

IMPACT OF THE HLA-DQB1*02 ALLELES ON THE IMMUNE RESPONSE OF PATIENTS AT THE INSTITUTE FOR TRANSFUSION MEDICINE, BANJALUKA

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The HLA-DQB1*02 is a specific allele group of the HLA-DQB1 gene, located on chromosome 6p21.3. The corresponding HLA-DQ molecule plays an important role in the immune system by presenting peptides to T-cells. Novel roles for this allelic group are continuously being uncovered in various endocrine and hematological disorders, as well as in the antibody development against diverse viral, bacterial, and even red blood cell (RBC) antigens.

The study examined 358 patients tested from 2019 to 2025 in our laboratory. The patients were grouped into five distinct groups: patients suspected of having CD, hematological patients, multi-transfused surgical patients, and two cohorts of patients from various clinical departments who had or had not developed anti-RBC antibodies. We used the HLA-FluoGene DRDQ kit (Inno-train Diagnostik) based on PCR-SSP (PCR-sequence-specific primers) with fluorometric signal detection by the FluoVista instrument (Inno-train Diagnostik).

Out of 358 patients, 170 (47.49%) had the HLA-DQB1*02 allele group. The allelic frequencies in the suspected CD group were 31.01%, and for hematology patients 18.03%. In surgical patients, the allelic frequency of the HLA-DQB1*02 for both groups was 10.26%. Surgical patients with developed anti-RBC antibodies showed one patient (3.33%) with the HLA-DRB1*03~HLA-DQB1*02 haplotype. In patients with identified anti-K antibodies no HLA-DQB1*02 allele groups were detected.

The comparative analysis of HLA haplotype frequencies across patient groups underscores the significant association between specific allelic variants and disease susceptibility. Finding raises intriguing questions about potential protective or modulatory role in immune responses.

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