DNK s.r.o.
diagnostické centrum

Laboratory diagnosis of seronegative spondyloarthitis

Diagnostic kit for the detection of HLA-B*27 allele associated with the risk of certain autoimmune diseases

Seronegative spondyloarthritis is a group of inflammatory connective tissue diseases characterized by the development of lesions of the spine, sacroiliac and peripheral joints in genetically predisposed individuals.

The pathogenesis of diseases is based on autoimmune reactions, which, as a rule, occur in people with a hereditary predisposition and are triggered as a result of previous bacterial infections.

Genetic risk factor for the development of seronegative spondoarthritis – HLA-B*27 allele

The locus HLA-B encodes the antigen present on the surface of all cells in the body related to molecules of the major histocompatibility complex (MHC) class I.

The main function of MHC class I molecules is to display peptide fragments of proteins from within the cell. If the immune system recognizes these peptides presented on the surface of the cell as foreign (bacterial or viral), then the infected cell must be destroyed. There are hundreds of allelic variants of the HLA-B gene.

B*27 allele group encodes a variant of the antigen that is able to participate in an autoimmune process directed against the body's own tissues rich in collagen or proteoglycans. The autoimmune process usually does not proceed spontaneously, but is triggered by a bacterial infection.

The presence of the HLA-B*27 allele in an individual's genotype does not necessarily indicate the development of pathologies. HLA-B27 antigen occurs in 7-8% of people in the Caucasian population and 1-6% in Asians, with most carriers of HLA-B*27 showing no negative symptoms. The frequency of occurrence of the HLA-B*27 allele increases sharply in patients with ankylosing spondylitis (Bechterew's disease), reactive (secondary) arthritis, Reiter's disease (syndrome), psoriatic arthritis, enteropathic arthritis and acute anterior endogenous uveitis.

The exact molecular and pathogenic mechanisms of the relationship between HLA-B27 and associated inflammatory diseases remain poorly understood. The vast majority of people who carry HLA-B27 antigen are healthy, although the risk of developing rheumatoid disease is higher than HLA-B27-negative individuals. Manifestations are more common in men than in women.
There is epidemiological, clinical and experimental evidence of the pathogenetic role of bacterial agents such as *Chlamydia trachomatis* and gram-negative bacteria (*Klebsiella, Salmonella, Yersinia, Shigella and Campylobacter*).

Microbial antigens can induce the development of autoimmune processes through the mechanism of molecular mimicry between HLA-B27 antigen and bacterial cell lipopolysaccharide. Due to the increased risk of developing inflammatory diseases of the joints, carriers of the HLA-B27 allele should pay special attention to the prevention and timely treatment of bacterial intestinal and urinary tract infections (especially chlamydia).

Indications for molecular-genetic testing

- Idiopathic ankylosing spondylitis (Bechterew's disease)
- Psoriatic arthritis
- Reiter's syndrome
- Reactive arthritis
- Enteropathic arthritis

- Acute anterior uveitis
- Juvenile chronic arthritis
- Behcet's syndrome

Diagnostic kit RealBest-Genetics HLA-B*27 (Cat. No. 3836)

The kit is designed to detect the *27 locus B allele of the human major histocompatibility complex associated with the risk of developing certain autoimmune diseases by polymerase chain reaction (PCR) with real-time hybridization-fluorescence detection of PCR products.

Features and advantages of the diagnostic kit

- Ready Master Mix for PCR: simplification of analysis procedures and high stability of test quality
- Specimens: whole blood
- Number of tests: the kits are designed for the analysis of 48 samples, including control samples
- Compatible devices: CFX96 (Bio-Rad, USA), DT-96 (DNA-Technology, Russia), Gentier 96E/R (Xi'an TianLong, Science and Technology Co., Ltd., China)
- High stability of the kit: storage at a temperature of 2–8 ° C; transport up to 26 °C not more than 10 days