with patterns found in healthy volunteers.

Among all the samples have been allocated two most common forms, depending on the intensity of the brightness of FR1-JH full rearrangement product: the first one is characterized by the absence of brightness peak in the full product of recombination (FR2-JH-fragment matched similar to FR1- JH brightness); the second form had a peak at FR1-JH amplicon area. Patients with pneumonia were PCR-picture, close to the first rearrangements form.

**Conclusions.** Polyclonal B-cell populations of healthy volunteers identified some signs of monoclonality can help reduce the number of false-positive results in the diagnosis of hematological malignancies. Designated herein two forms of gene rearrangements more help to describe the heterogeneity of the immune status of the population.

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